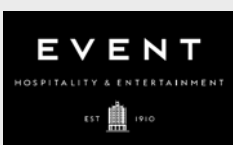


STATEMENT OF ENVIRONMENTAL EFFECTS

CONSTRUCTION OF A CAR PARK & ASSOCIATED WORKS CAR PARK CP2 FRIDAY FLAT THREDBO ALPINE RESORT



Prepared for:
Event Hospitality & Entertainment Ltd



JANUARY 2019
Project: 50-18

STATEMENT OF VALIDITY

Statement of Environmental Effects prepared by:

Name Ivan Pasalich

Position: Principal

Address: Dabyne Planning Pty Ltd
The Office Hub, Jindabyne
Suite 08, 4/3 Gippsland Street
Jindabyne

PO Box 179
Jindabyne NSW 2627

Contact: P: (02) 6457 2170
M: 0424 359 662
E: info@dabyneplanning.com.au

Applicant: Event Hospitality & Entertainment Ltd

Declaration

I certify that I have prepared the contents of the Statement of Environmental Effects in accordance with the requirements of the Environmental Planning and Assessment Act 1979 and Regulations and that, to the best of my knowledge, the information contained in this report is not false or misleading.

A handwritten signature in black ink, appearing to read 'I. Pasalich', is written over a horizontal line.

Ivan Pasalich
Principal
Dabyne Planning Pty Ltd

Nb: If the report is not signed above, it is a preliminary draft.

Dabyne Planning Pty Ltd

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EXECUTIVE SUMMARY

Dabyne Planning Pty Ltd has been engaged by Event Hospitality & Entertainment Ltd (Event) to prepare a Statement of Environmental Effects to accompany a Development Application (DA) to the NSW Department of Planning & Environment (DPE).

The DA is for the expansion of the existing Friday Flat car park, by constructing an additional car park above (to the north-west) of Friday Drive within the Thredbo Alpine Resort. The proposed car park expansion has been designed to meet existing parking demand.

The proposed expansion, referred to as CP2, will be achieved by constructing an on-grade car park (requiring some cut and fill plus batters and retaining) above Friday Drive and existing on street parking, adjacent to the Beginners Bowl .

This site was selected as it is located adjacent to Friday Drive and other visitor parking and is largely a highly modified site.

As the proposed car park will require the loss of some existing parking spaces along the northern edge of Friday Drive, the net total number of additional parking spaces achieved will be 79.

The proposed car park will be accessed via a one-way heated ramp, with vehicles to access angled parking in a one way direction, with a heated one-way ramp at the north-east end for egress back onto Friday Drive.

Provision for pedestrian movement has been incorporated into the design by way of providing a pedestrian path along the northern edge of the on-street parking along the northern edge of Friday Drive as well as a path along the northern edge of the entrance ramp.

Minor changes to the trail head for the Thredbo Valley Track (TVT) are required and have been incorporated, with the new car park able to provide a specific parking area (in summer) for users of the TVT. The relocation of the trail head signage and small trail connection to be constructed can be undertaken in consultation with the National Parks and Wildlife Service.

The proposed car park has been designed to respond to the topography of the site, its previous high level of disturbance and native vegetation located mostly upslope as well as its relationship to Friday Drive.

Accordingly, the car park level has been designed to achieve the appropriate grades for vehicles and pedestrians, whilst also mitigating potential visual impacts with landscaping.

In accordance with clause 27 of State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007, the proposed development was considered to be a building over 1000m² in size and was determined to be ‘advertised development’, even though a car park is not a ‘building’ as defined.

Pursuant to clause 13, Schedule 6 of the Environmental Planning and Assessment Regulations 2000, a statement of environmental effects required by Schedule 1 to accompany a development application relating to a ski resort area must be prepared in accordance with guidelines issued under this clause if the proposed development is advertised development.

This SEE has been prepared in accordance with the Secretary Guidelines issued by the DPE on the 4 September 2018.

The SEE has concluded that following an extensive engineering and design analysis, the proposed car park achieves the desired vehicle access, traffic, parking and pedestrian movement and circulation outcomes whilst minimising impacts on the natural and built environment.

1. INTRODUCTION

1.1 Purpose of the Report

This report presents a Statement of Environmental Effects (SEE) for a proposal by Event Hospitality & Entertainment Ltd, for the expansion of the Friday Flat car park with a car park (CP2) at Friday Flat, Thredbo Alpine Resort.

The purpose of this SEE is to

- describe the land to which the DA relates;
- describe the form of the proposed works;
- define the statutory planning framework within which the DA is to be assessed and determined; and
- assess the proposed development against the matters for consideration listed under Section 4.15 of the Environmental Planning and Assessment Act, 1979 (EP&A Act, 1979).

In accordance with Schedule 1 of the Environmental Planning and Assessment Regulations 2000, a statement of environmental effects must indicate the following matters:

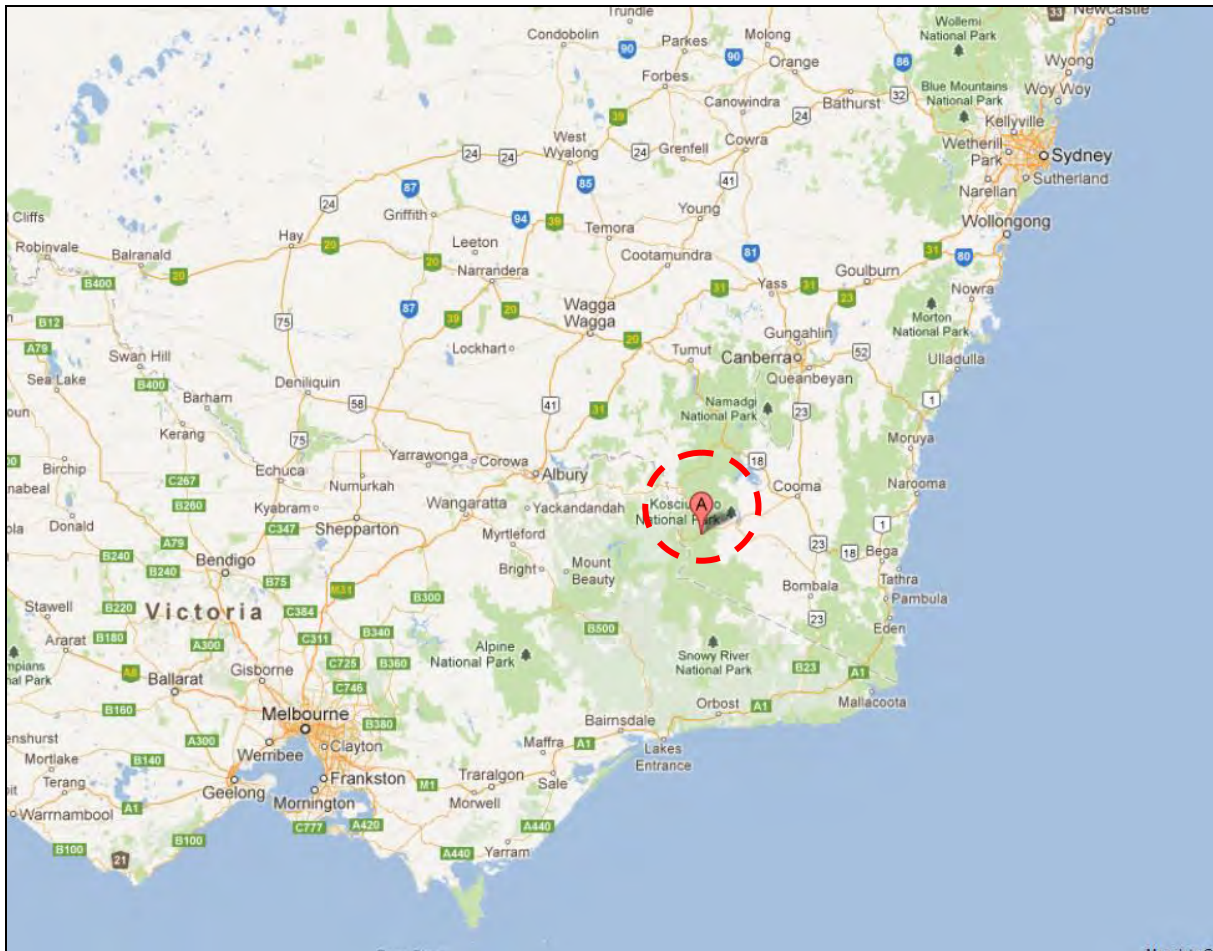
- the environmental impacts of the development,
- how the environmental impacts of the development have been identified,
- the steps to be taken to protect the environment or to lessen the expected harm to the environment,
- any matters required to be indicated by any guidelines issued by the Director-General (Secretary) for the purposes of this clause.

The report has been prepared in accordance with the requirements of Schedule 1 and Clause 13 of Schedule 6 of the Environmental Planning and Assessment Regulations 2000.

2. THE SITE AND LOCALITY

2.1 The Locality

The subject site is located within the Thredbo Alpine Resort, which is located in South-Eastern NSW as illustrated in figure 1 below:



**Figure 1: Location of the Thredbo Alpine Resort in context with South-Eastern NSW
(source: Google Maps)**

Thredbo Alpine Resort is located within the southern part of the Kosciuszko National Park.

A map of Kosciuszko National Park is provided in figure 2 below.

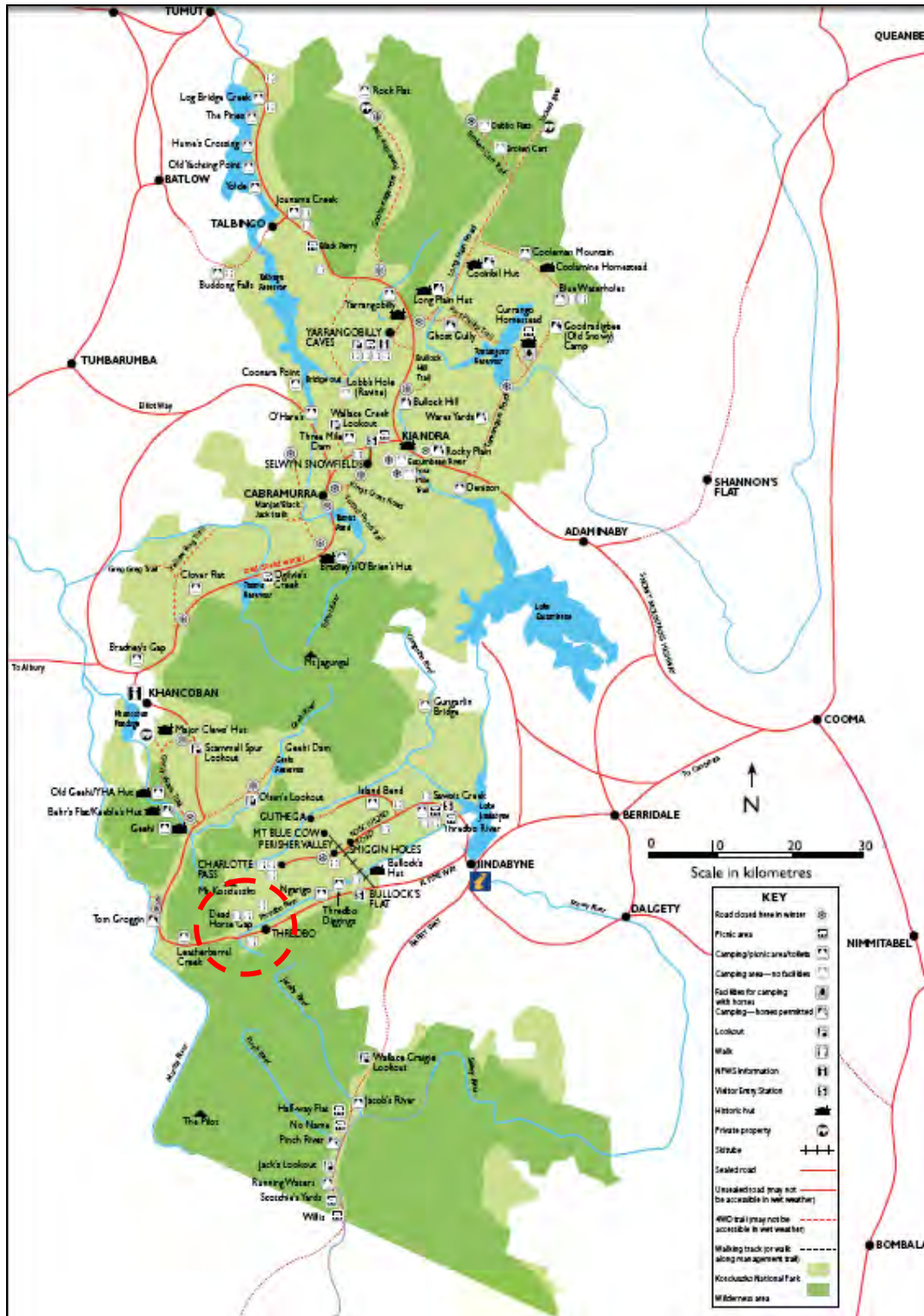


Figure 2: Location of Thredbo Alpine Resort in context with Kosciuszko National Park
 (source: NPWS KNP 2011 Guide)

Thredbo Alpine Resort is located approximately 35kms from Jindabyne. Access to the resort is achieved via the Alpine Way.

The location of Thredbo is illustrated in context with the regional locality below in figure 3.

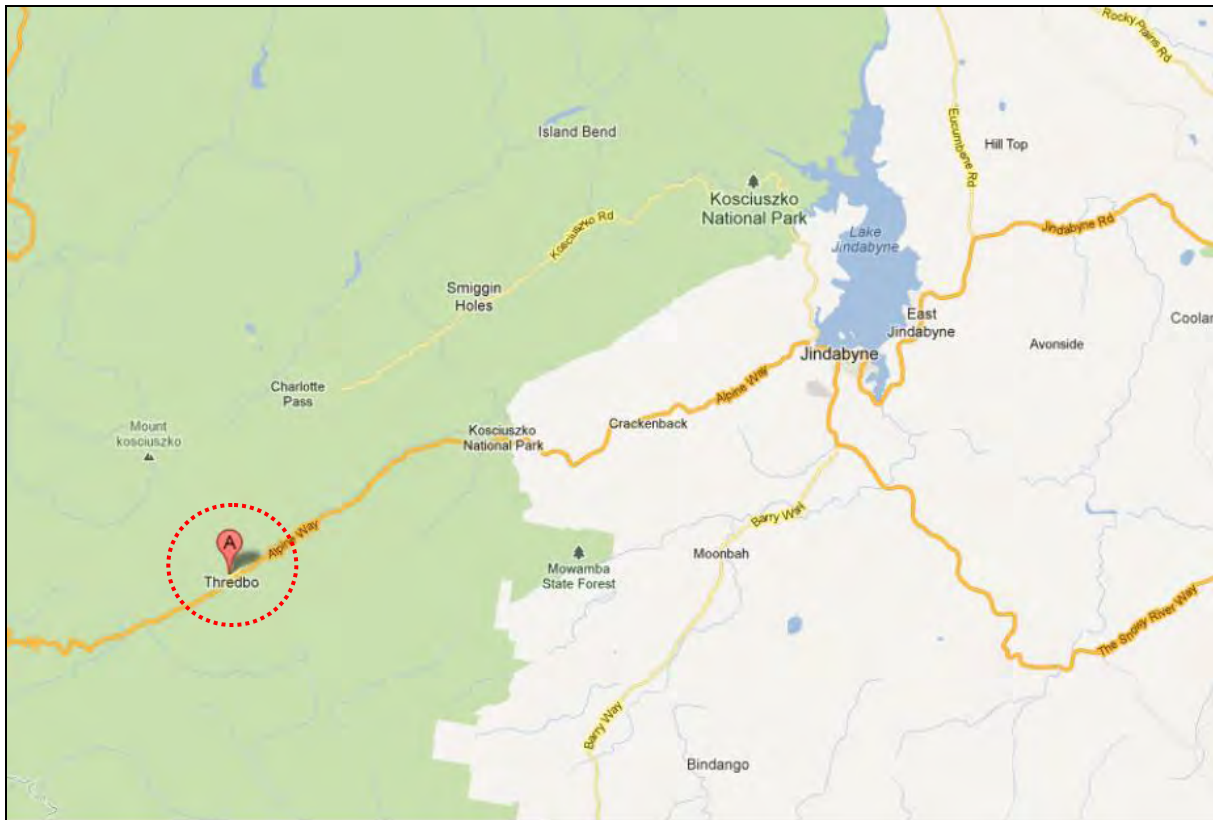


Figure 3: Context of Thredbo Alpine Resort within the region (source: Google Maps)

2.2 The Site

The area above Friday Drive, to its north-west and to the north-east of the Beginners Bowl is a mostly mown grassed embankment with planted Eucalypts.

The area comprises of three drainage lines which either drain onto Friday Drive or directly into Thredbo River.

The area includes the Thredbo Valley Track (TVT), a shared used trail for walking and mountain bikes, with the trail head located at its western end, adjacent to the Beginners Bowl. This used to previously form part of the Bridle Trail loop.

The site is identified in figure's 4 & 5 below:



Figure 4: Aerial view of the subject site

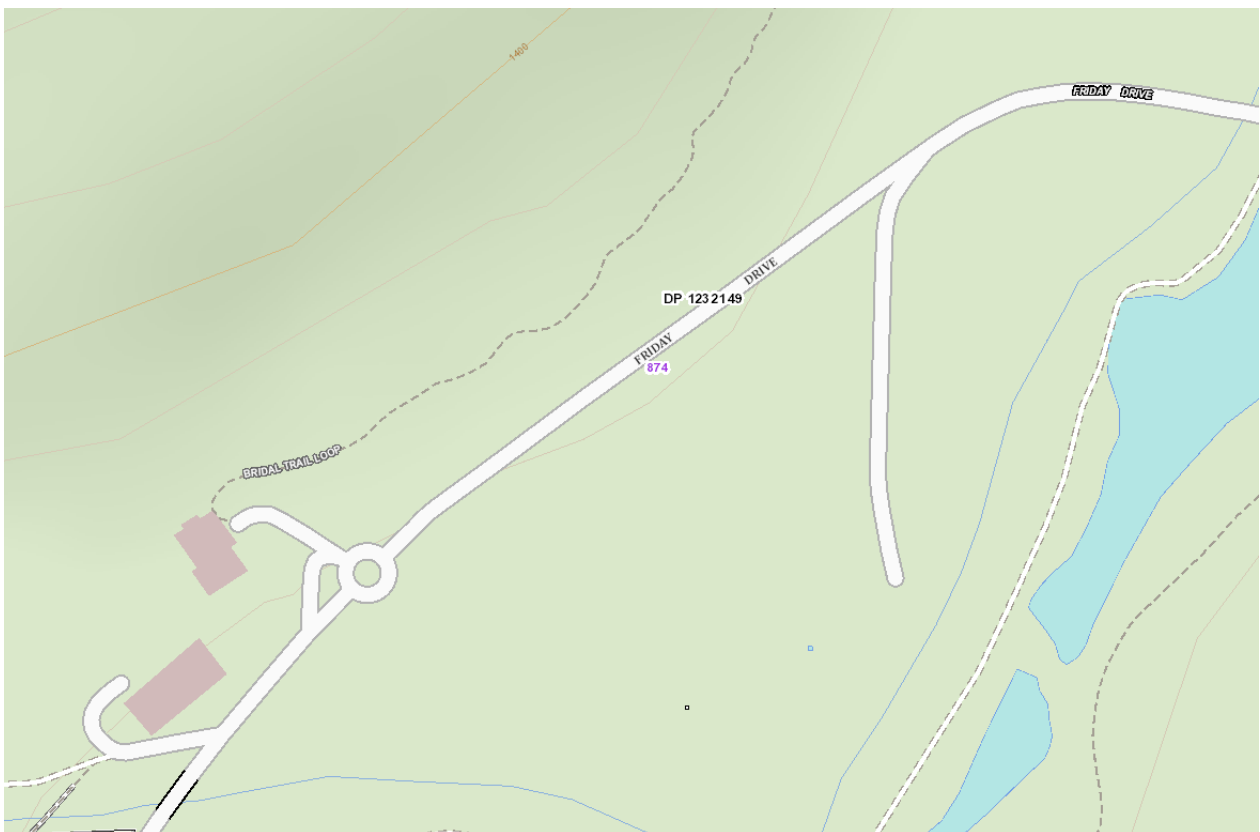


Figure 5: Topographic map of the subject site

The site generally slopes towards Friday Drive and Thredbo River in a south-east direction. The slope across the site is not uniform, with a small crest located towards the middle.

The vegetation at the low end adjacent to Friday Drive comprises of planted native vegetation.

The vegetation above the site comprises mostly of Tall Subalpine Heath and Subalpine Woodland.

Otherwise, the site is highly modified, as shown in figure 6 below.



Figure 6: Aerial of the subject site

Photos of the site and proposed location of the development are provided in Appendix A.

3. DESCRIPTION OF THE DEVELOPMENT

3.1 Overview of the Proposal

The proposal is to expand the existing Friday Flat car park by constructing an on grade car park above Friday Drive and the on-street parking located along its northern edge. This is referred to as CP2.

As the proposed car park will result in the loss of some existing parking spaces along the edge of Friday Drive, the net total number of additional parking spaces achieved by the development will be 79.

3.2 Vehicle Access & Parking

Vehicle access into the car park will be achieved via a heated one way ramp from Friday Drive.

A one way vehicle circulation pattern is proposed for pedestrian safety and to avoid congestion during peak loading and unloading times, as is the current practice elsewhere.

This will include 60 degree angled parking.

Vehicles will be able to egress the car park via a heated ramp down into Friday Drive. The length and direction of the ramp has been designed to avoid impacts at the eastern end of the site and have vehicles turn left at a perpendicular angle to the road, rather than merge with moving traffic.

The proposed parking spaces have been designed to achieve compliance with AS 2890.

3.3 Pedestrian Access and Circulation

The proposed car park has been designed facilitate pedestrian access and circulation and improve existing pedestrian access.

The existing on-street angled parking along the edge of Friday Drive will be extended into the existing embankment to make way for a 1.5m wide pedestrian path. This allows for users of the car park to walk safely towards the Friday Flat ski area, without walking on the edge of the road behind parked vehicles.

A pedestrian access connection in the middle of the car park will be provided to connect with the new path along the edge of Friday Drive.

An additional gravel shared use path from Friday Drive, up the northern edge of the one-way ramp is also proposed to provide both pedestrian access to the car park and a bike trail to the relocated trail head for the TVT.

3.4 Snow Clearing & Management

The proposed car park has been designed without kerb and guttering to allow for easier snow management with a more natural treatment with the use of rock boulders and planted vegetation to delineate edge of car park.

Ice on the ramps will be managed by heating the ramps.

3.5 Stormwater Management

The current drainage lines through the car park site will be removed with drainage captured above the site in open swale drains and sent north-east, along the upper edge of the car park to connect into the existing culvert at the north-east end of the car park where it is already piped under the road. The quantity of existing drainage through the site will therefore remain the same, however will be improved by not displacing onto Friday Drive.

New stormwater management for the car park will include a bioswale along the bottom edge of the car park and this will discharge into a detention basin, before discharging into the existing culvert under Friday Drive.

A Stormwater Report has been prepared by Taylor Thomson Whitting (TTW) Civil Engineers has been provided in Appendix B.

The report outlines how the proposed development will not increase stormwater discharge for the 5 year or 100 year ARI storm. Water quality will achieve NSW Statewide targets, with bioswales treating water. Lastly, the car park has a low risk of flooding.

3.6 Lighting

The car park will be provided with outdoor lighting.

3.7 Landscaping & Rehabilitation

With a car park to be constructed within a mostly highly disturbed embankment, the landscaping of the site is an important component. To offset the loss of approximately twelve (12) planted native trees, an additional twenty-five (25) native trees are proposed to be planted along with extensive native shrubs and ground cover species.

This will assist in partly screening the car park and reduce its visual impact, whilst contributing to its overall rehabilitation.

The landscape outcome for the car park is to replicate previous car parks and developments in Thredbo with a more natural finish, including use of boulders and vegetation rather than engineered structures such as kerb and guttering, guard rails and barriers.

The landscaping and rehabilitation of the site following construction is to be undertaken as outlined in the SEMP provided in Appendix C and the Site Analysis & Rehabilitation and Landscape Concept Plan prepared by DJRD Architects.

3.8 Construction Hours & Timing

Due to the limited construction season and the ski resort operations commencing the June long weekend of each year and finishing at the October long weekend, construction hours for the project are sought to be 7am – 6pm, 7 days a week. This is considered appropriate given the location of the development in context with the resort and distance to closest tourist accommodation.

The proposed construction timing of the project has been scheduled to start in October 2019 and be completed by June 2020.

4. KEY MATTERS FOR CONSIDERATION

4.1 Traffic, Access and Parking

A Traffic Impact Assessment has been undertaken by TTW. This assessment, provided in full in Appendix D, includes an assessment of traffic, transport and car parking implications undertaken by an appropriately qualified traffic engineer.

The assessment concludes that the design of parking spaces meets and exceeds the requirements of AS 2890.1 and that the provision of a net 79 parking spaces to the capacity of Friday Drive car park is considered acceptable, with traffic management and local traffic conditions as well as pedestrian outcomes expected to improve.

4.2 Design

The proposed car park has been subject to an extensive engineering and architectural design process.

The location of the car park, being mostly a disturbed site but elevated above Friday Drive represented some design and engineering challenges.

The slope of the land and its relationship to Friday Drive required careful engineering consideration with a car park level too low requiring greater excavation and therefore up-hill batters and walls and potential greater impacts on native vegetation above, whilst a car park level too high requires steeper ramps and greater batters/walls below and creates problems for linkages for pedestrians.

The proposed design has evolved achieving a car park level that is set at a height where batters and walls both above and below are minimised and an appropriate ramp grade can be achieved, subject to being heated.

The design has also been driven in part by providing a pedestrian path along the edge of Friday Drive, which will be cut into the existing embankment. This is to improve pedestrian safety.

As outlined above, the design of the car park is to achieve a more natural finish in line with previous Thredbo developments, whereby the use of boulders and vegetation and no kerb and guttering or guard rails are proposed.

This further limits visual impacts on the development.

An indicative long-section has been provided with the DA plans and an extract below:

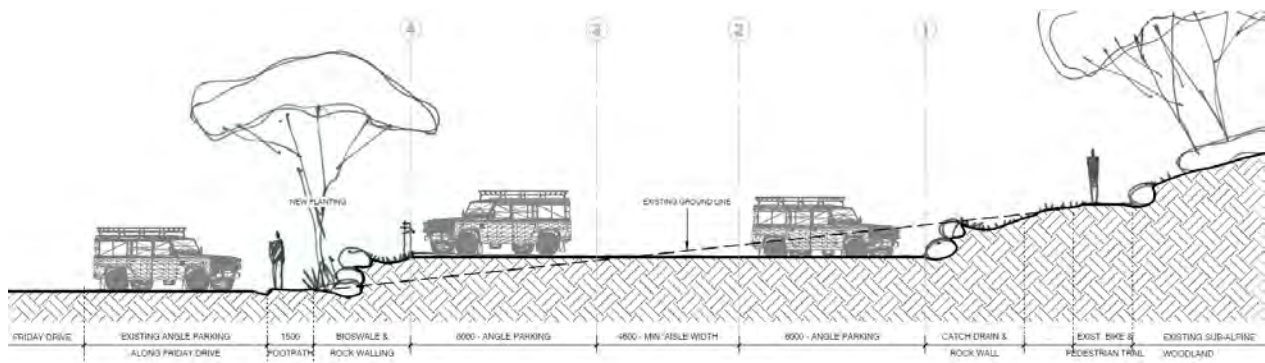


Figure 7: Typical cross-section of the car park

The use of rock walls and landscaping along the edge of the car park will assist in screening the view of large expanse of hard surfaces and to a lesser extent, the vehicles.

An aerial perspective photomontage of the car park is provided in figure 8 below. Although the public is not able to gain this perspective, it illustrates how the car park will sit within the landscape, relative to other road and parking infrastructure.



Figure 8: Aerial photomontage of the CP2 car park

4.3 Flora and Fauna

A flora and fauna investigation and assessment of the subject site was undertaken to describe the biological environment and assess the potential effects on threatened and migratory species, endangered populations and ecological communities of the proposal.

Detailed flora and fauna surveys of the proposed development were undertaken in September and December 2018 by Ryan Smithers, Senior Ecologist, Eco Logical Australia.

The objectives of the investigation undertaken by Eco Logical Australia were:

- *To identify and describe the flora species and vegetation communities present in the study area and their conservation significance.*
- *To identify and describe the fauna habitats present in the study area and their condition.*
- *To identify the fauna species which are present or likely to occur in the study area, and their conservation significance.*
- *To assess the impacts of the proposal on vegetation, fauna, habitats, and other environmental features as necessary.*
- *To make recommendations regarding any environmental management and impact mitigation/amelioration measures, which can be implemented to limit the effects of the proposal on vegetation, fauna, habitats, and other environmental features as necessary.*

The flora and fauna assessment report, provided in full in Appendix E, provides the findings of a review of the relevant literature, database searches, as well as field survey and consultation with relevant agencies. It also addresses relevant statutory considerations associated with the proposal.

Field assessment and survey

The field assessment and survey identified forty (40) plant species, comprising of thirty-three (33) native species and seven (7) exotic species. No threatened flora species were detected within the study area and it is highly unlikely that any occur there.

Targeted fauna surveys during the survey period resulted in twelve (12) native fauna species being detected within or immediately surrounding the study area including three (3) mammals, eight (8) birds and one (1) reptile.

The assessment found that the study area contains a limited range of fauna habitats given its small size and largely disturbed nature. However, the study area is surrounded by extensive areas of native vegetation and a relatively diverse range of native fauna are likely to occur there from time to time.

Whilst the study area provides a small amount of known or potential habitat for a range of native fauna species, including threatened species, such as Broad-toothed Rat and Flame Robin, similar habitats are widespread in adjacent areas, and elsewhere within the locality, and will continue to be available to these species. The impacts associated with the proposal are limited to the removal or modification of a relatively small amount of native vegetation (approximately 0.2 ha), and up to 12 tree plantings, none of which provide important fauna habitats.

The proposal will not result in substantial modifications to the hydrological environment nor will it create barriers which prevent the movement and dispersal of fauna species. Similar developments have been undertaken over the years within and in areas immediately adjacent to the study area, and elsewhere within the NSW Alps, with negligible impacts on the hydrological environment and associated ecosystems.

Under these circumstances, the impacts of the proposal on fauna habitats are considered to be relatively minor and acceptable.

With regard to vegetation communities, two (2) vegetation communities were identified within the study area and immediate surrounds including 'PCT 679 *Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion* and PCT 637 *Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion*, with Exotic Grassland with Tree Plantings occupying the most heavily disturbed parts of the study area'.

The impacts on vegetation communities associated with the proposal are considered relatively minor and acceptable given that they are relatively extensive in the higher subalpine and alpine areas in the locality, and nearby along the Thredbo River.

Conclusion:

An assessment of the effects of the proposal on threatened species, populations and ecological communities which may be directly or indirectly affected by the proposal was undertaken by applying the five factors from Section 7.3 of the Biodiversity Conservation Act 2016. This assessment concluded that the proposal is highly unlikely to have a significant effect on threatened species, populations or ecological communities or their habitats.

Furthermore, an assessment of significance under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 was undertaken on those species and threatened communities known within the study area and immediate surrounds or with potential to occur there. The outcome of this assessment was that it is highly unlikely that the development would significantly impact on those threatened species or ecological communities assessed, and a referral to the Commonwealth Environment Minister is not necessary.

To further mitigate any potential impacts, the report includes a number of recommendations which have been incorporated in the DSEMP provided in Appendix C.

4.4 Aboriginal Cultural Heritage

An 'Aboriginal Cultural Heritage Due Diligence Assessment' has been undertaken by Past Traces Heritage Consultants, which is provided in full in Appendix F.

The assessment was undertaken following the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* produced by the NSW Office of Environment and Heritage (OEH). The Due Diligence process was followed to ensure compliance with the code.

This process included a search of the AHIMS database covering 1km surrounding area centred on the project area, a review of previous studies, a landscape assessment and a site visit.

Based on the assessment the impacts from the project were identified as follows:

- No known Aboriginal objects or places will be impacted by the proposed works.
- No known Aboriginal objects or places are present in the project area.
- No areas of high potential to contain Aboriginal objects or places are present in the project area.

In conclusion, the report determined that the proposal can proceed with no additional archeological investigations and that no area of potential archeological deposits or heritage sites have been identified within the development area and the potential for Aboriginal objects within the development area has been assessed as low.

4.5 Visual Impacts

The visual impacts of constructing an on-grade car park have been partly mitigated by setting the level of the car park above street level, minimising impacts on native vegetation (particularly above the site) and inclusion of landscaping with the use of natural features and finishes rather than engineered structures (i.e. use of rocks and vegetation with no kerb and guttering or guard rails).

This will help to improve the aesthetics associated with the development, when viewed from Friday Drive approaching the village, as shown in figure's 9 and 10 below.



Figure 9: View from Friday Drive headed towards the village



Figure 10: View from Friday Drive when departing the village

With regards to views from the Alpine Way, the car park is mostly screened by the topography and vegetation.



Figure 11: View from Alpine Way

The proposed on-grade car park has been subject to an extensive engineering and architectural design process with input from a Landscape Architect. This is to ensure that the level of the car park achieves the desired operational and design outcomes to reduce the size of batters and walls both above and below the car park level.

The concept landscape plan identifies to plant more than double the current trees to be removed, with additional shrubs and ground covers together with a footpath built into the embankment to improve pedestrian access.

Overall visual impacts associated with the proposal are considered acceptable in context with its location adjacent to a road, other carparks and adjacent ski resort infrastructure and the extent of landscaping proposed in context with its location within a developed alpine resort.

4.6 Water Resources

The proposed car park (CP2) is located over 70m from the bank of Thredbo River at its closest point and therefore the development will not impact upon 'waterfront land', as demonstrated in figure 12 below.

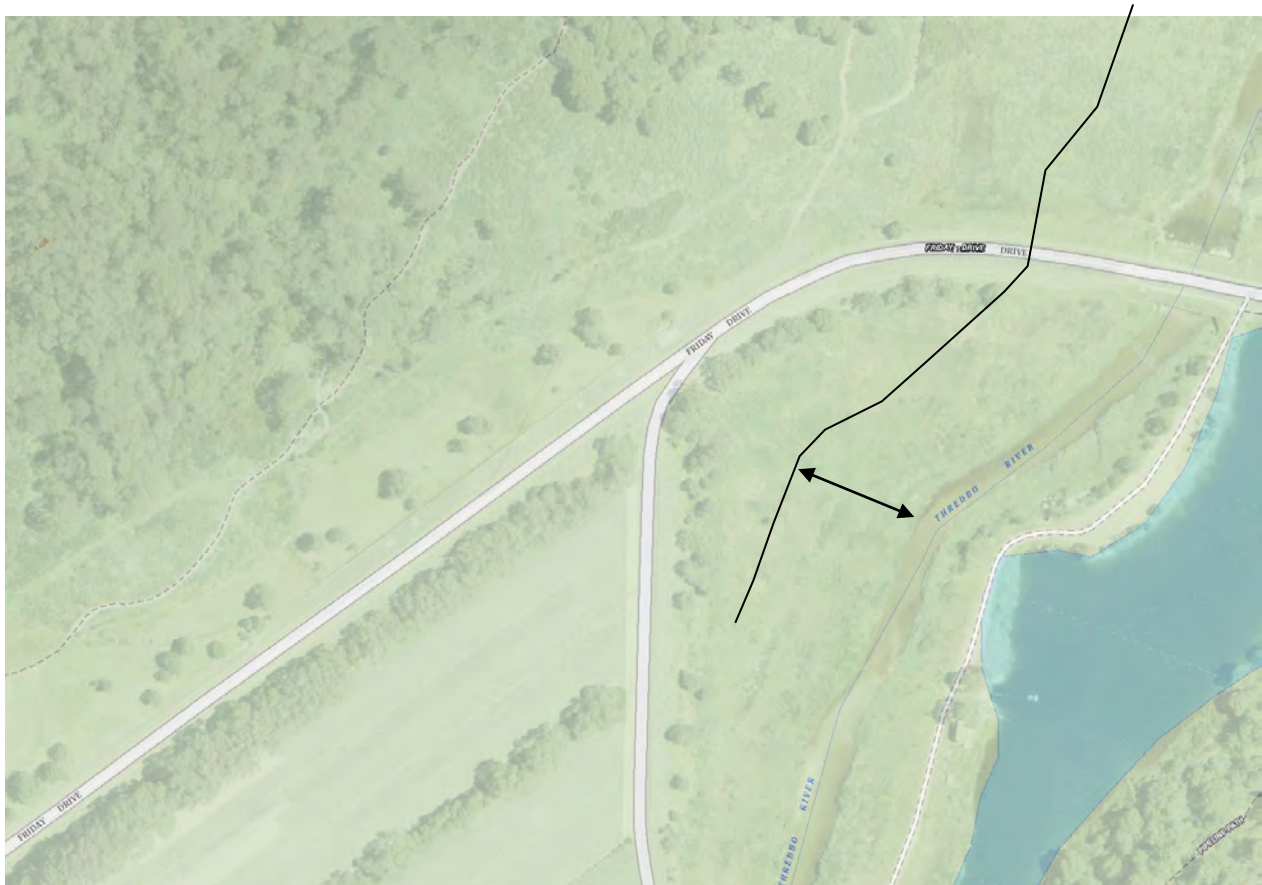


Figure 12: Demarcation of 'waterfront land', 40m from Thredbo River

4.7 Ecologically Sustainable Development

The principles which would assist in the achievement of Ecologically Sustainable Development have been clearly set out in Schedule 2 of the EP&A Regulation 2000. These principles are:

a) The precautionary principle - namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

b) Inter-generational equity - namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

c) Conservation of biological diversity and ecological integrity – namely, that a full and diverse range of plant and animal species should be maintained.

d) Improved valuation, pricing and incentive mechanisms – these mechanisms would enable environmental factors to be included in the valuation of assets and services.

The four principles are interrelated. For instance, inter-generational equity can only be achieved in many instances if biodiversity is conserved for the use and enrichment of future generations. The linkage of the four principles means that they must be considered both individually and collectively when assessing whether a proposed project would contribute to ESD in Australia.

The EPBC Act 1999 adopted the definition of ESD above, adding a fifth principle namely: *“decision making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.”*

Sustainability now has a broader meaning with a strong focus on the integration of environmental, social and economic goals through society and economic development activity. The fifth principle set out in the EPBC Act together with those defined by the EP&A Regulation 2000, form the basis of sustainability against which the proposal is assessed.

As set out in this SEE report and its conclusions, the proposed development will generate positive social and economic impacts for the resort whilst minimising impacts on the natural and built environment. These impacts have been offset by:

- Undertaking a comprehensive design and engineering analysis.
- Locating the car park within a highly modified and therefore previously disturbed environment.
- Undertaking a comprehensive landscape strategy and rehabilitation of the site, when completed.
- Incorporating energy efficient technology in the heating of the ramps.
- Applying construction and environmental management practices as set out in the SEMP.

Overall, this assessment has concluded that the development can achieve compliance with the accepted principles of ecologically sustainable development and therefore it is considered that the proposal is clearly not contrary to the public interest in relation the principles of ecologically sustainable development.

4.8 Cumulative Impacts

With regard to having consideration of cumulative impacts, it is noted that this is not a matter for consideration under 4.15 of the EP&A Act, 1979 (Part IV) or the Biodiversity Conservation Act, 2016. Each DA is to be assessed on its own merits.

Cumulative impacts have historically only been considered in context with developments that have a significant impact, particularly developments that require an Environmental Impact Statement (EIS) that commonly generate impacts beyond a specific locality or developments that require a Species Impact Statement.

Cumulative impacts are generally associated with these significant impact developments in relation to dust, air quality, water and noise and do not commonly apply to impacts on biodiversity (fauna and flora), unless a Species Impact Statement is required.

The proposed development does not generate significant impacts and does not require a Species Impact Assessment.

Cumulative impact assessments should be undertaken only where there is a likelihood of significant impacts on identified environmental values from more than one activity.

The proposal is for only one activity.

Notwithstanding this, the proposed development has been designed and will be undertaken incorporating a range of mitigation measures to reduce impacts with regards to biodiversity, stormwater, visual and traffic.

This has been achieved by constructing the car park on a highly modified and previously disturbed site adjacent to an existing road and incorporating an improved stormwater management system using Water Sensitive Urban Design (WSUD) features as well as incorporating a landscape design. Furthermore, pedestrian safety will be improved by way of the pedestrian footpath proposed along the edge of Friday Drive.

Impacts on the wider resort will be overwhelmingly positive. The additional parking spaces provided will meet existing demand, thus reducing the need for guests to park further away within the overflow parking area, along the grass verge associated with Friday Drive and even the Alpine Way.

5. ENVIRONMENTAL AND PLANNING LEGISLATION

5.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

5.1.1 SECTION 4.15(1)(a)(i) – ENVIRONMENTAL PLANNING INSTRUMENTS

State Environmental Planning Policy (Infrastructure) 2007

With regard to clause 104 – Traffic-generating development under State Environmental Planning Policy (Infrastructure) 2007, the proposed elevated car parks will comprise of a total of 79 additional parking spaces over both stages.

With the site located more than 90m from a classified road (Alpine Way), the proposed development is not captured by Schedule 3.

The proposed development therefore is not considered to be ‘Traffic-generating development’ and therefore does not require referral to the NSW Roads and Maritime Services (RMS).

State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007

The only other applicable Environmental Planning Instrument to the proposed development and site is State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007 (SEPP Alpine Resorts). The relevant clauses contained within SEPP Alpine Resorts are addressed below:

Clause 11 - Land Use Table:

The land use table for Thredbo Alpine Resort specifies that ‘Car parking’, is permissible with consent.

Clause 14 - Matters for consideration:

Matter for Consideration	Response
Cl.14 (1) In determining a development application that relates to land to which this Policy applies, the consent authority must take into consideration any of the following matters that are of relevance to the proposed development:	
(a) the aim and objectives of this Policy, as set out in clause 2,	<p><i>The proposed development is considered to be consistent with the aims and objectives of the Policy as the development will be providing an on grade car park over mostly disturbed land.</i></p> <p><i>These impacts will be further mitigated through the implementation of the Site Environmental Management Plan provided in Appendix C.</i></p> <p><i>The proposed development is expected to generate significant positive social and economic impacts.</i></p>

<p>(b) the extent to which the development will achieve an appropriate balance between the conservation of the natural environment and any measures to mitigate environmental hazards (including geotechnical hazards, bush fires and flooding),</p>	<p><i>The proposed development does not require any measures to mitigate environmental hazards that would impact on the conservation of the natural environment.</i></p>
<p>c) having regard to the nature and scale of the development proposed, the impacts of the development (including the cumulative impacts of development) on the following:</p> <ul style="list-style-type: none"> (i) the capacity of existing transport to cater for peak days and the suitability of access to the alpine resorts to accommodate the development, (ii) the capacity of the reticulated effluent management system of the land to which this Policy applies to cater for peak loads generated by the development, (iii) the capacity of existing waste disposal facilities or transfer facilities to cater for peak loads generated by the development, (iv) the capacity of any existing water supply to cater for peak loads generated by the development, 	<p><i>The proposed additional parking is to meet existing parking demand, providing improved vehicle access, parking and pedestrian outcomes for the resort.</i></p> <p><i>On this basis, the proposed development will not impact on the capacity of the existing transport to the resort, reticulated effluent management, waste disposal or water supply in relation to peak loads generated.</i></p> <p><i>By parking guests closer to the resort facilities and reducing the need for overflow parking and parking along Friday Drive up to the Alpine Way, as well as improving pedestrian circulation and safety, the existing transport within the resort, will be improved.</i></p>
<p>(d) any statement of environmental effects required to accompany the development application for the development,</p>	<p><i>This Statement of Environmental Effects satisfies this sub-clause.</i></p>
<p>(e) if the consent authority is of the opinion that the development would significantly alter the character of the alpine resort—an analysis of the existing character of the site and immediate surroundings to assist in understanding how the development will relate to the alpine resort,</p>	<p><i>The proposed car park will be located adjacent to Friday Drive and existing parking within a highly modified and previously disturbed area.</i></p> <p><i>The proposed development will therefore not significantly alter the character of the alpine resort.</i></p> <p><i>With regard to the potential visual impacts of the development, this has been addressed in Section 4.5 of the report.</i></p>

<p>(f) the Geotechnical Policy—Kosciuszko Alpine Resorts (2003, Department of Infrastructure, Planning and Natural Resources) and any measures proposed to address any geotechnical issues arising in relation to the development</p>	<p><i>The subject site is not located within the ‘G’ line and therefore not located within an area with potential geotechnical risk.</i></p> <p><i>The proposed car park will therefore require a Form 1A, which will be provided separately with the DA.</i></p>
<p>(g) if earthworks or excavation works are proposed—any sedimentation and erosion control measures proposed to mitigate any adverse impacts associated with those works,</p>	<p><i>Earthworks and excavation works are required for the proposed car park.</i></p> <p><i>Sedimentation and erosion control measures as outlined in the SEMP provided in Appendix C will mitigate any adverse impacts associated with such works.</i></p>
<p>(h) if stormwater drainage works are proposed—any measures proposed to mitigate any adverse impacts associated with those works,</p>	<p><i>Stormwater drainage works are proposed as covered in Appendix B and the plans provided.</i></p>
<p>(i) any visual impact of the proposed development, particularly when viewed from the Main Range,</p>	<p><i>The proposed development is located adjacent to Friday Drive and is not visible from the Main Range, with visual impacts assessed in Section 4.5 above.</i></p>
<p>(j) the extent to which the development may be connected with a significant increase in activities, outside of the ski season, in the alpine resort in which the development is proposed to be carried out,</p>	<p><i>The proposed development is not expected to result in an increase in activities outside of the ski season.</i></p>
<p>(k) if the development involves the installation of ski lifting facilities and a development control plan does not apply to the alpine resort:</p> <p style="padding-left: 40px;">(i) the capacity of existing infrastructure facilities, and</p> <p style="padding-left: 40px;">(ii) any adverse impact of the development on access to, from or in the alpine resort,</p>	<p><i>The development does not involve the installation of a ski lift.</i></p>

<p>(l) if the development is proposed to be carried out in Perisher Range Alpine Resort:</p> <p>(i) the document entitled Perisher Range Resorts Master Plan, as current at the commencement of this Policy, that is deposited in the head office of the Department, and</p> <p>(ii) the document entitled Perisher Blue Ski Resort Ski Slope Master Plan, as current at the commencement of this Policy, that is deposited in the head office of the Department,</p>	<p><i>Not applicable.</i></p>
<p>(m) if the development is proposed to be carried out on land in a riparian corridor:</p> <p>(i) the long term management goals for riparian land, and</p> <p>(ii) whether measures should be adopted in the carrying out of the development to assist in meeting those goals.</p>	<p><i>The proposed development is located more than 40m from the closest identified riparian corridor, being Thredbo River as demonstrated in figure 13 below.</i></p>
<p>(2) The long term management goals for riparian land are as follows:</p>	
<p>(a) to maximise the protection of terrestrial and aquatic habitats of native flora and native fauna and ensure the provision of linkages, where possible, between such habitats on that land.</p>	<p><i>Not applicable.</i></p>
<p>(b) to ensure that the integrity of areas of conservation value and terrestrial and aquatic habitats of native flora and native fauna is maintained,</p>	
<p>(c) to minimise soil erosion and enhance the stability of the banks of watercourses where the banks have been degraded, the watercourses have been channelised, pipes have been laid and the like has occurred.</p>	
<p>(3) A reference in this clause to land in a riparian corridor is a reference to land identified as being in such a corridor on a map referred to in clause 5.</p>	



Figure 13: Proposed works located more than 40m from Thredbo River

5.1.2 SECTION 4.15(1)(a)(ii) – DRAFT ENVIRONMENTAL PLANNING INSTRUMENTS

There are no draft Environmental Planning Instruments that are applicable to the site or proposed development.

5.1.3 SECTION 4.15(1)(a)(iii) – DEVELOPMENT CONTROL PLANS

There are no Development Control Plans applicable to the Kosciuszko Alpine Resorts under State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007.

5.1.4 SECTION 4.15(1)(a)(iiia) – PLANNING AGREEMENTS

There are no Planning Agreements applicable to the Kosciuszko Alpine Resorts under State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007.

5.1.5 SECTION 4.15(1)(a)(iv) – REGULATIONS

The development application has been made in accordance with the requirements contained in Clause 50(1A) and clause 13 of Schedule 6 of the Environmental Planning and Assessment Regulations 2000.

In accordance with Clause 54(4) of the same regulations, the information that is required for a Construction Certificate, is not required to be provided for a DA in relation to either building or subdivision work. This is to ensure that the consent authority does not oblige the applicant to

provide construction details up-front where the applicant may prefer to test the waters first and delay applying for a construction certificate until, or if, development consent is granted.

5.1.6 SECTION 4.15(1)(b) – LIKELY IMPACTS

Natural Environment:

The flora and fauna assessment provided in Appendix E, has concluded that the proposed development is unlikely to have a significant effect on threatened species, endangered populations, ecological communities, or their habitats.

Furthermore, the assessment concluded that the proposal is also unlikely to have a significant impact on matters of National Environmental Significance or Commonwealth land, following consideration of the administrative guidelines for determining significance under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

The likely impacts on the natural environment have therefore been comprehensively identified in the report and this SEE.

Overall, the impacts generated by the proposal on the natural environment have been minimised through the engineering and design analysis process undertaken, proposed landscaping and through the implementation of the measures identified in the DSEMP provided in Appendix B.

Built Environment:

Impacts on the built environment have been managed and mitigated with the design and level of the car park and use of natural features including proposed landscaping.

Social and Economic impacts in the locality:

The social and economic impacts from the proposed development overall is expected to be overwhelming positive by providing guests with additional parking and improved pedestrian access.

Positive economic impacts will be derived by providing improved parking closer to resort facilities, capital improvement to the resort and the construction jobs generated.

5.1.7 SECTION 4.15(1)(c) – SUITABILITY OF THE SITE

The subject site is a highly modified and previously disturbed site, comprising of an embankment located adjacent to a road and carpark, and therefore is considered suitable to be used for additional car parking.

5.1.8 SECTION 4.15(1)(d) – SUBMISSIONS

The subject Development Application will be required to be advertised and any submissions received will be considered as part of the development assessment process.

5.1.9 SECTION 4.15(1)(e) – THE PUBLIC INTEREST

The above assessment has demonstrated that the proposal satisfies the objectives and relevant clauses prescribed under State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007.

The development is therefore considered to be within the public interest.

5.2 National Parks and Wildlife Act, 1974

The NSW National Parks and Wildlife Act, 1974 (NPW Act, 1974) governs the establishment, preservation and management of national parks, historic sites and certain other areas. The NPW Act also provides the basis for the legal protection of Aboriginal sites within NSW.

As detailed in Section 4 of the report, the proposed development will result in acceptable impacts, which will ensure the development is consistent with the provisions of the NPW Act, 1974.

5.3 Kosciuszko National Park Plan of Management 2006

The Kosciuszko National Park Plan of Management 2006 (PoM) sets out objectives and management strategies for specific areas of the Park. The plan identifies that the Thredbo Alpine Resort is a Management Unit within an Area of Exceptional Recreational Significance (Chapter 10).

The management objective under Section 10.4.1 states *'The Thredbo Management Unit is managed so as to provide opportunities for visitors to enjoy, understand and appreciate the values of the park in ways that minimise adverse impacts'*.

The policies and actions for the Management Unit are prescribed below:

Policies and Actions

1. *Any activity associated with the provision of visitor facilities and services by lessees and licensees will not be permitted except in accordance with the provisions of this plan and the following conditions:*
 - *An environmental management system is developed and implemented in accordance with Section 12.1;*
 - *A maximum of 4810 beds is provided;*
 - *A minimum of ten beds is provided for the volunteer ski patrol. These beds will not be available for commercial utilisation and will not attract a premium or rental;*

- *The lessee contributes to the operation or maintenance of any facility or service being promoted by the lessee that is managed by the Service; and*
 - *The lessee coordinates recreational opportunities with strategies for the management of the Main Range Management Unit (Section 9.2) and other zones adjacent to or near the resort.*
2. *Ensure all activities associated with the running and preparation of race events, which use that part of the International Ski Run located in the Main Range Management Unit, are in accordance with Section 8.20.*
3. *Ensure any licence to use the International Ski Run:*
- *Prohibits the construction of lifts or buildings or manipulation or disturbance of the ground or vegetation within the proposed licence area;*
 - *Requires the organising body of the event to provide and distribute information on the special values of the proposed licence area; and*
 - *Contains specific provisions for the management of spectators and the media to minimise the impact on the values of the area.*
4. *Require the lessee to maintain walking tracks on that part of the walking route to Mount Kosciuszko and Dead Horse Gap that is within the Thredbo lease area. Walking tracks will be managed in accordance with walking track classifications presented in Schedules 5 and 6.*

The proposed development is considered consistent with the management objective and policies and actions as prescribed in the PoM above.

5.4 BIODIVERSITY CONSERVATION ACT, 2016

The Biodiversity Conservation Act 2016 and Local Land Services Amendment Act 2016 together with the Biodiversity Conservation Regulations 2017 were enacted on the 25 August 2017 and came into effect on the 25 February 2018.

A review of the subject site in relation to the Biodiversity Values Map shows that the site is not mapped as comprising high biodiversity value, as covered in the assessment provided in Appendix E and below.



Figure 14: Location of proposed development in relation to the Biodiversity Values Map

In regards to the clearing threshold, the site is located within a National Park and is zoned E1 – National Park under the Snowy River Local Environmental Plan, 2013 (SR LEP, 2013).

Consequently, the site does not have a minimum lot size, under the SR LEP 2013.

Therefore the clearing threshold is predicated on the lot size of the subject site.

The car park is located within the KT head lease area. Therefore, with the size of the head lease allotment over 40 hectares, but less than 1000 hectares, the biodiversity offsets scheme threshold for Thredbo Alpine Resort is 1 hectare (10,000m²).

Therefore the clearing threshold is 1ha of clearing of native vegetation without having to undertake a Biodiversity Assessment Method (BAM) assessment and therefore triggering the Biodiversity Offsets Scheme (BOS).

The proposed clearing is well below the threshold and the BOS cannot be triggered.

6. CONCLUSION

To meet existing parking demand, Event are proposing to expand the existing Friday Flat car park.

The proposed expansion, referred to as CP2, will be achieved by constructing an on-grade car park above Friday Drive, within a highly modified and previously disturbed site that comprises mostly of mown grass and planted native trees and shrubs.

The additional car park will result in a net 79 additional parking spaces.

Provision for pedestrian movement has been incorporated into the design by way of providing a pedestrian path along the northern edge of Friday Drive as well as a path along the northern edge of the entrance ramp.

The proposed car park has been designed to respond to the topography of the site, its previous high level of disturbance and native vegetation located mostly upslope as well as its relationship with Friday Drive.

To ensure that all the environmental and associated legislation is complied with and fulfilled, the proposed development has been considered with regard Section 4.15 of the Environmental Planning and Assessment Act, 1979, Biodiversity Conservation Act, 2016 and State Environmental Planning Policy (Kosciuszko National Park – Alpine Resorts) 2007.

The proposal has been found to be consistent with the above legislation and relevant Environmental Planning Instrument, as detailed in this SEE.

On balance, the proposed development will generate significant positive social and economic impacts for the resort and wider region, achieving the desired vehicle access, traffic, parking and pedestrian movement and circulation outcomes whilst minimising impacts on the natural and built environment.

APPENDIX A

PHOTOS



Figure 1: Photo of location of CP2 from Friday Drive



Figure 2: Photo of location of CP2 from Friday Drive



Figure 3: Photo of location of CP2 from Friday Drive



Figure 4: Photo of location of CP2 from Friday Drive



Figure 5: TVT trail head to be relocated and form part of new car park



Figure 6: Location of entrance ramp to CP2



Figure 7: Existing angled on-street parking to be retained with a new footpath to be provided



Figure 8: Adjacent Beginner Bowl located to the west



Figure 9: Existing drainage lines to be collected and re-directed

APPENDIX B

STORMWATER REPORT

STORMWATER REPORT

Friday Flat Car Park 2

Prepared for **EVENT HOSPITALITY & ENTERTAINMENT** / 10 / 01 / 2019

181487 CAAE

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1.0 Introduction

Taylor Thomson Whitting (TTW) has been appointed by Event Hospitality and Entertainment to prepare a concept Civil plan and report to support the Development Application for the proposed works at the Friday Flat car park at Thredbo Resort.

1.1 The Site

The site is located within Kosciuszko National Park. The site's locality is shown in Figure 1, bounded by Friday Drive to the south-east and Bridal Trail Loop to the north-west. The existing site is undeveloped except for a dish drain falling to the north-east along Friday Drive.



Figure 1: Aerial Image (Nearmap)

1.2 Relevant Documents

- DRJD Architect Plans (18/12/18)
- NSW MUSIC Modelling Guidelines 2015

2.0 Proposed Development

The proposed development is a new car park with entry and exit on Friday Drive. Figure 2 shows the plan of proposed works. The site area is 5350m² with 80% of this impervious.

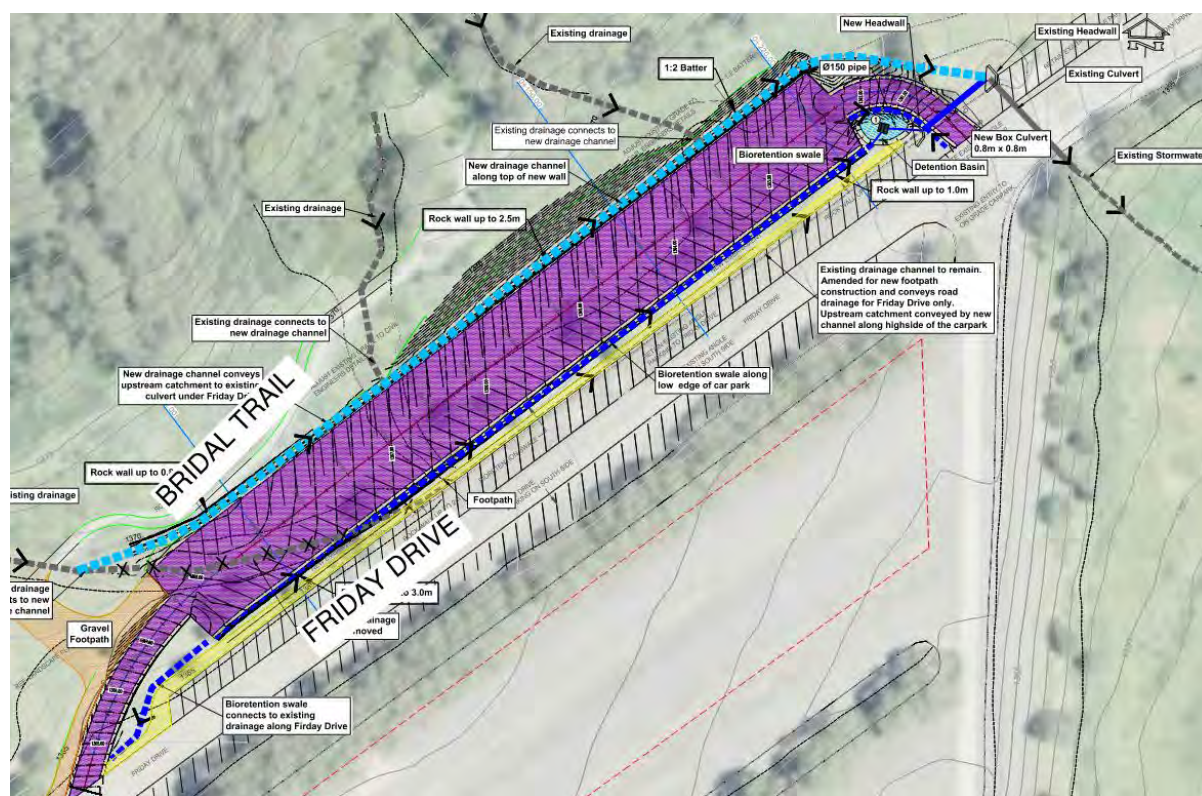


Figure 2: Proposed works

3.0 Stormwater Quantity & Quality

The proposed development will be increasing the impervious area of the site. An increase in impervious area will result in greater stormwater runoff and pollutants. The proposed development includes a treatment train that will reduce stormwater discharge and stormwater pollutants to levels compliant with state and national criteria. The car park generally drains from north-west to south-east towards a bioswale. This bioswale conveys stormwater to a detention basin where it is discharged to an existing culvert underneath Friday Drive.

3.1 On-Site Detention

On-site stormwater detention will be used to meet the stormwater discharge target. The target is for the overall volume of post-development runoff to be no greater than pre-development runoff. Bioswales and a detention basin will be constructed to facilitate on site detention and their positions are shown in Figure 3.

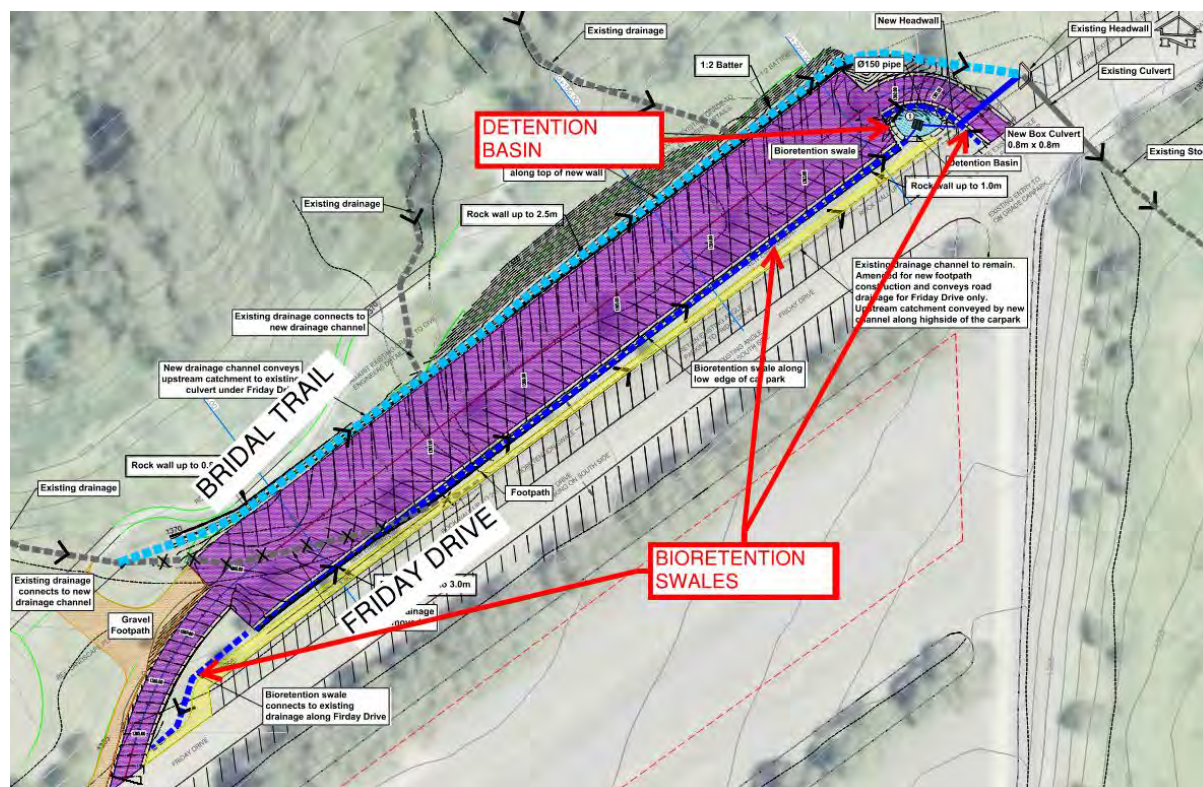


Figure 3: Location of detention basin and bioswales

DRAINS water quantity modelling software was used to determine stormwater discharge. The model was set up to compare the proposed site with pre-development conditions. Most of the site (4,350m²) drains to the detention basin via bioswales. The proposed footpath along Friday Drive will drain directly to Friday Drive and into the existing gutter without detention. The carpark entry and gravel footpath to the west of the car park drains to a bioswale that will detain stormwater.

The DRAINS model predicted that the detention basin needs to be a 85m³ detention basin with an orifice plate 90mm diameter and an outgoing pipe 150mm in diameter. The bioswale to the west of the car park needs to have a storage volume of 20m³. The combined detention meets the stormwater target of not increasing pre-development flow rates for the 5-year and 100-year ARI storms.

Figure 4 shows a typical cross-sectional of bioswale.

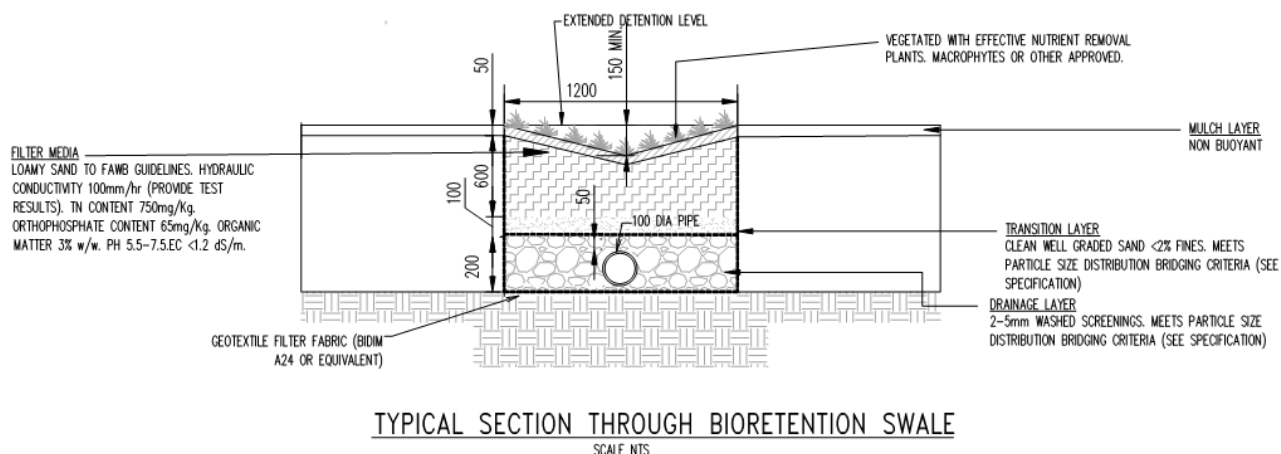


Figure 4: Bioswale cross-section

Table 1 compares the pre-development discharge rates to post development discharges

Table 1: Site discharge rates

	Pre-development (l/s)	Post development (l/s)
5-year ARI	21	20
100-year ARI	107	101

DRAINS predicted the detention basin will not overflow during the 20-year ARI storm. The basin will overflow during the 100-year ARI storm, with flows up to 59 l/s spilling over the top of the basin and into the proposed culvert connecting to the existing culvert under Friday Drive. The overflow rate has been included in the post development discharge rate.

3.2 Stormwater Quality

MUSIC was used to model the stormwater quality of the proposed site and determine compliance with the stormwater objectives. Stormwater on site is treated through several bioswales and 2 litter basket pit inserts (e.g. Stormwater350 enviropod). The bioswale is required to have a media filter area of 0.6m²/m and the length of each bioswale must be at least that shown in TTW’s civil engineering drawings.

The proposed site was split into sub-catchments and modelled according to land-use type. The impervious areas were modelled as “sealedroad” and the batters were modelled as pervious “Landscape” areas. The default pollutant concentration values were adjusted to reflect the NSW MUSIC Modelling Guidelines 2010. Table 2 shows the pollutant concentrations used in the model.

Table 2: Pollutant concentrations

Table 5-6 Base Flow Concentration Parameters (mg/L-log10) for NSW (adapted from Fletcher et al, 2004)

	TSS		TP		TN	
	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev
Small Areas of Interest						
Roofs	n/a	n/a	n/a	n/a	n/a	n/a
Sealed road pavement	1.20	0.17	-0.85	0.19	0.11	0.12
Unsealed road pavement	1.20	0.17	-0.85	0.19	0.11	0.12
Landscaped areas	1.20	0.17	-0.85	0.19	0.11	0.12

Table 5-7 Storm Flow Concentration Parameters for NSW (mg/L-log10) for NSW (adapted from Fletcher et al, 2004)

	TSS		TP		TN	
	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev
Small Areas of Interest						
Roofs	1.30	0.32	-0.89	0.25	0.30	0.19
Sealed road pavement	2.43	0.32	-0.30	0.25	0.34	0.19
Unsealed road pavement	3.00	0.32	-0.30	0.25	0.34	0.19
Landscaped areas	2.15	0.32	-0.60	0.25	0.30	0.19

The detention basin has been omitted from the MUSIC model. The layout of the MUSIC model is shown in Figure 5.

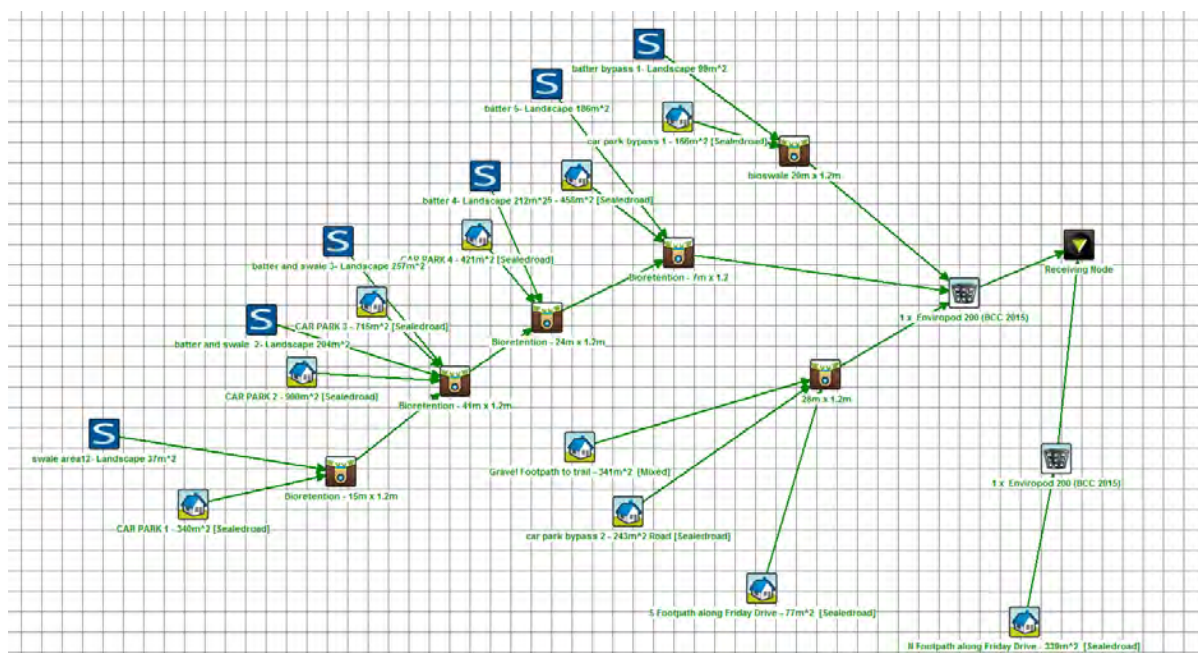


Figure 5: MUSIC model

The proposed treatment train meets the stormwater quality targets as shown in Table 3.

Table 3: Stormwater Quality

	Proposed site (% reduction)	Targets (% reduction)
Total Suspended Solids	86	85
Total Nitrogen	51	45
Total Phosphorous	68	65
Gross Pollutants	99	99

4.0 Flood Management

There is a large catchment upstream of the proposed site with several existing drainage paths running through the proposed site. These drainage paths connect to an existing culvert that crosses Friday Drive. The drainage paths will be intercepted by a catch drain and convey flow to the existing culvert that crosses Friday Drive. The proposed site may be subject to overland flows during large rainfall events; however, it has a low flood risk. The site is on a crest on Friday Drive and the existing grades will direct floodwaters away from the proposed site.

The proposed works will not impede the flow of floodwaters and maintains existing flow routes.

4.1 Flood Planning Levels

Historic Flood Levels for the proposed site have not been recorded and the flood information available for the Thredbo area do not highlight the proposed site as being a critical area. Further, the car park will be at least 1m above Friday Drive and so flooding is unlikely to be an issue. No Flood Planning Level for this site has been given as it has a low risk of mainstream flooding. It may be subject to overland flow from the upstream catchment, however this is mitigated with drainage directing upstream flows around the proposed site and towards an existing culvert that conveys flow beneath Friday Drive.

5.0 Construction Phase Stormwater Management

During the construction phase of the project, an erosion and sediment control plan will be implemented to prevent sediment laden stormwater from entering the council drainage network. Stormwater controls for the site are shown on Drawing C501 and are in accordance with the "Blue Book" - Managing Urban Stormwater: Soils and Construction (Landcom NSW).

In general the erosion and sediment control plan includes:

- Siltation fence around the perimeter of the site
- Vehicle wash down area
- Sedimentation trap

6.0 Conclusion

The proposed development consists of a car park with separate entry and exit onto Friday Drive.

- The proposed development will not increase stormwater discharge for the 5-year or the 100-year ARI storm. Stormwater will be detained in bioswales and a detention basin. The detention basin will have a volume of 64m³ with an orifice plate of 100mm diameter.
- NSW industry standard best practice for stormwater quality is to remove 85% of total suspended solids, 65% of total Phosphorous, 45% of total Nitrogen and 99% of gross pollutants. The proposed treatment train of bioswales and litter baskets achieve these targets. The bioswales need to have a media filter area of 0.6m² per meter. The bioswale is to be planted with macrophytes or equivalent.
- Overland flow from the upstream catchment and existing drainage routes will be collected in a channel and directed around the proposed site towards an existing culvert under Friday Drive. Existing flow routes will be maintained.
- The proposed car park has a low risk of flooding. It is at least 15m above Thredbo River and Friday Drive drains away from the site.

Prepared by
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**

Authorised By
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



DUNCAN UPTON
Engineer

STEPHEN BRAIN
Technical Director

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APPENDIX C

SITE ENVIRONMENTAL MANAGEMENT PLAN



Site Environmental Management Plan

Friday Flat Car Park CP2

4.1.19

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1 INTRODUCTION

1.1 Background

This Site Environmental Management Plan (SEMP) has been prepared for the proposed construction of a car park (CP2), above Friday Drive at Friday Flat, Thredbo Alpine Resort.

1.1.1 Project Description

A detailed description of the development proposal is included within section 3 of the *Statement of Environment Effects*.

1.2 Objective

The objectives of this SEM are to provide a platform:

- (a) That identifies environmental objectives;
- (b) That details environmental management guidelines and procedures, and ensures that Event Hospitality and Entertainment (Event) and the construction contractor are aware of these procedures, who is responsible for implementing and maintaining the required safeguards; and
- (c) That provides guidelines for incidents and emergencies.

1.3 Legislative/statutory requirements

The activity must comply with the following legislation/standards:

- Biodiversity Conservation Act, 2016
- Environmental Planning and Assessment Act 1979,
- National Parks and Wildlife Act 1974,
- Building Code of Australia,
- Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)
- Protection of the Environmental Operation Act 1997,
- Water Management Act 2000,
- Environmentally Hazardous Chemical Act 1985,
- Soil Conservation Act 1938.

2 SITE ENVIRONMENTAL MANAGEMENT PLAN

2.1 Environmental Objectives

The Environmental Management Objectives of this SEM are as follows:

2.1.1 Soils, geology and geomorphology

- Minimise the potential for soil erosion of the proposed works so as not to impact on the surrounding landscape and hydrological features.

2.1.2 Hydrology and water quality

- Minimise the risk of potential pollution during and following excavation of Creeks.

- Minimise the potential for sediment transport from the site.

2.1.3 Flora

- Minimise potential impacts to native vegetation.
- Rehabilitate with appropriate indigenous and exotic species.

2.1.4 Fauna

- Minimise direct impacts to native fauna and habitat.
- Restore habitat values as quickly as possible following the works.

2.1.5 Social and economic impacts

- Ensure that works conform with the Environment Protection Authority's construction noise criteria.
- Obtain community and visitor understanding of the project to maximise tolerance associated with disruption.

2.1.6 Archaeology

- To minimise impacts on places and artefacts of archaeological and aboriginal cultural significance, consistent with obligations under section 90 of the NPW Act.

2.1.7 Resource impacts

- Minimise waste from the construction site and recycle waste where possible.
- Minimise risk of chemical spills.
- Ensure prompt and effective clean up of any accidental spills.

2.1.8 Visual and scenic

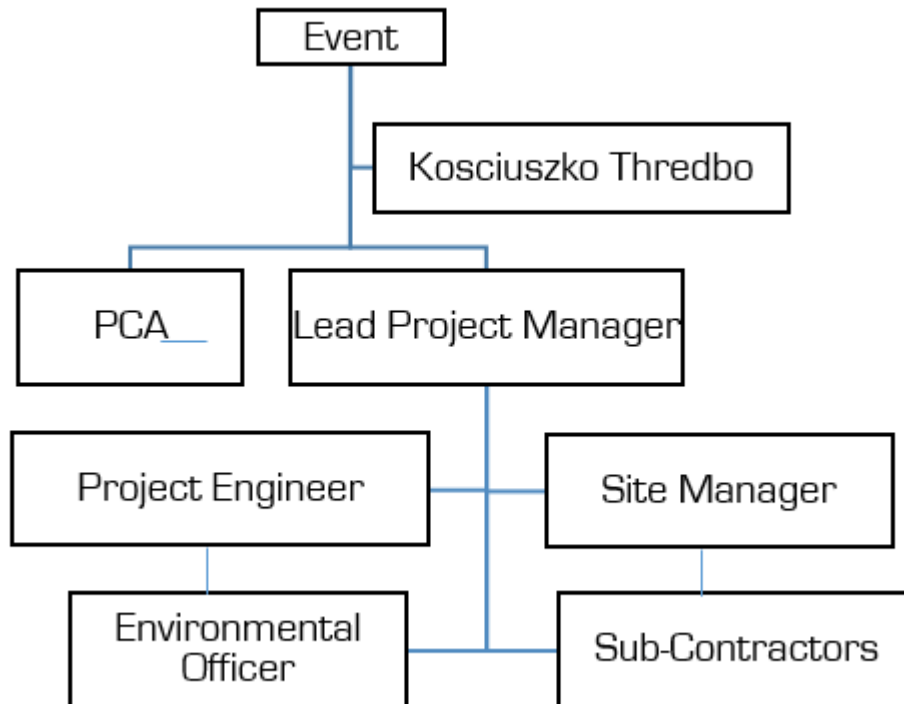
- Minimise visual impact of works during and following construction.

3 MANAGEMENT

3.1 Project Organisational Arrangement

The proposal is funded by Event, who will manage its construction.

3.1.1 Project Team Structure



3.2 Roles and Responsibilities

3.2.1 Lead Project Manager

- Defines environmental responsibilities within the project,
- Develops, implements and maintains this SEMP,
- Supervises implementation of training/induction,
- Ensures records are kept,
- Ensures environmental requirements are incorporated into the contract document,
- Ensures the requirements of the SEMP are implemented, and
- Arranges audits/reviews of the SEMP at appropriate stages.

3.2.2 Site Manager/Project Engineer

- Is familiar with contents of this SEMP,
- Ensuring that all personnel including contractors/sub-contractors comply with the SEMP requirements relevant to their scope of work.

3.2.3 Sub-Contractors

- Implement and maintain SEMP relevant to work being undertaken, and

- Report on compliance as required (Environmental safeguards Action Chart).

3.2.4 Environmental Officer

- Is familiar with the contents of this SEMP
- Is familiar with contractors Environmental Management Plan
- Observes and monitors contractors compliance on a daily basis,
- Reports on compliance with this SEMP and Contractors SEMP, and
- May participate in construction audits.
- Will undertake a weekly inspection and undertake a report as per Attachment 4.

3.3 Training

All staff involved with works, and the contractor would be made aware of the relevant requirements of this SEMP. Training would be initiated by site induction. The Lead Project Manager/Site Manager is responsible for the site training of all of their employees, and nominated representatives of the contractor. The contractor is responsible for site induction and training of their staff.

Site induction of would include:

- i) Environmental awareness, including relevant Kosciuszko Thredbo (KT) policy, the concept of due diligence, and other relevant codes of practice;
- ii) Environmental issues including:
 - The SEMP,
 - Relevant legislation/licence/approvals,
 - Emergency preparedness/procedures,
 - Incident reporting,
 - Community consultation, and
 - Site environmental procedures

3.4 Communication

The communication strategy would mirror the contractual responsibilities illustrated in section 3.2

3.4.1 Stakeholder Consultation

Key stakeholder consultation would occur with DPE, the NPWS and sub-lessees with interests in the development.

3.5 Environmental Control Plans

A Soil and Water Management plan has been prepared and provided in Attachment 2 with a separate Erosion and Sediment Control Plan prepared by TTW.

3.6 Construction Program & Procedures

3.6.1 Site Construction Fencing

The diagrammatic plans provided in Attachment 1, identifies a suitable location for the site construction fencing around the work site, for each stage.

3.6.2 Material/Stockpile Storage Areas

The primary material/stockpile storage area is proposed to be located along the edge of Friday Drive within the angled parking area.

3.6.3 Site Compound

The diagrammatic plans provided in Attachment 1, identifies the location for the site compound to be located along the edge of Friday Drive within the angled parking area. This is to be used for temporary site offices and other equipment.

3.6.4 Demolition Works

All demolition work shall comply with *AS 2601 The demolition of structures*.

3.6.5 Noise, Vibration and Dust

All vehicles carrying spoil, rubble or vegetation debris to or from the site shall at all times be covered to prevent the escape of dust or other material, with covers to be adequately secured and roadways and footpaths to be kept clean.

3.6.6 Waste Management

All builders' waste and rubbish is to be contained within covered receptacles to prevent litter being blown about the site. All waste will be dealt with according to the Thredbo Village waste management strategy.

3.6.7 Emergency/Incident Procedures/Fuel and Chemical Spills

Any emergency/incident procedure will follow the document, Construction Site Incident and Emergency Procedures Thredbo Village, October 2017, that includes reference to spill procedures and emergency and incident responses, including "call the mountain/general manager and 000 for Fire Brigade response". The Thredbo brigade has HAZMAT response capabilities, and the village department has spill kits at every village facility (ie pump stations, golf course sheds etc) and a 240-litre bin spill kit available for response.

It would also be a requirement that the contractor has an emergency/incident procedure plan that includes an oil spill response plan. The contractors are responsible for responding to any environmental emergency, including contacting appropriate authorities (KT, NPWS etc). These procedures are detailed in the "Kosciuszko Thredbo Pty Ltd Safety Procedure" document.

3.6.8 Amenities

Toilet facilities are provided within the Friday Flat base building, adjacent to the site.

3.6.9 Tree Cutting Protocol

Where the identified trees are to be pruned or removed, the following measures are to be undertaken to reduce the potential impacts to tree dwelling fauna species:

- Pre-clearing check for tree-dwelling fauna, nests and hollows;
- Trees should be felled by contractor using chainsaw;
- Trees should be felled in such a way as to avoid impacts on intact native vegetation;
- Trees with hollows should be felled so that the hollow is uppermost when the tree is lying on the ground;
- Vegetation to be chipped and mulch to be re-used for rehabilitation of the subject site and/or other sites as required.

3.7 Construction Access

Direct vehicle access can be achieved from Friday Drive. A temporary construction entry/exit is to be established as per the Erosion and Sediment Control Plan prepared by TTW (provided separately) and Attachment 1.

3.7.1 Construction Parking

Active construction vehicles can be parked along the edge of Friday Drive within the angled parking area.

3.7.2 Pedestrian and bike rider management

Mountain bike operations, bike riders and pedestrians using the Thredbo Valley Trail and surrounding paths and trails that will be impacted by construction works will be managed by use of signage, partial closure of trails and exclusion from construction works.

Attachment 1


Diagrammatic Plan





Legend:

Site Construction Fencing: 

Active Construction Vehicle Parking: 

Temporary Construction Entry/Exit: 

Primary Material /Stockpile Storage Area: 

Potential location for erosion and sediment controls: 

Site Office: 

Nb: To be read in conjunction with Landscape and Rehabilitation Plan by DJRD Architects + Erosion and Sediment Control Plan by TTW

DIAGRAMMATIC PLAN - SEMP - FRIDAY FLAT CAR PARK CP2, THREDBO ALPINE RESORT

Attachment 2

Soil and Water Management Plan

Soil and Water Management Plan

Erosion and Sedimentation Control

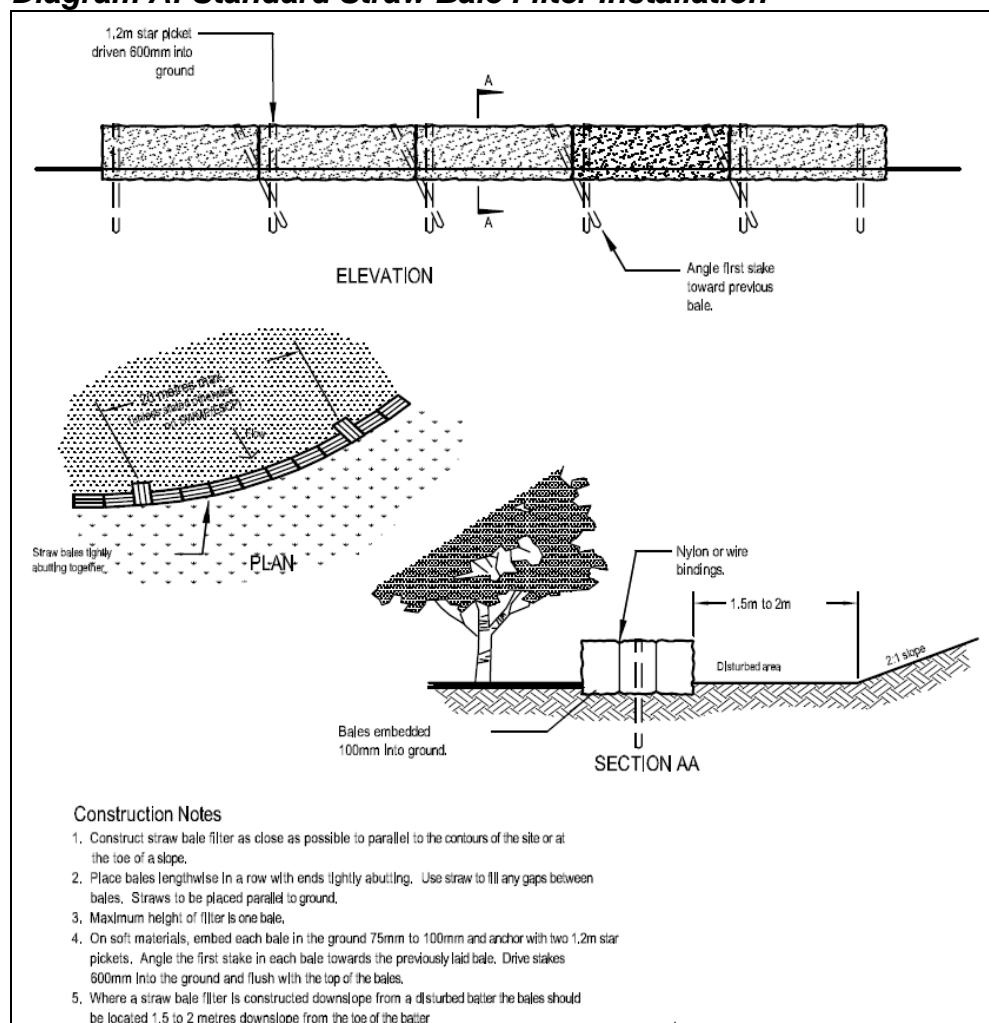
Appropriate environmental management controls will be required to manage soil and surface water during the construction of the development.

This will be undertaken in accordance with the Erosion and Sediment Control Plan prepared by TTW and Attachment 1 and as follows:

With regard to the hard surface areas associated with Friday Drive, alternate controls from the usual sediment fence are proposed.

Temporary controls will include a straw bale filter, installed as illustrated Diagram A

Diagram A: Standard Straw Bale Filter Installation



To ensure that the existing stormwater drains in the vicinity of the work site are to be protected, the method of protection is to include wrapping the stormwater drain in geotextile cloth, and surrounding the drain with a sediment (filter) sock as per the example provided below in figure 1.



Figure 1

In addition, a sediment (filter) sock or series of sandbags are to be installed on the down slope side, across the slope as per the example in figure 2.



Figure 2

Monitoring:

The nominated project Environmental Officer will be responsible for ensuring that all the erosion and sedimentation controls are installed in accordance with the above criteria and are regularly maintained and monitored.

Attachment 3

Record of Complaint

Record of Complaint, Kosciuszko Thredbo Pty Ltd

For the recording of a complaint or incident (both verbal and written complaints).

Time and Date complaint received:

Reference number:

Name of representative who witnessed complaint:

Name and contact details of complainant:

Nature of complaint:.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Action taken in response to complaint:.....
.....
.....
.....
.....
.....
.....
.....

Attachment 4

Weekly Inspection Report



ENVIRONMENTAL SERVICES WEEKLY INSPECTION REPORT

Sheet ____ of ____

Project: _____
SITE ENVIRONMENT MANAGEMENT PLAN

Inspection Date: _____

Inspected by: _____

Weather:	Morning		Afternoon	
	Clear/Overcast	Fine/Rain/Snow	Clear/Overcast	Fine/Rain/Snow
Operation	Condition	Plant/Labour	Comments	
Silt Fence				
Hay Bale retention ponds				
Hay Bale sediment protection				
Stormwater Pit protection				
Cyclone Fence (including gates)				
Paraweb Fence				
Site Signage				
Toilet Block				
Paint Washout facility				
Vehicle Washdown				
Waste Skips				
Tree Protection				
Verbal Discussion with Contractor:		Verbal discussion with others:		
Materials Received / Required:		Site Instructions Issued:		
Inspectors Report / Summary:		Action required:		
Signature: _____ Date: _____				

APPENDIX D

TRAFFIC IMPACT ASSESSMENT

Traffic Impact Assessment

Friday Flat Car Park 2

Prepared for Event Hospitality & Entertainment

10 January 2019

181487 TAAE

Contents

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3	Proposed Works	4
3.1	Parking Layout and Design	4
3.2	Accessible Parking.....	5
3.3	Pedestrian Access	5
3.4	Traffic Assessment	6
3.5	Parking and Traffic Management	6
3.6	Construction Management	6
4	Conclusion	7
	Appendix A	8

Revision Register

Rev	Date	Prepared by	Remarks
0	14/12/18	KA, MB	Draft for comment
0.1	18/12/18	KA, MB	Revised draft
0.2	09/01/19	MB	Revised draft
1	10/01/19	MB	For issue

Document Control

Document number	181487 TAAE
File path	P:\2018\1814\181487\Reports\TTW\Traffic\CP2\190110 Friday Flat CP2 Traffic Report Rev 1.docx

1 Introduction

It is proposed to provide additional capacity at the Friday Flat car park at Thredbo Resort.

This report seeks to respond to the Secretary's Guidelines for the proposed development, which stated for traffic, access, and parking:

The SEE shall:

- *Include and assessment of traffic, transport and car parking implications undertaken by an appropriately qualified traffic engineer;*
- *Demonstrate that the proposed works will not impede the existing traffic and pedestrian flow on Friday Drive;*
- *Detail the anticipated number of spaces and impacts upon circulation within the existing car parking areas and off Friday Drive;*
- *Provide detailed plans of the proposed parking layout and access / egress points demonstrating the development complies with relevant Roads and Maritime Services (RMS) guidelines and Australian Standards AS 2890; and*
- *Outline any discussions held with the RMS.*

2 Existing Conditions

The Friday Flat car parking area is accessed from Friday Drive, which is a publicly accessible road within the Thredbo Resort site. The existing main parking area provides a capacity of approximately 770 spaces.

Angled parking is present along the northern side of Friday Drive opposite the main carpark with an approximate capacity of 88 car spaces.



Figure 2.1: Existing car park (via SIX Maps)

3 Proposed Works

It is proposed to increase the capacity of the parking area by introducing new at-grade parking. This carpark proposal is identified as CP2.

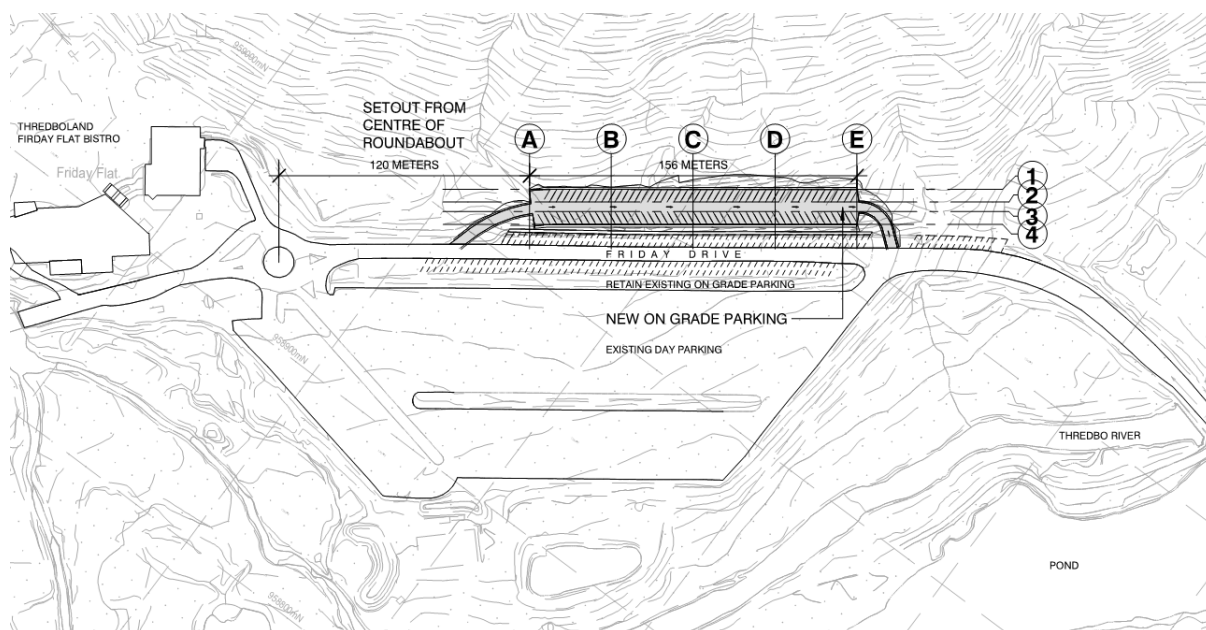


Figure 3.1: Proposed CP2 car park (dwg. A0.100, Rev. D, 04/01/19, DJRD Architects)

The set of architectural drawings on which this Traffic Impact Assessment is based is attached in **Appendix A** of this document.

3.1 Parking Layout and Design

CP2 is located north of the existing carpark. The car park is proposed to be accessed via a ramp off of Friday Drive. The car park provides 60-degree angled spaces in a one-way aisle from west to east. The design of parking spaces meets and exceeds that of a Class 3 parking area in accordance with Australian Standard AS2890.1 as follows:

- Parking space width: 2.7 metres
- Parking alignment depth (AS2890 dimension 'C'): 6.0 metres
- Parking aisle width: 4.8 metres

Total proposed capacity for CP2 is 95 spaces. 16 existing at-grade angled car spaces along Friday Drive will be removed for the CP2 entry and exit ramps, resulting in a net increase in capacity of 79 spaces.

This increase in parking is not accompanied by any particular increase in resort capacity and is intended to provide an improved guest experience and better cater to existing demands. It is anticipated that the existing requirements for overflow parking (e.g. near the tip or along Friday Drive) will be reduced, improving road safety and user experience.

Changes to the parking within the site due to this proposal are detailed in Table 1.

Table 1: Parking capacity changes

Location	Existing	Proposed	Change (+/-)
Existing	770	770	0
Friday Drive	88	72	-16
CP2	-	95	+95
Total (subject site)	858	937	+ 79

Outside of the scope of this application, other concurrent works are also proposed for this site including the proposal of one additional at-grade carpark (CP3) and upgrades to the existing carpark (CP1).

3.2 Accessible Parking

Accessible car parking spaces are provided in the existing main car park, close to the Friday Flat area. Additional accessible spaces are not required in the CP2 car park.

3.3 Pedestrian Access

Pedestrian movements from the new car park will connect to the Friday Flat terminal via a new gravel path which links into the existing pedestrian routes along Friday Drive (Figure 3.2).

The driveway from Friday Drive to the CP2 car park is currently proposed at a maximum grade of approximately 10% (1:10). This is suitable as a non-accessible walkway but will not be considered an accessible route, which is acceptable as all accessible parking spaces are located within the existing main car park.

Under a separate application, additional pedestrian infrastructure will also be provided on Friday Drive as part of the CP1 works (subject to approval). Independent of those works, the proposed CP2 car park is expected to provide sufficient pedestrian amenity and safety.



Figure 3.2: Proposed pedestrian connections (dwg. A0.150, Rev. C, 04/01/19, DJRD Architects)

3.4 Traffic Assessment

No additional traffic generation is forecast for the proposed car park development.

As noted above, the provision of additional parking is intended to provide for existing demands and improve user experience. The development does not increase the capacity of the resort or create any additional trip attractors in the area.

During peak periods the site currently accepts up to 400 vehicles per hour with high densities of movements during the morning arrival period (8am – 10am). The provision of an additional driveway and parking capacity will assist in distributing vehicles to parking more quickly and improving traffic flow on Friday Drive.

Furthermore, existing parking capacity constraints require vehicles to be turned around from the site during peak periods, resulting in an increase in vehicle movements along Alpine Way (due to return movements). Additional parking will allow these vehicles to access the site and reduce excess movements on surrounding roadways. The proposed development should therefore to a small extent improve traffic conditions in the area.

In relation to exit periods, the provision of additional parking is considered acceptable. Departure movements for the ski resort occur over a much longer period (approx. 11am to 6pm) than arrivals, with limited impacts from the additional capacity. As discussed, these parking spaces will effectively be existing capacity relocated from overflow parking areas and will not change traffic conditions along the broader road network.

3.5 Parking and Traffic Management

It is recommended that the new car park areas continue to operate under marshalled traffic control as per the existing parking zones. This will ensure the vehicle and pedestrian safety is maintained.

The additional exit driveway from CP2 will be in close proximity to the existing entry driveway to the existing parking area. Both driveways are one-way such that there shall be no conflicting movements. Traffic marshalling and signage should ensure that entering vehicles are directed to the appropriate driveway thereby reducing unnecessary / repeat manoeuvres, and ensuring that vehicles do not need to cross Friday Drive from CP2 to existing parking.

The exit driveway out of CP2 connects to Friday Drive at a near 90° angle; this provides vehicles exiting the CP2 carpark with clear line of sight to through traffic along Friday Drive and provides natural traffic calming for safer vehicle movements. Vehicles exiting the carpark are to give-way to the through traffic along Friday Drive.

3.6 Construction Management

For the construction of the carpark, it is anticipated that the existing car parking along the northern side of Friday Drive would be required for access, construction compounds etc. This will result in a reduction in parking of up to approximately 65 spaces during construction of CP2.

As there shall be a loss of parking during construction (extent to be determined), construction is expected to occur during the off-peak period between approximately October and May.

Subject to approval of separate applications, construction of additional car parking capacity may assist in further offsetting reduced capacity during construction.

4 Conclusion

The provision of a net additional 79 parking spaces to the capacity of the Friday Drive car park is considered to be acceptable and provide improved user experience for existing demands.

Traffic management and local traffic conditions including rejection of vehicles during peak periods (when the site reaches parking capacity) are expected to be improved, without increasing overall volumes as there is no additional attraction of trips to the site.

The proposed works are considered acceptable and supportable with regards to traffic and parking.

Prepared by
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



KEVIN ALAWADHI
Traffic Engineer

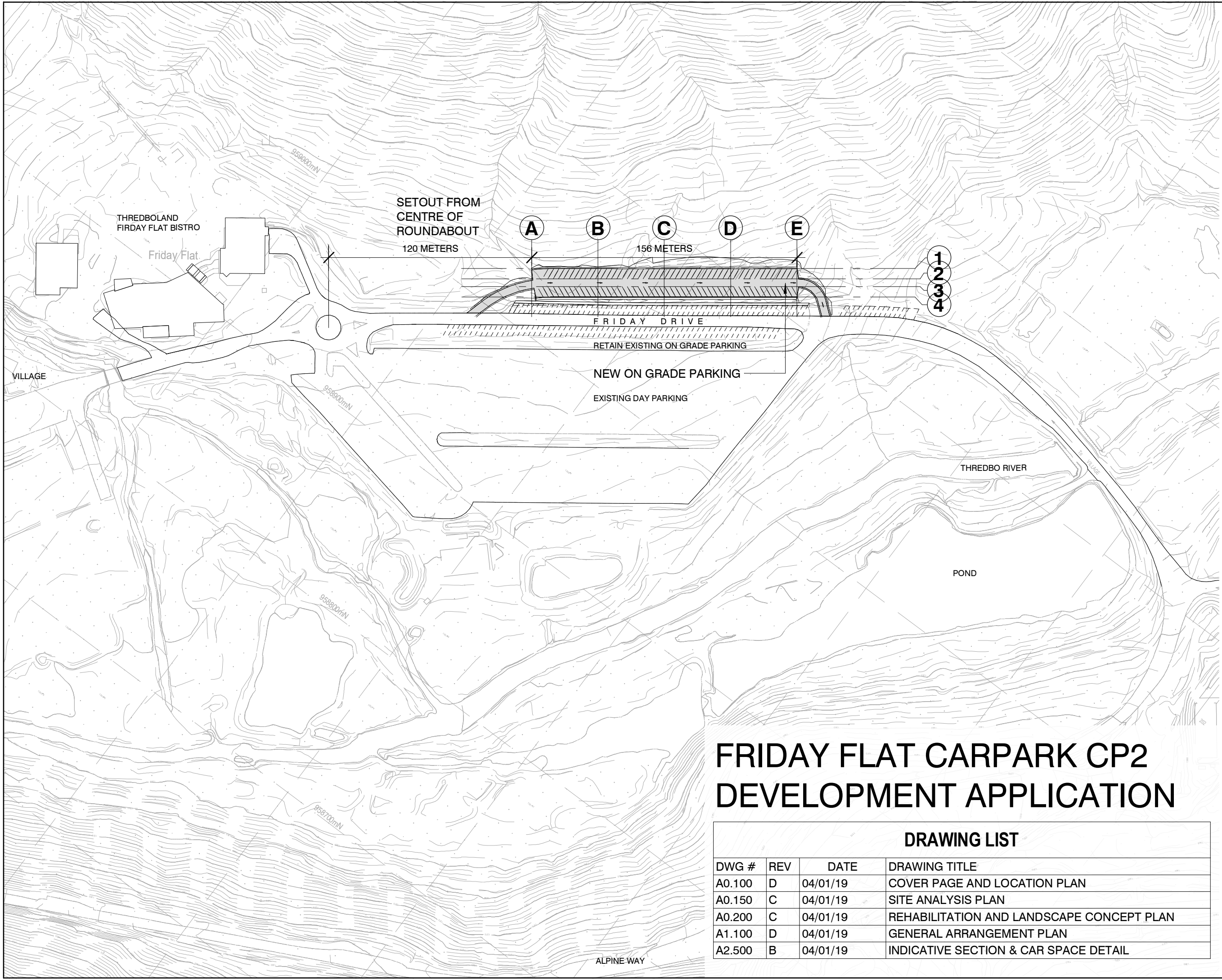
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



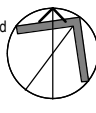
MICHAEL BABBAGE
Traffic Engineer

Appendix A

Friday Flat CP2 Architectural Drawing Set



This drawing should be read in conjunction with all relevant contracts, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.



NOTES

AUTHORISED FOR ISSUE

D	04/01/19	DA RE-ISSUE	ST
C	18/12/18	DA RE-ISSUE	SM
B	13/12/18	DEVELOPMENT APPLICATION ISSUE	ST
A	23/11/18	INITIAL ISSUE	ST

ISSUE	DATE	SUBJECT	VALID'D
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CLIENT
EVENT Hospitality and Entertainment

DEVELOPMENT APPLICATION

PROJECT
FRIDAY FLAT CARPARK CP2

Friday Drive
 Thredbo Village

ARCHITECT
djrd architects
 T +612 9319 2955
 ABN: 48 942 921 969
 Nominated Architects:
 Andrew Hipwell 6562
 Daniel Beekwilder 6192
 64 Ross Street
 Chippendale NSW 2008
 Sydney Australia
 djrd.com.au

FRIDAY FLAT CARPARK CP2 DEVELOPMENT APPLICATION

DRAWING LIST

DWG #	REV	DATE	DRAWING TITLE
A0.100	D	04/01/19	COVER PAGE AND LOCATION PLAN
A0.150	C	04/01/19	SITE ANALYSIS PLAN
A0.200	C	04/01/19	REHABILITATION AND LANDSCAPE CONCEPT PLAN
A1.100	D	04/01/19	GENERAL ARRANGEMENT PLAN
A2.500	B	04/01/19	INDICATIVE SECTION & CAR SPACE DETAIL

DRAWN SCALE AT A3
 ST 1 : 2000

DESCRIPTION
COVER PAGE AND LOCATION PLAN

PROJECT No	DRAWING No	REVISION
18 420	A0.100	D



This drawing should be read in conjunction with all relevant contracts, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.



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Friday Drive
Thredbo Village

ARCHITECT

djrd architects
 T + 612 9319 2955
 ABN: 48 942 921 969
 Nominated Architects:
 Andrew Hipwell 6562
 Daniel Beekwilder 6192
 64 Rose Street
 Chippendale NSW 2008
 Sydney Australia
 djrd.com.au

DRAWN SCALE AT A3

ST

DESCRIPTION
SITE ANALYSIS PLAN

PROJECT No	DRAWING No	REVISION
18 420	A0.150	C

LEGEND



AREAS DISTURBED DURING CONSTRUCTION MADE GOOD
MAX 1:2 BANKS REFER DETAIL LANDSCAPE CON CERT PLAN

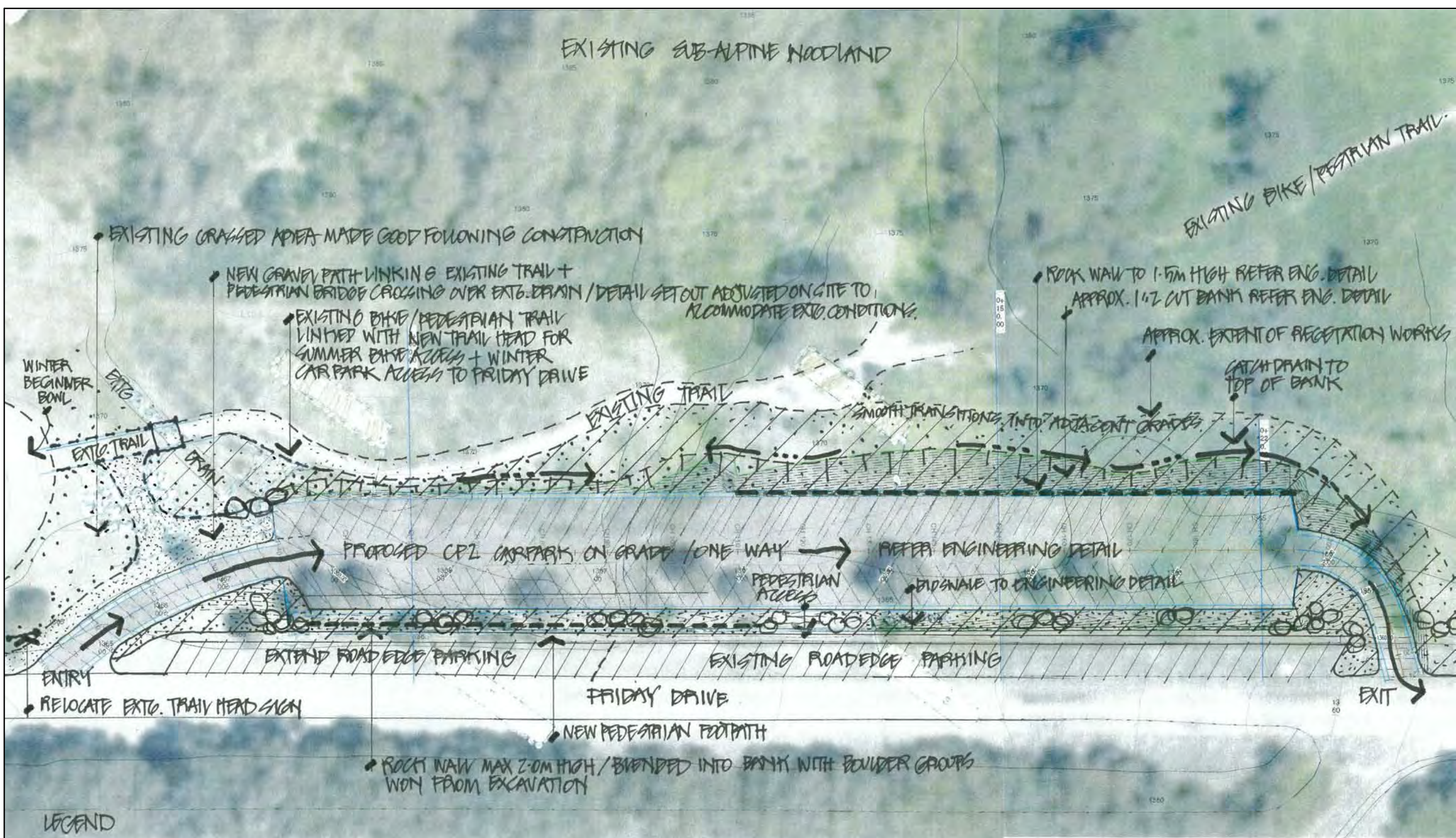
VEHICULAR FLOW

PEDESTRIAN FLOW / WINTER TO LEFT / SUMMER BIKE TRAILS

NOTES

- ALL AREAS DISTURBED DURING CONSTRUCTION TO BE STABILISED + MADE GOOD REFER 'SEB' + 'SEMP' FOR DETAIL
- REVEG TO BE MULCHED WITH CHIPPINGS OF VEGETATION APPROVED FOR REMOVAL
- SITE PROTECTION MEASURES AS PER 'SEMP'
- REFER ARCHITECTURAL + ENGINEERING DETAIL

EXISTING SUB-ALPINE WOODLAND



EXISTING GRASSED AREA MADE GOOD FOLLOWING CONSTRUCTION

NEW GRAVEL PATH LINKING EXISTING TRAIL + PEDESTRIAN BRIDGE CROSSING OVER EXTG. DRAIN / DETAIL SET OUT ADJUSTED ON SITE TO ACCOMMODATE EXTG. CONDITIONS.

EXISTING BIKE/PEDESTRIAN TRAIL LINKED WITH NEW TRAIL HEAD FOR SUMMER BASE ACCESS + WINTER CAR PARK ACCESS TO FRIDAY DRIVE

ROCK WALL TO 1.5M HIGH REFER ENG. DETAIL APPROX. 1/2 CUT BANK REFER ENG. DETAIL

APPROX. EXTENT OF VEGETATION WORKS

CATCH DRAIN TO TOP OF BANK

SMOOTH TRANSITIONS INTO ADJACENT GRADES

PROPOSED CP2 CARPARK ON GRADE / ONE WAY REFER ENGINEERING DETAIL

PEDESTRIAN ACCESS

ROCK WALL TO ENGINEERING DETAIL

EXTEND ROAD EDGE PARKING

EXISTING ROAD EDGE PARKING

FRIDAY DRIVE

NEW PEDESTRIAN FOOTPATH

ROCK WALL MAX 2.0M HIGH / BLENDED INTO BANK WITH BOULDER GROUPS WON FROM EXCAVATION

WINTER BEGINNER BOWL

EXISTING TRAIL



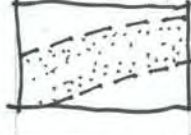

EXISTING BIKE/PEDESTRIAN TRAIL

RELOCATE EXTG. TRAIL HEAD SIGN

ENTRY

EXIT

LEGEND

-  EXTENT OF AREAS DISTURBED DURING CONSTRUCTION TO BE REVEGETATED + STABILISED. MAX 1/2 BANKS MADE GOOD WITH SITE TOPSOIL/FIXED IN PLACE WITH 'SOIL SAVOR' JUTE FABRIC / 100% PEGUVE SEEDING OVERPLANTED WITH SNOWGRASS CELLS + INDIVIDUAL TREE + SHrub PLANTINGS GROUPED AROUND BOULDERS.
-  ROCK WALLING TO 1.5-2.0M MAX HEIGHT BLENDED INTO ADJACENT PROFILES WITH SITE BOULDERS WON FROM EXCAVATION / REFER ENGINEERING DETAIL
-  PROPOSED GRAVEL PATH TO LINK EXISTING BIKE + PEDESTRIAN TRAILS WINTER ACCESS FROM CARPARK / SUMMER EXITING ACCESS.
-  CATCH DRAINS TO TOP OF BANKS

- INDICATIVE PLANTING ALLOWANCE
- 10 EUC. PAUCIFLORA NIPHOPHIA
 - 15 EUC. STELLATA
 - 30 GREVILLEA VICTORIAE
 - 150 DIANEWA TASMANICA
 - 500 POA FAWCETTIAE (SNOWGRASS CELLS)
- NOTE: SUPPLY FROM APPROVED GROWERS.
- ALL AREAS DISTURBED DURING CONSTRUCTION TO BE STABILISED + MADE GOOD / REFER 'SEMP' + 'SEE'
 - ALL REVEGS TO BE MULCHED FROM BANK CHIPPINGS WON FROM APPROVED VEGETATION REMOVAL
 - SITE PROTECTION MEASURES AS PER 'SEMP'
 - REFER ARCH + ENGINEERING DETAIL

This drawing should be read in conjunction with all relevant contracts, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.

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AUTHORISED FOR ISSUE

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ISSUE	DATE	SUBJECT	VALID'D

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EVENT Hospitality and Entertainment

DEVELOPMENT APPLICATION

PROJECT
FRIDAY FLAT CARPARK CP2

Friday Drive
Thredbo Village

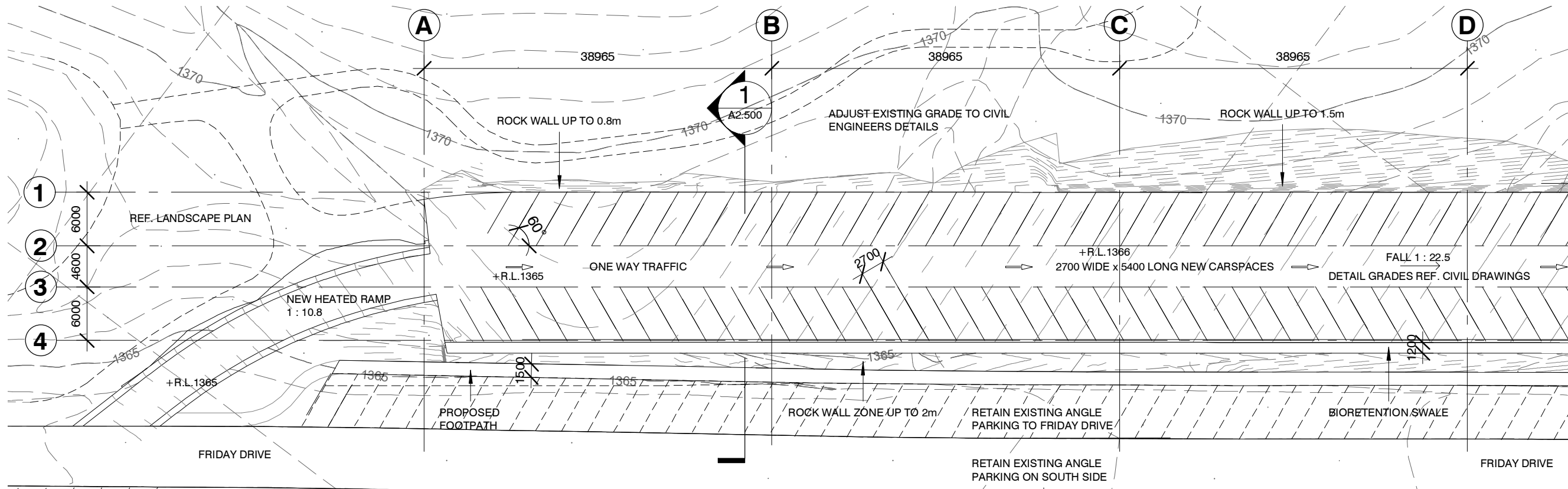
ARCHITECT

djrd architects

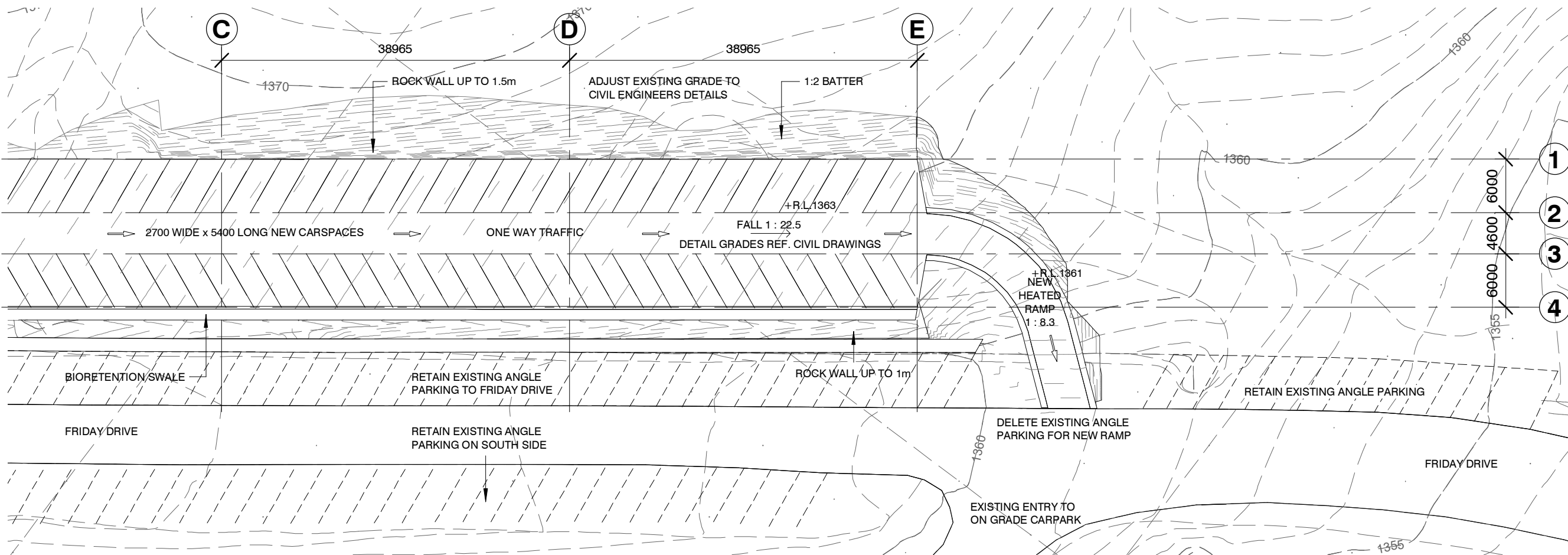
T +612 9319 2955
ABN: 48 942 921 969
Nominated Architects:
Andrew Hipwell 6562
Daniel Beekwilder 6192

64 Ross Street
Chippendale NSW 2008
Sydney Australia
djrd.com.au

DRAWN	SCALE AT A3
Author	1:600
DESCRIPTION	REHABILITATION AND LANDSCAPE CONCEPT PLAN
PROJECT No	DRAWING No
18 420	A0.200
	REVISION
	C



1 GENERAL ARRANGEMENT PLAN WEST
1 : 500



2 GENERAL ARRANGEMENT PLAN EAST
1 : 500

PARKING SCHEDULE

95 NEW CP2 PARKING SPACES
88 EXISTING FRIDAY DRIVE PARKING SPACES
72 REVISED FRIDAY DRIVE PARKING SPACES FOLLOWING CP2 (INC. RAMPS)
79 NET ADDITIONAL PARKING SPACES

This drawing should be read in conjunction with all relevant contracts, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.

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B	13/12/18	DEVELOPMENT APPLICATION ISSUE	ST
A	23/11/18	INITIAL ISSUE	ST

CLIENT
EVENT Hospitality and Entertainment

DEVELOPMENT APPLICATION

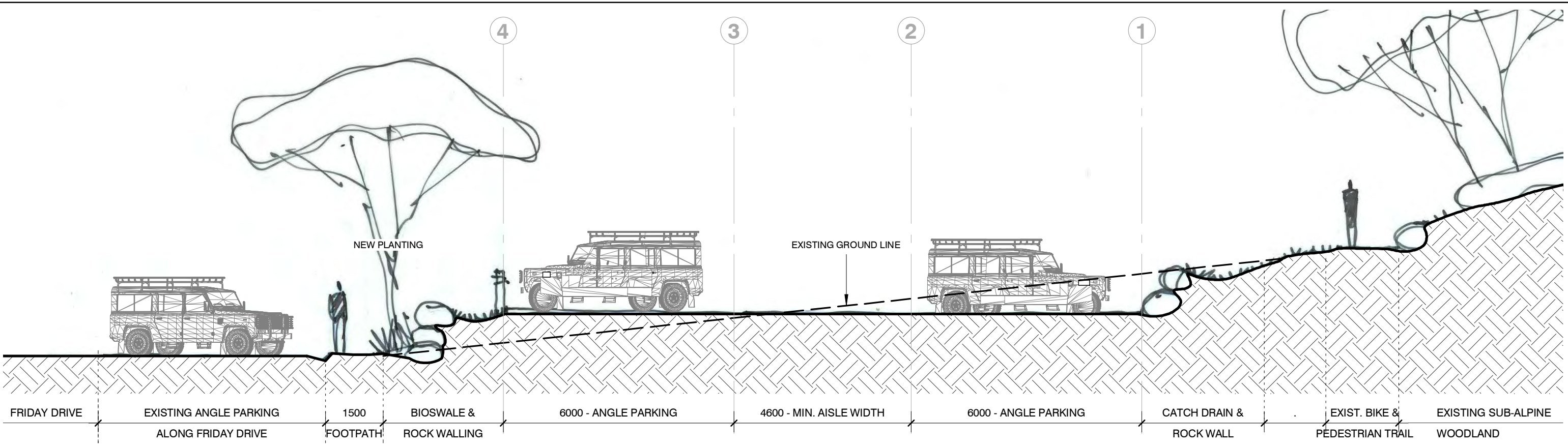
PROJECT
FRIDAY FLAT CARPARK CP2

Friday Drive
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T +612 9319 2955
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Andrew Hipwell 6562
Daniel Beekwilder 6192
64 Ross Street
Chippendale NSW 2008
Sydney Australia
djrd.com.au

DRAWN SCALE AT A3
Author As indicated
DESCRIPTION
GENERAL ARRANGEMENT PLAN

PROJECT No	DRAWING No	REVISION
18 420	A1.100	D



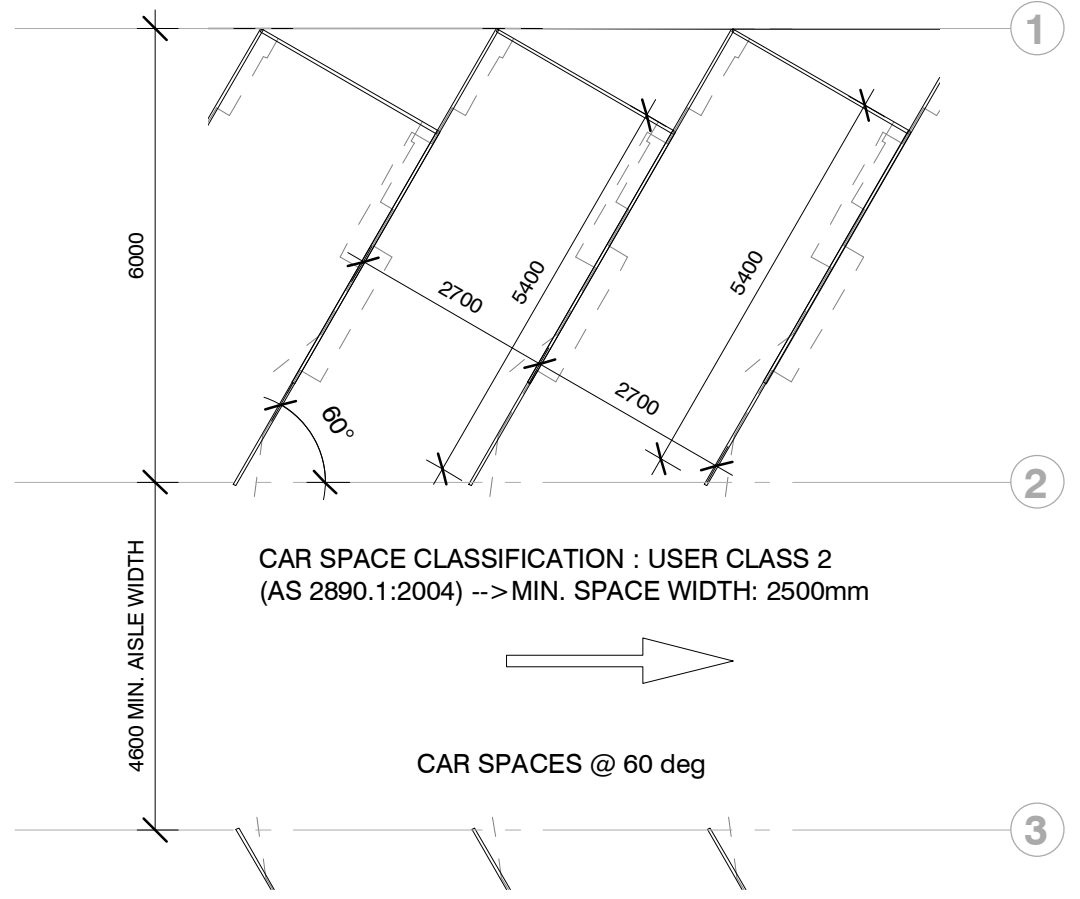
1 INDICATIVE SECTION
A1.100 1 : 100

This drawing should be read in conjunction with all relevant contracts, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.

NOTES

AUTHORISED FOR ISSUE

ISSUE	DATE	SUBJECT	VALIDITY
B	04/01/19	UPDATED PLAN	ST
A	18/12/18	DARE-ISSUE	SM



2 CAR SPACE DETAIL
1 : 100

CLIENT
EVENT Hospitality and Entertainment

DEVELOPMENT APPLICATION
PROJECT
FRIDAY FLAT CARPARK CP2

Friday Drive
Thredbo Village

ARCHITECT
djrd architects
T +612 9319 2955
ABN: 48 942 921 969
Nominated Architects:
Andrew Hipwell 6562
Daniel Beekwilder 6192
64 Ross Street
Chippendale NSW 2008
Sydney Australia
djrd.com.au

DRAWN	SCALE AT A3	
Author	1 : 100	
DESCRIPTION		
INDICATIVE SECTION & CAR SPACE DETAIL		
PROJECT No	DRAWING No	REVISION
18 420	A2.500	B

APPENDIX E

FAUNA AND FLORA ASSESSMENT



FLORA AND FAUNA ASESMENT

Proposed Car Park 2, Thredbo Alpine Resort

Prepared for
Event Hospitality and Entertainment Pty Ltd

20 December 2018



DOCUMENT TRACKING

Item	Detail
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Project Manager	Ryan Smithers 4476 1151 5/20 Canty Street Narooma NSW
Prepared by	Ryan Smithers
Reviewed by	Meredith Henderson
Approved by	Ryan Smithers
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Executive summary

This report describes the biological environment and assesses the potential effects on threatened and migratory species, endangered populations and ecological communities of a proposal to construct a new car park, known as Car Park 2, in the Friday Flat area of Thredbo Alpine Resort.

The proposal comprises a new car park, above Friday Drive, with 95 car spaces, on and off ramps, drainage, and landscaping. It is anticipated that it will result in the removal of approximately 0.2 ha of partially disturbed native vegetation and the removal of up to 12 native tree plantings.

The proposal will not trigger the Biodiversity Offsets Scheme (BOS), as it will not affect any land identified on the Biodiversity Values Map and the total clearing of native vegetation associated with the proposal will not exceed the 1 ha threshold which applies to the Thredbo Resort Area.

The study area and immediate surrounds was found to support two native vegetation communities PCT 679 *Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion* and PCT 637 *Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion*, with much of the study area comprising Exotic Grassland or other heavily disturbed vegetation. Forty plant species were recorded within the study area or immediate surrounds during the survey period. No threatened flora species were recorded within the study area and none are considered likely to occur there given the absence of suitable habitats. The PCT 637 which occurs in the study area and surrounds is considered to comprise the *Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps EEC*, which is listed on the BC Act. Only approximately 0.02 ha of the Montane Peatlands and Swamps EEC is expected to be affected by the proposal. The area to be affected is also either heavily modified or otherwise depauperate in nature, given that it comprises a very narrow band of wet heath and bog species associated with a minor watercourse.

Whilst the study area provides a small amount of potential habitat for threatened fauna species such as the Broad-toothed Rat, Gang-gang Cockatoo, Olive Whistler, and Flame Robin, similar habitats are extensive in the locality and the habitats to be affected are small in the context of the extent of similar habitats contiguous with the study area. Furthermore, the proposal will not affect any potentially important habitats for threatened fauna species nor sever any linkages between habitats or otherwise permanently restrict fauna movement.

An assessment of the effects of the proposal on threatened species, populations and ecological communities which may be directly or indirectly affected by the proposal was undertaken by applying the five factors from Section 7.3 of the *Biodiversity Conservation Act 2016*. This assessment concluded that the proposal is unlikely to have a significant effect on threatened species, populations or ecological communities or their habitats.

Following consideration of the administrative guidelines for determining significance under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*, it is concluded that the proposal is unlikely to have a significant impact on matters of National Environmental Significance or Commonwealth land, and a referral to the Commonwealth Environment Minister is not necessary.

Notwithstanding the relatively minor impacts on vegetation and fauna habitats associated with the proposal, the impact mitigation measures described in Section 5 are also recommended to be incorporated into the proposal.

1 Introduction

Eco Logical Australia Pty Ltd (ELA) was engaged by Event Hospitality and Entertainment Pty Ltd to prepare a flora and fauna assessment to accompany a proposal to construct a new car park, known as Car Park 2, in the Friday Flat area of Thredbo Alpine Resort. This flora and fauna assessment provides the findings of a review of relevant literature, database searches and field survey. It also addresses relevant statutory considerations and makes recommendations to ameliorate the potential impacts of the proposal on vegetation and habitats.

The aim of this investigation was to assess the ecological impacts of the proposal on flora, fauna and habitats within the study area. The objectives of this investigation were:

- To identify and describe the flora species and vegetation communities present in the study area, their condition and conservation significance.
- To identify and describe the fauna habitats present in the study area and their condition.
- To identify the fauna species which are present or likely to occur in the study area, and describe their conservation significance.
- To assess the impacts of the proposal on vegetation, fauna, habitats, and other environmental features as necessary.
- To make recommendations regarding any environmental management and impact mitigation/amelioration measures, which can be implemented to limit the effects of the proposal on vegetation, fauna, habitats, and other environmental features as necessary.

1.1 The proposal

The proposal comprises a new car park, above Friday Drive, with 95 car spaces, on and off ramps, drainage, and landscaping, as shown in **Figure 1** and **Photos 1-5**. A more detailed description of the proposal is provided in the Statement of Environmental Effects (Dabyne Planning 2018).

1.2 Direct and indirect impacts

Direct impacts on flora and fauna arising from the proposal will comprise the removal of approximately 2000 m² of native vegetation, and the removal of approximately 12 native tree plantings.

Indirect impacts associated with the proposal are expected to be minor as:

- The footprint of the proposed direct impacts is relatively small and predominantly limited to already heavily disturbed or modified vegetation.
- The proposal will be implemented using low impact methods and with adequate safeguards. These include undertaking the excavation from existing disturbed areas or within the proposed footprint, and thus not extending the disturbance footprint beyond the proposed car park.

The proposal is not anticipated to result in any substantial changes in surface or subsurface hydrology, which may lead to the loss or adverse modification of vegetation communities or associated habitats. The proposal is not expected to have any substantial long-term adverse impacts on habitat connectivity, given the limited areas of vegetation that will be affected.

The proposal will not affect directly or indirectly any area of land mapped within the Biodiversity Values Map as defined in the NSW *Biodiversity Conservation Regulation 2017* (BC Reg). The area of native vegetation affected will be approximately 0.2 ha, which is well below the threshold (1 ha) trigger for the Biodiversity Offset Scheme (BOS).

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Figure 1: The proposal – overview



Photo 1: The proposed car park will largely affect areas that are already heavily modified and dominated by exotic grasses that are regularly mown, with eucalypt plantings. This photo shows the southern parts of the proposed car park.



Photo 2: The proposed car park will largely affect areas that are already heavily modified and dominated by exotic grasses that are regularly mown, with eucalypt plantings. This photo shows the northern parts of the proposed car park.



Photo 3: Looking southward from the northern parts of the proposed car park showing some of the eucalypt tree plantings that will be removed during construction of the proposed embankment that is part of the proposed car park.



Photo 4: The approximate location of the proposed on ramp at the southern end of the proposed car park.



Photo 5: The location of the off ramp in the northern parts of the proposed car park.

1.3 Subject site, study area and locality

The subject site comprises those areas, as described in Section 1.1 and **Figure 1** and **Figure 2**, which will be directly impacted by the proposal. The study area extends approximately 5 m beyond the limits of the subject site given the relatively minor indirect impacts anticipated beyond the development footprint.

The locality for the purposes of this report is the area of land within a 5 km radius of the study area.

1.4 Topography, geology and soils

The study area occupies gently sloping predominately east facing slopes at an altitude of approximately 1370 m Australian Height Datum (AHD). The study area is underlain by Silurian granodiorite (Ecology Australia 2002). Soils are likely to comprise a mix of alpine humus soils, comprising sandy clay loams, and peat at lower depths. The study area includes two small unnamed first order watercourses, one in the middle and one at the northern end, which are tributaries of the Thredbo River.

1.5 Disturbances

The vast majority of the study area has already been disturbed in association with the existing resort development and vegetation management. Much of the study area is dominated by exotic grasses and regularly mown, as shown in **Photos 1-5**. The only less disturbed vegetation that will be affected by the proposal is on the western margins of the study area.

1.6 Planning and legislation

It is not the intention of this assessment to document all the legislation and planning instruments that are relevant to the proposal. A detailed analysis of the statutory environment is provided in the Statement of Environmental Effects for the proposal (Dabyne Planning 2018). However, the legislation and planning instruments which are relevant to the assessment of potential impacts on terrestrial flora and fauna are discussed in brief below.

1.6.1 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EPA Act) is the principal planning legislation for NSW, providing a framework for the overall environmental planning and assessment of development proposals. This proposal is to be assessed under Part 4 of the EPA Act. The EPA Act places a duty on the determining authority to adequately address a range of environmental matters including the maintenance of biodiversity and the likely impact to threatened species, populations and communities.

1.6.2 Biodiversity Conservation Act 2016

As of 25 August 2017, the *Threatened Species Conservation Act 1995* was repealed by the *Biodiversity Conservation Act 2016* (BC Act). The BC Act introduces a new mandatory framework for addressing impacts on biodiversity from development and clearing, including the Biodiversity Offsets Scheme (BOS) and Biodiversity Assessment Method (BAM). As the proposal will not trigger the BOS, a Biodiversity Development Assessment Report (BDAR) is not required and a flora and fauna assessment has been prepared. The impacts of the proposed development will be subject to a test of significance with respect to the Section 7.3 of the BC Act.

1.6.3 State Environmental Planning Policy (Kosciuszko National Park—Alpine Resorts) 2007

State Environmental Planning Policy (Kosciuszko National Park—Alpine Resorts) 2007 identified the Minister for Planning as the determining authority for development within the NSW Alpine Resorts. SEPP (Kosciuszko National Park—Alpine Resorts) 2007 requires the Minister for Planning to refer for comment any development application in the Alpine Resorts to the Director General of the NSW Office of Environment and Heritage (OEH).

1.6.4 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a national scheme for protecting the environment and conserving biodiversity values. Approval from the Commonwealth Minister is required under the EPBC Act if the action will, or is likely to, have a significant impact on matters considered to be of national environmental significance (MNES). MNES relevant to the proposal include species and ecological communities that are listed under the Act. The EPBC Act does not define significant impact but identifies matters that are necessary to take into consideration.

2 Methods

2.1 Database and literature review

Data gathered during all field studies and the literature review was analysed and interpreted in accordance with the provisions of legislation and planning controls pertaining to flora and fauna. Threatened and migratory species, threatened populations and threatened ecological communities (TECs) that have been recorded, or have the potential to occur within the locality have been assessed for their likelihood to inhabit the study area (**Appendix A**). All listed species and TECs considered likely to occur within the study area, or to be affected by the proposal, require consideration pursuant to Section 7.3 of the BC Act and under the EPBC Act.

2.2 Field surveys

ELA conducted flora and fauna surveys within the study area and surrounds on 5 September and 6 December 2018.

2.2.1 Flora surveys

A botanical survey was conducted in the study area by ELA Senior Ecologist Ryan Smithers on 5 September and 6 December 2018.

Community identification and floristic audit

The study area was surveyed to document the flora species present, including those of conservation significance, and the location and extent of vegetation communities including any TECs encountered. All flora species encountered within the study area were identified to species level. A description of the vegetation was then prepared with general observations made of the wider area. The vegetation was assessed according to the floristic and structural classifications of Ecology Australia (2002) and was classified to a Plant Community Type (PCT).

Targeted searches

Specific searches for plant species of conservation significance known from the locality were conducted targeting areas of potential habitat.

Limitations

The floristic audit undertaken recorded as many species as possible and provides a comprehensive but not definitive species list. More species would probably be recorded during a longer survey over more seasons and years. Nevertheless, the techniques used in this investigation are considered adequate to gather the data necessary to identify potential ecological constraints to the proposal.

Flora survey effort

The flora survey effort employed a total of three person-hours.

2.2.2 Fauna surveys

Field investigations for fauna were conducted in conjunction with the flora surveys on 5 September and 6 December 2018.

Habitat analysis

A description of the fauna habitats in the study area was prepared because the type of habitat in an area influences which animals occur there, as well as diversity and abundance. This habitat assessment also has an important role in predicting threatened fauna likely to occur in an area. The information collected usually includes the type of vegetation present, the presence/absence of rock habitats, tree hollows, ponds, streams, wetlands, foraging substrates and other features likely to attract threatened fauna. The study area and immediate surrounds were traversed to identify habitat components, which were recorded and described.

Diurnal surveys

Specific searches were conducted for habitats or resources of relevance for those threatened fauna species known from subalpine and montane areas, and which might be anticipated to occur given the vegetation communities and habitats present. In particular, targeted searches were undertaken for evidence of *Mastacomys fuscus* (Broad-toothed Rat).

Opportunistic fauna surveys involved observations of animal activity, habitat surveys and searches for indirect evidence of fauna. Diurnal mammal searches were conducted in areas of potential habitat across the study area, with emphasis on searches for scats, tracks, burrows, diggings and scratchings.

Limitations

The results of fauna surveys can be optimised by conducting investigations over a long period to compensate for the effect of unfavourable weather, seasonal changes and climatic variation. In general, the longer the survey the more species will be detected. Results can also be improved by using a wide range of techniques, since some species are more likely to be detected by a particular method.

However, surveys are subject to constraints that determine the amount of time allocated, the methods used and the timing of the work. Thus, the results should be viewed in the light of these limitations. The fauna detected during the survey period are a guide to the native fauna present, but are by no means a definitive list of the species occurring in the study area. Nevertheless, the techniques used in this investigation are considered adequate to gather the data necessary to identify potential ecological constraints to the proposal.

Survey effort

The fauna survey effort employed a total of three person-hours.

3 Results

3.1 Database and literature review

Appendix A provides a list of threatened and migratory species and threatened ecological communities (TEC) that have been recorded from database searches within a 5 km radius of the study area. The potential for each of these species to occur in the study area and the importance of the habitats within the study area are also discussed in **Appendix A**, and a decision made regarding the need for further assessment in this report. Some species which are not known from subalpine habitats have been excluded from **Appendix A**.

3.2 Flora

The native vegetation within the study area has been typed to a PCT with reference to the classifications of Ecology Australia (2002). The study area supports two native vegetation communities; PCT 679 *Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion* and PCT 637 *Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion*, with Exotic Grassland with Tree Plantings occupying the most heavily disturbed parts of the study area, as shown in **Figure 3**, and **Photos 6-8**.

3.2.1 PCT 679 *Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion*

PCT 679 occurs in the western less disturbed parts of the study area, as shown in **Figure 3** and **Photo 6**. It equates to the Tall Subalpine Heath of Ecology Australia (2002) and is relatively common throughout the subalpine and montane tracts within the Thredbo Resort area and within the Thredbo Valley (Ecology Australia 2002).

It is characterised by a patchy cover of *Eucalyptus stellulata* (Black Sallee) and *Eucalyptus pauciflora* (Snow Gum) above a patchy heath/shrubland dominated by *Cassinia monticola*, *Grevillea australis* (Alpine Grevillea), *Bossiaea foliosa*, *Olearia phlogopappa* subsp. *serrata*, *Ozothamnus thyrsoides* (Sticky Everlasting), and occasional *Hakea microcarpa* (Small-fruit Hakea). The dense groundcover includes species such as *Poa fawcettiae*, *Hovea montana* (Alpine Hovea), *Oxylobium ellipticum*, *Coronoides scorpioides*, *Leptorhynchus squamatus* (Scaly Buttons), *Asperula gunnii*, *Acrothamnus hookeri*, *Geranium antrorsum*, *Scleranthus biflorus* (Two-flowered Knawel), *Oreomyrrhis eriopoda* (Australian Carraway), *Carex breviculmis*, *Stellaria pungens*, *Veronica gracilis* (Slender Speedwell), and *Ranunculus lappaceus* (Common Buttercup).

3.2.2 PCT 637 *Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion*

A small and very narrow patch of this community, which equates with the Subalpine Bog of Ecology Australia (2002), occurs where a minor watercourse traverses the central parts of the study area. It also occurs on the northern extremities of the study area, beyond the subject site, and is extensive on the flats adjacent to the Thredbo River, as shown in **Figure 3**. The community is characterised by a heath dominated by *Baeckea gunniana*, *Baeckea utilis* (Mountain Baeckea), and *Epacris paludosa* (Swamp Heath), over species associated with bogs and wet areas such as *Empodisma minus* (Spreading Rope Rush), *Carex appressa*, and *Acaena novae-zelandiae* (Bidgee Widgee), as shown in **Photo 7**. The community is quite disturbed in the eastern parts of the study area as shown in **Photo 8**, and is far more diverse in the larger patches that occur nearby along the Thredbo River.



Photo 6: Typical PCT 679 within the study area showing the patchy heath and tree cover.



Photo 7: The narrow band of PCT 637 associated with the small watercourse which traverses the central parts of the study area. The community extends further to the west of the study area.



Photo 8: The band of PCT 637 is highly degraded in the eastern parts of the study area.

3.2.3 Exotic grassland with tree plantings

The most heavily disturbed parts of the study area support a regularly mown grassland dominated by exotic grasses, with patches of native grasses and forbs, and scattered tree plantings, as shown in **Photos 1-5**. These areas are characterised by an abundance of exotic grasses and herbs such as *Festuca* spp. (Fescues), *Anthoxanthum odoratum* (Sweet Vernal Grass), *Holcus lanatus* (Yorkshire Fog) and *Agrostis capillaris* (Browntop Bent) and a range of exotic herbs, particularly *Hypochaeris radicata* (Flatweed), *Acetosella vulgaris* (Sheep Sorrel), and *Achillea millefolium* (Yarrow). The tree plantings area mostly *Eucalyptus stellulata* and *Eucalyptus pauciflora*.

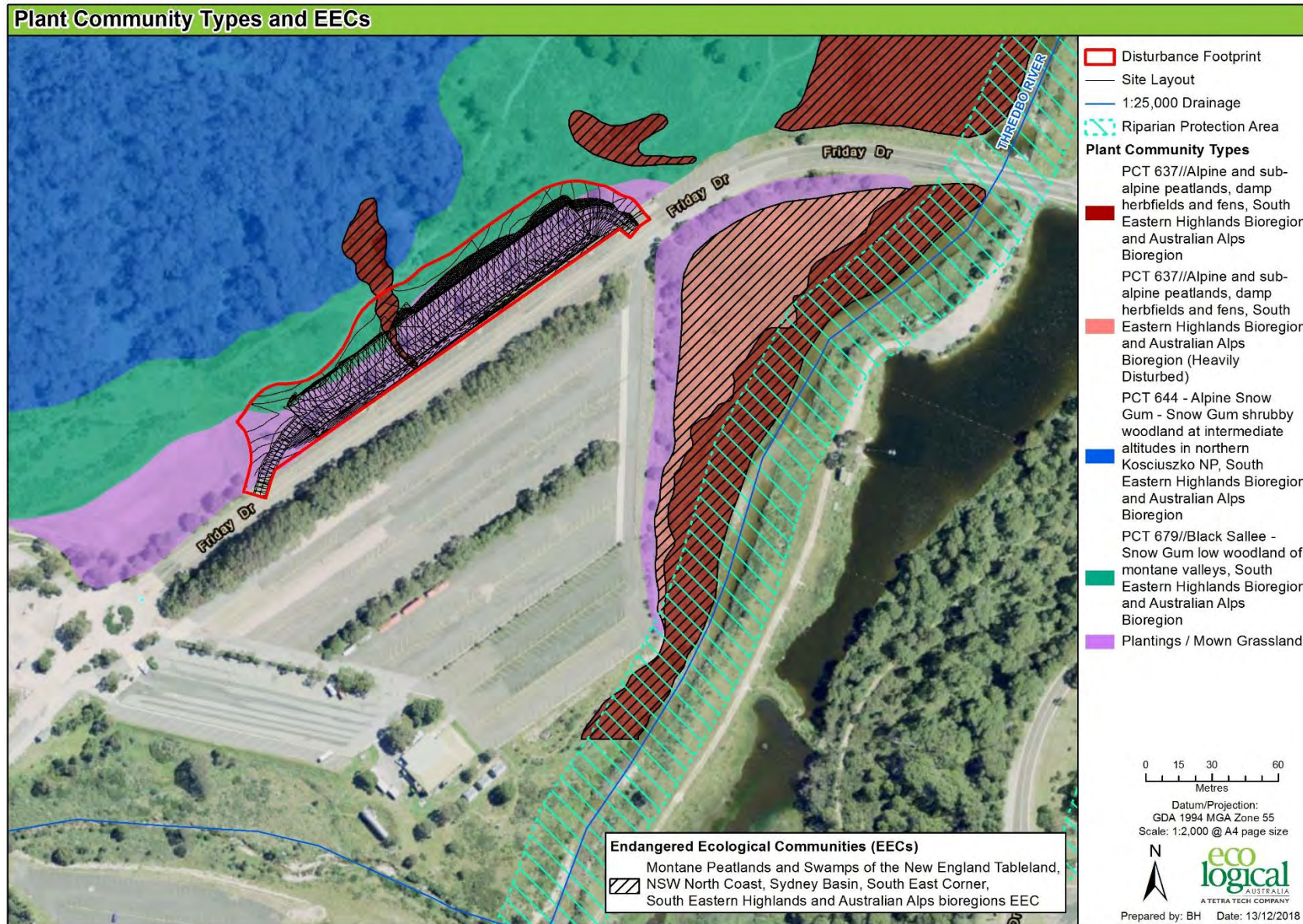


Figure 3: Vegetation within and surrounding the study area.

3.2.4 Flora species

Forty plant species were recorded within the study area or immediate surrounds during the survey period, including 33 native species and 7 exotics, and this species list appears in **Appendix B**. No threatened flora species were detected within the study area and it is highly unlikely that any occur there.

3.3 Fauna

3.3.1 Fauna habitats

The study area contains a limited range of fauna habitats given its small size and largely disturbed nature. However, the study area is surrounded by extensive areas of native vegetation and a relatively diverse range of native fauna are likely to occur there from time to time. In particular, the heath and trees provide potential habitat for native birds, mammals, reptiles, amphibians and invertebrates.

The heath within and surrounding the study area provides sheltering and foraging habitat for the Broad-toothed Rat. Minor evidence of the species (scats), which is likely to be relatively widespread in the Thredbo Resort area (TAV 1997 and Green 2002), was detected within the study area. Other common small mammal species such as *Antechinus swainsonii* (Dusky Antechinus) and *Rattus fuscipes* (Southern Bush Rat) may also occur within the study area.

The study area provides a small amount of foraging, sheltering and nesting habitat for species such as *Acanthiza pusilla* (Brown Thornbill) and the threatened *Petroica phoenicea* (Flame Robin), which was recorded in the study area during the survey period. The Flame Robin is amongst the most common birds during the summer in the more open subalpine and alpine habitats in the locality, and is recorded regularly throughout the Thredbo Resort Area. It is possible, although unlikely that threatened birds such as the *Callocephalon fimbriatum* (Gang-gang Cockatoo) and *Pachycephala olivacea* (Olive Whistler) may also forage in the study area from time to time.

The study area provides habitat for *Vombatus ursinus* (Common Wombat) and evidence of the species was observed in a number of locations surrounding the study area. However the proposal will not affect any wombat burrows.

There are only very limited rock habitats within the study area and no logs and dead trees so there is only very limited basking and foraging resource for reptiles. The study area provides a small amount of habitat for reptiles associated with heaths and grassland including *Eulamprus tympanum* (Southern Water Skink), *Pseudemoia entrecasteauxii* (Mountain Log Skink), *Pseudemoia pagenstecheri* (Grassland Tussock Skink), and *Austrelaps ramsayi* (Highlands Copperhead).

The limited water habitats within the study area provide a small foraging and breeding resource for frogs such as *Crinia signifera* (Common Eastern Froglet) and possibly other common species, although no frogs were calling during the survey period. The Exotic Grasslands within the study area are likely to be utilised by exotic species such as *Lepus timidus* (Brown Hare), *Oryctolagus cuniculus* (Rabbits) and *Cervus unicolour* (Sambar Deer).

3.3.2 Fauna species

Twelve native fauna species were detected within the study area or immediate surrounds during the survey period, including three mammals, eight birds, and one reptile, as listed in **Table 1**. A much more diverse range of native and exotic fauna would either be resident within the study area or occur there from time to time. The fauna detected during the survey period are a reflection of the limited survey effort and only provide a guide to the fauna species that would occur there.

Table 1: Fauna species recorded within the study area or immediate surrounds

Category	Common Name	Scientific Name	Detection Method
Mammals	Broad-toothed Rat	<i>Mastacomys fuscus</i>	Scats
	Common Wombat	<i>Vombatus ursinus</i>	Activity sign & scats
	Sambar Deer*	<i>Cervus unicolor*</i>	Scats
Birds	Brown Thornbill	<i>Acanthiza pusilla</i>	Observed
	Crimson Rosella	<i>Platycercus elegans</i>	Observed
	Fan-tailed Cuckoo	<i>Cacomantis flabelliformis</i>	Call recognition
	Flame Robin	<i>Petroica phoenicea</i>	Observed
	Little Raven	<i>Corvus mellori</i>	Observed
	Shining Bronze-Cuckoo	<i>Chalcites lucidus</i>	Call recognition
	Spotted Pardalote	<i>Pardalotus punctatus</i>	Call recognition
White-browed Scrubwren	<i>Sericornis frontalis</i>	Observed	
Reptiles	Tussock Skink	<i>Pseudemoia sp.</i>	Observed

Bold denotes threatened species. * denotes exotic species.

4 Impact assessment

4.1 Impacts on vegetation communities

The proposal will result in the removal or disturbance of approximately 0.18 ha of the PCT 679 *Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion* vegetation community. PCT 679 equates with the Tall Subalpine Heath mapped by Ecology Australia (2002). Ecology Australia (2002) estimate that there is approximately 64.7 ha of the community within the Thredbo Resort area (Ecology Australia 2002). The community also occurs up and downstream of the Thredbo Village on the flats adjacent to the Thredbo River and on adjacent lower slopes.

In this context, the loss or disturbance of approximately 0.18 ha of PCT 679 (at most 0.28% of the extent of the community with the Thredbo Resort area) is a relatively minor and acceptable impact

The proposal will result in the removal or disturbance of approximately 0.02 ha of the PCT 637 *Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion*. PCT 637 equates with the Subalpine Bog mapped by Ecology Australia (2002). Subalpine Bog is relatively restricted within the Thredbo Resort area, and not well mapped. However, it is extensive in association with the Thredbo River up and downstream of the Thredbo Resort area, including to the immediate north of Friday Drive, as shown in **Photo 9**.

In this context the loss or further disturbance of approximately 0.02 ha of PCT 637, much of which is already heavily modified, is a relatively minor and acceptable impact.

4.2 Impacts on threatened ecological communities

The small area of PCT 637 within the study area and immediate surrounds comprises one endangered ecological community:

- The *Montane Peatland and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions endangered ecological community* (EEC) (hereafter referred to as the Montane Peatland and Swamps) which is listed on the BC Act.

The small area of PCT 637 within the study area is not considered to comprise the *Alpine Sphagnum Bogs and Associated Fens* EEC (hereafter referred to as the Alpine Sphagnum Bogs and Associated Fens) which is listed on the EPBC Act, given the absence of key species such as Sphagnum.

The proposal will result in the loss of a very small degraded area of Montane Peatland and Swamps which is of limited significance, approximately 0.02 ha, in the context of the extent and generally superior condition of the local occurrence of the community. The community is relatively extensive in the higher subalpine and alpine areas in the locality, and nearby along the Thredbo River, as shown in **Figure 3** and **Photo 9**.

4.3 Impacts on flora species of conservation significance

No threatened flora species, or flora species identified on the schedules of the Kosciuszko National Park Plan of Management (KNPPOM) (DEC 2006), were recorded within the study area during the survey period and none are expected to occur there.



Photo 9: The flats along the Thredbo River to the north of Friday Drive support relatively large areas of Montane Peatland and Swamps which is in excellent condition relative to the small patch within the study area.

4.4 Impacts on fauna habitats

Whilst the study area provides a small amount of known or potential habitat for a range of native fauna species, including threatened species, such as Broad-toothed Rat and Flame Robin, similar habitats are widespread in adjacent areas, and elsewhere within the locality, and will continue to be available to these species. The impacts associated with the proposal are limited to the removal or modification of a relatively small amount of native vegetation (approximately 0.2 ha), and up to 12 tree plantings, none of which provide important fauna habitats. Some sheltering and foraging habitat will be affected. However, this is a very small proportion of the sheltering and foraging habitat available in the areas immediately surrounding the study area, and the loss or modification of this habitat is not likely to adversely impact on fauna generally, or any threatened species.

The proposal will not affect any known Broad-toothed Rat nests or other important habitats for the species. No concentrations of scats or other evidence of nesting activity was detected during the survey period. Evidence of Broad-toothed Rat is widespread in the locality, and it is unlikely that a development such as proposed, would impact adversely of any individual or local population of the species. The proposal will not affect the Gang-gang Cockatoo, Olive Whistler or Flame Robin given the highly mobile nature of these species and the very small area of habitat affected relatively to the extent of similar habitat in the locality.

The proposal will not result in substantial modifications to the hydrological environment nor will it create barriers which prevent the movement and dispersal of fauna species. Similar developments have been undertaken over the years within and in areas immediately adjacent to the study area, and elsewhere within the NSW Alps, with negligible impacts on the hydrological environment and associated ecosystems.

Under these circumstances, the impacts of the proposal on fauna habitats are relatively minor and acceptable.

4.5 Threatened species likelihood of occurrence

As a result of database searches and field surveys, the threatened species and communities identified in **Table 2** are known or considered to have the potential to occur within the study area or immediate surrounds (**Appendix A**). The potential impact of the proposal on these entities has been assessed (**Appendix C**) pursuant to relevant statutory assessments.

Table 2: Threatened species with the potential to be affected by the proposal

Scientific Name	Common Name	FM Act	BC Act	EPBC Act	Occurrence
Fauna					
<i>Mastacomys fuscus</i>	Broad-toothed Rat	—	V	V	Known
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	—	V	—	Potential
<i>Petroica phoenicea</i>	Flame Robin	—	V	—	Known
<i>Pachycephala olivacea</i>	Olive Whistler	—	V	—	Potential

V = Vulnerable, E = Endangered

4.6 Conclusion of Test of Significance

A test of significance under Section 7.3 of the BC Act was undertaken for those threatened species and ecological communities known within the study area and immediate surrounds or with potential to occur there (**Table 2**). The outcome of the assessment was that it is highly unlikely that the proposal would significantly impact on those threatened entities assessed (**Appendix B**).

Recommendations have been provided in Section 5 to further ameliorate the potential impacts of the proposal.

4.7 Conclusion of EPBC assessment

An impact assessment under the EPBC Act was undertaken on threatened species known within the study area and immediate surrounds or with potential to occur there (**Table 2**).

The outcome of this assessment was that it is highly unlikely that the development would significantly impact on the threatened entities assessed (**Appendix C**). A referral to the Commonwealth under the EPBC Act is not necessary.

5 Recommendations

To further mitigate the potential impacts of the proposal, the following recommendations for impact mitigation and amelioration are suggested.

Vegetation and habitat management

1. All disturbance should be kept to the minimum required to achieve the proposal. In particular, excavation and any vegetation removal should be undertaken so as to minimize damage to surrounding vegetation and associated habitats.
2. All machinery to be used during the construction phase should be limited to the existing disturbed areas and the footprint of the proposal as far as is possible.
3. As far as is possible, excavation and other activities should be undertaken from existing disturbed areas so as to not extend the disturbance footprint beyond the proposal.
4. The proposal should be constructed and implemented in accordance with best practice design standards to ensure that there are no adverse modifications to the hydrological environment that may impact on surrounding vegetation and associated habitats.
5. Appropriate safeguards should be in place during the proposed works to limit the potential for invasive plants or pathogens, chemicals or any other pollutants to enter the environment in association with the proposed development.

Sediment control

6. Appropriate sediment control measures should be implemented prior to any construction work for the proposal and retained in place until exposed areas of soil or vegetation are stabilised and/or revegetated.
7. Drainage management and sediment control measures are to have particular regard to the prevention of any sedimentation of watercourses or vegetation communities adjoining the study area.

Rehabilitation

8. Rehabilitation activities should be consistent with the resort areas rehabilitation guidelines (NGH Environmental 2007).

6 Conclusion

This report describes the biological environment and assesses the potential effects on threatened and migratory species, endangered populations and ecological communities of a proposal to construct a new car park, known as Car Park 2, in the Friday Flat area of Thredbo Alpine Resort.

The study area and immediate surrounds was found to support two native vegetation communities PCT 679 *Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion* and PCT 637 *Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion*, with much of the study area comprising Exotic Grassland or other heavily disturbed vegetation. Forty plant species were recorded within the study area or immediate surrounds during the survey period. No threatened flora species were recorded within the study area and none are considered likely to occur there given the absence of suitable habitats. The PCT 637 which occurs in the study area and surrounds is considered to comprise the *Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps EEC*, which is listed on the BC Act. Only approximately 0.02 ha of the Montane Peatlands and Swamps EEC is expected to be affected by the proposal.

Whilst the study area provides a small amount of potential habitat for threatened fauna species such as the Broad-toothed Rat, Gang-gang Cockatoo, Olive Whistler, and Flame Robin, similar habitats are extensive in the locality and the habitats to be affected are small in the context of the extent of similar habitats contiguous with the study area. Furthermore, the proposal will not affect any potentially important habitats for threatened fauna species nor sever any linkages between habitats or otherwise permanently restrict fauna movement.

An assessment of the effects of the proposal on threatened species, populations and ecological communities which may be directly or indirectly affected by the proposal was undertaken by applying the five factors from Section 7.3 of the *Biodiversity Conservation Act 2016*. This assessment concluded that the proposal is unlikely to have a significant effect on threatened species, populations or ecological communities or their habitats.

Following consideration of the administrative guidelines for determining significance under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*, it is concluded that the proposal is unlikely to have a significant impact on matters of National Environmental Significance or Commonwealth land, and a referral to the Commonwealth Environment Minister is not necessary.

Notwithstanding the relatively minor impacts on vegetation and fauna habitats associated with the proposal, the impact mitigation measures described in Section 5 are also recommended to be incorporated into the proposal.

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Appendix A: Likelihood of occurrence

Summary of initial assessment to determine the likelihood of occurrence of threatened species, populations and ecological communities in the proposal site.

An assessment of likelihood of occurrence was made for threatened and migratory species identified from the database search. Additional flora species have been added where the study area is considered to provide potential habitat and additional fauna species that may inhabit the study area have also been included by correlating species habitat requirements with the existing environment. Five terms for the likelihood of occurrence of species are used in this report. This assessment was based on database or other records, presence or absence of suitable habitat, features of the study area, results of the field survey and professional judgement.

The terms for likelihood of occurrence are defined below:

- “yes” = the species was or has been observed on the site
- “likely” = a medium to high probability that a species uses the site
- “potential” = suitable habitat for a species occurs on the site, but there is insufficient information to categorise the species as likely to occur, or unlikely to occur
- “unlikely” = a very low to low probability that a species uses the site
- “no” = habitat on site and in the vicinity is unsuitable for the species.

Scientific name	Common name	FM Act	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
FLORA						
<i>Argyrotegium nitidulum</i> syn. <i>Euchiton nitidulus</i>	Shining Cudweed	-	V	V	A mat-forming silver-leaved perennial daisy growing in tall alpine herbfield or open heathland above or close to the treeline. The species is known in NSW only from the high alpine area in the vicinity of Mt Kosciuszko. The species was not observed within the study area despite good survey coverage. There is no suitable habitat for the species within the study area.	No
<i>Carex archeri</i>	Archer's Carex	-	E	-	This species is associated with alpine herbfield, sod tussock grassland or alpine heathland and is known in NSW only from the Club Lake and upper Thredbo River areas. There is no suitable habitat for the species within the study area.	No
<i>Carex raleighii</i>	Raleigh Sedge	-	E	-	This species is associated with alpine herbfield, sod tussock grassland or alpine heathland. There is no suitable habitat for the species within the study area.	No
<i>Glycine latrobeana</i>	Clover Glycine	-	CE	V	Clover Glycine is found across south-eastern Australia in native grasslands, dry sclerophyll forests, woodlands and low open woodlands with a grassy ground layer. There is no suitable habitat for the species within the study area.	No
<i>Haloragis exalata</i> subsp. <i>exalata</i>	Square Raspwort	-	-	V	The Square Raspwort appears to be a post-disturbance coloniser, based on observations of large numbers of plants on disturbed roadsides, cleared power-line easements, and recently burnt or flooded areas. The nearest populations are in the Geehi Valley. There is no suitable habitat for the species within the study area.	No
<i>Prasophyllum bagoense</i>	Bago Leek-orchid	-	E	CE	The Bago Leek-orchid is endemic to NSW, and is currently known from a single population at McPhersons Plain, east of Tumbarumba in the Southern Tablelands.	No

Scientific name	Common name	FM Act	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
<i>Pterostylis oreophila</i>	Blue-tongued Orchid	-	CE	CE	In New South Wales, the Blue-tongued Greenhood is known from a few small populations within Kosciuszko National Park and a population of about 40 plants (possibly now extinct) in Bago State Forest and adjoining Crown Leases south of Tumut. It grows along sub-alpine watercourses under more open thickets of Mountain Tea-tree in muddy ground very close to water. It less commonly grows in peaty soils and sphagnum mounds. It flowers from November to January. There is a small amount of marginal potential habitat for the species within the Subalpine Riparian Scrub within study area however it is considered highly unlikely that it would occur there.	Unlikely
<i>Ranunculus anemoneus</i>	Anemone Buttercup	-	V	V	This perennial forb of the alpine and upper alpine zones tends to occur in areas where snow persists late into the warm season. The species is relatively common in the higher subalpine and alpine areas in the locality. This species was not observed within the study area despite good survey coverage.	Unlikely
<i>Rytidosperma pumilum</i>	Feldmark Grass	-	V	V	Feldmark Grass is limited to a tiny area of feldmark - about 3ha - of the Main Range of Kosciuszko National Park between Mt Northcote and Mt Lee. There is no suitable habitat for the species within the study area.	No
<i>Rytidosperma vickeryae</i>	Perisher Wallaby Grass	-	E	-	This perennial grass is associated with treeless subalpine streamside vegetation and has been recorded from Perisher, Betts, and Spencers Creeks and tributaries, and Happy Jacks Plain. It is associated with bogs and sphagnum mounds. There is no suitable habitat for the species within the study area.	No
<i>Thesium australe</i>	Austral Toadflax	-	V	V	This species is semi-parasitic on roots of a range of grass species, mainly Kangaroo Grass.	No

Scientific name	Common name	FM Act	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
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ENDANGERED ECOLOGICAL COMMUNITIES

Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps	-	EEC	-	The plant community characterizing this EEC is associated with accumulated peaty or organic-mineral sediments on poorly drained flats in the headwaters of streams. It occurs on undulating tablelands and plateaus, above 400-500 m elevation, generally in catchments with basic volcanic or fine-grained sedimentary substrates or, occasionally, granite.	Yes
Alpine Sphagnum Bogs and Associated Fens	-	-	EEC	This EEC is typically found in alpine, subalpine and montane environments. It can usually be defined by the presence of sphagnum moss, even though it may sometimes only be a minor component. It is dominated by shrubs or species such as <i>Empodisma minus</i> and is found in permanently wet areas, such as along streams, valley edges, valley floors where soils are waterlogged.	No
Natural Temperate Grassland of the Southern Tablelands (NSW and ACT)	-	CEEC	EEC	This community is associated with valleys influenced by cold air drainage and open plains in the Southern Tablelands. The vegetation communities within the study area do not comprise this community.	No
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	-	EEC	EEC	Box Gum Woodland occurs where rainfall is between 400 and 1200 mm per annum, on moderate to highly fertile soils at altitudes of 170 m to 1200 m. It occurs in an arc along the western slopes and tablelands of the Great Dividing Range from Southern Queensland through NSW to central Victoria	No
Snowy River Aquatic Ecological Community	EEC	-	-	The bed, banks, floodplains and associated vegetation of the Snowy River and all its tributaries potentially comprise part of this EEC. The ephemeral watercourse within the study area does not comprise this EEC.	No

Disclaimer: Data extracted from the Atlas of NSW Wildlife and EPBC Act Protected Matters Report are only indicative and cannot be considered a comprehensive inventory.

CE = Critically Endangered; E = Endangered; EEC = Endangered Ecological Community; V = Vulnerable

Scientific name	Common name	FM Act	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
FISH						
<i>Maccullochella peelii</i>	Murray Cod	-	-	V	The Murray Cod utilises a diverse range of habitats from clear rocky streams, such as those found in the upper western slopes of NSW (including the ACT), to slow-flowing, turbid lowland rivers and billabongs. There is no suitable habitat within the study area.	No
<i>Macquaria australasica</i>	Macquarie Perch	-	-	E	The Macquarie Perch is a riverine, schooling species. It prefers clear water and deep, rocky holes with lots of cover. As well as aquatic vegetation, additional cover may comprise of large boulders, debris and overhanging banks (. Spawning occurs just above riffles (shallow running water). The Macquarie Perch was once widespread through the cooler upper reaches of the southern tributaries of the Murray-Darling river system in Victoria and New South Wales (Anonymous 1974; McDowall 1996), however its distribution did not usually extend to the sources of these rivers. There is no suitable habitat within the study area.	No
<i>Prototroctes maraena</i>	Australian Grayling	-	E	V	Currently, the Australian Grayling occurs in streams and rivers on the eastern and southern flanks of the Great Dividing Range, from Sydney, southwards to the Otway Ranges of Victoria and in Tasmania. The species is found in fresh and brackish waters of coastal lagoons, from Shoalhaven River in NSW to Ewan Ponds in South Australia. It is absent from the inland Murray-Darling system (DPI 2006; McDowall 1980b). There is no suitable habitat within the study area.	No

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
MAMMALS					
<i>Burramys parvus</i>	Mountain Pygmy-possum	E	E	This species lives only in the alpine and subalpine areas of the highest mountains of Victoria and NSW. It lives in rocky areas where boulders have accumulated below mountain peaks and is frequently associated with alpine heathlands dominated by Mountain Plum Pine. The nearest core habitats for the species are at Charlotte Pass. Given the absence of preferred sheltering or foraging habitat within the study area it is considered unlikely that the species would occur there.	Unlikely
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	The species prefers moist forest types and is often associated with escarpments. There is no denning habitat for the species within the study area and the potential foraging habitat within the study area would form only a small proportion of the home range of the species, which has been estimated at between 800 ha and 2000 ha.	Unlikely
<i>Mastacomys fuscus</i>	Broad-toothed Rat	V	V	This species occurs in two widely separated areas in NSW, the Barrington Tops area and the wet alpine and subalpine heaths and woodlands of the Kosciuszko NP and adjacent areas. The species lives in a complex of runways through dense vegetation of wet grass, sedge or heath and under the snow in winter.	Yes
<i>Petauroides volans</i>	Greater Glider	V	V	This species is associated with tall moist forests. It would not occur within the study area.	No
<i>Petrogale penicillata</i>	Brush-tailed Rock-wallaby	E	V	This species prefers rocky habitats, including loose boulder-piles, rocky outcrops, steep rocky slopes, cliffs, gorges and isolated rock stacks. The nearest known population is more than 50 km southeast of the study area.	No
<i>Phascolarctos cinereus</i>	Koala	V	—	Associated with both wet and dry Eucalypt forest and woodland that contains a canopy cover of approximately 10 to 70% with acceptable <i>Eucalypt</i> food trees. It is highly unlikely that the species would ever occur in the study area and would not be resident there.	No

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
<i>Pseudomys fumeus</i>	Smoky Mouse	E	E	Occurs in heath on ridge tops and slopes in sclerophyll forests, heathland and open forest along the coast and inland to sub-alpine regions. Occasionally occurs in ferny gullies. It is considered highly unlikely that the species would occur within the study area or immediate surrounds given its rarity and the nature of the habitats there.	Unlikely
<i>Pteropus poliocephalus</i>	Grey-headed Flying-Fox	V	V	Inhabits a wide range of habitats including rainforest, mangroves, paperbark forests, wet and dry sclerophyll forests and cultivated areas. Camps are often located in gullies, typically close to water, in vegetation with a dense canopy. There are no camps in the locality and the species would not occur within the study area.	No

AMPHIBIANS

<i>Litoria spenceri</i>	Spotted Tree Frog	CE	E	The Spotted Tree Frog is associated with a range of vegetation communities from montane forest at high altitudes to wet and dry forest at moderate to low altitudes respectively. It occurs along sections of streams with steep banks, invariably in steeply dissected country or gorges with numerous rapids and waterfalls. It is restricted to riffle and cascade stream sections with exposed rock banks, resulting in a highly patchy distribution along most streams. Adults and juveniles most likely remain in the vicinity of the stream, rarely venturing far from the riparian zone. Tadpoles occur predominantly in slow-flowing sections of streams. There is no suitable habitat within the study area.	No
<i>Litoria raniformis</i>	Southern Bell Frog	E	V	This species is usually found in or around permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and River Red Gum swamps or billabongs along floodplains and river valleys and in irrigated rice crops, particularly where there is no available natural habitat. There is no suitable habitat within the study area.	No

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
<i>Litoria verreauxii alpina</i>	Alpine Tree Frog	E	V	This species occurs in the alpine and subalpine zones of south-eastern NSW and Victoria. It is found in a wide variety of habitats including woodland, heath, grassland and herbfields. It breeds in natural and artificial wetlands including ponds, bogs, fens, streamside pools, dams and drainage channels that are still or slow flowing. The species has disappeared from much of its former range in the last 20 years and is restricted to a few breeding sites in murky ponds. There is no suitable breeding habitat for the species within the study area and it is highly unlikely that it would occur there.	Unlikely
<i>Pseudophryne corroboree</i>	Southern Corroboree Frog	E	E	The Southern Corroboree Frog is limited to sphagnum bogs of the northern Snowy Mountains, in a strip from the Maragle Range in the northwest, through Mt Jagungal to Smiggin Holes in the south. Its range is entirely within Kosciuszko National Park. This species is all but extinct in the wild. It is no longer present at its former southern limit at Smiggin Holes.	Unlikely
REPTILES					
<i>Cyclodomorphus praealtus</i>	Alpine She-oak Skink	E	E	In NSW, the species is known from open alpine heath and tussock grassland within the Kosciuszko region, preferring treeless or lightly treed areas. The study area does not include any suitable habitat for this species and it is considered unlikely that it would occur there.	Unlikely
<i>Liopholis guthega</i>	Guthega Skink	E	E	This species is known from the Snowy Mountains and the Bogong High Plains and is associated with rocky areas in a range of alpine and subalpine vegetation communities. The species lives in extensive colonies associated with a deep burrow network that is constructed in eroded granite and humus soils beneath boulders and shrubs. The species occurs above 1800 m.	No

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
BIRDS					
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	E, M	Associated with temperate eucalypt woodland and open forest including forest edges, wooded farmland and urban areas with mature eucalypts, and riparian forests of River Oak (<i>Casuarina cunninghamiana</i>). The Regent Honeyeater primarily feeds on nectar from box and ironbark eucalypts and occasionally from banksias and mistletoes. As such it is reliant on locally abundant nectar sources with different flowering times to provide a reliable supply of nectar. The species would not occur within the study area.	No
<i>Botaurus poiciloptilus</i>	Australasian Bittern	V	E	This species favours permanent freshwater wetlands with tall, dense vegetation, particularly bulrushes and spikerushes. It hides during the day amongst dense reeds and feeds at night. It breeds during summer with nest built in secluded places in densely vegetated wetlands on a platform of reeds. There is no habitat for the species within the study area.	No
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	-	Gang-gang Cockatoos live as pairs inhabiting woodlands of south-eastern Australia. The species feeds primarily on the seeds of eucalypts and acacias and breeds in tree hollows. The species is typically associated with taller montane forests in the region but is sometimes observed foraging in Snow Gums and on the side of roads. The species may forage within the study area from time to time.	Potential
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	—	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands, with a nearly continuous distribution in NSW from the coast to the far west. It inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and <i>Acacia</i> woodland. It is considered unlikely that the species would occur within the study area.	Unlikely

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
<i>Lathamus discolor</i>	Swift Parrot	E	CE	Breeds in Tasmania between September and January. Migrates to mainland in autumn, where it forages on profuse flowering Eucalypts. Hence, in this region, autumn and winter flowering eucalypts are important for this species. Favoured feed trees include winter flowering species such as Swamp Mahogany (<i>Eucalyptus robusta</i>), Spotted Gum (<i>Corymbia maculata</i>), Red Bloodwood (<i>C. gummifera</i>), Mugga Ironbark (<i>E. sideroxylon</i>), and White Box (<i>E. albens</i>). It is considered highly unlikely that the species would occur within the study area.	Unlikely
<i>Neophema chrysogaster</i>	Orange-bellied Parrot	E	CE, M	Breeds only in coastal south-west Tasmania and spends the winter in coastal Victoria and South Australia. It nests in hollows in eucalypt trees which grow adjacent to its feeding plains. In early October the birds arrive in the south west and depart after the breeding season usually in March and April. It feeds on the seeds of several sedges and heath plants, including buttongrass. Its main food preferences are found in sedgelands which have not been burned for between 3-15 years. Also included in the diet are seeds of three Boronia species and the everlasting daisy (<i>Helichrysum pumilum</i>). After breeding, migrating birds move gradually northwards up the west coast, through the Hunter Group and King Island in Bass Strait and on to the mainland. On the journey the birds usually feed on beach-front vegetation including salt tolerant species such as sea rocket (<i>Cakile maritima</i>). They also eat various coastal native and introduced grasses. There is no habitat for the species within the study area.	No
<i>Pachycephala olivacea</i>	Olive Whistler	V	-	This species is usually associated with moist tall forests at high elevations but has been occasionally recorded at lower altitudes. Breeding occurs above 300m within habitats providing both a thick understorey and moderate canopy. In the alps the species is more typically associated with subalpine woodlands with a heathy understorey. It is likely that the species would occur within the study area from time to time.	potential

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
<i>Petroica rodinogaster</i>	Pink Robin	V	-	The Pink Robin is found in Tasmania and the uplands of eastern Victoria and far south-eastern NSW, almost as far north as Bombala. It inhabits rainforest and tall, open eucalypt forest, particularly in densely vegetated gullies. In the alps the species is more typically associated with Montane Forests rather than subalpine heaths. The species may forage within the study area from time to time.	Unlikely
<i>Petroica boodang</i>	Scarlet Robin	V	-	This species is found in south-eastern Australia and south-west Western Australia. In NSW it occupies open forests and woodlands from the coast to the inland slopes. The Scarlet Robin breeds in drier eucalypt forests and temperate woodlands, often on ridges and slopes, within an open understorey of shrubs and grasses. Abundant logs and coarse woody debris are important structural components of its habitat. In autumn and winter it migrates to more open habitats such as grassy open woodland or paddocks with scattered trees. There is no suitable habitat for the species within the study area and it is considered unlikely that it would occur there.	Unlikely
<i>Petroica phoenicea</i>	Flame Robin	V	-	The Flame Robin is found in south-eastern Australia (Queensland border to Tasmania, western Victoria and south-east South Australia). In NSW it breeds in upland moist eucalypt forests and woodlands, often on ridges and slopes, in areas of open understorey. It migrates in winter to more open lowland habitats such as grassland with scattered trees and open woodland on the inland slopes and plains. The species is well known from the locality and was observed within the study area during the survey period.	Yes

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
MIGRATORY TERRESTRIAL AND WETLAND SPECIES LISTED UNDER EPBC ACT					
<i>Hirundapus caudacutus</i>	White-throated Needletail	—	M	Forages aerially over a variety of habitats usually over coastal and mountain areas, most likely with a preference for wooded areas. Has been observed roosting in dense foliage of canopy trees, and may seek refuge in tree hollows in inclement weather.	Unlikely
<i>Merops ornatus</i>	Rainbow Bee-eater	—	M	Resident in coastal and subcoastal northern Australia; regular breeding migrant in southern Australia, arriving September to October, departing February to March, some occasionally present April to May. Occurs in open country, chiefly at suitable breeding places in areas of sandy or loamy soil: sand-ridges, riverbanks, road-cuttings, sand-pits, occasionally coastal cliffs (ibid). Nest is a chamber at the end of a burrow, up to 1.6 m long, tunnelled in flat or sloping ground, sandy bank or cutting (ibid). The species would not occur within the study area.	No
<i>Monarcha melanopsis</i>	Black-faced Monarch	—	M	This migratory species is known to breed in damp forest types and forage in rainforest and eucalypt forest. The species would not occur within the study area.	No
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	—	M	This species inhabits lowland eucalypt forests. It is known to nest in dense gully vegetation. The species would not occur within the study area.	No
<i>Neophema chrysogaster</i>	Orange-bellied Parrot	E	E, M	SEE DIURNAL BIRDS ABOVE	No
<i>Rhipidura rufifrons</i>	Rufous Fantail	—	M	This migratory species forages by catching flying insects and is known to utilise the aerial foraging space above the dense understorey in damp forests or beside rivers. The species would not occur within the study area.	No
<i>Xanthomyza phrygia</i>	Regent Honeyeater	E	E, M	SEE DIURNAL BIRDS ABOVE	No
<i>Gallinago hardwickii</i>	Latham's Snipe	—	M	Resides in swamps, dams and nearby marshy areas that contain grasses, lignum, low scrub or open timber that provides cover. It is considered unlikely that the species would occur within the study area.	Unlikely

Scientific name	Common name	BC Act	EPBC Act	Habitat associations	Likelihood of occurrence
<i>Motacilla flava</i>	Yellow Wagtail	—	M	Frequents open wetlands along the bare shores of freshwater swamps, crops and bare bore drains, as well as short-grassed fields and rocky coasts. It is considered highly unlikely that the species would occur within the study area.	Unlikely

Disclaimer: Data extracted from the Atlas of NSW Wildlife and EPBC Act Protected Matters Report are only indicative and cannot be considered a comprehensive inventory. 'Migratory marine species' and 'listed marine species' listed on the EPBC Act (and listed on the DEW protected matters report) have not been included in this table, since they are considered unlikely to occur within the study area due to the absence of marine and wetland habitats.

CE = Critically Endangered; E = Endangered; V = Vulnerable; M = Migratory

Appendix B: Flora list

Scientific name	Common name
<i>Acaena novae-zelandiae</i>	Bidgee-widgee
<i>Acetosella vulgaris</i> *	Sheep Sorrel
<i>Achillea millefolium</i> *	Yarrow
<i>Acrothamnus hookeri</i>	
<i>Anthoxanthum odoratum</i> *	Sweet Vernal Grass
<i>Agrostis capillaris</i> *	Browntop Bent
<i>Asperula gunnii</i>	Mountain Woodruff
<i>Baeckea utilis</i>	Mountain Baeckea
<i>Baeckea gunniana</i>	Alpine Baeckea
<i>Bossiaea foliosa</i>	Leafy Bossiaea
<i>Carex appressa</i>	Tall Sedge
<i>Carex breviculmis</i>	
<i>Cassinia monticola</i>	
<i>Coronidium scorpioides</i>	Button Everlasting
<i>Empodisma minus</i>	Spreading Rope Rush
<i>Epacris paludosa</i>	Swamp Heath
<i>Eucalyptus pauciflora</i>	Snow Gum
<i>Eucalyptus stellulata</i>	Black Sally
<i>Festuca rubra</i> *	Red Fescue
<i>Geranium antrosum</i>	
<i>Gratiola</i> sp.	
<i>Grevillea australis</i>	Alpine Grevillea
<i>Holcus lanatus</i> *	Yorkshire Fog
<i>Hovea montana</i>	Alpine Hovea
<i>Hypochaeris radicata</i> *	Flatweed
<i>Leptorhynchos squamatus</i>	Scaly Buttons
<i>Luzula novae-cambriae</i>	
<i>Microseris lanceolata</i>	Murrnong
<i>Olearia phlogopappa</i> subsp. <i>flavescens</i>	Dusty Daisy-bush
<i>Olearia phlogopappa</i> subsp. <i>serrata</i>	Dusty Daisy-bush

<i>Oreomyrrhis eriopoda</i>	Australian Carraway
<i>Oxylobium ellipticum</i>	Common Shaggy Pea
<i>Poa fawcettiae</i>	Smooth Blue Snowgrass
<i>Ranunculus lappaceus</i>	Common Buttercup
<i>Scleranthus biflorus</i>	Knawel
<i>Stellaria pungens</i>	Prickly Starwort
<i>Taraxacum officinale</i> *	Dandelion
<i>Trifolium repens</i> *	White Clover
<i>Veronica gracilis</i>	Slender Speedwell

* = denotes introduced species

Appendix C: Test of significance

Test of significance pursuant to section 7.3 of the BC Act: Five-part test

An assessment of the effects of the proposal on threatened species, populations and ecological communities which may be directly or indirectly affected by the proposal may be carried out by applying the five factors from Section 7.3 of the BC Act. Threatened species, populations and ecological communities which may be directly or indirectly affected by the proposal include:

- *Mastacomys fuscus* (Broad-toothed Rat)
- *Callocephalon fimbriatum* (Gang-gang Cockatoo)
- *Petroica phoenicea* (Flame Robin)
- *Pachycephala olivacea* (Olive Whistler)
- Montane Peatlands and Swamps EEC

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Vulnerable Species

Fauna

Broad-toothed Rat *Mastacomys fuscus* (known occurrence).

The Broad-toothed Rat generally occurs in two widely separated areas in NSW, the Barrington Tops area and the wet alpine and subalpine heaths and woodlands of the Kosciuszko NP and adjacent areas. The species lives in a complex of runways through dense vegetation of wet grass, sedge or heath and under the snow in winter. Home range size is thought to range between approximately 0.1 ha and 0.27 ha. Individuals nest alone over summer but congregate in communal nests during winter. The species is thought to be locally common in the alpine and high subalpine tracts of the Snowy Mountains area (Green 2002), where suitable habitats are present.

The study area provides a small amount of potential foraging and sheltering habitat for the Broad-toothed Rat. Minor evidence of the species in the form of a few scats was observed within the study area.

The proposed development will affect some known and potential habitat for the species, however, it will affect only a very small amount of the potential habitat for the species in the Thredbo Resort area. The proposed development will not affect any key resources for the species, and the habitats immediately adjoining the study area will continue to be available to the species after the implementation of the proposed development. As such, the proposed development is unlikely to adversely affect a significant proportion of the home range of one or more Broad-toothed Rat individuals.

The proposed development will not result in habitat fragmentation which could isolate individuals or a population of the Broad-toothed Rat. Under these circumstances, the proposed development is considered unlikely to disrupt the life cycle of the Broad-toothed Rat such that a viable local population is likely to be placed at risk of extinction.

Gang-gang Cockatoo *Callocephalon fimbriatum* (potential occurrence).

In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the central and southern tablelands and south-west slopes. In summer, this species is generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, the Gang-gang Cockatoo may occur at lower altitudes in drier more open eucalypt forests and woodlands, and is often found in urban areas. It may also occur in sub-alpine Snow Gum woodland and occasionally in temperate rainforests (DECC 2005).

The species is regularly observed at Thredbo and in montane and subalpine areas in the region and was heard calling near the study area during the survey period. Whilst the species may forage within the study area, it would not breed there given the absence of suitable nesting habitat. Given the extensive forests within the locality, breeding and roosting habitat is likely to be relatively abundant.

The study area provides a very small area of suitable foraging resources for the species. The foraging resources (generally eucalypt trees) to be removed in association with the proposed development would not be important for the species, given the extent of foraging resources in the Thredbo Resort area.

Under these circumstances, the proposed development will not disrupt the life cycle of the Gang-gang Cockatoo such that a viable local population of the species is likely to be placed at risk of extinction.

Flame Robin *Petroica phoenicea* (likely occurrence).

The Flame Robin is found in south-eastern Australia (Queensland border to Tasmania, western Victoria and south-east South Australia). In NSW it breeds in upland moist eucalypt forests and woodlands, often on ridges and slopes, in areas of open understorey. It migrates in winter to more open lowland habitats such as grassland with scattered trees and open woodland on the inland slopes and plains. There are numerous records of the species throughout the NSW Alps, and the species was observed in the study area during the survey period. It is well known from the Thredbo Resort area and is one of the most common birds of open habitats outside of the winter period.

The proposal will affect a very small amount of potential nesting and foraging habitat for the species. This is negligible in the context of the extensive areas of similar habitat within the Thredbo Resort area that will not be affected by the proposed development and which will continue to be available to the species. The species is not sedentary and undertakes substantial seasonal migrations, reducing the species dependence on any specific area of known or potential habitat.

Under these circumstances, the proposed development is unlikely to disrupt the life cycle of the Flame Robin such that a viable local population of the species is likely to be placed at risk of extinction.

Olive Whistler *Pachycephala olivacea* (potential occurrence).

The Olive Whistler is found in south-eastern Australia (Queensland border to Tasmania, western Victoria and south-east South Australia). In the NSW Alps, it is associated with areas of tall dense heath, particularly riparian Tea-tree scrubs. It breeds in the thick understorey of moist eucalypt forests and subalpine woodlands. It migrates in winter to lowland habitats. There are numerous records of the species throughout the NSW Alps including within the Thredbo Resort area where it is considered a common resident. The species was not recorded within the study area during the survey period however it is likely to occur there from time to time.

The proposed development will result in the loss of a very small amount of marginal potential foraging habitat for the Olive Whistler. Whilst this comprises an adverse impact on the species, the habitat to be removed is very small relative to the extensive areas of similar habitat which occurs within the Thredbo Resort area and elsewhere in the locality. Extensive areas of potential habitat for the species is

contiguous with the study area. The species is highly mobile and considered to be common within the Thredbo Valley and the Thredbo Valley population is considered to be contiguous with other populations to the north and south (MGP 1996).

Under these circumstances it is considered unlikely that the proposed development would affect the life cycle of the Olive Whistler such that a viable local population of the species is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

Montane Peatlands and Swamps

i. Extent of Local Occurrence

The proposed development will result in a very minor reduction in the extent of the Montane Peatlands and Swamps EEC which occurs within the study area and surrounds. The community within the study area is in part heavily disturbed. The community is extensive in surrounding areas, particularly along the Thredbo River.

Under these circumstances, it is considered unlikely that the community would be adversely affected by the proposed development.

ii. Composition of Local Occurrence

The composition of the Montane Peatlands and Swamps EEC which occurs in the study area is unlikely to be significantly different to the composition in similar habitats within the locality. That is, it is unlikely that it supports a unique assemblage of the characteristic species of the community that does not occur elsewhere. In fact, the occurrence of the community within the study area is depauperate in comparison to elsewhere within the local occurrence where the community is more extensive and less disturbed. The proposed development will not adversely modify the composition of the community or otherwise adversely affect it such that its local occurrence is likely to be placed at risk of extinction.

(c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

Mammals

The proposed development will impact on only a very small area of known or potential habitat for the Broad-toothed Rat.

Birds

The proposed development will result in the modification of a very small amount of potential habitat for the Flame Robin, Gang-gang Cockatoo and Olive Whistler.

Endangered Ecological Communities

The proposed development will result in only a very minor reduction in the extent of the local occurrence of the Montane Peatlands and Swamps EEC.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

The proposed development will not fragment or isolated areas of habitat as the proposed clearing will occur on at the interface between remnant native vegetation and cleared areas.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

The habitats within the study area are not of particularly high quality and occur within an area which has already been modified by historic and ongoing impacts. They are also of very limited extent in comparison to the extensive areas of similar and superior habitats within the locality. As such, they are not considered to be critical to the long-term survival of any threatened species or the Montane Peatlands and Swamps EEC.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposed development will not affect any area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The proposed development will remove 0.2 ha of remnant native vegetation. Whilst this constitutes the Key Threatening Process 'Clearing of native vegetation', the contribution to this key threatening process is relatively minor considering the extent of remnant native vegetation in the locality and the extant extent of the vegetation communities that will be affected.

EPBC ACT SIGNIFICANT IMPACT CRITERIA

The EPBC Act Administrative Guidelines on Significance set out '**Significant Impact Criteria**' that are to be used to assist in determining whether a proposed action is likely to have a significant impact on matters of national environmental significance. Matters listed under the EPBC Act as being of national environmental significance include:

- Listed threatened species and ecological communities;
- Listed migratory species;
- Wetlands of International Importance;
- The Commonwealth marine environment;
- World Heritage properties;
- National Heritage places;
- Nuclear actions; and
- Great Barrier Reef.

Specific '**Significant Impact Criteria**' are provided for each matter of national environmental significance except for threatened species and ecological communities in which case separate criteria are provided for species listed as endangered and vulnerable under the EPBC Act.

Threatened and migratory species listed under the EPBC Act that are considered likely or potentially to occur within the study area are given in **Appendix A** of the Report. The only Commonwealth listed species which is considered to have the potential to occur within the study area is the Broad-toothed Rat.

The relevant Significant Impact Criteria have been applied to determine the significance of impacts associated with the proposal.

Matters to be addressed	Impact
(a) any environmental impact on a World Heritage Property or National Heritage Places;	<p>No. The proposal does not impact on a World Heritage Property or a National Heritage Place as addressed in the SEE.</p> <p>(listed natural: Australian Alpine National Parks and Reserves; nominated historic: Snowy Mountains Scheme NSW).</p>
(b) any environmental impact on Wetlands of International Importance;	<p>No. The proposal will not affect any part of Ramsar wetland.</p>
(c) any impact on Commonwealth Listed Critically Endangered or Endangered Species;	<p>No. The proposal will not impact any Commonwealth listed endangered species.</p>
(d) any impact on Commonwealth Listed Vulnerable Species;	<p>Yes. The study area provides potential habitat for one Commonwealth listed vulnerable species: the Broad-toothed Rat.</p> <p>The significant impact criteria in terms of the vulnerable species are discussed below:</p> <p><i>a. lead to a long-term decrease in the size of an important population of a species.</i></p> <p>Whilst the proposed action will affect some potential habitat for the Broad-toothed Rat, it will affect only a very small amount of the potential habitat for the species. As such, the proposal is considered highly unlikely to adversely affect a significant proportion of the home range of one or more Broad-toothed Rat individuals and will not result in habitat fragmentation which could isolate individuals or a population of the Broad-toothed Rat.</p> <p>The noise and vibration associated with the proposal is likely to temporarily deter any Broad-toothed Rat individuals that may be near the affected areas. As such, it is unlikely that any individuals would be unintentionally killed during the implementation of the proposed action.</p> <p>Under these circumstances the proposed action will not lead to a long-term decrease in the size of an important population of the Broad-toothed Rat.</p> <p><i>b. reduce the area of occupancy of an important population</i></p> <p>It is highly likely that the Broad-toothed Rat will continue to occur in areas surrounding the study area after the implementation of the proposed action. The species continues to be locally common in the Thredbo Resort Area where there have been many similar</p>

Matters to be addressed	Impact
	<p>and larger developments over many decades. As such, the proposed action is highly unlikely to significantly reduce the area of occupancy of the Broad-toothed Rat, and will not reduce the areas of occupancy of an important population of the species.</p> <p><i>c. fragment an existing important population into two or more populations</i></p> <p>The proposed action will not fragment an existing important population of the Broad-toothed Rat into two or more populations.</p> <p><i>d. adversely affect habitat critical to the survival of a species</i></p> <p>No habitat within the study area is considered to be critical to the survival of the Broad-toothed Rat.</p> <p><i>e. disrupt the breeding cycle of an important population</i></p> <p>The proposed action and affected area is too small to disrupt the breeding cycle of an important population of the Broad-toothed Rat.</p> <p><i>f. modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline</i></p> <p>The proposed action will not modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the Broad-toothed Rat is likely to decline.</p> <p><i>g. result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat</i></p> <p>The proposed action will not result in invasive species that are harmful becoming established in habitat for the Broad-toothed Rat.</p> <p><i>h. interferes substantially with the recovery of the species.</i></p> <p>Whilst there have been documented declines in some Broad-toothed Rat populations within the Snowy Mountains, these declines have been attributed to environmental factors such as major bushfire events and early snow thaws, and not impacts of the nature of those proposed. In any case, the local population of the Broad-toothed Rat appears to continue to be relatively large on the basis of the abundance of the species scat throughout the Thredbo Resort Area. The species continues to occur in suitable habitats within the Thredbo Resort Area, including within the village, and consistently along the Thredbo River. As such, it is considered highly unlikely that proposed action will substantially interfere with the recovery of the Broad-toothed Rat.</p>
(e) Any impact on a Commonwealth Endangered Ecological Community	No. The proposal will not have any adverse impacts on any listed Commonwealth Endangered Ecological Communities.
(f) any environmental impact on Commonwealth Listed Migratory Species;	No. The proposal will not have any adverse impacts on any listed migratory species.

Matters to be addressed	Impact
(g) does any part of the Proposal involve a Nuclear Action;	No. The project does not include a Nuclear Action.
(h) any environmental impact on a Commonwealth Marine Area;	No. There are no Commonwealth Marine Areas within the study area.
(i) In addition, any direct or indirect impact on Commonwealth lands	No. The project does not directly or indirectly affect Commonwealth land.



HEAD OFFICE

Suite 2, Level 3
668-672 Old Princes Highway
Sutherland NSW 2232
T 02 8536 8600
F 02 9542 5622

CANBERRA

Level 2
11 London Circuit
Canberra ACT 2601
T 02 6103 0145
F 02 9542 5622

COFFS HARBOUR

35 Orlando Street
Coffs Harbour Jetty NSW 2450
T 02 6651 5484
F 02 6651 6890

PERTH

Suite 1 & 2
49 Ord Street
West Perth WA 6005
T 08 9227 1070
F 02 9542 5622

MELBOURNE

Level 1, 436 Johnston St
Abbotsford, VIC 3076
T 1300 646 131

SYDNEY

Suite 1, Level 1
101 Sussex Street
Sydney NSW 2000
T 02 8536 8650
F 02 9542 5622

NEWCASTLE

Suites 28 & 29, Level 7
19 Bolton Street
Newcastle NSW 2300
T 02 4910 0125
F 02 9542 5622

ARMIDALE

92 Taylor Street
Armidale NSW 2350
T 02 8081 2685
F 02 9542 5622

WOLLONGONG

Suite 204, Level 2
62 Moore Street
Austinmer NSW 2515
T 02 4201 2200
F 02 9542 5622

BRISBANE

Suite 1, Level 3
471 Adelaide Street
Brisbane QLD 4000
T 07 3503 7192

HUSKISSON

Unit 1, 51 Owen Street
Huskisson NSW 2540
T 02 4201 2264
F 02 9542 5622

NAROOMA

5/20 Cauty Street
Narooma NSW 2546
T 02 4302 1266
F 02 9542 5622

MUDGEES

Unit 1, Level 1
79 Market Street
Mudgee NSW 2850
T 02 4302 1234
F 02 6372 9230

GOSFORD

Suite 5, Baker One
1-5 Baker Street
Gosford NSW 2250
T 02 4302 1221
F 02 9542 5622

ADELAIDE

2, 70 Pirie Street
Adelaide SA 5000
T 08 8470 6650
F 02 9542 5622

APPENDIX F

ABORIGINAL DUE DILLIGENCE ASSESSMENT

Aboriginal Cultural Heritage Due Diligence Assessment

FRIDAY FLAT CARPARK PROPOSED EXTENSIONS



Report Prepared for Event Hospitality Pty Ltd

20th December 2018

Project Number:		6643	
Project File Name:		Due Diligence Friday Flat Carpark Extension	
Revision	Date	Prepared by (name)	Reviewed by (name)
Draft	5/10/2018	Lyn O'Brien	Ivan Pasalich
Final	20/12/2018	Lyn O'Brien	

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- Tabled GPS co-ordinates for Aboriginal places or objects, including lithic artefacts, stone arrangements, middens, burials, scarred trees, rock art and Potential Archaeological Deposits.
- Maps or images depicting the location of Aboriginal places or objects, including lithic artefacts, stone arrangements, middens, burials, scarred trees, rock art and Potential Archaeological Deposits.
- Location or overly descriptive information pertaining to places of Aboriginal cultural significance, as expressed or directed by Representative Aboriginal Organisations, Aboriginal elders, or members of the wider Aboriginal community.
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EXECUTIVE SUMMARY

Event Hospitality & Entertainment Limited, operators and managers of Thredbo Alpine Resort, are seeking to upgrade and augment the facilities of the Resort. A number of building projects have been identified as part of this process including the proposed extension of visitor car park facilities at Friday Flat at Thredbo.

This report provides Aboriginal heritage due diligence advice for the proposed extension to the Friday Flat Carpark. The current car parking facilities are in need of expansion to meet the requirements for the increased visitor numbers to the area. The proposed extension will involve the construction of three additional carparks and consists of:

- Carpark 1 – construction of suspended deck and on grade parking to accommodate 115 vehicles within Stage 1 (CP1-A) and 104 vehicles within Stage 2 (CP1-B), located on the south side and adjacent to Friday Flat Drive. This car park is within the current day parking location and will not impact any additional areas.
- Carpark 2 – Construction of on grade parking located on the north side and adjacent to Friday Flat Drive. This area of construction will involve vegetation removal, cut and fill earthworks, storage of materials and temporary lay down areas.
- Carpark 3 – Construction of on grade parking located on the south side of Friday Flat Drive on flats adjacent to Thredbo River. This area of construction will involve vegetation removal, cut and fill earthworks, compaction, plant movement and site construction areas.

The study area is shown in a regional context on Figure 1 and the proposed carpark extension footprint in Figure 2.

No Aboriginal heritage sites were identified within the project area based on a review of heritage registers and previous reports. No areas of Potential Archaeological Deposit (PAD) were located within the project area during the field survey or background review.

As a result of the desktop background research and site visit completed for the project, the following recommendations have been developed:

- No recorded Aboriginal objects or places are present in the project area.
- No areas of high or moderate potential to contain unrecorded Aboriginal objects of places are present in the project area within the locations of carpark 1, 2 or 3.
- The development proposal should be able to proceed with no additional archaeological investigations as no areas of potential archaeological deposits or heritage sites have been identified within these development areas and the potential for Aboriginal heritage objects within the development areas has been assessed as low.
- All Aboriginal objects are protected under the *NSW National Parks and Wildlife Act 1974*. It is an offence to disturb an Aboriginal site without a consent permit issued by the Office of Environment and Heritage. Should any Aboriginal objects be encountered during works then works must cease and the find should not be moved until assessed by a qualified archaeologist.
- In the unlikely event that human remains are discovered during the construction, all work must cease. OEH, the local police and the appropriate LALC should be notified. Further assessment would be required to determine if the remains are Aboriginal or non-Aboriginal.

- Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation.

1 INTRODUCTION

Event Hospitality & Entertainment Limited, operators and managers of Thredbo Alpine Resort, are seeking to upgrade and augment the facilities of the Resort. A number of building projects have been identified as part of this process including the proposed extension of visitor car park facilities at Friday Flat at Thredbo.

This report provides Aboriginal heritage due diligence advice for the proposed extension to the Friday Flat Carpark. The current car parking facilities are in need of expansion to meet the requirements for the increased visitor numbers to the area. The proposed extension will involve the construction of three additional carparks and consists of:

- Carpark 1 – construction of suspended deck and on grade parking to accommodate 115 vehicles within Stage 1 (CP1-A) and 104 vehicles within Stage 2 (CP1-B), located on the south side and adjacent to Friday Flat Drive. This car park is within the current day parking location and will not impact any additional areas.
- Carpark 2 – Construction of on grade parking located on the north side and adjacent to Friday Flat Drive. This area of construction will involve vegetation removal, cut and fill earthworks, storage of materials and temporary lay down areas.
- Carpark 3 – Construction of on grade parking located on the south side of Friday Flat Drive on flats adjacent to Thredbo River. This area of construction will involve vegetation removal, cut and fill earthworks, compaction, plant movement and site construction areas.

The study area is shown in a regional context on Figure 1 and the proposed carpark extension footprint in Figure 2.

These works are high impact and would have a negative impact on any Aboriginal heritage located within the project boundary. Aboriginal heritage sites may be located on the surface or subsurface in areas of high potential for the preservation of archaeological remains of past usage by Aboriginal groups.

To assess the potential impacts of the proposed works on Aboriginal heritage this Due Diligence Heritage Assessment has been undertaken.

This report and associated research has been conducted in accordance to the requirements of the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (OEH 2010).

1.1 PROJECT OBJECTIVES

The following is a summary of the major objectives of the due diligence assessment:

- Identify Aboriginal objects and places known to exist within the Project Area through a search of the Aboriginal Heritage Information Management System (AHIMS) maintained by the Office of Environment and Heritage (OEH).
- Assessment of Landscape for landforms that may contain potential for unrecorded sites and to determine level of disturbance of landscape features.
- Complete due diligence report containing recommendations to minimise potential impacts to heritage values within the project area.


1.2 ABORIGINAL CONSULTATION

Consultation with the Aboriginal community is not a requirement of the Due Diligence Code and this Due Diligence assessment has been undertaken without further consultation with the LALC. If impacts to Aboriginal heritage are found to occur as a result of the development then consultation will be undertaken with the LALC and the wider Aboriginal community as required by NSW Office of Environment and Heritage (2010).



Figure 1: Study Area in the Thredbo Context

Legend

 Study Area



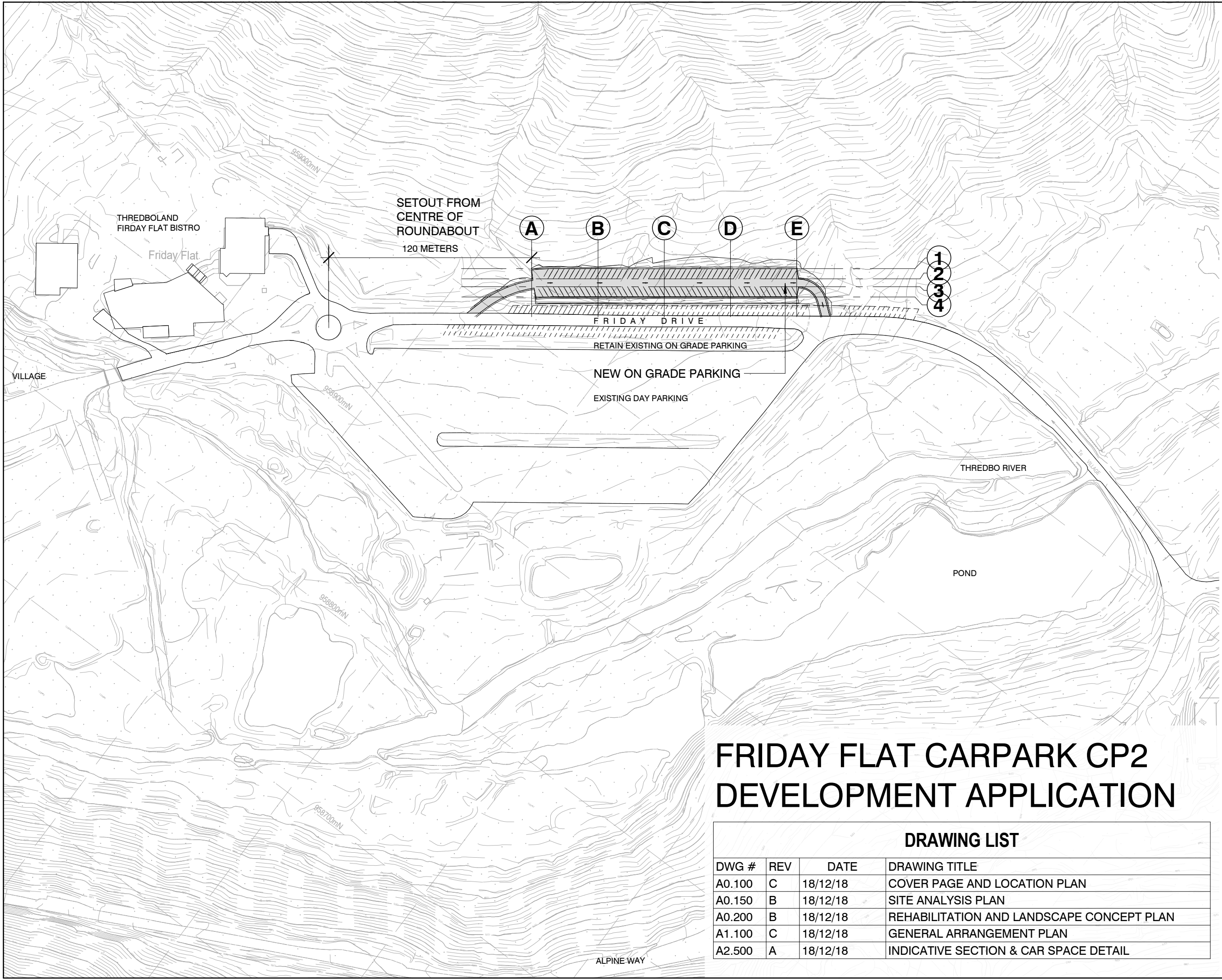
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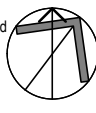
Meters

Coordinate System:
GDA 1994 MGA Zone 55
Imagery: © Dept. of Finance,
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PastTraces
Heritage Consultants



This drawing should be read in conjunction with all relevant contracts, specifications and drawings. Dimensions are in millimetres. Levels are metres. Do not scale off drawings. Use figured dimensions only. Check dimensions on Site. Report discrepancies immediately.



NOTES

AUTHORISED FOR ISSUE

ISSUE	DATE	SUBJECT	VALIDN.
C	18/12/18	DA RE-ISSUE	ST
B	13/12/18	DEVELOPMENT APPLICATION ISSUE	ST
A	23/11/18	INITIAL ISSUE	ST

CLIENT
EVENT Hospitality and Entertainment

DEVELOPMENT APPLICATION

PROJECT
FRIDAY FLAT CARPARK CP2

Friday Drive
 Thredbo Village

ARCHITECT
djrd architects
 T +612 9319 2955
 ABN: 48 942 921 969
 Nominated Architects:
 Andrew Hipwell 6562
 Daniel Beekwilder 6192
 64 Ross Street
 Chippendale NSW 2008
 Sydney Australia
 djrd.com.au

FRIDAY FLAT CARPARK CP2 DEVELOPMENT APPLICATION

DRAWING LIST

DWG #	REV	DATE	DRAWING TITLE
A0.100	C	18/12/18	COVER PAGE AND LOCATION PLAN
A0.150	B	18/12/18	SITE ANALYSIS PLAN
A0.200	B	18/12/18	REHABILITATION AND LANDSCAPE CONCEPT PLAN
A1.100	C	18/12/18	GENERAL ARRANGEMENT PLAN
A2.500	A	18/12/18	INDICATIVE SECTION & CAR SPACE DETAIL

DRAWN SCALE AT A3
 ST 1 : 2000

DESCRIPTION
COVER PAGE AND LOCATION PLAN

PROJECT No DRAWING No REVISION
 18 420 A0.100 C

2 ASSESSMENT RESULTS

2.1 AHIMS SEARCH

A search of the OEH AHIMS database was undertaken on the 03/09/2018 (AHIMS Search No 367807) covering the 1km surrounding area centred on the project area. The extensive search revealed no previously recorded heritage sites within the project area with 22 sites within the wider search area. Four of the sites are located on ridge lines, two of these sites are located on level spur crests amongst the mid slopes with the remaining on the valley flats near creek lines.

The sites located in this area are provided in table 1 and consist of isolated finds or low density scatters of stone artefacts and conform to the wider site predictive model for the Thredbo Valley/Kosciusko area (NOHC 2000, Grinsbergs 2008, Ironbark 2013). This model predicts a site location model of small sites located on level ground in proximity to water sources, or on level areas of spur lines and ridge crests amongst mountainous areas. These areas would be well drained and provided sheltered locations. This predictive model is discussed in more detail in Section 2.2.

The majority of all sites located in the region consists of low density artefact scatters or isolated finds. The location of previously recorded sites is shown in Figure 3.

Table 1. AHIMS Sites in vicinity of Project Area

<u>Site ID</u>	<u>Site name</u>	<u>Easting</u>	<u>Northing</u>	<u>Site features</u>	<u>Recorders</u>
61-6-0120	Rams Head	614180	5959030	Artefact : 6	Mr.Edward Clarke
61-3-0021	Bogong Creek;No.1;Thredbo;	614500	5958800	Artefact : -	Miss.Marjorie Sullivan
61-3-0024	Bogong Creek;	614714	5959332	Artefact : -	S.L Hodges
61-3-0049	Crackenback Chairlift 1;	615170	5960500	Artefact : -	Kerry Navin,Mr.Kelvin Officer
61-6-0081	Golf Course Extension Site 1;	615900	5958520	Artefact : -	Ms.N Fuller
61-6-0099	Ramshead Creek 1;	616100	5958960	Artefact : -	Mr.Kelvin Officer
61-6-0100	Ramshead Creek 2;	616290	5959060	Artefact : -	Mr.Kelvin Officer
61-6-0103	EDI 1	616820	5959600	Artefact : -	Charles Dearing Archaeological and Cultural Heritage Consultants
61-6-0121	Merritts Creek 1	616850	5959500	Artefact : -	Mr. Alistair Grinbergs
61-6-0082	Merritts Park Nature Trail;Site 1;	616930	5959330	Artefact : -	Ms.N Fuller
61-6-0083	Merritts Park, Site 1;	617150	5959550	Artefact : -	Ms.N Fuller

<u>Site ID</u>	<u>Site name</u>	<u>Easting</u>	<u>Northing</u>	<u>Site features</u>	<u>Recorders</u>
61-3-0065	Friday Flat IF-1;?;	617550	5959500	Artefact : 1	P Saunders
61-6-0104	Friday Flat 2	617800	5959710	Artefact : 1	Kerry Navin,Mr.Kelvin Officer
61-3-0062	Alpine Way 7	617909	5959497	Artefact : -	Kerry Navin
61-3-0063	Alpine Way 8	618350	5960050	Artefact : -	Kerry Navin
61-3-0137	Thredbo Walking Track 20	618380	5960092	Artefact : 4	Mr.Alistair Grinbergs
61-3-0138	Thredbo Walking Track 21	618380	5960092	Artefact : 1	Mr.Alistair Grinbergs
61-3-0039	Bullocks Flat to Thredbo 11	618500	5960150	Artefact : -	M Walkington
61-3-0038	Bullocks Flat to Thredbo 10	618700	5960300	Artefact : -	M Walkington
61-3-0037	Bullocks Flat to Thredbo 09	619050	5960700	Artefact : -	M Walkington
61-3-0036	Bullocks Flat to Thredbo 08	619200	5960650	Artefact : -	M Walkington
61-3-0044	Bullocks Flat to Thredbo 12	619650	5960890	Artefact : -	Mr.Doug Williams,Doctor.Sue Feary

2.2 PREVIOUS HERITAGE STUDIES

A number of heritage studies have been undertaken in the immediate area of the Thredbo Valley. These have been mainly small scale and development focused. Studies covering a larger area and generating models of occupation have been undertaken in the Perisher Valley (NOHC 2000) and Thredbo (Ironbark 2013). A review of this large body of work has been undertaken to provide context and site location modelling for the project area. The most relevant reports for the current project are summarised below.

Geering (1983) undertook field survey and assessment of the Bullocks Flat area for the Skitube development. The assessment recorded twelve isolated artefacts and three artefact scatters. Paton (1984) completed a further assessment including excavation of test pits in areas of high potential and in areas based on modelling considered to hold low potential, such as steeper slopes. None of the test pits revealed any artefacts and Paton concluded that the modelling based on areas of level ground near creek lines (Flood 1980) was correct in this location.

Paton (1985) completed a survey along the Thredbo River valley between the Ranger Station and Dead Horse Gap for the Alpine Way upgrade. This survey covered a range of differing landforms located on site on area of level ground amongst spur line.

Walkington (1988) completed a survey for a proposed 33kV powerline from Bullocks Flat to Thredbo identifying 11 artefact scatters and two isolated finds. Almost all of the sites found were situated on gently sloping ground such as spurs elevated above the river.

Paton (1988) surveyed the Thredbo Valley for a fibre optic cable route again crossing differing topographies in the area. Paton located a further two site during this assessment which supported his earlier location model.

Fuller (1988) completed a survey of the proposed development areas in Thredbo Village recording seven archaeological sites all consisting of isolated finds or small artefact scatters. The sites were located in level areas on basal and midslopes. Fuller concludes that all of the sites are typical of high altitude sites in being low-density artefact scatters (1988:7).

Navin and Officer completed two surveys of the Thredbo valley, one for the Alpine Way in 1992 and the other for the Thredbo Alpine Village in 1994. A number of small sites were located, conforming to the site models being isolated finds or small artefact scatters located on level areas or gradual slopes within basal contexts and within 400m of the river frontage.

Kamminga (1993) interprets the archaeology of the Thredbo valley as a continuous archaeological site, comprising many activity areas. He postulates that flaking of quartz pebbles at locations along the valley floor and lower slopes over millennia has produced a high background count of flaking debitage. Kamminga considers that every test excavation conducted at regular intervals along the Thredbo valley will reveal stone artefacts (Kamminga 1993).

Navin Officer completed a further survey in 1996 for the proposed electricity cable along Thredbo River. This surveyed identified site 62-1-0104 located on the southern bank of the Thredbo River, opposite the current study area. This site consisted of a scatter of 5 artefacts and an area of moderate potential on the lower slopes, located approximately 50m back from the alluvial flats.

NOHC in 2000 completed a large scale and extensive field surveys and subsurface testing of landforms for the Perisher Blue Ski Resort. This study resulted in the development of a site location model which is equally applicable to the Thredbo region as similar topography and landscape features are present.

Navin Officer Heritage Consultants concluded that the strongest site determinants were:

- Relatively level, well drained ground
- Shelter from prevailing weather patterns (mainly from the west and northwest)
- Avoidance of cold air drainage contexts
- Preference for terrain which facilitates pedestrian access and through travel
- Proximity to exploitable resources such as open woodland, grassland and herb fields and Bogong moth aestivation sites (2000:41).
- Majority of sites would be small artefact scatters of less than 15 artefacts, found throughout landscape
- Larger sites (minority) would be located on crests of ridges and major spur lines or more commonly on basal valley slopes. The larger sites decreased in artefact density the higher the location from the basal slopes (NOHC 2000:41).

Dibden (2003) completed a survey of proposed upgrade works for Antons and Sponnars T-bars at Thredbo. No sites were found, due to previous disturbance from clearing, land modification for grooming of ski slopes and the fact that the study corridor was located on steep, mid to upper slopes with low archaeological potential (2003:1).

Aecom (Formerly HLA) throughout 2004 and 2005 completed a series of survey and excavations for a proposed works depot at Friday Flat, located on level basal slopes and within a recorded site location (NOHC 1992) on the southern side of Alpine Way. This site is approximately 413m south of the current study area and 300m south of the Thredbo River. The excavations were placed in six differing locations and recovered 99 artefacts.

Grinsbergs (2008) completed a survey for the proposed multi-use trail from Bullocks Flat to Thredbo which identified 21 sites, comprising 11 artefact scatters, nine isolated artefacts and a grinding groove as well as two areas of potential archaeological deposit. All of these sites were spread along the basal slopes of the Thredbo River or river flat areas. Based on the site locations Grinbergs concludes that general model of site location for the valley was applicable and reflective of the archaeological situation.

Ironbark Heritage (2013) completed a due diligence assessment for the Thredbo Mountain Bike Trails which included the development of a GIS Slope analysis model. This assessment showed slopes of more than 10 degrees as not being conducive to Aboriginal usage and holding low potential for sites and subsurface deposits. Comparison of the current project area to the slope analysis model shows the majority of the alignments within the low potential areas.

AMBS (2013) completed an overview study of the Thredbo Village Area for development planning. Two areas adjacent to the current study area were investigated, the workshop area on the western side (carpark area) and an area for additional staff residents on the southern side of Thredbo River. The workshop area was considered to hold low potential based on previous disturbance levels whilst the area on the southern side of the Thredbo River was considered to hold moderate potential on the lower slopes above the river flats. This area was also the location of artefact scatter 62-1-0104. In addition to the previously recorded sites within the large area of assessment, AMBS identified a number of small artefact scatters and areas of potential based on site patterning. They concluded that sites would most likely be located (AMBS 2013:21):

- On lower slopes and in places where the valley floor widens
- Sites are likely to be greater in size (area) and higher in density with decreasing altitude below tree line
- Sites are likely to occur along topographic features such as major ridgelines, saddles and valleys which were used as Aboriginal people as access routes through the mountains
- Well drained elevated flats, at least 20m above marshy alluvial flats adjacent to creek lines, were favoured locations
- Sites may also be located on well drained moderately inclined slopes; however this occurs less frequently

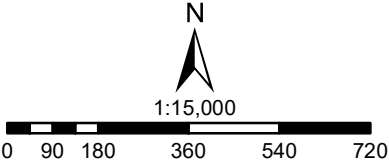
NGH (2017) completed an Aboriginal heritage due diligence assessment for the Thredbo Mountain Bike Trails covering three new trail locations. The terrain features within the project area were mostly steep slopes, with few potential areas of sensitive landforms. No sites or areas of potential were identified and the study concluded that the potential for the presence of Aboriginal sites is low due to the level of disturbance associated with previous ski slope work and the general steepness of the terrain.

Figure 3: AHIMS



Legend

- ★ AHIMS
- StudyArea



Coordinate System:
GDA 1994 MGA Zone 55
Imagery: © Dept. of Finance,
Services & Innovation 2017

2.3 PREDICTIVE MODEL

The findings of these previous assessments have been used for the development of a predictive model for the project area (Table 2). The project area is limited in size and confined to lower slopes and river flats.

This site prediction model is based on:

- Site distribution in relation to landscape features within the project area
- Consideration of site type and densities likely to be present within the project area
- Potential Aboriginal use of natural resources present or once present within the project area
- Opportunities for movement through the landscape
- Soil properties.

Table 2 Site Prediction Model

Site Type	Definition	Potential to occur
Isolated finds and surface scatters of stone artefacts	Artefact sites can range from high density concentrations to sparse, low density 'background' scatters and single finds	Moderate – small scatters and isolated finds have been previously recorded near creek lines and spur crests. Areas of level lower slopes may be present within the project area. No sites recorded in river flats.
Rock Engravings	Motifs scratched or painted onto rock surfaces, usually within a rock shelter or overhang.	Nil: No such rock features are present within the project area.
Stone arrangements	Stone arrangements can include circles, lines and other patterns and usually mark ceremonial areas.	Nil: this is a rare site type and no previous studies have identified this site type as present.
Stone quarries/Ochre sources	Raw materials for lithic artefacts and ochre are gathered from these sites. They are highly valued by the community.	Nil: There are no known ochre or stone quarries identified by previous studies. The nearest known quarry is silcrete located on western shore of Lake George
Potential Archaeological Deposits (PADS)	Sub surface deposit of cultural material	Low – aerial photos show high degree of disturbance
Scarred Trees	Trees with cultural modifications over 150 year old.	Nil: no remnant mature trees remain within project area.
Axe grinding grooves	Grooves in stone platforms created through grinding of stone implements such as axe heads	Nil: no stone platforms occur within the project area

Site Type	Definition	Potential to occur
Burials	Burials of Aboriginal persons	Nil: no deep sand deposits or soil types are present within the project area to indicate the potential for burials to occur.
Aboriginal places	Aboriginal places may not have any archaeological remains present, but are important to Aboriginal people due to their cultural, spiritual or historical associations.	Nil: There are no recorded associations for the project area.

3 SITE VISIT

A site visit and field survey of the study area was undertaken on the 21st September 2018 to verify the findings of the desktop review of landforms and disturbance. The aim of the investigation was to identify heritage objects or places of Potential Archaeological Deposit (PAD). Based upon the background research, known Aboriginal site patterning, current aerial photography, existing ground disturbances and consultation with the land owner, a pedestrian survey methodology was developed focused on the areas of proposed impact. All of these proposed impact areas were visually inspected and degree of disturbance noted.

Special attention was given to areas along drainage lines and on the surrounding landforms considered to hold potential based on landform modelling. All surveyed areas and items of interest were recorded on a topographic map of the study area (using a GPS and GDA 94 coordinates), along with levels of visibility, erosion, soil conditions, and evidence of land disturbance.

3.1 LANDFORM ASSESSMENT

The project area consists of a level to gently gradient area on the lower slopes above the Thredbo River to the north of Friday Flat Drive and a second area on the river flats to the south of Friday Flat Drive and to the north of the Thredbo River. Based on aerial photography the river flat area currently consists of grasslands and river flat vegetation communities and appears to hold a low level of disturbance. The area on the lower slopes to the north of Friday Flat Drive appears to have been impacted by the construction of the access road and to consist of moulded slopes and revegetation of grasses and tree plantings.

The Thredbo valley was a major thoroughfare for Aboriginal people moving into the higher mountain peaks from ceremonial grounds at Kalkite and the Wollondibby valley and the base of Mount Crackenback (Kamminga 1993). Open areas such as Friday Flats would have been a focus for camping and ceremonial activity.

Due to the importance of the area for the annual Bogong migration it is highly likely that the Thredbo Valley was used frequently by non-Ngarigo speaking people from the coast and elsewhere, for the purposes of meeting with other groups for ceremonial activities.

Review of previous sites located in the vicinity indicates a site location model based on level areas of lower slopes and creek flats in proximity to water resources such as small creek lines or level areas along spur lines and ridge crests (NOHC 2000, Ironbark 2013). The location of the proposed car park extension (Carpark 2) is positioned on a level area of lower slopes above the Thredbo River and holds moderate potential for Aboriginal heritage, however this area appears to have been subject to modification and impacts due to roadworks. The degree of disturbance is discussed in section 3.1.2.

The area of Carpark 3 is located on alluvial flats considered to hold low potential for Aboriginal heritage to be present based on marshy, poorly drained ground cover.

The potential of these landforms to retain unrecorded heritage sites or deposits will depend on their degree of disturbance and surface conditions. These factors will be investigated in the following sections.

3.2 GROUND SURFACE VISIBILITY

Ground surface visibility (GSV) is the percentage of ground surface that is visible during the field inspection. GSV increases in areas of exposures such as stock impact trails, roads, gates and along areas of erosion such as creek banks and dam walls. As a result surveys undertaken in areas with high exposure rates result in a more effective survey coverage.

GSV over most of the study area was very low due to the high levels of vegetation and grass coverage. Exposures were present at low frequency across the project areas consisting of levelled areas, pedestrian walking trails and mountain bike trails. The conditions at the time of the site visit are shown in plate 1.



Plate 1: view north across Carpark 3 - low GSV with planted trees along road verge



Plate 2: view north east along Thredbo River flats to carpark 3 location showing constructed bank to carpark



Plate 3: view east along Carpark 2 area

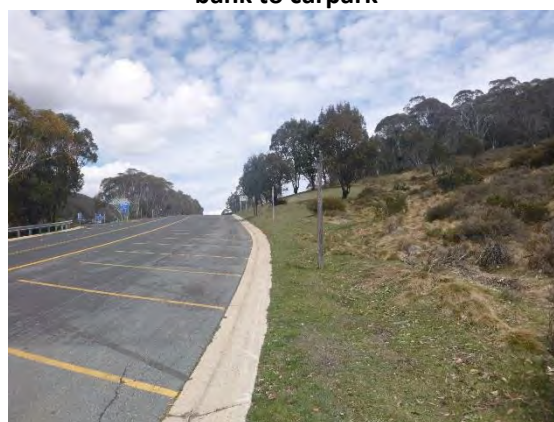


Plate 4: view west along carpark 2 area

3.3 DISTURBANCE

The project area has been subject to a high level of overall disturbance. Historically the Thredbo valley was used as a major stock route for pastoral grazing in the high country. Lower slope areas at Thredbo would have been impacted by the hard hooves, removal of trees and damage to river frontage. This practice was halted in 1958 (AMBS 2013:21).

The development of Thredbo for recreation commenced in the 1950s and a number of previous developments have occurred in the vicinity of the project area. The area along the valley floor has been levelled for buildings, facilities and car parking. These actions involved the cut and fill of landforms and slopes and the deposition of large amounts of fill to provide level areas above flood inundation. The construction of Friday Flat Drive also involved earthworks, material stockpile and work site areas. These

works have been undertaken adjacent to the current project area and these areas would have been affected to various degrees by these works.

The degree of disturbance varied across the two car park areas (Carpark 2 and Carpark 3). Disturbance appeared to be high across the area of Carpark 2, located adjacent to the north of Friday Flat Drive. Disturbances were present in the form of prior vegetation and tree removal, construction of mountain bike and pedestrian trails and Friday Flat Drive. The landform appeared to have been shaped to provide level to gentle gradient access to walking trails and has been planted with grass and rows of trees along the verge of Friday Flat Drive. The excavation for the road access and the land shaping along the verges would have removed or deposited soils in this area removing archaeological potential for site retention. Blue metal and gravels are visible in several locations along the road verge on the slopes.

Disturbance appeared to be low across the river flats proposed for Carpark 3. The flats were wet and marshy on the day of field survey with clear water channels through the vegetation. Being low lying and just above the river line this area would be currently subject to flood events. The marshy conditions would not have been conducive to Aboriginal camping or gathering as sites are generally located in well drained, elevated contexts above water lines. This area is considered to hold low potential for any unrecorded heritage sites to be present in a subsurface context.



Plate 5: area of river flats showing standing water through grasses.

3.4 RESULTS - ABORIGINAL HERITAGE SITES

No areas of Aboriginal heritage were identified during the field survey. No known heritage sites will be affected by the proposed development.

3.5 RESULTS - AREAS OF POTENTIAL ARCHAEOLOGICAL DEPOSIT (PAD)

Areas of PAD are defined as landforms that hold higher potential than their surrounds to contain subsurface deposits of past Aboriginal occupation. Based on a review of previous studies completed for the region, areas of PAD would be located in association with waterways (1st or 2nd order streams) on well drained level ground or within level areas of mid slopes and spurlines.

Areas matching this description are present along the northern verge of Friday Flat Drive within the area of Carpark 2, but due to the high level of disturbance the potential for sites to be present has been removed. The area of Carpark 3 is located within low lying marshy river flats considered to hold low potential for unrecorded heritage sites.

As a result of the site visit no areas of PAD were identified as present within the two areas of proposed impact.

4 IMPACT ASSESSMENT

As a result of the desktop assessment and site visit, it is considered that the project has low potential to impact on unrecorded Aboriginal heritage sites or areas of PAD. No Aboriginal heritage sites and no areas of PAD were recorded as a result of the assessment.

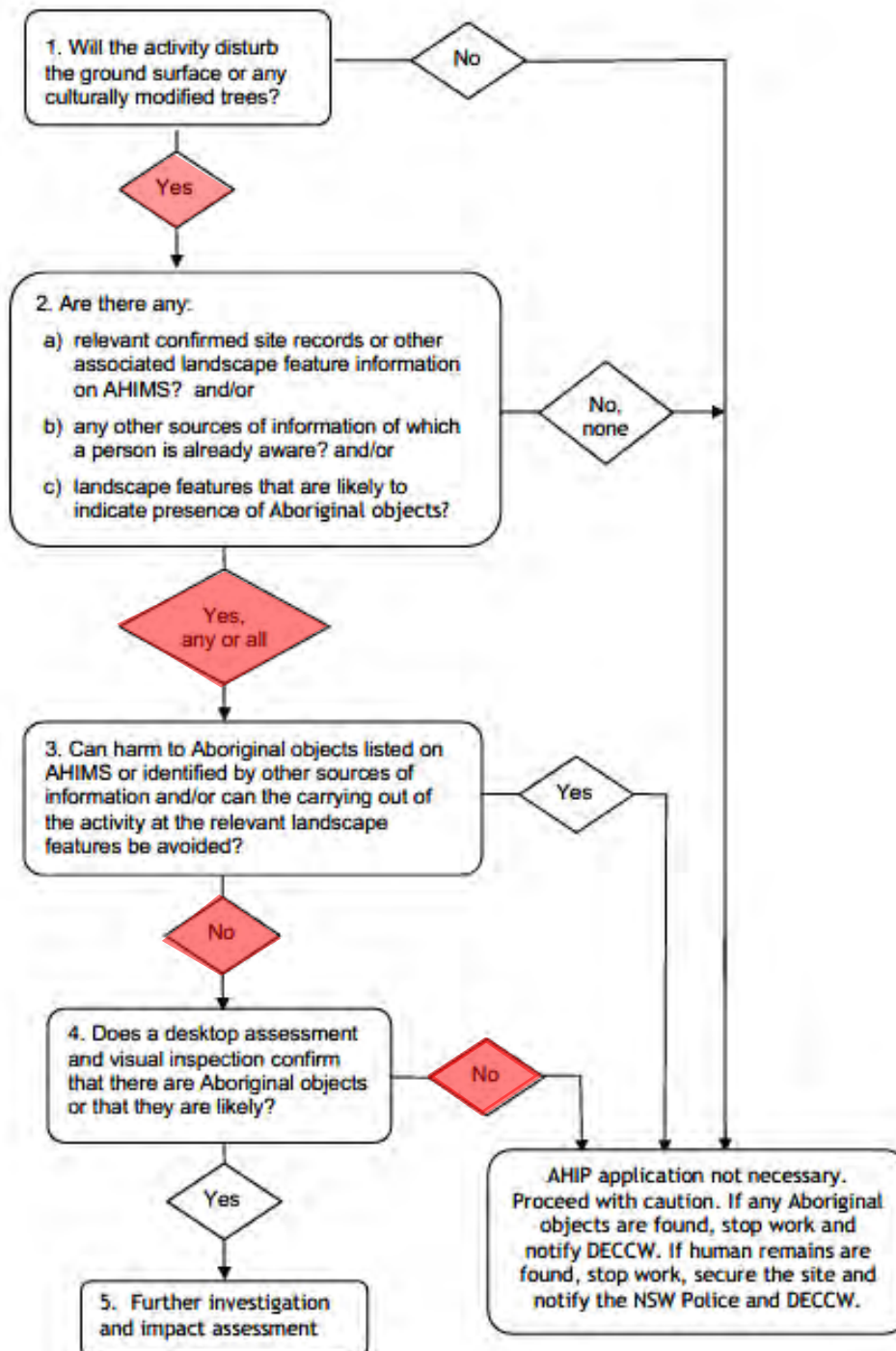
The area of Carpark 1 is within the boundary of the current constructed carpark and will have no heritage impacts. Areas within the project area for Carpark 2 where slopes are gentler have been impacted by previous land shaping and construction of car parking facilities and access roads, whilst the area of Carpark 3 is located in low lying marshy river flats.

Based on the assessment the impacts from the project are as follows:

- No known Aboriginal objects or places will be impacted by the proposed works.
- No known Aboriginal objects or places are present in the project area.
- No areas of high or moderate potential to contain unrecorded Aboriginal objects of places are present in the project area within the locations of carpark 1, 2 or 3.

The Code provides a flowchart of six questions to identify the presence of and potential harm to Aboriginal heritage. These questions and their applicability to the project are shown in Figure 4. The responses to these questions determine if further heritage investigations are required.

Figure 4. Flowchart of Due Diligence process



4.1 RECOMMENDATIONS

Based on this due diligence assessment the following actions are recommended for the project.

Recommendation 1: Works to proceed without further heritage assessment with caution in areas of Carpark 1, 2 and 3.

The proposed works can proceed without further assessment as no Aboriginal heritage sites (objects or places) are present within the project area. The potential of impacting unrecorded sites within these areas during the proposed works is assessed as extremely low, based on landform analysis and prior levels of disturbance.

Recommendation 2: Discovery of Unanticipated Aboriginal cultural material.

All Aboriginal places and objects are protected under the NPW Act 1977. This protection extends to Aboriginal material that has not been previously identified, but might be unearthed during construction activities. In the event that Aboriginal material is discovered during construction the following steps should be undertaken:

- Cease Work: Works must cease in the vicinity of the find and a fenced buffer zone of 10m around the find be erected.
- Notification: OEH must be notified of the find.
- Management: A qualified heritage consultant should be engaged to assess and record the find in accordance with the legislative requirements and OEH guidelines. If the find is Aboriginal in nature, consult with OEH in regards to appropriate steps and management. This would usually involve consultation with the Aboriginal community and may require application for an Aboriginal Heritage Impact Permit.

Adherence to these recommendations will result in the low potential for the proposal to negatively impact on Aboriginal heritage values.

Recommendation 3: Discovery of Human Remains

In the unlikely event that human remains are discovered during the construction, all work must cease. OEH, the local police and the appropriate LALC should be notified. Further assessment would be required to determine if the remains are Aboriginal or non-Aboriginal.

Recommendation 4: Alteration of impact footprint

Further archaeological assessment would be required if the proposal activity extends beyond the area of the current investigation.

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