Flood Hazard Assessment

Intersection of Lake Macdonald Dr
and Dianella Crt
Cooroy

September 2024

HydraLogic

Document Control Sheet	
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EXECUTIVE SUMMARY

This report presents the findings of a flood hazard assessment undertaken for the road intersection of Lake Macdonald Dr and Dianella Crt in Cooroy.

This report describes the configuration of the local high resolution flood model and summarises the hydraulic performance of the intersection under a range of design flood conditions with Annual Exceedance Probabilities of between 50% AEP and 0.2 % AEP.

Detailed ground and feature survey provided by Murray & Associates (see **Appendix A**) shows three pipe culvert cells passing beneath Lake Macdonald Dr from the southeast corner of the intersection with Dianella Ct to the northwest corner of the intersection adjacent to Wilgee Ct. Two of pipe culverts are shown to be 1050 mm diameter and the third is 1350 mm diameter.

For the 10% AEP design flood event the intersection is not inundated and hence no flood hazard exists within the trafficable road corridor. For the 2% AEP design flood event, shallow inundation at the peak of the flood event introduces a low (H1) flood hazard classification across the intersection with areas of higher classification where flow across the road concentrates and returns to the main waterway, see **Map 5.** The flood hazard classifications are similar for the 1% AEP design flood event, however, a more prominent corridor of higher (H5) flood hazard exists across the intersection, see **Map 6**.

The duration of inundation across the intersection for the 2% AEP and 1% AEP design flood events is anticipated to be less than 1.5 hours. The actual duration of inundation will vary for each major rainfall event experienced in the local catchment; however, the approximate duration of the design flood event provides a reasonable indication of the duration of inundation which is also consistent with the size of the upstream catchment that contributes flood flows to the intersection location.

The intersection is flood free and trafficable for events up to the 10% AEP.

Detailed flood modelling of the catchment and subject intersection has demonstrated the capacity of the existing culverts provides 10% AEP design flood immunity to the intersection. For larger and rarer flood events of less than 2% AEP the model results show the intersection will experience water over the road to depths of less 0.3 m for a 1% AEP flood event for relatively short durations of less than 1.5 hours.

The flood modelling has also demonstrated that should a significant blockage of the culverts occur during a major rainfall flood event the depths of inundation across the culvert would not be expected to significantly change, however, the inundation across the intersection would persist for longer periods.

The hydraulic performance of the intersection culverts is summarised in **Table E -1** below.

Table E 1 - Hydraulic performance of intersection culverts

AEP		Discharge		Depth	Velocity	Water surface elevation*
		Culverts	Weir	Weir	Weir	
(%)	(1 in x)	(m^3/s)	(m^3/s)	(m)	(m/s)	(m AHD)
0.2	500	11.1	18.8	0.16	1.79	103.8
1 (2100)	100 (2100)	10.7	15.8	0.14	1.69	103.77
1	100	10.3	8.2	0.07	1.36	103.67
2	50	10.1	5.7	0.05	1.21	103.6
10	10	8.7	0	0.00	0.00	103.3
50	2	3.7	0	0.00	0.00	102.5

* Upstream face

1 INTRODUCTION

Noosa Council approached HydraLogic to provide a summary of the design flood conditions at the intersection of Lake Macdonald Drive and Dianella Court in Cooroy.

The crossing is portrayed as being inundated in Council's strategic planning and disaster management maps.

The watercourse and catchment associated with the culvert crossing at this location lie within the 2018 Six Mile Creek flood model prepared by WMA Water for Noosa Council.

An initial review of the flood model results revealed the local tributary was only defined in the flood study model to determine design flood inflows to the main branch of Six Mile Creek downstream of Cooroy township. The road culvert crossings along this local tributary were not defined in the flood model.

To enable a detailed summary of the design flooding conditions of the intersection to be prepared a higher resolution flood model was developed for the local tributary. This local flood model includes a higher resolution digital terrain model and the pipe culverts at Lake Macdonald Dr, Curlew Cresent, and Swift Drive.

This report describes the configuration of the local high resolution flood model and summarises the hydraulic performance of the intersection under a range of design flood conditions with Annual Exceedance Probabilities of between 50% AEP and 0.2 % AEP.

The intersection and local catchment are shown in **Map 1**.

LAKE MACDONALD DR
DIANELLA CT
INTERSECTION
FLOOD ASSESSMENT

NOOSA Council

Study area
Cooroy Subdivision
Model catchment
Cadastre
Watercourses
Model Catchment

QLD Globe Imagery

0 100 200 m

HydraLogic

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Projection : EPSG:28356 GDA94 / MGA zone 56

Scale at A3		Map Ref
1: 5,000		1
Map Series	Location	

2 AVAILABLE DATA

Table 2-1 presents a summary of the data utilised to inform this investigation.

Table 2-1 Available Data

Data	Source	Comments
Topographic details	2022 LiDAR Digital Elevation Model	Provided by Noosa Council
Catchment Boundaries	2018 Six Mile creek Flood Study 2022 DEM	
Land Use	Google Satellite	Determined from aerial image assessment
Hydrologic design flood runoff hydrographs	Watercourse flow hydrographs extracted from flood model results from the 2018 Six Mile Creek Flood Study	
Hydraulic tailwater boundary hydrographs	Watercourse stage hydrographs extracted from flood model results from the 2018 Six Mile Creek Flood Study	
Survey and infrastructure plans	Contour & Detail Survey of Lot 105 on SP 118458 62 Lake McDonald Drive, Cooroy prepared by Murray & Associates	Dated 05.04.24 Job number 100988 DTM See **Appendix A**
Road upgrade details	62 Lake Macdonald Drive, Cooroy prepared by Covey Associates Pty Ltd	Issue A Dated 10.01.24 Job number 233467 C250 – 252 See **Appendix B**

3 SITE CHARACTERISTICS

The subject site is the intersection of Lake Macdonald Dr and Dianella Ct in Cooroy.

Detailed ground and feature survey provided by Murray & Associates shows three pipe culvert cells passing beneath Lake Macdonald Dr from the southeast corner of the intersection with Dianella Ct to the northwest corner of the intersection adjacent to Wilgee Ct. Two of pipe culverts are shown to be 1050 mm diameter and the third is 1350 mm diameter.

The Swift Drive culvert is a 1350 mm diameter and the Curlew Crs crossing is a 750 mm diameter.

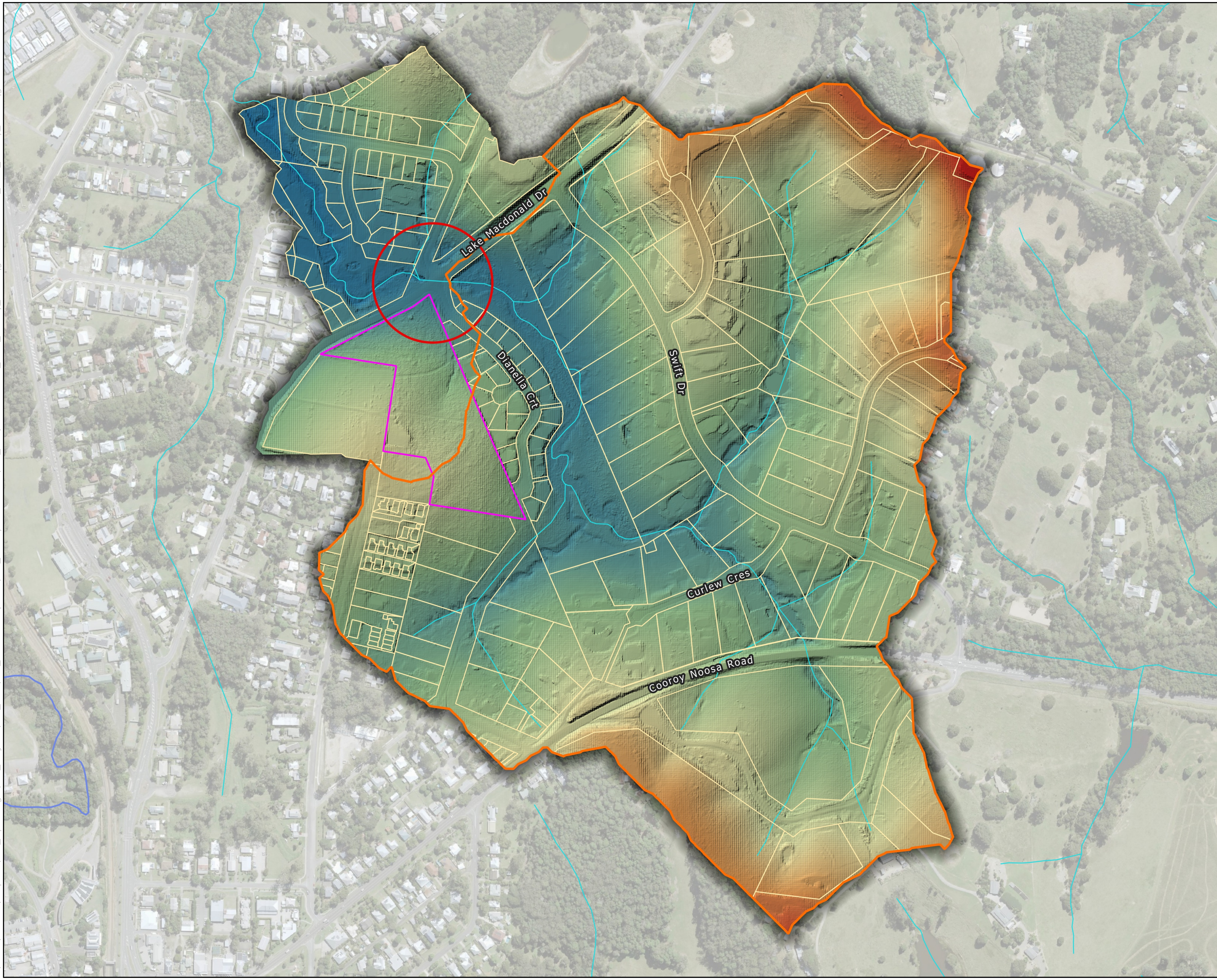
Invert levels for these pipe culverts were determined from the 2022 digital elevation model (DEM).

3.1 Catchment Characteristics

Upstream of the subject site, the local catchment extends to the southeast and northeast and covers an area of approximately 70 hectares. The catchment is comprised of three sub-tributaries. The larger two of these sub-tributaries have a confluence downstream of Swift Dr and Curlew Crs. A third minor tributary drains from southwest and joins the main tributary watercourse approximately 450 m upstream of the subject site. There is also a minor inflow to the main tributary from the north just upstream of the subject site. The tributary waterway corridor is well defined by adjacent elevated topography.

LAKE MACDONALD DR
DIANELLA CT
INTERSECTION
FLOOD ASSESSMENT

NOOSA Council



- Cooroy Subdivision
- Study area
- Upstream catchment
- Cadastre
- Watercourses
- Model Catchment

DEM 2022 (mAHD)

- 98
- 112
- 126
- 140
- 155

QLD Globe Imagery

0 100 200 m

HydraLogic

Date Created : 03.09.2024
Created by : DGM
Projection : EPSG:28356 GDA94 / MGA zone 56

Scale at A3		Map Ref
1: 5,000		2

Map Series	Digital Elevation Model

4 HYDRAULIC MODELLING

4.1 Model setup

To determine the potential flooding conditions of the Lake Macdonald Dr and Dianella Crt intersection a high-resolution HEC RAS (Version 6.5) 2D flood model was developed for the local catchment and watercourse.

The terrain base for the flood model was a 2022 digital elevation model provided by Noosa Council derived from aerial laser survey (LiDAR).

The flood model included the entire contributing local catchment area upstream of the subject site and extended approximately 450 m downstream to a confluence with another minor tributary.

A 2D model grid spacing of 5 m was adopted to ensure the accuracy of the terrain representation throughout the waterway corridor. The 5 m grid was tested against a 2m grid and produced consistent results.

Breaklines were incorporated to improve the model's representation of significant changes in surface elevation, land use and flow paths.

4.1.1 Model boundaries

To maintain consistency with the Six Mile Creek flood model, tailwater boundary conditions and upstream tributary flows were extracted from the model and applied to the high-resolution local flood model.

The downstream boundary of the local flood model was established as a time varying water level hydrograph. Upstream of the subject site time varying discharge hydrographs were also extracted from the Six Mile Creek flood model at five reference locations and used as inflow boundaries in the local model, see **Map 3**.

Design tailwater level and instream flow hydrographs were extracted from the Six Mile Creek flood model results for the following design flood events:

- 50% AEP (1 in 2 AEP)
- 10% AEP (1 in 10 AEP)
- 1% AEP (1 in 100 AEP)
- 1% AEP (1 in 100 AEP) 2100
- 0.2% AEP (1 in 500 AEP)

4.2 Future climate

As a part of the Six Mile Creek flood study, the Cooroy Creek flood model adopted a climate change/variability rainfall allowance of a 20% increase in rainfall intensity at year 2100.

4.3 Model Roughness

The observed land uses for the 2D model surface for the existing catchment condition is shown in **Map 3**.

The corresponding Manning's n surface roughness values for each surface type are presented in **Table 4-1**.

Table 4-1 Flood model surface roughness

Catchment Surface	Assumed Manning's n
Openspace	0.08
Residential	0.12
Rural residential	0.06
Waterway	0.12
Roads	0.015

4.4 Validation

Design discharge hydrographs were exported from the local high-resolution flood model results immediately upstream of the intersection and compared to design discharges extracted from the Cooroy Creek flood model.

Design discharge hydrographs show good consistency across all flood events. Refer to **Figure 1** to **Figure 6**.

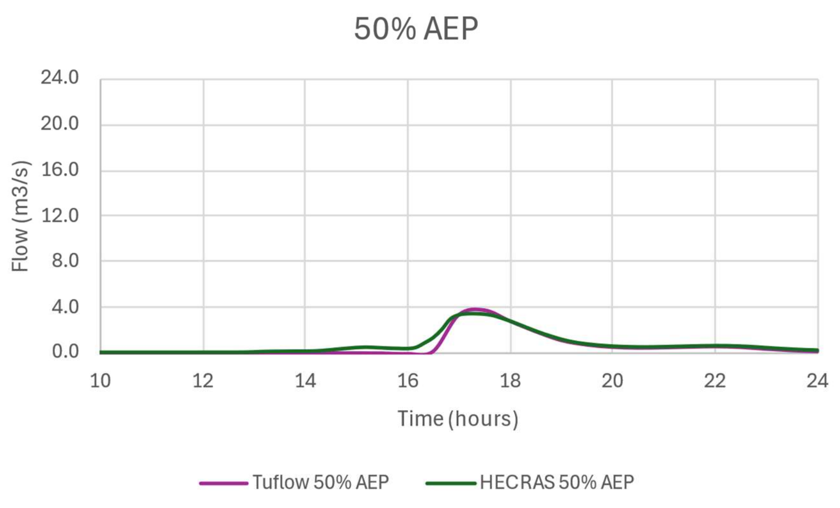


Figure 1 - 50% AEP design discharge comparison

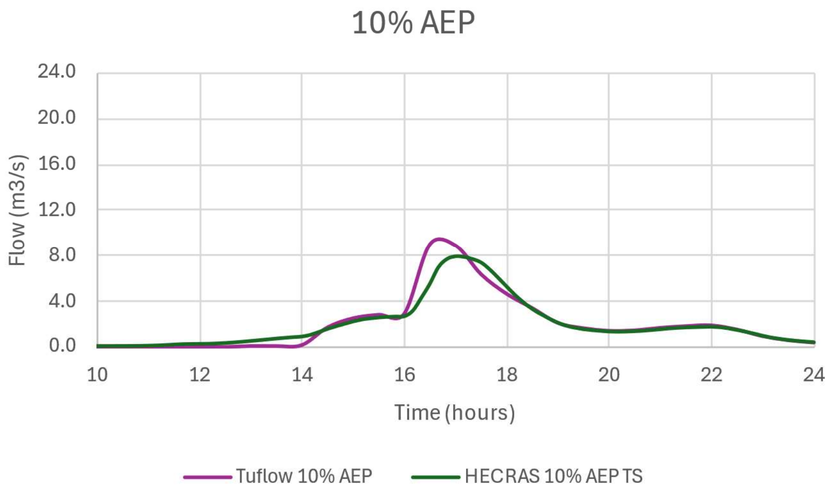


Figure 2 - 10% AEP design discharge comparison

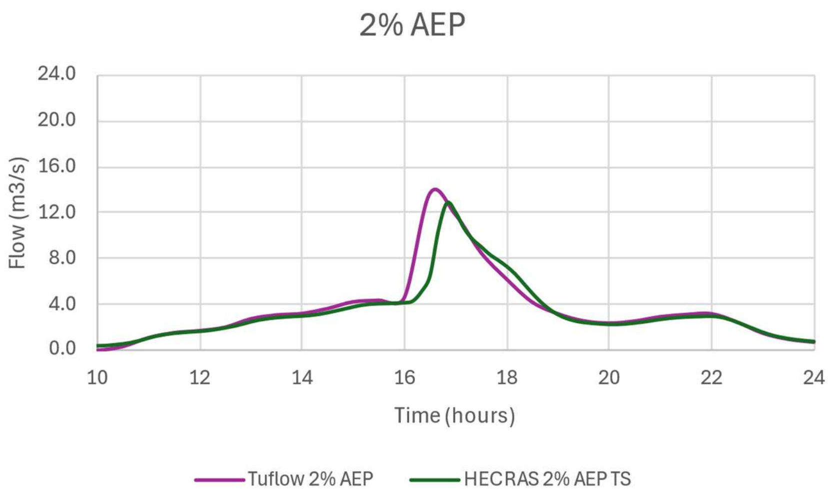


Figure 3 - 2% AEP design discharge comparison

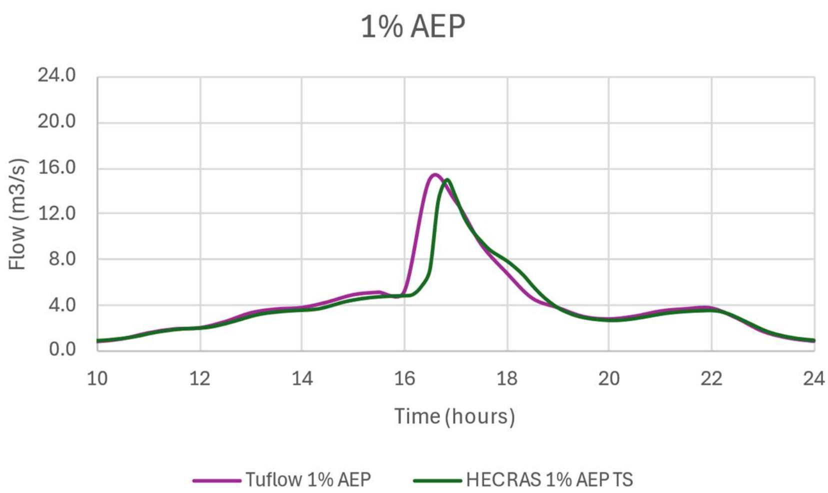


Figure 4 - 1% AEP design discharge comparison

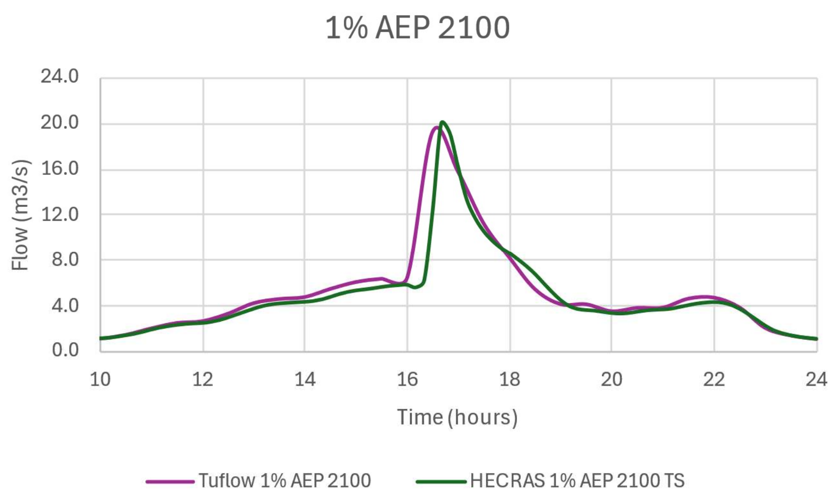


Figure 5 - 1% AEP (2100) design discharge comparison

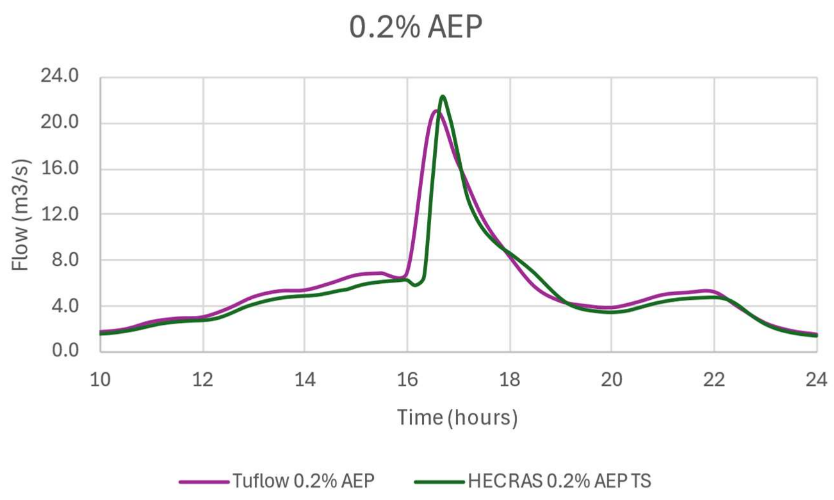
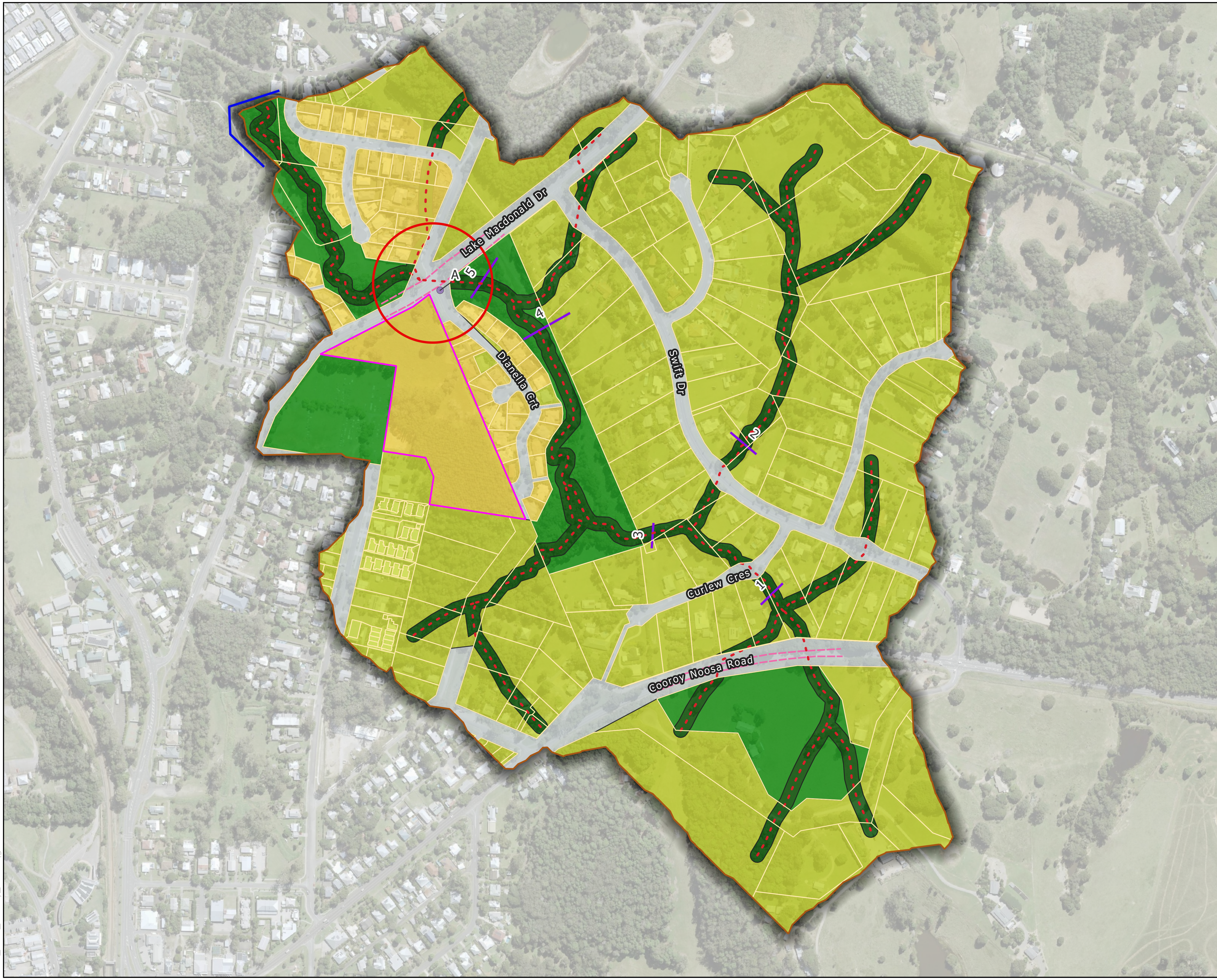


Figure 6 - 0.2% AEP design discharge comparison



LAKE MACDONALD DR
DIANELLA CT
INTERSECTION
FLOOD ASSESSMENT

NOOSA Council

- Sensitivity Ref Pt copy
- Study area
- Model catchment
- Cooroy Subdivision
- Cadastre
- Breaklines
- Inflow locations
- Regional tailwater boundary
- Model catchment

Study Area Landuse

- Openspace
- Residential
- Roads
- Rural Res
- Waterway

QLD Globe Imagery

0 100 200 m

HydraLogic

Date Created : 03.09.2024
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Projection : EPSG:28356 GDA94 / MGA zone 56

Scale at A3		Map Ref
1: 5,000		3
Map Series	Local Flood Model Configuration	

5 FLOOD HAZARD

Australian Rainfall and Runoff (ARR) A Guide to Flood Estimation, Book 6 – Flood Hydraulics presents a series of general flood hazard curves based on depth and velocity, see **Figure 7**. The flood hazard classifications of H1 to H6 describe the six classifications of flood hazard detailed in **Table 5-1**. The depth velocity flood hazard classification limits are presented in **Table 5-2**.

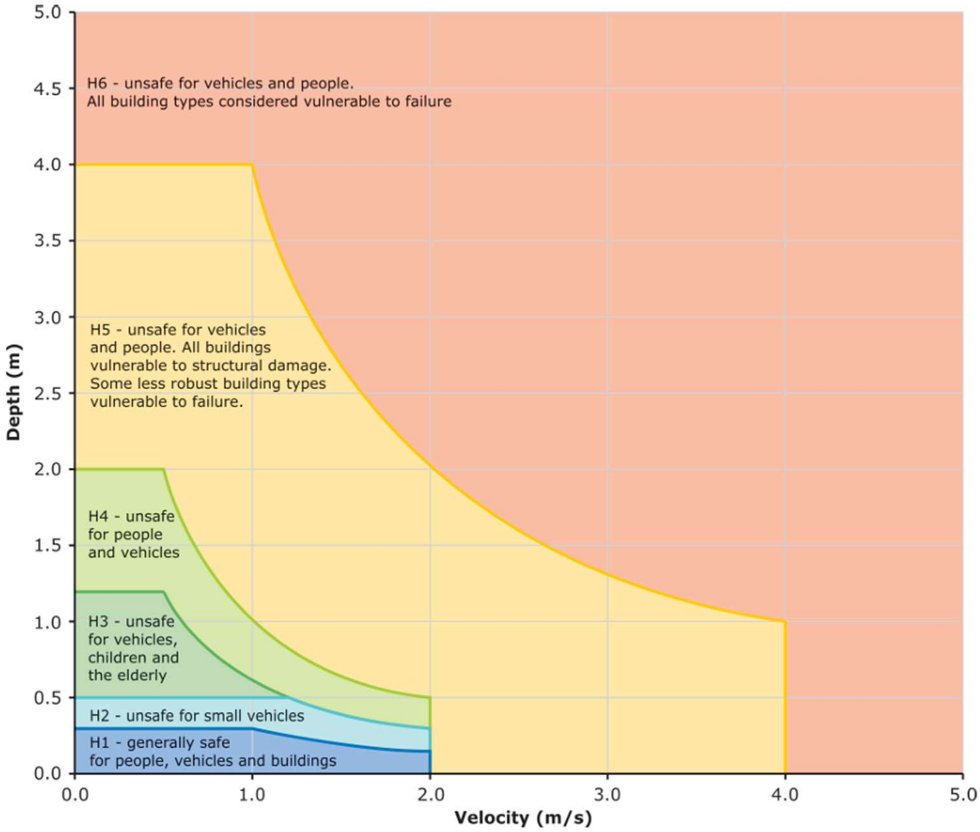


Figure 7 - General flood hazard curves

Table 5-1 Flood hazard classifications

Flood Hazard Classification	Description
H1	Generally safe for vehicles, people and buildings
H2	Unsafe for small vehicles
H3	Unsafe for vehicles, children and the elderly
H4	Unsafe for vehicles and people
H5	Unsafe for vehicles and people. All building types vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.

Table 5-2 Depth and Velocity Vulnerability Threshold Classification Limits

Flood Hazard Classification	Classification limit (D and V in combination) m^2/s	Limiting still water depth (D) m	Limiting velocity (V) m/s
H1	D*V ≤ 0.3	≤ 0.3	≤ 2.0
H2	D*V ≤ 0.6	≤ 0.5	≤ 2.0
H3	D*V ≤ 0.6	≤ 1.2	≤ 2.0
H4	D*V ≤ 1.0	≤ 2.0	≤ 2.0
H5	D*V ≤ 4.0	≤ 4.0	≤ 4.0
H6	D*V > 4.0	-	-

Flood hazards for the subject site intersection have been determined for the 10% AEP, 2% AEP, and 1% AEP design flood events in accordance with the guidance in ARR Book 6 and are presented in **Map 4** to **Map 6**.

For the 10% AEP design flood event the intersection is not inundated and hence no flood hazard exists within the trafficable road corridor, see Map 4. For the 2% AEP design flood event, shallow inundation at the peak of the flood event introduces a H1 flood hazard classification across the intersection with areas of higher classification where flow across the road concentrates and returns to the main waterway, see Map 5. The flood hazard classifications are similar for the 1% AEP design flood event, however, a more prominent corridor of higher H5 flood hazard exists across the intersection, see Map 6.

Depth hydrographs were extracted from two reference points to determine the approximate duration of inundation that could be anticipated for inundation of the intersection. The depth hydrographs for the reference points shown on Map 6 are presented in **Figure 8** and **Figure 9**. The figures show the duration of inundation for the 2% AEP and 1% AEP design flood events to be less than 1.5 hours. The actual duration of inundation will vary for each major rainfall event experienced in the local catchment; however, the approximate duration of the design flood event provides a reasonable indication of the duration of inundation which is also consistent with the size of the upstream catchment that contributes flood flows to the intersection location.

The intersection is flood free and trafficable for events up to the 10% AEP.

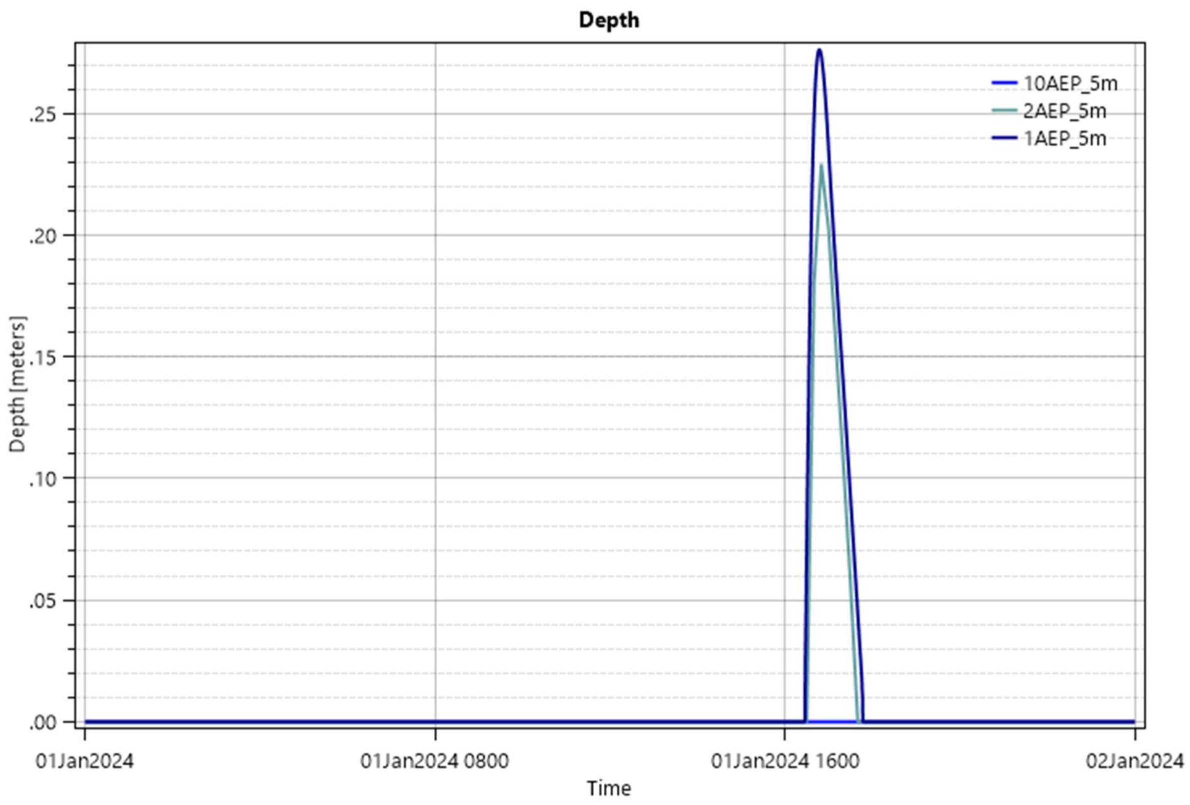


Figure 8 - Duration of inundation Reference Point 1

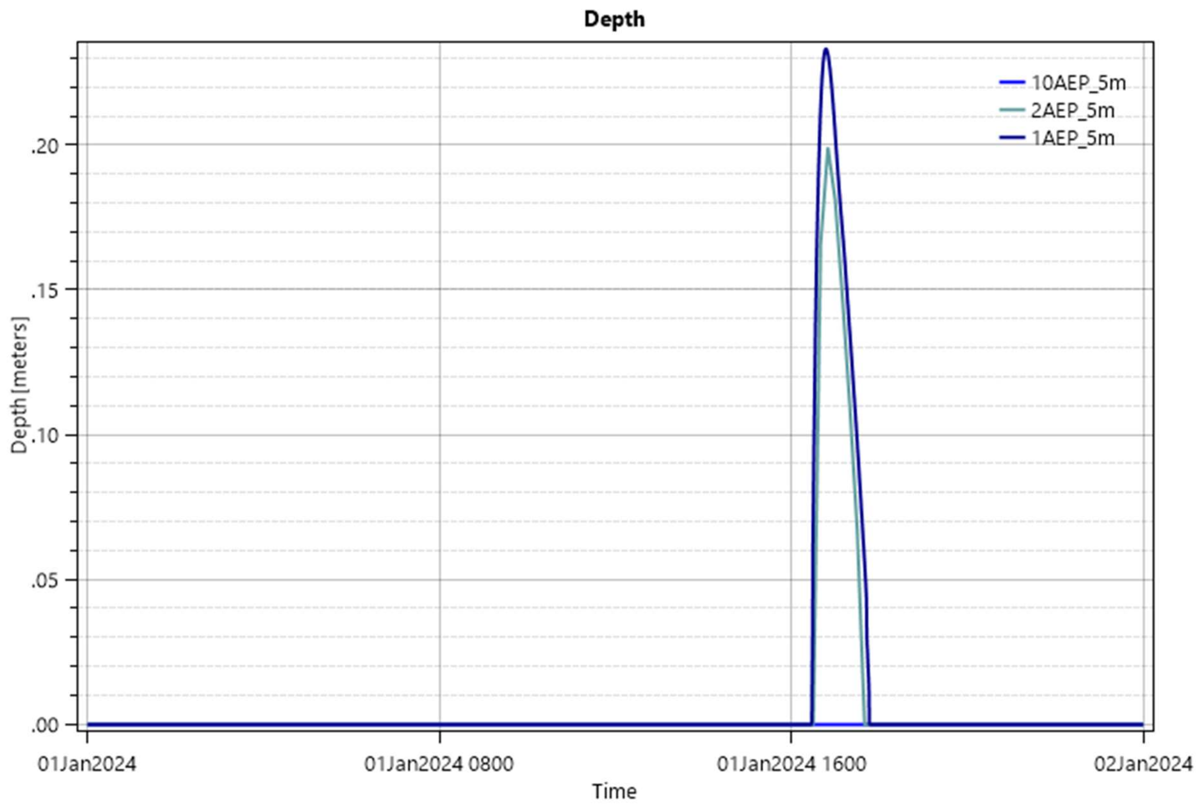
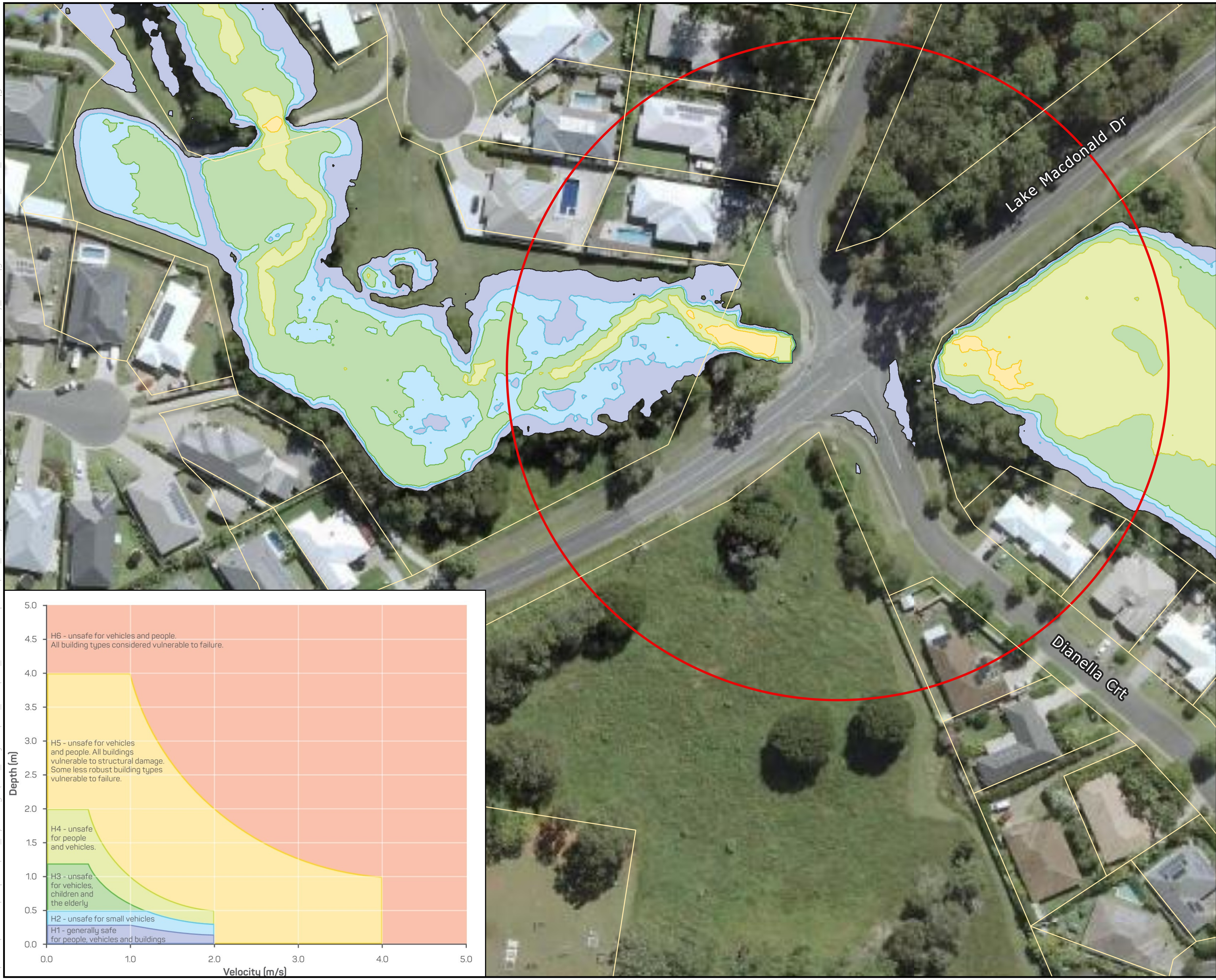


Figure 9 - Duration of inundation Reference Point 2



LAKE MACDONALD DR
DIANELLA CT
INTERSECTION
FLOOD ASSESSMENT

NOOSA Council

- Cadastre
- Study area

Hazard 10% AEP

- H1
- H2
- H3
- H4
- H5
- H6

QLD Globe Imagery

0 10 20 30 40 m

HydraLogic

Date Created : 03.09.2024
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Projection : EPSG:28356 GDA94 / MGA zone 56

Scale at A3		Map Ref
1: 900		4

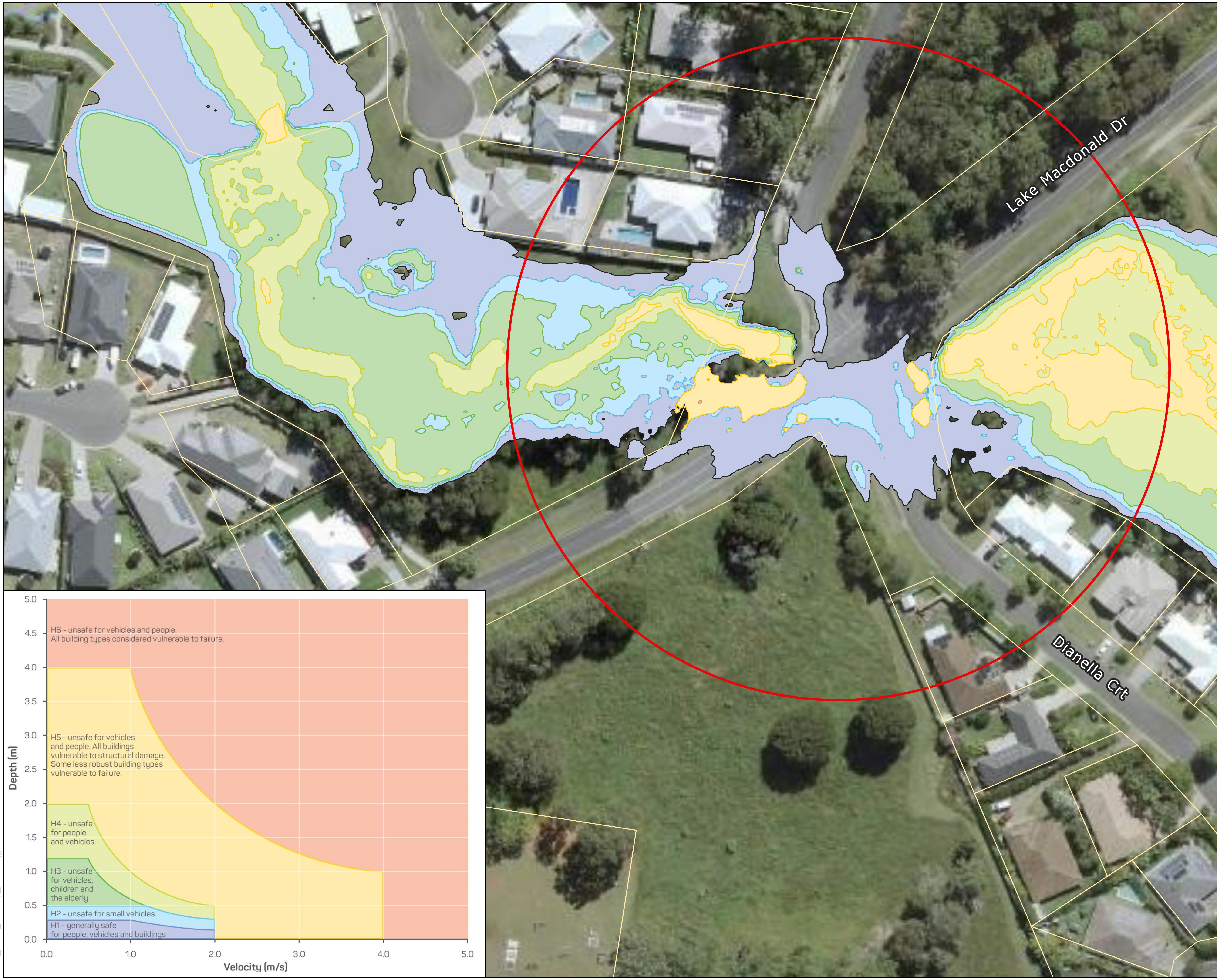
Map Series	10% AEP Flood Hazard

LAKE MACDONALD DR
DIANELLA CT
INTERSECTION
FLOOD ASSESSMENT

NOOSA Council

Cadastre
Study area
Hazard Classification
H1
H2
H3
H4
H5
H6
QLD Globe Imagery

0 10 20 30 40 m



HydraLogic

Date Created : 03.09.2024
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Projection : EPSG:28356 GDA94 / MGA zone 56

Scale at A3		Map Ref
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Map Series	2% AEP Flood Hazard

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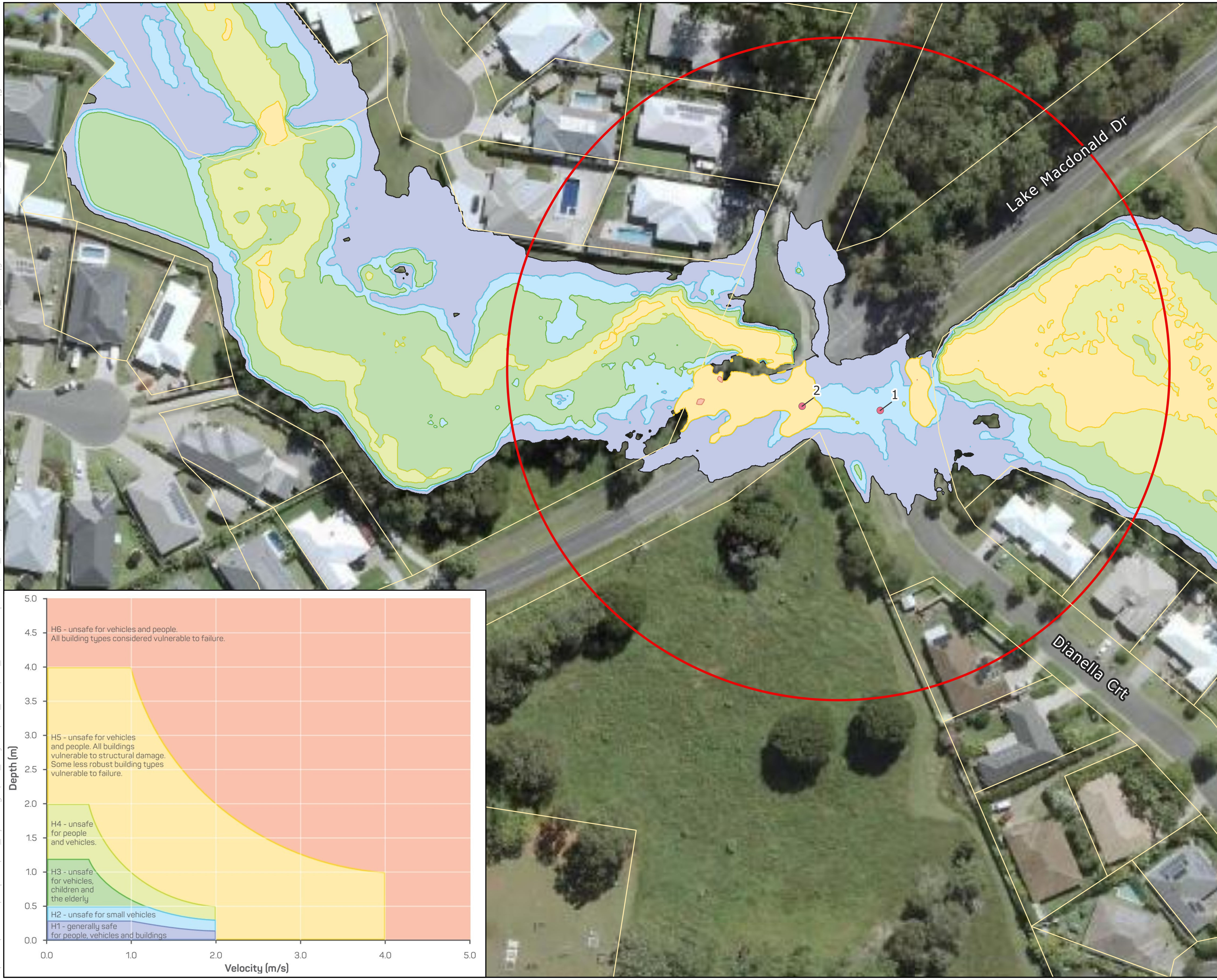

LAKE MACDONALD DR
DIANELLA CT
INTERSECTION
FLOOD ASSESSMENT

NOOSA Council

Road Reference Pt
Cadastre
Study area
Hazard001 copy
H1
H2
H3
H4
H5
H6
QLD Globe Imagery

0 10 20 30 40 m

HydraLogic

Date Created : 03.09.2024
Created by : DGM
Projection : EPSG:28356 GDA94 / MGA zone 56

Scale at A3		Map Ref
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Map Series	1% AEP Flood Hazard

6 SENSITIVITY ANALYSIS

To test the sensitivity of the high-resolution local flood model to modest changes in adopted parameter values, two sensitivity tests were conducted. A reference point (A) was adopted at the road entrance to Dianella Crt where hydrographs were extracted from the flood model and compared to the base case results. See **Map 3** for reference point location.

6.1 Manning's n roughness sensitivity

The first sensitivity test was conducted using a +/- 25% variation in the adopted Manning's n surface roughness value for the model. The adopted Manning's n surface roughness values are shown in **Table 4-1**.

Water level (Depth) hydrographs were extracted from the results of each sensitivity analysis at reference point A and compared to the base case results for the 2% AEP, 1% AEP, and 0.2% AEP design flood events. See **Figure 10** to **Figure 12**.

The results show the design flood levels at the intersection are not sensitive to reasonable changes in the adopted Manning's n surface roughness.

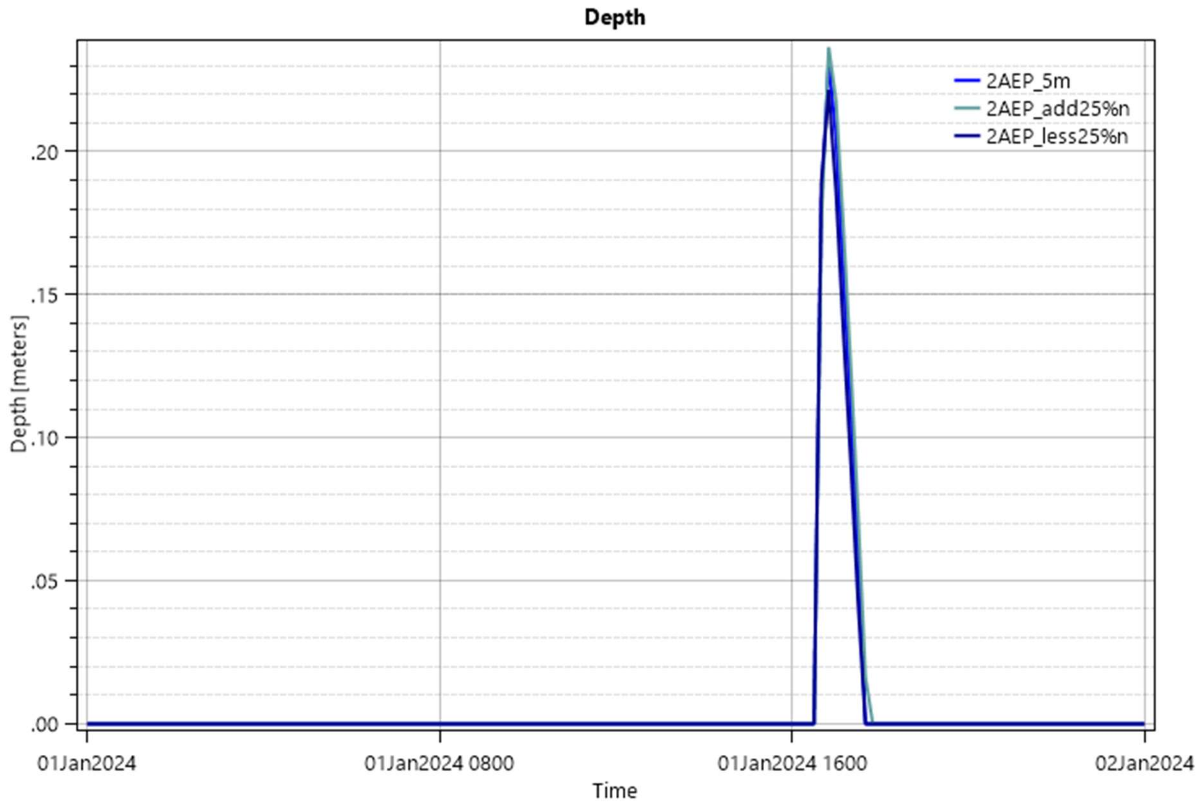

Figure 10 - Sensitivity analysis +/- 25% Manning's n 2% AEP at Reference Pt A

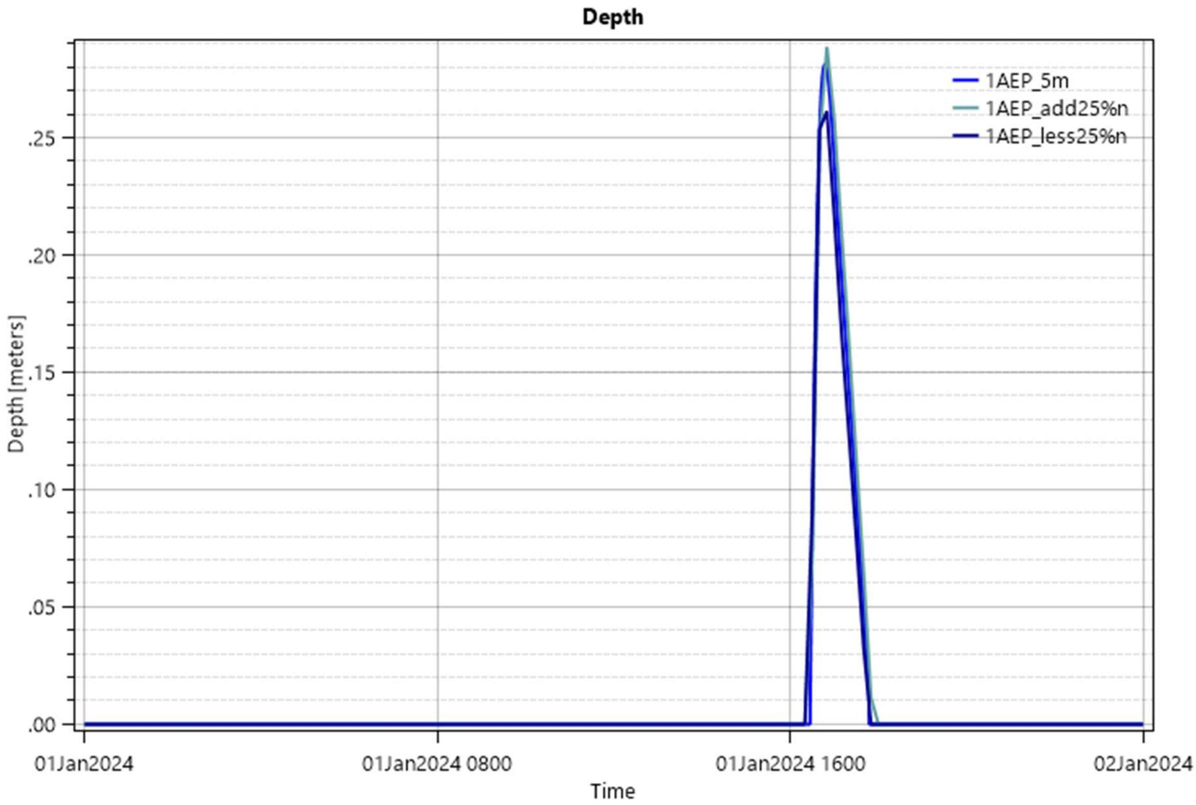

Figure 11 - Sensitivity analysis +/- 25% Manning's n 1% AEP at Reference Pt A

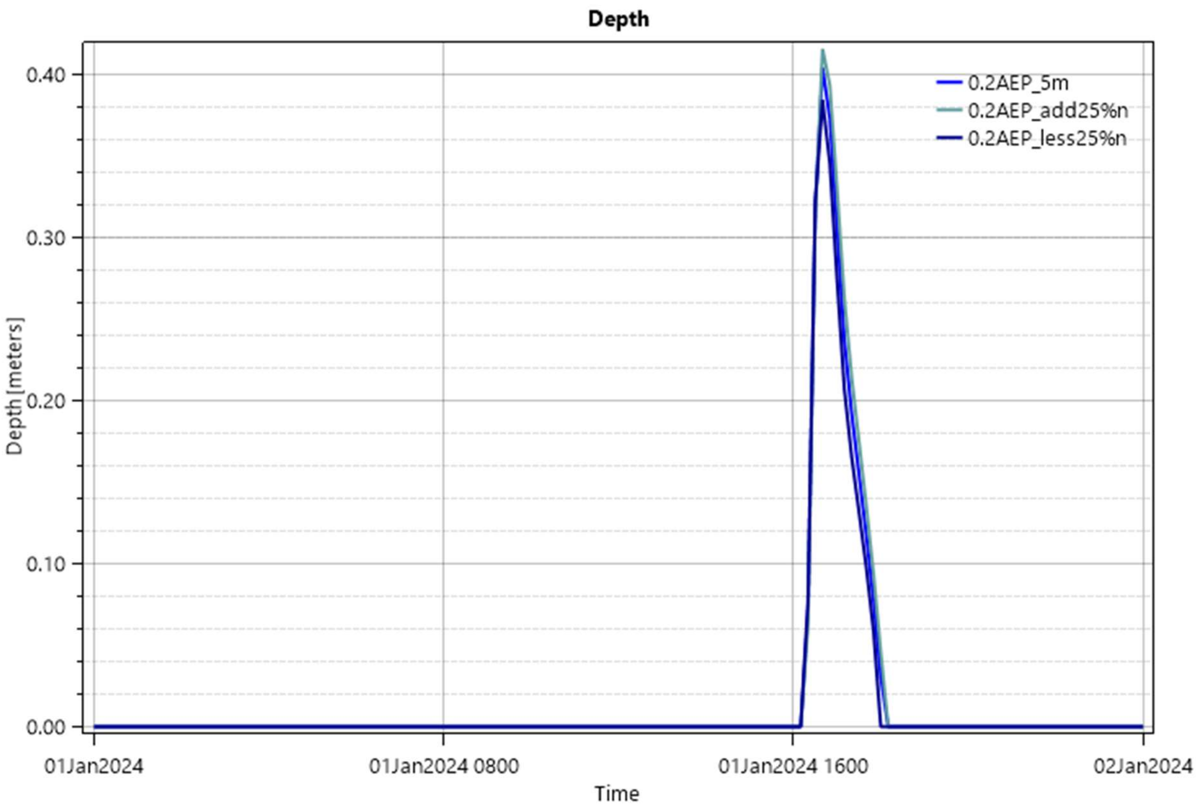

Figure 12 - Sensitivity analysis +/- 25% Manning's n 0.2% AEP at Reference Pt A

6.2 Culvert blockage sensitivity

The second sensitivity test assumed an amount of blockage of the available waterway area of the three pipe culverts which pass beneath the subject site intersection. A blockage factor was applied based on the Australian Rainfall and Runoff Book 6 Chapter 6 guidelines. An assumed Debris Potential (DP) of *medium* was adopted and an L_{10} value of 1.5 m assumed. The smaller culvert pipe diameter of 1050 mm was applied as the inlet width (W) control dimension. Based on guidelines a blockage factor of 25% was applied to the 50% AEP and 10% AEP flood event, and 50% to the 2% AEP, 1% AEP, and 0.2% AEP flood events.

Water level (Depth) hydrographs were extracted from the results of each sensitivity analysis at reference point A and compared to the base case results for the 10% AEP, 2% AEP, 1% AEP, and 0.2% AEP design flood events. See **Figure 13** to **Figure 16**.

The results show that shallow inundation to a depth of approximately 100 mm is introduced at reference point A for the 10% AEP design flood event, see Figure 13. For the 2% AEP, 1% AEP, and 0.2% AEP design flood events inundation depths across the intersection at reference point A increase by approximately 120 mm to 150 mm with the durations of inundation also increasing to between 2 hours and 6 hours respectively.

The results demonstrate that for flood events with AEPs less than 10% flooding conditions across the intersection do not change significantly in depth, however, durations of inundation may be extended.

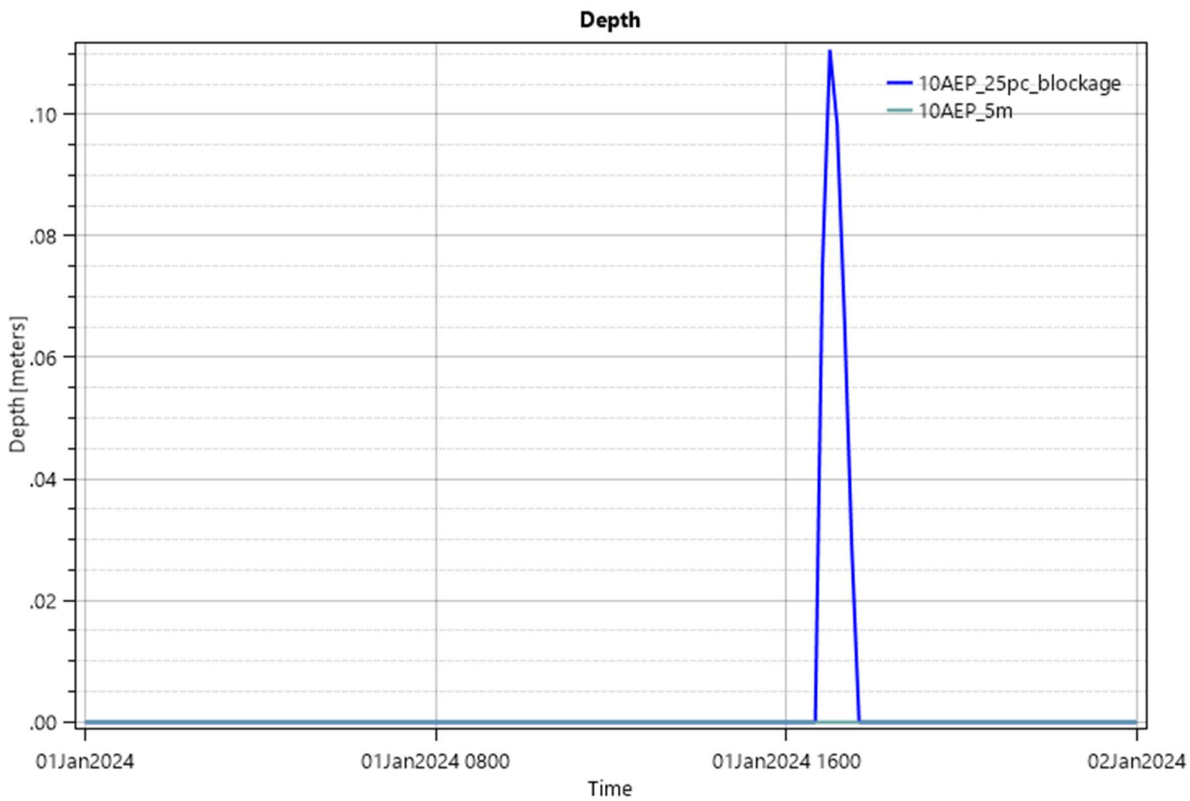

Figure 13 - Sensitivity analysis 25% culvert blockage for 10% AEP at Reference Pt A

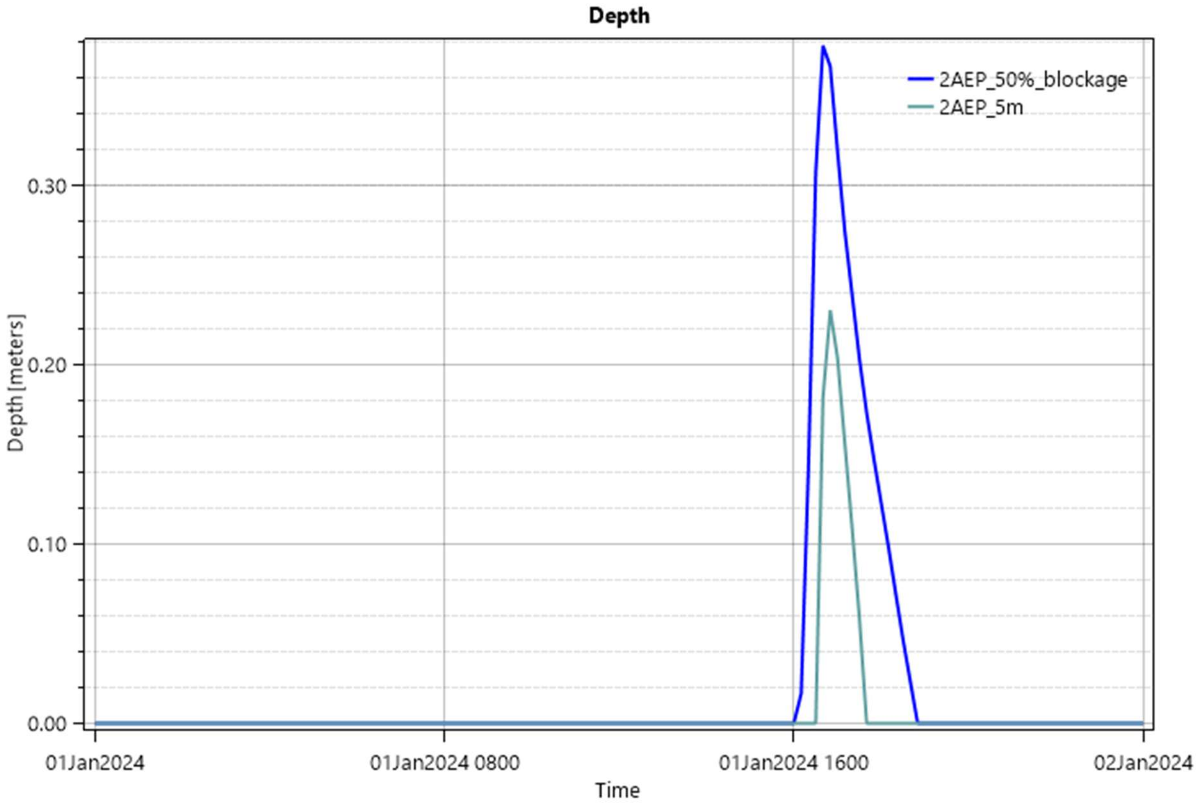

Figure 14 - Sensitivity analysis 50% culvert blockage for 2% AEP at Reference Pt A

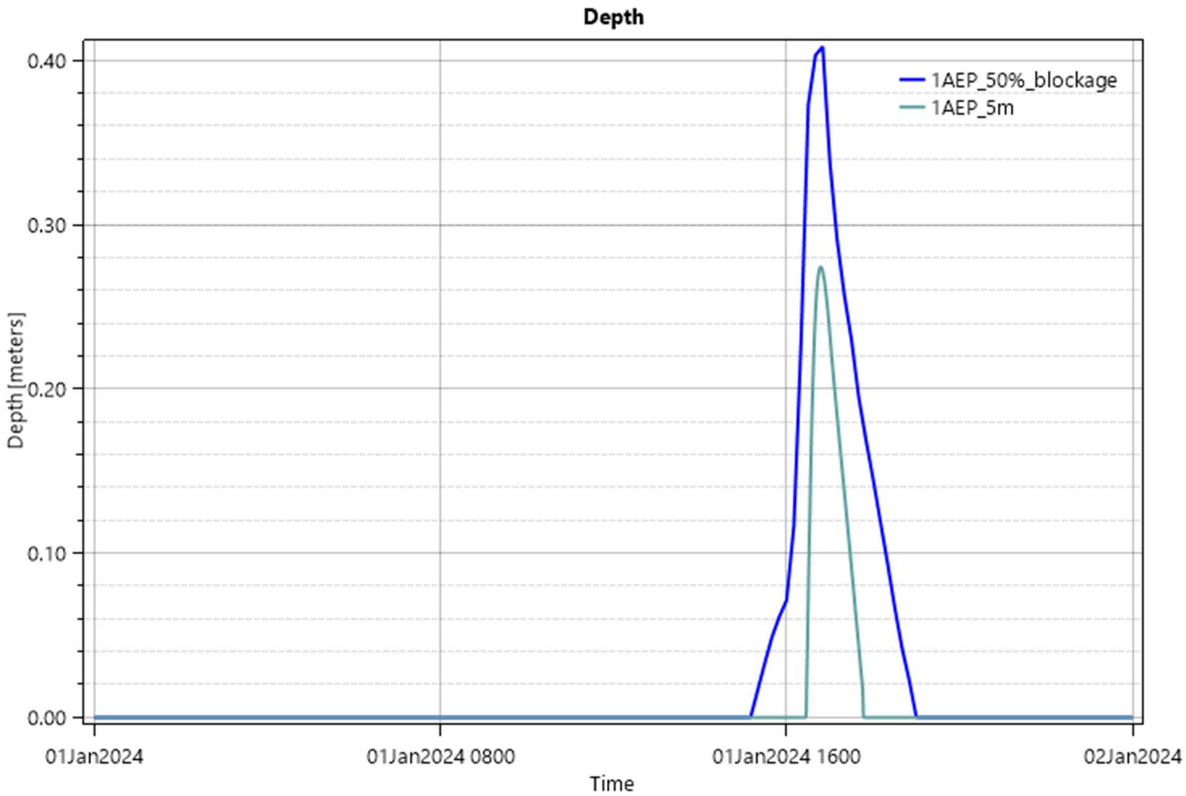

Figure 15 - Sensitivity analysis 50% culvert blockage for 1% AEP at Reference Pt A

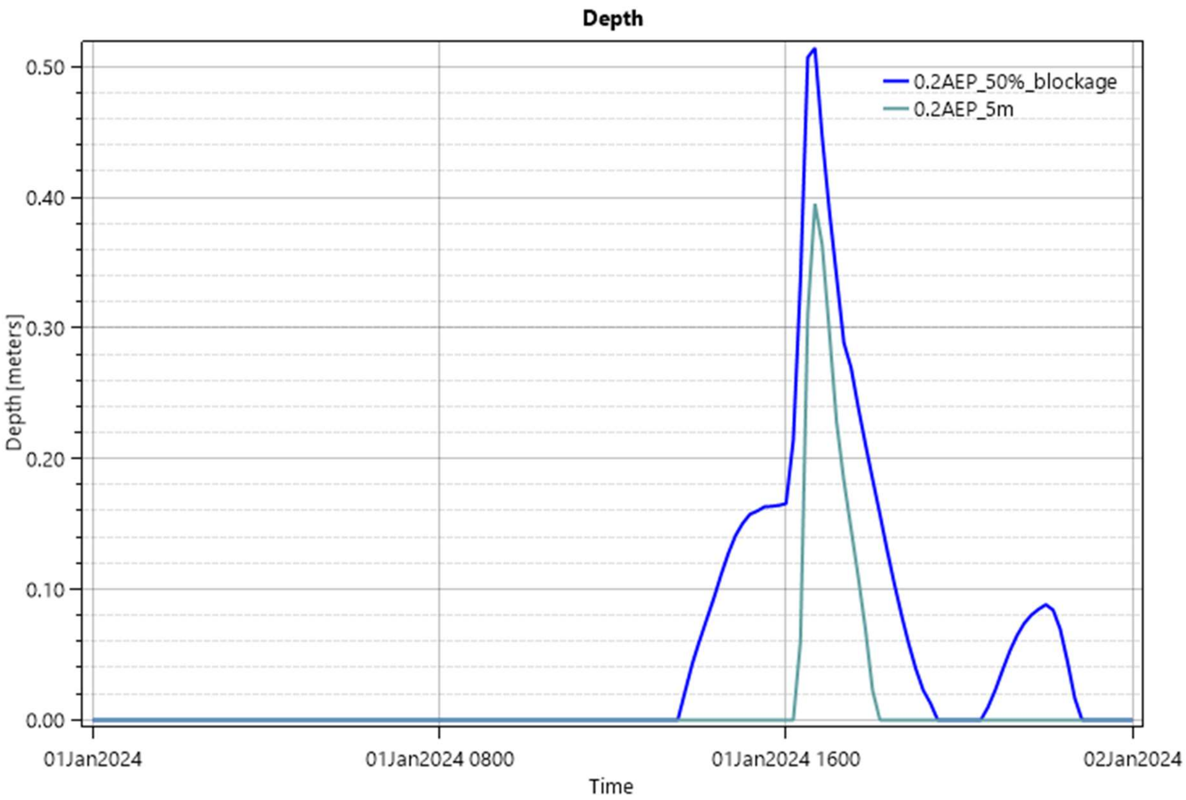

Figure 16 - Sensitivity analysis 50% culvert blockage for 0.2% AEP at Reference Pt A

7 HYDRAULIC PERFORMANCE

The hydraulic performance of the waterway crossing intersection is summarised in **Table 7-1**.

The hydraulic performance is based on the adopted flood model parameters and does not include potential significant blockage of the culverts.

Table 7-1 - Hydraulic performance of intersection culverts

AEP		Discharge		Depth	Velocity	Water surface elevation*
		Culverts	Weir	Weir	Weir	
(%)	(1in x)	(m^3/s)	(m^3/s)	(m)	(m/s)	(m AHD)
0.2	500	11.1	18.8	0.16	1.79	103.8
1 (2100)	100 (2100)	10.7	15.8	0.14	1.69	103.77
1	100	10.3	8.2	0.07	1.36	103.67
2	50	10.1	5.7	0.05	1.21	103.6
10	10	8.7	0	0.00	0.00	103.3
50	2	3.7	0	0.00	0.00	102.5

* Upstream face

8 SUMMARY OF FINDINGS

Detailed flood modelling of the catchment and subject intersection has demonstrated the capacity of the existing culverts provides 10% AEP design flood immunity to the intersection. For larger and rarer flood events of less than 2% AEP the model results show the intersection will experience water over the road to depths of less 0.3 m for a 1% AEP flood event for relatively short durations of less than 1.5 hours.

The flood modelling has also demonstrated that should a significant blockage of the culverts occur during a major rainfall flood event the depths of inundation across the culvert would not be expected to significantly change, however, the inundation may persist for longer periods.

APPENDICES

Appendix A - Contour & Detail Survey prepared by Murray & Associates

NOTE:

1. Sewer & Stormwater pipe IL's & diameters have been plotted from council records and field measurements.
2. Meridian is MGA (Zone 56) vide SP176968

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SURVEYORS & TOWN PLANNERS
ACN 075 543 154

Murray Building,15-17 Currie St. Nambour Ph.(07)5441 2188 P.O. Box 246
Branch Offices at Maroochydore Caboolture Chinchilla Roma Gympie & Emerald

AV Air Valve	FH Fire Hydrant	T Tree	Telecommunications Line
BM Bench Mark	GRATE Stormwater Grate	TE Telstra Pit	Sewer Line
CP Control Point	GATE Gate	TPL Telstra Pillar	Water Line
ELP Elect. Light Pole	S Sign	WM Water Meter	Fenceline
EMH Electricity Manhole	GAS Gas Infrastructure	WV Water Valve	Electricity
PP Power Pole	SMH Sewer Manhole		Gas Line
EPL Electricity Pillar	SV Scower Valve		Edge of Bitumen
EPIT Electricity Pit	SWMH Stormwater Manhole		Tree line
			Underground Electricity
			Stormwater
			Overhead Powerline

REVISIONS

NO.	DESCRIPTION	DATE	INIT.

PROJECT

**Contour & Detail Survey of
Lot 105 on SP 118458
62 Lake McDonald Drive,
Cooroy
L.G.A. Noosa Shire Council**

CLIENT **Noosa Shire Council**

Notes: Contour Interval is 0.5 metres. Underground services have been located from visible surface features only . A Dial Before You Dig search should be performed before the commencement of any excavation work. The property boundaries shown have not fully been investigated for the purposes of this survey. For an accurate determination of the boundaries, an Identification survey will be required.

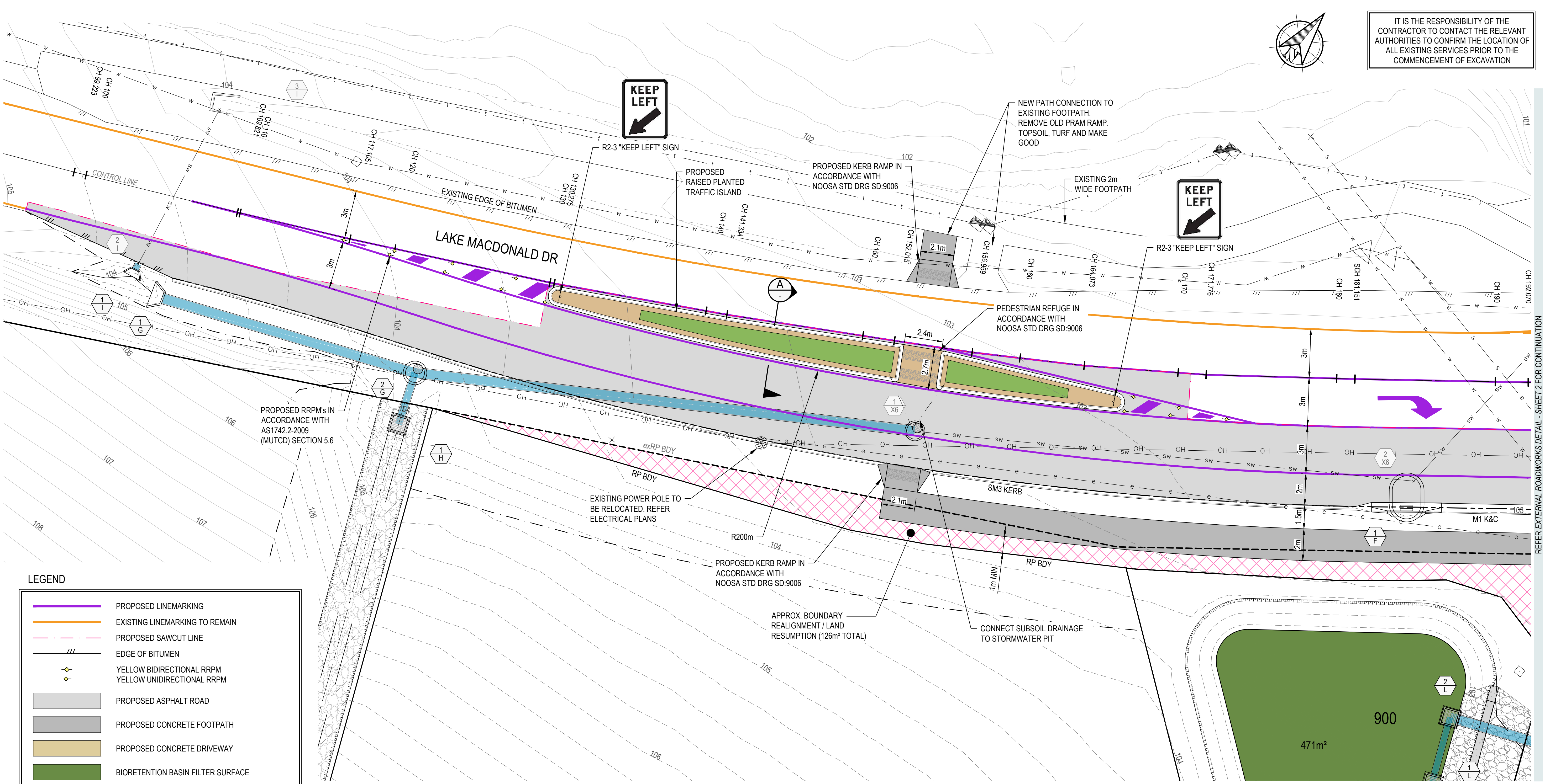
Datum: PSM 178243 RL 108.138 Form 6 Dated 29.02.24

Drawn: CAC

F.W. CAC	Date 05.04.24	
F.Bk -		
Level Bk	File 100988	
Acc. Bk		
Scale A1 1:500	Job & Plan No. 100988 DTM	

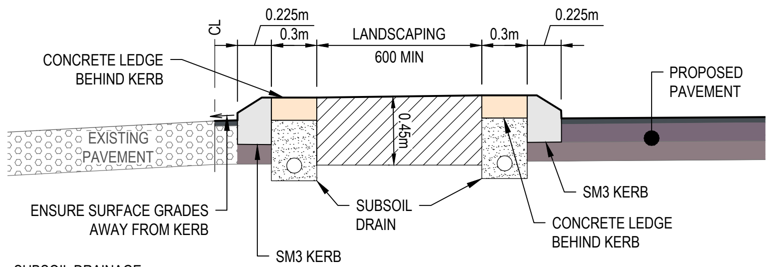
Licd. Surveyor Ian Smith

Appendix B - Road upgrade details prepared by Covey Associates Ptd Ltd



LEGEND

- PROPOSED LINEMARKING
- EXISTING LINEMARKING TO REMAIN
- PROPOSED SAWCUT LINE
- EDGE OF BITUMEN
- YELLOW BIDIRECTIONAL RRPM
- YELLOW UNIDIRECTIONAL RRPM
- PROPOSED ASPHALT ROAD
- PROPOSED CONCRETE FOOTPATH
- PROPOSED CONCRETE DRIVEWAY
- BIORETENTION BASIN FILTER SURFACE
- LAND RESUMPTION
- PROPOSED STORMWATER DRAINAGE
- PROPOSED Ø150 PVC-O PN16 WATER MAIN
- PROPOSED Ø150 UPVC SEWER MAIN
- EXISTING UNDERGROUND STORMWATER DRAINAGE
- EXISTING WATER MAIN
- EXISTING COMMUNICATIONS CABLES
- EXISTING UNDERGROUND ELECTRICAL
- EXISTING OVERHEAD ELECTRICAL
- EXISTING SITE BOUNDARY
- DESIGN SURFACE CONTOURS (250mm INTERVALS)
- EXISTING SURFACE CONTOURS (250mm INTERVALS)



SECTION A
TYPICAL PLANTED MEDIAN
SCALE 1:50 A3

NOTE:
ALL LINE MARKING AND DELINEATION TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

SCALE 1:125 (A1) - 1:250 (A3)

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

A	10/01/24	ISSUE FOR CLIENT REVIEW	SK	
Issue	Date	Description	By	

Checked - CT
Design - SK Drawn - SK
Scales - AS SHOWN
Document Stage - APPROVAL

COVEY ASSOCIATES PTY LTD ABN 59 137 305 992
Consulting Civil & Structural Engineers Project Management & Planning
124 DUPORTH AVENUE PO BOX 16 MAROOCHYDORE QLD 4558 E-MAIL: engineers@covey.com.au
Ph (07) 5443 7777 Fax (07) 5443 7577

Approved

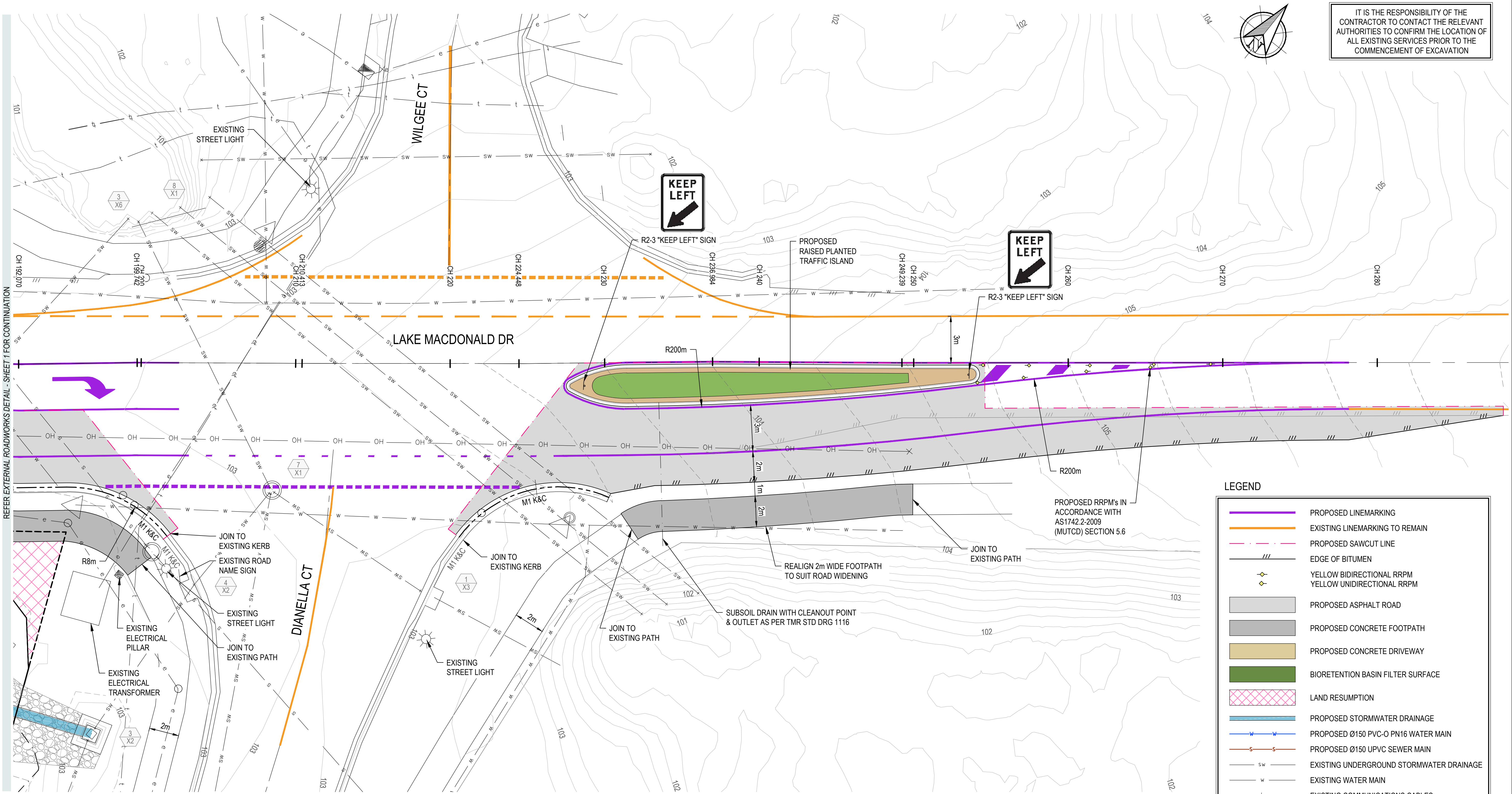
Drawing title - EXTERNAL ROADWORKS DETAIL - SHEET 1

Project - COMMUNITY AFFORDABLE HOUSING DEVELOPMENT
Client - NOOSA COUNCIL

Site - 62 LAKE MACDONALD DRIVE, COOROY

Project No. 233467 Sheet No. C250
Digital Ref : C250-C251 EXTERNAL ROADWORKS DETAILS Issue : A

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION



LEGEND

	PROPOSED LINEMARKING
	EXISTING LINEMARKING TO REMAIN
	PROPOSED SAWCUT LINE
///	EDGE OF BITUMEN
	YELLOW BIDIRECTIONAL RRPM YELLOW UNIDIRECTIONAL RRPM
	PROPOSED ASPHALT ROAD
	PROPOSED CONCRETE FOOTPATH
	PROPOSED CONCRETE DRIVEWAY
	BIORETENTION BASIN FILTER SURFACE
	LAND RESUMPTION
	PROPOSED STORMWATER DRAINAGE
w	PROPOSED Ø150 PVC-O PN16 WATER MAIN
s	PROPOSED Ø150 UPVC SEWER MAIN
sw	EXISTING UNDERGROUND STORMWATER DRAINAGE
w	EXISTING WATER MAIN
t	EXISTING COMMUNICATIONS CABLES
e	EXISTING UNDERGROUND ELECTRICAL
OH	EXISTING OVERHEAD ELECTRICAL
	EXISTING SITE BOUNDARY
10	DESIGN SURFACE CONTOURS (250mm INTERVALS)
10	EXISTING SURFACE CONTOURS (250mm INTERVALS)

NOTE:
ALL LINE MARKING AND DELINEATION TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

00 2.5m 5m 7.5m
SCALE 1:125 (A1) - 1:250 (A3)

Check all dimensions before commencement of work.
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Checked - CT			
Design - SK	Drawn - SK		
Scales - AS SHOWN			
Document Stage - APPROVAL			

Issue	Date	Description	By
A	10/01/24	ISSUE FOR CLIENT REVIEW	SK

COVEY ASSOCIATES PTY LTD
ABN 59 137 305 992
Consulting Civil & Structural Engineers
Project Management & Planning
Approved
124 DUPORTH AVENUE
PO BOX 16
MAROOCHYDORE QLD 4558
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Drawing title - EXTERNAL ROADWORKS DETAIL - SHEET 2

Project - COMMUNITY AFFORDABLE HOUSING DEVELOPMENT

Client - NOOSA COUNCIL

Site - 62 LAKE MACDONALD DRIVE, COOROY

Project No. 233467 Sheet No. C251

Digital Ref : C250-C251 EXTERNAL ROADWORKS DETAILS Issue : A

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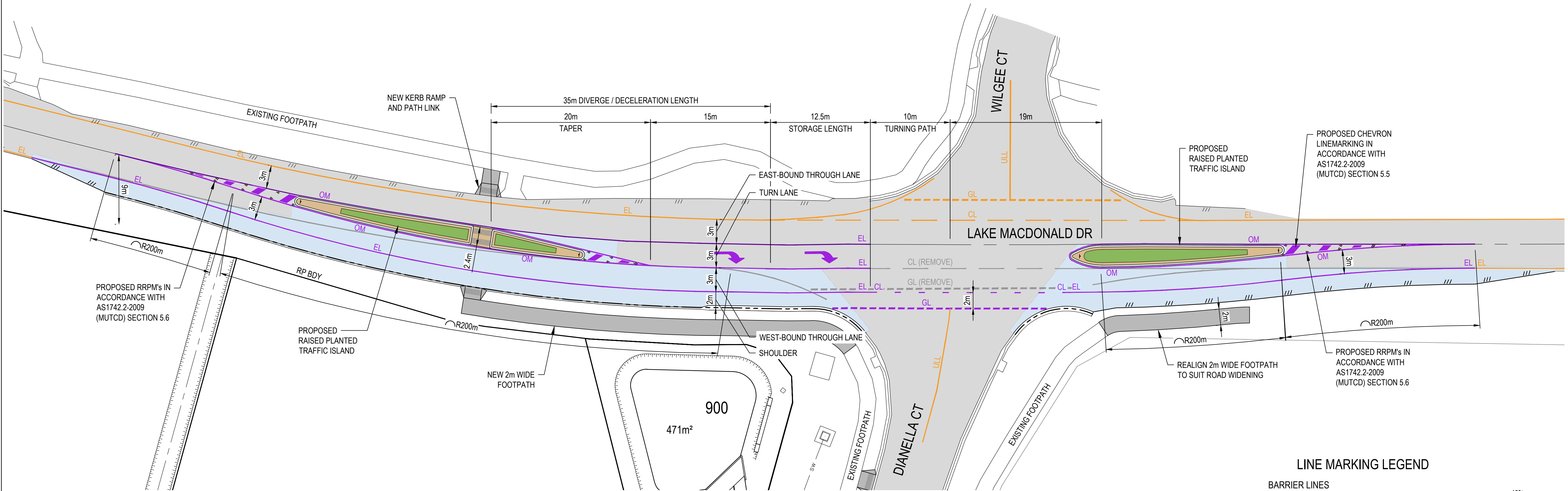
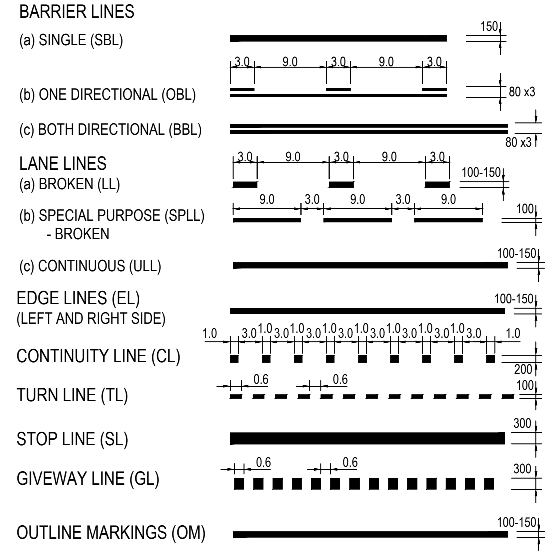
Plot 7 June 2024 - 11:05 AM

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF EXCAVATION



LINE MARKING LEGEND



LEGEND : NOT TO SCALE

LEGEND

(purple line)	PROPOSED LINEMARKING
(orange line)	EXISTING LINEMARKING TO REMAIN
(grey line)	EXISTING LINEMARKING TO BE REMOVED
///	EDGE OF BITUMEN
	YELLOW BIDIRECTIONAL RRPM YELLOW UNIDIRECTIONAL RRPM
(light blue)	PROPOSED NEW PAVEMENT EXTENT
(light grey)	EXISTING ROAD
(dark grey)	PROPOSED CONCRETE FOOTPATH
(black line)	EXISTING SITE BOUNDARY

NOTE:
ALL LINE MARKING AND DELINEATION TO BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

0 5m 10m 15m
SCALE 1:250 (A1) - 1:500 (A3)

Check all dimensions before commencement of work.
Check Site boundary dimensions from the Title plans
Check Building Boundary clearances by set out.
Notwithstanding the information supplied on this drawing, the location, depth and extent of underground or overhead services are to be confirmed and protected on site by the contractor prior to commencement of works.

Checked - CT
Design - SK Drawn - SK
Scales - AS SHOWN
Document Stage - APPROVAL

Issue	Date	Description	By
A	10/01/24	ISSUE FOR CLIENT REVIEW	SK

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Fax (07) 5443 7577

Approved

Drawing title - EXTERNAL ROAD LINEMARKING PLAN

Project - COMMUNITY AFFORDABLE HOUSING DEVELOPMENT

Client - NOOSA COUNCIL

Site - 62 LAKE MACDONALD DRIVE, COOROY

Project No. 233467 Sheet No. C252

Digital Ref : C252 EXTERNAL ROAD LINEMARKING PLAN Issue : A

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Plot 7 June 2024 - 11:05 AM

End of Report