

## STATEMENT OF ENVIRONMENTAL EFFECTS

**Property Address:** 29 Nepean Ave Penrith 2750

**Lot/DP No:** Lot 1/ DP14656

**Owners:** [REDACTED]

### 1. DESCRIPTION

Property consists of a two storey family home on approximately 1500 m<sup>2</sup> of land fronting the eastern bank of the Nepean River. Existing retaining work completed approximately 1990, consisting of stepped CCA treated pine sleepers. Damage incurred during flood of March 2021 is shown in Figure 1.

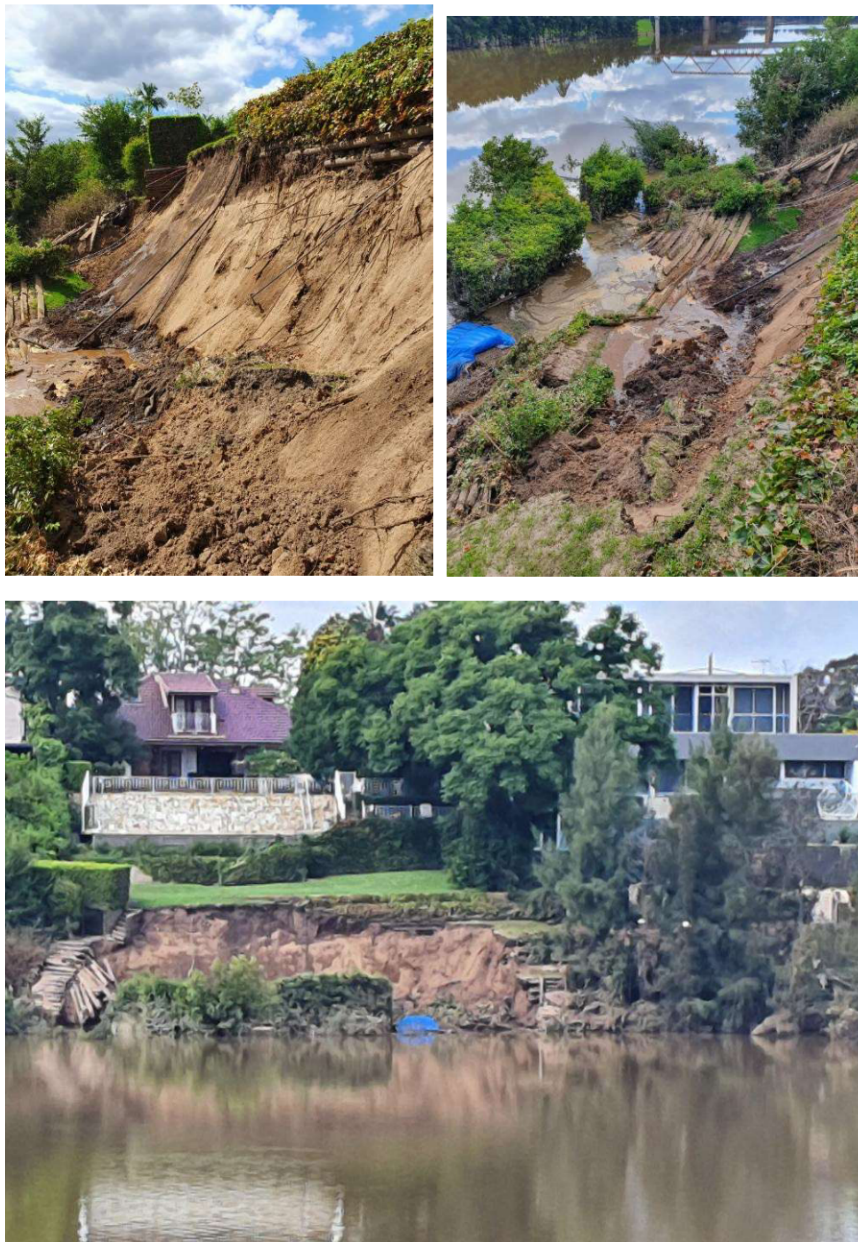


Figure 1: Damage to subject property incurred during flood of March 2021

## 2. BACKGROUND

Since the damage was incurred the following steps have been undertaken by the owners;

- 1 April 2021 Council notified of damage to subject property
- 7 April 2021 Geotechnical inspection undertaken (Refer appendix 1)
- 12 April 2021 Advice Received from Dr Anisul Afsar, Natural Resources Access Regulator of NSW Department of Planning, Industry and Environment on condition of repair works following storms (Refer appendix 2)
- 13 April 2021 Jake Hausfeld and Gary Fletcher, Development Engineers of Penrith City Council inspected site in conjunction with owners.
- 16 April 2021 Advice received from Kylie Fomiatti, Development Compliance Officer of Penrith City Council on remediation, including unsuitability of Emergency Works Order and requirement for owners to lodge a DA (Refer appendix 3)
- 13 May 2021 Site Survey of affected area received from Vince Morgan Surveyors (Refer appendix 4)
- 2 June 2021 DRAFT scope of work issued to Jake Hausfeld, Development Engineer of Penrith City Council including concept plans and structural details
- 3 June 2021 Email received in response to above regarding outline of requirements for lodgement of DA (Refer appendix 5)

## 3. PROPOSED RECTIFICATION

Following discussion with Council, civil and geotechnical engineers and contractors the owners have determined the following course of action.

**Step 1:** Remove existing debris from site including CCA sleepers, steel cage and damaged vegetation.

Note: Existing trees on shoreline to be retained, only shrubs outside proposed retaining works to be removed. All conduits and cabling to be made safe. Damage to existing concrete block retaining wall on boundary to be rectified (Refer Figure 2).



Vegetation to be removed

Debris to be removed

Approximate location of retaining wall

Figure 2: Extent of debris and vegetation removal.



**Step 2:** Construct new retaining wall to align with existing terrace on adjacent property (No 31), using gabion baskets filled with rock delivered to site by barge. All work to be undertaken by fully qualified, experienced and insured contractors. Gabion cages have been selected to accommodate seepage from seam of river rock at base of cut. Gabion cages to bear on existing river rock bed based on geotechnical site investigation. Depth and location of river rock bed to be confirmed by geotechnical inspection during construction (refer Figure 3).



Figure 3: Existing retaining wall on No. 31 to be extended across river frontage using gabion baskets

**Step 3:** Retaining wall to be backfilled as per engineer's detail, creating terrace at approximately RL 17.5m. Three additional retaining walls to be constructed as per drawings by Civil & Structural Engineers (Appendix 6). Maximum height of retaining walls to be 1m along edge of existing lawn (RL 21.7). Retaining walls to be separated by inclined, planted beds at maximum grade of 1:2. Backfill to retaining walls to consist of gravel and excavated spoil sourced from site.

#### 4. RETAINING WALL OPTIONS:

Two alternative options have been investigated for the retaining walls. Selection of the preferred option to be dependent on site access as follows;

- Option 1 would be suitable for craning off a river barge
- Option 2 would be suitable for delivery of material from Nepean Ave.

Descriptions of the two options are given below;

- Option 1: Sandstone block 500mm x 500mm x 1000mm stepped at 150mm setbacks on concrete pier & beam footing. Piers to be 300mm dia at 2000 centres as per engineer's specifications.
- Option 2: Proprietary concrete block system (Boral Keystone) installed to manufacturers recommendations and engineer's certification.

It is anticipated that a decision as to the preferred option will be reached prior to DA approval, at which point Council will be notified.

## 5. MATERIALS & FINISHES

A photomontage of the completed retaining walls is shown in Figure 4. The following material selection is proposed for the work.

**Gabion Walls:** Hot dipped galvanised welded gabion retaining wall cages filled with Nepean River rock approximately 100mm diameter or similar

- **Retaining Wall Option 1:** Sandstone block 500mm x 500mm x 1000mm dry laid.
- **Retaining Wall Option 2:** Proprietary Item Boral Keystone split faced concrete block with interlocking pin system. Maximum height 1200mm to engineer's certification with soil reinforcement (Geogrid fabric).

**Colours:** Almond (50%)

Tuscan: (50%)

**Concrete Steps:** Off form concrete

**Planting:**

- **Accessible areas:** Kikuyu turf laid onto existing fill or synthetic grass on compacted base.
- **Non accessible areas:** Deep rooted native grasses planted into geofabric ground cover.



Figure 4: Photomontage of proposed completed work

## **6. APPENDICES**

Appendix 1: Geotechnical Report by Geotechnique Pty Ltd

Appendix 2: Email advice from Dept of Planning & Industry

Appendix 3: Email advice from Penrith City Council on remediation

Appendix 4: Site survey by Vince Morgan Surveyors

Appendix 5: Email advice from Penrith City Council on DA

Appendix 6: Structural drawings by Kneebone Beretta Hall, Consulting Structural & Civil Engineers