

Fact Sheet

Area for Further Investigation –Salloom Street Industrial Area -

Description of existing issue

A relatively large catchment of approximately 134 ha drains into the waterway that crosses Bundaberg-Gin Gin Road and Mulgrave Street near the industrial area. The peak flow rate in the 1% AEP local flood event is approximately 37 m³/s. Culverts under Mulgrave Street (3 x 900 mm high x 3700 mm wide– maximum flow capacity of ~12 m³/s) and Bundaberg-Gin Gin Road (4 x 800 mm high x 2150 mm wide – maximum flow capacity of ~20 m³/s) convey minor flows. Major flows in excess of the culvert capacity first overtop Mulgrave Street at the sag point to the east of the culverts at 60.7 m AHD, but then pond upstream of Bundaberg-Gin Gin Road until they overtop at the sag point to the east of the culverts (at a level of 61.05 m AHD).

The peak 1% AEP flood level downstream of Bundaberg-Gin Gin Road culverts is approximately 60.7 m AHD. Upstream of those culverts (between Bundaberg-Gin Gin Road and Mulgrave Street), the peak 1% AEP flood level is approximately 61.6 m AHD. This large difference in upstream and downstream flood levels is mainly due to the size of the culverts and the height of the Bundaberg-Gin Gin Road embankment. The peak 1% AEP flood level immediately upstream of Mulgrave Street is approximately 61.75 – 61.8 m AHD.

Following major storm events, flooding occurs within the low lying private properties to the south of Salloom Street. The depth of flooding associated with the main water is up to 1 m, with velocities of up to 0.8 m/s. Some properties are classified as experiencing a “significant” level of flood hazard during the 1% AEP event based on the QRA flood hazard categories outlined in the Kolan River and Gin Gin Creek Flood Study (GHD 2014). The remainder of the properties experience a “low” level of flood hazard.

In addition to the flooding issues associated with the main waterway, local catchments to the east and south-east of Salloom Street generate surface runoff that exceeds the carrying capacity of Salloom Street and table drains parallel to Bundaberg-Gin Gin Road during the 1% AEP local flood event. The resulting overland flow affects parts of some properties.

Proposed drainage improvements

As described above, there is a much larger difference in upstream and downstream flood levels at the Bundaberg-Gin Gin Road culverts when compared to the Mulgrave Street culverts. The Bundaberg-Gin Gin Road culverts and embankment also appear to be the dominant hydraulic control for main-stream flooding in the Salloom Street industrial area. It can therefore be inferred that there is little to gain (in terms of peak flood level reductions) by upgrading the Salloom Street culverts without also addressing the control at Bundaberg-Gin Gin Road.



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Therefore, the following recommendations are made in relation to reducing peak flood levels associated with flooding in the main waterway under Salloom Street:

- Test a range of scenarios for upgrading the size of the Bundaberg-Gin Gin Road culverts and / or lowering a section of Bundaberg-Gin Gin Road.
- In conjunction with the above scenarios, test a range of scenarios for upgrading the size of the Mulgrave Street culverts and / or lowering a section of Mulgrave Street.
- Based on the results of the above hydraulic modelling, determine the optimum combination of works that deliver the most efficient reduction in upstream flood levels.
- Any upgrade works must consider the potential for any adverse impacts on downstream properties, particularly in terms of increased flood levels and increased potential for erosion and scour.

As an alternative to physical upgrade works, it may be possible to manage the existing level of flood risk in properties adjacent Mulgrave Street and Salloom Street. Following a detailed review of building floor levels, the flood information (level, depth, velocity) generated as part of the Kolan River and Gin Gin Creek Flood Study (GHD, 2014) may help inform local property owners of the existing level of flood risk. Based on this information, the property owners could take appropriate action to improve the level of flood resilience. This may include, among other things, relocating valuable assets, electrical outlets and wiring to less flood-prone parts of the property.

Regardless of the approach taken with respect to physical drainage upgrades, the residual flood risk can be managed for future development or redevelopment through the application of appropriate planning controls as outlined elsewhere in this report.

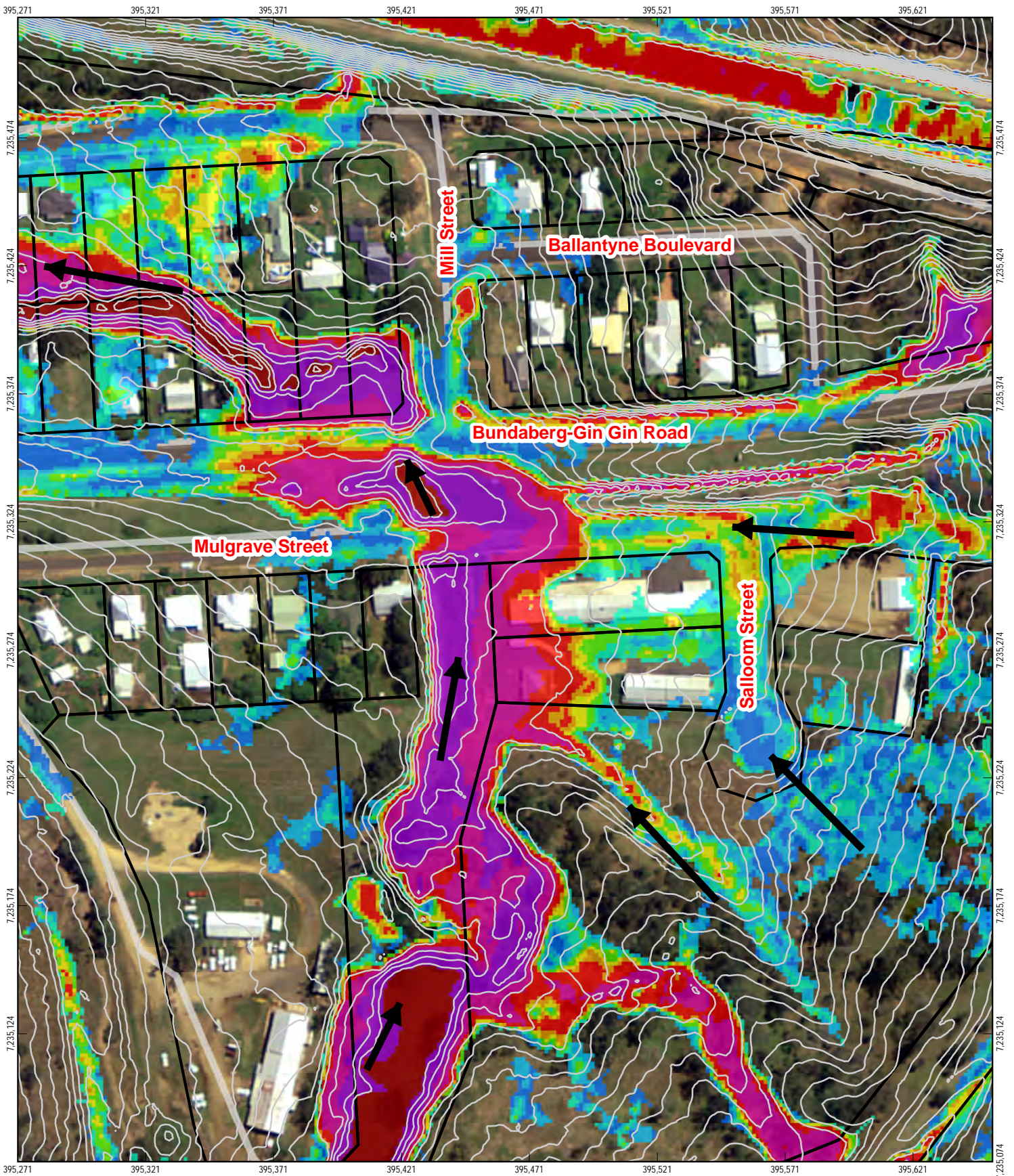
The overland flow flooding associated with the local catchments to the east and south-east of Salloom Street could potentially be managed through the following methods:

- Construction of cut-off drains along the eastern boundary of Salloom Street properties to capture overland sheet flow and direct it towards the north.
- Lowering of Mulgrave Street (east of the main culverts) to improve its capacity to convey major storm event flows to the main waterway.
- Re-profiling and raising of the Salloom Street road verge / footpath (western side) to also improve its capacity to convey major storm event flows to the main waterway.
- Increase the width and depth of the table drain on the northern side of Mulgrave Street.

Where to from here?

A component of the Floodplain Risk Management Study is to highlight drainage investigation areas for Council consideration. This local drainage area will be reviewed as part of Councils future capital works program for major drainage upgrades. Part of this review includes a merit based assessment and prioritisation against other drainage projects in the region for Council to consider in future budgets. Further detailed design work would then be required to refine and optimise any upgrade.





LEGEND

Road	1% AEP Design Flood Event	0.1 - 0.15	0.3 - 0.5
Contour (0.5m)	Peak Depth (m)	0.15 - 0.2	0.5 - 1
Flow Direction	0 - 0.05	0.2 - 0.25	1 - 2
Property Boundary	0.05 - 0.1	0.25 - 0.3	>2

1:2,000 @A4
 0 25 50
 Metres
 Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



Bundaberg Regional Council
 Kolan River and Gin Gin Creek
 Floodplain Risk Management Study

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**Proposed Salloom Street Industrial Area
 Local Drainage Issues**