APPROVED
CONSULTING
ENGINEERS

ABN 90 645 409 801
ACN 645 409 801

FLOOD RISK REPORT

FOR PROPOSED ADDITIONS AT

14 ADDISCOMBE ROAD MANLY

JOB NO: 2025026

Email: admin@acengineers.com.au
Ph: 0418 381 675

Contents

1 – Introduction

Approved Consulting Engineers has completed a review of the proposed development at 14 Addiscombe Road, Manly and determined that the site is located within the Low and Medium Flood Risk Precincts as predicted by the *'Manly Lagoon Flood Study, 2013 (BMT WBM)'*. The proposed architectural plans prepared by 'BHD' detail additions, including a new carparking space, driveway crossing and layback entering from Addiscombe Road and a pool at the rear of the site.

This report has been prepared in accordance with part E11 of '*Northern Beaches Council's Warringah Development Control Plan.* The flood information summary for the site is provided below.

1.0 - Flood Information Summary

Background Information	
Council	Northern Beaches Council
Flood Information Request Date	12/05/2025
Flood Study Reference	Manly Lagoon Flood Study (2013 - BMT WBM)
Flood Behaviour	Mainstream Flooding
1% AEP Flood Information	
Flood Level	3.17m AHD
Peak Depth On-site	0.14 m
PMF Flood Information	
Flood Level	5.66 m AHD
PMF Velocity	0.22 m/s

2 - Flood Risk Report

Flood Planning Summary	
Flood Life Hazard Category (PMF)	H5 (PMF)
Flood Emergency Response Strategy (Onsite Response)	Shelter In Place *(refer section 3 for recommendation)*
Flood Planning Level (FPL)	3.67 m AHD
Existing Floor Level	5.27m AHD
Flood Storage	No Reduction *(refer section 2.1)*
Recommendations For Structural Design	*Refer section 2.2*
Recommended Construction Materials	*Refer section 2.3*
Ground Floor Requirements	NA
Stormwater Management	*Refer section 2.4*
Waterproofing	Below RL 3.67 m AHD *(refer section 2.6)*
Flood Warning	No signage recommended
Hazardous Materials Storage	Above 3.67 m AHD *(refer section 2.7)*

2.1 - Flood storage

- The proposed carparking space is located outside the 1% AEP extent, however there appears to be a minor mapping discrepancy, therefore the provided 1% AEP flood level (RL 3.17m AHD) was taken as a worst case scenario in lieu of the physical flood extent mapping. (Refer overlay in Appendix C)
- The proposed carpark situated on the Addiscombe Road frontage is located at RL 3.015m at the boundary and RL3.38m at the rear of the carparking hardstand and will result in 0.155m maximum inundation in the 1% AEP flood event. This is minor and does not require the installation of vehicle barriers.
- The proposed carparking hardstand is in cut and will not result in a loss in flood storage.
- Any proposed boundary fencing located shall be designed so as not to impede the flow of floodwaters. At least 50% of the fence must be of an open design.
- The pool is located outside the 1% AEP flood extent.

2.2 – Structural Requirements

- Perimeter fencing must be designed to be open and to withstand flood forces up to the FPL (including debris impact).
- The proposed works are to be certified by a structural engineer as adequate to withstand forces from flood waters and debris impact up to the FPL.

2.3 - Recommended Construction Materials

- Standard Building Materials (concrete, steel, timber and/or brickwork) are to be used above and below the FPL.

2.4- Stormwater Management

- To be incorporated as per council requirements and AS3500.3.

2.6 - Waterproofing methods

- All electrical equipment is to be fitted with circuit breakers.
- All conduits below the FPL are to be free draining, with 1% (minimum) fall.
- Switchboard and main circuit unit to be fitted above RL 3.67m AHD (FPL)
- Other valuable materials or possessions are to be stored above RL 3.67m AHD (FPL)
- Owner and occupant are to acknowledge that a reasonable extent of damage to fittings below the RL 3.67m AHD (FPL) is to be expected during the flood events.

2.7 - Hazardous Material Storage

- The owner and occupant are to acknowledge that all hazardous materials are to be stored at or above 3.67m AHD.

3 – Emergency Response Plan

- In a flood event, shelter in place is recommended. Occupants are to remain indoors and await further direction from local authorities and the SES.
- This should be completed within the first 5 minutes of the rainfall event (heavy rainfall, inundation of the site or spilling of Manly creek [adjacent] into Addiscombe Road indicate a potential flood event).
- The refuge is to provide:
    - Clean water for all occupants
    - Portable radio (with spare batteries)
    - Torch (with spare batteries)
    - First aid kit

- The client is to refer to local flood warnings provided by the Manly Hydraulics Laboratory and the Northern Beaches Council for warnings and updates prior to and during flood events.
- A list of emergency contacts is to be provided that includes but not limited to; emergency services (000), the State Emergency Service (132 500), local Council, the local Police, ambulance and fire and rescues numbers and the Bureau of Meteorology.
- A copy of this Flood Risk Report and the *Flood Emergency Response Plan* is to be kept on the premises at all times. The owner/occupant is to be fully aware of these documents and requirements in potential flooding event.

We have provided the above report in accordance with the flood information provided by council and have assessed the site and proposed development in accordance with the flood related DCP requirements. If further clarification is required, please contact *'Approved Consulting Engineers Pty Ltd.'*

Cameron Haack
Director BE (Civil) MIE Aust NER RPEQ (24684)
Approved Consulting Engineers P/L

APPENDIX A
Council Flood Information Request

COMPREHENSIVE
FLOOD INFORMATION REPORT

Property: 14 Addiscombe Road MANLY VALE NSW 2093
Lot DP: Lot 20 DP 12186
Issue Date: 12/05/2025
Flood Study Reference: Manly Lagoon Flood Study 2013, BMT WBM

Flood Information[1]:

Map A - Flood Risk Precincts
Maximum Flood Planning Level (FPL) [2, 3, 4]: 3.67 m AHD

Map B - 1% AEP Flood & Key Points
1% AEP Maximum Water Level [2, 3]: 3.17 m AHD
1% AEP Maximum Depth from natural ground level[3]: 0.14 m
1% AEP Maximum Velocity: 0.21 m/s

Map C - 1% AEP Hydraulic Categorisation
1% AEP Hydraulic Categorisation: Flood Fringe

Map D - Probable Maximum Flood
PMF Maximum Water Level (PMF) [4]: 5.66 m AHD
PMF Maximum Depth from natural ground level: 2.63 m
PMF Maximum Velocity: 0.22 m/s

Map E - Flooding with Climate Change
1% AEP Maximum Water Level with Climate change [3]: 3.43 m AHD
1% AEP Maximum Depth with Climate Change[3]: 0.40 m

Map F - Flood Life Hazard Category in PMF
H5 – H1

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

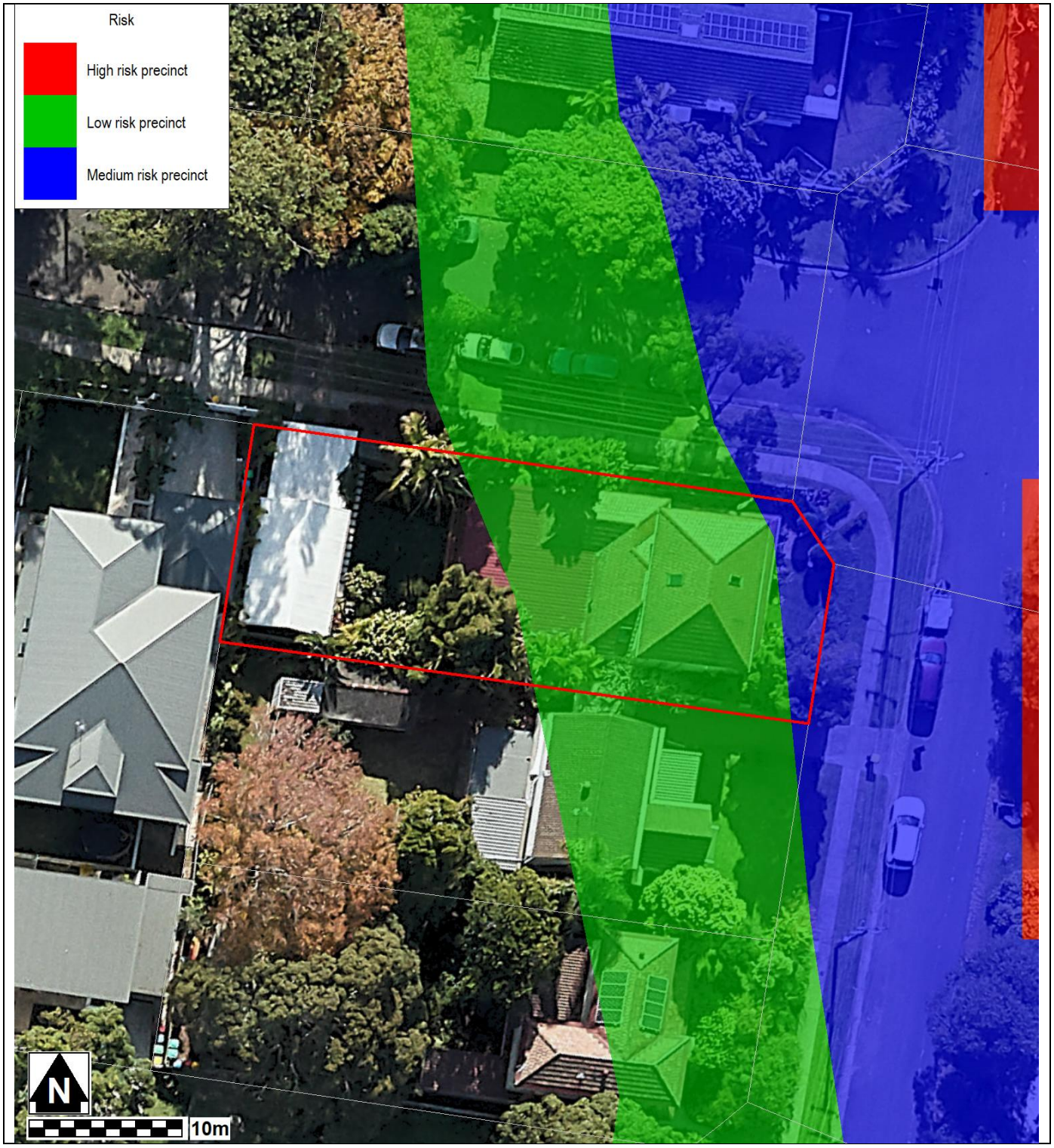
General

- 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.

Property

- Please note that if a development on the property is proposed completely outside of the Flood Planning Area (Medium Flood Risk Precinct), a formal Flood Management Report would not need to be submitted to council with a Development Application for Residential Development.

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: Manly Lagoon Flood Study 2013, BMT WBM) 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: Manly Lagoon Flood Study 2013, BMT WBM) 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	N/A	N/A	3.17	0.04	0.05	3.67	5.66	2.17	0.13
2	N/A	N/A	N/A	N/A	N/A	N/A	5.66	1.81	0.14
3	N/A	N/A	N/A	N/A	N/A	3.67	5.66	2.18	0.12

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

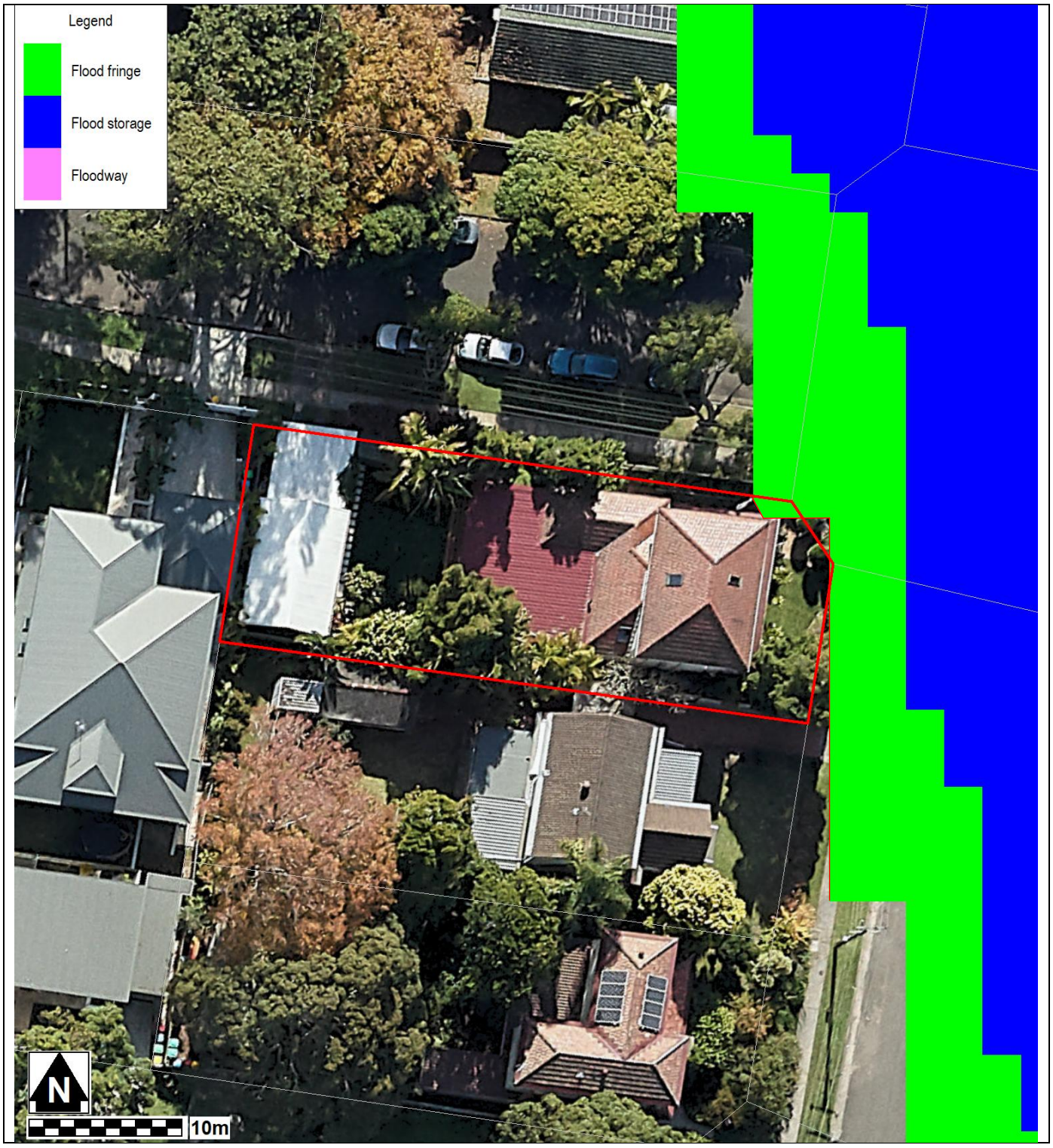
ID	CC 1% AEP Max WL (m AHD)	CC1 % AEP Max Depth (m)
1	3.43	0.10
2	N/A	N/A
3	N/A	N/A

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^2/s, a freeboard of 0.3m may be able to be justified for development.

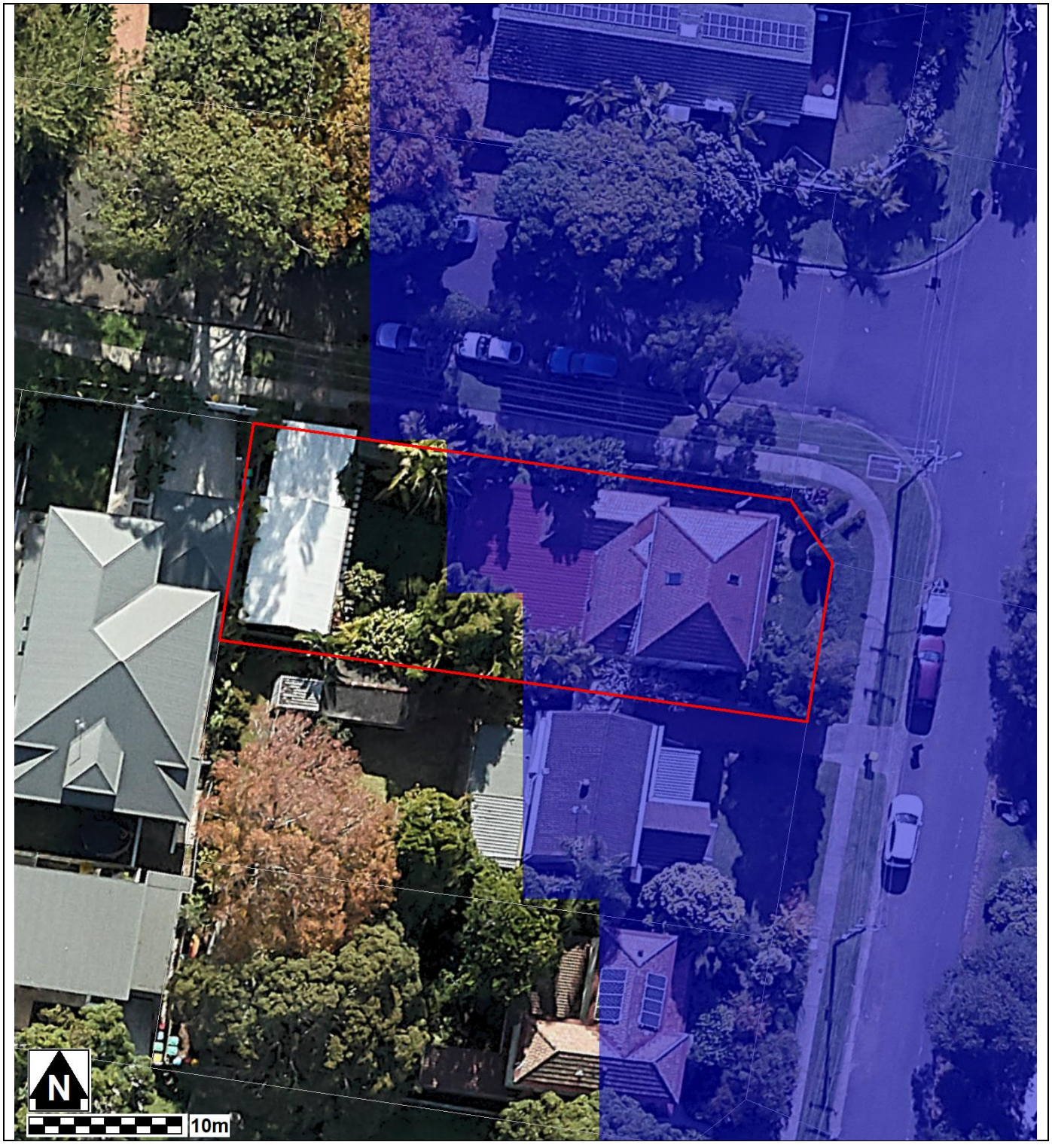
MAP C: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



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: Manly Lagoon Flood Study 2013, BMT WBM) and aerial photography (Source: NearMap 2014) are indicative only

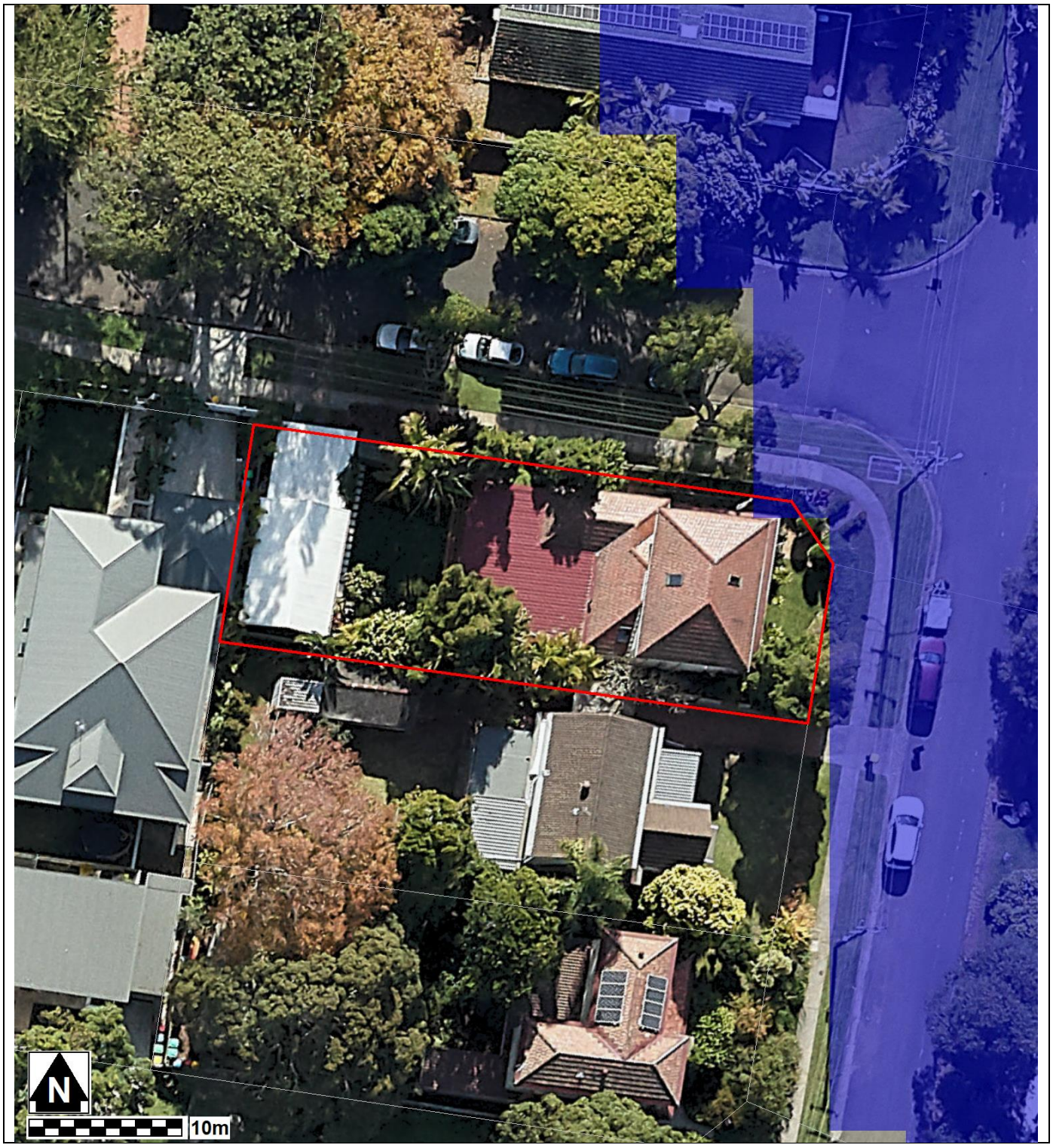
MAP D: PMF EXTENT MAP



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: Manly Lagoon Flood Study 2013, BMT WBM) and aerial photography (Source: NearMap 2014) are indicative only

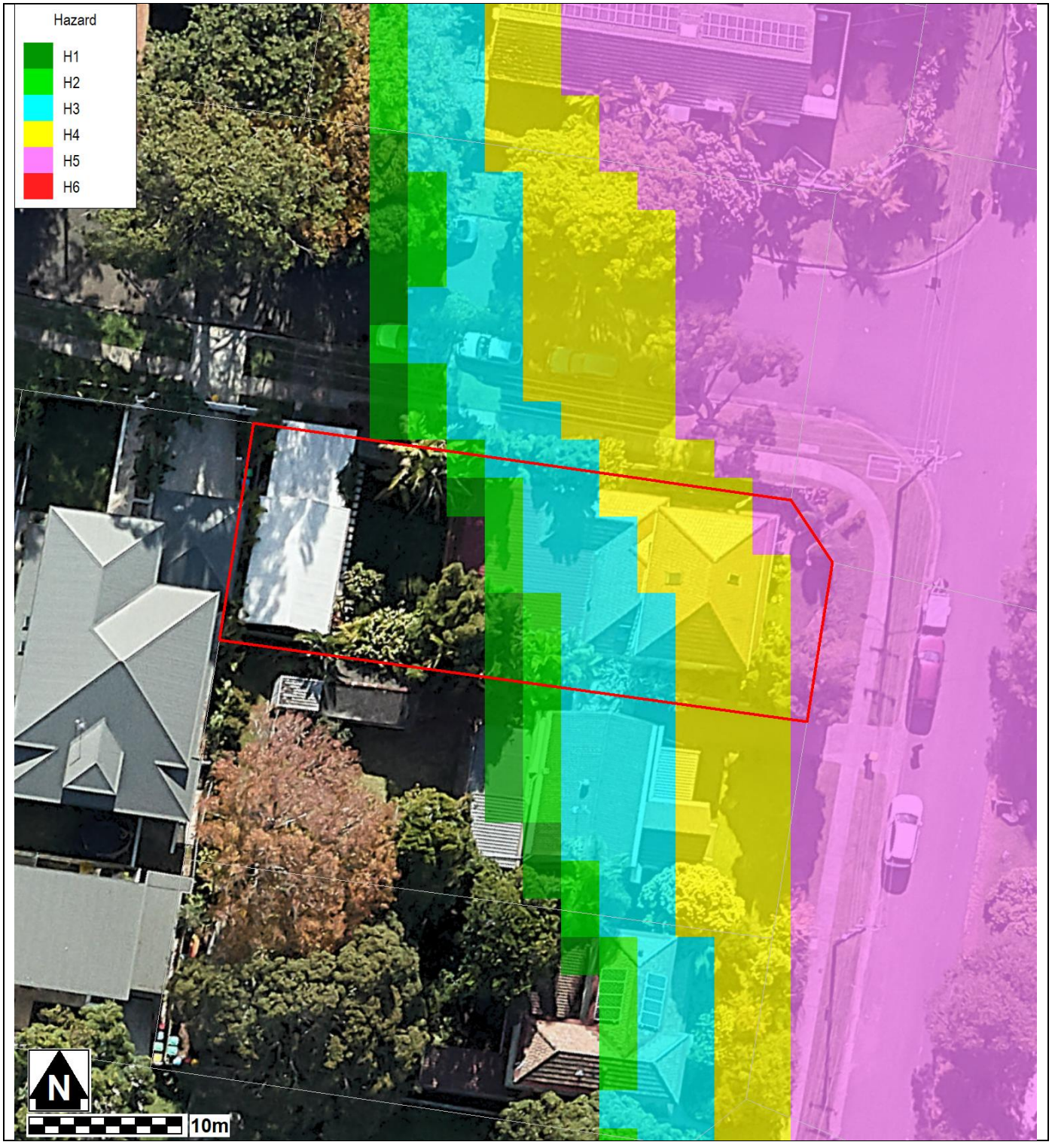
MAP E: FLOODING – 1% AEP EXTENT PLUS CLIMATE CHANGE



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: Manly Lagoon Flood Study 2013, BMT WBM) and aerial photography (Source: NearMap 2014) are indicative only

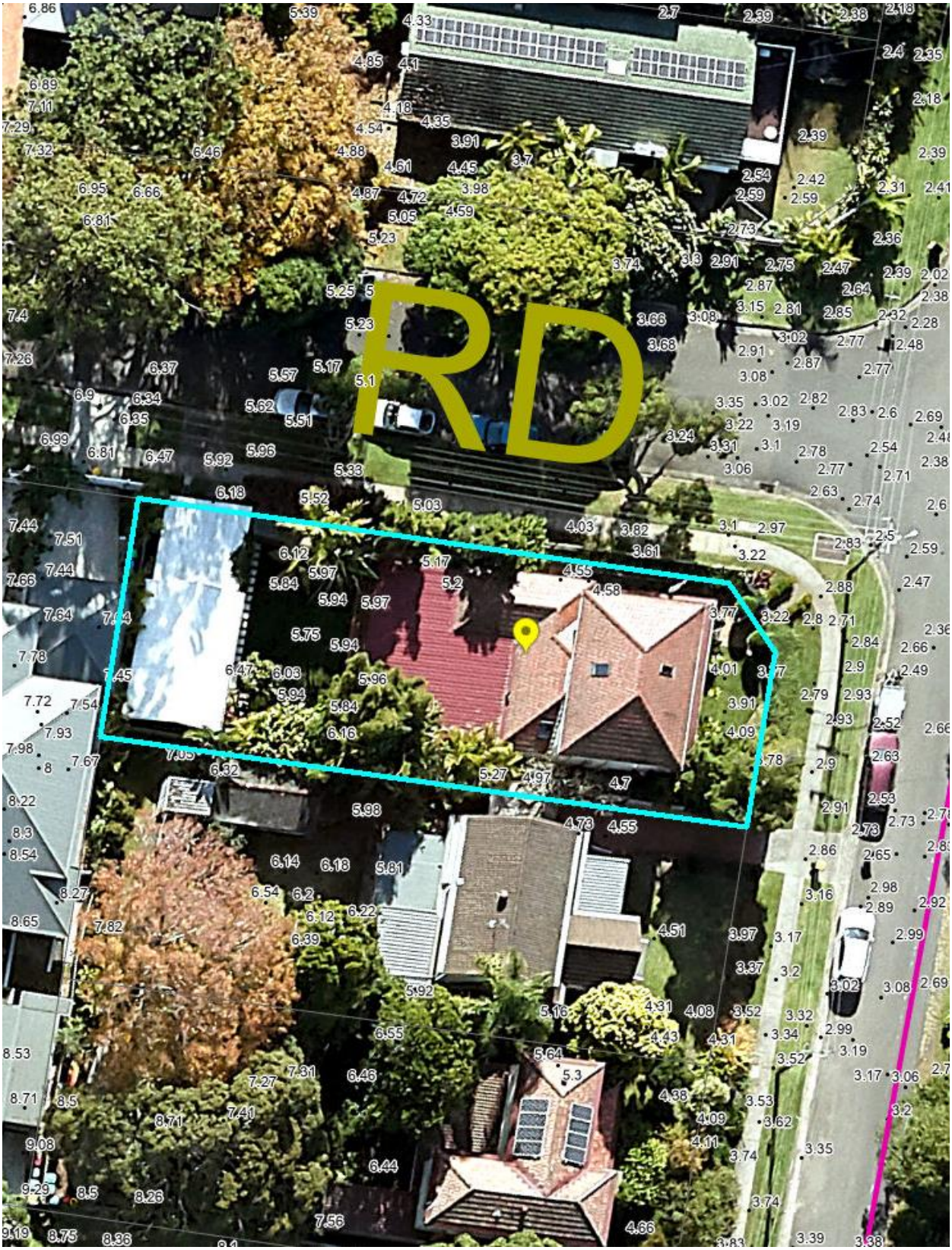
MAP F: FLOOD LIFE HAZARD CATEGORY IN PMF



Notes:

- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Manly Lagoon Flood Study 2013, BMT WBM) 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 ± 0.2m vertically and ± 0.15m 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		✓	

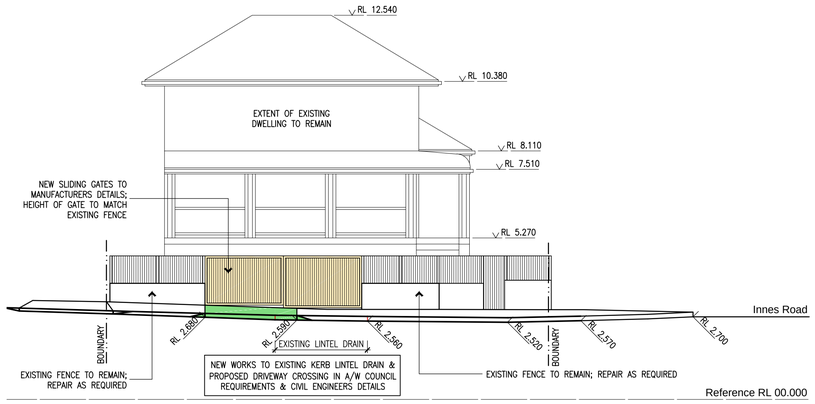
- Demonstration of how the development complies with any relevant flood planning requirements from the DCP, LEP, Water Management for Development Policy, and if it is in the Warriewood Valley Urban Land Release Area, with the Warriewood Valley Water Management Specification (2001)
- For any non-compliance, 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:

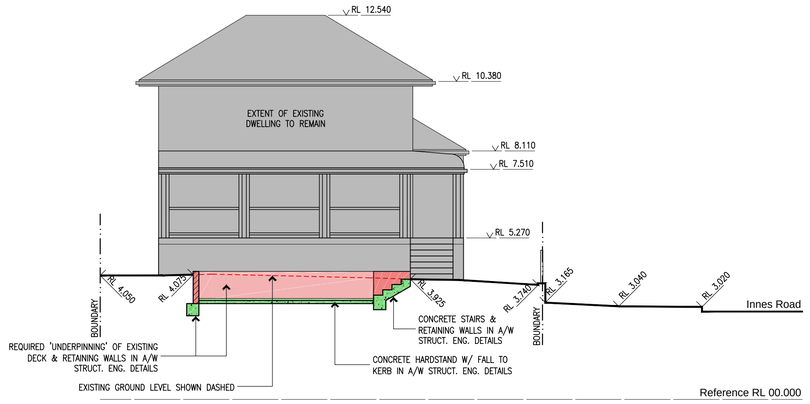
https://www.northernbeaches.nsw.gov.au/planning-and-development/building-and-renovations/development-applications/guidelines-development-flood-prone-land

Council's Flood Team may be contacted on 1300 434 434 or at floodplain@northernbeaches.nsw.gov.au .

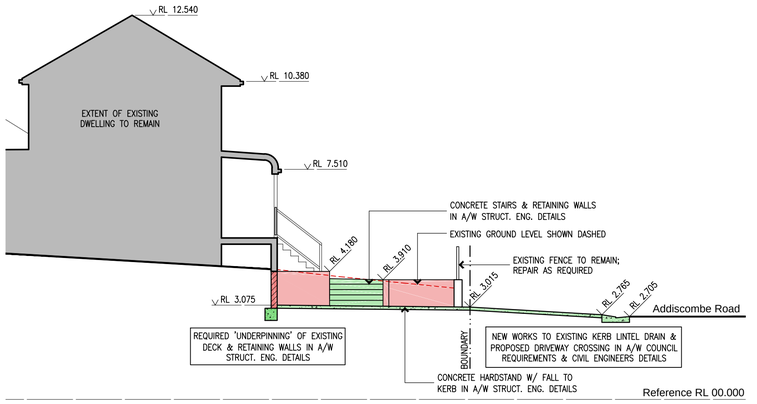
APPENDIX B
Architectural Plans by BHD



Proposed Street Elevation
1:100@A1



A
Proposed Section
1:100@A1



B
Proposed Section
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General Notes

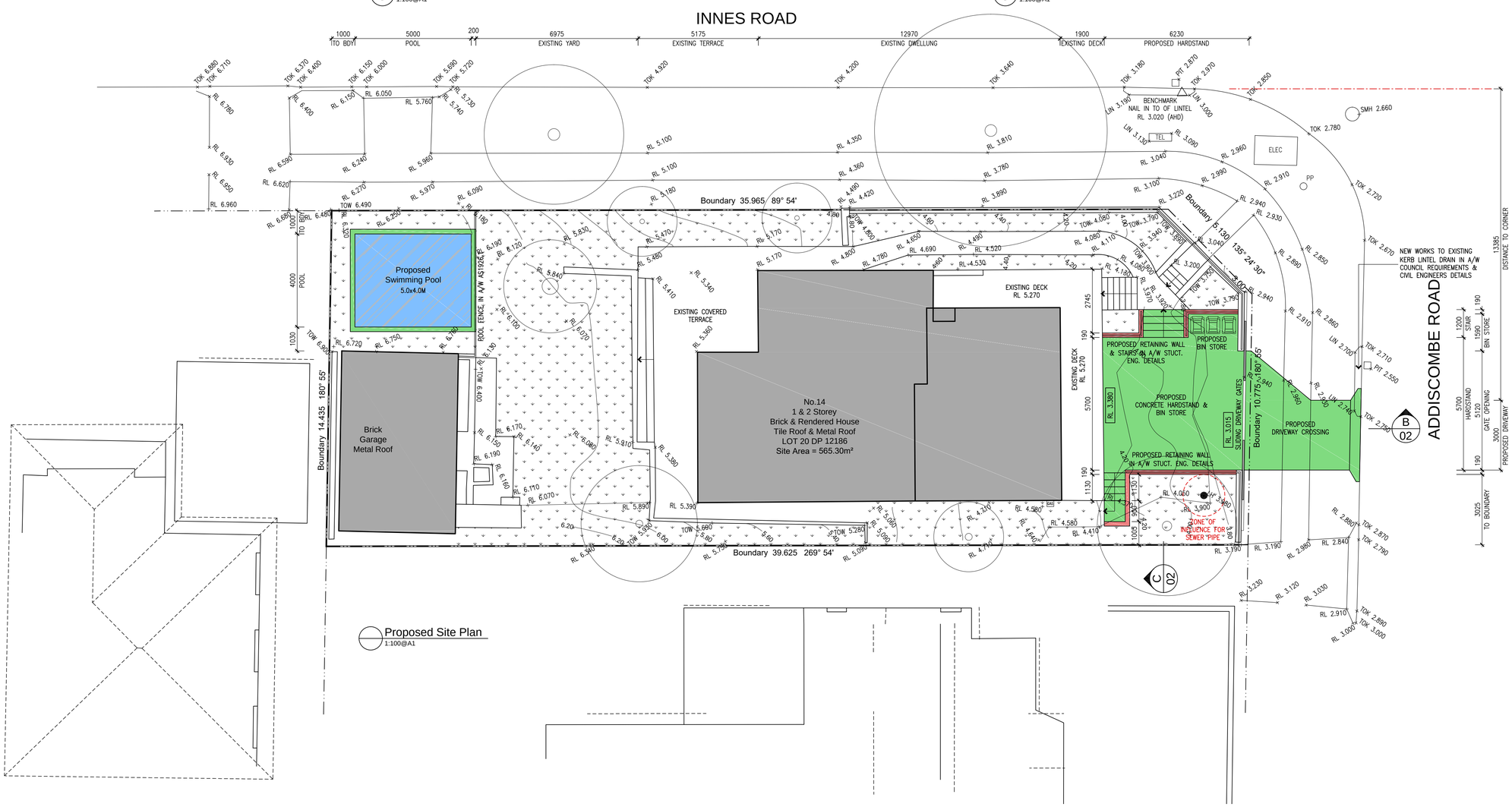
READ ARCHITECTURAL DRAWINGS IN CONJUNCTION W/ OTHER CONSULTANTS DRAWINGS, DOCUMENTATION & COORDINATE W/ OTHER INSTRUCTIONS THAT ARE ISSUED DURING THE COURSE OF THE WORKS.
VERIFY SET--OUT DIMENSIONS & LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS.
DETAIL DRAWINGS TO LARGER SCALES TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS.
EXECUTE THE WORKS IN COMPLIANCE W/ THE CURRENT EDITION OF THE BCA (AS AMENDED), CURRENT EDITIONS OF RELEVANT AUSTRALIAN STANDARDS (AS AMENDED) & THE CURRENT REQUIREMENTS OF OTHER AUTHORITIES RELEVANT TO THE EXECUTION OF THE WORK.

Levels

(XXX)???? (RL) RELATIVE LEVEL ????
(SSL) STRUCTURAL SLAB LEVEL ????
(FFL) FINISHED FLOOR LEVEL ????
(GND) FINISHED GROUND LEVEL ????

00.000 EXISTING SITE LEVELS TRANSPOSED FROM SITE SURVEY FOR REFERENCE.

00.000EXT EXISTING SITE LEVELS EXTRAPOLATED BY BH DESIGN FROM SITE SURVEY INFORMATION. EXTRAPOLATED LEVEL MAY BE LIMITED IN THEIR ACCURACY.



Proposed Site Plan
1:100@A1

0 1 2 3 4 5 10m

PRELIMINARY

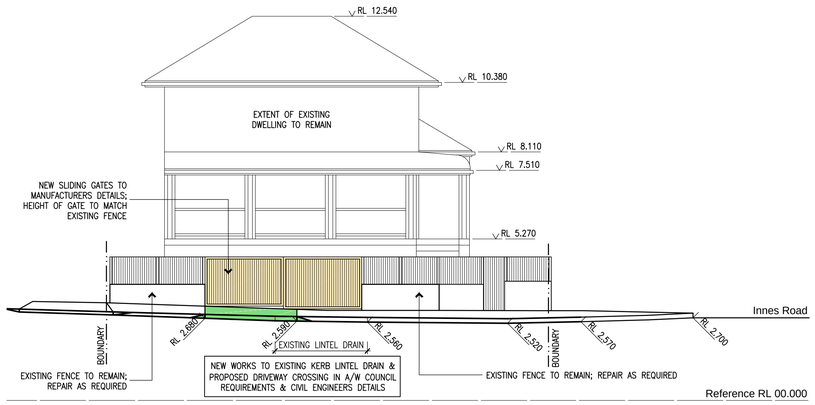
Amendments

Issue	Description	By	Date

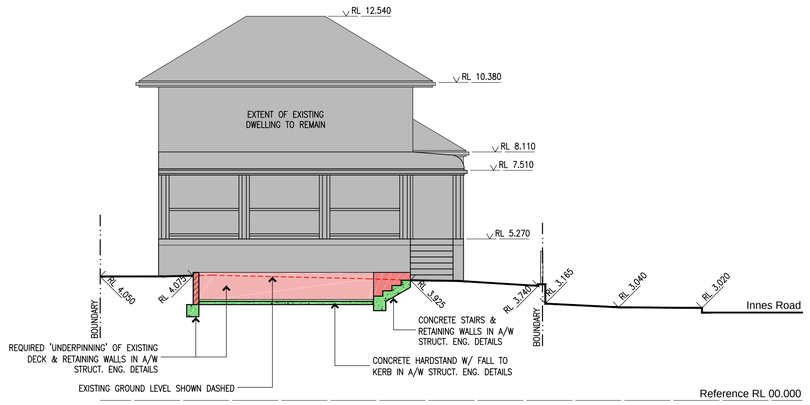
BH Designs
building design & drafting services
ABN: 80 356 936 642
Mob: 0418 218 341
Email: brendan@bhdesigns.com.au

Project: Alterations & Additions to an Existing Dwelling
Address: No.14 Addiscombe Road, MANLY VALE
Client: James St Clair
Drawing: Proposed Works
Scale: 1:100@A1;1:200@A3
Date: April 2025
Drawn by: bh
Checked by:
Drawing #: 2416/DA-02
Issue: A

APPENDIX C
Flood Overlay



Proposed Street Elevation
1:100@A1



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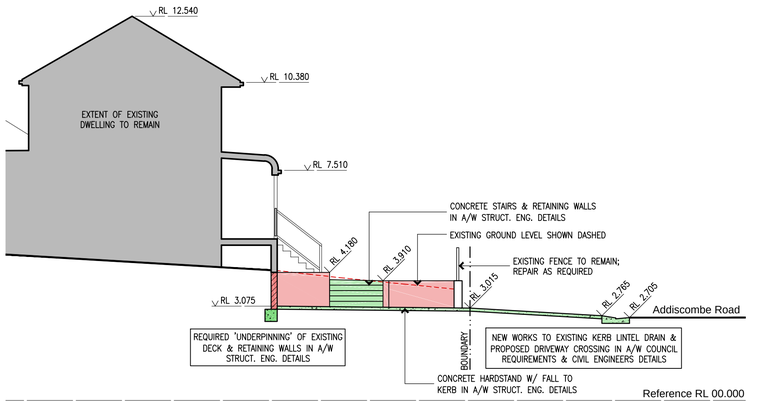

B
Proposed Section
1:100@A1

General Notes

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VERIFY SET--OUT DIMENSIONS & LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS.
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Levels

(XXX)???? (RL) RELATIVE LEVEL ????
(SSL) STRUCTURAL SLAB LEVEL ????
(FFL) FINISHED FLOOR LEVEL ????
(GND) FINISHED GROUND LEVEL ????

00.000 EXISTING SITE LEVELS TRANSPOSED FROM SITE SURVEY FOR REFERENCE.

00.000EXT EXISTING SITE LEVELS EXTRAPOLATED BY BH DESIGN FROM SITE SURVEY INFORMATION. EXTRAPOLATED LEVEL MAY BE LIMITED IN THEIR ACCURACY.

Proposed Site Plan
1:100@A1

0 1 2 3 4 5 10m

PRELIMINARY

Amendments

Issue	Description	By	Date

BH Designs
building design & drafting services
ABN: 80 356 936 642
Mob: 0418 218 341
Email: brendan@bhdesigns.com.au

Project: Alterations & Additions to an Existing Dwelling
Address: No.14 Addiscombe Road, MANLY VALE
Client: James St Clair
Drawing: Proposed Works
Scale: 1:100@A1;1:200@A3
Date: April 2025
Drawn by: bh
Checked by:
Drawing #: 2416/DA-02
Issue: A