



STATEMENT OF ENVIRONMENTAL EFFECTS

Installation of Light Pole – Bullocks Flat Carpark

Lot 500 DP1171936, Alpine Way Crackenback

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Prepared for Perisher Ski Resort

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CONTENTS

Contents	2
1 INTRODUCTION	3
1.1 Objectives of the project	3
2 site description	3
2.1 Subject Site and Surrounding Development	3
2.2 Suitability of the Site	5
3 details of the proposal	5
3.1 Project Overview	5
3.2 Site Access, Construction Material Storage and Construction Timeframes	6
3.3 Excavation	6
3.4 Waste Management	7
3.5 Power and Communications	7
4 matters for consideration	7
4.1 Biodiversity and Impacts on Aquatic Ecosystems	7
4.2 Aboriginal Cultural Heritage	7
4.3 Historic Heritage	7
4.4 Construction Impacts	8
4.5 Geotechnical Considerations	8
4.6 Visual Impacts	8
4.7 Effects on Ski Resort Operation	9
4.8 Notification	9
4.9 Public Interest	9
4.10 Social and Economic Impacts	9
5 Statutory Considerations	9
5.1 NSW Environmental Planning and Assessment Act 1979 – S4.15	9
5.2 State Environmental Planning Policy (Precincts Regional) 2021	10
5.3 Snowy Mountains Special Activation Precinct Master Plan	15
5.4 Environment Protection and Biodiversity Conservation Act (EPBC Act)	15
6 Conclusion	16
7 Appendices	16
Appendix A – SAP Master Plan Assessment Table	17
Appendix B Site Environmental Management Plan	29
Appendix C Archeological Due Diligence	31
Appendix D – Geotechnical Assessment	33

1 INTRODUCTION

This statement of environmental effects has been prepared by Perisher Blue Pty Ltd to accompany a development application for the installation of a light pole in the Ski Tube carpark at Bullocks Flat, lot 500 DP1171936, Alpine Way Crackenback. The application is being lodged by Perisher Blue, pursuant to Clause 4.12 of the Environmental Planning and Assessment Act 1979.

The proposal has been designed to achieve the relevant provisions of State Environmental Planning Policy (Precincts Regional) 2021, and Clause 4.15 of the Environmental Planning and Assessment Act 1979 (as amended).

This statement has been prepared having regard to the following documentation:

- Engineering Details Bullocks Flat Light Pole – L Coot
- Light Pole Details – GM Poles
- Location Plan
- Site Plan
- Geotechnical Inspection – JK Geotechnics
- Light Details and Design Specifications – SAL

1.1 Objectives of the project

To provide additional lighting in the Ski Tube carpark to improve safety and security of guests and staff utilising the area.

2 SITE DESCRIPTION

2.1 Subject Site and Surrounding Development

The subject site Lot 500 DP1171936 is within carpark A of the Ski Tube at Bullocks Flat. The property is a large 47-hectare site which is developed as the Ski Tube Terminal and associated infrastructure.

The Ski Tube railway provides direct access to Perisher Valley, the carpark is by both day and overnight visitors.

To the east of the site is the tourist accommodation development “Lake Crackenback Resort” which has direct access to the Ski Tube car park via a private access road. The balance of the land to the east is predominantly undeveloped, agricultural land with only minimal dwellings.

Kosciuszko National Park adjoins the property to the north, south and west.

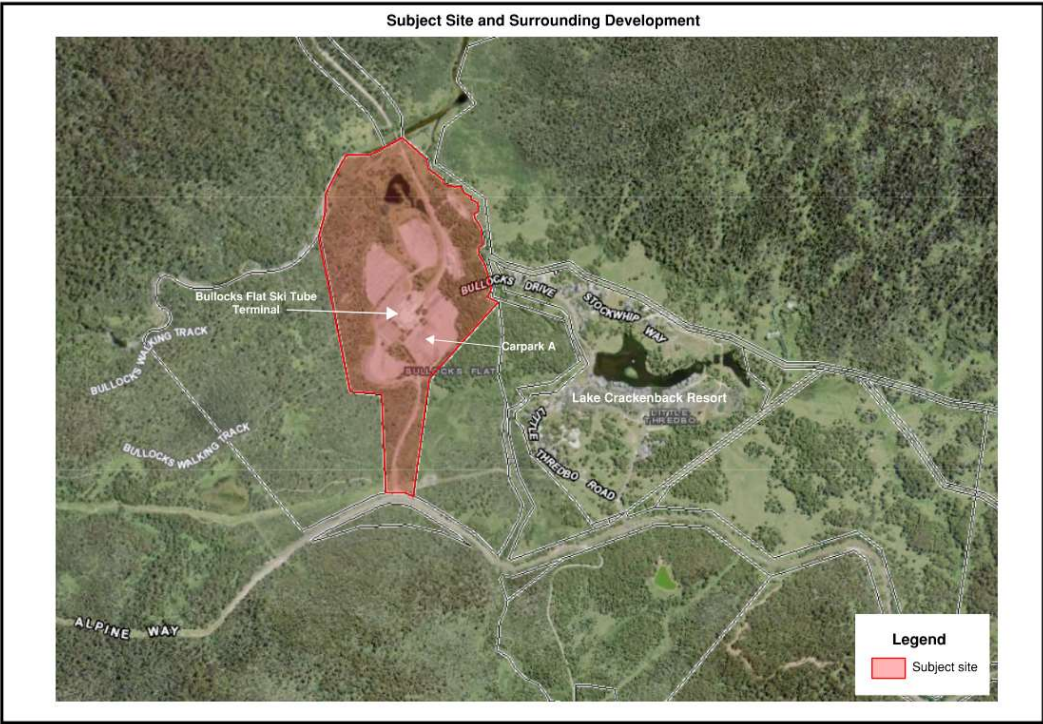


Figure 1 - Site location Plan.



Figure 2 - Site Context Plan



Figure 3 - Existing Light Pole - Same type, size and height as proposed Light Pole.



Figure 4 - View toward the Bullocks Flat Terminal Building from the Light Pole location in carpark A

2.2 Suitability of the Site

The site is suitable for the development as the proposed light pole is infrastructure that is ancillary to the use of the area as a carpark associated with the Ski Tube terminal. The location of the pole within the carparking area has minimal impact on adjoining uses. It is a considerable distance from both the Lake Crackenback resort and the other dispersed surrounding development.

There have been no amenity or environmental impacts identified with the existing pole and the proposed will be of the same size, height, and light spread.

3 DETAILS OF THE PROPOSAL

3.1 Project Overview

Installation of a 20m light pole with three 400x750mm LED floodlights and associated ground works. The development will take place adjacent to the existing carpark A signage and will be constructed in one car parking space.

The mono pole is proposed to be power coated Woodland Grey.

All works are to occur in existing disturbed land within the carpark and paved areas.

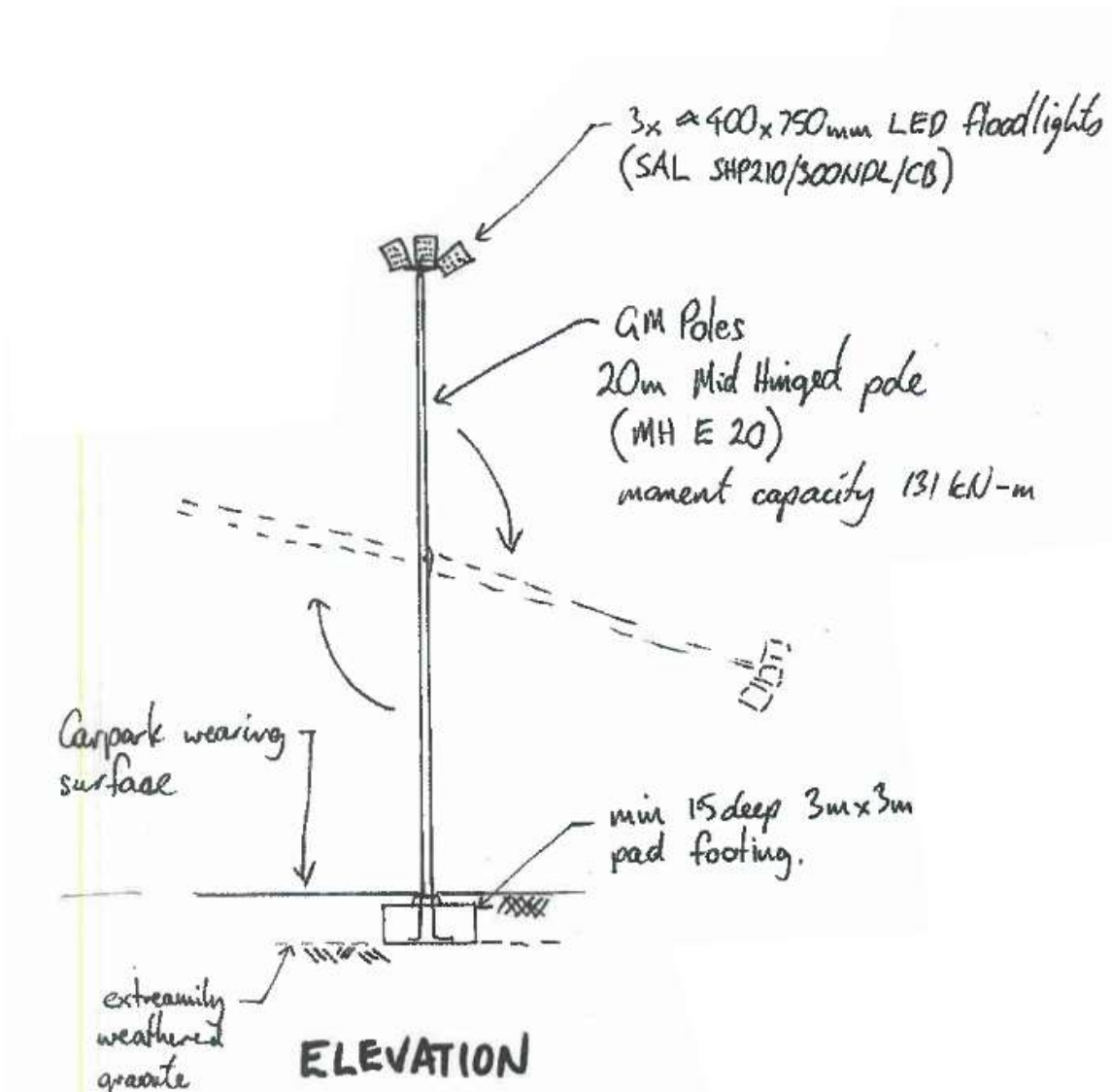


Figure 5 - Light Pole Details

3.2 Site Access, Construction Material Storage and Construction Timeframes

Access to the site is from the Alpine Way. Construction will occur in the summer season whilst the carpark is not in use which allows for construction material storage to occur within the car park.

The site will be security fenced.

3.3 Excavation

Minor excavation will be required for light pole footings (3m x 3m pad footings) and approximately 50m of trenching for electricity and communication cables. This will all occur within the existing bitumen sealed carpark and paved areas adjacent to the terminal building.

Any fill required for the project will be sourced and transported from the existing stockpile in Ski Tube carpark D.

Appropriate sediment and erosion controls will be in place during construction and until areas are backfilled and patched with bitumen and paved areas made good.

A geotechnical assessment has been carried out and will be submitted with the development application.

3.4 Waste Management

Minimal waste will be generated by the development due to the minor nature of the works. All waste will be transported from site and disposed of at the Jindabyne Landfill.

3.5 Power and Communications

Power and communications cabling will be installed from the existing connections servicing the terminal building. Minor trenching will be required to take the electricity and communications infrastructure from the building to the light pole location. No augmentation of the existing electricity connection is required to facilitate the development. All works will be carried out in accordance with required standards by suitability qualified persons.

4 MATTERS FOR CONSIDERATION

4.1 Biodiversity and Impacts on Aquatic Ecosystems

There is no vegetation disturbance proposed to facilitate the installation of the light pole. The development is within an existing bitumen sealed carpark and paved area adjoining the terminal building.

There is an existing light pole in the general vicinity of the proposed development and there have been no recorded fauna impacts with respect to its operation.

The development is not adjacent to or adjoining a riparian area, no works are proposed which would impact on aquatic ecosystems.

It is therefore considered unlikely that the proposed development will have any adverse impacts on biodiversity or aquatic ecosystems.

4.2 Aboriginal Cultural Heritage

A search of the AHIMS database did not identify any recorded Aboriginal Cultural Heritage items in the area of the development. The land is not identified as “archaeologically sensitive land” on the State Environmental Planning Policy (Precincts-Regional) 2021 Kosciuszko Alpine Region Aboriginal Archaeological Heritage Map.

A due diligence assessment was carried out, and is attached in appendix C and based on the outcome of the assessment it is reasonable to conclude that there are no known Aboriginal objects or a low probability of objects occurring in the area of the proposed activity, and the development can proceed with caution without applying for an Aboriginal heritage impact permit or the need to carry out further assessment via an Aboriginal Cultural Heritage Assessment Report.

The SEMP includes measures in the case of unexpected finds.

4.3 Historic Heritage

There is no historic heritage in the vicinity of the proposed development that would be adversely impacted by the installation of a light pole as proposed.

4.4 Construction Impacts

Due to the nature of the development, there will be limited construction impacts. Appropriate sediment and erosion control will be in place during construction and the areas made good prior to operation. Construction will occur at times where the limited noise and vibration can be managed appropriately to limit impacts on adjoining uses.

4.5 Geotechnical Considerations

The site is outside of the areas marked “G” on the Geotechnical Policy Map (see figure 6) and therefore does not require a geotechnical report, however a geotechnical inspection was carried out to assess the proposed footing design. The footings have been designed to reflect the comments in the inspection report. The inspection report is attached in Appendix D.

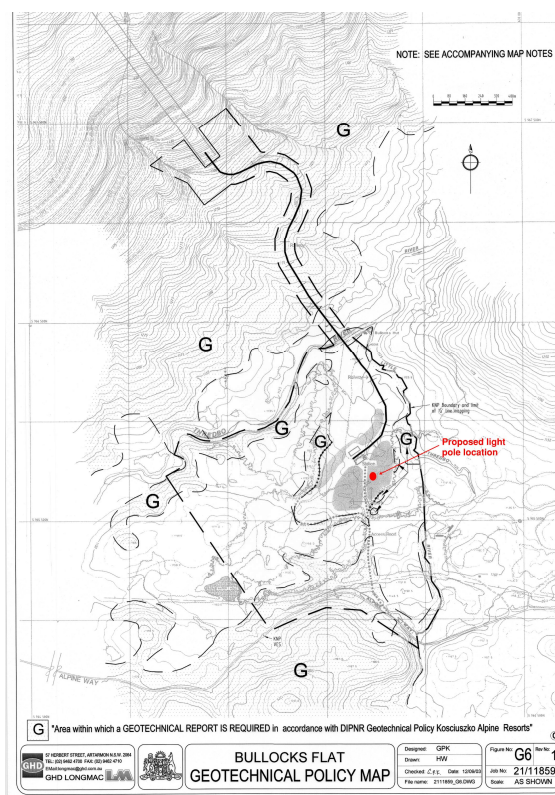


Figure 6 - Location of development on Geotechnical Policy Map

4.6 Visual Impacts

The light pole whilst 20m in height it has a narrow profile, is to be powder coated woodland grey as such it is not considered to be visually intrusive in the environment where it is to be installed. It is reasonably expected that a carpark will have infrastructure of this type erected. The LED lighting has been designed to comply with all required Australian Standards.

Due to the vegetation the boundaries of the property the visual impact of the new pole will be limited when viewed from the adjoining tourist accommodation.

4.7 Effects on Ski Resort Operation

The proposed development will have a positive impact on ski resort operation by providing additional lighting to an area of the carpark which is heavily used for guests and staff accessing Perisher via the Ski Tube.

4.8 Notification

The development will not require notification and or public exhibition as it is not within 50 metres of a tourist accommodation building.

4.9 Public Interest

It is in the public interest to provide a safe and secure environment for visitors and staff utilising the car park. The installation of additional lighting within the car park will allow for visitors and staff to locate and access their vehicles at night or at time of low light.

4.10 Social and Economic Impacts

It is considered that the social impact of the installation of additional lighting is a positive one. There are no outside economic impacts generated by the proposal.

5 STATUTORY CONSIDERATIONS

5.1 NSW Environmental Planning and Assessment Act 1979 – S4.15

Section 4.15 (1) of the Environmental Planning and Assessment Act lists the matters which must be taken into consideration by the consent authority when determining a development application. Table 6.1 lists these matters and provides a summary assessment of each of these matters including, where appropriate, a cross reference to the relevant sections in this report.

Table 1 - Environmental Planning and Assessment Act checklist

Matter	Impacts / comments
(1)(a) the provisions of: (i) any environmental planning instrument (ii) any proposed instrument (iii) any development control plan (iiia) any planning agreement (iv) the regulations	(i) The development complies with the provisions of State Environmental Planning Policy (Precincts Regional) 2021 – Chapter 4 (ii) there are no proposed instruments applicable to the subject land. (iii) there are no adopted development control plans applicable to the subject land. (iiia) there are no know planning agreements relating to the subject land. (iv) The development application has been made in accordance with the requirements contained in the Environmental Planning and Assessment Regulation 2021.
(b) the likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality	The likely impacts of the development have been outlined above.

(c) the suitability of the site for the development	The site is suitable for the development as proposed and matters concerning site suitability have been addressed above
(d) any submissions made in accordance with this Act or the regulations	As per the Community Participation Plan the development application will not be required to be placed on exhibition.
(e) the public interest	The assessment addresses the relevant requirements of Chapter 4 of SEPP (Precincts- Regional) 2021 and therefore considered to meet the public interest test.

5.2 State Environmental Planning Policy (Precincts Regional) 2021

The development is subject to the provisions of Chapter 4 – Kosciuszko Alpine Region, of the Precincts Regional SEPP.

ASSESSMENT OF THE RELEVANT PROVISIONS OF CHAPTER 4

PART 4.1 AIM AND OBJECTIVES OF CHAPTER

(1) The aim of this Chapter is to protect and enhance the Alpine Region by ensuring development is managed with regard to the principles of ecologically sustainable development, including the conservation and restoration of ecological processes, natural systems and biodiversity.

The proposed development will improve safety and security of persons accessing the Ski Tube at Bullocks Flat. The development is within an existing carpark and will cause no additional land disturbance minimising environmental impacts which can be further mitigated through the implementation of the Site Environmental Management Plan.

(a) to encourage the carrying out of a range of development to support sustainable tourism in the Alpine Region all year round, if the development does not result in adverse environmental, social or economic impacts on the natural or cultural environment of the Alpine Region, including cumulative impacts on the environment from development and resource use,

The provision of additional illumination in the Bullocks Flat carpark will support the safe use of the Ski Tube by guests and staff. The encouragement of use of the Ski Tube as a form of mass transit to Perisher is a key function in supporting the ongoing tourist development in the Perisher Range Resort area.

The construction of the light pole within an existing car parking area mitigates environmental impacts and has a positive social impact by improving safety for guests and staff.

The works will be managed appropriately to have regard for the principles of ecologically sustainable development.

The proposed development does not require any measures to mitigate environmental hazards that would impact on the conservation of the natural environment.

(b) to establish planning controls

Not applicable

(c) to minimise the risk to the community of exposure to environmental hazards, particularly geotechnical hazards, bush fires and flooding, by—

(i) generally requiring development consent on land in the Alpine Region, and

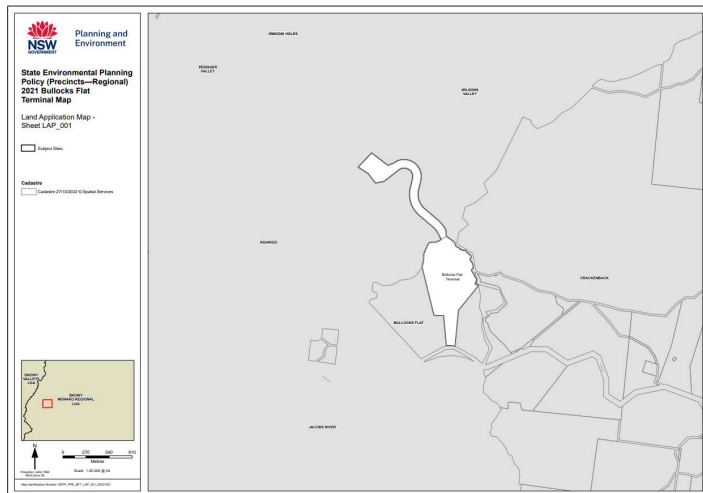
(ii) establishing planning controls for buildings to ensure the safety of persons using the buildings if there is a fire.

(c)(i) The application meets the intent of the objective as it is seeking development consent for the installation of a light pole.

(c)(ii) Not applicable as the objective relates to the preparation of planning controls.

4.2 Land to Which Chapter Applies.

The proposed development is within the Bullocks Flat Terminal Subregion.



4.3 Definitions

The proposed development is ancillary development to the operation of the Ski Tube, providing lighting to the carparking area servicing the train. The Ski Tube is defined in Schedule 4A – Dictionary to Chapter 4 as:

Skitube means the passenger train connecting Blue Cow Terminal, Bullocks Flat Terminal and Perisher Range Alpine Resort.

PART 4.2 PERMITTED OR PROHIBITED DEVELOPMENT

4.7 Land Use Table

The development proposed is ancillary to the operation of the Ski Tube which is a permissible use in the Land Use table and therefore is permitted development in the subregion.

Bullocks Flat Terminal

1 Permitted without consent

Nil

2 Permitted with consent

Advertising structures; Building identification signs; Business identification signs; Camping grounds; Car parks; Commercial premises; Community facilities; Depots; Emergency services facilities; Entertainment facilities; Environmental facilities; Environmental protection works; Fences; Helipads; Information and education facilities; Infrastructure facilities; Management trails; Medical centres; Monitoring stations; Places of public worship; Public utility undertakings; Recreation facilities (indoor); Recreation facilities (outdoor); Recreation infrastructure; Staff accommodation; Telecommunications facilities; **The Skitube**; Transport depots; Vehicle repair stations

3 Prohibited

Any development not specified in item 1 or 2

4.8 Subdivision

Not applicable

4.9 Demolition

Not applicable - No demolition is proposed to facilitate the development

4.10 Temporary Use of Land

Not applicable

PART 4.3 EXEMPT AND COMPLYING DEVELOPMENT

Not applicable - The development is neither exempt nor complying as such a development application has been lodged for approval.

PART 4.4 OTHER DEVELOPMENT CONTROLS

4.14 Development by Crown, public authorities, or Snowy Hydro

Not applicable

4.15 Development on land on Kosciuszko Road and Alpine Way

Not applicable – the development is not proposed on land identified in Schedule 16 of the National Parks and Wildlife Act 1974

4.16 Development near Kangaroo Ridgeline

Not applicable - this clause only applies to land identified as Kangaroo Ridgeline” on the State Environmental Planning Policy (Precincts—Regional) 2021 Charlotte Pass Alpine Resort Map. The proposed development is not on land identified in the subject map.

4.17 Classified roads

Whilst the subject lot does technically front a classified state road, being the Alpine Way, it is wholly within the lot and some 500m from the road. The objectives of the section are:

(a) to ensure that development does not compromise the effective and ongoing operation and function of classified roads,

(b) to prevent or reduce the potential impact of traffic noise and vehicle emissions on development adjacent to classified roads.

Due to the nature and scale of the development it will not compromise the effective or ongoing operation or function of the Alpine Way, nor will it generate traffic noise or vehicle emissions.

4.18 Bush fire hazard reduction

Not applicable

4.19 Public utility infrastructure

There is adequate provision of electricity supply to facilitate the development it will not require augmentation of any public utility infrastructure.

4.20 Conversion of fire alarms

Not applicable

4.21 Heritage conservation

Not applicable - There are no historic heritage items, aboriginal heritage items or places being impacted by this development. The SEE includes further information on Aboriginal Cultural heritage impact and historic heritage impact.

4.22 – 4.24 Conservation incentives, Eco-tourist facilities and Flood planning

Not applicable

4.25 Earthworks

Only minor ground disturbance is required for the installation of footings for the light pole and related trenching for electrical connections. All work is proposed to be performed in the existing bitumen sealed carpark and paved pedestrian areas.

The earthworks will not disrupt or have an adverse impact on drainage patterns or the future development or redevelopment of the land.

The works will have no impact on adjoining properties, water courses or environmentally sensitive areas.

The soil for any backfilling will be sourced from an existing stockpile on the property.

Due to the location of the works and the extent proposed it is unlikely that there will be a likelihood of disturbing relics.

The SEMP will include the methods for erosion and sediment control proposed to mitigate any impacts from the works.

PART 4.5 DEVELOPMENT ASSESSMENT AND CONSENT

4.26 Master plans

The Snowy Mountains Special Activation Precinct Master Plan 2022 applies to the subject site.

4.27 Consultation with National Parks and Wildlife Service

Consultation will be carried out by the assessing officer in relation to this development application in accordance with these provisions.

4.28 Consideration of master plans and other documents

(1) In deciding whether to grant development consent to development in the Alpine Region, the consent authority must consider the following—

(a) the aim and objectives of this Chapter set out in section 4.1

See consideration of the proposed development against the aim and objectives of Chapter 4 above

(c) a conservation agreement under the Environment Protection and Biodiversity Conservation Act 1999 of the Commonwealth that applies to the land,

Not applicable there is no known conservation agreement applying to the subject land.

(d) the Geotechnical Policy — Kosciuszko Alpine Resorts published by the Department in November 2003,

A geotechnical inspection was undertaken, and recommendations made by JK Geotechnics (attached in appendix D).

(e) for development in the Perisher Range Alpine Resort—

(i) the Perisher Range Resorts Master Plan, published by the National Parks and Wildlife Service in November 2001, and

Bullocks Flat whilst referenced in the plan is outside of the immediate study area and is not subject to any specific provisions.

The plan however does acknowledge the significant role of the Ski Tube carpark in reducing the demand on parking in Perisher Valley. The further improvement by provision of additional lighting, of the guest and staff experience in the car park is considered to be consistent with the aims of the plan.

(e)(ii) the Perisher Blue Ski Resort Ski Slope Master Plan adopted by the National Parks and Wildlife Service in May 2002.

The proposed development is generally consistent with the Perisher Blue Ski Resort Ski Slope Master Plan.

(2) In deciding whether to grant development consent to development in the Alpine Region, the consent authority must consider—

(a) a master plan approved by the Minister under section 4.26 that applies to the land,

Snowy Mountains Special Activation Precinct Master Plan 2022 applies to the land. The proposed development is consistent with the approved master plan (further consideration of the Master Plan is included in Appendix A).

4.29 Consideration of environmental, geotechnical, and other matters

(1) In deciding whether to grant development consent to development in the Alpine Region, the consent authority must consider the following—

(a) measures proposed to address geotechnical issues relating to the development,

The site is outside of the areas marked “G” on the Geotechnical Policy Map (see figure 6) and therefore does not require a geotechnical report, however a geotechnical inspection was carried out to assess the proposed footing design. The footings have been designed to reflect the comments in the inspection report. The inspection report is attached in Appendix D.

(b) the extent to which the development will achieve an appropriate balance between—

(i) the conservation of the natural environment, and

(ii) taking measures to mitigate environmental hazards, including geotechnical hazards, bush fires and flooding,

The SEE and associated application documentation addresses impacts to the natural environment and associated mitigation measures. The project will not increase the risk of environmental hazards, including geotechnical hazards, bushfires and flooding.

No vegetation removal will be required to facilitate the development.

(c) the visual impact of the proposed development, particularly when viewed from the land identified as the Main Range Management Unit in the Kosciuszko National Park Plan of Management,

The site is not visible from land identified as the Main Range Management Unit. Due to the minor nature of the development, it is not considered to have a visual impact on the Kosciuszko National Park.

(d) the cumulative impacts of development and resource use on the environment of the Alpine Subregion in which the development is carried out,

The site is attached to the Perisher Range subregion and is referenced in the plan for its provision of extensive car parking servicing Perisher Valley. The proposal is minor in nature and therefore will have little to no impact on resource use and will not have a negative cumulative impact on the Alpine Environment.

(e) the capacity of existing infrastructure and services for transport to and within the Alpine Region to deal with additional usage generated by the development, including in peak periods,

Due to the nature of the development, it will not generate additional usage of existing infrastructure including transport services.

(f) the capacity of existing waste or resource management facilities to deal with additional waste generated by the development, including in peak periods.

The proposal will not impact upon waste or resource management facilities.

(2) For development involving earthworks or stormwater draining works, the consent authority must also consider measures to mitigate adverse impacts associated with the works.

The minor earthworks required for the installation of footings and trenching for electricity and communications will have no adverse impacts that cannot be mitigated by the measures included in the SEMP.

(3) For development the consent authority considers will significantly alter the character of an Alpine Subregion, the consent authority must also consider—

(a) the existing character of the site and immediate surroundings, and

(b) how the development will relate to the Alpine Subregion.

It is not considered that the development will significantly alter the character of the subregion due to the nature of the proposal.

4.30 Kosciuszko National Park Plan of Management

(1) Development consent may be granted to development in the Alpine Region even if the application has not established that the development is consistent with the Kosciuszko National Park Plan of Management.

(2) This section does not prevent the consent authority from refusing to grant consent to development on the basis that the development is not consistent with the Kosciuszko National Park Plan of Management.

The proposed development is consistent with the relevant provisions of the Kosciuszko National Park Plan of Management.

5.3 Snowy Mountains Special Activation Precinct Master Plan

The proposal is consistent with Master Plan, a full assessment against the relevant provisions of the Master Plan is included in Appendix A

5.4 Environment Protection and Biodiversity Conservation Act (EPBC Act)

The factors which need to be considered under the Commonwealth *Environment Protection and Biodiversity Conservation Act (EPBC Act)* are listed in *Table 5.3* together with an assessment of each of these factors. None of these factors are considered to result in impacts which would be considered significant under the guidelines applying to the *EPBC Act*.

Table 2 – Environment Protection and Biodiversity Conservation Act checklist

Factor		Impacts / comments
Matters of National Environmental Significance		
Any environmental impact on a World Heritage Property?		No impact

Any environmental impact on a National Heritage Place?	No impact on the Australian Alps National Heritage Place.
Any environmental impact on wetlands of international importance?	No impact
Any environmental impact on Commonwealth listed species or ecological communities?	No impact
Any environmental impact on Commonwealth listed migratory species?	No impact
Does any part of the proposal involve a nuclear action?	No nuclear action
Any environmental impact on a Commonwealth Marine Area?	No impact
Impact on Great Barrier Reef Marine Park?	No impact
Impact on Commonwealth land?	No impact
Impact on the environment, from action taken by the Commonwealth?	No impact
Commonwealth heritage places outside of Australian jurisdiction?	No impact

6 CONCLUSION

The proposal for the installation of a light pole at Bullocks Flat (Skitube carpark A) is considered to comply with all provisions of relevant legislation and will have minimal impact on surrounding properties and uses and as such the development should be approved as proposed.

7 APPENDICES

APPENDIX	A	SAP Master Plan Assessment Table
APPENDIX	B	Site Environmental Management Plan
APPENDIX	C	Aboriginal Cultural Heritage Due Diligence Assessment
APPENDIX	D	Geotechnical Inspection

Appendix A – SAP Master Plan Assessment Table

Snowy Mountains Special Activation Precinct Master Plan 2022

PROVISION	RESPONSE
10 ALPINE PRECINCT PROVISIONS	
10.1 LAND USE	
<p>A. Development is to be permissible and consistent with the:</p> <ul style="list-style-type: none"> • Master Plan • Precincts—Regional SEPP • Alpine Development Control Plan • Kosciuszko National Park Plan of Management • National Parks and Wildlife Act 	<p><i>Complies</i></p> <p><i>The development is permissible under the Precincts Regional SEPP and complies with the relevant provisions of all documents listed (Excepting the Alpine DCP which is yet adopted and as such is not a matter for consideration for this application).</i></p>
<p>B. In considering the suitability of the development, the consent authority must be satisfied that the development meets the performance criteria and development controls in this Master Plan and in the Alpine Development Control Plan.</p>	<p><i>Complies</i></p> <ul style="list-style-type: none"> • <i>The development complies based on an assessment against the performance criteria of the Master Plan is carried out below.</i> • <i>There is currently no Alpine Development Control Plan.</i>
<p>C. Development consent can only be issued for development in the Alpine Precinct where:</p> <p>i. the uses will support the diversification of the Alpine Precinct's tourism offering and year-round economic viability.</p> <p>ii. the uses will not compromise the environmental, heritage and cultural values of the Alpine Precinct.</p> <p>iii. the uses will not exceed the established carrying capacity of the Alpine Precinct.</p>	<p><i>Complies</i></p> <p>i. <i>The development is not for a new use, but for the provision of infrastructure to support the Skit Tube.</i></p> <p>ii. <i>An assessment of the impact of the development on the environment, heritage and cultural values which has demonstrated that the development will not compromise any of these factors.</i></p> <p>iii. <i>The development has no impact on carrying capacity as it does not relate to the provision of additional tourist accommodation.</i></p>
<p>D. The location of future development should align with the relevant structure plan and be focused on land marked 'Development area'. Where development is proposed on land outside these areas, additional technical investigation may be required.</p>	<p><i>Not applicable – there is no specific structure plan that relates to Bullocks Flat</i></p>

E. Development for new or upgraded accommodation will meet the indicative sub-precinct yields and visitor thresholds set out in the Kosciuszko National Park Plan of Management and leasing arrangements.	<i>Not applicable- The development does not involve new or upgraded accommodation.</i>
10.2 Alpine Resorts	
A. Development should contribute to visitor attraction and village experience through: i. the prioritisation of infill development. ii. improvements to pedestrian and active transport connections. iii. creation and implementation of active street frontages.	<i>Complies</i> <i>The development will contribute to the visitor experience by providing a better guest and staff experience for those utilising the Ski Tube either at night or in time of reduced light.</i> <i>The development is wholly within an existing developed area and improves pedestrian access to the Ski Tube. better facilities for staff that service these guests.</i> <i>Due to the nature of the development active street frontage requirements are not relevant in this case.</i>
B. Development should integrate public transport opportunities and should create gateways and nodes to create a sense of place and community in Alpine Resort sub-precincts.	<i>Not applicable</i>
C. Development should provide a range of tourist accommodation offerings and seasonal worker accommodation.	<i>Not applicable</i>
D. Development should be designed to reduce on-site power consumption and improve environmental performance	<i>Not applicable – due to the minor nature of the addition it will not have a material impact on site power consumption.</i>
E. Development should be designed to contribute to the alpine character of the Alpine Resorts and reflect the alpine landscape and natural environment.	<i>Not applicable – due to the nature of the development it cannot be designed to have a specific alpine character. It is however proposed to be powder coated Woodland Grey to blend with the surrounding environment.</i>
10.3 Alpine Accommodation	
A – E	<i>Not applicable – the proposed development does not include accommodation.</i>
10.4 Alpine Experience	
A. Public transport or mass transit connections should be integrated into the design of new developments, particularly in Alpine Resort and Alpine Accommodation sub-precincts.	<i>Not applicable – due to the nature of the development.</i>
B. Transport development must provide safe, reliable and accessible connections into and around the Kosciuszko National Park.	<i>Not applicable - due to the nature of the development.</i>
C. Development should be designed and staged to support and enable the ultimate growth of accommodation and attractions in the Alpine Region.	<i>Not applicable- due to the nature of the development.</i>

D. Development of new and upgraded shared trails and paths should provide appropriate facilities and amenities.	<i>Not applicable - The proposed development does not include the construction of new or upgraded shared trails or paths.</i>
E. Development should provide adequate car parking as part of a range of transport solutions (including the provision of accessible parking spaces).	<i>Not applicable - The development will not generate the need for new carparking</i>
F. Visitor attractions must be supported by appropriate amenities, facilities and car parking and must minimise its impact to the natural environment.	<i>Not applicable – the development is not a visitor attraction</i>
G. Visitor attractions should be designed and staged to support and enable the ultimate growth of attractions in the Alpine Region.	<i>Not applicable – the development is not a visitor attraction</i>
CHAPTER 11 ENVIRONMENT AND SUSTAINABILITY	
11.1 Biodiversity	
A. All development is to apply the avoid, minimise, and offset methodology.	<i>Complies – The development has taken regard of this methodology. Due to the site location, there will be no impact on biodiversity.</i>
B. Development is to avoid threatened ecological communities and threatened species habitat; such vegetation should not be removed. Development may occur in these areas if it is for essential infrastructure.	<i>Complies – The development has taken regard of this methodology. Due to the site location, there will be no impact on biodiversity.</i>
C. Development should be focused on colocation and infill to minimise biodiversity impacts	<i>Complies – the development is considered to be infill as it is to be constructed within an existing carpark.</i>
D. Development should be concentrated in and around already disturbed areas. Where possible, development should provide a buffer between areas of high ecological value and buildings and structures.	<i>Complies – the development is to be constructed on existing disturbed bitumen sealed carpark. The development is outside of the surveyed area shown in Figure 50 of the Masterplan.</i>
E. Development should consider the biodiversity impacts of bushfire asset protection zones (APZ) and associated vegetation management.	<i>Not applicable – due to the nature of the development.</i>
F. Development must offset any impacts to biodiversity through direct management measures within Kosciuszko National Park and should be related to the biodiversity impacted.	<i>Not applicable – the development does not trigger the Biodiversity Offsets Scheme due to its location and extent.</i>
G. Riparian corridors must be preserved while ensuring consistency with the proposed Flooding and Drainage Strategy for the Precinct.	<i>Not applicable – the development has no impact on riparian corridors</i>

H. Any revegetation or planting within Kosciuszko National Park should follow the Rehabilitation Guidelines for the Resort Areas of Kosciuszko National Park	<i>Not applicable – no revegetation is required as no vegetation is to be disturbed to facilitate the development. The areas will be backfilled, and bitumen sealed.</i>
11.2 Geotechnical	
A. Development must address the requirements of the Geotechnical Policy – Kosciuszko National Park (DPNIR, 2003).	<i>Complies – The development has addressed the requirements of the policy and a site inspection carried out. Results are attached in Appendix D.</i>
B. Development must include an assessment of geotechnical risks.	<i>Complies – The development has been reviewed by a Geotechnical Engineer and a site inspection report is attached in Appendix D.</i>
C. Buildings and structures must be designed to accommodate the specific geotechnical risks identified for the site.	<i>Complies – The development has been reviewed by a Geotechnical Engineer and the Structural Engineering drawings have been prepared taking into consideration the results of the Geotech testing on site.</i>
D. Excavations required for new developments must consider the potential to cause widespread slope instability and ensure appropriate mitigation measures are implemented to minimise and manage risk.	<i>Complies – only minor excavation is required to facilitate the development, there will be no impact on slope stability.</i>
11.3 Flood Risk Management	
A. The Flood Planning Level is the 1% AEP plus 500mm freeboard to ensure consistency across the Precinct. Development must generally occur outside the Flood Planning Level unless it can demonstrate that risks can be suitably managed. This allows for the maintenance of flood function and to avoid adverse effects on flood behaviour to the detriment of other properties or the environment of the floodplain.	<i>Not applicable – the development is not on flood prone land or within the Flood Planning Level.</i>
B. Development within the Flood Planning Level	<i>Not applicable – the development is not within the Flood Planning Level</i>
C. Development within the Probable Maximum Flood area	<i>Not applicable – There are no plans indicating the PMF for Bullocks Flat and due to the location of the site it would be unlikely that it would be subject to flooding.</i>
D. Development should mitigate the impacts of local overland flooding through the provision of adequate site drainage systems, where possible	<i>Complies – the development will have no impact on overland flooding.</i>
E. Development must consider and plan for emergency evacuation situations to ensure the safety of all areas within the Probable Maximum Flood extent.	<i>Not applicable – Whilst there is no PMF mapping for Bullocks Flat it would be very unlikely that the site would be impacted by a flood event that would require emergency evacuation.</i>
11.4 Water Quality	

A. Maintain or improve the ecological condition of waterbodies and their riparian zones in catchments over the long term.	<i>Not applicable – the development will have no impact on riparian environments.</i>
B. Development in the Alpine Precinct should implement on-site water management and water quality systems through: i. the capture and re-use of water on-site. ii. the treatment of water on-site with any water discharged back into catchments having a neutral or beneficial effect on water quality. iii. incorporating water sensitive urban design principles into the development's-built form and landscaping, where possible	<i>Not applicable - due to the size and nature of the development proposed.</i>
C. The quality of stormwater discharged into receiving catchments must be pre-development quality or better in relation to pH, total suspended solids, total phosphorus, total nitrogen and gross pollutants.	<i>Not applicable – due to the nature of the development there will be no stormwater required to be managed. Existing overland flow of the car park will not be impacted by the construction of the light pole.</i>
D. The quality of water discharged into receiving catchments should maintain electrical conductivity levels. Water quality should aim to maintain an electrical conductivity below the 30 µS/cm ANZG 2018 Guideline value for upland rivers of South-East Australia.	<i>Not applicable – due to the nature of the development.</i>
E. Monitor macroinvertebrates to ensure they are consistently within Band A of the NSW AUSRIVAS model	<i>Not applicable - due to the scale of the proposed development</i>
F. Erosion and sediment control should be managed during construction to ensure impacts to waterways are minimised in accordance with Managing Urban Stormwater Soils and Construction, also known as the Blue Book (current edition).	<i>Complies – Sediment and erosion control measures will be in place in accordance with the SEMP for the minor ground disturbance associated with the development.</i>
G. Discharge of wastewater and/or contaminated stormwater to watercourses or waterways is not permitted unless other specified in an environmental protection licence issued under the Protection of the Environment Operations Act 1997. Development must obtain the appropriate water licenses in accordance with the Water Act 1912 and the Water	<i>Not applicable – due to the nature and scope of the development there will be no wastewater or contaminated stormwater generated.</i>

Management Act 2000 and consider the relevant Water Sharing Plan	
11.5 Bushfire	
A. Development is to: i. minimise perimeters exposed to the bushfire hazard. ii. minimise vegetated corridors that permit the passage of bushfire towards development. iii. provide for the siting of future development away from ridge-tops and steep slopes, within saddles and narrow ridge crests. iv. ensure capacity of existing infrastructure (such as roads and utilities) can accommodate the increase in demand during emergencies as a result of the development.	<i>Not applicable – due to the nature of the development</i>
B. Asset Protection Zones are to be provided and maintained between a bushfire hazard and future development and are designed to address the relevant bushfire attack mechanisms.	
C. Adequate access is to be provided from all properties to the wider road network for park users emergency services and to provide access to hazard vegetation to facilitate bushfire mitigation works and fire suppression.	
D. Development is to minimise levels of radiant heat, localised smoke and ember attack through development design and siting.	
E. The subdivision of land and location of developments should consider the future uses of land and the inclusion of roads into Asset Protection Zones.	
11.6 Sustainability and Climate Change	
A. Development must be inclusive and sustainable and promote year-round use.	<i>Not applicable – due to the particulars of the development proposed</i>
B. Development should preserve the Precincts landscape, cultural, heritage and biodiversity values by avoiding and minimising impact.	<i>Complies – the development will have minimal impact. Impact on biodiversity, landscape and cultural values have been addressed in the body of the SEE.</i>
C. Development should support sustainable and active transport opportunities and integrate open space.	<i>Not applicable – due to the scale and particulars of the development proposed</i>

D. Development should comply with applicable sustainability tools and programs for design, construction and operation.	<i>Complies – The development has been designed to use low energy light fixtures and complies with all relevant standards.</i>
E. Consideration must be given to climate responsiveness and resilience. Climate change risks, hazard and opportunities must be considered in the design, construction and operation of development within the Precinct	<i>Complies – Due to the nature of the development it will have little to no impact on climate responsiveness and resilience.</i>
F. Operators, lessees and licensees within the Precinct must prepare and maintain an Environmental Management System in accordance with ISO14001:2015 – Environmental management systems and the requirements of the Plan of Management for Kosciuszko National Park	<i>Not applicable – the EMS as described has yet to be finalised. The EMS is being prepared currently by NPWS to meet this standard as such the this requirement is currently not applicable.</i>
12. PLACE AND LANDSCAPE	
12.1 Aboriginal Cultural Heritage	
A. Areas of Aboriginal cultural heritage (included as part of the environmentally sensitive areas map) should not be developed. Development may occur in these areas if it is for essential infrastructure and where further Aboriginal cultural heritage assessment will be undertaken to appropriately mitigate and manage any impacts to Aboriginal cultural heritage items, places or areas.	<p><i>Complies – The land is not identified as “archaeologically sensitive land” on the State Environmental Planning Policy (Precincts-Regional) 2021 Kosciuszko Alpine Region Aboriginal Archaeological Heritage Map.</i></p> <p><i>A search of the AHIMS database did not identify any recorded Aboriginal Cultural Heritage items in the area of the development.</i></p> <p><i>A due diligence assessment was carried out, and is attached in appendix D and based on the outcome of the assessment it is reasonable to conclude that there are no known Aboriginal objects or a low probability of objects occurring in the area of the proposed activity, and the development can proceed with caution without applying for an Aboriginal heritage impact permit or the need to carry out further assessment via an Aboriginal Cultural Heritage Assessment Report.</i></p> <p><i>The SEMP includes measures in the case of unexpected finds.</i></p>
B. Aboriginal culturally significant places and sites should be integrated with areas of environmental significance and green space (where appropriate) across the Precinct. This may continue to evolve as greening opportunities across the Precinct are established	<i>Not applicable - there are no aboriginal cultural significant places and sites impacted by the development.</i>

<p>C. Development is to be assessed against the mapped zones of archaeological potential as required by the following:</p> <p>i. development within areas identified as 'disturbed land' do not require any further investigation beyond considering the potential for subsurface archaeological deposits. If current disturbances are considered to cover intact archaeological deposits, further investigation should take place that may include test excavation. Should development encounter any unexpected finds during construction, the procedures under the relevant unexpected finds protocol should be followed.</p> <p>ii. works within areas identified as "moderate ACH potential" or 'high ACH potential' should be avoided. Where development will impact these areas, further Aboriginal cultural heritage assessment must be undertaken. This assessment should include a visual inspection, possibly test excavation if warranted, and participation from the Aboriginal community.</p>	<p><i>Not applicable – Bullocks Flat is not included as a mapped area in the Master Plan.</i></p>
<p>D. Development planned on land in which an Aboriginal object is located should be supported by a heritage impact assessment which should be prepared to assess the extent to which a proposed development would harm Aboriginal objects.</p>	<p><i>Not applicable – AHIMS search, and due diligence process undertaken and concluded that there were no likely impacts and as such an ACHAR was not required for this development.</i></p>
<p>E. If impact to an Aboriginal object is unavoidable, an Aboriginal Heritage Impact Permit (AHIP) under Part 6 of the National Parks and Wildlife Act 1974 would be required.</p>	<p><i>Not applicable – no AHIP required.</i></p>
<p>12.2 Historic Heritage</p>	
<p>A. Development in areas defined as 'disturbed land' can occur without further historic heritage investigation however must consider neighbouring heritage items and broader heritage values.</p>	<p><i>Not applicable – Bullocks Flat is not included as a mapped area in the Master Plan.</i></p>
<p>B. Development on land where a heritage item is situated, that is a heritage item or is on land adjacent to a heritage item must prepare a statement of heritage impact.</p>	<p><i>Not applicable – no listed items of historic heritage are located on the site</i></p>

C. Development in areas defined as 'high risk' or 'moderate risk' requires further heritage assessment where the development is likely to materially have a major affect on a heritage item or its value.	<i>Not applicable – Bullocks Flat is not included as a mapped area in the Master Plan.</i>
D. Development in areas defined as 'high risk' or 'moderate risk' requires further heritage assessment where the development is likely to materially have a minor affect on a heritage item or value.	<i>Not applicable – Bullocks Flat is not included as a mapped area in the Master Plan.</i>
E. Where development is likely to materially have a major effect on a heritage item or value, further heritage assessment is required.	<i>Not applicable – provisions B, C & D do not apply to the development therefore consideration of this provision is not required.</i>
F. Where development will have minor effect on a heritage item or value, a heritage assessment may be required.	<i>Not applicable – provisions B, C & D do not apply to the development therefore consideration of this provision is not required.</i>
G. Development that is likely to have a materially major or minor effect on a heritage item or its value	<i>Not applicable – provisions B, C & D do not apply to the development therefore consideration of this provision is not required.</i>
H. Development adjacent to a heritage item should ensure impacts to the heritage item are minimised, including through the provision of appropriate curtilages. There may be opportunities to reduce the curtilage to some heritage items if it can be demonstrated the development will not have a significant impact on the heritage item or its value.	<i>Not applicable – there are no heritage items in proximity of the site that would be impacted by the development.</i>
I. Heritage items must be used for purposes that are appropriate to their heritage significance, including adaptive re-use where appropriate.	<i>Not applicable – the site does not include a heritage item</i>
J. Development is to ensure long-term heritage conservation outcomes are retained or interpreted to reflect the history of heritage items and places.	<i>Not applicable – the site does not include a heritage item</i>
K. Development should through redevelopment or upgrades remove inappropriate or unsympathetic alterations and additions to heritage items and reinstate significant missing details and building elements, where possible.	<i>Not applicable – the site does not include a heritage item</i>
12.3 Landscape, Character and Open Space	
A. Development should be designed to sensitively integrate into the landscape and should respond	<i>Complies – Due to the nature of the development it must meet specific height and size requirements however it is proposed to be a colour that responds to the surrounding environment</i>

appropriately to the topography and climate of the Alpine Precinct.	
B. Development should protect, conserve and enhance the Alpine Precinct's natural environment and create a green infrastructure network, where possible.	<i>Not applicable - due to the scale, size, and nature of the proposed development</i>
C. Landscaping and public open spaces should include plantings of native species found in surrounding plant communities, which aim to achieve the re-establishment of biodiversity in addition to aesthetic appeal and enhancement of the functionality of an area.	<i>Not applicable - no landscaping is proposed due to the location of the development within an existing car park.</i>
D. Revegetation and new plantings should follow the Rehabilitation guidelines for the Resort Areas of Kosciuszko National Park	<i>Not applicable – no revegetation is required as no vegetation will be impacted by the development.</i>
E. Development should integrate stormwater management infrastructure with open spaces, where possible.	<i>Not applicable - due to the scale, size, and nature of the proposed development</i>
12.4 Built Form	
General criteria for all development in the Alpine Region	
A. Buildings should be efficient, well designed, and successfully integrated with the surrounding landscape.	<i>Not applicable – the development is not a building but a structure.</i>
B. Site earthworks must respond to local topography and geotechnical characteristics and be appropriate for the intended land use	<i>Complies – the footings proposed respond to the geotechnical characteristics of the site</i>
For village centres and public domain	
A. Development should create an integrated streetscape where active frontages promote movement between the private and public realms.	<i>Not applicable - due to the nature and scale of the development</i>
B. Building entries should connect to an accessible (providing equitable access to all pedestrians) pedestrian network through design features, wayfinding, and landscape treatments	<i>Not applicable - due to the nature and scale of the development</i>
C. Development should integrate and provide public seating, shelter and lighting to contribute to increased activity and safety in the public realm.	<i>Not applicable - due to the nature and scale of the development</i>

D. Development should provide human-scale buildings ensuring building envelopes allow adequate solar access and views, including ensuring significant views to natural features are protected.	<i>Not applicable - due to the nature and scale of the development</i>
E. Development should provide for year-round weather protection that reduces the impacts of wind and snow accumulation in winter and provides adequate shade in summer.	<i>Not applicable - due to the nature and scale of the development</i>
F. Development should provide clearly defined and separate pedestrian and vehicle entries to minimise conflicts.	<i>Not applicable - due to the nature and scale of the development</i>
G. Development should allow for snow clearing and adequate interface with oversnow vehicles, where appropriate.	<i>Complies – the development will not impact on the ability to clear snow.</i>
13. TRANSPORT AND INFRASTRUCTURE	
13.1 Transport network	
A. Transport infrastructure should integrate the public transport network with the existing road network.	<i>Not applicable - due to the nature and scale of the development</i>
B. Development must provide operational access and egress for emergency services and occupants	
C. Development should integrate active transport connections that promote movements between the Alpine resorts, where possible.	
D. New development must provide and integrate new technologies, such as electric vehicle charging and electronic checkpoints, where possible.	
13.2 Utilities, services and infrastructure	
A. Development within the site must have access to water, wastewater, digital connectivity and telecommunications, energy and drainage infrastructure.	<i>Complies – The development will be connected to existing electricity and communications infrastructure.</i>
B. Utilities and services must be integrated with existing infrastructure and services, where possible	<i>Complies – the development will connect to existing services at the Ski Tube Terminal.</i>
C. Utilities and services should be integrated into road reserves, active transport corridors or the public domain, where possible.	<i>Not applicable – no additional utility or service connections are required to facilitate the development.</i>

D. Infrastructure and services must be designed to provide for the ultimate growth and development in Alpine Resorts.	<i>Not applicable - due to the nature and scale of the development.</i>
E. Development should provide and integrate water cycle management and renewable energy solutions into the design of buildings and structures, where possible	

Appendix B Site Environmental Management Plan

PROJECT & EMERGENCY CONTACTS	
Project Name	Installation of Light Pole – Bullocks Flat
Perisher Project Manager	David Rowson – 02 6459 4407
Perisher Operations	Mountain Office - 02 6459 4408
Perisher Environmental Manager	Rhia Martin – 02 6459 4487
Perisher HSE Officer	Tilka Hassing – 02 6459 4504
Emergency	000
DPIE	Sarah Collum – 02 6450 5543
EPA	131 555

ENVIRONMENTAL MANAGEMENT MEASURES	
PRIOR TO CONSTRUCTION	
Induction	<ul style="list-style-type: none"> All project staff to be made aware of disturbance footprint and environmental safeguards prior to works commencing.
Access	<ul style="list-style-type: none"> Fence off all approved construction areas Machinery from offsite to be cleaned prior to accessing site All access to site via the Alpine Way to the Bullocks Flat Car Park
Flora & Fauna	<ul style="list-style-type: none"> All works are to be contained within the carpark with no impact on adjoining vegetated or landscaped areas.
Storage	<ul style="list-style-type: none"> All equipment to be stored in the bitumen sealed car park, no storage of equipment or machinery under trees or on native vegetation.
Disturbance to Soil	<ul style="list-style-type: none"> Sedimentation and erosion controls to be installed in areas likely to experience soil loss into the surrounding environment
DURING CONSTRUCTION	
Unexpected finds	<ul style="list-style-type: none"> Should any relic be uncovered during excavation, works are to cease and contact be made with NSW Heritage and NSW National Parks and Wildlife. Instructions will be provided by the appropriate authority prior to works recommencing on site. Should human remains be found all works are to cease and contact made with the police.
Disturbance to Soil	<ul style="list-style-type: none"> For erosion control, sediment fencing is to be used Erosion and sedimentation controls shall be monitored & maintained daily and immediately following a rainfall event
Flora & Fauna	<ul style="list-style-type: none"> No unapproved removal or disturbance of native vegetation Refuel away from areas of native vegetation No storage of material beneath the canopy of trees or on native vegetation Any excavations left open overnight will be left such that any fauna are able to escape easily
Machinery / Fuel	<ul style="list-style-type: none"> Spill kits shall be readily accessible Spills of any liquids shall be controlled and cleaned up immediately No maintenance other than emergency repairs shall be undertaken on site.
Work Hours	<ul style="list-style-type: none"> Limit work to approved hours only (daylight)

Waste	<ul style="list-style-type: none"> All litter and waste to be contained and removed from site regularly
FOLLOWING CONSTRUCTION	
Stabilisation & revegetation	<ul style="list-style-type: none"> All disturbance to be stabilised immediately as works cease. All disturbed areas to be filled and surface to be reinstated as previously constructed. No excavated areas are to remain open and unsealed upon completion of works.
Disturbance to Soil	<ul style="list-style-type: none"> All erosion and sedimentation controls to be removed from site once ground has stabilised

Appendix C Archeological Due Diligence

Project: Bullocks Flat – Light Pole Installation

The due diligence assessment below is taken from the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, DECCW 2010. The assessment was undertaken by Sophie Ballinger, Mountain Planning Manager for Perisher Resort, Feburary 2024

Generic Due Diligence Process

Step 1 – Will the activity disturb the ground surface?

Whilst minimal there will be ground disturbance to facilitate the development. The disturbance will be limited to 3x3x1.5m footing excavation and 50m of trenching through existing paved areas and carpark. There are no culturally modified trees within the development site.

Step 2a – Search of AHIMS database

An AHIMS search was undertaken on the subject lot which has shown, no aboriginal sites or places are recorded or declared in or near the location. A copy of the search result is reproduced below:

AHIMS Web Service search for the following area at Lat. Long From :-36.4453, 148.4386 - Lat. Long To :-36.441, 148.4463, conducted by Sophie Ballinger on 17 August 2023.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

2b – Is the activity in an area where there are landscape features which indicate the presence of Aboriginal objects.

The activity is not within 200m of waters, and the land on which the light pole is proposed to be erected and where trenching is to occur is within an existing bitumen sealed carpark. As such is considered to be works undertaken on “disturbed land”.

Conclusion

Based on the outcomes of steps 2a and 2b it is reasonable to conclude that there are no known Aboriginal objects or a low probability of objects occurring in the area of the proposed activity, and the development can proceed with caution without applying for an AHIP.

Appendix D – Geotechnical Assessment



Date: 13 February 2020

Ref: 32997RH SR

Site Report

Perisher Blue Pty Ltd

Attention: Mr David Rowson

Email: David.Rowson@perisher.com.au

GEOTECHNICAL INSPECTION

PROPOSED 20m HIGH LIGHT TOWER

BULLOCKS FLAT CAR PARK, KOSCIUSZKO NATIONAL PARK, NSW

As requested, our Senior Associate Geotechnical Engineer, Mr Adrian Hulskamp, visited the above site on 11 February 2020, to inspect the drilling of one borehole at the proposed light tower location. The location of the light tower, which was towards the middle of the car park, was marked out by others prior to our arrival on site.

From an email sent to us on 24 January 2020 by Mr Linden Coot of John Skurr Consulting Engineers, we understand that the proposed light tower is to be supported by a bored pier.

The borehole was drilled using a 450mm diameter pendulum auger fitted to a small excavator. A summary of the subsurface conditions encountered in the borehole is tabulated below:

Depth (m)	Material Description
0.0 – 0.4	Asphaltic Concrete surfacing (20mm thick) over roadbase over FILL: Sandy gravel, fine to coarse grained, grey. Dry.
0.4 – 0.8	RESIDUAL Silty CLAY (CH): high plasticity, brown. Very Stiff strength. w > PL Hand Penetrometer readings, 350kPa, 300kPa.
0.8 – 3.0	Extremely Weathered granite: Sandy CLAY, medium plasticity, light orange brown and light grey, fine grained sand, with silty CLAY bands. Very Stiff to Hard strength. Hand Penetrometer readings, 380kPa, 400kPa, 450kPa. No increased drilling resistance noted END OF BOREHOLE AT 3.0m DEPTH (Effectively the limit of reach). "DRY" during, and on completion of, drilling


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We note that extremely weathered granite had weathered to such an extent that it had soil properties, despite the mass structure and material texture appearance of the original rock still being visible.

Based on the subsurface conditions encountered in the borehole, construction of a bored pier would be appropriate, and we recommend that the design of the bored pier be based on the following:

- An undrained shear strength (S_u) of 150kPa below 1.5m depth, due potential shrink-swell effects. The upper 1.5m of embedment should be ignored.
- Ultimate and allowable end bearing pressures of 1,350kPa and 450kPa, respectively, provided the length to diameter ratio of the pier is greater than 4, and the founding depth of the pier is greater than 2.0m below existing surface levels.
- Ultimate and allowable shaft adhesion values of 60kPa and 20kPa, respectively, in compression, below 1.5m. For uplift, these adhesion values should be halved.

We note that if a pier deeper than 3.0m is required, then further geotechnical advice should be sought to discuss the footing design, in case higher strength granite bedrock is encountered, as there may be potential drilling difficulties achieving the required pier depth and strain incompatibility with the overlying soils and extremely weathered rock.

If you require further information, please do not hesitate to contact the undersigned.

Regards
For and on behalf of
JK GEOTECHNICS

A handwritten signature in black ink, appearing to read 'Adrian Hulskamp'.

Adrian Hulskamp
Senior Associate | Geotechnical Engineer

Reviewed by:

A handwritten signature in black ink, appearing to read 'Nick Smith'.

Nick Smith
Senior Associate | Geotechnical Engineer