



Consulting Engineers

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Flood Risk Management Report for the Proposed mixed-use development at 372- 374 Mann Street & 35-37 Dwyer Street, North Gosford NSW 2250

Prepared for: Stockbridge Properties Pty Ltd

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April 2025

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DISCLAIMER

1. Content of this report have been based on available information as noted in the report and its appendices, thus this report should be read in conjunction with the referenced reports.
2. The limitations present in any of the referenced reports will be inherent in this report.
3. This report and associated documents have been prepared for the proposed mixed-use development at 372-374 Mann Street & 35-37 Dwyer Street, North Gosford NSW. No responsibility will be accepted for the use of any part of this report in any other context or for any other purposes.
4. This report shall not be construed as relieving any other party of their responsibilities, liabilities, or contractual obligations.
5. Even though every effort has been made to accurately model the item(s) in question, Smart Structures Australia cannot guarantee that model is fully accurate due to lack of data.
6. The results are subject to the scope, assumptions and limitations as set out in this report and the information that has been disclosed by the client.
7. The authors best professional opinion is represented in the conclusions drawn and is based on his experience and on previous results from other investigations on similar materials. The

conclusions and any recommendations made are based on the condition of the item(s) in question as portrayed in the data provided by the client.

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1. STANDARD PRE-AMBLE

1.1 Introduction

This Flood risk management Report accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), in respect of a State Significant Development Application (SSDA) for a proposed mixed-use development at 35-37 Dwyer Street and 372-374 Mann Street, North Gosford. This report addresses the relevant Secretary's Environmental Assessment Requirements (SEARs) as detailed in Table 1.

Table 1 – Summary of Relevant SEARs and Response

SEAR	Requirement	Response	Report Section
15	Flood Risk Identify any flood risk on-site having regard to adopted flood studies, the potential effects of climate change, and any relevant provisions of the NSW Floodplain Development Manual.	Flood risks have been identified based on flood certificates and Central Coast Council floodplain mapping, which show that only parts of the site are affected by the 1% AEP event.	Section4, Assessment of Flood risk
	Where the development could alter flood behaviour, affect flood risk to the existing community or expose its users to flood risk, provide a flood impact and risk assessment (FIRA) prepared in accordance with the Flood Impact and Risk Assessment – Flood Risk Management Guide LU01.	A comprehensive flood risk assessment was carried out, classifying hazard levels, flood levels, and corresponding planning levels.	Section4, Assessment of Flood risk
	Detail design solutions and operational procedures to mitigate flood risk where required.	The report includes mitigation strategies including appropriate floor levels, flood-compatible building materials, internal road design, overland flow management, and evacuation procedures.	Section5 & 6, Flood protection measures, Flood Risk Management plan

1.2 Project Site

The project site is known as 35-37 Dwyer Street and 372-374 Mann Street, North Gosford and is legally known as Lot 4-5 in DP 15954, Lot 2A in DP 407164 and Lot 31 in DP 553523. The site is irregularly shaped and has an area of 7,038.5m². The site has a frontage of 86m to Dwyer Street to the north and 34.2m to Mann Street to the east. An aerial photograph of the site is provided in Figure 1.



Aerial Photograph

1.2 Project Description

The project is a mixed-use development which includes site preparation works, the construction of three buildings ranging in height from seven storeys to 22 storeys containing residential apartments, commercial/retail floor area and basement car parking, and the construction of a private road, landscaping and public domain improvements.

2. INTRODUCTION

Smart Structures Australia has been engaged to conduct the flood risk management plan for the proposed mixed-use development at 372-374 Mann Street & 35-37 Dwyer Street, North Gosford NSW, for a Development Application.

The aim of this plan is to provide suitable strategies and recommendations to control the impact of flood risks on the proposed development, to ensure the safety of residents or public using the area and to minimise the significant effect to the local community. The following documentation and information have been relied upon in preparation on this letter:

- Flood Information Certificates from Central Coast Council (Appendix A)
- Central Coast Council's Environment Controls, part3, chapter 3.1, Floodplain Management/Water Cycle Management
- Survey plan (Appendix B)
- Architectural plans, (Appendix C)

3. SITE DETAILS

3.1 Location

The subject site is bordered to the east by the Mann Street, to the north by the Dwyer Street, and to the South and west by neighbouring commercial lots. The site lies within the Central Coast Council's Catchment area and is legally known as Lots 4&5 in DP15954, Lot 2A in DP407164 and Lot 31 in DP553523.



Figure 1: Proposed site location

3.4 Proposed Development

The site total area is approximately 7,038.5 m² and is currently occupied by residential dwellings and a commercial building fronting Mann Street.

The proposed development will be a residential mixed-use development containing three buildings of varying heights with some minor ground floor commercial space, comprises of site A tower covering 22 levels of residential apartments plus ground floor commercial space and site B including two separate residential buildings over four levels with frontage to a new road as shown in Figure 2.



Figure 2: Proposed Upper Ground floor plan

4. ASSESSMENT OF FLOOD RISK

4.1 Flood Classification/Risk

Consideration of the depth and velocity of floodwater is referred to the provisional flood hazard as stated in NSW Floodplain Development Manual, 2005. The provisional flood hazard at a particular area of a floodplain can be established from Figure 3 (Floodplain Development Manual, 2005).

High Flood Risk: land below the 100year ARI flood that is either subject to a high hydraulic hazard (as defined in Figure 3) or where there are significant evacuation difficulties. The high flood risk precinct is where high flood damages, potential risk to life, or evacuation problems are anticipated. Most development should be restricted in this precinct.

Medium Flood Risk: land below the 100year ARI event that is not subject to a high hydraulic hazard and there are no significant evacuation difficulties. In this precinct there would still be a significant risk of flood damage or risk to life, but these damages and risks can be minimised by the application of appropriate development controls.

Low Flood Risk: all other land within the floodplain (i.e., within the PMF extent) but not identified as either in a high flood risk or medium flood risk precinct. The low flood risk precinct is that area above the 100year flood and most land uses would be permitted within this precinct.

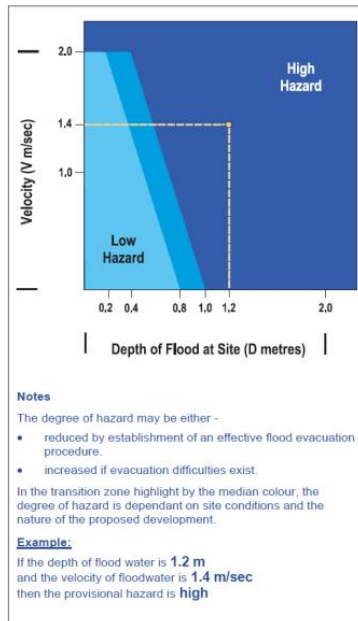


Figure 3: Provisional Flood Hazard Categories

Regarding to the flood certificates informations provided by Central Coast Council(Appendix A), the degree of hazard varies with the severity of flooding and is affected by flood behaviour (extent, depth, velocity, isolation, rate of rise of floodwaters, duration), topography and emergency management. Central Coast Council classifies flood hazard using thresholds related to the stability of people as they walk or drive through flood waters, or shelter in a building during a flood. This method classifies hazard on a spectrum of H1 to H6 as described by the hazard vulnerability curves below.

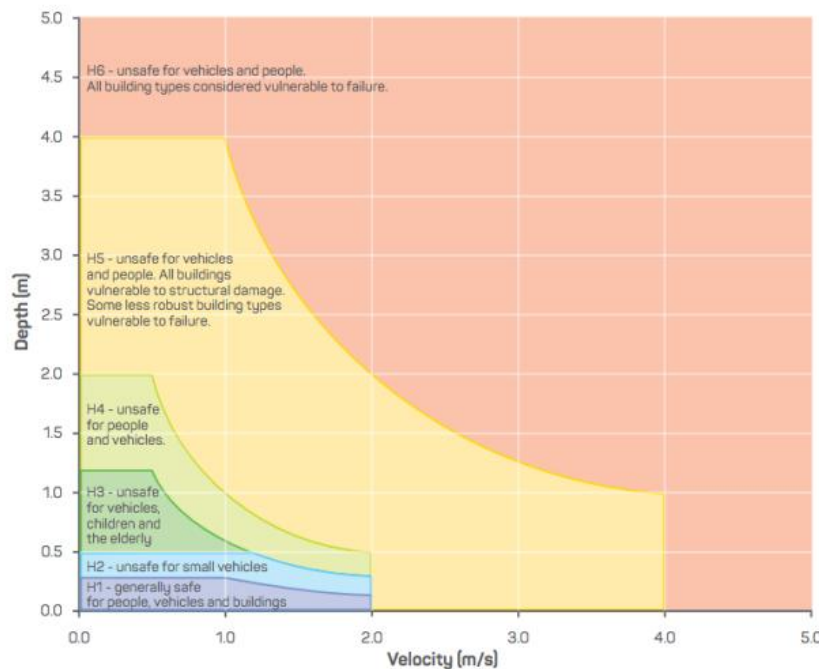


Figure 4: Provisional Flood Hazard Categories

Based on the Central Coast Council's floodplain mapping (Appendix A) the subject site generally is not affected by the 1% AEP flood event and only lot 2A DP 407164 is affected by 1% AEP flood event and falls under H1 to H3 flood hazard categorisation, which is unsafe for vehicles, children and the elderly during 100-year flood event.

4.2 Flood Characteristics of Site

According to the flood information certificates received from Central Coast Council, the Flood Level in 100 Year ARI and PMF storm events for the subject site are shown in Table 1.

Table 1: Flood Level

FLOOD EVENT	LOCATION/LOT NUMBER	Minimum Level (m AHD)	Maximum Level (m AHD)
PMF	35 Dwyer St, North Gosford /Lot 2a	14.24	18.21
	37 Dwyer St, North Gosford /Lot 31	14.63	18.90
	372 Mann St, North Gosford /Lot 5	18.90	22.12
	374 Mann St, North Gosford /Lot 4	21.01	21.01
1% AEP Flood	35 Dwyer St, North Gosford /Lot 2a	13.78	18.06
	37 Dwyer St, North Gosford /Lot 31	14.41	15.27
	372 Mann St, North Gosford /Lot 5	N/A	N/A
	374 Mann St, North Gosford /Lot 4	N/A	N/A
5% AEP Flood	35 Dwyer St, North Gosford /Lot 2a	13.71	18.06
	37 Dwyer St, North Gosford /Lot 31	14.37	15.07
	372 Mann St, North Gosford /Lot 5	N/A	N/A
	374 Mann St, North Gosford /Lot 4	N/A	N/A

5. FLOOD PROTECTION MEASURES

The proposed development is a residential mixed-use development. According to the Central Coast Council's DCP2022, PART 3.1, section 3.1.4, the habitable floor area must be equal or higher than the 100 Year ARI (1% AEP) plus 0.5m freeboard and non-habitable floor area must be equal or higher than the 100 Year ARI (1% AEP) plus 0.3m freeboard. Therefore, as mentioned in the flood information certificate received from council, Flood Planning Level for the habitable and non-habitable floor level areas are demonstrated in table 2.

Table 2: Flood Planning Level (FPL)

Flood Planning Level	LOCATION/LOT NUMBER	FPL (m AHD)
Habitable floor level area	35 Dwyer St, North Gosford /Lot 2a	18.56
	37 Dwyer St, North Gosford /Lot 31	15.77
	372 Mann St, North Gosford /Lot 5	N/A
	374 Mann St, North Gosford /Lot 4	N/A
Non-Habitable floor level area	35 Dwyer St, North Gosford /Lot 2a	18.36
	37 Dwyer St, North Gosford /Lot 31	15.57
	372 Mann St, North Gosford /Lot 5	N/A
	374 Mann St, North Gosford /Lot 4	N/A

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Based on the foregoing information, and flood risk management controls presented in Chapter 3 of Central Coast council's environmental controls, Floodplain Management and Water Cycle Management, the following responses are offered to protect the development against the stormwater and flood risk.

5.1 Floor Levels

According to the Flood Planning Level (FPL) set by the Central coast Council, Habitable floor area must be equal or higher than maximum 1%AEP flood water level plus 0.5m freeboard at RL 18.56m AHD.

Ground Floor Level

All access points to the ground floor level are to achieve adequate freeboard equal or above FPLs at RL 15.77m AHD and 18.56m AHD to satisfy habitable floor area criteria of the central coast council's DCP. Proposed building B3 and B2 are located at the area with habitable FPL of 15.77 m AHD. Proposed ground floor levels in these buildings are at RL 17.95 m AHD and RL 18.95m AHD respectively. Which is higher than the required FPL for habitable areas and satisfies council requirements.

Proposed building B1 is located at 372 Mann St, North Gosford /Lot 5 which is not affected by 1% AEP flood level and is only affected during PMF flood event and the maximum flood level will be at RL 22.12m AHD. Proposed ground floor level for building B1 is at RL 23.75 and is above PMF level.

Proposed Vehicular Access and Basement Entry

The proposed development includes two driveways providing access to the basement floors. The first driveway, located at 372 Mann Street, North Gosford (Lot 5), serves Site B1 and is unaffected by the 1% AEP flood event. The other driveway entry is used to provide vehicular access for Sites B2 and B3. In the post-development scenario, with the inclusion of a new private road running north to south along proposed Buildings B2 and B3, as well as a sizable below-ground stormwater drainage network and an on-site detention system, the expected overland floodwater entering the proposed private road and flowing southward will be minimal. Therefore, flood planning requirements do not apply to the driveway ramp entry of the sites B2 and B3.

A DRAINS model has been developed to simulate the behaviour of surface flow during a 1%AEP flood event. Based on the site's natural contours, it can be concluded that surface flow generated from the southern half of Dwyer Street will follow the contours and enter the site through the proposed private road. The proposed stormwater drainage system will direct the surface flow through a network of pits and pipes, part of which will be discharged into the existing drainage network located across Dwyer Street.

Conservatively, it has been assumed that the overland flow entering the site will travel along the kerb and gutter of the proposed private road, passing in front of the proposed driveway entry, and will be directed to the discharge point. The DRAINS model results indicate that the overland flow depth in front of the B2 and B3 driveway entry is approximately 60mm, which is minimal, and as such, the driveway entry will not be impacted during a 1% AEP flood event. DRAINS results are demonstrated below:

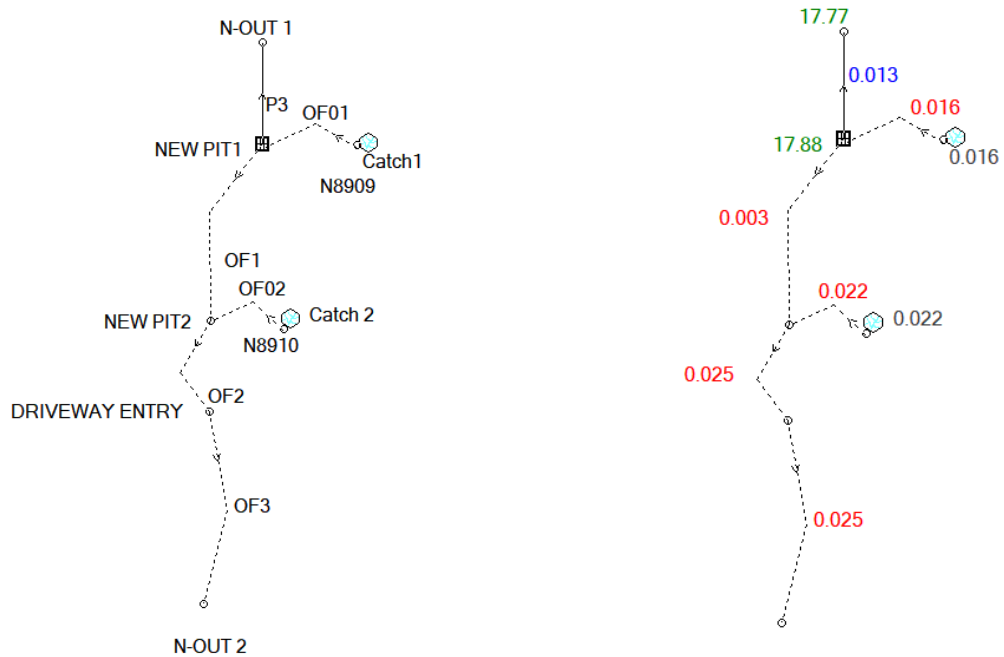
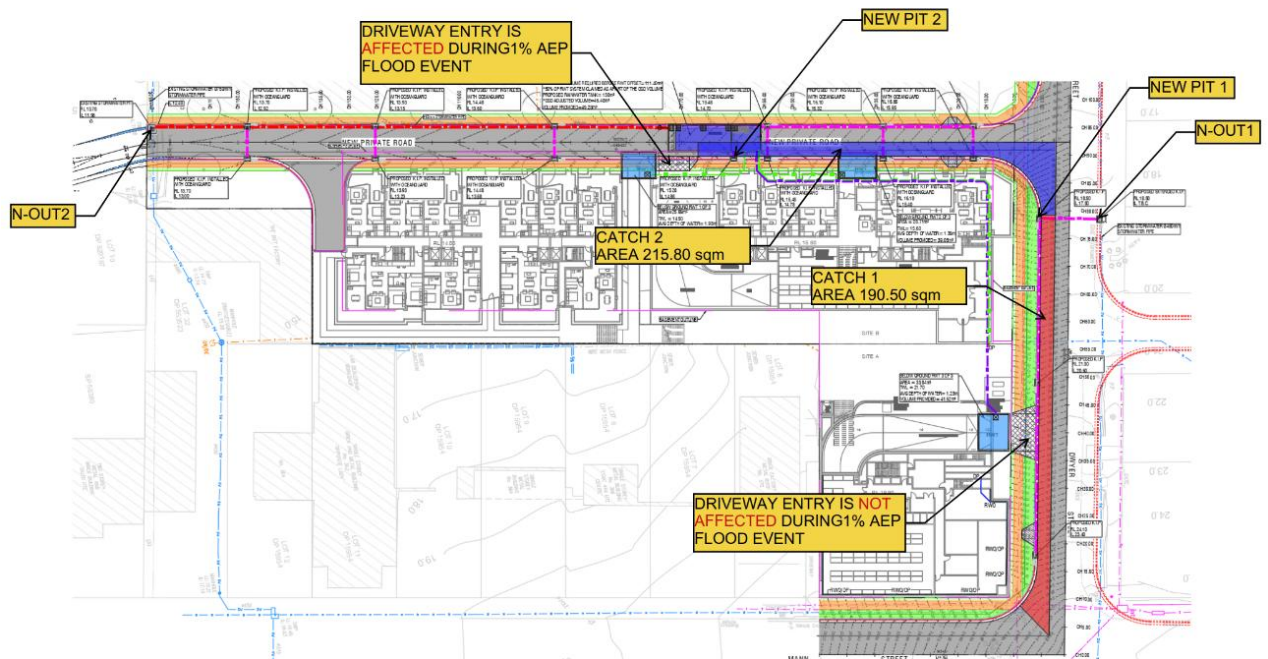


Figure 5: DRAINS model and DRAINS model results for 1% AEP flood event

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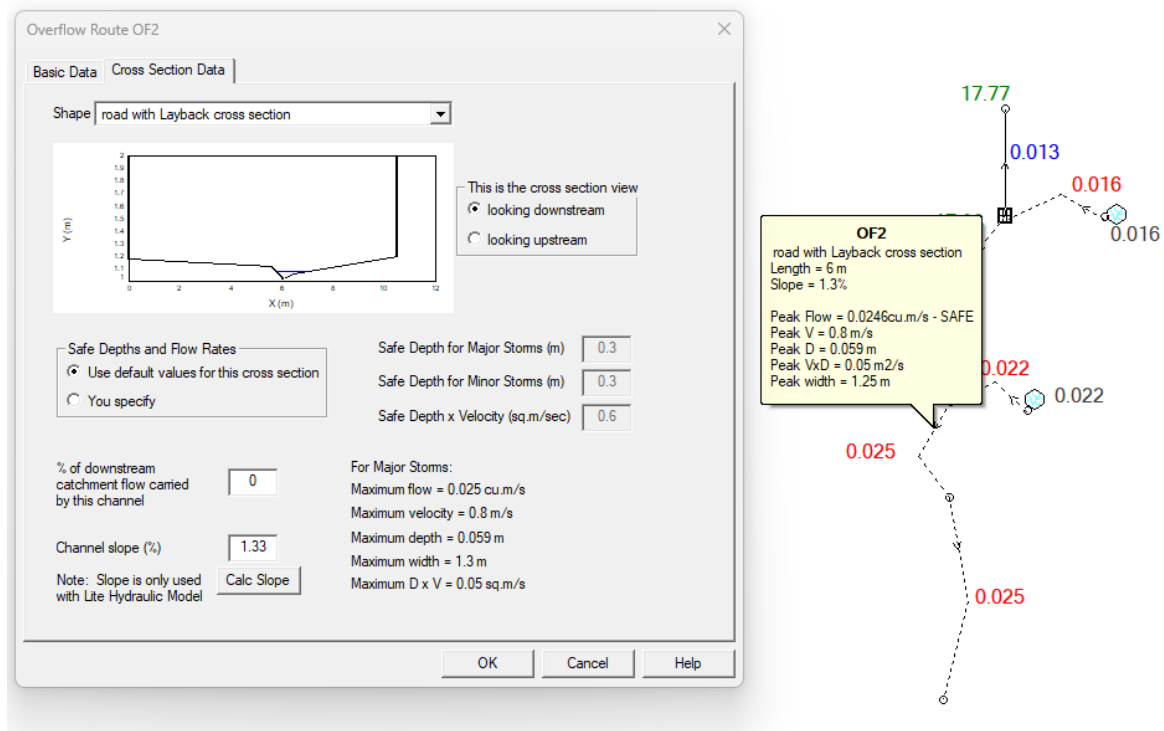


Figure 6: DRAINS model results for overland flow depth in front of the sites B2 and B3 Driveway entry

5.2 Overland Flow Path

Flood information certificate for 35 Dwyer St, North Gosford /Lot 2a indicates that this lot will be a flood fringe as shown in figure 7. To ensure that the proposed development does not reduce flood storage capacity or alter flow, velocity, or flood levels on adjacent properties during a 1% AEP flood event, the development plan includes an internal road running from south to north, following the site's natural topography. This road will facilitate the effective conveyance of floodwater through the site, mitigating potential flooding issues. Refer to civil plans prepared by this office for further information about the proposed internal road (reference No: 230472).



Figure 7: Hydraulic categorisation for 35 Dwyer St, North Gosford /Lot 2a

5.3 Overland Flow Path from Existing Buildings at Eastern Boundary

Based on the contour analysis, overland flow from approximately 3,560 sqm of Mann Street will follow the natural topography and be directed towards the existing parking area near the eastern boundary of the site. According to the proposed site plan, this flow will enter the site and, following the land's natural slope, move toward the site's low point. The overland flow paths, shown by blue arrows(in Figure 8), highlight the natural drainage pattern within the site, indicating that the water will eventually follow the topography and exit the site toward the existing railway. Figure 8 demonstrates the overland flow direction from upper catchments of the subject site.

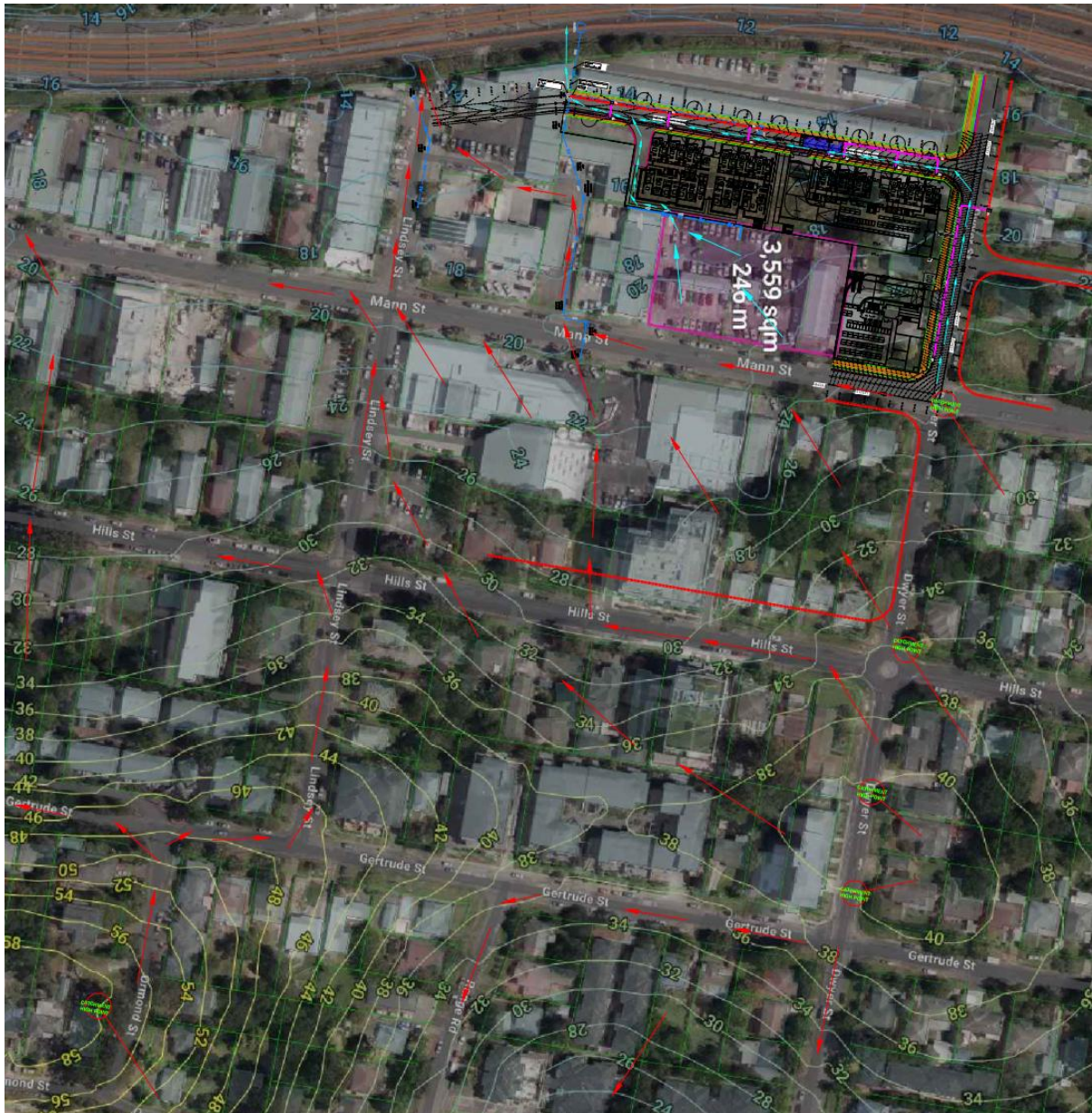


Figure 8: overland flow direction

5.4 Building Component

The proposed development is to be constructed from flood compatible materials below maximum FPL (maximum Flood Planning Level = 100year ARI Flood Level plus 0.5m freeboard) of RL 18.56m AHD as required by Central Coast Council's flood plain management/ water cycle management. A list of flood compatible material is provided in Appendix D.

All new electrical equipment such as heating, ventilation, and air conditioning (HVAC) systems and the associated components must be waterproof and/or installed above maximum FPL (1% AEP flood level + 0.5m freeboard) at RL 18.56m AHD wherever possible.

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5.5 Structural Integrity

A structural engineer must assess the structural soundness of the building to ensure that the existing structure will be adequate when the building structure is subject to the PMF flood event. The structure must be assessed against hydrostatic and hydrodynamic forces, buoyancy and debris impact up to and including the maximum PMF level which is RL 22.12 m AHD.

5.6 Flood Evacuation Strategy

The State Emergency Service of New South Wales (SES) is responsible for providing flood updates and issuing Flood Evacuation Warnings and Flood Evacuation Orders. Flood information issued by the SES may be received by local, radio and television news, SMS messaging, social media and door knocking in affected communities. The timing for evacuation of persons is to be established in consultation with the SES.

To increase the flood-readiness of the occupants of the site, owners/occupiers of the site should be made aware of Flood Safe kits developed by the SES which aid household development of a Flood Emergency Plan. Information regarding Flood Safe kits is available from <http://www.floodsafe.com.au/>. Future owners/occupiers of the site should prepare, regularly review, and update a household Flood Emergency Plan. A copy of the household Flood Emergency Plan should be kept on the lobby areas, premises carpark and on other common areas. In the event that the 100 Year ARI (1% AEP) flood event is expected to be exceeded, strategies should be adopted in accordance with NSW Government operational guidelines and SES Emergency Evacuation operational guidelines.

The proposed development is protected against the FPL (Flood Planning Level). In this regard, it is possible for occupants of the site to remain within the premises during all flood events up to and including 100 Year ARI (1 % AEP).

6. FLOOD RISK MANAGEMENT PLAN

1. Storms leading to major flooding are typically 2 hours long, however shorter storms can produce overland flows. Once the storm passes, overland flows drain rapidly.
2. During floods many major and minor streets and roads may be inundated by floodwaters. Traveling through floodwaters by foot or by vehicle can be dangerous due to rapid currents, pollution, or hidden obstructions. It is recommended to remain in-doors as much as practical and as directed by the responsible authorities.
3. High risk areas must be evacuated during flood events to make sure all occupants are safe. Furthermore, evacuation plan must be installed in high-risk and low seating areas to direct individuals to a safe floor level during flood events.
4. Develop flood plan and be prepared if flooding should occur whilst any occupants are entering and exiting premises from work or school. Contact Council /SES for information about safer travel routes that are less likely to be cut by floodwaters.
5. As the flood level approaches any of driveway entries:
 - Gather medical supplies, special needs of any occupants, mobile phones, important documents, and any valuables to Roof of the building.
 - Try to wear the appropriate clothing for the conditions, move any items within the premises that can be damaged by water to higher positions and place electrical items at the very top. For larger items (i.e., TV and washing machine) that cannot be moved, switch them off and disconnect them from the power points.
 - Place wet towels across the bottom sides of external doors to slow down the ingress of water.
 - Do not evacuate the building unless instructed to do so by the SES or the police. Keep in mind that floodwater may be deeper and flow faster than what is apparent.
6. In case of a medical emergency, call 000 and explain the situation with regards to the flooding.
7. This Flood Risk Management Plan should be reviewed every 5 years, particularly if there have been any major changes to climate conditions or weather patterns.
8. Flood education drills should be undertaken by premises staff to assist the occupants in commencing and maintaining flood preparations, as well as how to respond in the event that flooding occurs.
9. A laminated copy of this flood plan should be permanently attached to an area where all occupants frequently access such as in the lobby areas, laundries, prominent area of the premises carpark or other common areas, and to the inside of the electrical meter box.

7. CONCLUSION

Based on provided information by the Central Coast Council, the subject site falls under low hazard categorisation. The subject site is partially affected by the 100year ARI flood event to the extend of lot 2A and lot 31 at maximum elevation of RL 18.06m AHD and RL 15.27m AHD respectively.

To protect the development against flood waters, the habitable floor area must be equal or higher than the maximum 1% AEP plus 500mm freeboard. Proposed building B3 and B2 are located at the area with habitable FPL of 15.77 m AHD. Proposed ground floor levels in these buildings are at RL 17.95 m AHD and RL 18.95m AHD respectively. Which is higher than the required FPL for habitable areas and satisfies council requirements.

Due to the post-development scenario, with the inclusion of a new private road running north to south along proposed Buildings B2 and B3. the expected overland floodwater entering the proposed private road and flowing southward will be minimal. As a result, flood planning requirements do not apply to the driveway ramp entry for Sites B2 and B3

Proposed building B1 is located at 372 Mann St, North Gosford /Lot 5 which is not affected by 1% AEP flood level and non-habitable flood levels do not apply to this building.

The proposed development is to be built of flood compatible materials below RL 18.56m AHD. All electrical equipment such as heating, ventilation, and air conditioning (HVAC) systems and the associated components should be located above RL 18.56m AHD or protected against flood.

The structure must be built to withstand the hydrostatic and hydrodynamic forces, buoyancy and debris impact up to RL 22.12m AHD. All works must be designed to comply with the Standard for Construction of Buildings in Flood Hazard Areas in accordance with Section 3.10.3 of the Building Code of Australia.

From the measures taken above, it can be concluded that the proposed development will comply with requirements of Flood Risk Management policy. Also, the proposed development will not increase the flood effects including flood levels and velocities elsewhere.

8. REFERENCES

1. Central Coast Council's Floodplain Management / Water Cycle Management, 2022
2. Central Coast Council's Flood Information Certificate (Appendix A)
3. Survey plan (Appendix B)
4. Architectural plans, (Appendix C)
5. Flood compatible materials (Appendix D)

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APPENDIX A

Flood Information Certificate

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Flood Information Certificate



Property Address: 37 Dwyer St, NORTH GOSFORD

Lot /DP: 31/DP553523

Date Prepared: 29 August 2024

Source of information: Gosford CBD Local Overland Flow Flood Study, 2013

This Flood Certificate provides advice furnished in good faith by the council relating to the likelihood of the land identified above being flooded and to the nature or extent of any such flooding ("flood risk").

Flood level and flood planning advice is provided in the tables below and as maps in the Appendix. This advice regarding flood risk has been derived from the flood study listed above. Should you have any enquiries concerning this certificate, please do not hesitate to contact Andrew Dewar on 02 4306 7900 during the hours of 8.00am to 4.15pm Monday to Friday

Flood Level Information Table

Flood Event	Minimum Level (m AHD)	Maximum Level (m AHD)
PMF	14.63	18.90
1% AEP	14.41	15.27
5% AEP	14.37	15.07

Planning Information Table

Flood Control Lot	☒
Minimum Habitable Floor Level	15.77m AHD
<i>Complying Development: Flood Exclusionary Categories</i>	
(a) Flood Storage Area	☐
(b) Floodway Area	☐
(c) Flow Path	☐
(d) High Hazard Area (H3, H4, H5, H6 Hazard Categorisation)	☐
(e) High Risk Area	☐



Flood Information Certificate



Minimum Habitable Floor Level in the Planning Information Table above is also known as the Flood Planning Level. It is derived from the maximum 1% AEP Flood Level plus 0.5m freeboard and an allowance for sea level rise if applicable. For large lots the maximum 1% AEP flood level may vary across the lot; as such the Minimum Habitable Floor Level would vary at different locations on the lot, which may result in a lower Minimum Habitable Floor Level than the one quoted in the Planning Information Table. Note that Minimum Habitable Floor Levels are based on a flood size that has a 1% chance each year of either being reached or exceeded. Larger floods still have a small chance of occurring. For this reason, Council recommends that property owners consider the merits of choosing a floor level above the minimum floor level if practical to do so.

Flood Mapping related to this address is included in the Appendix. On the Environmental Layers you can choose to view 1% AEP (1 in 100y) flood extents, as well as Flood Precincts, which are referred to in the Development Control Plan.

<https://maps.centralcoast.nsw.gov.au/public/>

Development Controls set appropriate floor levels, construction materials, pedestrian and vehicular access, car parking and impacts on surrounding property for a proposed development; either complying development (fast tracked - see below) or a DA. Council's development controls vary depending on the location:

- Former Gosford: LEP 2014 Clauses 5.21 & 7.3, DCP 2013 Chapter 6.7
- Former Wyong: LEP 2013 Clauses 5.21 & 7.3, DCP 2013 Chapter 3.3

<https://www.centralcoast.nsw.gov.au/plan-and-build/planning-controls-and-guidelines>

Complying Development is a fast-track approval process for straightforward residential, commercial and industrial development (e.g. Granny Flats). From 1 July 2021, all Complying Development Certificate (CDC) applications must be lodged through the online NSW Planning Portal. If the application meets specific criteria it can be determined by a registered certifier. Under Clause 3A.38 of the Codes SEPP 2008 Development must not be carried out on any part of a *flood control lot* that is considered to be in one of the following exclusionary categories: (a) flood storage area, (b) floodway area, (c) flow path, (d) high hazard area, (e) high risk area. Complying Development may be allowable at this address if none of the five flood exclusionary categories in the Planning Information Table above are marked "Yes".

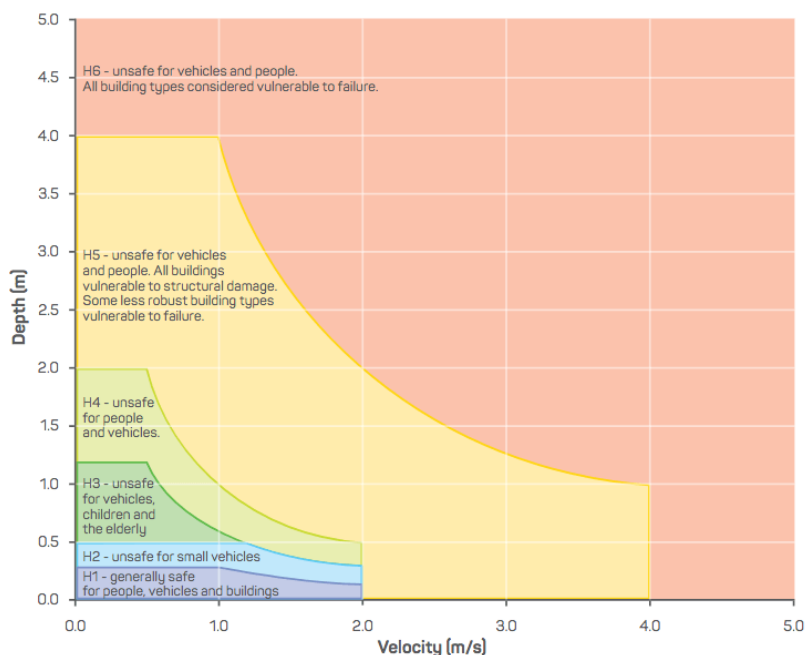
<https://www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Planning-Approval-Pathways/Complying-development>

Flood Hazard: Flooding has the potential to cause loss: loss of life, injury or economic loss. The degree of hazard varies with the severity of flooding and is affected by flood behaviour (extent, depth, velocity, isolation, rate of rise of floodwaters, duration), topography and emergency management.

Council classifies flood hazard using thresholds related to the stability of people as they walk or drive through flood waters, or shelter in a building during a flood. This method classifies hazard on a spectrum of H1 to H6 as described by the hazard vulnerability curves below. For further information refer to: Flood Hazard: Guideline 7.3, Australian Institute for Disaster Resilience 2017 <https://knowledge.aidr.org.au/media/3518/adr-guideline-7-3.pdf>



Flood Information Certificate



Source – Australian Institute for Disaster Resilience 2017. Hydraulic Hazard: refer also to Australian Rainfall and Runoff Section 7.2.7 General Flood Hazard Curves (Figure 6.7.9) <http://book.arr.org.au.s3-website-ap-southeast-2.amazonaws.com/>

Disclaimers

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- Without limiting s.733 of the *Local Government Act 1993*, Council expressly disclaims all and any liability and responsibility in respect of loss, damage or injury to person or property arising from anything done or omitted to be done by any person in reliance, whether wholly or in part, upon any part of this information. Any person having regard to the information contained in this document is encouraged to seek, at their discretion, all other sources of information on the subject matter as they consider appropriate, which may include local knowledge and/or professional advice.
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Flood Information Certificate



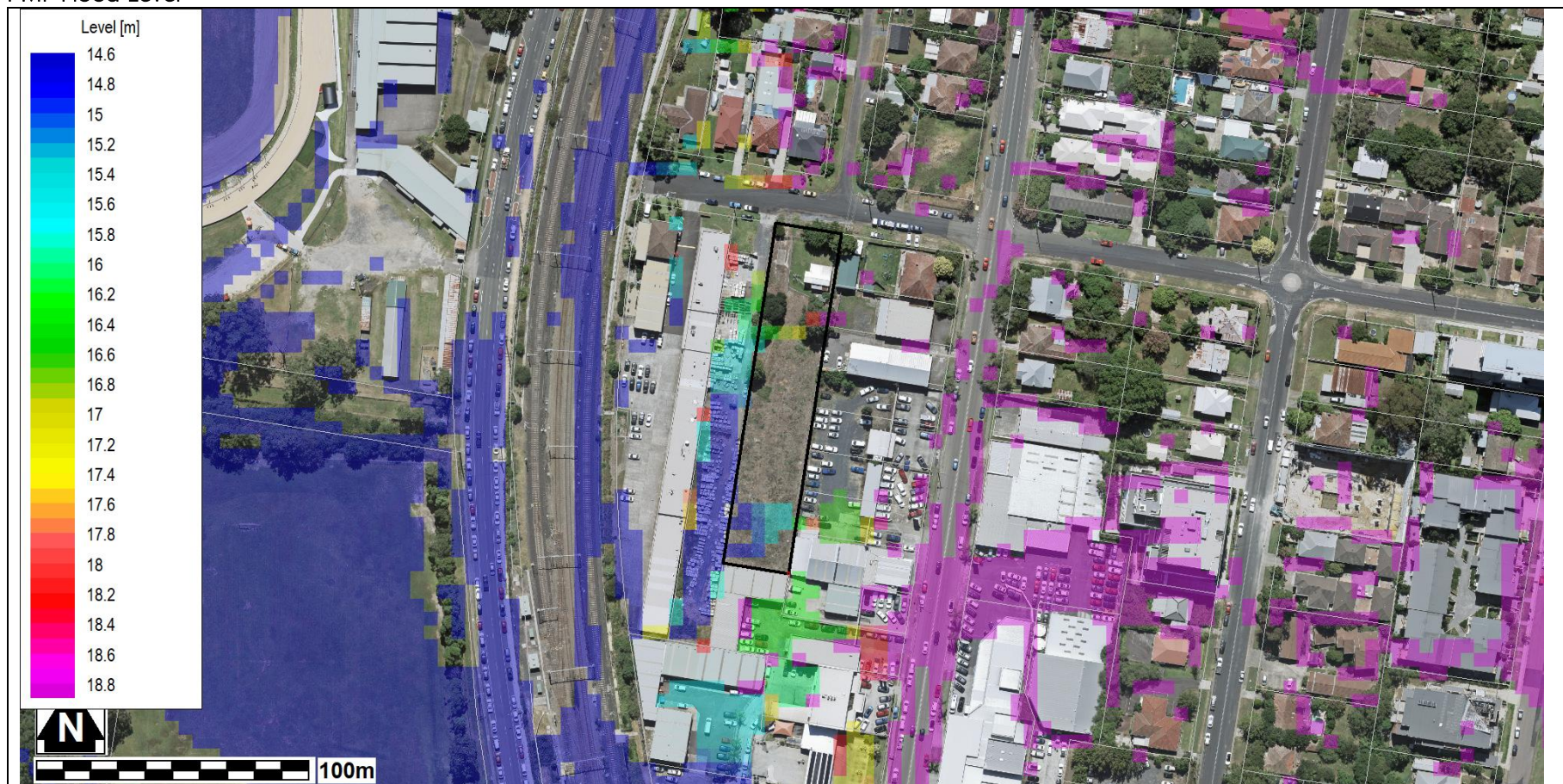
Glossary

AEP	<i>Annual Exceedance Probability</i> : The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage. For example, the 1% AEP flood has a 1% probability of occurring in any given year. This flood is sometimes referred to as 1 in 100, 100yr ARI or Q100
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Freeboard	A factor of safety used in relation to the setting of floor levels. The typical freeboard set by the NSW Government is 0.5m, unless Council can demonstrate a different freeboard can apply as defined in an adopted Floodplain Risk Management Plan.
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High Risk Area	Those areas of high flood risk as identified in a flood study or Floodplain Risk Management Plan.
LEP	Local Environment Plan
PMF	The <i>Probable Maximum Flood</i> is an extreme flood deemed to be the largest flood that could conceivably occur at a specific location. It is generally not physically or economically possible to provide complete protection against this flood event but should be considered for emergency response. The PMF defines the extent of flood prone land (i.e. the floodplain).



Flood Information Certificate

PMF Flood Level



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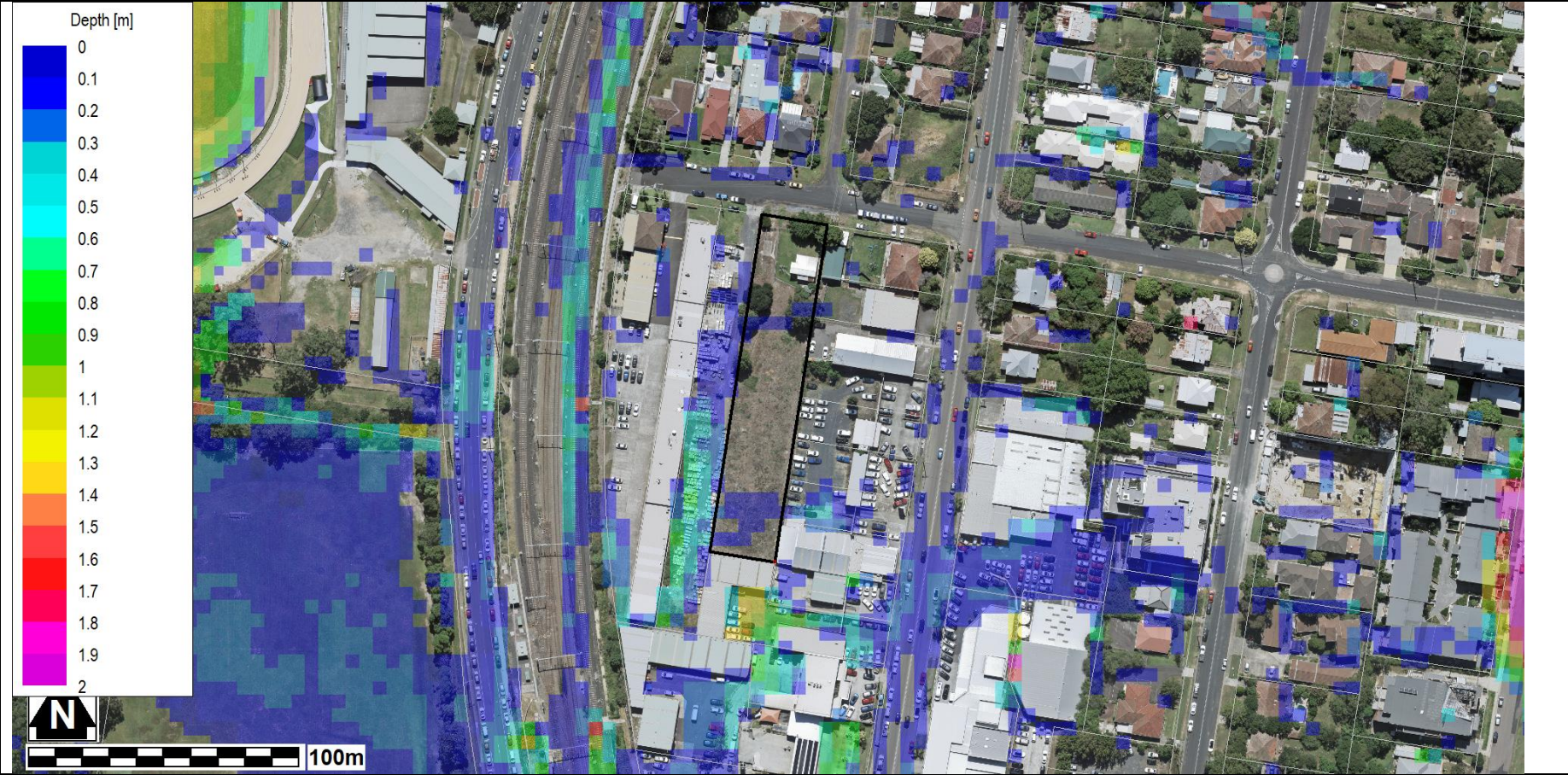
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Flood Information Certificate

PMF Flood Depth



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Flood Information Certificate

1% AEP Flood Level



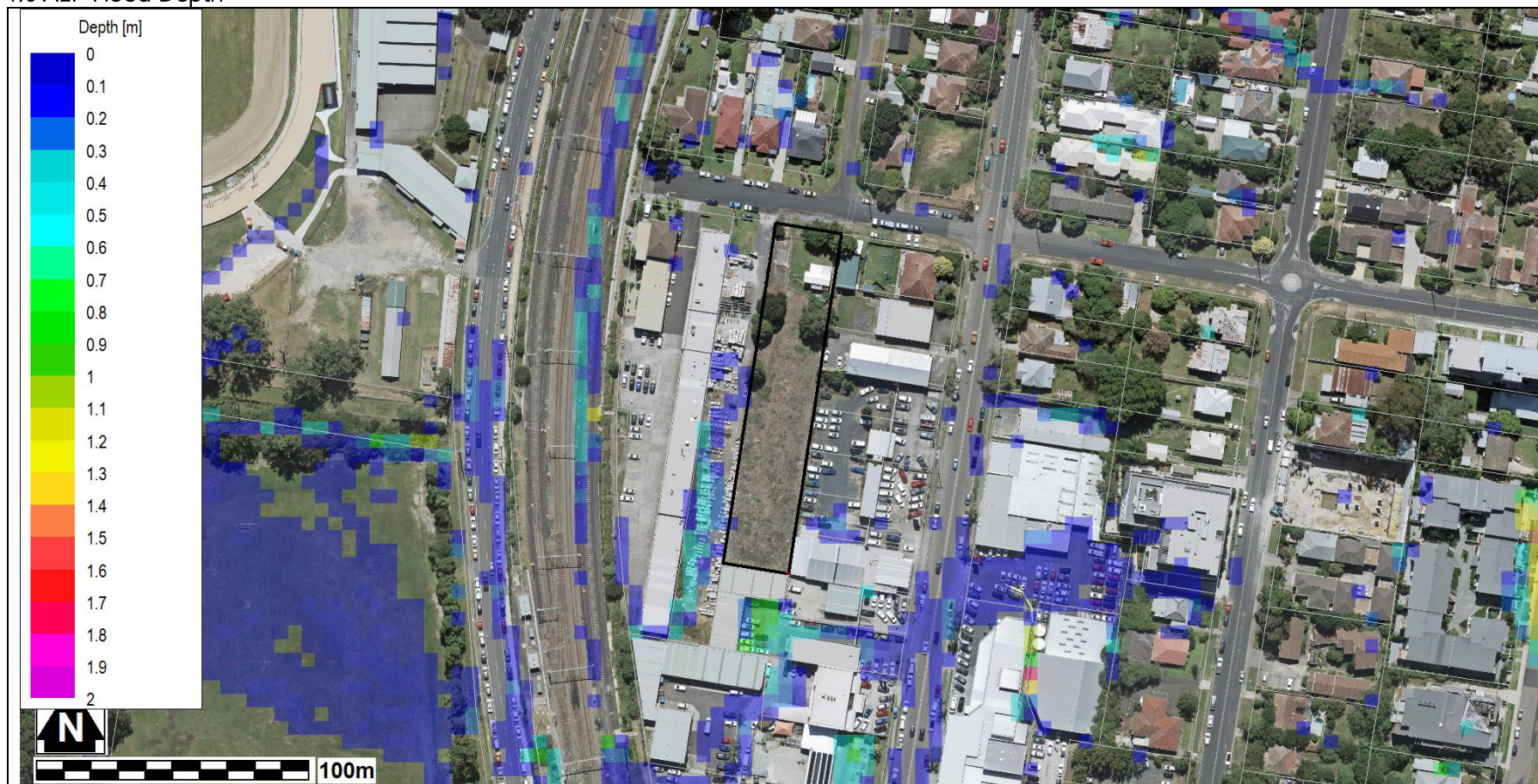
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Flood Information Certificate

1% AEP Flood Depth



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Flood Information Certificate

5% AEP Flood Level



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Flood Information Certificate

5% AEP Flood Depths



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Flood Information Certificate

1% AEP Hazard Categorisation



Flood Information Certificate

Hydraulic Categorisation



Flood Information Certificate



Property Address: 372 Mann St, NORTH GOSFORD

Lot /DP: 5/DP15954

Date Prepared: 29 August 2024

Source of information: Gosford CBD Local Overland Flow Flood Study, 2013

This Flood Certificate provides advice furnished in good faith by the council relating to the likelihood of the land identified above being flooded and to the nature or extent of any such flooding ("flood risk").

Flood level and flood planning advice is provided in the tables below and as maps in the Appendix. This advice regarding flood risk has been derived from the flood study listed above. Should you have any enquiries concerning this certificate, please do not hesitate to contact Andrew Dewar on 02 4306 7900 during the hours of 8.00am to 4.15pm Monday to Friday

Flood Level Information Table

Flood Event	Minimum Level (m AHD)	Maximum Level (m AHD)
PMF	18.90	22.12
1% AEP	N/A	N/A
5% AEP	N/A	N/A

Planning Information Table

This lot lies outside of the Flood Planning Area.

Flood Control Lot	☐
Minimum Habitable Floor Level	N/Am AHD
<i>Complying Development: Flood Exclusionary Categories</i>	
(a) Flood Storage Area	☐
(b) Floodway Area	☐
(c) Flow Path	☐
(d) High Hazard Area (H3, H4, H5, H6 Hazard Categorisation)	☐
(e) High Risk Area	☐



Flood Information Certificate



Minimum Habitable Floor Level in the Planning Information Table above is also known as the Flood Planning Level. It is derived from the maximum 1% AEP Flood Level plus 0.5m freeboard and an allowance for sea level rise if applicable. For large lots the maximum 1% AEP flood level may vary across the lot; as such the Minimum Habitable Floor Level would vary at different locations on the lot, which may result in a lower Minimum Habitable Floor Level than the one quoted in the Planning Information Table. Note that Minimum Habitable Floor Levels are based on a flood size that has a 1% chance each year of either being reached or exceeded. Larger floods still have a small chance of occurring. For this reason, Council recommends that property owners consider the merits of choosing a floor level above the minimum floor level if practical to do so.

Flood Mapping related to this address is included in the Appendix. On the Environmental Layers you can choose to view 1% AEP (1 in 100y) flood extents, as well as Flood Precincts, which are referred to in the Development Control Plan.

<https://maps.centralcoast.nsw.gov.au/public/>

Development Controls set appropriate floor levels, construction materials, pedestrian and vehicular access, car parking and impacts on surrounding property for a proposed development; either complying development (fast tracked - see below) or a DA. Council's development controls vary depending on the location:

- Former Gosford: LEP 2014 Clauses 5.21 & 7.3, DCP 2013 Chapter 6.7
- Former Wyong: LEP 2013 Clauses 5.21 & 7.3, DCP 2013 Chapter 3.3

<https://www.centralcoast.nsw.gov.au/plan-and-build/planning-controls-and-guidelines>

Complying Development is a fast-track approval process for straightforward residential, commercial and industrial development (e.g. Granny Flats). From 1 July 2021, all Complying Development Certificate (CDC) applications must be lodged through the online NSW Planning Portal. If the application meets specific criteria it can be determined by a registered certifier. Under Clause 3A.38 of the Codes SEPP 2008 Development must not be carried out on any part of a *flood control lot* that is considered to be in one of the following exclusionary categories: (a) flood storage area, (b) floodway area, (c) flow path, (d) high hazard area, (e) high risk area. Complying Development may be allowable at this address if none of the five flood exclusionary categories in the Planning Information Table above are marked "Yes".

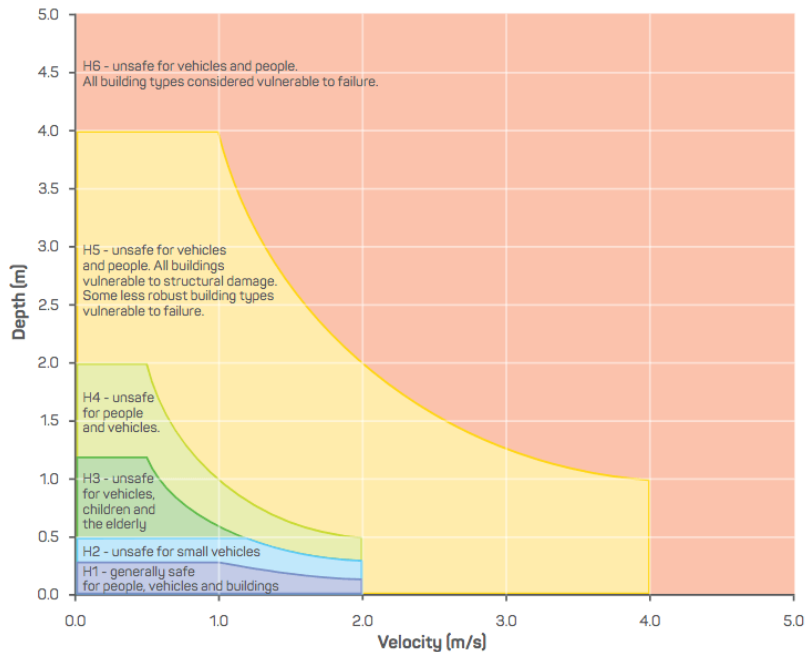
<https://www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Planning-Approval-Pathways/Complying-development>

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Flood Information Certificate



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Flood Information Certificate



Glossary

AEP	<i>Annual Exceedance Probability</i> : The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage. For example, the 1% AEP flood has a 1% probability of occurring in any given year. This flood is sometimes referred to as 1 in 100, 100yr ARI or Q100
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Flood Information Certificate

PMF Flood Level



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Flood Information Certificate

PMF Flood Depth



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Flood Information Certificate

1% AEP Flood Level



Flood Information Certificate

1% AEP Flood Depth



Flood Information Certificate

5% AEP Flood Level



Flood Information Certificate

5% AEP Flood Depths



Flood Information Certificate

1% AEP Hazard Categorisation



Flood Information Certificate

Hydraulic Categorisation



Flood Information Certificate



Property Address: 374 Mann St, NORTH GOSFORD

Lot /DP: 4/DP15954

Date Prepared: 29 August 2024

Source of information: Gosford CBD Local Overland Flow Flood Study, 2013

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Flood Level Information Table

Flood Event	Minimum Level (m AHD)	Maximum Level (m AHD)
PMF	21.01	21.01
1% AEP	N/A	N/A
5% AEP	N/A	N/A

Planning Information Table

This lot lies outside of the Flood Planning Area.

Flood Control Lot	☐
Minimum Habitable Floor Level	N/Am AHD
<i>Complying Development: Flood Exclusionary Categories</i>	
(a) Flood Storage Area	☐
(b) Floodway Area	☐
(c) Flow Path	☐
(d) High Hazard Area (H3, H4, H5, H6 Hazard Categorisation)	☐
(e) High Risk Area	☐



Flood Information Certificate



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Flood Mapping related to this address is included in the Appendix. On the Environmental Layers you can choose to view 1% AEP (1 in 100y) flood extents, as well as Flood Precincts, which are referred to in the Development Control Plan.

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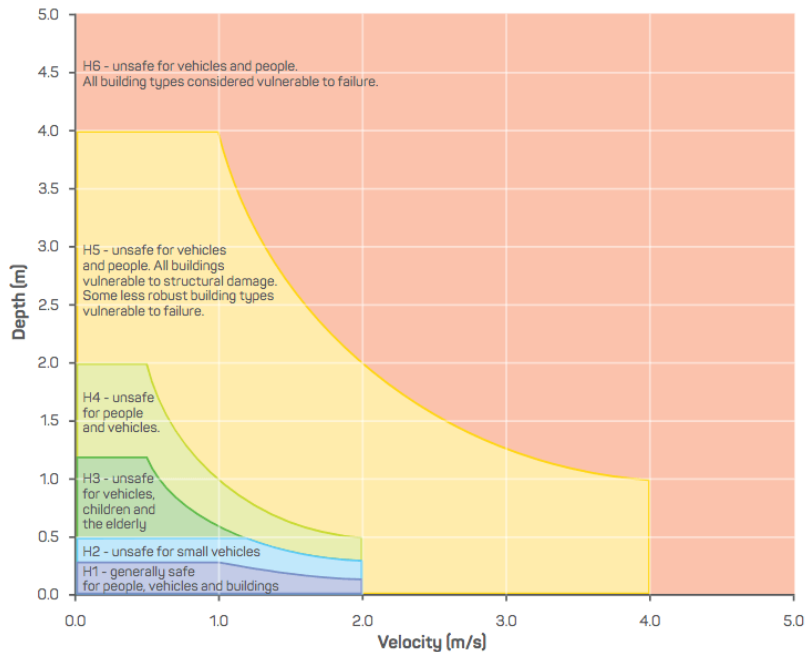
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Flood Information Certificate



Source – Australian Institute for Disaster Resilience 2017. Hydraulic Hazard: refer also to Australian Rainfall and Runoff Section 7.2.7 General Flood Hazard Curves (Figure 6.7.9) <http://book.arr.org.au.s3-website-ap-southeast-2.amazonaws.com/>

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Flood Information Certificate



Glossary

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Flood Information Certificate

PMF Flood Level



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Flood Information Certificate

PMF Flood Depth



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Flood Information Certificate

1% AEP Flood Level



Flood Information Certificate

1% AEP Flood Depth



Flood Information Certificate

5% AEP Flood Level



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Flood Information Certificate

5% AEP Flood Depths



Flood Information Certificate

1% AEP Hazard Categorisation



Flood Information Certificate

Hydraulic Categorisation



Flood Information Certificate



Property Address: 35 Dwyer St, NORTH GOSFORD
Lot /DP: 2A/DP407164
Date Prepared: 29 August 2024
Source of information: Gosford CBD Local Overland Flow Flood Study, 2013

This Flood Certificate provides advice furnished in good faith by the council relating to the likelihood of the land identified above being flooded and to the nature or extent of any such flooding ("flood risk").

Flood level and flood planning advice is provided in the tables below and as maps in the Appendix. This advice regarding flood risk has been derived from the flood study listed above. Should you have any enquiries concerning this certificate, please do not hesitate to contact Andrew Dewar on 02 4306 7900 during the hours of 8.00am to 4.15pm Monday to Friday

Flood Level Information Table

Flood Event	Minimum Level (m AHD)	Maximum Level (m AHD)
PMF	14.24	18.21
1% AEP	13.78	18.06
5% AEP	13.71	18.06

Planning Information Table

Flood Control Lot	☒
Minimum Habitable Floor Level	18.56m AHD
<i>Complying Development: Flood Exclusionary Categories</i>	
(a) Flood Storage Area	☐
(b) Floodway Area	☐
(c) Flow Path	☐
(d) High Hazard Area (H3, H4, H5, H6 Hazard Categorisation)	☐
(e) High Risk Area	☐



Flood Information Certificate



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<https://maps.centralcoast.nsw.gov.au/public/>

Development Controls set appropriate floor levels, construction materials, pedestrian and vehicular access, car parking and impacts on surrounding property for a proposed development; either complying development (fast tracked - see below) or a DA. Council's development controls vary depending on the location:

- Former Gosford: LEP 2014 Clauses 5.21 & 7.3, DCP 2013 Chapter 6.7
- Former Wyong: LEP 2013 Clauses 5.21 & 7.3, DCP 2013 Chapter 3.3

<https://www.centralcoast.nsw.gov.au/plan-and-build/planning-controls-and-guidelines>

Complying Development is a fast-track approval process for straightforward residential, commercial and industrial development (e.g. Granny Flats). From 1 July 2021, all Complying Development Certificate (CDC) applications must be lodged through the online NSW Planning Portal. If the application meets specific criteria it can be determined by a registered certifier. Under Clause 3A.38 of the Codes SEPP 2008 Development must not be carried out on any part of a *flood control lot* that is considered to be in one of the following exclusionary categories: (a) flood storage area, (b) floodway area, (c) flow path, (d) high hazard area, (e) high risk area. Complying Development may be allowable at this address if none of the five flood exclusionary categories in the Planning Information Table above are marked "Yes".

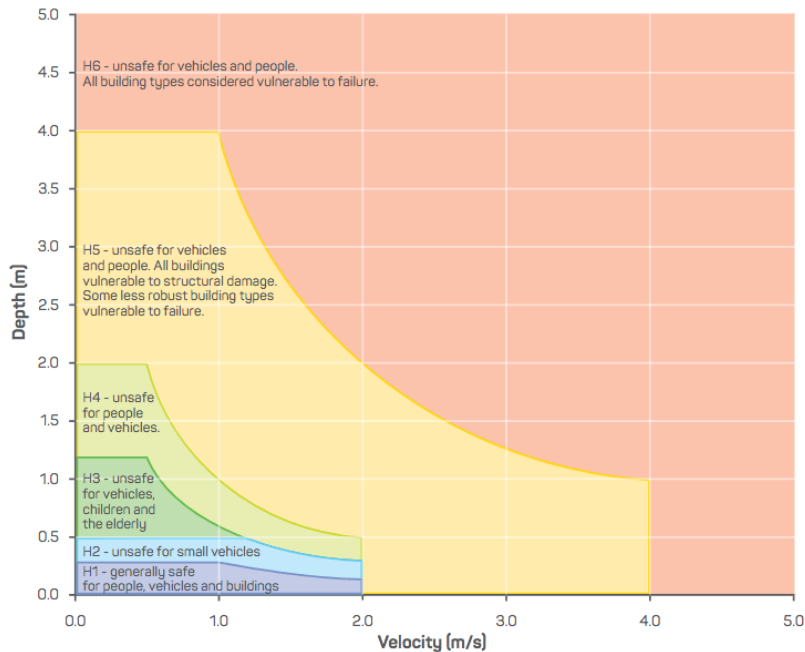
<https://www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Planning-Approval-Pathways/Complying-development>

Flood Hazard: Flooding has the potential to cause loss: loss of life, injury or economic loss. The degree of hazard varies with the severity of flooding and is affected by flood behaviour (extent, depth, velocity, isolation, rate of rise of floodwaters, duration), topography and emergency management.

Council classifies flood hazard using thresholds related to the stability of people as they walk or drive through flood waters, or shelter in a building during a flood. This method classifies hazard on a spectrum of H1 to H6 as described by the hazard vulnerability curves below. For further information refer to: Flood Hazard: Guideline 7.3, Australian Institute for Disaster Resilience 2017 <https://knowledge.aidr.org.au/media/3518/adr-guideline-7-3.pdf>



Flood Information Certificate



Source – Australian Institute for Disaster Resilience 2017. Hydraulic Hazard: refer also to Australian Rainfall and Runoff Section 7.2.7 General Flood Hazard Curves (Figure 6.7.9) <http://book.arr.org.au/s3-website-ap-southeast-2.amazonaws.com/>

Disclaimers

- This certificate is based on Council's relevant flood study, which covers a large area and utilises *airborne laser scanning* ground level data. Flood depths as shown on the maps at specific locations may not accurately account for localised changes in ground topography; the accuracy of flood depth information at a specific location may be improved by taking the flood level and subtracting the accurate ground level at a particular location, which could be established by a Registered Surveyor.
- Without limiting s.733 of the *Local Government Act 1993*, Council expressly disclaims all and any liability and responsibility in respect of loss, damage or injury to person or property arising from anything done or omitted to be done by any person in reliance, whether wholly or in part, upon any part of this information. Any person having regard to the information contained in this document is encouraged to seek, at their discretion, all other sources of information on the subject matter as they consider appropriate, which may include local knowledge and/or professional advice.
- Council does not, and cannot, warrant that it will, in its capacity as a consent authority under the *Environmental Planning and Assessment Act 1979*, grant consent to a DA that seeks to erect or use dwellings or other structures on the above property that conform with the levels set out in the above information. Council assesses DAs based on merit, which must consider various development controls as set out in the LEP and DCP. For any development proposal on a *Flood Control Lot* Council recommends the applicant to engage the services of a professional engineer who specialises in Flood Risk Management.



Flood Information Certificate



Glossary

AEP	<i>Annual Exceedance Probability</i> : The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage. For example, the 1% AEP flood has a 1% probability of occurring in any given year. This flood is sometimes referred to as 1 in 100, 100yr ARI or Q100
AHD	<i>Australian Height Datum</i> is the reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.
Airborne Laser Scanning	A ground level measurement system in which a laser is emitted from an instrument in an aircraft and directed to the ground in a scanning pattern
DA	Development Application
DCP	Development Control Plan
Flood Control Lot	A land parcel that is subject to flood related development controls
Flood Hazard	Flooding which has the potential to cause loss: loss of life, injury or economic loss. The degree of hazard varies with the severity of flooding and is affected by flood behaviour (extent, depth, velocity, isolation, rate of rise of floodwaters, duration), topography and emergency management.
Flood Storage Area	Areas that are important for the temporary storage of floodwaters during the passage of flood.
Floodway Area	Those areas where a significant volume of water flows during floods.
Flow Path	Those areas where a flow path is identified in the relevant flood study, generally associated with velocities greater than 1 metre per second in the 1% AEP flood.
Freeboard	A factor of safety used in relation to the setting of floor levels. The typical freeboard set by the NSW Government is 0.5m, unless Council can demonstrate a different freeboard can apply as defined in an adopted Floodplain Risk Management Plan.
Ground Levels	Highest and lowest ground levels on the property, predominately based on ground level information databases created by <i>Airborne Laser Scanning</i> . A Registered Surveyor can confirm exact ground levels.
High Hazard Area	Those areas where flooding has the potential to be unsafe or cause damage. Council considers those areas that are Hazard Category H3 or above in a 1% AEP flood to be high hazard. Refer to Section on Flood Hazard below.
High Risk Area	Those areas of high flood risk as identified in a flood study or Floodplain Risk Management Plan.
LEP	Local Environment Plan
PMF	The <i>Probable Maximum Flood</i> is an extreme flood deemed to be the largest flood that could conceivably occur at a specific location. It is generally not physically or economically possible to provide complete protection against this flood event but should be considered for emergency response. The PMF defines the extent of flood prone land (i.e. the floodplain).



Flood Information Certificate

PMF Flood Level



DISCLAIMER

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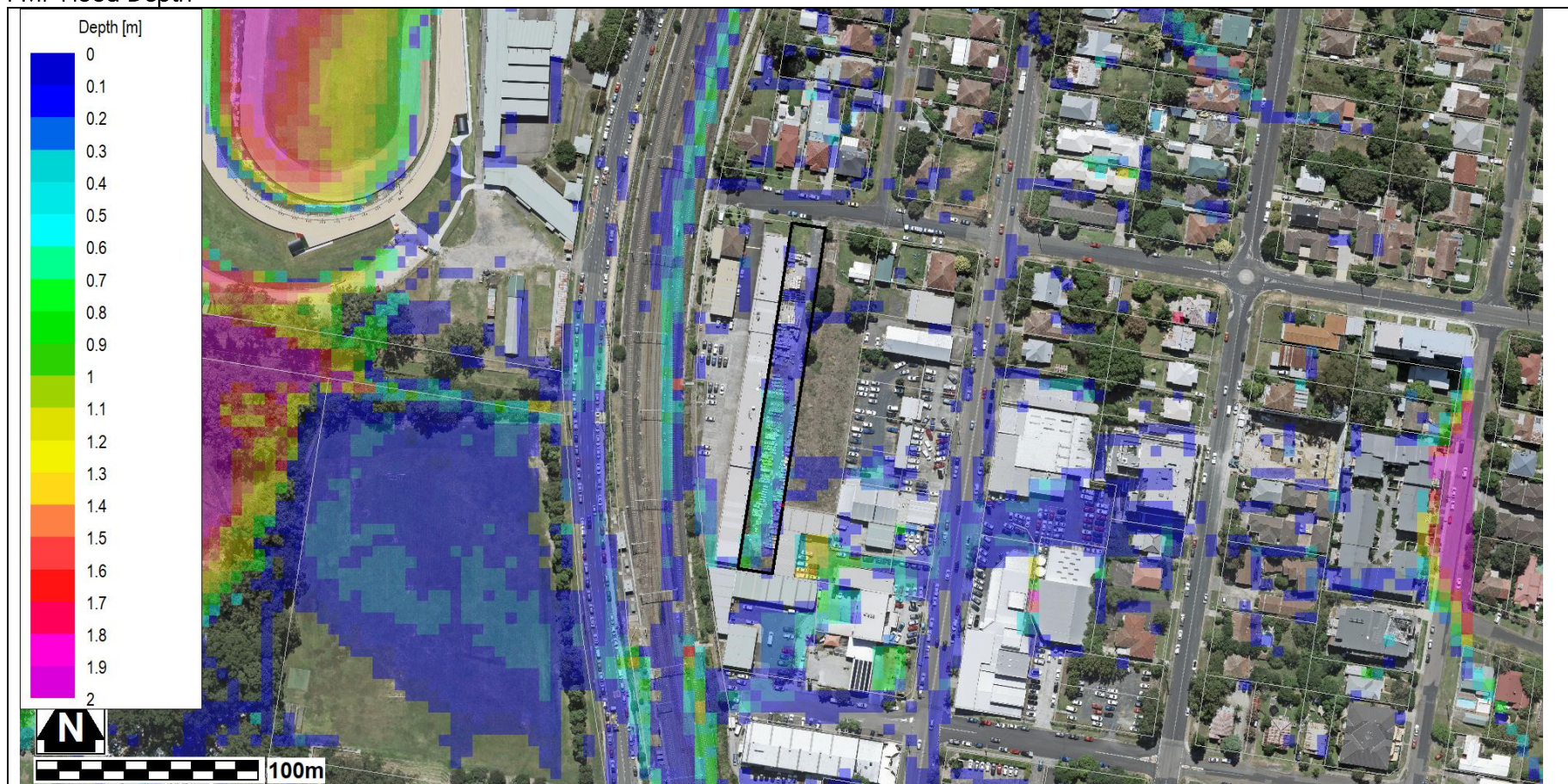
Phone: 1300 463 954 | Email: ask@centralcoast.nsw.gov.au | ABN 73 149 644 003

Wyong Office: 2 Hely St / PO Box 20 Wyong NSW 2259 Gosford Office: 49 Mann St / PO Box 21 Gosford NSW 2250

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Flood Information Certificate

PMF Flood Depth



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Flood Information Certificate

1% AEP Flood Level

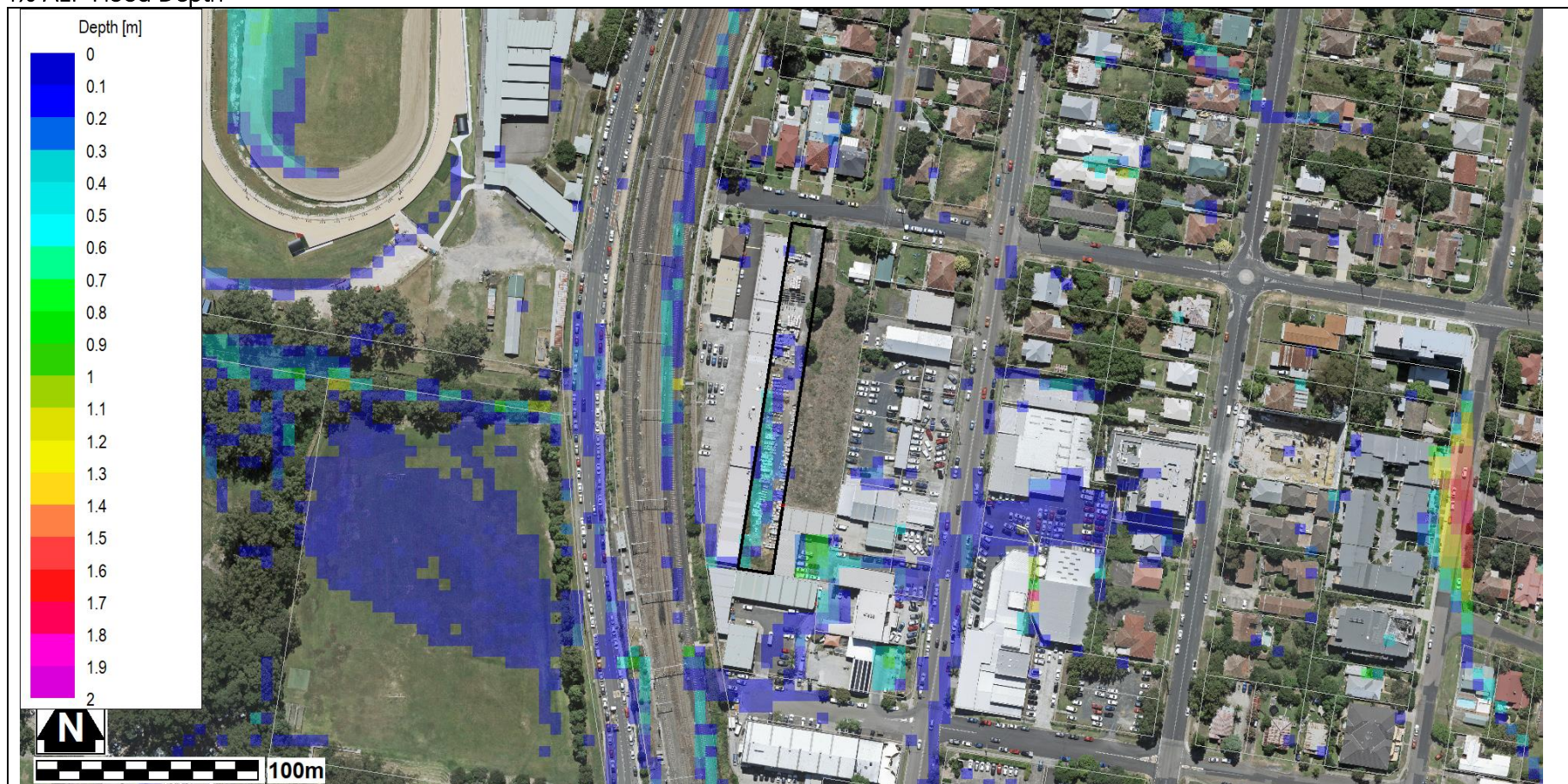


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Flood Information Certificate

1% AEP Flood Depth



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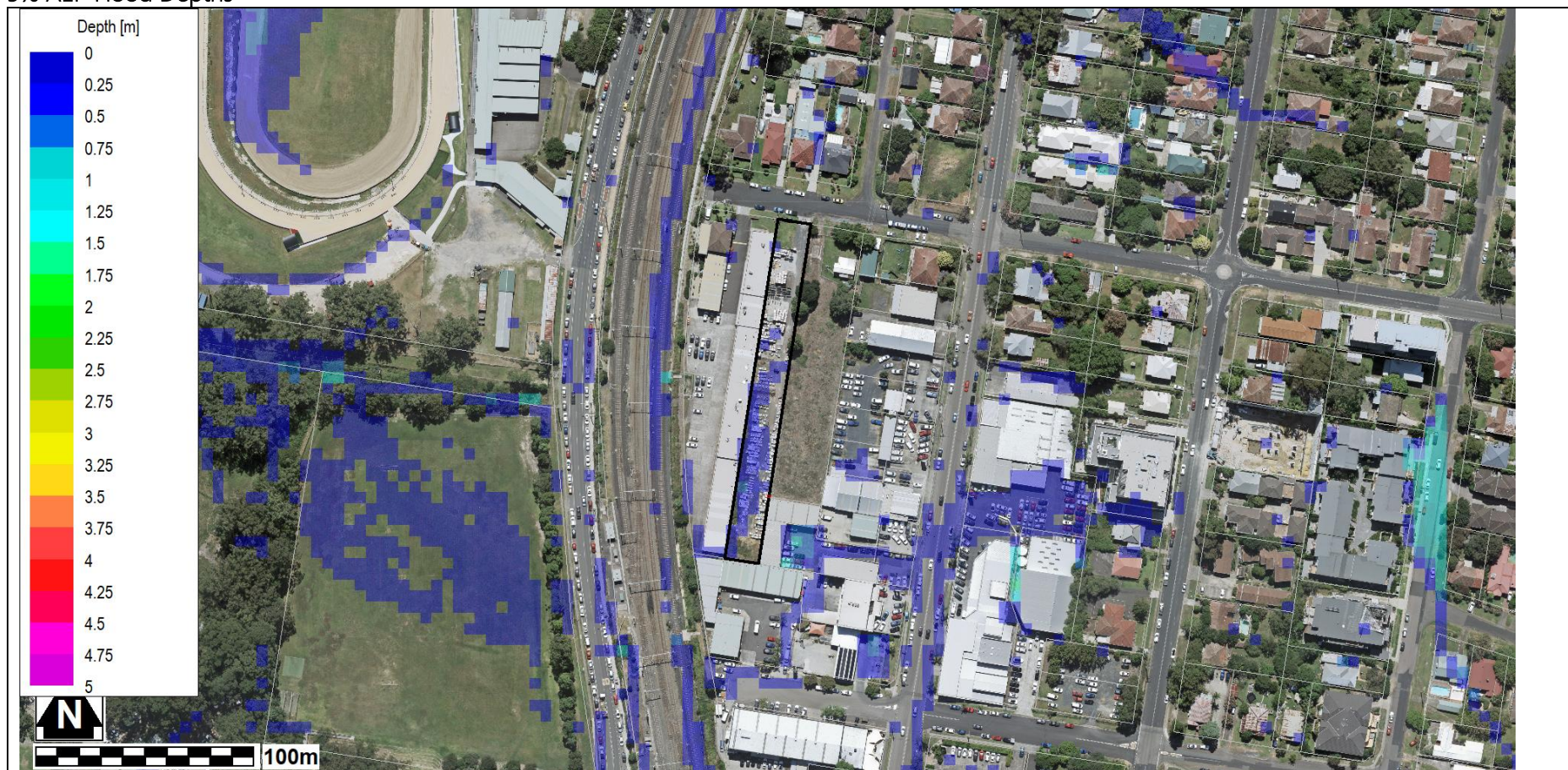
Flood Information Certificate

5% AEP Flood Level



Flood Information Certificate

5% AEP Flood Depths



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Flood Information Certificate

1% AEP Hazard Categorisation



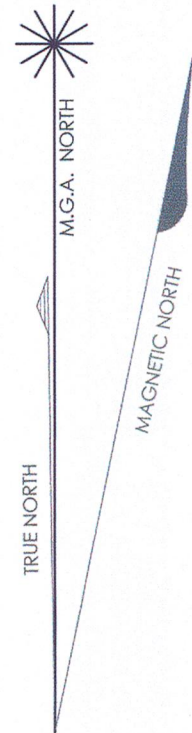
Flood Information Certificate

Hydraulic Categorisation



APPENDIX B

Survey Plan



IMPORTANT NOTES:

1. THIS PLAN HAS BEEN PREPARED FOR THE CLIENT LISTED ON THIS PLAN ONLY. FOR THE PURPOSE OF SHOWING PHYSICAL FEATURES OF THE LAND TO ASSIST IN DESIGNING THE FUTURE DEVELOPMENT DESCRIBED BELOW AS THE PROJECT AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE.
2. UTILITY SERVICES SHOWN HEREON HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY. IF NOT ABLE TO BE LOCATED, KNOWN SERVICES HAVE BEEN SHOWN FROM THE RECORDS OF RELEVANT AUTHORITIES OR SERVICE PROVIDERS WHERE AVAILABLE.
3. THE BOUNDARIES SHOWN HEREON ARE APPROXIMATE ONLY AND WERE DETERMINED FROM EXISTING TITLE DIMENSIONS. AS SUCH THESE DIMENSIONS COULD BE OUT OF DATE AND INCORRECT BY MODERN STANDARDS. THIS PLAN SHOULD NOT BE USED FOR BUILDING TO BOUNDARY OR FOR PRESCRIBED SETBACKS WITHOUT FURTHER SURVEY INVESTIGATION.
4. FOR ANY CONSTRUCTION ACTIVITIES PROPOSED IN CLOSE PROXIMITY TO THE BOUNDARIES, IT IS RECOMMENDED THAT THOSE BOUNDARIES BE MARKED TO AVOID POSSIBILITY OF ENCROACHMENT.
5. THIS WORK IS COPYRIGHT, APART FROM ANY USE PERMITTED UNDER THE COPYRIGHT ACT 1968, NO PART MAY BE REPRODUCED BY ANY PROCESS, NOR MAY ANY OTHER EXCLUSIVE RIGHT BE EXERCISED, WITHOUT THE PERMISSION OF BARRY HUNT ASSOCIATES, 2020.

0 5 10 20 30 40
SCALE 1:500

LEGEND

- BB DENOTES BOTTOM OF BANK
- TB DENOTES TOP OF BANK
- ED DENOTES EDGE OF BITUMEN
- F DENOTES FENCELINE
- SP DENOTES STORMWATER PIPE
- E DENOTES OVERHEAD POWER IN VICINITY
- UE DENOTES UNDERGROUND POWER IN VICINITY
- UEB DENOTES UNDERGROUND POWER BOX
- P.P. DENOTES POWER POLE
- S.P. DENOTES SERVICE POLE
- GAS DENOTES GASMAIN IN VICINITY
- SMH DENOTES SEWER MANHOLE
- RM DENOTES SEWER RISING MAIN IN VICINITY
- S DENOTES SEWERMAIN IN VICINITY
- FOM DENOTES FIBRE OPTIC MAIN IN VICINITY
- T DENOTES TELSTRA MAIN IN VICINITY
- PIT DENOTES TELSTRA PIT
- H- HEIGHT
- S- SPREAD
- D- DIAMETER
- EDENOTES EDGE OF VEGETATION
- W.M. DENOTES WATER METER
- HYD DENOTES HYDRANT
- S.V. DENOTES STOP VALVE
- W DENOTES WATERMAIN IN VICINITY
- EDENOTES BITUMEN CARRIAGEWAY
- EDENOTES CONCRETE PATH
- EDENOTES GRAVEL CARRIAGEWAY

B	UPDATED VEGETATION IN LOTS 25 & 26 SECTION A DP 1591	6/12/23
A	ORIGINAL ISSUE	10/10/22
AMENDMENTS		DATE

REGISTERED SURVEYOR

DRAWN	JRCH	DATE	10/10/22
SURVEYED	MB	DATE	7/10/22

Barry Hunt Associates

REGISTERED SURVEYORS AND
LAND DEVELOPMENT CONSULTANTS
SUITE 4, 1 BOUNTY CL., TUGGERAH 2259
P.O. BOX 4144, BAY VILLAGE, 2261
PHONE (02) 43539644 FAX (02) 43533855
Email - admin@surveyors.com.au



LOCALITY: DWYER STREET
NORTH GOSFORD
L.G.A. CENTRAL COAST

CLIENT: STONEBRIDGE PROPERTIES P/L

PROJECT: RESIDENTIAL DEVELOPMENT

PLAN: DETAIL AND CONTOUR SURVEY

DATUM	AUSTRALIAN HEIGHT DATUM	SCALE	1:500(A1)
CAD REF:	57199MAN	SHEET	1 OF 1

TREE SCHEDULE				
No.	TYPE	DIA.	SPREAD	HT.
1	PINE	0.8	8	4
2		0.3	6	6
3		0.2	4	4
4		0.6	10	5
5	CREPE MYRTLE	0.3	4	5
6		0.4	6	4
7		0.4	6	4
8		0.7	16	12
9		0.2	6	6
10	MULBERRY	0.3	6	6
11	FRANGIPANI	0.4	6	6
12		0.4	6	6
13	FRANGIPANI	0.15	2	5

APPENDIX C

Architectural Plans

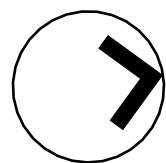
1 BASEMENT 1 PLAN
SCALE 1 : 250

REVISION	
D	FOR INFORMATION
E	FOR INFORMATION
F	FOR INFORMATION
G	FOR INFORMATION
H	FOR INFORMATION
I	ISSUE FOR DA

DATE	LEGEND
04/09/24	RESIDENTIAL
23/09/24	COMMERCIAL
2/10/24	COMMERCIAL
11/12/24	CARPARK
20/01/25	COMMUNAL OPEN SPACE
24/01/25	COMMUNAL OPEN SPACE

NOTES
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CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK. DRAWING TO BE
READ IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS. DO NOT SCALE DRAWING. USE
FIGURED DIMENSIONS ONLY. SEEK CLARIFICATION OF INCONSISTENCIES/CONFLICTS.

DRAWN	CHECKED	JOB NO.	SCALE
JJ	MC	23001	As indicated @A1



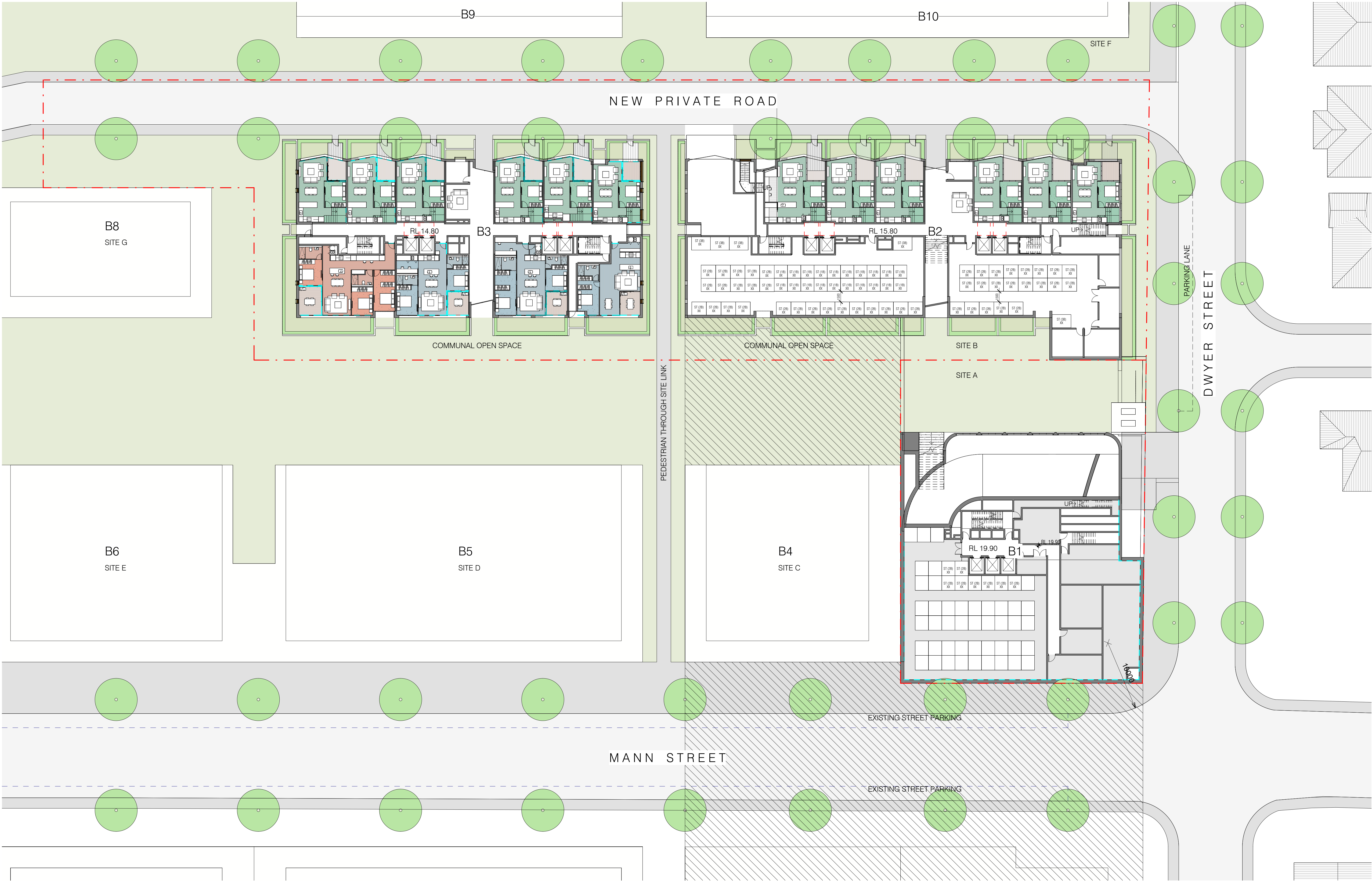
PROJECT
372-374 MANN ST & 35-37 DWYER ST
NORTH GOSFORD NSW 2250

DRAWING TITLE
BASEMENT 1 PLAN

CLIENT

CURZON + PARTNERS
L 13, 234 GEORGE STREET
SYDNEY NSW 2000
T: +61 87055475
CURZON AND PARTNERS PTY LTD ACN 649993377

ISSUE PURPOSE	REV	DRAWING NO.
SSDA	I	DA 108



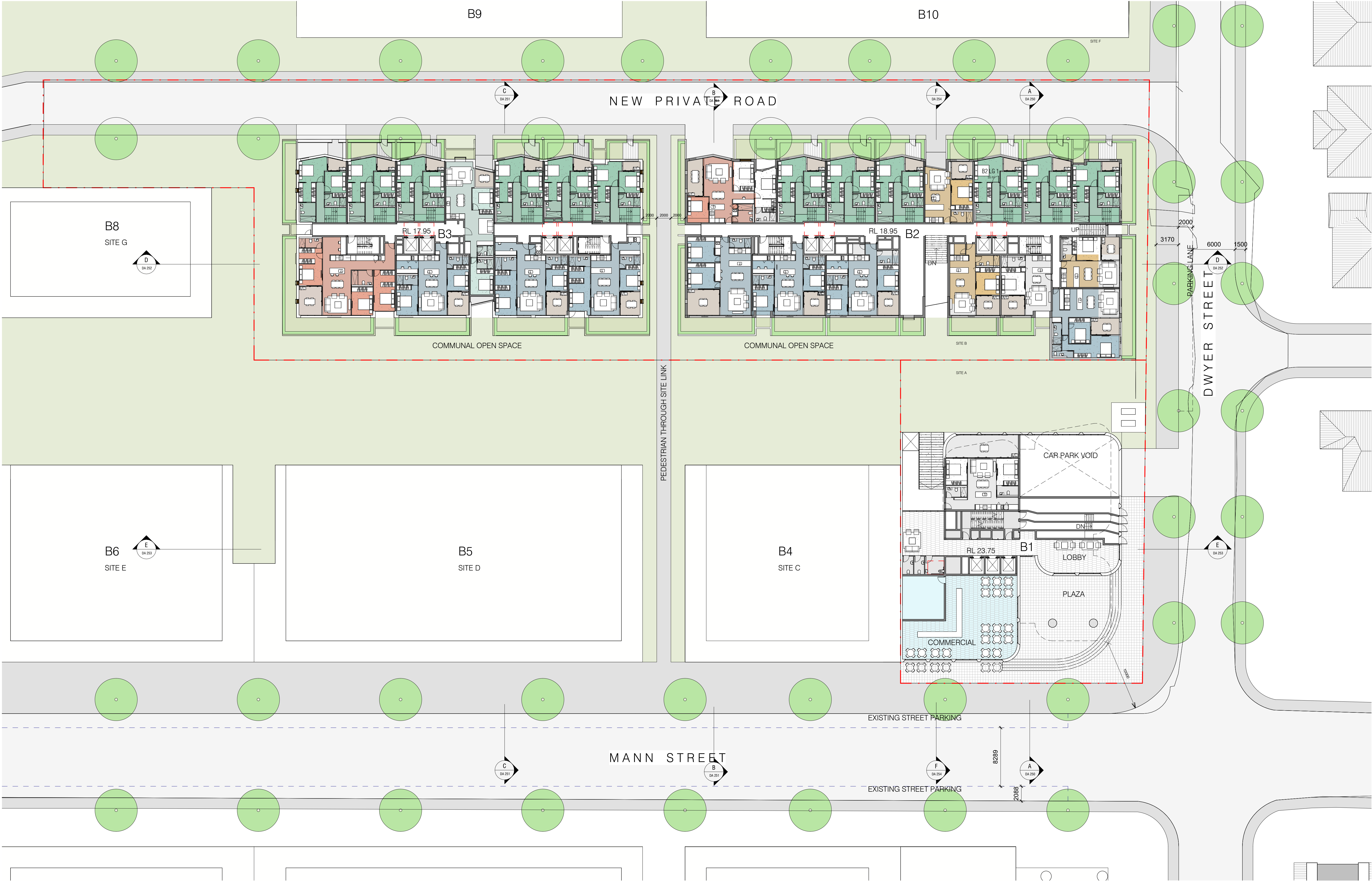
1 LOWER GROUND FLOOR PLAN
SCALE 1 : 250

REVISION		
A	FOR INFORMATION	22/05/24
B	FOR INFORMATION	04/06/24
C	FOR INFORMATION	04/09/24
D	FOR INFORMATION	23/09/24
E	FOR INFORMATION	2/10/24
F	ISSUE FOR DA	24/01/25

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DRAWN	CHECKED	JOB NO.	SCALE
JJ	MC	23001	1 : 250 @A1

PROJECT	
372-374 MANN ST & 35-37 DWYER ST NORTH GOSFORD NSW 2250	
DRAWING TITLE	
LOWER GROUND FLOOR PLAN	

CLIENT		
CURZON + PARTNERS L 13, 234 GEORGE STREET SYDNEY NSW 2000 T: +61 87055475 CURZON AND PARTNERS PTY LTD ACN 649993377		
ISSUE PURPOSE	REV	DRAWING NO.
SSDA	F	DA 109



1 UPPER GROUND FLOOR PLAN
SCALE 1 : 250

REVISION		
A	FOR INFORMATION	22/05/24
B	FOR INFORMATION	04/06/24
C	FOR INFORMATION	04/09/24
D	FOR INFORMATION	23/09/24
E	FOR INFORMATION	2/10/24
F	ISSUE FOR DA	24/01/25

NOTES			
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DRAWN	CHECKED	JOB NO.	SCALE
JJ	MC	23001	1 : 250 @A1

PROJECT	
372-374 MANN ST & 35-37 DWYER ST NORTH GOSFORD NSW 2250	
DRAWING TITLE	
UPPER GROUND PLAN	

CLIENT	
CURZON + PARTNERS L 13, 234 GEORGE STREET SYDNEY NSW 2000 T: +61 87055475 CURZON AND PARTNERS PTY LTD ACN 649993377	
ISSUE PURPOSE	REV
SSDA	F
DRAWING NO.	
DA 110	

APPENDIX D

Flood compatible materials

Component	Flood Compatible Material
Flooring and Sub-floor	- Concrete slab-on-ground monolith construction - Suspended reinforced concrete slab
Wall Structure	Solid brickwork, blockwork, reinforced, concrete or mass concrete
Wall and Ceiling Linings	- 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
Roof Structure	- Reinforced concrete construction - Galvanised metal construction
Doors	- Solid panel with water proof adhesives - Flush door with marine ply filled with closed cell foam - Painted metal construction - Aluminium or galvanised steel frame
Insulation	- Closed cell solid insulation - Plastic/polystyrene boards
Windows	Aluminium frame with stainless steel rollers or similar corrosion and water-resistant material.
Nails, Bolts, Hinges and Fittings	- Brass, nylon or stainless steel - Removable pin hinges - Hot dipped galvanised steel wire nails or similar
Main Power Supply	Subject to the approval of the relevant authority the incoming main commercial power service equipment, including all metering equipment, shall be located above the designated flood level. Means shall be available to easily disconnect the dwelling from the main power supply.

Component	Flood Compatible Material
Wiring	- All wiring, power outlets, switches, etc., should be located above the designated flood level. All electrical wiring installed below this level should be suitable for continuous underwater immersion and should contain no fibrous components. - Earth leakage circuit-breakers (core balance relays) or Residual Current Devices (RCD) must be installed. - Only submersible type splices should be used below maximum 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.
Electrical Equipment	All equipment installed below or partially below the designated flood level should be capable of disconnection by a single plug and socket assembly.
Heating and Air Conditioning Systems	Heating and air conditioning systems should be installed in areas and spaces of the house above the designated flood level.
Fuel storage for heating purposes	- 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. - The heating equipment and related 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. The tanks should be vented to an elevation of 600 millimetres above the designated flood level.
Ducting for heating/cooling purposes	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, a closure assembly operated from above relevant flood level should protect the ductwork.