Minor Flood Impact Assessment

On behalf of KT Luong & YH Pham
C/– McPeake Town Planning

Lekker Urban.

Project Name: 114 Anne Street, Aitkenvale QLD – Lot 6 on RP716461

Project No: LU23194

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1. Introduction

1.1. Scope of Works

Lekker Urban has been engaged by KT Luong & YH Pham (c/- McPeake Town Planning) to provide a Minor Flood Impact Report and preparation of supporting information in response to Townsville City Council (Council) Information Request dated 7th April 2025 (Application No. MCU25/0019, Assessment No. 2514055) for the Multi Dwelling development on the subject site outlined below.

The objective of this project was to evaluate the flood hazard present at the site of the proposed Multi Dwelling development. To achieve this objective, the following scope of works was undertaken:

1. Obtain and confirm the defined flood event levels, noting the site is impacted by flooding.
2. Determine pre and post development peak flows from site and identify the lawful point of discharge.
3. Determine the flood storage requirements for the site and confirm that they are being met by the proposed development.
4. Confirm any stormwater quality requirements for the site.

1.2. Study Area

Existing survey of the site indicates that the subject allotment is generally flat with a portion grading to Anne Street, however the majority has a slight fall to the south-eastern corner towards neighbouring allotments. The site is low-lying, with existing ground levels ranging from 10.06 to the west (rear) and 10.10m to the east (frontage of Anne Street) based on feature and level survey.

There does not appear to be to be an external overland flow catchment, with surround lots being higher than the subject site, with the exception of the existing rear lot, located to the west of the site. However, the subject site is located within the broader Ross Creek flood catchment and is therefore prone to inundation from regional flooding.

The details of the subject property for the proposed development are shown in Table 1.1.

Table 1.1: Existing Property Details

Existing Property Details	
Title	Lot 6 on RP716461
Street Address	114 Anne Street, Aitkenvale, QLD 4814
Site Area	1,012m^2

The subject site is shown below in Figure 1-1.

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Figure 1-1: Locality Plan[1]

13. Proposed Development

It is proposed that the building on the existing site will be demolished, and a new building, consisting of four (4) separate townhouses will be constructed, covering approximately 80% of the site. The proposed development layout has been extracted from Savage Architecture documentation.

The proposed development is understood to include four (4) of two-storey townhouses (TH) with an enclosed garage and three (3) bedrooms each. One (1) visitor park for each TH has been provided in front of the garage as well as two (2) dedicated visitor parks at the end of the internal access driveway.

[1] *Source: QLDGlobe*

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2. Site Based Stormwater Assessment

2.1. Flooding

2.1.1. Regional Flooding Review

A review of the publicly available data on TownsvilleMaps – Flooding has been undertaken to compare the flood depths for the 1% AEP Depth within the subject site to that of those referenced in Atkinson & Boody Surveys, refer Section 2.1.3. Flood mapping from TownsvilleMaps – Flooding for the major storm event has been provided in Appendix A which indicates that the water depth would be between 10mm – 300mm.

The flood depth from TownsvilleMaps – Flooding aligns with the notation within Atkinson & Boody Surveys which specified that the 1:100 year ARI flood level is 10.17m derived from the T.C.C's Ross Creek Flood Study 2013. The subject site surface level varies from 10.25m – 10.02m resulting in a depth range of 80mm – 150mm over the site.

A review of Townsville City Council Flood Hazard Overlay Map - OM-06.1 indicates that the subject site is located within a Medium Hazard Area. The adjoining lots are located within a Low Hazard Area.

Due to the low-lying topography of the subject site, it results in flows from the adjoining lots being conveyed into the subject site. As we proposed to fill the subject site, it is envisaged it would be revised to be consistent with the surrounding lots as Low Hazard Area. The hazard mapping indicates that the subject site is at the edge of the hazard, with Anne Street being excluded from the hazard overlay.

2.1.2. Storm Surge (Tide)

The subject site is located approximately 440m from the Ross River and over 7.8km from the coastline.

A review of the TownsvilleMaps – Townsville City Plan Overlay Maps indicates that the subject site is not within the areas designated by OM-03.1 (Environment coastal hazard areas – storm tide inundation areas and erosion areas from sea level rise) and OM-03-3 (Environment Coastal hazard areas – erosion prone area).

2.1.3. Finished Floor Level

Based on the following note within Atkinson & Boody Surveys drawing (24-334_0001 dated 21/10/2024) the minimum habitable floor level of 10.47m AHD has been adopted:

" The 1:100 year ARI derived from T.C.C's Ross Creek Flood Study 2013 is 10.17m. It is specified that the minimum habitable floor level, a level is required to be 300 mm above this. Thus the minimum habitable floor level is 10.47m AHD."[2].

[2] *Source Atkinson & Boody Surveys drawing (24-334_0001 dated 21/10/2024)*

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2.1.4. Local Flood Storage

A summary of the Pre and Post-Development flood storage is provided in Table 2.1. The assessed volumes are based on preliminary design surfaces and is subject to further investigation during detailed design to confirm assumptions made during the assessment.

Table 2.1: Flood Storage Summary

Pre-Development Flood Storage (m^3)	Post-Development Flood Storage (m^3)	Flood Storage Retained (%)
51	22	43%

2.2. Site Stormwater Quality Management

As the site is less than 2,500m2 in total area (1,012m2 in total), there is no requirement for on site stormwater quality improvement devices, as per the State Planning Policy 2017.

As a secondary measure, the water quality requirements have been assessed against the Queensland State Planning Policy 2019, Table B: Post Construction Phase – Stormwater Management Design Objectives, as shown in Table 2.2 below. Based on the assessment, the provision for stormwater quality management is not required for the subject development.

Table 2.2: Response to Queensland State Planning Policy 2019

Queensland SPP Assessment Benchmark	Response to Criteria
(1) A material change of use for an urban purpose that involves premises 2500 m^2 or greater in size and: (a) will result in six or more dwellings; or (b) an impervious area greater than 25 per cent of the net developable area.	Not applicable. The Material Change of Use application is on a site is less than 2,500m^2.
(2) Reconfiguring a lot for urban purposes that involves premises 2500 m^2 or greater in size and will result in six or more lots.	Not applicable. It is understood that the current application is not for a reconfiguration of a lot.

2.3. Site Stormwater Quantity Management

2.3.1. Pre and Post Development Flows

A concept internal stormwater design has been proposed for the site and will be subject to detailed design and coordination with subconsultant disciplines for final alignment of stormwater pit and pipe infrastructure.

The concept drainage will maintain pre-existing flow paths and catchments discharging to Anne Street (refer Section 2.3.2 for commentary on the Legal Point Discharge). Both pre and post-development catchments were assessed for the internal site using the rational method to establish peak flow targets

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(pre-development) and determine performance of proposed stormwater system (post-development) for a range of storm events (5, 20 and 100-year ARI).

Table 2.3: Catchment Breakdown

	Pre-Development	Post-Development	Difference
Pervious Area	769m^2	197m^2	572m^2
Impervious Area	243m^2	815m^2	-572m^2
Total	**1,012m^2**	**1,012m2**	**0m2**
Percentage Pervious	76%	19%	-
Percentage Impervious	24%	81%	-

Pervious and impervious areas are subject to confirmation during detailed design. Pre and Post Development catchment flows have been calculated using the rational method for the nominated storm events with a five (5) minute time of concentration are summarised in Table 2.4.

Table 2.4: Pre and Post-Development Catchment Flows

Event	Pre-Development	Post-Development	Difference
5yr ARI	36L/s	41L/s	5L/s
20yr ARI	52L/s	59L/s	7L/s
100yr ARI	75L/s	86L/s	11L/s

The proposed development will result in an increase in impervious area for the site and in-turn increase stormwater runoff.

2.3.2. Legal Point of Discharge

The subject site has been assessed in accordance with the Queensland Urban Drainage Manual, Fourth Edition (2017). In accordance with Section 3.9.1 – Lawful Point of Discharge Test, the applicable regulatory and other legal requirements have been reviewed and met to allow stormwater to discharge into the surrounding properties located at the rear of the subject site.

The criteria and associated responses is outlined in Table 2.5 below.

Table 2.5: Legal Point of Discharge Assessment

Design Element	Criteria
(i) Will the proposed development alter the site's stormwater discharge characteristics in a manner that	In conjunction with QUDM Section 3.6 – Stormwater Changes, the proposed subdivision does not change the stormwater regime from its pre-developed state. The existing site, as described in Section 1, discharges stormwater to

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Design Element	Criteria
may substantially damage a third-party property [3] (see Section 3.6 of QUDM) • If not, then no further steps are required to obtain tenure for a lawful point of discharge (assuming any previous circumstances and changes were lawful). • If there is a reasonable risk of such damage, then consider issue (ii) or (iii).	Anne Street which is proposed to be maintained in the post development scenario.
(ii) Is the location of the discharge from the development site under the lawful control of the local government or other statutory authority from whom permission to discharge has been received? This will include a park, watercourse, drainage or road reserve, stormwater registered drainage easement, or land held by local government (including freehold land). Note: The regulatory authority (in its capacity as land holder) is likely to require information about the potential impact of the site's stormwater discharge characteristics on third party properties (particularly those downstream of the proposed discharge point) before it will consent to the discharge entering its land. • If so, then no further steps are required to obtain tenure for a lawful point of discharge. • If not, then consider issue (iii). A landowner or regulator may require that the developer obtain an authority to discharge as described (ii).	Proposed discharge point for the captured stormwater of the site is documented as the Road Reserve, Anne Street for the underground stormwater network. Permission to discharge to this location is sought through this report.
(iii) An authority to discharge over affected properties will be necessary. In descending order of certainty, an authority may be in the form of: • Dedication of a drainage reserve or park • A registered easement for stormwater discharge/works • Written discharge approval	Criteria (ii) above is satisfied and criteria (iii) is not applicable.

[3] *The issue of whether or not there is an actionable nuisance does not depend on what is demonstrated at the time the works are proposed. The issue is what in fact occurs. This is consistent with it being the developer's responsibility to not cause nuisance, rather than the regulator's responsibility to assess and condition works to prevent a nuisance.*

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3. Summary

Based on the Minor Flood Impact Assessment undertaken, the following can be summarised:

1. The site is subject to regional flooding, and therefore the finished floor level of habitable dwellings will need to be set to a minimum of 10.47m AHD. It should be noted that more frequent flood events will impact both the site and the surrounding streets, potentially impeding access.
2. The site is not subject to storm tide impacts.
3. The site is not subject to coastal erosion.
4. The minimal increase in peak flow post development doesn't warrant the need for site stormwater detention with respect to pre and post development stormwater flow discharge.
5. The lawful point of discharge is Anne Street, and can be either directly into the Council underground stormwater network.

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APPENDIX

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Appendix A TownsvilleMaps – Flooding

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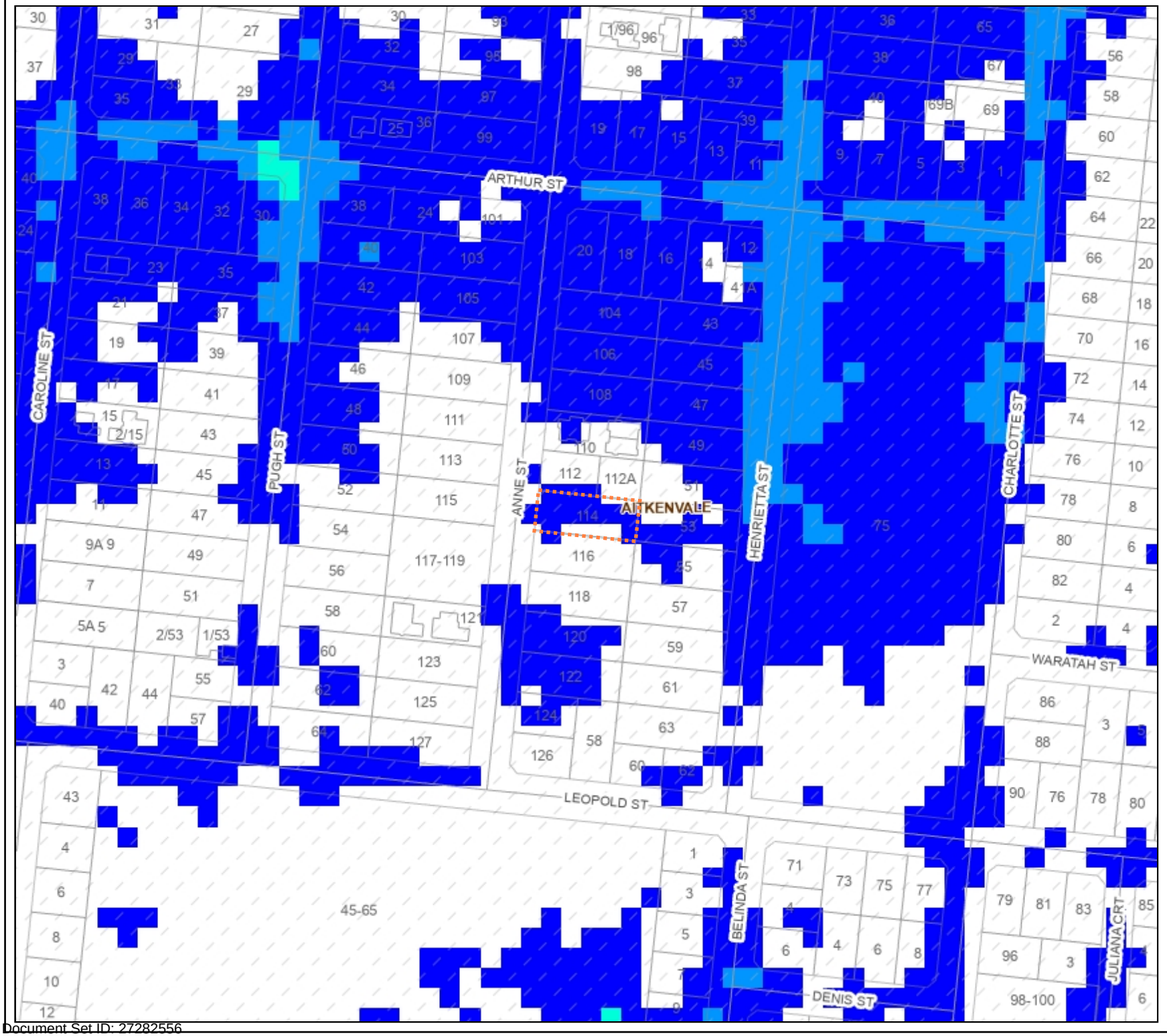

DEFAULT FLOODING

114 ANNE STREET DEVELOPMENT

Legend

- Properties
- Suburbs

FLOOD STUDY AREAS

- November 2014 to Present

WATER HEIGHT (1:250 - 1:5000)

- 2% AEP Height
- 1% AEP Height
- Subject Site

1% AEP & 2% AEP DEPTH (1:250 - 1:5,000)

- Water Depth: 0.01 - 0.3m
- Water Depth: 0.3 - 0.5m
- Water Depth: 0.5 - 0.75m
- Water Depth: 0.75 - 1.0m
- Water Depth: 1.0 - 1.5m
- Water Depth: 1.5 - 2.0m
- Water Depth: 2.0 - 3.0m
- Water Depth: 3.0 - 25.0m

0 31.8 63.50

Meters

Date: 10/6/2025 8:20 AM

Scale 1: 2,500

DISCLAIMER: The information shown on this map has been produced from the Townsville City Council's digital database. There is no warranty implied or expressed regarding the accuracy or completeness of the data. The data has been compiled for information and convenience only, and it is the responsibility of the user to verify all information before placing reliance on it. For accurate service locations please contact the Customer Service Centre on 13 48 01. This is not a legal document and is published for information and convenience only. The Townsville City Council takes no responsibility for any errors or omissions herein or for any acts that may occur due to its use.

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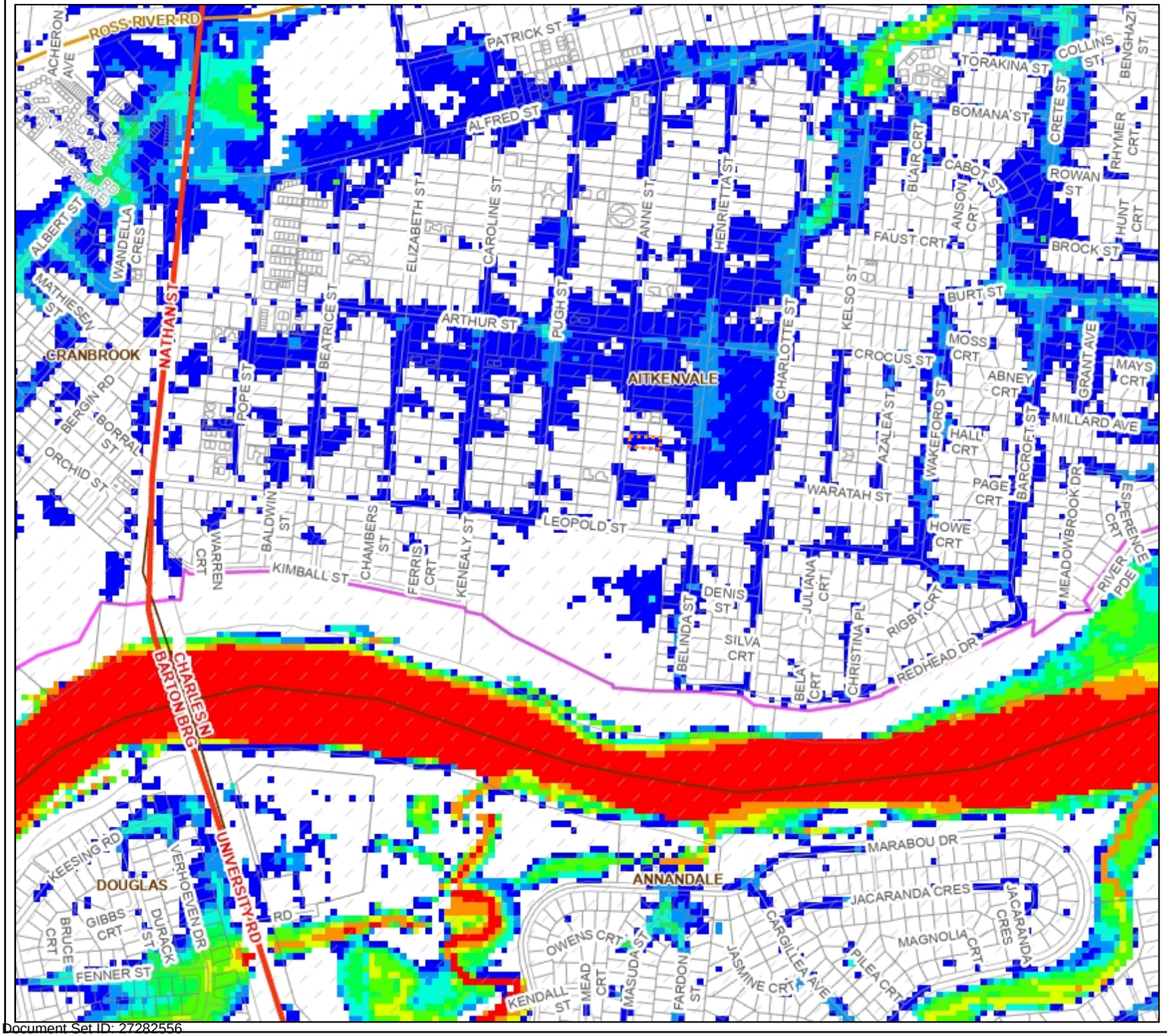
DEFAULT FLOODING

114 ANNE STREET DEVELOPMENT



Legend

- Properties
- Suburbs

FLOOD STUDY AREAS

- November 2014 to Present

WATER HEIGHT (1:250 - 1:5000)

- 2% AEP Height
- 1% AEP Height
- Subject Site

1% AEP & 2% AEP DEPTH (1:250 - 1:5,000)

- Water Depth: 0.01 - 0.3m
- Water Depth: 0.3 - 0.5m
- Water Depth: 0.5 - 0.75m
- Water Depth: 0.75 - 1.0m
- Water Depth: 1.0 - 1.5m
- Water Depth: 1.5 - 2.0m
- Water Depth: 2.0 - 3.0m
- Water Depth: 3.0 - 25.0m

0 101.6 203.20

Meters

Date: 10/6/2025 8:22 AM

Scale 1: 8,000

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