

02/12/2020

Our Ref: 251-20 (DA Lots 1 & 2)

Northern Beaches Council
725 Pittwater Road,
Dee Why, NSW, 2099

Attention: Northern Beaches Council

**Re: Stormwater Management Report for the Proposed 2 Lot Subdivision of Lot 7
DP 1251955 – Fern Creek/Dove Lane, Warriewood**

BACKGROUND

This letter has been prepared by Craig & Rhodes to support the Development Application (DA) to subdivide Lot 7 DP 1251955 into two Torrens Title Lots.

The letter provides details on how the following are managed in accordance with the relevant Northern Beaches Engineering Controls:

- Stormwater drainage strategy to manage runoff generated from the lot in accordance with the relevant Northern Beaches Council engineering controls.
- How to manage the external catchments flows generated from the upstream property.

The proposed two residential lots will be accessed through the Dove Lane, Warriewood refer **Figure 1**.

Craig & Rhodes is currently preparing Construction Certificate documents under the approved Application Number DA2018/1044 which includes the construction of the public roads (Fern Creek Road & Dove Lane) and associated infrastructure services within the road reserve.



Figure 1 – General Layout of DA 2018/1044 & Proposed Site Location

STORMWATER QUANTITY & QUALITY

The proposed road and drainage system in Dove Lane has made allowance for Lot 1 catchment to drain to the public road via kerb outlets, Lot 2 catchment can be collected via an inter-allotment drainage pit prior to the connection to road drainage line within the cul-de-sac. However, these two lots need to provide their own onsite detention and water quality treatment as part of the future individual dwelling Development Application.

The subject site is located within the Region 1 of the Northern Beaches stormwater regions. In accordance with the Pittwater 21 Development Control Plan – Section B5.12 Stormwater Drainage Systems and Natural Watercourse, and Council's Water Management for Development Policy (Section 9 – Onsite Stormwater Management), Lots 1 & 2 need to provide onsite detention systems with minimum storage capacity and permissible site discharge as outlined in Table 7, Section 9.3.1 Onsite Stormwater Disposal Requirements Region 1 – Northern Catchments. Refer to **Figure 2**



Additional Hard (Impervious) Surface Area (square metres)	Minimum Capacity of On-Site Detention Tank (Litres)	Discharge Rate Litres/Sec
0 -50	Nil	Nil
>50 - 75	4,500	2
>75 - 100	6,000	3
>100 - 150	9,000	4
>150 - 200	12,000	6
>200 - 250	15,000	7
>250 - 300	18,000	9
>300 - 400	24,000	12
>400 - 500	30,000	15
>500 - 600	36,000	18
>600 - 700	42,000	21
>700 - 800	48,000	24
>800 - 900	54,000	27
>900 - 1,000	60,000	30
>1,000*	A minimum storage capacity of 60 liters per m ² of additional hard/impervious surface area, and a discharge rate which replicates the discharge from the site were it to be undeveloped.	

Figure 2 – Table 7, Section 9.3.1 Onsite Stormwater Disposal Requirements Region 1 – Northern Catchments

In accordance with Section 4.1 of Council's Water Management for Development Policy, stormwater quality treatment devices need to be provided to meet the stormwater quality objectives as outlined in Figure 3 – Table 5 General Stormwater Quality Requirement as part of the dwelling development applications for Lot 1 and 2.

Pollutant	Performance Requirements
Total Phosphorous	65% reduction in the post development mean annual load ¹
Total Nitrogen	45% reduction in the post development mean annual load ¹
Total Suspended Solids	85% reduction in the post development mean annual load ¹
Gross Pollutants	90% reduction in the post development mean annual load ¹ (for pollutants greater than 5mm in diameter)
pH	6.5 - 8.5
Hydrology	The post-development peak discharge must not exceed the pre-development peak discharge for flows up to the 50% AEP

Figure 3 – Table 5 General Stormwater Quality Requirement



External Catchment Conveyance

The topographic survey and lidar information indicate an upstream catchment approximately 0.6 ha in to the south of the subject site (Refer to Appendix A –Sheet 0701). This catchment consists of rural bush land and a small residential dwelling. As part of proposed works, a pit & pipe system along the southern boundary of Lot 1 & 2 to capture runoff generated from the upstream catchment.

In accordance with Council's Water Management for Development Policy (Section 6.3 – Conveyance of Overland Flow), the pit & pipe network is designed to cater for 5% AEP storm event. All other storms in excess of the 5% AEP, up to and including the 1% AEP will be conveyed through a grassed swale as overland flow path to the proposed Dove Lane road reserve.

For details of the swale, pit & pipe modelling, refer submitted CC application for DA2018/1044.

CONCLUSION

The proposed two lot subdivision development meets the drainage design requirements in accordance with Pittwater DCP and Council's relevant policies.

- Onsite detention and stormwater quality measures will be provided as part of the individual dwelling development applications to satisfy council's requirements.
- The external catchment is managed through the overland flow path and pit & pipe system.

Please contact the undersigned if you have any questions or require any further information.

Yours faithfully,

Zhou (Joe) Yu - Senior Civil Engineer
CRAIG & RHODES PTY LTD

