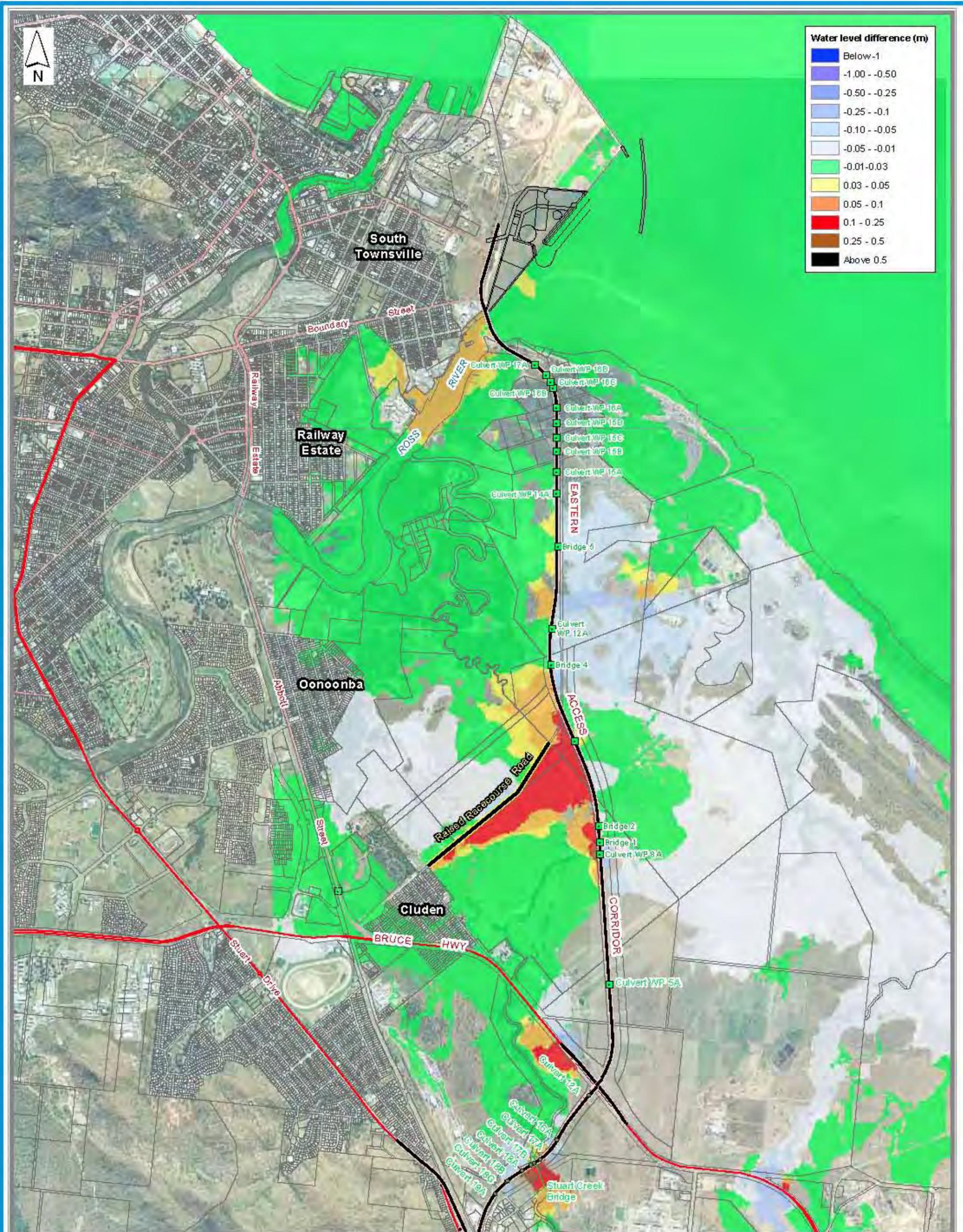




Appendix B

Flood Modelling Outputs from Aecom Supporting Precinct Model Findings



Water level difference (m)

Below -1
-1.00 - -0.50
-0.50 - -0.25
-0.25 - -0.1
-0.10 - -0.05
-0.05 - -0.01
-0.01 - 0.03
0.03 - 0.05
0.05 - 0.1
0.1 - 0.25
0.25 - 0.5
Above 0.5

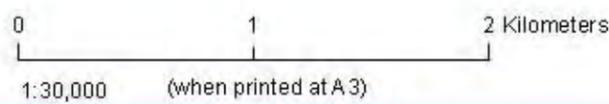
JOB: 60045813 | Filename: 60045813G_TOHA_Rp21.mxd
 Date: 08/09/2009

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**TOWNSVILLE PORT ACCESS ROAD
 Lower Ross River Floodplain
 100 Year ARI Afflux Map- Road and Marine Precinct**

Figure 7.6



Memorandum

To	Margaret Card	Page	1
CC			
Subject	Townsville Port Access Road – Impact of the Marine Precinct		
From	Wesley Bailey	Date	22-Jan-2010
File/Ref No.	60045813		

This memo reviews the impact of the Marine Precinct on Ross River flood levels as determined from hydraulic modelling undertaken as part of the Townsville Port Access Road (TPAR) project.

Methodology

A MIKEFLOOD model was used to investigate the effects of the Marine Precinct on Ross River flood levels. The model defined the bathymetry of the area of the Ross River mouth including the reclaimed area of the Marine Precinct. The model also included a dredged navigation channel and swing basin to service the Marine Precinct. The design of the Marine Precinct downstream was provided by Townsville Port Authority in February 2009. The results obtained from this investigation were originally presented to the Queensland Department of Main Roads as part of a draft Flood Assessment.

Model Results

Impacts of the TPAR on flooding have been assessed by comparing results of the base case flood model to the design case flood model which included TPAR. The base case represents the existing condition of the floodplain and does not include the marine precinct. The hydraulics of the TPAR and Marine Precinct combined have also assessed.

Results of the hydraulic modelling are presented in the attached figures as follows:

- **Figure 7.2** shows the change in 100 Year ARI flood levels as a result of the TPAR; and
- **Figure 7.6** shows the change in 100 Year ARI flood levels as a result of the TPAR and the Marine Precinct.

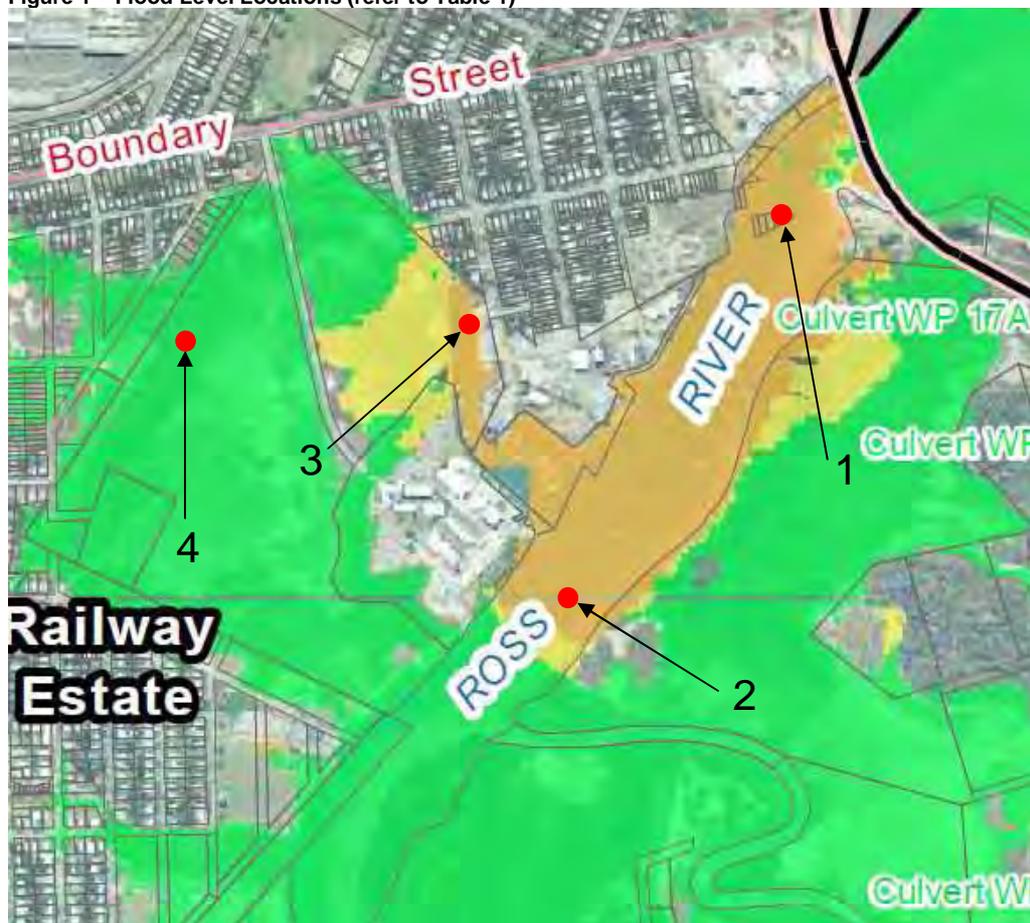
These figures have been provided from the forthcoming Final Flooding Assessment report for TPAR. Comparison of **Figures 7.2** and **7.6** shows little change in the distribution of flood levels as a result of the Marine Precinct. **Figure 7.6** shows some flood level increases between 0.03 and 0.05m in the area downstream of the Ross River Bridge adjacent to the Marine Precinct for a length of approximately 300m. The Marine Precinct causes no impact adjacent to residential areas including Cluden, South Townsville and Oonoonba.

Changes in 100 Year ARI flood levels for the area of Ross River immediately upstream of TPAR are shown in **Table 1**. There is a 10mm increase immediately upstream of the TPAR bridge as a result of the Marine Precinct, however, this is quickly washed out upstream and does not equate to any increase in the extent of inundation.

Table 1 – Change in 100 Year ARI Flood Level

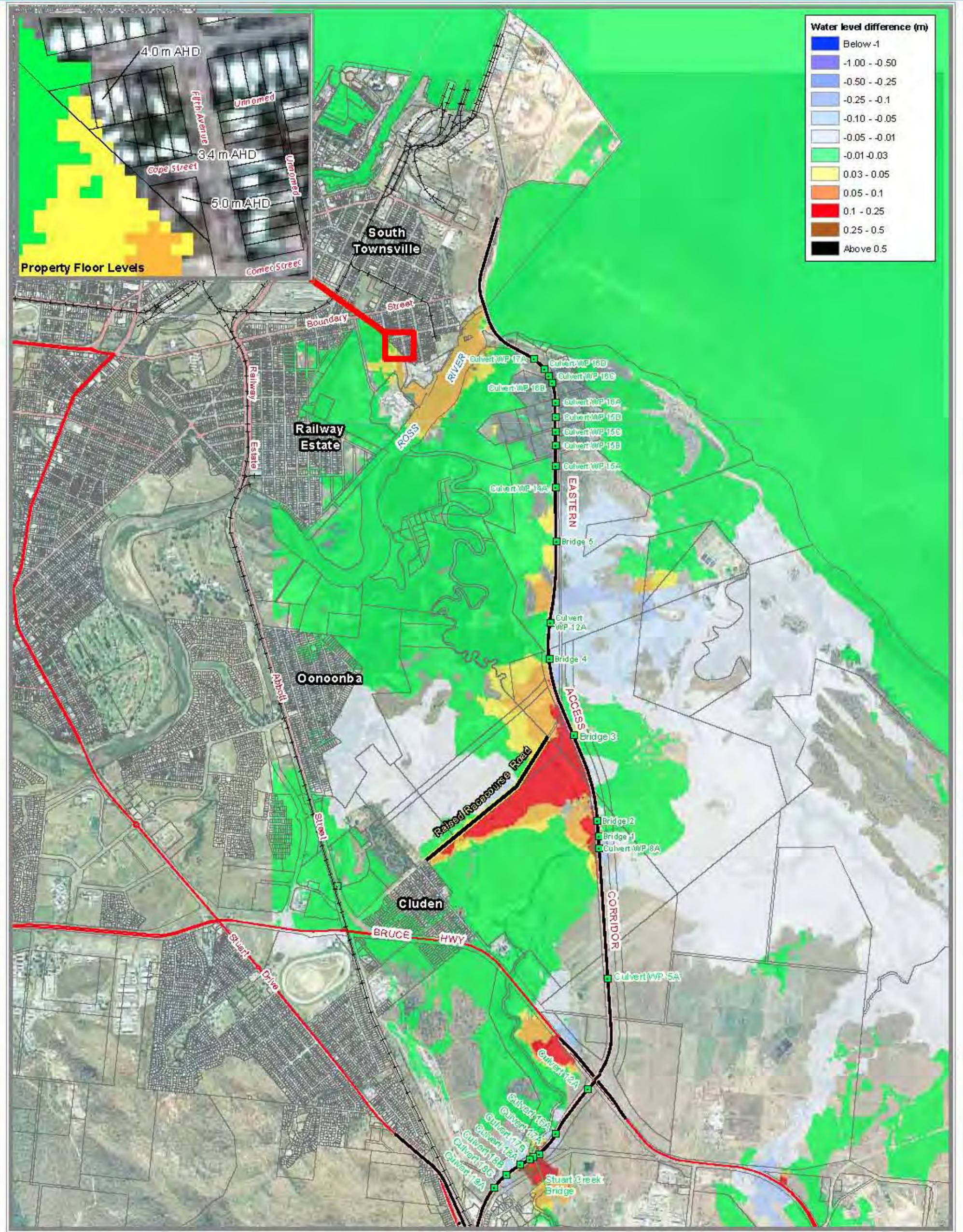
Location (refer to Figure 1)	Scenario	Afflux (m)
1	Design With Marine Precinct	0.06
	Design Without Marine Precinct	0.05
2	Design With Marine Precinct	0.06
	Design Without Marine Precinct	0.06
3	Design With Marine Precinct	0.05
	Design Without Marine Precinct	0.05
4	Design With Marine Precinct	0.02
	Design Without Marine Precinct	0.02

Figure 1 – Flood Level Locations (refer to Table 1)



If you have any queries, please do not hesitate to contact me.

Wesley Bailey
 Senior Engineer - Water
 wesley.bailey@aecom.com



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 Date: 16/09/2009

TOWNSVILLE PORT ACCESS ROAD
Lower Ross River Floodplain
100 Year ARI Afflux Map- Road Only

Figure 7.2

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