

Memo

Calala to CBD Recreational Path Additional Hydraulic Assessment

DSJN1429 – Additional Hydraulic Assessment

Regional Services

Strategy, Assets and Design

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1 Introduction

The Preliminary Hydraulic Study provides the initial flood impact of the project. Additional information relating to the proposed flood velocities where the path crosses the floodplain was requested during the feasibility phase of the project to understand how the proposed velocities compare to the flood velocities where the existing paths cross Calala Lane and Scott Road to better understand the risk of flood damage to the concrete path. This document summarises the additional findings.

2 Location of the Additional Assessment

Two locations where existing paths cross the floodplain have been assessed for their velocity. These locations are as follows and are shown in [Figure 1](#).

- Existing Location 1: The middle of the floodplain on Scott Road
- Existing Location 2: The middle of the floodplain on Calala Lane

Three locations have been selected for the assessment of the predicted velocities across the new path for comparison. The locations selected for assessment are based on the locations of the fastest flowing water as determined from the preliminary hydraulic study. The locations are as follows and are shown in [Figure 1](#).

- New Location 1: King George V Avenue
- New Location 2: Unformed section of Campbell Road (near King George V Avenue)
- New Location 3: Unformed section of Campbell Road (near Calala Anabranch)

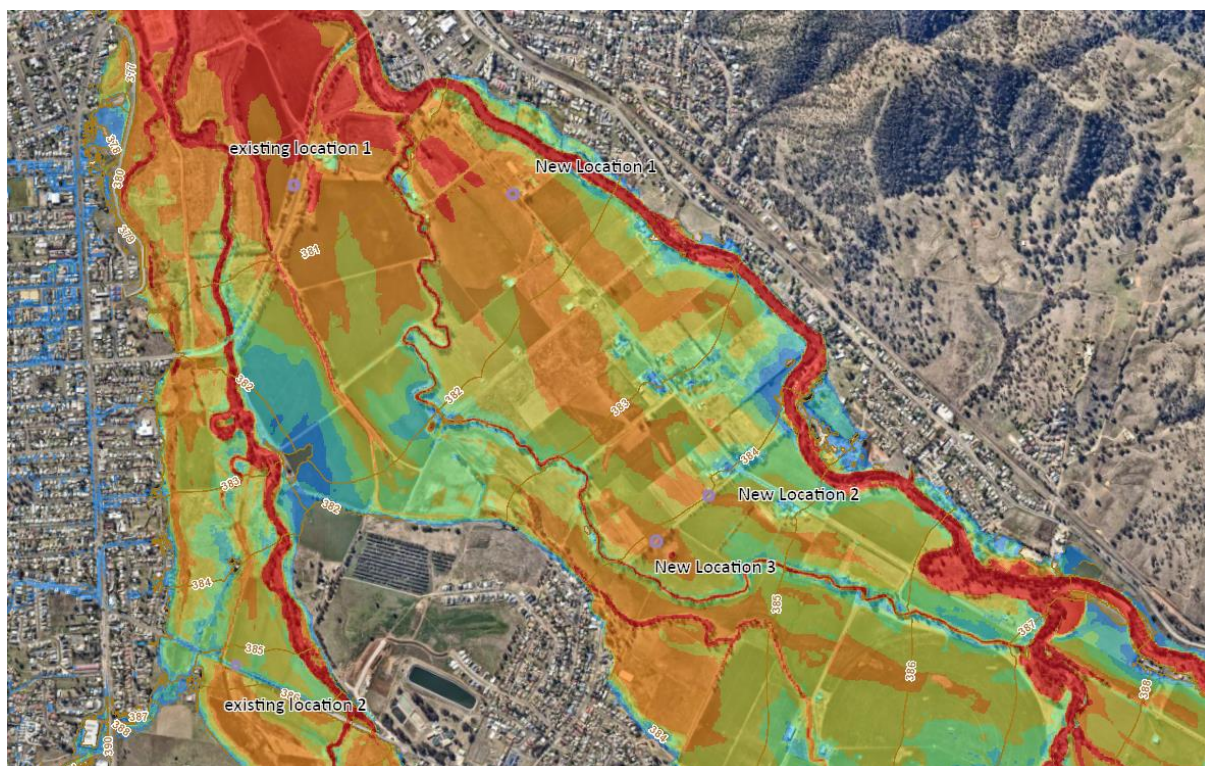


Figure 1 – Existing and New Locations for Assessment

3 Results

Table 1 contains the 20 year and 100 year flood velocities at the existing and new locations for comparison. The results show that the max 100 year velocity for the assessment locations is 2.4m/s on the path along Calala Lane. The predicted 100 year velocities across the new path vary between 1.3m/s and 1.8m/s.

Table 1 – Comparison of existing and new path locations

Location		20 year velocity (m/s)	100 year velocity (m/s)
Existing Location 1	Scott Road	0.9	1.3
Existing Location 2	Calala Lane	1.8	2.4
New Location 1	King George V Avenue	1.4	1.5
New Location 2	Campbell Road	1.6	1.8
New Location 3	Campbell Road	0.6	1.3

4 Discussion of Results

Velocities across the floodplain are typically based on the magnitude of the flow, the cross sectional area of the floodplain and the change in roughness of the ground. The change to the cross sectional area of the floodplain is negligible due to the path construction. The flows also remain the same as the path doesn't generate a noticeable increase in runoff. The roughness of the path is lower than the grass either side, so velocities will be slightly increased over the path however this increase is limited by downstream water levels and the short width of path. The increase in velocity will be negligible.

There is little to no flood damage evident on either the Scott Road or Calala Lane paths, which shows that provided both edges of the path are adequately vegetated to reduce the risk of the onset of erosion, the concrete path should not be damaged or washed away during a flood.