

**FLOOD INUNDATION &  
RISK ASSESSMENT REPORT  
PROPOSED  
SWIMMING POOL  
76 WIMBLEDON AVE  
NARRABEEEN**

**Job No 250704  
July 2025  
Prepared by  
Lucas Molloy  
MIEAust / CPEng / NER /  
APEC / Engineer / IntPE(Aus)**

## **CONTENTS**

<b>1. Introduction</b>	<b>Page 3</b>
<b>2. Pittwater 21 Development Control Plan Section B General Controls » B3 Hazard Controls » B3.11 Flood Prone Land</b>	<b>Page 4</b>
<b>3. Flood Emergency Risk Assessment</b>	<b>Page 9</b>
<b>4. Summary</b>	<b>Page 10</b>
<b>Appendix A Architectural Plans <i>Site Design + Studios</i></b>	<b>Page 11</b>
<b>Appendix B Site Survey by <i>CRUX Surveyors</i></b>	<b>Page 19</b>
<b>Appendix C Flood Information Report (Comprehensive) Northern Beaches Council</b>	<b>Page 21</b>
<b>Appendix D Excerpt from Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006).</b>	<b>Page 35</b>
<b>Appendix E Lucas Molloy CV</b>	<b>Page 38</b>
<b>Appendix F Northern Beaches Council Standard Hydraulic Certification Form</b>	<b>Page 40</b>
<b>End of Document</b>	<b>Page 42</b>

## **INTRODUCTION**

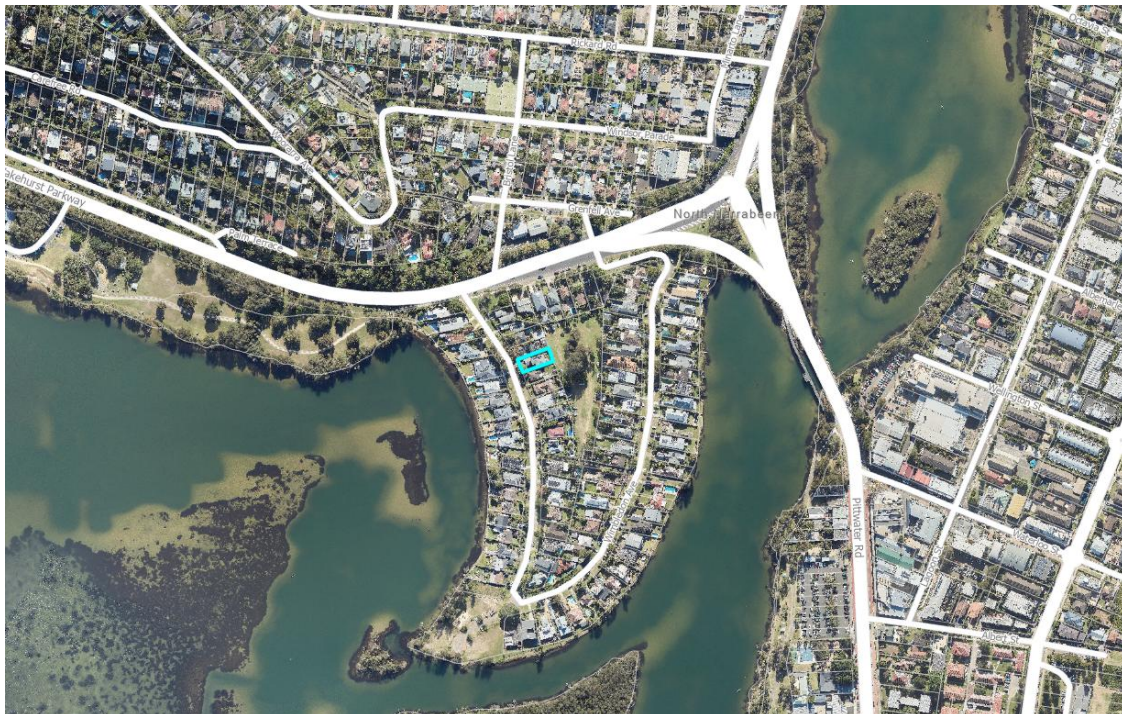
This report has been prepared in support of the proposed Development Application for a plunge pool and decking additions at No 76 Wimbledon Ave Narrabeen in respect to potential flood inundation / impacts and Northern Beaches Councils Water Management for Development Policy Section 10.0 Flood Risk Management and Pittwater 21 DCP Section B3.11 Flood Prone Land. The predicted flooding is associated with the rising of nearby Narrabeen Lagoon during sever storm events.

It is proposed to construct a plunge pool and elevated timber decking as detailed in the architectural plans by *SiteDesign+Studios*, refer Appendix A. The proposed works representing 0.001% of the Narrabeen Lagoon flood plain extents (ie a negligible representation). To meet Councils Policy it is proposed to incorporate compensatory works (removal / lowering of NGLs across all soft /landscaping areas of the site by 75mm, equating to 18.75m<sup>3</sup> of storage) to ensure there will be no adverse impacts on local flood conveyance. Barrenjoey Consulting Engineers p/l inspected the site on 8<sup>th</sup> July 2025.

The extent of flooding is as summarized in the “Flood Information Request” data as supplied by Northern Beaches Council, refer Appendix D.

For the 1% AEP event the site is classified -

Flood Level	3.05m AHD
Flood Planning Level	3.55m AHD
Flood Hazard	H5
Flood Hydraulic Category	Flood Storage
Flood Risk Precinct	Medium / High
Land Use Group	Residential – Dwelling House



**Pittwater 21 Development Control Plan »**

**Section B General Controls »**

**B3 Hazard Controls »**

**B3.11 Flood Prone Land**

**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> <ul style="list-style-type: none"><li>a) There are no adverse impacts on flood levels or velocities caused by alterations to the flood conveyance; and</li><li>b) There are no adverse impacts on surrounding properties; and</li><li>c) It is sited to minimise exposure to flood hazard.</li></ul> <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><b>The proposed compensatory works (removal / lowering of NGLs across all soft /landscaping areas of the site by 75mm, equating to 18.75m<sup>3</sup> of storage) will ensure there will be no adverse impacts on local flood conveyance and thus the above requirements will be achieved.</b></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.</p> <p>Consideration may be given for exempting the volume of standard piers from flood storage calculations.</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.</p> <p><b>The proposed compensatory works (removal / lowering of NGLs across all soft /landscaping areas of the site by 75mm, equating to 18.75m<sup>3</sup> of storage, equalling the 18.36m<sup>3</sup> representing the pool volume 5.4x3.4x1.0m) will ensure there will be no adverse impacts on local flood conveyance and thus the above requirements will be achieved.</b></p>

## B. BUILDING COMPONENTS AND STRUCTURAL SOUNDNESS

B1	<p>All buildings shall be designed and constructed as flood compatible buildings 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><b>For the proposed pool and deck structure this is achievable using conventional building practices, and to be conditioned within a DA approval</b></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. Structural certification shall be provided confirming the above. Where shelter-in-place refuge is to be provided the structural integrity is to be to the Probable Maximum Flood level. Structural certification shall be provided confirming the above.</p> <p><b>For the proposed pool and deck structure this is achievable using conventional building practices, and to be conditioned within a DA approval</b></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. 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.</p> <p><b>For the proposed pool and deck structure this is achievable using conventional building practices, and to be conditioned within a DA approval</b></p>

## C. FLOOR LEVELS

C1	<p>New floor levels within the development shall be at or above, the Flood Planning Level.</p> <p><b>No new floor levels are proposed within the Development Application</b></p>
C2	<p><b>na to this development.</b></p>
C3	<p>All new development All development structures must be designed and constructed so as not to impede the floodway or flood conveyance on the site, as well as ensuring no loss of flood storage in a 1% AEP Event.</p> <p>For suspended pier/pile footings:</p> <ol style="list-style-type: none"> <li>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; and</li> <li>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; and</li> <li>No solid areas of the perimeter of the underfloor area would be permitted in a floodway</li> </ol> <p><b>The proposed compensatory works (removal / lowering of NGLs across all soft /landscaping areas of the site by 75mm, equating to 18.75m<sup>3</sup> of storage) will ensure there will be no adverse impacts on local flood conveyance and thus the above requirements will be achieved.</b></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> <ol style="list-style-type: none"> <li>it is an extension to an existing room; and</li> <li>the Flood Planning Level is incompatible with the floor levels of the existing room; and</li> <li>out of the 30 square metres, not more than 10 square metres is below the 1% AEP flood level.</li> </ol>



	<p>This control will not be permitted if this provision has previously been utilised since the making of this Plan.</p> <p>The structure must be floodproofed to the Flood Planning Level, and the Flood Management Report must demonstrate that there is no net loss of flood storage in all events up to the 1% AEP event.</p> <p><b>No new habitable areas are proposed within the Development Application</b></p>
C5	<b>na to this development</b>
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>it is not located within a floodway; and</p> <p>the original foundations are sufficient to support the proposed final structure above them. The Flood Management Report must include photos and the structural certification required as per Control B2 must consider whether the existing foundations are adequate or should be replaced; and</p> <p>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>the ground floor is floodproofed.</p> <p><b>No new habitable areas are proposed within the Development Application</b></p>
C7	<b>na to this development</b>
C8	<b>na to this development</b>

#### D. CAR PARKING

D1	<p>Open carpark areas and carports shall not be located within a floodway.</p> <p><b>No open carparks / carport areas are proposed within the Development Application</b></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><b>No open carparks / carport areas are proposed within the Development Application</b></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 floodproofing up to the 1% AEP flood level</p> <p><b>No open Carports areas are proposed within the Development Application</b></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><b>No open carparks / carport areas are proposed within the Development Application</b></p>
D5	<p>Enclosed Garages must be located at or above the 1% AEP level</p> <p><b>No enclosed garages are proposed within the Development Application</b></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>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>Council will not accept any options that rely on electrical, mechanical or manual exclusion of the floodwaters from entering the enclosed carpark</p>

	<b>No enclosed enclosed car parks are proposed within the Development Application</b>
D7	<b>na to this development</b>

#### E. FLOOD EMERGENCY RESPONSE

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> <p>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.</p> <p>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).</p> <p>Where flood-free evacuation above the Probable Maximum Flood level is not possible, new development must provide a shelter-in-place refuge where:</p> <ul style="list-style-type: none"> <li>a) The floor level is at or above the Probable Maximum Flood level; and</li> <li>b) The floor space provides at least 2m<sup>2</sup> per person where the flood duration is long (6 or more hours) in the Probable Maximum Flood event, or 1m<sup>2</sup> per person for less than 6 hours;</li> <li>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</li> <li>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.</li> </ul> <p>Class 10 classified buildings and structures (as defined in the Building Codes of Australia) are excluded from this control.</p> <p>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.</p> <p>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.</p> <p><b>It is our opinion that the proposed plunge pool and elevated timber decking is defined as a Class 10 classified structures (as defined in the Building Codes of Australia) and are therefore excluded from this control (as per above).</b></p>
E2	<b>na to this development</b>
E3	<b>na to this development</b>

## F. FENCING

F1	<p>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.</p> <p><b>No Fencing is proposed within the 1% AEP event extents, noting the new pool fencing is elevated above this level.</b></p>
----	--

## G. STORAGE OF GOODS

G1	<p>Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from floodwaters in accordance with industry standards.</p> <p><b>Measures to store hazardous or potentially polluting materials are to be incorporated into the works and may be achieved using conventional building practices and to be conditioned within a DA approval.</b></p>
----	---

## H. POOLS

H1	<p>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.</p> <p><b>The proposed compensatory works (removal / lowering of NGLs across all soft /landscaping areas of the site by 75mm, equating to 18.75m<sup>3</sup> of storage, equalling the 18.36m<sup>3</sup> representing the pool volume 5.4x3.4x1.0m) will ensure there will be no adverse impacts on local flood conveyance and thus the above requirements will be achieved.</b></p> <p>All electrical equipment associated with the pool (including pool pumps) is to be waterproofed and/or located at or above the Flood Planning Level.</p> <p><b>Achievable using conventional building practices, and to be conditioned within a DA approval</b></p> <p>All chemicals associated with the pool are to be stored at or above the Flood Planning Level.</p> <p><b>Achievable using conventional building practices, and to be conditioned within a DA approval</b></p>
----	---



## **FLOOD EMERGENCY RISK ASSESSMENT**

A flood risk assessment of the DA works was carried out for the 1% AEP and PMF event adopting the following

- Likelihood of the hazard occurring
 

Almost Certain	1:10
Likely	1:100
Possible	1:1000
Unlikely	1:10000
  
- Consequence of the hazard to persons and property
 

Insignificant	no injury / \$ 0 - low
Minor	first aid injury / \$ low - medium
Moderate	medical treatment required / \$ medium – high
Major	serious injuries / \$ major
Catastrophic	death / \$ major ++

	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain					
Likely (1%)					
Possible					
Unlikely (PMF)					

### Legend

Low - acceptable
Moderate – tolerable
Sever – unacceptable

**This assessment is relevant to the Development Application works only -**

#### **1 Risk to persons -**

1% event – moderate injuries possible therefore moderate / tolerable risk assessment

PMF event – catastrophic therefore moderate / tolerable risk assessment

#### **2 Risk to structures -**

1% event – insignificant therefore low /acceptable risk assessment

PMF event – major damage to structures therefore moderate / tolerable risk assessment

#### **3 Risk to vehicles (note - na to this development) -**

1% event – na

PMF event – na

#### **4 Risk to services -**

1% event – moderate damage therefore moderate / tolerable risk assessment

PMF event – major damage therefore moderate / tolerable risk assessment

## SUMMARY

### Assessment of Impacts Compliance Table

	Not Applicable	Compliance Yes	No
A Flood effects caused by Development	-	X	-
B Building Components & Structural	-	X	-
C Floor Levels	-	X	-
D Car Parking	X	-	-
E Flood Emergency Response	X	-	-
F Fencing	-	X	-
G Storage of Goods	-	X	-
H Pools	-	X	-

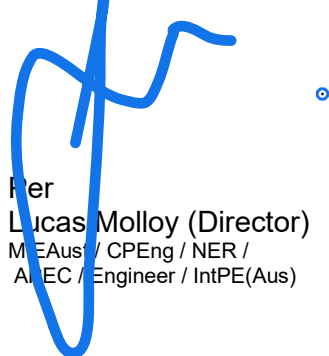
The proposed works if carried out in accordance with recommendations within this *Flood Inundation & Risk Assessment Report* by Barrenjoey Consulting dated July 2025 will satisfy the intent of Northern Beaches Councils Water Management for Development Policy Section 10.0 Flood Risk Management and the Pittwater 21 DCP Section B3.11 Flood Prone Land. Noting the following measures are to be implemented into the works –

- **The proposed compensatory works (removal / lowering of NGLs across all soft /landscaping areas of the site by 75mm, equating to 18.75m<sup>3</sup> of storage, equalling the 18.36m<sup>3</sup> representing the pool volume 5.4x3.4x1.0m) will ensure there will be no adverse impacts on local flood conveyance.**
- **All occupants are to be informed of the sites flooding potential / impact and available warning services (ie : Councils *Floodwatch*, SES services etc), safe evacuation route/s and requirements for goods / valuables storage etc.**
- **All of the developments relevant design and construction group are to ensure adherence to - *Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas, Hawkesbury-Nepean Floodplain Management Steering Committee (2006)*.**

It is to be noted that, due to the many complex factors that can affect a site, the subjective nature of a risk analysis, and the imprecise nature of the science of flood analysis, the risk of persons being injured, to life and property cannot be completely removed. The recommendations within this Report do not remove the risk associated with the predicted flooding event, though lower those risks to an acceptable level reasonably anticipated by the community in everyday life.

Regards

BARRENJOEY CONSULTING ENGINEERS Pty Ltd



Per  
Lucas Molloy (Director)  
M EAus / CPEng / NER /  
A PEC / Engineer / IntPE(Aus)

**Appendix A**  
**Architectural Plans**  
***Site Design Studios***

## DA Pool Plans

76 WIMBLEDON AVE, NORTH NARRABEEN NSW 2101

### Drawing List

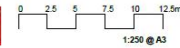
Drawing No.	Drawing Name	Sheet Size	Rev.	Rev. Date	Project No.
L-01	SITE PLANS	A3	1	24/06/25	1547
L-02	LANDSCAPE RATIOS	A3	1	24/06/25	1547
L-03	REAR YARD PLAN	A3	1	24/06/25	1547
L-04	SECTION A	A3	1	24/06/25	1547
L-05	SECTION B	A3	1	24/06/25	1547
L-06	WEST ELEVATION	A3	1	24/06/25	1547
L-07	EAST ELEVATION	A3	1	24/06/25	1547
L-08	SOUTH ELEVATION	A3	1	24/06/25	1547
L-09	NORTH ELEVATION	A3	1	24/06/25	1547
L-10	PLANTING SCHEDULE	A3	1	24/06/25	1547
L-11	PLANTING SCHEDULE & SCHEDULE	A3	1	24/06/25	1547
L-12	POOL FENCING NOTES	A3	1	24/06/25	1547
L-13	SEGMENT EROSION & WASTE MANAGEMENT PLAN	A3	1	24/06/25	1547



### LEGEND

LANDSCAPE AREAS
PROPOSED POOL
PROPOSED POOL COPING
AS SELECTED DECK

All building work must be carried out in compliance with the National Construction Code (NCC).  
Building Work - Compliance with the Building Code of Australia.  
All building work must be carried out in compliance with the provisions of the Building Code of Australia.



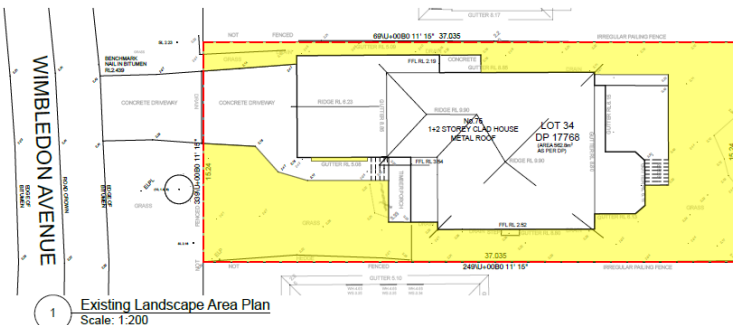
**SITEDESIGN + STUDIOS**  
creating places to live in and enjoy

SYDNEY NORTH STUDIO  
SEAFOORTH NSW 2055  
0417895545  
1300 22 44 55  
info@sitedesign.com.au  
www.sitedesign.com.au

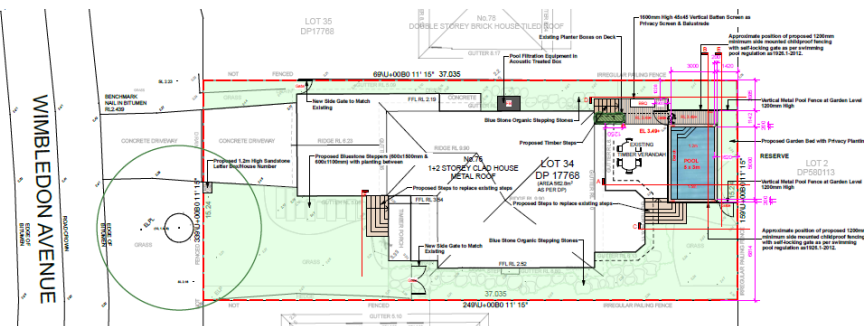
Project: Proposed Swimming Pool  
Address: 76 Wimbledon Ave, North Narrabeen NSW 2101  
Drawing Title: SITE PLANS  
Scale: 1:500 @ A3  
Drawing No. 1547

A 24/06/25 FOR REVIEW  
ISSUE DATE COMMENT  
AMENDMENTS

Page  
L-01



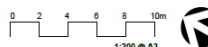
1 Existing Landscape Area Plan  
Scale: 1:200



2 Proposed Landscape Area Plan  
Scale: 1:200

### SITE CALCULATIONS

SITE AREA OF BLOCK = 562.8 sqm  
Existing Soft Landscape Area = 263 sqm  
or 46.73% of Site Area  
Proposed Soft Landscape Area = 245 sqm  
or 43.53% of Site Area  
Pool Water Volume = Approx. 19.5 KL.



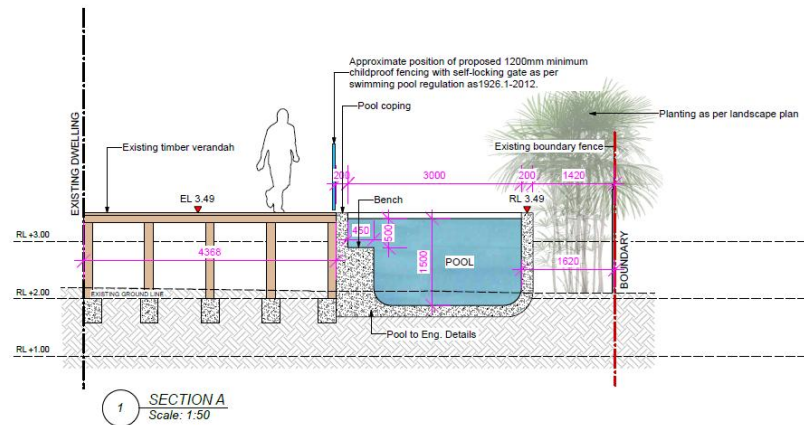
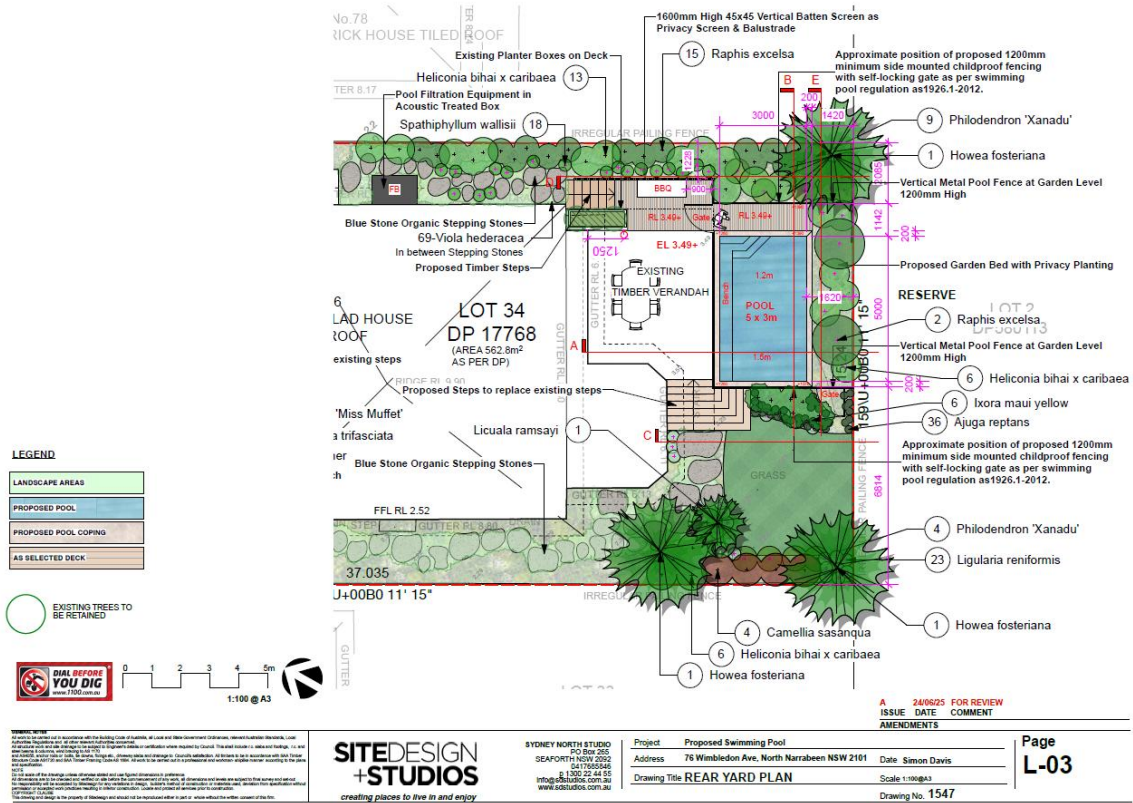
**SITEDESIGN + STUDIOS**  
creating places to live in and enjoy

SYDNEY NORTH STUDIO  
SEAFOORTH NSW 2055  
0417895545  
1300 22 44 55  
info@sitedesign.com.au  
www.sitedesign.com.au

Project: Proposed Swimming Pool  
Address: 76 Wimbledon Ave, North Narrabeen NSW 2101  
Drawing Title: LANDSCAPE RATIOS  
Scale: 1:500 @ A3  
Drawing No. 1547

A 24/06/25 FOR REVIEW  
ISSUE DATE COMMENT  
AMENDMENTS

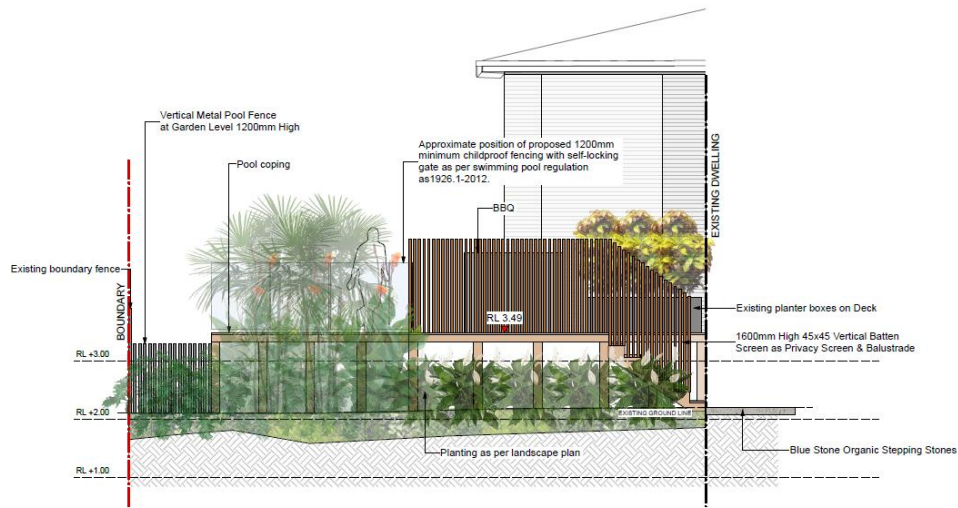
Page  
L-02





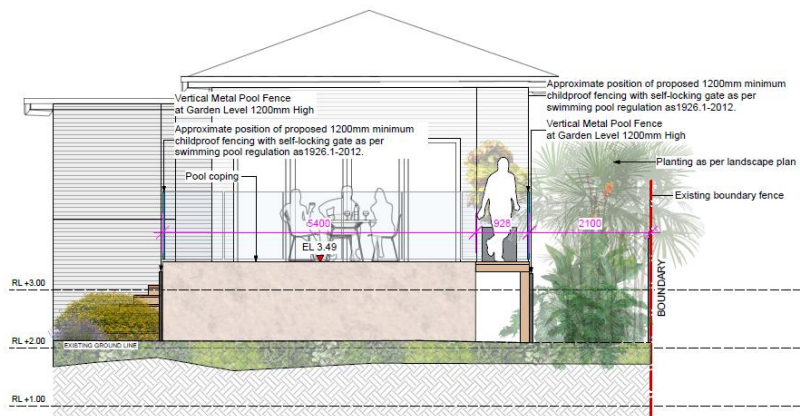






1 ELEVATION D  
Scale: 1:50

A 24/06/25 FOR REVIEW			
ISSUE	DATE	COMMENT	
AMENDMENTS			
<div> <div> <p><b>SYDNEY NORTH STUDIO</b> PO Box 205 SEAFOORTH NSW 2092 0217165545 01300 22 44 55 info@sitedesign.com.au www.sitedesign.com.au</p> </div> <div> <p><b>Project</b> Proposed Swimming Pool <b>Address</b> 76 Wimbledon Ave, North Narrabeen NSW 2101 <b>Drawing Title</b> EAST ELEVATION D <b>Scale</b> 1:50 @A3 <b>Drawing No.</b> 1547</p> </div> <div> <p><b>Date</b> Simon Davis <b>Scale</b> 1:50 @A3 <b>Drawing No.</b> 1547</p> </div> <div> <p><b>Page</b> L-07</p> </div> </div>			



2 ELEVATION E  
Scale: 1:50

A 24/06/25 FOR REVIEW			
ISSUE	DATE	COMMENT	
AMENDMENTS			
<div> <div> <p><b>SYDNEY NORTH STUDIO</b> PO Box 205 SEAFOORTH NSW 2092 0217165545 01300 22 44 55 info@sitedesign.com.au www.sitedesign.com.au</p> </div> <div> <p><b>Project</b> Proposed Swimming Pool <b>Address</b> 76 Wimbledon Ave, North Narrabeen NSW 2101 <b>Drawing Title</b> SOUTH ELEVATION E <b>Scale</b> 1:50 @A3 <b>Drawing No.</b> 1547</p> </div> <div> <p><b>Date</b> Simon Davis <b>Scale</b> 1:50 @A3 <b>Drawing No.</b> 1547</p> </div> <div> <p><b>Page</b> L-08</p> </div> </div>			

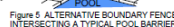
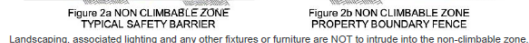






### Pool Gates - Self Closing & Latching Devices

- Australian Standard AS 1926.
- 1) Stipulates that Gates shall be hung so that they **ONLY** swing outdoors, i.e. away from the pool area.
  - 2) All gates must be fitted with a **Self-Closing Device** that will return the gate to a closed position from any position without the use of manual force.
  - 3) All Gates must be fitted with a **Latching Device** that will automatically operate on the closing of the gate and prevent the gate from being reopened without being manually released.



To minimise the impact of the swimming pool on the amenity of adjoining properties and to ensure safety.

To minimise the impact of the swimming pool on the amenity of adjoining properties and to ensure safety.

**Design**  
The design of the swimming pool, surrounding landscaping, fencing and associated equipment must comply with the following requirements:

- The Swimming Pools Act & Regulations.

ii) Australian Standard 1926 Swimming Pool Safety as prescribed under the Building Code of Australia.

iii) The pump and associated equipment must be sound insulated and/or isolated so that the noise emitted does not exceed an LAeq (15min) of not more than 5 dB(A) above the background level in an octave band from 31.5Hz to 8KHz centre frequencies inclusive at the boundary of the site.

**Note:**  
The measurement of sound must be carried out in accordance with Australian Standard 1055.1.

Landscaping and ancillary structures must not intrude into the child-resistant barrier Non-Climbable Zone.

Only structures associated with the pool may be located within the pool area. Clothes lines, barbeque, sheds, entertainment structure, outside toilets or any other non pool-related structures are not permitted within the pool area.

### Before Construction

Details of all child-resistant barriers (existing and proposed) and landscaping to be utilised to comply with the requirements of the Swimming Pools Act and Regulations applicable at the time must be shown on the Construction Certificate plans.

### During Works

The swimming pool excavation and/or swimming pool must be provided with a suitable barrier to prevent a risk of falling into the excavation or pool at all times throughout the construction phase.

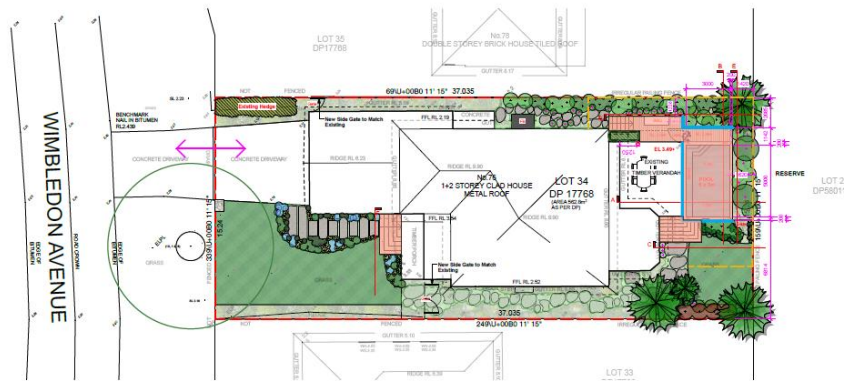
## Ongoing

- i) The pump and associated equipment must be maintained and operated in accordance with the noise levels described above.
- ii) The child resistant barrier must be maintained in accordance with the Australian Standard as described above.
- iii) The landscaping within the child resistant barrier shall be maintained so that there is a non-climbable zone measured within a 900mm radius from the top of the child resistant barrier.

### CPR Sign

The Swimming Pools Regulation 2008 requires all pool owners to have a CPR Sign situated in a prominent position in the immediate vicinity of the pool. All signs need to be of a size which allows it to be read from a distance of 3 metres.

<p><b>NOTES:</b></p> <p>1. This drawing is prepared in accordance with the Planning Code of Australia, all Local and State Government Ordinances, relevant Australian Standards, local Council and State Government Regulations and the relevant Engineering and Surveying Codes of Practice. It is intended to be used for the purpose of obtaining a permit from the relevant authority. It is not to be used for any other purpose without the written consent of the author.</p> <p>2. The author is not responsible for the accuracy or completeness of the information provided by the client or for the accuracy or completeness of the information provided by the client's representatives.</p> <p>3. The author is not responsible for the accuracy or completeness of the information provided by the client or for the accuracy or completeness of the information provided by the client's representatives.</p> <p>4. The author is not responsible for the accuracy or completeness of the information provided by the client or for the accuracy or completeness of the information provided by the client's representatives.</p> <p>5. The author is not responsible for the accuracy or completeness of the information provided by the client or for the accuracy or completeness of the information provided by the client's representatives.</p>	<p style="text-align: center;"><b>INTERSECTING A TYPICAL POOL BARRIER</b></p> <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><b>SYDNEY NORTH STUDIO</b> PO Box 265 GEARFORTH NSW 2092 Tel 7765 0444 F 1300 22 44 55 info@sydneyos.com.au www.sydneyos.com.au</p> </td> <td style="width: 50%; vertical-align: top;"> <p><b>Project</b> Proposed Swimming Pool</p> <p><b>Address</b> 78 Wimbledon Ave, North Narrabeen NSW 2101</p> <p><b>Drawing Title</b> <b>POOL FENCING NOTES</b></p> </td> </tr> </table>	<p><b>SYDNEY NORTH STUDIO</b> PO Box 265 GEARFORTH NSW 2092 Tel 7765 0444 F 1300 22 44 55 info@sydneyos.com.au www.sydneyos.com.au</p>	<p><b>Project</b> Proposed Swimming Pool</p> <p><b>Address</b> 78 Wimbledon Ave, North Narrabeen NSW 2101</p> <p><b>Drawing Title</b> <b>POOL FENCING NOTES</b></p>	<p style="text-align: right;"><b>Page</b> <b>L-12</b></p>
<p><b>SYDNEY NORTH STUDIO</b> PO Box 265 GEARFORTH NSW 2092 Tel 7765 0444 F 1300 22 44 55 info@sydneyos.com.au www.sydneyos.com.au</p>	<p><b>Project</b> Proposed Swimming Pool</p> <p><b>Address</b> 78 Wimbledon Ave, North Narrabeen NSW 2101</p> <p><b>Drawing Title</b> <b>POOL FENCING NOTES</b></p>			
	<p><b>A</b> 24/06/25 <b>FOR REVIEW</b> <b>ISSUE</b> <b>DATE</b> <b>COMMENT</b> <b>AMENDMENTS</b></p> <p style="text-align: right;">Scale 1:100 Drawing No. 1547</p>			

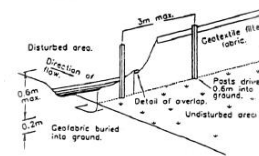


#### SOIL & WATER MANAGEMENT NOTES

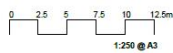
1. WHEREVER POSSIBLE, EXISTING VEGETATION & GRASS COVER IS TO BE LEFT UNDISTURBED.
2. REMOVAL OR DISTURBANCE OF VEGETATION & TOP SOIL SHALL BE CONFINED TO WITHIN 3m OF THE APPROVED BUILDING AREA.
3. TEMPORARY SILT FENCE (AS SHOWN) TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
4. AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD, AND PARTICULAR AFTER STORM EVENTS.

#### WASTE MANAGEMENT NOTES

1. ALL WASTE MATERIALS AREA TO BE REMOVED FROM SITE OR STOCKPILED WITHIN THE SITE PRIOR TO REMOVAL.
2. ALL CONSTRUCTION MATERIALS & SITE SHEDS ARE TO BE KEPT WITHIN THE SITE AT ALL TIMES.



Sediment Fence



- AREA OF WORKS
- TEMPORARY POOL SAFE FENCE
- SILT FENCE LOCATION
- GOOD ACCESS

A	24/02/23	FOR REVIEW
ISSUE	DATE	COMMENT
AMENDMENTS		

**DISCLAIMER**  
This drawing is prepared in accordance with the Building Code of Australia, all local and state Government Ordinances, relevant Australian Standards, and applicable provisions of the Environmental Protection Act 1986 (NSW) and the Environmental Protection Act 1997 (NSW). The drawing is prepared for the purpose of obtaining a Development Consent from the relevant authority. It is not to be used for any other purpose without the written consent of the author. The drawing is the property of the author and shall not be reproduced or used in any form without the written consent of the author.

**SITEDESIGN  
+STUDIOS**  
creating places to live in and enjoy

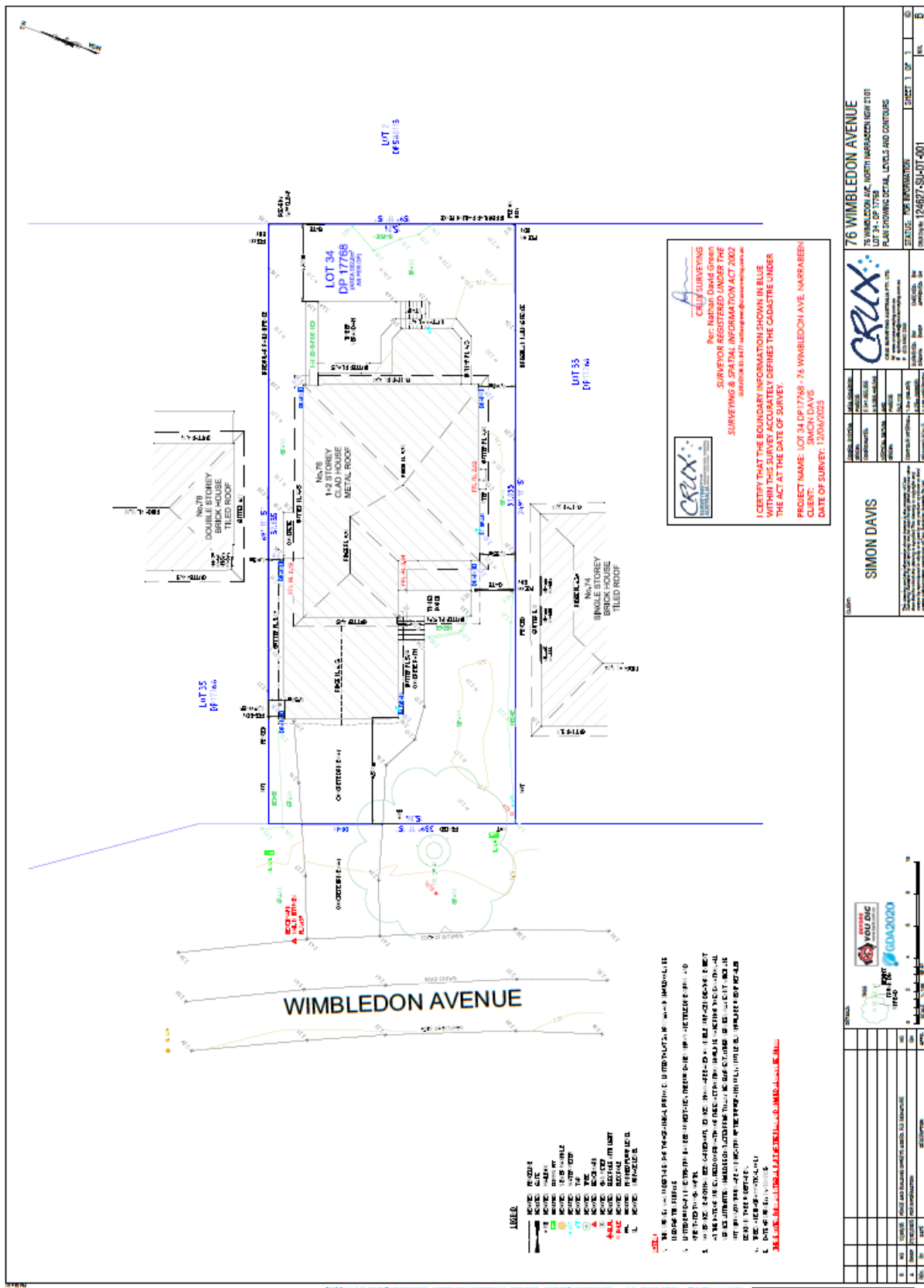
SYDNEY NORTH STUDIO  
PO Box 265  
SEAFOUR NSW 2092  
04 76905446  
04 76905445  
info@sitedesign.com.au  
www.sitedesign.com.au

Project Proposed Swimming Pool  
Address 76 Wimbledon Ave, North Narrabeen NSW 2101  
Drawing Title **SEDIMENT, EROSION & WASTE  
MANAGEMENT PLAN**

Date Simon Davis  
Scale 1:1000  
Drawing No. 1547

Page  
**L-13**

**Appendix B**  
Site Survey  
*CRUX* Surveyors





## **Appendix C**

**Flood Information Request – Comprehensive  
Northern Beaches Council**



## COMPREHENSIVE FLOOD INFORMATION REPORT

**Property:** 76 Wimbledon Avenue NORTH NARRABEEN NSW 2101

**Lot DP:** Lot 34 DP 17768

**Issue Date:** 08/07/2025

**Flood Study Reference:** Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater

### Flood Information<sup>1</sup>:

#### **Map A - Flood Risk Precincts**

Maximum Flood Planning Level (FPL)<sup>2,3,4</sup>: 3.55 m AHD

#### **Map B - 1% AEP Flood & Key Points**

1% AEP Maximum Water Level<sup>2,3</sup>: 3.05 m AHD

1% AEP Maximum Depth from natural ground level<sup>3</sup>: 1.08 m

1% AEP Maximum Velocity: 0.38 m/s

#### **Map C - 1% AEP Hydraulic Categorisation**

1% AEP Hydraulic Categorisation: Flood Storage

#### **Map D - Probable Maximum Flood**

PMF Maximum Water Level (PMF)<sup>4</sup>: 4.98 m AHD

PMF Maximum Depth from natural ground level: 3.00 m

PMF Maximum Velocity: 0.84 m/s

#### **Map E - Flooding with Climate Change**

1% AEP Maximum Water Level with Climate change<sup>3</sup>: 3.91 m AHD

1% AEP Maximum Depth with Climate Change<sup>3</sup>: 1.94 m

#### **Map F - Flood Life Hazard Category in PMF**

H5

#### **Map G - Indicative Ground Surface Spot Heights**

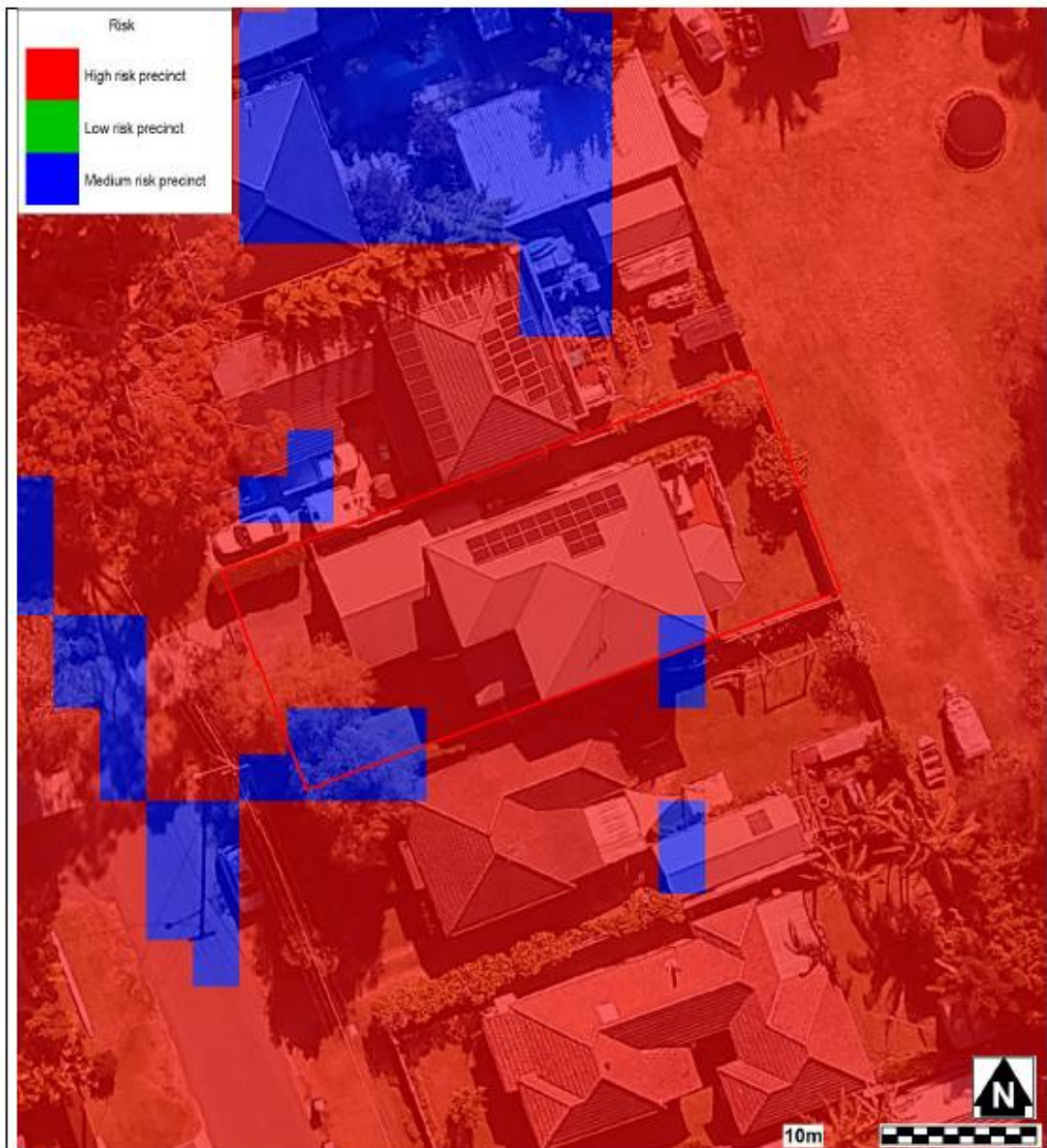
- (1) The provided flood information does not account for any local overland flow issues nor private stormwater drainage systems.
- (2) Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/ flood planning levels across the site. The maximum Flood Planning 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.

## Notes

### **General**

- 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 online [Flood Study Reports](#) webpage.
- If the FPL is higher than the PMF level, then the FPL should still be used as the FPL, as it includes freeboard which the PMF does not.
- If the property is affected by an Estuarine Planning Level (EPL) which is higher than the FPL, then the EPL should be used as the FPL.
- Areas affected by an EPL in the former Pittwater LGA are mapped on Council's online [Estuarine Hazard Map](#). Note that areas in the former Manly LGA affected by an EPL have been identified and will be soon added to this map.
- Council's drainage infrastructure is mapped on Council's [Stormwater Map](#). Note that locations are indicative only and may not be exactly as shown.

## MAP A: FLOOD RISK PRECINCTS



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 or H6 Life Hazard Classification).
- The **Flood Planning Area** extent is equivalent to the Medium Flood Risk Precinct extent and includes the High Flood Risk Precinct within it. The mapped extent represents the 1% annual Exceedance Probability (AEP) flood event + freeboard.
- None of these mapped extents include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only.



## MAP B: FLOODING - 1% AEP EXTENT & KEY POINTS



### 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: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source Near Map 2014) are indicative only.

#### Flood Levels

ID	5% AEP Max WL (m AHD)	5% AEP Max Depth (m)	1% AEP Max WL (m AHD)	1% AEP Max Depth (m)	1% AEP Max Velocity (m/s)	Flood Planning Level (m)	PMF Max WL (m AHD)	PMF Max Depth (m)	PMF Max Velocity (m/s)
1	2.71	0.53	3.05	0.87	0.13	3.55	4.97	2.79	0.31
2	2.71	0.48	3.05	0.82	0.21	3.55	4.97	2.75	0.43
3	2.71	0.57	3.05	0.91	0.08	3.55	4.97	2.83	0.27
4	2.71	0.55	3.05	0.89	0.16	3.55	4.97	2.81	0.36
5	2.71	0.60	3.05	0.94	0.06	3.55	4.96	2.86	0.18
6	2.71	0.49	3.05	0.83	0.12	3.55	4.97	2.75	0.37
7	2.71	0.64	3.05	0.98	0.05	3.55	4.96	2.90	0.26
8	2.71	0.54	3.05	0.88	0.22	3.55	4.96	2.79	0.61

#### Climate Change Flood Levels (30% Rainfall intensity and 0.9m Sea Level Rise)

ID	CC 1% AEP Max WL (m AHD)	CC 1% AEP Max Depth (m)
1	3.91	1.73
2	3.91	1.69
3	3.91	1.77
4	3.91	1.75
5	3.91	1.80
6	3.91	1.70
7	3.91	1.84
8	3.91	1.74

WL – Water Level

PMF – Probable Maximum Flood

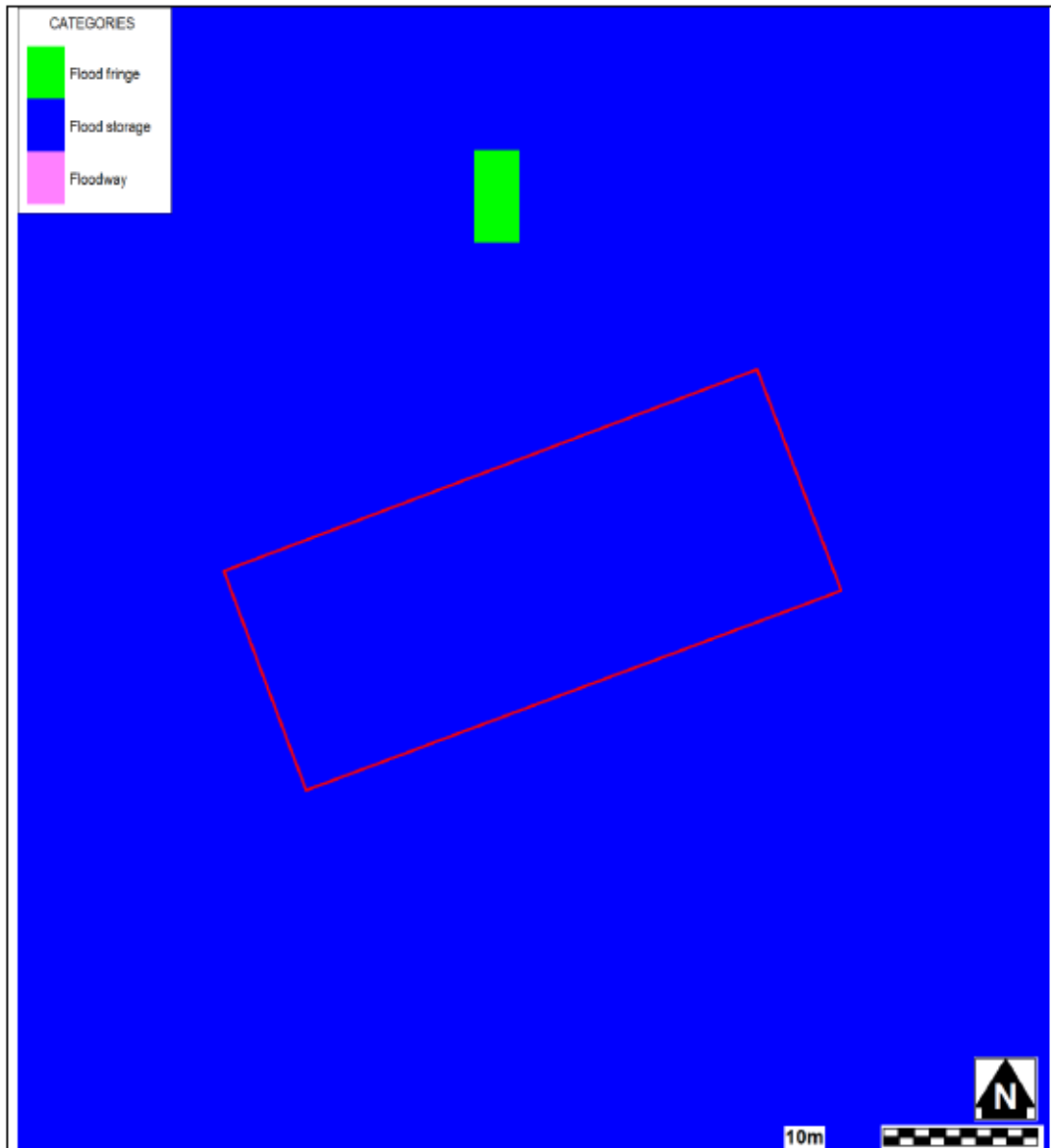
N/A – No Peak Water Level/Depth/Velocity Available.

#### Notes:

- The flood planning levels above are calculated by adding a 0.5m freeboard to the 1% AEP water level. However, if the depth of flow is less than 0.3m and a Velocity X Depth product is less than 0.3m<sup>2</sup>/s, a freeboard of 0.3m may be able to be justified for development.



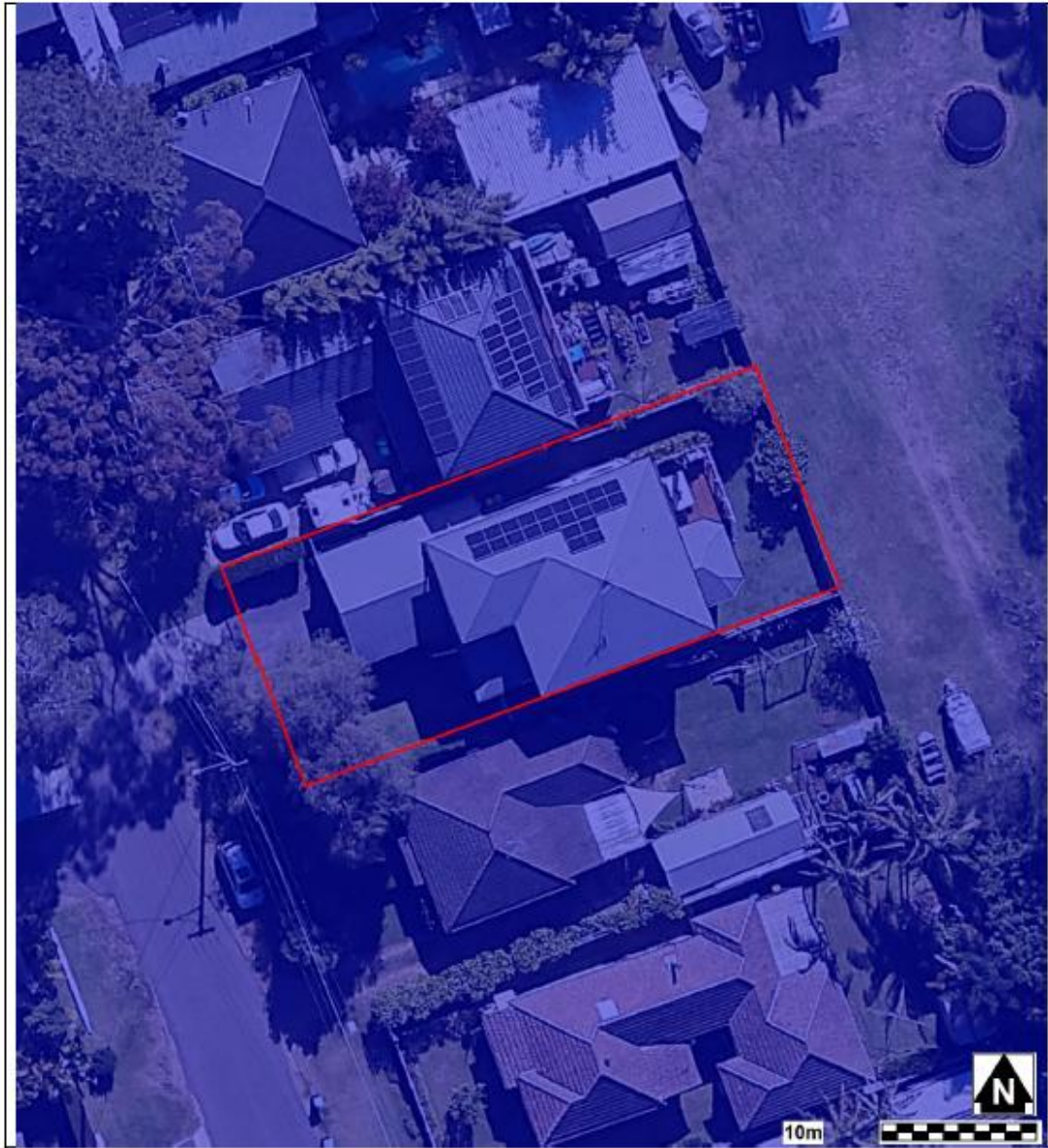
## MAP C: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



**Notes:**

- Extent represents the 1% Annual Exceedance Probability (AEP) flood event
- Extent does not include climate change
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only

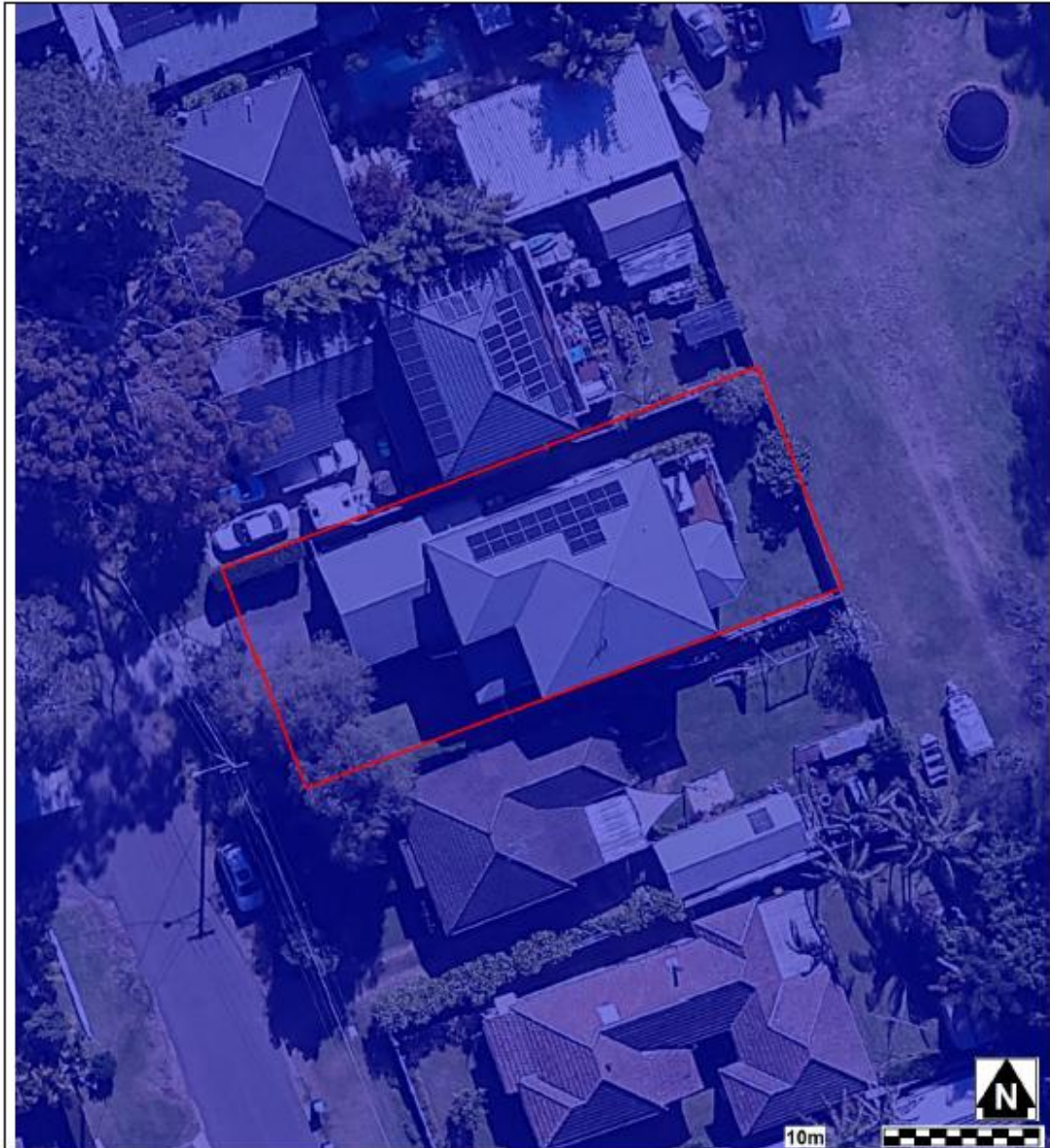
## MAP D: PMF EXTENT MAP



### 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: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only

## MAP E: FLOODING – 1% AEP EXTENT PLUS CLIMATE CHANGE



### Notes:

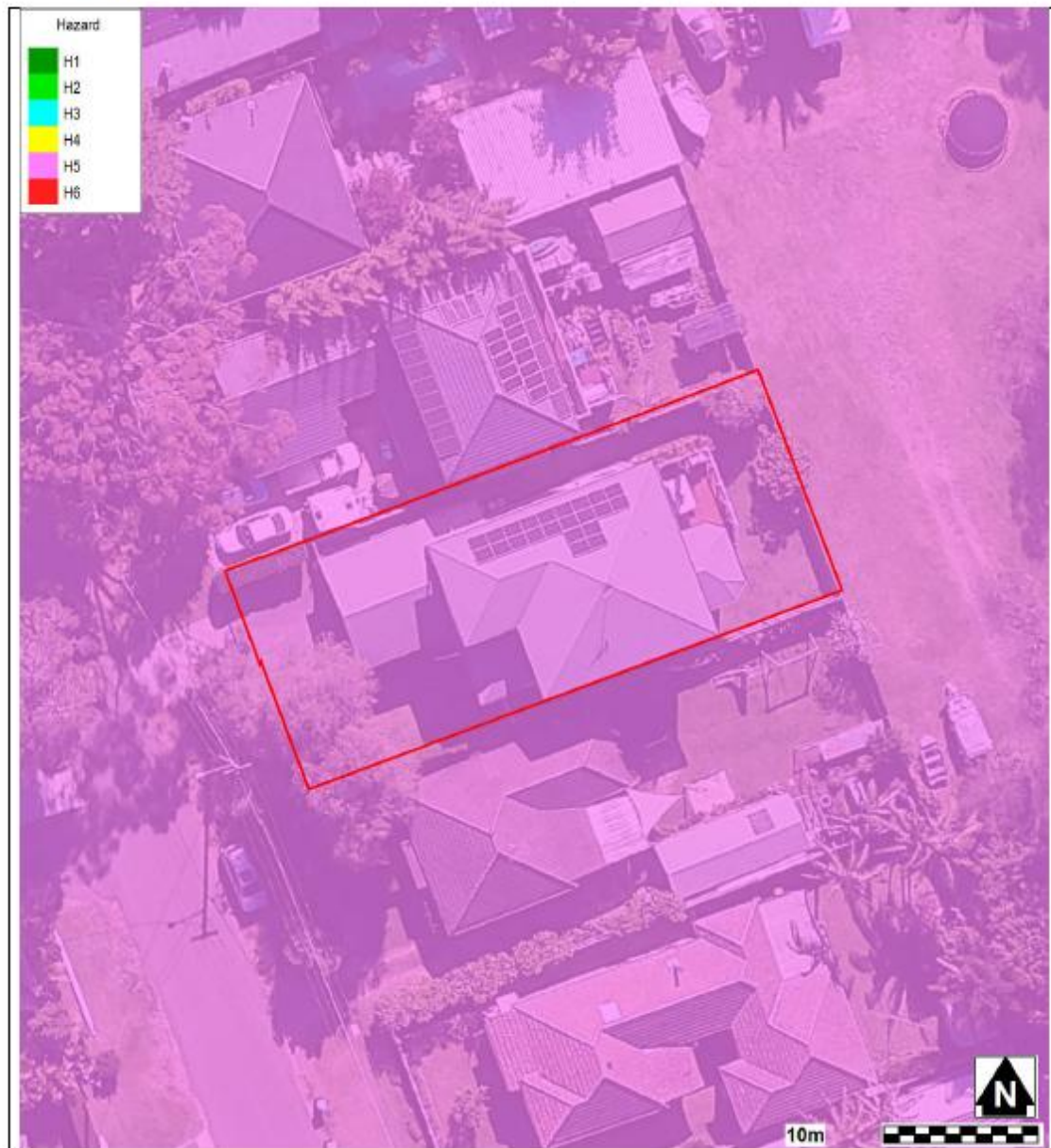
- Extent represents the 1% annual Exceedance Probability (AEP) flood event including 30% rainfall intensity and 0.9m Sea Level Rise climate change scenario
- Flood events exceeding the 1% AEP can occur on this site.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source: NearMap 2014) are indicative only

Issue Date: 08/07/2025

Page 8 of 13



## MAP F: FLOOD LIFE HAZARD CATEGORY IN PMF



**Notes:**

- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Narrabeen Lagoon Flood Study 2013, BMT WBM, Ingleside, Elanora and Warriewood Overland Flow Flood Study 2019, WMAwater) and aerial photography (Source Near Map 2014) are indicative only.



## MAP G: INDICATIVE GROUND SURFACE SPOT HEIGHTS



### Notes:

- The surface spot heights shown on this map were derived from Airborne Laser Survey and are indicative only.
- Accuracy is generally within  $\pm 0.2\text{m}$  vertically and  $\pm 0.15\text{m}$  horizontally, and Northern Beaches Council does not warrant that the data does not contain errors.
- If accuracy is required, then survey should be undertaken by a registered surveyor.

## Preparation of a Flood Management Report

### Introduction

These guidelines are intended to provide advice to applicants on how to determine what rules apply on flood prone land, and how to prepare a Flood Management Report. The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood related planning requirements.

### Planning Requirements for Flood Prone Land

Development must comply with the requirements for developing flood prone land set out in the relevant Local Environment Plan (LEP) and Development Control Plan (DCP). There are separate LEPs and DCPs for each of the former Local Government Areas (LGAs), although preparation of a LGA-wide LEP and DCP is currently under way.

The clauses specific to flooding in the LEPs and DCPs are as follows:

LEP Clauses	DCP Clauses
Manly LEP (2013) – 5.21 Flood Planning Manly LEP (2013) – 5.22 Special Flood Considerations	Manly DCP (2013) – 5.4.3 Flood Prone Land
Warringah LEP (2011) – 5.21 Flood Planning Warringah LEP (2011) – 5.22 Special Flood Considerations Warringah LEP (2000) – 47 Flood Affected Land *	Warringah DCP (2011) – E11 Flood Prone Land
Pittwater LEP (2014) – 5.21 Flood Planning Pittwater LEP (2014) – 5.22 Special Flood Considerations	Pittwater 21 DCP (2014) – B3.11 Flood Prone Land Pittwater 21 DCP (2014) – B3.12 Climate Change

\* The Warringah LEP (2000) is relevant only for the "deferred lands" which affects only a very small number of properties, mostly in the Oxford Falls area.

Development on flood prone land must also comply with Council's Water Management for Development Policy, and if it is in the Warriewood Release Area, with the Warriewood Valley Water Management Specification and Clause C6.1 of the Pittwater 21 DCP (2014). Guidelines for Flood Emergency Response Planning are available for addressing emergency response requirements in the DCP. These documents can be found on Council's website on the [Flooding page](#).

Note that if the property is affected by estuarine flooding or other coastal issues, these need to be addressed separately under the relevant DCP clauses.

### When is a Flood Management Report required?

A Flood Management Report must be submitted with any Development Application on flood prone land (with exceptions noted below), for Council to consider the potential flood impacts and applicable controls. For Residential or Commercial development, it is required for development on land identified within the Medium or High Flood Risk Precinct. For Vulnerable or Critical development, it is required if it is within any Flood Risk Precinct.

There are some circumstances where a formal Flood Management Report undertaken by a professional engineer may not be required. However the relevant parts of the DCP and LEP would still need to be addressed, so as to demonstrate compliance. Examples where this may apply include:

- If all proposed works are located outside the relevant Flood Risk Precinct extent
- First floor addition only, where the existing ground floor level is above the FPL
- Internal works only, where habitable floor areas below the FPL are not being increased



Note that development on flood prone land will still be assessed for compliance with the relevant DCP and LEP, and may still be subject to flood related development controls.

#### What is the purpose of a Flood Management Report?

The purpose of a Flood Management Report is to demonstrate how a proposed development will comply with flood planning requirements, particularly the development controls outlined in the relevant LEP and DCP clauses. The report must detail the design, measures and controls needed to achieve compliance, following the steps outlined below.

A Flood Management Report should reflect the size, type and location of the development, proportionate to the scope of the works proposed, and considering its relationship to surrounding development. The report should also assess the flood risk to life and property.

#### Preparation of a Flood Management Report

The technical requirements for a Flood Management Report include (where relevant):

1. Description of development
  - Outline of the proposed development, with plans if necessary for clarity
  - Use of the building, hours of operation, proposed traffic usage or movement
  - Type of use, eg vulnerable, critical, residential, business, industrial, subdivision, etc
2. Flood analysis
  - 1% AEP flood level
  - Flood Planning Level (FPL)
  - Probable Maximum Flood (PMF) level
  - Flood Risk Precinct, ie High, Medium or Low
  - Flood Life Hazard Category
  - Mapping of relevant extents
  - Flood characteristics for the site, eg depth, velocity, hazard and hydraulic category, and the relevance to the proposed development

If the property is affected by an Estuarine Planning Level (EPL) which is higher than the FPL, then the EPL should be used as the FPL. If the FPL is higher than the PMF level, then the FPL should still be used as the FPL, as it includes freeboard which the PMF does not.

3. Assessment of impacts
  - Summary of compliance for each category of the DCP, as per the table below.

	Compliance		
	N/A	Yes	No
A) Flood effects caused by Development			
B) Building Components & Structural Soundness			
C) Floor Levels			
D) Car parking			
E) Emergency Response			
F) Fencing			
G) Storage of Goods			
H) Pools			

- Demonstration of how the development complies with any relevant flood planning requirements from the DCP, LEP, Water Management for Development Policy, and if it is in the Warriewood Valley Urban Land Release Area, with the Warriewood Valley Water Management Specification (2001)
- For any non-compliance, a justification for why the development should still be considered.
- Calculations of available flood storage if compensatory flood storage is proposed
- Plan of the proposed development site showing the predicted 1% AEP and PMF flood extents, as well as any high hazard or floodway affectation
- Development recommendations and construction methodologies
- Qualifications of author - Council requires that the Flood Management Report be prepared by a suitably qualified Engineer with experience in flood design / management who has, or is eligible for, membership to the Institution of Engineers Australia
- Any flood advice provided by Council
- Any other details which may be relevant

Further information and guidelines for development are available on Council's website at:

<https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/development-applications/guidelines-development-flood-prone-land>

Council's Flood Team may be contacted on 1300 434 434 or at [floodplain@northernbeaches.nsw.gov.au](mailto:floodplain@northernbeaches.nsw.gov.au).

## **Appendix D**

Excerpt from  
**Reducing Vulnerability of Buildings to Flood Damage:  
Guidance on Building in Flood Prone Areas,  
Hawkesbury-Nepean Floodplain  
Management Steering Committee (2006).**

REDUCING VULNERABILITY OF BUILDINGS TO FLOOD DAMAGE

**Table 4.3.1.3 Materials for 96-Hour Immersion**

COMPONENT	SUITABLE*	MILD EFFECTS*	MARKED EFFECTS*	SEVERE EFFECTS*
FLOOR, SUB-FLOOR STRUCTURE	<ul style="list-style-type: none"> <li>slab-on-ground</li> <li>suspended concrete</li> </ul>	<ul style="list-style-type: none"> <li>timber T&amp;G (with ends only epoxy sealed and provision of side clearance for board swelling) or plywood</li> </ul>	<ul style="list-style-type: none"> <li>standard grade plywood</li> </ul>	<ul style="list-style-type: none"> <li>timber floor close to the ground and particleboard flooring close to the ground</li> </ul>
WALLS SUPPORT STRUCTURE	<ul style="list-style-type: none"> <li>reinforced or mass concrete</li> </ul>	<ul style="list-style-type: none"> <li>full brick/block masonry cavity brick</li> </ul>	<ul style="list-style-type: none"> <li>brick/block veneer with venting (stud frame)</li> </ul>	<ul style="list-style-type: none"> <li>inaccessible openings</li> <li>large windows low to the ground</li> </ul>
WALL AND CEILING LININGS	<ul style="list-style-type: none"> <li>fibre cement sheet</li> <li>face brick or blockwork</li> <li>cement render</li> <li>ceramic wall tiles</li> <li>galvanised steel sheet</li> <li>glass and glass blocks</li> <li>stone, solid or veneer</li> <li>plastic sheeting or tiles with waterproof adhesive</li> </ul>	<ul style="list-style-type: none"> <li>common bricks</li> <li>solid wood, fully sealed</li> <li>exterior grade plywood</li> <li>fully sealed</li> <li>non ferrous metals</li> </ul>	<ul style="list-style-type: none"> <li>exterior grade particleboard</li> <li>hardboard</li> <li>solid wood with allowance for swelling</li> <li>exterior grade plywood</li> <li>plasterboard</li> </ul>	<ul style="list-style-type: none"> <li>particleboard</li> <li>fibreboard or strawboard</li> <li>wallpaper</li> <li>cloth wall coverings</li> <li>standard plywood</li> <li>gypsum plaster</li> </ul>
ROOF STRUCTURE	<ul style="list-style-type: none"> <li>reinforced concrete</li> <li>galvanised metal construction</li> </ul>	<ul style="list-style-type: none"> <li>timber trusses with galvanised connections</li> </ul>	<ul style="list-style-type: none"> <li>traditional timber roof construction</li> </ul>	<ul style="list-style-type: none"> <li>inaccessible flat floor</li> <li>ungalvanised structural steelwork</li> <li>unsecured roof tiles</li> </ul>
DOORS	<ul style="list-style-type: none"> <li>solid panel with waterproof adhesive</li> <li>flush marine ply with closed cell foam</li> <li>aluminium or galvanised steel frame</li> </ul>	<ul style="list-style-type: none"> <li>flush or single panel marine ply with waterproof adhesive</li> <li>painted metal construction</li> <li>timber frame, full epoxy sealed before assembly</li> </ul>	<ul style="list-style-type: none"> <li>standard timber frame</li> </ul>	<ul style="list-style-type: none"> <li>standard flush hollow core with PVA adhesives and honeycomb paper core</li> </ul> <p>Note: lowest cost and generally inexpensive to replace</p>



COMPONENT	SUITABLE*	MILD EFFECTS*	MARKED EFFECTS*	SEVERE EFFECTS*
WINDOWS	<ul style="list-style-type: none"> <li>aluminium frame with stainless steel or brass rollers</li> </ul>	<ul style="list-style-type: none"> <li>timber frame, full epoxy sealed before assembly with stainless steel or brass fittings</li> </ul>		<ul style="list-style-type: none"> <li>timber with PVA glues</li> <li>mild steel fittings</li> </ul>
INSULATION	<ul style="list-style-type: none"> <li>plastic/polystyrene boards</li> <li>closed cell solid insulation</li> </ul>	<ul style="list-style-type: none"> <li>reflective foil perforated with holes to drain water if used under timber floors</li> </ul>		<ul style="list-style-type: none"> <li>materials which store water and delay drying</li> <li>open celled insulation (batts etc)</li> </ul>
BOLTS, HINGES, NAILS & FITTINGS	<ul style="list-style-type: none"> <li>brass, nylon/stainless steel, removable pin hinges</li> </ul>	<ul style="list-style-type: none"> <li>galvanised steel, aluminium</li> </ul>		<ul style="list-style-type: none"> <li>mild steel</li> <li>** see Note below</li> </ul>
FLOOR COVERING	<ul style="list-style-type: none"> <li>clay/concrete tiles</li> <li>epoxy or cementitious floor toppings on concrete</li> <li>rubber sheets (chemically set adhesives)</li> <li>vinyl sheet (chemically set adhesive)</li> </ul>	<ul style="list-style-type: none"> <li>terrazzo</li> <li>rubber tiles (chemically set adhesives)</li> <li>vinyl tiles (chemically set adhesive)</li> <li>polished floor &amp; loose rugs</li> <li>ceramic tiles</li> </ul>	<ul style="list-style-type: none"> <li>loose fit nylon or acrylic carpet (closed cell rubber underlay)</li> </ul>	<ul style="list-style-type: none"> <li>wall to wall carpet</li> <li>wall to wall seagrass matting</li> <li>cork</li> <li>linoleum</li> </ul>

\* KEY

**SUITABLE**

these materials or products are relatively unaffected by submersion and flood exposure and are the best available for the particular application.

**MILD EFFECTS**

these materials or products suffer only mild effects from flooding and are the next best choice if the most suitable materials or products are too expensive or unavailable.

**MARKED EFFECTS**

these materials or products are more liable to damage under flood than the above category.

**SEVERE EFFECTS**

these materials or products are seriously affected by floodwaters and have to be replaced if inundated.

\*\* Note: For nominal fixings in timber framing, AS 1684.2 requires nails used in joints that are continuously damp or exposed to the weather to be hot dip galvanised, stainless steel or monel metal.

**Appendix E**  
**Curriculum Vitae 2025**  
**Lucas Molloy**

## Curriculum Vitae 2025

Lucas Molloy

MIEAust / CPEng / NER / APEC / Engineer / IntPE(Aus)

### Education -

- 1988 Higher School Certificate  
Pittwater High School NSW Australia
- 1995 Bachelor of Engineering (Civil)  
University of Wollongong NSW Australia

### Employment -

- May 2007 to date  
Barrenjoey Consulting Engineers Pty Ltd  
Director / Engineer / Draftsman
- April 2003 to April 2007  
Northern Beaches Consulting Engineers Pty Ltd  
Director / Engineer
- Feb 1997 to April 2003  
Northern Beaches Consulting Engineers Pty Ltd  
Engineer
- Dec 1988 to Dec 1993  
Jack Hodgson Consulting Engineers  
Undergraduate trainee / Engineer

For last sixteen years Director / Engineer / Draftsman of the structural and civil engineering practice Barrenjoey Consulting Engineers Pty Ltd (est 2007). I am responsible for the structural and civil (including stormwater management) design, documentation, investigation and construction supervision of predominately residential developments.

The spectrum of projects I have consulted on, vary from a 6 square meter timber framed deck extension of a residential house (budget ~ \$1,500) to 8 storey commercial development (budget of ~ \$10,000,000).

During my career I have been active in the preparation and issuing of –

- 250+ stormwater management plans inc on site detention
- 50+ overflow / flood analysis using DRAINS / HECRAS / AR+R
- 25+ flood inundation & risk assessment reports

**Appendix F**  
**Northern Beaches Council**  
**Standard Hydraulic Certification Form**



**NORTHERN BEACHES COUNCIL  
STANDARD HYDRAULIC CERTIFICATION FORM**

FORM A/A1 – To be submitted with Development Application

Development Application for: **S. Davies**

Address of site: **76 Wimbledon Ave Narrabeen**

Declaration made by hydraulic engineer or professional consultant specialising in flooding/flood risk management as part of undertaking the Flood Management Report:

I, **Lucas Molloy** on behalf of **Barrenjoey Consulting Engineers p/l** on this the **9<sup>th</sup> July 2025** certify that I am engineer or a professional consultant specialising in flooding and I am authorised by the above organisation/ company to issue this document and to certify that the organisation/ company has a current professional indemnity policy of at least \$10 million.

*Flood Management Report Details:*

Report Title:

**FLOOD INUNDATION &  
RISK ASSESSMENT REPORT  
PROPOSED SWIMMING POOL  
76 WIMBLEDON AVE NARRABEEN**

Report Date:

**July 2025**

Author:

**Lucas Molloy**

Author's Company/Organisation:

**Barrenjoey Consulting Engineers p/l**

I: **Lucas Molloy**

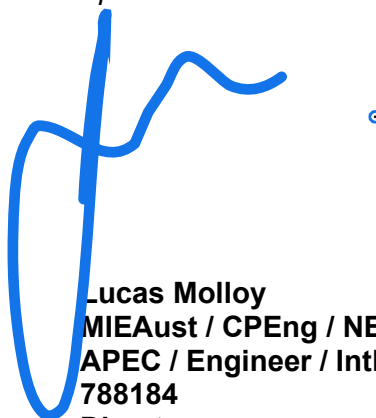
Please tick all that are applicable (more than one box can be ticked)

**X** have obtained and included flood information from Council (must be less than 12 months old)

**X** have followed Council's Guidelines for Preparing a Flood Management Report

**na** have requested a variation to one or more of the flood related development controls. Details are provided in the *Flood Management Report*.

Signature



Name

**Lucas Molloy  
MIEAust / CPEng / NER /  
APEC / Engineer / IntPE(Aus)  
788184  
Director  
Barrenjoey Consulting Engineers p/l**

**End**