



Flood Overlay Code Assessment Report

17 Regina Street, Stones Corner

19 December 2024
J11015 v1.0



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APPLICATION REF
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Job No: J11015 v1.0

Job Name: 17 Regina Street, Stones Corner

Report Name	Date	Report No.
Flood Overlay Code Assessment Report	19 December 2024	J11015 v1.0

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1.0 INTRODUCTION

Storm Water Consulting Pty Ltd (SWC) was commissioned by Regina Street Pty Ltd to prepare a Flood Overlay Code Assessment Report for the proposed development on 17 Regina Street, Stones Corner.

This report has been prepared to assess the potential impacts of the proposed development and to set minimum design levels. Sections B and C of the Flood Overlay Code have also been addressed in this report.

A development application was previously approved for the site (A004123514, 19 October 2015). The previous approval included an approved Site-Based Stormwater Management Plan (J4387-1.2, 25 March 2015), which was prepared by SWC, that addressed the requirements of the Flood Overlay Code. The management of floodwaters in this current assessment utilises the same strategy and methodology adopted in the previously approved report.

Brisbane City Council have issued an Outstanding Matters letter (A006130292, 13 February 2023) in response to the current development application on the site. A response to Item 4 of the Outstanding Matters letter is presented below.

Flooding

- 4) The previous approval included an undercroft to allow the conveyance of flood water. Demonstrate the proposed changes to the undercroft and floor levels will be compliant with the Flood overlay code and provide adequate flood immunity for the development.
- a) Provide a revised flood report/statement from an RPEQ hydraulic engineer to demonstrate the proposed development meets the requirements of the Flood overlay code, addressing any performance outcomes if applicable.

The report must also address the ingress and egress from the site in a flood event and how the proposed car stackers are suitable for evacuation in accordance with PO3, PO5 and PO11 of the Flood overlay code.
 - b) Provide amended plans including the levels of any undercroft and floor levels of the proposed development.

SWC Response: The hydraulic modelling results presented in this report demonstrate that the proposed development would meet the requirements of the Flood Overlay Code. The proposed car stackers would be flood-free up to the minimum flood immunity level. Ingress and egress from the site would be via the driveway located at the south-eastern corner. The management of floodwaters in this current assessment utilises the same strategy and methodology adopted in the previously approved report. Refer to amended architectural plans for the proposed undercroft and floor levels.

2.0 SITE CONDITIONS

2.1 Existing Site

A raised dwelling is located on the property. The remainder of the property is vegetated by short grass. The property is bound by Lincoln Street to the west, Regina Street to the south and by a residential property to the east. An existing site plan is presented in Figure 1, Appendix A. A locality plan is presented in Figure 2.1 below. A site survey is presented in Appendix F.

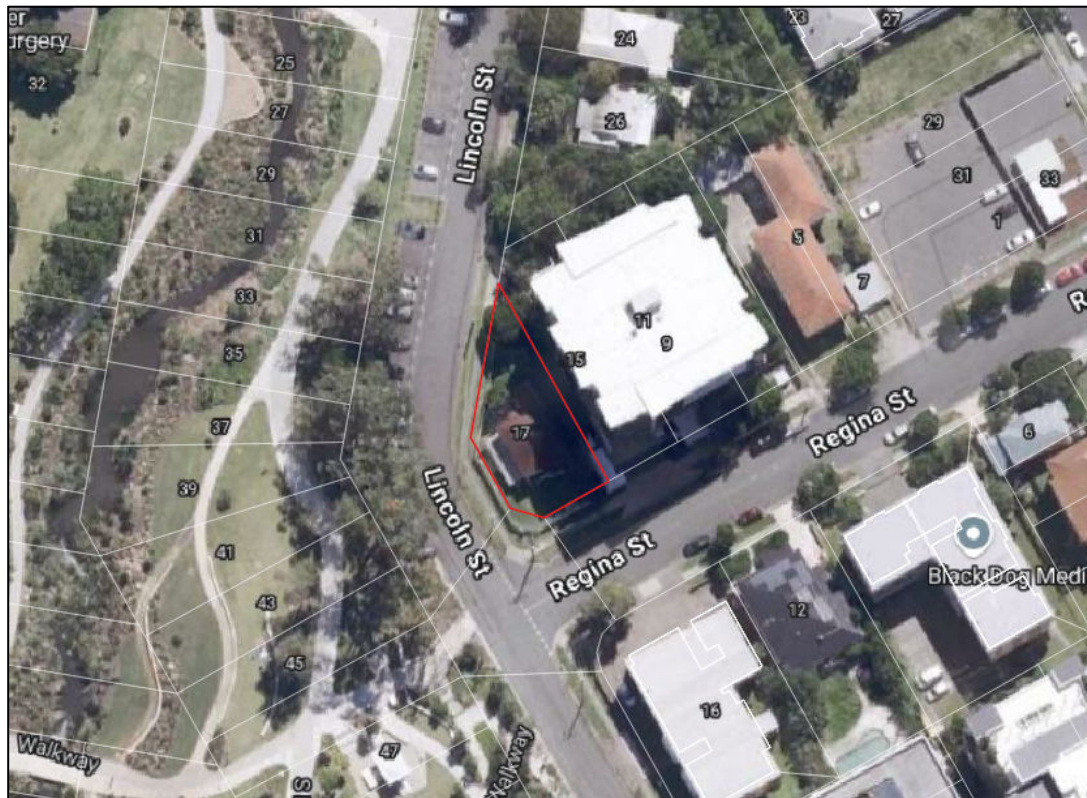


Figure 2.1 – Locality Plan (Source: Google Earth)

The site is located in the Brisbane River Flood Planning Area 5 sub-category, as well as the Creek/waterway Flood Planning Area 2, 3 and 4 sub-categories (refer Figure 2.2 below). The site would be affected by flooding from the Brisbane River and from Norman Creek.



Figure 2.2 – Flood Overlays

2.2 Developed Site

A developed site plan is presented in Figure 2, Appendix A. It is proposed to demolish the existing dwelling and to construct a new residential high-rise building. A driveway ramp is proposed at the south-eastern corner of the site to provide access from Regina Street to the Ground Floor Level car park. The entirety of the Ground Floor Level will be constructed on a suspended slab. The only portion of the development which would potentially impact floodwaters (i.e. extending below the Ground Floor Level) is the single tanked car stacker pit and lift shaft.

The southern section of the development will be left open to allow floodwaters to pass unimpeded through the undercroft area. The northern section of the development (on ground level, within the undercroft area) involves walls, deep planting areas and stairs. Walls and stairs will be constructed as permeable structures to allow floodwaters to pass unimpeded through the undercroft area. Deep planting areas will be constructed as in-ground features to also allow floodwaters to pass unimpeded through the undercroft area.

3.0 HYDROLOGIC ANALYSIS

The property is affected by flooding from Norman Creek, which has an upstream catchment of approximately 1600 hectares flowing to the Logan Road / O’Keefe Street bridge (Point-1). A catchment plan is presented in Figure 3, Appendix A.

URBS hydrologic modelling was undertaken to produce an inflow hydrograph for input into the TUFLOW hydrodynamic model. A schematic representation of the URBS model is presented in Figure 4, Appendix A. Hydrologic modelling was undertaken in Brisbane City Council’s Norman Creek Flood Study. Parameters used in Brisbane City Council’s Norman Creek Flood Study were adopted for the preparation of the URBS model.

The initial loss was set as 0 mm and the continuing loss was set as 0 mm/hr. The alpha value in the URBS model was modified until the peak discharge at the inflow boundary condition matched the reported peak discharge at the same location in the Norman Creek Flood Study. The adopted alpha value in the URBS model was 4.65. The resulting peak discharges for each flood event are presented in Table 3.1 below. URBS data files are presented in Appendix D.

Table 3.1 – URBS Model Peak Discharges

AEP %	Peak Discharge m³/s
50	80
20	113
10	133
5	161
2	199
1	230

4.0 HYDRODYNAMIC MODELLING

TUFLOW 2D hydrodynamic modelling was undertaken to assess potential hydraulic impacts and to set minimum design levels for the proposed development. The model setup and results are discussed below.

4.1 Existing TUFLOW Model

A schematic of the existing TUFLOW model is presented in Figure 5, Appendix A. The TUFLOW model was based on a 2m grid size with elevation data assigned from the ALS survey data sourced from the Queensland State Government. Site survey was incorporated using 2d_zsh layers (refer to Appendix F).

The following Manning's roughness coefficients were adopted:

- $n = 0.03$ – short grass
- $n = 0.02$ – road surface
- $n = 0.08$ – creek
- $n = 0.10$ – residential properties
- $n = 0.20$ – commercial properties

The model incorporated existing buildings as raised z-point polygons to simulate blockages to the creek flooding. A discharge-time (QT) boundary condition was incorporated at the upstream end of the model with a peak discharge of 230 m³/s. A height-discharge (HQ) boundary condition was incorporated at the downstream end of the model based on the 1% AEP flood slope (sourced from the Norman Creek Flood Study).

The existing 1% AEP overland flow contours, depths, velocities and velocity-depths are presented in Figures 6a to 6d, Appendix A respectively. The model results above compare favourably with the 1% AEP flood levels from Council's Norman Creek Flood Study "Scenario 1: Existing Waterway Conditions" model results (see Figure 4.1 on the following page).

The model results show that the entire property would be inundated during a 1% AEP flood event. Flow depths reach up to 1.7 m at the northern side of the property. Flow velocities are generally less than 1 m/s throughout the property. Velocity-depth products reach up to 1.5 m²/s at the western side of the property.

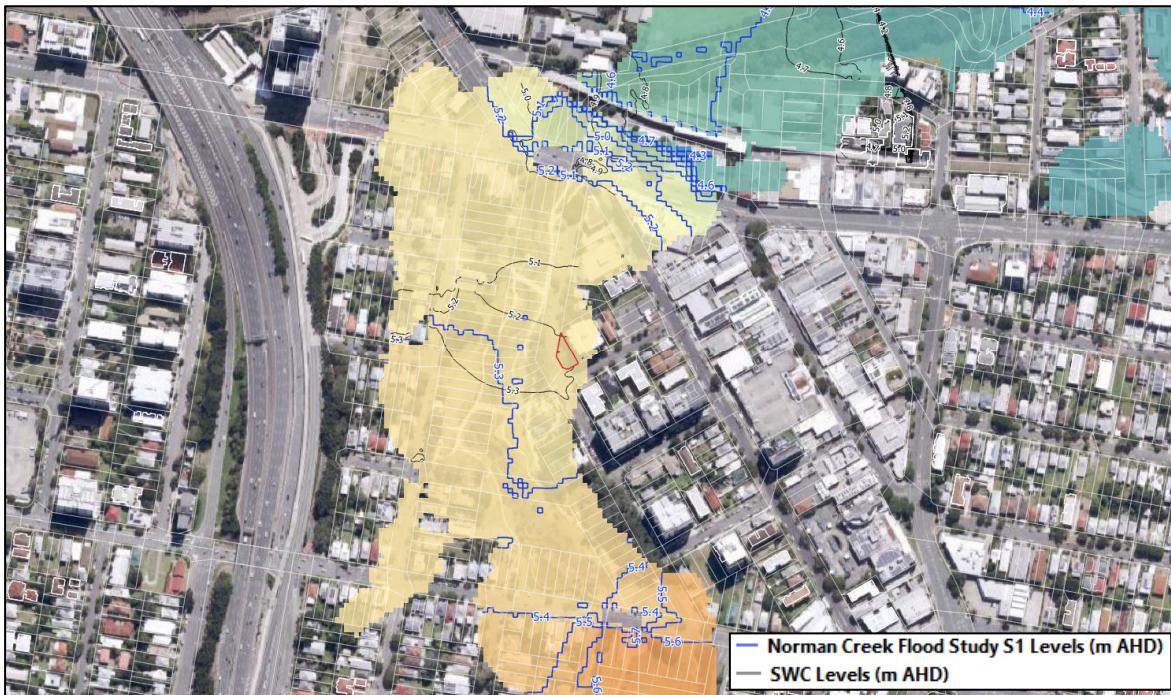


Figure 4.1 – Norman Creek Flood Study Extract (1% AEP S1 Flood Levels, metres AHD)

The 1% flood level of 5.5 m AHD presented in the Floodwise Property Report (refer to Appendix C) originates from the Norman Creek Flood Study “Scenario 3: Filling to the Waterway Corridor (WC) + Minimum Riparian Corridor (MRC)” model results. An extract of this is presented in Figure 4.2 below.

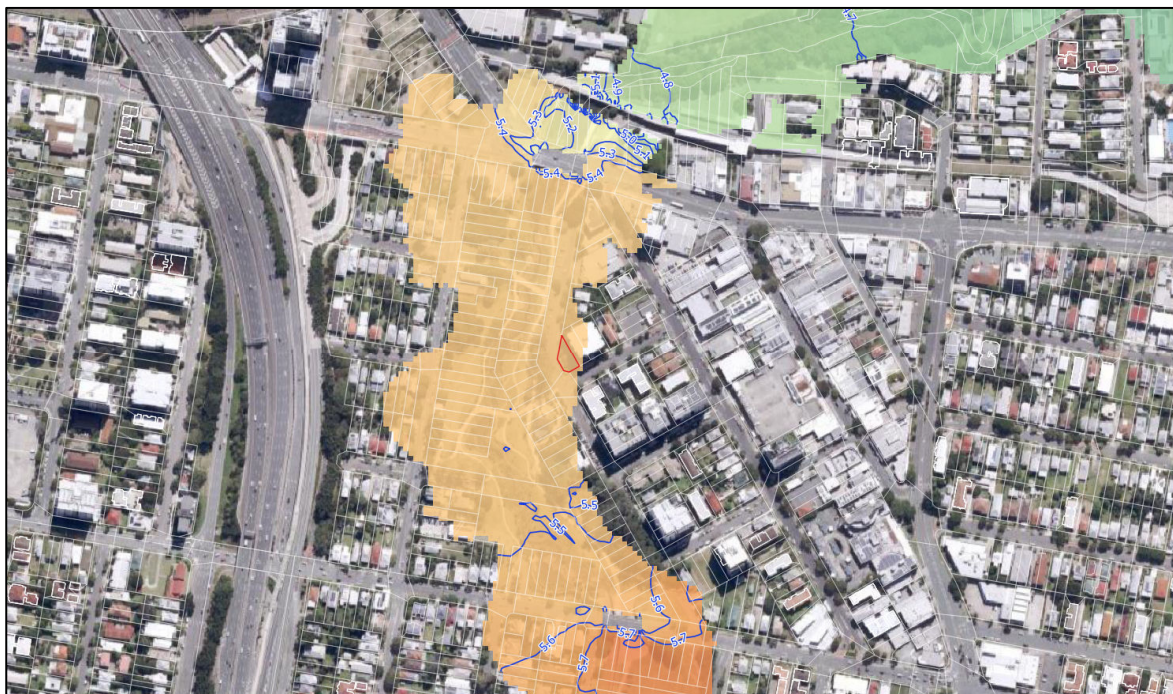


Figure 4.2 – Norman Creek Flood Study Extract (1% AEP S3 Flood Levels, metres AHD)

4.2 Developed TUFLOW Model

A schematic of the developed TUFLOW model is presented in Figure 7, Appendix A. The developed model replicates the existing model and incorporates changes to the site condition based on the proposed development. The single tanked car stacker pit, lift shaft and the section of the new driveway blocking the passage of floodwater were modelled as obstructions using a 2d_z layer. All other model parameters and inputs remain the same as the existing model.

The developed 1% AEP overland flow contours, depths, velocities and velocity-depths are presented in Figures 8a to 8d, Appendix A respectively. An afflux impact plot of the model results is presented in Figure 9, Appendix A. The plot shows that minor inundation level increases would be created within the Regina Street road reserve, as well as in front of the existing dwelling immediately north of the property (26 Lincoln Street). The impacts within the Regina Street road reserve are not anticipated cause any material worsening. The existing dwelling on 26 Lincoln Street is a suspended-floor structure. The impacts shown on the afflux impact plot would not materially worsen the flooding on 26 Lincoln Street.

Safe pedestrian access is provided to persons entering and leaving the site at the new driveway (south-eastern site corner), as flow depths and velocity-depths at this location are less than 600 mm and less than 0.3 m²/s respectively.

4.3 Minimum Design Levels

Minimum design level requirements for the new building are based on Table 8.2.11.3.L and Table 8.2.11.3.D of the Flood Overlay Code. These requirements are summarised in Table 4.1 below.

Table 4.1 – Minimum Design Level Requirements

Floor Use	Minimum Flood Immunity
Residential (habitable)	1% AEP flood level + 500 mm
Residential (non-habitable)	1% AEP flood level + 300 mm
Parking in Building Undercroft	1% AEP flood level
Essential Electrical Services	1% AEP flood level + 500 mm

The governing 1% AEP flood level is 5.5 m AHD, which is the 1% AEP flood level from the Norman Creek Flood Study (Scenario 3). The minimum design levels for the development are presented in Table 4.2 below.

Table 4.2 – Minimum Design Levels

Floor Use	Minimum Design Levels
Residential (habitable)	6.0 m AHD
Residential (non-habitable)	5.8 m AHD
Parking in Building Undercroft	5.5 m AHD
Essential Electrical Services	6.0 m AHD

The proposed finished floor level for the carpark is 5.8 m AHD. This level would provide approximately 1.6m to 2.1m of undercroft clearance. A performance outcome has been addressed for the reduced undercroft clearance. The proposed works would generally maintain the conveyance capacity of the existing creek/waterway. The undercroft area of the proposed works would need to be kept open to provide unimpeded conveyance for floodwaters. Footings and supports should be designed to withstand the hydrostatic, hydrodynamic and debris impact loads for the respective flow depths and velocities presented in this report (refer Figures 8b and 8c), in order to satisfy the QDC MP 3.5.

The property is located in Creek/waterway Flood Planning Areas 2, 3 and 4 sub-categories, which triggers the need to undertake a flood risk assessment in accordance with requirements of the Flood Planning Scheme Policy. A flood risk assessment has been completed for the development and is presented as part of the Flood Overlay Code response in Appendix E.

5.0 CONCLUSIONS

This report has been prepared to assess potential hydraulic impacts and to set minimum design levels for the proposed development on 17 Regina Street, Stones Corner.

TUFLOW model results show that the entire property would be inundated during a 1% AEP flood event. Flow depths reach up to 1.7 m at the northern side of the property. Flow velocities are generally less than 1 m/s throughout the property. Velocity-depth products reach up to 1.5 m²/s at the western side of the property. The model results also show that minor inundation level increases would be created within the Regina Street road reserve, as well as in front of the existing dwelling immediately north of the property (26 Lincoln Street). The impacts within the Regina Street road reserve are not anticipated cause any material worsening. The existing dwelling on 26 Lincoln Street is a suspended-floor structure. The impacts shown on the afflux impact plot would not materially worsen the flooding on 26 Lincoln Street.

Safe pedestrian access is provided to persons entering and leaving the site at the new driveway (south-eastern site corner), as flow depths and velocity-depths at this location are less than 600 mm and less than 0.3 m²/s respectively.

Minimum design level requirements are presented in Section 4.3. A response to Sections B and C of the Flood Overlay Code is presented in Appendix E.



Steve Hughes
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LIST OF APPENDICIES

APPENDIX A – Figures

APPENDIX B – Photographs

APPENDIX C – FloodWise Property Report

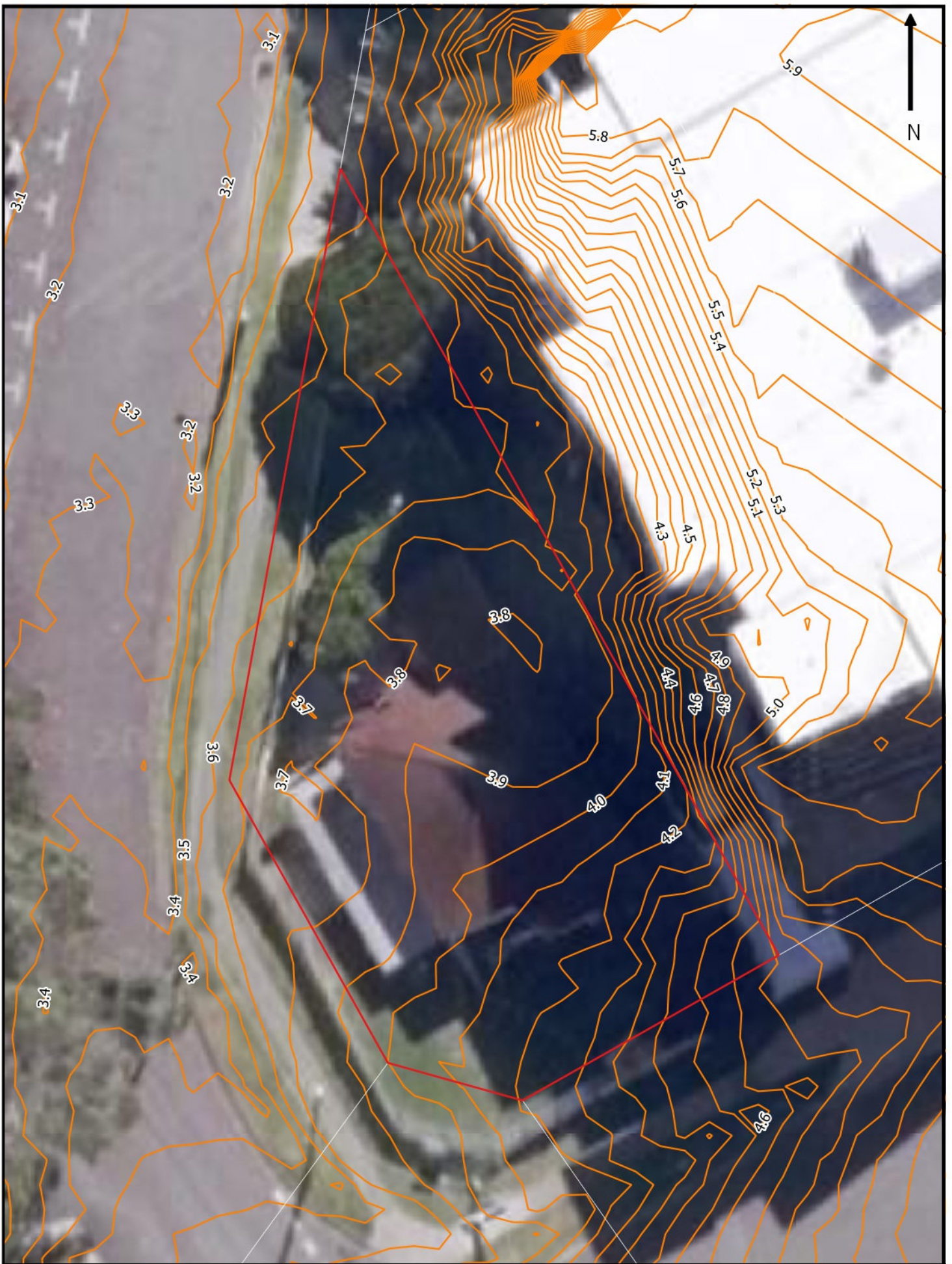
APPENDIX D – URBS Data


APPENDIX E – Flood Overlay Code Assessment

APPENDIX F – Site Survey

APPENDIX A

Figures



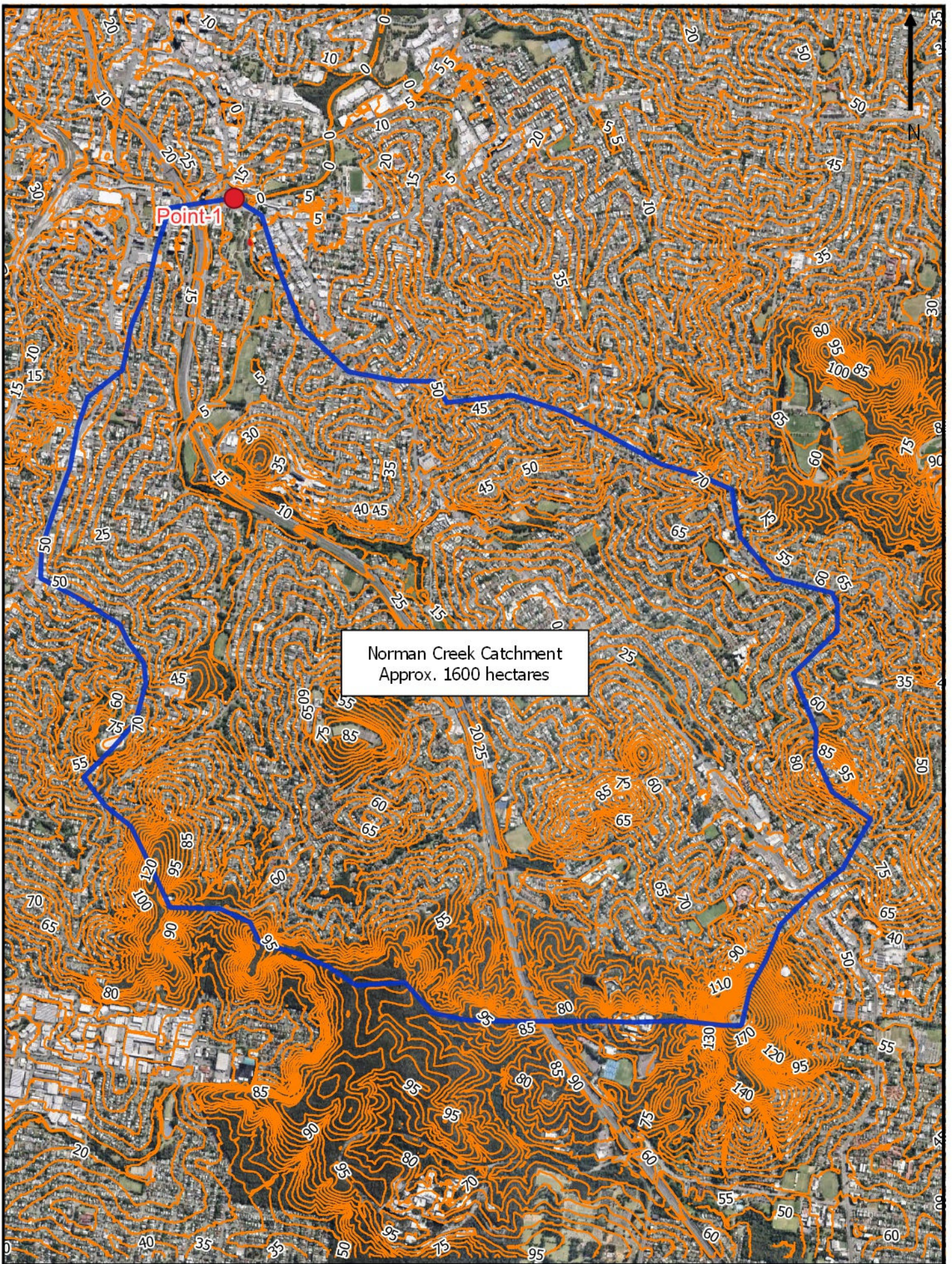
 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 1
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	Existing Site Plan
	Scale	1:200 (A4)			




Legend

- Single Tanked Car Stackter Pit (obstructing flow)
- Lift Well (obstructing flow)
- Section of Driveway (obstructing flow)
- Undercroft Area (not obstructing flow)
- Walls, Deep Planting & Stairs (not obstructing flow)


<p style="font-size: small; margin-top: 5px;">1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992</p>	Drawn	JH	17 Regina Street, Stones Corner	Figure 2	
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	Developed Site Plan (Undercroft)
	Scale	1:200 (A4)			




Norman Creek Catchment
Approx. 1600 hectares

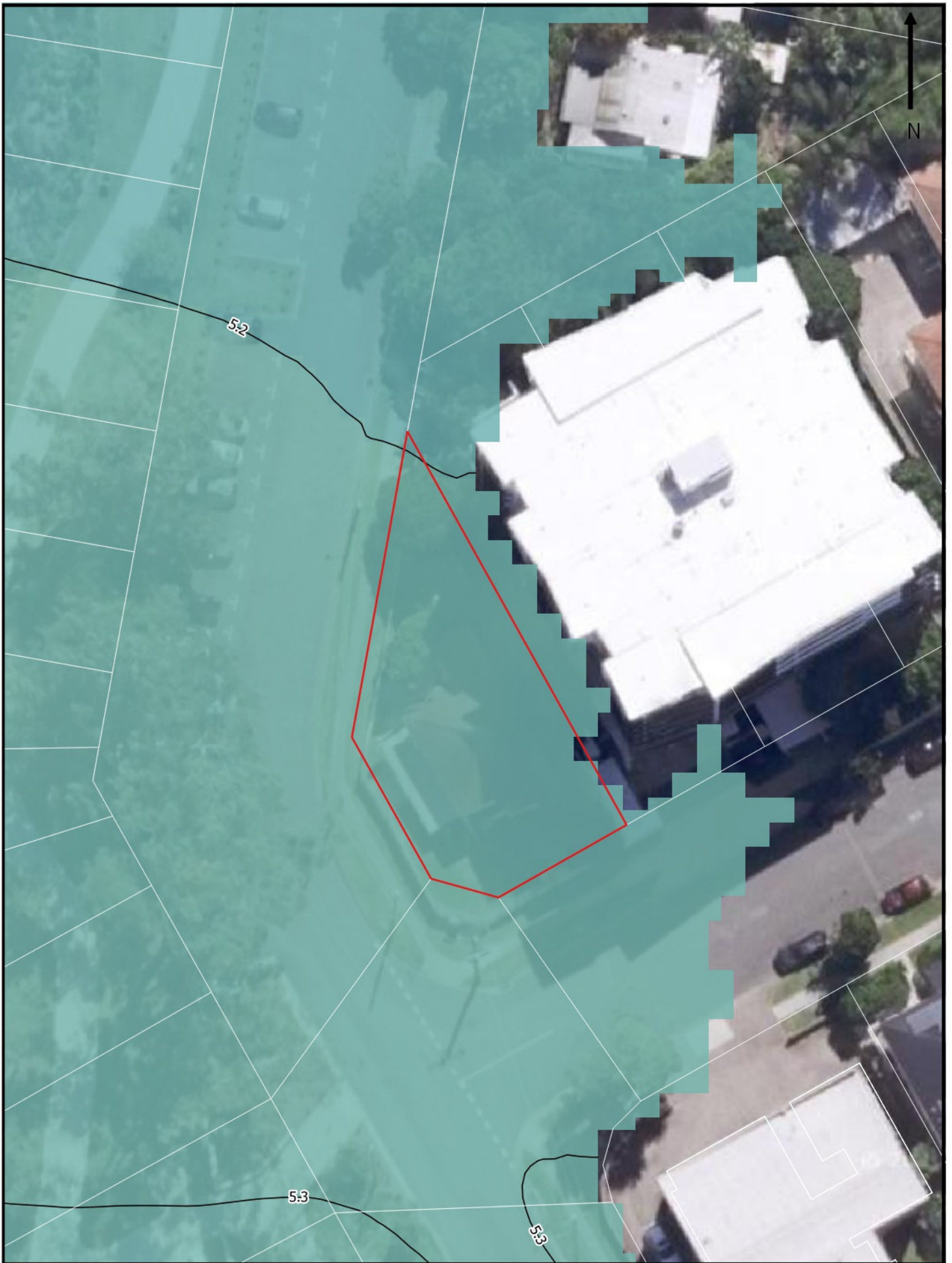
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	Scale	1:30,000 (A4)			Catchment Plan




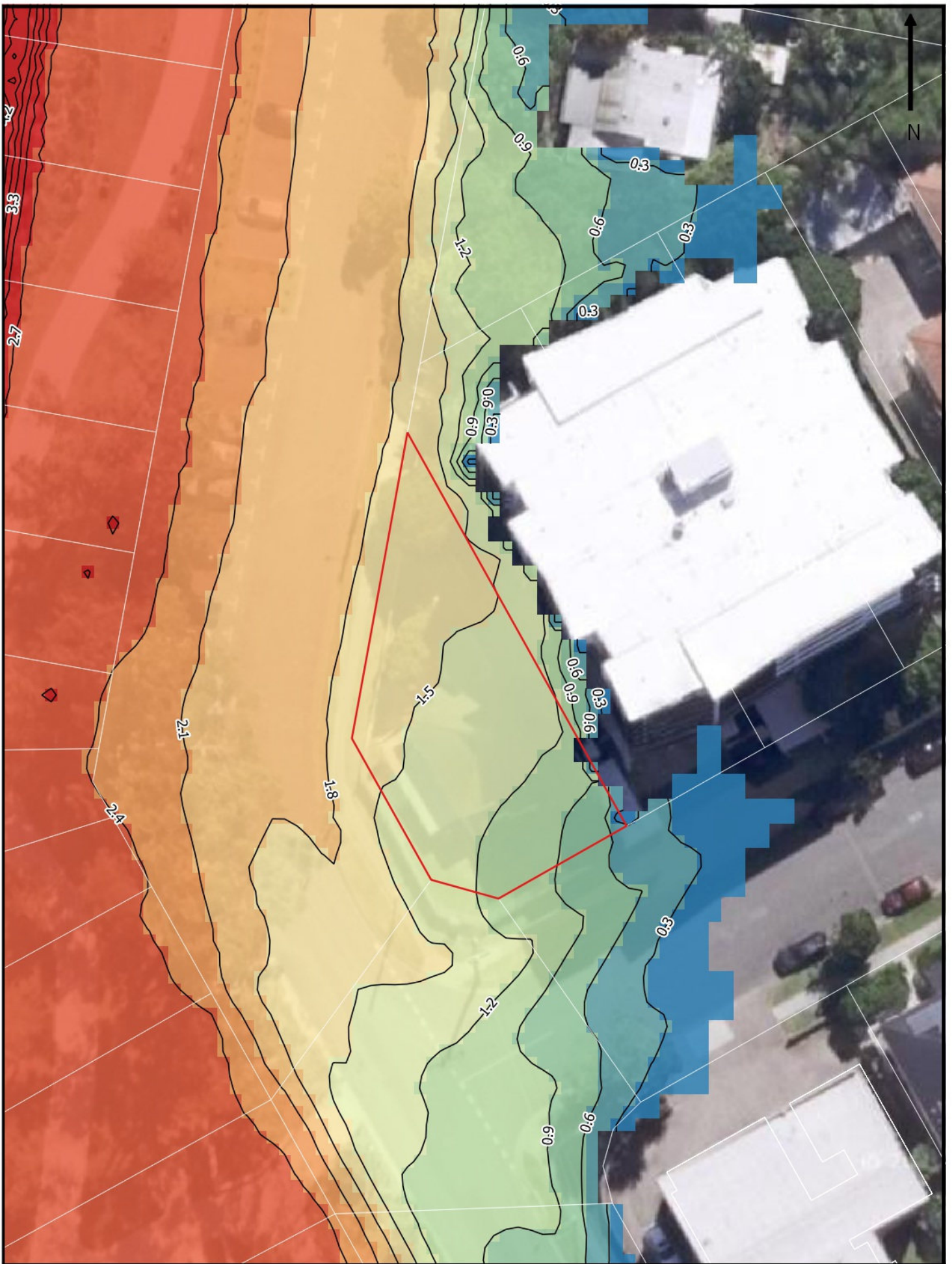
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	Scale	1:30,000 (A4)		




 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 5
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	Date	18/12/24	Job No.	J11015	Existing TUFLOW Model
	Scale	1:4,000 (A4)			




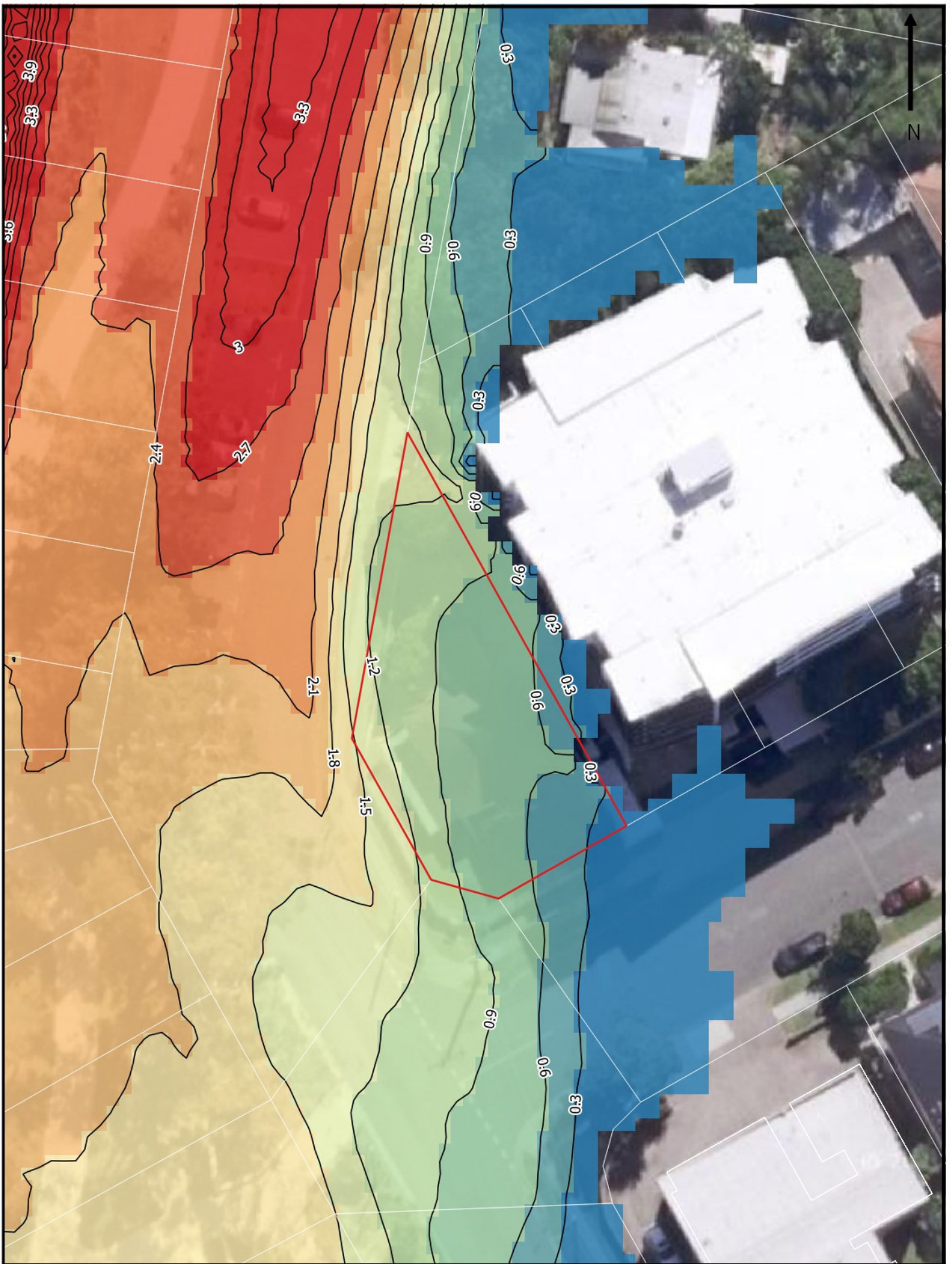
 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 6a
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	
	Scale	1:400 (A4)	Ex 1% AEP Level (m AHD)		




 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 6b
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	Ex 1% AEP Depth (metres)
	Scale	1:400 (A4)			



 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 6c
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	Ex 1% AEP Velocity (m/s)
	Scale	1:400 (A4)			



 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 6d
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	Date	18/12/24	Job No.	J11015	Ex 1% AEP Velocity-Depth (m ² /s)
	Scale	1:400 (A4)			




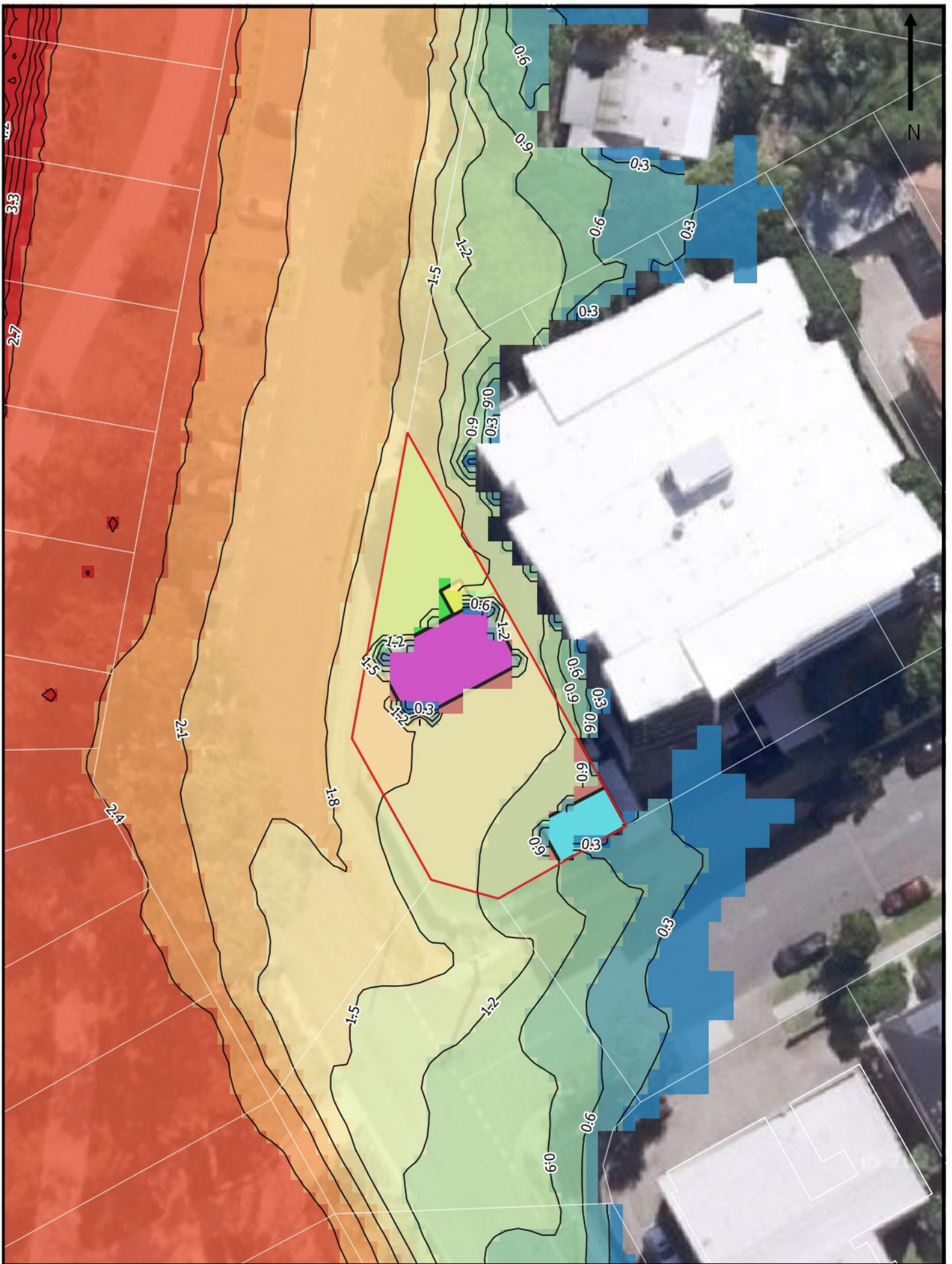
Single Tanked Car Stacker Pit
& Lift Well
Obstruction (2d_z)


Section of Driveway
Obstruction (2d_z)

<p>1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992</p>	Drawn	JH	17 Regina Street, Stones Corner		Figure 7
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	Date	18/12/24	Job No.	J11015	Developed TUFLOW Model
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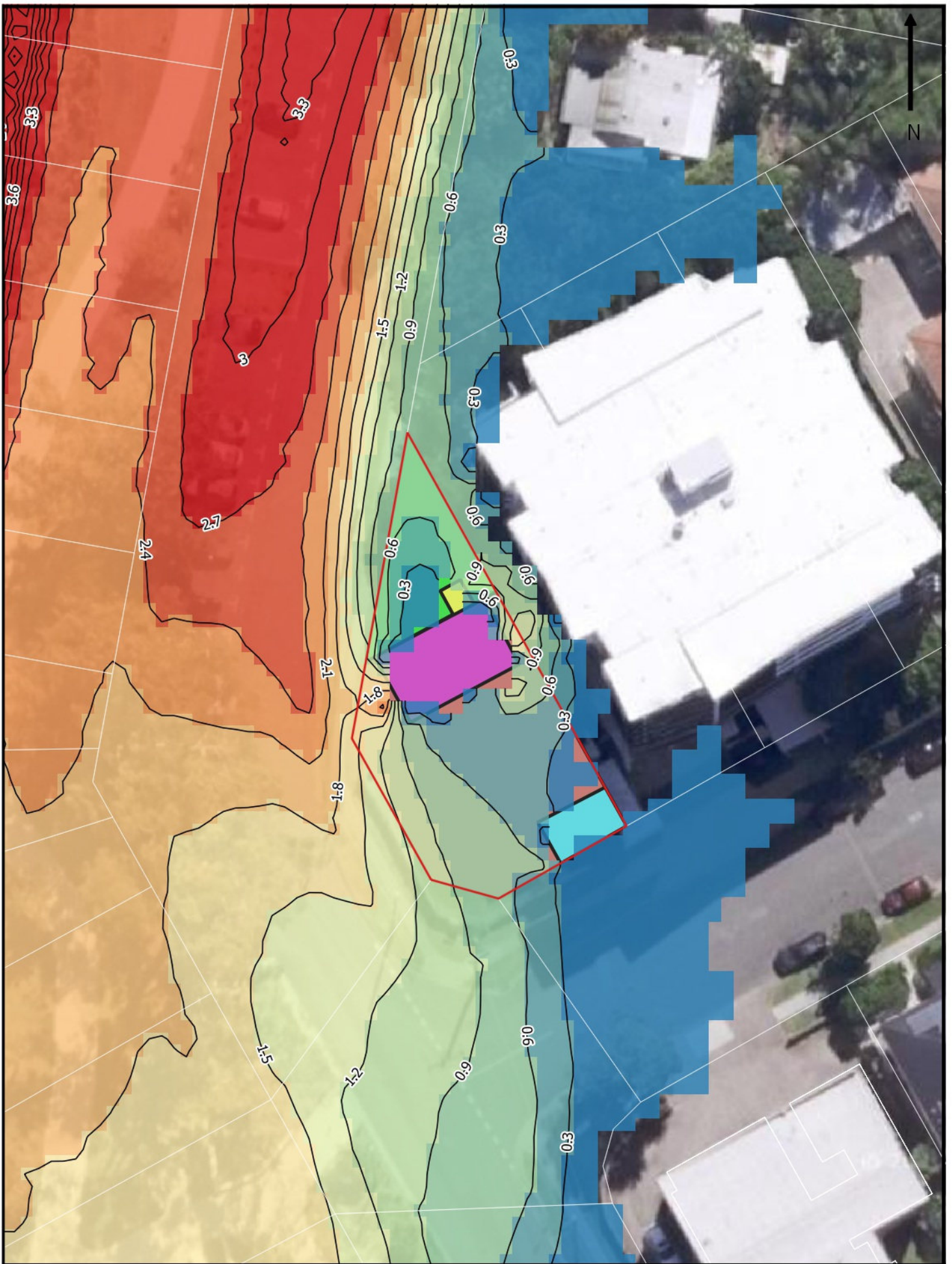
 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 8a
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	Dev 1% AEP Level (m AHD)
	Scale	1:400 (A4)			




 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 8b
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	Scale	1:400 (A4)			



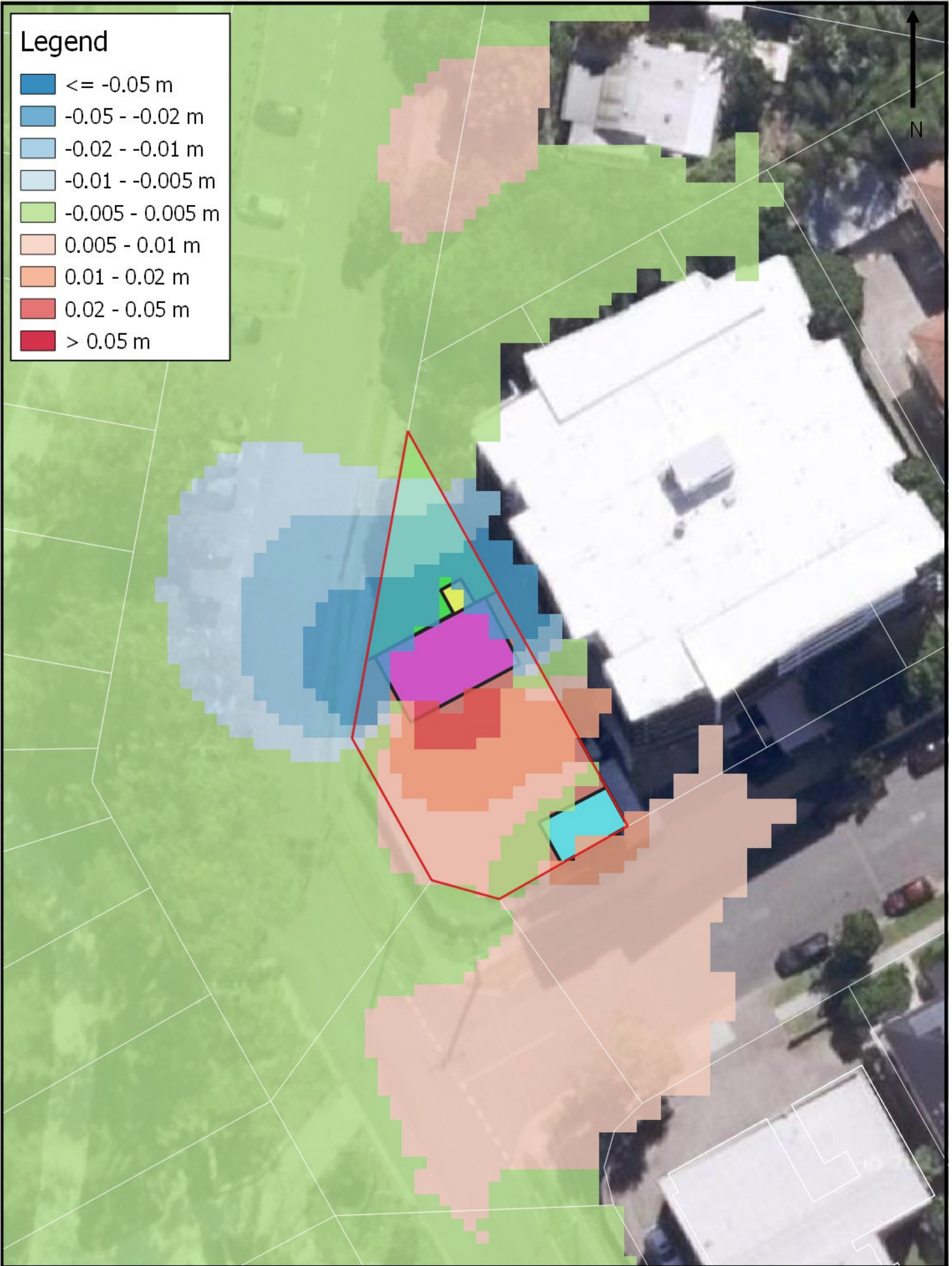
 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 8c
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	Dev 1% AEP Velocity (m/s)
	Scale	1:400 (A4)			



 1/820 Old Cleveland Rd Carina QLD 4152 Phone (07) 3398 4992	Drawn	JH	17 Regina Street, Stones Corner		Figure 8d
	Checked	SNH			
	Date	18/12/24	Job No.	J11015	Dev 1% AEP Velocity-Depth (m ² /s)
	Scale	1:400 (A4)			

Legend

- ≤ -0.05 m
- 0.05 - -0.02 m
- 0.02 - -0.01 m
- 0.01 - -0.005 m
- 0.005 - 0.005 m
- 0.005 - 0.01 m
- 0.01 - 0.02 m
- 0.02 - 0.05 m
- > 0.05 m



STORM
WATER CONSULTING

1/820 Old Cleveland Rd
Carina QLD 4152
Phone (07) 3398 4992

Drawn	JH
Checked	SNH
Date	18/12/24
Scale	1:400 (A4)

17 Regina Street, Stones Corner

Figure 9

Job No. J11015

1% AEP Afflux Impact Plot

APPENDIX B

Photographs



Photograph 1 – Existing site condition (looking north)

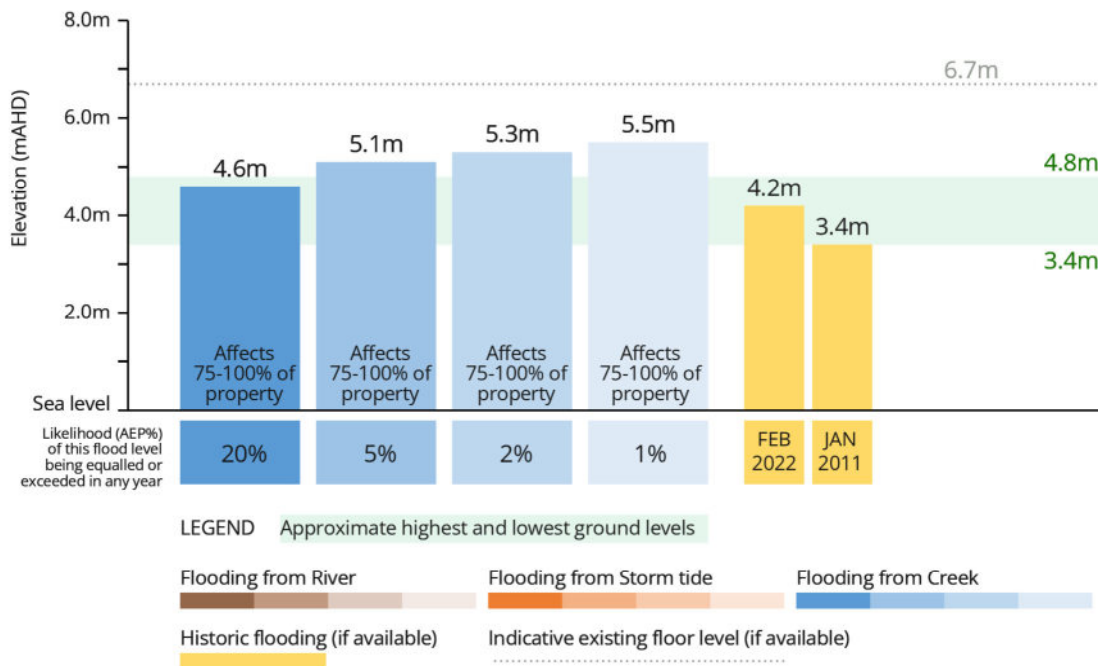
APPENDIX C

FloodWise Property Report

THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

Brisbane City Council's FloodWise Property Report provides technical flood planning information including estimated flood levels, habitable floor level requirements and more. This report uses the adopted flood planning information in Brisbane City Plan 2014, that guides how land in Brisbane is used and developed for the future. Find out more about [planning and building](#). To understand how to be resilient and prepare for floods, visit Council's [Be Prepared](#) webpage. Find more information about [how to read a FloodWise Property Report](#).

Graph showing only the highest source/type of flooding for 1%, 2%, 5% and 20% likelihoods. Also shows historic flood levels. Other flood types and levels may be present and will be listed in the Flood Planning Information table below. This graph does not include overland flow flooding. If applicable, overland flow information is shown in the Planning and Development Information section below.
NOTE: See Useful Definitions section to explain terminology.



Combined 1% AEP for river, creek and storm tide flood extent (if applicable) from the adopted Brisbane City Plan 2014. Read more about [Brisbane City Plan 2014](#).



Are you resilient and ready for flood?

- Sign up to the Brisbane Severe Weather Alert at brisbane.qld.gov.au/beprepared
- Visit bom.gov.au for the latest weather updates.
- Have an evacuation plan, emergency kit and important phone numbers ready.
- Observe where water flows from and to during heavy rain.
- Consider how flood-resilient building techniques will have you home faster and with less damage.

Life threatening emergencies
000 Police/fire/ambulance
(mobiles **000** and **112**)

State Emergency Service (SES) **132 500**
Energex **13 19 62**
Brisbane City Council **3403 8888**

Technical Summary

This section of the FloodWise Property Report contains more detailed flood information for this property so **surveyors, builders, certifiers, architects, and engineers can plan and build** in accordance with Council's planning scheme.

Find more information about [planning and building](#) in Brisbane or talk to a Development Services Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

Property Information Summary

The following table provides a summary of flood information for this property. More detailed flood level information is provided in the following sections of this report.

Property Summary	Level (mAHD) / Comment	Data Quality Code
Minimum ground level	3.4	C
Maximum ground level	4.8	C
Indicative existing floor level	6.7	C
Source of highest flooding	Creek/Waterway	

Flood Planning Information

The table below displays the peak estimated flood levels by probability for this property. Estimated flood level data should be used in conjunction with applicable planning scheme requirements - Refer to Flood Planning and Development Information section below for further information.

Note this table does not include overland flow. If overland flow is applicable to this property, refer to the Flood Planning and Development section below for further information.

Likelihood / Description	Level (mAHD)	Source
20%	4.6	Creek/Waterway (Norman Creek)
5%	5.1	Creek/Waterway (Norman Creek)
2%	5.3	Creek/Waterway (Norman Creek)
1%	3.5	River (Brisbane River)
1%	5.5	Creek/Waterway (Norman Creek)
1%	2.5	Stormtide (Moreton Bay)
0.2%	5.1	River (Brisbane River)
0.2%	5.6	Creek/Waterway (Norman Creek)
February 2022	4.2	River (Brisbane River and Creeks/Waterways)
January 2011	3.4	River (Brisbane River)
Defined Flood Level (DFL)	3.2	River (Brisbane River)
Residential Flood Level (RFL)	3.5	River (Brisbane River)
Minimum Habitable Floor Level (dwelling house)	6	

* Council may not have this data available. Customers are recommended to engage a Registered Professional Engineer of QLD (RPEQ) for further advice. For information on seeking Planning Advice, please visit www.brisbane.qld.gov.au/planning-and-building.

Flood Planning and Development Information

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

Flood overlay code

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the flood planning areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in [Council's planning scheme](#).

Flood planning areas (FPA)		
River	Creek / waterway	Overland flow
FPA5	FPA2	Not Applicable
	FPA3	
	FPA4	

To find more information about Council's flood planning areas (FPAs) for Brisbane River and Creek/waterway flooding to guide future building and development in flood prone areas, please review [Council's Flood Planning Provisions](#).

Coastal hazard overlay code

The Coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new developments. The table below summarises the coastal hazard categories that apply to this property. Development guidelines for the following Coastal hazard overlay sub-categories are explained in Council's [planning scheme](#).

Coastal hazard overlay sub-categories
There are currently no Coastal hazard overlay sub-categories that apply to this property.

Note: Where land is identified within one or more flood planning areas on the Flood overlay or is identified within one of the Storm tide inundation area sub-categories on the Coastal hazard overlay, the assessment criteria that provides the highest level of protection from any source of flooding applies.

Useful Flood Information Definitions

Australian Height Datum (AHD) - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Annual Exceedance Probability (AEP) - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

- **0.2% AEP** - A flood event of this size is considered rare but may still occur. A flood of size or larger has a 1 in 500 chance or a 0.2% probability of occurring in any year.
- **1% AEP** - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.
- **2% AEP** - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.
- **5% AEP** - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.
- **20% AEP** - A flood of this size or larger has a 1 in 5 chance or a 20% probability of occurring in any year.

Data quality

- **Data Quality Code A** - Level data based on recent surveyor report or approved as-constructed drawings.
- **Data Quality Code B** - Level data based on ground-based mobile survey or similar.
- **Data Quality Code C** - Level data derived from Airborne Laser Scanning or LiDAR information.

Defined Flood Level (DFL) - The DFL is used for commercial and industrial development. The Defined flood level (DFL) for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m³/s. DFL is only applicable for non-residential uses affected by Brisbane River flooding.

Flood planning area (FPA) - Council has developed five Flood planning areas (FPAs) as part of Brisbane City Plan 2014 Flood overlay mapping for Brisbane River, Creek/waterway flooding and Overland flow to guide future building and development in flood prone areas. Storm tide flooding is mapped separately. The FPAs are designed to recognise the flood hazard for different flooding types. Flood hazard is a combination of frequency of flooding, the flood depth, and the speed at which the water is travelling. [Find more information here.](#)

Maximum and minimum ground level - Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

Minimum habitable floor level (dwelling house) - The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family, and rumpus rooms) must be constructed as required by the Brisbane City Plan 2014.

Indicative existing floor level - The approximate level in metres AHD of the lowest habitable floor in the existing building (excluding apartments). The data is sourced from a range of sources with varying accuracy levels.

Property - A property will contain 1 or more lots. The multiple lot warning is shown if you have selected a property that contains multiple lots.

Residential flood level (RFL) - This flood level for the Brisbane River equates to the 1% annual exceedance probability (AEP) flood level.

To learn more, visit [Brisbane City Council's Flood Information Hub](#)

Brisbane City Council's Online Flood Tools

Council provides several online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Council's online flood tools for planning and development purposes include:

- **FloodWise Property Report**
- **Flood Overlay Code**

For more information on Council's planning scheme and online flood tools for planning and development:

- phone (07) 3403 8888 and ask to talk to a Development Services Planning Information Officer

- visit brisbane.qld.gov.au/planning-building

Council's Planning Scheme - The Brisbane City Plan 2014 (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

Disclaimer

1. Defined flood levels and residential flood levels, minimum habitable floor levels and indicative existing floor levels are determined from the best available information to Council at the date of issue. These levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property Report. Council disdaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.



Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit brisbane.qld.gov.au/planning-building

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help, with your building and development plans.

APPENDIX D

URBS Data

11015_Ex.DAT – Catchment Parameters

```
"Index", "Area", "UH", "UR", "I"  
#1, 2.20513, 1.00, 0.00, 0.70  
#2, 3.73206, 0.70, 0.30, 0.50  
#3, 4.25776, 1.00, 0.00, 0.70  
#4, 1.64970, 1.00, 0.00, 0.70  
#5, 2.95478, 1.00, 0.00, 0.70  
#6, 1.17869, 1.00, 0.00, 0.70
```

11015_Ex.U – Routing

```
Inflows - Existing  
MODEL: Basic  
USES: L, U  
Default Parameters: alpha=1.20 m=0.8  
Catchment File=11015_Ex.dat  
  
Rain #1 L=0.618  
Route thru #3 L=1.297  
Store.  
Rain #2 L=0.871  
Route thru #3 L=0.573  
Get.  
Route thru #3 L=0.867  
Store.  
Rain #3 L=1.170  
Get.  
Route thru #5 L=0.716  
Store.  
Rain #4 L=0.630  
Route thru #5 L=1.093  
Get.  
Add Rain #5 L=0.757  
Route thru #6 L=0.591  
Add Rain #6 L=0.569  
Print. Point-1  
end of catchment details.
```

APPENDIX E

Flood Overlay Code Assessment

Flood Overlay Code Response

Performance outcomes	Acceptable outcomes	Response
<p>Section B—If self-assessable or assessable development other than for a dwelling house or reconfiguring a lot Note—If self-assessable development complies with the acceptable outcomes of this part, no further assessment against this code is required.</p>		
<p>PO3 Development: (a) is compatible with flood hazard in a defined flood event; (b) minimises the risk to people from flood hazard; (c) does not reduce the ability of evacuation resources including emergency services to access and evacuate the site in a flood emergency, with consideration to the scale of the development; (d) minimises impacts on property from flooding; (e) minimises disruption to residents, business or site operations and recovery time due to flooding; (f) minimises the need to rebuild structures after a flood event greater than the defined flood event. Note—Where Table 8.2.11.3.C identifies that a flood risk assessment is required, compliance with this performance outcome can be achieved by submitting a flood risk assessment, which may be included within a flood study, addressing the criteria within this performance solution. Preparing flood risk assessments and flood studies is required to be in accordance with the Flood planning scheme policy. Note—An emergency management plan prepared in accordance with the Flood planning scheme policy, which sets out procedures for evacuation due to flooding may be used to demonstrate compliance with this performance outcome.</p>	<p>AO3 Development for a material change of use complies with Table 8.2.11.3.C.</p>	<p>PO3 addressed Requirements in Table 8.2.11.3.C indicate that a flood risk assessment is required. A flood risk assessment is appended to the back of this document. The flood hazard is compatible with the proposed land use.</p>
<p>PO4 Development for a park ensures that the design of</p>	<p>AO4.1 Development involving a building or structure in</p>	<p>N/A</p>

<p>a park and location of structures and facilities responds to the flood hazard and balances the safety of intended users with:</p> <ul style="list-style-type: none"> (a) maintaining continuity of operations; (b) impacts of flooding on asset life and ongoing maintenance costs; (c) efficient recovery after flood events; (d) recreational benefits to the city; (e) availability of suitable land within the park. 	<p>a park complies with the flood planning levels specified in Table 8.2.11.3.D.</p>	
	<p>AO4.2 Development involving a building or structure where Table 8.2.11.3.D does not apply: (a) is not located within the 20% AEP flood extent of any creek/waterway or overland flow path; or (b) is located above the 20% AEP flood level of any creek/waterway or overland flow path.</p>	<p>N/A</p>
<p>Section C—If for assessable development other than for a dwelling house</p>		
<p>PO5 Development is located and designed to:</p> <ul style="list-style-type: none"> (a) minimise the risk to people from flood hazard on the site; (b) minimise flood damage to the development and contents of buildings up to the defined flood event; (c) provide suitable amenity; (d) minimise disruption to residents, recovery time and the need to rebuild structures after a flood event up to and including the defined flood event. 	<p>AO5.1 Development complies with the flood planning levels specified in Table 8.2.11.3.D. Note—If located in an area with no Council-derived flood levels such as an overland flow path, a Registered Professional Engineer Queensland with expertise in undertaking flood studies is to derive the applicable flood level and certify that the development meets the required flood planning levels in Table 8.2.11.3.D. The study is to demonstrate that the development and engineering design methods conform to the principles within the Flood planning scheme policy and the Infrastructure design planning scheme policy.</p>	<p>AO5.1 addressed Development complies with the flood planning levels specified in Table 8.2.11.3.D.</p>
	<p>AO5.2 Development is: (a) not located in the: (i) Brisbane River flood planning area 1, 2a, or 2b sub-categories; (ii) Creek/waterway flood planning area 1 or 2 sub-categories; (iii) Overland flow flood planning area sub-category; or (b) only located in these sub-categories if</p>	<p>AO5.2 addressed The development design, siting and any mitigation measures are required to ensure that the development is structurally adequate to resist hydrostatic, hydrodynamic and debris impact loads associated with flooding up to the defined flood event. The risk to people will also be managed to an acceptable level.</p>

	<p>a Registered Professional Engineer Queensland with expertise in undertaking flood studies certifies that:</p> <p>(i) the development design, siting and any mitigation measures will ensure the development is structurally adequate to resist hydrostatic, hydrodynamic and debris impact loads associated with flooding up to the defined flood event; and</p> <p>(ii) the risk to people is managed to an acceptable level.</p>	
<p>PO6 Development involving essential electrical services or a basement storage area is suitably located and designed to ensure public safety and minimise flood recovery and economic consequences of damage during a flood.</p>	<p>AO6.1 Development ensures that: (a) all areas containing essential electrical services comply with the flood planning levels in Table 8.2.11.3.D; or (b) if a basement contains essential electrical services or a private basement storage area, the basement is a waterproof structure with walls and floors impermeable to the passage of water with all entry points and services located at or above the relevant flood planning level in Table 8.2.11.3.D.</p> <p>Note—A basement storage area does not include a bike storage room, change room, building maintenance storage and non-critical electrical services.</p>	<p>AO6.1 addressed All areas containing essential electrical services are to be above 6.0 m AHD to comply with the flood planning levels in Table 8.2.11.3.D.</p>
	<p>AO6.2 Development involving a basement that relies on a pumping solution to manage floodwater ingress or for dewatering after a flood provides a redundant pump system with a backup power source for those pumps.</p>	<p>N/A</p>
<p>PO7 Development does not directly or indirectly create a material adverse impact on flood behaviour or</p>	<p>AO7.1 Development: (a) does not block, or divert floodwaters for any</p>	<p>AO7.1 addressed The development would not result in a material increase in flood level or hydraulic hazard on</p>

drainage on properties that are upstream, downstream or adjacent to the development.	<p>area affected by creek/waterway or overland flow flooding, excluding storm-tide flooding and Brisbane River flooding sources; or</p> <p>b) does not result in a material increase in flood level or hydraulic hazard on upstream, downstream or adjacent properties.</p> <p>Note—Compliance with this acceptable solution can be demonstrated by the submission of a flood study by a Registered Professional Engineer of Queensland with expertise in undertaking flood studies demonstrating that the development and engineering design methods conform to the principles within the Flood planning scheme policy and the Infrastructure design planning scheme policy.</p>	upstream, downstream or adjacent properties.
	<p>A07.2 Development retains existing overland flow paths and does not rely wholly on piped solutions to manage major flows.</p>	A07.2 addressed Existing overland flow paths are retained
	<p>A07.3 Development which creates a new overland flow path or significantly modifies an existing overland flow path via earthworks does not materially worsen hydraulic hazard on the site from existing conditions.</p> <p>Note—Compliance with this acceptable solution can be demonstrated by the submission of a flood study by a Registered Professional Engineer of Queensland with expertise in undertaking flood studies demonstrating that the development and engineering design methods conform to the principles within the Flood planning scheme policy and the Infrastructure design planning scheme policy.</p>	A07.3 New overland flow paths are not created. Development would not significantly modify an existing overland flow path.
<p>PO8 Development for filling or excavation in an area</p>	<p>AO8 Development ensures that no filling or</p>	PO8 addressed The development would not result in a cumulative

<p>affected by creek/waterway flooding does not directly, indirectly or cumulatively cause any material increase in flooding or hydraulic hazard or involve significant redistribution of flood storage from high to lower areas in the floodplain. Note—This can be demonstrated by undertaking earthworks in compliance with the Compensatory earthworks planning scheme policy.</p> <p>Note—This part of the code applies to all development other than a dwelling house and any secondary dwelling which involves filling or excavation, whether or not the development application comprises a separate development application for operational work involving filling or excavation.</p>	<p>excavation greater than 100mm is located in the Creek/waterway flood planning area 1, 2 or 3 sub-categories if contained in the 5% AEP flood extent of any Creek/waterway flood planning area sub-category for which no waterway corridor has been mapped in the Waterway corridors overlay.</p>	<p>material increase in flood level or hydraulic hazard on upstream, downstream or adjacent properties.</p>
<p>PO9 Development ensures that the building and site design:</p> <p>(a) maintains the conveyance capacity of existing overland flow paths and creek/waterways;</p> <p>(b) ensures floodwaters and flood debris can pass predominantly unimpeded under a structure or building to minimise property or building damage, including for a flood larger than the defined flood event;</p> <p>(c) mitigates flood impacts by ensuring that filling, excavation and location of services are designed to allow for the conveyance of floodwater across the site.</p> <p>Note—The Flood planning scheme policy provides guidance on relevant considerations in determining minimum undercroft clearances and treatment of ground level in undercroft areas where floodwater conveyance is required underneath development.</p>	<p>AO9.1 Development involving a building undercroft in the Creek/waterway flood planning area sub-categories or the Overland flow flood planning area sub-category:</p> <p>(a) complies with the minimum building undercroft clearance requirements in Table 8.2.11.3.E;</p> <p>(b) not located directly above any part of a waterway corridor as mapped in the Waterway corridors overlay.</p> <p>AO9.2 Development involving a building undercroft in the Creek/waterway flood planning area sub-categories or the Overland flow flood planning area sub category:</p> <p>(a) has a ground level within the undercroft area is free draining;</p> <p>(b) does not involve excavation below ground level of more than 300mm within the undercroft area.</p>	<p>PO9 addressed</p> <p>(a) Conveyance capacity of the existing creek is maintained by constructing the suspended-slab carpark at the FFL of 5.8 m AHD.</p> <p>(b) & (c) The proposed works would not result in a material increase in flood level or hydraulic hazard on upstream, downstream or adjacent properties. The property is located along the fringes of inundation. The proposed design generally provides unimpeded conveyance up to the defined flood level.</p>

<p>PO10 Development for vulnerable uses, difficult to evacuate uses or assembly uses optimises vehicular access and efficient evacuation from the development to parts of the road network unaffected by flood hazard, in order to:</p> <p>(a) protect safety of users and emergency services personnel;</p> <p>(b) support efficient emergency services access and site evacuation with consideration to the scale of development.</p> <p>Note—A flood risk assessment may be required to address the performance outcomes or acceptable solutions which deal with evacuation and isolation arrangements, and the ability to take refuge. The Flood planning scheme policy provides information for undertaking flood risk assessments.</p>	<p>AO10 Development for vulnerable uses, difficult to evacuate uses or assembly uses:</p> <p>(a) is not isolated in any event up to the relevant flood planning level specified in Table 8.2.11.3.L;</p> <p>or</p> <p>(b) has direct vehicle access to a critical route or interim critical route in the Critical infrastructure and movement network overlay for evacuation in a flood; or</p> <p>(c) can achieve vehicular evacuation to a suitable flood-free location.</p> <p>Note—A suitable flood-free location is of a size and nature sufficient to provide for the size and characteristics of the population likely to need evacuation to that area.</p>	<p>N/A</p>
<p>PO11 Development has access which, having regard to hydraulic hazard, provides for safe vehicular and pedestrian movement and emergency services access to adjoining roads.</p>	<p>AO11.1 Development provides an access or driveway into the site which is:</p> <p>(a) trafficable during the defined flood event;</p> <p>(b) not located in the Creek/waterway flood planning area 1 sub-category;</p> <p>(c) not located in the Overland flow flood planning area sub-category if the hydraulic hazard is unsafe in the defined flood event;</p> <p>(d) the access or driveway is not inundated by a 10% AEP flood.</p> <p>AO11.2 Development located in the Creek/waterway flood planning area 1, 2, 3 or 4 sub-categories locates any disabled access in the highest part of the site.</p> <p>Note—explanation of hydraulic hazard provided</p>	<p>PO11 addressed</p> <p>The access into the site is provided at the highest part of the block. The access would be inundated by approximately 300mm to 900mm of water during a defined flood event. However, the location of the access is a very short distance to safe non-inundated ground (1 property away, towards the east along Regina Street).</p> <p>The maximum velocity-depth product at the access driveway would be less than 0.3 m²/s, which is considered safe (less than 0.6 m²/s)</p> <p>Emergency services are also able to access the site from the same location. It is therefore considered that the development's access is as safe as can be achieved.</p>

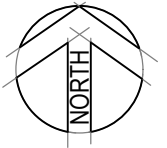
	in the Flood planning scheme policy .	
PO12 Development involving a new road, a bridge or culvert is designed to minimise impacts to flood behaviour, minimise disruption to traffic during a flood and allow for emergency access.	AO12 Development involving a new road complies with the flood planning levels in Table 8.2.11.3.F .	N/A
PO13 Development for pedestrian and cyclist paths: (a) provides a suitable level of trafficability; (b) manages the impacts of flooding on asset life and ongoing maintenance costs; (c) balances route availability with recreational and transport connectivity benefits to the city.	AO13.1 Development for cyclist and pedestrian facilities other than on public roads, including those traversing through a park and adjacent to a watercourse and overland flow path, are located above the 39% AEP (2 year ARI) flood immunity from all flooding sources. Note—If the site is subject to more than one type of flooding, the requirement that affords the greatest level of protection will apply.	N/A
	AO13.2 All new on-road cyclist and pedestrian facilities comply with the flood planning levels and trafficability standards for the applicable category of road in Table 8.2.11.3.F or Table 8.2.11.3.K .	N/A
PO14 Development which increases the residential population within the Brisbane River flood planning area sub-categories minimises the risk to people in all flood events with consideration to flood hazard, including warning time.	AO14 Development in the Brisbane River flood planning area sub-categories in areas where the residential flood level is greater than 12.8m AHD involving: (a) an increase in the number of residential dwellings; or (b) additional residential lots; or (c) is not subject to an unsafe hydraulic hazard in the 0.2% AEP flood event. Note—Explanation of a hydraulic hazard is provided in the Flood planning scheme policy .	N/A

Flood Risk Assessment

Flood Risk Issue	Flood Risk Assessment
Number of people likely to be at risk	Unable to be determined at this stage
Hazard in larger floods	Very low, as the evacuation route is in close proximity to the site. Adequate freeboard has been provided to cater to larger floods.
Flood warning time	Creek flooding typically have a number of hours of warning time. As the site is located along the fringes of the inundation, the flooding is not anticipated to impact on evacuation times.
Evacuation routes	Evacuation route via Regina Street toward the North-East
Isolation – potential for evacuation route to be cut off early	Evacuation route is unlikely to be cut off early
Special care uses	Not applicable to development
Burden placed on emergency services	Development would be unlikely to rely on emergency services for evacuation
Special care at evacuation destinations	Not applicable to development
Length of flood recovery and social & economic impacts	The site is located on the fringes of inundation and the development incorporates adequate freeboard above the defined flood level. As such, the length of recovery would be short and there would not be social/economic impacts.
Hazardous goods and environmental impacts	Not applicable to development
Flood-resilient design	The floors will have adequate freeboard above the flood level.
Impacts of increased rainfall intensities	Floor levels will have adequate freeboard above 1% AEP to cater for potential increases in rainfall intensities in the future. The proposed finished floor level of the car park will be 300 mm above the 1% AEP flood level of 5.5 m AHD.
Overland flow severe storm impact assessment	Not applicable to development

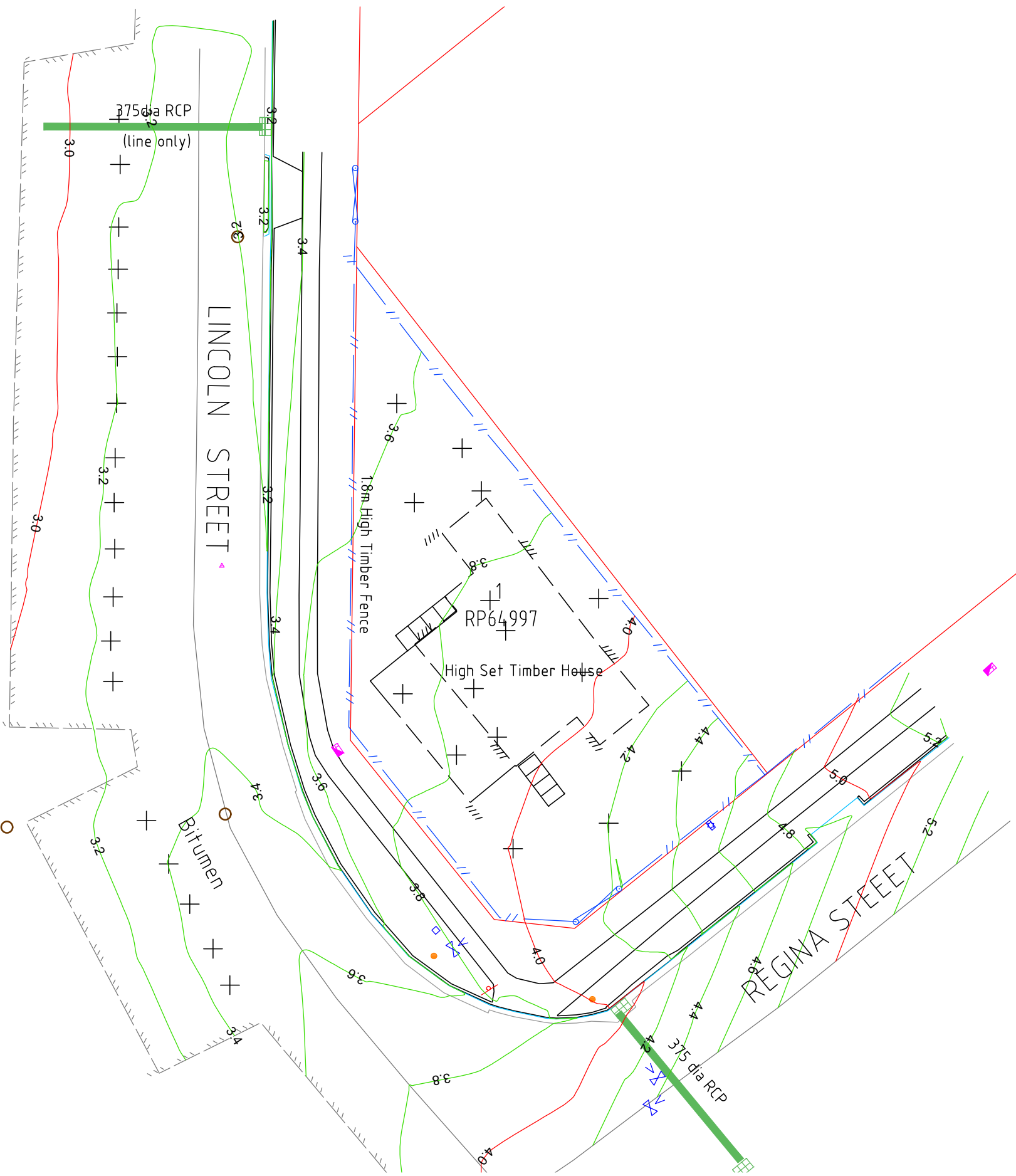
APPENDIX F

Site Survey



LEGEND

- TRAFFIC SIGN
- KERB BACK
- KERB TOP
- KERB INV
- SPOT LEVEL
- DRIVEWAY
- CROWN OF ROAD
- CHANGE OF GRADE
- KERB LIP
- PAVEMENT MARKING
- ELECTRICITY POLE
- WATER METER
- WATER FIRE HYDRANT
- WATER VALVE
- WATER LOCATED
- STORMWATER MANHOLE
- STORMWATER GULLY PIT
- STORMWATER PIPE
- SEWER MANHOLE
- SEWER PIPE
- BOLLARD
- FENCE GATE
- FENCE LINE
- FLOOR LEVEL
- BUILD LINE
- BUILD DOOR
- BUILD RETAIN
- BUILD AWNING
- TELECOM PIT
- TELECOM LOCATED
- TELECOM OPTIC FIBRE
- ELECTRICITY MANHOLE
- ELECTRICITY CHAMBER
- ELECTRICITY PIT
- ELECTRICITY LOCATED
- TREE



IMPORTANT NOTE

This plan is prepared for the client from a combination of field survey and existing records for the purpose of as constructed records on the land and should not be used for any other purpose. The title boundaries shown hereon were not marked by the author at the time of survey and have been determined from minimal survey connections to existing cadastral reference marks. Title boundaries shown are deed dimensions from registered plans, and as such are approximate only.

The placement and measurement of ground marks related to this information was completed on 31/03/2019. Set-out dimensions of all grid lines, control lines, recovery marks and bench marks should be verified and confirmed against the latest information prior to commencement by any person using this plan for building purposes. MSS accepts no responsibility for disturbance to any marks or for any additional marks placed by others. Any discrepancies should be clarified in writing prior to commencement of the work.

Services shown hereon have been located where possible by field survey. If not able to be so located, known services have been plotted from the records of relevant authorities where available and have been noted accordingly on this plan. Where such records either do not exist or are considered inadequate, a notation has been made hereon. Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

This note is an integral part of this plan.

**BCC DS
RECEIVED**
 12/06/2025
APPLICATION REF
 A006130292

Rev.	Date	Description	Des.	Verif.	Appd.
1	04/04/2015	Original Issue			JMC

CO-ORDINATE DATUM: PM145884 (Min)	LEVEL DATUM: AHD (d)
ORIGIN OF CO-ORDINATES: 504241.458 6958376.371	AS DETERMINED BY: PM145884
	LEVEL VALUE USED: RL 4.626m
	MERIDIAN DATUM: IS252783



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Drawn: J.MCKAY	Date: 04/04/2019
Checked: R.LOUW	Date: 03/04/2019
Surveyed: J.MCKAY	Date: 31/03/2019
Verified:	Date:
Approved:	Date:

Client: REGINA STREET TRUST
Project: 17 REGINA STREET, STONES CORNER, QLD 4120
Title: CONTOUR AND DETAIL SURVEY

Status: AS SURVEYED			
SHEET: 1 of 1	Scale: 1:250	Size: A3	
Drawing Number: 1909-DET-01	Revision: 1		