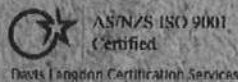




**REPORT**  
**TO**  
**PERISHER BLUE PTY LTD**  
**ON**  
**GEOTECHNICAL ASSESSMENT**  
**FOR**  
**PROPOSED NEW CONCRETE WALKWAY**  
**AT**  
**PERISHER SKI RESORT,**  
**PERISHER VALLEY, NSW**

**28 October 2015**  
**Ref: 27811RH9rpt**



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**Figure 1: Plan Showing Proposed Works**



## **1 INTRODUCTION**

This report presents the results of a geotechnical assessment for the proposed concrete walkway adjacent to the Perisher Ski Tube Terminal, Perisher Ski Resort, Perisher Valley, NSW. The assessment was commissioned by Mr Craig Parker of Perisher Blue Pty Ltd (PB) in an email sent on 16 October 2015. The commission was on the basis of the hourly rates presented in our proposal, Ref: 'P39395RH', dated 1 October 2014.

We have been supplied with the following information:

- Unreferenced plans showing the extent of the proposed works, dated 27 November 2010, prepared by Steve Gibb; and
- Structural drawings (Drawing Nos. P202/2, Sheets 1 to 6, dated 20 February 2014) prepared by Tasman Engineering Consultants.

Based on the supplied information and our discussions with Mr Parker, we understand that the proposed works will include demolition of an existing concrete pavement followed by construction of a new concave 180mm thick concrete pavement. Existing drainage pipes below and adjacent to the proposed walkway will be upgraded. Whilst the design levels for the proposed pavement have been indicated, existing surface levels have not been provided. Nevertheless, based on our site observations, ground levels may be raised to a maximum height of about 0.2m above existing grade. We understand that the proposed pavement will be primarily used by skiers.

A plan showing the extent of the proposed works is shown on the attached Figure 1, which is based on the 'Finished Detail Plan' prepared by Steve Gibb.

The purpose of the geotechnical assessment was to carry out a walkover inspection of the site and to determine whether the proposed works present minimal or no geotechnical impact on the site, and if so, to complete 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.

This report has been prepared in accordance with the requirements of the Geotechnical Policy for Kosciuszko Alpine Resorts (2003). It is understood that this report will be submitted as part of the Development Application documentation.



## **2 ASSESSMENT PROCEDURE**

The assessment was carried out by our Senior Associate geotechnical engineer (Adrian Hulskamp) on 16 October 2015. The assessment comprised a walkover inspection of the topographic, surface drainage and geological conditions of the site and its immediate environs.

Where access was possible, measurements were made with a tape measure and hand held clinometer, otherwise they were estimated. Should any of the features be critical to the proposed development, we recommend they be located more accurately using instrument survey techniques.

Record photographs of the site were taken and one has been included in this report. No subsurface investigations were carried out as part of this assessment.

## **3 RESULTS OF THE ASSESSMENT**

The proposed concrete walkway is to be located between the Perisher Ski Tube Terminal building to the east and to within approximately 3m to the east of the Skitube bridge to the west. Plate 1 below shows the site location looking east from the Skitube bridge. The area was relatively flat and is located on the south-eastern side of Perisher Creek.



Plate 1: Looking east across area of proposed concrete walkway showing existing concrete pavement.

At the time of our inspection, the area of the proposed concrete walkway was covered by an existing concrete pavement that was in poor condition, with extensive cracking. The central portion of the



slab appeared to have settled slightly, though may also have been constructed that way to promote runoff into a drainage pit located within the central portion of the slab. The ground surface either side of the slab was surfaced with gravel. The area of, and immediately adjacent to, the proposed walkway appeared to have been filled to a maximum height of about 1m above Perisher Creek.

#### **4 COMMENTS AND RECOMMENDATIONS**

Based on our walkover inspection and with reference to the supplied information, we consider that the proposed concrete walkway works will constitute 'minimal or no geotechnical impact' on the site. Therefore, 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 the completed Form 4 – Minimal Impact Certification.

Footings are not required for this project and therefore provision of a site classification to AS2870-2011 'Residential Slabs and Footings – Construction' is not relevant. Nevertheless, fill is expected to be present to a depth of at least 1m below the footprint of the proposed walkway, so the site would classify as Class 'P', in accordance with AS2870-2011.

We recommend that the following be taken into account during construction:

- After demolition of the existing concrete pavement, excavation down to design subgrade level, where required, may be completed using a hydraulic excavator through the soil profile.
- Following the above, we recommend that the subgrade be proof rolled with at least six passes of a smooth drum roller of 10 tonnes deadweight. We recommend that the vibratory mode on the roller be switched off, so that vibration induced damage to nearby structures not occur and to reduce the potential for groundwater to be pumped into the subgrade. The last two passes should be inspected by a geotechnical engineer. The objective of proof rolling is to assist with the detection of 'unstable' areas.
- If subgrade heaving is detected during proof rolling, then the heaving areas should be locally removed down to a stable base and replaced with engineered fill, as outlined below. Possible alternatives to stripping the full depth of the heaving areas may be provided by the geotechnical engineer during the proof rolling inspection, if required.
- Engineered fill must be used where ground surface levels are to be raised, as well as to backfill trench excavations associated with areas where pipes are to be replaced, so as to reduce post-construction settlements. The engineered fill should comprise a high quality granular material, such as crushed imported granite sourced from the PB ski resort. The



engineered fill materials must be 'clean', free of organic matter and have particle sizes no greater than 50mm. Engineered fill comprising imported crushed granite, should be compacted using a roller or 'vibrating plate' compactor or 'whacker packer' in maximum 150mm thick loose layers to achieve a density ratio of at least 98% of Standard Maximum Dry Density (SMDD).

- Density tests should be carried out on the engineered fill to confirm the above specification is achieved. The testing frequency should be as per the requirements of Table 8.1 in AS3798-2007. We recommend Level 2 control of fill compaction be adhered to on this site.
- We assume that the design of the proposed pipe outlet into Perisher Creek has taken into account potential future erosion and scour effects.
- The structural drawings indicate that the subgrade below the proposed pavement to have a CBR of 15%. Based on our site observations, the site is underlain by fill and therefore the existing subgrade is likely to have a CBR that is less than 15%. We recommend that the subgrade CBR be confirmed by the geotechnical engineer during the proof rolling inspection. However, we recommend that the pavement design be initially checked with a reduced subgrade CBR of say 7%, assuming a granular fill subgrade is present.

## **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.

Occasionally, the subsurface conditions may be found to be different (or may be interpreted to be different) from those expected. Variation can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, 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

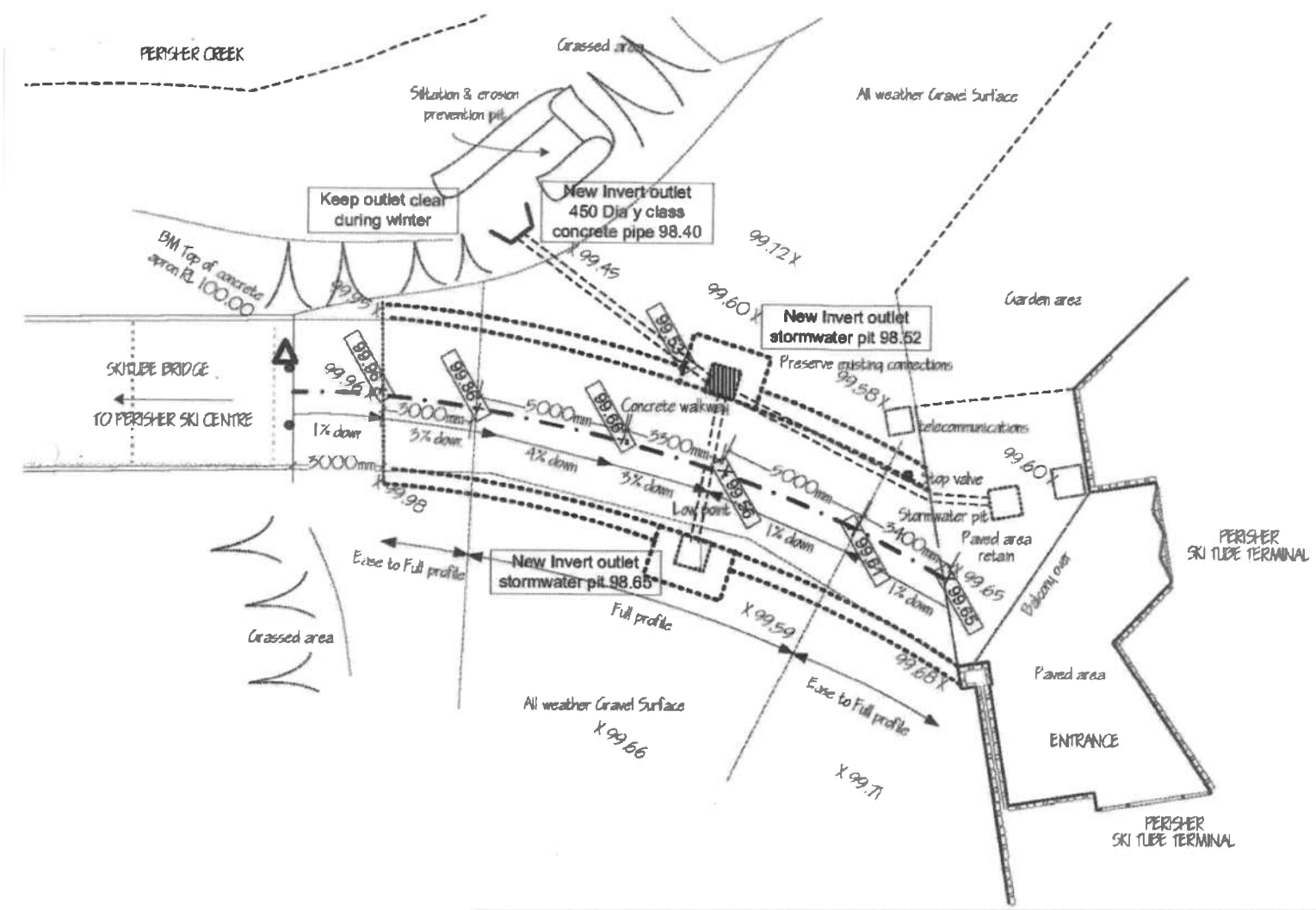


geotechnical aspects of contract documents to confirm the intent of our recommendations has been correctly implemented.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described in this report then all recommendations should be reviewed. Copyright in this report is the property of JK Geotechnics. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report. The report shall not be reproduced except in full.

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Title: <b>PLAN SHOWING PROPOSED WORKS</b>	Report Number: 27811RH9	Figure Number: 1
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