

14 Flood planning – Flood Area Low – Middle risk (Council Basic Flood Report lodged with DA application).

Number 12 Nareen is in NB Council flood zone and of Low – Medium risk. A Council Basic Flood report has been provided by Council prepared by Engineer Oscar Wyndham 12/04/2024. Important information in report pasted below. Oscar and Council flood maps point out that flood risk low and medium will only affect the very front of site minimally affecting front section of proposed garage.

Flood management Report not required.

Robert Geoghegan discussed necessity of Flood Management Report with Council Duty Planner who considered it not necessary to obtain report from Consultant Engineer. Council Engineer Oscar Wyndham agreed with this in his email to Robert of

Tue 23/04/2024 11:37 AM

Hey Robert,

I agree with the planner that you do not need a Flood Management Report. This is conditional on you addressing the relevant flood planning controls of the DCP and LEP within your Statement of Environmental Effects. Please include the Flood Information Report with your Development Application. This email can be used as evidence that you do not need a Flood Management Report.

Kind Regards,

Oscar Wyndham

Flood Plain Management Officer

BASIC FLOOD INFORMATION REPORT Author Oscar Wyndham Engineer

Property: 12 Nareen Parade NORTH NARRABEEN NSW 2101

Lot DP: Lot 52 DP 11356

Issue Date: 05/04/2024

Flood Study Reference: Narrabeen Lagoon Flood Study 2013, BMT WBM

Flood Information1:

Map A - Flood Risk Precincts Maximum Flood Planning Level (FPL) 2, 3, 4: 3.53 m AHD

(Continued over)

Map B - 1% AEP Flood 1% Maximum Water Level 2, 3: 3.03 m AHD

1% AEP Maximum Depth from natural ground level3: 0.08 m

1% AEP Maximum Velocity: 0.02 m/s

Map C - 1% AEP Hydraulic Categorisation

1% AEP Hydraulic Categorisation: Flood Fringe

Map D - Probable Maximum Flood (PMF)

PMF Maximum Water Level 4: 4.89 m AHD

PMF Maximum Depth from natural ground level: 1.80 m

PMF Maximum Velocity: 0.86 m/s

Map E - Flood Life Hazard Category in PMF

- (1) The provided flood information does not account for any local overland flow issues nor private stormwater drainage systems.
- (2) Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/ flood planning levels across the site. The maximum Flood Planning Level may be in a different location to the maximum 1% AEP flood level.
- (3) Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels.
- (4) Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or FPL.

Important Information of Basic Flood report related by proposed development 12 Nareen Pde.

Map B - Flood 1% AEP Maximum Water Level 2, 3: 3.03 m AHD

The residence proposed first floor and existing ground floor levels and proposed garage floors are above the MWL 3.03m AHD.

Pittwater LEP 5.21 DCP B 3.11 Requirements, controls, Flood matrix

Flood matrix in LEP and DCP shows Low Flood risk Precinct no affect for Residential use. Flood matrix LEP DCP shows risk for residential development address here under and further in this clause.

DCP B3.11 Important points related to proposed development addressed as follows.

C1	New floor levels within the development shall be at or above the Flood Planning Level. <u>Response:</u> FPL = 3.53m AHD as basic Flood report. Proposed new first floor level floor Of residence will be RL 9.965. - Complies.
C2	All floor levels within the development shall be at or above the Probable Maximum Flood level or Flood Planning Level, whichever is higher. <u>Response:</u> PMF as Basic Flood Report = RL 4.89 AHD. FOPL 3.53m AHD Existing ground floor, floor level = 6.78m AHD - Complies.

DCP B3.11 Flood Prone Land

Uses to which this control applies

Land use groups are shown in Table 1, below the Development Control Matrix.

Objectives

- Protection of people. - Complies safe shelter and or escape provided refer matrix Response below.
- Protection of the natural environment. – Complies natural environment not adversely affected due to proposed development during flood situations. Flora and fauna existence, habitat, flood refuge and escape not effected by the development. No alteration to existing and or predicted flood situations caused by the development.
- Protection of private and public infrastructure and assets. – Complies, due to the nature, location, design and construction of development no adverse effect created. No alteration to existing and or predicted flood situations caused by the development.

Requirements

1. Development must comply with the prescriptive controls set out in the Matrix below.

Where a property is affected by more than one Flood Risk Precinct, or has varying Flood Life Hazard Category across it, the assessment must consider the controls relevant at Each location on the property.

- Development on flood prone land requires the preparation of a Flood Management Report by a suitably qualified professional. Not applicable to 12 Nareen Pde as above stated.

		Medium Flood Risk Precinct				
		Vulnerable & Critical Use	Residential Use	Business & Industrial Use	Recreational & Environmental Use	Subdivision & Civil Works
A	Flood effects caused by Development	A1 A2	A1 A2	A1 A2	A1 A2	A1 A2
B	Building Components & Structural	B1 B2 B3	B1 B2 B3	B1 B2 B3	B1 B2 B3	
C	Floor Levels	C2 C3	C1 C3 C4 C6	C1 C3 C4 C6 C7	C3	C5
D	Car Parking	D1 D2 D3 D4 D7	D1 D2 D3 D4 D5 D6	D1 D2 D3 D4 D5 D6	D1 D2 D3 D4 D5 D6	D1
E	Emergency Response	E1 E2	E1	E1	E1	E3
F	Fencing	F1	F1	F1	F1	F1
G	Storage of Goods	G1	G1	G1	G1	
H	Pools	H1	H1	H1	H1	H1

		Low Flood Risk Precinct				
		Vulnerable & Critical Use	Residential Use	Business & Industrial Use	Recreational & Environmental Use	Subdivision & Civil Works
B	Building Components & Structural	B1 B2 B3				
C	Floor Levels	C2 C3				C5
D	Car Parking	D2 D7				
E	Emergency Response	E1 E2				E3

Matrix response proposed development

A. FLOOD EFFECTS CAUSED BY DEVELOPMENT

A1	<p>Development shall not be approved unless it can be demonstrated in a Flood Management Report that it has been designed and can be constructed so that in all events up to the 1% AEP event:</p> <p><u>Response:</u> Complies 1% AEP Flood 1% Maximum Water Level 2, 3: 3.03 m AHD proposed garage floor level minimum RL 3.13 AHD being 100mm above 1% AEP.</p> <p>(a) There are no adverse impacts on flood levels or velocities caused by alterations to the flood conveyance; <u>Response:</u> Complies Development will be outside flood fringe, storage, and majority of floodway having nil affect.</p> <p>(b) There are no adverse impacts on surrounding properties; <u>Response:</u> As A1(a)</p>
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	<p>(c) It is sited to minimise exposure to flood hazard. <u>Response:</u> Complies garage setback front boundary to achieve required internal dimensions and stair width behind.</p> <p>Major developments and developments likely to have a significant impact on the PMF Flood regime will need to demonstrate that there are no adverse impacts in the Probable Maximum Flood.</p> <p><u>Response:</u> Minor development only.</p>
A2	<p>Development shall not be approved unless it can be demonstrated in a Flood Management Report that in all events up to the 1% AEP event there is no net loss of flood storage. <u>Response:</u> Flood Management Report not required refer to Engineer Oscar Wyndham email above.</p> <p>Consideration may be given for exempting the volume of standard piers from flood Storage calculations. <u>Response:</u> Complies Development will be outside flood fringe, storage, and majority of floodway having nil affect.</p> <p>If Compensatory Works are proposed to balance the loss of flood storage from the development, the Flood Management Report shall include detailed calculations to demonstrate how this is achieved. <u>Response:</u> Not applicable no loss of storage. Proposed garage floor 100mm above 1% AEP, Surrounding garage wall similar level.</p>

B. BUILDING COMPONENTS AND STRUCTURAL SOUNDNESS

B1	<p>All buildings shall be designed and constructed with flood compatible materials in accordance with “Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas”, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).</p> <p><u>Response:</u> Existing residence built in solid brick walls taken below ground to solid impact resistant footings capable of resisting solid impact from the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion.</p> <p>(refer Geotechnical report).</p> <p>Proposed development to residence above all flood levels noted in basic Flood Report above. Proposed garage built with Engineer designed reinforced concrete slab and reinforced masonry walls.</p> <p><u>All items in this response B1 certified by Civil-Structural Engineer.</u></p>
B2	<p>All new development must be designed and constructed to ensure structural integrity up to the Flood Planning Level, taking into account the forces of floodwater, wave action, flowing water with debris, buoyancy and immersion.</p> <p><u>Response:</u> As above B1.</p> <p>Where shelter-in-place refuge is required, the structural integrity for the refuge is to be up to the Probable Maximum Flood level. Structural certification shall be provided confirming the above.</p> <p><u>Response:</u> Complies PMF Maximum Water Level 4: 4.89 m AHD. The residence ground floor, floor level is RL 6.78 AHD being well above MFP of 4.89m. providing shelter from flood.</p> <p>Site can be evacuated over flood free land above the 4.89AHD level. The ground levels outside ground floor level of house is 6.5m AHD with ground rising to rear of house to top of hill being well above MFP of 4.89m.</p> <p>Escape from flood can also be provided through rear yards of adjoining properties accessing safe flood free vantage points.</p>

B3	<p>All new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections must be waterproofed and/or located above the Flood Planning Level. <u>Response:</u> Complies, this requirement provided in new construction.</p> <p>All existing electrical equipment and power points located below the Flood Planning Level within the subject structure must have residual current devices installed that turn off all electricity supply to the property when flood waters are detected. <u>Response:</u> No electrical equipment or power points located below Flood Planning Level.</p>
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C. FLOOR LEVELS

C1	<p>New floor levels within the development shall be at or above the Flood Planning Level.</p> <p><u>Response:</u> FPL = 3.53m AHD as basic Flood report. Proposed new first floor level floor Of residence will be RL 9.965. - Complies.</p>
C3	<p>All new development must be designed and constructed so as not to impede the Floodway or flood conveyance on the site, as well as ensuring no net loss of flood storage in all events up to the 1% AEP event.</p> <p><u>Response:</u> Complies Proposed garage built in same location as existing garage. AEP Flood 1% Maximum Water Level 2, 3: 3.03 m AHD proposed garage floor level minimum RL 3.13 AHD complies. PMF as Basic Flood Report = RL 4.89 AHD. FOPL 3.53m AHD Residence existing ground floor res, floor level = 6.78m AHD -</p> <p>For suspended pier/pile footings: <u>Response:</u> Not applicable concrete slab on ground with surrounding masonry wall to ground.</p> <p>(a) The underfloor area of the dwelling below the 1% AEP flood level is to be designed And constructed to allow clear passage of floodwaters, taking into account the potential for small openings to block; <u>Response:</u> Not applicable</p> <p>(b) At least 50% of the perimeter of the underfloor area is of an open design from the natural ground level up to the 1% AEP flood level; <u>Response:</u> Not applicable</p> <p>(c) No solid areas of the perimeter of the underfloor area would be permitted in a floodway <u>Response:</u> Not applicable</p>
C4	<p>A one-off addition or alteration below the Flood Planning Level of less than 30 square Metres (in total, including walls) may be considered only where:</p> <p><u>Response:</u> (a – c) Not applicable</p> <p>(a) it is an extension to an existing room; and</p> <p>(b) the Flood Planning Level is incompatible with the floor levels of the existing room; and</p> <p>(c) out of the 30 square metres, not more than 10 square metres is below the 1% AEP flood level.</p>
C6	<p>Consideration may be given to the retention of an existing floor level below the Flood Planning Level when undertaking a first-floor addition provided that:</p> <p><u>Response:</u> (a – d) Not applicable Existing ground floor level RL 6.78 AHD well above MFP 4.89 AHD.</p> <p>(a) it is not located within a floodway; and</p> <p>(b) the original foundations are sufficient to support the proposed final structure above them. The Flood Management Report must include photos and the structural certification</p>

	<p>required as per Control B2 must consider whether the existing foundations are adequate or should be replaced; and</p> <p>(c) none of the structural supports/framing of existing external walls of are to be removed unless the building is to be extended in that location; and</p> <p>(d) the ground floor is floodproofed.</p> <p><u>Response:</u> Not applicable existing floor above flood planning level.</p>
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D. CAR PARKING

D1	<p>Open carpark areas and carports shall not be located within a floodway.</p> <p><u>Response:</u> Not applicable</p>
D2	<p>The lowest floor level of open carparks and carports shall be constructed no lower than the natural ground levels, unless it can be shown that the carpark or carport is free draining with a grade greater than 1% and that flood depths are not increased.</p> <p><u>Response:</u> Not applicable</p>
D3	<p>Carports must be of open design, with at least 2 sides completely open such that flow is not obstructed up to the 1% AEP flood level. Otherwise, it will be considered to be enclosed.</p> <p>When undertaking a like-for-like replacement and the existing garage/carport is located on the street boundary and ramping is infeasible, consideration may be given for dry flood proofing up to the 1% AEP flood level.</p> <p><u>Response:</u> Not applicable</p>
D4	<p>Where there is more than 300mm depth of flooding in a car park or carport during a 1% AEP flood event, vehicle barriers or restraints are to be provided to prevent floating vehicles leaving the site. Protection must be provided for all events up to the 1% AEP flood event</p> <p><u>Response:</u> Not applicable</p>
D5	<p>Enclosed Garages must be located at or above the 1% AEP level</p> <p><u>Response:</u> Complies 1% AEP Flood 1% Maximum Water Level 2, 3: 3.03 m AHD proposed garage floor level minimum RL 3.13 AHD being 100mm above 1% AEP.</p>
D6	<p>All enclosed car parks (including basement carparks) must be protected from inundation up to the Flood Planning Level. All access, ventilation, driveway crests and any other potential water entry points to any enclosed car parking shall be above the Flood Planning Level.</p> <p><u>Response:</u> Not applicable</p> <p>Where a driveway is required to be raised it must be demonstrated that there is no net loss to available flood storage in any event up to the 1% AEP flood event and no impact on flood conveyance through the site.</p> <p><u>Response:</u> Not applicable</p> <p>Council will not accept any options that rely on electrical, mechanical or manual exclusion of the floodwaters from entering the enclosed carpark <u>Response:</u> Not applicable</p>

E. EMERGENCY RESPONSE continued over

E1	<p>If the property is affected by a Flood Life Hazard Category of H3 or higher, then Control E1 applies and a Flood Emergency Assessment must be included in the Flood Management Report.</p>
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Response: Complies Flood management report not required refer Council Engineer's email to Robert Geoghegan above clause 14 stating report not required.

If the property is affected by a Flood Life Hazard Category of H6, then development is not permitted unless it can be demonstrated to the satisfaction of the consent authority that the risk level on the property is or can be reduced to a level below H6 or its equivalent. Response: Development not in H6 area.

If the property is flood affected but the Flood Life Hazard Category has not been mapped by Council, then calculations for its determination must be shown in the Flood Management Report, in accordance with the "Technical Flood Risk Management Guideline: Flood Hazard", Australian Institute for Disaster Resilience (2012).

Response: Not applicable

Where flood-free evacuation above the Probable Maximum Flood level is not possible, new development must provide a shelter-in-place refuge where:

- a) The floor level is at or above the Probable Maximum Flood level; and
- b) The floor space provides at least 2m² per person where the flood duration is long (6 or more hours) in the Probable Maximum Flood event, or 1m² per person for less than 6 hours;
- c) It is intrinsically accessible to all people on the site, plainly evident, and self-directing, with sufficient capacity of access routes for all occupants without reliance on an elevator; and
- d) It must contain as a minimum: sufficient clean water for all occupants; portable radio with spare batteries; torch with spare batteries; and a first aid kit

Response: Complies PMF Maximum Water Level 4: 4.89 m AHD. Site can be Evacuated over flood free land above the 4.89AHD level. The ground levels outside ground floor level of house is 6.5m AHD with ground rising to rear of house to top of hill being well above MFP of 4.89m.

The residence ground floor, floor level is RL 6.78 AHD being well above MFP of 4.89m. providing shelter from flood.

Escape from flood can also be provided through rear yards of adjoining properties accessing safe flood free vantage points.

Class 10 classified buildings and structures (as defined in the Building Codes of Australia) are excluded from this control.

Response: Complies: Proposed development affected by flood is garage being class 10.

In the case of change of use or internal alterations to an existing building, a variation to this control may be considered if justified appropriately by a suitably qualified professional.

Response: Not applicable all internal residence work located above all flood levels.

Note that in the event of a flood, occupants would be required to evacuate if ordered by Emergency Services personnel regardless of the availability of a shelter-in-place refuge.

Response: Occupants will comply with Emergency services orders and recommendations.

F. FENCING Response: Complies fencing not required.

F1 Fencing, (including pool fencing, boundary fencing, balcony balustrades and accessway balustrades) shall be designed so as not to impede the flow of flood waters and not to increase flood affectation on surrounding land. At least 50% of the fence must be of an open design from the natural ground level up to the 1% AEP flood level. Less than 50% of the perimeter fence would be permitted to be solid. Openings should be a minimum of 75 mm x 75mm.
Response: Complies fencing not required.

STORAGE OF GOODS

G1 Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.
Response: Complies Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.

H. POOLS

H1 Pools located within the 1% AEP flood extent are to be in-ground, with coping flush with natural ground level. Where it is not possible to have pool coping flush with natural ground level, it must be demonstrated that the development will result in no net loss of flood storage and no impact on flood conveyance on or from the site.
All electrical equipment associated with the pool (including pool pumps) is to be waterproofed and/or located at or above the Flood Planning Level.
All chemicals associated with the pool are to be stored at or above the Flood Planning Level.
Response: No pool exists on site nor planned in this development application.