

**FLOOD IMPACT ASSESSMENT
REPORT
FOR THE DEVELOPMENT
AT
7 ROSS STREET
NORTH CURL CURL NSW 2099**

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1. EXECUTIVE SUMMARY

The flood impact assessment report has been prepared to the requirements of the Northern Beaches Council's policy for a two storey dwelling at 7 Ross Street North Curl Curl to assess the flooding effect.

At present there is a single storey house and an out building. The proposal is to demolish all the existing structures within the site and to construct a two storey dwelling to the requirements of the Council DCP.

The flood levels have been obtained from the Council and are given in Appendix A.

The ground floor level of the existing house is 10.69 m AHD. The survey plan is given in Appendix B.

The site falls to the south west, with levels varying from approximately RL 10.75 m AHD at the street frontage to RL 10.30m AHD at the rear boundary.

Flood level information obtained from the Council are summarized below:

100 year flood level	10.45m AHD
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Free board	0.5m
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Flood planning level	10.95 m AHD
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PMF level	10.98 m AHD
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Flood risk planning precinct: Medium to Low (H3-H1)

2. DEVELOPMENT CONTROLS

All the proposed building structures have to be with flood compatible building components up to the 100 year ARI flood level plus 500 mm free board (i.e., up to 10.95m AHD). The flood compatible materials have been listed in Appendix C.

The evacuation will not be required during PMF. During 1 in 100 year flood the occupants can stay at the first floor of the house.

As per the flood information the site is within the medium to low flood risk precinct. The site controls have been assessed based on E11 Flood Prone Land and given in Appendix D.

3. LIST OF ATTACHMENTS

- Appendix A: Council's Flood Levels
- Appendix B: Survey Plan
- Appendix C: Flood Compatible Materials
- Appendix D: Flood Matrix

APPENDIX A

BASIC FLOOD INFORMATION REPORT

Property: 7 Ross Street NORTH CURL CURL NSW 2099

Lot DP: Lot 33 DP 15141

Issue Date: 22/01/2025

Flood Study Reference: Greendale Creek Flood Study 2023, WMA

Flood Information¹:

Map A - Flood Risk Precincts

Maximum Flood Planning Level (FPL) ^{2, 3, 4}: 10.95 m AHD

Map B - 1% AEP Flood

1% AEP Maximum Water Level ^{2, 3}: 10.45 m AHD

1% AEP Maximum Depth from natural ground level³: 0.39 m

1% AEP Maximum Velocity: 0.47 m/s

Map C - 1% AEP Hydraulic Categorisation

1% AEP Hydraulic Categorisation: Flood Storage / Flood Fringe

Map D - Probable Maximum Flood (PMF)

PMF Maximum Water Level ⁴: 10.98 m AHD

PMF Maximum Depth from natural ground level: 0.91 m

PMF Maximum Velocity: 1.38 m/s

Map E - Flood Life Hazard Category in PMF

H4 – H1

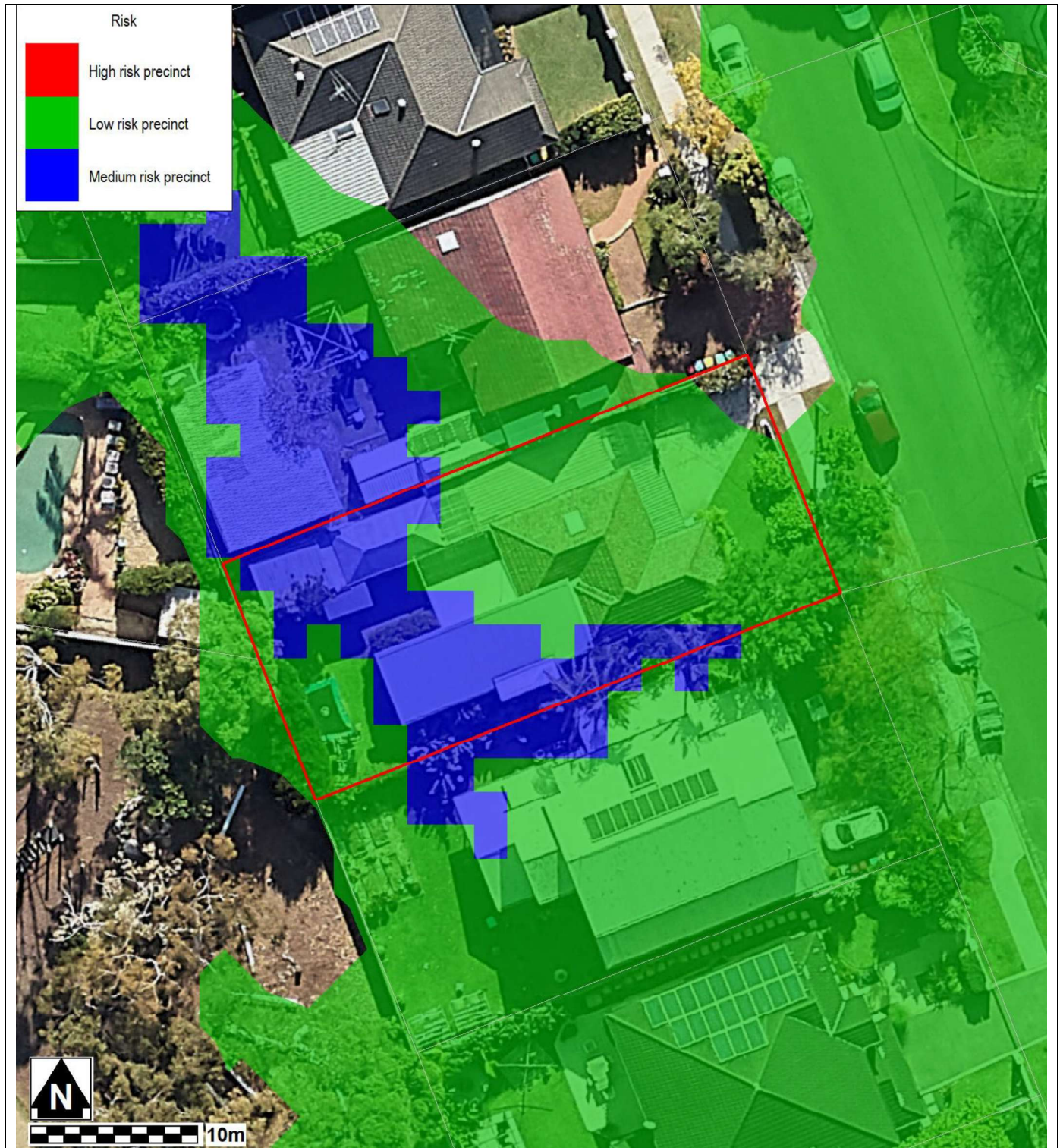
- (1) The provided flood information does not account for any local overland flow issues nor private stormwater drainage systems.
- (2) Overland flow/mainstream water levels may vary across a sloping site, resulting in variable minimum floor/ flood planning levels across the site. The maximum Flood Planning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

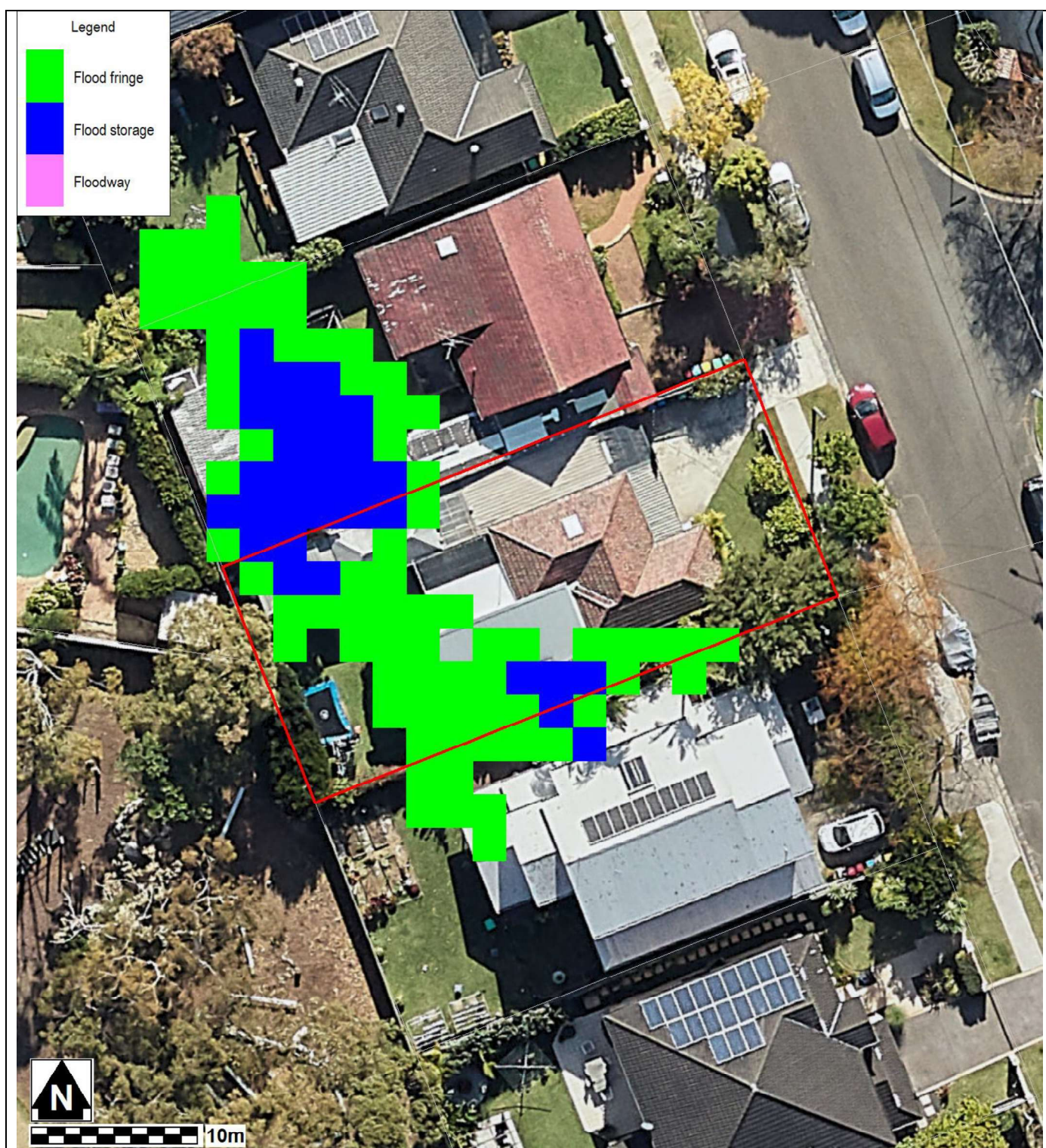
MAP B: FLOODING - 1% AEP EXTENT



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: Greendale Creek Flood Study 2023, WMA) and aerial photography (Source: NearMap 2014) are indicative only.

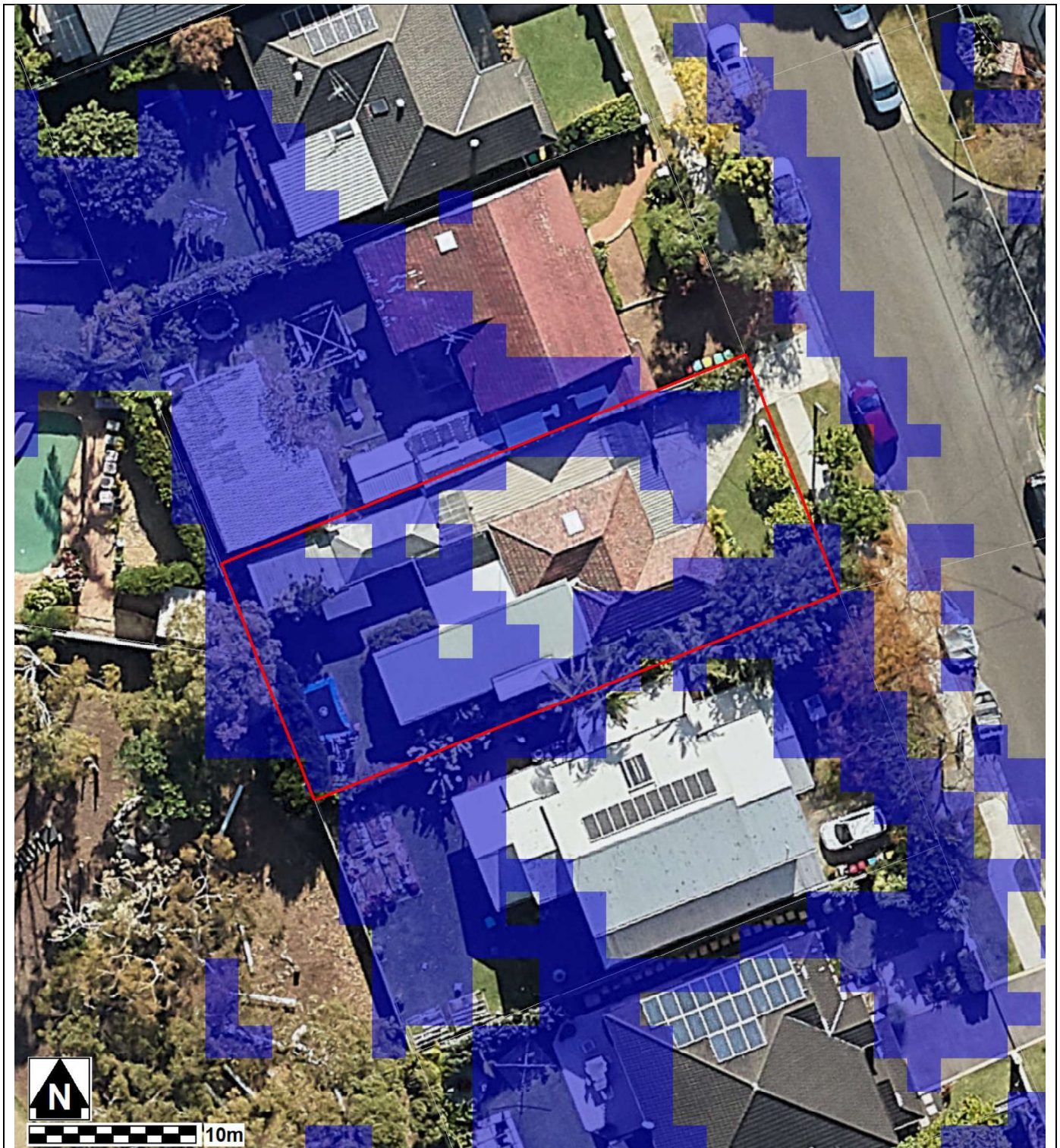
MAP C: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



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: Greendale Creek Flood Study 2023, WMA) and aerial photography (Source: NearMap 2014) are indicative only.

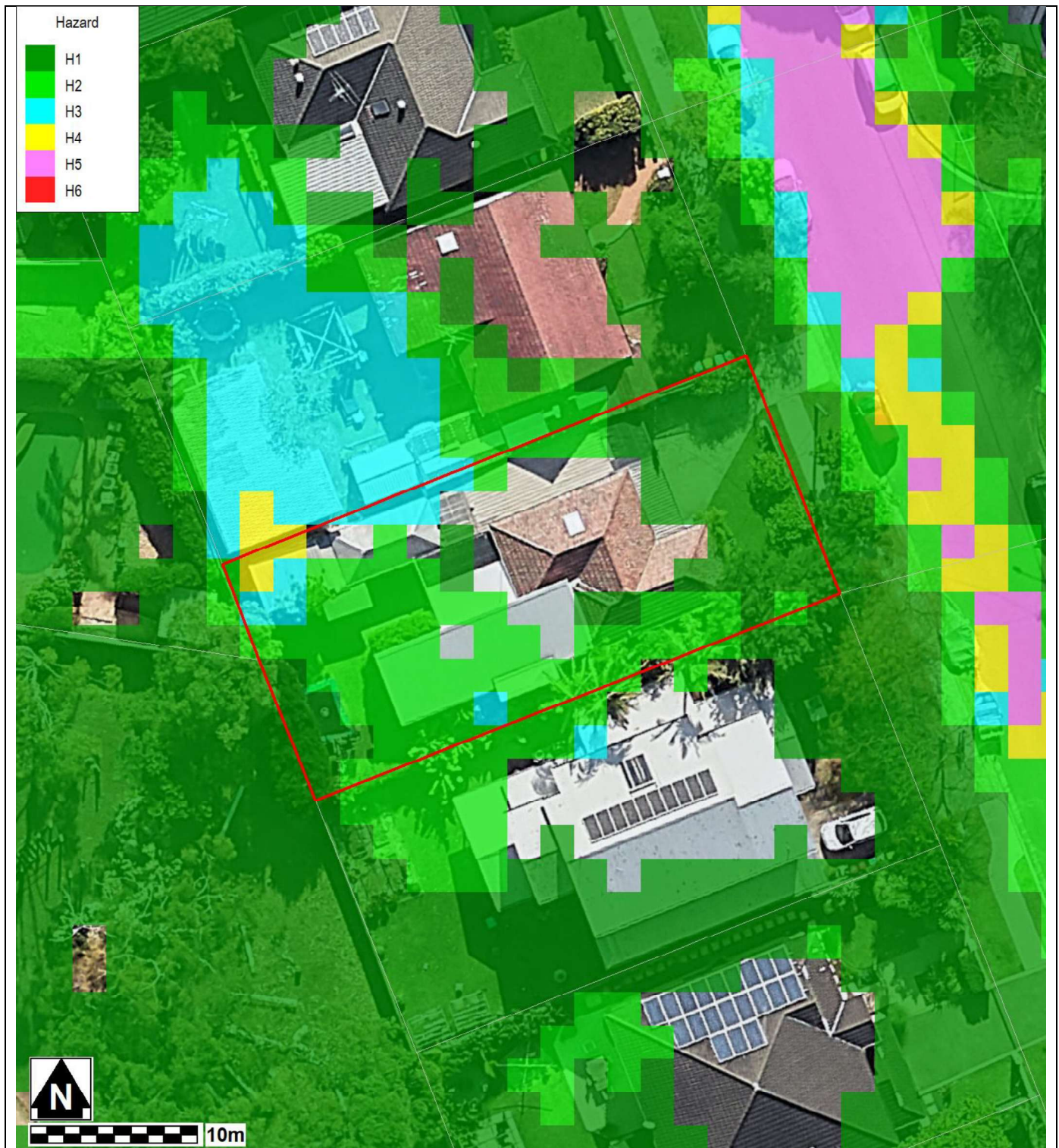
MAP D: PROBABLE MAXIMUM FLOOD EXTENT



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: Greendale Creek Flood Study 2023, WMA) and aerial photography (Source: NearMap 2014) are indicative only.

MAP E: FLOOD LIFE HAZARD CATEGORY IN PMF



Notes:

- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Greendale Creek Flood Study 2023, WMA) and aerial photography (Source: NearMap 2014) are indicative only.

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			

- 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 .

APPENDIX B



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LOT 33 DP 15141
7 ROSS STREET
NORTH CURL CURL, NSW

PROJECT LOCATION

LEVEL DATA







SOURCE OF LEVELS
PM 1995 RL 10.483
SCIMS

S W I J S

LEVEL DATUM

DRAWN	CHEE
S.CULLEN	M.C
SURVEY DATE	DGN/D
07.11/2024	335
SHEET SIZE	SCA
A2	1:2

SCHEDULE OF TREES		
TYPE	HEIGHT	DIAMETER
-	4m	T1 0.20
-	4m	T2 0.20
-	4m	T3 0.20
PALM	3m	T4 0.10
-	5m	T5 0.40
-	3m	T6 0.40
PALM	3m	T7 0.10
PALM	7m	T8 0.20
-	4m	T9 0.10
-	3m	T10 0.10
-	4m	T11 0.20
PALM	3m	T12 0.10
PALM	6m	T13 0.20
PALM	3m	T14 0.10
-	3m	T15 0.20
-	3m	T16 0.20
-	3m	T17 0.20
GUM	10m	T18 0.60

LEGEND	
	BENCH MARK
	PHOTO POINT
	GULLY PIT
	VEHICULAR/PRAM CROSSING
	TOP OF BANK
	BOTTOM OF BANK

ABBREVIATIONS

EB - ELECTRICAL BOX
 EC - ELECTRICAL CABLE
 EM - ELECTRICAL METER
 EN - GAS METER
 EP - TO EGRESS OUTLET
 F - FLOOR
 H - LAMP HOLE
 J - LIGHT POLE
 M - MAIN HOLE
 MA - MAINTENANCE SHAFT
 P - POWER POLE
 S - SINK
 SH - SHRUB
 SI - SINK
 SS - SEWER INSPECTION OPENING
 ST - STOP VALVE
 SV - STOP VALVE
 T - TREE
 TP - TELECOMMUNICATIONS PIT
 V - VERANDAH
 WT - WATER TANK
 W - WATER
 WR - WATER METER
 WC - WC
 TC - SERVICE CONNECTION
 W/C - WATER CLOSET

SOURCE OF LEVELS
PM 1995 RL 10.483
SCIMS

S W I J S

LEVEL DATUM

DRAWN	CHEE
S.CULLEN	M.C
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APPENDIX C

Flood Compatible Materials & Building Components

BUILDING COMPONENT	FLOOD COMPATIBLE MATERIAL	BUILDING COMPONENT	FLOOD COMPATIBLE MATERIAL
Flooring and Sub-floor Structure	<ul style="list-style-type: none"> • concrete slab-on-ground monolith construction • suspension reinforced concrete slab. 	Doors	<ul style="list-style-type: none"> • solid panel with water proof adhesives • flush door with marine ply filled with closed cell foam • painted metal construction • aluminium or galvanised steel frame
Floor Covering	<ul style="list-style-type: none"> • clay tiles • concrete, precast or in situ • concrete tiles • epoxy, formed-in-place • mastic flooring, formed-in-place • rubber sheets or tiles with chemical-set adhesives • silicone floors formed-in-place • vinyl sheets or tiles with chemical-set adhesive • ceramic tiles, fixed with mortar or chemical-set adhesive • asphalt tiles, fixed with water resistant adhesive 	Wall and Ceiling Linings	<ul style="list-style-type: none"> • fibro-cement board • brick, face or glazed • clay tile glazed in waterproof mortar • concrete • concrete block • steel with waterproof applications • stone, natural solid or veneer, waterproof grout • glass blocks • glass • plastic sheeting or wall with waterproof adhesive
Wall Structure	<ul style="list-style-type: none"> • solid brickwork, blockwork, reinforced, concrete or mass concrete 	Insulation Windows	<ul style="list-style-type: none"> • foam (closed cell types) • aluminium frame with stainless steel rollers or similar corrosion and water resistant material.
Roofing Structure (for Situations Where the Relevant Flood Level is Above the Ceiling)	<ul style="list-style-type: none"> • reinforced concrete construction • galvanised metal construction 	Nails, Bolts, Hinges and Fittings	<ul style="list-style-type: none"> • brass, nylon or stainless steel • removable pin hinges • hot dipped galvanised steel wire, nails or similar.

Flood Compatible Materials & Building Components continued.

<p>Electrical and Mechanical Equipment</p> <p>For dwellings constructed on land to which this Plan applies, the electrical and mechanical materials, equipment and installation should conform to the following requirements.</p>	<p>Heating and Air Conditioning Systems</p> <p>Heating and air conditioning systems should, to the maximum extent possible, be installed in areas and spaces of the house above the relevant flood level. When this is not feasible every precaution should be taken to minimise the damage caused by submersion according to the following guidelines.</p>
<p>Main power supply -</p> <p>Subject to the approval of the relevant authority the incoming main commercial power service equipment, including all metering equipment, shall be located above the relevant flood level. Means shall be available to easily disconnect the dwelling from the main power supply.</p>	<p>Fuel -</p> <p>Heating systems using gas or oil as a fuel should have a manually operated valve located in the fuel supply line to enable fuel cut-off.</p>
<p>Wiring -</p> <p>All wiring, power outlets, switches, etc., should, to the maximum extent possible, be located above the relevant flood level. All electrical wiring installed below the relevant flood level should be suitable for continuous submergence in water and should contain no fibrous components. Earth core linkage systems (or safety switches) are to be installed. Only submersible-type splices should be used below the relevant flood level. All conduits located below the relevant designated flood level should be so installed that they will be self-draining if subjected to flooding.</p>	<p>Installation -</p> <p>The heating equipment and fuel storage tanks should be mounted on and securely anchored to a foundation pad of sufficient mass to overcome buoyancy and prevent movement that could damage the fuel supply line. All storage tanks should be vented to an elevation of 600 millimetres above the relevant flood level.</p>
<p>Equipment -</p> <p>All equipment installed below or partially below the relevant flood level should be capable of disconnection by a single plug and socket assembly.</p>	<p>Ducting -</p> <p>All ductwork located below the relevant flood level should be provided with openings for drainage and cleaning. Self draining may be achieved by constructing the ductwork on a suitable grade. Where ductwork must pass through a water-tight wall or floor below the relevant flood level, the ductwork should be protected by a closure assembly operated from above relevant flood level.</p>
<p>Reconnection -</p> <p>Should any electrical device and/or part of the wiring be flooded it should be thoroughly cleaned or replaced and checked by an approved electrical contractor before reconnection.</p>	<p>Ancillary Structures (steps, pergolas, etc.) -</p> <p>Suitable water tolerant materials should be used such as masonry sealed hardwood and corrosive resistant metals. Copper Chrome Arsenate (CCA) treated timber is <u>not</u> a suitable material.</p>

APPENDIX D

A. FLOOD EFFECTS CAUSED BY DEVELOPMENT AS PER E11 FLOOD PRONE LAND

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 to that in all events up to the 1% AEP event:</p> <ul style="list-style-type: none"> (a) There are no adverse impacts on flood levels or velocities caused by alterations to the flood conveyance; and (b) There are no adverse impacts on surrounding properties; and (c) It is sited to minimise exposure to flood hazard. <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>The floor levels of the proposed building have been at the flood planning level. The area of the post development foot print is 213m² and the pre development foot print is 214m².</p> <p>There will not be any loss of flood storage as a result of this development.</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. 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>At present there is a single storey building and an outbuilding.</p> <p>There will not be any flood storage loss as a result of this development.</p>

B. BUILDING COMPONENTS AND STRUCTURAL SOUNDNESS AS PER E11 FLOOD PRONE LAND

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>Yes. It will be based on the Hawkesbury -Nepean Floodplain Management Steering Committee report.</p> <p>The flood compatible materials are given in Appendix C for guidance.</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. 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>The building structure will be certified by the structural engineer to satisfy the flooding requirements.</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</p>	<p>It will be followed as per this requirement.</p>

	might have residual current devices installed that turn off all electricity supply to the property when flood waters are detected.	
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C. FLOOR LEVELS AS PER E11 FLOOD PRONE LAND

C1	New floor levels within the development shall be at or above the Flood Planning Level.	At flood planning level.
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>For suspended pier/pile footings:</p> <ul style="list-style-type: none"> (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; and (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; and (c) No solid areas of the perimeter of the underfloor area would be permitted in a floodway. 	There will not be any flood storage loss due to this development. The building is not provided with the void under the building.
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> <ul style="list-style-type: none"> (a) It is an extension to an existing room; and (b) The Flood Planning Level is incompatible with the floor levels of the existing room; and (c) Out of the 30 square metres, not more than 10 square metres is below the 1% AEP flood level. <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>	Not applicable to this development.
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> <ul style="list-style-type: none"> (a) It is not located within a floodway; and (b) The original foundations are sufficient to support the proposed final structure above 	Not applicable to this development.

	<p>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>(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>	
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D. CAR PARKING AS PER E11 FLOOD PRONE LAND

D1	Open carpark areas and carports shall not be located within a floodway.	It is not within the high-risk precinct.
D2	The lowest floor level of open car parks and carports shall be constructed no lower than the natural ground levels, unless it can be shown that the car park or carport is free draining with a grade greater than 1% and that flood depths are not increased.	It will satisfy this condition.
D3	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. 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.	It will satisfy this condition.
D4	When 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.	It will satisfy this condition. No wheel barriers are required.
D5	Enclosed garages must be located at or above the 1% AEP level.	It is satisfying the condition.

D6	<p>All enclosed car parks (including basement car parks) 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. 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. Council will not accept any options that rely on electrical, mechanical or manual exclusion of the floodwaters from entering the enclosed car park.</p>	<p>It is an enclosed garage and the floor level is above the 100 year flood level.</p>
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E. EMERGENCY RESPONSE AS PER E11 FLOOD PRONE LAND

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"> (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. <p>Class 10 classified buildings and structures (as defined</p>	<p>The property is within H1-H3 category. The flood evacuation plan is not required.</p>
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	<p>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>	
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F. FENCING AS PER E11 FLOOD PRONE LAND

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>The development will be satisfied by this condition. The rear fences should have openings to allow overland flow.</p>
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G. STORAGE OF GOODS AS PER E11 FLOOD PRONE LAND

G1	<p>Hazardous or potentially polluting materials shall not be stored below the Flood Planning Level unless adequately protected from flood waters in accordance with industry standards.</p>	<p>The development will be satisfied by this condition.</p>
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H. POOLS AS PER E11 FLOOD PRONE LAND

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>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>All chemicals associated with the pool are to be stored at or above the Flood Planning Level.</p>	<p>The pool designers must follow this condition.</p>
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