

13 February 2023
P21153.02 REV1

Mr Peter Biscoe QC
The Panel Chair
Northern Beaches Planning Panel

By Email: planningpanels@northernbeaches.nsw.gov.au

EI Australia
Suite 6.01, 55 Miller Street
PYRMONT, NSW 2009

ABN 42 909 129 957

E service@eiaustralia.com.au

W www.eiaustralia.com.au

T 02 9516 0722

Dear Sir,

Submission on Geotechnical Issues DA2022/0469 No.1102 Barrenjoey Rd Palm Beach, NSW

1.0 INTRODUCTION

This letter provides a submission to the Pittwater Local Planning Panel on behalf of Prue Rydstrand, owner of the property at No.1100 Barrenjoey Rd adjoining the subject development.

Previous geotechnical reports prepared by Davies Geotechnical Pty Ltd and EI Australia have been submitted to Northern Beaches Council in connection with the proposed development, relating to potential impacts upon No.1100 Barrenjoey Rd and geotechnical risk, resulting from the proposed basement/driveway excavation and associated geotechnical aspects of the proposed works.

Most recently, EI's report dated 16 January 2023 (ref: P21153.01) addressed matters being considered by Northern Beaches Council for DA2022/0469, particularly in regard to an updated JK Geotechnics' (JKG) report ref:33618YJrpt Rev 3 dated 16 September 2022. EI is aware that report was formally provided by our client directly to Council's Planner Jordan Davies.

Since that submission, EI Australia (EI) has prepared a further review and commentary on these matters, detailed in the submission below. The further review was prompted by a letter prepared by JK Geotechnics dated 31 January 2023, ref: 33618Ylet2rev3, of which EI was only aware on 8 February 2023.

In summary, the need for this submission directly to the LPP has been necessary due to receiving the latest JKG letter after NBC had closed off its Planning Assessment Report, which we note was posted to the DA tracking web site on 2 February 2023.

Our conclusion from the further review discussed below reinforces our opinions expressed in previous reports to NBC. Our opinions and recommendation to NBC / LPP are summarised below:-

- Given the review comments on geotechnical issues we have already submitted to NBC in previous correspondence, and the comments below from our additional review, we conclude that JKG have not adequately addressed the issues.
- Neither of the JKG reports (16/9/22, 31/1/23) that are relied on by Council for its recommendation of an approval, are suitable for the DA in their form as presented to Council. Accordingly, in our opinion from an engineering perspective, the DA could not be approved without those reports being substantially re-addressed by JKG, and with independent peer review.
- Geotechnical Risk is left unresolved due to uncertainty of the existing construction on the southern boundary from past work on the site. JKG have flagged this, but have not followed up to confirm their assumptions necessary for the risk assessment presented in their 2020 report.
- In the end, should this development proceed through an approval, it is our opinion and recommendation that a Deferred Commencement Condition is the only avenue left that could satisfy an expectation that the concerns about impact on No.1100 and geotechnical risk will be properly and adequately addressed through engineering design and controls.

2.0 JKG REPORT 16 SEPTEMBER 2022

EI have addressed a review of this JKG report in our submission dated 16 January 2023. Reference should be made to EI's review of that date. At that time we concluded as follows:-

- *EI do not consider the DA could be approved in the current form with the supporting architectural information and the JKG Report.*
- *Additional engineering justification is required so that appropriate controls can be determined for the benefit of a robust approval, if that is the determination by Northern Beaches Council.*
- *In EI's opinion, the current design documentation lacks information, or any recognition, relating to the critical element of site stability in regard to the situation of the southern boundary of the development site, and the impact of the driveway excavation upon the boulder stack on No.1100.*

3.0 SITE MEETING 19 JANUARY 2023

A site meeting was held on 19 January 2023 for purposes of advancing understanding between the applicant for the proposed development on No.1102 and the owners at No.1100. The following persons were present:-

- No.1100 Nicholas Sproats (owner), Warwick Davies (EI Australia)
- No.1102 Mino Howard (applicant/developer), Alex Swiney (Reform Projects, builder), Woodie Theunissen (JKG)

The following briefly summarises some of the matters discussed:-

- (AS) additional survey has been obtained for design, but has not been supplied;
- (WT) further investigation of the boulder stack and existing excavation support on the southern boundary is warranted;
- (WT) JKG will undertake additional investigation/assessment and update/advance their Rev 3/Sept 2022 report;
- (NS) advice/permission for temporary anchors, if they are to be part of a design for the excavation support system, cannot be assessed/provided by owners at No.1100 at this stage;
- (all) NBC planner (Jordan Davies) requires agreement between Geotech experts on the issues for the DA assessment.
- (NS) owners at No.1100 have cooperated and will continue in seeking agreement/resolution in regard to their geotechnical concerns;
- (all) cooperation and communication between JKG and EI will continue in the interests of advancing understanding and resolution of the geotechnical issues.

JKG (email 31 January 2023) requested access onto No.1100 whilst on site on that date, for purposes of viewing the boulder stack. EI/JKG communicated by 'phone whilst JKG were on site at No.1100, however, due to insufficient notice on the day, access could not be reasonably arranged with the owners, but was readily agreed to, if required, at another time.

JKG subsequently issued an updated communication (their letter 31 January 2023) to Reform Projects Pty Ltd, which was posted on NBC's DA tracking web site on 2 February 2023 and has been included in NBC Planning Assessment Report. JKG have not communicated with EI on the issue of their letter, and (to EI's knowledge) neither had NBC's Planner flagged the issue of JKG's letter.

4.0 JKG LETTER 31 JANUARY 2023

As noted in 1.0 above, EI was first advised about JKG's update/letter on 8 February 2023.

The letter does provide some additional information about the observed site conditions on the southern boundary with No.1100 relevant to the boulder stack and the existing excavation face, but fails to identify the nature of the supporting ground below the boulder stack, leaving the uncertainty on those ground conditions unresolved.

However, apart from a substantial amount of 'cut-and-paste' describing generic excavation methodology and controls during excavation, no engineering advice is available from JKG for detailed requirements of the excavation support system to explain the reality of:

- how to support the boulder stack safely, temporarily and permanently, or
- how to excavate the individual boulders safely, or
- how to anchor the support wall (if anchors were to be adopted).

EI would contend such detail is vital for a proper consideration of (i) undertaking the excavation of the boulders to the extent now revealed, and (ii) the constructability of the excavation support in a safe manner without impact on No.1100. Accordingly, EI considers the omissions and inadequacies of the JKG letter must be acknowledged in the DA assessment process. Reference to discussion in Section 6.0 below suggests that this has not been recognised in Council's Planning Assessment Report.

The cross sections B-B and C-C in JKG's Figure 2 are incorrect in that they show the bulk excavation down to RL-0.65 as '*proposed cutting*' being extended to the southern boundary. The '*proposed cutting*' as shown must be altered to match the reality of the driveway/basement configuration as shown on the engineering design prepared by Van der Meer (drawings C305-A, C310-A & C311-A, as listed in the Planning Assessment Report (refer below)).

This error has obviously not been recognised in Council's Engineering Department's assessment.

There is a casual approach to specifying restricted methodology for excavating the boulders. In 2.1, JKG state "*non-percussive excavation techniques*" are to be adopted, yet in 2.2.3 "*hand-held jack hammers*" would be permitted. What is it to be??

In our opinion the 31 January 2023 JKG letter cannot be relied on by Council for its recommendation of an approval.

5.0 RISK ISSUES / BOULDER STACK

Engineering Risk

JKG's initial report for this development dated 30 November 2020 (Seepage Analysis and Geotechnical Assessment, ref: 33618YJrpt), for a 4.55 Modification at that time, provided a Risk Assessment to address requirements of the Pittwater Risk Management Policy.

The boulder stack on No.1100 which extends across the boundary onto No.1102 was included and assessed as 'Hazard A'. The risk assessment was based on an assumption by JKG that "*Hazards A, B and C have been previously engineered and certified during construction*" (quote from 5.3 of the JKG 2020 report, last paragraph on page 13).

The 'construction' referred to was previous work that JKG were not involved with, which resulted in the current conditions on the site, namely: (i) the extensive excavation and soldier pile support wall along the eastern side of the present building area, and (ii) the excavation on the southern boundary common with No.1100 which includes the overhanging boulder B1 and the smaller boulder B2.

The following extract from JKG's 2020 report is relevant:-

According to the D.F. Dickson report they have been involved during the construction period and have certification of these elements. In this regard we recommend that the D.F. Dickson reports, design drawings and as-built records are obtained so that our assessment of the likelihood of instability of these Hazards can be confirmed. If these records cannot be obtained, we recommend further investigation for Hazard C be carried out as discussed further in Section 7. We understand that Hazard B will be demolished during construction and that Hazards A and D can be managed during construction.

To date there is no documentation in support of JKG's assumption. Thus, the likelihood of instability of Hazards A, B and C has not been confirmed.

In that situation, JKG recommend further investigation for Hazard C, but state that Hazard A "*can be managed during construction*". For reasons discussed elsewhere in this review, EI consider that further investigation is required for Hazard A (the boulder stack), and that should be carried out to inform the risk assessment properly about Hazard A, as well as for engineering design concerning the excavation support that JKG recommended will be "*..... managed during construction*".

The Davies Geotechnical draft Memo dated 27 October 2021 (ref: 21-019.C_rev1), supplied to NBC with EI's Geotechnical Review of Excavation Issues dated 16 January 2023), discussed the site history of the development on No.1102 as known from available documentation, and specifically addressed the uncertainty of excavation support on the southern boundary (the boulder stack) on page 3.

These 'unsolved' risk issues are clearly explained in the JKG 2020 report and the Davies Geotechnical 2021 review, and were advised to Council's Planner prior to the Planning Assessment Report now submitted for the LPP process. Given that circumstance, it would be a reasonable expectation that Council's Planner would request/require an update from JKG on the Risk Assessment prior to determining an outcome of the Planning Assessment.

The significance of the 'unsolved' risk issues appears not to have been recognised, or was ignored in the Planning Assessment.

Environmental Risk

The JKG report addresses engineering risk, whilst environmental risk must also be addressed in terms of impacts of the proposed works upon adjoining land.

Although not specifically a geotechnical risk in terms of the NBC Pittwater Geotechnical Risk Management Policy, the environmental risk is considered and 'managed' at least under proposed Condition 37 (refer 6.0 below).

The Geotechnical Risk Matrix used in the AGS Guidelines (**Attachment 1**), and correctly adopted by JKG, could be modified in regard to 'consequence to property', in this case the boulder stack within No.1100, such that, in the 5-level range for consequences should the hazard occur, the boulder stack is 'disturbed' (say MINOR to MEDIUM consequence) or is 'significantly damaged' (MAJOR consequence). The likelihood of the hazard being caused by uncontrolled excavation or disturbance to the boulder stack on the boundary is assumed as POSSIBLE (a reasonable estimate in the absence of any information on the existing boulder support conditions within No.1102 or on No.1100).

Combining the above likelihood with the assessed consequence levels through the modified risk matrix determines a risk level of either **Medium Risk** or **High Risk**.

6.0 NBC PLANNING ASSESSMENT REPORT

EI have reviewed the Planning Assessment Report based on a search of the PDF document for 'geotechnical' references. Note that page numbering below refers to the PDF document, not the actual report which has no page numbering or any helpful section referencing.

We note many parts of the report state compliance of geotechnical matters that Council is bound to consider for an approval. For brevity the following selection / list can be readily found:

- p10 "*The proposal does adequately address geotechnical risks*" **[EI disagree]**
- p50 Compliance Assessment 7.7 "Yes" **[EI disagree]**
- p62 Cl 6.2 Earthworks (a), (d) and (h) are treated casually and are not appropriately answered with regard to impacts on No.1100. **[NBC should review]**

- p63 Clause 7.7 Commentary provided by NBC – Council’s Development Engineer supports the application subject to development conditions. **[This avoids decision-making and has potentially dangerous consequence if left to the developer to resolve after a DA consent]**
- p80 Objections “ have been assessed and resolved by conditions to mitigate risks.
[In EI’s opinion, and in fairness, a proper consideration of the reports/submissions available to NBC would reasonably conclude differently to the above. Progress in the DA must be deferred pending resolution of objections on geotechnical issues put by the owner at No.1100].
- p87 Condition 14 Prior to Issue of Construction Certificate. **[If the JKG reports are taken as ‘appropriate’, the preparation of designs and a construction methodology etc must be viewed as uncertain and potentially inadequate. The approval in this form will not have power or control to ensure safe engineering design and controls]**
- p98 Condition 37 During demolition and building works. Rock outcrops outside the area of approved works – preservation of environmental features. **[Council recognising and protecting the sensitivity of the boulder stack on adjoining property, No.1100]**

Considering the comments above, deferral of the DA is warranted until the geotechnical issues associated with the excavation against No.1100 are resolved and an appropriate engineering design is developed, and with both aspects subject to an independent peer review prior to lodgement for Construction Certificate.

7.0 CONCLUSION

Our conclusion from the further review discussed above reinforces our opinions expressed in previous reports to NBC. Our opinions and recommendation to NBC / LPP are summarised as follows:-

- Given the review comments on geotechnical issues we have already submitted to NBC in previous correspondence, and the comments from our additional review, we conclude that JKG have not adequately addressed the issues.
- Neither of the JKG reports (16/9/22, 31/1/23) that are relied on by Council for its recommendation of an approval, are suitable for the DA in their form as presented to Council. Accordingly, in our opinion from an engineering perspective, the DA could not be approved without those reports being substantially re-addressed by JKG, and with independent peer review.
- Geotechnical Risk is left unresolved due to uncertainty of the existing construction on the southern boundary from past work on the site. JKG have flagged this, but have not followed up to confirm their assumptions necessary for the risk assessment presented in their 2020 report.
- In the end, should this development proceed through an approval, it is our opinion and recommendation that a Deferred Commencement Condition is the only avenue left that could satisfy an expectation that the concerns about impact on No.1100 and geotechnical risk will be properly and adequately addressed through engineering design and controls.

With a Deferred Commencement Condition, the following will apply:

- NBC will have a mechanism for ensuring implementation of (i) adequate geotechnical assessment (ie, further investigations, and updating of current reporting) and (ii) appropriate engineering design and controls,
- to be subjected to an independent reviewed by suitably qualified and experienced geotechnical and structural engineering professionals, and
- consent can then be determined prior to release of the DA for progress to a Construction Certificate.

Don’t hesitate to contact EI if you require further information or assistance at this time.

For and on behalf of,

EIAUSTRALIA

Author



Warwick Davies
Principal Geotechnical Engineer

Attachment – AGS Risk Matrix

PRACTICE NOTE GUIDELINES FOR LANDSLIDE RISK MANAGEMENT 2007

APPENDIX C: – QUALITATIVE TERMINOLOGY FOR USE IN ASSESSING RISK TO PROPERTY (CONTINUED)

QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

LIKELIHOOD		CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage)				
	Indicative Value of Approximate Annual Probability	1: CATASTROPHIC 200%	2: MAJOR 60%	3: MEDIUM 20%	4: MINOR 5%	5: INSIGNIFICANT 0.5%
A - ALMOST CERTAIN	10 ⁻¹	VH	VH	VH	H	M or L (5)
B - LIKELY	10 ⁻²	VH	VH	H	M	L
C - POSSIBLE	10 ⁻³	VH	H	M	M	VL
D - UNLIKELY	10 ⁻⁴	H	M	L	L	VL
E - RARE	10 ⁻⁵	M	L	L	VL	VL
F - BARELY CREDIBLE	10 ⁻⁶	L	VL	VL	VL	VL

Notes: (5) For Cell A5, may be subdivided such that a consequence of less than 0.1% is Low Risk.

(6) When considering a risk assessment it must be clearly stated whether it is for existing conditions or with risk control measures which may not be implemented at the current time.

RISK LEVEL IMPLICATIONS

Risk Level		Example Implications (7)
VH	VERY HIGH RISK	Unacceptable without treatment. Extensive detailed investigation and research, planning and implementation of treatment options essential to reduce risk to Low; may be too expensive and not practical. Work likely to cost more than value of the property.
H	HIGH RISK	Unacceptable without treatment. Detailed investigation, planning and implementation of treatment options required to reduce risk to Low. Work would cost a substantial sum in relation to the value of the property.
M	MODERATE RISK	May be tolerated in certain circumstances (subject to regulator's approval) but requires investigation, planning and implementation of treatment options to reduce the risk to Low. Treatment options to reduce to Low risk should be implemented as soon as practicable.
L	LOW RISK	Usually acceptable to regulators. Where treatment has been required to reduce the risk to this level, ongoing maintenance is required.
VL	VERY LOW RISK	Acceptable. Manage by normal slope maintenance procedures.

Note: (7) The implications for a particular situation are to be determined by all parties to the risk assessment and may depend on the nature of the property at risk; these are only given as a general guide.