
NARROMINE SHIRE COUNCIL
ORDINARY MEETING BUSINESS PAPER – 13 MARCH 2024
REPORTS TO COUNCIL – INFRASTRUCTURE AND ENGINEERING SERVICES

1. WORKS REPORT

Author	Director Infrastructure and Engineering Services
Responsible Officer	Director Infrastructure and Engineering Services
Link to Strategic Plans	CSP – 4.3.4 Ensure Council's property assets are monitored and well managed.

Executive Summary

This report provides information regarding works undertaken for the given period for operational and capital works.

Report

The Works Report (**Attachment No. 1**) for the period 31 January to 29 February 2024 is presented to Council for information.

Financial Implications

Council has provision for these services in its Operational Budget.

Legal and Regulatory Compliance

Local Government Act 1993
Roads Act 1993

Risk Management Issues

Nil

Internal/External Consultation

Nil

Attachments

1. Works Report

RECOMMENDATION

That the information be noted.

2. NARROMINE FLOOD LEVEE PROJECT

Author	Director Infrastructure and Engineering Services
Responsible Officer	Director Infrastructure and Engineering Services
Link to Strategic Plans	CSP – 4.3.4 Ensure Council's property assets are monitored and well managed

Executive Summary

This report provides cost estimates on the proposed Narromine Flood Levee project and options for the next steps.

Report

In 2022 Council received funding from the Department of Planning and Environment (DPE) to undertake a feasibility study on the Narromine Levee. Stantec were engaged in early 2023 to undertake the works.

Initial community consultation, review of the previous flood studies, geotechnical investigations and the concept design for the proposed levee have been completed. The existing levee, around the Rotary Park Precinct, is 800 metres long and the proposed levee would extend east and west for a total length of 6,100 metres. The proposed levee would be a consistent level across the township, however, due to varying ground levels the apparent height of the levee may appear higher or lower in different locations.

Without a levee, during a 1% annual exceedance probability (AEP) or a 1 in 100-year flood, the majority of Narromine would be subject to over-floor flooding, this is shown in **Attachment No. 2**. A July 2021 Report (*Narromine Town Floodplain Risk Management Study and Plan Update*; Lyall and Associates) calculated 449 residential properties, 72 commercial/industrial buildings and 7 public buildings would be impacted in a 1% AEP flood. Flood volumes smaller than a 1% AEP (e.g. 2% or 3%) would result in minimal impact to Narromine, with properties on Warren Road, Sky Park and River Road experiencing some minor flooding.

Narromine's worst flood, recorded in 1955, resulted in widespread damage to the town and promoted the formation of the levee at Rotary Park. Burrendong Dam, built in 1967, provides flood mitigation reducing the peak flood levels occurring in downstream areas, including Narromine. Burrendong Dam has 489 GL of storage allocated for flood mitigation, approximately half of the total volume of runoff that passed the dam site during the 1955 flood.

The proposed Levee is designed to provide protection to Narromine township for floods up to 1% AEP, larger floods may result in minor town flooding but the impacts are significantly reduced by the proposed levee. The impacts of a 1% AEP flood with the proposed levee are shown in **Attachment No. 3**. The proposed levee will protect the majority of the township during a 1% AEP with the exception of the following areas: Warren Road where flooding becomes marginally worse, River Road, Sky Park and the aerodrome where flooding remains unchanged from the present situation. Additionally, the Backwater Cowal experiences significantly higher flows with one residence and some farm land adversely affected by the new levee.

2. NARROMINE FLOOD LEEVE PROJECT (Cont'd)

Extensive community consultation around the town's flood mitigation strategies has occurred over the last five years. In 2018 community consultation occurred to discuss the Concept Design of the levee alignment. Council received 52 submissions from the community with 80% of submissions against the levee. Most of the responses were from owners or residents on Warren and River Roads and Crossley Drive. In 2021 Council undertook a large consultation campaign including the distribution of a community newsletter. Council received 143 responses to the flood management survey. The responses were mostly against the construction of a permanent levee. Two other themes noted in the responses were: concern that planning requirements to build above flood levels were inhibiting development (and housing supply) within Narromine and the cost of insurance premiums for flood coverage. Given development in recent years it is difficult to quantify the level of impact planning requirements for flood mitigation are having on development within Narromine. Additionally, there is no current commitment from any insurance provider that premiums will decrease upon construction of a permanent levee structure.

Whilst the levee will result in protection of a large number of properties and facilities, a number of residents, particularly along Crossley Drive will be severely impacted both during and after construction of the levee. Additionally the proposed levee passes through significant amounts of private land requiring extensive consultation and some land acquisition to occur early in the project.

Included within the concept design works was a cost estimate for construction of the levee. The cost estimate was undertaken by an experienced quantity surveyor who based the estimate on local quotes and experience with similar projects. The cost estimate has been reviewed by Stantec and Council staff. The estimated cost of the levee construction is \$109,275,000. This cost includes: finalised design, project management, riverbank stabilisations, retaining walls, modifications to stormwater, road works, landscaping, railway culverts, materials and land acquisition.

The levee project is eligible to apply for the NSW Floodplain Management Grant which is likely to open for applications in March 2024. The typical grant funding structure is 2:1 with Council contributing one third of the costs equating to a council contribution of approximately \$36,425,000. The funding body has suggested Council may be eligible for "special consideration" increasing the funding contribution to 6:1. At this ratio Council would need to contribute \$15,610,714 to the project. At this stage it is unlikely a new funding opportunity will be available for this work and unless alternative funding can be sourced Council would need to take out a long-term loan to undertake this work.

A high-level cost benefit was undertaken in 2019 with the cost / benefit ratio calculated at 0.85. This suggested that the cost of the construction levee would be greater than the savings in flood damages. Due to the increases in construction in recent years the actual costs are not relevant, but it is expected that the cost / benefit ratio remains similar. However, whilst the initial cost is high, the ongoing benefits should be considered, including security and peace of mind, removal of evacuation and rebuild, and the removal of daily disruption.

2. NARROMINE FLOOD LEVEE PROJECT (Cont'd)

Council has spent a significant amount of time and money undertaking preliminary works on the Levee project over the last twenty years and Council needs to determine the future path. There are two options available.

Option 1 – Construction of Levee (100% Grant Funded)

In this option Council continues with the detailed levee design (currently funded) and applies for construction funding through the NSW Floodplain Management Grant at a special consideration funding ratio of 6:1. If Council is successful with the funding application, Council will investigate other funding avenues including grants and federal government to cover the remaining \$15.6M.

In the event Council is not successful for funding in this year's Floodplain Grant application. Council would apply for funding in the 2025 program including the detailed design works which will be completed in September 2024.

Council will not proceed with the levee unless 100% funding can be sourced. To finance a \$15.6M loan Council would require a levy on all Narromine rates for the life of the loan, it is expected this would be approximately \$300 - \$400 per property each year.

In the event that Council is not successful in securing 100% funding by September 2025 a report will be presented to Council in late 2025 to review progress and determine next steps.

Option 2 – Discontinue Levee bank Construction Project

In this option Council determines that the levee is not currently a priority for the community, given increased construction costs and the increased cost to the community through a new levy charge. The next steps for this option are: finalisation of the concept design, update and finalise all reports and project close out. Council will retain all information and have designs available to ensure the project can be considered at a future date if the public demand and cost benefit were to change.

Financial Implications

Option 1

The fully funded levee bank construction would not significantly financially impact Council or ratepayers. Ongoing maintenance costs would occur after construction, but this could be covered in Council's general operational budget.

There would be significant implications to Council and the community if the construction were to proceed without 100% external funding.

Option 2

No change would occur to Council's operational and maintenance costs and no additional charges to rate payers. Low level risk in the event of a 1% AEP that infrastructure may require replacing at Council's cost.

2. NARROMINE FLOOD LEVEE PROJECT (Cont'd)

Legal and Regulatory Compliance

Local Government Act 1993

Risk Management Issues

Option 1 mitigates the risk of the township flooding during a 1% AEP event.

Option 2 accepts the low risk of a 1% AEP event at this current time.

Internal/External Consultation

Significant consultation with internal and external stakeholders, including design reviews, flood modelling, community consultation and technical reviews with external stakeholders.

Attachments

2. Figure 2.11 Indicative Extent and Depth of Main Stream Flooding – 1% AEP (current situation). Lyall and Associates 2021
3. 1% AEP Water Level Difference (impact of levee). Stantec 2023.

RECOMMENDATION

That Council;

1. Endorse Option 1 to progress with the detailed design of the levee bank.
2. Apply for funding through the NSW Floodplain Management Grant at a special consideration funding ratio of 6:1
3. Investigate options to source the remaining cost of the levee construction.
4. Proceed with construction of the levee should 100% external funding be obtained.

Melanie Slimming

Director Infrastructure and Engineering Services

Works Report

February saw a lot of work undertaken, an overview of the major works that occurred is included below.

Water and Sewer

Cooler days in February saw a small reduction in water consumption throughout the three townships which was welcomed by operators to reduce the stress on the mechanical equipment.

Council continues to work with the Department of Planning and Environment (DPE) and consultants to move forward with design for the Narromine Water Treatment Plant. The Options Studies, completed in late 2023 and presented to Council in November 2023, have been officially endorsed by DPE. The recommendations from these studies will form the cornerstone of the concept design work.

The Water and Sewer team have been busy this month completing works on the valves on the water mains in Temoin Street. This work will ensure continuity of supply for Timbrebongie House's fire safety and fire sprinkler booster system, ensuring fast and effective water coverage in the event of an emergency.



Figure 1: Replacement water main in Temoin Street

The team completed the installation of new water meters and backflow prevention devices at Timbrebongie House.

Works Report (Cont'd)



Figure 2: New Smart Meter installed at a property in Narromine

In addition to maintenance and capital work around town, the water team is responsible for maintaining analytical equipment for testing water quality. To ensure water quality the team frequently tests the water with laboratory equipment.

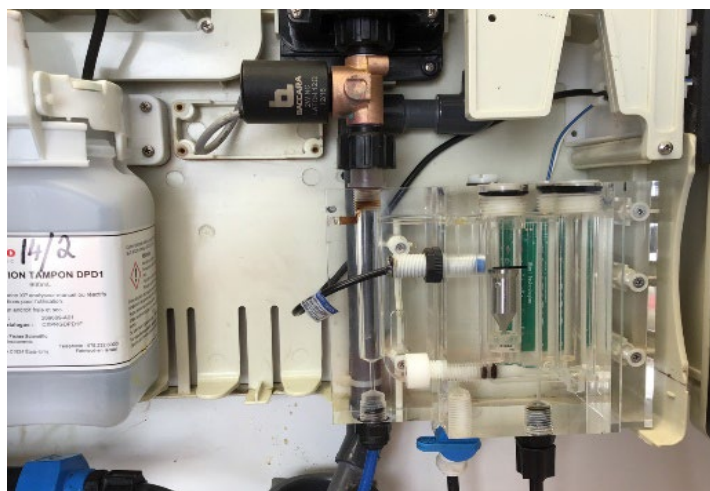


Figure 3: Laboratory equipment is calibrated frequently to ensure accurate water quality testing.

Works Report (Cont'd)

Wetlands Project

The wetlands project continues to expand the Council's stormwater holding capacity, improving the town's stormwater management. The project is funded through both grant funding and Council contribution. The project is nearing completion with the earthworks scheduled to be completed by April. Currently the team is finalising the surrounding levee bank with the walking track and the secondary entrance from Gainsborough Road.

Council staff attended a visit of the site in late February to review progress and determine ongoing maintenance requirements. The site is growing rapidly and there are now three shelters installed. Council is working to finalise the landscaping including native seedlings and some grassed areas in the coming months.

Facilities and Major Projects

Council received a grant to upgrade public amenities and are replacing the toilets at Dundas Park. A toilet block has been ordered and will arrive in late March with installation scheduled for early April.

A number of Council staff attended Airfield Training in February, increasing the available number of people able to complete checks and work on the "air side" of the Narromine Aerodrome. Increasing the number of trained staff reduces the reliance on individuals to be at work and encourages appropriate leave to be taken. Additionally, the training provided a good review of potential risks and challenges the Aerodrome operators face and provided a great chance to network with other nearby Councils.

Council continues to work with our supplier to upgrade the waste depot software. This upgrade will significantly increase the data we capture on types of waste and improve the payment system for customers using the tip. Council also received a new loader at the Narromine Waste Depot. This loader replaces the broken loader and is fit for purpose. During the period the loader was broken Council hired a temporary loader.



Figure 4: New CAT Loader at the Narromine Waste Depot

Works Report (Cont'd)

The parking area in front of the new toilets on Culling Street is progressing well. The area will provide parking for the new toilets and the barbecue area to the east. The car parks will be sealed, and line marked, with boulders to prevent access onto the grass. In the coming months irrigation and lawn will be installed to revitalise the area.



Figure 5: Parking area on Manildra Street is being revitalised

Parks and Gardens

The Parks and Gardens team have continued to be busy with the warm weather mowing, slashing, and beautifying the town. Recently the team hired a “Kanga” to undertake some stormwater drain clean out. The machine was well received and was used by many different outdoor teams. Council is reviewing the options to purchase a unit in the coming months.

The team have also removed a number of dead trees across Narromine and Trangie and will be reviewing options for planting new trees in the new financial year. Additionally, the team have installed new irrigation lines at Cale Oval and installed new turf in preparation for the upcoming events. Ongoing maintenance of Burns Oval, including fertilization and irrigation monitoring is occurring to improve some “burnt” looking patches within the oval.

Specialist fertilizers have been applied to the Water Gums at Trangie Cemetery to assist with some rejuvenation.



Figure 6: New Turf installed at Cale Over



Figure 7: Stormwater drain cleaning occurred across Narromine in February

Works Report (Cont'd)

Roads

Council is currently working on a few road projects. The intersection of Gainsborough Road and Tullamore Road progressed well throughout February and works on the intersection are expected to be completed by late March. The team will then start work on Tomingley Road end of Gainsborough Road. Access to the Narromine Waste Depot will mostly not be impacted, however, it is possible some minor changes will be needed during the works.



Figure 8: One of Council's grader teams inspecting the road width

Council has started shoulder work on Tullamore Road, approximately 15 km south of Narromine Township for nearly 7 km. This is a huge project which will take up to 8 months to complete, however, the widened road and new seal will be a vast improvement for all users of the road.

Flood repair works are occurring on Bulgandramine Road with works to be ongoing until May. Works have recently been completed on Dilladerry Road and Dandaloo Road.

Works Report (Cont'd)

In late February, Council undertook some work on Dappo Road to prepare the road for resealing. The preparation work should result in a high -quality end product once sealing is complete. The reseal program is expected to start in late March and will incorporate the following roads:

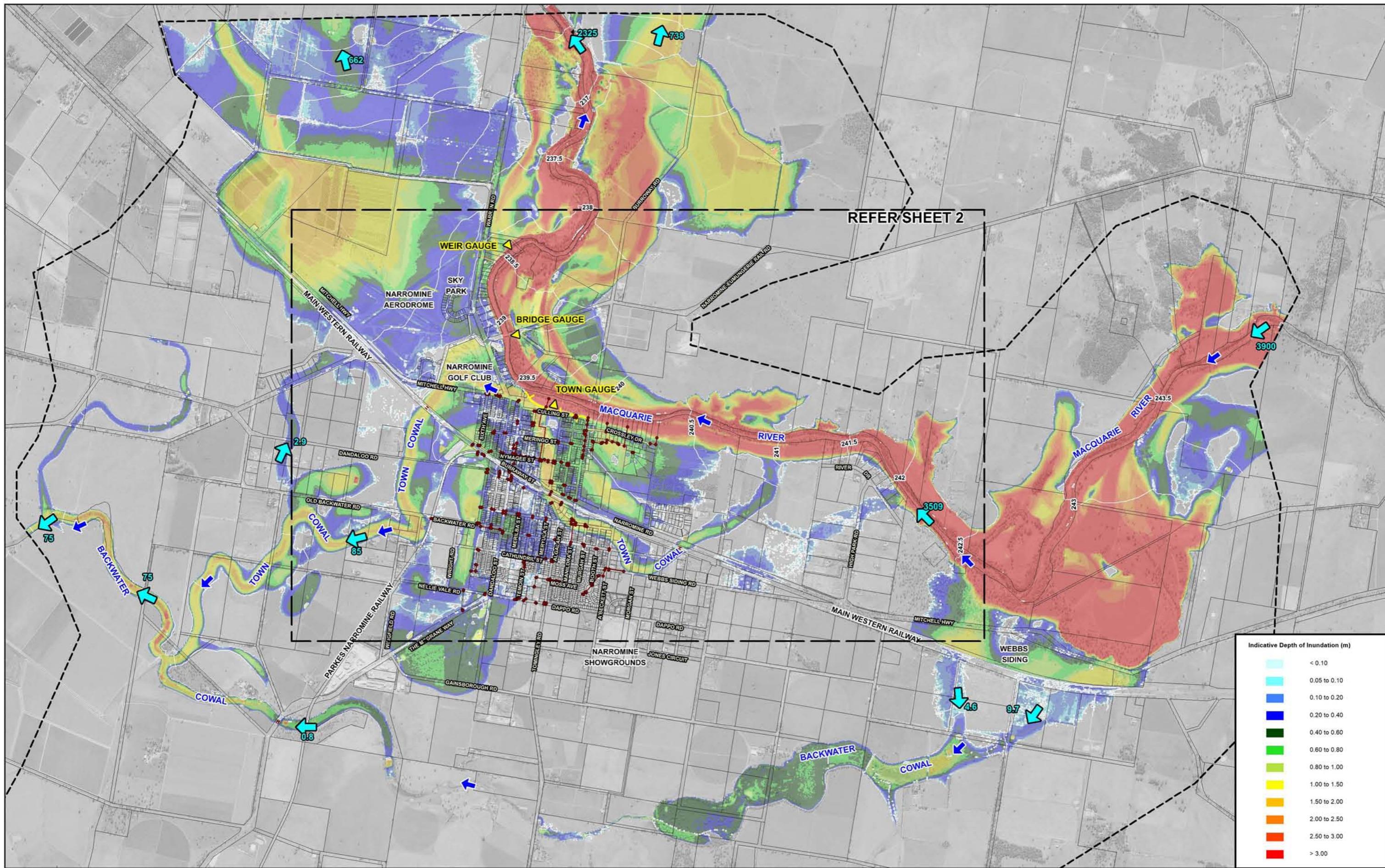
- Willydah Road
- Dappo Road
- Maple Crescent
- Burroway Road
- Dandaloo Road (shoulders only)
- Corry Road (shoulders only)
- Cathundril Street
- Burroway Street (Trangie)
- Tomingley Road

Trangie Truck Wash

The Trangie Truck Wash continues to progress. Contractors will start construction of the receiving chamber and water management system in mid-March. With the project expected to be completed and ready for official opening in May.



Figure 9: Aerial view of Trangie Truck Wash



Indicative Depth of Inundation (m)

< 0.10
0.05 to 0.10
0.10 to 0.20
0.20 to 0.40
0.40 to 0.60
0.60 to 0.80
0.80 to 1.00
1.00 to 1.50
1.50 to 2.00
2.00 to 2.50
2.50 to 3.00
> 3.00

Scale: 1:40,000

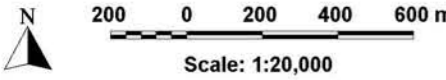
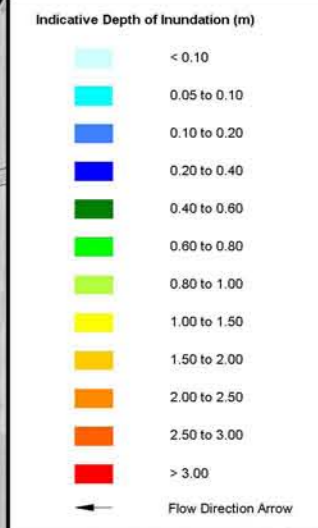
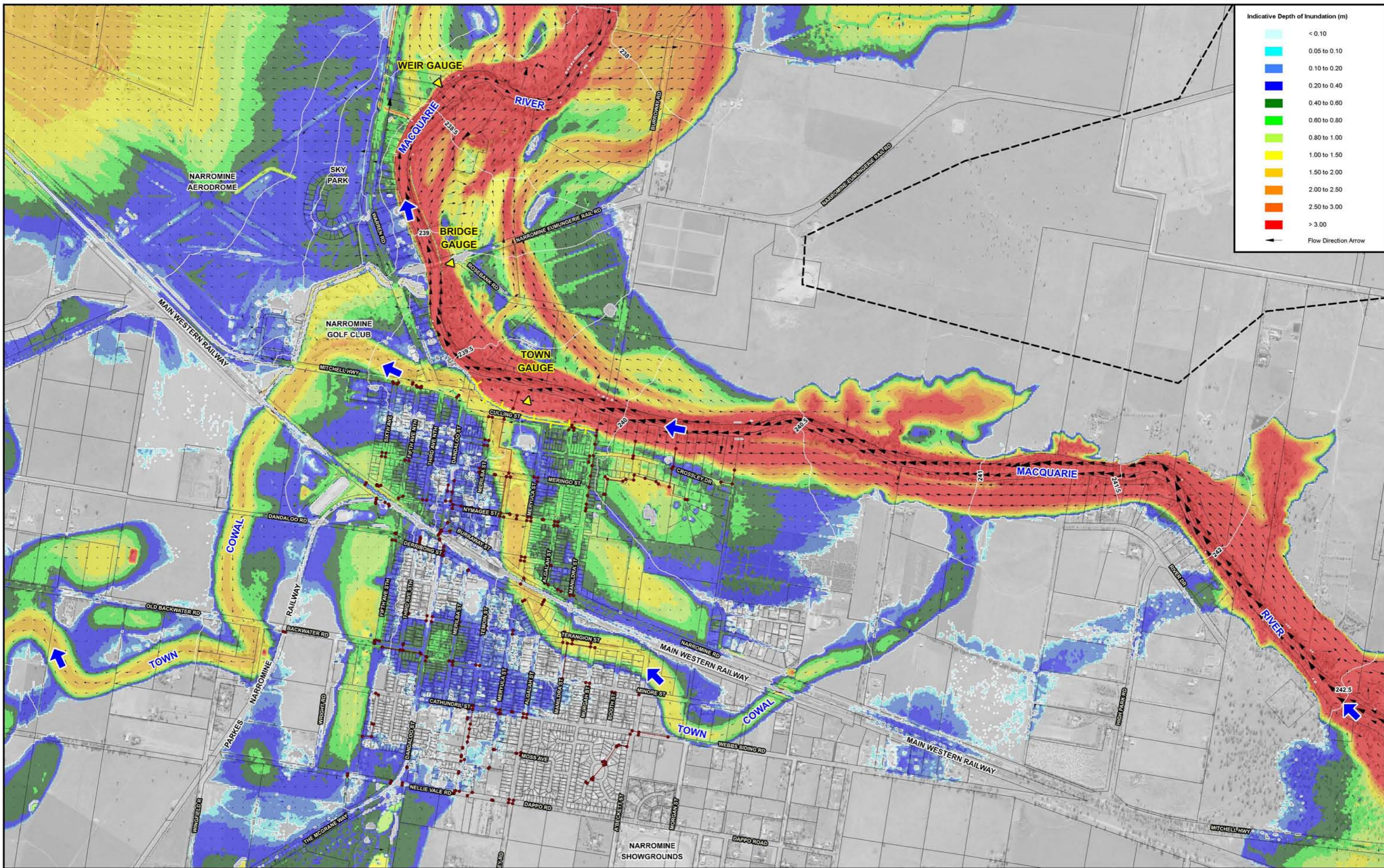
NOTE:
 The ground surface model incorporated in TUFLOW is based on LiDAR survey which has been sampled on a 10 m grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.
 Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

- LEGEND**
- Two-Dimensional Model Boundary
 - Modelled Stormwater Drainage System
 - Stream Gauge
 - Peak Overland Flow (m³/s)
 - Town Levee
 - Water Surface Elevation Contour (m AHD)

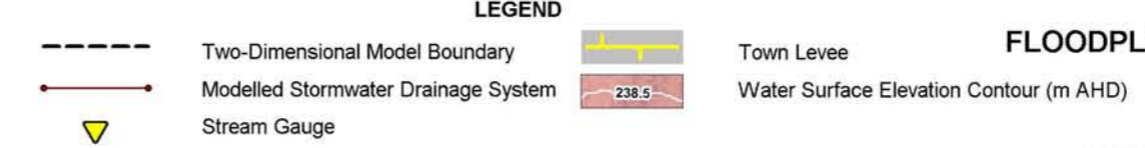
NARROMINE TOWN FLOODPLAIN RISK MANAGEMENT STUDY AND PLAN UPDATE



Figure 2.11 (Sheet 1 of 2)
 INDICATIVE EXTENT AND DEPTH OF MAIN STREAM FLOODING
 1% AEP

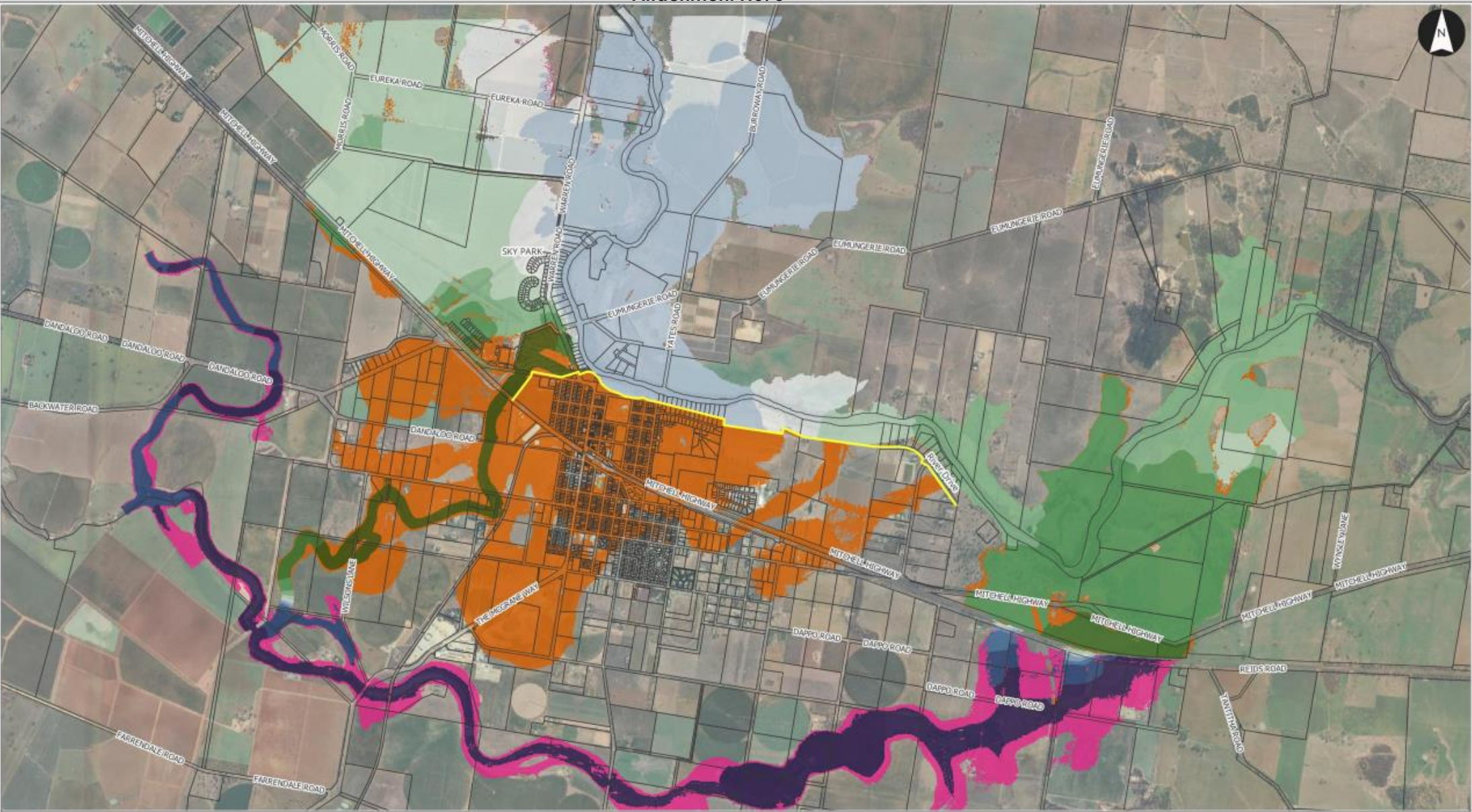


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NARROMINE TOWN FLOODPLAIN RISK MANAGEMENT STUDY AND PLAN UPDATE

Figure 2.11 (Sheet 2 of 2)



1% AEP Water Level Difference
 Revised Preferred Option Less Revised Present-Day

Project: Narromine Levee 2021 Feasibility Study

Client: Narromine Shire Council
 Project Code: 300203693
 Drawn By: HR, Checked By: VJ
 Date: (2023-11-08)
 Figure No: C2

Legend

- Cadastre
- Levee Location
- Water Level Difference (m)**
- < -0.50
- 0.50 to -0.20
- 0.20 to -0.10
- 0.10 to -0.05
- 0.05 to -0.01
- 0.01 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50
- Wet/Dry Analysis**
- Was Wet, Now Dry
- Was Dry, Now Wet



Scale at A3: 1:45000



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