



# CIVIL STORMWATER ENGINEERING GROUP

. I N N O V A T E . E N G I N E E R . T R A N S F O R M .

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Stormwater  
Management  
Report

March 18, 2024  
QU2024.21

**Subject:** Stormwater Management Design

**Address:** 1 Gatacre Avenue & 5 Allison Avenue, Lane Cove

**Description:** Development Application for a Multi Residential Flat Building

## Design Approach:

Discharge to kerb and gutter: Section 4 of Part O of the DCP

1. a maximum of 50l/s flow rate is allowed to discharge to kerb and gutter. In the event of greater flows, a connection to a below ground council drainage system is required.
  - Two kerb outlet connections have been proposed, one connection to Allison Avenue with a total discharge rate of 48.77l/s and a secondary connection to Gatacre Avenue with a total discharge rate of 32.21l/s. At these rates, a connection to kerb is acceptable.
  - A silt arrestor pit has been proposed for all connections to kerb and gutter as a final point of collection before discharge. Silt arrestor's to be equipped with a filtration mesh screen for the collection of pollutants.
2. Connection to kerb and gutter to be 1% minimum cross fall.
  - The connection to Allison Avenue achieves a grade of 6.5%
  - The connection to Gatacre Avenue achieves a grade of 3.5%
3. Minimum 50mm cover to be achieved on top of discharge pipe.
  - This has been achieved.
4. If necessary, a pipeline can be constructed for a maximum length of 20m with a maxim trench depth of 1.2m to achieve discharge to kerb and gutter.
  - At Gatacre Avenue, the connection has been proposed to run for approximately 6.4m along the footpath before connecting to kerb. The depth of the pipe does not exceed 1.2m
5. Overland flow to contain 1 in 100-year event are to be provide over all



pipes. OLF to be free of obstructions.

- Overland flow has been taken into consideration for this site specifically for the OSD system. The design will be further detailed at CC stage.

## Stormwater Disposal Systems: Section 5 of Part O of the DCP

- Pump out systems is only allowable for underground basement areas.
  - Pump out system has been proposed for the basement to collect driveway surface water runoff and water seepage.
- Runoff to the pump well should not be greater than 10% of the total basement area.
  - The area of the ramp draining to the basement is 107.55m<sup>2</sup> approximately which equates to 3.6% of the total site area.
- Storage capacity - 2-hour 1in100 ARI to be checked by a time area computer model or the mass curve technique.
  - The basement storage tank has been sized accordingly. The mass curve calculation has been shown on the stormwater design CSW2024.11 sheet 03.
- Connection to drainage system to be made and not directly to kerb and gutter.
  - Pump well has been proposed to be collected into the proposed OSD system for a controlled discharge.

## Rainwater Tanks & water resilience: Section 6 of Part O of the DCP

- Maximise the reuse of rainwater as a resource.
- Protect downstream waterways from stormwater impacts.
- Rainwater tanks to be sized of 1000l per 50sqm of roof catchment area.
  - A 25kl rainwater tank has been proposed to collect the entire roof catchment roof area. This has been calculated based on point 3 above. Dual 12.5kl rainwater tanks have been proposed to be connected for non-potable water usage purposes.

## OSD systems: Section 7 of Part O of the DCP

- Will be required when the new impervious area is greater than 35%
- PSD = 140l/s/ha - SSR = 0.025m<sup>3</sup>
- All impervious area to drain to the OSD system

4. Pervious areas do not necessarily need to drain through the OSD system
5. Upstream runoff to be directed away from the OSD
6. A maximum of 25% bypass area is allowed. PSD and SSR to be adjusted accordingly.
7. Design should be done via calculation sheets, DRAINS, ILSAX etc
  - A below ground OSD system has been proposed below the basement driveway. The site has been dissected as per the following:
    - a. Landscape area to OSD =  $357.79\text{m}^2$
    - b. Hard surface area to OSD =  $1529.29\text{m}^2$
    - c. Bypass landscape area =  $800.44\text{m}^2$
    - d. Hard surface area bypass =  $298.45\text{m}^2$  ( $9.99\% < 25\%$ )
  - OSD has been calculated utilizing the simplified method calculation sheet – Appendix 14. Refer to stormwater plans CSW2024.12 sheet 08.

Yours faithfully



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