ORDINARY MEETING OF COUNCIL
TO BE HELD ON TUESDAY, 22 JULY 2025 AT 7:00 PM
LEVEL 3, COUNCIL CHAMBER

A G E N D A
** ** ** ** ** **

NOTE: For Full Details, See Council's Website –
https://www.krg.nsw.gov.au under the link to business papers

The Livestream can be viewed here:
https://www.krg.nsw.gov.au/Council/Council-meetings/Council-meeting-live-stream

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In accordance with clause 3.23 of the Model Code of Meeting Practice, Councillors are reminded of the oath or affirmation of office made under section 233A of the Act, and of their obligations under the Council's Code of Conduct to disclose and appropriately manage conflicts of interest.

Please refer to Part 4 of Council's Code of Conduct for Pecuniary Interests and Part 5 of Council's Code of Conduct for Non-Pecuniary Interests.

The Oath or Affirmation taken is as below:

Oath:

I *[name of Councillor]* swear that I will undertake the duties of the office of Councillor in the best interests of the people of the Ku-ring-gai Local Government area and the Ku-ring-gai Council, and that I will faithfully and impartially carry out the functions, powers, authorities and discretions vested in me under the *Local Government Act 1993* or any other Act to the best of my ability and judgement.

Affirmation:

I *[name of Councillor]* solemnly and sincerely declare and affirm that I will undertake the duties of the office of Councillor in the best interests of the people of the Ku-ring-gai Local Government area and the Ku-ring-gai Council, and that I will faithfully and impartially carry out the functions, powers, authorities and discretions vested in me under the *Local Government Act 1993* or any other Act to the best of my ability and judgement.

APOLOGIES

DECLARATIONS OF INTEREST

DOCUMENTS CIRCULATED TO COUNCILLORS

CONFIRMATION OF REPORTS TO BE CONSIDERED IN CLOSED MEETING

NOTE:

That in accordance with the provisions of Section 10 of the Local Government Act 1993, all officers' reports be released to the press and public, with the exception of following confidential report(s) and attachments:

C.1 Update on Council land acquisitions for open space

In accordance with 10A(2)(c):

NOTE:

That in accordance with the provisions of Section 10 of the Local Government Act 1993, all officers' reports be released to the press and public, with the exception of confidential attachments to the following General Business reports:

GB.8 RFT57-2024 Main Carpark Upgrade St Ives Showground

In accordance with 10A(2)(d)(ii):

Attachment 2: RFT57-2024 Main Carpark Upgrade - St Ives Showground - List of Submitters

In accordance with 10A(2)(d)(i):

Attachment 3: RFT57-2024/R Main Carpark Upgrade St Ives Showground - Tender Evaluation Report

GB.9 Tender NSROC - RFT1-2025 - Road Surfacing, Patching, and Associated Works – 2025 to 2027

In accordance with 10A(2)(d)(ii) and (d)(iii):

Attachment 1: Asphalt-2027 - Tender evaluation report FINAL

CONFIRMATION OF MINUTES

Minutes of Extraordinary Meeting of Council **14**

File: EM00046/5
Meeting held 5 June 2025
Minutes numbered 81 to 87

Minutes of Ordinary Meeting of Council **62**

File: EM00046/5
Meeting held 17 June 2025
Minutes numbered 88 to 106

MINUTES FROM THE MAYOR

MM.1 **Transport Oriented Development (TOD) preferred scenario update** **82**

File: S14427

The purpose of this Mayoral Minute is to update Council and the community on the current situation since Council adopted the preferred scenario for new development along the Gordon to Roseville rail corridor.

Background

In May 2024, the Government implemented the TOD planning policy for areas within 400 metres of Roseville, Lindfield, Killara and Gordon stations.

In cooperation with the NSW Government, Council prepared an alternate preferred scenario to the TOD based on planning principles to preserve important built heritage and the natural environment.

The preferred scenario was developed with extensive community feedback received after the Council consulted with the community on alternative solutions to the TOD.

On 5 June 2025, Council adopted a preferred scenario for new development in the Gordon to Roseville rail corridor, to replace the TOD planning controls.

The preferred scenario was submitted to the NSW Department of Planning, Housing and Infrastructure for approval (DPHI).

Legal proceedings remain

As part of the legal proceedings Council engaged in mediation with the NSW Government. It was agreed that Council would work to deliver an alternative housing plan with at least the same number of additional dwellings as the TOD. The alternate plan is yet to be gazetted by the government and for the time being the legal proceedings remain on foot.

State Significant Developments

The TOD planning controls allowed State Significant Development (SSD) applications to be lodged with the DPHI up until 13 June 2025.

SSD applications are assessed by DPHI and determined by the Minister for Planning or the Independent Planning Commission. Council is notified of and invited to comment on SSD applications at the exhibition stage, but otherwise plays no part in the assessment process.

Ku-ring-gai Council is a referral body only, without any decision-making authority.

Uniform Apartment Setbacks
There have been recent suggestions that Council implement uniform apartment setbacks. This may undermine the integrity of existing planning principles or potentially compromise well-integrated development.

Uniform setback requirements would not consider the significant difference between the housing typologies included in Council's alternate scenario, ranging from three story apartments to 9, 12-15 and 20 plus story buildings in town centres and suburban locations.

The NSW Apartment Design Guide already takes into account setbacks when assessing DAs.

Heritage properties
Under the TOD planning policy, individually listed heritage items were not provided with any uplift to planning controls. Under Council's preferred scenario, these properties have been provided with the same uplift as adjacent properties which provides increased opportunity for consolidation into development proposals.

I have also recently written to The Hon. Paul Scully, Minister for Planning and Public Spaces, seeking his guidance to ask if we could work collaboratively on the future of heritage homes stranded by the TOD and Preferred Scenario - "we are seeking your guidance on how a transparent, case-by-case process might be established to address the concerns of heritage property owners affected by this evolving policy context. Council remains committed to working closely with the Department to find constructive and fair outcomes."

Heritage conservation areas
Council's preferred scenario protects as many heritage conservation areas from development as possible, on the east side of Killara and Roseville in particular.

Protecting all conservation areas was not possible given the dwelling targets Council had to meet.

Recommendation:

That this Mayoral Minute be placed on the Council website

PETITIONS

GENERAL BUSINESS

i. The Mayor to invite Councillors to nominate any item(s) on the Agenda that they wish to have a site inspection.

ii. The Mayor to invite Councillors to nominate any item(s) on the Agenda that they wish to adopt in accordance with the officer's recommendation allowing for minor changes without debate.

GB.1 Minutes of Audit, Risk & Improvement Committee meeting held on 12 June 2025 84

File: CY00458/13

To provide Council with the minutes from the Audit, Risk & Improvement Committee meeting held on 12 June 2025 for adoption.

Recommendation:

That the minutes from the Audit, Risk & Improvement Committee meeting held on 12 June 2025 be adopted.

GB.2 Heritage Reference Committee meeting minutes of 5 June 2025 & 2025-26 Heritage Home Grants Allocation 95

File: FY00674/2

For Council to consider the minutes from the previous Heritage Reference Committee ('HRC') meeting held on 5 June 2025 and HRC recommendations for the applications under the Heritage Home Grants (HHG) program for 2025/26.

Recommendation:

A. That Council receive and note the HRC minutes at Attachment A1 from the meeting held on 5 June 2025.

B. That Council approves the Heritage Home Grant funding as set out in Attachment A2.

C. That Council waives any applicable minor works application fees required by successful grant recipients to undertake projects approved for funding.

GB.3 Environment Committee Minutes - June 2025 109

File: S14696

For Council to consider and note the minutes of the Environment Advisory Committee meeting held on 23 June 2025.

Recommendation:

That Council receive and note the Minutes of the Environment Advisory Committee meeting held on 23 June 2025.

GB.4 Flood Risk Management Committee Meeting Minutes 116

File: S10746

For Council to consider and note the minutes of the Flood Risk Management Committee meetings held on 23 July 2024 and 10 June 2025.

Recommendation:

That Council receive and note the Minutes of the Flood Risk Management Committee meetings held on 23 July 2024 and 10 June 2025.

GB.5 Investment Report as at 30 June 2025 128

File: FY00623/8

To present Council's investment portfolio performance for June 2025.

Recommendation:

That the summary of investments performance for June 2025 be received and noted; and that the Certificate of the Responsible Accounting Officer be noted and the report adopted.

GB.6 Review of Councillor Expenses and Facilities Policy 137

File: CY00474/12

For Council to adopt the updated Councillor Expenses and Facilities Policy and expense limits for the first year of this Council term.

Recommendation:

That the updated Councillor Expenses and Facilities Policy be placed on public exhibition for a period of 28 days. If any submissions are received, the matter be reported back to Council after the consultation period. If no submissions are received, that Council adopt the updated policy to come into effect on 1 October 2025.

GB.7 Draft Policies Sportsfields Bookings Policy Sportsfields Closure Policy 165

File: S03881

For Council to consider and endorse the Draft Sportsfields Bookings Policy and Draft Sportsfields Closure Policy to be released for community consultation for 4 weeks.

Recommendation:

That Council endorses the Draft Sportsfields Bookings Policy and the Draft Sportsfields Closure Policy to be released for community consultation for 4 weeks.

GB.8 RFT57-2024 Main Carpark Upgrade St Ives Showground 190

File: RFT57-2024/R

The purpose of this report is for Council to consider the tenders received for RFT57-2024 Main Carpark Upgrade St Ives Showground and to appoint the preferred tenderer for construction.

Recommendation:

In accordance with Section 55 of the Local Government Act and Tender Regulation 2021, it is recommended Council accept the Tender submitted by Tenderer 'A'.

GB.9 **Tender NSROC - RFT1-2025 - Road Surfacing, Patching, and Associated Works – 2025 to 2027** **196**

File: FY00662/6

To seek Council's approval to accept the Northern Sydney Regional Organisation of Councils (NSROC) tender for the schedule of rates for supply; supply and delivery; and supply, delivery and laying of asphaltic concrete, including associated road profiling and heavy patching and other work items for the period 2025/2026 and 2026/2027.

Recommendation:

In accordance with Section 55 of the Local Government Act and Tender Regulations 2021, it is recommended Council accept the recommendation as detailed in the Confidential Attachment 1.

GB.10 **Project Status Report - July 2025** **202**

File: FY00621/8

To provide Council with the Project Status Report for April – June 2025.

Recommendation:

That Council receive and note the Project Status Report for April – June 2025.

GB.11 **Ku-ring-gai DCP - Local Character Areas** **208**

File: S14276

For Council to consider the amendment of the *Ku-ring-gai Development Control Plan* to include Local Character Areas and endorse its public exhibition.

Recommendation:

That Council endorse the updates proposed to the Ku-ring-gai DCP Part 14, as detailed in Attachment A2 of this report for public exhibition.

GB.12 **Draft Site-Specific DCP - Pymble Golf Club** **304**

File: S12645

To have Council consider an amendment to the Ku-ring-gai Development Control Plan to include site-specific controls to support the Planning Proposal for Pymble Golf Course (4,12 and 14 Cowan Road, St Ives).

Recommendation:

That Council endorse the draft site-specific DCP amendments for the purpose of public exhibition.

GB.13 **Environmental Levy Grant Program - Round 27** **323**

File: CY00848/2

To seek Council's endorsement to fund round twenty-seven (27) of the Environmental Levy grants program.

Recommendation:

That Council endorse the recommendations of the Environmental Levy Grants Assessment Panel to fund sixteen (16) projects, totalling $99,191.00 under round twenty-seven (27) of the Environmental Levy grants program.

GB.14 **Middle Harbour Northern Catchments Flood Study - Post Exhibition Report** **333**

File: S12747

For present the updated *Middle Harbour Northern Catchments Flood Study* for Council endorsement.

Recommendation:

That Council endorse the Middle Harbour – Northern Catchments Flood Study Final Report.

EXTRA REPORTS CIRCULATED TO MEETING

MOTIONS OF WHICH DUE NOTICE HAS BEEN GIVEN

NM.1 **Reaffirming Council's position on TOD SEPP, and addressing the cancellation of the Extraordinary Meeting of Council (2 July 2025)** **635**

File: S14427

Notice of Motion from Councillors Devlin and Smith dated 4 July 2025

On 27th June 2025, an Extraordinary Meeting of Council (EMC) was called at the request of two Councillors, Cr. Cedric Spencer & Cr. Jeff Pettett, purportedly to consider a motion relating to "Proposed Additions to the GB1 TOD Alternative on the Preferred Scenario". This was widely interpreted as an attempt to revisit Council's formally adopted position on the Transport Oriented Development (TOD) SEPP Preferred Scenario. A position established through rigorous & robust debate, lengthy & comprehensive community consultation, and proper process, and currently under active review by the NSW Department of Planning, Housing and Infrastructure (DPHI).

The calling of the EMC caused significant and unnecessary confusion within the community. Many residents, some of whom had been active and constructive participants in the consultation process, were misled into believing that Council's position had changed, or was in the process of changing. Others were left questioning the integrity of Council's processes and decision-making.

Most concerning was the way in which a handful of residents were drawn into this political exercise under false pretences. Their genuine concerns were weaponised, used as a prop to give legitimacy to a poorly conceived, procedurally questionable motion that was hastily cobbled together without policy basis. Residents were offered false hope that individual concerns could be resolved by bypassing Council's established processes. That hope was misplaced, and the blame for that lies squarely with the Councillors who orchestrated this stunt masqueraded as planning reform.

The EMC motion and its accompanying proposal not only sought to re-litigate resolved matters, it did so based on flawed reasoning, misstatements of planning law, and a fundamental misunderstanding of Council's operational, legal and policy constraints. Multiple elements of the EMC proposal were factually incorrect, procedurally invalid, or potentially legally unworkable. Council seeks to formally correct the public record on numerous counts, including:

- False claims about legal proceedings: The EMC motion called for Council to drop legal action prematurely, despite no certainty from the State Government regarding the adoption of Council's alternate TOD scenario (whilst noting that at present there has been positive engagement with DPHI). Doing so could have exposed Council to strategic risk and weakened its negotiating position. Something the proponents either failed to grasp or deliberately ignored;

- Baseless innuendo around conflicts of interest: The original motion (not sent to Councillors by the proponents, but to residents and only shared to Councillors by a resident upon request) implied that Councillors may not have declared conflicts of interest, despite the fact that all relevant disclosures had been made. This implication is untrue;

- Legally flawed proposals around heritage: The motion attempted to allow for widespread demolition or delisting of heritage properties based purely on context loss. This approach is entirely contrary to NSW heritage law. It misled residents into thinking Council had power it does not possess, and proposed changes that would likely undermine the very protections residents expect Council to uphold;

- Misleading references to planning instruments: The proposal wrongly suggested that Council could dictate oversight of State Significant Developments (SSD), when in fact Council is a referral body only. Similarly, it misrepresented the processes and timelines for preparing a Development Control Plan (DCP) and amending the LEP, processes which depend on the Department's support and cannot be bypassed;

- Developer-aligned planning amendments: Elements of the EMC motion, including proposals for uniform apartment setbacks and increased floor space ratios for "luxury homes", bore the hallmarks of developer lobbying. These amendments ignored the evidence-based and strategic logic behind Council's alternative, and could have led to adverse outcomes in terms of urban tree canopy, biodiversity, and local character; and,

- Recycling a previously rejected policy: The motion's calls for an "LGA-wide" approach were virtually identical to an earlier proposal that had already been debated and rejected by Council in March 2024. The attempt to resurrect it via an Extraordinary Meeting, rather than through standard policy channels, reflected a disregard for process and institutional memory.

These actions not only misled residents but also insulted the extensive engagement process already undertaken. To suggest that the community had not been consulted, as implied in the EMC notice's reference to a need for "thoughtful, community-driven urban planning rather than piecemeal adjustments", was not only disingenuous, but demonstrably false. The TOD SEPP response was arguably the subject of the most extensive community consultation ever undertaken by Ku-ring-gai Council. There were three phases of consultation commencing in January 2024, through until May 2025 were; Phase 1 – "Initial Consultation", Phase 2 – "Development Scenarios", and Phase 3 – "Preferred Scenario Feedback".

Statistics on the multiple community engagement campaigns highlight the breadth of the process and depth the response:

- Phase 1 (January 2024) – Initial Consultation:
  - Communications Reach:
    - 48,000 flyer mailout (residential and business ratepayers and occupiers);
    - 23,388 project webpage visits (6 January – 16 February);
    - 36,000+ E-newsletter subscribers;
    - 3,000 reach on Facebook posts;
    - 2,388 impressions on NextDoor;
    - 715 impressions on LinkedIn; and,
    - High-level media coverage: ABC Radio, 2GB, Channel 9, Channel 7, Channel 10, Sydney Morning Herald, Daily Telegraph, The Guardian, Sky News.

  - Engagement:
    - 5,307 survey responses (largest opt-in survey in Ku-ring-gai in past 10-years);
    - 508 attendees at public forum (144 in-person, 364 online);
    - 774 registrations for information session;
    - 7,000+ clicks on e-news articles; and,
    - Peak daily participation of 929 survey responses on 15th February.

- Phase 2 (November/December 2024) – Development Scenarios:
  - Communications Reach:
    - 26,995 letters sent to property owners/occupants in Roseville and Gordon Wards;
    - 63,000 e-newsletter subscribers across multiple lists:
    - Ku-ring-gai News: 37,865 subscribers;
    - Business Bulletin: 20,972 subscribers;
    - Business E-news: 1,814 subscribers;
    - Special planning e-news: 2,046 subscribers; and,
    - Yoursay E-news: 1,187 subscribers.
    - 37,011 total page visits to engagement hub;
    - 12,561 unique visitors;
    - 20,108 document downloads;

- 60 Council-owned bus shelters with advertising across LGA; and,
3
- Electronic billboard over Pacific Highway at Gordon.

o **Engagement:**
- 3,815 total survey responses (2,946 online verified + 869 paper)
- 303 meeting attendees across sessions:
- 210 at two public meetings
- 93 at online forum
- 65 at two paid workshops
- 51 at drop-in sessions
- 193 telephone survey participants
- 657 written submissions (514 regular + 143 late)

• **Phase 3 (April 2025) – Preferred Scenario Feedback:**
o **Communications Reach:**
- 27,000 letters sent to property owners/occupants in Roseville and Gordon Wards;
- 660 emails sent to Phase 1 participants;
- 38,000+ e-newsletter subscribers across multiple lists:
• Ku-ring-gai News: 38,000 subscribers;
• Business E-news: 1,800 subscribers;
• Yoursay E-news: 1,187 subscribers; and,
• Housing e-news: 2,046 subscribers.
- 1,505 reach, 119 engagement on Facebook;
- 12,341 total page visits to engagement hub;
- 5,270 unique visitors;
- 844 document downloads; and,
- Media distribution to 40+ local and national media contacts.

o **Engagement:**
- 2,020 verified survey responses;
- 120 individuals attended community drop-in session (approximately 80 groups); and,
- 293 written feedback items received via email.

To claim this process was "piecemeal" is not only misleading, it's an insult to the thousands of residents who took the time to participate in good faith. Arguably, no planning process in the Municipality's history has achieved greater reach, participation or transparency. To suggest otherwise undermines the integrity of process and those involved.

The EMC was ultimately cancelled after the two Councillors who had requested it, Cr. Cedric Spencer & Cr. Jeff Pettett, withdrew their support. By then, however, the damage was done: staff time had been wasted, residents had been misled, and Council's public credibility had again been eroded by political gamesmanship masked as policy reform.

This motion seeks to place on the public record a clear repudiation of that behaviour. It reaffirms Council's legitimate, evidence-based position on the TOD SEPP, and sends a message to residents and Councillors alike, that Council's processes are not for political manoeuvring. Councillors have a responsibility to use their powers with integrity, and to work in the service of the whole community, not to advance personal agendas, or to play to the gallery.

The process adopted by Council arguably represents best practice within the time constraints imposed.

We, therefore, move that Council:

1. Notes that the Extraordinary Meeting of Council scheduled for 2nd July 2025 was cancelled following the withdrawal of support from the two Councillors who originally requested it;

2. Acknowledges that the meeting was convened for the purposes of reconsidering elements of Council's adopted position on the Transport Oriented Development (TOD) SEPP response. A position that was subject to extensive community consultation and is currently under active review by the NSW Department of Planning, Housing and Infrastructure;

3. Further acknowledges the significant concern and confusion caused in the community by the calling of the Extraordinary Meeting of Council, which gave the false impression that Council was reconsidering or overturning its resolved position;

4. Confirms that the proposed motion for the Extraordinary Meeting of Council was inconsistent with Council's previous resolution on the matter and was not supported by Council or the community;

5. Requests the General Manager to publish this resolution on Council's website and to communicate it in the next available Council newsletter and social media update, to provide clarity to residents.

Recommendation:

That the above Notice of Motion as printed be adopted.

BUSINESS WITHOUT NOTICE – SUBJECT TO CLAUSE 9.3 OF CODE OF MEETING PRACTICE

QUESTIONS WITH NOTICE

QN.1 **Transport Oriented Development (TOD) SEPP Legal Proceedings** **640**

File: S14427

INSPECTIONS– SETTING OF TIME, DATE AND RENDEZVOUS

CONFIDENTIAL BUSINESS TO BE DEALT WITH IN CLOSED MEETING

C.1 **Update on Council land acquisitions for open space**

File: S04601/16

In accordance with the *Local Government Act 1993* and the *Local Government (General) Regulation 2021*, in the opinion of the General Manager, the following business is of a kind as referred to in section 10A(2)(c), of the Act, and should be dealt with in a part of the meeting closed to the public.

Section 10A(2)(c) of the Act permits the meeting to be closed to the public in respect of information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

The matter is classified confidential because it deals with the proposed acquisition and/or disposal of property.

It is not in the public interest to release this information as it would prejudice Council's ability to acquire and/or dispose of the property on appropriate terms and conditions.

Report by Director Strategy & Environment

David Marshall
GENERAL MANAGER

** ** ** ** ** **

MINUTES OF EXTRAORDINARY MEETING
HELD ON THURSDAY, 22 MAY 2025 (ADJOURNED)

Present:	The Mayor, Councillor Christine Kay (Chairperson) Councillor M Devlin (online) (Comenarra Ward) Councillors I Balachandran & B Ward (Gordon Ward) Councillors S Ngai & A Taylor (Roseville Ward) Councillor M Smith (St Ives Ward) Councillor K Wheatley (Wahroonga Ward)
Staff Present:	General Manager (David Marshall) Director Community (Janice Bevan) Director Corporate (Angela Apostol) Director Development & Regulation (Michael Miocic) Director Operations (Peter Lichaa) Director Strategy & Environment (Andrew Watson) Corporate Lawyer (Jamie Taylor) Manager Corporate Communications (Virginia Leafe) Manager Governance and Corporate Strategy (Christopher M Jones) Governance Support Officer (Eliza Gilbank-Heim)
Others Present:	Team Leader Urban Design (Bill Royal) Team Leader Urban Planning (Craige Wyse) Senior Urban Designer (Stephanie Griffiths) Urban Design Projects Officer (Fae Sarshoghi)

The Meeting commenced at 7:30 PM

The Mayor offered the Acknowledgement of Country and Prayer.

01 APOLOGIES

File: S02194

The Mayor advised of an apology from Councillor Pettett due to a prior commitment and from Councillor Spencer due to a work commitment.

Resolved:

(Moved: Councillors Kay/Taylor)

That the apologies be accepted and leave of absence granted.

CARRIED UNANIMOUSLY

DECLARATIONS OF INTEREST

The Mayor referred to the necessity for Councillors and staff to declare a Pecuniary Interest/Conflict of Interest in any item on the Business Paper.

Councillor Taylor declared a special disclosure of pecuniary interest in GB.1 as his principal place of residence may be impacted by the proposed planning controls. Councillor Taylor tabled a special disclosure of pecuniary interest under clause 4.36(c) of the Code of Conduct and will remain in Chambers during this debate.

Councillor Ward declared a special disclosure of pecuniary interest in GB.1 as her principal place residence may be impacted by the proposed planning controls. Councillor Ward tabled a special disclosure of pecuniary interest under clause 4.36(c) of the Code of Conduct and will remain in Chambers during this debate.

Councillor Ngai declared a special disclosure of pecuniary interest in GB.1 as his parents-in-law's principal place of residence may be impacted by the proposed planning controls. Councillor Ngai tabled a special disclosure of pecuniary interest under clause 4.36(c) of the Code of Conduct and will remain in Chambers during this debate.

Councillor Balachandran declared a special disclosure of pecuniary interest in GB.1 as both her principal place of residence and her parents principal place of residence may be impacted by the proposed planning controls. Councillor Balachandran tabled a special disclosure of pecuniary interest under clause 4.36(c) of the Code of Conduct and will remain in Chambers during this debate.

DOCUMENTS CIRCULATED TO COUNCILLORS

The Mayor referred to the documents circulated in the Councillors' papers and advised that the following matters would be dealt with at the appropriate time during the meeting:

Late Items:	**GB.2 - SSD and local development applications in the TOD - change to savings provisions -** Report by Director Strategy & Environment dated 19 May 2025.
Memorandums:	**Confidential Memorandum for GB.1 TOD alternative – preferred scenario – proposed amendments – post exhibition** (copies of submissions received by Council) from the Director of Strategy & Environment was circulated to the Mayor and Councillors on 16 May 2025. **Memorandum for GB.1 TOD – alternative – preferred scenario – proposed amendments – post exhibition and GB.2 SSD and local development applications in the TOD – change to savings provisions** from the Director of Strategy & Environment was circulated to the Mayor and Councillors on 22 May 2025. *A copy of this Memorandum is attached to the Minutes.*

PETITIONS

02 **Stop the inappropriate R4 zoned 12 metre developments on the fence lines of Treatts Road, Blenheim Road and 18 Kenilworth Road Heritage Conservation Area properties in Lindfield**

File: EM00047/3
Vide: PT.1

Petition to Ku-ring-gai Council

We, the undersigned call upon Ku-ring-gai Council to reject the proposed development of R4 zoned 12 metre high dwellings on the fence lines of Treatts Road, Blenheim Road and 18 Kenilworth Road Heritage Conservation Area (HCA) properties in Lindfield. This proposal threatens the heritage character, residential amenity and community integrity of our neighbourhood.

Key Objections:

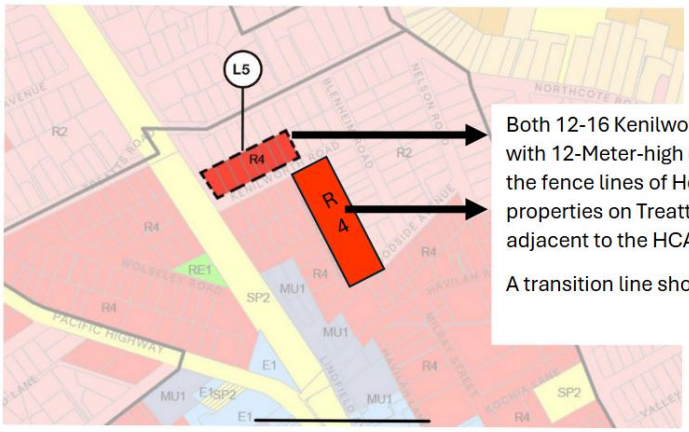
1. Heritage and Heritage Conservation Area (HCA) Impact
    - The proposed 12-Meter dwellings are incompatible with the character and scale of the heritage conservation area.
    - A 12-meter-high built form at the end of a traditional garden will create an overbearing presence and destroy the established visual harmony of the area. The scale and bulk are entirely inconsistent with the low-rise character that defines HCAs.
    - Protecting Ku-ring-gai's heritage means more than preserving individual buildings—it requires a commitment to the broader context, including garden settings, view corridors, and cohesive streetscapes. Allowing R4 zoned 12-meter-high dwellings in these sensitive interfaces contradicts this purpose.

2. Loss of Amenity
    - The proximity of the apartments to the fence line will result in a loss of privacy, overshadowing, and visual bulk.
    - The height will block natural sunlight to existing gardens and living spaces.
    - The noise and traffic from increased density will degrade the peaceful residential environment.

3. Traffic, Parking, and Infrastructure Stress
    - Increased traffic and parking pressure on narrow heritage streets.
    - Potential strain on local infrastructure, including drainage and utilities, not designed for this density.

We urge Ku-ring-gai Council to:
    - Adhere to a road-based transition principle versus fence line to protect Heritage Conservation Area properties.
    - Remove the R4 12-meter zoning for properties in 2-16 Kenilworth and 1-19 Highgate Road, Lindfield.

Proposed Zoning as of 16 May 2025 by Ku-ring-gai Council (R4 is 12-meters high)



Current Heritage Conservation Area



(609 signatures) (updated on 5 June)

Resolved:

(Moved: Councillors Taylor/Ngai)

That the petition be tabled and forwarded to the relevant officer for appropriate action.

CARRIED UNANIMOUSLY

PROCEDURAL MOTION:

(Moved: Councillors Kay/Wheatley)

That the meeting be adjourned until 7pm on Thursday 5 June 2025 at Council Chambers.

For the Motion:	*The Mayor, Councillor Kay, Councillors Devlin Smith and Wheatley*
Against the Motion:	*Councillors Balachandran, Ngai, Taylor and Ward*

The voting being EQUAL, the Mayor exercised her casting vote IN FAVOUR of the Motion and it was declared CARRIED.

CARRIED

BUSINESS WITHOUT NOTICE – SUBJECT TO CLAUSE 9.3 OF CODE OF MEETING PRACTICE

Nil.

QUESTIONS WITH NOTICE

Nil.

INSPECTIONS– SETTING OF TIME, DATE AND RENDEZVOUS

Nil.

The Meeting closed was adjourned at 7:39pm and reconvened at 7:00pm on 5 June 2025.

MINUTES OF EXTRAORDINARY MEETING RECONVENED ON 5 JUNE 2025

Present:	The Mayor, Councillor Christine Kay (Chairperson) Councillors M Devlin & J Pettett (Comenarra Ward) Councillors I Balachandran & B Ward (Gordon Ward) Councillors S Ngai & A Taylor (Roseville Ward) Councillor M Smith (St Ives Ward) Councillors C Spencer & K Wheatley (Wahroonga Ward)
Staff Present:	General Manager (David Marshall) Director Corporate (Angela Apostol) Director Development & Regulation (Michael Miocic) Director Operations (Peter Lichaa) Director Strategy & Environment (Andrew Watson) Corporate Lawyer (Jamie Taylor) Manager Corporate Communications (Virginia Leafe) Manager Governance and Corporate Strategy (Christopher M Jones) Team Lead Governance (Jane Fitzpatrick)
Others Present:	Team Leader Urban Design (Bill Royal) Team Leader Urban Planning (Craige Wyse) Senior Urban Designer (Stephanie Griffiths) Urban Design Projects Officer (Fae Sarshoghi)

The Meeting was reconvened at 7:06 PM

The Mayor offered the Acknowledgement of Country

APOLOGIES

The General Manager advised of an apology from Director Community (Janice Bevan) and that Manager Corporate Communications (Virginia Leafe) would be acting in the role.

DECLARATIONS OF INTEREST

The Mayor adverted to the necessity for Councillors and staff to declare a Pecuniary Interest/Conflict of Interest in any item on the Business Paper:

Councillor Spencer declared a conflict of interest in respect of items GB.1 and GB.2 due to concerns about conflicts of interest and would withdraw from the Chamber during these items.

Councillor Pettett declared a conflict of interest in respect of items GB.1 and GB.2 due to concerns about conflicts of interest and would withdraw from the Chamber during these items.

The Mayor noted that Councillors Balachandran, Ngai, Taylor and Ward had declared special disclosures of pecuniary interest at the meeting on 22 May 2025.

DOCUMENTS CIRCULATED TO COUNCILLORS

The Mayor referred to additional documents circulated in the Councillors' papers and advised that the following matters would be dealt with at the appropriate time during the meeting:

Late Items:	**MM.1 - Mayoral Minute - State Significant Developments (SSD) and Transport Oriented Development (TOD) Applications**, including Attachment A1 (SSD and TOD Applications)
Memorandums:	Memorandum for **GB.1 TOD alternative – preferred scenario – proposed amendments – post exhibition** from the Director of Strategy & Environment was circulated to the Mayor and Councillors on 3 June 2025. *A copy of this Memorandum is attached to the Minutes.*

MINUTES FROM THE MAYOR

03 **State Significant Developments (SSD) and Transport Oriented Development (TOD) applications**

File: S14846
Vide: MM.1

The purpose of this Mayoral Minute is to update Council and the community on State Significant Developments (SSD) and Transport Oriented Development (TOD) applications that have been lodged for Ku-ring-gai.

Background

In December 2023, the NSW Government announced a range of major planning reforms to deliver additional housing.

These included:

- The establishment of Transport Oriented Development precincts between Roseville and Gordon.
- The Low and Mid-Rise reform to allow additional terraces, townhouses, multi-unit dwellings and apartment buildings near stations and town centres.

Ku-ring-gai Council has consistently expressed concern that the proposed one-size-fits-all reforms will have a range of unnecessary and unwanted impacts on the local area, particularly in relation to Ku-ring-gai's environment and heritage and the strain on existing infrastructure and facilities.

These impacts are now being accelerated by an influx of state significant development applications.

The impacts of SSD

SSD applications are for large scale or complex projects deemed important to the state for economic, environmental or social reasons. Developments for in-fill affordable housing with a capital investment value of more than $75 million qualify for an SSD application.

In May 2024, the Government implemented the Transport Oriented Development (TOD) planning policy for areas within 400m of Roseville, Lindfield, Killara and Gordon stations.

In response - and in cooperation with the NSW Government - Council prepared an alternate preferred scenario to the TOD for submission to the state government, based on planning principles that respect Council's heritage, environment and community engagement.

Notwithstanding, the current TOD planning controls have already allowed many SSD applications to be lodged with the Department of Planning, Heritage and Infrastructure.

SSD applications are assessed by the Department and determined by the Minister for Planning or the Independent Planning Commission. Council is notified of and invited to comment on SSD applications at the exhibition stage, but otherwise plays no part in the assessment process.

The SSD assessment process

SSD projects are assessed under the EP&A Act and require development consent from the Independent Planning Commission (IPC) or the Minister for Planning (or delegate) before proceeding.

Integral to the assessment process is a mandatory environmental impact statement (EIS) that must be prepared before any development application is lodged.

Generally, all SSD applications must be exhibited for a minimum 28 days.

Submissions received during each public exhibition period are published online on the NSW Department of Planning, Housing and Infrastructure website, including those from statutory authorities such as Council. The applicant must then prepare a submissions report.

After publishing the submissions report, the Department of Planning will complete its assessment
report which is also published online. The relevant consent authority will then determine the project.

In some cases, there may be additional steps in the assessment process, including amendments to the application and public hearings.

"Total number of SSD applications and status below as at 1pm 4 June 2025:

- 13 applications are lodged
- 3 applications are lodged and being checked by the Department.
- 5 with valid SEARs.
- 2 with SEARs requested.
- 2 likely to request SEARs soon.
- 6 enquiries awaiting further information from potential applicants."

See Attachment 1 for more detail on the lodged SSD applications

Where to from here?

It is important for our community to be aware that many of these SSD applications are inconsistent with the Council's preferred scenario for increased housing in the four TOD precincts of Gordon, Roseville, Killara and Lindfield.

On that basis we are urging community members to submit feedback on each SSD and TOD development application during the public exhibition period. Council will also prepare a submission on each application lodged.

It is expected that the Department will take several months to assess Council's preferred scenario, if the Council decides to proceed at its meeting on June 5, 2025.

The Department has advised that 'upon Ku-ring-gai Council formally submitting to the Department an alternate scheme that seeks to replace the existing TOD planning controls, steps will be taken to disapply those existing controls after Friday 13 June 2025'.

This is critically important, as it means that SSD applications will still be able to be lodged but the TOD planning controls will no longer apply.

Resolved:

(Moved: The Mayor Councillor Kay)

A. That this Mayoral Minute be placed on the Council website.

B. The community is encouraged to provide submissions to the NSW Department of Planning, Housing and Infrastructure planning portal at https://www.planningportal.nsw.gov.au/major-projects

CARRIED UNANIMOUSLY

PETITIONS

04 **De-list isolated heritage houses in town centres for better outcomes in Ku-ring-gai**

File: 2025/170135
Vide: PT.2

Petition to Ku-ring-gai Council
Principal Petitioner: David Tindale (on behalf of A Better Outcome Under TOD (ABOUT))

Transport Oriented Development (TOD) is set to change the face of Ku-ring-gai. There is a critical housing shortage in NSW, so with 23 000 new dwellings planned for Gordon, Killara, Lindfield and Roseville, we believe it's vital that new development be well planned to meet the needs of Ku-ring-gai into the future.

Both TOD and Council's Preferred Scenario retain individual heritage homes in the midst of high-density new town centres in Ku-ring-gai. These heritage houses will be isolated, lose their context and their value in both heritage and monetary terms.

For the wider community, retaining isolated heritage homes will result in compromising achievable density in the areas zoned to become the new town centres. They will reduce the housing yield and force future rezonings deeper into our leafy suburbs. There is no value in preserving isolated heritage houses, nor those that will lose their context due to sweeping changes in the streetscape.

Heritage owners need your support before the Ku-ring-gai Council Meeting on 5th June. Please add your address in the comments.

We, the undersigned, ask that these orphaned heritage houses be de-listed in consultation with their owners, to allow the development of clever, innovative new town centres designed to maximise benefit for the new communities of these areas.

(412 signatures as at 5 June 2025)

Resolved:

(Moved: Councillors Balachandran/Ward)

That the petition be tabled and forwarded to the relevant officer for appropriate action.

CARRIED UNANIMOUSLY

05

Petition: Protect The Lindfield Area - Stop the Disproportionate Development Burden and Safeguard Our Heritage

File: 2025/181514
Vide: PT.3
Petition to Ku-ring-gai Council
Principal Petitioner: Lee Coomber (HOLD)

We, the undersigned residents and stakeholders of the Ku-ring-gai local government area, strongly oppose the treatment of the Lindfield area under the proposed Transport Oriented Development (TOD) Preferred Scenario. While we support sustainable growth and strategic planning, the current proposal places an unfair and disproportionate share of new dwelling targets on the Lindfield area, with little regard for its unique character, infrastructure constraints, or heritage value.

Our concerns include:

1. Disproportionate Dwelling Allocation: The Lindfield area is being asked to accommodate a significantly higher percentage of new dwellings (~9000) compared to other suburbs in the LGA (Killara ~3000, Roseville ~3000). This results in Lindfield accommodating apartment towers that are 61 meters in height / 18 stories. Note: This is prior to the affordable housing uplift of +30% for some dwellings. This approach lacks equity and fails to consider a balanced distribution of growth across the area.

2. Neglect of Heritage Conservation: The proposed scenario threatens numerous Heritage Homes and Heritage Conservation Areas in the Lindfield area. These historically significant homes and precincts contribute to the cultural fabric and identity of our community and must be preserved.

3. Lack of Transparent Community Engagement: The process to date has not adequately included or responded to resident feedback. Decisions of such magnitude should not proceed without meaningful consultation with the communities most affected.

We respectfully call on Ku-ring-gai Council to:

- Reassess the TOD Preferred Scenario to ensure a fairer, more balanced distribution of housing targets across all Ku-ring-gai suburbs;

- Strengthen protections for Heritage Homes and Heritage Conservation Areas, particularly in the Lindfield area;

- Engage transparently with the community. providing adequate opportunity for Input and revision before final decisions are made.

The Lindfield area deserves thoughtful planning that respects its past while responsibly considering its future. We urge Council to revise the current proposal to reflect the values and voices of our community.

(547 signatures)

Resolved:

(Moved: Councillors Taylor/Ngai)

That the petition be tabled and forwarded to the relevant officer for appropriate action.

CARRIED UNANIMOUSLY

Council resolved to deal with item GB.2 first under General Business after a Motion moved by the Mayor Councillor Kay and Councillor Taylor was CARRIED UNANIMOUSLY.

Council adjourned for a short interval after a Motion moved by Councillors Devlin and Wheatley was CARRIED.

For the Motion:	*The Mayor, Councillor Kay, Councillors Balachandran, Devlin, Ngai, Smith, Taylor, Ward and Wheatley*
Against the Motion:	*Councillors Pettett and Spencer*

The Meeting resumed at 7:40 pm

GENERAL BUSINESS

After having declared an interest in GB.1 and GB.2, Councillor Pettett and Councillor Spencer withdrew from Chambers during discussion and did not vote on the following matters.

06 SSD and local development applications in the TOD - change to savings provisions

File: EM00047/3
Vide: GB.2

To advise Council of a change of position by the NSW Government on the savings provisions for State Significant Development (SSD) applications in the TOD.

Resolved:

(Moved: Councillors Taylor/Wheatley)

That the report be received and noted.

CARRIED UNANIMOUSLY

07 **TOD alternative - preferred scenario - proposed amendments - post exhibition**

File: EM00047/3
Vide: GB.1

To advise Council of the outcomes of the public exhibition and to recommend amendments to the exhibited version of the Implementation Strategy and Maps.

MOTION:

(Moved: Councillors Balachandran/Ngai)

That Council:

A. Adopt the draft LEP maps at Attachment A6 and draft clauses at Attachment A7 subject to the amendments outlined in Attachment A8 plus the additional revisions as set out in the Memo from the Director of Strategy & Environment dated 3 June 2025.

B. Submit the amended LEP maps and clauses and a revised implementation strategy reflecting these amendments to DPHI for the purposes of preparing a State Environmental Planning Policy to implement Council's alternate TOD scheme.

C. Commission a preliminary assessment of heritage items proposed to be retained in the TOD or alternative scenario areas envisaged to have controls varied from those under KLEP 2015, or items that are impacted directly by development applications including for SSDs that rely on controls contained in the TOD SEPP as described in this report. This assessment will be commissioned in the month following the gazettal of Council's scenario.

D. That as part of consideration of Council's Preferred TOD Alternative, the Minister for Planning be requested to work collaboratively with Council to develop a process and solutions for current owners of listed local heritage items "stranded" as a consequence of the TOD planning controls, Council's alternate option to those controls, and SSDAs, on a case by case basis. Council has sought advice on whether the DPHI will consider bulk de-listings of heritage-listed properties in response to heightened concerns from residents. The DPHI has advised that unjustified de-listings will not be considered and that the process for Council or the Department to unilaterally delist heritage items requires a justified position through a full planning proposal process.

E. Commence preparation of all required amendments to the Ku-ring-gai DCP including site-specific development controls and site amalgamation controls around all heritage items within R4 – High Density Residential zones. That the draft DCP amendments be reported back to Council for endorsement prior to public exhibition.

F. Notes that the draft DCP amendments in point E. above will pay particular attention to the transitional impacts of R4 TOD properties backing onto R2 TOD HCA properties, including regard for site-specific side and rear setbacks, heights, and tree planting provisions. To retain the character of each conservation area, manage transition impacts, and promote housing diversity, Council will also commence an assessment to consider whether there are more appropriate controls within the revised TOD boundary for all R2 HCA properties. This assessment will be commissioned in the month following the gazettal of Council's scenario.

G. Commence preparation of a Public Domain Plan (PDP) for Killara and amendments to PDP for Gordon, Lindfield and Roseville.

H. That Council authorise the Director of Strategy and Environment to correct any anomalies in the documentation to be submitted to the NSW DPHI.

AMENDMENT:

(Moved: Councillors Ward / Balachandran)

That Council:

A. Adopt the draft LEP maps at Attachment A6 and draft clauses at Attachment A7 subject to the amendments outlined in Attachment A8 plus the additional revisions as set out in the Memo from the Director of Strategy & Environment dated 3 June 2025. In addition, 924 Pacific Highway Gordon will be amended to FSR 5.0:1, height 51.5m and affordable housing requirement of 5%.

B. Submit the amended LEP maps and clauses and a revised implementation strategy reflecting these amendments to DPHI for the purposes of preparing a State Environmental Planning Policy to implement Council's alternate TOD scheme.

C. Commission a preliminary assessment of heritage items proposed to be retained in the TOD or alternative scenario areas envisaged to have controls varied from those under KLEP 2015, or items that are impacted directly by development applications including for SSDs that rely on controls contained in the TOD SEPP as described in this report. This assessment will be commissioned in the month following the gazettal of Council's scenario.

D. That as part of consideration of Council's Preferred TOD Alternative, the Minister for Planning be requested to work collaboratively with Council to develop a process and solutions for current owners of listed local heritage items "stranded" as a consequence of the TOD planning controls, Council's alternate option to those controls, and SSDAs, on a case by case basis. Council has sought advice on whether the DPHI will consider bulk de-listings of heritage-listed properties in response to heightened concerns from residents. The DPHI has advised that unjustified de-listings will not be considered and that the process for

Council or the Department to unilaterally delist heritage items requires a justified position through a full planning proposal process.

E. Commence preparation of all required amendments to the Ku-ring-gai DCP including site-specific development controls and site amalgamation controls around all heritage items within R4 – High Density Residential zones. That the draft DCP amendments be reported back to Council for endorsement prior to public exhibition.

F. Notes that the draft DCP amendments in point E. above will pay particular attention to the transitional impacts of R4 TOD properties backing onto R2 TOD HCA properties, including regard for site-specific side and rear setbacks, heights, and tree planting provisions. To retain the character of each conservation area, manage transition impacts, and promote housing diversity, Council will also commence an assessment to consider whether there are more appropriate controls within the revised TOD boundary for all R2 HCA properties. This assessment will be commissioned in the month following the gazettal of Council's scenario.

G. Commence preparation of a Public Domain Plan (PDP) for Killara and amendments to PDP for Gordon, Lindfield and Roseville.

H. That Council authorise the Director of Strategy and Environment to correct any anomalies in the documentation to be submitted to the NSW DPHI.

The Amendment was put and declared CARRIED UNANIMOUSLY.

The Amendment became the Motion.

The Motion was put and declared CARRIED UNANIMOUSLY.

Resolved:

(Moved: Councillors Ward/Balachandran)

That Council:

A. Adopt the draft LEP maps at Attachment A6 and draft clauses at Attachment A7 subject to the amendments outlined in Attachment A8 plus the additional revisions as set out in the Memo from the Director of Strategy & Environment dated 3 June 2025. In addition, 924 Pacific Highway Gordon will be amended to FSR 5.0:1, height 51.5m and affordable housing requirement of 5%.

B. Submit the amended LEP maps and clauses and a revised implementation strategy reflecting these amendments to DPHI for the purposes of preparing a State Environmental Planning Policy to implement Council's alternate TOD scheme.

C. Commission a preliminary assessment of heritage items proposed to be retained in the TOD or alternative scenario areas envisaged to have controls varied from those under KLEP 2015, or items that are impacted

directly by development applications including for SSDs that rely on controls contained in the TOD SEPP as described in this report. This assessment will be commissioned in the month following the gazettal of Council's scenario.

D. That as part of consideration of Council's Preferred TOD Alternative, the Minister for Planning be requested to work collaboratively with Council to develop a process and solutions for current owners of listed local heritage items "stranded" as a consequence of the TOD planning controls, Council's alternate option to those controls, and SSDAs, on a case by case basis. Council has sought advice on whether the DPHI will consider bulk de-listings of heritage-listed properties in response to heightened concerns from residents. The DPHI has advised that unjustified de-listings will not be considered and that the process for Council or the Department to unilaterally delist heritage items requires a justified position through a full planning proposal process.

E. Commence preparation of all required amendments to the Ku-ring-gai DCP including site-specific development controls and site amalgamation controls around all heritage items within R4 – High Density Residential zones. That the draft DCP amendments be reported back to Council for endorsement prior to public exhibition.

F. Notes that the draft DCP amendments in point E. above will pay particular attention to the transitional impacts of R4 TOD properties backing onto R2 TOD HCA properties, including regard for site-specific side and rear setbacks, heights, and tree planting provisions. To retain the character of each conservation area, manage transition impacts, and promote housing diversity, Council will also commence an assessment to consider whether there are more appropriate controls within the revised TOD boundary for all R2 HCA properties. This assessment will be commissioned in the month following the gazettal of Council's scenario.

G. Commence preparation of a Public Domain Plan (PDP) for Killara and amendments to PDP for Gordon, Lindfield and Roseville.

H. That Council authorise the Director of Strategy and Environment to correct any anomalies in the documentation to be submitted to the NSW DPHI.

CARRIED UNANIMOUSLY

BUSINESS WITHOUT NOTICE – SUBJECT TO CLAUSE 9.3 OF CODE OF MEETING PRACTICE

Nil

QUESTIONS WITH NOTICE

Nil

INSPECTIONS– SETTING OF TIME, DATE AND RENDEZVOUS

Nil

The Meeting closed at 8:05pm

The Minutes of the Extraordinary Meeting held on 22 May and 5 June 2025 (Pages 1 - 31) were confirmed as a full and accurate record of proceedings on <Insert confirmation date ...>.

_____ General Manager

_____ Mayor / Chairperson

Memorandum for GB.1 TOD – alternative – preferred scenario – proposed amendments – post exhibition and GB.2 SSD and local development applications in the TOD – change to savings provisions from the Director of Strategy & Environment

Circulated to the Mayor and Councillors on 22 May 2025.

S14846-2 /2025/157210
22 May 2025

MEMORANDUM

TO:	General Manager Mayor Councillors
COPY TO:	Directors Governance
FROM:	Director Strategy & Environment
SUBJECT:	**EMC 22 May 2025 GB.1 - TOD alternative - preferred scenario – proposed amendments – post exhibition** **EMC 22 May 2025 GB.2 - SSD and local development applications in the TOD - change to savings provisions**

Dear Councillors

In relation to GB.2, The report outlines a meeting between Council officers and representatives of DPHI on 19 May 2025 to discuss changes to SSD savings provisions. On 21 May 2025 DPHI further advised Council as follows:

- *"The Department will need to provide the instrument to suspend or 'switch off' the TOD SEPP to Parliamentary Counsel no later than 10am on 11 June 2025. It is recommended that Council meets no later than the evening of 10 June 2025 to give the Council time to provide the documentation to the Department by that time.*
- *The Department has received four SSDA enquiries since it provided an updated position to applicants. At this point none have requested SEARs."*

In relation to GB.1, additional Minor mapping changes have been identified for this item and a clarification for submission on 6 Treatts Road, Lindfield has been identified and set out below.

Minor Mapping changes

Following further review of the draft LEP maps included as Attachment A6 to the Report the following mapping corrections have been identified.

1) Gordon –
    a. Key Sites (KYS) map: inclusion of an additional map that identifies the Gordon centre as a 'Key Site'. This map is referenced in the draft Gordon Centre LEP

clause (refer to Attachment A7) but has not been included in the map package at Attachment A6.

b. FSR map: amended to include the application of an FSR over Wade Lane. This is consistent with the current approach in the KLEP 2015 whereby Wade Lane has the same FSR as the adjoining land that fronts the Pacific Highway
c. Height of Buildings (HOB) map: amended to include the application of a HOB over Wade Lane. This is consistent with the current approach in the KLEP 2015 whereby Wade Lane has the same HOB as the adjoining land that fronts the Pacific Highway

It is recommended that:

i) the attached Key Sites map be included in the package of maps to be submitted to the NSW Department of Planning Housing and Infrastructure.
ii) the attached FSR and HOB maps for Gordon replace the existing maps in Attachment A7.

2) Lindfield - Height of Buildings (HOB) Map: correction to include a HOB of 11.5m to the Lindfield station entrance building on the Pacific Highway. This replicates the controls currently applying to the site under the KLEP 2015

It is recommended that the attached amended HOB map for Lindfield replace the existing map in Attachment A7.

3) Roseville –
   a. Land Reservation Acquisition (LRA) map:
      i. correction to the map to include the existing TfNSW approved Classified Road reservation on the Pacific Highway.
      ii. amended to increase the width of the reservation for the new road between Pockley Ave and Shirley Rd to approximately 13.5m. This will provide sufficient width for a future 2-way road with footpaths either side.
   b. Zoning (LNZ) map: amended to increase the width of the SP2 Local road zone for the proposed new road between Pockley Ave and Shirley Rd to reflect the increase width of the reservation on the LRA map.
   c. FSR map:
      i. amended to include the application of an FSR over Larkin Lane. This is consistent with the current approach in the KLEP 2015 whereby Larkin Lane has the same FSR as the adjoining land that fronts the Pacific Highway
      ii. amended to include a FSR of 0.5:1 on 89 Pacific Highway (Old Station Masters Cottage). This replicates the controls currently applying to the site under the KLEP 2015

It is recommended that the attached amended LRA, Zoning and FSR maps for Roseville replace the existing maps in Attachment A7.

6 Treats Road, Lindfield

An error in Attachment A2 has been brought to staff's attention. Under the sub-heading "*Heritage*" (p84) it is stated that there has been a request for the de-listing of the heritage item at 6 Treats Road, Lindfield. The owners of this property have advised that this is an error and that

they have not requested that the property be de-listed and would like the record to be corrected. Councillors should also note that the report does not recommend the delisting of any heritage items.

Andrew Watson (May 22, 2025 15:24 GMT+10)

Andrew Watson
Director Strategy & Environment

Encs

i) Key Sites Map - Gordon
ii) Amended Floor Space Ratio (FSR) Map - Gordon
iii) Amended Height of Buildings (HOB) Map - Gordon
iv) Amended Height of Buildings (HOB) Map - Lindfield
v) Amended Land Reservation Acquisition (LRA) Map -Roseville
vi) Amended Land Zoning (LNZ) Map – Roseville
vii) Amended Floor Space Ratio (FSR) Map - Roseville

20250722-OMC-Crs-2025/219375/36

i) Key Sites Map - Gordon

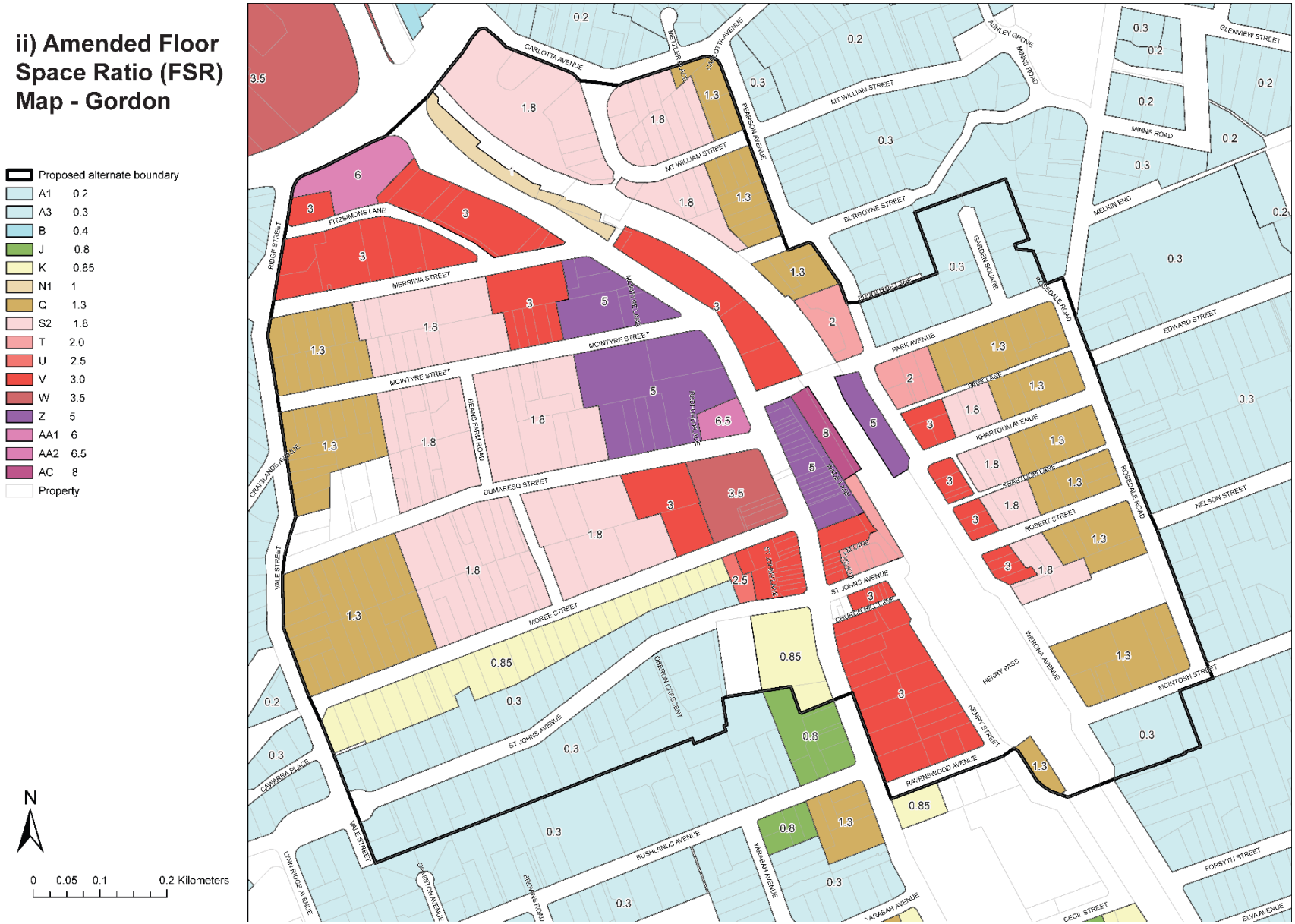
Proposed alternate boundary
Area 4
Property



N

0 0.05 0.1 0.2 Kilometers

ii) Amended Floor Space Ratio (FSR) Map - Gordon

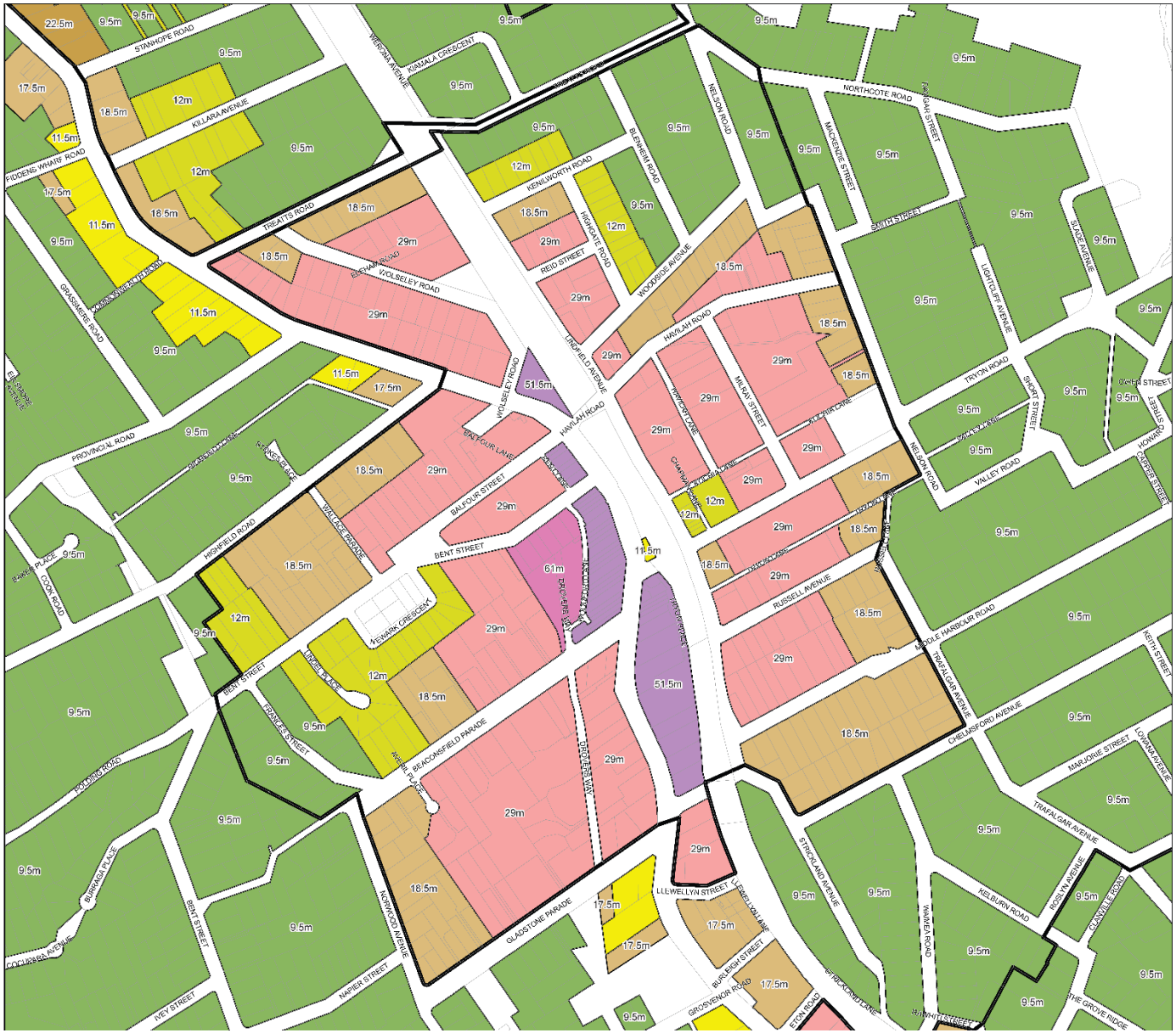


iii) Amended Height of Buildings (HOB) Map - Gordon



iv) Amended Height of Buildings (HOB) Map - Lindfield

- Proposed alternate boundary
- J 9.5m
- L 11.5m
- M 12m
- P1 17.5m
- P2 18.5m
- R2 22.5m
- T2 29m
- Y1 51.5m
- AA1 61m
- Property

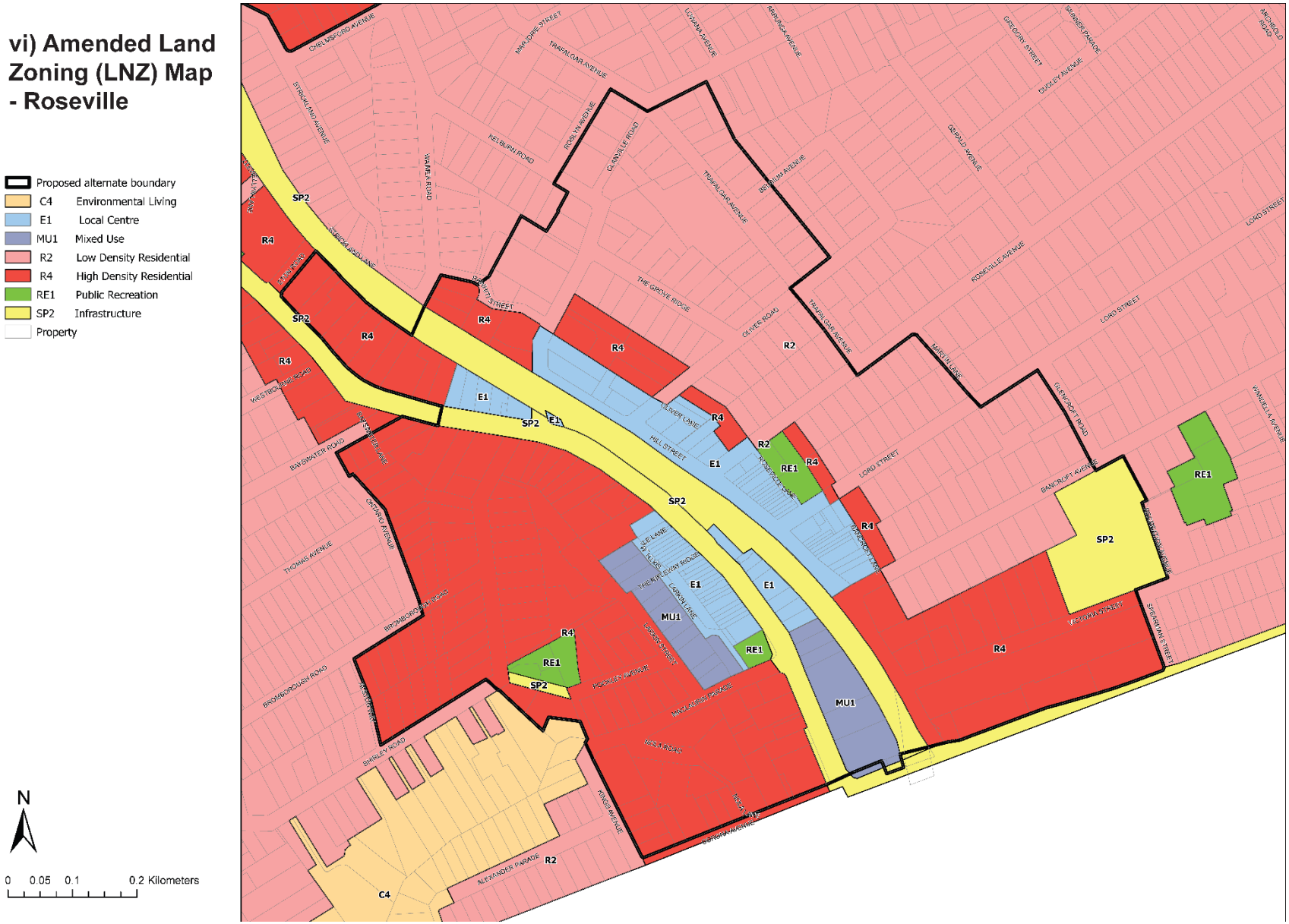


v) Amended Land Reservation Aquisition (LRA) Map - Roseville

Proposed alternate boundary
LRA | Land Reservation Acquisition
Property



vi) Amended Land Zoning (LNZ) Map - Roseville



vii) Amended Floor Space Ratio (FSR) Map - Roseville



Memorandum for GB.1 TOD alternative – preferred scenario – proposed amendments – post exhibition from the Director of Strategy & Environment.

Circulated to the Mayor and Councillors on 3 June 2025.

S14846-2 / 2025/173844
3 June 2025

MEMORANDUM

TO:	General Manager Mayor Councillors
COPY TO:	Directors Governance
FROM:	Director Strategy & Environment
SUBJECT:	**EMC 05/06/2025 - TOD alternative - preferred scenario – proposed amendments – amendments to exhibited plans**

At the EMC being held on 5 June 2025 a report on the TOD alternative - preferred scenario – proposed amendments – post exhibition is being presented to Council.

Outlined below are proposed amendments to the exhibited plans:

i. **In relation to Gordon properties bounded by Burgoyne St, Pearson Ave, Carlotta Ave and the railway (Attachment 8 GB.1 *Possible Amendments to Reduce Yield* - precincts G1, G2 and G3 Gordon):**

   - **An amendment is recommended to clarify the intent of the change as it was not illustrated clearly in Attachment 8 GB.1 *Possible Amendments to Reduce Yield*.**
   - **The intention is to realign the proposed TOD boundary to follow Burgoyne Street and northern boundary of railway so that these areas would be removed from the TOD area and the planning provisions would revert to the existing KLEP provisions.**

   It is recommended that in relation to the Gordon precincts G1, G2 and G3 shown in Attachment 8 GB.1 *Possible Amendments to Reduce Yield* amend the plans as follows and as shown in Figure 2 of Attachment A1 of this document:

   - **Amend the boundary map to exclude precincts G1, G2 and G3 from the proposed alternative TOD boundary.**
   - **Delete precincts G1, G2 and G3 from the Land use zone, Height of Building and Floor Space Ratio maps (and revert to KLEP provisions)**
   - **Delete precincts G1, G2 and G3 from maps relating to exemptions to Clause 4.3 (2A) KLEP, Clause 6.6 (2A) KLEP, Clause 4.4 KLEP (and revert to KLEP provisions)**
   - **Amend affordable housing requirement to 0% (reduced from 2%)**

ii. In relation to Precinct L1 in Lindfield an area bounded by Highfield Road, Wallace Parade and Balfour Street (Attachment 8 GB.1 *Possible Amendments to Reduce Yield* – precinct L1):

- an amendment is recommended to clarify the intent of the recommended change as it was not illustrated clearly in Attachment 8.
- The intention in Attachment 8 GB.1 *Possible Amendments to Reduce Yield* was to realign the proposed TOD boundary to follow Wallace Parade and Bent Street so that the subject properties would be removed from the TOD area and the planning provisions would revert to the existing KLEP provisions.

It is recommended that in relation to Lindfield precinct L1 (as shown in Attachment 8 GB.1 *Possible Amendments to Reduce Yield*) the plans be amended as follows and as shown in Figure 4 of Attachment A1 of this document:

- Amend the boundary map to exclude precinct L1 from the proposed alternative TOD boundary.
- Delete precinct L1 from the Land use zone, Height of Building and Floor Space Ratio maps (and revert to KLEP provisions)
- Delete precinct L1 from maps relating to exemptions to Clause 4.3 (2A) KLEP, Clause 6.6 (2A) KLEP, Clause 4.4 KLEP (and revert to KLEP provisions)

iii. In relation to precinct L5 in Lindfield includes seven properties (nos.25, 27, 29, 31, 33 and 35 Gladstone and no.9 Norwood Avenue) which form part of C45 Lindfield West Conservation Area.

- The exhibited plans (Attachment 6 GB1 – *Draft Local KLEP maps*) show the subject properties as R4 high density with 5-storey (18.5m) HOB
- the remaining portions of the HCA are outside the TOD boundary but fall under the LMR SEPP.
- Attachment 8 GB.1 *Possible Amendments to Reduce Yield* shows the subject properties as R2 low density and retained within the TOD boundary and protected from the LMR
- This results in an outcome where a small proportion of an HCA is fully protected while the remainder is unprotected.
- This is not consistent with the intent of the exhibited plans

It is recommended that in relation to the Lindfield precinct L5 (as shown in Attachment 8 GB.1 *Possible Amendments to Reduce Yield*) the plans be amended as follows and as shown in Figure 4 of Attachment A1 of this document:

- Height of Building 12m (increased from 9.5m)
- Floor Space Ratio 0.85:1 (increased from 0.3:1)

iv. In relation to a group of six properties in Lindfield fronting Beaconsfield Parade (nos.9, 11, 15, 15A, 17 & 19 Beaconsfield Parade):

- **The exhibited plans (Attachment 6 GB1 – *Draft Local KLEP maps*) show the properties with 8-storey (29m) HOB**
- **These properties adjoin properties fronting Newark Crescent which have a proposed 3-storey (12m) building height**
- **Submissions have identified that the proposed height difference of 5-storeys has generally not been applied as a transition across the TOD precincts**
- **The preferred approach to this is to reduce the proposed HOB for the subject properties**

It is therefore recommended that the exhibited plans be amended as follows and as shown in Figure 6 of Attachment A2 of this document:

- **Height of Building 18.5m (reduced from 29m)**
- **Floor Space Ratio 1.3:1 (reduced from 1.8:1)**
- **0% affordable housing requirement (reduced from 3%)**

The amended maps regarding points 1-4 above are attached.

Design Excellence

As part of the Alternate TOD proposal a Design Excellence clause is proposed to be included in the KLEP requiring that development within the TOD precincts exhibit design excellence. The proposed clause identifies key matters that a consent authority is required to consider in relation to design when determining an application for certain developments. The clause will require Council to establish an independent Design Excellence Panel (DEP) that would have a role in assessing any developments to which this clause applies.

An internal consultation review by Council staff has recommended this clause be deferred out of the proposed LEP clauses on the basis that further detailed research and investigation is required to establish the efficacy of the proposed clause given there could be a potential **duplication or overlap with Council's existing DCP design requirements. There is also** concern that there could be potential significant additional time requirements on the Development Application processing times, that may impact Council on meeting required the *Environmental Planning and Assessment (Statement of Expectations) Order 2024* for all Councils to reduce DA processing times.

Site Specific Gordon Centre Clause

Staff are currently investigating possible anomalies in land ownership and hence the minimum site area requirement of 9,000 square metres embedded in the draft clause. A separate memorandum may be forthcoming to address issues arising.

Recommendations

A. That recommendation A GB1 be amended to include the additional revisions as set out in the Memo from Director of Strategy & Environment dated 4 June 2025 as follows:

i. In relation to Gordon properties bounded by Burgoyne St, Pearson Ave, Carlotta Ave and the railway (Attachment 8 GB.1 *Possible Amendments to Reduce Yield* - precincts G1, G2 and G3 Gordon), amend the plans as follows:

- Amend the boundary map to exclude precincts G1, G2 and G3 from the proposed alternative TOD boundary.
- Delete precincts G1, G2 and G3 from the Land use zone, Height of Building and Floor Space Ratio maps (and revert to KLEP provisions)
- Delete precincts G1, G2 and G3 from maps relating to exemptions to Clause 4.3 (2A) KLEP, Clause 6.6 (2A) KLEP, Clause 4.4 KLEP and revert to KLEP provisions
- Amend affordable housing requirement to 0% (reduced from 2%)

ii. In relation to Precinct L1 in Lindfield an area bounded by Highfield Road, Wallace Parade and Bent Street (Attachment 8 GB.1 *Possible Amendments to Reduce Yield* – precinct L1), amend the plans as follows:

- Amend the boundary map to exclude precinct L1 from the proposed alternative TOD boundary.
- Delete precinct L1 from the Land use zone, Height of Building and Floor Space Ratio maps and revert to existing KLEP provisions
- Delete precinct L1 from maps relating to exemptions to Clause 4.3 (2A) KLEP, Clause 6.6 (2A) KLEP, Clause 4.4 KLEP (and revert to KLEP provisions)

iii. In relation to precinct L5 in Lindfield includes seven properties (nos.25, 27, 29, 31, 33 and 35 Gladstone and no.9 Norwood Avenue) which form part of C45 Lindfield West Conservation Area, amend the plans as follows:

- Height of Building 12m (increased from 9.5m)
- Floor Space Ratio 0.85:1 (increased from 0.3:1)

iv. In relation to a group of six properties in Lindfield fronting Beaconsfield Parade (nos.9, 11, 15, 15A, 17 & 19 Beaconsfield Parade amend the plans as follows:

- Height of Building 18.5m (reduced from 29m)
- Floor Space Ratio 1.3:1 (reduced from 1.8:1)
- 0% affordable housing requirement (reduced from 3%)

B. That a new recommendation G. be included on the officer's recommendation as follows:

G. The Proposed Design Excellence Clause be removed from Attachment A7 Changes to the Ku-ring-gai LEP (reference to Ch5 of the State Environmental Planning Policy (Housing) and a further review of the Design Excellence Clause and provisions be reported back to Council.

Andrew Watson (Jun 4, 2025 14:02 GMT+10)

Andrew Watson
Director Strategy & Environment

/4

Encs: Maps
A1. Possible amendments to reduce State Significant Development (SSD) yield – Gordon & Lindfield
A2. Amendment to final Building Height Map (HOB) maps - Lindfield

Gordon

Possible Amendments to Offset SSD Yields

Attachment A1

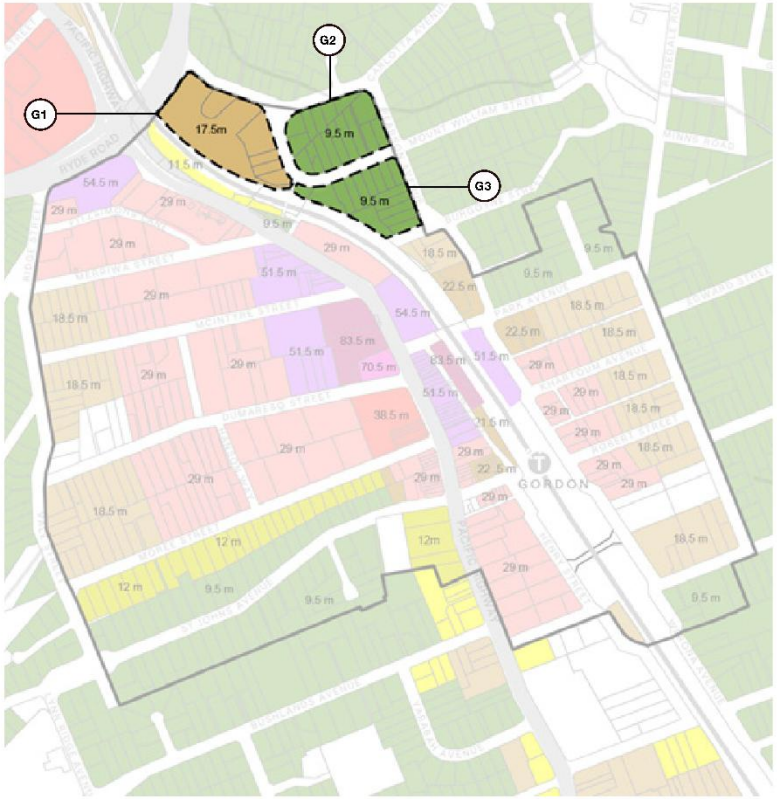


Figure 1: Final Height of Building (HOB) with potential changes highlighted (as per Figure A4.2, Attachment No. 8 to GB.1)

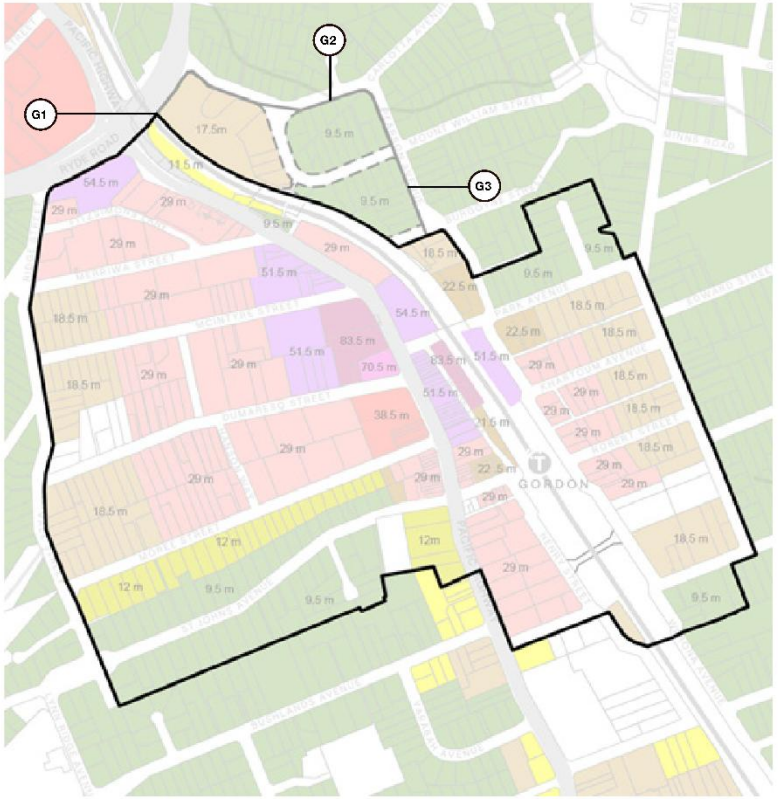


Figure 2: Amendment to the Height of Building (HOB) map for Gordon (Attachment No. 6 to GB.1), to exclude precincts G1, G2, and G3 from the proposed alternative TOD boundary (as per item i - S14846-1 / 2025/173844)

- Proposed alternative TOD boundary
- Changes highlighted from draft LEP Maps
- Railway corridor
- Arterial road
- Pedestrian overpass/ underpass
- 9.5m
- 11.5m
- 12m
- 17.5m
- 18.5m
- 21.5m
- 22.5m
- 26.5m
- 29m
- 32.5m
- 38.5m
- 51.5m
- 54.5m
- 70.5
- 83.5m
- 93m

Lindfield

Possible Amendments to Offset SSD Yields

Attachment A1

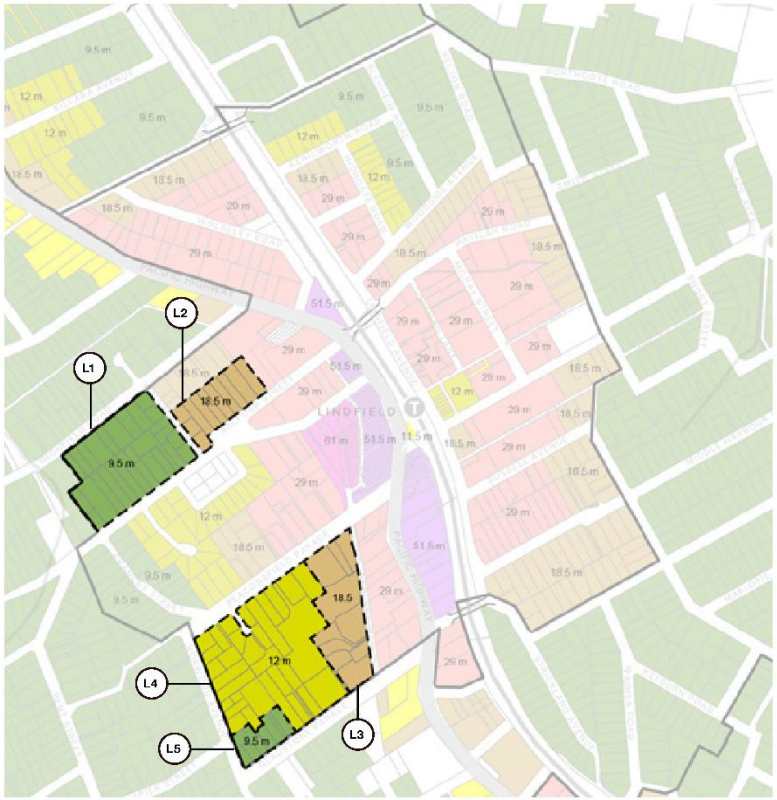


Figure 3: Final Height of Building (HOB) with potential changes highlighted (as per Figure A4.4, Attachment No. 8 to GB.1)

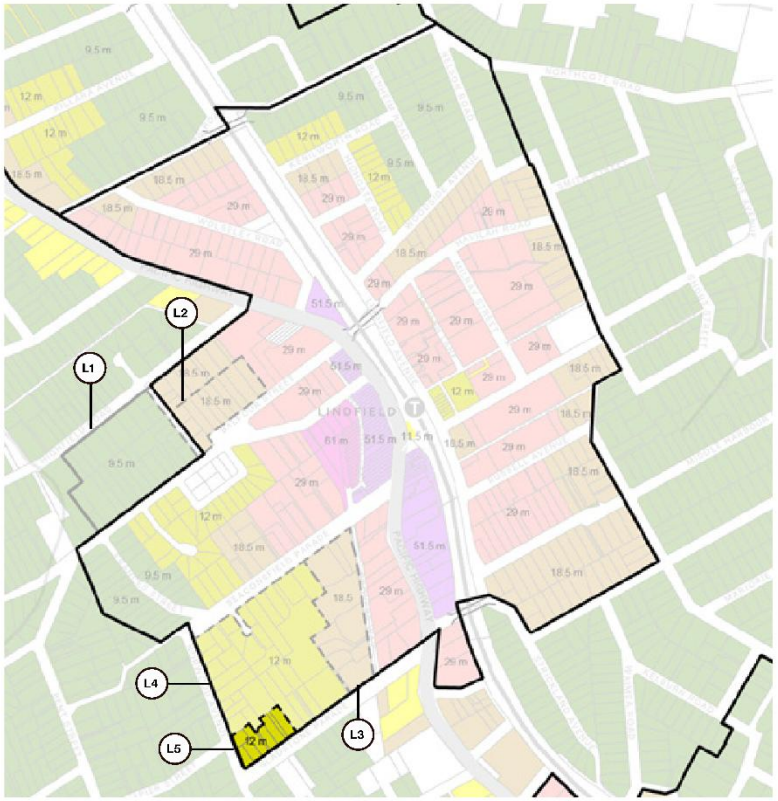


Figure 4: Amendment to the Height of Building (HOB) map for Lindfield (Attachment No. 6 to GB.1), to exclude precinct L1 from the proposed alternative TOD boundary, and increase Height of Building to 12m and FSR 0.85:1 for Precinct L5 (as per items ii & iii - S14846-1 / 2025/173844)

- Proposed alternative TOD boundary
- Changes highlighted from draft LEP Maps
- Railway corridor
- Arterial road
- Pedestrian overpass/ underpass
- 9.5m
- 11.5m
- 12m
- 17.5m
- 18.5m
- 21.5m
- 22.5m
- 26.5m
- 29m
- 32.5m
- 38.5m
- 51.5m
- 54.5m
- 70.5
- 83.5m
- 93m

Lindfield

Amendment to Final Height of Building (HOB)

Attachment A2

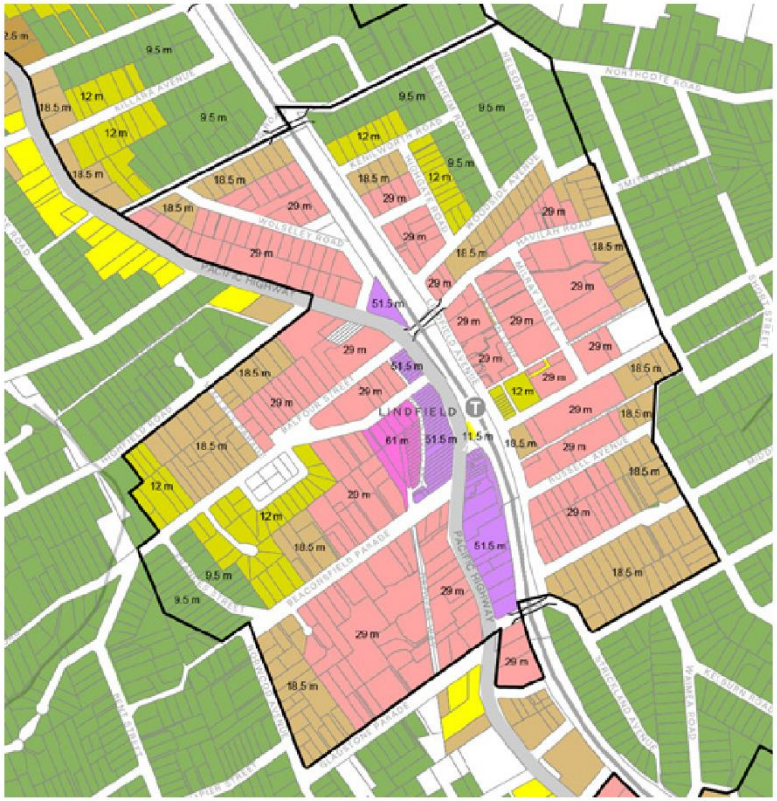


Figure 5: Final Height of Building (HOB) with potential changes highlighted (as per Figure A4.4, Attachment No. 8 to GB.1)

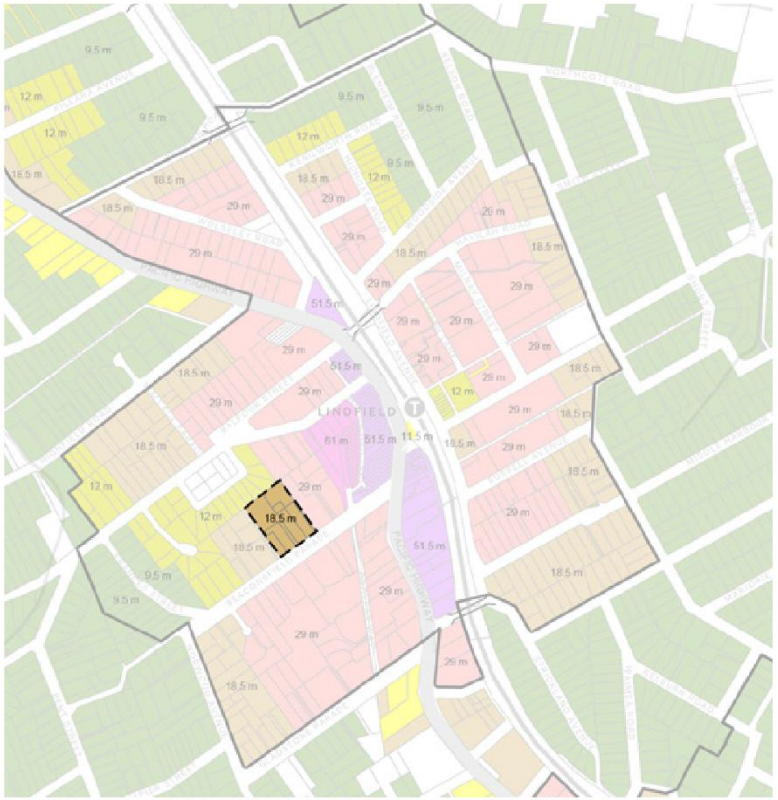


Figure 6: Amendment to the Height of Building (HOB) map for Lindfield (Attachment No. 6 to GB.1), to reduce the Height of Building to 18.5m and FSR 1.3:1 for nos. 9, 11, 15, 15A, 17 & 19 Beaconsfield Parade (as per items iv - S14846-1 / 2025/173844)

- Proposed alternative TOD boundary
- Changes highlighted from draft LEP Maps
- Railway corridor
- Arterial road
- Pedestrian overpass/ underpass
- 9.5m
- 11.5m
- 12m
- 17.5m
- 18.5m
- 21.5m
- 22.5m
- 26.5m
- 29m
- 32.5m
- 38.5m
- 51.5m
- 54.5m
- 70.5
- 83.5m
- 93m

Special disclosures of pecuniary interest

Special disclosure of pecuniary interests by Cr Alec Taylor

in the matter of GB.1 Preferred Scenario (KLEP 2015 & DCP)

which is to be considered at a meeting of the [*name of council or council committee (as the case requires)*] Extraordinary Meeting of Council

to be held on the 22/5/2025

Pecuniary interest	
Address of the affected principal place of residence of the councillor or an associated person, company or body (the identified land)	[redacted]
Relationship of identified land to the councillor [*Tick or cross one box.*]	■ The councillor has an interest in the land (e.g. is the owner or has another interest arising out of a mortgage, lease, trust, option or contract, or otherwise). □ An associated person of the councillor has an interest in the land. □ An associated company or body of the councillor has an interest in the land.
Matter giving rise to pecuniary interest[1]	
Nature of the land that is subject to a change in zone/planning control by the proposed LEP (the subject land)[2] [Tick or cross one box]	■ The identified land. □ Land that adjoins or is adjacent to or is in proximity to the identified land.
Current zone/planning control [*Insert name of current planning instrument and identify relevant zone/planning control applying to the subject land*]	R2 Medium Density Residential Low & Mid-rise Housing SEPP Max FSR 0.8:1

[1] *Clause 4.1 of the Code of Conduct provides that a pecuniary interest is an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person. A person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to the matter, or if the interest is of a kind specified in clause 4.6 of the Code of Conduct.*

[2] *A pecuniary interest may arise by way of a change of permissible use of land adjoining, adjacent to or in proximity to land in which a councillor or a person, company or body referred to in clause 4.3 of the Code of Conduct has a proprietary interest.*

Proposed change of zone/planning control [*Insert name of proposed LEP and identify proposed change of zone/planning control applying to the subject land*]	R4 Medium Density Residential TOD Alternative - Preferred Scenario Max FSR 0.85:1
Effect of proposed change of zone/planning control on councillor or associated person [*Insert one of the following: "Appreciable financial gain" or "Appreciable financial loss"*]	Probably unchanged value

[*If more than one pecuniary interest is to be declared, reprint the above box and fill in for each additional interest.*]

Councillor's signatur[redacted]

Date 22/5/25

[This form is to be retained by the council's general manager and included in full in the minutes of the meeting]

Special disclosure of pecuniary interests by Barbara Ward

in the matter of GB.1 Preferred Scenario (KLEP 2015 AND DCP)

which is to be considered at a meeting of the [*name of council or council committee (as the case requires)*] Extraordinary Meeting of Council

to be held on the 22 MAY 2025.

Pecuniary interest	
Address of the affected principal place of residence of the councillor or an associated person, company or body (the identified land)	[redacted]
Relationship of identified land to the councillor [*Tick or cross one box.*]	☑ The councillor has an interest in the land (e.g. is the owner or has another interest arising out of a mortgage, lease, trust, option or contract, or otherwise). ☐ An associated person of the councillor has an interest in the land. ☐ An associated company or body of the councillor has an interest in the land.
Matter giving rise to pecuniary interest[1]	
Nature of the land that is subject to a change in zone/planning control by the proposed LEP (the subject land)[2] [Tick or cross one box]	☐ The identified land. ☑ Land that adjoins or is adjacent to or is in proximity to the identified land.
Current zone/planning control [*Insert name of current planning instrument and identify relevant zone/planning control applying to the subject land*]	LEP 2015

[1] *Clause 4.1 of the Code of Conduct provides that a pecuniary interest is an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person. A person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to the matter, or if the interest is of a kind specified in clause 4.6 of the Code of Conduct.*

[2] *A pecuniary interest may arise by way of a change of permissible use of land adjoining, adjacent to or in proximity to land in which a councillor or a person, company or body referred to in clause 4.3 of the Code of Conduct has a proprietary interest.*

Proposed change of zone/planning control [*Insert name of proposed LEP and identify proposed change of zone/planning control applying to the subject land*]	Council's alternate to the TOD
Effect of proposed change of zone/planning control on councillor or associated person [*Insert one of the following: "Appreciable financial gain" or "Appreciable financial loss"*]	unkown

[*If more than one pecuniary interest is to be declared, reprint the above box and fill in for each additional interest.*]

Councillor's signature [redacted]

Date 22 may 2025

[This form is to be retained by the council's general manager and included in full in the minutes of the meeting]

Special disclosure of pecuniary interests by Cr Sam Ngai

in the matter of Transport Oriented Development Alternate Scenario

which is to be considered at a meeting of the [*name of council or council committee (as the case requires)*] Ordinary Meeting of Council

to be held on the 22nd May 2025

Pecuniary interest	
Address of the affected principal place of residence of the councillor or an associated person, company or body (the identified land)	N/A
Relationship of identified land to the councillor [*Tick or cross one box.*]	□ The councillor has an interest in the land (e.g. is the owner or has another interest arising out of a mortgage, lease, trust, option or contract, or otherwise). ■ An associated person of the councillor has an interest in the land. □ An associated company or body of the councillor has an interest in the land.
Matter giving rise to pecuniary interest[1]	
Nature of the land that is subject to a change in zone/planning control by the proposed LEP (the subject land)[2] [Tick or cross one box]	■ The identified land. □ Land that adjoins or is adjacent to or is in proximity to the identified land.
Current zone/planning control [*Insert name of current planning instrument and identify relevant zone/planning control applying to the subject land*]	My parents-in-law's primary place of residence currently has TOD controls of FSR 2.5:1.

[1] *Clause 4.1 of the Code of Conduct provides that a pecuniary interest is an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person. A person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to the matter, or if the interest is of a kind specified in clause 4.6 of the Code of Conduct.*

[2] *A pecuniary interest may arise by way of a change of permissible use of land adjoining, adjacent to or in proximity to land in which a councillor or a person, company or body referred to in clause 4.3 of the Code of Conduct has a proprietary interest.*

Proposed change of zone/planning control [*Insert name of proposed LEP and identify proposed change of zone/planning control applying to the subject land*]	Their TOD controls will be reduced to FSR 1.8:1.
Effect of proposed change of zone/planning control on councillor or associated person [*Insert one of the following: "Appreciable financial gain" or "Appreciable financial loss"*]	Reduction in volume of housing provided on site by 28%, though frankly they are not interested in selling or moving.

[*If more than one pecuniary interest is to be declared, reprint the above box and fill in for each additional interest.*]

Councillor's signature [redacted]

Date 22nd May 2025

[This form is to be retained by the council's general manager and included in full in the minutes of the meeting]

Special disclosure of pecuniary interests by Cr Indu Balachandran

in the matter of GB.1 TOD alternative - preferred scenario - proposed amendments - post exhibition

which is to be considered at a meeting of the [*name of council or council committee (as the case requires)*] Extraordinary Meeting of Council

to be held on the 22 May 2025

Pecuniary interest	
Address of the affected principal place of residence of the councillor or an associated person, company or body (the identified land)	[redacted]
Relationship of identified land to the councillor [*Tick or cross one box.*]	☒ The councillor has an interest in the land (e.g. is the owner or has another interest arising out of a mortgage, lease, trust, option or contract, or otherwise). ☐ An associated person of the councillor has an interest in the land. ☐ An associated company or body of the councillor has an interest in the land.
Matter giving rise to pecuniary interest[1]	
Nature of the land that is subject to a change in zone/planning control by the proposed LEP (the subject land)[2] [Tick or cross one box]	☒ The identified land. ☐ Land that adjoins or is adjacent to or is in proximity to the identified land.
Current zone/planning control [*Insert name of current planning instrument and identify relevant zone/planning control applying to the subject land*]	Zoning R2 Low Density Residential, Ku-ring-gai Local EP 2015. Listed as heritage item under LEP 2015. within HCA C33 under K-gai LEP 2015

[1] *Clause 4.1 of the Code of Conduct provides that a pecuniary interest is an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person. A person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to the matter, or if the interest is of a kind specified in clause 4.6 of the Code of Conduct.*

[2] *A pecuniary interest may arise by way of a change of permissible use of land adjoining, adjacent to or in proximity to land in which a councillor or a person, company or body referred to in clause 4.3 of the Code of Conduct has a proprietary interest.*

Proposed change of zone/planning control [*Insert name of proposed LEP and identify proposed change of zone/planning control applying to the subject land*]	SEPP (Exempt + Complying Dev Codes 2008). SEPP Housing 2021 Chapter 5 TOD
Effect of proposed change of zone/planning control on councillor or associated person [*Insert one of the following: "Appreciable financial gain" or "Appreciable financial loss"*]	The value of my home may increase or decrease / is unknown due to the changes in TOD controls vis a vis current controls + future LMR as property is within 400m of Killara Stn

[*If more than one pecuniary interest is to be declared, reprint the above box and fill in for each additional interest.*]

Councillor's signature [redacted]

Date 22.5.25

[This form is to be retained by the council's general manager and included in full in the minutes of the meeting]

Special disclosure of pecuniary interests by Cr Indu Balachandran

in the matter of GB.1 TOD alternative - preferred scenario - proposed amendments - post exhibition

which is to be considered at a meeting of the [*name of council or council committee (as the case requires)*] Extraordinary Meeting of Council

to be held on the 22 May 2025

Pecuniary interest	
Address of the affected principal place of residence of the councillor or an associated person, company or body (the identified land)	[redacted]
Relationship of identified land to the councillor [*Tick or cross one box.*]	☐ The councillor has an interest in the land (e.g. is the owner or has another interest arising out of a mortgage, lease, trust, option or contract, or otherwise). ☒ An associated person of the councillor has an interest in the land. ☐ An associated company or body of the councillor has an interest in the land.
Matter giving rise to pecuniary interest[1]	
Nature of the land that is subject to a change in zone/planning control by the proposed LEP (the subject land)[2] [Tick or cross one box]	☒ The identified land. ☐ Land that adjoins or is adjacent to or is in proximity to the identified land.
Current zone/planning control [*Insert name of current planning instrument and identify relevant zone/planning control applying to the subject land*]	Zoning R2 Low Density Residential Kgai LEP 2015 - Listed as heritage item under LEP 2015 - Within HCA C23 under Kgai LEP 2015

[1] *Clause 4.1 of the Code of Conduct provides that a pecuniary interest is an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person. A person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to the matter, or if the interest is of a kind specified in clause 4.6 of the Code of Conduct.*

[2] *A pecuniary interest may arise by way of a change of permissible use of land adjoining, adjacent to or in proximity to land in which a councillor or a person, company or body referred to in clause 4.3 of the Code of Conduct has a proprietary interest.*

Proposed change of zone/planning control [*Insert name of proposed LEP and identify proposed change of zone/planning control applying to the subject land*]	SEPP (Exempt + Complying Dev Codes 2008). SEPP Housing 2021 Chapter 5 TOD
Effect of proposed change of zone/planning control on councillor or associated person [*Insert one of the following: "Appreciable financial gain" or "Appreciable financial loss"*]	Potential + unknown financial gain or loss for my home via its current gazetted TOD controls, + future LMR as property within 400 m of Kiara Stn.

[*If more than one pecuniary interest is to be declared, reprint the above box and fill in for each additional interest.*]

Councillor's signatur[redacted]

Date 22.5.25

[This form is to be retained by the council's general manager and included in full in the minutes of the meeting]

MINUTES OF ORDINARY MEETING OF COUNCIL HELD ON TUESDAY, 17 JUNE 2025

Present:	The Mayor, Councillor Christine Kay (Chairperson) Councillors M Devlin & J Pettett (Comenarra Ward) Councillors I Balachandran & B Ward (Gordon Ward) Councillors S Ngai & A Taylor (Roseville Ward) Councillor M Smith (St Ives Ward) Councillors C Spencer & K Wheatley (Wahroonga Ward)
Staff Present:	General Manager (David Marshall) Director Community (Janice Bevan) Director Corporate (Angela Apostol) Director Development & Regulation (Michael Miocic) Director Operations (Peter Lichaa) Director Strategy & Environment (Andrew Watson) Corporate Lawyer (Jamie Taylor) Manager Corporate Communications (Virginia Leafe) Manager Governance and Corporate Strategy (Christopher M Jones) Governance Support Officer (Eliza Gilbank-Heim)
Others Present:	Manager Urban and Heritage Planning (Antony Fabbro) Acting Manager Finance (Mette Kofoed)

The Meeting commenced at 7:00 PM

The Mayor offered the Acknowledgement of Country and Prayer.

APOLOGIES

File: S02194

Nil.

DECLARATIONS OF INTEREST

The Mayor referred to the necessity for Councillors and staff to declare a Pecuniary Interest/Conflict of Interest in any item on the Business Paper.

No Interest was declared.

DOCUMENTS CIRCULATED TO COUNCILLORS

The Mayor referred to the documents circulated in the Councillors' papers and advised that the following matters would be dealt with at the appropriate time during the meeting:

Late Items:

MM.1 – The King's Birthday Honours 2025 – Report by The Mayor, Councillor Kay dated 10 June 2025.

MM.2 – Vale Stuart Clark AM AFSM – a distinguished Rural Fire Service volunteer – Report by The Mayor, Councillor Kay dated 16 June 2025.

Memorandums:

A Confidential Memorandum for GB.6 Post exhibition – Draft Community Strategic Plan, Resourcing Strategy, Delivery Program and Operational Plan from the Manager of Governance and Corporate Strategy was circulated to the Mayor and Councillors on 3 June 2025.

A Confidential Memorandum for GB.12 Ku-ring-gai Draft Green Grid – Post Exhibition Report from the Director of Strategy & Environment was circulated to the Mayor and Councillors on 6 June 2025.

A Memorandum for GB.6 Post exhibition – Draft Community Strategic Plan, Resourcing Strategy, Delivery Program and Operational Plan from the Manager of Governance and Corporate Strategy was circulated to the Mayor and Councillors on 13 June 2025.

Council resolved that, in accordance with the provisions of Section 10 of the Local Government Act 1993, these documents be released to the press and public, with the exception of confidential memorandums, after a Motion moved by Councillors Taylor and Smith was CARRIED UNANIMOUSLY.

CONFIRMATION OF MINUTES

88 **Minutes of Ordinary Meeting of Council**
File: EM00046/4
Meeting held 20 May 2025
Minutes numbered 64 to 80

Resolved:

(Moved: Councillors Wheatley/Taylor)

That Minutes numbered 64 to 80 circulated to Councillors were taken as read and confirmed as an accurate record of the proceedings of the Meeting.

CARRIED UNANIMOUSLY

MINUTES FROM THE MAYOR

89 **The King's Birthday Honours 2025**

File: S14221
Vide: MM.1
I am pleased to inform you that five Ku-ring-gai citizens, through their outstanding achievements and services to the community, have been awarded 2025 King's Birthday Honours.

We are very proud to have these dedicated and talented Australians as members of the Ku-ring-gai community.

I would like to read to you the names of these special Ku-ring-gai citizens and, on behalf of Council, congratulate them on their excellent contributions to Australian society.

Mrs Roslyn Elaine PHILIPS OAM of St Ives, for service to the community through charitable roles

Mr David Hugh ARMSTRONG AM of Gordon, for significant service to the not-for-profit sector, to the arts, and to the financial sector

Mrs Margaret Phillippa MIDDLETON OAM of Lindfield, for service to the community as a volunteer

Mr John McKenzie MIDDLETON OAM of Lindfield, for service to the community, particularly through music

Mr Ronald Bruce YORK OAM of Lindfield, for service to the community of Sydney, and to charitable organisations.

On behalf of Council, I congratulate all these award winners on their outstanding achievements.

Ku-ring-gai should be proud that it has so many citizens being recognised at the highest levels for their selfless dedication, commitment, and contribution to local, national and international communities.

Resolved:

(Moved: The Mayor, Councillor Kay)

A. That Council acknowledge the outstanding contribution made by these recipients of the King's Birthday Honours 2025 to the Ku-ring-gai community and to the well-being of our society.

B. That the Mayor, on behalf of Council, write to the recipients to congratulate them.

CARRIED UNANIMOUSLY

90 **Vale Stuart Clark AM AFSM - a distinguished Rural Fire Service volunteer**

File: CY00455/13
Vide: MM.2

It is my sad duty to advise Council and our community of the passing of Stuart Clark, who gave over 50 years of voluntary service to the Rural Fire Service in Ku-ring-gai.

Stuart lost his battle with cancer recently and his death is being widely mourned not only by his immediate family, but also by the Rural Fire Service family.

Stuart Clark joined the Rural Fire Service in 1973 in the Elouera Brigade, later renamed the Westleigh Brigade, and served with them for 15 years.

In 1988 Stuart moved into the Hornsby Ku-ring-gai Communications Brigade where he was made a Life Member after serving as Deputy Captain and then Captain of the Brigade.

In 2014 Stuart also joined Ku-ring-gai Brigade, where he continued to undertake firefighting duties and subsequently became a founding member of the newly formed Killara Brigade.

In recognition of his leadership, Stuart was elected as President and Deputy Captain of Killara Brigade, a rank he held while fighting the intense fires of the 2019-2020 bushfire season.

Stuart's years of advocacy and campaigning in the community, as well as in government and professional circles, led to the Killara Brigade going from strength to strength. By 2024 the Brigade was operating with 56 members with two fire trucks.

He was also instrumental in ensuring a purpose-built fire station for the Killara Brigade was built – a first for the local area. It was my pleasure to open that station earlier this year.

For over 50 years Stuart provided outstanding leadership to the Rural Fire Service. In addition to his significant volunteer contribution as a firefighter, he also used his professional expertise to benefit the RFS.

He helped draft the Rural Fires Act 1997, advised the RFS executive team on a range of legal options and processes and trained volunteers and staff on the Incident Controller Major Incident training program

For almost a lifetime, Stuart Clark gave the Ku-ring-gai community and the RFS the most dedicated level of service. On behalf of Council, I extend my deepest sympathies to his widow Narelle, sons Richard and Andrew and the extended Clark family.

Additional comments from Councillor Devlin:

Thank you, Madam Mayor, for your heartfelt tribute.

Tonight, I rise not only as a Councillor but as a fellow firefighter and friend, to honour the extraordinary life of Samuel Stuart Clark AM AFSM, who last week lost his battle with cancer. As Dan Meijer shared with RFS Members when breaking the news: "*It puts an end to considerable suffering*".

Stuart's journey with the NSW Rural Fire Service spans more than five decades, beginning at the Elouera Brigade — now Westleigh. He later joined the Hornsby/Ku-ring-gai Communications Brigade, before eventually serving with the Ku-ring-gai Bush Fire Brigade — where I had the privilege of meeting him when I joined the Service some years later.

But Stuart was never one to sit idle. His next goal was the 'raising' of the Killara Rural Fire Brigade, and in that he was central. While it would be unfair to overlook the contributions of many others, it is my firm view — and the view of many — that without Stuart's ambition, knowledge, connections, and steely focus, the raising of that Brigade would not have been achieved.

This was no ordinary accomplishment. Killara was the first new Rural Fire Brigade raised across the State for many years, and given its location on the North Shore of Sydney, was an ambitious project — very much warranted given the thousands of homes with bushland interface at risk of fire. It represents a significant investment in, and enhancement to, community safety within our LGA — and strengthened the strategic capability of the Service across the metropolitan area, as well as bolstering support for regional deployment to help the regions when in crisis. A remarkable achievement — *and one, I suspect, that some still find hard to believe he accomplished given its challenges and opposition.*

Earlier this year, it was my great honour to attend the opening of the newly built Killara Fire Station with both Council and Brigade colleagues. Madam Mayor, I know you'll recall what a wonderful day it was for the community. What stood out most for me, however, was the moment the Commissioner himself presented Stuart with the 50-year clasp for his national Long Service Medal. A truly outstanding and well-deserved recognition.

Beyond the fireground, Stuart's legal acumen significantly shaped the NSW RFS. While tonight's Mayoral Minute rightly notes his contribution to the drafting of the Rural Fires Act 1997, his influence extended far beyond that. Stuart played a central role in the development of the Code of Conduct and Ethics, disciplinary procedures, Brigade constitutional reform, and the Brigade Management Handbook — now used by more than 2,200 brigades across the State.

He was often the first point of contact for legal advice — whether it be from the Commissioner or from local brigade Captains like my own, *perhaps seeking clarity on how best to deal with someone like me*. Stuart mentored countless volunteers and staff over the years, always generous with his knowledge and time.

He was also instrumental in the formation of the Rural Fire Service Association (the RFSA). As he would proudly remind me in our many discussions on RFSA matters, he was the only volunteer present in the room when the Association was officially formed. His legacy of advocacy, support, and representation for RFS members is deeply embedded in both the RFS and the RFSA. For that, Stuart — thank you.
Stuart's legal expertise, of course, extended well beyond the Rural Fire Service. He spent more than 31 years at Clayton Utz, almost all of them as a Partner. He served as Managing Partner of Litigation for five years, and later as Chief Operating Officer and Managing Partner — overseeing nearly half a billion dollars' worth of Australia's legal market, at a time of unprecedented upheaval and intense competition.

His commitment to knowledge-sharing was equally formidable. Since 2010, Stuart served as an Honorary Professor at Macquarie University's Law School — further testament to his dedication to mentoring the next generation of legal minds.
And you might think that would be more than enough to keep a person busy. But not Stuart.

He served as a Director of the Law Council of Australia from 2012 and was elected its President in 2016. He was also a Director and Deputy Chair of Australian War Widows NSW Limited from 2019. And following his retirement from Clayton Utz, he founded SSC Advisory to continue serving his profession and community.
In 2021, he took on another significant leadership role — as Chair of the Board of NSW Volunteer Rescue Association (VRA). Under his stewardship, the VRA underwent meaningful reform, modernisation, and renewal — becoming more effective and relevant than ever before. The lives positively impacted by his work in that role are uncountable. Again — thank you, Stuart.

In 2015, Stuart was appointed a Member of the Order of Australia (AM) in the Queen's Birthday Honours, for "*significant service to the law, through senior roles with professional legal bodies, to strategic reform, and to the rural fire service*".
In this year's Australia Day Honours, he was awarded the Australian Fire Service Medal (AFSM) for his "*unwavering commitment to the NSW Rural Fire Service*".
He was also a Fellow of both the Australian Academy of Law, and the Australian Institute of Company Directors.

But for me, I will always remember his big smile, his quirky laugh, his trademark red suspenders when in uniform — made completely redundant by his tactical belt — and most of all, his constant willingness to help.

I'll never forget climbing into the back seat of a truck beside him for the first time, nor the last time I picked him up from his home after treatment last year to grab a coffee, pie and cake at East Killara. We talked about all things RFS, how I was settling into my role as Councillor, and then — true to form — he proudly gave me a personal tour of the yet-to-be-opened Killara Fire Station. *He was, as they say, proud as Punch.*

Until his health declined after the Station opening, Stuart would often check in with me — always asking how his *"little mate Barbara" — Cr Ward — was going?*
Stuart Clark: thank you for your friendship, your mentorship, your counsel, and for a legacy that will be near impossible to surpass.

To Narelle, Richard, Andrew, and the Clark family — we extend our deepest sympathies. Stuart's legacy of service, leadership, and community spirit will continue to inspire us all.

Madam Mayor, I support the recommendations in your Mayoral Minute, and ask that a copy of my remarks be included in your correspondence to the Clark family.

I thank the Chamber for its time.

Resolved:

(Moved: The Mayor, Councillor Kay)

A. That the Mayoral Minute be received and noted

B. That we stand for a minute's silence to honour Stuart Clark

C. That the Mayor write to Stuart Clark's family and enclose a copy of the Mayoral Minute and Councillor Devlin's speech.

CARRIED UNANIMOUSLY

PETITIONS

91 **Save the Synthetic Field at Norman Griffiths Oval - Deliver what was promised**

File: EM00046/5
Vide: PT.1

Petition to Ku-ring-gai Council
Principal Petitioner: Michael Wootton

For years, we've waited patiently while Norman Griffiths Oval sat idle. It's time for Council to stop dragging its feet and deliver the synthetic surface our community was promised. Help us hold them to account, sign and share this petition today!

We, the undersigned members of the Ku-ring-gai community and wider sporting public, call on Ku-ring-gai Council to deliver the originally approved synthetic turf upgrade at Norman Griffiths Oval in West Pymble, as committed in previous planning and budget announcements.

We oppose any move to revert the project to a natural turf surface, particularly after extensive delays, disruptions, and the removal of the FIFA-approved contractor assigned to the job.

Our community needs reliable, safe, all-weather facilities to support grassroots sport, including junior football, community sports, and local recreation. With countless games and training sessions already lost due to field closures and weather impacts, the synthetic upgrade is not a luxury, it's a necessity.

The synthetic surface has been promised, approved, budgeted, and partially prepared. To backtrack now is a breach of trust and a waste of public money. Council must uphold its commitment and complete the synthetic upgrade as planned.

We respectfully urge the Council to:

- Reaffirm its support for a synthetic surface at Norman Griffiths Oval
- Engage qualified contractors to complete the project
- Provide transparency about the project's delays and next steps

(103 signatures – as at 20 May 2025)

Resolved:

(Moved: Councillors Devlin/Pettett)

That the petition be received and referred to the appropriate Officer of Council for attention.

CARRIED UNANIMOUSLY

GENERAL BUSINESS

92 **Arts and Culture Committee Minutes - 5 May 2025**

File: S04141
Vide: GB.1

To provide Council with the minutes from the Arts and Culture Advisory Committee meeting held on 5 May 2025.

Resolved:

(Moved: Councillors Taylor/Wheatley)

That Council consider and endorse the minutes from the Arts and Culture Committee meeting held on 5 May 2025.

CARRIED UNANIMOUSLY

93 **Ku-ring-gai Traffic Committee - Minutes of Meeting 28 May 2025**

File: CY00022/17
Vide: GB.2

To consider the Minutes from the Ku-ring-gai Traffic Committee (KTC) Meeting held on 28 May 2025.

Resolved:

(Moved: Councillors Taylor/Wheatley)

A. That Council receive and note the Ku-ring-gai Traffic Committee Minutes from 28 May 2025.

B. That Council approve the recommendations of the Ku-ring-gai Traffic Committee.

CARRIED UNANIMOUSLY

94 **Status of Women's Advisory Committee Minutes - 6 May 2025**

File: S13683
Vide: GB.3

To provide Council with the minutes from the Status of Women's Advisory Committee meeting held on 6 May 2025.

Resolved:

(Moved: Councillors Taylor/Wheatley)

That Council endorse the minutes of the Status of Women's Advisory Committee meeting held on 6 May 2025.

CARRIED UNANIMOUSLY

95 **Youth Advisory Committee Minutes - 7 May 2025**

File: S04477
Vide: GB.4

To provide Council with the minutes from the Youth Advisory Committee meeting held on 7 May 2025.

Resolved:

(Moved: Councillors Taylor/Wheatley)

That Council endorse the minutes of the Youth Advisory Committee meeting held on 7 May 2025.

CARRIED UNANIMOUSLY

96 **Mayor and Councillor Fees - 2025/26 Local Government Remuneration Tribunal Determination**

File: EM00046/5
Vide: GB.7

To determine the mayoral and councillor fees for the 2025/26 financial year.

Resolved:

(Moved: Councillors Taylor/Wheatley)

That effective 1 July 2025:

A. The annual councillor fee be set at $29,550; and

B. The annual mayoral fee be set at $78,480, in addition to the councillor fee.

CARRIED UNANIMOUSLY

97 **Investment Report as at 31 May 2025**

File: FY00623/7
Vide: GB.8

To present Council's investment portfolio performance for May 2025.

Resolved:

(Moved: Councillors Taylor/Wheatley)

That:

A. The summary of investments and performance for May 2025 be received and noted.

B. The Certificate of the Responsible Accounting Officer be noted and the report adopted.

CARRIED UNANIMOUSLY

98 **Submission on the Explanation of intended effect: Changes to deter illegal tree and vegetation clearing**

File: S14545
Vide: GB.10

To approve a submission to the NSW Department of Planning, Housing and Infrastructure (DPHI) in response to the *Explanation of Intended Effect: Protecting Our Trees – Changes to Deter Illegal Tree and Vegetation Clearing*.

Resolved:

(Moved: Councillors Taylor/Wheatley)

A. That Council approve the draft submission to the NSW Department of Planning, Housing and Infrastructure's *Explanation of Intended Effect: Changes to Deter Illegal Tree and Vegetation Clearing*, at Attachment A2.

B. That Council also share the submission with NSROC to assist in preparation of a separate coordinated submission.

CARRIED UNANIMOUSLY

99 **Response to Notice of Motion - Doggy Daycare and 'Animal boarding or training establishments'**

File: S14398
Vide: GB.11

For Council to consider the outcomes of investigation into the feasibility of allowing '*animal boarding or training establishments'* within the E1 Local Centres and MU1 Mixed Use zones.

Resolved:

(Moved: Councillors Taylor/Wheatley)

It is recommended that Council does not amend the KLEP 2015 to permit '*animal boarding and training establishments*' within the E1 Local Centre and MU1 Mixed Use zones.

CARRIED UNANIMOUSLY

100 **Ku-ring-gai Draft Green Grid - Post Exhibition Report**

File: S12691
Vide: GB.12

To provide an overview of the finalised Ku-ring-gai Green Grid Strategy and seek Council's adoption of the strategy following public exhibition.

Resolved:

(Moved: Councillors Taylor/Wheatley)

That Council adopt the Ku-ring-gai Green Grid Strategy.

CARRIED UNANIMOUSLY

101 **Acquisition of easement by Council at 43-47 Dumaresq Street Gordon**

File: CY00470/12
Vide: GB.13

To create an easement in favour of Council as part of a proposed development on freehold land at 43-47 Dumaresq Street Gordon comprising Lot 1 DP 1314831.

Resolved:

(Moved: Councillors Taylor/Wheatley)

A. That Council resolves to acquire an easement over Lot 1 DP 1314831 (43-47 Dumaresq Street Gordon) for drainage purposes. The easement is to be in the form of a section 88B Instrument over that part of the freehold property depicted in Attachment A1 and at no cost to Council and subject to final survey.

B. That the General Manager or his delegate be given delegation to complete negotiations for the easement on the basis set out in this report and execute all associated documentation to give effect to the easement.

C. That all costs associated with the easement in favour of Council, including legal and survey costs and all costs associated with the new drainage works be borne by the Applicant.

CARRIED UNANIMOUSLY

102 **Draft Community Engagement Strategy incorporating Community Participation Plan**

File: S14384
Vide: GB.5

To present the draft combined Community Engagement Strategy (CES) and Community Participation Plan (CPP) to Council for consideration.

MOTION:

(Moved: Councillors Taylor/Ward)

A. That Council endorse the draft combined Community Engagement Strategy and Community Participation Plan after increasing the minimum notification mailout radius for traffic management changes from 50m to 150m, and it be placed on public exhibition for 42 days.

B. That, at the end of the public exhibition, a further report be submitted to Council summarising any community feedback and changes to the draft *Community Engagement Strategy and Community Participation Plan*. If no

submissions are received, Council adopt the draft Plan as attached to this report.

Resolved:

(Moved: Councillors Taylor/Ward)

A. That Council endorse the draft combined Community Engagement Strategy and Community Participation Plan after increasing the minimum notification mailout radius for traffic management changes from 50m to 150m, and it be placed on public exhibition for 42 days.

B. That, at the end of the public exhibition, a further report be submitted to Council summarising any community feedback and changes to the draft *Community Engagement Strategy and Community Participation Plan*. If no submissions are received, Council adopt the draft Plan as attached to this report.

CARRIED UNANIMOUSLY

Councillor Wheatley left and returned to Chambers during the following discussion.

103 **Post Exhibition - Draft Community Strategic Plan, Resourcing Strategy, Delivery Program and Operational Plan**

File: S14767
Vide: GB.6

To adopt the Community Strategic Plan 2035, Resourcing Strategy 2025-2035, Delivery Program 2025-2029 and Operational Plan 2025-2026, incorporating the Budget, Capital Works Program, Statement of Revenue Policy and Fees and Charges for 2025-2026.

MOTION:

(Moved: Councillors Balachandran/Ngai)

That Council:

A. Subject to part B, adopts the Community Strategic Plan 2035, Resourcing Strategy 2025-2035 comprising Long Term Financial Plan, Asset Management Strategy and Workforce Management Strategy, DP&OP, incorporating the budget, capital works program, statement of revenue and fees and charges for 2025– 2026 with recommended amendments discussed in this report

B. Change the Scenarios for a special rates variation to be as per the following table:

Proposed Scenarios	Annual SRV Amount ($'000)	SRV % (above rate peg)	SRV per Ratepayer ($)	Buildings (eg halls, amenities, pavilions)	Drainage (stormwater)	Recreational Facilities (eg sportsfields, parks, open spaces)	St Ives Sports Centre*	Footpaths	Infrastructure Upgrades (eg traffic, transport works)	Footpaths Additional and Acceleration	Marian St Theatre* (20 year loan)
Base Case		3%									
SRV Option 1	16,500	19%	355	6,700	5,900	1,500	1,460	940			
SRV Option 2	22,600	26%	486	6,700	5,900	2,100	1,460	940	1,700	3,800	
SRV Option 3	26,280	30%	560	6,700	5,900	2,100	1,460	940	2,400	3,800	2,980

Note: Special Rate Variation (SRV) % and $ are above the rate peg of 3%
*Loan repayments until expiry with future funding reinvested in infrastructure renewal

C. That Council adopts the rates structure as presented in this report.

D. Subject to part B, commence comprehensive community engagement on the rate rise options described in the Long Term Financial Plan, and include an action to reflect this in the DP&OP.

E. That Council writes to all residents and groups that made submissions in relation to the draft Community Strategic Plan, draft Resourcing Strategy, draft Delivery Program and Operational Plan and advise them of the outcomes of Council's consideration.

Resolved:

(Moved: Councillors Balachandran/Ngai)

That Council:

A. Subject to part B, adopts the Community Strategic Plan 2035, Resourcing Strategy 2025-2035 comprising Long Term Financial Plan, Asset Management Strategy and Workforce Management Strategy, DP&OP, incorporating the budget, capital works program, statement of revenue and fees and charges for 2025– 2026 with recommended amendments discussed in this report

B. Change the Scenarios for a special rates variation to be as per the following table:

Proposed Scenarios	Annual SRV Amount ($'000)	SRV % (above rate peg)	SRV per Ratepayer ($)	Buildings (eg halls, amenities, pavilions)	Drainage (stormwater)	Recreational Facilities (eg sportsfields, parks, open spaces)	St Ives Sports Centre*	Footpaths	Infrastructure Upgrades (eg traffic, transport works)	Footpaths Additional and Acceleration	Marian St Theatre* (20 year loan)
Base Case		3%									
SRV Option 1	16,500	19%	355	6,700	5,900	1,500	1,460	940			
SRV Option 2	22,600	26%	486	6,700	5,900	2,100	1,460	940	1,700	3,800	
SRV Option 3	26,280	30%	560	6,700	5,900	2,100	1,460	940	2,400	3,800	2,980

Note: Special Rate Variation (SRV) % and $ are above the rate peg of 3%
*Loan repayments until expiry with future funding reinvested in infrastructure renewal

C. That Council adopts the rates structure as presented in this report.

D. Subject to part B, commence comprehensive community engagement on the rate rise options described in the Long Term Financial Plan, and include an action to reflect this in the DP&OP.

E. That Council writes to all residents and groups that made submissions in relation to the draft Community Strategic Plan, draft Resourcing Strategy, draft Delivery Program and Operational Plan and advise them of the outcomes of Council's consideration.

For the Resolution:	*The Mayor, Councillor Kay, Councillors Balachandran, Devlin, Ngai, Smith, Taylor, Ward and Wheatley*
Against the Resolution:	*Councillors Pettett and Spencer*

CARRIED

104 **DCP housekeeping amendment Environmental Sensitivity and sustainability towards Net Zero**

File: CY00441/13
Vide: GB.9

To have Council consider an update on Environmental Controls for Council's Development Control Plan.

Resolved:

(Moved: Councillors Balachandran/Wheatley)

A. That Council note the findings presented in this Report and endorse the continued investigation into Development Control Plan sustainability provisions to be included in the update of controls for the TOD and LMR building typologies.

B. That a report be brought back to Council to consider amendments to the Ku-ring-gai Development Control Plan prior to public exhibition.

CARRIED UNANIMOUSLY

MOTIONS OF WHICH DUE NOTICE HAS BEEN GIVEN

Councillor Ngai left and returned to Chambers during the following discussion.

105 **Improve asset utilisation and support the arts in Ku-ring-gai**

File: S02211
Vide: NM.1

Notice of Motion from Councillors Balachandran and Wheatley dated 30 May 2025

The draft *Community Strategic Plan 2035 – Our Ku-ring-gai: Growing Together* identifies community infrastructure as a vital community asset and commits Council to providing, upgrading, and maintaining facilities that meet the needs of residents.

Council's community facility utilisation rate is currently less than 30%. Given financial limitations for capital expenditure and time taken to build new facilities, it is imperative that Council actively seek low-cost, high-return opportunities to improve utilisation of existing assets.

The Arts and Culture Committee have identified the need for venues as the major concern for Ku-ring-gai. Arts organisations such as Pymble Players have left the area and sought support in neighbouring councils. Some groups, such as Ku-ring-gai Philharmonic Orchestra, cannot find venues when they need them. Yet others, such as MSTYP, cannot afford rehearsal space and are at risk of shutting down.

The Inner West Council has addressed a similar issue with asset utilisation and a need in the creative sector. They have invested $800,000 on upgrading seven town halls with sound systems, audio-visual equipment, performance and recording studios to be used across all the venues. These have been provided free of charge as spaces for live performance, rehearsal, and exhibition. "Rather than sitting empty for much of the time, our town halls will be filled with music, dance, theatre and film."

A targeted facilities review is required to identify low-cost, high-impact upgrades, such as lighting, AV, acoustic improvements, or other improvements to increase utilisation at selected venues. This review can identify potential "quick wins" to increase utilisation rates.

Alongside this - to leverage underutilised council assets and inject support for local arts and creative groups - Council can develop a pilot program offering free access to Council facilities to the arts and creative sectors. The program can be developed in collaboration with the Arts and Culture Advisory Committee including usage guidelines, eligibility criteria, levels of support, and the evaluation framework. The pilot can prioritise bookings that minimise impact on regular, paid bookings to maximise facility use without adversely impacting Council's revenue. An evaluation is required to assess its impact on facility use, creative output, and creative sector engagement, and opportunities to improve utilisation in the longer term.

This initiative provides a practical opportunity to trial increased access, address a critical need in the arts and creative sectors, and improve the use of existing community assets. Council can help cultivate a vibrant, inclusive, and creative Ku-ring-gai.

MOTION:

(Moved: Councillors Balachandran/Wheatley)

That Council:

A. Undertake a targeted review of selected community facilities to identify low-cost upgrades that support increased utilisation, with recommendations by November 2025 to inform the FY26/27 budget process.

B. Develop and implement a 12-month pilot program to increase facility utilisation and support the arts and creative sectors in Ku-ring-gai:

   a) Designed in collaboration with all relevant Council Committees and reported to Council including potential financial impacts at the November 2025 Council Meeting.
   b) To implement the pilot program from January 2026.
   c) To evaluate the pilot after 12 months.

C. Incorporate learnings into the Cultural Facilities Review

Resolved:

(Moved: Councillors Balachandran/Wheatley)

That Council:

A. Undertake a targeted review of selected community facilities to identify low-cost upgrades that support increased utilisation, with recommendations by November 2025 to inform the FY26/27 budget process.

B. Develop and implement a 12-month pilot program to increase facility utilisation and support the arts and creative sectors in Ku-ring-gai:

   a) Designed in collaboration with all relevant Council Committees and reported to Council including potential financial impacts at the November 2025 Council Meeting.
   b) To implement the pilot program from January 2026.
   c) To evaluate the pilot after 12 months.

C. Incorporate learnings into the Cultural Facilities Review

For the Resolution:	*The Mayor, Councillor Kay, Councillors Balachandran, Devlin, Ngai, Smith, Taylor, Ward and Wheatley*

Against the Resolution: *Councillors Pettett and Spencer*

CARRIED

106 **Sydney North Planning Panel**

File: CY00844/2
Vide: NM.2

Notice of Motion from Councillors Taylor and Devlin dated 30 May 2025

That Council review its nomination of membership of North Sydney Planning Panel.

MOTION:

(Moved: Councillors Devlin/Taylor)

A. That the existing appointments to SNPP be revoked to permit fresh appointments from the pool of currently elected Councillors.

B. That Council appoint the following Councillors as Council's nominees to the SNPP: Councillors Smith & Taylor, and the following Councillors as the alternates: Councillors Wheatley & Balachandran, all for a period of 2 years.

C. Each pair of Councillors will attend alternate SNPP meetings. If a Councillor is unavailable, a Councillor from the other pair may attend the meeting.

D. That the appointment of new nominees and alternates be subject to completion of probity checks in accordance with the Operating Procedures.

Resolved:

(Moved: Councillors Devlin/Taylor)

A. That the existing appointments to SNPP be revoked to permit fresh appointments from the pool of currently elected Councillors.

B. That Council appoint the following Councillors as Council's nominees to the SNPP: Councillors Smith & Taylor, and the following Councillors as the alternates: Councillors Wheatley & Balachandran, all for a period of 2 years.

C. Each pair of Councillors will attend alternate SNPP meetings. If a Councillor is unavailable, a Councillor from the other pair may attend the meeting.

D. That the appointment of new nominees and alternates be subject to completion of probity checks in accordance with the Operating Procedures.

For the Resolution: *The Mayor, Councillor Kay, Councillors Balachandran, Devlin, Smith, Taylor, Ward and Wheatley*

Against the Resolution: *Councillors Ngai, Pettett and Spencer*

CARRIED

BUSINESS WITHOUT NOTICE – SUBJECT TO CLAUSE 9.3 OF CODE OF MEETING PRACTICE

Nil.

QUESTIONS WITH NOTICE

Nil.

INSPECTIONS– SETTING OF TIME, DATE AND RENDEZVOUS

Nil.

The Meeting closed at 8:27pm.

The Minutes of the Ordinary Meeting of Council held on 17 June 2025 (Pages 1 - 81) were confirmed as a full and accurate record of proceedings on <Insert confirmation date …>.

_____ _____

General Manager Mayor / Chairperson

MAYORAL MINUTE

TRANSPORT ORIENTED DEVELOPMENT (TOD) PREFERRED SCENARIO UPDATE

The purpose of this Mayoral Minute is to update Council and the community on the current situation since Council adopted the preferred scenario for new development along the Gordon to Roseville rail corridor.

Background

In May 2024, the Government implemented the TOD planning policy for areas within 400 metres of Roseville, Lindfield, Killara and Gordon stations.

In cooperation with the NSW Government, Council prepared an alternate preferred scenario to the TOD based on planning principles to preserve important built heritage and the natural environment.

The preferred scenario was developed with extensive community feedback received after the Council consulted with the community on alternative solutions to the TOD.

On 5 June 2025, Council adopted a preferred scenario for new development in the Gordon to Roseville rail corridor, to replace the TOD planning controls.

The preferred scenario was submitted to the NSW Department of Planning, Housing and Infrastructure for approval (DPHI).

Legal proceedings remain

As part of the legal proceedings Council engaged in mediation with the NSW Government. It was agreed that Council would work to deliver an alternative housing plan with at least the same number of additional dwellings as the TOD. The alternate plan is yet to be gazetted by the government and for the time being the legal proceedings remain on foot.

State Significant Developments

The TOD planning controls allowed State Significant Development (SSD) applications to be lodged with the DPHI up until 13 June 2025.

SSD applications are assessed by DPHI and determined by the Minister for Planning or the Independent Planning Commission. Council is notified of and invited to comment on SSD applications at the exhibition stage, but otherwise plays no part in the assessment process. Ku-ring-gai Council is a referral body only, without any decision-making authority.

Uniform Apartment Setbacks

There have been recent suggestions that Council implement uniform apartment setbacks. This may undermine the integrity of existing planning principles or potentially compromise well-integrated development.

Uniform setback requirements would not consider the significant difference between the housing typologies included in Council's alternate scenario, ranging from three story apartments to 9, 12-15 and 20 plus story buildings in town centres and suburban locations.

The NSW Apartment Design Guide already takes into account setbacks when assessing DAs.

Heritage properties

Under the TOD planning policy, individually listed heritage items were not provided with any uplift to planning controls. Under Council's preferred scenario, these properties have been provided with the same uplift as adjacent properties which provides increased opportunity for consolidation into development proposals.

I have also recently written to The Hon. Paul Scully, Minister for Planning and Public Spaces, seeking his guidance to ask if we could work collaboratively on the future of heritage homes stranded by the TOD and Preferred Scenario - "we are seeking your guidance on how a transparent, case-by-case process might be established to address the concerns of heritage property owners affected by this evolving policy context. Council remains committed to working closely with the Department to find constructive and fair outcomes."

Heritage conservation areas

Council's preferred scenario protects as many heritage conservation areas from development as possible, on the east side of Killara and Roseville in particular.

Protecting all conservation areas was not possible given the dwelling targets Council had to meet.

RECOMMENDATION:

That this Mayoral Minute be placed on the Council website

Councillor Christine Kay
Mayor

MINUTES OF AUDIT, RISK & IMPROVEMENT COMMITTEE MEETING HELD ON 12 JUNE 2025

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	To provide Council with the minutes from the Audit, Risk & Improvement Committee meeting held on 12 June 2025 for adoption.
BACKGROUND:	The Meeting Procedures contained within the Council Advisory/ Reference Committees Guideline (the Guideline) provides, in part, that: *The draft minutes of a meeting will be circulated to committee members within ten working days of the meeting. Members will be provided with five working days to comment on the accuracy of the minutes. The minutes will subsequently be referred to the Chairperson for approval as an accurate record of the meeting.* *Once approved by the Chairperson, the minutes will be put to an ordinary meeting of Council for adoption. The recommendations of a committee, so far as adopted by the Council at an ordinary meeting of Council, are resolutions of the Council.* *The minutes will also be placed on the agenda to be noted at the subsequent committee meeting.*
COMMENTS:	In accordance with the Guideline the draft minutes of the Audit Risk & Improvement Committee meeting held on 12 June 2025 were circulated to the committee members for comment after which they were approved by the Chair.
RECOMMENDATION:	That the minutes from the Audit, Risk & Improvement Committee meeting held on 12 June 2025 be adopted.

PURPOSE OF REPORT

To provide Council with the minutes from the Audit, Risk & Improvement Committee meeting held on 12 June 2025 for adoption.

BACKGROUND

The current Council Advisory/ Reference Committees Guideline ('The Guideline') was adopted by Council on the 16 July 2024.

The Meeting Procedures contained within the Guideline provides, in part, that:

> *The draft minutes of a meeting will be circulated to committee members within ten working days of the meeting. Members will be provided with five working days to comment on the accuracy of the minutes. The minutes will subsequently be referred to the Chairperson for approval as an accurate record of the meeting.*
>
> *Once approved by the Chairperson, the minutes will be put to an ordinary meeting of Council for adoption. The recommendations of a committee, so far as adopted by the Council at an ordinary meeting of Council, are resolutions of the Council.*
>
> *The minutes will also be placed on the agenda to be noted at the subsequent committee meeting.*

COMMENTS

In accordance with the Guideline the draft minutes of the Audit Risk & Improvement Committee meeting held on 12 June 2025 were circulated to committee members for comment after which they were approved by the Chair.

These minutes are now provided to Council for adoption (Refer Attachment A1).

INTEGRATED PLANNING AND REPORTING

Leadership and governance

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
The organisation is recognised and distinguished by its ethical decision-making, efficient management, innovation and quality customer service.	Integrated risk management, compliance and internal control systems are in place to identify, assess, monitor and manage risks throughout the organisation.	Manage, coordinate, support and facilitate the effective operation of Council's Internal Audit function.

GOVERNANCE MATTERS

To improve governance and transparency with respect to the operation of the Audit, Risk & Improvement Committee.

RISK MANAGEMENT

There are no risk management considerations associated with this report.

FINANCIAL CONSIDERATIONS

There is no financial impact associated with this report.

SOCIAL CONSIDERATIONS

There are no social implications associated with this report.

ENVIRONMENTAL CONSIDERATIONS

There are no environmental implications associated with this report.

COMMUNITY CONSULTATION

Not applicable.

INTERNAL CONSULTATION

Not applicable.

SUMMARY

A copy of the minutes from the Audit, Risk & Improvement Committee meeting held on 12 June 2025 are attached for adoption.

RECOMMENDATION:

That the minutes from the Audit, Risk & Improvement Committee meeting held on 12 June 2025 be adopted.

Jennie Keato
Manager People and Culture

Attachments:	A1⇩	Minutes of the Audit Risk & Improvement Committee meeting held on 12 June 2025	2025/207488

MINUTES OF AUDIT, RISK AND IMPROVEMENT COMMITTEE HELD ON THURSDAY, 12 JUNE 2025

Committee Members:	Brian Hrnjak, External Independent Member - Chairperson Phu Nguyen, External Independent Member
Non-Voting Members:	Councillor Alec Taylor
Also Present:	David Marshall, General Manager Janice Bevan, Director Community Angela Apostol, Director Corporate Michael Miocic, Director Development and Regulation Peter Lichaa, Director Operations Andrew Watson, Director Strategy and Environment Christopher Jones, Manager Governance & Corporate Strategy Jennie Keato, Manager People & Culture Jo Zhu, Team Leader Risk Advisory Mohua Mukherjee, Head of Internal Audit Shared Services Sue Pritchard (Audit Office) Luke Malone (Prosperity) Penny Corkill (Centium) Jarrod Lean (Grant Thornton) Mahesha Rubasinghe (Grant Thornton) Virginia Leafe, Manager Corporate Communications Matt Drago, A/Manager Assets & Technical Services Shaun Garland, Manager Development Assessment Services
Observers:	Councillor Matt Devlin
Apologies:	Michael Ellacott, External Independent Member

The Meeting commenced at 5:00PM

DECLARATIONS OF INTEREST

No interest was declared.

DOCUMENTS CIRCULATED AT MEETING

Nil.

UPDATE FROM GENERAL MANAGER

The General Manager provided the Committee with a brief update on Council actions in response to NSW Government's housing controls.

CONFIRMATION OF MINUTES

AC17 **Minutes of Audit, Risk and Improvement Committee**
File: CY00458/13
Meeting held 20 March 2025
Minutes numbered AC03 to AC16

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

That Minutes numbered AC03 to AC16 circulated to the Committee were taken as read and confirmed as an accurate record of the proceedings of the Meeting.

CARRIED UNANIMOUSLY

GENERAL BUSINESS

AC18 **Outstanding Action Schedule**

File: CY00458/13
Vide: GB.1

To provide the Audit, Risk and Improvement Committee with details of outstanding actions from previous meetings.

The Director Development and Regulation provided an update on staffing to support the mandatory swimming pool compliance program. The Committee agreed to mark this action as completed, and that the Director provide an update at the next meeting.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

That the report and its contents be received and noted.

CARRIED UNANIMOUSLY

AC19 **Interim Audit Management Letter for the year ending 30 June 2025**

File: FY00259/17
Vide: GB.2

To present to the Audit, Risk and Improvement Committee issues raised in the external Audit Management Letter for the Interim Audit.

The external auditor presented issues raised in the external Audit Management Letter. The Committee requested that the Manager, Information Management provide an update on cyber security risks and controls (including issues raised by audit) at the next meeting.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

That:

A. the Interim Management Letter on the interim phase of the Audit for the year ending 30 June 2025 be received and noted by the Audit, Risk and Improvement Committee.
B. an update on cybersecurity risks and controls be included on the agenda of the September meeting of ARIC.

CARRIED UNANIMOUSLY

AC20 **Completed Internal Audit Reports**

File: CY00458/13
Vide: GB.3

To provide the ARIC with Internal audit reports completed this period.

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

That the reports for the internal audit of Contract Management and the Asset Maturity Review be received and noted.

CARRIED UNANIMOUSLY

AC21 **Risk Management Update**

File: CY00458/13
Vide: GB.4

To update the Audit Risk and Improvement Committee on the recent developments and key indicators of Council's Risk Advisory portfolios across Enterprise Risk Management (ERM), Public Liability (PL), Worker's Compensation (WC) and Work Health and Safety (WHS) for the reporting period covering Q1 2025 (01/01/2025 to 31/03/2025).

The Committee discussed fraud risks and how they are reflected in the register of top 20 risks.

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

The report is received and noted with key developments and initiatives in ERM, PL, WC and WHS acknowledged.

CARRIED UNANIMOUSLY

AC22 **Review of Major Projects (Excl LVH) Governance Arrangements**

File: CY00458/13
Vide: GB.5

To provide the ARIC with an update of Council's major projects being managed by the Strategy and Environment Department.

In response to queries raised by the Committee, the General Manager advised that the Norman Griffiths project would be included in future ARIC reports.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

That:
A. the ARIC note the updates contained within this report.
B. updates on the Norman Griffiths project be included in future reports to the ARIC.

CARRIED UNANIMOUSLY

AC23 **Review of Major Projects within the Operations Department Governance Arrangements - Cultural and Environmental and Education Centre (CEEC)**

File: S10531
Vide: GB.6

To provide the ARIC with an update on the Cultural and Environmental Education Centre (CEEC) at St Ives Showgrounds being managed by the Operations Department.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

That the ARIC note the updates contained within this report.

CARRIED UNANIMOUSLY

AC24 **Review of Major Projects within the Operations Department Governance Arrangements - Lindfield Avenue and Tryon Road Streetscape Upgrade**

File: S14190
Vide: GB.7

To provide the ARIC with an update of the Lindfield Avenue and Tryon Road Streetscape Upgrade being managed by the Operations Department.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

That the ARIC note the updates contained within this report.

CARRIED UNANIMOUSLY

AC25 **Internal Audit Plan and Status Update Report - June 2025**

File: CY00458/13
Vide: GB.8

To update the Audit, Risk and Improvement Committee on the work of the internal audit function as well as other items of interest.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

It is recommended that the ARIC receives and notes the internal audit status report.

CARRIED UNANIMOUSLY

AC26 **Draft Internal Audit Plan FY 26 to FY 29**

File: CY00458/13
Vide: GB.9

This report provides an overview of the draft forward four-year internal audit plan FY 26 to FY 29 internal audit plan for the ARIC's review and approval.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

It is recommended that the ARIC:

A. Reviews the draft internal audit plan FY 26 to FY 29.
B. Approves the draft internal audit plan FY 26 to FY 29.
C. Endorses, in principle, the five audits identified in the tentative forward plan for FY 30.

CARRIED UNANIMOUSLY

AC27 **Status of outstanding internal audit recommendations**

File: CY00458/13
Vide: GB.10

To report on the progress of previous internal audit recommendations made.

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

It is recommended that the ARIC receive and note this report and attached listings of open internal audit recommendations.

CARRIED UNANIMOUSLY

AC28 **Compliance and Reporting Requirements Mar 2024 - May 2025**

File: CY00458/13
Vide: GB.11

To provide the Audit, Risk and Improvement Committee with a summary of actions taken against compliance and reporting requirements set out by the Office of Local Government (OLG).

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

That the Committee receive and note the report.

CARRIED UNANIMOUSLY

AC29 **GIPAA, PPIPA and HRIPA Statistics March 2024 to May 2025**

File: CY00458/13
Vide: GB.12

To provide the Audit, Risk and Improvement Committee with a summary of Council's actions in response to applications received under the *Government Information (Public Access) Act 2009* (GIPA Act), *Privacy and Personal Information Protection Act 1998* (PPIP Act) and *Health Records and Information Privacy Act 2002* (HRIP Act) for March 2025 to May 2025.

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

That the Committee receive and note the report.

CARRIED UNANIMOUSLY

AC30 **Summary of Legislative and Policy Updates MAR 2025 - MAY 2025**

File: CY00458/13
Vide: GB.13

To provide the Audit, Risk and Improvement Committee with a summary of Council's actions in response to relevant circulars, legislative updates and other matters that impact the local government sector.

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

That the Committee receive and note the report.

CARRIED UNANIMOUSLY

AC31 **Service Improvement Review Program**

File: S14087
Vide: GB.14

To provide ARIC with an update on Council's service improvement review program, and reports on reviews completed to date.

A brief update was provided to the Committee on findings and recommendations arising from service reviews of communications and engagement, sports field maintenance and development assessment services.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

That ARIC note the information in this report.

CARRIED UNANIMOUSLY

AC32 **Integrated Planning and Reporting**

File: S14569
Vide: GB.15

To provide ARIC with an update on the development, consultation and publication of the new Community Strategic Plan, Resourcing Strategy, Delivery Program and Operational Plan.

The Committee Recommends:
(Moved: Nguyen/Hrnjak)

That ARIC note the information contained in this report.

CARRIED UNANIMOUSLY

AC33 **Draft Annual Budget 2025/26 and Long Term Financial Plan 2025 - 2035 - Highlights**

File: S14726
Vide: GB.16

To provide highlights of the Annual Budget 2025/26 and the 10 year Long Term Financial Plan 2025 - 2035.

The Committee Recommends:(Moved: Councillors Nguyen/Hrnjak)

That ARIC notes highlights from the Draft Annual Budget 2024/25 and the 10 year Long Term Financial Plan 2025 - 2035.

CARRIED UNANIMOUSLY

AC34 **Draft Annual Attestation FY 25**

File: CY00458/13
Vide: GB.17

To provide the Audit, Risk and Improvement Committee (ARIC) the opportunity to review the draft Annual Attestation required under the Local Government Regulation from FY 25 onwards.

The Committee Recommends:
(Moved: Hrnjak/Nguyen)

It is recommended that the ARIC endorse the draft attestation for sign off by the General Manager.

CARRIED UNANIMOUSLY

The Meeting closed at 7:22pm

HERITAGE REFERENCE COMMITTEE MEETING MINUTES OF 5 JUNE 2025 & 2025-26 HERITAGE HOME GRANTS ALLOCATION

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	For Council to consider the minutes from the previous Heritage Reference Committee ('HRC') meeting held on 5 June 2025 and HRC recommendations for the applications under the Heritage Home Grants (HHG) program for 2025/26.
BACKGROUND:	Council is required to consider and receive the minutes of the Heritage Reference Committee and to make them publicly available via Council's website. HRC minutes are confirmed by HRC prior to being presented to Council. Council's Heritage Home Grants is an annual funding program available to owners of heritage items and contributory properties located within heritage conservation areas. Applications were considered by the HRC at its meeting of 5 June 2025.
COMMENTS:	The Heritage Reference Committee minutes under consideration are attached to this report. Council's HRC have considered and made recommendations in relation to the allocation of funding under Council's Heritage Home Grants fund for the 2025/26 financial year for Council's approval.
RECOMMENDATION: (Refer to the full Recommendation at the end of this report)	That Council receives and notes the HRC minutes from 5 June 2025.That Council approves the grant applications as set out in this report for the Heritage Home Fund 2025/26 and that Council waives any minor works application fees required by successful grant recipients to undertake projects approved for funding.

PURPOSE OF REPORT

For Council to consider the minutes from the previous Heritage Reference Committee ('HRC') meeting held on 5 June 2025 and HRC recommendations for the applications under the Heritage Home Grants (HHG) program for 2025/26.

BACKGROUND

Council is required to consider and receive the minutes of the HRC and to make them publicly available via Council's website. HRC minutes are confirmed by HRC prior to being presented at the OMC. The minutes from the HRC meeting were circulated to HRC members by email following the meeting and edits incorporated.

Council's HHG program is an annual funding incentive available to owners of heritage items and contributory properties located within heritage conservation areas. The HHG program aims to assist and encourage owners in the ongoing conservation of their heritage places.

Funding is available for listed heritage items and contributory heritage properties within heritage conservation areas for approved conservation works and maintenance works to original and significant fabric.

The applications for funding under the 2025/26 financial year closed on 12 May 2025 after a two-month application period. An extension to 16 May 2025 was provided for submitting online applications. These are subject to the HHG Guidelines included in Attachment A3.

Council officers inspected all properties with eligible applications in May 2025. Photographs were taken of the properties and discussions held with their owners regarding the proposed works.

All eligible applications were reviewed by the Heritage Reference Committee (HRC at its meeting of 5 June 2025). The recommended funding allocation and conditions for approved projects are included at Attachment A2.

COMMENTS

Heritage Reference Committee minutes

The Heritage Reference Committee minutes under consideration are at Attachment A1.

The Heritage Reference Committee made recommendations on the Heritage Home Grants applications, outlined below.

Heritage Home Grants 2025/26

The call for HHG 2025/26 applications was advertised on Council's website and as part of the Ku-ring-gai Heritage Festival.

The total amount of funding available for this round is $60,000.

Fourteen applications were received this year; of which 1 was ineligible.

At the meeting held on 5 June 2025, the Heritage Reference Committee (HRC) considered applications considering the guidelines, the importance of the work to the significance of the property, as well as its overall heritage value.

Thirteen applications are recommended for funding. Funding is based on project eligibility with conditions to conserve heritage significance, fulfil planning consent and heritage home grants guideline requirements. This includes 5 projects classed as high priority and recommended for up to $5,000, 7 projects classed as medium priority and recommended up to $5,000, and 1 project classed as low priority and recommended up to $5,000. Maximum funding was offered for all priorities this year, in line with the usual grant conditions, because funds permitted.

The total recommended funding is approximately $22,613 for high priority projects. $32,272 for medium priority projects and $5,000 for low priority projects, totalling up to $59,885.

Some grants have been adjusted because not all applications provided sufficient detail to conserve significant features or are not based on quoted sums or lowest suitable quote. Clarification or changes to works are based on HRC recommendations for appropriate conservation. Owners can decline a grant offer if they do not wish to accept these conditions and seek any necessary development consent for different works.

Minor works or DA approval may be required for some works recommended for funding. It is recommended, as done in previous years, that Council waives any minor works application fees required by successful grant recipients to undertake projects approved for funding.

All projects can begin following Council's grant approval, written offer, and owner acceptance. Works will need to be completed by May 2026 for grant payment by 30 June 2026.

One application was ineligible because the works were already completed. Council officers provided advice to the unsuccessful applicant to guide future eligible applications.

Heritage Promotion

The provision of funding through the Heritage Home Grants scheme is essential for the positive promotion of the unique character and built heritage of Ku-ring-gai. This funding assists owners in obtaining specialist tradespeople to deal with the unique needs of heritage buildings. In previous years, owners have consented to Council using their projects funded under the scheme as exemplars, which assist in educating owners of heritage buildings on how to restore and maintain their heritage items. Such case studies are currently in development, and it is aimed to disseminate them via Council's website.

INTEGRATED PLANNING AND REPORTING

Theme 3: Places, Spaces and Infrastructure

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
Strategies, plans and processes are in place to effectively protect and preserve Ku-ring-gai's heritage assets	Implement, monitor and review Ku-ring-gai's heritage planning provisions.	Identify gaps in existing strategies and plans.

GOVERNANCE MATTERS

Consisting of five members, the Heritage Reference Committee includes Councillors, heritage practitioners and community members. The Committee provides advice on heritage matters and assists with the promotion, understanding and appreciation of heritage. While not a decision-making body, the Committee plays an important function in shaping Ku-ring-gai's future. This Committee is also an important link in Council's communication strategy with the community.

RISK MANAGEMENT

The Committee provides advice on heritage matters and assists with the promotion, understanding and appreciation of heritage. While not a decision-making body, the Committee nevertheless plays an important function in shaping Ku-ring-gai's future. This Committee is also an important link in Council's communication strategy with the community.

FINANCIAL CONSIDERATIONS

The costs of running the Heritage Reference Committee are covered by the Strategy and Environment Department's budget.

SOCIAL CONSIDERATIONS

The aims of the Heritage Reference Committee are to provide advice to Council on heritage matters and to provide assistance to Council in promoting an understanding and appreciation of heritage, including matters of social heritage significance.

ENVIRONMENTAL CONSIDERATIONS

A role of the Heritage Reference Committee is to support Council in identifying and managing Ku-ring-gai's Cultural Heritage.

COMMUNITY CONSULTATION

The Heritage Reference Committee meets on a monthly basis or as required and notification of meetings is provided on Council's website.

INTERNAL CONSULTATION

The Heritage Reference Committee includes Councillors and heritage practitioners and is facilitated by Council staff. Where relevant, consultation with other Departments may occur in particular with Council's heritage advisors in Development & Regulation.

SUMMARY

Council is required to consider and receive the minutes of the HRC and to make them publicly available via Council's website. These minutes are now being referred to Council at Attachment A1.

HRC has recommended that thirteen Heritage Home Grant applications receive a portion of funding for the 2025/26 financial year as outlined in Attachment A2 and that Council waive any application fees for the successful projects.

RECOMMENDATION:

A. That Council receive and note the HRC minutes at **Attachment A1** from the meeting held on 5 June 2025.

B. That Council approves the Heritage Home Grant funding as set out in **Attachment A2**.

C. That Council waives any applicable minor works application fees required by successful grant recipients to undertake projects approved for funding.

Claudine Loffi
Heritage Specialist Planner

Craige Wyse
Team Leader Urban Planning

Antony Fabbro
Manager Urban & Heritage Planning

Andrew Watson
Director Strategy & Environment

Attachments:	A1⇩	Heritage Reference Committee meeting minutes of 5 June 2025	2025/191525
	A2⇩	Heritage Home Grants 2025-26 summary table	2025/191520

MINUTES OF HERITAGE REFERENCE COMMITTEE HELD ON THURSDAY, 5 JUNE 2025

Present:	Councillor K Wheatley (Chairperson) (Wahroonga Ward) Councillor I Balachandran (Deputy Chairperson) (Gordon Ward) Mr Robert Moore – National Trust Ms Lorna Watt – Ku-ring-gai Historical Society Ms Margaret Skilbeck – Australian Institute of Architects Mr Chris Bluett- Community Member
Staff Present:	Manager Urban & Heritage Planning (Antony Fabbro) Team Leader Urban Planning (Craige Wyse) Heritage Specialist Planner (Claudine Loffi) Strategic Planner Heritage (Philippa Hayes)
Others Present:	Councillor C Kay - Ku-ring-gai Council Councillor M Devlin - Ku-ring-gai Council
Apologies:	Ms Zeny Edwards – Local Historian and Community Member

The Meeting commenced at 12:30 PM

DECLARATIONS OF INTEREST

No interest was declared.

MATTERS ARISING FROM PREVIOUS MEETING

NOTING OF MINUTES

Minutes of Heritage Reference Committee
File: CY00413/13
Meeting held 3 April 2025
GB.1 to GB.4

RESOLVED:

The circulated minutes were taken as read and confirmed as an accurate record of the proceedings of the meeting.

GENERAL BUSINESS

Her-story Project Update

File: CY00413/13
Vide: GB.1

The Heritage Reference Committee noted the latest online inventories uploaded to the State Heritage Inventory, with one to check with Heritage NSW for uploading. The Committee further noted that the 1980s heritage study for many of these items was not resourced to produce full inventories, but prioritised the identification of sites for listing. The Committee noted the benefit of Council's inventory work.

RESOLVED:

The Heritage Reference Committee received and noted the heritage items with updated online inventories since the last report.

2025-26 Heritage Home Grants Allocation

File: CY00413/13
Vide: GB.2

The Committee reviewed the 13 eligible applications, noting a further one was ineligible as completed works. The 13 eligible applications were recommended for approval, with conditions to seek clarification or variations for appropriate conservation and/or noting background information including:

15 Arthur St roof - tile salvage instead of painting.

1 Carnavon Rd - soft lime mortar, pressure cleaning care, exclude lowest quote.

41 Lucinda Ave & 1566 Pacific Hwy – hot dipped galvanised steel for lintel.

23 Roland Ave gutters – match materials, exclude quote for colorbond gutter, noting past roof works guided by Scott Robertson.

402 Bobbin Head Rd – noting fine stained glass, possibly significant designer.

5 Thomas Ave fence – refer to original fence detail in historic photo.

1 Pibrac Ave stair carpet – noting distinctive building features.

3 Womerah St gate – noting fine architectural features for original building.

RESOLVED:

A. The Heritage Reference Committee recommends allocation of grants for the Heritage Home Grants Fund 2025/26 excluding the one ineligible grant, with conditions for appropriate conservation.

B. That Council waives any applicable minor works application fees required by successful grant recipients to undertake projects approved for funding.

Heritage strategy ongoing projects update

File: CY00413/13
Vide: GB.3

The Heritage Reference Committee noted and discussed the reported strategic heritage projects updates. Particular comments are noted as follows.

NSW heritage strategy - The committee noted that this needed to give more attention to the majority and diversity of NSW heritage, including the conservation of heritage conservation areas and the setting or context of heritage items, particularly in relation to state housing policy. Council staff will circulate the draft Council submission to members for comments.

Modern study – The AIA member requested to review the draft inventories for identifying those on the AIA register.

Park signs – The committee requested the draft list of parks for potential signs. Council staff will circulate the list.

St Ives WWII relief map – The committee supports the intention for conservation and seeking a Federal grant.

RESOLVED:

The Heritage Reference Committee received and noted this report and provided comments.

OTHER BUSINESS

Heritage item delisting and SSDs

File: CY00413/13
Vide: OB.1

The Chair and Deputy Chair raised questions for the committee on these matters.

The Chair questioned whether the Committee would support a recommendation for the Minister for Planning to delist "stranded" heritage items, and associated risks of lowering the delisting threshold driven by development or politics rather than sound heritage principles and the ongoing implications for future generations. The Committee was further asked about appropriate measures to prevent inappropriate delisting, whether Council should retain a role in local heritage decisions, and how delisting consideration could be strictly limited to current heritage item owners during the TOD implementation.

Committee members did not support the transfer of local delisting powers to the Minister for Planning. The Committee highlighted the risk of a precedent endangering the future of heritage items and heritage conservation areas if delisting is driven by development or politics rather than heritage significance. The Committee affirmed the need to retain local heritage decisions with the local community, noting existing listings are derived from consultation with the local community about local significance, and advised that delisting requires presentation of legitimate reasons relating to heritage significance. Members commented that, while there is no shortcut for listing or delisting that follow the same planning process, owners can lodge a development application to demolish a heritage item with supporting justification that is then considered on its merits by the consent authority.

The Deputy Chair raised concerns about the impact of context changes to heritage items and sought the Committee advice on guidance for any exceptional process available for items "marooned" by state significant development (SSD).

The Committee noted there is no available exceptional process. The Committee noted its preference for zoning and development standards that are compatible with heritage items. The Committee noted Council's proposed alternative for transferrable development, and the option for master planning for case-by-case design around heritage items. The Committee noted the issue of disparity of scale when surrounding development dwarfs heritage items and the limits for design to address this disparity. For SSDs, the Committee queried the cut-off date for state "saving" of SSDs, as well as the next steps and expected timing for implementation of Council's preferred scenario.

The Meeting closed at 1:50PM

Attachment A2 – Heritage Home Grants 2025/2026 – Summary of works, recommended funding and conditions

Address	Works	Listing status	$ Request (incl GST)	$ Offered (incl GST)	Specific Conditions*
52 Mcintosh Street, Gordon (HHG01/25)	Roof retiling	Contributory in Heritage Conservation Area	$5,000	Nil - ineligible	Nil - ineligible
37A Arnold Street, Killara (HHG03/25)	Repaint external timberwork to match existing, including gables, eaves, fenestration and balustrades	Heritage item	$5,000 (Approx cost = $29,128)	$5,000	• Works are to match existing materials and finishes, using like-for-like techniques. • No painting of currently unpainted surfaces such as slate or any remaining face brick. • Paint colours are to match existing or the original based on paint scrapes or a traditional colour scheme appropriate to the historic architectural style as shown in the guideline 'Heritage Colours in Ku-ring-gai".
15 Arthur Street, Killara (HHG14/25)	Repair roof ridge tile mortar, and chimney lead flashing to match existing, and clean roof tiles without repainting	Contributory in Heritage Conservation Area	$5,000 (Approx cost = $15,000)	$5,000	• Repairs are to match existing historic details, materials and finishes, using like-for-like techniques. • Existing materials are to be retained, salvaged and re-used where sound to avoid unnecessary removal of original fabric. • No painting of ceramic roof tiles. Instead of painting existing tiles to match any new tiles, relocate and reuse tiles from rear or less prominent locations, if replacements are required. • Works must not involve the removal of principal roof members or any changes to the roof pitch. • Prior to work commencing, a minor work application is required for any works that do not match existing materials, colours or details. • All works to be undertaken by specialist contractor. • Prior to work commencing, applicant to confirm selected contractor with Council.

Address	**Works**	**Listing status**	**$ Request** (incl GST)	**$ Offered** (incl GST)	**Specific Conditions***
12 Montah Avenue, Killara (HHG13/25)	Repair, repaint and re-hang four window sash and casement sets on street and west elevation	Heritage item	$4,812.50 (Approx cost = $9,075)	$4,538	• All window repairs to be undertaken by specialist contractor. • Prior to work commencing, applicant to confirm selected contractor with Council. • Works are to match existing materials and finishes, using like-for-like techniques. • No painting of currently unpainted surfaces such as face brick. • Paint colours are to match existing or the original based on paint scrapes or a traditional colour scheme appropriate to the historic architectural style as shown in the guideline 'Heritage Colours in Ku-ring-gai".
402 Bobbin Head Road, North Turramurra (HHG05/25)	Front entrance timber and deck re-staining to match existing oil-based stain	Heritage item	$4,933.50 (Approx cost = $9,867)	$4,934	• Works are to match existing materials and finishes, using like-for-like techniques. • No painting of currently unpainted surfaces such as face brick or stained timberwork. • Stain colours are to match existing or based on conservation plan guidance. • Stain colour must be agreed with Council's heritage specialist prior to works commencing. • All works to be undertaken by specialist contractor. • Prior to work commencing, applicant to confirm selected contractor with Council.
31 Amarna Parade, Roseville (HHG04/25)	Repaint windows, eaves, fascia and gutters	Contributory in Heritage Conservation Area	$5,000 (Approx cost = $11,636)	$5,000	• Works are to match existing materials and finishes, using like-for-like techniques. • No painting of currently unpainted surfaces such as face brick. • Paint colours are to match existing or the original based on paint scrapes or a traditional colour scheme appropriate to the historic architectural style as shown in the guideline 'Heritage Colours in Ku-ring-gai". • Paint colour must be agreed with Council's heritage specialist prior to work commencing. • Prior to work commencing, a minor work application is required for any works that do not match existing materials, colours or details.

Address	**Works**	**Listing status**	**$ Request** (incl GST)	**$ Offered** (incl GST)	**Specific Conditions***
27 Belgium Avenue, Roseville (HHG11/25)	Front gable bargeboards replacement to match existing	Contributory in Heritage Conservation Area	$5,000 (Approx cost = $28,890)	$5,000	• Works are to match existing materials and finishes, using like-for-like techniques. • No painting of currently unpainted surfaces such as stonework. • Paint colours are to match existing or the original based on paint scrapes or a traditional colour scheme appropriate to the historic architectural style as shown in the guideline 'Heritage Colours in Ku-ring-gai". • All works to be undertaken by specialist contractor. • Prior to work commencing, applicant to confirm selected contractor with Council. • Prior to work commencing, a minor work application is required for any works that do not match existing materials, colours or details.
1 Carnarvon Road, Roseville (HHG10/25)	Stone fence clean and repoint to match existing	Contributory in Heritage Conservation Area	$5,000 (Approx cost = $11,935)	$5,000	• Repairs are to match existing historic details, materials and finishes, using like-for-like techniques. • Stone pointing is to match existing including appropriate lime mortar composition and colour. • All works to be undertaken by specialist contractor, not including the cheapest provided quote. • Prior to work commencing, applicant to confirm selected contractor with Council. • Water pressure for cleaning stone and brick to be low and tested first in less prominent location to avoid damage to the original masonry.
5 Thomas Avenue, Roseville (HHG09/25)	Replacement timber paling fence on low bush stone base	Contributory in Heritage Conservation Area	$5,000 (Approx cost = $11,000)	$5,000	• Prior to work commencing, a minor work application is required. • Fence picket design to refer to the historic photo, with design detail to be submitted to and agreed with Council's heritage specialist prior to work commencing.
3 Womerah Street, Turramurra (HHG06/25)	Timber gates replacement	Heritage item	$5,000 (Approx cost = $12,112)	$5,000	• Prior to work commencing, a minor work application is required. • Further details of gate design to complement house period and streetscape to be provided with minor work application for approval.

Address	**Works**	**Listing status**	**$ Request** (incl GST)	**$ Offered** (incl GST)	**Specific Conditions***
41 Lucinda Avenue, Wahroonga (HHG02/25	Steel lintels replacement and brick mortar repointing on façade and side driveway wall, both to match existing	Heritage item	$5,000 (Approx cost = $25,543)	$5,000	• All works to be undertaken by specialist contractor. • Prior to work commencing, applicant to confirm selected contractor with Council. • Existing materials are to be retained where sound to avoid unnecessary removal of original fabric. • Works are to match existing materials and finishes, using like-for-like techniques. • Steel lintels are to be hot dipped galvanised. • Brick pointing is to match existing including appropriate lime mortar composition and colour. • Prior to work commencing, a minor work application is required.
1566 Pacific Highway, Wahroonga (HHG07/25)	Door steel lintel replacement, repainting of stairwell ceiling, walls and toilet room, both to match existing	Heritage item	$5,050 (Approx cost = $5,225)	$2,613	• All works to be undertaken by specialist contractor. • Prior to work commencing, applicant to confirm selected contractor with Council. • Existing materials are to be retained where sound to avoid unnecessary removal of original fabric. • Works are to match existing materials and finishes, using like-for-like techniques. • Steel lintels are to be hot dipped galvanised. • Brick pointing is to match existing including appropriate lime mortar composition and colour. • Prior to work commencing, a minor work application is required.
23 Roland Avenue, Wahroonga (HHG08/25)	Box gutter membrane replacement, rear eaves gutter replacement with same profile, both to match existing	Heritage item	$5,000 (Approx cost = $11,077)	$5,000	• Works are to match existing materials and finishes, using like-for-like techniques. • Prior to work commencing, a minor work application is required. • All works to be undertaken by specialist contractor, excluding quote for colorbond box gutter. • Prior to work commencing, applicant to confirm selected contractor with Council.

Address	**Works**	**Listing status**	**$ Request** (incl GST)	**$ Offered** (incl GST)	**Specific Conditions***
1 Pibrac Avenue, Warrawee (HHG12/25)	Remove and replace stair carpet to match existing installation detail	Heritage item and Heritage Conservation Area	$3,400 (Approx cost = $4,860 - $6,100)	$2,800	• Removal and installation of carpet is to retain and minimise damage to original staircase timber and iron. • Works are to match existing historic details, materials and finishes, using like-for-like techniques. • All works to be undertaken by specialist contractor. • Prior to work commencing, applicant to confirm selected contractor with Council.

*Standard conditions also apply

ENVIRONMENT COMMITTEE MINUTES - JUNE 2025

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	For Council to consider and note the minutes of the Environment Advisory Committee meeting held on 23 June 2025.
BACKGROUND:	The Environment Advisory Committee was established by Council resolution last year, with members being appointed at the April 2025 OMC.
COMMENTS:	The first meeting of the Environment Advisory Committee was held on 23 June 2025. The minutes of the meeting have been attached to this report as **Attachment A1**.
RECOMMENDATION:	That Council receive and note the Minutes of the Environment Advisory Committee meeting held on 23 June 2025.

PURPOSE OF REPORT

For Council to consider and note the minutes of the Environment Advisory Committee meeting held on 23 June 2025.

BACKGROUND

The Environment Advisory Committee was established by Council resolution last year, with members being appointed at the April 2025 OMC.

COMMENTS

The first meeting of the Environment Advisory Committee was held on 23 June 2025. The minutes of the meeting have been attached to this report as Attachment A1.

INTEGRATED PLANNING AND REPORTING

Theme 2: Natural Environment

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
N1.1: A community empowered with knowledge, learning and information that drives participation in activities that benefit the environment.	N1.1.1: The community has an enhanced appreciation of the value of the natural environment, local environmental issues and impacts.	N1.1.1.1: Utilise a variety of communication mechanisms and channels for different target groups to deliver environmental information.

GOVERNANCE MATTERS

The Environment Advisory Committee does not have delegated authority and serves only to provide recommendations and advice for Council. It does not have the power to make a final determination on any matter referred to them.

The Environment Advisory Committee is governed in accordance with its Terms of Reference.

RISK IMPLICATION STATEMENT

There are no material risks that arise from the recommendations contained in this report. Minor issues may occur, but these can be managed within Council's current policies, procedures, resources and budget.

FINANCIAL CONSIDERATIONS

There are no specific financial implications arising from the 23 June meeting of the Environment Advisory Committee.

SOCIAL CONSIDERATIONS

N/A

ENVIRONMENTAL CONSIDERATIONS

The Environment Committee assists Council by providing strategic advice and feedback on the preservation, management, enhancement and recreational use of Ku-ring-gai's natural environment. The Committee's focus is to guide Council on ensuring ecological sustainability, promoting biodiversity and fostering community engagement in the care of environmental areas.

COMMUNITY CONSULTATION

The Environment Advisory Committee includes eight community representative members and provides avenues for community consultation on Council's relevant plans, policies and programs.

INTERNAL CONSULTATION

N/A

SUMMARY

The first meeting of the Environment Advisory Committee was held on 23 June 2025. The minutes of the meeting have been attached to this report as **Attachment A1**.

RECOMMENDATION:

That Council receive and note the Minutes of the Environment Advisory Committee meeting held on 23 June 2025.

Sybylla Brown
Natural Areas Program Leader

Jacob Sife
Manager Environment and Sustainability

Andrew Watson
Director Strategy & Environment

Attachments:	A⇩1	Environment Advisory Committee meeting Minutes - 23 June 2025	2025/212604

MINUTES OF ENVIRONMENT ADVISORY COMMITTEE HELD ON MONDAY, 23 JUNE 2025

Present:	Cr Alec Taylor (Chairperson) (Roseville Ward) Greg Taylor Jill Green David Brennan Ms Valerie Holland Ms Sally Eriksen Mr Michael Mathias Mr Greg Kirby (NPWS)
Staff Present:	Jacob Sife (Manager Environment and Sustainability) Sybylla Brown (Environmental Programs Leader) Matthew Drago (Manager Infrastructure Services) Caitlin Gorry (Team Support Officer)
Apologies:	Christopher M Jones (Manager Governance & Corporate Strategy) Dominic Sivertsen Simon Kean Cr Kim Wheatley (Wahroonga Ward)

The Meeting commenced at 6:33 PM

DECLARATIONS OF INTEREST

No interest was declared.

MATTERS ARISING FROM PREVIOUS MEETING

N/A

CONFIRMATION OF MINUTES

N/A

Minutes of Environment Advisory Committee

File: S13163
N/A

RECOMMENDATION:

N/A

GENERAL BUSINESS

Information on the Code of Conduct

File: S14696
Vide: GB.1

To provide newly appointed members of the Environment Advisory Committee with information on their duties under Council's Code of Conduct.

RECOMMENDATION:

DEFERRED.

Familiarisation with the Terms of Reference including meeting procedures

File: S14696
Vide: GB.2

To provide newly appointed members of the Environment Advisory Committee with information on the Committee's Terms of Reference.

RECOMMENDATION:

DEFERRED.

Determination of priority items for the current term of the Committee

File: S14696
Vide: GB.3

To provide the Committee with the opportunity to discuss and determine priority items to be progressed or dealt with during the current term of the Committee.

RECOMMENDATION:

A. That the Committee notes the information provided, and revisit the topic next meeting.

Moved: Cr Alec Taylor.

CARRIED: UNANIMOUS.

Council's tree audit

File: S14696
Vide: GB.4

To inform the Committee that a Tree Audit Report – Urban Forest Canopy Analysis in Ku-ring-gai, was undertaken by Council.

RECOMMENDATION:

A. That the Committee notes the information provided, and revisit the topic next meeting.

Moved: Cr Alec Taylor.

CARRIED: UNANIMOUS.

Field inspection opportunities

File: S14696
Vide: GB.5

To present the Committee with the opportunity to consider scheduling field inspections of relevance to Committee business.

RECOMMENDATION:

DEFERRED.

Member introductions

File: S14696
Vide: GB.6

To provide newly appointed members of the Committee with the opportunity to introduce themselves to one another.

RECOMMENDATION:

A. That the Committee notes the information provided.

Moved: Cr Alec Taylor.

CARRIED: UNANIMOUS.

OTHER BUSINESS

N/A

The Meeting closed at 8:00 PM

FLOOD RISK MANAGEMENT COMMITTEE MEETING MINUTES

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	For Council to consider and note the minutes of the Flood Risk Management Committee meetings held on 23 July 2024 and 10 June 2025.
BACKGROUND:	The Flood Risk Management Committee, an Advisory Committee of Council, is an essential step in the NSW Government's flood risk management process, as per the NSW Flood Risk Management Manual (2023).
COMMENTS:	At the meeting held on 23 July 2024 the Flood Risk Management Committee discussed the following items: • Additional information on the proposed changes to the Probable Maximum Flood (PMF) tagging method and update on Middle Harbour Northern Catchments Flood Study; and • Flood Project Updates. The minutes of the meeting have been attached to this report as Attachment A1. At the meeting held on 10 June 2025 the Flood Risk Management Committee discussed the following items: • Flood Study Projects Update; and • General Business – Flood. The minutes of the meeting have been attached to this report as Attachment A2.
RECOMMENDATION:	That Council receive and note the Minutes of the Flood Risk Management Committee meetings held on 23 July 2024 and 10 June 2025.

PURPOSE OF REPORT

For Council to consider and note the minutes of the Flood Risk Management Committee meetings held on 23 July 2024 and 10 June 2025.

BACKGROUND

The Flood Risk Management Committee, an Advisory Committee of Council, is an essential step in the NSW Government's floodplain risk management process, as per the NSW Flood Risk Management Manual (2023) (and the previous Floodplain Development Manual 2005).

COMMENTS

At the meeting held on 23 July 2024 the Flood Risk Management Committee business paper report discussed the following items:

Confirmation of the Minutes

Minutes from the 13 February 2024 meeting were taken as read and confirmed as an accurate record.

General Business

1. Additional information on the proposed changes to the Probable Maximum Flood (PMF) tagging method and update on Middle Harbour Northern Catchments Flood Study

   To provide the committee with additional information on the proposed changes to the probable maximum flood (PMF) tagging method and provide an update on the Middle Harbour Northern Catchments Flood Study.

   Recommendation

   That the Committee recommends Council:

   A. Continue to apply a consistent approach (no change) to the creation of PMF tagging maps across the Ku-ring-gai LGA; and
   B. The Committee report the updated Middle Harbour Northern Catchments Flood study to Council for adoption and implementation.

2. Flood Project Updates

   To provide updates on projects relevant to the Flood Risk Management Committee.

   Council staff provided updates on the following:

   - Lane Cove Southern Catchments Flood Study;
   - Lane Cove Northern Catchments Flood Study; and
   - State government housing reforms.

Recommendation

A. The Committee notes the current and ongoing projects.
B. With regard to the Middle Harbour Northern Catchments Flood study, further information on the implications of a 0.2% AEP as an alternate solution for PMF tagging will be circulated to Committee members for their consideration after this meeting.
C. The Committee receives the report on the Draft Lane Cove Northern Catchments Flood Study when it is ready for further consideration at the next meeting (date to be confirmed).

Other Business

After the Council elections, a Chair & Deputy Chair will be nominated for the Committee.

NPWS Representatives raised concerns relating to the consideration of flooding and stormwater management in developments adjacent to NPWS estate.

At the meeting held on 10 June 2025 the Flood Risk Management Committee business paper report discussed the following items:

Confirmation of the Minutes

Minutes from the 27 July 2024 meeting were taken as read and confirmed as an accurate record.

1. Flood Study Projects Update

To update the Flood Risk Management Committee (FRMC) on the status of Flood Studies in progress.

Recommendation:

The FRMC note Flood Study Updates and endorse the Middle Harbour Northern Catchments Flood Study to be reported to Council for formal adoption/endorsement.

2. General Business – Flood

To table various items for discussion or acknowledgement:

- Committee Survey feedback – Site visits;
- TOD alternative update;
- Next round of NSW Floodplain Management Grants;
- Norman Griffiths project update; and
- Vale Street project update.

Recommendation:

Receive and note.

Other Business

NPWS raised concerns relating to the consideration of flooding and stormwater management in developments adjacent to NPWS estate and referred council to *Developments adjacent to National Parks and Wildlife Service lands - Guidelines for consent and planning authorities.* – this issue was raised at the 23 July 2024 meeting, with further discussion at this meeting.

It was noted at this meeting that DA assessment is undertaken concurrently with NPWS referral.

INTEGRATED PLANNING AND REPORTING

Community, People and Culture

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
An aware community able to prepare and respond to the risk to life and property from emergency events.	Emergency Management Plans are developed and implemented, in partnership with emergency service agencies and key stakeholders.	Complete floodplain risk management studies in consultation with Flood Risk Management Committee and investigate priority actions.

GOVERNANCE MATTERS

The Flood Risk Management Committee, with community, industry and government representation will act as an advisory committee to Council for the development of all flood studies and flood risk management studies and plans.

RISK MANAGEMENT

The recent floods in various parts of Australia have highlighted the importance of flood risk management and have raised public awareness of the need for all councils to provide landowners with the best possible information on the risk of flooding to their property.

FINANCIAL CONSIDERATIONS

The Committee is an Advisory Committee and does not have the power to incur expenditure or to bind Council.

SOCIAL CONSIDERATIONS

Members should be aware that activities of the Committee have a number of implications for property owners and members of the community. The results of flood studies and flood risk management studies and plans can impact on property values, insurance premiums, planning controls and options for future development.

ENVIRONMENTAL CONSIDERATIONS

The NSW Flood Risk Management Manual (2023) clearly identifies the need for flood risk management to take into account the principles of ecologically sustainable development when managing risk associated with human occupation of the floodplain and emphasised maintaining and enhancing the riverine and floodplain environments, including consideration of the needs of

threatened species populations and ecological communities as part of flood modification measures.

The *Vision for flood risk management in New South Wales* is*:*

> Floodplains are strategically managed for the sustainable long-term benefit of the community and the environment, and to improve community resilience to floods.

COMMUNITY CONSULTATION

The Flood Risk Management Committee is an Advisory Committee of Council and includes members from the local community and relevant State agencies.

The draft Minutes from the 23 July 2024 meeting were circulated to the committee members for comment on 5 August 2024. Minor typos have been amended following feedback.

The draft Minutes from the 10 June 2025 meeting were circulated to the committee members for comment on 20 June 2025.

INTERNAL CONSULTATION

Council staff from Strategy & Environment, Development & Regulation and Operations have been nominated to attend the Committee meetings.

SUMMARY

At the meeting held on 23 July 2024 the Flood Risk Management Committee discussed the following items:

- Additional information on the proposed changes to the Probable Maximum Flood (PMF) tagging method and update on Middle Harbour Northern Catchments Flood Study; and
- Flood Project Updates.

The minutes of the meeting have been attached to this report as Attachment A1.

At the meeting held on 10 June 2025 the Flood Risk Management Committee discussed the following items:

- Flood Study Projects Update; and
- General Business – Flood.

The minutes of the meeting have been attached to this report as Attachment A2.

The committee recommendations have been provided in the comments section of this report.

RECOMMENDATION:

That Council receive and note the Minutes of the Flood Risk Management Committee meetings held on 23 July 2024 (Attachment A1) and 10 June 2025 (Attachment A2).

Sophia Findlay
Natural Areas Team Leader

Jacob Sife
Manager Environment and Sustainability

Andrew Watson
Director Strategy & Environment

Attachments:

A1⇩	23 July 2024 FRMC Minutes	2025/213076
A2⇩	10 June 2025 FRMC Minutes	2025/213077

MINUTES OF FLOOD RISK MANAGEMENT COMMITTEE HELD ON TUESDAY, 23 JULY 2024

Present:	Mayor S Ngai	(Chairperson) (Roseville Ward)
	Councillor B Ward	(Deputy Chair) (Gordon Ward)
	Angelo Galofaro	Community Representative
	Lee Squires	Community Representative
	Margery Street	Community Representative
	Justin Sulima	Community Representative
Staff Present:	Sophia Findlay	Natural Areas Team Leader
	Rong Zhang	Drainage Engineer
	Ross Guerrera	Team Leader Development Engineer
	Lauren Boyko	Sustainability Programs Support Officer
Invitees Present:	David Grasby	Sydney Water
	Chad Weston	National Parks and Wildlife Service
	Ingrid Harms	National Parks and Wildlife Service
	Greg Kirby	National Parks and Wildlife Service
Apologies:	Wafaa Wasif	Floodplain Engineer OEH, DPE
	Andrew Chapman	Community Representative
	Jacob Sife	Manager Environment & Sustainability

The Meeting commenced at 11:05 AM

ACKNOWLEDGEMENT OF COUNTRY

Chairperson.

DECLARATIONS OF INTEREST

No interest was declared.

MATTERS ARISING FROM PREVIOUS MEETING

Nil.

CONFIRMATION OF MINUTES

Minutes of Flood Risk Management Committee
File: S10746
Meeting held 13 February 2024
Minutes numbered GB.1

RECOMMENDATION:

That Minutes numbered GB.1 circulated to Councillors were taken as read and

confirmed as an accurate record of the proceedings of the Meeting.

Moved: Lee Squires. Seconded: Chairperson. No objections.

CARRIED.

GENERAL BUSINESS

Additional information on the proposed changes to the Probable Maximum Flood (PMF) tagging method and update on Middle Harbour Northern Catchments Flood Study

File: S10746
Vide: GB.1

To provide the committee with additional information on the proposed changes to the probable maximum flood (PMF) tagging method and provide an update on the Middle Harbour Northern Catchments Flood Study.

RECOMMENDATION:

That the Committee recommends Council:

A. Continue to apply a consistent approach (no change) to the creation of PMF tagging maps across the Ku-ring-gai LGA; and
B. The Committee report the updated Middle Harbour Northern Catchments Flood study to Council for adoption and implementation.

Moved: Cr Ward. Seconded: Mayor Ngai. No objections.

CARRIED.

Flood Project Updates

File: S10746
Vide: GB.2

To provide updates on projects relevant to the Flood Risk Management Committee.

Council staff provided updates on the following:

- Lane Cove Southern Catchments Flood Study
- Lane Cove Northern Catchments Flood Study
- State government housing reforms

RECOMMENDATION:

That the committee notes the current and ongoing projects.

Moved: Lee Squires. Seconded: Cr Ward. No objections.

CARRIED.

OTHER BUSINESS

- After the Council elections, a Chair & Deputy Chair will be nominated for the Committee.
- NPWS Representatives raised concerns relating to the consideration of flooding and stormwater management in developments adjacent to NPWS estate

NEXT MEETING

TBA, after the Council elections.

The Meeting closed at 12:26pm.

MINUTES OF FLOOD RISK MANAGEMENT COMMITTEE HELD ON TUESDAY, 10 JUNE 2025

Present:	Councillor C Kay	Mayor
	Angelo Galofaro	Community Representative
	Justin Sulima	Community Representative
	Margery Street	Community Representative
	Greg Kirby	National Parks and Wildlife Service
	Wafaa Wasif	Floodplain Engineer NSW DCCEEW
Staff Present:	Jacob Sife	Manager Environment & Sustainability
	Sophia Findlay	Natural Areas Team Leader
	Rong Zhang	Drainage Engineer
	Ross Guerrera	Team Leader Development Engineer
	Caitlin Gorry	Teams Support Officer
	Matthew Drago	Manager Infrastructure Services
	Gurpreet Grewal	Infrastructure Assets & Driveways Engineer
Apologies:	Matt Devlin	Councillor - Chair
	Barbara Ward	Councillor - Deputy Chair
	Karmen Tso	Community Representative
	Andrew Chapman	Community Representative
	Lee Squires	Community Representative
	David Grasby	Sydney Water
	Chad Weston	National Parks and Wildlife Service
	Reinoud Beijerinck	NSW SES

The Meeting commenced at 4:20 PM with Mayor Kay representing the Council in place of Councilors Devlin and Ward who were late apologies

ACKNOWLEDGEMENT OF COUNTRY
Chairperson.

DECLARATIONS OF INTEREST
No interest was declared.

MATTERS ARISING FROM PREVIOUS MEETING
Nil.

CONFIRMATION OF MINUTES

Minutes of Flood Risk Management Committee
File: S10746
Meeting held 23 July 2024
Minutes numbered GB.1 & GB.2

RECOMMENDATION:

That Minutes numbered GB.1 & GB.2 circulated to Councilors were taken as read and confirmed as an accurate record of the proceedings of the Meeting, noting NPWS request to include a note about discussions relating to water management during developments in this meeting's "Other Business" section

Moved: Justin Sulima. Seconded: Angelo Galofaro. No objections.

CARRIED.

FLOOD PROJECT UPDATES

File: S10746
GB.1

To update the Flood Risk Management Committee (FRMC) on the status of Flood Studies in progress.

RECOMMENDATION:

The FRMC note Flood Study Updates and endorse the Middle Harbour Northern Catchments Flood Study to be reported to Council for formal adoption/endorsement.

Moved: Jacob Sife. Seconded: Matthew Drago. No objections.

CARRIED.

GENERAL BUSINESS- FLOOD
File: S10746
GB.2

To table various items for discussion or acknowledgement:

- Committee Survey feedback – Site visits;
- TOD alternative update;
- Next round of NSW Floodplain Management Grants;
- Norman Griffiths project update; and
- Vale Street project update.

RECOMMENDATION:
Receive and note.

No objections.

CARRIED.

OTHER BUSINESS

NPWS raised concerns relating to the consideration of flooding and stormwater management in developments adjacent to NPWS estate and referred council to *Developments adjacent to National Parks and Wildlife Service lands - Guidelines for consent and planning authorities* – this issue was also raised at the 23 July 2024 meeting, with further discussion at this meeting.
It was noted at this meeting that DA assessment is undertaken concurrently with NPWS referral.

NEXT MEETING

TBA.

The Meeting closed at 5:07PM

Item GB.5 **FY00623/8**
4 July 2025

INVESTMENT REPORT AS AT 30 JUNE 2025

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	To present Council's investment portfolio performance for June 2025.
BACKGROUND:	Council's investments are reported monthly to Council in accordance with the Local Government Act 1993, the Local Government (General) Regulation 2005 and Council's Investment Policy.
COMMENTS:	The net return on investments for the financial year ending June 2025 was $10,135,000, against the revised budget of $9,000,000 giving a favourable variance of $1,135,000.
RECOMMENDATION:	That the summary of investments performance for June 2025 be received and noted; and that the Certificate of the Responsible Accounting Officer be noted and the report adopted.

PURPOSE OF REPORT

To present Council's investment portfolio performance for June 2025.

BACKGROUND

Council's investments are reported monthly to Council in accordance with the Local Government Act 1993, the Local Government (General) Regulation 2005 and Council's Investment Policy.

COMMENTS

Investment Portfolio Performance Snapshot

The table below provides the investments portfolio performance against targets identified in Council's Investment Policy as well as other key performance indicators based on industry benchmarks.

Performance Indicator & Policy Targets	Indicator	Details
Portfolio Performance vs. Benchmark	✔	Council's investment performance aligned with the Industry benchmark
Monthly Investment Income vs. Revised Budget	✔	Council's income from investments exceeded monthly revised budget
Investment Policy Compliance:		
Legislative Requirements	✔	Fully compliant
Portfolio Credit Rating Limit	✔	Fully compliant
Institutional Exposure Limits	✔	Fully compliant
Term to Maturity Limits	✔	Fully compliant

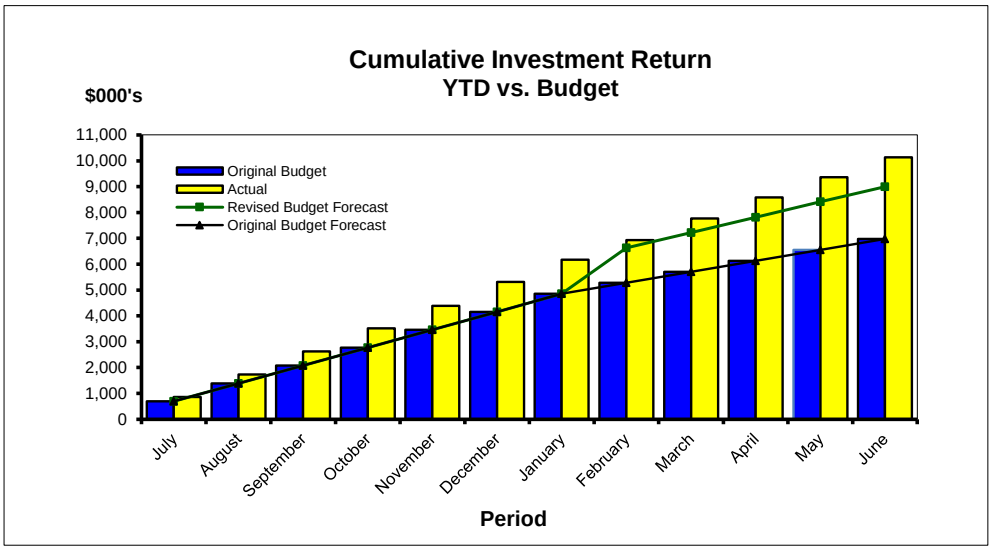
Cumulative Investment Returns against Revised Budget

The net return on investments for the financial year ending June 2025 is $10,135,000, compared to the revised budget of $9,000,000 resulting in a favourable variance of $1,135,000. Despite a budget adjustment in the December Quarterly Budget Review, the portfolio's actual performance remains strong due to its larger than anticipated size.

As of 30 June 2025, Council's investment portfolio continued to perform strongly, comfortably exceeding the industry benchmark and revised interest income budget. Throughout the year, Council maintained steady returns across a diversified mix of term deposits, floating rate notes, and long-term bonds. A key focus for FY25 was extending the portfolio's duration to manage reinvestment risk ahead of anticipated interest rate cuts. This strategy has positioned Council well, with longer-dated investments now contributing significantly to overall performance. While new investment rates have begun to decline, the portfolio's longer maturity profile helps cushion the impact of a falling rate environment. Council's proactive approach is expected to support stable returns over the medium term.

$000's	Jun-25	Jun-25 Year To Date
Investment Return	771	10,135
Revised Budget	591	9,000
Variance	**180**	**1,135**

A comparison of the cumulative investment returns against year-to-date revised budget is shown in the chart below.



Cash Flow and Investment Movements

Council's total cash and investment portfolio as at 30 June 2025 was $196,091,000 compared to $197,801,000 at the end of May 2025. A net cash outflow of $1,710,000 was mainly due to creditor payments.

During the month, three investments have matured, two new investments were made.

Investment Name	Investment Rating (S&P)	New/Re-Investments $' 000	Investments Matured/Sold $' 000	Interest Rate %
Northern Territory Treasury Corporation Bond 4 Year	AA-	0	3,500	1.10
Rabobank Australia 1 Year Term Deposit	A+	0	5,000	5.50
ING Bank 2 Year Term Deposit	A	0	5,000	5.41
Rabobank 5 Year Term Deposit	A+	5,000	0	4.55
Judo Bank 1 Year Term Deposit	BBB	6,000	0	4.30
TOTAL		**11,000**	**13,500**	

Investment Performance against Industry Benchmark

Overall, the investment performance in June was above the industry benchmark.

The benchmark is specific to the type of investment and the details are provided below. AusBond Bank Bill Index is used for all Council's investments.

Table 1 - Investments Performance against Industry Benchmarks

Investment Type	Annualised JUN 2025 YTD Return %	Annualised Industry Benchmark %	Variance %
At Call/Cash/Term Deposits/FRNs (Benchmark is AusBond Bank Bill Index)	4.83	4.39	0.44

Table 2 below provides a summary of all investments by type and performance during the month.

Table 2 - Investments Portfolio Summary during June 2025

Investment Name	Investment Rating	Invested at 30-Jun-2025 $000's	Month Return (%)	Annualised YTD Return (%)	Total Invested (%)	Market Value at 30-Jun-2025 $000's	Maturity
At Call/Cash Account**							
Westpac At-Call	AA-	951	0.00	0.00	0.48	951	At Call
Westpac Bank Deposit Max-I Investment	AA-	17,735	0.41	5.55	9.04	17,735	At Call
Westpac Bank Deposit Transport NSW Grant (LCH)	AA+	63	0.07	1.18	0.03	63	At Call
Sub Total		**18,749**				**18,749**	
Term Deposits							
Rabobank Australia 1 Year Term Deposit	A+	6,000	0.44	5.38	3.06	6,000	May-25
National Australia Bank 1 Year Term Deposit	AA-	5,000	0.44	5.37	2.55	5,000	Jun-25
Bank of Queensland 3 Year Term Deposit	BBB+	4,000	0.36	4.40	2.04	4,000	Jul-25
Bank of Queensland 3 Year Term Deposit	BBB+	4,000	0.37	4.50	2.04	4,000	Aug-25
National Australia Bank 1 Year Term Deposit	AA-	6,000	0.41	5.00	3.06	6,000	Aug-25
Rabobank Australia 6 Month Term	A+	4,000	0.35	4.33	2.04	4,000	Nov-25
AMP Bank 6 Month Term Deposit	BBB+	6,000	0.36	4.45	3.06	6,000	Nov-25
Bank of Queensland 3 Year Term Deposit	BBB+	5,000	0.40	4.95	2.55	5,000	Feb-26
ING Bank 1 Year Term Deposit	A+	4,000	0.38	4.66	2.04	4,000	Mar-26
ING Bank 3 Year Term Deposit	A	5,000	0.43	5.30	2.55	5,000	Jun-26
Judo Bank 1 Year Term Deposit	BBB	6,000	0.35	4.30	3.06	6,000	Jul-26
P&N Bank 3 Year Term Deposit	BBB	5,000	0.45	5.50	2.55	5,000	Jul-26
Westpac 5 Year Term Deposit	AA-	4,000	0.21	2.50	2.04	4,000	Feb-27
Rabobank Australia 3 Year Term Deposit	A+	5,000	0.42	5.12	2.55	5,000	May-27
Macquarie Bank 5 Year Term Deposit	A	1,000	0.37	4.55	0.51	1,000	Sep-27
Macquarie Bank 5 Year Term Deposit	A	1,000	0.37	4.55	0.51	1,000	Sep-27
ING Bank 5 Year Term Deposit	A	5,000	0.42	5.13	2.55	5,000	Feb-28
ING Bank 5 Year Term Deposit	A	5,000	0.42	5.20	2.55	5,000	Jun-28
Rabobank Australia 5 Year Term Deposit	A+	5,000	0.42	5.20	2.55	5,000	Feb-29
Rabobank Australia 5 Year Term Deposit	A+	6,000	0.42	5.15	3.06	6,000	Feb-29
ING Bank 5 Year Term Deposit	A+	5,000	0.42	5.13	2.55	5,000	Feb-29
Rabobank Australia 5 Year Term Deposit	A+	3,000	0.44	5.35	1.53	3,000	Apr-29
Rabobank Australia 5 Year Term Deposit	A+	6,000	0.40	4.85	3.06	6,000	Aug-29
Rabobank Australia 5 Year Term Deposit	A+	6,000	0.42	5.10	3.06	6,000	Feb-30
Rabobank Australia 5 Year Term Deposit	A+	4,000	0.41	5.02	2.04	4,000	Mar-30
Rabobank Australia 5 Year Term Deposit	A+	4,000	0.38	4.70	2.04	4,000	Apr-30
Rabobank 5 Year Term Deposit	A+	5,000	0.37	4.55	2.55	5,000	Jun-30
Sub Total		**125,000**				**125,000**	

Investment Name	Investment Rating	Invested at 30-Jun-2025 $000's	Month Return (%)	Annualised YTD Return (%)	Total Invested (%)	Market Value at 30-Jun-2025 $000's***	Maturity
Fixed & Floating Rate Notes (FRNs)							
UBS 5 Year FRN	A+	1,300	0.40	5.27	0.66	1,311	Jul-25
Commonwealth Bank 3 Year Fixed Senior Note	AA-	3,500	0.35	4.32	1.78	3,555	Aug-25
Suncorp Bank 3 Year Fixed Senior Note	A+	2,000	0.37	4.50	1.02	2,032	Aug-25
Mystate Bank 3 Year Senior FRN	BBB+	1,500	0.45	5.74	0.76	1,500	Oct-25
Suncorp-Metway Ltd 3 Year Fixed Covered Bond	AAA	2,200	0.41	4.96	1.12	2,227	Oct-25
Bendigo Bank 5 Year FRN	BBB+	1,700	0.35	4.88	0.87	1,707	Dec-25
Suncorp-Metway Limited 5 Year FRN	AA-	4,500	0.39	5.18	2.29	7,425	Jan-27
Commonwealth Bank 5 Year Fixed Senior Note	AA-	3,495	0.37	4.55	1.78	3,603	Aug-27
AMP Bank 3 Year FRN	BBB+	3,400	0.43	5.69	1.73	3,419	Aug-27
ANZ Bank 5 Year Senior FRN	AA-	800	0.39	5.48	0.41	800	Mar-28
Bank of Queensland 5 Year Floating Covered Bond	AAA	1,750	0.42	5.58	0.89	1,769	May-28
Mutual Bank 3 Year Floating Bond	BBB+	3,000	0.32	3.86	1.53	3,000	May-28
Bendigo Bank 5 Year Floating Covered Bond	AAA	2,800	0.42	5.58	1.43	2,831	Jun-28
Suncorp Metway 5 Year Floating Covered Bond	AAA	3,000	0.42	5.49	1.53	3,031	Jul-28
Commonwealth Bank of Australia 5 Year Senior FRN	AA-	5,000	0.40	5.32	2.55	5,069	Aug-28
ANZ 5 Year FRN Senior	AA-	4,200	0.40	5.34	2.14	4,232	Sep-28
Rabobank Australia 5 Year Fixed MTNs	A+	4,000	0.42	5.15	2.04	4,196	Feb-29
Suncorp Metway 5 Year Fixed MTNs	AA-	1,597	0.40	4.89	0.81	1,654	Mar-29
Rabobank Australia 5 Year Senior MTN	A+	2,600	0.41	5.32	1.33	2,633	Jul-29
Sub Total		**52,342**				**55,994**	
Total Portfolio		**196,091**		***4.95**	**100.00**	**199,743**	
Matured/Traded Investments - Weighted YTD Average Return (%)				**4.63**			
Weighted Average Overall Return Year To date (%)				**4.83**			

** Weighted average returns.*

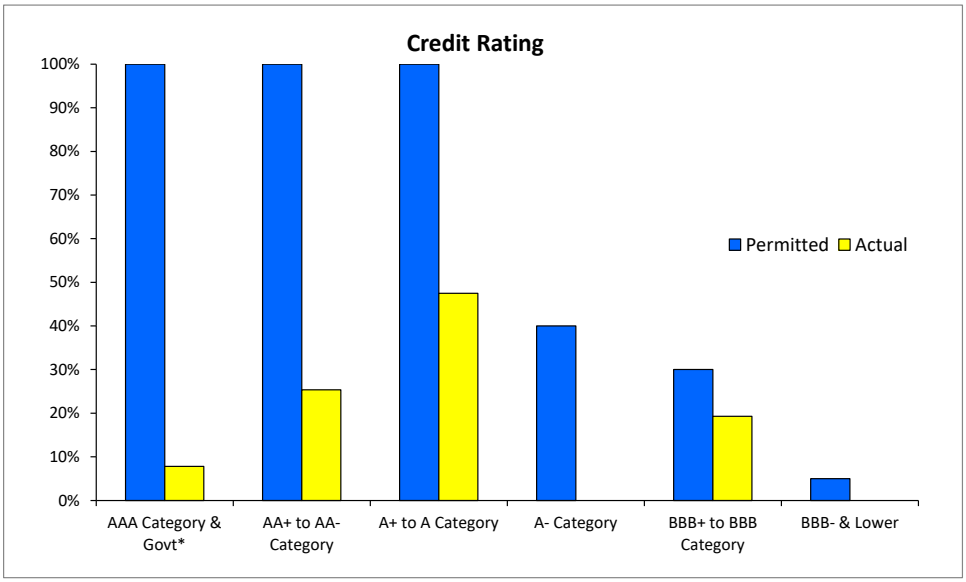
*** Funds in at-call/short term accounts are working funds kept for the purpose of meeting short term cash outflow requirements. At-call investments portfolio is being monitored on a regular basis to ensure funds are reinvested at higher rates when opportunities arise, whilst also keeping and adequate balance for short-term cash outflows.*

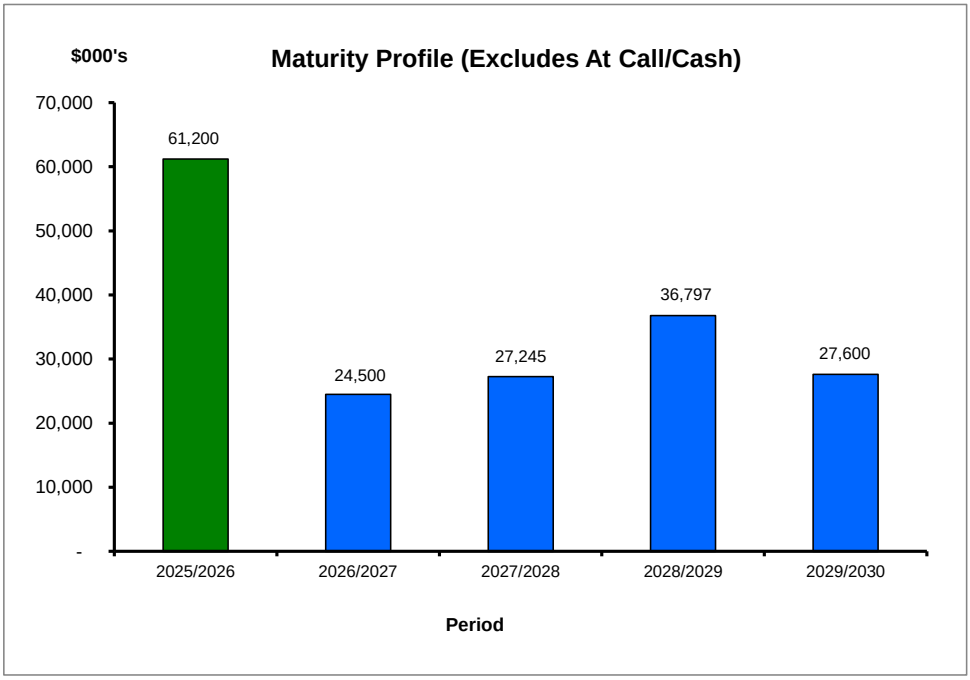
Investment by Credit rating and Maturity Profile

The allocation of Council's investments by credit rating and the maturity profile are shown below:

Rating Group	Permitted	Actual	Permitted Less Actual
AAA Category & Govt*	100%	8%	92%
AA+ to AA- Category	100%	25%	75%
A+ to A Category	100%	48%	52%
A- Category	40%	0%	40%
BBB+ to BBB Category	30%	19%	11%
BBB- & Lower	5%	0%	5%

** Government guaranteed ADI deposits (first $250,000 investment that Council holds with any bank, credit union, and building society)*





INTEGRATED PLANNING AND REPORTING

Leadership & Governance

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
L2.1 Council rigorously manages its financial resources and assets to maximise delivery of services	Council maintains and improves its long-term financial position and performance	Continue to analyse opportunities to expand the revenue base of Council

GOVERNANCE MATTERS

Council's investments are made in accordance with the Local Government Act (1993), the Local Government (General) Regulation 2005 and Council's Investment Policy.

Section 212 of the Local Government (General) Regulation 2005 states:

(1) The responsible accounting officer of a council:

(a) must provide the council with a written report (setting out details of all money that the council has invested under section 625 of the Act) to be presented:

(i) if only one ordinary meeting of the council is held in a month, at that meeting, or

(ii) if more than one such meeting is held in a month, at whichever of those meetings the council by resolution determines, and

(b) must include in the report a certificate as to whether or not the investment has been made in accordance with the Act, the regulations and the council's investment policies.

(2) The report must be made up to the last day of the month immediately preceding the meeting.

RISK MANAGEMENT

Council manages the risk associated with investments by diversifying the types of investment, credit quality, counterparty exposure and term to maturity profile.

Council invests its funds in accordance with The Ministerial Investment Order.

All investments are made with consideration of advice from Council's appointed investment advisor, CPG Research & Advisory.

FINANCIAL CONSIDERATIONS

The revised budget for interest on investments for the financial year 2024/2025 is $9,000,000. Of this amount approximately $4,903,200 is restricted for the benefit of future expenditure relating to development contributions, $2,090,900 transferred to the internally restricted Infrastructure & Facility Reserve, and the remainder of $2,005,900 is available for operations.

SOCIAL CONSIDERATIONS

Not applicable.

ENVIRONMENTAL CONSIDERATIONS

Not applicable.

COMMUNITY CONSULTATION

None undertaken or required.

INTERNAL CONSULTATION

None undertaken or required.

Certification - Responsible Accounting Officer

I hereby certify that the investments listed in the attached report have been made in accordance with Section 625 of the Local Government Act 1993, clause 212 of the Local Government General Regulation 2005 and Council's Investment Policy.

SUMMARY

As at 30 June 2025:

- Council's total cash and investment portfolio as was $196,091,000, a decrease of $1,710,000 from May 2025 was mainly due to creditor Payments.

- The net return on investments for the financial year ending June 2025 is $10,135,000, compared to the revised budget of $9,000,000 resulting in a favourable variance of $1,135,000. Despite a budget adjustment in the December Quarterly Budget Review, the portfolio's actual performance remains strong due to its larger than anticipated size.

RECOMMENDATION:

That:

A. The summary of investments and performance for June 2025 be received and noted.

B. The Certificate of the Responsible Accounting Officer be noted and the report adopted.

Tony Ly
Financial Accounting Officer

Mette Kofoed
Acting Manager Finance

Christopher M Jones
Acting Director Corporate

REVIEW OF COUNCILLOR EXPENSES AND FACILITIES POLICY

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	For Council to adopt the updated Councillor Expenses and Facilities Policy and expense limits for the first year of this Council term.
BACKGROUND:	Section 252(1) of the Local Government Act 1993 (the Act) requires Council to adopt a Councillor Expenses and Facilities policy within the first 12 months of each term of Council. The policy can also be reviewed at any time.
COMMENTS:	Council has reviewed the policy and updated the expense limits in line with CPI.
RECOMMENDATION: (Refer to the full Recommendation at the end of this report)	That the updated Councillor Expenses and Facilities Policy be placed on public exhibition for a period of 28 days. If any submissions are received, the matter be reported back to Council after the consultation period. If no submissions are received, that Council adopt the updated policy to come into effect on 1 October 2025.

PURPOSE OF REPORT

For Council to adopt the updated Councillor Expenses and Facilities Policy and expense limits for the first year of this Council term.

BACKGROUND

Section 252 of the *Local Government Act 1993* requires Council to adopt a Councillor expenses and facilities policy within the first 12 months of each term of Council. This policy must comply with the provisions of the Act, regulations and the NSW Office of Local Government's (OLG) *Guidelines for the payment of expenses and the provision of facilities for Mayors and Councillors in NSW* issued under section 23A of the Act.

The Councillor Expenses and Facilities Policy is updated regularly to ensure it is:

- updated in line with the Consumer Price Index (CPI)
- consistent with NSW and Council policy, and recommendations of integrity bodies
- based on what Councillors need to effectively carry out their civic duties, and
- what is acceptable to the community.

The current version of the policy was approved by Council in December 2023, with updated expense limits circulated to Councillors after the 2024 local government elections.

COMMENTS

Council has proposed the following change to the Councillor Expenses and Facilities Policy (see Attachment A1):

- An allowance for subscriptions and publications has been included (up to $1,200 per year of term) to help councillors to stay informed and up to date on local government best practices, industry trends, policy matters and current affairs.

Footnotes have been updated to note that Council recommends a 2-in-1 laptop device to support the access to the Meetings Hub app.

As outlined in the draft policy, expense limits are updated each year in line with CPI (June each year). These limits (highlighted in yellow in Attachment A1) will be updated when the ABS publishes June data on 30 July 2025.

The updated policy will then be placed on public exhibition for a period of 28 days. If any submissions are received, this will be reported back to Council at the September meeting. If no submissions are received, it is recommended that Council adopt the policy (with updated expense limits) to come into effect for the second year of this Council term (1 October 2025 – 30 September 2026).

INTEGRATED PLANNING AND REPORTING

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
L4.1: The organisation provides ethical and transparent decision-making, efficient management, and quality customer service.	L4.1.2: Council's Governance framework is developed to ensure probity and transparency.	L4.1.2.4: Ensure Council fulfils its obligations under the Local Government Act, and relevant NSW and Commonwealth legislation, guidelines and circulars. L4.1.2.5: Maintain a policy review program to ensure the currency of all policy documents and public registers.

GOVERNANCE MATTERS

Section 252 of the Local Government Act states that Councils are required to establish a policy within the first year of each term that outlines how they will cover expenses and provide facilities for the mayor, deputy mayor and councillors in fulfilling their official duties. Councils cannot pay expenses or provide facilities to the mayor, deputy mayor, or any councillor outside the guidelines of this established policy.

RISK IMPLICATION STATEMENT

The primary risk associated with the recommendation/s contained in this report is related to regulatory procedures. There are no material risks that arise from the recommendations contained in this report. Minor issues may occur, but these can be managed within Council's current policies, procedures, resources and budget. This policy establishes the provision of councillor expenses and facilities in a manner that is transparent and accountable.

FINANCIAL CONSIDERATIONS

While expense limits are proposed to increase in line with CPI, actual expenses are contingent on the usage by Councillors.

SOCIAL CONSIDERATIONS

Nil.

ENVIRONMENTAL CONSIDERATIONS

Nil.

COMMUNITY CONSULTATION

Section 253 of the *Local Government Act 1993* states that Councils must give public notice of their intention to adopt or amend their expense and facilities policy allowing at least 28 days for public submissions, and consider all public submissions received within the public exhibition period and

make necessary changes to the draft policy or amendment. Public exhibition is not required for minor amendments.

INTERNAL CONSULTATION

The draft policy has been developed by the Governance and Corporate Strategy team, in consultation with Finance.

SUMMARY

Section 252 of the *Local Government Act 1993* requires Council to adopt a Councillor expenses and facilities policy within the first 12 months of each term of Council, and the guidelines recommend it be updated annually.

RECOMMENDATION:

That the updated Councillor Expenses and Facilities Policy be placed on public exhibition for a period of 28 days. If any submissions are received, the matter be reported back to Council after the consultation period. If no submissions are received, that Council adopt the updated policy.

Eliza Gilbank-Heim
Governance Support Officer

Christopher M Jones
Manager Governance & Corporate Strategy

Attachments: A1⇩ Draft Councillor Expenses and Facilities Policy - Version 19 2024/329459

Ku-ring-gai Council

Policy

Councillor Expenses and Facilities (DRAFT)

Version Number 19

Adopted: tbc

Effective: tbc

Councillor Expenses and Facilities

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Controlled Document Information

Authorisation Details

This is a Controlled Document. Before using this document check it is the latest version by referring to Council's Controlled Document Register. Unless otherwise indicated, printed or downloaded versions of this document are uncontrolled.			
Controlled Document Number:	97	**TRIM Record No:**	2024/329459
Controlled Document Type:	Policy		
Controlled Document Name:	Councillor Expenses and Facilities Policy		
Version Number:	19		
Department:	Corporate		
Distribution:	Internal & External		
Review Period: **Max < 4 years**	1	**Next Review Date:**	30 September 2026
Document Status:	DRAFT		
Approval Type:	Council Resolution		
Version Start Date:	1 October 2025	**Version End Date:**	30 September 2026

Related Document Information, Standards & References

Related Legislation:	Local Government Act 1993 Local Government (General) Regulation 2021	Sections 252 – 254 Sections 217 and 403
Related Policies (Council & Internal)	Ku-ring-gai Council Code of Conduct Fraud and Corruption Control Policy	
Related Documents	Reimbursement Form	2017/259773 (word template) 2017/263007 (PDF template)
Other References	Office of Local Government Circular No. 17-17, Councillor Expenses and Facilities Policy Template Guidance for councillors on corruption risks associated with overseas travel (ICAC, June 2024)	

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Version History

Version Number	Version Start Date	Version End Date	Author	Details and Comments
1	08/03/2005	27/02/2007	Director Corporate	Original
2	27/02/2007	30/07/2008	Director Corporate	Major revision following DLG Circular 06-57
3	30/07/2008	13/10/2009	Director Corporate	Annual revision following DLG Circulars 07-22 and 08-03
4	13/10/2009	13/02/2010	Director Corporate	Annual Revision
5	13/02/2010	12/10/2010	Director Corporate	Revision following DLG Circular 09-36
6	12/10/2010	19/10/2011	Director Corporate	Annual review (CPI only)
7	19/10/2011	20/11/2012	Director Corporate	Annual review (CPI only)
8	20/11/2012	26/11/2013	Director Corporate	Annual review and minor revisions
9	27/11/2013	24/11/2014	Director Corporate	Annual review and minor revisions
10	25/11/2014	06/10/2015	Director Corporate	Annual review (CPI only) and reformatting into the new policy template
11	07/10/2015	11/10/2016	Director Corporate	Annual review (CPI only) and clarification of Councillor attendance at functions and events.
12	12/10/016	28/08/2018	Director Corporate	Annual review (CPI only)
13	12/10/2016	28/08/2018	Director Corporate	Update formatting only (Team Leader Governance)
14	29/08/2018	04/09/2019	Director Corporate	Term review (CPI only)
15	04/09/2019	4/09/2021	Manager Governance & Corporate Strategy	Annual review (CPI only)
16	04/09/2021	20/12/2022	Manager Governance & Corporate Strategy	Major review and reformatting into the OLG template. Inclusion of counselling and support services.
17	21/12/2022	20/12/2023	Manager Governance & Corporate Strategy	Annual review (review of limits and CPI adjustments at 7.6%).
18	21/12/2023	13/9/2024	Manager Governance & Corporate Strategy	Annual review (review of limits and CPI adjustments at 4.2%). Including commentary about prorating for short term of Council and other minor amendments.
18.1	2/10/2024	30/10/2025	Manager Governance & Corporate Strategy	Limits updated for CPI and circulated to Councillors
19	1/10/2025		Manager Governance & Corporate Strategy	Annual review and CPI adjustments. Policy updated to include all expense limits in Table A.

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Policy

Policy Summary

This policy enables the reasonable and appropriate reimbursement of expenses and provision of facilities to Councillors to help them undertake their civic duties.

It ensures accountability and transparency and seeks to align Councillor expenses and facilities with community expectations. Councillors must not obtain private or political benefit from any expense or facility provided under this policy.

The policy has been prepared in accordance with the Local Government Act 1993 (the Act) and Local Government (General) Regulation 2005 (the Regulation) and complies with the Office of Local Government's Guidelines for the payment of expenses and provision of facilities to Mayors and Councillors in NSW. A Council must adopt a Councillor Expenses and Facility policy within the first 12 months of each term of Council and may update it as required.

The policy sets out the maximum amounts Council will pay for expenses and facilities. Expenses not explicitly addressed in this policy will not be paid or reimbursed.

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Table A: Current expense limits

The expense limits and facilities are summarised in the table below.

Expense or facility	Maximum Limit for each Councillor
Travel expenses (excluding travel for professional development covered separately) (Clause 6.2)	$1,140 per year of term
Professional development (including training and education, conferences and seminars) (Clause 7.2)	$12,225 in the first year of term and $10,100 per year of term thereafter. Includes registration fees, travel, accommodation, meals, refreshments and incidental expenses. Induction and internally arranged training and workshops for all Councillors are additional and subject to budget.
Functions and events (Clause 9.2)	$1,370 per year of term ($2,740 for the Mayor). Complimentary tickets to all Council functions and events for each Councillor and an accompanying person.
Accompanying person expenses (Clause 10.2)	$800 per year of term ($1,600 for the Mayor)
Home telephone and internet (Clause 11.1)	$230 per month reimbursement
Mobile phone (Clause 11.2)	Council provided mobile phone: $2,980 per Council term for cost of device, accessories and apps, connected to corporate mobile plan for calls, texts and data or reimbursement for use of a Councillor's private mobile phone for Council business use: $230 per month reimbursement.
Laptop or tablet (Clause 11.3)	$3,400 per Council term for cost of device, accessories and software, connected to corporate data plan.
Multi-function device (Clause 11.4)	$855 per Council term for cost of device.
Home office expenses (Clauses 12.1 – 12.5)	Furniture and equipment: $1,600 per Council term. Consumables and incidentals: $960 per year of term. Subscriptions, publications or other resource materials: $1,200 per year of term Postage: $575 per year of term Business cards: 500 per year of term (750 for the Mayor).
Carer expenses (Clause 13.4)	$3,430 per year of term.
Insurance cover (Clause 14)	Public liability and professional indemnity, Personal accident, Travel, Councillors and Officers Insurance.
Legal assistance (Clause 15)	Various provisions for Councillors defending action taken against them.
Access to facilities in a Councillor common room (Clause 16.1)	Furnished to include telephone, photocopier, printer, desks, computers and refreshments.
Access to rooms for meetings (Clause 16.1)	Councillors may use Council meeting rooms for official business at no charge.
Meals and refreshments (Clause 16.1)	Meals and refreshments for Council and Committee meetings, Public Forums, briefings, workshops and official functions.

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Expense or facility	Maximum Limit for each Councillor
Name badge (Clause 16.1)	Not applicable.
Security card for entry to Council's administration building (Clause 16.1)	Not applicable.
Personal protective equipment for site inspections (Clause 16.1)	A raincoat and a pair of protective footwear for site inspections during inclement weather.
Christmas or festive cards (Clause 16.1 & 17.1)	100 per year of term (200 for the Mayor).
Reserved parking space at Council offices (Clauses 16.1 & 17.1)	One space provided for the Mayor and three spaces for Councillors.
Car parking permit (Clause 16.1)	Car parking sticker to enable a Councillor to park in any Council car park at any time for an unlimited period when discharging the functions of civic office.
Executive Assistant (Clause 16.1 & 17.1)	One staff member provided to support Councillors and one staff member provided to support the Mayor.
Mayoral Office (Clause 17.1)	Furnished office, including office equipment, consumables, Mayoral letterhead, postage, light meals and refreshments, Mayoral robes and chain.
Council vehicle and fuel card (Clause 17.1)	A similar standard vehicle to that available for the General Manager, for use on official business and incidental private use. Other private use (more than incidental) to be reimbursed to Council at the rate contained in the Local Government (State) Award.
Note: *Expenses limits will be adjusted for CPI for each year of term (calculated as the annual increase to June each year in line with the corporate budget and forecasts.*	

Responsibilities

Councillors are responsible for complying with the provisions and spirit of this policy,

The General Manager is responsible for approving claims made under this policy.

The Manager Governance and Corporate Strategy is responsible for providing advice to the General Manager and to Councillors regarding this policy.

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Part A – Introduction

1. Introduction

1.1. The provision of expenses and facilities enables Councillors to fulfil their civic duties as the elected representatives of Ku-ring-gai Council.

1.2. The community is entitled to know the extent of expenses paid to Councillors, as well as the facilities provided.

1.3. The purpose of this policy is to clearly state the expenses and facilities that are available to Councillors to assist them in fulfilling their civic duties.

1.4. Expenses and facilities provided by this policy are in addition to fees paid to Councillors. The minimum and maximum fees a council may pay each Councillor are set by the Local Government Remuneration Tribunal as per Section 241 of the Act and reviewed annually. Council must adopt its annual fees within this set range.

2. Policy Objectives

2.1. The objectives of this policy are to:

- enable the reasonable and appropriate payment and reimbursement of expenses incurred by Councillors while undertaking their civic duties
- enable facilities of a reasonable and appropriate standard to be provided to Councillors to support them in undertaking their civic duties
- ensure accountability and transparency in reimbursement of expenses and provision of facilities to Councillors
- ensure expenses and facilities provided to Councillors meet community expectations
- support a diversity of representation
- fulfil the Council's statutory responsibilities.

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3. Principles

3.1. Council commits to the following principles:

- **Proper conduct**: Councillors and staff acting lawfully and honestly, exercising care and diligence in carrying out their functions.
- **Reasonable expenses**: providing for Councillors to be reimbursed for expenses reasonably incurred as part of their role as Councillor.
- **Participation and access:** enabling people from diverse backgrounds, under-represented groups, those in carer roles and those with special needs to serve as a Councillor.
- **Equity:** there must be equitable access to expenses and facilities for all Councillors.
- **Appropriate use of resources:** providing clear direction on the appropriate use of Council resources in accordance with legal requirements and community expectations.
- **Accountability and transparency:** clearly stating and reporting on the expenses and facilities provided to Councillors.

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4. Private or Political Benefit

4.1. Councillors must not obtain private or political benefit from any expense or facility provided under this policy.

4.2. Incidental private use of Council equipment and facilities by Councillors may occur from time to time.

4.3. Such incidental private use does not require a compensatory payment back to Council.

4.4. Councillors should avoid obtaining any greater private benefit from Council than an incidental benefit. Where there are unavoidable circumstances and more substantial private use of Council facilities does occur, Councillors must reimburse the Council.

4.5. Campaigns for re-election are considered a political benefit. The following are examples of what is considered a political interest during a re-election campaign:

- production of election material
- use of Council resources and equipment for campaigning
- use of official Council letterhead, publications, websites or services for political benefit
- fundraising activities of political parties or individuals, including political fundraising events.

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Part B — Expenses and Facilities

5. General Requirements

5.1. All expenses provided under this policy will be for a purpose specific to the functions of holding civic office. A general expense allowance is not permitted under this policy.

5.2. Expenses not explicitly addressed in this policy will not be paid or reimbursed.

5.3. All monetary amounts are exclusive of GST and will be increased annually on the anniversary of election to office in accordance with CPI (Sydney, all groups).

6. Travel Expenses

6.1. The Mayor and each Councillor may be compensated for travel expenses incurred while undertaking official Council business and for professional development in respect to their role as an elected member. This includes direct payment or reimbursement for public transport fares, use of a private vehicle, taxi fares, airfares, ride-share programs, parking costs and tolls. From time to time the General Manager may authorise the use of a Council vehicle by a Councillor for official business if other options are not available or impractical.

6.2 The maximum limit for general travel expenses for each Councillor per year of term is listed in **Table A**. Travel expenses incurred for professional development are additional and included within the separate maximum limit set out in Clause 7.2. Travel expenses to locations outside the Greater Sydney and surrounding regions may only be authorised by resolution of Council, unless for professional development.

6.3. Councillors seeking to be reimbursed for travel expenses must submit a claim that includes as a minimum the date, place of departure and arrival, distance (for private vehicle claims) and the purpose of travel being claimed. The use of a private vehicle will be reimbursed by kilometre at the rate contained in the Local Government (State) Award.

6.4. Air travel is economy class and bookings for air travel are to be made by the General Manager's office on behalf of the Councillor.

6.5. All travel by Councillors should be undertaken using the most direct route and the most practicable and economical mode of transport subject to any personal medical considerations.

6.6. Council will not pay any traffic or parking fines or administrative charges for road toll accounts.

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7. Professional Development

7.1 Professional development includes training and education, attendance at conferences and seminars and membership of professional bodies relevant to the role of a Councillor or the Mayor.

7.2 Councillors may attend professional development within the maximum limits under **Table A** for each year of term.

7.3 Council will meet the reasonable cost of registration fees, travel, accommodation, meals, refreshments and incidental expenses, which will all be included within the maximum limit.

7.4 In the first year of a new Council term, Council will provide a comprehensive induction program for all Councillors. The cost of the induction program will be in addition to the individual professional development maximum limit for Councillors.

7.5 From time to time all Councillors will be provided with internally organised training and offsite workshops, such as for the Code of Conduct and strategic planning workshops. These costs will be in addition to the individual professional development maximum limit for Councillors and subject to budget allocations.

7.6 Councillors are best placed to determine their own their requirements for professional development. This will be a key consideration for the General Manager when assessing an application for professional development, which must be made in advance by written request.

8. Accommodation, meals and incidental travel expenses

8.1 Council will provide for accommodation, meals and incidental travel expenses while Councillors are undertaking professional development and other official business, within the maximum limits set out in the relevant clauses.

8.2 In circumstances where Councillors are travelling long distances, it may be appropriate to claim accommodation and meals the night before and/or the night after the event. It is a matter for each Councillor, on balance, to decide whether to claim accommodation in these circumstances.

8.3 Generally, it is not expected that Councillors would claim for accommodation in locations within metropolitan Sydney. However, there may be occasions where events within metropolitan Sydney run into the evening and staying overnight is appropriate, or when travel time and costs would outweigh the cost of accommodation. It is a matter for each Councillor, on balance, to decide whether to claim accommodation in these circumstances.

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8.4 When practical and available, accommodation will be arranged at the location of events, or as near as possible. The accommodation will be equivalent to a double room and generally of a standard similar to accommodation at the event venue. Accommodation arrangements will balance cost, location, comfort, convenience and safety.

8.5 Council will meet the reasonable cost of meals and refreshments associated with travel when not provided as part of the event. Incidental costs may also be reimbursed such as internet charges, newspapers, laundry, snacks and drinks. As a guide, it is expected that the total amount claimed under this clause would generally be less than $165 per day, reducing for part days. These costs are included within the maximum limit for professional development.

9. Functions and Events

9.1 Council will meet the cost of attendance at functions and events that would reasonably be considered relevant to the role of Councillor or Mayor. This includes functions and events held by charities, community organisations, sporting groups, members of parliament and business groups. The function or event must be within Greater Sydney or surrounding regions and relevant to the local government area or Council's wider interest.

9.2 Councillors may attend functions and events within the maximum limits under **Table A.**

9.3 Expenses may not be claimed for functions and events associated with fundraising for a political party, an election candidate's campaign or for a private benefit.

9.4 Councillors are entitled to complimentary tickets to all Council functions and events as well as for an accompanying person. Depending on the nature of the event, the General Manager may approve complimentary tickets for more than one person to accompany the Councillor. Complimentary tickets will not be included in the maximum limits for accompanying persons set out in Clause 10.2.

10. Accompanying Person Expenses

10.1 Council will meet limited costs for a person accompanying a Councillor on official business or professional development, such as to functions, events, official dinners and for registration costs such as for conference accompanying person activities.

10.2 The maximum limit for accompanying persons expenses is listed in **Table A**.

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10.3 Accompanying person expenses are limited to the direct cost of the function, event, dinner or registration. Council will not meet expenses such as for travel, additional accommodation or general meal costs, clothing or grooming.

11. Information and Communications Technology

11.1 Council will meet the costs associated with a home telephone (landline) and home internet service. For practical reasons the connections and services are to be arranged and paid for directly by Councillors and reimbursed by Council. The maximum limit for reimbursement of home telephone costs (including calls and other charges) and internet costs for each Councillor (per month) is listed in **Table A**.

11.2 Council will meet the costs associated with a mobile phone used for Council business. A Councillor may elect to use a Council provided mobile phone or use their own and Council will reimburse the costs.

Council provided mobile phone[1]**:** The maximum limit for the cost of the device, accessories and apps for the Council term is listed in **Table A**.

Reimbursement for use of a Councillor's personal mobile phone for Council business[2]**.:** the maximum monthly limit for reimbursement is listed in **Table A** (covering all plan costs such as rental/repayment, call, text message and data costs)

11.3 Councillors will be issued with a laptop or tablet[3]. The maximum limit for the cost of the device, accessories and software per Council term for each Councillor is listed in **Table A**.

[1] During the Council term the phone will be repaired or replaced as required due to loss, damage or other malfunction. Councillors may choose their preferred mobile phone within the cost limit. While the conditions of the corporate plan may change from time to time, it currently provides for unlimited standard fixed and mobile calls and text messages within Australia and a shared data allowance. As the calls and text messages are uncapped, private use by Councillors is allowed. Use of data should be limited to Council business use and incidental private use.

[2] Council will not reimburse Councillors for lost or damaged personal phones.

[3] During the Council term the device will be repaired or replaced as required due to loss, damage or other malfunction. Laptops will be provided in accordance with the Council corporate standard (ie brand/model). To support full access and support for Council's Meetings Hub app (electronic business papers), a Council-issued 2-in-1 laptop device is recommended. Councillors may choose an alternate device (subject to availability and maximum expenditure limits), but Council may not be able to guarantee support services for non-standard devices or software. The device will be connected to the Council corporate data plan, the conditions of which may change from time to time. Currently the corporate plan provides a shared data allowance which should be limited to Council business use and incidental private use. Laptops will be provided with Council's standard corporate software at no additional cost to Councillors.

11.4 Councillors may be provided with a multi-function device[4] (print\scan\copy). The maximum limit for the cost of the device per Council term for each Councillor is listed in **Table A**.

11.5 Councillors will be provided with support for use of technology by Council staff.

12. Home Office Expenses

12.1 Each Councillor may be provided with or reimbursed for general home office furniture and equipment (e.g. desk, filing cabinet, bookshelf) within the maximum value listed in **Table A**.

12.2 Each Councillor may be supplied with or reimbursed for consumables and other incidentals associated with a home office such as minor items of stationery, paper and printer ink cartridges, within the maximum limit listed in **Table A**. Utility costs (electricity, gas) will not be reimbursed.

12.3 Each Councillor may incur postage costs (via Council) or be reimbursed for postage costs within the maximum limit listed in **Table A**.

12.4 Each Councillor is entitled to subscriptions, publications or other resource materials relevant to the role of a Councillor or the Mayor within the maximum limit listed in **Table A**.

12.5 Councillors are entitled to 500 business cards each year of term and 750 for the Mayor.

13. Special Requirement and Carer Expenses

13.1 Council encourages wide participation and interest in civic office. It will seek to ensure Council premises and associated facilities are accessible, including provision for sight or hearing impaired Councillors and those with other disabilities.

13.2 Transportation provisions outlined in this policy will also assist Councillors who may be unable to drive a vehicle.

13.3 In addition to the provisions above, the Council may by resolution authorise the provision of reasonable additional facilities and expenses in order to allow a Councillor with a disability to perform their civic duties.

[4] During the Council term the device will be repaired or replaced as required due to damage or other malfunction. Multi-function devices will be provided in accordance with the Council corporate standard (ie brand/model). Councillors may be provided or reimbursed for consumables such as printer cartridges and paper under Clause 12.2 for home office expenses.

13.4 Councillors will be entitled to reimbursement of carer's expenses up to the maximum limit listed in **Table A** to enable attendance at official business.

13.5 The entitlement to claim carer's expenses is subject to the Councillor being responsible for the care of the person concerned, and the person needing the Councillor's care and support.

13.6 Claims for reimbursement of carer expenses must be accompanied by a receipt showing the date and time care was provided.

14. Insurances

14.1 Councillors are covered by the following insurance policies:

- Public liability and professional indemnity
- Personal accident
- Travel
- Councillors and Officers Insurance

14.2 Insurance protection is only provided if a claim arises out of or in connection with the Councillor's performance of his or her civic duties, or exercise of his or her functions as a Councillor.

14.3 All insurances are subject to any limitations or conditions set out in the policies of insurance.

14.4 Council shall pay the insurance policy excess in respect of any claim accepted by Council's insurers, whether defended or not.

15. Legal Assistance

15.1 Council shall, if requested, indemnify or reimburse the reasonable legal expenses properly incurred of:

- a Councillor defending an action arising from the performance in good faith of a function under the Act, or
- a Councillor defending an action in defamation provided the statements complained of were made in good faith in the course of exercising a function under the Act
- and provided that the outcome of the legal proceedings is favourable to the Councillor.

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15.2 Council shall, if requested, indemnify or reimburse the reasonable legal expenses properly incurred in respect of any inquiry, investigation of hearing into a Councillor's conduct by an appropriate investigative review body including:

- Local Government Pecuniary Interest and Disciplinary Tribunal
- Independent Commission Against Corruption
- Office of the Ombudsman
- Office of Local Government
- NSW Police Force
- Director of Public Prosecutions
- Council's Conduct Review Committee/Reviewer

15.3 This is provided that the subject of the inquiry, investigation or hearing arises from the performance in good faith of a councillor's functions under the Act and the matter before the investigative or review body has proceeded past any initial assessment phase to a formal investigation or review. In the case of a conduct complaint made against a Councillor, legal costs shall only be made available where a matter has been referred by the General Manager to a conduct reviewer/conduct review committee to make formal enquiries into that matter in accordance with the procedures in the Code of Conduct. In the case of a pecuniary interest or misbehaviour matter legal costs shall only be made available where a formal investigation has been commenced by the Office of Local Government.

15.4 In addition, legal costs shall only be provided where the investigative or review body makes a finding that is not substantially unfavourable to the Councillor. This may include circumstances in which a matter does not proceed to a finding. In relation to a Councillor's conduct, a finding by an investigative or review body that an inadvertent minor technical breach had occurred may not necessarily be considered a substantially unfavourable outcome.

15.5 Council shall not meet the legal costs of legal proceedings initiated by a Councillor in any circumstance.

15.6 Council shall not meet the legal costs of a Councillor seeking advice in respect of possible defamation, or in seeking a non-litigious remedy for possible defamation.

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15.7 Council shall not meet any legal costs for legal proceedings that do not involve a Councillor performing their role as a Councillor.

15.8 The maximum amount payable by Council under this clause in respect of any one action is $285,000. Council may obtain insurance cover against the risk of having to meet the reasonable legal costs of a Councillor, or to reimburse those costs, provided that the costs or reimbursements are ones that the Council is authorised to meet.

15.9 Any Councillor seeking to obtain any entitlement under this clause shall make written application to the General Manager and make this application prior to the legal expenses being incurred where possible. The General Manager shall refer the application to a Council Meeting with any advice and recommendations for determination by Council.

16. Other Provisions

16.1 Councillors may be provided with the following miscellaneous expenses and facilities:

- Access to a Councillor common room appropriately furnished to include telephone, photocopier, printer, desks, computers and refreshments.
- Use of meeting rooms for official business in Council buildings at no cost.
- Appropriate meals and refreshments for Council and Committee meetings, Public Forums, briefings, workshops, official functions and other meetings and events as approved by the General Manager. This clause also applies for Councillors attending by audio visual link (to a maximum of $50).
- A name badge, which may be worn at official functions, indicating that the wearer holds the office of a Councillor and /or Mayor or Deputy Mayor.
- Security access cards, which provide access to the Administration Building, allowing appropriate access as determined by the General Manager.
- Personal protective equipment as required for site inspections. This will include a raincoat and a pair of protective footwear for site inspections during inclement weather.
- 100 Christmas or festive cards per year and 200 for the Mayor, including postage (which is additional to the Home office allowance for postage).

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- Confidential counselling and support services (through Council's Employee Assistance Program provider). In line with the support available to Council staff, the EAP is available on a short term basis (generally up to three counselling sessions). The EAP provider will assist with referrals if longer term support is required.

- Three car parking spaces for Councillors at Council's offices. When Council and Committee meetings, Public Forums and other events are held where significant numbers of the public are expected to attend, a further six car parking spaces shall be allotted in the same car park.

- Car parking sticker to enable the Councillor to park in any Council car park at any time for an unlimited period when discharging the functions of civic office.

- A qualified and experienced executive assistant to support all Councillors. The executive assistant shall be responsible to the General Manager. The executive assistant may assist Councillors with civic duties only, and not assist with matters of personal or political interest, including campaigning.

- The provision of expenses and facilities will generally be of a standard deemed by the General Manager as appropriate for the purpose.

17. Additional Provisions for the Mayor

17.1 The Mayor will be provided with the following expenses and facilities, in addition to relevant Councillor expenses and facilities:

- A furnished and equipped office to the standard consistent with the custom and practice of Council, including relevant consumables.

- Light meals and refreshments for the Mayor, visitors and guests during official business at Council.

- Mayoral letterhead and postage costs for official correspondence (with the exception of bulk mail-outs).

- Mayoral robes and chain for official, civic and ceremonial use.

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- A fully maintained vehicle[5] of a similar standard to the Council vehicle available to the General Manager, with fuel card.
- A parking space at Council's offices will be reserved for the Mayor.
- The provision of expenses and facilities will generally be of a standard deemed by the General Manager as appropriate for the purpose.

18. Return or Retention of Equipment

18.1 Upon a Councillor or Mayor ceasing to hold office, the following must be returned to Council:

- Information and communication technology equipment (phones, tablets, laptops, printers)
- Security access passes

18.2 Should a councillor desire to keep any equipment allocated by Council, then this policy enables the Councillor to make application to the General Manager to purchase any such equipment. The General Manager will determine the purchase price, based on an assessment of the approximate market price or the written down value for the item of equipment (subject to availability of pricing the lesser amount will be used).

18.3 Home office furniture and equipment provided under Clause 12.1 of this policy is not required to be returned to Council.

18.4 Minor items such as consumables, stationery and other incidentals are not required to be returned to Council.

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[5] Use of the vehicle is subject to compliance with relevant Council operational policies regarding motor vehicle use. The vehicle may be used for official business and professional development. Incidental private use of the vehicle is allowed such as minor diversions on the way to and from official business (e.g. attending local shops). If the Mayor uses the vehicle for private use other than incidental use as described above, the Mayoral Allowance will be reduced to cover the cost of any private travel, calculated on a per kilometre basis by the rate set by the Local Government (State) Award. This private use must be recorded in a log book.

Part C — Processes

19. Approval, Payment and Reimbursement Arrangements

19.1 Expenses should only be incurred by Councillors in accordance with the provisions of this policy.

19.2 Approval for incurring expenses, where required under this policy, should be obtained before the expense is incurred.

19.3 Final approval for payments made under this policy will be granted by the General Manager.

Direct payment

19.4 Council may approve and directly pay expenses. Requests for direct payment must be submitted through the appropriate system for assessment against this policy using prescribed forms, with sufficient information and time to allow for the claim to be assessed and processed.

Reimbursement

19.5 All claims for reimbursement of expenses incurred must be made on the prescribed forms, supported by relevant information, appropriate receipts and/or tax invoices and be submitted to the General Manager or delegate.

Advance payment

19.6 Council may pay a cash advance for Councillors attending approved professional development, or to meet the cost of any service or facility covered by the policy and paid for by the Councillor (rather than be reimbursed). The maximum value of a cash advance is $800.

19.7 Requests for advance payment must be submitted to the General Manager for assessment against this policy with sufficient information and time to allow for the claim to be assessed and processed.

19.8 Councillors must fully reconcile all expenses against the cost of the advance within one month of incurring the cost and/or returning home. This includes providing to Council:

- A full reconciliation of all expenses including appropriate receipts and/or tax invoices
- Reimbursement of any amount of the advance payment not spent.

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Reimbursement to Council

19.9 If Council has incurred an expense on behalf of a Councillor that exceeds a maximum limit, exceeds reasonable incidental private use or is not provided for in this policy:

- Council will invoice the Councillor for the expense
- The Councillor will reimburse Council for that expense within 30 days of the invoice date.

19.10 If the Councillor cannot reimburse Council within 30 days of the invoice date, they are to submit a written explanation to the General Manager. The General Manager shall report such matters to the next meeting of Council seeking approval to deduct the amount from the Councillor's allowance.

Maximum Limits and Time limits

19.11 Maximum financial limits for expenses and facilities apply to specific time periods and unspent amounts cannot be transferred from one time period to another, or brought forward from future periods.

19.12 If a Councillor is elected to office after the commencement of the Council term (such as in a bi-election), maximum limits will be adjusted to reflect any part periods. If a Councillor ceases to be in office prior to the end of the Council term, the Councillor will not be required to repay a portion of an expense allowance that has already been spent.

19.13 For the purposes of maximum limits, expenses will be allocated to the period in which the expenditure was incurred (not the date a claim was submitted or paid).

19.14 Once a maximum limit is exceeded, costs will not be paid for or reimbursed to Councillors.

19.15 Unless otherwise specified in this policy, Councillors must provide all claims for reimbursement within twelve months of an expense being incurred. The General Manager has no authority to approve claims submitted after this time.

20. Disputes

20.1 If a Councillor disputes a determination under this policy, the Councillor should discuss the matter with the General Manager.

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20.2 In the event of a dispute occurring that is unable to be resolved, the General Manager shall report to the next meeting of Council to have the dispute determined by a resolution of Council having regard to this Policy, the Act and any other relevant law. The decision of Council shall be binding on all of the parties.

21. Publication

21.1 This policy will be published on Council's website.

22. Reporting

22.1 Council will report on the provision of expenses and facilities to Councillors as required in the Act and Regulations.

23. Breaches

23.1 Suspected breaches of this policy are to be reported to the General Manager.

23.2 Alleged breaches of this policy shall be dealt with by following the processes outlined for breaches of the Code of Conduct, as detailed in the Code and in the Procedures for the Administration of the Code.

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PART D – Definitions

The following definitions apply throughout this policy.

Term	Definition
Accompanying person	Means any person a Councillor chooses to accompany them
Appropriate refreshments	Means food and beverages provided by Council to support Councillors undertaking official business
Act	Means the Local Government Act 1993 (NSW)
Clause	Unless stated otherwise, a reference to a clause is a reference to a clause of this policy
Code of Conduct	Means the Code of Conduct adopted by Council or the Model Code if none is adopted
Councillor	Refers to all Councillors including the Mayor and Deputy Mayor
Council Term	Means the period that the Council was elected for
Greater Sydney and surrounding regions	Includes Metropolitan Sydney, the Blue Mountains, Central Coast, Lower Hunter, Greater Newcastle and Illawarra-Shoalhaven regions (as defined by the Greater Cities Commission NSW)
Incidental private use	Means use that is infrequent and brief and use that does not breach this policy or the Code of Conduct
Maximum limit	Means the maximum limit for an expense or facility
Official business	Means activities that the Mayor or Councillors undertake to fulfil their legislated role and responsibilities for Council.
Regulation	Means the Local Government (General) Regulation 2021 (NSW)
Year	Means the financial year, that is the 12 month period commencing on 1 July each year
Year of Term	Refers to the twelve month period commencing on the date of election to Council of a Councillor and every subsequent twelve month period of the term of office.

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DRAFT POLICIES
SPORTSFIELDS BOOKINGS POLICY
SPORTSFIELDS CLOSURE POLICY

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	For Council to consider and endorse the Draft Sportsfields Bookings Policy and Draft Sportsfields Closure Policy to be released for community consultation for 4 weeks.
BACKGROUND:	The use and management of Sportsfields has become an important issue to community and other users both from an allocation and access perspective.
COMMENTS:	These policies will assist in the sustainable management of Council's sportsfields in consideration of all users.
RECOMMENDATION: (Refer to the full Recommendation at the end of this report)	That Council endorses the Draft Sportsfields Bookings Policy and the Draft Sportsfields Closure Policy to be released for community consultation for 4 weeks.

PURPOSE OF REPORT

For Council to consider and endorse the Draft Sportsfields Bookings Policy and Draft Sportsfields Closure Policy to be released for community consultation for 4 weeks.

BACKGROUND

The use and management of sportsfields has become an increasingly important issue for Council to manage as sporting numbers increase and sporting user groups diversify. Equitable access to sportsfields and associated facilities while managing appropriate impacts would benefit from a formalised approach.

While the Generic Sportsground Plan of Management provides an overarching framework for the requirements, conditions and use of the land, it is considered a more specific policy is required to prescribe a process for the appropriate allocation to user groups for seasonal, permanent and casual hirers.

There is not an existing Sportsfield Booking Policy, this will be the first of this type of policy for Council. Previously, conditions of use and historical practices have been used to determine bookings.

The existing Wet Weather Policy has been reviewed and is now proposed to be a Sportsfields Closure Policy which addresses closures that may be required for reasons other than just wet weather. It incorporates improvements that have been made to notification of closures to user groups and the general public.

COMMENTS

The development of these policies has included the review of internal processes and of other Councils' processes and policies in relation to the booking of sportsfields and sportsfield closures. These policies will assist in the sustainable management of Council's sportsfields in consideration of all users.

Sportsfields Booking Policy

The intent of the new proposed Sportsfields Booking Policy is to:

"Provide equitable access and safe playing conditions for users whilst sustainably managing available Sporting Fields."

This policy would apply to all hirers wishing to use sporting fields in Ku-ring-gai on either a casual, seasonal, or permanent hire basis.

Objectives of the Sportsfields Booking Policy are to:

- Ensure Council has the capacity to provide safe playing fields for the community.
- Provide the opportunity for a diverse range of recreation activities for sporting user groups.
- Support the outcomes prescribed in Council's Plan of Management for Sportsgrounds with reference to appropriate use.

- Establish timeframes for seasonal allocation and specify where sportsfields will not be available due to annual season changeover and renovation periods as well as other scheduled maintenance or capital works activities are undertaken.
- Provide a hierarchy for booking approvals.

Sportsfields Closure Policy

The Sportsfields Closure Policy is intended to apply in situations where Council's sportsfields are impacted by adverse weather (wet or dry) and to assist in guiding the decision to play or train on sportsfields to prevent damage to the playing surface and provide a safe surface for use.

The emphasis of the current policy is closure due to wet weather and the process followed to make these decisions. The existing process allows Council to decide to close a field during the week and leaves the decision to close a field to the Club or Association that has booked the field for weekend use based on Council's recommendation on a Friday. Historically, there has been conjecture over this point, and it has become increasingly difficult to manage the expectations of users versus the condition of sportsfields, recovery and management of a large number of users and teams by associations and clubs.

Objectives of the new proposed Sportsfields Closure Policy are to:

- Ensure Council has the capacity to provide safe sportsfields for the community.
- Provide a process for assessing the suitability of sportsfields for play when impacted by adverse weather
- Provide a transparent process for all users and stakeholders to make decisions.
- Support the outcomes prescribed in Council's Plan of Management for Sportsgrounds with reference to appropriate use.
- Determine ground closures including what areas and for what period the sportsfield is to be closed.

Both policies have been drafted in consideration of the objectives and initial consultation has already occurred. The policies have been developed to the point that full external consultation is required.

INTEGRATED PLANNING AND REPORTING

Outcome: Infrastructure and assets support community needs

Community Strategic Plan Strategy	Delivery Program Term Achievement	Operational Plan Action
A2: Provide, upgrade and maintain open space, recreation and sporting facilities to meet the needs of current and future user groups and a growing population.	A2.1: A program is implemented to provide, improve and maintain open space, recreation and sporting facilities including multi-use facilities.	A2.1.2: Maintain existing recreation and sporting facilities in accordance with the Asset Management Plan. A2.1.3: Actively engage with sporting organisations and clubs, user groups and

	A2.2: Partnerships with community groups and organisations assist to optimise the availability and use of open space, recreation and sporting facilities.	residents during the preparation of plans, policies and strategies for sport and recreation.

GOVERNANCE MATTERS

The Sportsfields Bookings Policy is a new policy and as such will be saved to the policy register and require regular updates.

The Sportsfields Closure Policy will replace the existing Wet Weather Policy and will be saved to the policy register and require regular updates.

RISK IMPLICATION STATEMENT

There are no material risks that arise from the recommendations contained in this report. Minor issues may occur, but these can be managed within Council's current policies, procedures, resources and budget.

FINANCIAL CONSIDERATIONS

There are no costs associated with the development of these policies.

Council's approved Fees and Charges are utilised for the implementation of the policy.

SOCIAL CONSIDERATIONS

The establishment and update of these policies will allow for more structured and fair access to sportsfields for all users and set out guidelines for sportsfield closures.

Access to sportsfields is considered to be a significant social benefit for the community.

ENVIRONMENTAL CONSIDERATIONS

There are no environmental considerations associated with either of these policies.

COMMUNITY CONSULTATION

Consultation for both policies commenced at the Annual Sports Forum in July 2024.

Attendees at the Sports Forum were surveyed to gauge their support with the content of the policies. Questions were put to the group and live responses were recorded and are summarised below:

Draft Sportsfields Closure Policy

The policy will define a Community Sporting group as one that provides benefit to the community (non- profit) to be evidenced by the group's constitution, legal status and annual report. Indicate your level of agreement with this definition

- Strongly Agree 53%
- Agree 47%
- Neutral 0%
- Oppose 0%
- Strongly Oppose 0%
- Don't Know 0%

We have developed the following approvals hierarchy:

1. *Community Sporting Groups*
2. *Public Schools*
3. *Private Schools*
4. *General community/commercial and casual hirers*

Indicate your level of agreement with this definition.

- Strongly Agree 82%
- Agree 18%
- Neutral 0%
- Oppose 0%
- Strongly Oppose 0%
- Don't Know 0%

We have developed a draft proposal for dealing with bookings dispute resolution:

"Where a clash exists for allocation between two or more groups that cannot be separated by the bookings hierarchy, Council bookings staff will work with all parties to accommodate each request which may mean an alteration to the requested time, day or location for one or both hirer/s. If no resolution can be made between parties, Council's Manager Infrastructure Services will make a determination of the booking and priority will be given to the user group that has a greater connection with the Ku-ring-gai Community and community sport or the specific facility, such as a lease of a clubhouse."

Indicate your level of agreement with this process:

- Strongly Agree 52%
- Agree 44%
- Somewhat Support 6%
- Do not support 0%

Would you be happy to explore a different process that could consider refunds or credits for wet weather if it meant seasonal rates were charged at a higher rate?

- Yes 29%
- No 35%
- Maybe 35%

Please indicate your level of support for what we have presented regarding the draft Sportsfields Booking Policy today.

- Strongly support 29%
- Support 59%
- Neutral 12%
- Do not Support 0%

The results show support for the proposed wording and intentions of the policy in relation to hierarchy of allocations and definition of community sport were accepted by the sporting user groups in attendance. The draft policy was refined to reflect the feedback received from the sporting user groups in relation to other points.

Draft Sportsfields Closure Policy

The current Wet Weather Policy dated (2003) is being reviewed. The new proposed policy focuses on the closure of the fields due to the impact of any adverse weather i.e. in times of wet weather or drought conditions.

Questions were put to the 2024 Annual Sports Forum to assist in the development of a new policy as outlined below.

Who would you prefer to make the call regarding ground closure due to wet weather on weekends or public holidays?

- Council 12%
- The Club/Association 53%
- Unsure 18%
- Either 18%

Rate the effectiveness of Council notification to clubs/associations regarding wet weather closures (e.g. wet weather line, website, subscription to website).

- Great 18%
- Good 71%
- Average 12%
- Poor 0%

Please indicate your level of support for what we have presented regarding the draft Sportsfields Closure Policy today.

- Strongly support 12%
- Support 35%
- Neutral 35%
- Do not Support 18%

From the feedback at the Sports Forum, it was considered that the existing process for Council to close fields during the week and clubs and associations to make the decisions on the weekend

should remain unchanged. It was considered that the existing process of communication of closures was working well and supported by the user groups. The Draft Policy was updated to reflect these considerations.

Following adoption of this report, it is proposed to put both policies out to community consultation through Council's "Your Say" page on our website, Council's eNews and a more focussed discussion at the upcoming Annual Sports Forum on 30 July 2025.

INTERNAL CONSULTATION

Consultation on both policies has been undertaken internally with relevant staff from the Strategy and Environment, Community and Operations departments.

SUMMARY

The Sportsfields Booking Policy and the Sportsfields Closure Policy have been drafted in consideration of the objectives and initial consultation has already occurred.

The policies have been developed to the point that full external consultation is required prior to their final endorsement by Council.

RECOMMENDATION:

A. That Council endorses the Draft Sportsfields Bookings Policy and the Draft Sportsfields Closure Policy to be released for community consultation for 4 weeks.

Matthew Drago
Acting Manager Assets & Technical Services

Peter Lichaa
Director Operations

Attachments:	A1⇩	Controlled Document Number 223 - Sportsfields Closure Policy - Version 1 - Draft - OMC Attachment	2025/216113
	A2⇩	Controlled Document - Sportsfields Booking Policy - Draft - OMC Attachment	2025/216115

Ku-ring-gai Council

Draft Policy

Sportsfields Closure Policy

Version Number 2

Adopted: press F11 to enter Adoption date

Effective: press F11 to enter Effective date

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Controlled Document Information

Authorisation details

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Controlled Document Number:	223	**TRIM Record No:**	(enter TRIM record number)
Controlled Document Type:	Policy		
Controlled Document Name:	Sportsfields Closure Policy		
Version Number:	2		
Department:	Operations		
Distribution:	Internal and External		
Review Period: **Max < 4 years**	4 years	**Next Review Date: 2029**	May 2029
Document Status:	Draft		
Approval Type:	Adopted by Council		
Version Start Date:	(enter the date that this version was approved and the policy takes effect. This will generally be the day after it is adopted by Council)	**Version End Date:**	(if applicable enter the date that this version was superceded or cancelled)

Related document information, standards and references

Related Legislation:	Local Government Act 1993 Crown Lands Act 1989 Crown Lands Management Act 2016	
Related Policies (Council & Internal)	Plan of Management for Sportsgrounds Council's Fees and Charges Sportsfield Booking Policy Code of Conduct	
Related Documents - Procedures, Guidelines, Forms, WHS Modules/PCD's, Risk Assessments, Work Method Statements, etc	Management of Community and Recreation Land and Community Facilities Procedure All current and future adopted Plans of Management	
Other References		

DRAFT

Version history

Version Number	Version Start Date	Version End Date	Author	Details and Comments
1	3 December 2003	18 August 2020	Janice Bevan	First version.
2	April 2025	(date version ceased to be in effect)	Manager Infrastructure Services	New version updated to current format and in line with custom and practice.

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Introduction

This policy is intended to apply in situations where Council's sportsfields are impacted by adverse weather, and assist in guiding the decision to play or train on sportsfields to prevent damage to the playing surface and provide a safe surface for use.

Objectives

- Ensure Council has the capacity to provide safe sportsfields for the community.
- Provide a process for assessing the suitability of sportsfields for play when impacted by adverse weather
- Provide a transparent process for all users and stakeholders to make decisions.
- Support the outcomes prescribed in Council's Plan of Management for Sportsgrounds with reference to appropriate use.
- Determine ground closures including what areas and for what period the sportsfield is to be closed.

Scope

Assessing the field conditions during adverse weather

The following points are intended as a guide only, as conditions vary from location to location due but not limited to variations in weather conditions, drainage, usage levels or individual sports, etc. As a guide, training or play is likely to cause damage to the playing surface of sportsgrounds if they exhibit any of the following characteristics:

Factors considered include;

- Surface water present
- Water rises to the surface when walking across the surface (indicates soil is at saturation point).
- Surface is slippery to walk on, or grass dislodged easily
- Heavy and/or consistent rain occurs immediately prior to or during training or play.
- Dry/hard surface (times of drought)
- Bare areas – could be due to drought or damage following use after wet weather

Process for Sportsfields Closures due to adverse weather:

Monday to Friday – During adverse weather Council will inspect each sportsfield and will be responsible for making any decision to open or close a sportsfield due to adverse weather and if conditions pose a safety risk to participants or if continued use could cause damage to the playing surface.

Council's Closure Hotline will be updated by 2.30pm each weekday if sportsfield status changes. Council's website will also be updated by 2.30pm to give a status update on each sportsfield.

Weekends – The decision to play on a rain affected field will rest with the club or association that has made the booking based on a recommendation issued by Council on Friday afternoon.

Council staff will inspect the field on Friday to determine the condition of each field. If it is considered that the sportsfield will be damaged or unsafe for play if play occurs on the weekend then it will be recommended that play does not proceed. Some fields may not be affected by the adverse weather in which case the recommendation may be that play can proceed or be limited to certain areas on the field.

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This information will be emailed to all clubs and associations at 2.30pm on Friday and also placed on Council's website on the Closure page. The Closure Hotline will be changed stating hirers will need to check on the recommendations on Council's website.

The information will be in a table format with each sportsfield identified with a specific recommendation to either proceed with play, not proceed or only to proceed if no further rain is experienced.

This information is a guide to assist clubs and associations to make an informed decision.

Compliance:

All users of the sportsfields, including associations, clubs, teams and individual players, are expected to adhere to this closure policy.

Clubs and associations may be held financially responsible for any damage caused to sportsfields due to play or training occurring during or after adverse weather conditions that is undertaken contrary to Council's closure or recommendation.

The cost of damage will be determined based on advice from Council Officers and will incorporate two key components: the initial cost to repair the damage to enable the Sportsfield to return to use, and the long-term cost of repairing the damage at the end of the season, to enable the following scheduled season use to occur.

Council reserves the right to withdraw the use of its Sportsfields to a club or association that causes excessive and/or repeated damage to sportsfields due to training or play occurring during or after adverse weather conditions.

In the event of a suspected breach of the Sportsfield Closure Policy a site meeting will be convened with representatives of the club and Council staff.

Following discussion at the site meeting, if a breach of policy has occurred a letter will be sent to the said club or association detailing the breach of policy, and the costs of works required to repair the damage. The General Manager, Mayor and Ward Councillors will also be notified.

If the club or association wishes to appeal the decision of Council, a written request to Director Operations for a review of the original decision is to be made, within 14 days of first being notified. A review will be undertaken by Manager Infrastructure Services.

Wet weather credits & refunds

Ku-ring-gai Council has a policy that covers wet weather closures. This policy can be found on Council's website. www.krg.nsw.gov.au

Only Public Schools who have made a seasonal booking are eligible for wet weather credits if cancellation in writing is received prior to the commencement of the booking. All other seasonal and permanent hirers are not entitled to a refund for wet weather.

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Sportsfield Maintenance in response to wet weather:

Following wet weather conditions, sportsfields will undergo thorough assessment and maintenance to ensure their safe and timely reopening.

Council gives no guarantee that damaged sportsfields will be repaired by the next game or within the current season of the respective sport.

Maintenance activities may include aerating, reseeding, and leveling the playing surface to mitigate damage caused by wet weather use.

Sportsfield Closure Due to Maintenance

Council will close sportsfields for maintenance, particularly during periods of wet weather, drought or when grounds are deemed unsafe or damaged.

Council maintain the grounds to ensure that they stay in good playing condition. In order to do this, Council may need to close sportsfields from time to time. This could include tasks such as grass care and mowing, linemarking, weed/pest control, soil testing and irrigation works.

Major maintenance occurs each March and September, between sports seasons when grounds are closed for sporting seasonal changeover.

All scheduled maintenance requiring field closure will be communicated to hirers and all efforts will be made to accommodate alternate arrangements or re-scheduling of training or matches.

Responsibilities

Responsibilities

Manager Infrastructure Services is responsible for:

- Overall responsibility of Sportsfields Closure Policy
- Ensuring compliance with policy standards
- Resolution of disputes regarding use of sportsfield.

Coordinator Open Space Services is responsible for:

- Ensuring compliance with this policy and procedures
- Facilitating the implementation of this policy

Sportsfield Bookings Officer

- Updating information to user groups, on website and Closure line

Policy owner

- Director Operations

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Definitions

Term / Abbreviation	Definition
Community sporting group or association	A group that provides benefit to the community on a non-profit basis to be evidenced by the group's constitution, legal status and recent annual report.
Public School	Schools funded and run by the state government
Private School	Schools that are not dependent upon national or local government to finance their financial endowment.
Damage	Impact on the surface of the sportsfield outside of normal wear & tear.
Sportsfield	Grass area marked out for play including turf wickets
Seasonal Changeover	This is the time between winter & summer seasons that Council changes the sportsgrounds from one sport to another to cater for seasonal sport.
Training	Use of fields by teams of players usually undertaken after traditional hours of work or school for the purpose of practice.
Competition or matches	Games traditionally played on weekends under the control of a relevant association.
Adverse weather	Significant rain or drought events that impact on the sportsfield surface

DRAFT

Ku-ring-gai Council

Draft Policy

Sportsfields Booking Policy

Version Number 1

Adopted: press F11 to enter Adoption date

Effective: press F11 to enter Effective date

Sportsfields Booking Policy

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Controlled Document Information

Authorisation Details

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Controlled Document Number:	212	**TRIM Record No:**	(enter TRIM record number)
Controlled Document Type:	Policy		
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Department:	Operations		
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Related Legislation:	Local Government Act 1993 Crown Lands Act 1989 Crown Lands Management Act 2016	
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Related Documents - Procedures, Guidelines, Forms, WHS Modules/PCD's, Risk Assessments, Work Method Statements, etc	Management of Community and Recreation Land and Community Facilities Procedure All current and future adopted Plans of Management	
Other References		

DRAFT

Version History

Version Number	Version Start Date	Version End Date	Author	Details and Comments
1	(date version comes into effect)	(date version ceased to be in effect)	(name of Council officer who authors the policy)	(first version)
2	(date version comes into effect)	(date version ceased to be in effect)	(name of Council officer who authors the policy)	(list the key differences between this version and the last version)

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Policy

Purpose

Council has a range of sportsfields available for use in the Ku-ring-gai Local Government Area. They are currently utilised by a variety of user groups including community sporting groups, schools, casual hirers and the general public.

This policy has been developed to assist sportsfields users and managers in the sustainable use of sportsfields under the control and management of Ku-ring-gai Council in consideration of all users of these sportsfields.

The goal of the policy is to:

"Provide equitable access and safe playing conditions for users whilst sustainably managing available Sporting Fields"

This policy applies to all hirers wishing to use sporting fields in Ku-ring-gai on either a casual, seasonal, or permanent hire basis.

Objectives

- Ensure Council has the capacity to provide safe sportsfields for the community.
- Provide the opportunity for a diverse range of recreation activities for sporting user groups.
- Support the outcomes prescribed in Council's Plan of Management for Sportsgrounds with reference to appropriate use.
- Establish timeframes where sportsfields will not be available due to annual season changeover and renovation periods as well as other scheduled maintenance or capital works. activities are undertaken.
- Provide a hierarchy for booking approvals.

Responsibilities

Manager Infrastructure Services is responsible for:

- Overall responsibility of Sportsfields Booking Policy
- Ensuring compliance with policy standards
- Resolution of disputes over clashes of seasonal allocation or other booking requests

Coordinator Open Space Services is responsible for:

- Ensuring compliance with this policy and procedures

Sportsfields Booking Officer is responsible for:

- Allocating bookings to hirers
- Facilitating the implementation of this policy

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Policy Details

Seasonal Allocation:

Allocation packs are dispatched four times per year as follows**:**

- **Summer Season** – allocated in July for September – March.
- **Winter Season** – allocated January for April – August.
- **Schools** – allocated in October for the next school year – valid for school days and hours only.
- **Permanent** - allocated in October for the next year.

Traditional seasonal sports have priority during the respective seasons. For example, Cricket during the Summer season and Football during the Winter season.

Where a field does not receive any seasonal allocation request for the current seasonal sport then the hierarchy of booking priorities outlined below will be applied and conflicts will be resolved in line with this policy.

Seasonal Allocation packs must be returned to Council by the date specified on the allocation pack for the relevant season.

Bookings will only be confirmed once Council officers have:

- Received the Signed Acceptance of Terms and Conditions of Hire through Council's online booking system.
- Received confirmation of Bond details (if applicable)
- Assessed the hirer has the financial capacity to meet their ongoing obligations to Council.
- The hirer is responsible for ensuring all details and hire arrangements are confirmed prior to commencement of hire.
- Hire applications are valid from the commencement and termination times, as specified in the booking.

Late applications will only be considered after bookings have been allocated to those applications received on time.

Any booking request for additional times made after the confirmation of seasonal allocation will be charged at a casual rate, as per Council's adopted and current fees and charges and will be only confirmed subject to availability.

The nominated person/s on the application will be liable for charges assessed for any use over and above the times and places on the application form. Charges will be made in accordance with Council's current and adopted fees and charges.

In the event of non-payment of account and/or no evidence of a payment arrangement, Council reserves the right to terminate the permanent hire agreement. All outstanding payments will be deducted from the bond and charged in addition, if incurred.

Booking requests will not be processed until all outstanding accounts are up to date.

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Hierarchy of booking approvals

Council will give preference to seasonal hirers in the first instance over casual hirers. The hierarchy for approval of bookings of sporting fields is as follows:

1st priority: Community sporting groups and associations
2nd priority: Public schools
3rd priority: Private Schools
4th priority: General community/commercial and casual hirers.

Where a clash exists for allocation requests between two or more groups that cannot be separated by the booking's hierarchy, Council bookings staff will work with all parties to accommodate each request which may mean an alteration to the requested time, day or location for one or both hirer/s.

If no resolution can be made between parties, Council's Manager Infrastructure Services will make a determination of the booking and priority will be given to the user group that has a greater connection with the Ku-ring-gai Community and community sport, has a connection to the specific facility such as a lease of a clubhouse, is a local community club or association, or is an elite or representative team of a local association.

It should be noted that the hierarchy for bookings does not apply to the St Ives Showground main arena due to major events and licence holders. The St Ives Showground Venues Team will manage seasonal allocation and casual bookings of this space in consultation with the Sportsfields Bookings Officer.

Academy/Elite/Squad training providers

Academy or elite training providers will be charged at a casual hire rate and will not be able to use the community clubs or associations allocation of sportsfields.

The exception to this is where a community club or association is utilising a provider **only** for members of the community club or association during a training allocation. This is subject to approval in writing from Council. For the purposes of this policy, this type of training will not be considered personal training. This will be considered sports training. Council reserves the right to decline approval for this training if it does not comply with these requirements.

Community clubs or associations engaging in 1on1 training, or small group training sessions will not be considered personal training**.**

Preseason, Out of Season Bookings and Seasonal Changeover

Council receives many requests from user groups for pre-season and out of season bookings for training and trial matches. These generally fall in the small window allowed for Council's maintenance teams to complete seasonal changeover between Summer and Winter. For this reason, the majority of fields are closed for this period. These closure periods are necessary to undertake maintenance and renovation works.

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Bookings for sportsfields for preseason training and trial matches may be accepted if:

- Field conditions are acceptable.
- Maintenance activities have been completed or are not programmed during this period.
- The intensity of use will not impact on the recently completed works.
- Players are to not wear studded shoes or boots. Only flat soled sports shoes are allowed unless Council has given approval.

Requests will be considered on a case-by-case basis.

With regards to preseason, training and trial matches, Council will generally allocate sportsfields that will be less impacted during winter season.

The only exception to the above are synthetic fields which are available year-round, unless closed for maintenance.

General Booking Requests

Due to the automated nature of the new booking system, due dates for booking requests must be strictly adhered to as remaining availability may be requested by and allocated to other hirers.
Outside of allocation periods, booking requests should be submitted a minimum three business days prior to booking date.

For booking requests within three business days from the booking date, Council's Sportsfields Bookings Officer should be contacted directly.

Fees and Charges

All bookings will be invoiced according to Council's adopted and current Fees and Charges for the current financial year.

Invoicing and payments

Invoicing will be established within Council's Bookings software and will be required when the booking is confirmed.

Seasonal and permanent hirers will be invoiced quarterly for confirmed bookings as allocated, and payment will be required in line with Council's payment terms. Payments will not be refunded for any cancellations during that quarter.

For Casual hirers, payment is due at the time of the confirmed booking. Cancelations can be made, and funds credited if this is completed within two weeks prior to the booking and can be refunded if made more than 2 weeks prior to the booking.

Hirers will be responsible for the costs associated with hiring a groundsperson on a weekend after the preparation of the facility. Any requests for staff must be made prior to Friday morning to allow the Sportsfield Supervisor to allocate a team member.

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Wet weather credits & refunds

Ku-ring-gai Council has a policy that covers wet weather closures. This policy can be found on Council's website. www.krg.nsw.gov.au

Only Public Schools who have made a seasonal booking are eligible for wet weather credits if cancellation in writing is received prior to the commencement of the booking. All other seasonal and permanent hirers are not entitled to a refund for wet weather.

Terms and conditions

Any hirer will be subject to Council's Bookings Terms and Conditions which can be found on Council's website and must be agreed to at the time of booking.

Sub-letting, unpermitted use and display of advertising material

The allocated use of a sportsfield does not permit the hirer to sublet or permit any third party to use any part of the sportsfield without prior written consent of Council. This is regardless of whether a fee has already been paid to Council by a club or association for the use of the sportsfield.

Users of sportsfields are not entitled to exclusive use or occupation of adjoining facilities such as carparks or change facilities otherwise agreed with Council by lease or licence.

The display of advertising material on sporting fields or surrounding areas is not permitted without prior approval of Council.

DRAFT

Definitions

Term / Abbreviation	Definition
Seasonal hirer	Group or organisation that hires sportsgrounds on a seasonal basis, with two allocations being undertaken per year to cater for summer & winter sporting activities.
Casual hirer	Hirer that books as a one – off on an ad hoc basis.
Permanent hirer	Hirers that pertain to regular use of a specific facility for a specific time period not exceeding 12 months.
Community sporting group or association	A group that provides benefit to the community on a non-profit basis to be evidenced by the group's constitution, legal status and recent annual report.
Public School	Schools funded and run by the state government
Private School	Schools that are not dependent upon national or local government to finance their financial endowment.
Allocation Pack	Documents sent to hirers with relevant information relating to bookings before each season
Summer Season	Sport undertaken between September & March. Traditional sports include Cricket, Athletics & Futsal.
Winter Season	Sport undertaken between April & August. Traditional sports include Soccer, Australian Rules Football, Rugby Union, Rugby League, Baseball & Softball
Seasonal Changeover	This is the time between winter & summer seasons that Council changes the sportsgrounds from one sport to another to cater for seasonal sport.
Academy/Elite/Squad	A specialised training program provided by a commercial business to enhance skills of participants engaging in the training.
Representative Team	A team comprising of the highest calibre of players from an association
Training	Use of fields by teams of players usually undertaken after traditional hours of work or school for the purpose of practice.
Competition	Games traditionally played on weekends under the control of a relevant association.

DRAFT

RFT57-2024 MAIN CARPARK UPGRADE ST IVES SHOWGROUND

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	The purpose of this report is for Council to consider the tenders received for RFT57-2024 Main Carpark Upgrade St Ives Showground and to appoint the preferred tenderer for construction.
BACKGROUND:	The Main Car Park Upgrade project at the St Ives Showground will provide formalised parking facilities which are sympathetic to the locations landscape and environment. A total of 72 carparking spaces including 4 accessible spaces will be provided. The site is currently unformed, and formalisation will contribute to parking availability for events and St Ives Showground as a whole. Council has approved the funding for the Main Carpark Upgrade St Ives Showground. An appointment of a contractor is required to undertake the construction. Tender documents were released through Tenderlink on 17 December 2024 and closed on the 11 February 2025.
COMMENTS:	Council received thirteen (13) tender submissions. The tenders were assessed using agreed criteria which identified the best value for money to Council.
RECOMMENDATION:	In accordance with Section 55 of the Local Government Act and Tender Regulation 2021, it is recommended Council accept the Tender submitted by Tenderer 'A'.

PURPOSE OF REPORT

The purpose of this report is for Council to consider the tenders received for RFT57-2024 Main Carpark Upgrade St Ives Showground and to appoint the preferred tenderer for construction.

BACKGROUND

The Main Car Park Upgrade project at the St Ives Showground will provide parking facilities which are sympathetic to the locations landscape and environment. A total of 72 carparking spaces including 4 accessible spaces will be provided. The site is currently unformed and formalisation will contribute to parking availability for events and St Ives Showground as a whole.

Council has approved the funding for the Main Carpark Upgrade St Ives Showground. An appointment of a contractor is required to undertake the construction.

Tender documents were released through Tenderlink on 17 December 2024 and closed on the 11 February 2025.

Attachment 1 shows the layout of the proposed carpark.

COMMENTS

Thirteen (13) tenders were received and recorded in accordance with Council's tendering policy. A Tender Evaluation Committee was formed to assess the thirteen (13) tenders received.

At the conclusion of the tender evaluation, Tenderer 'A' was identified as providing the best value for money to Council.

Confidential attachments to this report include:

- Proposed carpark layout site plan (Attachment 1),
- List of tenders received (Attachment 2),
- Tender Evaluation Report and recommendation (Attachment 3)

INTEGRATED PLANNING AND REPORTING

Outcome 3: Infrastructure and assets meet community needs

Community Strategic Plan Strategy	Delivery Program Term Achievement	Operational Plan Action
A3: Provide, upgrade and maintain community buildings and facilities to meet the needs of current and future user groups and a growing population.	A3.1: The condition, environmental performance and functionality of existing assets is improved, including multipurpose opportunities, and new assets achieve agreed standards.	A3.1.1: Develop and implement a prioritised program of improvements to community meeting rooms, halls, buildings and facilities.

GOVERNANCE MATTERS

Tender documents were prepared and released through Tenderlink on 17 December 2024 and closed on the 11 February 2025. At the close of tender, thirteen (13) tenders were received. All submissions were recorded in accordance with Council's tendering policy. A Tender Evaluation Committee was formed to assess the thirteen (13) tenders received. The evaluation considered:

- Conformity of submission.
- Lump sum fee.
- Capacity, capability with suitably qualified staff.
- Experience.
- Availability – Start Date, methodology and estimated duration of work.
- Work Health and Safety (WHS) and Risk Management.
- Environmental.
- Performance and Financial Assessment.

Confidential attachments to this report include the list of tenders received and the Tender Evaluation Report and recommendation. The attachments are considered to be confidential in accordance with Section 10A (2)(d)(iii) of The Local Government Act as they are considered to contain commercial in confidence information.

RISK MANAGEMENT

Three (3) key areas of risk were identified in relation to the proposed work:

- That the construction be carried out by a contractor with the ability to provide a full range of services with suitably qualified staff.

- Work Health and Safety (WHS), Risk Management and Environmental.

- That Council should not be exposed to financial risk - as part of the evaluation process, tenderers were assessed on providing all information and costs requested within the tender document. An independent Performance and Financial Assessment was carried out on the preferred tenderer to ensure that they were trading responsibly and had the financial capacity to undertake the work as detailed within the tender documents. The assessment returned a "sound" rating.

FINANCIAL CONSIDERATIONS

Funding for the project available from the 1993 Plan Car Parking Council Levy, 2010 Plan – Local Parks and Sporting Facilities North Levy and from the Infrastructure and Facilities Reserve.

Confirmation has been received from the tenderers that their tendered prices remain valid.

SOCIAL CONSIDERATIONS

On completion, the proposed work will provide a facility which is in line with Council's Community Strategic Plan, Our Ku-ring-gai 2038 and the Plan's long term directions including recreation, sporting and leisure facilities are available to meet the community's diverse and changing needs.

ENVIRONMENTAL CONSIDERATIONS

An Environmental Review of Environmental Factors Assessment (REF) has been undertaken and there were no significant impacts identified.

COMMUNITY CONSULTATION

Council has undertaken consultation with user groups via meetings and correspondence showing concept drawings through to final design drawings.

INTERNAL CONSULTATION

All relevant departments were consulted.

SUMMARY

Tender RFT57-2024 Main Carpark Upgrade St Ives Showground was released through Tenderlink on 17 December 2024 and closed on the 11 February 2025. Thirteen (13) tenders were received. All tenders were recorded in accordance with Council's tendering policy. A Tender Evaluation Committee assessed the submissions.

Following the evaluation and an independent performance and financial assessment, it is recommended that Tenderer 'A' be appointed on the basis of providing the best value for money to Council.

RECOMMENDATION:

That:

A. Council accepts the tender submission from Tenderer 'A' to carry out the RFT57-2024 Main Carpark Upgrade St Ives Showground.

B. The Mayor and General Manager be delegated authority to execute all tender documents on Council's behalf in relation to the contract.

C. The Seal of Council be affixed to all necessary documents.

D. All tenderers be advised of Council's decision in accordance with Clause 178 of the Local Government Tendering Regulation 2021.

Craig Roberts
Acting Head of Projects

William Birt
Acting Manager Project Services

Attachments:	A1⇩	RFT57-2024 Main Car Park Upgrade - St Ives Showground - Site Plan	2025/214065
	A2	RFT57-2024 Main Carpark Upgrade - St Ives Showground - List of Submitters	*Confidential*

A3	RFT57-2024/R Main Carpark Upgrade St Ives Showground - Tender Evaluation Report	*Confidential*



LEGEND

- Lot Boundary
- Extent of Works
- Existing contour major (1m interval) minor (0.1m interval)
- Proposed contour major (1m interval) minor (0.1m interval)
- Retain Existing Headwall
- Pavement type Concrete Footpath Refer CIVIL dwg
- Pavement type Asphalt Refer CIVIL dwg
- Pavement type t[pavement01] FRP Walkway
- Tactile type t[tact01] Tactiles
- Parking space linework
- Accessible parking space linework
- Existing Tree Retained
- Proposed tree Corymbia gummifera 100L
- Proposed tree Angophora costata 100L
- Proposed tree Eucalyptus haemastoma 100L
- Proposed tree Eucalyptus sieberi 100L
- Proposed tree Eucalyptus capitellata 100L
- Retain and protect Existing heritage slab
- Furniture type t[furn05] Relocated timber log
- Furniture type t[furn06] Sandstone log
- Furniture Type t[furn08] Boulders
- t[SS01] Entry wall

- Services High Voltage Refer CIVIL dwgs
- Services Cold Water Line Cold Water Line Remove
- Services Existing Sewer Line Refer CIVIL dwgs
- Services Telstra Line Refer CIVIL dwgs
- Retain Existing Power Pole
- Retain Existing Pole
- Retain and Protect Existing EEC Endangered Ecological Community

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Client
Ku-ring-gai Council

Project Team
McGregor Coxall
Stellen
TreelQ

Project Name
St Ives Carpark

Project No.
0964SYD

Address
450 Mona Vale Road, St Ives
2075 NSW

Issue Log

Rev	Revision Description	By / Checked	Date
F	90% Tender	AT/ST	15/11/2023
G	100% Tender	AT/SB	19/02/2024
H	100% Tender	XS/ST	18/07/2024

Scale
1: 500 @ A1

0 10 20 30 40 50 m

All dimensions are in millimetres unless otherwise noted.
Do not scale from this drawing.

North

Phase
Tender

Sheet Title
Site Plan

Sheet No.
LD-TD-0D

Rev
H

Item GB.9 FY00662/6
26 June 2025

TENDER NSROC - RFT1-2025 - ROAD SURFACING, PATCHING, AND ASSOCIATED WORKS – 2025 TO 2027

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	To seek Council's approval to accept the Northern Sydney Regional Organisation of Councils (NSROC) tender for the schedule of rates for supply; supply and delivery; and supply, delivery and laying of asphaltic concrete, including associated road profiling and heavy patching and other work items for the period 2025/2026 and 2026/2027.
BACKGROUND:	Tenders for the supply and delivery and laying of asphaltic concrete were called by NSROC on behalf of all member Councils. Submissions for these services for 2025/2026 and 2026/2027 closed on 14 February 2025.
COMMENTS:	Tender submissions were received from twenty-seven (27) companies, with twenty-four (24) assessed as conforming. The submissions were evaluated by a Tender Evaluation Panel comprising representatives from participating councils using a weighted evaluation methodology. The process identified suppliers offering the best value and capability across multiple service panels.
RECOMMENDATION:	In accordance with Section 55 of the Local Government Act and Tender Regulations 2021, it is recommended Council accept the recommendation as detailed in the Confidential Attachment 1.

Item GB.9 FY00662/6
26 June 2025

PURPOSE OF REPORT

To seek Council's approval to accept the Northern Sydney Regional Organisation of Councils (NSROC) tender for the schedule of rates for supply; supply and delivery; and supply, delivery and laying of asphaltic concrete, including associated road profiling and heavy patching and other work items for the period 2025/2026 and 2026/2027.

BACKGROUND

Tenders for the supply, supply and delivery, and supply, delivery and laying of asphaltic concrete including associated works such as road reconstruction, re-sheeting, patching, heavy patching, profiling, crack sealing, line marking, and other surfacing services were called by the Northern Sydney Regional Organisation of Councils (NSROC) for the periods 2025/2026 and 2026/2027. The tender closed on 14 February 2025.

The process consisted of an open tender published on Tenderlink and participating council websites and asked for:

a. non-price submissions establishing qualifications and capability of tenderers to deliver asphalt and associated services, and
b. price offers for road reconstruction, patching and specialist asphalt services based on defined work packages.

A total of twenty-seven (27) submissions were received, with twenty-four (24) submissions assessed as conforming. Conforming submissions were assessed by the Tender Evaluation Panel (TEP) which included representatives from participating councils.

The proposed contract term will initially commence on the date of the relevant contract or 1 July 2025 (whichever is earlier) and expire on 30 June 2027. Each council also has the option to extend the contract for up to two (2) additional one-year periods at Council's discretion and subject to satisfactory performance at annual contract reviews.

When allocating projects to contractors under the NSROC asphalt services panel, staff will consider the capacity and capability of the contractors to carry out the specific project/s as well as a cost comparison to ensure value for money, as unit rates may vary for the type of work required. To support this process, NSROC will provide a standardised cost comparison tool.

COMMENTS

The TEP was established by NSROC with representatives from participating Council members to evaluate the tender submissions received.

Each submission was reviewed independently, and any exclusions or significant clarifications to tenders were noted.

A total of twenty-seven (27) submissions were received, with twenty-four (24) assessed as conforming tenders. Three (3) submissions were excluded due to non-conformance or limited-service coverage. The remaining submissions were evaluated against both non-price and price criteria, in accordance with the approved Tender Evaluation Plan.

The TEP conducted pricing analyses using composite work packages across three service categories:

- **Panel A:** Road reconstruction and re-sheeting
- **Panel B:** Patching and heavy patching
- **Panel C:** Specialist services including line marking, crack sealing, spray seal and other surfacing works.

The NSROC Tender Evaluation Report endorsed multiple conforming suppliers for each panel, listed as follows:

Panel A – Road Reconstruction and Re-sheeting

1. NSW Building & Civil Pty Ltd
2. Fulton Hogan Pty Ltd
3. Bitupave Ltd T/A Boral Asphalt
4. Downer EDI Works Pty Ltd
5. Convil Group
6. All Pavement Solutions / Bernipave Road Solutions
7. Stateline Asphalt Pty Ltd
8. NA Group Pty Ltd
9. State Asphalt Services Pty Ltd
10. Resco Civil Pty Ltd
11. ANJ Asphalt

Panel B – Patching and Heavy Patching

1. NSW Building & Civil Pty Ltd
2. Stateline Asphalt Pty Ltd
3. Fulton Hogan Pty Ltd
4. Convil Group
5. All Pavement Solutions / Bernipave Road Solutions
6. State Asphalt Services Pty Ltd
7. ANJ Asphalt
8. NA Group Pty Ltd
9. Roadworx Group Pty Ltd
10. Downer EDI Works Pty Ltd
11. JM Schembri Pty Ltd
12. Planet Civil Pty Ltd
13. Bitupave Ltd T/A Boral Asphalt
14. Optimal Civil
15. Fenworx Pty Ltd
16. Resco Civil Pty Ltd

Panel C – Specialist Services (Line Marking, Crack Sealing and Other Surfacings)

1. Complete Linemarking Services Pty Ltd
2. RPQ Spray Seal Pty Ltd

3. SuperSealing

Confidential **Attachment 1** provides the NSROC Tender Evaluation Committee Report.

INTERGRATED PLANNING AND REPORTING

Outcome 3: Project delivery - design and construct. Deliver projects in accordance with Council's programs for capital works and community engagement

Strategy - Community Strategic Plan	Delivery Program Term Achievement	Operational Plan Actions
A1: Strategically plan, manage and fund public infrastructure and assets to meet the needs of the community, defined levels of service and intergenerational equity.	A1.2: Assets are managed in accordance with asset management plans and agreed service standards.	A1.2.4: Deliver adopted Road and Carparks Capital Works Programs on time and within budget

GOVERNANCE MATTERS

Tenders were called in accordance with Section 55 of the Local Government Act 1993 and the Local Government (General) Regulation 2021.

Attachment 1 is considered to be confidential in accordance with Section 10A(2)(d)(ii) of the Local Government Act 1993, as they contain commercially sensitive information relating to the evaluation and scoring of tenderers, which, if disclosed, could confer a commercial advantage on a competitor.

In accordance with Paragraph 3.18 of the Office of Local Government Tendering Guidelines, NSW Government Memorandum 2007-01 – Public Disclosure of Information Arising from NSW Government Tenders and Contracts, and Part 3 Division 5 of the Government Information (Public Access) Act 2009 (GIPA), once the contract becomes effective, the names of the successful tenderers and other relevant details (excluding pricing) will be published on Council's website in the Contracts Register.

In addition, in accordance with Clause 179 of the Local Government (General) Regulation 2021, all unsuccessful tenderers have already been notified as part of the NSROC procurement process.

RISK MANAGEMENT

Road surfacing, patching and associated works are considered a high-risk operation from a Work Health & Safety (WHS) perspective. Four (4) key areas of risk were identified in relation to the Tender:

- That work needed to be carried out by a suitably qualified company with experience in works prescribed under the Specifications in a Local Government context.
- Capacity and availability.

- Proven ability to undertake works to appropriate safety, quality and environmental standards with necessary systems in place to ensure compliance with Council's requirements.
- That participating Councils should not be exposed to financial risk.

The following evaluation approaches were developed to address the key risk areas:

- An Evaluation Plan was developed prior to the assessment to appraise the relevant Tender Schedules.
- An independent financial and related part risk assessment be done on each tenderer to ensure they were trading responsibly and had the financial capacity to undertake the work as detailed within the tender submission.

FINANCIAL CONSIDERATIONS

The rates submitted by Tenderers under the Asphalt-2027 contract will be utilised to undertake works on Council's adopted road programs.

The contract allows for schedule of rates pricing across a range of asphalt, patching, and specialist surfacing services. These rates will form the basis for estimating, budgeting, and delivering the road resurfacing and rehabilitation programs during the contract period.

Annual price adjustments will apply in accordance with the Producer Price Index (PPI), as outlined in the contract terms. Councils also retain the option to extend the contract by up to two additional one-year periods, subject to satisfactory performance and funding availability.

SOCIAL CONSIDERATIONS

The tender will be utilised to renew roads across Council's area, offering improvements to local infrastructure for the community.

ENVIRONMENTAL CONSIDERATIONS

Environmental measures are included in the contract specification.

COMMUNITY CONSULTATION

Consultation has taken place with other Council members of Northern Sydney Regional Organisation of Councils (NSROC) for the preparation of the tender.

INTERNAL CONSULTATION

Consultation has taken place with staff from the Council's Corporate Department to ensure probity.

SUMMARY

Tenders for the supply, supply and delivery, and supply, delivery and laying of asphaltic concrete—including associated works such as road reconstruction, re-sheeting, patching, profiling, and heavy patching—were called by the Northern Sydney Regional Organisation of Councils (NSROC) for the periods 2025/2026 and 2026/2027.

A total of twenty-seven (27) submissions were received, of which twenty-four (24) were assessed as conforming and evaluated by the Tender Evaluation Panel.

RECOMMENDATION:

A. That Council accept the NSROC Tender Evaluation Panel's recommendations as detailed in the Asphalt-2027 Tender Evaluation Report.

B. That the tender rates submitted by the contractors recommended under Panel A – Road Reconstruction and Re-sheeting be accepted for the period 2025/2026 and 2026/2027.

C. That the tender rates submitted by the contractors recommended under Panel B – Patching and Road Pavement be accepted for the period 2025/2026 and 2026/2027.

D. That the tender rates submitted by the contractors recommended under Panel C – Specialist Services (including line marking, crack sealing and other surfacing works) be accepted for the period 2025/2026 and 2026/2027.

E. That authority be given to the Mayor and General Manager to affix the Common Seal of Council to the contract instrument for the supply; supply and delivery; and supply, delivery and laying of asphaltic concrete, including associated road profiling, patching and other asphalt-related works, for the period 2025/2026 and 2026/2027, with options to extend in accordance with the contract.

Gurpreet Grewal
Infrastructure Assets & Driveways Engineer

Peter Lichaa
Director Operations

Matthew Drago
Acting Manager Assets & Technical Services

Attachments: A1 Asphalt-2027 - Tender evaluation report FINAL *Confidential*

PROJECT STATUS REPORT - JULY 2025

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	To provide Council with the Project Status Report for April – June 2025.
BACKGROUND:	On 22 May 2018, a Notice of Motion was considered by Council regarding the development of a monthly Project Status Report. On 14 May 2019, Council resolved to extend the reporting timeframe from monthly to a quarterly.
COMMENTS:	The Notice of Motion noted that while projects are reported to Council and the community through a number of other reports, the frequency of reporting is a more reliable and recurring method to update Council and the community. The report will be placed on Council's website following Council's resolution.
RECOMMENDATION:	That Council receive and note the Project Status Report for April – June 2025.

PURPOSE OF REPORT

To provide Council with the Project Status Report for April – June 2025.

BACKGROUND

On 22 May 2018, a Notice of Motion (NOM) was considered by Council regarding the development of a monthly Project Status Report. As a result, Council resolved the following;

A. *That a Capital and Operational Projects Report is to be tabled at an ordinary meeting of council each month. The reporting will commence in FY19 with a report for the period of July 2018.*

B. *That the report should include any progress made in the month as well as a progress summary for the financial year to date. Where there has been no progress in the month, it is acceptable to acknowledge that nothing has progressed. And where a project has yet to commence, it is acceptable to note the expected start date.*

C. *That council staff may use their discretion in deciding whether any additional columns of information should be presented.*

D. *That the reported projects should include, but are not limited to, those that are mentioned in Council's Delivery Program and Operational Plan. For brevity, council staff may choose to aggregate some projects or set a reasonable threshold for reporting purposes.*

E. *That the current and historical monthly reports should be easily found on the Ku-ring-gai Council website (i.e. not just through searching council agenda items). One possibility is to create a page for the monthly Capital and Operational Projects Reports under "Current works and upgrades".*

F. *That after the first six months of the report, the Councillors and Directors should discuss whether the frequency of the report should be adjusted.*

On 14 May 2019, Council resolved to extend the reporting timeframe from monthly to a quarterly report:

A. *That Council receive and note the Project Status Report for April 2019.*

B. *That the Project Status Report be placed on Council's website.*

C. *That the reporting timeframe be changed from monthly to quarterly.*

In accordance with Part C of the resolution of 22 May 2019, the attached report is for the period April – June 2025 (Attachment A1).

COMMENTS

Reporting on projects is currently undertaken through:

- Quarterly Financial Reports;
- Bi-annual reports on the progress of the Delivery Program & Operational Plan; and
- Annual Report.

The NOM noted that while projects are reported to Council and the community through these statutory reports, the frequency of quarterly reporting is a more reliable and recurring method to update Council and the community.

The NOM guided the report structure and content for the Project Status Report which Council staff has prepared based on the following criteria:

- Capital projects delivering community/public infrastructure;
- Threshold applied to total budget per project – greater than or equal to $250k;
- No operational projects are included; and
- Any specific project that Councillors wish to be included in the report.

The report will be placed on Council's website following Council's resolution.

INTEGRATED PLANNING AND REPORTING

Leadership & Service Excellence.

Community Strategic Plan Strategy	Delivery Program Term Achievement	Operational Plan Action
L1: Provide strong and ethical civic leadership to ensure good governance and build and maintain trust and confidence within the community.	L1.1: The Community Strategic Plan drives delivery of community priorities through effective strategic planning, prioritisation, advocacy, partnerships and reporting to the community on performance.	L1.1.2: Update reports and supporting systems to deliver clear and comprehensive reporting to councillors and the community on performance and delivery.

GOVERNANCE MATTERS

The Project Status Report will be submitted to Council the first meeting following the end of each quarter.

RISK MANAGEMENT

The Project Status Report is not generated through Council's corporate information and financial systems. As such, it is reliant of key staff to provide input and to critique.

FINANCIAL CONSIDERATIONS

There are no financial implications associated with this report.

SOCIAL CONSIDERATIONS

The project status report will be placed on Council's website following Council's resolution.

ENVIRONMENTAL CONSIDERATIONS

Not applicable.

COMMUNITY CONSULTATION

Not applicable.

INTERNAL CONSULTATION

General Manager and Directors, along with staff from Corporate, Operations and Strategy & Environment have contributed to the structure and content of the Project Status Report.

SUMMARY

On 14 May 2019, Council resolved to extend the project status reporting timeframe from monthly to quarterly.
The Project Status Report has been prepared based on the following criteria:

- Capital projects delivering community/public infrastructure;
- Threshold applied to total budget per project – greater than or equal to $250k;
- No operational projects are included; and
- Any specific project that Councillors wish to be included in the report.

In accordance with Council's resolution the attached report is for the period August - November 2024.

RECOMMENDATION:

A. That Council receive and note the Project Status Report for the period April – June 2025.

B. That the Project Status Report be placed on Council's website.

Peter Lichaa
Director Operations

Attachments: A1⇩ Final Project Status Report - April - June 2025 2025/198639

PROJECT STATUS REPORT: April - June 2025

Dept	Category	Program	Project Description	Suburb	Project Phase	Proposed Project Completion	Project Update Comments
Strategy	Cat 3 (.>$1m)	Capital Building Works	St Ives Indoor Courts	St Ives	M5 - Construction	Dec-25	Delivery by others. Construction of the new sports facility has begun. Inclement weather from December 2023 has delayed work through to July 2024 impacting remediation and construction works. Building is progressing well with 90% concrete and steel works completed. Structural Steel is a 95% completed and roofing is underway with multi-purpose area completed and main rof to be completed by end of June. Internal fit-out is underway where possible Completion extended to December 2025
Strategy	Cat 1 ($250k – 500k)	Planning Policies and Guidelines	Affordable Housing Strategy and Policy	LGA	Planning	Jun-25	Completed the Ku-ring-gai Affordable Housing Policy was adopted by Council at the April 2025 OMC.
Strategy	Cat 3 (.>$1m)	Land Sales	Lindfield Library Site	Lindfield	Design Documentation	Ongoing	A Section 4.55 (1A) application has been lodged in relation to closing out deferred commencement conditions imposed by Sydney Trains on the original DA approval. Sydney Trains have recently issued a letter of approval (dated 20 June 2025). We are currently awaiting the DA team's final assessment/determination of this application in the context of this approval letter.
Strategy	Cat 3 (.>$1m)	Local Centres Roads Improvement Program	New traffic at signals intersection of Pacific Highway and Strickland Ave, modifications to traffic signals at intersection of Pacific Highway and Balfour St/Havilah Road, and new traffic at signals intersection of Pacific Highway and Beaconsfield Pde.	Lindfield	Design Documentation	May-26	For the intersection of Pacific Highway and Strickland Avenue, the 50% detailed design package was re-submitted to TfNSW in mid-April, for its review. Formal comments from TfNSW were received in mid-June and forwarded to the design consultants for review. Utility location investigations are still being arranged. For the Pacific Highway and Balfour Street/Havilah Road intersection, the 50% design documentation was received from the design consultants in late June, and this was immediately packaged up and sent to TfNSW for its formal review. Utility investigation night works are being planned for 7, 8 and 9 July. An RFQ is being developed for traffic signal modelling and detailed design/documentation for new traffic signals at the intersection of Pacific Highway and Beaconsfield Parade.
Strategy	Cat 2 ($501k-$1m)	Water Sensitive Urban Design (WSUD)	Stormwater harvesting and reusing Project	Local Government Area	Concept development and Construction	Jun-25	This includes construction of harvesting components through ongoing sportsfield upgrade projects (please note this includes projects reports separately): The Lindfield Soldiers Memorial wicket oval has water harvesting drainage and irrigation installed but couldn't install the sandslit drainage due to budget and time constraints. No budget or future date has been programmed for this work. Review of the 2019 Bannockburn Oval Stormwater Harvesting preferred design option to be done in 25/26 with the detailed design to be completed at the same time so it's ready for the future irrigation oval upgrade.
Strategy	Cat 2 ($501k-$1m)	Capital Building Works	Ku-ring-gai High School Hockey Facility – car park	North Turramurra	Design Documentation and Construction	Dec-25	DA is completed with design and approvals package forwarded to SINSW for delivery. Construction is anticipated to be undertaken at the end of the year to reduce impact on school activities
Operations	Cat 3 (.>$1m)	Open Space Acquisition Program	Bedes Forest Upgrade	St Ives	M3 - Documentation	Dec-26	Tender package nearing completion and expected to be released in the first quarter this FY. Construction likely to commence late this calendar year or early 2026.
Operations	Cat 3 (.>$1m)	Local Centre Streetscape	Streetscape improvements to Lindfield Avenue and Tryon Road	Lindfield	M3 - Documentation	Jul-27	Tender package is expected to be received in August from the Design consultant, noting significant traffic related works require approval from TfNSW.
Operations	Cat 3 (.>$1m)	Local Centre Streetscape Improvement Program	Streetscape Improvements to Pacific Highway, Fitzsimons Lane and adjoining streets (north of McIntyre Street)	Gordon	M3 - Documentation	Dec-26	Currently reviewing the design package. Aiming to go to tender for construction in September 2025.
Operations	Cat 1 ($250k – 500k)	Play Space Upgrade Program	Eldinhope Green – Local Playground Upgrade	Wahroonga	M6 – Completed		Complete.
Operations	Cat 2 ($501k - $1m)	Open Space/Recreational Assets	Ibbitson Park Upgrade – Stage 1 Park and Playspace Upgrade	Lindfield	M3 - Documentation	Dec-26	Community consultation completed resulting in the finalisation of the Concept plan. For detail design, aiming to release tender for construction in the 3rd quarter of this financial year.
Operations	Cat 2 ($501k-$1m)	District Parks Upgrade Program	Robert Pymble Park - Stage 2 MP implementation works	Pymble	M2 - Concept	Dec-26	Design in progress, aiming to release the tender for construction in the 3rd quarter of this financial year.
Operations	Cat 1 ($250k- 500k)	Neighbourhood Centres Revitalisation Program	East Turramurra - Neighbourhood Centre Upgrade	Turramurra	M3 - Documentation	Jul-26	Concept plan has now been finalised. Currently in detailed design. Aiming to release the tender for construction towards the end of this FY.
Operations	Cat 1 ($250k-500k)	Traffic Facilities	Telegraph Road Safety Upgrade	Pymble	M3 - Documentation	Jul-26	Tender package being finalised. Aiming to release the tender for construction in the first quarter of this FY.

Operations	Cat 2 ($501k - $1m)	Traffic Facilities	Installation of Traffic Calming Infrastructure	Various	M5 – Construction	Jul-25	Works ongoing on the various TFNSW grant funded traffic calming devices are currently being designed and installed – Turramurra Avenue Pedestrian Crossing completed, Culworth Ave Wombat Crossing Street lighting upgrade completed and the civil works have been commenced and expected to be completed by end July 2025.
Operations	Cat 3 (.>$1m)	Footpaths	Construction of New Footpaths	Various	M6 - Completed	Jun-25	The 24/25 Footpath Program has been completed. Scheduling for the delivery of the 25/26 FY program in progress.
Operations	Cat 2 ($501k-$1m)	Sportsfields	New Club House including amenity facilities at Bannockburn	Pymble	M3 - Documentation	Dec-26	Consultation for the proposed works will take place in August. At this stage construction is likely to commence in the fourth quarter of this FY.
Operations	Cat 2 ($501k-$1m)	Building Works & Maintenance	Refurbishment of Pymble Town Hall.	Pymble	M6 - Completed	Feb-25	Complete.
Operations	Cat 2 ($501k-$1m)	Roads Renewal Program	Resurfacing Council Roads	Various	M5 - Construction	Sep-25	The majority of the roads program for the 2024/25 financial year has been delivered. Scheduling for FY26 program is in progress.
Operations	Cat 1 ($250k-500k)	Open Space & Recreational	Sequoia Close - Playspace Upgrade	Wahroonga	M2 - Concept	Dec-25	Project was rephased to be delivered FY 25/26.
Operations	Cat 1 ($250k-500k)	Open Space & Recreational	Lorraine Taylor Reserve - Playspace Upgrade	St Ives	M6 - Completed	Jun-25	Complete
Operations	Cat 2 ($501k-$1m)	Parks Development	St Ives Showground Upgrade Works - Main Carpark Upgrade	St Ives	M4 - Procurement	Jul-26	The tender for construction presented to Council at the July Council meeting.
Operations	Cat 1 ($250k-500k)	Public Toilets	Auluba Oval Amenities Renewal	Turramurra	M5 – Construction	Sep-25	Works in progress.
Operations	Cat 3 (.>$1m)	Sports fields	Norman Griffiths Oval Upgrade	West Pymble	M5 - Construction	TBC	Contract has been terminated in line with Council's Resolution 15 April 2025, the project team is working to prepare a report to Council to progress the project.
Operations	Cat 3 (.>$1m)	Community Partnerships	St Ives Cultural and Environmental Education Centre	St Ives	M3 - Documentation	Jul-27	Revised engagement with Architects and Environmental Consultants being finalised to complete the tender package to 100% inclusive of revised scope of works and the Living Building Challenge components. Current forecast is to release the tender for construction in the third quarter of this FY.
Operations	Cat 1 ($250k-500k)	Open Space & Recreational	Comenarra Oval Playspace Upgrade	Turramurra	M4 - Procurement	Jul-26	Tender is being assessed.
Operations	Cat 3 (>$1m)	Parks Development	Hassall Park – Stage 2 – Implementation of Masterplan	St Ives	M4 - Procurement	Jun-26	The construction tender for Stage 2 Works – Cricket Net upgrade has now closed. The assessment process is currently underway with the outcome to be reported to Council. Works likely to progress on site in the second quarter of this FY.
Operations	Cat 1 ($250k-500k)	Open Space & Recreational	Mimosa Oval Playspace Upgrade	Turramurra	M3 - Documentation	Jun-26	Currently in detailed design for release of tender for construction by Sept 25.
Operations	Cat 3 (.>$1m)	Open Space & Recreational	Caley's Pavilion - Boardwalk Replacement	St Ives	M4 - Procurement	Aug-25	Works nearing completion.
Operations	Cat 3 (.>$1m)	Open Space & Recreational	Wildflower Garden - District Playspace Upgrade	St Ives	M3 - Documentation	Dec-26	Detailed design ongoing. Tender to be released in the first quarter of this FY.
Civic	Cat 3 (.>$1m)	Town Centre & Urban	Lindfield Village Hub	Lindfield	Procurement	TBA	Assess next steps for Lindfield Village Hub once Dept of Planning has updated TOD planning controls, with the objective of securing a development partner.
							CHART KEY
						Project Stage	**Overview**
						M1 - Initiation	Project is passed to Operations to commence. There may be a lag time between M1 and M2 as the project is bought into the current program of works for teams within operations.
						M2 - Concept	Project is assigned to an appropriate office to begin site analysis, planning, undertake internal/external consultation tasks leading to the development of a finalised concept plan
						M3 - Documentation	Following approval of Concept plan which for most projects above $250,000 would include public exhibition the project is moved into the documentation phase. This phase includes additional internal consultation/external notification and the gathering of any applicable approvals required to undertake the works.
						M4 - Procurement	Project is handed to the projects delivery team to undertake the procurement of the works through Council's Minor Works Schedule, an RFQ process or via an open tender.
						M5 - Construction	Following appointment of a contractor works are scheduled for construction. The date supplied is the date the contract was awarded as opposed to the date works began on site. This stage is complete at handover back to the relevant Assets team within Council.
						M6 - Completed	The Project is then capitalised against new or upgraded assets and completed. There are usually still defects liability periods associated with projects still in place.

KU-RING-GAI DCP - LOCAL CHARACTER AREAS

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	For Council to consider the amendment of the *Ku-ring-gai Development Control Plan* to include Local Character Areas and endorse its public exhibition.
BACKGROUND:	At its 15 June 2021 meeting, Council resolved to adopt the *Ku-ring-gai Local Character Background Study.* Following this, Council's *Delivery Program & Operational Plan* included actions to deliver controls in the *Ku-ring-gai Development Control Plan* (DCP). The aim of this was to put in place a mechanism that would manage the impact of development on Ku-ring-gai's character. This report presents the amendment to DCP to include local character considerations.
COMMENTS:	The eight character areas formalised in the *Ku-ring-gai Local Character Background Study* are proposed to be inserted at the beginning of Part 14 of the DCP. Inclusion of DCP controls relating to Ku-ring-gai's local character will provide a due diligent process requiring consideration and assessment of development applications, including their impacts on local character and the settings of buildings. This is particularly pertinent within heritage conservation areas and around heritage items. Improved reference to local character matters will enable better retention of the area's values, including trees and landscaping, which are key across Ku-ring-gai, and which are vital in the reduction of heat island effects and maintaining the integrity of biodiversity and riparian areas. The inclusion of this amendment will mean that the many applications being submitted to Council will have to have regard to local character. Without this insertion, there is no onus on developers to consider any aspect of Ku-ring-gai's local character.
RECOMMENDATION: (Refer to the full Recommendation at the end of this report)	That Council endorse the updates proposed to the Ku-ring-gai DCP Part 14, as detailed in Attachment A2 of this report for public exhibition.

PURPOSE OF REPORT

For Council to consider the amendment of the *Ku-ring-gai Development Control Plan* to include Local Character Areas and endorse its public exhibition.

BACKGROUND

During 2020 Council staff prepared a baseline local character study in response to:

- the long-term objective of the *Ku-ring-gai Community Strategic Plan - Our Ku-ring-gai 2038* seeking preservation of the unique visual character of the Ku-ring-gai LGA, and
- the *Ku-ring-gai Local Strategic Planning Statement* which identifies managing change and growth in a way that conserves and enhances Ku-ring-gai's unique visual and landscape character.

Since local character is defined as the complex interaction between landscape, buildings and culture, the local character investigation used advanced mapping techniques and on-ground analysis to overlay multiple factors and give a representation of the physical character of Ku-ring-gai.

This work was supplemented by information captured from various sources including residents' opinions, documenting aspects of the physical, social and cultural characteristics of the area. The study provided a baseline analysis and was intended to provide the groundwork for further research into local character.

The resulting *Ku-ring-gai Local Character Background Study* was reported to Council on 8 December 2020 and placed on public exhibition from 15 March 2021 to 26 April 2021.

At its 15 June 2021 meeting Council considered submissions to the exhibition and resolved the following:

> *A. Council staff incorporate changes to draft Broad Character Area Statements as suggested in submissions and documented in this report into the final version of the Background Study.*
>
> ***B.*** *Council adopt the Local Character Background Study, as amended in recommendation A, as the basis for future studies and that an indicative timetable for these studies is reported to councillors before the end of August.*

In accordance with this resolution, the *Ku-ring-gai Local Character Background Study* was amended and is now publicly accessible on Council's website. The study can be seen at Attachment A1 to this Council report.

Following Council's resolution, Council's *Delivery Program & Operational Plan* included actions to deliver controls in the *Ku-ring-gai Development Control Plan* (DCP). The aim of this was to put in place a mechanism that would manage the impact of development on Ku-ring-gai's character. The specific tasks relating to this DCP amendment are stated in the below table:

Community Strategic Plan Focus area P1: Preserving Ku-ring-gai's character Long-Term Objective P1.1: Ku-ring-gai's unique visual character and identity is maintained	
Delivery Program Term Achievement - 4 Year	**Operational Plan Tasks – Year 3**
P1.1.1: Strategies, plans and processes are in place to protect and enhance Ku-ring-gai's unique visual and landscape character.	P1.1.1.1: Continue to review the effectiveness of existing strategies, plans and processes across all programs.
Community Strategic Plan Focus area P2: Managing urban change Long-Term Objective Long-Term Objective P2.1: A robust planning framework is in place to deliver quality design outcomes and maintain the identity and character of Ku-ring-gai	
Delivery Program Term Achievement - 4 Year	**Operational Plan Tasks – Year 3**
P2.1.1: Land use strategies, plans and processes are in place to protect existing character and effectively manage the impact of new development.	P2.1.1.3: Investigate the inclusion of Local Character Controls within the Ku-ring-gai Development Control Plan.

This report presents the proposed amendment to the *Ku-ring-gai Development Control Plan* to include local character considerations.

COMMENTS

Proposed DCP amendment

The proposed amendment to the DCP may be viewed at **Attachment A2** to this report.

All amended text is shown in blue ink, existing text remains in black ink.

The *Ku-ring-gai Local Character Background Study* identified eight areas with distinct local character. Since these areas relate to specific parts of the local government area, the location of the character area controls are considered best placed in Part 14 of the DCP, which currently refers to Ku-ring-gai's urban precincts and sites. Figure 1 illustrates the eight character areas.

The information included in the local character section of the DCP is taken from the adopted *Ku-ring-gai Local Character Background Study.* The character areas are presented at the beginning of the DCP Part 14. Each area includes a location map and a local character statement to which the objective and control relate. The existing Urban Precincts and Sites content in Part 14 is not being altered, except for numbering to accommodate the preceding local character section.

This format and placement is considered the simplest way to include the local character considerations into the DCP, being mindful of avoiding lengthy evaluation requirements that hinder the tight assessment timeframes that Council's development assessment team are required to meet.

As stated in the proposed Introduction to Part 14, all development applications (including those in the Urban Precinct and Sites) will now be required to state how they are consistent with the local character of the area that they are located within.

Inclusion of DCP controls relating to Ku-ring-gai's local character will provide a due diligent process requiring consideration and assessment of development applications, and their impacts on local character and the settings of buildings particularly within heritage conservation areas and around heritage items.

Improved reference to local character matters will enable better retention of the area's values for current and future populations. This includes reference to trees and landscaping which are key characteristics across Ku-ring-gai, and which are vital in the reduction of heat island effects and maintaining the integrity of biodiversity and riparian areas that support Ku-ring-gai's critically endangered species.

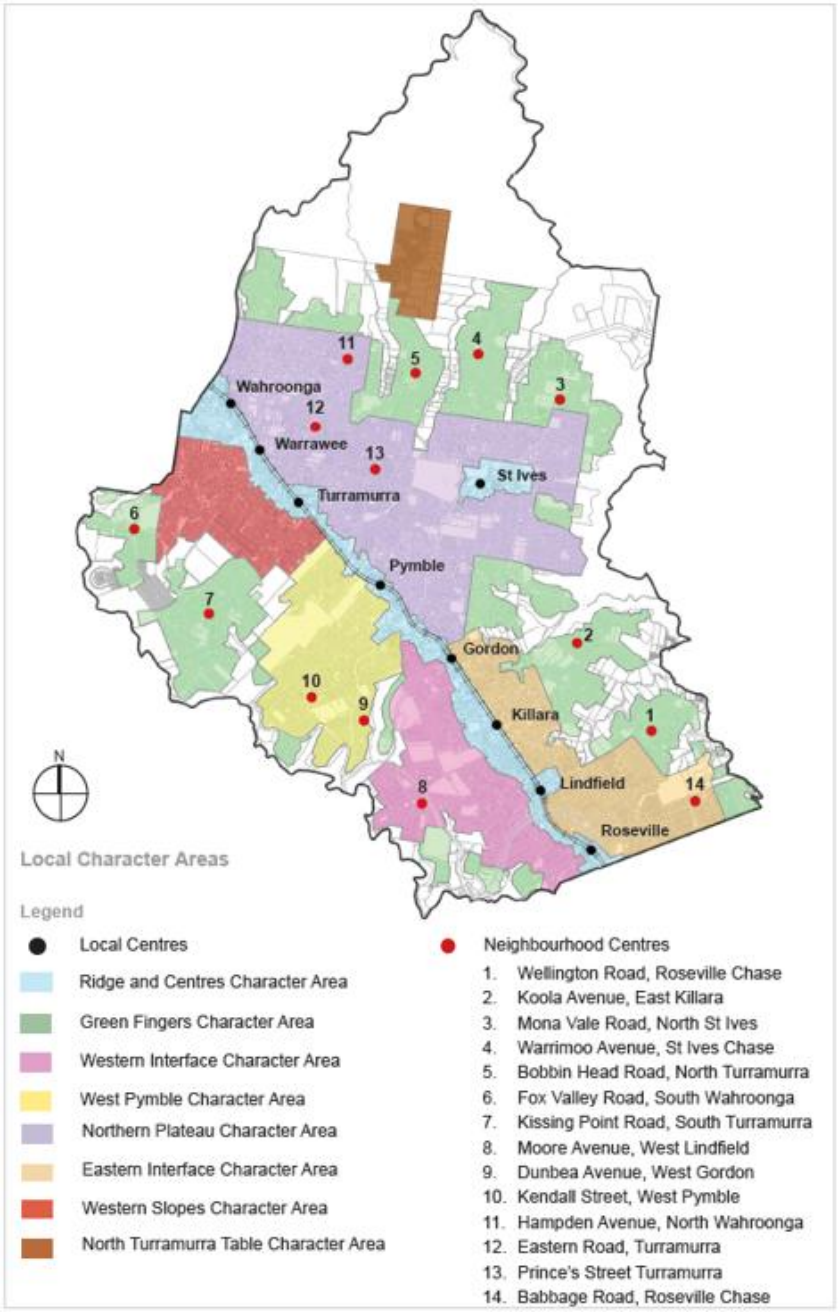


FIGURE 1 – Local Character Areas

Future amendments to integrate the housing reforms

It is acknowledged that the recent housing reforms will result in a change in the character of Ku-ring-gai to that reported in the 2020 *Local Character Background Study*, particularly in those areas of low and mid-rise development and the local centres impacted by Transport Orientated Development.

Council staff are currently working on DCP controls to address the housing reform areas and new housing typologies. As part of those new and amended DCP controls, this Part 14 Local Character section will be accordingly amended.

The inclusion of this amendment will mean that the many applications being submitted to Council will have to have regard to local character. Without this insertion, there is no onus on developers to consider any aspect of Ku-ring-gai's local character.

INTEGRATED PLANNING AND REPORTING

Theme 3 – Places, Spaces and Infrastructure

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
P1.1: Ku-ring-gai's unique visual character and identity is maintained	P1.1.1: Strategies, plans and processes are in place to protect and enhance Ku-ring-gai's unique visual and landscape character	P1.1.1.1: Continue to review the effectiveness of existing strategies, plans and processes across all programs.
P2.1: A robust planning framework is in place to deliver quality design outcomes and maintain the identity and character of Ku-ring-gai	P2.1.1: Land use strategies, plans and processes are in place to protect existing character and effectively manage the impact of new development.	P2.1.1.3: Investigate the inclusion of Local Character Controls within the Ku-ring-gai Development Control Plan.

GOVERNANCE MATTERS

Council adopted the *Ku-ring-gai Local Character Background Study* on 15 June 2021. Council's *Delivery Program & Operational Plan* includes tasks to deliver DCP controls relating to local character which this DCP amendment seeks to fulfill.

RISK IMPLICATION STATEMENT

Ku-ring-gai is undergoing extensive change to the established urban and landscape fabric of the area. Developers are giving increasingly less regard to local character somewhat due to the NSW government's low priority on this issue.

Inclusion of DCP requirements to address local character means architects and developers will have to give documented consideration to the area's characteristics. Development applications will be required to demonstrate how they will integrate into the prevailing local character.

FINANCIAL CONSIDERATIONS

The cost of preparing this report is covered by the Urban and Heritage Planning budget.

SOCIAL CONSIDERATIONS

Inclusion of DCP controls relating to Ku-ring-gai's local character will provide a due diligent process, requiring consideration and assessment of development applications and their impacts on local character and the settings of buildings, particularly within heritage conservation areas and around heritage items. Improved reference to local character matters will enable better retention of the area's values for current and future populations. This includes the reference to trees and landscaping which are key characteristics across Ku-ring-gai, and which are vital in environmental considerations, such as the reduction of heat island effects and maintaining the integrity of biodiversity and riparian areas.

ENVIRONMENTAL CONSIDERATIONS

Detailed mapping of environmental factors was undertaken as part of the *Local Character Background Study*. Each Character Area identifies environmental considerations such as biodiversity and ecology, including critically endangered Blue Gum High Forest and Sydney Turpentine Ironbark Forest. The DCP control relating to the area character statement will assist in the preservation, protection, and enhancement of the existing environmental characteristics.

COMMUNITY CONSULTATION

It is proposed to place the draft DCP amendment on public exhibition for 28 days, during which time the community will be invited to make submissions. The exhibition will be in accordance with Council's *Community Participation Plan.*

INTERNAL CONSULTATION

Internal consultation has been conducted mainly with the urban planning, urban design and development assessment teams. Further consultation will occur during the exhibition period.

SUMMARY

At its 15 June 2021 meeting, Council resolved to adopt the *Ku-ring-gai Local Character Background Study.* Following this, Council's *Delivery Program & Operational Plan* included actions to deliver controls in the *Ku-ring-gai Development Control Plan* (DCP). The aim of this was to put in place a mechanism that would manage the impact of development on Ku-ring-gai's character.

This report presents the amendment to the DCP to include local character considerations.

The eight character areas delineated in the *Ku-ring-gai Local Character Background Study* are proposed to be included at the beginning of Part 14 of the DCP.

Inclusion of DCP controls relating to Ku-ring-gai's local character will provide a due diligent process requiring consideration and assessment of development applications and their impacts on local character and the settings of buildings, particularly within heritage conservation areas and around heritage items.

Improved reference to local character matters will enable better retention of the area's values for current and future populations. This includes the reference to trees and landscaping which are key across Ku-ring-gai, and which are vital in the delivery of positive environmental outcomes, such as the reduction of heat island effects and maintaining the integrity of biodiversity and riparian areas.

The inclusion of this amendment will mean that the many development applications being submitted to Council will have to have regard to local character. Without this insertion, there is no onus on developers to consider any aspect of Ku-ring-gai's local character.

RECOMMENDATION:

A. That Council endorse the updates proposed to the Ku-ring-gai DCP Part 14, as detailed in **Attachment A2** of this report.

B. That the Ku-ring-gai DCP amendments stated in **Attachment A2**be placed on public exhibition in accordance with provisions under the *Environmental Planning and Assessment Regulation 2000.*

C. That delegation be given to the Director, Strategy and Environment to correct any minor amendments or errors and inconsistencies to the draft KDCP prior to public exhibition.

D. That a report be brought back to Council at the conclusion of the exhibition period.

Rathna Rana
Executive Urban Planner

Craige Wyse
Team Leader Urban Planning

Antony Fabbro
Manager Urban & Heritage Planning

Andrew Watson
Director Strategy & Environment

Attachments:			
	A1⇩	Local Character Background Study (adopted June 2021)	2023/271809
	A2⇩	DCP Part 14 Local Character proposed amendments	2025/212853

Ku-ring-gai Local Character Background Study

Broad Local Character Areas
Character Area Statements

Ku·ring·gai Council
SERVIENDO GUBERNO

Version	Date	Issue
2.0	September 2021	Adopted with amendments OMC 15 June 2021
1.0	December 2020	Draft for Community Consultation

Document distribution
Internal / External

Document status
Adopted by Council

Adopted date
OMC 15 June 2021

Document owner
Strategy and Environment

Contact Officer
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Approval by
Director
Strategy and Environment

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View east from Roseville Station

Executive Summary

SJB have been engaged by Ku-ring-gai Council (KC) to undertake research and identify Broad Local Character Areas for the Ku-ring-gai Local Government Area (LGA).

This work is in response to the Ku-ring-gai Local Strategic Planning Statement (KLSPS) Planning Priority K12. The objective of this priority is to manage change and growth in a way that conserves and enhances Ku-ring-gai's unique visual and landscape character . There are four Actions related to this Planning Priority (KLSPS, page 94) as follows:

Action 1 - Define Ku-ring-gai's unique visual and landscape character through community engagement

Action 2 - Undertake a Local Character Study in accordance with the Department of Planning, Industry and Environment's Local Character and Place Guidelines February 2019. The study will include investigation of areas of special landscape, views and vistas, visual quality, topography and the Urban Forest (including bushland, tree canopy, street trees, gardens). It will also consider Green Grid links and biodiversity corridors.

Action 3 - Implement recommendations from the Local Character Study

Action 4 - Prepare Local Character Mapping for LEP Overlay and Local Character Statements for DCP in collaboration with Department of Planning, Industry and Environment

This Background Study is primarily focused on the analysis and identification of Ku-ring-gai's physical characteristics , relating to Action 1, noted above. The study is intended to provide the basis for further research into 'local character' in the future. It is important to note that this study does not include a detailed examination of the social and cultural characteristics of the LGA, which is sought in the Department of Planning Infrastructure and Environment's (DPIE) Local Character and Place Guidelines, 2019.

Preparation of a Local Character Study, as per Action 2, including 'desired future character statements', will be the subject of a future study and further community engagement.



Home in Turramurra

Broad Local Character Area Statements

Broad Local Character Area Statements

1.1 Local Character Areas

Understanding and interpreting the cluster mapping, number of Broad Local Character Areas (LCAs) have been identified. Areas shown together share similarities in their physical and measurable characteristics. A total of eight (8) Broad LCAs are proposed:

1. Green Fingers
2. Ku-ring-gai Ridge and Centres
3. Northern Plateau
4. Western Slopes
5. West Pymble
6. Lower West
7. Lower East
8. North Turramurra Table

The ecological zone (shown hatched) is an area of dense bushland which contributes significantly to the character of Ku-ring-gai, especially to areas directly adjacent.

This zone includes parts of Ku-ring-gai Chase, Garigal and Lane Cove National Parks administered by the NSW National Parks and Wildlife Services. It also features limited built form, significant existing biodiversity protections and land use restrictions outlined in Ku-ring-gai Local Environmental Plan 2015 (KLEP 2015).

Due to existing protections which acknowledge and maintain the existing character of these areas, the ecological zone has not been included as a Ku-ring-gai Broad Local Character Area.

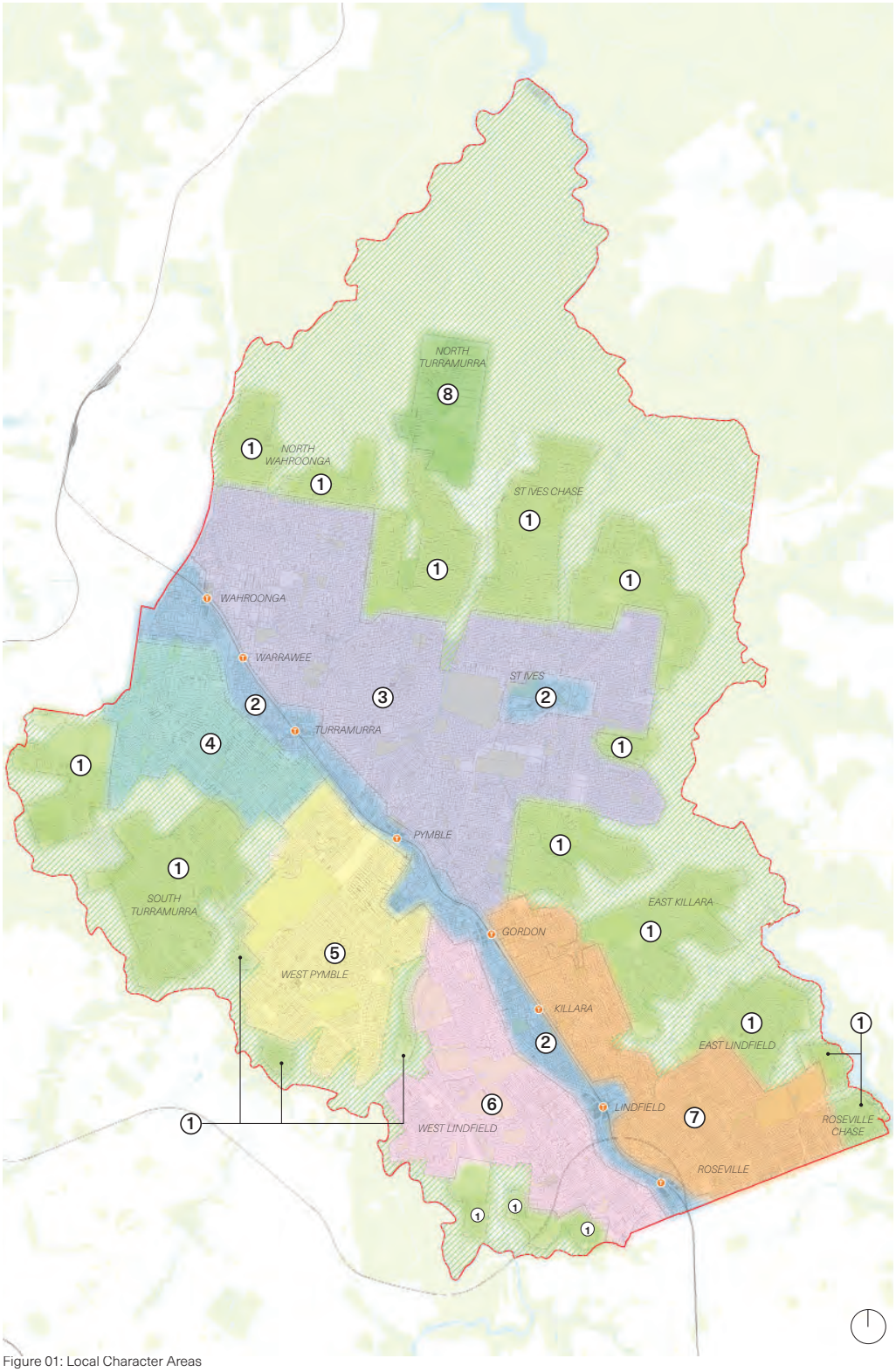


Figure 01: Local Character Areas

Broad Local Character Area Statements

1.2 Green Fingers Character Area

Local Character Statement

The *Green Fingers Character Area* includes a number of suburbs located on the periphery of the LGA, surrounded by the unique and beautiful bushland of Ku-ring-gai. These areas are located along ridgelines that extend out towards Lane Cove, Garigal and Ku-ring-gai Chase National Parks. The dense vegetation, Sydney Turpentine-Ironbark and Blue Gum High Forest hold significant social, environmental and economic value to the community. Refer to Figure 10 - Character Area Location Plan.

The street pattern and built form has a close relationship to the topography and landscape setting of these areas. Flatter areas along ridgelines tend to have more consistent built form and street patterns. These areas have more recently been the focus of redevelopment and the delivery of new homes. Topography falls steeply along the edges of the *Green Fingers* towards densely vegetated gullies. These edges feature more diverse and unique housing styles and street patterns that follow the topography and take advantage of views across valleys.

By virtue of being set within dense bushland, the outlook in these areas is layered with mature trees and vegetation.

The *Green Fingers* are predominantly residential in nature, supported by small neighbourhood centres that provide day-to-day services. Generally co-located with local parks, community facilities or playgrounds, they serve as important community focal points and provide opportunities to meet and gather outside of the centres along the Pacific Highway and Mona Vale Road.

There are some larger institutions located in the *Green Fingers Character Area* including the Sydney Adventist Hospital in Wahroonga, CSIRO Lindfield and the Lindfield Learning Village located on the former UTS Lindfield Site. These institutions take advantage of areas of flatter topography away from the rail/Pacific Highway corridor which is more constrained and under pressure to deliver other uses.

Key Characteristics

- Limited access
- Extends into important bushland
- Habitats for endangered and vulnerable fauna and flora on edges and gullies extending into parks and other vegetation
- Many mature trees
- High bushfire prone zone
- Flatter along ridge-line
- Steeper slopes away from ridge-line
- Streets follow topography
- Diverse built form and styles

Key Features

- Rose Seidler House
- Sydney Grammar Preparatory School
- Killara High School
- Lindfield Rollers Bowling Club
- Echo Point and Marina
- CSIRO Lindfield Site
- Sydney Adventist Hospital

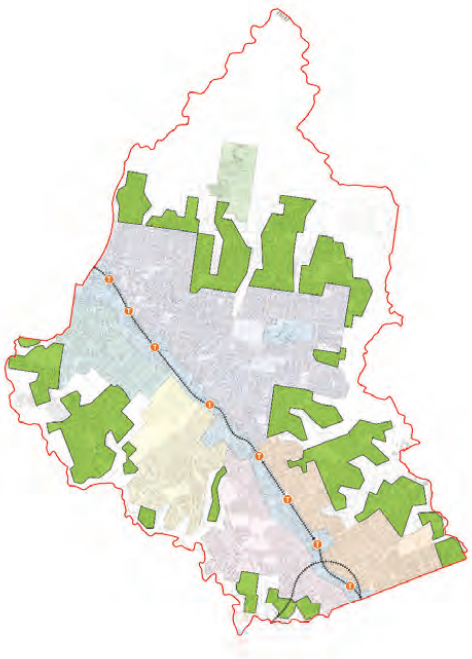


Figure 02: Character Area Location Plan



Figure 03: Tip of West Pymble



Figure 04: St Johns Avenue adjacent Gordon Golf Club



Figure 05: East Killara



Figure 06: East Lindfield



Figure 07: North-East Gordon and South of St Ives along Eastern Arterial Road



Figure 08: A Gully in East St Ives bound by Grevillea Avenue and Melaleuca Drive



Figure 09: North-East of St Ives , north of Woodbury Road and Ayres Road and East of Acron Road



Figure 10: Southern extent of North Turramurra and East Wahroongah



Figure 11: St Ives Chase north of Mudies Road



Figure 12: CSIRO Lindfield and Bradfield Road, UTS Ku-ring-gai and south-western parts of Lindfield and Roseville



Figure 13: West end of Turramurra and South Turramurra and parcels along The Comenarra Parkway west of Avondale Golf Club



Figure 14: Sydney Adventist Hospital and western extent of Wahroongah



Figure 15: North Wahroongah north of Boundary Road



Figure 16: Roseville Chase and areas east of Roseville Gold Club

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Broad Local Character Area Statements

1.3 Kur-ring-gai Ridge and Centres Character Area

Local Character Statement

Formed around the rail/Pacific Highway corridor and St Ives Local Centre, the *Ku-ring-gai Ridge and Centres Character Area* holds the main retail, commercial and residential intensity within the LGA. It is characterised by increased density and diversity of built form and land use. This character area has important social and economic value to Ku-ring-gai.

This Character Area includes the primary movement corridors which run through the LGA. It is an area with which residents interface on a daily basis. The Ku-ring-gai Ridge is dominated by the busy Pacific Highway, which effectively separates the town centres into east and west sides. On either side of the highway and rail corridor are hubs of activity in peak hours, before and after school hours, as well as the weekend.

Accommodating diverse land uses, buildings in this area have larger footprints and greater height than built form across the rest of Ku-ring-gai. This character area features the majority of medium and high-density housing within the LGA, leveraging amenity provided by proximity to arterial roads, public transport, shops and schools.

The Ku-ring-gai Ridgeline is flatter than surrounding areas. The town centres retain a significant mature tree canopy however much less than compared to the rest of Ku-ring-gai. Streets tend to be more varied and accommodate more street planting as they radiate from the rail and Pacific Highway corridor.

Key Characteristics

- Higher density and population
- Larger buildings
- Commercial and medium/high density residential
- Less tree canopy cover
- Follows major ridge-line
- Dominated by the Pacific Highway and Rail Line
- Retains a high level of heritage buildings reflecting development from the advent of the rail in the late 1800's and Inter war period

Key Features

- Turramurra, Gordon, St Ives and Lindfield Local Centres
- Pacific Highway and North Shore rail line
- Ravenswood School for Girls
- Pymble Business Park
- Ku-ring-gai Town Hall and Council Chambers
- Knox Senior School Academy
- Masada College
- Abbotsleigh
- Numerous primary schools

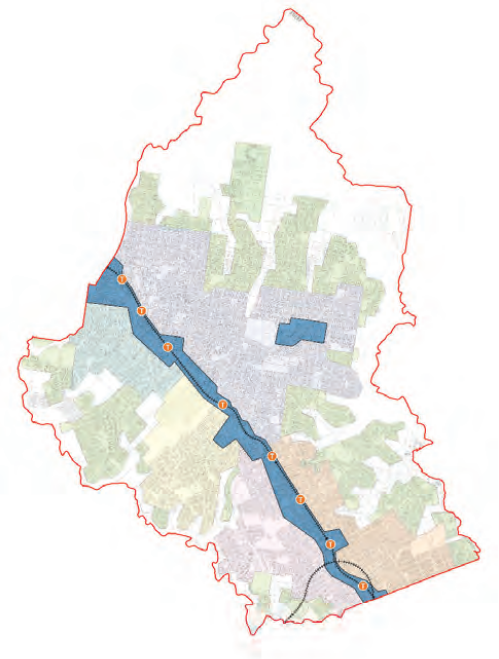


Figure 17: Character Area Location Plan



Figure 18: Wahroongah to Turramurra Centres along Pacific Highway



Figure 19: Pymble and Gordon Centres along Pacific Highway



Figure 20: Killara to Roseville Centres along Pacific Highway



Figure 21: St Ives centre

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Broad Local Character Area Statements

1.4 Northern Plateau Character Area

Local Character Statement

The *Northern Plateau Character Area* is located to the north of the rail and Pacific Highway corridor and includes areas of Wahroonga, Warrawee, Turramurra, Pymble and St Ives. This character area is characterised by single detached houses set within consistent street layouts and regular subdivision patterns. This underlying structure was established as part of the subdivision of former agricultural lands, that took advantage of the area's flat topography.

While still highly vegetated in comparison to other areas of Sydney, it has limited tree canopy coverage compared to other areas of Ku-ring-gai. This is is a result of historical tree clearing for agriculture. A mix of trees and vegetation line long and straight streets framing distant views.

The *Northern Suburbs Character Area* features a number of sportsfields which are important places for community gathering. These include Turramurra Memorial Park, Karuah Park, Kent Oval and Bannockburn Oval. Highly utilised on weekends for community and youth sport, these places are not only valued by residents of Ku-ring-gai but are attractors for visitors from outside the LGA. They are complemented by large stands of mature trees which reinforce the prominence and value of landscape within Ku-ring-gai.

Well connected to the Local Centres of Gordon, St Ives and Turramurra for retail and commercial services, the *Northern Plateau Character Area* remains predominantly residential. There are however, neighbourhood centres located along primary roads providing smaller scale day-to-day services within closer proximity of homes.

Key Characteristics

- Flatter land
- Mostly low density residential
- Consistent street layout and subdivision
- Less tree canopy cover compared to other residential areas
- Bounded by the Pacific Highway to the east and Mona Vale Road to the south
- High level of architecturally significant 20th Century dwellings, subject of a Modern Heritage study
- Areas of high conservation status containing some of the last remnants of critically endangered ecological communities of Blue Gum High Forest and Sydney Turpentine Ironbark Forest.

Key Features

- Wahroonga Public School
- Knox Grammar Preparatory School
- Brigidine College St Ives
- St Ives Public and High School
- Dalrymple-Hay Nature Reserve
- Pymble Golf Club
- Turramurra Memorial Park

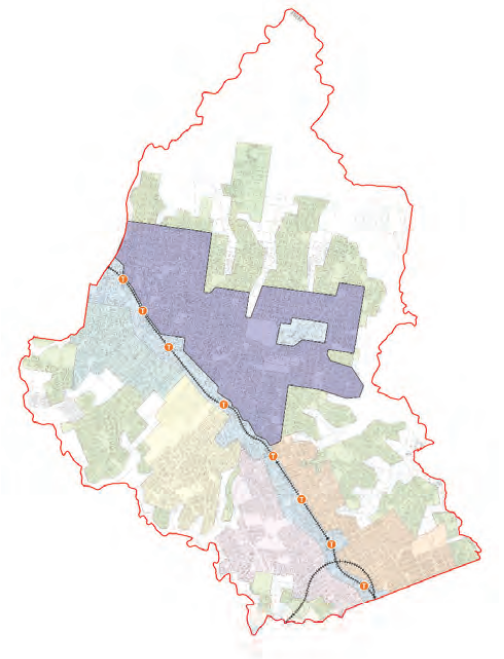


Figure 22: Character Area Location Plan



Figure 23: North east of Wahroongah, Warrawee and Turramurra



Figure 24: North east part of Pymble and Northern part of Gordon



Figure 25: St Ives (excluding St Ives Centre)

Broad Local Character Area Statements

1.5 Western Slopes Character Area

Local Character Statement

The *Western Slopes Character Area* includes areas of Wahroonga, Warrawee and Turramurra to the south of the rail/Pacific Highway corridor. This area has a close relationship to bushland and is characterised by very high tree canopy coverage. Trees and vegetation in this character area are visually prominent, establishing built form as a secondary recessive feature of the area. Flatter areas in the north fall away to incredibly steep topography to the south-west, a feature that lends this character area its name.

The significance and environmental value of the native flora and fauna of this character area is acknowledged under the Ku-ring-gai Local Environmental Plan 2015 (KLEP 2015) which marks a significant portion of the character area for biodiversity protection. The topography and dense vegetation also creates a cool microclimate.

While areas in the north of the character area have a more consistent street layout and less varied topography, the complexity of the environment in the south has led to more variation in the street layout and built form. The very steep topography had led to more unique and diverse built form and a street layout that conforms to the topography.

Key Characteristics

- Very high tree canopy cover
- South to south-west aspect creates cool moist micro climate that supports very tall trees vegetation and fauna habitat
- High levels of biodiversity
- Steep slopes and varied topography
- Diverse built form
- Area contains architecturally significant 20th Century dwellings

Key Features

- Browns Field
- The Glade Reserve
- Twin Creeks Reserve and Track
- School of Practical Philosophy, Wahroonga

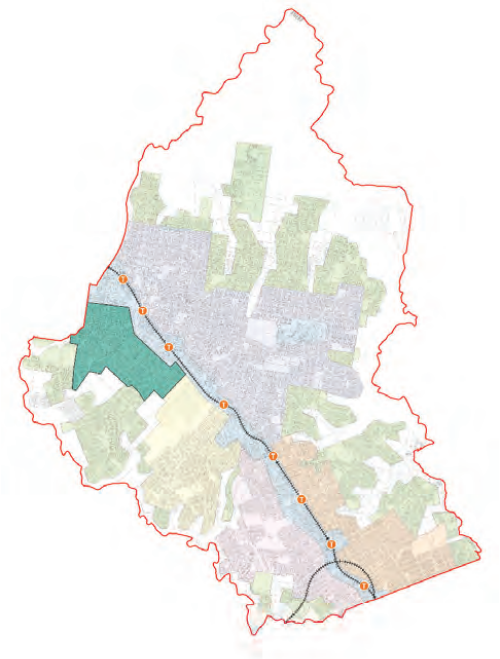


Figure 26: Character Area Location Plan



Figure 27: Middle extent of Wahroongah, Turramurra and Pymble

Broad Local Character Area Statements

1.6 West Pymble Character Area

Local Character Statement

The *West Pymble Character Area* includes areas of Pymble, West Pymble and Gordon West, south of the rail corridor. While Ryde Road separates Gordon West from the rest of the character area, similarities in setting and built form unify it with areas to the north-west.
The character area includes Avondale Golf Club, Pymble Ladies College and Lofberg Oval.

With a direct interface with Lane Cove National Park, the character area has a strong connection with the surrounding bushland and creeks which contribute to its leafy setting. Additionally, Avondale Golf Club, Pymble Ladies College, Lofberg Oval also contribute significant stands of mature trees to the area.

Critically endangered communities of Sydney Ironbark-Turpentine Forest and Blue Gum High Forest are prevalent across the *West Pymble Character Area*, located both along streets and at the rear of lots. Its significance and environmental value is acknowledged under the Ku-ring-gai Local Environmental Plan 2015 (KLEP 2015) which marks portions of this character area for biodiversity protection.

It is a predominantly residential area characterised by single detached houses in a garden setting. This character area has a mix of different streets, laid out along ridge lines in the north where topography is steepest and as a patchwork of small grids in the south where there is less variation in topography. This part of the character area was developed and subdivided in a piecemeal fashion from the early 1900s through to the 1960s.

Key Characteristics

- Varied street layout and subdivision
- Flat land on ridges
- Development has not formed around gullies
- Consistent built form
- Exceptional bushland context and critically endangered ecological communities and fauna habitat
- Significant environmentally sensitive area

Key Features

- Ku-ring-gai Fitness and Aquatic Centre
- West Pymble Public School
- Gordon West Public School
- Avondale Golf Club
- Pymble Ladies College
- Sheldon Forest is a 5.5 ha reserve which has high conservation status and contains some of the last remnants of the critically endangered Blue Gum High Forest and Sydney Turpentine Ironbark Forest in the Sydney Basin.

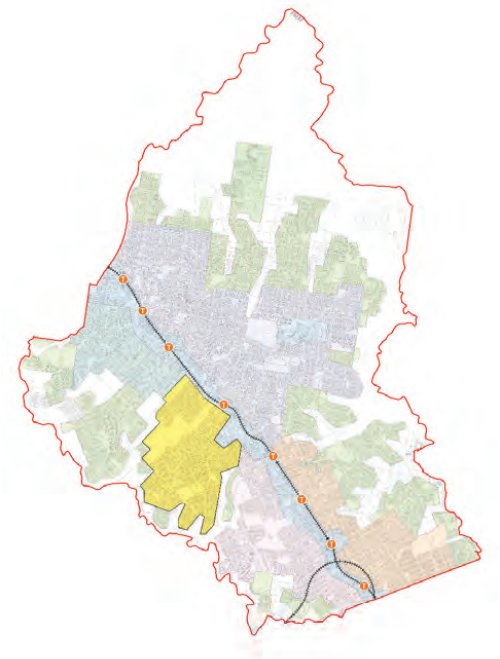


Figure 28: Character Area Location Plan



Figure 29: Western extent of Pymble and West Pymble

Broad Local Character Area Statements

1.7 Lower West Character Area

Local Character Statement

The *Lower West Character Area* includes areas of Gordon, Killara, Lindfield and Roseville to the west of the rail/Pacific Highway corridor. This area is characterised by large single detached dwellings set out on streets laid predominantly perpendicular from the Pacific Highway. The street layout is distorted around heavily vegetated gullies and golf courses which form barriers to movement in the northern portion of the character area.

The character area interfaces with high density residential, retail and commercial development along the Pacific Highway and has a direct connection with Lane Cove National Park to the west.

Items of heritage significance and areas of heritage conservation are highlighted within Ku-ring-gai Local Environmental Plan 2015 (KLEP 2015). Development within these areas are generally intact examples of Federation and Inter-war housing and subdivision delivered from the mid-1800s to early 1900s. It includes grand homes set within large lots with manicured private gardens.

Key Characteristics

- Streets run perpendicular to Pacific Highway
- Low density residential area with large houses
- Close to and includes multiple golf courses
- Edges to high density and low density residential, and bushland
- Dense tree canopy and significant bushland that supports biodiversity and habitat
- Areas of heritage significance
- Highly undulating topography that falls away quickly from the Pacific Highway ridgeline to Lane Cove River

Key Features

- Killara and Gordon Golf Clubs
- Killara Public School
- West Lindfield Sport and Recreation Area
- West Lindfield Shops on Moore Avenue

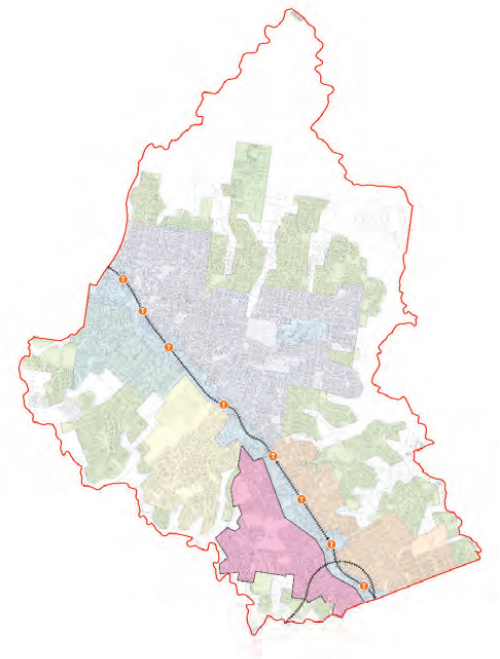


Figure 30: Character Area Location Plan

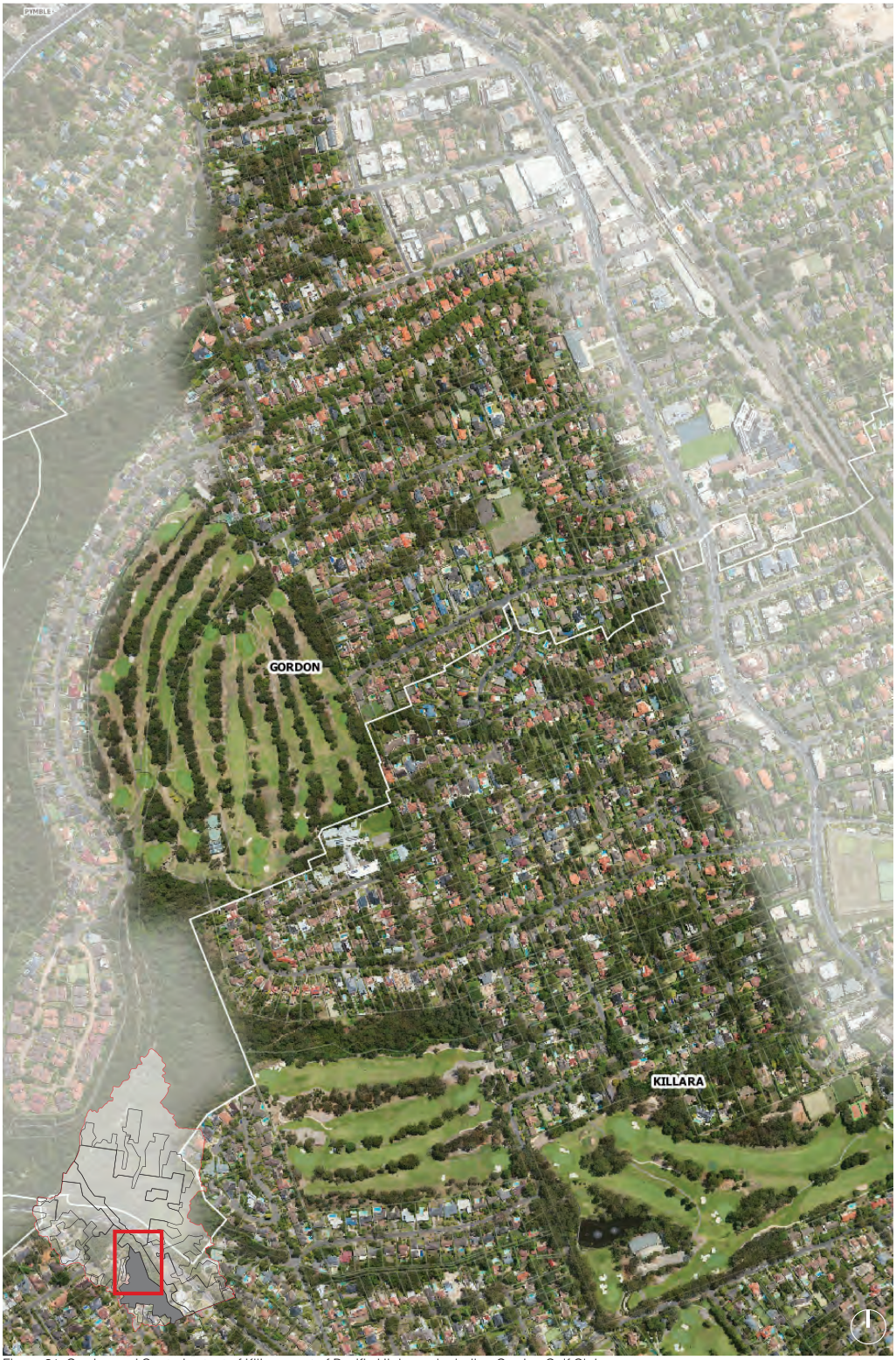


Figure 31: Gordon and Central extent of Killara west of Pacific Highway including Gordon Golf Club



Figure 32: Killara and Lindfield west of Pacific Highway including Killara Golf Club



Figure 33: Lindfield and Roseville west of Pacific Highway

Broad Local Character Area Statements

1.8 Lower East

Local Character Statement

The *Lower East* includes areas of Roseville, Lindfield, Killara and Gordon, east of the rail/Pacific Highway corridor.

This area is largely acknowledged as having heritage significance as large portions are designated as heritage conservation areas (HCAs) under Ku-ring-gai Local Environmental Plan 2015 (KLEP 2015). Its significance generally relates to Federation and Inter-war housing and subdivision delivered from the mid-1800s to early 1900s. Detached houses on large lots within a garden setting feature heavily in the north of the *Lower East*. Complemented by mature well-planted streets, these areas are synonymous with the idea of the idyllic and leafy North Shore.

While as the northern extent of the *Lower East* is almost entirely covered in heritage conservation areas, the southern portion has less coverage and features more diversity in built form quality, style and age of stock. While heritage conservation areas in the south of the *Lower East* also possess consistent street planting similar to the north, interstitial areas feature reduced and variable street planting.

Key Characteristics

- Streets run perpendicular to the Pacific Highway
- High amount of heritage items and HCAs
- Consistent street layout reflecting the urban development of the early 1900's;
- Large residential lots with considerable private open space
- Many houses with pools and tennis courts
- Archbold and Eastern Arterial Roads bisect this area as a major traffic artery
- Dense tree canopy
- Undulating topography that drops away quickly from the Pacific Highway to Middle Harbour
- • Excellent areas of flora and fauna habitat

Key Features

- Eryldene Historic House and Garden
- Roseville College
- Roseville Park and Oval
- Roseville Golf Club
- KOPWA and Lourdes Retirement Homes
- Numerous nursing homes and seniors housing
- Newington Preparatory School Lindfield
- Ravenswood School
- Swain Gardens.

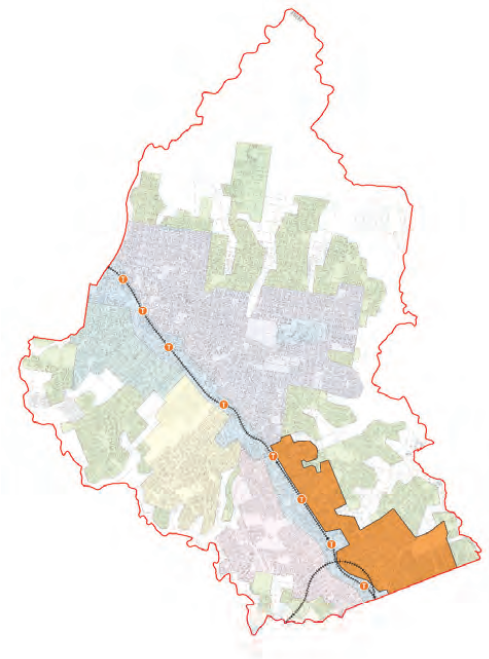


Figure 34: Character Area Location Plan



Figure 35: Eastern extent of Gordon, Killara and Lindfield, east of Pacific Highway



Figure 36: Eastern extent of Lindfield, Roseville and western parts of East Lindfield and Roseville Chase

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Broad Local Character Area Statements

1.9 North Turramurra Table

Local Character Statement

The *North Turramurra Table* is located in the north of the LGA on the edge of Ku-ring-gai Chase National Park. While it shares some similarities to the *Green Fingers* character area, such as its location and close relationship to bushland, it is exceptionally unique in the diversity of its built form, variation in street layout and subdivision pattern. The area is still however, predominantly residential in use.

The area has a mix of large lot residential developments with densely packed dwellings, large properties with limited development, parks, a high school and a high voltage power line corridor which runs from the north-west to south-east.

Despite being surrounded by bushland, unlike the G*reen Fingers* the topography here is flat and was historically used as agricultural land. This has created a stark and straight demarcation between National Park and development.

Key Characteristics

- Isolated with limited access
- Large amounts of open space with limited tree canopy
- Consistent built form on large lot developments
- Surrounded by bushland
- Flat land
- Very varied and inconsistent street layout
- Less tree canopy coverage in residential areas

Key Features

- North Turramurra Golf Course and Recreation Area
- Lady Davidson Private Hospital
- Ku-ring-gai High School
- Numerous nursing homes and seniors housing

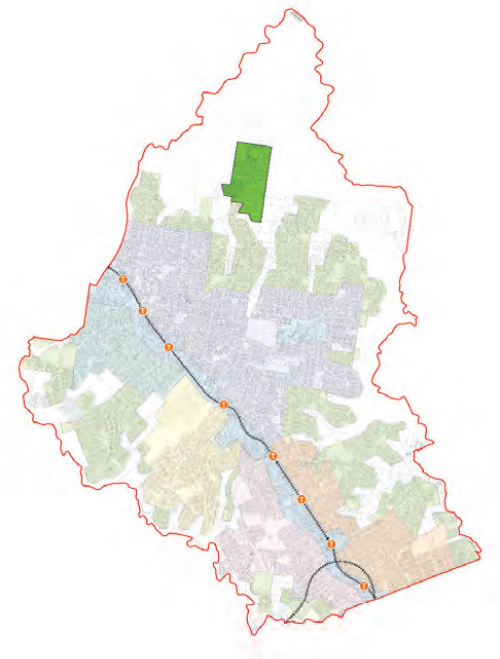


Figure 37: Character Area Location Plan



Figure 38: Northern extent of North Turramurra including North Turramurra Golf Course and recreation area



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W: www.krg.nsw.gov.au

ATTACHMENT A2

Draft DCP Amendment
Past 14 - Local Character, Urban Precincts & Sites

- **Amended/new text is shown in blue ink**
- **Existing text remains in black ink.**

PART 14

LOCAL CHARACTER AREAS
URBAN PRECINCTS & SITES

Introduction

14A Local Character Areas

- 14A.1 Ridge and Centres Character Area
- 14A.2 Green Fingers Character Area
- 14A.3 Western Interface Character Area
- 14A.4 West Pymble Character Area
- 14A.5 Northern Plateau Character Area
- 14A.6 Eastern Interface Character Area
- 14A.7 Western Slopes Character Area
- 14A.8 North Turramurra Table Character Area

14B St Ives Local Centre Precinct

14C Turramurra Local Centre Precinct

14D Pymble Local Centre Precinct

14E Gordon Local Centre Precinct

14F Lindfield Local Centre Precinct

14G Roseville Local Centre Precinct

14H Pymble Business Park Precinct

14I 64-66 Pacific Highway, Roseville Precinct

14J Screen Australia Precinct

14K Killara Golf Club Precinct

14L 8, 14 & 16 Buckingham Road, Killara Precinct

14M Holford Crescent, Gordon Precinct

14N 45-47 Tennyson Avenue & 105 Eastern Road, Turramurra Precinct

14O 47 Warrane Road, Roseville Chase Precinct

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CHARACTER AREAS, URBAN PRECINTS & SITES

LOCAL CHARACTER URBAN PRECINCT AND SITES

INTRODUCTION

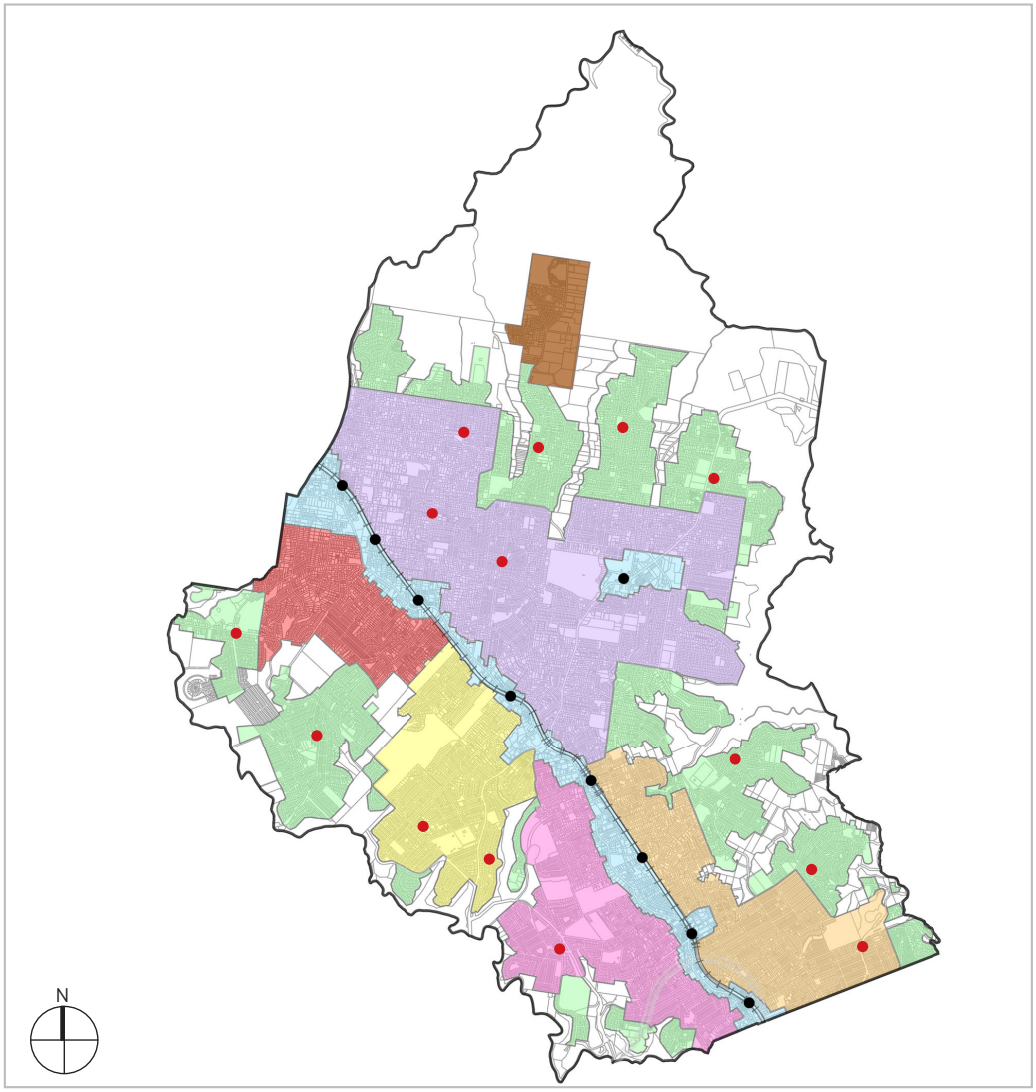


Figure 14
Local Character Areas

Legend

- Ridge and Centres Character Area
- Green Fingers Character Area
- Western Interface Character Area
- West Pymble Character Area
- Local Centres
- Northern Plateau Character Area
- Eastern Interface Character Area
- Western Slopes Character Area
- North Turramurra Table Character Area
- Railway Line
- Neighbourhood Centres

INTRODUCTION (continued)

Part 14 provides guidance for development within the Ku-ring-gai Local Character Areas and land identified as an Urban Precinct or Site.

Part 14 seeks to meet the aims and objectives of the Ku-ring-gai Local Environmental Plan 2015. It relates to the provisions in the Ku-ring-gai Contributions Plan 2010, the Ku-ring-gai Public Domain Plan 2010, and the Ku-ring-gai Local Character Background Study 2021.

Local Character Areas

The following eight Local Character Areas (See Figure 14) have been identified within Ku-ring-gai:

- Ridge and Centres Character Area
- Green Fingers Character Area
- Western Interface Character Area
- West Pymble Character Area
- Northern Plateau Character Area
- Eastern Interface Character Area
- Western Slopes Character Area
- North Turramurra Table Character Area

All development proposals are to meet the relevant Local Character Areas objectives and controls to ensure alignment and consistency across Local Character Areas.

Urban Precincts and Sites

The below site-specific performance-based provisions are provided to guide development within each urban precinct or site. These provisions are in addition to the development controls in Section A, B and C of this DCP.

Note: Refer to Ku-ring-gai Contributions Plan 2010.

Note: Refer to Ku-ring-gai Public Domain Plan.

i) Urban Precincts

A set of performance-based provisions is provided comprising:

- development objectives;
- a Planned Future Character statement describing the desired form and function of the precinct;
- controls to support the objectives.

A development proposal within an identified Precinct or site is to respond to the relevant objectives and controls, and demonstrate how the provisions are addressed.

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INTRODUCTION (continued)

ii) Public Domain and Pedestrian Access

This section identifies works that will either extend the publicly accessible areas or improve the amenity of public areas within a precinct. While it is expected that, in most cases, these lands will remain in private ownership and control, a high degree of public access will be required.

This work will be funded privately as part of the costs of redevelopment of a site. The type of work may include, among others, awnings or colonnades; new pedestrian access ways; building entrance forecourts; or, new lane ways. The Ku-ring-gai Public Domain Plan 2010 (KPDP) provides guidelines and concept plans to guide the implementation of this work to ensure it is fully integrated within the broader public domain in terms of finishes and materials as well as accessibility.

Council may seek the dedication of these lands, at no cost, depending on the circumstances. Such works will generally not be offset against development contributions unless specifically valued by the Contributions Plan.

iii) Community Infrastructure

An important aspect of the DCP is the identification of new key community infrastructure to be provided within precincts or sites. The intention is to identify these elements upfront to assist with the site planning process of a Development Application. Community infrastructure is defined as those works listed in the Ku-ring-gai Contributions Plan 2010 (KCP 2010) Works Programs.

Within each *precinct or site* there is a range of new community infrastructure works proposed. These include works such as footpath embellishment, road works and traffic management works, creation of new urban spaces, construction of new community buildings and the like.

This Part of the DCP provides information to assist applicants determine how each of the proposed community works are to be funded and how they may affect site planning. There are a number of identified funding sources for the proposed infrastructure. These are colour coded with symbols as follows:

a. **Land Acquisition for public purposes** – this Part makes reference to areas of land for new roads or new parks. These lands are to be acquired by Council with funds from the KCP 2010.

b. **Provision of community facilities** – this Part identifies new community facilities including library buildings and multi-purpose community buildings. The construction and fit out of these facilities are partially funded by the KCP 2010. The facilities themselves may be constructed by Council

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where they are freestanding on Council land, or alternatively constructed as part of a private development and funded as in-kind development contributions, or provided through a Voluntary Planning Agreement (VPA).

c. **Embellishment works on public land** – this Part identifies public domain areas, footpaths and parks that will be upgraded and embellished by Council. These lands include those areas that are currently owned by Council; lands that are to be acquired by Council in the future; or lands that are to be dedicated to Council. The construction works are proposed to be funded by the KCP 2010 and all materials and finishes are undertaken in accordance with the guidelines within the Ku-ring-gai Public Domain Plan 2010 (KPDP 2010).

iv) Building Setbacks

Parts 4 to 11 of this DCP contain detailed provisions that apply to the main building types that are likely to be developed. These provisions include standard setbacks for building types such as mixed-use buildings, residential flat buildings, and non-residential buildings.

Within each precinct, variations to the standard building type setbacks are proposed for a range of reasons including, but not limited to the following:

- to provide opportunities for street tree plantings or footpath widening in appropriate locations;
- to allow widening of lanes and streets in identified locations;
- to provide for an increase in the area of the public domain;
- to enable a consistency of built character.

The Building Setbacks Plan identifies where there is a requirement for land within a setback area to be dedicated to Council at no cost in accordance with the KCP 2010. Where necessary this Part makes allowance for the relaxation of development controls such as in deep soil requirements across the development site. The intent is to ensure there is no loss of development potential on the sites where dedication is required. Typically, a setback may be required to allow for footpath widening, roadway widening or a new pedestrian access way through the site. It is noted that where the works to the land to be dedicated are costed in the KCP 2010, the works may be provided as works-in-kind (ie. as an offset to development contributions).

The Building Setbacks Plan makes reference to areas of land for new roads or new parks. In most cases specific setback requirements are applicable to these lands.

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INTRODUCTION (continued)

v) Built Form

This section provides objectives and controls relating to site specific built form requirements within a precinct or site.

The development controls in this section must be read in conjunction with the relevant development controls relating to building design contained in Parts 4 to 11 of this DCP. Where there is an inconsistency between this Part and another control in the DCP then this Part will prevail to the extent of the inconsistency.

vi) Building Entries, Car Parking and Service Access

This section provides site specific requirements for the design of buildings in relation to building foyers and lobbies, vehicle access, and circulation to and from a site.

These controls are particularly applicable to areas of high pedestrian activity where the objective is to minimise pedestrian and vehicle conflicts in streets, and to activate the main commercial streets.

The development controls in this Part must be read in conjunction with the relevant development controls relating to vehicle access and parking contained in Parts 7, 8 and 9 of this DCP. Where there is an inconsistency between a control in this Part and another control in the DCP then this Part will prevail to the extent of the inconsistency.

vii) Other Design Controls

This section includes:

- controls where there are site-specific issues relating to Heritage Items or Heritage Conservation Areas;
- controls where there are site-specific issues relating to an Area of Biodiversity Significance;
- controls where there are site-specific issues relating to Bush Fire Prone Land.

The development controls in this section must be read in conjunction with the relevant general development controls contained in Parts 14-20 of this Section. Where there is an inconsistency between this Part and another control in volumes A or C of this DCP then this Part will prevail to the extent of the inconsistency.

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A

LOCAL CHARACTER AREAS

14A Local Character Areas

14A.1 Ridge and Centres Character Area

14A.2 Green Fingers Character Area

14A.3 Western Interface Character Area

14A.4 West Pymble Character Area

14A.5 Northern Plateau Character Area

14A.6 Eastern Interface Character Area

14A.7 Western Slopes Character Area

14A.8 North Turramurra Table Character Area

REFER TO

KU-RING-GAI LOCAL CHARACTER STUDY

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.1 RIDGE AND CENTRES CHARACTER

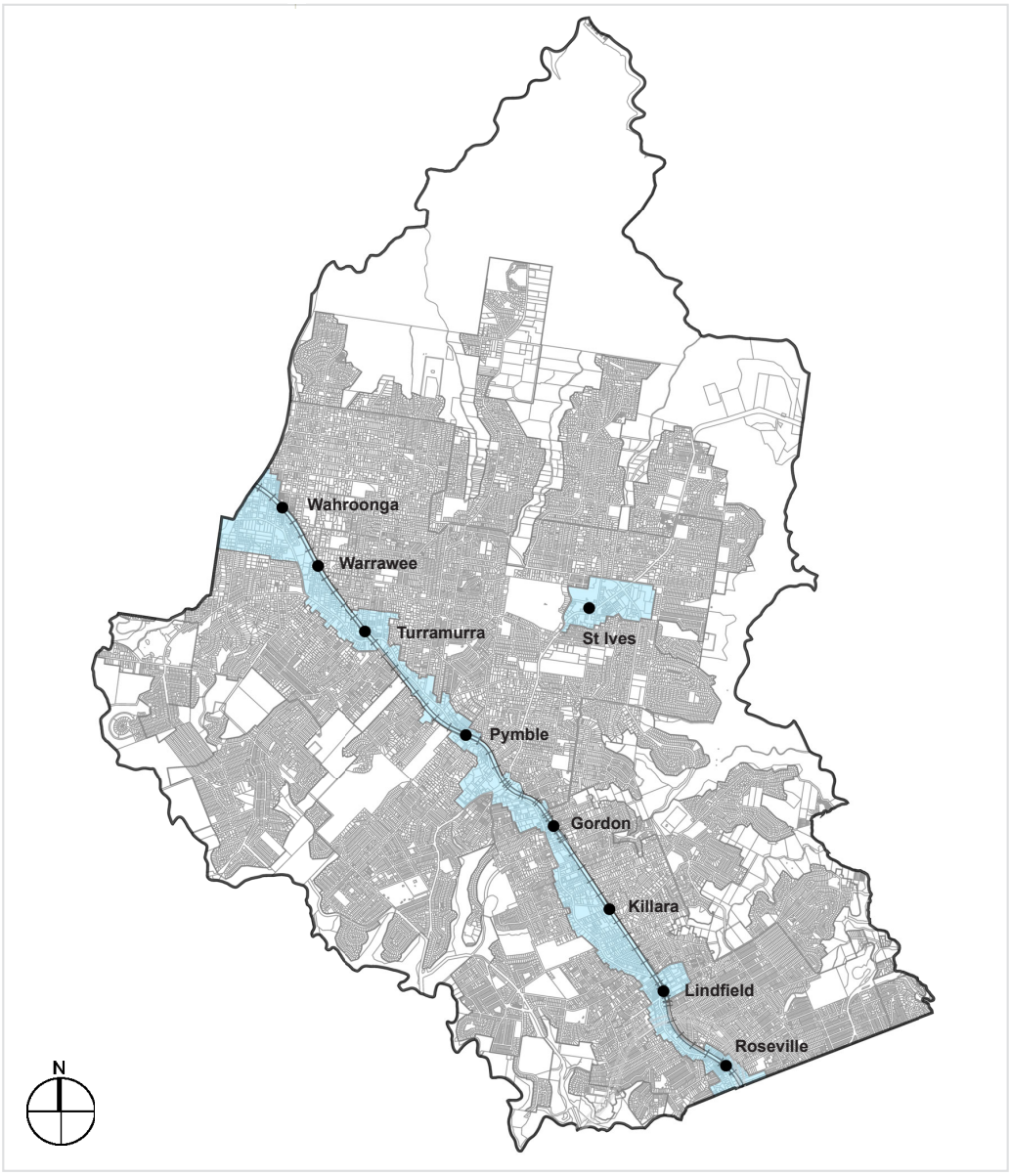


Figure 14A.1-1:
Ridge and Centres Character Areas

Legend

Ridge and Centres Character Area

Local Centres

14A.1 RIDGE AND CENTRES CHARACTER AREA (continued)

Local Character Statement

The Ridge and Centres Character Area is located on the Pacific Highway/ railway corridor and around the St Ives Local Centre. It contains retail, commercial and residential density development and brings important social and economic value to Ku-ring-gai.

The Ku-ring-gai ridge is dominated by the Pacific Highway which separates eight Local Centres into eastern and western sides. Commercial hubs on both sides of the highway service the wider community.

Buildings in this area have large footprints and greater height than built form across the rest of Ku-ring-gai. The prevalent high density leverages amenity provided by proximity to arterial roads, public transport, shops, schools, and facilities.

The Pacific Highway/railway corridor is on a flat ridgeline with land sloping down to riverine systems that connect into the surrounding National Parks.

The general urban nature of the area means tree canopy is reliant on street and public domain tree planting with occasional front setbacks, rear communal open spaces and rooftops/ podium landscaping also providing links to the Ku-ring-gai character of buildings within a garden setting. Local Centres retain the historical fabric of early settlement from the advent of the rail in the late 1800's and Inter-war period and movement patterns along the Pacific Highway/railway corridor.

Retail and commercial streetscapes within the local centres are active and engaging despite the busy bisecting road corridor.

Key Characteristics & Features

- Large footprint buildings
- Mainly street tree canopy
- Dominated by high density development on the Pacific Highway/railway corridor
- Commercial Local Centres
- Pymble Business Park
- Ku-ring-gai Town Hall
- Ku-ring-gai Council Chambers
- Diversity of scale with intact heritage conservation areas and items.
- Private Schools including:
  - Abbotsleigh
  - Knox Grammar School
  - Masada College
  - Ravenswood School for Girls
- Public Schools including:
  - Lindfield Public
  - Warrawee Public

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the Ridge and Centres Local Character Area is to demonstrate consitency with the Local Character Statement.

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LOCAL CHARACTER URBAN PRECINCT AND SITES

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A.2

14A.2 Green Fingers Character Area

REFER TO
KU-RING-GAI LOCAL CHARACTER STUDY

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GREEN FINGERS

LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.2 GREEN FINGERS CHARACTER AREA

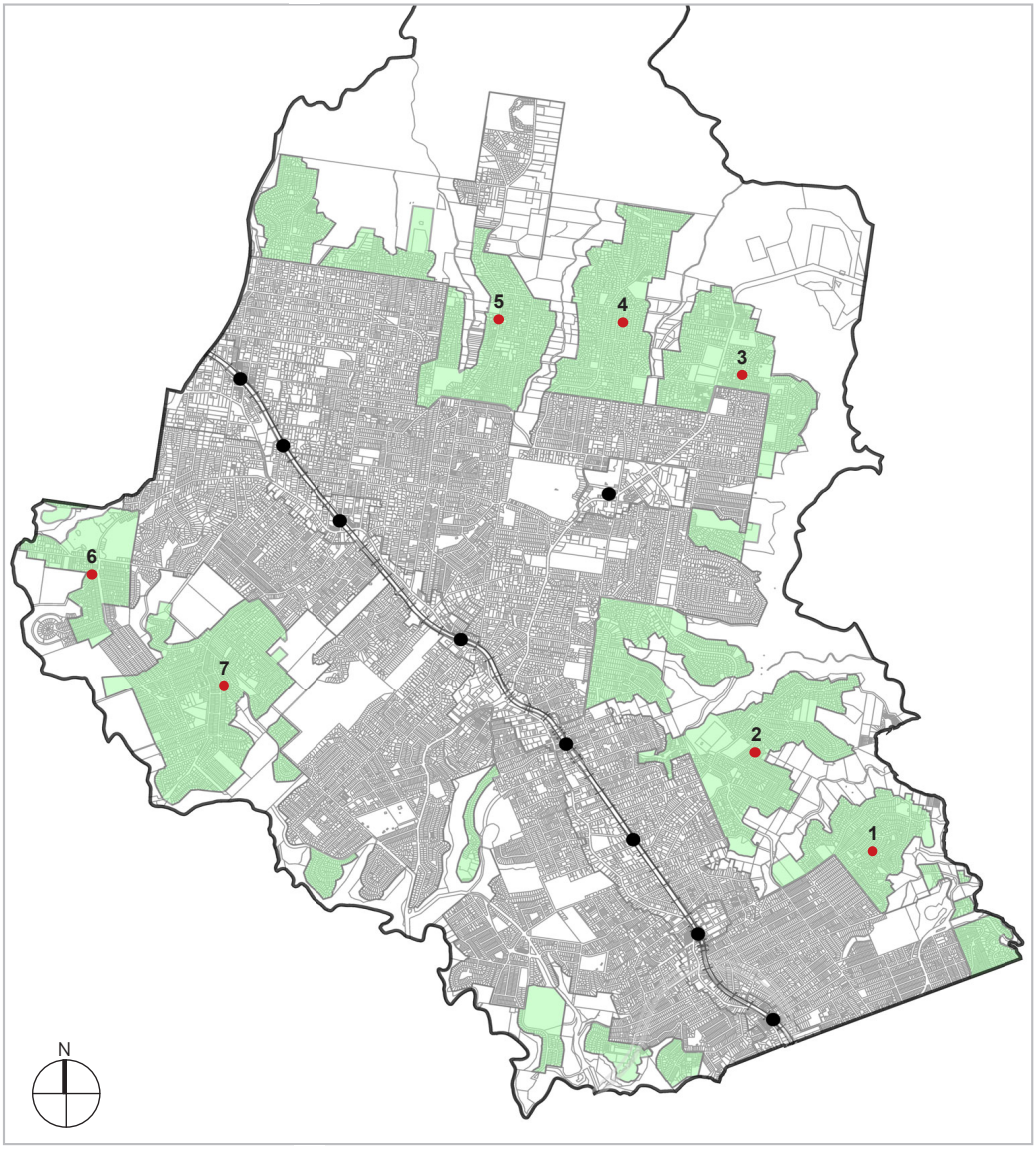


Figure 14A.2-1:
Green Fingers Character Area

Legend

- Green Fingers Character Area
- Local Centres
- Neighbourhood Centres
  1. Wellington Road, Roseville Chase
  2. Koola Avenue, East Killara
  3. Mona Vale Road, North St Ives
  4. Warrimoo Avenue, St Ives Chase
  5. Bobbin Head Road, North Turramurra
  6. Fox Valley Road, South Wahroonga
  7. Kissing Point Road, South Turramurra

14A.2 GREEN FINGERS CHARACTER AREA (continued)

Local Character Statement

The Green Fingers Character Area includes the areas located on the periphery of the Local Government Area ridgeline surrounded by edge interface bushland which falls steeply into densely vegetated gullies, and is important habitat for endangered flora and fauna. The edge areas feature more diverse and unique housing styles and street patterns that follow the topography and take advantage of views across valleys.

These fingers extend out towards Lane Cove, Garigal and Ku-ring-gai Chase National Parks. The mature vegetation, including Sydney Turpentine Ironbark Forest and Blue Gum High Forest, found in this area holds significant social, environmental, and economic value to the community.

The street pattern and built form is intertwined with the topography and landscape setting of the area. Flatter areas along ridgelines have a more consistent built form and street pattern and have been the focus of redevelopment and the delivery of new homes.

These areas are dominated by trees and vegetation and create and bushland setting for the homes.

The Green Fingers are predominately low density residential, supported by neighbourhood centres generally co-located with local parks, community facilities or playgrounds and serve as community focal points.

Larger institutions such as Sydney Adventist Hospital, Wahroonga; CSIRO, Lindfield; and the Lindfield Learning Village School are located on flatter land away from the Pacific Highway/ railway corridor where land is under greater development pressure.

Key Characteristics & Features

- Numerous mature trees
- Bushfire prone land
- Streets follow topography
- Diverse built form and styles
- Sydney Adventist Hospital
- Heritage Item:
  - Rose Seidler House
- Leisure facilities:
  - Lindfield Rollers Bowling Club
  - Echo Point and Marina
- Private School:
- Sydney Grammer Preparatory School, St Ives
- Public School:
- Killara High School

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the Green Fingers Local Character Area is to demonstrate consitency with the Local Character Statement.

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LOCAL CHARACTER URBAN PRECINCT AND SITES

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A.3

14A.3 Western Interface Character Area

REFER TO
KU-RING-GAI LOCAL CHARACTER STUDY

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WESTERN INTERFACE

LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.3 WESTERN INTERFACE CHARACTER AREA

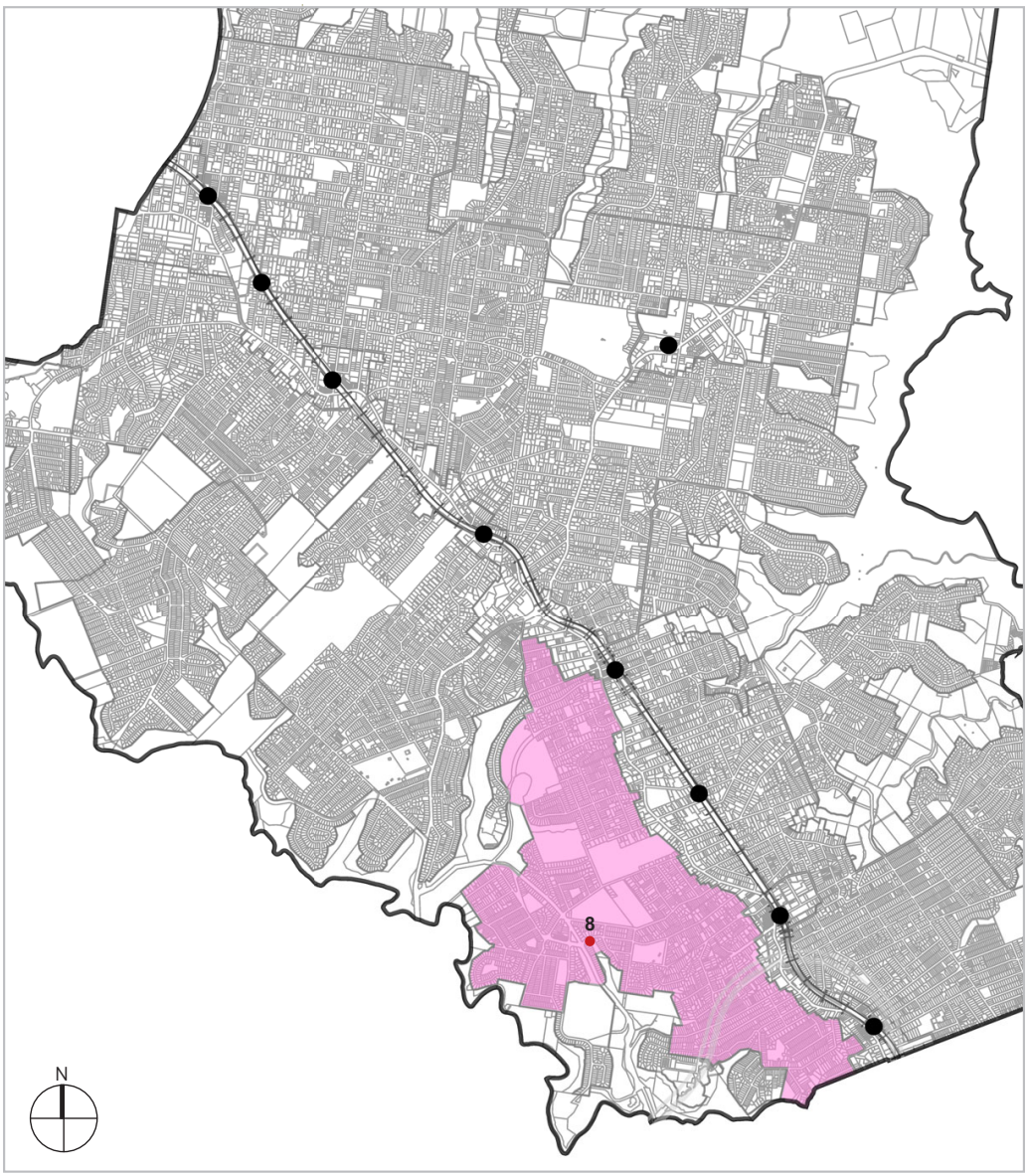


Figure 14A.3-1:
Western Interface Character Area

Legend

- Western Interface Character Area
- Local Centres
- Neighbourhood Centres
  8. Moore Avenue, West Lindfield

14A.3 WESTERN INTERFACE CHARACTER AREA (continued)

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Local Character Statement

The Western Interface Character Area includes areas of Gordon, Killara, Lindfield, and Roseville to the west of the Pacific Highway/railway corridor with highly undulating topography that falls away steeply from the Pacific Highway ridgeline to Lane Cover River.

This Area is characterised by large-detached dwellings on streets that are predominately perpendicular to the Pacific Highway. Street patterns meander around heavily vegetated gullies and golf courses which form barriers to movement in the northern portion of this Character Area.

The Area interfaces with high density residential, retail, and commercial development along the Pacific Highway to the North-East, and has direct connection with Lane Cove National Park to the west.

The area contains multiple heritage listed dwellings and includes Heritage Conservation Areas with generally intact examples of Federation and Inter-war housing, and subdivision patterns from the mid-1800s to early 1900s. It includes grand homes set within large lots with manicured private gardens.

Key Characteristics & Features

- Low density residential area with large houses in garden settings
- Interfaces with high density and bushland areas
- Dense tree canopy and significant bushland that supports biodiversity and habitat
- Areas of heritage significance
- Killara Golf Club
- Gordon Golf Club
- West Lindfield Sport and Recreation Area
- Ku-ring-gai Bicentennial Park
- Public School:
  - Killara Primary School

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the Western Interface Local Character Area is to demonstrate consitency with the Local Character Statement.

LOCAL CHARACTER URBAN PRECINCT AND SITES

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A.4

14A.4 West Pymble Local Character Area

REFER TO
KU-RING-GAI LOCAL CHARACTER STUDY

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WEST PYMBLE

LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.4 WEST PYMBLE CHARACTER AREA

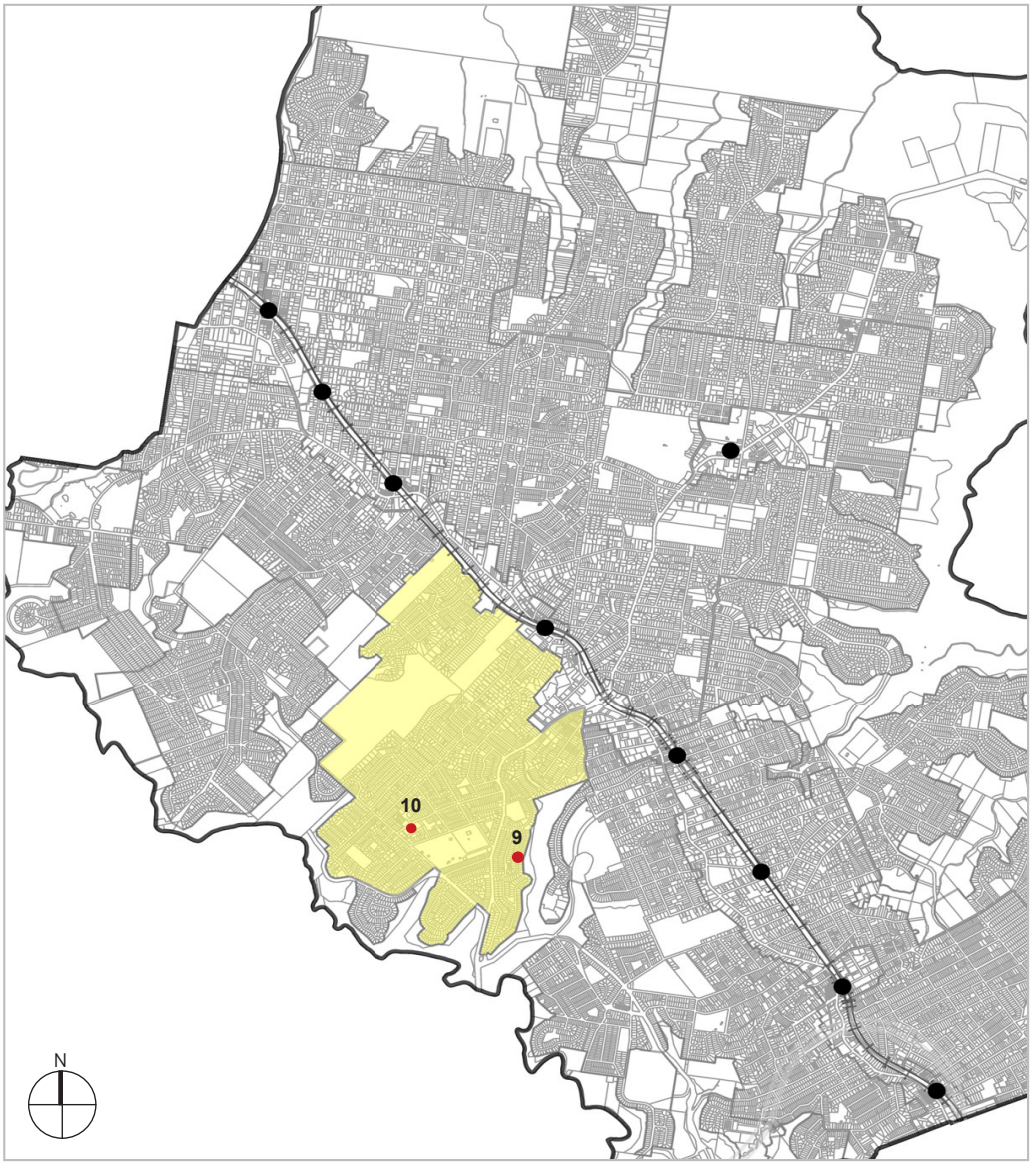


Figure 14A.4-1:
West Pymble Local character Area
Legend

- West Pymble Character Area
- Local Centres
- Neighbourhood Centres
  9. Dunbea Avenue, West Gordon
  10. Kendall Street, West Pymble

14A.4 WEST PYMBLE CHARACTER AREA (continued)

Local Character Statement

The West Pymble Character Area includes areas of Pymble, West Pymble and Gordon West south of the railway corridor. Ryde Road separates Gordon West from the rest of the Character Area.

The direct interface with Lane Cove National Park to the south-west connects the Area to the bushland and creek topography which extends into the leafy setting of this locality. The large land holdings of Avondale Golf Club, Pymble Ladies College, Lofberg Oval contribute significant stands of mature trees to the area.

Critically endangered communities of Sydney Ironbark Turpentine Forest and Blue Gum High Forest are prevalent across the Area, located both along streets and within private land. Sheldon Forest is a 5.5 ha reserve which has high conservation status and contains some of the last remnants of the critically endangered Blue Gum High Forest and Sydney Turpentine Ironbark Forest in the Sydney Bason.

This area is predominantly residential with detached houses within high-quality landscaped garden settings. The area has a mix of different street patterns: following ridge lines in the north where topography is steepest, and as a patchwork of small grids to the south where there is less variation in topography. This part of the Character Area was developed and subdivided in a piecemeal fashion from the early 1900s to the 1960s.

Key Characteristics & Features

- Varied street layout and subdivision
- No development around gullies
- Consistent low density and low height built form
- High value bushland context with critically endangered ecological communities and fauna habitat
- Significant environmentally sensitive/biodiversity area
- Ku-ring-gai Fitness and Aquatic Centre
- Avondale Golf Club
- Private School:
  - Pymble Ladies College
- Public School:
  - West Pymble Public School
  - Gordon West Public School

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the West Pymble Local Character Area is to demonstrate consitency with the Local Character Statement.

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LOCAL CHARACTER URBAN PRECINCT AND SITES

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A.5

14A.5 Northern Plateau Character Area

REFER TO
KU-RING-GAI LOCAL CHARACTER STUDY

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NORTHERN PLATEAU

LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.5 NORTHERN PLATEAU CHARACTER

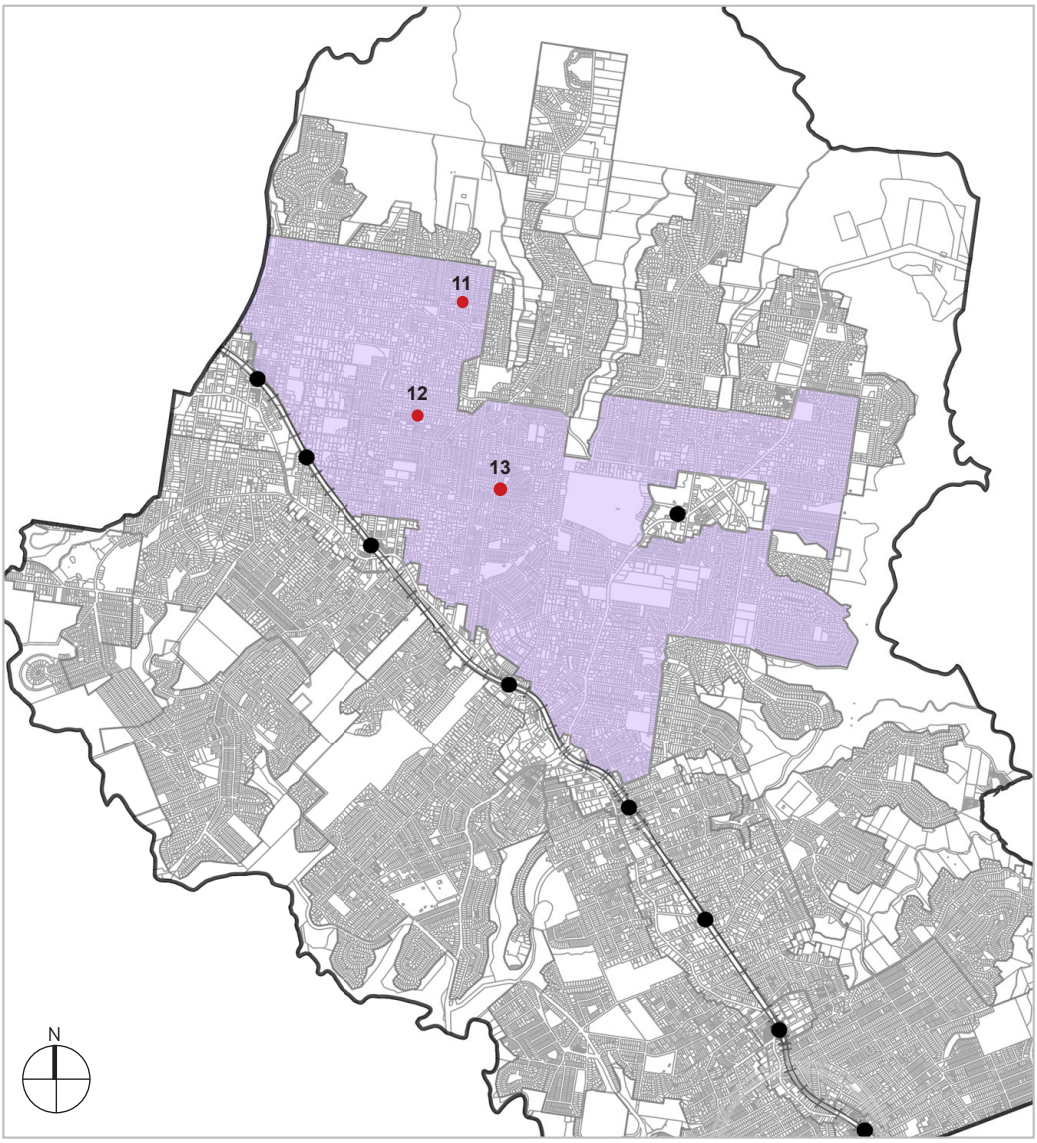


Figure 14A.5-1:
Northern Plateau Local Character Area

Legend

- Northern Plateau Character Area
- Local Centres
- Neighbourhood Centres
  11. Hampden Avenue, North Wahroonga
  12. Eastern Road, Turramurra
  13. Prince's Street Turramurra

14A.5 NORTHERN PLATEAU CHARACTER AREA (continued)

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Local Character Statement

The Northern Plateau Character Area is located to the north of the Pacific Highway/railway corridor and includes areas of Wahroonga, Warrawee, Turramurra, Pymble and St Ives.

The area is predominately residential with detached houses set within regular subdivision lot patterns presenting a consistent streetscape. The land use pattern was established through the subdivision of former agricultural lands located on the generally flat topography of the Area.

While still highly vegetated in comparison to other areas of Sydney, the area has a lesser tree canopy compared to other parts of Ku-ring-gai. This is a result of historical tree clearing related to agricultural use. A mix of trees and vegetation line long and straight streets framing distant views.

The area includes a number of sports fields including Turramurra Memorial Park, Karuah Park, Kent Oval, Pymble Golf Club and Bannockburn Oval. These open spaces include or are adjoined by large stands of mature trees which reinforce the Ku-ring-gai character of landscaped settings including tall canopy trees.

Three Neighbourhood Centres are located along primary roads and provide smaller scale day-to-day services within close proximity of homes.

The area includes areas of high conservation status containing some of the last remnants of critically endangered ecological communities of Blue Gum High Forest and Sydney Turpentine Ironbark Forest.

Key Characteristics & Features

- Flatter land
- Mostly low density residential
- Consistent Street layout and subdivision
- High level of architecturally significant 20th Century dwellings
- Last remaining Blue Gum High Forest and Sydney Turpentine Ironbark Forest.
- Wahroonga Public School
- Knox Grammar Preparatory School
- Brigidine Girls College for Girls St Ives
- St Ives Public and St Ives High School
- Dalrymple-Hay Nature Reserve
- Turramurra Memorial Park

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the Northern Plateau Local Character Area is to demonstrate consitency with the Local Character Statement.

LOCAL CHARACTER URBAN PRECINCT AND SITES

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A.6

14A.6 Eastern Interface Local Character Area

REFER TO
KU-RING-GAI LOCAL CHARACTER STUDY

DRAFT

EASTERN INTERFACE

LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.6 EASTERN INTERFACE CHARACTER

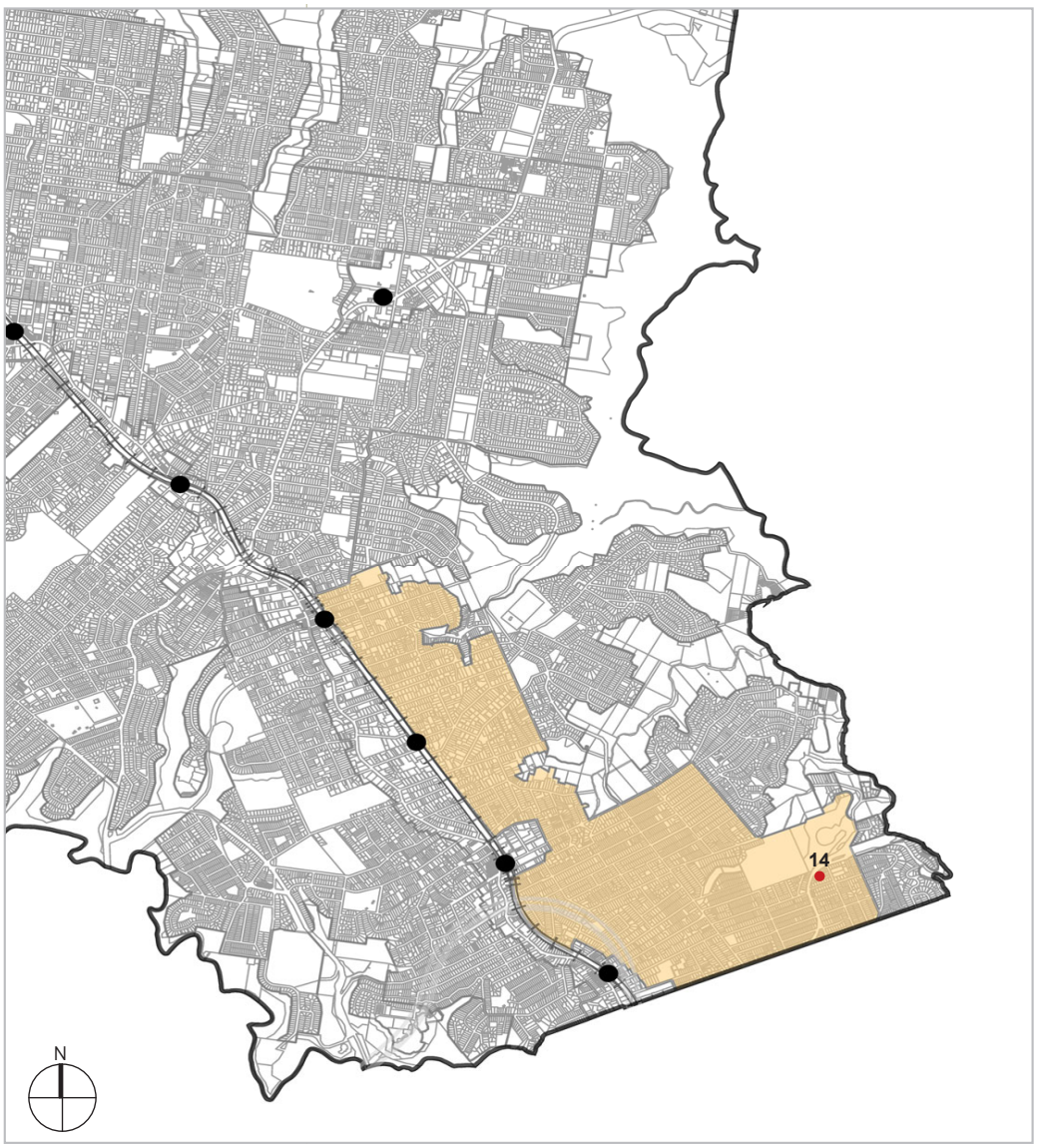


Figure 14A.6-1:
Eastern Interface Local Character Area

Legend

- Eastern Interface Character Area
- Local Centres
- Neighbourhood Centres
  14. Babbage Road, Roseville Chase

14A.6 EASTERN INTERFACE CHARACTER AREA (continued)

Local Character Statement

The Eastern Interface Character Area includes areas of Roseville, Lindfield, Killara, and Gordon east of the Pacific Highway/railway corridor. The area has undulating topography that drops away steeply from the Pacific Highway to Middle Harbour.

The area has heritage significance including multiple heritage conservation areas (HCAs). Its significance generally relates to Federation and Inter-war era housing and subdivision delivered from the mid-1800s to early 1900s.

Detached houses on large lots within a garden setting feature heavily in the north. The area is complemented by mature well-planted streets, synonymous with the idea of the idyllic and leafy North Shore.

The northern extent of this area is almost entirely covered in heritage conservation areas whilst the southern portion features more diversity in built form quality, style and age of stock. While heritage conservation areas in the south of the area possess consistent street planting similar to the north, interstitial areas feature reduced and variable street planting.

Key Characteristics & Features

- Streets run perpendicular to the Pacific Highway
- Large residential lots with considerable private open space
- any houses with pools and tennis courts
- Quality areas of flora and fauna habitat
- Heritage Items Including:
  - Eryldene Historic House and Garden
  - Roseville Girls College
  - Roseville Park and Oval
  - Roseville Golf Club
  - KOPWA and Lourdes Retirement Homes
  - Newington Preparatory School Lindfield
  - Ravenswood School
  - Swain Gardens
- Heritage Conservation Areas:
  - Clanville
  - Archbold Farms
  - Earl of Canarvon
  - Middle Harbour Road
  - Crown Blocks
  - Blenheim Road
  - Oliver Grant
  - Lynwood Avenue
  - Springdale
  - Thorne Grant
  - Gordon Park Estate

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the Eastern Interface Local Character Area is to demonstrate consitency with the Local Character Statement.

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LOCAL CHARACTER URBAN PRECINCT AND SITES

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A.7

14A.7 Western Slopes Local Character Area

REFER TO
KU-RING-GAI LOCAL CHARACTER STUDY

DRAFT

WESTERN SLOPES

LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.7 WESTERN SLOPES CHARACTER AREA

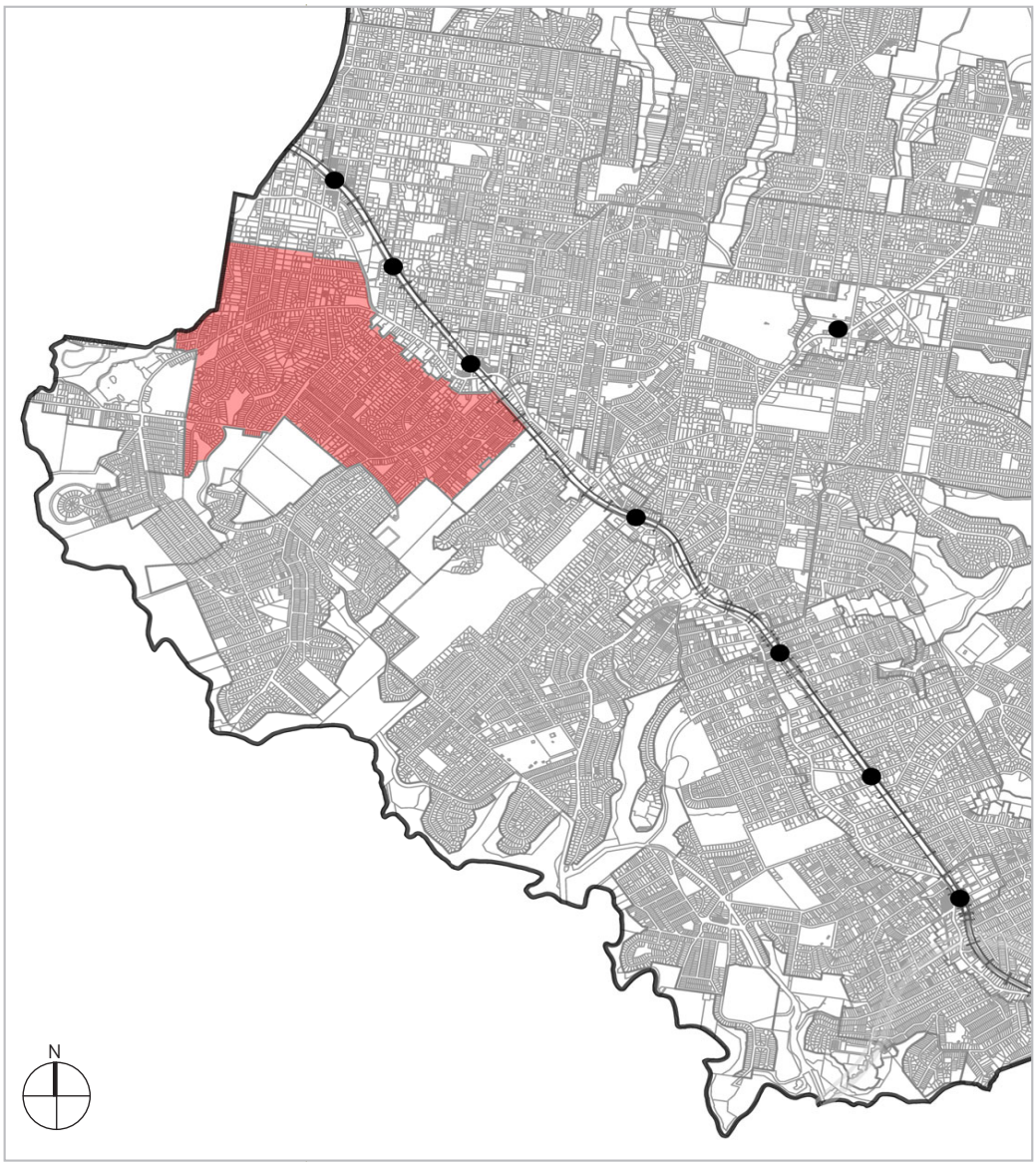


Figure 14A.7-1:
Western Slopes Local Character Area

Legend

- Western Slopes Character Area
- Local Centres

14A.7 WESTERN SLOPES CHARACTER AREA (continued)

Local Character Statement

The Western Slopes Character Area includes areas of Wahroonga, Warrawee and Turramurra to the south of the Pacific Highway/railway corridor. This area has a close relationship to bushland and is characterised by a significant tree canopy coverage. The area also contains architecturally significant 20th century dwellings.

Built form appears as a secondary, recessive feature with the trees and vegetation remaining dominant. Flatter area's in the north fall away to very steep topography, to the south-west topography and dense vegetation also creates a cool microclimate.

The biodiversity protects the environmental value of the native flora and fauna of this area.

Area's in the north have a consistent street layout and less varied topography; the complexity of land form and vegetation in the south has led to more variation in the street layout and built form. The very steep topography had led to more unique and diverse built form and a street layout that conforms to the topography.

Key Characteristics & Features

- Very high tree canopy cover
- South/ South-West aspect creates cool moist micro climate that supports very tall trees vegetation and fauna habitat
- High levels of biodiversity
- Steep slopes and varied topography
- Diverse built form
- Area contains architecturally significant 20th century dwellings
- Browns Field
- The Glade Reserve
- Twin Creeks Reserve and Track
- Heritage Listed School of Practical Philosophy, Wahroonga

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the Western Slopes Local Character Area is to demonstrate consitency with the Local Character Statement.

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LOCAL CHARACTER URBAN PRECINCT AND SITES

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LOCAL CHARACTER
URBAN PRECINCT
AND SITES

PART 14A.8

14A.8 North Turramurra Table Local Character Area

REFER TO
KU-RING-GAI LOCAL CHARACTER STUDY

DRAFT

NORTH TURRAMURRA TABLE

LOCAL CHARACTER
URBAN PRECINCT
AND SITES

14A.8 NORTH TURRAMURRA TABLE CHARACTER AREA

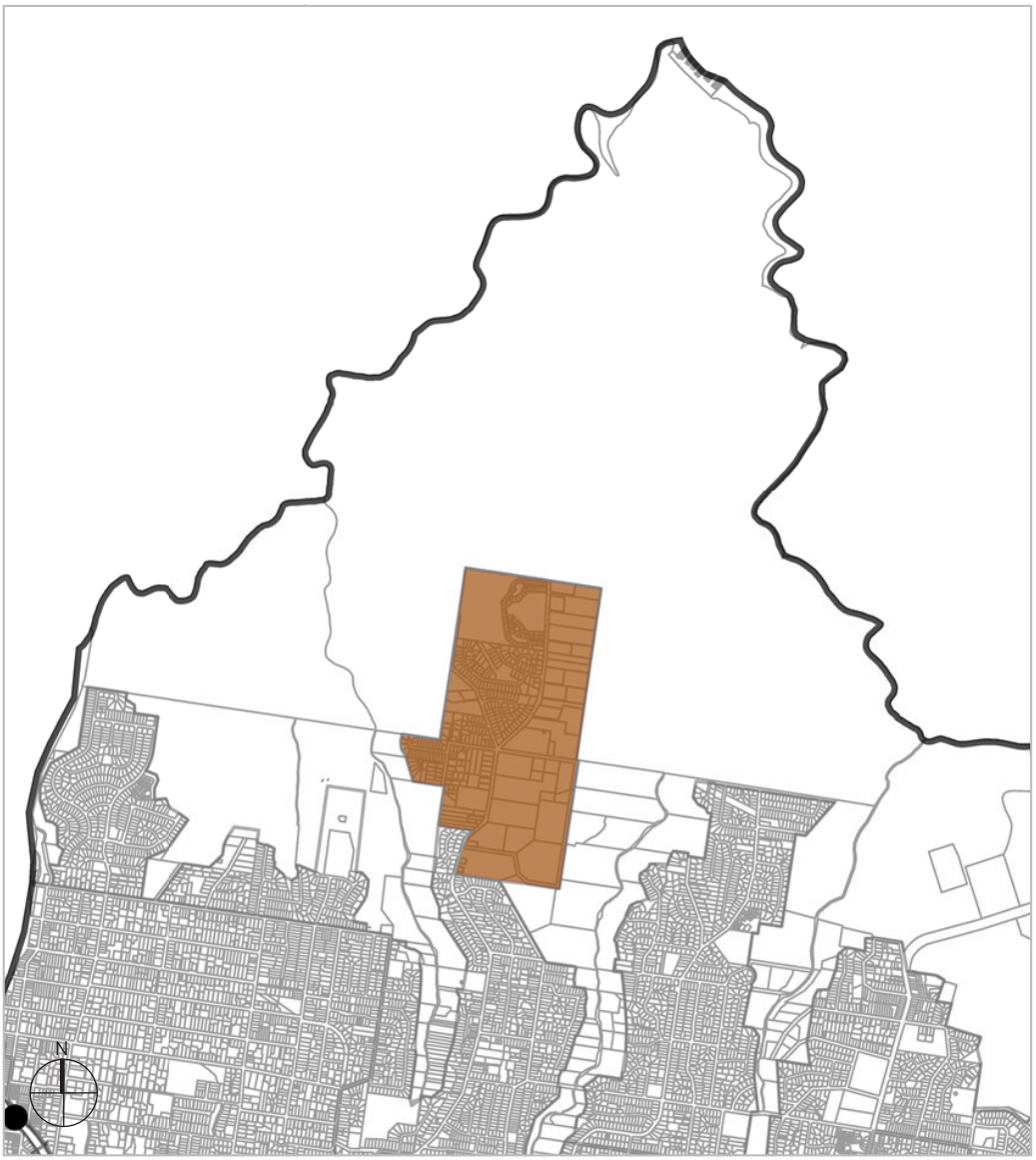


Figure 14A.8-1:
North Turramurra Table Local Character Area

Legend

- North Turramurra Table Character Area
- Local Centres

14A.8 NORTH TURRAMURRA TABLE CHARACTER AREA (continued)

Local Character Statement

The North Turramurra Table Character Area is located in the north of the Local Government Area on the edge of Ku-ring-gai Chase National Park. It has a close relationship to the surrounding bushland leading into Ku-ring-gai Chase National Park. It is unique in street layout and subdivision pattern. The area is predominately residential in use with a high proportion of seniors housing and aged care facilities.

The Area has a mix of large lot residential development, suburban homes, densely packed seniors housing and parks. A high voltage power line corridor runs from the north-west to the south-east of this Area.

The topography is quite flat and was historically used as agricultural land creating a stark and straight demarcation between National Park and development.

Key Characteristics & Features

- Isolated with limited access
- Large amounts of open space with limited tree canopy
- Consistent built form on large lot developments
- Surrounded by bushland
- Flat land
- Varied street layout
- North Turramurra Golf Course and Recreation Area
- Lady Davidson Private Hospital
- Ku-ring-gai High School
- Curagul Field
- Knox Grammar Fields
- Bushfire prone land

Objective

1. *To ensure new development enhances the prevailing local character.*

Control

1. All development within the North Turramurra Table Local Character Area is to demonstrate consitency with the Local Character Statement.

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LOCAL CHARACTER URBAN PRECINCT AND SITES

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DRAFT SITE-SPECIFIC DCP - PYMBLE GOLF CLUB

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	To have Council consider an amendment to the Ku-ring-gai Development Control Plan to include site-specific controls to support the Planning Proposal for Pymble Golf Course (4,12 and 14 Cowan Road, St Ives).
BACKGROUND:	The site has been subject to a private Planning Proposal. The Planning Proposal has been through a rezoning review process and considered by the Strategic Panel of the Sydney North Planning Panel (SNPP) as Council resolved to not support the Planning Proposal. On 6 May 2025 the SNPP determined that the amendments sought by Planning Proposal should be made to the KLEP 2015. Planning Proposal amends the KLEP 2015 to: • Rezone the site from part R3 Medium Density Residential (R3) and part RE2 Private Recreation (RE2) to R4 High Density Residential (R4). A limited portion of R3 land will be rezoned RE2 to make the development site uniform. • increase the maximum building height from 11.5m to part 11.5m (3 storey), part 14.5m (4 storey) and part 17.5m (5 storey); • increase the maximum Floor Space Ratio from 0.8:1 to 0.92:1; • introducing a minimum lot size of 1200m2 to the R4 zoned land; and • listing the single storey dwellings at 12 and 14 Cowan Road as local heritage items.
COMMENTS:	Council needs to incorporate site-specific controls into the Ku-ring-gai DCP to guide future development outcomes on the site achieved by the rezoning and increased height and floor space ratio.
RECOMMENDATION: (Refer to the full Recommendation at the end of this report)	That Council endorse the draft site-specific DCP amendments for the purpose of public exhibition.

PURPOSE OF REPORT

To have Council consider an amendment to the Ku-ring-gai Development Control Plan to include site-specific controls to support the Planning Proposal for Pymble Golf Course (4,12 and 14 Cowan Road, St Ives).

BACKGROUND

A private Planning Proposal has been submitted for the Pymble Golf Club site at 4, 12 and 14 Cowan Road, St Ives. The Planning Proposal (PP-2022-2519) makes the following amendments to the *Ku-ring-gai Local Environmental Plan 2015*:

- Rezone the site from part R3 Medium Density Residential (R3) and part RE2 Private Recreation (RE2) to R4 High Density Residential (R4). A limited portion of R3 land will be rezoned RE2 to make the development site uniform. No development standards will be applied to this land consistent with surrounding RE2 zoned land;
- increase the maximum building height from 11.5m to part 11.5m (3 storey), part 14.5m (4 storey) and part 17.5m (5 storey);
- increase the maximum Floor Space Ratio from 0.8:1 to 0.92:1;
- introducing a minimum lot size of 1200m2 to the R4 zoned land; and
- listing the single storey dwellings at 12 and 14 Cowan Road as local heritage items.

The Planning Proposal was reported to the OMC 16 May 2023 with a staff recommendation to support the Planning Proposal and proceed to Gateway Determination. Council resolved to not support the Planning Proposal.

The proponent lodged a Rezoning Review which was considered by the Strategic Panel of the Sydney North Planning Panel (SNPP) on 18 October 2023, who determined that Planning Proposal should progress to Gateway Determination and appointed itself as the Principal Planning Authority.

A Gateway Determination was issued by the Department of Planning, Housing and Infrastructure on 12 July 2024. The Planning Proposal was placed on public exhibition from 18 September – 17 October 2024.

The SNPP considered a post exhibition report on 1 May 2025 and determined that the amendments sought by Planning Proposal should proceed to be made. The Department of Planning, Housing and Infrastructure will now make the amendment to the KLEP 2015.

COMMENTS

It is proposed to amend the Ku-ring-gai Development Control Plan (KDCP):

- Part 14 Urban Precincts and Sites to include site-specific controls for the Pymble Golf Club site (4, 12 and 14 Cowan Road, St Ives).
- Part 18R Greenweb Maps to include the Angophora costata on the eastern boundary of 10 Cowan Road as ‘Canopy Remnant’ category.

Council staff have reviewed the Planning Proposal documentation including Urban Design Study and the draft site-specific DCP prepared by the proponent, which provides an indication of the possible scale, type, footprint and built outcomes enabled by the Planning Proposal.

The draft site-specific controls have been prepared to support the rezoning, increased height and floor space ratio approved by the Planning Proposal for the Pymble Golf Club site, and to guide future development on the site by setting out the key elements which need to be considered and addressed in order to ensure new development fits sensitively with the streetscape.

The draft site-specific DCP amendments are included at Attachment A1.

A brief overview of the key consideration contained in the draft DCP are outlined below:

Urban Precinct

This section of the DCP sets out the planned future character for the site, and key elements any new development must address, including:

- Ensuring that future development on the site is consistent with the established and desired future character of St Ives centre;
- conservation of heritage listed cottages at 12 and 14 Cowan Road, St Ives;
- appropriate setbacks to provide suitable separation and transition between the different areas of 5 storey, 4 storey and 3 storey residential development, adjoining residential properties and the Pymble Golf Club recreation areas; and
- retention of existing vegetation including Blue Gum High Forest within and adjacent to the site.

Pedestrian and Vehicular Access

This section of the DCP outlines where the vehicle entry/exit points are to be located, and where pedestrian access to the site is to be provided. A key requirement is that separate vehicle and pedestrian entry points are provided for the golf club and the residential development, and the siting of access points takes into consideration the location of existing significant vegetation.

Building setbacks

This section of the DCP outlines appropriate building setbacks for future development on the site, with key considerations including:

- Setbacks from heritage listed cottages;
- setbacks from adjoining residential properties;
- setback from Cowan Road; and
- provision of deep soil landscaped front setback to Cowan Road.

Built Form

This section of the DCP outlines the specific built form requirements for future development on the site. Key considerations include:

- Built form to comply with the areas of 5 storey, 4 storey and 3 storey residential development, with upper level setbacks;
- built form to Cowan Road must include clearly defined building entries, balconies, or communal rooms to promote passive surveillance and a positive public interface; and
- fencing requirements include height and materials.

Heritage

This section of the DCP includes objectives and controls to ensure the conservation and protection of the two new heritage items listed as part of the Planning Proposal, cottages at 12 and 14 Cowan Road, St Ives. Controls are also proposed which enable the relocation, repair and reuse of the cottages and a future curtilage area.

Greenweb

As part of Council's original assessment of the Planning Proposal as reported to OMC May 2023, an amendment is proposed to Council's Greenweb Mapping at Part 18R of the DCP to include the Angophora costata on the eastern boundary of 10 Cowan Road as 'Canopy Remnant' category.

The amended Greenweb Map is included at Attachment A2 and Attachment A3.

INTEGRATED PLANNING AND REPORTING

Theme 3: Places, Spaces and Infrastructure

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
P2.1: A robust planning framework is in place to deliver quality design outcomes and maintain the identity and character of Ku-ring-gai	P2.1.1: Land use strategies, places and processes are in place to protect existing character and effectively manage the impact of new development	P2.1.1.2: Continue to review the effectiveness of existing strategies, local environmental plans, development control plans and processes across all programs

GOVERNANCE MATTERS

This report relates to draft site-specific DCP amendments that have been prepared to support the amendments approved by the Planning Proposal for the Pymble Golf Club which include:

- Rezone the site from part R3 Medium Density Residential (R3) and part RE2 Private Recreation (RE2) to R4 High Density Residential (R4). A limited portion of R3 land will be rezoned RE2 to make the development site uniform. No development standards will be applied to this land consistent with surrounding RE2 zoned land;
- increase the maximum building height from 11.5m to part 11.5m (3 storey), part 14.5m (4 storey) and part 17.5m (5 storey);
- increase the maximum Floor Space Ratio from 0.8:1 to 0.92:1;
- introducing a minimum lot size of 1200m2 to the R4 zoned land; and
- listing the single storey dwellings at 12 and 14 Cowan Road as local heritage items.

The site-specific DCP controls are required to be consistent with the proposed LEP provisions contained in the Planning Proposal. Under Section 4.43(5)(b) of the *Environmental Planning and*

Assessment Act 1979, a provision of a development control plan has no effect to the extent that it is inconsistent or incompatible with a provision of the LEP applying to the land.

RISK IMPLICATION STATEMENT

There are no material risks that arise from the recommendations contained in this report. Minor issues may occur, but these can be managed within Council's current policies, procedures, resources and budget.

The preparation and inclusion of the site-specific DCP provisions for the Pymble Golf Club site will provide Council with greater assurance and control over future development outcomes on the site consistent with the Planning Proposal which has been approved by the SNPP.

FINANCIAL CONSIDERATIONS

The cost to prepare, exhibit and report on the site-specific DCP provisions have been paid by the Planning Proposal proponent in accordance with Council's Schedule of Fees and Charges 2024-2025.

SOCIAL CONSIDERATIONS

The draft site-specific DCP amendment includes objectives and controls to conserve heritage items on the site and ensure that any future development responds to the scale, design, setting and character of the items.

ENVIRONMENTAL CONSIDERATIONS

The draft site-specific DCP amendments include requirements to ensure the retention and protection of existing trees and vegetation, including Blue Gum High Forest on the site.

COMMUNITY CONSULTATION

It is proposed that the draft site-specific DCP amendments will be placed on public exhibition in accordance with the requirements of Council's Community Participation Plan and the provisions of the *Environmental Planning and Assessment Regulation 2021*.

INTERNAL CONSULTATION

Internal consultation has taken place for the preparation of the site-specific DCP provisions with relevant staff with expertise in the areas of urban planning, urban design, heritage and traffic.

SUMMARY

The Planning Proposal for the Pymble Golf Club site at 4, 12 and 14 Cowan Road, St Ives has been the subject of the Rezoning Review process. On 6 May 2025 the SNPP have determined that the amendments sought by the Planning Proposal should be made to the KLEP 2015. The Department of Planning, Housing and Infrastructure will now make the amendment to the KLEP 2015.

Draft site-specific development controls and objectives have been prepared by Council in order to guide future development outcomes on the site achieved by the rezoning, increased height and floor space ratio.

RECOMMENDATION:

A. That Council endorses, for the purpose of public exhibition, the amendments to the Ku-ring-gai Development Control Plan (KDCP) at Part 14 **(Attachment A1)** to include site-specific controls to support the Planning Proposal for Pymble Golf Club (4, 12 and 14 Cowan Road, St Ives) and Part 18R Greenweb Mapping **(Attachment A2)**.

B. That the draft site-specific DCP amendments be placed on public exhibition in accordance with Council's Community Participation Plan and the provisions of the *Environmental Planning and Assessment Regulation 2021*.

C. That a report be brought back to Council at the conclusion of the exhibition period for Council to consider any submissions made.

Alexandra Plumb
Urban Planner

Craige Wyse
Team Leader Urban Planning

Antony Fabbro
Manager Urban & Heritage Planning

Andrew Watson
Director Strategy & Environment

Attachments:			
	A1⇩	Draft Ku-ring-gai DCP - Section B - Part 14O Pymble Golf Club	2025/207635
	A2⇩	Draft Amended Greenweb Map Sheet 13	2025/212359
	A3⇩	Excerpt Draft Amended Greenweb Map Sheet 13	2025/212360

PART 14O

PYMBLE GOLF CLUB

Pymble Golf Club

14O.1 Urban Precinct
14O.2 Pedestrian and Vehicular Access
14O.3 Building Setbacks
14O.4 Built Form
14O.5 Heritage

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LOCAL CHARACTER & URBAN PRECINCT AND SITES

14O.1 URBAN PRECINCT: PYMBLE GOLF CLUB

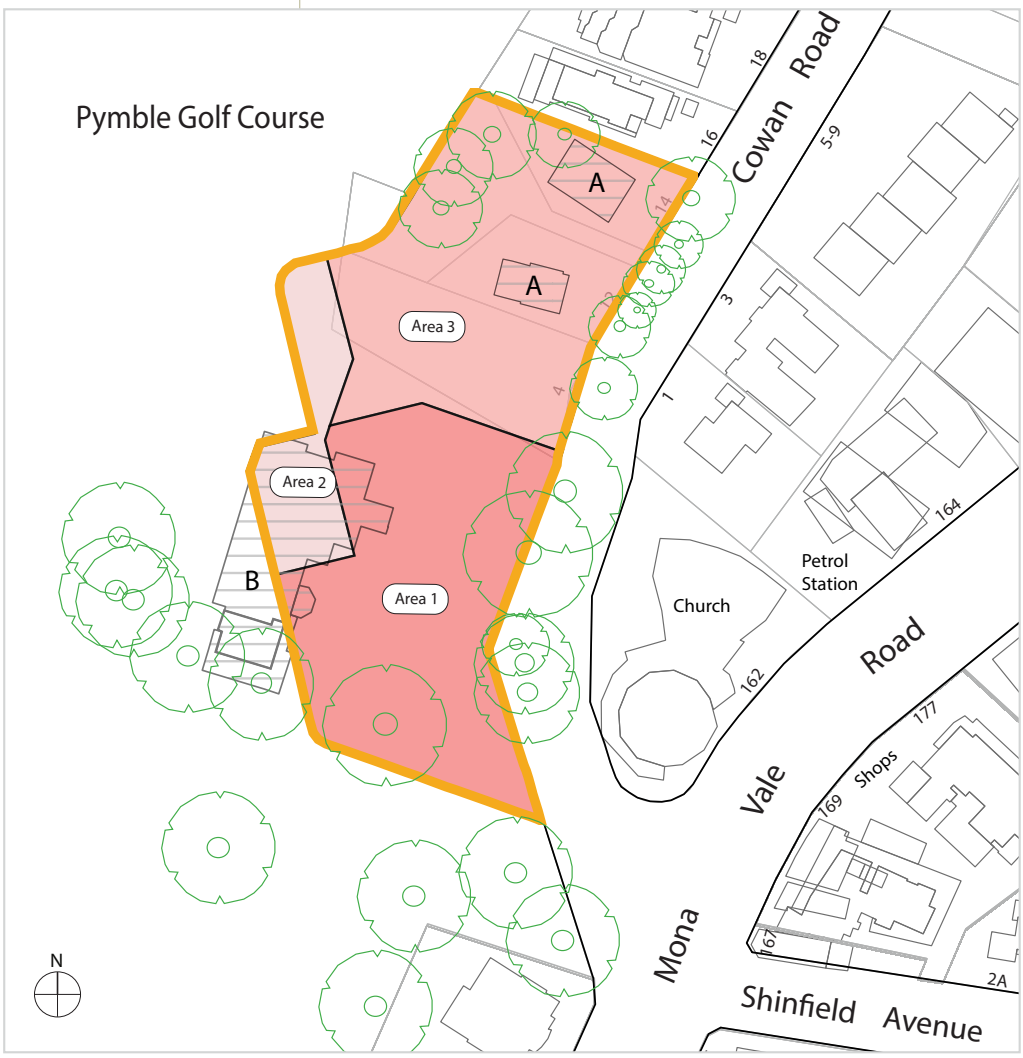


Figure 14O.1-1:
Urban Precinct: Pymble Golf Club

Legend

- Pymble Golf Club Precinct Boundary
- Area 1
- Area 2
- Area 3
- A — Heritage Cottage to be relocated
- B — Pymble Golf Club Clubhouse to be removed and relocated
- Existing Trees

14O.1 URBAN PRECINCT: PYMBLE GOLF CLUB (continued)

Objectives

Refer to

Objectives and Controls

Part 14A.1

Urban Precincts

1 *To ensure new built form is integrated into the existing landscape to reflect the Ku-ring-gai character of buildings within a garden setting including tall canopy trees.*

2 *To reduce the impacts of bulk and scale on adjacent residential neighbourhoods, and on the Pymble golf course and clubhouse.*

3 *To ensure long term improvement and protection of the Blue Gum High Forest community.*

4 *To retain the heritage character of the on-site cottages.*

5 *To ensure separation between the active recreation uses of the Pymble Golf Club and the new residential use.*

Controls

Planned Future Character

The site is located at 4, 12 and 14 Cowan Road, St Ives. The land comprises of part of the Pymble Golf Club, now rezoned to permit high density housing. The site adjoins medium density residential housing to the north and south, and a church, petrol station and shops to the east. The Pymble Golf Club clubhouse and golf links will remain to the West and South of the new residential area.

The planned future character requires the retention of the Golf Club facility and the visual presence of its main entry on Cowan Road.

Any future development is to reflect Ku-ring-gai's character of high-quality dwellings in a landscaped garden setting, including tall canopy trees.

The site comprises of 3 areas illustrated in 14.O.1-1 that are zoned for residential development as follows:

i) Area 1 - High density apartment buildings;

ii) Area 2 - Medium density apartment buildings to facilitate the interface with Pymble Golf Club;

iii) Area 3 - Medium density apartment buildings to facilitate interface to medium density residential neighbourhood to the North and relocated Heritage Cottages.

Housing on the site will allow for a mix of unit typologies.

Residential flat buildings are to provide high quality integration into their landscaped setting and include tall canopy trees and screening shrubs to adjoining neighbouring dwellings and to the adjacent Clubhouse and Golf Course.

1 All future development of the site is to support and enhance the planned future character of the site. This is to be achieved through compliance with the site-specific requirements stipulated in this Part 14O of the DCP, and compliance with other relevant parts of Section A, B and C of the DCP.

2 Where there is an inconsistency between Part 14O and other sections of the DCP. The controls in Part 14O will prevail to the extent of that inconsistency.

3 New development is to include the following key components:

a. setbacks that provide suitable separation and transition between high density, low density and medium density residential development, and to the Pymble Golf Club recreation areas;

b. crime prevention through environmental design (CPTED), including passive surveillance;

c. water sensitive urban design (WSUD) measures to meet the requirements outlined in 24C.3 and 24C.6 of the DCP;

d. retention of existing vegetation including Blue Gum High Forest communities within and adjacent to the site;

e. conservation of the on site retained cottages at 12 and 14 Cowan Road;

f. appropriate treatments are to be incorporated at the interface between the residential development and Pymble Golf Club recreation areas, including landscape screening, vegetation and fencing.

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LOCAL CHARACTER & URBAN PRECINCT AND SITES

14O.2 PEDESTRIAN AND VEHICULAR ACCESS

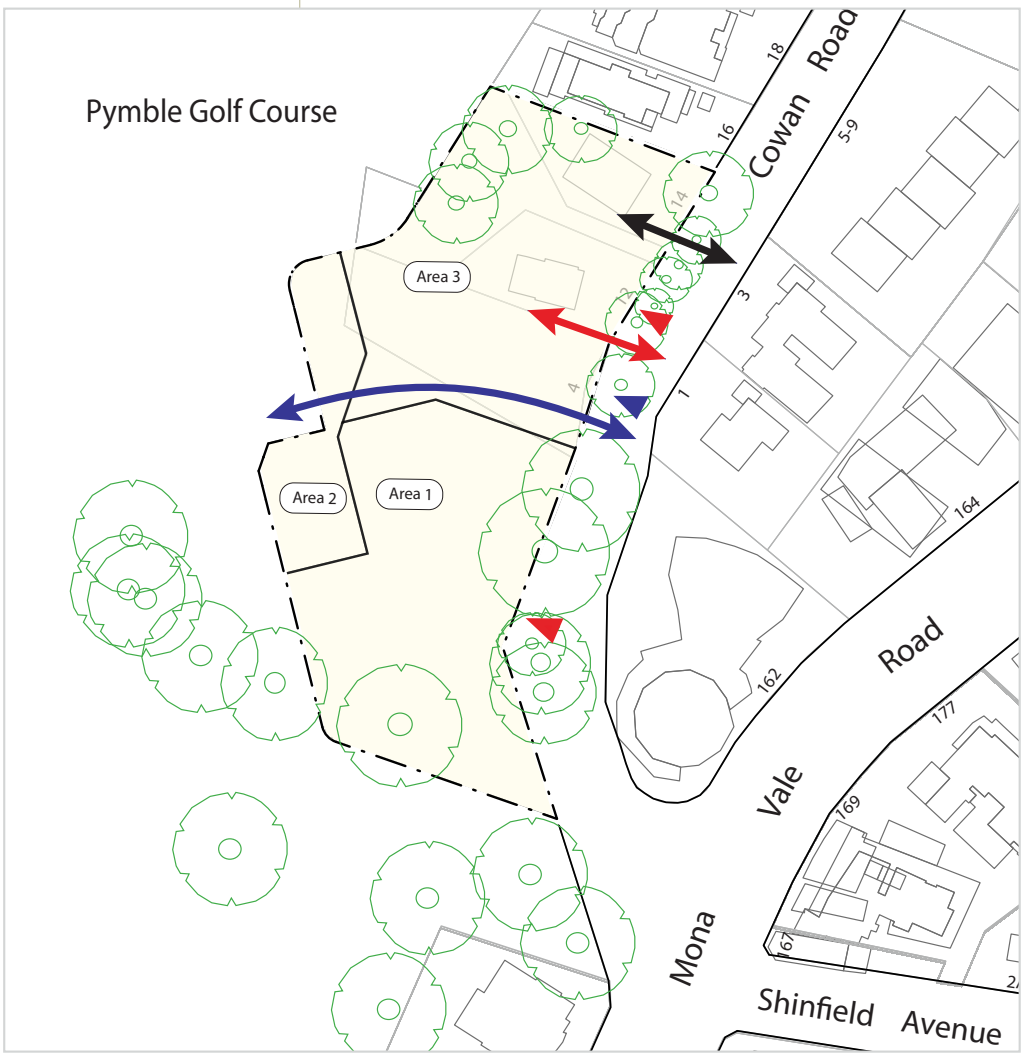


Figure 14O.2-1:
Pedestrian and Vehicular Access: Pymble Golf Club

Legend

- Site Boundary
- Pymble Golf Club Pedestrian Access
- Pymble Golf Club Pedestrian and Vehicular Access
- Residential Pedestrian Access
- Residential Vehicular Access
- Existing Driveway Location to be retained
- Existing Trees

14O.2 PEDESTRIAN AND VEHICULAR ACCESS (continued)

Objectives

Refer to

Objectives and Controls

Part 14A.1

Urban Precincts

1 *To provide vehicle and pedestrian access into the residential area and into Pymble Golf Club site.*

2 *To ensure the Pymble Golf Club retains a functional and visual presence on Cowan Road with a new dedicated driveway and front gates*

3 *To provide separation of residential and Pymble Golf Club vehicular and pedestrian access.*

4 *To ensure unobstructed access for service vehicles into the Pymble Golf Club site.*

Controls

1 The following are to be provided:

i) retention and protection of existing significant vegetation;

ii) separate vehicular access and pedestrian footpaths to the residential site and to the Pymble Golf Club;

iii) a single two-way vehicular access point to Cowan Road to the residential site. Basement parking between residential buildings may be linked via an underground tunnel used only for car movement.

2 The Pymble Golf Club two way access point is to be a minimum of 13m in width and is to include:

i) a two-lane driveway for two-way traffic, each lane must have a minimum 3.5m unobstructed width for the total length of the driveway;

ii) a separate 1.5m wide footpath;

iii) a prominent entry off Cowan Road utilising signage and materials. If required, the entry may be wider at Cowan Road to a maximum of 20m wide, returning to the specified 13m.

iv) Landscaped verges on each side of the driveway & footpath combined that include medium canopy trees;

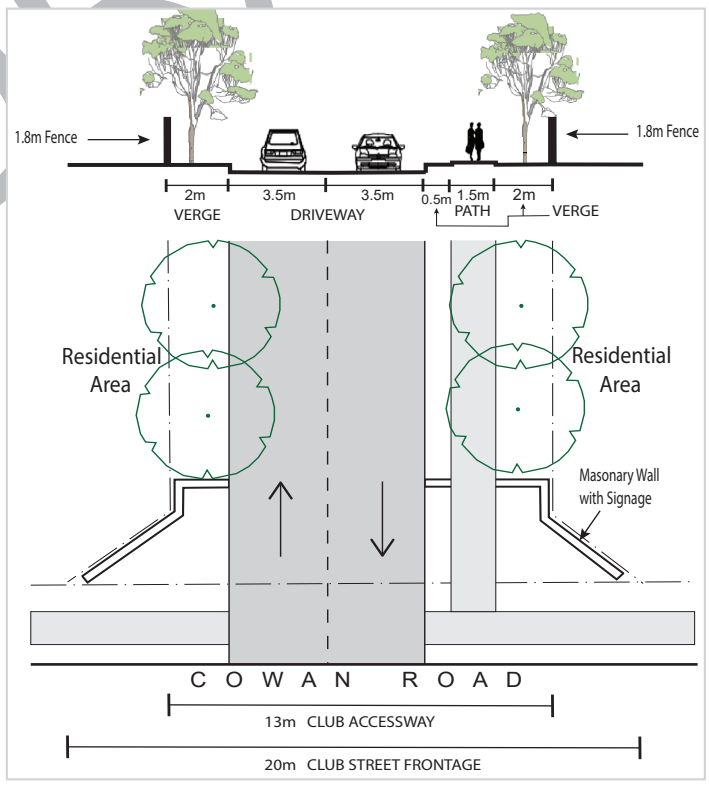


Figure 14O.2-2:
Pymble Golf Club Vehicular and Pedestrian Access from Cowan Road

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LOCAL CHARACTER & URBAN PRECINCT AND SITES

14O.3 BUILDING SETBACKS

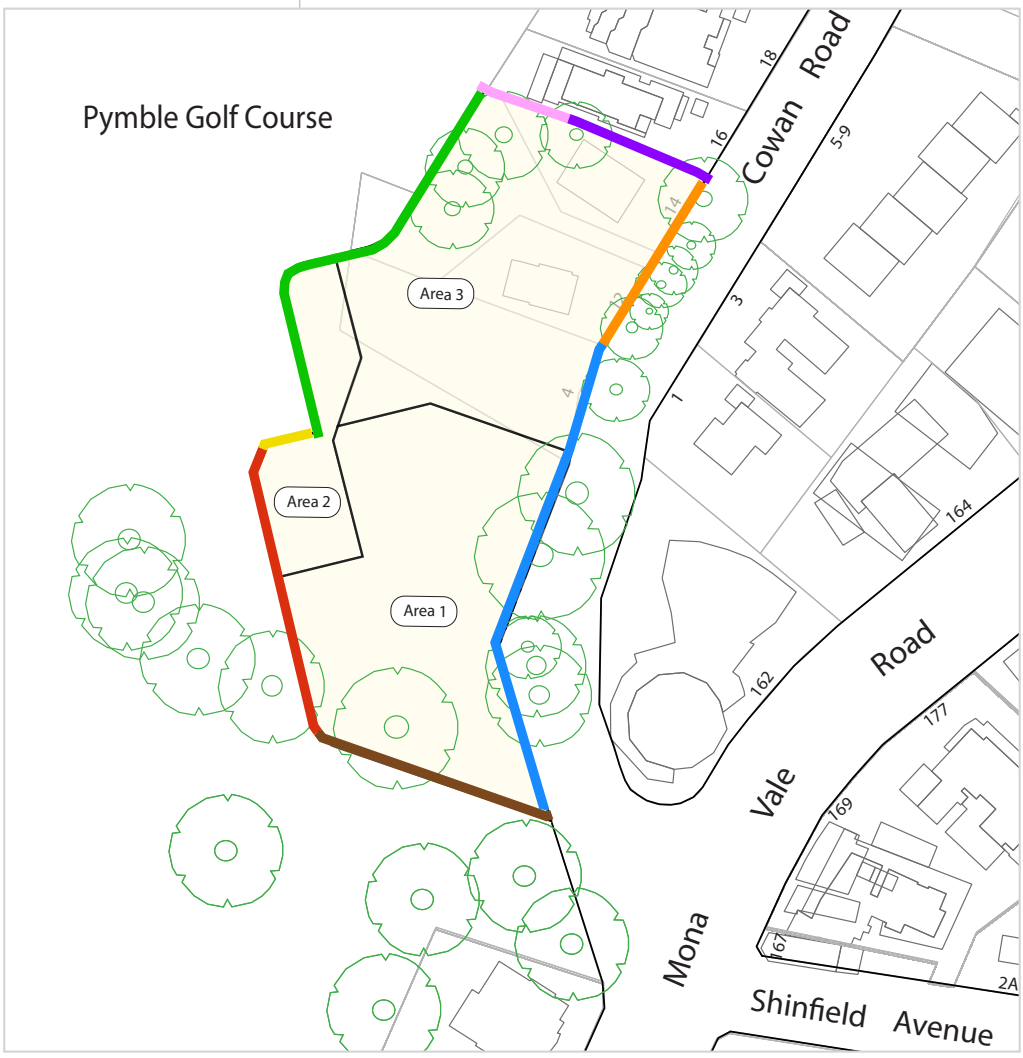


Figure 14O.3-1:
Setbacks: Pymble Golf Club

Legend

Setbacks

- 1m
- 2m
- 6m
- 8m
- 9m
- 10m
- 11m
- 19m

Existing Trees

14O.3 BUILDING SETBACKS (continued)

Objectives

Refer to

Objectives and Controls

Part 14A.1

Urban Precincts

1 *To provide building setbacks that allow the retention of established vegetation and planting of new vegetation, including tall trees, to enhance the Ku-ring-gai landscape character of built form with a garden setting, including tall canopy trees.*

2 *To create a cohesive streetscape with landscaped setbacks to Cowan Road.*

3 *To ensure provision of generous deep soil and landscaping areas that support tree planting.*

4 *To ensure long term improvement and protection of the Blue Gum High Forest.*

Controls

1 Building setbacks are to be in accordance with Figure 14O-3.

2 Buildings adjacent to the relocated heritage cottages and driveway and pedestrian access to the Pymble Golf Club must be setback from the fourth storey and above.

3 Front setbacks to Cowan Road must be a minimum of 10m, increasing to 12m where required to retain existing vegetation identified as part of the Blue Gum High Forest critically endangered ecological community.

   i) a reduced setback of 8m is permitted in front of the relocated heritage cottages at 12 & 14 Cowan Road;

   ii) all front setbacks must comprise deep soil zones.

4 New buildings must be set back a minimum of 12m from relocated heritage cottages.

5 All setbacks are to be densely landscaped with canopy trees, hedging, and screening vegetation to enhance privacy for adjoining properties and reduce noise transmission from communal open spaces and balconies.

DRAFT

LOCAL CHARACTER & URBAN PRECINCT AND SITES

14O.4 BUILT FORM

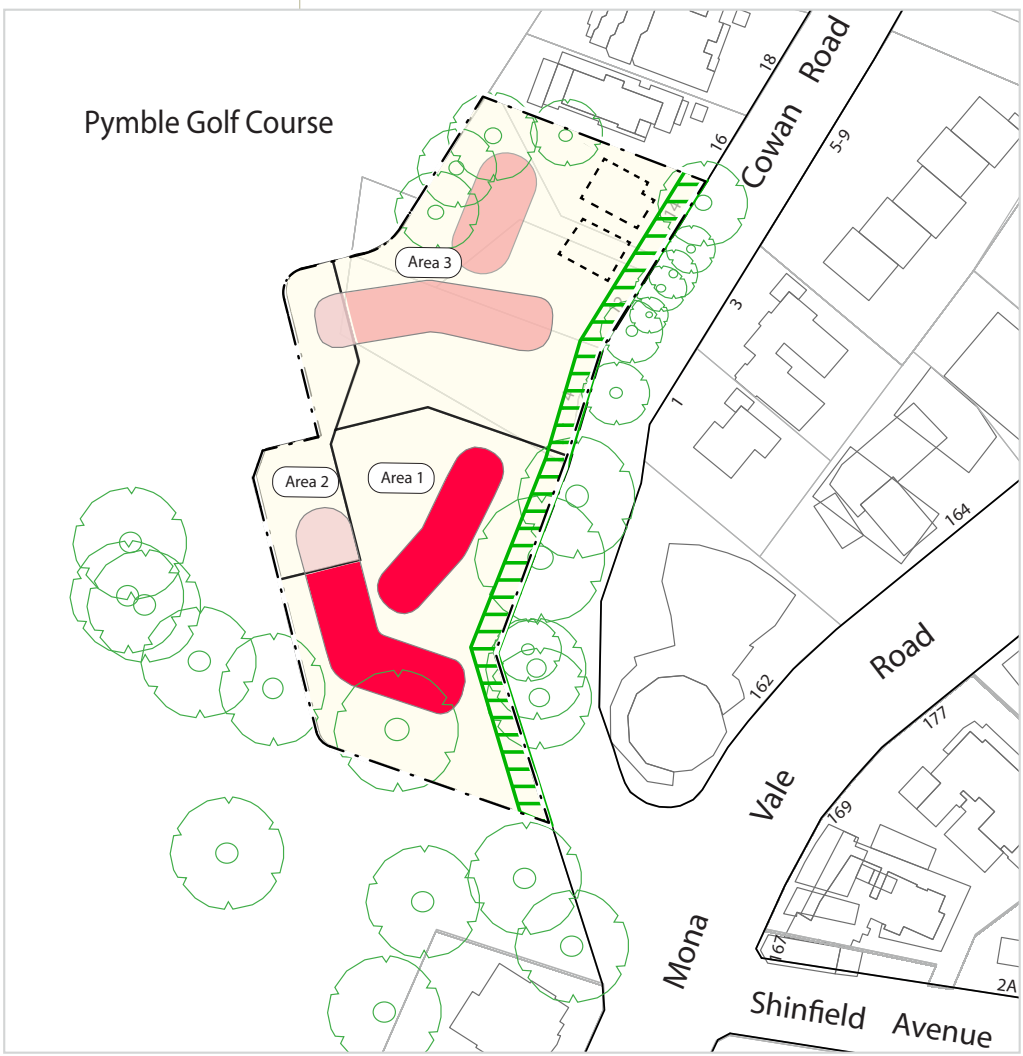


Figure 14O.4-1:
Built Form: Pymble Golf Club

Legend

- Site Boundary
- Existing Trees
- Indicitive relocation of Heritage Cottage
- Landscaped Area Buffer

Potential location of buildings

- 5 Storey
- 4 Storey
- 3 Storey

14O.4 BUILT FORM (continued)

Objectives

Refer to

Objectives and Controls

Part 14A.1

Urban Precincts

1 *To reduce bulk and scale impacts on the streetscape, heritage items and neighbouring properties.*

2 *To preserve the visual amenity of neighbouring properties, the Pymble Golf Club clubhouse and the golf course lands.*

3 *To ensure long term improvement and protection of the Blue Gum High Forest.*

4 *To ensure new residential buildings are viewed in a landscaped setting with high quality gardens and canopy trees.*

Controls

1 Built form is to comply with the following:

i) Area 1: A maximum of 5 storeys with top storey set backs;

ii) Area 2: A maximum of 3 storeys with top storey set backs;

iii) Area 3: A maximum of 4 storeys with top storey set backs.

2 The Cowan Road frontage must include clearly defined building entries, balconies or communal rooms to promote passive surveillance and a positive public interface.

2 A Vegetation Management Plan addressing the ongoing management of the Blue Gum High Forest within the site is to be prepared by an appropriately qualified consultant.

3 Landscaping is to be complementary to established landscape and retain elements, including vegetation identified as part of the Blue Gum High Forest Community.

4 Fencing is provided on the boundary to Cowan Road and between residential uses and Pymble Golf Club.

All fencing is to be a dark-coloured open metal palisade style fence mounted on a solid sandstone base that is between 200mm and 450mm in height. Total fence heights including the sandstone base are to be provided as follows:

i) 1200mm adjoining Cowan Road Street Frontage;

ii) 1800mm adjoining neighbouring residential properties;

iii) 1800mm adjoining the new residential area and the Pymble Golf Club, including along the Pymble Golf Club access driveway.

Note: This fencing control does not apply to the heritage items. Refer to Part 19 Heritage Item Fencing.

5 Signage identifying the Pymble Golf Club is to be provided as follows:

i) located on masonry walls;

ii) one sign per side of entry driveway;

iii) in proportion to the scale of the masonry wall and maximum of 5 sqm;

iv) not illuminated.

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LOCAL CHARACTER & URBAN PRECINCT AND SITES

14O.5 HERITAGE

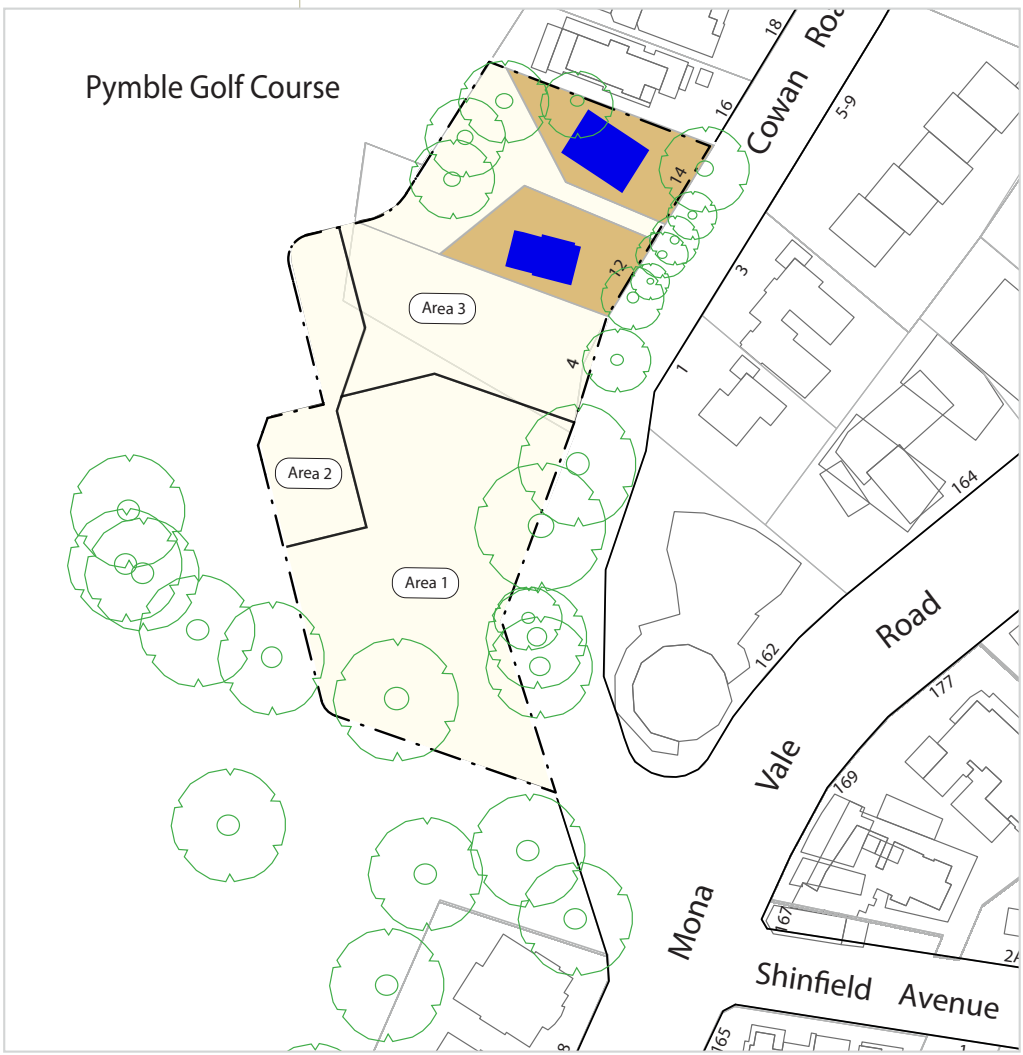


Figure 14O.5-1:
Heritage: Pymble Golf Club

Legend

- Site Boundary
- Heritage Item
- Heritage Cottage
- Existing Trees

14O.5 HERITAGE (continued)

Objectives

Refer to

Objectives and Controls

Part 14A.1

Urban Precincts

1 *To conserve the Heritage Items and ensure new buildings respond to the scale, design, setting and character of the items.*

2 *To ensure any adaptive reuse and restoration of the Heritage Item retains the integrity of the Items.*

3 *To establish an appropriate curtilage for the cottages, which encourages their appreciation and longevity as part of the wider development.*

Controls

1 Relocation, repair and re-use of the cottages at 12 and 14 Cowan Road is to be informed with the advice by a heritage consultant and structural engineer.

2 In considering the relocation, repair and re-use of the cottages, Council will assess:

i) the significance of the building;

ii) its contribution to the streetscape;

iii) opportunities for adaptive re-use of the building.

4 The relocated cottages must remain oriented towards Cowan Road.

5 The proposed future Curtilage Area is to be maintained around the two relocated heritage cottages with suitable landscaping as per figure 14O.5-2, and include suitable landscaping.

6 New timber picket fencing to Cowan Road street frontage no higher than 1.2m, and vegetation timber brush or timber lap & cap to side and rear boundaries.

Note: Refer to Objectives and Controls in Part 19 Heritage.



Figure 14O.5-2:
Heritage Curtilage Area of 2 listed Cottages.

Legend

- Site Boundary
- 12m Heritage Curtilage from face of relocated cottages
- Heritage Curtilage Area
- Existing Location of Heritage Cottage
- Indicitive Relocation of Heritage Cottage

DRAFT

Ku-ring-gai Development Control Plan

Greenweb Map -
Greenweb Map - Sheet_ 013

DCP Greenweb Categories

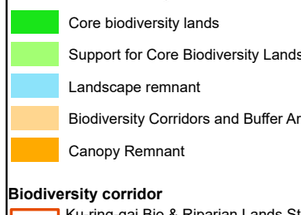
- Core biodiversity lands
- Support for Core Biodiversity Lands
- Landscape remnant
- Biodiversity Corridors and Buffer Areas
- Canopy Remnant

Biodiversity corridor

- Ku-ring-gai Bio & Riparian Lands Study - Version 5

Cadastre

- Cadastre 22/03/2024 © Spatial Services



N

0 240 m

Projection: GDA 1994
MGA Zone 56

Scale: 1:10,000 @ A3

Map identification number: 4500_COM_BIO_013_010_20240322



Ku-ring-gai Development Control Plan

Greenweb Map -
Greenweb Map - Sheet_013

DCP Greenweb Categories

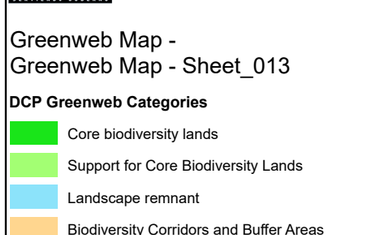
- Core biodiversity lands
- Support for Core Biodiversity Lands
- Landscape remnant
- Biodiversity Corridors and Buffer Areas
- Canopy Remnant

Biodiversity corridor

- Ku-ring-gai Bio & Riparian Lands Study - Version 5

Cadastre

- Cadastre 22/03/2024 © Spatial Services



N

0 20 40 m

Scale: 1:1,000 @ A3

Projection: GDA 1994
MGA Zone 56

Map identification number: 4500_COM_BIO__010_20240322



ENVIRONMENTAL LEVY GRANT PROGRAM - ROUND 27

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	To seek Council's endorsement to fund round twenty-seven (27) of the Environmental Levy grants program.
BACKGROUND:	The Environmental Levy grants are designed to assist the Ku-ring-gai community to deliver small, community based environmental projects. An independent assessment panel assesses the grant applications against the grant criteria. In 2023 the Environmental Levy grant program was split into a Conservation grant and a new Net Zero grant category, with an additional $50,000 added. As a result, the Environmental Levy grant now has a total of $100,000 allocated, under two categories.
COMMENTS:	Nineteen (19) applications totalling $115,807.66 were received under round twenty-seven (27) of the Environmental Levy grants program. Three (3) applications did not meet the eligibility criteria and did not progress to assessment panel. Of the sixteen (16) applications assessed, the Environmental Levy grants assessment panel recommends fully funding twelve (12), part funding two (2), and providing additional funds to unlock the potential of two (2) projects. Total recommended funding is $99,191.00.
RECOMMENDATION: (Refer to the full Recommendation at the end of this report)	That Council endorse the recommendations of the Environmental Levy Grants Assessment Panel to fund sixteen (16) projects, totalling $99,191.00 under round twenty-seven (27) of the Environmental Levy grants program.

PURPOSE OF REPORT

To seek Council's endorsement to fund round twenty-seven (27) of the Environmental Levy grants program.

BACKGROUND

The Environmental Levy grants are open to groups, schools, and individuals within Ku-ring-gai and assist the Ku-ring-gai community to deliver small, community based environmental projects that enhance our local environment, engage our community, or solve an environmental problem. The grants were identified in the development of the Environmental Levy, with strong support from residents and Councillors, as an opportunity to invest in projects with direct community benefit.

A five (5) member panel, made up of three (3) local community members and two (2) Council staff members assess the grant applications. There is a separate panel for the Conservation and Net Zero categories, therefore two (2) panels overall. The panel members assess the grant applications against a set of eligibility and performance criteria, ensuring projects deliver at least one of the following:

- Increased community understanding of the value of the natural environment and local issues and impacts;
- increase community action that benefits the natural environment;
- improve the condition of bushland or the conservation of native flora and fauna;
- increase community understanding of Net Zero and reduce emissions in their own lifestyle; and
- increase community action taken to reduce emissions in energy, waste and transport.

The panel makes recommendations to Council for the funding of projects, which is the subject of this report.

Table 1 outlines the number of projects and funding allocations through the Environmental Levy grants program to date.

Round	Number of successful applications	Funding allocation
Round 1	3	$12,500
Round 2	12	$52,269
Round 3	9	$36,982
Round 4	9	$40,000
Round 5	10	$39,576
Round 6	11	$39,726
Round 7	10	$33,102
Round 8	11	$40,636
Round 9	12	$40,069
Round 10	7	$40,343
Round 11	11	$46,174
Round 12	10	$45,276
Round 13	13	$40,068
Round 14	15	$43,357

Round	Number of successful applications	Funding allocation
Round 15	15	$50,278
Round 16	15	$49,902
Round 17	14	$41,779
Round 18	16	$47,654
Round 19	14	$46,700
Round 20	14	$47,637
Round 21	26	$59,999
Round 22	14	$54,954
Round 23	16	$50,102
Round 24	18	$50,607
Round 25	28	$100,105
Round 26	21	$99,586
Round 27	16	$99,191
TOTAL	369	$1,297,942

Table 1: Summary of funding through Environmental Levy grants program

COMMENTS

Round twenty-seven (27) of the Environmental Levy grants program was promoted through Council's sustainability e-news, volunteer for nature e-news and across social media. Additionally, electronic promotion was conducted through Council's website and Council's environmental email distribution lists.

The budget for round twenty-seven (27) of the grants program is $100,000, funded through the Environmental Levy. Applications were assessed against the criteria by the assessment panel. Applicants were required to demonstrate how their project:

- Provides a measurable benefit to the Ku-ring-gai environment or community;
- partners with local groups/people to achieve its goals;
- can effectively meet its objectives;
- evidence of diversity, inclusion and equity in the planning and delivery of the project; and
- evidence of the need for the project and proposed outcomes

Please see Attachments A1 and A2 for a summary of the assessment panel review. Based on this review, a summary of the recommended projects for funding is provided in Table 2.

Applicant	Project	Recommended funding ex GST
Energyze North Shore Incorporated	Community Education: Book Tour & En-ROADS Workshop	3,000
Net Zero Champions	Kids Clothes, Toys and Books Swap Events	2,000
Ku-ring-gai Boomerang Bags	Ku-ring-gai Boomerang Bags	3,524
Electrifying Bradfield Incorporated.	'Cool Seat' Composting Installation	5,600

Applicant	Project	Recommended funding ex GST
Killara High School	Killara High School Circular Plastic Recycling Initiative	30,000
Gordon East Public School P&C	'Cool Seat' Food Waste Reduction and Composting	1,830
John McTaggart Pryde	Removal of weeds on Ku-ring-gai Council land on the northern border of Little Blue Gum Creek's bushcare site	5,000
East Lindfield Community Preschool	Busy bees	1,500
Princes Park Bushcare	Princes Park invasive vine removal	5,000
Beverley Gwatkin and Greg Taylor	Removal of Spanish Moss – Trial	10,000
Macquarie University	Christmas Beetle Monitoring Network	5,000
FOKE	Ku-ring-gai GeoRegion interpretive signage	5,137
WildThings NSW	Hollows in Mapped Biodiversity Corridors	5,500
Vernon St Bushcare	Enhancing native biodiversity and habitat resilience in Bradley Reserve.	5,000
Abbotsleigh School	Streamwatch Environmental Monitoring at the Glade Reserve	1,100
Ku-ring-gai Bushcare Association (KBA)	Acer negundo targeted control	10,000

Table 2: Summary of successful applications – Round 27 of Environmental Levy grants program

INTEGRATED PLANNING AND REPORTING

Natural Environment

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
A community empowered with knowledge, learning and information that benefits the environment	Increased community action that benefits the environment	Deliver environmental resources and programs for residents

GOVERNANCE MATTERS

The Environmental Levy grants program, delivered through the Environmental Levy, provides funding to support environmental projects. Community development programs are highlighted in Ku-ring-gai's Community Strategic Plan as a key area for Council.

RISK IMPLICATION STATEMENT

The Environmental Levy grants program covers a range of projects with a variety of associated risks. Council ensures reduced risk to the community and the environment by working closely with grant recipients to ensure that grant implementation works are handled by professionals and that contractors are sourced with appropriate training, safety standards, relevant insurance and licensing.

FINANCIAL CONSIDERATIONS

The Environmental Levy has allocated the budget for round twenty-seven (27) of the Environmental Levy grants program.

SOCIAL CONSIDERATIONS

The Environmental Levy grants program provides an opportunity to invest at the local level in projects with direct community benefit. Many of the grant program's projects see community members working closely together on a project with an environmental focus. Thus, the program has positive social benefits as well as environmental benefits.

The Environmental Levy grants have been running for many years and the value of the program is demonstrated through the many successful projects which have been undertaken to date.

ENVIRONMENTAL CONSIDERATIONS

Round twenty-seven (27) funding has been allocated to enable activities such as bush regeneration, habitat creation, sustainability projects at local schools, and community engagement around reaching Net Zero. A number of outstanding applications were received which will help promote a greater appreciation and understanding of the natural environment and Net Zero within the Ku-ring-gai Local Government Area (LGA).

The evaluation criteria for the Environmental Levy grants program ensure that all projects benefit the natural environment and/or reaching Net Zero within Ku-ring-gai.

COMMUNITY CONSULTATION

The Environmental Levy Grants are assessed via a panel. The panel for round twenty-seven (27) included 3 community members and 2 Council staff members. The panel met to review the proposals and rank them against the evaluation criteria. There were 2 separate panels for the Conservation grants and the Net Zero grants.

INTERNAL CONSULTATION

In reviewing the grant applications, Environment and Sustainability liaised with Operations and other relevant staff in relation to projects that fell within their areas of professional expertise.

SPECIAL CONSIDERATION FOR LARGE GRANTS

Environmental Levy Grants are generally up to $10,000 dollars, however, applications can be made for larger amounts. Where larger amounts are applied for, applicants are required to demonstrate exceptional benefit under the specific criteria.

In round 27 there was 1 application for $30,000 and the assessment panel has recommended funding. The project is unique in nature and multifaceted. For this reason, an exemption to the procurement process, where expenditure of this size requires two different quotes, is recommended.

Killara High School circular plastic recycling initiative

Killara High School is proposing a $30,000 project to establish a circular, school-based plastic recycling program integrated across Years 7–12 Technology and Design & Technology curricula. Using specialised machinery from Precious Plastic Melbourne, students will collect, sort, and repurpose plastic waste from school and community sources into usable materials and products. The program promotes hands-on sustainability education, reduces landfill contributions, and builds student awareness of Net Zero and circular economy principles. With curriculum-aligned units, staff training, and community engagement, the project is designed for long-term impact, inclusivity, and scalability to other schools across Ku-ring-gai.

Special consideration may also be given to the acquittal date being extended, as it is a large project that may require more time to be completed. The acquittal extension will be reviewed after the Sustainability Education Officer completes a site visit to Killara High School during the inception of the project.

SUMMARY

This report seeks Council's support to fund round twenty-seven (27) of the Environmental Levy grants program.

Nineteen (19) applications were received under round twenty-seven (27) of the program. The Environmental Levy grants assessment panel recommends funding sixteen (16) projects, totalling, $99,191 as outlined in this report.

RECOMMENDATION:

That Council endorses the recommendations of the Environmental Levy Grants Assessment Panel to fund sixteen (16) projects, totalling $99,191.00 under round twenty-seven (27) of the Environmental Levy grants program.

Karen Lamont
Sustainability Engagement Officer

Lindy Williams
Environmental Volunteering Programs Coordinator

Jacob Sife
Manager Environment and Sustainability

Andrew Watson
Director Strategy & Environment

Attachments:			
	A1⇩	Net Zero Grants	2025/204603
	A2⇩	Environmental Levy Grants	2025/204664

ATTACHMENT NO: 1 - NET ZERO GRANTS

ITEM NO: GB.13

No	Applicant and Project name	Amount applied for	Amount agreed inc GST	Brief description	Summary of Comments	*Avg score out of 5
1	Energyze North Shore Incorporated - Community Education: Book Tour & En-ROADS Workshop	$3,000.00	$3,000.00	Energyze plans to host a Book Tour - Community presentation by guest speaker Saul Griffith centred around his latest book 'Plug In'. Full of tips and essential information for the community's electrification journey. Energyze plans to host a second event: Interactive En-ROADS workshop.	Great project with demonstrated success from the past. Immense community benefit as it educates the community about Net Zero goals in KRG.	5
2	Net Zero Champions - Kids Clothes, Toys and Books Swap Events	$2,000.00	$2,000.00	Our Kids Clothes, Toys, and Books Swap Events are free community gatherings where families can exchange quality pre-loved items. By giving clothes, books, and toys a second life, these events promote sustainability, reduce waste, and help families access resources without cost.	Great project that has demonstrated success for the past 2 years and meets Net Zero criteria. Huge community benefit and volunteer involvement.	4.8
3	Ku-ring-gai Boomerang Bags - Ku- ring-gai Boomerang Bags	$3,524.00	$3,524.00	Increase the amount of fabric saved from landfill by sewing more bags for the commuinty from unwanted fabric.	Great project that meets Net Zero criteria. Has community benefits that contribute to KRG.	4.8
4	Electrifying Bradfield Incorporated - 'Cool Sea' Composting Installation	$5,600.00	$5,600.00	To install a further 4 'Cool Seat' Composting systems in KRG LGA.	Has demonstrated past success, meets Net Zero criteria, has great community benefit for those groups invovled with maintaining the system.	4.4
5	Killara High School - Killara High School Circular Plastic Recycling Initiative	$30,000.00	$30,000.00	This project will establish a circular, school-based plastic recycling program supported by a dedicated workshop setup. Students will collect, process, and repurpose waste plastics into usable materials and products using specialised machinery. The program will be embedded across the Technology 7/8 and Stage 5 and 6 Design and Technology curriculum, promoting sustainability through practical, hands- on learning. It will reduce school-generated waste, introduce circular production methods, and deepen student understanding of sustainable design and Net Zero principles through real-world applications.	Very detailed and clear application with clear goals and targets. Meets Net Zero criteria and has immense community benefit for schools as well as potential external applications in future. A few concerns about maintenance costs and how long it will take for the workshop space to be complete - does the project need special/longer acquittal?	4.2
6	Gordon East Public School P&C - Cool Seat Food Waste Reduction and Composting	$1,830.00	$1,830.00	GEPS would like to provide a composting and kitchen garden facility for both the school and broader community. Collection of organic waste from children's lunchbox leftovers and the school canteen, where food is prepared, will reduce the amount of food entering land fill and hence will reduce both landfill space and greenhouse gas emissions. This is part of a larger GEPS initiative for development of a Kitchen Garden and Community Gathering Space at GEPS (a design for this space has already been agreed and is attached).	Good idea, concern with execution due to application not being as clear as possible. Would need to ask Sustainability Education Officer to visit school to ensure viability of project.	2.2
	TOTAL	$45,954.00	**$45,954.00**			

No	Applicant and Project name	Amount applied for	Amount agreed inc GST	Brief description	Summary of Comments	*Avg score
1	John McTaggart Pryde - Removal of weeds on Ku-ring-gai Council land on the northern border of Little Blue Gum Creek's Bushcare site	$5,000.00	$5,000.00	Reduce the threat of resurgent weeds infesting Little Blue Gum Creek Bushcare site	Fully fund .The project plan meets all the principal themes. Especially regarding the management of invasive species. Clear delivery and achievable objectives. Long-term maintenance to be undertaken by volunteers will ensure long-term achievements.	4.3
2	East Lindfield Community Preschool - Busy bees	$3,705.00	$1,500.00	Installing bee hives at the preschool and buying resources to support learning about bees and important pollinating insects	Partially fund..Costing and budgeting include items not relevant to the project and seem to be designed to meet the $3000 minimum quota for a grant application. However Increases the community understanding of the value of the natural environment and local issues and impacts Via education. Panel proposed to fund $1500 for Council Pollinator Package Consisting of Native Bee Hive, Bee Hotel and pollinator plants.	3.8
3	Nancy Pallin - Princes Park invasive vine removal	$4,999.50	$5,000.00	Continue treatments to remove all morning glory, madeira vine and balloon vine	Fully fund. There is evidence of a need for the project as the site is identified as a Priority reserve within the LGA and contain important STIF remnant . Scope of works and quote are satisfactory. However, long term plan management of the site needs to be implemented. Theme 3: Invasive species: This project will have a lasting strategic benefit in controlling invasive species. Will improve the condition of bushland or the conservation of native flora.	4.3
4	Beverley Gwatkin and Greg Taylor - Removal of Spanish Moss	$10,000.00	$10,000.00	Set up trial to monitor effectiveness of removing Spanish moss on health of canopy	Fully fund. There is evidence of need for the project. Theme 3: Invasive species: projects that will benefit in controlling invasive species. Good opportunity to use this grant as a trial for the effectiveness of removal.	4.3
5	Macquarie University - Caitlyn Yvonne Forster - Christmas Beetle Monitoring Network	$5,000.00	$5,000.00	Beetle Identification and Photography Workshops	Fully fund. Need for the project is clearly demonstrated via 'growing public concern about the reduction in these beetles across Australia'. The benefit is measurable by number of workshop attendees and continued data contributed to Inaturalist between October to March. There is partnership with the local community to the project goals. The project clearly demonstrates how the workshops will meet its objectives. Pilot project and will be run in multiple other areas if successful. Conerns re Cost of resoures - However they will be reused.	4.2
6	FOKE - Ursula Bonzol - Ku-ring-gai GeoRegion interpretive signage	$5,137.00	$5,137.00	design and construction of interpretative signs within Sheldon Forest	Fully fund. important to spread the word about the georegion to raise awareness of the value of living where we live and to help protect it into the future	3.3

7	WildThings NSW - Christopher Smallbone - Hollows in Mapped Biodiversity Corridors	$5,000.00	$5,500.00	This project will aim to install 20 hollows during the 12 month period from receipt of the grant.	Fully fund. Evidence for the need of the project is demonstrated through continual removal of trees taking place in Ku-ring-gai and hence habitat for wildlife, there is a growing need to install more similar hollows in connectivity corridors where possible. Project will involve partnerships with local groups/people to achieve goals via installations of resident property and schools. Measurable outcomes: data collected on each hollow to be included in KRG Council website . Community engagement via presentations at various events and press release.	4.7
8	Vernon St Bushcare - David Gauci - Enhancing native biodiversity and habitat resilience in Bradley Reserve.	$3,000.00	$5,000.00	Enhance native biodiversity and resilience. address soil erosion and storm water damage in the project site.	Additional funds. Costing for material only. Works, will need to be undertaken by a professional crew as the nature of works is outside the volunteer's capabilities. Grant should instead fund $5000 which will include material and labour costs. The need for the project has been identified in relation to the environmental impact caused by the stormwater discharge in the Bradley Park Reserve. Site inspection reviewed work plan and implementation.	4.2
9	Abbotsleigh - Nonie Jonker - Streamwatch Environmental Monitoring at the Glade Reserve	$4,565.00	$1,100.00	students will visit the site and learn about the impact of activities within the catchment on the ecosystem at the Glade	Partial Funds. ALERT Kit ($1,100) is more cost effective (than Standard Kit $4,975) for the limited number of uses. Costly for the number of people who are going to use it. However citizen science project for real world conservation and research. Increases community action that benefits the natural environment.	3.3
10	KBA - David Brennan - Acer negundo control	$4,975.00	$10,000.00	Supplementary targeted control of Acer negundo (Box Elder) in Ku-ring-gai Creek and Fern Gulley Creek	Additional funds. Proposed works are in line with the specific objectives for the reserve as identified by Council and will result in measurable environmental outcomes. This project will have a lasting strategic benefit in controlling invasive species, especially near waterways.	4.8
		$51,381.50	$53,237.00			
		Conservation	**$53,237.00**	$1,198,751.00		
		Net Zero	**$45,954.00**	$99,191.00		
		Total	**$99,191.00**	$1,297,942.00		

MIDDLE HARBOUR NORTHERN CATCHMENTS FLOOD STUDY - POST EXHIBITION REPORT

EXECUTIVE SUMMARY

PURPOSE OF REPORT:	For present the updated *Middle Harbour Northern Catchments Flood Study* for Council endorsement.
BACKGROUND:	The *Middle Harbour – Northern Catchments Flood Study* represents the first stage of the flood risk management process for the Middle Harbour Northern Catchments area. The document outlines the data collection and modelling that has been undertaken to help determine the extent and nature of overland flow and mainstream flooding in the area. Council resolved to place the *Draft Middle Harbour – Northern Catchments Flood Study* on exhibition on the 15 August 2023.
COMMENTS:	The *Draft Middle Harbour Northern Catchments Flood Study* went on Public Exhibition in October - November 2023. Following the exhibition period 32 submissions were received, highlighting a high level of concern, particularly in relation to the impacts of Probable Maximum Flood (PMF) property tagging. A number of alternatives to PMF tagging methods were considered, ultimately these were not recommended for implementation. Updates to the Flood Model and Review of the mapping outputs have addressed the issues within many of the submissions.
RECOMMENDATION: (Refer to the full Recommendation at the end of this report)	That Council endorse the Middle Harbour – Northern Catchments Flood Study Final Report.

PURPOSE OF REPORT

For present the updated *Middle Harbour Northern Catchments Flood Study* for Council endorsement.

BACKGROUND

The *Middle Harbour – Northern Catchments Flood Study* (Attachments A1 and A2) represents the first stage (Data Collection and Flood Study) of the flood risk management process (Figure 1) for the Middle Harbour Northern Catchments area.



Figure 1: NSW Flood Risk Management Process
(Figure 2 from the NSW Flood risk management manual)

The document outlines the data collection and modelling that has been undertaken to help determine the extent and nature of overland flow and mainstream flooding in the area.

This study has been undertaken with financial and technical assistance from the NSW Department of Climate Change, Energy, Environment and Water (DCCEEW).

Consultants BMT were commissioned to undertake the *Middle Harbour – Northern Catchments Flood Study* in June 2020 and have undertaken community consultation and detailed analysis to investigate the nature and extent of flooding in the area.

The study area covers an approximately 16.3 km^2 catchment which drains to the Middle Harbour Estuary and includes the suburbs (or parts) of East Killara, Killara, Gordon, Pymble and St Ives.

The report outlines the data collection, modelling and results of the flood study, including a comprehensive set of design flood maps to visualise the potential flood inundation and associated

flood risks across the study area. This includes peak flood level, depth, velocity, hazard and flood function mapping that are essential for planning, emergency response and management activities.

The draft report was discussed at the Flood Risk Management Committee (FRMC) on 27 July 2023 and the draft study was reported to Council on 15 August 2023 at Item GB.15. It was Resolved:

(Moved: Councillors Spencer/Lennon)

A. That Council places the Draft Middle Harbour – Northern Catchments Flood Study on public exhibition for a period of 28 days.
B. Residents impacted by Flood Planning Area and PMF tagging maps identified in the study are directly notified about the public exhibition.

CARRIED UNANIMOUSLY

COMMENTS

The Public Exhibition was live through all of October 2023 closing on 13 November 2023 and included:

- Information on Council's "Your Say" web page;
- Webinar on 19/10/2023 (that was available to view through remaining exhibition period)
- Two drop in information sessions:
    - Ku-ring-gai Council Chambers 10 – 1pm 24/10/2023
    - Gordon Library 5-8pm 26/10/2023

Notification Letters (initially dated 29/09/23) were sent to directly impacted residents, including those properties impacted by the Flood Planning Area and Probable Maximum Flood Tagging Area Maps as per Council's resolution.

During the exhibition here were 22 recorded enquiries, 19 bookings and numerous additional walk-ins to the community information sessions, with 32 formal submissions made. More details on the submissions are contained in the Community Consultation section of this report.

Staff acknowledge the time between exhibition and finalisation. However, this was required for potential solutions to issues raised during the community consultation to be thoroughly investigated and reviewed, and to ensure that the final updates were well considered and appropriate.

The exhibition highlighted a high level of concern and strong community feedback regarding the impacts of Probable Maximum Flood (PMF) mapping and property tagging. A common concern raised was that a PMF event is difficult to conceptualise and would be better understood as an 'event' instead of PMF.

In response to the community feedback regarding this issue alternative methods to PMF tagging were investigated, including the option for adopting the 0.2% AEP event as a more 'tangible' alternative.

The potential for an alternative to the PMF tagging method was discussed at the Flood Risk Management Committee (FRMC) Meetings held on:

- 13 February 2024: FRMC GB1 Flood Study Updates - the committee resolved:
  B. With regard to the Middle Harbour North Catchments Flood study, further information on the implications of a 0.2% AEP as an alternate solution for PMF tagging will be circulated to Committee members for their consideration after this meeting.

- 23 July 2024: FRMC GB1 Additional Information on the proposed changes to the Probable Maximum Flood (PMF) tagging method and update in Middle Harbour Northern Catchments Flood Study

  This report discussed the impacts of applying the 0.2%AEP and noted that comparison of the 0.2% AEP and PMF events identified a potential issue in missing critical flow paths during larger extreme events, resulting in the 0.2% AEP being an unsuitable option as a method for identifying properties where planning controls are required between the 1% AEP and PMF events.

  At the time the committee recommends Council:

  A. Continue to apply a consistent approach (no change) to the creation of PMF tagging maps across the LGA; and
  B. The committee report the updated Middle Harbour Northern Catchments Flood Study to Council for adoption and implementation.

For the July 2024 FRMC meeting, consultants BMT had also reported that adjustments made in response to the community consultation feedback had resulted in an overall reduction of impacted properties. These adjustments include:

- an updated flood model with slightly reduced building footprints, and
- an adjustment to PMF tagging mapping outputs to more accurately reflect Council's PMF filtering criteria (300mm depth and 300m^2 ponding).

However, following review of the final data provided to Council in November 2024, Land Information staff noted that there were new properties impacted, that were not originally part of the public exhibition, and this prompted a request to consultants BMT for clarification and further information.

Following this review and mapping clarification, the final deliverables were confirmed in April 2025. The refinements applied the criteria that any properties that were newly identified in a FPA or PMF tagging area since the 2023 exhibition are not included in the FPA or PMF mapping to be endorsed as part of the current study. Instead, these properties have been noted for review during the Flood Risk Management Study and Plan (the next phase of the flood risk management process). The details for these properties have been provided to Council in a separate memo and are not included in the updated *Middle Harbour Northern Catchments Flood Study* report.

This update was reported to the FRMC at the 10 June 2024 meeting where the updated *Middle Harbour Northern Catchments Flood Study* was resolved to be recommended to council for endorsement.

INTEGRATED PLANNING AND REPORTING

Community. People and Culture

Community Strategic Plan Long Term Objective	Delivery Program Term Achievement	Operational Plan Task
An Aware Community able to prepare and respond to the risk to life and property from emergency events.	Emergency Management Plans are developed and implemented, in partnership with emergency service agencies and key stakeholders.	Complete flood risk management studies in consultation with Flood Risk Management Committee and investigate priority management actions.

GOVERNANCE MATTERS

This Flood study has been undertaken in accordance with the NSW Flood Risk Management Manual and the Flood Prone Land Policy (2023), which guide local government in understanding and managing flood risk in their communities.

The Flood Risk Management Committee, with community, industry and government representation has overseen this flood study. The committee acts as an advisory committee to Council for the development of all flood studies and flood risk management studies and plans.

RISK IMPLICATION STATEMENT

The recent floods in various parts of Australia have highlighted the importance of floodplain risk management and have raised public awareness of the need for all councils to provide landowners with the best possible information on the risk of flooding to their property.

Completion of flood studies is a key preventative control for the management of flood risks.

The primary risk associated with the recommendation/s contained in this report is More frequent and extreme temperatures, fire, floods and stores resulting in damage to assets, injury to people and damage to natural environment. This covers the risk themes of People, Financial and Environment.

The key risks that arise from recommendations in this report and related internal controls are currently recorded, well described, and managed within council's risk register. The risk register was reviewed in December 2024 and have been considered in the preparation of this report - 2024/401891.

The policies and procedures currently in place are effective in managing these risks.

After considering the adequacy of internal controls, the key risks identified are *at Threshold Appetite*.

No further risk management actions are required.

FINANCIAL CONSIDERATIONS

This flood study has been primarily funded through the NSW Department of Climate Change, Energy, Environment and Water (DCCEEW) with Council funding being shared between the Operations and Strategy and Environment Departments.

SOCIAL CONSIDERATIONS

The results of flood studies and flood risk management studies and plans can impact on property values, insurance premiums, planning controls and options for future development.

Following the NSW government's Flood Risk Management Process helps to ensure that flood studies are informed by the local community and consider flood risks appropriate for the local context.

ENVIRONMENTAL CONSIDERATIONS

The NSW Flood Risk Management Manual (2023) clearly identifies the need for flood risk management to take into account the principles of ecologically sustainable development when managing risk associated with human occupation of the floodplain and emphasised maintaining and enhancing the riverine and floodplain environments, including consideration of the needs of threatened species populations and ecological communities as part of flood modification measures.

The Vision for flood risk management in New South Wales is:

Floodplains are strategically managed for the sustainable long-term benefit of the community and the environment, and to improve community resilience to floods.

COMMUNITY CONSULTATION

The local community has been consulted throughout development of this flood study. When preparing the *Draft Middle Harbour – Northern Catchments Flood Study* a community newsletter and questionnaire was sent to all residents and owners potentially impacted by the Probable Maximum Flood (6524 letters sent), in September 2020.

A total of 394 responses were received from the survey with feedback and incorporated into the flood study, primarily through the model verification process.

For the Draft Flood Study exhibition, notification letters (initially dated 29/09/23) were sent to directly impacted residents, including those properties impacted by the Flood Planning Area and Probable Maximum Flood Tagging Area Maps as per Council's resolution. The exhibition ended on 13 November 2023 and included an online webinar that provided background information on development of the flood study, and two drop-in sessions where interested community members could meet with council staff and consultants to discuss the flood study and potential impact on their properties.

During the exhibition here were 22 recorded enquiries, 19 bookings and numerous additional walk-ins to the community information sessions, with 32 formal submissions made.

Submissions can be grouped into six general topics: Local observed drainage and flood; Local property/topography features; FPA Notation; PMF Notation; Property Value/Insurance; Flood information availability and Consultant Report.

A summary of the topics and the general responses in provided in the Table 1.

Topic/s	Submission Number/s	General response
Local observed drainage and flood	2, 10, 12, 13, 15, 20, 21, 22, 23, 24, 26, 29, 31	FPA and PMF mapping are based on large events, and it is not expected that these events have been witnessed in recent years. Any maintenance requirements for Council drainage infrastructure should be reported to Customer service for inspection.
Local property/topography features	3, 6, 10, 14, 19	Generally, the topography and model provide a fair representation for expected flows. Further investigation can be undertaken at the Flood Risk Management Study and Plan phase of the Flood Risk Management Process.
FPA Notation	1, 8, 9, 12, 17, 21, 26, 27, 31	Many areas of FPA mapping have been adjusted following the model update. Some areas may be able to be trimmed at the property boundary - where the mapping extends less than 2m into a front or rear setback, or 1m at a side setback. Additional properties may be able to request review at the Flood Risk Management Study and Plan phase of the Flood Risk Management Process.
PMF Notation	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 19, 21, 22, 23, 25, 26, 27, 28, 30, 31, 32	Many areas of PMF Tagging mapping have been reduced following the model update and review of the map output. Some areas may be able to be trimmed at the property boundary - where the mapping extends less than 2m into a front or rear setback, or 1m at a side setback. Additional properties may be able to request review at the Flood Risk Management Study and Plan phase of the Flood Risk Management Process.
Property Value/Insurance	4, 7, 8, 12, 17, 21, 22, 25, 26, 29	Provision of Flood Certificate reports provide accurate information for consideration of property value and insurance impacts. Whole properties are not identified, the study has identified Flood Planning Areas and PMF Tagging Areas within each site.

Topic/s	Submission Number/s	General response
		Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping.
Flood information availability	6, 18, 19, 26	Available information was provided to residents as requested. Provision of Flood Certificate reports provide accurate information for consideration of property value and insurance impacts. Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping.
Consultant Report	6, 7, 18, 19, 20, 24, 29, 31	Minor updates have been made to the report in response to the consultation feedback including clarification of the PMF tagging process and minor edits.

Table 1: Summary of topics raised during community consultation

The full submission list (omitting sensitive information to ensure privacy), with specific responses to each submission is provided in Attachment A3.

Further details on the consultation undertaken to help inform this study is outlined in the final report (Attachments A1 and A2).

Of the 32 submissions received 15 of those sites are no longer identified in the FPA or PMF mapping, 6 have reduced mapping extents, 10 remain similar and 1 was not applicable for this study area. Of the 16 submissions where mapping still applies 8 have been noted for review at the Flood Risk Management Study and Plan phase of the Flood Risk Management Process.

INTERNAL CONSULTATION

Council staff from the Strategy & Environment, Development & Regulation and Operations departments have been nominated to attend the Flood Risk Management Committee meetings and have been involved in review of the flood study materials.

Staff from the Information Management team in the Corporate Department have undertaken important review of the data to ensure accuracy and updates are made in the property information system where relevant.

SUMMARY

Following the Public Exhibition of the Draft Middle Harbour – Northern Catchments Flood Study in late 2023, 32 formal submissions were received. Thought 2024 a number of changes were considered in response to the submissions and following refinement of the model and mapping, the final *Middle Harbour Northern Catchments Flood Study* is ready for council endorsement.

RECOMMENDATION:

A. That Council endorse the Middle Harbour – Northern Catchments Flood Study Final Report.
B. That a copy of the Middle Harbour – Northern Catchments Flood Study Final Report is placed on Council's website.
C. That Section 10.7 Planning Certificates and Council's Flood Certificate Reports are updated to include relevant information.
D. That all owners of properties identified on the Mainstream and Overland Flow Flood Planning Area Map are directly notified about the finalisation.
E. That all owners of properties identified on the Probable Maximum Flood Tagging Map are directly notified about the finalisation.

Sophia Findlay
Natural Areas Team Leader

Jacob Sife
Manager Environment and Sustainability

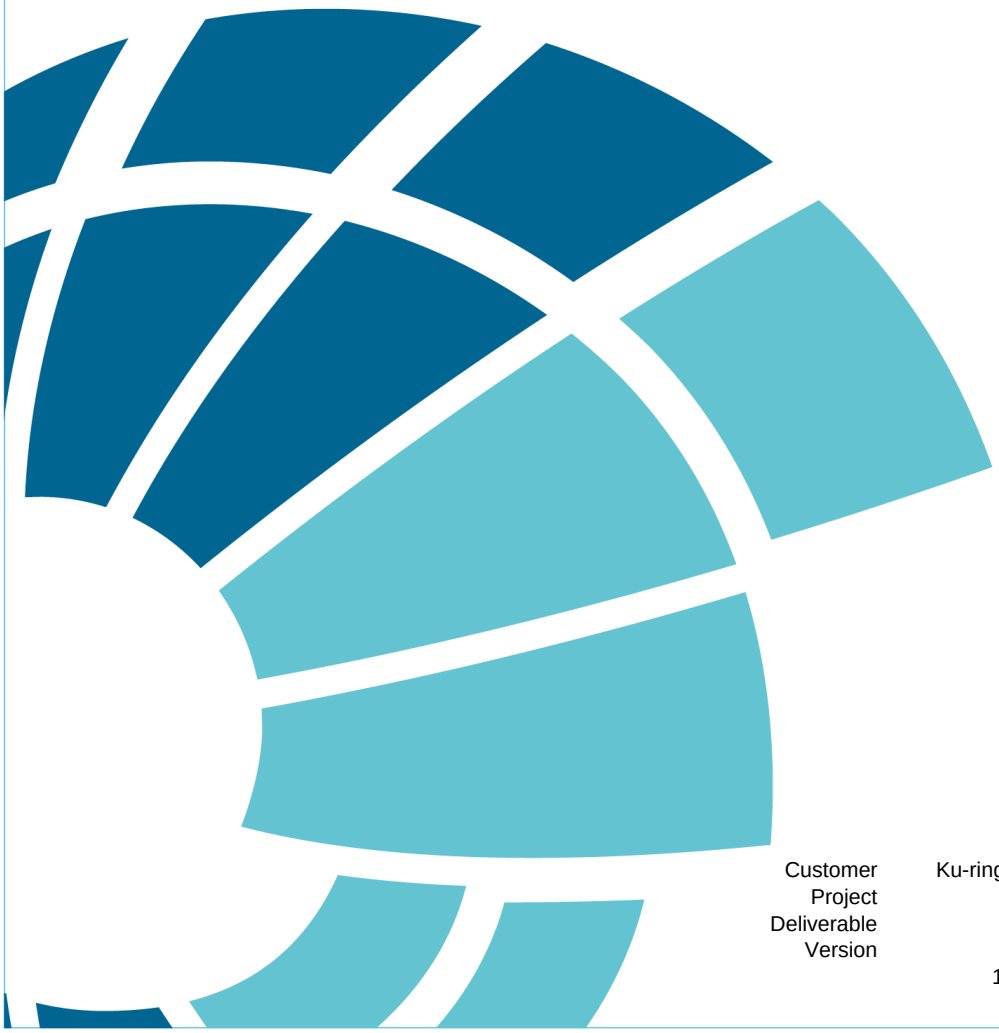
Andrew Watson
Director Strategy & Environment

Attachments:

A1⇩	Middle Harbour Northern Catchments Flood Study Final Report Volume 1	2025/214261
A2⇩	Middle Harbour Northern Catchments Flood Study Final Report Volume 2	2025/214263
A3⇩	Middle Harbour Northern Catchments Flood Study Submissions and Responses (Personal info removed)	2025/214277

Middle Harbour Northern Catchments Flood Study - Final Report

Volume 1 - Design Flood Results



Customer	Ku-ring-gai Council
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Author	Richard Wang, Kieran Smith
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Amendment Record

The Amendment Record below records the history and issue status of this document.

Version	Version Date	Distribution	Record
00	01 November 2024	Ku-ring-gai Council	Final Flood Study
01	10 April 2025	Ku-ring-gai Council	Updated Final Flood Study

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Executive Summary

The Middle Harbour Northern Catchments Flood Study has been prepared for Ku-ring-gai Council to define the existing flood behaviour within this portion of the Ku-ring-gai Local Government Area. The study area covers an approximately 16.3 km^2 catchment that drains to the Middle Harbour Estuary and includes the suburbs (or parts) of St Ives, Pymble, Gordon, Killara and East Killara. The study is focused on local overland flooding conditions within the urban environment in response to rainfall.

This flood study forms an initial stage towards the development of a comprehensive Floodplain Risk Management Study and Plan that will ultimately guide the direction of future floodplain risk management activities across the Middle Harbour Northern Catchments. The primary objective of the study is to define the flood behaviour under historical, existing and future conditions (incorporating potential impacts of climate change) for a range of design floods. The definition of flood behaviour will aid in Council's management of flood risk, including flood related land use and development controls, emergency management planning and response within the study area.

Specifically, the study comprised the following components:

- Compilation and review of existing information relevant to the study;
- Additional data collection, including survey;
- Community consultation and participation program to identify local flooding concerns and collect information on historical flood behaviour;
- Development of appropriate hydrologic and hydraulic models and verification for historical events to confirm that simulated results match the observed conditions within the catchment;
- Determination of design flood conditions for a range of design events for local overland flows, including the 20%, 10%, 5%, 2%, 1%, 0.5% and 0.2% Annual Exceedance Probability (AEP) events, and the Probable Maximum Flood (PMF); and
- Assessment of the potential impact of climate change using the latest guidelines.

The principal output from the flood modelling is a comprehensive set of design flood maps to visualise the potential flood inundation and associated flood risks across the study area. This includes peak flood level, depth, velocity, hazard and flood function mapping. The study also includes the following information to assist Council in future floodplain management and land use planning:

- Identification of properties experiencing flooding in each design event;
- Derivation of a Flood Planning Area (FPA) for application of land use development controls;
- Flood Planning Constraint Categories to guide land use planning for future development;
- SES Flood Emergency Response Classification of Communities.

The Flood Study is documented in the following two volumes:

- Volume 1 - Report and Appendices
- Volume 2 – Mapping

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Glossary

Afflux	The change in water level from existing conditions resulting from a change in the watercourse or floodplain – e.g. construction of a new bridge.
Annual Exceedance Probability (AEP)	The chance of a flood of a given size (or larger) occurring in any one year, usually expressed as a percentage. For example, if a peak flood discharge of 500 m^3/s has an AEP of 5%, it means that there is a 5% chance (i.e. a 1 in 20 chance) of a peak discharge of 500 m^3/s (or larger) occurring in any one year. (see also average recurrence interval)
Australian Height Datum (AHD)	National survey datum corresponding approximately to mean sea level.
Astronomical Tide	Astronomical tide is the cyclic rising and falling of the Earth's oceans water levels resulting from gravitational forces of the Moon and the Sun acting on the Earth.
Attenuation	Weakening in force or intensity
Average Recurrence Interval (ARI)	The long-term average number of years between the occurrence of a flood as big as (or larger than) the selected event. For example, floods with a discharge as great as (or greater than) the 20yr ARI design flood will occur on average once every 20 years. ARI is another way of expressing the likelihood of occurrence of a flood event. (see also annual exceedance probability)
Australian Rainfall And Runoff (AR&R)	Engineers Australia publication pertaining to rainfall and flooding investigations in Australia
Calibration	The adjustment of model confuguration and key parameters to best fit an observed data set
Catchment	The catchment at a particular point is the area of land that drains to that point.
Critical Duration	The critical duration is the design storm duration which provides the highest peak water levels for a given design flood (e.g. 1% AEP) at a given location. For example, if the following design durations were modelled - 2-hour, 6-hour, 9-hour and 12-hour – and the 9-hour duration resulted in the highest peak water level at a given location then the critical duration for that location would be 9-hours.
Design Flood Event	A hypothetical flood representing a specific likelihood of occurrence (for example the 100yr ARI or 1% AEP flood).
Development	Existing or proposed works that may or may not impact upon flooding. Typical works are filling of land, and the construction of roads, floodways and buildings.

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Discharge	The rate of flow of water measured in terms of volume per unit time, for example, cubic metres per second (m^3/s). Discharge is different from the speed or velocity of flow, which is a measure of how fast the water is moving for example, metres per second (m/s).
Extreme Flood	An extreme flood deemed to be the maximum flood likely to occur (for this study the Extreme Flood event was defined as three times the 1% AEP event).
Flood	Relatively high river or creek flows, which overtop the natural or artificial banks, and inundate floodplains and/or coastal inundation resulting from super elevated sea levels and/or waves overtopping coastline defences.
Flood Behaviour	The pattern / characteristics / nature of a flood.
Flood Fringe	Land that may be affected by flooding but is not designated as floodway or flood storage.
Flood Hazard	The potential risk to life and limb and potential damage to property resulting from flooding. The degree of flood hazard varies with circumstances across the full range of floods.
Flood Level	The height or elevation of floodwaters relative to a datum (typically the Australian Height Datum). Also referred to as “stage”.
Flood Liable Land	see flood prone land
Floodplain	Land adjacent to a river or creek that is periodically inundated due to floods. The floodplain includes all land that is susceptible to inundation by the probable maximum flood (PMF) or Extreme Flood event.
Floodplain Management	The co-ordinated management of activities that occur on the floodplain.
Floodplain Risk Management Plan	A document outlining a range of actions aimed at improving floodplain management. The plan is the principal means of managing the risks associated with the use of the floodplain. A floodplain risk management plan needs to be developed in accordance with the principles and guidelines contained in the NSW Floodplain Management Manual. The plan usually contains both written and diagrammatic information describing how particular areas of the floodplain are to be used and managed to achieve defined objectives.
Flood Planning Area (FPA)	The area of land below the Flood Planning Level and subject to flood related development controls.

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Flood Planning Levels (FPLs)	Flood Planning Levels selected for planning purposes are derived from a combination of the adopted flood level plus freeboard, as determined in floodplain management studies and incorporated in floodplain risk management plans. Selection should be based on an understanding of the full range of flood behaviour and the associated flood risk. It should also take into account the social, economic and ecological consequences associated with floods of different severities. Different FPLs may be appropriate for different categories of landuse and for different flood plans. The concept of FPLs supersedes the "standard flood event". As FPLs do not necessarily extend to the limits of flood prone land, floodplain risk management plans may apply to flood prone land beyond that defined by the FPLs.
Flood Prone Land	Land susceptible to inundation by the probable maximum flood (PMF) or Extreme Flood event. Under the merit policy, the flood prone definition should not be seen as necessarily precluding development. Floodplain Risk Management Plans should encompass all flood prone land (i.e. the entire floodplain).
Flood Source	The source of the floodwaters. In this study, overland flow is the primary source of floodwaters.
Flood Storage	Floodplain area that is important for the temporary storage of floodwaters during a flood.
Floodway	A flow path (sometimes artificial) that carries significant volumes of floodwaters during a flood.
Freeboard	A factor of safety usually expressed as a height above the adopted flood level thus determining the flood planning level. Freeboard tends to compensate for factors such as wave action, localised hydraulic effects and uncertainties in the design flood levels.
Geomorphology	The study of the origin, characteristics and development of land forms.
Gauging (Tidal And Flood)	Measurement of flows and water levels during tides or flood events.
Historical Flood	A flood that has actually occurred.
Hydraulic	The term given to the study of water flow in rivers, estuaries and coastal systems.
Hydrodynamic	Pertaining to the movement of water
Hydrograph	A graph showing how a river or creek's discharge changes with time.
Hydrographic Survey	Survey of the bed levels of a waterway.
Hydrologic	Pertaining to rainfall-runoff processes in catchments

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Hydrology	The term given to the study of the rainfall-runoff process in catchments.
Hyetograph	A graph showing the depth of rainfall over time.
Intensity Frequency Duration (IFD) Curve	A statistical representation of rainfall showing the relationship between rainfall intensity, storm duration and frequency (probability) of occurrence.
Lidar	Light Detection and Ranging –a remote sensing method used to generate ground surface elevation. Typically acquired through airborne surveys from which an aeroplane can cover large areas.
Overland Flow	Overland flow is surface run off before it enters a waterway. It is caused by rainfall which flows downhill along low points concentrating in gullies, channels, surface depressions and stormwater systems.
Peak Flood Level, Flow Or Velocity	The maximum flood level, flow or velocity that occurs during a flood event.
Pluviometer	A rainfall gauge capable of continously measuring rainfall intensity
Probable Maximum Flood (PMF)	An extreme flood deemed to be the maximum flood likely to occur.
Probability	A statistical measure of the likely frequency or occurrence of flooding.
Riparian	The interface between land and waterway. Literally means “along the river margins”.
Runoff	The amount of rainfall from a catchment that actually ends up as flowing water in the river or creek.
Stage	See flood level.
Stage Hydrograph	A graph of water level over time.
Sub-Critical	Refers to flow in a channel that is relatively slow and deep
Topography	The shape of the surface features of land
Velocity	The speed at which the floodwaters are moving. A flood velocity predicted by a 2D computer flood model is quoted as the depth averaged velocity, i.e. the average velocity throughout the depth of the water column. A flood velocity predicted by a 1D or quasi-2D computer flood model is quoted as the depth and width averaged velocity, i.e. the average velocity across the whole river or creek section.
Validation	A test of the appropriateness of the adopted model configuration and parameters (through the calibration process) for other observed events.

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Water Level	See flood level.

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1 Introduction

1.1 Background

The Ku-ring-gai Local Government Area (LGA) is located on the northern fringe of the Sydney Metropolitan Area. The Middle Harbour Northern Catchments Flood Study covers an area of approximately 16.3 km^2 draining to the northern tributaries of Middle Harbour within the LGA.

Steep terrain and ridge-top development has historically contributed to major flood risk within the Ku-ring-gai LGA, which experiences flash flooding along headwater streams and drainage depressions. Whilst Ku-ring-gai Council ("Council") has previously developed large-scale flood models and undertaken drainage assessments for this catchment, there is currently insufficient information available to provide a detailed understanding of flood behaviour for use in flood risk management and planning. Furthermore, recently completed, and future planned developments have highlighted the need for updated flood mapping.

Accordingly, Ku-ring-gai Council engaged BMT Commercial Australia Pty Ltd ("BMT") to undertake the Middle Harbour Northern Catchments Flood Study to define the historic, existing, and potential future flood risk across the northern portion of the LGA. The flood study will form the basis upon which future flood risk management processes and a flood risk management study and plan will be undertaken which will guide future flood risk management actions. The study will also be used in the assessment of development applications and for other future planning decisions.

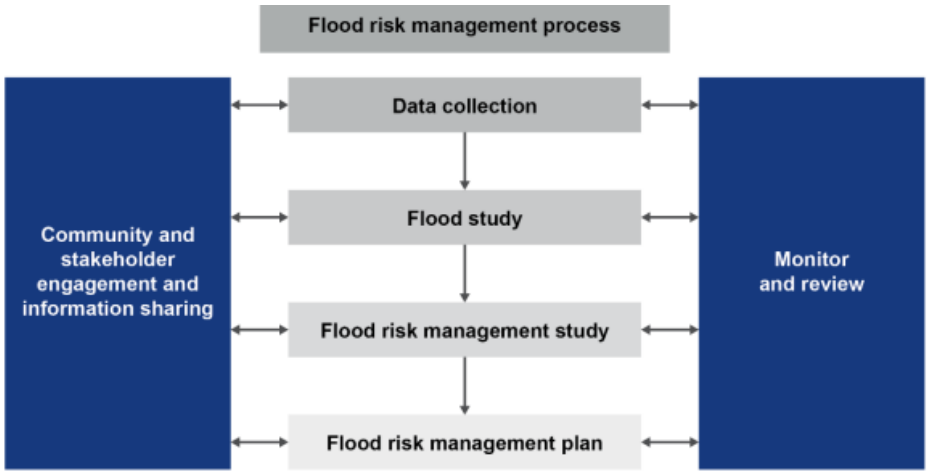
1.2 Floodplain Risk Management Process

Flooding in NSW is managed in accordance with the NSW Government's Flood Prone Land Policy (referred to as 'the Policy'). The Policy is directed towards providing solutions to existing flooding problems in developed areas, understanding potential future increases in flood risk, and ensuring that new development is compatible with its flood risk exposure and does not create additional flooding problems in other areas.

The NSW Government's *'Flood Risk Management Manual' (2023)* replacing the *'Floodplain Development Manual'* (2005) supports the Policy by defining the responsibilities, roles and processes for the management of flood liable land in NSW. Under the Policy, the management of flood liable land is the responsibility of the local authority, in this case Ku-ring-gai Council, with technical and financial support from the NSW Government. This includes the development and implementation of local flood studies and floodplain risk management studies and plans to define and manage flood risk. These are prepared through the staged approach defined by the NSW Flood Risk Management Process shown in Figure 1.1.

The Middle Harbour Northern Catchments Flood Study represents Stage 1 of the process and aims to compile relevant data and provide an understanding of flood behaviour in the study area. Ku-ring-gai Council has prepared this document with financial assistance from the NSW Government through its Floodplain Management Program. This document does not necessarily represent the opinions of the NSW Government or the Department of Climate Change, Energy, the Environment and Water.

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(Source: 'Flood Risk Management Manual' (2023))

Figure 1.1 Stages of the Floodplain Management Process

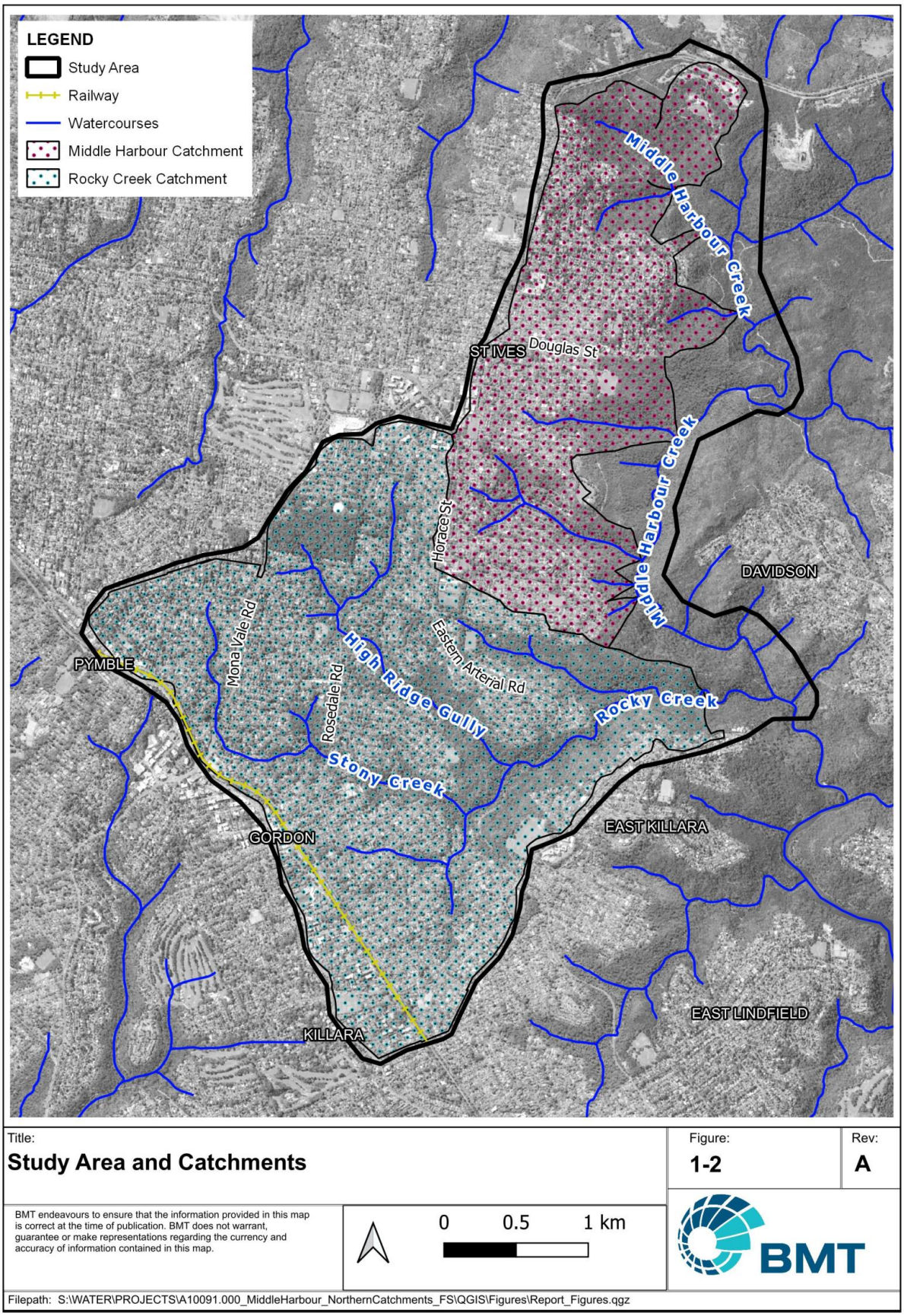
1.3 Study Area

The extent of the study area is shown in Figure 1.2 and comprises an area of approximately 16.3 km^2 that drains to the Middle Harbour Estuary, which lies along the eastern boundary of the LGA (and the study area). It covers the north-eastern portion of the Ku-ring-gai LGA, including the suburbs (or parts) of St Ives, Pymble, Gordon, Killara and East Killara.

Watercourses within the study include High Ridge Gully, Stony Creek and Rocky Creek. High Ridge Gully is a natural channel, with a small reach located in the urban areas of Gordon starting at Kulgoa Road. The channel is located in heavily vegetated areas discharging to Rocky Creek. Stony Creek is another natural channel located in the urban areas Gordon starting at Orana Avenue. Stony Creek is heavily vegetated and discharges to Rocky Creek. The study area has been divided up into two primary catchments draining either into Rocky Creek or directly into Middle Harbour as shown in Figure 1.2.

The local catchments comprise predominantly residential areas located at the top of ridgelines which drain through steep bushland reserves to undeveloped, vegetated waterway corridors such as High Ridge Gully and Rocky Creek before draining to Middle Harbour. Higher density residential and commercial development is centralised along the Pacific Highway and Mona Vale Road in the south-west of the catchment and north-west of the catchment. The catchment includes several large open recreational areas (notably Regimental Park, Killara Oval, Koola Park, Richmond Park, Darnley Oval, Barra Brui Park, Acron Oval, Dalrymple-Hay Nature Reserve and McIntosh Park), as well as several schools such as Gordon East Public School, Ravenswood School for Girls, Masada College, Sir Eric Woodward School, St Ives Public School, St Ives High School, St Ives Park Primary School, St Ives North Primary School and Brigidine College.

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LEGEND
Study Area
Railway
Watercourses
Middle Harbour Catchment
Rocky Creek Catchment
Middle Harbour Creek
ST IVES
Douglas St
Middle Harbour Creek
Horace St
DAVIDSON
Mona Vale Rd
High Ridge Gully
Eastern Arterial Rd
PYMBLE
Rosedale Rd
Rocky Creek
Stony Creek
EAST KILLARA
GORDON
EAST LINDFIELD
KILLARA
Title:
Study Area and Catchments
Figure:
1-2
Rev:
A
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Accordingly, the upstream catchment is generally characterised by lower rainfall infiltration losses and more rapid response to runoff due to the higher proportion of impervious surfaces (e.g. roadways, paved surface, buildings, etc). Whilst lower, undeveloped sections of the catchments are typically characterised by higher rainfall infiltration losses and relatively slower runoff response due to the higher proportion of pervious surfaces (e.g. vegetation, grass, etc).

Urban areas of the catchments are typically drained by drainage networks comprising open channels and/or sub-surface stormwater systems. These stormwater networks either connect into watercourses that drain into the major creeks or discharge directly to the major receiving watercourses. During periods of heavy rainfall, there is potential for the capacity of the stormwater system to be exceeded. In these circumstances, the excess water travels overland and may result in inundation of roadways and adjoining properties. There is also potential for floodwaters to overtop the banks of channels and inundate the adjoining floodplain where open watercourse sections drain through urban areas.

During major flooding, the lower parts of the catchments can also be inundated by backwater from Middle Harbour. Elevated water levels in receiving watercourses may also inhibit drainage of the study area following a major flood event.

1.4 Objectives and Scope of this Study

The primary objective of this flood study is to define overland flood behaviour across the urbanised portions of the study area under historic, existing and future conditions (incorporating potential impacts of climate change). This improved appreciation of flood behaviour will aid in Council's management of flood risk, including informing flood impact assessment, strategic land use, flood-related development control, stormwater management and flood emergency response. It will also enable the identification of flooding "hot spots" and the relative magnitude of flood-related problems to be prioritised to provide Council with a basis upon which to undertake a program of more detailed overland flow flood studies.

The general approach adopted to achieve the study objectives is as follows:

- Compilation and review of relevant data, including site inspections;
- Development of computer based hydrologic and hydraulic models;
- Calibration and validation of the computer models to reproduce historical flood behaviour;
- Simulation of the 20%, 10%, 5%, 2%, 1%, 0.5% and 0.2% Annual Exceedance Probability (AEP) design events and the Probable Maximum Flood (PMF) for existing topographic and future development conditions;
- Determination of design flood characteristics, flood risk and flood emergency response considerations within the study area;
- Assessment of potential climate change impacts.

1.5 Report Structure

This report comprises two volumes:

- Volume 1 (this document) contains the report text and appendices including:
  - Section 1 provides background to the study, introduces the flood study, and describes the study area.

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- Section 2 details the data collection and review.
- Section 3 describes the community consultation process.
- Section 4 details the development of the hydrologic and hydraulic models.
- Section 5 details the model verification process and outcomes.
- Section 6 details the design flood modelling approach.
- Section 7 details the design flood results.
- Section 8 details the sensitivity and climate change analysis of the design flood results.
- Section 9 details the flood planning information.
- Section 10 provides a conclusion summary of this study.
- Section 11 provides the list of references used in the study.
- Annexes A to E

- Volume 2 (Annex F) contains the flood mapping relevant to the study.

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2 Data Collection and Review

2.1 Overview

The initial stage of this flood study involved the collection and review of relevant data, including:

- Previous studies (Section 2.2);
- Geographical Information System (GIS) data (Section 2.3);
- Hydrologic data (Section 2.4);
- Topographic data (Section 2.5);
- Stormwater network data (Section 2.6);
- Land-use planning information (Section 2.7);
- Building footprints (Section 2.8);
- Site inspections (Section 2.9);
- Additional survey (Section 2.10).

A description of each dataset and its relevance in the context of the current study are presented in the following sections.

2.2 Previous Studies

2.2.1 Local Catchment Plans, Rocky Creek, Gordon Creek, Moores Creek, Middle Harbour Creeks (Hughes Trueman, 2004)

Hughes Trueman completed a local catchment plan for Council in 2004. This plan covered the areas of Ku-ring-gai LGA that drain via Rocky Creek, Gordon Creek, Moores Creek and four un-named creeks to Middle Harbour. It included the development of combined hydrologic and hydraulic models for each catchment using DRAINS software, and simulation of the models for the 20%, 10%, 5% and 1% AEP events, as well as the Probable Maximum Precipitation (PMP) event.

The DRAINS models developed as part of the *'Local Catchment Plans, Rocky Creek, Gordon Creek, Moores Creek, Middle Harbour Creeks'* (Hughes Trueman, 2004) have been utilised as the hydrologic input for this flood study[1]. Specific details of the DRAINS models and findings from the study for the Rocky Creek catchment are outlined below.

[1] Seven (7) DRAINS models were developed as part of the Hughes Trueman (2004) Study. Three (3) covered the areas of the major tributaries of Middle Harbour (Rocky Creek, Gordons Creek and Moores Creek) and four (4) covered the area draining to the Middle Harbour tributary itself (Middle Harbour 1, 2, 3 and 4). The Gordons Creek, Moores Creek and Middle Harbour 2, 3 and 4 DRAINS models form part of the Middle Harbour Southern Catchment Flood Study and are not discussed in this report. The Middle Harbour 1 and Rocky Creek DRAINS models have been utilised in this study.

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Review of DRAINS Models

Sub-catchment Delineation and Parameterisation

The DRAINS models utilised pit and pipe data supplied by Council (including 4,042 pits and nodes) as the starting point for which sub-catchments, overland flow paths and design rainfall conditions were derived.

GIS contours were used to determine the contributing catchment draining to each inlet pit, headwall or node (pipe discharging to creeks) as well as the slope. For each contributing catchment (or sub-catchment), the proportion of impervious area was determined from inspection of aerial photography and catchment type (i.e. whether the area was residential, commercial, parkland or bushland). A supplementary area (defined as an impervious area draining through a pervious area) was assigned to each sub-catchment with a pervious percentage greater than 20% (an arbitrarily chosen amount).

For each sub-catchment area draining to a pit, a flow path length was drawn representing the longest path water would be likely to travel to reach the pit outlet. This flow path length was assigned to the impervious portion of the catchment, however depending on the impervious flow path length an additional grass flow path length was added to represent the different travel times across various surfaces in the catchment.

A GIS layer of the delineated sub-catchments for both DRAINS models was supplied to BMT at the beginning of the study. A review of the sub-catchments undertaken by BMT found that the catchment sizes, slopes and flow path lengths generally matched the latest available Digital Elevation Model (DEM) data, although there were a few locations where catchments had to be redefined to ensure all contributing upstream areas were included. The review also determined that for areas in the downstream part of the study area (where inlet nodes were not supplied), no sub-catchments had been delineated by Hughes Trueman (2004).

Design Rainfall Information

Rainfall data used in the DRAINS models was determined from Ku-ring-gai Council's Rainfall Intensity-Frequency-Duration (IFD) data published in Ku-ring-gai Council's '*Water Management Development Control Plan'* (2004). Design storms for the 20%, 10%, 5% and 1% AEP and the PMP storm events were run in DRAINS for each sub-catchment for the 10, 20, 30, 45, 60, 90, 120 and 180 minute storm events.

Rainfall Losses

Values for the initial loss in paved (representing impervious) and grassed (representing pervious) areas were taken as 1 mm and 5 mm respectively as recommended in the DRAINS software manual. A DRAINS soil type "3" was nominated for the study area, indicating an area that has higher runoff potential and a lower infiltration rate.

The DRAINS software package allows for the selection of an Antecedent Moisture Condition (AMC) which accounts for the moisture condition of the soil in the leadup to an event. An AMC of 3 (representing a rather wet catchment that has experienced between 12.5 and 25 mm rainfall in the previous 5 days) was chosen for all storm events.

Summary

The DRAINS models developed as part of Hughes Trueman (2004) have been adopted as a preliminary input for use in this study. Alterations to the DRAINS models to match current catchment conditions, updated delineation of sub-catchments within downstream areas, and conversion of the

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model for use with Australian Rainfall and Runoff 2019 (ARR 2019) methodologies have been undertaken as part of this study (see Section 4.2 for further details).

Results of the Study

The results of the Hughes Trueman (2004) DRAINS modelling were used to assess the performance of the existing drainage systems (at the time the study was completed). Hughes Trueman (2004) found that the pipe system capacity across the Middle Harbour did not comply with modern design standards primarily due to inadequate capacity of stormwater inlet pits. Specifically, the study found that:

- 66% of the pipe drainage system is capable of conveying the flow from a 5% AEP storm;
- 70% of the inlet pits have inadequate capacity to drain flows from a 5% AEP storm.

A summary table of the report's findings in terms of both pit and pipe inlet capacities are shown in Table 2.1.

Table 2.1 Drainage Constraints Identified by Hughes Trueman (2004)

Drainage Constraint	AEP Event							
	20%		10%		5%		1%	
	No.	%	No.	%	No.	%	No.	%
Pits with Inlet Constraints	2,865	71%	2,824	70%	2,811	70%	2,746	68%
Pipes with Flow Constraints	479	12%	565	13%	548	14%	637	16%
No Constraints	698	17%	693	17%	683	17%	659	16%

Table 2.2 Pipe Capacities Identified by Hughes Trueman (2004)

Event	Percentage of total pipe network with capacity at or below nominated event
<1 EY	9%
1 EY	7%
0.5 EY	9%
20% AEP	5%
10% AEP	4%
5% AEP	5%
2% AEP	3%
1% AEP	27%
PMP	31%

The study found these inadequate capacities led to widespread nuisance flooding throughout the catchment. The report identified the following flooding hotspots within the study area:

- Dorset Drive and Putarri Avenue, St Ives – Overland flows from the sag point on Putarri Avenue pass through Putarri Reserve and then along Dorset Drive and through downstream properties.

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- Laing Avenue, Killara – Overland flow arriving from Forsyth Street continues through properties to Lagonda Avenue, before pooling at a sag point and flooding through properties downstream of the Laing Avenue sag.
- Carlotta Avenue, Gordon – Overland flow overtops the headwall just upstream of the Carlotta Avenue sag and flows across Carlotta Avenue near Metzler place. Flows then cross the Pearson Avenue sag and pass through properties as they move towards the creek at the rear of properties along Mr William Street.
- McIntosh Street and Arthur Street, Gordon – Upstream of McIntosh Street, low inlet capacity is unable to drain flows from the Rosedale Road sag.
- Woodward Place, St Ives – Overland flow from Kelvin Road moves east before dropping via a waterfall at the western end of Woodward Place, overtops the headwall and floods properties along Woodward Place.
- Cassandra Avenue, St Ives – Overland flow approaches Cassandra Avenue from two upstream areas (Mariana Close and Melaleuca Drive) before flowing through a sag point and into downstream properties.
- Ayres Road to Blackburn Street – Significant overland flows from Woodbury Road pass down Aronia Avenue towards Ayres Road. Flows then pass through the sag point on Ayres Road towards the Blackburn Street sag.

2.2.2 Ku-ring-gai Council Preliminary Flood Mapping Report (Mott MacDonald, 2011)

Ku-ring-gai Council commissioned Mott MacDonald to complete preliminary floodplain mapping for the LGA that would inform flood planning and land use zoning. The DRAINS models from Hughes Trueman (2004) were used for hydrologic estimates and a HEC-RAS 1D (One-Dimensional) hydraulic model was developed. The following parameters were adopted for design flood conditions:

- Impervious (paved) depression storage of 1 mm; and
- Pervious (grassed) depression storage of 5 mm.

DRAINS outputs were verified against Rational Method calculations. The DRAINS model hydrologic data was input into the HEC-RAS model where:

- Flows exceeded the drainage system capacity and were surcharging onto the surface; and
- Flows were discharging into the open channel sections of the network.
- A 20% and 50% blockage factor were applied to on-grade and sag pits.

Flood levels obtained from the HEC-RAS hydraulic model were processed to develop a continuous water surface profile between the model cross-sections. The level difference between the water surface profile and the ground elevation provided an indicative 5% AEP and 1% AEP flood extents. The report identified the chief flood mechanism in the catchment is characterised by the occurrence of short intense storms which lead to fast flowing surface runoff through residential areas.

2.3 Geographic Information System (GIS) Data

A number of digital Geographic Information System (GIS) layers were also provided by Council to assist with this flood study, including:

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- Study area extent;
- Cadastral lot boundaries;
- Locations of community hall, schools and childcare centres;
- Locations of drainage infrastructure including pits and pipes;
- Drainage catchments;
- Emergency management data including evacuation centres, vulnerable assets, sea level rise for 2100;
- Environmental management data including watercourses assessment lines;
- Current flood risk mapping;
- Roadway data (used for roadway labels);
- Land use zoning from Council's Local Environment Plan (LEP) 2015;
- Mapping from Hughes Trueman (2004), including catchment polygons, catchment outlets, stormwater networks details and overland flow paths from the DRAINS model;
- Locations of cycle facilities (i.e. cycle paths);
- Locations and details of water quality devices and catchments.

In general, the GIS layers provide a suitable basis for preparing report figures and informing the development of hydrologic and hydraulic models. Further details on the outcomes of the review of the stormwater layers is provided in Section 4.3.7.

2.4 Hydrologic Data

2.4.1 Rainfall Data

Daily and sub-daily gauge data provides a high-quality rainfall dataset for use in the model calibration and validation process. It is used to define when historical rainfall events occurred, as well as the temporal pattern and rainfall depths for these events.

The Bureau of Meteorology (BoM) operates an extensive network of rainfall gauges across Australia. At present, there are twenty-four (24) operational gauges within a 15 km radius of the Middle Harbour Northern Catchments study area centroid, with another eighty-nine (89) being discontinued sometime previously. Of these twenty-four (24) gauges, twenty-two (22) are daily read rainfall gauges and the remaining two (2) are sub-daily rainfall gauges.

Sydney Water also operates an extensive network of sub-daily rainfall gauges across Australia. At present, there are twenty-seven (27) operational gauges within a 15 km radius of the Middle Harbour Northern Catchments study area centroid, with another three (3) being discontinued sometime previously.

Annex A contains the full list of rainfall stations (including closed stations) and their respective periods of record. The location of gauges with data from 1998 to present (the period within which significant storms were identified as part of the Community Consultation - refer Section 3) is shown in Figure 2.1.

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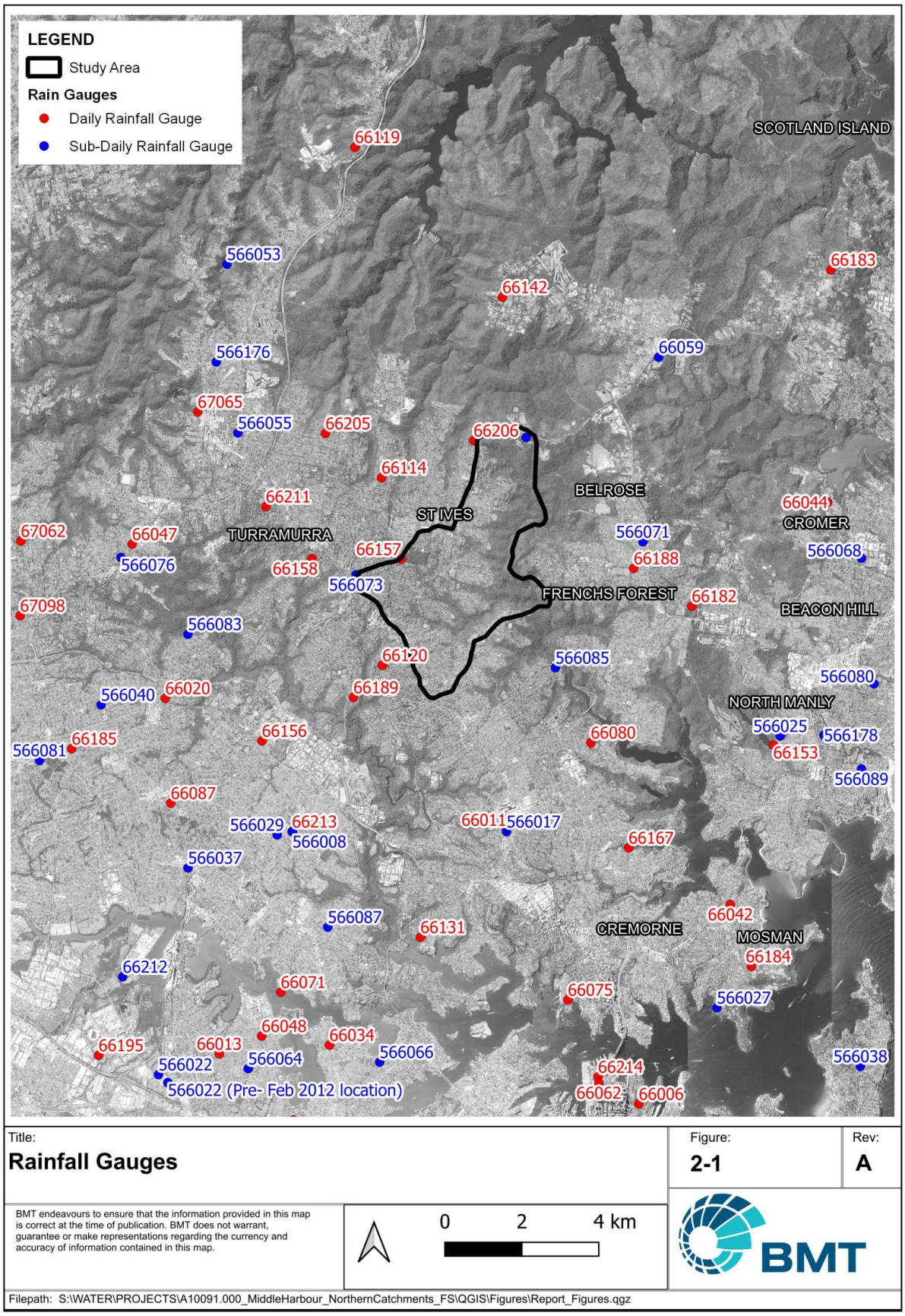
For historical events, the recorded rainfall totals at daily and continuous rainfall gauges provide the observed rainfall depth, whilst the recorded hyetographs at the sub-daily rainfall gauges provide the temporal pattern. The spatial distribution of the gauges throughout the region allowed for the reasonable approximation of the historical temporal patterns across the study area.

The number of sub-daily gauges within 15 km of the study area, along with long operating periods results in at least twenty-nine (29) gauges operating between 1900 and 2020. For the period between 1970 and 2020, at least three (3) gauges operated concurrently. For the period between 1990 and 2020, ten (10) gauges operated concurrently.

2.4.2 Stream Gauge Data

There are no streamflow gauges found within the study area following a review of the data from the Manly Hydraulics Laboratory and WaterNSW.

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Title:
Rainfall Gauges

Figure: **2-1**

Rev: **A**

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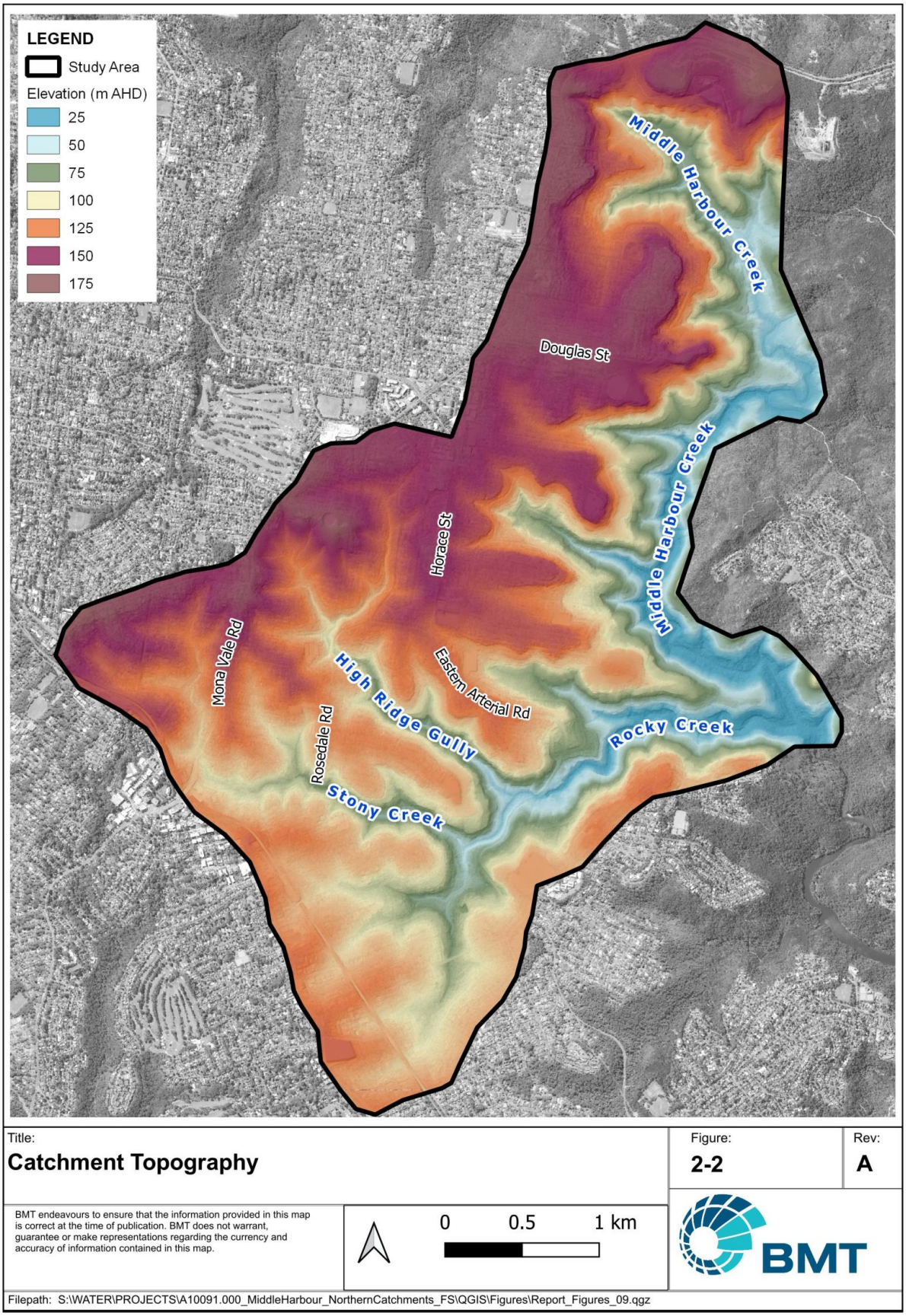
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2.5 Topographic Data

Aerial topographic survey, also known as LiDAR (Light Detection and Ranging) survey, covering the study area has been provided by Council. The survey was captured by the NSW Government's Department of Finance, Services and Innovation in 2020. The 2020 LiDAR data was supplied on a 1 m grid resolution, with a stated horizontal accuracy of +/- 0.8 m @ 95% confidence and a vertical accuracy of +/- 0.3 m @ 95% confidence. Additional survey has been conducted to in areas with high vegetation density refer to Section 2.10 for more detail.

The topography within the study area is shown in Figure 2.2. The highest point in the catchment is at northern end next to Mona Vale at approximately 176 m AHD. The catchments steeply descend into Middle Harbour to approximately -0.5 m AHD. Currently there are no available detailed bathymetry datasets for the Middle Harbour Estuary.

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LEGEND
Study Area
Elevation (m AHD)
25
50
75
100
125
150
175
Middle Harbour Creek
Douglas St
Middle Harbour Creek
Horace St
Mona Vale Rd
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Rosedale Rd
Stony Creek
Title:
Catchment Topography
Figure:
2-2
Rev:
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2.6 Stormwater Network Data

The stormwater system can play a significant role in defining flood behaviour across the developed sections of the catchments, particularly during more frequent flood events. Therefore, it is important to include a representation of the stormwater system in the flood models developed for this study.

A GIS database comprising an extensive network of stormwater drainage infrastructure was provided by Council in August 2020. This database primarily consists of a pit and pipe stormwater network and a number of open channels. It provides the location, alignment and attributes of Council owned stormwater pipes and culverts, as well as the locations and attributes of stormwater pits or inlets. A summary of this data is provided in Table 2.3.

Table 2.3 Summary of Council's Pit and Pipe Database

Asset Type	Data Provided	Number of Assets
Pit	Location, Pit ID, Installation Date, Type (sag pit, junction pit, gully pit, grated pit, surface inlet, headwall), Dimensions	833
Pipe	Location, Length, Installation Date, Dimensions, Depth to Invert (Upstream and Downstream), Material of structure, Type (pipe, channel, gully)	751

A detailed review of these layers was completed to confirm if the available information was sufficient to include a representation of the stormwater system in the flood model. In general, the pit and pipe layers provide sufficient information. However, the following limitations were identified:

- Invert elevations provided were estimated from 2 m contours developed from orthographic maps. Many of the inverts were found not to be a good match with the 2020 LiDAR data and therefore, invert elevations were corrected for use in this study. This is discussed in further detail in Section 4.3.7.
- Several identified pits were the upstream and downstream nodes for major overland flow paths extracted from the Hughes Trueman (2004) DRAINS model. These were removed from the drainage dataset.

2.7 Land Use Planning Information

Land Use Planning Zones were provided by Ku-ring-gai Council. This data includes land use planning information that provides a means to distinguish between land use types across the study area and enable spatial variation of distinct hydrologic (e.g. rainfall losses) and hydraulic properties (e.g. Manning's 'n' roughness values).

2.8 Building Footprints

Building footprints were provided by Council. A visual assessment of the building footprints was undertaken against buildings shown in recent aerial imagery for the study area. In general, this dataset was determined to be representative of the building extents and locations, however it should be noted that there are data gaps in areas of dense vegetation and tree canopy cover.

Overall, this data provides a means to represent the localised blockages associated within buildings across the study area and will be incorporated into the hydraulic model.

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2.9 Site Inspection

Site inspections have been undertaken during the study (both physical assessments and virtual desktop assessments via Google Street View) to gain an appreciation of local hydraulic features and their potential influence on the catchment flood behaviour. Some of the key observations accounted for during the site inspections included:

- Presence of local structural hydraulic controls such as bridges, culverts, road embankments and natural topographical controls such as channel constrictions or steep reaches;
- General nature of the catchment landforms, vegetation type and coverage and the presence of significant flow paths;
- Location of existing development and infrastructure in the study area.

This visual assessment was useful for defining hydraulic properties within the hydraulic model and ground-truthing of topographic features identified in the DEM.

2.10 Additional Survey

Whilst the 2020 LiDAR data should generally provide a good representation of the variation in ground surface elevations across much of the catchment, the reliability of this data may be reduced in important conveyance areas due to the presence of vegetation and/or water within channels at the time the data was collected. LiDAR data will also not provide any information on features such as bridges and culverts, which can have a significant impact on flood behaviour.

Therefore, review of available topographic data identified the requirement for additional survey to be collected to provide the necessary coverage and detail required to develop the hydraulic model. Accordingly, detailed survey was completed by Pinnacle Land Surveyors during March 2022. This included:

- Survey of thirty-three (33) cross-sections to determine the conveyance of key channels and adjacent floodplain; and
- Survey of thirteen (13) hydraulic structures to collect details of several bridges and culverts on major tributaries and cross-drainage across major roadways. Data collected included structure dimensions, waterway areas and invert levels

The locations of surveyed cross-sections and structures are listed in Table 2.4 and shown in Figure 2.3. The survey plans provided by Pinnacle Land Surveyors are enclosed in Annex B.

Table 2.4 Surveyed Hydraulic Structures and Survey Extent Locations

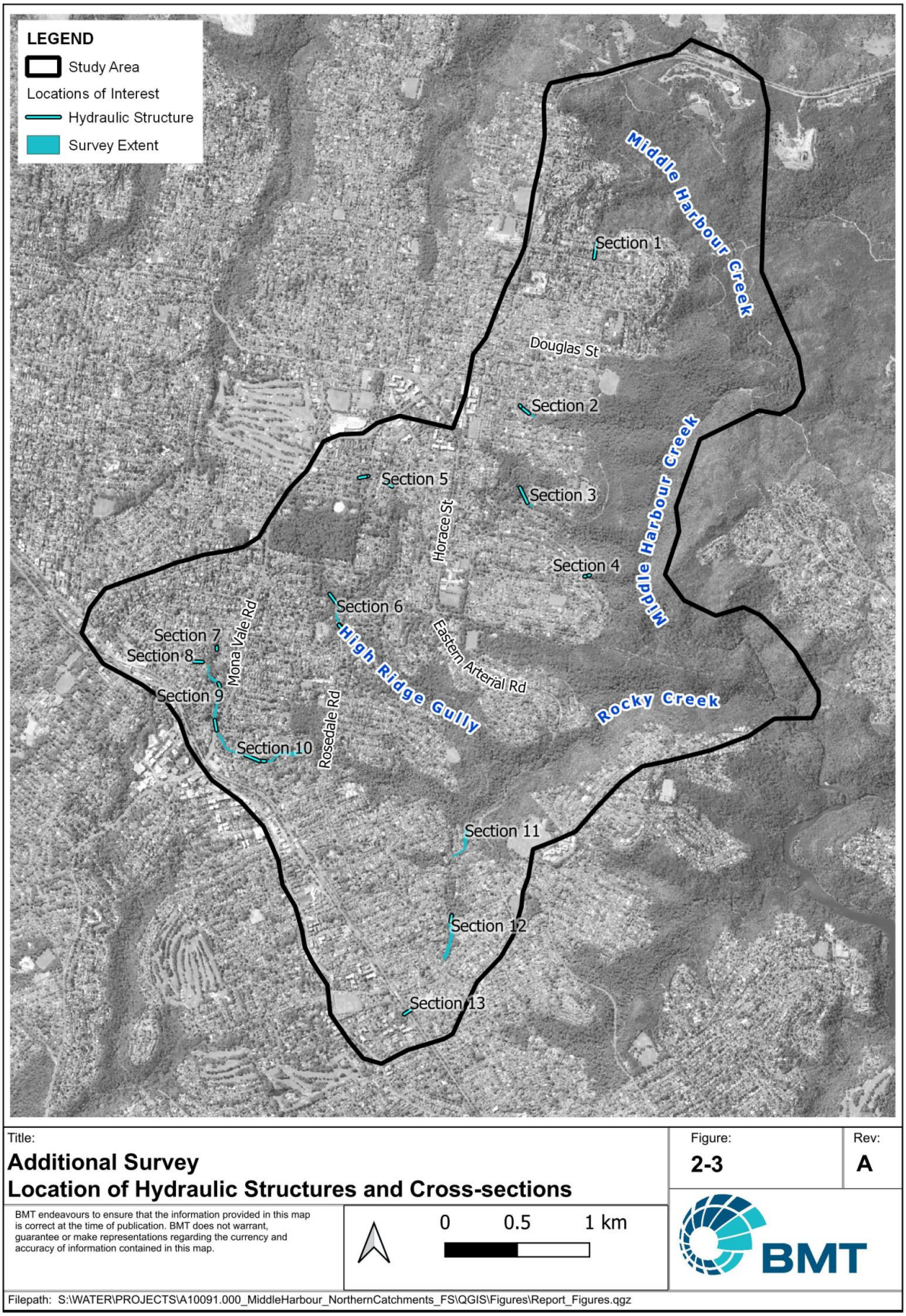
ID	Location
Section 1	Ayres Road to Blackburn Street
Section 2	Carcoola Road
Section 3	Cassandra Avenue
Section 4	Melaleuca Drive
Section 5	Dorset Drive
Section 6	Bolton Place

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ID	Location
Section 7	Church Street
Section 8	Wellesley Road
Section 9	Fern Street
Section 10	Carlotta Avenue to Ashley Grove
Section 11	Maytone Avenue
Section 12	Wattle Street
Section 13	Werona Avenue

Note: 33 cross sections are located along the “Survey Extent’ areas in Figure 2.3

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LEGEND
Study Area
Locations of Interest
Hydraulic Structure
Survey Extent
Middle Harbour Creek
Section 1
Douglas St
Section 2
Section 5
Section 3
Horace St
Middle Harbour Creek
Section 4
Section 6
Mona Vale Rd
Section 7
Section 8
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Section 9
Rosedale Rd
Section 10
Section 11
Section 12
Section 13
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Additional Survey
Location of Hydraulic Structures and Cross-sections
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3 Community Consultation

3.1 Purpose

Council recognises that community consultation is an important component of the flood study for the Middle Harbour Northern Catchments. Therefore, the community was consulted throughout the preparation of the flood study. The consultation with the community aimed to:

- Inform the community about the study;
- Gather information from the community on their flood experiences within the catchment;
- Collect feedback regarding community concerns and attitudes;
- Develop and maintain community confidence in the study results.

The consultation was completed via a number of different consultation methods at various points within the flood study, as detailed in the following sections.

3.2 Study Webpage

A study webpage was established for the duration of the study and made available via Council's online community engagement portal:

https://www.krg.nsw.gov.au/Environment/Sustainable-living/Prepare-for-extreme-weather/Flooding

The webpage was developed to provide the community with detailed information about the study, as well as to provide an online forum to ask questions and complete the online questionnaire (this questionnaire was identical to the one distributed to the community, as discussed in the following section). 387 responses to the online questionnaire were received via the webpage.

3.3 Media Release, Community Letter and Questionnaire

A media release was prepared and distributed to local media outlets during the initial stage of the study. This media release provided a brief overview of the study, informed the community of the commencement, purpose and objectives of the study, and earmarked that a newsletter and questionnaire would be distributed.

A community information letter, Frequently Asked Questions (FAQ) sheet and questionnaire were distributed to all landowners, residents and businesses located within the study area in July 2020 (refer copies enclosed in Annex C).

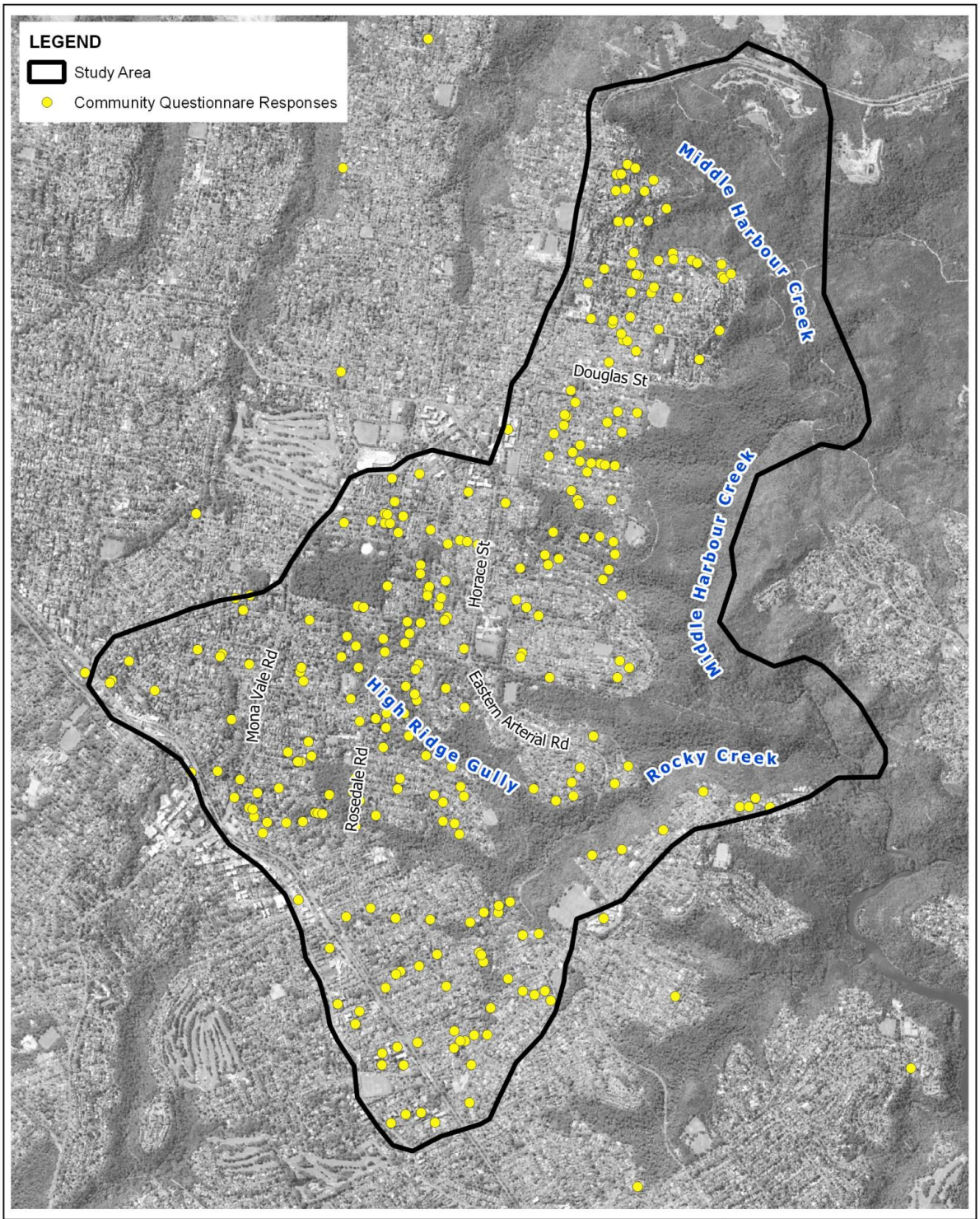
The information letter provided an overview of the flood study, while the questionnaire sought to collect information on the community's past flood experiences and concerns. More specifically, the focus of the questionnaire was to gather relevant flood information from the community, including photographs, observed flood depths and descriptions of flood behaviour within the catchment. Photographs and comments relating to flood behaviour contained within the responses were extracted to assist with the model calibration process. As discussed, the questionnaire was also accessible through Council's online community engagement portal.

A total of 394 questionnaire responses were received (387 online surveys and 7 returned questionaries). These responses were compiled into a GIS database that has been used to analyse the spatial distribution of responses (refer Figure 3.1), as well as colour coded according to whether flooding issues (and what type of issue) were reported at that location (refer Figure 3.2).

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Figure 3.1 indicates a comprehensive coverage of responses across the study area. A number of respondents opted not to provide their name or address and therefore, the locations of these respondents could not be shown.

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Title:
Community Questionnare Responses

Figure: **3-1**

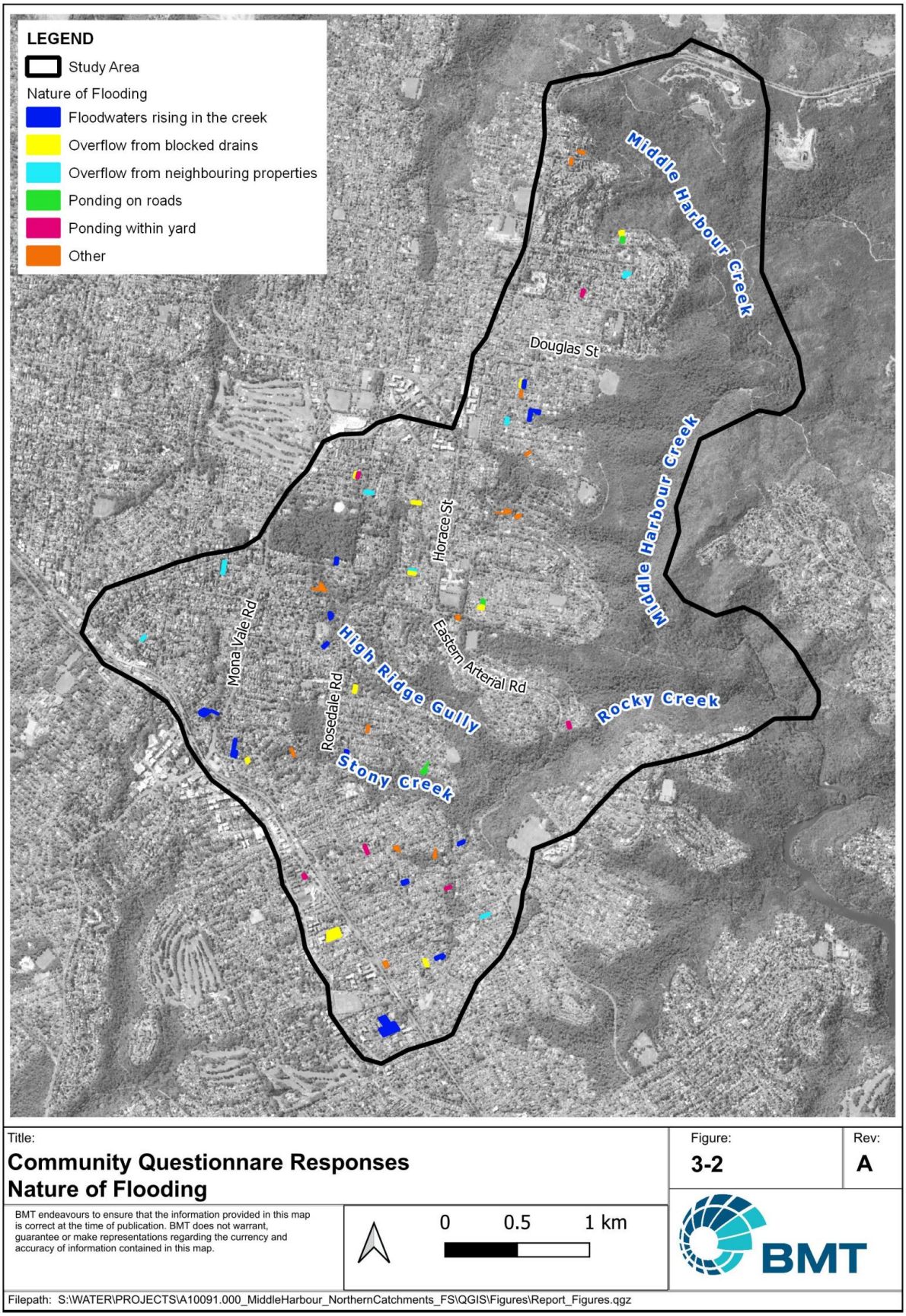
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LEGEND
Study Area
Nature of Flooding
Floodwaters rising in the creek
Overflow from blocked drains
Overflow from neighbouring properties
Ponding on roads
Ponding within yard
Other
Middle Harbour Creek
Douglas St
Middle Harbour Creek
Horace St
Mona Vale Rd
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Rosedale Rd
Stony Creek
Title:
Community Questionnare Responses
Nature of Flooding
Figure:
3-2
Rev:
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The responses to the questionnaire indicate that:

- The majority of the respondents have resided at their property for over 20 years, with reported experience provided for a 1986 flood event. A summary of the length of residence the respondents have been at their property is shown in Table 3.1.
- Approximately 50% of respondents had experienced flooding either within or outside of their property. Several historic events were identified from the consultation, with the February 2010 and February 2020 events being identified consistently by respondents as the most significant. The November 2009, June 2016, February 2018, November 2019 and January 2020 events were also identified as significant events.
- Multiple respondents referred to frequent flooding due to overflow from neighbouring properties, overflow from blocked drains or overflow from water rising in creeks. Multiple respondents reported shallow flood depths of less than 30 cm.
- Limited historical flood marks were identified during community consultation. A total of twenty-two (22) respondents reported having a flood mark; however no additional details were provided. Other respondents were unsure when the event occurred. Forty-two (42) granted permission to be contacted.
- One-hundred and forty-seven (147) respondents have experienced some degree of flooding. Where flooding was identified as an issue, the community were asked to separately report on the type of flooding observed. The nature of flooding experienced for the 147 respondents is shown spatially in Figure 3.2 and summarised in Figure 3.3. Overall, the number of responses for each category indicates comparatively greater observations of local stormwater overflow and rising floodwaters from open watercourses with fewer observations of ponding in yards and roadways.
- Forty (40) respondents reported they had observed overflow from blocked drains. Some reports indicated that inlet pits were blocked, with between 10% and 100% blockage reported. In some reports, pipes were noted as blocked or under capacity for the event.
- A number of respondents provided suggestions for alleviating the flood risk in the catchment. These suggestions included:
  - Increased maintenance of the drainage system, e.g. ensuring pits, stormwater drains and waterways are kept clear of debris;
  - Increasing capacity of the drainage system, e.g. upgrading pits and pipes to larger size to accommodate higher flows; and
  - Increasing widths of drainage easements.

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Table 3.1 Length of Residence of Respondents at Property

Length of Residence	No. of Respondents
0-2 years	38
3-5 years	36
6-10 years	70
11-20 years	80
More than 20 years	162
Not stated	8

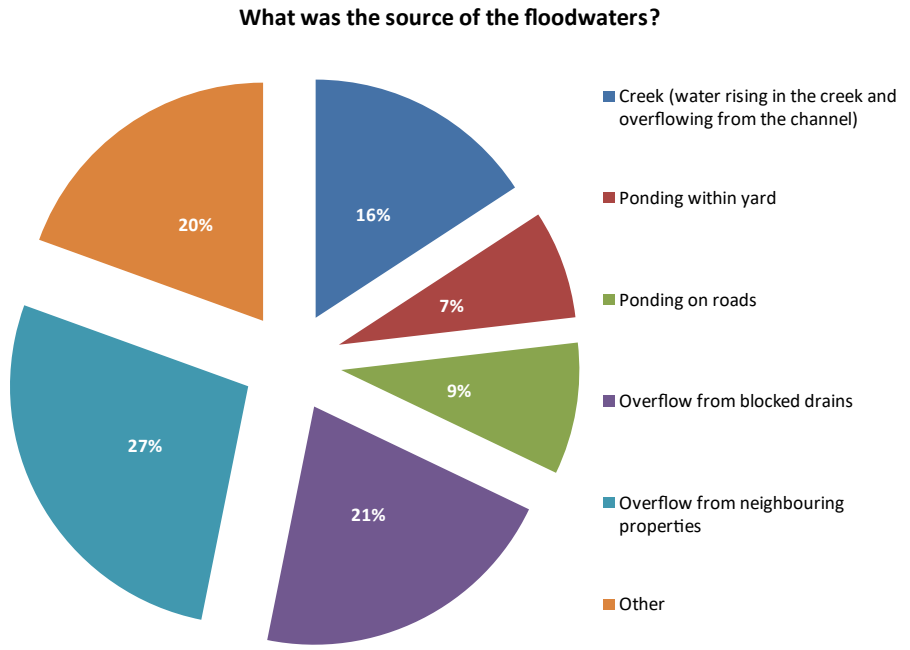


Figure 3.3 Questionnaire Responses – Nature of Flooding Experienced

3.4 Public Exhibition of Draft Flood Study Report

3.4.1 Public Exhibition and Community Session Details

The Draft Flood Study Report was placed on public exhibition between October and November 2023 during which public submissions were invited on the study. Letters informing the public exhibition were also mailed directly to properties that fell within the draft Flood Planning Area (FPA) and Probable Maximum Flood (PMF) extents (see Section 9).

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As part of the public exhibition of the report, two "drop-in" community information sessions were held on the 24th and 26th of October 2023 to provide opportunity for the community to talk to Council's engineering staff and BMT to find out more about the study. Some of the general discussions were related to:

- Community experiences during the March 2022 flood event;
- The representation of building structures within the flood model;
- The tagging of properties, particularly within the PMF extent as part of the 2021 NSW Flood Prone Lands Package;
- Identification of areas with inadequate drainage issues.

3.4.2 Community Response

A total of 32 submissions were received during the public exhibition period. The key themes raised in the responses, which are also generally consistent with the feedback during the "drop-in" sessions included (but were not limited to):

- Concerns around the tagging of properties, particularly those affected only in the PMF extent (not in the Flood Planning Area) and the potential effect on property values;
- Concerns around inadequate drainage and overdevelopment in parts of the catchment;
- Concerns around how building structures and local topographic features had been represented within the flood model and the potential for artificial ponding of water as a result;
- Minor amendments to reporting.

Following the public exhibition period, several individual site inspections were undertaken by BMT and Council across the catchment as a means of further ground truthing of the modelling results. As a result of the community feedback and in line with the observations from the individual property ground truthing, modifications were made to the modelling approach undertaken including:

- Amendment to building extents to enable better overland flow through densely populated urban areas.
- Local revision of individual hydraulic structures/stormwater assets and local topography.
- Revision of the filtering procedure was undertaken, along with subsequent review of catchment wide results, to ensure areas of low depth and isolated ponding were not tagged (see Section 9 for more detail).

The review of the modelling and mapping updates resulted in the following updates:

- Flood Planning Area Mapping:
  - 59 properties that were previously tagged in the draft FPA during the draft exhibition stage but are no longer tagged in the final FPA.
  - 52 newly identified properties were identified as potential additions, however, are not considered essential to add at this stage:
  - 40 have been identified for trimming due to minor boundary affectation; and
  - 12 will be reviewed as part of the Flood Risk Management Study and Plan.
- Probable Maximum Flood Tagging:

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- 547 properties that were previously tagged in the draft PMF tagging map during the draft exhibition stage are no longer on the PMF tagging map
- 9 newly identified properties were identified as potential additions, however, are not considered essential to add at this stage due to minor boundary affectation and will be reviewed as part of the Flood Risk Management Study and Plan.

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4 Model Development

4.1 Types of Models

The urbanised nature of the study area creates a complex hydrologic and hydraulic flow regime. This is due to its mixture of pervious and impervious surfaces, as well as a combination of open watercourses, overland flow paths, cross-drainage structures and piped stormwater systems.

Computer models are the most common and efficient tools for assessing flood behaviour within a catchment. Separate hydrologic and hydraulic models were developed for this study, whereby:

- The **hydrologic model** transforms rainfall into runoff across the catchment and produces the flows which form the inflow boundaries of the hydraulic model.
- The **hydraulic model** simulates the distribution and movement of the runoff (or flow) across the floodplain, overland flow paths and within the stormwater network, and produces flood levels, depths and velocities.

Information on the topography and characteristics of the catchments and floodplains are built into the hydrologic and hydraulic model. Recorded historical flood data, including rainfall and flood levels, are used to calibrate and validate the models, if possible. Alternatively, models can be verified where there is limited quantity and uncertainty over the accuracy of historical flood information (such as for this study). Once calibrated (or verified), the models can be used to simulate design events and derive design flood conditions (e.g. peak flood extents, flood depths, flood levels, discharges and flow velocities). These predicted flood conditions can be used to produce flood maps and define flood risk.

This section describes the development of the hydrologic and hydraulic models. Specific details of the application of these models as part of the model calibration and design modelling process are provided in Section 5 and Section 6.

4.2 Hydrologic Model

4.2.1 Modelling Approach

The DRAINS models developed for the *'Local Catchment Plans, Rocky Creek, Gordon Creek, Moores Creek, Middle Harbour Creeks'* (Hughes Trueman, 2004), (as discussed in Section 2.2.1) were used as a preliminary input to develop a single DRAINS model that includes both (2) major sub-catchments (i.e. Rocky Creek and Middle Harbour within a single hydrologic model). This hydrologic model includes all catchment areas draining to the outlets of the catchment within the study area. DRAINS is widely used throughout Australia.

DRAINS simulates a catchment and its tributaries as a series of sub-catchment areas linked together to replicate the rainfall and runoff process usually through a drainage network. Input data includes the definition of physical catchment characteristics including:

- Catchment slope, area, vegetation, urbanisation and other characteristics;
- Spatial and temporal variations in the distribution, intensity and amount of rainfall;
- Antecedent moisture conditions (dryness/wetness) of the catchment (i.e. initial and continuing losses).

The output from the hydrologic model is a series of flow hydrographs which form the inflow boundaries of the hydraulic model.

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The model development and adopted parameters are discussed in the following sections.

4.2.2 Catchment Delineation and Parameterisation

The study covers two (2) major sub-catchments based on the major watercourse receiving flows from each area. These catchments were previously delineated into sub-catchments as part of Hughes Trueman (2004) based on the topographic divides and the location of key drainage inlets (e.g. culvert crossings).

As outlined in Section 2.2.1, two (2) of these sub-catchment delineations were provided at the start of this study. The extent of the TUFLOW hydraulic model has been considered within the sub-catchment delineation to ensure the availability of inflow information at appropriate locations within the model. The number of sub-catchments delineated within each catchment area and average sub-catchment size within urban and non-urban areas of the catchment are listed in Table 4.1.

Table 4.1 Number and Average Size of Sub-Catchments

Major Catchment	No. of Sub-catchments	Sub-catchment size – Urban Areas (ha)	Sub-catchment size – Non-urban Areas (ha)
Rocky Creek	1,497	0.2	0.4
Middle Harbour	725	0.1	0.5

4.2.3 Impervious/Pervious Areas

Based on ARR 2019 guidelines, rainfall losses within a hydrologic model are differentiated based upon the land surface type. The definitions of each land surface type are provided below:

- Effective Impervious Area (EIA) – incorporates the impervious area of the catchment that generates a rapid runoff response in rainfall events and discharges directly into the drainage system.
- Indirectly Connected Areas (ICA): a contribution of discharges from:
  - Impervious areas which are not directly connected to the drainage network and flow over pervious surfaces before reaching the drainage system (e.g. a roof that discharges onto a lawn) – referred to as Indirectly Connected Impervious Area (ICIA).
  - Pervious areas that interact with Indirectly Connected Impervious Area (e.g. nature strip and lawns next to paved areas) – referred to as Indirectly Connected Pervious Area (ICPA).
- Urban Pervious Area (UPA) – consisting of parkland and bushland that do not interact with impervious areas.

Aerial photography and GIS digitising were used to determine the impervious/pervious area split for several land use categories which were then used to determine the percentage of EIA, ICA and UPA for each sub-catchment within the model.

As part of the digitising activity, it was noted that urban pervious areas are located predominantly in downstream areas of the catchment being made up of generally vegetated creek areas. Outside of these areas, urban pervious areas are limited to singular ovals scattered throughout the catchment. It is also noted that the DRAINS modelling software does not allow for the use of separate loss parameters for EIA, ICA and UPA areas (DRAINS does employ a methodology for dealing with the complex nature of losses in urban catchments but it was not considered appropriate for this study). Therefore, to simplify the loss approach (refer Section 4.2.4), it was decided that each catchment would be split into

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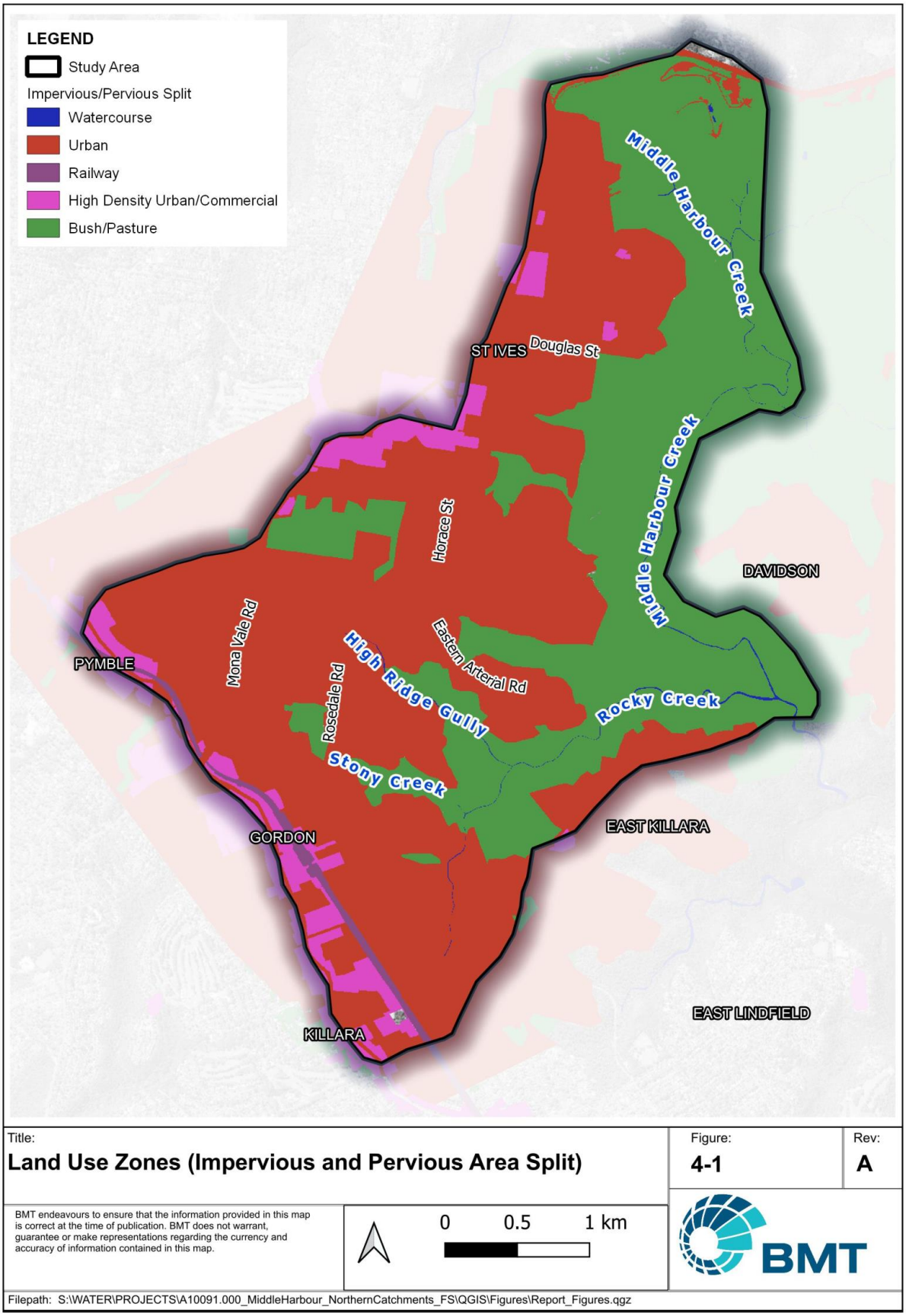
an EIA percentage (representing the impervious section) and an ICA percentage (representing the pervious section) only, with UPA areas encompassed within the ICA percentage. While this is considered a conservative approach, as most of the UPA area is in the downstream area of the catchment it is not considered to have a significant effect on design flood levels in the developed portion of the catchment.

The impervious/pervious area split for the different land use zones is outlined in Table 4.2, with the land use zones shown in Figure 4.1 The initial EIA, ICA, UPA calculation is included along with the final split adopted

Table 4.2 Lane Use Zone with Percentage of Pervious/Impervious Areas

Land Use Zone	GIS Assessment			Adopted Split	
	EIA	ICA	UPA	EIA	ICA
Urban Residential	40%	15%	45%	40%	60%
High Density Urban Residential	80%	10%	10%	80%	20%
Industrial/Commercial	80%	10%	10%	80%	20%
Railway	80%	10%	10%	80%	20%
Bush Pasture	0%	0%	100%	0	100%
Watercourse*	100%	0%	0%	100%	0%

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LEGEND
Study Area
Impervious/Pervious Split
Watercourse
Urban
Railway
High Density Urban/Commercial
Bush/Pasture
Middle Harbour Creek
ST IVES
Douglas St
Middle Harbour Creek
Horace St
DAVIDSON
Mona Vale Rd
PYMBLE
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Rosedale Rd
Stony Creek
EAST KILLARA
GORDON
EAST LINDFIELD
KILLARA
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Land Use Zones (Impervious and Pervious Area Split)
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4.2.4 Rainfall Losses

The "Initial Loss – Continuing Loss model" approach has been adopted for this study, which is recommended in the '*Australian Rainfall and Runoff 2019*' (ARR 2019). This loss model assumes that a specified amount of rainfall is lost during the initial saturation or wetting of the catchment (referred to as the "Initial Loss"). Further losses are applied at a constant rate to simulate infiltration and interception once the catchment is saturated (referred to as the "Continuing Loss Rate"). The initial and continuing losses are effectively deducted from the total rainfall over the catchment, leaving the residual rainfall to be distributed across the catchment as runoff.

The study area includes extensive urban areas that are relatively impervious and areas of "open" space that are pervious. The impervious and pervious sections of the catchment respond differently from a hydrologic perspective, i.e. rapid rainfall response and low rainfall losses across impervious areas and, slower rainfall response and higher rainfall losses across pervious areas. Accordingly, different initial and continuing losses were applied for pervious and impervious areas in the DRAINS model.

In February 2019, the Office of Environment and Heritage (OEH) (currently known as the Department of Climate Change, Energy, the Environment and Water (DCCEEW), and the Department of Planning, Housing and Infrastructure (DPHI)) released the '*Review of ARR Design Inputs for NSW'* (2019). This document was prepared to address concerns that the standard ARR 2019 method and parameters may provide an underestimation bias when deriving design event peak flows in NSW. It includes preliminary advice on changes required to address the bias associated with initial and continuing loss rates.

The document also outlines a 5-level hierarchical approach recommended to establish rainfall losses for NSW catchments, as presented Table 4.3. Based on this approach, it was determined that "Approach 5" in Table 4.3 (i.e. adopting ARR Data Hub parameters was suitable for application in this study for the following reasons:

- No observed flood marks were available for reliable calibration of rainfall losses. Therefore, "Approach 1" is considered not suitable.
- Existing studies within the catchment (such as Hughes Trueman (2014)) and in surrounding catchments including the '*Blackbutt Creek Flood Study*' (2014) and '*Lovers Jump Creek Flood Study*' (2018) utilised loss values typically in line with the recommendations in AR&R 1987. As this study has been undertaken using ARR 2019 methodologies these loss values were not considered appropriate for use in this study. Therefore, "Approach 2" and "Approach 3" are also considered not suitable.
- NSW FFA (Flood Frequency Analysis) reconciled initial losses are not available for the study area. Therefore, "Approach 4" is considered not suitable.

Table 4.3 Hierarchy of Approaches (listed from most (1) to least preferred (5))

Approach	Data to use	Storm Initial Loss	Pre-burst (transformational)	IL Burst	Continuing Loss
1	Current Study	Average Calibration	Not required or back calculated using $IL_{Storm} - IL_{Burst}$	$L_{Burst\ chosen} = IL_{Storm} * IL_{Burst-ARR} / IL_{Storm-ARR}$	Average Calibration
2	Other Studies within the catchment	Average Calibration	Not required or back calculated using $IL_{Storm} - IL_{Burst}$	$IL_{Burst\ chosen} = IL_{Storm} * IL_{Burst-ARR} / IL_{Storm-ARR}$	Average Calibration

Approach	Data to use	Storm Initial Loss	Pre-burst (transformational)	IL Burst	Continuing Loss
3	Neighbouring Studies	Average Calibration	Not required or back calculated using $IL_{Storm} - IL_{Burst}$	$L_{Burst\ chosen} = IL_{Storm} * IL_{Burst-ARR} / IL_{Storm-ARR}$	Average Calibration
4	FFA	NSW FFA reconciled initial loss	Not required or back calculated using $IL_{Storm} - IL_{Burst}$	Probability Neutral Burst Loss	NSW FFA reconciled continuing losses
5	ARR Data Hub	ARR Data Hub initial loss	Not required or back calculated using $IL_{Storm} - IL_{Burst}$	Probability Neutral Burst Loss	NSW FFA reconciled continuing losses

In accordance with the '*Review of ARR Design Inputs for NSW*'(2019), the following modifications to the ARR Data Hub loss values are recommended for NSW catchments:

- Adoption of the revised Probability Neutral Burst Initial Loss as provided through the ARR Data Hub.
- A multiplication factor of 0.4 should be applied to the ARR Data Hub continuing loss.

The NSW specific Probability Neutral Burst Initial Losses for the Middle Harbour Northern Catchments are provided in Table 4.4.

In line with current guidance from OEH, a multiplication factor of 0.4 was applied to the ARR Data Hub continuing loss for the catchment, thus, reducing the 1.8 mm/h ARR Data Hub continuing loss to 0.72 mm/h.

As per Book 5 Chapter 3 of ARR 2019, Indirectly Connected Areas should adopt an initial loss equivalent to between 60% and 80% of the recommended rural catchment initial loss. Therefore a 70% scaled initial loss for Indirectly Connected Areas has been adopted for this study, as per Table 4.4.

Table 4.4 Scaled NSW Specific Probability Neutral Burst Initial Loss for ICA Areas (mm)

Duration	50% AEP	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP
60 min	12.3	8.1	9.0	8.7	8.6	6.6
90 min	11.8	8.1	9.5	9.7	9.5	7.0
120 min	13.4	9.0	10.2	10.0	10.1	6.0
180 min	13.8	9.3	10.6	10.1	8.9	4.3
360 min	13.2	8.6	8.8	8.1	9.1	3.7
720 min	17.6	12.2	12.2	10.6	11.9	3.1

The following loss rates have been adopted in the setup of the DRAINS model:

- Impervious areas:
  - Initial Loss – 1.5 mm;
  - Continuing Loss – 0 mm/h.

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- Pervious areas:
  - Initial Loss – As per Table 4.4;
  - Continuing Loss – 0.72 mm/h.

4.3 Hydraulic Model

4.3.1 Modelling Approach

The hydraulic model for this flood study was developed using the TUFLOW modelling software. TUFLOW was developed by BMT and is the most widely used 1D/2D (One/Two-Dimensional) flood modelling software in Australia.

An integrated 1D/2D TUFLOW model was created to model the dynamic interactions between waterways and floodplains, complex overland flow paths, converging and diverging of flows through structures, and the interaction between surface and sub-surface flow (i.e. stormwater drainage system). This has involved the schematisation the study area based on the following key model features:

- Floodplain and overland flow areas represented in the 2D domain;
- Open watercourse channels and bridge crossings are represented within the 2D model;
- Culvert structures represented as 1D elements;
- Stormwater drainage network represented as 1D elements, dynamically linked to the 2D domain;
- Hydrologic inflows derived using the DRAINS model applied as upstream and local inflows;
- Water levels within receiving watercourses applied as tailwater conditions.

The development of the hydraulic model and adopted parameters are discussed in the following sections.

4.3.2 Model Extent and Grid Size

The hydraulic model for the Middle Harbour Northern Catchments was developed using TUFLOW (version 2020-10-AC-ISP). The TUFLOW Heavily Parallelised Compute (HPC) solver was utilised for the study to improve modelling run times.

The area modelled within the TUFLOW 2D domain represents a total area of approximately 16.3 km^2. The model domain was defined by combining catchment areas within the northern parts of the Ku-ring-gai LGA that drain into Middle Harbour from St Ives along the eastern model boundary and from catchments draining to Rocky Creek from East Gordon and East Killara.

The TUFLOW software uses a grid to define the spatial variation in topography and hydrologic/hydraulic properties (e.g. Manning's 'n' roughness, rainfall losses) across the study area. Accordingly, the choice of grid size can have a significant impact on the performance of the model. In general, a smaller grid size will provide a more detailed and reliable representation of flood behaviour relative to a larger grid size. However, a smaller grid size will take longer to perform all of the necessary hydraulic computations. Therefore, it is typically necessary to select a grid size that makes an appropriate compromise between the level of detail provided by the model and the associated computational time required.

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A grid size of 2 metres was adopted for the hydraulic model and is considered to provide a reasonable compromise between reliability and simulation time.

4.3.3 Topography

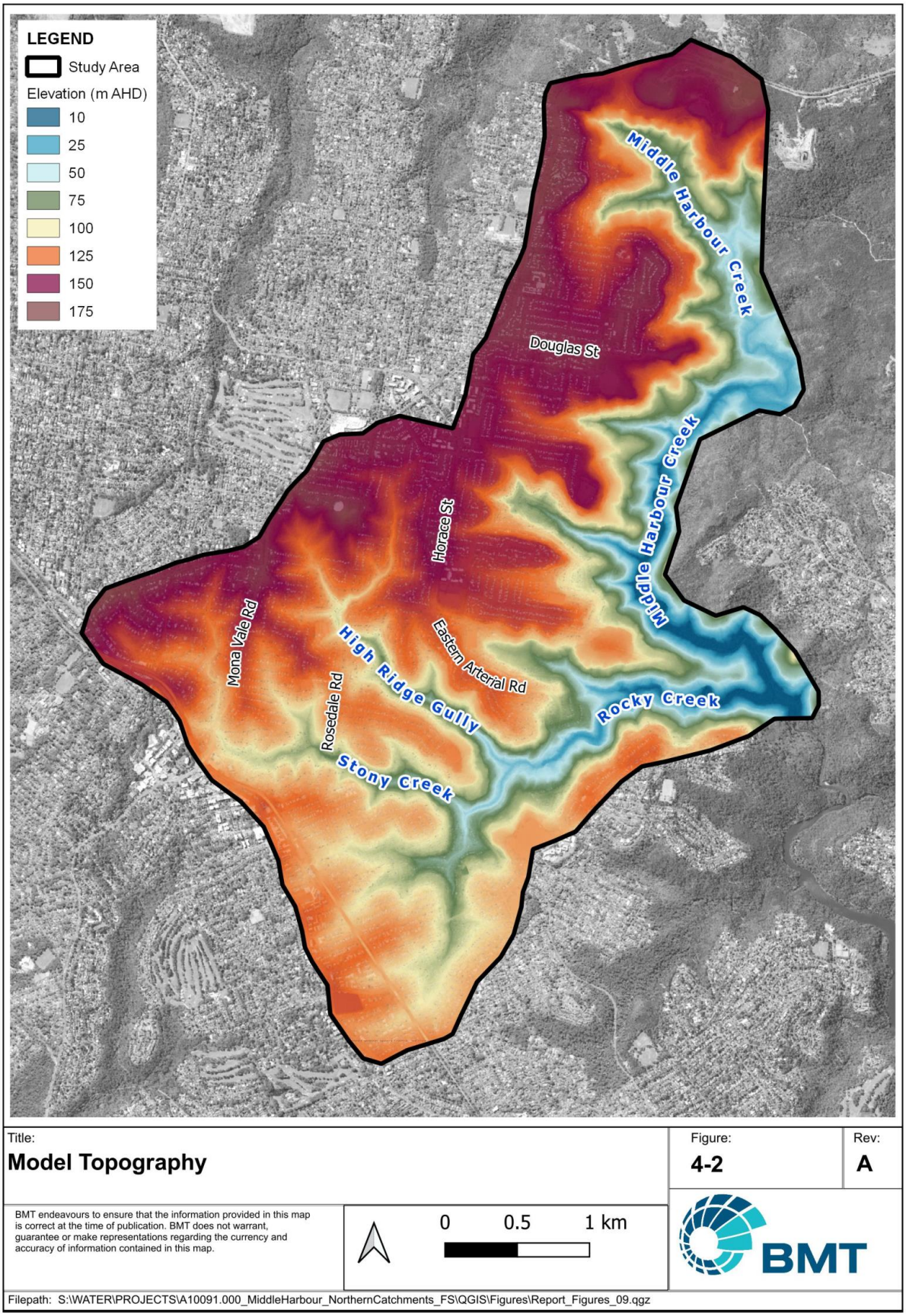
The overland flow regime in urban environments is typically characterised by inundation of urban development with interconnecting and varying flow paths at varying depths. Road networks often convey a considerable proportion of floodwaters due to the hydraulic efficiency of the road surface compared to residential properties. A high-resolution DEM was derived for the study area from 2020 LiDAR survey data (refer Section 2.5) and cross-section survey undertaken as part of this study (refer Section 2.10). The ground surface elevation for the TUFLOW model grid points is sampled directly from the DEM.

A TUFLOW 2D domain model resolution of 2 m was adopted for the study area. It should be noted that TUFLOW samples elevation points at the cell centres, mid-sides and corners, so a 2 m cell size results in DEM elevations being sampled every 1 m. This resolution provides the necessary detail required for accurate representation of floodplain topography and its influence on out-of-bank flows.

No bathymetry data was available for the Middle Harbour Estuary, which is subject to tidal inundation based on the '*Greater Sydney Harbour Estuary Coastal Management Program Scoping Study*' (BMT, 2018). Given the limitations of LiDAR survey data in deep water areas and the significant elevation difference between the Middle Harbour Estuary and the upstream urban areas which is the main focus of the study, an elevation of -1.0 m AHD can be reasonably assumed for the Estuary bed in the DEM.

The resulting topography of the hydraulic model and the extent of the model domain are presented in Figure 4.2**.**

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LEGEND
Study Area
Elevation (m AHD)
10
25
50
75
100
125
150
175
Middle Harbour Creek
Douglas St
Middle Harbour Creek
Horace St
Mona Vale Rd
High Ridge Gully
Eastern Arterial Rd
Rosedale Rd
Rocky Creek
Stony Creek
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Model Topography
Figure:
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4.3.4 Hydraulic Roughness

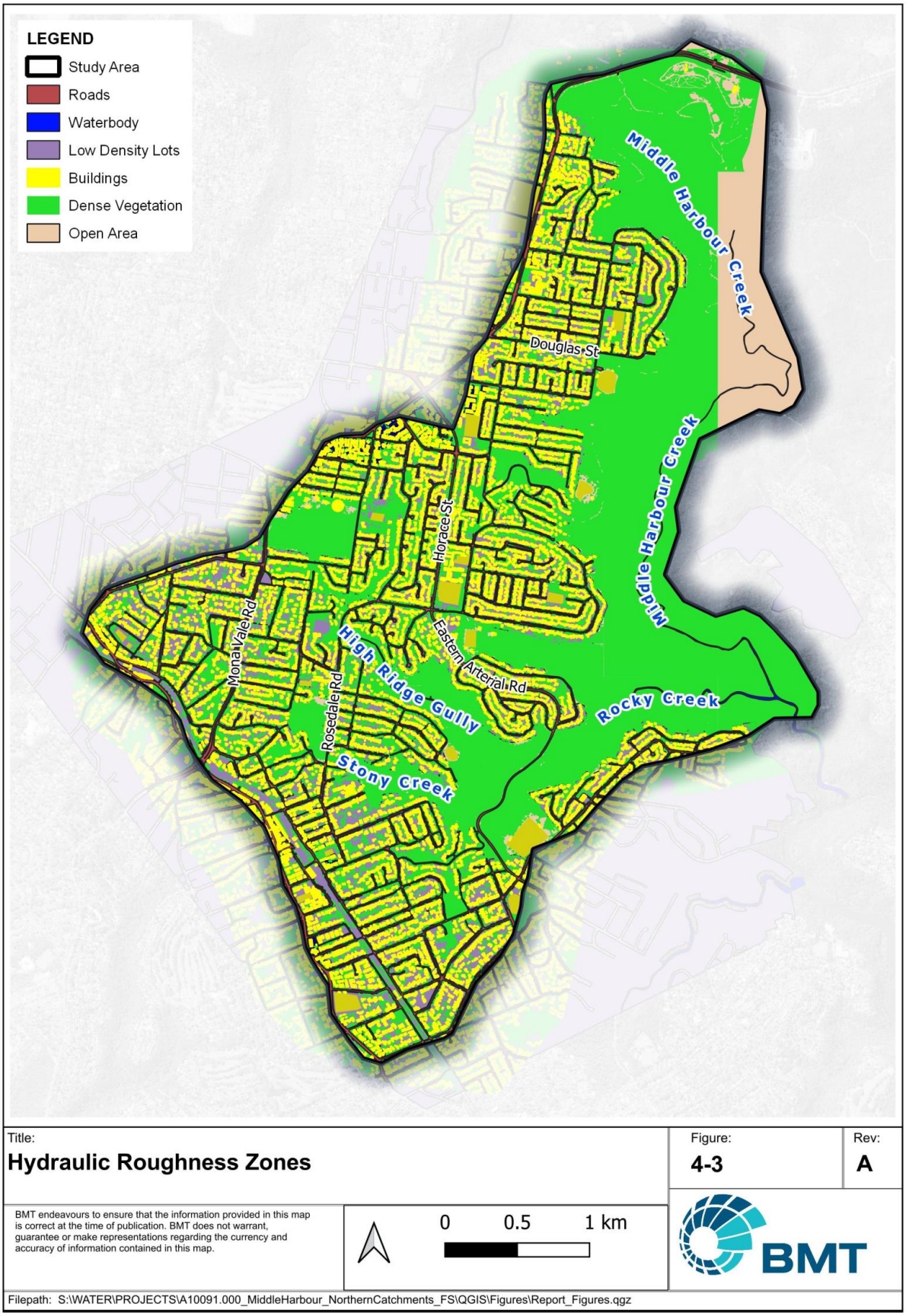
Utilising available land use information, the development of the TUFLOW model requires the definition of different hydraulic roughness (Manning's 'n') zones that assign surface materials for each grid cell in the model for simulating the variation in flow resistance afforded by different land-use surfaces within the model extent (e.g. trees, grass, roads, etc). Council's land-use planning data and aerial photography have been used as the basis for defining the different hydraulic roughness zones within the model.

The land-use map used to assign the different hydraulic roughness zones across the model is shown in Figure 4.3 and the adopted Manning's 'n' values are listed in Table 4.5, which are based on industry standard values.

Table 4.5 Adopted Manning's 'n' Values

Land Use Type	Manning's 'n' value
Roads	0.020
Low Density Residential Lots	0.080
High Rise Lots	0.080
Commercial Lots	0.035
Maintained Grass	0.030
Light to Medium Vegetation	0.060
Dense Vegetation	0.120
Riparian Zone	0.100
Railway	0.050
Waterbody	0.030
Open Area	0.080

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LEGEND
Study Area
Roads
Waterbody
Low Density Lots
Buildings
Dense Vegetation
Open Area
Middle Harbour Creek
Douglas St
Middle Harbour Creek
Horace St
Monaivale Rd
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Rosedale Rd
Stony Creek
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Hydraulic Roughness Zones
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4.3.5 Representation of Buildings and Localised Obstructions

Building GIS layers were supplied by Council and are shown in Figure 4.3. The representation of buildings is important in areas conveying significant volumes of flow or experiencing significant ponding depth. For this study, buildings are represented in the TUFLOW model as impenetrable obstructions to flow, considering the energy dissipation of water flowing around the building. This approach does not consider or include the potential storage effects of the building being inundated but is considered appropriate for use in this study due to the short-duration, intense flash flooding nature of the catchment and the limitations in the representation of buildings within the adopted LiDAR dataset.

Smaller localised obstructions within or bordering private property, such as urban fences (for example Colorbond or wood paling fences), were not explicitly represented within the hydraulic model. Rather, these obstructions have been incorporated into the adopted Manning's 'n' roughness value for urban development land use across the study area (i.e. residential and commercial lots), due to their propensity to fail during large flood events.

4.3.6 Hydraulic Structures

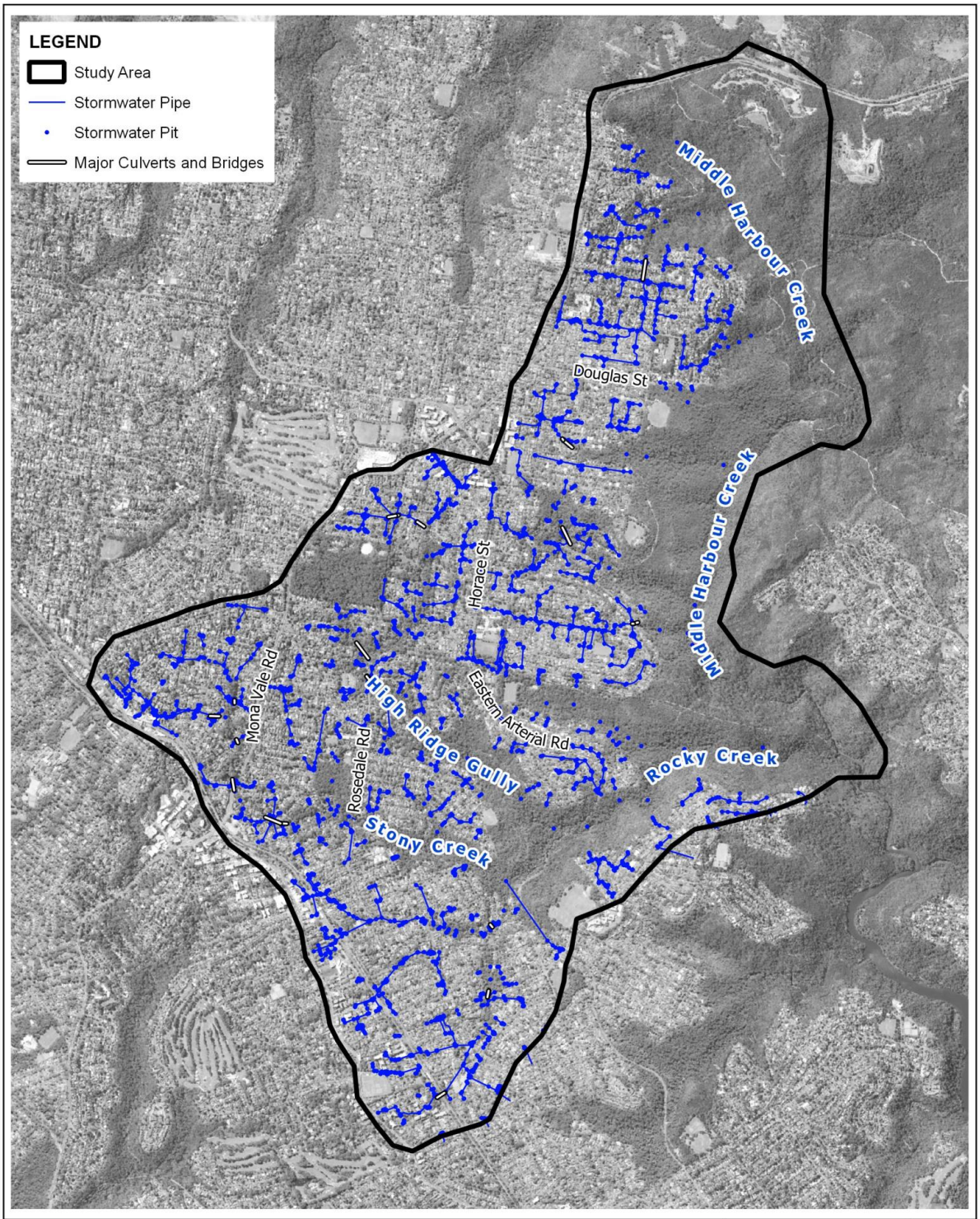
There are numerous culvert and bridge structures located throughout the study area that enable cross-drainage under major roads. These structures vary in terms of size and configuration, with differing degrees of influence on local hydraulic behaviour. Incorporation of these structures in the model provides for simulation of the hydraulic losses associated with these structures and their influence on flood behaviour within the study area.

The culvert and bridge structures were modelled as either layered flow constriction structures in the 2D domain, or 1D structures embedded within the 2D domain. The adopted structure details (that is invert levels, geometric properties, handrails/road barriers) were derived from the following sources:

- Cross section and cross-drainage structure survey completed by Pinnacle Land Surveyors (refer Section 2.10). 13 structures were surveyed. Refer to Annex B for the compiled survey drawings and mapping showing the location and details for each structure and cross-section.
- GIS data supplied by Ku-ring-gai Council.
- Site visit completed by BMT.

Hydraulic structure locations are shown in Figure 4.4.

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Title:
Modelled Stormwater Network and Bridges

Figure: **4-4**

Rev: **A**

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4.3.7 Stormwater System

The stormwater system has the potential to convey a significant proportion of runoff across the study area during relative frequent rainfall events in particular. Thus, it is important to incorporate the stormwater system in the TUFLOW model to ensure the interaction between the underground piped system and overland flows are reliably represented. Figure 4.4 shows the 1D stormwater network developed for the hydraulic model.

The full stormwater system contained within the catchment was included within the TUFLOW model as a dynamically linked 1D network. This allowed representation of the conveyance of flows by the stormwater system below ground as well as simulation of overland flows in the 2D domain once the capacity of the stormwater system is exceeded.

The properties of the stormwater system (e.g., pit types/sizes, pipe lengths/diameters) were defined from a number of different data sources. Data comprising pit/pipe locations, pit inlet type/dimensions and pipe sizes was received in GIS layers as discussed in Section 2.6. The data was used to build the details of the stormwater pipe network into the TUFLOW model as a 1D drainage network, dynamically linked to the 2D domain. Pipe invert levels nominated in the GIS layers were found to be not a good match for the 2020 LiDAR data, hence pipe inverts were re-estimated as the LiDAR elevation level minus the pipe diameter and a 0.4 m pipe cover and corrected where required to ensure positive and realistic pipe grades. Pit inlet capacities are based on the Hughes Trueman (2014) study DRAINS model and determined using lintel opening lengths and grate sizes.

A summary of the modelled stormwater drainage network is presented in Table 4.6 with the spatial distribution of the drainage network shown in Figure 4.4.

For the magnitude of the events under consideration in the study, the pipe drainage system capacity is anticipated to be exceeded, with the major proportion of flow conveyed in overland flow paths. Therefore, any limitations in the available pipe data or model representation of the drainage system is expected to have minimal effect on the design flood results.

Table 4.6 Summary of Modelled Stormwater Infrastructure Elements in Hydraulic Model

Stormwater Infrastructure Type	Number of Elements
Circular	2385
Rectangular	36
TOTAL PIPES/CULVERTS	**2421**
Pits	2247
Nodes	461
Outlets/Headwalls	354
TOTAL NODES/PITS	**3062**

4.3.8 Model Boundary Conditions

The specification of suitable boundary conditions that account for design flows into the system and tailwater conditions at the outlet of the system is a critical component of flood simulations. Model boundary locations are shown in Figure 4.5. The boundary conditions used in the TUFLOW model include:

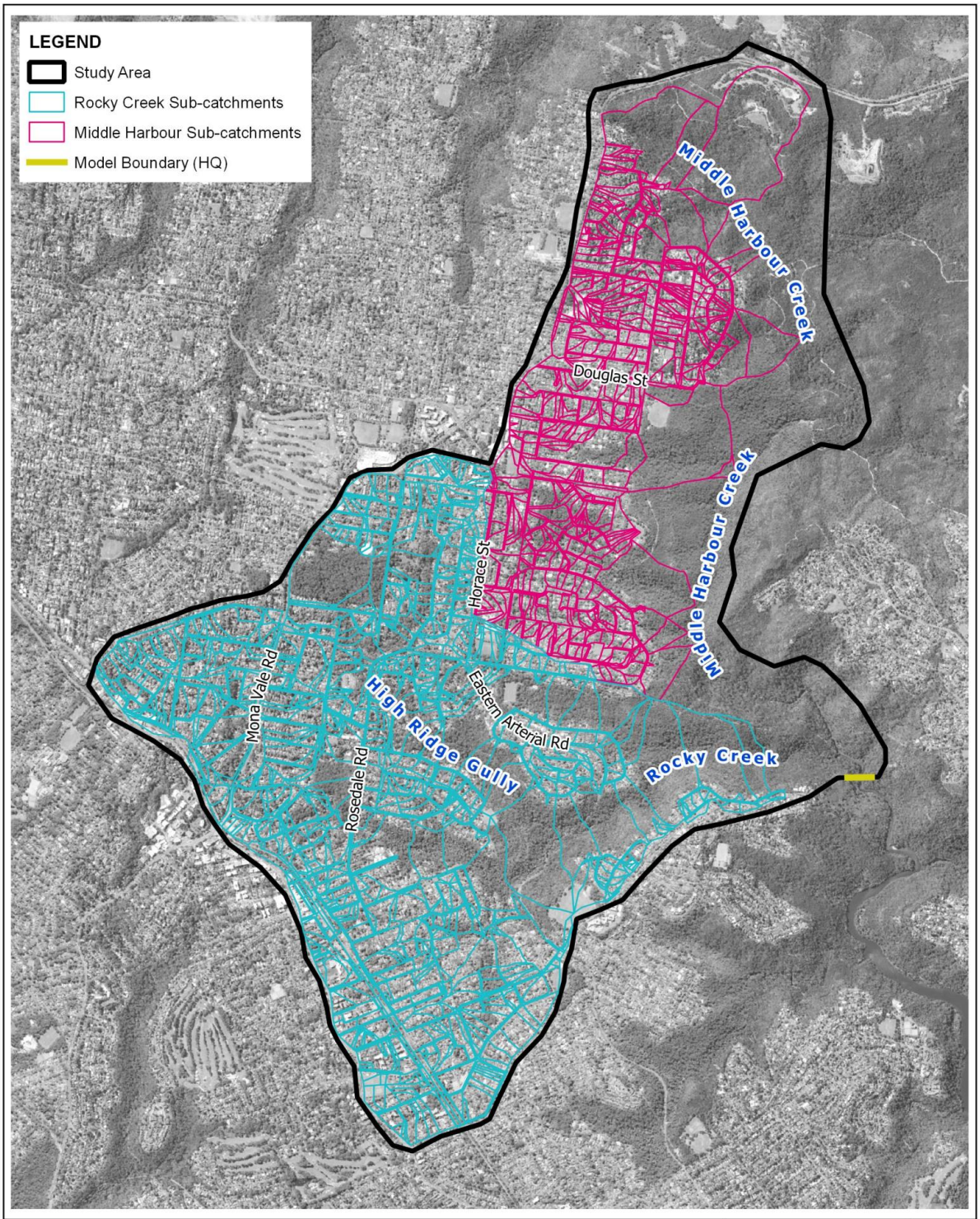
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- Local inflow conditions: Local catchment runoff hydrographs derived by the DRAINS model are applied directly to the hydraulic model as inflow hydrographs. For sub-catchments with modelled stormwater drainage, the inflows are applied directly to the 2D domain where the cells are connected to the 1D stormwater network (i.e. inflows are directly applied to the top of the pit inlet). The advantage of this method is that any blockage assigned to a pit will be appropriately modelled. For sub-catchment areas containing no stormwater drainage network, the catchment runoff is applied directly to the 2D domain at the outlet of the catchment. The hydrographs for historical and design events were derived from the results of the DRAINS hydrologic model developed for the study (discussed further in Section 2.2.1 and Section 4.2).

- Downstream boundary conditions: The study area is primarily affected by local overland flows and flooding from local creeks across the study area (i.e. Rocky Creek and High Ridge Gully). A 'Stage-Discharge' or 'HQ' boundary has been applied along the Middle Harbour Estuary at the downstream boundary to represent the continued flow of water into Middle Harbour south. The 'Stage Discharge' approach utilises the bed slope of the Middle Harbour Creek channel, equivalent to 0.06%, to determine flow rates through the boundary.

Figure 4.5 shows the DRAINS sub-catchments used in this study, including the original catchments developed as part of Hughes Trueman (2004) and the those delineated as part of this study.

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Title:
TUFLOW Model Configuration

Figure: **4-5**

Rev: **A**

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5 Model Verification

5.1 Overview

The selection of suitable historical events for calibration of computer models is largely dependent on available historical flood information. Ideally, the calibration and validation process should cover a range of flood magnitudes to demonstrate the suitability of the model for the range of design event magnitudes considered.

As there were no existing historical records of watercourse flows or overland flow flood levels within the Middle Harbour – Northern Catchments, data received from the community consultation process was instead relied upon for the verification process. Limited observed flood level information was available from the community and the information provided was mostly limited to anecdotal flood behaviour information. As such, a model verification process was undertaken in place of a model calibration and validation to verify the model against observed anecdotal flood behaviour. The February 2010, June 2016 and February 2020 flood events were identified by the community to be major events within the study area and have been utilised for the model verification herein.

5.2 February 2010 Model Verification Event

5.2.1 Verification Data

Rainfall Data

Short duration, intense rainfall often has high spatial variability, and it can be difficult to determine a reliable estimate of rainfall variability for a study area. Analysis of the Pymble Bowling Club (566073) rainfall gauge (located within the catchment area) and 3 additional rainfall gauges situated within 4 km of the study area. These rain gauges have been analysed to estimate the likely range of rainfall intensities experienced within the study area.

Although the Pymble – Canisius College (66157) daily rainfall gauge is located within the study area, it was closed on 1 August 2011 and there was no available rainfall data available for the February 2010 at this gauge. Thus, it is not included in this assessment. The Pymble Bowling Club rainfall gauge operated by Sydney Water Corporation (Sydney Water) has been used in this analysis. Another sub-daily and two Bureau of Meteorology (BoM) daily rainfall gauges were also operating during this period. The gauge locations are shown in Figure 2.1. The recorded daily totals (for the 24 hours to 9 am) from the 3rd to the 7th of February 2010 for active gauges are shown in Table 5.1.

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Table 5.1 Recorded Daily Rainfall Total for February 2010 Event

Gauge Name	Gauge ID	To 9AM 03/02/2010	To 9AM 04/02/2010	To 9AM 05/02/2010	To 9AM 06/02/2010	To 9AM 07/02/2010
Pymble Bowling Club	566073	17.0	29.0	3.5	57.0	189.0
East Lindfield Bowling Club	566085	15.0	14.0	4.5	37.0	120.5
St Ives (Richmond Avenue)	66206	21.0	10.6	1.0	32.0	114.6
Gordon Golf Club	66120	13.5	28.0	6.0	60.0	172.5

As shown in Table 5.1, rainfall across the region occurred over a 5-day period from the 3rd to the 7th of February 2010, with the largest amount of rainfall occurring in the 24 hours to 9am on the 6th and the 7th of February 2010. There was spatial similarity observed across the region, with the largest total rainfall of 295.5mm across the 5-day period recorded at the Pymble Bowling Club gauge.

The recorded sub-daily rainfall data at the Pymble Bowling Club gauge indicates that the event was characterised by a distinct burst between 1pm on the 6th and 4am on the 7th of February, with 180.5mm of rainfall recorded across the period. This data was used to define the rainfall depth and temporal pattern for the February 2010 event model verification.

To gain an appreciation of the relative intensity and magnitude of the February 2010 event, the rainfall depth for various durations within the storm has been compared with design IFD rainfall curves obtained from BoM, as presented in Figure 5.1. As shown in Figure 5.1, the rainfall input is estimated to be a 5% AEP event for an event duration of 30 minutes. For durations between 1 and 4.5 hours, rainfall input is estimated to be in the order of a 2% AEP event. For durations between 6 and 24 hours, rainfall input is estimated to be ranging between the 5% and the 20% AEP events.

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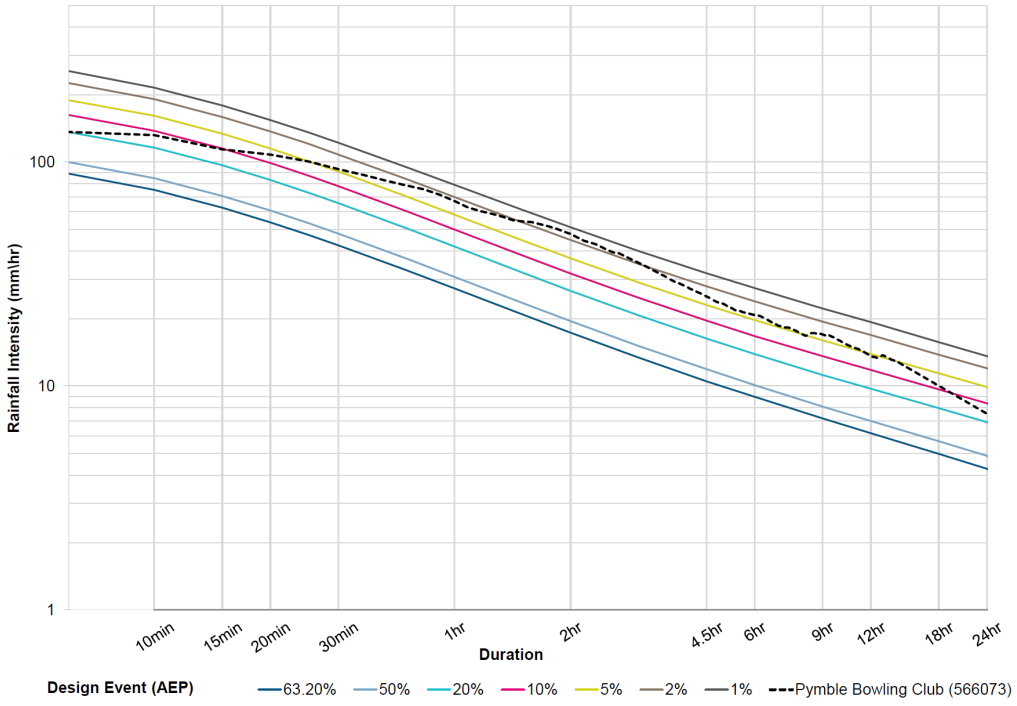


Figure 5.1 Comparison of Recorded February 2010 Rainfall with IFD Relationships

Downstream Boundary Condition

A 'Stage-Discharge' or 'HQ' boundary has been used to model the February 2010 event, which reflects the existing gradient in Middle Harbour.

5.2.2 Flood Level Data

There is no available data within the catchment area to provide recorded water levels for the February 2010 event. Anecdotal flood data for the event was obtained through the community questionnaire responses. This data does not provide definitive flood levels, but rather is indicative of depths of flooding, observations of flow paths and extent of inundation.

The observations are useful to provide some confidence in the model representation of the observed flood behaviour, as discussed further below. It is noted that instances where members of the community indicated flooding occurred "years ago" or "whenever it rains heavily" have been included in the comparison.

5.2.3 Observed and Modelled Flood Behaviour

The modelled peak flood depths are presented in Figure 5.2. The community consultation process indicated that the February 2010 event led to significant flood affectation on private properties, which is reflected in the TUFLOW model results. Overland flows travelling through urban areas discharged through private property in several locations before reaching the downstream watercourses within the catchment area.

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Anecdotal flood behaviour information was gained from limited photographs provided by residents and from the response provided as part of the community questionnaire. A comparison of the flood behaviour observed by the community members against the modelled flood behaviour is included in Table 5.2.

It is noted in several locations that the observed flood behaviour was only partially matched or in some cases not matched at all within the flood model. Review of the model in these areas indicates that this is due to the delineation of catchments and the placement of inflows within Council's DRAINS model, which encourages inflows to discharge directly into stormwater assets where possible and often at the lowest point within a catchment. The benefit to such a strategy is that nuisance stormwater flow (which is often found higher within individual catchments) is not represented in the flood model results. This may help to reduce overly conservative flood tagging of properties which are affected only by minor stormwater flows in rare events, and whose development may not cause a significant change to flood conditions elsewhere in the catchment. The disadvantage is that flooding of any property that is located upstream of the inflow location will not be represented in the modelled results. The approach has been previously discussed with Council and adopted in the Middle Harbour – Southern Catchments Flood Study, and as such is adopted in this study too.

Table 5.2 Comparison of Observed and Modelled Flood Behaviour – February 2010 Event

ID	Location	Observed Flood Behaviour	Replication in Flood Model
15	Carlotta Avenue, Gordon	Floodwaters overflowing from channel, entering yard and property at high depth	Good replication
16	Mount William Street, Gordon	Floodwaters overflowing from creek, flow through yards	Good replication
17	Yarrabung Road, St Ives	Floodwaters overflowing from creek, water entering carport and surrounding yards	Good replication
18	Onslow Lane, Gordon	Water running overland across patio, entering garage and through the house with high speed	Good replication
19	Corner of Yarrabung Road and Melaleuca Drive, St Ives	Flow from road with high speed and volume. Water in yard, garage and property	Good replication
20	Killeaton Street, St Ives	Drainage capacity problems causing water flow through backyard, into pool and under property	Good replication
21	Alvona Avenue, St Ives	Water running overland from road, between properties, pooling in the backyard and entering house	Good replication
22	Ravenswood Avenue, Gordon	Ponding at corner of the property	Satisfactory replication. Widespread flooding present in the area and surroundings
23	Carlotta Avenue, Gordon	Floodwaters from Stony Creek overflowing on roadway with high speed and high depth, blocked culvert under Carlotte Avenue	Good replication

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ID	Location	Observed Flood Behaviour	Replication in Flood Model
24	Lynwood Avenue, Killara	Overflowing from pipe system on Powell Street. Floodwaters under the house, entering living space.	Good replication
25	Cambourne Avenue, St Ives	Overflowing from blocked pit from neighbour property onto yard, pool and under the house	Satisfactory replication. Widespread flooding present in the area and surroundings
26	Mt William Street, Gordon	Floodwaters overflowing from creek, rise and fall rapidly. Water entering yards and front of house due to blocked drain	Good replication
27	Park Crescent, Pymble	Overland flow is directed into backyards	Satisfactory replication. Result shows high depth of ponding at property
28	Trevalgan Place, St Ives	Overland flow and blocked drainage causing flooding on road	Good replication
29	Intersection Kulgoa Road and Peace Avenue, Pymble	Flooding on road caused by pit surcharges	Good replication
30	Taylor Street, Gordon	Overflow from stormwater network along Waugoola Street, water in shed and garage	Good replication
31	Mt William Street, Gordon	Water at bottom of backyard due to Stony Creek overflowing	Below satisfactory replication. Water seems to be contained within the bank, cannot verify observed behaviour without site inspection.
32	Sabina Place, St Ives	Overland flow from neighbouring properties onto property, ponding within yard	Good replication
33	Alvona Avenue, St Ives	Overland flow from neighbouring properties onto property, front yard, inadequate drainage	Good replication
34	Shannon Street, St Ives	Floodwaters overflowing from creek onto backyard and garden	Good replication
35	McIntosh Street, Gordon	Water ponding on Arthur Street entering driveway, water overflowing with high velocity at intersection between McIntosh Road and Arthur Street	Good replication
36	Hunter Avenue, St Ives	Overland flow with shallow ponding in yard	Satisfactory replication
37	Carcoola Road, St Ives	Overland flow from northern properties, water ponding in yard	Good replication

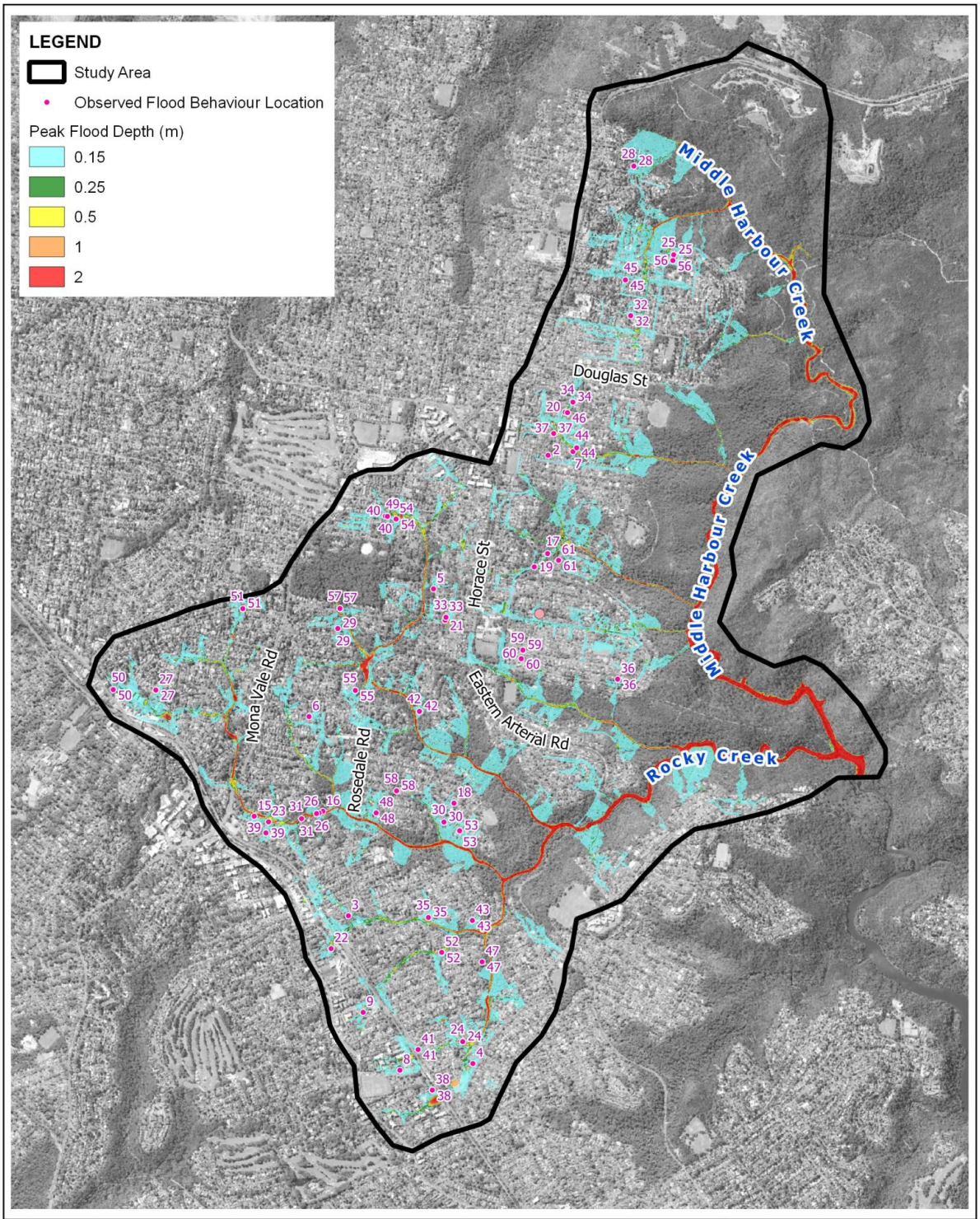
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ID	Location	Observed Flood Behaviour	Replication in Flood Model
38	Intersection of Marian Street and Culworth Avenue before Stanhope Road, Killara	Ponding and overflowing on road with high depth	Good replication
39	Mt William Street, Gordon	Ponding in yard and garden	Satisfactory replication. Widespread of overland ponding at the property and surrounds
40	Putarri Avenue, St Ives	Water in front yard, large volume of water flowing through Puttari Avenue at Puttari Reserve	Good replication
41	Werona Avenue intersect with Lynwood Avenue, Killara	Knee-deep water in park, water overflow from manhole and flooding on road	Satisfactory replication. Result shows shallow flow across the area
42	Stratford Place, St Ives	Overflow from stormwater drain cause water flowing to property, garage, and front yard	Good replication
43	Bell Street, Gordon	Water overflow from reserve to the side of the house	Good replication
44	Carcoola Road, St Ives	Floodwaters overflowing from creek, water on road	Good replication
45	Corner of Ayres Road and Carissa Avenue, St Ives	Flooding across the rear garden	Good replication
46	Killeaton Street, St Ives	Overflow from drainage easement, water entering backyard and back step of the house	Good replication
47	Kylie Avenue, Killara	Ponding on road and ponding within yard, water entering garage, running downhill with fast pace	Good replication
48	Glenview Street, Gordon	Knee-deep water in driveway, shallow water over part of yard, raging water in Stony Creek	Satisfactory replication. Result shows shallow water in the driveway
49	Putarri Avenue, St Ives	Water at front yard, back yard and along property access	Good replication
50	Pacific Highway, Pymble	Overflow from drainage network, flowing alongside of the building, leakage in garage	Good replication
51	Telegraph Road, Pymble	Water along road, flowing down footpath. Water in building and garage	Good replication
52	Kylie Avenue, Killara	Floodwaters break channel banks and flood the backyard	Good replication

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ID	Location	Observed Flood Behaviour	Replication in Flood Model
53	Waugoola Street, Gordon	Water flowing down the driveway, front yard and inside building	Good replication
54	Rosedale Road at Putarri Avenue, St Ives	Flooding on road	Good replication
55	Larnock Avenue, Pymble	Heavy rain causing channel overflow and broke its bank.	Satisfactory replication
56	Athena Avenue, St Ives	Ponding on road at intersection with Acron Road, water running fast pace entering garage	Good replication
57	Vista Street, Pymble	Shallow inundation on road	Good replication
58	Lennox Street, Gordon	Water at backyard, garage and pool, overflow from neighbouring property	Observed behaviour not replicated due to placement of inflows
59	Waterhouse Avenue, St Ives	Blocked drain causing water ponding on road, entering front door, garage, and yard	Observed behaviour not replicated due to placement of inflows
60	Olinda Place, St Ives	Water flowing across backyard from neighbouring properties due to blocked drainage	Observed behaviour not replicated due to placement of inflows
61	Cassandra Avenue, St Ives	Water from neighbouring properties cannot discharge due to blocked drain, overflow across the yard	Observed behaviour not replicated due to placement of inflows

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Title:
February 2010 Verification Event

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5.3 June 2016 Model Verification Event

5.3.1 Verification Data

Rainfall Data

The recorded daily totals (for the 24 hours to 9 am) from the 4th to the 6th of June 2016 for active gauges are shown in Table 5.3.

Table 5.3 Recorded Daily Rainfall Total for June 2016 Event

Gauge Name	Gauge ID	To 9AM 04/06/2016	To 9AM 05/06/2016	To 9AM 06/06/2016
Pymble Bowling Club	566073	13.0	139.5	150.0
East Lindfield Bowling Club	566085	34.0	133.0	127.0
St Ives (Richmond Avenue)	66206	19.4	117.6	126.6

As shown in Table 5.3, rainfall across the region occurred over a 3-day period from the 4th to the 6th of June 2016, with the largest amount of rainfall occurring in the 24 hours to 9am on the 5th and the 6th of February. There was a spatial similarity observed across the region, with the largest total rainfall of 302.5mm across the 3-day period recorded at the Pymble Bowling Club gauge.

The recorded sub-daily rainfall data at Pymble Bowling Club gauge indicate that the event was characterised by a distinct burst between 10pm on the 4th and 11pm on the 5th of June, with 263.5mm of rainfall recorded across the period. This data was used to define the rainfall depth and temporal pattern for the June 2016 event model verification.

To gain an appreciation of the relative intensity and magnitude of the June 2016 event, the rainfall depth for various durations within the storm has been compared with design IFD rainfall curves, as presented in Figure 5.3. As shown in Figure 5.3, the recorded rainfall is estimated to be in the order of a 10% AEP event for an event duration between 2 and 6 hours, and between a 5% and 2% AEP event for durations between 9 and 24 hours.

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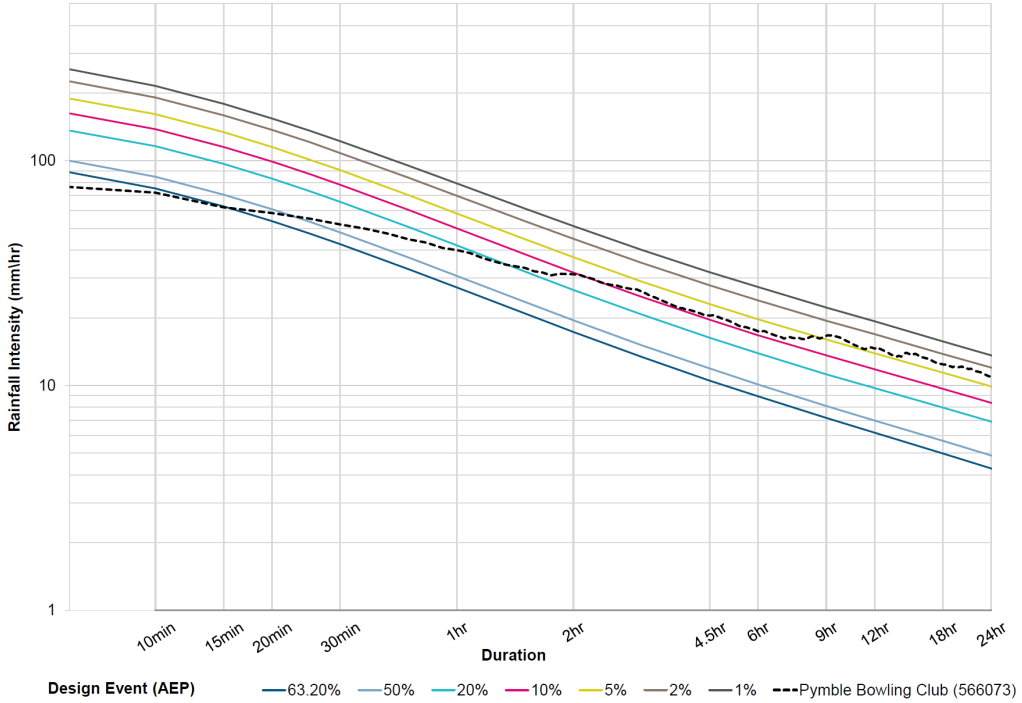


Figure 5.3 Comparison of June 2016 Rainfall with IFD Relationships

Downstream Boundary Condition

A normal depth downstream boundary has been used to model the June 2016 event, which reflects the existing gradient in Middle Harbour.

5.3.2 Flood Level Data

As per the February 2010 event, there is no available data within the catchment area to provide recorded water levels for the June 2016 event. Anecdotal flood data for the event was again obtained through the community questionnaire. This data does not provide definitive flood levels, but rather is indicative of depths of flooding, observations of flow paths and extent of inundation.

The observations are useful to provide some confidence in the model representation of the observed flood behaviour, as discussed further below. It is noted that instances where members of the community indicated flooding occurred “years ago” or “whenever it rains heavily” have been included in the comparison.

5.3.3 Observed and Modelled Flood Behaviour

The modelled peak flood depths are presented in Figure 5.4. The community consultation process indicated that the February 2020 event led to significant flood affectation on private properties, which is reflected in the TUFLOW model results. Overland flows travelling through urban areas discharged through private property in several locations before reaching the downstream watercourses within the catchment area.

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A summary of the flood behaviour observed by the community members against the modelled flood behaviour is included in Table 5.4 below. Further discussion regarding locations where observed flooding is not present in modelling will occur prior to finalisation of calibration and completion of the Stage 2 report.

Table 5.4 Comparison of Observed and Modelled Flood Behaviour – June 2016 Event

ID	Location	Observed Flood Behaviour	Replication in Flood Model
10	Mcintosh Street, Gordon	Overflow from neighbouring properties, ponding in yards	Good replication
11	Lynbara Avenue, St Ives	Overflow from street drainage flow into yards and property	Good replication
12	Intersection of Baldwin Street and Elgin Street, Gordon	Blocked drains divert water overflowing between properties	Good replication
13	Yarrabung Road, St Ives	Floodwater with high velocity running downhill causing high hazards	Good replication
14	Carlotta Avenue, Gordon	Floodwaters overflowing from channel and cascading through property	Good replication
24	Lynwood Avenue, Killara	Overflowing from pipe system on Powell Street. Floodwaters under the house, entering living space.	Good replication
25	Cambourne Avenue, St Ives	Overflowing from blocked pit from neighbour property onto yard, pool and under the house	Satisfactory replication. Widespread flooding present in the area and surroundings
26	Mt William Street, Gordon	Floodwaters overflowing from creek, rise and fall rapidly. Water entering yards and front of house due to blocked drain	Good replication
27	Park Crescent, Pymble	Overland flow is directed into backyards	Satisfactory replication. Result shows high depth of ponding at property
28	Trevalgan Place, St Ives	Overland flow and blocked drainage causing flooding on road	Good replication
29	Intersection Kulgoa Road and Peace Avenue, Pymble	Flooding on road caused by pit surcharges	Good replication
30	Taylor Street, Gordon	Overflow from stormwater network along Waugoola Street, water in shed and garage	Good replication
31	Mt William Street, Gordon	Water at bottom of backyard due to Stony Creek overflowing	Below satisfactory replication. Water seems to be contained within the bank, cannot verify

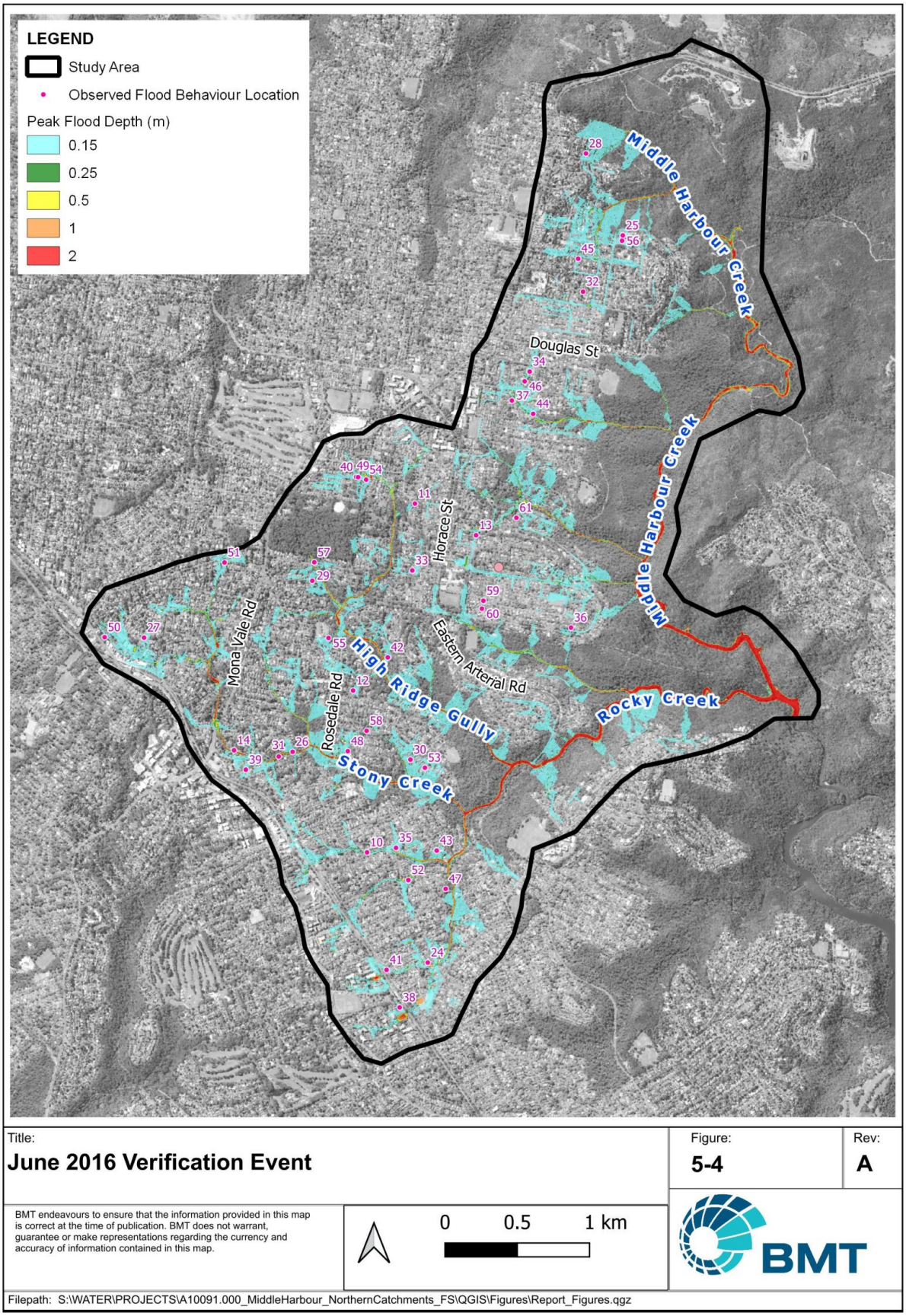
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ID	Location	Observed Flood Behaviour	Replication in Flood Model
			observed behaviour without inspection.
32	Sabina Place, St Ives	Overland flow from neighbouring properties onto property, ponding within yard	Good replication
33	Alvona Avenue, St Ives	Overland flow from neighbouring properties onto property, front yard, inadequate drainage	Good replication
34	Shannon Street, St Ives	Floodwaters overflowing from creek onto backyard and garden	Good replication
35	McIntosh Street, Gordon	Water ponding on Arthur Street entering driveway, water overflowing with high velocity at intersection between McIntosh Road and Arthur Street	Good replication
36	Hunter Avenue, St Ives	Overland flow with shallow ponding in yard	Satisfactory replication
37	Carcoola Road, St Ives	Overland flow from northern properties, water ponding in yard	Good replication
38	Intersection of Marian Street and Culworth Avenue before Stanhope Road, Killara	Ponding and overflowing on road with high depth	Good replication
39	Mt William Street, Gordon	Ponding in yard and garden	Satisfactory replication. Widespread of overland ponding at the property and surrounds
40	Putarri Avenue, St Ives	Water in front yard, large volume of water flowing through Puttari Avenue at Puttari Reserve	Good replication
41	Werona Avenue intersect with Lynwood Avenue, Killara	Knee-deep water in park, water overflow from manhole and flooding on road	Satisfactory replication. Result shows shallow flow across the area
42	Stratford Place, St Ives	Overflow from stormwater drain cause water flowing to property, garage, and front yard	Good replication
43	Bell Street, Gordon	Water overflow from reserve to the side of the house	Good replication
44	Carcoola Road, St Ives	Floodwaters overflowing from creek, water on road	Good replication
45	Corner of Ayres Road and Carissa Avenue, St Ives	Flooding across the rear garden	Good replication
46	Killeaton Street, St Ives	Overflow from drainage easement, water entering backyard and back step of the house	Good replication

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ID	Location	Observed Flood Behaviour	Replication in Flood Model
47	Kylie Avenue, Killara	Ponding on road and ponding within yard, water entering garage, running downhill with fast pace	Good replication
48	Glenview Street, Gordon	Knee-deep water in driveway, shallow water over part of yard, raging water in Stony Creek	Satisfactory replication. Result shows shallow water in the driveway
49	Putarri Avenue, St Ives	Water at front yard, back yard and along property access	Good replication
50	Pacific Highway, Pymble	Overflow from drainage network, flowing alongside of the building, leakage in garage	Good replication
51	Telegraph Road, Pymble	Water along road, flowing downs footpath. Water in building and garage	Good replication
52	Kylie Avenue, Killara	Floodwaters break channel banks and flood the backyard	Good replication
53	Waugoola Street, Gordon	Water flowing down the driveway, front yard and inside building	Good replication
54	Rosedale Road at Putarri Avenue, St Ives	Flooding on road	Good replication
55	Larnock Avenue, Pymble	Heavy rain causing channel overflow and broke its bank.	Satisfactory replication
56	Athena Avenue, St Ives	Ponding on road at intersection with Acron Road, water running fast pace entering garage	Good replication
57	Vista Street, Pymble	Shallow inundation on road	Good replication
58	Lennox Street, Gordon	Water at backyard, garage and pool, overflow from neighbouring property	Observed behaviour not replicated due to placement of inflows
59	Waterhouse Avenue, St Ives	Blocked drain causing water ponding on road, entering front door, garage, and yard	Observed behaviour not replicated due to placement of inflows
60	Olinda Place, St Ives	Water flowing across backyard from neighbouring properties due to blocked drainage	Observed behaviour not replicated due to placement of inflows
61	Cassandra Avenue, St Ives	Water from neighbouring properties cannot discharge due to blocked drain, overflow across the yard	Observed behaviour not replicated due to placement of inflows

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LEGEND
Study Area
Observed Flood Behaviour Location
Peak Flood Depth (m)
0.15
0.25
0.5
1
2
Middle Harbour Creek
Douglas St
Horace St
Mona Vale Rd
Rosedale Rd
Eastern Arterial Rd
High Ridge Gully
Stony Creek
Rocky Creek
Middle Harbour Creek
Title:
June 2016 Verification Event
Figure:
5-4
Rev:
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5.4 February 2020 Model Verification Event

5.4.1 Verification Data

Rainfall Data

The recorded daily totals (for the 24 hours to 9 am) from the 6th to the 10th of February 2020 for active gauges are shown in Table 5.5.

Table 5.5 Recorded Daily Rainfall Total for February 2020 Event

Gauge Name	Gauge ID	To 9AM 06/02/2020	To 9AM 07/02/2020	To 9AM 08/02/2020	To 9AM 09/02/2020	To 9AM 10/02/2020
Pymble Bowling Club	566073	2.5	58.5	58.5	120.0	196.0
East Lindfield Bowling Club	566085	1.5	63.0	61.5	107.5	201.0
St Ives (Richmond Avenue)	66206	5.2	43.6	88.6	89.8	187.6
Gordon Golf Club	66120	1.8	40.6	74.0	42.0	240.0

As shown in Table 5.5, rainfall across the region occurred over a 5-day period from the 6th to the 10th of February 2020, with the largest amount of rainfall occurring in the 24 hours to 9am on the 10th of February. There was a spatial similarity observed across the region, with the largest total rainfall of 435.5mm across the 5-day period recorded at the Pymble Bowling Club gauge.

The recorded sub-daily rainfall data at Pymble Bowling Club gauge indicate that the event was characterised by a distinct burst between 12am on the 9th and 1pm on the 10th of February, with 286mm of rainfall recorded across the period. This data was used to define the rainfall depth and temporal pattern for the February 2020 event model verification.

To gain an appreciation of the relative intensity and magnitude of the February 2020 event, the rainfall depth for various durations within the storm has been compared with design IFD rainfall curves, as presented in Figure 5.5. As shown in Figure 5.5, the rainfall input is estimated to be in the order of a 1% AEP event for an event duration between 9-hour and 18-hour.

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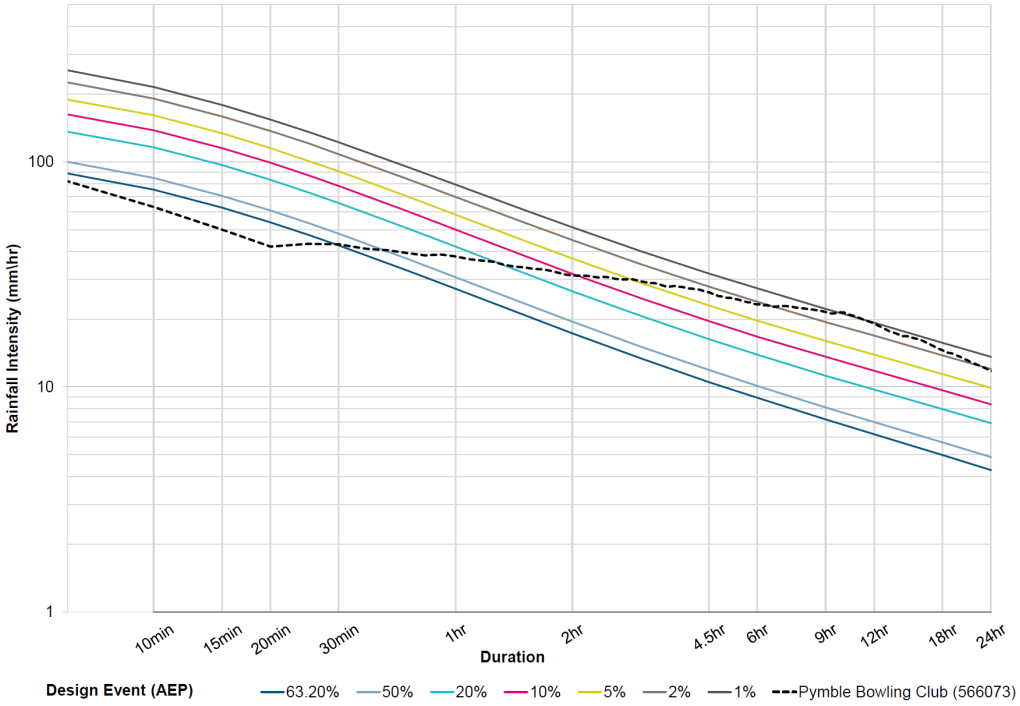


Figure 5.5 Comparison of February 2020 Rainfall with IFD Relationships

Downstream Boundary Condition

A 'Stage Discharge' downstream boundary has been used to model the February 2020 event, which reflects the existing gradient in Middle Harbour.

5.4.2 Flood Level Data

As per the June 2016 event, there is no available data within the catchment area to provide recorded water levels for the February 2020 event. Anecdotal flood data for the event was again obtained through the community questionnaire. This data does not provide definitive flood levels, but rather is indicative of depths of flooding, observations of flow paths and extent of inundation.

The observations are useful to provide some confidence in the model representation of the observed flood behaviour, as discussed further below. It is noted that instances where members of the community indicated flooding occurred "years ago" or "whenever it rains heavily" have been included in the comparison.

5.4.3 Observed and Modelled Flood Behaviour

The modelled peak flood depths are presented in Figure 5.6. The community consultation process indicated that the February 2020 event led to significant flood affectation on private properties, which is reflected in the TUFLOW model results. Overland flows travelling through urban areas discharged through private property in several locations before reaching the downstream watercourses within the catchment area.

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A summary of the flood behaviour observed by the community members against the modelled flood behaviour is included in Table 5.6 below. Further discussion regarding locations where observed flooding is not present in modelling will occur prior to finalisation of calibration and completion of the Stage 2 report.

Table 5.6 Comparison of Observed and Modelled Flood Behaviour – February 2020 Event

ID	Location	Observed Flood Behaviour	Replication in Flood Model
1	Mt William Street, Gordon	Floodwaters overflowing from creek, water ponding on road due to blockages	Good replication
2	Lawson Parade, St Ives	Flooding along Yarrabung Road and running overland through Lawson Parade, into yards and properties	Good replication
3	Werona Avenue, Gordon	Floodwaters overflowing through Gordon recreational ground	Good replication
4	Intersection of Arnold Street and Locksley Street, Killara	Floodwaters from road running through property with high volume	Good replication
5	Lynbara Avenue, St Ives	Ponding on road, overflow from road gutter into yard and property,	Good replication
6	Bromley Avenue, Pymble	Flooding in backyards	Good replication
7	Carcoola Road, St Ives	Floodwaters overflowing from creek and cascading through property	Good replication
8	Lorne Avenue, Killara	Overflow from street drainage floods yards and into building, ponding on road	Good replication
9	Bruce Avenue, Killara	Floodwaters entering basement up to knee-deep	Good replication
24	Lynwood Avenue, Killara	Overflowing from pipe system on Powell Street. Floodwaters under the house, entering living space.	Good replication
25	Cambourne Avenue, St Ives	Overflowing from blocked pit from neighbour property onto yard, pool and under the house	Satisfactory replication. Widespread flooding present in the area and surroundings
26	Mt William Street, Gordon	Floodwaters overflowing from creek, rise and fall rapidly. Water entering yards and front of house due to blocked drain	Good replication
27	Park Crescent, Pymble	Overland flow is directed into backyards	Satisfactory replication. Result shows high depth of ponding at property
28	Trevalgan Place, St Ives	Overland flow and blocked drainage causing flooding on road	Good replication
29	Intersection Kulgoa Road and Peace Avenue, Pymble	Flooding on road caused by pit surcharges	Good replication

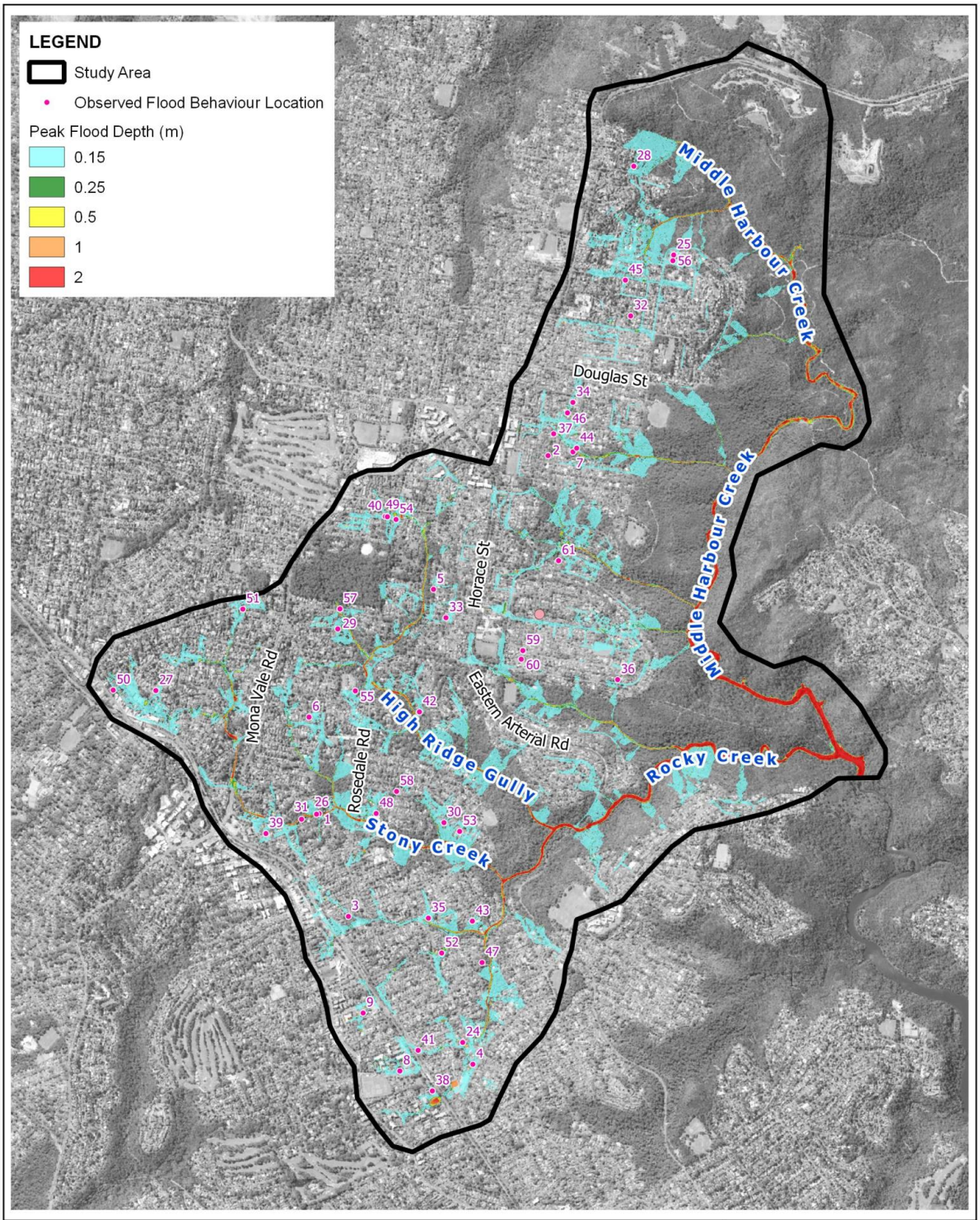
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ID	Location	Observed Flood Behaviour	Replication in Flood Model
30	Taylor Street, Gordon	Overflow from stormwater network along Waugoola Street, water in shed and garage	Good replication
31	Mt William Street, Gordon	Water at bottom of backyard due to Stony Creek overflowing	Below satisfactory replication. Water seems to be contained within the bank, cannot verify observed behaviour without inspection.
32	Sabina Place, St Ives	Overland flow from neighbouring properties onto property, ponding within yard	Good replication
33	Alvona Avenue, St Ives	Overland flow from neighbouring properties onto property, front yard, inadequate drainage	Good replication
34	Shannon Street, St Ives	Floodwaters overflowing from creek onto backyard and garden	Good replication
35	McIntosh Street, Gordon	Water ponding on Arthur Street entering driveway, water overflowing with high velocity at intersection between McIntosh Road and Arthur Street	Good replication
36	Hunter Avenue, St Ives	Overland flow with shallow ponding in yard	Satisfactory replication
37	Carcoola Road, St Ives	Overland flow from northern properties, water ponding in yard	Good replication
38	Intersection of Marian Street and Culworth Avenue before Stanhope Road, Killara	Ponding and overflowing on road with high depth	Good replication
39	Mt William Street, Gordon	Ponding in yard and garden	Satisfactory replication. Widespread of overland ponding at the property and surrounds
40	Putarri Avenue, St Ives	Water in front yard, large volume of water flowing through Puttari Avenue at Puttari Reserve	Good replication
41	Werona Avenue intersect with Lynwood Avenue, Killara	Knee-deep water in park, water overflow from manhole and flooding on road	Satisfactory replication. Result shows shallow flow across the area
42	Stratford Place, St Ives	Overflow from stormwater drain cause water flowing to property, garage, and front yard	Good replication
43	Bell Street, Gordon	Water overflow from reserve to the side of the house	Good replication
44	Carcoola Road, St Ives	Floodwaters overflowing from creek, water on road	Good replication

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ID	Location	Observed Flood Behaviour	Replication in Flood Model
45	Corner of Ayres Road and Carissa Avenue, St Ives	Flooding across the rear garden	Good replication
46	Killeaton Street, St Ives	Overflow from drainage easement, water entering backyard and back step of the house	Good replication
47	Kylie Avenue, Killara	Ponding on road and ponding within yard, water entering garage, running downhill with fast pace	Good replication
48	Glenview Street, Gordon	Knee-deep water in driveway, shallow water over part of yard, raging water in Stony Creek	Satisfactory replication. Result shows shallow water in the driveway
49	Putarri Avenue, St Ives	Water at front yard, back yard and along property access	Good replication
50	Pacific Highway, Pymble	Overflow from drainage network, flowing alongside of the building, leakage in garage	Good replication
51	Telegraph Road, Pymble	Water along road, flowing downs footpath. Water in building and garage	Good replication
52	Kylie Avenue, Killara	Floodwaters break channel banks and flood the backyard	Good replication
53	Waugoola Street, Gordon	Water flowing down the driveway, front yard and inside building	Good replication
54	Rosedale Road at Putarri Avenue, St Ives	Flooding on road	Good replication
55	Larnock Aavenue, Pymble	Heavy rain causing channel overflow and broke its bank.	Satisfactory replication
56	Athena Avenue, St Ives	Ponding on road at intersection with Acron Road, water running fast pace entering garage	Good replication
57	Vista Street, Pymble	Shallow inundation on road	Good replication
58	Lennox Street, Gordon	Water at backyard, garage and pool, overflow from neighbouring property	Observed behaviour not replicated due to placement of inflows
59	Waterhouse Avenue, St Ives	Blocked drain causing water ponding on road, entering front door, garage, and yard	Observed behaviour not replicated due to placement of inflows
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61	Cassandra Avenue, St Ives	Water from neighbouring properties cannot discharge due to blocked drain, overflow across the yard	Observed behaviour not replicated due to placement of inflows

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LEGEND
Study Area
Observed Flood Behaviour Location
Peak Flood Depth (m)
0.15
0.25
0.5
1
2
Middle Harbour Creek
Douglas St
Horace St
Mona Vale Rd
Rosedale Rd
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Stony Creek
Middle Harbour Creek
Title:
February 2020 Verification Event
Figure:
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Rev:
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5.5 Summary of Model Verification

The model verification process has utilising the TUFLOW model developed for this study to best represent the flooding conditions within the study area utilising the available data. Rainfall inputs have been developed for the modelling of three verification events: February 2010, June 2016, and February 2020 respectively, utilising available rainfall gauge data. While there is no recorded peak flood level data upon which to base a quantitative model calibration, the modelled flood behaviour agrees well with the majority of anecdotal observed flood behaviour provided as part of the community consultation process. There were some areas for which the model did not match well to observed conditions as a result of the placement of sub-catchment inflows. Further consideration will need to be given to the proposed modelling approach (with regards to the inflow placement) and it is recommended that the same approach adopted for the Middle Harbour – Southern Catchments Flood Study be used for consistency purposes.

In the absence of quantitative calibration data, a sensitivity analysis will be undertaken to assess the influence of the adopted model parameters on the modelled flood conditions. This analysis will provide a basis for determining the relative accuracy of modelling results, and an initial focus for future floodplain management planning.

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6 Design Flood Modelling

6.1 Design Floods

Design floods are probabilistic or statistical estimates of floods used for floodplain risk management. They are based on having a probability of occurrence specified either as:

- Annual Exceedance Probability (AEP) expressed as a percentage; or
- Average Recurrence Interval (ARI) expressed in years.

This report uses the AEP terminology as per ARR 2019 recommendations. Refer to Table 6.1 for a definition of AEP and the ARI equivalent.

Table 6.1 Design Flood Terminology

AEP[1]	ARI[2]	Comments
Extreme Flood / PMF		A probabilistic or statistical estimate of flood or combination of floods, which represent an extreme scenario.
0.2% AEP	500 years	A probabilistic or statistical estimate of flood or combination of floods likely to occur on average once every 500 years or with a 0.2% probability of occurring in any given year
0.5% AEP	200 years	As for the 0.2% AEP flood but with a 0.5% probability or 200-year return period.
1% AEP	100 years	As for the 0.2% AEP flood but with a 1% probability or 100-year return period.
2% AEP	50 years	As for the 0.2% AEP flood but with a 2% probability or 50-year return period.
5% AEP	20 years	As for the 0.2% AEP flood but with a 5% probability or 20-year return period.
10% AEP	10 years	As for the 0.2% AEP flood but with a 10% probability or 10-year return period.
20% AEP	Approximately 5 years	As for the 0.2% AEP flood but with a 20% probability or approximately 5-year return period.

Note:

1 Annual Exceedance Probability (%)

2 Average Recurrence Interval (years)

6.2 ARR 2019 Approach

6.2.1 Overview

The ARR 2019 guidelines comprise significant changes to the previous AR&R 1987 guideline. Some of the key changes in ARR 2019 include:

- Intensity-Frequency-Duration (IFD) 2016 design rainfalls – revised IFD rainfall estimates underpin the ARR 2019 guidelines. The updated IFD, developed by BoM, includes an additional 30 years of

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rainfall data as well as in increase in the number of available pluviograph and daily rainfall gauges (600 to 2280 pluviograph gauges and 7500 to 8074 daily gauges).

- Areal reduction factors (ARFs) – revised equations have been developed as part of ARR 2019 with regionalised parameters to define ARFs for catchments based on catchment area and storm duration.
- Design rainfall losses – estimation of initial and continuing loss rates (as applied in the hydrologic model) are provided in ARR 2019 as gridded spatial data. Representative losses for catchments are extracted from the database. This is a significant change from the previous approach (AR&R 1987) in which basic ranges were recommended for broad areas that is eastern or western NSW.
- Pre-burst rainfall – ARR 2019 provides procedures for the consideration of pre-burst rainfalls for consideration along with design initial losses. The procedures provide for generation of tabular outputs of pre-burst rainfall for the catchment of interest based on a combination of storm duration and return period.
- Temporal patterns – the change in temporal patterns represents one of the most significant differences from the ARR 2019 guidelines. Each design duration now has an ensemble of 10 temporal patterns as opposed to a single temporal pattern for each duration for AR&R 1987.

The ARR 2019 parameters are sourced via the ARR Data Hub (https://data.arr-software.org/). The ARR 2019 Data Hub report for the study area is included in Annex D.

6.2.2 IFD Design Rainfall

Design rainfall grids (based on the 2016 IFDs) were obtained from the BoM website for a range of AEP/duration combinations. The IFD grids have a grid cell spacing of 0.025 decimal spacing (an area of approx. 2.8 km^2). Spatial variability in design rainfall depth is present between the northern and southern portions of the catchment. IFD rainfall depths are highest in the north-east portion of the catchment and the central and western parts of the catchment have similar rainfall across all events. However, an assessment of at-site rainfall data (as outlined in Section 6.2.3) has determined that the 2016 ARR IFDs underestimate expected rainfall behaviour within the study area based on historical record.

6.2.3 At-Site IFD Analysis

As part of this study, “at-site” gauge data has been compared against the 2016 IFD design rainfalls supplied by BoM to establish if:

- There is a significant bias between the two datasets; and
- 2016 IFD design rainfall potentially overestimates or underestimates likely catchment rainfall conditions.

Historical rainfall data was supplied by Sydney Water for the three pluviographs closest to the catchment. A summary of each pluviograph and its period of record is shown in Table 6.2.

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Table 6.2 Rainfall Gauges Used for At-Site Rainfall Analysis

Gauge Name	Gauge Number	Period of Record	Length of Record (years)
Chatswood Bowling Club	566017	1962-2021	~59
Pymble Bowling Club	566073	1987-2021	~34
East Lindfield Bowling Club	566085	1990-2021	~31

The annual maximum rainfall depth for all design durations at the 3 gauges was used to produce an annual maximum series (AMS) for each gauge. The TUFLOW FLIKE software was then used to fit a probability distribution through the AMS depths (using a GEV probability model with an LH moments inference method). The probability distribution for each gauge was then compared against the 2016 IFDs as shown in Figure 6.1 to Figure 6.3.

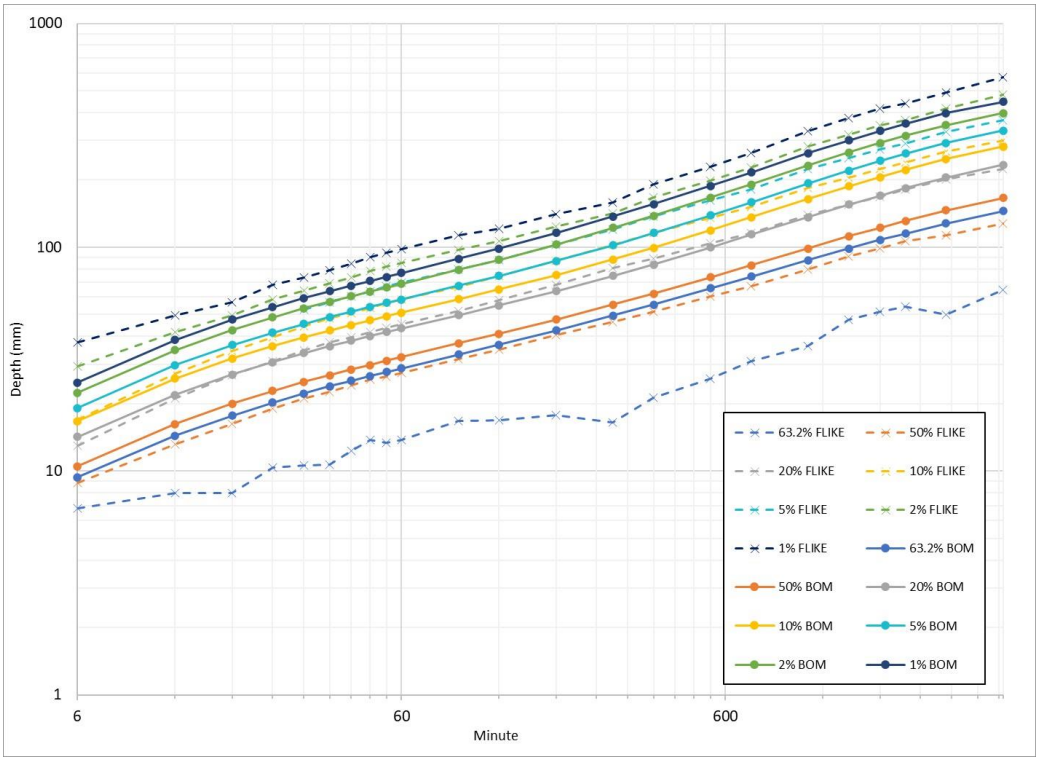
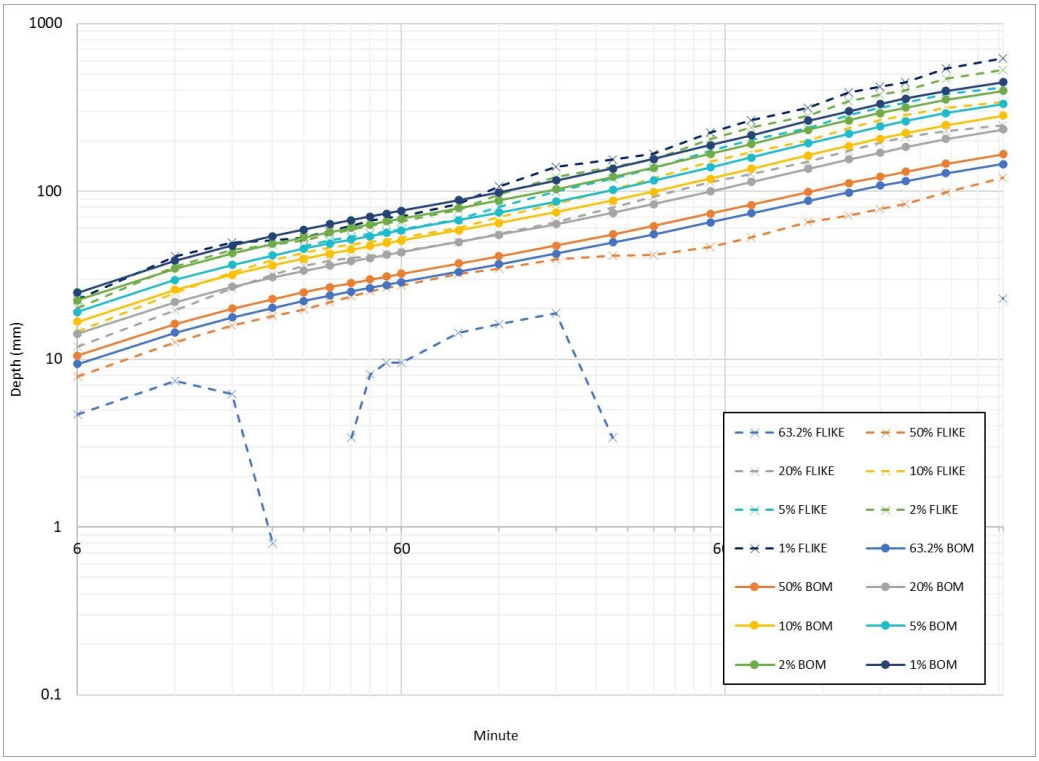


Figure 6.1 At-site Rainfall vs 2016 IFD Comparison for Chatswood Bowling Club Gauge

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Note, negative values are not displayed on chart.

Figure 6.2 At-site Rainfall vs 2016 IFD Comparison for Pymble Bowling Club Gauge

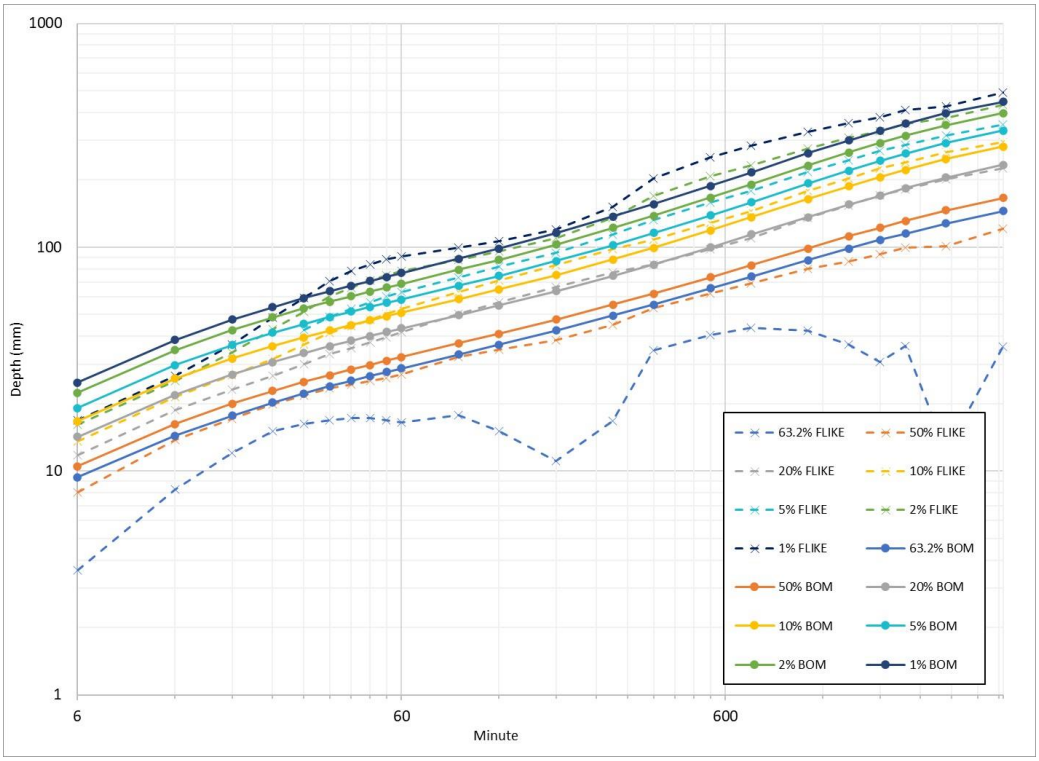


Figure 6.3 At-site Rainfall vs 2016 IFD Comparison for East Lindfield Bowling Club Gauge

Of the three gauged datasets, only the Chatswood Bowling Club gauge is considered appropriate for use in this assessment as it is the only gauge with a long enough period of record (59 years) from which a conclusive pattern can be drawn.

As shown in Figure 6.1, the results of the at-site rainfall analysis for the Chatswood Bowling Club gauge indicate that the 2016 IFDs underestimate expected rainfall depths within the study area based on historical records. This was found to be particularly true for shorter duration storms likely to be critical in urban areas, with IFD rainfall depths being on average 17% lower than historical rainfall data for durations of less than 3 hours. It was therefore decided to scale the 2016 IFD rainfall depths to match the at-site rainfall analysis of the Chatswood Bowling Club gauge and to use these scaled rainfall depths for modelling design rainfall events in this study. The adopted rainfall depths are outlined in Table 6.3.

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Table 6.3 Adopted Rainfall Depths

Duration	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP	1 in 200 AEP	1 in 500 AEP
15 min	23.9	30.8	36.8	45.6	53.1	57.3	64.8
20 min	28.1	36.1	42.8	52.5	60.4	65.2	73.8
25 min	31.5	40.4	48.2	59.4	68.8	74.3	84.1
30 min	34.7	44.4	52.5	63.9	73.2	79.2	89.6
45 min	40.8	52.2	61.9	75.8	87.3	94.6	107.1
1 hour	45.3	58.4	69.4	85.2	98.2	106.5	120.7
1.5 hour	51.9	66.7	79.4	97.6	112.9	122.4	138.1
2 hours	58.0	74.1	87.5	106.2	121.4	131.8	148.1
3 hours	68.2	87.2	102.7	123.9	140.7	152.0	172.1
4.5 hours	80.6	102.6	119.7	142.0	159.0	171.0	192.5
6 hours	89.2	115.4	137.0	166.9	190.9	204.8	231.4
9 hours	104.3	135.6	161.6	198.3	228.2	244.3	275.3
12 hours	115.3	151.1	182.0	226.9	264.5	283.2	319.4

6.2.4 Areal Reduction Factors

An Areal Reduction Factor (ARF) considers how the rainfall depth varies across a catchment under the assumption that larger catchments will not experience the same rainfall depth over the entire area. Equations have been developed as part of ARR 2019 with regionalised parameters to define event specific ARFs for catchments, based on catchment area and storm duration. ARFs are only applied to catchments larger than 1 km^2.

Whilst the study area in its entirety is approximately 16.3 km^2, it is made up of the 2 sub-catchments represented within the DRAINS hydrologic model (Rocky Creek, and Middle Harbour) with an approximate area of 13 km^2. ARF estimates have been determined based on the catchment areas of the smaller catchment systems rather than the whole study area.

The details for each catchment system and their contributing catchment area are presented in Table 6.4. The locations of these catchments are shown in Figure 1.2.

Table 6.4 ARFs - Contributing Catchment Areas

Catchment System	Catchment Area (km^2)
Middle Harbour	4.5
Rocky Creek	8.5

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Table 6.5 ARF Estimates for the Rocky Creek

Duration	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP	1 in 200 AEP	1 in 500 AEP
15 min	0.867	0.863	0.859	0.854	0.850	0.846	0.841
20 min	0.884	0.880	0.875	0.870	0.866	0.862	0.856
25 min	0.895	0.891	0.887	0.881	0.877	0.873	0.867
30 min	0.904	0.900	0.895	0.889	0.885	0.880	0.874
45 min	0.921	0.916	0.911	0.904	0.899	0.894	0.887
1 hour	0.930	0.925	0.919	0.912	0.906	0.901	0.894
1.5 hour	0.941	0.935	0.928	0.920	0.913	0.907	0.898
2 hours	0.948	0.940	0.933	0.923	0.916	0.909	0.899
3 hours	0.956	0.947	0.939	0.928	0.920	0.912	0.901
4.5 hours	0.965	0.958	0.951	0.942	0.935	0.928	0.919
6 hours	0.972	0.968	0.964	0.958	0.954	0.950	0.944
9 hours	0.980	0.977	0.975	0.972	0.970	0.967	0.964
12 hours	0.983	0.980	0.978	0.975	0.973	0.970	0.967

Table 6.6 ARF Estimates for the Middle Harbour

Duration	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP	1 in 200 AEP	1 in 500 AEP
15 min	0.919	0.917	0.914	0.911	0.909	0.906	0.903
20 min	0.929	0.927	0.924	0.921	0.919	0.916	0.913
25 min	0.937	0.934	0.931	0.928	0.925	0.923	0.919
30 min	0.942	0.939	0.936	0.933	0.930	0.927	0.924
45 min	0.952	0.949	0.946	0.942	0.939	0.936	0.932
1 hour	0.958	0.954	0.951	0.947	0.943	0.940	0.935
1.5 hour	0.964	0.960	0.957	0.951	0.947	0.943	0.938
2 hours	0.968	0.964	0.959	0.953	0.949	0.945	0.939
3 hours	0.973	0.968	0.963	0.957	0.952	0.947	0.940
4.5 hours	0.978	0.974	0.970	0.965	0.961	0.957	0.951
6 hours	0.983	0.981	0.978	0.975	0.972	0.969	0.966
9 hours	0.988	0.986	0.985	0.983	0.982	0.980	0.978
12 hours	0.990	0.988	0.987	0.985	0.983	0.982	0.980

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6.2.5 Rainfall Losses

A detailed discussion regarding the derivation of rainfall losses was previously provided in Section 4.2.4. The rainfall losses used for design event modelling are as follows:

- Pervious surfaces - Initial loss as per Table 4.4 and 0.72 mm/h continuing loss.
- Impervious surfaces – 1.5 mm initial loss and 0 mm/h continuing loss.

6.2.6 Temporal Patterns

The ARR 2019 temporal patterns provide one of the most significant changes in the approach to design flow estimation from AR&R 1987, with an ensemble of ten temporals patterns used instead of a single temporal pattern for each AEP and duration combination. The ARR 2019 method has three temporal pattern bins that are used for various design events as shown in Figure 6.4. These include:

- Frequent – more frequent than a 14.4% AEP event;
- Intermediate – between a 3.2% AEP and 14.4% AEP event;
- Rare – rarer than a 3.2% AEP event;
- Very Rare – currently in development and not available at the time of this study. The Rare patterns are adopted for all events rarer than a 3.2% AEP event (except for the PMF event).

The ten temporal patterns for each AEP and duration combination vary in terms of their distribution and variability. As a result, a wide range of flooding behaviour can be simulated across the catchment. The ARR 2019 temporal patterns for the study area were downloaded from the ARR Data Hub.

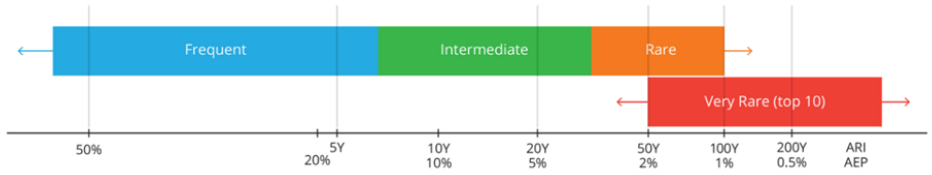


Figure 6.4 Temporal Pattern Bins (ARR 2019)

6.2.7 Downstream Boundary Conditions

The study area discharges into Middle Harbour either via a series of channel confluences and pipe inlets or overland via the steep forested areas in the east of the catchment. The downstream boundary uses a 'HQ Stage Discharge' approach based on the bed slope of the Middle Harbour Creek channel to calculate the flow going through this boundary (see Section 4.3.8).

A sensitivity assessment was conducted to determine the influence of tidal conditions in Middle Harbour Estuary on flood levels within the study area. Potential tidal conditions were determined using the 'Modelling the Interaction of Catchment Flooding and Oceanic Inundation in Coastal Waterways' (OEH, 2015), and a 5% AEP Middle Harbour Tidal Event (equivalent to a 1.4 m AHD tidal level) was adopted. These tidal conditions were applied as a 'Head vs Time' or 'HT' boundary at the model outlet. The results showed no change in flood level throughout the study area with exception to a 10 mm increase at the downstream boundary. The results reflect that the Middle Harbour Northern Catchments are broadly elevated above the potential influence of water levels within the estuary.

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6.3 Blockage Assumptions

6.3.1 Blockage of Hydraulic Structures

ARR 2019 includes guidance regarding the procedure to estimate blockage levels of structure inlets for design flood modelling (refer Book 6: Flood Hydraulics – Chapter 6 Blockage of Hydraulic Structures). The ARR 2019 assessment procedure includes classification of the following mechanisms:

- Debris type and dimensions (including identification of the average length of the longest 10% of the debris that could arrive at the site (termed as L^{10}). In line with the value suggested in ARR 2019 an L^{10} of 1.5m has been adopted for this study.
- Debris availability in the study area.
- Debris mobility.
- Debris transportability.

A classification is applied to each of the above components and the combination of these classifications provides a debris potential classification of either Low, Medium or High.

This assessment has also adopted an AEP adjusted scaling of the 'most-likely' inlet blockage based upon the magnitude of a design event. That is, more frequent flood events are likely to have lower blockages than a rarer event. The ARR 2019 blockage assessment sheet is included as Annex E.

In addition to the structure blockage condition, industry standard pipe and culvert losses have been applied at all relevant conduits in the TUFLOW hydraulic model, specifically:

- An entry and exit loss of 0.5 and 1.0 respectively;
- Height and width contraction coefficients of 0.6 and 0.9 for culverts and 0 and 1.0 for pipes.

6.3.2 Pit Inlet Blockages

Pit Inlet Blockages were adopted in accordance with Ku-ring-gai Council's *Development Control Plan Part 24: Water Management* (2015) and following discussions with Council. The blockage percentages for the inlet condition and inlet type are provided in Table 6.7.

Table 6.7 Adopted Pit Inlet Blockages

Inlet Type	Blockage Percentage
Side Entry	20%
Grated	50%
Combination	Side inlet capacity only, Grate completely blocked
Letterbox	50%

6.4 Critical Duration and Temporal Patterns Assessment

The critical duration (and its associated mean temporal pattern) was selected through assessment of the peak flood levels across the catchment predicted by the modelling. This analysis was completed for each of the temporal pattern bins associated with the selected design events (i.e. frequent, intermediate and rare storm events).

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The following method was adopted to undertake the critical duration assessment:

1. Using DRAINS to run an ensemble of temporal patterns from the 15-minute duration to the 720-minute duration. This included 13 durations; 15, 20, 25, 30, 45, 60, 90, 120, 180, 270, 360, 540 and 720-minute.

2. Applying the hydrographs from the DRAINS models to the TUFLOW model. In total, 130 TUFLOW runs were completed for each temporal pattern bin.

3. For each duration and AEP combination, determine the temporal pattern that provided the level that was one above the mean of the ensemble of ten temporal patterns.

4. Once a representative mean temporal pattern was identified for each duration, the duration or combination of durations providing the peak flood level was identified to be the critical duration(s) for the study area.

The critical duration or combination of durations identified for each design event is presented in Table 6.8. It can be seen in Table 6.8 that shorter durations are typically critical across the catchment due to the urbanised nature of the upstream catchment, lack of major storage and steep terrain.

Table 6.8 Design Critical Durations and Mean Temporal Patterns

Design Event (AEP)	Temporal Pattern Bin	Critical Duration and associated Temporal Patterns
20%	Frequent	45 min (TP10)
10%	Intermediate	25 min (TP04) & 60 min (TP10) & 90 min (TP01)
5%	Intermediate	25 min (TP04) & 60 min (TP10) & 90 min (TP01)
2%	Rare	30 min (TP09) & 60 min (TP03)
1%	Rare	30 min (TP09) & 60 min (TP03)
0.5%	Rare	30 min (TP09) & 60 min (TP03)
0.2%	Rare	30 min (TP09) & 60 min (TP03)
PMF	See Section 6.5	15 min & 30 min

6.5 Probable Maximum Precipitation

The Probable Maximum Precipitation (PMP) is used to derive the Probable Maximum Flood (PMF) event. The definition of the PMP is *"the theoretical maximum precipitation for a given duration under modern meteorological conditions*" (WMO, 2009). The ARI of a PMP/PMF event ranges between 10^4 and 10^7 years and is beyond the "credible limit of extrapolation" (Pilgrim, 1987). That is, it is not possible to use rainfall depths determined for the more frequent events (1% AEP and less) to extrapolate the PMP. For this study, the PMP has been estimated using the Generalised Short Duration Method (GSDM) derived by the BoM (2003), which is appropriate for durations up to 360 minute (6 hours) and considered suitable for small catchments (less than 1,000 km^2).

An ensemble of storm durations were simulated using the DRAINS and TUFLOW model to determine the critical duration(s) for the PMF event. The storm durations that were assessed included the 15, 30, 45, 60, 90, 120, 150, 180, 270, 300 and 360 minute durations. The rainfall for each duration was estimated following the GSDM methodology. There is one temporal pattern used as shown in Figure 6.5. This pattern is scaled to the appropriate duration and rainfall total for each storm duration.

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The critical durations were identified to be the 15 and 30 minute durations for the Middle Harbour Northern Catchments, with the 15 minute duration generally critical for the major overland flow paths. The spatial distribution of the PMF critical durations is shown in Figure 6.5 (note: flood extents are raw unfiltered results).

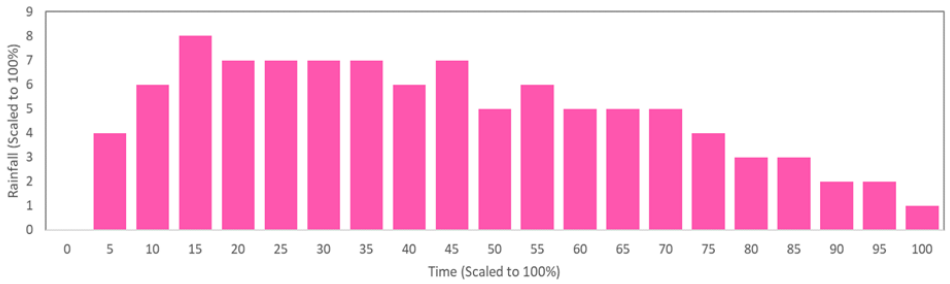
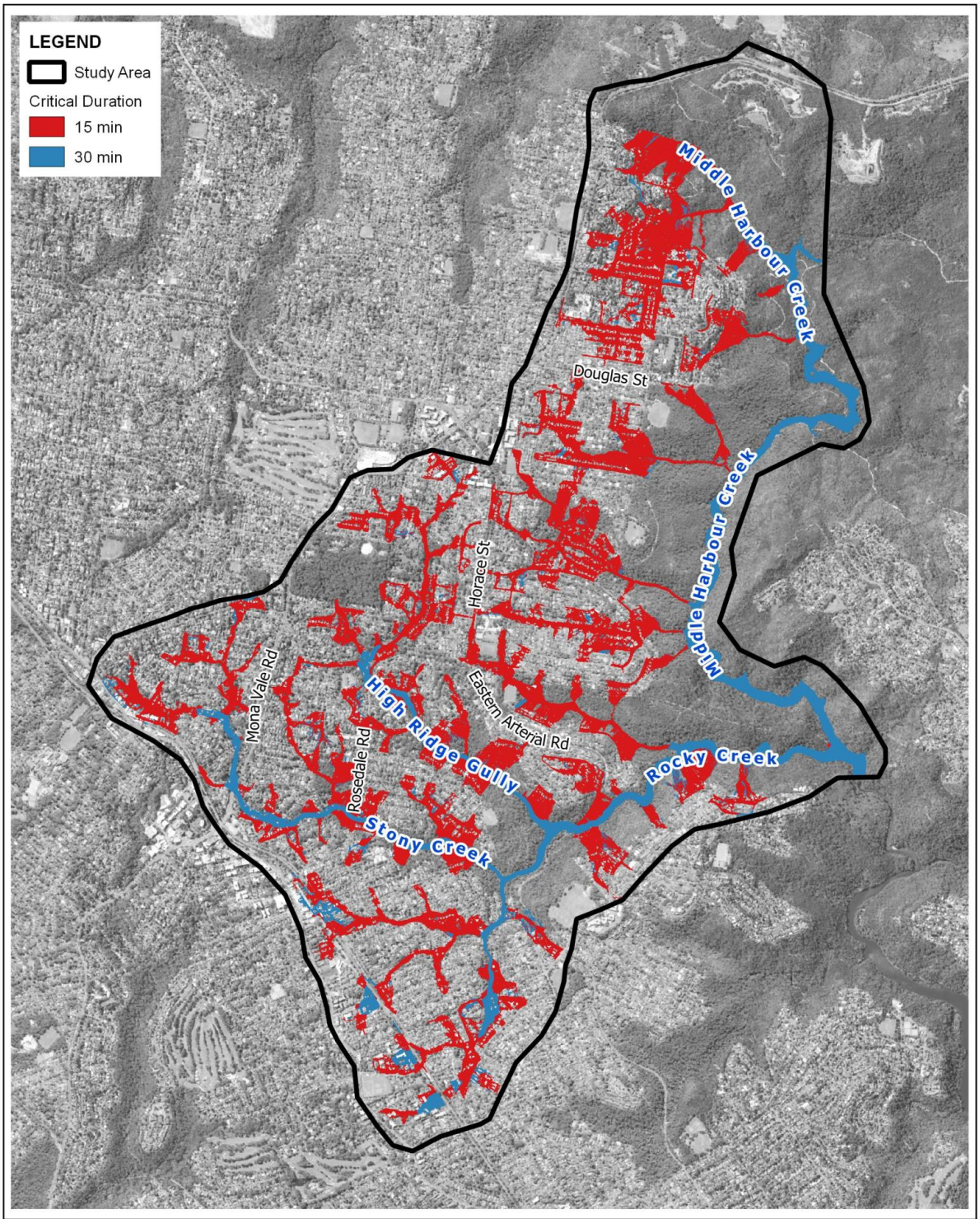


Figure 6.5 PMP Temporal Pattern

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LEGEND
Study Area
Critical Duration
15 min
30 min
Middle Harbour Creek
Douglas St
Middle Harbour Creek
Horace St
Mona Vale Rd
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Rosedale Rd
Stony Creek
Title:
Spatial Distribution of Critical Duration PMF Event
Figure:
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7 Design Flood Conditions

7.1 Overview

The simulated design floods include the 20%, 10%, 5%, 2%, 1%, 0.5%, 0.2% AEP and PMF events. A series of design flood maps for selected events are provided in Annex F (Volume 2). The following results are provided:

- Peak Flood Depths – Figure F1 to Figure F8;
- Peak Flood Levels – Figure F9 to Figure F16;
- Peak Flood Velocities – Figure F17 to Figure F24;
- Provisional Flood Hazard Categorisation – Figure F25 to Figure F27;
- Hydraulic Classification (Flood Function) – Figure F28 to F30.

7.2 Peak Flood Conditions

For each design flood, a map of peak flood level, depth and velocity covering the study area is included in Annex F (Volume 2). The following filtering approach was applied to the results:

- Inclusion of areas with peak flood depths greater than or equal to 0.3 m;
- Inclusion of areas with peak flood depths greater than or equal to 0.1 m AND peak flood velocity-depth product greater than 0.1 m^2/s; and
- Inclusion of areas with peak flood depths greater than or equal to 0.05 m AND peak flood velocity-depth product greater than 0.025 m^2/s.

The design flood inundation extents for the 20%, 5% and 1% AEP and PMF events are presented in Figure 7.1 Modelled peak flood levels at selected locations (as shown in Figure 7.1) are presented in Table 7.1 for the full range of design floods considered.

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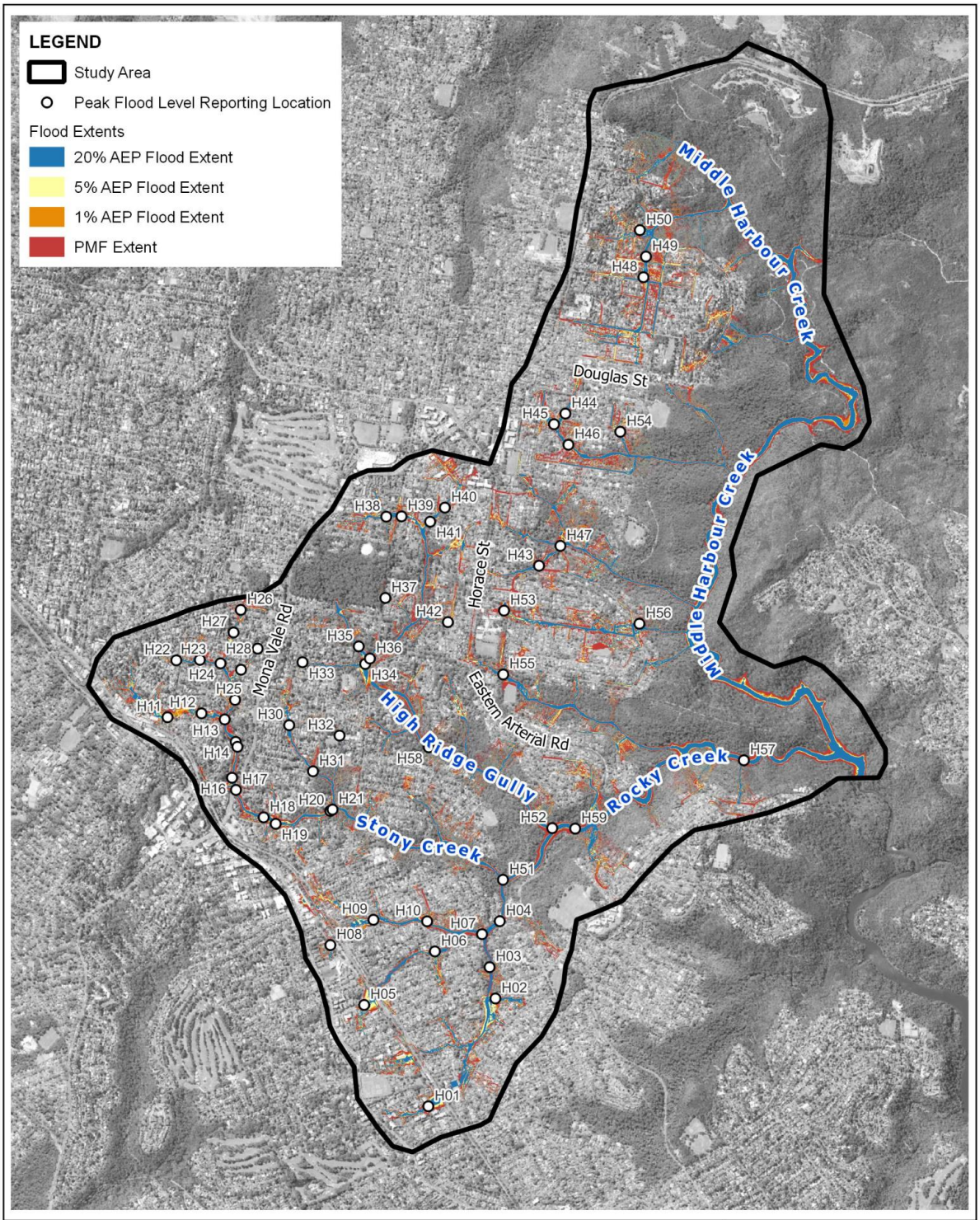

LEGEND
Study Area
Peak Flood Level Reporting Location
Flood Extents
20% AEP Flood Extent
5% AEP Flood Extent
1% AEP Flood Extent
PMF Extent
Middle Harbour Creek
Douglas St
Horace St
Mona Vale Rd
High Ridge Gully
Eastern Arteral Rd
Rocky Creek
Stony Creek
H01
H02
H03
H04
H05
H06
H07
H08
H09
H10
H11
H12
H13
H14
H16
H17
H18
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Title:
Peak Flood Extents
Figure:
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Table 7.1 Modelled Peak Flood Levels

ID	Location	Modelled Peak Flood Level (m AHD)							
		20% AEP	10% AEP	5% AEP	2% AEP	1% AEP	0.5% AEP	0.2% AEP	PMF
H01	Upstream Railway at Culworth Avenue, Killara	106	106	106.8	106.9	107.1	107.2	107.4	108.4
H02	Downstream Tasman Crescent, Killara	86.9	87	87.5	87.7	87.9	88.1	88.3	88.9
H03	Downstream Wattle Street, Killara	71.7	71.8*	71.1	71.2	71.3	71.3	71.7	73
H04	Downstream Illeroy Avenue, Killara	62.5	62.6	62.6	62.8	62.9	63	63.2	64.3
H05	Upstream Railway at Bruce Avenue, Killara	108.8	108.8	109.2	109.3	109.5	109.7	109.9	111
H06	Downstream Arthur Street, Killara	87.9	87.9	87.9	88	88.1	88.1	88.1	88.8
H07	Downstream Illeroy Avenue, Killara	64.6	64.7	64.7	64.9	65	65.1	65.2	66.2
H08	Upstream Railway at Henry Street, Gordon	111.1	111.2	111.3	111.3	111.4	111.4	111.4	111.8
H09	Downstream Rosedale Road, Gordon	99.3	99.3	99.4	99.5	99.6	99.6	99.6	100.1
H10	Downstream McIntosh Street, Killara	86.4	86.5	86.5	86.6	86.7	86.8	86.9	87.7
H11	Upstream Station Street, Pymble	125.3	125.6	126.3	126.5	126.5	126.6	126.6	127
H12	Downstream King Edward Street, Pymble	116.8	116.9	116.9	117	117.2	117.3	117.4	118.3
H13	Downstream Wellesley Road, Pymble	112.6	112.6	112.7	112.8	113	113	113.1	114.1
H14	Upstream Fern Street, Pymble	110.6	110.8	111	111.1	111.2	111.2	111.3	111.8
H15	Downstream Fern Street, Pymble	107	107.1	107.3	107.6	107.8	107.9	108.2	109.9
H16	Upstream Mona Vale Road, Pymble	104.2	104.4	104.6	104.8	104.9	105	105.1	105.9
H17	Downstream Mona Vale Road, Pymble	102	102.1	102.1	102.3	102.4	102.5	102.7	103.7
H18	Upstream Carlotta Avenue, Gordon	96.6	96.7	96.9	97	97.1	97.2	97.3	98.2
H19	Downstream Carlotta Avenue, Gordon	94.5	94.8	95	95.2	95.3	95.4	95.6	96.7
H20	Upstream Ashley Grove, Gordon	84.1	84.5	84.7	85	85.2	85.3	85.5	87.3

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ID	Location	Modelled Peak Flood Level (m AHD)							
		20% AEP	10% AEP	5% AEP	2% AEP	1% AEP	0.5% AEP	0.2% AEP	PMF
H21	Downstream Ashley Grove, Gordon	83.6	83.9	84.1	84.3	84.5	84.6	84.8	86.6
H22	Upstream Alma Street, Pymble	141.8	141.9	141.9	141.9	141.9	142	142	142.2
H23	Downstream Carson Street, Pymble	132.6	132.7	132.7	132.7	132.8	132.8	132.8	133.1
H24	Upstream Orana Avenue, Pymble	126.1	126.1	126.2	126.2	126.3	126.3	126.3	126.9
H25	Upstream Church Street, Pymble	117.5	117.9	118.7	119.1	119.2	119.3	119.3	119.9
H26	Downstream Telegraph Road, Pymble	149.9	149.9	149.9	149.9	149.9	149.9	149.9	150.1
H27	Upstream Hope Street, Pymble	137	137	137.1	137.1	137.1	137.1	137.2	137.4
H28	Downstream Hope Street, Pymble	141.3	141.4	141.4	141.5	141.5	141.5	141.6	141.9
H29	Downstream Orana Avenue, Pymble	127.3	127.3	127.4	127.4	127.4	127.4	127.4	127.7
H30	Downstream Bromley Avenue, Pymble	113.1	113.2	113.2	113.3	113.3	113.3	113.4	114.1
H31	Downstream Narelle Avenue, Pymble	99.7	99.7	99.8	99.8	99.8	99.8	99.8	100
H32	Gordon East Public School, Gordon	119.6	119.6	119.7	119.7	119.7	119.7	119.7	120
H33	Downstream Macquarie Road, Pymble	124.1	124.1	124.2	124.2	124.2	124.3	124.3	124.7
H34	Downstream Bolton Place, Pymble	99.2	99.7	100.7	101.4	101.7	101.8	102	103.3
H35	Bristol Avenue, Pymble	104.6	104.7	104.9	105	105.1	105.1	105.2	106.2
H36	Downstream Bristol Avenue, Pymble	99.5	99.8	100.8	101.5	101.7	101.8	102	103.6
H37	Downstream Rosedale Road, St Ives	132.3	132.4	132.5	132.6	132.6	132.7	132.7	133.3
H38	Downstream Putarri Avenue, St Ives	145.2	145.3	145.3	145.4	145.5	145.5	145.5	146.1
H39	Downstream Rosedale Road, St Ives	141.7	141.9	142	142.2	142.3	142.4	142.5	143.7
H40	Downstream Richard Road, St Ives	144	144.1	144.3	144.3	144.4	144.4	144.5	145
H41	Downstream Lynbara Avenue, St Ives	138	138.1	138.2	138.2	138.3	138.3	138.3	138.8

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ID	Location	Modelled Peak Flood Level (m AHD)							
		20% AEP	10% AEP	5% AEP	2% AEP	1% AEP	0.5% AEP	0.2% AEP	PMF
H42	Upstream Alvona Avenue, St Ives	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.7
H43	Downstream Melaleuca Drive, St Ives	116.9	116.9	117	117	117.1	117.1	117.1	117.5
H44	Upstream Killeaton Street, St Ives	146	146	146.1	146.1	146.1	146.2	146.2	146.5
H45	Downstream Killeaton Street, St Ives	140.8	141	141.1	141.2	141.3	141.3	141.4	142.2
H46	Downstream Carcoola Road, St Ives	134.7	134.8	134.9	134.9	135	135	135.1	135.7
H47	Downstream Cassandra Avenue, St Ives	84.1	84.2	84.3	84.4	84.4	84.5	84.6	85.6
H48	Downstream Ayres Road, St Ives	131.4	131.5	131.6	131.7	131.8	131.9	132	132.9
H49	Downstream Blackburn Street, St Ives	120.2	120.3	120.4	120.6	120.7	120.7	120.8	121.5
H50	Downstream Whitehaven Street, St Ives	118.2	118.3	118.4	118.5	118.5	118.5	118.6	118.8
H51	Confluence of Stony Creek and Rocky Creek	48.9	49.3	49.3	49.6	49.9	50	50.2	52.7
H52	Upstream Eastern Arterial Road, Gordon	41.1	41.5	41.6	42	42.4	42.6	43	46.3
H53	St Ives Public School	142.6	142.7	142.7	142.7	142.7	142.7	142.7	142.8
H54	Downstream Killeaton Street, St Ives	138	138.1	138.1	138.1	138.1	138.1	138.1	138.4
H55	Downstream Hunter Avenue, St Ives	117.9	118	118	118	118.1	118.1	118.1	118.7
H56	Downstream Melaleuca Drive, St Ives	85.3	85.4	85.4	85.5	85.5	85.5	85.5	85.9
H57	Downstream Kimberley, St Ives	14.8	15.3	15.4	15.8	16.2	16.3	16.7	19.9
H58	Degotardi Park, St Ives	70.7	70.7	70.7	70.8	71	71.1	71.3	74.1
H59	Downstream Eastern Arterial Road, St Ives	38.5	38.8	38.9	39.2	39.4	39.6	39.9	42.7

* It is noted that for this event (10% AEP event) the peak flood level is slightly higher than the next closest rare event (the 5% AEP event). This anomaly is due to the different blockage scenarios applied in accordance with ARR 2019, in these two events.

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7.3 Predicted Flood Behaviour

7.3.1 Description of Flood Behaviour

Floodwaters within the Middle Harbour Northern Catchment originate in the steep urbanised portions of the upstream area, generally flowing along urbanised flow paths into High Ridge Gully, Stony Creek, Rocky Creek and then down into Middle Harbour itself. Within the upper catchment, nuisance stormwater affectation is generally widespread, with greater concentrations of flow along areas of lower elevations which form part of major trunk lines and/or discharge into Rocky Creek and its tributaries. Due to the highly urbanised nature of the upper catchment, many of these overland flow paths form part of property backyards in the upper reaches before they reach the vegetated areas in the lower catchment. Flooding to property and infrastructure occurs primarily at these locations, where the capacity of backyards or roadways is exceeded, and high depths of ponding occur as a result. This occurs notably in the area of Karranga Avenue, Arthur Street, Bristol Avenue, with the severity of flooding scaling with magnitude up to the PMF event. Significant depths of water occur along western side of the railway line at Killara Station, notably at the location of the culverts.

The overland flow paths drain to the major watercourses and their tributaries, which contain most of the catchment flooding for events up to and including the PMF event. This owes in part to both the steep nature of the catchment and the sizeable riparian zone.

In the lower/eastern portion of the catchment the steep terrain and heavy vegetation result in flooding being localised within the Middle Harbour Estuary itself.

7.3.2 Key Flood Locations

Major overland flooding occurs in several locations within the upper reach. Notable flooding occurs in the following areas:

- The area upstream of the railway line – floodwaters pond along the upstream (western side) of the railway line at low points along Culworth Avenue, Bruce Avenue and Henry Street. Due to the elevated railway, floodwaters build on the western side partially blocking roads and affecting several properties.

- Locksley Street to Wattle Street – a significant major overland flow path stretches from Locksley Street north-east towards Wattle Street before continuing north towards Rocky Creek. In the upstream portion of the flow path (Locksley Street to Wattle Street with contributions from the areas ponding behind the railway line at Culworth Avenue), floodwaters flow into low lying areas between roads inundating properties. Once floodwaters reach Karranga Avenue, they flow down a vegetated overland flow path (with inundation of properties only occurring at the outer fringe of the flow path in rarer events) before ponding behind the southern side of Wattle Street.

- The area downstream of the railway line at Werona Avenue to Illeroy Avenue – a significant major overland flow path begins from Werona Avenue directly downstream of the railway line at Henry Street and Bruce Avenue. The overland flow path flows to Illeroy Avenue before discharging to Rocky Creek with upstream contributions from areas downstream of the railway line. Floodwaters from the railway line (at Werona Avenue) flow into low lying areas between roads and residential properties.

- Alma Street and Telegraph Road to Ashley Grove – Floodwaters along Alma Street to Telegraph Road flow in a southeast direction to Ashley Grove before discharging to Stony Creek, a tributary of Rocky Creek. In the upstream areas, floodwaters flow along low-lying areas between roads and residential properties. Floodwaters from Alma Street and Telegraph converge as one flow path at Wellesley Road within Stony Creek. Stony Creek passes through low-lying residential areas,

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crossing Mona Vale Road before reaching Ashley Grove. Once floodwaters reach Ashley Grove they flow down a heavily vegetated overland flow path. Floodwaters discharge from Stony Creek into Rocky Creek near the Eastern Arterial Road.

- Stanley Street and Pentecost Avenue to High Ridge Gully – Two overland flow paths originating at Stanley Street and Pentecost Avenue flow in a southernly direction before converging in a vegetated area east of Dorset Drive. The overland flow path travels south before discharging to High Ridge Gully at Bolton Place. In the upstream portion of the flow path, several properties are inundated by ponding floodwaters prior to their discharge through vegetated areas downstream.
- Yarrabung Road to Middle Harbour Creek – Three flow paths originating along Yarrabung Road converge at Cassandra Avenue forming one major overland flow path discharging into Middle Harbour Creek. Floodwaters run in an easterly direction through low-lying residential areas and roads. Significant affectation occurs at properties directly downstream of Cassandra Avenue.
- Flinders Avenue to Middle Harbour Creek – Single overland flow paths originating along Dainton Avenue and Flinders Avenue moving in an easterly direction before discharging into Middle Harbour Creek. Floodwaters pass through the upstream low-lying residential areas and roads before reaching the heavily vegetated area of Carcoola Road Reserve leading to Middle Harbour Creek.
- Oxley Avenue to Middle Harbour Creek – Flow paths discharge areas upstream of Oxley Avenue to Middle Harbour Creek downstream of Blackburn Street. In the upstream portion of the flow path, several properties are inundated by ponding floodwaters prior to their discharge through vegetated areas downstream.

In addition to the above location, there are several other localised sag points and minor overland flow paths that form throughout the study area resulting in relatively minor inundation of roadways and private properties. These include but are not limited to:

- The area along Kelvin Road;
- The area downstream of Dalrymple-Hay Nature Reserve;
- The area downstream of Robert Pymble Park;
- The area upstream of Richmond Park;
- The area downstream of Barra Brui Park;
- Area upstream of Linigen Reserve; and
- Area north of Pymble Station.

7.4 Provisional Flood Hazard

Flood hazard defines the potential impact that flooding will have on vehicles, people and structures across different areas of the floodplain. For this study, the variation in flood hazard was defined based on the composite six-tiered hazard classification defined in '*Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia'* (AIDR, 2017) and reproduced in Figure 7.2. The six hazard classifications are summarised in Table 7.2.

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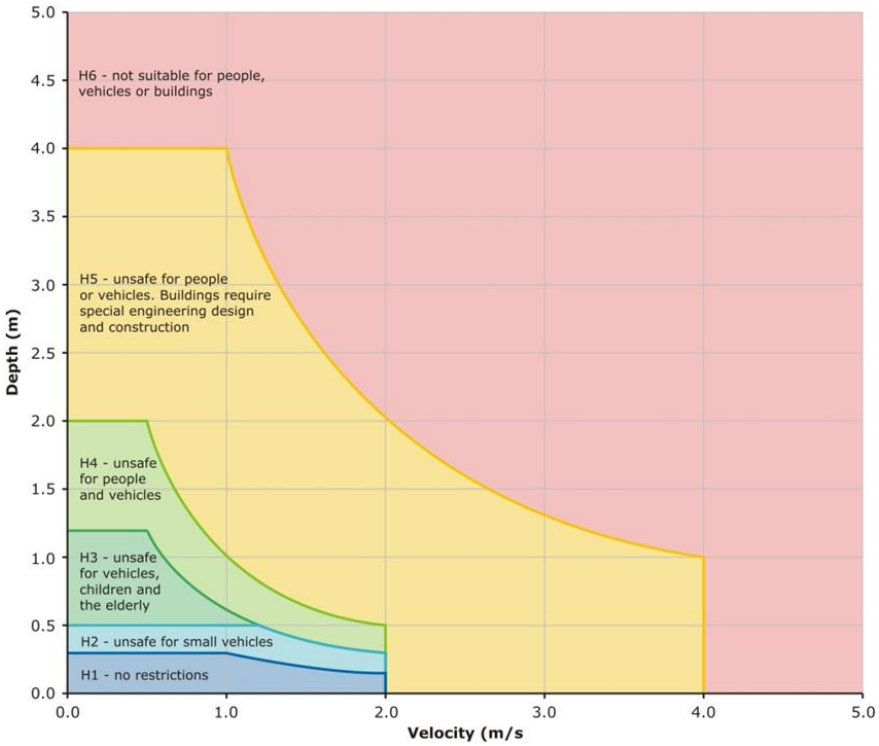


Figure 7.2 Combined Provisional Flood Hazard Curves

Table 7.2 Best Practice Provisional Flood Hazards (AIDR, 2017)

Hazard Classification	Description
H1	Relatively benign flow conditions. No vulnerability constraints.
H2	Unsafe for small vehicles.
H3	Unsafe for all vehicles, children and the elderly.
H4	Unsafe for all people and vehicles.
H5	Unsafe for all people and vehicles. Buildings require engineering design and construction.
H6	Unconditionally dangerous. Not suitable for any type of development or evacuation access. All building types considered vulnerable to failure.

As shown in Figure 7.2, the hazard curves define the potential vulnerability of people, cars and structures based upon the depth and velocity of floodwaters. Peak depth, velocity and velocity-depth product outputs generated by the TUFLOW model were used the map the variation in flood hazard across the catchments. Provisional hazard mapping for the study area is included in Annex F for the 1% and 0.2% AEP floods and PMF (note: the filtering approach outlined in Section 7.2 has been applied to the mapping).

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The hazard mapping indicates that for the 1% AEP and 0.2% AEP events, urban areas are typically classified as “H1”, with up to “H4” classifications in areas of ponding. Hazards within major overland flow paths and tributaries are generally between the “H4” and “H6” classifications, which are considered unsafe for people and vehicles.

A larger portion of the urban area is classified as high hazard during the PMF, with classification of up to “H5” in ponded areas. Major overland flow paths and tributaries are typically subject to “H6” high hazard flow conditions. In “H6” hazard conditions, cars and people would be exposed to a significant flood risk and there is potential for structural damage to buildings.

7.5 Flood Function

The flood function categories (also referred to as hydraulic categories) defined in the *‘Floodplain Development Manual’* (NSW Government, 2005) are:

- Floodway - Areas that convey a significant portion of the flow. These are areas that, even if partially blocked, would cause a significant increase in flood levels or a significant redistribution of flood flows, which may adversely affect other areas.
- Flood Storage - Areas that are important in the temporary storage of the floodwater during the passage of the flood. If the area is substantially removed by levees or fill it will result in elevated water levels and/or elevated discharges. Flood Storage areas, if completely blocked would cause peak flood levels to increase by 0.1m and/or would cause the peak discharge to increase by more than 10%.
- Flood Fringe - Remaining area of flood prone land, after Floodway and Flood Storage areas have been defined. Blockage or filling of this area will not have any significant effect on the flood pattern or flood levels.

There are no prescriptive methods for determining what parts of the floodplain constitute floodways, flood storages and flood fringes. Descriptions of these terms within the *‘Flood Risk Management Guideline FB02’* and the *‘Floodplain Development Manual’* (NSW Government, 2005) are essentially qualitative in nature and the definition of flood behaviour and associated impacts is likely to vary from one floodplain to another depending on the circumstances and nature of flooding within the catchment.

The criteria listed in Table 7.3 has been applied to the mapping of hydraulic categories in this study. Hydraulic category mapping is included in Appendix H for the 1% and 0.2% AEP floods and PMF (note: the filtering approach outlined in Section 7.2 has been applied to the mapping).

Table 7.3 Flood Function Categories

Classification	Criteria	Definition
Floodway	Area within the flood extent where: • Velocity x Depth > 0.3 m^2/s AND • Velocity > 0.5 m/s AND • Depth > 0.15 m	Areas and flow paths where a significant proportion of floodwaters are conveyed (including all bank-to-bank creek sections).
Flood Storage	Remaining area within the flood extent where Depth > 0.15 m	Areas where floodwaters accumulate before being conveyed downstream. These areas are important for detention and attenuation of flood peaks.

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Classification	Criteria	Definition
Flood Fringe	Remaining area in the floodplain (i.e. area within the flood extent) outside the Floodway and Flood Storage areas.	Areas that are low-velocity flows within the floodplain. Filling of these areas generally has little consequence to overall flood behaviour.

During the 1% AEP flood, floodways and flood storage areas are largely contained within the downstream watercourses and along the trunk drainage lines discharging to the watercourses in the upstream of the catchment. Some roads throughout the catchment such as Kelvin Road and Woodward Place, act partially as floodways discharging flood waters into the watercourse. Notable flood storage areas are located at Culworth Avenue and Bruce Avenue upstream of the railway line, in the areas upstream of Wattle Street and upstream of Station Street.

The extent of both the floodway and flood storage areas increase with event rarity, with generally similar flow behaviour is predicted in the 0.2% AEP flood and PMF event. However, during the PMF event, areas upstream of Wattle Street, Station Street and other urban areas have a larger portion of the overland flow path predicted to form floodways.

The Flood Function Criteria adopted in this study is a match for the criteria currently adopted in Ku-ring-gai Council's existing Blackbutt Creek, Lovers Jump Creek and Middle Harbour Southern Catchments Flood Studies. It is noted that the criteria are potentially conservative, particularly in regard to the definition of flood storage areas. It is recommended that Flood Function Categories for the catchment are reviewed in more detail as part of a future Floodplain Risk Management Study and Plan.

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8 Sensitivity and Climate Change Assessment

8.1 Summary

Computer flood models required the adoption of several modelling parameters that may be uncertain or are subject to natural variation (e.g. summer versus winter vegetation). Calibration is completed, where possible, in an attempt to ensure the adopted model parameters generate reliable estimates of flood conditions. However, as discussed in Section 5, model calibration and validation could not be undertaken for the models in this study due to the lack of available historical data. Instead, model verification based on anecdotal flood information in some locations was undertaken.

As inputs can impact on the results generated by the models, it is important to understand how any uncertainties in key model input parameters or changes to parameters (e.g. due to climate change) may impact on the results predicted by the models. Therefore, a sensitivity and climate change assessment has been undertaken for the 1% AEP design event to assess changes to predicted design flood behaviour when varying the model parameters listed in Table 8 1. In defining sensitivity tests, consideration has been given to the most appropriate parameters considering catchment properties and simulated design flood behaviour.

Table 8.1 Sensitivity and Climate Change Assessment Criteria

Sensitivity Assessment	Details
Rainfall Losses	+ 50% Probability Neutral Burst Loss - 50% Probability Neutral Burst Loss
Hydraulic Roughness	+ 20% Manning's 'n' values - 20% Manning's 'n' values
Hydraulic Structure Blockage	0% Blockage 100% Blockage
Climate Change	Increased rainfall as per ARR 2019 guidelines for 2090 and 2100 Sea Level Rise (+0.9 m)

The rationalisation for each of these sensitivity tests along with adopted model parameters and results are summarised in the following sections.

Predicted 1% AEP peak flood levels at the key reporting locations shown in Figure 7.1 are provided in Table 8.2 for each sensitivity and climate change scenario.

In general, flood levels were most sensitive to changes in hydraulic structure blockage and climate change in the catchment. Overall, results were shown to be relatively insensitive to the test variables, such as change to rainfall loss and hydraulic roughness, with an average change in peak levels of ±0.02 m across the wider study area for the non-blockage-based sensitivity parameters. The average change in peak flood levels as a result of changes to blockage and climate change was ±0.3 m, however this can generally be accommodated for instance within the 0.5 m freeboard applied to 1% AEP flood levels to determine the Flood Planning Level (see Section 9.1).

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Table 8.2 Sensitivity Assessment: 1% AEP Peak Flood Level Comparison

ID	Modelled Peak Flood Level (m AHD)								
	1% AEP	1% AEP plus 50% rainfall loss	1% AEP minus 50% rainfall loss	1% AEP plus 20% Manning's 'n' Roughness	1% AEP minus 20% Manning's 'n' Roughness	1% AEP with 0% Blockage	1% AEP with 100% Blockage	1% AEP plus rainfall increase (2090 RCP 4.5 Scenario)	1% AEP plus rainfall increase (2090 RCP 8.5 Scenario)
H01	107.1	107.1	107.1	107.1	107.1	106.2	107.1	107.2	107.3
H02	87.9	87.9	87.9	87.9	87.9	87	87.8	88.1	88.2
H03	71.3	71.3	71.3	71.2	71.3	72.2	71.3	71.3	71.4
H04	62.9	62.9	62.9	62.9	63.0	63.3	62.9	63.0	63.1
H05	109.5	109.5	109.6	109.5	109.5	108.9	109.5	109.7	109.8
H06	88.1	88.1	88.1	88	88.1	88.2	88.1	88.1	88.1
H07	65.0	65.0	65.0	64.9	65.1	65.3	65.0	65.1	65.2
H08	111.4	111.4	111.4	111.3	111.4	111.4	111.5	111.4	111.4
H09	99.6	99.6	99.6	99.5	99.6	99.6	99.7	99.6	99.6
H10	86.7	86.7	86.7	86.7	86.8	86.7	86.7	86.8	86.9
H11	126.5	126.5	126.6	126.5	126.6	126.5	126.7	126.6	126.6
H12	117.2	117.2	117.2	117.2	117.2	117.1	117.6	117.3	117.4
H13	113.0	112.9	113.0	112.8	113.0	112.9	113.0	113.0	113.1
H14	111.2	111.2	111.2	111.2	111.2	111.0	111.3	111.2	111.2
H15	107.8	107.8	107.8	107.7	107.9	107.8	108.0	108.0	108.1
H16	104.9	104.9	104.9	104.9	104.9	104.8	105.3	105.0	105.0

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ID	Modelled Peak Flood Level (m AHD)								
	1% AEP	1% AEP plus 50% rainfall loss	1% AEP minus 50% rainfall loss	1% AEP plus 20% Manning's 'n' Roughness	1% AEP minus 20% Manning's 'n' Roughness	1% AEP with 0% Blockage	1% AEP with 100% Blockage	1% AEP plus rainfall increase (2090 RCP 4.5 Scenario)	1% AEP plus rainfall increase (2090 RCP 8.5 Scenario)
H17	102.4	102.4	102.5	102.4	102.5	102.4	102.9	102.5	102.6
H18	97.1	97.1	97.1	97.1	97.1	97.1	97.4	97.2	97.3
H19	95.3	95.3	95.3	95.3	95.3	95.3	95.7	95.4	95.5
H20	85.2	85.2	85.2	85.0	85.3	85.1	85.6	85.3	85.4
H21	84.5	84.5	84.5	84.3	84.6	84.4	84.6	84.6	84.7
H22	141.9	141.9	141.9	141.9	142	141.9	142.0	1420	142.0
H23	132.8	132.8	132.8	132.7	132.8	132.8	132.8	132.8	132.8
H24	126.3	126.3	126.3	126.2	126.3	126.2	126.3	126.3	126.3
H25	119.2	119.2	119.2	119.2	119.2	119.2	119.4	119.3	119.3
H26	149.9	149.9	149.9	149.9	149.9	149.9	149.9	149.9	149.9
H27	137.1	137.1	137.1	137.1	137.2	137.1	137.1	137.1	137.2
H28	141.5	141.5	141.5	141.5	141.5	141.5	141.6	141.5	141.6
H29	127.4	127.4	127.4	127.4	127.4	127.4	127.4	127.4	127.4
H30	113.3	113.3	113.3	113.2	113.4	113.3	113.4	113.3	113.4
H31	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8	99.8
H32	119.7	119.7	119.7	119.7	119.7	119.7	119.8	119.7	119.7
H33	124.2	124.2	124.2	124.2	124.3	124.3	124.2	124.3	124.3
H34	101.7	101.7	101.7	101.7	101.7	101.5	102.1	101.8	101.9

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ID	Modelled Peak Flood Level (m AHD)								
	1% AEP	1% AEP plus 50% rainfall loss	1% AEP minus 50% rainfall loss	1% AEP plus 20% Manning's 'n' Roughness	1% AEP minus 20% Manning's 'n' Roughness	1% AEP with 0% Blockage	1% AEP with 100% Blockage	1% AEP plus rainfall increase (2090 RCP 4.5 Scenario)	1% AEP plus rainfall increase (2090 RCP 8.5 Scenario)
H35	105.1	105.1	105.1	105.0.	105.2	105.0	105.1	105.1	105.2
H36	101.7	101.7	101.7	101.7	101.7	101.6	102.1	101.9	102.0
H37	132.6	132.6	132.6	132.6	132.7	132.6	132.8	132.7	132.7
H38	145.5	145.5	145.5	145.4	145.5	145.4	145.5	145.5	145.5
H39	142.3	142.3	142.3	142.3	142.3	142.3	142.6	142.4	142.5
H40	144.4	144.4	144.4	144.3	144.4	144.4	144.4	144.4	144.5
H41	138.3	138.3	138.3	138.2	138.3	138.2	138.3	138.3	138.3
H42	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.3	134.3
H43	117.1	117.1	117.1	117.0	117.1	117.1	117.1	117.1	117.1
H44	146.1	146.1	146.1	146.1	146.2	146.1	146.2	146.2	146.2
H45	141.3	141.3	141.3	141.2	141.3	141.3	141.4	141.3	141.4
H46	135.0	135.0	135.0	135.0	135.0	135.0	135.1	135.0	135.1
H47	84.4	84.4	84.4	84.4	84.5	84.4	84.5	84.5	84.6
H48	131.8	131.8	131.8	131.8	131.9	131.8	132.0	131.9	132.0
H49	120.7	120.7	120.7	120.5	120.8	120.7	120.7	120.7	120.8
H50	118.5	118.5	118.5	118.5	118.5	118.5	118.6	118.5	118.6
H51	49.9	49.8	49.9	49.7	50.0	50.2	49.8	50.0	50.1
H52	42.4	42.3	42.4	42.2	42.5	42.6	42.6	42.7	42.8

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ID	Modelled Peak Flood Level (m AHD)								
	1% AEP	1% AEP plus 50% rainfall loss	1% AEP minus 50% rainfall loss	1% AEP plus 20% Manning's 'n' Roughness	1% AEP minus 20% Manning's 'n' Roughness	1% AEP with 0% Blockage	1% AEP with 100% Blockage	1% AEP plus rainfall increase (2090 RCP 4.5 Scenario)	1% AEP plus rainfall increase (2090 RCP 8.5 Scenario)
H53	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7	142.7
H54	138.1	137.8	137.8	137.8	137.7	137.8	137.7	137.8	137.8
H55	118.1	118.0	118.0	118.1	118.0	118.0	118.1	118.1	118.1
H56	85.5	85.7	85.7	85.7	85.6	85.7	85.7	85.7	85.7
H57	16.2	16.0	16.0	16.1	15.9	16.3	16.1	16.2	16.5
H58	71.0	70.9	71.0	71.0	70.9	70.9	71.0	71.1	71.2
H59	39.4	39.5	39.5	39.7	39.2	39.7	39.6	39.7	39.9

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8.2 Rainfall Losses

A sensitivity analysis for rainfall losses was completed to assess the relative impact on flood behaviour across the catchment. A 50% increase and 50% decrease to the scaled NSW Specific Probability Neutral Burst Initial Loss for ICA Areas was considered. The values adopted for the 1% AEP critical storm duration are listed below:

Table 8.3 Rainfall Loss Values for the Sensitivity Assessment

Adopted Design Initial Loss	50% Initial Loss Increase	50% Initial Loss Decrease
4.6	6.9	2.3

It is evident that the change in rainfall losses has a relatively minor effect on the peak flood levels across the study area. Increased losses result in flood level reductions upstream of the Railway at Killara and Upstream Wattle Street near Harry Siedler Reserve (storage areas) of up to 0.05 m, as well as minor flood level reductions within the downstream section of Rocky Creek and the Middle Harbour Creek watercourse.

Conversely, decreased losses lead to an increase in flood levels upstream of the Railway at Killara and upstream of Wattle Street (up to 0.02 m). Within the downstream section of Rocky Creek and the Middle Harbour Creek watercourse increases of flood levels up to 0.05m are observed.

8.3 Hydraulic Roughness

Whilst the adopted hydraulic roughness values are within typical recommended ranges, the inherent variability and uncertainty in hydraulic roughness warrants consideration of the relative impact on adopted design flood conditions. Sensitivity tests on the TUFLOW model results to modified hydraulic roughness (Manning's 'n') were undertaken by applying a 20% increase and a 20% decrease in the adopted values for the design 1% AEP flood conditions, with adopted values listed in Table 8.4.

Table 8.4 Hydraulic Roughness Values for Sensitivity Assessment

Land Use Type	Adopted Manning's 'n'	20% Increase in Manning's 'n'	20% Decrease in Manning's 'n'
Roads	0.02	0.024	0.016
Low Density Residential Lots	0.08	0.096	0.064
High Rise Lots	0.035	0.042	0.028
Commercial Lots	0.035	0.042	0.028
Maintained Grass	0.03	0.036	0.024
Dense Vegetation	0.12	0.144	0.096
Riparian Zone	0.1	0.12	0.08
Railway	0.05	0.06	0.04
Estuary	0.03	0.036	0.024

Peak flood levels (at the locations shown in Figure 7.1) based on adjusted Manning's 'n' values are listed in Table 8.2.

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The results of the sensitivity assessment simulations indicate that a 20% decrease in Manning's 'n' value results in the reduction of peak flood levels along watercourses (greater than - 0.2 m) but an increase in flood levels of up to 0.03 m between Bolton Place and Rosedale Road. Peak flood level increases in this flood storage area reflect that the existing drainage assets in these locations are unable to cope with the increase conveyance of the watercourse associated with the Manning's 'n' decrease.

Conversely, a 20% increase in Manning's 'n' value is predicted to result in an increase in peak flood level (up to 0.25 m) along watercourses but a decrease in peak flood levels of up to 0.03 m between Bolton Place and Rosedale Road. Peak flood level decreases at this location reflect that the slower moving, deeper floodwaters in the watercourses upstream of these points (behaviour associated with the Manning's 'n' increase) reduce the conveyance discharging to the storage areas.

Whilst the modified hydraulic roughness values do result in some changes to the predicted peak water levels along watercourses, there is minimal impact on inundation extents in urban areas where shallow, higher velocity flows are present and in the Middle Harbour watercourse where deeper, slower moving water is present.

8.4 Hydraulic Structure Blockage

As discussed in Section 6.3, structure and pit inlet blockage are an important consideration in the modelling of design floods. Blockage sensitivities were assessed based on two blockage scenarios, as follows:

- Completely unblocked, i.e. 0% blockage for all structures across the study area. This includes all cross-drainage structures, pit inlets and headwalls across the study area.
- Fully blocked, i.e. 100% blockage for all structures across the study area.

Peak flood levels (at the locations shown in Figure 7.1) based on adjusted blockage factors are listed in Table 8.2.

The unblocked scenario generally resulted in localised decreases in peak flood levels immediately upstream of cross-drainage structures and corresponding localised increases downstream of the structures. Conversely, the full blockage scenario generally resulted in peak flood level increases immediately upstream of cross-drainage structures and corresponding localised decreases downstream of the structures. The key areas experiencing the greater impacts from the change in structure blockage as part of the sensitivity assessment include the area upstream and downstream of Railway line at Killara and Gordon, the catchment area upstream of Stony Creek near Mona Vale Road and the area upstream and downstream of Rosedale Road within High Ridge Gully. Other areas of notable change include areas discharging to waterways and the watercourses.

8.5 Climate Change

8.5.1 Overview

As outlined in Book 1, Chapter 6 of ARR 2019 there are multiple aspects of design flood estimation that are likely to be impacted by climate change, including:

- rainfall IFD relationships;
- temporal patterns;
- continuous rainfall sequences;
- antecedent conditions;

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- coincident flooding extremes.

However, individual impact of any single aspect has not been subject to comprehensive study. As such, ARR 2019 recommends a focus on potential changes in rainfall intensity and sea level rise for the assessment of the likely impacts of climate change.

Book 1, Chapter 6 of ARR 2019 outlines a six-step approach to be used to incorporate climate change risks into the estimation of design flood conditions. The six steps and their application in this study are outlined below:

- *Step 1: Set the Effective Service Life or Planning Horizon* – A 2090 planning horizon has been assumed.
- *Step 2: Set the Design Flood Standard* – The 1% AEP flood has been adopted as the design standard.
- *Step 3: Consider the Purpose and Nature of the Asset or Activity and Consequences of its Failure* – The consequences of increased frequency of exposure and damage are considered to be high in this case.
- *Step 4: Carry out a Climate Change Risk Screening Analysis* – Marginal increase in peak flood levels is expected in events rarer than the 1% AEP (i.e. the 0.5% AEP and 0.2% AEP) across the majority of the catchment. However, larger peak flood level increase is expected in certain locations.
- *Step 5: Consider Climate Change Projections and their Consequences* – ARR 2019 recommends assessment of RCP[2] 4.5 and RCP 8.5 scenarios.
- *Step 6: Consider Statutory Requirements* – Impacts of climate change are discussed in this chapter.

The ARR Data Hub provides a series of Interim Climate Change Factors for locations across Australia, which are presented in Table 8.5.

Table 8.5 Climate Change Sensitivity Scenarios (Rainfall Increase in %)

Year	RCP 4.5	RCP 6	RCP 8.5
2030	0.869 (4.3%)	0.783 (3.9%)	0.983 (4.9%)
2040	1.057 (5.3%)	1.014 (5.1%)	1.349 (6.8%)
2050	1.272 (6.4%)	1.236 (6.2%)	1.773 (9.0%)
2060	1.488 (7.5%)	1.458 (7.4%)	2.237 (11.5%)
2070	1.676 (8.5%)	1.691 (8.6%)	2.722 (14.2%)
2080	1.810 (9.2%)	1.944 (9.9%)	3.209 (16.9%)
2090	1.862 (9.5%)	2.227 (11.5%)	3.679 (19.7%)

With consideration of the above table and the six-step process, climate change simulations have been completed for the 1% AEP flood for the following scenarios:

- 9.5% increase in rainfall intensity based on the 2090 RCP 4.5 scenario;
- 19.7% increase in rainfall intensity based on the 2090 RCP 8.5 scenario;

[2] RCP = Representative Concentration Pathway

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- 19.7% increase in rainfall intensity based on the 2090 RCP 8.5 scenario combined with a 0.9 m sea level rise.

8.5.2 Rainfall Increase

The change in peak flood levels associated with the adopted increases in rainfall intensities are presented in Figure 8.1 and Figure 8.2 for the 9.5% and 19.7% rainfall increases, respectively. Peak flood levels (at the locations shown in Figure 7.1) based on rainfall increases associated with climate change are listed in Table 8.2.

A 9.5% rainfall increase generally results in widespread 1% AEP peak flood level increases (up to 0.2 m) within the upper reaches of the watercourses, with larger increases (up to 0.4 m) in the watercourses immediately upstream of Middle Harbour. Peak flood level increases are largest in locations immediately upstream of major cross-drainage structures, with notable increases in the storage areas at Karranga Avenue and Wattle Street (0.15 m increase) and upstream of the railway line at Killara.

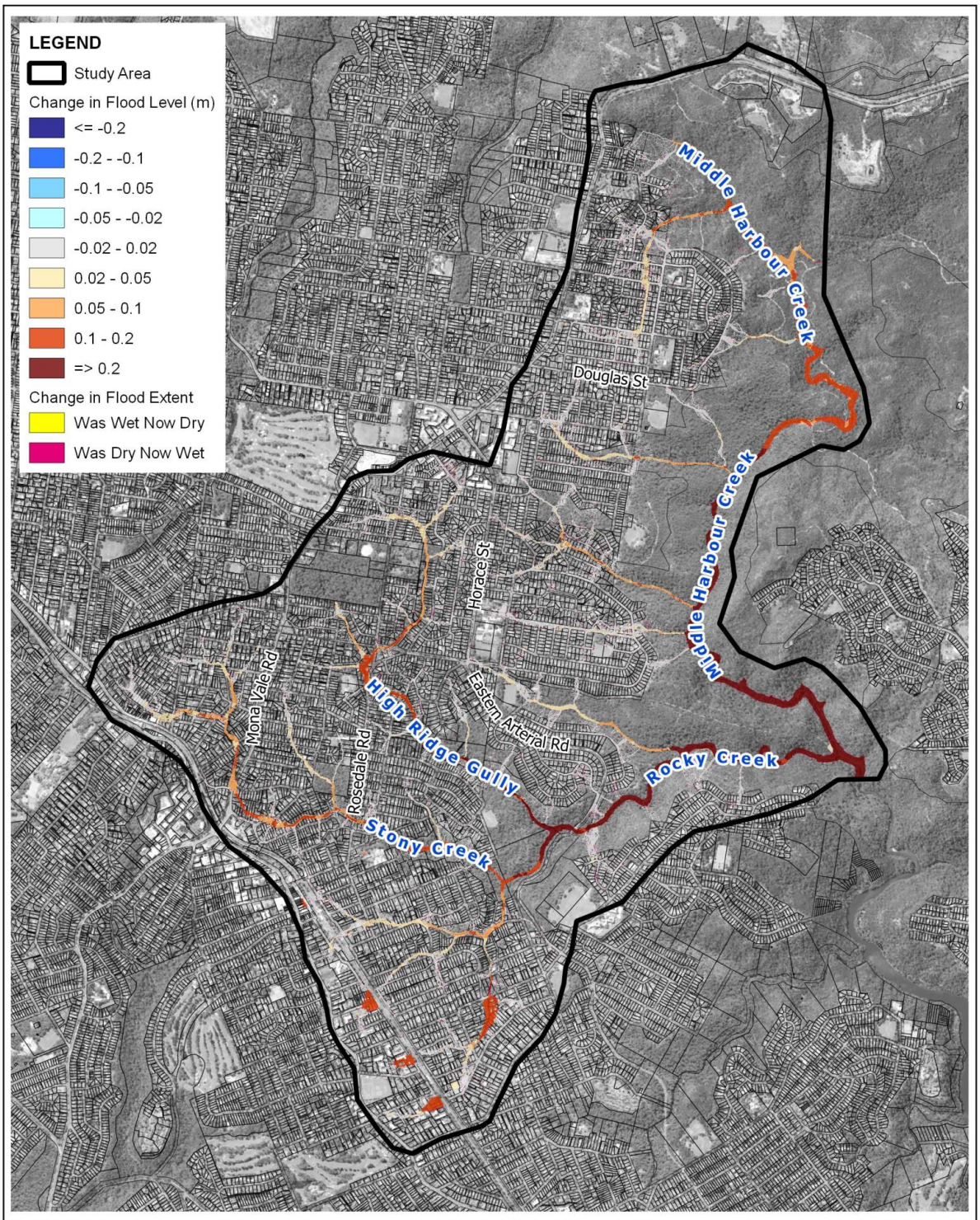
A 19.7% rainfall increase also results in widespread 1% AEP peak flood level increases (up to 0.4 m) across watercourses in the upstream of the catchment, with larger increases (up to 0.8 m) in the watercourses immediately upstream of Middle Harbour. Peak flood level increases are largest in locations immediately upstream of major cross-drainage structures, with notable increases in the storage areas at Karranga Avenue and Wattle Street (0.3 m increase) and upstream of the railway line at Killara.

8.5.3 Combined Rainfall Increase and Sea Level Rise (SLR)

Potential Sea Level Rise conditions were determined using the ‘Modelling the Interaction of Catchment Flooding and Oceanic Inundation in Coastal Waterways’ (OEH, 2015). A 5% AEP Middle Harbour Tidal Event (1.4 m AHD) plus a 2100 sea level rise scenario (equivalent to a 2.3 m AHD tidal level) was adopted. These tidal conditions were applied as a ‘Head vs Time’ or ‘HT’ boundary at the model downstream boundary (model outlet).

Peak flood level increases associated with the combined 19.7% rainfall increase and 2100 sea level rise scenario are similar to those observed in the 19.7% rainfall increase scenario without sea level rise. This reflects the elevation of the upper portion of the Middle Harbour Northern Catchments above the water levels within the estuary and therefore not affected by SLR.

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Title:

1% AEP Peak Flood Level Impact - RCP 4.5
2090 Scenario (9.5% Rainfall Increase)

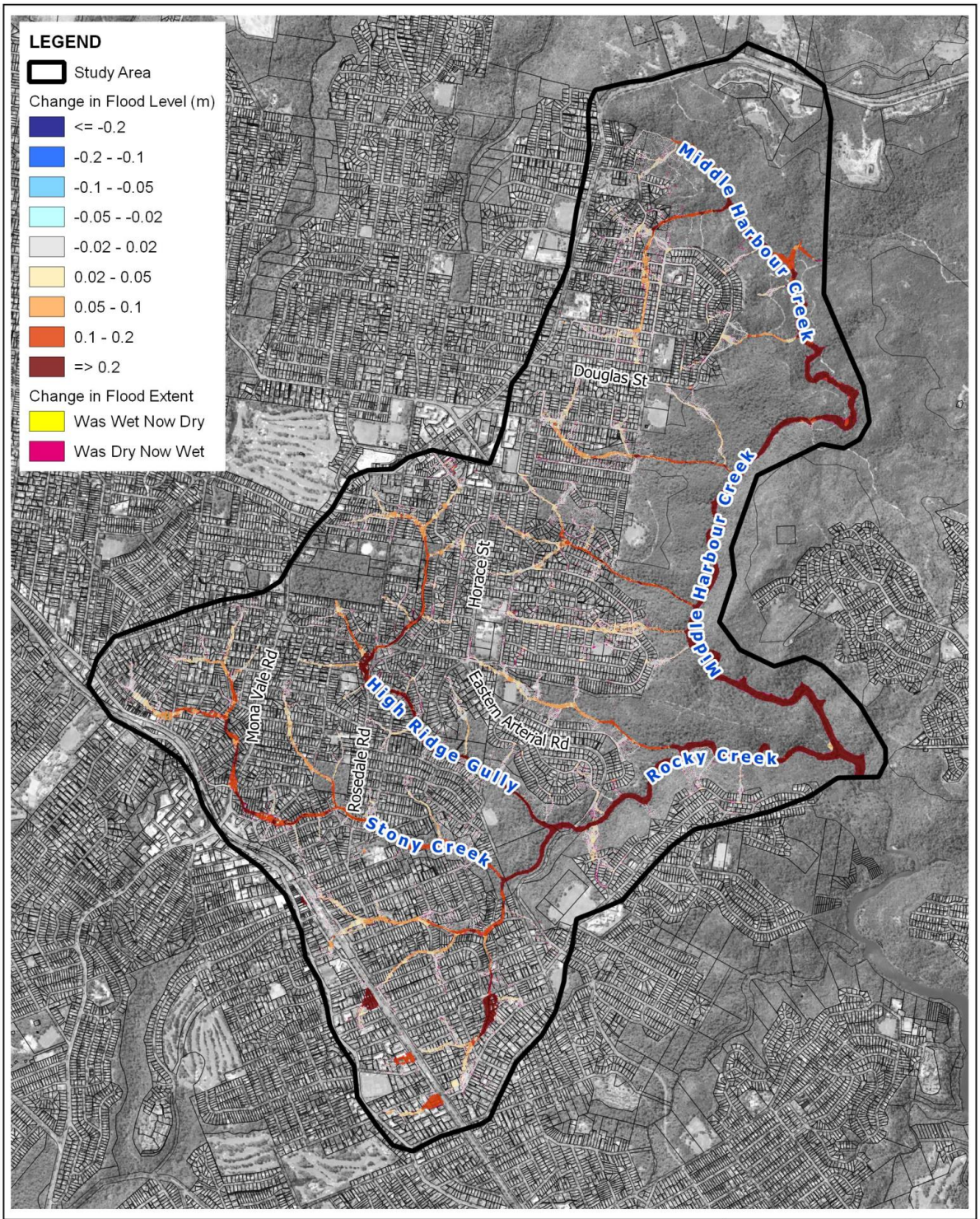
Figure: **8-1**

Rev: **A**

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Title:

1% AEP Peak Flood Level Impact - RCP 8.5 2090 Scenario (19.7% Rainfall Increase)

Figure: **8-2**

Rev: **A**

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9 Flood Planning Information

9.1 Preliminary Flood Planning Area

Land use planning and development controls are key mechanisms by which Council can reduce flood risk, manage areas impacted by flooding and protect increasing numbers of people located within the floodplain. Such mechanisms will influence future development (and redevelopment) and therefore the benefits will accrue gradually over time.

Flood Planning Levels (FPLs) are an important tool in development and land use planning for the management of flood risk. The flood levels and inundation extents determined through the design flood modelling for this study provide the basis for establishing the Flood Planning Level (FPL) for the Middle Harbour Northern Catchments. When combined with topographic information, FPLs directly determine the extent of the Flood Planning Area (FPA); where the FPA is defined as the area of land subject to flood-related development controls.

The FPL is defined by an established design flood level of selected magnitude combined with a specified freeboard. The purpose of the freeboard is to account for the risk associated with uncertainties in the predicted flood level. These risks may include variation between flood modelling results and actual flood events, the effect of localised factors on flood levels and potential wave action. Following community feedback on the flood planning areas determined as part of the Blackbutt Creek and Lovers Jump Creek Flood Studies, Ku-ring-gai Council adopted the following criteria for definition of the FPL:

- 1% AEP flood level plus 500 mm freeboard for mainstream flooding.
- 1% AEP flood level plus 300 mm freeboard for overland flow flooding.

To avoid classification of areas subject only to minor or insignificant flood impacts within the flood planning area, the following approach was applied to filter the design 1% AEP flood results to produce the extent of the FPA:

1. Areas with depths below 150 mm were removed.
2. Isolated areas smaller than 100 m^2 were removed.
3. Isolated small ponds (larger than 100 m^2) were connected to form active flow paths, where possible.
4. For mainstream flooding, a 500 mm freeboard was applied, and the grid was stretched laterally until it intersected with the local catchment topography. This defined the mainstream FPA.
5. The area determined in Steps 1-3 that was located outside of the mainstream FPA defined the overland FPA.

The resulting preliminary FPA is shown in Figure 9.1.

In 2021 the updated NSW Flood Prone Land Package came into effect. The package recommended a modification to the notation of flood affected lots to include both those within the FPA (as identified above) and additionally land between the FPA and the probable maximum flood (PMF). Under the Flood Prone Land Package, flood affected lots are now to be notated on Section 10.7 certificates as either affected by the FPA (Part 7.1) or the PMF (Part 7.2).

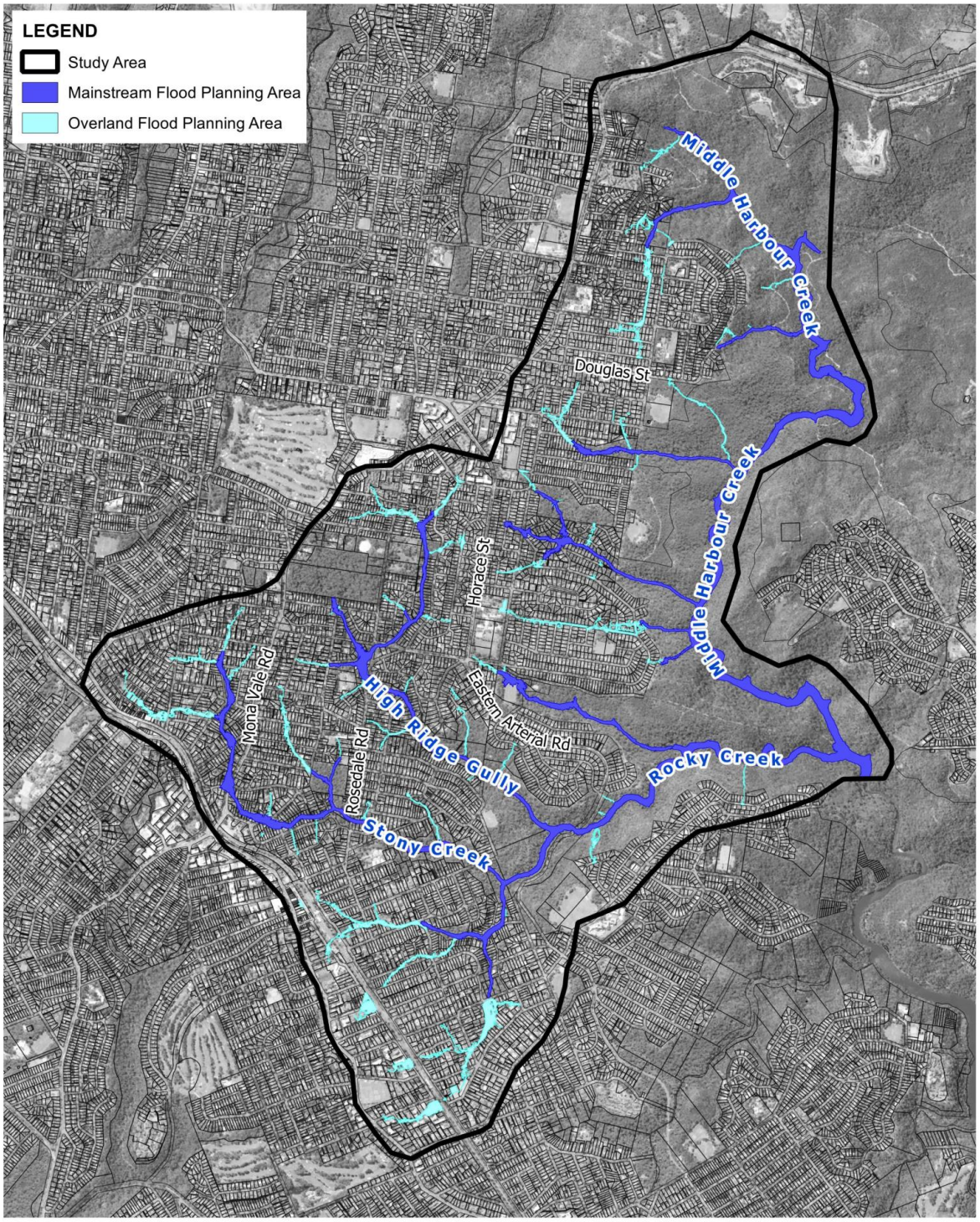
Tagging of properties above the FPL but below the PMF level adopts a similar filtering approach to the one utilised in the Flood Planning Area designation, but with modified criterion to avoid potentially over conservative selection of properties. The modified approach applied to filter the PMF design flood result and produce the PMF tagging extent, is outlined below:

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1. Areas with depths below 300 mm were removed.
2. Isolated areas smaller than 300 m^2 were removed.
3. Isolated small ponds (larger than 300 m^2) were connected to form active flow paths, where possible.

The resulting PMF tagging extent is shown in Figure 9.2.

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Title:
Flood Planning Area

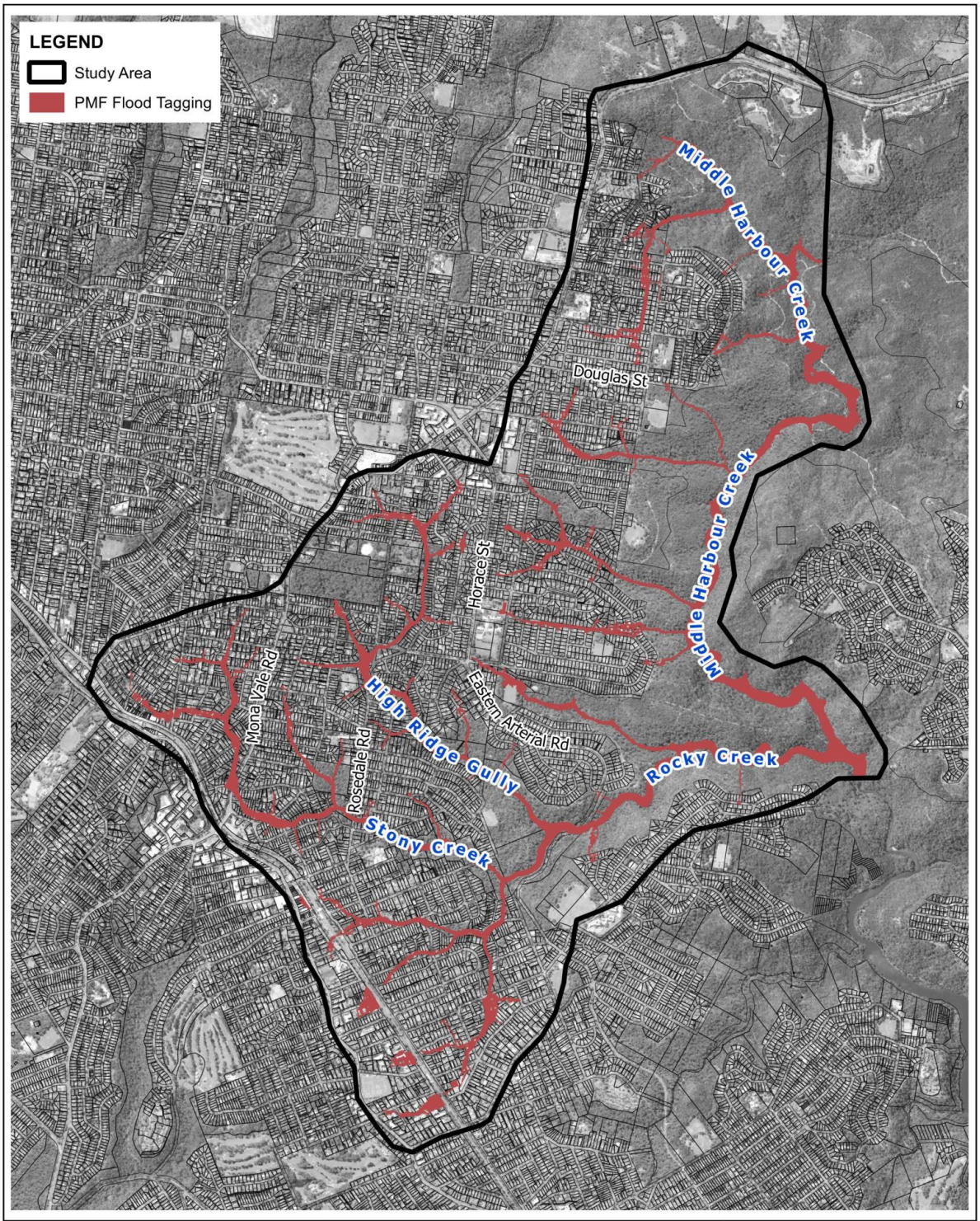
Figure: **9-1**

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Title:
PMF Flood Tagging Extent

Figure: **9-2**

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9.2 Information to Support Decision Making

9.2.1 Flood Emergency Response Classifications

The State Emergency Service (SES) has formal responsibility for emergency management operations in response to flooding. Other organisations generally provide assistance, including BoM, Council, police, fire brigade, ambulance and community groups.

The SES classifies communities according to the impact that flooding has on them. The primary purpose for doing this is to assist SES in the planning and implementation of response strategies. Flood impacts relate to where the normal functioning of services is altered due to a flood, either directly or indirectly, and relates specifically to the operational issues of evacuation, resupply and rescue. Flood emergency response classifications are listed below, with definitions extracted from the AIDR *'Flood Emergency Response Classification of the Floodplain'* (AIDR, 2017).

- Flooded Isolated Elevated (FIE) – Areas flooded in the PMF and isolated from community evacuation facilities by floodwaters or impossible terrain where there is a substantial amount of land elevated above the PMF
- Flooded Isolated Submerged (FIS) — Areas flooded in the PMF and isolated from community evacuation facilities by floodwaters or impossible terrain where all land will be fully submerged in the PMF after becoming isolated
- Overland Escape Route (FEO) – Areas that are flooded in the PMF but not isolated from community evacuation facilities, where evacuation relies upon overland escape routes that rise out of the floodplain
- Rising Road (FER) – Areas that are flooded in the PMF but not isolated from community evacuation facilities, where evacuation routes from the area follow roads that rise out of the floodplain
- Indirect Consequence (NIC) – Areas outside the limit of flooding which are not inundated and do not lose road access, but which may be indirectly affected as a result of flooding
- Flood Free (FF) - Areas that are not flood affected and are not affected by indirect consequences of flooding

The classification of communities is designed for use on broad or precinct basis. The study area was delineated into a series of precincts related to local flood behaviour. The flood classification process was then undertaken to identify the flood classification for each precinct as presented in Figure 9.2 for the PMF event. This mapping indicates that:

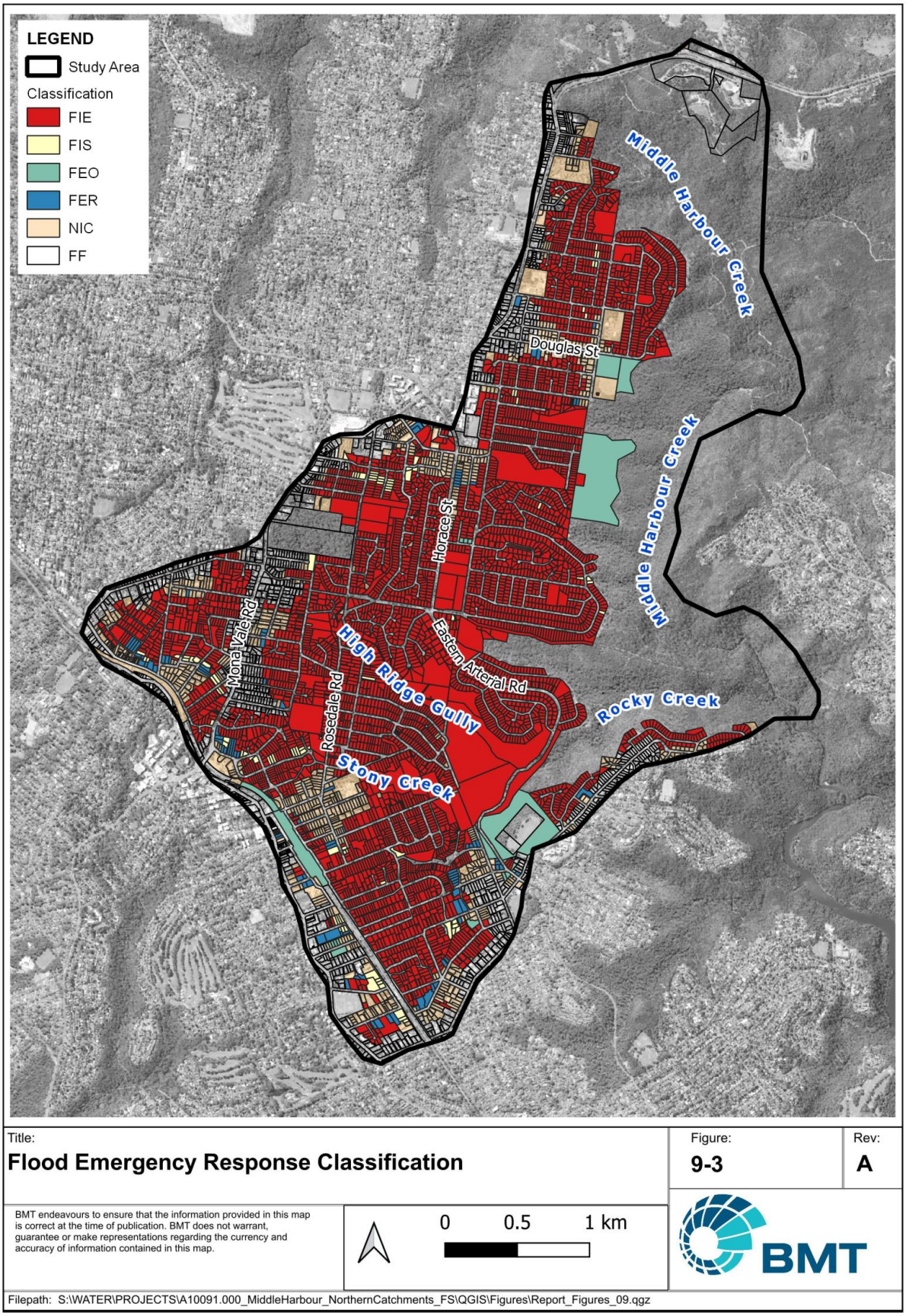
- The majority of flood impacted areas within the catchments are best defined as FIE, where access roads will be cut in a PMF but the properties will not be heavily inundated.
- There are also smaller areas classified as having rising road access (FER) or an overland escape route (FEO). Properties in these areas would be subject to heavy inundation, but egress from the site via the road network or in some cases a local path would be possible.
- Some properties located immediately adjacent to watercourses or major drainage assets would likely become FIS in rare and extreme events, with out of bank flooding cutting off road access and causing heavy inundation.
- Due to the steep terrain present across the catchment, large portions of the southern, western and northern portions of the study area would be classified as NIC.

The nature of the overland flooding regime in the local catchments is characterised by relatively short critical duration events, such that limited warning time would be available to respond and effectively evacuate during a rare flood event, but the total inundation/isolation time would be only a few hours.

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The extent and degree of flooding of existing property under PMF conditions indicates that there is minimal requirement for flood evacuation up to and including the PMF event, with a shelter in place strategy the most appropriate emergency management solution in rare and extreme events. Evacuation may be required in localised sections of the study area adjacent to major overland flow paths and waterways where deeper faster moving floodwaters are present; however, due to steep nature of the catchment and the high urbanisation present, rising road or overland escape routes would be the most appropriate egress in most situations.

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LEGEND
Study Area
Classification
FIE
FIS
FEO
FER
NIC
FF
Middle Harbour Creek
Douglas St
Middle Harbour Creek
Horace St
Mona Vale Rd
Rosedale Rd
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Stony Creek
Title:
Flood Emergency Response Classification
Figure:
9-3
Rev:
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9.2.2 Flood Planning Constraint Categories

Guideline 7-5 of the '*Australian Disaster Relief Resilience Handbook*' (AIDR, 2017) highlights the need for appropriate land use planning activities to effectively manage and limit the growth of flood risk within a floodplain. It recommends adoption of four flood planning constraint categories (FPCC), as reproduced in Table 9.1. The purpose of the FPCCs is to separate areas of the floodplain based on their suitability for more concentrated development or intensified land use.

Table 9.1 Flood Planning Constraint Categories (FPCC) (AIDR, 2017)

FPCC	Constraint Subcategory
1	a) Floodway or flood storage area in the DFE*, b) Flood hazard H6 in the DFE*.
2	a) Floodway in events larger than the DFE*, b) Flood hazard H5 in the DFE*, c) Low flood island (isolated and submerged areas), d) High flood island (isolated but elevated areas), e) Flood hazard H6 in floods large than the DFE*.
3	Remaining area below the FPL
4	Remaining area within the PMF or Extreme Flood.

*** DFE = defined flood event – adopted as the 1% AEP event.**

The Flood Planning Constraint Categories were produced using enveloped results for 1% AEP flood and rarer events (i.e. 0.2% AEP and the PMF). The results are presented in Figure 9.3.

The implications and key considerations for development extracted from AIDR (2017), as well as potential flood planning options are outlined in Table 9.2. Due to the steep urbanised nature of the catchment and short critical duration observed across all events, widespread temporary isolation of properties (category 2c and in particular 2d) is likely to occur. This information can be further refined and potentially used to inform land use planning and provision of development controls as part of the subsequent Floodplain Risk Management Study and Plan.

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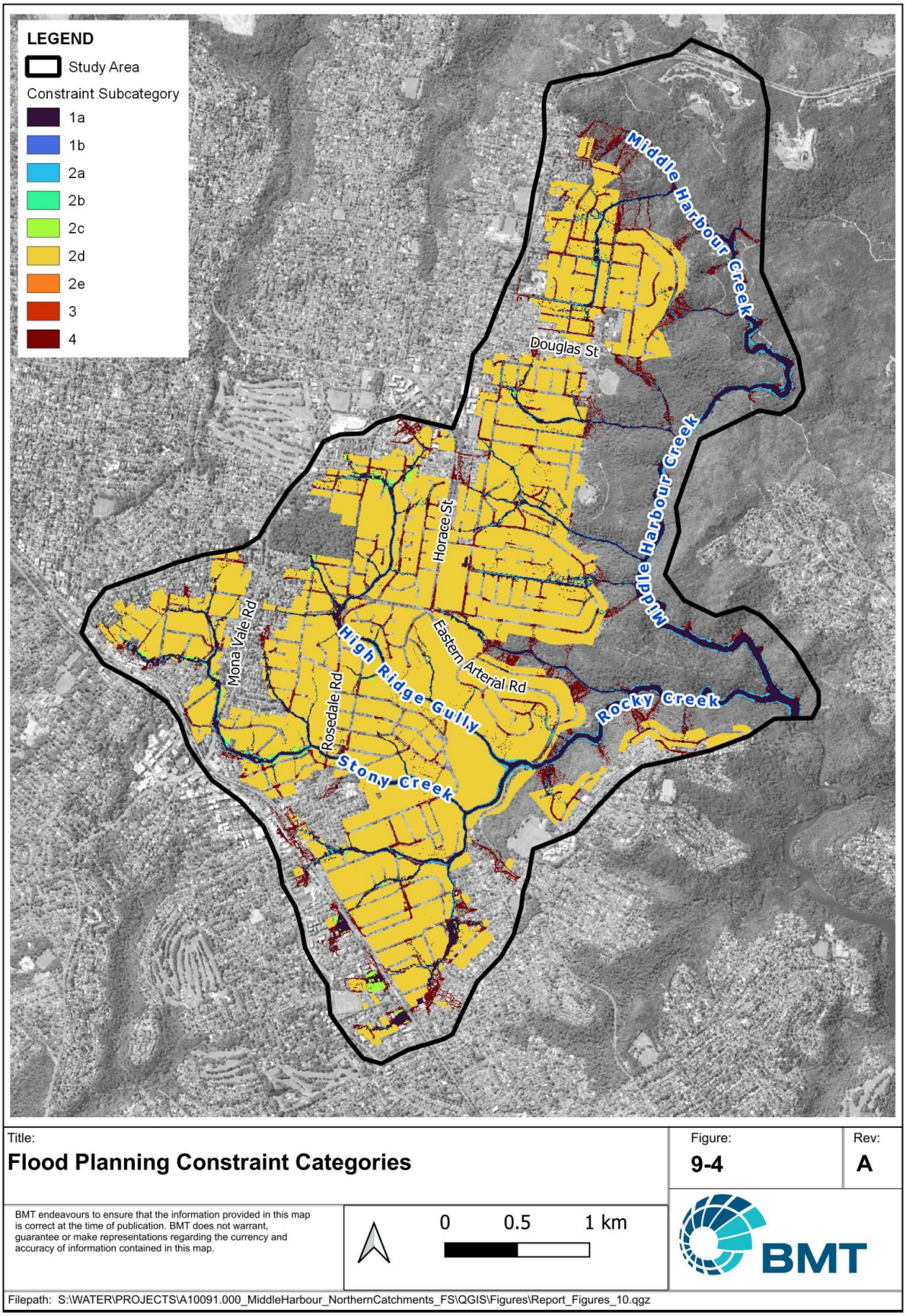

LEGEND
Study Area
Constraint Subcategory
1a
1b
2a
2b
2c
2d
2e
3
4
Middle Harbour Creek
Douglas St
Middle Harbour Creek
Horace St
Mona Vale Rd
High Ridge Gully
Eastern Arterial Rd
Rocky Creek
Rosedale Rd
Stony Creek
Title:
Flood Planning Constraint Categories
Figure:
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Rev:
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Table 9.2 Flood Planning Constraint Categories (FPCC): Implications, Key Considerations (AIDR, 2017) and Potential Planning Options

Category	Sub-category	Implications	Key Considerations	Recommended Mitigations
FPCC1	A (Flow conveyance and storage areas in the 1% AEP)	Development or changes to topography within flow conveyance areas and flood storages areas affect flood behaviour, which will alter flow depth or velocity in other areas of the floodplain. Changes can negatively affect the existing community and other property	The majority of developments and uses have adverse impacts on flood behaviour. Consider limiting uses and development to those compatible with maintaining flood function	• Limiting or precluding development in these areas • Proposed developments should demonstrate compatibility with maintaining the flood function. • Flood impact and risk assessment (FIRA) required as part of the development assessment process.
	B (H6 hazard in the 1% AEP)	Hazardous conditions considered unsafe for vehicles and people. All building types are considered vulnerable to structural failure	The majority of developments and uses are vulnerable to failure in this flood hazard category. Consider limiting developments and uses to those that are compatible with flood hazard H6	• Limiting or precluding development in these areas • Proposed developments should demonstrate compatibility with the flood risk through a FIRA. • Preparation of a flood emergency response plan for occupation of these areas consistent with the local flood plan or State Emergency Service (SES) strategy for the area.
FPCC2	A (Flow conveyance in events larger than the 1% AEP)	Flow conveyance areas may develop during an event larger than the 1% AEP (for example, 0.2% AEP). People and buildings in these areas may be affected by flowing and dangerous floodwaters	Consider compatibility of developments and users with rare flood flows in this area	• Proposed developments should demonstrate compatibility with rare flood risk. • A flood impact assessment should be recommended as part of the development assessment process. • Preparation of a flood emergency response plan for occupation of these areas consistent with the local flood plan or SES strategy for the area.
	B (Flood hazard H5 in the 1% AEP)	Hazardous conditions are considered unsafe for vehicles and people, and all buildings are vulnerable to structural damage	Many uses and developments will be vulnerable to flood hazard. Consider limiting new uses to those compatible with flood hazard H5. Consider treatments such as filling (where this	• Limiting development in these areas • Proposed developments should demonstrate compatibility with the flood risk through a FIRA.

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Category	Sub-category	Implications	Key Considerations	Recommended Mitigations
			will not affect flood behaviour) to reduce the hazard to a level that allows standard development conditions to be applied. Alternatively, consider a requirement for special development conditions	• Preparation of a flood emergency response plan for occupation of these areas consistent with the local flood plan or SES strategy for the area.
	C (Emergency response—isolated and submerged areas)	Area becomes isolated by floodwater or impassable terrain, with loss of evacuation route to the community evacuation location. The area will become fully submerged with no flood-free land in an extreme event, with ramifications for those who have not evacuated and are unable to be rescued	Consequences of isolation and inundation can be severe. Consider the consequences of: • evacuation difficulty or inundation of the area on the development and its users, which may include limitations on land use, or on land use that has occupants who are more vulnerable to disruption and loss • the development on emergency management planning for the existing community, including the need for additional treatments • the development on community flood recovery • disruption or loss of the development on the users and wider community	• Limiting development in these areas • Proposed developments should demonstrate compatibility with the flood risk through a FIRA. • Preparation of a flood emergency response plan for occupation of these areas consistent with the local flood plan or SES strategy for the area.
	D (Emergency response—isolated but elevated areas)	Area becomes isolated by floodwater or impassable terrain, with loss of an evacuation route to a community evacuation location. The area has some land elevated above the extreme flood level. Those not evacuated may be isolated with limited or no services, and will need rescue or resupply until floods recede and roads are passable	Some developments and their users may be vulnerable to disruption or loss. Consider: • the consequences of disruption or loss of the development on the users and the wider community	• Limitation on land use for sensitive and vulnerable developments.

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Category	Sub-category	Implications	Key Considerations	Recommended Mitigations
			• limiting land use, or land use that has occupants who are more vulnerable to disruption and loss • additional emergency management treatment requirements • issues associated with the level of support required during a flood, particularly for long-duration flood events	
	E (Flood hazard H6 in floods larger than the 1% AEP)	Hazardous conditions may develop in an event rarer than the 1% AEP, which may have implications for the development and its occupants	Consider the need for additional development conditions to reduce the effect of flooding on the development and its occupants	• Limit or exclude land use involving vulnerable users. • Proposed developments should demonstrate compatibility with the flood risk through a FIRA. • Preparation of a flood emergency response plan for occupation of these areas consistent with the local flood plan or SES strategy for the area.
FPCC3	Outside FPCC2—generally below the DFE (1% AEP Event) and the freeboard	Hazardous conditions may exist creating issues for vehicles and people. Structural damage to buildings that meet building standards unlikely because of flooding	Standard land-use and development controls aimed at reducing damage and the exposure of the development to flooding in the DFE (1% AEP Event) are likely to be suitable. Consider the need for additional conditions for emergency response facilities, key community infrastructure and vulnerable users	• Limit or exclude land use involving vulnerable users. • Developments should demonstrate compatibility with the flood risk through a FIRA.
FPCC4	Outside FPCC3, but within the probable maximum flood (or similar extreme event)	Emergency response may rely on key community facilities such as emergency hospitals, emergency management headquarters and evacuation centres operating during an	Consider the need for conditions for emergency response facilities, key community infrastructure and land uses with vulnerable users	• Limit or exclude land use involving vulnerable users. • Undertaking of a FIRA to demonstrate safe evacuation can be carried out consistent

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Category	Sub-category	Implications	Key Considerations	Recommended Mitigations
		event. Recovery may rely on key utility services being able to be readily re-established after an event		with the local flood plan and SES flood emergency strategy for sensitive or critical developments.

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10 Conclusion

The Middle Harbour Northern Catchments Flood Study was completed to define flood behaviour across the urbanised portions of the northern catchments of the Ku-ring-gai LGA draining to Middle Harbour under historical, existing and future conditions (incorporating the potential impacts of climate change).

Flood behaviour was predicted for a range of design events based on DRAINS hydrologic models updated or developed for the study catchments, as well as a TUFLOW hydraulic model that was developed specifically for this flood study. These models were verified qualitatively using anecdotal flood information for historical events that was collected through the community consultation process.

The DRAINS and TUFLOW models were used to simulate a range of design events including the 20%, 10%, 5%, 2%, 1%, 0.5% and 0.2% AEP and PMF events. The potential impacts of climate change, including increased rainfall intensity and sea level rise, were also assessed. The modelling results were used to prepare design flood mapping, incorporating peak flood depth, flood velocity, flood hazard and flood function.

Flood planning and emergency response information, including definition of the Flood Planning Area (FPA), Flood Emergency Response Classifications (FERCs) and Flood Planning Constraint Categories (FPCC), has also be developed based on the predicted flood characteristics.

Key findings of the study include:

- Due to the steep and highly urbanised nature of the upstream catchment, critical flooding in the Middle Harbour Northern Catchments occurs due to intense, short duration rainfall which would provide very little flood warning time.
- During flood events, the greatest concentration of flow occurs along areas of lower elevation (including local creeks, property backyard and roadways) which run parallel to the major trunk drainage discharging into Rocky Creek, Stony Creek, High Ridge Gully, Middle Harbour Creek and their tributaries. During rare and extreme events these areas would be subject to high hazard floodwaters conveying a significant amount of flow, which would likely exceed the capacity of the low-lying creeks, backyards and roadways in these locations leading to high depth flooding.
- Due to the short flood warning time available and the high hazard flow present within urban areas a large portion of the catchment would likely be isolated during major flood events, although it is unlikely that this isolation would extend beyond a few hours. However, consideration should be given to this potential isolation when considering future placement of vulnerable communities or critical infrastructure in the catchment.

Overall, the outputs of this study provide an improved understanding of flood behaviour that will aid in Council's management of flood risk and establish the basis for subsequent floodplain management activities.

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11 References

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Annex A Rainfall Gauges

Station #	Station Name	Period of Record	Data Type	Authority	Distance from catchment centroid (km)
66157	Pymble (Canisius College)	1947-2011	Daily	BoM	1.67
566073	RG @ Pymble Bowling Club	1987-2023	Sub-Daily	Sydney Water	2.84
66114	North Turramurra (Dryden Rd)	2005-2009	Daily	BoM	3.16
66206	St Ives (Richmond Avenue)	1998-2021	Daily	BoM	3.27
66120	Gordon Golf Club	1906-2023	Daily	BoM	3.35
566085	RG @ East Lindfield Bowling Club	1990-2023	Sub-Daily	Sydney Water	3.54
566084	RG @ Police Driving School, North St Ives	TBC	Sub-Daily	Sydney Water	3.71
66158	Turramurra (Kissing Point Road)	1912-2018	Daily	BoM	3.98
66188	Belrose (Evelyn Place)	1991-2023	Daily	BoM	4.39
66189	West Pymble (Wyuna Road)	1992-2011	Daily	BoM	4.48
566071	RG @ Belrose Bowling Club	TBC	Sub-Daily	Sydney Water	4.67
66205	Wahroonga (Boundary Road)	1998-2005	Daily	BoM	5.01
66211	Wahroonga (Ada Avenue)	2010-2023	Daily	BoM	5.4
66080	Castle Cove (Rosebridge Ave)	1958-2023	Daily	BoM	5.64
66182	Frenchs Forest (Frenchs Forest Rd)	1957-2018	Daily	BoM	5.99
566055	RG @ Hornsby Bowling Club (Sewer Group)	TBC	Sub-Daily	Sydney Water	6.85
66011	Chatswood Bowling Club	1951-2023	Daily	BoM	6.94
66156	Macquarie Park (Willandra Village)	1970-2023	Daily	BoM	6.96

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Station #	Station Name	Period of Record	Data Type	Authority	Distance from catchment centroid (km)
566017	RG @ Chatswood Bowling Club	1962-2023	Sub-Daily	Sydney Water	6.99
66142	Duffys Forest (Namba Rd)	1969-2023	Daily	BoM	7.06
66059	Terrey Hills Aws	2004-2023	Sub-Daily	BoM	7.41
566083	RG @ North Epping Bowling Club	TBC	Sub-Daily	Sydney Water	7.42
67065	Hornsby (Swimming Pool)	2008-2023	Daily	BoM	8.02
566008	RG @ North Ryde Golf Club, access via Twin Rd	TBC	Sub-Daily	Sydney Water	8.24
66213	North Ryde Golf Club	2011-2023	Daily	BoM	8.24
566176	RG @ Asquith BC	TBC	Sub-Daily	Sydney Water	8.37
66167	Northbridge Bowling Club	1980-2000	Daily	BoM	8.47
66020	Epping Chester Street	1886-2002	Daily	BoM	8.51
566029	RG @ North Ryde Reservoir (MHL Gauge)	TBC-2014	Sub-Daily	Sydney Water	8.52
66047	Pennant Hills (Yarrara Road)	1900-2020	Daily	BoM	8.67
566076	RG @ Pennant Hills Bowling Club	TBC	Sub-Daily	Sydney Water	8.95
66153	Manly Vale (Manly Dam)	1906-2006	Daily	BoM	9.27
566025	RG @ Manly Vale Dam (formerly 566154) (MHL Gauge)	TBC-2014	Sub-Daily	Sydney Water	9.31
66044	Cromer Golf Club	1898-2011	Daily	BoM	9.58
66131	Riverview Observatory	1905-2015	Daily	BoM	9.72
66087	Eastwood Bowling Club	1955-2004	Daily	BoM	9.82
566053	RG @ Hornsby Heights WWTP	TBC	Sub-Daily	Sydney Water	10

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Station #	Station Name	Period of Record	Data Type	Authority	Distance from catchment centroid (km)
566087	RG @ Gladesville Bowling Club	1991-2022	Sub-Daily	Sydney Water	10.04
566040	RG @ West Epping Bowling Club (Sewer Group)	TBC-2012	Sub-Daily	Sydney Water	10.13
566068	RG @ Dee Why Bowling Club	TBC	Sub-Daily	Sydney Water	10.31
566178	RG @ Waringah Golf Course	TBC	Sub-Daily	Sydney Water	10.32
566037	RG @ West Ryde Pumping Station	1948-2023	Sub-Daily	Sydney Water	10.65
566080	RG @ Harbord Bowling Club	TBC	Sub-Daily	Sydney Water	11.07
66042	Mosman (Bapaume Road)	1895-2005	Daily	BoM	11.18
66119	Mount Kuring-Gai (Ledora Farm)	1964-2019	Daily	BoM	11.27
66185	Carlingford (Barellan Av)	1986-2011	Daily	BoM	11.27
67062	Cherrybrook (Casuarina Drive)	2007-2015	Daily	BoM	11.56
566089	RG @ Manly Golf Course	TBC	Sub-Daily	Sydney Water	11.58
66075	Waverton Bowling Club	1955-1999	Daily	BoM	11.59
67098	West Pennant Hills (Oratava Ave)	1943-2006	Daily	BoM	11.64
67089	West Pennant Hills (Cumberland State For	1949-2015	Daily	BoM	12.05
66071	Gladesville Champion Rd	1997-2000	Daily	BoM	12.07
566081	RG @ Carlingford Bowling Club	TBC	Sub-Daily	Sydney Water	12.16
567149	RG @ Cumberland State ForeStreet, West Pennant Hills (formerly a UPRCT Gauge)	TBC	Sub-Daily	Sydney Water	12.23
66183	Ingleside (Animal Welfare League NSW)	1984-2012	Daily	BoM	12.24
66126	Collaroy (Long Reef Golf Club)	1965-2023	Daily	BoM	12.77

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Station #	Station Name	Period of Record	Data Type	Authority	Distance from catchment centroid (km)
66184	Mosman Council	1984-2007	Daily	BoM	12.8
66034	Abbotsford (Blackwall Point Rd)	2004-2023	Daily	BoM	12.94
566066	RG @ SPS65, Five Dock	1989-2021	Sub-Daily	Sydney Water	13.09
566051	RG @ Warriewood WWTP	TBC	Sub-Daily	Sydney Water	13.1
566027	RG @ Taronga Zoo, Mosman	TBC	Sub-Daily	Sydney Water	13.22
66048	Concord (Brays Rd)	2000-2023	Daily	BoM	13.32
66214	Sydney (Observatory Hill Comparison)	2017-2020	Sub-Daily	BoM	13.73
66062	Sydney (Observatory Hill)	1858-2020	Sub-Daily	BoM	13.88
66212	Sydney Olympic Park AWS (Archery Centre)	2011-2023	Sub-Daily	BoM	13.9
66013	Concord Golf Club	1930-2023	Daily	BoM	14.2
566064	RG @ Concord Bowling Club	1988-2023	Sub-Daily	Sydney Water	14.23
66141	Mona Vale Golf Club	1969-2023	Daily	BoM	14.37
566100	RG @ North Head WWTP	TBC	Sub-Daily	Sydney Water	14.42
66006	Sydney Botanic Gardens	1885-2023	Daily	BoM	14.7

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Annex B Detailed Survey Plans

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Middle Harbour Stormwater Access Report

Project: Middle Harbour Flood Study

Prepared for: BMT

Date: 23/12/2021

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Middle Harbour Flood Study Survey

The following report details the flood study survey conducted by Pinnacle Surveyors in areas of St. Ives, Pymble, Gordon and Killara with each of the 13 survey cross section locations shown in the map below.

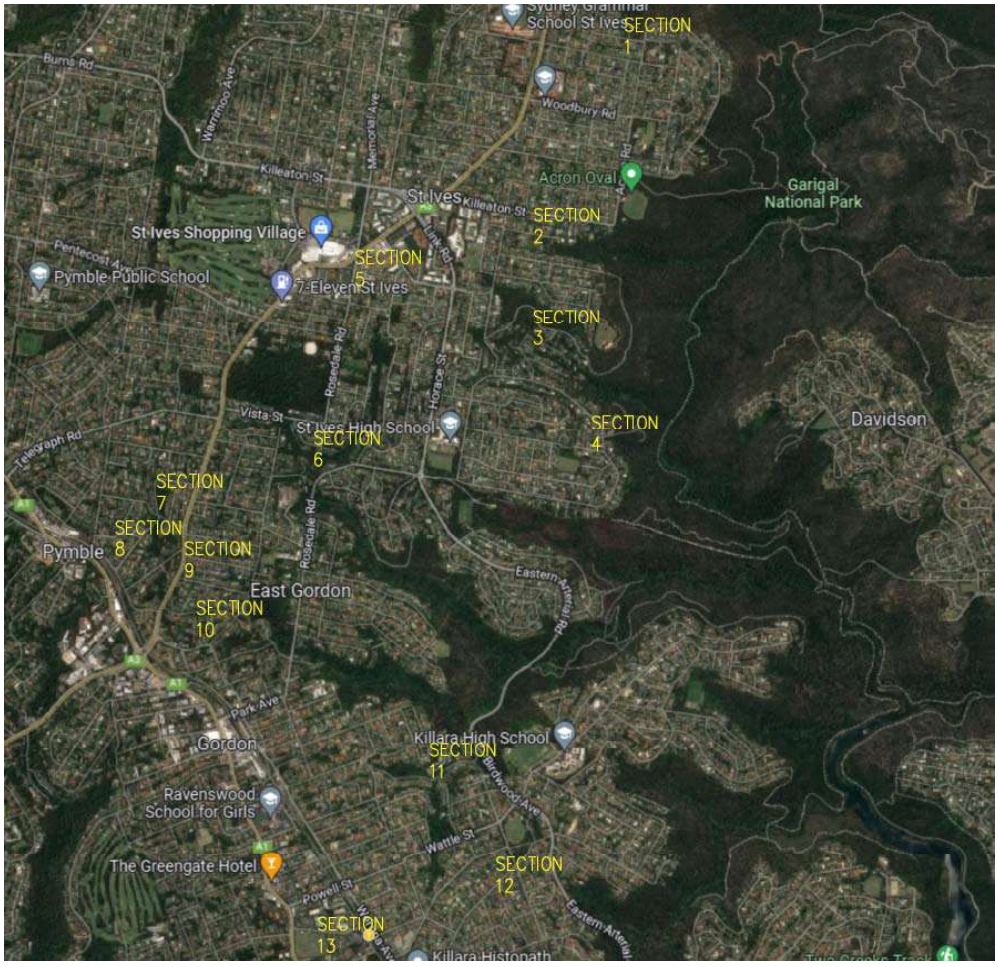


Figure 0-1 The survey map showing each section of the middle harbour flood study

This report shows the surveyed hydraulic structures and river cross sections that were surveyed for the middle harbour flood study.

Data for the survey has been collected using a robotic total station for each point on every asset and river cross section. MGA coordinates and AHD reduced levels have been transferred from high precision RTK GNSS based control baselines, that have been established at several stable locations for each site to provide redundancy and increase overall accuracy, with horizontal and vertical

measurement accuracy at +/- 5mm and +/- 10mm respectively, well within the required parameters of +/- 10mm for horizontal and +/- 30mm for vertical measurements.

This report is produced in conjunction with drawings for each structure along with relevant RL's and cross section RL's when required, DSPEC data for all indicated assets, with, plans and CSV tables for all channel cross sections found in each of the surveyed locations.

1. Survey Cross-Section Location 1

Survey Cross-Section Location 1 (SCS-L1) shown below is located at Ayres Road and Blackburn Street.

Each cross section image shown has been provided by BMT as a guide for infrastructure and cross section location with drainage structures and cross sections shown.

In each survey the required cross section locations and straightness, have been as closely adhered to as permitted by the land topology and shown in red, the positions of the surveyed culverts and pits are also shown in yellow and orange respectively.



Figure 1-1 Surveyed pits and culverts for Survey Cross-Section Location 1 (SCS-L1)

A culvert discharging from Blackburn Street was surveyed. With the following images showing the culvert and the downstream flow section.



Figure 1-2: Upstream view of the culvert located on Blackburn Street



Figure 1-3: Downstream view of the culvert located on Blackburn Street

The structure located at Ayres road is a stormwater runoff pit, which then connects to the main line running down to Blackburn Street as shown in figure 1-3, the pit and pipe invert levels were surveyed.

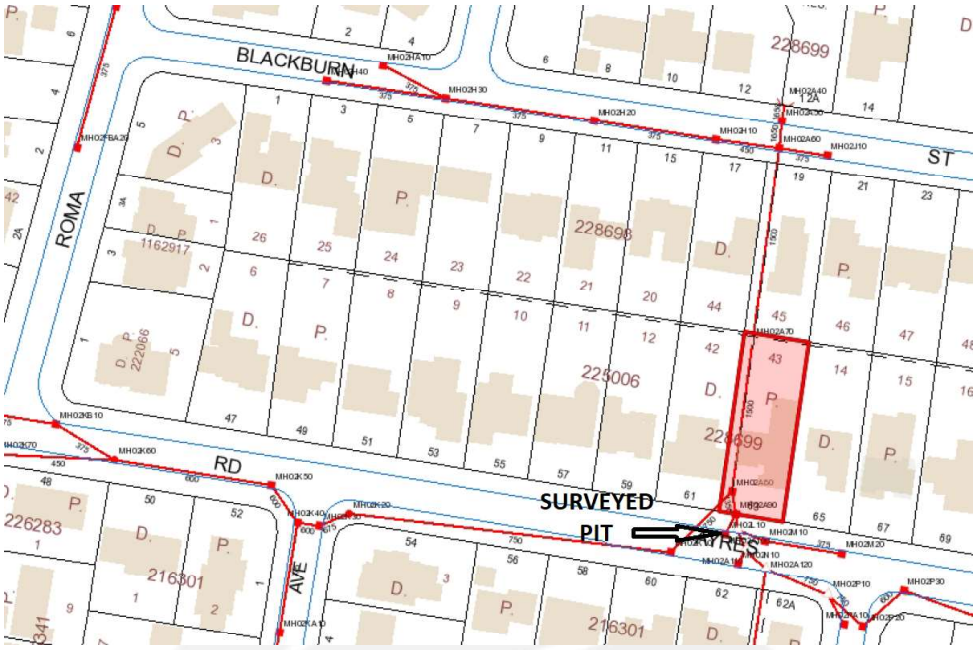


Figure 1-4: Underground stormwater map



Figure 1-5: Pit located on Ayres Rd

2. Survey Cross-Section Location 2

The survey extent for SCS-L2 is shown on the following map.



Figure 2-1 Surveyed pits, culverts and cross sections for SCS-L2

Two drainage pits on each side of Carcoola Road were surveyed. With the following images showing both pits on each side of the road.



Figure 2-2: Two drainage pits on each side of Carcoola Road with a 1.2m pipe.



Figure 2-3: Drainage pit located on Carcoola Road



Figure 2-4: Drainage pit located on Carcoola Road



Figure 2-5 Upstream view of the culvert and cross section surveyed at REDACTED

The culvert shown above, discharging from Carcoola Road was surveyed, the image below shows the downstream flow section. The cross section at this location was also surveyed.



Figure 2-6: Downstream view of the culvert and cross section surveyed at REDACTED

Further downstream, the cross section at REDACTED has been surveyed.



Figure 2-7: Upstream view of the cross section surveyed at REDACTED



Figure 2-8: Downstream view of the cross section surveyed at REDACTED

3. Survey Cross-Section Location 3

The survey extent for SCS-L3 is shown on the following map.

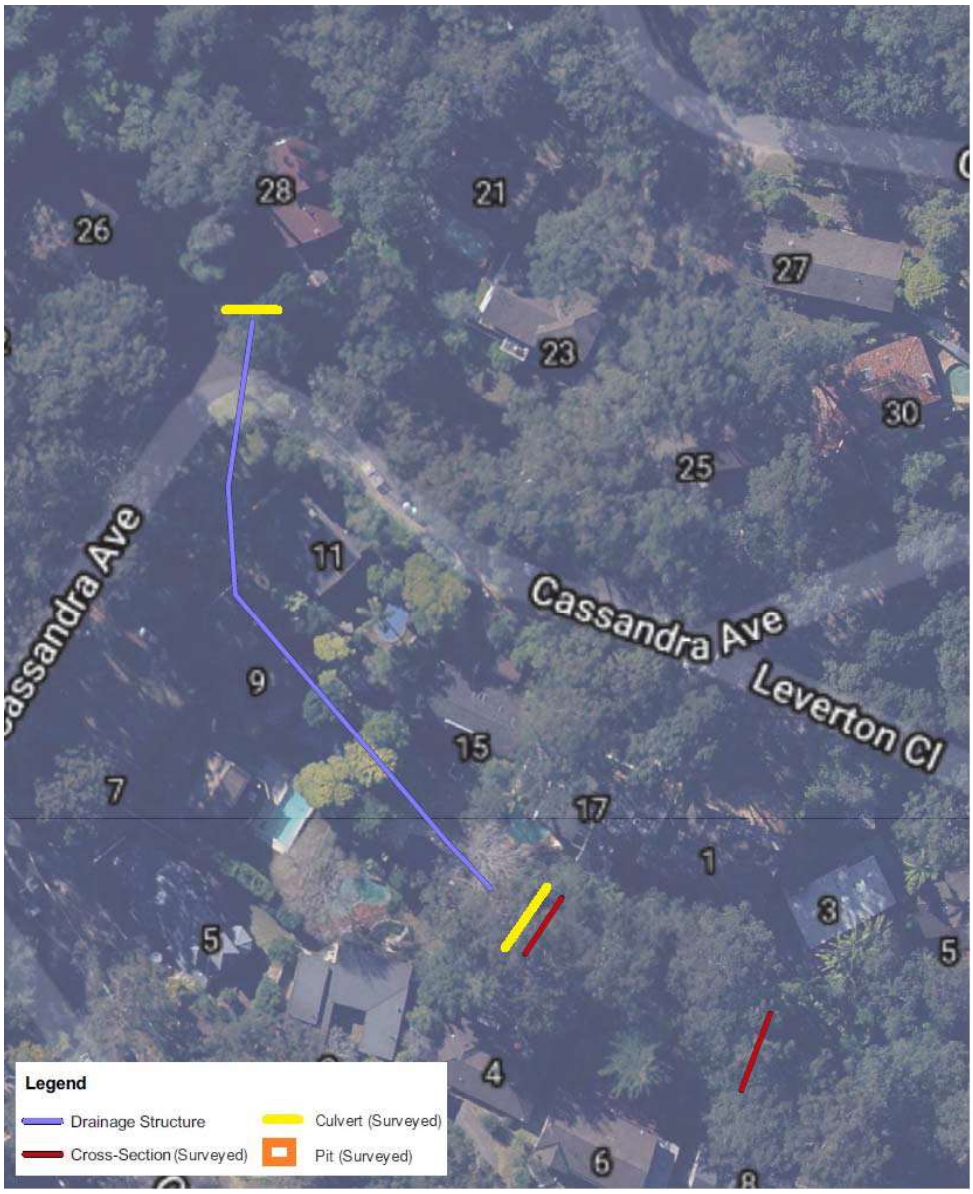


Figure 3-1 Surveyed culverts and cross sections for SCS-L3

The inlet Culvert near Redacted was surveyed, the downstream and upstream sections are shown respectively.



Figure 3-2: Downstream view of the culvert located near Redacted



Figure 3-3: Upstream view of the culvert located near Redacted

The following images show the downstream culvert near Redacted including the cross section that was surveyed.



Figure 3-4: Downstream view of the culvert and the cross section surveyed near Redacted

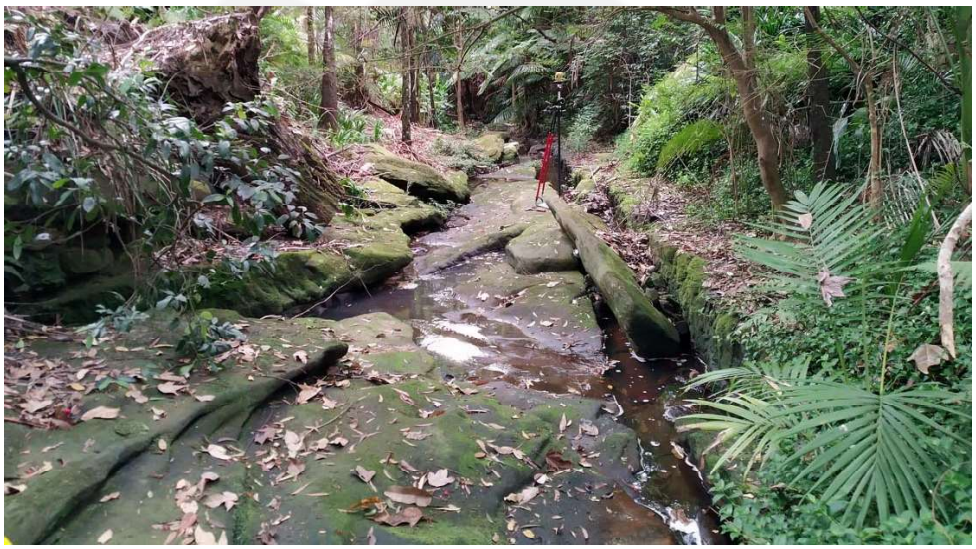


Figure 3-5: Downstream view of the culvert and the cross section surveyed near Redacted

These images show the surveyed cross section further downstream near Redacted



Figure 3-6 Upstream view of the cross section surveyed near Redacted



Figure 3-7 Downstream view of the cross section surveyed near Redacted

4. Survey Cross-Section Location 4

The survey extent for SCS-L4 is shown on the following map.

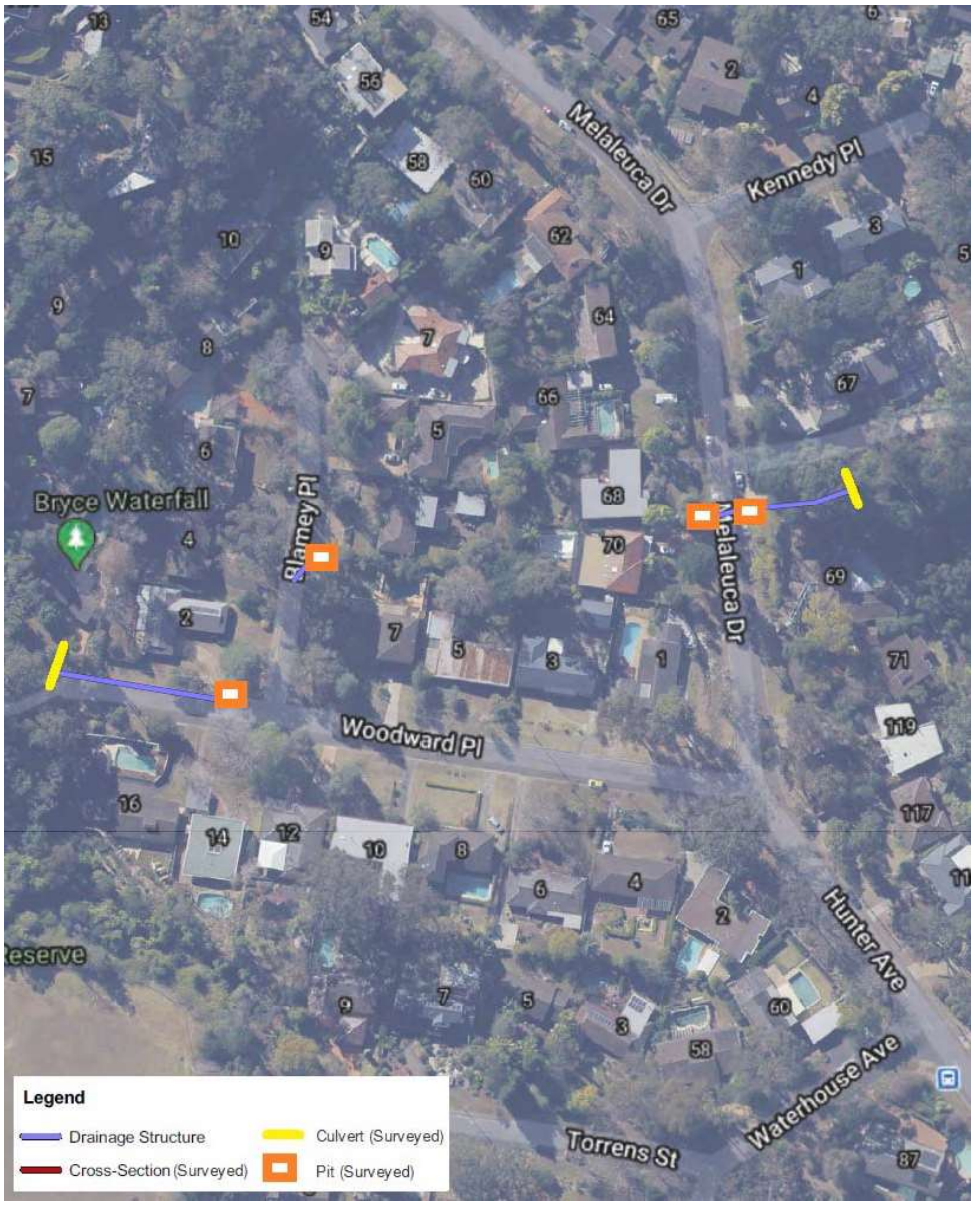


Figure 4-1 Surveyed pits and culverts for SCS-L4

The inlet culvert at Woodward Place has been surveyed as has the pit 46m Eastward as shown in the four images below.



Figure 4-2 Downstream view of the culvert located at Woodward Place

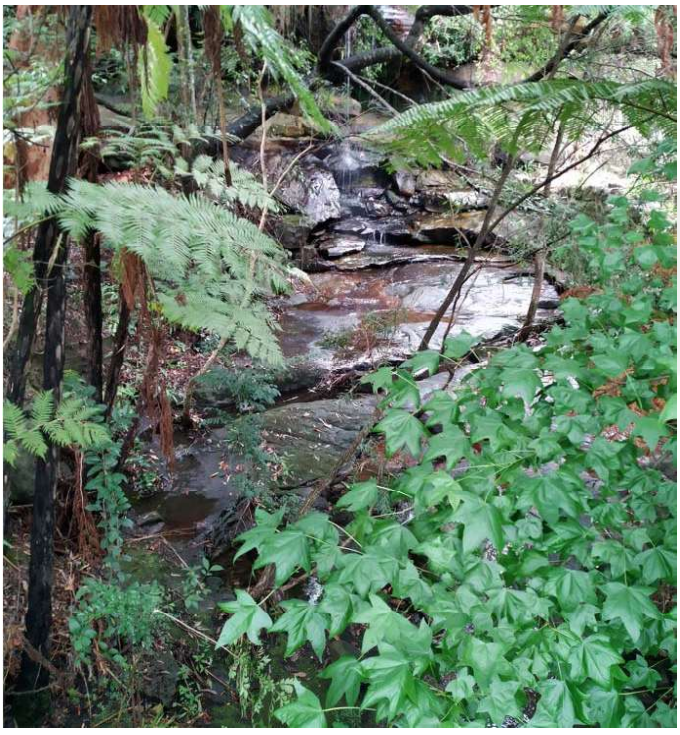


Figure 4-3 Upstream view of the culvert located at Woodward Place.



Figure 4-4 Pit located at Woodward Place.



Figure 4-5 Pit located at Woodward Place.

These images show the surveyed pit on Blamey Place.



Figure 4-6 Pit located at Blamey Place.



Figure 4-7 Pit located at Blamey Place.

These images show the two surveyed pits on Melaleuca Drive.



Figure 4-8 Pit located at Melaleuca Drive.



Figure 4-9 Pit located at Melaleuca Drive.

These images show two different angles of the surveyed outlet culvert near Melaleuca Drive followed by the downstream image.



Figure 4-10 Two upstream views of the culvert located at Melaleuca Drive.

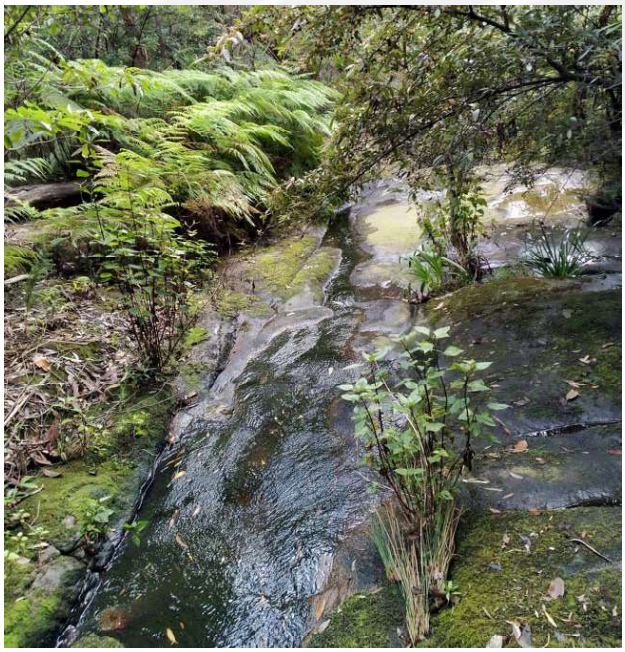


Figure 4-11 Downstream view of the culvert located at Melaleuca Drive.

5. Survey Cross-Section Location 5

The survey extent for SCS-L5 is shown on the following map.



Figure 5-1 Surveyed pits, culverts and cross sections for SCS-L2

The two pits located in Putarri Reserve and adjacent to Rosedale Rd have been surveyed.



Figure 5-2 view of the pit located in Putarri Reserve.

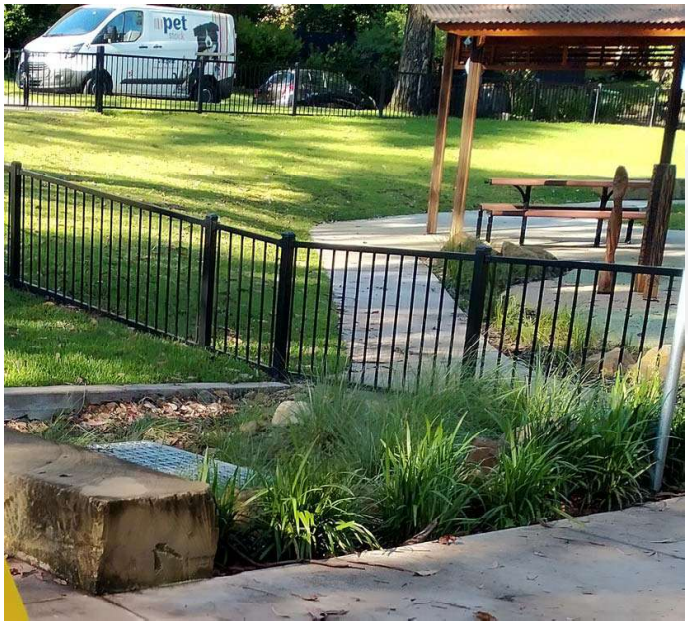


Figure 5-3 view of the pit located adjacent to Rosedale Road.

The image below is of the pit on Dorset Drive dropping directly into the 1200mm pipe which has been surveyed, this makes the survey of the nearby manhole no longer necessary.



Figure 5-3 Pit located at Dorset Drive.

The outlet culvert near Redacted including the cross sections near Redacted that where surveyed, are shown.



Figure 5-4 Upstream view of the culvert located near Redacted



Figure 5-5 Downstream view of the culvert located near Redacted

The following two images show the up and downstream views for the survey cross section behind Redacted Redacted



Figure 5-6 Respective up and downstream views of the cross section located near Redacted

6. Survey Cross-Section Location 6

The survey extent for SCS-L6 is shown on the following map.

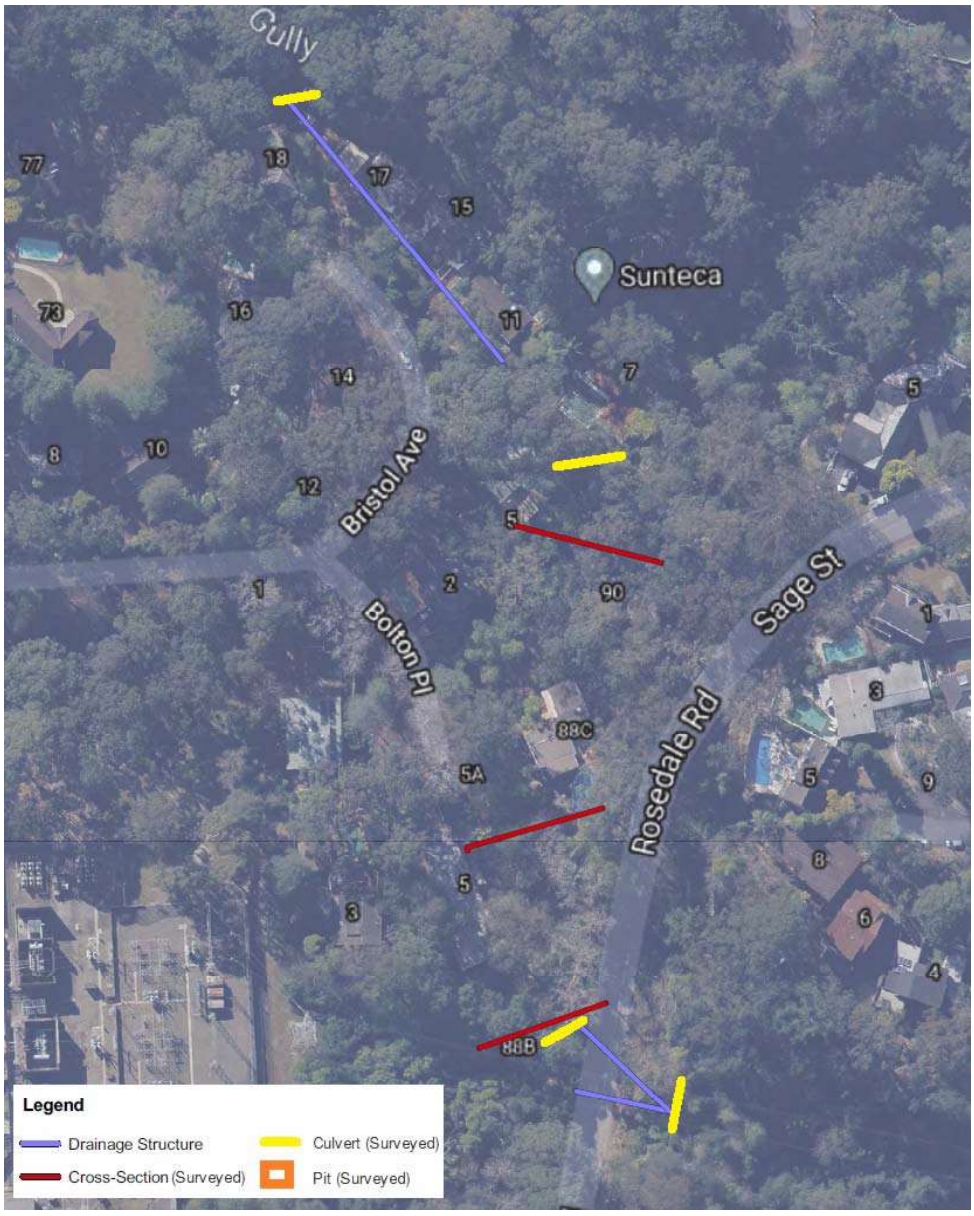


Figure 6-1 Surveyed culverts and cross sections for SCS-L6

The images of the surveyed inlet culvert near Redacted are shown.



Figure 6-2 Downstream view of the culvert located near Redacted



Figure 6-3 Upstream view of the culvert located near Redacted

These images show the surveyed outlet culvert near Redacted, the cross sections in this location have also been surveyed.



Figure 6-4 Upstream view of the culvert and cross section located near Redacted

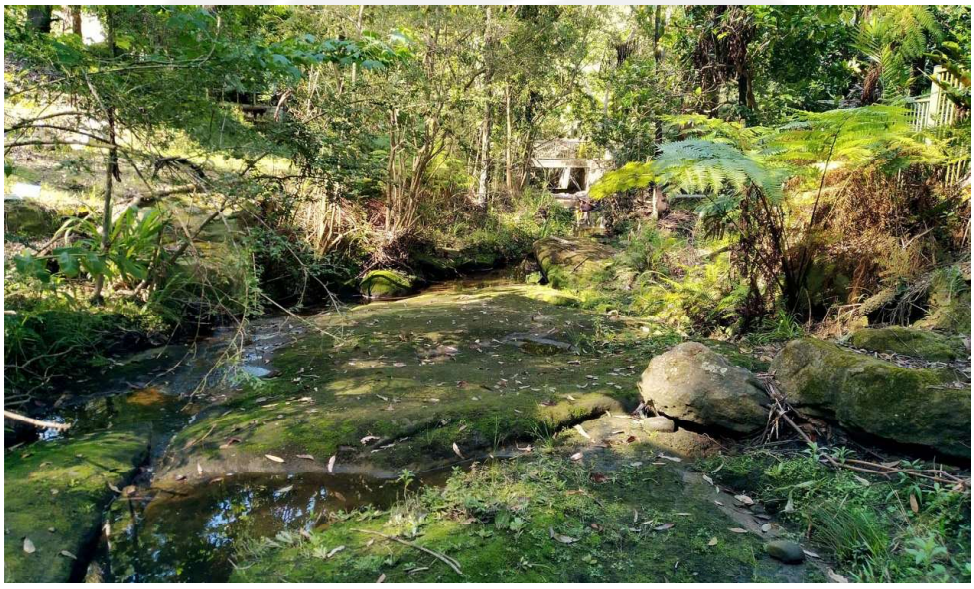


Figure 6-5 Downstream view of the culvert and cross section located near Redacted

The surveyed cross sections located near Redacted



Figure 6-6 Upstream view of the cross section located near Redacted



Figure 6-7 Downstream view of the cross section located near Redacted

The inlet culvert near Redacted has been surveyed. Considerable vegetation was found blocking all four inlet pipes, even with the catch that was put into place to prevent this vegetation build up. The Cross section in this location has also been surveyed.



Figure 6-8 Upstream view of the inlet culvert and cross section located near Redacted



Figure 6-9 Downstream view of the inlet culvert and cross section located near Redacted

The following images show the surveyed outlet culvert near Redacted.



Figure 6-10 Upstream view of the outlet culvert located near Redacted



Figure 6-11 Upstream view of the outlet culvert located near Redacted.



Figure 6-12 Downstream view of the outlet culvert located near Redacted

7. Survey Cross-Section Location 7

The survey extent for SCS-L7 is shown on the following map.

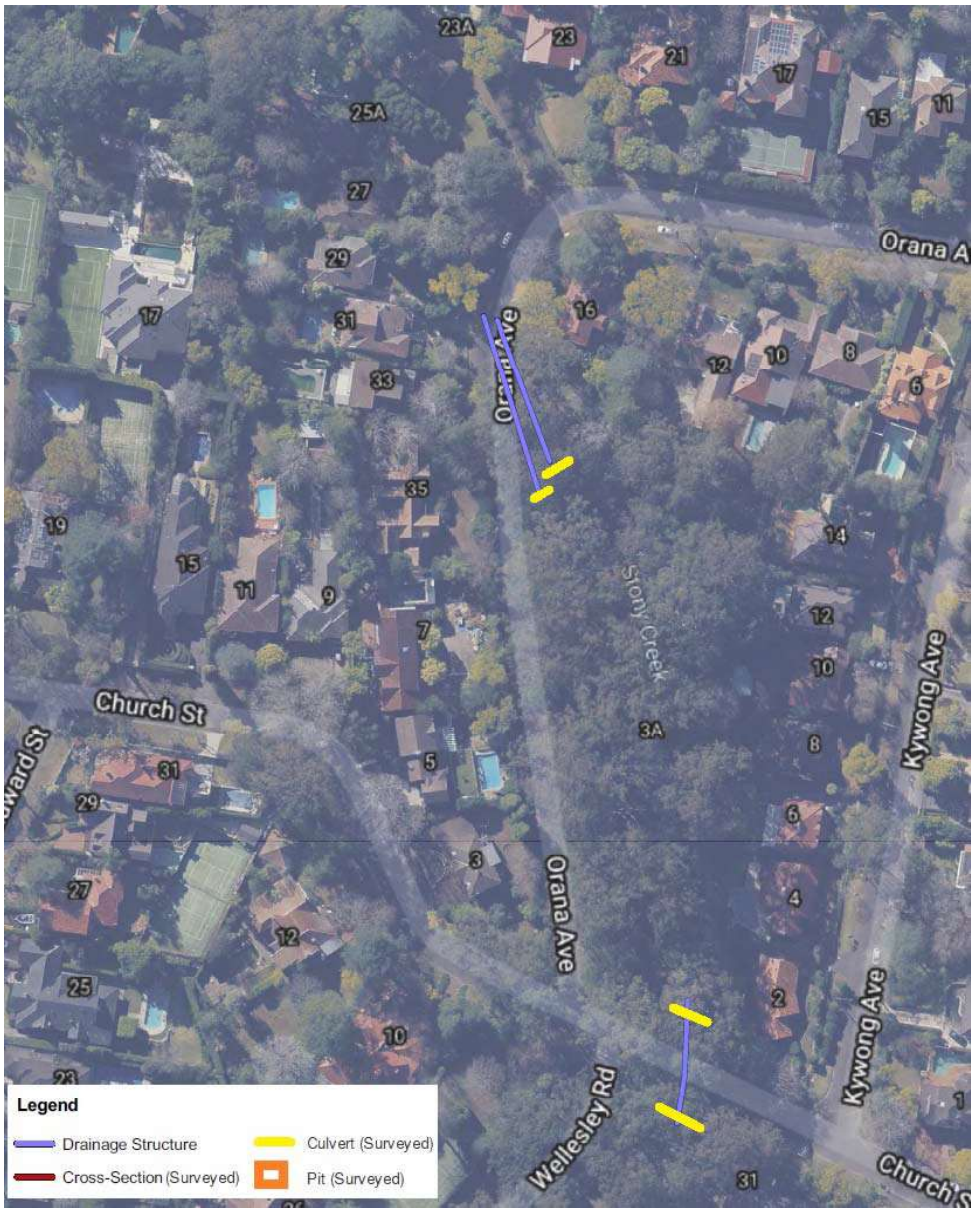


Figure 7-1 Surveyed culverts for SCS-L7

The two adjacent outlet culverts located near Redacted have been surveyed. Considerable vegetation including a fallen tree stump was found blocking one side the first outlet pipe.



Figure 7-2 upstream view of the outlet culvert located near Redacted



Figure 7-3 downstream view of the outlet culvert located near Redacted



Figure 7-4 upstream view of the outlet culvert located near Redacted



Figure 7-5 Downstream view of the outlet culvert located near Redacted

The connected inlet and outlet culverts located on Church Street have been surveyed, as shown in the four images below.



Figure 7-6 upstream view of the inlet culvert located on Church Street



Figure 7-7 downstream view of the inlet culvert located on Church Street



Figure 7-8 upstream view of the outlet culvert located on Church Street



Figure 7-9 downstream view of the outlet culvert located on Church Street

8. Survey Cross-Section Location 8

The survey extent for SCS-L8 is shown on the following map.

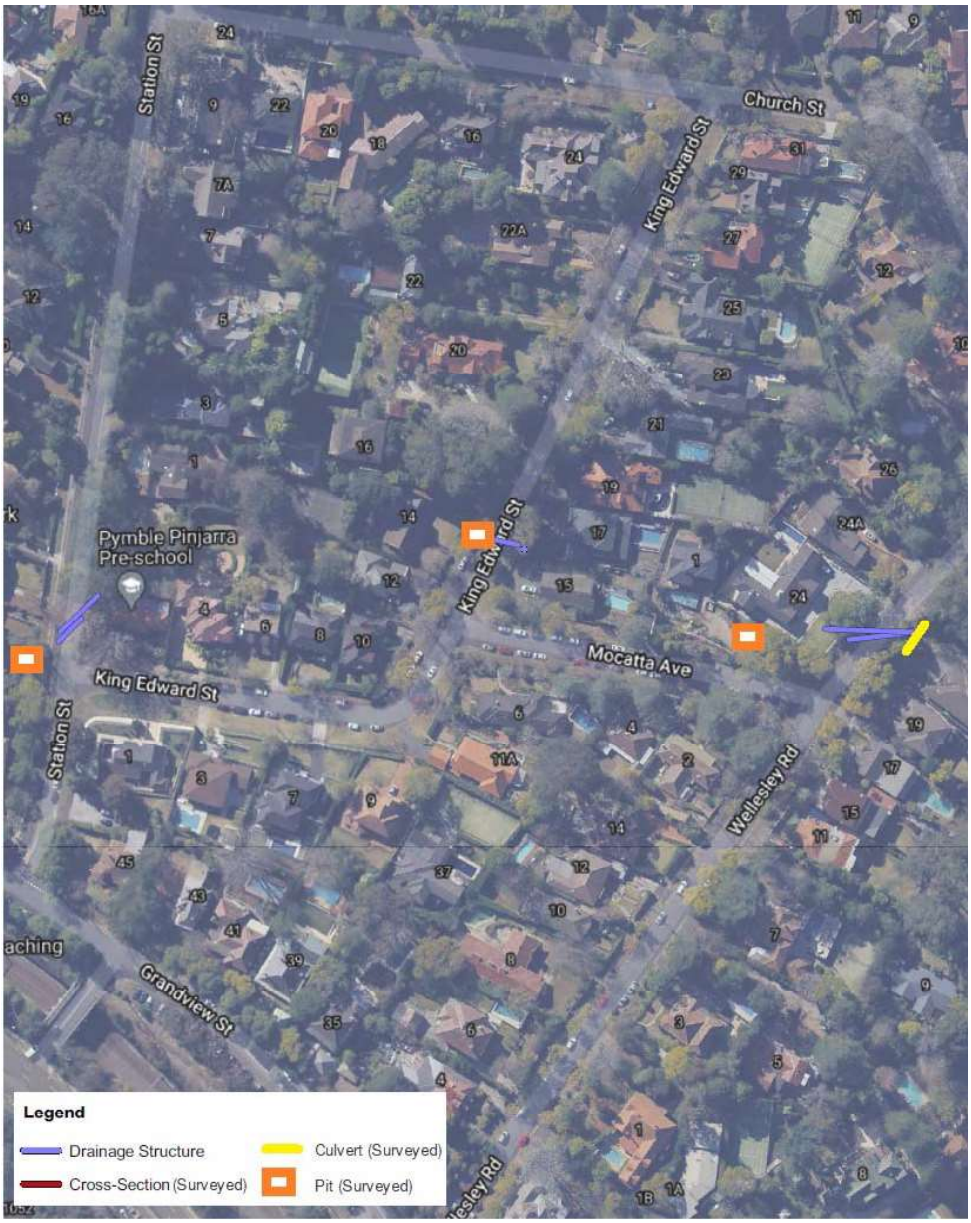


Figure 8-1 Surveyed pits and culverts for SCS-L8

The pit found at Redacted with a 0.75 m Diameter pipe was surveyed.

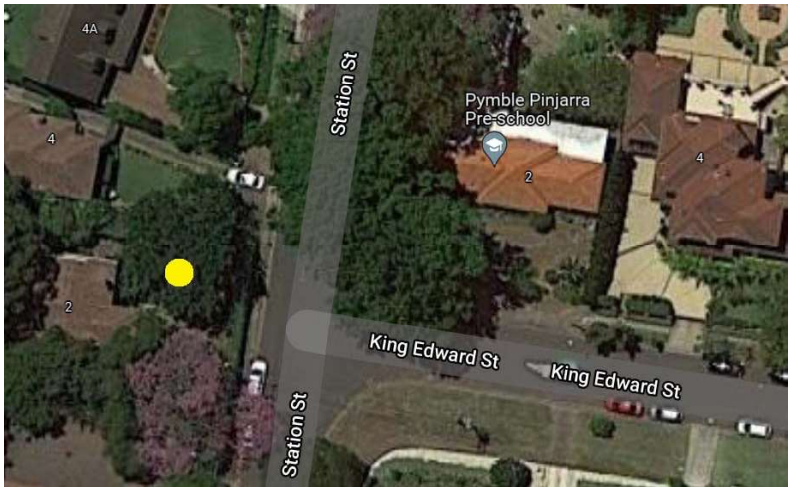


Figure 8-2 Location of surveyed pit found at Redacted



Figure 8-3 Surveyed pit at Redacted *with 0.75m pipe*

The structures shown in the figures below on Station Street did not have any access to the underground piping system.



Figure 8-4 blow-up of BMT figure: 1l Rev: A



Figure 8-5 Structure on Station Street Pymble adjacent to Redacted



Figure 8-6 Two Stormwater runoff pits at Redacted

An attempt was made to find a structure within Redacted with the aid of Ku-ring-gai Councils drainage team, no access point could be located.

One of the pits on King Edward Street was surveyed as shown below.



Figure 8-7 Surveyed stormwater runoff pit on King Edward Street

The pit located within the property at Redacted was surveyed, as was the culvert directly across the road and adjacent to Redacted shown in the following four images.



Figure 8-8 Surveyed pit located within the property at Redacted



Figure 8-9 Upstream view of the surveyed culvert adjacent to Redacted



Figure 8-10 Upstream view of the surveyed culvert adjacent to Redacted



Figure 8-11 Downstream view of the surveyed culvert adjacent to Redacted

9. Survey Cross-Section Location 9

The survey extent for SCS-L9 is shown on the following map.

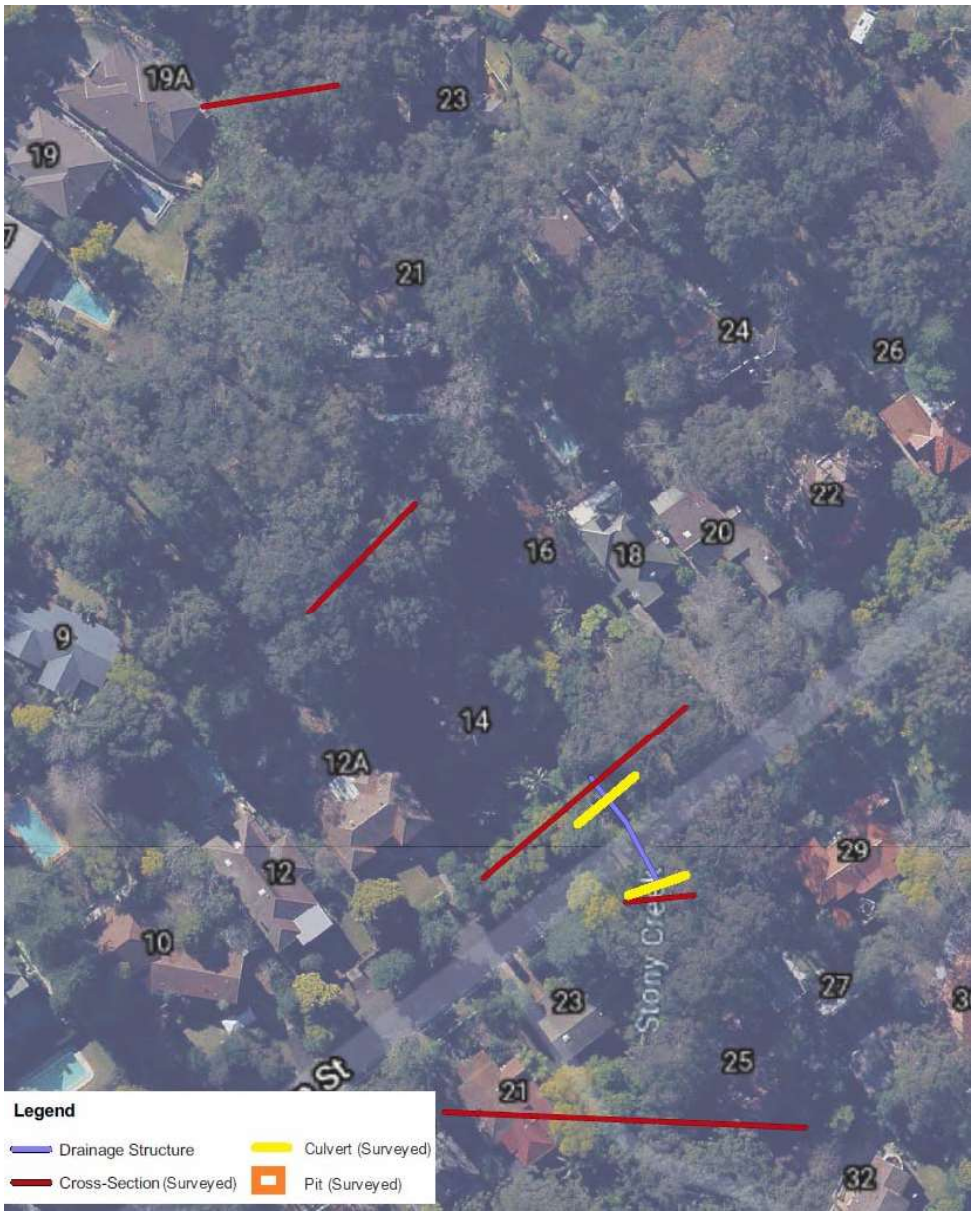


Figure 9-1 Surveyed culverts and cross sections for SCS-L9

The two surveyed cross sections located near Redacted and Redacted are shown in the four images below.



Figure 9-2 Upstream view of the cross section located near Redacted



Figure 9-3 Downstream view of the cross section located near Redacted



Figure 9-4 Upstream view of the cross section located near Redacted



Figure 9-5 Downstream view of the cross section located near Redacted

These images show the surveyed inlet culvert on Fern street connecting directly to the outlet culvert on Fern street. The cross sections in both of these locations have also been surveyed.

Some vegetative build up on the inlet side is noted.



Figure 9-6 Upstream view of the inlet culvert and the surveyed cross section located on Fern Street



Figure 9-7 Downstream view of the inlet culvert and the surveyed cross section located on Fern Street



Figure 9-8 Downstream view of the inlet culvert and the surveyed cross section located on Fern Street

These images show the surveyed outlet side culvert for the pipes crossing Fern street.



Figure 9-9 Upstream view of the outlet culvert and the surveyed cross section located on Fern Street



Figure 9-10 Downstream view of the outlet culvert and the surveyed cross section located on Fern Street

The surveyed cross sections located near Redacted are shown below.



Figure 9-11 Upstream view of the surveyed cross sections located near Redacted

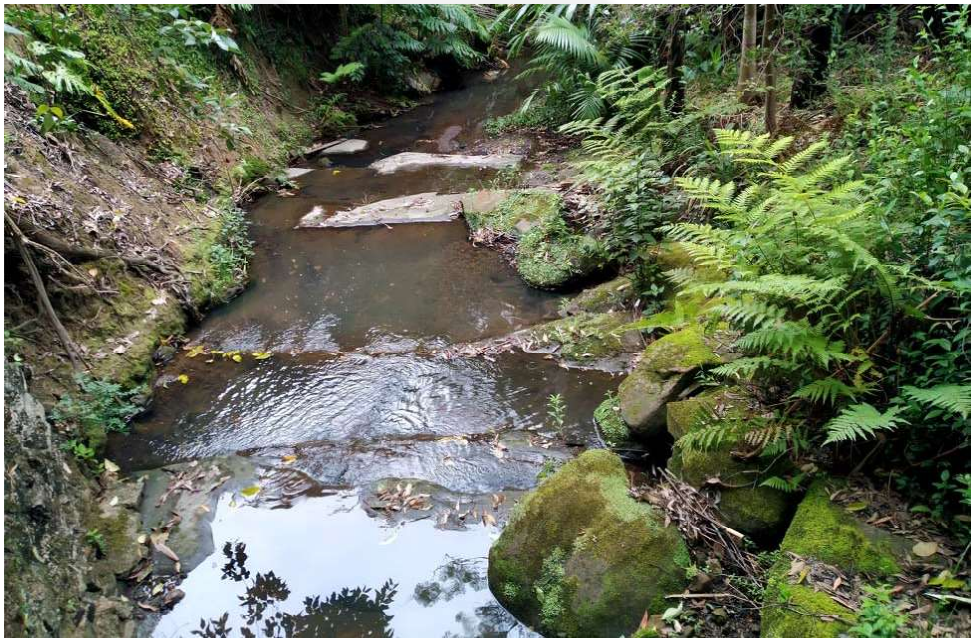


Figure 9-12 Downstream view of the surveyed cross sections located near Redacted

10. Survey Cross-Section Location 10

The survey extent for SCS-L10 is shown on the following map.



Figure 10-1 Surveyed pits, culverts and cross sections for SCS-L10

The following five images show the surveyed inlet culvert on Ryde Road which connects directly to the outlet culvert on the other side of Ryde Road, the cross sections in these locations have been surveyed.



Figure 10-2 Upstream view of the inlet culvert and the surveyed cross section located on Ryde Road



Figure 10-3 Downstream view of the inlet culvert and the surveyed cross section located on Ryde Road



Figure 10-4 Upstream view of the outlet culvert and the surveyed cross section located on Ryde Road



Figure 10-5 Upstream view of the outlet culvert and the surveyed cross section located on Ryde Road



Figure 10-6 Downstream view of the outlet culvert and the surveyed cross section located on Ryde Road

The surveyed cross sections adjacent to Carlotta Avenue are shown in the four images below.



Figure 10-7 Upstream view of the surveyed cross sections located near Redacted



Figure 10-8 Downstream view of the surveyed cross sections located near Redacted



Figure 10-9 Upstream view of the surveyed cross sections located near Redacted



Figure 10-10 Downstream view of the surveyed cross sections located near Redacted

These images show the surveyed inlet culvert (Rectangular) on Carlotta Avenue and the surveyed cross sections.



Figure 10-11 upstream view of the surveyed inlet culvert and cross sections located near Redacted



Figure 10-12 Downstream view of the surveyed inlet culvert and cross sections located near Redacted



Figure 10-13 Downstream view of the surveyed inlet culvert located near Redacted

This image shows the surveyed pit which connects to the outlet culvert (Rectangular) on Pearson Avenue.



Figure 10-14 Surveyed pit located near Redacted

The images below show the surveyed outlet culvert (Rectangular) on Pearson Avenue and the surveyed cross sections.



Figure 10-15 Upstream view of the surveyed outlet culvert and cross sections located near Redacted



Figure 10-16 Upstream view of the surveyed culvert located near Redacted



Figure 10-17 Downstream view of the surveyed culvert and cross sections located near Redacted

The surveyed cross sections adjacent to Mount William Street, are shown in the following images.



Figure 10-18 Upstream view of the surveyed cross sections located near Redacted



Figure 10-19 Downstream view of the surveyed cross sections located near Redacted



Figure 10-20 Upstream view of the surveyed cross sections located near Redacted



Figure 10-21 Downstream view of the surveyed cross sections located near Redacted



Figure 10-22 Upstream view of the surveyed cross sections located near Redacted



Figure 10-23 Downstream view of the surveyed cross sections located near Redacted



Figure 10-24 Upstream view of the surveyed inlet culvert and cross sections located near Redacted

These images are of the surveyed culverts (Bridge) and cross sections located near Redacted



Figure 10-25 Downstream view of the surveyed inlet culvert and cross sections located near Redacted

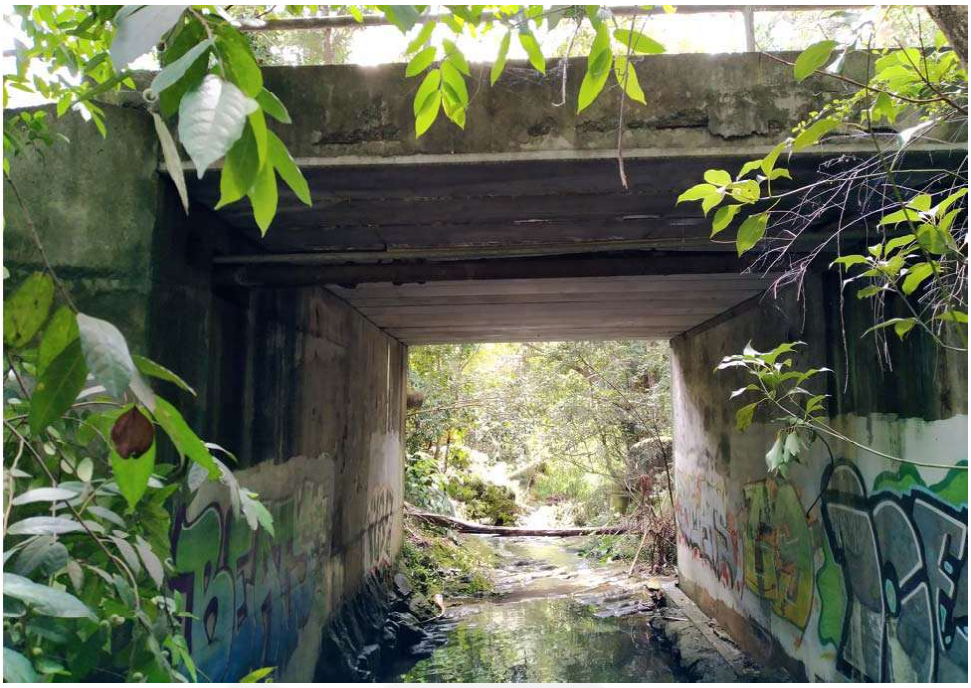


Figure 10-26 Downstream view of the surveyed inlet culvert and cross sections located near Redacted



Figure 10-27 Downstream view of the surveyed inlet culvert and cross sections located near Redacted



Figure 10-28 Upstream view of the surveyed outlet culvert and cross sections located near Redacted



Figure 10-29 Downstream view of the surveyed outlet culvert and cross sections located near Redacted

11. Survey Cross-Section Location 11

The survey extent for SCS-L11 is shown on the following map.



Figure 11-1 Surveyed culverts and cross sections for SCS-L11

The images below are of the surveyed culverts (Bridge) and cross sections located on Maytone Avenue.



Figure 11-2 Upstream view of the surveyed inlet culvert and cross sections located on Maytone Avenue



Figure 11-3 Downstream view of the surveyed inlet culvert and cross sections located on Maytone Avenue



Figure 11-4 Downstream view of the surveyed inlet culvert and cross sections located on Maytone Avenue



Figure 11-5 Downstream view of the surveyed inlet culvert and cross sections located on Maytone Avenue



Figure 11-6 Upstream view of the surveyed outlet culvert and cross sections located on Maytone Avenue



Figure 11-7 Upstream view of the surveyed outlet culvert and cross sections located on Maytone Avenue



Figure 11-8 Upstream view of the surveyed outlet culvert and cross sections located on Maytone Avenue



Figure 11-9 Downstream view of the surveyed outlet culvert and cross sections located on Maytone Avenue

The surveyed cross sections adjacent to Maytone Avenue are shown in the four images below.



Figure 11-10 Upstream view of the surveyed cross sections located near Redacted



Figure 11-11 Downstream view of the surveyed cross sections located near Redacted

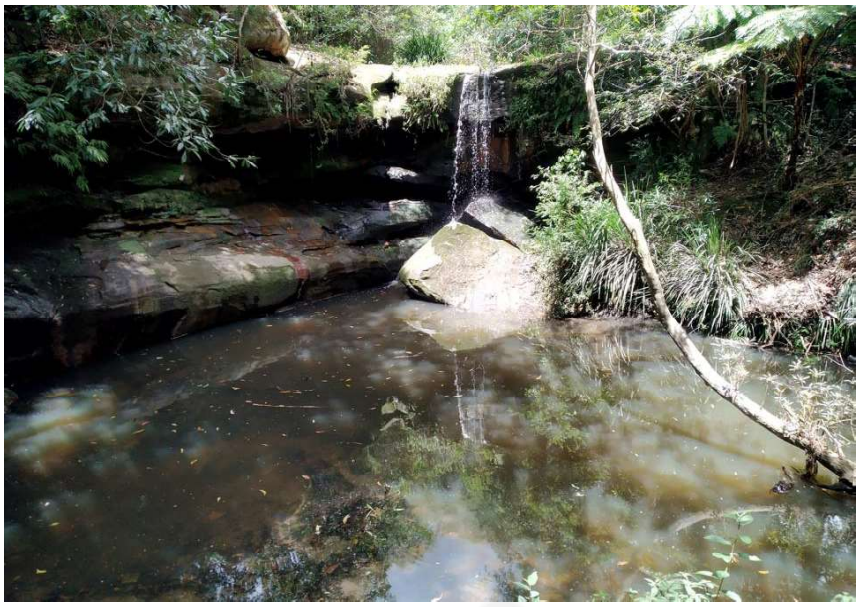


Figure 11-12 Upstream view of the surveyed cross sections located near Redacted

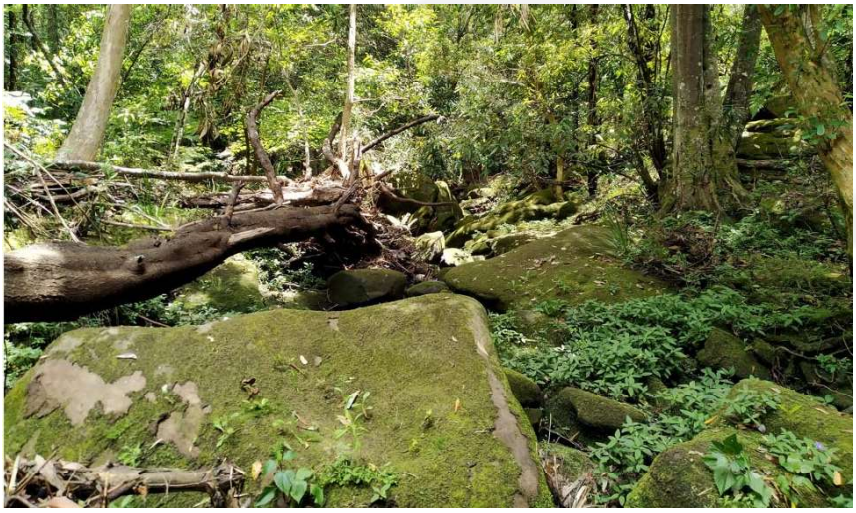


Figure 11-13 Downstream view of the surveyed cross sections located near Redacted

12. Survey Cross-Section Location 12

The survey extent for SCS-L12 is shown on the following map.



Figure 12-1 Surveyed culverts and cross sections for SCS-L12

These images show the surveyed outlet culvert on Wattle Street and the surveyed cross sections.



Figure 12-2 Upstream view of the surveyed outlet culvert and cross sections, located on Wattle Street



Figure 12-3 Downstream view of the surveyed outlet culvert and cross sections, located on Wattle Street

The images below show the surveyed inlet culvert on Wattle Street and the surveyed cross sections. Significant vegetative blockage exists approximately as high as the water line seen in the second image below, where the water has to spill over this vegetation.

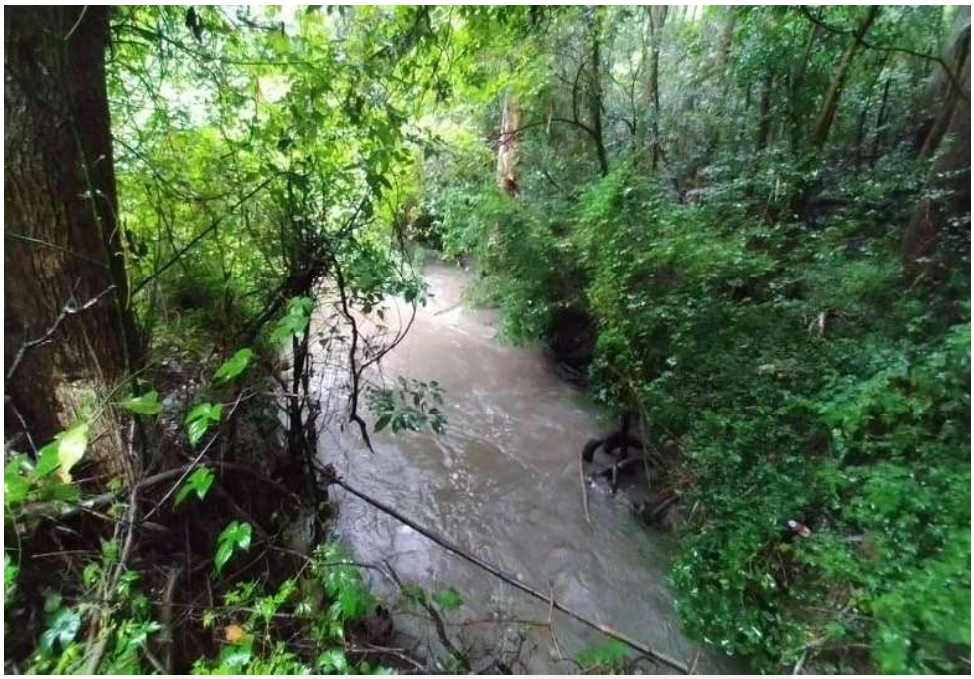


Figure 12-4 Upstream view of the surveyed inlet culvert and cross section, located on Wattle Street



Figure 12-5 Downstream view of the surveyed inlet culvert and cross section, located on Wattle Street

The surveyed cross sections adjacent to Arnold Street are shown in the four images below.



Figure 12-6 Upstream view of the surveyed cross section located near Redacted



Figure 12-7 Downstream view of the surveyed cross section located near Redacted



Figure 12-8 Upstream view of the surveyed cross section located near Redacted

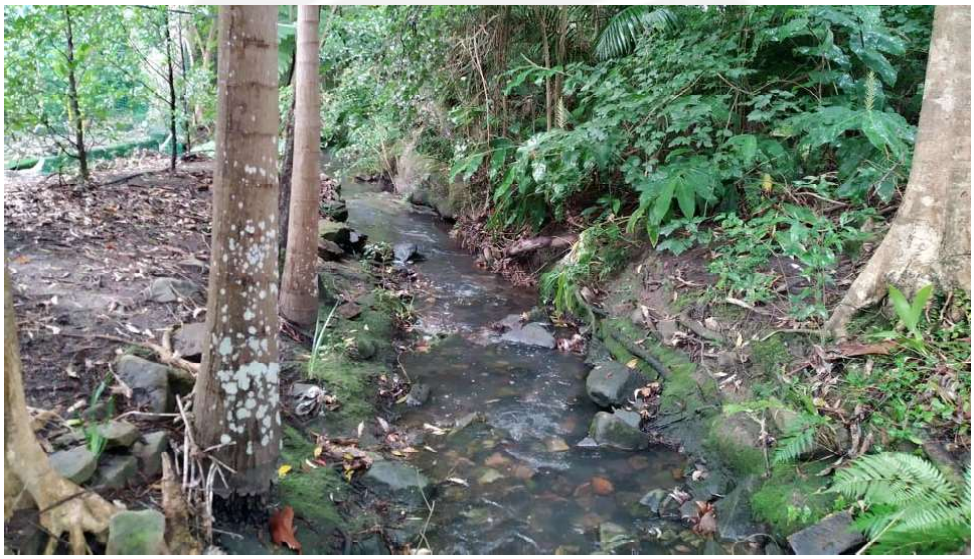


Figure 12-9 Downstream view of the surveyed cross section located near Redacted

These images show the surveyed inlet culvert located near Redacted and the surveyed cross section.



Figure 12-10 Downstream view of the surveyed culvert and cross section located near Redacted

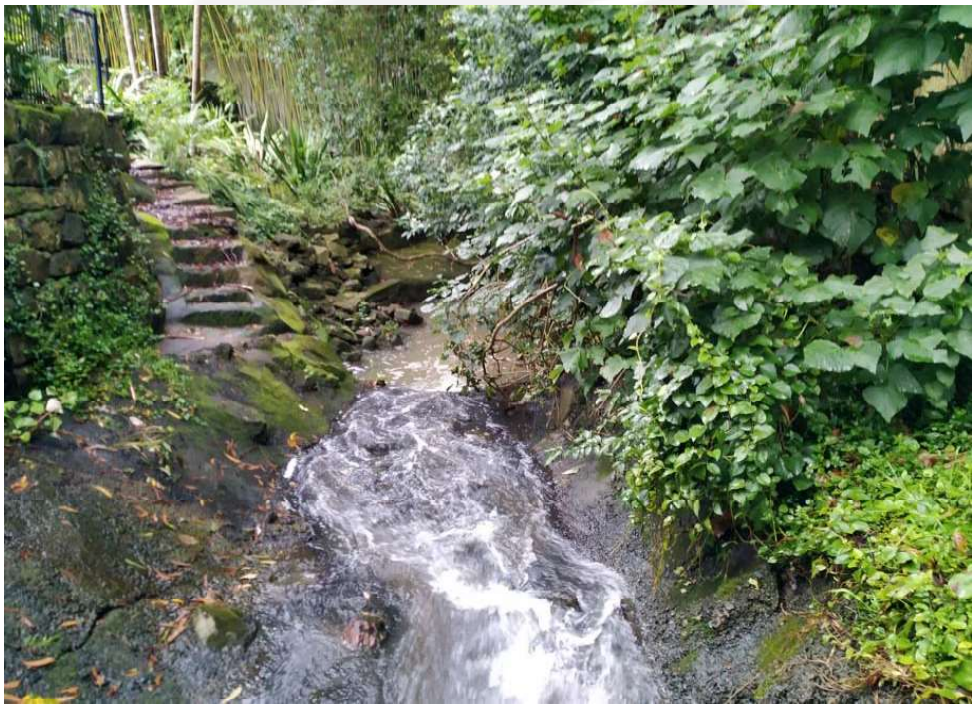


Figure 12-11 Downstream view of the surveyed culvert and cross section located near Redacted



Figure 12-12

The stormwater runoff pits located on Karranga Ave were not surveyable without the removal of the concrete cover.

13. Survey Cross-Section Location 13

The survey extent for SCS-L13 is shown on the following map.



Figure 13-1 Surveyed pits and culverts for SCS-L13

The following images show the surveyed inlet culvert (arched) on Bruce Avenue running under the rail line to Werona Avenue

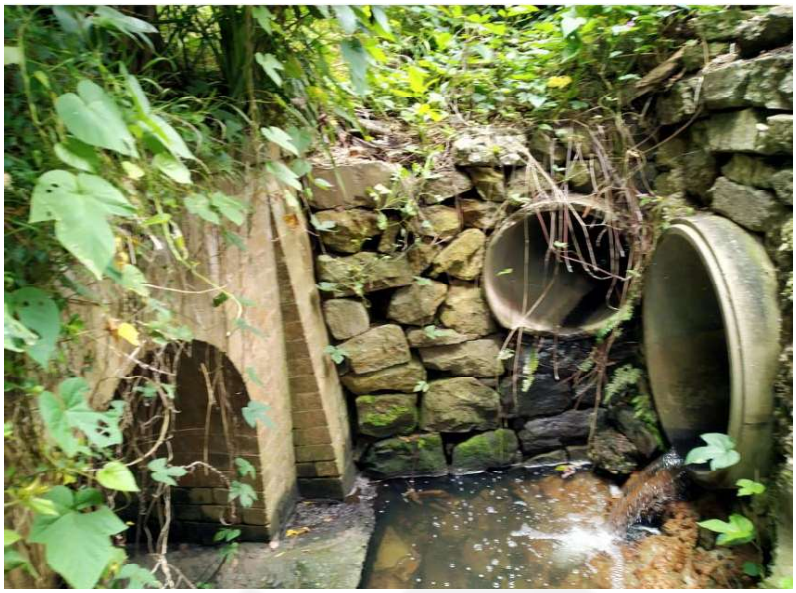


Figure 13-2 Side view of the surveyed inlet culvert (arched) located near Bruce Avenue



Figure 13-3 Upstream view of the surveyed inlet culvert located near Bruce Avenue



Figure 13-4 Downstream view of the surveyed inlet culvert located near Bruce Avenue

These images show the surveyed outlet culvert (arched) on Werona Avenue running under the rail line from Bruce Avenue.



Figure 13-5 Upstream view of the surveyed outlet culvert located near Werona Avenue



Figure 13-6 Downstream view of the surveyed outlet culvert located near Werona Avenue

A few pits were located on Culworth Avenue between Powell Street and Lorne Avenue as shown in the following images, none however had any direct connection to any underground piping and could not be directly surveyed.



Figure 13-7 Pits located on Culworth Avenue between Powell Street and Lorne Avenue



Figure 13-8 Pits located on Culworth Avenue between Powell Street and Lorne Avenue



Figure 13-9 Pits located on Culworth Avenue between Powell Street and Lorne Avenue

These images show the surveyed pit in Selkirk Park at Culworth Avenue running under the rail line to Werona Avenue.



Figure 13-10 Surveyed pit in Selkirk Park



Figure 13-11 Surveyed pit in Selkirk Park

These images show the surveyed outlet culvert (arched) on Werona Avenue running under the rail line from Culworth Avenue, which feeds to the circular inlet culvert running under Werona Avenue



Figure 13-12 Upstream view of the surveyed outlet culvert located near Werona Avenue (near Redacted



Figure 13-13 The surveyed circular inlet culvert running under Werona Avenue directly downstream from the arched outlet culvert



Figure 13-14 view of the surveyed pit located on Werona Avenue

Conclusion

As shown above, Pinnacle Surveyors have completed the flood study per the attached brief. Every effort was made to access all culvert structures and pits, however, some where not accessible including with the aid of Council's drainage team as noted.

Included with this report is a full set of cross sections referencing each photo shown and a plan view set of measurements taken to each culvert structure. Minor concerns were noted in the drainage network as listed in this report.

If there are any questions or concerns, please contact the project lead Aaron Fleury on 02 9686 2548.

Annex C Community Consultation Material

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Middle Harbour – Northern Catchments Flood Study

July 2020

Community Newsletter

Ku-ring-gai Council is calling on residents and business owners to share their ideas to improve flood management in the Middle Harbour Northern Catchments.

The area consists of two catchments. These include Middle Harbour Creek in St Ives, Frenches Creek in Belrose and Rocky Creek in East Killara, all flowing into Middle Harbour.

This study will build on previous investigations and provide a holistic assessment of flooding in the study area. It is being prepared to meet the objectives of the NSW State Government's Flood Policy.

BMT, an engineering consultant specialising in this field, has been engaged by Ku-ring-gai Council to undertake the study. The NSW Department of Planning Industry and the Environment is providing financial and technical assistance.



Rocky Creek, Killara

Potential Flood Risks

Flooding within Middle Harbour Northern Catchments is caused primarily by significant catchment rainfall causing overland flooding. Overland flows are typical in urban environments where it is not feasible to design stormwater drainage to capture very large and infrequent flood events.

The Flood Study will assess flooding behaviour in the catchment to identify the critical or worst-case flood conditions for a range of flood events. The study will also consider the potential flooding impacts of climate change, from both sea level rise and increased rainfall intensity, in line with current government policy and best practice.

Key Study Outputs

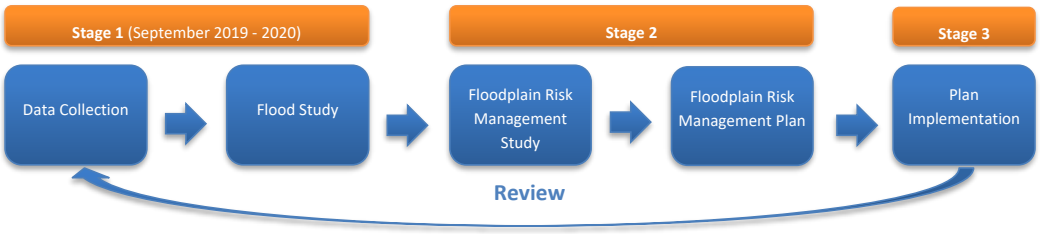
At the core of the study will be the development, calibration and verification of detailed computer models of the catchment to simulate flood behaviour. Historical flood information such as rainfall, peak water levels, flooded property details and more, is used to ensure the computer models are representative of the real catchment behaviour.

The flood study results will assist Council in:

- Setting appropriate levels for development control;
- Identifying potential works to reduce existing flooding; and
- Improving flood emergency response and recovery.

Middle Harbour – Northern Catchments Flood Study

NSW Floodplain Risk Management Process



The current project represents the first stage in the NSW Floodplain Risk Management Process which includes data collection and the preparation of a flood study to define existing flood behaviour.

Get involved

Your involvement is essential to the success of the study. It helps us to improve the decision making process, identify local concerns and to inform the community about the consequences of flooding and potential management options.

Your feedback

- Please take a few minutes to complete and return the questionnaire. This will greatly assist in collating people's knowledge and experience about previous flooding history and existing flood problem areas.
- A number of community information sessions will be held (locations and times to be confirmed). Please come along to hear about the existing and future flood risks in your community and to share your ideas and concerns for ongoing management of flooding in the Middle Harbour Northern Catchments.

Further information

For more information including a link to a useful Frequently Asked Questions, please visit www.kmc.nsw.gov.au/floodrisk or contact:

Ku-ring-gai Council

Sophia Findlay

Water and Catchments Program Leader

Ph: 8424 0853

E-mail floodriskmanagement@kmc.nsw.gov.au.

BMT (Consultant)

Jacquie Hannan

Project Manager

Ph 8960 7755

E-mail jacquie.hannan@bmtglobal.com

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Suite G2, 13-15 Smail Street
Ultimo, Sydney 2007
Australia
Tel: +61 2 8960 7755
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ABN 54 010 830 421

www.bmtwbm.com.au

MEDIA RELEASE

INFORMATION SOUGHT FOR FLOOD STUDY

Ku-ring-gai Council is calling on residents and business owners to share their ideas to improve flood management in the Middle Harbour Northern Catchments.

Council is proactively managing the risks community faces from flooding with a comprehensive flood study being conducted in the area. Engineering consultants BMT will undertake the analysis which will form an initial stage towards the development of a comprehensive Floodplain Risk Management Study and Plan.

Currently, we are collecting and collating data on flooding and the catchment, which will be essential for the development of detailed rainfall/runoff (hydrology) and flood (hydraulic) models. These will provide the technical analysis required for the study and future development of the plan.

The Middle Harbour Northern Catchments Flood Study is expected to be completed by mid-2021 and will guide the direction of future floodplain management actions in Ku-ring-gai.

Your feedback

Council and BMT are eager to receive any comments and information from the community within the Middle Harbour Northern Catchments. Your participation is essential to the success of the study, particularly when it comes to flood information.

If you have any information on flooding such as photographs, stories or flood marks on or near your property, or wish to make a comment, please complete the questionnaire which will be posted to residents within the Middle Harbour Northern Catchments in the coming months.

You can also complete the questionnaire online and read more details of the study via Council's website www.kmc.nsw.gov.au/floodrisk

This project was supported by the NSW Government's Floodplain Management Program.

Inquiries regarding this media release should be directed to Sophia Findlay, Water and Catchments Program Leader, Ku-ring-gai Council on 9424 0853 or email floodriskmanagement@kmc.nsw.gov.au

S:\WATER\PROJECTS\A10091.000_MiddleHarbour_NorthernCatchments_FS\Consultation\Middle Harbour - Northern Catchments Flood Study Media Release.docx

MIDDLE HARBOUR NORTHERN CATCHMENTS FLOOD STUDY COMMUNITY QUESTIONNAIRE

The questionnaire should only take around 10 minutes to complete.

Please tick the appropriate boxes and provide comments as required. You may tick more than one box if applicable. Once complete, please return the questionnaire using the reply-paid envelope provided (no postage stamp required) by **Friday 18 October 2020**.

Complete online

You can also complete the questionnaire online here:

Contact Information *(This information will be kept private and confidential; no specific contact information will be made public through the flood study process)*

Name: ……..…….Business: ……..…..

Address: ..……..…..

Address of your Property (if different from the address above)

.....

Telephone: ……..…..... Email: ……..…..

I wish to receive information for the duration of the study (Please ensure your email address is provided):

□ Yes □ No

Questions

1. Which of the following best describes your property?

□ Residential □ Vacant Land □ Industrial

□ Commercial □ Other (Please Specify) ……

2. What is the status of the property?

□ Owner Occupied □ Leased to rental tenants □ Renting

3. How long have you lived, owned or operated a business at this address?

□ 0-2 years □ 3-5 years □ 5-10 years □ 10-20 years □ More than 20 years

4. Have you ever experienced flooding within or outside your property?

□ Yes (Please fill out table below) □ No (Please go to question 8)

MIDDLE HARBOUR NORTHERN CATCHMENTS FLOOD STUDY COMMUNITY QUESTIONNAIRE

	Event 1	Event 2	Event 3	Event 4
Date/s of flooding, if known? (Date, month, year). If more than one occasion, please list all dates.				
What **areas** were affected by flooding (select more than one if appropriate) 1 = Front yard/Backyard 2 = Garage/Shed 3 = Inside the Building 4 = Access to or from the property 5 = Others (E.g. Road, Park)				
What was the **depth** of flooding (in cms) or how best could it be described? Very shallow = Below ankle Shallow = Mid-calf level Medium = Knee deep Deep = Above knee Please provide details of the location of this depth (e.g. a sketch)				
What was the **speed** of the flood waters at the peak/worst of the flooding? 1 = Stationary 2 = Walking Pace 3 = Running Pace				
What was the **duration** of the flood event (minutes/hours)?				

5. What was the source of the floodwaters?

□ Creek (floodwaters rising in the creek) □ Ponding of water within your yard

□ Ponding of water on roads □ Overflow from neighbouring properties

□ Overflow from blocked drains □ Other (Please Specify) ……

6. Are there any flood marks on or near your property? (i.e. marks the mud left on the side of a building when the floodwaters went down**)**

□ Yes □ No

If you answered yes, can we have your permission for surveyors to access your property to survey the flood marks? (Please ensure you have completed the contact details above so we can contact you).

□ Yes □ No

MIDDLE HARBOUR NORTHERN CATCHMENTS FLOOD STUDY COMMUNITY QUESTIONNAIRE

7. Do you have or know of any photographs or records of these flood events?

□ Yes □ No

Please attach or email any photos or records of these flood events. Do you give permission for Council to publish your flooding photos and/or make copies of this data to contribute to the Flood Study (Your contact details will remain confidential at all times)?

□ Yes □ No

Please indicate if the holder of this information is someone other than you …….

8. Did you notice any culverts, drains and/or stormwater inlets that were blocked during the flooding?

□ Yes □ No

If Yes, to what degree was the inlet blocked (i.e. 25%/50%/75%/100%)? ……..

9. Would you like us to meet you in person to discuss your flooding experiences?

□ Yes (Please ensure your contact details are provided) □ No

10. Can we contact you to obtain additional information and/or clarify any of your responses?

□ Yes (Please ensure your contact details are provided) □ No

11. Are you interested in participating as a community representative on Council's Floodplain Risk Management Committee? *Note: this will add you to the notification list for when nominations are being called*

□ Yes (Please ensure your contact details are provided) □ No

12. Do you have any suggestions for resolving the flooding or drainage problems in your area or do you have any comments you wish to make in addition to the questions in the Survey?

(Please attach additional pages for any further information, if needed)

……

……

……

For general information relating to the study, please contact:

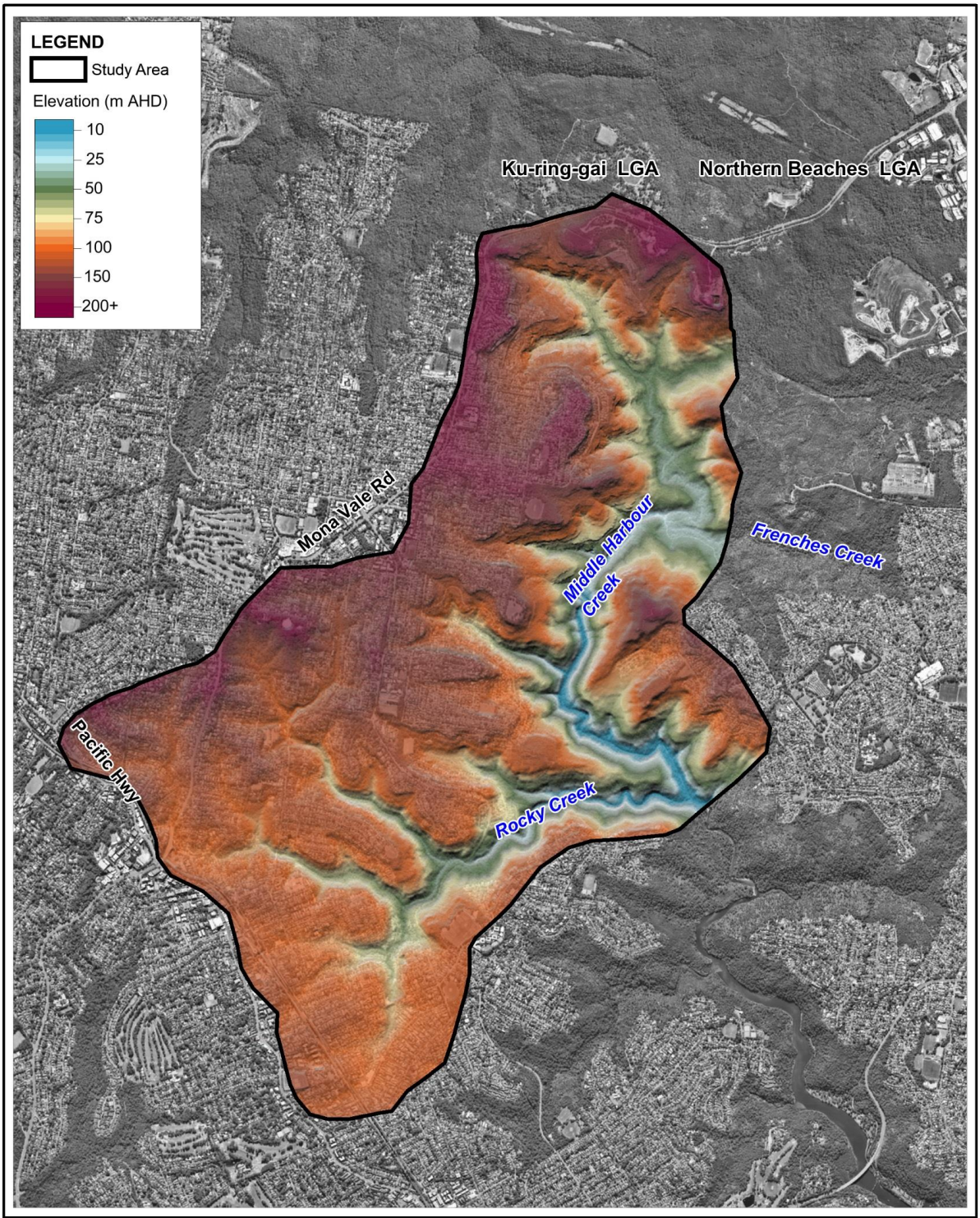
Jacquie Hannan

Principal Engineer at BMT

Email: jacquie.hannan@bmtglobal.com

Phone: (02) 8960 7755

Thank you for contributing to the success of the floodplain risk management process.



Title:
Study Locality

Figure: **1-1**

Rev: **-**

BMT endeavours to ensure that the information provided in this map is correct at the time of publication. BMT does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

N

0 0.75 1.5km

Approx. Scale

BMT
www.bmt.org

Filepath: S:\WATER\PROJECTS\A10091.000_MiddleHarbour_NorthernCatchments_FS\MI\Workspaces

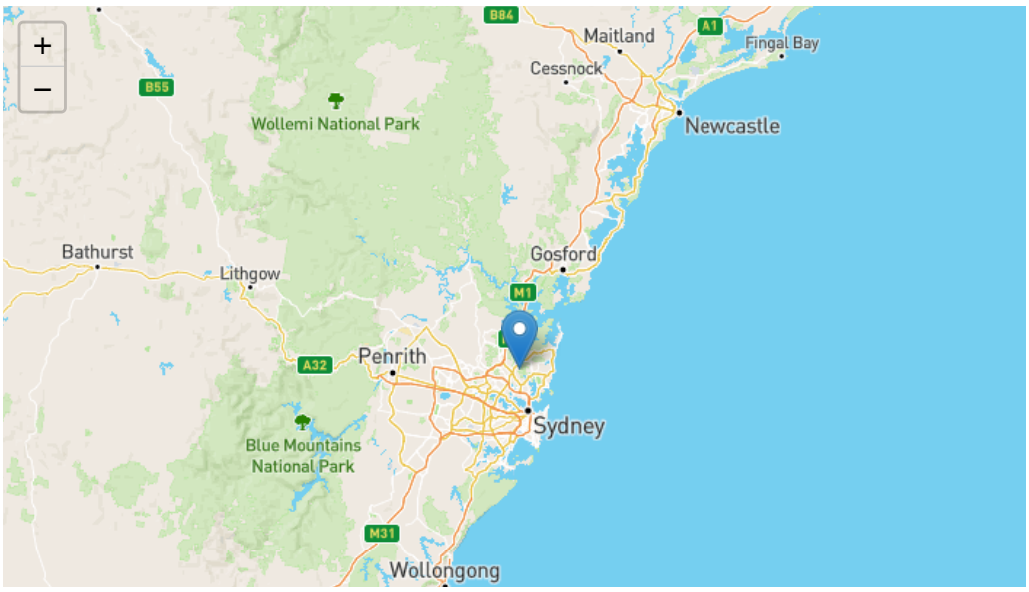
Annex D AR&R Datahub Results

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Australian Rainfall & Runoff Data Hub - Results

Input Data

Longitude	151.17
Latitude	-33.739
Selected Regions (clear)	
River Region	show
ARF Parameters	show
Storm Losses	show
Temporal Patterns	show
Areal Temporal Patterns	show
BOM IFDs	show
Median Preburst Depths and Ratios	show
10% Preburst Depths	show
25% Preburst Depths	show
75% Preburst Depths	show
90% Preburst Depths	show
Interim Climate Change Factors	show
Probability Neutral Burst Initial Loss (./nsw_specific)	show
Baseflow Factors	show





Data

River Region

Division	South East Coast (NSW)
River Number	13
River Name	Sydney Coast-Georges River

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2016_v1

ARF Parameters

$$ARF = Min\left\{1, \left[1 - a\left(Area^{b} - c\log_{10}Duration\right)Duration^{-d} + eArea^{f}Duration^{g}\left(0.3 + \log_{10}AEP\right) + h10^{iArea\frac{Duration}{1440}}\left(0.3 + \log_{10}AEP\right)\right]\right\}$$

Zone	a	b	c	d	e	f	g	h	i
SE Coast	0.06	0.361	0.0	0.317	8.11e-05	0.651	0.0	0.0	0.0

Short Duration ARF

$$ARF = Min\left[1, 1 - 0.287\left(Area^{0.265} - 0.439\log_{10}(Duration)\right).Duration^{-0.36} + 2.26\ \text{x}\ 10^{-3}\ \text{x}\ Area^{0.226}.Duration^{0.125}\left(0.3 + \log_{10}(AEP)\right) + 0.0141\ \text{x}\ Area^{0.213}\ \text{x}\ 10^{-0.021\frac{(Duration-180)^{2}}{1440}}\left(0.3 + \log_{10}(AEP)\right)\right]$$

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2016_v1

Storm Losses

Note: Burst Loss = Storm Loss - Preburst

Note: These losses are only for rural use and are **NOT FOR DIRECT USE** in urban areas

Note: As this point is in NSW the advice provided on losses and pre-burst on the NSW Specific Tab of the ARR Data Hub (./nsw_specific) is to be considered. In NSW losses are derived considering a hierarchy of approaches depending on the available loss information. The continuing storm loss information from the ARR Datahub provided below should only be used where relevant under the loss hierarchy (level 5) and where used is to be multiplied by the factor of 0.4.

ID	8366.0
Storm Initial Losses (mm)	38.0
Storm Continuing Losses (mm/h)	2.0

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2016_v1

Temporal Patterns | Download (.zip) (static/temporal_patterns/TP/ECsouth.zip)

code	ECsouth
Label	East Coast South

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2016_v2

Areal Temporal Patterns | Download (.zip) (./static/temporal_patterns/Areal/Areal_ECsouth.zip)

code	ECsouth
arealabel	East Coast South

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2016_v2

BOM IFDs

Click here (http://www.bom.gov.au/water/designRainfalls/revised-ifd/?year=2016&coordinate_type=dd&latitude=-33.739&longitude=151.16995&sdmin=true&sdhr=true&sdday=true&user_label=) to obtain the IFD depths for catchment centroid from the BoM website

Layer Info

Time Accessed	10 July 2023 05:21PM

Median Preburst Depths and Ratios

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	11.0 (0.350)	7.7 (0.182)	5.6 (0.111)	3.5 (0.060)	2.1 (0.029)	1.0 (0.012)
90 (1.5)	14.0 (0.390)	9.5 (0.195)	6.5 (0.112)	3.6 (0.054)	2.1 (0.026)	1.0 (0.011)
120 (2.0)	9.3 (0.234)	7.7 (0.143)	6.6 (0.104)	5.6 (0.076)	4.2 (0.047)	3.2 (0.031)
180 (3.0)	6.8 (0.146)	6.5 (0.104)	6.3 (0.085)	6.2 (0.071)	6.9 (0.066)	7.4 (0.062)
360 (6.0)	11.1 (0.181)	17.9 (0.214)	22.3 (0.223)	26.6 (0.226)	18.9 (0.133)	13.0 (0.080)
720 (12.0)	4.8 (0.057)	11.6 (0.100)	16.2 (0.115)	20.5 (0.124)	26.1 (0.131)	30.3 (0.133)
1080 (18.0)	3.7 (0.036)	8.2 (0.058)	11.2 (0.065)	14.1 (0.069)	22.2 (0.091)	28.3 (0.101)
1440 (24.0)	0.8 (0.007)	6.3 (0.038)	9.9 (0.050)	13.3 (0.057)	21.1 (0.075)	26.9 (0.084)
2160 (36.0)	0.0 (0.000)	2.9 (0.015)	4.9 (0.020)	6.7 (0.024)	9.4 (0.028)	11.5 (0.030)
2880 (48.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	2.0 (0.005)	3.5 (0.008)
4320 (72.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	1.2 (0.003)	2.2 (0.004)

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

10% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
90 (1.5)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
120 (2.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
180 (3.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
360 (6.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
720 (12.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
1080 (18.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
1440 (24.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
2160 (36.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
2880 (48.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
4320 (72.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

25% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	0.4 (0.012)	0.2 (0.005)	0.1 (0.002)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
90 (1.5)	0.9 (0.024)	0.5 (0.010)	0.2 (0.004)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
120 (2.0)	0.1 (0.003)	0.1 (0.001)	0.0 (0.001)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
180 (3.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
360 (6.0)	0.1 (0.002)	0.5 (0.006)	0.8 (0.008)	1.0 (0.008)	0.4 (0.003)	0.0 (0.000)
720 (12.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
1080 (18.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	1.2 (0.005)	2.2 (0.008)
1440 (24.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.4 (0.002)	0.7 (0.002)
2160 (36.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
2880 (48.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)
4320 (72.0)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)	0.0 (0.000)

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

75% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	40.2 (1.287)	37.9 (0.895)	36.4 (0.723)	34.9 (0.597)	28.4 (0.405)	23.5 (0.296)
90 (1.5)	46.8 (1.302)	39.7 (0.818)	35.1 (0.607)	30.6 (0.456)	27.8 (0.345)	25.7 (0.281)
120 (2.0)	42.0 (1.058)	37.7 (0.701)	34.8 (0.544)	32.0 (0.430)	35.9 (0.401)	38.7 (0.380)
180 (3.0)	48.1 (1.042)	45.5 (0.729)	43.8 (0.589)	42.2 (0.485)	57.0 (0.544)	68.1 (0.570)
360 (6.0)	44.0 (0.717)	60.5 (0.724)	71.4 (0.713)	81.9 (0.696)	86.5 (0.609)	90.0 (0.555)
720 (12.0)	24.6 (0.291)	37.3 (0.321)	45.8 (0.327)	53.9 (0.326)	67.0 (0.335)	76.8 (0.337)
1080 (18.0)	23.8 (0.233)	38.2 (0.268)	47.7 (0.277)	56.9 (0.280)	71.4 (0.291)	82.2 (0.295)
1440 (24.0)	12.3 (0.105)	31.6 (0.193)	44.4 (0.224)	56.7 (0.242)	67.1 (0.237)	74.8 (0.233)
2160 (36.0)	7.1 (0.050)	21.4 (0.108)	30.9 (0.129)	40.0 (0.142)	51.5 (0.152)	60.1 (0.156)
2880 (48.0)	2.8 (0.018)	7.6 (0.034)	10.7 (0.040)	13.8 (0.043)	25.1 (0.066)	33.7 (0.078)
4320 (72.0)	0.0 (0.000)	1.6 (0.006)	2.6 (0.008)	3.6 (0.010)	20.9 (0.048)	33.8 (0.069)

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

90% Preburst Depths

Values are of the format depth (ratio) with depth in mm

min (h)\AEP(%)	50	20	10	5	2	1
60 (1.0)	91.6 (2.931)	94.8 (2.238)	96.9 (1.925)	98.9 (1.691)	103.6 (1.480)	107.1 (1.350)
90 (1.5)	108.2 (3.013)	105.2 (2.166)	103.3 (1.788)	101.4 (1.508)	113.6 (1.409)	122.8 (1.341)
120 (2.0)	89.3 (2.247)	94.6 (1.761)	98.1 (1.536)	101.5 (1.364)	108.2 (1.209)	113.2 (1.111)
180 (3.0)	92.3 (2.000)	102.2 (1.637)	108.8 (1.462)	115.1 (1.324)	126.6 (1.208)	135.2 (1.132)
360 (6.0)	84.9 (1.385)	106.8 (1.278)	121.3 (1.211)	135.2 (1.149)	158.1 (1.113)	175.3 (1.080)
720 (12.0)	50.6 (0.601)	78.2 (0.672)	96.5 (0.688)	114.0 (0.689)	133.6 (0.668)	148.3 (0.650)
1080 (18.0)	53.6 (0.524)	81.4 (0.572)	99.9 (0.580)	117.5 (0.578)	138.3 (0.564)	153.9 (0.551)
1440 (24.0)	40.6 (0.348)	67.3 (0.411)	84.9 (0.428)	101.9 (0.435)	118.4 (0.419)	130.7 (0.407)
2160 (36.0)	31.4 (0.225)	52.3 (0.265)	66.1 (0.276)	79.3 (0.281)	100.0 (0.295)	115.6 (0.301)
2880 (48.0)	19.9 (0.127)	43.6 (0.196)	59.3 (0.221)	74.4 (0.235)	91.0 (0.240)	103.5 (0.241)
4320 (72.0)	9.5 (0.053)	21.4 (0.084)	29.3 (0.095)	36.9 (0.102)	62.7 (0.145)	82.0 (0.168)

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2018_v1
Note	Preburst interpolation methods for catchment wide preburst has been slightly altered. Point values remain unchanged.

Interim Climate Change Factors

	RCP 4.5	RCP6	**RCP 8.5**
2030	**0.869 (4.3%)**	0.783 (3.9%)	**0.983 (4.9%)**
2040	**1.057 (5.3%)**	1.014 (5.1%)	**1.349 (6.8%)**
2050	**1.272 (6.4%)**	1.236 (6.2%)	**1.773 (9.0%)**

2060	**1.488 (7.5%)**	1.458 (7.4%)	**2.237 (11.5%)**
2070	**1.676 (8.5%)**	1.691 (8.6%)	**2.722 (14.2%)**
2080	**1.810 (9.2%)**	1.944 (9.9%)	**3.209 (16.9%)**
2090	**1.862 (9.5%)**	2.227 (11.5%)	**3.679 (19.7%)**

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2019_v1
Note	ARR recommends the use of RCP4.5 and RCP 8.5 values. These have been updated to the values that can be found on the climate change in Australia website.

Probability Neutral Burst Initial Loss

min (h)\AEP(%)	50.0	20.0	10.0	5.0	2.0	1.0
60 (1.0)	12.3	8.1	9.0	8.7	8.6	6.6
90 (1.5)	11.8	8.1	9.5	9.7	9.5	7.0
120 (2.0)	13.4	9.0	10.2	10.0	10.1	6.0
180 (3.0)	13.8	9.3	10.6	10.1	8.9	4.3
360 (6.0)	13.2	8.6	8.8	8.1	9.1	3.7
720 (12.0)	17.6	12.2	12.2	10.6	11.9	3.1
1080 (18.0)	18.3	13.5	14.6	12.0	13.3	3.8
1440 (24.0)	21.5	15.5	15.8	13.8	14.6	4.4
2160 (36.0)	24.2	18.4	18.4	15.9	16.6	6.9
2880 (48.0)	27.2	22.0	21.1	22.9	19.4	9.5
4320 (72.0)	29.4	25.5	25.5	25.7	21.8	10.5

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2018_v1
Note	As this point is in NSW the advice provided on losses and pre-burst on the NSW Specific Tab of the ARR Data Hub (./nsw_specific) is to be considered. In NSW losses are derived considering a hierarchy of approaches depending on the available loss information. Probability neutral burst initial loss values for NSW are to be used in place of the standard initial loss and pre-burst as per the losses hierarchy.

Baseflow Factors

Downstream	0
Area (km2)	771.79552
Catchment Number	10177
Volume Factor	0.209079
Peak Factor	0.016982

Layer Info

Time Accessed	10 July 2023 05:21PM
Version	2016_v1

Download TXT (downloads/6a7fbefe-bcf7-4ef8-9bb8-f9ea88930e70.txt)

Download JSON (downloads/fe9c14e8-2012-4363-b0cc-b79ea8970856.json)

Generating PDF... (downloads/d622e44c-5618-45c7-abe5-11d0e8801046.pdf)

Annex E ARR Blockage Assessment Form

BLOCKAGE ASSESMENT FORM

STRUCTURE :

OPENING WIDTH: Catchment Assessment**.....m**

DEBRIS TYPE/MATERIAL/L_{10}/SOURCE AREA - ***There may be more than one material type to consider!***

Debris Type/Material	L_{10}	Source Area	How Assessed
Floating, non-floating, urban	1.5	Middle Harbour Northern Catchments	Aerial and TUFLOW result assessment

DEBRIS AVAILABILITY (HML) – ***for the selected debris type/size and its source area***

Availability	Typical Source Area Characteristics	Notes
High	• *Dense forest, thick vegetation, extensive canopy, difficult to walk through with considerable fallen limbs, leaves and high levels of floor litter.* • *Streams with boulder/cobble beds and steep bed slopes and banks showing signs of substantial past bed/bank movements.* • *Arid areas, where loose vegetation and exposed loose soils occur and vegetation is sparse.* • *Urban areas that are not well maintained and/or old paling fences, sheds, cars and/or stored loose material etc., are present on the floodplain close to the water course.*	
Medium	• *State forest areas with clear understory, grazing land with stands of trees* • *Source areas generally falling between the High and Low categories.*	Catchment classified as having a medium debris availability
Low	• *Well maintained rural lands and paddocks, with minimal outbuildings* • *Streams with moderate to flat slopes and stable beds and banks.* • *Arid areas where vegetation is deep rooted and soils resistant to scour* • *Urban areas that are well maintained with limited debris present in the source area.*	

DEBRIS MOBILITY (HML) - ***for the selected debris type/size and its source area***

Mobility	Typical Source Area Characteristics	Notes
High	• *Steep source area with fast response times and high annual rainfall and/or storm intensities and/or source areas subject to high rainfall intensities with sparse vegetation cover.* • *Receiving streams that frequently overtop their banks.* • *Main debris source areas close to streams*	Catchment area has both steep source area and high annual rainfall - high debris mobility
Medium	• *Source areas generally falling between the High and Low categories.*	
Low	• *Low rainfall intensities and large, flat source areas.* • *Receiving streams that Infrequently overtop their banks.* • *Main source areas well away from streams*	

DEBRIS TRANSPORTABILITY (HML) - ***for the selected debris type/size and stream characteristics***

Transportability	Typical Transporting Stream Characteristics	Notes
High	• *Steep bed slopes (> 3%).and/or high stream velocity (V>2.5m/sec)* • *Deep stream relative to vertical debris dimension (D>0.5L_{10})* • *Wide streams relative to horizontal debris dimension. (W>L_{10})* • *Streams relatively straight and free of constrictions/snag points.* • *High temporal variability in maximum stream flows*	Catchment has steep bed slopes, deep stream relative to vertical debris dimension and high stream velocity - high debris transportability
Medium	• *Streams generally falling between High and Low categories*	
Low	• *Flat bed slopes (< 1%).and/or low stream velocity (V<1m/sec)* • *Shallow stream relative to vertical debris dimension (D<0.5L_{10})* • *Narrow streams relative to horizontal debris dimension.(W<L_{10})* • *Streams meander with frequent constrictions/snag points.* • *Low temporal variability in maximum stream flows*	

BLOCKAGE ASSESMENT FORM

Australian Rainfall & Runoff

SITE BASED DEBRIS POTENTIAL 1%AEP (HML) - *for the selected debris type/size arriving at the site*

Debris Potential	Combinations of the Above (any order)	Notes
DP_{High}	HHH or HHM	HHM
DP_{Medium}	MMM or HML or HMM or HLL	
DP_{Low}	LLL or MML or MLL	Eg. MML, therefore DP_{Low} selected

AEP ADJUSTED SITE DEBRIS POTENTIAL (HML) - *for the selected debris type/size*

Event AEP	At Site 1% AEP Debris Potential			AEP Adjusted At Site Debris potential
	DP_{High}	**DP_{Medium}**	**DP_{Low}**	
AEP > 5% *(frequent)*	**M**edium	**L**ow	**L**ow	Eg. Low
AEP 5% - AEP 0.5%	**H**igh	**M**edium	**L**ow	Eg. Low
AEP < 0.5% *(rare)*	**H**igh	**H**igh	**M**edium	Eg. Medium

Debris Blockage

MOST LIKELY DESIGN <u>INLET</u> BLOCKAGE LEVEL (B_{DES}%) *for the selected debris type/size*

Control Dimension Inlet Width W (m)	At-Site Debris Potential (Generally)		
	High	**M**edium	**L**ow
$W < L_{10}$	100%	50%	25%
$W \geq L_{10} \leq 3*L_{10}$	20%	10%	0%
$W > 3*L_{10}$	10%	0%	0%

Event AEP	Bdes %
AEP > 5% ***(frequent)***	Eg. Low – 0%
AEP 5% - AEP 0.5%	Eg. Low – 0%
AEP < 0.5% ***(rare)***	Eg. Medium – 10%

Refer Guideline if opening H<0.33W

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BLOCKAGE ASSESMENT FORM

Barrel Blockage

The following tables are only relevant to sites subject to a significant debris load of sediment. Where inlet blockage and barrel blockage are both likely, the blockage producing the greatest impact on flood behaviour should be used in design.

LIKELIHOOD OF SEDIMENT BEING DEPOSITED IN THE BARREL OR WATERWAY (HML)

Peak Velocity Through Structure (m/sec)	Mean Sediment Size Present				
	Clay/Silt 0.001 to 0.04 mm	Sand 0.04 to 2 mm	Gravel 2 to 63 mm	Cobbles 63 to 200 mm	Boulders >200 mm
>= 3	L	L	L	L	M
1.0 to < 3.0	L	L	L	M	M
0.5 to < 1.0	L	L	L	M	H
0.1 to < 0.5	L	L	M	H	H
< 0.1	L	M	H	H	H

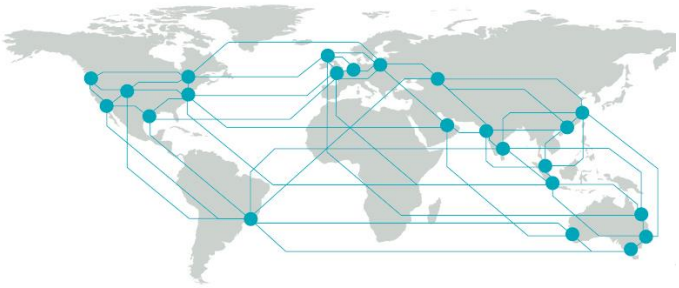
Likelihood of Sediment: Eg. Medium

MOST LIKELY DESIGN BARREL BLOCKAGE (Bdes%) ***for sediment of a particular mean size is then;***

Likelihood That Deposition Occurs	AEP Adjusted Sediment Potential		
	High	Medium	Low
High	100%	60%	25%
Medium	60%	40%	15%
Low	25%	15%	0%

Event AEP	Bdes %
AEP > 5% (frequent)	Eg. Low – 15%
AEP 5% - AEP 0.5%	Eg. Low – 15%
AEP < 0.5% *(rare)*	Eg. Medium – 40%

For modelling blockage mechanism (type, location and timing), refer to Guideline Table 8



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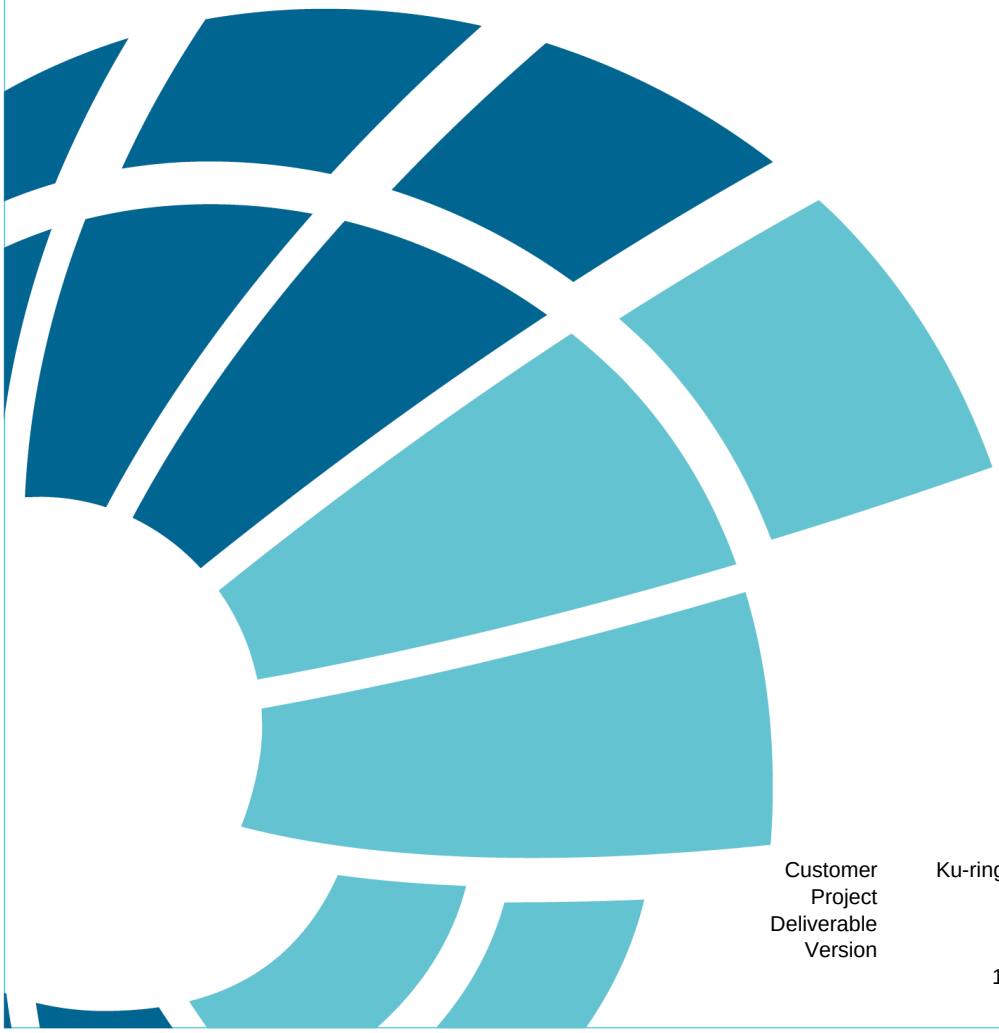
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Middle Harbour Northern Catchments Flood Study - Final Report

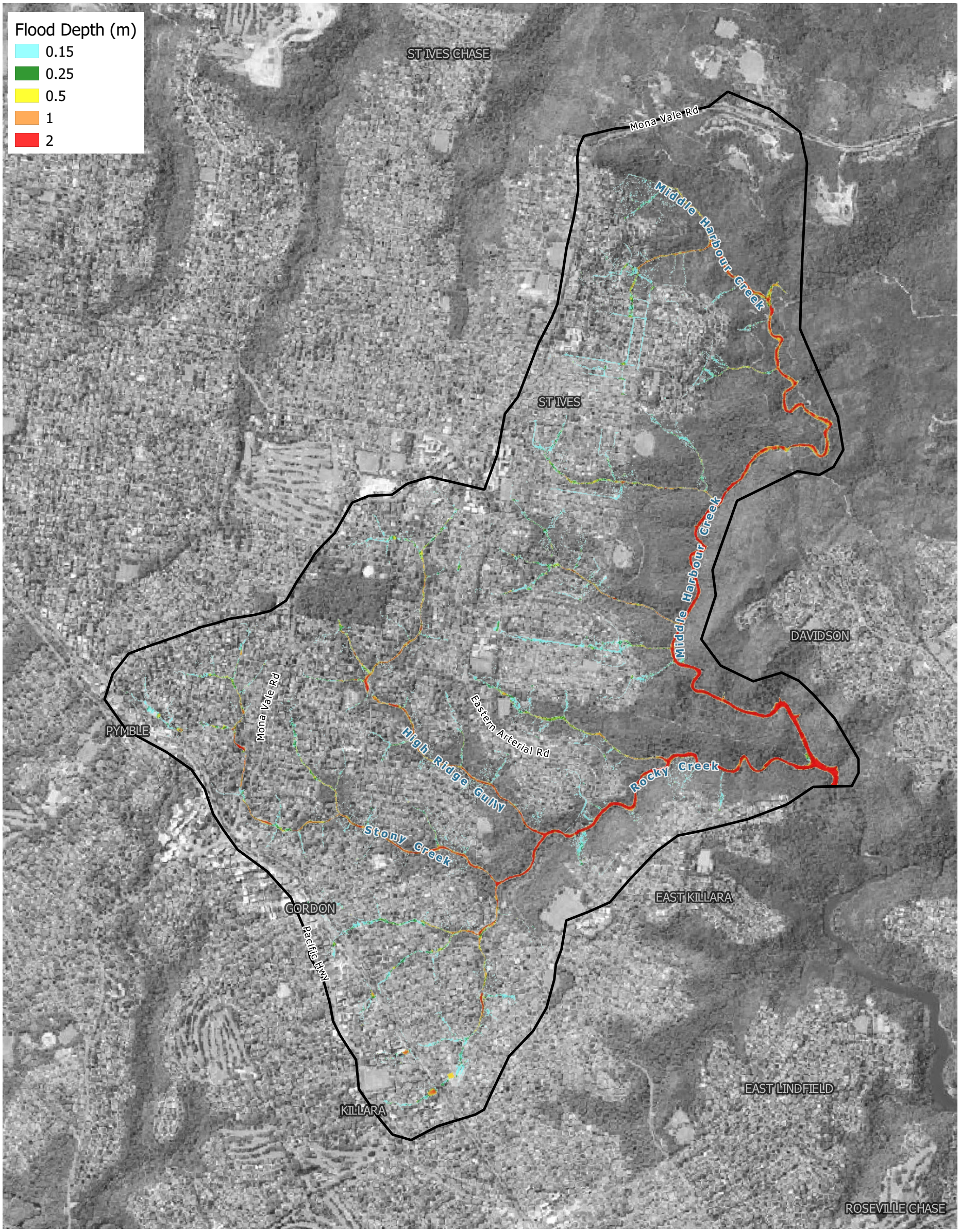
Volume 2- Design Flood Results



Customer	Ku-ring-gai Council
Project	A10091
Deliverable	005
Version	01
	10 April 2025

Annex F Design Flood Results

F-01 Peak Flood Depth - 20% AEP Event
F-02 Peak Flood Depth - 10% AEP Event
F-03 Peak Flood Depth - 5% AEP Event
F-04 Peak Flood Depth - 2% AEP Event
F-05 Peak Flood Depth - 1% AEP Event
F-06 Peak Flood Depth - 0.5% AEP Event
F-07 Peak Flood Depth - 0.2% AEP Event
F-08 Peak Flood Depth - PMF Event
F-09 Peak Flood Level - 20% AEP Event
F-10 Peak Flood Level - 10% AEP Event
F-11 Peak Flood Level - 5% AEP Event
F-12 Peak Flood Level - 2% AEP Event
F-13 Peak Flood Level - 1% AEP Event
F-14 Peak Flood Level - 0.5% AEP Event
F-15 Peak Flood Level - 0.2% AEP Event
F-16 Peak Flood Level - PMF Event
F-17 Peak Flood Velocity - 20% AEP Event
F-18 Peak Flood Velocity - 10% AEP Event
F-19 Peak Flood Velocity - 5% AEP Event
F-20 Peak Flood Velocity - 2% AEP Event
F-21 Peak Flood Velocity - 1% AEP Event
F-22 Peak Flood Velocity - 0.5% AEP Event
F-23 Peak Flood Velocity - 0.2% AEP Event
F-24 Peak Flood Velocity - PMF Event
F-25 Provisional Hydraulic Hazard - 1% AEP Event
F-26 Provisional Hydraulic Hazard - 0.2% AEP Event
F-27 Provisional Hydraulic Hazard - PMF Event
F-28 Hydraulic Categorisation - 1% AEP Event
F-29 Hydraulic Categorisation - 0.2% AEP Event
F-30 Hydraulic Categorisation - PMF Event



Legend

Study Area

Title:

Peak Flood Depth - 20% AEP Event

Drawing: **F-01**

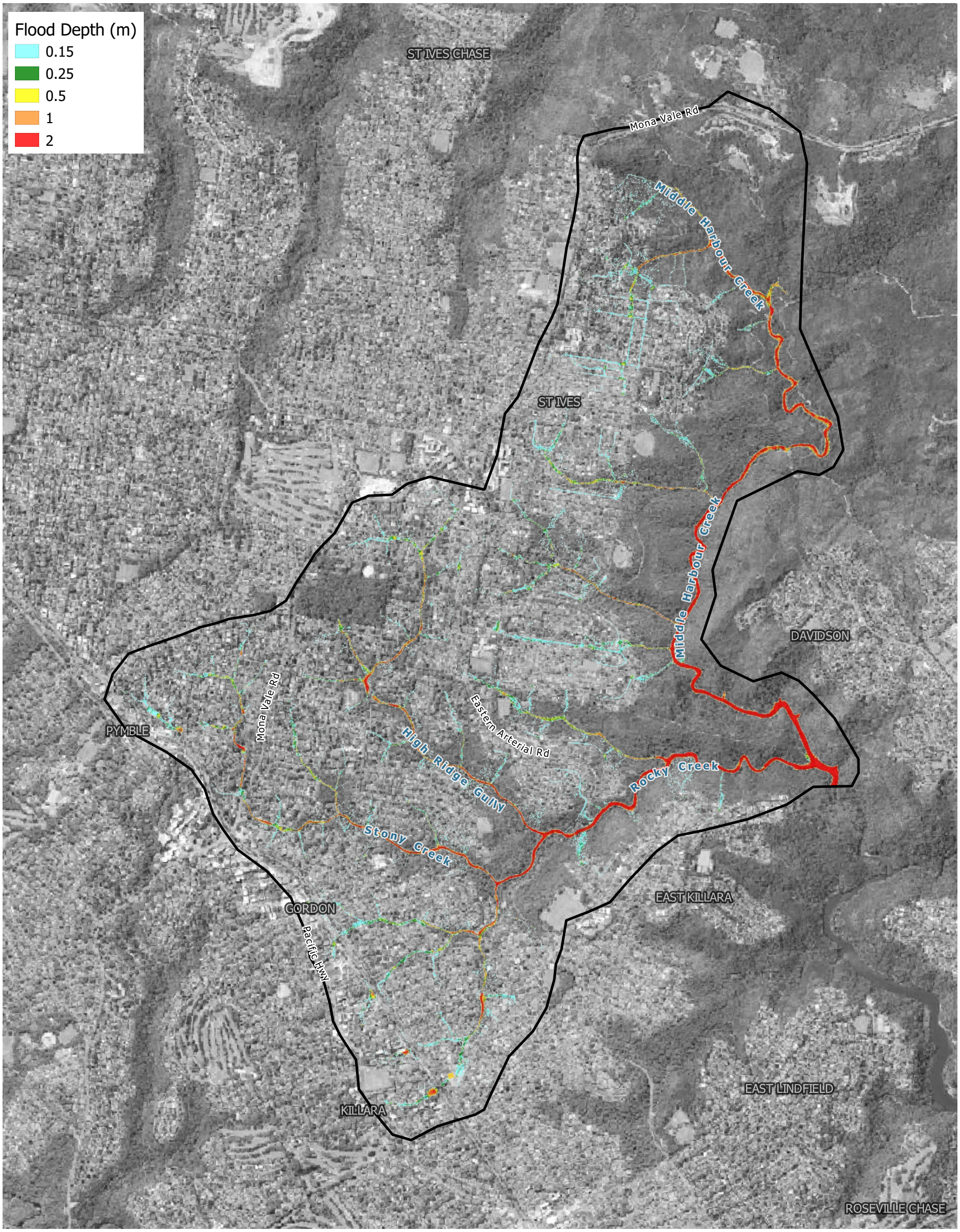
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Legend

Study Area

Title:

Peak Flood Depth - 10% AEP Event

Drawing: **F-02**

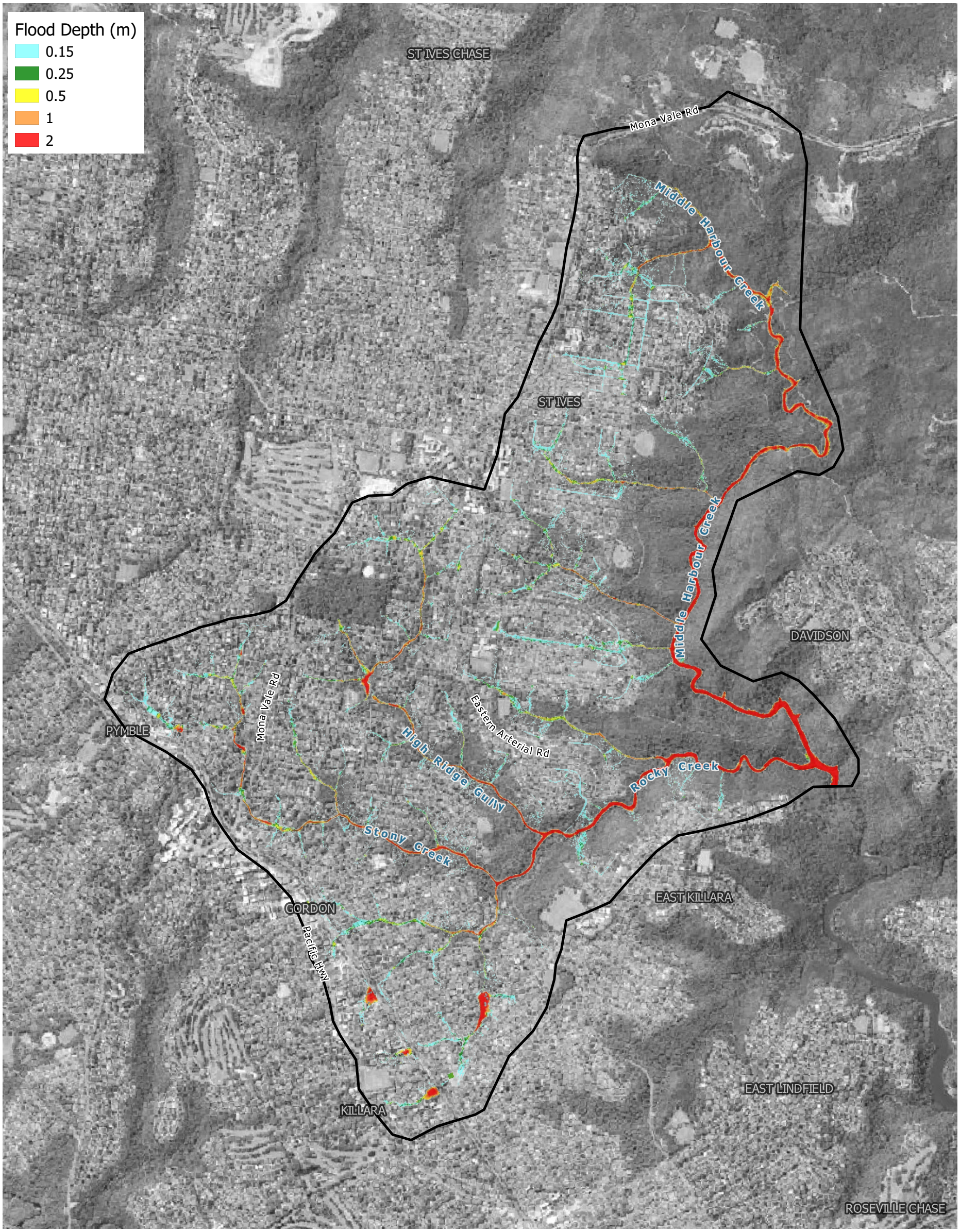
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Study Area

Title:

Peak Flood Depth - 5% AEP Event

Drawing: **F-03**

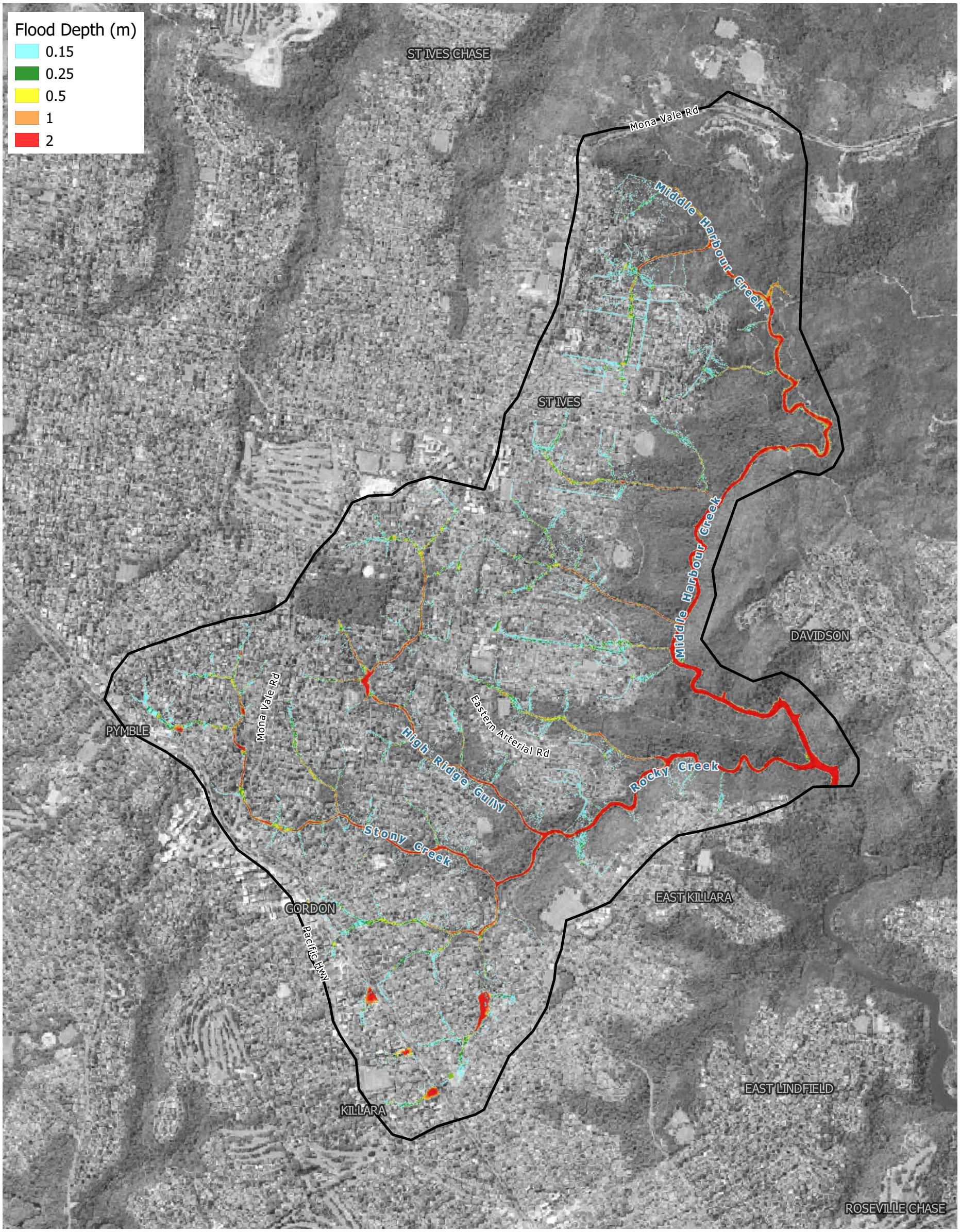
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Legend

Study Area

Title:

Peak Flood Depth - 2% AEP Event

Drawing: **F-04**

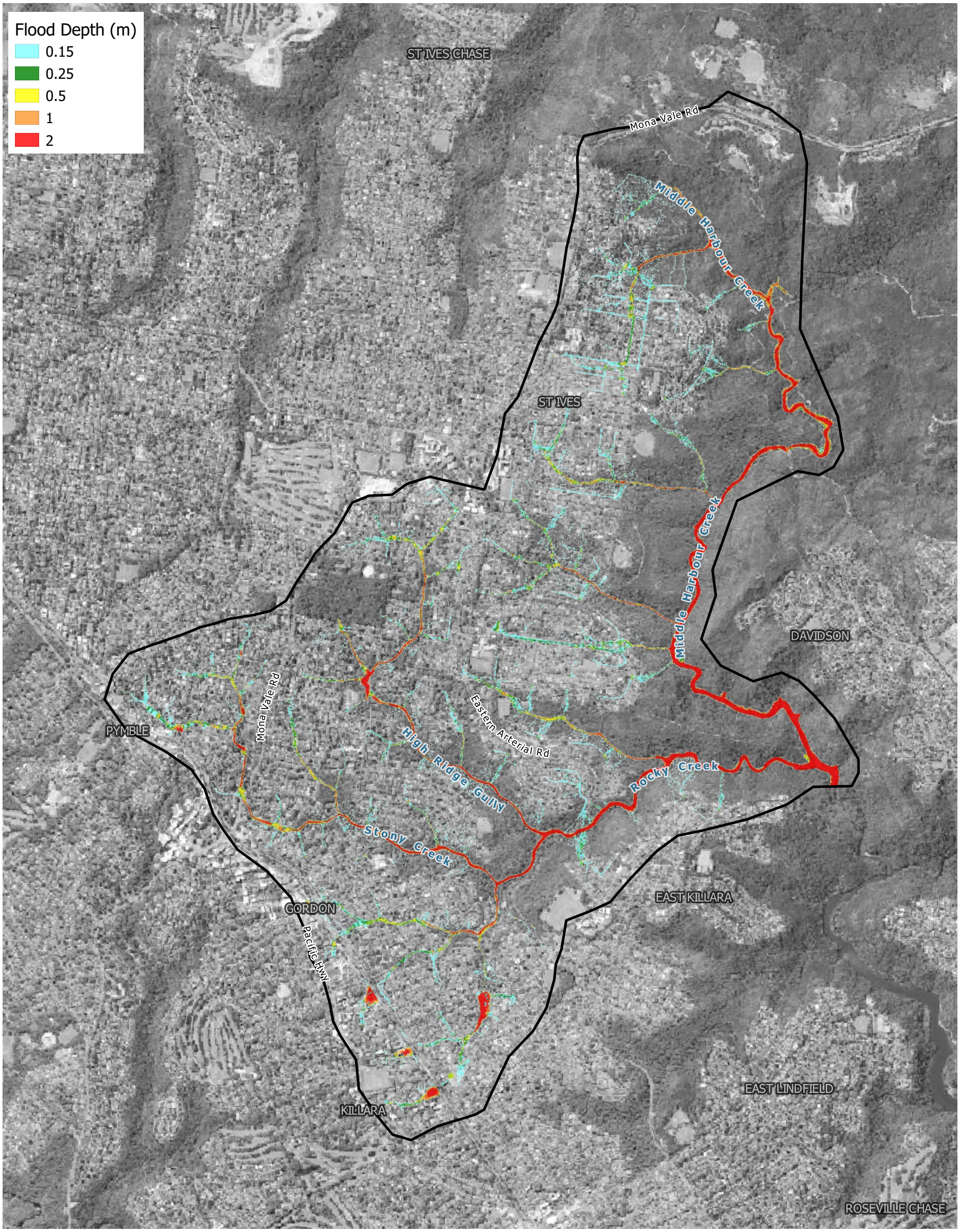
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Legend

Study Area

Title:

Peak Flood Depth - 1% AEP Event

Drawing: **F-05**

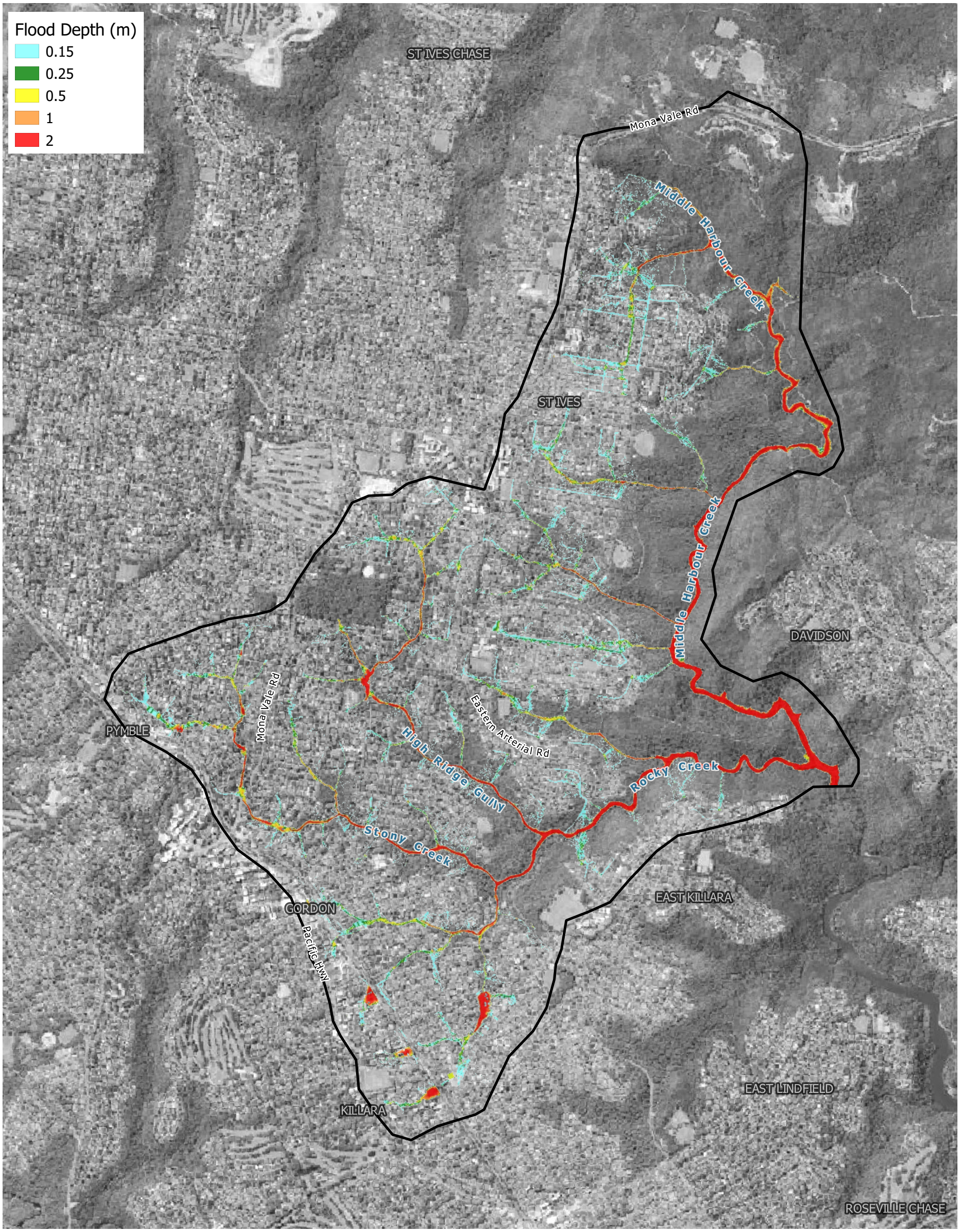
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Legend

Study Area

Title:

Peak Flood Depth - 0.5% AEP Event

Drawing: **F-06**

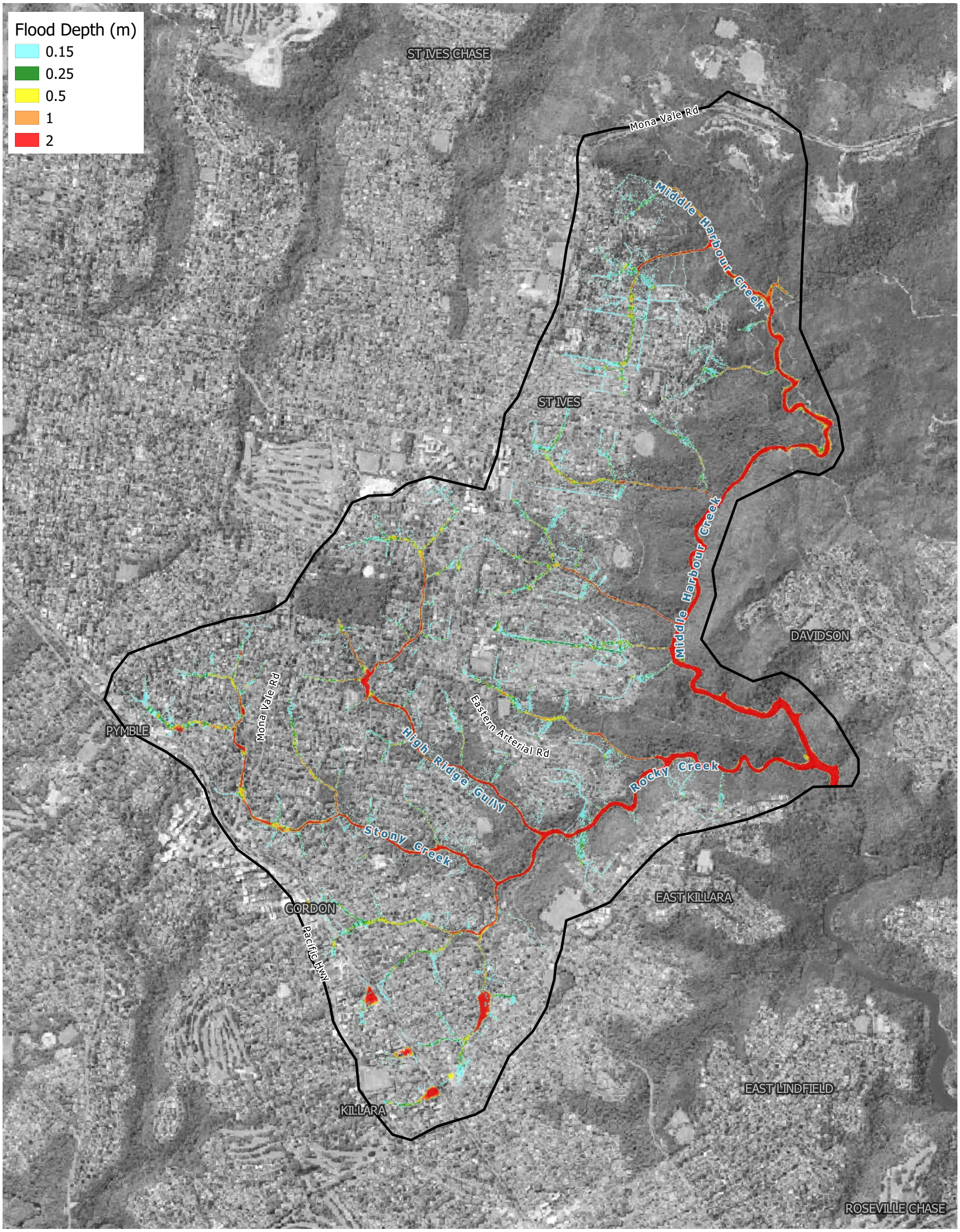
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Legend

Study Area

Title:

Peak Flood Depth - 0.2% AEP Event

Drawing: **F-07**

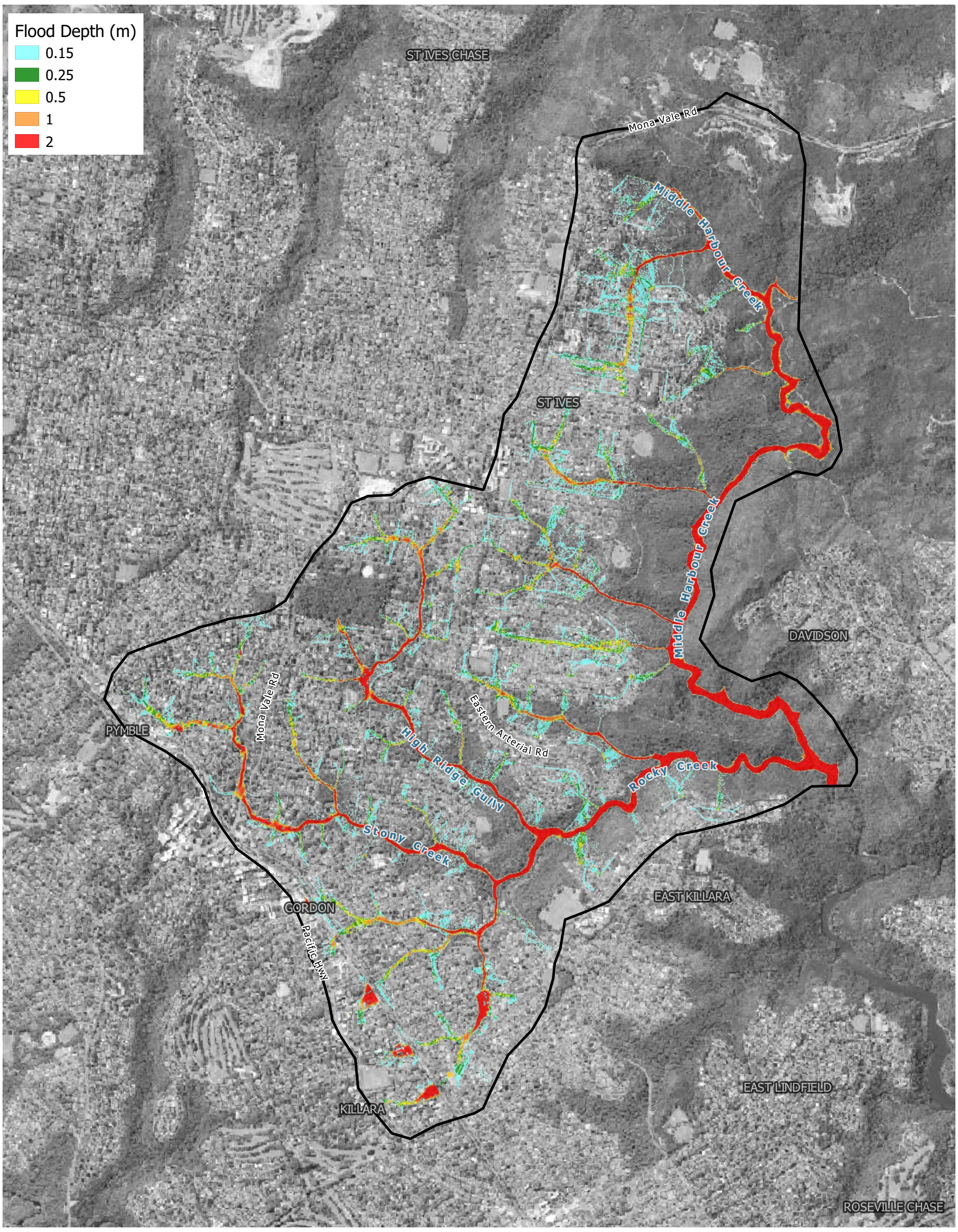
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Legend

Study Area

Title:

Peak Flood Depth - PMF Event

Drawing: **F-08**

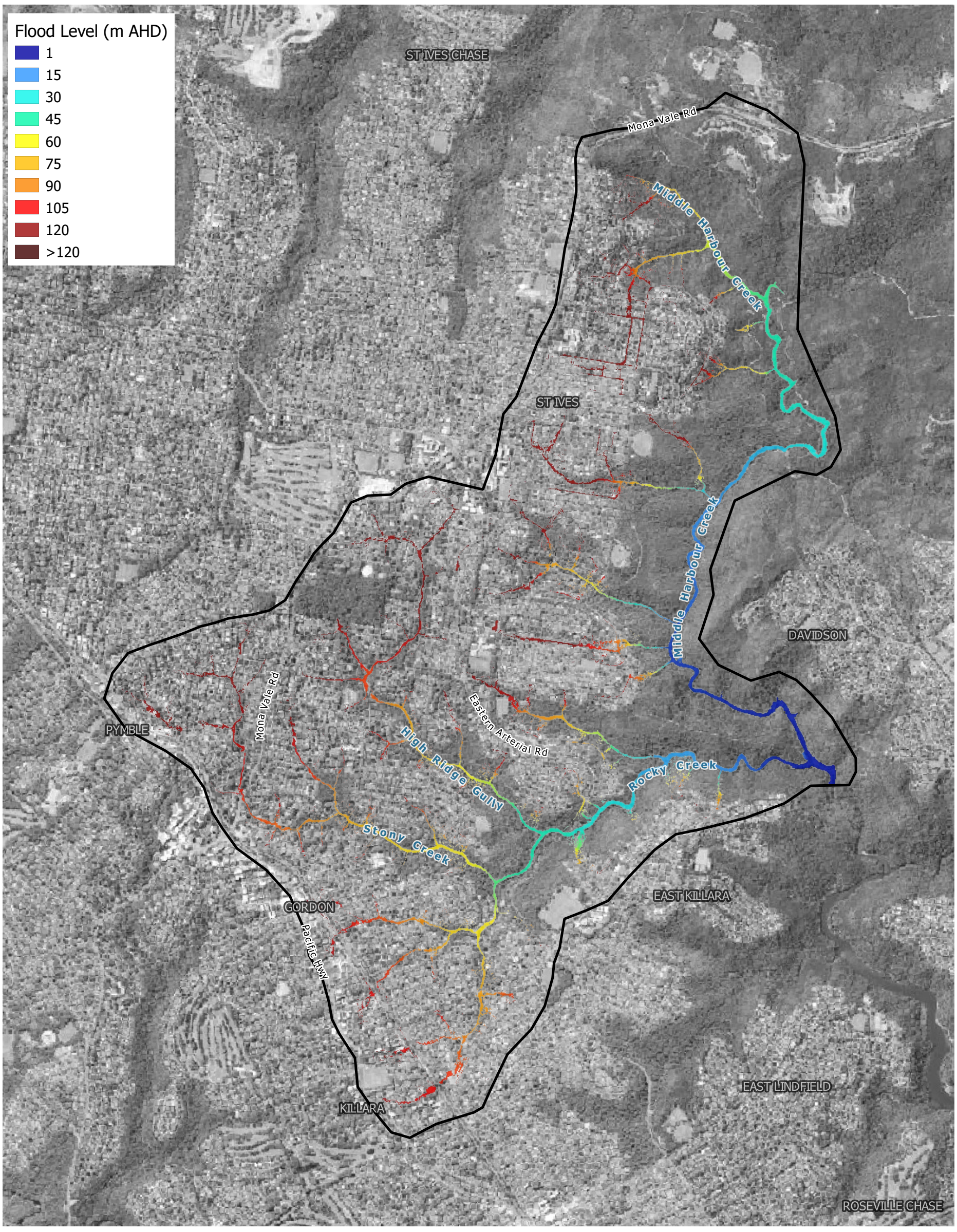
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Legend

Study Area

Title: **Peak Flood Level - 20% AEP Event**

Drawing: **F-09**

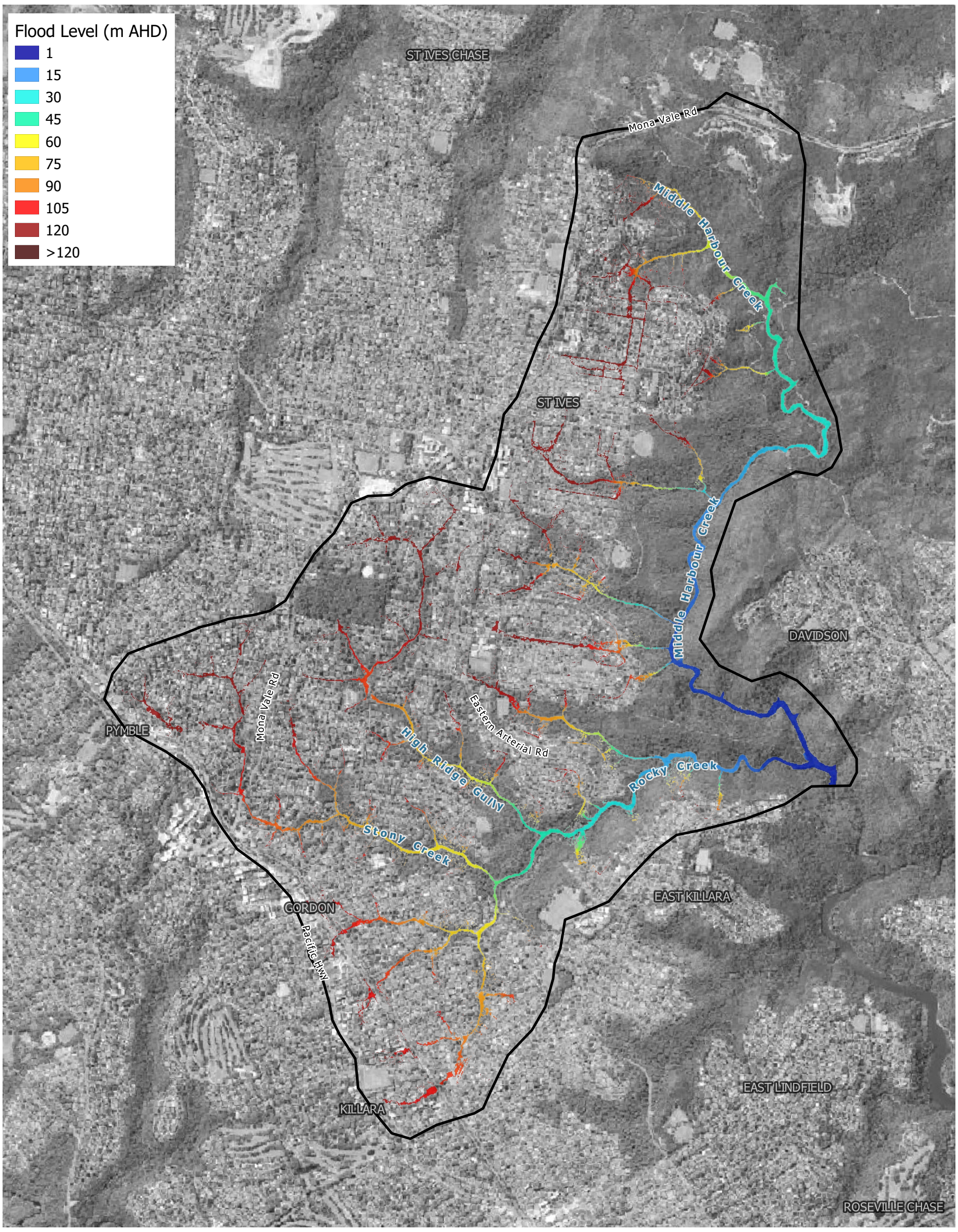
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Legend

Study Area

Title: **Peak Flood Level - 10% AEP Event**

Drawing: **F-10**

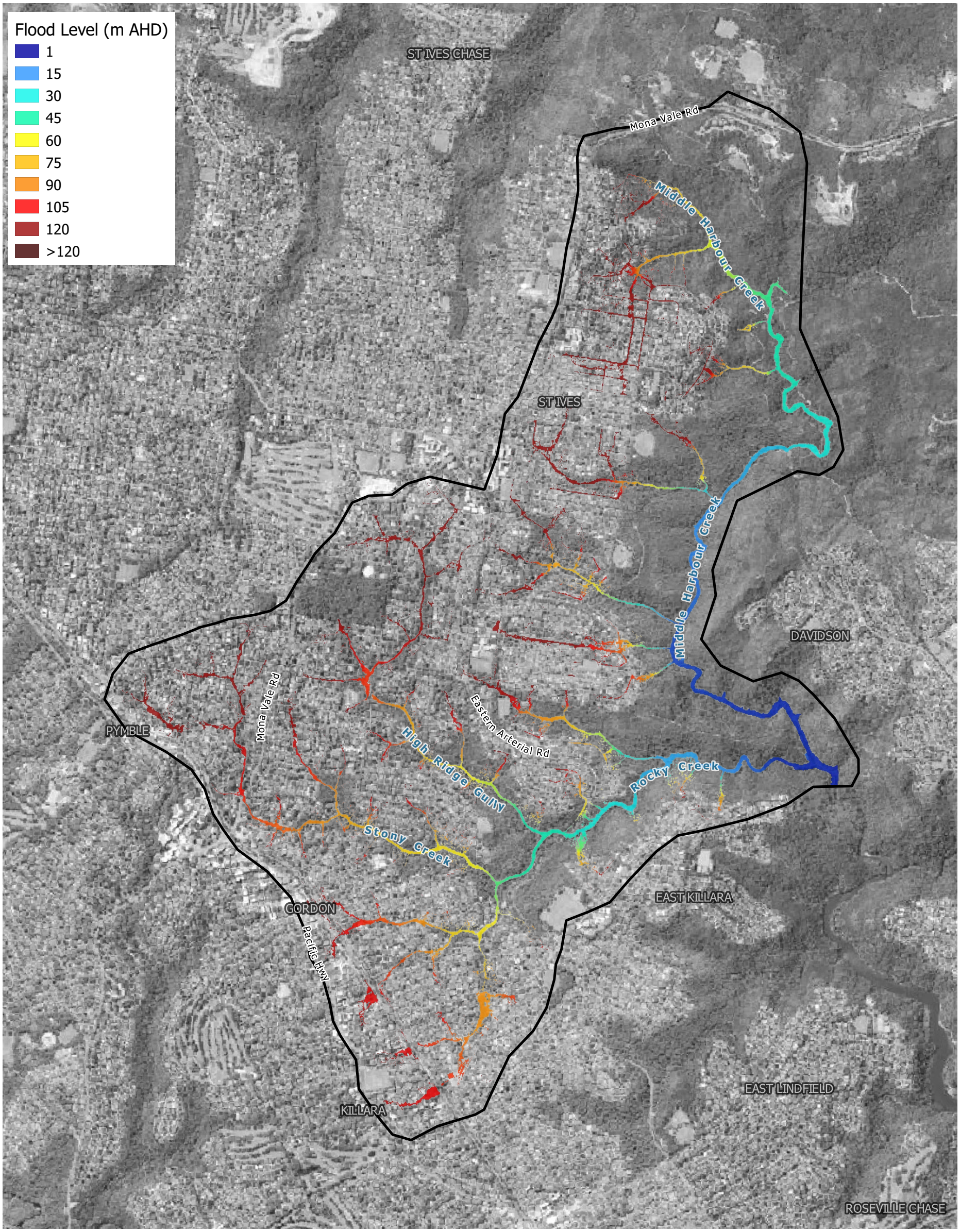
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Legend

Study Area

Title: **Peak Flood Level - 5% AEP Event**

Drawing: **F-11**

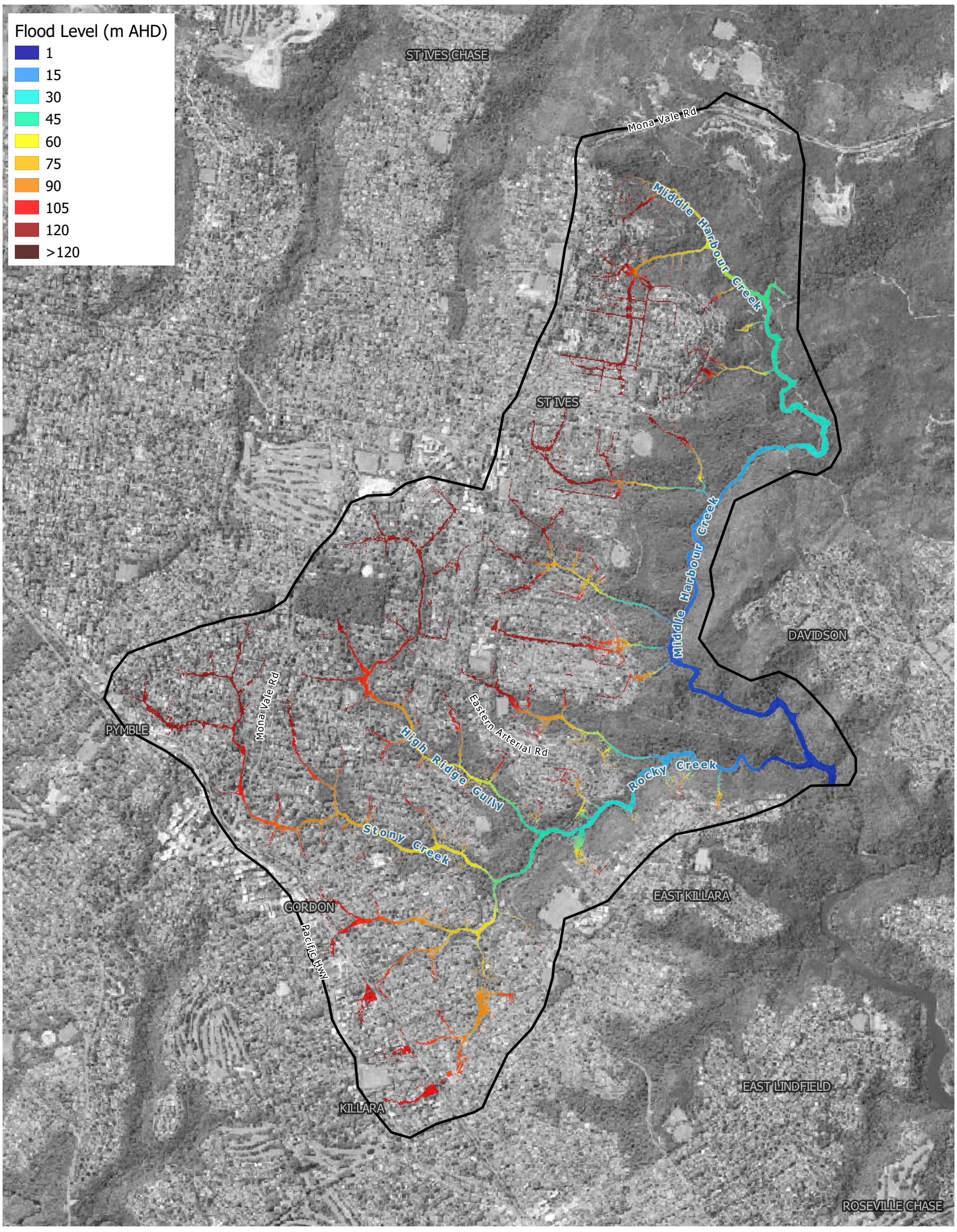
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Legend

Study Area

Title:

Peak Flood Level - 2% AEP Event

Drawing: **F-12**

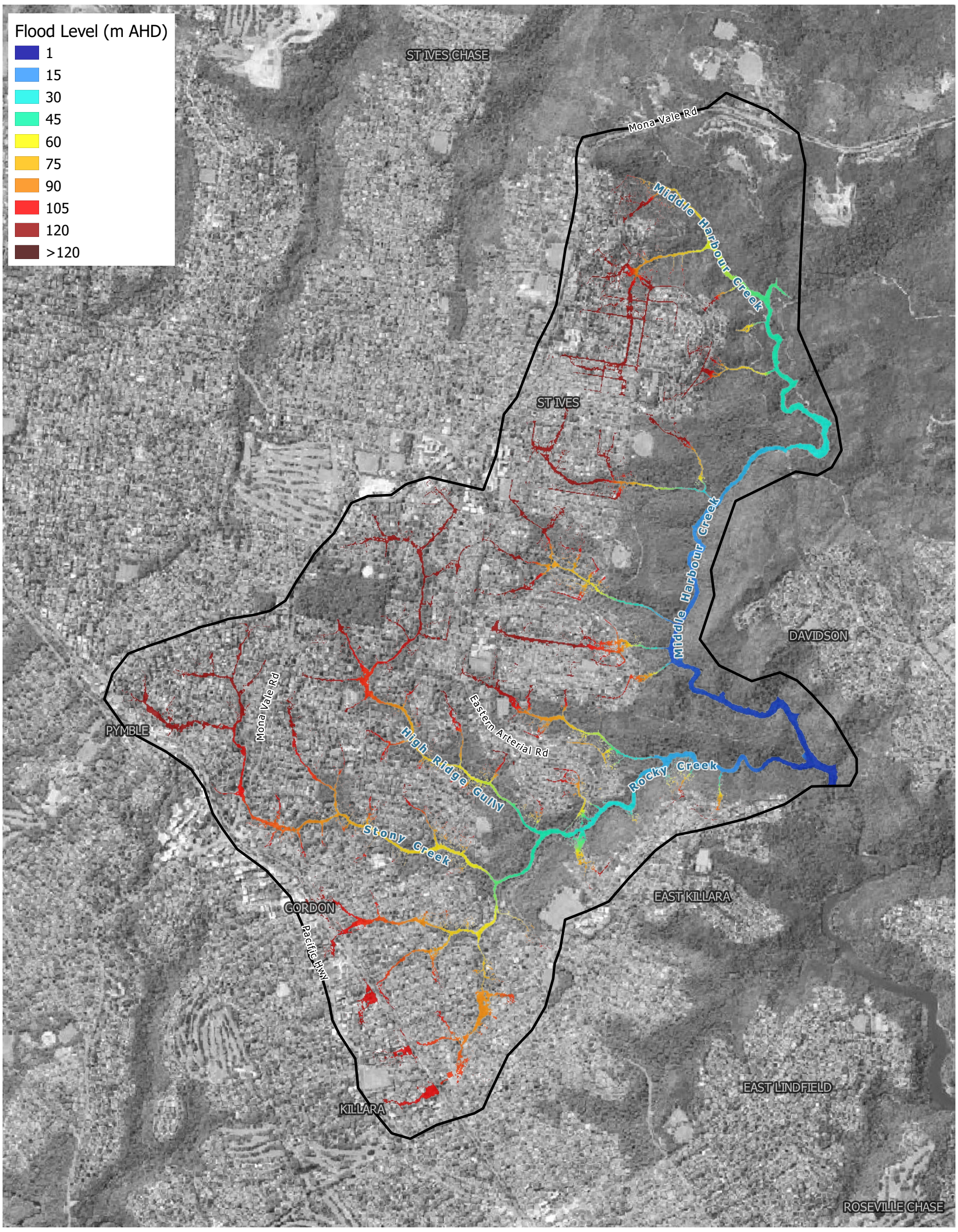
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Legend

Study Area

Title:

Peak Flood Level - 1% AEP Event

Drawing: **F-13**

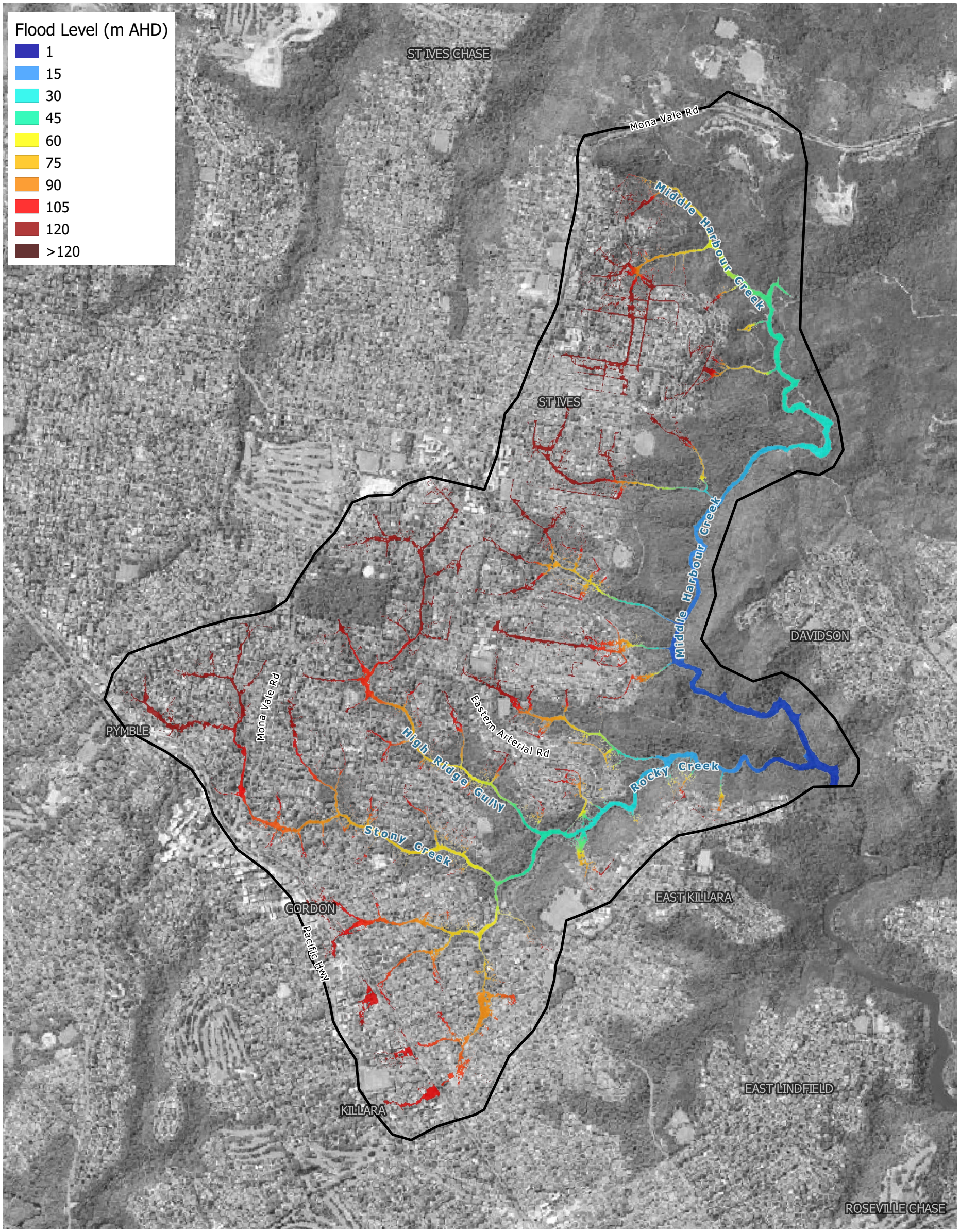
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Legend

Study Area

Title:

Peak Flood Level - 0.5% AEP Event

Drawing: **F-14**

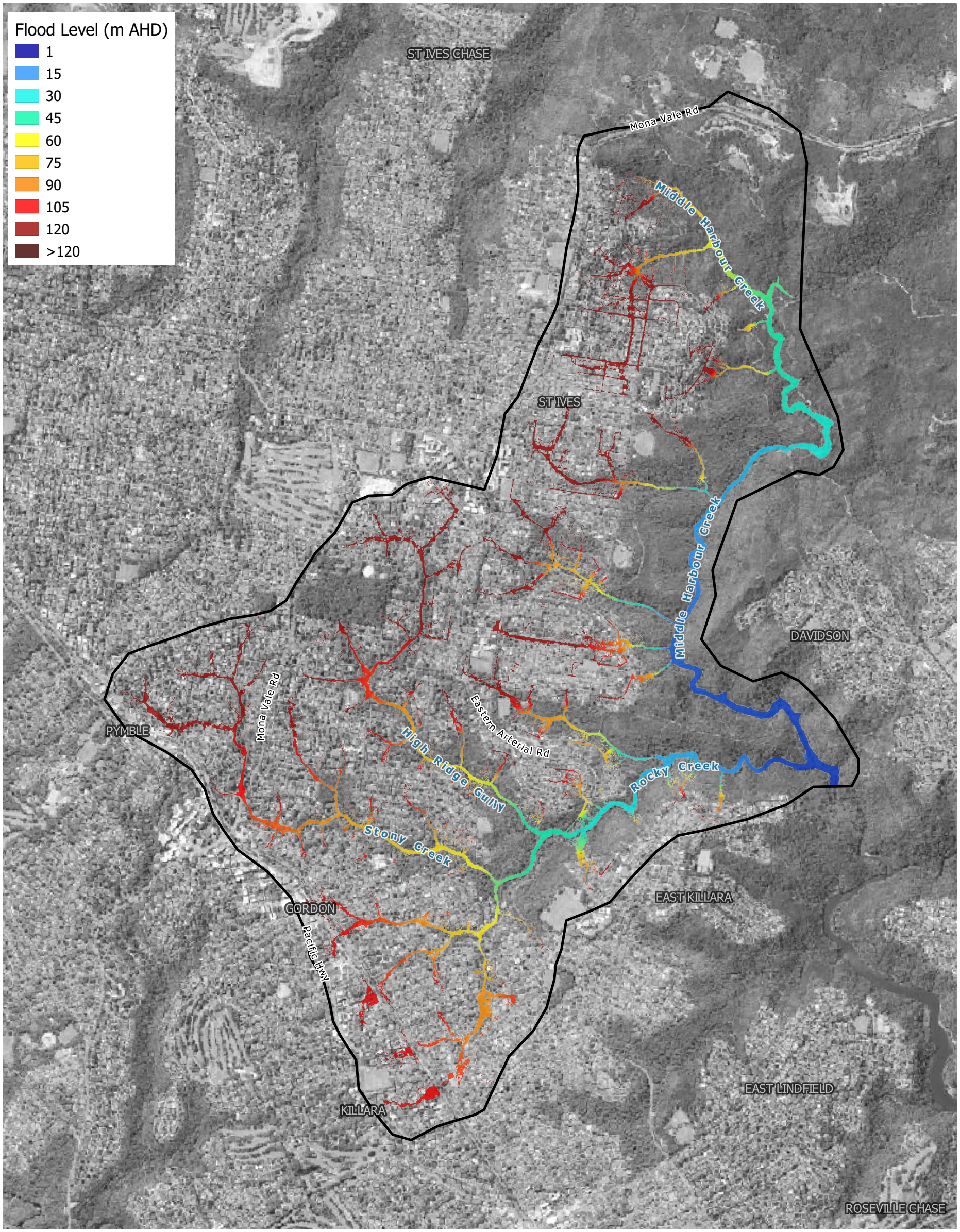
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Legend

Study Area

Title: **Peak Flood Level - 0.2% AEP Event**

Drawing: **F-15**

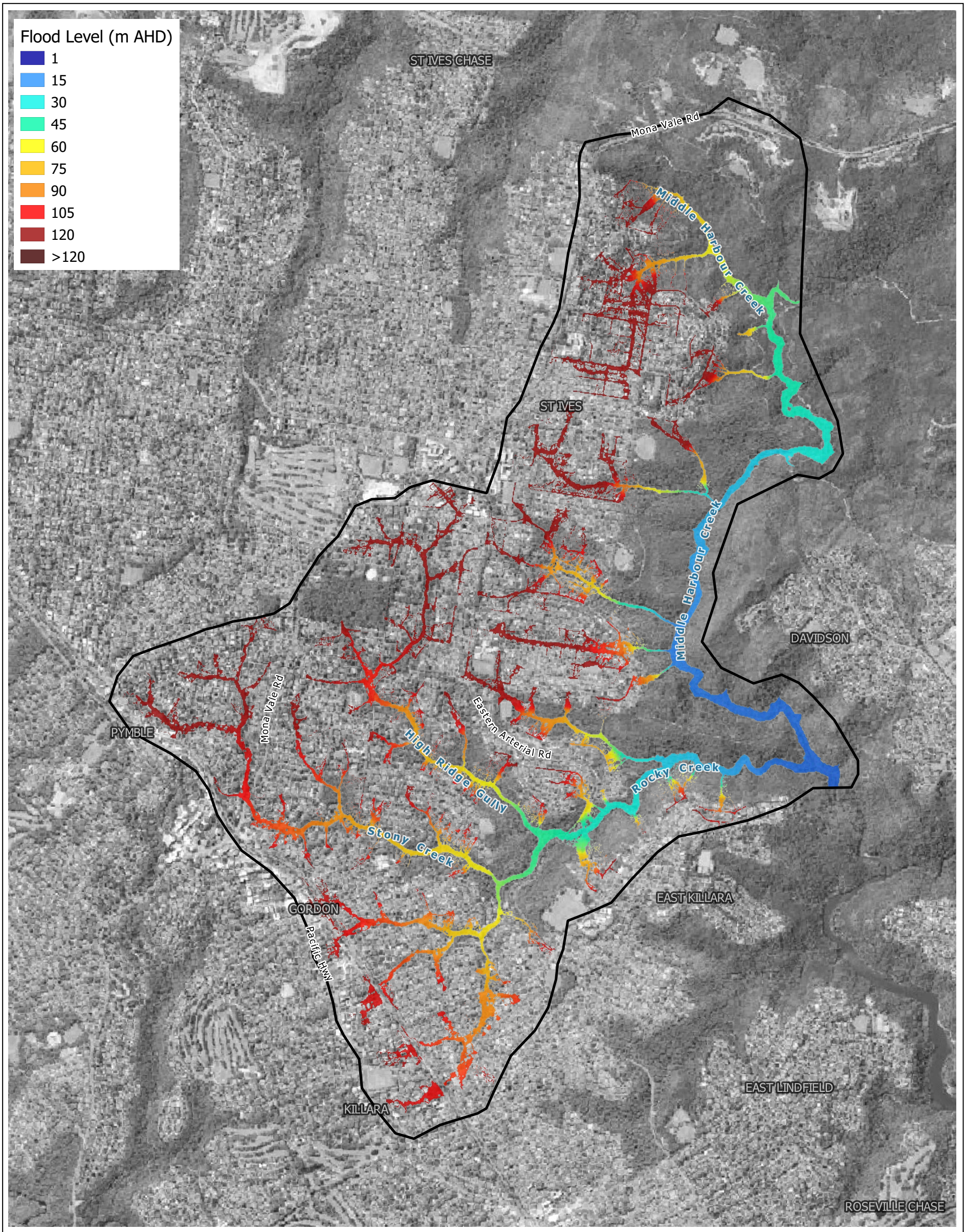
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Legend

Study Area

Title: **Peak Flood Level - PMF Event**

Drawing: **F-16**

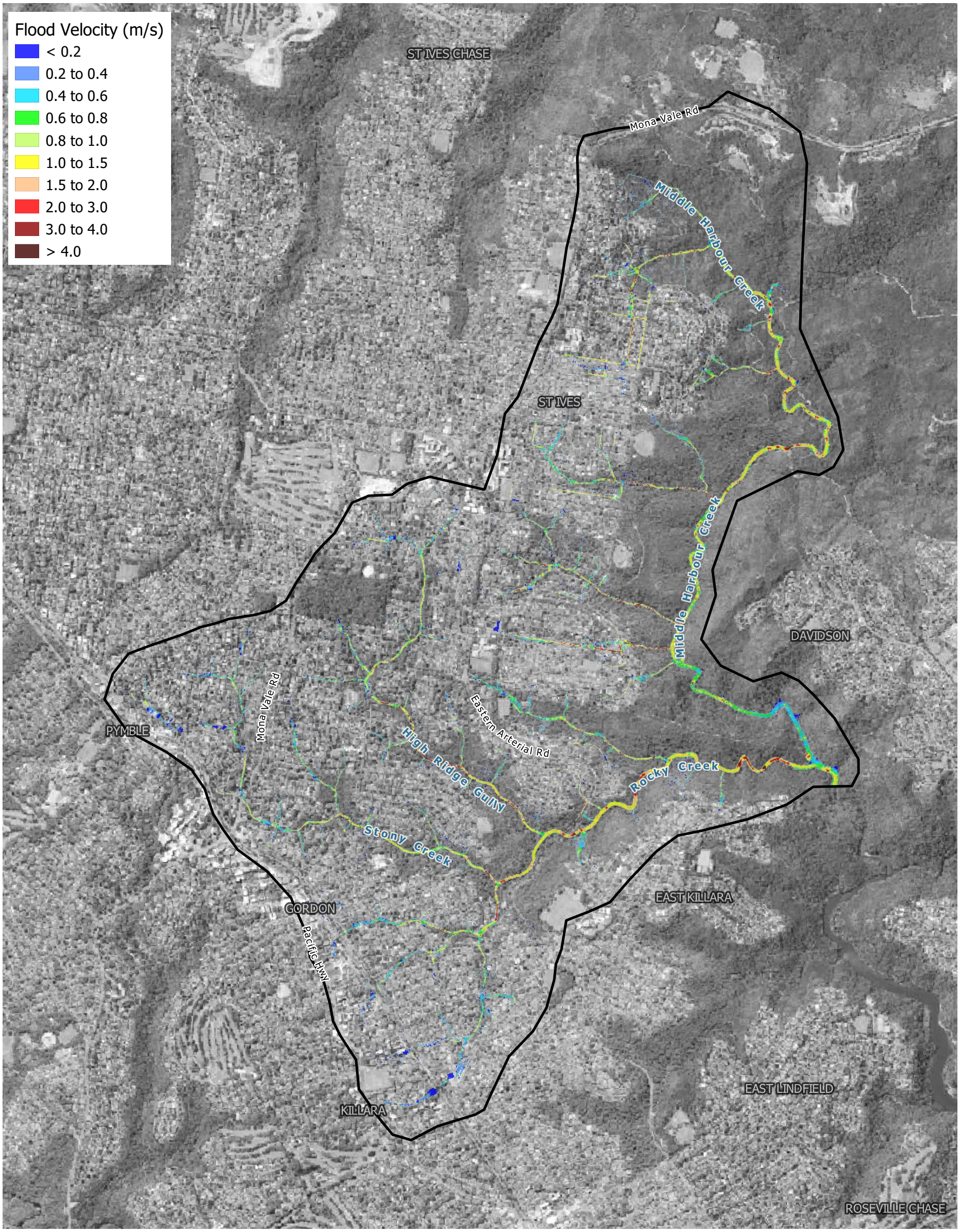
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Legend

Study Area

Title:

Peak Flood Velocity - 20% AEP Event

Drawing: **F-17**

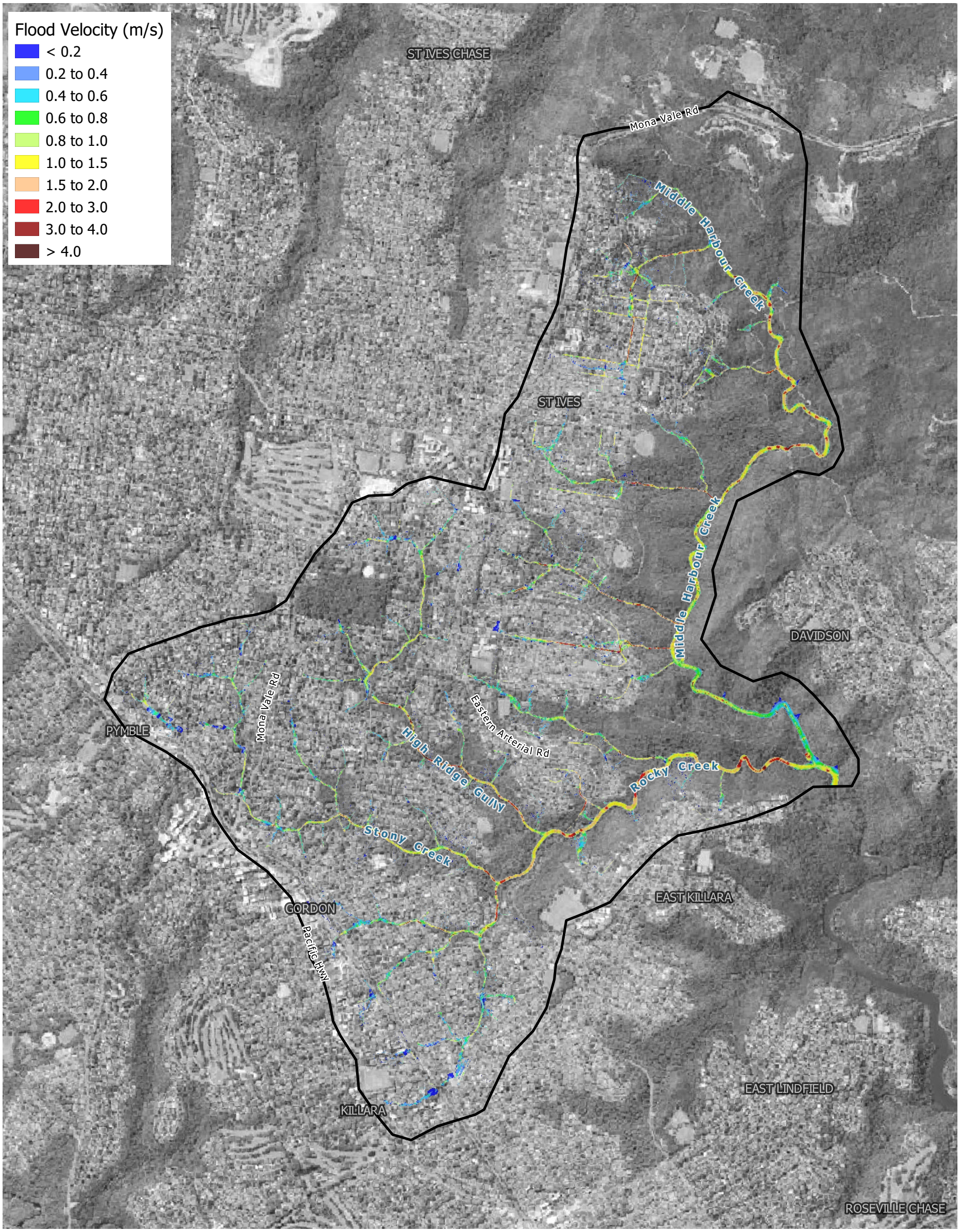
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Legend

Study Area

Title:

Peak Flood Velocity - 10% AEP Event

Drawing: **F-18**

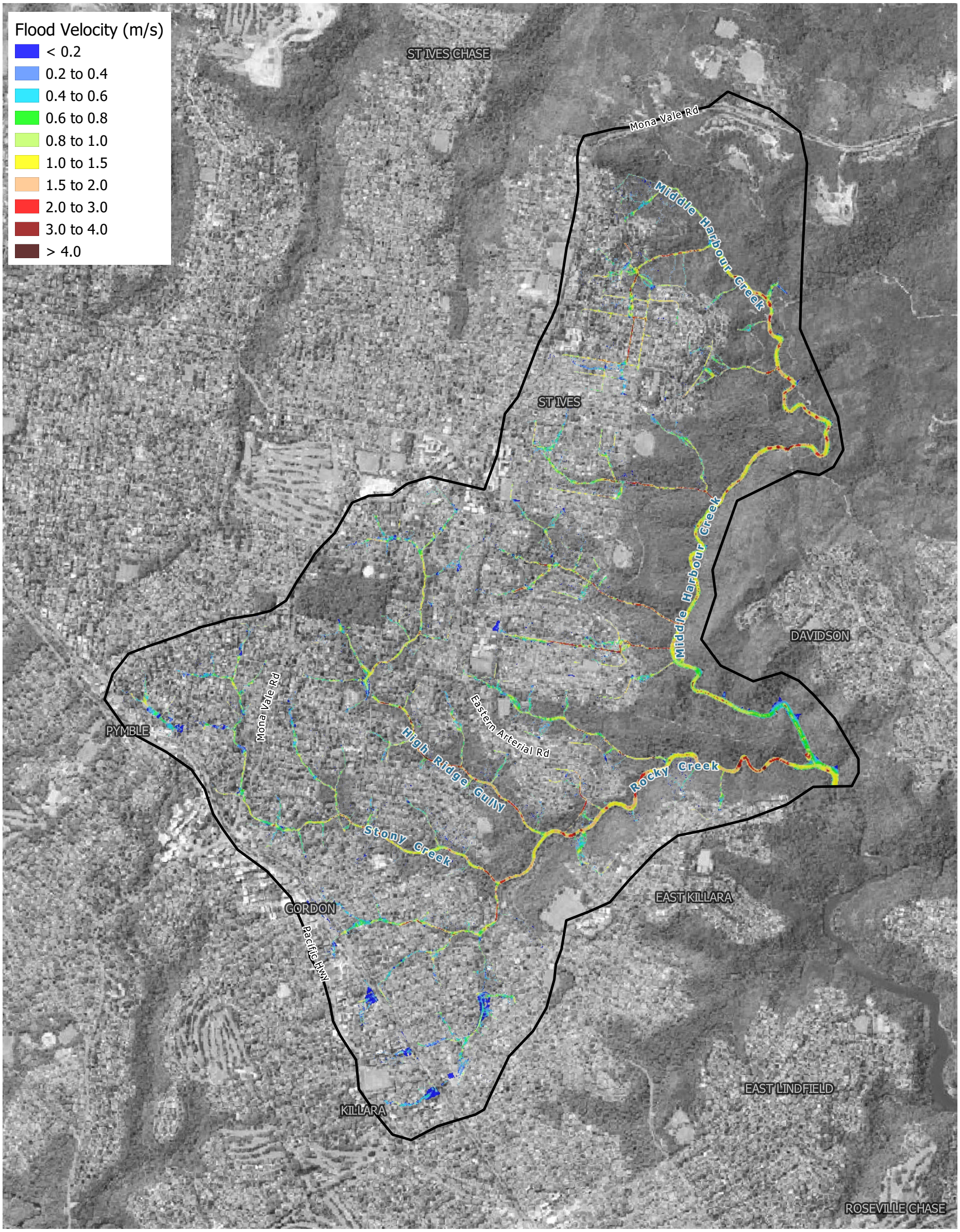
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Legend

Study Area

Title:

Peak Flood Velocity - 5% AEP Event

Drawing: **F-19**

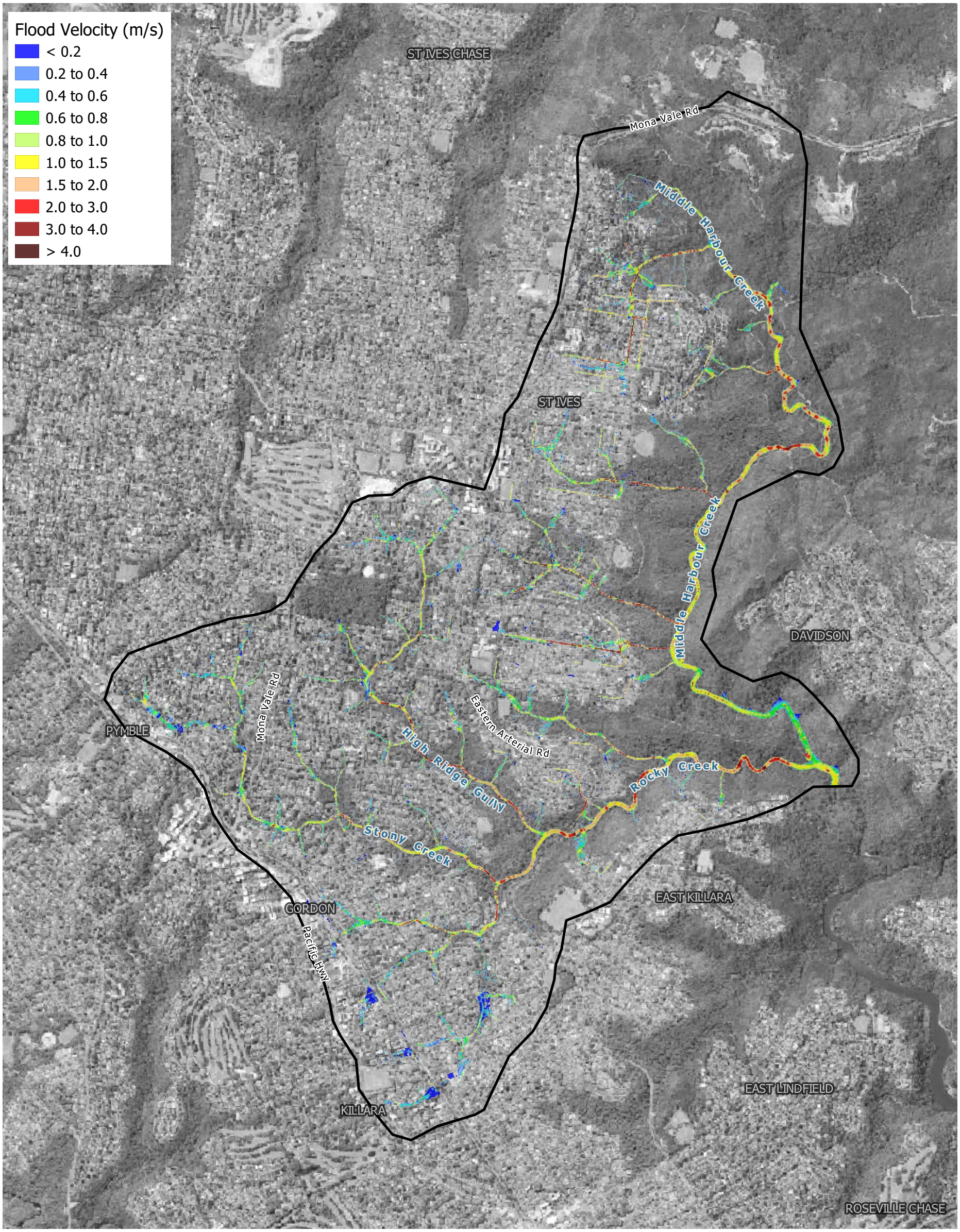
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Legend

Study Area

Title:

Peak Flood Velocity - 2% AEP Event

Drawing: **F-20**

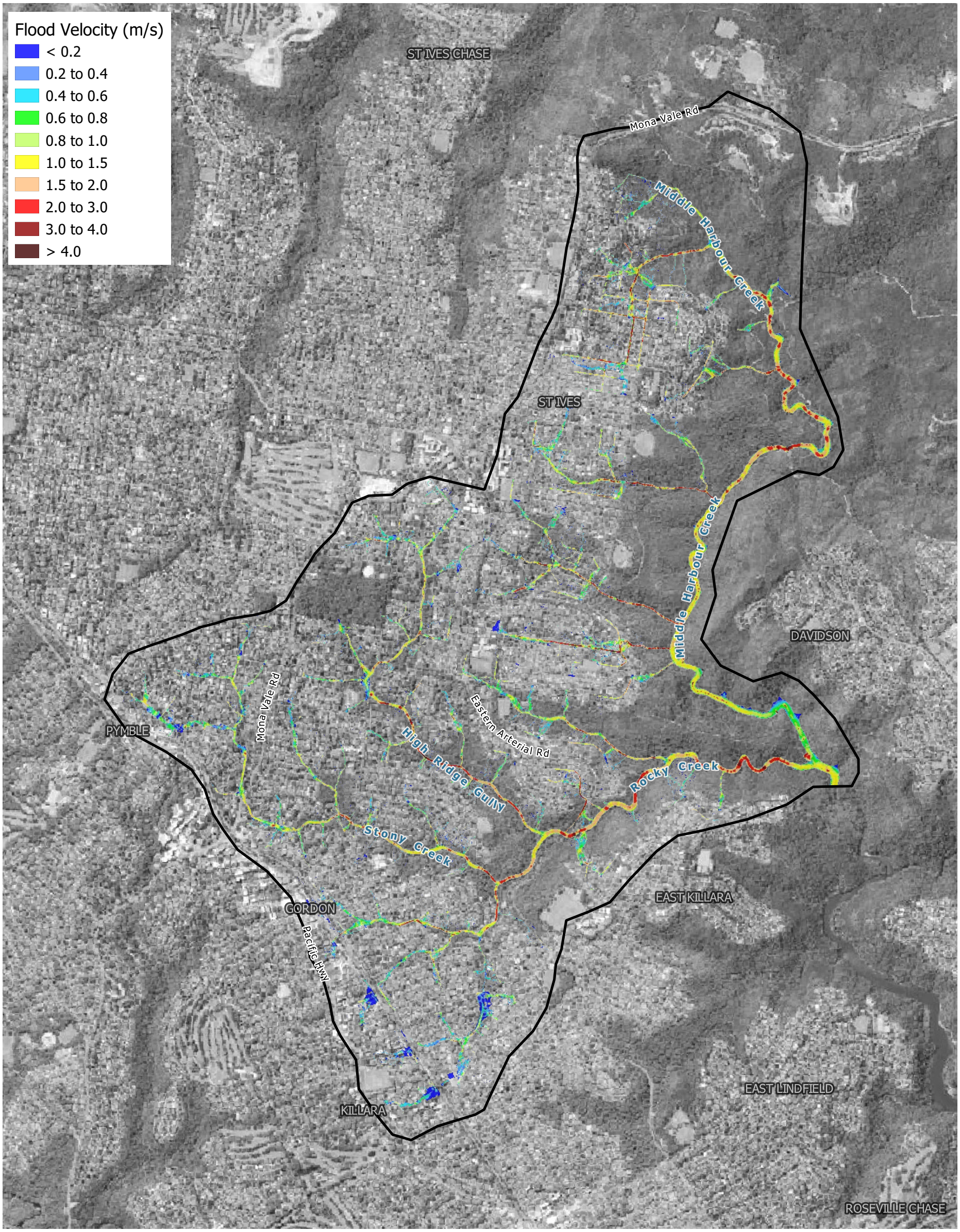
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Legend

Study Area

Title:

Peak Flood Velocity - 1% AEP Event

Drawing: **F-21**

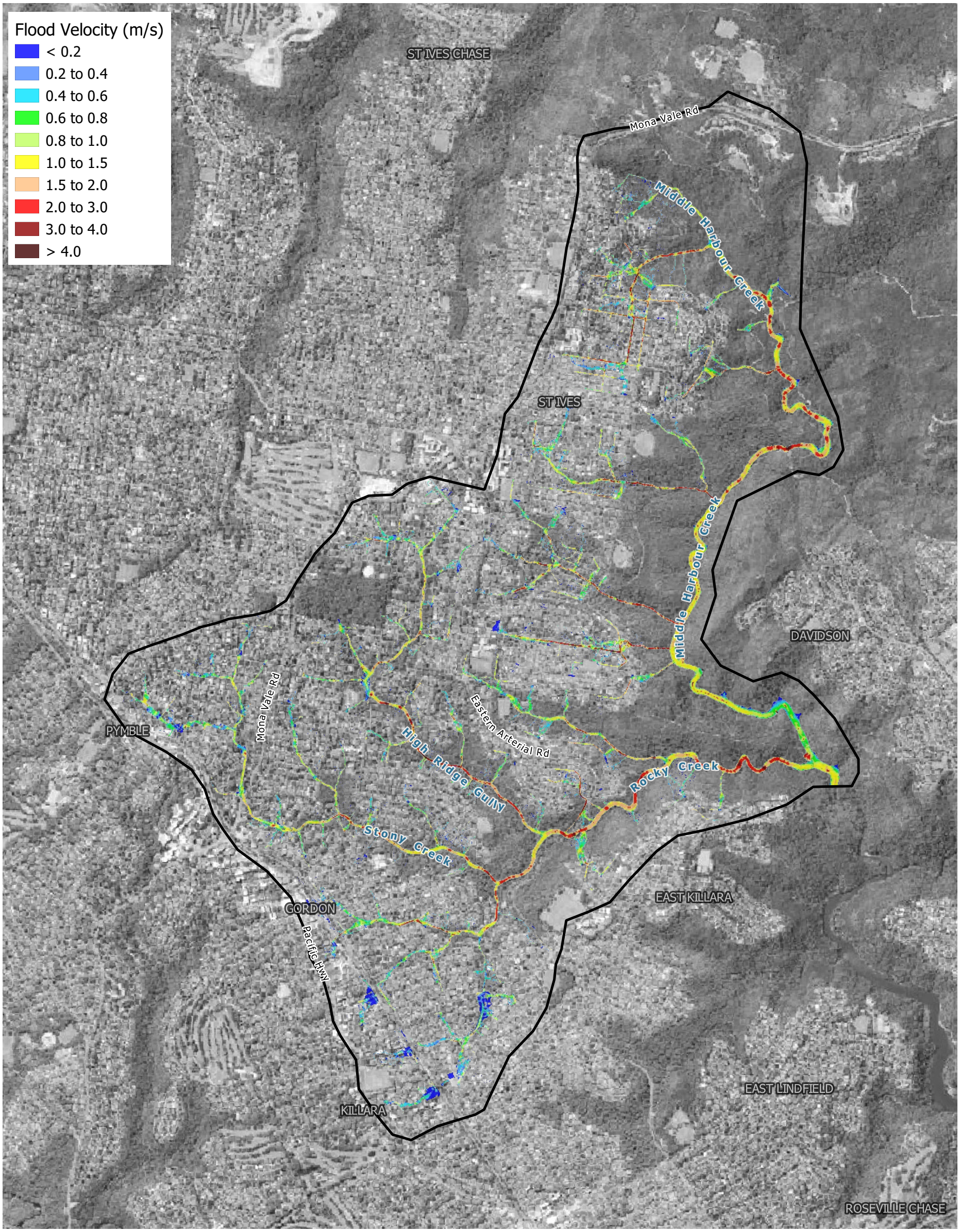
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Legend

Study Area

Title:

Peak Flood Velocity - 0.5% AEP Event

Drawing: **F-22**

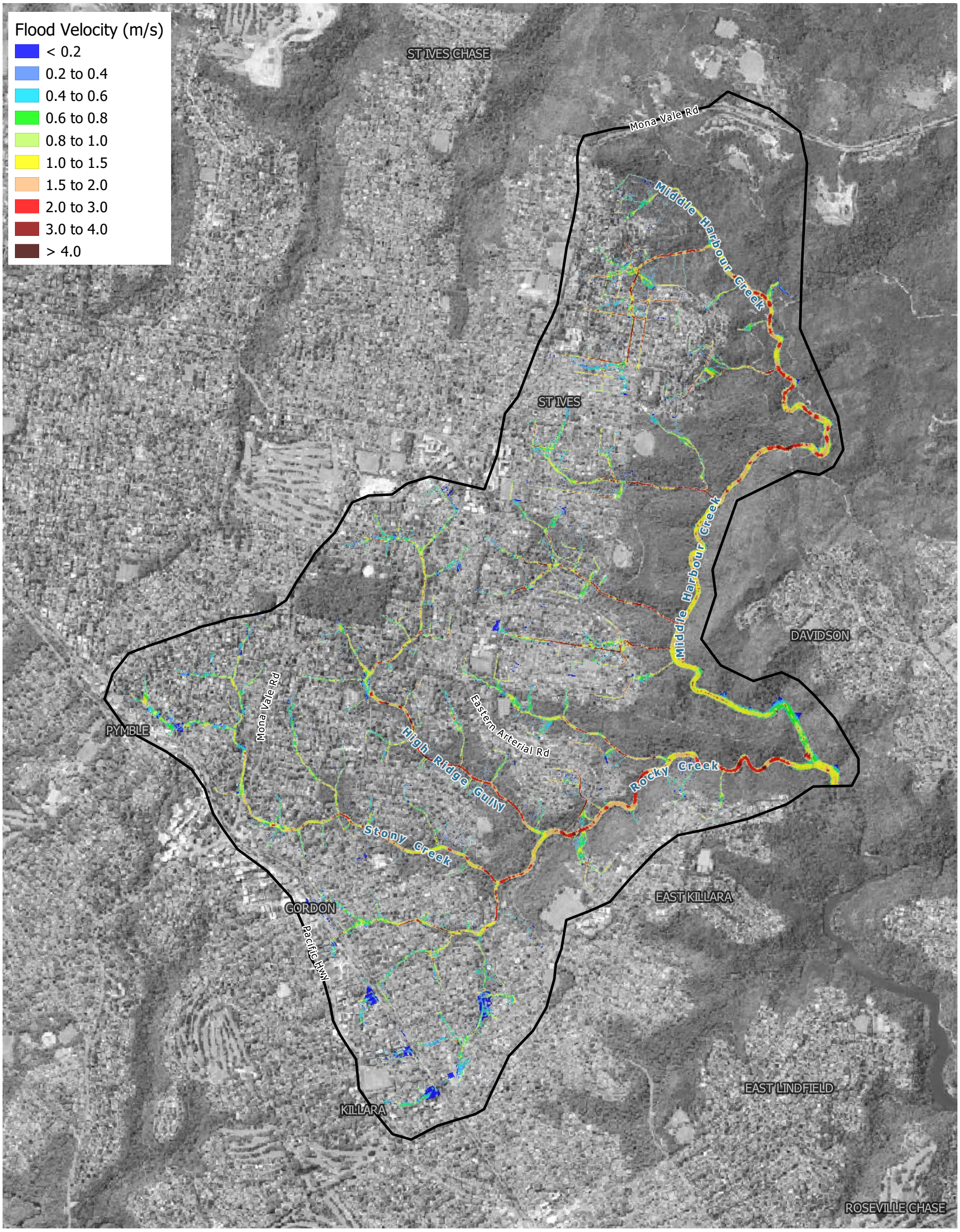
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Legend

Study Area

Title:

Peak Flood Velocity - 0.2% AEP Event

Drawing: **F-23**

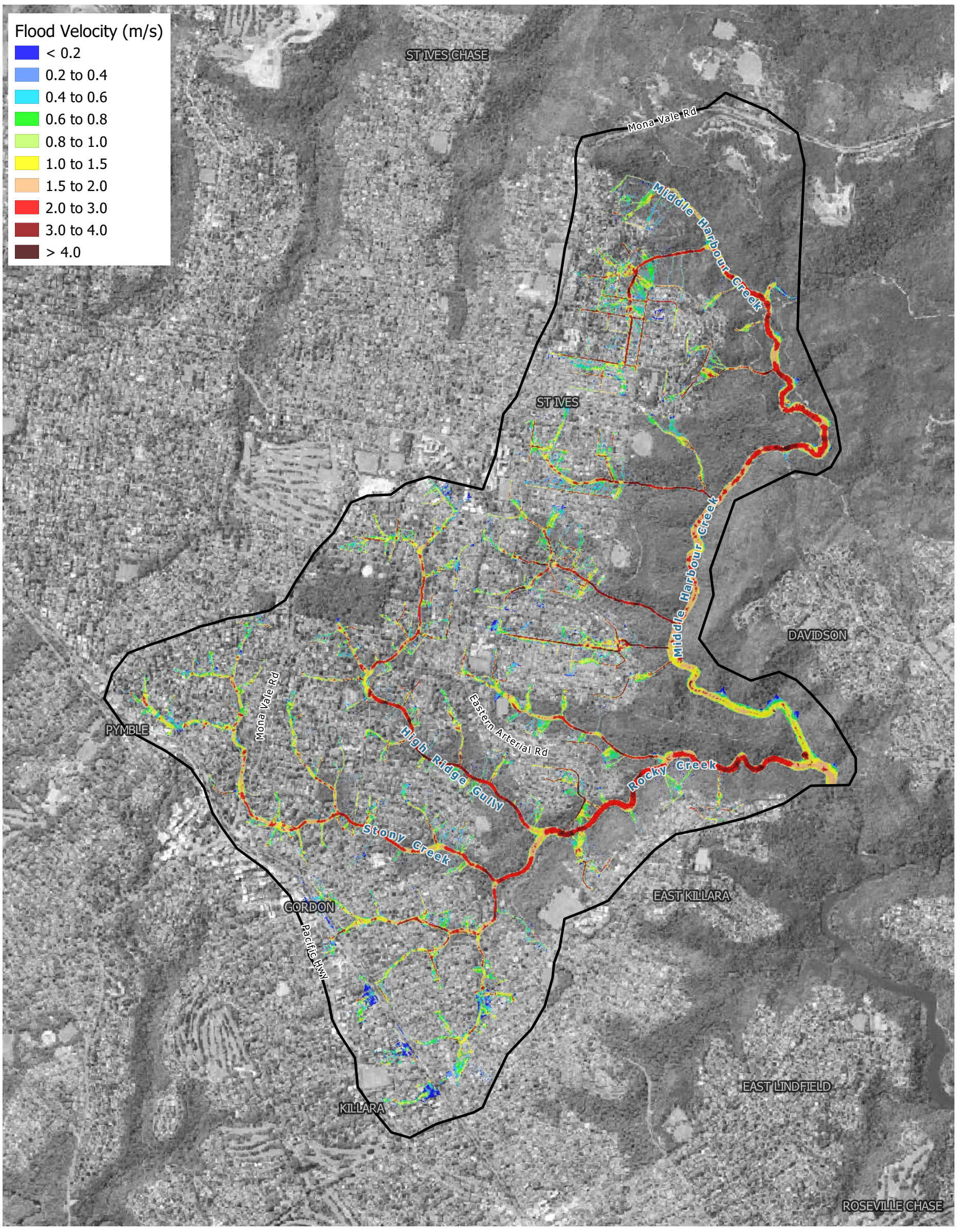
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Legend

Study Area

Title:

Peak Flood Velocity - PMF Event

Drawing: **F-24**

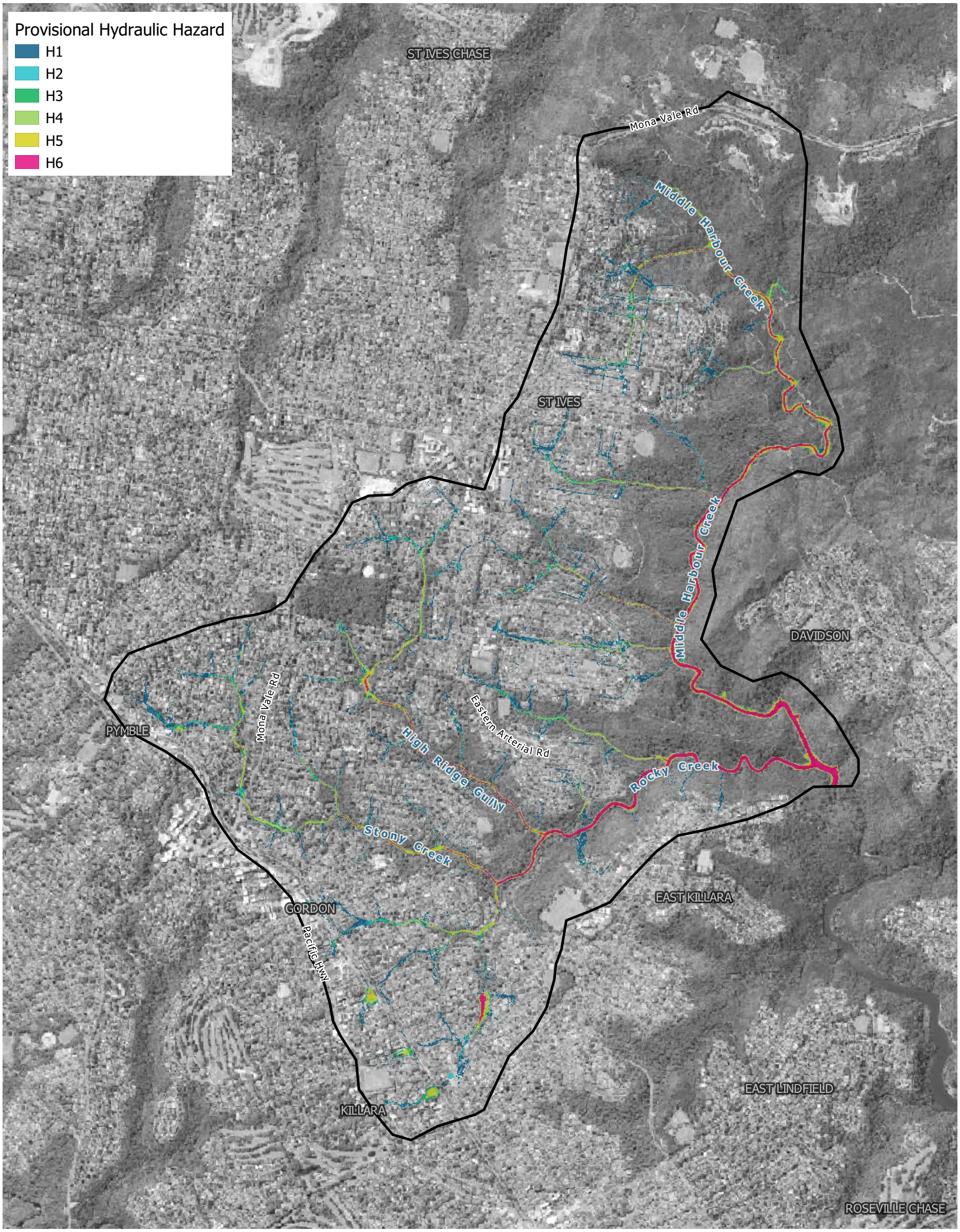
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Legend

Study Area

Title:

Provisional Hydraulic Hazard - 1% AEP Event

Drawing: **F-25**

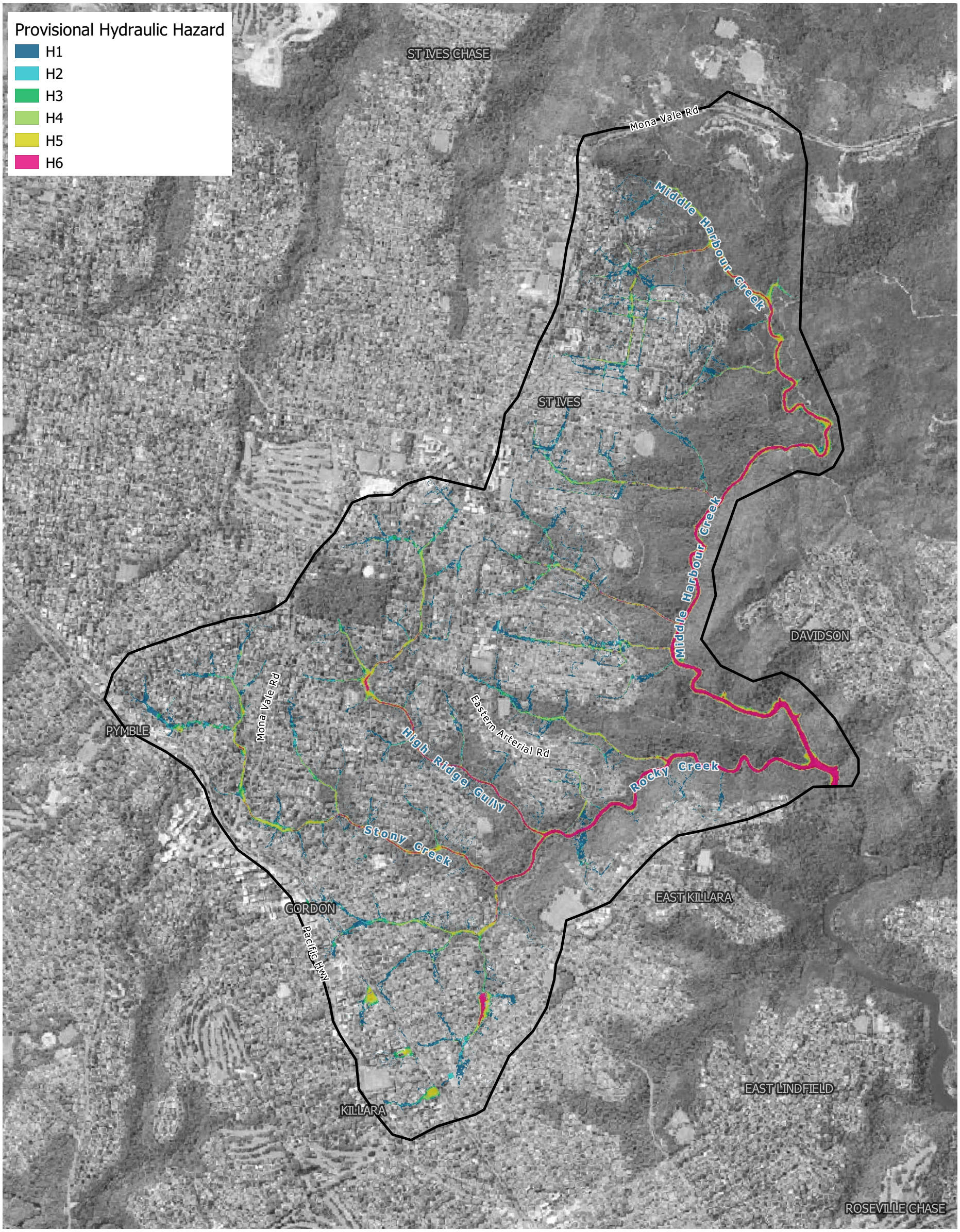
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Study Area

Title:

Provisional Hydraulic Hazard - 0.2% AEP Event

Drawing: **F-26**

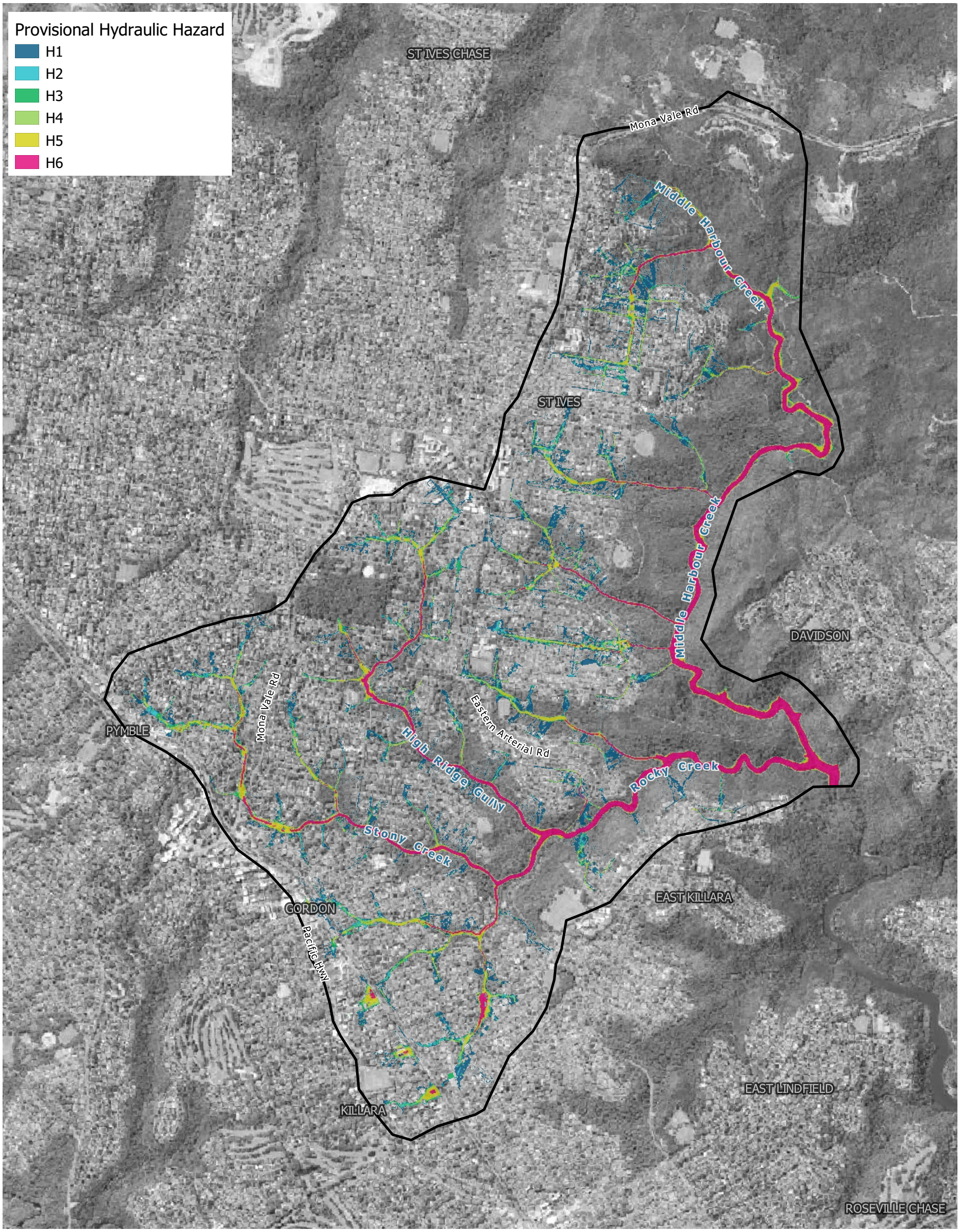
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Legend

Study Area

Title:

Provisional Hydraulic Hazard - PMF Event

Drawing: **F-27**

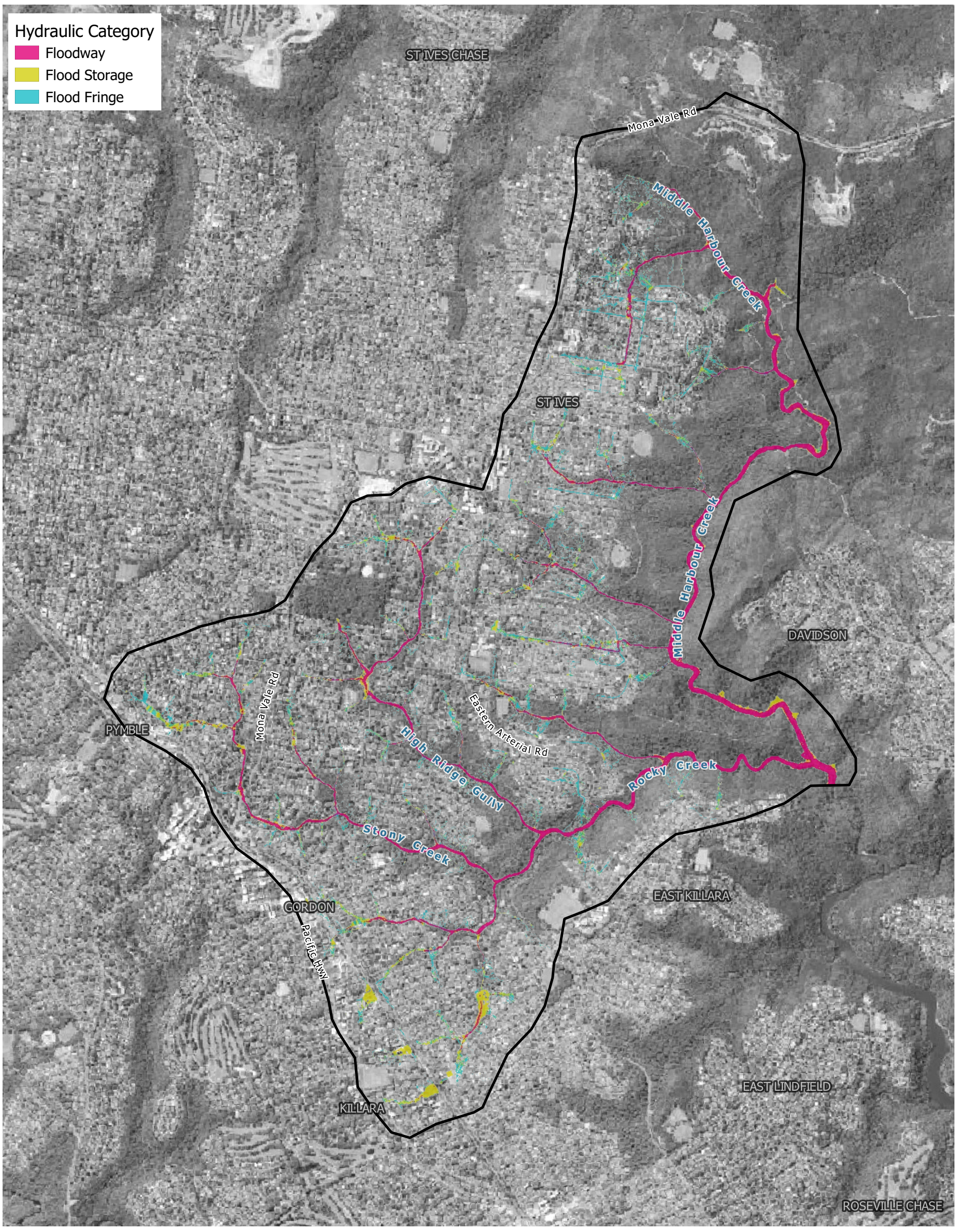
Rev: **A**

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Legend

Study Area

Title:

Hydraulic Categorisation - 1% AEP Event

Drawing: **F-28**

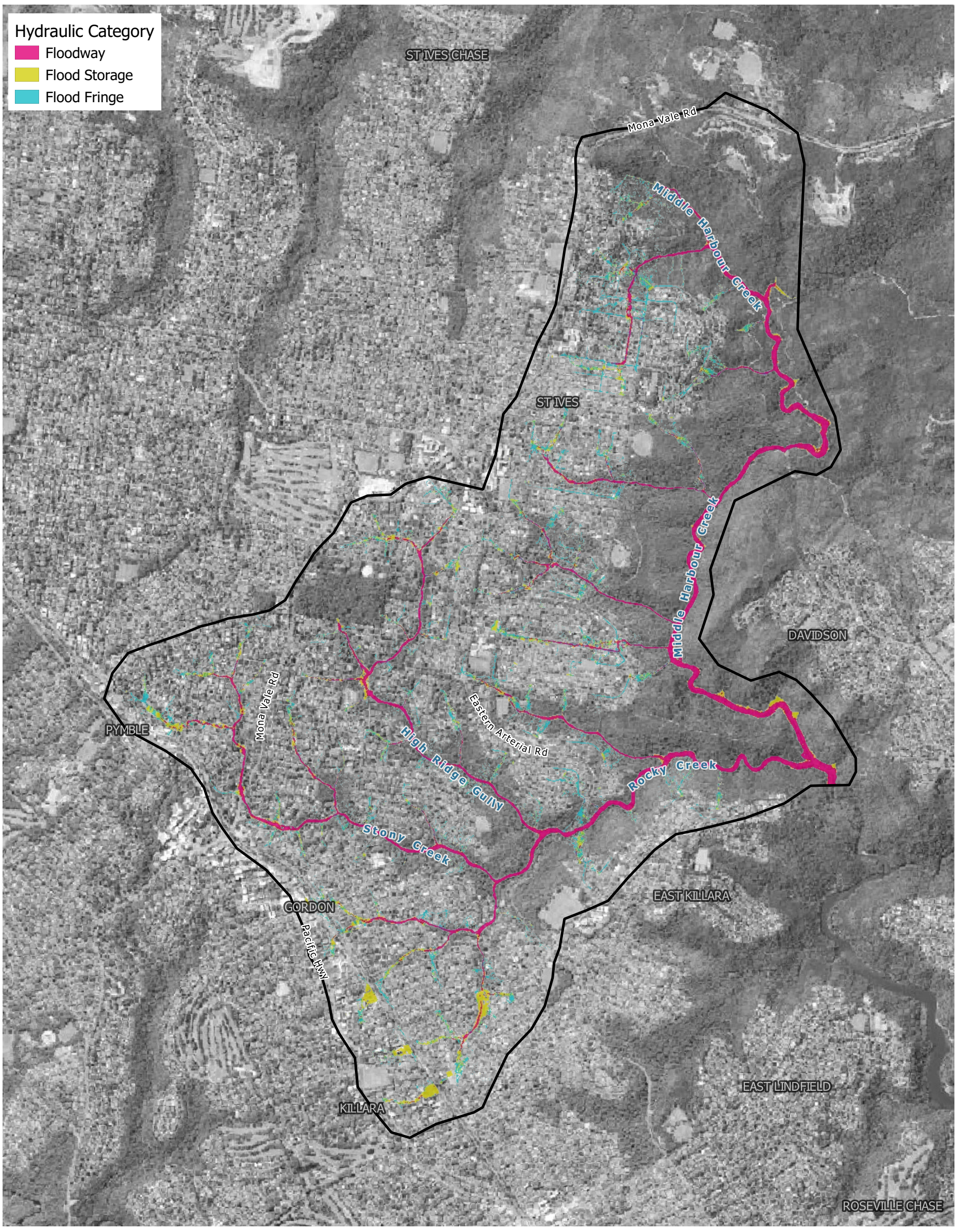
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Legend

Study Area

Title:

Hydraulic Categorisation - 0.2% AEP Event

Drawing: **F-29**

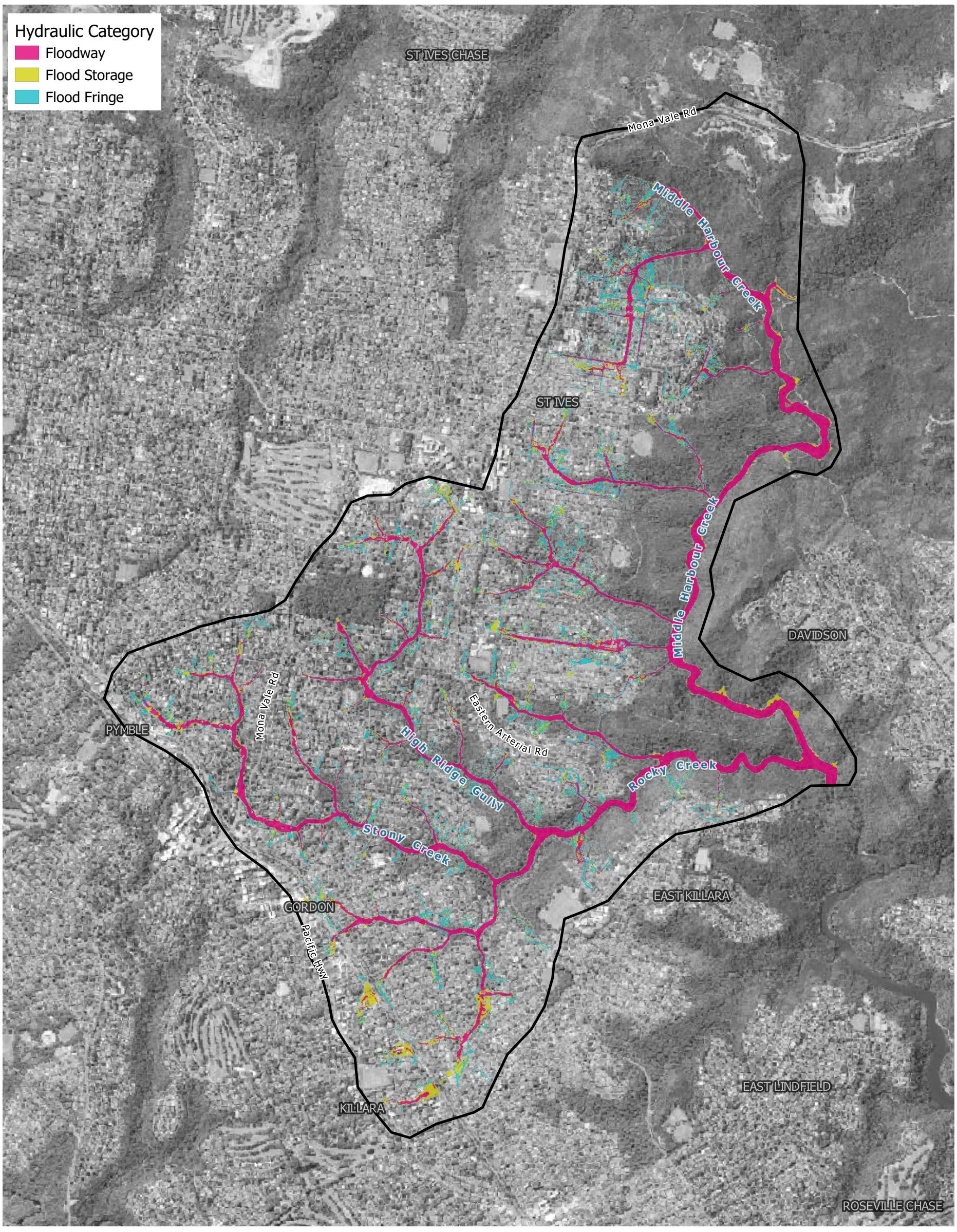
Rev: **A**

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Legend

Study Area

Title:

Hydraulic Categorisation - PMF Event

Drawing: **F-30**

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Middle Harbour Northern Catchments Flood Study

Public Exhibition 2023

Submission Summary Table

Please note that personal information and details have been removed
PMF – Probable Maximum Flood
FPA – Flood Planning Area

#	Submission Summary	Topic	Response	Result
1	• We are very surprised and frustrated to learn the property is tagged in the draft flood study. • We just bought the property 4 months ago knowing the property was not a flood prone land but it is going to be a flood prone now. • We hope there is a way to untag the land out of the flooding map. Our land only has a small bit in the flooding map. Requests: • 1. please review the flood study on the lot to see if it is ok to untag it. • 2. if we elevate the land a bit, can we get rid of the flooding map, • 3. Can we donate this tiny bit land which is in the flooding map to the council so that our remaining land is out of the flooding zone? We would like to seek all possibilities to untag from the flooding map. No matter how much cost it will involve.	FPA Notation	Noted. Prior to formal flood notations all properties are noted as No 'unknown' on the planning certificate – indicating that there are no specific Flood Planning Controls, however the flood status of the land is "unknown". Model updates have reduced the extent of PMF tagging on site, and it is only marginally larger than the FPA extent. However, the FPA extent into the property exceeds Council's criteria for trimming at the boundary. There is not sufficient evidence to remove the FPA Mapping from the property at this stage, however the resident may request a review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process.	Still in FPA and PMF Tagging (reduced) Mapping
2	For over 50 years I have owned and lived continuously in this property. The property has a stormwater easement drain, from _____ St, running north to south, to the property behind mine on the lower (southern) side of the slope, which, as far as I am aware, was last cleared out by council about 20 years ago. This clear-out and clean was a major project. In the fifty+ years I have lived here there has never been a storm that has created an overflow of stormwater or a flood in, or around my property, notwithstanding the significant growth of trees and other vegetation.	Local observed drainage and flood	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map. Council's customer service team should be notified when maintenance is required on Council's drainage system.	Not on FPA or PMF Tagging Mapping
3	I _____ and my neighbour _____ received your correspondence of the 29th September 23. The Document indicuates that we are within 'the Probable Maximum flood area'. I would like to contest this with the evidence attached. Our houses are in _____ and a creek runs through the bottom of the garden (south end of the properties). The creek is more then 3 metres below the level of the house foudnations and indeed during the last flood in March 2019, the creek was completely contained within its banks. There is no obstruction to the creek which flows freely through the property and then the adjoining council property where it joins the creek water from _____ Reserve. It would be impossible under any circumstances for rain to cause a flood that involve either of our properties/	PMF Notation Local property/topography features	Noted. Model updates have reduced the extent of PMF tagging on the submitter's property (by approximately half) and removed it from the neighbour's property. There is no FPA mapping on this property, despite mention of the creek in the back yard, indicating that flows are generally shallow in more regular events consistent with the submission.	No FPA mapping. One property still with PMF Tagging Map.

#	Submission Summary	Topic	Response	Result
	I have live in this house for the best part of 40 years and never on any occasion has there been any semblance of flood. (3 photos included) These photographs are the creek as it passes through _____ Street.		There is not sufficient evidence to remove the PMF Tagging mapping from the property at this stage, however the resident may request a review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process.	
4	Raised • Concerns about PMF notation and insurance impact • Please trim at the property boundary	PMF Notation Property Value/Insurance	Noted Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping
5	• Please review PMF tagging area to see if the extent can be trimmed at the north west corner of the property • Note that the hazard rating is low (H1) at the 1% level and H2 at the PMF level	PMF Notation	Noted Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping
6	Missing information - PMF impacted properties are missing from the Draft Flood Planning Area Mapping - Council's online map viewer. It's hard for the impacted residents to see how, the PMF flood depth and where their property is impacted by PMF. The catchment PMF map included in BMT's Volume 2 Design Flood Results report is not readable due to current resolution, even the printed A1 Maps from Council is visually difficult to read at a site level. - Criitcal PMF tagging information is missing from Section 9.1 Flood Planning Information of the Drain MC Northern flood study report, therefore PMF impacted residents wouldn't know or understand the key PMF selection / filtering criteria i.e. o "Areas with depths below 300 mm were removed. o Isolated areas smaller than 300 m2 were removed." [The above PMF tagging criteria was found and copied from a previously completed Flood Study report 'Middle Harbour Southern flood report Sec 9.1 Flood Planning Info page 103'] Site Specific considerations Please review PMF tagging map – properties along low side of _____ currently show PMF ponding, however site-specific points to consider include 1. Steep nature of our property and the sloping topography should result in PMF water flowing naturally down / through and away from our property with minimal pooling. A detailed Site Survey shows more than 7 metres drop in height between the front and rear boundary of the property. (can share with Council / BMT consultants if it helps with our case) 2. There isn't a clearly define drainage line or water course related to this area 3. PMF Overland flows should not pond / exceed 300mm in depth along the entire Eastern section of our property given there is a steep concrete driveway (approx. 3.5 metres wide plus 1.5 metres of neighbour's property boundary set back totalling 5 plus metres in width of un-obstructed pathway at the narrowest point) that runs all the way from the front boundary to the rear boundary of the property without any solid obstruction. PMF water should flow straight down (non-stop) the 5 plus metres wide sloping concrete driveway into the rear reserve & the creek. The peak flood depth during the PMF event along the entire Eastern Corridor of our property therefore should not build up and exceed 300mm in depth. Not sure if the satellite images or the topographic maps used to form BMT's initial	PMF Notation Consultant Report Flood information availability Local property/topography features	Noted PMF maps were added to Council's Online Map Viewer under the 'Exhibition' area. In addition, all mapping was made available to view at the two drop-in information sessions, with property specific maps supplied on request. Details for the PMF Tagging Map criteria have been added to section 9.1 of the final report. BMT and council staff undertook a site visit, noting that on-ground features and observations are reasonably represented in the model. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping

#	Submission Summary	Topic	Response	Result
	Flood Model was able to reflect or capture this level of site-specific details (such as unobstructed & continuous concrete driveway) into the drain Modelling? 4. Taking into account the sloping site conditions and the un-obstructed Eastern corridor, overland flows may result in some limited front yard PMF ponding. The PMF ponding area should only impact an isolated area just in front of the house and be relatively small in size. (i.e. area to the let of the concrete driveway) The PMF impacted area in relation to our property should be limited to an isolated area smaller than 300 m2 and thus be removed based on the PMF tagging filtering criteria. 5. Our property is elevated and built on top of brick piers and not on concrete slabs as per current Flood modelling inputs 6. We understand that buildings are modelled as 'solid obstructions' & 'individual structures' across the catchment. Could Council / BMT consultant provide or run a demo simulation modeling of a PMF event to show us how PMF water builds up and drains away on our property? 7. Lastly, we would like to request BMT Consultant to provide us with the exact (or a more detailed) PMF depth level of our property that encompass our immediate joining neighbours. This information is important for us to ascertain the PMF depth level along the Eastern section of our property. Given the steep terrain and the current built landscape, we are of the view that PMF should not exceed 300mm in depth along the eastern corridor of our property. Whilst Council did kindly send me a slightly higher resolution PMF depth map on 31 October 2023, unfortunately based off the graded scale maps we still can't determine the exact PMF depth level impacting our property. In particular we would like to get more clarity regarding the eastern section of our property as the PMF map is currently showing a 'green' ish colour (i.e. approx. 250mm depths), therefore, the PMF depth level around this area is / may just be within the 300mm depth PMF filtering criteria (or perhaps within a tolerance threshold upon further review?). Refer to the RED circle area below. In light of the points mentioned above, we urge the Council and BMT to arrange a site inspection (please inform the neighbouring properties prior to the inspections taking place) to further ground truth the drain PMF flood Modelling related to this area. We sincerely hope that alter the site inspection Council will re-assess the findings in the Drain Northern Catchment Flood Study & remove our property from PMF tagging once the local / specific site conditions (including the built landscape of our concrete driveway) is taken into consideration.			
7	This is a submission regarding Council's Middle Harbour Northern Catchments Flood Study to be read in conjunction with my written feedback provided on 24 October 2023. I have read the study documents and attended the information session at council on 24 October. I appreciate the time Council has taken to consult with residents and the availability and assistance of staff. My property is _____ Ave, Gordon which is within the area of the study. I note from inspecting the maps at Council that both the modelled 1 in 100 year flood and the probable maximum flood affect a small part of my property, but do not impact on my house or access. 2010 FLOOD EVENT On page 56 of the draft report the February 2010 flood event is described. It is the first of several flood events described in the document. The very first listed observation or report of this event is recorded as _____ Avenue and describes under the heading 'observed flood behaviour' 'floodwaters overflowing channel, entering yard and property at high depth'. I note that the number ____ in this case refers to location (ID) ___ in a	PMF Notation Consultant Report Property Value/Insurance	Noted. Tables have not been revised as the report should be read in full. As there is a limit to the information that can be contained in the 10.7 Planning Certificates, Council has a Flood Certificate Report available for purchase that demonstrates the site-specific details for flooding including extent, levels and hazard mapping. Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping.	Still in FPA and PMF Tagging Mapping

#	Submission Summary	Topic	Response	Result
	numerical list of locations relating to flood reports, and therefore, that the behaviour was observed at ID ___ which does not coincide with my address. However, a cursory reading of the document, especially given that this is the very first street reference to any flood event in the document, might lead the reader to believe that this is a reference to high depth flooding of my property. I was present for the 2010 flood event and made a report to council of the event. High flow floodwaters did not affect my property in that event, although there may have been shallow overland flow on a small vegetated and unfenced portion of my property at the north east corner where water crossed the street. I would like council to amend the report to ensure it cannot be misread in the way I describe either by changing the location number of ID ___, or listing the reports in numerical order beginning at ID1. PROPERTY INFORMATION I understand that as a result of the flood study, properties will be tagged as flood affected. I recommend that any tagging gives enquirers a clear indication of what flood affectation means so that misunderstandings cannot be drawn. As an example, if my property is tagged as flood affected without noting that this is minor, very infrequent and does not affect any buildings or access, an enquirer may conclude that the property and especially the dwelling, is flood liable to a significant degree. I would be pleased for council to consider my submission and advise its conclusions.			
8	I object to it being noted on my property that it is in a floodprone area based on a 1 in 100 year chance that there will be overland flow by reason on the drainage easement. This will impact on the saleability of the property an potentially also on my insurance premiums. I have lived in the property for 7 years and I have never had flooding from the road or drainage pipes. I do not consider this reasonably required.	PMF/FPA Notation Property Value/Insurance	Noted. As there is a limit to the information that can be contained in the 10.7 Planning Certificates, Council has a Flood Certificate Report available for purchase that demonstrates the site-specific details for flooding including extent, levels and hazard mapping. Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping.	Still in FPA and PMF Tagging Mapping
9	Thankyou for the opportunity to meet with your staff and be provided information on the middle harbour northern catchments flood study. We were shown a map of the flood zone and the location of our property. It was noted by your staff that the border of the flood zone just touched the edge of our property by a few meters. We therefore cordially request your consideration to the adjustment of the flood planning area to follow the property boundary. Your consideration of our request is greatly appreciated and we look forward to hearing from you (both FPA and PMF).	FPA/PMF Notation	Noted Adjustments to the model and PMF Tagging Map did not remove the FPA or PMF tagging from the site. As the encroachment into the north-east corner of the property is more than 2m it cannot be removed at this stage, however, it is recommended for review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process.	Still in FPA and PMF Tagging Mapping.
10	I acknowledge the modelling is a PMF scenario, which implies probable maximum precipitation of the largest flood (event) that could conceivably be expected to occur. And, for such an extreme event being modelled the outputs to affected properties suggest benign exposure with pools of water forming at depths of 600mm. The way I interpret the modelling in fact suggests Gordon and surrounding suburbs are not	PMF Notation Local observed drainage and flood	Noted.	Not on FPA or PMF Tagging Mapping

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	adversely impacted by a PMF scenario – alas the same certainly can't be said for many other suburbs of Sydney. If this modelled event where to occur, its fair to say large parts of Sydney would be inaccessible for weeks, and as a result of the damage many areas would likely become uninhabitable (be totally destroyed). Appreciating this is a PMF scenario, my feedback is limited in so far as, - Publishing this data on the council website (as is anticipated to occur to comply with State Government requirements) may cause confusion to the general public because the common person will not know what a PMF scenario is. This may cause unnecessary confusion for prospective buyers/sellers, or even unnecessarily impact on DA considerations. **I would recommend the council consider publishing lower return periods as other councils are doing.** Where a PMF scenario is generally greater than 1:50,000yr event, I would recommend a lower return period be published such as 1:500, etc. A lower return period by all accounts should demonstrate no flood concern to the properties in question. I appreciate this is an unrelated point to the field work being conducted, but I strongly recommend this be raised to council in any case. - In modelling the PMF scenario which I understand used LiDAR for geospatial measurement, in the images of the analysis I have seen it appears foliage has skewed outputs. The ____ and _____ Street intersection is a sharp partial s bend turn which I don't think the model outputs consider. Rather I see an expansive, wide intersection in the model outputs. In the event of a deluge - water wouldn't flow directly down the hill from ____ into _____, rather it would be influenced by the s bend of the road. **With the gradient of ____ Street further considered I believe the modelled output of surface water behaviour will alter.** - The incline of _____Street from the base of _____ Street rises approx. 7 metres within approx. 50 metres; once the peak is reached the street plateaus for approx. 250 metres with a slight incline down towards _____Streets. My point here is **consideration should be made (if it hasn't) about the surface water running the other way towards ____Street** (the adjacent intersection to _____ Street) because the volume of water from deluge would be greater over 250 metres in the other direction, then it would be over 50 metres. - The kerb gutter in the area, and in particular in front of the properties on _____ Steet impacted by the PMF scenario, is at least 400mm high. _____ Street also runs downhill from the _____ Street intersection to the intersection with _____ Street. **The combination of higher-than-average gutters and the down hill slope of _____ Street should be considered.** Even in a PMF scenario, if it's assumed the storm water drains have failed – water should still flow downhill. - A number of impacted properties on _____ Street have trenches on their nature strips, the remanence of days gone by makeshift drainage before kerb and gutters. Some properties also have masonry fences. These elements if further considered, particularly **with a lesser amount of surface water coming onto the property if the previous point is considered, should minimise the impact of surface water entering some property boundaries beyond the nature strip.** - My final suggestion is a summary of the 4 immediate points above. If these points are collectively considered in conjunction with the existing geospatial study, in a PMF scenario one should find that (1) surface water behaviour from _____ St run off will be influenced by the partial s bend of the road which will likely cause a swirl or wake effect. (2) the volume of surface water may not be as much as initially anticipated because most water from _____ Street should run in the other direction. (3) even if surface water (as is modelled now) reaches peaks of 600mm from the run off from _____ Street, the kerb height of 400mm coupled with the incline of _____Street should see the bulk of the surface water continue its journey downhill. And, (4) the remaining surface water that may breach kerbs should be absorbed within old trenches and hard fences. In closing, while I acknowledge the study is considering a PMF scenario (beyond comprehension), to most folks they are not going to understand this – rather they will think its water run-off in a heavy rain situation that they can imagine from their own	Local property/topography features	The notation on planning certificates in relation to the PMF is made as per the direction from the *NSW Department of Planning and Environment*; The consultants have reviewed the accuracy of topographic information as outlined in the Flood Study Report. BMT and council staff undertook a site visit, noting that on-ground features and observations made will not affect the outcome of the modelling. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	

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	experience. Therefore, I would recommend council reconsider how they publish this study so it's not only easier to comprehend, but also won't cause unnecessary confusion – particularly when it comes to property values and potential DA applications which seems the be the root of the concern by my fellow neighbours. Also, whilst the geospatial modelling is a good starting point, it feels to me that a physical inspection is needed to consider the gradient of _____ Street, kerb gutters and down hill slope of _____ Street, and legacy trenches and retaining walls on properties. Thank you for considering my feedback, and I look forward to hearing an outcome in due course.			
11	Thank you for your time on Tue 24 October when I spoke to you and your colleague regarding possible flooding of _____ Avenue, St Ives. During our meeting I mentioned that it would be almost physically impossible for the property to flood (even in the most extreme of weather conditions) and volunteered to make a submission to that effect. Please find enclosed a plan of levels for the property that was prepared some years ago in support of Council approval for a pergola. This clearly shows the continuous drop in levels from the _____ Trail to the rock face with a further 15 metre vertical drop towards the valley. I've enclosed the plan in pdf and jpeg formats to suit. I've attached: • two photos of the area that the flood management plan suggests could be prone to flooding, and • a further two photos of the dwelling which demonstrate how the land falls away. These demonstrate that water could gather on the surface during a violent storm, but the slope of the land will immediately let it drain away. Hopefully, you will consider that these materials support the view that the property is not at risk of flooding from static water which will enable you to adjust the mapping.	PMF Notation	Noted. BMT and council staff undertook a site visit to confirm the on-ground features of the property. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping
12	I refer to Council's letter to me dated 11 October 2023 received by me on 19 October 2023. I would firstly like to express my concern at the lack of timely communication from the Council regarding this matter. I received the letter on the date of the webinar and the letter gave no indication as to how my property is to be impacted by the Draft Flood Study recommendations. I believe this is a deliberate strategy by the Council to avoid residents having time and information to make submissions about any intended action by the Council in respect of their properties. I am aware that my neighbour at _____ Avenue received written notification weeks ago regarding his property and the Council's intention to mark it as flood prone. I attended a meeting at the Council on 26 October 2023 and was shocked to learn that it is the Council's intention to mark my property as "flood prone land" based on the theory that if there is a 1 in 100 year storm, the Council stormwater drain which is in front of my neighbour's property at _____ Avenue, is of insufficient capacity to cope and there would be flooding into my property as a result. I have a number of comments to make about that. Firstly, there was a 1 in 100 year storm on 28 November 2018 and there was no flooding of my property from the street/stormwater drain during that event, so I query the Council's predictions based on that. Secondly, the drain is not in front of my property, it is in front of _____ Avenue, which is downhill from my property, so I also question the accuracy of the mapping.	PMF/FPA Notation Local observed drainage and flood Property Value/Insurance	Related to submission # 8 Noted The close date for the submissions was extended to the 13th of November to allow for differences in date of letters received. In addition, the webinar was available to view on the consultation page for the remainder of the exhibition and council staff were available for residents who were not able to attend the drop-in sessions. Although storm events from 2018 and 2019 are noted in the report, it was the February 2010, June 2016 and February 2020 flood events that were identified by the community to be major events within the study area and have been utilised for the model verification. Easements directly adjoining the property indicate the significance for potential overland flows through the area during rare large events. Noting that drainage infrastructure is typically not constructed to address 1% or PMF flow magnitudes. Actions for alleviating and management of flooding with council activities will be considered at the next stage of the flood risk	Still in FPA and PMF Tagging Mapping

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	Thirdly, if it the case that the drain is inadequate, which I strongly doubt based on my experience thus far, that is a matter of which the Council is on notice and steps should be taken by the Council to remedy it. Fourthly, if the drain is inadequate, Council should be more diligent in ensuring that the street is kept swept, noting that the Council has street trees along the entirety of the road, most of which are deciduous and which drop leaf litter all year round. In my experience, the drains are frequently blocked by leaf litter because the Council is dilatory in sweeping the street. I strongly object to the Council marking my property as flood prone land. When I purchased the property 7 years ago there was no such marking and I paid market value accordingly. If such a marking is now placed on my property, it will significantly negatively affect the market value of the property and I will suffer damage as result. I had a valuation done last year when I refinanced my mortgage, so I have a current valuation which I will be able to rely on to prove the loss I sustain. Secondly, if my property is marked as flood prone, I will incur an increase in my insurance premiums, which will be a further loss in perpetuity. I put the Council on Notice that if this marking is placed on my land, I will take legal action to have it removed and/or to seek damages from the Council in respect of the losses which I will sustain. I look forward to hearing from you in relation to the matters which I have raised.		management process – the Flood Risk Management Study and Plan. Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping.	
13	We live at _____ Parade, Roseville _____ Creek as seen in the attachment from the study, runs through the area we manage Since 1996 I have coordinated the _____ Bushcare Group ____ & still do Over the years we have seen the vast erosion of the banks of this water course and with heavy rainfall & storms the water is rising well above the banks and spreading into the bushland area The creek has also widened considerably and so have the pools, the velocity of the water flow is also tremendous during heavy rainfall over a few days We would also report that during heavy rainfall as we are at a lower point on the ridge the water cascades down through our property to _____Parade	Local observed drainage and flood	Noted Not in this study Area	N/A
14	I hope this letter finds you well. I am writing to you as a resident of St Ives regarding the recent flood risk assessments carried out by the Council, specifically relating to my property at _____ Avenue, St Ives, which is mentioned in the document with reference S12747-1. I have serious concerns about the flood modelling and its outcomes as they pertain to my property. I understand and appreciate the importance of accurate flood modeling for community safety and infrastructure planning. However, after reviewing the details of the model and the physical geography of my property and its surroundings, I believe there might be a significant error in the assessment. The current model suggests that my property lies within a probable maximum flood (PMF) area. However, this seems highly implausible for several reasons. The most critical factor to consider is the topography of the area. The outlet pipe, presumably a	PMF Notation Local property/topography features	Noted Minor encroachment of PMF tagging at boundary for this property and neighbour – meets criteria of less than 2m to trim FPA and PMF tagging at front/rear setback.	Not on FPA or PMF Tagging Mapping

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	primary source of the modeled flood, is located across the road from my property and lies approximately 3 to 4 meters below my house's ground level. It appears highly unlikely, if not impossible, for floodwaters to rise to such an extent that they would cross the road, surmount this significant height difference, and further escalate an additional 2 meters to reach and impact my house. The outlet pipe itself is set into the side of a hill which drops off over 20 meters into a creek. Given these circumstances, I am concerned that there may have been an oversight or a technical error in the modeling process. An inaccurate flood risk designation can have profound implications, including but not limited to, increased insurance premiums, decreased property values, and unwarranted worry for the safety of my family and property. I kindly request a re-evaluation of the flood risk assessment for my property. It would be greatly appreciated if a more detailed study could be conducted, considering the specific topographical and infrastructural characteristics mentioned. I believe that a more nuanced approach might yield results that accurately reflect the flood risk to my property. I am open to discussing this matter further and would welcome any opportunity to meet with a representative of the Council or the technical team responsible for the flood modeling. Understanding the Council's constraints and busy schedule, I appreciate any effort made to address my concerns.			
15	I have just read through section 1 of the draft study. When I saw it referred to in the latest Council E-Newsletter I was interested to read it as a few weeks back I received a letter from council which identified my property as being located within the probable maximum flood area. I just want to make comment about an item listed in the tables of pages, 57, 63 and 69 of the draft report [item 29] that states at the intersection of ____ Rd and _____ Ave there has been flooding of the road caused by pit surcharges. I have lived on that corner since 1996, or for the past 27 years, and have never witnessed any flooding on that corner. There was a large pit dug on the corner [on _____] some years back and the resultant backfilling and road resurfacing left a very small depression in the road surface which occasionally after heavy rains accumulates a puddle of maybe 1cm depth but the puddle never remains for more than a day. It occurs to me the item describes the location a shade incorrectly. Near the location identified _____ Rd splits in two and the lower section of _____Rd has a pit which sometimes has surcharge after continued rain and I suspect may be the issue referred to. The location is below _____ Ave and not connected with _____. But in any event the surcharge from the pit is quite small and just wets that part of _____ Rd for a few days. I don't believe there is any likelihood of flooding on _____ Ave. During the significant storms of the past few years there has been no flooding of my property nor those of my immediate neighbours. I think the issue needs a rethink.	Local observed drainage and flood	Noted. Reported observations were replicated in the model, indicating the observations where reasonable. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping
16	I make this submission as the resident and owner of _____ St, Pymble NSW 2073. **Point 1. Specific Comment Regarding Property _____St, Pymble NSW 2073.** The property has been preliminarily tagged for the PMF Event in the draft study.	PMF Notation Flood information availability	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping

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	On a request for depth information by myself as the property owner, Council staff have confirmed that the PMF Flood depth at _____ St, Pymble is 0.29 metre (confirmed by BMT consultants on request by Council). I note that the PMF limit ("filter" or "nuisance level flow") for exclusion from PMF tagging is 0.30 metre (as confirmed by Council staff and on the BMT webinar). I also note that the finalised Middle Harbour - Southern Catchment Flood Study published by Council has a 0.30 metre PMF limit for the PMF Event. As the PMF Flood depth for _____ St Pymble is below the PMF limit, I submit that _____ St, Pymble NSW 2073 should be removed from PMF tagging. A further comment is provided in Point 2. below, as a separate general constructive suggestion. **Point 2. General Comment Regarding the PMF Event And Section 10.7 Planning Certificates** I note that on Council's website (krg.engagementhub.com.au) the Council specifies that: *"The Probable Maximum Flood (PMF) is an extreme flood deemed to be the maximum flood likely to occur. The Probable Maximum Precipitation (PMP), the theoretical maximum precipitation, is used to derive the PMF event. It should be noted that the PMF is an improbable event having a notional AEP range of 1 in 100,000 to 1 in 10,000,000."* The council further specifies that: "*If development is outside of a Flood Planning Area, but within the Probable Maximum Flood Area, only hazardous or sensitive types of development need to specifically consider flood controls, such developments may include:* *• boarding houses • caravan parks • correctional centres • early education and care facilities • eco-tourist facilities. • educational establishments. • emergency services facilities • information and education facilities. • group home. • hazardous industries. • hazardous storage establishments. • hospitals. • hostels. • respite day care centres. • seniors housing • sewerage system. • tourist and visitor accommodation. • water supply system"* In part 7A(2) of the Planning Certificate (the PMF Yes/No Section), Council might consider adding standard notes, to the extent permissible by law, on each planning certificate clarifying the "PMF Event concept" and "hazardous or sensitive developments" where flood controls would apply in relation to the PMF Event, perhaps using the same or similar the wording as that which currently appears on Council's website (as noted above).			
17	We were surprised to learn that our property is deemed to be in a Flood Planning Area as we are very considerable distance from any watercourse & cannot foresee that we would ever experience flooding. We would be amazed if Council or Meteorological records showed that there had ever been floods in _____St. St Ives.	FPA Notation Property Value/Insurance	Noted. Overland flow flood planning areas are noted as such to indicate flows going overland, the extent of FPA encroaches more than the criteria of 1m for trimming at the side setback , however is	Still in FPA and PMF Tagging Mapping – Reduced extent

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	The notion that we may be wrongly classified as being in such an area concerns us from the viewpoint that it may impact on our insurance premiums, Council rates & the value of our property. Consequently, we would urge Council not to classify our property as being in a flood area & would appreciate receiving written assurance to this effect when the Study has been completed.		recommend for review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process. As there is a limit to the information that can be contained in the 10.7 Planning Certificates, Council has a Flood Certificate Report available for purchase that demonstrates the site-specific details for flooding including extent, levels and hazard mapping. Slight adjustments to the model and PMF tagging map output have resulted in a reduction in the area of this property impacted by the PMF Tagging map.	
18	We respectfully request that Council critically review & reconsider the conclusions of BMT in their Draft Middle Harbour Catchments Flood Study. We are concerned about their conclusions related to properties _____ Street, Gordon for the following reasons: 1. We believe that essential PMF tagging criteria & information is missing from BMT's report. ie: • Areas with ponding depths below 300mm were removed • Isolated ponding areas smaller than 300m2 were removed This makes it impossible for impacted property owners to understand how BMT arrived at their conclusions. 2. Also, the Draft Flood Planning Area Mapping related to the PMF impacted properties is not available via online map viewer on the Council's website. Furthermore, the PMF depth level provided within 'Volume 2 – Design Flood Results' is not readable due to current resolution. Even with the higher resolution PMF maps that was provided to our neighbour (_____ St Gordon), we cannot work out the exact PMF depth level surrounding/impacting our property. How are property owners to understand & then accept that their property is impacted by PMF? We don't know if this is intentional withholding of information from property owners, or is it just that the detail is not known by BMT, & therefore perhaps BMT's modelling & conclusions rely on too many potentially invalid or, at best, questionable &/or debatable assumptions. 3. The properties slope front to back away from _____ Street. Our driveway is sloped, not level. In the unlikely occurrence of a PMF event water would flow down our driveway on the eastern side of the house & down the side passage way on the western side. Sure, it would ruin our back garden on its way to _____ Reserve & to the water course there, but it would not be ponding at the top of the driveway exceeding 300mm as indicated on BMT's PMF tagging map. It is likely there would be some ponding in front of the house in a PMF event, but this would be way less than 300m2, likely less than 100m2. 4. The flood modelling assumes houses are built on a concrete slab. Our house is built on brick piers, not on a concrete slab. We request that Council &/or BMT conduct site inspections. They will see the steep nature of the properties being reported as PMF ponding impacted & should agree to review & modify the current BMT modelling to incorporate other relevant site-specific conditions. We sincerely hope that after a site inspection Council will re-assess the findings in the Draft Study Report & remove our property from PMF tagging.	Flood information availability Consultant Report PMF Notation	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map. See also response to related submissions #6 and #10	Not on FPA or PMF Tagging Mapping

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19	As owners of _____ St Gordon, we make the following submission to Council in relation to the Draft Middle Harbour Northern Catchments Flood Study and would like the points raised to be assessed. I believe there is pertinent information that has not been provided. Currently the Draft Flood Planning Area Mapping in relation to the PMF effected properties is not available online and hence it's hard for the impacted residents to see how, the depth and where their property is impacted by PMF. The catchment PMF map included in BMT's Volume 2 Design Flood Results report is not readable due to current resolution, even the A1 printed Maps from Council is visually difficult to read at a site level. Secondly, critical PMF tagging criteria and information is currently missing from Section 9.1 Flood Planning Information of the Draft Middle Harbour Northern flood study report, therefore PMF impacted residents wouldn't know or understand the key PMF selection / filtering criteria i.e. o "Areas with depths below 300 mm were removed. o Isolated areas smaller than 300 m2 were removed." [The above abstract was found and copied from the final 'Middle Harbour Southern flood report Section 9.1 Flood Planning Information page 103'] The BMT Flood Planning Information does not make site specific considerations. It would appear from information we do have available to review that the flood study is a 'desk top' study and a site inspection ought to be carried out. Items for consideration are: - The steep nature of our property and the sloping topography should result in PMF water flowing naturally down / through and away from our property. Site Survey shows more than 7 metres drop between the front and rear boundary of the property. - Overland flows should not pond more than 300mm in depth along the entire Eastern section of our property given there is a steep concrete driveway. An inspection would verify that our driveway at number ____ is approx. 3.5 metres wide plus neighbour's number _____ with its steep concrete driveway of approx. 3.5 provide for significant water draining of at least 7m. Likewise number _____ with its steep concrete driveway plus our side boundary providing at least another 5m. PMF water should constantly flow straight down these sloping driveways, the peak flood depth during the PMF event along our property therefore should not build up and exceed 300mm in depth. Taking into account the sloping site conditions of our property and the neighbouring properties we challenge that the flow, as indicated by the mapping provided to date, would eventuate. It may be that some isolated area smaller than 300 m2 occur but this could not be determined until such time as each of the points raised were considered and incorporated into study that includes these facts and those below. Our property is elevated and built on top of brick piers and not on concrete slabs as per current Flood modelling inputs Per the PMF map, there isn't a clearly define drainage line or water course Council / BMT consultant provide & show us the simulation modelling during a PMF event and its impact on individual proper□es in terms of PMF depth level and the affected area. In light of the points mentioned above, Council and BMT ought to arrange a site-specific inspection of the area in front of the houses _____ St. Gordon. We request that we are informed of the timing of this inspection.We believe that following this site-specific inspection of the topography, as well as the structural consideration of each of the homes (i.e., built on brick piers and not concrete slabs) this will provide a more accurate assessment of the likely PMF impact as compared to the existing assessment which has been done simply off satellite imaging. We expect that following this site-specific inspection, the council and their consultants will determine that: 1. Any potential cumulative ponding is less than 300m2 due to hard surface run off between the houses. 2. Ponding will be less than 300mm deep. 3. The houses themselves are not built on concrete slabs, therefore not applicable to this risk category. We expect, following the above, our property to be removed from PMF tagging within the Middle	Flood information availability Consultant Report PMF Notation Local property/topography features	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map. See also response to related submissions #6, #10 and #18.	Not on FPA or PMF Tagging Mapping

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	Harbour Northern Catchment Flood Study when considering the above local site conditions.			
20	We are writing in relation to the Middle Harbour Northern Catchments flood study and would like to bring to your attention some concerns we have with the findings and accuracy as outlined below. **Item 1**: Section 3 – Community Consultation (page 31 of Presentation-Material-Middle-Harbour-North-Flood-Study-Volume-1-Redacted_resized) This section discusses the community feedback process and results. We moved into our property in Oct-2015 and cannot recall receiving any community feedback forms. In any case Figure 3.1 shows feedback did occur from properties very close to ours and Figure 3.2 shows that none of the feedback given indicated any type of flooding event near our property. Further to this, since moving into our property in Oct-2015 we have experienced no flooding events whatsoever. **Item 2**: Section 5 – Model verification (page 53 of Presentation-Material-Middle-Harbour-North-Flood-Study-Volume-1-Redacted_resized) As per the overview "The selection of suitable historical events for calibration of computer models is largely dependent on available historical flood information. Ideally, the calibration and validation process should cover a range of flood magnitudes to demonstrate the suitability of the model for the range of design event magnitudes considered. As there were no existing historical records of watercourse flows or overland flow flood levels within the Middle Harbour – Northern Catchments, data received from the community consultation process was instead relied upon for the verification process. Limited observed flood level information was available from the community and the information provided was mostly limited to anecdotal flood behaviour information"… In reference to this point and the one made above in Item 1 Figure 3.2, we question how the model could produce flooding overflow results on our or neighbouring properties given there is no historical evidence/events available and the anecdotal evidence provided shows no flooding event. Further we also question the model's predictions when it has no actual historical records available (which has been stated in the report as being preferable). **Item 3**: Section 5 – Table 5.2 (Feb 2010 event) As per the table for _____ "Overflowing from blocked pit from neighbour property onto yard, pool and under the house" We question whether this is in relation to either ours or a neighbouring property or some other property along _____. As the occupants of our property in 2010 could not have received the survey sent out in 2020 (as we were living here at the time) we can only assume it was not in relation to ours or a neighbouring property. As this is the only reference made to _____ avenue and the flood model shows our property as having possible flooding events we question how the results of the model for our property could have been determined (i.e., as being included in overland flow). **Item 4**: Section 5 – Table 5.4 (June 2016 event) This table has the identical (cut and paste) result of table 5.2. As per table 5.2, this is the only reference to _____ avenue, if this feedback had a bearing on the overall model's result in relation to our property, we question the validity of the result as we were living in the property at the time and did not experience any flooding whatsoever.	Consultant Report Local observed drainage and flood	Noted. Community feedback noted in Section 3 of the report help to validate the model produced, but do not underpin it. Modelled scenario's include the 'worst case scenario' of blocked pits and pipes. Observed events that match the classification of modelled events (eg 20% AEP) may still not be identical. Easements directly adjoining the property indicate the significance for potential overland flows through the area during rare large events. Noting that drainage infrastructure is typically not constructed to address 1% or PMF flow magnitudes.	Still in FPA and PMF Tagging Mapping

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	Item 5: Section 5 – Table 5.6 (Feb 2020 event) As per item 4, the results are identical to table 5.2 and 5.4, we question this result especially if it had a bearing on the result of the model in relation to our property. **Item 6**: Page 3 of *Middle-harbour-Northern-Flood-Study-BMT-Draft_Report_Volume2_resized.pdf* A 20% AEP event indicates flooding in our property and blocked pit. We were living in our property in Feb 2020 which certainly had a <20% AEP and there was no flooding however the model indicates there would be. We question the accuracy of these results. As mentioned above, we moved into our property in Oct-2015 and in all that time have never experienced any flooding event whatsoever. We have lived here throughout all those years and during the extremely heavy rain events and observed no flooding behaviour. We kindly request a review be done in relation to our property and specifically would like the results of this Draft plan be updated to reflect the true nature of our property, that is, that there is no flood overflow or risk on our property			
21	Please have this re-assessed. We understand you have undertaken a flood study which affects our property in two zones, the creek out the back of property and the storm drainage though the side of the property Re: the creek The creek has a minimum 5.5m drop from the ground level and about 20m from the rear of the house line (boundary, the house is highly elevated from the creek), which with the rain pour we experienced in the last few years this did not come near the boundary at all . The downward trajectory of creek enables the water to flow quickly through. We confirmed with our neighbours on the 1 in 100 storm that occurred in 2018 as per the records and there was no flooding from or near the creek. Re:storm drain With regards to the drainage line, we had a council member come out who left a tag that council would come and install a sensor that would indicate blockages within the drain, from what we know this has still not been done as the manhole as not been touched. This would ensure that the drainage works accordingly. In addition if council were to sweep the roads more often this can avoid all the leaf debris from entering the drains. But again with the heavy rainfalls we've experienced over the 5 years, this did not cause issues of flooding due to the size of the current drainage. Please can you re-evalute this evaluation done based on the above and have our property removed from the marked zones as this has significant negative impact on our property in terms of value as well as unnecessary increase in insurance premiums considering this has not occurred even with the recent major storms in 2018. If this is not satisfactorily resolved we will have to look into taking further legal action.	PMF/FPA Notation Local observed drainage and flood Property Value/Insurance	Noted. The site has been identified with different areas of Overland Flow Flood Planning Area relating to drainage systems and Mainstream Flow Flood Planning area in relation to the watercourse behind the property. The Mainstream Flow Flood Planning Area includes a 500mm 'freeboard.' The modelled peak of the 1% AEP is 500mm lower than this. Although storm events from 2018 and 2019 are noted in the report, it was the February 2010, June 2016 and February 2020 flood events that were identified by the community to be major events within the study area and have been utilised for the model verification. Easements directly adjoining the property indicate the significance for potential overland flows through the area during rare large events. Noting that drainage infrastructure is typically not constructed to address 1% or PMF flow magnitudes. Actions for alleviating and management of flooding with will be considered at the next stage of the flood risk management process – the Flood Risk Management Study and Plan. Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping.	Still in FPA and PMF Tagging Mapping

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22	We are most concerned. We have received a letter from Ku-ring-gai Council informing us our house is located “within the Probable maximum flood areas identified in the Draft middle Harbour – Northern Catchment Flood Study.” We are ____ (____and ____) and have lived at this address for 45 years. Our home is on a hill and never flooded. Will this assessment affect in our future insurance premiums? Your comments/ assistance would be most appreciated.	Local observed drainage and flood Property Value/Insurance PMF Notation	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping
23	Dear Sir/Madam, This is the owner of _____ St Pymble, and my block is classified within the Probable Maximum Flood Area in the draft flood study. After reading the draft report and attending the public information session, I request the removal of this classification on my block for the following reasons: 1. Only the tail of my block is in the Probable Maximum Flood Area 2. The back block is significantly lower than my block 3. My garden is also lower than the house itself 4. During the 2020 February event, my block was not flooded at all (peak flood depth of 0), which is different from the model verification result in the draft report.	PMF Notation Local observed drainage and flood	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping
24	I am only commenting and providing feedback on the area around _____ Drive as this area I am familiar with and my property (_____ Drive is "impacted") I do have concerns as to: 1. BMT getting the levels entirely accurate ○ As the difference between a 20% AEP and a 1% AEP in my area is only 0.2/0.3m, yet your 1% AEP Peak Flood Depths overlays (including the 500mm freeboard, seem to go well and truly above those levels.) ○ As informed by Craig, "The creek contour is 134 around my property". I don't think this is accurate. At the very rear of my property, the lowest point is 134 and the top of the creek bank (which has never been breached) is definitely lower than this point. (1m inside my property the levels step up to 134.6) The actual regular water level in a non-storm period in the creek is 1.5m lower than that. ○ Given the inaccuracies in levels, I don't believe the Model Peak Flood Levels to be accurate. (Areas included that shouldn't be) ○ Even impact from the overland flow path model would have water flowing uphill or levels beyond the model based on the reality of the contours 2. Inaccuracies between the Online Map Viewer and Modelled AEP Peak Flood Depths Overlay (Provided by Ben on 10/11/2023) ○ there are some big differences between these two. ○ The Online Map Viewer seems more dramatic than the overlay provided. ○ Which one is right? 3. Reality vs model	Consultant Report Local observed drainage and flood	Noted. BMT and council staff undertook a site visit to confirm the on-ground features of the property. It has been concluded that the model accurately captures topography and terrain of the eastern portion of the Site (including the various different levels backyard, pool, house floor level). The eastern portion of the site will be affected by floodwaters. An error was picked up in the outputs for verification location flood depths. It will be corrected in the final version of the report. However, it was not a modelling error so the model and local flood levels remain unchanged.	Still in FPA and PMF Tagging Mapping

#	Submission Summary	Topic	Response	Result
	○ Having witnessed firsthand the creek and area during Feb 2020, March 2021, and March 2022 events, nothing even close to this modeling was experienced ○ 8th March 2022 was probably the highest I (and others who have been around 30+ years) had seen the creek and it NEVER breached the bank. It came close for a 30-minute period and quickly dropped again to well below the creek bank. Water has no issue getting away ○ A similar event happened on 6th April 2022 and once again the creek never broke its banks ○ 8th March and 6th April 2022 had higher creek levels than Feb 2020 ○ No overland water (or close to it) was experienced on _____ Drive (Even 5 & 7 plus _____ Drive that are modeled to have the overland flow path) or properties near the creek ○ There is no choke point to cause flooding to spread overland and travel uphill onto my property. The area is wide open and water has no issue escaping ○ Even though we could get storms worse than the ones of recent times (The 1% storm), these models connected with reality seem a little off and extreme based on real-world observations 4. Report Inaccuracies ○ As I said, I only looked at a small part of the report, and yet through my inquiry Data Entry inaccuracies were found and corrections need to be made. ○ It concerns me that the report may have further inaccuracies. ○ Inaccuracies should never get to public exhibition. Thank you for considering my points and will further investigate, Once again, thank you Craig and Ben for your responsiveness and engagement during this process			
25	At this time I am in a state of shock to be informed that my property at number _____St Ives is in a flood zone. This may affect my property value and insurance premiums in the future???? The good news is that is has been calculated that a flood event will only occur one in 10,000,000 years. I am not sure that I will be here to experience the event!!! Have a nice week, and keep smiling and the WHOLE world will smile with you.	PMF Notation Property Value/Insurance	Noted. Slight adjustments to the model and PMF tagging map output have resulted in a reduction in the area of this property impacted by the PMF Tagging map. However, the extent of PMF flooding in the front setback exceeded the 2m criteria for trimming at the front or rear boundary, as such is recommend for review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process. Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping.	Not in FPA Still in PMF Tagging Mapping – Reduced extent
26	Thank you for the opportunity to comment on the 'Draft Middle Harbour Northern Catchments Flood Study' ('the Report'). Whilst I am pleased to see the Ku-ring gai Council is taking the flood risk seriously, I have a number of significant concerns with both the accuracy of the results of this study in my local area – in particular the modelling of Overland Flow flooding - and the application of the results to my property.	PMF/FPA Notation Local observed drainage and flood Property Value/Insurance	Noted. Overland flow flood planning areas are noted as such to indicate flows going overland, the extent of FPA encroaches more than the criteria of 1m for trimming at the side setback , however is	Still in FPA and PMF Tagging Mapping

#	Submission Summary	Topic	Response	Result
	I have also made a number of general comments on the study, some of its implications and the potential future use of the results. **Concerns specific to categorisation of my property** I do not believe it is necessary or equitable for my property to be included in the Overland Flow Planning Areas or Probable Maximum Flood tagging area for the following reasons: **1. The land tagging will have a very disproportionate impact on my property** • The area of my land impacted under the modelled 1% AEP is insignificant (see Attachment 1). Based on the draft Flood Planning Area Mapping, the impacted area appears to be only about 25 square meters out of the total land size of 1891 square meters i.e. just over 1% of the land. • The 1% AEP flood area is well away and downhill from existing buildings. It is thus of no consequence to the existing buildings even if the modelled event materialises. • The depth of the flood on my land is low even in the extreme modelled scenarios. Council has stated the modelled flood depth is predominately less than 0.3m in the 1% AEP event. I note the Freeboard allowance is 0.3m which suggested the actual modelled flood would be very insignificant. Even in the Probably Maximum Flood event, the flood depth is predominantly less than 0.4m. • Much of my land which is shown as being impacted under the 1% AEP event is steeply sloping (Attachment 2) and hence the risk of a material under-estimate of the impacted area is small, whilst the risk of my property being flagged unnecessarily is high. • Often insurance companies will not consider where the impact of a modelled flood is in relation to location of buildings. As a result of this study, I may face significantly higher insurance premiums – and in the future may not be able to find affordable insurance at all - and ultimately it may not be possible for a mortgage to be taken out on the property. This could all occur notwithstanding the modelled results showing there's little or no risk to my buildings even under an extreme event and very little impact to the land. • Council has excluded from the 'Overland Flow and Mainstream Flow Flood Planning Areas' other properties with potentially far more of their land impacted due filtering out areas less than 100 meter square (see section 9.1 of the Report). Some of these properties are highly likely to be at far greater risk of flooding. Thus, it would appear to be an inequitable treatment for my properly to be tagged while the other properties which are more at risk are not. **2. The tagging of the land does not meet the Council's objective of study** The Report's stated the objective is to "aid in Council's management of flood risk" specifically around "strategic-land use, flood-related development control, storm-water management and flood emergency response." • The impacted of my land under the 1% AEP results could not be built on due to it running along the boundary of my property (see Attachment 1). • The impacted area of my land of my land under the 1% AEP could also not be built on due to there being an easement (Sydney Water sewer) in the impacted area (see Attachment 3). Tagging of my property is thus not achieving any meaningful outcome. **3. The potential for model error leading to overstatement of risk to my property is high** • The vast majority of the depth of the Overland Flow flooding on my property is well within margin of error for LiDAR readings stated within the section 2.1 of the Report. The area along the open storm drain on my neighbours' property is heavily vegetated and I understand from speaking to experienced flood risk professionals the potential error for LiDAR readings increases significantly in such areas. • The modelled results for Overland Flow appear to be very poor in my local area and do not identify properties which have been vulnerable to recent rain events. Of note: o No water was observed to flow over the land of _____ Avenue in the February 2020 rain event, despite the *unfiltered* model results suggesting a very significant area of _____ Avenue would experience water running overland and towards my property in a 5% AEP. There was no impact to my property in the February 2020 rain event, and to my knowledge there has never been flooding impacting my property as the 5% AEP *unfiltered* results suggests should happen periodically.	Flood information availability	recommend for review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process. As there is a limit to the information that can be contained in the 10.7 Planning Certificates, Council has a Flood Certificate Report available for purchase that demonstrates the site-specific details for flooding including extent, levels and hazard mapping. Information available on council's website will continue to be improved to help clarify what the mapping indicates and help address concerns around potential issues with interpretation of Council's flood mapping. Easements directly adjoining the property indicate the significance potential for overland flows through the area during rare events. BMT and council staff undertook a site visit that indicated that the model provides a fair representation of the flooding across the property. On ground features and observations did allow for the model to be adjusted. There was still sufficient FPA to maintain the tagging. The 2020 LiDAR data was supplied on a 1 m grid resolution, with a stated horizontal accuracy of +/- 0.8m @ 95% confidence and a vertical accuracy of +/- 0.3 m @ 95% confidence. It is therefore considered appropriate for this study.	

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	o A neighbour who has lived in my street for over 40 years is not aware of water ever having flowed across _____ Avenue as the 5% AEP unfiltered model results suggested should happen periodically. o I am however aware of a number of other buildings in the relatively close area – including on neighbouring streets - that have regrettably suffered from flooding in recent years. Most of these properties are not in either of the 'Overland Flow Area, Mainstream Flow Flood Planning Areas or Probable Maximum Flood Area, suggesting the model is failing to pick up those properties more at risk in my local area. Whilst there can be uncertainty in the actual likelihood of past events, it is very concerning - given Council has stated the model results are run on a "worst-case scenarios of a given AEP" - that the model suggests my property is vulnerable yet other properties which have suffered actual past flooding have not been flagged as being at risk. o Water typically runs off the side of the road at number of places in my street when there is very heavy rain. This does not appear to be adequately captured by the model. I understand that a number of years ago residents in my street requested curbing be placed on the street due to this issue, but this ultimately didn't proceed when residents were asked to fund part of the cost. The above observations strongly suggest that the model's performance in relation to Overland Flow is poor in my local area, with results inconsistent with actual past events. In summary, I believe it would be unreasonable and inequitable for my property to be within the 'Overland Flow or Probable Maximum Flood Planning areas'. I therefore trust Council will carefully consider the specific issues with the draft categorisation of my property highlighted above. **Other comments on the study** • I don't believe it would be appropriate for high-resolution maps showing the results of individual properties for more frequent return periods e.g. 1-in-20 return period (5% AEP) to be ever made publicly available. Whilst I was shown some high-resolutions results these have not been made readily available for residents to review and challenge their validity as part of the consultation process. As per my early comments, in the case of my local area, I don't believe the 5% AEP results are credible. As well as potentially overstating the risk to some properties, owners of properties which the analysis suggests are not at risk may take undue confidence from the results. • There is a very significant risk that if approved in its current format, the Report will be taken as factual. I am aware of a number of properties which the draft Flood Planning Area Mapping suggests are not at risk even under a 1% AEP event, have in the past suffered flooding - not only to land but also to buildings. • I strongly suggest that both the Report and Flood Planning Area Mapping contain prominent and clear caveats explaining: o the results may not be accurate for some individual properties, the risk of an individual's building suffering flooding may be very different (higher or lower) than suggested by the Flood Planning Area Mapping, and the risk of an Confidential \ Personal Data individual's *land* suffering from flooding may not be a good indicator to the risk of an individual's *buildings* suffering from flooding. o that the results may not be appropriate for use by insurance company to assess the risk to an individual property. The reasons for this are many and include a potential unduly conservative approach in aspects of the model e.g. including the loading applied to the results for future climate change impacts. This is inconsistent with the ideal basis specified in Insurance Council Australia's Local Government and Insurance Sharing Flood Risk Information sheet, which states that "Flood insurance typically covers the current flood risk so the boundary condition and climate scenario model *would ideally be for the current climate, not a conservative assumption*". For some properties the modelled results also appear to be poor and inconsistent. Also note the next bullet regarding potential conservatism in the results. • Having spoken to a flood professional I understand that some of the assumptions e.g. degree of blockage, assumed in the model are very conservative. Council have themselves described the result to be a "worst-case" scenario of a given AEP. Unduly conservative assumptions may have very significant and adverse impacts for individual			

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	property owners, and may mean that the stated AEPs are not representative of the actual likelihood. **Attachment 1 – Flood Planning Area Mapping result for my property** **Attachment 2 – Photo showing the steeply sloping land typical along the boundary** **Attachment 3 – Evidence of existing easement running along impacted area**			
27	The Overland Flow Flood Planning Area (light blue) and The Probable Maximum Flood Tagging Area (green) shows the snapshot of our property. Our property will not flood as it is raised above street level. We do not want this marking showing on our property. It would be appreciated if you would trim the marking of my property's corner and side from the study	PMF/FPA Notation	Noted. Notation on the planning certificate does not imply that the whole property is impacted – Council's Flood Certificate Report is available to demonstrate site specific areas. Minor encroachment of FPA along the font/side corner boundary for this property meets criteria of less than 2m for front and 1m for side to trim the FPA tagging at front/side setback. PMF extent is over 2m/1m so cannot be trimmed at this stage, however is recommend for review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process.	Not in FPA Still in PMF Tagging Mapping
28	Many thanks for clarifying the Flood Risk Management Plan per conversation Friday. I've checked distances and angles and certain any flood water or torrent would need to be in excess of 5m deep before affecting my property. Photo below: I've been here 23 years and never experienced any sign of flooding. Topologically, we're at 164m above sea level, if we were to flood, the entire Sydney basin would be submerged. Gardens can be affected by broken/cracked kerbs, and this 12 foot chunk has calved from outside number _____ Street. The drains outside _____ Street are largely ineffective year round also (visible on Google Earth/Maps). Does council maintain kerbs and drain, and how do I bring this to their attention?	PMF Notation	Noted. PMF extent extends too far into the property so cannot be trimmed at this stage, however, is recommend for review at the Flood Risk Management Study and Plan stage of the Flood Risk Management process. Council's customer service team should be notified when maintenance is required on Council's drainage system.	Not in FPA Still in PMF Tagging Mapping
29	Thank you for the opportunity to make a submission in relation to the Draft Middle Harbour Northern Catchments Flood Study. As a water resources engineer with experience in flood risk assessment and management, I appreciate the initiative of Council to undertake studies such as this one and educate the community of risks associated with flooding. It has certainly triggered quite a few conversations in my own section of the community. While in some respects anything that provides additional awareness around this important issue is a good thing, I believe there are some significant issues with the accuracy of the current study. This has the potential to erode the public's confidence and their willingness to take on board the important messages related to it. I initially reviewed the study with a focus on my own property, at _____ Road, Pymble and noted that the hydraulic analysis of _____ Gully here appears to have been based solely on LiDAR data. Further information requested from Council during the consultation period suggests this is in fact the case. My own simplistic investigations found that LiDAR data here is likely to be highly inaccurate (potentially with surface	Local observed drainage and flood Property Value/Insurance Consultant report	BMT and council staff undertook a site visit that indicated that the model provides a fair representation of the flooding across the property. On ground features and observations made will not affect the outcome of the modelling. The extent of flooding that occurs is along the north-eastern site boundary, located more than 10m lower than the house and the backyard, which captures a portion of the Gully. The pipe/bridge was observed further downstream. Notation on the planning certificate does not imply that the whole property is impacted, as there is a limit to the information that can be contained in the 10.7 Planning Certificates, Council has a Flood Certificate Report available for purchase that demonstrates the site-specific details for flooding including extent, levels and hazard mapping. LiDAR data has been predominantly used to represent topographic features of the catchment. In some waterway locations particularly adjacent to crossing/culvert structures, LiDAR data has been	Still in FPA and PMF Tagging Mapping

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	levels more than +-2m of 'real world' values). I'm not a surveyor, but I understand this could be due to a range of reasons, with one likely reason being LiDAR data typically has relatively poor accuracy in heavily vegetated areas. Another reason at this specific location is the presence of a 'pipe bridge' (1200 dia SydneyWater water supply pipeline) across the creek. LiDAR survey is unlikley to recognise this as a bridge and modellers would need to manually modify the Digital Elevation Model (DEM) to remove this and this doesn't appear to have happened in this instance. With surface levels having such large error ranges, well beyond the typical values quoted in the study, the hydraulic model results would also be expected to be of very low accuracy. I only did a physical check of the surface level data at my own property, however the significant issues made me question the accuracy of this LiDAR data across the whole study area. Given a key aim of the study is to represent flood behaviour in the mainstream flow paths and these are typically associated with the creeks/waterways and these in turn are often the most heavily vegetated areas, I expect the areas of most interest to have the least accurate results (Not ideal!). The draft report did suggest that a small number of creek sections were surveyed, but no comparison was shown in the report between these and the LiDAR. I suggest this should be documented and maybe it shows a better picture than what I think it might, but I'm not convinced this would be the case. Another simple check I did was to compare surface levels from the 2020 LiDAR data to the 2013 data set. This comparison showed a strong correlation between locations with significant differences (greater than +-0.6m) and the creeks/waterways of the study area. LiDAR data for roads is typically much more accurate and this comparison found very limited differences in roadways. While a very small component of the large differences could be put down to geomorphology (ie. changes in creek form over time), observations of the creek at my own property, which is on bedrock, would suggest that this is a very minor component in many locations here. I would suggest the consultant should undertake and present their own analysis and findings of this or find some other way to give confidence in this data which is so fundamental to the hydraulic model results. Given the above, I would suggest that the accuracy of the draft study isn't even close to the implied accuracy of '1 decimal place' or flood levels of +-0.1m. I believe it would be lucky to be +-1m in many parts of the creeks/waterways. The lack of attention to detail to ensure surface level data represents 'real world' conditions also makes me question the accuracy of other data and parameters used in the study. The surface level data can be relatively easily 'sanity' checked, but many other modelling parameters can't be without reviewing the details of the models themselves. If this study is going to be relied on and be considered 'fit for purpose' I would suggest a peer review be conducted. A key issue going forward is that Council and third parties, including insurance companies, will likely rely on the stated accuracy of the study. There would be material impacts to insurance premiums, development assessment processes and future flood risk management prioritisation. All of these processes/items would be flawed if based on the information produced in this draft study. An additional point related to how this information will be used, regardless of the accuracy, is the many properties which are adjacent to creeks/waterways, but have floor levels well above any estimated flood levels due to the relatively steep terrain. My own		supplemented with surveyed cross-sections. The 2020 LiDAR data set represents the best available dataset for use in a catchment wide assessment of this nature. Potential limitations of the LiDAR data are noted in the report, along with modelling parameters are provided in detail in the reporting.	

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	property has a floor level which is in the order of 10m above the 1% AEP flood level (to the best of my interpretation of the very poor resolution flood level maps). There is no practical way in which I could develop anything anywhere near the potentially flood impacted corner of my property (as shown in the draft results), yet it could still be 'tagged' and potentially open me up to the possibility of having to undertake flood assessments if I submitted a DA, pay increased insurance premiums and/or be impacted by reduced resale values. There would be many buildings at much higher risk of mainstream flooding than mine that would not be tagged based on this study. At a minimum I would suggest a review should be undertaken to filter out properties like mine. I would welcome the opportunity to discuss this with anyone at Council or their consultants further. I would happily share further details of my own investigations, but have had limited time in which to pull this submission together. I would suggest the paid consultants should undertake the necessary investigations and present back on their findings and update their draft report. Given the significance of the issues, I would also suggest an updated draft study should be made available for further review/consultation prior to being considered by Council for adoption or being made available to third parties			
30	I believe tagging our property as flood risk management is a bit harsh	PMF Notation	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map.	Not on FPA or PMF Tagging Mapping
31	I am contacting you regarding the Middle Harbour Northern Catchment Flood study. We have significant concerns regarding the study's results and accuracy and would like to request further review and analysis regarding the classification of _____ Ave as an overland flood prone property for the following reasons. **Issue 1.** ***Mapping Tool Error*** At the community consultation, on the 26th of October, the consultant noted that it appeared that the buildings on properties _____ Ave has had been joined together to form one building by the mapping tool. This needs to be re-checked. **Issue 2.** ***Lack of Model Calibration and Validation.*** (Presentation-Material-Middle-Harbour-North-Flood-Study-Volume-1-Redacted_resized) Section 5.5 of the report (p73.) states that there is no recorded peak flow data upon which to base a quantitative model calibration. Having zero data to calibrate this event, calibration of the model is attempted using smaller events, then extrapolating the results to a larger to 1:100 year storm. Perhaps rezoning land to be flood prone using this method would be appropriate for planning regarding previously undeveloped land, however applying such guesstimates to pre-existing homes is of concern. The proposed model relies on very limited anecdotal community reports and a 'parallel' calculation in a software program (Tuflow). These limited verification methods are far inferior to use of actual field measurements to ensure the model is accurate. Given the lack of model calibration and validation, the modelling results should be considered tentative, and it is concerning that they would be used as grounds for placing restrictions on property owners.	Consultant Report PMF/FPA Notation Local observed drainage and flood	Noted. Slight adjustments to the model and PMF tagging map output have resulted in a reduction in the area this property impacted by FPA, removing ponding from in front of the residence, however a flow path still remains. Flood notations do not 'rezone' properties, the mapping is an overlay that triggers a consideration. Community feedback and peak flow data help to validate the model produced, but do not underpin it. A lack of this data is common in NSW and is not considered prohibitive in producing the models to base the FPA and PMF tagging. Modelled scenarios include the 'worst case scenario' of blocked pits and pipes. Observed events that match the classification of modelled events (eg 20% AEP) may still not be entirely identical.	On FPA Map (reduced extent) On PMF Tagging Map

#	Submission Summary	Topic	Response	Result
	Issue 3. ***Anecdotal Evidence supporting no flood or ponding*** The proposed model uses limited anecdotal evidence of flooding at either 1 or 3 _____ Ave (figure 3.2, p 4, Presentation-Material-Middle-Harbour-North-Flood-Study-Volume-1-Redacted_resized, address provided by consultants at community consultation) at an undisclosed date to support widespread flooding and ponding on _____Ave. This part of _____Ave is located nowhere near number ___. We have lived at __ _____Ave since May 2013. There was **no flooding or ponding** at _____ Ave or on the road in either in the 2016, or 2020 periods. Indeed, there was **no flooding or ponding** at _____ Ave or on the road in a 2022 rain event which was an even more extensive rain event than the 2016 or 2020 rain events. We didn't live in _____Ave in 2010, but the data in the report suggests it was a less extensive rain event than the 2016 and 2020 events in which no flooding or ponding occurred. Figure 3.2 shows in the report that feedback was received from properties very close to number 10 that raised no issues with flooding. If Council wishes to use anecdotal evidence to check the proposed model, then the lack of flooding or ponding on properties _____ Ave or the road and reported also for nearby properties during the 2010, 2016 and 2020 rain events or during the following years' la Nina rain events, or at any time, decisively demonstrates inaccuracies in the proposed model. Page 3 of the *Middle-harbour-Northern-Flood-Study-BMT-Draft_Report_Volume2_resized.pdf* shows a 20% AEP event and indicates flooding property and a blocked pit. We were living in our property in Feb 2020 which a <20% AEP rain event occurred and there was no flooding. However the model indicates there would be. We question the accuracy of these results. The proposed model is not accurate for the smaller events, so a guestimate that extrapolates to a larger event is very likely to be inaccurate. **Issue 4.** ***Stormwater Pipe Capacity*** There is a stormwater pipe running down the side of _____ Ave. I have never witnessed overland flow down my driveway, as all rainwater from the street is carried away via the stormwater pipe. The model appears to underestimate the flow carrying capacity of this stormwater pipe. We respectfully request further review and analysis regarding the classification of _____ Ave as an overland flood prone property given the above issues relating to the report and proposed model.			
32	This submission is in relation to "tagging" of the above property, along with others (No.69→79 inclusive) as being within the "probable Max. Flood Areas" with ponding of up to 30cm. I am objecting to this tagging on the ground of: 1) The validity of the model used to produce the risk map needs to the verified by independent bodies. 2) Other models of prediction of flooding and ponding should be used, and their resulting predictions should be made public so that comparison can be made 3) Sit visits have not been performed to identify if specific factors are in play in individual properties I object to have my property tagged in this way without further <u>independent</u> corroborative evidence	PMF Notation	Noted. Slight adjustments to the model and PMF tagging map output have resulted in this property no longer impacted by the PMF Tagging map. See also response to related submissions #6, #10, #18 and #19.	Not on FPA or PMF Tagging Mapping

NOTICE OF MOTION

REAFFIRMING COUNCIL'S POSITION ON TOD SEPP, AND ADDRESSING THE CANCELLATION OF THE EXTRAORDINARY MEETING OF COUNCIL (2 JULY 2025)

Notice of Motion from Councillors Devlin and Smith dated 4 July 2025

On 27th June 2025, an Extraordinary Meeting of Council (EMC) was called at the request of two Councillors, Cr. Cedric Spencer & Cr. Jeff Pettett, purportedly to consider a motion relating to "Proposed Additions to the GB1 TOD Alternative on the Preferred Scenario". This was widely interpreted as an attempt to revisit Council's formally adopted position on the Transport Oriented Development (TOD) SEPP Preferred Scenario. A position established through rigorous & robust debate, lengthy & comprehensive community consultation, and proper process, and currently under active review by the NSW Department of Planning, Housing and Infrastructure (DPHI).

The calling of the EMC caused significant and unnecessary confusion within the community. Many residents, some of whom had been active and constructive participants in the consultation process, were misled into believing that Council's position had changed, or was in the process of changing. Others were left questioning the integrity of Council's processes and decision-making.

Most concerning was the way in which a handful of residents were drawn into this political exercise under false pretences. Their genuine concerns were weaponised, used as a prop to give legitimacy to a poorly conceived, procedurally questionable motion that was hastily cobbled together without policy basis. Residents were offered false hope that individual concerns could be resolved by bypassing Council's established processes. That hope was misplaced, and the blame for that lies squarely with the Councillors who orchestrated this stunt masqueraded as planning reform.

The EMC motion and its accompanying proposal not only sought to re-litigate resolved matters, it did so based on flawed reasoning, misstatements of planning law, and a fundamental misunderstanding of Council's operational, legal and policy constraints. Multiple elements of the EMC proposal were factually incorrect, procedurally invalid, or potentially legally unworkable. Council seeks to formally correct the public record on numerous counts, including:

- False claims about legal proceedings: The EMC motion called for Council to drop legal action prematurely, despite no certainty from the State Government regarding the adoption of Council's alternate TOD scenario (whilst noting that at present there has been positive engagement with DPHI). Doing so could have exposed Council to strategic risk and weakened its negotiating position. Something the proponents either failed to grasp or deliberately ignored;
- Baseless innuendo around conflicts of interest: The original motion (not sent to Councillors by the proponents, but to residents and only shared to Councillors by a resident upon

request) implied that Councillors may not have declared conflicts of interest, despite the fact that all relevant disclosures had been made. This implication is untrue;

- Legally flawed proposals around heritage: The motion attempted to allow for widespread demolition or delisting of heritage properties based purely on context loss. This approach is entirely contrary to NSW heritage law. It misled residents into thinking Council had power it does not possess, and proposed changes that would likely undermine the very protections residents expect Council to uphold;

- Misleading references to planning instruments: The proposal wrongly suggested that Council could dictate oversight of State Significant Developments (SSD), when in fact Council is a referral body only. Similarly, it misrepresented the processes and timelines for preparing a Development Control Plan (DCP) and amending the LEP, processes which depend on the Department's support and cannot be bypassed;

- Developer-aligned planning amendments: Elements of the EMC motion, including proposals for uniform apartment setbacks and increased floor space ratios for "luxury homes", bore the hallmarks of developer lobbying. These amendments ignored the evidence-based and strategic logic behind Council's alternative, and could have led to adverse outcomes in terms of urban tree canopy, biodiversity, and local character; and,

- Recycling a previously rejected policy: The motion's calls for an "LGA-wide" approach were virtually identical to an earlier proposal that had already been debated and rejected by Council in March 2024. The attempt to resurrect it via an Extraordinary Meeting, rather than through standard policy channels, reflected a disregard for process and institutional memory.

These actions not only misled residents but also insulted the extensive engagement process already undertaken. To suggest that the community had not been consulted, as implied in the EMC notice's reference to a need for "thoughtful, community-driven urban planning rather than piecemeal adjustments", was not only disingenuous, but demonstrably false. The TOD SEPP response was arguably the subject of the most extensive community consultation ever undertaken by Ku-ring-gai Council. There were three phases of consultation commencing in January 2024, through until May 2025 were; Phase 1 – "Initial Consultation", Phase 2 – "Development Scenarios", and Phase 3 – "Preferred Scenario Feedback".

Statistics on the multiple community engagement campaigns highlight the breadth of the process and depth the response:

- Phase 1 (January 2024) – Initial Consultation:
    - Communications Reach:
        - 48,000 flyer mailout (residential and business ratepayers and occupiers);
        - 23,388 project webpage visits (6 January – 16 February);
        - 36,000+ E-newsletter subscribers;
        - 3,000 reach on Facebook posts;
        - 2,388 impressions on NextDoor;
        - 715 impressions on LinkedIn; and,
        - High-level media coverage: ABC Radio, 2GB, Channel 9, Channel 7, Channel 10, Sydney Morning Herald, Daily Telegraph, The Guardian, Sky News.

- Engagement:
  - 5,307 survey responses (largest opt-in survey in Ku-ring-gai in past 10-years);
  - 508 attendees at public forum (144 in-person, 364 online);
  - 774 registrations for information session;
  - 7,000+ clicks on e-news articles; and,
  - Peak daily participation of 929 survey responses on 15th February.

- Phase 2 (November/December 2024) – Development Scenarios:
  - Communications Reach:
    - 26,995 letters sent to property owners/occupants in Roseville and Gordon Wards;
    - 63,000 e-newsletter subscribers across multiple lists:
      - Ku-ring-gai News: 37,865 subscribers;
      - Business Bulletin: 20,972 subscribers;
      - Business E-news: 1,814 subscribers;
      - Special planning e-news: 2,046 subscribers; and,
      - Yoursay E-news: 1,187 subscribers.
    - 37,011 total page visits to engagement hub;
    - 12,561 unique visitors;
    - 20,108 document downloads;
    - 60 Council-owned bus shelters with advertising across LGA; and,
    3
    - Electronic billboard over Pacific Highway at Gordon.

  - Engagement:
    - 3,815 total survey responses (2,946 online verified + 869 paper)
    - 303 meeting attendees across sessions:
    - 210 at two public meetings
    - 93 at online forum
    - 65 at two paid workshops
    - 51 at drop-in sessions
    - 193 telephone survey participants
    - 657 written submissions (514 regular + 143 late)

- Phase 3 (April 2025) – Preferred Scenario Feedback:
  - Communications Reach:
    - 27,000 letters sent to property owners/occupants in Roseville and Gordon Wards;
    - 660 emails sent to Phase 1 participants;
    - 38,000+ e-newsletter subscribers across multiple lists:
      - Ku-ring-gai News: 38,000 subscribers;
      - Business E-news: 1,800 subscribers;
      - Yoursay E-news: 1,187 subscribers; and,
      - Housing e-news: 2,046 subscribers.
    - 1,505 reach, 119 engagement on Facebook;
    - 12,341 total page visits to engagement hub;
    - 5,270 unique visitors;
    - 844 document downloads; and,
    - Media distribution to 40+ local and national media contacts.

- Engagement:
  - 2,020 verified survey responses;
  - 120 individuals attended community drop-in session (approximately 80 groups); and,
  - 293 written feedback items received via email.

To claim this process was "piecemeal" is not only misleading, it's an insult to the thousands of residents who took the time to participate in good faith. Arguably, no planning process in the Municipality's history has achieved greater reach, participation or transparency. To suggest otherwise undermines the integrity of process and those involved.

The EMC was ultimately cancelled after the two Councillors who had requested it, Cr. Cedric Spencer & Cr. Jeff Pettett, withdrew their support. By then, however, the damage was done: staff time had been wasted, residents had been misled, and Council's public credibility had again been eroded by political gamesmanship masked as policy reform.

This motion seeks to place on the public record a clear repudiation of that behaviour. It reaffirms Council's legitimate, evidence-based position on the TOD SEPP, and sends a message to residents and Councillors alike, that Council's processes are not for political manoeuvring. Councillors have a responsibility to use their powers with integrity, and to work in the service of the whole community, not to advance personal agendas, or to play to the gallery.

The process adopted by Council arguably represents best practice within the time constraints imposed.

We, therefore, move that Council:

1. Notes that the Extraordinary Meeting of Council scheduled for 2nd July 2025 was cancelled following the withdrawal of support from the two Councillors who originally requested it;

2. Acknowledges that the meeting was convened for the purposes of reconsidering elements of Council's adopted position on the Transport Oriented Development (TOD) SEPP response. A position that was subject to extensive community consultation and is currently under active review by the NSW Department of Planning, Housing and Infrastructure;

3. Further acknowledges the significant concern and confusion caused in the community by the calling of the Extraordinary Meeting of Council, which gave the false impression that Council was reconsidering or overturning its resolved position;

4. Confirms that the proposed motion for the Extraordinary Meeting of Council was inconsistent with Council's previous resolution on the matter and was not supported by Council or the community;

5. Requests the General Manager to publish this resolution on Council's website and to communicate it in the next available Council newsletter and social media update, to provide clarity to residents.

RECOMMENDATION:

That the above Notice of Motion as printed be adopted.

Councillor Matt Devlin
Councillor for Comenarra Ward

Councillor Martin Smith
Councillor for St Ives Ward

QUESTION WITH NOTICE

TRANSPORT ORIENTED DEVELOPMENT (TOD) SEPP LEGAL PROCEEDINGS

QUESTION:

Question from Councillor Matt Devlin dated 4 July 2025

1. Please confirm the names of the Councillors who voted to support the resolution "that Council commence proceedings in the NSW Land and Environment Court concerning the Transport Oriented Development Amendment to the Housing SEPP" on 8th May 2024?

2. Please confirm the names of the Councillors who moved and seconded a motion to suspend the aforementioned legal proceedings on 4th June 2024?

3. Please confirm the names of the Councillors who voted to support the resolution to suspend the aforementioned legal proceedings on 4th June 2024?

4. Please confirm the names of the Councillors who voted against the resolution to suspend the aforementioned legal proceeding on 4th June 2024?

5. Did any Councillor change their position on the legal proceedings, by way of their vote between the May & June 2024 meetings, therefore counteracting their position on the legal proceedings? If so, who?

6. Did any Councillor change their position on the legal proceedings, by way of endorsing a motion, but then voting against the resolution in the June 2024 meeting, therefore counteracting their position on the legal proceedings? If so, who?

7. What is the current status of the Department of Planning, Housing & Infrastructure's (DPHI) review of Council's Preferred Scenario, and can the General Manager provide commentary on the positive and progressive nature of the relationship between Council and DPHI?

Councillor Matt Devlin
Councillor for Comenarra Ward

RESPONSE:

Response from General Manager

1. Response

   The following motion was carried unanimously:

   > *B. That Council commence proceedings in the NSW Land and Environment Court concerning the Transport Oriented Development Amendment to the Housing SEPP, to seek declarations as to invalidity and orders restraining any associated breach of law, including the Environmental Planning and Assessment Act 1979.*

   The following Councillors voted for the motion: The Mayor, Councillor Ngai, Councillors Lennon, Smith, Spencer, A. Taylor, G. Taylor, Ward and Wheatley.

   Councillors Kay and Pettett were absent from the meeting.

2. Response

   A motion was moved by Cr Spencer / Pettett as follows (in part):

   > *D. As a genuine sign of Council's willingness to work with the state government that Council seek to adjourn the current legal action pending the result of the discussions and negotiations.*

3. Response

   For the Resolution: Councillor Spencer

4. Response

   Against the Resolution: The Mayor, Councillor Ngai, Councillors Lennon, Pettett, Smith, A. Taylor, G. Taylor, Ward and Wheatley.

   Councillor Kay was absent from the meeting.

5. Response

   On 8 May 2024 Cr Spencer voted to support the following motion.

   > *B. That Council commence proceedings in the NSW Land and Environment Court concerning the Transport Oriented Development Amendment to the Housing SEPP, to seek declarations as to invalidity and orders restraining any associated breach of law, including the Environmental Planning and Assessment Act 1979.*

   On 4 June 2024 Cr Spencer voted to support the following motion:

D. As a genuine sign of Council's willingness to work with the state government that Council suspend the current legal action pending the result of the discussions and negotiations.

6. Response

On 4 June 2024 Cr Pettett seconded the following motion:

D. As a genuine sign of Council's willingness to work with the state government that Council suspend the current legal action pending the result of the discussions and negotiations.

When put to the vote, Cr Pettett voted against the motion.

7. Response

DPHI is currently reviewing Council's preferred scenario and has advised that the process to complete the review and, if supported, gazette alternate controls should be completed within 3 months of the lodgement which was on 10 June 2025. Council and DPHI staff have had a professional and cooperative relationship while Council developed its preferred scenario.