

Enquiries: Jacques Janse van Rensburg
Direct Phone: 07 5433 2259
Our Ref: DA/2022/4535
Your Ref: 21-0359
Date: 24 August 2023

Foreverlen Pty Ltd
c/- Colliers International Engineering & Design P/L
PO Box 1344
BUDDINA QLD 4575

Dear Applicant

Re: DEVELOPMENT APPROVAL

Planning Act 2016

Development Application No.: DA/2022/4535

Property Location:

**403 Caboolture River Road UPPER CABOOLTURE
393 Caboolture River Road UPPER CABOOLTURE
409-423 Caboolture River Road LILYWOOD**

Property Description:

**Lot 34 RP 115959
Lot 35 RP 115959
Lot 12 RP 866105**

Please be advised that on 23 August 2023 the above development application was approved by Council's Delegate as the Assessment Manager in accordance with section 64 of the *Planning Act 2016* subject to conditions.

The following type of approval has been issued:

- Reconfiguring a Lot - Development Permit for Subdivision (3 into 49 lots and 1 balance lot)

The development allowed by this approval must be carried out in accordance with the attached Decision package.

In addition to this approval you may also be required to obtain a water approval from Unity Water.

Attached is an extract from the *Planning Act 2016* which details your appeal rights and the appeal rights of any submitters, if applicable, regarding this decision.

Should you have any further queries in relation to this decision, please contact Jacques Janse van Rensburg as referenced above.

Yours faithfully



Luke Ritchie
Principal Planner
Development Services

Enclosures: Attachment 1 - Decision Notice
Attachment 2 - Assessment Manager Conditions
Attachment 3 - Approved Plans/ Documents
Attachment 4 - Infrastructure Charges Notice
Attachment 5 - Appeal Rights
Attachment 6 - Referral Agency Response

Cc: Energex
GPO Box 1461
BRISBANE QLD 4001
townplanning@energex.com.au

ATTACHMENT 1

Decision Notice

Decision Notice

Planning Act 2016, section 63

APPLICATION DETAILS

Application No:	DA/2022/4535
Applicant:	Foreverlen Pty Ltd
Street Address:	393 Caboolture River Road UPPER CABOOLTURE 403 Caboolture River Road UPPER CABOOLTURE 409-423 Caboolture River Road LILYWOOD Lot 34 RP 115959
Real Property Description:	Lot 35 RP 115959 Lot 12 RP 866105
Planning Scheme:	Moreton Bay Regional Council Planning Scheme

APPROVAL DETAILS

Date of Decision: 23-Aug-2023

The development application was approved by Council's Delegate as the Assessment Manager in accordance with section 64 of the *Planning Act 2016* subject to conditions (refer Attachment 2).

APPROVAL TYPE	Development Permit	Preliminary Approval
Reconfiguring a Lot for Subdivision (3 into 49 lots and 1 balance lot)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

OTHER NECESSARY PERMITS

Listed below are other permit/s that are necessary to allow the development to be carried out:

- Operational Works – Development Permit.

CURRENCY PERIOD OF APPROVAL

In accordance with section 85 of the *Planning Act 2016*, the currency period for each aspect of the development approval is as outlined below:

- Reconfiguring a Lot – 4 years from the date this approval starts to have effect.

INFRASTRUCTURE

Unless otherwise specified, all assessment manager conditions of this development approval relating to the provision of infrastructure are non-trunk infrastructure conditions under Chapter 4, section 145 of the *Planning Act 2016*.

Schedules 2 of *Infrastructure Agreement Caboolture West - Neighbourhood Development Precinct 1 (Foreverlen Pty Ltd)* and *Infrastructure Agreement Caboolture West - Neighbourhood*

Development Precinct 1 (Combined NDP1 Developers) provides an alternative arrangement whereby if the specified infrastructure is delivered, Infrastructure Charges do not apply to this development approval.

ASSESSMENT MANAGER CONDITIONS

The conditions relevant to this development approval are listed in Attachment 2 of the Decision package.

APPROVED PLANS / DOCUMENTS

The approved plans and/or documents as listed below for this development approval are included in Attachment 3 of the Decision package.

Approved Plans and Documents			
Plan / Document Name	Reference Number	Prepared By	Dated
Caboolture West - DAA05 Reconfiguration of a Lot	ND1577 DAA05-01 Rev. 7	Urbis	26/05/2023
Caboolture West - DAA05 Plan of Development	DA1577 DAA05-02 Rev. 7	Urbis	26/05/2023
Caboolture West - DAA05 Road Hierarchy Plan	DA1577 DAA05-03 Rev. 7	Urbis	26/05/2023
Caboolture West - DAA05 Connectivity Plan	DA1577 DAA05-04 Rev. 7	Urbis	26/05/2023
Caboolture West Lot 12/RP866105 Amalgamation	ND1577 CW-01 Rev. 2	Urbis	22/02/2023
Assessment and Control of Road Traffic Noise Intrusion Report	21-1305.R06	Acoustics RB Pty Ltd	28/10/2022
Ecological Assessment Report	Ref. 11071 E	SHG	2 Nov 2022
Stormwater Management Plan - Caboolture West - Foreverlen Stage 1C	16-002108-SWMP-02A	Calibre Professional Services Pty Ltd	22/11/2022

Plans to be Amended

Plan / Document Name	Reference Number	Prepared By	Dated
Landscape Master Plan - Stage 23	V3	Aecom	07/08/2023

ASSESSMENT BENCHMARKS

The Assessment Benchmarks that applied to the development from the following Categorising Instruments include;

Categorising Instrument (*Planning Regulation 2017*)

State Planning Policy

- *State Planning Policy 2017, Part E*

Regional Plan

- *South East Queensland Regional Plan 2017 (ShapingSEQ)*

Schedule 10 of the Regulation

- Not Applicable

Local Categorising Instrument (*Moreton Bay Regional Council Planning Scheme - Version 5*)

- Caboolture West local plan code - Urban living precinct (Overall Outcomes only)
- Caboolture West local plan code Reconfiguring a Lot Code
 - Urban living precinct
 - Green network precinct
- Flood hazard overlay code
Reconfiguring a lot code - General residential zone: Suburban neighbourhood precinct.

Local Categorising Instrument (Variation Approval)

Not applicable.

Local Categorising Instrument (Temporary Local Planning Instrument)

Not applicable.

REASONS FOR DECISION

Subject to development conditions being imposed (refer Attachment 2), the development can comply with the applicable Assessment Benchmarks against which the application was required to be assessed. For further details, refer to the Reasons for the Decision section of the Assessment Report which is available on Council's website (via *DA Tracker*) <https://www.moretonbay.qld.gov.au/Services/Building-Development/DA-Tracker> using the application number referenced in this Notice.

REFERRAL AGENCY CONDITIONS

The following Referral Agencies are relevant to the application:

Referral Trigger	Name and Address of Agency	Status
Schedule 10, Part 9, Division 2, Table 1 Reconfiguring a lot subject to an easement or near a substation site	Energex Energex GPO Box 1461 BRISBANE QLD 4001 townplanning@energex.com.au	Advice Agency

Refer to the Referral Agency Response(s) in Attachment 6 of the Decision package for details of any conditions imposed by a Referral Agency.

APPEAL RIGHTS

Attachment 5 of the Decision package is an extract from the *Planning Act 2016* which details your appeal rights and the appeal rights of any submitters, if applicable, regarding this decision.

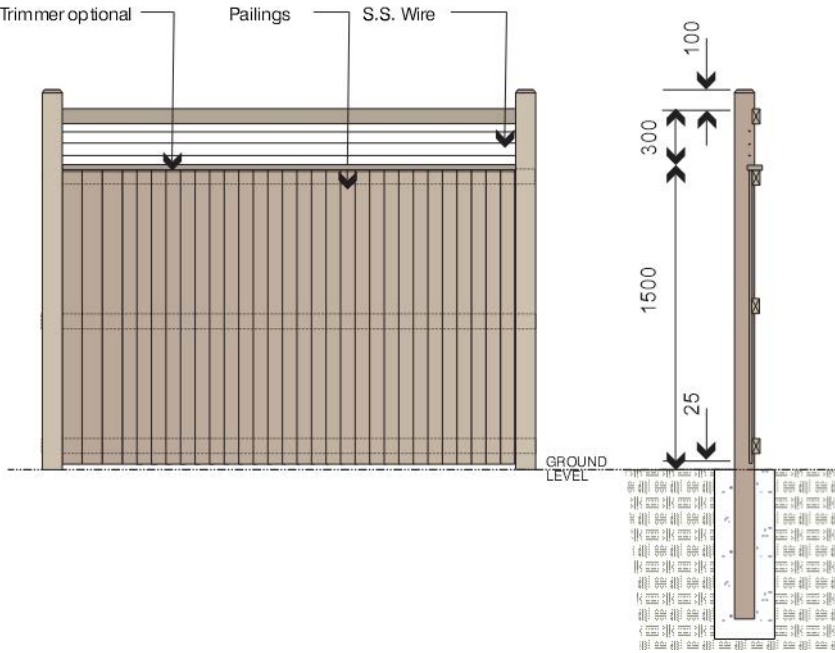
OTHER DETAILS

If you wish to obtain more information about Council's decision, please refer to the Assessment Report for the application on Council's (via *DA Tracker*) <https://www.moretonbay.qld.gov.au/Services/Building-Development/DA-Tracker> using the application number referenced in this Notice.


ATTACHMENT 2

Assessment Manager Conditions of Approval

CONDITION	TIMING
RECONFIGURING A LOT	
DEVELOPMENT PLANNING	
1.	Approved Plans and/or Documents
	<p>Undertake development in accordance with the approved plans and/or documents. These plans and/or documents will form part of the approval, unless otherwise amended by conditions of this approval.</p>
2.	Amended Plan Required
A	<p>Submit an amended Landscape Concept Plan incorporating the following:</p> <ol style="list-style-type: none"> 1. Landscape vegetation directly adjacent the acoustic fence, fronting Caboolture River Road, to Lots 680-686. 2. Details of the <i>feature posts/pillars on private property</i>, including the overall height. 3. Amend the eastern boundary fencing to Lots 687-706 (Energex Easement Fence) to be semi-transparent. 4. Ensure the design and fencing along Lots 680-686 and Lots 658, 660 & 706 remains consistent with the adjoining development directly to the west.
B	<p>Obtain approval from Council for the amended Landscape Concept Plan and Noise Impact Report in accordance with (A) above.</p>
C	<p>Implement the requirements and recommendations of the approved plan(s). The approved amended plan(s) will form part of the approval.</p>
3.	Fencing of Public Areas
	<p>Provide semi-transparent fencing to the northern boundary of proposed Lots 658, 660 & 706 and, the eastern boundary of Lots 687-706 to enable passive surveillance of public areas.</p> <p><i>Fencing is to have a maximum height of 1.8 meters and a minimum 85% transparency for any part of the fence above 1.5m in height, unless otherwise approved in writing by Council. An example is shown in the image below.</i></p>

CONDITION	TIMING
	
<p>4. Acoustic Attenuation Measures</p>	
<p>A Construct the 1.8m high acoustic barrier arrangement on Lots 680-686. Provide the acoustic attenuation measures as specified in the Assessment and Control of Road Traffic Noise Intrusion report prepared by Acoustics RB Pty Ltd.</p>	<p>Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).</p>
<p>B Provide certification from a suitably qualified person that the 1.8m high acoustic barrier arrangement on Lots 680-686 has been constructed in accordance with the specifications of the Assessment and Control of Road Traffic Noise Intrusion report reference 21-1305.R06 dated 28 October 2022 by Acoustics RB Pty Ltd.</p>	<p>Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).</p>
<p>5. Entry Statement</p>	
<p>Establishment of any “Entry Statement” as a marketing strategy for the development must accord with the following, unless otherwise approved by Council:</p> <ol style="list-style-type: none"> 1. Located within a privately owned allotment or on the boundary of a privately owned allotment; 2. Limited to one (1) entry statement per development; 3. Constructed of durable, weather resistant materials; 4. Positively contributes to the character of the surrounding area; and 5. Does not contain the logo of any developer or other entity. 	<p>Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).</p>
<p>6. Landscaping for Reconfiguring a Lot</p>	
<p>A Carry out landscaping and associated earthworks, site preparation and other necessary works in accordance with approved plans, details and technical specifications of any proposed planting or landscape work (both soft and hard works) where such works will be</p>	<p>Prior to submitting to the Council any request for approval of a plan</p>

CONDITION		TIMING
	on land under the control of Council, whether as a park, reserve or road reserve. Landscaping is to accord with <i>Planning scheme policy - Integrated design Appendix D - Landscaping</i> .	of subdivision (i.e. survey plan).
B	Before commencing the works obtain Operational Works approval for the plans, details and technical specifications of any planting or landscape work from Council.	Prior to work commencing on site.
7.	Street Trees	
	Provide street trees within the development in accordance with <i>Planning scheme policy - Integrated design Appendix D - Landscaping</i> .	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
8.	Water and/or Sewerage	
	Submit to Council a Certificate of Completion or Provisional Certificate of Completion (for each stage where there are stages) for the development from the Northern SEQ Distributor–Retailer Authority (Unitywater) confirming: <ol style="list-style-type: none"> 1. a reticulated water supply network connection is available to the land; and 2. a sewerage network connection is available to the land; and 3. all the requirements of Unitywater have been satisfied. 	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
9.	New Telecommunications Infrastructure	
A	Provide Fibre-Ready telecommunications infrastructure (pit and pipe) throughout the development in accordance with the Communication Alliance specifications contained within Industry Guideline G645:2011 Fibre Ready Pit and Pipe Specifications for Real Estate Development Projects or in accordance with the NBN Co. specifications contained within New Developments: Deployment of the NBN Co Conduit and Pit Network – Guidelines for Developers NBN-TE-CTO-194 and Creating Pit and Pipe Designs for New Developments (Job Aid for Developers) NBN-TE-CTO-586, as amended and current at the date of installation.	Prior to the development being accepted off maintenance.
B	Provide certification from a RPEQ electrical engineer that the works specified in (a) above have been installed and evidence that a telecommunications carrier licensed under the Telecommunications Act 1997 has agreed to take ownership of the infrastructure.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
10.	Existing Service Connections	
	Submit certification from a suitably qualified person that: <ol style="list-style-type: none"> 1. All of the existing service connections (electricity, telecommunications, water) to an existing building or a private property pole is wholly contained in the lot it serves; and 2. Any electricity connections and infrastructure made redundant by the development is removed with the land reinstated. 	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).

CONDITION		TIMING
11.	Electricity	
A	Provide evidence (e.g. Certificate for Electricity Supply to Subdividers with Agreement Number or Certificate of Supply) demonstrating that an underground electricity supply network has or will be constructed within all new roads and along the frontage of each proposed lot.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
B	Provide an underground electricity supply connection to each proposed lot. Any crossing of an existing road carriageway to be constructed using thrust boring.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
C	Submit certification from a licensed surveyor, Registered Professional Engineer of Queensland (RPEQ) or registered building surveyor that any electricity connections and infrastructure made redundant by the development is removed with the land reinstated.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
D	<p>Ensure any padmount transformer located immediately adjacent to proposed public use land / open space is painted with a mural or has a film applied on all sides that integrates the infrastructure into the location of being adjacent to the open space. Concepts for the mural are to be approved by Council and align with the use of the adjoining land as open space or alternatively the environmental values of the area e.g. koalas or a previous use of the land. An example is shown in the image below;</p> 	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
12.	Certify Lots are in Accordance with Approved Plan	
	Provide certification from a Licensed Surveyor that the lots created accord with the approved plan.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
13.	Street Names	
A	Submit requests for the names of new street/s in accordance with Council's Policy 11-2150-038 Allocation of Road Names and Street Address Numbers or as amended;	Prior to submitting to the Council any request for approval of a plan

CONDITION		TIMING
		of subdivision (i.e. survey plan).
B	Obtain approval from Council for the names of new streets in accordance with (A) above;	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
C	Erect approved street name boards on all new roads in accordance (A) and (B); and	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
D	Mark all street names on the survey plans.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
14.	Payment of Rates	
	Pay all outstanding rates and charges applicable to the subject land.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
15.	Dedicated Road Access	
	Provide dedicated constructed road access to the development.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan) and to be maintained at all times.
16.	Remove /Demolition of Existing Buildings	
	Remove / demolish all existing buildings located on the site.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
17.	Plan of Development	
	Development must comply with the approved Plan of Development unless otherwise approved in writing by Council.	To be maintained at all times.
18.	Advice to Purchasers Regarding Plan of Development	

CONDITION		TIMING
A	Acknowledge in writing that potential purchasers will be advised of the approved Plan of Development and the requirement to comply with the approved Plan of Development.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
B	Provide potential purchasers with written notice of the approved Plan of Development and the requirement to comply with the approved Plan of Development.	Prior to entering into a contract of sale for the relevant lot.
19.	Fauna Management Plan	
A	Submit a Fauna Management Plan to reduce potential impacts on native fauna. The plan must be prepared by a suitably qualified person and contain at least the following information: <ol style="list-style-type: none"> 1. Procedures for dealing with fauna observed immediately prior to vegetation clearing; 2. Procedures for dealing with fauna during vegetation clearing; 3. Procedures for the treatment / removal of injured fauna from the site. 	Prior to works commencing on site.
B	Obtain approval from Council for the Fauna Management Plan in accordance with (A) above.	Prior to works commencing on site.
C	Carry out works in accordance with the approved Fauna Management Plan.	During site works and to be maintained.
20.	No Net Loss of Fauna Habitat	
A	Development does not result in the net loss of fauna habitat. Where development does result in the loss of a Habitat Tree, development will provide replacement fauna nesting boxes at the following rate: <ol style="list-style-type: none"> 1. One (1) nest box for every hollow removed; or 2. Where hollows have not yet formed in trees greater than 80cm in diameter at 1.3m height, three (3) nest boxes are required for every habitat tree removed. 	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
B	Where development does result in the loss of a Habitat Tree, submit and obtain approval from Council for a nest box management plan with details of the proposed construction, installation methods and GPS location for each nest box for Council's records. The plan must be prepared in accordance with Council's <i>Planning scheme policy - Environmental areas and corridors</i> and by a suitably qualified person and include details of proposed maintenance and protocols for replacing fallen or broken nest boxes. Include any additional information that may be relevant such as: <ol style="list-style-type: none"> 1. Exact number of habitat trees and number of hollows to be impacted, 2. Assessment of replacement hollows required as per 'No Net Loss of Fauna Habitat' condition requirements, 3. Assessment of target species, 	Prior to any vegetation clearing.

CONDITION	TIMING
<ol style="list-style-type: none"> 4. Requirements for the target species, 5. Nest box types - design and sizes, 6. Installation technique, 7. Proposed location of installed nest box including GPS location and owner's consent, 8. Installation timeframes which provide for installation prior to the commencement of clearing wherever possible, otherwise within seven (7) days of clearing; and 9. Monitoring and maintenance regime details, including protocols for replacing fallen or broken nest boxes. <p><i>Note: Nest boxes must be maintained for a minimum of 12 months post installation.</i></p>	
<p>C If nest box installation is proposed within a Council park, provide written confirmation from Council's Coordinator Parks and Recreation Planning that Council agrees to the installation of the nest boxes within Council park.</p> <p><i>Note: The agreement may require the payment of a maintenance bond refundable after the satisfactory completion of the 12 months maintenance period.</i></p>	Prior to any vegetation clearing.
<p>D Provide a copy of written permission to enter Council Land from Council's Operations Technical Services team.</p>	Prior to any vegetation clearing.
<p>21. Vegetation Management Plan</p>	
<p>A Submit to and obtain approval from Council for a Vegetation Management Plan prepared in accordance with Council's <i>Planning Scheme Policy - Environmental Areas and Corridors</i>, and by a suitably qualified person.</p> <p>The plan must be prepared in accordance with AS4970-2009 - Protection of Trees on Development Sites and include scaled plans and supporting documentation that provides for, but is not limited to, the following:</p> <ol style="list-style-type: none"> 1. Identification of all vegetation and tree protection zones within and adjacent to the development site that may be impacted by the development and justification for treatment intent (remove - ✕; retain - ✓; prune - p); 2. Control measures, maintenance procedures and monitoring programs; 3. Procedures for dealing with fauna observed immediately prior to vegetation clearing; 4. Procedures for dealing with fauna during vegetation clearing; 5. Procedures for the treatment / removal of injured fauna from the site; 6. "no parking of vehicles in these areas". 	Prior to works commencing on site.
<p>B Carry out works in accordance with the approved Vegetation Management Plan.</p>	Prior to submitting to the Council any request for approval of a plan

CONDITION		TIMING
		of subdivision (i.e. survey plan).
22.	Extent of Vegetation Clearing	
A	Undertake vegetation clearing in accordance with the approved Ecological Assessment Report. No additional clearing is permitted beyond the development footprint.	At all times.
B	Clearing of native vegetation must not occur within or impact on the tree protection zone of vegetation within adjoining premises.	At all times.
23.	Disposal of Cleared Vegetation	
	Chip, shred or tub grind cleared native vegetation and spread as mulch or dispose of at an authorised waste facility. Any hollows observed in cleared vegetation must be salvaged and installed as nest boxes in trees within the property.	At all times.
24.	Stockpiles of Construction and Landscaping Materials	
	Locate any stockpiles of construction and landscaping materials and other site debris clear of drainage lines and clear of any position from which it could be washed onto any footpath, nature strip, roadway or into any drain, wetland or watercourse.	During site works.
25.	Temporary Exclusion Fencing	
	Delineate areas where vegetation is proposed to be retained with exclusion fencing to prevent accidental felling. Clearing is to be undertaken in accordance with AS 4970-2009 Protection of Trees on Development Sites.	During site works.
26.	Infrastructure Agreement	
A	In accordance with Section 65(2)(c) of the <i>Planning Act 2016</i> , carry out development in accordance with, and comply with the obligations in, the executed <i>Infrastructure Agreement Caboolture West - Neighbourhood Development Precinct 1 (Combined NDP1 Developers)</i> between Moreton Bay Regional Council between Moreton Bay Regional Council, ICP Caboolture Pty Ltd ACN 667 670 199 and Retmac Pty Ltd ACN 011 075 559 as Trustee Under Instrument 718 772 536, AVID Developments Pty Ltd, Baycrown Pty Ltd, Foreverlen Pty Ltd and Orchard (Craig Rd) Developments Pty Ltd.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
B	In accordance with Section 65(2)(c) of the <i>Planning Act 2016</i> , carry out development in accordance with, and comply with the obligations in, the executed <i>Infrastructure Agreement Caboolture West - Neighbourhood Development Precinct 1 (Foreverlen Pty Ltd)</i> between Moreton Bay Regional Council and Foreverlen Pty Ltd.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. survey plan).
DEVELOPMENT ENGINEERING		
27.	Replace Existing Council Infrastructure	
	Replace existing Council infrastructure (including but not limited to street trees and footpaths) that is damaged as part of works carried out in association with the development to Council's standards.	Prior to submitting to the Council any request for

CONDITION		TIMING
		approval of a plan of subdivision (i.e. a survey plan).
28.	Alterations and Relocation of Existing Services	
	Ensure any alteration or relocation in connection with or arising from the development to any service, installation, plant, equipment or other item belonging to or under the control of an entity engaged in the provision of public utility services is to be carried out with the development and at no cost to Council unless agreed to in writing by the Council.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
29.	Stormwater	
	Carry out the development to ensure that adjoining properties, reserves and roads are protected from ponding or nuisance from stormwater as a result of any works undertaken.	To be maintained at all times.
30.	Stormwater Management	
A	Submit and have approved by Council, a development application for operational works for stormwater infrastructure to service the development. Design drawings are to be prepared and certified by a suitably qualified Registered Professional Engineer Queensland (RPEQ) and in accordance with the approved plans and documents of development and the MBRC Planning Scheme current at the time of the operational works application.	Prior to commencement of works associated with this condition.
B	Construct stormwater infrastructure to service the development at no cost to Council and in accordance with the approved plans and documents of development. This condition has been imposed under section 145 of the <i>Planning Act 2016</i> .	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
C	Provide registered easements in favour of Council over any drainage paths and drainage infrastructure within all new lot/s in accordance with the approved plans and documents of development. The easement documents must acknowledge the maintenance, repair and replacement responsibilities of the owner of this development site. Note: All easements are to be shown on plans submitted as part of operational works applications.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
31.	New Council Roads	
A	Submit and have approved by Council, a development application for operational works for the following: 1. All new roads and associated works. The following classifications are to be applied: i. Modified Living Residential Road (16.5m) - All internal roads.	Prior to commencement of works associated with this condition.

CONDITION		TIMING
	<p>ii. Driveway (12.0m) - from Lot 686 to 683.</p> <p>Design drawings are to be prepared and certified by a suitably qualified Registered Professional Engineer Queensland (RPEQ) and in accordance with the approved plans and documents of development and the MBRC Planning Scheme current at the time of the operational works application.</p> <p>Notes:</p> <p>Modified Living Residential Road - 16.5m wide.</p> <ol style="list-style-type: none"> 1. Two 4.0 metre wide travel lanes 2. Kerb and channel on both sides 3. One 4.5m wide verge made up of a 1.5m wide front verge, 2.0m wide pedestrian path and 1.0m wide rear verge. 4. One 4.0m wide verge. <p>Driveway</p> <ol style="list-style-type: none"> 1. 3.0m wide shared driveway from the New Road for the full length of the driveway. 2. The driveway is to include three parallel carparking bays in accordance with the approved plans and drawings. 	
B	<p>Construct, at no cost to Council and in accordance with the approved plans and documents of development the following:</p> <ol style="list-style-type: none"> 1. All new roads and associated works <p>This condition has been imposed under section 145 of the <i>Planning Act 2016</i>.</p>	<p>Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).</p>
32.	Pathways	
A	<p>Construct, at no cost to Council, a 2.0 metre wide reinforced concrete pathway in accordance approved plans and documents.</p> <p>This condition has been imposed under section 145 of the <i>Planning Act 2016</i>.</p>	<p>Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).</p>
33.	Construction Management Plan	
A	<p>Submit and have approved by Council, a Construction Management Plan (CMP) prepared by the Principal Contractor. The CMP is to outline, in sufficient detail, the processes that will be employed to minimise impacts on the surrounding community during construction. These processes are to cover the following:</p> <ol style="list-style-type: none"> 1. Material delivery and storage locations 2. Waste locations and collection details 3. Construction office accommodation 4. Contractor / tradesman vehicle parking arrangements 5. Works that may make audible noise outside of 6:30am to 6:30pm any business day or Saturday. 	<p>Not less than two (2) weeks prior to commencement of works. To be maintained current at all times.</p>

CONDITION		TIMING
	<p>The CMP may include a site layout drawing identifying these areas.</p> <p>The CMP needs to reflect any staging requirements.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Council will generally only approve early starts for large concrete pours during summer (e.g. monolithic concrete pours for basements and suspended floor slabs) 2. Dewatering directly into Council's stormwater system (pipes or overland flow) without appropriate water quality treatment/improvement is not acceptable 3. Traffic control measures may need to be put in place for the duration of the construction works to control contractor / tradesman vehicle parking arrangements, this should be documented within the CMP 4. Materials unloading and loading must occur on-site unless prior written approval is given by Council. 5. All construction office accommodation and associated temporary buildings is to be contained within the site or on a nearby site. 	
B	Implement the approved Construction Management Plan (CMP) and keep a copy of the approved CMP on site at all times during construction.	At all times during construction of the development.
34.	Acid Sulfate Soils	
A	Prepare an Acid Sulfate Soil Investigation Report and if required an Acid Sulfate Soils Management Plan. The reports and analysis are to be undertaken in accordance with the MBRC Planning Scheme and prepared by a suitably qualified person.	Prior to the commencement of works.
B	<p>Implement the requirements and recommendations of the Acid Sulfate Soil Management Plan.</p> <p>All testing and monitoring is to be undertaken in accordance with the MBRC Planning Scheme.</p>	While site works are occurring
C	Provide certification from a suitably qualified person that all works have been undertaken in accordance with the Acid Sulfate Soil Management Plan.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
	<p>Note:</p> <p>Council will only accept a 'suitably qualified person' as being either a Registered Professional Engineer of Queensland (RPEQ) or Environmental/Soil Scientist with current professional membership status at a relevant organisation (e.g. ASSSI, AIG; EIANZ; GSA) and has obtained a minimum of five (5) years professional experience in the field of acid sulfate soils.</p>	
35.	Earth Retaining Structures	
A	Design all earth retaining structures within private land in accordance with Australian Standards, Building Code requirements and MBRC	Prior to commencement of

CONDITION		TIMING
	<p>Planning scheme current the time of the operational works application and the following:</p> <ol style="list-style-type: none"> 1. The minimum design life (the period assumed in design for which a structure or structural element is required to perform its intended purpose without replacement or major structural repairs) for the earth retaining structure that is specified in Table 3.1 of Australian Standard AS4678; 2. Earth retaining structures within the land and around areas of cut on or near the boundaries of the site must be designed to allow for live and dead loads associated with the land/premise's current occupancy use; 3. Provide temporary safety fencing to all earth retaining structures over 1.0m in height. 	works associated with this condition.
B	<p>Submit and have approved by Council, a development application for operational works for all earth retaining structures.</p> <p>Design drawing are to be prepared and certified by a suitably qualified Registered Professional Engineer Queensland (RPEQ) and in accordance with the approved plans and documents of development and the MBRC Planning Scheme current at the time of the operational works application and they are to clearly show the location and overall configuration (fully dimensioned), design parameters and loads, materials and finishes of all earth retaining structures for the development.</p>	Prior to commencement of works associated with this condition.
C	Construct all earth retaining structures within private land in accordance with Australian Standards, Building Code requirements and approved plans and documents of development.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
E	Provide written certification from a suitably qualified and experienced RPEQ that the works comply with the permit condition.	Prior to lodging a request for compliance assessment of subdivision plans.
36.	Existing Dams	
A	<p>Drain, desilt, remove embankments of existing dams and fill the dam to reinstate the ground levels generally as they existed prior to the dam being constructed and in accordance with the plans and documents of development.</p> <p>The dam area is to be made free draining and stabilized to prevent erosion. Any filling required to ensure the area is free draining is to be carried out in accordance with Level 2 supervision as detailed in AS3798.</p> <p>This condition has been imposed under section 145 of the <i>Planning Act 2016</i>.</p>	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
B	Provide certification from a suitable geotechnical testing authority that filling has been conducted in accordance with AS3798.	Prior to submitting to the Council any

CONDITION		TIMING
		request for approval of a plan of subdivision (i.e. a survey plan).
37.	Site Access Prohibited	
	<p>Vehicular access directly from Caboolture River Road to Lot 680 to 686 is prohibited for traffic management and safety reasons.</p> <p>Note: A property condition will be attached to the affected lots to advise land owners of this restriction.</p>	To be maintained at all times.
38.	Minimum Flood Planning Level	
A	<p>Submit and have approved by Council, a development application for operational works for earthworks associated with pad / allotment fill to the Council adopted Flood Planning Level (FPL).</p> <p>Design drawing are to be prepared and certified by a suitably qualified Registered Professional Engineer Queensland (RPEQ) and in accordance with the approved plans and documents of development and the MBRC Planning Scheme current at the time of the operational works application.</p> <p>The FPL used for development can be obtained from the relevant section of the Flood Check Development Report available via Council's website: www.moretonbay.qld.gov.au.</p>	Prior to commencement of works associated with this condition.
B	Construct the pad / allotment levels, at no cost to Council and in accordance with the approved plans and documents of development.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
C	Submit to Council As-Constructed drawings prepared by a Registered Surveyor, certifying that the development has been constructed in accordance this condition.	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
39.	Refuse Collection - Bin Pads	
A	<p>Provide concrete bin pads with a minimum dimension of 1m² per bin fronting Lot 683 and 687 to service Lot 683, 684, 685 and 686 in accordance with the approved plans and documents of development. The final location is to be clear of parking bays, driveways and street trees; and accessible to a left loading 12.5 metre long HRV.</p> <p>Note: A property note will be included on Council's electronic property system alerting future owners that bin pads have been provided for their use.</p>	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).
B	Provide stormwater management and drainage works in accordance with the MBRC Planning Scheme current at the time of development application.	At the time of development.

CONDITION		TIMING
40.	Referral Agency	
A	Comply with the conditions of Energex response dated 2 March 2023 (reference: HBD 7674479) or as amended.	At all times.
B	Provide certification to Council, prepared by a suitably qualified person or the agency, demonstrating the requirements of Energex have been met	Prior to submitting to the Council any request for approval of a plan of subdivision (i.e. a survey plan).

ADVICES	
1.	Aboriginal Cultural Heritage Act 2003
	<p>The <i>Aboriginal Cultural Heritage Act 2003</i> commenced in Queensland on April 16, 2004. The Act provides blanket protection of Aboriginal cultural heritage sites and places, including significant areas and objects, as well as archaeological remains. The Act also recognises that Aboriginal cultural heritage parties are key stakeholders in the assessment and management of Aboriginal cultural heritage.</p> <p>Under the Act, if a proposed activity involves disturbance of the ground surface, cultural heritage Duty of Care must be considered. This involves consideration of whether an activity is <i>likely</i> to harm Aboriginal cultural heritage. This may require involvement from the relevant Aboriginal cultural heritage party.</p> <p>Cultural heritage Duty of Care compliance ultimately lies with the person or entity conducting the activity, and penalty provisions apply for failing to fulfil this Duty of Care.</p> <p>Council strongly advises that before undertaking the land use activity, you refer to the cultural heritage duty of care - Department of Aboriginal and Torres Strait Islander Partnerships (Queensland Government) for further information regarding the responsibilities of the developer.</p>
2.	Biosecurity Act 2014 - Fire Ant Control
	<p>Significant portions of the Moreton Bay are within Fire Ant Biosecurity Zone 2 and must remain vigilant for the presence of fire ants. Under the Biosecurity Act 2014, individuals and businesses are responsible for ensuring that they follow the movement controls for specific organic materials to help prevent the spread of fire ants within South East Queensland's fire ant biosecurity zones. Movement of a fire ant carrier from within the fire ant biosecurity zone may need a biosecurity instrument permit.</p> <p>More information is available on https://www.fireants.org.au/treat/business-and-industry/movement-controls</p>

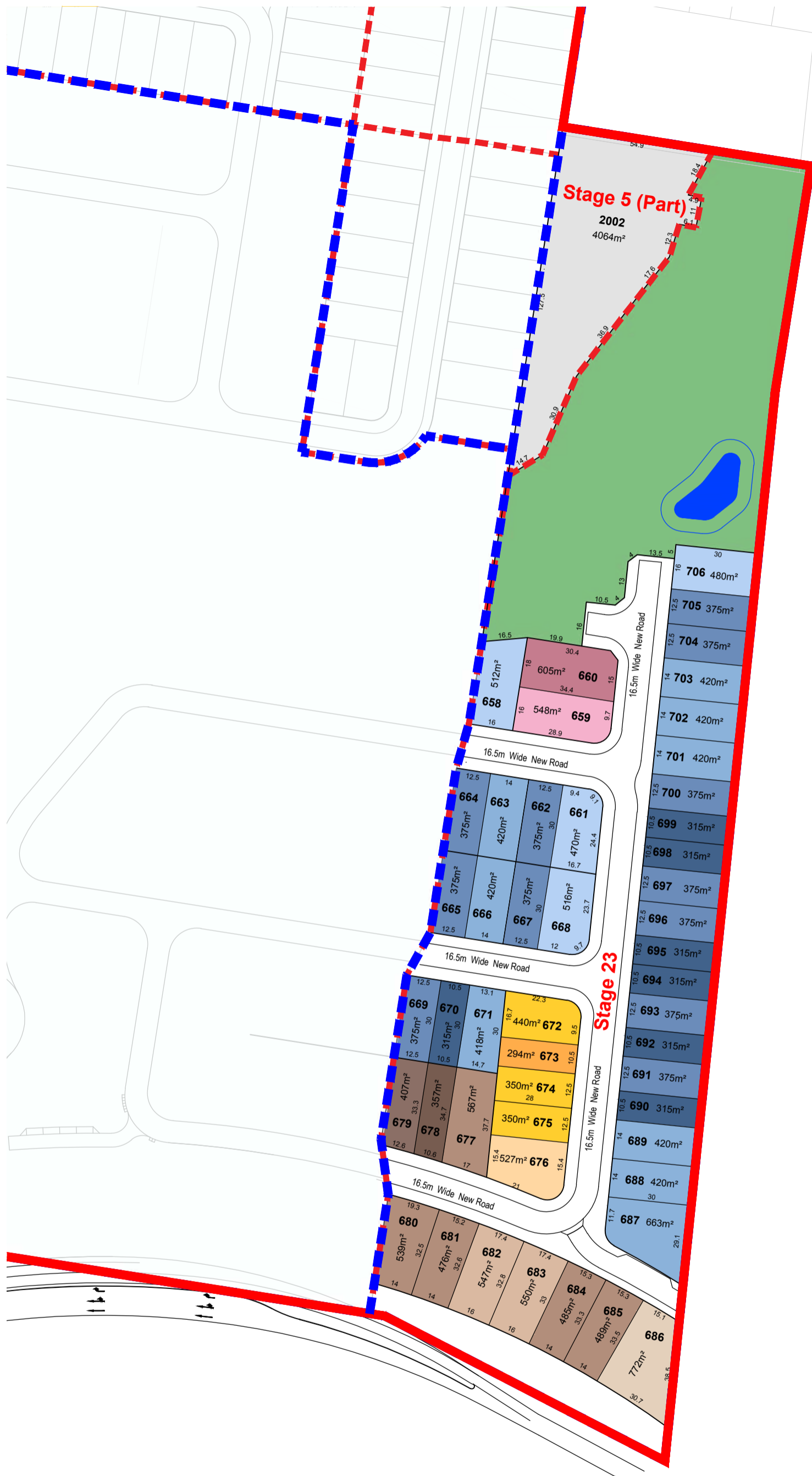
PROPERTY NOTES	
1.	DS01 Siting Requirements
	<p>The following property note will be attached to Council's database for Lot 658-659, 661-671 and 673-705:</p> <p><i>"A plan has been approved by Council for this lot identifying how and/or where development on this lot is to occur. Any development on this lot must be in accordance with the approved plan and associated conditions."</i></p>

PROPERTY NOTES	
	<i>Further details can be found in the development permit creating the lot or the development approval for the use, and the associated Council report (Delegated or Council Meeting) or approval letter. This information is available through the PD Online facility on Council's website www.moretonbay.qld.gov.au.</i>
2.	DS05 Site Access - Restricted Location
	<p>The following property note will be attached to Council's database for Lot 683, 684, 685, 686 and 687:</p> <p><i>"Additional development requirements apply to this lot. Any development on this lot must be in accordance with the approved plan and associated conditions.</i></p> <p><i>Further details can be found in the development permit creating the lot or the development approval for the use, and the associated Council report (Delegated or Council Meeting) or approval letter. This information is available through the PD Online facility on Council's website www.moretonbay.qld.gov.au.</i></p>
3.	DS07 Additional Development Requirements - Access Restricted
	<p>The following property note will be attached to Council's database for Lot 680 to 686:</p> <p><i>"Additional development requirements apply to this lot. Any development on this lot must be in accordance with the approved plan and associated conditions.</i></p> <p><i>Further details can be found in the development permit creating the lot or the development approval for the use, and the associated Council report (Delegated or Council Meeting) or approval letter. This information is available through the PD Online facility on Council's website www.moretonbay.qld.gov.au.</i></p>
4.	DS07 Additional Development Requirements - Bin Pads
	<p>The following property note will be attached to Council's database for Lot 683, 684, 685, 686 and 687:</p> <p><i>"Additional development requirements apply to this lot. Any development on this lot must be in accordance with the approved plan and associated conditions.</i></p> <p><i>Further details can be found in the development permit creating the lot or the development approval for the use, and the associated Council report (Delegated or Council Meeting) or approval letter. This information is available through the PD Online facility on Council's website www.moretonbay.qld.gov.au.</i></p>
5.	DS08 Acoustic Advice
	<p>The following property note will be attached to Council's database for proposed Lots 669-671 and 674-689</p> <p><i>"It is required that any residential development on this lot be designed and constructed in accordance with the relevant acoustic design and construction standards, or the specific requirements approved in any acoustic report.</i></p> <p><i>Further details can be found in the development permit creating the lot or the development approval for the use, and the associated Council report (Delegated or Council Meeting) or approval letter. This information is available through the PD Online facility on Council's website www.moretonbay.qld.gov.au.</i></p>
6.	Environmental Protection Act
	It remains the duty of care for the site owner not to cause Environmental Harm as defined under the <i>Environmental Protection Act 1994</i> .
7.	Nature Conservation (Wildlife Management) Regulation

PROPERTY NOTES	
	In Queensland, the Nature Conservation (Animals) Regulation 2020, legislates that it is an offence to tamper with an animal breeding place that is being used by a protected animal to incubate or rear the animal's offspring. For any proposed activity that will impact on breeding places of protected animals that are classified as extinct, in the wild, endangered, vulnerable, near threatened (EVNT), special least concern, colonial breeder or least concern, a Species Management Plan (or Damage Mitigation Permit if the person removing or tampering holds a DMP for the relevant species) for that species will be required. Animal breeding places include obvious structures such as bird nests and tree hollows, as well as more cryptic places such as amphibian or reptile habitat where breeding takes place.
8.	Biosecurity Act 2014
	The Biosecurity Act 2014 commenced on 1 July 2016 and established a framework to regulate and control invasive plants and animals. Under the Biosecurity Act 2014, landowners are responsible for taking all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. This obligation is known as the general biosecurity obligation (GBO).

ATTACHMENT 3

Approved Plans / Documents



LEGEND

- SITE BOUNDARY
- APPLICATION BOUNDARY
- STAGE BOUNDARY
- BALANCE LOT
- GREEN NETWORK

YIELD SUMMARY

28m DEEP LOTS		
 10.5m - VILLA		1
 12.5m - PREMIUM VILLA		3
 14.0m - COURTYARD		1
30m DEEP LOTS		
 10.5m - VILLA		7
 12.5m - PREMIUM VILLA		12
 14.0m - COURTYARD		9
 16.0m - PREMIUM COURTYARD		4
32m DEEP LOTS		
 10.5m - VILLA		1
 12.5m - PREMIUM VILLA		1
 14.0m - COURTYARD		5
 16.0m - PREMIUM COURTYARD		2
 18.0m - PREMIUM TRADITIONAL		1
33m+ DEEP LOTS		
 14.0m - PREMIUM COURTYARD		1
 18.0m - PREMIUM TRADITIONAL		1
TOTAL		49 LOTS

NOTE:

Lot 2002 is an amalgamation with existing Lot 12/RP866105 and will be committed at the time of development of the balance of Lot 12 (Part)/RP866105.



**CABOOLTURE WEST - DAA05
RECONFIGURATION OF A LOT**

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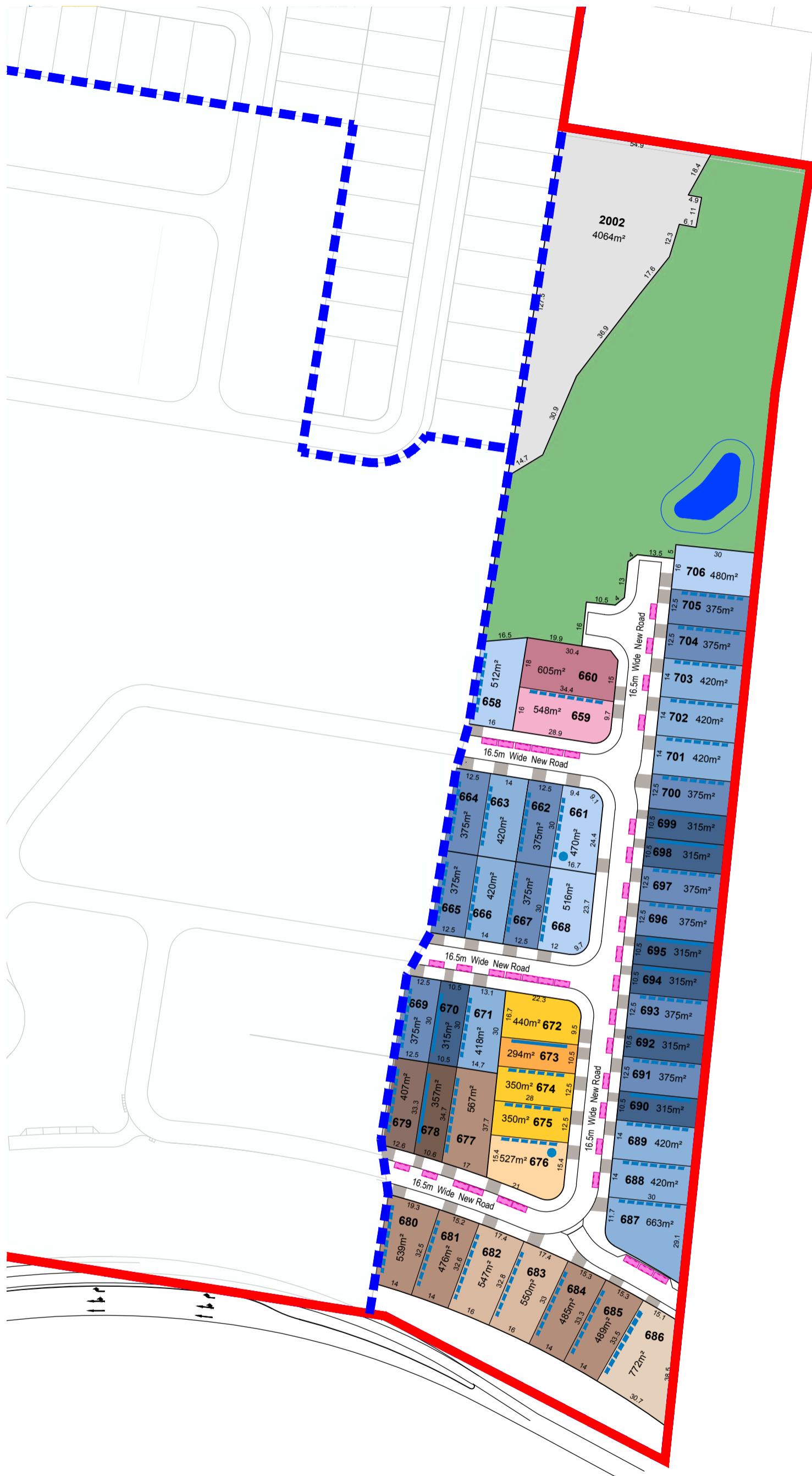
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DATE: 26.05.2023
JOB NO: ND1577
DWG NO: DAA05-01
REV: 7

Approved Subject to Conditions of Decision Notice DA/2022/4535

23/08/2023



LEGEND

- SITE BOUNDARY
- - - APPLICATION BOUNDARY
- BALANCE LOT
- GREEN NETWORK
- DUPLEX LOTS
- RECOMMENDED BUILD TO BOUNDARY WALL
- OPTIONAL BUILD TO BOUNDARY WALL
- INDICATIVE LOCATION OF DRIVEWAYS
- INDICATIVE CAR PARK LOCATION
(Parking Bay Dimensions - 5.4m x 2.1m)

TOTAL CAR PARKS	38
TOTAL LOTS	49

YIELD SUMMARY

28m DEEP LOTS

 10.5m - VILLA	1
 12.5m - PREMIUM VILLA	3
 14.0m - COURTYARD	1

30m DEEP LOTS

 10.5m - VILLA	7
 12.5m - PREMIUM VILLA	12
 14.0m - COURTYARD	9
 16.0m - PREMIUM COURTYARD	4

32m DEEP LOTS

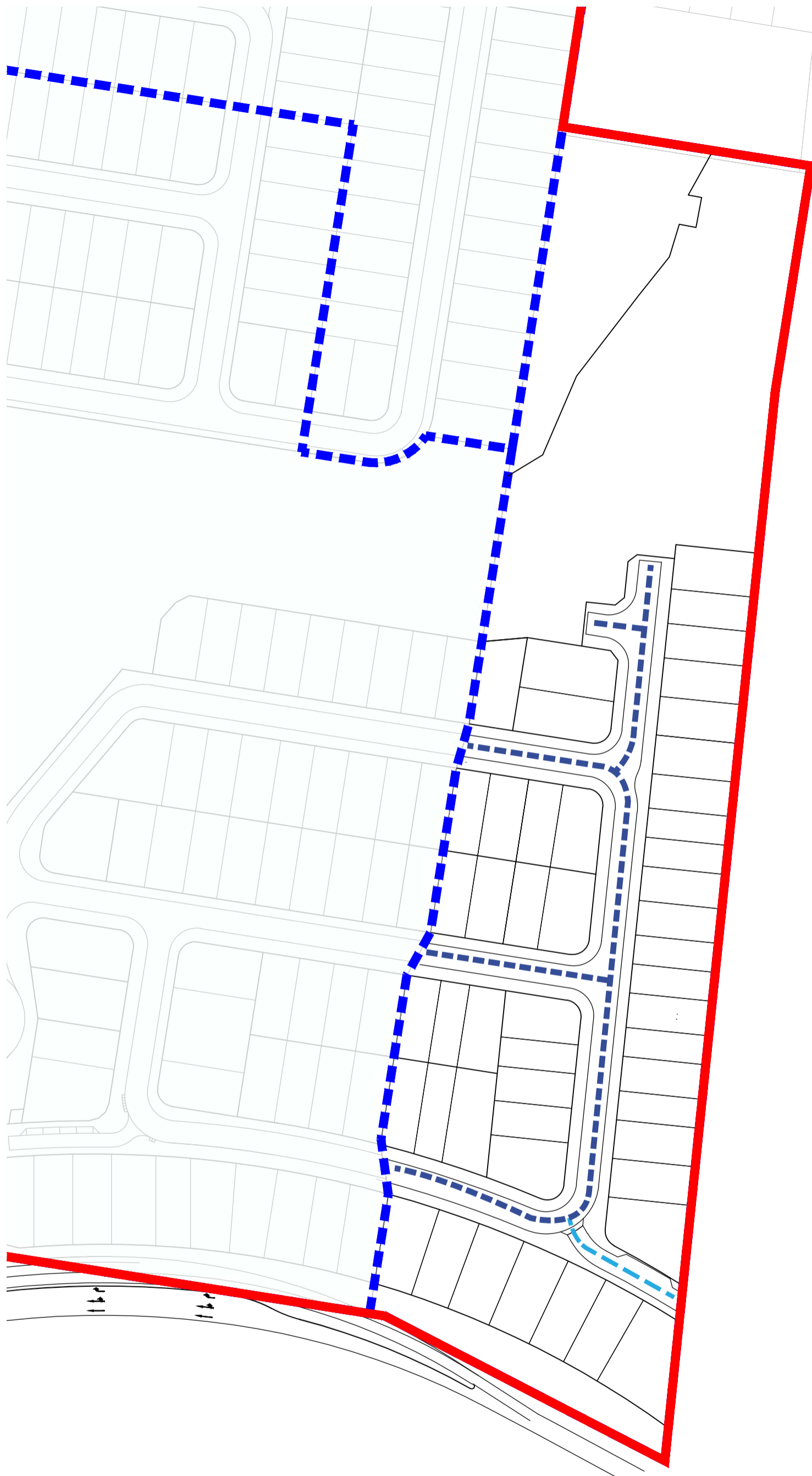
 10.5m - VILLA	1
 12.5m - PREMIUM VILLA	1
 14.0m - COURTYARD	5
 16.0m - PREMIUM COURTYARD	2
 18.0m - PREMIUM TRADITIONAL	1




33m+ DEEP LOTS

 14.0m - PREMIUM COURTYARD	1
 18.0m - PREMIUM TRADITIONAL	1

TOTAL 49 LOTS

NOTE:
 Lot 2002 is an amalgamation with existing Lot 12/RP866105 and will be committed at the time of development of the balance of Lot 12 (Part)/RP866105.



LEGEND	
	Site Boundary
	Application Boundary
	16.5m Wide Road
	12m Wide Road



CABOOLTURE WEST - DAA05 ROAD HIERARCHY PLAN

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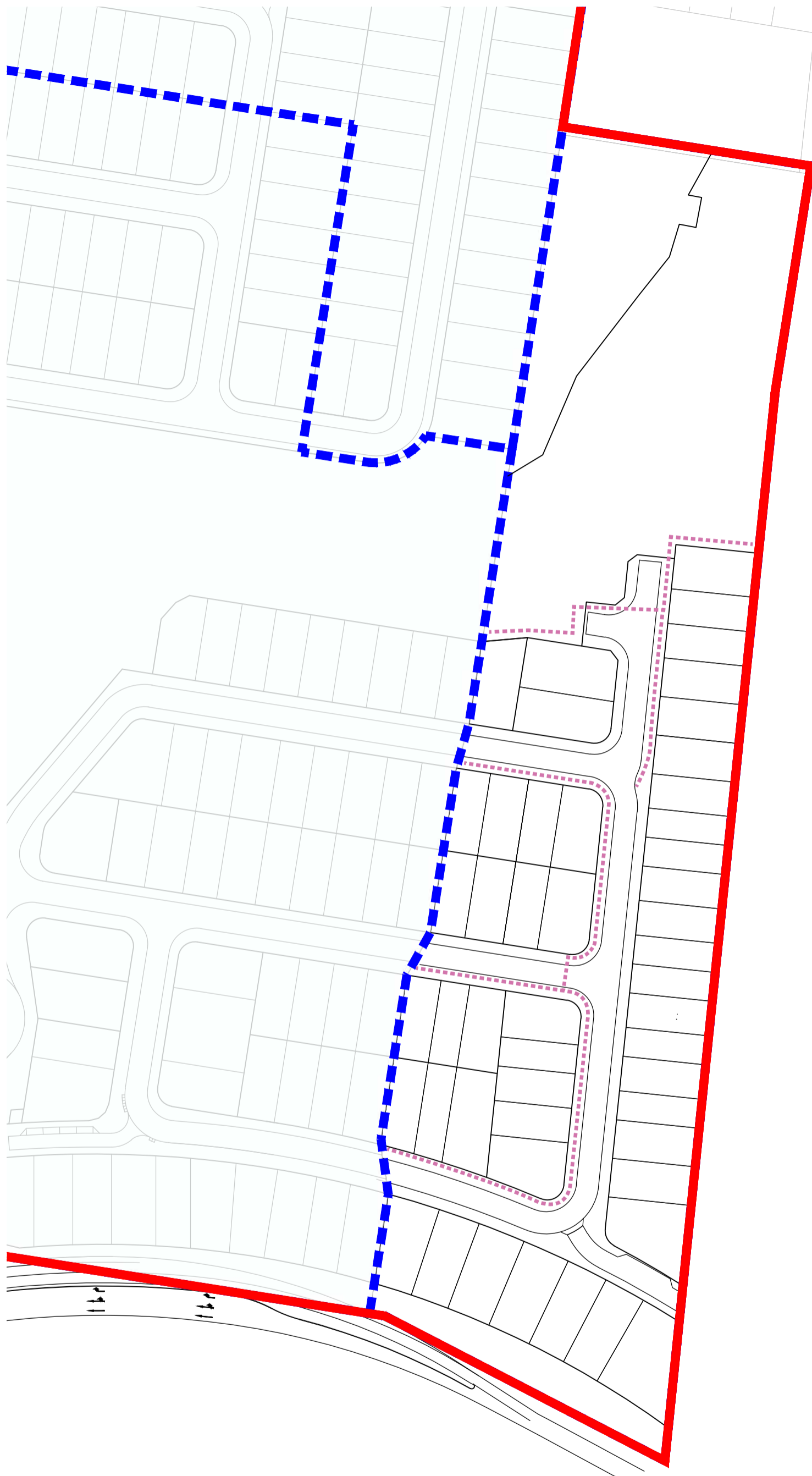
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REV: 7

Approved Subject to Conditions of Decision Notice DA/2022/4535

23/08/2023

Print Date: 24 August 2023, 4:36 PM



LEGEND	
	Site Boundary
	Application Boundary
	2.0m Wide Shared Path

- NOTES:**
1. Pathway location and all crossings are subject to change through design development.



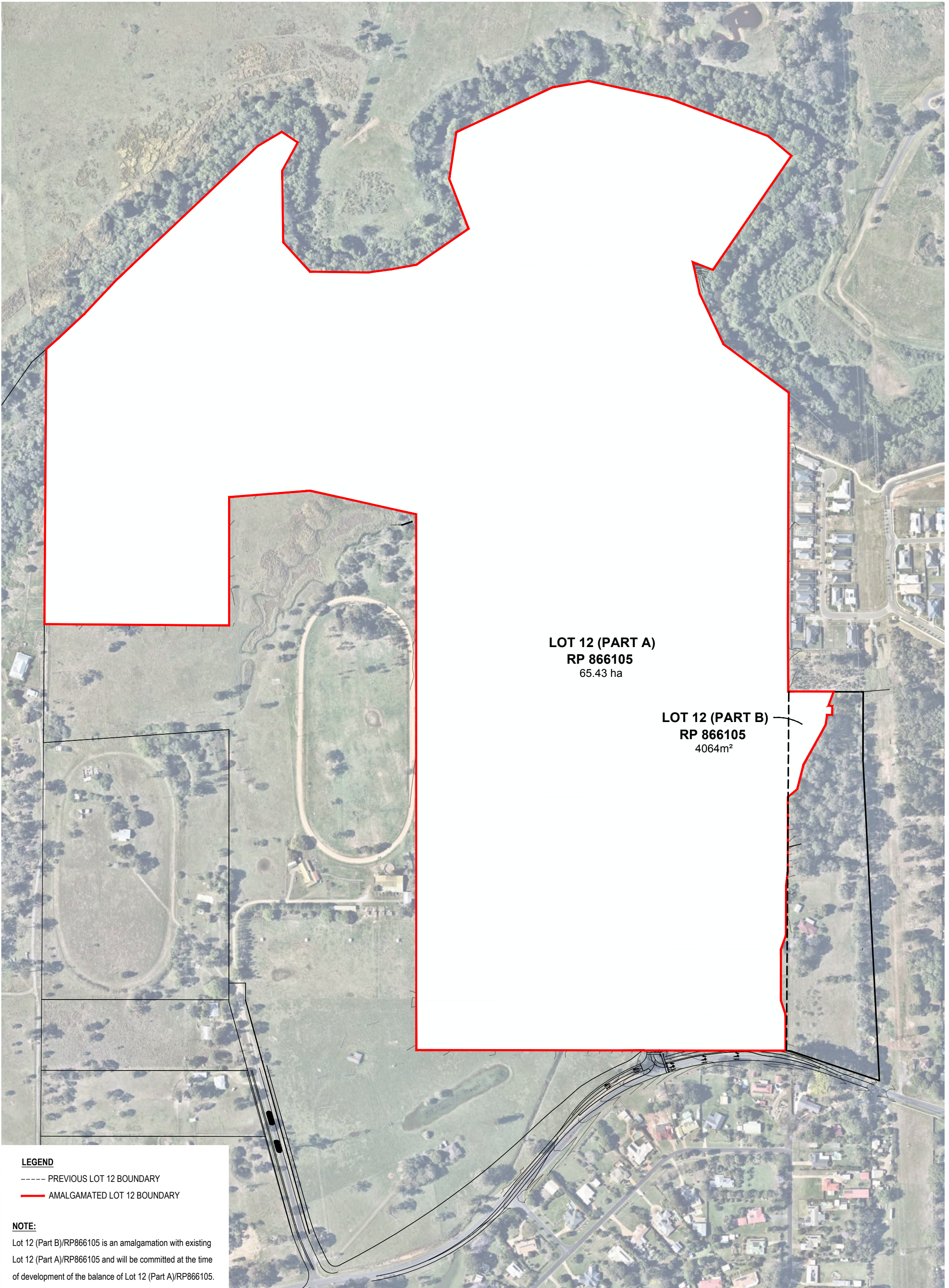
**CABOOLTURE WEST - DAA05
CONNECTIVITY PLAN**

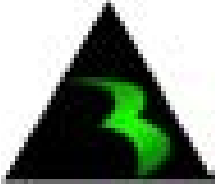
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DATE: 26.05.2023
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 REV: 7







Acoustics RB Pty Ltd

Report No. 21-1305.R06

**Reconfiguring a Lot Application
Lennium Stage 01c
403 Caboolture River Road, Upper Caboolture
Assessment and Control of Road Traffic
Noise Intrusion**

October 2022

DOCUMENT CONTROL PAGE

Reconfiguring a Lot Application
Lennium Stage 01c
403 Caboolture River Road, Upper Caboolture

Assessment and Control of Road Traffic Noise Intrusion**Report No. 21-1305.R06****Report Prepared by**

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Date of Issue: 28 October 2022

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SUMMARY

Foreverlen Pty Ltd (part of Lennium Property Group) has lodged a Reconfiguring a Lot Application with Moreton Bay Regional Council for approval over land in Upper Caboolture comprising part of Lot 12 on RP866105 and Lot 1 on RP866105. The land adjoins Caboolture River Road.

The application seeks approval for re-development of the site to generate 180 residential allotments together with two areas of local open space, a Green Network parcel with detention basins, one lot for commercial development and one balance lot, with the development being undertaken over four stages, ie Stage 01c.

At the southern extent of the land, Stage 01a adjoins Caboolture River Road which is an arterial road under Council's road hierarchy. Because of the proximity of the site to Caboolture River Road, Council will require that the Applicant undertake an assessment of the impact of road traffic noise intrusion onto the site and determine the appropriate measures to achieve adequate control of any excessive road traffic noise intrusion.

Accordingly, Acoustics RB Pty Ltd has been engaged by Foreverlen Pty Ltd to conduct an assessment of the impact of the road traffic noise intrusion onto the site and to provide recommendations for the control of any excessive levels of road traffic noise intrusion.

This report addresses the expected impact of road traffic noise intrusion against the relevant acceptance criteria set by SC 6.16 Planning Scheme Policy – Noise.

The report makes recommendations for appropriate noise control measures to achieve compliance with the relevant noise level limits and provides guidance for the acoustical design of future residences to be constructed on specific lots.

From the results of the assessment, the following conclusions can be drawn:-

- The acoustical design provisions of Section 8.1 of SC 6.16 *Planning Scheme Policy – Noise* apply to all residences to be constructed on lots located within 100m of the Caboolture River Road. In this instance, this requirement will apply to 19 lots. These are Lots 669-671 and 674-689.
- In addition, Section 8.1 of SC 6.16 requires that road traffic noise intrusion into the designated private open space of each dwelling located within the 100m setback zone comply with DTMR's 60dBA free field noise level limit for private open spaces.
- In the absence of an acoustic barrier, the 60dBA free field noise level limit set by DTMR for private open spaces would not be met on Lots 680-686.
- To adequately control road traffic noise intrusion in all private open space areas on all lots, it will be sufficient to erect a 1.8m high acoustic barrier along the southern boundaries of Lots 680-686 together with a 1.8m high return along the western extent of Lot 686. The barrier arrangement is shown in Figure 10 of this report.

To adequately control road traffic noise intrusion into the proposed residential allotments, it is recommended that the barrier arrangement shown in Figure 10 be constructed. This barrier arrangement comprises a 1.8m high acoustic barrier along the southern boundaries of Lots 680-686 together with a 1.8m high return along the western extent of Lot 686. The barrier is to connect to the 1.8m high barrier to be constructed along the southern boundary of the land adjoining immediately to the west.



SC 6.16 *Planning Scheme Policy – Noise* does not provide specifications for the design and/or construction of acoustic fences. Notwithstanding, guidance on the appropriate design specifications and construction requirements can be drawn from (i) Council's [Standard Drawing No SF-1520](#) for typical construction details of post and paling acoustic barriers and (ii) Council's [Standard Drawing No SF-1521](#) for typical construction details of post and board acoustic barriers.

To ensure that adequate control of road traffic noise intrusion into the habitable spaces of any dwellings located on Lots 669-671 and 674-689 is achieved, the particular dwellings should be designed and constructed in accordance with AS3671-1989 *Acoustics – Road traffic noise intrusion - Building siting and construction* to achieve compliance with the internal sound levels of AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*.

Accordingly, it is recommended that a condition of approval be imposed requiring that potential purchasers of Lots 669-671 and 674-689 be advised that due consideration needs to be given to the design and construction of any residences on these lots.

Suggested wording of an appropriate condition as commonly adopted by Council is presented below.

Condition XX Noise Management

- a) The applicant is required to advise prospective buyers of Lots 669-671 and 674-689 that the dwelling to be constructed on the particular lot is to be designed and constructed in accordance with the accordance with AS3671-1989 *Acoustics – Road traffic noise intrusion - Building siting and construction* to achieve compliance with the internal sound levels of AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*.
- b) At the completion of construction of any dwellings on Lots 669-671 and 674-689, certification shall be undertaken by a qualified Building Certifier. The purpose of this certification is to confirm that, having regard to the Construction Category bands applying to each level of each relevant lot as shown in Table 2 of the approved road traffic noise impact assessment report, the dwelling constructed on the particular lot has been designed and constructed in accordance with AS3671-1989 to achieve compliance with the internal sound levels of AS/NZS 2107:2016.



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1.0 Introduction

Foreverlen Pty Ltd (part of Lennium Property Group) has lodged a Reconfiguring a Lot Application with Moreton Bay Regional Council for approval over land in Upper Caboolture comprising Lot 35 on RP115959 and part of Lot 34 on RP115959. The land adjoins Caboolture River Road and is located immediately to the east of Caboolture West Local Plan NDP1 area.

The application seeks approval for re-development of the site to generate 49 residential allotments together with a Green Network parcel with detention basins and one balance lot, with the residential all located in a single stage: Stage 01c.

At the southern extent of the land, Stage 01c adjoins Caboolture River Road which is an arterial road under Council's road hierarchy. Because of the proximity of the site to Caboolture River Road, Council will require that the Applicant undertake an assessment of the impact of road traffic noise intrusion onto the site and determine the appropriate measures to achieve adequate control of any excessive road traffic noise intrusion.

Accordingly, Acoustics RB Pty Ltd has been engaged by Foreverlen Pty Ltd to conduct an assessment of the impact of the road traffic noise intrusion onto the site and to provide recommendations for the control of any excessive levels of road traffic noise intrusion.

This report addresses the expected impact of road traffic noise intrusion against the relevant acceptance criteria set by SC 6.16 *Planning Scheme Policy – Noise*.

The report makes recommendations for appropriate noise control measures to achieve compliance with the relevant noise level limits and provides guidance for the acoustical design of future residences to be constructed on specific lots.

2.0 Existing Situation and Proposed Development

The location of the subject site is shown in Figure 1.

The real property description of the site is Lot 35 on RP115959 and part of Lot 34 on RP115959.

The local authority is Moreton Bay Regional Council.

The site is currently occupied by a dwelling and outbuildings. To the east of the site is an Energex powerline easement, to the west is the NDP1 area of Caboolture West Local Plan.

The Concept Plan for the entirety of the development proposed to be undertaken by Foreverlen Pty Ltd over the subject site and NPD1 area is shown in Figure 2A. Proposed development over the land subject to the current RAL application, ie Application Area 05, is presented in Figure 2B. As noted above, it is proposed to re-develop the site to generate 49 residential allotments together with a Green Network parcel with detention basins and one balance lot, with the residential all located in a single stage: Stage 01c.



3.0 Relevant Roads

As noted above, the site adjoins Caboolture River Road which is an arterial road.

It is also noted that a new E-W Road serving NDP1 is shown on the MBRC Draft Road Hierarchy Plan. The alignment of new E-W Road shown in Figure 3 attached. (Refer heavy dashed line shown running from Tinny Road to the north-west extent of NDP1.)

By reference to SC 6.16 *Planning Scheme Policy – Noise*, it will be necessary to assess the impact of road traffic noise intrusion onto all lots located within 100m of the arterial road section of the E-W Road. (Refer also section 4.1 following.)

As is evident in this figure, and by reference to Figure 2A, it can be seen that the Foreverlen (Lennium) land (including Application Area 05) is located more than 100m from the E-W Road. Accordingly, there will be no requirement to consider the impact of noise intrusion due to road traffic on the E-W Road.

Rather, the only road of significance is Caboolture River Road.

4.0 SC 6.16 *Planning Scheme Policy – Noise*

4.1 Overview

The requirements for assessing road traffic noise intrusion for Reconfiguring a Lot applications are presented at Section 8.1 of Council's SC 6.16 *Planning Scheme Policy – Noise*. Section 8.1 of SC 6.16 is reproduced below.

8. Assessment of road traffic and railway noise

The following outlines the process for establishing acceptable acoustic amenity at sites impacted by noise from roads and railways.

8.1 Reconfiguring a lot

A transport noise impact assessment report is to be provided where development involves reconfiguring a lot in the General Residential, Emerging Community, Rural Residential zones and Township Residential Precinct where:

1. proposed lots are located within:
 - a. 50 metres of a current or future designated sub arterial; or
 - b. 100 metres of a current or future designated arterial road; or
 - c. 150 metres of a highway or railway; or
 - d. extractive resource transport buffer
2. where otherwise requested by Council.

Note - Does not apply if the proposed development site is within a designated transport noise corridor and the Department of Transport and Main Roads is a referral agency.

The assessment is to be in accordance with MP 4.4 of the QDC. The assessment is to identify the noise category applicable to each lot in the proposed development for both lower and upper levels. Noise categories are defined in Schedule 3 of MP4.4.

In addition the assessment is to address the requirement for residential development to have private open space that meets the Environmental Emission Criteria identified in Department of Transport and Main Roads *Policy for Development on land affected by Environmental Emissions from Transport and Transport Infrastructure Version 2 or as amended*.

Note – Noise Categories are derived from the identified noise levels at 1 metre from the facade of the proposed or existing building. For the purposes of this policy the facade is to be determined at the deemed to be building setback or proposed building envelope or the lot boundary.



8.1.1 Property notes

A property note will be applied to all new lots identified as Noise Category 1 or higher. The development approval will advise of the intended property note generally in accordance with the following example.

The following notation will be recorded on Council's property system for proposed Lots xxxxxxx

This lot is impacted by road traffic noise. A Traffic Noise Impact Report by xxxx, xxxxxx, has been prepared in relation to this lot. The report identifies this lot as being at Noise Level Category X. Mandatory Part 4.4 of the Queensland Development Code identifies the required noise reduction building treatments applicable to each Noise Category.

Further assessment by a suitably qualified acoustic expert should be sought in order to determine the appropriate building design and treatment required to effectively mitigate noise impacts for the provision of acceptable acoustic amenity in private open spaces and habitable rooms.

Note – where lots are impacted by noise sources other than transport alternative property notes will be applied as deemed appropriate.

The key provisions of s.8.1 of *Planning Scheme Policy – Noise* as they apply to the subject development are summarised below:-

- The provisions of SC 6.16 apply to lots located within 100m of a designated arterial road, ie Caboolture River Road.
- A Transport Noise Impact Assessment report is to be prepared which identifies the QDC MP 4.4 noise categories applicable to the development.
- The level of road traffic noise intrusion into the designated private open space areas is to comply with the limits set under *DTMR Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure (EEP)*.
- Property notes are to be applied to all new lots identified as Noise Category 1 or higher.

Each of the requirements with respect to the QDC MP 4.4 noise categories, compliance with the noise levels set by DTMR for acceptable levels of road traffic noise intrusion into private open space areas and the application of property notes is discussed in further detail in the following sub-sections.

4.2 Examination of Applicability of QDC MP 4.4 Buildings in a Transport Noise Corridor

Section 8 of SC 6.16 outlines the process for establishing acceptable acoustical amenity at sites impacted by noise from roads and railways.

As stated at s.8.1 *Reconfiguring a Lot* of SC 6.16 of the extract above:-

“The [transport noise impact] assessment is to be in accordance with MP 4.4 of the QDC. The assessment is to identify the noise category applicable to each lot in the proposed development for both lower and upper levels. Noise categories are defined in Schedule 3 of MP 4.4.”

The purpose of QDC MP 4.4 is to ensure control of transport noise intrusion into particular residential buildings, specifically “relevant residential buildings”, where a relevant residential building must be located within a Transport Noise Corridor (TNC) as defined at Chapter 8B of *Building Act 1975* and, more particularly, in these circumstances, at s.246X and s.246Y of the Act.

It is noted that the site is not located within a gazetted TNC. As a result, the provisions of QDC MP 4.4 are not triggered. Consequently, it is not appropriate to apply QDC MP 4.4 as a basis for building design. Further discussion re this matter is presented in Attachment A.

Notwithstanding, and as discussed with Council, it is noted that at Section 5 of QDC MP 4.4, AS3671-1989 *Acoustics – Road traffic noise intrusion - Building siting and construction* and AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors* are both cited as referenced documents for QDC MP 4.4. In fact, the minimum R_w ratings set at Schedule 1 of the Code have been derived directly by application of the calculation methods of AS3671-1989 to achieve compliance with the recommended internal sound levels of AS/NZS 2107:2016.

Furthermore, when undertaking a site-specific acoustical design review of any relevant residential building located within a TNC, QDC MP 4.4 permits such assessments to be conducted using the more refined and more accurate noise level calculation methods of AS3671-1989 to achieve compliance with the recommended internal sound levels of AS/NZS 2107:2016.

Finally, prior to the introduction of QDC MP 4.4 on 1 September 2010, all assessments to determine the degree of upgrade required to be implemented into any noise-affected residence located on land adjoining a State-controlled road were conducted using the methods of AS3671-1989 to achieve compliance with the recommended internal sound levels of AS/NZS 2107:2016¹.

Consequently, it can be readily and reasonably concluded that the appropriate means of achieving adequate control of road traffic noise intrusion is to apply the more robust methodology of the calculation methods of AS3671-1989 to the design of noise affected residences, with the goal being to achieve compliance with the recommended internal sound levels of AS/NZS 2107:2016. This method has been adopted successfully for many other recently approved developments within the bounds of MBRC as well as in other local authority jurisdictions where gazettal of TNC's is yet to occur, notably Ipswich City Council.

Finally, it should be noted that, notwithstanding the fact that it is quite reasonable to conclude that QDC MP 4.4 cannot be applied to the current circumstances, the net result of adoption of the more robust methodology of calculation discussed above will be to achieve a more rigorous and more efficient acoustical outcome for the design of the noise-affected dwellings than would have resulted from an application of less refined procedures of QDC MP 4.4.

4.3 Applicability of Construction Categories of AS3671-1989

A discussion of AS3671-1989 together with the appropriate method of applying the calculation procedures of the Standard is presented below. Further information is presented in Attachment B following.

AS3671-1989 sets Construction Categories by reference to $L_{Aeq,T}$ noise levels, notably $L_{Aeq,1hr\ night}$ ⁱⁱ and $L_{Aeq,1hr\ day}$ ⁱⁱⁱ. Noise level prediction programs determine road traffic noise levels in terms of the $L_{A10(18hour)}$ ^{iv} noise level parameter. The offsets between $L_{A10(18hour)}$ and the day and night $L_{Aeq,T}$ values are site-specific and depend upon the hourly distribution of traffic.

ⁱ At that time, ie prior to 1 September 2010, the version of the standard current at that time was AS/NZS 2107:2000.

ⁱⁱ $L_{Aeq,1hr\ night}$ is defined as the maximum rolling average $L_{Aeq,1hr}$ value from 10:00pm to 6:00am, where the integrating time for $L_{Aeq,T}$ (ie equal energy) values used to determine the $L_{Aeq,1hr}$ value is typically 10minutes or 15 minutes.

ⁱⁱⁱ $L_{Aeq,1hr\ day}$ is defined as the maximum rolling average $L_{Aeq,1hr}$ value from 6:00am to 10:00pm, where the integrating time for $L_{Aeq,T}$ (ie equal energy) values used to determine the $L_{Aeq,1hr}$ value is typically 10minutes or 15 minutes.

^{iv} $L_{10(18hour)}$ is defined by DTMR in their *Road Traffic Noise Management: Code of Practice* and by UK DoE in their *Calculation of Road Traffic*, as the arithmetic mean of each of the eighteen hourly $L_{10,1hr}$ levels between 6:00am and 12:00 midnight on an average weekday where $L_{10,1hr}$ is the noise level measured in dBA that is exceeded for 10% of the specific one hour period. It is noted that this terminology is not in strict accordance with the recommendations of Standards Australia because it does not identify the A-weighting requirement.



Note:

Construction Categories applying under AS3671-1989 are not the same as Noise Categories applying under QDC MP 4.4. That is, Construction Categories and Noise Categories cannot be used interchangeably.

To establish offsets which can be used satisfactorily in most commonly encountered situations, it is appropriate to refer to standard offset values derived from an extensive study of a large number of comparable sites in SE Queensland located adjacent to major roads^V. When this is done, the relevant construction categories can be determined in terms of the predicted $L_{A10(18\text{hour})}$ value directly. The derivation of the bounds of the construction categories is presented in Attachment B.

From the results presented in Attachment B, it can be seen that Construction Category 1 means that the relevant floor level of the dwelling (ie ground floor level or first floor level) is subjected to noise levels that do not exceed 48dBA $L_{A10(18\text{hour})}$ facade-corrected. For any dwellings subject to Construction Category 1, there will be no requirement to apply any specific acoustical upgrades to the design of the relevant floor level of the dwelling.

Construction Category 2 means that the relevant floor level of the dwelling (ie ground floor level or first floor level) is subjected to noise levels in the range 48dBA to 63dBA $L_{A10(18\text{hour})}$ facade-corrected. By reference to AS3671-1989 *Acoustics - Road Traffic Noise Intrusion - Building Siting and Construction*, “standard construction (ie brick veneer), except for the lightweight elements such as fibre cement or metal cladding or all-glass facades” is deemed to be adequate to control noise intrusion for dwellings within the Construction Category 2 band, provided all windows and external doors to the dwelling are closed.

Construction Category 3 means that the relevant floor level of the dwelling (ie ground floor level or first floor level) is subjected to noise levels in the range 63dBA^{VI} to 73dBA $L_{A10(18\text{hour})}$ facade-corrected.

Similarly, Construction Category 4 means that the relevant floor level of the dwelling (ie ground floor level or first floor level) is subjected to noise levels exceeding 73dBA $L_{A10(18\text{hour})}$ facade-corrected.

For both Construction Categories 3 and 4, the design of the dwelling will need to be reviewed acoustically to ensure that the level of road traffic noise intrusion is adequately controlled.

Notes:

For purposes of initial guidance only, standard brick veneer or blockwork wall construction would normally be satisfactory in most instances to deal with external noise levels up to 63dBA $L_{A10(18\text{hour})}$ facade-corrected, ie for Construction Category 2 dwellings. For Construction Category 3 and 4 dwellings, however, it will be necessary to (i) upgrade the acoustical performance of windows and external sliding glass doors beyond standard R_w 23 performance and (ii) close windows and external doors. Further guidance is provided in AS3671-1989 *Acoustics - Road Traffic Noise Intrusion - Building Siting and Construction*.

It is stressed that **Construction** Categories applying under AS3671-1989 are not the same as **Noise** Categories applying under QDC MP 4.4. While the goal of each set of designations is the same, ie to control road traffic noise intrusion, they act in different ways to each other. There is no direct correspondence or consistent correlation between each set of designations. It is regrettable that the term “category” has been adopted by the relevant regulatory bodies for both sets of designations.

Recognising this departure, DTMR has adopted the term $L_{A10(18\text{hour})}$ in their *Code of Practice*. $L_{A10(18\text{hour})}$ has been used throughout this report as a result.

^V Brown, AR & Brown, HD *A Re-Examination of the Relationship Between the $L_{A10(18\text{hour})}$ Noise Level Parameter and Other Road Traffic Noise Level Parameters*, proc. Joint Conference of Australian and New Zealand Acoustical Societies, Brisbane, 2016.

^{VI} DTMR and several local authorities in SE Queensland apply this limit of 63dBA $L_{A10(18\text{hour})}$ facade-corrected as the basis of setting limits for acceptable levels of road traffic noise intrusion onto residential allotments situated adjacent to major roads.

4.4 DTMR Limits for Road Traffic Noise Intrusion into Private Open Space Areas

SC 6.16 *Planning Scheme Policy – Noise* requires that the limits for acceptable levels of road traffic noise intrusion into Private Open Space areas be set by reference to the DTMR's *Policy for Development on Land Affected by Environmental Emissions from Transport and Transport Infrastructure* (EEP).

Under EEP, a pair of limits has been established, with one limit of the pair applying depending on the prevailing $L_{A90(18\text{hour})}$ noise level. These limits are as follows:-

- (a) 57dBA $L_{A10(18\text{hour})}$ free field (ie 60dBA $L_{A10(18\text{hour})}$ facade-corrected) if the measured $L_{A90(18\text{hour})}$ is currently $\leq 45\text{dBA } L_{A90(18\text{hour})}$ ^{VII}
- (b) 60dBA $L_{A10(18\text{hour})}$ free field (ie 63dBA $L_{A10(18\text{hour})}$ facade-corrected) if the measured $L_{A90(18\text{hour})}$ is currently $> 45\text{dBA } L_{A90(18\text{hour})}$.

5.0 Current Road Traffic Noise Levels and Derived Noise Level Limits

5.1 General

The prediction of road traffic noise intrusion onto any site can be conducted by using the CRTN '88^{VIII} algorithms. These algorithms have been validated for Australian conditions. Even so, it has been well established that the algorithms generally over-predict the level of road traffic noise intrusion onto adjoining land.

The extent of the over-prediction tends to be site-specific. The degree of over-prediction is generally greater at sites with complex topography and significant distances of separation from the road as well as at sites located adjacent to signalised intersections.

In situations where the road has been formed and is operating with significant volumes of traffic, it is appropriate to conduct noise level measurements under the existing road traffic conditions. The results of these measurements can be used (i) to validate/calibrate the noise prediction model for the site or the development and, (ii) where appropriate, to establish the appropriate parameter offset values so that the equivalent facade-corrected external $L_{A10(18\text{hour})}$ noise limits can be set.

In fact, in situations where the arterial/sub arterial road exists, Council requires that noise logging be undertaken at a representative location on the site to determine the current level of noise intrusion onto that location.

5.2 Current Road Traffic Noise Levels

Monitoring of the level of noise generated by road traffic on Caboolture River Road was conducted continuously at a representative location close to the southern boundary of the site from 1:15pm Tuesday 7 June 2022 to 10:30am Tuesday 14 June 2022.

The measurement location is shown as "M" in Figure 4. This location was 13m from the edge of the road pavement. The measurement height was 2.2m (approx) above local ground level, ie 0.7m (approx) above existing road level.

^{VII} $L_{A90(18\text{hour})}$ is defined as the arithmetic mean of each of the eighteen hourly $L_{A90,1\text{hr}}$ levels between 6:00am and 10:00pm on an average weekday.

^{VIII} "Calculation of Road Traffic", UK DoE, HMSO, 1988. This is the method endorsed by Queensland Department of Transport and Main Roads and various local authorities.



The measurements were carried out in accordance with AS2702-1984 *Acoustics - Methods for the Measurement of Road Traffic Noise*. Weather conditions were fine. Other than on Saturday 11 June, winds were generally calm to light (of variable direction).

Test instrumentation consisted of a Norsonic type Nor-139 Type 1 portable statistical noise logger.

The results of the monitoring for a typical day (ie Thursday 9 June 2022) are presented graphically in Figure 5.

The resultant free field $L_{10(18\text{hour})}$ and $L_{A90(18\text{hour})}$ values were measured to be as follows:-

- $L_{10(18\text{hour})} = 63.0\text{dBA}$; and
- $L_{A90(18\text{hour})} = 42.4\text{dBA}$.

5.3 Future Road Traffic Noise Levels and Derivation of External Limits for Private Open Spaces

From the results above, it can be seen that the measured $L_{A90(18\text{hour})}$ values at Location M was 42.4dBA. This value is below the limit of 45dBA $L_{A90(18\text{hour})}$ set by DTMR under EEP.

Based on traffic data provided by the Project Traffic Engineers, Lambert & Rehbein, it is noted that the prevailing AADT traffic volume on Caboolture River Road during the measurement period was approximately 3590 vpd. As is detailed further at Section 6.1 below, 3590 vpd is <15% of the forecast future traffic volume of 25000 vpd at Year 2032. As the volume of traffic increases over, the $L_{A90(18\text{hour})}$ noise level will increase correspondingly.

Indeed, it is fully expected that, by the time the future residents take up occupancy of dwellings on the 49 lots within Stage 1c, as well as the 265 lots (approx.) within other portions of the NDP1 area of Caboolture West, the volume of traffic on Caboolture River Road adjacent to Stage 1c will be in the range 6500-7000 vpd. It is noted that at 2021, the road traffic volume on the section of Caboolture River Road 500m further to the east, ie between Dobson Lane and Parkridge Avenue was 7025 vpd. On this basis, by the time the dwellings within Stage 1c are expected to be first occupied, the volume of traffic on the section of Caboolture River Road adjoining Stage 1c will be comparable to the current volume of traffic on the section of Caboolture River Road approximately 500m to the east.

In simple terms, it would be reasonable to expect the $L_{A90(18\text{hour})}$ noise level will increase logarithmically with the increase in traffic volumes. More specifically, a doubling of the traffic volume would be expected to result in a 3dBA increase in the $L_{A90(18\text{hour})}$ noise level. On this basis, by the time the future residents take up occupancy of dwellings within Stage 1c, the $L_{A90(18\text{hour})}$ noise level will have increased to 45.0dBA – 45.3dBA.

Notwithstanding, to more accurately gauge the likely effect of the change in $L_{A90(18\text{hour})}$ noise levels with change in traffic volumes, a series of attended and unattended noise level measurements was conducted at Location 1 shown on Figure 4. This location was also 13m from the edge of the road pavement. From the results of these noise level measurements and subsequent calculations, it was determined that the resultant free field $L_{A90(18\text{hour})}$ noise level at Location 1 was 48.9dBA at 2021.

That is, on both bases, ie by simple calculation and by direct measurement elsewhere, the increase in traffic volumes will result in an increase in the $L_{A90(18\text{hour})}$ noise levels to >45dBA, ie to a point above the limit of 45dBA $L_{A90(18\text{hour})}$ set by DTMR under EEP. Reference to Section 4.4 above, the corresponding target external noise level limit for private open spaces areas will be 60dBA $L_{10(18\text{hour})}$ free field, ie 63dBA $L_{10(18\text{hour})}$ facade-corrected.



6.0 Road Traffic Noise Model

6.1 Preparation of Road Traffic Noise Model

The prediction of road traffic noise intrusion onto the site has been conducted using the CRTN '88 algorithms as applied by the SoundPLAN^{ix} computer program.

The lot layout has been determined from the electronic files provided by the Project Urban Designer, Urbis.

The finished ground levels across the site have been determined from the earthworks design provided by the Project Civil Engineers, Calibre.

The existing topographical contours surrounding the site have been extracted from the MBRC Open Data Portal *DataHub* website.

At the subject site, the traffic volume, vehicle mix and road speed information for Caboolture River Road under 10 year planning horizon conditions (ie Year 2032) have been set by reference to data provided by the Project Traffic Engineers, Lambert & Rehbein.

The relevant information for Caboolture River Road adjacent to the subject site is presented below.

- Traffic Volume - Eastbound (AADT): 12500vpd
- Traffic Volume - Westbound (AADT): 12500vpd
- Percentage Heavy Vehicles: 4%
- Traffic Speed: 60km/h
- Road Surface: Dense Graded Asphalt

The noise level prediction calculations also took account of the various site-specific variables and parameter settings which influence the level of road traffic noise emission onto the site. These included:-

- Site topography
- Distance from road
- Road gradients and road surfaces
- Vertical alignment of road
- Angle of view to road
- Receptor height^x

At the logger location M, the free field $L_{10(18\text{hour})}$ noise level due to road traffic on Caboolture River Road at 2022 agreed to within 0.5dBA of the measured noise level of 63.0dBA. This level of fit is well within the $\pm 2\text{dBA}$ tolerance normally deemed satisfactory, notably by DMTR under their *Transport Noise Management Code of Practice Volume 1 – Road Traffic Noise* November 2013.

^{ix} SoundPLAN is an integrated software package for noise and air pollution evaluation developed in Germany by Braunstein + Berndt GmbH. It has been configured to predict the extent of (i) road traffic noise intrusion by application of the CRTN '88 algorithms and (ii) industrial noise emission using the CONCAWE algorithms. It is in use in more than 48 countries and has had widespread application throughout Australia. It is endorsed by DTMR, MBRC, BCC, RCC, LCC, GCCC, SCRC, DES and most other State environmental authorities.

^x Noise levels at ground floor level facades are determined at a receptor height of 1.6m above ground level. For first floor level facades, the receptor height is 4.2m.



6.2 Road Traffic Noise Prediction Scenarios

Under s.8.1 of SC 6.16, it is necessary to consider the impact of road traffic noise intrusion onto residential lots located within the 100m of an arterial road. As can be determined from Figure 2 and, more definitively, by reference to Figures 7-9 following, there will be 19 new lots either wholly or partially located within the 100m setback zone from Caboolture River Road. These are Lots 669-671 and 674-689.

Four road traffic noise scenarios have been modelled. The details of each are presented below.

Scenario 1: Receiver height set at 1.3m agl (ie occupant ear level in private open space), E-W Road at 2032 traffic volume, no barriers constructed. Refer Figure 6 for noise level contours. Note: Noise level contours are presented only over those lots lying within the 100m setback zone.

Scenario 2: Receiver height set at 1.3m agl (ie occupant ear level in private open space), E-W Road at 2032 traffic volume, 2.1m high acoustic barrier constructed along the southern boundaries of Lots 41-50 together with (i) a 1.8m high return along the western extent of Lot 686 and (ii) a 2.2m-2.4m high return along the south-western and western boundaries of Lot 50.

Refer Figure 7 for degree of compliance achieved across the site with the 57dBA $L_{A10(18\text{hour})}$ free field noise level limit. The alignment of the barrier arrangement is shown in Figure 10.

Note: Refer also Report No 21-1305.R04.Rev1.

Scenario 3: Receiver height set at 1.6m agl (ie ground floor level facades), Caboolture River Road at 2032 traffic volume, acoustic barrier arrangement as shown in Figure 10. Refer Figure 8 for the ground floor level AS3671-1989 Construction Categories.

Scenario 4: Receiver height set at 4.2m agl (ie first floor level facades), Caboolture River Road at 2032 traffic volume, acoustic barrier arrangement as shown in Figure 10. Refer Figure 9 for the first floor level AS3671-1989 Construction Categories.

7.0 Discussion

From the results presented in Figure 6, it can be seen that with no acoustic barriers in place, the 57dBA $L_{A10(18\text{hour})}$ free field noise level target adopted by DTMR (and, hence, by Council) for private open spaces areas would not be met on Lots 680-686.

As shown in Figure 7, to adequately control road traffic noise intrusion into the private open space areas across Lots 669-671 and 674-689, it will be sufficient to construct a 1.8m high acoustic barrier along the southern boundaries of Lots 680-686 together with (i) a 1.8m high return along the western extent of Lot 686 and (ii) a 1.8m high return along the southern boundaries of lots in Application Area 1.

The alignment of this acoustic barrier arrangement is shown in Figure 10^{XI}.

With this barrier arrangement in place, the AS3671-1989 Construction Categories applying to the ground floor and first floor facades of the residential allotments located within 100m of Caboolture River Road (ie Lots 669-671 and 674-689) will be as shown in Figures 8 and 9, respectively.

^{XI} The barrier is be constructed on top of a retaining wall to be built along the southern extent of the Lots 680-686. Although not evident in Figure 10, the proposed alignment of the retaining wall is directly under the green line shown in Figure 10.



By reference to Figure 8 (ground floor facades, with acoustic barrier shown in Figure 10 constructed), it can be seen that a Construction Category 2 designation would apply to each of Lots 669-671 and 674-689.

By reference to Figure 9 (first floor facades, with acoustic barrier shown in Figure 10 constructed), it can be seen that, on each of Lots 680-686, almost the entirety of the lot lies within the Construction Category 3 band. By contrast, it is evident that a Construction Category 2 designation would apply to each of Lots 669-671, 674-679 and 687-689.

A summary of the Construction Categories applying to Lots 669-671 and 674-689 is presented below in Table 2 below.

Lot	AS3671 Construction Category by Level		Lot	AS3671 Construction Category by Level		Lot	AS3671 Construction Category by Level	
	Ground Floor	First Floor		Ground Floor	First Floor		Ground Floor	First Floor
669	2	2	678	2	2	685	2	3
670	2	2	679	2	2	686	2	3
671	2	2	680	2	3	687	2	2
674	2	2	681	2	3	688	2	2
675	2	2	682	2	3	689	2	2
676	2	2	683	2	3			
677	2	2	684	2	3			

Table 2 – AS3671-1989 Construction Categories Applying to Lots 669-671 and 674-689

(AS3671-1989 Construction Categories are not the same as QDC MP 4.4 Noise Categories)

The alignment of the acoustic fence is shown in Figure 10. To adequately address the Council's normal landscaping requirements, it would be appropriate to consider the planting of low height vegetation in the verge. Details can be prepared by the Project Landscape Architect, as necessary.

8.0 Conclusions

From the results of the assessment presented above, the following conclusions can be drawn:-

- The acoustical design provisions of Section 8.1 of SC 6.16 *Planning Scheme Policy – Noise* apply to all residences to be constructed on lots located within 100m of the Caboolture River Road. In this instance, this requirement will apply to 19 lots. These are Lots 669-671 and 674-689.
- In addition, Section 8.1 of SC 6.16 requires that road traffic noise intrusion into the designated private open space of each dwelling located within the 100m setback zone comply with DTMR's 60dBA free field noise level limit for private open spaces.
- In the absence of an acoustic barrier, the 60dBA free field noise level limit set by DTMR for private open spaces would not be met on Lots 680-686.
- To adequately control road traffic noise intrusion in all private open space areas on all lots, it will be sufficient to erect a 1.8m high acoustic barrier along the southern boundaries of Lots 680-686 together with a 1.8m high return along the western extent of Lot 686. The barrier arrangement is shown in Figure 10 of this report.

9.0 Recommendations

To adequately control road traffic noise intrusion into the proposed residential allotments, it is recommended that the barrier arrangement shown in Figure 10 be constructed. This barrier arrangement comprises a 1.8m high acoustic barrier along the southern boundaries of Lots 680-686 together with a 1.8m high return along the western extent of Lot 686. The barrier is to connect to the 1.8m high barrier to be constructed along the southern boundary of the land adjoining immediately to the west.

SC 6.16 *Planning Scheme Policy – Noise* does not provide specifications for the design and/or construction of acoustic fences. Notwithstanding, guidance on the appropriate design specifications and construction requirements can be drawn from (i) Council’s [Standard Drawing No SF-1520](#) for typical construction details of post and paling acoustic barriers and (ii) Council’s [Standard Drawing No SF-1521](#) for typical construction details of post and board acoustic barriers.

To ensure that adequate control of road traffic noise intrusion into the habitable spaces of any dwellings located on Lots 669-671 and 674-689 is achieved, the particular dwellings should be designed and constructed in accordance with AS3671-1989 *Acoustics – Road traffic noise intrusion - Building siting and construction* to achieve compliance with the internal sound levels of AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*.

Accordingly, it is recommended that a condition of approval be imposed requiring that potential purchasers of Lots 669-671 and 674-689 be advised that due consideration needs to be given to the design and construction of any residences on these lots.

Suggested wording of an appropriate condition as commonly adopted by Council is presented below.

Condition XX Noise Management

- a) The applicant is required to advise prospective buyers of Lots 669-671 and 674-689 that the dwelling to be constructed on the particular lot is to be designed and constructed in accordance with the accordance with AS3671-1989 *Acoustics – Road traffic noise intrusion - Building siting and construction* to achieve compliance with the internal sound levels of AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*.
- b) At the completion of construction of any dwellings on Lots 669-671 and 674-689, certification shall be undertaken by a qualified Building Certifier. The purpose of this certification is to confirm that, having regard to the Construction Category bands applying to each level of each relevant lot as shown in Table 2 of the approved road traffic noise impact assessment report, the dwelling constructed on the particular lot has been designed and constructed in accordance with AS3671-1989 to achieve compliance with the internal sound levels of AS/NZS 2107:2016.

Report prepared by,
Acoustics RB Pty Ltd



Hugh Brown,
Senior Project Engineer
BEng(Mech)(Hons)

Reviewed and approved by:



Russell Brown,
Director
RPEQ2799



Figure 1 – Site Location (Shown with Red and Cyan Bounds)

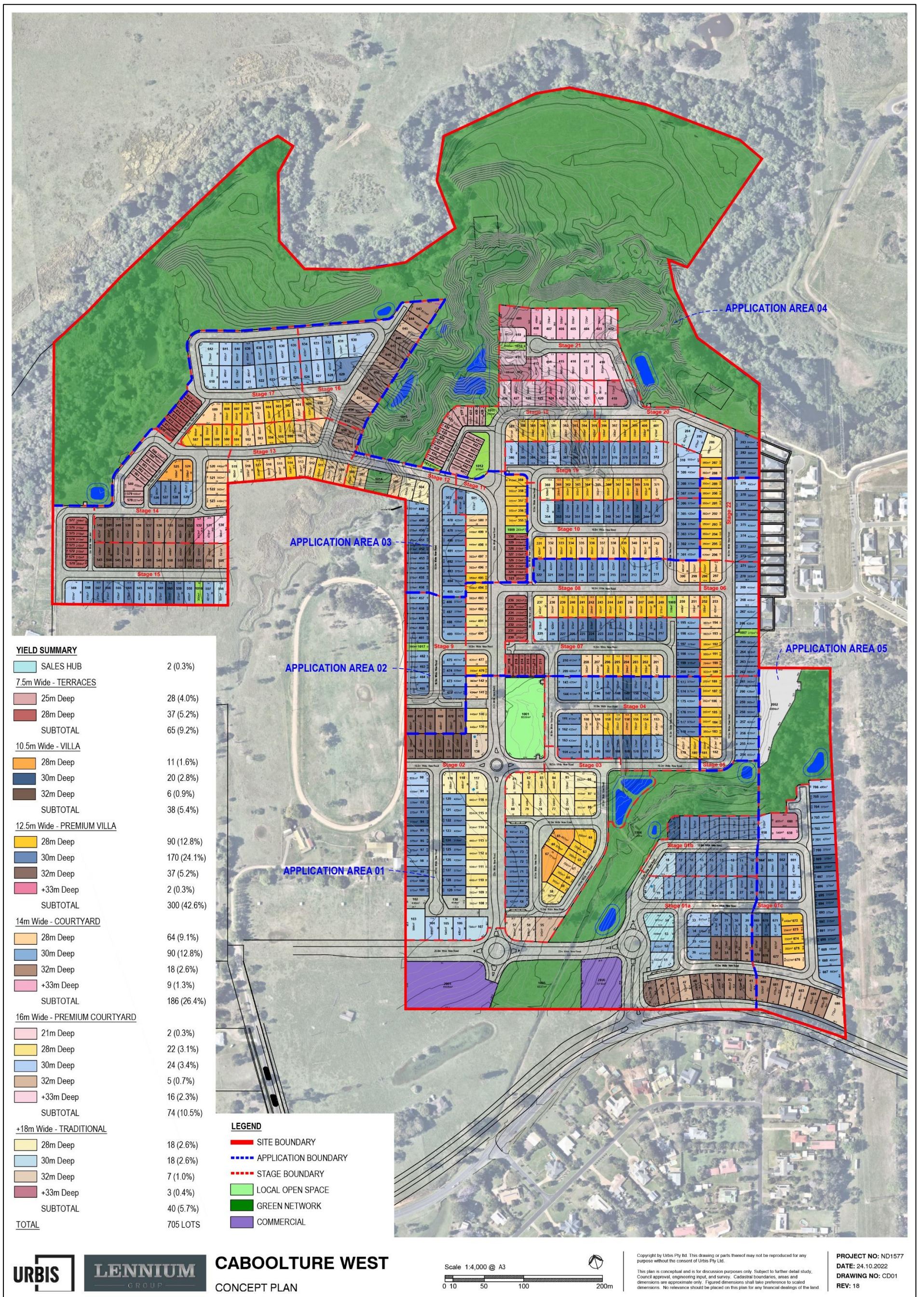


Figure 2A – Concept Plan (Application Area 05 Shown Outlined in Blue)

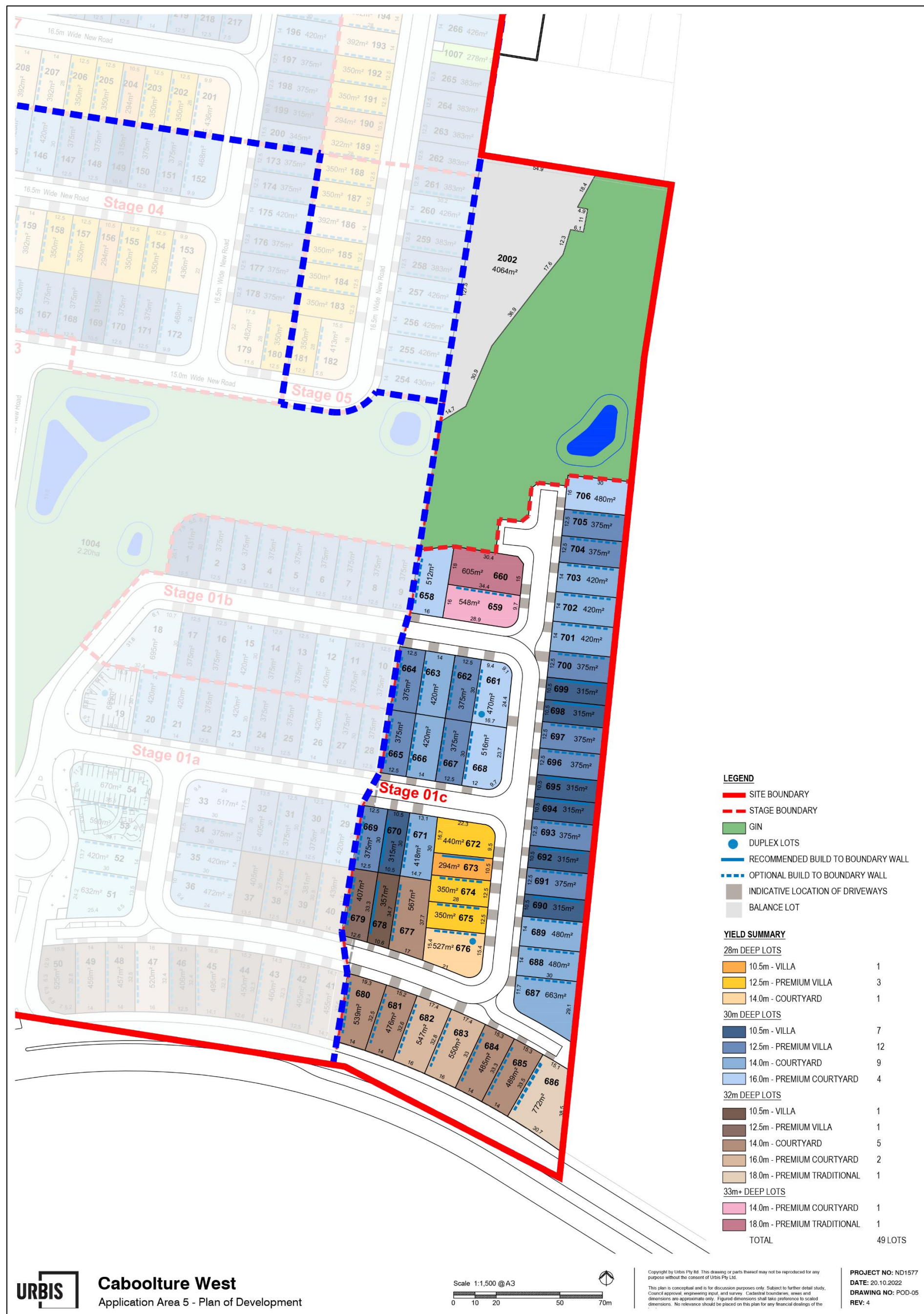


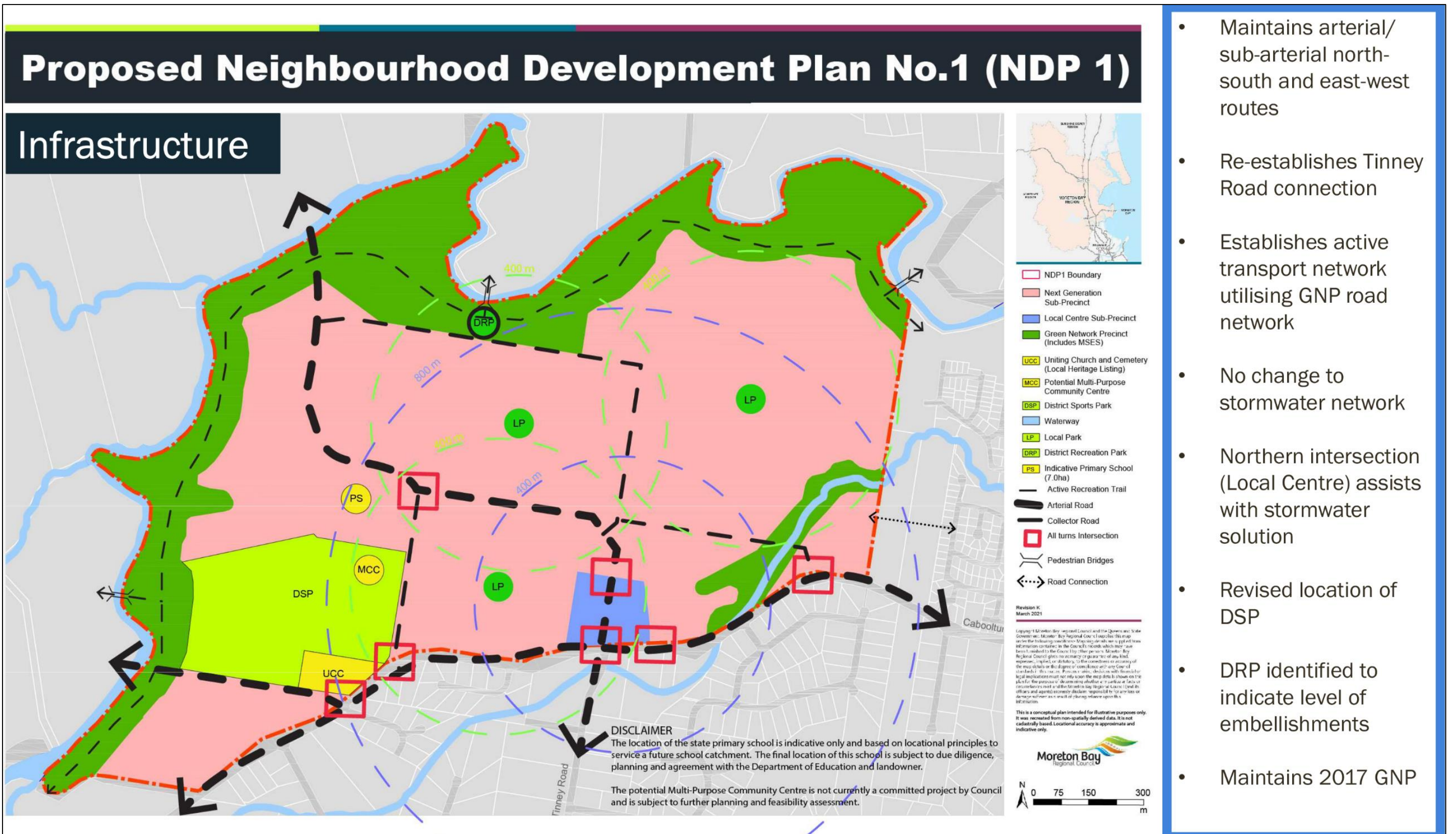
Figure 2B – Reconfiguration of Lot – Application Area 5 (Stage 01c Shown Outlined in Dashed Red)

URBIS Caboolture West
Application Area 5 - Plan of Development

Scale 1:1,500 @A3

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This plan is conceptual and is for discussion purposes only. Subject to further detail study, Council approval, engineering input, and survey. Cadastral boundaries, areas and dimensions are approximate only. Figure dimensions shall take preference to scaled dimensions. No reliance should be placed on this plan for any financial dealings of the

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- Maintains arterial/sub-arterial north-south and east-west routes
- Re-establishes Tinney Road connection
- Establishes active transport network utilising GNP road network
- No change to stormwater network
- Northern intersection (Local Centre) assists with stormwater solution
- Revised location of DSP
- DRP identified to indicate level of embellishments
- Maintains 2017 GNP

Figure 3 – Proposed Alignment of New E-W Arterial Road



Figure 4 – Site Location and Monitoring Location M and Measurement Location 1

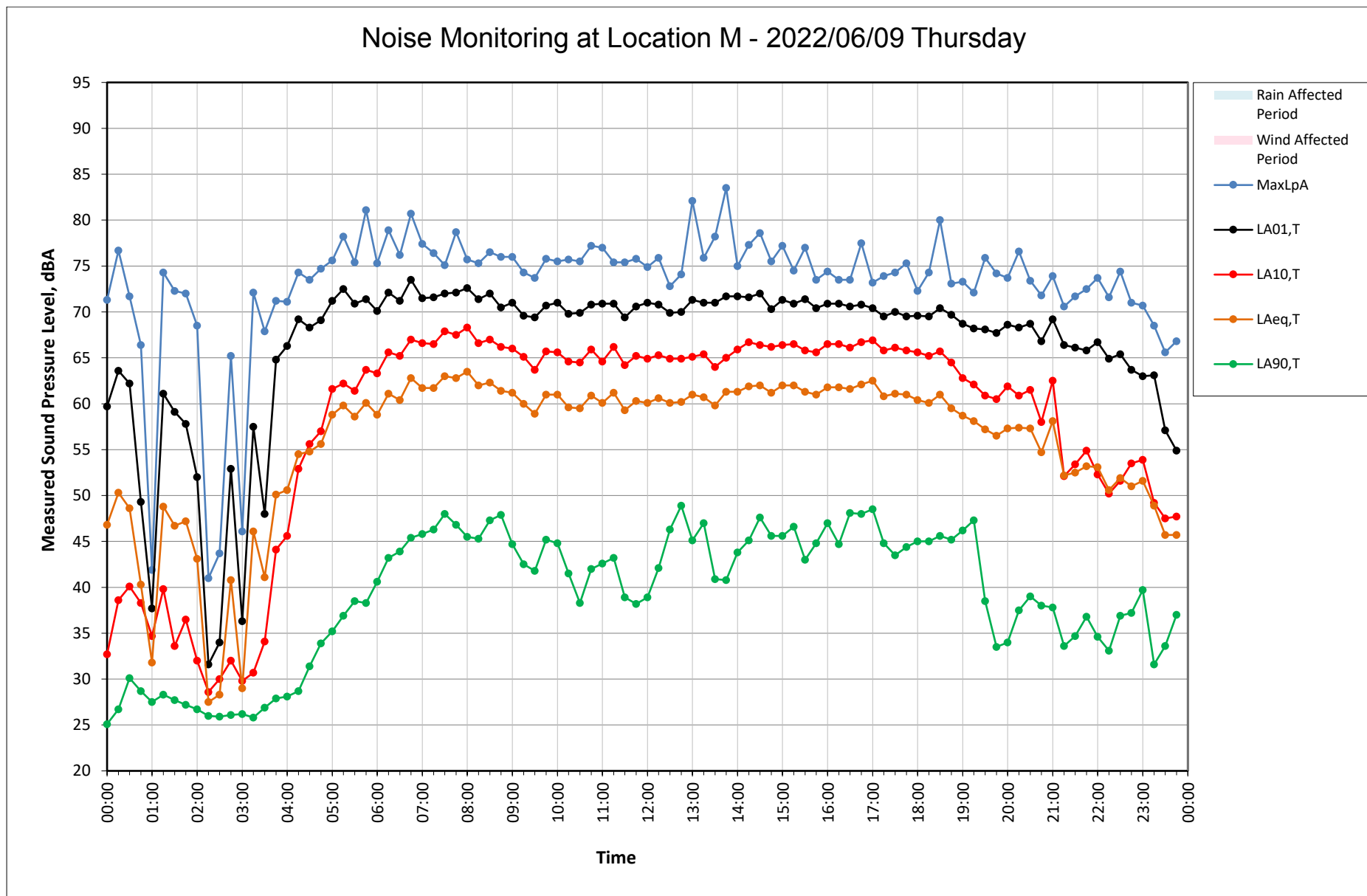


Figure 5 – Results of Noise Level Monitoring at “M” – 9 June 2022

Figures 6-9 (Noise Contour Plots) and Figure 10 (Barrier Alignment)



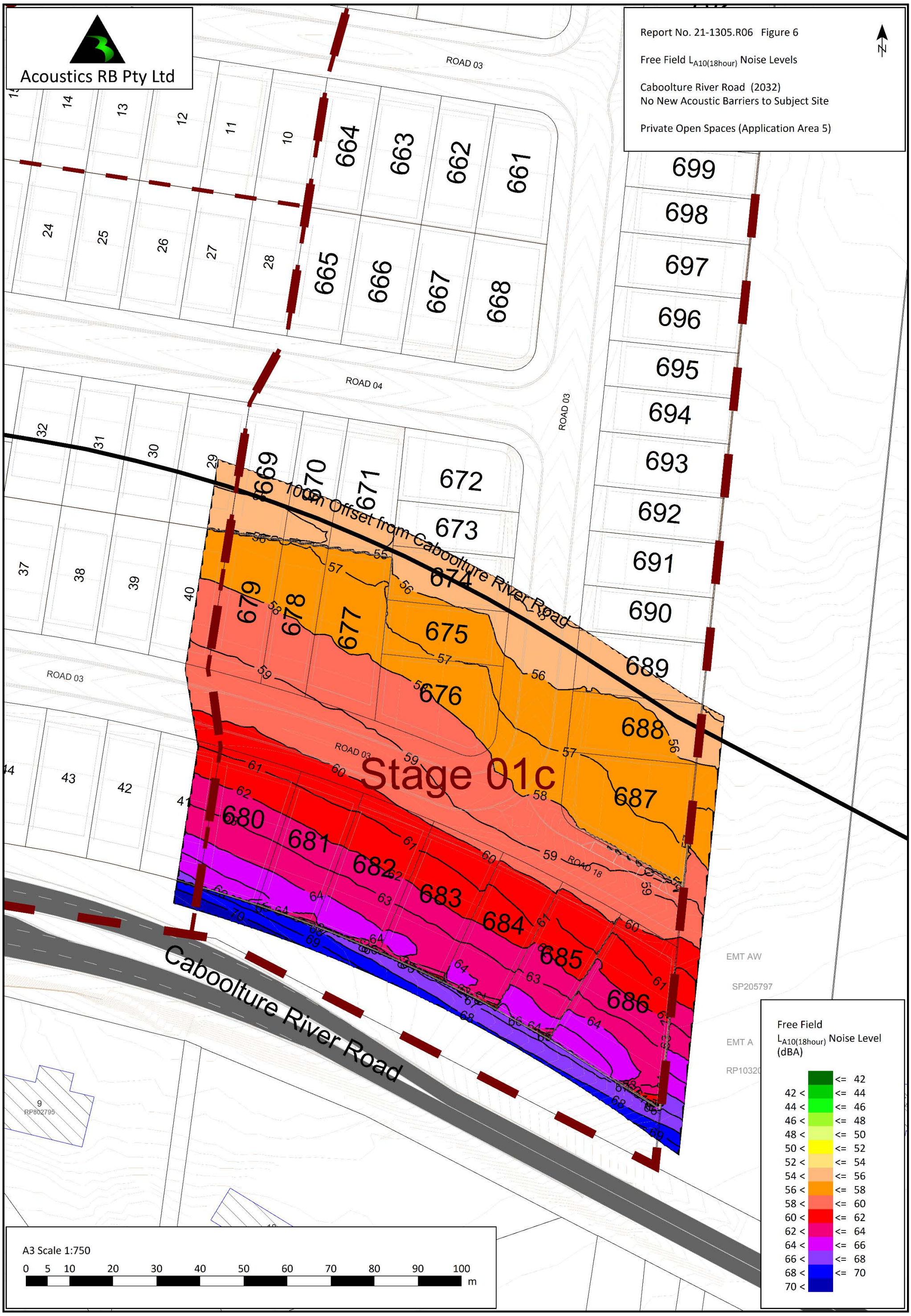
Acoustics RB Pty Ltd

Report No. 21-1305.R06 Figure 6

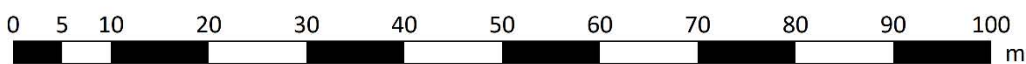
Free Field $L_{A10(18\text{hour})}$ Noise Levels

Caboolture River Road (2032)
No New Acoustic Barriers to Subject Site

Private Open Spaces (Application Area 5)



A3 Scale 1:750





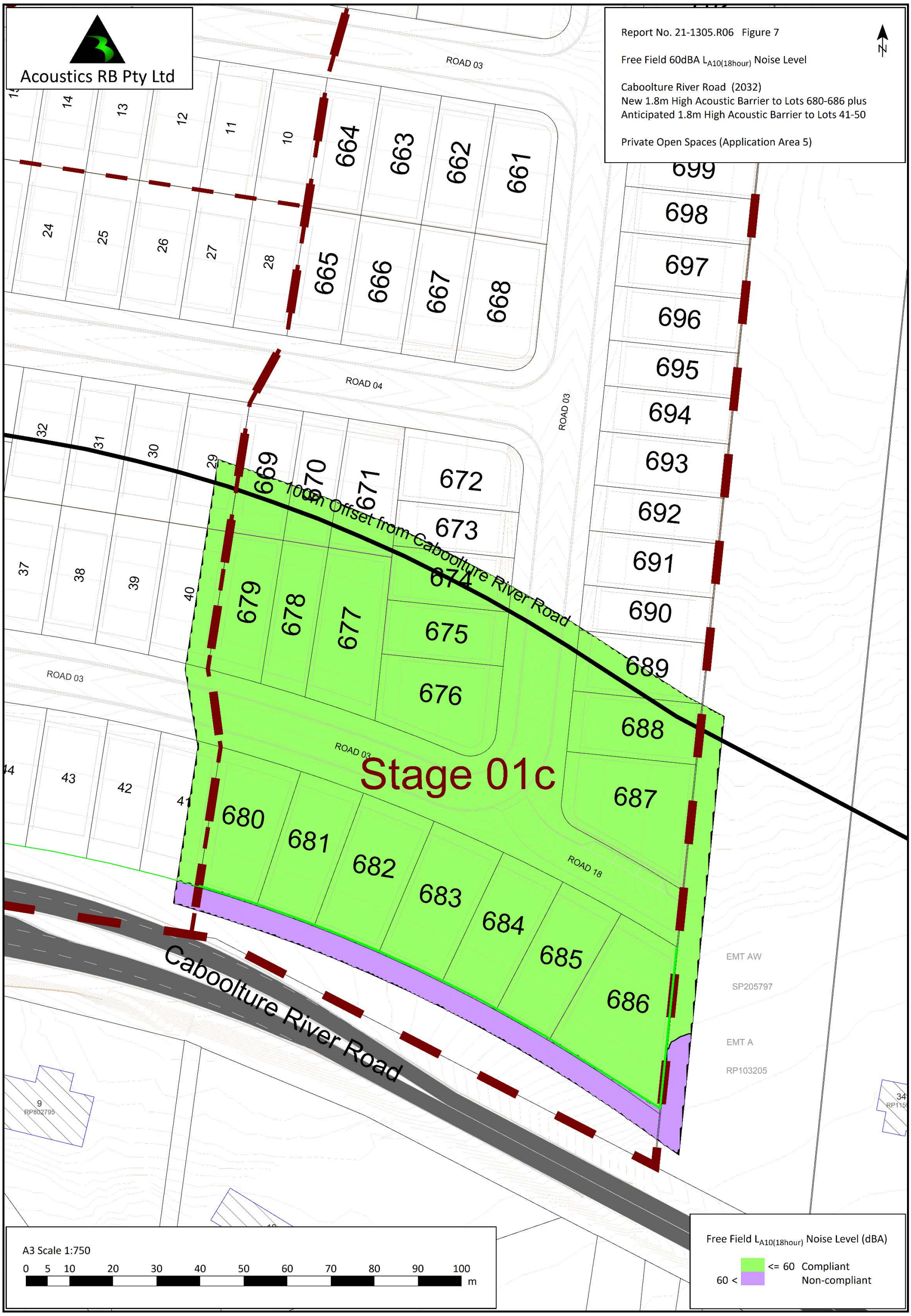
Acoustics RB Pty Ltd

Report No. 21-1305.R06 Figure 7

Free Field 60dBA $L_{A10(18\text{hour})}$ Noise Level

Caboolture River Road (2032)
New 1.8m High Acoustic Barrier to Lots 680-686 plus
Anticipated 1.8m High Acoustic Barrier to Lots 41-50

Private Open Spaces (Application Area 5)



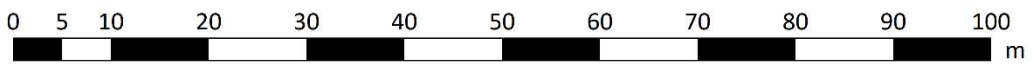
Stage 01c

100m Offset from Caboolture River Road

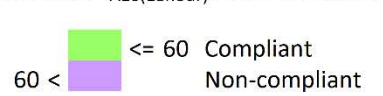
Caboolture River Road

EMT AW
SP205797
EMT A
RP103205

A3 Scale 1:750



Free Field $L_{A10(18\text{hour})}$ Noise Level (dBA)





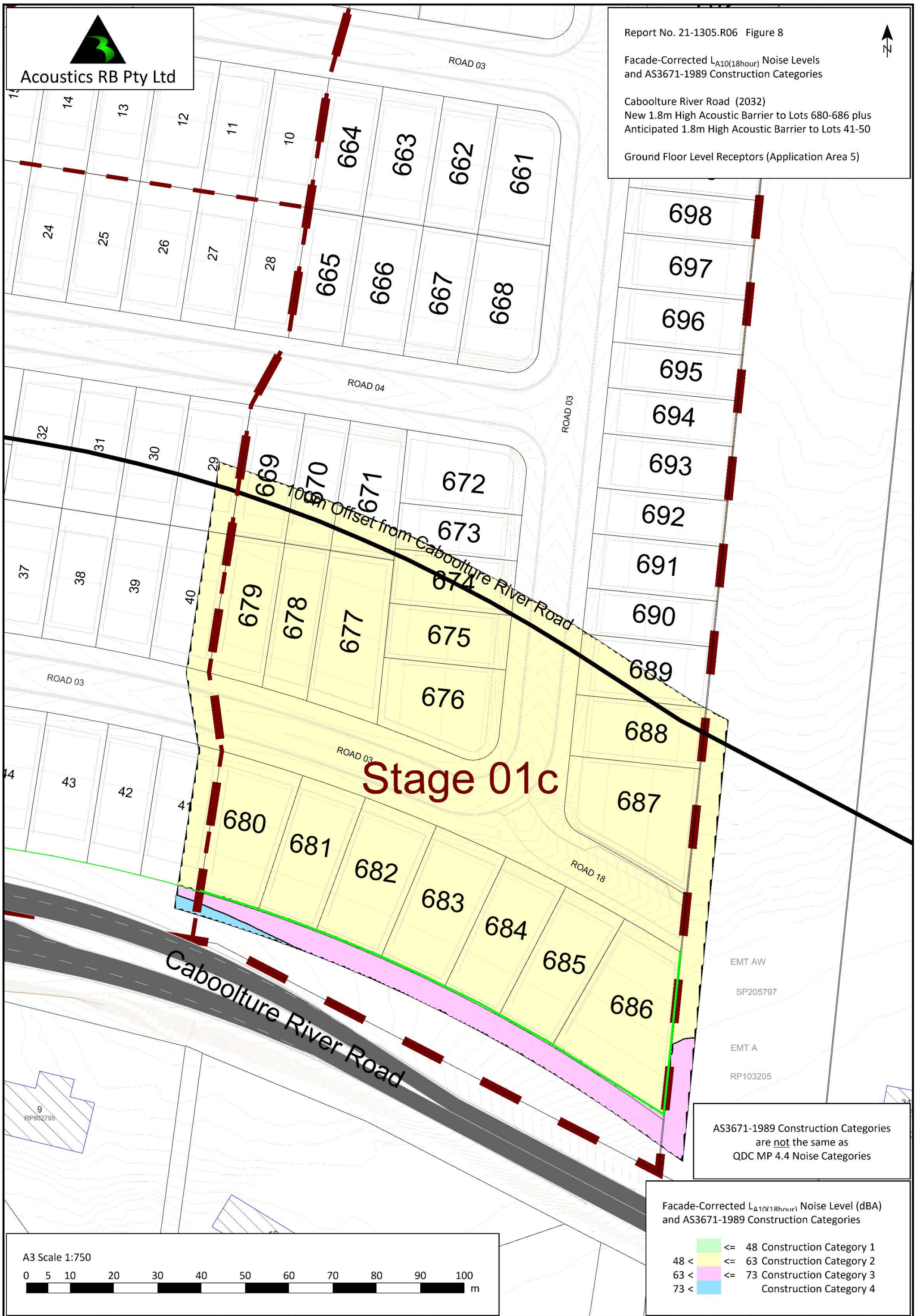
Acoustics RB Pty Ltd

Report No. 21-1305.R06 Figure 8

Facade-Corrected $L_{A10(18hr)}$ Noise Levels and AS3671-1989 Construction Categories

Caboolture River Road (2032)
New 1.8m High Acoustic Barrier to Lots 680-686 plus
Anticipated 1.8m High Acoustic Barrier to Lots 41-50

Ground Floor Level Receptors (Application Area 5)



Stage 01c

100m Offset from Caboolture River Road

Caboolture River Road

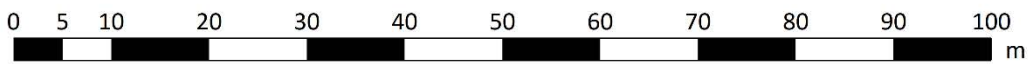
EMT AW
SP205797
EMT A
RP103205

AS3671-1989 Construction Categories are not the same as QDC MP 4.4 Noise Categories

Facade-Corrected $L_{A10(18hr)}$ Noise Level (dBA) and AS3671-1989 Construction Categories

- ≤ 48 Construction Category 1
- 48 < ≤ 63 Construction Category 2
- 63 < ≤ 73 Construction Category 3
- 73 < Construction Category 4

A3 Scale 1:750





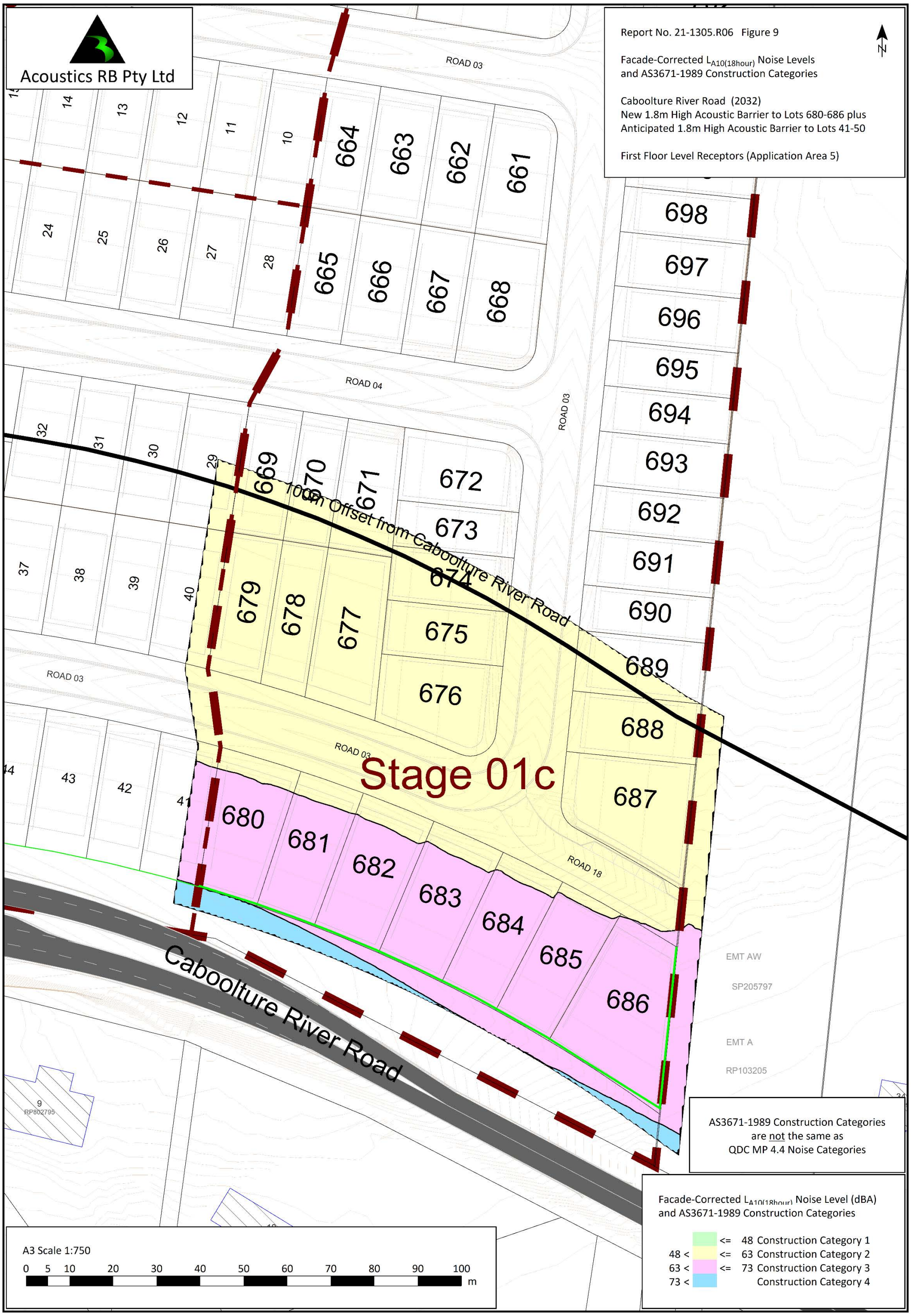
Acoustics RB Pty Ltd

Report No. 21-1305.R06 Figure 9

Facade-Corrected $L_{A10(18hr)}$ Noise Levels and AS3671-1989 Construction Categories

Caboolture River Road (2032)
New 1.8m High Acoustic Barrier to Lots 680-686 plus
Anticipated 1.8m High Acoustic Barrier to Lots 41-50

First Floor Level Receptors (Application Area 5)

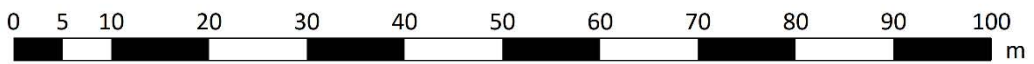


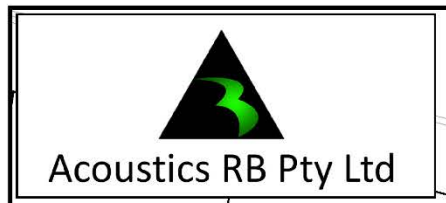
AS3671-1989 Construction Categories are not the same as QDC MP 4.4 Noise Categories

Facade-Corrected $L_{A10(18hr)}$ Noise Level (dBA) and AS3671-1989 Construction Categories

- ≤ 48 Construction Category 1
- $48 < \leq 63$ Construction Category 2
- $63 < \leq 73$ Construction Category 3
- $73 <$ Construction Category 4

A3 Scale 1:750


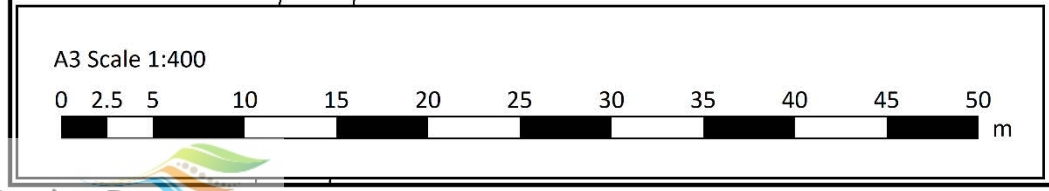
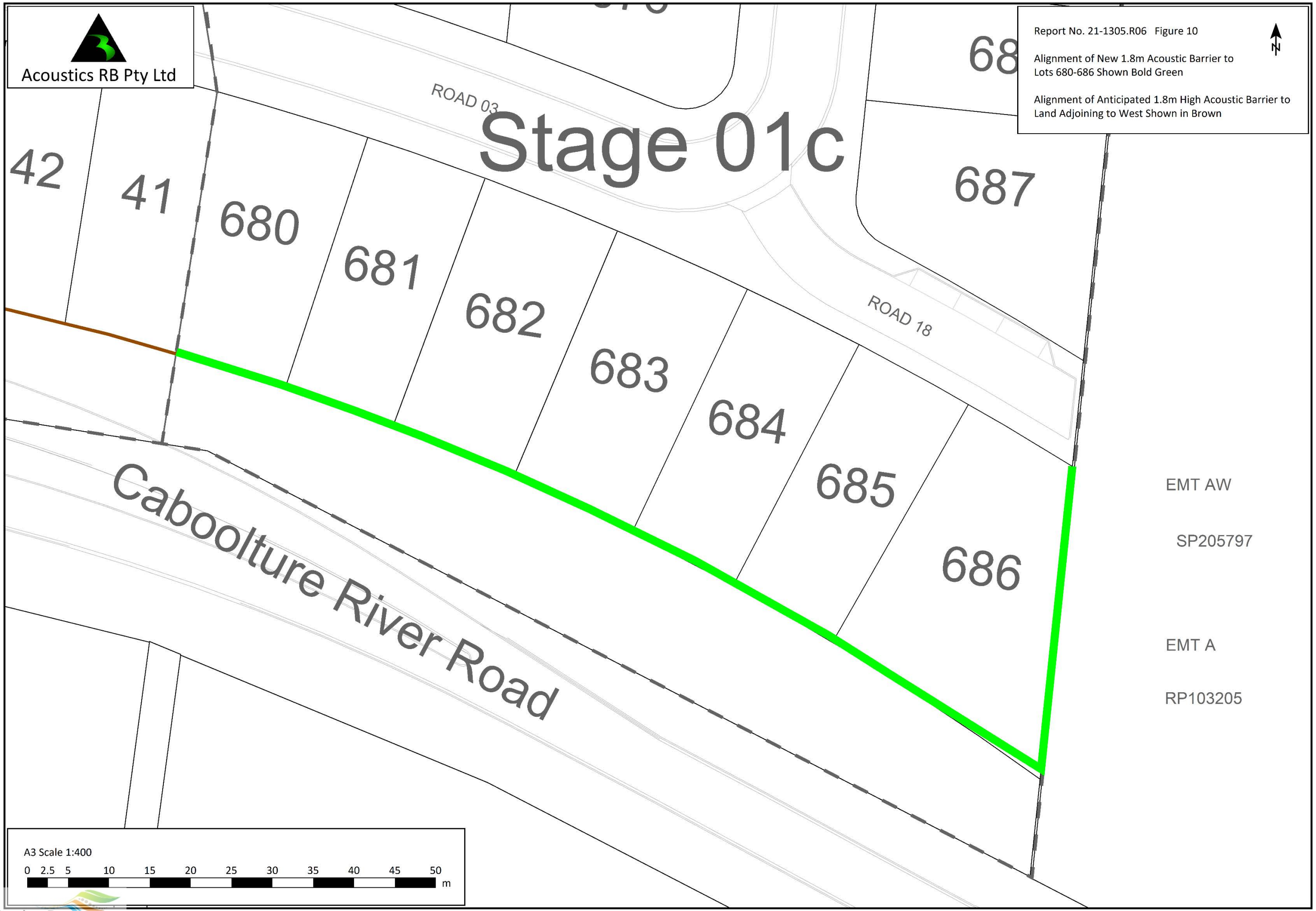




Report No. 21-1305.R06 Figure 10

Alignment of New 1.8m Acoustic Barrier to Lots 680-686 Shown Bold Green

Alignment of Anticipated 1.8m High Acoustic Barrier to Land Adjoining to West Shown in Brown

Attachment A

Constraint on Adoption of QDC MP 4.4

Section 8 *Assessment of Road Traffic and Railway Noise* of SC 6.16 *Planning Scheme Policy – Noise* outlines the process of establishing acceptable acoustical amenity at sites impacted by noise from roads and railways. At Section 8.1 *Reconfiguring a Lot* of SC 6.16, it is stated:-

“The [transport noise impact] assessment is to be in accordance with MP4 .4 of the QDC. The assessment is to identify the noise category applicable to each lot in the proposed development for both lower and upper levels. Noise categories are defined in Schedule 3 of MP4.4.”

With respect to s.8.1, it is relevant to have regard to *Queensland Development Code MP4.4 Buildings in a Transport Noise Corridor* (QDC MP4.4) and Chapter 8B (especially s.246X) of *Building Act 1975*.

The relevant extracts from QDC MP4.4 follow below.

1 Purpose

To ensure *habitable rooms* of particular residential buildings located in *transport noise corridors* are designed and constructed to reduce the extent to which *transport noise* intrudes into those rooms.

3 Application

This QDC part applies to building work for a *relevant residential building* if the work is the subject of a building development application made on or after 17 August 2015.

6 What is a relevant residential building

A building is a *relevant residential building* if:

- (a) a building development application for the construction of the building is made after 31 August 2010; and
- (b) the building:
 - (i) is a class 1, 2, 3 or 4 building; and
 - (ii) **is located in a transport noise corridor**; and
 - (iii) is not a *relocated building*; and
- (c) the building development approval for the construction of the building was not given under the building assessment provisions in force immediately before 1 September 2010, under section 37 of the *Building Act 1975*.

At Section 8 *Definitions* of QDC MP4.4, “transport noise corridor is defined as follows:-

Transport noise corridor means land designated under Chapter 8B of the *Building Act 1975* as a *transport noise corridor*.

Note: This is identified in State and Local Government records as described in a gazettal notice following designation of the transport noise corridor.

As noted above, the purpose of QDC MP4.4 is to ensure control of transport noise intrusion into particular residential buildings, specifically “relevant residential buildings”, where as noted in the definition above, a relevant residential building must be located within a Transport Noise Corridor (TNC) as defined at Chapter 8B of *Building Act 1975* and, more particularly, at s.246X and s.246Y of the Act.

The subject site is not located in a TNC. Therefore, the provisions of QDC MP4.4 are not triggered.

Whether it is possible to extend the application of QDC MP 4.4 beyond its purpose is a town planning/legal question.

In the absence of an answer to that question and to avoid any inadvertent conflict by attempting to invoke QDC MP 4.4 where it cannot be properly applied, the appropriate means of controlling of road traffic noise intrusion is to apply the more robust methodology of the calculation methods of AS3671-1989 *Acoustics – Road traffic noise intrusion - Building siting and construction* to the design of noise affected residences, with the goal being to achieve compliance with the recommended internal sound levels of AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*.

Attachment B

Derivation of Upper and Lower Bounds of Construction Categories

The upper and lower bounds of the Construction Categories can be derived in the following manner.

Internal noise level limits set by AS/NZS 2107:2016:-

- * Bedrooms and sleeping areas: 35dBA ($L_{Aeq,1hr}$ night)
- * Living and work areas: 40dBA ($L_{Aeq,1hr}$ day)

Reduction external to internal, glazing open
(includes conversion from free field to facade-corrected): 10dBA

External noise limits (facade-corrected):-

- * Night: 45dBA ($L_{Aeq,1hr}$ night)
- * Day: 50dBA ($L_{Aeq,1hr}$ day)

Offsets: +3.3dBA (night)
-0.6dBA (day)

Resultant Facade-Corrected External $L_{A10(18hour)}$ Limit:

- * Based on internal limits during night: 48.3dBA (48dBA rounded)
- * Based on internal limits during day: 49.4dBA (49dBA rounded)

On the basis of these results, the noise level external to the most exposed facade of any residence should not exceed a facade-corrected noise level of **48dBA** $L_{A10(18hour)}$ if the internal noise level limits of AS/NZS 2107:2000 are to be met when windows and external doors are **open**. This is the upper bound Construction Category 1 and the lower bound of Construction Category 2.

Internal noise level limits set by AS/NZS 2107:2016:-

- * Bedrooms and sleeping areas: 35dBA ($L_{Aeq,1hr}$ night)
- * Living and work areas: 40dBA ($L_{Aeq,1hr}$ day)

Reduction external to internal, glazing open
(includes conversion from free field to facade-corrected): 25dBA

External noise limits (facade-corrected):-

- * Night: 60dBA ($L_{Aeq,1hr}$ night)
- * Day: 65dBA ($L_{Aeq,1hr}$ day)

Offsets: +3.3dBA (night)
-0.6dBA (day)

Resultant Facade-Corrected External $L_{A10(18hour)}$ Limit:

- * Based on internal limits during night: 63.3dBA (63dBA rounded)
- * Based on internal limits during day: 64.4dBA (64dBA rounded)

On the basis of these results, the noise level external to the most exposed facade of any residence should not exceed a facade-corrected noise level of **63dBA** $L_{A10(18hour)}$ if the internal noise level limits of AS/NZS 2107:2016 are to be met when standard construction windows and external doors are **closed**. This is the upper bound Construction Category 2 and the lower bound of Construction Category 3.



Ecological Assessment Report

393 & 403 Caboolture River Road, Upper Caboolture,
Queensland 4510

Prepared for Lennium Group Pty Ltd

2 November 2022

11071 E



■ Ecological Assessment Report

Document control

Document: Ecological Assessment Report – 393 & 403 Caboolture River Road, Upper Caboolture, Queensland 4510 by Saunders Havill Group for Lennium Group Pty Ltd, dated 2 November 2022.

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Prepared by

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Acronyms

DBH	Diameter at Breast Height
DOR	Department of Resources (Cth)
EAC	Environmental Areas and Corridors (MBRC)
EAR	Ecological Assessment Report
EPBC	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Cth)
GIN	Green Infrastructure Network
ha	hectares
KHA	Koala Habitat Area
KPA	Koala Priority Area
km	kilometres
LGA	Local Government Area
m	metres
mm	millimetres
MBRC	Moreton Bay Regional Council
MLES	Matters of Local Environmental Significance
MNES	Matters of National Environmental Significance
MSES	Matters of State Environmental Significance
NCA	<i>Nature Conservation Act 1992</i> (Qld)
NCAR	<i>Nature Conservation (Animals) Regulation 2020</i> (Qld)
NCPR	<i>Nature Conservation (Plants) Regulation 2020</i> (Qld)
NJKHT	Non-juvenile Koala Habitat Tree
PMAV	Property Map of Assessable Vegetation
PMR	Protected Matters Report
PMST	Protected Matters Search Tool
PR	<i>Planning Regulation 2017</i> (Qld)
PSP	Planning Scheme Policy
RE	regional ecosystem
RVMM	Regulated Vegetation Management Map
RVSM	Regulated Vegetation Supporting Map
SHG	Saunders Havill Group
SPP	<i>State Planning Policy 2017</i> (Qld)
SRZ	Structural Root Zone
TEC	Threatened Ecological Community
TPZ	Tree Protection Zone
VCFMP	Vegetation Clearing and Fauna Management Plan
VMA	<i>Vegetation Management Act 1999</i> (Qld)

■ Ecological Assessment Report

1. Introduction

Saunders Havill Group (SHG) was engaged by Lennium Group Pty Ltd to prepare an Ecological Assessment Report (EAR) for land located at 403 and part of 393 Caboolture River Road, Upper Caboolture (described as Lot 35 on RP115959 and part of Lot 34 on RP115959). This report is intended to support a Development Application to Moreton Bay Regional Council (MBRC) under the *Moreton Bay Regional Council Planning Scheme 2016*, Ver. 6.

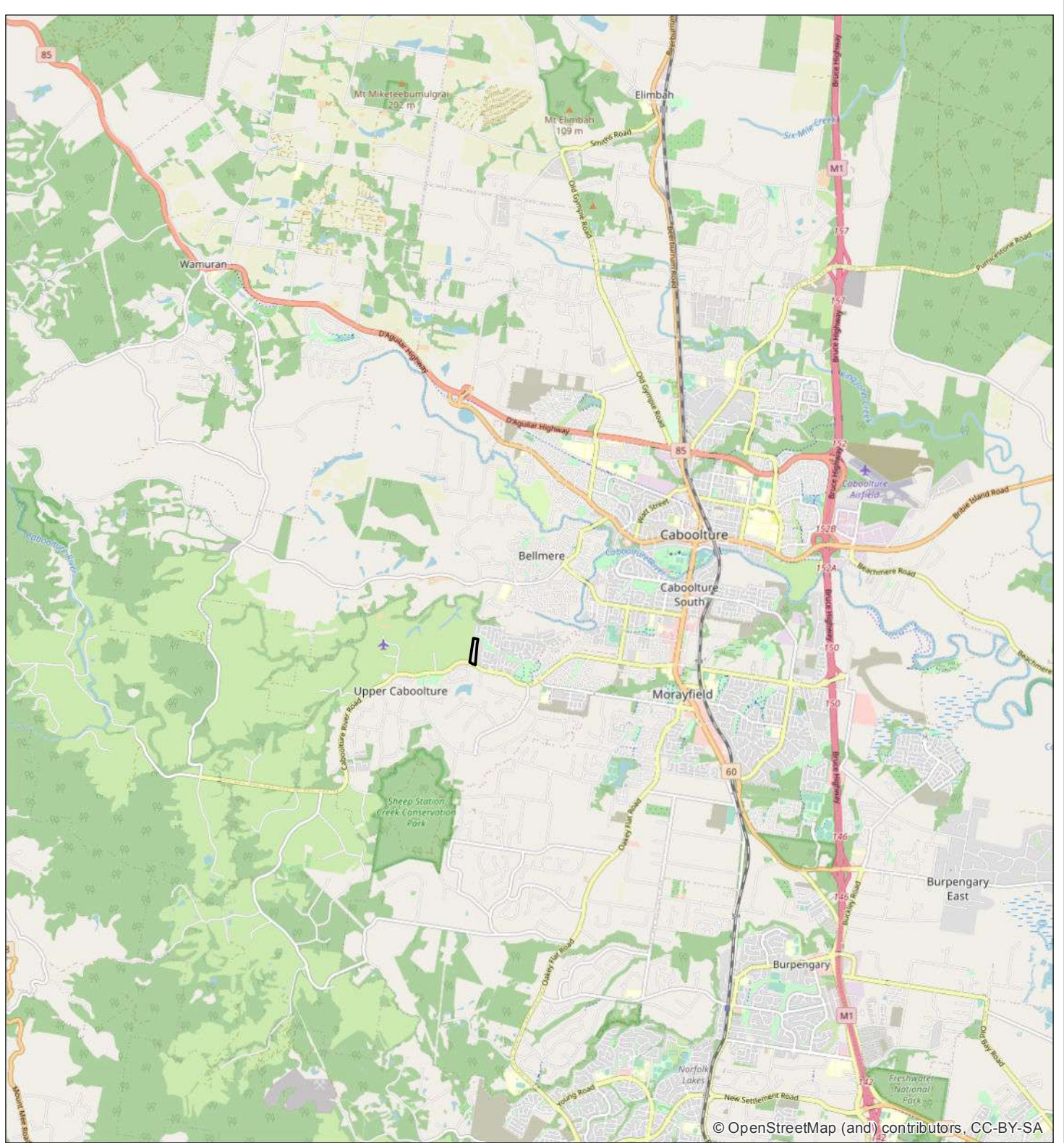
Contextually, the site is located approximately 3.9 km west of Morayfield Town Centre and is currently used as a rural residential property dominated by highly modified vegetation values. The site directly adjoins the Caboolture West Local Plan Area to the west. Higher ecological values in the broader landscape are associated with the Caboolture River located approximately 300 m north of the site (refer **Figure 1** and **Figure 2**). Key site details are provided in **Table 1**.

Table 1: Property Summary

Address	403 and 393 Caboolture River Road, Upper Caboolture, Queensland 4510
Lot/plan	Lot 35 on RP115959 Part of Lot 34 on RP115959
Area	4.44 ha
Local government area	Moreton Bay Regional Council (MBRC)
Planning Scheme / Local Plan	MBRC Planning Scheme 2016 (V6)
Zone	General Residential (Suburban neighbourhood precinct) Limited Development
Existing Land Use	Rural residential
Proposed Land Use	Residential subdivision
Vegetation Management Act 1999	PMAV reference number 2022/001541 Category X (non-remnant) vegetation

1.1. Purpose of the report

This report provides a review of the site's ecological values in accordance with Commonwealth, State and Local Government legislation. The purpose of this EAR is to present the outcomes of field surveys, identify environmental site constraints, assess the potential of the project to impact on ecological features and respond to the *MBRC Planning Scheme 2016* (Planning Scheme) and the Planning Scheme Policy – Environmental areas and corridors (PSP EAC).



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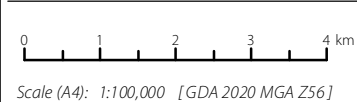
Legend

 Site DCDB

Figure 1
Site Context

Lennium Group
Pty Ltd

File ref. 11071 E Figure 1 Site Context B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



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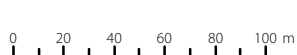
Legend

-  Site DCDB
-  Qld DCDB

Figure 2
Site Aerial

Lennium Group
Pty Ltd

File ref. 11071 E Figure 2 Site Aerial B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



Scale (A4): 1:3,000 [GDA 2020 MGA Z56]

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2. Ecological assessment methodology and process

The following steps were undertaken in the preparation of this assessment:

1. desktop analysis;
2. legislation and policy review;
3. field survey;
4. impact assessment and development analysis; and
5. conclusion and recommendations.

Details of the methodology undertaken for each of the assessment phases is provided herein.

2.1. Desktop analysis methodology

Prior to the commencement of field surveys, a desktop analysis was conducted of Commonwealth, State and Local environmental databases and overlay mapping including the following:

- Commonwealth Matters of National Environmental Significance (MNES) protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on and around the site using the Protected Matters Search Tool (PMST);
- *Nature Conservation Act 1992* (NCA) listed threatened species on and around the site using the Wildlife Online database;
- Publicly available information from environmental databases including Atlas of Living Australia;
- State Government environmental overlay mapping including:
 - Regulated Vegetation Management Maps under the *Vegetation Management Act 1999* (VMA);
 - Flora Survey Trigger Areas under the NCA;
 - fish habitat and passage under the *Fisheries Act 1994*;
 - watercourses under the *Water Act 2000*;
 - weeds under the *Biosecurity Act 2014*; and
 - Matters of State Environmental Significance (MSES) under the State Planning Policy (SPP) (*i.e.*, wetland protection areas, koala habitat etc);
- *Moreton Bay Regional Council Planning Scheme 2016* documents and maps.

■ Ecological Assessment Report

2.1.1 Aerial History

Historic aerial imagery dating back to the 1950s shows the site and surrounding landscape as cleared paddock containing scattered trees (refer **Figure 3**). The majority of the site is now maintained as cleared paddock with scattered trees.

2.2. Field survey methodology

Methodologies utilised during the field survey to evaluate site ecological values is discussed in the following subsections.

Fauna surveys were conducted under the following permits held by Saunders Havill Group:

- Scientific Purposes Permit **WA0022007** granted under Section 12(f) of Nature Conservation (Administration) Regulation 2017
- Department of Agriculture and Fisheries (DAF) Ethics clearance **CA 2020/02/1355**
- Scientific User Registration **SUR000451**

A field survey utilising the following methods was conducted to describe on site vegetation and general habitat values (refer **Plan 1**).

2.2.1 Observational survey for species and communities

The entire development site area was walked to ensure all species (flora and fauna) were recorded and identified. Particular attention was paid to any MNES and MSES that were listed as possibly occurring on or within the vicinity of the site and specific micro-assemblages which may support these threatened species. This included observation of vertebrate fauna present on or proximal to the site, including faunal lists and status of species significance under the Commonwealth's EPBC Act (using JAMBA, CAMBA, ROKAMBA and the Bonn Convention) and Queensland's NCA.

The observational survey included identification of ecological features and values such as broad vegetation communities, fauna habitats and potential ecological corridors. Recording fauna habitat features within the project area included the identification of Council defined habitat trees. Specific attention was paid to flora and fauna species listed as priority species by MBRC.

2.2.2 Ground-truthing of vegetation communities

Vegetation was ground-truthed and assessed against current and pre-clear VMA Regional Ecosystem (RE) mapping. This included reviewing the accuracy and extent of mapped RE types in addition to the broad vegetation condition. Particular attention was paid to identifying whether or not threatened ecological communities (TECs) identified as having the potential to occur on or proximal to the site were present during field survey.

■ Ecological Assessment Report

2.2.3 GPS tree plot

A tree survey was completed to locate and describe the vegetation values, including native trees within the waterway corridor. A handheld GPS device (Trimble) is used to record sub metre accurate locations (in some cases use survey accurate locations), and the following parameters of each tree specimen recorded:

- tree species, via a combination of observations of the gum nuts, buds, leaves, bark and growth form;
- diameter of the trunk of the tree is measured using the standard method of Diameter at Breast Height (DBH);
- height of the tree is measured using a laser rangefinder with three-point measurement capability (inclinometer);
- canopy spread;
- health assessment (canopy, trunk); and
- habitat values (for example, presence and/or number of hollows, nests, termites, scratches, scats)

The Tree Protection Zone (TPZ) of the tree was calculated using the formula outlined in Australian Standard AS4970-2009 – Protection of Trees on Development Sites (TPZ = DBH x 12). A TPZ should not be less than 2 metres no greater than 15 metres (except where crown protection is required.) The Structural Root Zone (SRZ) was calculated using the measured DBH and the following formula:

$$\text{SRZ radius} = (\text{DBH} \times 50)0.42 \times 0.64.$$

2.2.4 Waterway assessment

The drainage lines located within the assessment area were investigated for watercourse values. Points were taken for each assessment location. Detailed assessment was completed at each location, consisting of the following:

- General description.
- Waterway assessment photography (e.g. upstream, downstream, left bank, right bank).
- Channel shape and evidence of modification.
- In-stream habitat features (e.g. overhanging vegetation, root ball, coarse woody debris, channel shading).
- Vegetation quality and coverage (e.g. embankments, channel and overall corridor).
- Bed, bank and bar conditions (e.g. erosion cut outs, scouring and sediment deposition levels).
- Extent of invasive weed cover.

2.2.5 Identification of Biodiversity Values and MBRC Habitat Trees

The site was assessed for any potential biodiversity values which included the identification and tree plot of all MBRC defined Habitat Trees and observations for significant flora and vertebrate fauna species that are listed under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) including the JAMBA, CAMBA, ROKAMBA and the Bonn Convention, and Queensland's *Nature Conservation Act 1992* (NCA). Particular attention was paid to any threatened species that were listed as possibly occurring

■ Ecological Assessment Report

on or within the vicinity of the application area and specific micro-assemblages which may support these threatened species.

2.2.6 Motion sensor camera trap

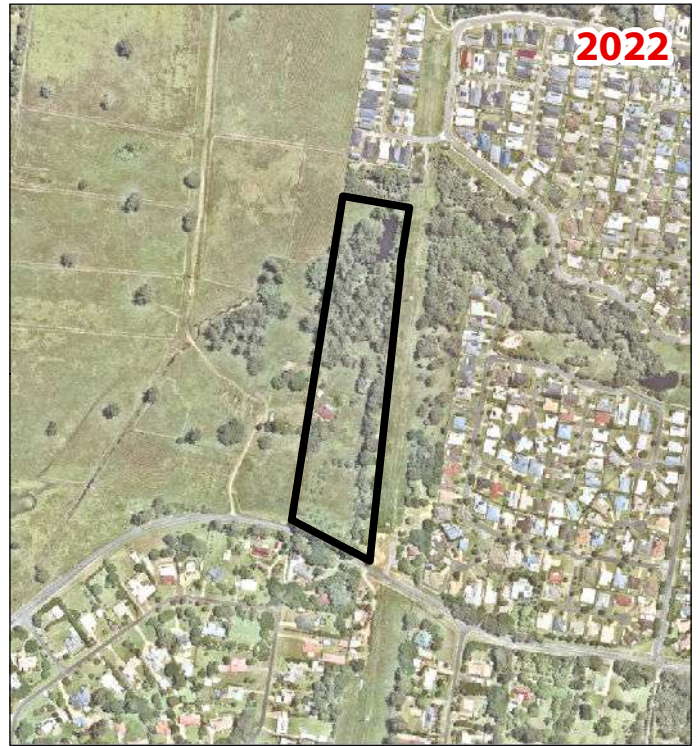
Infrared camera traps were installed in two (2) locations within site waterway corridor targeted at threatened species and cryptic fauna. The cameras were installed on 11 March 2022 and collected on 30 March 2022 for a period of 19 days. Camera traps were baited with a mixture of peanut butter and oats, with cameras fixed to a tree approximately 70 cm from the ground and 100-150 cm in front of the bait station.

Camera images were downloaded and analysed with all species identified included in the site fauna list.

2.2.7 Spotlighting – nocturnal survey

This non-intrusive survey technique is an effective method to obtain estimates of nocturnal arboreal mammal incidence and abundance in wooded habitats. Spotlighting also targets medium to large terrestrial nocturnal mammals, and can detect other nocturnal taxon groups (e.g. frogs, geckoes, nocturnal snakes, nocturnal birds, spiders).

A combination of high-powered spotlights and head torches were used to sample mammals, birds, reptiles and frogs across the subject site. This technique involved detecting eye shine. Additional information recorded included the prevailing conditions and search effort. This methodology was completed on 30 March 2022.



Legend

 Site DCDB

Figure 3
Historical Aerial Imagery

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File ref. 11071 E Figure 3 Historical Imagery B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



0 100 200 300 400 m



Scale (A4): 1:10,000 [GDA 2020 MGA Z56]

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1. Field Survey Effort










Notes:
 This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
 © State of Queensland (Department of Resources) 2022.
 Updated data available at <http://qldspatialinformation.qld.gov.au/catalogue/>
 © Neamap, 2021

* This note is an integral part of this plan/data. Reproduction of this plan or any part of it without this note being included in full will render the information shown on such reproduction invalid and not suitable for use.

Legend

-  Site DCDB
-  Qld DCDB
-  Track Log
-  Spotlighting
-  Waterway Assessment Locations
-  Camera Trap Locations
-  Frog Call Playback

Issue	Date	Description	Drawn	Checked
A	14/04/2022	Preliminary	TF	AD
B	25/10/2022	Preliminary	TF	AD



Transverse Mercator | GDA 2020 | Zone 56 | 1:1,500 @ A3

3. Legislation, policy and planning instruments

3.1. Environment Protection and Biodiversity Conservation Act 1999

The Australian Government’s key piece of environmental legislation is the EPBC Act. The EPBC Act aims to protect and manage MNES which include nationally and internationally important flora, fauna, ecological communities and heritage places.

An EPBC Act Protected Matters Report (PMR) was obtained using the Commonwealth’s Protected Matters Search Tool (PMST). The search provides a list of wetlands of international significance, TECs, threatened species and other MNES which have the potential to be temporarily or permanently located within a 5 km search radius from the development site. **Table 2** lists a summary of these results relevant to the site. The PMR is provided in **Appendix A**.

Table 2: EPBC Act PMR search results

Wetlands of International Importance (Ramsar)		
Moreton Bay		Within 10 km of Ramsar
Threatened Ecological Communities		
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community – Endangered – Community may occur within area		
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland – Endangered – Community Known to occur		
Lowland Rainforest of Subtropical Australia – Critically Endangered – Community may occur within area		
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions – Endangered – Community likely to occur within area		
White Box-Yellow Box-Blakely’s Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered – Community may occur within area		
Threatened species		
Scientific name	Common name	Status
BIRDS		
<i>Anthochaera phrygia</i>	Regent Honeyeater	Critically Endangered
<i>Botaurus poiciloptilus</i>	Australasian Bittern	Endangered
<i>Calidris ferruginea</i>	Curlew Sandpiper	Critically Endangered
<i>Calyptorhynchus lathami lathami</i>	South-eastern Glossy Black-Cockatoo	Vulnerable
<i>Charadrius leschenaultia</i>	Greater Sand Plover	Vulnerable
<i>Cyclopsitta diophthalma coxeni</i>	Coxen’s Fig-Parrot	Endangered

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Threatened species

Scientific name	Common name	Status
<i>Erythrotriorchis radiatus</i>	Red Goshawk	Vulnerable
<i>Falco hypoleucos</i>	Grey Falcon	Vulnerable
<i>Geophaps scripta scripta</i>	Squatter Pigeon (southern)	Vulnerable
<i>Hirundapus caudacutus</i>	White-throated Needletail	Vulnerable
<i>Lathamus discolor</i>	Swift Parrot	Critically Endangered
<i>Numenius madagascariensis</i>	Eastern Curlew	Critically Endangered
<i>Rostratula australis</i>	Australian Painted Snipe	Endangered
<i>Turnix melanogaster</i>	Black-Breasted Button-Quail	Vulnerable
FROGS		
<i>Mixophyes fleayi</i>	Fleay's Frog	Endangered
<i>Mixophyes iteratus</i>	Giant Barred Frog	Vulnerable
INSECTS		
<i>Argynnis hyperbius inconstans</i>	Australian Fritillary	Critically Endangered
MAMMALS		
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Vulnerable
<i>Dasyurus hallucatus</i>	Northern Quoll	Endangered
<i>Dasyurus maculatus maculatus</i>	Spot-tailed Quoll	Endangered
<i>Macroderma gigas</i>	Ghost Bat	Vulnerable
<i>Petauroides volans</i>	Greater Glider	Endangered
<i>Petaurus australis australis</i>	Yellow-bellied Glider (south-eastern)	Vulnerable
<i>Phascolarctos cinereus</i>	Koala	Endangered
<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo	Vulnerable
<i>Pteropus poliocephalus</i>	Grey-headed Flying-Fox	Vulnerable
PLANTS		
<i>Arthraxon hispidus</i>	Hairy-joint Grass	Vulnerable
<i>Bosistoa transversa</i>	Three-leaved Bosistoa	Vulnerable
<i>Cryptocarya foetida</i>	Stinking Cryptocarya	Vulnerable
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	Vulnerable
<i>Cupaniopsis shirleyana</i>	Wedge-leaf Tuckeroo	Vulnerable
<i>Macadamia integrifolia</i>	Macadamia Nut	Vulnerable
<i>Macadamia ternifolia</i>	Small-fruited Queensland Nut	Vulnerable

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Threatened species

Scientific name	Common name	Status
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	Vulnerable
<i>Persicaria elatior</i>	Knotweed	Vulnerable
<i>Phaius australis</i>	Lesser Swamp-orchid	Endangered
<i>Phaius bernaysii</i>	Yellow Swamp-orchid	Endangered
<i>Rhodamnia rubescens</i>	Scrub Turpentine	Critically Endangered
<i>Rhodomyrtus psidioides</i>	Native Guava	Critically Endangered
<i>Samadera bidwillii</i>	Quassia	Vulnerable
<i>Sophora fraseri</i>	-	Vulnerable
<i>Thesium australe</i>	Austral Toadflax	Vulnerable

REPTILES

<i>Coeranoscincus reticulatus</i>	Three-toed Snake-tooth Skink	Vulnerable
<i>Delma torquata</i>	Adorned Delma	Vulnerable
<i>Furina dunmali</i>	Dunmall's Snake	Vulnerable
<i>Hemiaspis damelii</i>	Grey Snake	Endangered

3.2. Nature Conservation Act 1992

The NCA classifies and protects significant areas (protected areas) and protects threatened plant and animal species. The *Nature Conservation (Plants) Regulation 2020* (NCPR) and *Nature Conservation (Animals) Regulation 2020* (NCAR) list plant and animal species presumed extinct, endangered, vulnerable, near threatened, least concern, international or prohibited. The schedules of this regulation were considered in this assessment using a wildlife online database extract with a 5 km radius from the central point of the subject site. The list of threatened species under the NCPR and NCAR with the potential to occur on or near the project are presented in **Table 4** (refer **Appendix B** for complete Wildlife Online search extract).

Table 3: Wildlife Online search results

Scientific name	Common name	Status
AMPHIBIANS		
<i>Adelotus brevis</i>	Tusked Frog	Vulnerable
<i>Crinia tinnula</i>	Wallum Froglet	Vulnerable
<i>Mixophyes iteratus</i>	Giant Barred Frog	Vulnerable
BIRDS		
<i>Hirundapus caudacutus</i>	White-throated Needle-tail	Vulnerable

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Scientific name	Common name	Status
<i>Lathamus discolor</i>	Swift Parrot	Endangered
<i>Ninox strenua</i>	Powerful Owl	Vulnerable
MAMMALS		
<i>Phascolarctos cinereus</i>	Koala	Endangered
<i>Petauroides armillatus</i>	Central Greater Glider	Endangered

The protected plants regulatory framework under the NCA, establishing survey and approval triggers, and processes for clearing protected plants. The protected plant definition includes all presumed extinct, critically endangered, endangered, vulnerable and/or near threatened plant species listed by name in Schedules 1 and 2 of the NCPR and least concern wildlife, not listed by name but identified as a plant indigenous to Australia in Schedule 6. Furthermore, the plant must be considered *in the wild* in order to be a protected plant.

The NCA identifies *in the wild* as 'in an independent state of natural liberty'. Several factors influence whether a protected plant is *in the wild*:

- the process by which the plant has become established, *i.e.*, either initiated through human intervention or naturally occurring;
- the natural range of the plant species; and/or
- the ecological situation in which the plant is found.

Typically, planted specimens are not considered *in the wild* and an authority or permission is not necessary for the taking of such specimens. The *Operational Policy Wildlife Management*¹ provides further information on this definition.

If a specimen is confirmed as *in the wild*, the plant must not be 'taken'—which includes being cleared—unless the taking is under:

- a conservation plan applicable to the plant;
- a license, permit or other authority under a regulation; or
- an exemption under a regulation.

A search of the protected plants flora survey trigger map identified that the development site is located wholly outside a 'high risk area' for protected plants. A flora survey in accordance with the Protected Plants Guideline is not required across the site.

If there are *in the wild* threatened plants on-site that will be cleared, the person/entity completing the clearing will need a clearing permit unless an exemption applies.

¹ Department of Environment and Heritage Protection 2015. *When a protected plant in Queensland is considered to be 'in the wild' Operational policy.*

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3.3. *Vegetation Management Act 1999*

The VMA is the key mechanism by which the Queensland Government protects the state's environmental resources pertaining to vegetation. Under the VMA, a series of maps delineate vegetation features across the landscape and features are assigned a conservation value directly related to the extent remaining in the landscape. The VMA also protects other natural resource elements associated with the protected vegetation such as essential habitat (where listed threatened species have been known to occur), wetlands and watercourses. The Regulated Vegetation Management Map (RVMM) shows vegetation categories used to determine clearing requirements. While areas shown on the map as *Category X* are not regulated under the VMA, those shown as *Category A, B, C or R* are subject to clearing requirements. The latter vegetation categories can only be cleared in accordance with an exemption, self-assessable vegetation clearing code, area management plan or development approval. The Regulated Vegetation Supporting Map (RVSM) defining REs, wetlands, watercourses and essential habitat, accompanies the RVMM. Approval to clear native vegetation that is identified as *Category A, B, C or R* is required under the *Planning Act 2016* unless an exemption applies.

A property search of the RVMM identified that the site is mapped entirely as *Category X* (non-remnant) vegetation (refer **Figure 4**). The RVSM shows a watercourse traverses the northern portion of the site (refer **Figure 5**).

Notably, A Property Map of Assessable Vegetation (PMAV) assessment was completed for the subject site and certified by the Department of Resources (DOR), confirming the *Category X* (non-remnant) vegetation mapping (PMAV ref: 2022/001541).

As the site is entirely mapped as *Category X* (non-remnant) vegetation, the proposal involves only 'exempt clearing work' as defined under the Planning Regulation.

3.4. Assessment benchmarks for development in Koala habitat area

South East Queensland Koala habitat protection mechanisms are incorporated into the *Planning Regulation 2017* (PR). Schedule 10 Part 10 of the PR sets out what is and is not prohibited or assessable development in a Koala Habitat Area. Where inside a Koala Priority Area (KPA), the provisions of Schedule 11 of the PR apply unless certain criteria are met (refer Part 10 Division 2 16 A 2). Where outside of a KPA, development that involves interfering with a Koala Habitat Area is assessable unless certain criteria apply (refer Part 10 Division 3 16 B 2). Development for extractive industries in key resource areas is dealt with under Part 10 Division 4. Development that is assessable outside of a KPA is referable to the State and must address SDAP Code 25 Development in South East Queensland Koala Habitat Areas.

The Koala Priority and Koala Habitat Area map identifies the site as wholly within a KPA; however, Koala Habitat Area (core) is not mapped on-site (refer **Figure 6**).

3.5. *Water Act 2000*

Interfering with watercourses may be regulated under the *Water Act 2000*, which sets out requirements for Riverine Protection (Part 4 d (1) s218). The Water Act provides a framework for the sustainable management

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of Queensland's water resources and quarry material. Under the Act, a Riverine Protection Permit is required to be obtained if works within a waterway result in filling or excavation unless these works meet an exemption. A drainage feature is mapped as intersecting the site which is not relevant for the purposes of the *Water Act 2000*. It is noteworthy that the VMA also relies upon the Water Act for the definition of a watercourse.

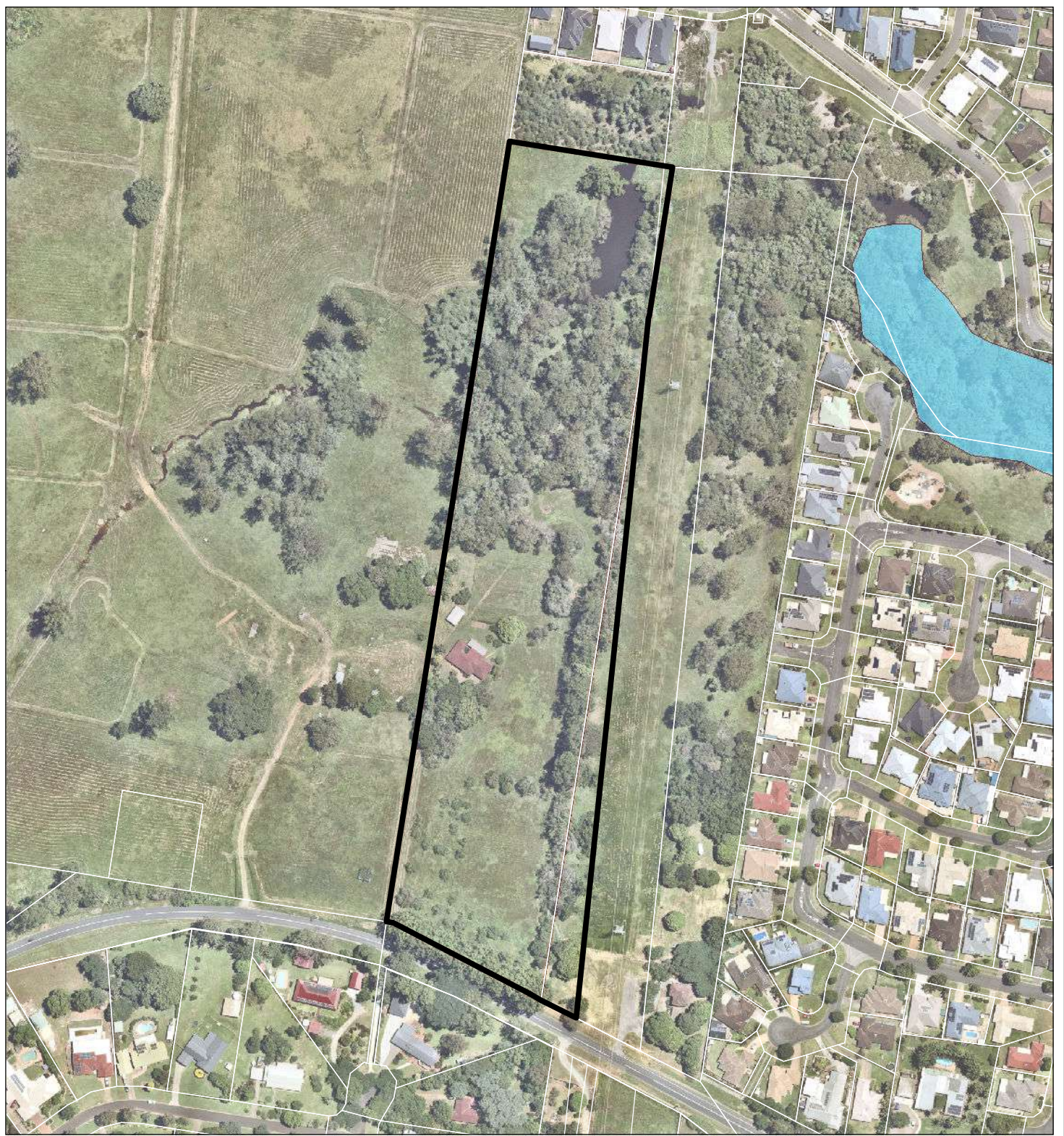
3.6. *Biosecurity Act 2014*

The *Biosecurity Act 2014* commenced on 1 July 2016 and establishes a framework to regulate and control invasive plants and animals. Under the *Biosecurity Act 2014*, land owners are responsible for taking all reasonable and practical steps to minimise the risks associated with invasive plants and animals under their control. These steps are known as the general biosecurity obligation.

The *Biosecurity Act 2014* categorises restricted matter (restricted plants and animals) into the following:

- Category 1: must be reported to an inspector within 24 hours (includes Red Imported Fire Ants, amongst others).
- Category 2: must be reported within 24 hours Biosecurity Queensland on 13 25 23.
- Category 3: must not be distributed either by sale or gift, or released into the environment.
- Category 4: must not be moved.
- Category 5: must not be kept.
- Category 6: must not be fed (animals).
- Category 7: must be euthanised (animals).

Restricted matters observed in the site area listed in **Section 4**.



Legend










-  Site DCDB
-  Qld DCDB
- Regulated Vegetation**
-  Category A area - Vegetation Offset/Compliance notices/VDecs
-  Category B area - Remnant vegetation
-  Category C area - High value regrowth vegetation
-  Category R area - Reef regrowth watercourse vegetation
-  Category X area - Vegetation not regulated under the VMA
-  Water
-  Area not categorised

Figure 4

Regulated Vegetation Management Map

File ref. 11071 E Figure 4 RVMM B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture

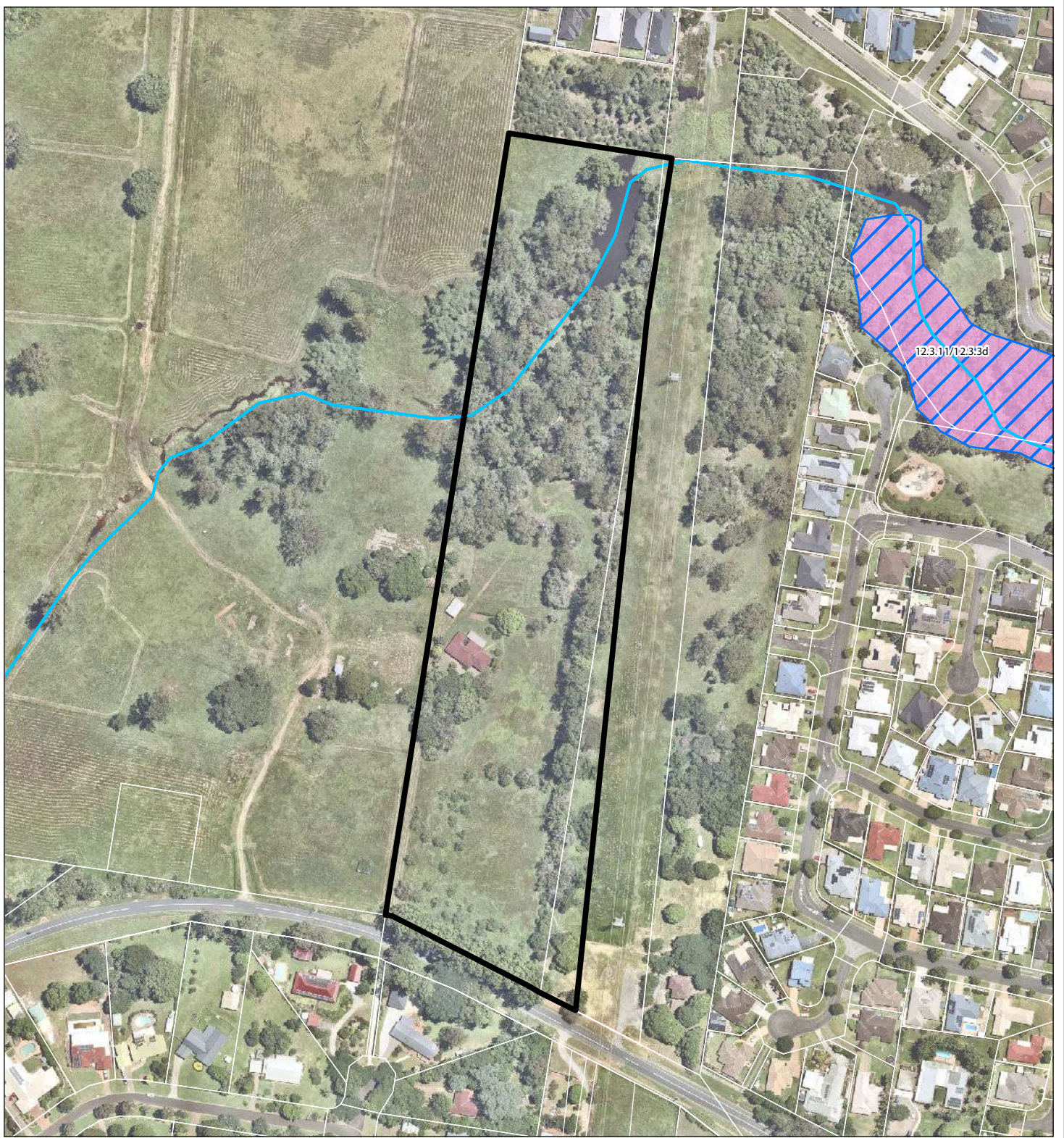
0 20 40 60 80 100 m
 Scale (A4): 1:3,000 [GDA 2020 MGA Z56]



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
- | | | |
|--|----------------------|---|
|  | Site DCDB | Regional Ecosystems mapping |
|  | Qld DCDB |  Category A or B area containing endangered regional ecosystems |
|  | VM Watercourses |  Category A or B area containing of concern regional ecosystems |
|  | VM Essential Habitat |  Category A or B area that is a least concern regional ecosystem |
|  | VM Wetland |  Category C area containing endangered regional ecosystems |
| | |  Category C area containing of concern regional ecosystems |
| | |  Category C area that is a least concern regional ecosystem |

Figure 5
Regulated Vegetation Supporting Map

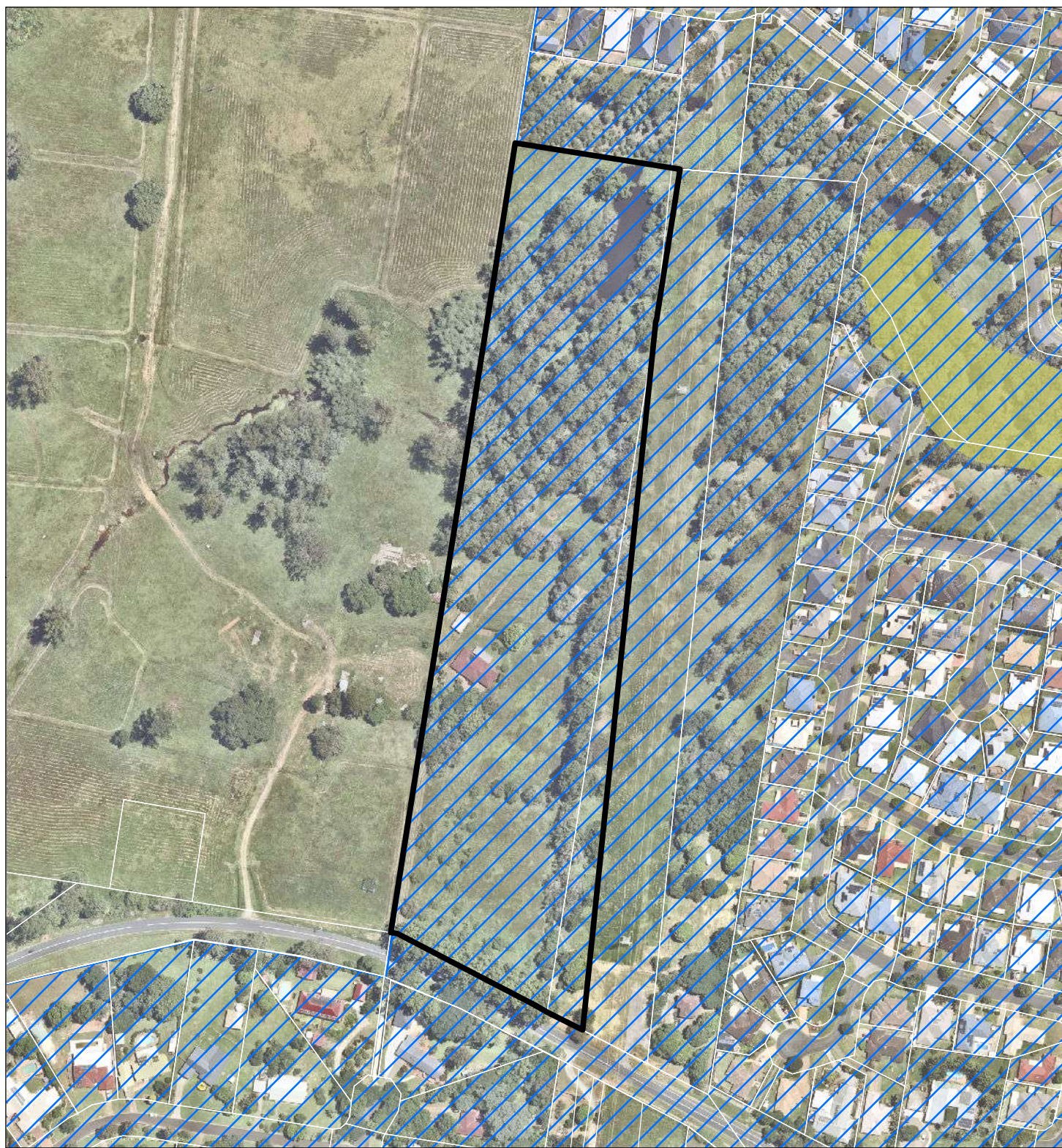
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File ref. 11071 E Figure 5 RVSM A
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



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Legend







-  Site DCDB
-  Qld DCDB
- Koala Habitat Areas**
-  Core Remnant Koala Habitat Areas
-  Core Regrowth Koala Habitat Areas
-  Locally Refined Koala Habitat Areas
-  Koala Priority Areas

Figure 6

Koala Priority Areas and
Koala Habitat Areas

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File ref. 11071 E Figure 6 Koala 2019 B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



Scale (A4): 1:3,000 [GDA 2020 MGA Z56]



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3.7. Other Queensland environmental legislation

Table 4 below provides a review of historical and contemporary legislative provisions potentially constraining the site. Maps are provided in **Appendix C**.

Table 4: State and Local governmental legislation and mapping constraints relative to the site.

Legislation	Mapping	Purpose	Contemporary Site Relevance
<i>Coastal Hazards (Coastal Protection and Management Act 1995)</i>	Appendix C Map 15	– The <i>Coastal Protection and Management Act 1995</i> seeks to protect the coastal resources of the coastal zone under State Code 8: Coastal development and tidal works. It establishes a framework for the protection, conservation, rehabilitation and management of the coastal zone with regard to the core objectives of the national strategy for ecologically sustainable development in the use of the Coastal Zone. It also ensures decisions about land use and development safeguard life and property from the threat of coastal hazards.	Not applicable No areas subject to coastal hazards are mapped on-site and the site is not located within a Coastal Management Area.
<i>State Planning Policy 2014</i>	Figure 7: Matters of State Environmental Significance (Biodiversity)	Provides interim development requirements which ensures that state interests are considered by local government when assessing development applications where the local government planning scheme does not yet integrate the State interests in the SPP. MSES include Biodiversity, Coastal Environment, and Water Quality.	Not applicable The site is mapped as containing MSES – Regulated vegetation (intersecting a watercourse). Although the drainage line is mapped as MSES, it does not intersect regulated vegetation therefore is not considered relevant. MSES mapping overlays and requirements of the SPP were required to be incorporated into the Moreton Bay Regional Council Planning Scheme and are reflected in planning scheme overlays.
<i>Fisheries Act 1994</i>	Appendix C Map 16	– The <i>Fisheries Act 1994</i> regulates the use, conservation and improvement of Queensland’s fisheries resources and fish habitats. The legislation deals with the impact from coastal development on marine fish habitat, including	Not applicable No fish habitat areas or waterways for waterway barrier works are mapped on-site.

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Legislation	Mapping	Purpose	Contemporary Site Relevance
		protected marine plants, and declared fish habitat areas. Development proposals that modify, or have a temporary or permanent loss of fish habitat are assessed by the Department of Agriculture and Fisheries (DAF).	

3.8. Town planning instruments

The site is located within the jurisdiction of MBRC and is subject to the provisions of the MBRC Planning Scheme.

3.8.1 MBRC Planning Scheme 2016

Under the Planning Scheme, the site is zoned 'General Residential' and located within the Suburban Neighbourhood precinct with a small area zoned as 'Limited Development' (refer **Figure 8**).

The purpose of the 'General Residential' zone is to:

- *provide for residential activities supported by a range of community uses and small-scale services, facilities and infrastructure that cater for local residents;*
- *provide mechanisms to promote and implement an appropriate mix of dwelling types across the coastal communities, suburban neighbourhood, next generation neighbourhood and urban neighbourhood precincts to accommodate a range of household sizes, age groups, socio-economic groups, cultures and ability levels within the community;*
- *implement the policy direction set out in Part 3, Strategic framework.*

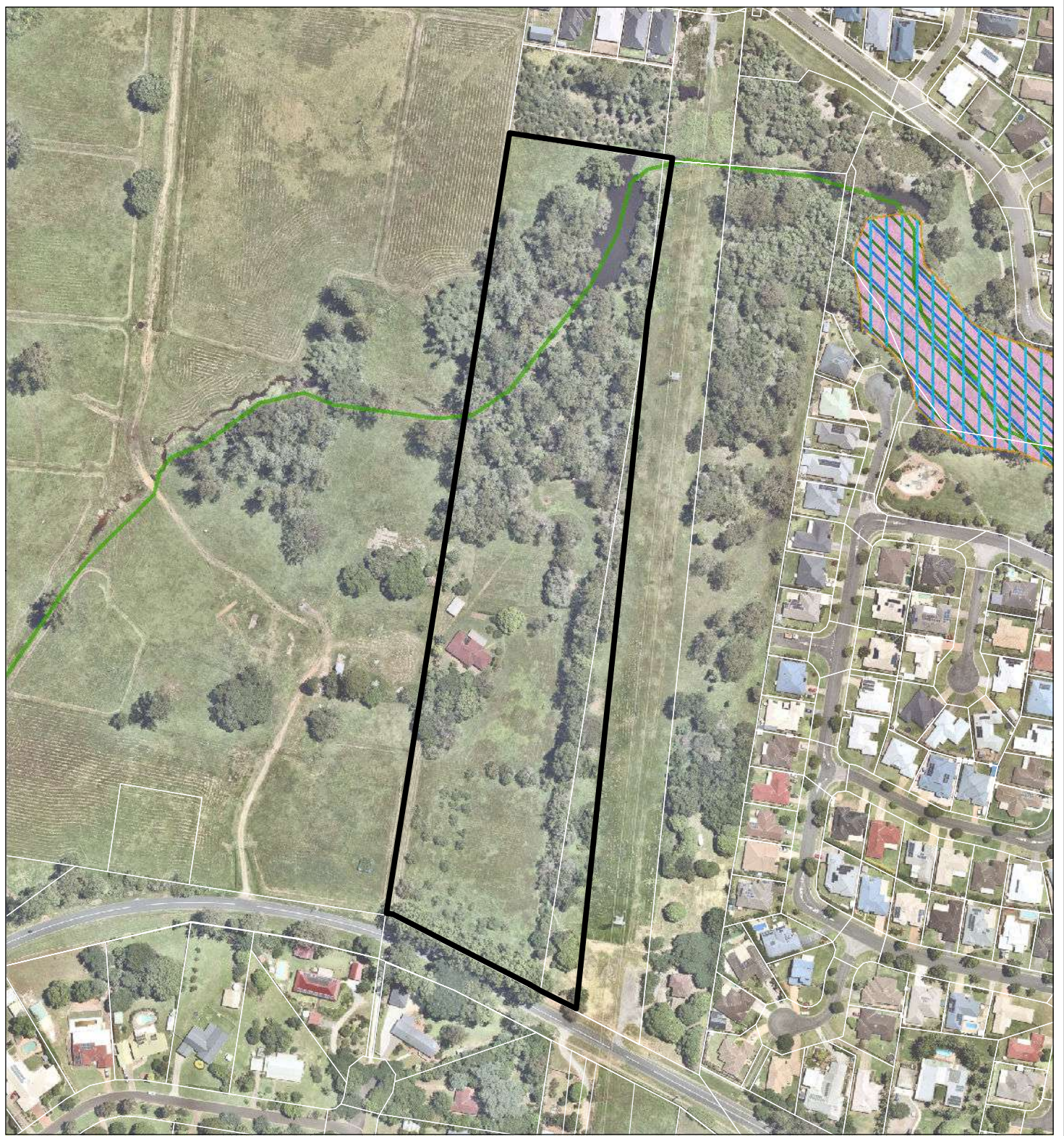
The purpose of the 'Limited Development' zone is to:

- *Identify land known to be affected by extremely unacceptable intolerable flood and/or storm tide risks which pose severe restrictions on the ability of land to be developed for urban purposes.*
- *Limit any further urban development and promote transition of existing uses away from the areas of extremely unacceptable intolerable risk.*

Under the Planning Scheme, the proposed area is mapped with the following ecologically relevant overlays:

- W3 – Waterway (20 m buffer) (refer **Figure 9**)
- Riparian and Wetland setbacks (refer **Figure 10**)

A response to the MBRC Reconfiguring a Lot code and relevant zone codes is provided in **Appendix D**.



Legend






-  Site DCDB
-  Qld DCDB
-  MSES Wildlife habitat (SEQ koala habitat - core)
-  MSES Regulated vegetation (intersecting a watercourse)
-  MSES Regulated vegetation (essential habitat)
-  MSES Regulated vegetation (category C)

Figure 7

Matters of State Environmental Significance

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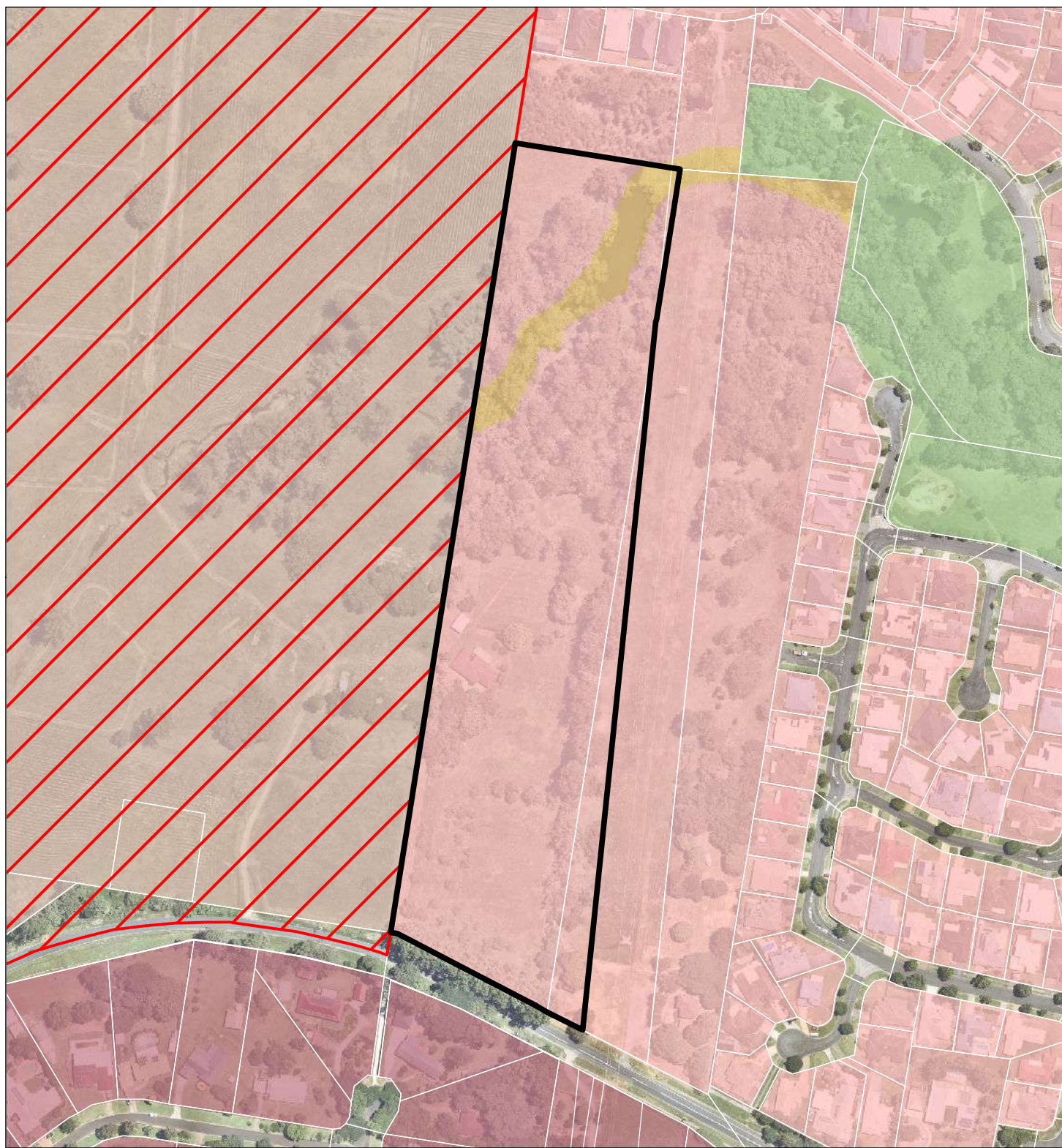
File ref. 11071 E Figure 7 MSES A
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



0 20 40 60 80 100 m
 Scale (A4): 1:3,000 [GDA 2020 MGA Z56]



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Legend









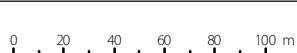
-  Site DCDB
-  Qld DCDB
-  Caboolture West Priority Development Area
- Zoning**
-  Emerging community
-  General residential
-  Limited development
-  Recreation and open space
-  Rural residential

Figure 8

Moreton Bay Regional Council
Planning Scheme 2016 - Zoning

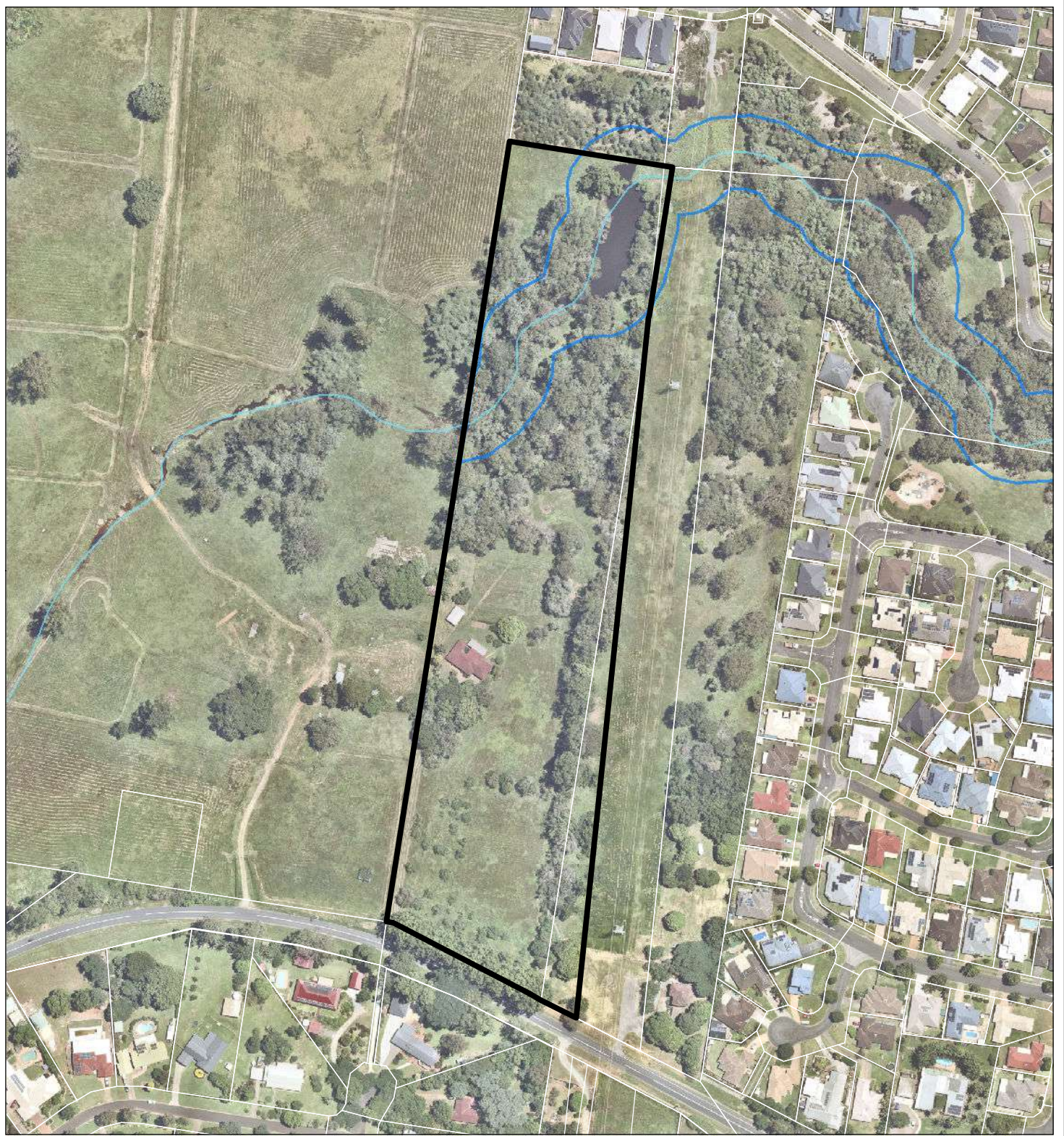
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File ref. 11071 E Figure 8 MBRC Zoning B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



Scale (A4): 1:3,000 [GDA 2020 MGA Z56]

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Legend












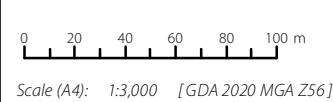
- | | |
|---|--|
|  Site DCDB | MBRC Waterways |
|  Qld DCDB |  W1 -Waterway |
| MBRC Environmental Areas |  W2 -Waterway |
|  MLES - Matters of Local Environmental Significance |  W3 -Waterway |
|  MSES - Matters of State Environmental Significance | |
|  MLES - Wetlands | |
|  MSES - Koala Offsets | |
|  MLES - Wetland Buffer | |
|  MLES Waterway Buffer | |

Figure 9

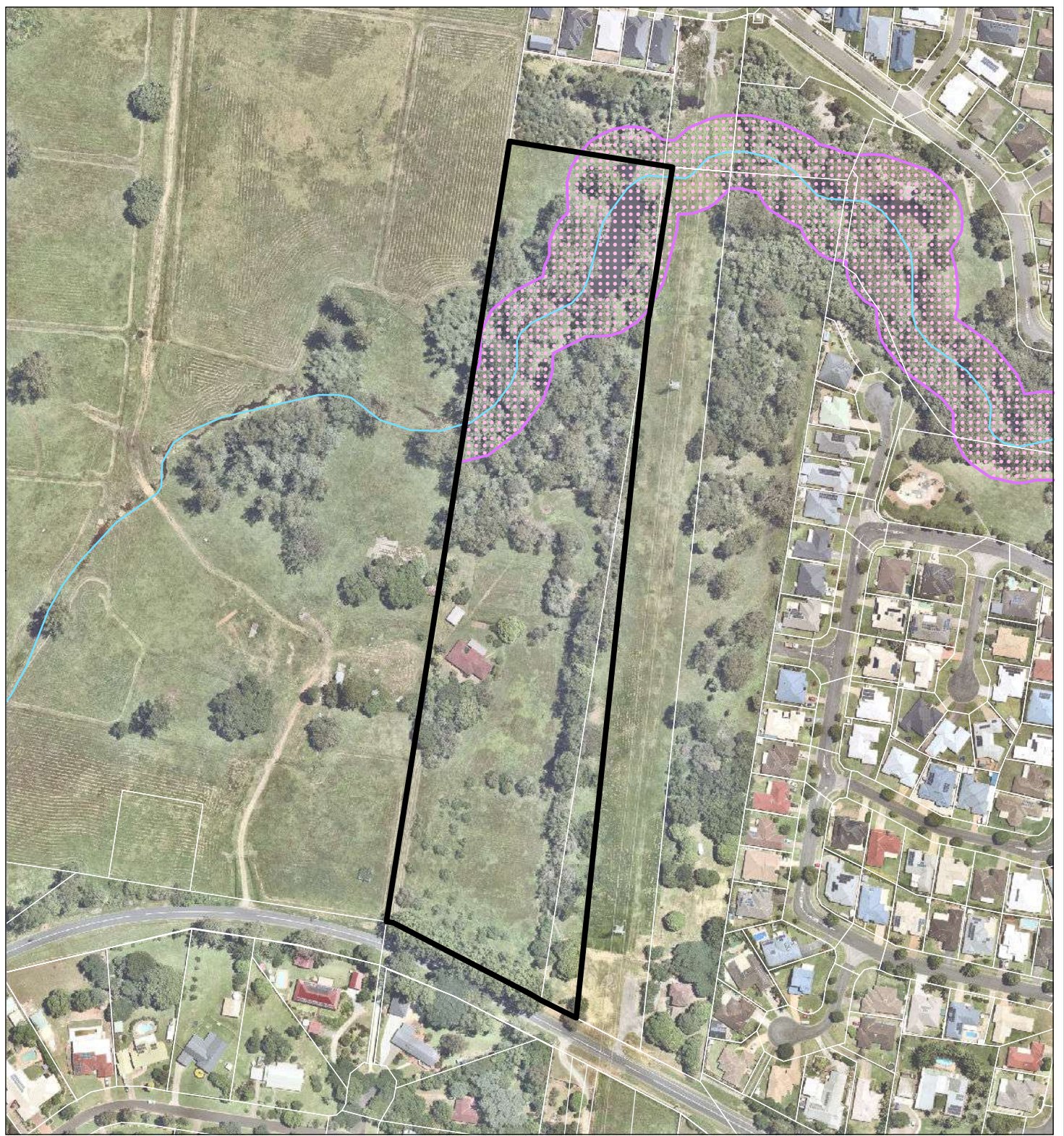
Moreton Bay Regional Council
 Planning Scheme 2016 -
 Environmental Areas

Lennium Group
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File ref. 11071 E Figure 9 MBRC Env Areas B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



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Legend








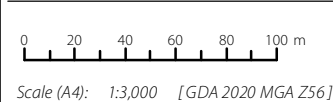
-  Site DCDB
-  Qld DCDB
- MBRC Riparian & Wetland areas & Setbacks**
-  W1 -Waterway (50m Setback)
-  W2 -Waterway (30m Setback)
-  W3 -Waterway (20m Setback)
-  Wetland
-  Riparian & Wetland Setbacks

Figure 10

Moreton Bay Regional Council
 Planning Scheme 2016 - Riparian
 and Wetland Areas

File ref. 11071 E Figure 10 MBRC Riparian Wetlands B
Date 25/10/2022
Project Caboolture River Road, Upper Caboolture



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4. Ecological survey results

Investigations and assessments were conducted by two Ecologists from SHG on 11 and 30 March and 7 July 2022. The development area was walked to ensure all vegetation communities and species were recorded. Particular attention was paid to any threatened flora and habitat for any threatened fauna species that were listed as potentially occurring within the vicinity of the application area, and specific micro assemblage which may support these threatened species. Weather conditions were fine and sunny for both survey days.

Refer to **Plan 1** for field survey summary.

4.1. General site observations

The site is a rural residential property which has been historically cleared and modified. The site contains a residential dwelling, horse paddock and orchard (refer **Photo set 1**). The majority of the site contains fragmented ecological values in the form of scattered native and introduced trees. The northern portion of the site is dominated by regrowth eucalypt values with a watercourse and dam also present.



Photo set 1: Cleared paddock with scattered trees and residential dwelling.

4.2. Flora survey results

The following flora observations have been made based on detailed field survey:

- The EPBC Act PMR listed five (5) TECs considered to have potential to be found on or proximal to the site (refer to **Section 3.1**). These are described as the following:
 - Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland Ecological Community. This TEC occurs in coastal catchments, mostly at elevations of less than 20 m above sea level that are typically found within 30 km of the coast however distance can vary by catchment. The canopy layer is dominated by *C. glauca* (Swamp Oak) and in Queensland is represented by RE12.1.1 or RE12.3.20. None of these REs occur within the site or immediate vicinity. No Swamp Oak specimens were identified on-site, nor are these REs present on or within the immediate vicinity.
 - Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland. In Queensland, this TEC is part of RE communities 12.2.7, 12.3.4/12.3.4a, 12.3.5, 12.3.6 and 12.3.20. None of these REs occur within the site or immediate vicinity.
 - Lowland Rainforest of Subtropical Australia. This TEC typically has high species richness. In Queensland, this TEC is part of a number of REs, including RE12.3.1, RE12.5.13, RE12.8.3, RE12.8.4, RE12.8.13, RE12.11.1, RE12.11.10, RE12.12.1 and RE12.12.16. None of these REs occur within the site or immediate vicinity.
 - Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions. In Queensland, this TEC corresponds with at least 17 Regional Ecosystems. Components of this TEC are recognised within 12.3.2, 12.3.2a, 12.3.3, 12.3.3a, 12.3.3d, 12.3.4a, 12.3.7, 12.3.7c, 12.3.7d, 12.3.10, 12.3.11, 12.3.11a, 12.3.11b, 12.3.12, 12.3.14a, 12.3.15 and 12.3.19. None of these REs occur within the site or immediate vicinity.
 - White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. This TEC occurs along the western slopes and tablelands of the Great Dividing Range. This community is a component of a number of REs including RE12.8.16, RE13.11.8, RE13.3.1, RE13.3.4, RE13.12.8 and RE13.12.9. None of these REs occur within the site or immediate vicinity.
- In addition, sixteen (16) flora species listed under the EPBC Act were included in the PMR as possibly occurring on-site or within a 5 km radius from the site (refer to **Section 3.1**). No flora species listed as threatened under the EPBC Act were found on-site, nor are they expected to occur due to the high level of disturbance across the site.
- Results from a search of the NCA Wildlife Online database did not identify flora species listed as threatened under the NCA as possibly occurring on or within a 5 km radius from the site (refer to **Section 3.2**). Detailed field survey did not identify any flora species listed as threatened and *in the wild* under the NCA.
- Pre-clear mapping indicates the category X non-remnant was previously comprised of Endangered RE12.5.3 in the southern portion of the site and composite RE 12.3.11/12.3.3 (70/30%) in the northern portion of the site. Field survey found the majority of the site to be cleared with native vegetation

■ Ecological Assessment Report

present along the eastern boundary and in the northern portion of the site adjoining the watercourse. Notably, a PMAV exists over the site confirming the Category X (non-remnant) vegetation mapping (PMAV ref: 2022/001541).

- A total of eighty-three (83) flora species were recorded on-site, consisting of forty (40) introduced species and forty-three (43) native species (refer to **Sections 4.2.2** and **4.2.3**). Exotic flora species were observed throughout the site, particularly surrounding the existing dwelling.

The results of the flora survey are described in the following subsections.

4.2.1 Threatened flora

For the purposes of this report, a significant flora species has been defined as a species that is:

- scheduled as Critically Endangered, Endangered, Vulnerable or Conservation Dependent under the Commonwealth EPBC Act; and/or
- scheduled as Endangered, Vulnerable, or Near Threatened under the Queensland NCA; and/or
- identified by MBRC as a locally significant species in the Planning Scheme.

One (1) planted *Macadamia integrifolia* (Macadamia Nut) specimen was located on-site (refer **Photo set 2**). However, this is not considered to meet the definition of *in the wild* under the NCA, therefore is not considered a threatened species for the purpose of this assessment.



Photo set 2: Planted *Macadamia integrifolia*.

4.2.2 Native flora species

During the field survey, eighty-three (83) flora species were recorded across the site, with forty-three (43) considered native species (refer **Table 5**).

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Table 5: Observed native flora

Scientific name	Common name
<i>Acacia concurrens</i>	Black Wattle
<i>Acacia disparrima</i>	Hickory Wattle
<i>Acacia leiocalyx</i>	Early-flowering Black Wattle
<i>Acacia melanoxylon</i>	Australian Blackwood
<i>Allocasuarina littoralis</i>	Black She-oak
<i>Allocasuarina torulosa</i>	Forest She-oak
<i>Angophora subvelutina</i>	Broad-leaved Apple
<i>Araucaria cunninghamii</i>	Hoop Pine
<i>Banksia integrifolia</i>	Coastal Banksia
<i>Breynia oblongifolia</i>	Coffee Bush
<i>Corymbia citriodora</i>	Spotted Gum
<i>Corymbia intermedia</i>	Pink Bloodwood
<i>Corymbia tessellaris</i>	Moreton Bay Ash
<i>Cryptocarya triplonervis</i>	Three-veined Laurel
<i>Cymbopogon refractus</i>	Barbed-wire grass
<i>Cynodon dactylon</i>	Common Couch
<i>Eucalyptus microcorys</i>	Tallowwood
<i>Eucalyptus moluccana</i>	Gum-topped Box
<i>Eucalyptus seeana</i>	Narrow-leaved Red Gum
<i>Eucalyptus siderophloia</i>	Grey Ironbark
<i>Eucalyptus tereticornis</i>	Forest Red Gum
<i>Ficus coronata</i>	Sandpaper Fig
<i>Ficus watkinsiana</i>	Strangler Fig
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Grevillea baileyana</i>	Brown Silky Oak
<i>Grevillea robusta</i>	Silky Oak
<i>Imperata cylindrica</i>	Blady Grass
<i>Lomandra multiflora</i>	Many-flowered Matrush
<i>Lophostemon suaveolens</i>	Swamp Box
<i>Macadamia integrifolia</i>	Macadamia
<i>Macaranga tanarius</i>	Macaranga
<i>Maclura cochinchinensis</i>	Cockspur Vine
<i>Melaleuca bracteata</i>	Black Tea-tree
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark
<i>Melaleuca salicina</i>	White Bottlebrush
<i>Melaleuca viminalis</i>	Weeping Bottlebrush

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Scientific name	Common name
<i>Melia azedarach</i>	White Cedar
<i>Melicope elleryana</i>	Pink Doughwood
<i>Oplismenus aemulus</i>	Creeping Beard Grass
<i>Ottochloa gracillima</i>	Graceful Grass
<i>Parsonsia straminea</i>	Monkey Rope
<i>Persicaria decipiens</i>	Slender Knotweed
<i>Rubus moluccanus</i>	Native Raspberry

4.2.3 Introduced flora species

During the field survey, eighty-three (83) flora species were recorded across the site, with forty (40) considered introduced species (refer **Table 6**). It should be noted that four (4) of these species are listed as restricted matters under the *Biosecurity Act 2014* (discussed in **Section 3.6**). Restricted invasive plants under the *Biosecurity Act 2014* are to be managed at the Local Government level through a biosecurity plan that covers invasive plants and animals in its area.

Table 6: Observed introduced flora

Scientific name	Common name	Restricted under <i>Biosecurity Act 2014</i>	MBRC Priority
<i>Ageratum houstonianum</i>	Blue Billygoat		
<i>Ananas comosus</i>	Pineapple		
<i>Annona squamosa</i>	Custard Apple		
<i>Archontophoenix alexandrae</i>	Alexandra Palm		
<i>Bidens pilosa</i>	Cobbler's Pegs		
<i>Celtis sinensis</i>	Chinese Elm	Category 3	Low Risk
<i>Cinnamomum camphora</i>	Camphor Laurel	Category 3	Low Risk
<i>Citrus sp.</i>	Lime		
<i>Citrus x sinensis</i>	Orange		
<i>Dyopsis lutescens</i>	Golden Cane Palm		
<i>Emilia sonchifolia</i>	Emilia		
<i>Eugenia uniflora</i>	Brazilian Cherry		
<i>Jacaranda mimosifolia</i>	Jacaranda		
<i>Koelreuteria elegans</i>	Golden Rain Tree		
<i>Lantana camara</i>	Lantana	Category 3	Low Risk
<i>Libidibia ferrea</i>	Leopard tree		
<i>Macroptilium atropurpureum</i>	Siratro		
<i>Mangifera indica</i>	Mango		
<i>Melinis repens</i>	Red Natal Grass		

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Scientific name	Common name	Restricted under <i>Biosecurity Act 2014</i>	MBRC Priority
<i>Musa sp.</i>	Banana		
<i>Ochna serrulata</i>	Ochna		
<i>Paspalum conjugatum</i>	Sour Grass		
<i>Paspalum mandiocanum</i>	Broad-leaf Paspalum		
<i>Passiflora edulis</i>	Edible Passionfruit		
<i>Passiflora suberosa</i>	Corky Passionflower		
<i>Passiflora subpeltata</i>	White Passionfruit		
<i>Persea sp.</i>	Avocado		
<i>Pinus elliotii</i>	Slash Pine		
<i>Psidium sp.</i>	Guava		
<i>Schefflera actinophylla</i>	Umbrella tree		
<i>Schinus terebinthifolius</i>	Broad-leaf Pepper	Category 3	Medium Risk
<i>Senna pendula</i>	Easter Cassia		
<i>Setaria sphacelata</i>	South African Pigeon Grass		
<i>Sida rhombifolia</i>	Common Sida		
<i>Solanum carolinense</i>	Devil's Tomato		
<i>Solanum mauritianum</i>	Tobacco Bush		
<i>Solanum seafortianum</i>	Brazilian Nightshade		
<i>Tibouchina aubl.</i>	Tibouchina		
<i>Xanthium occidentale</i>	Noogoora Burr		
<i>Yucca gloriosa</i>	Yucca		

4.2.4 GPS tree plot

A GPS Tree Plot Survey was carried out on-site locating and identifying all MBRC habitat trees and trees with a DBH greater than 100 millimetres (mm) (measured at 1.4 m above ground) within the MLES waterway corridor. Data for the GPS Tree Plot Survey have been extracted and summarised below. Refer to **Plan 2** for the Tree Plot and **Appendix E** for the Tree Schedule.

- The GPS Tree Plot Survey recorded 26 tree species, where 20 of these are native species and 6 are considered to be invasive / weed species. **Table 7** provides a summary of the results of the GPS Tree Plot Survey completed.
- The most abundant species recorded was identified as *Lophostemon suaveolens* (Swamp Box) which made up approximately 33% (58 specimens) of the tree plot, followed by *Acacia disparrima* (Hickory Wattle) with 16% (22 specimens) and *Eucalyptus tereticornis* (Forest Red Gum) with 9% (17 specimens) (refer **Table 7**).

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- **Table 8** provides a summary of the total DBHs of trees recorded during field survey. The vegetation is predominantly comprised of trees with a DBH between 100 and 300 mm with a total of 149 or 85.14% recorded. This indicates that the vegetation within the site is mostly reflective of regrowth status.

Table 7: Tree plot summary

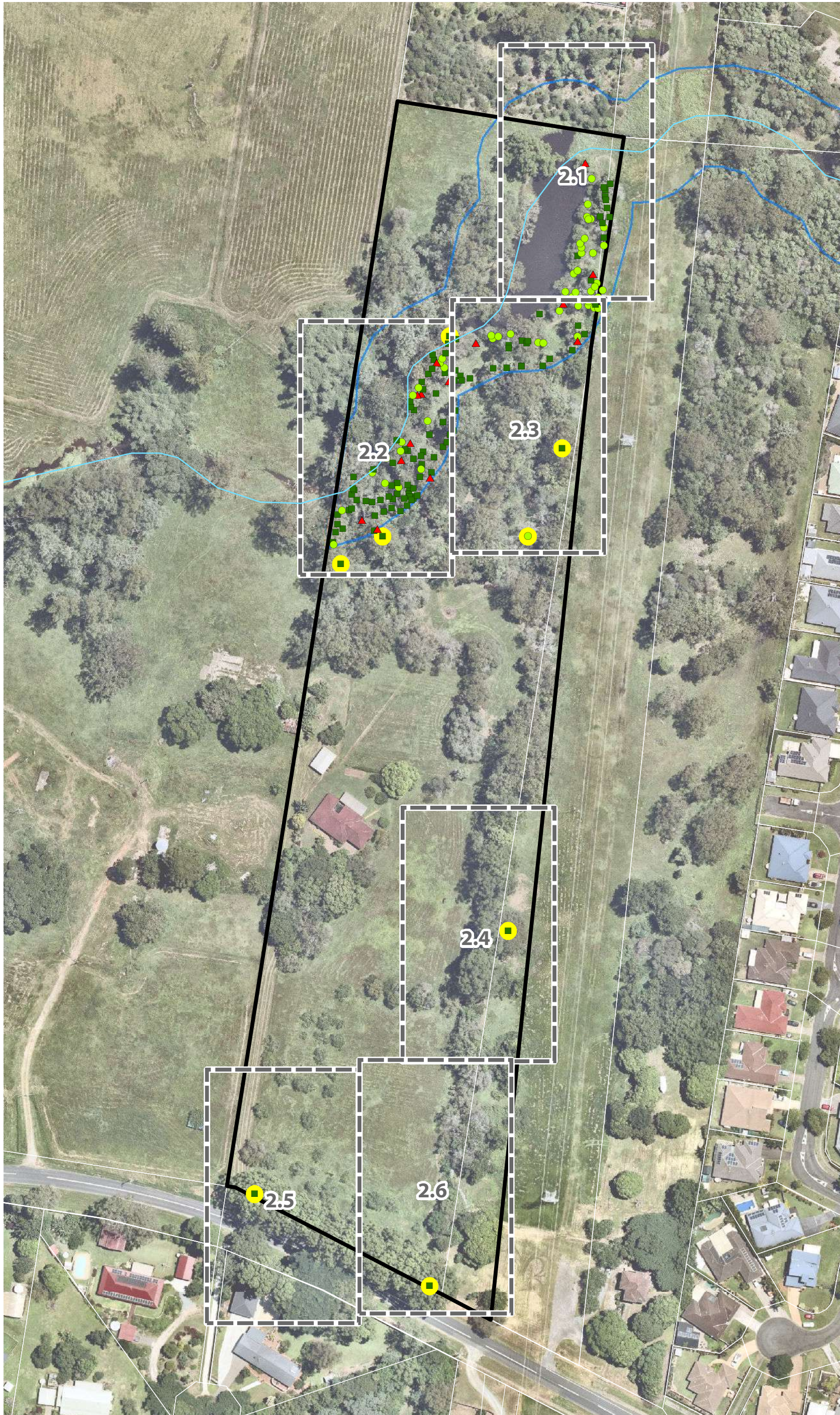
Scientific name	Common name	Native/introduced	Number recorded	Percentage recorded
<i>Acacia concurrens</i>	Black Wattle	Native	2	1.1
<i>Acacia disparrima</i>	Hickory Wattle	Native	22	12.6
<i>Acacia leiocalyx</i>	Early Flowering Black Wattle	Native	2	1.1
<i>Acacia melanoxylon</i>	Australian Blackwood	Native	11	6.3
<i>Alphitonia excelsa</i>	Soap Tree	Native	1	0.6
<i>Araucaria cunninghamii</i>	Hoop Pine	Native	5	2.9
<i>Celtis sinensis</i>	Chinese Celtis	Introduced	7	4.0
<i>Corymbia intermedia</i>	Pink Bloodwood	Native	12	6.9
<i>Corymbia tessellaris</i>	Moreton Bay Ash	Native	2	1.1
<i>Cryptocarya triplinervis</i>	Three-veined Laurel	Native	2	1.1
<i>Eucalyptus microcorys</i>	Tallowwood	Native	3	1.7
<i>Eucalyptus seeana</i>	Narrow-leaved Red Gum	Native	2	1.1
<i>Eucalyptus siderophloia</i>	Grey Ironbark	Native	3	1.7
<i>Eucalyptus tereticornis</i>	Forest Red Gum	Native	17	9.7
<i>Eugenia uniflora</i>	Brazilian Cherry	Introduced	1	0.6
<i>Ficus watkinsiana</i>	Strangler Fig	Native	1	0.6
<i>Grevillea robusta</i>	Silky Oak	Native	1	0.6
<i>Jacaranda mimosifolia</i>	Jacaranda	Introduced	1	0.6
<i>Koelreuteria elegans</i>	Golden Rain Tree	Introduced	1	0.6
<i>Lophostemon suaveolens</i>	Swamp Box	Native	58	33.1
<i>Mallotus philippensis</i>	Red Kamala	Native	2	1.1
<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark	Native	11	6.3
<i>Melaleuca saligna</i>	White Bottlebrush	Native	1	0.6
<i>Pinus elliotii</i>	Slash Pine	Introduced	3	1.7
<i>Schinus terebinthifolius</i>	Broad-leaved Peppertree	Introduced	1	0.6
Unknown native species	-	Native	3	1.7
Total			175	100.00

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Table 8: Tree plot DBH summary

DBH (mm)	Number recorded	Percentage Recorded (%)
100-200	90	100-200
200-300	59	200-300
300-400	8	300-400
400-500	6	400-500
500-600	4	500-600
600-700	1	600-700
800-900	6	800-900
900-1000	1	900-1000
Total	175	100.00

2.0. GPS Tree Plot



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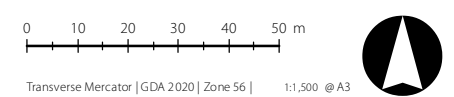
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Legend

- Site DCDB
- Old DCDB
- GPS Tree Plot**
 - Non-Juvenile Koala Habitat Tree
 - Native Species
 - Dead/Stag Tree
 - Introduced/Planted Species
 - MBRC Habitat Trees
- MBRC Environmental Areas**
 - MLES - Matters of Local Environmental Significance
 - MSES - Matters of State Environmental Significance
 - MLES - Wetlands
 - MSES - Koala Offsets
 - MLES - Wetland Buffer
 - MLES Waterway Buffer
- MBRC Riparian & Wetlands**
 - W1 -Waterway (50m Setback)
 - W2 -Waterway (30m Setback)
 - W3 -Waterway (20m Setback)

Issue	Date	Description	Drawn	Checked
A	14/04/2022	Preliminary	TF	AD
B	26/10/2022	Survey Accuracy	TF	AD



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Address / RPD: 35/RP115959
 26/10/2022 | 11071 E 02 GPS Tree Plot B

2.1. GPS Tree Plot



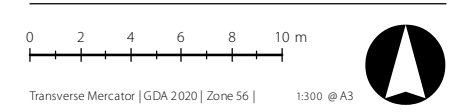
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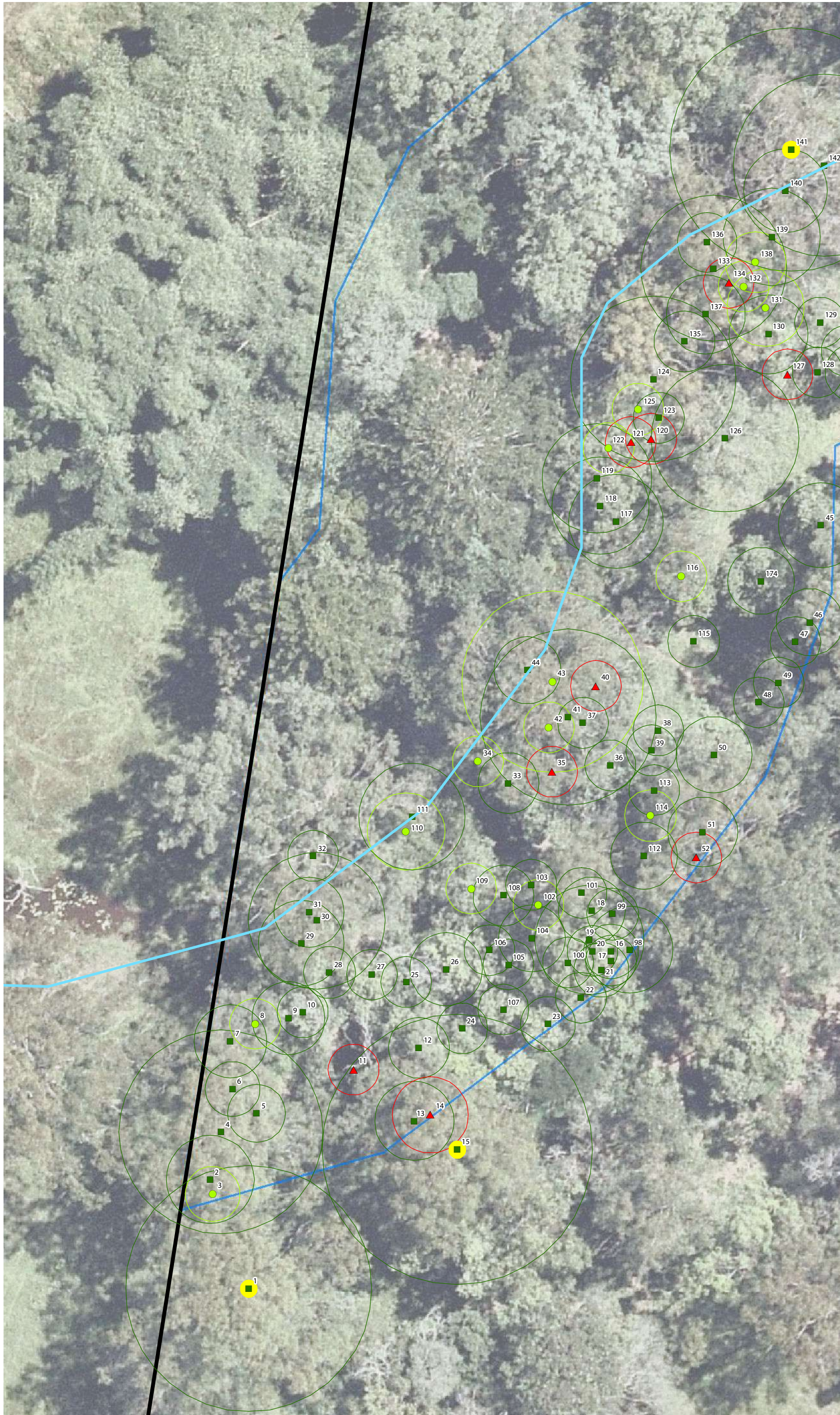
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- Qld DCDB
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2.2. GPS Tree Plot



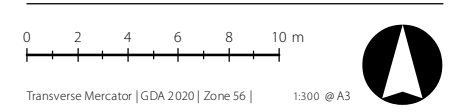
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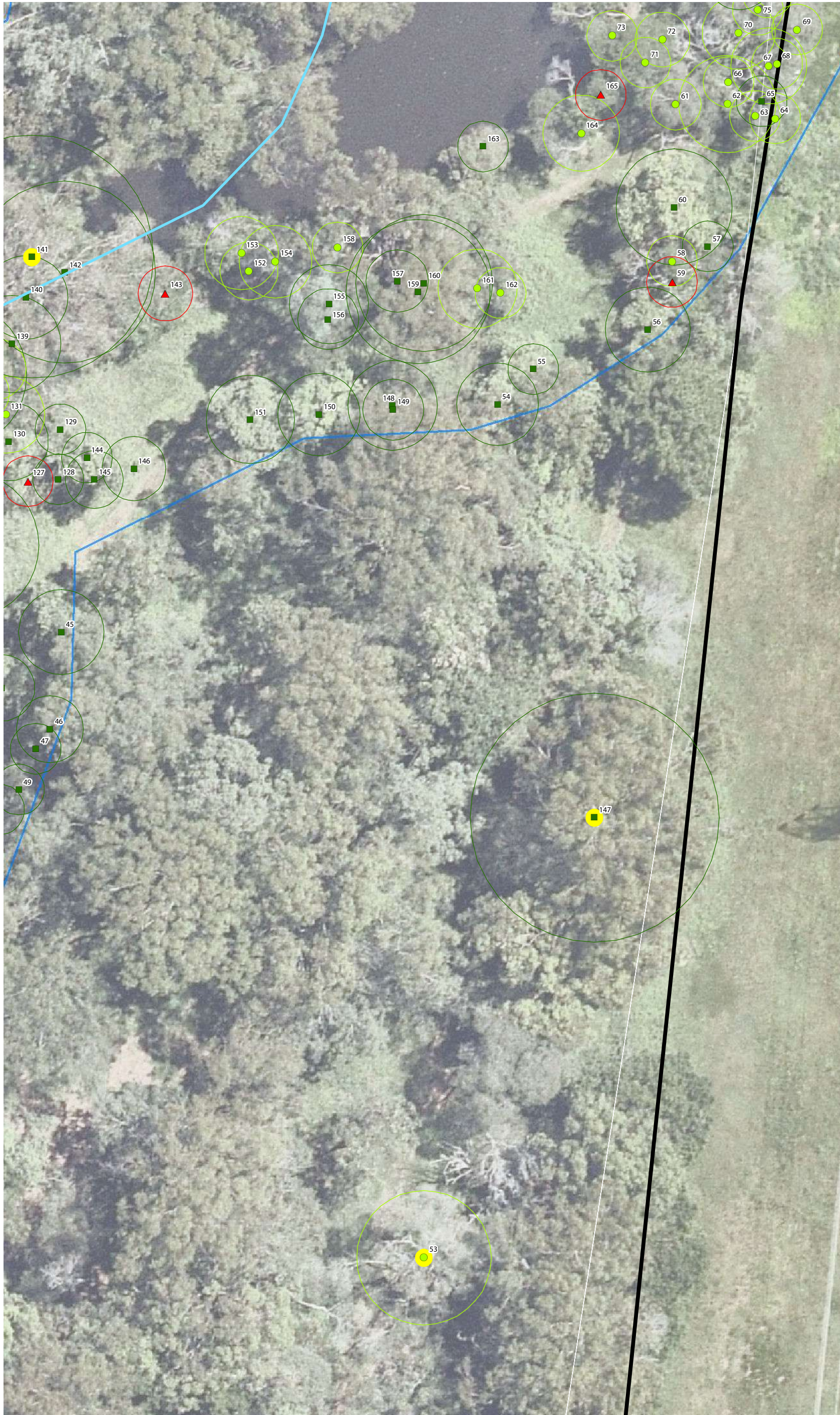
- Site DCDB
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2.3. GPS Tree Plot



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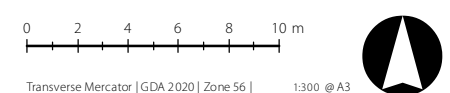
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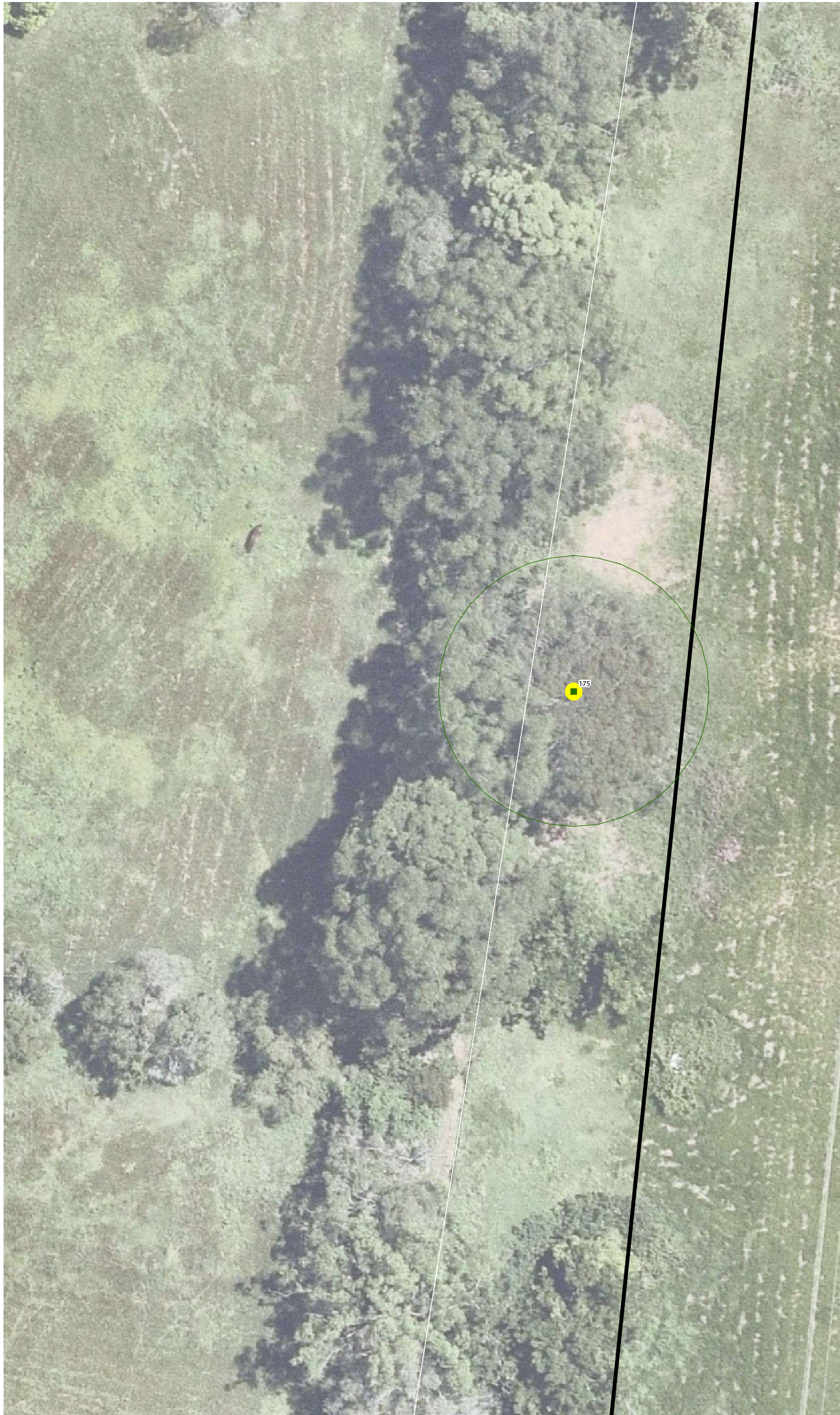
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2.4. GPS Tree Plot



















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Legend

-  Site DCDB
-  Qld DCDB
- GPS Tree Plot (w/TPZ)**
 -  Non-Juvenile Koala Habitat Tree
 -  Native Species
 -  Dead/Stag Tree
 -  Introduced/Planted Species
 -  MBRC Habitat Trees
- MBRC Environmental Areas**
 -  MLES - Matters of Local Environmental Significance
 -  MSES - Matters of State Environmental Significance
 -  MLES - Wetlands
 -  MSES - Koala Offsets
 -  MLES - Wetland Buffer
 -  MLES Waterway Buffer
- MBRC Riparian & Wetlands**
 -  W1 -Waterway (50m Setback)
 -  W2 -Waterway (30m Setback)
 -  W3 -Waterway (20m Setback)

Issue	Date	Description	Drawn	Checked
A	14/04/2022	Preliminary	TF	AD
B	26/10/2022	Survey Accuracy	TF	AD



Transverse Mercator | GDA 2020 | Zone 56 | 1:300 @ A3

Address / RPD: 35/RP115959
 26/10/2022 | 11071 E 02_1 GPS Tree Plot B

23/08/2023

Print Date: 24 August 2023, 4:36 PM

2.5. GPS Tree Plot



















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Transverse Mercator | GDA 2020 | Zone 56 | 1:300 @ A3

Address / RPD: 35/RP115959

26/10/2022 | 11071 E 02_1 GPS Tree Plot B

23/08/2023

Print Date: 24 August 2023, 4:36 PM

2.6. GPS Tree Plot



















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Issue	Date	Description	Drawn	Checked
A	14/04/2022	Preliminary	TF	AD
B	26/10/2022	Survey Accuracy	TF	AD



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4.3. Vegetation Communities

4.3.1 Non-remnant paddock and dwelling

The majority of the site is dominated by cleared paddock which includes a portion used as a horse agistment, with a dwelling and planted vegetation located in the western portion of the site. An orchard comprised of *Annona squamosa* (Custard Apple) is located within the paddock.

The paddock is dominated by a mix of pastoral and introduced grass species including *Cynodon dactylon* (Common Couch), *Setaria sphacelata* (South African Pigeon Grass), *Melinis repens* (Red Natal Grass) and *Paspalum conjugatum* (Sour Grass). A variety of ornamental species are planted proximal to the dwelling including, *Annona squamosa* (Custard Apple), *Musa* sp. (Banana), *Citrus* sp., *Mangifera indica* (Mango) and *Jacaranda mimosifolia* (Jacaranda). Some native shrubs are also present such as *Melaleuca viminalis* (Weeping Bottlebrush) and *Melaleuca bracteata* (Black Tea-tree).

This portion of the site contains only scattered and fragmented vegetation values. The eastern boundary of the site is treed and dominated by *Acacia* sp. and *Melaleuca* sp. with scattered *Eucalyptus siderophloia* (Grey Ironbark). The southern edge of the site bounding Caboolture River Road is lined with mature, planted *Eucalyptus microcorys* (Tallowwood) with a median height of 23 m.

Refer to **Photo sets 3 and 4.**



Photo set 3: Custard Apple orchard and paddock values.

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Photo set 4: Planted *Eucalyptus microcorys* along front of site and trees along eastern boundary.

4.3.2 Non-remnant eucalypt values

The vegetation located in the northern portion of the site consists of regrowth eucalypt vegetation values. The canopy (T1) layer is dominated by *Eucalyptus tereticornis* (Forest Red Gum) and *Corymbia intermedia* (Pink Bloodwood) with *Corymbia tessellaris* (Moreton Bay Ash), *Melaleuca quinquenervia* (Broad-leaved Paperbark). The median height of the T1 layer is 20 m. The subcanopy (T2) layer is dominated by *Lophostemon suaveolens* (Swamp Box), *Araucaria cunninghamii* (Hoop Pine) and a mix of wattle species including *Acacia disparrima* (Hickory Wattle), *Acacia concurrens* (Black Wattle) and *Acacia leiocalyx* (Early Flowering Black Wattle). The median height of the T2 layer is 10 m. Refer to **Photo set 5**. The ground layer is primarily comprised of pastoral grass reflective of historical land uses.

Several introduced species are present such as *Celtis sinensis* (Chinese Elm) and *Pinus elliotii* (Slash Pine).



Photo set 5: Non-remnant eucalypt values and watercourse.

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4.4. Fauna observations

A fauna assessment was conducted across the site to identify and describe on-ground habitat features (e.g. habitat trees, fallen logs, termite mounds, roosting sites etc.), signs of fauna activity (e.g. scats, tracks, scratch marks on trees, nests etc.) and observations of species present within the area. Consideration was also given to the ecological significance of the site in the context of the local area and the broader region.

The following observations were made based on the field survey:

- The PMST identified thirty (30) fauna species as possibly occurring on site. No threatened or rare fauna species were recorded on-site. No other fauna listed as threatened under the EPBC Act nor NCA were recorded within the site.
- A Wildlife Online Search listed eight (8) threatened fauna species as having potential to occur within 5 km of the site. No NCA listed fauna species were recorded on-site.
- A total of thirty-two (32) fauna species were observed on-site or as fly over species (refer **Table 9**). The fauna species consisted of seventeen (17) birds, one (1) amphibian, twelve (12) mammals and two (2) reptiles.
- Habitat values are considered generally low quality across the site. The northern portion of the site within the retained eucalypt woodland and waterway corridor may provide refugia for fauna species. No significant habitat values such as hollow-bearing trees or denning habitat is present.
- Frog species listed under the EPBC Act and NCA with potential for presence within the site are Giant barred frog (*Mixophyes iteratus*), *Mixophyes fleayi* (Fleay's Frog), Tusked frog (*Adelotus brevis*) and *Crinia tinnula* (Wallum Froglet). Only Cane Toad (*Rhinella marina*) tadpoles were observed during diurnal surveys and no frog tadpole species observed. Suitable frog habitat such as sedges and shallow pooling water was not present.
- Grey-headed Flying-Fox (*Pteropus poliocephalus*) roosts were not observed in the surrounding landscape; however, there is potential that transient individuals may utilise the airspace and non-remnant vegetation on-site as a food source, particularly within the northern vegetation values.
- During diurnal bird surveys, no species listed as threatened under the EPBC Act or NCA were observed.
- Fauna species observed are considered to be common across the local area and are typically found in urban environments.

Table 9: Fauna species observed on site

Scientific name	Common name	Native / introduced	Detection Method
Birds			
<i>Amaurornis moluccana</i>	Pale-vented Bush Hen	Native	Observed
<i>Centropus phasianinus</i>	Pheasant Coucal	Native	Camera
<i>Chenonetta jubata</i>	Australian Wood Duck	Native	Camera

■ Ecological Assessment Report

Scientific name	Common name	Native / introduced	Detection Method
<i>Corvus orru</i>	Torresian Crow	Native	Observed
<i>Cracticus tibicen</i>	Australian Magpie	Native	Observed
<i>Cracticus torquatus</i>	Grey Butcherbird	Native	Observed / camera
<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Native	Camera
<i>Gallirallus philippensis</i>	Buff-banded Rail	Native	Camera
<i>Geopelia humeralis</i>	Bar-shouldered Dove	Native	Camera
<i>Glossopsitta pusilla</i>	Little Lorikeet	Native	Observed
<i>Grallina cyanoleuca</i>	Magpie-lark	Native	Camera
<i>Haliastur sphenurus</i>	Whistling Kite	Native	Observed
<i>Manorina melanocephala</i>	Noisy Miner	Native	Observed
<i>Phaps chalcoptera</i>	Common Bronzewing	Native	Camera
<i>Porphyrio melanotus</i>	Australasian Swamp Hen	Native	Observed / camera
<i>Rhipidura leucophrys</i>	Willie Wagtail	Native	Observed
<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet	Native	Observed
Mammals			
<i>Equus sp.</i>	Domestic Horse	Introduced	Observed
<i>Macropus rufogriseus</i>	Red-necked Wallaby	Native	Camera
<i>Pseudocheirus peregrinus</i>	Common Ring-tailed Possum	Native	Observed
<i>Pteropus alecto</i>	Black Flying-fox	Native	Observed
<i>Pteropus poliocephalus</i>	Grey-headed Flying-Fox	Native	Observed
<i>Trichosurus vulpecula</i>	Brush-tailed Possum	Native	Observed / camera
<i>Vulpes vulpes</i>	Red Fox	Introduced	Camera
<i>Rattus rattus</i>	Black Rat	Introduced	Camera
Amphibian			
<i>Rhinella marina</i>	Cane Toad	Introduced	Observed
Reptiles			
<i>Cryptoblepharus virgatus</i>	Wall Skink	Native	Observed
<i>Intellagama lesueurii</i>	Water Dragon	Native	Observed / camera

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4.4.1 Motion sensor cameras

A total of two (2) motion sensor camera sites were installed during field surveys between 11 and 30 March 2022, for a period of 19 days. Cameras were securely attached to a tree focusing on a bait station (small PVC pipe trap containing peanut butter and oats standard mammal bait). Cameras were set to bursts of 3 photos with 15-second intervals. This sequence ensures enough photos to enable best opportunity for identification of fauna while prolonging battery life. Both cameras were placed within the waterway corridor in the northern portion of the site (refer **Photo set 6** and **Plan 1**).



Photo set 6: Camera site 1 (left); Camera site 2 (right).

Several native and introduced species were recorded during the survey period. Native species include a several common bird species, *Trichosurus vulpecula* (Brush-tailed Possum) and *Macropus rufogriseus* (Red-necked Wallaby) (refer **Photo set 7**). Introduced species include *Vulpes vulpes* (Red Fox) and *Rattus rattus* (Black Rat) (refer **Photo set 8**). Refer to full list in **Table 9**.



Photo set 7: Native species Red-necked Wallaby (left) and Brush-tailed Possum in tree (right).

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Photo set 8: Introduced species Red Fox (left) and Black Rat (right).

4.4.2 Threatened fauna species

One (1) Grey-headed Flying Fox (*Pteropus poliocephalus*) individual was observed as a fly-over during surveys. The Grey-headed Flying-Fox is listed as Vulnerable under the EPBC Act. There is potential that the Grey-headed Flying-Fox may opportunistically utilise the vegetation values on-site, however, due to the sparseness of vegetation values within the impact area and proposal to retain northern vegetation values, the development is considered unlikely to impact on this species. In addition, there are no Grey-headed Flying-Fox roosts present within the vicinity of the site and potential foraging habitat will be retained and rehabilitated in the northern portion of the site.

A complete likelihood of occurrence table for threatened species listed under the NCA and the EPBC has been completed for the site (refer **Appendix F**). This assessment provides a detailed breakdown of habitat requirements for the listed species and a comparative analysis against results from detailed field surveys outlined above to suitably apply likelihood of occurrence for each listed matter.

The detailed analysis concludes that the site has low potential to support listed species due to the modified and disturbed state of the site and lack of recent records. Notably, the development proposes to retain the higher value vegetated area in the northern portion of the site as an ecological corridor, providing more suitable, safer habitat for fauna species.

No other threatened fauna species listed under the EPBC Act or NCA were observed on-site.

4.5. MBRC Habitat Trees

Under the MBRC PSP EAC, a habitat tree is defined as *a native tree with a diameter greater than 80 cm at 1.3 m above the ground or contains a hollow*. Trees meeting this definition within the impact footprint were recorded during field survey effort. In addition, other features identified to have the potential to provide habitat to fauna were recorded during the tree survey.

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Vegetation was assessed for habitat values and trees meeting MBRC's definition for a Habitat Tree. A total of eight (8) trees that meet the definition of a habitat tree were recorded on the site (refer **Plan 2** and **Table 10**).

Table 10: MBRC Habitat Trees recorded on-site

Tree ID	Scientific Name	Common Name	Total DBH (mm)	Habitat Qualification	Tree
1	<i>Eucalyptus tereticornis</i>	Forest Red Gum	810	Total DBH	
15	<i>Eucalyptus tereticornis</i>	Forest Red Gum	890	Total DBH	
53	<i>Acacia disparrima</i>	Hickory Wattle	442	1 x hollow	
141	<i>Eucalyptus tereticornis</i>	Forest Red Gum	800	Total DBH	
147	<i>Eucalyptus tereticornis</i>	Forest Red Gum	820	Total DBH	
172	<i>Eucalyptus microcorys</i>	Tallowwood	855	Total DBH	
173	<i>Eucalyptus microcorys</i>	Tallowwood	965	Total DBH	
175	<i>Eucalyptus tereticornis</i>	Forest Red Gum	890	Total DBH	

4.6. MBRC Environmental Areas

The site is mapped as containing 'MLES Waterway buffer' within the 'Environmental Areas' Overlay Map under the MBRC Planning Scheme 2016. The northern portion of the site is mapped as containing W3 – Waterway (20 m buffer) and MLES Waterway Buffer. Adjoining the watercourse is eucalypt woodland mapped as Category X (non-remnant) under the VMA. Notably, the MBRC waterway and wetland setback area is proposed to be retained and rehabilitated under the proposed development. Minor encroachment on the setback area may occur due to the location of earthworks batters, with any unavoidable impacts to be ably mitigated by extensive rehabilitation works proposed within the waterway corridor in the northern portion of the site.

4.7. Watercourse values

The site contains an unnamed tributary of the Caboolture River which runs from north to south-west across the northern portion of the site. The northern end of the watercourse is a constructed dam which is approximately 20 m wide. The banks of the dam are dominated by *Brachiaria mutica* (Para Grass). Permanent water is present along the entire flow path. Macrophytes are generally absent. Fish habitat values are present in the form of woody debris, tree roots and overhanging banks (refer **Photo set 9**). The banks of the flow path are dominated by *Melaleuca quinquenervia* (Broad-leaved Paperbark) and *Acacia* sp.

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Photo set 9: MLES waterway and dam.

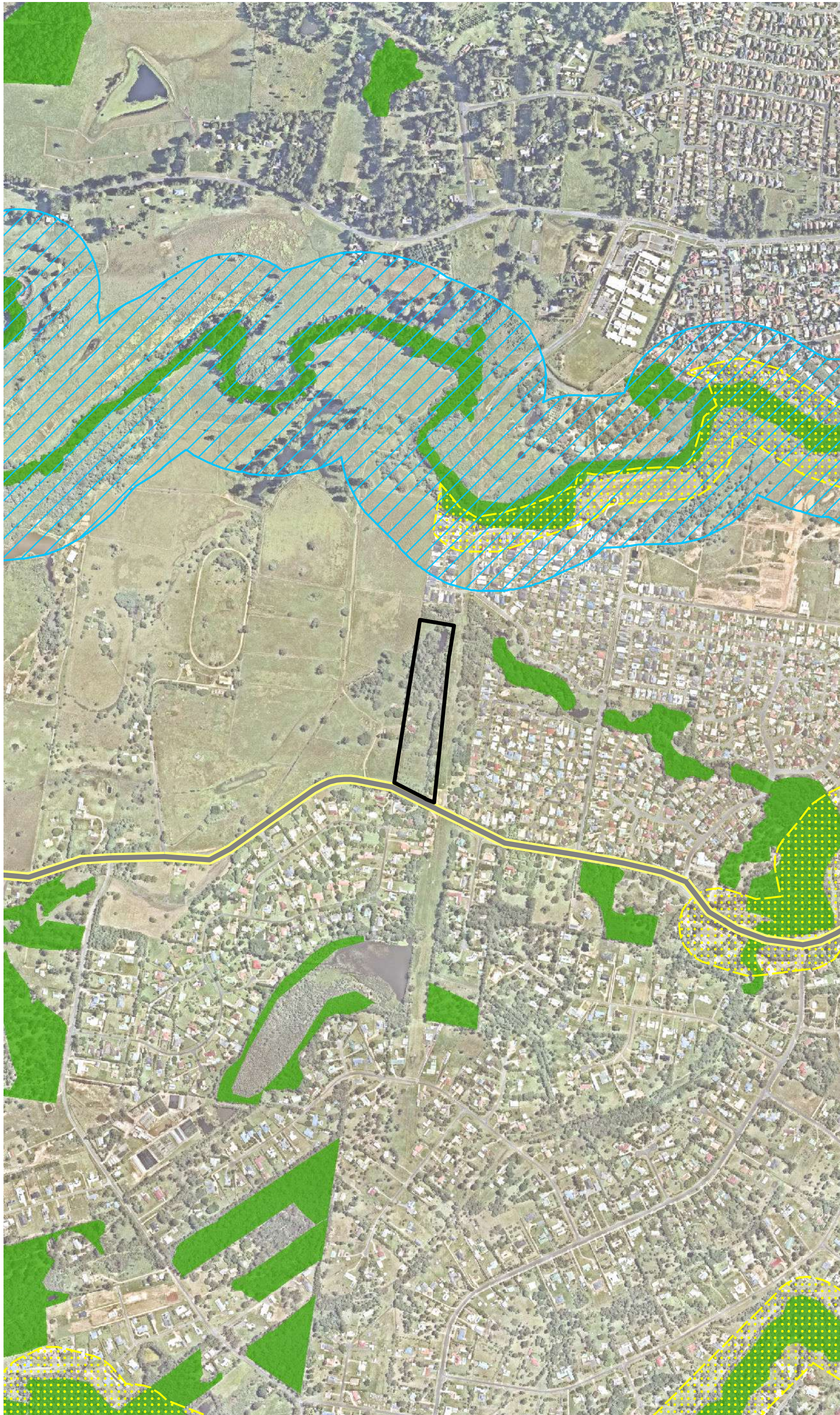
4.8. Connectivity Analysis

The site currently retains connectivity north, west and east of the site. The surrounding landscape is dominated by rural land parcels which are mostly utilised as cattle and horse agistments. The site is bound by Caboolture River Road, which is a council arterial road and generally sees a high traffic volume. Movement to the south is inhibited by the presence of Caboolture River Road and residential communities (refer **Plan 3**).

The surrounding landscape is becoming increasingly urbanised, shifting from large lot residences to higher density development. The site borders the Caboolture West Local Plan Area to the west which is an area projected to undergo significant development.

While the site currently retains potential connectivity through the rural lots surrounding the site via scattered trees, future connectivity to the west within the Caboolture West Local Plan Area be limited to designated areas within the Green Infrastructure Network (GIN). The development will retain connectivity with the adjoining landscape, particularly to the Caboolture River corridor located north of the site through the proposed retention of the on-site MLES waterway corridor.

3. MBRC Connectivity Analysis



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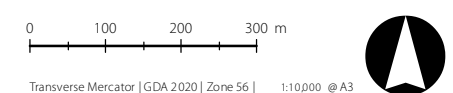
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Legend

-  Site DCDB
-  MBRC Environmental Offset Receiving Areas
-  Regional Significance
-  State Significance
-  Council Arterial Road
-  Contiguous Landscape

Issue	Date	Description	Drawn	Checked
A	14/04/2022	Preliminary	TF	AD
B	25/10/2022	Preliminary	TF	AD



Address / RPD: 35/RP115959

25/10/2022 | 11071 E 03 Connectivity Analysis B

23/08/2023

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5. Impact assessment and development analysis

5.1. Proposed development

The proposed development is for a reconfiguration of a lot for 49 residential lots and internal roads on land located at 403 and part of 393 Caboolture River Road, Upper Caboolture (described as Lot 35 on RP115959 and part of Lot 34 on RP115959).

5.2. Development Assessment

Site Summary

The findings from field surveys have been used to ground truth the mapped environmental values within the site. The surveys have confirmed that a large portion of the site is highly modified as a result of historical disturbances and existing land uses resulting in relatively limited and fragmented ecological values.

The site is dominated by open paddock with scattered native or introduced vegetation. The northern portion of the site contains non-remnant eucalypt values comprising *Corymbia intermedia* (Pink Bloodwood), *Lophostemon suaveolens* (Swamp Box) with *Eucalyptus tereticornis* (Forest Red Gum). An unnamed tributary of the Caboolture River traverses the northern portion of the site.

Field surveys observed higher ecological values to be located within the northern portion of the site in association with the MLES waterway corridor. Notably, these values are proposed to be retained and extensively rehabilitated under the development design.

Development Design

The proposal is for a residential development which includes residential allotments, stormwater treatment infrastructure and internal access roads. The proposed development is Stage 1c of a larger development adjoining Lot 12 on RP866105 to the west, located within the Caboolture West Local Plan Area. Access to the site is proposed from Lot 12 via an internal access road. Refer to **Appendix G** for the development plan and **Plan 4** for Development Assessment Plan. The Stage 1c area covers approximately two-thirds of the site with a development footprint of 3.09 ha. A total of 49 residential lots are proposed within the Stage 1c development footprint. Under the proposal, the MBRC riparian and wetland setback area located in the northern portion of the site is to be retained and rehabilitated.

The majority of the site has undergone significant modification to support historical rural land uses. The Stage 1c development is predominantly confined to the disturbed portion of the site which will result in the removal of scattered native and introduced vegetation mapped as Category X (non-remnant) vegetation under the PMAV. The proposal involves clearing Category X vegetation which is defined as 'exempt clearing work' under the PR.

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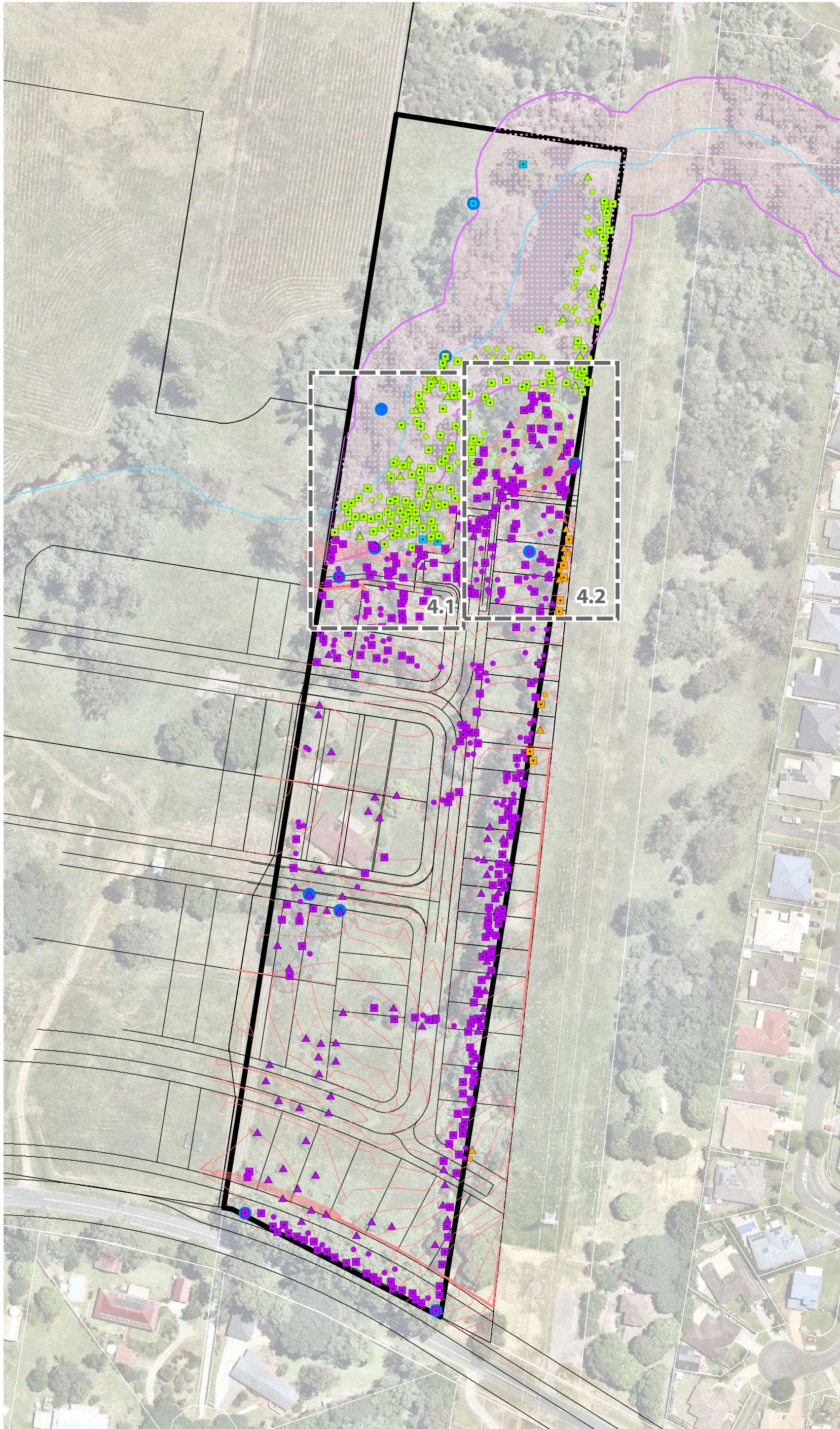
The development is anticipated to result in some minor encroachment on the MBRC riparian and wetland setback area due to the location of the earthworks batter and stormwater infrastructure (refer **Plan 4**). A stormwater treatment basin is proposed in the north-eastern corner of the development area with a stormwater discharge outlet proposed partially within the MBRC riparian and wetland setback area. Any unavoidable impacts on the MBRC riparian and wetland setback area will be ably mitigated through the retention and extensive rehabilitation of the waterway corridor.

A total of eight (8) trees defined as a Habitat Tree under the PSP EAC were recorded on-site. Seven (7) of these are located within the development footprint or works areas and as a result are required to be removed to facilitate the development (refer **Plan 4**). One (1) MBRC habitat tree is located within the MLES waterway corridor and therefore will be retained. Habitat trees are to be compensated at a rate of 3 nest boxes for every 1 habitat tree removed as per the PSP EAC. The removal of the recorded MBRC habitat trees is considered unavoidable in order to facilitate the development. In addition to the installation of nest boxes to compensate for their removal, impacts will be further mitigated by the retention and rehabilitation of the waterway corridor.

To minimise and mitigate impacts of the development on native flora and fauna, a VCFMP is recommended to ensure potential occurrence of native and threatened species listed under the EPBC Act and NCA will not be significantly impacted (refer **Section 5.5.2**).

The proposal is considered to comply with the performance outcomes or acceptable outcomes of the MBRC Reconfiguring a Lot code and relevant zone codes. Full responses area provided in **Appendix D**.

4.0. Development Assessment



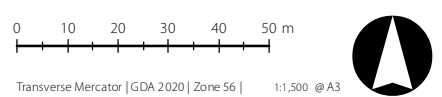
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Legend

- Site DCDB
- Qld DCDB
- Engineering Detail**
 - Property Lots
 - Basin Detail
 - Design Contours
- GPS Tree Plot**
 - NJKHT to Retain - 139
 - Native Tree to Retain - 63
 - Introduced Tree to Retain - 14
 - NJKHT to Remove - 265
 - Native Tree to Remove - 141
 - Dead/Stag Tree to Remove - 1
 - Introduced Tree to Remove - 77
 - NJKHT to Remove (Neighbouring) - 8
 - Native Tree to Remove (Neighbouring) - 4
 - Introduced Tree to Remove (Neighbouring) - 6
 - NJKHT Subject to Arborist Assessment - 4
 - Native Tree Subject to Arborist Assessment - 2
 - MBRC Habitat Trees
- MBRC Riparian & Wetlands**
 - W3 -Waterway (20m Setback)
 - Riparian & Wetland Setbacks (areas)

Issue	Date	Description	Drawn	Checked
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C	20/10/2022	Updated Engineering	LS	AD



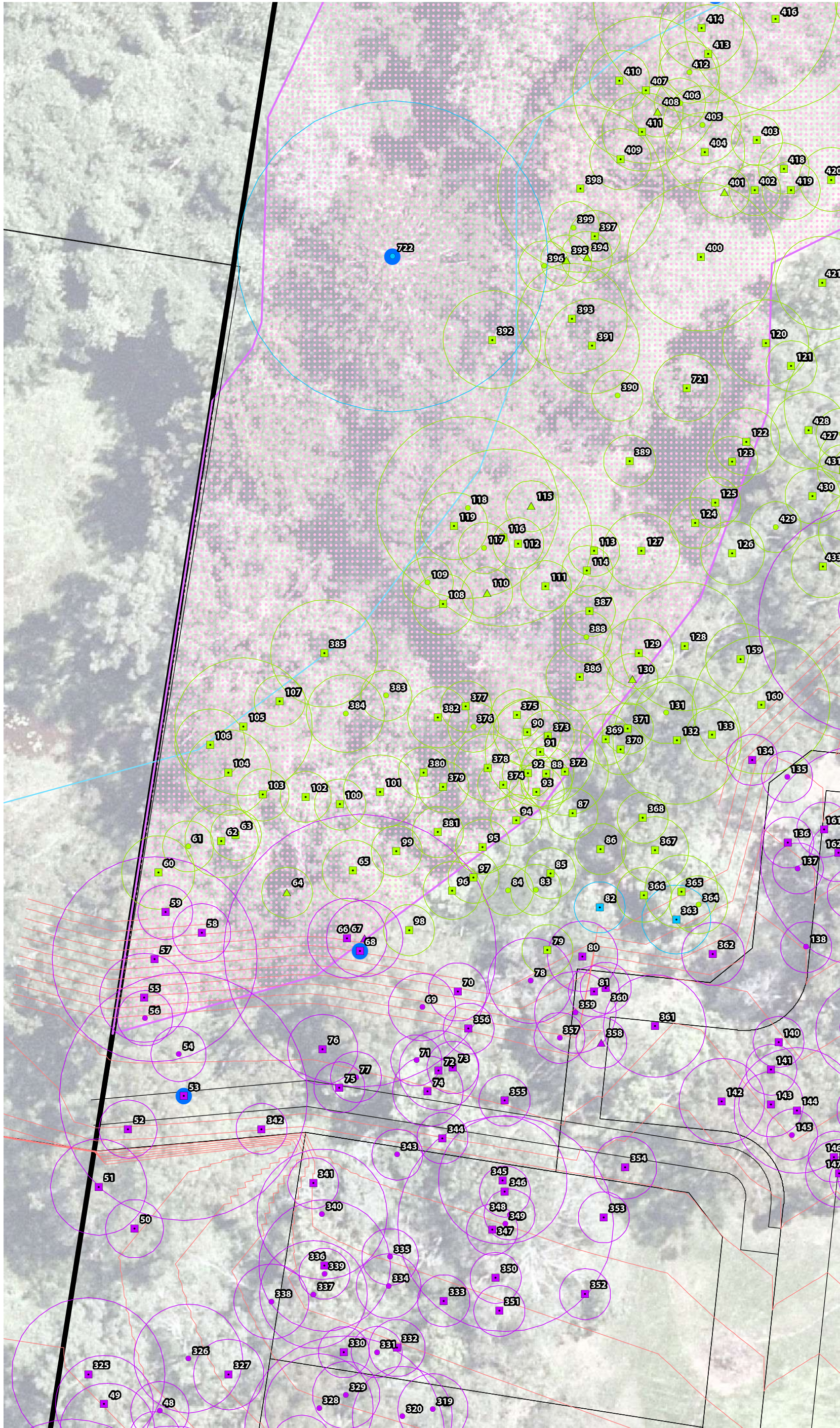
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4.1. Development Assessment



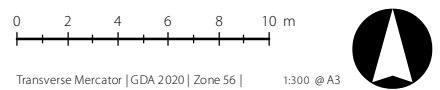
Notes:
 This plan was prepared as a desktop assessment tool. The information on this plan is not suitable for any other purpose. Property dimensions, areas, numbers of lots and contours and other physical features shown have been compiled from existing information and may not have been verified by field survey. These may need verification if the development application is approved and development proceeds, and may change when a full survey is undertaken or in order to comply with development approval conditions. No reliance should be placed on the information on this plan for detailed design or for any financial dealings involving the land. Saunders Havill Group therefore disclaims any liability for any loss or damage whatsoever or howsoever incurred, arising from any party using or relying upon this plan for any purpose other than as a document prepared for the sole purpose of accompanying a development application and which may be subject to alteration beyond the control of the Saunders Havill Group. Unless a development approval states otherwise, this is not an approved plan.

Layer Sources
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Legend

- Site DCDB
- Qld DCDB
- Engineering Detail**
 - Property Lots
 - Basin Detail
 - Design Contours
- GPS Tree Plot (w/ TPZ)**
 - NJKHT to Retain - 139
 - Native Tree to Retain - 63
 - Introduced Tree to Retain - 14
 - NJKHT to Remove - 265
 - Native Tree to Remove - 141
 - Dead/Stag Tree to Remove - 1
 - Introduced Tree to Remove - 77
 - NJKHT to Remove (Neighbouring) - 8
 - Native Tree to Remove (Neighbouring) - 4
 - Introduced Tree to Remove (Neighbouring) - 6
 - NJKHT Subject to Arborist Assessment - 4
 - Native Tree Subject to Arborist Assessment - 2
 - MBRC Habitat Trees
- MBRC Riparian & Wetlands**
 - W3 -Waterway (20m Setback)
 - Riparian & Wetland Setbacks (areas)

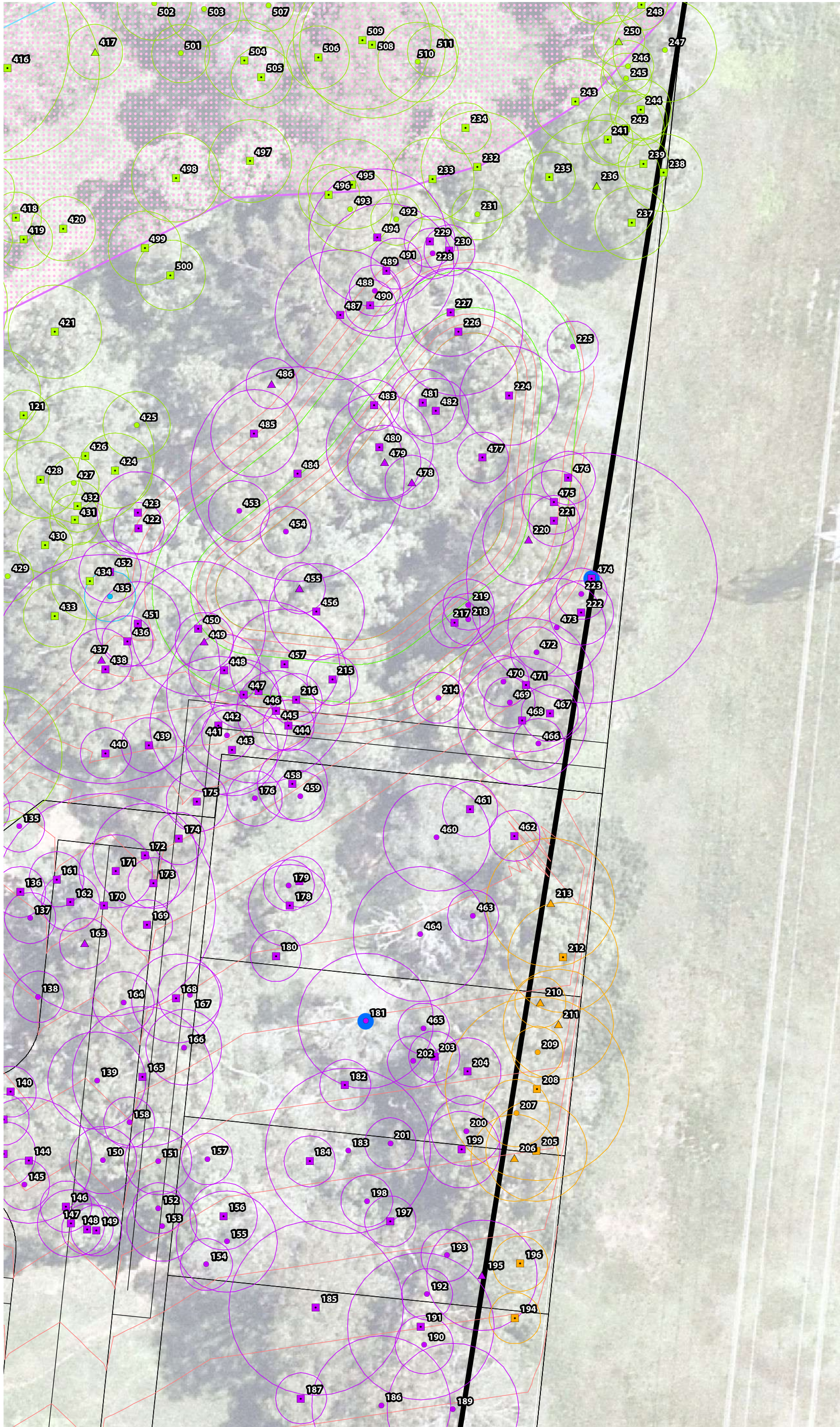
Issue	Date	Description	Drawn	Checked
A	14/04/2022	Preliminary	TF	AD
B	13/09/2022	Updated Engineering	LS	AD
C	20/10/2022	Updated Engineering	LS	AD



Transverse Mercator | GDA 2020 | Zone 56 | 1:300 @ A3

Address / RPD: 35/RP115959
 20/10/2022 | 11071 E 04_1 Development Assessment C

4.2. Development Assessment



Notes:
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Legend

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Address / RPD: 35/RP115959

20/10/2022 | 11071 E 04_1 Development Assessment C



Caboolture River Road,
Upper Caboolture

Approved Subject to Conditions of Decision Notice DA/2022/4535

23/08/2023

Print Date: 24 August 2023, 4:36 PM

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5.3. Potential impacts

The key potential ecological impacts associated with the development proposal are described herein. A list of potential impacts during varying phases of the proposed development is presented in **Table 11**.

Table 11: Summary of Potential Impacts

Construction Phase	Operation Phase (ongoing disturbance)
<ul style="list-style-type: none"> ▪ Vegetation Clearing ▪ Weeds ▪ Vehicle movements ▪ Earthworks ▪ Light emissions during construction ▪ Noise and vibration ▪ Waste disposal ▪ Hazardous and dangerous goods ▪ Increased human presence 	<ul style="list-style-type: none"> ▪ Weed incursion ▪ Vehicle strike ▪ Noise and light pollution ▪ Increased human presence

5.3.1 Vegetation clearing

Unavoidable clearing of some highly disturbed vegetation to establish the residential areas and access roads will remove scattered trees and habitat for flora and fauna dependent on those ecosystems.

The subject site is predominantly clear of vegetation and entirely mapped as Category X (non-remnant) vegetation and exotic flora species were observed within the disturbed paddock area. The property is currently used as rural lot for the purpose of cattle agistment. As such, the site had been historically cleared for pastoral purposes and contains a residential dwelling. The site is heavily cleared with non-remnant vegetation values scattered across the site. A total of eight (8) MBRC Habitat Trees are located within the development footprint, of which seven (7) are required to be removed. The removal of the recorded MBRC habitat trees is considered unavoidable in order to facilitate the development. In addition to the installation of nest boxes to compensate for their removal, impacts will be further mitigated by the retention and rehabilitation of the waterway corridor.

5.3.2 Weeds

Increased vehicle movement during the construction phase has the potential to increase the spread of weeds in the area, particularly during the vegetation clearing phase. The site is already heavily weeded. With the implementation of standard mitigation measures and improvement measures as part of the development, a reduction of weeds throughout the residential and retained native vegetation is reasonably anticipated.

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5.3.3 Vehicle movements

During construction, a large number of vehicles will be required on-site. Direct impact from vehicle movements on threatened species and vegetation communities include:

- damage or destruction of vegetation or fauna habitat by vehicles traversing these areas; and
- fauna strike.

Indirect impacts include:

- interference of fauna through visual and noise impacts. This may affect feeding, roosting, breeding or nesting behaviour;
- introducing and/or spreading weeds or feral animals carried on or in vehicles, resulting in deterioration or loss of vegetation and important fauna habitat; and
- damage or destruction of vegetation and fauna habitat through smothering by dust generated by vehicles traversing the site.

With the implementation of standard mitigation measures, the development is likely to result in a temporary and minor impact to ecological values due to vehicular movements. Further, ecological field survey confirmed mainly common avi-fauna are present on-site.

5.3.4 Earthworks

Construction activities have the potential to generate dust emissions. Dust emissions during construction will be temporary. The main sources of dust will be generated via:

- wheel-generated dust from the haul roads created for the construction phase;
- dust lift-off from exposed surfaces (e.g. construction roads and pads);
- earthworks, including construction of the embankments, and moving, dumping and shaping material; and
- vegetation and soil clearing of the land.

Excessive deposition of dust on leaves of plants can suppress the growth and photosynthesis, resulting in reduced habitat quality for fauna. High levels of airborne dust can irritate the respiratory systems of fauna and potentially result in ingestion of dust-coated seeds and other foods. Excessive deposition of dust on open water bodies may also degrade water quality and overall habitat quality for fauna. With the implementation of standard mitigation measures, the development is likely to result in a temporary and minor impact to ecological values due to the generation of dust.

5.3.5 Light emissions during construction

Artificial light can affect both nocturnal and diurnal animals by disrupting behavioural patterns, with quality of light (e.g. wavelength, colour), intensity and duration potentially evoking different faunal responses. Impacts from increased light levels include disorientation from, or attraction toward, artificial sources of light; mortality from collisions with structures; and effects on light-sensitive cycles of species (e.g. breeding and

■ Ecological Assessment Report

migration for fauna and flowering in plants). An artificial increase in lighting can also affect abundance of predators.

Presence and intensity of artificial light in the development area will temporarily increase during the construction phase, however, night works will not be common. Lighting will be directed to construction areas within the site. Some light spillage will be inevitable and is likely to be contained mainly for security reasons around the site compound. Potential impacts associated with light emissions will be temporary and unlikely to be significant.

With the implementation of standard mitigation measures, the development is likely to result in a negligible impact to ecological values due to the use of light pollution during construction.

5.3.6 Noise and vibration

Noise levels greater than existing ambient noise levels are expected during the construction within the development area. Sources of noise are likely to consist of noise in short, intense pulses from mobile plant equipment, and more prolonged noise, with consistent vibration, pitch and volume from generators, excavators and pumps, in addition from noise from vehicles.

Both steady continuous and single noise events have the potential to lead to ecological impacts. Construction noise is expected to elicit some avoidance response from fauna using the surrounding vegetation though, with consideration of the extent of habitat available in the development area, this is likely to be a temporary and negligible to minor impact.

5.3.7 Waste disposal

Inappropriate disposal of non-hazardous wastes can attract vermin and other wildlife to site. This may exacerbate potential impacts (e.g. road mortality). Litter may also enter surrounding environments. With the implementation of standard mitigation measures, the project is likely to result in a negligible impact to ecological values due to the generation and handling of waste.

5.3.8 Hazardous and dangerous goods

Spills and leaks from transfers (fuel, chemicals) and inadequate storage of dangerous goods and hazardous wastes could result in point-source contamination of surrounding land. Direct adverse impacts could include toxic impacts on vegetation (resulting in degradation or loss of vegetation and habitats), direct toxic impacts on fauna (from contact, inhalation or ingestion) or indirect impacts on threatened and migratory species from habitat loss. Direct adverse impacts on surface and groundwater quality are also possible.

With the application of standard mitigation and management measures, impacts from liquid and solid waste disposal will be avoided or localised and small in scale. Further to this, the likelihood of significant spillages is considered low. Therefore, the development is likely to result in a negligible impact to ecological values due to potential spills and leaks.

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5.3.9 Increased human presence

Increased human activity during construction has the potential to disturb fauna within adjacent habitat areas. Examples of impacts included heightened vigilance and predator avoidance, which can disrupt foraging and roosting efficiency, or deter wildlife from using particular areas. Impacts essentially represent a reduction in core habitat due to edge effects. The development is likely to result in a temporary and minor impact to ecological values due the increased human presence on-site during construction.

5.4. Ongoing disturbances

After completion of construction, the ongoing presence of infrastructure and increased human activity can continue to have potential for adverse direct and indirect impacts. The key continuing risks to ecological values include:

- weed incursion;
- vehicle movements;
- noise and light; and
- increased human presence.

Each potential impact associated with ongoing use of the site is described in detail in the following sections.

5.4.1 Weed incursion

Residential gardens and landscaping of common areas will introduce a variety of new and exotic species to the area. Garden escapes have the potential to be introduced into adjacent bushland areas through vectors such as birds, wind and runoff. Weed incursion will be an ongoing and can be difficult to prevent. Nonetheless, the problem is often mostly constrained to edges of bushland that abut gardens and along urban waterways. Importantly, the development site is already heavily weeded and retention areas will be buffered.

With the implementation of standard mitigation measures, the development is not likely to exacerbate adverse impacts to ecological values due the introduction and spread of weeds.

5.4.2 Vehicle strike

Upon completion of the development, there will be a significant increase of vehicle traffic (compared to baseline conditions) and this will increase the likelihood of fauna strike. The probability of fauna strike is reduced due to the fact that most fauna will generally avoid urban areas. Notwithstanding this, a low number of fauna may occasionally enter the area and be at risk of vehicular strike. However, given the low connectivity within the area, the risk of vehicle strike is considered to be negligible.

5.4.3 Noise and light

Noise levels are likely to increase once residents move into the areas as there will be increased vehicular and pedestrian traffic. Road noise will be the primary source of noise impact.

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Artificial light from industrial lighting may affect nocturnal and diurnal animals by disrupting patterns, with quality of light (e.g. wavelength, colour), intensity and duration potentially evoking different responses. Impacts from increased light levels include disorientation from or attraction toward artificial sources of light; mortality from collisions with structures; and effects on light-sensitive cycles of species (e.g. breeding and migration for fauna and flowering in plants). The presence and intensity of artificial light may have most impact at the edges of adjacent vegetation. With the implementation of standard mitigation measures, the development is likely to result in a negligible impact to wildlife due to light spillage.

5.4.4 Increased human presence

Increased human activity associated with land uses within the development has the potential to disturb fauna that exist within the broader area. Examples of impacts included heightened vigilance and predator avoidance, which can disrupt foraging and roosting efficiency, or deter wildlife from using particular areas.

Increased human presence is expected to have a moderate impact to wildlife and vegetation.

5.5. Management and compensatory measures

A number of management and compensatory measures are proposed to minimise and offset impacts associated with the development. These are discussed in the following subsections.

5.5.1 Avoidance Measures

The proposed development has been located within the southern portion of the site within the General Residential zone (suburban neighbourhood precinct) of the MBRC Planning Scheme. The development footprint has been located wholly outside of the MLES waterway buffer and proposes to retain the non-remnant vegetation values in the northern portion of the site. The proposed development aims to avoid where possible and limit impacts matters of national, state and local environmental significance.

5.5.2 Vegetation Clearing and Fauna Management Plan

A Vegetation Clearing and Fauna Management Plan (VCFMP) should form part of the broader management documentation submitted as part of the operational works application for the development site. The VCFMP should cover clearing of all vegetation listed in this report and include details on:

- Clearly show trees to be removed.
- All civil works likely to impact on existing vegetation.
- Temporary and permanent exclusion and protection fencing.
- Roles and responsibilities for site contractors, the developer and the consultant group.
- Stockpiling and site access locations.
- Fauna species surveyed as using the site with a focus on those most likely impacted by development works.
- A list of relevant State and Commonwealth legislation constraints and controls for the above listed fauna.

■ Ecological Assessment Report

- A plan showing existing habitat opportunities and locations.
- A clearing sequence plan showing the commencement of clearing and direction of removal
- Details of the threats to existing fauna species.
- Management and mitigation measures, e.g. temporary use of fauna exclusion fencing.
- Fauna spotter role, contacts and certification.
- Specific fauna management procedures for potential or known habitat trees.
- Links to weed management and revegetation proposals.
- The stock piling and reuse of cleared vegetation.

5.5.3 Rehabilitation Management Plan

The proposed open space area and MLES waterway will be rehabilitated using pre-clear Regional Ecosystem species. A Rehabilitation Management Plan including the following criteria is recommended to manage these works:

- Rehabilitation approaches – Natural regeneration, assisted natural regeneration, reconstruction, and fabrication.
- Defining management zones for works.
- Rehabilitation Layout Plans.
- Composition of Primary, Follow-up and Maintenance Works.
- Weed Management notes, requirements and treatments.
- General fauna considerations.
- Rehabilitation/ Revegetation planting notes- preparation, installation methodologies, grid layouts, construction details.
- Rehabilitation/ Revegetation species selection and densities.
- Rehabilitation site works, maintenance and monitoring responsibilities.
- Typical rehabilitation benchmarks

6. Conclusions

This EAR was prepared on behalf of Lennium Group Pty Ltd who seek to develop land at 403 and part of 393 Caboolture River Road (described as Lot 35 on RP115959 and part of Lot 34 on RP115959) to deliver residential uses as prescribed within the MBRC Planning Scheme. This EAR provides a contemporary review of the ecological values across the site in accordance with Commonwealth, State and Local Government Legislation.

Overall, the following conclusions can be made:

- The site is located within the General Residential zone (suburban neighbourhood precinct) with a small area zoned as Limited Development.
- The site is historically cleared and is mapped entirely as Category X (non-remnant) vegetation under a PMAV (PMAV ref: 2022/001541). The majority of the site is cleared, comprising paddock, planted orchard species, a dwelling and associated ornamental vegetation.
- Field surveys found the northern portion of the site to contain higher value in the form of regrowth eucalypt values and a waterway.
- A total of eighty-three (83) flora species were recorded within the application area. Of these species, forty-three (43) are native and forty (40) are considered introduced/weed species. Four (4) invasive flora species are listed as restricted under the *Biosecurity Act 2014*, indicating a highly disturbed environment, with low overall ecological value.
- Thirty-two (32) fauna species were observed on-site or as fly-over species. The fauna species consisted of seventeen (17) birds, one (1) amphibian, twelve (12) mammals and two (2) reptiles.
- No threatened flora species considered *in the wild* or TECs listed under the EPBC Act nor NCA were recorded on-site.
- One (1) Grey-Headed Flying-Fox individual listed as Vulnerable under the EPBC Act was recorded as a fly-over species. Notably, no Grey-headed Flying-fox roosts were recorded within the vicinity of the site and foraging habitat will be retained and rehabilitated in the northern portion of the site.
- A total of eight (8) MBRC defined habitat trees were observed within the site, seven (7) of which are located within the development footprint and are required to be removed. The removal of the recorded MBRC habitat trees is considered unavoidable in order to facilitate the development. In addition to the installation of nest boxes to compensate for their removal in line with the PSP EAC, impacts will be further mitigated by the retention and rehabilitation of the waterway corridor.
- Only Category X (non-remnant) vegetation is proposed to be cleared which is exempt clearing under the PR. The development will result in impacts on relatively fragmented and disturbed ecological values.
- An MLES waterway and riparian and wetland setback area is mapped under MBRC Planning Scheme. This portion of the site is proposed to be retained and rehabilitated. Some minor encroachment on the setback area may occur, with any unavoidable losses to be ably mitigated through the extensive rehabilitation works proposed within the northern waterway corridor.

- Ecological Assessment Report

7. Appendices

Appendix A

Environment Protection and Biodiversity Conservation Act 1999
Protected Matters Search Tool Results

Appendix B

Nature Conservation Act 1992
Wildlife Online Search Results

Appendix C

Environmental Searches Maps

Appendix D

Response to MBRC Planning Scheme Codes V6

Appendix E

Tree Schedule

Appendix F

Likelihood of Occurrence Assessment

Appendix G

Development Layout

Appendix A

*Environment Protection and Biodiversity
Conservation Act 1999*

Protected Matters Search Tool Results



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 20-Oct-2022

[Summary](#)

[Details](#)

[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar)	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	46
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	1
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)

[\[Resource Information \]](#)

Ramsar Site Name

[Moreton bay](#)

Proximity

Within 10km of
Ramsar site

Listed Threatened Ecological Communities

[\[Resource Information \]](#)

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name

[Coastal Swamp Oak \(Casuarina glauca\) Forest of New South Wales and South East Queensland ecological community](#)

Threatened Category

Endangered

Presence Text

Community may occur within area

[Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland](#)

Endangered

Community may occur within area

[Lowland Rainforest of Subtropical Australia](#)

Critically Endangered

Community may occur within area

[Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions](#)

Endangered

Community likely to occur within area

[White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland](#)

Critically Endangered

Community may occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.

Number is the current name ID.

Scientific Name

BIRD

[Anthochaera phrygia](#)

Regent Honeyeater [82338]

Threatened Category

Critically Endangered

Presence Text

Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat likely to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area
FROG		
Mixophyes fleayi Fleay's Frog [25960]	Endangered	Species or species habitat may occur within area
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Vulnerable	Species or species habitat likely to occur within area
INSECT		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
MAMMAL		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area
Dasyurus hallucatus Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Macroderma gigas Ghost Bat [174]	Vulnerable	Species or species habitat may occur within area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
PLANT		
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat may occur within area
Bosistoa transversa Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat may occur within area
Cryptocarya foetida Stinking Cryptocarya, Stinking Laurel [11976]	Vulnerable	Species or species habitat may occur within area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area
Cupaniopsis shirleyana Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat likely to occur within area
Macadamia ternifolia Small-fruited Queensland Nut, Gympie Nut [7214]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat may occur within area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat may occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat may occur within area
Phaius bernaysii Yellow Swamp-orchid [4918]	Endangered	Species or species habitat may occur within area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area
Samadera bidwillii Quassia [29708]	Vulnerable	Species or species habitat may occur within area
Sophora fraseri [8836]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area
REPTILE		
Coeranoscincus reticulatus Three-toed Snake-tooth Skink [59628]	Vulnerable	Species or species habitat likely to occur within area
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Furina dunmali Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat may occur within area

Listed Migratory Species [\[Resource Information \]](#)

Scientific Name	Threatened Category	Presence Text
-----------------	---------------------	---------------

Migratory Marine Birds

Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
---	--	--

Migratory Terrestrial Species

Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
--	--	--

Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
--	------------	---

Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area
--	--	--

Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
--	--	---

Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
---	--	---

Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area
---	--	---

Migratory Wetlands Species

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
--	--	--

Scientific Name	Threatened Category	Presence Text
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]	
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area

Scientific Name

Threatened Category

Presence Text

[Anseranas semipalmata](#)

Magpie Goose [978]

Species or species
habitat may occur
within area overfly
marine area[Apus pacificus](#)

Fork-tailed Swift [678]

Species or species
habitat likely to occur
within area overfly
marine area[Bubulcus ibis as Ardea ibis](#)

Cattle Egret [66521]

Species or species
habitat may occur
within area overfly
marine area[Calidris acuminata](#)

Sharp-tailed Sandpiper [874]

Species or species
habitat may occur
within area[Calidris ferruginea](#)

Curlew Sandpiper [856]

Critically Endangered

Species or species
habitat may occur
within area overfly
marine area[Calidris melanotos](#)

Pectoral Sandpiper [858]

Species or species
habitat may occur
within area overfly
marine area[Charadrius leschenaultii](#)Greater Sand Plover, Large Sand Plover [877]
VulnerableSpecies or species
habitat may occur
within area[Gallinago hardwickii](#)

Latham's Snipe, Japanese Snipe [863]

Species or species
habitat likely to occur
within area overfly
marine area[Haliaeetus leucogaster](#)

White-bellied Sea-Eagle [943]

Species or species
habitat likely to occur
within area[Hirundapus caudacutus](#)

White-throated Needletail [682]

Vulnerable

Species or species
habitat known to
occur within area
overfly marine area

Scientific Name	Threatened Category	Presence Text
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area overfly marine area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [-Office of Environment and Heritage, New South Wales](#)
- [-Department of Environment and Primary Industries, Victoria](#)
- [-Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [-Department of Environment, Water and Natural Resources, South Australia](#)
- [-Department of Land and Resource Management, Northern Territory](#)
- [-Department of Environmental and Heritage Protection, Queensland](#)
- [-Department of Parks and Wildlife, Western Australia](#)
- [-Environment and Planning Directorate, ACT](#)
- [-Birdlife Australia](#)
- [-Australian Bird and Bat Banding Scheme](#)
- [-Australian National Wildlife Collection](#)
- [-Natural history museums of Australia](#)
- [-Museum Victoria](#)
- [-Australian Museum](#)
- [-South Australian Museum](#)
- [-Queensland Museum](#)
- [-Online Zoological Collections of Australian Museums](#)
- [-Queensland Herbarium](#)
- [-National Herbarium of NSW](#)
- [-Royal Botanic Gardens and National Herbarium of Victoria](#)
- [-Tasmanian Herbarium](#)
- [-State Herbarium of South Australia](#)
- [-Northern Territory Herbarium](#)
- [-Western Australian Herbarium](#)
- [-Australian National Herbarium, Canberra](#)
- [-University of New England](#)
- [-Ocean Biogeographic Information System](#)
- [-Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [-Geoscience Australia](#)
- [-CSIRO](#)
- [-Australian Tropical Herbarium, Cairns](#)
- [-eBird Australia](#)
- [-Australian Government – Australian Antarctic Data Centre](#)
- [-Museum and Art Gallery of the Northern Territory](#)
- [-Australian Government National Environmental Science Program](#)
- [-Australian Institute of Marine Science](#)
- [-Reef Life Survey Australia](#)
- [-American Museum of Natural History](#)
- [-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania](#)
- [-Tasmanian Museum and Art Gallery, Hobart, Tasmania](#)
- [-Other groups and individuals](#)

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

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Appendix B

Nature Conservation Act 1992

Wildlife Online Search Results



Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: Native
Queensland status: Rare and threatened species
Records: Confirmed
Date: Since 1980
Latitude: -27.1031
Longitude: 152.9104
Distance: 5
Email: amywestman@saundershavill.com
Date submitted: Thursday 20 Oct 2022 12:58:10
Date extracted: Thursday 20 Oct 2022 13:00:03

The number of records retrieved = 8

Disclaimer

Information presented on this product is distributed by the Queensland Government as an information source only. While every care is taken to ensure the accuracy of this data, the State of Queensland makes no statements, representations or warranties about the accuracy, reliability, completeness or suitability of any information contained in this product.

The State of Queensland disclaims all responsibility for information contained in this product and all liability (including liability in negligence) for all expenses, losses, damages and costs you may incur as a result of the information being inaccurate or incomplete in any way for any reason.

Information about your Species lists request is logged for quality assurance, user support and product enhancement purposes only.

The information provided should be appropriately acknowledged as being derived from WildNet database when it is used. As the WildNet Program is still in a process of collating and vetting data, it is possible the information given is not complete. Go to the WildNet database webpage

(<http://www.moretonbay.qld.gov.au/environment/plants-animals/species-subject-to-conservation-notices>) and where to access other WildNet information

products approved for publication. Feedback about WildNet species lists should be emailed to wildlife.online@des.qld.gov.au.

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Limnodynastidae	<i>Adelotus brevis</i>	tusked frog		V		5
animals	amphibians	Myobatrachidae	<i>Crinia tinnula</i>	wallum froglet		V		2
animals	amphibians	Myobatrachidae	<i>Mixophyes iteratus</i>	giant barred frog		V	V	1
animals	birds	Apodidae	<i>Hirundapus caudacutus</i>	white-throated needletail		V	V	1
animals	birds	Psittacidae	<i>Lathamus discolor</i>	swift parrot		E	CE	1
animals	birds	Strigidae	<i>Ninox strenua</i>	powerful owl		V		23
animals	mammals	Phascolarctidae	<i>Phascolarctos cinereus</i>	koala		E	E	472
animals	mammals	Pseudocheiridae	<i>Petauroides armillatus</i>	central greater glider		E	E	20

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992*.

The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999*.

The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).

This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.

This number is output as 999 if it equals or exceeds this value.

Appendix C

Environmental Searches Maps



Environmental searches

403 Caboolture River Road, Upper Caboolture, Queensland 4510
Lennium Group Pty Ltd
13 December 2021

E10051

■ Environmental searches

Published on 13 December 2021 by © Saunders Havill Group Pty Ltd 2021. ABN 24 144 972 949 www.saundershavill.com
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Property attributes		13 December 2021
Address	403 Caboolture River Road, Upper Caboolture, Queensland, 4510	
Lot/plan(s)	Lot 35 on RP115959	
Area (ha)	4.049	
Local government area	Moreton Bay Regional Council	

1. Federal Matters of National Environmental Significance

A Protected Matters Report was generated from the environment.gov.au website and returned the following results. These matters may occur within a 5 km radius of the site and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	4
Listed Threatened Species:	48
Listed Migratory Species:	17

2. State Matters

2.1 Nature Conservation Act 1992 and subordinate legislation

Protected Plants Flora Survey Trigger Map Wholly outside high risk area

2.2 Vegetation Management Act 1999 and subordinate legislation

Regulated Vegetation Management Map and Vegetation Management Supporting Map

Regional Ecosystem	VMA status	Category	Area (ha)
Non-remnant	None	X	4.05

■ Environmental searches

Essential Habitat	No records
Wetland/s	Not present
Bioregion	Coastal bioregions and sub-regions

2.3 Koala priority area and koala habitat areas

Koala Priority Area (KPA)	Within KPA
Koala Habitat Area	No Koala Habitat Area present

2.4 State Planning Policy Interactive Mapping System (selected environmental matters)

SPP — Biodiversity	MSES – Regulated vegetation (intersecting a watercourse)
SPP — Coastal Environment	Not within coastal management district
SPP — Water Quality	Does not apply
SPP — Natural Hazards Risk and Resilience	Flood hazard area - Local Government flood mapping area Bushfire prone area Medium Potential Bushfire Intensity Potential Impact Buffer

2.5 Development Assessment Mapping System

DAMS — Coastal Protection	Does not apply
DAMS — Fish Habitat Areas	Does not apply

3. Local matters — Moreton Bay Regional Council

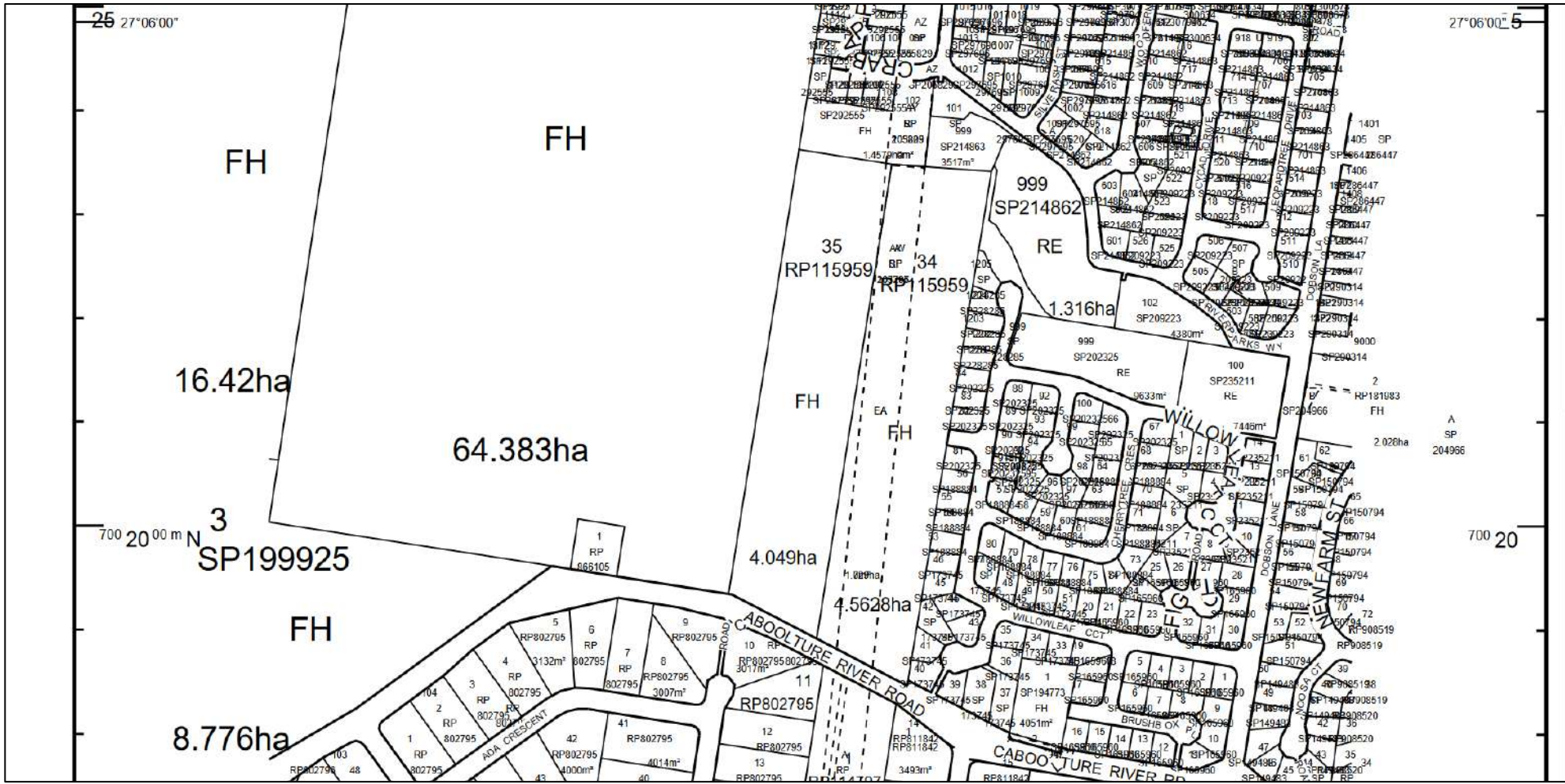
Zoning	General residential (Suburban neighbourhood) Limited development
Overlay — Environmental areas	W3 – Waterway (20m Buffer)
Overlay – Environmental Offsets Receiving Areas	Does not apply
Overlay — Bushfire	High Potential Bushfire Intensity Medium Potential Bushfire Intensity Potential Impact Buffer
Overlay — Coastal hazard	Does not apply
Overlay — Flood	Flood planning area boundary High risk flood hazard area Medium risk flood hazard area Balance Flood Planning Area
Overlay — Landslide	Does not apply

■ Environmental searches

Overlay — Acid sulfate soils	Land above 5m AHD and below 20m AHD
Overlay — Landscape character	Does not apply
Overlay — Riparian wetland setbacks	W3 – Waterway (20m setback) Riparian and Wetland setbacks
Overlay — Overland flow path	Overland flow path
Overlay — MBRC 1m contours	

■ Environmental searches

Map 1 — Lot/plan(s)



Source: SmartMap QLD Globe, Department of Natural Resources, Mines and Energy (captured: 13/12/2021)

■ Environmental searches

Map 2 — Aerial image (current)



Source: Qld Globe (captured: 13/12/2021)

■ Environmental searches

Map 3 — Aerial image (historical)



Source: Qld Globe (captured: 01/07/1978)

■ Environmental searches

Map 4 — Locality



GDA2020 Lat/Lng
 lat: -27.07059
 long: 152.88503
 1:34566

Source: Qld Globe (captured: 13/12/2021)

■ Environmental searches

State matters

■ Environmental searches

Map 5 — Biodiversity Planning Assessments



Source: QLD Globe (captured: 13/12/2021)

■ Environmental searches

Map 6 — Protected Plants Flora Survey Trigger Map



Source: Queensland Government (Department of Environment and Science) 2021 (captured: 13/12/2021)

■ Environmental searches

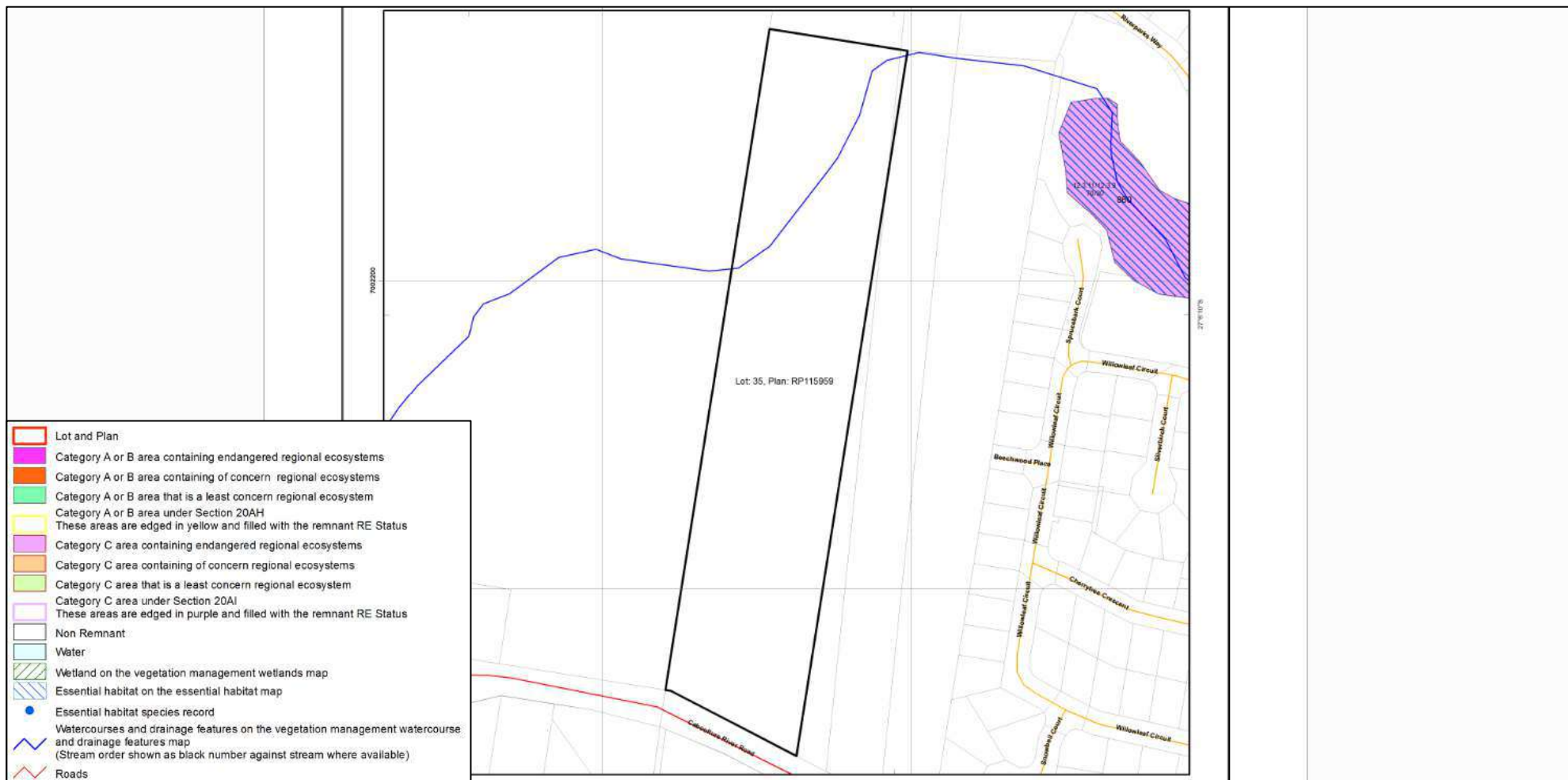
Map 7 — Regulated Vegetation Management Map



Source: Queensland Government (Department of Environment and Science) 2021 (captured: 13/12/2021)

■ Environmental searches

Map 8 — Vegetation Management Supporting Map



Source: Queensland Government (Department of Environment and Science) 2021 (captured: 13/12/2021)

■ Environmental searches

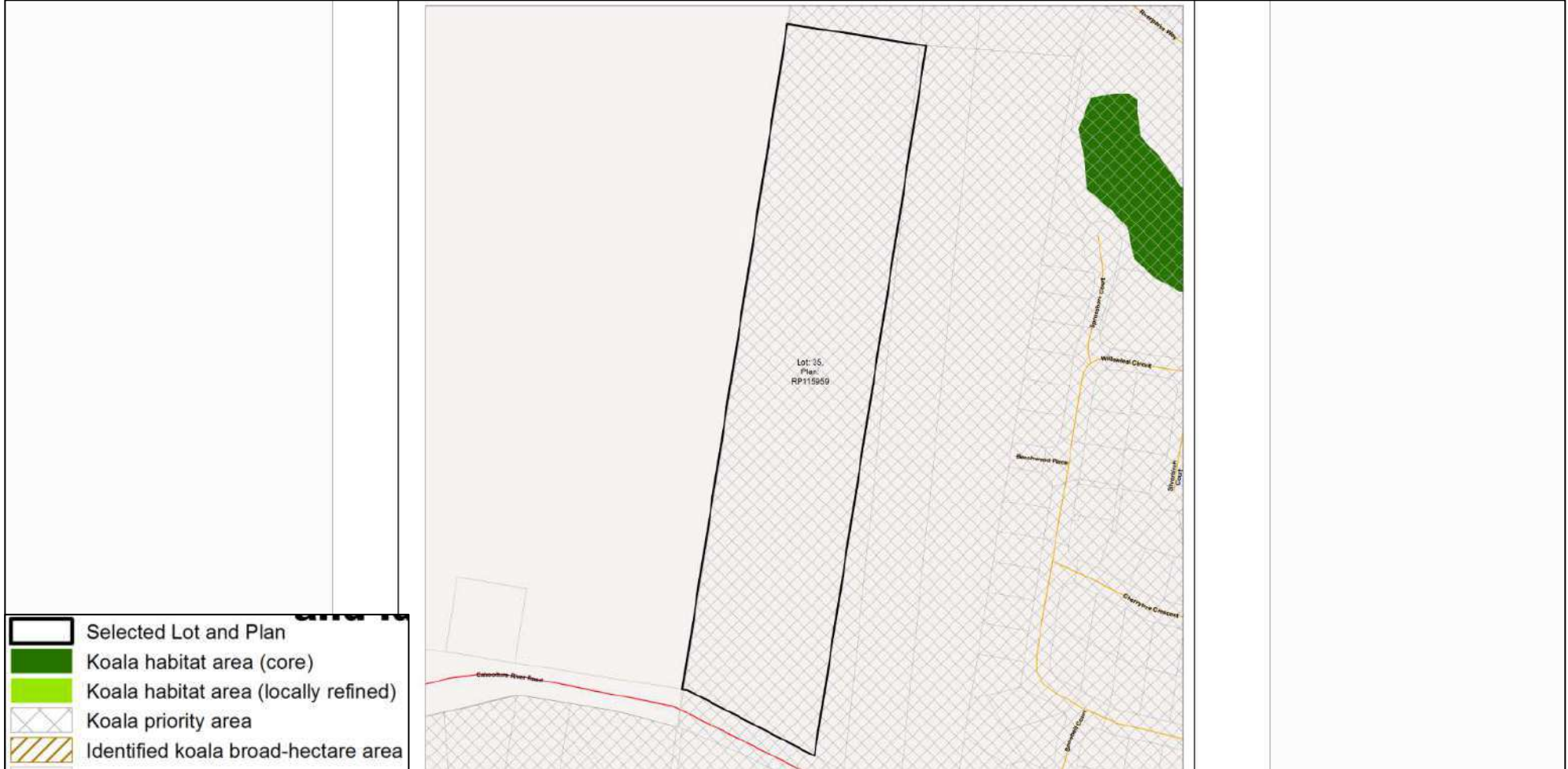
Map 9 — Preclear Regional Ecosystem Map



Source: Queensland Government (Department of Environment and Science) 2021 (captured: 13/12/2021)

■ Environmental searches

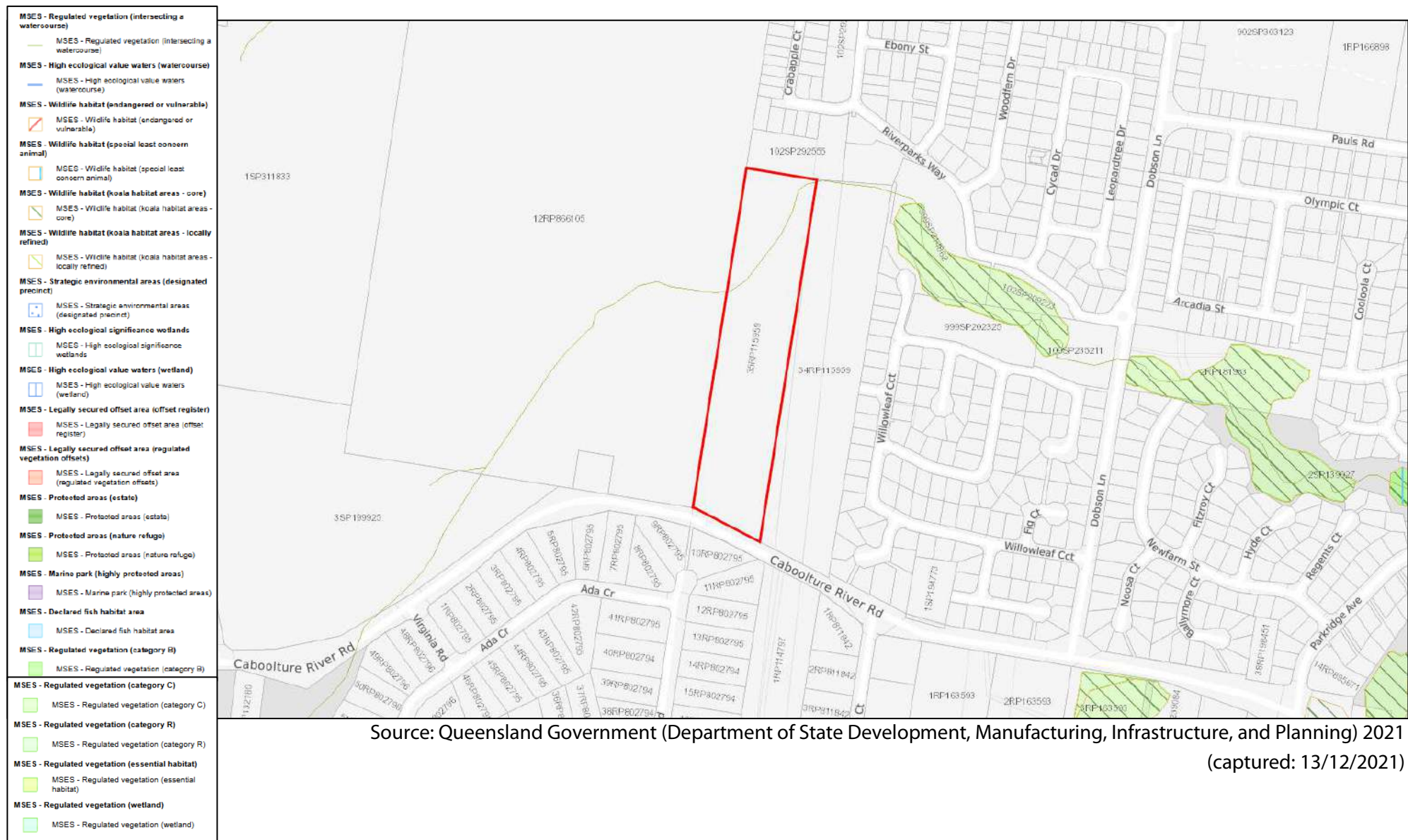
Map 10 — Koala priority area and koala habitat areas



Source: Queensland Government (Department of Environment and Science) 2021 (captured: 13/12/2021)

■ Environmental searches

Map 11 — SPP — Biodiversity



Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2021 (captured: 13/12/2021)

E10051 (13 December 2021)

■ Environmental searches

Map 12 — SPP — Coastal Environment



Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2021 (captured: 13/12/2021)

■ Environmental searches

Map 13 — SPP — Water Quality



Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2021 (captured: 13/12/2021)

■ Environmental searches

Map 14 — SPP — Natural Hazards Risk and Resilience



Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2021 (captured: 13/12/2021)

■ Environmental searches

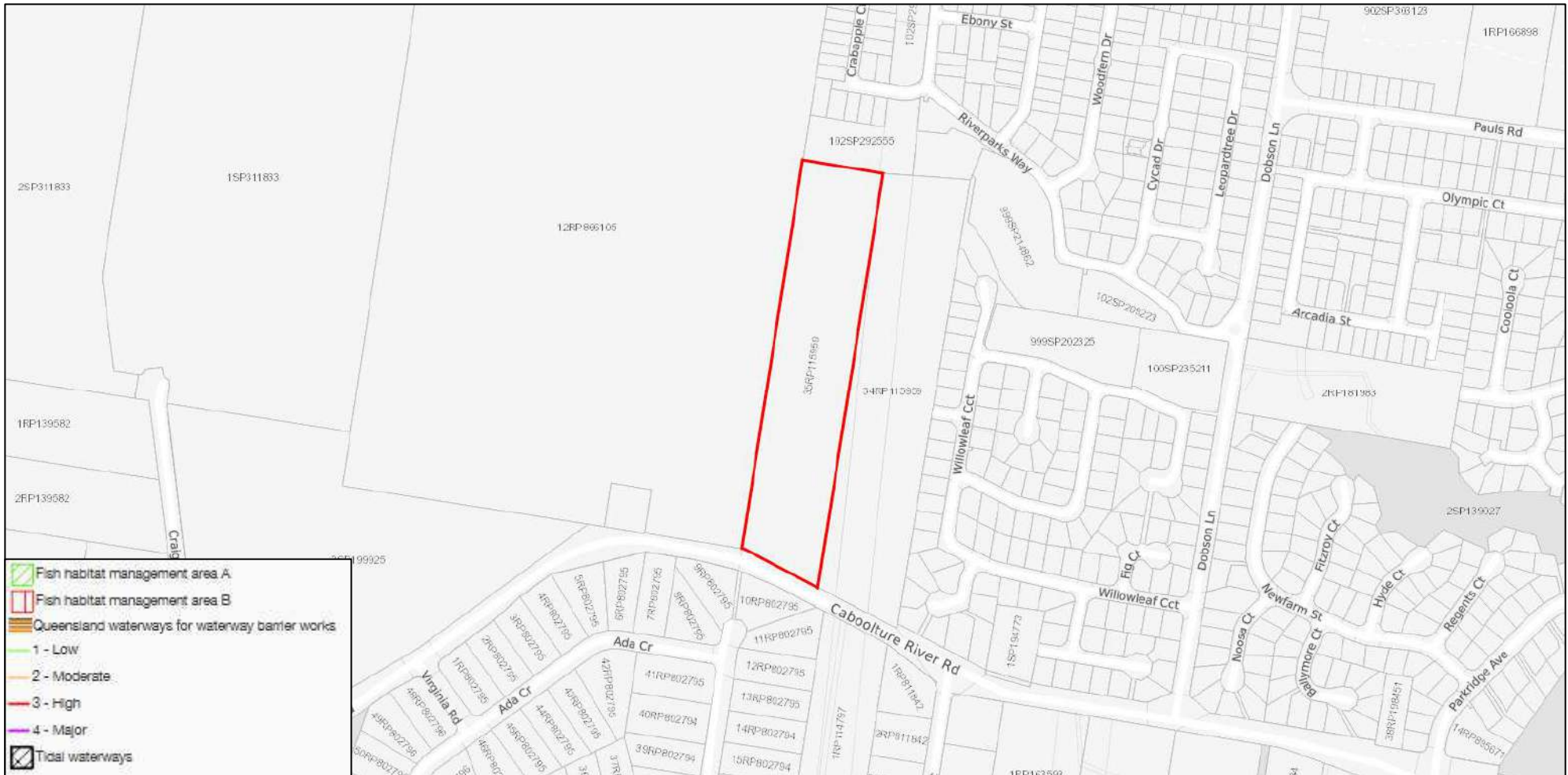
Map 15 — DAMS — Coastal Protection



Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2021 (captured: 13/12/2021)

■ Environmental searches

Map 16 — DAMS — Fish Habitat Areas



Source: Queensland Government (Department of State Development, Manufacturing, Infrastructure, and Planning) 2021 captured: 13/12/2021)

■ Environmental searches

Local matters — Moreton Bay Regional Council

E10051 (13 December 2021)

21

 **saunders
havill
group**

Approved Subject to Conditions of Decision Notice DA/2022/4535

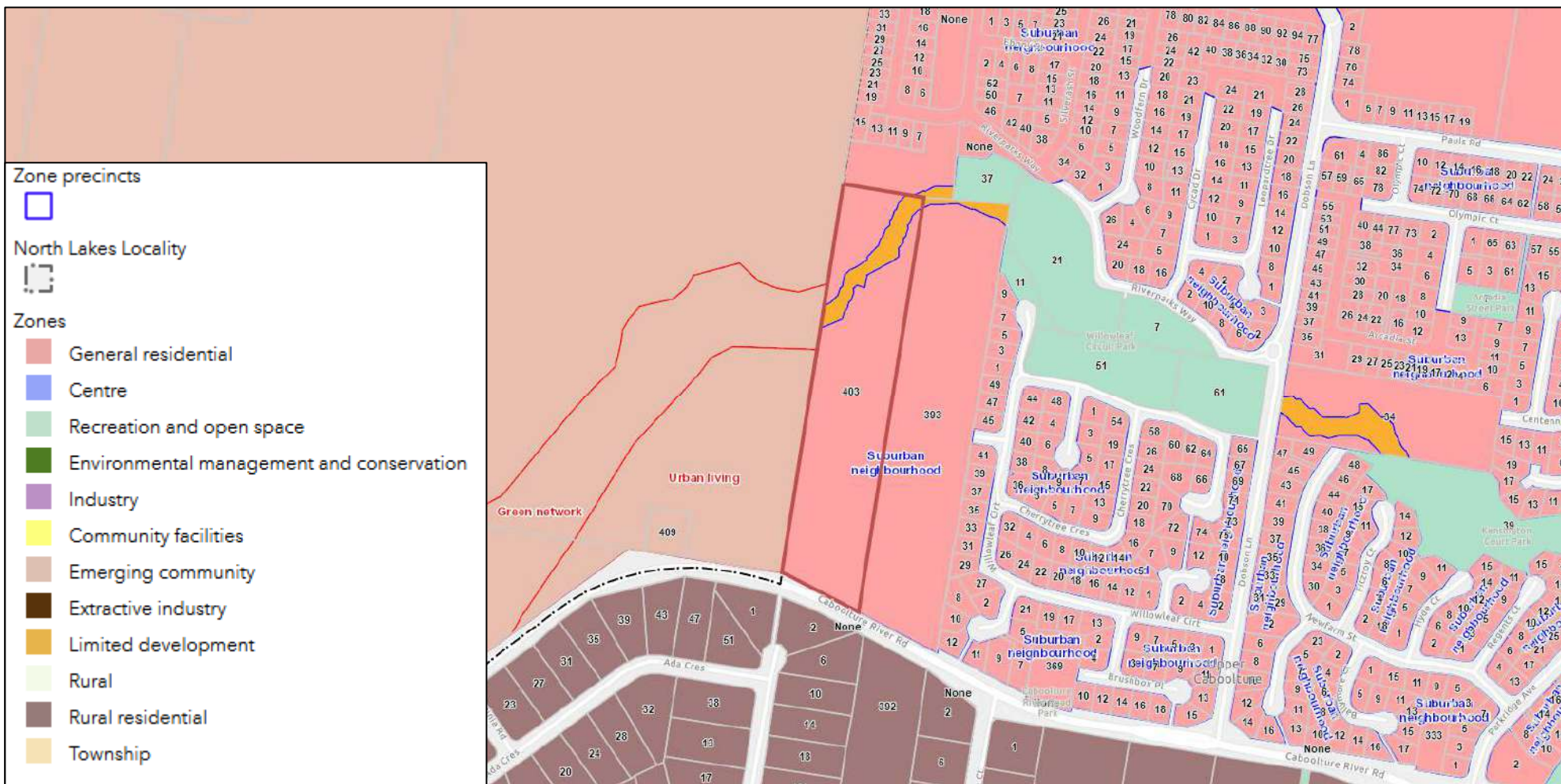
23/08/2023

Print Date: 24 August 2023, 4:36 PM



■ Environmental searches

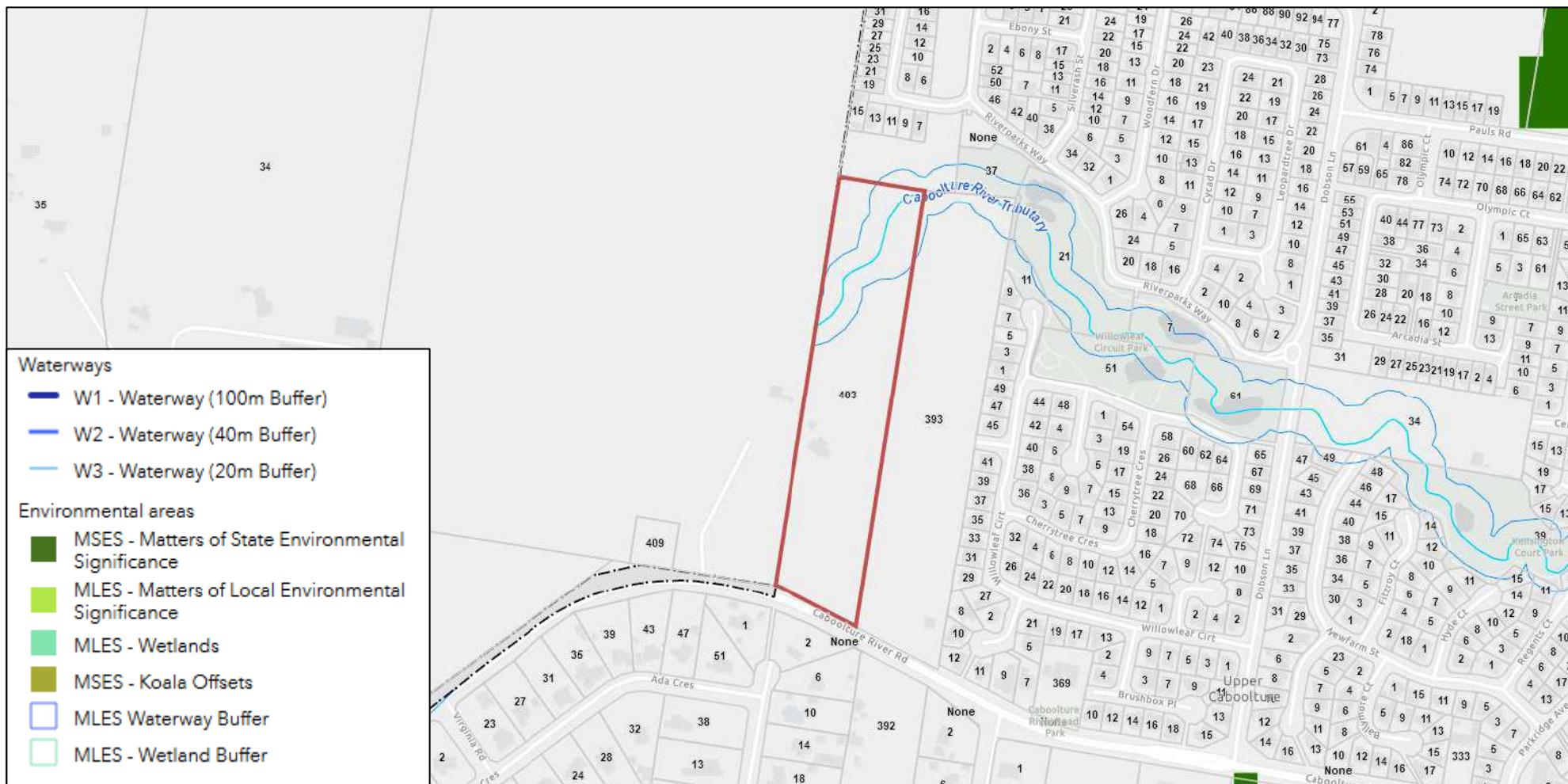
Map 17 — Zoning



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

Map 18 - Overlay — Environmental areas



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

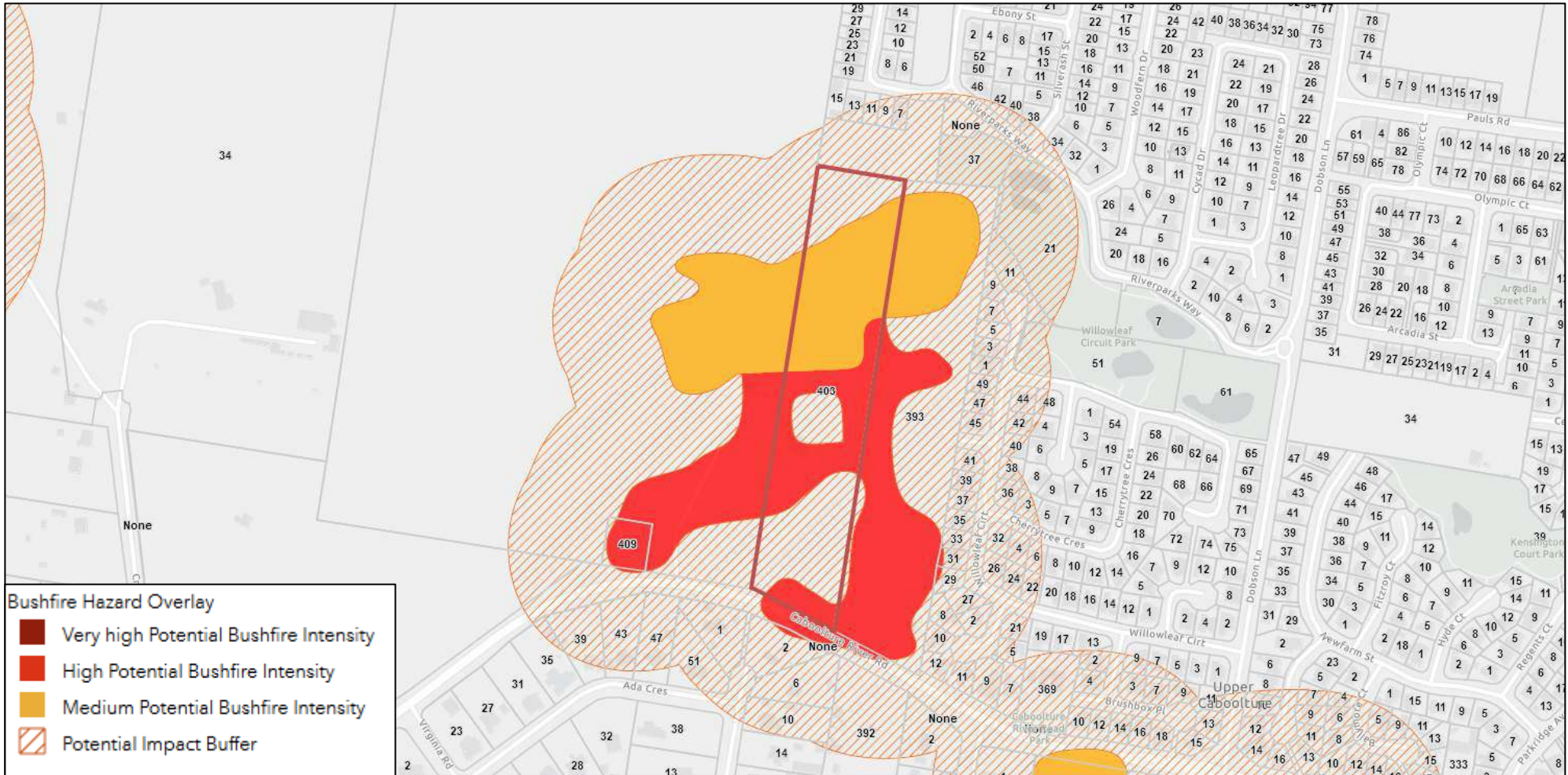
Map 19 - Overlay — Environmental areas



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

Map 20 - Overlay — Bushfire



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

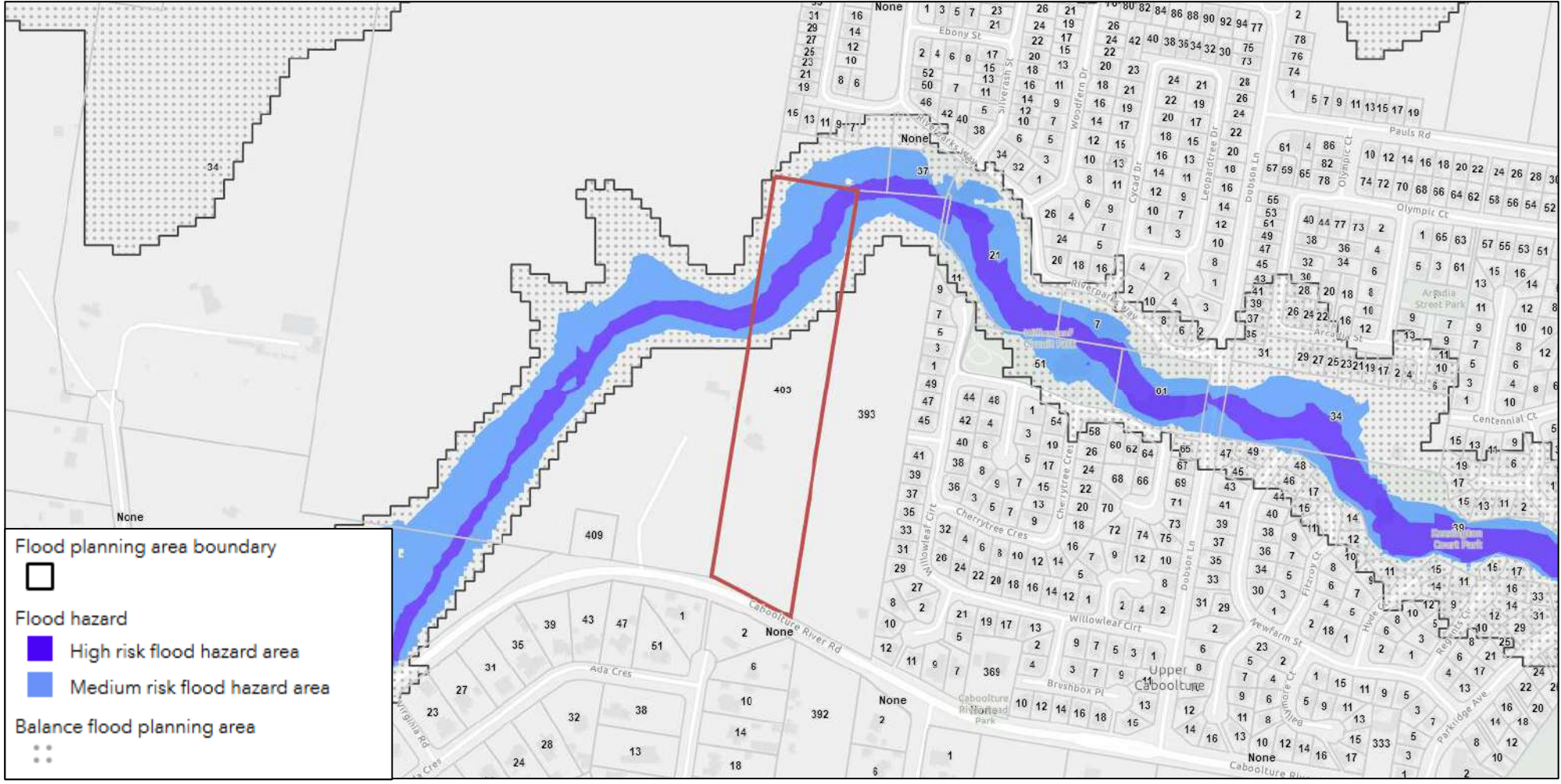
Map 21 - Overlay — Coastal hazard



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

Map 22 - Overlay — Flood



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

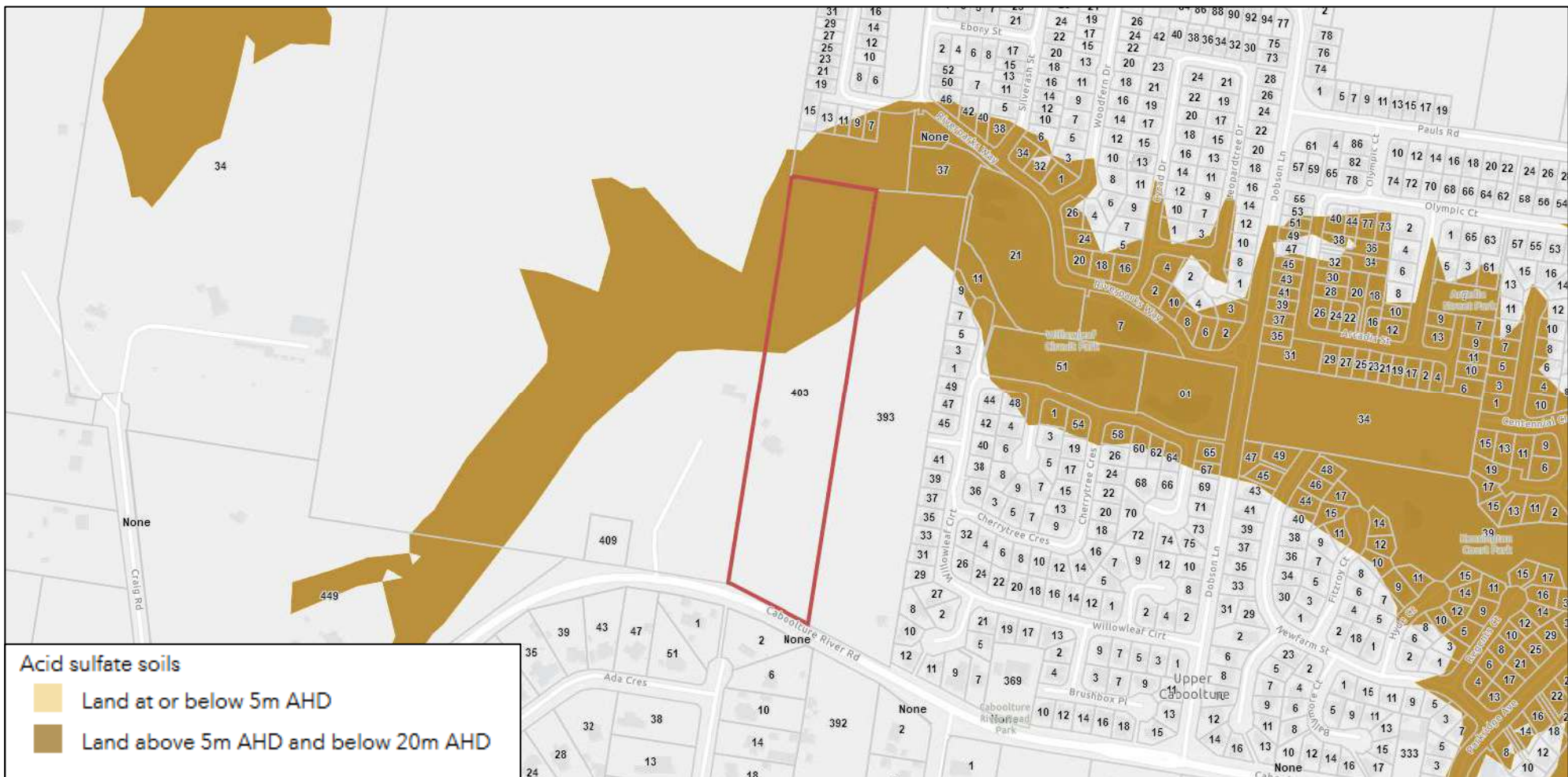
Map 23 - Overlay — Landslide



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

Map 24 - Overlay — Potential and actual acid sulfate soils



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

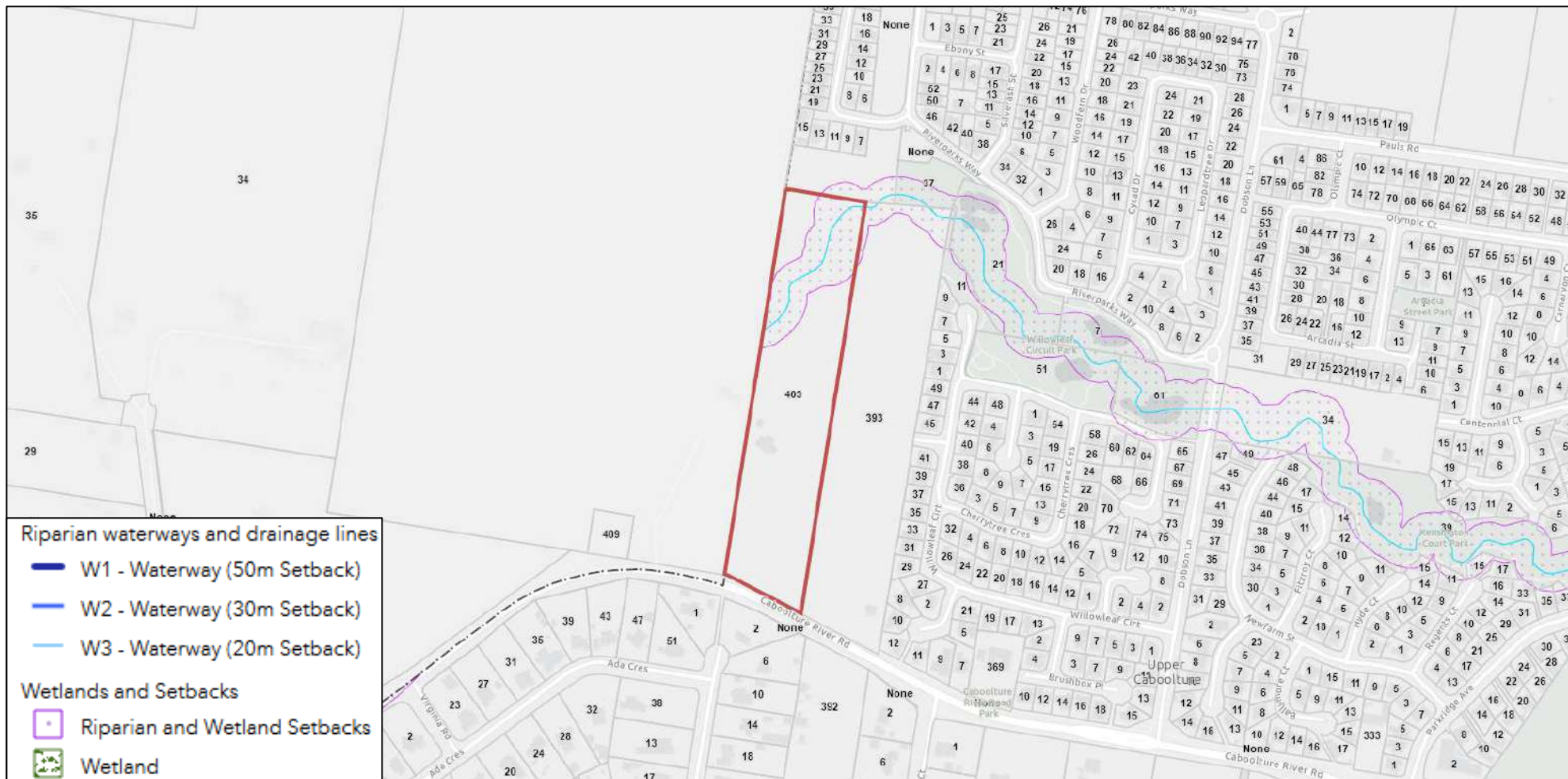
Map 25 - Overlay — Heritage landscape



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

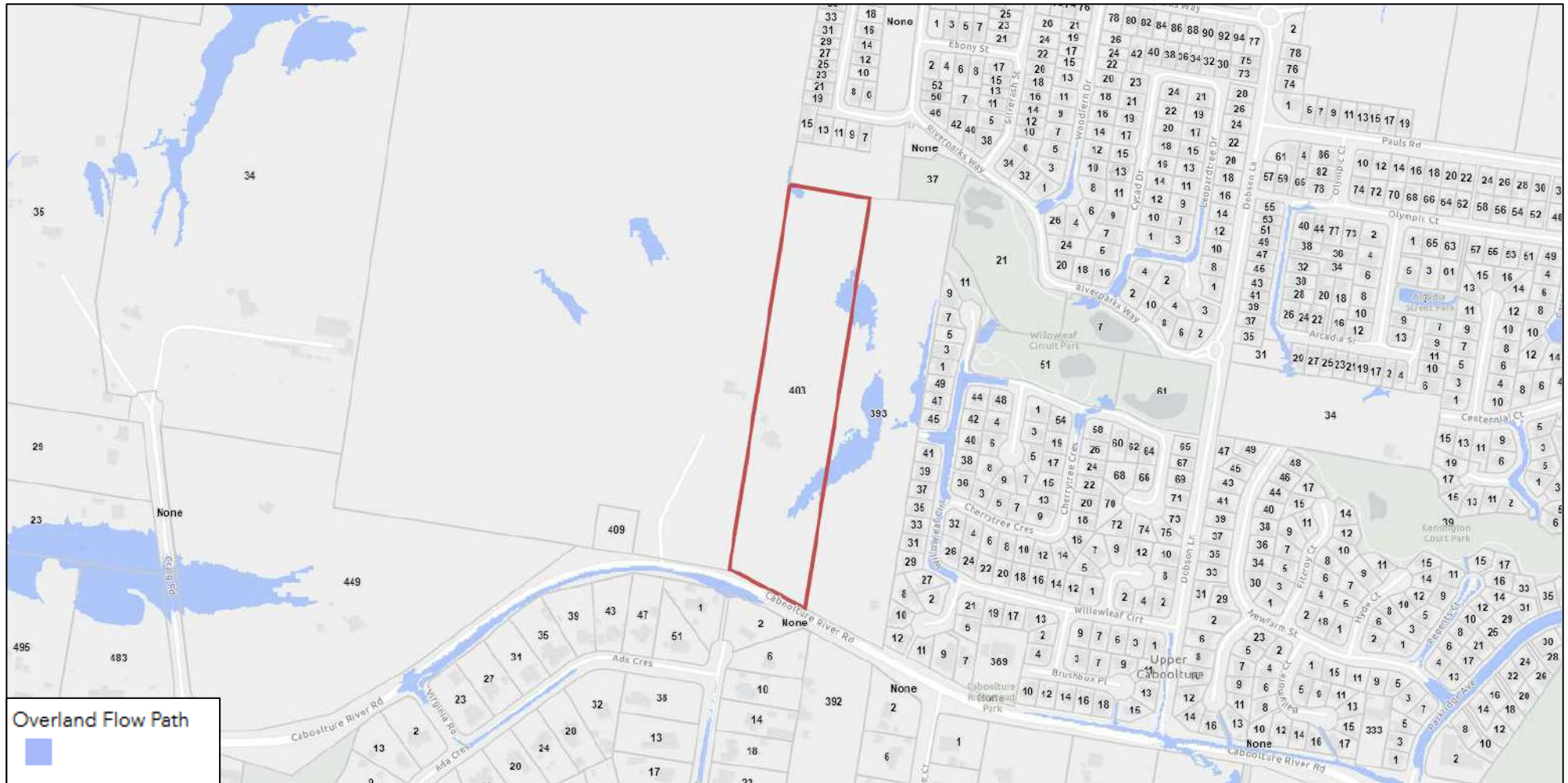
Map 26 - Overlay — Riparian wetland setback



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

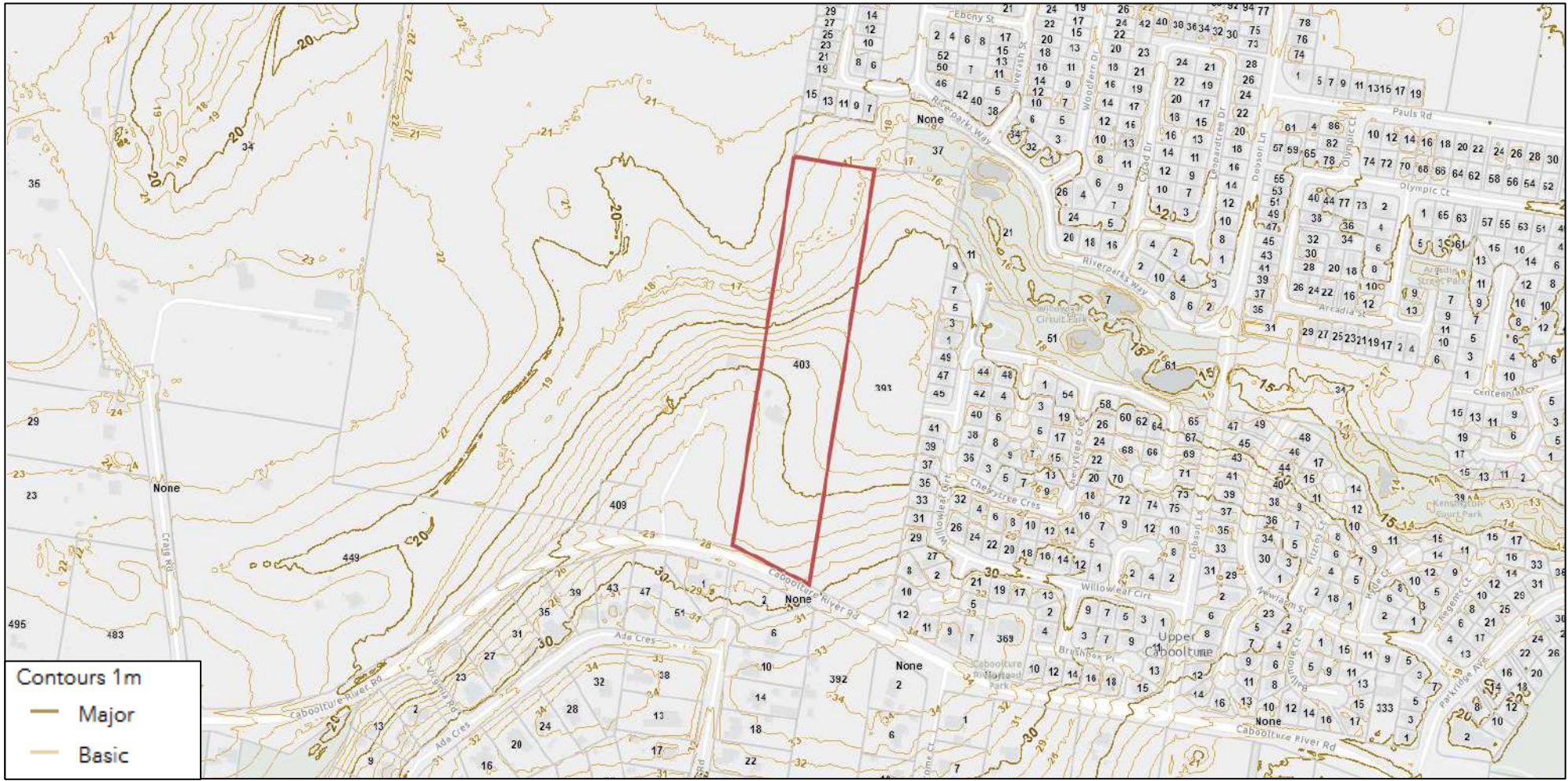
Map 27 - Overlay — Overland flow path



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

■ Environmental searches

Map 28 - Overlay — MBRC 1 m contours



Source: Moreton Bay Planning Scheme 2016 (captured: 13/12/2021)

Appendix D

Response to MBRC Planning Scheme Codes V6

Response to MBRC Zone Code and RaL Code (V6) – General Residential Zone – Suburban neighbourhood precinct

Performance Outcome	Acceptable Outcomes	Response
Table 6.2.6.2 Assessable development – Suburban neighbourhood precinct (General Residential Zone)		
Clearing of habitat trees where not located within the Environmental areas overlay map		
<p>PO16</p> <p>a. Development ensures that the biodiversity quality and integrity of habitats is not adversely impacted upon but maintained and protected.</p> <p>b. Development does not result in the net loss of fauna habitat. Where development does result in the loss of a habitat tree, development will provide replacement fauna nesting boxes at the following rate of 1 nest box for every hollow removed. Where hollows have not yet formed in trees > 80cm in diameter at 1.3m height, 3 nest boxes are required for every habitat tree removed.</p> <p>c. Development does not result in soil erosion or land degradation or leave land exposed for an unreasonable period of time but is rehabilitated in a timely manner</p>	<p>No example provided.</p>	<p>A total of eight (8) habitat trees are located on-site, seven (7) of which are within the development footprint and are therefore required to be removed. Impacted habitat trees are to be compensated at a rate of 3 nest boxes for 1 habitat tree removed as per the PSP EAC. The removal of the recorded MBRC habitat trees is considered unavoidable in order to facilitate the development. In addition to the installation of nest boxes to compensate for their removal, impacts will be further mitigated by the retention and rehabilitation of the waterway corridor.</p> <p>Standard mitigation measures will be implemented to manage soil erosion during earthworks and construction.</p>
<p>Note: Further guidance on habitat trees is provided in Planning scheme policy - Environmental areas</p>		
Vegetation clearing, ecological value and connectivity		
<p>PO85</p>	<p>No example provided.</p>	<p>A Value Offset Area is located in the northern portion of the site being the MLES waterway buffer. This area</p>

Performance Outcome	Acceptable Outcomes	Response
<p>Development avoids locating in a High Value Area or a Value Offset Area. Where it is not practicable or reasonable for development to avoid establishing in these areas, development must ensure that:</p> <ul style="list-style-type: none"> a. the quality and integrity of the biodiversity and ecological values inherent to a High Value Area and a Value Offset Area is maintained and not lost or degraded; b. on-site mitigation measures, mechanisms or processes are in place demonstrating the quality and integrity of the biodiversity and ecological values inherent to a High Value Area and a Value Offset Area are maintained. For example, this can be achieved through replacement, restoration or rehabilitation planting as part of any proposed covenant, the development of a Vegetation Management Plan, a Fauna Management Plan, and any other on-site mitigation options identified in the Planning scheme policy - Environmental areas*. <p>* Editor's note - This is not a requirement for an environmental offset under the Environmental Offsets Act 2014.</p>		<p>will be wholly retained and rehabilitated under the proposal.</p> <p>There is anticipated to be some minor encroachment on a Value Offset Area being the MBRC waterway and wetland setback area due to the location of the earthworks batter and stormwater infrastructure. Any unavoidable impacts will be ably mitigated by the retention and extensive rehabilitation proposed within the waterway corridor.</p> <p>Standard mitigation measures will be implemented to minimise and avoid potential impacts on the Value Offset Area.</p>
PO86	No example provided.	The northern portion of the site is proposed to be retained and rehabilitated which will preserve and enhance connectivity values with the adjoining

Performance Outcome	Acceptable Outcomes	Response
<p>Development provides for safe, unimpeded, convenient and ongoing wildlife movement and establishes and maintains habitat connectivity by:</p> <ul style="list-style-type: none"> a. retaining habitat trees; b. providing contiguous patches of habitat; c. provide replacement and rehabilitation planting to improve connectivity; d. avoiding the creation of fragmented and isolated patches of habitat; e. providing wildlife movement infrastructure. 		<p>vegetation values (refer Appendix G for development layout). The higher value vegetation values are located within this portion of the site which will be retained and rehabilitated under the proposal. The retained vegetation on-site will consolidate the higher value ecological matters and provide for safe and unimpeded fauna movement. The development will impact non-remnant and fragmented vegetation only.</p>
<p>Editor's note - Wildlife movement infrastructure may include refuge poles, tree boulevarding, 'stepping stone' vegetation plantings, tunnels, appropriate wildlife fencing; culverts with ledges, underpasses, overpasses, land bridges and rope bridges. Further information is provided in Planning scheme policy – Environmental areas.</p>		
<p>Vegetation clearing and habitat protection</p>		
<p>PO87 Development ensures that the biodiversity quality and integrity of habitats is not adversely impacted upon but maintained and protected.</p>	<p>No example provided.</p>	<p>The northern portion of the site is proposed to be retained and rehabilitated which will preserve and enhance connectivity values with the adjoining vegetation values (refer Appendix G for development layout). The higher value vegetation values are located within this portion of the site which will be retained and rehabilitated under the proposal. The</p>

Performance Outcome	Acceptable Outcomes	Response
<p>PO88 Development does not result in the net loss or degradation of habitat value in a High Value Area or a Value Offset Area. Where development does result in the loss or degradation of habitat value, development will:</p> <ul style="list-style-type: none"> a. rehabilitate, revegetate, restore and enhance an area to ensure it continues to function as a viable and healthy habitat area; b. provide replacement fauna nesting boxes in the event of habitat tree loss in accordance with Planning scheme policy - Environmental areas; c. undertake rehabilitation, revegetation and restoration in accordance with the South East Queensland Ecological Restoration Framework. 	<p>No example provided.</p>	<p>development will impact non-remnant and fragmented vegetation only.</p> <p>The MLES Waterway buffer will be retained and rehabilitated under the development proposal in accordance with the South East Queensland Ecological Restoration Framework.</p> <p>A total of seven (7) MBRC habitat trees are required to be removed within the development footprint. Impacted habitat trees are to be compensated at a rate of 3 nest boxes for 1 habitat tree removed as per the PSP EAC. The removal of the recorded MBRC habitat trees is considered unavoidable in order to facilitate the development. In addition to the installation of nest boxes to compensate for their removal, impacts will be further mitigated by the retention and rehabilitation of the waterway corridor.</p>
<p>PO89 Development ensures safe, unimpeded, convenient and ongoing wildlife movement and habitat connectivity by:</p> <ul style="list-style-type: none"> a. providing contiguous patches of habitat; b. avoiding the creation of fragmented and isolated patches of habitat; c. providing wildlife movement infrastructure; 	<p>No example provided.</p>	<p>The northern portion of the site is proposed to be retained and rehabilitated which will preserve and enhance connectivity values with the adjoining vegetation values (refer Appendix G for development layout). The development will impact non-remnant and fragmented vegetation values only.</p>

Performance Outcome	Acceptable Outcomes	Response
<p>d. providing replacement and rehabilitation planting to improve connectivity.</p>		
<p>Vegetation clearing and water quality</p>		
<p>PO91 Development maintains or improves the quality of groundwater and surface water within, and downstream, of a site by:</p> <ul style="list-style-type: none"> a. ensuring an effective vegetated buffers and setbacks from waterbodies is retained to achieve natural filtration and reduce sediment loads; b. avoiding or minimising changes to landforms to maintain hydrological water flows; c. adopting suitable measures to exclude livestock from entering a waterbody where a site is being used for animal husbandry (4) and animal keeping (5) activities. 	<p>No example provided.</p>	<p>The MLES waterway buffer and waterway will be retained and rehabilitated under the development proposal.</p> <p>Standard mitigation measures will be implemented to ensure the waterway is not adversely impacted by the development. Livestock are not presently located on-site and will not be permitted on-site within the development.</p>
<p>PO92 Development minimises adverse impacts of stormwater run-off on water quality by:</p> <ul style="list-style-type: none"> a. minimising flow velocity to reduce erosion; b. minimising hard surface areas; c. maximising the use of permeable surfaces; d. incorporating sediment retention devices; e. minimising channelled flow. 	<p>No example provided.</p>	<p>Standard mitigation measures will be implemented to manage the stormwater flows during and post development.</p>

Performance Outcome	Acceptable Outcomes	Response
Vegetation clearing and access, edge effects and urban heat island effects		
<p>PO93 Development retains safe and convenient public access in a manner that does not result in the adverse edge effects or the loss or degradation of biodiversity values within the environment.</p>	No example provided.	Internal access roads and footpaths are provided to allow access for residents to the development. Pedestrian access is excluded from the MLES waterway buffer area which is to be retained and rehabilitated under the proposal.
<p>PO94 Development minimises potential adverse 'edge effects' on ecological values by:</p> <ul style="list-style-type: none"> a. providing dense planting buffers of native vegetation between a development and environmental areas; b. retaining patches of native vegetation of greatest possible size where located between a development and environmental areas ; c. restoring, rehabilitating and increasing the size of existing patches of native vegetation; d. ensuring that buildings and access (public and vehicle) are setback as far as possible from environmental areas and corridors; e. landscaping with native plants of local origin. 	No example provided.	The MLES waterway corridor will be retained and rehabilitated under the proposal. The retained waterway corridor will be adequately setback from the development in line with the MLES waterway buffer overlay. With the implementation of rehabilitation and monitoring works and inclusion of required buffers, the potential for adverse impacts on the MLES waterway is considered unlikely.
<p>Editor's note - Edge effects are factors of development that go to detrimentally affecting the composition and density of natural populations at the fringe of natural areas. Factors include weed invasion, pets, public and</p>		

Performance Outcome	Acceptable Outcomes	Response
<p>vehicle access, nutrient loads, noise and light pollution, increased fire frequency and changes in the groundwater and surface water flow.</p>	<p>No example provided.</p>	<p>Development design elements and landscaping will contribute to minimizing heat island effects.</p> <p>A vegetation retention area associated with the waterway corridor is proposed in the northern portion of the site which will contribute to limiting heat island effects within the development.</p> <p>Native vegetation is to be incorporated into the landscaping within the road verges to increase shading and reflect heat.</p>
<p>PO95</p> <p>a. Development avoids adverse microclimate change and does not result in increased urban heat island effects. Adverse urban heat island effects are minimised by:</p> <p>b. pervious surfaces;</p> <p>c. providing deeply planted vegetation buffers and green linkage opportunities;</p> <p>d. landscaping with local native plant species to achieve well-shaded urban places;</p> <p>e. increasing the service extent of the urban forest canopy.</p>	<p>No example provided.</p>	<p>Development design elements and landscaping will contribute to minimizing heat island effects.</p> <p>A vegetation retention area associated with the waterway corridor is proposed in the northern portion of the site which will contribute to limiting heat island effects within the development.</p> <p>Native vegetation is to be incorporated into the landscaping within the road verges to increase shading and reflect heat.</p>
<p>Vegetation clearing and Matters of Local Environmental Significance (MLES) environmental offsets</p>		
<p>PO96</p> <p>Where development results in the unavoidable loss of native vegetation within a Value Offset Area MLES waterway buffer or a Value Offset Area MLES wetland buffer, an environmental offset is required in accordance with the environmental offset requirements identified in Planning scheme policy - Environmental areas.</p>	<p>No example provided.</p>	<p>Value Offset Areas will not be impacted as part of the development. The Value Offset Area on-site is located within the MLES waterway buffer which will be wholly retained and rehabilitated.</p> <p>There is anticipated to be some minor encroachment on the buffer area due to the location of the earthworks batter and stormwater infrastructure. Any unavoidable impacts will be ably mitigated by the</p>

Performance Outcome	Acceptable Outcomes	Response
<p>Editor's note - For MSES Koala Offsets, the environmental offset provisions in schedule 11 of the Regulation, in combination with the requirements of the Environmental Offset Act 2014, apply.</p>		<p>retention and extensive rehabilitation proposed within the waterway corridor.</p>
<p>Riparian and wetland setbacks</p>		
<p>PO124 Development provides and maintains a suitable setback from waterways and wetlands that protects natural and environmental values. This is achieved by recognising and responding to the following matters:</p> <ul style="list-style-type: none"> a. impact on fauna habitats; b. impact on wildlife corridors and connectivity; c. impact on stream integrity; d. impact of opportunities for revegetation and rehabilitation planting; e. edge effects. 	<p>E124 Development does not occur within:</p> <ul style="list-style-type: none"> a. 50m from top of bank for W1 waterway and drainage line b. 30m from top of bank for W2 waterway and drainage line c. 20m from top of bank for W3 waterway and drainage line d. 100m from the edge of a Ramsar wetland, 50m from all other wetlands. <p>Note - W1, W2 and W3 waterway and drainage lines, and wetlands are mapped on Schedule 2, Section 2.5 Overlay Maps – Riparian and wetland setbacks.</p>	<p>The MBRC riparian and wetland setback area is proposed to be retained and rehabilitated under the proposal in accordance with the 20 m buffer required for a W3 waterway. There is anticipated to be some minor encroachment on the buffer area due to the location of the earthworks batter and stormwater infrastructure. Any unavoidable impacts will be ably mitigated by the retention and extensive rehabilitation proposed within the waterway corridor.</p>

Response to MBRC RaL Code (V6)

Performance Outcome	Acceptable Outcomes	Response
Table 9.4.1.6 General Residential Zone		
Native vegetation where not located in the Environmental Areas Overlay		
<p>PO51 Reconfiguring a lot facilitates the retention of native vegetation by:</p> <ul style="list-style-type: none"> a. incorporating native vegetation and habitat trees into the overall subdivision design, development layout, on-street amenity and landscaping where practicable; b. ensuring habitat trees are located outside a development footprint. Where habitat trees are to be cleared, replacement fauna nesting boxes are provided at the rate of 1 nest box for every hollow removed. Where hollows have not yet formed in trees > 80cm in diameter at 1.3m height, 3 nest boxes are required for every habitat tree removed. c. providing safe, unimpeded, convenient and ongoing wildlife movement; d. avoiding creating fragmented and isolated patches of native vegetation. e. ensuring that biodiversity quality and integrity of habitats is not adversely 	<p>No example provided.</p>	<p>Development complies with PO51. The majority of the site is not mapped under the Environmental Areas overlay. Vegetation within the northern portion of the site is proposed to be retained and rehabilitated under the development application. The northern retention area will preserve the highest quality ecological values on site and retain connectivity with the broader landscape.</p> <p>A total of eight (8) habitat trees are located on-site, seven (7) of which are within the development footprint and are therefore required to be removed. Impacted habitat trees are to be compensated at a rate of 3 nest boxes for 1 habitat tree removed as per the MBRC PSP EAC. The removal of the recorded MBRC habitat trees is considered unavoidable in order to facilitate the development. In addition to the installation of nest boxes to compensate for their removal, impacts will be further mitigated by the retention and rehabilitation of the waterway corridor.</p>

Performance Outcome	Acceptable Outcomes	Response
<p>impacted upon but are maintained and protected;</p> <p>f. ensuring that soil erosion and land degradation does not occur;</p> <p>g. ensuring that quality of surface water is not adversely impacted upon by providing effective vegetated buffers to water bodies.</p>		

Environmental areas (refer Overlay map - Environmental areas to determine if the following assessment criteria apply)

<p>PO57</p> <p>No new boundaries are to be located within 2m of a High Value Area;</p>	<p>No example provided.</p>	<p>Development complies with PO58.</p> <p>High Value Areas are not mapped on-site, therefore no new boundaries are located within 2 m of a High Value Area.</p> <p>In addition, the proposed development layout is considered to successfully avoid areas ground-truthed to hold higher ecological values relative to the site through the retention of vegetation and waterway values in the northern portion of the site.</p>
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<p>PO58</p> <p>Lots are designed to:</p> <p>a. minimise the extent of encroachment into the MLES waterway buffer or a MLES wetland buffer;</p>	<p>E58</p> <p>Reconfiguring a lot ensures that no additional lots are created within a Value Offset Area.</p>	<p>Development complies with PO59.</p> <p>The development minimises overall encroachment into the MLES waterway buffer which traverses the northern portion of the site. Specifically, the development footprint is located south of the MLES waterway buffer. The</p>
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Performance Outcome	Acceptable Outcomes	Response
<p>b. ensure quality and integrity of biodiversity and ecological values is not adversely impacted upon but are maintained and protected;</p> <p>c. incorporate native vegetation and habitat trees into the overall subdivision design, development layout, on-street amenity and landscaping where practicable;</p> <p>d. provide safe, unimpeded, convenient and ongoing wildlife movement;</p> <p>e. avoid creating fragmented and isolated patches of native vegetation;</p> <p>f. ensuring that soil erosion and land degradation does not occur;</p> <p>g. ensuring that quality of surface water is not adversely impacted upon by providing effective vegetated buffers to water bodies.</p>		<p>waterway buffer and surrounding vegetation values are proposed to be retained and rehabilitated under the development proposal.</p> <p>There may be some minor encroachment on the buffer area due to the location of the earthworks batter and stormwater infrastructure. Any unavoidable impacts will be ably mitigated by the retention and extensive rehabilitation proposed within the waterway corridor.</p> <p>Native vegetation is to be incorporated into the landscaping within the road verges, providing refugia for any fauna utilising the site.</p> <p>In addition, through the rehabilitation efforts in the northern portion of the site, promotion of soil stability and continued level of surface water quality will occur. Overall, land degradation or significant impacts to retained habitat and fauna presence is not anticipated to occur.</p>
<p>AND</p>		
<p>Where development results in the unavoidable loss of native vegetation within a MLES waterway buffer or a MLES wetland buffer, an environmental offset is required in accordance with the environmental offset requirements identified in Planning scheme policy - Environmental areas.</p>		

Performance Outcome	Acceptable Outcomes	Response
Riparian and wetland setbacks (refer Overlay map - Riparian and wetland setback to determine if the following assessment criteria apply)		
PO85 Lots are designed to:	E85 Reconfiguring a lot ensures that:	The MBRC riparian & wetland setback is proposed to be wholly retained and rehabilitated under the proposal.
a. minimise the extent of encroachment into the riparian and wetland setback;	a. no new lots are created within a riparian and wetland setback;	The development footprint is located to the south of the setback area; however, some minor encroachment may occur do the location of the earthworks batter and stormwater infrastructure. Any unavoidable impacts will be ably mitigated by the retention and extensive rehabilitation proposed within the waterway corridor.
b. ensure the protection of wildlife corridors and connectivity;	b. new public roads are located between the riparian and wetland setback and the proposed new lots.	
c. reduce the impact on fauna habitats;		
d. minimise edge effects;	Note - Riparian and wetlands are mapped on Schedule 2, Section 2.5 Overlay Maps – Riparian and wetland setbacks.	
e. ensure an appropriate extent of public access to waterways and wetlands.		

Table 9.4.1.8.1 Limited development Zone

General criteria

PO1 Reconfiguring a lot does not create lots wholly contained within the Limited development zone unless for the purposes of Park or Permanent plantation.	No example provided.	Development Complies with PO1. The development is proposed wholly outside of the Limited development zone. The land within this zone will be subject to rehabilitation of vegetation values.
PO2 Reconfiguring for any purpose other than Park or Permanent plantation ensures appropriate building area outside of the Limited development zone to support land uses consistent with the adjoining zone.	No example provided.	Development Complies with PO2. The development is proposed wholly outside of the Limited development zone. The land within this zone will be subject to rehabilitation of vegetation values.

Appendix E

Tree Schedule



Tree Schedule - Job 11071
403 Caboolture River Road, Upper Caboolture (Lennium Group Pty Ltd)
25/10/2022

Tree ID	Specimen Details										Canopy Condition Details						Trunk Condition Details					Fauna Details and Habitat Value						Retention	Native Status	Council Value	Additional Notes	
	Botanical Name	Common Name	Trunk DBH (mm)	Additional Trunks DBH (mm)	Total DBH (mm) [AS 4970-2009]	Trunk Circumference (cm) [AS 4970-2009]	Height (m)	Spread (m)	Tree Protection Zone (m)	Structural Root Zone (m)	Canopy Form	Spreading	Thinning	Die-Back	Epicormic Growth	Lopped	Canopy Health	Leaning	Vines	Trunk Damage	Fire Damage	Trunk Health	Scats	Scratches	Hollows	Nest	Termite Nest					Habitat Value
1	<i>Eucalyptus tereticornis</i>	Forest Red Gum	810		810	254	26.0	12.0	9.7	3.0	Regular	-	-	-	-	-	Typical	-	Both	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT	MBRC Habitat Tree	
2	<i>Corymbia intermedia</i>	Pink Bloodwood	290		290	91	16.0	7.0	3.5	2.0	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT		
3	Unknown sp.	Unknown Species	100	90, 90, 80	181	57	5.0	4.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Remove	Native		
4	<i>Eucalyptus tereticornis</i>	Forest Red Gum	670		670	210	27.0	16.0	8.0	2.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT		
5	<i>Corymbia intermedia</i>	Pink Bloodwood	190		190	60	6.0	4.0	2.3	1.6	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT		
6	<i>Corymbia intermedia</i>	Pink Bloodwood	180		180	57	10.0	5.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT		
7	<i>Corymbia tessellaris</i>	Moreton Bay Ash	240		240	75	16.0	6.0	2.9	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
8	<i>Acacia disparrima</i>	Hickory Wattle	130	70	148	46	6.0	3.0	2.0	1.5	One-sided	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
9	<i>Lophostemon suaveolens</i>	Swamp Box	240		240	75	12.0	4.0	2.9	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
10	<i>Corymbia intermedia</i>	Pink Bloodwood	130		130	41	6.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	Both	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
11	<i>Eugenia uniflora</i>	Brazilian Cherry	100	70, 70	141	44	5.0	4.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
12	<i>Corymbia tessellaris</i>	Moreton Bay Ash	200		200	63	14.0	5.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
13	<i>Eucalyptus tereticornis</i>	Forest Red Gum	260		260	82	17.0	7.0	3.1	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	Old	-	-	-	-	Remove	NJKHT		
14	<i>Celtis sinensis</i>	Chinese Celtis	250		250	79	15.0	7.0	3.0	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Remove	Introduced/Planted		
15	<i>Eucalyptus tereticornis</i>	Forest Red Gum	890		890	280	26.0	16.0	10.7	3.2	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	Old	-	-	-	-	Remove	NJKHT	MBRC Habitat Tree	
16	<i>Lophostemon suaveolens</i>	Swamp Box	180		180	57	12.0	5.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
17	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	10.0	5.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
18	<i>Lophostemon suaveolens</i>	Swamp Box	220		220	69	12.0	5.0	2.6	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
19	<i>Corymbia intermedia</i>	Pink Bloodwood	360		360	113	17.0	7.0	4.3	2.2	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
20	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	7.0	3.0	2.0	1.5	Regular	-	-	-	Epicormic	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
21	<i>Lophostemon suaveolens</i>	Swamp Box	180		180	57	15.0	6.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
22	<i>Lophostemon suaveolens</i>	Swamp Box	120		120	38	7.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
23	<i>Lophostemon suaveolens</i>	Swamp Box	180		180	57	14.0	6.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
24	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	10.0	4.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
25	<i>Lophostemon suaveolens</i>	Swamp Box	130		130	41	10.0	4.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	Both	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
26	<i>Lophostemon suaveolens</i>	Swamp Box	240		240	75	12.0	6.0	2.9	1.8	Regular	-	-	-	-	-	Typical	-	Both	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
27	<i>Lophostemon suaveolens</i>	Swamp Box	150		150	47	8.0	4.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
28	<i>Lophostemon suaveolens</i>	Swamp Box	170		170	53	10.0	5.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
29	<i>Lophostemon suaveolens</i>	Swamp Box	280		280	88	10.0	5.0	3.4	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
30	<i>Eucalyptus tereticornis</i>	Forest Red Gum	450		450	141	25.0	14.0	5.4	2.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	Old	-	-	-	-	Retain	NJKHT		
31	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	230		230	72	6.0	4.0	2.8	1.8	Regular	-	-	-	-	-	Typical	-	Both	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
32	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	7.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
33	<i>Lophostemon suaveolens</i>	Swamp Box	200		200	63	8.0	4.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
34	<i>Cryptocarya triplinervis</i>	Three-Veined Laurel	150		150	47	7.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
35	<i>Celtis sinensis</i>	Chinese Celtis	100	80	128	40	6.0	4.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
36	<i>Lophostemon suaveolens</i>	Swamp Box	150		150	47	8.0	4.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
37	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	10.0	5.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
38	<i>Lophostemon suaveolens</i>	Swamp Box	150		150	47	8.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Both	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
39	<i>Corymbia intermedia</i>	Pink Bloodwood	110		110	35	7.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
40	<i>Celtis sinensis</i>	Chinese Celtis	100		100	31	7.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
41	<i>Eucalyptus tereticornis</i>	Forest Red Gum	580		580	182	23.0	14.0	7.0	2.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
42	<i>Mallotus philippensis</i>	Red Kamala	100		100	31	7.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		

Specimen Details											Canopy Condition Details						Trunk Condition Details					Fauna Details and Habitat Value							Retention	Native Status	Council Value	Additional Notes
Tree ID	Botanical Name	Common Name	Trunk DBH (mm)	Additional Trunks DBH (mm)	Total DBH (mm) [AS 4970-2009]	Trunk Circumference (cm) [AS 4970-2009]	Height (m)	Spread (m)	Tree Protection Zone (m)	Structural Root Zone (m)	Canopy Form	Spreading	Thinning	Die-Back	Epicormic Growth	Lopped	Canopy Health	Leaning	Vines	Trunk Damage	Fire Damage	Trunk Health	Scats	Scratches	Hollows	Nest	Termite Nest	Habitat Value	Retention	Native Status	Council Value	Additional Notes
43	<i>Ficus watkinsiana</i>	Strangler Fig	510	310	597	187	14.0	10.0	7.2	2.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
44	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	220		220	69	8.0	3.0	2.6	1.8	One-sided	-	Thinning	Die-back	-	-	Typical	Minor	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
45	<i>Lophostemon suaveolens</i>	Swamp Box	280		280	88	12.0	5.0	3.4	1.9	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
46	<i>Lophostemon suaveolens</i>	Swamp Box	220		220	69	14.0	6.0	2.6	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
47	<i>Corymbia intermedia</i>	Pink Bloodwood	100		100	31	5.0	2.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
48	<i>Corymbia intermedia</i>	Pink Bloodwood	150		150	47	8.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
49	<i>Lophostemon suaveolens</i>	Swamp Box	110		110	35	7.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
50	<i>Lophostemon suaveolens</i>	Swamp Box	250		250	79	12.0	6.0	3.0	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
51	<i>Corymbia intermedia</i>	Pink Bloodwood	230		230	72	12.0	5.0	2.8	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
52	<i>Koelreuteria elegans</i>	Golden Rain Tree	100		100	31	6.0	2.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
53	<i>Acacia disparrima</i>	Hickory Wattle	350	270	442	139	12.0	10.0	5.3	2.3	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	Small	-	-	-	Remove	Native	MBRC Habitat Tree	
54	<i>Lophostemon suaveolens</i>	Swamp Box	270		270	85	8.0	4.0	3.2	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
55	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	5.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
56	<i>Lophostemon suaveolens</i>	Swamp Box	280		280	88	10.0	4.0	3.4	1.9	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
57	<i>Lophostemon suaveolens</i>	Swamp Box	110		110	35	5.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
58	<i>Acacia disparrima</i>	Hickory Wattle	100		100	31	5.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
59	<i>Pinus elliotii</i>	Slash Pine	150		150	47	8.0	2.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
60	<i>Lophostemon suaveolens</i>	Swamp Box	270	270	382	120	12.0	6.0	4.6	2.2	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
61	<i>Acacia disparrima</i>	Hickory Wattle	150		150	47	7.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
62	<i>Acacia disparrima</i>	Hickory Wattle	320		320	101	11.0	5.0	3.8	2.1	Regular	-	Thinning	-	-	-	Poor	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
63	<i>Acacia disparrima</i>	Hickory Wattle	120		120	38	6.0	2.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
64	<i>Acacia disparrima</i>	Hickory Wattle	130		130	41	6.0	2.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
65	<i>Eucalyptus tereticornis</i>	Forest Red Gum	100		100	31	6.0	2.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
66	<i>Acacia disparrima</i>	Hickory Wattle	130		130	41	6.0	2.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
67	<i>Acacia disparrima</i>	Hickory Wattle	250		250	79	7.0	4.0	3.0	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
68	<i>Acacia disparrima</i>	Hickory Wattle	160		160	50	6.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	Minor	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
69	<i>Acacia disparrima</i>	Hickory Wattle	100	100	141	44	6.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
70	<i>Acacia disparrima</i>	Hickory Wattle	240		240	75	7.0	4.0	2.9	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
71	<i>Acacia disparrima</i>	Hickory Wattle	130		130	41	6.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
72	<i>Acacia concurrens</i>	Black Wattle	180		180	57	5.0	3.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
73	<i>Acacia melanoxylon</i>	Australian Blackwood	110		110	35	5.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	Minor	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
74	<i>Acacia disparrima</i>	Hickory Wattle	110		110	35	6.0	2.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
75	<i>Acacia disparrima</i>	Hickory Wattle	100		100	31	5.0	2.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
76	<i>Lophostemon suaveolens</i>	Swamp Box	220		220	69	8.0	5.0	2.6	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
77	<i>Pinus elliotii</i>	Slash Pine	230		230	72	10.0	5.0	2.8	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
78	<i>Acacia melanoxylon</i>	Australian Blackwood	210		210	66	8.0	4.0	2.5	1.7	Regular	-	-	-	-	-	Typical	Minor	-	-	Trunk Dmg.	-	Typical	-	-	-	-	-	Retain	Native		
79	<i>Acacia melanoxylon</i>	Australian Blackwood	100		100	31	4.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
80	<i>Acacia disparrima</i>	Hickory Wattle	130		130	41	4.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
81	<i>Lophostemon suaveolens</i>	Swamp Box	180	160	241	76	7.0	4.0	2.9	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
82	<i>Acacia melanoxylon</i>	Australian Blackwood	100		100	31	4.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
83	<i>Acacia melanoxylon</i>	Australian Blackwood	200		200	63	7.0	5.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
84	<i>Acacia melanoxylon</i>	Australian Blackwood	160	160	226	71	7.0	5.0	2.7	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
85	<i>Acacia concurrens</i>	Black Wattle	230		230	72	5.0	4.0	2.8	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
86	<i>Acacia melanoxylon</i>	Australian Blackwood	100		100	31	4.0	2.0	2.0	1.3	Regular	-	-	-	-	-	Typical	Minor	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
87	<i>Lophostemon suaveolens</i>	Swamp Box	150		150	47	7.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
88	<i>Acacia melanoxylon</i>	Australian Blackwood	110		110	35	5.0	4.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		

Tree ID	Specimen Details										Canopy Condition Details						Trunk Condition Details					Fauna Details and Habitat Value							Retention	Native Status	Council Value	Additional Notes
	Botanical Name	Common Name	Trunk DBH (mm)	Additional Trunks DBH (mm)	Total DBH (mm) [AS 4970-2009]	Trunk Circumference (cm) [AS 4970-2009]	Height (m)	Spread (m)	Tree Protection Zone (m)	Structural Root Zone (m)	Canopy Form	Spreading	Thinning	Die-Back	Epicormic Growth	Lopped	Canopy Health	Leaning	Vines	Trunk Damage	Fire Damage	Trunk Health	Scats	Scratches	Hollows	Nest	Termite Nest	Habitat Value				
89	<i>Acacia melanoxylon</i>	Australian Blackwood	150		150	47	4.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
90	<i>Acacia disparrima</i>	Hickory Wattle	100		100	31	5.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
91	<i>Acacia melanoxylon</i>	Australian Blackwood	100		100	31	4.0	2.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
92	<i>Lophostemon suaveolens</i>	Swamp Box	230		230	72	8.0	4.0	2.8	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
93	<i>Lophostemon suaveolens</i>	Swamp Box	220		220	69	7.0	4.0	2.6	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
94	<i>Lophostemon suaveolens</i>	Swamp Box	270		270	85	8.0	4.0	3.2	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
95	<i>Lophostemon suaveolens</i>	Swamp Box	280		280	88	7.0	4.0	3.4	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
96	<i>Lophostemon suaveolens</i>	Swamp Box	110		110	35	6.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
97	<i>Jacaranda mimosifolia</i>	Jacaranda	230		230	72	4.0	4.0	2.8	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
98	<i>Eucalyptus seeana</i>	Narrow-Leaved Red Gum	285		285	90	20.0	10.0	3.4	2.0	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
99	<i>Eucalyptus seeana</i>	Narrow-Leaved Red Gum	170		170	53	14.0	7.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
100	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	13.0	5.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
101	<i>Lophostemon suaveolens</i>	Swamp Box	135		135	42	6.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
102	<i>Cryptocarya triplinervis</i>	Three-Veined Laurel	115		115	36	6.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
103	<i>Lophostemon suaveolens</i>	Swamp Box	145		145	46	9.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
104	<i>Lophostemon suaveolens</i>	Swamp Box	220		220	69	15.0	7.0	2.6	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
105	<i>Lophostemon suaveolens</i>	Swamp Box	120		120	38	7.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
106	<i>Melaleuca saligna</i>	White Bottlebrush	100		100	31	7.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
107	<i>Lophostemon suaveolens</i>	Swamp Box	110		110	35	3.0	1.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
108	<i>Lophostemon suaveolens</i>	Swamp Box	200		200	63	15.0	7.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
109	<i>Unknown sp.</i>	Unknown Species	135		135	42	8.0	2.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
110	<i>Unknown sp.</i>	Unknown Species	255		255	80	13.0	6.0	3.1	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
111	<i>Eucalyptus microcorys</i>	Tallowood	350		350	110	13.0	6.0	4.2	2.1	Regular	-	-	-	-	-	Typical	Minor	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
112	<i>Lophostemon suaveolens</i>	Swamp Box	220		220	69	15.0	7.0	2.6	1.8	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
113	<i>Lophostemon suaveolens</i>	Swamp Box	110		110	35	10.0	3.0	2.0	1.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
114	<i>Araucaria cunninghamii</i>	Hoop Pine	170		170	53	10.0	4.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
115	<i>Lophostemon suaveolens</i>	Swamp Box	170		170	53	13.0	5.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
116	<i>Araucaria cunninghamii</i>	Hoop Pine	120		120	38	9.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
117	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	310		310	97	13.0	9.0	3.7	2.0	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
118	<i>Eucalyptus tereticornis</i>	Forest Red Gum	320		320	101	15.0	8.0	3.8	2.1	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
119	<i>Corymbia intermedia</i>	Pink Bloodwood	360		360	113	18.0	13.0	4.3	2.2	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
120	<i>Schinus terebinthifolius</i>	Broadleaf Pepper Tree	120	85, 80	167	53	7.0	7.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
121	<i>Celtis sinensis</i>	Chinese Celtis	135		135	42	9.0	5.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
122	<i>Araucaria cunninghamii</i>	Hoop Pine	130		130	41	9.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
123	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	165		165	52	15.0	6.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
124	<i>Eucalyptus tereticornis</i>	Forest Red Gum	545		545	171	20.0	15.0	6.5	2.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
125	<i>Mallotus philippensis</i>	Red Kamala	170		170	53	9.0	3.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
126	<i>Eucalyptus siderophloia</i>	Grey Ironbark	485		485	152	20.0	12.0	5.8	2.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
127	<i>Celtis sinensis</i>	Chinese Celtis	125	90	154	48	5.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
128	<i>Lophostemon suaveolens</i>	Swamp Box	150		150	47	13.0	6.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
129	<i>Lophostemon suaveolens</i>	Swamp Box	155		155	49	12.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
130	<i>Corymbia intermedia</i>	Pink Bloodwood	260		260	82	17.0	8.0	3.1	1.9	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
131	<i>Grevillea robusta</i>	Silky Oak	255		255	80	15.0	7.0	3.1	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
132	<i>Araucaria cunninghamii</i>	Hoop Pine	145		145	46	9.0	3.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
133	<i>Eucalyptus tereticornis</i>	Forest Red Gum	480		480	151	22.0	13.0	5.8	2.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
134	<i>Celtis sinensis</i>	Chinese Celtis	100	90	135	42	4.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		

Specimen Details											Canopy Condition Details						Trunk Condition Details					Fauna Details and Habitat Value										
Tree ID	Botanical Name	Common Name	Trunk DBH (mm)	Additional Trunks DBH (mm)	Total DBH (mm) [AS 4970-2009]	Trunk Circumference (cm) [AS 4970-2009]	Height (m)	Spread (m)	Tree Protection Zone (m)	Structural Root Zone (m)	Canopy Form	Spreading	Thinning	Die-Back	Epicormic Growth	Lopped	Canopy Health	Leaning	Vines	Trunk Damage	Fire Damage	Trunk Health	Scats	Scratches	Hollows	Nest	Termite Nest	Habitat Value	Retention	Native Status	Council Value	Additional Notes
135	<i>Eucalyptus siderophloia</i>	Grey Ironbark	200		200	63	13.0	5.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
136	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	195		195	61	14.0	7.0	2.3	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
137	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	260		260	82	14.0	6.0	3.1	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
138	<i>Araucaria cunninghamii</i>	Hoop Pine	200		200	63	9.0	3.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
139	<i>Eucalyptus tereticornis</i>	Forest Red Gum	320		320	101	16.0	7.0	3.8	2.1	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
140	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	220	165	275	86	13.0	6.0	3.3	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
141	<i>Eucalyptus tereticornis</i>	Forest Red Gum	800		800	251	23.0	15.0	9.6	3.0	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT	MBRC Habitat Tree	
142	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	250	200, 300, 250, 250, 200	598	188	9.0	10.0	7.2	2.7	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
143	<i>Celtis sinensis</i>	Chinese Celtis	180		180	57	10.0	5.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
144	<i>Lophostemon suaveolens</i>	Swamp Box	140		140	44	9.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
145	<i>Lophostemon suaveolens</i>	Swamp Box	190		190	60	13.0	5.0	2.3	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
146	<i>Lophostemon suaveolens</i>	Swamp Box	210		210	66	10.0	3.0	2.5	1.7	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Arborist ENG	NJKHT		
147	<i>Eucalyptus tereticornis</i>	Forest Red Gum	820		820	258	20.0	16.0	9.8	3.0	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT	MBRC Habitat Tree	
148	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	200	180, 120	295	93	15.0	9.0	3.5	2.0	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
149	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	200		200	63	11.0	5.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
150	<i>Lophostemon suaveolens</i>	Swamp Box	270		270	85	15.0	8.0	3.2	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
151	<i>Lophostemon suaveolens</i>	Swamp Box	220	190	291	91	12.0	6.0	3.5	2.0	Regular	-	-	-	-	-	Typical	-	Both	-	-	Typical	-	-	-	-	-	-	Arborist ENG	NJKHT		
152	<i>Acacia disparrima</i>	Hickory Wattle	190		190	60	9.0	4.0	2.3	1.6	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
153	<i>Acacia disparrima</i>	Hickory Wattle	145	145, 90, 90	241	76	9.0	5.0	2.9	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
154	<i>Acacia leiocalyx</i>	Early-Flowering Black Wattle	240		240	75	10.0	5.0	2.9	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
155	<i>Eucalyptus siderophloia</i>	Grey Ironbark	260		260	82	17.0	8.0	3.1	1.9	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
156	<i>Eucalyptus tereticornis</i>	Forest Red Gum	200		200	63	14.0	7.0	2.4	1.7	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
157	<i>Eucalyptus tereticornis</i>	Forest Red Gum	205		205	64	14.0	7.0	2.5	1.7	Regular	-	-	Die-back	Epicormic	-	Poor	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
158	<i>Acacia disparrima</i>	Hickory Wattle	140		140	44	7.0	3.0	2.0	1.4	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
159	<i>Corymbia intermedia</i>	Pink Bloodwood	475		475	149	19.0	10.0	5.7	2.4	One-sided	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
160	<i>Eucalyptus tereticornis</i>	Forest Red Gum	450		450	141	20.0	14.0	5.4	2.4	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
161	<i>Alphitonia excelsa</i>	Soap Tree	260		260	82	15.0	7.0	3.1	1.9	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
162	<i>Acacia leiocalyx</i>	Early-Flowering Black Wattle	130	80	153	48	13.0	6.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
163	<i>Melaleuca quinquenervia</i>	Broad-Leaved Paper Bark	160		160	50	11.0	4.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
164	<i>Acacia disparrima</i>	Hickory Wattle	200	150	250	79	6.0	4.0	3.0	1.8	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
165	<i>Pinus elliotii</i>	Slash Pine	160		160	50	9.0	2.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Introduced/Planted		
166	<i>Acacia disparrima</i>	Hickory Wattle	205		205	64	8.0	4.0	2.5	1.7	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	Native		
167	<i>Lophostemon suaveolens</i>	Swamp Box	205		205	64	13.0	5.0	2.5	1.7	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
168	<i>Lophostemon suaveolens</i>	Swamp Box	160		160	50	10.0	4.0	2.0	1.5	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
169	<i>Lophostemon suaveolens</i>	Swamp Box	170		170	53	10.0	3.0	2.0	1.6	Regular	-	-	-	-	-	Typical	-	Native	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
170	<i>Lophostemon suaveolens</i>	Swamp Box	210	200	290	91	13.0	6.0	3.5	2.0	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
171	<i>Acacia melanoxylon</i>	Australian Blackwood	180		180	57	8.0	4.0	2.2	1.6	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	Native		
172	<i>Eucalyptus microcorys</i>	Tallowwood	855		855	269	24.0	14.0	10.3	3.1	One-sided	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT	MBRC Habitat Tree	
173	<i>Eucalyptus microcorys</i>	Tallowwood	965		965	303	25.0	15.0	11.6	3.3	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT	MBRC Habitat Tree	
174	<i>Lophostemon suaveolens</i>	Swamp Box	150	160	219	69	16.0	6.0	2.6	1.7	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Retain	NJKHT		
175	<i>Eucalyptus tereticornis</i>	Forest Red Gum	580	480, 475	890	280	16.0	9.0	10.7	3.2	Regular	-	-	-	-	-	Typical	-	-	-	-	Typical	-	-	-	-	-	-	Remove	NJKHT	MBRC Habitat Tree	

Appendix F

Likelihood of Occurrence Assessment

Likelihood of occurrence assessment

Likelihood of occurrence Assessment criteria

Unlikely

No previous records of the species within the locality and one or more of the following criteria is met:

- Not previously recorded on the referral area and surrounds and the referral area is beyond the current known geographic range; or
- Dependent on specific habitat types or resources that are not present on the referral area; or
- Considered extinct in the wild.

Low

No previous records of the species within the locality and one or more of the following criteria is met:

- Site and local connectivity contains marginal habitat excluding suitable/critical habitat attributes;
- Lack of recent records exist in a regional context (use 1980 as a delineation); or
- Potential for vagrant or individual of the species to survive short-term;

Moderate

Species previously recorded within the locality and one or more of the following criteria is met:

- Previously recorded in proximity to the referral area (*i.e.*, vagrant individuals); or
- Potential habitat typologies or resources are present on the referral area.

High

Species previously recorded within the locality and one or more of the following criteria is met:

- Previously recorded on the referral area;
- Dependent on habitats or habitat resources that are available on the referral area; or
- Suitable habitats are available on the referral area that are capable of supporting a resident population or individuals of the species.

Known

Flora species or ecological community positively identified during field surveys within the referral area.

Fauna species positively recorded during field surveys within the referral area or adjacent habitats.

Listed Wetlands of International Importance and Threatened Ecological Communities

Name	Status	Type of presence	Description of the community/preferred habitat	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)
Wetlands of International Importance (Ramsar)					
Moreton Bay			The site is with 10 kilometres Moreton Bay.	There will be no measurable affect to Moreton Bay.	Unlikely
Threatened Ecological Communities					
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	E	Community may occur within area	In Queensland, this ecological community coincides with two regional ecosystem communities including Of Concern RE12.1.1 (Casuarina glauca +/- mangroves woodland) as well as areas where the canopy is dominated by Casuarina glauca within 12.3.20 (Melaleuca quinquenervia, Casuarina glauca +/- Eucalyptus tereticornis, Eucalyptus siderophloia open forest on low coastal alluvial plains).	Desktop analysis confirmed that regional ecosystem 12.1.1 and 12.3.20 do not occur on-site.	Unlikely
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	E	Community known to occur within area	In Queensland, this ecological community is associated with RE12.2.7, RE12.3.4/12.3.4a, RE12.4.5, RE.12.3.6 and RE12.3.20. It occurs in coastal catchments and is typically associated with riverine systems.	Desktop analysis indicates that the listed regional ecosystems do not occur on or proximal to the site.	Unlikely
Lowland rainforest of subtropical Australia	CE	Community may occur within area	This TEC occurs mainly on basalt and alluvial soils and is characteristic of a low abundance of Eucalyptus, Melaleuca and Casuarina species. Specimens with buttress roots and a diversity of vines are common throughout this TEC. This community is usually associated Regional Ecosystems 12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1, and 12.12.1.	Desktop analysis indicates that the listed regional ecosystems do not occur on or proximal to the site.	Unlikely
Subtropical eucalypt floodplain forest and woodland of the New	E	Community likely to occur within area	In Queensland, this TEC corresponds with at least 17 Regional Ecosystems. Components of this TEC are recognised within 12.3.2, 12.3.2a, 12.3.3, 12.3.3a, 12.3.3d,	Desktop analysis indicates that the listed regional ecosystems do not occur on or proximal to the site.	Unlikely

South Wales North
Coast and South East
Queensland
bioregions

12.3.4a, 12.3.7, 12.3.7c, 12.3.7d, 12.3.10, 12.3.11, 12.3.11a,
12.3.11b, 12.3.12, 12.3.14a, 12.3.15 and 12.3.19.

White Box-Yellow Box-
Blakely's Red Gum Grassy
Woodland and Derived
Native Grassland

CE

Community may occur within
area

Box – Gum Grassy Woodlands and Derived Grasslands are characterised by a species-rich understorey of native tussock grasses, herbs and scattered shrubs, and the dominance, or prior dominance, of White Box, Yellow Box or Blakely's Red Gum trees. In Queensland the ecological community is a primary component of the following Regional Ecosystems: 11.8.2a, 11.8.8, 11.9.9a, 13.3.1, 13.11.8, 13.12.8 and 13.12.9. It can also be a smaller component of the following regional ecosystems: 11.3.23, 12.8.16 (only at the far western edge of the bioregion), 13.3.4, 13.11.3 and 13.11.4. These regional ecosystems range in conservation status from 'not of concern at present' to 'endangered'.

Desktop analysis indicates that the Unlikely listed regional ecosystems do not occur on or proximal to the site.

Listed Threatened Species

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
Birds								
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	E	82338	Regent Honeyeaters mostly occur in dry Box-Ironbark Eucalypt woodland and dry sclerophyll forest associations in areas of low to moderate relief, wherein they prefer moister, more fertile sites. These areas are generally associated with creek flats and river valleys and foothills. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. They are a generalist forager, which mainly feed on nectar from a wide range of eucalypts and mistletoes.	The site is dominated by non-remnant vegetation values including cleared paddock with only scattered retained trees. Regrowth eucalypt woodland is located in the northern portion of the site. Due to the lack of vegetation values, it is considered unlikely that the site would contain suitable foraging habitat for the Regent Honeyeater. There are no WildNet records within 5 km of the site.	Low	Low
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	-	1001	The Australasian Bittern occurs in terrestrial wetlands and, rarely, estuarine habitats, mainly in the temperate south-east and south-west. It favours wetlands with tall dense vegetation, where it forages in still, shallow water up to 0.3 m deep, often at the edges of pools or waterways, or from platforms or mats of vegetation over deep water. It favours permanent and seasonal freshwater habitats, particularly those dominated by sedges, rushes and / or reeds or cutting grass growing over the muddy or peaty substrate. The Australasian Bittern occurs in the far south-east of Queensland; it has been reported North to Baralaba and West to	This site is not mapped as containing any terrestrial wetlands or swamps with tall dense vegetation. A permanent watercourse and dam are located on-site and surrounding pasture may become inundated during periods of high rainfall which may provide potential habitat for the species. Preferred habitat in the form of sedges and wetland vegetation is not present. There are no WildNet records within 5km of	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					Wyandra, although in most years it is probably confined to a few coastal swamps. It is rarely recorded in Queensland, and possibly survives only in protected areas such as the Cooloola and Fraser regions.	the site. There is low potential that this species would occur on-site.		
<i>Calidris ferruginea</i>	Curlew Sandpiper	CE	E	856	Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters. In Queensland, scattered records occur in the Gulf of Carpentaria, with widespread records along the coast south of Cairns.	No suitable foraging or breeding habitat is mapped on-site. There are no WildNet records within 5km of the site.	Unlikely	Unlikely
<i>Calyptorhynchus lathamii lathamii</i>	South-eastern Glossy Black-Cockatoo	V	V	67036	This species prefers woodland areas dominated by she-oak <i>Allocasuarina</i> , or open sclerophyll forests and woodlands with a stratum of <i>Allocasuarina</i> beneath Eucalyptus, <i>Corymbia</i> or <i>Angophora</i> . Glossy black-cockatoos have also been observed in mixed <i>Allocasuarina</i> , <i>Casuarina</i> , cypress <i>Callitris</i> and brigalow <i>Acacia harpophylla</i> woodland assemblages. In SEQ west of the Great Dividing Range, they have been observed feeding in remnant <i>belah Casuarina cristata</i> and bullock	Preferred vegetation composition dominated by <i>Allocasuarina</i> or <i>Casuarina</i> absent from site. It is unlikely this species would utilise the vegetation on-site.	Low	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					<i>Allocasuarina luehmannii</i> forests. This species is also known to utilise appropriate remnant woodlands, and individual or small pockets of <i>Allocasuarina</i> and <i>Casuarina</i> feed trees in urban areas.			
<i>Cyclopsitta diophthalma coxeni</i>	Coxen's Fig-Parrot	E	E	59714	The Coxen's Fig Parrot occurs in rainforest habitats including subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, and vine forest. Food is mainly taken from figs, however, other species fruit have been recorded in their diet including <i>Elaeocarpus grandis</i> , <i>Syzygium corynanthum</i> , <i>Litsea reticulata</i> and <i>Grevillea robusta</i> .	The site does not contain suitable rainforest habitat. There are no WildNet records within 5km of the site. Unlikely that this species would occur.	Unlikely	Unlikely
<i>Erythroriorchis radiatus</i>	Red Goshawk	V	V	942	A wide ranging and highly mobile species generally observed over eucalypt habitats. This species prefers forest and woodland with a mosaic of vegetation types, large prey populations (birds) and permanent water. The vegetation types include eucalypt woodland, open forest, tall open forest, gallery rainforest, swamp sclerophyll forest and rainforest margins. Habitat has to be open enough for fast attack and manoeuvring in flight, but provide cover for ambushing of prey.	This site does not contain the mosaic of vegetation types that this species favours with only a small area of eucalypt woodland found in the northern portion of the site. There are no WildNet records within 5km of the site. There is considered to be a low likelihood that this species would occur.	Low	Low
<i>Falco hypoleucos</i>	Grey Falcon	V	V	929	The Grey Falcon is usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near the wetlands where surface water attracts prey. Preys primarily on birds, especially parrots and pigeons,	The site is dominated by open pasture with only scattered vegetation present and a small area of eucalypt woodland in the northern portion of the site. It is considered that occurrence of this	Low	Low

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		EPBC Act	NC Act					
					using high-speed chases and stoops; reptiles and mammals are also taken. Like other falcons it utilises old nests of other birds of prey and ravens, usually high in a living eucalypt near water or a watercourse; peak laying season is in late winter and early spring; two or three eggs are laid. The nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum (<i>Eucalyptus camaldulensis</i>) and Coolibah (<i>E. coolabah</i>).	species would be limited to fly-over. There are no WildNet records within 5km of the site.		
<i>Geophaps scripta</i>	Squatter Pigeon (southern)	V	V	64440	This species inhabits open grasslands and woodlands typically with a native understorey although may occur in artificial pasture.	Suitable habitat exists on-site in the form of grassy paddock. Field surveys did not detect the species and there are no WildNet records within 5km radius of the site. In addition, the species is very rarely observed in southern Queensland, and thus this species is not expected to occur on-site.	Low	Low
<i>Hirundapus caudacutus</i>	White-throated Needletail	V	V	682	Although they occur over most types of habitat, they are probably recorded most often above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy, but they are less commonly recorded flying above woodland. They also commonly occur over heathland, but less often over treeless areas, such as grassland or swamps.	The site is mostly comprised of open paddock with scattered trees and open eucalypt woodland in the northern portion of the site. In addition, there is one (1) WildNet record within 5km of the site. There is low potential that this species would occur.	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
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<i>Lathamus discolor</i>	Swift Parrot	CE	E	744	The Swift Parrot breeds in Tasmania during spring to early summer. During autumn and winter the species migrates to the mainland where it follows a nomadic existence linked to the availability and timing of flowering of trees in various locations.	The site is dominated by non-remnant vegetation values including cleared paddock with only scattered retained trees. Regrowth eucalypt woodland is located in the northern portion of the site. Due to the lack of vegetation values, it is considered unlikely that the site would contain suitable foraging habitat for the Swift Parrot. There is one (1) WildNet record within 5km of the site.	Low	Low
<i>Ninox strenua</i>	Powerful Owl	-	V	-	Found in open forests and woodlands, as well as along sheltered gullies in wet forests with dense understoreys, especially along watercourses. Will sometimes be found in open areas near forests such as farmland, parks and suburban areas, as well as in remnant bushland patches. Needs old growth trees to nest.	The site is dominated by cleared paddock with only scattered retained trees with an area of eucalypt woodland located in the northern portion of the site. No hollows or sheltering habitat were observed. There are 23 records of this species within a 5km radius of the site. Suitable habitat is associated with the Caboolture River, located north of the site. Low potential that this species would occur on-site.	Low	Low

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<i>Numenius madagascariensis</i>	Eastern Curlew	CE	E	847	The Eastern Curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. The birds are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. The birds are also found in saltworks and sewage farms.	No suitable habitat is mapped on-site and no WildNet records of the species exist within 5km radius of the site. It is unlikely that this species would occur.	Unlikely	Unlikely
<i>Rostratula australis</i>	Australian Painted Snipe	E	V	77037	The Australian Painted Snipe is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. The species has a scattered distribution throughout many parts of Australia, with a single record from Tasmania.	No suitable habitat is mapped on-site and no WildNet records of the species exist within 5km radius of the site. It is unlikely that this species would occur.	Unlikely	Unlikely
<i>Turnix melanogaster</i>	Black-breasted Button Quail	V	V	923	Typical habitat occurs in dry rainforest and vegetation immediately adjacent to rainforest. However, the species has also been recorded in a variety of low coastal heathlands around Fraser Island and nearby mainland. Deep leaf litter in which the species can forage appears to be particularly favoured.	The site does not contain any suitable rainforest habitat and there are no WildNet records of the species within 5km radius of the site. Low potential that this species would be found on-site.	Low	Low

Frogs

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
<i>Adelotus brevis</i>	Tusked Frog	-	V	-	Inhabits wet eucalypt forest, rainforest, and sometimes dry eucalypt forest, where it can be found in close proximity to suitable breeding habitat such as ponds and slow-moving sections of streams. Also recorded from dams and garden ponds in urban and peri-urban areas.	There are 5 WildNet records of this species with a 5km radius of the site. Waterway values are located on-site but is lacking perching habitat such as sedges and reeds and shallow ponds. Species was not detected during field surveys.	Moderate	Low
<i>Crinia tinnula</i>	Wallum Froglet	-	V	-	Wallum Froglet is restricted to freshwater swamps in lowland coastal areas and found in associated vegetation communities. Acidic lakes and swamps provide essential breeding habitat for Wallum dependent species.	There are 2 WildNet records of this species with a 5km radius of the site. Waterway values are located on-site but is lacking perching habitat such as sedges and reeds and shallow ponds. Suitable wallum habitat is not present. Species was not detected during field surveys.	Low	Low
<i>Mixophyes iteratus</i>	Giant Barred Frog	V	V	1944	Inhabits slow flowing sections of streams in wet sclerophyll and rainforest. This species has been observed to prefer a closed forest canopy with a relatively light cover of vegetation at ground level and also requires permanent pondage areas for breeding.	There is one WildNet record of this species within a 5km radius of the site. Site does not contain suitable rainforest habitat. Waterway values are located on-site but is lacking perching habitat such as sedges and reeds and shallow ponds. Species was not detected during field surveys.	Moderate	Low
<i>Mixophyes fleayi</i>	Fleay's Frog	E	E	25960	Fleay's Frog is associated with montane rainforest and open forest communities adjoining rainforest. The species occurs along stream habitats from first	There are no WildNet records of this species within a 5km radius of the site. Site does not contain suitable	Low	Low

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
					to third order streams (i.e. small streams close to their origin through to permanent streams with grades of 1 in 50) and is not found in ponds or ephemeral pools.	rainforest or montane habitat. Waterway values are located on-site but is lacking perching habitat such as sedges and reeds and shallow ponds. Species was not detected during field surveys.		
Insects								
<i>Argynnis hyperbius inconstans</i>	Australian Fritillary	CE	E	88056	Most specimens have been collected from river estuaries or swampy coastal areas at or near sea level. The Australian fritillary butterfly is restricted to open, swampy, coastal areas where the larval food plant, <i>Viola betonicifolia</i> , grows as a small, insignificant ground herb in association with <i>Lomandra longifolia</i> (Long Leaved Matrush) and grasses, especially the grass <i>Imperata cylindrica</i> (Blady Grass). This habitat is called <i>Melaleuca</i> wetlands, although the larval food plant does not occur in all sub-types of this plant community.	No suitable habitat is mapped on-site. In addition, there are no WildNet records of this species within 5km radius of the site. The species is considered unlikely to occur on site.	Unlikely	Unlikely
Mammals								
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	V	V	183	The Large-eared Pied Bat roosts on sandstone cliffs and fertile woodland valley in close proximity of each other. However, in Queensland habitat includes rainforest and moist eucalypt forest habitats at high elevations.	No suitable high elevation habitat to support this species is mapped on-site. There are no WildNet records of this species within 5km radius of the site.	Unlikely	Unlikely
<i>Dasyurus hallucatus</i>	Northern Quoll	E	-	331	The Northern Quoll occupies a diversity of habitats across its range which includes rocky areas,	The site is almost entirely cleared paddock with a small area of open	Unlikely	Unlikely

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					eucalypt forests and woodlands, rainforests, sandy lowlands and beaches, shrubland, grassland and desert. Northern Quoll habitat generally encompasses some form of rocky area for denning purposes with surrounding vegetated habitats used for foraging and dispersal. Eucalypt forest or woodland habitats usually have a high structural diversity containing large diameter trees, termite mounds or hollow logs for denning purposes. Dens are made in rock crevices, tree holes or occasionally termite mounds. Surveys in Queensland suggest that Northern Quolls are more likely to be present in high relief areas that have shallower soils, greater cover of boulders, less fire impact and were closer to permanent water.	eucalypt woodland in the northern portion of the site. Northern Quolls are elusive animals that generally require large tracts of undisturbed remnant vegetation and specific niche habitat including log hollows and rock crevices. Due to the disturbed state of the site, it is considered unlikely that this species would occur on-site. There are no WildNet records of this species within 5km radius of the site.		
<i>Dasyurus maculatus maculatus</i>	Spot-tailed Quoll	E	V	75184	The Spot-tailed Quoll prefers for mature wet forest habitat. Unlogged forest or forest that has been less disturbed by timber harvesting is also preferable. This predominantly nocturnal species rests during the day in dens. Habitat requirements include suitable den sites such as hollow logs, tree hollows, rock outcrops or caves. Individuals require an abundance of food such as birds and small mammals, and large areas of relatively intact vegetation through which to forage.	The site is almost entirely cleared paddock with a small area of open eucalypt woodland in the northern portion of the site. Spot-tailed Quolls are elusive animals that generally require large tracts of undisturbed remnant vegetation and specific niche habitat including log hollows and rock crevices. Due to the disturbed state of the site, it is considered unlikely that this species would occur on-site. There are no	Unlikely	Unlikely

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						WildNet records of this species within 5km radius of the site.		
<i>Macroderma gigas</i>	Ghost Bat	V	E	174	Ghost bats are known to inhabit large complex caves and old mineshafts.	Suitable habitat for this species is not present on-site.	Unlikely	Unlikely
<i>Petauroides volans</i>	Greater Glider	E	E	254	The Greater Glider is an arboreal nocturnal marsupial that is mostly restricted to eucalypt forests and woodlands, although it occurs in highest abundance in taller, montane, moist eucalypt forests with abundant (large) hollow-bearing trees for shelter and a variety of species for feeding. Diet consists of eucalypt leaves, and occasionally flowers. Small home ranges and low dispersability make this species sensitive to clearing and fragmentation, with low persistence in small forest fragments.	The site is almost entirely cleared eucalypt woodland in the northern portion of the site. Greater Gliders are elusive animals that generally require large tracts of undisturbed remnant vegetation and specific niche habitat including live hollow bearing trees. There are 4 historic WildNet records of this species within 5km radius of the site, however, due to the highly disturbed state of the site and lack of remnant vegetation values, it is considered unlikely that this species would occur on-site.	Unlikely	Unlikely
<i>Petaurus australis</i>	Yellow-bellied Glider (south-eastern)	V	V	87600	Occur in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the northern parts of its range; moist coastal gullies and creek flats to tall montane forests in the south.	The site is almost entirely cleared paddock with a small area of open eucalypt woodland in the northern portion of the site with no values to support this species. In addition,	Unlikely	Unlikely

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					<p>Den, often in family groups, in hollows of large trees. Very mobile and occupy large home ranges between 20 to 85 ha to encompass dispersed and seasonally variable food resources.</p> <p>The Yellow-bellied glider eats mostly nectar, pollen, and sap from eucalypts, and they also feed on insects, grubs, and arachnids and possibly small vertebrates.</p>	<p>there are no records within a 5km radius of the site.</p>		
<i>Phascolarctos cinereus</i>	Koala	E	E	85104	<p>The Koala is found in a range of habitats, from coastal islands and tall eucalypt forests to low woodlands inland.</p>	<p>The site is almost entirely cleared paddock and scattered trees with a small area of open eucalypt woodland in the northern portion of the site.</p> <p>There are 472 WildNet records of the Koala within a 5km radius of the site.</p> <p>It is considered that any occurrence of the Koala on-site would be transient in nature, rather than utilisation for foraging purposes. There is a low potential that the Koala would occur on-site, with activity likely limited to transient individuals navigating to larger patches of vegetation within the landscape.</p>	Low	Low

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<i>Potorous tridactylus tridactylus</i>	Long-nosed Potoroo	V	V	66645	The Long-nosed Potoroo inhabits coastal heaths and dry and wet sclerophyll forests. Dense understory with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrub of tea-trees or melaleucas. A sandy loam soil is also a common feature.	The site is almost entirely cleared paddock and scattered trees with a small area of open eucalypt woodland in the northern portion of the site. There are no WildNet records of this species within 5km radius of the site.	Low	Low
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	-	186	Species generally roosts in camps in trees adjacent to larger permanent watercourse. The Grey-headed flying fox requires foraging resources and roosting sites. It is a canopy-feeding frugivore and nectarivore, which utilises vegetation communities including rainforests, open forests, closed and open woodlands, Melaleuca swamps and Banksia woodlands. It also feeds on commercial fruit crops. The primary food source is blossom from Eucalyptus and related genera.	The site is almost entirely cleared paddock with only a small area of open eucalypt woodland in the northern portion of the site. There are 28 WildNet records of this species within 5km radius of the site. A GHFF individual was observe as a fly-over during surveys. The closest GHFF camp is the nationally important camp located on Wararba Creek, Caboolture (Site 186) located approximately 2.8 km north-east of the site. The site contains scattered eucalypt trees and open eucalypt woodland	Moderate	Moderate

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that may be suitable for opportunistic foraging for Grey-headed Flying-fox.

Notably, foraging habitat for the GHFF will be retained and rehabilitated in the northern portion of the site.

Plants

<i>Arthraxon hispidus</i>	Hairy-joint Grass	V	V	9338	Hairy-joint grass is found in or on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, as well as woodland.	Open eucalypt woodland is present on-site. However, the majority of the site is highly disturbed. The entire site was walked and this species was not observed during surveys.	Low	Unlikely
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<i>Bosistoa transversa</i>	Three-leaved Bosistoa	V	-	16091	The Three-leaved Bosistoa is conserved within Mt Warning National Park, Numbinah Nature Reserve, Limpinwood Nature Reserve and Whian State Forest. While population information is unavailable, it is thought to be common in its range. It generally grows in wet sclerophyll forest, dry sclerophyll forest and rainforest up to 300m in altitude. It is commonly associated with <i>Argyrodendron trifoliolatum</i> , <i>Syzygium hodgkinsoniae</i> , <i>Endiandra pubens</i> , <i>Dendrocnide photinophylla</i> , <i>Acmena ingens</i> , <i>Diploglottis australis</i> and <i>Diospyros mabacea</i> .	No suitable habitat mapped on-site. The entire site was walked and this species was not observed during surveys..	Low	Unlikely
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Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
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<i>Cryptocarya foetida</i>	Stinking Cryptocarya	V	V	11976	The Stinking Cryptocarya is restricted to coastal sands, or if not, then close to the coast, occurring in littoral rainforest on old sand dunes and subtropical rainforests over slate and occasionally on basalt to an altitude of 150m.	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Cryptostylis hunteriana</i>	Leafless Tongue-orchid	V	-	19533	Leafless tongue-orchid habitats include wet heath, sedgeland, grasstree plains and in woodland with scribbly gum, silvertop ash, red bloodwood and black she-oak.	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Cupaniopsis shirleyana</i>	Wedge-leaf Tuckeroo	V	V	3205	The Wedge-leaf Tuckeroo occurs in a variety of dry rainforest vegetation types, including vine thicket communities on hillsides, stream beds and along riverbanks at altitudes up to 550m above sea level. This species is also likely to occur on the margins of native vegetation in scrubby urbanised areas. Predominately found on dark brown sandy loams and sandy clay loams (pH 5-7.5) and rocky scree slopes. Generally, these soils have formed from volcanic parent materials (mainly granites and granodiorites, basalt and andesitic flows, and pyroclastics).	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Macadamia integrifolia</i>	Macadamia Bush	V	V	7326	The Macadamia Nut grows in remnant rainforest. It prefers to grow in mild frost-free areas with reasonably high rainfall. Vegetation communities range from notophyll mixed forest, extremely tall closed forest, simple notophyll mixed very tall closed forest to simple microphyll-notophyll mixed	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely

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					mid-high closed forest with Araucaria and Argrodendron emergents.			
<i>Macadamia ternifolia</i>	Small-fruited Queensland Nut	V	V	7214	Rough-shelled Bush Nut is a rare species that generally occurs in subtropical rainforest and complex notophyll vineforest, at the margins of these forests and in mixed sclerophyll forest. It occurs in restricted habitat, growing on moderate to steep hillslopes on alluvial soils at well-drained sites. The species grows at altitudes from 10 to 460 m asl.	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Macadamia tetraphylla</i>	Rough-shelled Bush Nut	V	V	6581	This species generally occurs in subtropical rainforest and complex notophyll vineforest, at the margins of the forests and mixed sclerophyll forest. It occurs in restricted habitat, growing on moderate to steep hillslopes on alluvial soils at well drained sites.	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Persicaria elatior</i>	Knotweed, Tall Knotweed	V	-	5831	Knotweed inhabits damp areas including coastal, swampy areas, along watercourses, streams and lakes, swamp forest and disturbed areas. Found in specific locations including South Stradbroke Island and Cornubia Wetland, Redland Bay where it is associated with RE12.9.1, RE12.3.8 and RE12.3.5.	A watercourse is present on-site, however, is highly disturbed, dominated by Para grass. This species was not observed during field surveys.	Unlikely	Unlikely
<i>Phaius australis</i>	Lesser Swamp-orchid	E	-	5872	The Lesser Swamp-orchid is commonly associated with coastal wet heath/sedge land wetlands, swampy grassland or swampy forest and often where Broad-leaved Paperbark or Swamp	The site contains marginal habitat with some open eucalypt woodland containing Melaleuca quinquenervia, however, specific	Low	Unlikely

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					Mahogany are found. Typically, the Lesser Swamp-orchid is restricted to the swamp-forest margins, where it occurs in swamp sclerophyll forest (Broad-leaved Paperbark/Swamp Mahogany/Swamp Box (<i>Lophostemon suaveolens</i>), swampy rainforest (often with sclerophyll emergent), or fringing open forest. It is often associated with rainforest elements such as Bangalow Palm (<i>Archontophoenix cunninghamiana</i>) or Cabbage Tree Palm (<i>Livistona australis</i>).	sedge land habitat and swampy grassland is not present.		
<i>Phaius bernaysii</i>	Yellow Swamp-orchid	E	E	4918	Yellow swamp-orchid is recorded to grown along the margins between open forest/woodland and closed sedgeland, along the perimeter of a swamp, often in shaded areas, with a sandy or peaty soil.	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Rhodamnia rubescens</i>	Scrub Turpentine	CE	CE	15763	Known to occur from coastal districts of NSW north from Batemans Bay to Bundaberg in Queensland. The distribution occasionally extends inland onto the escarpment up to 600m ASL in areas with rainfall of 1000-1600mm. Commonly occurs in all rainforest subforms except cool temperate rainforest. Species occupies a range of volcanically derived and sedimentary soils and is a common pioneer species in Eucalypt forests. Often found in wet sclerophyll associations in rainforest transition zones and Creekside riparian associations. Flowers from late winter through spring, with a peak in October and fruits appear in December in the	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely

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		EPBC Act	NC Act					
					Sydney region. Habitat is likely to include subtropical rainforests, northern warm temperate rainforests, littoral rainforest, for example.			
<i>Rhodomyrtus psidioides</i>	Native Guava	CE	CE	19162	Known to occur from coastal districts of NSW north from Gosford to Maryborough in Queensland. Occurrence records are typically restricted to coastal and sub-coastal areas of low elevation; however, the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges. The species flowers in late spring to early summer, producing fruits in summer. Habitat is likely to include subtropical rainforests, warm temperate rainforests, littoral rainforest, and wet sclerophyll forests.	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Samadera bidwillii</i>	Quassia	V	V	29708	Quassia commonly occurs in lowland rainforest or on rainforest margins, but it can also be found in other forest types, such as open forest and woodland. Quassia is commonly found in areas adjacent to both temporary and permanent watercourses in locations up to 510 m altitude. The species occurs on lithosols, skeletal soils, loam soils, sands, silts and sands with clay subsoils.	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely
<i>Sophora fraseri</i>	-	V	V	8836	This species normally grows in wet sclerophyll forest and a range of rainforest types. Associated species include: <i>Corymbia citriodora</i> , <i>Eucalyptus carnea</i> , <i>E. microcorys</i> , <i>E. acmenoides</i> , <i>E. propinqua</i> and <i>Lophostemon confertus</i> . The shrub appears to	No suitable habitat to support this species is mapped on-site.	Unlikely	Unlikely

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		EPBC Act	NC Act					
					prefer growing along rainforest margins, in eucalypt forests in the vicinity of rainforests or in large canopy gaps in closed forest communities			
<i>Thesium australe</i>	Austral Toadflax	V	V	15202	Austral Toadflax is semi-parasitic on the roots of a range of grass species, notably <i>Themeda triandra</i> (Kangaroo Grass). It occurs in shrubland, grassland or woodland, often on damp sites.	Kangaroo Grass is a common grass species and has potential to occur on-site. There is low potential that this species would occur on-site.	Low	Low
Reptiles								
<i>Coeranoscincus reticulatus</i>	Three-toed Snake-tooth Skink	V	-	59628	Found mostly in closed forest and possibly open layered eucalypt forest. Generally recorded in moist layered forest on loamy basaltic soils, but also found in closed forest overlying silica sand dunes at Cooloola. Within forests, this species is found in well-mulched, loose, friable rainforest soil in leaf litter, often immediately adjacent to fallen tree trunks. Much of the lowland closed forest within its range has been cleared for agriculture and grazing, pasture improvement, crop production, tropical fruit production, and native forest logging. Suitable habitat has generally been reduced to patches, especially in lowland areas.	No suitable habitat to support this species is mapped on-site. There are no WildNet records of this species within 5km radius of the site.	Unlikely	Unlikely
<i>Delma torquata</i>	Collared Delma	V	V	1656	In general, the species occurs on rocky hillsides on basalt and lateritic soils supporting open eucalypt and Acacia woodland with a sparse understorey of shrubs and tussocks or semi-evergreen vine thicket.	No suitable habitat to support this species is mapped on-site. There are no WildNet records of this species within 5km radius of the site.	Unlikely	Unlikely

Scientific name	Common name	Listing Status*		EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of occurrence (on-site)	Field Likelihood of occurrence (on-site)
		EPBC Act	NC Act					
<i>Furina dunmalli</i>	Dunmall's Snake	V	V	59254	Dunmall's Snake has been found in a broad range of habitats, including forests and woodlands on black alluvial cracking clay and clay loams dominated by Brigalow other Wattles, native Cypress or Bull-oak, and various Blue Spotted Gum, Ironbark, White Cypress Pine and Bull oak open forest and woodland associations on sandstone derived soils. Dunmall's Snake occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland. Records indicate sites at elevations between 200–500 m above sea level. The snake is very rare or secretive with limited records existing. It has been recorded at Archokoora, Oakey, Miles, Glenmorgan, Wallaville, Gladstone, Lake Broadwater, Mount Archer, Exhibition Range National Park, roadside reserves between Inglewood and Texas, Rosedale, Yeppoon and Lake Broadwater Conservation Park.	No suitable habitat mapped on-site. There are no WildNet records of this species within 5km radius of the site.	Unlikely	Unlikely
<i>Hemiaspis damelii</i>	Grey Snake	E	E	1179	The grey snake is a relatively small, venomous, front-fanged (proteroglyphous) snake. In Queensland, grey snake habitat is Brigalow <i>Acacia harpophylla</i> and Belah <i>Casuarina cristata</i> woodlands on heavy, dark brown to black cracking clay soils, particularly in association with water bodies, areas with small gullies and ditches, and floodplain environments where the species shelters beneath logs, rocks and soil cracks.	Habitat attributes to support this species are not present on-site.	Unlikely	Unlikely

*Status abbreviations are as follows: CE = Critically Endangered, E = Endangered, V = Vulnerable, NT = Near Threatened, C = Least Concern, SL = Special Least Concern, - = Not Listed.

Listed migratory species (not listed above)

Scientific name	Common name	EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of Occurrence (on-site)	Field survey Likelihood of Occurrence (on-site)
<i>Apus pacificus</i>	Fork-tailed Swift	678	This species is almost exclusively aerial and mostly occur over inland plains but sometimes above foothills or in coastal areas.	Lack of foraging resources on-site. Unlikely to occur.	Low	Low
<i>Cuculus optatus</i>	Oriental Cuckoo	86651	Non-breeding habitat only: monsoonal rainforest, vine thickets, wet sclerophyll forest or open Casuarina, Acacia or Eucalyptus woodlands. Frequently at edges or ecotones between habitat types	No suitable habitat occurs on-site.	Unlikely	Unlikely
<i>Monarcha melanopsis</i>	Black-faced Monarch	609	The Black-faced Monarch mainly occurs in rainforest ecosystems, including semi-deciduous vine thickets, complex notophyll vine forests, tropical (mesophyll) rainforest, subtropical (notophyll) rainforest, mesophyll (broadleaf) thicket/shrubland, warm temperate rainforest, dry (monsoon) rainforest and occasionally cool temperate rainforest.	No suitable habitat occurs on-site.	Unlikely	Unlikely
<i>Monarcha trivirgatus</i>	Spectacled Monarch	610	The Spectacled Monarch's natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical mangrove forests, and subtropical or tropical moist montane forests. Its preference is for thick understorey areas.	No suitable habitat occurs on-site.	Unlikely	Unlikely
<i>Myiagra cyanoleuca</i>	Satin Flycatcher	612	Satin Flycatchers inhabit heavily vegetated gullies in eucalypt dominated forests and taller woodlands, and on migration occur in coastal forests, woodlands, mangroves and drier woodlands and open forests.	Eucalypt woodland is located on site. Notably, potential foraging habitat for the Satin Flycatcher will be retained and rehabilitated in the northern portion of the site.	Moderate	Moderate

Scientific name	Common name	EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of Occurrence (on-site)	Field survey Likelihood of Occurrence (on-site)
<i>Rhipidura rufifrons</i>	Rufous Fantail	592	The Rufous fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by Eucalypts such as <i>Eucalyptus microcorys</i> , <i>Eucalyptus pilularis</i> , <i>Eucalyptus resinifera</i> and a number of other Eucalyptus species.	Eucalypt woodland is located on site. Notably, potential foraging habitat for the Rufous Fantail will be retained and rehabilitated in the northern portion of the site.	Moderate	Moderate
<i>Actitis hypoleucos</i>	Common Sandpiper	59309	The Common Sandpiper utilises a wide range of coastal wetlands and some inland wetlands, including estuaries and deltas of streams, banks farther upstream; around lakes, pools, billabongs, reservoirs, dams and clay pans, and occasionally piers and jetties. They are mostly found in shallow water, around muddy margins or rocky shores and sometimes in muddy areas littered with rocks or snags. The species commonly utilises mangroves for foraging and roosting but is rarely seen on mudflats.	No suitable foraging or breeding habitat mapped on-site.	Unlikely	Unlikely
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	874	In Australia, the Sharp-tailed Sandpiper prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh, and beach cast algae / seaweed or other low vegetation. This includes lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hypersaline salt lakes inland. They also occur in salt works and sewage farms. They use flooded paddocks, sedgeland and other ephemeral wetlands, but leave when they dry. They use intertidal mudflats in sheltered bays, inlets, estuaries or seashores, and also swamps and creeks lined with mangroves.	No suitable foraging or breeding habitat mapped on-site.	Unlikely	Unlikely

Scientific name	Common name	EPBC code	Habitat and Distribution	Likelihood of Occurrence Analysis	Desktop Likelihood of Occurrence (on-site)	Field survey Likelihood of Occurrence (on-site)
<i>Calidris melanotos</i>	Pectoral Sandpiper	858	The Pectoral Sandpiper prefers shallow fresh to saline wetlands. The species is found at coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands. Occasionally found further inland.	No suitable foraging or breeding habitat mapped on-site.	Unlikely	Unlikely
<i>Gallinago hardwickii</i>	Latham's Snipe	863	Latham's Snipe occurs in permanent and ephemeral wetlands. They usually inhabit open, freshwater wetlands with low, dense vegetation.	No suitable foraging or breeding habitat mapped on-site.	Unlikely	Unlikely
<i>Pandion haliaetus</i>	Osprey	952	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers.	No suitable foraging or breeding habitat mapped on-site.	Unlikely	Unlikely
<i>Tringa nebularia</i>	Common Greenshank	832	The Common Greenshank is found in a wide variety of inland wetlands and sheltered coastal habitats of varying salinity. The species is known to forage at the edges of wetlands in soft mud or mudflats.	No suitable foraging or breeding habitat mapped on-site.	Unlikely	Unlikely

Appendix G

Development Layout



LEGEND

- SITE BOUNDARY
- - - STAGE BOUNDARY
- GIN
- DUPLEX LOTS
- RECOMMENDED BUILD TO BOUNDARY WALL
- - - OPTIONAL BUILD TO BOUNDARY WALL
- INDICATIVE LOCATION OF DRIVEWAYS
- BALANCE LOT

YIELD SUMMARY

28m DEEP LOTS

■ 10.5m - VILLA	1
■ 12.5m - PREMIUM VILLA	3
■ 14.0m - COURTYARD	1

30m DEEP LOTS

■ 10.5m - VILLA	7
■ 12.5m - PREMIUM VILLA	12
■ 14.0m - COURTYARD	9
■ 16.0m - PREMIUM COURTYARD	4

32m DEEP LOTS

■ 10.5m - VILLA	1
■ 12.5m - PREMIUM VILLA	1
■ 14.0m - COURTYARD	5
■ 16.0m - PREMIUM COURTYARD	2
■ 18.0m - PREMIUM TRADITIONAL	1

33m+ DEEP LOTS

■ 14.0m - PREMIUM COURTYARD	1
■ 18.0m - PREMIUM TRADITIONAL	1

TOTAL 49 LOTS

REPORT

Stormwater Management Plan – Caboolture West – Foreverlen Stage 1C



PREPARED FOR FOREVERLEN PTY LTD

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Approved Subject to Conditions of Decision Notice DA/2022/4535

23/08/2023

Executive Summary

Calibre Professional Services has been commissioned by Foreverlen Pty Ltd to prepare a Stormwater Management Plan in support of their development application for Reconfiguring a Lot to develop Stage 1C of the Foreverlen development. This report investigates and addresses the management of flooding, stormwater quantity, stormwater quality and the conveyance of runoff from Stage 1C of the Foreverlen development and provides strategies set out in accordance with the relevant Local and State Government regulations.

The aim of this report is to demonstrate that through the implementation of appropriate management strategies (developed in consultation with Moreton Bay Regional Council) Stage 1C of the Foreverlen development can occur without resulting in adverse or actionable impacts to adjacent or downstream properties and is consistent with the endorsed Stormwater Management Plan.

While Stage 1C is located outside of Phase 1 of the Neighbourhood Development Plan 1 (NDP1) precinct of Caboolture West, it is located immediately adjacent to Stages 1 to 4 of the Foreverlen development. Due to the interconnectedness of bulk-earthworks staging and the ultimate road and drainage configurations of the adjacent Stages 1 to 4, the overarching Masterplan *Stormwater Management Plan – Caboolture West NDP1* prepared by Calibre (Calibre Report No. 16-001367-SWMP-01C dated November 2021) for Phase 1 of the NDP1 area has been adopted for the stormwater management strategy for Stage 1C.

Flood Management

Flood management investigations and analysis have been undertaken by Calibre to determine what impact the Stage 1C development will have on flood conditions within the South East Watercourse. The flood modelling for Stage 1C, as presented in this report, was undertaken in parallel with the flood modelling for Stages 1 to 4 of the Foreverlen development, as detailed in Calibre's Stormwater Management Plan Report *16-002108-SWMP-01C*, November 2022.

Hydrological investigations undertaken for the catchment discharging runoff to the South East Watercourse have identified no increases in peak flow occurring at the South East Discharge Location as a result of the proposed works for Stage 1C. Therefore, no peak flow mitigation is proposed within the Stage 1C development boundary. Stage 1C earthworks associated with channel works and the formation of the bioretention basin area are proposed within Foreverlen owned land only, and do not extend past the Foreverlen development boundary.

The modelling and analysis undertaken has confirmed these changes do not result in any adverse local drainage impacts, flooding and coastal impacts on other premises, public land, watercourses, roads, or infrastructure or impacts on natural riverine and coastal processes or flood warning times for the Caboolture River or the South East Watercourse.

Stormwater Quality Management

In accordance with the MBRC Planning Scheme Policy and the State Planning Policy (SPP, 2017) it is a requirement that new development treat runoff prior to it entering receiving waterways.

A stormwater quality management strategy (consistent with that proposed within the overarching masterplan report) will implement Stormwater Quality Improvement Devices (SQIDs) to capture gross pollutants, sediment, suspended solids and nutrients, utilising vegetated natural processes (i.e. bioretention systems) to treat runoff from residential areas.

The proposed Foreverlen Stage 1C development will see the provision of these SQIDs located, sized and configured to capture and reduce the export of pollutants in runoff to meet the relevant Pollutant Load Reduction (SPP, 2017) and Non-Worsening based Water Quality Objectives (WQOs).

Analysis was undertaken to the sizing of bioretention devices and results of the analysis indicate that proposed bioretention devices are appropriate in meeting the WQOs.

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1 Introduction

Calibre Professional Services has been commissioned by the Foreverlen PTY LTD to prepare a Stormwater Management Plan (SWMP) in support of a Reconfiguring a Lot application for Stage 1C of the Foreverlen site which is adjacent to the eastern boundary of Stages 1-4 within Phase 1 of the Neighbourhood Development Plan 1 (NDP1) precinct of Caboolture West.

For clarity, reference to the subject of this report, being Stage 1C of the Foreverlen site adjacent to Stages 1-4 within Phase 1 of NDP1, will henceforth be referred to in this report as 'the proposed development'.

This report identifies the stormwater and flood management strategies required to service the proposed development and relies on the peak flow mitigation and flood management strategies previously identified within the *Stormwater Management Plan – Caboolture West NDP1* (Calibre Report No. 16-1367-SWMP-01C dated November 2021, herein referred to as the *NDP1 SWMP*) and provides results that demonstrate the strategies remain appropriate. This report also demonstrates the proposed development will not cause any adverse or actionable flood impacts to adjacent or downstream properties.

The proposed development extent and layout is indicated in **Figure 2.2**.

1.1 Objectives & Scope

The objectives of this report are to:

- Document the locations where runoff discharges from the site area under existing and developed (Stage 1C) conditions;
- Demonstrate that the increase in runoff generated by the proposed Stage 1C development will not cause an adverse impact adjacent to or downstream of the site;
- Demonstrate the development of the study area complies with the Moreton Bay Regional Council standards with respect to stormwater quantity and quality management;
- Identify the relevant water quality objectives for development within the study area and potential stormwater quality improvements devices to employ to achieve these objectives;

The scope undertaken involved the following:

- Flood Investigation – hydrological and hydraulic modelling to determine the potential changes to runoff, peak flow and flood levels associated with the development. For this investigation the hydrological and hydraulic models associated with the *NDP1 SWMP* and Stages 1-4 development have been adopted.
- Stormwater Quality Investigation – an investigation identifying the relevant water quality objectives and appropriate stormwater quality treatment methods to employ for development within the study area. Preliminary locations and sizes for bioretention systems have been identified.

1.2 Methodology

The analysis undertaken has utilised the hydrological and hydraulic modelling previously undertaken for the *NDP1 SWMP* and adjacent Stage 1-4 development to the east of the site, which also incorporates the proposed land use and bulk-earthworks changes associated with Stage 1C. The *NDP1 SWMP* report, prepared in collaboration with Calibre, the Land Owners Group (LOG), Moreton Bay Regional Council (MBRC) and other stakeholders, has been approved 'in principle' by MBRC. The Caboolture West NDP1 project, involving experienced floodplain management consultants, resulted in the creation of comprehensive computer-based models and flood mapping of the Caboolture River and South East Watercourse (SEWC) around NDP1, taking into account the proposed master planned development. This analysis now incorporates Stage 1C in addition to the adjacent Stages 1 to 4 of the broader Foreverlen development that lies within the NDP1 Masterplan area.

The hydrological (WBNM) and hydraulic (TUFLOW) models used to analyse stormwater and flood management strategies for NDP1 were originally sourced from MBRC (the *Caboolture River Flood Modelling Database 002c, 2014*). It is noted that these models underwent a comprehensive verification process during the initial model development (by SKM), as well as further model verification as documented within the *NDP1 SWMP*.

Furthermore, Section 4.4 of the *NDP1 SWMP* report details a comparison of TUFLOW model results (between the received MBRC model and the model updated by Calibre) to identify changes resulting from updates to the existing scenario hydrological model configuration and use of a later version of TUFLOW to facilitate a model truncation and subsequent reduction in the model grid cell size.

Due to the rigorous verification previously undertaken no further model verification was undertaken as part of this investigation.

2 Site Location & Characteristics

2.1 Location

NDP1 is located approximately 5km west of Morayfield, in the suburb of Upper Caboolture. NDP1 is bound by the Caboolture River to the north and west, Caboolture River Road to the south and existing Riverparks residential precinct to the east. The Foreverlen Stage 1C development site is located adjacent Stages 1-4 of NDP1, along the eastern boundary (within the Foreverlen owned land). **Figure 2.1** below shows the extent of NDP1 and properties under the control of the LOG within Phase 1, as well as the Stage 1 to 4 and proposed Stage 1C development site extents.

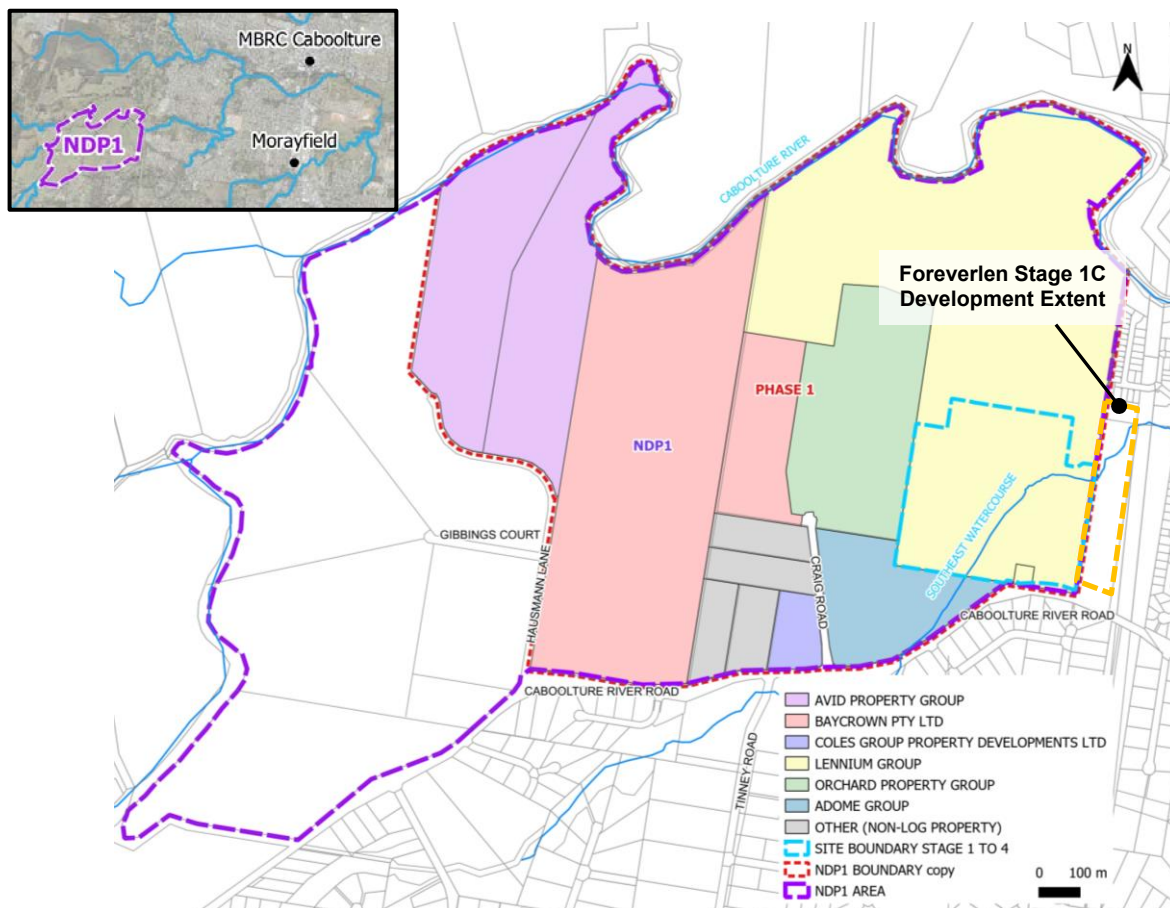


Figure 2.1: Site, NDP1 & Phase 1 Study Area Location

As indicated in the figure above, the proposed development extent is adjacent to Stage 1-4 of the Foreverlen Development which is within the NDP1 Masterplan Area. This report addresses flooding and stormwater management for Foreverlen Development of Stage 1C, assuming Stages 1-4 of the Foreverlen development will be developed in parallel.

2.2 Topography

Topography over the proposed development site, as shown in **Figure 2.2** below, is characterised by the following features:

- Majority of the development area falls to a natural gully (South East Watercourse), stemming from the eastern property boundary and adjacent Stage 1-4 development, traversing generally through the north of the site and exits at the eastern property boundary. The natural gully has longitudinal grade of approximately 0.5%;
- Terrain across the site generally grades at less than 2%, with the highest part of the study area located in the southeast corner.

2.3 Discharge locations

Runoff from the proposed development site discharges via the South East Watercourse to a single Lawful Point of Discharge (LPD) located at the northeast site boundary.

Refer to **Figure 2.2** for discharge locations with respect to the proposed development.

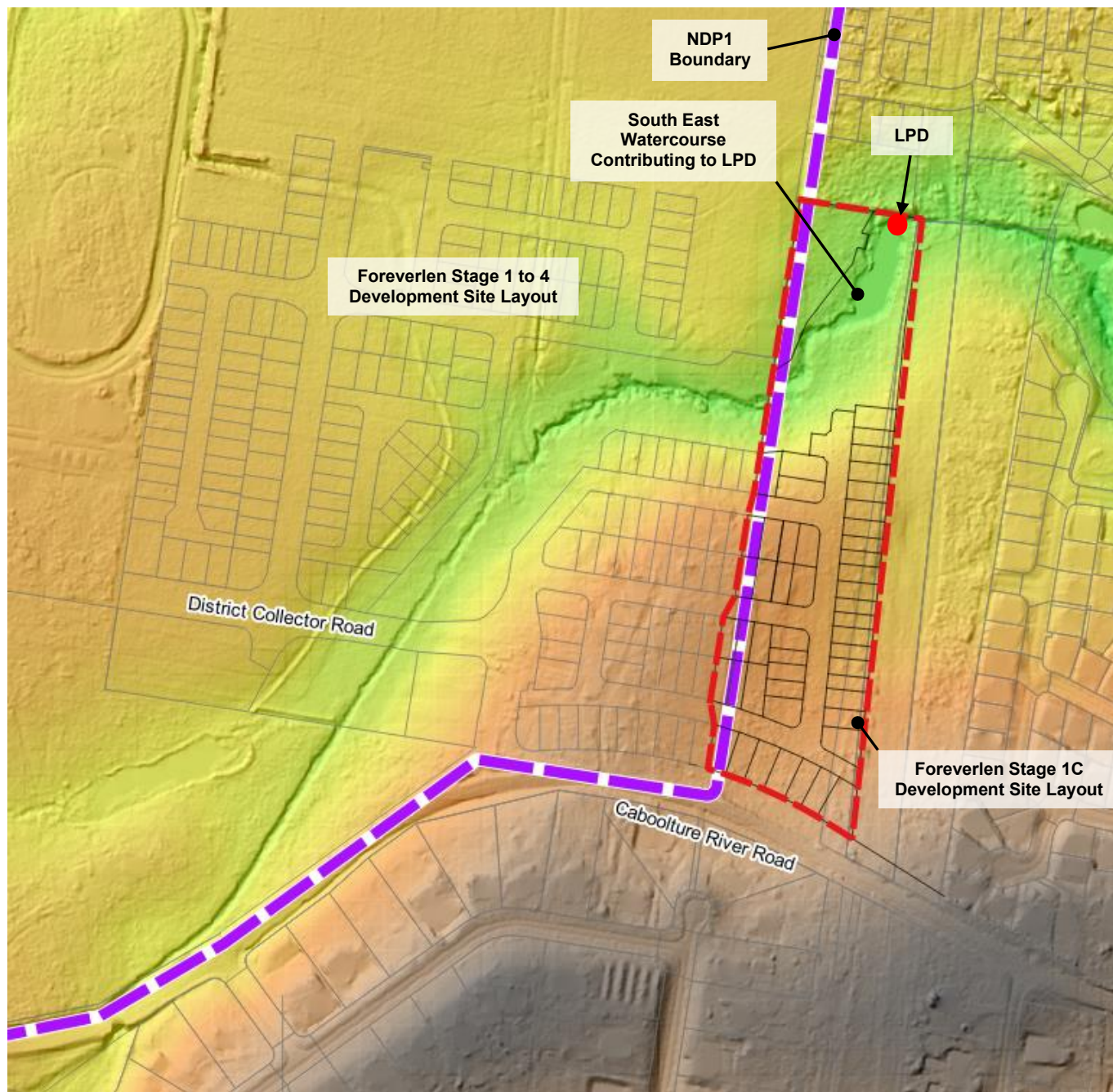


Figure 2.2: Foreverlen Stage 1C Existing Topography & Discharge Locations

3 Flood Impact Assessment

Flood management investigations and analysis have been undertaken by Calibre to determine the impact the proposed development will have on peak flows and flood conditions to the adjacent South East Watercourse. As discussed in **Section 1.2** the investigations and analysis undertaken has been based on modifications to the hydrological and hydraulic modelling previously undertaken for the *NDP1 SWMP* and adjacent Stage 1-4 development to the west.

3.1 Hydrological Investigations

Hydrological analysis and modelling have been undertaken by reconfiguring the WBNM model input parameters used for the regional Caboolture River NDP1 (as described in the *NDP1 SWMP*) and adjacent Stage 1-4 analysis to represent the proposed development for Foreverlen Stage 1C. The following sections describe the methodology and model reconfiguration adopted for the hydrological analysis.

3.1.1 Model Configuration and Verification

Previous WBNM configuration and input parameters for the regional Caboolture River NDP1 and adjacent Stage 1-4 analysis were adopted for this investigation. The results of this site-based analysis were verified against the results of the previous verification undertaken as part of the NDP1 investigation as documented within Section 4.2.1 of the *NDP1 SWMP*.

For the hydrological analysis component of this flood investigation the WBNM was used to determine peak flow hydrographs for all standard storm events between the 63% AEP to the 0.1% AEP, and for storm durations including the 30, 45, 60, 90, 120, 180, 270, 300, 360, 720 and 1440 minutes.

3.1.2 Land Use Assumptions

Fraction impervious values have been determined based on the lot density for each catchment and the assumed land use as per **Table 3.1**.

Table 3.1 Land Use Fraction Impervious

Land Use	Percentage Impervious (%)
Road	70
Open Space (incl. SQIDs)	0
Park	20
Commercial	90
Rural Residential	20
Allotment Ground	30
Allotment Roof	100

Values for catchment routing lag and infiltration loss for pervious and impervious areas have been kept consistent with the *NDP1 SWMP* modelling as per **Table 3.2**, which adopts parameters prescribed in *MBRC's Planning Scheme documents Integrated Design – Stormwater Management Appendix C*.

Table 3.2 Catchment Lag and Infiltration Losses

WBNM Model Parameter	Minor Storm Events (63.2% to 5% AEP)	Major Storm Events (2% to 0.1% AEP)
Impervious Area Lag	0.1	0.1
Lag Parameter C value	1.6	1.6
Impervious Area – Initial Loss (mm)	0	0
Pervious Area – Initial Loss (mm)	15	0
Pervious Area – Continuing Loss Rate (mm/hr)	2.5	2.5

3.1.3 Catchment Configurations

3.1.3.1 South East Watercourse – LPD

Hydrological analysis has been undertaken for the catchments that discharge runoff to the South East Watercourse. The analysis has been undertaken to determine how the development will change the magnitude and timing of the watercourse peak flows to hydraulically assess the changes in flood levels though and adjacent to the proposed development.

Catchment delineation and fraction impervious values were updated in line with the proposed Foreverlen Stage 1C development layout and preliminary earthworks design. The stormwater management strategy proposed for the South East Watercourse remains consistent with the *NDP1 SWMP*, with the exception of the following items associated with the works within Stage 1C of the Foreverlen development:

- Stage 1C developed impervious area has been added to the overall percentage of developed catchment, 34_03361B3. Total impervious percentage has subsequently increased from 12.2% to 18.6% with full development of Stage 1C contributing to the South East Watercourse. A breakdown of land use areas for Stage 1C is provided on Drawing SWDA1300 in **Appendix A**.
- The proposed works associated with Stage 1 of the Foreverlen development include upgrades to the Caboolture River Road alignment between Virginia Road and Crome Court to facilitate a new entry road into the Foreverlen Development. This road upgrade will result in approximately 3.46 ha of sub-catchment area from 34_03361B3 being diverted west into sub-catchment 34_03361B1.

The existing scenario catchment delineation and parameterisation are shown on **Figure 3.1** below.

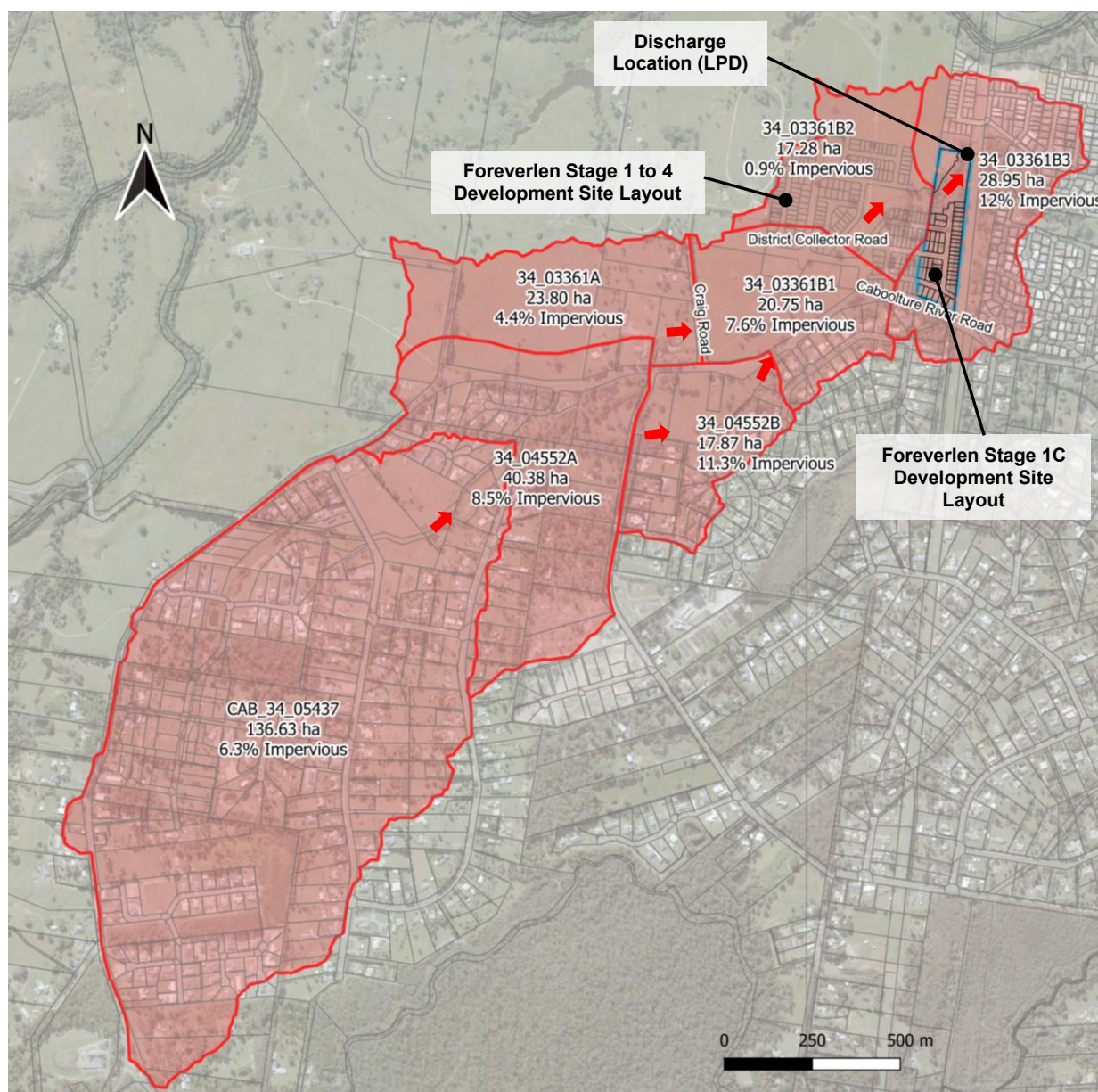


Figure 3.1: Existing South East Watercourse WBNM Sub-catchment Configuration

The developed scenario catchment delineation and parameterisation are shown on **Figure 3.2** below.

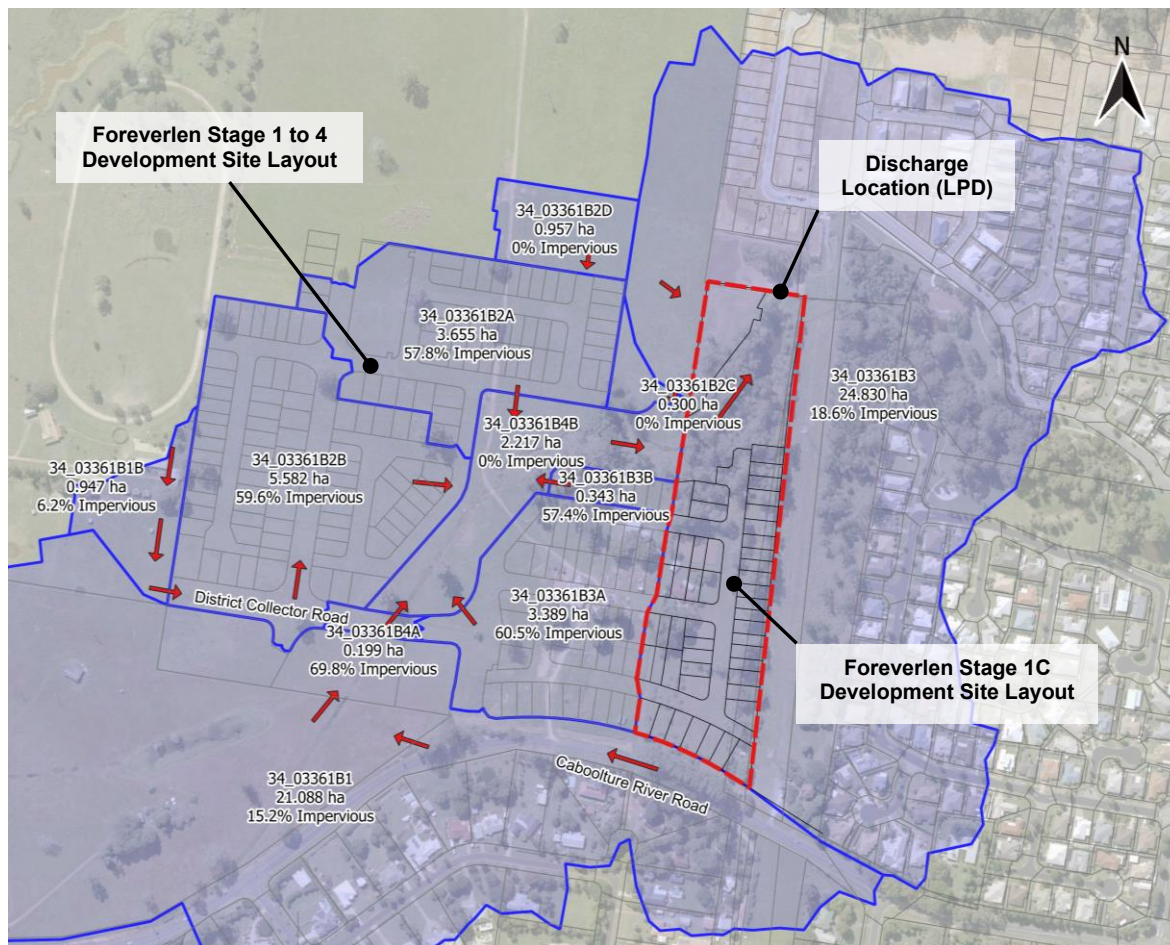


Figure 3.2: Developed South East Watercourse Sub-Catchment Configuration

3.1.4 WBNM Model Results

Hydrological investigations undertaken for the South East Watercourse catchment have identified no change to the critical duration storm events for the 1% AEP at the outlet of sub-catchment 34_03361B3, which remains the 120-minute duration event. This sub-catchment wholly encompasses Stage 1C and the changes to the local and total hydrological model results at this location allow for analysis of the subsequent impact on the peak flow hydrograph between existing and developed scenario catchment configurations.

A comparison of the 1% AEP critical duration discharge hydrographs for the local sub-catchment flow from Node 34_03361B3 verses the total catchment flow for the South East Watercourse at the same Node is presented for both existing and developed scenarios in **Figure 3.3**.

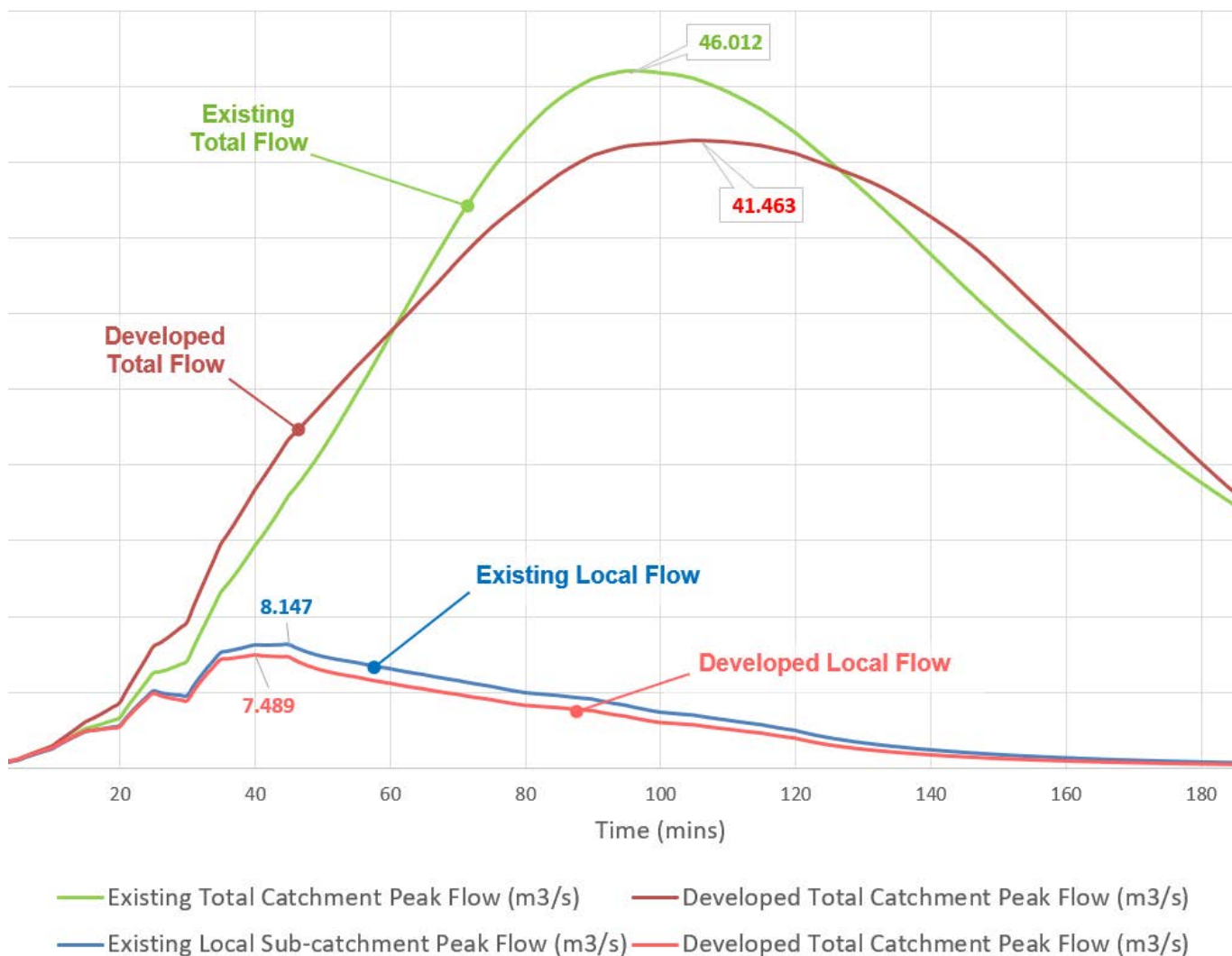


Figure 3.3: Local and Total Flow Hydrograph Comparisons at Node 34_03361B3

The hydrologic model results demonstrate the timing of local sub-catchment peak flows from the development occur prior to, and do not contribute additional flow to the peak of the total flow hydrograph for the South East Watercourse. Due to the change in catchment configuration associated with both the Stage 1C development and the enabling works to the Caboolture River Road, the magnitude of the Developed scenario local peak flow hydrograph is lower than existing scenario hydrological conditions. Therefore, the proposed Stage 1C works do not require additional peak flow detention works other than what has been proposed for the South East Watercourse as part of the broader Foreverlen development within the NDP1 Masterplan, as per the endorsed *NDP1 SWMP*.

3.2 Hydraulic Investigations

Hydraulic analysis and modelling have been undertaken by reconfiguring the TUFLOW model input parameters used for the regional Caboolture River NDP1 analysis (as described in the *NDP1 SWMP*) to represent the proposed development for Foreverlen Stages 1C with adjacent Stages 1-4 to the west included and assumed to be developed.

The hydraulic investigations, using TUFLOW, have been undertaken to demonstrate the following:

- Flood results are consistent with those presented in the *NDP1 SWMP*;
- The proposed development will not propagate adverse flood impacts beyond the LPD; and
- The proposed development will not adversely change maximum flood conditions on adjacent and downstream properties along the South East Watercourse.

The following sections describe the methodology and model reconfiguration adopted for the hydraulic analysis, which incorporates peak discharge hydrographs extracted from the WBNM modelling described in **Section 3.1**.

3.2.1 Topographical Data and Projection

The Digital Elevation Model's (DEM) used in this analysis consists of a 1.0km² LIDAR tiles covering the extent of the model, and a bulk earthworks Triangulated Irregular Network (TIN) over the extent of the Foreverlen site for the proposed development of Stage 1C and adjacent Stages 1 to 4. The model was projected to the GDA 94/ MGA Zone 56 coordinate system.

For areas where a bulk earthworks TIN has not yet been developed, TUFLOW '2d_ztin' and '2d_zsh' shape files were used to set Z-point elevations to account for planned development works.

3.2.2 2D Model Area

The 2D model area adopted for the *NDP1 SWMP* modelling was retained for this analysis. Section 4.4 of the *NDP1 SWMP* report details a comparison of TUFLOW model results (between the received MBRC model and the model updated by Calibre) to identify changes resulting from updates including truncation of the 2D model area and use of a later version of TUFLOW, including the Quad Tree Mesh functionality to reduce model grid cell size and enhance topographical definition of overland flow paths.

Due to the rigorous verification previously undertaken for the *NDP1 SWMP* modelling no further model verification was undertaken as part of this investigation.

3.2.3 Modelled Storm Events

The modelled storm events are listed in **Table 3.3**. These storms represent the critical durations for the 5%, 1% and 0.1% AEP events for the existing and developed scenarios as they vary spatially along the Caboolture River and its tributaries (including the South East Watercourse) within the model extents both upstream and downstream of the site. The critical duration event for the 1% AEP at the Stage 1C site (Sub-catchment 34_03361B3) is the 120-minute duration storm (as discussed in **Section 3.1**). The flood model results adopt a maximum flood envelope for the critical durations listed.

Table 3.3 Modelled Storm Events

Duration (min)	5% AEP	1% AEP	0.1% AEP
30	✓	✓	-
60	✓	✓	-
90	✓	✓	-
120	✓	✓	-
180	-	-	✓
270	-	-	-
300	-	-	✓
360	-	✓	✓
720	-	-	✓
1440	✓	-	-

3.2.4 Roughness

Various Manning's n roughness values have been utilised to represent the 2D topographical areas within the 2D model extent.

Table 3.4 Manning's n values

Material Description	Manning's n
Dense vegetation	0.09 to 0.18 varying with vegetation height
Reeds	0.08
Medium dense vegetation	0.075 to 0.15 varying with vegetation height
Crops	0.04
Low Grass/Grazing	0.025 to 0.006 varying with vegetation height
Roads/Footpaths	0.015
Buildings	1
Waterbodies	0.03
Urban block	0.3

These values are consistent with hydraulic roughness used in the *NDP1 SWMP TUFLOW* model.

A hydraulic roughness of 0.013 was adopted for all culvert structures modelled, which is a value consistent with a reinforced concrete conduit.

3.2.5 TUFLOW Model Results

Peak water level, velocity and flood hazard results were extracted for each storm duration and combined to create 'peak of peaks' rasters for the extent of the TUFLOW model. Results from the existing and developed scenario, along with difference plans indicating changes in flood conditions between the two scenarios for the 5%, 1% and 0.1% AEP events are provided in **Appendix C**.

The results indicate the following:

- There will be reductions in flood level along the South East Watercourse downstream of the study area for all modelled events up to and including the 0.1% AEP when compared to the existing scenario. As indicated on the Flood Plans, flood levels do not increase within the site boundary as a result of the proposed works contributing to the watercourse. The velocity difference results also indicate maximum flood velocities along the South East Watercourse beyond the site boundary generally remain unchanged when compared to the existing scenario.
- For the 0.1% AEP event flood level reductions from the existing scenario occur downstream of the study area as shown on **Figure 3.4** below. Differences in velocity are generally consistent with those for the 1% AEP event as seen in Flood Plans provided in **Appendix C**.

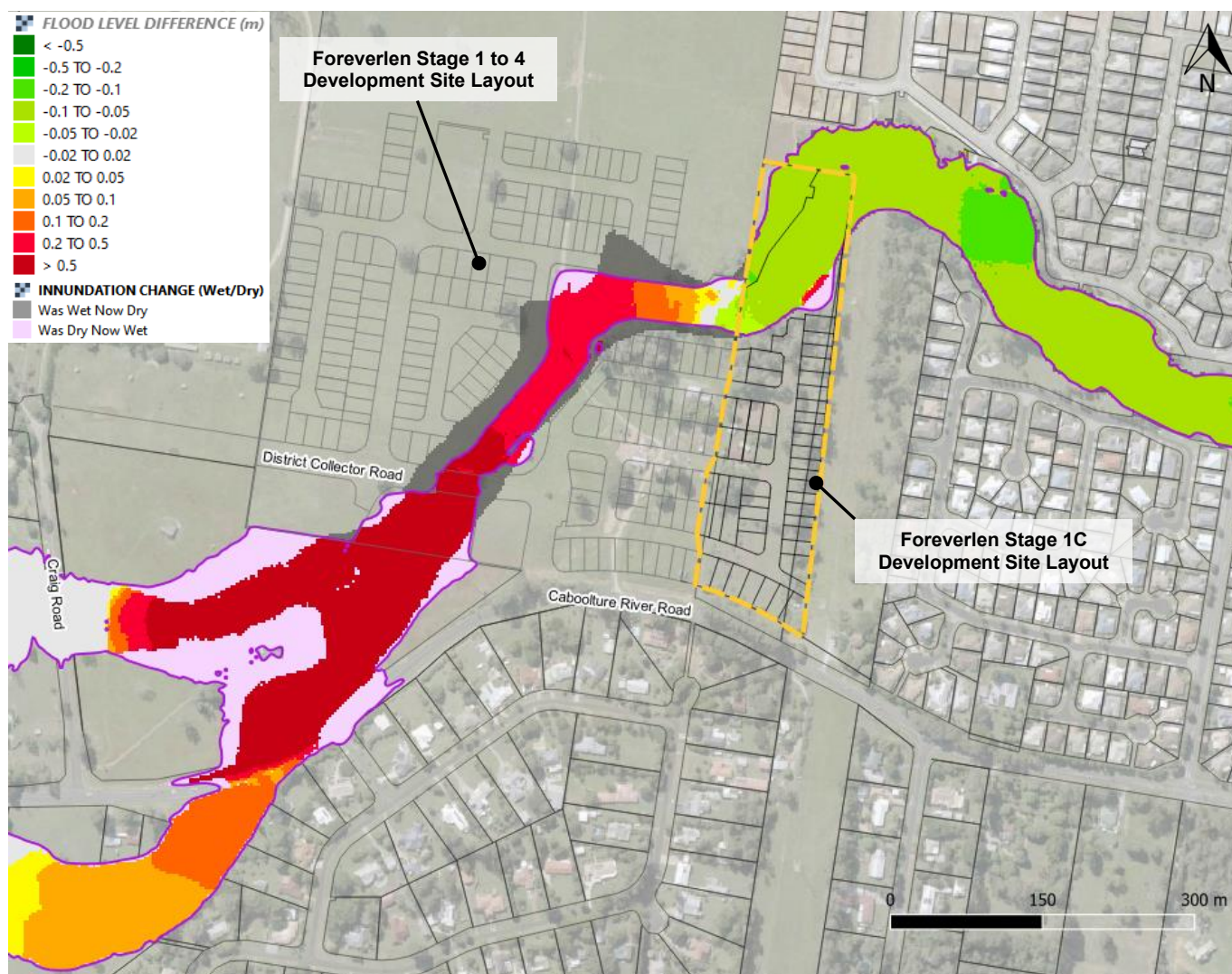


Figure 3.4: Flood Level Difference Results – 0.1% AEP

3.3 Flood Hazard and Overland Flow Overlay Mapping

MBRC's Flood Hazard Overlay mapping presented in **Figure 3.5** below identifies the parts of the proposed development where Balance (grey), Medium (blue) and High (pink) Flood Hazard are mapped for existing site conditions.

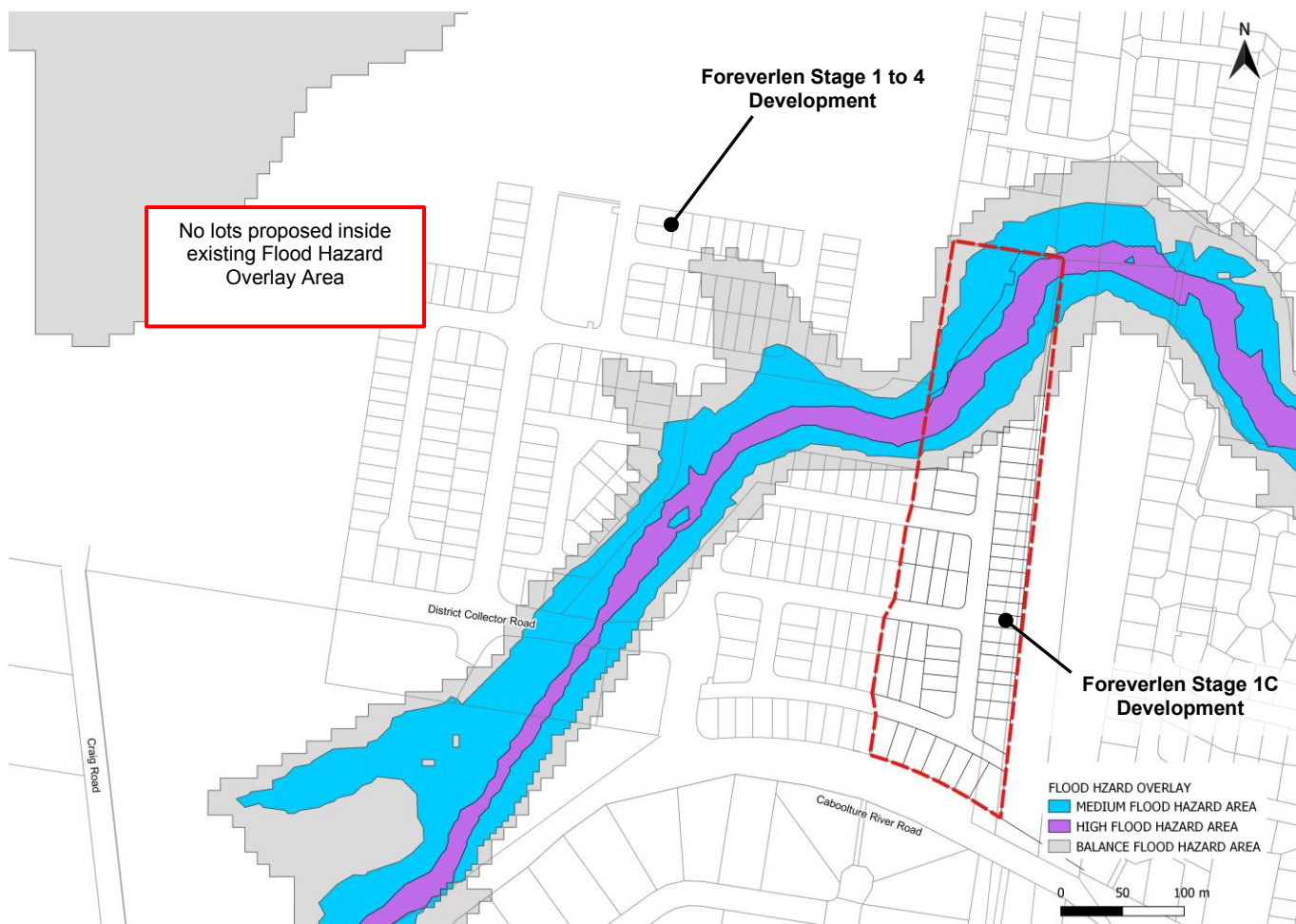


Figure 3.5: Flood Hazard Overlay Mapping (Source: MBRC)

The Flood Hazard Overlay Code for Assessable Development (*MBRC Planning Scheme, Version 4, Table 8.2.2.2*) outlines requirements around the flood hazard mapping in relation to Reconfiguring a Lot. It also details what planning and operational works constraints apply to the mapped flood hazard. Specifically, development in the sense of creating developable lots in the High Flood Hazard area within the Urban Living land use is not supported and is not proposed for the Foreverlen development.

As presented on **Figure 3.5**, there are no lots proposed within the MBRC Flood Hazard Overlay Area. The site area is constrained by local overland flow flooding (in blue) identified in **Figure 3.6** below.

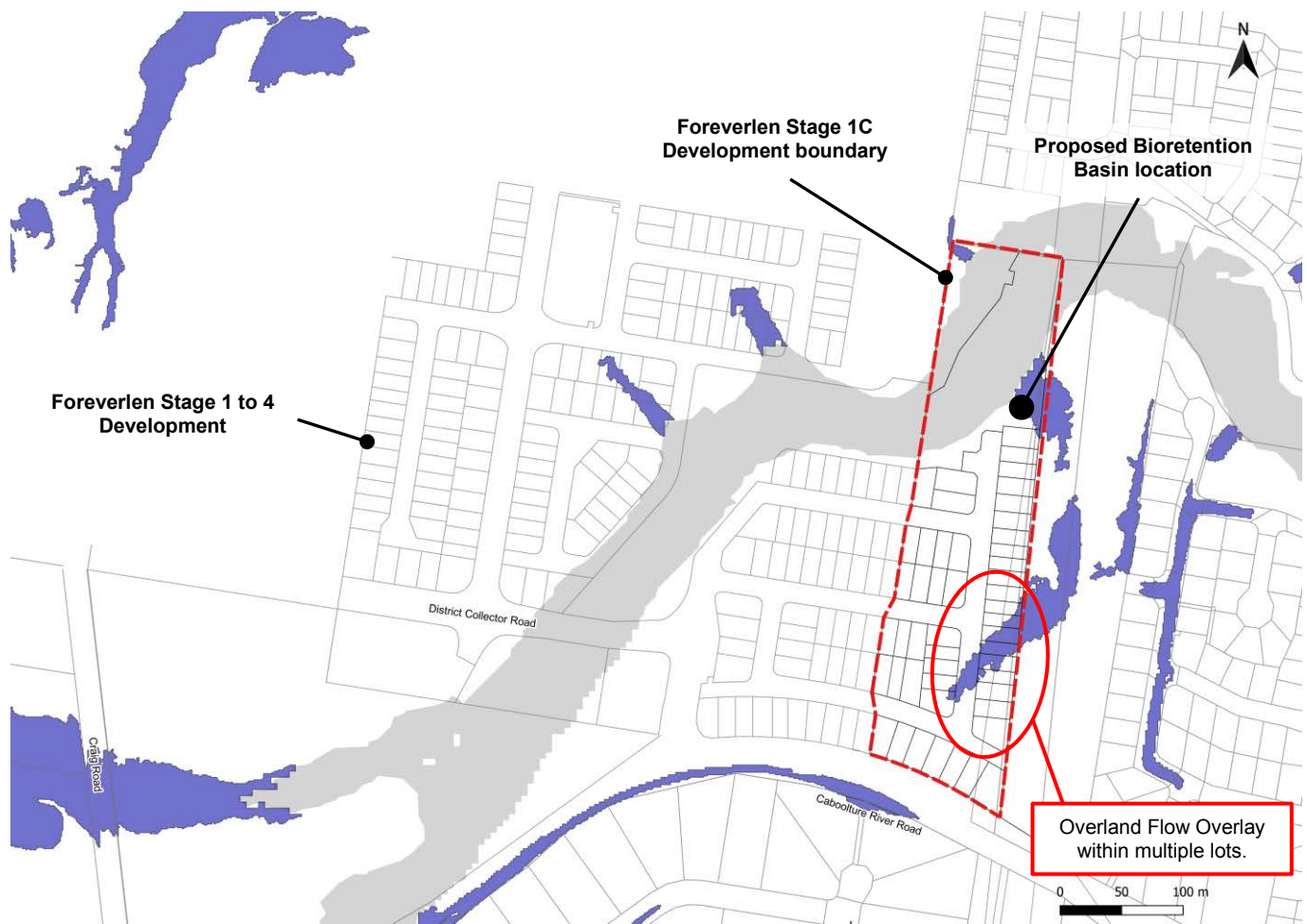


Figure 3.6: Overland Flow Overlay Mapping (Source: MBRC)

As mentioned in **Section 3.1.3** above, the Caboolture River Road upgrade will result in approximately 3.46 ha of sub-catchment area from the south of Caboolture River Road (from sub-catchment 34_03361B3) being diverted away from the existing overland flow path (circled red in **Figure 3.7**) and redirected west into the South East Watercourse upstream of the District Collector Road (into sub-catchment 34_03361B1). As such, the drainage network proposed within Stage 1C will not be required to cater for the bypass of flows emanating from this upstream sub-catchment area. Generally, the management of overland flows is to be addressed through the provision of an underground drainage network, together with the formation of engineered earthworks to convey stormwater flows from the site to the South East Watercourse.

The proposed Stage 1C stormwater drainage works incorporate a single stormwater quality treatment device, which is a bioretention basin located indicatively in **Figure 3.6** to treat runoff from the proposed development and will require earthworks and shaping to enable it to be established.

As demonstrated by the flood mapping provided in **Appendix C**, these works will have no adverse flood impact to the formalised upstream works in Stages 1-4 nor the existing downstream channel. Providing water quality treatment and appropriate outlet protection will ensure that any outlet flows from the proposed development will not scour or erode the existing channel which is intended to be retained.

The stormwater solution proposed as part of this development has been considered from a whole of life cost perspective with the co-location of assets and implementation of end of line water quality proposed. This solution is considered to be the most efficient, easily maintainable, and least burden on Council.

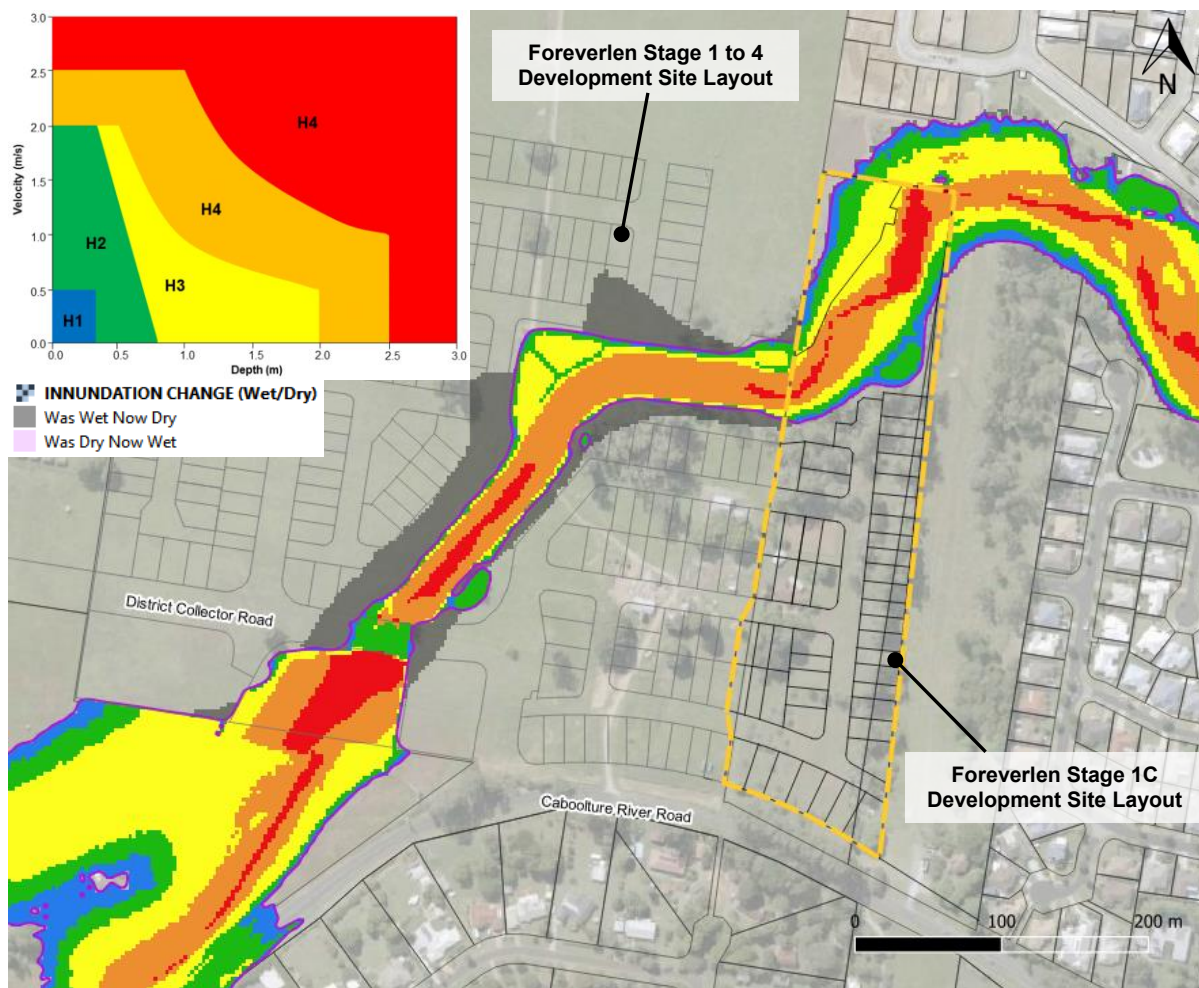


Figure 3.7: 0.1% AEP Developed Scenario Flood Hazard Modelling

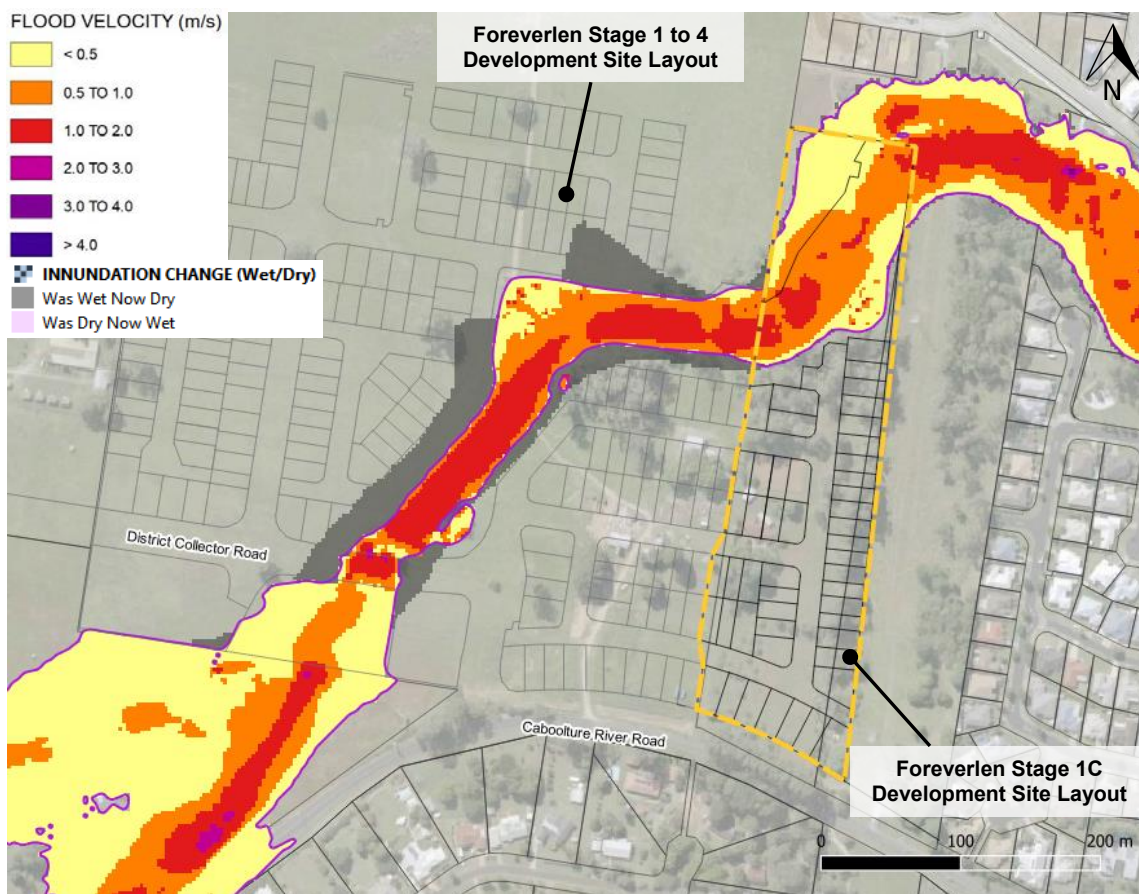


Figure 3.8: 0.1% AEP Developed Scenario Flood Velocity Modelling

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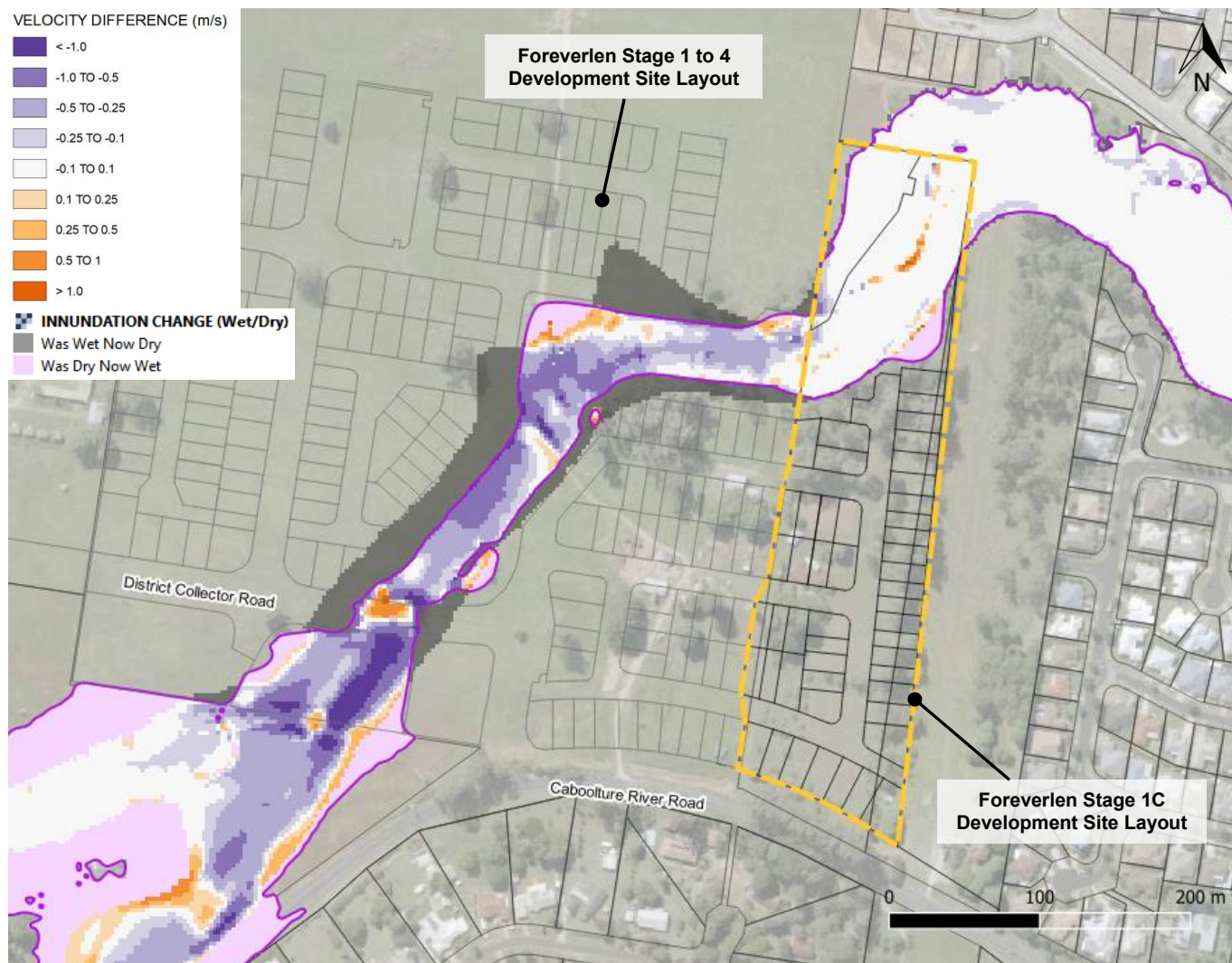


Figure 3.9: 0.1% AEP Developed Scenario Flood Velocity Difference

3.4 Summary of Flood Impacts

In summary, the results of the analysis undertaken confirms the proposed developed provides no adverse or actionable changes in flood conditions adjacent to or downstream of the site within the South East Watercourse.

The flood results are consistent with those presented in the *NDP1 SWMP*, and the proposed development will not propagate adverse flood impacts upstream or downstream of the site boundary. No change to the Lawful Point of Discharge is proposed nor required.

Further analysis is to be undertaken as part of future investigation to refine the configuration of elements that are part of the South East Watercourse strategy and set development levels to incorporate appropriate freeboard. These investigations are to be undertaken as part of future development application works.

4 Stormwater Quality Management

The Stormwater Quality Management Strategy of this report will investigate Stage 1C of the proposed Foreverlen development, adjacent to Phase 1 of NDP1 Caboolture West. If runoff from the catchments located within the previously indicated development stages are left unmitigated, it has the potential to increase stormwater pollutants that are exported from the site. This investigation analyses the impact of the development on stormwater quality generated from the study area and devises a stormwater quality treatment strategy to intercept and capture pollutants to meet the MBRC non-worsening requirements and WQO's required under the *SPP (2017)*.

4.1 Pollutants of Concern & Water Quality Objectives

Typical key pollutants expected to be generated during the operational (post-construction) phase of a development are listed as follows, with those presented in capitals being the key pollutants to be targeted for treatment:

- SEDIMENT
- Oxygen demanding substances (possibly present)
- NUTRIENTS (N & P)
- Pathogens / Faecal coliforms
- Hydrocarbons
- HEAVY METALS (associated with fine sediments)
- Surfactants
- Organochlorines & organophosphates
- Thermal pollution
- pH altering substances

Moreton Bay Regional Council Post Construction Phase water quality objectives (Table 10.2.1, *MBRC Planning Scheme*) identifies the development is required to achieve the greater pollutant removal of:

- State Planning Policy (2017) WQO reduction targets with respect to unmitigated development conditions; or
- Non-worsening (no increase in pollutant loads) of TSS, TP, TN and Gross Pollutants with respect to the existing land uses.

4.1.1 State Planning Policy

The load reduction WQOs presented in **Table 4-1** have been adopted from the Moreton Bay Regional Council *Planning Scheme (2017)* and are the required WQOs for urban developments within South East Queensland under Appendix 2 of the *State Planning Policy (SPP 2017)*.

Table 4-1: Load Reduction Water Quality Objectives for South East Queensland

Pollutant	Total Suspended Solids (kg/yr)	Total Phosphorus (kg/yr)	Total Nitrogen (kg/yr)	Gross Pollutants (kg/yr)
Load Reduction Target	80%	60%	45%	90%

4.1.2 Non-Worsening Requirements

The proposed development is located within an Emerging Community zone, which governs the discharge criteria for the site. In the Emerging Community zone development is to achieve the greater removal of;

- The load reduction WQOs presented in **Table 4-1** above; and
- No worsening (no increase in pollutant loads (in kilograms per year) of existing land uses of Total Suspended Solids, Total Phosphorus, Total Nitrogen and Gross Pollutants).

The existing land use adopted for this portion of the study area was an urban residential land use. The extent of this land use was adopted from the Caboolture Shire Planning Scheme Maps – *Zones and precincts*, as indicated in **Figure 4.1**. Existing fraction impervious values were measured from aerial imagery.

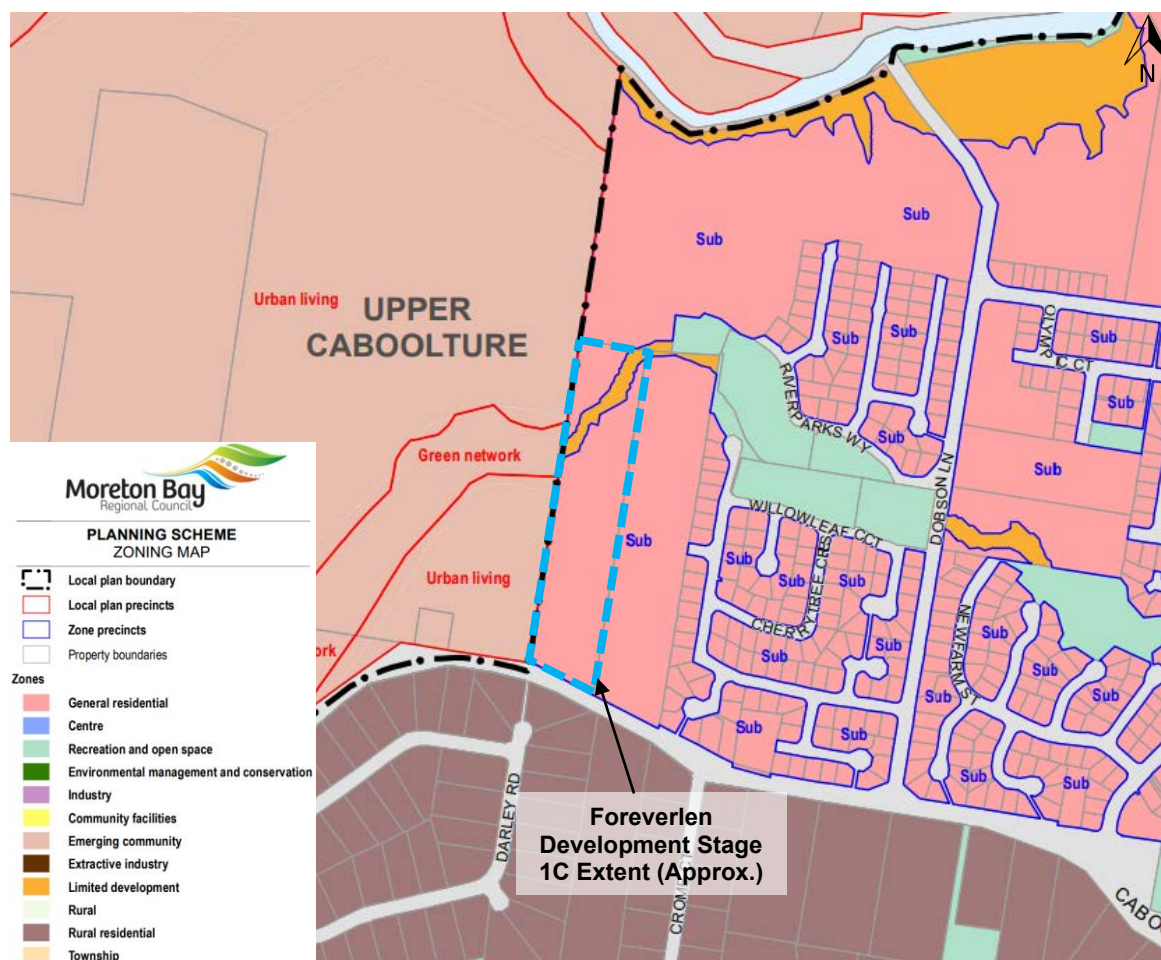


Figure 4.1: Existing Land Use Layout & Stage 1C Development Extent

4.2 Stormwater Quality Management Strategy

The Foreverlen Stage 1C development discharges runoff to the north into the South East Watercourse which ultimately contributes to the Caboolture River. As the development has the potential to increase pollutant loads in stormwater runoff entering downstream waterways, suitable Stormwater Quality Improvement Devices (SQIDs) such as bioretention devices are proposed to treat the generated site runoff.

One (1) end-of-line bioretention device is proposed to treat runoff generated from within the proposed Stage 1C of the Foreverlen development. Details of the proposed catchment and bioretention device are presented on Calibre Drawings SWDA1300 and SWDA1500 in **Appendix A** and described below.

- **Bioretention Basin G3** – The bioretention basin is located along the southern edge of the South East Watercourse within the Foreverlen Stage 1C development extent. Runoff from Catchment G3 is treated by the respective bioretention basin. In order to adequately size Basin G3 to meet WQOs for the ultimate configuration of the treatment train, Catchment G3 has been assumed to be fully developed as indicated on Calibre Drawing SWDA1300 in **Appendix A**.

It is noted that the above-mentioned stormwater quality management strategy is generally consistent with the *NDP1 SWMP* report.

Bioretention systems utilise a sandy loam soil-based media to filter runoff. Sediment and suspended solids are trapped within the vegetation as well as on the surface of the filter media. Micro-organisms and vegetation remove dissolved nutrients (nitrogen and phosphorus) through biological uptake processes. Subsoil drainage provided below the filter media allows for the treated runoff to discharge from the bioretention systems. The basin will have a sediment forebay, subsoil drainage, outlet pipe and weir overflow, which will be designed in detail during as part of the Detailed Design phase.

A typical bioretention system is shown in **Figure 4.2** below.

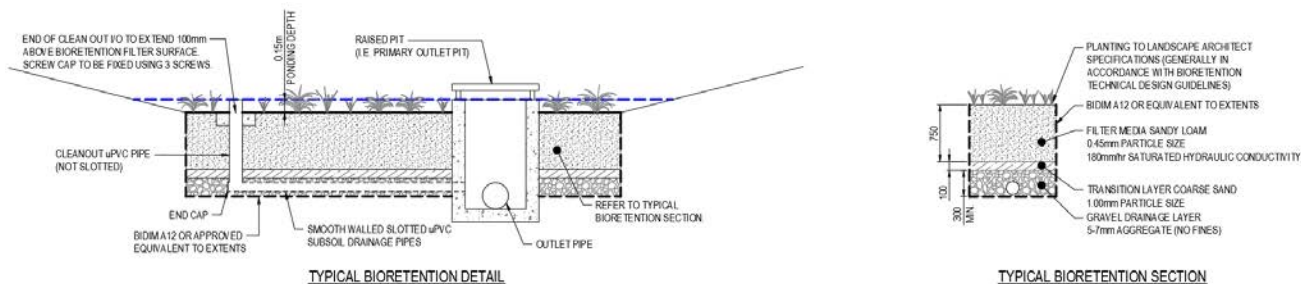


Figure 4.2: Typical Bioretention System Configuration

4.3 MUSIC Modelling Methodology

Stormwater quality modelling has been undertaken using MUSIC Version 6.3.0, developed by the Cooperative Research Centre for Catchment Hydrology (CRCCH). MUSIC enables the user to conceptualise the transfer of pollutants through a stormwater drainage system and provides an aid in quantifying the effectiveness of the proposed stormwater quality treatment train. MUSIC only provides quantitative modelling for Total Suspended Solids (TSS), Total Phosphorous (TP), Total Nitrogen (TN) and Gross Pollutants (GP).

Moreton Bay Regional Council Post Construction Phase water quality objectives (Table 10.2.1 of the MBRC Planning Scheme document *SC10 Stormwater Management Design Objectives*) identifies the development is required to achieve the greater pollutant removal of:

- Load reduction Water Quality Objectives (WQO's) as per the *State Planning Policy* (SPP, 2017); or
- Non-worsening (no increase in pollutant loads) of TSS, TP, TN and gross pollutants with respect to the existing land uses.

To devise a suitable stormwater quality treatment strategy to meet these objectives, both an existing and developed MUSIC model were created. The model files are indicated below.

- Existing Model: 16-002108-20221026_EX_Foreverlen_Stage 1C.sqz
- Developed Model: 16-002108-20221026_DEV_Foreverlen_Stage 1C.sqz

The MUSIC models were setup generally in accordance with Healthy Land and Water *MUSIC Modelling Guidelines* (2018). The subsequent sections discuss the model configurations adopted for the analysis, with the MUSIC model layout and modelling details presented in **Appendix B**.

4.3.1 Meteorological Data

Six-minute pluviographic data was sourced from the Bureau of Meteorology (BOM) for Dayboro Post Office (Station No. 40063) as this was the nearest rainfall station to the site with a range of rainfall data. In accordance with *Table A1.1* from the *MUSIC Modelling Guidelines* (2018) the 10-year period from 1st January 1980 to 31st December 1989 was adopted for the rainfall duration. The six-minute time step mean annual rainfall for this period is 1,256mm.

4.3.2 Source Nodes

Source nodes are sub-catchments that are defined for MUSIC modelling purposes. For the existing scenario, the split catchment approach has been used in accordance with the *MUSIC Modelling Guidelines* (2018). The split catchment approach separates the catchment areas into surface areas representing roof and ground, measured from the aerial imagery within the proposed lot. Two (2) sub-catchments were created as assigned as 'Urban Residential' for the applied rainfall-runoff parameters. Rainfall-runoff and Pollutant export parameters for the existing scenario area were taken from *Table 3.7* and *Table 3.8*, respectively, of the *MUSIC Modelling Guidelines* (2018). The MUSIC catchment source node details for the existing scenario are indicated in **Table 4-2** below.

Table 4-2: MUSIC Source Node Areas – Existing Scenario

Sub-Catchment	Node Type	Total Area (Ha)	Impervious Percentage (%)
Existing-Ground	Urban Residential	2.850	0
Existing-Roof	Urban Residential	0.038	100

Source node sub-catchment areas for the developed scenario were determined using the split catchment approach in accordance with the *MUSIC Modelling Guidelines* (2018). The source node areas were setup in accordance with the latest layout (Calibre Drawing SWDA1300 in **Appendix A**) and earthworks strategy associated with Foreverlen Stage 1C. **Table 4-3** below shows the source node details input into the MUSIC Model.

Table 4-3: MUSIC Source Node Areas – Developed Scenario - Stage 1C

Sub-Catchments	Total Area (Ha)	Road (Res)	Roof (Res)	Ground (Res)
G3	2.888	0.790	0.735	1.363

The fraction impervious values for the source nodes were adopted in accordance with Table 3.5 of the *MUSIC Modelling Guidelines* (2018). Fraction Impervious percentages applied for the different land type areas are presented in **Table 4-4** below.

Table 4-4: Fraction Impervious Percentage

Source Node	Road	Roof	Ground
Fraction Impervious Percentage (%)	70	100	30

The pollutant export parameters were configured in accordance with Table 3.9 of the *MUSIC Modelling Guidelines* (2018). A roof area of 150m² was applied to 49 residential lots in line with Table 3.4 of the *MUSIC Modelling Guidelines* (2018). The road reserve areas were measured using the updated lot layout from Calibre drawing SWDA1300in **Appendix A**. Refer to **Appendix B** for detailed MUSIC modelling details.

Stochastic generation estimation and serial autocorrelation set to zero has also been adopted.

4.3.3 Drainage Links

No routing was adopted for drainage links within MUSIC model. This assumes flows and associated pollutants from all parts of the catchment arrive at the treatment nodes at the same time. This is conservative as it means that MUSIC may overestimate the overflow volumes.

4.3.4 Treatment Nodes

As the development has the potential to increase pollutant loads in stormwater runoff entering downstream waterways, a treatment train of suitable SQIDs are proposed to mitigate this increase. The stormwater quality treatment strategy outlined in **Section 4.2** identified bioretention devices as the adopted SQIDs.

Bioretention treatment nodes were used to model the proposed bioretention systems. Default K and C* values were adopted for these treatment nodes. These treatment nodes were set up generally in accordance with the *MUSIC Modelling Guidelines* (2018) and *Healthy Waterways Bioretention Technical Design Guidelines* (2014). Refer to **Table 4-5** below for the bioretention treatment node parameters modelled.

Table 4-5: Bioretention Device Input Node Details

Parameter	G3 Bio basin
Surface Area (m ²)	477
Filter Area (m ²)	394
Extended Detention Depth (m)	0.3
Filter Depth (m)	0.6
Filter Media Type	Sandy Loam
Saturated Hydraulic Conductivity of Filter Media (mm/hr)	200
TN Content of Filter Media (mg/kg)	400
Orthophosphate Content of Filter Media (mg/kg)	30
Overflow Weir (m)	30*

*Basin outlet configuration, including the overflow weir length to be confirmed during detailed design

4.4 MUSIC Modelling Results

The MUSIC modelling results indicate the proposed stormwater quality treatment strategy achieves adequate pollutant removal as specified in the SPP objectives and non-worsening objectives. The developed model results were analysed against the required WQOs and against the existing model results to determine if there was an increase in pollutant loads.

4.4.1 SPP Load Reduction Results

Table 4-6 below presents the MUSIC model pollutant load reduction results achieved by the proposed stormwater quality treatment strategy for the Foreverlen Stage 1C development.

Table 4-6: Developed MUSIC Modelling Results

Pollutant	TSS	TP	TN	Gross Pollutants
Source Load (kg/yr)	4,610	9.11	48.5	540
Residual Load (kg/yr)	561	1.75	20.6	0
Pollutant Reduction Percentage	87.8%	80.8%	57.5%	100%
WQO's Required	80%	60%	45%	90%
WQO Achieved	Yes	Yes	Yes	Yes

The results indicate that the proposed stormwater quality management strategy is effective in reducing the export of pollutants from the development to achieve the load reduction WQO's.

4.4.2 Non-Worsening Results

Table 4-7 below presents the MUSIC model pollutant load export results for both the existing and developed scenarios.

Table 4-7: Non-Worsening Pollutant Load Results

Pollutant	TSS	TP	TN	Gross Pollutants
Existing Pollutant Export (kg/yr)	1,570	3.67	20.7	9.94
Developed Pollutant Export (kg/yr)	561	1.75	20.6	0
Meets Non-worsening Requirement?	Yes	Yes	Yes	Yes

The results indicate that pollutant loads exported from the development will be lower or equal to the existing conditions for TSS, TP, TN, and Gross Pollutants. On this basis the proposed stormwater quality management strategy is appropriate.

5 Conclusion

Calibre Professional Services has prepared this Stormwater Management Plan in support of their development application for Reconfiguring a Lot to develop Stage 1C of the Foreverlen development.

This report has identified stormwater and flood management strategies required to service the proposed development, and documents results of analysis undertaken that demonstrate that the strategies are consistent with the *NDP1 SWMP* and will be appropriate.

To summarise:

- The interim detention basin configuration associated with the Foreverlen Stage 1 to 4 works provides sufficient upstream flow attenuation, which allows stormwater runoff from the Foreverlen Stage 1C development areas to discharge to the South East Watercourse downstream of the on-line detention basin at the IDC.
- Hydrological and hydraulic analysis confirms the flood management strategies proposed are effective in mitigating adverse or actionable changes in flood conditions adjacent to or downstream of the proposed development, both within the South East Watercourse.
- The results of the flood investigation and analysis for Stage 1C of the Foreverlen development support an update to the MBRC Flood Hazard and Overland Flow Overlay mapping within the South East Watercourse.
- MUSIC modelling has been undertaken for the proposed stormwater quality management strategy which involves an end-of-line bioretention basin to reduce the export of pollutants in runoff from the proposed development.
- MUSIC modelling results indicate standard State Planning Policy load reduction and Non-Worsening water quality objectives will be achieved by the proposed SQIDs.

The above outcomes demonstrate that adequate solutions for managing stormwater and flooding associated with the development will be provided, and that the proposed drainage strategy works.

6 Recommendations

It is recommended that the strategies proposed in this Stormwater Management Plan are approved as part of the RAL Development Application. In addition, the following is also recommended as part of future detailed design:

- The flood investigation is to be updated to account for detailed designs and / or as-constructed information for preceding development and / or works upstream and downstream.
- Detailed design is to ensure appropriate outlet protection is provided to protect the stability of existing South East Watercourse.
- The flood investigation is to be updated to include comparisons of site flood levels to design floor and other development levels to confirm flood immunity requirements are achieved.
- MUSIC modelling is to be updated to account for potential changes to the stormwater quality management strategy arising from detailed design.

7 References

- Caboolture Shire Council (2014), *Caboolture Shire Plan*.
- Calibre Professional Services (2021), Stormwater Management Plan – Caboolture West NDP1;
- Department of Energy and Water Supply (2017), *Queensland Urban Drainage Manual*;
- Department of State Development, Infrastructure and Planning (2017), *State Planning Policy 2017*;
- Healthy Land & Water (2018), *MUSIC Modelling Guidelines*;
- Moreton Bay Regional Council (2014), Caboolture River Regional Flood Modelling Database (002c);
- Moreton Bay Regional Council (2015), *Integrated Design Planning Scheme Policy – Appendix C Stormwater Management*;
- Moreton Bay Regional Council (2015), *Planning Scheme Policy – Flood Hazard, Coastal Hazard and Overland Flow*;
- Moreton Bay Regional Council (2021), *Planning Scheme Policy – Zoning Maps*;
- SKM (2012); *MBRC Regional Floodplain Database: Floodplain Parameterisation Report*;

8 Disclaimer

This report has been prepared on behalf of and for the exclusive use of Foreverlen Pty Ltd and is subject to and issued in accordance with the agreement between Calibre Professional Services Pty Ltd.

Our investigation and analysis have been specifically catered for the particular requirements of Foreverlen Pty Ltd and may not be applicable beyond this scope. For this reason, any other third parties are not authorised to utilise this report without further input and advice from Calibre Professional Services Pty Ltd.

Calibre Professional Services Pty Ltd accepts no liability or responsibility whatsoever for the report in respect of any use of or reliance upon this report by any third party.

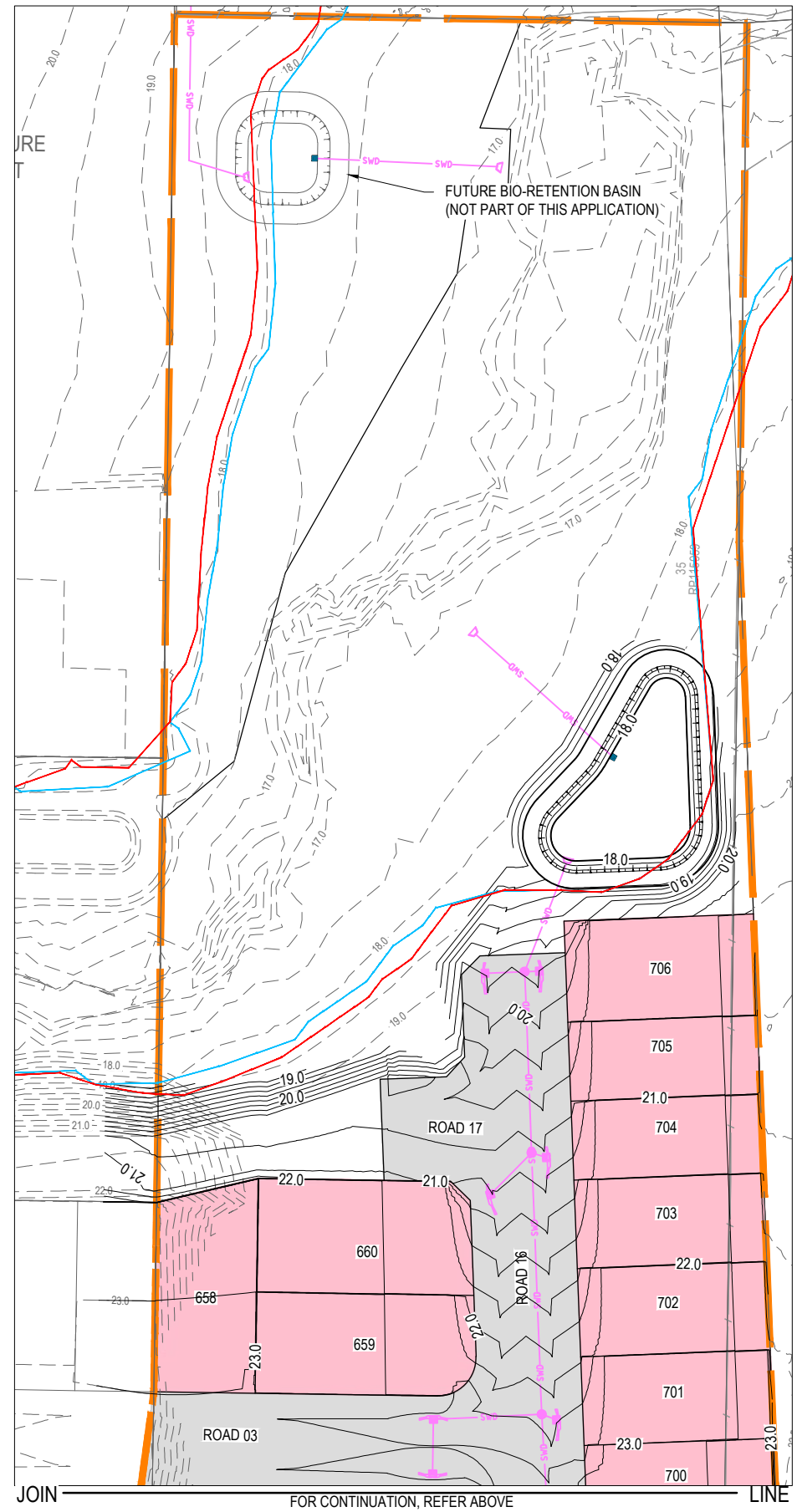
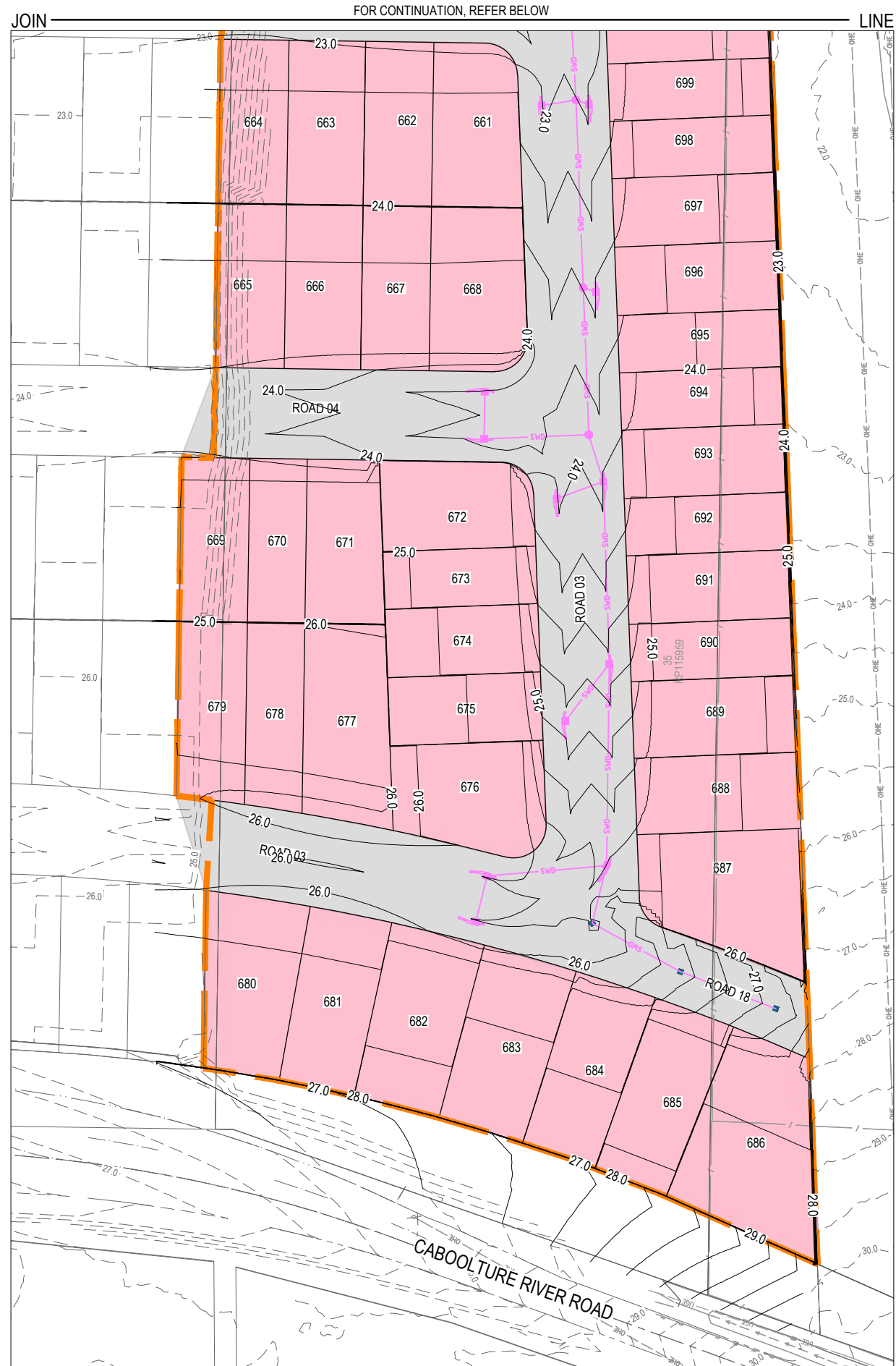
The investigation and analysis have relied on information provided by others. We accept no responsibility for accuracy of material supplied by others. The accuracy of the investigation, analysis and report is dependent upon the accuracy of this information.



STORMWATER MANAGEMENT PLAN – CABOOLTURE WEST –
FOREVERLEN STAGE 1C

Appendix A Concept Drawings

FOREVERLEN PTY LTD



LEGEND

- LOT BOUNDARY
- EXISTING LOT BOUNDARY
- PROPOSED STAGE BOUNDARY
- PROPOSED KERB & CHANNEL
- PROPOSED STORMWATER DRAINAGE
- EXISTING SWALE INVERT
- PROPOSED RETAINING WALL
- PROPOSED RETAINING WALL AND ACOUSTIC FENCE
- Q20 FLOOD LINE
- Q100 FLOOD LINE
- ROOF AND GROUND (REFER NOTE 1)
- ROAD (70% IMPERVIOUS)
- EXISTING SURFACE CONTOUR (0.5m INTERVALS)
- DESIGN SURFACE CONTOUR (0.5m INTERVALS)

NOTES:

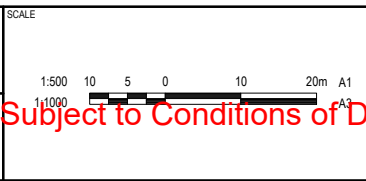
- ROOF AREA CALCULATED AS 150m² PER LOT AND 100% IMPERVIOUS. GROUND AREA CALCULATED AS THE BALANCE AREA THAT IS NEITHER ROAD OR ROOF AREA AND 30% IMPERVIOUS.
- REFER DRAWING SWDA1500 FOR BIO BASIN LAYOUT PLAN AND TYPICAL SECTION

PRELIMINARY
FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

CONCEPT PLAN ONLY
NOT TO BE USED FOR
CONSTRUCTION PURPOSES

REVISION	DATE	ISSUE DETAILS	DRAWN	DESIGN	DRAWN CHECK	STATUS
A	17.11.22	ISSUED FOR APPROVAL	IB	AA		
					DESIGN CHECK	APPROVED

DEVELOPMENT APPLICATION



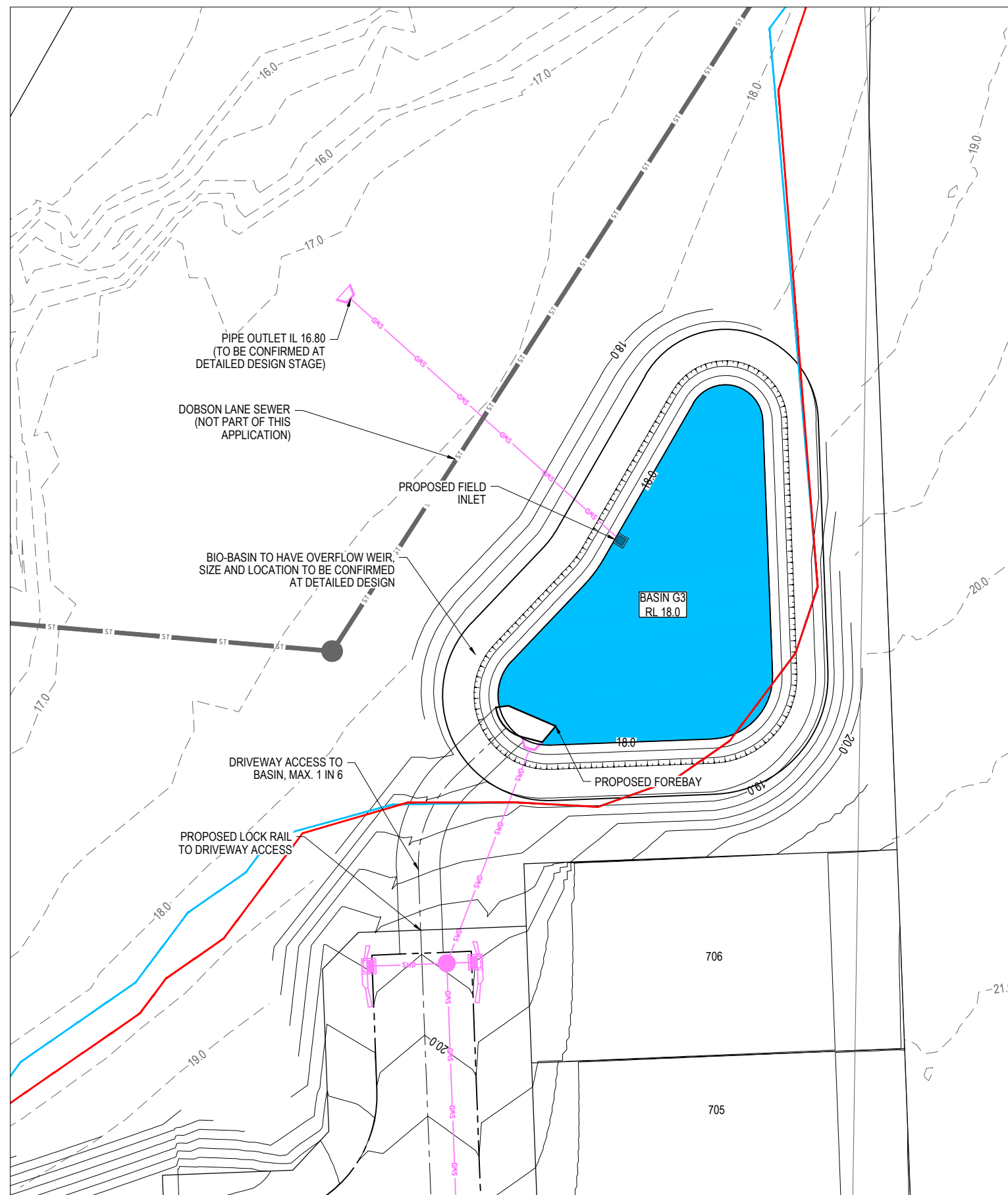
CLIENT
FOREVERLEN PTY LTD



PROJECT
CABOOLTURE WEST STAGE 1C

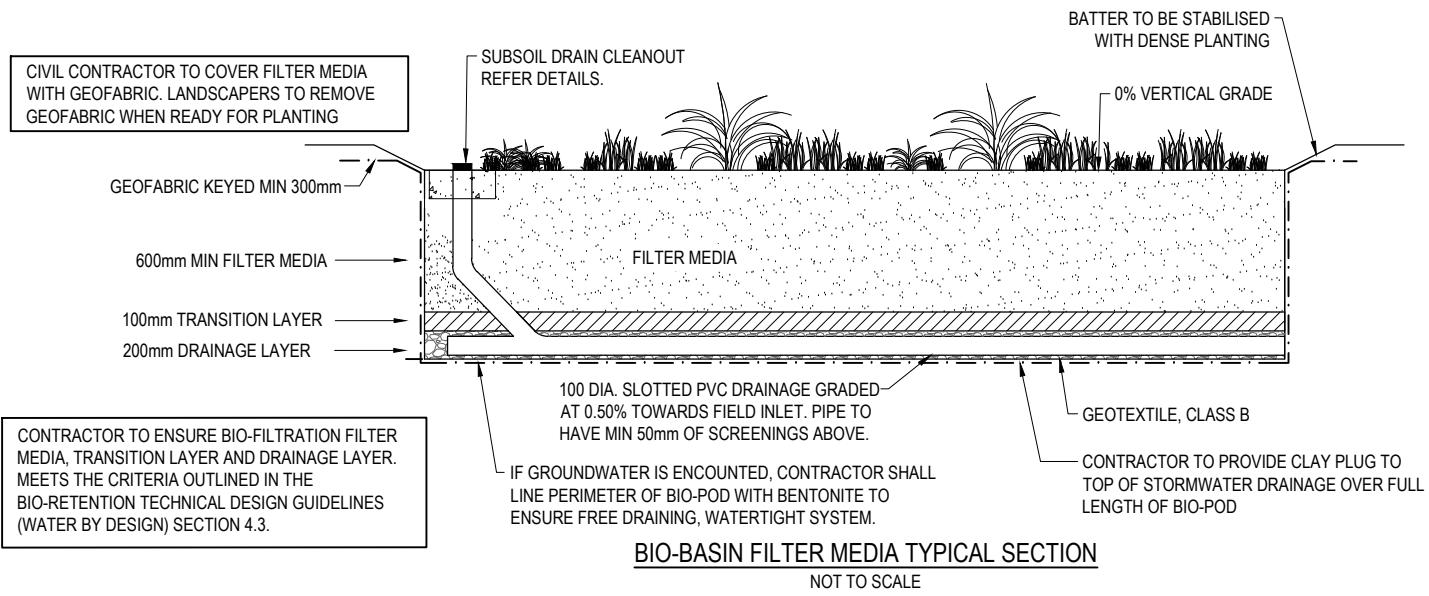
DRAWING TITLE
STORMWATER LAYOUT PLAN
23/08/2023

PROJECT No. 22-000082_1C
DRAWING No. SWDA1300
REVISION A



BIO-BASIN G3
FILTER MEDIA AREA = 394m²

LEGEND	
	LOT BOUNDARY
	EXISTING LOT BOUNDARY
	PROPOSED KERB & CHANNEL
	PROPOSED STORMWATER DRAINAGE
	PROPOSED STORMWATER DRAINAGE STRUCTURE
	BIO-BASIN
	Q20 FLOOD LINE
	Q100 FLOOD LINE



CIVIL CONTRACTOR TO COVER FILTER MEDIA WITH GEOFABRIC. LANDSCAPERS TO REMOVE GEOFABRIC WHEN READY FOR PLANTING

CONTRACTOR TO ENSURE BIO-FILTRATION FILTER MEDIA, TRANSITION LAYER AND DRAINAGE LAYER MEETS THE CRITERIA OUTLINED IN THE BIO-RETENTION TECHNICAL DESIGN GUIDELINES (WATER BY DESIGN) SECTION 4.3.

100 DIA. SLOTTED PVC DRAINAGE GRADED AT 0.50% TOWARDS FIELD INLET. PIPE TO HAVE MIN 50mm OF SCREENINGS ABOVE.
IF GROUNDWATER IS ENCOUNTERED, CONTRACTOR SHALL LINE PERIMETER OF BIO-POD WITH BENTONITE TO ENSURE FREE DRAINING, WATERTIGHT SYSTEM.

BATTER TO BE STABILISED WITH DENSE PLANTING
0% VERTICAL GRADE

NOTE: ALL BIO-BASINS WILL HAVE FOREBAYS, SUB-SOIL DRAINAGE, OUTLET PIPE AND WEIR OVERFLOW AS PART OF DETAILED DESIGN.

CONCEPT PLAN ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES

PRELIMINARY
FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

REVISION	DATE	ISSUE DETAILS	DRAWN	DESIGN	DRAWN CHECK	STATUS
A	17.11.22	ISSUED FOR APPROVAL	IB	AA		

DRAWN	DESIGN	DRAWN CHECK	STATUS
IB	AA		
		DESIGN CHECK	APPROVED

SCALE
1:200 1:400

CLIENT
FOREVERLEN PTY LTD
LANNUM GROUP

calibre
calibregroup.com

PROJECT
**CABOOLTURE WEST
STAGE 1C**

DRAWING TITLE
BIO-BASIN LAYOUT PLAN
PROJECT No. 22-000082_1C
DRAWING No. SWDA1500
REVISION A
23/08/2023



STORMWATER MANAGEMENT PLAN – CABOOLTURE WEST –
FOREVERLEN STAGE 1C

Appendix B MUSIC Modelling Details

FOREVERLEN PTY LTD

MUSIC MODEL LAYOUT

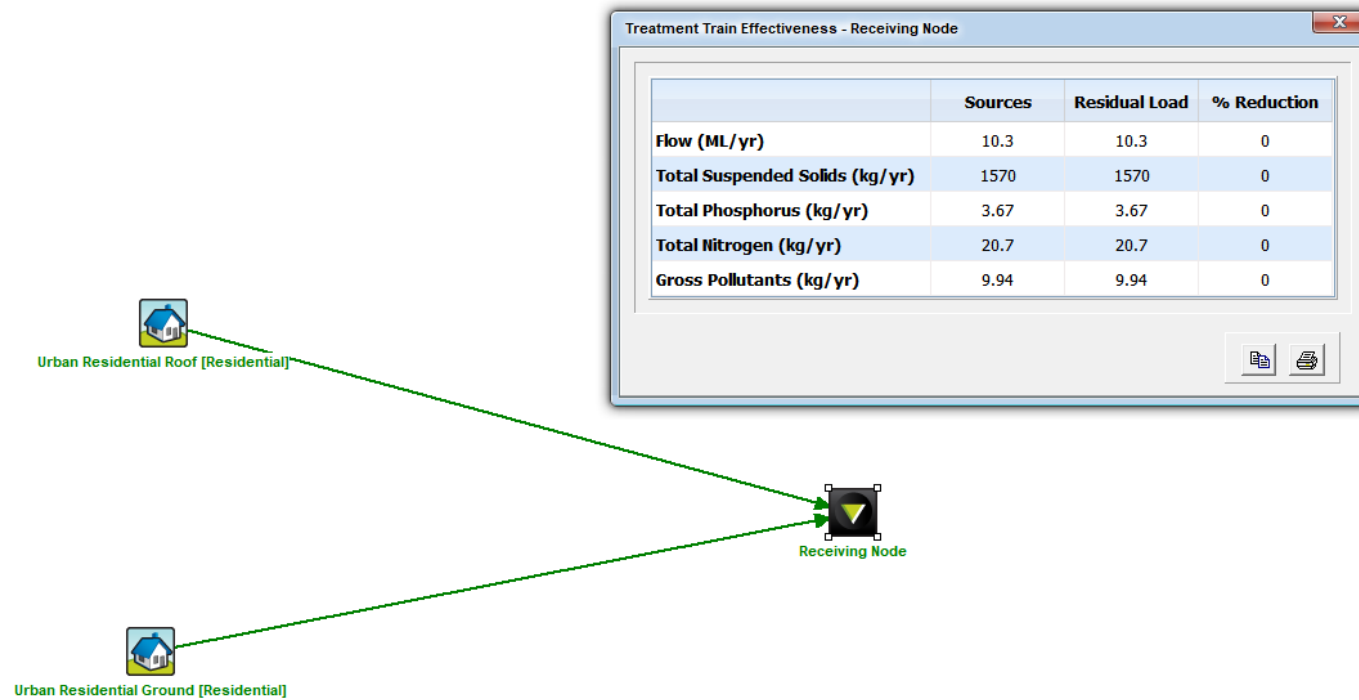
a. Existing Model

File:

[16-002108-20221026_EX_Foreverlen_Stage 1C.sqz](#)

Location:

[\\bneas01\Projects\16\002108 - NDP1 Lennium Land\6_Model\SF\SBSWMP_Stage1C_Oct2022\MUSIC\](#)



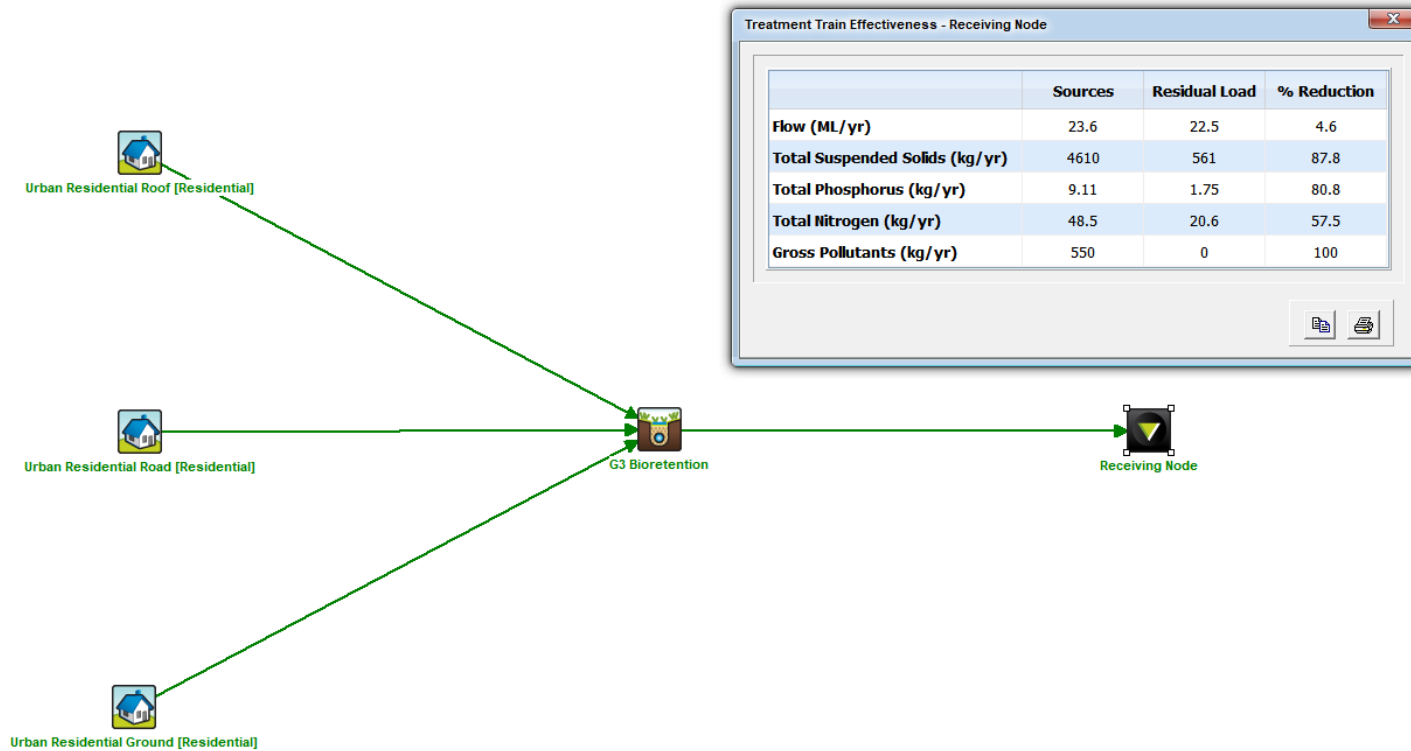
b. Developed Model

File:

[16-002108-20221026_DEV_Foreverlen_Stage1C.sqz](#)

Location:

[\\bneas01\Projects\16\002108 - NDP1 Lennium Land\6_Model\SF\SBSWMP_Stage1C_Oct2022\MUSIC\](#)





STORMWATER MANAGEMENT PLAN – CABOOLTURE WEST –
FOREVERLEN STAGE 1C

Appendix C Flood Plans

FOREVERLEN PTY LTD

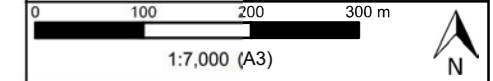


LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD HEIGHT CONTOURS (mAHD)
 - FLOOD EXTENT
- FLOOD DEPTH (m)**
- < 0.1
 - 0.1 TO 0.2
 - 0.2 TO 0.3
 - 0.3 TO 0.5
 - 0.5 TO 1.0
 - 1.0 TO 2.0
 - 2.0 TO 3.0
 - > 3.0

NOTES:

1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



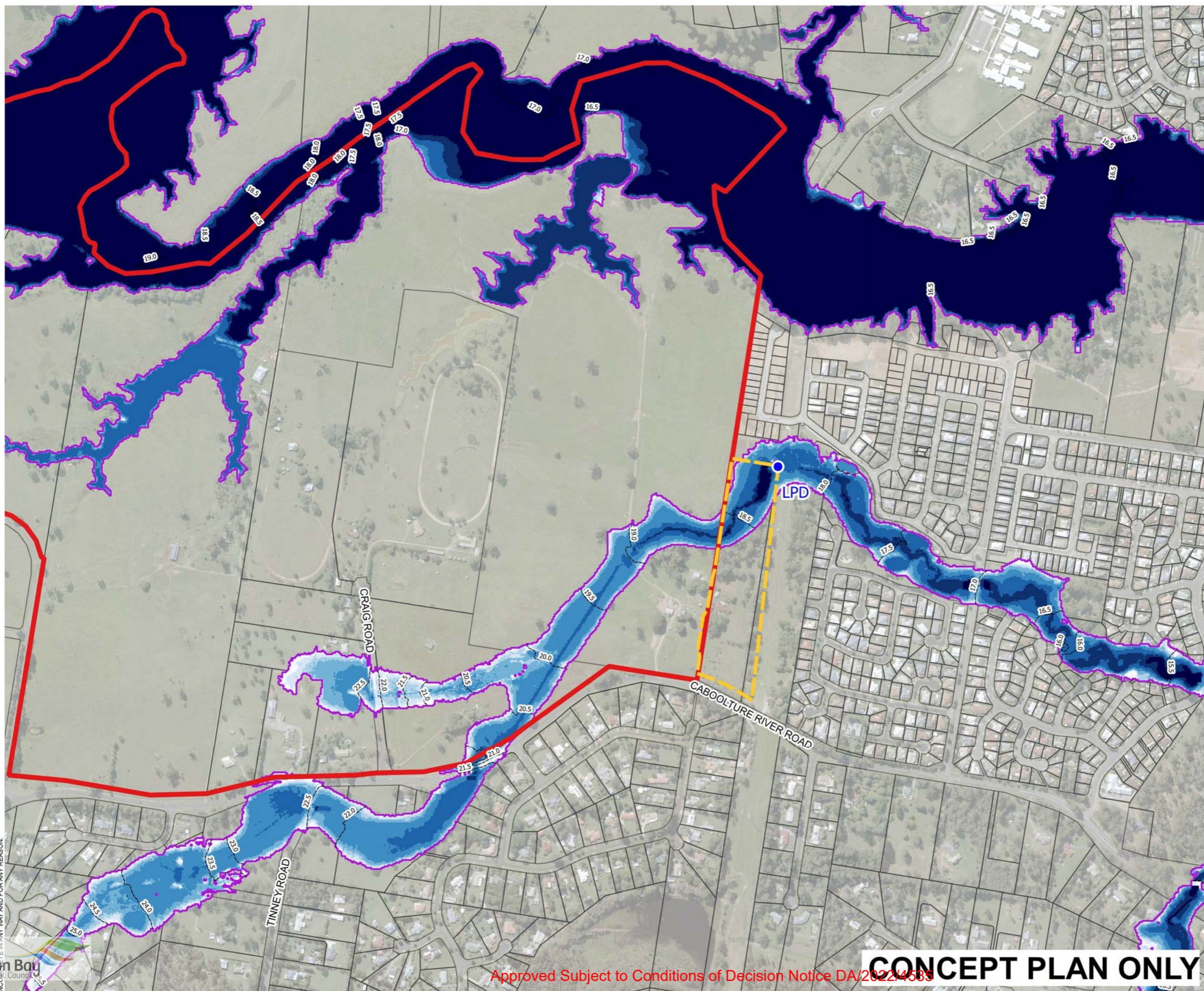
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**EXISTING SCENARIO
 0.1% AEP STORM EVENT
 MAXIMUM FLOOD DEPTH**

DRAWING NO: 16-002108-1C-E-1000-A **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				



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CONCEPT PLAN ONLY

COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994

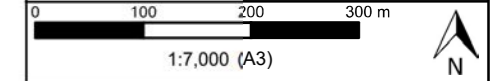
WHILE EVERY CARE IS TAKEN TO ENSURE THE ACCURACY OF DATA SOURCED THROUGH THIRD PARTIES, CALIBRE PROFESSIONAL SERVICES PTY LTD MAKES NO REPRESENTATIONS OR WARRANTIES ABOUT ITS ACCURACY, RELIABILITY, COMPLETENESS OR SUITABILITY FOR ANY PARTICULAR PURPOSE AND DISCLAIMS ALL RESPONSIBILITY AND ALL LIABILITY (INCLUDING WITHOUT LIMITATION INDIRECT OR CONSEQUENTIAL DAMAGES, LOSSES, DAMAGES (INCLUDING INDIRECT OR CONSEQUENTIAL DAMAGE) AND COSTS WHICH MIGHT BE INCURRED AS A RESULT OF THE DATA BEING INACCURATE OR INCOMPLETE IN ANY WAY AND FOR ANY REASON.



LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD VELOCITY (m/s)**
- < 0.5
 - 0.5 TO 1.0
 - 1.0 TO 2.0
 - 2.0 TO 3.0
 - 3.0 TO 4.0
 - > 4.0

- NOTES:**
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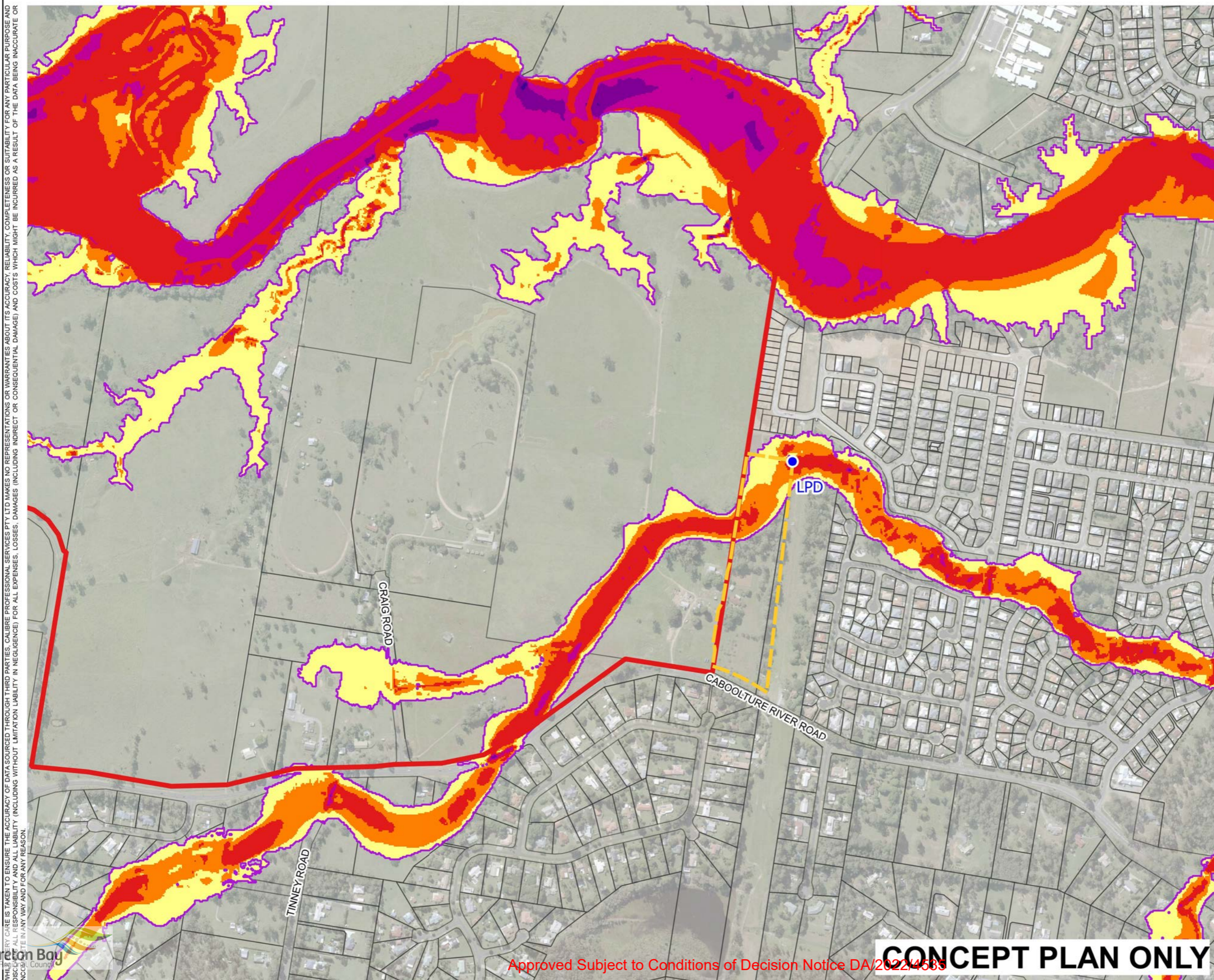
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**EXISTING SCENARIO
 0.1% AEP STORM EVENT
 MAXIMUM FLOOD VELOCITY**

DRAWING NO: 16-002108-1C-E-1000-B **ISSUE:** B

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CONCEPT PLAN ONLY

COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994



LEGEND

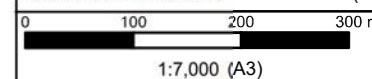
- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD HAZARD**
- H1
 - H2
 - H3
 - H4
 - H5

NOTES:

1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.

2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.

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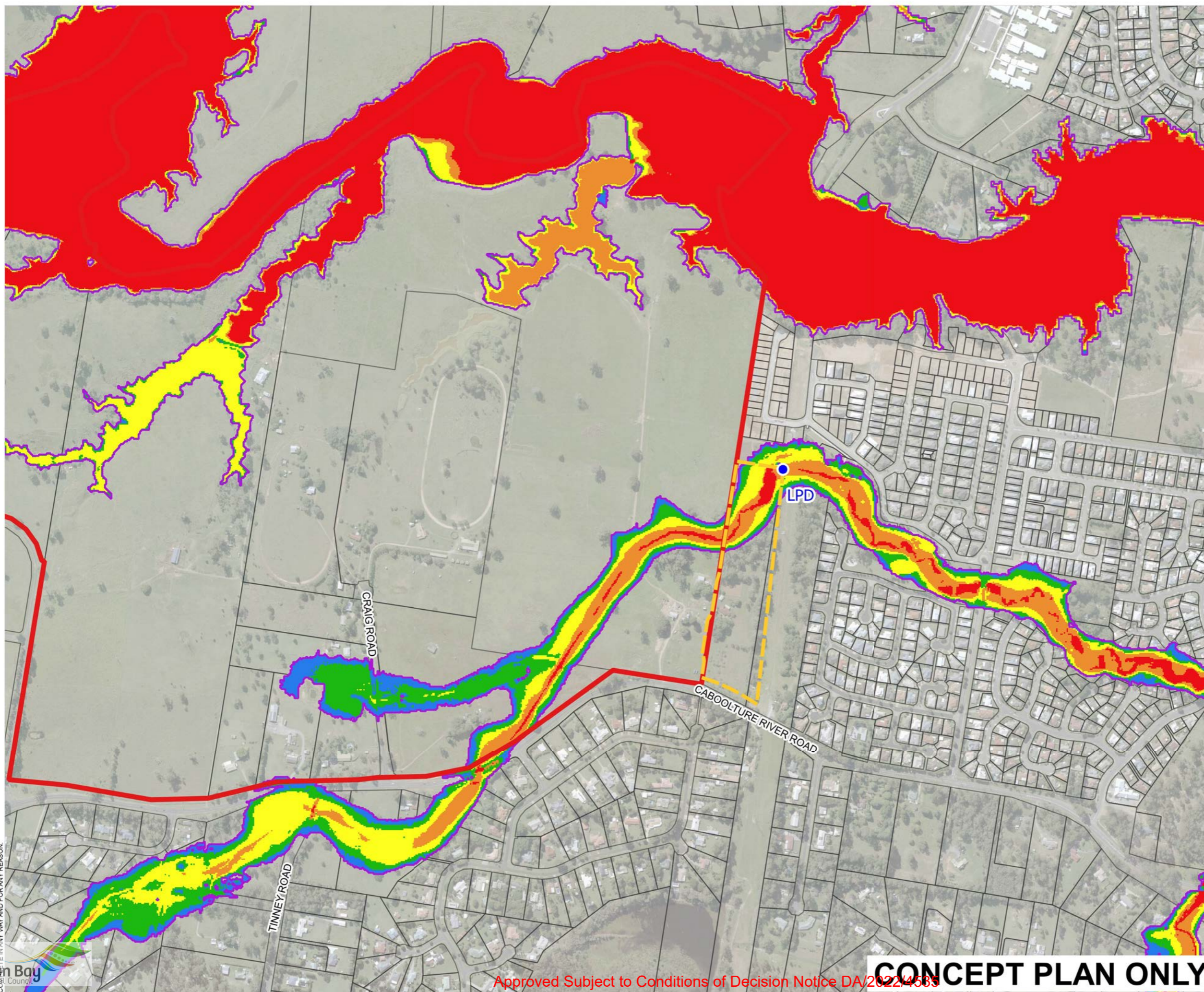
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

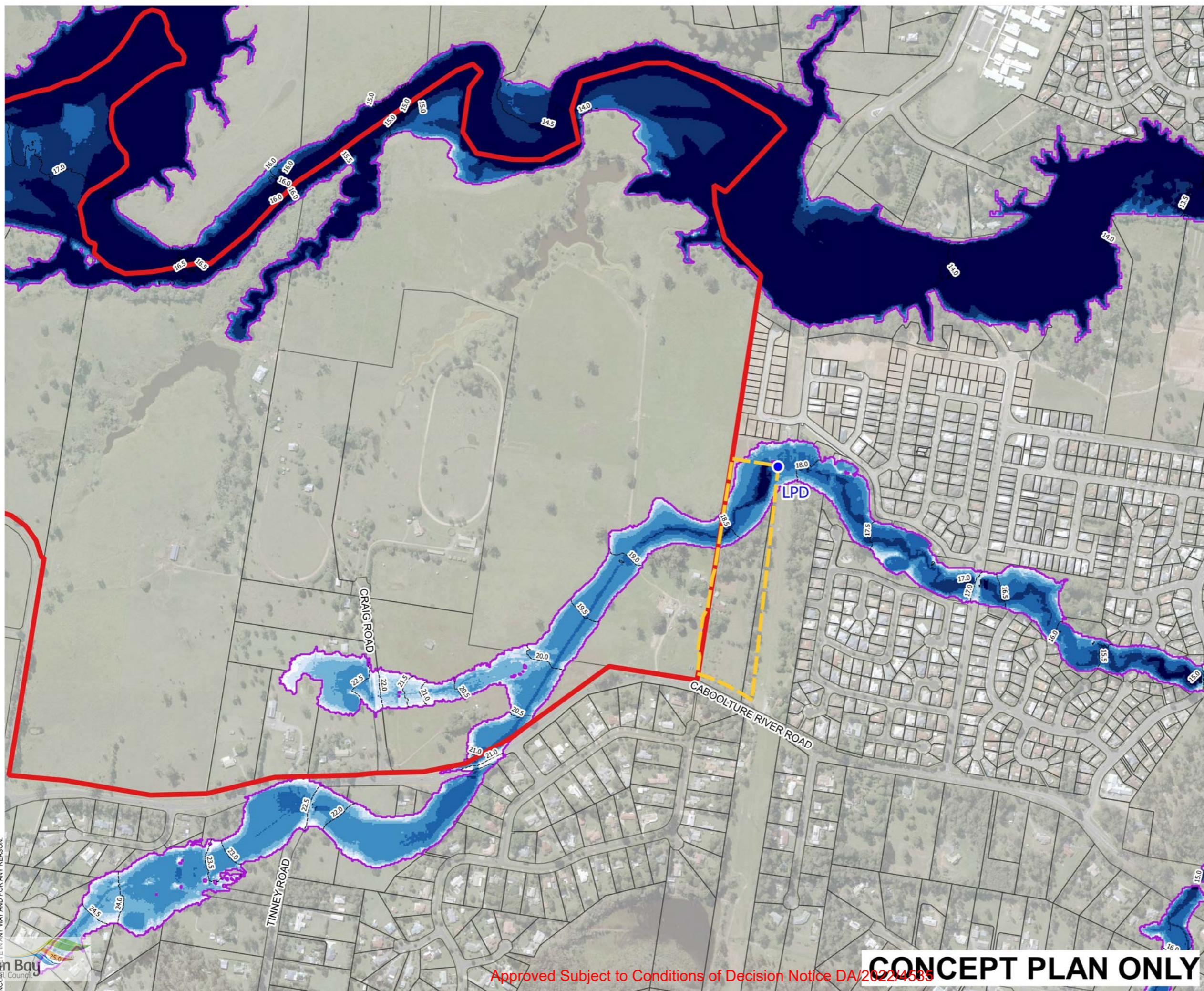
DRAWING TITLE:
EXISTING SCENARIO
0.1% AEP STORM EVENT
MAXIMUM FLOOD HAZARD

DRAWING NO: 16-002108-1C-E-1000-D **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
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LEGEND

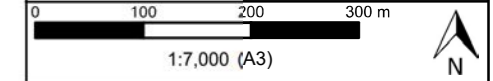
- SITE BOUNDARY STAGE (STAGE 1c)
- NDP1 BOUNDARY
- CADASTRE
- LAWFUL POINT OF DISCHARGE
- FLOOD HEIGHT CONTOURS (mAHD)
- FLOOD EXTENT

FLOOD DEPTH (m)

- < 0.1
- 0.1 TO 0.2
- 0.2 TO 0.3
- 0.3 TO 0.5
- 0.5 TO 1.0
- 1.0 TO 2.0
- 2.0 TO 3.0
- > 3.0

NOTES:

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PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**EXISTING SCENARIO
 1% AEP STORM EVENT
 MAXIMUM FLOOD DEPTH**

DRAWING NO: 16-002108-1C-E-100-A **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
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CONCEPT PLAN ONLY

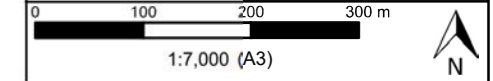
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD VELOCITY (m/s)**
- < 0.5
 - 0.5 TO 1.0
 - 1.0 TO 2.0
 - 2.0 TO 3.0
 - 3.0 TO 4.0
 - > 4.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
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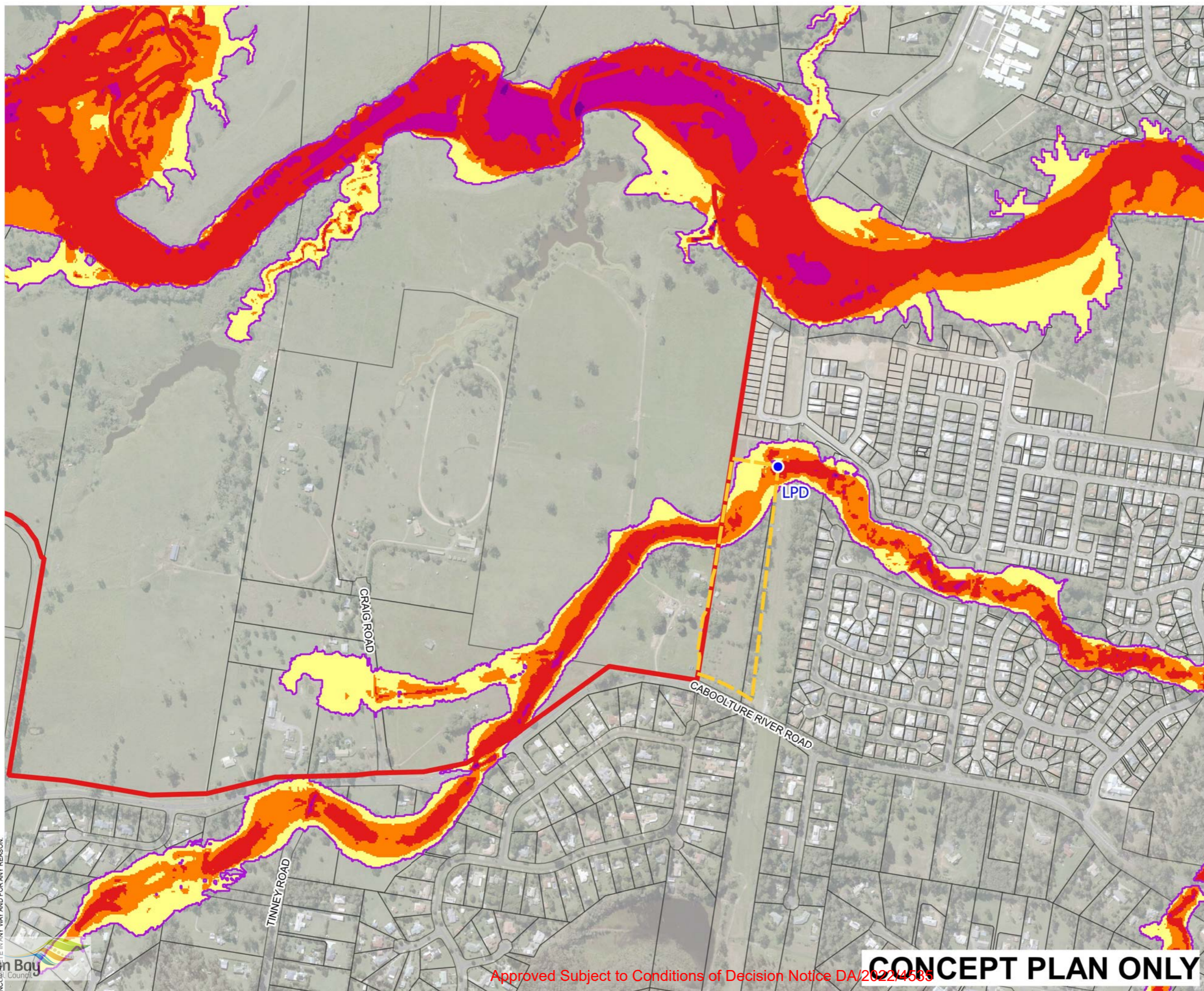
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**EXISTING SCENARIO
 1% AEP STORM EVENT
 MAXIMUM FLOOD VELOCITY**

DRAWING NO: 16-002108-1C-E-100-B **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
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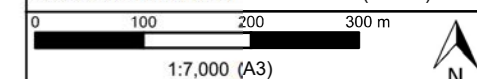
LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD HAZARD**
- H1
 - H2
 - H3
 - H4
 - H5

NOTES:
 1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.

2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.

3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



PROJECT:
 CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

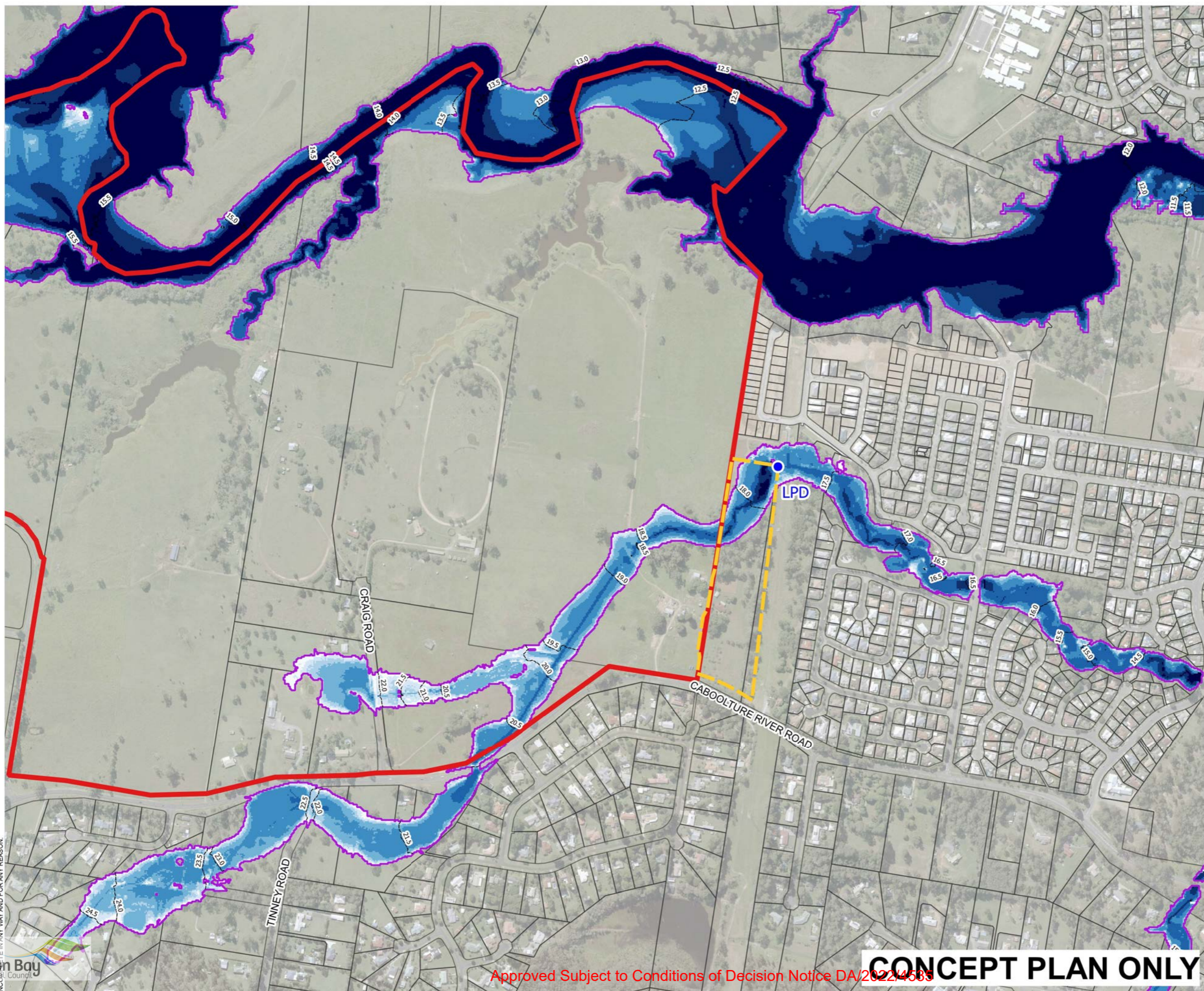
CLIENT:
 FOREVERLEN PTY LTD

DRAWING TITLE:
 EXISTING SCENARIO
 1% AEP STORM EVENT
 MAXIMUM FLOOD HAZARD

DRAWING NO: 16-002108-1C-E-100-D **ISSUE:** B

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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
- NDP1 BOUNDARY
- CADASTRE
- LAWFUL POINT OF DISCHARGE
- FLOOD HEIGHT CONTOURS (mAHD)
- FLOOD EXTENT

FLOOD DEPTH (m)

- < 0.1
- 0.1 TO 0.2
- 0.2 TO 0.3
- 0.3 TO 0.5
- 0.5 TO 1.0
- 1.0 TO 2.0
- 2.0 TO 3.0
- > 3.0

NOTES:

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3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).

0 100 200 300 m

1:7,000 (A3)

N

PROJECT: CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4																															
CLIENT: FOREVERLEN PTY LTD																															
DRAWING TITLE: EXISTING SCENARIO 5% AEP STORM EVENT MAXIMUM FLOOD DEPTH																															
DRAWING NO: 16-002108-1C-E-020-A	ISSUE: B																														
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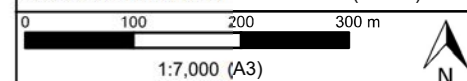
LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD VELOCITY (m/s)**
- < 0.5
 - 0.5 TO 1.0
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NOTES:
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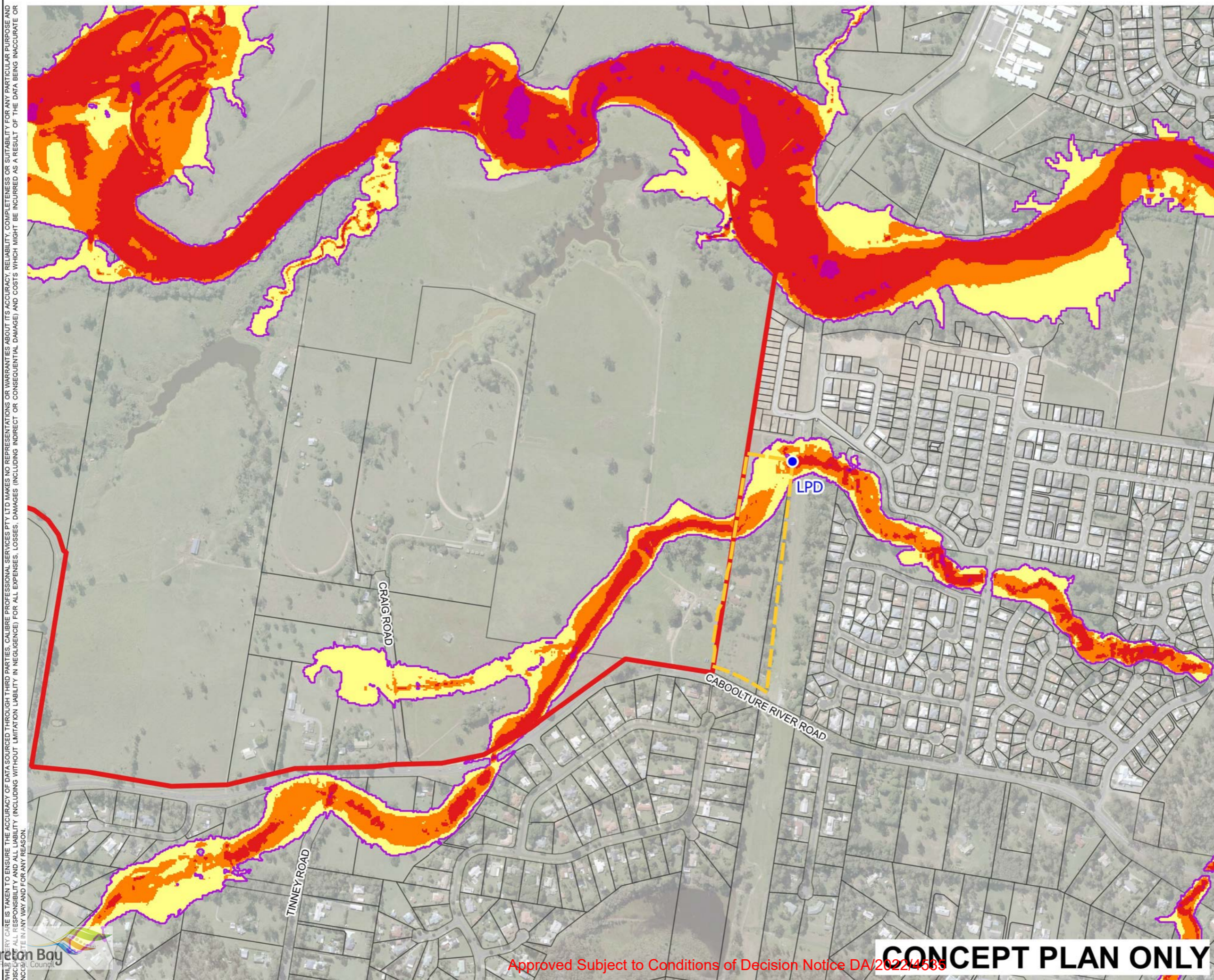
PROJECT:
 CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
 FOREVERLEN PTY LTD

DRAWING TITLE:
 EXISTING SCENARIO
 5% AEP STORM EVENT
 MAXIMUM FLOOD VELOCITY

DRAWING NO: 16-002108-1C-E-020-B **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
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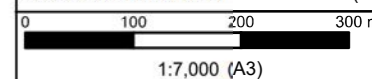
- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD HAZARD**
- H1
 - H2
 - H3
 - H4
 - H5

NOTES:

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PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

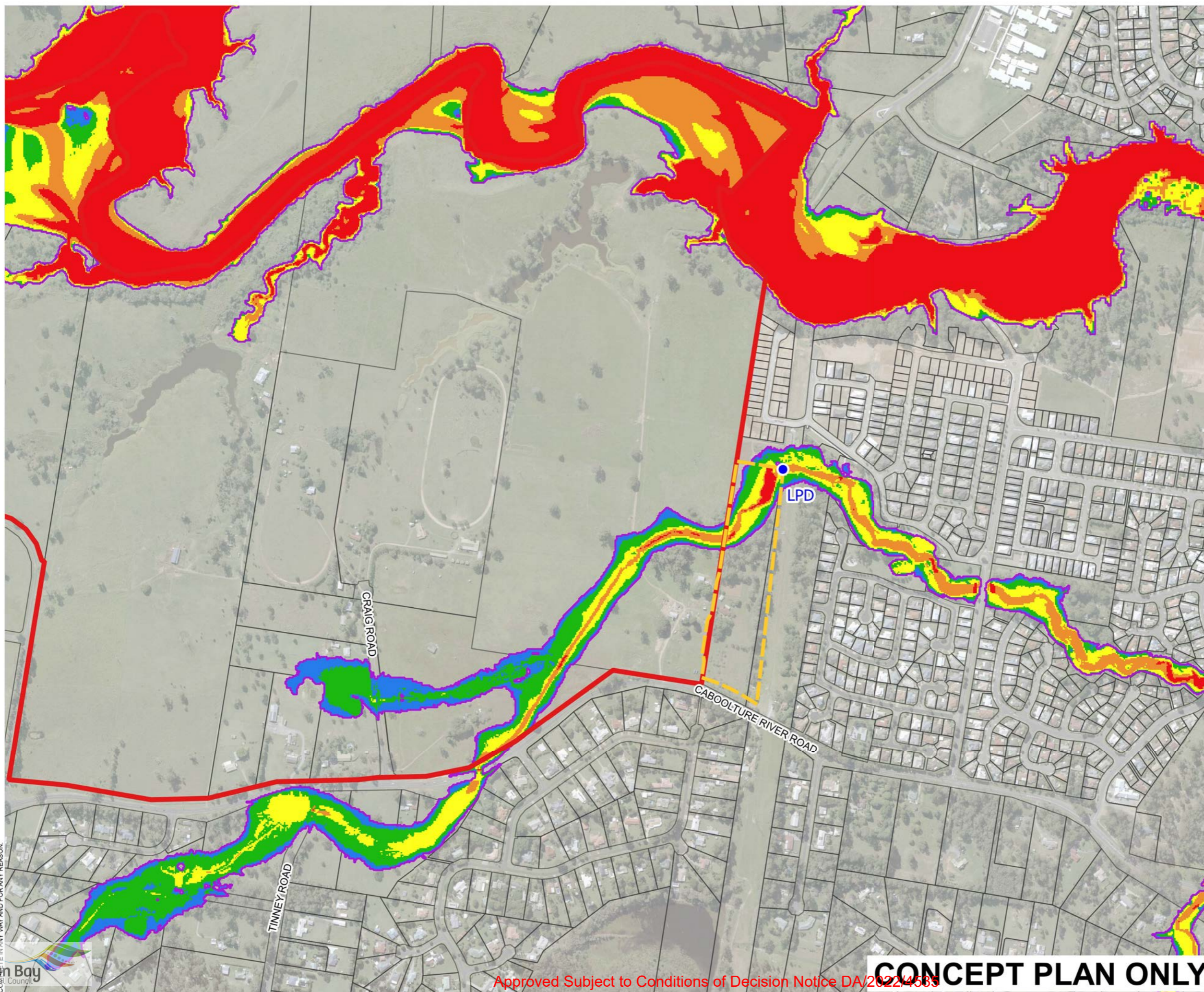
CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**EXISTING SCENARIO
5% AEP STORM EVENT
MAXIMUM FLOOD HAZARD**

DRAWING NO:
16-002108-1C-E-020-D

ISSUE:
B

ISS	BY	CHK	DATE	DETAILS
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CONCEPT PLAN ONLY

COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994

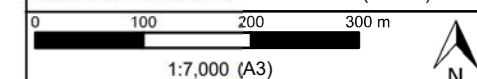
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD HEIGHT CONTOURS (mAHD)
 - FLOOD EXTENT
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 - > 3.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
 2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
 3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



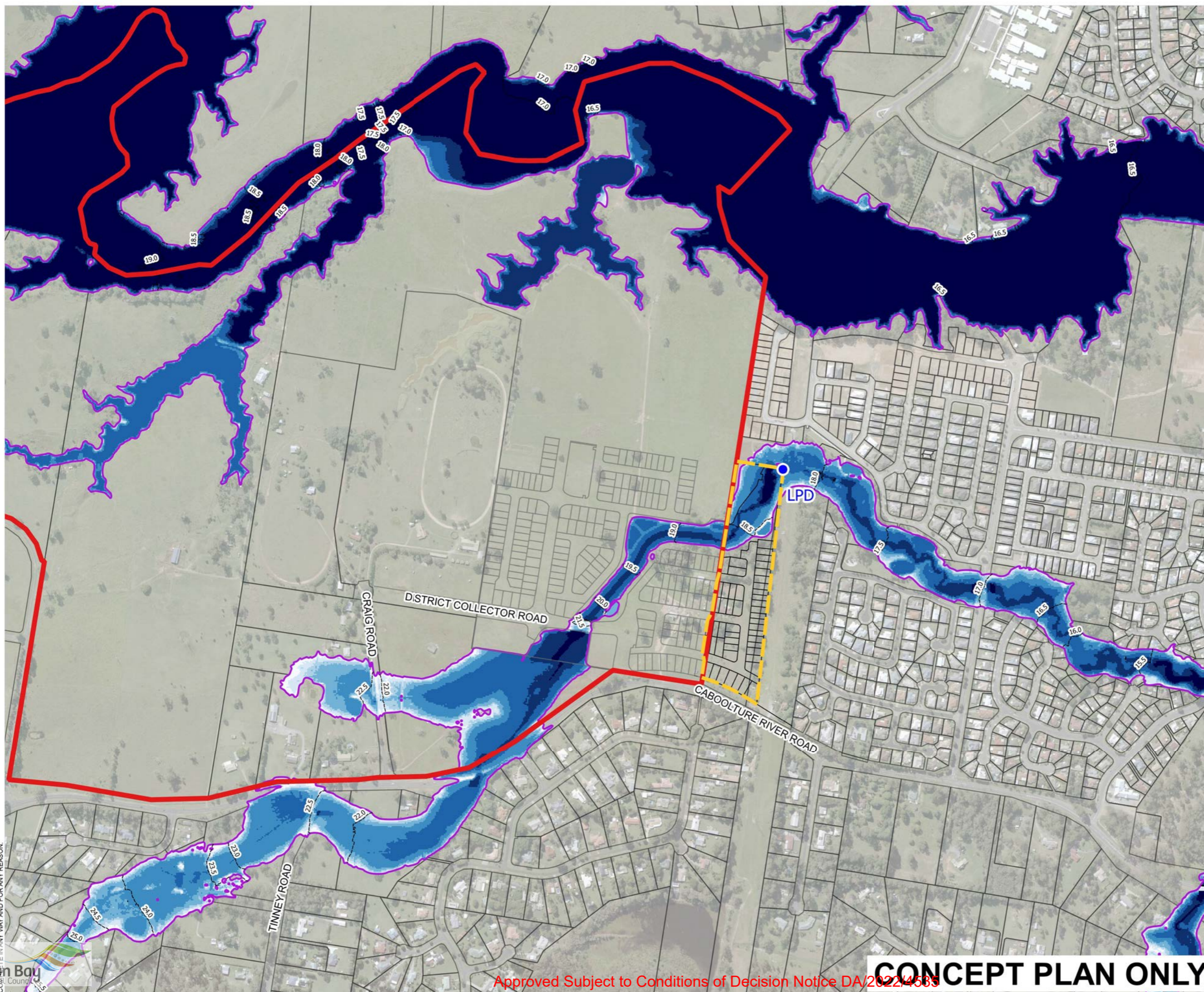
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 0.1% AEP STORM EVENT
 MAXIMUM FLOOD DEPTH**

DRAWING NO: 16-002108-1C-D-1000-A **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				



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CONCEPT PLAN ONLY



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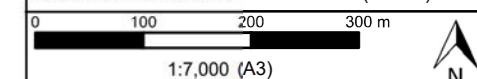
LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD VELOCITY (m/s)**
- < 0.5
 - 0.5 TO 1.0
 - 1.0 TO 2.0
 - 2.0 TO 3.0
 - 3.0 TO 4.0
 - > 4.0

NOTES:
 1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.

2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.

3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



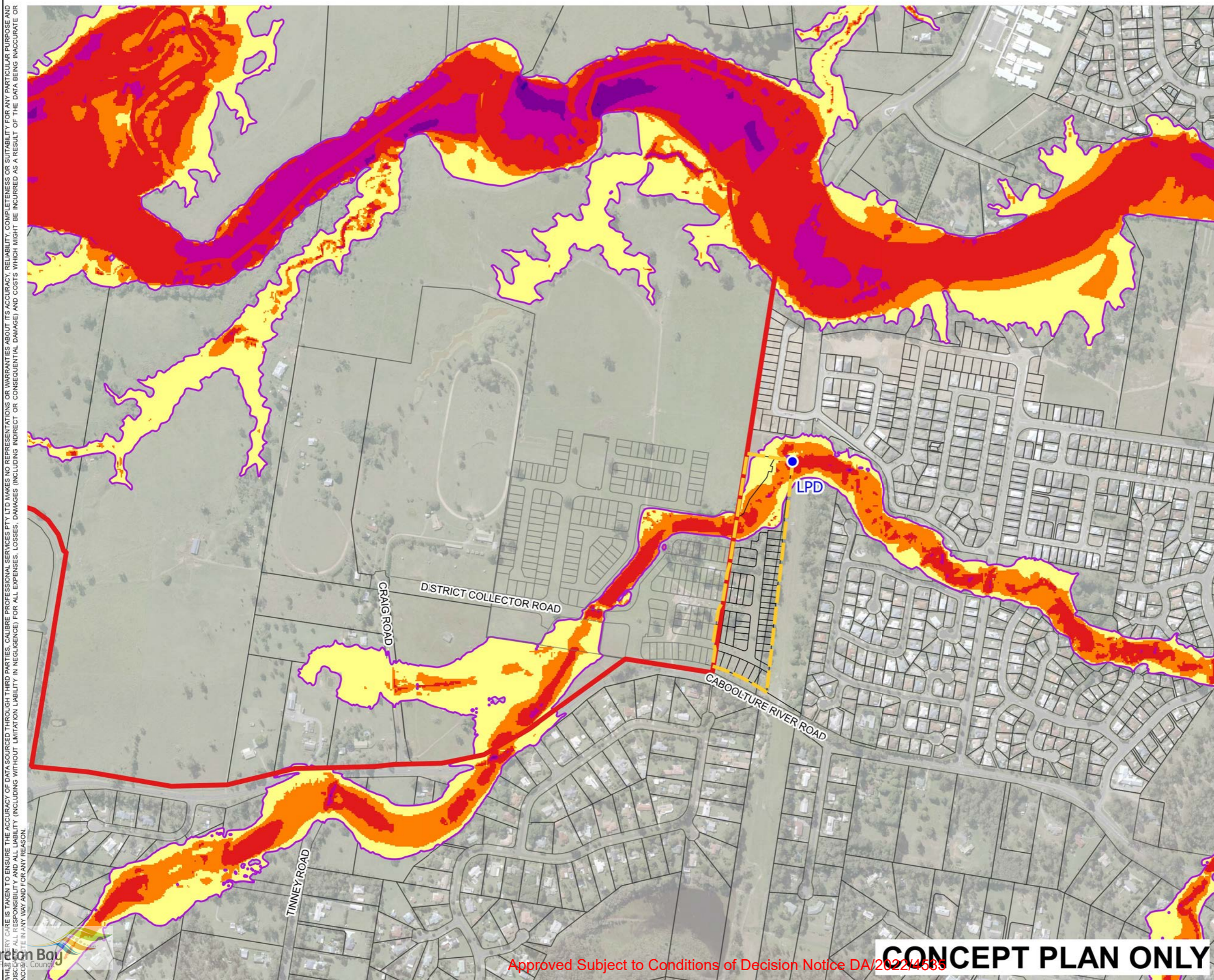
PROJECT:
 CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
 FOREVERLEN PTY LTD

DRAWING TITLE:
 DEVELOPED SCENARIO
 0.1% AEP STORM EVENT
 MAXIMUM FLOOD VELOCITY

DRAWING NO: 16-002108-1C-D-1000-B **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				



Approved Subject to Conditions of Decision Notice DA/2022/4585

CONCEPT PLAN ONLY

COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994

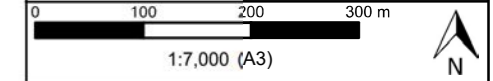
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD HAZARD**
- H1
 - H2
 - H3
 - H4
 - H5

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
 2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
 3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



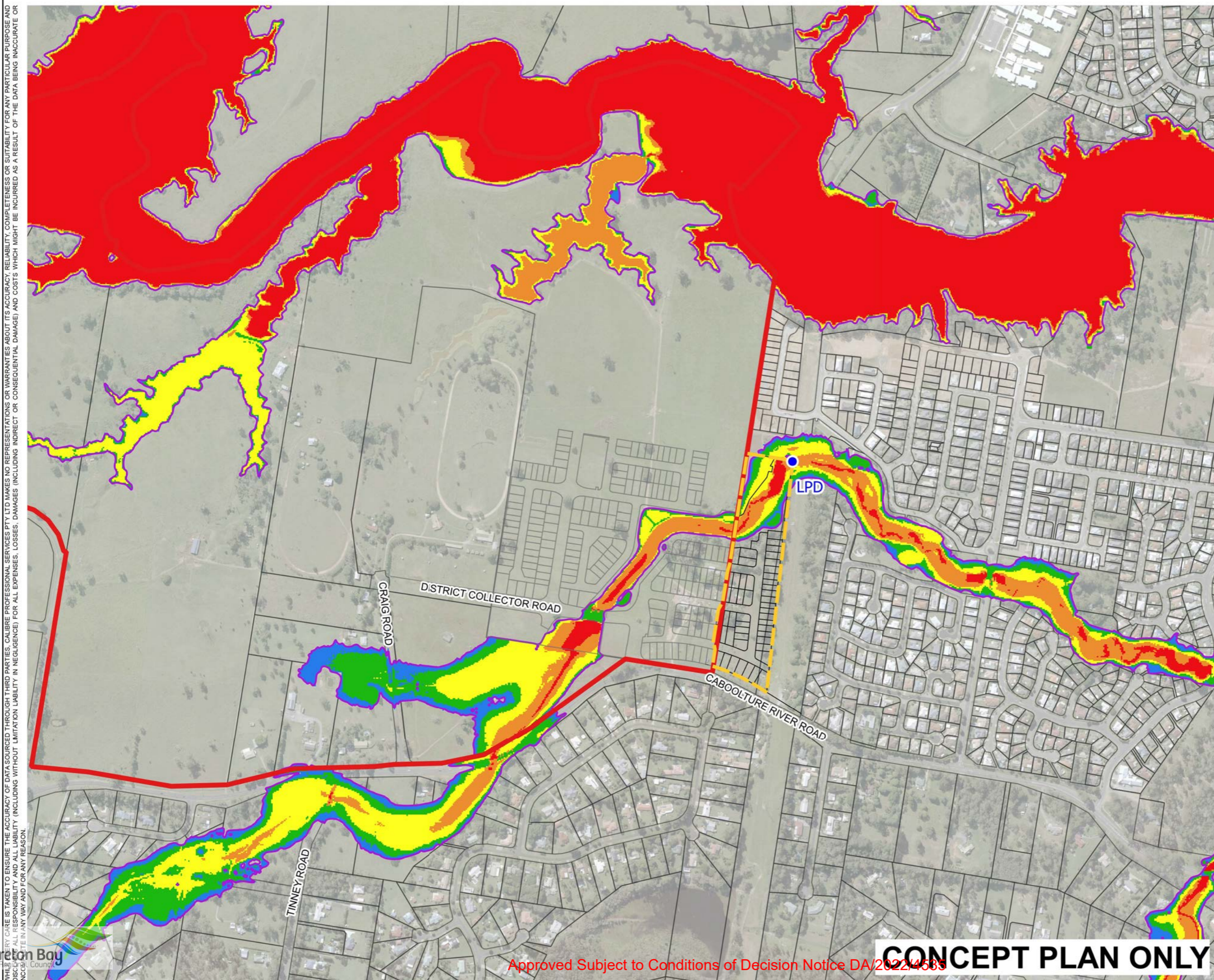
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 0.1% AEP STORM EVENT
 MAXIMUM FLOOD HAZARD**

DRAWING NO: 16-002108-1C-D-1000-D **ISSUE:** B

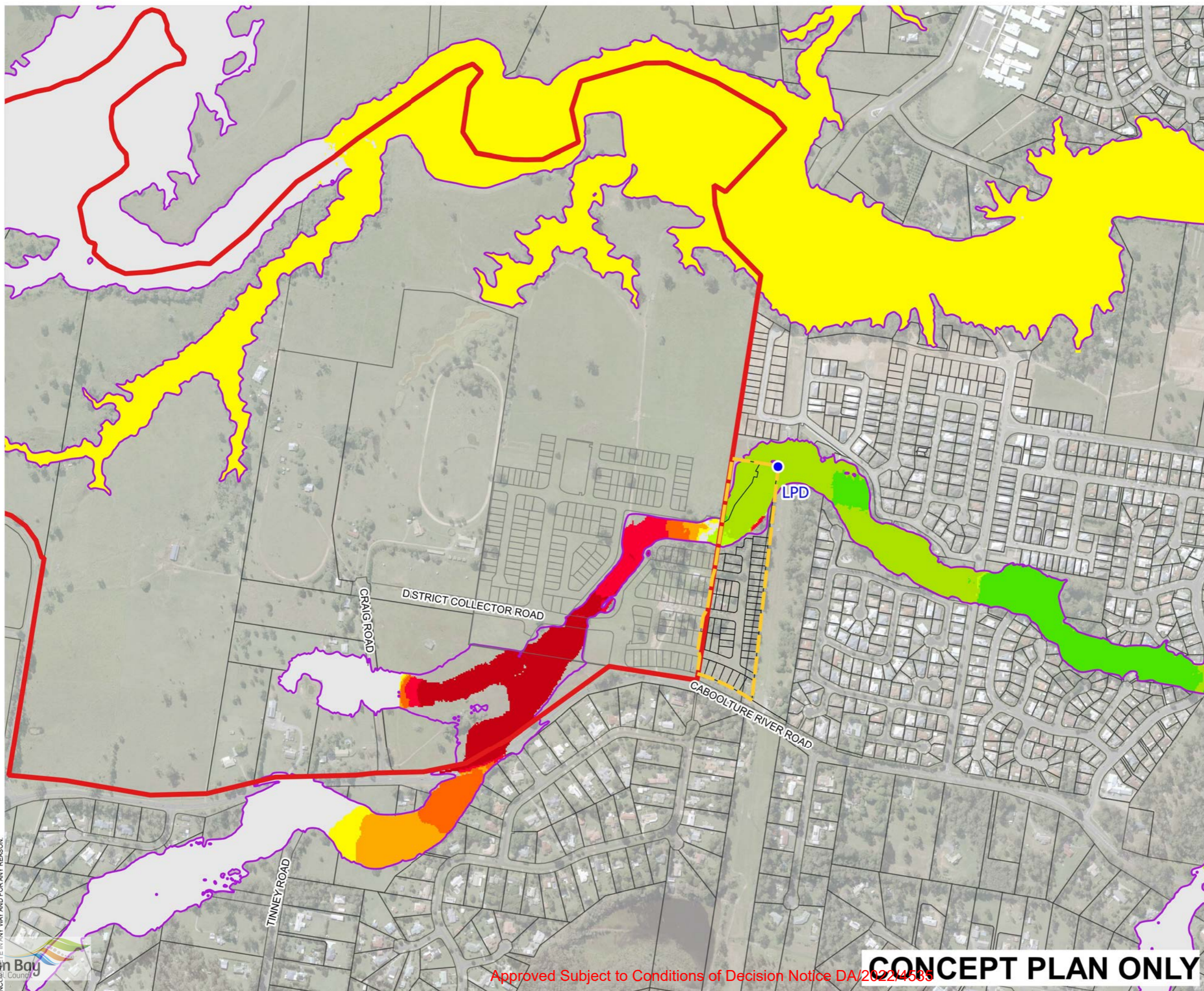
ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				



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LEGEND

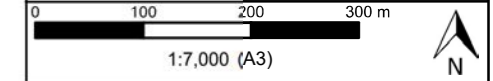
- SITE BOUNDARY STAGE (STAGE 1c)
- NDP1 BOUNDARY
- PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
- PROPOSED DEVELOPMENT LAYOUT STAGE 1c
- CADASTRE
- LAWFUL POINT OF DISCHARGE
- FLOOD EXTENT

WSL DIFFERENCE (m)

- < -0.5
- 0.5 TO -0.2
- 0.2 TO -0.1
- 0.1 TO -0.05
- 0.05 TO -0.02
- 0.02 TO 0.02
- 0.02 TO 0.05
- 0.05 TO 0.1
- 0.1 TO 0.2
- 0.2 TO 0.5
- > 0.5

NOTES:

1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 0.1% AEP STORM EVENT
 MAXIMUM FLOOD LEVEL
 DIFFERENCE**

DRAWING NO: 16-002108-1C-D-1000-E **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				

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CONCEPT PLAN ONLY

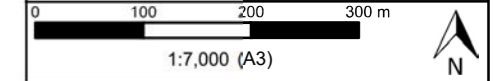
COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994



LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- VELOCITY DIFFERENCE (m/s)**
- < -1.0
 - 1.0 TO -0.5
 - 0.5 TO -0.25
 - 0.25 TO -0.1
 - 0.1 TO 0.1
 - 0.1 TO 0.25
 - 0.25 TO 0.5
 - 0.5 TO 1
 - > 1.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
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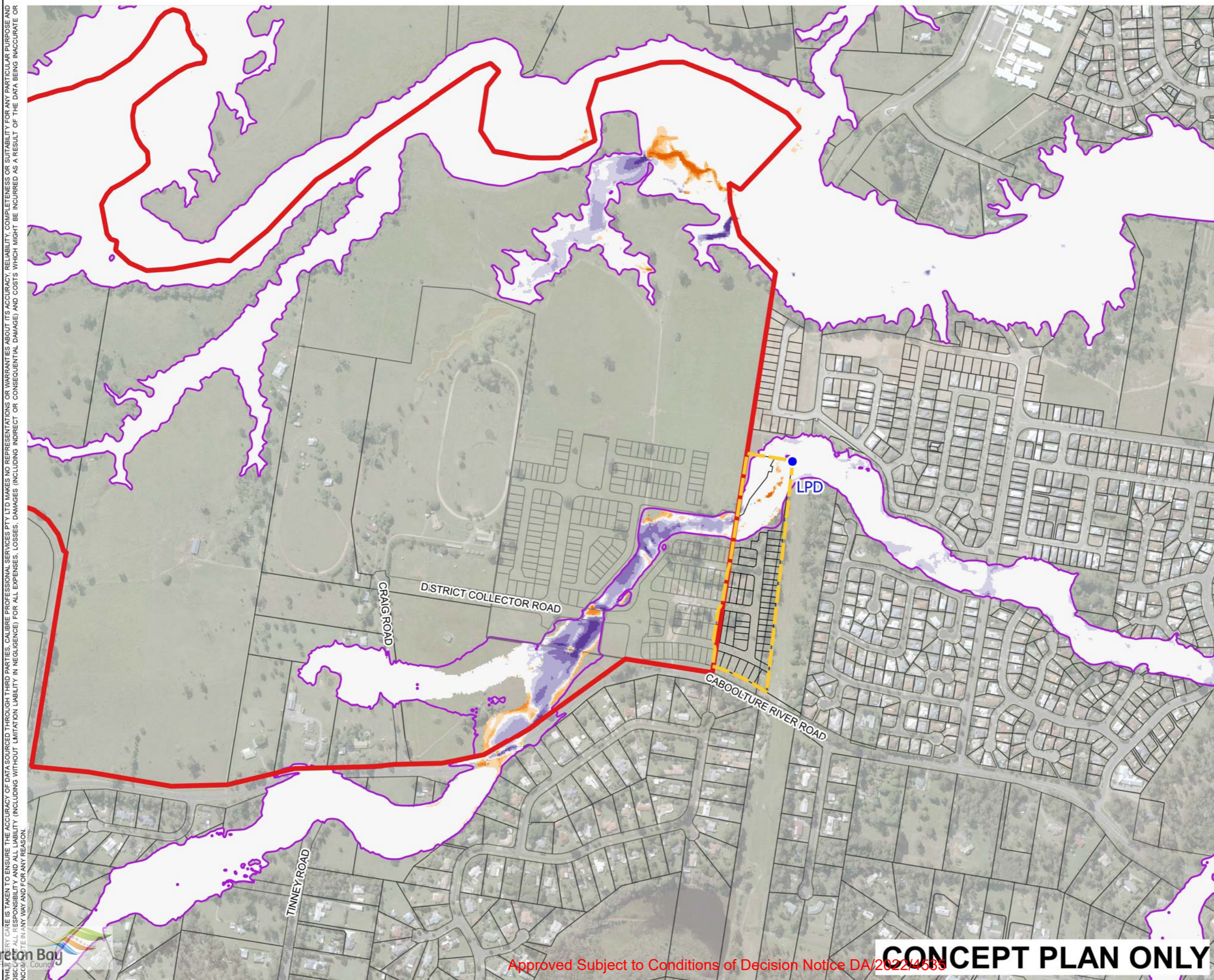
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 0.1% AEP STORM EVENT
 MAXIMUM FLOOD VELOCITY
 DIFFERENCE**

DRAWING NO: 16-002108-1C-D-1000-F **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
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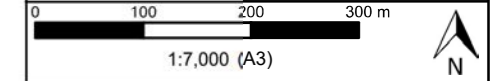
COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994



LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD HEIGHT CONTOURS (mAHD)
 - FLOOD EXTENT
- FLOOD DEPTH (m)**
- < 0.1
 - 0.1 TO 0.2
 - 0.2 TO 0.3
 - 0.3 TO 0.5
 - 0.5 TO 1.0
 - 1.0 TO 2.0
 - 2.0 TO 3.0
 - > 3.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
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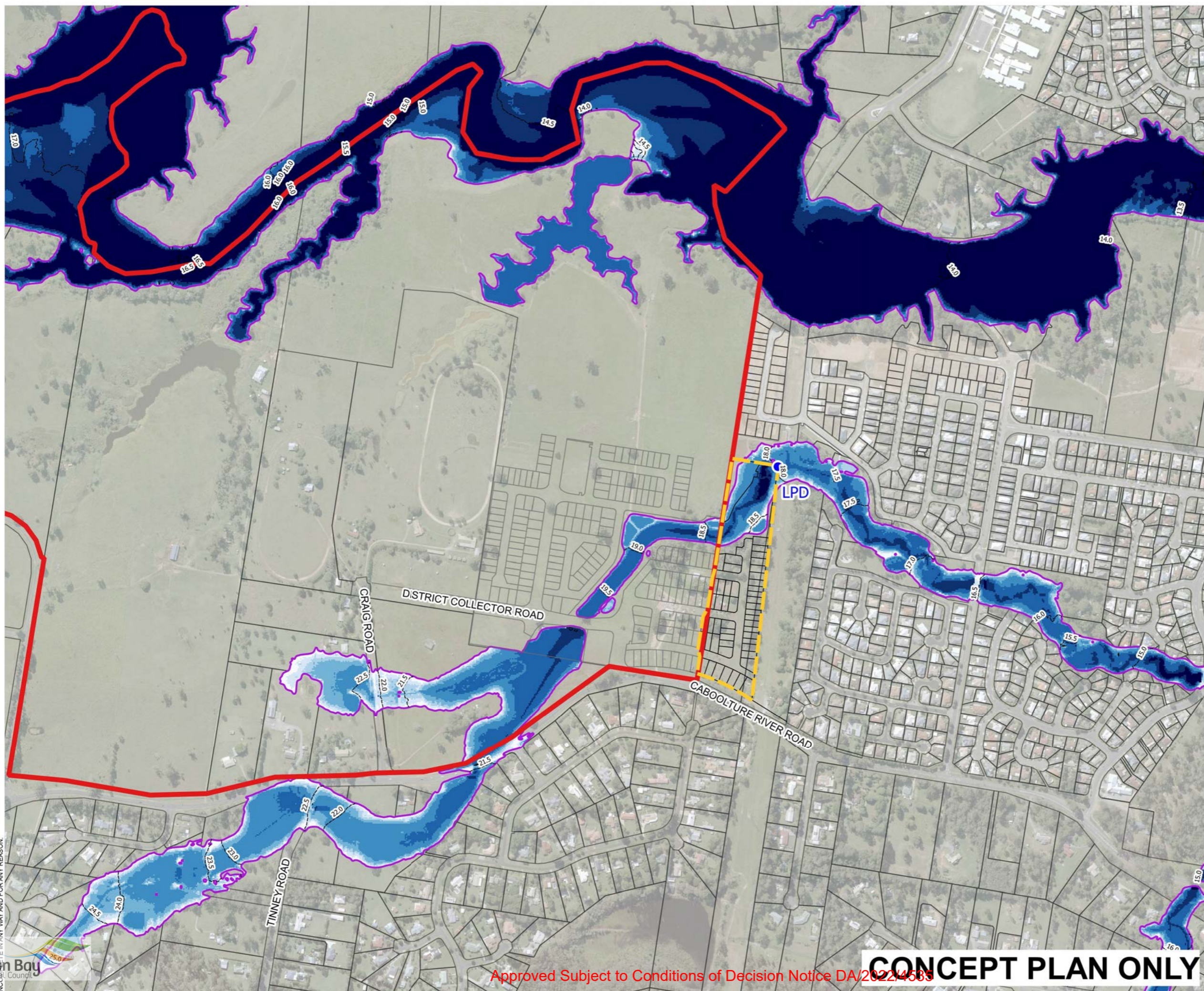
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 1% AEP STORM EVENT
 MAXIMUM FLOOD DEPTH**

DRAWING NO: 16-002108-1C-D-100-A **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
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COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994

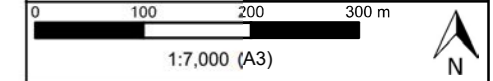
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD VELOCITY (m/s)**
- < 0.5
 - 0.5 TO 1.0
 - 1.0 TO 2.0
 - 2.0 TO 3.0
 - 3.0 TO 4.0
 - > 4.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
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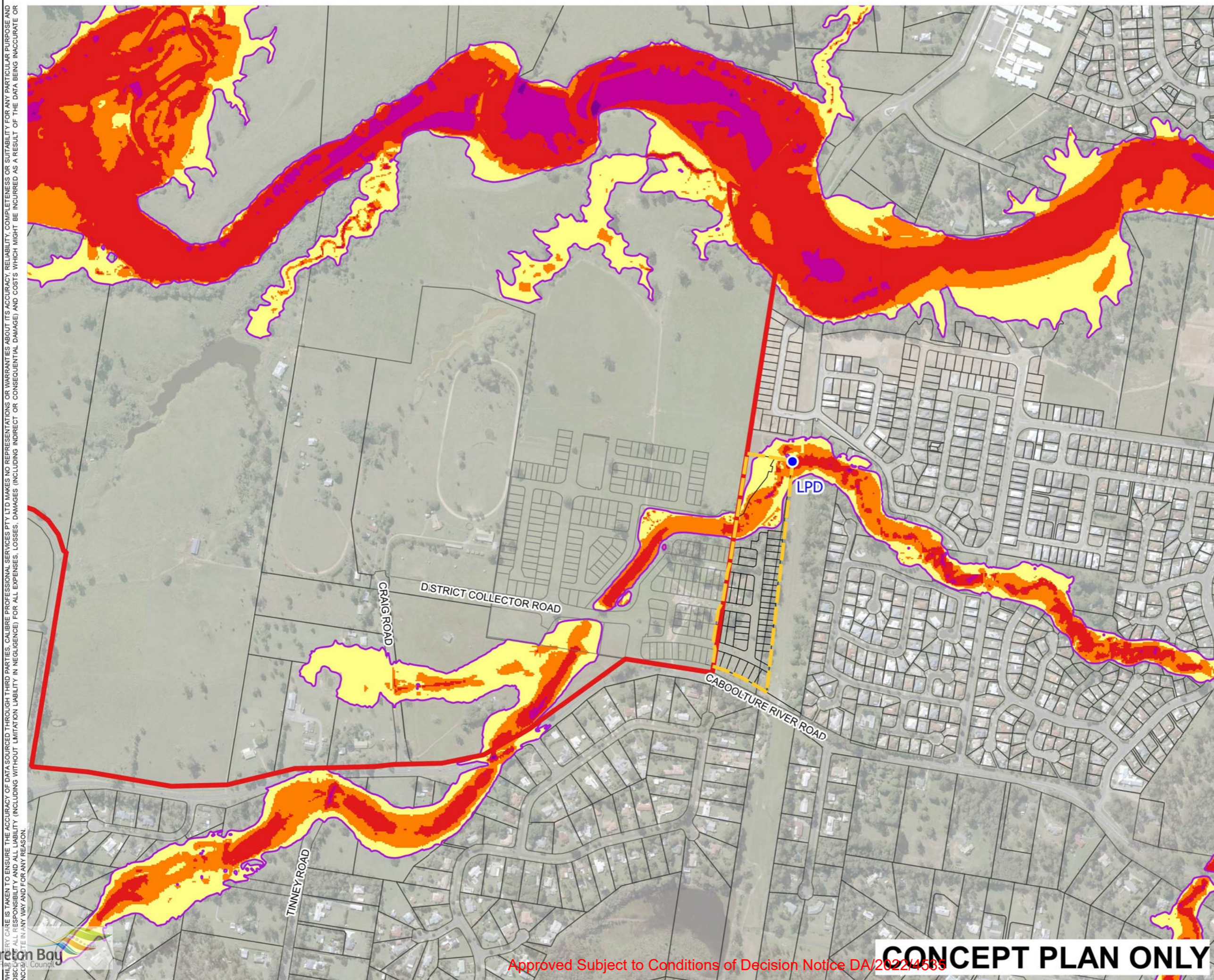
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
1% AEP STORM EVENT
MAXIMUM FLOOD VELOCITY**

DRAWING NO: **16-002108-1C-D-100-B** ISSUE: **B**

ISS	BY	CHK	DATE	DETAILS
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CONCEPT PLAN ONLY

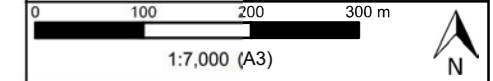
COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994



LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD HAZARD**
- H1
 - H2
 - H3
 - H4
 - H5

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
 2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
 3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 1% AEP STORM EVENT
 MAXIMUM FLOOD HAZARD**

DRAWING NO: 16-002108-1C-D-100-D **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
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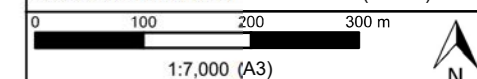
LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- WSL DIFFERENCE (m)**
- < -0.5
 - 0.5 TO -0.2
 - 0.2 TO -0.1
 - 0.1 TO -0.05
 - 0.05 TO -0.02
 - 0.02 TO 0.02
 - 0.02 TO 0.05
 - 0.05 TO 0.1
 - 0.1 TO 0.2
 - 0.2 TO 0.5
 - > 0.5

NOTES:
 1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.

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3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



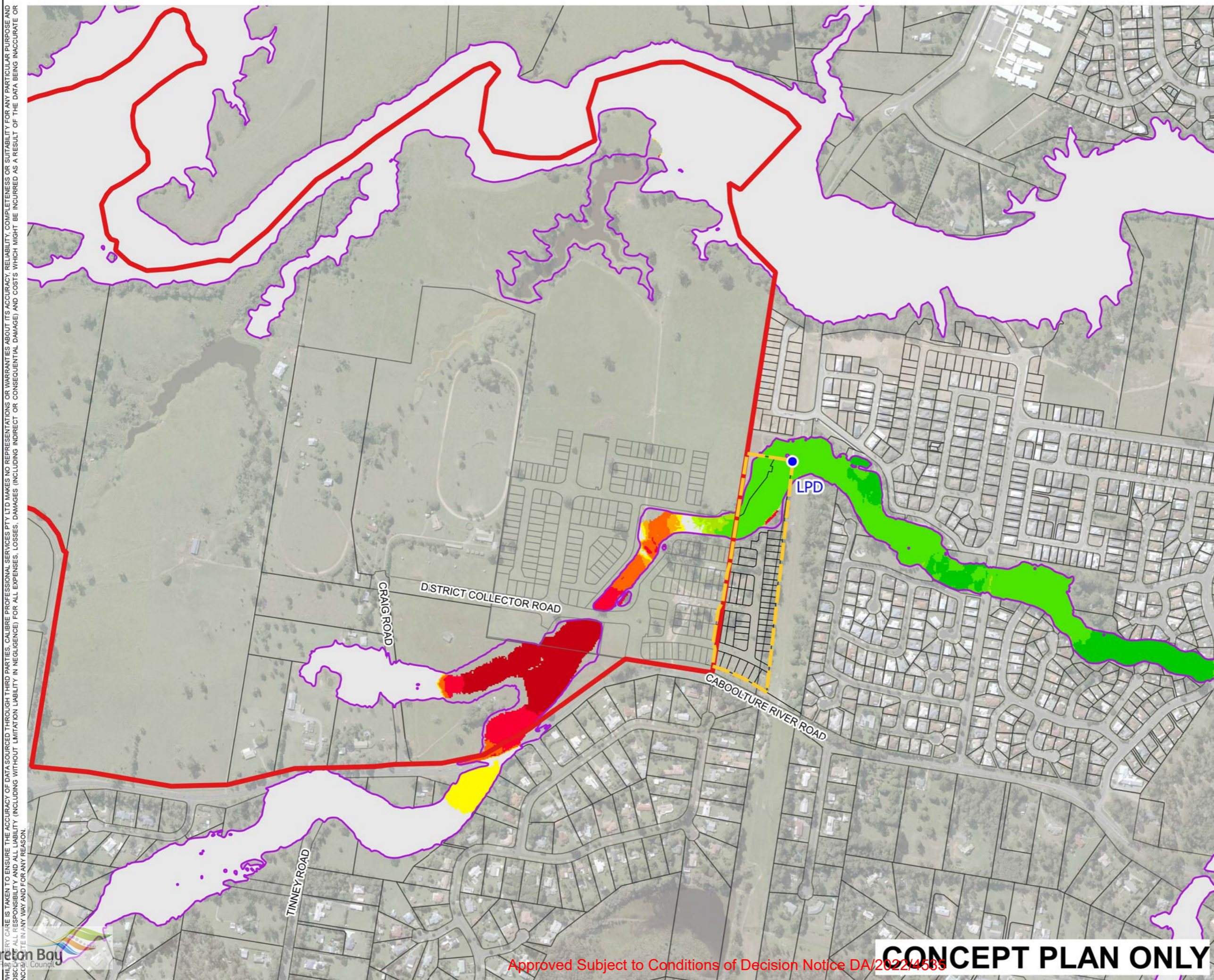
PROJECT:
 CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
 FOREVERLEN PTY LTD

DRAWING TITLE:
 DEVELOPED SCENARIO
 1% AEP STORM EVENT
 MAXIMUM FLOOD LEVEL
 DIFFERENCE

DRAWING NO: 16-002108-1C-D-100-E **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
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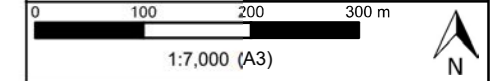
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- VELOCITY DIFFERENCE (m/s)**
- < -1.0
 - 1.0 TO -0.5
 - 0.5 TO -0.25
 - 0.25 TO -0.1
 - 0.1 TO 0.1
 - 0.1 TO 0.25
 - 0.25 TO 0.5
 - 0.5 TO 1
 - > 1.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
 2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
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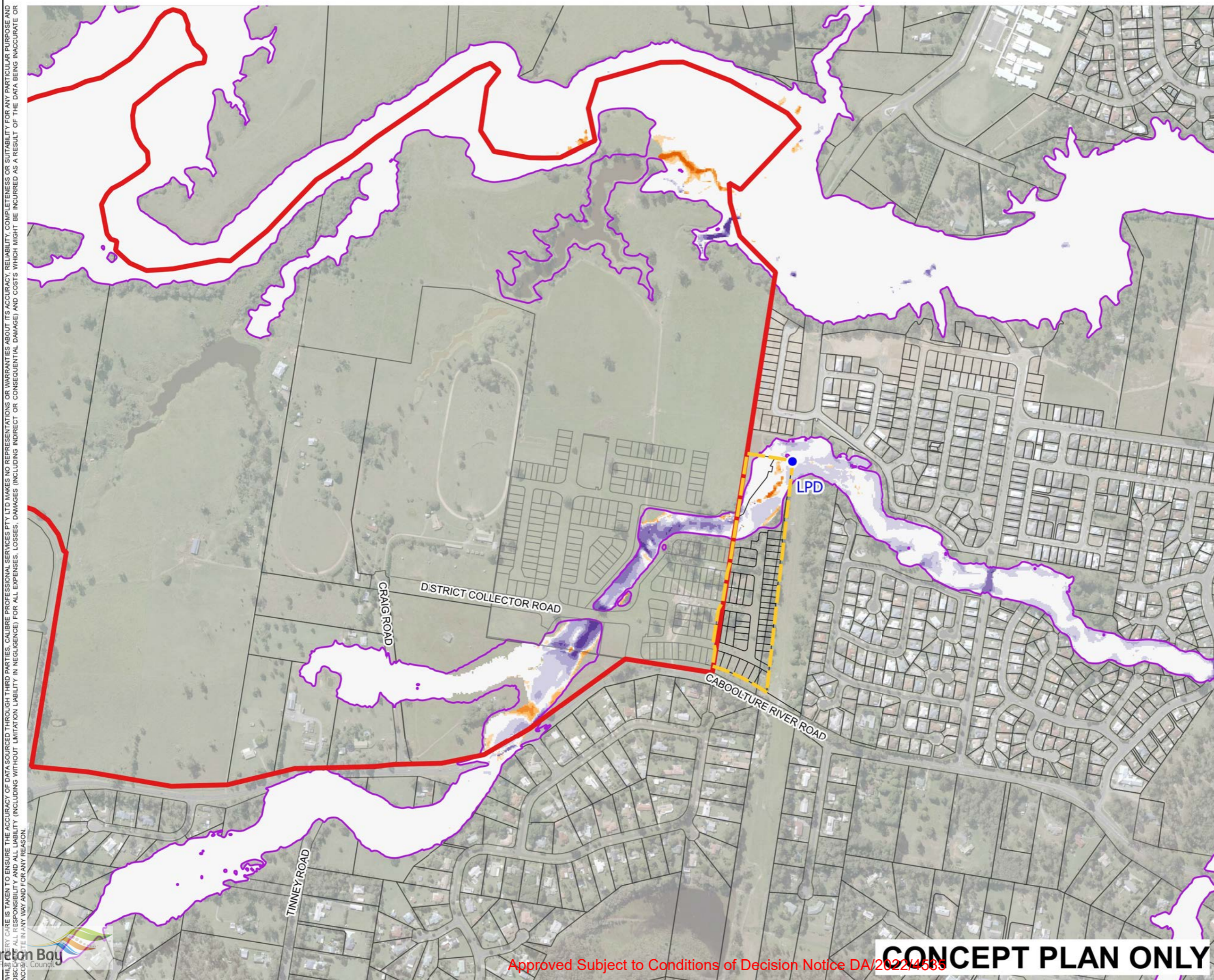
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 1% AEP STORM EVENT
 MAXIMUM FLOOD VELOCITY
 DIFFERENCE**

DRAWING NO: 16-002108-1C-D-100-F **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
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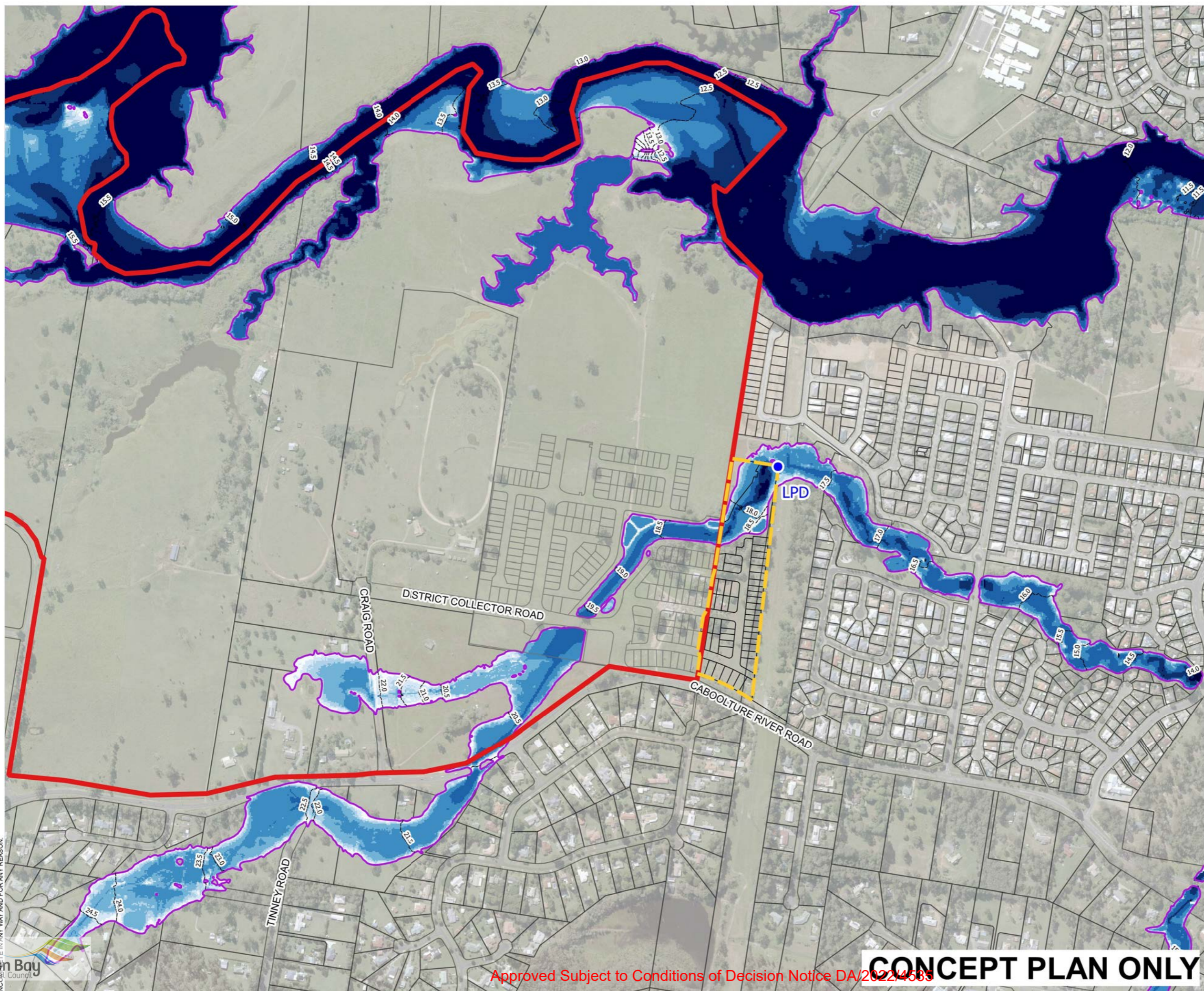
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COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994



LEGEND

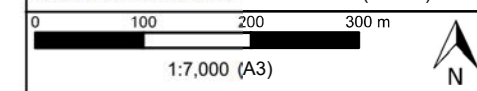
- SITE BOUNDARY STAGE (STAGE 1c)
- NDP1 BOUNDARY
- PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
- PROPOSED DEVELOPMENT LAYOUT STAGE 1c
- CADASTRE
- LAWFUL POINT OF DISCHARGE
- FLOOD HEIGHT CONTOURS (mAHD)
- FLOOD EXTENT

FLOOD DEPTH (m)

- < 0.1
- 0.1 TO 0.2
- 0.2 TO 0.3
- 0.3 TO 0.5
- 0.5 TO 1.0
- 1.0 TO 2.0
- 2.0 TO 3.0
- > 3.0

NOTES:

1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
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3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 5% AEP STORM EVENT
 MAXIMUM FLOOD DEPTH**

DRAWING NO: 16-002108-1C-D-020-A **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				

Approved Subject to Conditions of Decision Notice DA/2022/4585

CONCEPT PLAN ONLY

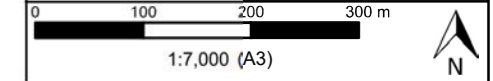
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD VELOCITY (m/s)**
- < 0.5
 - 0.5 TO 1.0
 - 1.0 TO 2.0
 - 2.0 TO 3.0
 - 3.0 TO 4.0
 - > 4.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
 2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
 3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



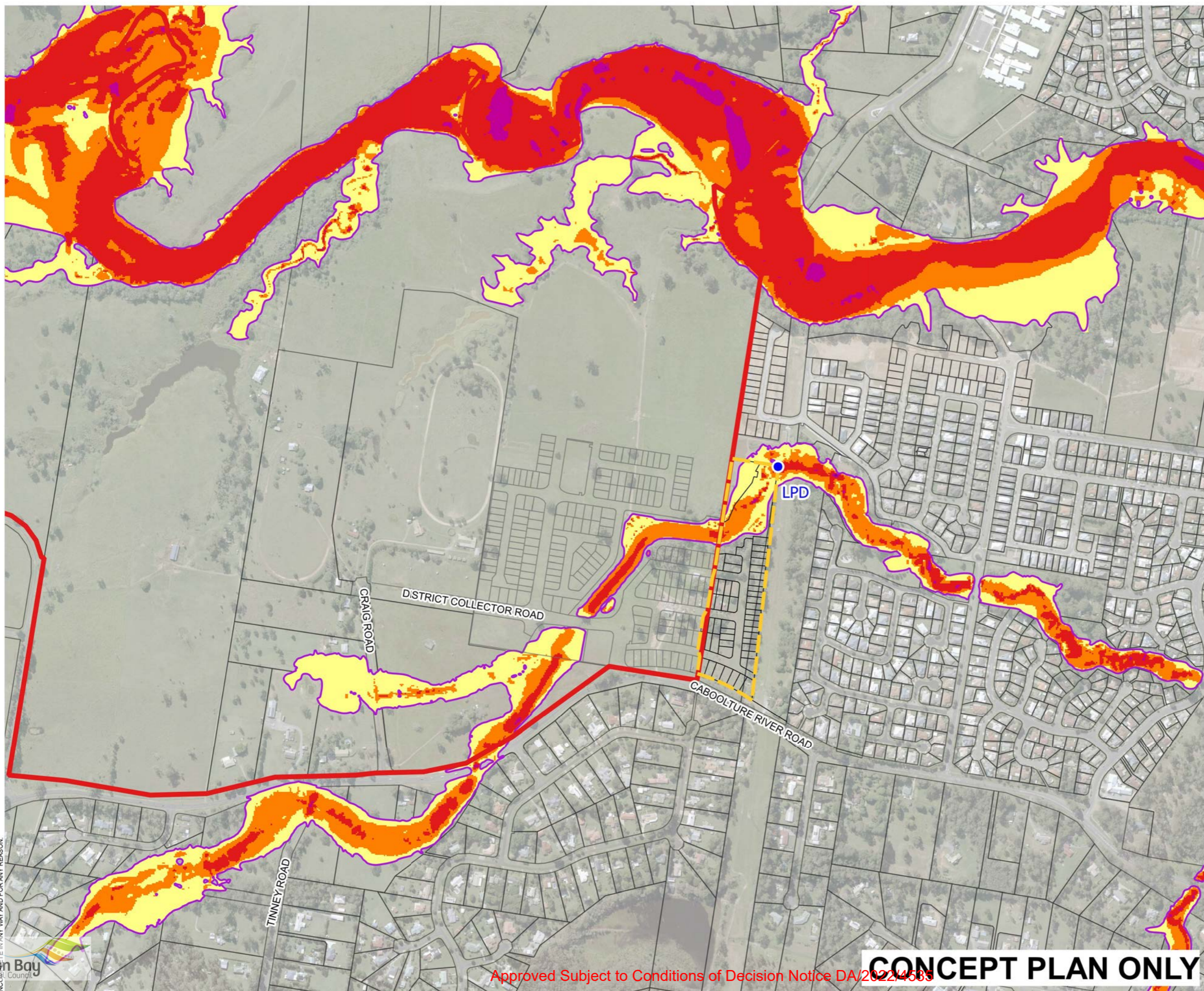
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
5% AEP STORM EVENT
MAXIMUM FLOOD VELOCITY**

DRAWING NO: **16-002108-1C-D-020-B** ISSUE: **B**

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				



WHILE EVERY CARE IS TAKEN TO ENSURE THE ACCURACY OF DATA SOURCED THROUGH THIRD PARTIES, CALIBRE PROFESSIONAL SERVICES PTY LTD MAKES NO REPRESENTATIONS OR WARRANTIES ABOUT ITS ACCURACY, RELIABILITY, COMPLETENESS OR SUITABILITY FOR ANY PARTICULAR PURPOSE AND DISCLAIMS ALL RESPONSIBILITY AND ALL LIABILITY (INCLUDING WITHOUT LIMITATION INDIRECT OR CONSEQUENTIAL DAMAGES, LOSSES, DAMAGES (INCLUDING INDIRECT OR CONSEQUENTIAL DAMAGE) AND COSTS WHICH MIGHT BE INCURRED AS A RESULT OF THE DATA BEING INACCURATE OR INCOMPLETE IN ANY WAY AND FOR ANY REASON.



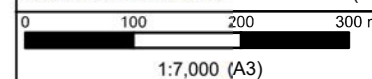
LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- FLOOD HAZARD**
- H1
 - H2
 - H3
 - H4
 - H5

NOTES:
 1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.

2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.

3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



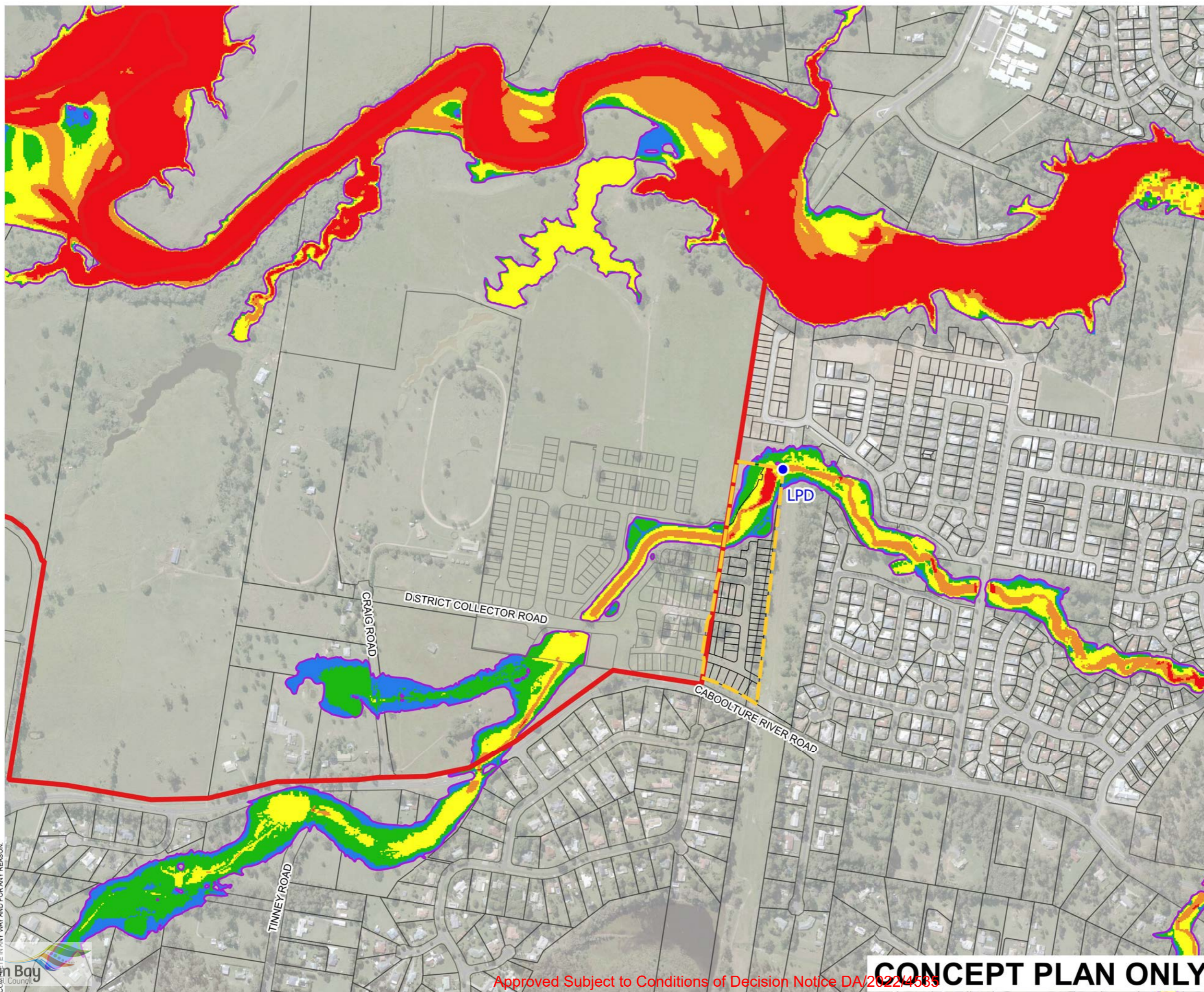
PROJECT:
 CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
 FOREVERLEN PTY LTD

DRAWING TITLE:
 DEVELOPED SCENARIO
 5% AEP STORM EVENT
 MAXIMUM FLOOD HAZARD

DRAWING NO: 16-002108-1C-D-020-D **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				



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CONCEPT PLAN ONLY

COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994

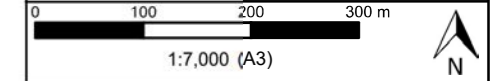
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- WSL DIFFERENCE (m)**
- < -0.5
 - 0.5 TO -0.2
 - 0.2 TO -0.1
 - 0.1 TO -0.05
 - 0.05 TO -0.02
 - 0.02 TO 0.02
 - 0.02 TO 0.05
 - 0.05 TO 0.1
 - 0.1 TO 0.2
 - 0.2 TO 0.5
 - > 0.5

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
 2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
 3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



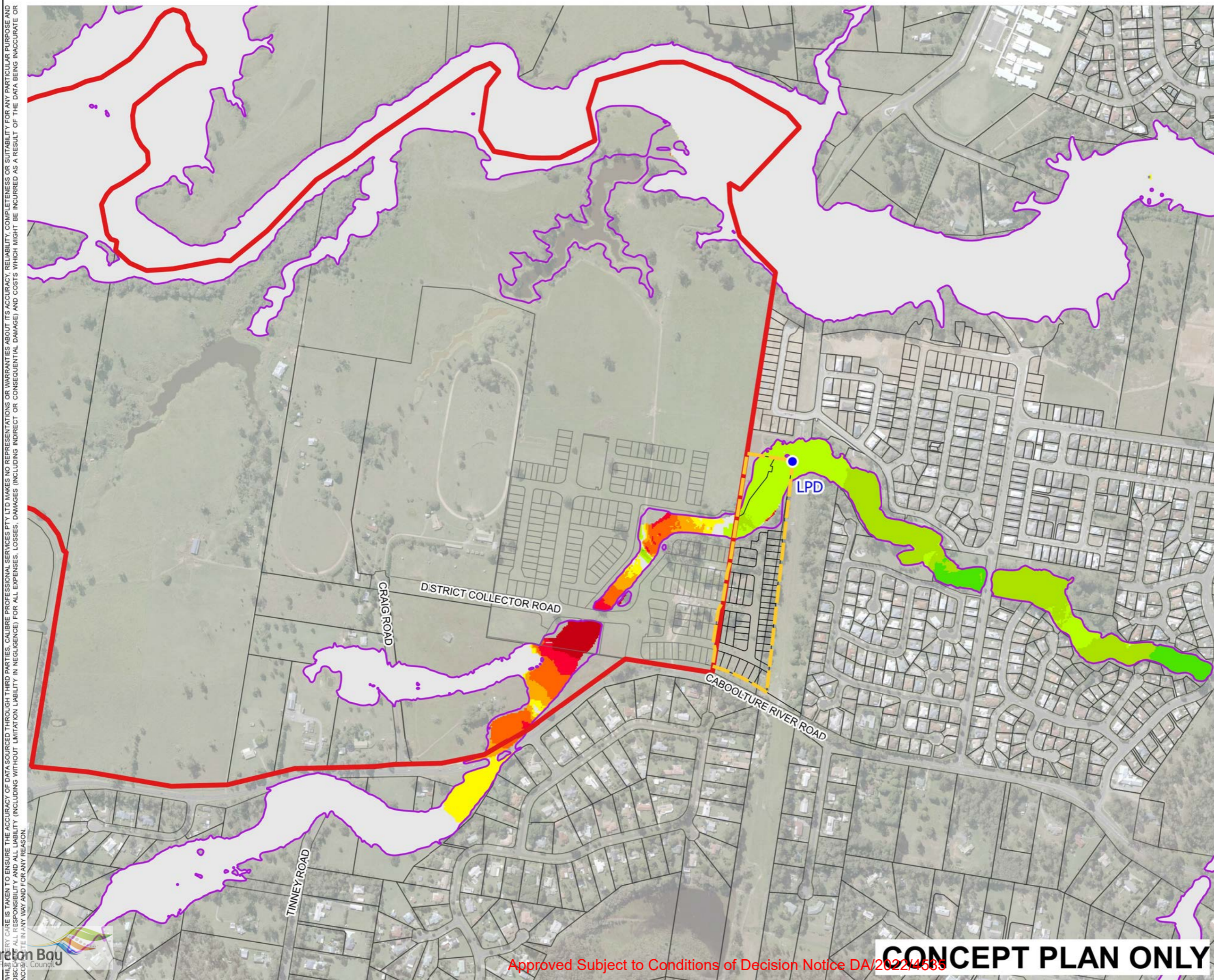
PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
5% AEP STORM EVENT
MAXIMUM FLOOD LEVEL
DIFFERENCE**

DRAWING NO: **16-002108-1C-D-020-E** ISSUE: **B**

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
C				
D				
E				



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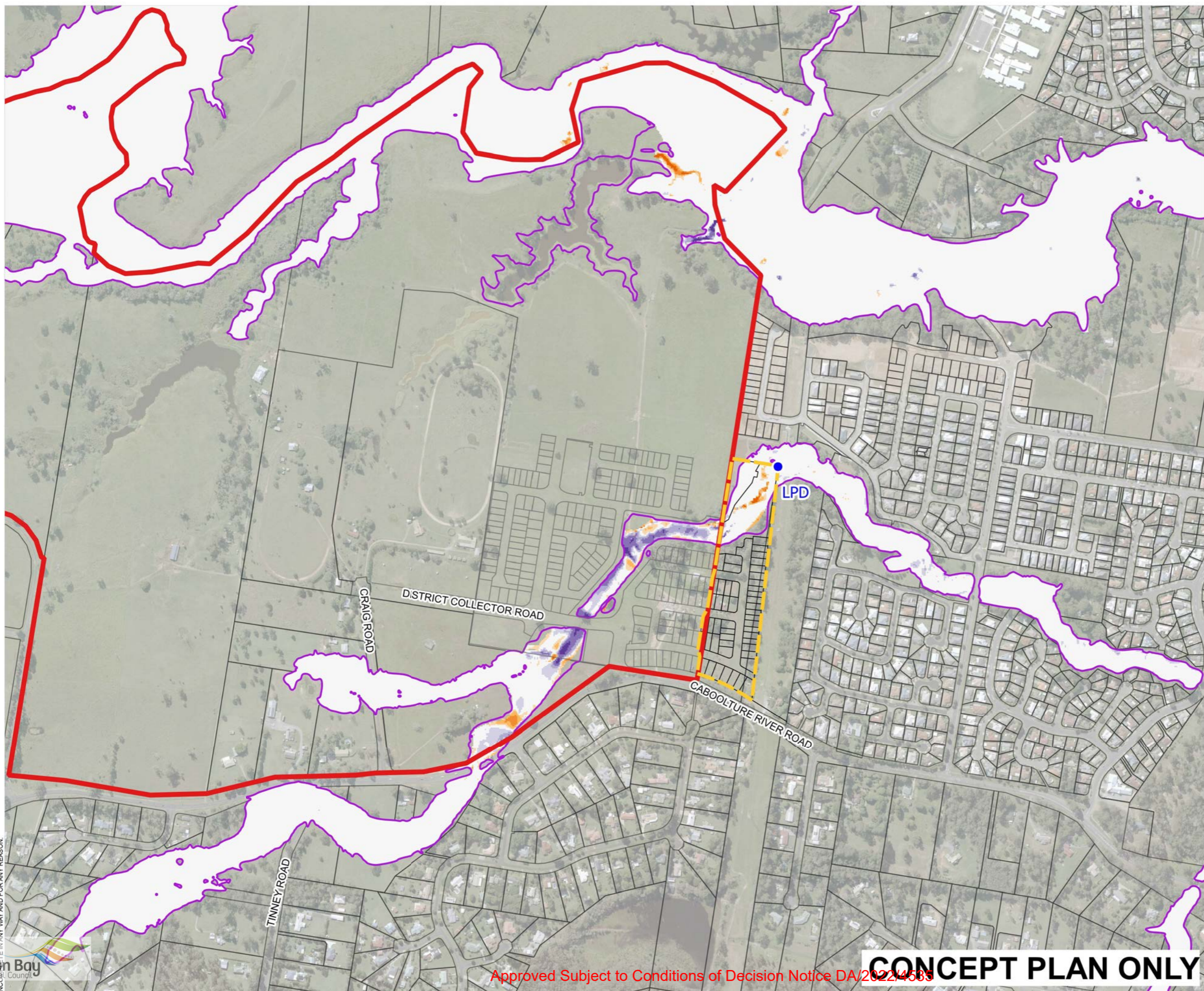
Approved Subject to Conditions of Decision Notice DA/2022/4585

CONCEPT PLAN ONLY

COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994



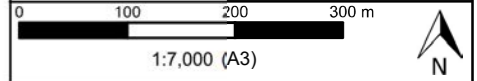
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LEGEND

- SITE BOUNDARY STAGE (STAGE 1c)
 - NDP1 BOUNDARY
 - PROPOSED DEVELOPMENT LAYOUT STAGES 1-4
 - PROPOSED DEVELOPMENT LAYOUT STAGE 1c
 - CADASTRE
 - LAWFUL POINT OF DISCHARGE
 - FLOOD EXTENT
- VELOCITY DIFFERENCE (m/s)**
- < -1.0
 - 1.0 TO -0.5
 - 0.5 TO -0.25
 - 0.25 TO -0.1
 - 0.1 TO 0.1
 - 0.1 TO 0.25
 - 0.25 TO 0.5
 - 0.5 TO 1
 - > 1.0

- NOTES:**
1. REFER TO CALIBRE REPORT No. 16-002108-SWMP-02A DATED NOVEMBER 2022.
 2. RESULTS PRESENTED ARE THE MAXIMUM OF STANDARD DURATIONS FOR THE AEP EVENT PRESENTED.
 3. ALL LEVELS PRESENTED ARE IN METRES FROM AUSTRALIAN HEIGHT DATUM (mAHD).



PROJECT:
CABOOLTURE WEST SBSMP - FOREVERLEN STAGES 1-4

CLIENT:
FOREVERLEN PTY LTD

DRAWING TITLE:
**DEVELOPED SCENARIO
 5% AEP STORM EVENT
 MAXIMUM FLOOD VELOCITY
 DIFFERENCE**

DRAWING NO: 16-002108-1C-D-020-F **ISSUE:** B

ISS	BY	CHK	DATE	DETAILS
A	MC	DY	06.06.22	INITIAL ISSUE
B	NE	DY	18.11.22	FOR APPROVAL
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Approved Subject to Conditions of Decision Notice DA/2022/4585

CONCEPT PLAN ONLY

COORDINATE REFERENCE SYSTEM: GDA94 / MGA ZONE 56 HEIGHT DATUM: GDA 1994



Contact Us

Calibre Group
ABN 44 100 255 623 0

Level 3, 545 Queen Street
Brisbane QLD 4000
07 3895 3444

calibregroup.com

AECOM

LENNIUM
GROUP

Prepared for Lennium Group

V3 | 07 August 2023



Lilywood

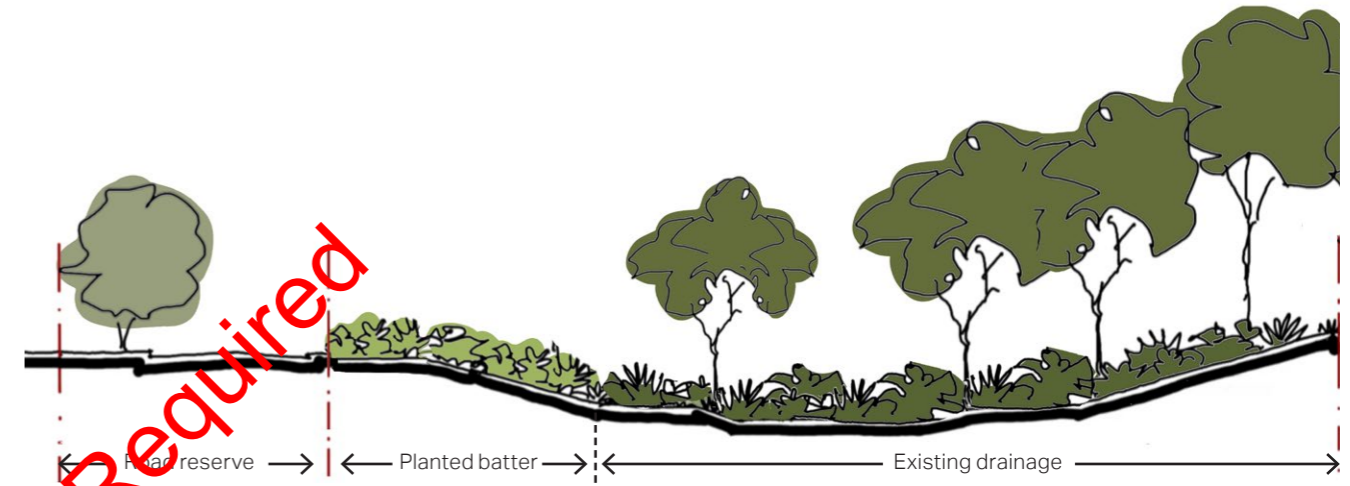
Amended Plan/Document Required

LANDINGS

Landscape
Master Plan
Report
Stages 23

Landscape Master Plan - Stage 23

1:2000 @ A3



Typical cross section through existing drain NTS

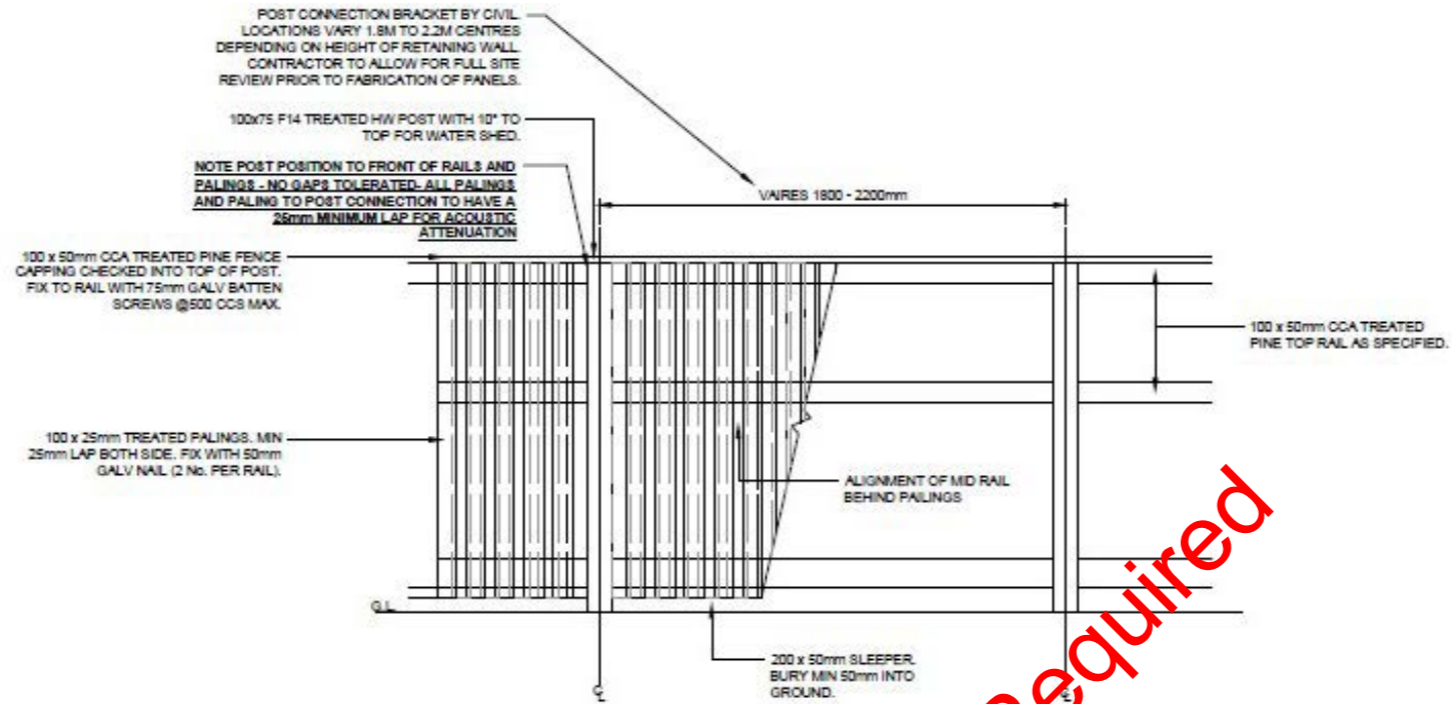


Legend

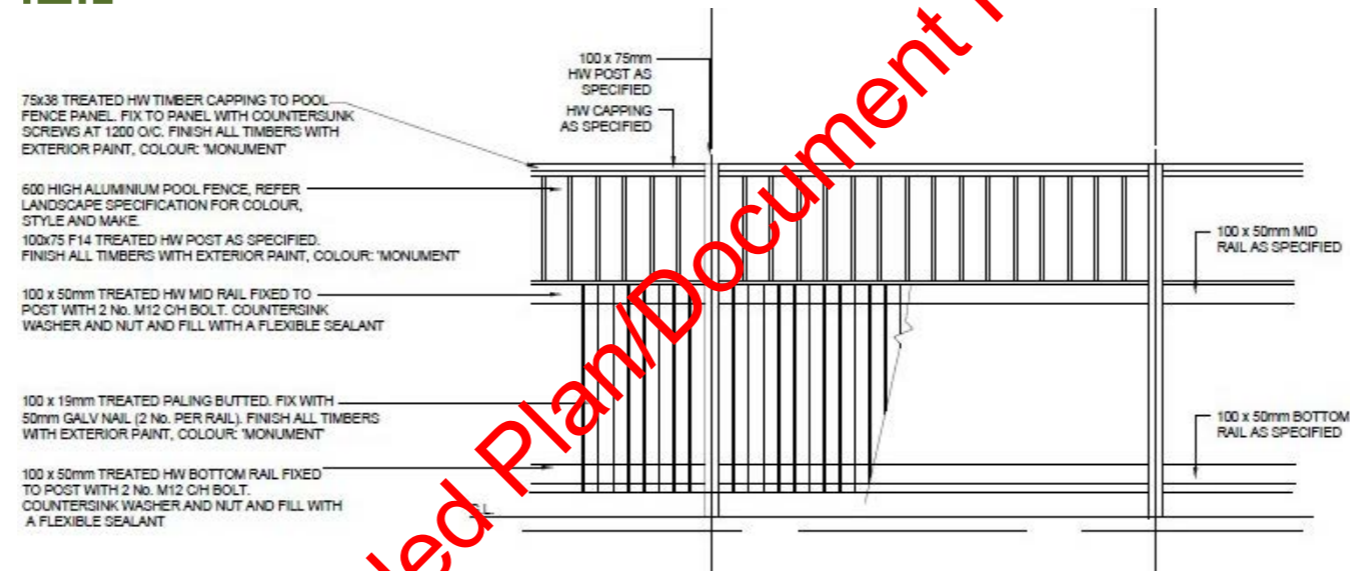
- - - Stage boundary
- ↗ Prevailing winds
- Turf
- Low grass planted batter
- Existing creek and waters edge
- Existing drainage area
- WSUD bio basin
- Pathway arrangement. Refer to civil package
- Road and forecourt arrangement. Refer to civil package
- Existing trees and vegetation in drainage area
- Street Trees
- Entry Wall within lot
- Feature posts/pillars on private property
- - - Acoustic timber paling fence painted charcoal.
- - - Energex Easement Fence
- - - Open Space Semi-transparent fence

Fence Types

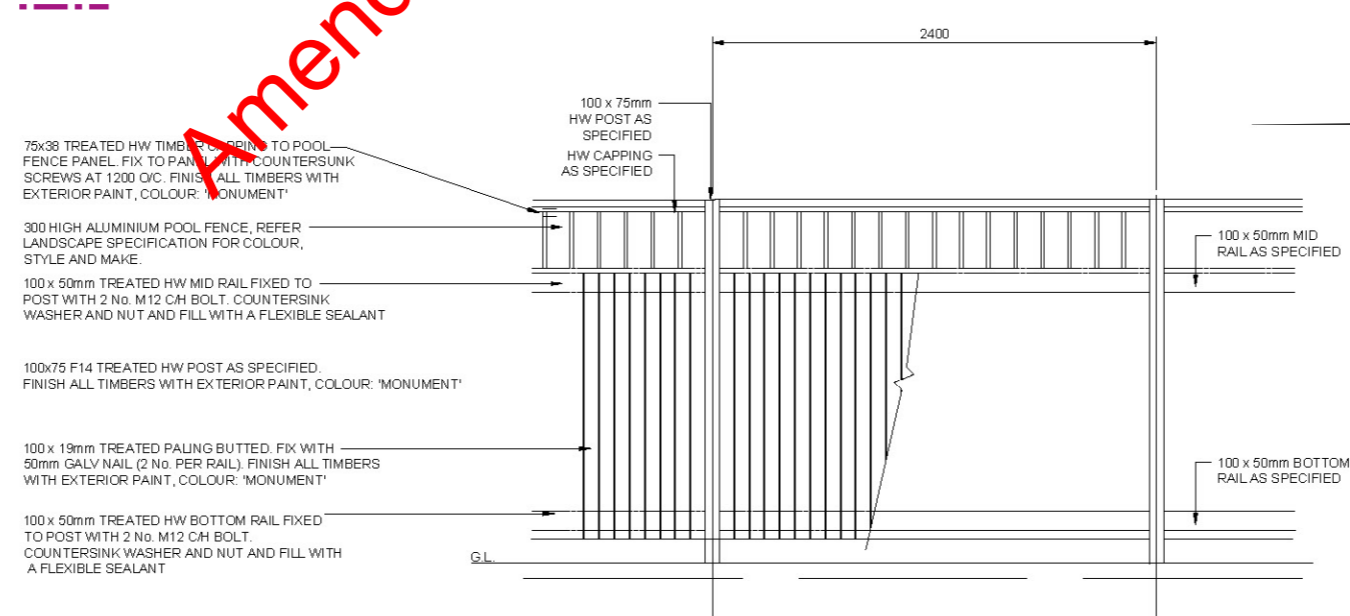
Not to scale



1800 High Acoustic and non-acoustic timber paling fence painted charcoal (Height varies for Acoustic f



1800 High Open Space Semi-transparent fence



1800 High Energy Easement Fence

Amended Plan/Document Required

Amended Plans/Documents Required Subject to Conditions of Decision Notice DA/2022/4535

Amended Plan/Document Required

Sunshine Coast Studio

Level 1, 29 The Esplanade
Maroochydore
QLD 4558

Brisbane Studio

Level 8, 540 Wickham Street
Fortitude Valley
QLD 4558



ATTACHMENT 4

Infrastructure Charges Notice

Infrastructure Charges Notice (s125 Planning Act 2016)

Moreton Bay Regional Council
PO Box 159, CABOOLTURE QLD 4510
ABN 92 967 232 136



Applicant: Foreverlen Pty Ltd
Applicant Address: PO Box 1584 SUNSHINE PLAZA QLD 4558
Date of Notice: 23 August 2023
(s121(3)(a) Planning Act 2016)
Notice Reference Number: DA/2022/4535

APPROVAL DETAILS:

Approval No.: DA/2022/4535
Type of Approval: Development Permit for Reconfiguring a Lot
Approval Description: Reconfiguring a Lot - Development Permit for Subdivision (3 into 49 lots and 1 balance lot)

PREMISES TO WHICH THE CHARGES APPLY: *(s121(1)(c) Planning Act 2016)*

Property Address: 403 Caboolture River Road UPPER CABOOLTURE QLD 4510
393 Caboolture River Road UPPER CABOOLTURE QLD 4510
403 Caboolture River Road UPPER CABOOLTURE QLD 4510
409-423 Caboolture River Road LILYWOOD QLD 4513

Real Property Description: Lot 34 RP 115959
Lot 35 RP 115959
Lot 12 RP 866105
Lot 1000 SP 337426

LEVIED CHARGE:

Version of Charges Resolution: Ver 10 - 5 October 2022

Current Amount of the Levied Charge **\$0.00**
(s121(1)(a) Planning Act 2016)

Notes:

- 1) See "CHARGE DETAILS" below for details of how the charge has been worked out.
- 2) This infrastructure charge does not include the levied charges payable for water supply and sewerage networks to be levied by the Northern SEQ Distributor-Retailer Authority (trading as Unitywater).

DATE CHARGES ARE PAYABLE: *(s121(1)(d) Planning Act 2016)*

The levied charges are payable in accordance with the timing stated in section 122 of the *Planning Act 2016*, namely:

For reconfiguring a lot - when the Council approves the plan of reconfiguration.

Before paying the total levied charges you must request an Infrastructure Charges Fee Statement showing the total levied charge payable at the time of payment. Refer to the 'Important Information' section below for details.

CHARGE DETAILS: <i>(s121(1)(b) Planning Act 2016)</i>						
PROPOSED DEVELOPMENT						
Description	Base Charge Rate	Quantity	Base Charge	Council Proportion	Indexation	Total
Residential Use 3 or more bedroom dwelling - proposed	Dwelling	50.00	\$18,648.00	60%	Nil	\$923,400.00
CREDITS						
Description	Base Charge Rate	Quantity	Base Charge	Council Proportion	Indexation	Total Credit
Residential Use 3 or more bedroom dwelling - existing	Dwelling	1.00	\$18,648.00	60%	Nil	-\$18,648.00

Infrastructure Charges Notice (s125 Planning Act 2016)

Moreton Bay Regional Council
PO Box 159, CABOOLTURE QLD 4510
ABN 92 967 232 136



CHARGE DETAILS: (s121(1)(b) Planning Act 2016)						
OFFSET						
						Total Offset
Refer below for details						\$913,752.00
LEVIED CHARGE						
						Levied Charge
						\$0.00

OFFSET / REFUND DETAILS: (s121(1)(f) Planning Act 2016)

In accordance with s121(1)(f) of the *Planning Act 2016*, this table identifies whether an offset or refund applies and, if so, information about the offset or refund, including when any refund will be given

Does an offset or refund apply? No

Timing of Refund: Not applicable

INFRASTRUCTURE AGREEMENT ESTABLISHMENT COST DETAILS:

IA Number (Council Ref): DA/2023/2452
Description: Infrastructure Agreement Caboolture West - Neighbourhood Development Precinct 1 (Foreverlen Pty Ltd)
Agreement Commencement Date: 22 August 2023

Infrastructure ID Number	Infrastructure Item Description	Delivery Status	Original Agreed Value of Item ¹	Previous Value of Item Used ²	New Value of Item Used ³	Value of Item left Available ⁴
Not identified	Item 1.1 & 1.2 in accordance with executed IA for District and Regional Sports Parks	Future, not yet available	\$206,700.62 (plus indexation in accordance with IA)	\$0.00	\$206,700.62 (plus indexation in accordance with IA)	\$0.00

DA Offset Number	DA Number and Condition Number	Infrastructure Item	Establishment Cost
DA/2023/3343	DA Number: DA/2021/4535 Condition Number: 26	District & Regional Sports Parks	\$206,700.62 (plus indexation in accordance with IA)

NOTES:

1. Represents the amount of the original value of the infrastructure item agreed in the infrastructure agreement.
2. Represents the amount (if any) of the original agreed value applied as an offset, or refunded, previously (eg an earlier stage of the development).
3. Represents the amount of the original agreed value applied as an offset, or to be refunded, under this Infrastructure Charges Notice.
4. Represents the amount of the original agreed value that remains available after the issuing of this Infrastructure Charges Notice.

IMPORTANT INFORMATION:

PAYMENT

This notice is due and payable by the due time shown. Cheques, money orders or postal notes should be made payable to MORETON BAY REGIONAL COUNCIL and crossed "Not Negotiable". Change cannot be given on cheque payments. Property owners will be liable for any dishonour fees.

LEVIED CHARGE IS SUBJECT TO AUTOMATIC INCREASES (s121(1)(e) Planning Act 2016)

In accordance with section 121(1)(e) of the *Planning Act 2016*, the Levied Charge in this notice will be automatically increased from the date of this notice until the date of payment, following the methodology in Council's charges resolution. Under that methodology, an automatic increase will be the lesser of:

Infrastructure Charges Notice (s125 Planning Act 2016)

Moreton Bay Regional Council
PO Box 159, CABOOLTURE QLD 4510
ABN 92 967 232 136



- (a) the difference between the levied charge and the maximum adopted charge that Council could have levied for the development when the charge is paid; or
- (b) the increase worked out using the PPI, adjusted according to the 3-yearly PPI average, for the period starting on the day the charge was levied, and ending on the day the charge is paid.

Where indexation is applicable, an [online spreadsheet calculator](#) is available to assist with making the calculation.

Council takes no responsibility for the accuracy of the calculator.

REQUEST FOR AN UPDATED CALCULATION AND INFRASTRUCTURE CHARGES FEE STATEMENT

For confirmation of the current charges applicable for this development and to obtain an Infrastructure Charges Fee Statement, you may submit a [request](#) to Council. To avoid having to make repeat requests, it is recommended that your request is not made until you are ready to make payment of the infrastructure charges.

GOODS AND SERVICES TAX

GST is not applicable to the Infrastructure Charges contained in this Notice.

APPEAL RIGHTS (s121(3)(b) Planning Act 2016)

You have a right to appeal against the decision to give this notice. Attached is an extract from schedule 1 of the *Planning Act 2016* detailing your appeal rights

REPRESENTATIONS ABOUT THIS NOTICE

During your appeal period (see s229(3)(d) *Planning Act 2016*), you may make representations about this notice under section 125 of the *Planning Act 2016*. Section 126 of the *Planning Act 2016* allows you to suspend your appeal period if you need more time to make such representations

INFRASTRUCTURE CHARGE ENQUIRIES

Enquiries regarding this infrastructure charge notice should be directed to MORETON BAY REGIONAL COUNCIL, Development Services, during office hours, Monday to Friday on phone (07) 3205 0555.

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Schedule 1 Appeals

section 229

1 Appeal rights and parties to appeals

- (1) Table 1 states the matters that may be appealed to—
 - (a) the P&E court; or
 - (b) a tribunal.
- (2) However, table 1 applies to a tribunal only if the matter involves—
 - (a) the refusal, or deemed refusal of a development application, for—
 - (i) a material change of use for a classified building; or
 - (ii) operational work associated with building work, a retaining wall, or a tennis court; or
 - (b) a provision of a development approval for—
 - (i) a material change of use for a classified building; or
 - (ii) operational work associated with building work, a retaining wall, or a tennis court; or
 - (c) if a development permit was applied for—the decision to give a preliminary approval for—
 - (i) a material change of use for a classified building; or
 - (ii) operational work associated with building work, a retaining wall, or a tennis court; or
 - (d) a development condition if—
 - (i) the development approval is only for a material change of use that involves the use of a building classified under the Building Code as a class 2 building; and

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

- (ii) the building is, or is proposed to be, not more than 3 storeys; and
 - (iii) the proposed development is for not more than 60 sole-occupancy units; or
 - (e) a decision for, or a deemed refusal of, an extension application for a development approval that is only for a material change of use of a classified building; or
 - (f) a decision for, or a deemed refusal of, a change application for a development approval that is only for a material change of use of a classified building; or
 - (g) a matter under this Act, to the extent the matter relates to the Building Act, other than a matter under that Act that may or must be decided by the Queensland Building and Construction Commission; or
 - (h) a decision to give an enforcement notice—
 - (i) in relation to a matter under paragraphs (a) to (g); or
 - (ii) under the *Plumbing and Drainage Act 2018*; or
 - (i) an infrastructure charges notice; or
 - (j) the refusal, or deemed refusal, of a conversion application; or
 - (l) a matter prescribed by regulation.
- (3) Also, table 1 does not apply to a tribunal if the matter involves—
- (a) for a matter in subsection (2)(a) to (d)—
 - (i) a development approval for which the development application required impact assessment; and
 - (ii) a development approval in relation to which the assessment manager received a properly made submission for the development application; or
 - (b) a provision of a development approval about the identification or inclusion, under a variation approval, of a matter for the development.

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

- (4) Table 2 states the matters that may be appealed only to the P&E Court.
- (5) Table 3 states the matters that may be appealed only to the tribunal.
- (6) In each table—
 - (a) column 1 states the appellant in the appeal; and
 - (b) column 2 states the respondent in the appeal; and
 - (c) column 3 states the co-respondent (if any) in the appeal; and
 - (d) column 4 states the co-respondents by election (if any) in the appeal.
- (7) If the chief executive receives a notice of appeal under section 230(3)(f), the chief executive may elect to be a co-respondent in the appeal.
- (8) In this section—
storey see the Building Code, part A1.1.

Table 1 Appeals to the P&E Court and, for certain matters, to a tribunal
<p>1. Development applications</p> <p>For a development application other than an excluded application, an appeal may be made against—</p> <ol style="list-style-type: none"> (a) the refusal of all or part of the development application; or (b) the deemed refusal of the development application; or (c) a provision of the development approval; or (d) if a development permit was applied for—the decision to give a preliminary approval.

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 1 Appeals to the P&E Court and, for certain matters, to a tribunal			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
The applicant	The assessment manager	If the appeal is about a concurrence agency's referral response—the concurrence agency	<ol style="list-style-type: none"> 1 A concurrence agency that is not a co-respondent 2 If a chosen assessment manager is the respondent—the prescribed assessment manager 3 Any eligible advice agency for the application 4 Any eligible submitter for the application
<p>2. Change applications</p> <p>For a change application other than an excluded application, an appeal may be made against—</p> <ol style="list-style-type: none"> (a) the responsible entity's decision on the change application; or (b) a deemed refusal of the change application. 			

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 1 Appeals to the P&E Court and, for certain matters, to a tribunal			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
<p>1 The applicant</p> <p>2 If the responsible entity is the assessment manager—an affected entity that gave a pre-request notice or response notice</p>	<p>The responsible entity</p>	<p>If an affected entity starts the appeal—the applicant</p>	<p>1 A concurrence agency for the development application</p> <p>2 If a chosen assessment manager is the respondent—the prescribed assessment manager</p> <p>3 A private certifier for the development application</p> <p>4 Any eligible advice agency for the change application</p> <p>5 Any eligible submitter for the change application</p>
<p>3. Extension applications</p> <p>For an extension application other than an extension application called in by the Minister, an appeal may be made against—</p> <p>(a) the assessment manager’s decision on the extension application; or</p> <p>(b) a deemed refusal of the extension application.</p>			

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 1 Appeals to the P&E Court and, for certain matters, to a tribunal			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
1 The applicant 2 For a matter other than a deemed refusal of an extension application—a concurrence agency, other than the chief executive, for the application	The assessment manager	If a concurrence agency starts the appeal—the applicant	If a chosen assessment manager is the respondent—the prescribed assessment manager
<p>4. Infrastructure charges notices</p> <p>An appeal may be made against an infrastructure charges notice on 1 or more of the following grounds—</p> <p>(a) the notice involved an error relating to—</p> <p style="padding-left: 20px;">(i) the application of the relevant adopted charge; or</p> <p><i>Examples of errors in applying an adopted charge—</i></p> <ul style="list-style-type: none"> • the incorrect application of gross floor area for a non-residential development • applying an incorrect ‘use category’, under a regulation, to the development <p style="padding-left: 20px;">(ii) the working out of extra demand, for section 120; or</p> <p style="padding-left: 20px;">(iii) an offset or refund; or</p> <p>(b) there was no decision about an offset or refund; or</p> <p>(c) if the infrastructure charges notice states a refund will be given—the timing for giving the refund; or</p> <p>(d) for an appeal to the P&E Court—the amount of the charge is so unreasonable that no reasonable relevant local government could have imposed the amount.</p>			

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Authorised by the Parliamentary Counsel

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 1 Appeals to the P&E Court and, for certain matters, to a tribunal			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
The person given the infrastructure charges notice	The local government that gave the infrastructure charges notice	—	—
5. Conversion applications An appeal may be made against— (a) the refusal of a conversion application; or (b) a deemed refusal of a conversion application.			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
The applicant	The local government to which the conversion application was made	—	—
6. Enforcement notices An appeal may be made against the decision to give an enforcement notice.			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
The person given the enforcement notice	The enforcement authority	—	If the enforcement authority is not the local government for the premises in relation to which the offence is alleged to have happened—the local government

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Current as at 10 June 2022

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Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 1 Appeals to the P&E Court and, for certain matters, to a tribunal			
7. Enforcement notices under the <i>Plumbing and Drainage Act 2018</i> An appeal may be made against the decision to give an enforcement notice.			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
The person given the enforcement notice	The local government that gave the enforcement notice	—	—

Table 2 Appeals to the P&E Court only			
1. Appeals from tribunal An appeal may be made against a decision of a tribunal, other than a decision under section 252, on the ground of— (a) an error or mistake in law on the part of the tribunal; or (b) jurisdictional error.			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A party to the proceedings for the decision	The other party to the proceedings for the decision	—	—
2. Eligible submitter appeals For a development application or change application other than an excluded application, an appeal may be made against the decision to approve the application, to the extent the decision relates to— (a) any part of the development application or change application that required impact assessment; or (b) a variation request.			

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Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 2 Appeals to the P&E Court only			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
<p>1 For a development application—an eligible submitter for the development application</p> <p>2 For a change application—an eligible submitter for the change application</p>	<p>1 For a development application—the assessment manager</p> <p>2 For a change application—the responsible entity</p>	<p>1 The applicant</p> <p>2 If the appeal is about a concurrence agency’s referral response—the concurrence agency</p>	<p>Another eligible submitter for the application</p>
<p>3. Eligible submitter and eligible advice agency appeals</p> <p>For a development application or change application other than an excluded application, an appeal may be made against a provision of the development approval, or a failure to include a provision in the development approval, to the extent the matter relates to—</p> <p>(a) any part of the development application or change application that required impact assessment; or</p> <p>(b) a variation request.</p>			

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 2 Appeals to the P&E Court only			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
<p>1 For a development application—an eligible submitter for the development application</p> <p>2 For a change application—an eligible submitter for the change application</p> <p>3 An eligible advice agency for the development application or change application</p>	<p>1 For a development application—the assessment manager</p> <p>2 For a change application—the responsible entity</p>	<p>1 The applicant</p> <p>2 If the appeal is about a concurrence agency's referral response—the concurrence agency</p>	<p>Another eligible submitter for the application</p>
<p>4. Compensation claims</p> <p>An appeal may be made against—</p> <p>(a) a decision under section 32 about a compensation claim; or</p> <p>(b) a decision under section 265 about a claim for compensation; or</p> <p>(c) a deemed refusal of a claim under paragraph (a) or (b).</p>			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A person dissatisfied with the decision	The local government to which the claim was made	—	—

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Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 2 Appeals to the P&E Court only			
5. Registered premises			
An appeal may be made against a decision of the Minister under chapter 7, part 4.			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
<p>1 A person given a decision notice about the decision</p> <p>2 If the decision is to register premises or renew the registration of premises—an owner or occupier of premises in the affected area for the registered premises who is dissatisfied with the decision</p>	The Minister	—	If an owner or occupier starts the appeal—the owner of the registered premises
6. Local laws			
An appeal may be made against a decision of a local government, or conditions applied, under a local law about—			
<p>(a) the use of premises, other than a use that is the natural and ordinary consequence of prohibited development; or</p> <p>(b) the erection of a building or other structure.</p>			

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 2 Appeals to the P&E Court only			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A person who— (a) applied for the decision; and (b) is dissatisfied with the decision or conditions.	The local government	—	—

Table 3 Appeals to a tribunal only			
1. Building advisory agency appeals			
An appeal may be made against giving a development approval for building work to the extent the building work required code assessment against the building assessment provisions.			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A building advisory agency for the development application related to the approval	The assessment manager	The applicant	1 A concurrence agency for the development application related to the approval 2 A private certifier for the development application related to the approval

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Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 3 Appeals to a tribunal only			
<p>2. Inspection of building work An appeal may be made against a decision of a building certifier or referral agency about the inspection of building work that is the subject of a building development approval under the Building Act.</p>			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
The applicant for the development approval	The person who made the decision	—	—
<p>3. Certain decisions under the Building Act and the <i>Plumbing and Drainage Act 2018</i> An appeal may be made against—</p> <p>(a) a decision under the Building Act, other than a decision made by the Queensland Building and Construction Commission, if an information notice about the decision was given or required to be given under that Act; or</p> <p>(b) a decision under the <i>Plumbing and Drainage Act 2018</i>, other than a decision made by the Queensland Building and Construction Commission, if an information notice about the decision was given or required to be given under that Act.</p>			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A person who received, or was entitled to receive, an information notice about the decision	The entity that made the decision	—	—
<p>4. Failure to decide an application or other matter under the Building Act An appeal may be made against a failure to make a decision under the Building Act within the period required under that Act, other than a failure by the Queensland Building and Construction Commission to make a decision, if an information notice about the decision was required to be given under that Act.</p>			

Attachment - extract of appeal rights

Planning Act 2016

Schedule 1

Table 3 Appeals to a tribunal only			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A person who was entitled to receive notice of the decision	The entity that failed to make the decision	—	—
<p>5. Failure to decide an application or other matter under the <i>Plumbing and Drainage Act 2018</i></p> <p>An appeal may be made against a failure to make a decision under the <i>Plumbing and Drainage Act 2018</i> within the period required under that Act, other than a failure by the Queensland Building and Construction Commission to make a decision, if an information notice about the decision was required to be given under that Act.</p>			
Column 1 Appellant	Column 2 Respondent	Column 3 Co-respondent (if any)	Column 4 Co-respondent by election (if any)
A person who was entitled to receive an information notice about the decision	The entity that failed to make the decision	—	—

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ATTACHMENT 5

Appeal Rights

Chapter 6 Dispute resolution

Part 1 Appeal rights

229 Appeals to tribunal or P&E Court

- (1) Schedule 1 states—
 - (a) matters that may be appealed to—
 - (i) either a tribunal or the P&E Court; or
 - (ii) only a tribunal; or
 - (iii) only the P&E Court; and
 - (b) the person—
 - (i) who may appeal a matter (the *appellant*); and
 - (ii) who is a respondent in an appeal of the matter; and
 - (iii) who is a co-respondent in an appeal of the matter; and
 - (iv) who may elect to be a co-respondent in an appeal of the matter.
- (2) An appellant may start an appeal within the appeal period.
- (3) The *appeal period* is—
 - (a) for an appeal by a building advisory agency—10 business days after a decision notice for the decision is given to the agency; or
 - (b) for an appeal against a deemed refusal—at any time after the deemed refusal happens; or
 - (c) for an appeal against a decision of the Minister, under chapter 7, part 4, to register premises or to renew the registration of premises—20 business days after a notice is published under section 269(3)(a) or (4); or

Planning Act 2016
Chapter 6 Dispute resolution

[s 229]

- (d) for an appeal against an infrastructure charges notice—20 business days after the infrastructure charges notice is given to the person; or
- (e) for an appeal about a deemed approval of a development application for which a decision notice has not been given—30 business days after the applicant gives the deemed approval notice to the assessment manager; or
- (f) for an appeal relating to the *Plumbing and Drainage Act 2018*—
 - (i) for an appeal against an enforcement notice given because of a belief mentioned in the *Plumbing and Drainage Act 2018*, section 143(2)(a)(i), (b) or (c)—5 business days after the day the notice is given; or
 - (ii) for an appeal against a decision of a local government or an inspector to give an action notice under the *Plumbing and Drainage Act 2018*—5 business days after the notice is given; or
 - (iii) for an appeal against a failure to make a decision about an application or other matter under the *Plumbing and Drainage Act 2018*—at anytime after the period within which the application or matter was required to be decided ends; or
 - (iv) otherwise—20 business days after the day the notice is given; or
- (g) for any other appeal—20 business days after a notice of the decision for the matter, including an enforcement notice, is given to the person.

Note—

See the P&E Court Act for the court's power to extend the appeal period.

- (4) Each respondent and co-respondent for an appeal may be heard in the appeal.

-
- (5) If an appeal is only about a referral agency's response, the assessment manager may apply to the tribunal or P&E Court to withdraw from the appeal.
 - (6) To remove any doubt, it is declared that an appeal against an infrastructure charges notice must not be about—
 - (a) the adopted charge itself; or
 - (b) for a decision about an offset or refund—
 - (i) the establishment cost of trunk infrastructure identified in a LGIP; or
 - (ii) the cost of infrastructure decided using the method included in the local government's charges resolution.

230 Notice of appeal

- (1) An appellant starts an appeal by lodging, with the registrar of the tribunal or P&E Court, a notice of appeal that—
 - (a) is in the approved form; and
 - (b) succinctly states the grounds of the appeal.
- (2) The notice of appeal must be accompanied by the required fee.
- (3) The appellant or, for an appeal to a tribunal, the registrar, must, within the service period, give a copy of the notice of appeal to—
 - (a) the respondent for the appeal; and
 - (b) each co-respondent for the appeal; and
 - (c) for an appeal about a development application under schedule 1, section 1, table 1, item 1—each principal submitter for the application whose submission has not been withdrawn; and
 - (d) for an appeal about a change application under schedule 1, section 1, table 1, item 2—each principal submitter for the application whose submission has not been withdrawn; and

- (e) each person who may elect to be a co-respondent for the appeal other than an eligible submitter for a development application or change application the subject of the appeal; and
 - (f) for an appeal to the P&E Court—the chief executive; and
 - (g) for an appeal to a tribunal under another Act—any other person who the registrar considers appropriate.
- (4) The *service period* is—
- (a) if a submitter or advice agency started the appeal in the P&E Court—2 business days after the appeal is started; or
 - (b) otherwise—10 business days after the appeal is started.
- (5) A notice of appeal given to a person who may elect to be a co-respondent must state the effect of subsection (6).
- (6) A person elects to be a co-respondent to an appeal by filing a notice of election in the approved form—
- (a) if a copy of the notice of appeal is given to the person—within 10 business days after the copy is given to the person; or
 - (b) otherwise—within 15 business days after the notice of appeal is lodged with the registrar of the tribunal or the P&E Court.
- (7) Despite any other Act or rules of court to the contrary, a copy of a notice of appeal may be given to the chief executive by emailing the copy to the chief executive at the email address stated on the department’s website for this purpose.

231 Non-appealable decisions and matters

- (1) Subject to this chapter, section 316(2), schedule 1 and the P&E Court Act, unless the Supreme Court decides a decision or other matter under this Act is affected by jurisdictional error, the decision or matter is non-appealable.

-
- (2) The *Judicial Review Act 1991*, part 5 applies to the decision or matter to the extent it is affected by jurisdictional error.
- (3) A person who, but for subsection (1) could have made an application under the *Judicial Review Act 1991* in relation to the decision or matter, may apply under part 4 of that Act for a statement of reasons in relation to the decision or matter.
- (4) In this section—
- decision** includes—
- (a) conduct engaged in for the purpose of making a decision; and
 - (b) other conduct that relates to the making of a decision; and
 - (c) the making of a decision or the failure to make a decision; and
 - (d) a purported decision; and
 - (e) a deemed refusal.
- non-appealable**, for a decision or matter, means the decision or matter—
- (a) is final and conclusive; and
 - (b) may not be challenged, appealed against, reviewed, quashed, set aside or called into question in any other way under the *Judicial Review Act 1991* or otherwise, whether by the Supreme Court, another court, any tribunal or another entity; and
 - (c) is not subject to any declaratory, injunctive or other order of the Supreme Court, another court, any tribunal or another entity on any ground.

232 Rules of the P&E Court

- (1) A person who is appealing to the P&E Court must comply with the rules of the court that apply to the appeal.
- (2) However, the P&E Court may hear and decide an appeal even if the person has not complied with rules of the P&E Court.

ATTACHMENT 6

Referral Agency Response(s)

2 March 2023

Moreton Bay Regional Council
PO Box 159
Caboolture QLD 4510

Attention: Jacques Janse Van Rensburg
Via email: mbrc@moretonbay.qld.gov.au



positive energy

Cc Foreverlen Pty Ltd
c/- Colliers International Engineering & Design Pty Ltd
PO Box 1344
Buddina QLD 4575
Attention: Tim Connolly
Via email: tim.connolly@colliers.com

Dear Sir/Madam,

Referral Agency Response – Development Permit for Reconfiguring a Lot (3 into 49 Lots and 3 Balance Lots) at 393, 403 & 409-423 Caboolture River Road, Upper Caboolture (Lots 34 & 35 on RP115959 and Lot 12 on RP866105)

Council Ref: DA/2022/4535
Applicant Ref: 21-0359
Our Ref: HBD 7674481

We refer to the abovementioned Development Application, which has been referred to Energex Limited pursuant to section 54 of the *Planning Act 2016*.

In accordance with Schedule 10, Part 9, Division 2 of the *Planning Regulation 2017*, the application has been assessed against the purposes of the *Electricity Act 1994* and *Electrical Safety Act 2002*. This notice is provided in accordance with section 56 of the *Planning Act 2016*.

Should the Assessment Manager decide to approve the proposed Reconfiguration of a Lot, Energex advises the following in relation to the development:

1. The development is to be carried out in accordance with the plans identified below. Any changes to these plans should be resubmitted to Energex for further review and comment.

Approved Plans			
Title	Plan Number	Issue	Date
Caboolture West – DAA05	DAA05-01	1	3 November 2022



Enquiries
Benjamin Freese
Telephone
0455 403 399
Email
benjamin.freese@energex.com.au

Corporate Office
26 Reddacliff Street,
Newstead QLD 4006
GPO Box 1461
Brisbane Qld 4001
Telephone (07) 3664 4000
Facsimile (07) 3025 8301
www.energex.com.au

Energex Limited
ABN 40 078 849 055

Reference: HBD 7674481

Approved Plans			
Title	Plan Number	Issue	Date
Assessment of magnetic field levels associated with Energex 110kV infrastructure, prepared by Transmission Design Solutions	-	1.0	2 February 2023

2. The conditions of any easement in favour of Energex must be maintained at all times. Except where permitted by the terms of any easement/s, no development or works is to be carried out within the area of the easement without the written consent of Energex. Any development and/or works must only be carried out in accordance with the terms of any consent.

Note: The Applicant/Developer is to obtain Energex's written consent for works on the easement, prior to carrying out the works. For clarity, this response should not be taken as any waiver of requirements for consent pursuant to the current easement terms.

3. Access to the easement and access along the easement must be available to Energex personnel, including vegetation crews and regular routine line inspection crews, and heavy equipment for construction, maintenance and emergency services, at all times.
4. No planting is permitted in the easement without prior approval from Energex. If planting is proposed, the Applicant is required to provide a Detailed Landscape Plan to Energex for approval. Landscaping on the easement is to adhere to Energex's Safetrees Guidelines and must ensure:
- Planted trees are kept to the outermost edge of the easement and are not directly under overhead conductors;
 - Species selection is in accordance with Energex's Safetrees list;
 - Trees do not grow within two metres of overhead conductors at maturity and
 - The horizontal distance between overhead conductors and any planted tree is at least equal to the mature height of the plant.
5. Finished ground levels and future buildings/structures must maintain clearances to electrical assets in accordance with the *Electrical Safety Regulation 2013* at all times.
6. The following clearance must be maintained from the top of any machinery moving in the vicinity of energised conductors at all times:
- 132kV and 110kV conductors – 4.5m minimum clearance

All operators of machinery are to be made aware of the presence of high voltage conductors. Should it be necessary to transport equipment or extend any equipment, such that these clearances cannot be confidently maintained, a Safety Advice request must be submitted to Energex via the following link: <https://www.energex.com.au/about-us/contact-us/forms/general-forms/safety-advice-form>

Reference: HBD 7674481

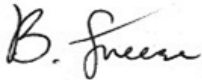
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See the 'considerations when developing around electricity infrastructure' section of our website www.energex.com.au/referralagency

7. Any costs or damages incurred by Energex as a result of carrying out the development are to be met by the Applicant/Developer.
8. Any future works in the vicinity of Energex assets are to be carried out in accordance with the following:
 - Energex Standard Guidelines OH-03/12. A copy of this guideline is enclosed with this response; and
 - *Electricity Entity Requirements: Working Near Overhead and Underground Electric Lines*. This guideline can be accessed via the following link:
<https://www.energex.com.au/home/safety/your-industry/building-and-construction>

Should you require further information regarding this matter, please contact the undersigned on 0455 403 399 or townplanning@energex.com.au.

Yours faithfully,



Benjamin Freese
Town Planner

Encl. Energex Standard Guideline OH-03/12

Reference: HBD 7674481

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www.energex.com.au/referralagency

Standard Guidelines OH-03/12

When considering Works, either on Energex easements or in the vicinity of Energex assets, please be aware of the following general conditions:

- Satisfactory clearance from your proposed structure to the existing (and/or future) electricity wires must be maintained in accordance with the Electrical Safety Regulations 2013.
- No civil works are to occur within 5 metres of any part of an ENERGEX Structure (e.g.- tower base, pole or stay) without Energex approval.
- If the minimum 5m horizontal separation to the Energex structure cannot be achieved, the Developer must consult Energex with regards to allowable construction methods. This may include full depth shoring of the excavation sides for a minimum of 5 metres either side of the structure.
- Any excavations deeper than 5m must have a minimum horizontal separation from the excavation to any tower, base or pole at least equal to the excavation depth. The excavation is not to be left open overnight and backfill is to be compacted in 150mm layers in the immediate vicinity of the structure.
- 10 metres clear access must be provided around all towers and pole structures after the completion of any works on the easement.
- Natural ground level on the easement should not be disturbed without Energex approval.
- Final ground levels should slope gently to the edge of the easement, surrounding area or kerb such that pooling of water on the easement is avoided and conductor ground clearances are not decreased.
- Stockpiling of spoil on the easement is prohibited.
- Proposed underground services such as stormwater, sewerage, water and the like are to be kept to the outer edge of the easement. Services crossing the easement should be as near as practicable to right angles to the overhead conductor direction and not within 10 metres of any tower, pole or stay. **Pipelines and crossings are to be clearly marked.** Please submit the relevant design drawings to the Principal Mains Design Engineer for review.

The identification, assessment and mitigation of any possible hazards in the service due to electromagnetically induced voltages, is the responsibility of the Developer.

- Any cut in the vicinity of a structure or between a structure and the road kerb will need to be stabilised by a retaining wall. The retaining wall design and location is to be submitted to Energex for approval.
- Any costs incurred by Energex as a result of the works on the easement are to be met by the property Developer / owner.
- Access to the easement and access along the easement must be available to Energex personnel, including vegetation crews and regular routine line inspection crews, and heavy equipment, such as Heavy Trucks, Machinery and Cranes for construction, maintenance and emergency services, at all times.
- Existing access tracks must be re-instated, repaired or maintained if they are damaged during construction or other activities.

Reference: HBD 7674481

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See the 'considerations when developing around electricity infrastructure' section of our website www.energex.com.au/referralagency

- Energex will require the Developer / owner to supply and install gates where fencing prohibits access to and along the easement area. To enable travel along the easement at anytime the gates must be series locked with an Energex padlock. Both the padlock and a design drawing of an acceptable gate will be provided by Energex.
- Lighting structures are not permitted in the easement without prior written consent of Energex. Lighting designs for proposed developments (e.g. road, carparks etc) on the easement are likely to require reduced height structures. Please submit detailed design to Energex for approval. These drawings must clearly show the following;
 - a. Proposed height of the lighting structures and the ground level at the structure base,
 - b. Relative (to lighting structures) ground levels at Energex structures (towers, pole etc) either side of the lighting structures, and
 - c. The location of the Energex structures in relation to the proposed lighting
- Pools and structures (including lighting structures) or metal fences are not permitted to be installed on or near Energex easement without prior approval or notification.
- Rubbish, materials and / or tall equipment such as cranes and excavators are not permitted to be stored or used on the easement.
- Excavations or mounding of material under or close to conductors or Energex structures is not permitted.
- Energex must be notified of construction on or near the easement, conductors or structures prior to commencement of construction.
- All construction work must be clear of the easement unless construction risk hazard is identified. High voltage clearances must be maintained prior to construction commencing.
- Warning signs may be required during and after construction.
- No planting is permitted in the Easement without prior approval from Energex. If planting is proposed, the applicant is required to provide a Detailed Landscape Plan to Energex for approval which:
 - Keeps the planting of trees to the outer most edge of the easement and not directly under any overhead conductors; and
 - Plots the location of the overhead conductors (accounting for a cross-arm if applicable and plotting the powerline on the outmost edge of each side of the cross-arm); and
 - Uses species included on Energex's Safetrees list (<https://www.energex.com.au/about-us/our-commitment/to-the-environment/vegetation/safetree-program>); and
 - Ensures a horizontal clearance is achieved between the tree and the outer most conductor equal to the mature height of the tree.
- At all times the following clearance must be maintained from the top of any machinery moving in the vicinity of energised conductors:
 - 132kV and 110kV conductors – 4.5m minimum clearance
 - 33kV and 11kV conductors – 3m minimum clearance

Should it be necessary to transport equipment or extend any equipment, such that these clearances cannot be confidently maintained, you are required to contact our office to ascertain whether a Safety Officer is required on-site. All operators of machinery are to be made aware of the presence of high voltage conductors.

Reference: HBD 7674481

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See the 'considerations when developing around electricity infrastructure' section of our website www.energex.com.au/referralagency

- All easement conditions must be maintained.
- All previous conditions must be adhered to and Energex may, at its discretion, audit the finished development to check that it conforms to the conditions of the development.
- Detailed civil design drawings showing any proposed cut and fill levels on the easement and the location of the Energex assets in relation to the proposed development must be approved by Energex before any works can commence on site.

Reference: HBD 7674481

Have you seen our fact sheets?

See the 'considerations when developing around electricity infrastructure' section of our website
www.energex.com.au/referralagency