JKGeotechnics

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

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

Adrian Hulskamp
Senior Associate I Geotechnical Engineer

Reviewed by:

Nick Smith
Senior Associate I Geotechnical Engineer