

DAVIES GEOTECHNICAL

CONSULTING ENGINEERS

26 April 2019

19-013.A

Precision Planning Pty Ltd
Suite 36 / 401 Pacific Highway
ARTARMON NSW 2064

Attention: Krystal Narbey

Dear Krystal,

re: **GEOTECHNICAL ASSESSMENT / LANDSLIP RISK ISSUES
DA-STAGE, PROPOSED ALTERATIONS & ADDITIONS, AND POOL
NO.17 DAKARA DRIVE FRENCHS FOREST NSW (Patrick & Karen Doherty)**

In response to your request, and information forwarded by email on 3 April 2019, we have undertaken a geotechnical assessment of the above property, in connection with the DA stage for proposed residential alterations and additions, including a pool.

The Northern Beaches Council DCP/E10-Landslide Risk for Warringah requires land subject to Hazard Mapping (Landslide Risk) to be assessed geotechnically. Council's mapping (refer attachment) shows the land at this site is within Area B (Flanking Slopes from 5 to 25 Degrees). For land in Area B, a Checklist (copy attached) is used to determine whether or not a geotechnical report is required.

We visited the site on 16 April 2019 and viewed the slope features within and adjacent to the property. Site survey information was provided on a survey plan prepared by Bee & Lethbridge Pty Ltd, ref.4293 Rev-00 dated 1 September 2015.

The building details supplied comprise a set of 23 drawings (DA Issue) prepared by Precision Planning Pty Ltd, ref. #191, dated 9 January 2019, showing details of the proposed additions and alterations, and pool.

In summary we comment as follows:-

- there are no natural geotechnical hazards present, or which may develop over the life span of the development that would likely result in a change to the current slope conditions;
- in our opinion, the property and existing development have an acceptable risk level (low risk or lower) in regard to landslip risk, when assessed in accordance with the Australian Geomechanics Society Guidelines, March 2007;
- there is no excavation >2m or filling >1m on the site (refer attached Checklist);
- the details supplied confirm no bulk excavation or filling >2m depth are required or will be carried out as part of the alterations, additions or pool (refer attached Checklist).

Accordingly, the attached Checklist procedure for the Northern Beaches Council DCP confirms that a geotechnical report is not required in connection with the proposed application or development.

Recommendations – Pool and Rear Deck Modification, and Alterations

The proposed deck extension and pool at the rear of the dwelling are to be elevated above ground, except for a minor extent of excavation at the uphill end of the pool, estimated to be less than 1m depth into the existing fill batter beneath the deck (refer below).

Sections C – F on the supplied drawings show the proposed additions at the rear of the dwelling, within the footprint, and at the front of the dwelling.

The new extended rear deck structure and the pool, and structural modifications for the relocated garage and other alterations to the dwelling are shown as supported by new concrete framed columns and slab, subject to engineering design.

The proposed pool depth is not detailed on the information supplied. However, a lower level below the new deck is indicated on Section C, presumed to be at the base of the pool. By scaling from the drawing, we estimate the level to be approximately RL146.9. A rainwater tank is to be located on the slope below the new deck.

We recommend all new footings supporting structural elements of the proposed works, including the platform for the rainwater tank, should be taken to an end bearing on or in sandstone bedrock. A serviceability design bearing pressure of 1000kPa on Class IV Sandstone¹ or better quality bedrock is recommended.

The footing conditions are to be verified by a geotechnical engineer during construction as being in accordance with the structural details. A note to this effect is to be included on the structural drawings.

It is recommended the structural details be reviewed by a geotechnical engineer prior to issue of the Construction Certificate.

Appendix A – Limitations of This Report – is provided for further understanding of the context of the assessment undertaken, and the limits of the recommendations provided in the report.

We trust the above is adequate for your needs at this time. Please contact the undersigned if you require further information.

Yours faithfully

DAVIES GEOTECHNICAL Pty Ltd



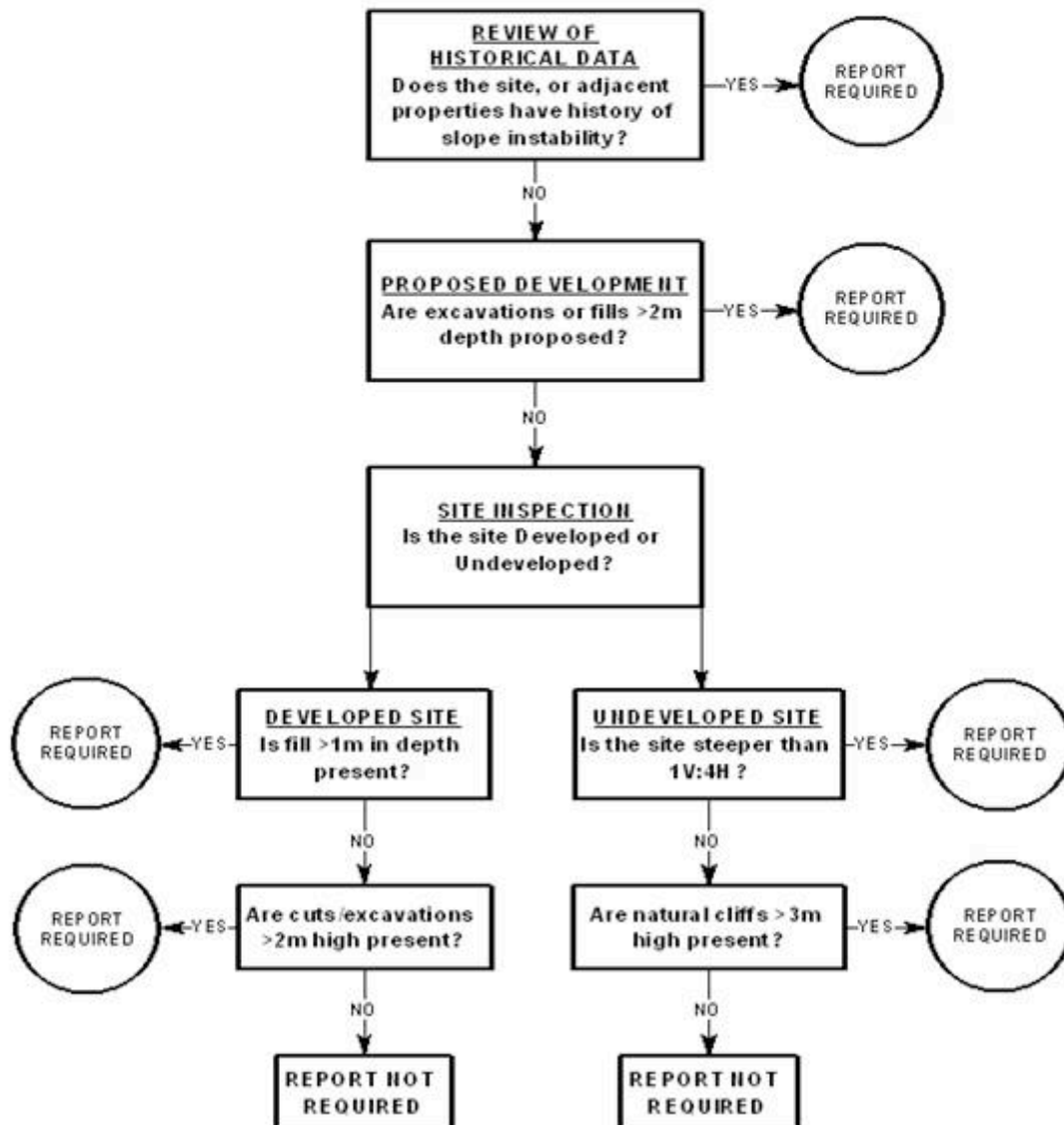
Warwick N Davies MIEAust CPEng NER (Civil)
Principal Geotechnical Engineer
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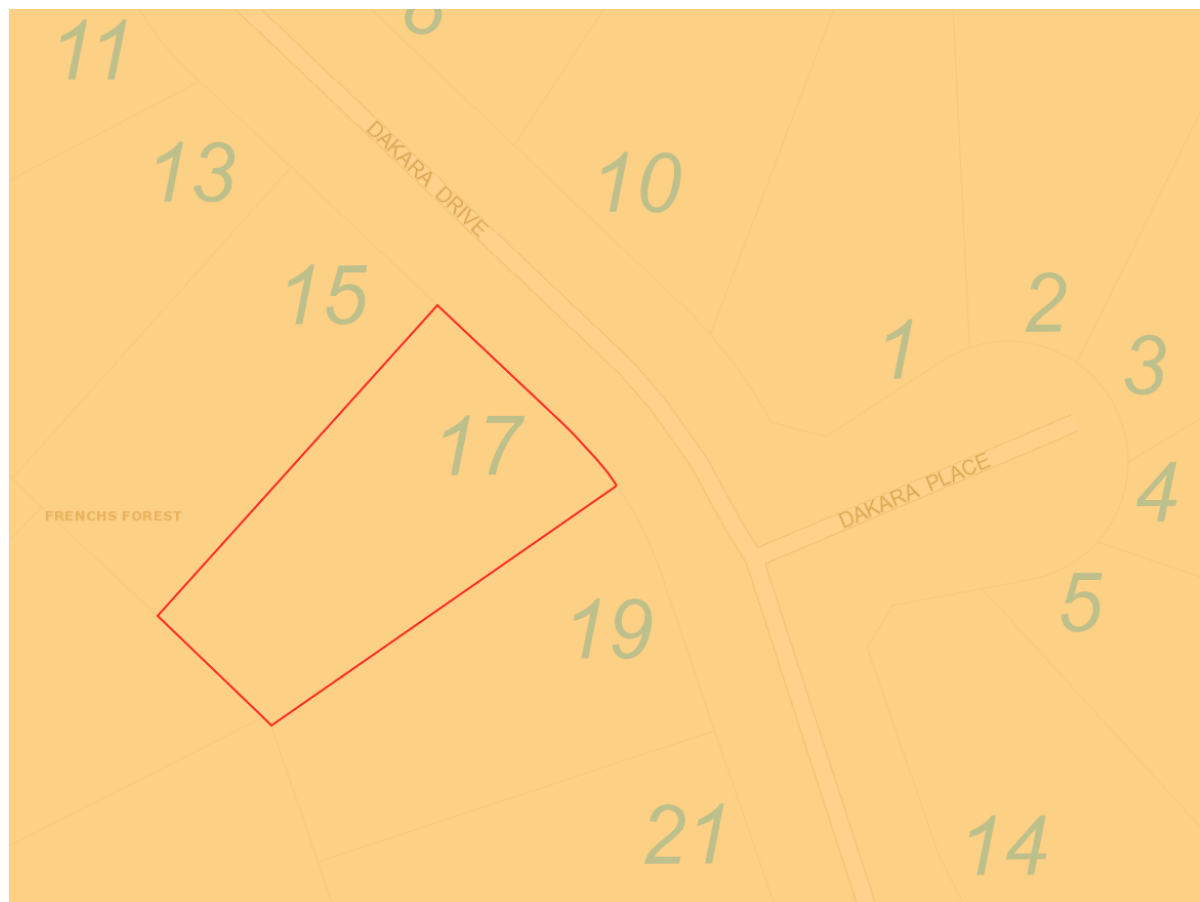
Attachments:

Checklist
Landslip Zoning Map
Slope Section
Appendix A

¹ Pells P.J.N., Mostyn G. and Walker B.F. (1998). "Foundations on Sandstone and Shale in the Sydney Region" Australian Geomechanics, Number 33 Part 3 Dec.1998

**CHECKLIST FOR COUNCIL'S ASSESSMENT OF
SITE CONDITIONS AND
NEED FOR GEOTECHNICAL REPORT
IN GEOTECHNICAL CLASS B AND D**



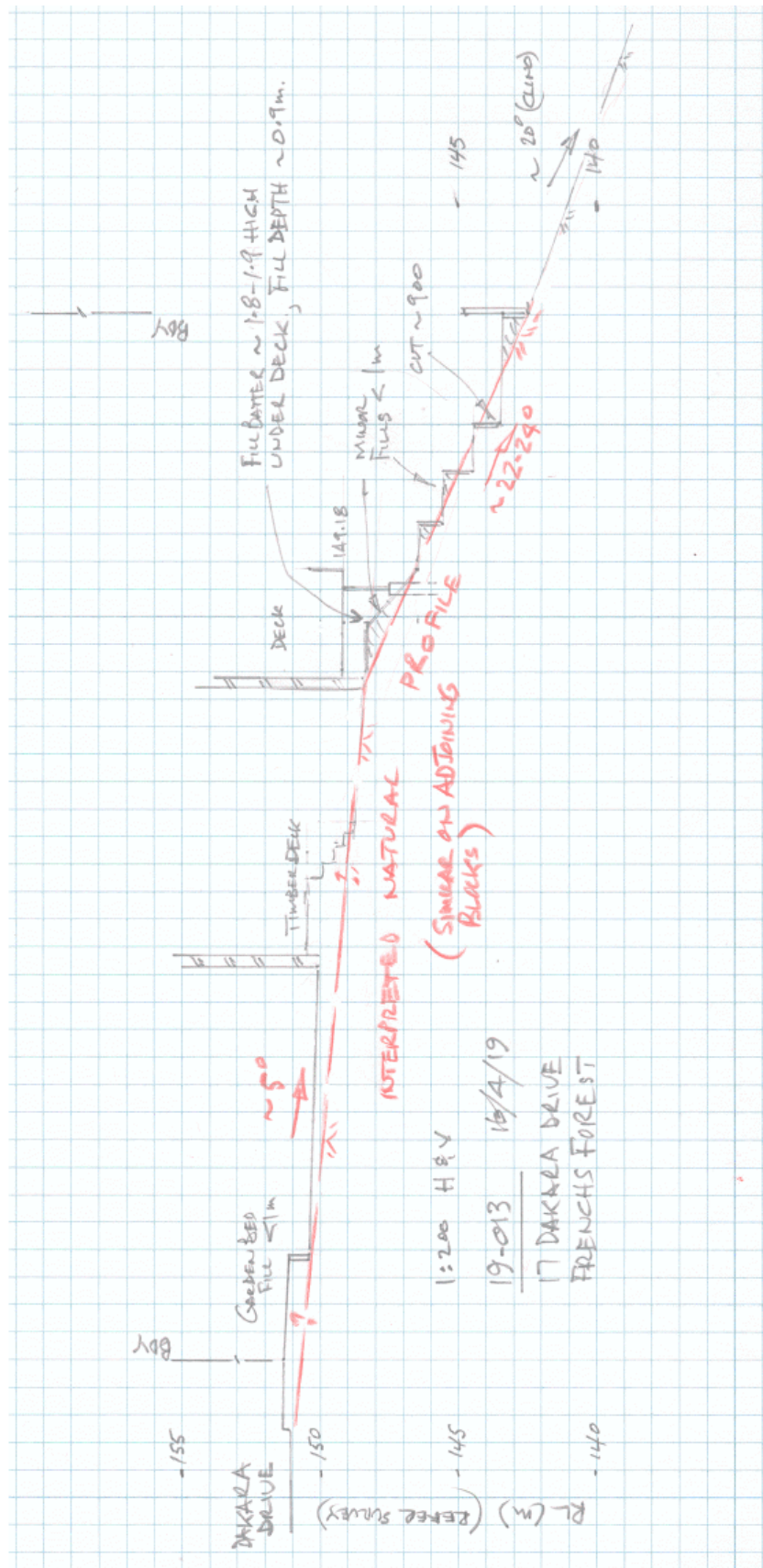


LEGEND

Warringah Landslip Risk Map

- Area A - Slope less than 5 degrees
- Area B - Flanking Slopes from 5 to 25 degrees
- Area C - Slopes more than 25 degrees
- Area D - Collaroy Plateau Area Flanking Slopes 5 to 15 degrees
- Area E - Collaroy Plateau Area Slopes more than 15 degrees

Geotechnical Slope Section



APPENDIX A

LIMITATIONS OF THIS REPORT

Soil and rock formations are variable. The information presented as part of this report indicates the approximate subsurface conditions only at the specific test locations. Boundaries between zones on the logs or stratigraphic sections are often not distinct, but rather are transitional and have been interpreted.

The precision with which subsurface conditions are indicated depends largely on the frequency and method of sampling, and on the uniformity of subsurface conditions. The spacing of test sites also usually reflects budget and schedule constraints.

Groundwater conditions described in this report refer only to those observed at the place and under circumstances noted in the report. The conditions may vary seasonally or as a consequence of construction activities on the site or adjacent sites.

Where ground conditions encountered at the site differ significantly from those anticipated in the report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Davies Geotechnical Pty Ltd be notified of any variations and be provided with an opportunity to review the recommendations of this report. Recognition of changed soil and rock conditions requires experience and it is recommended that a suitably experienced geotechnical engineer be engaged to visit the site with sufficient frequency to detect if conditions have changed significantly.

The comments given in this report are intended only for the guidance of the design engineer, or for other purposes specifically noted in the report. The number of boreholes or test excavations necessary to determine all relevant underground conditions which may affect construction costs, techniques and equipment choice, scheduling, and sequence of operations would normally be greater than has been carried out for design purposes. Contractors should therefore rely on their own additional investigations, as well as their own interpretations of the borehole data in this report, as to how subsurface conditions may affect their work.