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|-----------------------|-------------------------|-------------------------------|-------------------|
| Attention: | [REDACTED] | Date: | 28.04.2026 |
| Company: | LKA | Pages (inc. this one): | |
| Phone Number: | | Fax Number: | |
| Email Address: | [REDACTED] | | |
| Site Address: | 6 LINCOLN AVE, SORRENTO | | |
| Job Number: | PSE2669 | Inspection Date: | NA |
| CC: | [REDACTED] | | |

RE: Preliminary Slope Stability Assessment No 6 Lincoln Avenue Sorrento

Engagement

Client has engaged PSE consulting engineers to provide a preliminary geotechnical assessment on landslide risk assessment for proposed residential development at No 6 Lincoln Avenue Sorrento.

Site Condition and Proposed Development

The site at No. 6 Lincoln Avenue Sorrento, is irregular shaped residential allotment located on the downslope of a gently undulating regional landform. As shown in the site photographs, the allotment was currently being occupied with an existing dwelling and vegetation.

Large areas of the site relatively level, however as it goes toward the site boundaries the slope increases uniformly toward the western boundary of the site with an average fall of 16 degrees and approximately 20 degrees towards the east and north-east boundaries pos the site. The regional slope is consisted with these findings.

The proposed development at this site is a small single room extension and a deck.

Investigation

PSE Consulting Engineers conducted a preliminary site investigation on 19th March 2026 to assess the subsurface soil condition at the site. During the investigation three (3) brief boreholes were advanced using land cruiser Ute mounted solid flight auger hydraulic drilling rig. A summary of the borehole profile is described below, and the details information of the borehole logs are appended to this report.

- SAND; fine to medium grain, grey to pale brown, medium dense.

Desktop Assessment

- *Site Geology*

Reference to the Geological Survey of Victoria, 1:250,000 series Geological Map indicates the site is located in an area of Quaternary aged Calcarenite deposits of bridge water formation. The subsurface conditions encountered during the field works is considered to be consistent with the geological map indications presented in

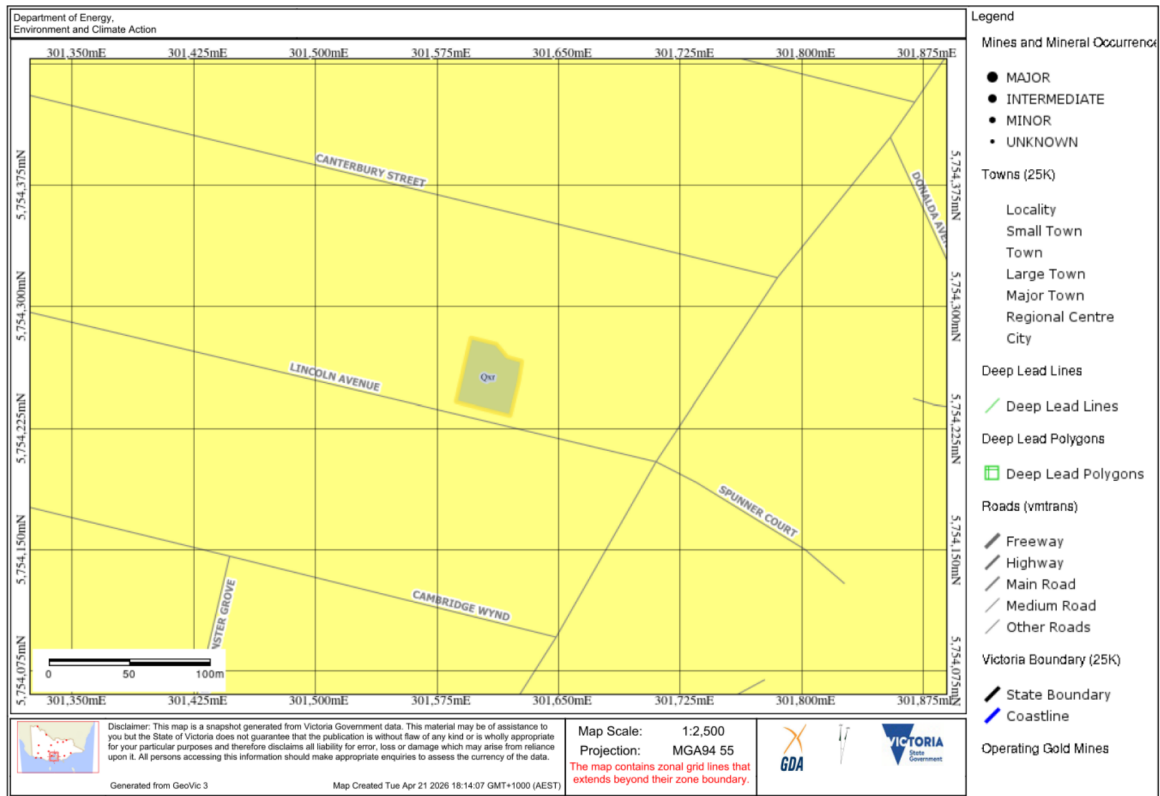


Figure 1.



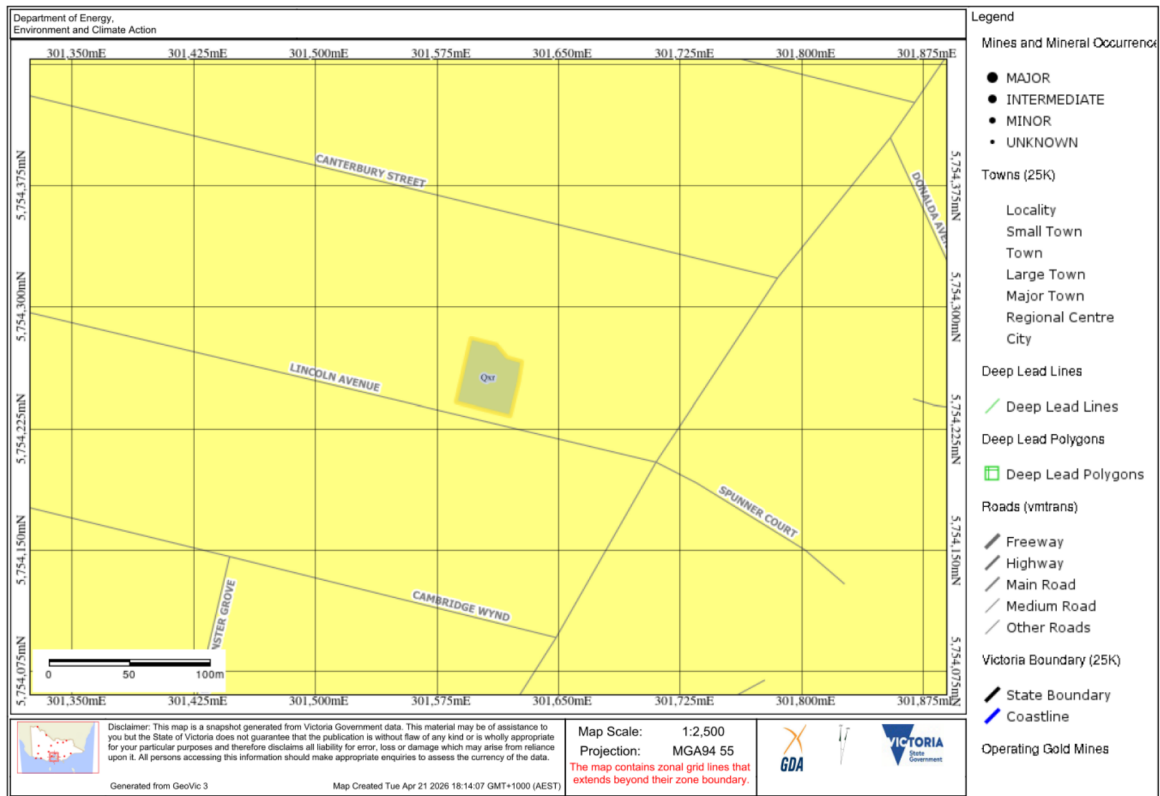


Figure 1: Local Geology (Visualising Victoria Groundwater, wg.com.au)

- **Regional Slope Assessment**

A regional slope assessment was undertaken to evaluate the potential risk of landslide events affecting the site and the proposed development. Based on this assessment, it is understood that the site is located on top of a slight hilly formation, where site falls away towards all four directions with an average fall of 16 to 20 degrees.

The surrounding regional terrain exhibits a consistent and uniform slope, which is in general agreement with these findings, as illustrated in the figure below.



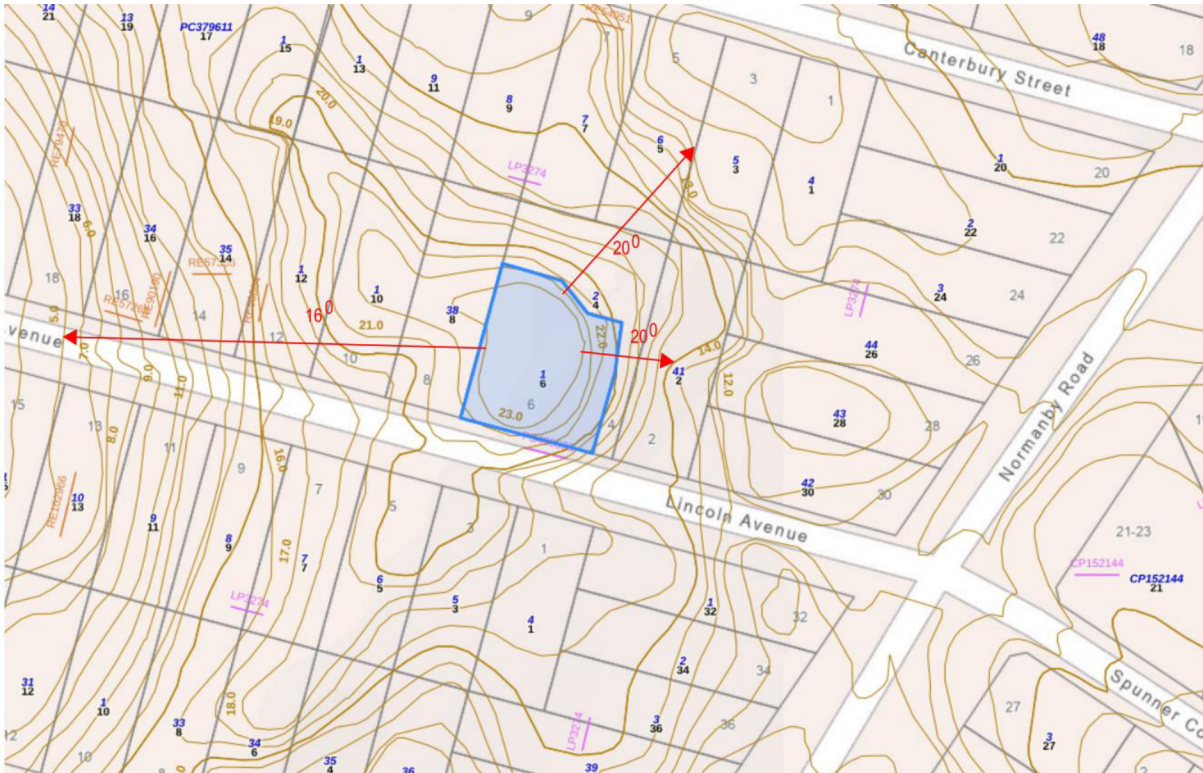


Figure 2: Regional slope assessment

Discussion

As this site is being located within EMO (Erosion Management Overlay) a slope stability assessment was mandatory as a part of the planning permit regulation to assist the proposed development.

A general site walk over was completed at the time of the initial investigation and following topographical and site-specific details were recorded.

- The site topography is generally slight hilly formation, and the site is being located within the north-west flank of the ridge formation of the area.
- The land relatively level at the central part of the allotment and falls away, consistent with the regional fall of this area, which is about 16-20%. The site and the regional land fall appear to be uniform.
- No slope instability features were evident within the site and the immediate sites.

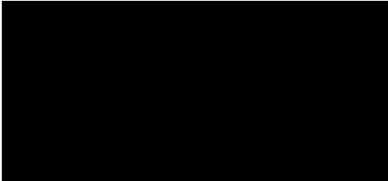
Generally, sites underlain by naturally occurring sand are stable up to 25-30 degrees. PSE Consulting Engineers considers the site to be stable under both existing and proposed conditions and to present a low risk of future slope instability. However, the following construction and precautionary practices must be adopted during construction.

- All pad footings for the proposed deck shall be founded at a minimum depth of 1.0 m below existing surface level.
- All foundation systems within the site, including floor slabs, shall be designed as either a raft slab or an infill slab incorporating deepened edge beams. Edge beams shall be embedded a minimum of 500 mm into



naturally occurring sand to ensure adequate bearing and stability.

- Retaining structures exceeding 800mm in height must be designed by a suitably qualified engineer in accordance with AS 4678 *Earth-Retaining Structures*. Following soil strength parameters can be adopted in designing the retaining wall.
- Retaining walls are to be constructed with adequate subsoil drainage and connected to the stormwater management system. Where feasible, batters above retained excavations should be stabilised through revegetation.
- Placement of fill material should be carried out in layers no thicker than 150 mm (loose) and compacted to achieve a minimum of 95% of Standard Maximum Dry Density in accordance with AS 3798:2007 *Guidelines on Earthworks for Commercial and Residential Developments*. Verification testing is advised to confirm compliance with compaction specifications.
- Unretained cut and fill batters within the soil profile are to be formed at slopes no steeper than 2 horizontals to 1 vertical.
- Effective control of drainage around the proposed buildings is essential to maintain slope stability. This includes regular maintenance of existing stormwater drains and ensuring surface runoff is directed away from the slope. Where rainwater is captured in storage tanks, the overflow must be conveyed through a sealed pipeline to a lawful discharge point. Under no circumstances should excess water be allowed to flow directly onto the slope.
- Standing water must not be permitted to accumulate anywhere on the site. Roof runoff from the proposed development should be discharged to an approved collection or outlet point nominated by Council.
- All retaining structures are to be provided with suitable surface and subsurface drainage both behind the wall and at the base to intercept and channel water to an authorised discharge location. Subsoil drainage should be designed to minimise moisture build-up within soils retained behind the structure.
- The layout of drains must be designed by an qualified Civil Engineer.



Associate Geotechnical Engineer
PSE Consulting Engineers

APPENDIX A

BOREHOLE LOGS AND SITE PLAN





Geotechnical Log - Borehole

BH01

| | | |
|---------------------------------|--------------------------|---|
| UTM : 56J | Drill Rig : Hand Auger | Job Number : 12334 |
| Easting (m) : 554259.29 | Driller Supplier : GEOID | Client : PSE |
| Northing (m) : 6842932.33 | Logged By : UB | Project : Geotechnical investigation report |
| Ground Elevation : Not Surveyed | Reviewed By : PE | Location : 6 Lincoln Avenue Sorrento |
| Total Depth : 1 m BGL | Date : 19/03/2026 | Loc Comment : |

| Drilling Method | DCP Graph | Water | Depth (m) | Soil Origin | Graphic Log | Classification Code | Material Description | Consistency | Moisture | Remarks |
|-----------------|-----------------|-------|-----------|-------------|-------------|---------------------|--|-------------|----------|---------|
| | | | | | | | | | | Remarks |
| | 0 5 10 15 20 25 | | 0.1 | Topsoil | | SM | Silty Sand (SM): medium dense, well-graded, grey, moist. | MD | M | |
| | | | | Natural | | SW | Sand (SW): medium dense, well-graded, grey to pale brown yellow, trace fine to medium gravel, moist. | MD | M | |
| | | | | | | | BH01 Refusal at 1 m (End of borehole, refusal on hard strata) | | | |

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|--------------|---|---|--|---|---|--|
| Water | Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh | Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered | Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet | Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense | Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high | Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test. |
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Geotechnical Log - Borehole

BH02

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|---------------------------------|--------------------------|---|
| UTM : 56J | Drill Rig : Hand Auger | Job Number : 12334 |
| Easting (m) : 554259.29 | Driller Supplier : GEOID | Client : PSE |
| Northing (m) : 6842932.33 | Logged By : UB | Project : Geotechnical investigation report |
| Ground Elevation : Not Surveyed | Reviewed By : PE | Location : 6 Lincoln Avenue Sorrento |
| Total Depth : 1 m BGL | Date : 19/03/2026 | Loc Comment : |

| Drilling Method | DCP Graph | Water | Depth (m) | Soil Origin | Graphic Log | Classification Code | Material Description | Consistency | Moisture | Remarks |
|-----------------|-----------------|-------|-----------|-------------|-------------|---------------------|--|-------------|----------|---------|
| | | | | | | | | | | Remarks |
| | 0 5 10 15 20 25 | | 0.1 | Topsoil | | SM | Silty Sand (SM): medium dense, well-graded, grey, moist. | MD | M | |
| | | | | Natural | | SW | Sand (SW): medium dense, well-graded, grey to pale brown yellow, trace fine to medium gravel, moist. | MD | M | |
| | | | | | | | BH02 Refusal at 1 m (End of borehole, refusal on hard strata) | | | |

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|--------------|---|---|--|---|---|--|
| Water | Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh | Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered | Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet | Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense | Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high | Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test. |
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Geotechnical Log - Borehole

BH03

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|---------------------------------|---------------------------|---|
| UTM : 56J | Drill Rig : Drillman GT10 | Job Number : 12334 |
| Easting (m) : 554259.29 | Driller Supplier : GEOID | Client : PSE |
| Northing (m) : 6842932.33 | Logged By : UB | Project : Geotechnical investigation report |
| Ground Elevation : Not Surveyed | Reviewed By : PE | Location : 6 Lincoln Avenue Sorrento |
| Total Depth : 2 m BGL | Date : 19/03/2026 | Loc Comment : |

| Drilling Method | DCP Graph | Water | Depth (m) | Soil Origin | Graphic Log | Classification Code | Material Description | Consistency | Moisture | Remarks |
|-----------------|-----------------|-------|-----------|-------------|---------------------|---------------------|--|-------------|----------|---------|
| | | | | | | | | | | Remarks |
| | 0 5 10 15 20 25 | | 1.0 | Natural | [Graphic Log: Sand] | SW | Sand (SW): medium dense, well-graded, grey to pale brown yellow, trace fine to medium gravel, moist. | MD | M | |
| | | | | | | | BH03 Terminated at 2 m (End of borehole, target depth achieved) | | | |

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|--------------|---|---|--|---|---|--|
| Water | Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh | Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered | Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet | Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense | Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high | Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test. |
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APPENDIX B

SITE PHOTOS





