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2/73 Lauderdale Avenue,
Fairlight, NSW

Preliminary Landslip Assessment for 2/73 Lauderdale Avenue, Fairlight

This report details the results of a preliminary landslip assessment required by Northern Beaches Council to accompany all new Development or Building Certificate Applications. It is a review of the design plans followed by a walk over visual assessment of the stability of the existing property, no insitu testing was undertaken.

The assessment follows the guidelines as set out in Manly Councils DCP 2013.

1. Landslip Risk Class:

The site is located within Landslip Risk Class "G2", classified as Flanking Slopes of 15° to 25° slope.

2. Site Location:

The site is located on the low south side of Lauderdale Avenue and is generally positioned within moderately south to southwest dipping topography. The site is located on the low southern side of an south-east striking ridge line which extends to the foreshore of North Harbour approximately 30m south of the site.

No.73 Lauderdale Avenue contains two townhouse apartments and a detached residence. The townhouses within No.1/73 and No.2/73 share a common wall and are positioned to the immediate south of the shared concrete driveway, whilst the residence within No.3/73 is located to the southwest, adjacent to the foreshore.

3. Proposed Development:

It is understood that the proposed works involve the extension/reconstruction of a southern deck on the first floor level, constructed across both townhouses within No.1/73 and No.2/73. The existing deck will be extended by approximately 1.0m out from the existing deck structure within No.2/73, whilst the existing deck within No.1/73 is to be removed with a new deck to be constructed to align with the deck extension within No.2/73. The proposed deck will be supported via columns founded on sandstone bedrock. No bulk excavation will be required for the proposed works.

4. Existing Site Description:

Lauderdale Avenue is formed with a gently west dipping bitumen pavement with concrete kerb and gutters and a concrete pathway on the southern side. From the roadway a steeply south dipping shared concrete driveway extends through the road reserve to a partly suspended concrete parking area with garages positioned on the low southern side of the driveway.

The southern portion of the driveway and concrete car parking area are partly suspended as a natural cliff (≤ 2.5 m high) underlies this portion. An undercroft region is located below the suspended portion of the driveway. Exposed sandstone bedrock/boulders comprising weathered very low to low/medium strength sandstone with mild undercutting and laminated bedding were identified within the undercroft region, mild

seepage flowing over the bedrock surface was also noted. Interpreted sandstone boulders are positioned to the south of the sub-vertical bedrock face, as shown in Photograph 1, these boulders are embedded into the surficial soils and appeared to be in a stable condition.



Photograph: 1 – Sandstone bedrock and boulders within undercroft region of No.2/73, facing north



Photograph: 2 – Undercutting within sandstone bedrock within undercroft of No.1/73, facing north

The existing townhouses are of brick and timber construction and are understood to have been constructed in 1975. Inspection of the subfloor cavity below the site structure identified brick wall, arch and pier footings extending below surficial soils to an unknown depth/bearing material. However, due to the good condition of the main structure, site location and exposed bedrock within the undercroft region it is considered likely that the townhouses (No.1/73 and No.2/73) are formed on sandstone bedrock.

The rear of the site is accessed via a paved walkway along the eastern side of the site structure. The rear contains a retained garden to the south of a ground floor paved patio area. A 2.1m to 2.2m high dry stack sandstone block retaining wall supports this garden area and extends into No.1/73. A stormwater drainage pipe extends from the base of the site structure to discharge at the crest of the retaining wall, another stormwater pipe extends from the townhouse within No.1/73 and discharges beyond the base of the retaining wall to an unknown location.



Photograph 3 – Dry stack sandstone block retaining wall along southern boundary of site, facing north



Photograph 4 – View of the rear of No.2 facing north-west

The wall appeared to be in a relatively stable condition however large separations between blocks and deflections in the wall were identified. A 0.2m to 0.3m outward bow/bulge in the wall was also identified within the central portion of the wall. It is understood that a large Norfolk Pine tree planted in 1928 had been recently removed within the retained garden, it is possible that the root system of the tree had impacted the retaining wall, leading to outward bowing.

There were no indicators of excess creep, surface stormwater flow, seepage or erosion within the majority of the site with the existing main structure appearing in good condition.

5. Neighbouring Property Conditions:

The neighbouring property to the west (No.1/73) contains a two storey brick and timber townhouse which shares a party wall with the site. The townhouse is of the same style and age as the site structure. The first floor level rear timber deck which is to be replaced as part of the proposed works is in a poor condition, failure of the timber floorboards were identified along with weathering of the timber support members. The rear garden is similarly retained by the dry stack retaining wall shown in Photograph 3, it is understood that the mature Norfolk Pine tree which had been removed was positioned to the immediate rear of the main structure. There were no indications of landslip instability or geotechnical hazard within this property.

The neighbouring property to the southeast (No.3/73) contains a two storey modern residential structure accessed via the southwestern end of the concrete driveway shared with the site. The property is positioned within similar topography as the site and positioned approximately 25m from the foreshore. An interpreted inground swimming pool is positioned within the rear of the property to the immediate north of the North Harbour public walkway. Limited inspection of the property was undertaken due to access restrictions.

6. Assessment:

Based on the above items and on Council's flow chart check list, does the present site or proposed development contain/involve:

- | | |
|--------------------------------|---|
| • History of Landslip | No |
| • Proposed Excavation/Fill >2m | No |
| • Site developed | Yes |
| • Existing Fill >1m | Possible within retained area to the rear of townhouses |
| • Site Steeper than 1V:4H | No |
| • Existing Excavation >2m | No |
| • Natural Cliffs >3m | No |

It is considered that a detailed Landslip Risk Assessment is not required for this Development Application.

It is considered likely that the bowing and deflections in the rear sandstone block retaining wall are due to stresses induced by the large Norfolk Pine tree root system. The tree has now been removed however it is anticipated that the existing root system remains within the retained garden area. The wall is considered stable at present pending no additional loadings within the retained soils are induced. However, due to the over-vertical state of the wall in portions it is anticipated that it will suffer from creep movement. The Structural Drawings indicate that the footings for the deck extension are to extend to bear onto sandstone bedrock which should impose negligible stresses into the surrounding retained soils.

Date of Assessment: 16 February 2022.

Assessment by:



Josh Cotton
Geotechnical Engineer

Reviewed by:



Troy Crozier
Principal
MIEAust. MAIG. RPGeo.

References:

- Site Inspection/Structural Drawings by BVG Consultants, Job No.: 21-99, Drawing No.: 1 -6, Dated: 14/05/2021