

Grafton Bridge

Flood Mitigation Fact Sheet

Comparison to EIS

As a result of detailed levee survey, updated bathymetric survey, updated flood frequency analysis and the contractors design, the proposed flood mitigation measures have changed from what was proposed in the EIS.

Parameter	EIS	Now
Increase in height of floodwater upstream of the new Bridge (due to bridge & levee works)	90 mm	35 mm
Length of Levee Works	Approx. 11 km	Approx. 5.7 km
Height of Levee Works	Raised by 200 mm	Regrade low points only (50 to 250mm raising)
Number of land parcels impacted by levee works	174	101
Number of private property owners affected by the levee works	99	62

The EIS identified that there would be properties that would have some residual impact as they are not protected by a levee system and identified the approximate location of these properties.

Updated flood mapping is provided in Figure 3.1 and Figure 3.2.

Flood Management Objectives

The EIS states:

the project incorporates flood mitigation measures designed to maintain the current level of flood immunity

About 3.7 kilometres of existing levee in Grafton and seven kilometres of existing levee in South Grafton upstream of the proposed bridge would be raised up by about 0.2 metres to maintain the current level of flood immunity within Grafton and South Grafton.

Therefore there is an expectation that the project will undertake levee works to mitigate the impact from the project.

For properties with a residual impact, the following Flood Management Objectives have been set.

Location	Flood Management Objectives
Residences	<ul style="list-style-type: none"> • ≤ 30mm increase • That is, limit increases in water levels to less than or equal to 30 mm for the 20 year ARI, 50 year ARI and 100 year ARI events where for primary habitable areas are currently, or newly flooded.
Major Sheds	<ul style="list-style-type: none"> • ≤ 30mm increase • limit increases in water levels to less than or equal to 30 mm for the 20 year ARI, 50 year ARI and 100 year ARI events where the floor is currently, or newly flooded
Minor Sheds	<ul style="list-style-type: none"> • ≤ 50mm increase • limit increases in water levels to less than or equal to 50 mm for the 20 year ARI, 50 year ARI and 100 year ARI events where the floor is currently, or newly flooded
Business/Club/Not-for-Profit	<ul style="list-style-type: none"> • ≤ 30mm increase • limit increases in water levels to less than or equal to 50 mm for the 20 year ARI, 50 year ARI and 100 year ARI events where the floor is currently, or newly flooded
Agricultural Land/Stock	<ul style="list-style-type: none"> • ≤ 40mm increase • limit increases in water levels over an existing stock mound to less than or equal to 40mm for any of the 20 year, 50 year and 100 year ARI events for all properties that do not have any dry ground in a 100 year ARI event

Levee Works

The proposed levee works are summarised as follows. As the levee system is not at a constant level the regrading of the low points will vary in height. The height will typically vary between 50 to 250 mm. Also refer to Figure 1 for proposed levee locations.

South Grafton

Ref.	Target Level (m AHD)	Length	Type and Length				
			Earth Mound	Block Wall	Concrete Wall	Brick Wall	Building
SG 1	8.88	818.8 m	818.8 m				
SG 2	8.88 to 8.80	945.3 m	945.3 m				
SG 3	8.79	257.8 m	257.8 m				
SG 4	8.69	221.1 m	221.1 m				
SG 5	8.65	327.8 m	286.0 m	41.8 m			
SG 6	8.65	88.1 m	88.1 m				
SG 7	8.64	96.6 m	75.4 m	21.2 m			
SG 8 (i)	8.59	217.3 m	132.6 m	84.7 m			
SG 8 (ii)	8.54	117.0 m	83.8 m	33.2 m			
SG 9	8.54	208.1 m	142.7 m		65.4 m		
SG 10	8.53	198.9 m	147.0 m		51.9 m		
SG 11	7.65	242.0 m	195.2 m	46.8 m			
TOTAL		3738.8 m	3393.8 m	227.7 m	117.3 m	-	-

Grafton

Ref.	Target Level (m AHD)	Length	Type and Length				
			Earth Mound	Block Wall	Concrete Wall	Brick Wall	Building
NG 1	8.74	274.1 m	274.1 m				
NG 2	8.59	195.4 m	195.4 m				
NG 3 (i)	8.49 (i)	397.7 m	204.5 m	4 m	134.6 m	31.2 m	23.4 m
NG 3 (ii)	8.4 (ii)	397.4 m	296.6 m		100.8 m		
NG 3A	8.09	76.7 m	76.7 m				
NG 3B	8.09	49.7 m	10.9 m				38.8 m
NG 3C	8.09	166.6 m	108.2 m			31.5 m	26.9 m
NG 3D	8.09	63.8 m	31.6 m		32.2 m		
NG 4	7.89	251.5 m	220.2 m		31.3 m		
NG 5	7.79	44.0 m		44.0 m			
NG 6	7.65	73.8 m	8.3 m	65.5 m			
TOTAL		1990.7 m	1426.5 m	113.5 m	298.9 m	62.7 m	89.1 m

Property Works

There are a number of locations where properties are impacted by afflux. These are either areas not protected by levees or areas that are protected by levees but subjected to increased ponding.

The number of structures affected by increases in flood levels greater than the flood management objectives are summarised below. Also refer to Figures 2.1 and 2.2 for locations.

Building type	No. Affected*
Dwellings	1
Sheds	11
Business	4
Stock Mounds	0

* numbers are based on floor level surveys completed to date.

The affected dwelling is a cabin in a caravan park.

The affected businesses are:

- South Grafton Bowling Club – Likely to be compensated. However, it is feasible to raise the building.
- South Grafton Ex Services Club – Likely to be compensated. Not feasible to raise the building.
- St Marys Convent (9-11 Victoria St) – Localised levee work will maintain existing flood immunity.
- St Marys Offices (1 Victoria St) - Localised levee work will maintain existing flood immunity.

The affected sheds are generally farm sheds or garages. In most cases the impact from the project was not significant to how the owner manages their property and they couldn't identify any reasonable or effective mitigation measures.

Grafton Bridge

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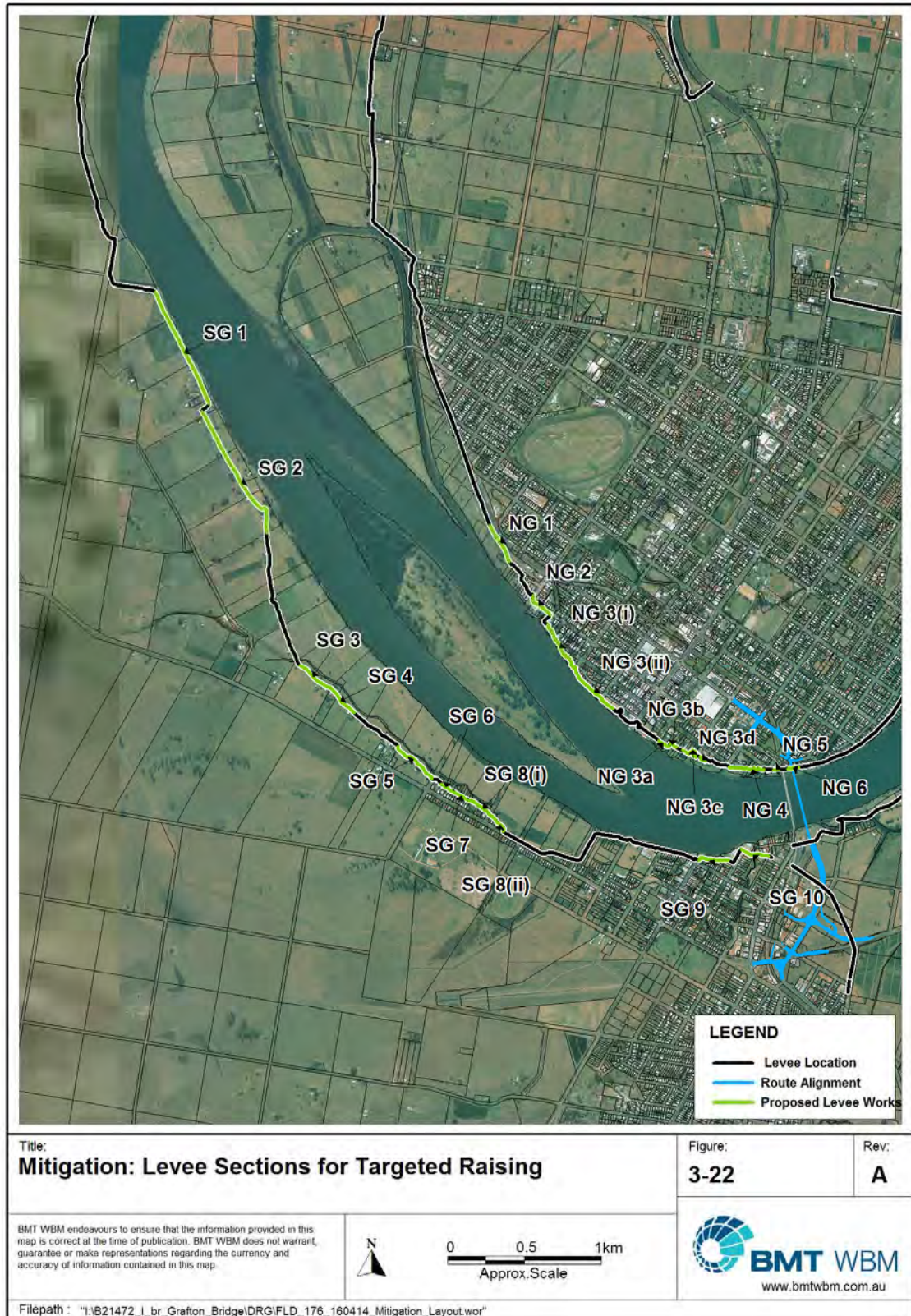


Figure 1 – Extent of Levee Works

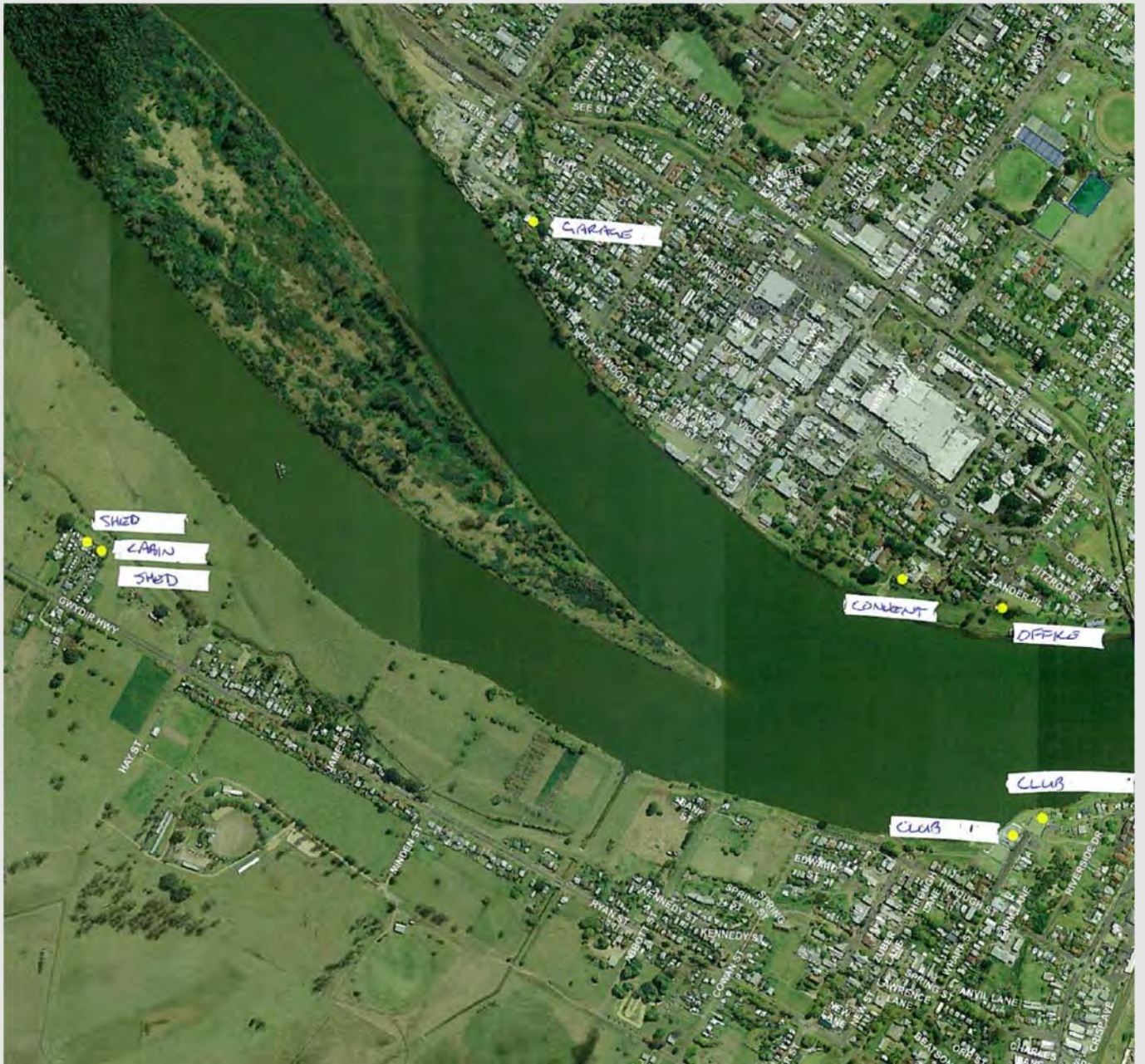


Figure 2.1 – Extent of Property Works (Grafton, South Grafton)

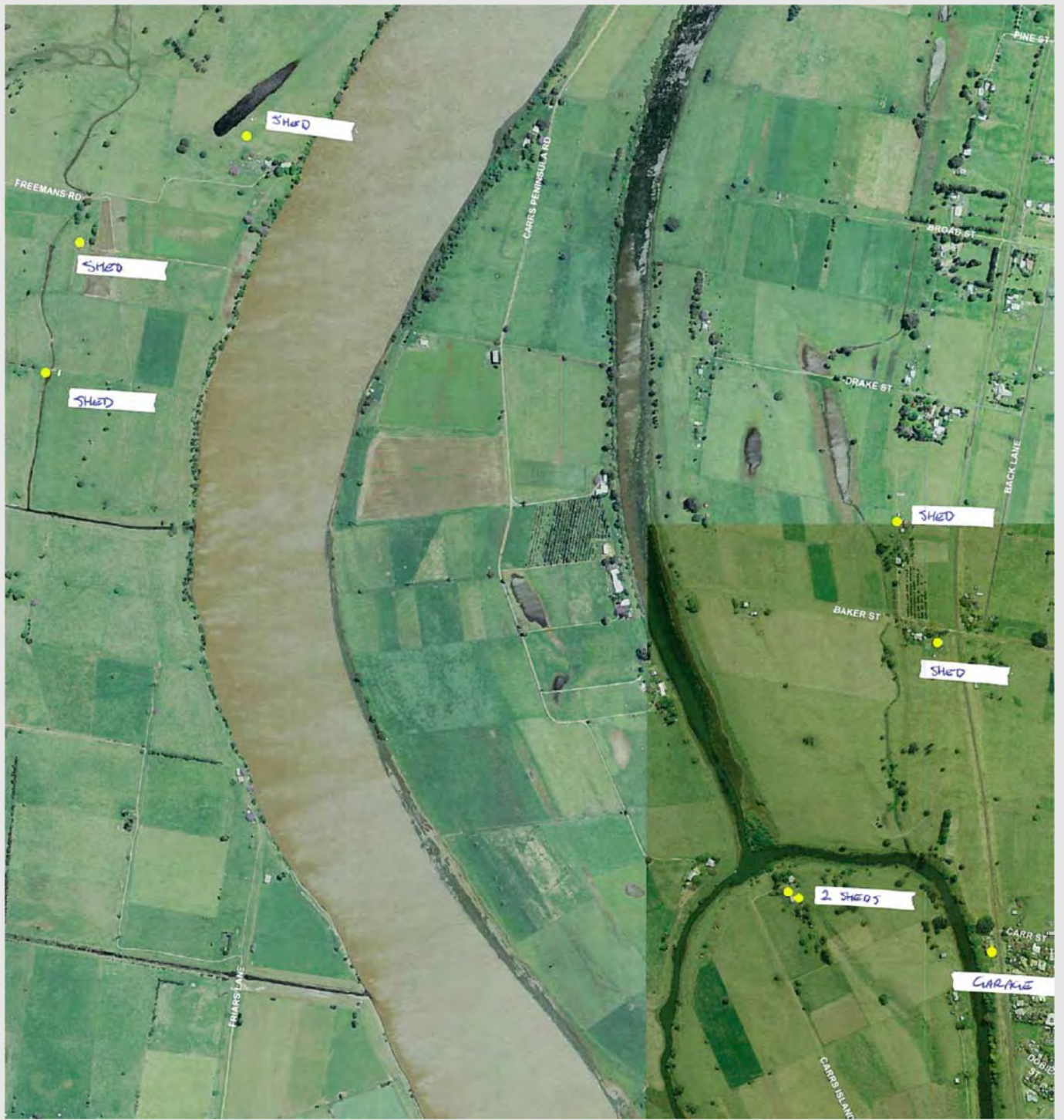
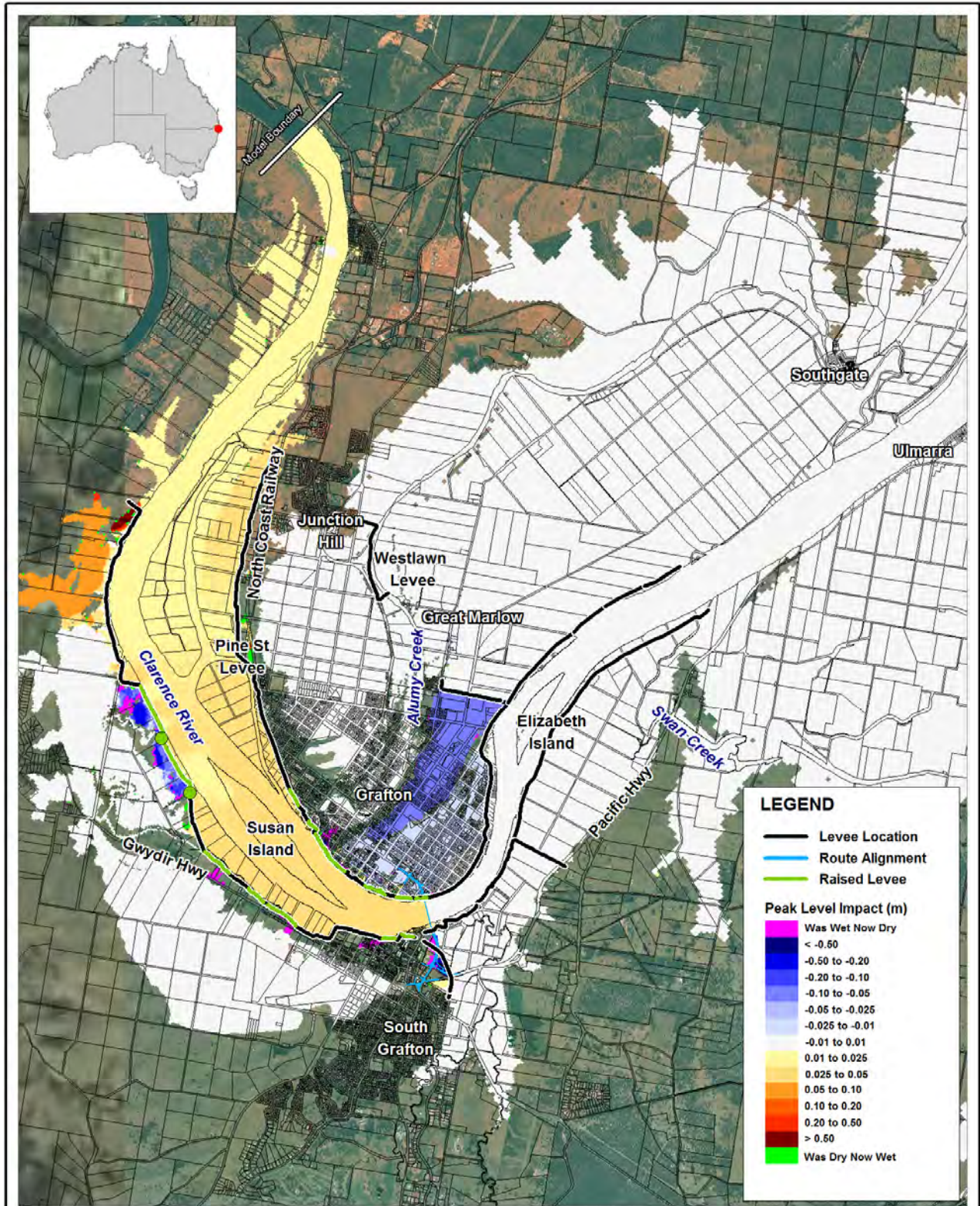


Figure 2.2 – Extent of Property Works (Carrs Island, Carrs Peninsular, Waterview Heights)



Title:
**Peak Flood Level Impact: 50 Year ARI Event
 Levee 329**

Figure:
1

Rev:
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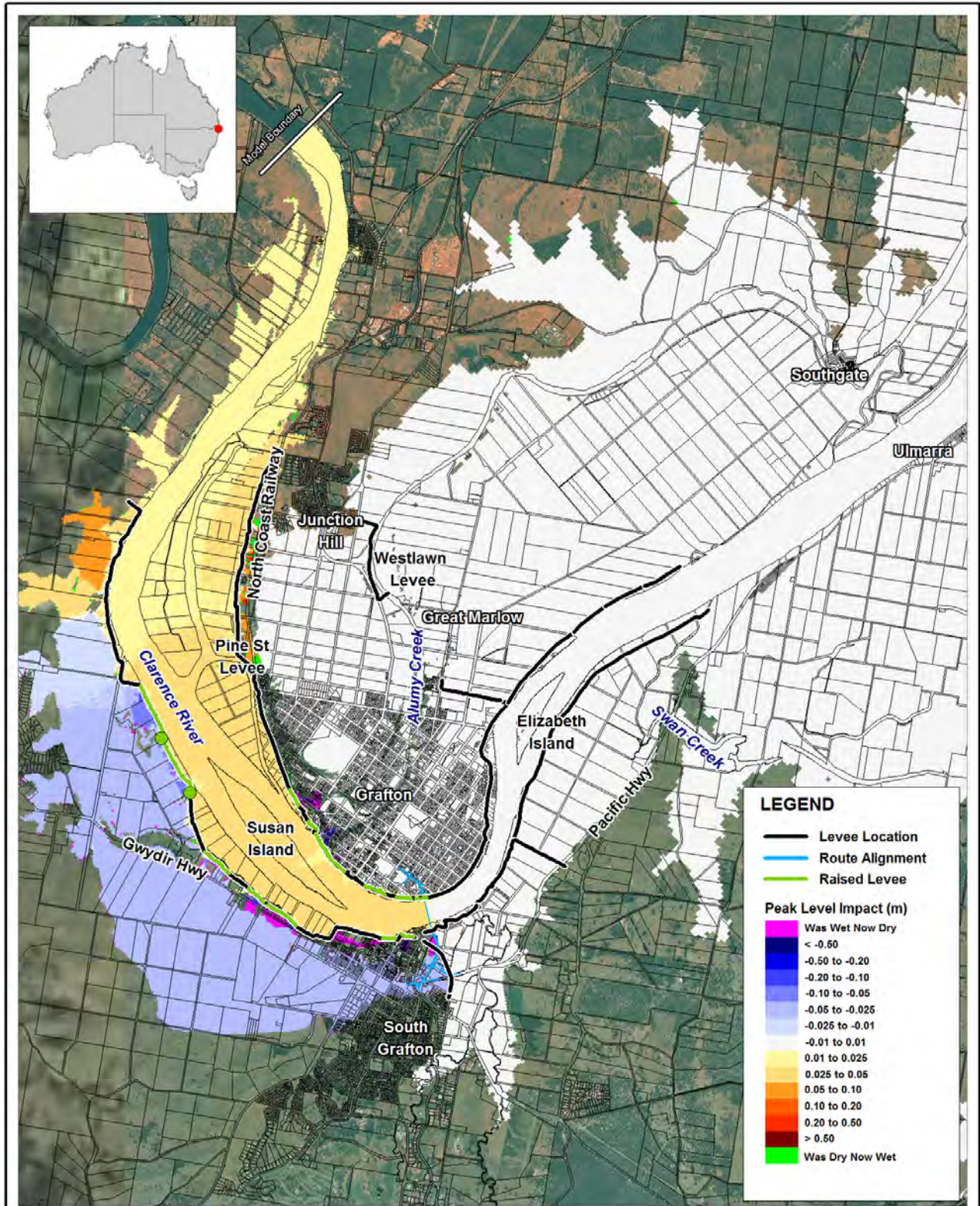


0km 1.5 3
 Approx. Scale



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Figure 3.1 – Flood Impact – 50 Year ARI Event

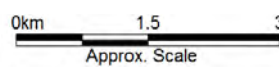


Title:
**Peak Flood Level Impact: 100 Year ARI Event
 Levee 329**

Figure:
2

Rev:
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Figure 3.2 – Flood Impact – 100 Year ARI Event