15 April 2025
E25203.G20.03

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

Mr. Hayden Clarke
Palmdev Pty Ltd
Suite 3.01, 17 Castlereagh Street,
SYDNEY NSW 2000

Geotechnical Opinion Letter for S4.56 Application 1112-1116 Barrenjoey Road, Palm Beach NSW

At the request of Mr. Hayden Clarke, EI Australia (EI) has prepared a geotechnical opinion letter for the above property at 1112-1116 Barrenjoey Road, Palm Beach NSW (the site), to assist with the S4.56 application.

EI has completed an Additional Geotechnical Investigation (AGI) report for this site, referenced E25203.G04_Rev1, dated on 8 August 2024.

The following documents were referenced in preparation of this opinion letter:

- Architectural Drawings prepared by Koichi Takada Architects, Job No. 20839, Rev for Section 4.56 Submission, dated 27 March 2025;
- Structural Drawings prepared by M+G Consulting, Job No. 5598, Issue 2, dated 21 March 2025.

Based on the email correspondence, EI understands that the proposed development involves the demolition of the existing site structures and the construction of a four-storey mixed-use building overlying a single-level basement. The basement level is proposed to have a Finished Floor Level (FFL) of RL -1.22m and -2.4m. A Bulk Excavation Level (BEL) ranging between RL -1.72m and -2.9m is assumed, which includes allowance for the construction of the basement slab. To achieve the BEL, excavation depths varying from 3.80m (towards east of site) to 14.70m (towards west of site) Below Existing Ground Level (BEGL) have been estimated. Locally deeper excavations may be required for footings, lift overrun pits, crane pads, and service trenches.

According to AGI report, boreholes BH103, BH104, and BH204, located in the eastern part of the site comprises fill underlain by low-strength sandstone/laminate (Unit 3) and low- to medium-strength laminate (Unit 4). In contrast, the western and central areas (boreholes BH101, BH102, BH201, BH202 and BH203) of the site intersect Unit 2a and Unit 2b, which are sand-dominated profiles where shallow groundwater is present. This geological and hydrogeological variation necessitates different shoring treatments across the site.

Therefore, the AGI report recommended the following temporary retention systems for excavation support:

- An internally propped soldier pile wall with shotcrete infill, extending below the BEL and into Unit 3 or stronger along the eastern elevation, where excavation is in competent rock and groundwater is deep. Due to site constraints, internal props are recommended in lieu of temporary anchors.
- A secant pile wall along the western, southern, and eastern portions of the site where excavation occurs within sandy soils and shallow groundwater conditions are present. The secant pile wall is to be socketed into unit 3 or better to provide cut-off against water inflow and material loss.

The proposed structural drawings comprise of the following:

- **Eastern elevation:** A soldier pile wall (Shoring Wall Type 1) comprising 500 mm diameter piles at 1.0 m spacing, with shotcrete infill, installed to below BEL. Two rows of internal corner and inclined struts are proposed for additional lateral restraint.

- **Southern and northern elevations (eastern end)**: A contiguous pile wall with 500 mm diameter piles (Shoring Wall Type 2), with shotcrete infill, installed to below BEL. Two rows of internal corner struts are proposed for additional lateral restraint.
- **Southern and northern elevations (western end) and the western elevation**: A secant pile wall with 500 mm diameter piles (Shoring Wall Type 3), installed to below BEL.

Based on our review of the structural documentation and comparison with the recommendations in the AGI report (E25203.G04_Rev1), we confirm that the proposed shoring wall systems are consistent with the geotechnical design intent and recommendations provided in our AGI. The structural systems appear appropriate given the expected subsurface and groundwater conditions.

Please do not hesitate to contact the undersigned should you have any questions.

For and on behalf of:
EI AUSTRALIA

Author

Mihimal Kadurugamuwa
Geotechnical Engineer

Reviewer

Stephen Kim
Senior Geotechnical Engineer