

Lismore Flood Risk Management Committee

Meeting Notice

Lismore City Council acknowledges the people of the Bundjalung nation, traditional custodians of the land on which we meet.

MEMBERS ONLY are requested to attend.

Members of the Public are invited to attend as observers.

A meeting of the Flood Risk Management Committee will be held at the LMMS Chambers on Wednesday, 29 April 2026 at 1:00 PM

22 April 2026



ETHICAL DECISION MAKING AND CONFLICTS OF INTEREST

A guiding checklist for councillors, staff and community committees

Ethical decision making

- Is the decision or conduct legal?
- Is it consistent with government policy, Council's objectives and Code of Conduct?
- What will the outcome be for you, your colleagues, the Council, anyone else?
- Does it raise a conflict of interest?
- Do you stand to gain personally at public expense?
- Can the decision be justified in terms of public interest?
- Would it withstand public scrutiny?

Conflict of interest

A conflict of interest is a clash between private interest and public duty. There are two types of conflict:

- Pecuniary – an interest that you have in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to yourself or another person or entity defined in part 4 of the Lismore City Council Code of Conduct with whom you are associated.
- Non-pecuniary – a private or personal interest that you have that does not amount to a pecuniary interest as defined in the Lismore City Council Code of Conduct. These commonly arise out of family or personal relationships, or out of involvement in sporting, social, religious or other cultural groups and associations, and may include an interest of a financial nature.

The test for conflict of interest

- Is it likely I could be influenced by personal interest in carrying out my public duty?
- Would a fair and reasonable person believe I could be so influenced?
- Conflict of interest is closely tied to the layperson's definition of "corruption" – using public office for private gain.
- Important to consider public perceptions of whether you have a conflict of interest.

Identifying problems

- Do I have private interests affected by a matter I am officially involved in?
- Is my official role one of influence or perceived influence over the matter?
- Do my private interests' conflict with my official role?

Disclosure and participation in meetings

- A councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
 - a. at any time during which the matter is being considered or discussed by the Council or Committee, or
 - b. at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

Non-pecuniary Interests - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. participate in discussion but not in decision making or vice versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

Whilst seeking advice is generally useful, the ultimate decision rests with the person concerned.

Agenda

1. Apologies and Leave of Absence

2. Minutes of Meeting

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3. Disclosure of Interest

4. Business

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5. Next Meeting

Business



Business

Subject	2026 Flood Risk Management Committee meetings
TRIM Record No	BP26/368:EF19/237-8
Prepared by	Senior Strategic Planner
Reason	To provide the Committee with the proposed dates for the 2026 meetings
Strategic Theme	Leadership
Strategy	Ensure effective governance, advocacy, engagement and partnerships with a focus on long-term financial sustainability
Action	Embed a customer-centric approach with effective engagement, communication and service delivery

Executive Summary

The Flood Risk Management Committee is asked to note the proposed 2026 meeting schedule revision, with meetings set for 29 April, 15 July, and 2 December.

Recommendation

That:

1. The Committee note the meeting dates for 2026 as 29 April, 15 July, and 2 December.

Information

The Flood Risk Management Committee has traditionally met quarterly to review progress on floodplain management initiatives, provide strategic guidance, and consider emerging issues. To ensure continuity and allow members to plan ahead, proposed meeting dates for 2026 are recommended:

- **Wednesday, 29 April 2026**
- **Wednesday, 15 July 2026**
- **Wednesday, 2 December 2026**

These dates have been selected to align with the delivery of projects of interest to the Committee, such as the NRRI flood mitigation recommendations report.

Attachment/s

There are no attachments for this report.

Business

Subject	Update on Northern Rivers Resilience Initiative
TRIM Record No	BP26/370:EF19/237-8
Prepared by	Senior Strategic Planner
Reason	To provide the Committee with an update on the progress of the flood mitigation options assessment
Strategic Theme	Environment
Strategy	Value and protect local biodiversity, natural landscapes and waterways, and strengthen resilience to natural hazards
Action	Facilitate increased resilience to natural hazards and disasters

Executive Summary

An update is provided by CSIRO Northern Rivers Resilience Initiative (NRRI) project leader Dr Jai Vaze for the Committee's information.

Recommendation

That:

1. The Committee note the update.

Information

Unable to attend the 29 April 2026 Committee meeting, CSIRO Senior Principal Research Scientist (Hydrologist) Dr Jai Vaze has provided the following update:

“CSIRO expects to deliver the report on 30 June 2026 as promised (provided it gets approved by the Ministers office and NEMA). The work is on track to get this. As with the last model development and validation report, this report will also get reviewed by two international experts in the field. We do not have any final numbers and so cannot say whether the scenarios will be able to reduce the water levels and flooding or not but expect to start getting the final results from May 2026. All final results will be provided at once in the 30 June 2026 report.”

More details are available at [Northern Rivers Resilience Initiative - CSIRO](#) and [Northern Rivers Resilience Initiative | National Emergency Management Agency \(nema.gov.au\)](#).

Attachment/s

There are no attachments for this report.

Business

Subject	Northern Flood Model Extension – Modelling Results
TRIM Record No	BP26/369:EF19/237-8
Prepared by	Senior Strategic Planner
Reason	To inform the Committee that the Lismore Northern Flood Model Extension has been completed and to outline its scope, key outcomes and implications for flood risk management across the Lismore LGA.
Strategic Theme	Environment
Strategy	Value and protect local biodiversity, natural landscapes and waterways, and strengthen resilience to natural hazards
Action	Facilitate increased resilience to natural hazards and disasters

Executive Summary

Council has completed the Lismore Northern Flood Model Extension, delivering new hydraulic flood modelling for the major waterways within the Lismore Local Government Area (LGA) upstream of the Lismore urban area.

Given the size and hydrological complexity of the upper catchment, three hydraulic models were developed to represent the western, central and eastern sub-catchments, while retaining the existing Lismore Floodplain Risk Management Study (FRMS) model for the urban area. The expanded modelling incorporates contemporary high-resolution topographic data, known hydraulic structures, and a comprehensive suite of design, historical and climate-adjusted flood events.

The modelling substantially expands Council's flood information base beyond the urban area and provides a robust technical foundation to support future floodplain risk management studies, land use planning, emergency management and infrastructure assessment across the LGA.

Recommendation

That:

1. The Committee notes the completion of the Lismore Northern Flood Model; and
2. Notes the key outcomes and intended application of the modelling results.

Background

Action *RM06* identified in the adopted Lismore Flood Risk Management Plan seeks to improve flood information coverage across the LGA, recognising that detailed hydraulic flood modelling has historically been limited to the Lismore urban area.

Following the release of high-resolution LiDAR and bathymetry data for northern New South Wales by CSIRO in 2023, Council was able to progress flood modelling across the remainder of the LGA. In

August 2024, Council resolved to investigate funding opportunities to expand flood modelling beyond the urban area.

Council subsequently secured grant funding through the Office of Local Government's Capacity, Capability and Recovery Roadmap Program, and engaged Engeny Australia Pty Ltd in September 2024 to undertake the modelling. An update on project commencement and scope was provided to the Flood Risk Management Committee in December 2024. The modelling has now been completed, with the consultant's final report issued in March 2026.

Discussion

Scope of Modelling

The project involved the development of new hydraulic flood model for all major waterways upstream of the Lismore urban within the Lismore LGA. The upper catchment is extensive and hydrologically complex, comprising multiple distinct sub-catchments, steep headwaters transitioning to flatter floodplain areas, and numerous interconnected waterways that contribute to downstream flood behaviour.

To appropriately reflect this complexity, three separate hydraulic models were developed to represent the:

- Western upper catchment (Model M1),
- Central upper catchment (Model M2), and
- Eastern upper catchment (Model M3).

This approach improved representation of catchment-specific flood behaviour, supported practical model performance, and produced more manageable data outputs. The existing URBS hydrologic model and TUFLOW hydraulic model developed for the Lismore FRMS were retained for the urban area to ensure continuity with previously adopted flood information.

Key components of the modelling included:

- Hydraulic modelling of all major waterways upstream of Lismore, including Leycester Creek, Terania Creek, Goolmangar Creek, Repentance Creek and the Wilsons River;
- Use of 2023 CSIRO 1 m resolution LiDAR topography to improve terrain representation;
- Incorporation of known bridges and culverts using available survey and design data; and
- Production of flood extent, depth, velocity, hazard and flood risk classification outputs.

The modelling was undertaken as a fit-for-purpose, strategic-level assessment. While not all minor waterways were modelled and full local calibration was not feasible due to scale, timeframe and funding constraints, the results are considered suitable for flood risk management and strategic planning applications.

Flood Events Modelled

The hydraulic models were used to simulate a comprehensive range of flood events, including:

- **Design flood events** ranging from frequent to extreme conditions (10%, 5%, 2%, 1%, 0.5% and 0.2% AEP);
- **Rare and extreme events**, including floods up to the 1:10,000 AEP and the Probable Maximum Flood (PMF); and
- **Historical flood events** recorded in March 2017 and February 2022.
- **Long term climate change scenarios** for the 1% AEP event to the year 2100.

Climate Change Considerations

The assessment adopts the updated **Australian Rainfall and Runoff (ARR) Guidelines** released in August 2024, which provide contemporary guidance for incorporating climate change into flood modelling based on the best available science.

Previous approaches often applied a single “worst-case” emissions scenario, Representative Concentration Pathway (RCP) 8.5. However, current ARR guidance promotes the use of multiple emissions pathways to reflect a range of plausible future climate conditions.

Consistent with this guidance, climate change impacts were assessed through long-term modelling of the 1% AEP event to the year 2100 using three Shared Socioeconomic Pathway (SSP) scenarios:

- SSP1-2.6 (low emissions);
- SSP2-4.5 (moderate emissions); and
- SSP3-7.0 (high emissions).

Modelling a range of future climate scenarios helps demonstrate how flood behaviour may change over time and supports more informed, resilient planning for the community.

Model Validation

Model validation was undertaken using available historical data, including:

- Comparison of simulated water levels with stream gauge records for the March 2017 and February 2022 flood events;
- Review of available flood survey marks and community-provided flood observations; and
- Comparison of peak flows at model boundaries with inflows applied to the existing Lismore FRMS model.

While verification data in the upper catchment is limited, the modelling demonstrated reasonable alignment with observed flood behaviour. The models are therefore considered suitable for Council's flood risk management and strategic planning purposes.

Flood Risk Precinct Classification

Flood risk precinct classification mapping has been prepared for the upper catchment using the same methodology adopted in the Lismore Flood Risk Management Plan.

Flood risk is determined through consideration of flood likelihood and flood hazard (depth and velocity). The resulting mapping identifies areas of low, medium, high and extreme flood risk across the major upper catchment waterways.

Flood risk precinct mapping (refer to pages 20–25 of Attachment A) has been provided to Council in GIS format for use in strategic planning, emergency management, infrastructure assessment, and future flood risk management studies.

Key Outcomes

The completion of the Lismore Northern Flood Model provides Council with a significant expansion of its flood information and modelling capability, including:

- Hydraulic flood modelling coverage for all major waterways across the entire LGA, extending flood information well beyond the Lismore urban area;
- Improved understanding of flood behaviour in the upper catchments and their contribution to downstream flooding in Lismore;
- Flood extent, depth, velocity and hazard information for a comprehensive range of design, historical and climate-adjusted flood events; and
- A contemporary technical foundation to support future floodplain risk management studies, land use planning, emergency management and infrastructure investment.

Next Steps

Lismore Flood Risk Management Committee

Meeting held 29 April 2026 - 4.3 - Northern Flood Model Extension – Modelling Results

Building on this expanded modelling platform, Council will undertake a number of further actions in the coming months to strengthen flood risk management across the LGA.

- **Integration and Community Access**

Council will progressively integrate the new flood modelling outputs, including flood risk classification mapping, into its internal and public-facing Geographic Information System (GIS) platforms. This will support assessment and planning activities, operational decision-making, and improve transparency and community access to flood information.

To support a coordinated and consistent approach to flood risk management, relevant flood modelling outputs will also be shared with key partner agencies, including the NSW State Emergency Service (SES), NSW Reconstruction Authority (NSW RA), and the Department of Climate Change, Energy, the Environment and Water (DCCEEW). Sharing this data will assist emergency management planning, disaster preparedness and recovery activities, and alignment with state and national flood and climate risk initiatives.

- **Further property-specific assessment**

Further analysis will be undertaken for properties in the northern parts of the LGA identified within mapped flood-labile areas. In some cases, additional property-specific information, such as surveyed floor levels, will be required to accurately assess flood impacts and support the issuing of property flood certificates. Collection of floor level survey data will be subject to funding availability.

- **Draft Chapter 8 Flood Prone Lands DCP and Climate Change Scenario Review**

As part of the ongoing development of the Draft Chapter 8 – Flood Prone Lands Development Control Plan, Council staff will undertake a detailed investigation of the consideration of flood planning levels and climate change flood modelling approaches to support more consistent application across the LGA. This work will assist in refining the Draft Flood DCP and provide an interim policy framework to guide flood-related planning and decision-making until longer-term floodplain risk management studies and plans can be completed.

The investigation will involve a review of climate change approaches currently being applied across flood planning and assessment processes, and their general alignment with contemporary climate science, national guidance, relevant government policy, and industry practice.

The outcomes will inform a contemporary, consistent approach and strengthen the policy basis of the Draft Flood DCP. This will support clearer planning controls, more consistent development assessment, and improved transparency. The results of this work will be reported back to both the Committee and Council.

Attachment/s

1. [Lismore Northern Flood Model Extension Report](#)



LISMORE CITY COUNCIL

Lismore Upper Catchment Flood Models

Modelling Report

BBNE00319_0020-PRP-001-0-LISMORE MODEL EXTENSION REPORT

17 MARCH 2026



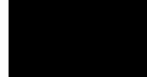
DISCLAIMER

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Rev	Date	Description	Author	Reviewer	Project Mgr.	Approver
0	17/03/2026	Client Issue	Kelsey Mundt/Adeeba Ayaz	Mark Page	Kelsey Mundt	Mark Page

Signatures:





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1. INTRODUCTION

1.1 Background

Engeny was engaged by Lismore City Council (LCC or Council) to undertake the development of hydraulic models to cover all major waterways within the LCC local government area (LGA) upstream of the Lismore township. These models will be herein referred to as the Lismore Upper Catchment Flood Models.

Engeny is the current custodian of the latest Wilsons River catchment URBS hydrologic and Lismore TUFLOW hydraulic model developed for LCC, as part of the Lismore Floodplain Risk Management Study (FRMS). The hydrologic model covers the entirety of the contributing Wilsons River catchment down to Tuckurimba, however, the hydraulic model only covers the urban extent of Lismore, from Eltham and Fairmeadow in the East, Leycester in the West and through to Gundurimba. Following the capture of LiDAR for the entirety of the Northern New South Wales (NNSW) region in 2023 by CSIRO, the ability to produce hydraulic models beyond these extents became possible.

LCC's intention in undertaking the modelling extension was to provide design event flood information and flood risk classification for all major waterways in the LGA. The intent of the Project was to produce a hydraulic model that is fit for purpose. Timeframes and funding constraints prevent extensive calibration or capture of additional minor waterways in the model extents. The proposed waterways to be covered by the model extension are indicated on Figure 1.1. Key localities and the URBS hydrological model catchments are also shown for context.

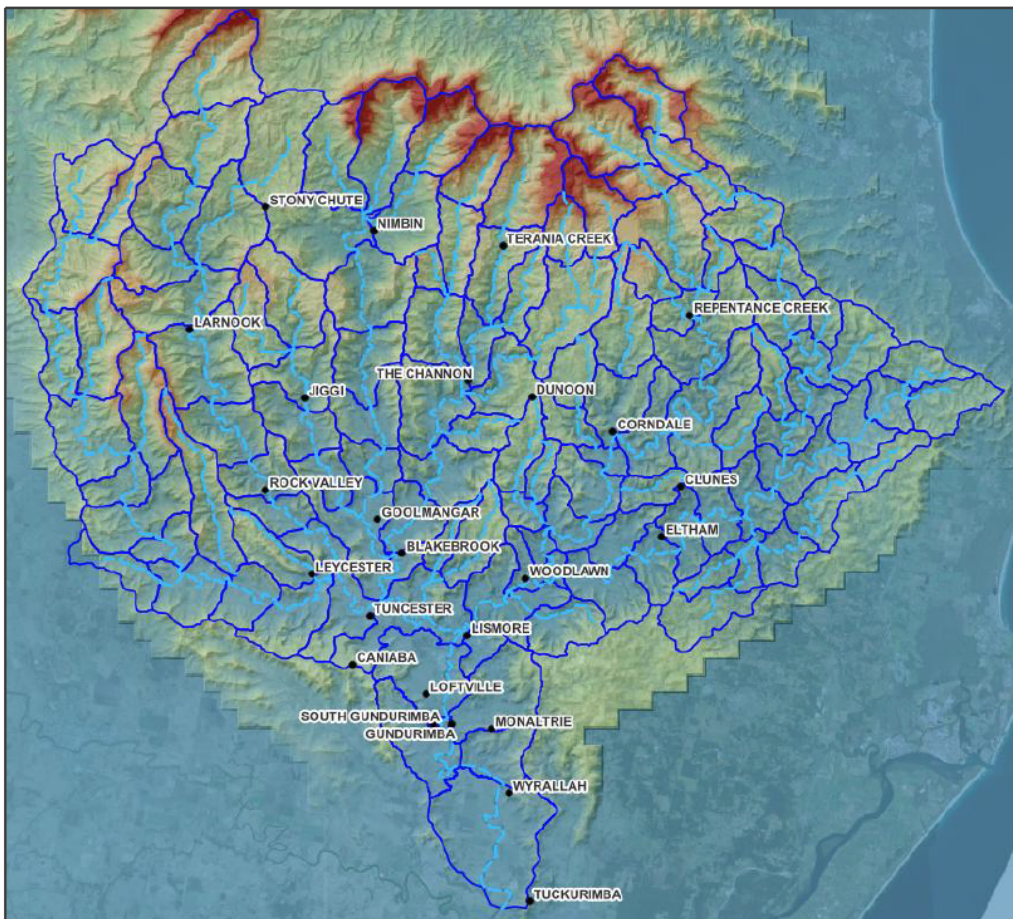


Figure 1.1: Key Waterways for Lismore Upper Catchment Flood Models



1.2 Project Objectives

The objectives of the Project were to:

- To provide design and historical flood information that can be utilised by Council, as there is currently no available flood data in the upper Lismore catchment.
- Provide preliminary flood risk classification information to inform localities that may be at greater flood risk than other in the upper Lismore catchment.
- Act as the first stage of the flood risk management process to facilitate future flood risk management study and plan for the upper catchment. The results from the Project can be utilised to inform focal locations of future studies.
- Utilise the results to inform capital works projects in the upper catchment, such as road upgrades.

1.3 Project Scope

The scope of the Project is listed below:

- Develop a hydraulic model that covers all key waterways in the catchment upstream of Lismore, utilising the existing URBS model as the source of hydrologic inflows into the hydraulic model.
- Simulate and produce flood grids and time series for the 10%, 5%, 1%, 1% climate change (SSP1, SSP2, and SSP3), 0.5%, 0.2%, 1:2,000, and 1:10,000 Annual Exceedance Probabilities (AEP) and Probable Maximum Flood (PMF) flood events, and the March 2017 and February 2022 flood events.
- Post-process and produce maps showing Flood Risk Precinct layers, with identification into classifications consistent with the Lismore Floodplain Risk Management Plan (Engeny, 2023).
- Produce a summary report detailing the model development and results.

1.4 Data Supplied

The following data was supplied for use in the Project:

- Lismore URBS hydrologic and TUFLOW hydraulic models (held by Engeny)
- Streamflow and rainfall gauge data, accessed from Water NSW, and the Bureau of Meteorology (obtained by Engeny)
- GIS shapefile and PDF plans of bridges and culverts within the model extent (supplied by LCC)
- 1m LiDAR topographical data, captured in 2023 (publicly available).

1.5 Assumptions and Limitations

Specific limitations and assumptions that should be considered with the use of the Project outputs include:

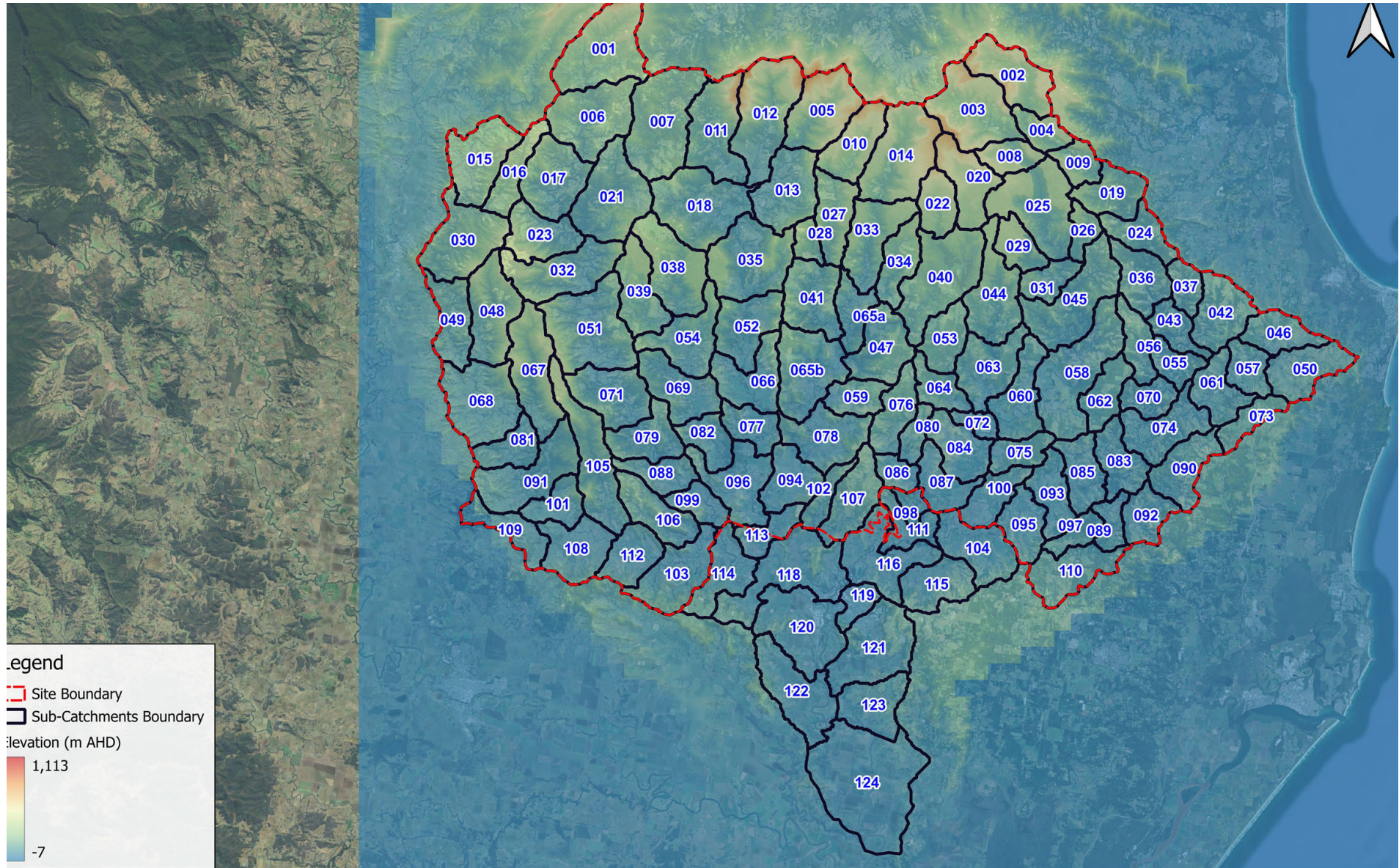
- The supplied data was assumed to be suitable for use and represents the best available data to undertake the Study. Gap-filling assumptions have been made for hydraulic structures such as bridges and culverts where survey information is not available.
- The Project extents are limited to the major waterways, with flooding beyond these waterways undefined by this Study.
- Mapping from the Lismore FRMS model should override the mapping from the Project in the lower catchment where the results overlap.
- Historical event validation is limited to the downstream portions of the developed models, where river gauging data is available.



2. HYDROLOGIC MODEL DEVELOPMENT

The Lismore URBS hydrologic model developed by Engeny for the Lismore FRMS was generally used as is for the Project. This model was developed to produce peak flow estimates for the 1:10, 1:20, 1:100, 1:500, 1:1,000, 1:2,000, 1:10,000 AEP and PMF design flood events, and was jointly calibrated with the TUFFLOW hydraulic model for the 2017, 2013, 2012, 1989, and February 2022 flood events for the Lismore FRMS.

For full details of the model parameterisation, reference should be made to the *Lismore Floodplain Risk Management Study Final Report* (Engeny, 2021). The catchment delineation is shown in Figure 2.1.



Legend

- Site Boundary
- Sub-Catchments Boundary

Elevation (m AHD)

DETAILS	DATE
Final Issue	19-03-2026

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This drawing is confidential and shall only be used for the purpose of this project.

DRAWN	AA	CHECKED	KM
APPROVED	KM	DATE	19-03-2026

NOTES:

Scale in metres (210,000 @ A3)

DISCLAIMER
Engeny has endeavoured to ensure accuracy and completeness of the data. Engeny assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

DATA SOURCE
QLD Government Open Data Source



Figure 2.1 Catchment Delineation
Lismore Upper Catchment Flood Models
Lismore City Council



3. HYDRAULIC MODEL DEVELOPMENT

3.1 Overview

For this project, to produce the Lismore Upper Catchment Flood Models, three new hydraulic models (referenced below as M01, M02, and M03) were developed. The details of the Lismore FRMS model can be viewed in *Lismore Floodplain Risk Management Study Final Report* (Engeny, 2021). The following sections outline the development of the hydraulic models.

3.2 Model Parameterisation

3.2.1 Model Extents

Three hydraulic models have been developed, in order to manage output data size and simulation times. The intent of the hydraulic modelling is to comprehensively represent all identified key waterways upstream of Central Lismore. The three models contain different creeks as listed below. The location and model layout for the three models are shown in Figure 3.1, Figure 3.2 and Figure 3.3.

TABLE 3.1: CREEKS REPRESENTED IN HYDRAULIC MODELS

Model	Creeks Included
M01 (western catchment)	Back Creek, Boundary Creek, Boorabee Creek, Oaky Creek, Leycester Creek
M02 (middle catchment)	Calico Creek, Goolmangar Creek, Mulgum Creek, Terania Creek, Bowen Gully, Rocky Creek, Turntable Creek, Branch Creek, Gibber Gonyah Creek
M03 (eastern catchment)	Wilsons River, Possum Creek, Tinderbox Creek, Byron Creek, Pearce's Creek, Skinners Creek, Bennys Creek, Emerald Creek, Coopers Creek, Dans Creek, Boomerang Creek, Boggy Creek, Repentance Creek, Stony Creek.

3.2.2 Model Topography

The TUFLOW hydraulic models adopt a 10 m cell size. The TUFLOW models are built using the CSIRO 2023 1m LiDAR dataset. Road centrelines interacting with the flood extents have been digitised as 2d z-shape topographical alterations to ensure these are captured accurately in the model.

3.2.3 Hydraulic Structures

The hydraulic structure information provided and incorporated into the Lismore Upper Catchment Flood Models is described below.

3.2.3.1 Culverts

The hydraulic models incorporate detailed culvert data where supplied to ensure accurate representation of flow paths and flood behaviour across the Lismore catchment. Culvert structures were represented in the model as 1D network elements. The culvert data was sourced from Lismore City Council, Kyogle Council, Byron Shire Council, and Dykman Consulting (survey commissioned by Council for the road pavements upgrade project) and integrated into each model as follows:

- M01 - A total of 167 culverts were included, with data obtained from Kyogle Council, Lismore City Council and from Dykman Consulting.
- M02 - A total of 55 culverts were included, from survey supplied by Dykman Consulting.
- M03 - A total of 44 culverts were included, with data obtained from Byron Shire Council, Lismore City Council and from Dykman Consulting.



Where culverts were observed to be present in the topographical or aerial data, but not included in the data set these have been represented through z-shape topographical alterations that “break through” the road embankments. Therefore, the model depth results should be carefully inspected to determine whether water shown at road locations is genuine overtopping or where the embankment has been broken through or modelled as a bridge.

3.2.3.2 Bridges

Bridge structures have been represented as 2d BG-shape elements in the model. The parametrisation of the structures were based upon structure data supplied by Lismore City Council, Kyogle Council, and Byron Shire Council.

Where design plans and dimensions were not available for structures, parametrisation was estimated upon a visual inspection of pier, deck, and rail configurations.

3.2.4 Hydraulic Roughness

Hydraulic roughness values have been selected for specific land use areas, which were delineated across the three model extents using aerial imagery, supported by publicly available vegetation mapping sets. Manning’s “n” roughness values utilised in the model are listed in Table 3.2.

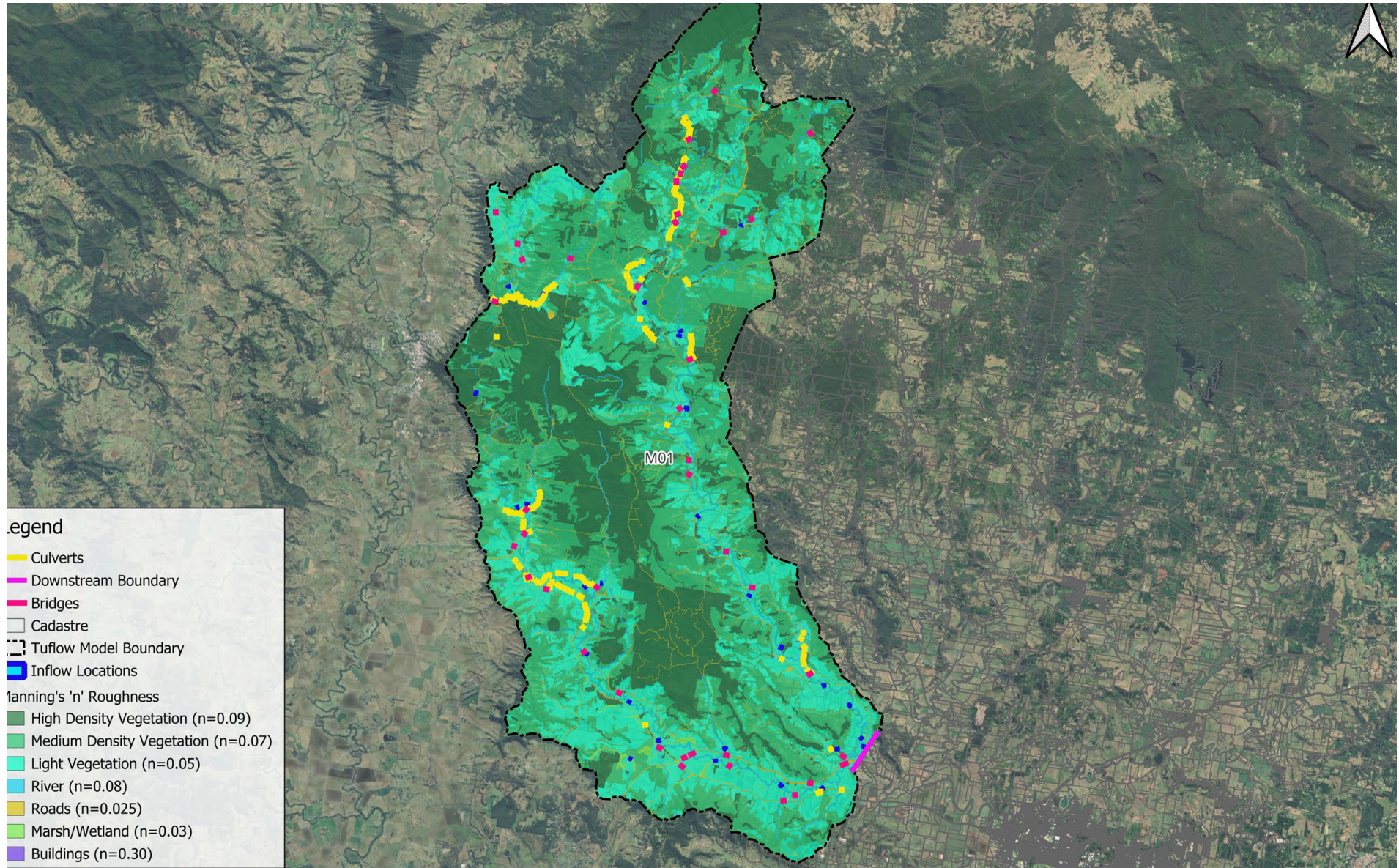
TABLE 3.2: ROUGHNESS VALUES ADOPTED IN THE TUFLOW MODELS

Land Use Type	Manning’s n Value
High Density Vegetation	0.09
Medium Density Vegetation	0.07
Light Vegetation	0.05
River	0.08
Roads	0.025
Marsh/Wetland	0.03
Buildings	0.30

3.2.5 Boundary Conditions

The inflow and outflow locations for each of the three TUFLOW models are shown in Figure 3.1, Figure 3.2, and Figure 3.3. The boundary conditions consisted of:

- Local flows were applied to the TUFLOW model utilising sub-catchment flows developed in URBS for all catchments contributing to the key waterways.
- A normal slope, water level versus flow boundary condition has been placed at the downstream end of each model.



Legend

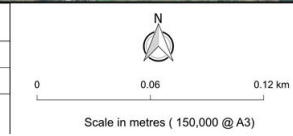
- Culverts
- Downstream Boundary
- Bridges
- Cadastral
- TUFLOW Model Boundary
- Inflow Locations
- Manning's 'n' Roughness
 - High Density Vegetation (n=0.09)
 - Medium Density Vegetation (n=0.07)
 - Light Vegetation (n=0.05)
 - River (n=0.08)
 - Roads (n=0.025)
 - Marsh/Wetland (n=0.03)
 - Buildings (n=0.30)

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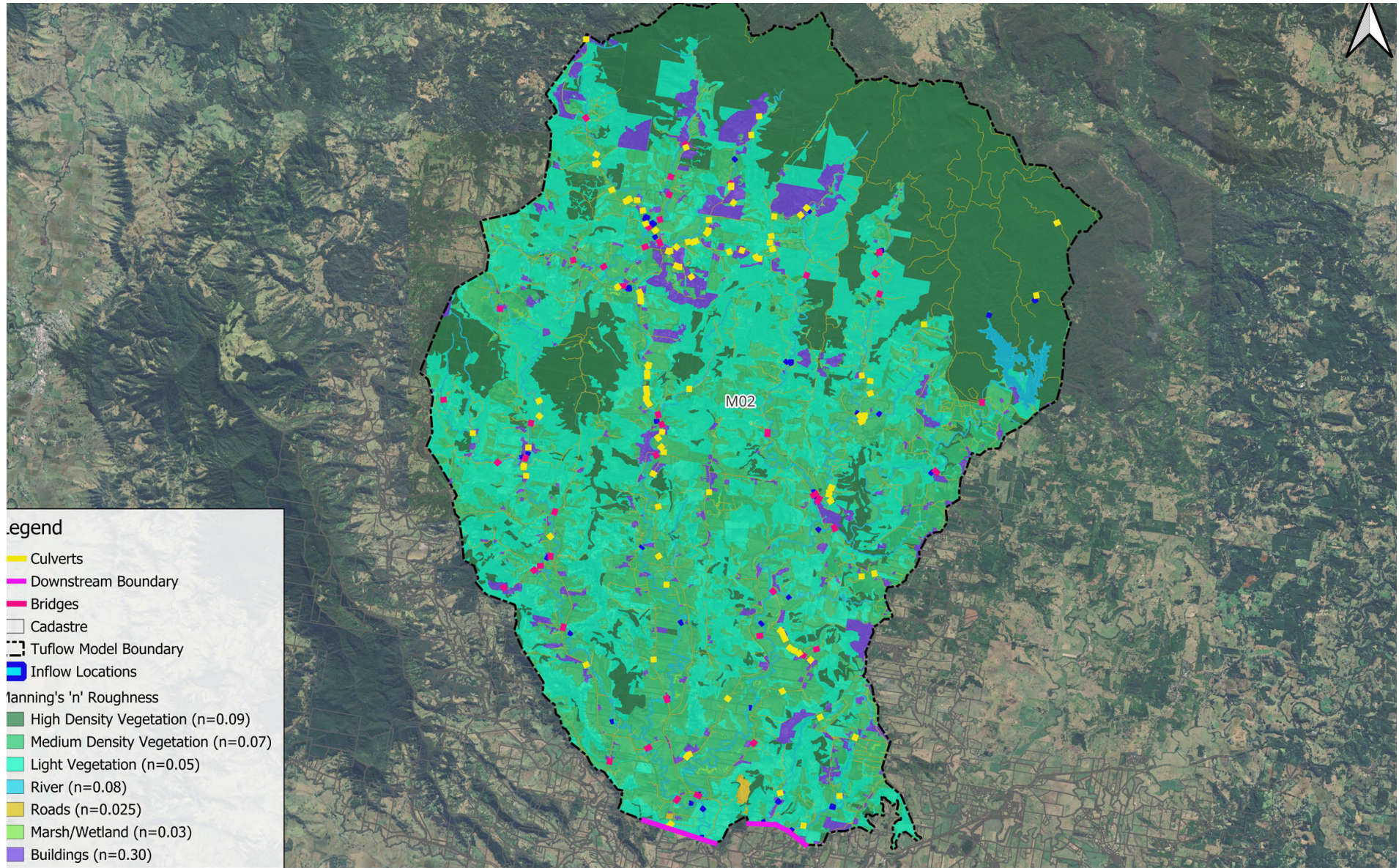


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Figure 3.1 M01 TUFLOW Layout
Lismore Upper Catchment Flood Models
Lismore City Council



Legend

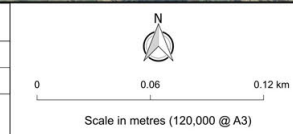
- Culverts
- Downstream Boundary
- Bridges
- Cadastre
- Tuflow Model Boundary
- Inflow Locations

Manning's 'n' Roughness

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- Medium Density Vegetation (n=0.07)
- Light Vegetation (n=0.05)
- River (n=0.08)
- Roads (n=0.025)
- Marsh/Wetland (n=0.03)
- Buildings (n=0.30)

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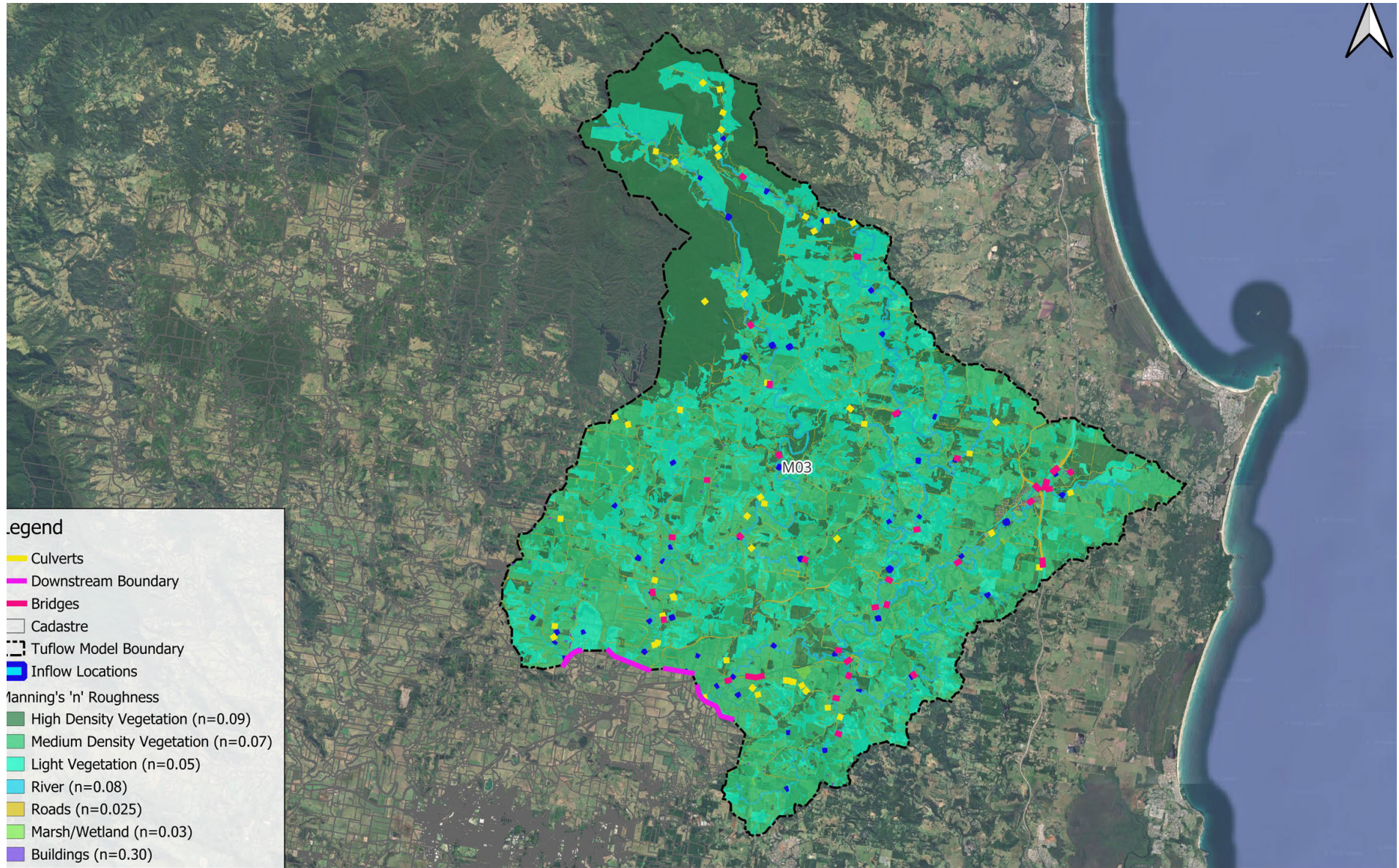
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Figure 3.2 M02 TUFLOW Layout

Lismore Upper Catchment Flood Models
 Lismore City Council



Legend

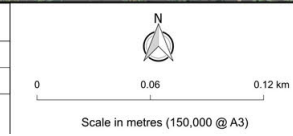
- Culverts
- Downstream Boundary
- Bridges
- Cadastre
- Tuflow Model Boundary
- Inflow Locations
- Manning's 'n' Roughness**
- High Density Vegetation (n=0.09)
- Medium Density Vegetation (n=0.07)
- Light Vegetation (n=0.05)
- River (n=0.08)
- Roads (n=0.025)
- Marsh/Wetland (n=0.03)
- Buildings (n=0.30)

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Figure 3.3 M03 TUFLOW Layout
Lismore Upper Catchment Flood Models
Lismore City Council



4. MODEL VALIDATION

4.1 Historical Event Simulation

The full historical event simulation approach and validation is provided in Appendix B. In summary, the approach involved:

- Application of the historical rainfall data for the March 2017 and February 2022 flood events to the Lismore FRMS calibrated URBS hydrologic model and extraction of local catchment hydrographs for application and simulation in the Lismore upper catchment TUFLOW models.
- Comparison of the simulated water level time series to the data series at selected gauges located across all three models.
- Comparison of the modelled water levels to additional flood survey and observation data provided by Council.
- Comparison of the peak flow at the downstream boundary of each Lismore Upper Catchment TUFLOW model to the peak flow applied to the upstream boundary of the Lismore FRMS model.

4.1.1 Verification to Water Level Gauges

The full modelling and results of the March 2017 and February 2022 historical flood events are provided in Appendix B. In summary, both events show suitable replication of the catchment response and peak water level at the selected gauge locations for both events.

4.1.2 Verification to Additional Sources

In addition to the comparison of the water level versus time series results at suitable gauges, an assessment of additional sources of historical event verification was undertaken.

The additional verification sources considered are listed below, with commentary regarding the suitability of the information for historical event verification provided:

- CSIRO Northern Rivers Resilience Initiative report; *Hydrodynamic model development, implementation and validation for the Richmond River catchment in the Northern Rivers region, NSW, Australia* (CSIRO, 2025):
 - The 2025 report did not include simulation of the design events. Raster grids are not yet available from the agency, and mapping of not suitable enough resolution to verify flood extents for historical events in the Lismore upper catchment.
- Flood debris survey; undertaken by Council and NSW Public Works (NSW PWA):
 - Confirmation with Council through the inception phase of the Project revealed that only a handful of NSW PWA survey marks extended into the Lismore Upper Catchment Models extents. The five points collected for the February 2022 event, and three for the March 2017 event, are all located within 2km of the M02 downstream boundary where the results may be impacted by the proximity of the boundary, and it was considered that the Lismore FRMS TUFLOW model was the most suitable replication of the historical event flooding at this location.
 - Council also provided a post flood event survey document titled *Feb 2022 Flood in The Channon* (The Channon Resilience Inc, 2023) for use in verification. In this document, flood levels at two locations in The Channon are provided for the 2017 event; at 57 Terania St and at Nicholson's House and three locations for the 2022 event; The Channon Tavern, Lot 1 on DP758967 and Nicholson's House. Flood levels for the February 2022 event at these locations ranged between 300-750 mm in difference between the model and the survey, with the flood model being higher in two locations, and lower at the third, which given the close proximity of the flood survey indicates that there may be some error in the surveyed level. For the March 2017 event flood levels were within 200-800mm with the model being higher than one level, and lower than the level that brings into question the accuracy of the surveyed levels.
- Observed flood height as provided by the community:
 - Council has also supplied a series of geographically located February 2022 and March 2017 flood heights throughout the Channon, as provided and collected by the Terania-Keerrong Flood Safety Project.
 - Of the seven points in the March 2017 dataset, the flood model heights at five locations were within 500 mm of the observed flood heights.



- Of the nineteen points in the February 2022 dataset, the flood model heights at eight locations were within 500 mm of the observed flood heights, and fifteen within a 1 m.

In summary, the quality and quantity of provided surveyed or observed flood data in the Lismore upper catchment is limited, with a reasonable verification of the flood model results to the provided information. Given the close verification of the water level versus time series at key gauges, the Lismore Upper Catchment Flood Models are deemed suitable to provide Council with initial flood information. It is recommended that should funding become available, these models can be further refined and formal calibration completed to improve the quality of the flood outputs.

4.1.3 Verification to Lismore FRMS Inflows

A comparison has been made of the peak flow leaving each Lismore Upper Catchment TUFLOW Model at the downstream boundary to the inflow that was applied to the upstream end of the Lismore FRMS model. This is a critical comparison as it indicates that the hydraulic routing performed in the TUFLOW model is acting similarly to the hydrologic modelling in the URBS hydrologic model, and thus the model results along all key waterways in the upper Lismore catchment are expected to be accurate. Generally, peak flows from the Lismore Upper Catchment TUFLOW Model are within 10% of the Lismore FRMS model inflows, indicating that the hydraulic model parametrisation and resultant routing is appropriate.

TABLE 4.1: COMPARISON OF TUFLOW OUTFLOW TO LISMORE FRMS INFLOW

Location	March 2017 Event			February 2022 Event		
	Lismore Upper TUFLOW Model Outflow (m ³ /s)	FRMS TUFLOW Model Inflow (m ³ /s)	Difference (%)	Lismore Upper TUFLOW Model Outflow (m ³ /s)	FRMS TUFLOW Model Inflow (m ³ /s)	Difference (%)
Leycester Creek	1,164	1,279	-9%	2,432	2,531	-4%
Terania Creek	2,408	2,034	18%	4,104	3,903	5%
Wilson's River	399	422	-6%	984	961	2%

4.2 Design Event Validation

Design event validation has been completed for three catchments located in the upper reaches of the Lismore upper catchment TUFLOW models. Peak flows from the TUFLOW model for the 1:10 AEP and 1:100 AEP have been extracted for these catchments, and compared to a calculated peak flow using the Queensland Urban Drainage Manual (QUDM) (IPWEAQ, 2017) Rational Method. A summary of the peak flow comparison is provided in Table 4.2, showing that the Lismore Upper Catchment TUFLOW Models are within 10% of the Rational Method, indicating that the design event results from the TUFLOW models are appropriate. The location of the peak flow validation can be seen by viewing the URBS hydrologic model catchments noted in Table 4.2 against the delineation in Figure 2.1.

TABLE 4.2: DESIGN EVENT PEAK FLOW VALIDATION

Design Flood Event	Catchment 1 (URBS hydrologic model catchments 15 and 16)			Catchment 2 (URBS hydrologic model catchments 38, 39, and partial 54)			Gauge 3 (URBS hydrologic model catchments 46, 50, and partial 57)		
	TUFLOW Peak Flow (m ³ /s)	Rational Method Peak Flow (m ³ /s)	Difference (%)	TUFLOW Peak Flow (m ³ /s)	Rational Method Peak Flow (m ³ /s)	Difference (%)	TUFLOW Peak Flow (m ³ /s)	Rational Method Peak Flow (m ³ /s)	Difference (%)
1:10 AEP	108	126	-14%	151	145	5%	130	133	-2%
1:100 AEP	231	248	-7%	270	285	-5%	237	255	-7%



5. HYDRAULIC RESULTS

The Lismore Upper Catchment Flood Models were simulated for the below flood events:

- 10% AEP
- 5% AEP
- 2% AEP
- 1% AEP
- 1% AEP Long-term Climate Change (SSP1-2.6, SSP2-4.5, and SSP3-7.0)
- 0.5% AEP
- 0.2% AEP
- 1:2,000 AEP
- 1:10,000 AEP
- PMF.

The models were simulated for a full critical duration envelope, ranging from 1 hour to 12 hours. For each duration, three temporal patterns from the suite of ten Australian Rainfall and Runoff (ARR) 2019 ensemble of temporal patterns were simulated, representing the front, mid and back-loaded temporal patterns.

Three 1% AEP climate change scenarios were simulated, for the long-term (2100) horizon. These represent the low, medium, and high socioeconomic pathways (SSPs), with associated rainfall and loss adjustments applied consistent with the guidance provided in ARR 2019 V4.2.

A modelling package containing maximum flood heights, depth, velocity and hazard for the above design flood events (in addition to the March 2017 and February 2022 historical events), along with time series results, have been provided to Council for their use.

5.1 Flood Risk Classification

Determination of flood risk is recommended to be undertaken through consideration of the likelihood of the flood event, and the severity of its consequence as outlined in the *Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia* (AIDR, 2017). The flood risk classifications are a result of the combination of flood hazard and flood frequency, as shown in Figure 5.1. The resultant Flood Risk Classification map for the Lismore Upper Catchment Flood Models are provided in Appendix A and to Council as a vector layer for their use.

Flood Likelihood	Flood Hazard (AIDR)					
	H1	H2	H3	H4	H5	H6
10% AEP	Low	Medium	Medium	High	Extreme	Extreme
5% AEP, 1% AEP	Low	Low	Medium	High	High	Extreme
0.2% AEP	Low	Low	Medium	Medium	High	High
1:1,000 AEP, 1:2,000 AEP	Low	Low	Low	Low	Medium	High
1:10,000 AEP, 1:100,000 AEP, PMF	Low	Low	Low	Low	Low	Medium

FIGURE 5.1: FLOOD RISK CLASSIFICATION MATRIX



6. SUMMARY

Engeny has developed the Lismore Upper Catchment Flood Models to cover all the key waterways within the LCC LGA upstream of the Lismore township. The following is a summary of the model development process and results:

- The URBS hydrologic model as originally developed for the Lismore Flood Risk Management Study (FRMS) (Engeny, 2021) was also utilised as the basis for the Lismore Upper Catchment Flood Models. No changes were made to this model beyond addition of additional climate change scenarios not originally modelled in the Lismore FRMS.
- Three separate TUFLOW models adopting a 10 m cell size were developed for the upper catchment. These models include all identified hydraulic structures (culverts, bridges), based upon survey and design data where available and provided or modelled as road embankment breakthroughs to maintain conveyance of flow.
- The March 2017 and February 2022 historical flood events were simulated in the hydrologic and hydraulic models, with comparison of the recorded and modelled flood level versus time series at key gauge locations in the upper catchment indicating that the model parametrisation is appropriate to replicate the flood behaviour in the catchment. The quality and quantity of provided surveyed or observed flood data in the Lismore upper catchment is limited, with a reasonable verification of the flood model results to the provided information.
- A full suite of design events were modelled; 10%, 5%, 2%, 1%, 1% AEP Long-term Climate Change (SSP1-2.6, SSP2-4.5, and SSP3-7.0), 0.5%, 0.2%, 1:2,000, 1:10,000 AEP, and PMF.
- Maximum results grids and timeseries results were provided to Council in digital format. Flood Risk Classification processing and mapping was undertaken, utilising the same classification criteria as the Lismore Flood Risk Management Plan.

The Project serves the purpose of providing Council with design event flood behaviour and to provide flood risk classification for all key waterways in the LGA. Timeframe and funding constraints prevent extensive calibration/validation or capture of additional minor waterways in the model extent. It is recommended that these models form the basis of future projects involving further calibration should more historical data become available.

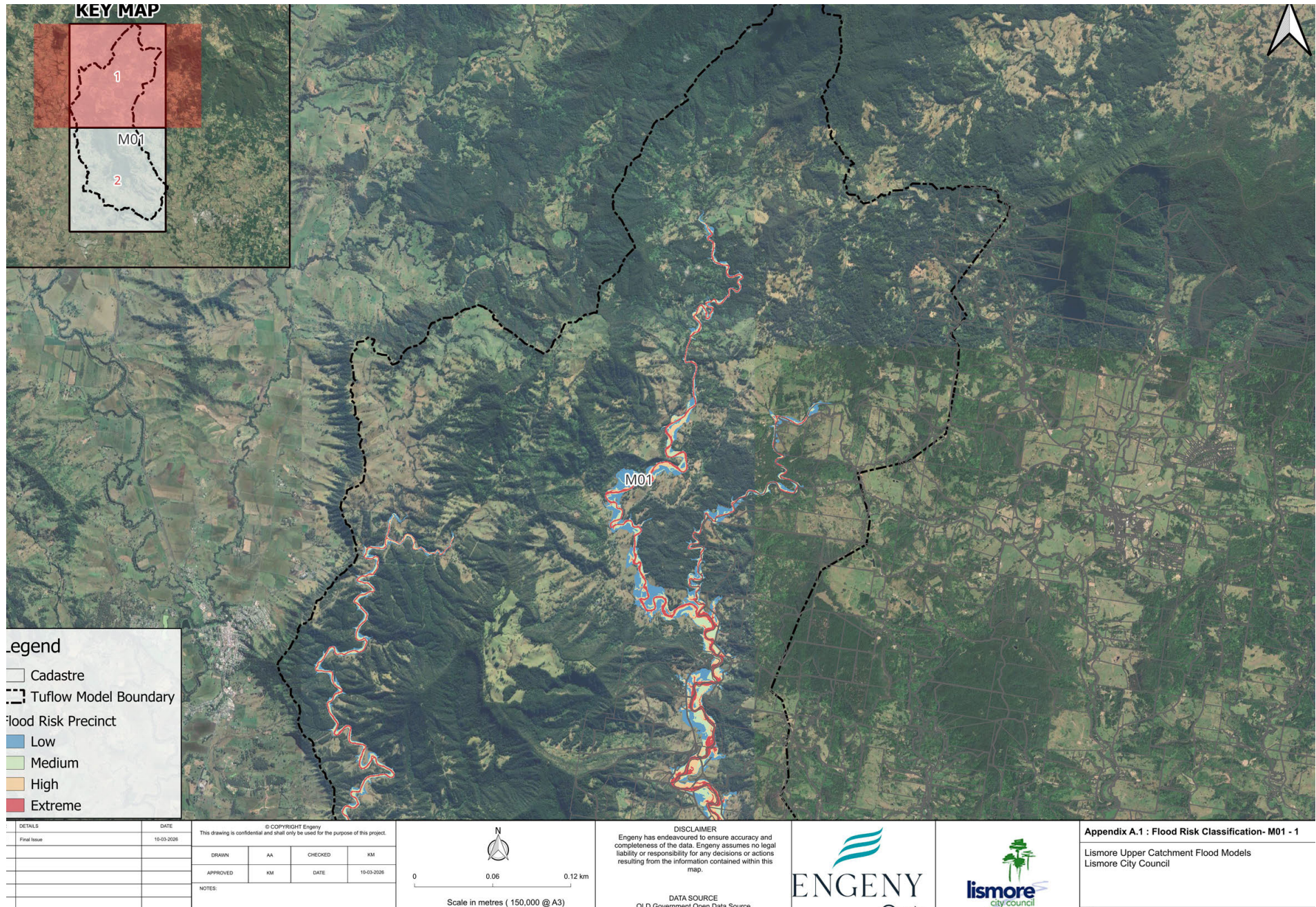
It is also recommended that an at-site IFD analysis project is undertaken, which will provide greater certainty to rainfall intensities applied to generate design event levels. An at-site IFD analysis project would develop IFD data sets from localised historical pluviographic records, which would account for spatial variation across the Lismore upper catchment, rather than the regionalised IFD (IFD) data provided by the Bureau of Meteorology.

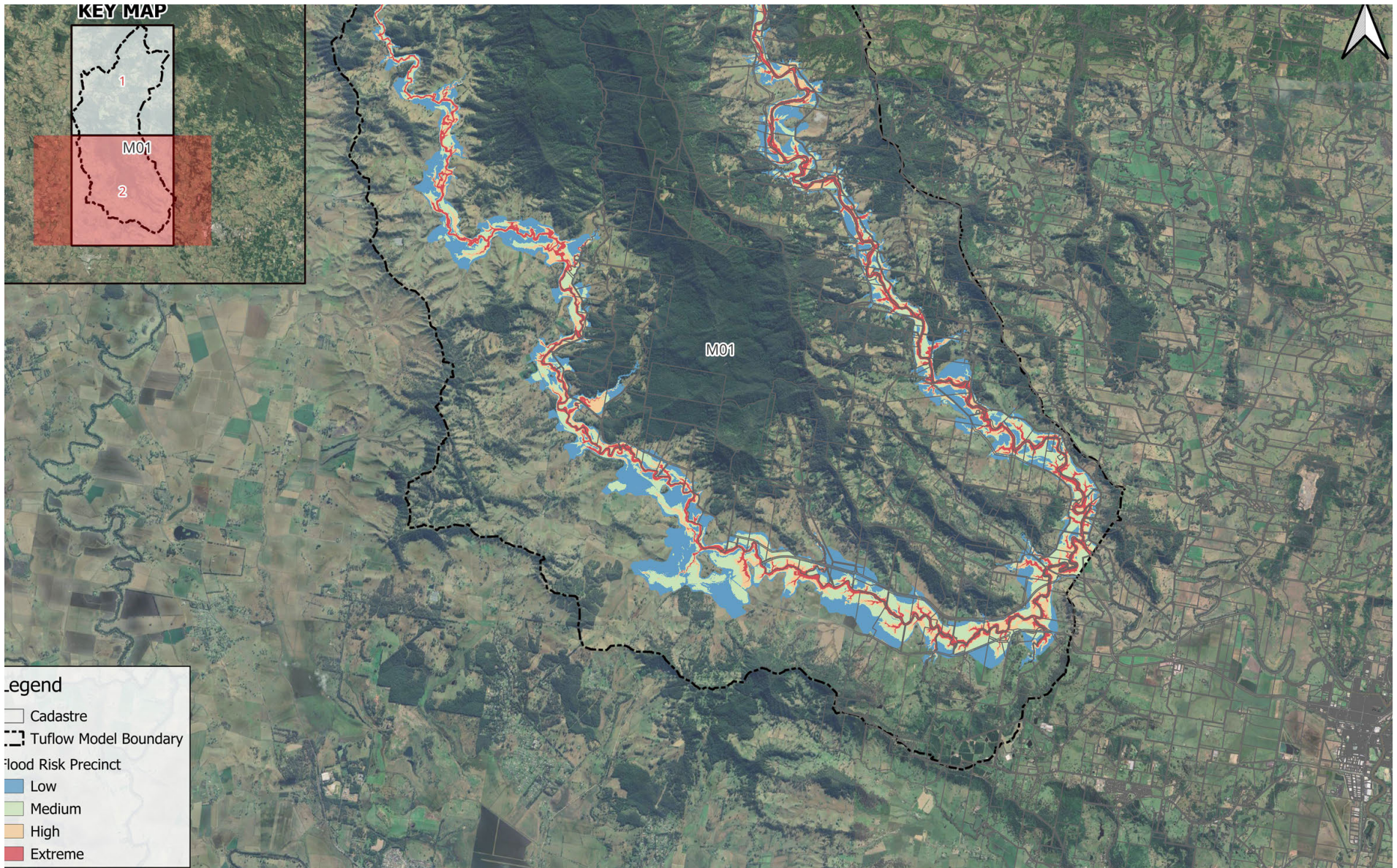


7. QUALIFICATIONS

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- (b) Engeny has used reasonable endeavours to inform itself of the parameters and requirements of the project and has taken reasonable steps to ensure that the works and document is as accurate and comprehensive as possible given the information upon which it has been based including information that may have been provided or obtained by any third party or external sources which has not been independently verified.
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APPENDIX A: FLOOD RISK CLASSIFICATION MAPPING





Legend

- Cadastre
- Tuflow Model Boundary
- Flood Risk Precinct**
- Low
- Medium
- High
- Extreme

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0 0.06 0.12 km

Scale in metres (150,000 @ A3)

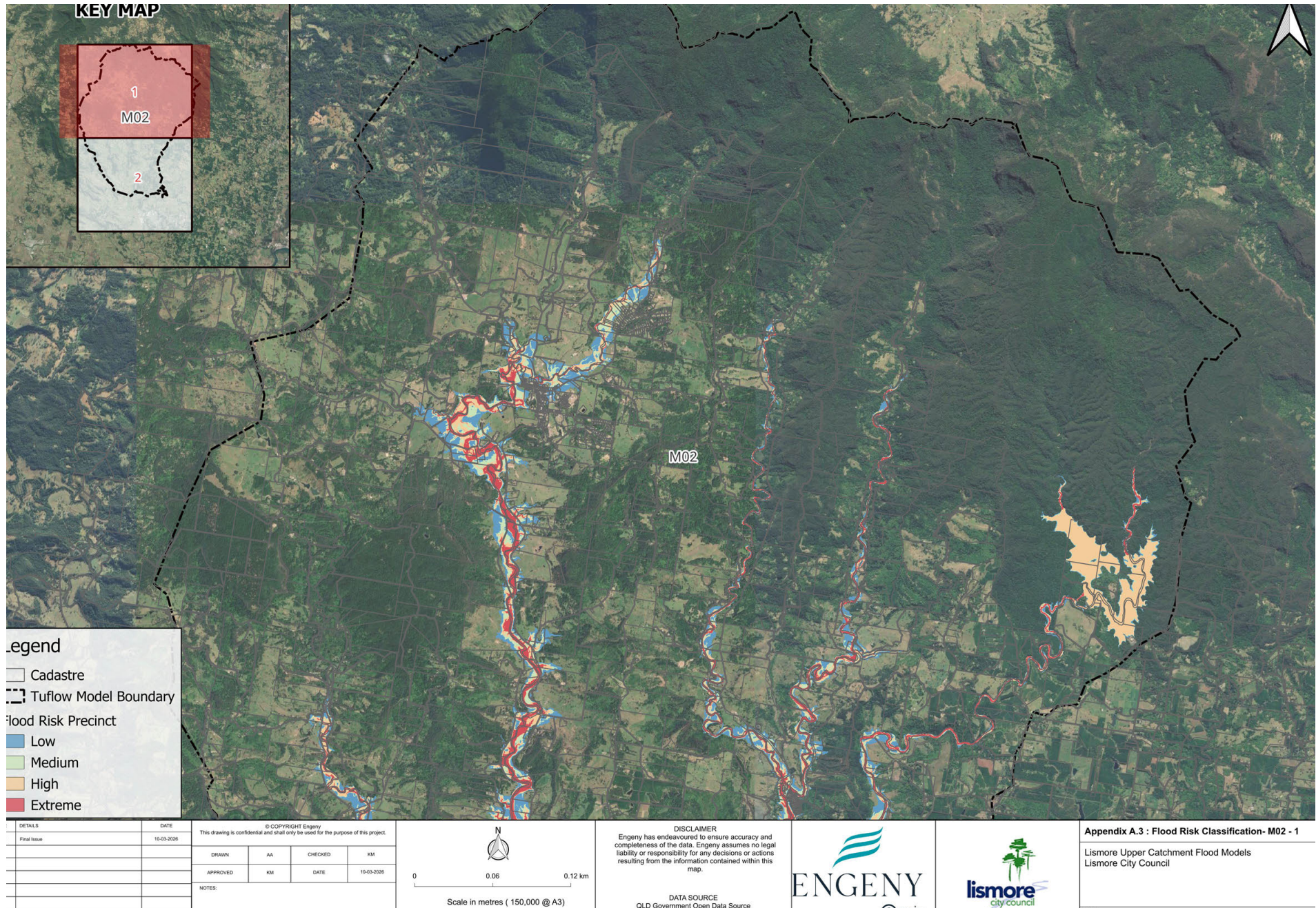
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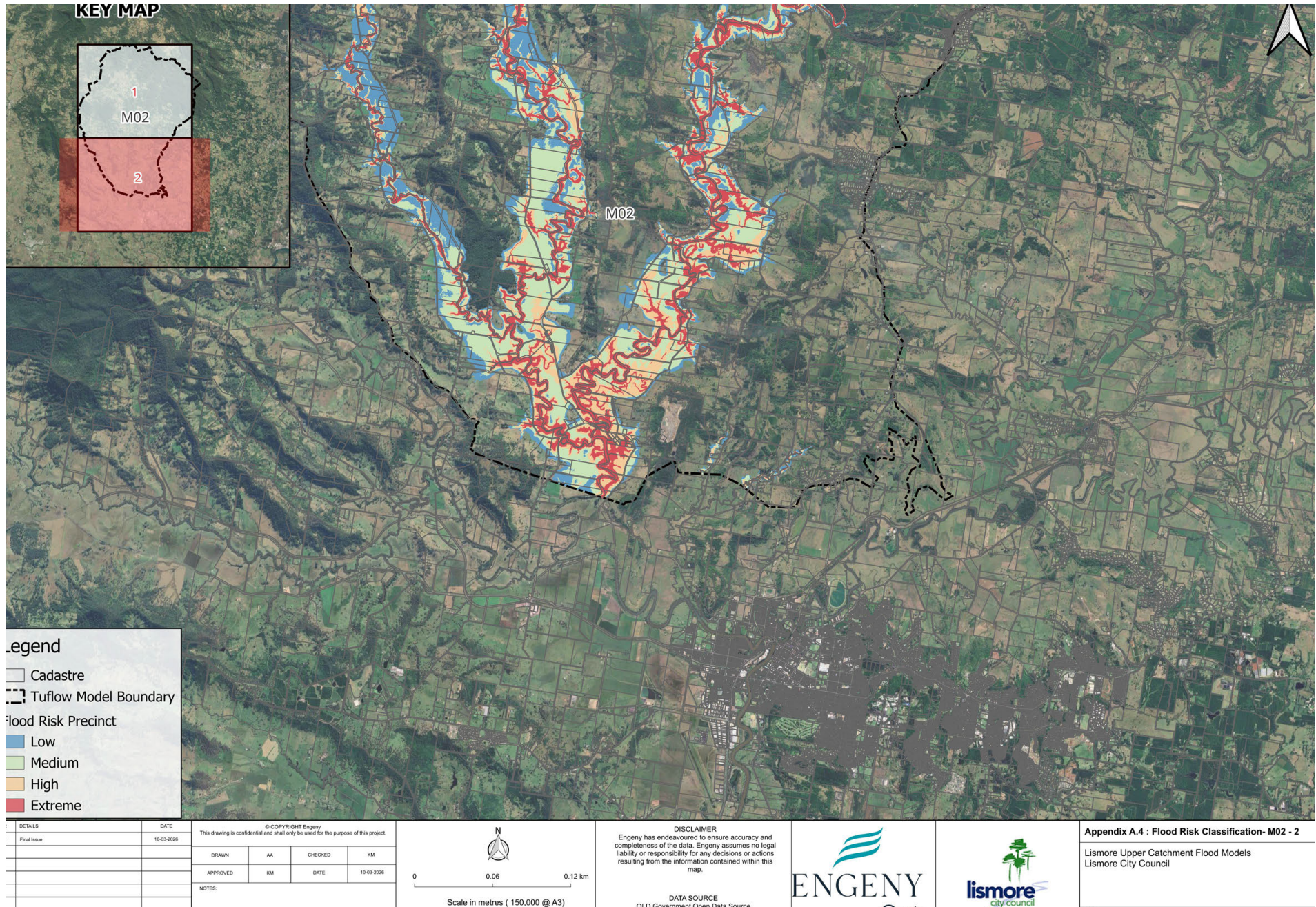
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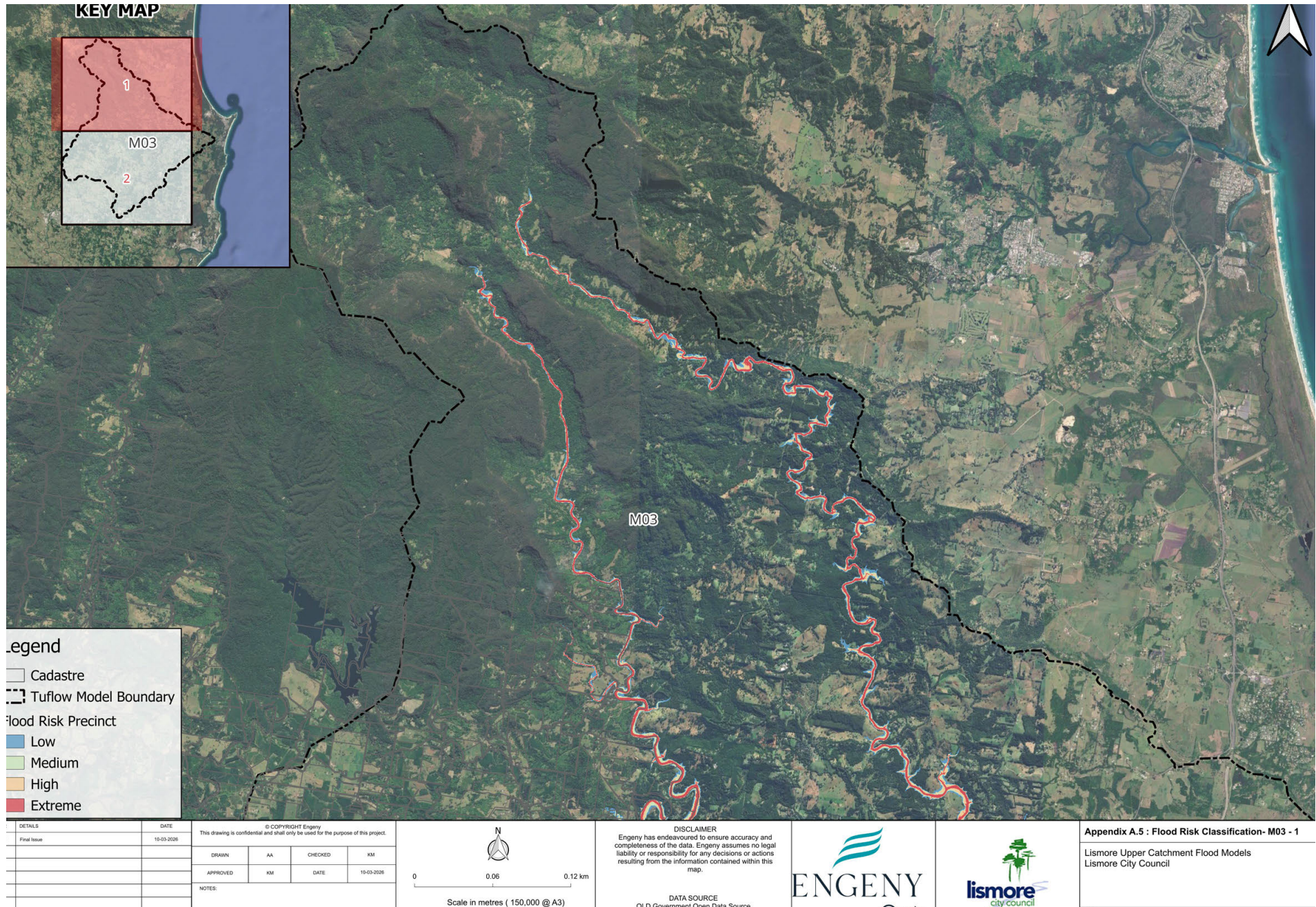


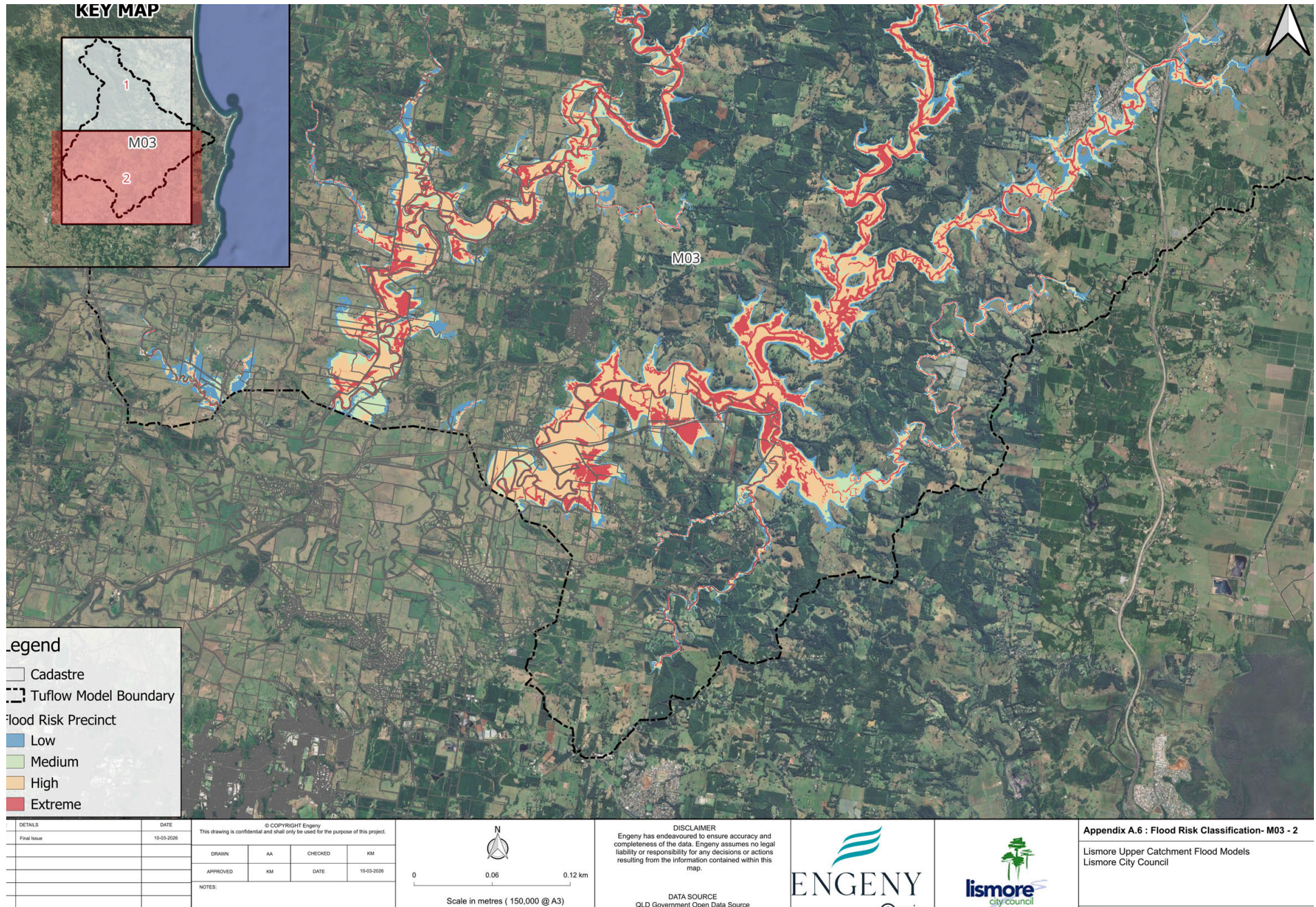
Appendix A.2 : Flood Risk Classification- M01 - 2

Lismore Upper Catchment Flood Models
Lismore City Council









APPENDIX B: HISTORICAL EVENT SIMULATION RESULTS



B.1 Joint Hydrologic and Hydraulic Model Historical Event Validation Approach

The March 2017 and February 2022 flood events were simulated in the URBS hydrologic and TUFLOW hydraulic models. The simulation approach was as follows:

- The rainfall depth assigned to each sub-catchment was calculated using the 'subrain' utility within the URBS software package. The 'subrain' utility calculates an inverse distance weighted average rainfall based on the closest four (4) rainfall stations.
- The temporal pattern of rainfall was determined for each sub-catchment by assigning the temporal pattern from the nearest pluviometry station (distance from pluviometry station to sub-catchment centroid). The assignment of temporal pattern was undertaken using the 'subrain' utility.
- The resultant historical event hydrographs were applied to the TUFLOW hydraulic model as local catchment inflows.

The spatial distribution of the rainfall across the catchment, and the cumulative rainfall graphs, can be viewed in the *Lismore 2022 Post Event Flood Analysis* (Engeny, 2024) and *Lismore Floodplain Risk Management Study Final Report* (Engeny, 2021).

To verify that the URBS model and the TUFLOW models were producing suitable representations of the upper catchment flood behaviour, a comparison of water level versus time series from the TUFLOW model to recorded water level versus time series at the following stream gauge locations was undertaken:

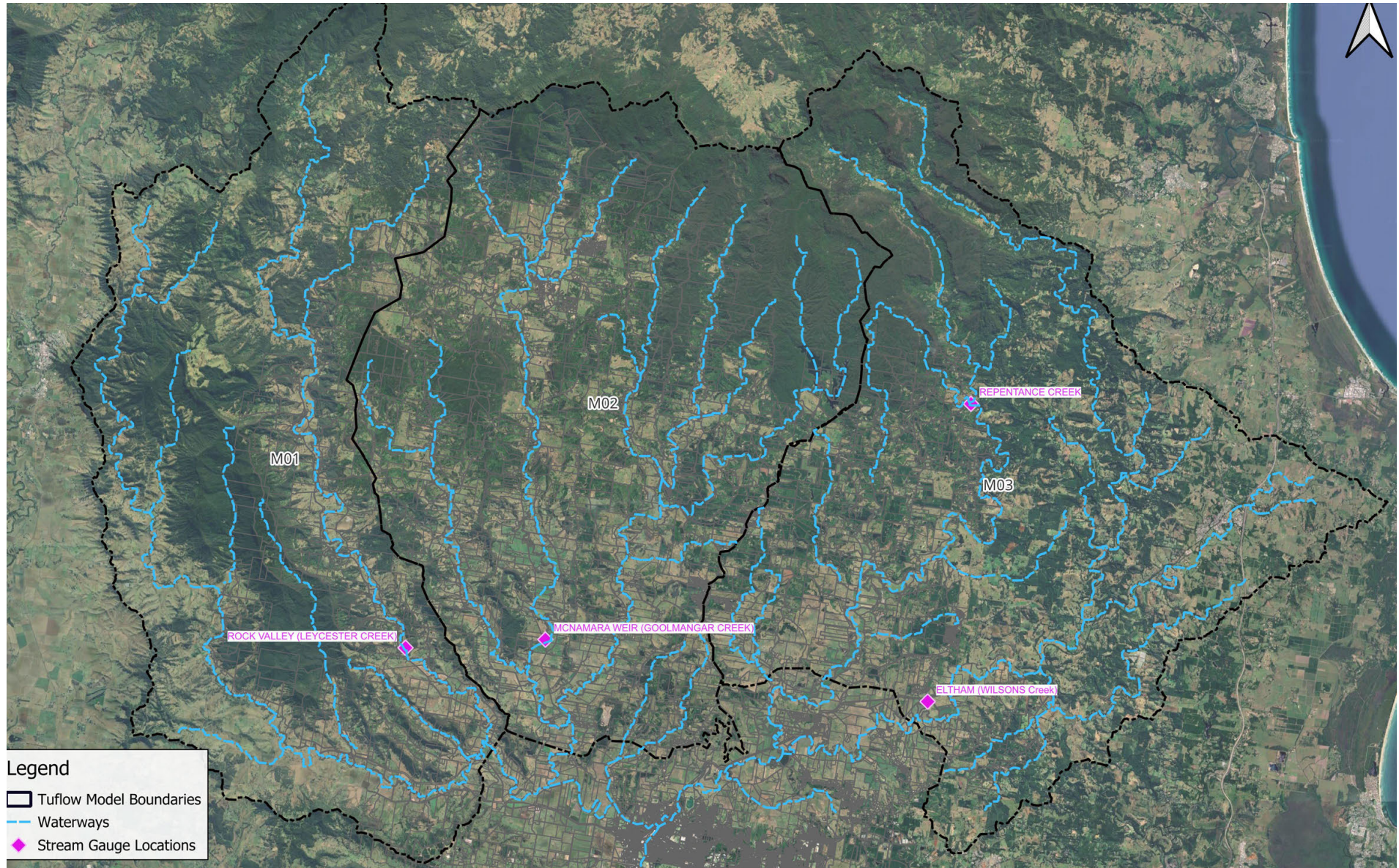
- Leicester Creek at Rock Valley - 58199 (February 2022)
- Goolmangar Creek at McNamara Weir – 203061 (March 2017 and February 2022)
- Repentance Creek - 558000 (March 2017 and February 2022)
- Wilsons Creek at Eltham - 58200 (February 2022).

In total, 11 gauges were initially reviewed in the upper Lismore catchment for applicability for the verification process, with the selected three gauges above having a suitable complete record for the duration of the historical events. The location of the selected gauges are shown on Figure B.1

The adopted URBS model parameters to verify the performance of the model for the historical events are summarised in Table 4.1. The results from the historical event simulations are summarised in the following sections.

TABLE B.1: URBS MODEL PARAMETERS

Parameter	March 2017 Event Parameter	February 2022 Event Parameter
Initial Loss (mm)	50	85
Continuing loss (mm/h)	3	1
Channel lag parameter (α)	0.15	0.1
Catchment lag parameter (β)	1	1
Catchment non-linearity parameter (m)	0.8	0.8



Legend


- Tuflow Model Boundaries
- Waterways
- ◆ Stream Gauge Locations

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Scale in metres (150,000 @ A3)

0 0.06 0.12 km

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Appendix B.1: Stream Gauge Locations

Lismore Upper Catchment Flood Models
Lismore City Council



B.1.1 March 2017 Flood Event

B.1.1.1. Overview

The March 2017 flood event was simulated in both the URBS hydrologic and TUFLOW hydraulic models, with comparison of recorded flood level versus time series from the stream gauge record to that simulated in the TUFLOW model informing the adequacy of the model's parametrisation.

The March 2017 event was simulated for a time period from 7am on 29 March 2017 to 10am 3 April 2017. The pluviographic records applied to the URBS hydrologic model are shown in Figure B.2 and Figure B.3 The isohyet plot of the total depths is provided in Figure B.4.

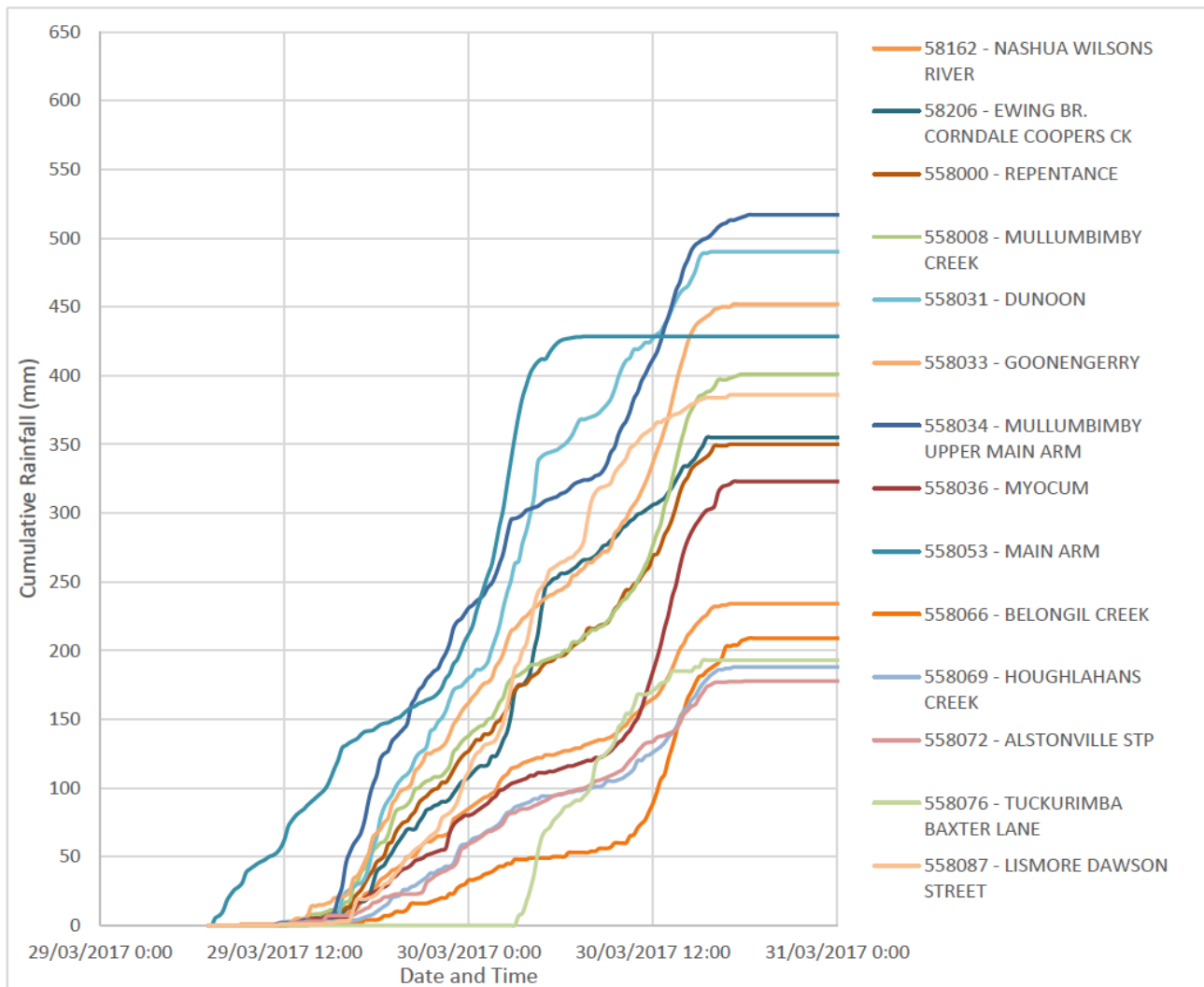


FIGURE B.2: MARCH 2017 CUMULATIVE RAINFALL – WILSONS RIVER GAUGES

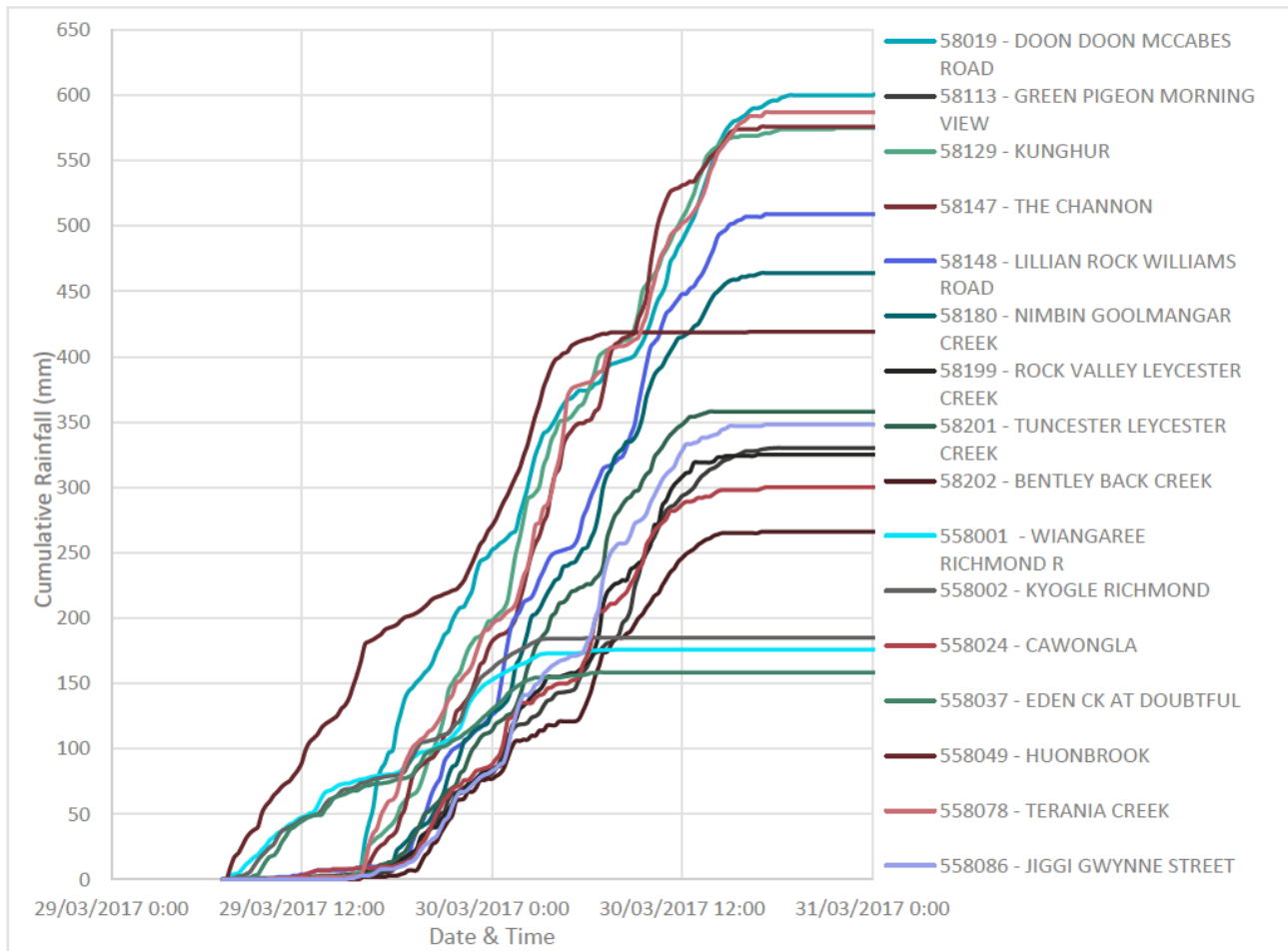
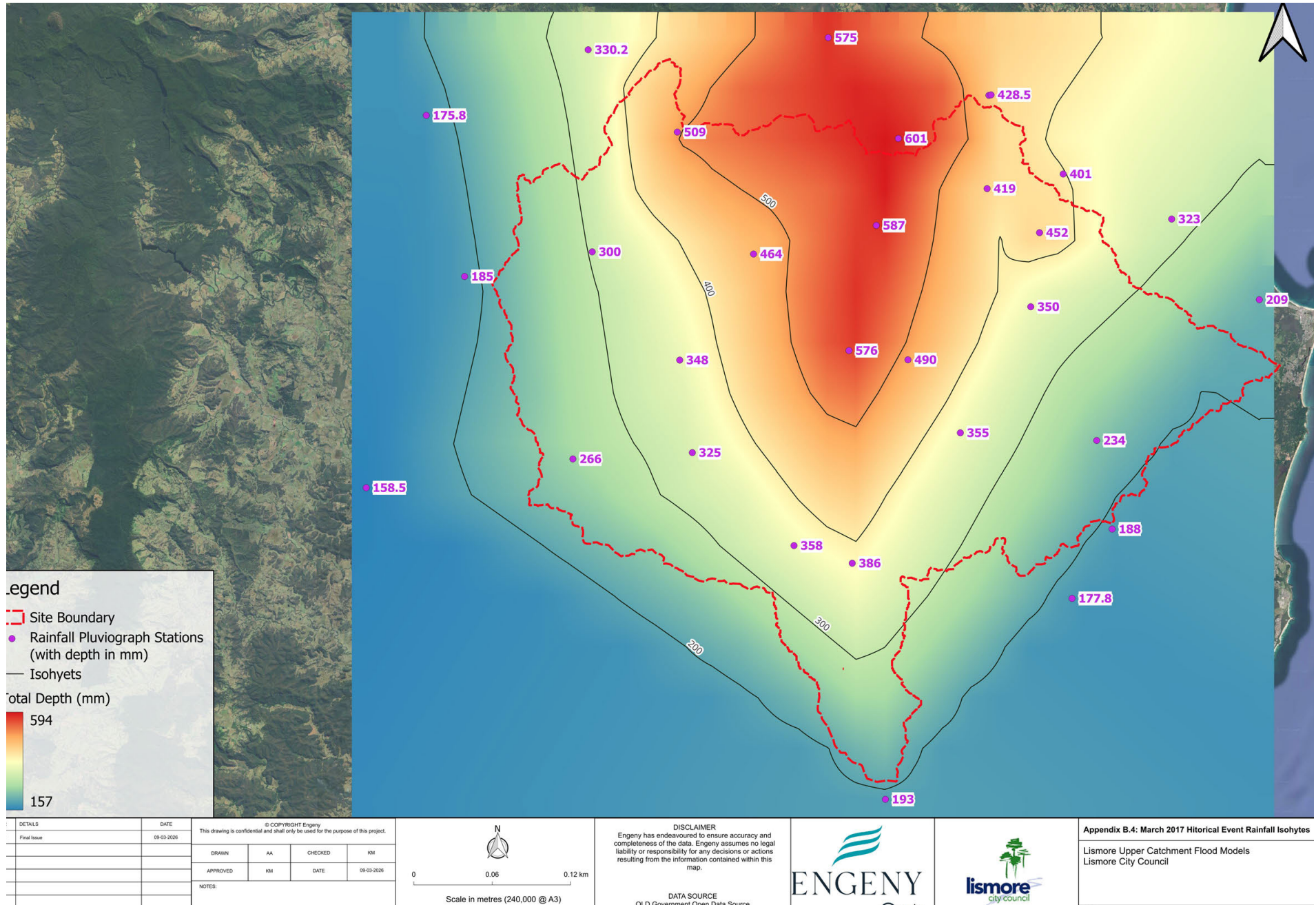


FIGURE B.3: MARCH 2017 CUMULATIVE RAINFALL – LEYCESTER CREEK GAUGES





B.1.1.2. March 2017 Results

The comparison of the modelled TUFLOW water level versus time series to the water level gauge time series at the Goolmangar Creek and Repentance Creek gauges are provided in Figure B.5 and Figure B.6.

At both gauges, the Lismore Upper Catchment models (M02 for Goolmangar Creek, and M03 for Repentance Creek) show replication of the catchment response, particularly at the rising limb for Goolmangar Creek and both the overall shape of the water level series at Repentance Creek. The peak water levels modelled in TUFLOW at the two gauges are within 500 mm of the water gauge level series at both gauges. These results indicate that the Lismore Upper Catchment TUFLOW hydraulic model and the Lismore FRMS URBS hydrologic model are suitably replicating the March 2017 event.

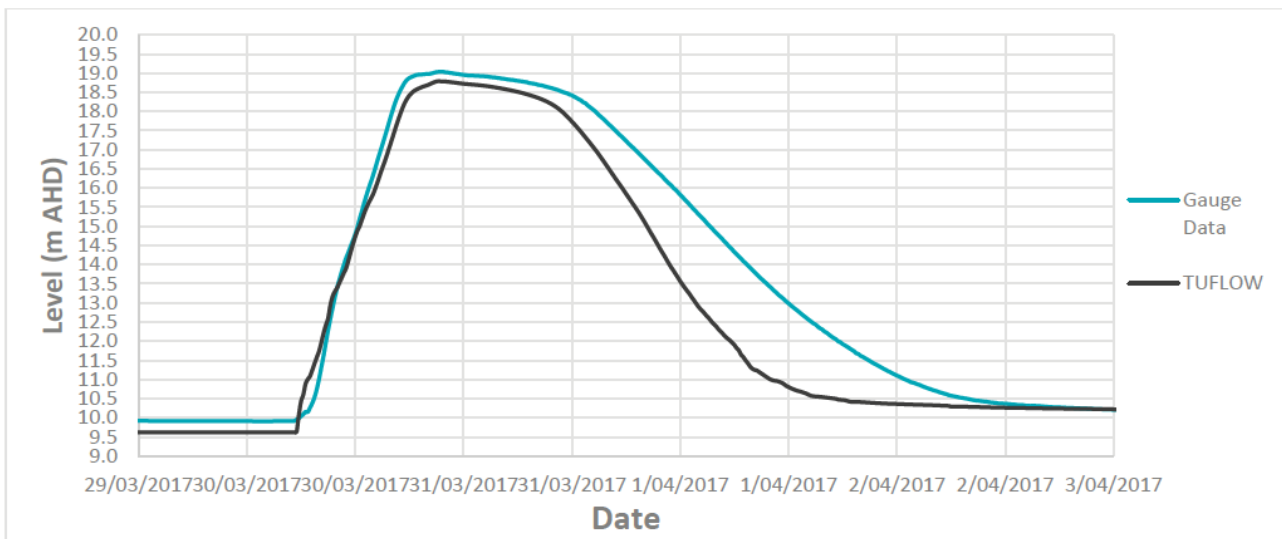


FIGURE B.5: TUFLOW VS WATER LEVEL GAUGE DATA – MARCH 2017 AT GOOLMANGAR CREEK

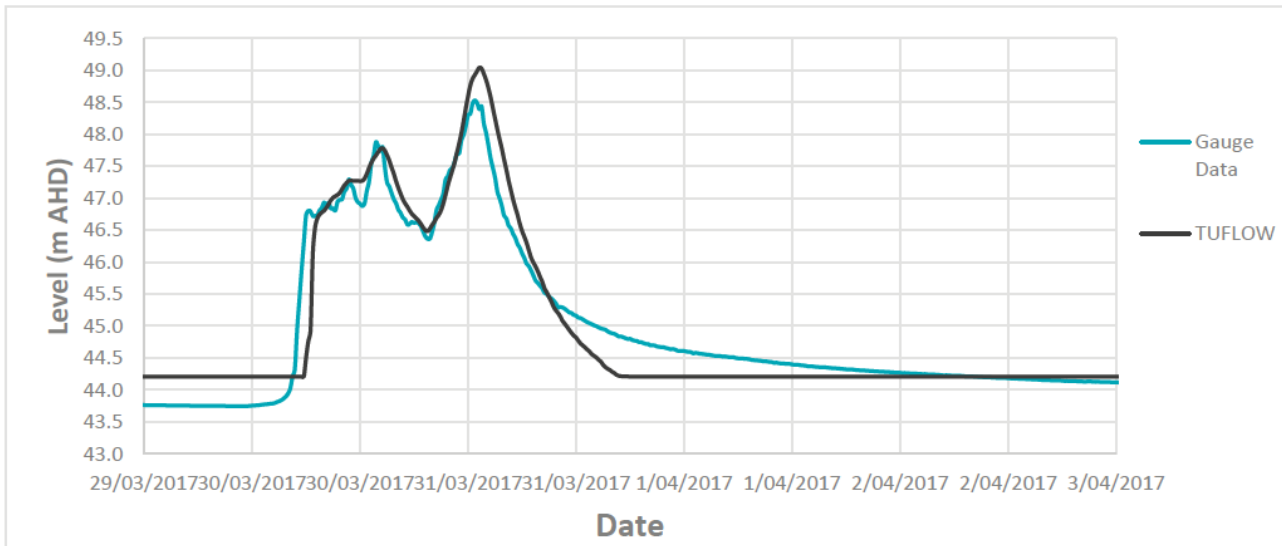


FIGURE B.6: TUFLOW VS WATER LEVEL GAUGE DATA – MARCH 2017 AT REPETENCE CREEK



B.1.2 February 2022 Flood Event

B.1.2.1. Overview

The February 2022 flood event was simulated in both the URBS hydrologic and TUFLOW hydraulic models, with comparison of recorded flood level versus time series from the stream gauge record to that simulated in the TUFLOW model to further confirm the model parametrisation, in addition to the March 2017 results.

The February 2022 event was simulated for a time period from 12am on 23 February 2022 to 12am on 3 March 2022. The pluviographic records applied to the URBS hydrologic model are shown in Figure B.7. The isohyet plot of the total depths is provided in Figure B.8.

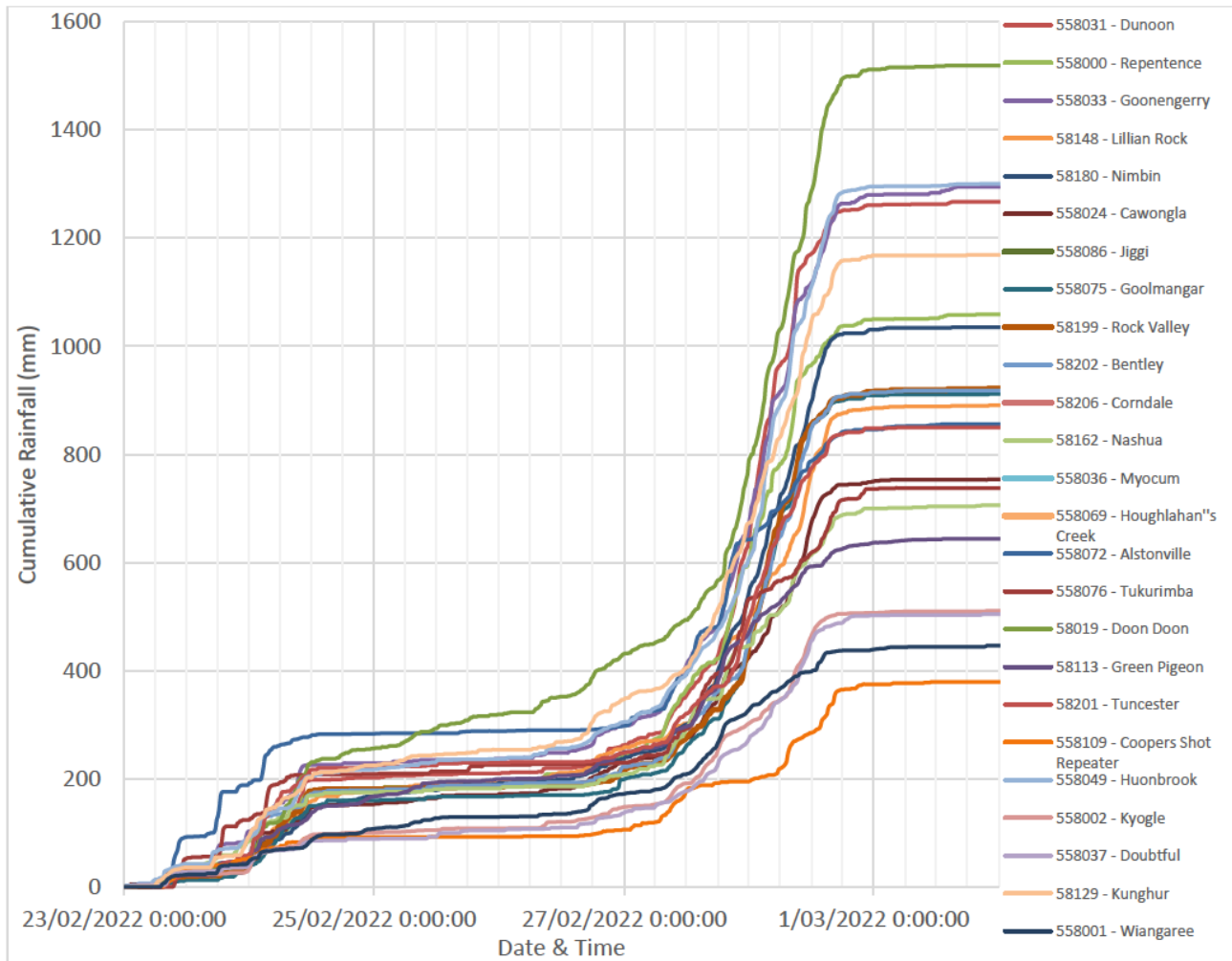


FIGURE B.7: FEBRUARY 2022 CUMULATIVE RAINFALL



B.1.2.2. February 2022 Results

The comparison of the modelled TUFLOW water level versus time series to the water level gauge time series are provided in Figure B.9 to Figure B.12.

At all gauges, the Lismore Upper Catchment models (M01 for Leycester Creek, M02 for Goolmangar Creek, and M03 for Repentance Creek and Wilsons River) show replication of the catchment response and peak water level. These results indicate that the Lismore Upper Catchment TUFLOW hydraulic model and the Lismore FRMS URBS hydrologic model are suitably replicating the February 2022 event.

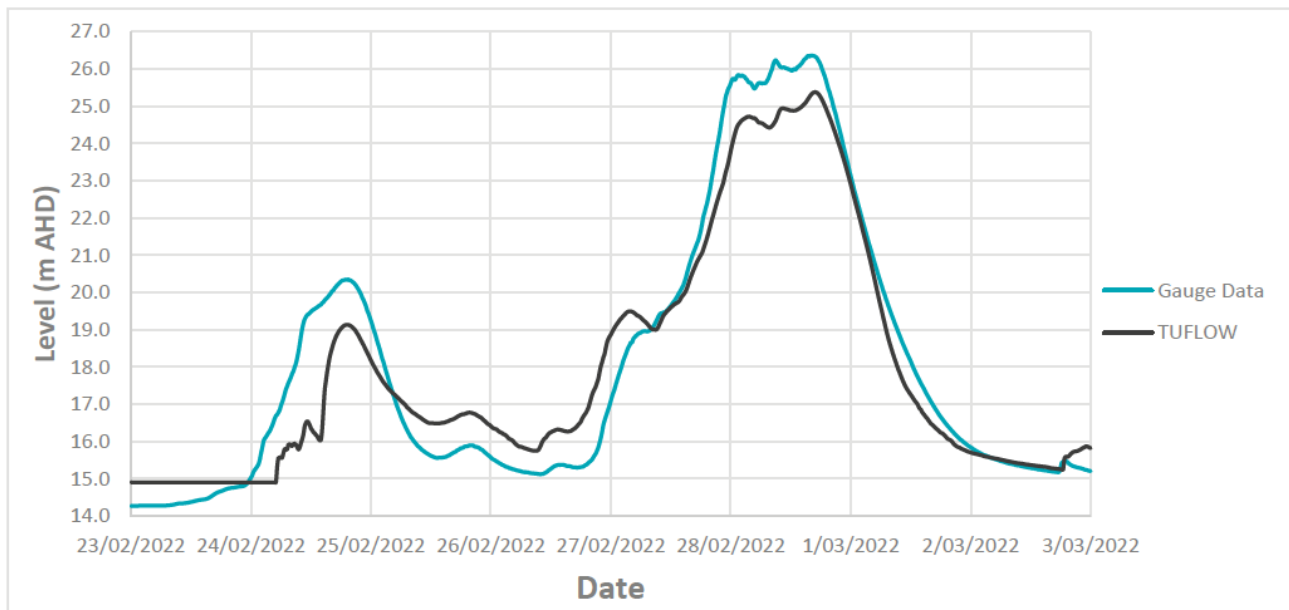


FIGURE B.9: TUFLOW VS WATER LEVEL GAUGE DATA – FEBRUARY 2022 AT LEYCESTER CREEK

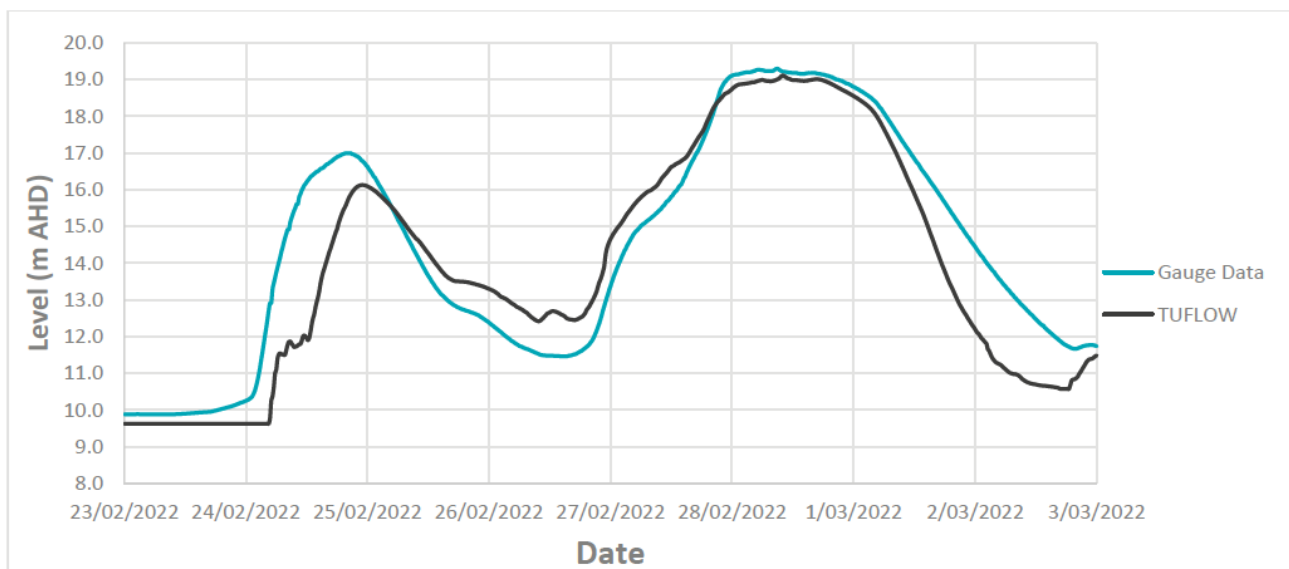


FIGURE B.10: TUFLOW VS WATER LEVEL GAUGE DATA – FEBRUARY 2022 AT GOOLMANGAR CREEK

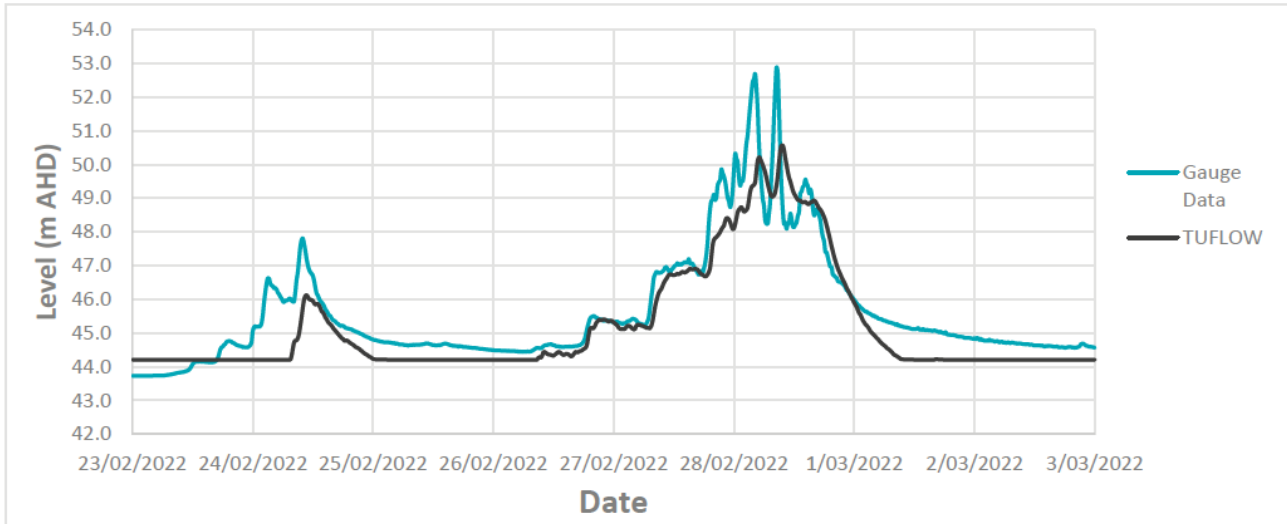


FIGURE B.11: TUFLOW VS WATER LEVEL GAUGE DATA – FEBRUARY 2022 AT REPENTANCE CREEK

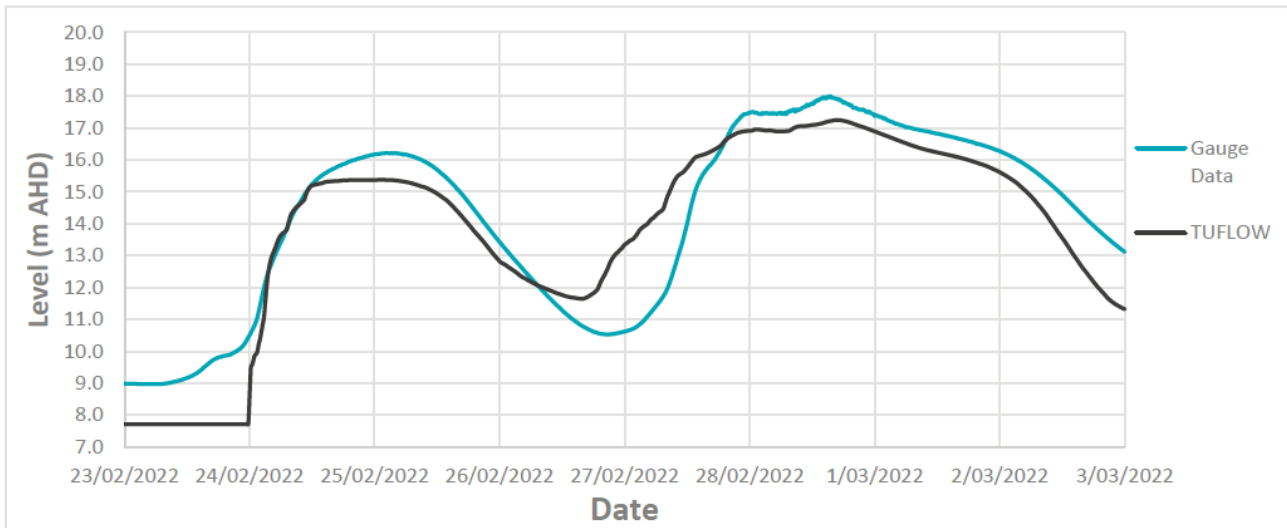


FIGURE B.12: TUFLOW VS WATER LEVEL GAUGE DATA – FEBRUARY 2022 AT WILSONS RIVER

Business

Subject	Update on Flood Risk Management Plan implementation
TRIM Record No	BP26/361:EF19/237-8
Prepared by	Senior Strategic Planner
Reason	To provide the Committee with an update on the implementation status of the 11 key flood risk management measures in the Lismore Flood Risk Management Plan
Strategic Theme	Environment
Strategy	Value and protect local biodiversity, natural landscapes and waterways, and strengthen resilience to natural hazards
Action	Facilitate increased resilience to natural hazards and disasters

Executive Summary

The Lismore Flood Risk Management Plan, adopted in November 2024, outlines 11 key implementation measures identified through the Flood Risk Management Study. An update on the implementation status of each measure has been provided to support ongoing monitoring, accountability, and prioritisation of flood risk management efforts.

Recommendation

That:

1. That the Committee note the report.

Information

Flood Risk Management Plan

The purpose of a Flood Risk Management Plan, as outlined in the NSW Government's *Flood Risk Management Manual*, is to guide local councils in developing and implementing sustainable strategies for managing flood-prone land.

Specifically, it aims to:

- **Support informed land use planning** by identifying flood risks and constraints.
- **Evaluate and recommend mitigation strategies** that balance social, economic, ecological, and cultural factors.
- **Enhance community safety and resilience** through better understanding and management of flood risks.
- **Ensure community aspirations** for the use of flood-prone land are considered in planning decisions.

This framework helps Council make strategic, evidence-based decisions to reduce flood impacts and improve long-term resilience. The adopted Lismore Flood Risk Management Plan can be viewed [here](#).

Implementation Measures

The Flood Risk Management Implementation Plan identifies a series of actions Council can pursue across three key categories: property modification measures, response modification measures, and flood

behavior modification measures. Table 1 below outlines the 11 prioritised actions, with accompanying comments from Council officers detailing how each measure is being addressed.

Table 1: Flood Risk Management Implementation Plan – April 2026 Update

FRM Measure ID	Action	Status
PM01	<p>Zoning and Development Control <i>A review of the Lismore LEP and DCP is currently being completed by LCC, utilising detailed information and recommendations provided in the Lismore Floodplain Risk Management Plan – Land Use Planning and Development Control document (Engeny, 2023) and the Update on Addressing Flood Risk in Planning Decisions Planning Circular (NSW Government, 2024).</i></p>	<p>Update: A draft of Chapter 8 Flood Prone Lands is being prepared and is awaiting finalisation of other DCP chapters to ensure alignment across statutory documents.</p> <p>With the recent completion of the northern extension to the Lismore flood model, staff are currently undertaking a more detailed review of rural localities to further refine and consider development controls across the LGA.</p>
PM02	<p>Voluntary House Purchase (VHP) <i>It is recommended that dependent on available funding, extension of the Reconstruction Authority (RA) Resilient Homes Program (RHP) VHP program is extended by Council to include more properties in Lismore. Additionally, it is also recommended that LCC work closely with the RA to identify suitable flood-free land to assist with relocation of flood-affected properties at a price that is affordable to those seeking relocation.</i></p>	<p>The FRMP recommends the following timing: <i>‘Following RHP cessation’</i></p> <p>Update: The RHP is currently still in progress. This measure will be further considered, in consultation with NSW Reconstruction Authority, once RHP funding for the Lismore LGA concludes.</p> <p>Opportunity: <i>Future Lands</i> precinct planning will commence in 2026. NSW Reconstruction Authority (RA) and Lismore City Council (LCC) will explore future uses for the vacant land purchased under the \$880 million Resilient Homes Program (RHP). These areas are no longer suitable for residential use due to extreme flood risk. Community input will guide decisions on zoning, ownership and land and this may be an opportunity to identify additional properties to be prioritised for VHP or VHP.</p> <p>A presentation by Council staff on the <i>Future Lands</i> project will be presented to the April meeting for the Committee’s consideration.</p>
PM03	<p>Voluntary House Raising (VHR) and Retrofitting <i>It is recommended that dependent on available funding, extension of the RA RHP VHR program is extended by Council to include more properties in Lismore.</i></p>	<p>The FRMP recommends the following timing: <i>Following RHP cessation</i></p> <p>Update: The RHP is currently still in progress. This measure will be further considered, in consultation with NSW</p>

		<p>Reconstruction Authority, once RHP funding for the Lismore LGA concludes.</p> <p>Opportunity: Refer to VHP above.</p>
<p>RM01</p>	<p>Community Flood Awareness Readiness Programs <i>Continuation of education and increase to local community awareness through regular business functions (i.e. development assessment, etc.) as well as developing a community awareness strategy to disseminate the latest flood information.</i></p>	<p>Flood Planning Session - Business Lismore The Flood Planning Workshop held on 9 February brought together local businesses from across the region to strengthen understanding of flood preparedness, response and recovery. The session provided practical, up-to-date guidance and enabled direct engagement with key emergency and resilience agencies, supporting informed business planning ahead of future flood events. The workshop was delivered by Business Lismore, supported by Lismore City Council, NSW State Emergency Service (SES), Resilient Lismore, Living Lab Northern Rivers and the Australian Red Cross.</p> <p>Emergency Management Expo An Emergency Management Expo will be held on Saturday, 20 June 2026, at the Lismore Quadrangle (The Quad) from 10:30am to 2:30pm, alongside the Lismore Lantern Parade in the CBD.</p> <p>The Expo is designed to educate the community about local hazards, how to be prepared, which emergency services respond to different types of incidents, and the support services available during and after emergencies. The Lismore Emergency Management Expo will offer an engaging, hands-on experience suitable for all ages.</p> <p>Positioning the Expo alongside an existing, well-attended community event ensures emergency management is taken to where people already are, increasing reach, accessibility, and engagement with a broader cross-section of the community.</p>
<p>RM02</p>	<p>Improve Flood Predictions and Warning <i>It is recommended that Council consider utilising the flood results from the FRMS to further identify localities for passive and active flood warning signs. It is noted that since the 2022 flood events, additional signage has already been placed at Wyrallah Road, Boatharbour Road, and Nimbin Road.</i> A \$15M program led by DCCEEW is underway to develop a Richmond and Wilsons Valleys Flood Warning System. Dependent on the outcomes from this project there could be scope for Council to further expand upon the system within the Wilsons River catchment, utilising</p>	<p>Update: Council’s Flood Monitoring Cameras are now publicly accessible via Council’s website, providing visual information to support flood awareness and decision-making. Images are updated twice daily during dry conditions and increase to every 15 minutes when rising water levels are detected.</p>

	<i>the URBS and TUFLOW models developed for the FRMS.</i>	<p>Future expansion of the camera network will be pursued subject to the availability of funding opportunities.</p> <p>Access Lismore’s Flood Monitoring Cameras here</p>
RM04	<p>Floor Level Survey <i>Extension of floor level surveys for any properties not included in the NRRRP regional program so that Council has floor level data for all properties within the PMF extent.</i></p>	<p>Update: The northern extension of the Lismore flood model is now complete.</p> <p>Council staff are reviewing properties within this area to identify those residential properties that do not have a floor level survey. This will enable LCC to determine the extent of assessments required and estimate the potential costs involved.</p> <p>An update will be provided to the Committee once this review has been completed.</p>
RM07	<p>Review of Design Flood Levels <i>Review of design flood levels and reflection of updated information in the FRMP and Local Flood Plan.</i></p>	<p>The FRMP recommends the following timing: <i>Ongoing, depending on funding availability</i></p> <p>Update: There have not yet been any funding opportunities to pursue this action.</p>
FB06	<p>Nature Based Solutions for Flood Risk Management <i>Depending on the outcomes from the “Heal the Rivers” Flood Recovery and Landscape Restoration and Resilience in the Lismore Catchment projects, and available funding, Council should consider further expanding the application of NBS in the Wilsons River catchment.</i></p>	<p>Update: Projects are currently underway with completion anticipated in 2026. An invitation will be extended to Richmond Landcare Inc. to present at the next FRMC meeting on the status of the <i>Nature-Based Solutions: Building Flood Resilience in the Lismore Catchment</i> project.</p>
FB01 / FB10 / FB13 / FB14	<p>Raise CBD Levee to Provide 5% or 1% AEP flood immunity, in possible conjunction with Leycester Creek Bypass Channel <i>Further hydraulic assessment and feasibility assessment should be undertaken to determine the cost-benefit proposition of raising of the CBD levee to provide either 5% AEP or 1% AEP flood immunity. Further consideration of the Leycester Creek Bypass Channel, either in isolation or in conjunction with the CBD levee raise should also be undertaken.</i></p>	<p>The FRMP recommends the following timing: <i>Following CSIRO flood mitigation options report, dependent on funding.</i></p> <p>Update: The mitigation scenarios selected for the NRRR project <u>did not</u> include modelling the raising of any Lismore levees or the Leycester Creek Bypass Channel.</p> <p>Recommendation: Once the final NRRR report and its recommendations on future flood mitigation options for the Richmond River catchment are released, the Committee should review the findings and then provide a recommendation to Council regarding the undertaking of a hydraulic assessment and feasibility assessment of this FRMP implementation measure.</p>

FB02 / FB10 / FB11 / FB12	Raise South Lismore Levee to Provide 5% or 1% AEP flood immunity, in possible conjunction with Leycester Creek Bypass Channel <i>Further hydraulic assessment and feasibility assessment should be undertaken to determine the cost-benefit proposition of raising of the South Lismore levee to provide either 5% AEP or 1% AEP flood immunity. Further consideration of the Leycester Creek Bypass Channel, either in isolation or in conjunction with the CBD levee raise should also be undertaken</i>	<p>The FRMP recommends the following timing: <i>Following CSIRO flood mitigation options report, dependent on funding.</i></p> <p>Update & Recommendation: Refer to FB01/FB10/FB13/FB14 above.</p>
FB07	East Lismore Flood Defence at Monaltrie Road <i>Further hydraulic assessment and feasibility assessment should be undertaken to determine the cost-benefit proposition of constructing a levee at Monaltrie Road, to provide flood protection to the Sewerage Treatment Plant, Wilson Park School, and East Lismore.</i>	<p>The FRMP recommends the following timing: <i>Following CSIRO flood mitigation options report, dependent on funding</i></p> <p>Update & Recommendation: Refer to FB01/FB10/FB13/FB14 above.</p>

Browns Creek Levee Spillway Raising Feasibility Flood Impact Assessment update Flood Restoration Portfolio

Following a presentation to the Committee in June 2025 by Garon Clough, Director Waste & Resilience, a feasibility project was identified in parallel with the Browns Creek Pump Station upgrade to assess the potential for raising the Browns Creek levee spillway.

As part of this work, consultants BMT have commenced a flood impact assessment to assess the potential flood impacts and benefits of raising the spillway. The feasibility scope considers whether, should demolition and reconstruction of a section of the spillway proceed as part of the pump station works, setting the spillway at a higher crest level could provide flood risk management benefits and how such a change may influence local and downstream flood behaviour.

The project is now approximately 80% complete and is so far demonstrating positive results. The next step is to undertake a detailed cost–benefit analysis, which will inform whether a spillway raising option should be progressed further. Garon will have further project updates ready to present to the next Committee meeting.

Attachment/s

There are no attachments for this report.

Business

Subject	Update from NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)
TRIM Record No	BP26/372:EF19/237-8
Prepared by	Senior Strategic Planner
Reason	To provide the Committee with an update from DCCEEW's local representative
Strategic Theme	Environment
Strategy	Value and protect local biodiversity, natural landscapes and waterways, and strengthen resilience to natural hazards
Action	Facilitate increased resilience to natural hazards and disasters

Executive Summary

The NSW Department of Climate Change, Energy, the Environment and Water are committed to supporting local councils understand and manage flood risk. An update from DCCEEW's local representative will be provided to the Committee, outlining some recent changes and relevant project updates.

Recommendation

That:

1. The Committee note the update.

Information

An update will be provided by DCCEEW's local representative, Scott Moffett, Senior Floodplain Officer – Water Floodplains and Coast.

Attachment/s

There are no attachments for this report.

Business

Subject	Future Lands Precinct Plan
TRIM Record No	BP26/364:EF19/237-8
Prepared by	Senior Strategic Planner
Reason	To provide the Committee with an update on the Future Lands Precinct Plan project that will be undertaken by the NSW Reconstruction Authority and Lismore City Council
Strategic Theme	Environment
Strategy	Value and protect local biodiversity, natural landscapes and waterways, and strengthen resilience to natural hazards
Action	Facilitate increased resilience to natural hazards and disasters

Executive Summary

Following the February and March 2022 flood events and the subsequent housing buybacks undertaken through the NSW Government's Resilient Homes Program, Lismore City Council is progressing strategic planning for the future use of land that is now, or soon to be, vacant. In partnership with the NSW Reconstruction Authority, Council is committing to a structured precinct-based planning approach to guide how these former residential areas can contribute to long-term flood resilience, community wellbeing, environmental restoration, and economic opportunity.

Recommendation

That:

1. The Committee note the update.

Information

Council, in collaboration with the NSW Reconstruction Authority, have commenced a comprehensive Future Lands Precinct Planning program for areas affected by housing buybacks under the Resilient Homes Program. This work responds to the need for a coordinated and forward-looking approach to managing flood-prone land in a way that reduces future risk while creating positive community, environmental and economic outcomes.

The project is scheduled to commence in early 2026 and will be supported by a multidisciplinary consultant team to ensure outcomes are evidence-based and balanced across social, environmental and economic considerations. The consultant team has now been engaged and onboarded.

Because community engagement is a core component of the program, with residents and stakeholders invited to share ideas, aspirations, and concerns early in the planning process, the consultant team, together with Lismore City Council and the Reconstruction Authority are preparing a rigorous communication and engagement plan.

Once endorsed, public announcements will be shared by both Council and the RA.

Attachment/s

There are no attachments for this report.

Business

Subject	Update from the NSW Reconstruction Authority
TRIM Record No	BP26/371:EF19/237-8
Prepared by	Senior Strategic Planner
Reason	To provide the Committee with an update on their Northern Rivers Disaster Adaptation Plan
Strategic Theme	Environment
Strategy	Value and protect local biodiversity, natural landscapes and waterways, and strengthen resilience to natural hazards
Action	Facilitate increased resilience to natural hazards and disasters

Executive Summary

The NSW Reconstruction Authority will provide an update to the Committee on the Northern Rivers Disaster Adaptation Plan. The NSW Reconstruction Authority is developing a high-priority regional Disaster Adaptation Plan to address natural hazard risks in the Northern Rivers.

Recommendation

That:

1. The Committee note the presentation.

Information

Rachelle Robb from the NSW Reconstruction Authority will provide an update to the Committee on the Northern Rivers Disaster Adaptation Plan (DAP).

Background information regarding the Northern Rivers DAP can also be found here: [Northern Rivers DAP](#)

Attachment/s

There are no attachments for this report.

Lismore Flood Risk Management Committee Minutes

3 December 2025

MINUTES OF THE LISMORE FLOOD RISK MANAGEMENT COMMITTEE HELD IN COUNCIL CHAMBERS ON WEDNESDAY, 3 DECEMBER 2025 AT 1:00 PM

Please note: These minutes are subject to confirmation at the next Council meeting. Decisions recorded in the draft minutes are subject to the Council's Code of Meeting Practice in relation to rescinding decisions.

Present

Councillors Rob (Chair), Knight-Smith (audio visual), Jensen; Members; Mr Ackrell, Mr Askey, Mr Baker, Mr Herd, Mr Moorhouse, Mr Rubin, Mr Tirris, Mr Chin, Mr Williamson, Mr Yeo (audio visual), Ms Robinson

In Attendance

LCC Officers: Ms Van Iersel, Acting Head Planning & Environment; Ms Longstaff, Senior Strategic Planner; Ms Ali, Executive Assistant

Presenters: Ms Rogers, Richmond Landcare Incorporated; Mr Clough, Director Waste & Resilience LCC (left at 2:30pm)

Observers: Ms Trevan (audio visual), Councillor Hall, Rosslyn Martens (gallery)

Apologies

Mr Logan, Councillor Waters, Mr Butron, Mr Snow

Non Attendance

Councillor Dalton-Earls, Ms Flynn, Mr Kay, Mr Pilling, Ms Palmara, Mr Cinque

Confirmation of Minutes

RESOLVED that the minutes from the meeting dated 3 September 2025 be confirmed

Voting for: Councillors Rob (Chair), Knight-Smith (audio visual), Jensen; Members; Mr Ackrell, Mr Askey, Mr Baker, Mr Herd, Mr Moorhouse, Mr Rubin, Mr Tirris, Ms Robinson

Voting Against: Nil

Disclosure of Interest

Lismore Flood Risk Management Committee Minutes

3 December 2025

Member Baker disclosed he was a property owner. Councillor Rob disclosed he had sat on the board of Richmond Landcare.

4.1 Update on Nature-Based Solutions for Flood Risk Management

RESOLVED that the Committee notes the update.

(Member Herd/ Councillor Jensen)

Voting for: Councillors Rob (Chair), Knight-Smith (audio visual), Jensen; Members; Mr Ackrell, Mr Askey, Mr Baker, Mr Herd, Mr Moorhouse, Mr Rubin, Mr Tirris, Ms Robinson

Voting Against: Nil

Action: Ms Rogers is invited to update the Committee as the project progresses and to present at an upcoming Committee meeting (preferably March 2026) specifically on the below items:

- Data updates
- Cost benefit analysis
- Investment analysis (as compared to engineered solutions)
- Modelling numbers (including comparison to CSIRO modelling)

4.2 Update on Lismore Levee Pumps

RESOLVED that the Committee notes the update.

(Member Ackrell / Councillor Jensen)

Voting for: Councillors Rob (Chair), Knight-Smith (audio visual), Jensen; Members; Mr Ackrell, Mr Askey, Mr Baker, Mr Herd, Mr Moorhouse, Mr Rubin, Mr Tirris, Ms Robinson

Voting Against: Nil

4.3 Update on Flood Risk Management Plan

RESOLVED that the Committee note the report.

(Member Ackrell / Member Herd)

Voting for: Councillors Rob (Chair), Knight-Smith (audio visual), Jensen; Members; Mr Ackrell, Mr Askey, Mr Baker, Mr Herd, Mr Moorhouse, Mr Rubin, Mr Tirris, Ms Robinson

Voting Against: Nil

Action: Ms Longstaff will send an invitation to the Committee members, for the Flood Planning Sessions, a Business Lismore event that Council is support (9 February 2026).

Lismore Flood Risk Management Committee Minutes

3 December 2025

Action: Committee members will review the Development Control Plan (DCP) for further discussion in the March 2026 FRMC meeting.

Action: Council staff will check property flood data is pulling correctly from modelling.

4.4 2026 Flood Risk Management Committee (FRMC) meetings

RESOLVED that the Committee note the meeting dates for the 2026 as 11 March (as opposed to the original 4 March date), 3 June, 2 September and 2 December. The time for all meetings will be 1pm – 4pm.

(Members Mr Ackrell and Mr Rubin)

Voting for: Councillors Rob (Chair), Knight-Smith (audio visual), Jensen; Members; Mr Ackrell, Mr Askey, Mr Baker, Mr Herd, Mr Moorhouse, Mr Rubin, Mr Tirris, Ms Robinson

Voting Against: Nil

Closure

This concluded the business and the meeting terminated at 3.49 pm.