



Flood Control Certificate

Date: 26/11/2018 Job No. 180411
Client: MHDP Pty Ltd Engineer: CF

Site: 96-104 Cabarita Road, AVALON

Christian Ferry of Northern Beaches Consulting Engineers P/L has reviewed the architectural plans prepared by MHDP Pty Ltd (dated: 25/10/2018) for the proposed development at the above address in relation to any potential resulting adverse flooding effects.

Council flood information shows that the subject site (No. 96 Cabarita Road) is minorly affected by overland flows. The overland flows form as a result of inundation of the existing kerb inlet pits adjacent to no. 88 Cabarita road. The resulting runoff tops the kerb and gutter and flows downslope towards Careel Bay. Refer to the Stormwater Management Report prepared by NBCE (dated: 21/11/2018) for further detail.

The flood information provided by Council indicates that the overland flow path is directed through no. 88, 84, 96, 80 & 78 Cabarita road. However, Council's information also shows that these sites are primarily affected by the PMF only. Hence the majority of the resulting overland flow path is likely less than 150mm deep during the 1% AEP event. The overland flow appears to become deeper adjacent to Careel Bay, where the 1% AEP event is detailed on Council's information. However, this appears to only affect a small portion of no. 96 Cabarita road adjacent to the northern boundary corner. As such, any development proposed within no. 96 Cabarita road is unlikely to have any material affect on overland flows experienced by surrounding properties.

The stormwater management plan prepared by NBCE (dated: 08/11/2018) indicates the proposed location of the realignment of Council's stormwater drainage asset is situated within the vicinity of the overland flow path for the PMF event. The proposed relocation of Council's stormwater drainage asset will consist of a piped network extending along the northern boundary of no. 96 Cabarita road which will connect to the existing RCP pipeline approximately 20m from the eastern site boundary. Therefore, all proposed works within the vicinity of the overland flow path must maintain the existing surface levels to ensure that no additional flooding effects occur on the neighboring properties.



Further, the critical dwelling proposed on the future Lot 6 (within no. 96 Cabarita road) has been located outside of the overland flow extent as indicated on Council's flood information. Therefore, no adverse flooding effects are envisaged to occur as a result of the proposed development. Refer Appendix B for further detail.

Please contact the author if further clarification is required.

NORTHERN BEACHES CONSULTING ENGINEERS P/L

Rick Wray
BE MIEAust CPEng NER RPEQ Director

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DIRECTORS

Stewart McGeady Rick Wray Brad Seghers

Appendix A

Council Flood Information

NORTHERN BEACHES COUNCIL

FLOOD INFORMATION REQUEST - COMMON

Property: 96 Cabarita Road, Avalon Beach

Lot DP: 14//858130

Issue Date: 20/11/2018

Flood Study Reference: Avalon to Palm Beach Floodplain Risk Management Study and Plan, 2017

Flood Information for lot:

Flood Life Hazard Category – See Map A – N/A

1% AEP – See Flood Map B

1% AEP Maximum Water Level³: N/A mAHD

1% AEP Maximum Peak Depth from natural ground level³: N/A m

1% AEP Maximum Velocity: N/A m/s

1% AEP Provisional Flood Hazard: N/A See Flood Map E

1% AEP Hydraulic Categorisation: Flood fringe See Flood Map F

Flood Planning Area – See Flood Map C

Flood Planning Level (FPL)^{1,2,3 & 4}: 1.97 m AHD

Probable Maximum Flood (PMF) – See Flood Map D

PMF Maximum Water Level²: 10.64 m AHD

PMF Maximum Depth from natural ground level: 0.46 m

PMF Maximum Velocity: 0.85 m/s

Flood Risk Precinct – See Map G

¹The flood information does not take into account any local overland flow issues nor private stormwater drainage systems.

²Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/flood planning levels across the site.

³Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels than those indicated on this flood advice.

⁴Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or Flood Planning Level

General Notes:

- All levels are based on Australian Height Datum (AHD) unless otherwise noted.
- This is currently the best available information on flooding; it may be subject to change in the future.
- Council recommends that you obtain a detailed survey of the above property and surrounds to AHD by a registered surveyor to determine any features that may influence the predicted extent or frequency of flooding. It is recommended you compare the flood level to the ground and floor levels to determine the level of risk the property may experience should flooding occur.
- Development approval is dependent on a range of issues, including compliance with all relevant provisions of Northern Beaches Council's Local Environmental Plans and Development Control Plans.
- Please note that the information contained within this letter is general advice only as a detail survey of the property as well as other information is not available. Council recommends that you engage a suitably experienced consultant to provide site specific flooding advice prior to making any decisions relating to the purchase or development of this property.
- The Flood Studies on which Council's flood information is based are available on Council's website.

FLOOD MAP A: FLOOD LIFE HAZARD CATEGORY

NO DATA

Notes:

- Refer to 'Flood Emergency Response Planning for Development in Pittwater Policy' for additional information on the Flood Life Hazard Categories and Pittwater 21 DCP Control B3.25.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: N/A) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP B: FLOODING - 1% AEP EXTENT



Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Flood events exceeding the 1% AEP can occur on this site.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: N/A) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP C: FLOOD PLANNING AREA EXTENT



Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: N/A) and aerial photography (Source Near Map 2014) are indicative only.

FLOOD MAP D: PROBABLE MAXIMUM FLOOD EXTENT



Notes:

- Extent represents the Probable Maximum Flood (PMF) flood event.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: N/A) and aerial photography (Source Near Map 2014) are indicative only.

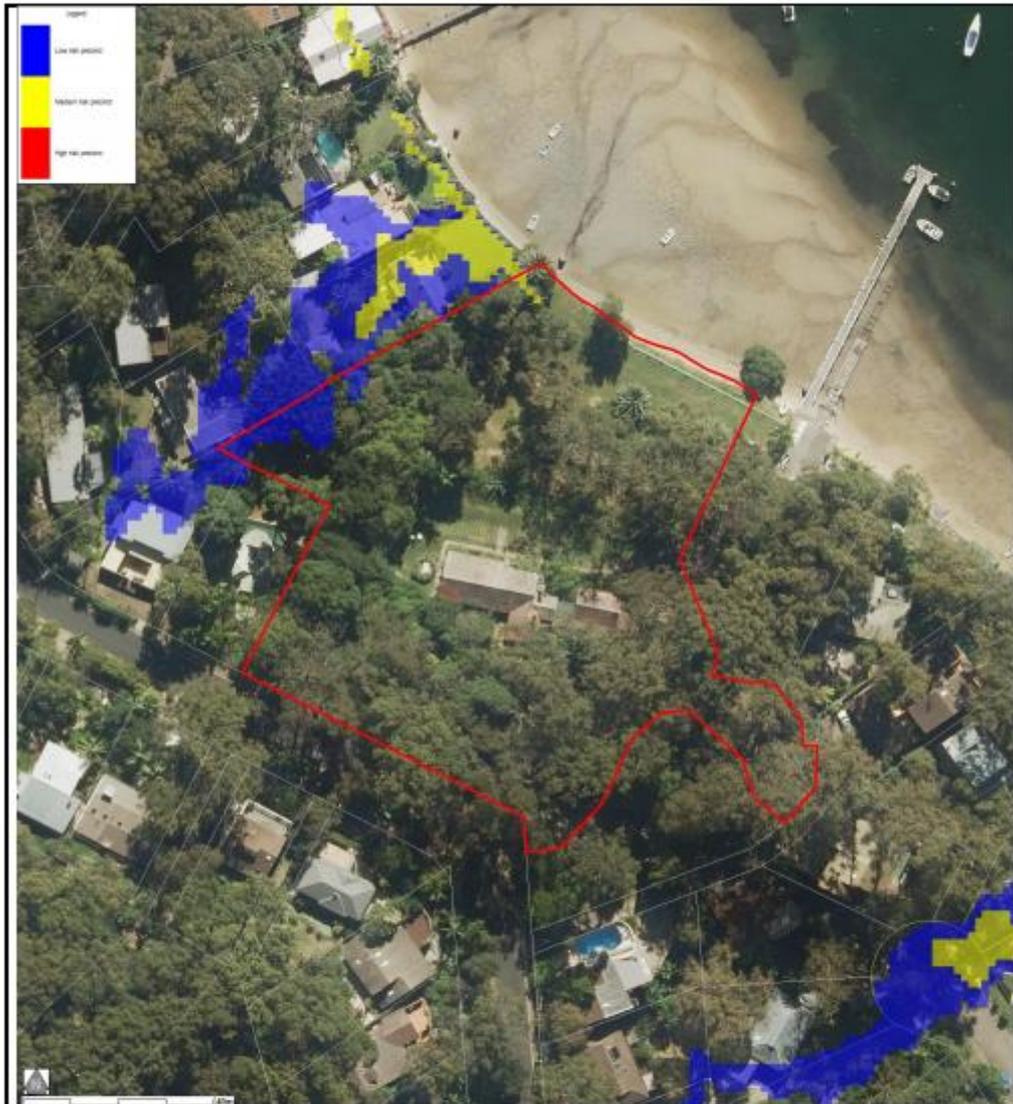
FLOOD MAP E – 1% AEP FLOOD HAZARD EXTENT MAP



Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Extent does not include climate change.
- Cadastral Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: N/A) and aerial photography (Source: NearMap 2014) are indicative only.

FLOOD MAP G – FLOOD RISK PRECINCT MAP



Notes:

- **Low Flood Risk precinct** means all flood prone land not identified within the High or Medium flood risk precincts.
- **Medium Flood Risk precinct** means all flood prone land that is (a) within the 1% AEP Flood Planning Area; and (b) is not within the high flood risk precinct.
- **High Flood Risk precinct** means all flood prone land (a) within the 1% AEP Flood Planning Area; and (b) is either subject to a high hydraulic hazard, within the floodway or subject to significant evacuation difficulties (H5 and or H6 Life Hazard Classification).



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Appendix B
Proposed Architectural Site Plan

