



FLOOD RISK ASSESSMENT REPORT

FOR

102 OLD PITTWATER ROAD, BROOKVALE

REPORT NO. R02388-FRA

REVISION C

MAY 2023

PROJECT DETAILS

Property Address: 102 Old Pittwater Rd, Brookvale

Development Proposal: Fitness Centre

REPORT CERTIFICATION

Report prepared by:



EDWARD SHIN
Civil Engineer - Director
B.E.(Civil), MIEAust, CPEng,
RPEQ, NPER (Civil)

Report reviewed by:



ANTHONY MANCONE
Civil Engineer - Director
B.E.(Civil), MIEAust, CPEng,
NPER (Civil)

DISCLAIMER

C & M Consulting Engineers Pty Ltd should be consulted to ascertain the suitability of the information contained herein if any third party wishes to utilise this report. C & M Consulting Engineers Pty Ltd accepts no responsibility for the application of the contents of this report by other than the instructing party who has not verified the use of this report for their purposes.

DOCUMENT CONTROL

REVISION	ISSUE DATE	ISSUED TO	ISSUED FOR
A	June 2022	Northern Beaches Council	DA Submission
B	March 2023	Northern Beaches Council	DA Submission
C	May 2023	Northern Beaches Council	DA Submission

TABLE OF CONTENTS

	<u>Page</u>
1. INTRODUCTION	1
1.1 General	1
1.2 Relevant Guidelines and Requirements	2
1.3 Referenced Plans.....	2
2. FLOOD INVESTIGATION	3
2.1 Flood Levels	3
2.2 Risk Assessment.....	3
3. CONCLUSION	5
4. REFERENCES	6

APPENDIX A: PROPOSED DEVELOPMENT

APPENDIX B: FLOOD CERTIFICATE

1. INTRODUCTION

1.1 General

This Flood Risk Assessment Report has been prepared to support the Development Application to Northern Beaches Council for the re-use of an existing building for a fitness studio and a cafe at 102 Old Pittwater Rd, Brookvale.

The proposed development drawings are included in Appendix A.

The scope of this report is to assess the flood risk for the major storm events within or adjacent to the development.



The site is located on the western side of Old Pittwater Road, Brookvale. The subject building is a disused building located in front of the main warehouse building on site.

The site is located within the Brookvale Creek which is a Manly Lagoon catchment. The site is affected by flooding from the 1 in 100 year ARI event as the existing floor level (RL 14.21m AHD) is below the adopted 1 in 100 year ARI flood level for the area of 14.84m AHD.

It is proposed to re-construct an awning over the existing hardstand.

1.2 Relevant Guidelines and Requirements

The re-development of sites should comply with the requirements set in the Pittwater Local Environmental Plan 2014 (LEP), and Pittwater 21 Development Control Plan (DCP).

1.3 Referenced Plans

The survey plan provided by Total Surveying Solutions (Registered Surveyor) is a reasonable representation of the site levels and layout.

Architectural Drawings for the Development Application submission prepared by Nordon Jago Architects were used for this report. A reduced copy of the architectural drawings is in Appendix A.

For flood levels, Flood Certification from Northern Beaches Council, issues 30/10/2020 has been used. Copy of the certificate is included in Appendix B.

2. FLOOD INVESTIGATION

2.1 Flood Levels

From the Flood Certificate issued by Northern Beaches Council the site is affected by the 1 in 100 year ARI flood event.

Flood Event	Flood Level (m AHD)	Flow Velocity
1 in 20 year ARI (5% AEP)	14.70	-
1 in 100 year ARI (1% AEP)	14.84	1.22
Probable Maximum Flood	15.44	2.90

The flood levels indicate that the site is affected by the 1 in 20 year ARI event.

2.2 Risk Assessment

As mentioned above, the site is affected by the 1 in 100 year ARI event and is part of the floodway and is in High Risk area.

Below is a customised Flood Risk Planning Matrix. The proposed development is re-use of the existing building the planning and development controls adopted were generally addressing the safety of the users and structures.

Planning Consideration	Planning Controls	Planning Assessment
Floor Level	A building shall not be erected on any land below the 1 in 100 year flood level.	The building is an existing building therefore this clause does not apply.
Building Components	All structures to have flood compatible building components below the 100 year flood level plus freeboard	The new building components will be flood compatible.
Building Services	All services including electrical equipments, wiring, fuel lines on any other service pipes or connections to be flood compatible.	All electrical wiring and outlets below the 100 year ARI flood levels will be both water proofed and automatic circuit disconnection installed which will trigger in the events of flooding.
Structural Soundness	Demonstrate that the structure can withstand the forces of floodwater, debris and buoyancy up to and including the 100 year flood plus freeboard	The new building components (awning) will be designed to withstand the forces of floodwater.
Flood Affection	The impact of the development on flooding elsewhere to be considered, having regard to : i) loss of flood storage; ii) changes in flood levels, flows and velocities cause by alteration to flood flows; and iii) the cumulative impact of multiple potential development in the vicinity	The development does not include any new building that may cause flood impact. There is a deck proposed on the eastern side of the building. The deck will be suspended to minimise the flood impedance. The loss of flood storage due to the volume of the deck is negligible to the total flood storage. However, the ground under the deck will be

		trimmed between 200-600mm to compensate loss of flood storage. The proposal is shown on architectural plan, DA.1200B. Extract is shown below.
	<p>2 Proposed Southern Elevation 1 : 100</p>	
Flood Flow	<p>All new development must not impede the flood conveyance in all events up to the 1% AEP event.</p> <p>For suspended pier/pile footings:</p> <p>(a) The underfloor area of the dwelling below the 1% AEP flood level is to be designed and constructed to allow clear passage of floodwaters, taking into account the potential for small openings to block; and</p> <p>(b) At least 50% of the perimeter of the underfloor area is of an open design from the natural ground level up to the 1% AEP flood level; and</p> <p>(c) No solid areas of the perimeter of the underfloor area would be permitted in a floodway.</p>	<p>The proposed new deck on the eastern side is suspended deck with underside open for uninterrupted flow of water.</p> <p>(a) As shown on the architectural plan, DA.1200B, the underfloor of the deck is open from 3 sides allowing free passage of floodwaters.</p> <p>(b) Three (3) side of the deck is open therefore, 75% of the perimeter is open from natural ground level.</p> <p>(c) There is no solid areas of the perimeter which would impede the floodwaters.</p>
Evacuation	Demonstrate the development is consistent with any relevant flood evacuation strategy or similar plan	Evacuation plan to be prepared that is consistent with existing flood evacuation strategies for the surrounding area
	Reliable access for pedestrians required during flooding	The site is closely located to non-flood areas of the site.
	Site Emergency Response Flood plan required where the site is affected by the 100 year ARI flood level.	Site Emergency Response Flood plan to be prepared
Management & Design	Demonstrate that area is available to store goods above the 100 year flood level plus freeboard	All goods to be stored on site will be secured safely.
	No hazard materials to be stored below the 100 year ARI flood level	All hazard materials including to be stored on site will be stored in locked areas above the 100 year flood level.

3. CONCLUSION

The proposed development is subject to the 1 in 100 year ARI flood level and as a result a number of the planning and development controls are best applied to the site.

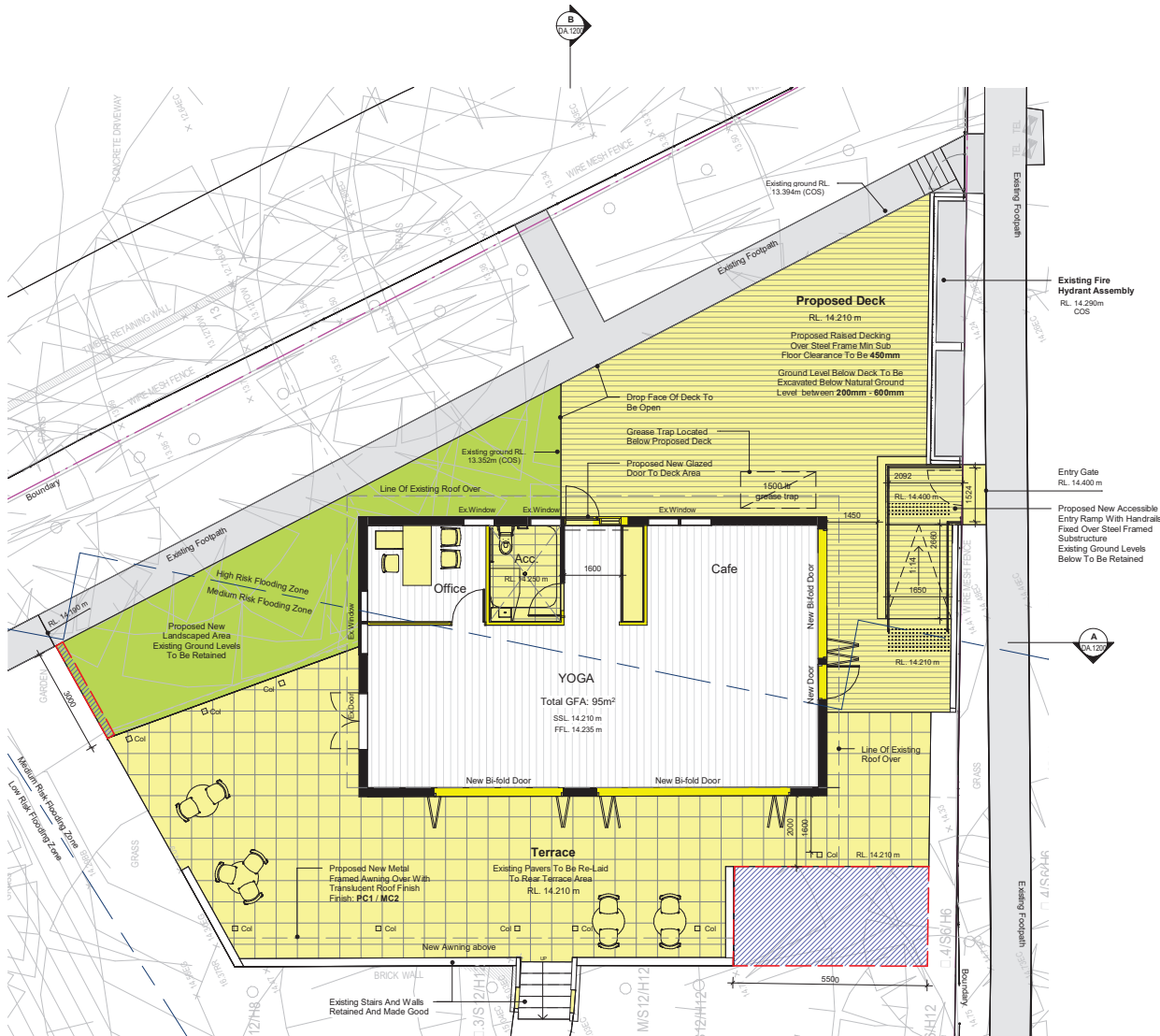
The proposed development is re-use of the existing building and replacing the awnings. The development will not alter the existing ground conditions and does not include any additional building structures that may affect the flood regime.

The proposed development, however, needs to be planned to ensure the building and its services are flood compatible and provide clear evacuation plan.

It is our opinion that the proposal should be approved as its benefit to the community is far outweigh than what appears to be negligible flood affectation.

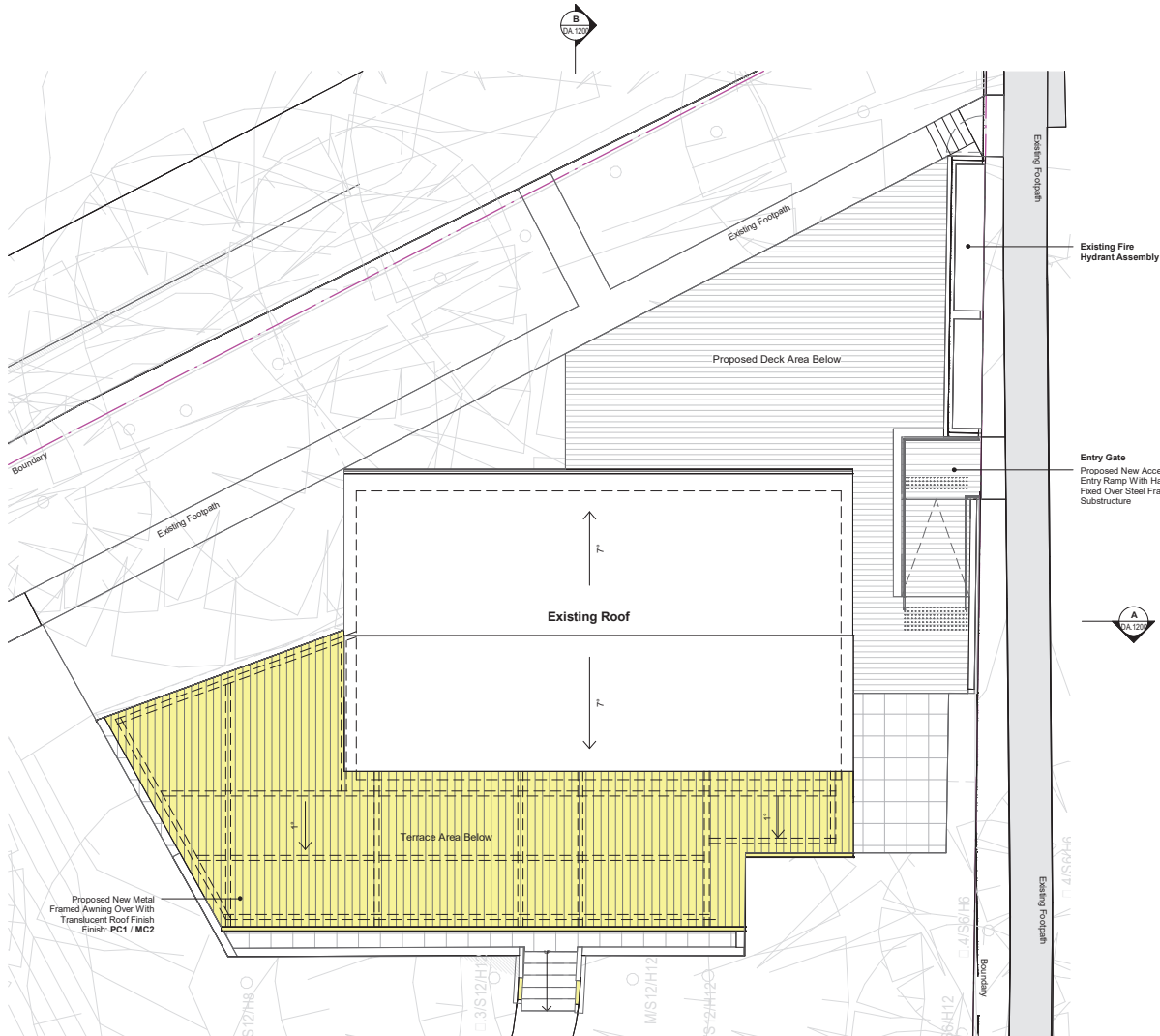
4. REFERENCES

- Northern Beaches Council –*Development Control Plan*,
- Northern Beaches Council – *Local Environmental Plan*, 2014
- Institute of Engineers, Australia - *Australian Rainfall and Runoff*, 1987, 3rd edition
- NSW Government – *Floodplain Development Manual*, April 2005



1 Proposed Ground Plan
1 : 100

Recommended development exclusion zone
No excavation, fill, continuous footings, retaining walls, paving or trenching for services including stormwater in this area. Refer to Arborist Tree location plan. 05-10-22



2 Proposed Roof Plan
1 : 100

Demolition Notes

- Denotes No works
- Denotes Proposed Structure
- Denotes existing structure to remain
- Denotes existing structure to be demolished

General Notes:

All Drawings To Be Read In Conjunction With Structural, Mechanical, Hydraulic and Electrical Engineers' Detail Drawings And Specifications.

All Levels Indicated Taken To Australian Height Datum (AHD)

Refer To WD.001 For Abbreviations Schedule

All Dimensions to Be Verified On Site (VOS) Prior To Construction / Manufacture. Refer All Discrepancies To Nordon Jago Architects Pty. Ltd. - Drawings Are Not To Be Scaled From.

Refer To Detail Drawings For Typical Details.

Generally All Materials & Construction to Comply To AS 3700
Framing's & DPM's Installation to Comply to AS2870, AS 2904
Wall Tie Installation to Comply to AS 2699.1 & BCA Requirements
Sarking Installation to Comply to AS 4200.2
Waterproofing To Wet Areas To Comply To BCA Requirements & AS3740

Survey Underlay Carried Out By
HILL AND BLUME CONSULTING SURVEYORS
Drawing Ref. 57111001A. Date 08/05/2015

TSS TOTAL SURVEYING SOLUTIONS
Drawing Ref. 192912_1. Date 17/01/2020

DEVELOPMENT APPLICATION

NOT For Construction

Rev	Description	Date
A	Updated DA Drawing Issue	09.05.23
B	Decking Face Amended	10.05.23

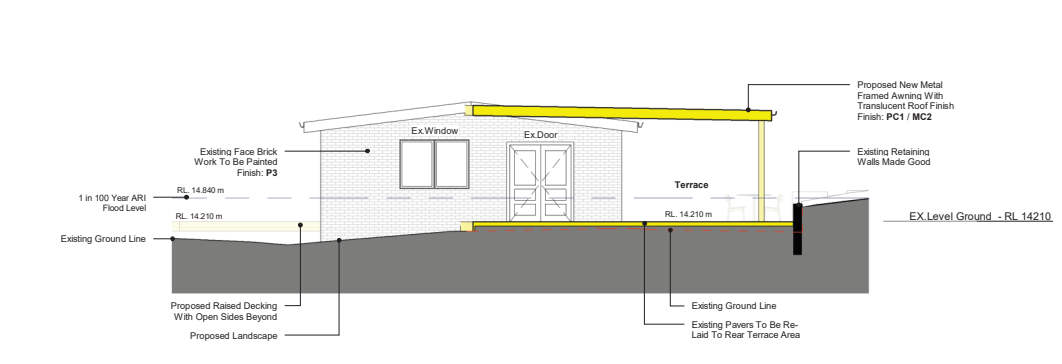
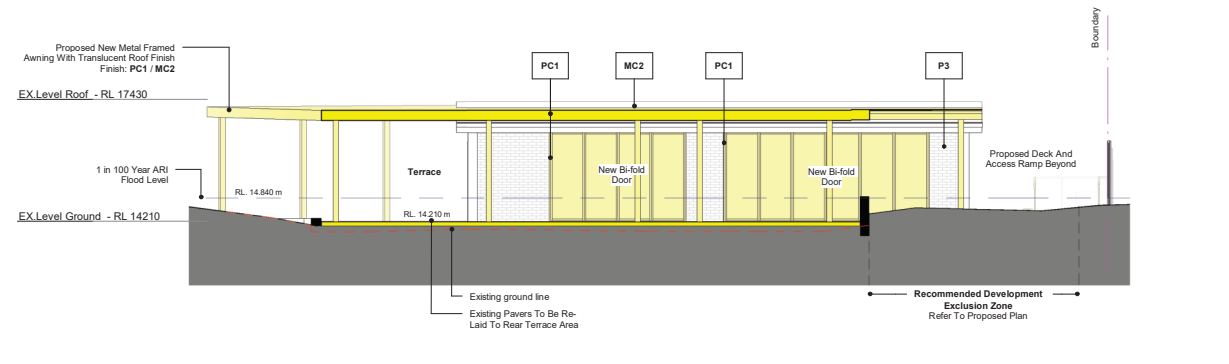
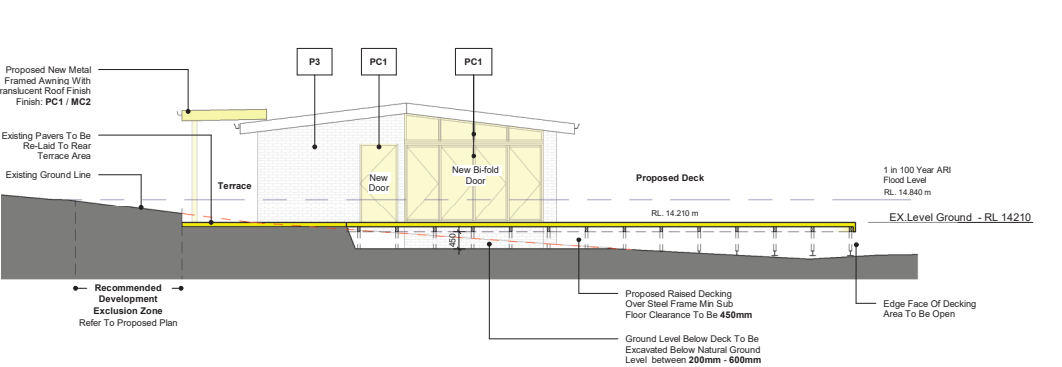
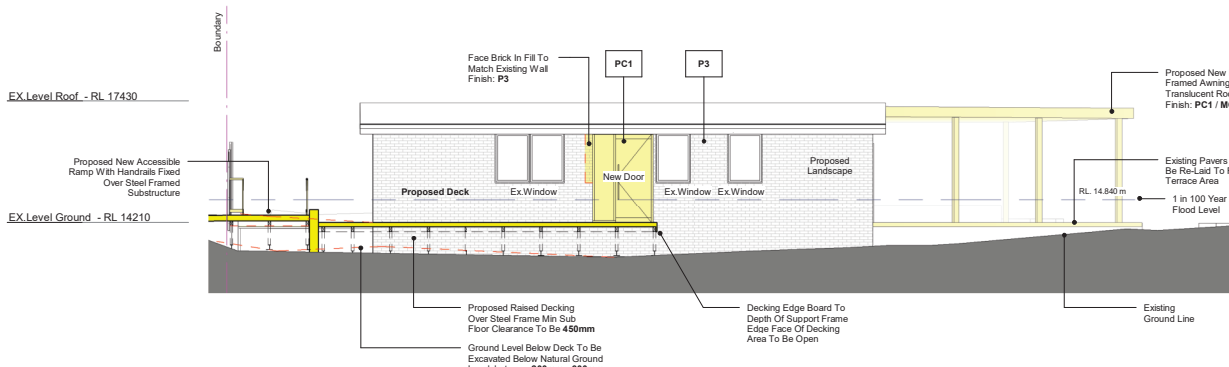
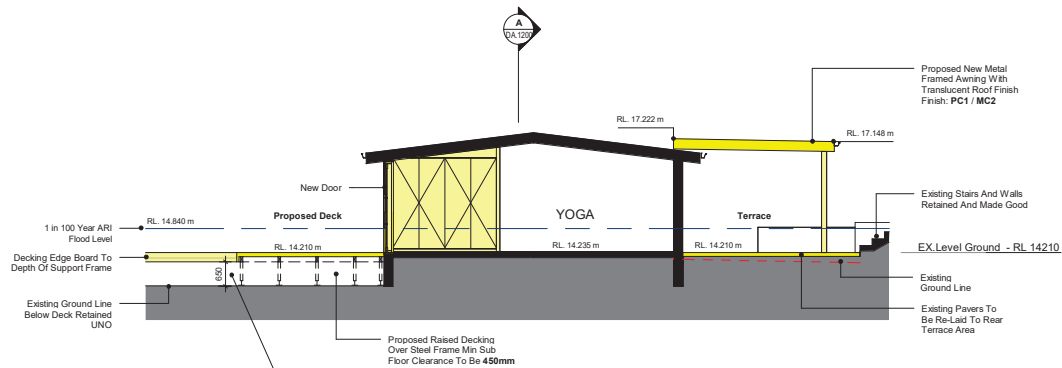
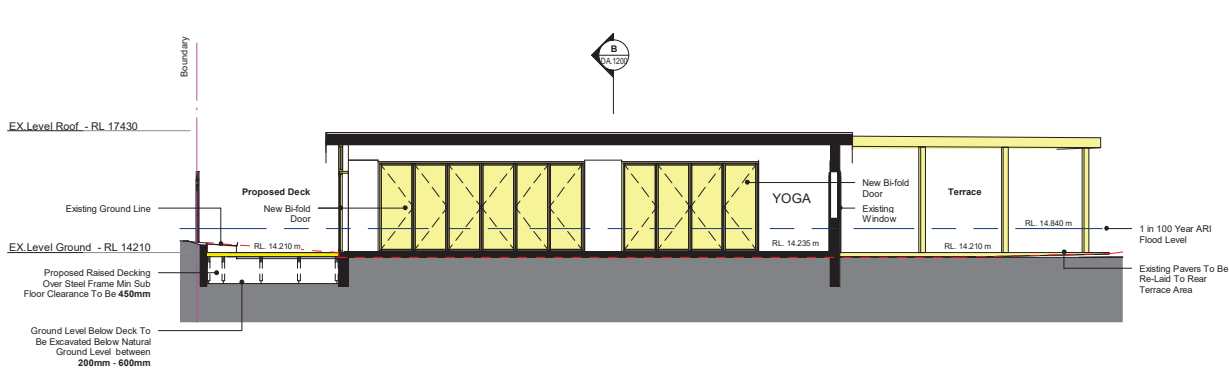


102 OLD PITTWATER ROAD, BROOKVALE, NSW, 2102 OLD PITTWATER ROAD, BROOKVALE, NSW, 2100

TITLE

Proposed Plans

JOB No.	ORL00519
DATE	July 2020
SCALE	A1 @ As indicated
DWG No.	DA.1100 B



Material Palette Yoga / Café

Powder coat

Glazing Frames/ Door
Frames / Downpipes



PC1

Dulux Colorbond®
Col.Basalt®

Paint

Columns / Awning
Frames / Steel Door
frames and leafs



P1

TAUBMANS Paint
Col. Basalt CB 88 OEA

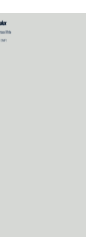
Spray on Existing
Face Steel / Doors



P2

Dulux Metalshield
Col. Satin Basalt

External Face Brick



P3

Dulux Col. Terrace White or equal
equivalent

Metal Cladding

Awning



MC2

Polycarbonate OEA

General Notes:

All Drawings To Be Read In Conjunction With Structural, Mechanical, Hydraulic and Electrical Engineers' Detail Drawings And Specifications.

All Levels Indicated Taken To Australian Height Datum (AHD)

Refer To WD.001 For Abbreviations Schedule

All Dimensions to Be Verified On Site (VOS) Prior To Construction / Manufacture. Refer All Discrepancies To Nordon Jago Architects Pty. Ltd. - Drawings Are Not To Be Scaled From.

Refer To Detail Drawings For Typical Details.

Generally All Materials & Construction to Comply To AS 3700
Framing's & DPM's Installation to Comply to AS2870, AS 2904
Wall Tie Installation to Comply to AS 2699.1 & BCA Requirements
Sarking Installation to Comply to AS 4200.2
Waterproofing To Wet Areas To Comply To BCA Requirements & AS3740

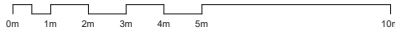
Survey Underlay Carried Out By
HILL AND BLUME CONSULTING SURVEYORS
Drawing Ref. 57111001A. Date 08/05/2015

TSS TOTAL SURVEYING SOLUTIONS
Drawing Ref. 192912_1. Date 17/01/2020

DEVELOPMENT APPLICATION

NOT For Construction

Rev	Description	Date
A	Updated DA Drawing Issue	09.05.23
B	Decking Face Amended	10.05.23



102 OLD PITTWATER ROAD, BROOKVALE, NSW, 2102 OLD PITTWATER ROAD, BROOKVALE, NSW, 2100

NORDON · JAGO
ARCHITECTS

LEVEL 4, 111-117 DEVONSHIRE STREET
SURRY HILLS, NSW 2010
T.02 9318 8400 F.02 9318 8480

STEPHEN J. NORDON
GRAHAM P. JAGO
SACHIN Y. WAKHARE

Registration No. NSW - 4704
Registration No. NSW - 4926
Registration No. NSW - 11464

TITLE

Proposed Sections and Elevations

JOB No.	ORL00519
DATE	July 2020
SCALE	A1 @ 1:100
DWG No.	DA.1200 B

FLOOD CERTIFICATE

FLOOD INFORMATION REQUEST – COMPREHENSIVE

Property: 102 Old Pittwater Road BROOKVALE NSW 2100

Lot DP: Lot 1 DP 502152

Issue Date: 30/10/2020

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

Flood Information for lot ¹:

Flood Risk Precinct – See Map A

Flood Planning Area – See Map A

Maximum Flood Planning Level (FPL) ^{2, 3, 4}: 15.79 m AHD

1% AEP Flood – See Flood Map B

1% AEP Maximum Water Level ^{2, 3}: 17.38 mAHD

1% AEP Maximum Peak Depth from natural ground level³: 1.79 m

1% AEP Maximum Velocity: 2.57 m/s

1% AEP Provisional Flood Hazard: High See Flood Map D

1% AEP Hydraulic Categorisation: Floodway See Flood Map E

Probable Maximum Flood (PMF) – See Flood Map C

PMF Maximum Water Level ⁴: 17.55 m AHD

PMF Maximum Depth from natural ground level: 2.91 m

PMF Maximum Velocity: 7.16 m/s

PMF Flood Hazard: High See Flood Map F

PMF Hydraulic Categorisation: Floodway See Flood Map G

Flooding with Climate Change (See Flood Map H)

The following is for the 30% Rainfall intensity increase and 0.9m Sea Level Rise Scenario:

1% AEP Maximum Water Level with Climate change ³: 17.39 m AHD

1% AEP Maximum Depth with Climate Change³: 1.65 m

1% AEP Maximum Velocity with Climate Change³: N/A m/s

Flood Life Hazard Category – See Map I

¹ The flood information does not take into account 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.

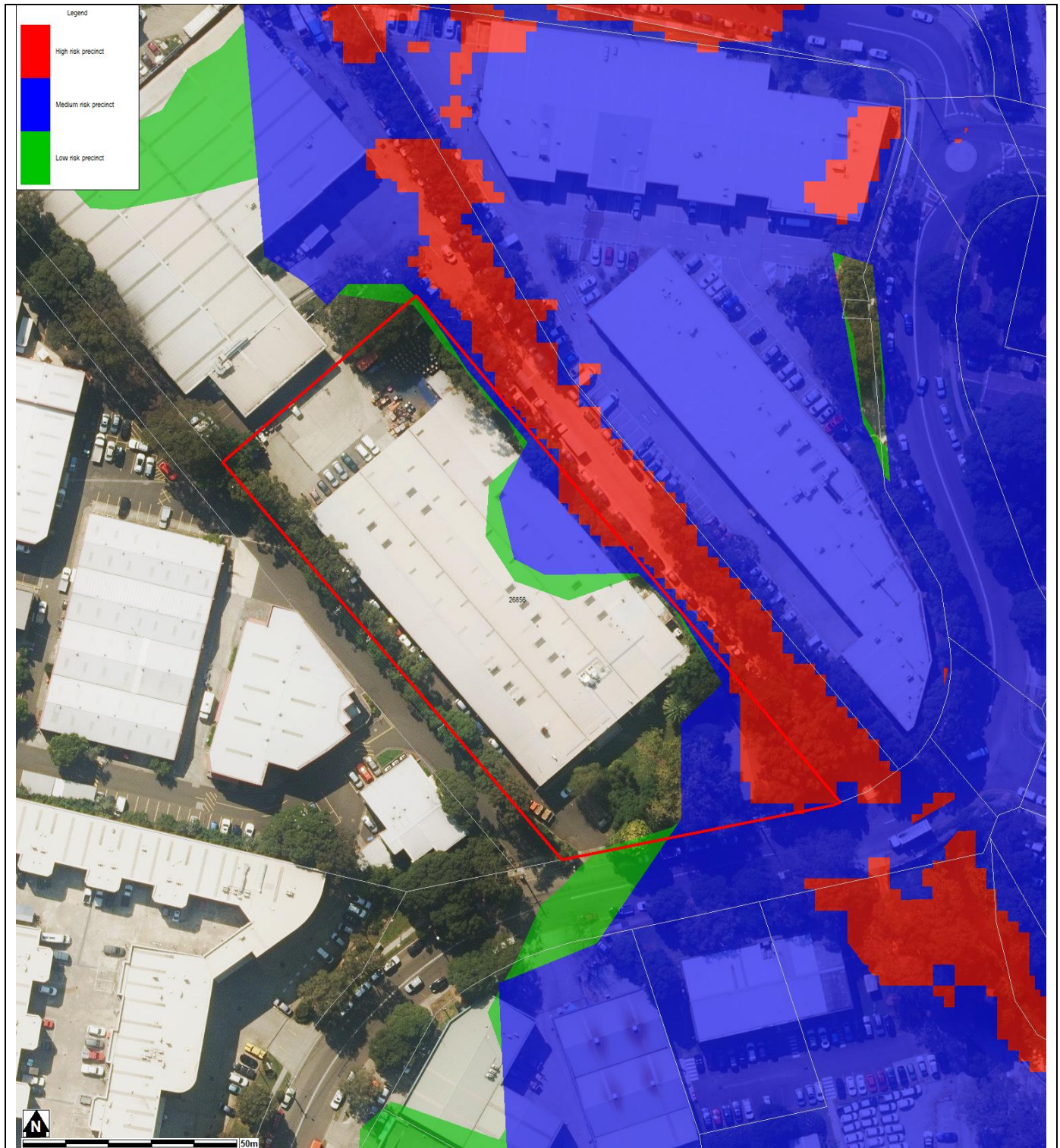
³ Intensification of development in the former Pittwater LGA requires the consideration of climate change impacts which may result in higher minimum floor levels.

⁴ Vulnerable/critical developments require higher minimum floor levels using the higher of the PMF or FPL.

General Notes:

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

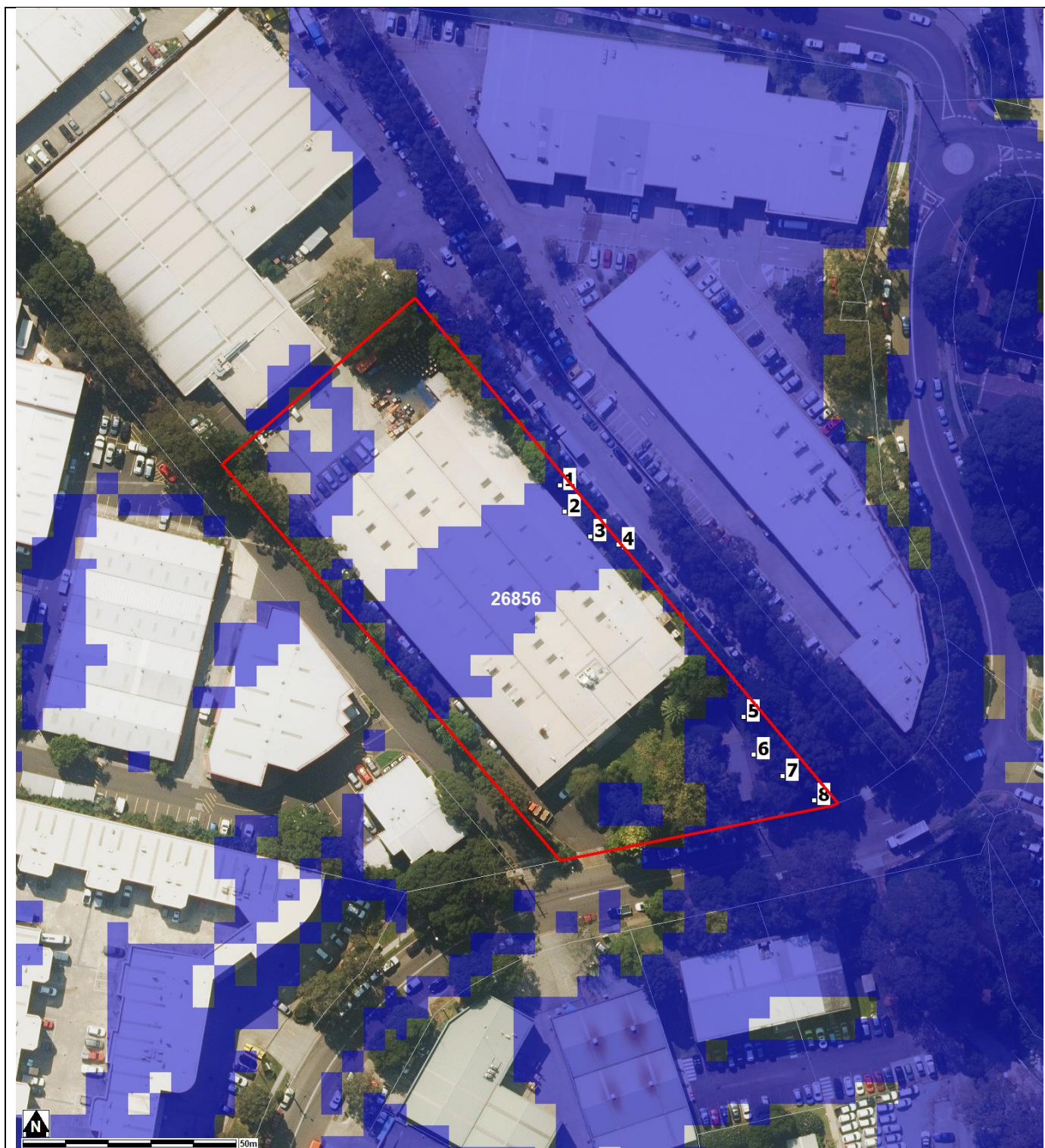
FLOOD MAP A: FLOOD RISK PRECINCT MAP



Notes:

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

FLOOD LEVEL POINTS



Note: 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.

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	14.75	1.01	14.95	1.21	1.29	15.41	16.06	2.32	2.13
2	14.77	0.65	14.97	0.84	0.98	15.45	16.08	1.95	1.24
3	14.77	0.88	14.94	1.05	1.32	15.43	16.06	2.17	1.89
4	14.74	0.92	14.91	1.08	1.60	15.37	15.96	2.14	2.46
5	14.70	1.03	14.83	1.16	0.93	15.32	15.40	1.73	2.43
6	14.70	1.06	14.84	1.19	0.84	15.33	15.44	1.79	2.29
7	14.70	1.29	14.84	1.43	1.22	15.34	15.56	2.15	2.90
8	14.64	0.58	14.76	0.69	1.75	15.25	15.31	1.25	4.05

WL – Water Level

PMF – Probable Maximum Flood

N/A = no peak water level/depth/velocity available in flood event

A variable Flood Planning Level might apply. Freeboard is generally 0.5m above the maximum 1% AEP water level. However for overland flow with a depth less than 0.3m and a VelocityxDepth product less than 0.3m²/s, a freeboard of 0.3m may be able to be justified.

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	14.81	1.07
2	14.83	0.71
3	14.81	0.92
4	14.78	0.96
5	14.73	1.07
6	14.73	1.09
7	14.74	1.32
8	14.67	0.61

WL – Water Level

PMF – Probable Maximum Flood

N/A = no peak water level/depth/velocity available in flood event.

If the CC 1% AEP level is less than the 1% AEP level, this is possibly because the 1% AEP level used for planning includes a 5% AEP ocean surge. In this case, the 1% AEP value should be used.

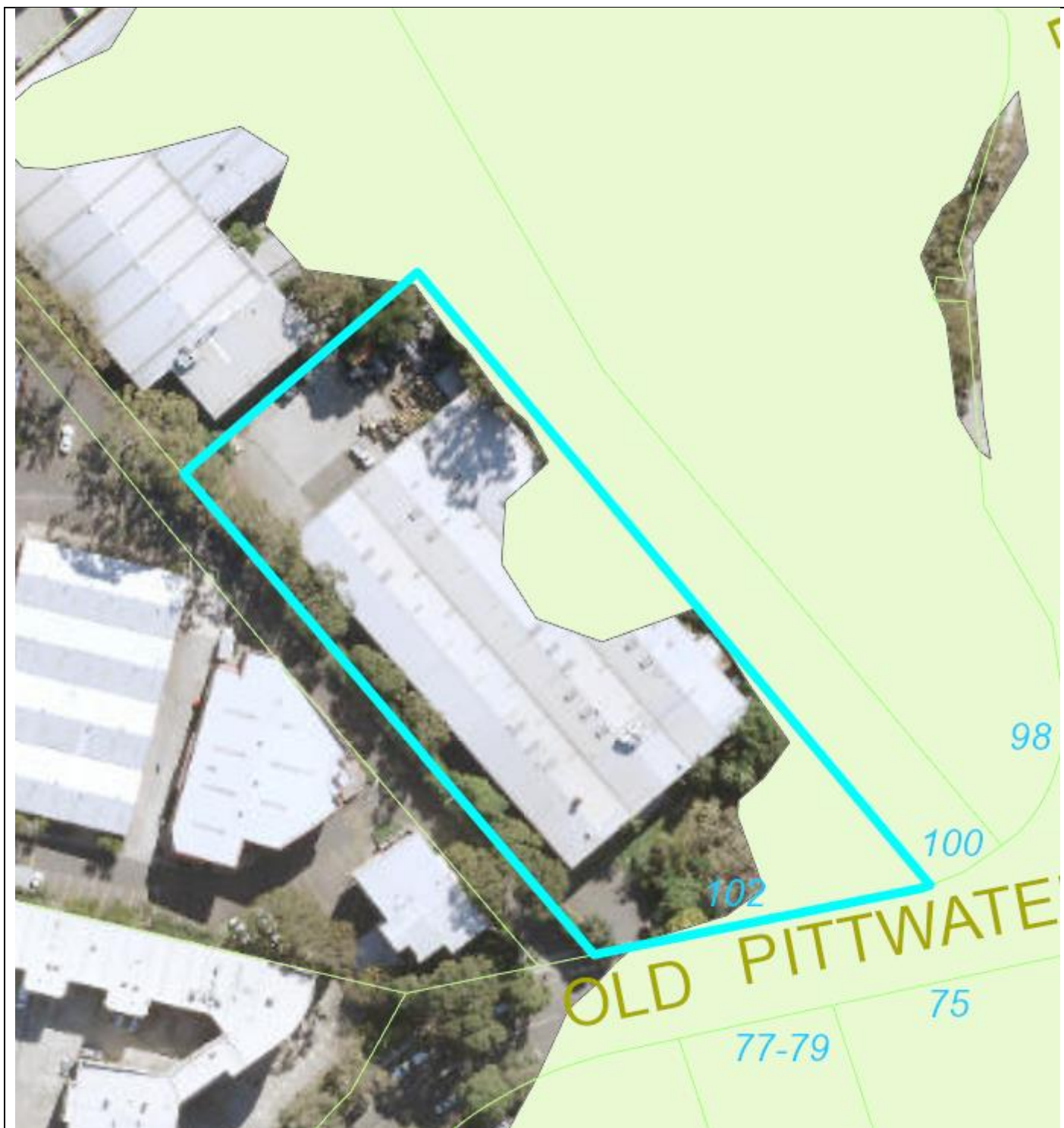
FLOOD MAP B: FLOODING - 1% AEP EXTENT



Notes:

- Extent represents the 1% annual Exceedance Probability (AEP) flood event.
- Flood events exceeding the 1% AEP can occur on this site.
- Extent does not include climate change.
- Cadastre Lines (Source: NSW Government Land and Property Information), flood levels/extents (Source: Manly Lagoon Flood Study 2013, BMT WBM) and aerial photography (Source Near Map 2014) are indicative only.

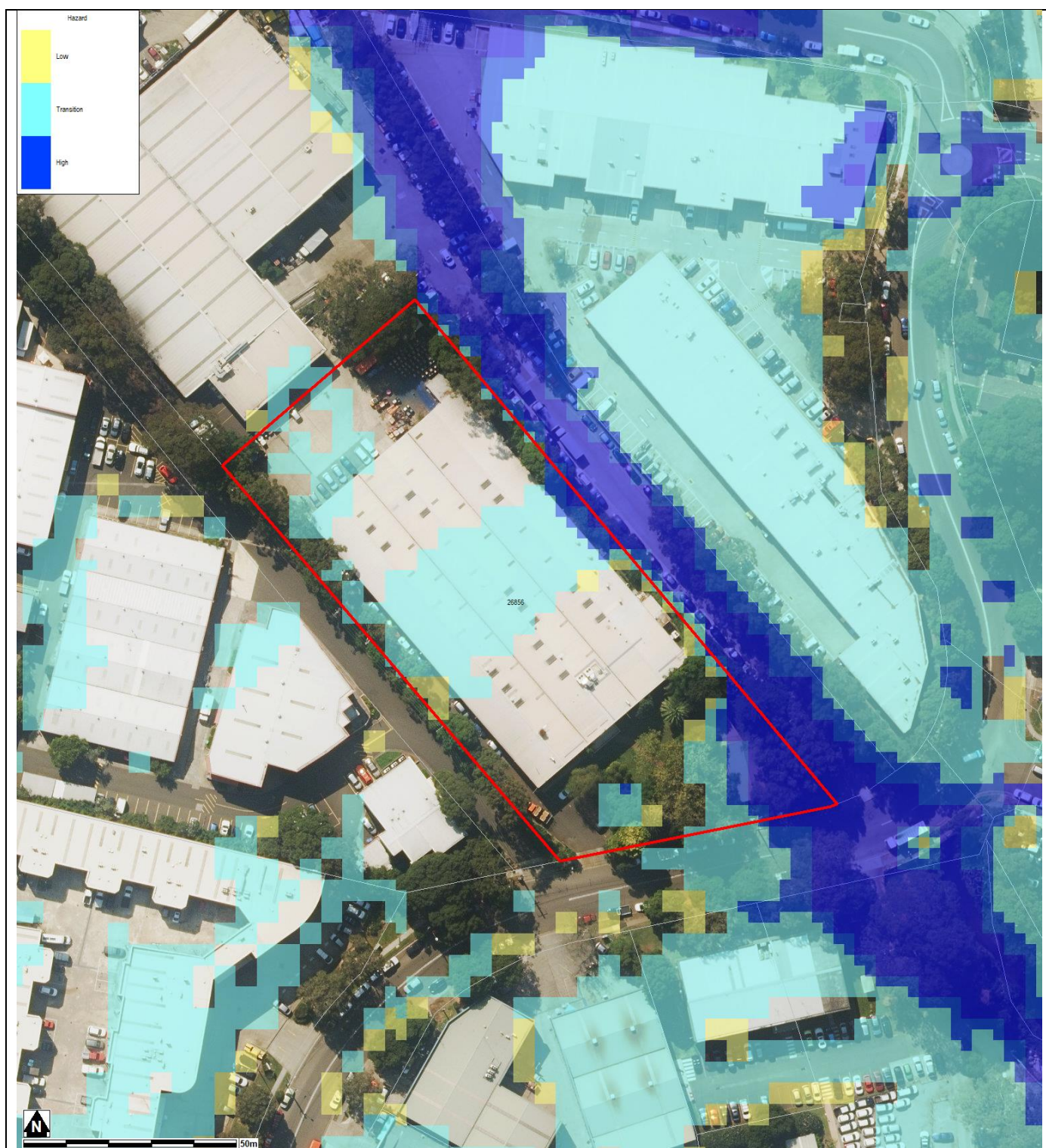
FLOOD MAP C: PMF EXTENT MAP



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

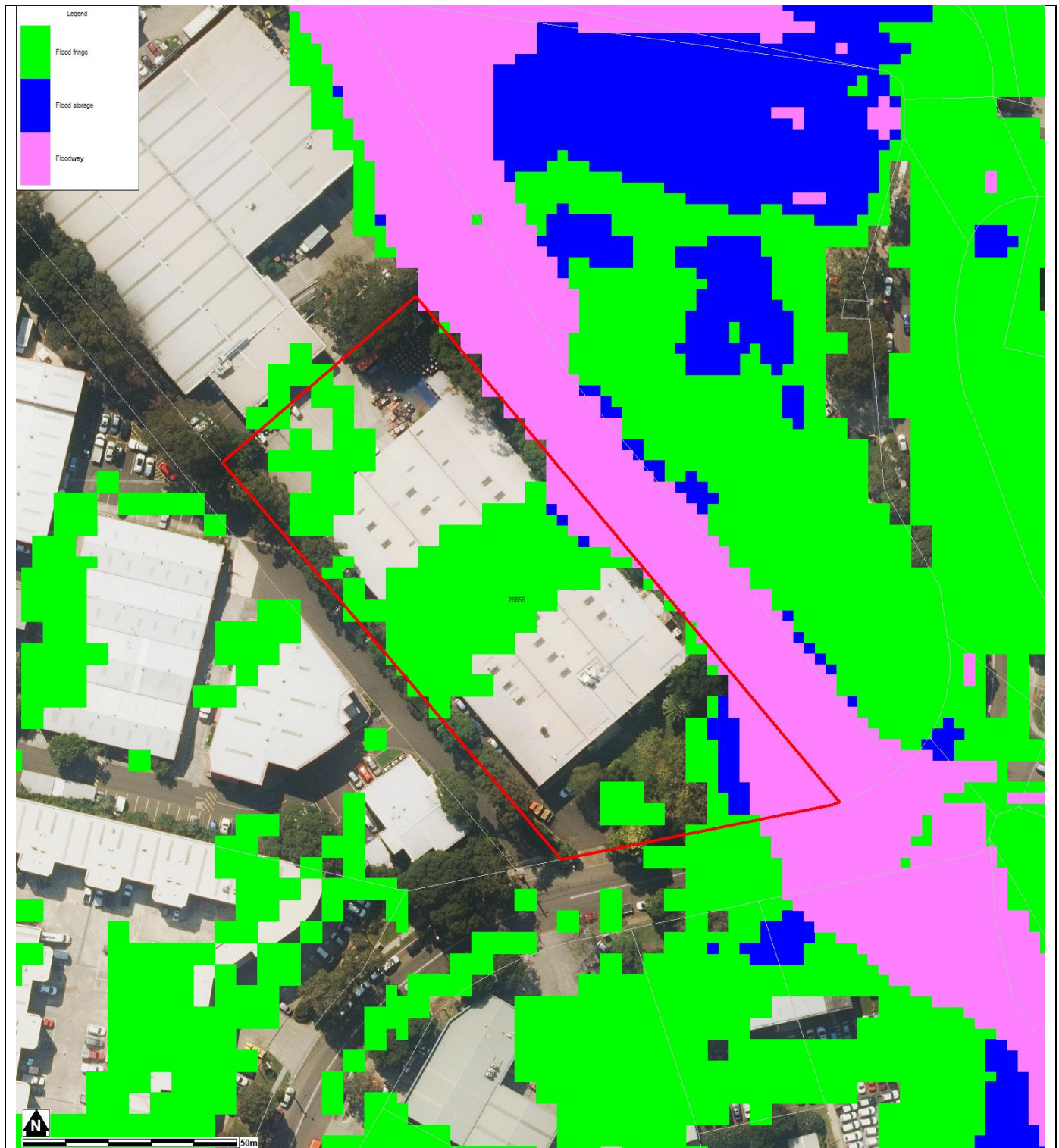
FLOOD MAP D: 1% AEP FLOOD HAZARD EXTENT MAP



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

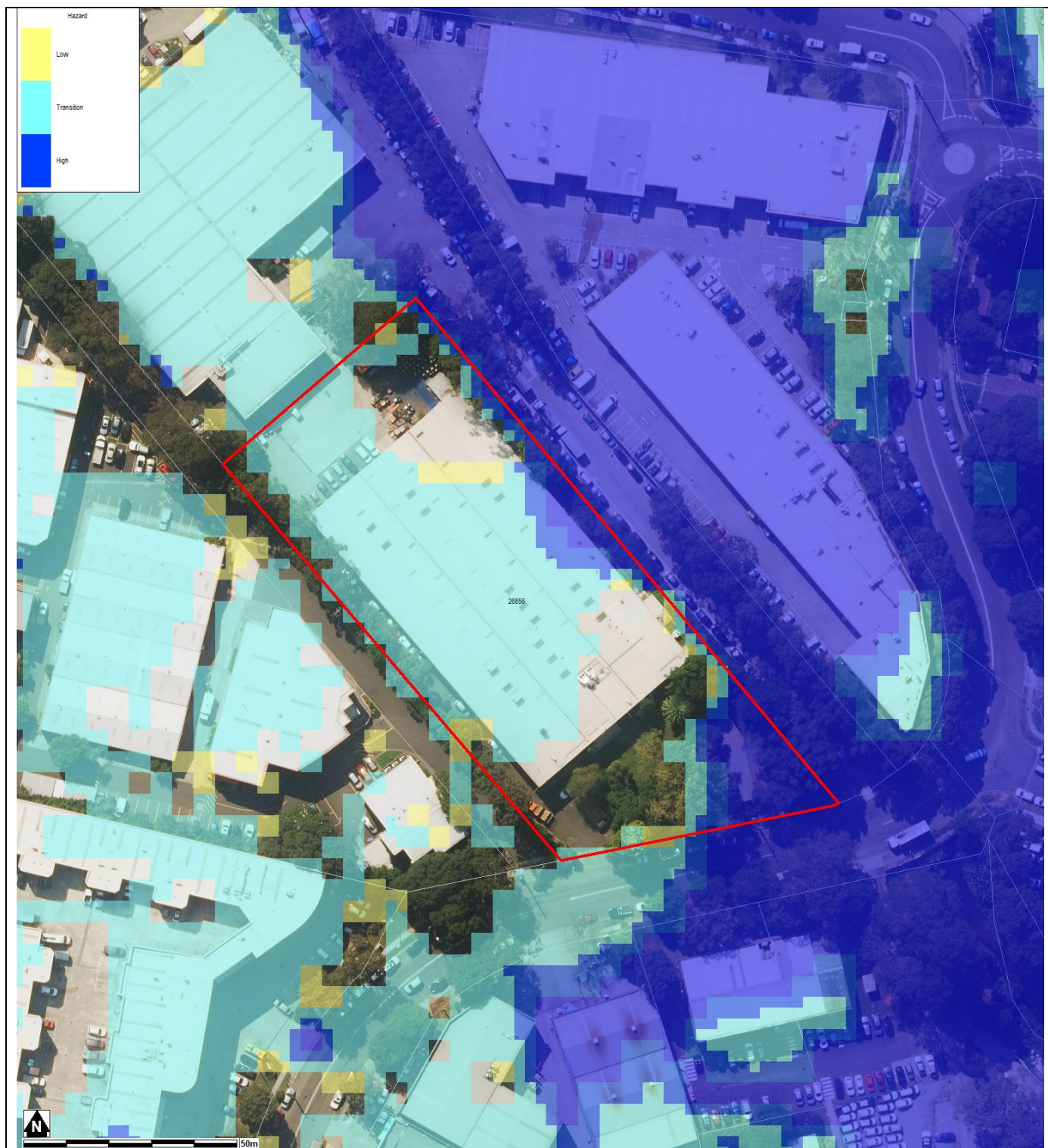
FLOOD MAP E: 1% AEP FLOOD HYDRAULIC CATEGORY EXTENT MAP



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

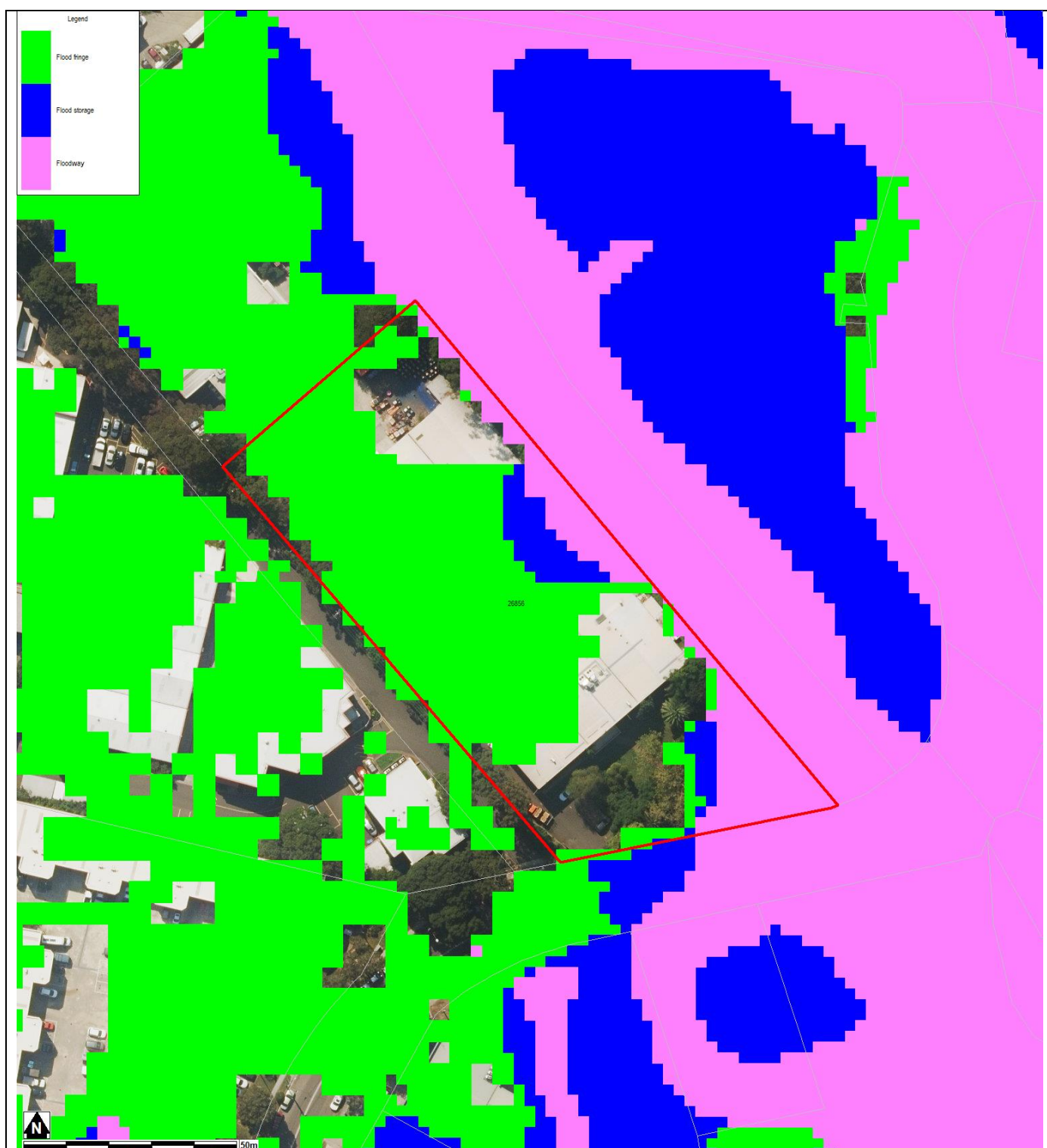
FLOOD MAP F: PMF FLOOD HAZARD EXTENT MAP



Notes:

- Extent represents the Probable Maximum Flood (PMF) 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

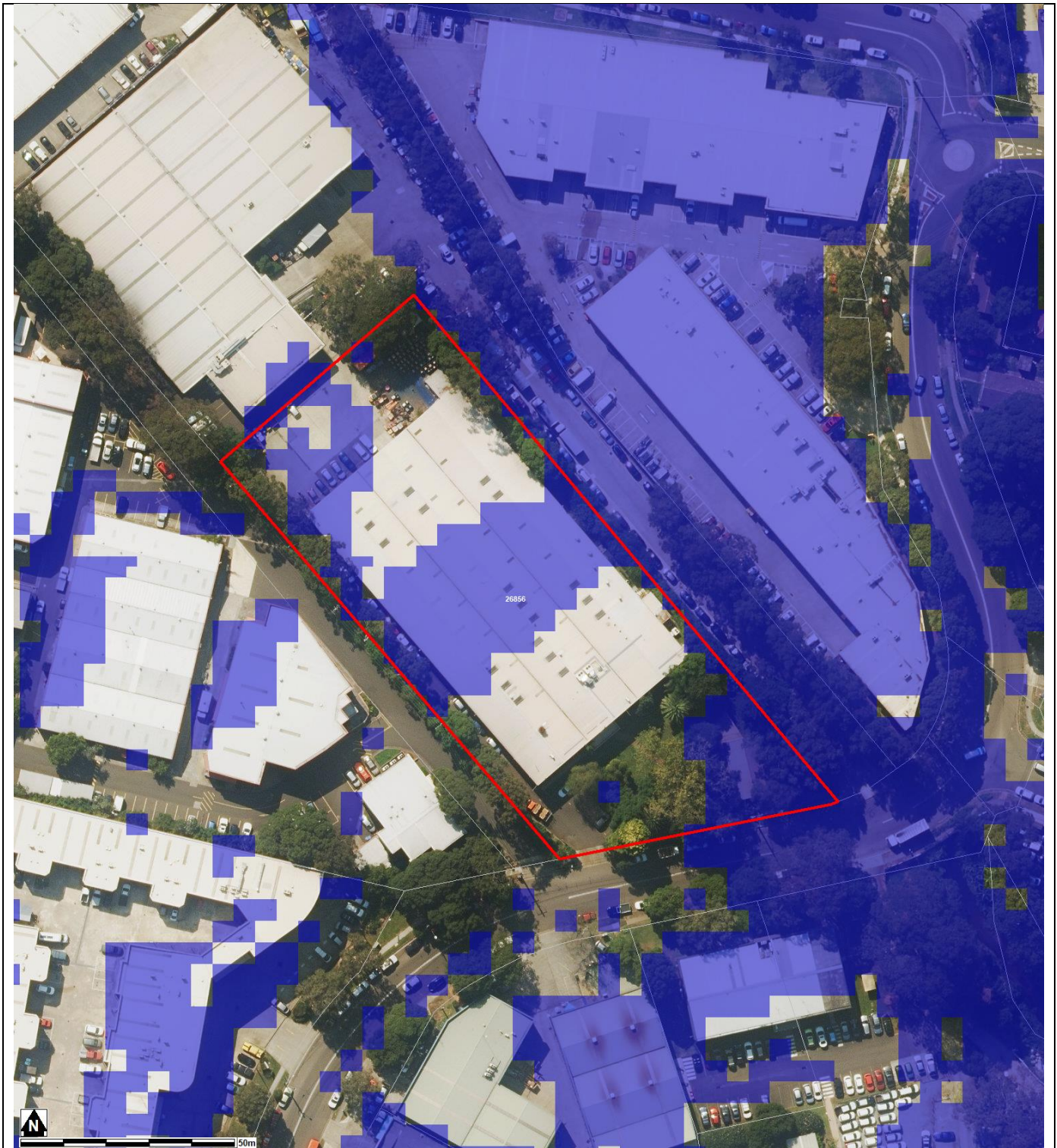
FLOOD MAP G: PMF FLOOD HYDRAULIC CATEGORY EXTENT MAP



Notes:

- Extent represents the Probable Maximum Flood (PMF) 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

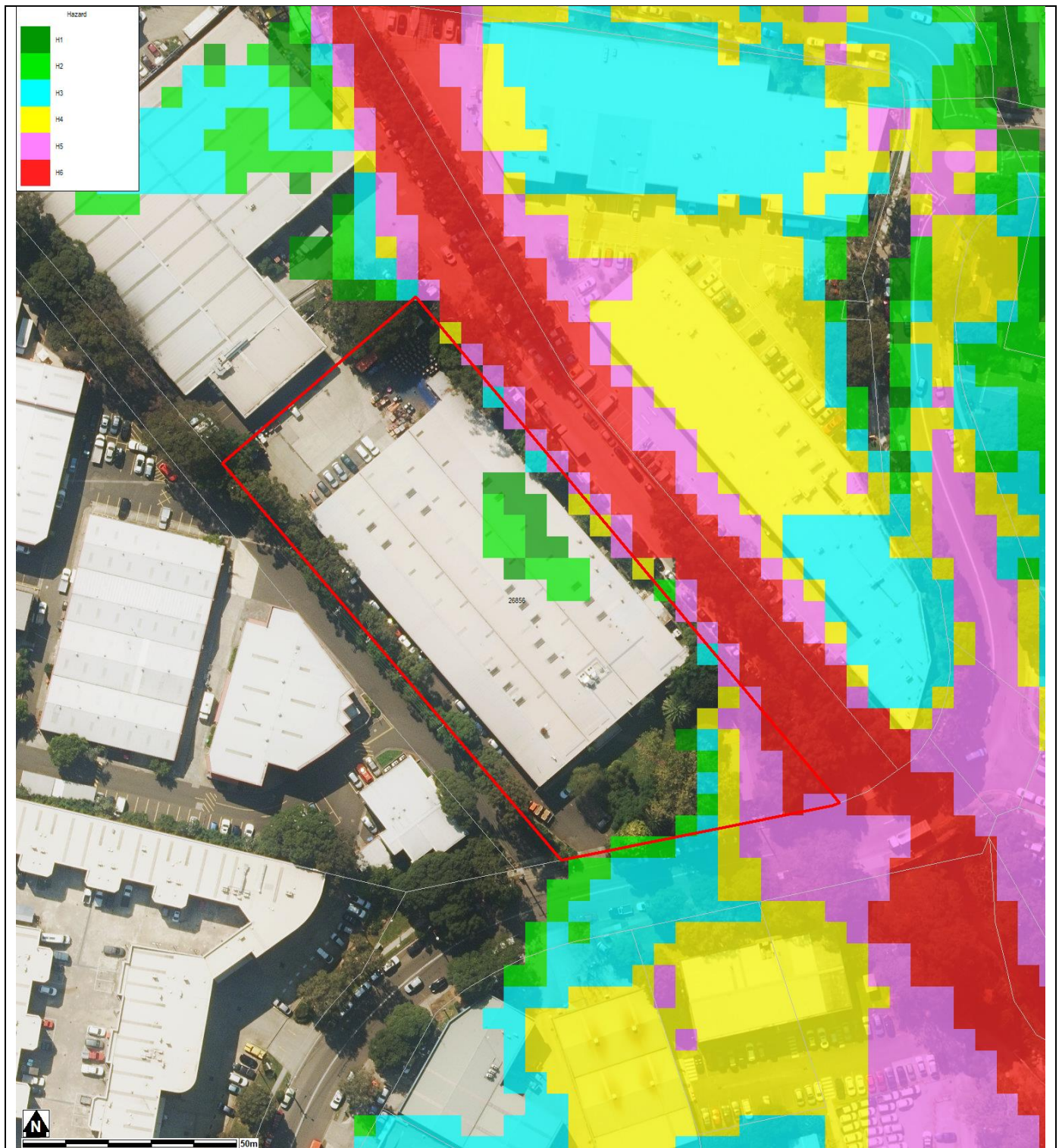
FLOOD MAP H: FLOODING – 1% AEP EXTENT PLUS CLIMATE CHANGE



Note:

- 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

FLOOD MAP I: FLOOD LIFE HAZARD CATEGORY



Notes:

- For additional information on Flood Life Hazard Categories, refer to the 'Flood Emergency Response Planning for Development in Pittwater Policy'.
- 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.

GUIDELINES for Preparing a Flood Management Report

Introduction

These guidelines are intended to provide advice to applicants on preparing a Flood Management Report. The purpose of a Flood Management Report is to help applicants measure and manage the flood risk to life and property on their site.

When is a Flood Management Report required?

A Flood Management Report must be submitted with any Development Application on flood prone land, for Council to consider the potential flood impacts and 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.

Note that the flood extents shown on the mapping are indicative only. It is recommended that flood levels are compared to registered ground survey to more accurately determine the flood extent.

There are some circumstances where a 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 floor level is above the Probable Maximum Flood level
- Internal works only, where habitable floor areas below the Flood Planning Level 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 in a Flood Management Report?

The aim of a Flood Management Report is to demonstrate how a proposed development will comply with the flood related 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.

Technical requirements of a Flood Management Report

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

1. Description of development

The description of development should identify:

- 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, ie, critical, vulnerable, subdivision, residential, business, industrial, recreational, environmental or concessional

2. Flood analysis

The flood analysis should include:

- Predicted 1 in 100 year flood level
- Flood Planning Level (FPL)
- Probable Maximum Flood (PMF) level
- Flood Risk Precinct, ie High, Medium or Low
- Flood Life Hazard Category (in former Pittwater Council area only)
- Mapping of relevant extents
- Flood characteristics for the site, eg depth, velocity, hazard and hydraulic category, and the impact these have on the proposed development

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

3. Assessment of impacts

The assessment of impacts should address the various elements of the relevant LEP and DCP. A simple compliance table should be provided, similar to the table one below.

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

Further details of what is required for each of these categories can be found in the *Development Control Plan for Flood Prone Land*.

For any of these categories which are applicable, the assessment should demonstrate how the development complies, or if it doesn't, provide an explanation of why the development should still be considered.

Reporting requirements for a Flood Management Report

The Flood Management Report should include:

- a) Executive summary
- b) Location plan, at an appropriate scale, that includes geographical features, street names and identifies all waterways and Council stormwater pipes, pits and easements
- c) Plan of the proposed development site showing the extent of the predicted 100 year, any high hazard or floodway conditions and the PMF flood event
- d) Development recommendations and construction methodologies
- e) Calculation formulae (particularly for flood storage)
- f) Clear referencing using an accepted academic referencing system (eg. Harvard)
- g) Analysis of development against relevant State Environmental Planning Policies
- h) Analysis of development against relevant Local Environment Plan and Policies
- i) Conclusion detailing key points
- j) Standard Hydraulic Certification (Form A/A1)
- k) Qualifications of author
- l) Any flood advice provided by Council
- m) Any other details which may be relevant

NOTE: 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 Australian Institute of Engineers.

For further information please contact Stormwater and Floodplain Team on 1300 434 434 or via email at floodplain@northernbeaches.nsw.gov.au

Attachment A

NORTHERN BEACHES COUNCIL STANDARD HYDRAULIC CERTIFICATION FORM

FORM A/A1 – To be submitted with Development Application

Development Application for

Address of site: _____

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

I, _____ on behalf of _____
(Insert Name) (Trading or Business/ Company Name)

on this the _____ certify that I am engineer or a
(Date)

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 \$2 million.

Flood Management Report Details:

Report Title:

Report Date:

Author:

Author's Company/Organisation:

I: _____
(Insert Name)

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

☐ have obtained and included flood information from Council (must be less than 12 months old) **(This is mandatory)**

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

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

Signature

Name