

Engineering Referral Response

Application Number:	DA2019/1190
Date:	25/05/2020
To:	Daniel Milliken
Land to be developed (Address):	Lot 1 DP 651395 , 9999 Pittwater Road BROOKVALE NSW 2100 Lot 1 DP 784268 , 9999 Pittwater Road BROOKVALE NSW 2100 Lot B DP 966128 , 9999 Pittwater Road BROOKVALE NSW 2100 Lot 6 DP 785409 , 9999 Pittwater Road BROOKVALE NSW 2100

Reasons for referral

This application seeks consent for the following:

- New Dwellings or
- Applications that require OSD where additional impervious area exceeds 50m² or
- Alterations to existing or new driveways or
- Where proposals affect or are adjacent to Council drainage infrastructure incl. watercourses and drainage channels or
- Torrens, Stratum and Community Title Subdivisions or
- All new Commercial and Industrial and RFB Development with the exception of signage or
- Works/uses in flood affected areas

And as such, Council's development engineers are required to consider the likely impacts on drainage regimes.

Officer comments

Comments 25/5/20

The additional information/supporting letter dated 18 May 2020 from TTW Engineers has been reviewed however the development application cannot be supported because of the following reasons:

1) As previously requested the existing 600mm stormwater drainage line which is impacted by the proposed grandstand has not been upgraded to cater for the 20-year storm event in accordance with Council's Water Management Policy .

Withstanding the fact that the existing inlet capacity of the upstream drainage pits is limited the proposed stormwater drainage line redirection is to be **sized/designed to cater for the 20 year AEP catchment flow of 2 cumecs/second.**

Additionally upstream inlet capacity is to be increased via the provision of larger inlet/gully pits in the adjoining council park and Federal Parade.

2) No plans have been submitted indicating pre-development and post-development flow path extents for the 1% AEP storm. The submitted cross-sections are from Drains and it is unclear how this is represented on the site plan, particularly in relation to the bio-retention, the suspended slab, the OSD

and footways. Cross-sections be provided as previously requested at critical locations , including at the upstream and downstream extent of works to be able to understand if there are significant impacts from the overland stormwater flow. The HEC RAS drainage software model should be utilised to provide this level of information.

· The overland flow cross-sections provided from Drains also show that the depths are expected up to approximately 1 metre and VxD ratio are 1.8 in the post-development 1% AEP storm event which is not acceptable and unsafe for pedestrians and service vehicles.. Further detail of the proposed “grass swale” should be provided as it is unclear with how this is represented on the site plan and interacts with the overland flow path.

Comments 30/4/20

The further information that was submitted including the DRAINS model for both the proposed overland flow study and on site detention system has been reviewed and cannot be supported for the following reasons:

Proposed Council line re diversion.

The proposed stormwater re diversion does not propose any upgrade from the existing scenario. It is noted that PLM advice and in accordance with Councils Water Management Policy the existing council drainage line to be re diverted is to be upgraded to cater for the 20-year storm event.

The submitted information including DRAINS model is not sufficient. Additional information is recommended in order to determine catchment properties, including pipe flows and overland flow extents which may impact the proposed development: This information is to include:

- o Catchment maps, including sub-catchments for the existing council drainage infrastructure. The DRAINS model should be amended to accurately reflect catchment characteristics and is to include the pipe network
- o The DRAINS model is to include the capacity of existing and proposed Council drainage infrastructure with appropriate blockage factors as specified in Councils Auspec one design standard.
- o Submission of plans clearly indicating pre-development and post-development flow path extents for the 1% AEP storm.
- o The supporting longitudinal and cross-sectional information at appropriate intervals, including at the upstream and downstream property boundaries of the pre and post development water surface profiles to the 1% AEP.
- o Provision of any stormwater models (DRAINS, HEC-RAS) used in assessment, and relevant supporting input and output information.

- o Demonstration of compliance with Council's AUSPEC 1.

Any upgrade of Councils existing drainage infrastructure (the re diverted Council pipeline) which is to cater for the 20-year storm event should also include upgrades to the inlet capacity of the upstream drainage pits including within the Council reserve and Federal parade.

Previous comments

The application is not supported for the following reasons

1) Provision of On Site Stormwater Detention and Design documentation.

- As required by clause 3.3 a Drains model has not been submitted for Councils review. Summary information regarding the OSD design has not been presented as detailed in appendix 9.
- The minimum information as required by section 3.3 has not been provided.

2) Proposed Council stormwater line diversion

The proposed grandstand is located over Council stormwater infrastructure being a 600mm pipe.

Council advised in the pre lodgement notes that the stormwater drainage lines can be re diverted around the proposed grandstand development however the following information which is also required was not submitted:

1. The applicant is to provide an overland flow study to demonstrate that the diverted and upgraded stormwater line is in accordance with councils Water Management policy PL850 and Section 6 Building over or adjacent to Council Systems and easements.
2. The hydrological and hydraulic study is to be prepared by a Civil Engineer registered on the National Engineers register (NER) . The preferred Council model is DRAINS.
3. Councils piped drainage system is to cater for all storms up in excess of the 1 in 20 year AEP up to and including the 1 in 100 year AEP. Any overland flow paths are to have safe velocity versus depth ratios in accordance with Australian rainfall and runoff.
4. Demonstration that all habitable floor levels are to have a

minimum 500mm freeboard above the adjoining 100 year flow path top water levels.

5. Hydraulic and Hydrological parameters are to be in accordance with the requirements of *Auspec One D5 Stormwater Drainage Design* are to be used in the preparation of the Hydraulic design plans and report.

6. There is to be no increases to overland flows levels upstream and downstream of the development in all storm events up to and including the 1 in 100 year ARI.

7. The proposed new stormwater line is to be a reinforced concrete pipe to take the superimposed design service loads.

The proposal is therefore unsupported.

Note: Should you have any concerns with the referral comments above, please discuss these with the Responsible Officer.

Recommended Engineering Conditions:

Nil.