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Proposed Residential Development Anambah Urban Release Area – DA 1

Stormwater Management and Flood Report

DB20 Pty Ltd

Revision: 4
Version Date: 30 May 2025

GCA Ref: 22311

LAND DEVELOPMENT • BUILDINGS • INFRASTRUCTURE

CIVIL, STRUCTURAL & ENVIRONMENTAL ENGINEERING,
WATER & WASTEWATER, BUILDING DESIGN & PROJECT ADVISORY

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1	Original Issue	TS	16/05/25	IH	16/05/25	IH	16/05/25
2	Client Amendments	TS	27/05/25	IH	27/05/25	IH	27/05/25
3	Client and Planning Comments	TS	28/05/25	IH	28/05/25	IH	28/05/25
4	Client Amendments	TS	30/05/25	IH	30/05/25	IH	30/05/25

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List of Acronyms

AEP	Annual Exceedance Probability
LGA	Local Government Area
MCC	Maitland City Council
MOES	Manual of Engineering Standards

Executive Summary

This stormwater drainage strategy is to support and inform a Development Application (DA 1) of a proposed residential development at 381 Anambah Road, Anambah.

Centralised stormwater management controls at the subdivision level have been designed to limit post development peak flow rates to predevelopment conditions for 1EY, 10%, 5% and 1% AEP critical storm durations.

This report demonstrates:

- The overall post development stormwater runoff quantity will not impact on downstream flooding,
- The retention of nominated pollutants (Total Suspended Solids, Nitrogen, Phosphorous and Gross Pollutants) will meet Maitland City Councils (MCC's) current nominated targets; and
- Flooding does not constitute an unacceptable risk.

The strategy for management of stormwater runoff during the proposed development includes:

- Capture of stormwater from majority of lot and road areas by conventional pit and pipe drainage networks located in the street or in inter-allotment drainage where required.
- Construction of combined bioretention / detention Basin 1 on the northern boundary of the proposed development.
- Catchment 2 has been considered and modelled within this report to demonstrate the flows to the existing culvert beneath Anambah Road, to which Catchment 2 ultimately drains, will not increase as a result of the proposed DA 1 development.

Post development outflows are less than or equal to predevelopment outflows for the 1EY, 10%, 5% and 1% AEP events. The development will not increase the risk or likelihood of mainstream erosion in smaller flood events or flooding in larger events.

Water quality modelling indicates that constructing Basin 1 as a bioretention basin and the inclusion of a GPT will allow the development to meet regional guidelines for best practice for retention of TSS, TN, TP, and GP (80%, 45%, 45% and 70%, respectively).

A flood assessment has been prepared in accordance with Maitland LEP 2011 and MDCP 2011. It was concluded the proposed development would have a negligible impact on flooding outside of the Site and should be considered permissible.

Based on this report, stormwater management and flooding are successfully managed in accordance with MCC guidelines.

1 Introduction

1.1 Background

This stormwater drainage strategy is to support and inform a Development Application (DA 1) of a proposed residential development on 381 Anambah Road, Anambah.

Centralised stormwater management controls at the subdivision level have been designed to limit post development peak flow rates to predevelopment conditions for 1EY, 10%, 5% and 1% AEP critical storm durations.

This report demonstrates:

- The overall post development stormwater runoff quantity will not impact on downstream flooding,
- The retention of nominated pollutants (Total Suspended Solids, Nitrogen, Phosphorous and Gross Pollutants) will meet Maitland City Councils (MCC's) current nominated targets; and
- Flooding does not constitute an unacceptable risk.

1.2 Site description

The subject land is known as 381 Anambah Road, Anambah. The proposed DA 1 development comprises approximately 17 hectares of currently semi-rural land. The Site is located to the north of existing residential development and to the west of Anambah Road. A locality plan has been provided in **Figure 1**.

There is a ridgeline that runs through the proposed development, running in the east-west direction. The northern catchment generally drains to an unnamed first and second order tributary, and the remaining southern catchment drains to an unnamed first order tributary. These watercourses generally drain to the Hunter River via existing culverts beneath Anambah Road.

The Site is not currently improved by existing dwellings or structures. The Site is zoned R1 General Residential pursuant to the Maitland Local Environmental Plan 2011. The Site is wholly within the Maitland City Council LGA.

1.3 Proposed development

The proposed development comprises the creation of approximately 173 residential lots plus an allowance for future development of two super lots to form DA 1 of the Anambah Urban Release Area, as indicated on **Figure 2**.

1.4 Objectives

The objectives of this report are to investigate the likely impacts of the interaction of the development with its stormwater and flooding environment and make recommendations to meet guidelines regarding volume rate of flow and runoff quality.

1.5 Available data

The following available information was utilised in the preparation of this strategy:

- A proposed subdivision layout plan by GCA Engineering Solutions (shown on **Figure 2**).
- Site detail survey from ADW Johnson.
- MCCs Manual of Engineering Standards (MOES) – Stormwater Drainage.
- Australian Rainfall and Runoff, 2016.
- Land Information Centre Digital Elevation Model (LIC DIM).
- Aerial Imagery (Near Maps).
- Hunter River Branxton to Green Rocks Flood Study (WMA Water, September 2010).

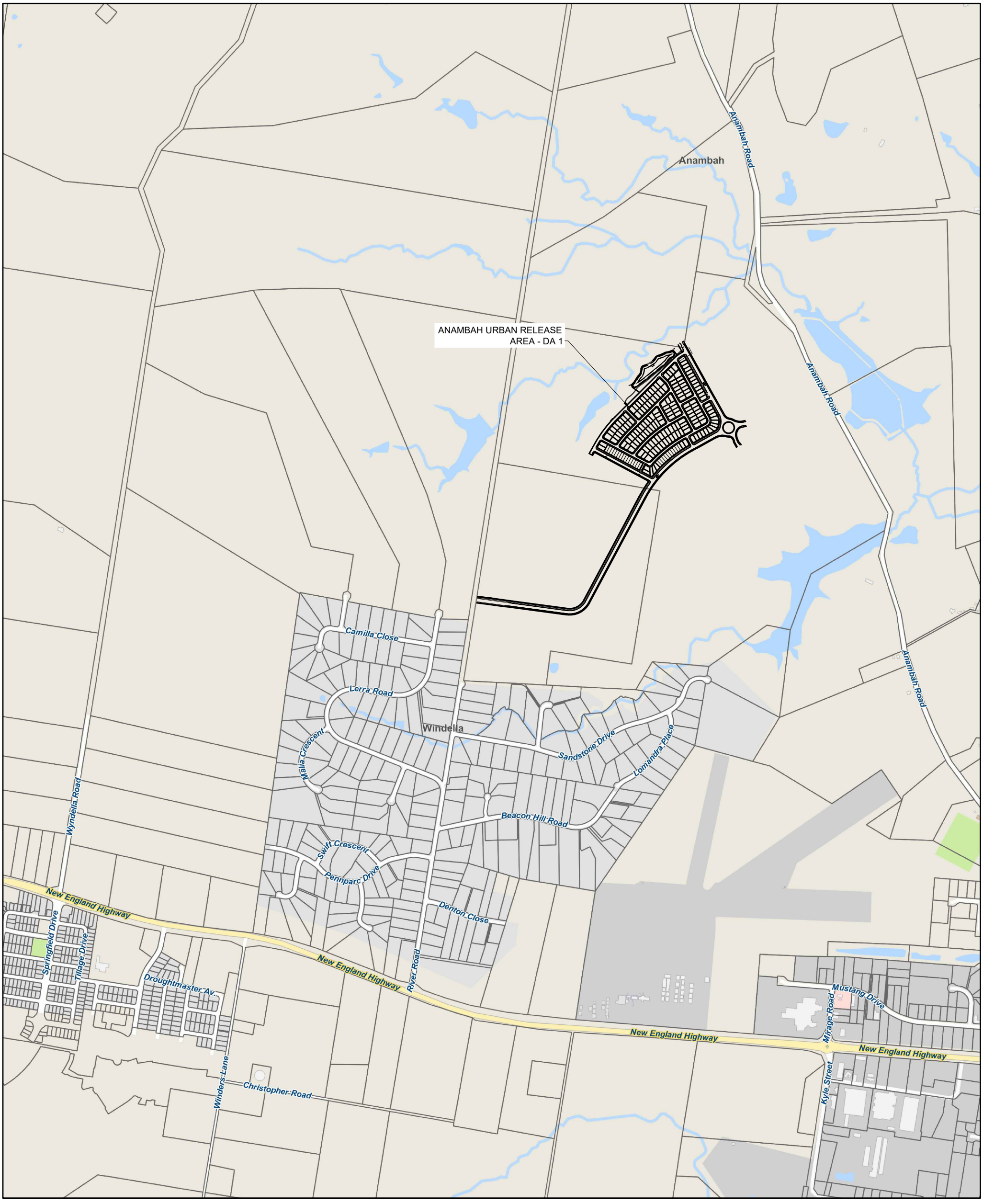


FIGURE 1
LOCALITY PLAN

1:15000 0 300 600 900 m

DATE: 30/05/25

N

FIGURE 2
SITE PLAN

1:5000

0 100 200 300m

DATE: 29/04/25

2 Stormwater Management Strategy

The proposed stormwater management strategy for the development is outlined for each catchment below. The predevelopment and post development catchment plans are provided on Figures 3 and 4, respectively. A general arrangement of the proposed stormwater network is provided on Figure 5. Subsequent sections of this report will demonstrate that the stormwater strategy will achieve all the relevant target criteria.

2.1 Catchment 1

In the predeveloped catchment plan, Catchment 1 is broken up into sub catchments labelled Cat 1A – 1M. In the post development catchment plan the previous sub catchment Cat 1L is broken up into sub catchments Cat 1L, Cat 1LB, Cat 1N and developed sub catchment Cat 1O.

Catchment 1O will be urbanised during the proposed development. Some areas of Catchment 1O have been regraded (within Catchment 1) to ensure flows are directed to the proposed permanent dry combined bioretention / detention Basin 1 (located on the developments northern boundary) before discharging to an existing tributary.

Lot and road areas will be drained by a conventional pit and pipe drainage network located in the street or in inter-allotment drainage where required. The pipe network will comprise the minor system subject to MCC's normal minor design standard of 10% AEP. The road network would form most of the major network standard of 1% AEP.

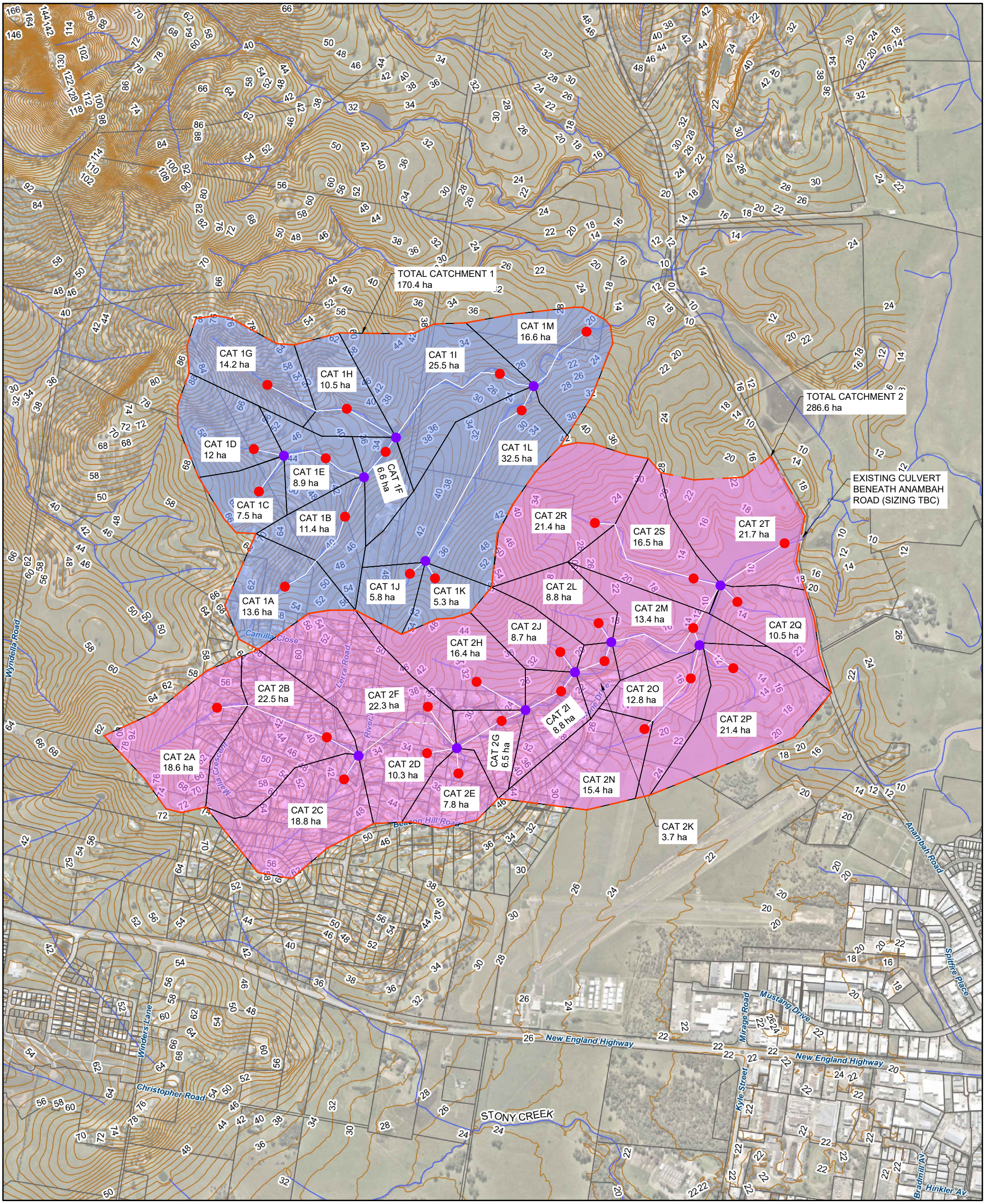
Discharge from Basin 1 will be controlled by a combination of biofiltration media sub soil drainage, low level discharge pipes, low level outlet pipes and an increased pit inlet level.

Water quality for the system as a whole will meet MCC's targets as outlined in the MOES. This will be achieved by a treatment train approach comprising a gross pollutant trap (GPT) and bioretention within Basin 1. Water quality and modelling is discussed in detail in Section 4.

2.2 Catchment 2

Catchment 2 is located to the south of the proposed DA 1 development and discharges to an existing culvert beneath Anambah Road. Catchment 2 has been considered and modelled within this report to demonstrate that flows to this existing culvert will not increase as a result of the proposed DA 1 development.

As shown on Figures 3 and 4, site regrading within the proposed development site has resulted in Catchment 2 reducing from approximately 286.6 ha in the predeveloped scenario to 282.2 ha in the post developed scenario. Proposed development within Catchment 2 is minimal, comprising a proposed roadway. Thus, detention has not been provided within Catchment 2 as part of the current proposal.



LEGEND

- CATCHMENT 1
- CATCHMENT 2
- CATCHMENT NODE
- JUNCTION NODE
- LICDEM CONTOUR (2m INTERVAL)

FIGURE 3
PREDEVELOPMENT CATCHMENT PLAN

1:15000 0 300 600 900 m

DATE: 29/04/25

TOTAL CATCHMENT 1
181.2 ha

CAT 1G
14.2 ha

CAT 1H
10.5 ha

CAT 1I
25.5 ha

CAT 1M
13 ha

CAT 1N
5.2 ha

CAT 1O
16.3 ha

APPROX
REDIRECTED
CATCHMENT
AREA WITHIN DA 1

TOTAL CATCHMENT 2
282.2 ha

EXISTING CULVERT
BENEATH ANAMBAH
ROAD (SIZING TBC)

CAT 1D
12 ha

CAT 1E
8.9 ha

CAT 1F
6.6 ha

CAT 1LB
11.9 ha

CAT 1C
7.5 ha

CAT 1B
11.4 ha

CAT 1L
11.9 ha

CAT 1J
5.8 ha

CAT 1K
6.6 ha

CAT 1A
13.6 ha

CAT 2R
18.4 ha

CAT 2S
16.5 ha

CAT 2T
21.7 ha

CAT 2L
8.8 ha

CAT 2M
13.4 ha

CAT 2Q
10.5 ha

CAT 2J
7.4 ha

CAT 2H
16.3 ha

CAT 2O
12.8 ha

CAT 2B
22.5 ha

CAT 2F
22.3 ha

CAT 2I
8.8 ha

CAT 2P
21.4 ha

CAT 2A
18.6 ha

CAT 2G
6.5 ha

CAT 2D
10.3 ha

CAT 2N
15.4 ha

CAT 2E
7.8 ha

CAT 2C
18.8 ha

CAT 2K
3.7 ha

Camilla Close
Wyndella Road
Lerra Road
Mallaia Crescent
Beacon Hill Road
Winders Lane
Christopher Road
New England Highway
Mirage Road
Mustang Drive
Kyle Street
Spitfire Place
Anambah Road
Bradmill Av.
Hinkler Av.
STONY CREEK

LEGEND

- CATCHMENT 1
- CATCHMENT 2
- CATCHMENT NODE
- JUNCTION NODE
- LICDEM CONTOUR (2m INTERVAL)

FIGURE 4
POST DEVELOPMENT CATCHMENT PLAN

1:15000 0 300 600 900 m

DATE: 27/05/25

3 Volume Rate of Flow

3.1 Criteria

Discharge from the proposed development has been limited to the Site's predevelopment rates for 1EY, 10%, 5% and 1% AEP events.

3.2 Methodology

For large developments utilising detention basin storages, the Time Area Hydrograph Routing method is considered to be the most appropriate tool for determining basin volumes. The DRAINS software package, published by Watercom Pty Ltd, has been used to investigate the catchments and the ameliorating effects of the proposed basin. This works by translating rainfall hyetographs into runoff hydrographs over sub catchments and subsequently adding the resulting hydrographs together to quantify design rates of flow and runoff volumes.

3.2.1 Catchment hydrology

MCC's MOES publishes parameters to be adopted in DRAINS models as provided in Table 3-1 below.

Table 3-1: MCC's MOES modelling parameters.

Parameter	Value
Soil Type	As reported (3)
Antecedent Moisture Content	3
Grassed Depression Storage	5mm
Paved Depression Storage	1mm

The existing site consists primarily of vegetated rural land with pasture grasses. In accordance with MOES, a surface roughness coefficient (n*) of 0.35, 0.21 and 0.01 was adopted for predeveloped pervious catchment areas, developed pervious catchment areas and impervious catchment areas, respectively. MOES also required that residential development (lot sizes <1000m^2) adopt a site impervious percentage of 0.6 or 60%, and road reserve adopt an impervious percentage of 0.7 or 70%. Catchment 2 was modelled considering aerial imagery and the MOES modelling parameters discussed above.

3.2.2 Rate of flow

A predevelopment time area hydrograph routing model was developed using DRAINS. The model was run for 1EY, 10%, 5% and 1% AEP events.

A preliminary basin was then sized considering post development catchments, and the outlet configuration was determined to ensure that outflow for 1EY, 10%, 5% and 1% AEP events would be less than predevelopment flows. A Stage / Discharge table was utilised to model the outlet structure for Basin 1 within DRAINS, inclusive of inlet orifices, an increased pit level and a spillway. The Stage / Discharge table is provided in **Appendix A**.

3.3 Results

3.3.1 Proposed Basin 1

DRAINS was iteratively run to design the detention component of the proposed basin yielding the following results as shown on **Figure 5**:

Top of Bank	= R.L. 24.00
Internal Batters	= 1V:5H
1% AEP Top Water Level	= R.L. 23.47
Detention Invert Level	= R.L. 22.10
Peak Detention Volume	= 6564m^3
Outlet Control Pit (Internal Dimensions)	= 1.5m x 0.9m at S.L. 22.95 & I.L. 22.10
Inlet Orifice	= 1x ø130mm at I.L. 22.10
Outlet Pipes	= 1x ø1050mm at I.L. 21.10
Spillway	= 10m long at R.L. 23.50

It is noted the spillway level is located well above the minimum 5% level of 14m AHD as per MCCs MOES Section 8.1.1.

3.3.2 Catchment 1 Results

The final DRAINS model for predevelopment and post development scenarios for the 1EY, 10%, 5% and 1% AEP events are presented in **Appendix A**, and the results are shown in **Appendix B**.

Results for outflow of the predevelopment and post development catchments (with onsite detention) at the Catchment 1 outlet are summarised in Table 3-2.

Table 3-2: Catchment 1 discharge rates.

Event	Predevelopment discharge rate (m^3/s)	Post development discharge rate with OSD (m^3/s)	Difference (%)
1EY	0.96	0.95	-1.6
10% AEP	11.02	10.84	-1.7
5% AEP	15.74	15.41	-2.1
1% AEP	29.36	28.92	-1.5

Proposed Basin 1 has a TWL of 23.29m during the 5% AEP event, resulting in a maximum temporary water depth of 1.19m and complying with MCCs MOES Section 8.1.5.

3.3.3 Catchment 2 Results

The final DRAINS model for predevelopment and post development scenarios for the 1EY, 10%, 5% and 1% AEP events at the Catchment 2 outlet are summarised in Table 3-3. It is noted that Catchment 2 has been considered and modelled within this report to demonstrate the flows to the existing culvert beneath Anambah Road, to which Catchment 2 ultimately drains, will not increase as a result of the proposed DA 1 development.

Table 3-3: Catchment 2 discharge rates.

Event	Predevelopment discharge rate (m^3/s)	Post development discharge rate without OSD (m^3/s)	Difference (%)
1EY	5.54	5.53	-0.3
10% AEP	22.73	22.27	-2.0
5% AEP	31.19	30.53	-2.1
1% AEP	54.02	52.82	-2.2

3.4 Discussion

The proposed development, with the inclusion of proposed Basin 1, and the proposed outlet structure, will not produce an outflow larger than predevelopment flow rates during the 1EY, 10%, 5% and 1% AEP events.

It is noted that flows at the Catchment 2 outlet have also reduced due to a reduction in catchment area in the post development scenario caused by regrading within the proposed development site.

PROPOSED COMBINED DETENTION/BIO-RETENTION BASIN 1	
TOP OF BANK	=R.L. 24.00
Q100 TOP WATER LEVEL	=R.L. 23.47
DETENTION INVERT LEVEL	=R.L. 22.10
Q100 DETENTION VOLUME	=6564m^3
FILTER MEDIA AREA	=50m^2
WATER QUALITY STORAGE DEPTH	=0.3m
INTERNAL BATTER SLOPES	=1v:5h

BASIN OUTLET STRUCTURE
1x Ø130mm INLET ORIFICE AT I.L. 22.10
1x Ø1050mm OUTLET PIPE AT I.L. 21.10
1.5m x 0.9m OUTLET CONTROL PIT AT S.L. 22.95 & I.L. 22.10
SPILLWAY 10m LONG AT R.L. 23.50

PROPOSED GPT (HUMEGARD HG35)

FIGURE 5
STORMWATER MANAGEMENT PLAN

1:2500 0 50 100 150 m

DATE: 16/05/25

4 Stormwater Runoff Quality

4.1 Criteria

Treatment targets for the proposed development were adopted from MCC's MOES and are shown in Table 4-1.

Table 4-1: Stormwater treatment objectives.

Pollutant	Stormwater treatment objective
Total Suspended Solids (TSS)	80% retention of average annual load
Total Phosphorous (TP)	45% retention of average annual load
Total Nitrogen (TN)	45% retention of average annual load
Gross Pollutants (GP)	70% retention of average annual load

4.2 Methodology

The development was modelled using MUSICX published by eWater Limited, which is the current best practice tool for estimating the ameliorating effects of proposed stormwater quality improvement devices in a treatment train approach.

MUSICX uses real historical continuous rainfall records (over several years) as input and compares the theoretical pollutant generation within the catchment to the final theoretical export rate (usually expressed in kg/year) to determine a treatment train effectiveness expressed in percentage points that are directly comparable to the guidelines in Table 4-1.

As MCC do not have a music link, input rainfall for Maitland from August 1963 to May 2010 was acquired.

4.2.1 Catchment modelling

For the proposed development, Catchment 1O was considered. A MUSICX model was constructed comprising pavement areas, road reserves and landscaping areas to examine whether a gross pollutant trap (GPT) and combined bioretention / detention Basin 1 can achieve the required stormwater treatment objectives for the proposed development. The MUSICX model layout is provided in **Appendix C**.

4.2.2 Gross Pollutant Trap

A gross pollutant trap (Humes HumeGard) is proposed as secondary treatment devices. Flows to the GPT should be limited to the 3 EY event. The 3 EY event was run for the post development model in DRAINS to size the proposed GPT for the proposed development. Table 4-2 provides the parameters used when modelling the GPT within MUSICX.

Table 4-2: GPT modelling parameters.

	HG35
High Flow Bypass (Treatment Flow Rate)	1.54 m^3/s
TSS Removal Efficiency	50%
TP Removal Efficiency	40%
TN Removal Efficiency	26%
GP Removal Efficiency	90%

4.2.3 Bioretention

Bioretention is proposed as a tertiary treatment device. Proposed Basin 1 will serve as combined detention / bioretention basin. Table 4-3 provides the parameters utilised when modelling Basin 1 within MUSICX. Vegetation in the bioretention basin will be in accordance with MCC requirements.

Table 4-3: Bioretention basin modelling parameters.

	Invert Surface Area	Extended Detention Depth	Filter Media Surface Area	Filter Media Depth	Filter Media Saturated Hydraulic Conductivity
Basin 1	2767m^2	0.3m	50m^2	0.4m	180mm/hr

4.3 Results

The results of the MUSICX modelling for the proposed development is outlined below.

Table 4-4: Catchment 1 – Achieved pollutant retention.

Pollutant	Average Annual Surface Generation	Average Annual Export	Achieved Reduction (Pollutants Retained)	Target Reduction (Pollutants Retained)
Total Suspended Solids (TSS; kg/year)	17797	1349	92	80%
Total Phosphorous (TP; kg/year)	29	10	67	45%
Total Nitrogen (TN; kg/year)	159	81	49	45%
Gross Pollutants (GP; kg/year)	2454	0	100	70%

4.4 Discussion

The above results indicate the proposed development will comply with Council's standard for water quality control if constructed in accordance with **Figure 5**.

5 Flood Assessment

5.1 Existing flood environment

The Hunter River Branxton to Green Rocks Flood Study (WMA Water, September 2010) has been used to describe the existing flood environment. The flood levels relevant to this site comprise:

- PMF Flood level at the Site is 24m AHD.
- 1% AEP Flood level at the Site is 19.9m AHD.
- 5% AEP Flood level at the Site is 14m AHD.
- Peak velocity at the Site during the 1% AEP event is approximately 0 – 0.5m/s.

Flood affectation is mapped on **Figure 6**.

Relevant figures from the Hunter River Branxton to Green Rocks Flood Study have been provided in **Appendix D**.

5.2 Flood planning controls

Clause 5.21 of the Maitland LEP 2011 relates to flood planning:

1. *The objectives of this clause are as follows—*
   a. *to minimise the flood risk to life and property associated with the use of land,*
   b. *to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change,*
   c. *to avoid adverse or cumulative impacts on flood behaviour and the environment,*
   d. *to enable the safe occupation and efficient evacuation of people in the event of a flood.*
2. *Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—*
   a. *is compatible with the flood function and behaviour on the land, and*
   b. *will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and*
   c. *will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and*
   d. *incorporates appropriate measures to manage risk to life in the event of a flood, and*
   e. *will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.*
3. *In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—*
   a. *the impact of the development on projected changes to flood behaviour as a result of climate change,*
   b. *the intended design and scale of buildings resulting from the development,*
   c. *whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,*

d. the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.

4. A word or expression used in this clause has the same meaning as it has in the Considering Flooding in Land Use Planning Guideline unless it is otherwise defined in this clause.

5. In this clause—

***Considering Flooding in Land Use Planning Guideline** means the Considering Flooding in Land Use Planning Guideline published on the Department's website on 14 July 2021.*

***flood planning** area has the same meaning as it has in the Flood Risk Management Manual.*

***Flood Risk Management Manual** means the Flood Risk Management Manual, ISBN 978-1-923076-17-4, published by the NSW Government in June 2023*

Further detail on the applicable flood planning controls is given in Part B3 *Hunter River Floodplain* of the Maitland Development Control Plan (MDCP) 2011.

The site is assessed against the flood related Development Controls in Section 5.4 of this report.

5.3 Hydraulic categories

Hydraulic categories are quasi planning controls given in a flood study to predict potential impacts on flood behaviour outside the development site. In the case of the Hunter River Branxton to Green Rocks Flood Study, they have been translated into the Maitland Development Control Plan 2011. They are:

- Floodway – Where flood flow conveyance is essential to the observed flood behaviour. Blocking (by filling) a floodway would typically result in significant redistribution of flood water and therefore significant impact outside the site. Accordingly, development in a floodway is generally discouraged.
- Flood Storage Area – Where the storage of water is important to attenuating flows, particularly in the downstream direction. Limited development may be allowable in the flood storage area based on the cumulative impacts of all such development.
- Flood Fringe Area – Generally, development in the flood fringe area will not have any impact outside the site and is therefore permissible without the need to reassess flood studies.

Hydraulic categories are shown in **Appendix D**.

5.4 MDCP 2011 Assessment

5.4.1 General building requirements

General building requirements are indicated at Page 7 of Part B3 of MDCP 2011 and assessed below:

Habitable floor level should be no lower than the FPL.

The Flood Planning Level is the 1% AEP flood level + 500mm. Having regard to normal building practice comprising waffle pod type slab on ground construction with scope for balanced cut to fill earthworks at the footprint of the building, the economically sustainable building limit to achieve floor levels at the FPL is taken to be the 1% AEP flood line. Minor additional earthworks may be proposed to regularise the building footprint considering access roads and other site constraints, but these would typically be done on a balanced cut to fill design approach. This means that the 1% AEP flood line can be considered a good guide on the likely limit of the building footprint.

As shown on **Figure 6**, there is sufficient space within the subject site above the 1% AEP to sustain future building.

Flood free access should be provided from the development to an appropriate evacuation facility at the 5% AEP flood level or higher.

The proposed development has flood free access at the 5% AEP flood level or higher, as shown on **Figure 6**.

5.4.2 Filling of Flood Fringe Areas

In accordance with the discussion in Section 5.4.1, some minor filling of flood prone land has been proposed.

MDCP DCP 2011 provides hydraulic category mapping of the Maitland LGA. This mapping has been approximately overlaid against the proposed development in **Figure 7**. Based on the Hydraulic Categories and approximate mapping shown in **Figure 7**, some minor fill may encroach on flood fringe areas however, this filling would not impact the existing flood environment or adjoining properties considering the vast floodplain storage volume.

5.4.3 Critical Infrastructure and facilities

The proposed development does not give rise to any of the nominated critical infrastructure and facilities items mentioned in the DCP.

5.5 Discussion

Based on the flood assessment conducted above, the proposed development meets the objectives of the MLEP 2011. As the fill proposed as part of DA1 is very minor and limited to area mapped as flood fringe, and flooding occurs due to backwater from the Hunter River, it is concluded that the proposed development would have a negligible impact on the existing flood environment or adjoining properties. The proposed development should be considered permissible.

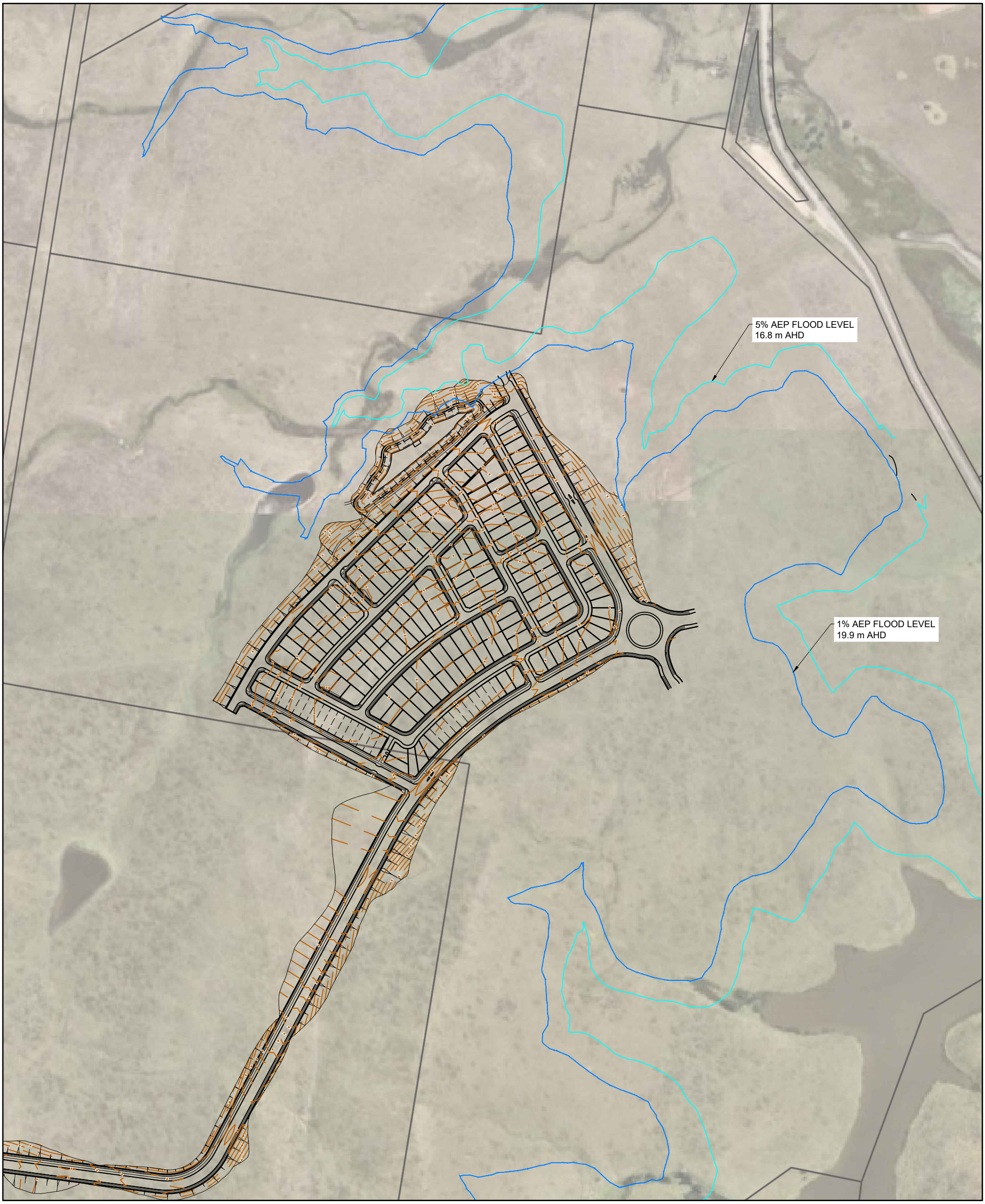
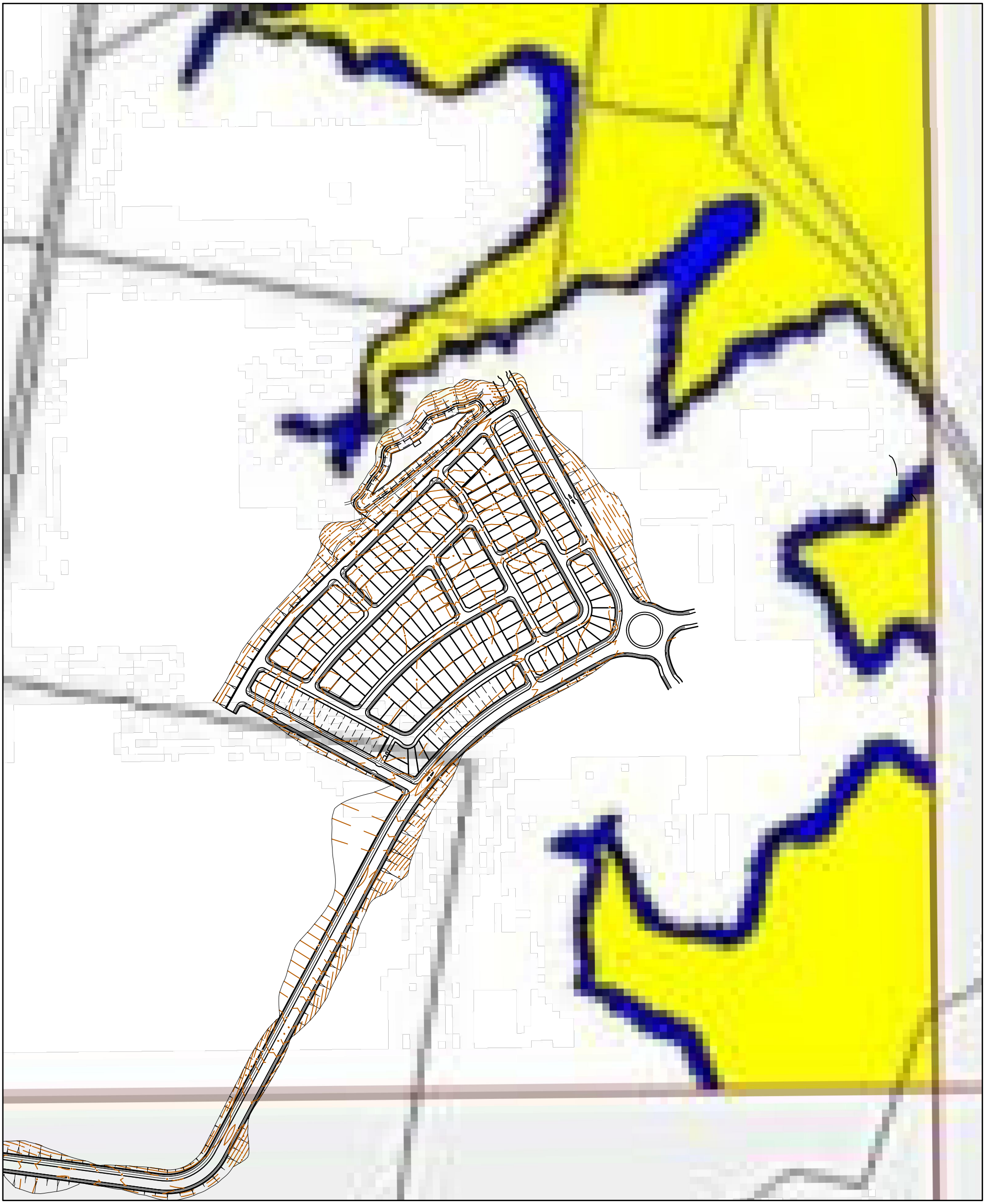


FIGURE 6
FLOOD MAPPING

1:5000 0 100 200 300m

DATE: 16/05/25



LEGEND

- FLOOD STORAGE
- FLOOD FRINGE
- FLOODWAY

NOTE:

MAPPING EXTRACTED FROM FLOODPLAIN MANAGEMENT DCP - HYDRAULIC CATEGORIES_SHEET 001.

FIGURE 7
FLOOD MAPPING - HYDRAULIC CATEGORIES

1:5000 0 100 200 300m

DATE: 16/05/25

6 Summary and Conclusions

The strategy for management of stormwater runoff during the proposed development includes:

- Capture of stormwater from majority of lot and road areas by conventional pit and pipe drainage networks located in the street or in inter-allotment drainage where required.
- Construction of combined bioretention / detention Basin 1 on the northern boundary of the proposed development.
- Catchment 2 has been considered and modelled within this report to demonstrate the flows to the existing culvert beneath Anambah Road, to which Catchment 2 ultimately drains, will not increase as a result of the proposed DA 1 development.

Post development outflows are less than or equal to predevelopment outflows for the 1EY, 10%, 5% and 1% AEP events. The development will not increase the risk or likelihood of mainstream erosion in smaller flood events or flooding in larger events.

Water quality modelling indicates that constructing Basin 1 as s bioretention basin and the inclusion of a GPT will allow the development to meet regional guidelines for best practice for retention of TSS, TN, TP, and GP (80%, 45%, 45% and 70%, respectively).

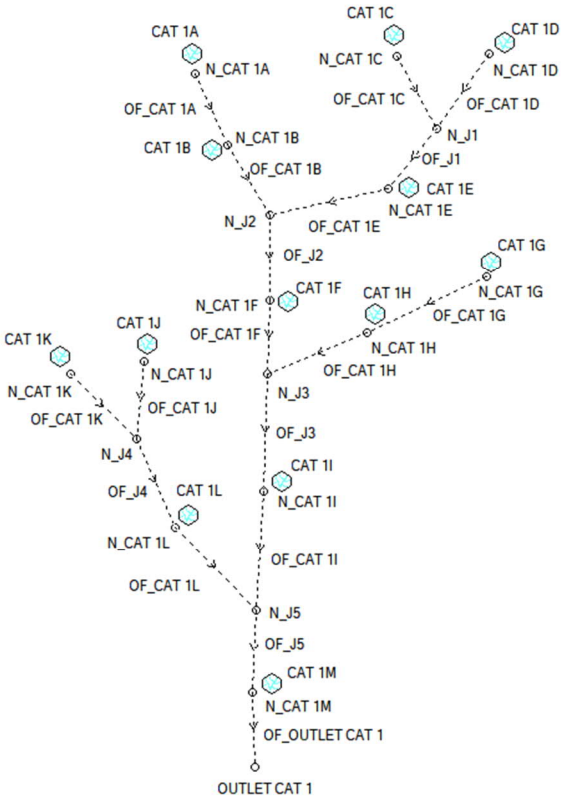
A flood assessment has been prepared in accordance with Maitland LEP 2011 and MDCP 2011. It was concluded the proposed development would have a negligible impact on flooding outside of the Site and should be considered permissible.

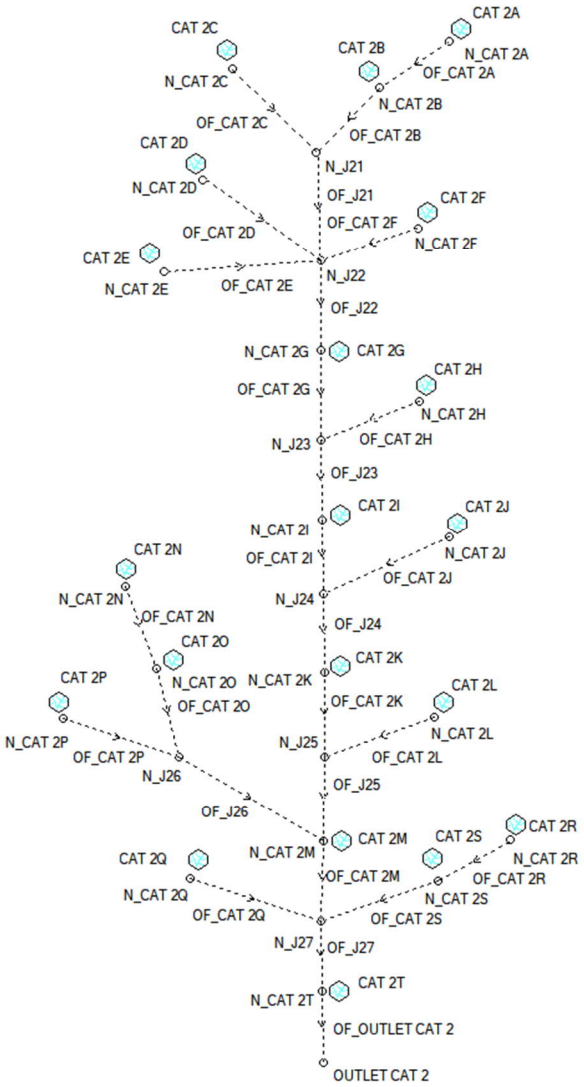
Based on this report, stormwater management and flooding are successfully managed in accordance with MCC guidelines.

Appendix A

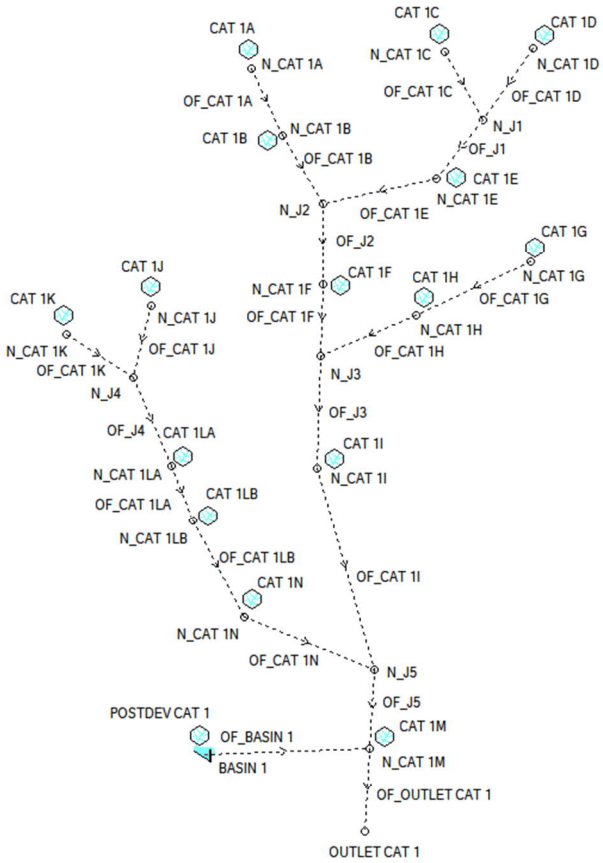
DRAINS Data

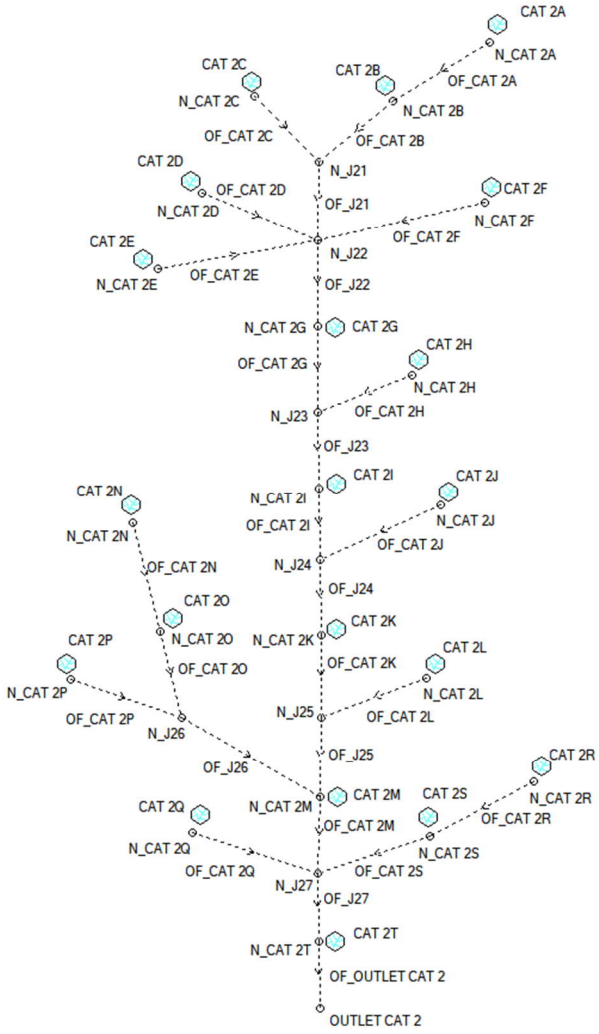
PREDEV DRAINS MODEL





POSTDEV DRAINS MODEL





PREDEV - DRAINS Data

PIT / NODE DETAILS

Version 15

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss	Inflow Hydrograph	Pit is	Internal Width (mm)	Inflow is Misaligned	Minor Safe Pond Depth (m)	Major Safe Pond Depth (m)
N_CAT 1A	Node					48		0		364.72	-68.08		476382		No					
N_J2	Node					34		0		451.12	-230.8		476387		No					
N_CAT 1B	Node					36		0		402.16	-148.72		476398		No					
N_CAT 1C	Node					52		0		599.44	-47.92		476401		No					
N_CAT 1F	Node					31		0		451.12	-328.72		476425		No					
N_J3	Node					30.5		0		448.24	-415.12		476429		No					
N_CAT 1H	Node					36		0		563.44	-366.16		476431		No					
N_CAT 1I	Node					24		0		443.92	-550.48		476434		No					
N_J5	Node					20		0		435.28	-687.28		476435		No					
N_CAT 1J	Node					40		0		305.68	-399.28		476438		No					
N_CAT 1L	Node					22		0		341.68	-592.24		476440		No					
N_CAT 1M	Node					16		0		430.96	-782.32		476454		No					
OUTLET CAT 1	Node					14		0		433.84	-868.72		476458		No					
N_CAT 2B	Node					38		0		1441	-106		579252		No					
N_J21	Node					36		0		1367.2	-181.6		579253		No					
N_CAT 2A	Node					50		0		1522	-53		579254		No					
N_CAT 2C	Node					40		0		1271	-85		579262		No					
N_J22	Node					26		0		1372.72	-307.12		579266		No					
N_CAT 2E	Node					32		0		1192	-319.6		579268		No					
N_CAT 2G	Node					24		0		1372.72	-409.36		579272		No					
N_J23	Node					22		0		1372.72	-513.04		579277		No					
N_CAT 2H	Node					30		0		1486.48	-468.4		579279		No					
N_CAT 2I	Node					20		0		1374.16	-606.64		579282		No					
N_J24	Node					18		0		1375.6	-691.6		579286		No					
N_CAT 2J	Node					22		0		1521.04	-625.36		579288		No					
N_CAT 2K	Node					16		0		1377.04	-782.32		579305		No					
N_J25	Node					14		0		1377.04	-881.68		579349		No					
N_CAT 2L	Node					18		0		1503.76	-834.16		579351		No					
N_CAT 2M	Node					12		0		1375.6	-978.16		579355		No					
N_J26	Node					13		0		1208.56	-881.68		579358		No					
N_CAT 2P	Node					14		0		1074.64	-835.6		579359		No					
N_CAT 2O	Node					14		0		1182.64	-778		579360		No					
N_J27	Node					10		0		1372.72	-1070.32		579368		No					
N_CAT 2S	Node					12		0		1508.08	-1025.68		579371		No					
N_CAT 2Q	Node					12		0		1221.52	-1021.36		579372		No					
N_CAT 2T	Node					8		0		1374.16	-1152.4		579377		No					
OUTLET CAT 2	Node					6		0		1375.6	-1234.48		579379		No					
N_CAT 1E	Node					36		0		587.92	-200.56		2337054		No					
N_J1	Node					44		0		644.08	-130		2337060		No					
N_CAT 1D	Node					50		0		704.56	-43.6		2337073		No					
N_CAT 1G	Node					50		0		701.68	-301.36		2337094		No					
N_J4	Node					38		0		297.04	-488.56		2337114		No					
N_CAT 1K	Node					40		0		220.72	-415.12		2337125		No					
N_CAT 2R	Node					20		0		1593	-978		2635927		No					
N_CAT 2N	Node					18		0		1147	-684		2635944		No					
N_CAT 2D	Node					32		0		1236.4	-212.8		2635998		No					
N_CAT 2F	Node					34		0		1486	-269		2636002		No					

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Lengt	id

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(%)	Grass Slope %	Supp Slope %	Paved Rough	Grass Rough	Supp Rough	Lag Time or Factor	Gutter Length (m)	Gutter Slope	Gutter FlowFactor	Rainfall Multiplier
CAT 1A	N_CAT 1A	13.6	0	100	0	0	0	0	-1	270	-1	-1	9	-1	-1	0.35	-1	0				1
CAT 1B	N_CAT 1B	11.4	0	100	0	0	0	0	-1	350	-1	-1	10	-1	-1	0.35	-1	0				1
CAT 1C	N_CAT 1C	7.5	0	100	0	0	0	0	-1	280	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 1F	N_CAT 1F	6.6	0	100	0	0	0	0	-1	260	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 1H	N_CAT 1H	10.5	0	100	0	0	0	0	-1	310	-1	-1	7	-1	-1	0.35	-1	0				1
CAT 1I	N_CAT 1I	25.5	0	100	0	0	0	0	-1	430	-1	-1	8	-1	-1	0.35	-1	0				1
CAT 1J	N_CAT 1J	5.8	0	100	0	0	0	0	-1	165	-1	-1	5	-1	-1	0.35	-1	0				1
CAT 1L	N_CAT 1L	32.5	0	100	0	0	0	0	-1	300	-1	-1	7	-1	-1	0.35	-1	0				1
CAT 1M	N_CAT 1M	16.6	0	100	0	0	0	0	-1	225	-1	-1	8	-1	-1	0.35	-1	0				1
CAT 2B	N_CAT 2B	22.5	30	70	0	0	0	0	80	516	-1	3	7	-1	0.01	0.21	-1	0				1
CAT 2A	N_CAT 2A	18.6	15	85	0	0	0	0	80	274	-1	3	8	-1	0.01	0.21	-1	0				1
CAT 2C	N_CAT 2C	18.8	30	70	0	0	0	0	80	270	-1	3	9	-1	0.01	0.21	-1	0				1
CAT 2E	N_CAT 2E	7.8	20	80	0	0	0	0	80	207	-1	3	6	-1	0.01	0.21	-1	0				1
CAT 2G	N_CAT 2G	6.5	20	80	0	0	0	0	80	260	-1	3	8	-1	0.01	0.21	-1	0				1
CAT 2H	N_CAT 2H	16.4	0	100	0	0	0	0	-1	260	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 2I	N_CAT 2I	8.8	20	80	0	0	0	0	80	323	-1	3	6	-1	0.01	0.21	-1	0				1
CAT 2J	N_CAT 2J	8.7	0	100	0	0	0	0	-1	140	-1	-1	9	-1	-1	0.35	-1	0				1
CAT 2K	N_CAT 2K	3.7	0	100	0	0	0	0	-1	125	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 2L	N_CAT 2L	8.8	0	100	0	0	0	0	-1	260	-1	-1	9	-1	-1	0.35	-1	0				1
CAT 2M	N_CAT 2M	13.4	0	100	0	0	0	0	-1	216	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 2P	N_CAT 2P	21.4	0	100	0	0	0	0	-1	313	-1	-1	3	-1	-1	0.35	-1	0				1
CAT 2O	N_CAT 2O	12.8	0	100	0	0	0	0	-1	160	-1	-1	4	-1	-1	0.35	-1	0				1
CAT 2S	N_CAT 2S	16.5	0	100	0	0	0	0	-1	450	-1	-1	4	-1	-1	0.35	-1	0				1
CAT 2Q	N_CAT 2Q	10.5	0	100	0	0	0	0	-1	170	-1	-1	5	-1	-1	0.35	-1	0				1
CAT 2T	N_CAT 2T	21.7	0	100	0	0	0	0	-1	230	-1	-1	5	-1	-1	0.35	-1	0				1
CAT 1E	N_CAT 1E	8.9	0	100	0	0	0	0	-1	275	-1	-1	8	-1	-1	0.35	-1	0				1
CAT 1D	N_CAT 1D	12	0	100	0	0	0	0	-1	414	-1	-1	10	-1	-1	0.35	-1	0				1
CAT 1G	N_CAT 1G	14.2	0	100	0	0	0	0	-1	270	-1	-1	10	-1	-1	0.35	-1	0				1
CAT 1K	N_CAT 1K	5.3	0	100	0	0	0	0	-1	195	-1	-1	4	-1	-1	0.35	-1	0				1
CAT 2R	N_CAT 2R	21.4	0	100	0	0	0	0	-1	370	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 2N	N_CAT 2N	15.4	20	80	0	0	0	0	80	460	-1	3	5	-1	0.01	0.35	-1	0				1
CAT 2D	N_CAT 2D	10.3	30	70	0	0	0	0	80	365	-1	3	5	-1	0.01	0.21	-1	0				1
CAT 2F	N_CAT 2F	22.3	30	70	0	0	0	0	80	650	-1	3	5	-1	0.01	0.21	-1	0				1

PIPE DETAILS

Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	At Chg	Chg (m)	Rl (m)	Chg (m)	RL (m)	etc (m)

DETAILS of SERVICES CROSSING PIPES

Pipe	Chg (m)	Bottom Elev (m)	Height of Sc (m)	Chg (m)	Bottom Elev (m)	Height of Sc (m)	Chg (m)	Bottom Elev (m)	Height of Sc (m)	etc etc

CHANNEL DETAILS

Name	From	To	Type	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Base Width (m)	L.B. Slope (1:?)	R.B. Slope (1:?)	Manning n	Depth (m)	Roofed

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storm (m)	SafeDepth Minor Storm (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %	id	U/S IL	D/S IL	Length (m)
OF_CAT 1A	N_CAT 1A	N_CAT 1B		2.1			overflow	0.3	0.3	0.4	3.33	0	476386	48	36	395
OF_J2	N_J2	N_CAT 1F		1.2			Overflow 2	0.3	0.3	0.4	0.72	0	476424	32	31	140
OF_CAT 1B	N_CAT 1B	N_J2		1.4			overflow	0.3	0.3	0.4	1.11	0	2337052	36	34	180
OF_CAT 1C	N_CAT 1C	N_J1		0.9			overflow	0.3	0.3	0.4	4.44	0	2337076	52	44	180
OF_CAT 1F	N_CAT 1F	N_J3		0.7			Overflow 2	0.3	0.3	0.4	0.71	0	476428	31	30.5	80
OF_J3	N_J3	N_CAT 1I		4.2			Overflow 2	0.3	0.3	0.4	1.29	0	476433	30.5	24	580
OF_CAT 1H	N_CAT 1H	N_J3		1.6			overflow	0.3	0.3	0.4	1.5	0	476430	36	30.5	233
OF_CAT 1I	N_CAT 1I	N_J5		0.9			Overflow 2	0.3	0.3	0.4	2.67	0	476436	24	20	150
OF_J5	N_J5	N_CAT 1M		2.3			Overflow 3	0.3	0.3	0.4	1.29	0	476453	20	16	320
OF_CAT 1J	N_CAT 1J	N_J4		0.5			overflow	0.3	0.3	0.4	2.35	0	2337116	40	38	85
OF_CAT 1L	N_CAT 1L	N_J5		0.6			Overflow 2	0.3	0.3	0.4	3.64	0	476444	22	20	110
OF_OUTLET CAT 1	N_CAT 1M	OUTLET CA		0.9			Overflow 3	0.3	0.3	0.4	0.67	0	476457	16	14	100
OF_CAT 2B	N_CAT 2B	N_J21		0.7			overflow	0.3	0.3	0.4	5	0	2711723			150
OF_J21	N_J21	N_J22		2.1			Overflow 2	0.3	0.3	0.4	2.35	0	579261	36	28	360
OF_CAT 2A	N_CAT 2A	N_CAT 2B		2.3			overflow	0.3	0.3	0.4	5	0	579260			480
OF_CAT 2C	N_CAT 2C	N_J21		0.6			overflow	0.3	0.3	0.4	3	0	579263			114
OF_J22	N_J22	N_CAT 2G		1.1			Overflow 3	0.3	0.3	0.4	3.64	0	579271	26	24	220

OF_CAT 2E	N_CAT 2E	N_J22	0.5	overflow	0.3	0.3	0.4	5.45	0	579267	32	26	105
OF_CAT 2G	N_CAT 2G	N_J23	0.7	Overflow 3	0.3	0.3	0.4	1.82	0	579276	24	22	110
OF_J23	N_J23	N_CAT 2I	1.4	Overflow 3	0.3	0.3	0.4	1.18	0	579281	22	20	190
OF_CAT 2H	N_CAT 2H	N_J23	1.3	Overflow 2	0.3	0.3	0.4	3.4	0	579278	30	22	233
OF_CAT 2I	N_CAT 2I	N_J24	0.6	Overflow 3	0.3	0.3	0.4	2	0	579285	20	18	100
OF_J24	N_J24	N_CAT 2K	0.9	Overflow 3	0.3	0.3	0.4	1.54	0	579304	18	16	130
OF_CAT 2J	N_CAT 2J	N_J24	0.5	Overflow 2	0.3	0.3	0.4	3.81	0	579287	22	18	105
OF_CAT 2K	N_CAT 2K	N_J25	0.5	Overflow 3	0.3	0.3	0.4	2.35	0	579348	16	14	85
OF_J25	N_J25	N_CAT 2M	3.8	Overflow 3	0.3	0.3	0.4	0.58	0	579354	14	12	420
OF_CAT 2L	N_CAT 2L	N_J25	0.5	Overflow 2	0.3	0.3	0.4	4.21	100	579350	18	14	95
OF_CAT 2M	N_CAT 2M	N_J27	1	Overflow 3	0.3	0.3	0.4	5.24	0	579367	12	10	210
OF_J26	N_J26	N_CAT 2M	0.5	Overflow 2	0.3	0.3	0.4	1.33	0	579363	13	12	75
OF_CAT 2P	N_CAT 2P	N_J26	1.5	Overflow 2	0.3	0.3	0.4	0.59	0	579361	14	13	170
OF_CAT 2O	N_CAT 2O	N_J26	1.2	Overflow 2	0.3	0.3	0.4	0.69	0	579362	14	13	140
OF_J27	N_J27	N_CAT 2T	2.8	Overflow 3	0.3	0.3	0.4	0.62	0	579376	10	8	320
OF_CAT 2S	N_CAT 2S	N_J27	0.7	Overflow 2	0.3	0.3	0.4	1.74	0	579369	12	10	115
OF_CAT 2Q	N_CAT 2Q	N_J27	0.6	Overflow 2	0.3	0.3	0.4	2	0	579370	12	10	100
OF_OUTLET CAT 2	N_CAT 2T	OUTLET CA	0.8	Overflow 3	0.3	0.3	0.4	1	0	579378	8	7	100
OF_CAT 1E	N_CAT 1E	N_J2	1	overflow	0.3	0.3	0.4	3.42	0	476406	36	32	180
OF_J1	N_J1	N_CAT 1E	1.5	overflow	0.3	0.3	0.4	2.96	0	476405	44	36	270
OF_CAT 1D	N_CAT 1D	N_J1	0.6	overflow	0.3	0.3	0.4	4.62	0	2337077	50	44	130
OF_CAT 1G	N_CAT 1G	N_CAT 1H	1.8	Overflow 2	0.3	0.3	0.4	3.94	0	2337093	50	36	355
OF_J4	N_J4	N_CAT 1L	4.9	overflow	0.3	0.3	0.4	1.81	0	476443	38	22	750
OF_CAT 1K	N_CAT 1K	N_J4	0.5	overflow	0.3	0.3	0.4	2.35	0	2337118	40	38	85
OF_CAT 2R	N_CAT 2R	N_CAT 2S	2.9	Overflow 2	0.3	0.3	0.4	3	0	2635925			520
OF_CAT 2N	N_CAT 2N	N_CAT 2O	1.6	Overflow 2	0.3	0.3	0.4	3	0	2635943			283
OF_CAT 2D	N_CAT 2D	N_J22	0.7	Overflow 2	0.3	0.3	0.4	3	0	2635997			124
OF_CAT 2F	N_CAT 2F	N_J22	1.2	Overflow 2	0.3	0.3	0.4	3	0	2636001			209

PIPE COVER DETAILS

Name	Type	Dia (mm)	Safe Cover	Cover (m)

This model has no pipes with non-return valves

POSTDEV - DRAINS Data

PIT / NODE DETAILS

Version 15

Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss	Inflow Hydrograph	Pit is	Internal Width (mm)	Inflow is Misaligned	Minor Safe Pond Depth (m)	Major Safe Pond Depth (m)
N_CAT 1A	Node					48		0		364.72	-68.08		476382		No					
N_J2	Node					34		0		451.12	-230.8		476387		No					
N_CAT 1B	Node					36		0		402.16	-148.72		476398		No					
N_CAT 1C	Node					52		0		599.44	-47.92		476401		No					
N_CAT 1F	Node					31		0		451.12	-328.72		476425		No					
N_J3	Node					30.5		0		448.24	-415.12		476429		No					
N_CAT 1H	Node					36		0		563.44	-366.16		476431		No					
N_CAT 1I	Node					24		0		443.92	-550.48		476434		No					
N_J5	Node					20		0		513.04	-793.84		476435		No					
N_CAT 1J	Node					40		0		243.76	-354.64		476438		No					
N_CAT 1LA	Node					34		0		268.24	-547.6		476440		No					
N_CAT 1M	Node					16		0		507.28	-888.88		476454		No					
OUTLET CAT 1	Node					14		0		501.52	-989.68		476458		No					
N_CAT 2B	Node					38		0		1463.44	-137.2		579252		No					
N_J21	Node					36		0		1374.16	-210.64		579253		No					
N_CAT 2A	Node					50		0		1580.08	-66.64		579254		No					
N_CAT 2C	Node					40		0		1296.4	-131.44		579262		No					
N_J22	Node					26		0		1372.72	-307.12		579266		No					
N_CAT 2E	Node					32		0		1179.76	-340.24		579268		No					
N_CAT 2G	Node					24		0		1372.72	-409.36		579272		No					
N_J23	Node					22		0		1372.72	-513.04		579277		No					
N_CAT 2H	Node					30		0		1486.48	-468.4		579279		No					
N_CAT 2I	Node					20		0		1374.16	-606.64		579282		No					
N_J24	Node					18		0		1375.6	-691.6		579286		No					
N_CAT 2J	Node					22		0		1521.04	-625.36		579288		No					
N_CAT 2K	Node					16		0		1377.04	-782.32		579305		No					
N_J25	Node					14		0		1377.04	-881.68		579349		No					
N_CAT 2L	Node					18		0		1503.76	-834.16		579351		No					
N_CAT 2M	Node					12		0		1375.6	-978.16		579355		No					
N_J26	Node					13		0		1208.56	-881.68		579358		No					
N_CAT 2P	Node					14		0		1074.64	-835.6		579359		No					
N_CAT 2O	Node					14		0		1182.64	-778		579360		No					
N_J27	Node					10		0		1372.72	-1070.32		579368		No					
N_CAT 2S	Node					12		0		1508.08	-1025.68		579371		No					
N_CAT 2Q	Node					12		0		1221.52	-1021.36		579372		No					
N_CAT 2T	Node					8		0		1374.16	-1152.4		579377		No					
OUTLET CAT 2	Node					6		0		1375.6	-1234.48		579379		No					
N_CAT 1E	Node					36		0		587.92	-200.56		2337054		No					
N_J1	Node					44		0		644.08	-130		2337060		No					
N_CAT 1D	Node					50		0		704.56	-43.6		2337073		No					
N_CAT 1G	Node					50		0		701.68	-301.36		2337094		No					
N_J4	Node					38		0		222.16	-441.04		2337114		No					
N_CAT 1K	Node					40		0		141.52	-389.2		2337125		No					
N_CAT 1LB	Node					26		0		294.16	-613.84		2398263		No					
N_CAT 2R	Node					20		0		1633.36	-959.44		3310819		No					
N_CAT 2N	Node					18		0		1149.52	-646.96		3310827		No					
N_CAT 2D	Node					32		0		1233.04	-248.08		3310876		No					
N_CAT 2F	Node					32		0		1574.32	-259.6		3310888		No					
N_CAT 1N	Node					22		0		356.08	-730.48		3580121		No					

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length	id
BASIN 1	22.1	3352		None						308.56	-896.08	No			110243
	23.5	6448													
	24	7631													

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(%)	Grass Slope %	Supp Slope %	Paved Rough	Grass Rough	Supp Rough	Lag Time or Factor	Gutter Length (m)	Gutter Slope	Gutter FlowFactor	Rainfall Multiplier
POSTDEV CAT 1	BASIN 1	16.3	65	35	0	0	0	0	80	30	-1	5	4	-1	0.01	0.21	-1	0				1
CAT 1A	N_CAT 1A	13.6	3	97	0	0	0	0	80	270	-1	3	9	-1	0.01	0.35	-1	0				1
CAT 1B	N_CAT 1B	11.4	0	100	0	0	0	0	-1	350	-1	-1	10	-1	-1	0.35	-1	0				1
CAT 1C	N_CAT 1C	7.5	0	100	0	0	0	0	-1	280	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 1F	N_CAT 1F	6.6	0	100	0	0	0	0	-1	260	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 1H	N_CAT 1H	10.5	0	100	0	0	0	0	-1	310	-1	-1	7	-1	-1	0.35	-1	0				1
CAT 1I	N_CAT 1I	25.5	0	100	0	0	0	0	-1	440	-1	-1	8	-1	-1	0.35	-1	0				1
CAT 1J	N_CAT 1J	5.8	2	98	0	0	0	0	80	165	-1	3	5	-1	0.01	0.35	-1	0				1
CAT 1LA	N_CAT 1LA	11.8	0	100	0	0	0	0	-1	307	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 1M	N_CAT 1M	13	0	100	0	0	0	0	-1	350	-1	-1	4	-1	-1	0.35	-1	0				1
CAT 2B	N_CAT 2B	22.5	30	70	0	0	0	0	80	516	-1	3	7	-1	0.01	0.21	-1	0				1
CAT 2A	N_CAT 2A	18.6	15	85	0	0	0	0	80	274	-1	3	8	-1	0.01	0.21	-1	0				1
CAT 2C	N_CAT 2C	18.8	30	70	0	0	0	0	80	270	-1	3	9	-1	0.01	0.21	-1	0				1
CAT 2E	N_CAT 2E	7.8	20	80	0	0	0	0	80	207	-1	3	6	-1	0.01	0.21	-1	0				1
CAT 2G	N_CAT 2G	6.5	20	80	0	0	0	0	80	260	-1	3	8	-1	0.01	0.21	-1	0				1
CAT 2H	N_CAT 2H	16.3	0	100	0	0	0	0	-1	340	-1	-1	5	-1	-1	0.35	-1	0				1
CAT 2I	N_CAT 2I	8.8	20	80	0	0	0	0	80	323	-1	3	6	-1	0.01	0.21	-1	0				1
CAT 2J	N_CAT 2J	7.4	0	100	0	0	0	0	-1	170	-1	-1	11	-1	-1	0.35	-1	0				1
CAT 2K	N_CAT 2K	3.7	0	100	0	0	0	0	-1	125	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 2L	N_CAT 2L	8.8	0.5	99.5	0	0	0	0	80	260	-1	3	9	-1	0.01	0.35	-1	0				1
CAT 2M	N_CAT 2M	13.4	0	100	0	0	0	0	-1	216	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 2P	N_CAT 2P	21.4	0	100	0	0	0	0	-1	313	-1	-1	3	-1	-1	0.35	-1	0				1
CAT 2O	N_CAT 2O	12.8	0	100	0	0	0	0	-1	160	-1	-1	4	-1	-1	0.35	-1	0				1
CAT 2S	N_CAT 2S	16.5	0	100	0	0	0	0	-1	450	-1	-1	4	-1	-1	0.35	-1	0				1
CAT 2Q	N_CAT 2Q	10.5	0	100	0	0	0	0	-1	170	-1	-1	5	-1	-1	0.35	-1	0				1
CAT 2T	N_CAT 2T	21.7	0	100	0	0	0	0	-1	230	-1	-1	5	-1	-1	0.35	-1	0				1
CAT 1E	N_CAT 1E	8.9	0	100	0	0	0	0	-1	275	-1	-1	8	-1	-1	0.35	-1	0				1
CAT 1D	N_CAT 1D	12	0	100	0	0	0	0	-1	414	-1	-1	10	-1	-1	0.35	-1	0				1
CAT 1G	N_CAT 1G	14.2	0	100	0	0	0	0	-1	270	-1	-1	10	-1	-1	0.35	-1	0				1
CAT 1K	N_CAT 1K	5.3	2	98	0	0	0	0	50	195	-1	5	4	-1	0.01	0.35	-1	0				1
CAT 1LB	N_CAT 1LB	11.9	0	100	0	0	0	0	-1	187	-1	-1	6	-1	-1	0.35	-1	0				1
CAT 2R	N_CAT 2R	18.4	1	99	0	0	0	0	80	220	-1	3	3	-1	0.01	0.35	-1	0				1
CAT 2N	N_CAT 2N	15.4	20	80	0	0	0	0	80	460	-1	3	5	-1	0.01	0.35	-1	0				1
CAT 2D	N_CAT 2D	10.3	30	70	0	0	0	0	80	365	-1	3	5	-1	0.01	0.21	-1	0				1
CAT 2F	N_CAT 2F	22.3	30	70	0	0	0	0	80	650	-1	3	5	-1	0.01	0.21	-1	0				1
CAT 1N	N_CAT 1N	1.2	66	34	0	0	0	0	80	30	-1	5	4	-1	0.01	0.21	-1	0				1

PIPE DETAILS

Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	At Chg	Chg (m)	Rl (m)	Chg (m)	RL (m)	etc (m)

DETAILS of SERVICES CROSSING PIPES

Pipe	Chg (m)	Bottom Elev (m)	Height of Sc (m)	Chg (m)	Bottom Elev (m)	Height of Sc (m)	Chg (m)	Bottom Elev (m)	Height of Sc (m)	etc

CHANNEL DETAILS

Name	From	To	Type	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Base Width (m)	L.B. Slope (1:?)	R.B. Slope (1:?)	Manning n	Depth (m)	Roofed

OVERFLOW ROUTE DETAILS

Name	From	To	Travel Time (min)	Spill Level (m)	Crest Length (m)	Weir Coeff. C	Cross Section	Safe Depth Major Storr (m)	Safe Depth Minor Storr (m)	Safe DxV (sq.m/sec)	Bed Slope (%)	D/S Area Contributing %	id	U/S IL	D/S IL	Length (m)
OF_BASIN 1	BASIN 1	N_CAT 1M	0.1	22.1			overflow	0.3	0.3	0.4	5	0	110245	21	20	10
OF_CAT 1A	N_CAT 1A	N_CAT 1B	2.1				overflow	0.3	0.3	0.4	3.33	0	476386	48	36	395
OF_J2	N_J2	N_CAT 1F	1.2				Overflow 2	0.3	0.3	0.4	0.72	0	476424	32	31	140
OF_CAT 1B	N_CAT 1B	N_J2	1.4				overflow	0.3	0.3	0.4	1.11	0	2337052	36	34	180
OF_CAT 1C	N_CAT 1C	N_J1	0.9				overflow	0.3	0.3	0.4	4.44	0	2337076	52	44	180
OF_CAT 1F	N_CAT 1F	N_J3	0.7				Overflow 2	0.3	0.3	0.4	0.71	0	476428	31	30.5	80
OF_J3	N_J3	N_CAT 1I	4.2				Overflow 2	0.3	0.3	0.4	1.29	0	476433	30.5	24	580
OF_CAT 1H	N_CAT 1H	N_J3	1.6				overflow	0.3	0.3	0.4	1.5	0	476430	36	30.5	233
OF_CAT 1I	N_CAT 1I	N_J5	0.9				Overflow 2	0.3	0.3	0.4	2.67	0	476436	24	20	150
OF_J5	N_J5	N_CAT 1M	2.3				Overflow 3	0.3	0.3	0.4	1.29	0	476453	20	16	320
OF_CAT 1J	N_CAT 1J	N_J4	0.5				overflow	0.3	0.3	0.4	2.35	0	2337116	40	38	85
OF_CAT 1LA	N_CAT 1LA	N_CAT 1LB	2.1				Overflow 2	0.3	0.3	0.4	1.79	0	2398264	34	26	322
OF_OUTLET CAT 1	N_CAT 1M	OUTLET CA	0.9				Overflow 3	0.3	0.3	0.4	0.67	0	476457	16	14	100
OF_CAT 2B	N_CAT 2B	N_J21	0.7				overflow	0.3	0.3	0.4	5	0	3479160			150
OF_J21	N_J21	N_J22	2.1				Overflow 2	0.3	0.3	0.4	2.35	0	579261	36	28	360
OF_CAT 2A	N_CAT 2A	N_CAT 2B	2.3				overflow	0.3	0.3	0.4	5	0	579260			480
OF_CAT 2C	N_CAT 2C	N_J21	0.6				overflow	0.3	0.3	0.4	3	0	579263	28	26	115
OF_J22	N_J22	N_CAT 2G	1.1				Overflow 3	0.3	0.3	0.4	3.64	0	579271	26	24	220
OF_CAT 2E	N_CAT 2E	N_J22	0.5				overflow	0.3	0.3	0.4	5.45	0	579267	32	26	105
OF_CAT 2G	N_CAT 2G	N_J23	0.7				Overflow 3	0.3	0.3	0.4	1.82	0	579276	24	22	110
OF_J23	N_J23	N_CAT 2I	1.4				Overflow 3	0.3	0.3	0.4	1.18	0	579281	22	20	190
OF_CAT 2H	N_CAT 2H	N_J23	1.3				Overflow 2	0.3	0.3	0.4	3.4	0	579278	30	22	233
OF_CAT 2I	N_CAT 2I	N_J24	0.6				Overflow 3	0.3	0.3	0.4	2	0	579285	20	18	100
OF_J24	N_J24	N_CAT 2K	0.9				Overflow 3	0.3	0.3	0.4	1.54	0	579304	18	16	130

OF_CAT 2J	N_CAT 2J	N_J24	0.5	Overflow 2	0.3	0.3	0.4	3.81	0	579287	22	18	105
OF_CAT 2K	N_CAT 2K	N_J25	0.5	Overflow 3	0.3	0.3	0.4	2.35	0	579348	16	14	85
OF_J25	N_J25	N_CAT 2M	3.8	Overflow 3	0.3	0.3	0.4	0.58	0	579354	14	12	420
OF_CAT 2L	N_CAT 2L	N_J25	0.5	Overflow 2	0.3	0.3	0.4	4.21	100	579350	18	14	95
OF_CAT 2M	N_CAT 2M	N_J27	1	Overflow 3	0.3	0.3	0.4	5.24	0	579367	12	10	210
OF_J26	N_J26	N_CAT 2M	0.5	Overflow 2	0.3	0.3	0.4	1.33	0	579363	13	12	75
OF_CAT 2P	N_CAT 2P	N_J26	1.5	Overflow 2	0.3	0.3	0.4	0.59	0	579361	14	13	170
OF_CAT 2O	N_CAT 2O	N_J26	1.2	Overflow 2	0.3	0.3	0.4	0.69	0	579362	14	13	140
OF_J27	N_J27	N_CAT 2T	2.8	Overflow 3	0.3	0.3	0.4	0.62	0	579376	10	8	320
OF_CAT 2S	N_CAT 2S	N_J27	0.7	Overflow 2	0.3	0.3	0.4	1.74	0	579369	12	10	115
OF_CAT 2Q	N_CAT 2Q	N_J27	0.6	Overflow 2	0.3	0.3	0.4	2	0	579370	12	10	100
OF_OUTLET CAT 2	N_CAT 2T	OUTLET CA	0.8	Overflow 3	0.3	0.3	0.4	1	0	579378	8	7	100
OF_CAT 1E	N_CAT 1E	N_J2	1	overflow	0.3	0.3	0.4	3.42	0	476406	36	32	180
OF_J1	N_J1	N_CAT 1E	1.5	overflow	0.3	0.3	0.4	2.96	0	476405	44	36	270
OF_CAT 1D	N_CAT 1D	N_J1	0.6	overflow	0.3	0.3	0.4	4.62	0	2337077	50	44	130
OF_CAT 1G	N_CAT 1G	N_CAT 1H	1.8	Overflow 2	0.3	0.3	0.4	3.94	0	2337093	50	36	355
OF_J4	N_J4	N_CAT 1LA	1.2	overflow	0.3	0.3	0.4	1.81	0	476443	38	34	180
OF_CAT 1K	N_CAT 1K	N_J4	0.5	overflow	0.3	0.3	0.4	2.35	0	2337118	40	38	85
OF_CAT 1LB	N_CAT 1LB	N_CAT 1N	1.6	Overflow 2	0.3	0.3	0.4	3	0	3580126	26	22	278
OF_CAT 2R	N_CAT 2R	N_CAT 2S	2.9	Overflow 2	0.3	0.3	0.4	3	0	3310818			520
OF_CAT 2N	N_CAT 2N	N_CAT 2O	1.6	Overflow 2	0.3	0.3	0.4	3	0	3310826			280
OF_CAT 2D	N_CAT 2D	N_J22	0.7	Overflow 2	0.3	0.3	0.4	3	0	3310875			125
OF_CAT 2F	N_CAT 2F	N_J22	1.2	Overflow 2	0.3	0.3	0.4	3	0	3310887			210
OF_CAT 1N	N_CAT 1N	N_J5	0.4	Overflow 2	0.3	0.3	0.4	3.64	0	476444	22	20	85

PIPE COVER DETAILS

Name	Type	Dia (mm)	Safe Cover Cover (m)

This model has no pipes with non-return valves

BASIN 1 - STAGE / DISCHARGE RELATIONSHIP FOR BASIN WITH STAGED CONTROL STRUCTURE

	MAIN CONTROL STRUCTURES				OVERFLOW STRUCTURES					
Elevation	**Pipe**		**Pit**		**Spillway**		**Check Pipe Inlet Control**		**Stage**	**Total Outflow**
RL	For H/D < 1.2 : Q=1.32D^.87H^1.63		Q=1.67LH^1.5		Q=1.67LH^1.5		For H/D < 1.2 : Q=1.32D^.87H^1.63			
	For H/D > 1.2 : Q=1.62D^1.87H^.63						For H/D > 1.2 : Q=1.62D^1.87H^.63			
	Pipe Dia (D), m	0.130	Weir Length (L), m	4.8	Weir Length (L), m	10	Pipe Dia (D), m	1.050		
	Assuming Square Edged		Pit Inlet (RL), m	23.00	Weir Invert (RL), m	23.50	*Assuming Square Edged*			
Increment	Pipe Invert (RL), m	22.10	min	22.43			Pipe Invert (RL), m	21.10		
0.1				1.5 X 0.9						
	No. Pipes	1					No. Pipes	1		
	H (m)	Q (cumecs)	H (m)	Q (cumecs)	H (m)	Q (cumecs)	H (m)	Q (cumecs)		
22.10	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.38	22.10	0.00
22.20	0.10	0.01	0.00	0.00	0.00	0.00	1.10	1.61	22.20	0.01
22.30	0.20	0.01	0.00	0.00	0.00	0.00	1.20	1.85	22.30	0.01
22.40	0.30	0.02	0.00	0.00	0.00	0.00	1.30	2.09	22.40	0.02
22.50	0.40	0.02	0.00	0.00	0.00	0.00	1.40	2.19	22.50	0.02
22.60	0.50	0.02	0.00	0.00	0.00	0.00	1.50	2.29	22.60	0.02
22.70	0.60	0.03	0.00	0.00	0.00	0.00	1.60	2.39	22.70	0.03
22.80	0.70	0.03	0.00	0.00	0.00	0.00	1.70	2.48	22.80	0.03
22.90	0.80	0.03	0.00	0.00	0.00	0.00	1.80	2.57	22.90	0.03
23.00	0.90	0.03	0.00	0.00	0.00	0.00	1.90	2.66	23.00	0.03
23.10	1.00	0.04	0.10	0.25	0.00	0.00	2.00	2.75	23.10	0.29
23.20	1.10	0.04	0.20	0.72	0.00	0.00	2.10	2.83	23.20	0.75
23.30	1.20	0.04	0.30	1.32	0.00	0.00	2.20	2.92	23.30	1.36
23.40	1.30	0.04	0.40	2.03	0.00	0.00	2.30	3.00	23.40	2.07
23.50	1.40	0.04	0.50	2.83	0.00	0.00	2.40	3.08	23.50	2.88
23.60	1.50	0.05	0.60	3.73	0.10	0.53	2.50	3.16	23.60	3.69
23.70	1.60	0.05	0.70	4.69	0.20	1.49	2.60	3.24	23.70	4.73
23.80	1.70	0.05	0.80	5.74	0.30	2.74	2.70	3.32	23.80	6.06
23.90	1.80	0.05	0.90	6.84	0.40	4.22	2.80	3.40	23.90	7.62
24.00	1.90	0.05	1.00	8.02	0.50	5.90	2.90	3.47	24.00	9.38
24.10	2.00	0.06	1.10	9.25	0.60	7.76	3.00	3.55	24.10	11.31
24.20	2.10	0.06	1.20	10.54	0.70	9.78	3.10	3.62	24.20	13.40

Appendix B

DRAINS Results

PREDEV - DRAINS Results - 1EY

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivir (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
CAT 1A	0.094	0	0.094	0	62.04	0	1EY AEP, 1 hour burst, Storm 6
CAT 1B	0.07	0	0.07	0	70.24	0	1EY AEP, 1 hour burst, Storm 6
CAT 1C	0.045	0	0.045	0	71.61	0	1EY AEP, 1 hour burst, Storm 6
CAT 1F	0.041	0	0.041	0	68.49	0	1EY AEP, 1 hour burst, Storm 6
CAT 1H	0.062	0	0.062	0	72.68	0	1EY AEP, 1 hour burst, Storm 6
CAT 1I	0.129	0	0.129	0	84.97	0	1EY AEP, 1 hour burst, Storm 6
CAT 1J	0.045	0	0.045	0	55.07	0	1EY AEP, 1 hour burst, Storm 6
CAT 1L	0.196	0	0.196	0	71.26	0	1EY AEP, 1 hour burst, Storm 6
CAT 1M	0.124	0	0.124	0	57.61	0	1EY AEP, 1 hour burst, Storm 6
CAT 2B	1.498	1.498	0	3.01	44.43	0	1EY AEP, 5 min burst, Storm 1
CAT 2A	0.619	0.619	0	3.01	29.2	0	1EY AEP, 5 min burst, Storm 1
CAT 2C	1.252	1.252	0	3.01	27.94	0	1EY AEP, 5 min burst, Storm 1
CAT 2E	0.346	0.346	0	3.01	26.9	0	1EY AEP, 5 min burst, Storm 1
CAT 2G	0.289	0.289	0	3.01	28.29	0	1EY AEP, 5 min burst, Storm 1
CAT 2H	0.103	0	0.103	0	68.49	0	1EY AEP, 1 hour burst, Storm 6
CAT 2I	0.391	0.391	0	3.01	35.13	0	1EY AEP, 5 min burst, Storm 1
CAT 2J	0.089	0	0.089	0	41.83	0	1EY AEP, 1 hour burst, Storm 6
CAT 2K	0.036	0	0.036	0	44.14	0	1EY AEP, 1 hour burst, Storm 6
CAT 2L	0.062	0	0.062	0	60.65	0	1EY AEP, 1 hour burst, Storm 6
CAT 2M	0.094	0	0.094	0	61.28	0	1EY AEP, 1 hour burst, Storm 6
CAT 2P	0.097	0	0.097	0	94.25	0	1EY AEP, 1 hour burst, Storm 6
CAT 2O	0.095	0	0.095	0	57.81	0	1EY AEP, 1 hour burst, Storm 6
CAT 2S	0.066	0	0.066	0	107.5	0	1EY AEP, 1 hour burst, Storm 6
CAT 2Q	0.08	0	0.08	0	56.07	0	1EY AEP, 1 hour burst, Storm 6
CAT 2T	0.138	0	0.138	0	67.21	0	1EY AEP, 1 hour burst, Storm 6
CAT 1E	0.059	0	0.059	0	64.98	0	1EY AEP, 1 hour burst, Storm 6
CAT 1D	0.066	0	0.066	0	77.68	0	1EY AEP, 1 hour burst, Storm 6
CAT 1G	0.101	0	0.101	0	60.11	0	1EY AEP, 1 hour burst, Storm 6
CAT 1K	0.035	0	0.035	0	65.09	0	1EY AEP, 1 hour burst, Storm 6
CAT 2R	0.109	0	0.109	0	84.64	0	1EY AEP, 1 hour burst, Storm 6
CAT 2N	0.684	0.684	0	3.01	62.33	0	1EY AEP, 5 min burst, Storm 1
CAT 2D	0.686	0.686	0	3.01	39.93	0	1EY AEP, 5 min burst, Storm 1
CAT 2F	1.485	1.485	0	3.01	56.45	0	1EY AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_CAT 1A	0.094	0.094	4.774	0.012	0.01	12	0.64	1EY AEP, 1 hour burst, Storm 6
OF_J2	0.323	0.323	13.909	0.022	0.01	34.9	0.43	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1B	0.159	0.159	4.794	0.023	0.01	12	0.58	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1C	0.045	0.045	4.79	0.007	0	12	0.51	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1F	0.36	0.36	13.944	0.023	0.01	34.9	0.45	1EY AEP, 2 hour burst, Storm 10
OF_J3	0.518	0.518	13.926	0.024	0.01	34.9	0.62	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1H	0.158	0.158	4.821	0.021	0.01	12	0.63	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1I	0.625	0.625	13.889	0.022	0.02	34.9	0.83	1EY AEP, 2 hour burst, Storm 10
OF_J5	0.861	0.861	72.15	0.012	0	179.9	0.4	1EY AEP, 2 hour burst, Storm 6
OF_CAT 1J	0.045	0.045	4.82	0.008	0	12	0.45	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1L	0.253	0.253	13.988	0.011	0.01	34.9	0.64	1EY AEP, 2 hour burst, Storm 6
OF_OUTLET CAT 1	0.963	0.963	72.254	0.016	0.01	179.9	0.34	1EY AEP, 2 hour burst, Storm 6
OF_CAT 2B	1.879	1.879	4.837	0.065	0.16	12.01	2.41	1EY AEP, 5 min burst, Storm 1
OF_J21	3.11	3.11	13.964	0.058	0.09	34.9	1.53	1EY AEP, 5 min burst, Storm 1
OF_CAT 2A	0.619	0.619	4.837	0.034	0.05	12	1.53	1EY AEP, 5 min burst, Storm 1
OF_CAT 2C	1.252	1.252	4.806	0.06	0.1	12.01	1.74	1EY AEP, 5 min burst, Storm 1
OF_J22	4.989	4.989	72.374	0.025	0.03	179.9	1.1	1EY AEP, 10 min burst, Storm 3
OF_CAT 2E	0.346	0.346	4.798	0.023	0.03	12	1.26	1EY AEP, 5 min burst, Storm 1
OF_CAT 2G	5.12	5.12	71.589	0.032	0.03	179.9	0.89	1EY AEP, 10 min burst, Storm 10
OF_J23	5.125	5.125	72.172	0.036	0.03	179.9	0.79	1EY AEP, 10 min burst, Storm 10
OF_CAT 2H	0.103	0.103	13.94	0.007	0	34.9	0.42	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2I	5.144	5.144	72.216	0.031	0.03	179.9	0.92	1EY AEP, 10 min burst, Storm 7
OF_J24	5.192	5.192	71.793	0.033	0.03	179.9	0.87	1EY AEP, 15 min burst, Storm 1
OF_CAT 2J	0.089	0.089	13.872	0.006	0	34.9	0.41	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2K	5.205	5.205	72.287	0.03	0.03	179.9	0.98	1EY AEP, 15 min burst, Storm 1
OF_J25	5.229	5.229	71.674	0.045	0.03	179.9	0.65	1EY AEP, 15 min burst, Storm 1
OF_CAT 2L	0.062	0.062	13.899	0.005	0	34.9	0.37	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2M	5.418	5.418	72.544	0.024	0.03	179.9	1.27	1EY AEP, 20 min burst, Storm 8
OF_J26	0.684	0.684	13.981	0.027	0.02	34.9	0.71	1EY AEP, 5 min burst, Storm 1
OF_CAT 2P	0.097	0.097	13.935	0.011	0	34.9	0.25	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2O	0.684	0.684	14.007	0.034	0.02	34.9	0.58	1EY AEP, 5 min burst, Storm 1
OF_J27	5.543	5.543	72.119	0.046	0.03	179.9	0.67	1EY AEP, 20 min burst, Storm 10
OF_CAT 2S	0.168	0.168	14.034	0.011	0	34.9	0.42	1EY AEP, 2 hour burst, Storm 10
OF_CAT 2Q	0.08	0.08	13.948	0.007	0	34.9	0.33	1EY AEP, 1 hour burst, Storm 6
OF_OUTLET CAT 2	5.543	5.543	71.665	0.04	0.03	179.9	0.77	1EY AEP, 20 min burst, Storm 10
OF_CAT 1E	0.164	0.164	4.838	0.017	0.01	12	0.8	1EY AEP, 2 hour burst, Storm 10
OF_J1	0.109	0.109	4.774	0.014	0.01	12	0.64	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1D	0.066	0.066	4.807	0.009	0.01	12	0.6	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1G	0.101	0.101	13.885	0.006	0	34.9	0.47	1EY AEP, 1 hour burst, Storm 6
OF_J4	0.08	0.08	4.811	0.013	0.01	12	0.51	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1K	0.035	0.035	4.82	0.007	0	12	0.4	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2R	0.109	0.109	13.899	0.007	0	34.9	0.45	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2N	0.684	0.684	13.899	0.022	0.02	34.9	0.91	1EY AEP, 5 min burst, Storm 1
OF_CAT 2D	0.686	0.686	13.899	0.022	0.02	34.9	0.91	1EY AEP, 5 min burst, Storm 1
OF_CAT 2F	1.485	1.485	13.899	0.035	0.04	34.9	1.22	1EY AEP, 5 min burst, Storm 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX.drn run at 09:48:45 on 5/5/2025.

Flows were safe in all overflow routes.

PREDEV - DRAINS Results - 10% AEP

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
CAT 1A	1.02	0	1.02	0	44.49	0	10% AEP, 45 min burst, Storm 3
CAT 1B	0.755	0	0.755	0	50.37	0	10% AEP, 45 min burst, Storm 3
CAT 1C	0.487	0	0.487	0	51.35	0	10% AEP, 45 min burst, Storm 5
CAT 1F	0.448	0	0.448	0	49.12	0	10% AEP, 45 min burst, Storm 5
CAT 1H	0.671	0	0.671	0	52.12	0	10% AEP, 45 min burst, Storm 3
CAT 1I	1.395	0	1.395	0	60.93	0	10% AEP, 45 min burst, Storm 4
CAT 1J	0.49	0	0.49	0	39.49	0	10% AEP, 45 min burst, Storm 3
CAT 1L	2.119	0	2.119	0	51.1	0	10% AEP, 45 min burst, Storm 5
CAT 1M	1.338	0	1.338	0	41.31	0	10% AEP, 45 min burst, Storm 5
CAT 2B	3.364	2.484	0.88	2.73	40.3	0	10% AEP, 15 min burst, Storm 5
CAT 2A	2.252	1.018	1.453	2.9	28.11	0	10% AEP, 20 min burst, Storm 10
CAT 2C	3.101	2.576	1.169	2.73	25.34	0	10% AEP, 15 min burst, Storm 3
CAT 2E	1.071	0.569	0.624	2.9	25.9	0	10% AEP, 20 min burst, Storm 10
CAT 2G	0.866	0.474	0.494	2.9	27.24	0	10% AEP, 20 min burst, Storm 10
CAT 2H	1.113	0	1.113	0	49.12	0	10% AEP, 45 min burst, Storm 3
CAT 2I	1.042	0.642	0.538	2.9	33.82	0	10% AEP, 20 min burst, Storm 10
CAT 2J	0.96	0	0.96	0	27.08	0	10% AEP, 30 min burst, Storm 10
CAT 2K	0.387	0	0.387	0	28.57	0	10% AEP, 30 min burst, Storm 10
CAT 2L	0.675	0	0.675	0	43.49	0	10% AEP, 45 min burst, Storm 4
CAT 2M	1.016	0	1.016	0	43.95	0	10% AEP, 45 min burst, Storm 3
CAT 2P	1.057	0	1.057	0	67.59	0	10% AEP, 45 min burst, Storm 5
CAT 2O	1.029	0	1.029	0	41.45	0	10% AEP, 45 min burst, Storm 5
CAT 2S	0.714	0	0.714	0	77.09	0	10% AEP, 45 min burst, Storm 5
CAT 2Q	0.87	0	0.87	0	40.21	0	10% AEP, 45 min burst, Storm 3
CAT 2T	1.5	0	1.5	0	48.2	0	10% AEP, 45 min burst, Storm 4
CAT 1E	0.637	0	0.637	0	46.6	0	10% AEP, 45 min burst, Storm 3
CAT 1D	0.718	0	0.718	0	55.71	0	10% AEP, 45 min burst, Storm 1
CAT 1G	1.097	0	1.097	0	43.1	0	10% AEP, 45 min burst, Storm 1
CAT 1K	0.379	0	0.379	0	46.68	0	10% AEP, 45 min burst, Storm 5
CAT 2R	1.177	0	1.177	0	60.7	0	10% AEP, 45 min burst, Storm 3
CAT 2N	1.613	1.257	0.491	2.73	56.54	0	10% AEP, 15 min burst, Storm 7
CAT 2D	1.586	1.137	0.448	2.73	36.22	0	10% AEP, 15 min burst, Storm 5
CAT 2F	3.134	2.832	0.302	2.33	43.61	0	10% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_CAT 1A	1.02	1.02	4.774	0.051	0.08	12.01	1.66	10% AEP, 45 min burst, Storm 3
OF_J2	3.584	3.584	13.909	0.09	0.1	34.91	1.14	10% AEP, 45 min burst, Storm 4
OF_CAT 1B	1.758	1.758	4.794	0.099	0.15	12.01	1.48	10% AEP, 45 min burst, Storm 1
OF_CAT 1C	0.487	0.487	4.79	0.03	0.04	12	1.36	10% AEP, 45 min burst, Storm 5
OF_CAT 1F	4.011	4.011	13.944	0.097	0.11	34.91	1.18	10% AEP, 45 min burst, Storm 4
OF_J3	5.76	5.76	13.926	0.101	0.17	34.91	1.64	10% AEP, 45 min burst, Storm 4
OF_CAT 1H	1.756	1.756	4.821	0.09	0.15	12.01	1.62	10% AEP, 45 min burst, Storm 1
OF_CAT 1I	7.05	7.05	13.889	0.092	0.2	34.91	2.2	10% AEP, 45 min burst, Storm 4
OF_J5	9.867	9.867	72.15	0.052	0.05	179.9	1.05	10% AEP, 45 min burst, Storm 4
OF_CAT 1J	0.49	0.49	4.82	0.037	0.04	12	1.12	10% AEP, 45 min burst, Storm 3
OF_CAT 1L	2.94	2.94	13.988	0.049	0.08	34.9	1.7	10% AEP, 45 min burst, Storm 10
OF_OUTLET CAT 1	11.023	11.023	72.254	0.068	0.06	179.9	0.9	10% AEP, 45 min burst, Storm 4
OF_CAT 2B	4.854	4.854	4.837	0.116	0.4	12.01	3.49	10% AEP, 20 min burst, Storm 10
OF_J21	7.724	7.724	13.964	0.101	0.22	34.91	2.2	10% AEP, 20 min burst, Storm 10
OF_CAT 2A	2.252	2.252	4.837	0.073	0.19	12.01	2.58	10% AEP, 20 min burst, Storm 10
OF_CAT 2C	3.101	3.101	4.806	0.103	0.26	12.01	2.51	10% AEP, 15 min burst, Storm 3
OF_J22	12.289	12.289	72.374	0.044	0.07	179.9	1.57	10% AEP, 20 min burst, Storm 10
OF_CAT 2E	1.071	1.071	4.798	0.045	0.09	12	1.97	10% AEP, 20 min burst, Storm 10
OF_CAT 2G	12.928	12.928	71.589	0.055	0.07	179.9	1.3	10% AEP, 20 min burst, Storm 10
OF_J23	13.948	13.948	72.172	0.066	0.08	179.9	1.18	10% AEP, 20 min burst, Storm 10
OF_CAT 2H	1.113	1.113	13.94	0.028	0.03	34.9	1.13	10% AEP, 45 min burst, Storm 3
OF_CAT 2I	14.479	14.479	72.216	0.057	0.08	179.9	1.4	10% AEP, 20 min burst, Storm 8
OF_J24	15.309	15.309	71.793	0.064	0.09	179.9	1.33	10% AEP, 20 min burst, Storm 8
OF_CAT 2J	0.96	0.96	13.872	0.025	0.03	34.9	1.12	10% AEP, 30 min burst, Storm 10
OF_CAT 2K	15.633	15.633	72.287	0.057	0.09	179.9	1.51	10% AEP, 20 min burst, Storm 8
OF_J25	16.192	16.192	71.674	0.089	0.09	179.91	1.01	10% AEP, 20 min burst, Storm 8
OF_CAT 2L	0.675	0.675	13.899	0.019	0.02	34.9	1	10% AEP, 45 min burst, Storm 4
OF_CAT 2M	19.063	19.063	72.544	0.051	0.11	179.9	2.08	10% AEP, 20 min burst, Storm 3
OF_J26	3.319	3.319	13.981	0.072	0.1	34.9	1.32	10% AEP, 20 min burst, Storm 10
OF_CAT 2P	1.057	1.057	13.935	0.046	0.03	34.9	0.66	10% AEP, 45 min burst, Storm 5
OF_CAT 2O	2.351	2.351	14.007	0.071	0.07	34.9	0.94	10% AEP, 20 min burst, Storm 10
OF_J27	21.183	21.183	72.119	0.102	0.12	179.91	1.15	10% AEP, 20 min burst, Storm 8
OF_CAT 2S	1.87	1.87	14.034	0.047	0.05	34.9	1.13	10% AEP, 45 min burst, Storm 1
OF_CAT 2Q	0.87	0.87	13.948	0.028	0.02	34.9	0.88	10% AEP, 45 min burst, Storm 3
OF_OUTLET CAT 2	22.728	22.728	71.665	0.093	0.13	179.91	1.36	10% AEP, 30 min burst, Storm 8
OF_CAT 1E	1.826	1.826	4.838	0.072	0.15	12.01	2.12	10% AEP, 45 min burst, Storm 4
OF_J1	1.203	1.203	4.774	0.058	0.1	12.01	1.73	10% AEP, 45 min burst, Storm 4
OF_CAT 1D	0.718	0.718	4.807	0.038	0.06	12	1.59	10% AEP, 45 min burst, Storm 1
OF_CAT 1G	1.097	1.097	13.885	0.027	0.03	34.9	1.18	10% AEP, 45 min burst, Storm 1
OF_J4	0.869	0.869	4.811	0.056	0.07	12.01	1.29	10% AEP, 45 min burst, Storm 5
OF_CAT 1K	0.379	0.379	4.82	0.031	0.03	12	1.03	10% AEP, 45 min burst, Storm 5
OF_CAT 2R	1.177	1.177	13.899	0.03	0.03	34.9	1.11	10% AEP, 45 min burst, Storm 3
OF_CAT 2N	1.613	1.613	13.899	0.036	0.05	34.9	1.27	10% AEP, 15 min burst, Storm 7
OF_CAT 2D	1.586	1.586	13.899	0.036	0.05	34.9	1.25	10% AEP, 15 min burst, Storm 5
OF_CAT 2F	3.134	3.134	13.899	0.055	0.09	34.9	1.65	10% AEP, 5 min burst, Storm 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX.drn run at 09:49:13 on 5/5/2025.

The maximum flow in these overflow routes is unsafe: OF_CAT 2B

PREDEV - DRAINS Results - 5% AEP

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
CAT 1A	1.474	0	1.474	0	41.69	0	5% AEP, 45 min burst, Storm 7
CAT 1B	1.09	0	1.09	0	47.2	0	5% AEP, 45 min burst, Storm 7
CAT 1C	0.703	0	0.703	0	48.12	0	5% AEP, 45 min burst, Storm 3
CAT 1F	0.647	0	0.647	0	46.03	0	5% AEP, 45 min burst, Storm 6
CAT 1H	0.971	0	0.971	0	48.84	0	5% AEP, 45 min burst, Storm 6
CAT 1I	2.015	0	2.015	0	57.1	0	5% AEP, 45 min burst, Storm 7
CAT 1J	0.707	0	0.707	0	37.01	0	5% AEP, 45 min burst, Storm 7
CAT 1L	3.067	0	3.067	0	47.89	0	5% AEP, 45 min burst, Storm 6
CAT 1M	1.934	0	1.934	0	38.72	0	5% AEP, 45 min burst, Storm 5
CAT 2B	4.18	3.253	1.26	2.56	37.71	0	5% AEP, 15 min burst, Storm 7
CAT 2A	3.033	1.202	2.089	2.71	26.3	0	5% AEP, 20 min burst, Storm 10
CAT 2C	3.829	3.041	1.672	2.56	23.71	0	5% AEP, 15 min burst, Storm 3
CAT 2E	1.42	0.672	0.892	2.71	24.23	0	5% AEP, 20 min burst, Storm 10
CAT 2G	1.148	0.56	0.709	2.71	25.48	0	5% AEP, 20 min burst, Storm 10
CAT 2H	1.608	0	1.608	0	46.03	0	5% AEP, 45 min burst, Storm 7
CAT 2I	1.367	0.759	0.772	2.71	31.64	0	5% AEP, 20 min burst, Storm 10
CAT 2J	1.378	0	1.378	0	25.36	0	5% AEP, 30 min burst, Storm 5
CAT 2K	0.555	0	0.555	0	26.75	0	5% AEP, 30 min burst, Storm 9
CAT 2L	0.975	0	0.975	0	40.76	0	5% AEP, 45 min burst, Storm 6
CAT 2M	1.47	0	1.47	0	41.19	0	5% AEP, 45 min burst, Storm 6
CAT 2P	1.526	0	1.526	0	63.34	0	5% AEP, 45 min burst, Storm 2
CAT 2O	1.488	0	1.488	0	38.85	0	5% AEP, 45 min burst, Storm 6
CAT 2S	1.032	0	1.032	0	72.25	0	5% AEP, 45 min burst, Storm 6
CAT 2Q	1.259	0	1.259	0	37.68	0	5% AEP, 45 min burst, Storm 2
CAT 2T	2.17	0	2.17	0	45.17	0	5% AEP, 45 min burst, Storm 6
CAT 1E	0.921	0	0.921	0	43.67	0	5% AEP, 45 min burst, Storm 2
CAT 1D	1.037	0	1.037	0	52.21	0	5% AEP, 45 min burst, Storm 7
CAT 1G	1.589	0	1.589	0	40.4	0	5% AEP, 45 min burst, Storm 2
CAT 1K	0.547	0	0.547	0	43.74	0	5% AEP, 45 min burst, Storm 6
CAT 2R	1.7	0	1.7	0	56.88	0	5% AEP, 45 min burst, Storm 4
CAT 2N	1.992	1.661	0.703	2.56	52.91	0	5% AEP, 15 min burst, Storm 3
CAT 2D	1.963	1.489	0.643	2.56	33.89	0	5% AEP, 15 min burst, Storm 7
CAT 2F	3.784	3.323	0.461	2.18	40.91	0	5% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_CAT 1A	1.474	1.474	4.774	0.064	0.12	12.01	1.92	5% AEP, 45 min burst, Storm 7
OF_J2	5.188	5.188	13.909	0.113	0.15	34.91	1.31	5% AEP, 45 min burst, Storm 4
OF_CAT 1B	2.546	2.546	4.794	0.124	0.21	12.01	1.72	5% AEP, 45 min burst, Storm 4
OF_CAT 1C	0.703	0.703	4.79	0.038	0.06	12	1.56	5% AEP, 45 min burst, Storm 3
OF_CAT 1F	5.814	5.814	13.944	0.121	0.17	34.91	1.37	5% AEP, 45 min burst, Storm 4
OF_J3	8.337	8.337	13.926	0.126	0.24	34.91	1.89	5% AEP, 45 min burst, Storm 4
OF_CAT 1H	2.546	2.546	4.821	0.113	0.21	12.01	1.88	5% AEP, 45 min burst, Storm 4
OF_CAT 1I	10.24	10.24	13.889	0.115	0.29	34.91	2.56	5% AEP, 45 min burst, Storm 4
OF_J5	14.331	14.331	72.15	0.065	0.08	179.9	1.23	5% AEP, 45 min burst, Storm 2
OF_CAT 1J	0.707	0.707	4.82	0.045	0.06	12	1.3	5% AEP, 45 min burst, Storm 7
OF_CAT 1L	4.247	4.247	13.988	0.062	0.12	34.9	1.97	5% AEP, 45 min burst, Storm 3
OF_OUTLET CAT 1	15.737	15.737	72.254	0.084	0.09	179.91	1.04	5% AEP, 45 min burst, Storm 2
OF_CAT 2B	6.287	6.287	4.837	0.135	0.52	12.01	3.87	5% AEP, 20 min burst, Storm 10
OF_J21	9.99	9.99	13.964	0.118	0.29	34.91	2.44	5% AEP, 20 min burst, Storm 10
OF_CAT 2A	3.033	3.033	4.837	0.087	0.25	12.01	2.89	5% AEP, 20 min burst, Storm 10
OF_CAT 2C	3.829	3.829	4.806	0.117	0.32	12.01	2.73	5% AEP, 15 min burst, Storm 3
OF_J22	15.706	15.706	72.374	0.05	0.09	179.9	1.74	5% AEP, 20 min burst, Storm 10
OF_CAT 2E	1.42	1.42	4.798	0.054	0.12	12.01	2.18	5% AEP, 20 min burst, Storm 10
OF_CAT 2G	16.531	16.531	71.589	0.064	0.09	179.9	1.43	5% AEP, 20 min burst, Storm 10
OF_J23	18.015	18.015	72.172	0.077	0.1	179.91	1.31	5% AEP, 20 min burst, Storm 10
OF_CAT 2H	1.608	1.608	13.94	0.035	0.05	34.9	1.32	5% AEP, 45 min burst, Storm 7
OF_CAT 2I	18.77	18.77	72.216	0.067	0.1	179.9	1.56	5% AEP, 20 min burst, Storm 10
OF_J24	20.044	20.044	71.793	0.076	0.11	179.91	1.47	5% AEP, 20 min burst, Storm 10
OF_CAT 2J	1.378	1.378	13.872	0.031	0.04	34.9	1.27	5% AEP, 30 min burst, Storm 5
OF_CAT 2K	20.543	20.543	72.287	0.068	0.11	179.9	1.69	5% AEP, 20 min burst, Storm 10
OF_J25	21.409	21.409	71.674	0.105	0.12	179.91	1.13	5% AEP, 20 min burst, Storm 10
OF_CAT 2L	0.975	0.975	13.899	0.025	0.03	34.9	1.14	5% AEP, 45 min burst, Storm 6
OF_CAT 2M	25.739	25.739	72.544	0.06	0.14	179.9	2.37	5% AEP, 20 min burst, Storm 8
OF_J26	4.559	4.559	13.981	0.087	0.13	34.91	1.5	5% AEP, 20 min burst, Storm 10
OF_CAT 2P	1.526	1.526	13.935	0.057	0.04	34.9	0.76	5% AEP, 45 min burst, Storm 2
OF_CAT 2O	3.16	3.16	14.007	0.085	0.09	34.91	1.07	5% AEP, 20 min burst, Storm 10
OF_J27	28.962	28.962	72.119	0.123	0.16	179.91	1.3	5% AEP, 20 min burst, Storm 3
OF_CAT 2S	2.709	2.709	14.034	0.059	0.08	34.9	1.32	5% AEP, 45 min burst, Storm 4
OF_CAT 2Q	1.259	1.259	13.948	0.036	0.04	34.9	1.02	5% AEP, 45 min burst, Storm 2
OF_OUTLET CAT 2	31.19	31.19	71.665	0.112	0.17	179.91	1.55	5% AEP, 30 min burst, Storm 8
OF_CAT 1E	2.644	2.644	4.838	0.09	0.22	12.01	2.44	5% AEP, 45 min burst, Storm 4
OF_J1	1.739	1.739	4.774	0.073	0.14	12.01	1.99	5% AEP, 45 min burst, Storm 4
OF_CAT 1D	1.037	1.037	4.807	0.046	0.09	12	1.86	5% AEP, 45 min burst, Storm 7
OF_CAT 1G	1.589	1.589	13.885	0.033	0.05	34.9	1.37	5% AEP, 45 min burst, Storm 2
OF_J4	1.254	1.254	4.811	0.07	0.1	12.01	1.5	5% AEP, 45 min burst, Storm 7
OF_CAT 1K	0.547	0.547	4.82	0.039	0.05	12	1.18	5% AEP, 45 min burst, Storm 6
OF_CAT 2R	1.7	1.7	13.899	0.038	0.05	34.9	1.29	5% AEP, 45 min burst, Storm 4
OF_CAT 2N	1.992	1.992	13.899	0.041	0.06	34.9	1.38	5% AEP, 15 min burst, Storm 3
OF_CAT 2D	1.963	1.963	13.899	0.041	0.06	34.9	1.38	5% AEP, 15 min burst, Storm 7
OF_CAT 2F	3.784	3.784	13.899	0.061	0.11	34.9	1.77	5% AEP, 5 min burst, Storm 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX.drn run at 09:50:02 on 5/5/2025.

The maximum flow in these overflow routes is unsafe: OF_CAT 2B

PREDEV - DRAINS Results - 1% AEP

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivi (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
CAT 1A	2.763	0	2.763	0	32.93	0	1% AEP, 30 min burst, Storm 6
CAT 1B	2.075	0	2.075	0	41.45	0	1% AEP, 45 min burst, Storm 5
CAT 1C	1.339	0	1.339	0	42.26	0	1% AEP, 45 min burst, Storm 7
CAT 1F	1.231	0	1.231	0	40.42	0	1% AEP, 45 min burst, Storm 7
CAT 1H	1.849	0	1.849	0	42.89	0	1% AEP, 45 min burst, Storm 6
CAT 1I	3.837	0	3.837	0	50.14	0	1% AEP, 45 min burst, Storm 8
CAT 1J	1.327	0	1.327	0	29.23	0	1% AEP, 30 min burst, Storm 9
CAT 1L	5.832	0	5.832	0	42.05	0	1% AEP, 45 min burst, Storm 3
CAT 1M	3.638	0	3.638	0	30.58	0	1% AEP, 30 min burst, Storm 4
CAT 2B	6.089	3.49	2.599	2.37	34.99	0	1% AEP, 20 min burst, Storm 1
CAT 2A	5.256	1.462	3.97	2.37	22.99	0	1% AEP, 20 min burst, Storm 10
CAT 2C	6.159	3.964	3.439	2.37	22	0	1% AEP, 20 min burst, Storm 2
CAT 2E	2.419	0.817	1.7	2.37	21.19	0	1% AEP, 20 min burst, Storm 10
CAT 2G	1.946	0.681	1.347	2.37	22.28	0	1% AEP, 20 min burst, Storm 10
CAT 2H	3.059	0	3.059	0	40.42	0	1% AEP, 45 min burst, Storm 6
CAT 2I	2.279	0.922	1.468	2.37	27.67	0	1% AEP, 20 min burst, Storm 10
CAT 2J	2.521	0	2.521	0	21.24	0	1% AEP, 25 min burst, Storm 6
CAT 2K	1.035	0	1.035	0	22.41	0	1% AEP, 25 min burst, Storm 10
CAT 2L	1.833	0	1.833	0	32.19	0	1% AEP, 30 min burst, Storm 8
CAT 2M	2.756	0	2.756	0	32.53	0	1% AEP, 30 min burst, Storm 2
CAT 2P	2.902	0	2.902	0	55.62	0	1% AEP, 45 min burst, Storm 1
CAT 2O	2.796	0	2.796	0	30.68	0	1% AEP, 30 min burst, Storm 8
CAT 2S	1.963	0	1.963	0	63.44	0	1% AEP, 45 min burst, Storm 8
CAT 2Q	2.363	0	2.363	0	29.76	0	1% AEP, 30 min burst, Storm 8
CAT 2T	4.129	0	4.129	0	39.67	0	1% AEP, 45 min burst, Storm 5
CAT 1E	1.751	0	1.751	0	38.35	0	1% AEP, 45 min burst, Storm 2
CAT 1D	1.975	0	1.975	0	45.84	0	1% AEP, 45 min burst, Storm 5
CAT 1G	2.976	0	2.976	0	31.9	0	1% AEP, 30 min burst, Storm 8
CAT 1K	1.04	0	1.04	0	38.41	0	1% AEP, 45 min burst, Storm 10
CAT 2R	3.233	0	3.233	0	49.95	0	1% AEP, 45 min burst, Storm 8
CAT 2N	3.042	1.593	1.449	2.37	49.09	0	1% AEP, 20 min burst, Storm 1
CAT 2D	2.92	1.598	1.322	2.37	31.45	0	1% AEP, 20 min burst, Storm 1
CAT 2F	5.531	4.594	0.937	1.92	35.94	0	1% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_CAT 1A	2.763	2.763	4.774	0.093	0.23	12.01	2.47	1% AEP, 30 min burst, Storm 6
OF_J2	9.81	9.81	13.909	0.166	0.28	34.91	1.69	1% AEP, 45 min burst, Storm 10
OF_CAT 1B	4.825	4.825	4.794	0.182	0.4	12.02	2.21	1% AEP, 45 min burst, Storm 10
OF_CAT 1C	1.339	1.339	4.79	0.055	0.11	12.01	2.02	1% AEP, 45 min burst, Storm 7
OF_CAT 1F	10.987	10.987	13.944	0.178	0.31	34.91	1.77	1% AEP, 45 min burst, Storm 10
OF_J3	15.634	15.634	13.926	0.184	0.45	34.91	2.43	1% AEP, 30 min burst, Storm 8
OF_CAT 1H	4.777	4.777	4.821	0.165	0.4	12.02	2.42	1% AEP, 30 min burst, Storm 8
OF_CAT 1I	19.378	19.378	13.889	0.168	0.56	34.91	3.3	1% AEP, 45 min burst, Storm 10
OF_J5	26.901	26.901	72.15	0.095	0.15	179.91	1.58	1% AEP, 45 min burst, Storm 10
OF_CAT 1J	1.327	1.327	4.82	0.067	0.11	12.01	1.65	1% AEP, 30 min burst, Storm 9
OF_CAT 1L	8.041	8.041	13.988	0.09	0.23	34.91	2.55	1% AEP, 45 min burst, Storm 3
OF_OUTLET CAT 1	29.358	29.358	72.254	0.122	0.16	179.91	1.34	1% AEP, 30 min burst, Storm 5
OF_CAT 2B	10.301	10.301	4.837	0.182	0.86	12.02	4.71	1% AEP, 20 min burst, Storm 10
OF_J21	16.294	16.294	13.964	0.158	0.47	34.91	2.96	1% AEP, 20 min burst, Storm 10
OF_CAT 2A	5.256	5.256	4.837	0.122	0.44	12.01	3.6	1% AEP, 20 min burst, Storm 10
OF_CAT 2C	6.159	6.159	4.806	0.156	0.51	12.02	3.29	1% AEP, 20 min burst, Storm 2
OF_J22	24.633	24.633	72.374	0.066	0.14	179.9	2.07	1% AEP, 20 min burst, Storm 10
OF_CAT 2E	2.419	2.419	4.798	0.074	0.2	12.01	2.73	1% AEP, 20 min burst, Storm 10
OF_CAT 2G	25.998	25.998	71.589	0.084	0.14	179.91	1.72	1% AEP, 20 min burst, Storm 10
OF_J23	28.821	28.821	72.172	0.101	0.16	179.91	1.58	1% AEP, 20 min burst, Storm 10
OF_CAT 2H	3.059	3.059	13.94	0.052	0.09	34.9	1.7	1% AEP, 45 min burst, Storm 6
OF_CAT 2I	30.23	30.23	72.216	0.089	0.17	179.91	1.89	1% AEP, 20 min burst, Storm 10
OF_J24	32.529	32.529	71.793	0.101	0.18	179.91	1.8	1% AEP, 20 min burst, Storm 10
OF_CAT 2J	2.521	2.521	13.872	0.044	0.07	34.9	1.63	1% AEP, 25 min burst, Storm 6
OF_CAT 2K	33.284	33.284	72.287	0.09	0.19	179.91	2.05	1% AEP, 20 min burst, Storm 3
OF_J25	34.924	34.924	71.674	0.141	0.19	179.91	1.38	1% AEP, 20 min burst, Storm 3
OF_CAT 2L	1.833	1.833	13.899	0.036	0.05	34.9	1.48	1% AEP, 30 min burst, Storm 8
OF_CAT 2M	43.76	43.76	72.544	0.084	0.24	179.91	2.9	1% AEP, 20 min burst, Storm 10
OF_J26	8.155	8.155	13.981	0.123	0.23	34.91	1.89	1% AEP, 20 min burst, Storm 10
OF_CAT 2P	2.902	2.902	13.935	0.085	0.08	34.91	0.98	1% AEP, 45 min burst, Storm 1
OF_CAT 2O	5.475	5.475	14.007	0.118	0.16	34.91	1.33	1% AEP, 20 min burst, Storm 10
OF_J27	50.325	50.325	72.119	0.172	0.28	179.91	1.62	1% AEP, 25 min burst, Storm 7
OF_CAT 2S	5.17	5.17	14.034	0.087	0.15	34.91	1.71	1% AEP, 45 min burst, Storm 1
OF_CAT 2Q	2.363	2.363	13.948	0.052	0.07	34.9	1.31	1% AEP, 30 min burst, Storm 8
OF_OUTLET CAT 2	54.021	54.021	71.665	0.156	0.3	179.91	1.93	1% AEP, 25 min burst, Storm 7
OF_CAT 1E	4.989	4.989	4.838	0.132	0.42	12.01	3.14	1% AEP, 45 min burst, Storm 10
OF_J1	3.312	3.312	4.774	0.108	0.28	12.01	2.56	1% AEP, 45 min burst, Storm 2
OF_CAT 1D	1.975	1.975	4.807	0.069	0.16	12.01	2.39	1% AEP, 45 min burst, Storm 5
OF_CAT 1G	2.976	2.976	13.885	0.049	0.09	34.9	1.75	1% AEP, 30 min burst, Storm 8
OF_J4	2.355	2.355	4.811	0.102	0.2	12.01	1.92	1% AEP, 30 min burst, Storm 9
OF_CAT 1K	1.04	1.04	4.82	0.057	0.09	12.01	1.52	1% AEP, 45 min burst, Storm 10
OF_CAT 2R	3.233	3.233	13.899	0.055	0.09	34.9	1.68	1% AEP, 45 min burst, Storm 8
OF_CAT 2N	3.042	3.042	13.899	0.053	0.09	34.9	1.64	1% AEP, 20 min burst, Storm 1
OF_CAT 2D	2.92	2.92	13.899	0.052	0.08	34.9	1.6	1% AEP, 20 min burst, Storm 1
OF_CAT 2F	5.531	5.531	13.899	0.077	0.16	34.91	2.07	1% AEP, 5 min burst, Storm 1

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS PREDEV r1 ILSAX.drn run at 09:50:20 on 5/5/2025.

The maximum flow in these overflow routes is unsafe: OF_CAT 2B, OF_CAT 1B, OF_CAT 2C, OF_J21, OF_CAT 2A, OF_CAT 1I, OF_J3, OF_CAT 1E

POSTDEV - DRAINS Results - 1EY

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivir (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
POSTDEV CAT 1	2.352	2.352	0	2.58	9.53	0	1EY AEP, 5 min burst, Storm 1
CAT 1A	0.124	0.074	0.066	3.55	44.67	0	1EY AEP, 15 min burst, Storm 5
CAT 1B	0.07	0	0.07	0	70.24	0	1EY AEP, 1 hour burst, Storm 6
CAT 1C	0.045	0	0.045	0	71.61	0	1EY AEP, 1 hour burst, Storm 6
CAT 1F	0.041	0	0.041	0	68.49	0	1EY AEP, 1 hour burst, Storm 6
CAT 1H	0.062	0	0.062	0	72.68	0	1EY AEP, 1 hour burst, Storm 6
CAT 1I	0.127	0	0.127	0	86.15	0	1EY AEP, 1 hour burst, Storm 6
CAT 1J	0.052	0.016	0.044	4.92	55.07	0	1EY AEP, 1 hour burst, Storm 6
CAT 1LA	0.067	0	0.067	0	75.67	0	1EY AEP, 1 hour burst, Storm 6
CAT 1M	0.06	0	0.06	0	92.46	0	1EY AEP, 1 hour burst, Storm 6
CAT 2B	1.498	1.498	0	3.01	44.43	0	1EY AEP, 5 min burst, Storm 1
CAT 2A	0.619	0.619	0	3.01	29.2	0	1EY AEP, 5 min burst, Storm 1
CAT 2C	1.252	1.252	0	3.01	27.94	0	1EY AEP, 5 min burst, Storm 1
CAT 2E	0.346	0.346	0	3.01	26.9	0	1EY AEP, 5 min burst, Storm 1
CAT 2G	0.289	0.289	0	3.01	28.29	0	1EY AEP, 5 min burst, Storm 1
CAT 2H	0.082	0	0.082	0	84.98	0	1EY AEP, 1 hour burst, Storm 6
CAT 2I	0.391	0.391	0	3.01	35.13	0	1EY AEP, 5 min burst, Storm 1
CAT 2J	0.072	0	0.072	0	44.26	0	1EY AEP, 1 hour burst, Storm 6
CAT 2K	0.036	0	0.036	0	44.14	0	1EY AEP, 1 hour burst, Storm 6
CAT 2L	0.065	0.006	0.062	4.92	60.65	0	1EY AEP, 1 hour burst, Storm 6
CAT 2M	0.094	0	0.094	0	61.28	0	1EY AEP, 1 hour burst, Storm 6
CAT 2P	0.097	0	0.097	0	94.25	0	1EY AEP, 1 hour burst, Storm 6
CAT 2O	0.095	0	0.095	0	57.81	0	1EY AEP, 1 hour burst, Storm 6
CAT 2S	0.066	0	0.066	0	107.5	0	1EY AEP, 1 hour burst, Storm 6
CAT 2Q	0.08	0	0.08	0	56.07	0	1EY AEP, 1 hour burst, Storm 6
CAT 2T	0.138	0	0.138	0	67.21	0	1EY AEP, 1 hour burst, Storm 6
CAT 1E	0.059	0	0.059	0	64.98	0	1EY AEP, 1 hour burst, Storm 6
CAT 1D	0.066	0	0.066	0	77.68	0	1EY AEP, 1 hour burst, Storm 6
CAT 1G	0.101	0	0.101	0	60.11	0	1EY AEP, 1 hour burst, Storm 6
CAT 1K	0.042	0.012	0.03	3.19	65.09	0	1EY AEP, 1 hour burst, Storm 5
CAT 1LB	0.091	0	0.091	0	56.2	0	1EY AEP, 1 hour burst, Storm 6
CAT 2R	0.115	0.026	0.103	4.92	76.28	0	1EY AEP, 1 hour burst, Storm 6
CAT 2N	0.684	0.684	0	3.01	62.33	0	1EY AEP, 5 min burst, Storm 1
CAT 2D	0.686	0.686	0	3.01	39.93	0	1EY AEP, 5 min burst, Storm 1
CAT 2F	1.485	1.485	0	3.01	56.45	0	1EY AEP, 5 min burst, Storm 1
CAT 1N	0.176	0.176	0	2.58	9.53	0	1EY AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_BASIN 1	0.144	0.144	4.837	0.014	0.01	12	0.85	1EY AEP, 6 hour burst, Storm 7
OF_CAT 1A	0.124	0.124	4.774	0.014	0.01	12	0.73	1EY AEP, 15 min burst, Storm 5
OF_J2	0.337	0.337	13.909	0.022	0.01	34.9	0.45	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1B	0.184	0.184	4.794	0.025	0.02	12	0.62	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1C	0.045	0.045	4.79	0.007	0	12	0.51	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1F	0.366	0.366	13.944	0.023	0.01	34.9	0.46	1EY AEP, 1 hour burst, Storm 6
OF_J3	0.529	0.529	13.926	0.024	0.02	34.9	0.64	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1H	0.158	0.158	4.821	0.021	0.01	12	0.63	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1I	0.635	0.635	13.889	0.022	0.02	34.9	0.84	1EY AEP, 2 hour burst, Storm 10
OF_J5	0.87	0.87	72.15	0.012	0	179.9	0.4	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1J	0.052	0.052	4.82	0.009	0	12	0.47	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1LA	0.151	0.151	13.884	0.011	0	34.9	0.41	1EY AEP, 1 hour burst, Storm 6
OF_OUTLET CAT 1	0.948	0.948	72.254	0.016	0.01	179.9	0.33	1EY AEP, 2 hour burst, Storm 10
OF_CAT 2B	1.879	1.879	4.837	0.065	0.16	12.01	2.41	1EY AEP, 5 min burst, Storm 1
OF_J21	3.11	3.11	13.964	0.058	0.09	34.9	1.53	1EY AEP, 5 min burst, Storm 1
OF_CAT 2A	0.619	0.619	4.837	0.034	0.05	12	1.53	1EY AEP, 5 min burst, Storm 1
OF_CAT 2C	1.252	1.252	4.806	0.06	0.1	12.01	1.74	1EY AEP, 5 min burst, Storm 1
OF_J22	4.989	4.989	72.374	0.025	0.03	179.9	1.1	1EY AEP, 10 min burst, Storm 3
OF_CAT 2E	0.346	0.346	4.798	0.023	0.03	12	1.26	1EY AEP, 5 min burst, Storm 1
OF_CAT 2G	5.12	5.12	71.589	0.032	0.03	179.9	0.89	1EY AEP, 10 min burst, Storm 10
OF_J23	5.123	5.123	72.172	0.036	0.03	179.9	0.79	1EY AEP, 10 min burst, Storm 10
OF_CAT 2H	0.082	0.082	13.94	0.006	0	34.9	0.38	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2I	5.143	5.143	72.216	0.031	0.03	179.9	0.92	1EY AEP, 10 min burst, Storm 7
OF_J24	5.189	5.189	71.793	0.033	0.03	179.9	0.87	1EY AEP, 15 min burst, Storm 1
OF_CAT 2J	0.072	0.072	13.872	0.005	0	34.9	0.37	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2K	5.202	5.202	72.287	0.03	0.03	179.9	0.97	1EY AEP, 15 min burst, Storm 1
OF_J25	5.231	5.231	71.674	0.045	0.03	179.9	0.65	1EY AEP, 15 min burst, Storm 1
OF_CAT 2L	0.065	0.065	13.899	0.005	0	34.9	0.39	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2M	5.42	5.42	72.544	0.024	0.03	179.9	1.27	1EY AEP, 20 min burst, Storm 8
OF_J26	0.684	0.684	13.981	0.027	0.02	34.9	0.71	1EY AEP, 5 min burst, Storm 1
OF_CAT 2P	0.097	0.097	13.935	0.011	0	34.9	0.25	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2O	0.684	0.684	14.007	0.034	0.02	34.9	0.58	1EY AEP, 5 min burst, Storm 1
OF_J27	5.529	5.529	72.119	0.046	0.03	179.9	0.67	1EY AEP, 20 min burst, Storm 10
OF_CAT 2S	0.167	0.167	14.034	0.011	0	34.9	0.42	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2Q	0.08	0.08	13.948	0.007	0	34.9	0.33	1EY AEP, 1 hour burst, Storm 6
OF_OUTLET CAT 2	5.529	5.529	71.665	0.04	0.03	179.9	0.77	1EY AEP, 20 min burst, Storm 10
OF_CAT 1E	0.164	0.164	4.838	0.017	0.01	12	0.8	1EY AEP, 2 hour burst, Storm 10
OF_J1	0.109	0.109	4.774	0.014	0.01	12	0.64	1EY AEP, 2 hour burst, Storm 10
OF_CAT 1D	0.066	0.066	4.807	0.009	0.01	12	0.6	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1G	0.101	0.101	13.885	0.006	0	34.9	0.47	1EY AEP, 1 hour burst, Storm 6
OF_J4	0.094	0.094	4.811	0.014	0.01	12	0.55	1EY AEP, 1 hour burst, Storm 6
OF_CAT 1K	0.042	0.042	4.82	0.008	0	12	0.42	1EY AEP, 1 hour burst, Storm 5
OF_CAT 1LB	0.236	0.236	13.899	0.011	0.01	34.9	0.59	1EY AEP, 2 hour burst, Storm 10
OF_CAT 2R	0.115	0.115	13.899	0.008	0	34.9	0.43	1EY AEP, 1 hour burst, Storm 6
OF_CAT 2N	0.684	0.684	13.899	0.022	0.02	34.9	0.91	1EY AEP, 5 min burst, Storm 1
OF_CAT 2D	0.686	0.686	13.899	0.022	0.02	34.9	0.91	1EY AEP, 5 min burst, Storm 1
OF_CAT 2F	1.485	1.485	13.899	0.035	0.04	34.9	1.22	1EY AEP, 5 min burst, Storm 1
OF_CAT 1N	0.267	0.267	13.988	0.011	0.01	34.9	0.67	1EY AEP, 1 hour burst, Storm 6

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
BASIN 1	23.01	3862.8	0.144	0	0.144

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX.drn run at 11:34:01 on 29/5/2025.

Flows were safe in all overflow routes.

POSTDEV - DRAINS Results - 10% AEP

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivir (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
POSTDEV CAT 1	5.137	4.485	0.652	2	7.36	0	10% AEP, 5 min burst, Storm 1
CAT 1A	1.048	0.166	0.968	3.05	38.42	0	10% AEP, 25 min burst, Storm 10
CAT 1B	0.755	0	0.755	0	50.37	0	10% AEP, 45 min burst, Storm 3
CAT 1C	0.487	0	0.487	0	51.35	0	10% AEP, 45 min burst, Storm 5
CAT 1F	0.448	0	0.448	0	49.12	0	10% AEP, 45 min burst, Storm 5
CAT 1H	0.671	0	0.671	0	52.12	0	10% AEP, 45 min burst, Storm 3
CAT 1I	1.377	0	1.377	0	61.78	0	10% AEP, 45 min burst, Storm 1
CAT 1J	0.495	0.042	0.48	3.53	39.49	0	10% AEP, 45 min burst, Storm 1
CAT 1LA	0.725	0	0.725	0	54.27	0	10% AEP, 45 min burst, Storm 4
CAT 1M	0.653	0	0.653	0	66.3	0	10% AEP, 45 min burst, Storm 3
CAT 2B	3.364	2.484	0.88	2.73	40.3	0	10% AEP, 15 min burst, Storm 5
CAT 2A	2.252	1.018	1.453	2.9	28.11	0	10% AEP, 20 min burst, Storm 10
CAT 2C	3.101	2.576	1.169	2.73	25.34	0	10% AEP, 15 min burst, Storm 3
CAT 2E	1.071	0.569	0.624	2.9	25.9	0	10% AEP, 20 min burst, Storm 10
CAT 2G	0.866	0.474	0.494	2.9	27.24	0	10% AEP, 20 min burst, Storm 10
CAT 2H	0.892	0	0.892	0	60.94	0	10% AEP, 45 min burst, Storm 3
CAT 2I	1.042	0.642	0.538	2.9	33.82	0	10% AEP, 20 min burst, Storm 10
CAT 2J	0.771	0	0.771	0	28.65	0	10% AEP, 30 min burst, Storm 10
CAT 2K	0.387	0	0.387	0	28.57	0	10% AEP, 30 min burst, Storm 10
CAT 2L	0.677	0.016	0.672	3.53	43.49	0	10% AEP, 45 min burst, Storm 1
CAT 2M	1.016	0	1.016	0	43.95	0	10% AEP, 45 min burst, Storm 3
CAT 2P	1.057	0	1.057	0	67.59	0	10% AEP, 45 min burst, Storm 5
CAT 2O	1.029	0	1.029	0	41.45	0	10% AEP, 45 min burst, Storm 5
CAT 2S	0.714	0	0.714	0	77.09	0	10% AEP, 45 min burst, Storm 5
CAT 2Q	0.87	0	0.87	0	40.21	0	10% AEP, 45 min burst, Storm 3
CAT 2T	1.5	0	1.5	0	48.2	0	10% AEP, 45 min burst, Storm 4
CAT 1E	0.637	0	0.637	0	46.6	0	10% AEP, 45 min burst, Storm 3
CAT 1D	0.718	0	0.718	0	55.71	0	10% AEP, 45 min burst, Storm 1
CAT 1G	1.097	0	1.097	0	43.1	0	10% AEP, 45 min burst, Storm 1
CAT 1K	0.385	0.026	0.371	2.29	46.68	0	10% AEP, 45 min burst, Storm 7
CAT 1LB	0.983	0	0.983	0	40.31	0	10% AEP, 45 min burst, Storm 3
CAT 2R	1.132	0.066	1.109	3.53	54.7	0	10% AEP, 45 min burst, Storm 1
CAT 2N	1.613	1.257	0.491	2.73	56.54	0	10% AEP, 15 min burst, Storm 7
CAT 2D	1.586	1.137	0.448	2.73	36.22	0	10% AEP, 15 min burst, Storm 5
CAT 2F	3.134	2.832	0.302	2.33	43.61	0	10% AEP, 5 min burst, Storm 1
CAT 1N	0.382	0.335	0.047	2	7.36	0	10% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_BASIN 1	1.185	1.185	4.837	0.049	0.1	12	2	10% AEP, 1.5 hour burst, Storm 8
OF_CAT 1A	1.048	1.048	4.774	0.052	0.09	12.01	1.67	10% AEP, 25 min burst, Storm 10
OF_J2	3.61	3.61	13.909	0.091	0.1	34.91	1.13	10% AEP, 45 min burst, Storm 5
OF_CAT 1B	1.787	1.787	4.794	0.1	0.15	12.01	1.49	10% AEP, 45 min burst, Storm 5
OF_CAT 1C	0.487	0.487	4.79	0.03	0.04	12	1.36	10% AEP, 45 min burst, Storm 5
OF_CAT 1F	4.036	4.036	13.944	0.098	0.12	34.91	1.18	10% AEP, 45 min burst, Storm 5
OF_J3	5.761	5.761	13.926	0.101	0.17	34.91	1.64	10% AEP, 45 min burst, Storm 3
OF_CAT 1H	1.756	1.756	4.821	0.09	0.15	12.01	1.62	10% AEP, 45 min burst, Storm 1
OF_CAT 1I	7.034	7.034	13.889	0.091	0.2	34.91	2.21	10% AEP, 45 min burst, Storm 3
OF_J5	9.501	9.501	72.15	0.051	0.05	179.9	1.04	10% AEP, 45 min burst, Storm 3
OF_CAT 1J	0.495	0.495	4.82	0.037	0.04	12	1.13	10% AEP, 45 min burst, Storm 1
OF_CAT 1LA	1.595	1.595	13.884	0.042	0.05	34.9	1.09	10% AEP, 45 min burst, Storm 5
OF_OUTLET CAT 1	10.84	10.84	72.254	0.067	0.06	179.9	0.9	10% AEP, 1 hour burst, Storm 10
OF_CAT 2B	4.854	4.854	4.837	0.116	0.4	12.01	3.49	10% AEP, 20 min burst, Storm 10
OF_J21	7.724	7.724	13.964	0.101	0.22	34.91	2.2	10% AEP, 20 min burst, Storm 10
OF_CAT 2A	2.252	2.252	4.837	0.073	0.19	12.01	2.58	10% AEP, 20 min burst, Storm 10
OF_CAT 2C	3.101	3.101	4.806	0.103	0.26	12.01	2.51	10% AEP, 15 min burst, Storm 3
OF_J22	12.289	12.289	72.374	0.044	0.07	179.9	1.57	10% AEP, 20 min burst, Storm 10
OF_CAT 2E	1.071	1.071	4.798	0.045	0.09	12	1.97	10% AEP, 20 min burst, Storm 10
OF_CAT 2G	12.928	12.928	71.589	0.055	0.07	179.9	1.3	10% AEP, 20 min burst, Storm 10
OF_J23	13.743	13.743	72.172	0.065	0.08	179.9	1.18	10% AEP, 20 min burst, Storm 10
OF_CAT 2H	0.892	0.892	13.94	0.025	0.03	34.9	1.04	10% AEP, 45 min burst, Storm 3
OF_CAT 2I	14.276	14.276	72.216	0.057	0.08	179.9	1.4	10% AEP, 20 min burst, Storm 8
OF_J24	14.944	14.944	71.793	0.063	0.08	179.9	1.31	10% AEP, 20 min burst, Storm 8
OF_CAT 2J	0.771	0.771	13.872	0.022	0.02	34.9	1.02	10% AEP, 30 min burst, Storm 10
OF_CAT 2K	15.268	15.268	72.287	0.057	0.08	179.9	1.5	10% AEP, 20 min burst, Storm 8
OF_J25	15.825	15.825	71.674	0.088	0.09	179.91	1.01	10% AEP, 20 min burst, Storm 8
OF_CAT 2L	0.677	0.677	13.899	0.019	0.02	34.9	1	10% AEP, 45 min burst, Storm 1
OF_CAT 2M	18.697	18.697	72.544	0.05	0.1	179.9	2.07	10% AEP, 20 min burst, Storm 3
OF_J26	3.319	3.319	13.981	0.072	0.1	34.9	1.32	10% AEP, 20 min burst, Storm 10
OF_CAT 2P	1.057	1.057	13.935	0.046	0.03	34.9	0.66	10% AEP, 45 min burst, Storm 5
OF_CAT 2O	2.351	2.351	14.007	0.071	0.07	34.9	0.94	10% AEP, 20 min burst, Storm 10
OF_J27	20.763	20.763	72.119	0.101	0.12	179.91	1.14	10% AEP, 20 min burst, Storm 3
OF_CAT 2S	1.829	1.829	14.034	0.047	0.05	34.9	1.13	10% AEP, 45 min burst, Storm 5
OF_CAT 2Q	0.87	0.87	13.948	0.028	0.02	34.9	0.88	10% AEP, 45 min burst, Storm 3
OF_OUTLET CAT 2	22.271	22.271	71.665	0.091	0.12	179.91	1.36	10% AEP, 30 min burst, Storm 8
OF_CAT 1E	1.826	1.826	4.838	0.072	0.15	12.01	2.12	10% AEP, 45 min burst, Storm 4
OF_J1	1.203	1.203	4.774	0.058	0.1	12.01	1.73	10% AEP, 45 min burst, Storm 4
OF_CAT 1D	0.718	0.718	4.807	0.038	0.06	12	1.59	10% AEP, 45 min burst, Storm 1
OF_CAT 1G	1.097	1.097	13.885	0.027	0.03	34.9	1.18	10% AEP, 45 min burst, Storm 1
OF_J4	0.879	0.879	4.811	0.056	0.07	12.01	1.3	10% AEP, 45 min burst, Storm 7
OF_CAT 1K	0.385	0.385	4.82	0.032	0.03	12	1.01	10% AEP, 45 min burst, Storm 7
OF_CAT 1LB	2.539	2.539	13.899	0.048	0.07	34.9	1.52	10% AEP, 45 min burst, Storm 5
OF_CAT 2R	1.132	1.132	13.899	0.03	0.03	34.9	1.09	10% AEP, 45 min burst, Storm 1
OF_CAT 2N	1.613	1.613	13.899	0.036	0.05	34.9	1.27	10% AEP, 15 min burst, Storm 7
OF_CAT 2D	1.586	1.586	13.899	0.036	0.05	34.9	1.25	10% AEP, 15 min burst, Storm 5
OF_CAT 2F	3.134	3.134	13.899	0.055	0.09	34.9	1.65	10% AEP, 5 min burst, Storm 1
OF_CAT 1N	2.57	2.57	13.988	0.046	0.07	34.9	1.61	10% AEP, 45 min burst, Storm 3

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
BASIN 1	23.22	5047.8	1.185	0	1.185

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX.drn run at 11:39:11 on 29/5/2025.

The maximum flow in these overflow routes is unsafe: OF_CAT 2B

POSTDEV - DRAINS Results - 5% AEP

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Max Surfac Flow Arrivir (cu.m/s)	Version 8 Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
POSTDEV CAT 1	6.25	5.262	0.988	1.87	6.91	0	5% AEP, 5 min burst, Storm 1
CAT 1A	1.489	0.172	1.43	3.31	41.69	0	5% AEP, 45 min burst, Storm 1
CAT 1B	1.09	0	1.09	0	47.2	0	5% AEP, 45 min burst, Storm 7
CAT 1C	0.703	0	0.703	0	48.12	0	5% AEP, 45 min burst, Storm 3
CAT 1F	0.647	0	0.647	0	46.03	0	5% AEP, 45 min burst, Storm 6
CAT 1H	0.971	0	0.971	0	48.84	0	5% AEP, 45 min burst, Storm 6
CAT 1I	1.991	0	1.991	0	57.9	0	5% AEP, 45 min burst, Storm 4
CAT 1J	0.709	0.028	0.693	3.31	37.01	0	5% AEP, 45 min burst, Storm 6
CAT 1LA	1.048	0	1.048	0	50.86	0	5% AEP, 45 min burst, Storm 2
CAT 1M	0.945	0	0.945	0	62.14	0	5% AEP, 45 min burst, Storm 6
CAT 2B	4.18	3.253	1.26	2.56	37.71	0	5% AEP, 15 min burst, Storm 7
CAT 2A	3.033	1.202	2.089	2.71	26.3	0	5% AEP, 20 min burst, Storm 10
CAT 2C	3.829	3.041	1.672	2.56	23.71	0	5% AEP, 15 min burst, Storm 3
CAT 2E	1.42	0.672	0.892	2.71	24.23	0	5% AEP, 20 min burst, Storm 10
CAT 2G	1.148	0.56	0.709	2.71	25.48	0	5% AEP, 20 min burst, Storm 10
CAT 2H	1.288	0	1.288	0	57.11	0	5% AEP, 45 min burst, Storm 7
CAT 2I	1.367	0.759	0.772	2.71	31.64	0	5% AEP, 20 min burst, Storm 10
CAT 2J	1.106	0	1.106	0	26.83	0	5% AEP, 30 min burst, Storm 5
CAT 2K	0.555	0	0.555	0	26.75	0	5% AEP, 30 min burst, Storm 9
CAT 2L	0.977	0.019	0.97	3.31	40.76	0	5% AEP, 45 min burst, Storm 1
CAT 2M	1.47	0	1.47	0	41.19	0	5% AEP, 45 min burst, Storm 6
CAT 2P	1.526	0	1.526	0	63.34	0	5% AEP, 45 min burst, Storm 2
CAT 2O	1.488	0	1.488	0	38.85	0	5% AEP, 45 min burst, Storm 6
CAT 2S	1.032	0	1.032	0	72.25	0	5% AEP, 45 min burst, Storm 6
CAT 2Q	1.259	0	1.259	0	37.68	0	5% AEP, 45 min burst, Storm 2
CAT 2T	2.17	0	2.17	0	45.17	0	5% AEP, 45 min burst, Storm 6
CAT 1E	0.921	0	0.921	0	43.67	0	5% AEP, 45 min burst, Storm 2
CAT 1D	1.037	0	1.037	0	52.21	0	5% AEP, 45 min burst, Storm 7
CAT 1G	1.589	0	1.589	0	40.4	0	5% AEP, 45 min burst, Storm 2
CAT 1K	0.551	0.026	0.536	2.14	43.74	0	5% AEP, 45 min burst, Storm 6
CAT 1LB	1.423	0	1.423	0	37.77	0	5% AEP, 45 min burst, Storm 2
CAT 2R	1.632	0.045	1.605	3.31	51.27	0	5% AEP, 45 min burst, Storm 6
CAT 2N	1.992	1.661	0.703	2.56	52.91	0	5% AEP, 15 min burst, Storm 3
CAT 2D	1.963	1.489	0.643	2.56	33.89	0	5% AEP, 15 min burst, Storm 7
CAT 2F	3.784	3.323	0.461	2.18	40.91	0	5% AEP, 5 min burst, Storm 1
CAT 1N	0.464	0.393	0.071	1.87	6.91	0	5% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_BASIN 1	1.657	1.657	4.837	0.06	0.14	12.01	2.3	5% AEP, 1.5 hour burst, Storm 5
OF_CAT 1A	1.489	1.489	4.774	0.064	0.12	12.01	1.94	5% AEP, 45 min burst, Storm 1
OF_J2	5.202	5.202	13.909	0.113	0.15	34.91	1.32	5% AEP, 45 min burst, Storm 6
OF_CAT 1B	2.566	2.566	4.794	0.124	0.21	12.01	1.73	5% AEP, 45 min burst, Storm 8
OF_CAT 1C	0.703	0.703	4.79	0.038	0.06	12	1.56	5% AEP, 45 min burst, Storm 3
OF_CAT 1F	5.835	5.835	13.944	0.122	0.17	34.91	1.37	5% AEP, 45 min burst, Storm 8
OF_J3	8.343	8.343	13.926	0.126	0.24	34.91	1.89	5% AEP, 45 min burst, Storm 5
OF_CAT 1H	2.546	2.546	4.821	0.113	0.21	12.01	1.88	5% AEP, 45 min burst, Storm 4
OF_CAT 1I	10.209	10.209	13.889	0.115	0.29	34.91	2.55	5% AEP, 45 min burst, Storm 3
OF_J5	13.638	13.638	72.15	0.063	0.08	179.9	1.2	5% AEP, 45 min burst, Storm 2
OF_CAT 1J	0.709	0.709	4.82	0.045	0.06	12	1.3	5% AEP, 45 min burst, Storm 6
OF_CAT 1LA	2.294	2.294	13.884	0.052	0.07	34.9	1.26	5% AEP, 45 min burst, Storm 6
OF_OUTLET CAT 1	15.412	15.412	72.254	0.082	0.09	179.91	1.04	5% AEP, 45 min burst, Storm 4
OF_CAT 2B	6.287	6.287	4.837	0.135	0.52	12.01	3.87	5% AEP, 20 min burst, Storm 10
OF_J21	9.99	9.99	13.964	0.118	0.29	34.91	2.44	5% AEP, 20 min burst, Storm 10
OF_CAT 2A	3.033	3.033	4.837	0.087	0.25	12.01	2.89	5% AEP, 20 min burst, Storm 10
OF_CAT 2C	3.829	3.829	4.806	0.117	0.32	12.01	2.73	5% AEP, 15 min burst, Storm 3
OF_J22	15.706	15.706	72.374	0.05	0.09	179.9	1.74	5% AEP, 20 min burst, Storm 10
OF_CAT 2E	1.42	1.42	4.798	0.054	0.12	12.01	2.18	5% AEP, 20 min burst, Storm 10
OF_CAT 2G	16.531	16.531	71.589	0.064	0.09	179.9	1.43	5% AEP, 20 min burst, Storm 10
OF_J23	17.72	17.72	72.172	0.076	0.1	179.91	1.3	5% AEP, 20 min burst, Storm 10
OF_CAT 2H	1.288	1.288	13.94	0.03	0.04	34.9	1.21	5% AEP, 45 min burst, Storm 7
OF_CAT 2I	18.502	18.502	72.216	0.066	0.1	179.9	1.55	5% AEP, 20 min burst, Storm 10
OF_J24	19.527	19.527	71.793	0.074	0.11	179.9	1.46	5% AEP, 20 min burst, Storm 10
OF_CAT 2J	1.106	1.106	13.872	0.027	0.03	34.9	1.19	5% AEP, 30 min burst, Storm 5
OF_CAT 2K	20.027	20.027	72.287	0.066	0.11	179.9	1.68	5% AEP, 20 min burst, Storm 10
OF_J25	20.878	20.878	71.674	0.104	0.12	179.91	1.12	5% AEP, 20 min burst, Storm 8
OF_CAT 2L	0.977	0.977	13.899	0.025	0.03	34.9	1.14	5% AEP, 45 min burst, Storm 1
OF_CAT 2M	25.205	25.205	72.544	0.06	0.14	179.9	2.35	5% AEP, 20 min burst, Storm 3
OF_J26	4.559	4.559	13.981	0.087	0.13	34.91	1.5	5% AEP, 20 min burst, Storm 10
OF_CAT 2P	1.526	1.526	13.935	0.057	0.04	34.9	0.76	5% AEP, 45 min burst, Storm 2
OF_CAT 2O	3.16	3.16	14.007	0.085	0.09	34.91	1.07	5% AEP, 20 min burst, Storm 10
OF_J27	28.348	28.348	72.119	0.122	0.16	179.91	1.29	5% AEP, 20 min burst, Storm 3
OF_CAT 2S	2.642	2.642	14.034	0.057	0.08	34.9	1.32	5% AEP, 45 min burst, Storm 7
OF_CAT 2Q	1.259	1.259	13.948	0.036	0.04	34.9	1.02	5% AEP, 45 min burst, Storm 2
OF_OUTLET CAT 2	30.534	30.534	71.665	0.11	0.17	179.91	1.54	5% AEP, 30 min burst, Storm 8
OF_CAT 1E	2.644	2.644	4.838	0.09	0.22	12.01	2.44	5% AEP, 45 min burst, Storm 4
OF_J1	1.739	1.739	4.774	0.073	0.14	12.01	1.99	5% AEP, 45 min burst, Storm 4
OF_CAT 1D	1.037	1.037	4.807	0.046	0.09	12	1.86	5% AEP, 45 min burst, Storm 7
OF_CAT 1G	1.589	1.589	13.885	0.033	0.05	34.9	1.37	5% AEP, 45 min burst, Storm 2
OF_J4	1.261	1.261	4.811	0.07	0.11	12.01	1.5	5% AEP, 45 min burst, Storm 6
OF_CAT 1K	0.551	0.551	4.82	0.04	0.05	12	1.16	5% AEP, 45 min burst, Storm 6
OF_CAT 1LB	3.668	3.668	13.899	0.06	0.11	34.9	1.76	5% AEP, 45 min burst, Storm 2
OF_CAT 2R	1.632	1.632	13.899	0.037	0.05	34.9	1.26	5% AEP, 45 min burst, Storm 6
OF_CAT 2N	1.992	1.992	13.899	0.041	0.06	34.9	1.38	5% AEP, 15 min burst, Storm 3
OF_CAT 2D	1.963	1.963	13.899	0.041	0.06	34.9	1.38	5% AEP, 15 min burst, Storm 7
OF_CAT 2F	3.784	3.784	13.899	0.061	0.11	34.9	1.77	5% AEP, 5 min burst, Storm 1
OF_CAT 1N	3.695	3.695	13.988	0.057	0.11	34.9	1.87	5% AEP, 45 min burst, Storm 3

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
BASIN 1	23.29	5465	1.657	0	1.657

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX.drn run at 11:39:41 on 29/5/2025.

The maximum flow in these overflow routes is unsafe: OF_CAT 2B

POSTDEV - DRAINS Results - 1% AEP

DRAINS results prepared from Version 2025.01.9147.24925

PIT / NODE DETAILS

Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arrivir (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q (cu.m/s)	Grassed Max Q (cu.m/s)	Paved Tc (min)	Grassed Tc (min)	Supp. Tc (min)	Due to Storm
POSTDEV CAT 1	9.297	7.275	2.022	1.65	6.07	0	1% AEP, 5 min burst, Storm 1
CAT 1A	2.796	0.187	2.681	2.61	32.93	0	1% AEP, 30 min burst, Storm 4
CAT 1B	2.075	0	2.075	0	41.45	0	1% AEP, 45 min burst, Storm 5
CAT 1C	1.339	0	1.339	0	42.26	0	1% AEP, 45 min burst, Storm 7
CAT 1F	1.231	0	1.231	0	40.42	0	1% AEP, 45 min burst, Storm 7
CAT 1H	1.849	0	1.849	0	42.89	0	1% AEP, 45 min burst, Storm 6
CAT 1I	3.785	0	3.785	0	50.84	0	1% AEP, 45 min burst, Storm 5
CAT 1J	1.334	0.053	1.301	2.61	29.23	0	1% AEP, 30 min burst, Storm 4
CAT 1LA	1.994	0	1.994	0	44.66	0	1% AEP, 45 min burst, Storm 8
CAT 1M	1.799	0	1.799	0	54.56	0	1% AEP, 45 min burst, Storm 8
CAT 2B	6.089	3.49	2.599	2.37	34.99	0	1% AEP, 20 min burst, Storm 1
CAT 2A	5.256	1.462	3.97	2.37	22.99	0	1% AEP, 20 min burst, Storm 10
CAT 2C	6.159	3.964	3.439	2.37	22	0	1% AEP, 20 min burst, Storm 2
CAT 2E	2.419	0.817	1.7	2.37	21.19	0	1% AEP, 20 min burst, Storm 10
CAT 2G	1.946	0.681	1.347	2.37	22.28	0	1% AEP, 20 min burst, Storm 10
CAT 2H	2.453	0	2.453	0	50.15	0	1% AEP, 45 min burst, Storm 10
CAT 2I	2.279	0.922	1.468	2.37	27.67	0	1% AEP, 20 min burst, Storm 10
CAT 2J	2.07	0	2.07	0	22.47	0	1% AEP, 25 min burst, Storm 10
CAT 2K	1.035	0	1.035	0	22.41	0	1% AEP, 25 min burst, Storm 10
CAT 2L	1.836	0.02	1.823	2.61	32.19	0	1% AEP, 30 min burst, Storm 4
CAT 2M	2.756	0	2.756	0	32.53	0	1% AEP, 30 min burst, Storm 2
CAT 2P	2.902	0	2.902	0	55.62	0	1% AEP, 45 min burst, Storm 1
CAT 2O	2.796	0	2.796	0	30.68	0	1% AEP, 30 min burst, Storm 8
CAT 2S	1.963	0	1.963	0	63.44	0	1% AEP, 45 min burst, Storm 8
CAT 2Q	2.363	0	2.363	0	29.76	0	1% AEP, 30 min burst, Storm 8
CAT 2T	4.129	0	4.129	0	39.67	0	1% AEP, 45 min burst, Storm 5
CAT 1E	1.751	0	1.751	0	38.35	0	1% AEP, 45 min burst, Storm 2
CAT 1D	1.975	0	1.975	0	45.84	0	1% AEP, 45 min burst, Storm 5
CAT 1G	2.976	0	2.976	0	31.9	0	1% AEP, 30 min burst, Storm 8
CAT 1K	1.037	0.049	1.007	1.69	34.55	0	1% AEP, 30 min burst, Storm 4
CAT 1LB	2.669	0	2.669	0	29.83	0	1% AEP, 30 min burst, Storm 4
CAT 2R	3.08	0.083	3.051	2.91	45.02	0	1% AEP, 45 min burst, Storm 10
CAT 2N	3.042	1.593	1.449	2.37	49.09	0	1% AEP, 20 min burst, Storm 1
CAT 2D	2.92	1.598	1.322	2.37	31.45	0	1% AEP, 20 min burst, Storm 1
CAT 2F	5.531	4.594	0.937	1.92	35.94	0	1% AEP, 5 min burst, Storm 1
CAT 1N	0.688	0.544	0.145	1.65	6.07	0	1% AEP, 5 min burst, Storm 1

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Max U/S HGL (m)	Max D/S HGL (m)	Due to Storm

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF_BASIN 1	2.907	2.907	4.837	0.084	0.24	12.01	2.87	1% AEP, 45 min burst, Storm 6
OF_CAT 1A	2.796	2.796	4.774	0.093	0.23	12.01	2.5	1% AEP, 30 min burst, Storm 4
OF_J2	9.781	9.781	13.909	0.165	0.28	34.91	1.7	1% AEP, 30 min burst, Storm 4
OF_CAT 1B	4.816	4.816	4.794	0.181	0.4	12.02	2.21	1% AEP, 30 min burst, Storm 4
OF_CAT 1C	1.339	1.339	4.79	0.055	0.11	12.01	2.02	1% AEP, 45 min burst, Storm 7
OF_CAT 1F	10.958	10.958	13.944	0.178	0.31	34.91	1.77	1% AEP, 30 min burst, Storm 4
OF_J3	15.667	15.667	13.926	0.184	0.45	34.91	2.44	1% AEP, 30 min burst, Storm 4
OF_CAT 1H	4.777	4.777	4.821	0.165	0.4	12.02	2.42	1% AEP, 30 min burst, Storm 8
OF_CAT 1I	19.312	19.312	13.889	0.168	0.55	34.91	3.29	1% AEP, 45 min burst, Storm 10
OF_J5	25.543	25.543	72.15	0.092	0.14	179.91	1.54	1% AEP, 30 min burst, Storm 5
OF_CAT 1J	1.334	1.334	4.82	0.067	0.11	12.01	1.66	1% AEP, 30 min burst, Storm 4
OF_CAT 1LA	4.314	4.314	13.884	0.077	0.12	34.91	1.62	1% AEP, 30 min burst, Storm 4
OF_OUTLET CAT 1	28.919	28.919	72.254	0.12	0.16	179.91	1.33	1% AEP, 45 min burst, Storm 2
OF_CAT 2B	10.301	10.301	4.837	0.182	0.86	12.02	4.71	1% AEP, 20 min burst, Storm 10
OF_J21	16.294	16.294	13.964	0.158	0.47	34.91	2.96	1% AEP, 20 min burst, Storm 10
OF_CAT 2A	5.256	5.256	4.837	0.122	0.44	12.01	3.6	1% AEP, 20 min burst, Storm 10
OF_CAT 2C	6.159	6.159	4.806	0.156	0.51	12.02	3.29	1% AEP, 20 min burst, Storm 2
OF_J22	24.633	24.633	72.374	0.066	0.14	179.9	2.07	1% AEP, 20 min burst, Storm 10
OF_CAT 2E	2.419	2.419	4.798	0.074	0.2	12.01	2.73	1% AEP, 20 min burst, Storm 10
OF_CAT 2G	25.998	25.998	71.589	0.084	0.14	179.91	1.72	1% AEP, 20 min burst, Storm 10
OF_J23	28.263	28.263	72.172	0.101	0.16	179.91	1.56	1% AEP, 20 min burst, Storm 10
OF_CAT 2H	2.453	2.453	13.94	0.045	0.07	34.9	1.56	1% AEP, 45 min burst, Storm 10
OF_CAT 2I	29.672	29.672	72.216	0.088	0.16	179.91	1.87	1% AEP, 20 min burst, Storm 10
OF_J24	31.588	31.588	71.793	0.099	0.18	179.91	1.77	1% AEP, 20 min burst, Storm 10
OF_CAT 2J	2.07	2.07	13.872	0.039	0.06	34.9	1.51	1% AEP, 25 min burst, Storm 10
OF_CAT 2K	32.479	32.479	72.287	0.089	0.18	179.91	2.03	1% AEP, 20 min burst, Storm 10
OF_J25	34.111	34.111	71.674	0.14	0.19	179.91	1.36	1% AEP, 20 min burst, Storm 10
OF_CAT 2L	1.836	1.836	13.899	0.036	0.05	34.9	1.48	1% AEP, 30 min burst, Storm 4
OF_CAT 2M	42.94	42.94	72.544	0.082	0.24	179.91	2.9	1% AEP, 20 min burst, Storm 3
OF_J26	8.155	8.155	13.981	0.123	0.23	34.91	1.89	1% AEP, 20 min burst, Storm 10
OF_CAT 2P	2.902	2.902	13.935	0.085	0.08	34.91	0.98	1% AEP, 45 min burst, Storm 1
OF_CAT 2O	5.475	5.475	14.007	0.118	0.16	34.91	1.33	1% AEP, 20 min burst, Storm 10
OF_J27	49.127	49.127	72.119	0.17	0.27	179.91	1.61	1% AEP, 20 min burst, Storm 10
OF_CAT 2S	5.018	5.018	14.034	0.085	0.14	34.91	1.7	1% AEP, 45 min burst, Storm 10
OF_CAT 2Q	2.363	2.363	13.948	0.052	0.07	34.9	1.31	1% AEP, 30 min burst, Storm 8
OF_OUTLET CAT 2	52.82	52.82	71.665	0.153	0.29	179.91	1.91	1% AEP, 25 min burst, Storm 7
OF_CAT 1E	4.989	4.989	4.838	0.132	0.42	12.01	3.14	1% AEP, 45 min burst, Storm 10
OF_J1	3.312	3.312	4.774	0.108	0.28	12.01	2.56	1% AEP, 45 min burst, Storm 2
OF_CAT 1D	1.975	1.975	4.807	0.069	0.16	12.01	2.39	1% AEP, 45 min burst, Storm 5
OF_CAT 1G	2.976	2.976	13.885	0.049	0.09	34.9	1.75	1% AEP, 30 min burst, Storm 8
OF_J4	2.37	2.37	4.811	0.102	0.2	12.01	1.94	1% AEP, 30 min burst, Storm 4
OF_CAT 1K	1.037	1.037	4.82	0.057	0.09	12.01	1.51	1% AEP, 30 min burst, Storm 4
OF_CAT 1LB	6.879	6.879	13.899	0.087	0.2	34.91	2.27	1% AEP, 30 min burst, Storm 7
OF_CAT 2R	3.08	3.08	13.899	0.054	0.09	34.9	1.64	1% AEP, 45 min burst, Storm 10
OF_CAT 2N	3.042	3.042	13.899	0.053	0.09	34.9	1.64	1% AEP, 20 min burst, Storm 1
OF_CAT 2D	2.92	2.92	13.899	0.052	0.08	34.9	1.6	1% AEP, 20 min burst, Storm 1
OF_CAT 2F	5.531	5.531	13.899	0.077	0.16	34.91	2.07	1% AEP, 5 min burst, Storm 1
OF_CAT 1N	6.888	6.888	13.988	0.082	0.2	34.91	2.4	1% AEP, 30 min burst, Storm 7

DETENTION BASIN DETAILS

Name	Max WL	MaxVol	Max Q Total	Max Q Low Level	Max Q High Level
BASIN 1	23.47	6564	2.907	0	2.907

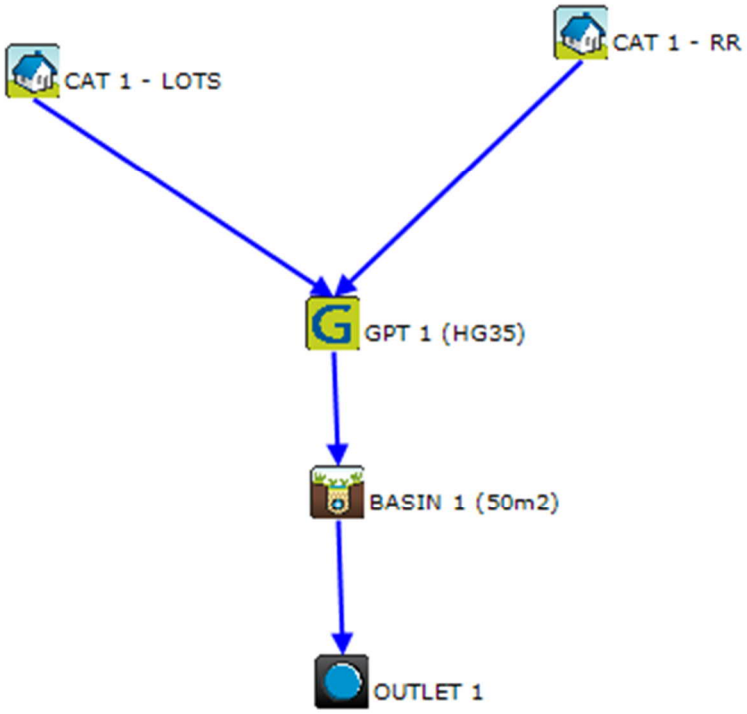
Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX

Run Log for DRAINS v2025.01.9147.24925 - 22311 DRAINS POSTDEV r1 ILSAX.drn run at 11:40:13 on 29/5/2025.

The maximum flow in these overflow routes is unsafe: OF_CAT 2B, OF_CAT 1B, OF_CAT 2C, OF_J21, OF_CAT 2A, OF_CAT 1I, OF_J3, OF_CAT 1E

Appendix C

MUSICX Layout

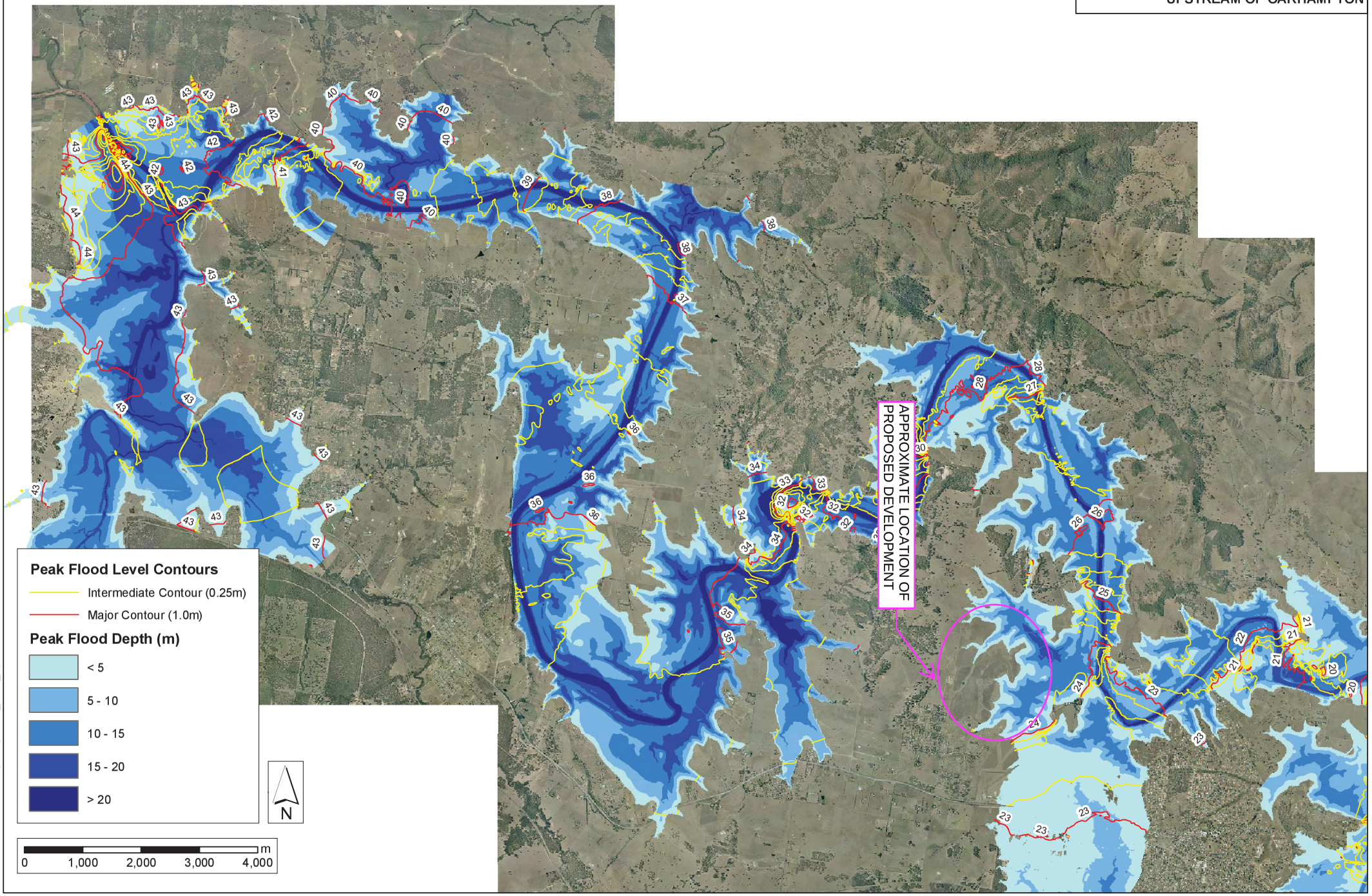

CAT 1 - LOTS
CAT 1 - RR
GPT 1 (HG35)
BASIN 1 (50m2)
OUTLET 1

Appendix D

Flood Mapping

FIGURE 27

EXTREME FLOOD CONTOURS AND DEPTHS UPSTREAM OF OAKHAMPTON



J:\Jobs\27036\ArcGIS\Maps\Figure27_PMF_Upstream.mxd

FIGURE 33

1% AEP FLOOD CONTOURS AND DEPTHS UPSTREAM OF OAKHAMPTON

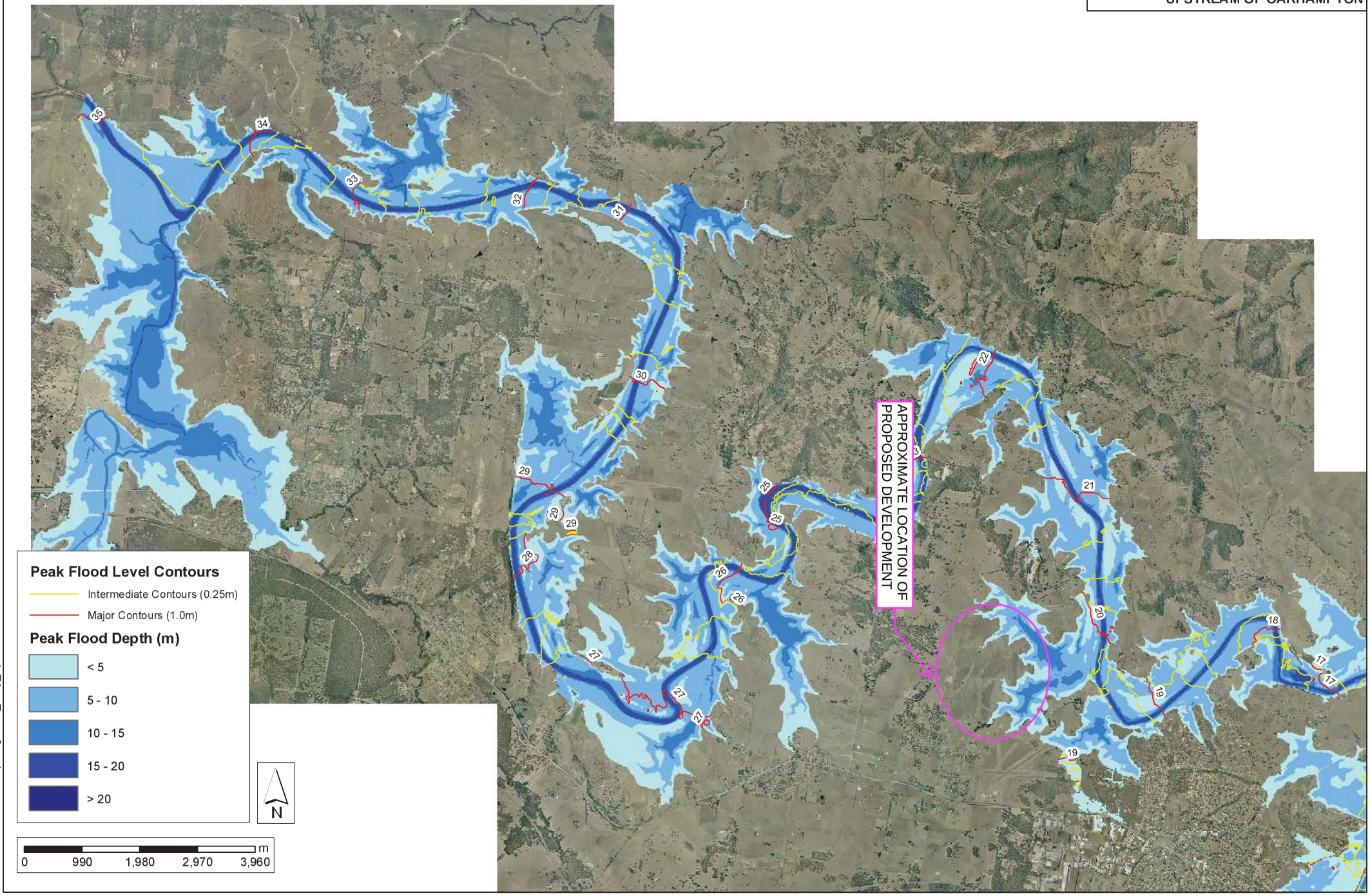


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FIGURE 37

5% AEP FLOOD CONTOURS AND DEPTHS UPSTREAM OF OAKHAMPTON

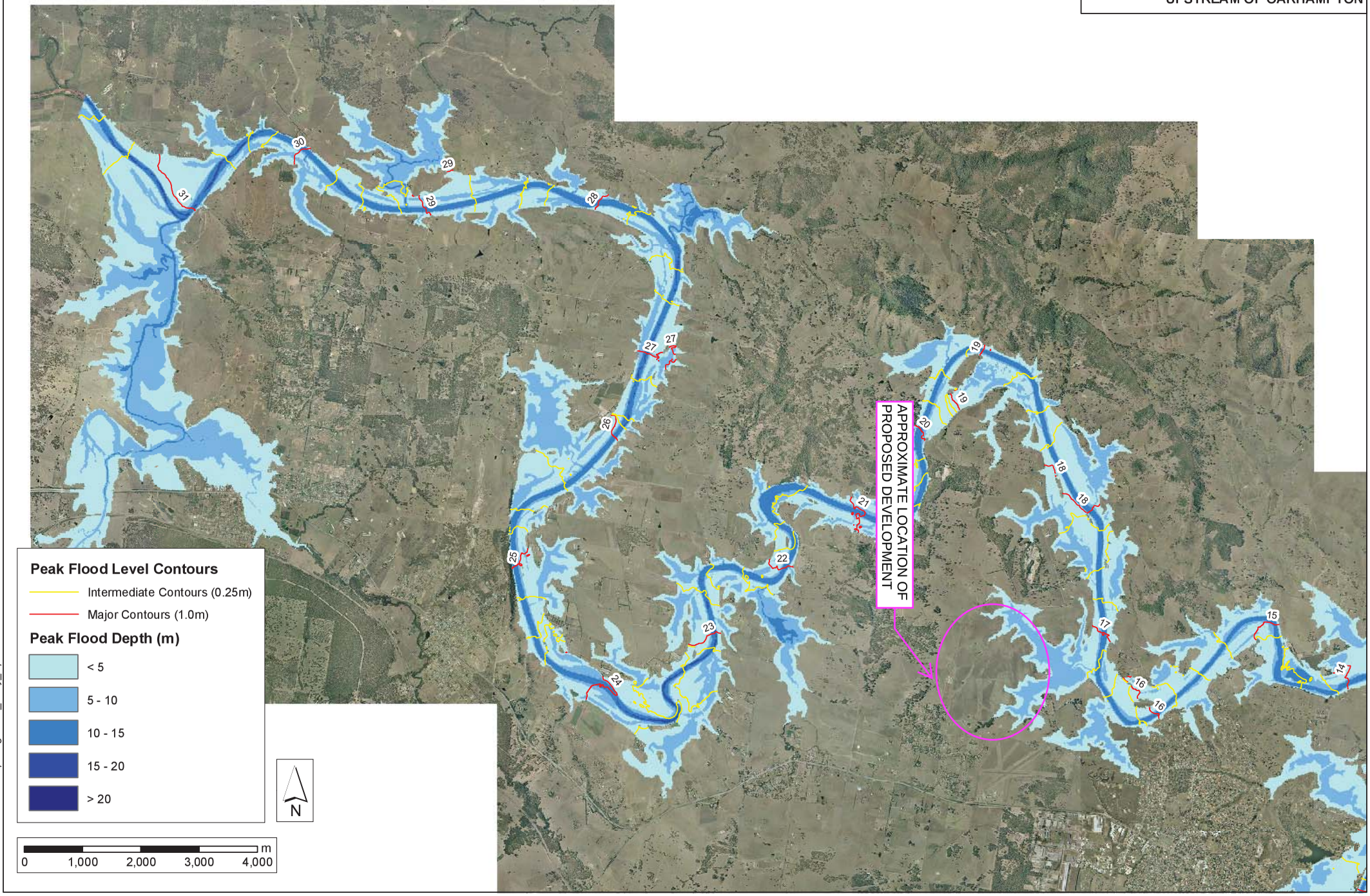

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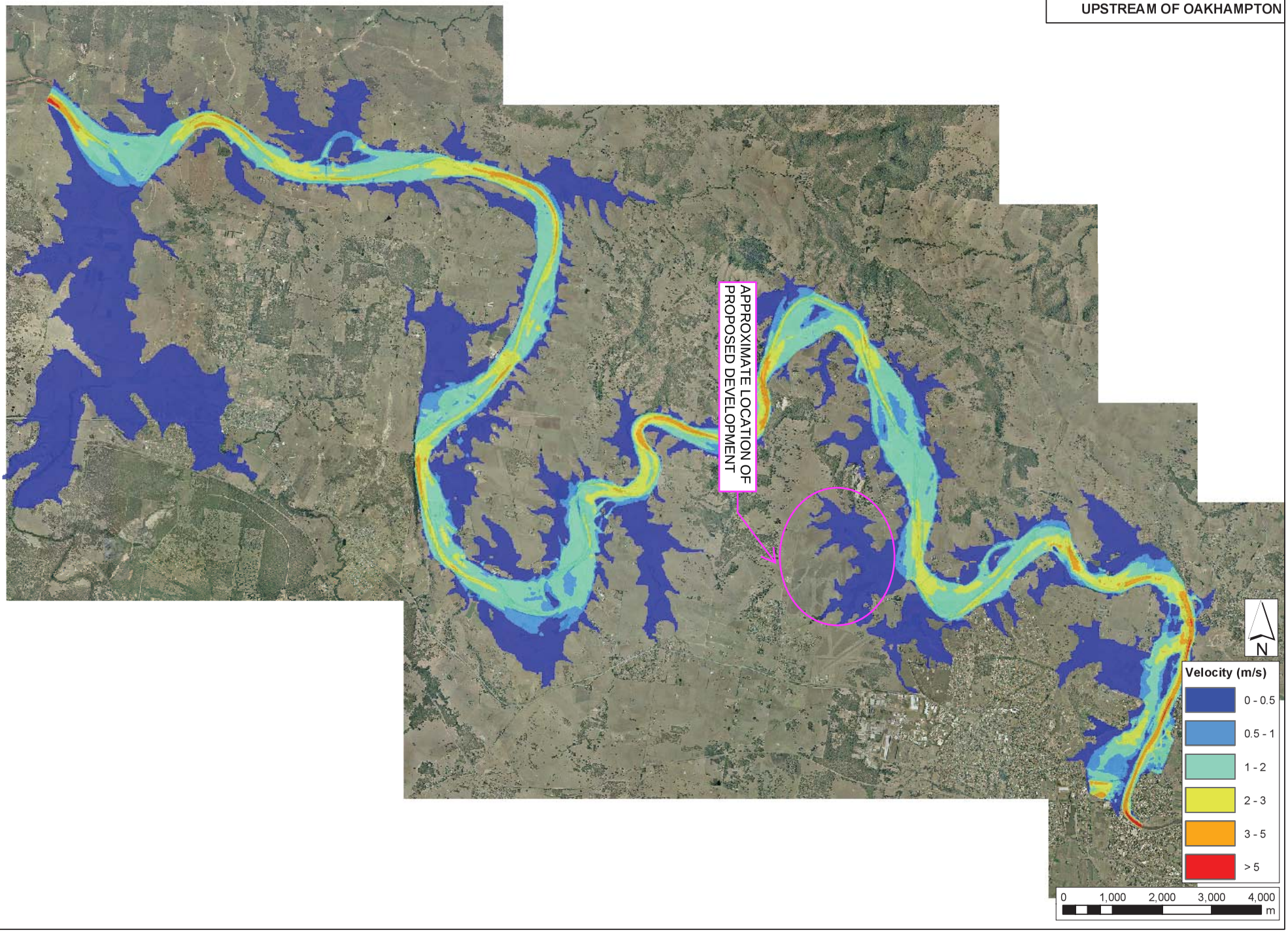
FIGURE 47
1% AEP PEAK FLOOD VELOCITIES UPSTREAM OF OAKHAMPTON



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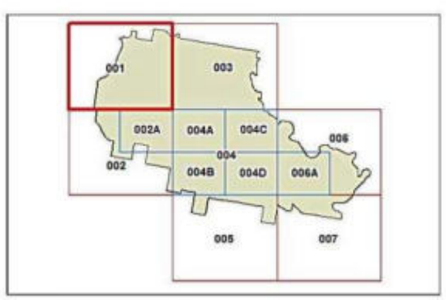
Maitland Citywide Development Control Plan 2011

Floodplain Management DCP - Hydraulic Categories_Sheet 001

- Flood Storage
- Flood Fringe
- Floodway
- Subject to Further Investigation

Cadastre

Base data 03/03/1997 © NSW LPMA
Addendum data 01/04/2011 © Maitland City Council



N
W E
S

0 800 1600
metres

Scale: 1:40,000 @ A3

Projection: GDA 1994
Zone 56

Map identification number:

Floodplain Management DCP (Hydraulic Categories)_FLD_001_040_20140611

SINGLETON LGA

DUNGOG LGA

CESSNOCK LGA

LUSKINTYRE ROAD

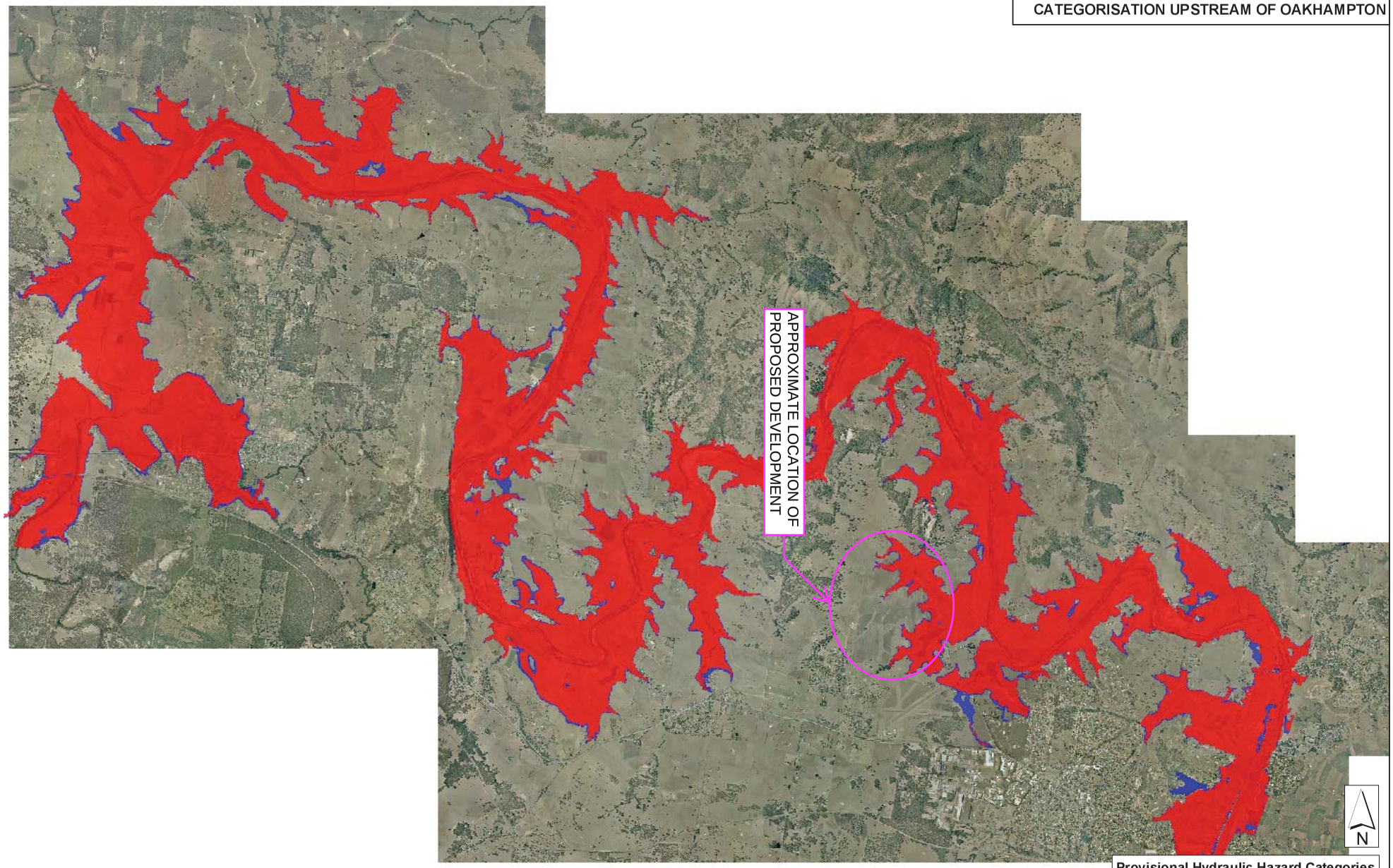
MAITLAND VALE ROAD

WINDERMERE ROAD

WYNDELLA ROAD

APPROXIMATE LOCATION OF PROPOSED DEVELOPMENT

FIGURE 51
1% AEP FLOOD HAZARD AND HYDRAULIC CATEGORISATION UPSTREAM OF OAKHAMPTON



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