

**EVP NORTHERN BEACHES
CENTRAL BUSINESS PARK NO 1
PTY LIMITED**



**Preliminary Geotechnical
Assessment**

114 Old Pittwater Road, Brookvale NSW

Document Control

Report Title: Preliminary Geotechnical Assessment, 114 Old Pittwater Road, Brookvale NSW

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1. Introduction

1.1 Background

At the request of Derek Pal of Fabrik Property on behalf of EVP Northern Beaches Central Business Park No 1 Pty Limited (the Client), EI Australia (EI) has carried out a Preliminary Geotechnical Assessment (PGA) for the proposed development at 114 Old Pittwater Road, Brookvale NSW (the Site).

This PGA report has been undertaken to assess the likely Site surface and subsurface conditions and anticipated geotechnical factors associated with the proposed development, in support of a Development Application to the Local Council, and the preparation of the initial design of the proposed development.

1.2 Proposed Development

The following documents, supplied by the Client, were used to assist with the preparation of this PGA report:

- Development Application (DA) Architectural Drawings prepared by Reid Campbell – last issue A, dated 4 December 2024.

Based on the provided documents, EI understands that the proposed development involves the removal of existing trees in the carpark, car parking re-configuration, minor alterations and additions to the existing structure, and the installation of a new lift in the carpark area. A Development Application - DA2024/1790 - PAN-498806 – has been lodged however Northern Beaches Council has returned the application with a request for additional information.

1.3 Assessment Objectives

This PGA report has been undertaken to assess the likely Site surface and subsurface conditions for the development of a preliminary conceptual ground model of soil, rock and groundwater conditions beneath the site based on our experience and previous investigations within the vicinity of the site. This model is to assist in providing preliminary geotechnical advice and recommendations for consideration in the preparation of concept designs and construction methodologies for the proposed development including:

- Dilapidation surveys;
- Excavation assessment;
- Groundwater considerations;
- Excavation retention;
- Preliminary building foundation options including preliminary design parameters;
- The requirement for specific geotechnical investigations for detailed design post-DA and following site clearance.

2. Site Description

2.1 Site Description and Identification

The site identification details and associated information are presented in **Table 2-1** below while the site locality is shown on **Figure 1**.

Table 2-1 Summary of Site Information

Information	Detail
Street Address	114 Old Pittwater Road, Brookvale NSW
Lot and Deposited Plan (DP) Identification	Lot 1 in DP 868761
Brief Site Description	The site consists of a large commercial building housing various services and businesses, paved areas with parking spaces, and green zones with medium to tall trees surrounding the lot. The area is primarily surrounded by commercial buildings, factories, and small businesses.
Site Area	The site area is approximately 2.0 ha (based on the provided information from Six Maps website).



Plate 1 Aerial Photograph of Site (Source SIX Maps, accessed 22/01/2025)

2.2 Local Land Use

The site is situated within an area of residential use. Current uses on surrounding land at the time of our presence on site are described in **Table 2-2** below. For the sake of this report, the site boundary nearest to Clearview Place shall be adopted as the northern site boundary.

Table 2-2 Summary of Local Land Use

Direction Relative to Site	Land Use Description
North	Property at 106 Old Pittwater Road, commercial building complex with paved areas for pedestrian paths and vehicle parking, without visible basements.
East	Property at 108 Old Pittwater Road, a four-storey commercial building with green areas and paved zones for parking, without visible basements.
South	Property at 120 Old Pittwater Road, a two to five-story commercial building with green areas and paved zones for parking, without visible basements.
West	Allenby park, a vast green area comprising trees and vegetation of various sizes.

2.3 Regional Setting

The site topography and geological information for the locality is summarised in **Table 2-3** below.

Table 2-3 Topographic and Geological Information

Attribute	Description
Topography	The site is located on the west side of the Old Pittwater Road, and on a slope falling from west to east at an angle of about 25° initially before flattening off to a gentle (0° to 10°) slope.
Regional Geology	Information on regional sub-surface conditions, referenced from the Department of Mineral Resources Geological Map Sydney 1:100,000 Geological Series Sheet 9130 (DMR 1983) indicates the site to be underlain by Hawkesbury Sandstone (Rh), which consists of medium to coarse-grained quartz sandstone with very minor shale and laminite lenses.



Plate 2 Excerpt of Geological Map

2.4 Conceptual Ground Model

A summary of subsurface ground conditions likely to be encountered at the Site is presented in **Table 2-4** below. The information presented below is inferred from a review of our in-house database and our knowledge of the area. Based on regional information, the subsurface conditions around the site are likely comprised of fill and residual soils over shale.

Table 2-4 Conceptual Ground Model

Unit	Material	Comment
1	Fill	Fill material is inferred to be uncontrolled and poorly compacted. Filling may be deeper beneath existing structures and in landscaped areas of the site.
2	Residual Soil	Silty/Sandy CLAY; medium to high plasticity, typically stiff to hard grading onto extremely weathered material.
3	Sandstone	Sandstone is expected to be initially of low strength and distinctly weathered. The strength generally increases and weathering generally decreases with depth. Based on previous investigations within the vicinity of the site, the depth to bedrock is expected to be about 2.0m to 4.0m BEGL.

Based on nearby projects, EI anticipates groundwater levels at 4 to 6m BEGL.

2.5 Landslide Risk Area

Based on the Warringah Local Environmental Plan 2011, the site is located within Landslip Area B and C, Where slopes range from 5° to 25°, and >25°, respectively.

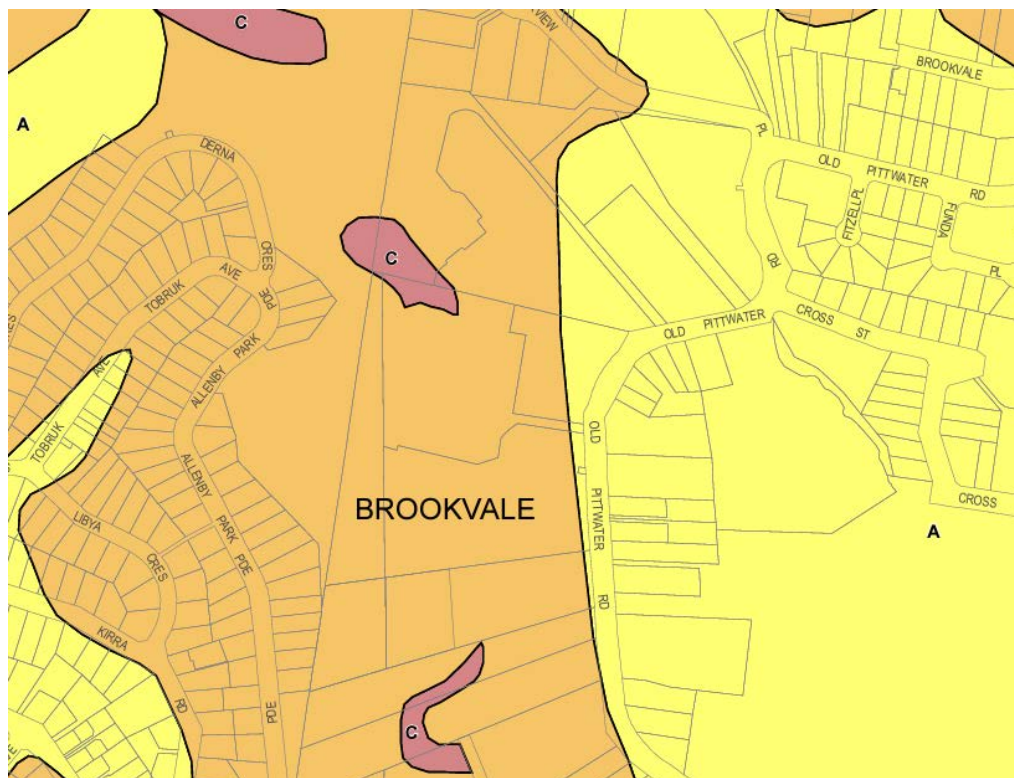


Plate 3 Excerpt of Warringah Landslip Area Map

3. Recommendations

3.1 Overview

Considering the proposed development and likely subsurface conditions that may be encountered, we consider the following to be the main geotechnical issues for the proposed development:

- Depth to bedrock;
- Foundation design for building loads; and
- Excavation Retention

Further discussions on the above issues are provided in the following sections.

3.2 Excavation Methodology

3.2.1 Preliminary Excavation Assessment

The proposed lift excavation is expected to require depths of approximately 1.6m BEGL. It is likely that the proposed development will therefore extend through Fill (Units 1) and Residual Soils (Unit 2), and possibly Sandstone Bedrock (Unit 3) as described in **Table 2-4**. Prior to excavation commencement:

- Reference must be made to the Safe Work Australia Excavation Work Code of Practice – January 2020, and
- Either a retaining wall or temporary batters be used to support the sides of the lift excavation.

Fill materials (Units 1) and Residual Soils (Unit 2) can be readily excavated by buckets of medium hydraulic excavators. Should sandstone be encountered and rock hammers be required for the excavation of the high strength bedrock, further advice should be sought from EI regarding vibration mitigation and monitoring.

Further Geotechnical Investigation in the form of boreholes should be undertaken on the site to confirm the depth of bedrock, soil strength/relative density and aggressivity of buried structures within the excavation depth.

Furthermore, any existing buried services which run below the site may require diversion prior to the commencement of excavation or alternatively be temporarily supported during excavation, subject to permission or other instructions from the relevant service authorities. Enquires should be made for further information and details, such as invert levels, on the buried services.

3.3 Excavation Retention

From a geotechnical perspective, it is critical to maintain the stability of the existing building and any adjacent infrastructure during demolition and excavation works. Excavations and retention systems will need to take into consideration the stability of adjoining structures so as not to have any adverse effects on the buildings and structures adjoining the excavation.

Based on the provided drawings, the proposed lift is set back about 4.4m from the existing building. Hence, a temporary batter of 1V:1H in the fill and residual soil, and a steeper batter of 2V:1H may be feasible in the sandstone.

Further Geotechnical Investigation in the form of boreholes should be undertaken on the site to confirm the depth of bedrock and confirm that temporary batters are feasible. Should temporary batters be deemed unsuitable, a retention system may be required.

3.4 Foundation Options

Following the completion of bulk excavations, Residual Soils (Unit 2) or Sandstone Bedrock (Unit 3) is expected to be exposed at the base. We recommend that all footings be founded on similar material.

Pads/strip footings and/or bored piers founded within Unit 2 residual soil or Unit 3 bedrock may be preliminarily designed for a maximum allowable bearing capacity of 100kPa or 600 kPa, respectively. For piles, an allowable shaft adhesion equal to 10% of the allowable bearing pressure in compression may also be used.

EI recommends a geotechnical investigation to be carried out, involving at least one borehole to determine the depth and quality of bedrock to ascertain our assumptions and optimize the bearing pressures.

Design of piles should consider the aggressivity of the soil and groundwater in accordance with Sections 6.4 and 6.5 of AS2159-2009.

3.5 Landslip Risk

While the site is located within Landslip Area B and C based on the Warringah Landslip Area map, the proposed earthworks is limited to the excavation and construction of a single lift at the lower eastern end of the site. Hence, EI is of the opinion that there is negligible risk to property and life, and no detailed landslide risk assessment is warranted.

4. Conclusions

This PGA report provides preliminary advice for construction at the site based on available information prior to intrusive geotechnical investigations. Geotechnical factors which may influence development of the site include:

- Depth to bedrock;
- Foundation design for building loads; and
- Excavation Retention

Further geotechnical investigation and design input are required during the detailed design phase prior to and during construction. These are detailed further in **Section 5** of this report.

We also note that there is negligible risk to property and life, and no detailed landslide risk assessment is warranted.

5. Further Geotechnical Inputs

Detailed geotechnical subsurface investigation prior to final design to determine the site specific subsurface profile and geotechnical parameters for design of footings is recommended.

The geotechnical investigation should involve:

- At least one borehole within the site at the location of the proposed lift pit to depths of up to 3.0m BEGL, or prior practical refusal.

We do not recommend that the final design be carried out based on this PGA report. The PGA report must be reviewed following the completion of the intrusive geotechnical investigation.

In addition, geotechnical footing inspections should be carried out during the construction stage (if new footings are necessary) to check initial assumptions about foundations conditions and likely variations that may occur between borehole locations and to provide additional advice.

6. Statement of Limitations

This report has been prepared for the exclusive use of EVP Northern Beaches Central Business Park No 1 Pty Limited who is the only intended beneficiary of EI's work. The scope of the investigations carried out for the purpose of this report is limited to those agreed by EVP Northern Beaches Central Business Park No 1 Pty Limited.

This PGA report is purely a desktop assessment and no intrusive works were carried out at the Site. Further geotechnical investigation and design input are required during the detailed design phase prior to and during construction. These are detailed further in **Section 5** of this report.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in similar investigations by reputable members of the geotechnical industry in Australia as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including its appendices and attachments.

The conclusions presented in this report are based on a limited investigation of conditions, with specific sampling locations chosen to be as representative as possible under the given circumstances.

EI's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

We draw your attention to the document "Important Information", which is included in **Appendix A** of this report. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by EI, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

Should you have any queries regarding this report, please do not hesitate to contact EI.

References

AS1726:1993, *Geotechnical Site Investigations*, Standards Australia.

AS2159:2009, *Piling – Design and Installation*, Standards Australia.

AS3600:2009, *Concrete Structures*, Standards Australia

Safe Work Australia Excavation Work Code of Practice, dated October 2018 – WorkCover NSW

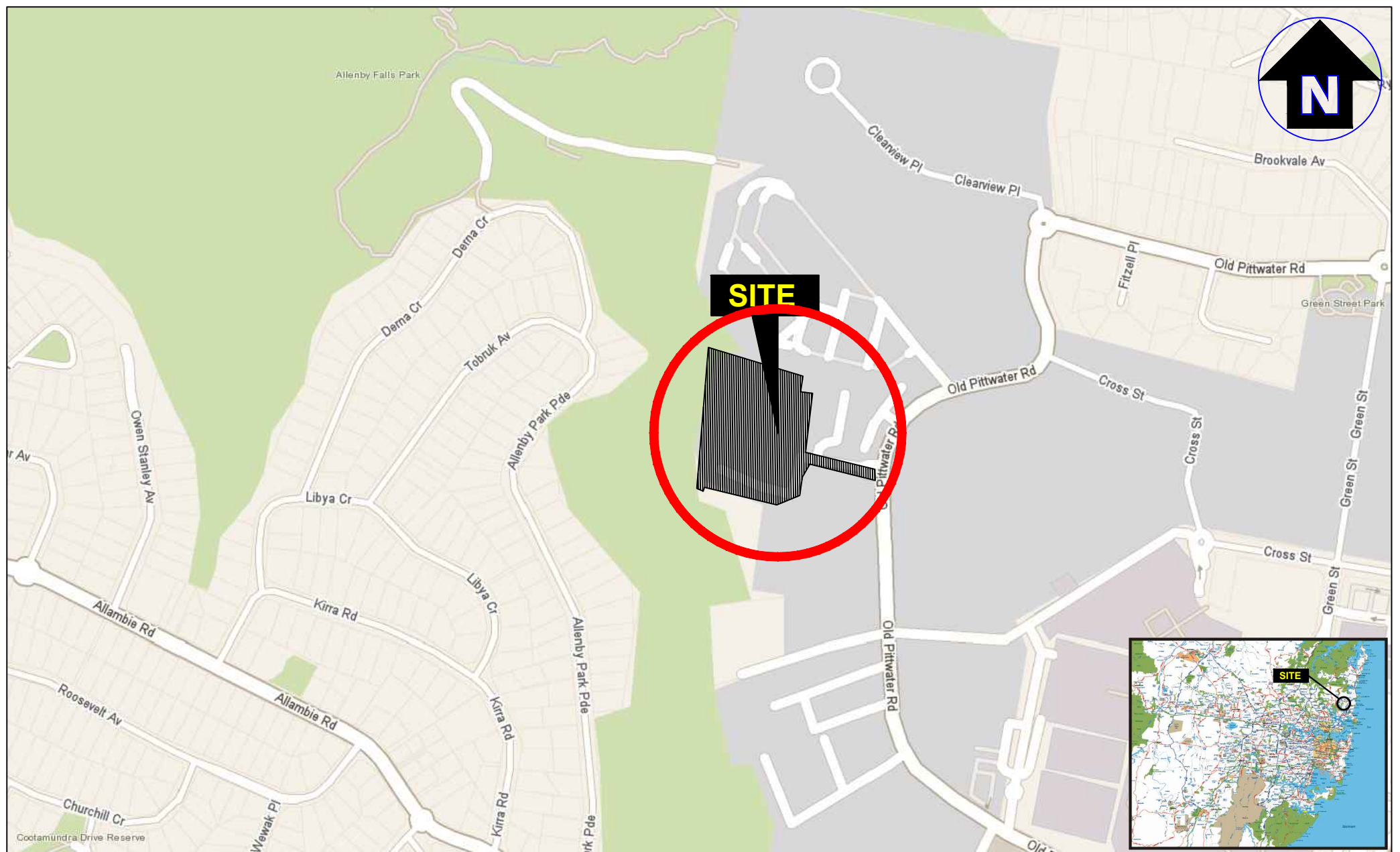
NSW Department of Finance and Service, Spatial Information Viewer, maps.six.nsw.gov.au.

NSW Department of Mineral Resources (1983) Sydney 1:100,000 Geological Series Sheet 9130 (Edition 1). Geological Survey of New South Wales, Department of Mineral Resources.

Abbreviations

AHD	Australian Height Datum
AS	Australian Standard
B EGL	Below Existing Ground Level
DP	Deposited Plan
EI	EI Australia
PGA	Preliminary Geotechnical Assessment
RL	Reduced Level

Figures



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EVP Northern Beaches Central Business No.1 Pty Ltd
Preliminary Geotechnical Investigation
114 Old Pittwater Road, Brookvale NSW

Site Locality Plan

Figure:

1

Project: E26637.G01

Appendix A – Important Information

SCOPE OF SERVICES

The geotechnical report ("the report") has been prepared in accordance with the scope of services as set out in the contract, or as otherwise agreed, between the Client And EI Australia ("EI"). The scope of work may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints.

RELIANCE ON DATA

EI has relied on data provided by the Client and other individuals and organizations, to prepare the report. Such data may include surveys, analyses, designs, maps and plans. EI has not verified the accuracy or completeness of the data except as stated in the report. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations ("conclusions") are based in whole or part on the data, EI will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to EI.

GEOTECHNICAL ENGINEERING

Geotechnical engineering is based extensively on judgment and opinion. It is far less exact than other engineering disciplines. Geotechnical engineering reports are prepared for a specific client, for a specific project and to meet specific needs, and may not be adequate for other clients or other purposes (e.g. a report prepared for a consulting civil engineer may not be adequate for a construction contractor). The report should not be used for other than its intended purpose without seeking additional geotechnical advice. Also, unless further geotechnical advice is obtained, the report cannot be used where the nature and/or details of the proposed development are changed.

LIMITATIONS OF SITE INVESTIGATION

The investigation programme undertaken is a professional estimate of the scope of investigation required to provide a general profile of subsurface conditions. The data derived from the site investigation programme and subsequent laboratory testing are extrapolated across the site to form an inferred geological model, and an engineering opinion is rendered about overall subsurface conditions and their likely behaviour with regard to the proposed development. Despite investigation, the actual conditions at the site might differ from those inferred to exist, since no subsurface exploration program, no matter how comprehensive, can reveal all subsurface details and anomalies. The engineering logs are the subjective interpretation of subsurface conditions at a particular location and time, made by trained personnel. The actual interface between materials may be more gradual or abrupt than a report indicates.

SUBSURFACE CONDITIONS ARE TIME DEPENDENT

Subsurface conditions can be modified by changing natural forces or man-made influences. The report is based on conditions that existed at the time of subsurface exploration. Construction operations adjacent to the site, and natural events such as floods, or ground water fluctuations, may also affect subsurface conditions, and thus the continuing adequacy of a geotechnical report. EI should be kept apprised of any such events, and should be consulted to determine if any additional tests are necessary.

VERIFICATION OF SITE CONDITIONS

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 the report that EI be notified of any variations and be provided with an opportunity to review the recommendations of this report. Recognition of change of 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.

REPRODUCTION OF REPORTS

This report is the subject of copyright and shall not be reproduced either totally or in part without the express permission of this Company. Where information from the accompanying report is to be included in contract documents or engineering specification for the project, the entire report should be included in order to minimize the likelihood of misinterpretation from logs.

REPORT FOR BENEFIT OF CLIENT

The report has been prepared for the benefit of the Client and no other party. EI assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of EI or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own inquiries and obtain independent advice in relation to such matters.

OTHER LIMITATIONS

EI will not be liable to update or revise the report to take into account any events or emergent circumstances or fact occurring or becoming apparent after the date of the report.