Form 4 – Minimal Impact Certification

DA Number: _____

This form may be used where minor construction works which present minimal or no geotechnical impact on the site or related land are proposed to be erected within the "G" line area of the geotechnical maps.

A geotechnical engineer or engineering geologist must inspect the site and/or review the proposed development documentation to determine if the proposed development requires a geotechnical report to be prepared to accompany the development application. Where the geotechnical engineer determines that such a report is not required then they must complete this form and attach design recommendations where required. A copy of Form 4 with design recommendation, if required, must be submitted with the development application.

Please contact the Alpine Resorts Team in Jindabyne for further information - phone 02 6456 1733.

To complete this form, please place a cross in the appropriate boxes ☐ and complete all sections.

1. Declaration made by geotechnical engineer or engineering geologist in relation to a nil or minimal geotechnical impact assessment and site classification

I,

Mr [X] Ms [ ] Mrs [ ] Dr [ ] Other [ ]

First Name	Family Name
Adrian	Hulskamp

OF

Company/organisation

JK Geotechnics Pty Ltd

certify that I am a geotechnical engineer /engineering geologist as defined by the "Policy" and I have inspected the site and reviewed the proposed development known as

Proposed Installation of Services for Snowmaking at Base of Interceptor Quad Chair

As a result of my site inspection and review of the following documentation

(List of documentation reviewed)

SEE report prepared by Perisher Blue Pty Ltd dated March 2022

I have determined that;

- ☒ the current load-bearing capacity of the existing building will not be exceeded or adversely impacted by the proposed development, and
- ☒ the proposed works are of such a minor nature that the requirement for geotechnical advice in the form of a geotechnical report, prepared in accordance with the "Policy", is considered unnecessary for the adequate and safe design of the structural elements to be incorporated into the new works, and
- ☒ in accordance with AS 2870.1 Residential Slabs and Footings, the site is to be classified as a type

(insert classification type)

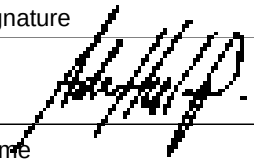
Class 'P'

- ☒ I have attached design recommendations to be incorporated in the structural design in accordance with this site classification.

I am aware that this declaration shall be used by the Department as an essential component in granting development consent for a structure to be erected within the "G" line area (as identified on the geotechnical maps) of Kosciuszko Alpine Resorts without requiring the submission of a geotechnical report in support of the development application.

2. Signatures

Signature



Name

Adrian Hulskamp

Chartered professional status

CPEng (No. 1480317)

Date

15 March 2022

3. Contact details

Alpine Resorts Team
Shop 5A, 19 Snowy River Avenue
P O Box 36, JINDABYNE NSW 2627
Telephone: 02 6456 1733
Facsimile: 02 6456 1736
Email: alpineresorts@planning.nsw.gov.au

Department of Planning and Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No DA 22/4921

Granted on the 30 May 2022

Signed M Brown

Sheet No 7 of 7

REPORT TO

PERISHER BLUE PTY LTD

ON

GEOTECHNICAL ASSESSMENT

FOR

PROPOSED INSTALLATION OF SERVICES FOR SNOWMAKING, BASE OF INTERCEPTOR QUAD CHAIR

AT

PERISHER SKI RESORT, NORTH PERISHER, NSW

Date: 15 March 2022

Ref: 34886RHrpt

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Report prepared by:

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For and on behalf of
JK GEOTECHNICS
PO BOX 976
NORTH RYDE BC NSW 1670

DOCUMENT REVISION RECORD

Report Reference	Report Status	Report Date
34886RHrpt	Final Report	15 March 2022

Table of Contents

ATTACHMENTS

Location Map, Interceptor Base Snowmaking (From Figure 2 in Appendix A in the supplied SEE report)

1 INTRODUCTION

This report presents the results of our geotechnical assessment for the proposed installation of services for Snowmaking at the base of the Interceptor Quad Chair, Perisher Ski Resort, North Perisher, NSW.

From our review of the supplied Statement of Environmental Effects (SEE) report, dated March 2022 prepared by Beth Davies and Tanya Bishop of Perisher Blue Pty Ltd, we understand the proposed works will comprise the following:

- Installation of two 50mm diameter conduits and a 100mm diameter steel pipe for water, power and communication services. The conduits and pipes will be installed into an approximate 70m long trench excavation that will be 0.9m deep and 0.45m wide and will extend from Perisher Creek Road to the Interceptor base station, as shown on the attached plan;
- Installation of three 0.95m wide and 0.15m thick trench stops along the proposed trench alignment. Each trench stop will require excavation to about 1m depth;
- At the base of the Interceptor Quad Chair, one water supply hydrant and one water discharge hydrant will be installed. A concrete pit (0.9m by 0.9m by 0.9m) will be installed at the southern most hydrant location. We assume excavation to a maximum depth of about 1m will be required to install the pit; and
- Following installation of the services, the trench excavation will be backfilled, and the site stabilised and rehabilitated, as required

The location of the proposed works is shown on the attached Figure 2 (Location Map), which is from the supplied SEE report.

It is proposed to use a 12 tonne excavator for the proposed trench excavation works. Rock blasting is not expected as the proposed trench will predominantly follow the disturbed roadway alignment.

The purpose of the geotechnical assessment was to carry out a walkover inspection of the site and to note whether the proposed works present 'minimal or no geotechnical impact' on the site, and if so, to prepare a signed Form 4 – Minimal Impact Certification. Based on our assessment, we would determine whether a further geotechnical report, which includes a risk assessment, would be required.

2 ASSESSMENT PROCEDURE

Our assessment is based on a walkover inspection of the topographic, surface drainage and geological conditions of the site and its immediate environs by our Senior Associate geotechnical engineer (Adrian Hulskamp) on 15 November 2016, a review of the supplied SEE report and a recent Nearmap aerial image of the site.

We note that whilst our inspection of the site was carried out some time ago, the photographs of the site contained in the SEE report and review of the current Nearmap aerial image show the site to be similar in appearance to when we inspected the site.

A subsurface investigation, geotechnical laboratory testing of site soils and testing of the soils and groundwater for possible contamination were outside the agreed scope of this assessment.

3 SITE OBSERVATIONS

The area of the proposed snowmaking is located along the toe of a moderately sloping east facing hillside, adjacent to the Interceptor Chairlift base station. A shallow creek (Perisher Creek) was located beyond the toe of the hillside where the ground surface was relatively flat.

The proposed trench alignment was largely characterised by a gravel surfaced road (Perisher Creek Road), which had been filled to an estimated maximum height of approximately 1.5m. The fill batters on the eastern side of the road graded at a maximum of about 40°. There was an unsealed track which led to the base station off from the main road and a small hut on the southern side of the base station. The ground surface beyond the road to the east was mostly covered with grass and alpine vegetation

Due to the proximity of the site to the creek, the drainage conditions in the vicinity of the creek were considered poor, although along, and immediately adjacent to the main road, and further up the hillside, the drainage conditions were considered to be generally good.

4 COMMENTS AND RECOMMENDATIONS

We consider the proposed works will have 'minimal or no geotechnical impact' on the site, based on the relatively shallow depths of excavation required. On this basis, we consider that a geotechnical report prepared in accordance with the Geotechnical Policy for Kosciuszko Alpine Resorts (2003) is not required. This report is preceded by a completed Form 4 – Minimal Impact Certification.

Based on the nature of the proposed works and types of structures proposed, provision of a Site Classification to AS2870-2011 'Residential Slabs and Footings' is not appropriate. Nevertheless, as fill appears to have been placed at the site to an estimated maximum depth of 1.5m, the site as a whole would classify as Class 'P', in accordance with AS2870-2011. We recommend the following advice for the proposed works:

- Excavation through fill, natural soils and extremely weathered material should be readily completed using a bucket fitted to the proposed excavator. If required, excavation of very low and higher strength granite would be most effectively completed using hydraulic impact rock hammers. Drill and blast methods may be used, provided any vibrations from the blasting will not have an adverse impact on the chairlift base station building and hut. If required, all rock excavation work should be directed by experienced staff from Perisher Ski Resort. If there is any cause for concern, further geotechnical advice should be sought.

- Due to the shallow depth of the required excavations, the sides of the trench and pit excavations may be cut vertically, although some instability of the cut sides may occur where soil is present. We expect such potential instability would be acceptable, otherwise an allowance should be made to flatten the sides to no steeper than 1 Vertical in 1 Horizontal.
- All personnel, excavated spoil and other surcharge loads must be kept well clear of the excavation sides to reduce the likelihood of instability of the cut sides.
- To reduce the potential for the proposed trench to act as drainage line and thus potentially change existing overland flow patterns, we recommend the trench excavation be backfilled using the excavated materials, provided they have a high fines content and there is adequate compaction of the trench backfill. The use of a free draining granular material, such as a clean sand or gravel as trench backfill, is not recommended. Particles greater than 50mm should be excluded from the trench backfill. The trench backfill should be rigorously compacted in maximum 150mm loose thickness layers using at least six passes of a trench roller, 'whacker packer' or vibrating plate attachment fitted to the excavator, until there is no heaving of the backfill observed during compaction.
- Where the trench excavation extends beyond the road alignment, the upper portion of the trench backfill should comprise 'sod' replacement, and such material will not require compaction. We assume the thickness of any 'sod' replacement zone will be determined by staff from Perisher Ski Resort.
- Any pipes which are installed to facilitate drainage from the base of the concrete pit should discharge downslope in a controlled manner, in order to prevent localised erosion.
- Any excavated material which is not used as trench backfill must be appropriately disposed of.

5 GENERAL COMMENTS

The recommendations presented in this report include specific issues to be addressed during the construction phase of the project. In the event that any of the construction phase recommendations presented in this report are not implemented, the general recommendations may become inapplicable and JK Geotechnics accept no responsibility whatsoever for the performance of the structure where recommendations are not implemented in full and properly tested, inspected and documented.

It is possible that the subsurface soil, rock or groundwater conditions encountered during construction may be found to be different (or may be interpreted to be different) from those expected. Also, we have not had the opportunity to observe surface run-off patterns during heavy rainfall and cannot comment directly on this aspect. If conditions appear to be at variance or cause concern for any reason, then we recommend that you immediately contact this office.

This report provides advice on geotechnical aspects for the proposed civil and structural design. As part of the documentation stage of this project, Contract Documents and Specifications may be prepared based on our report. However, there may be design features we are not aware of or have not commented on for a variety of reasons. The designers should satisfy themselves that all the necessary advice has been obtained. If required, we could be commissioned to review the geotechnical aspects of contract documents to confirm the intent of our recommendations has been correctly implemented.

A waste classification is required for any soil and/or bedrock excavated from the site prior to offsite disposal. Subject to the appropriate testing, material can be classified as Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM), General Solid, Restricted Solid or Hazardous Waste. Analysis can take up to seven to ten working days to complete, therefore, an adequate allowance should be included in the construction program unless testing is completed prior to construction. If contamination is encountered, then substantial further testing (and associated delays) could be expected. We strongly recommend that this requirement is addressed prior to the commencement of excavation on site.

Figure 2: Location Map, Interceptor Base Snowmaking