INLAND RAIL

INLAND RAIL – NSW/QLD BORDER TO GOWRIE

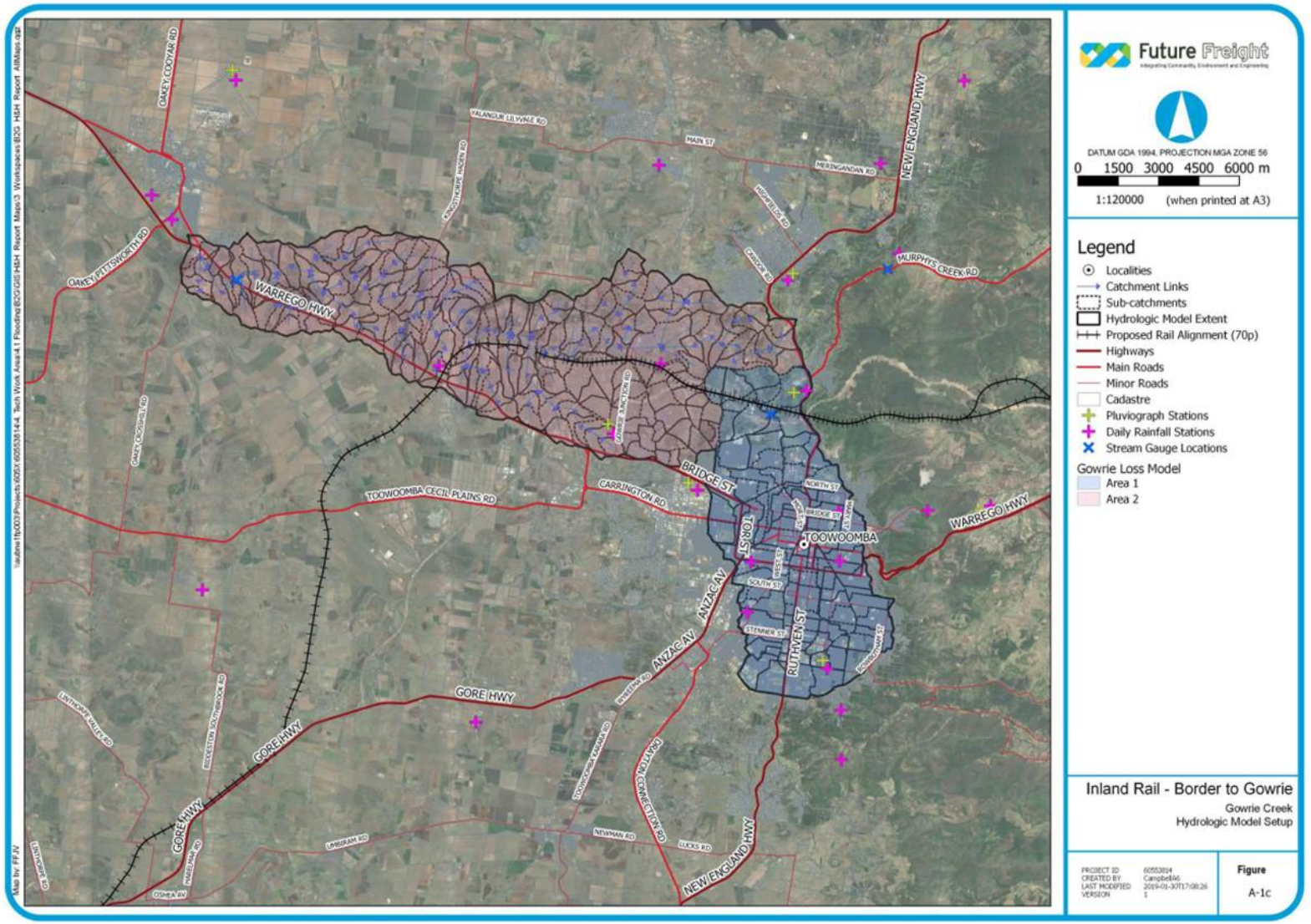
FLOOD IMPACTS – GOWRIE & WESTBROOK CREEKS

27/02/2019

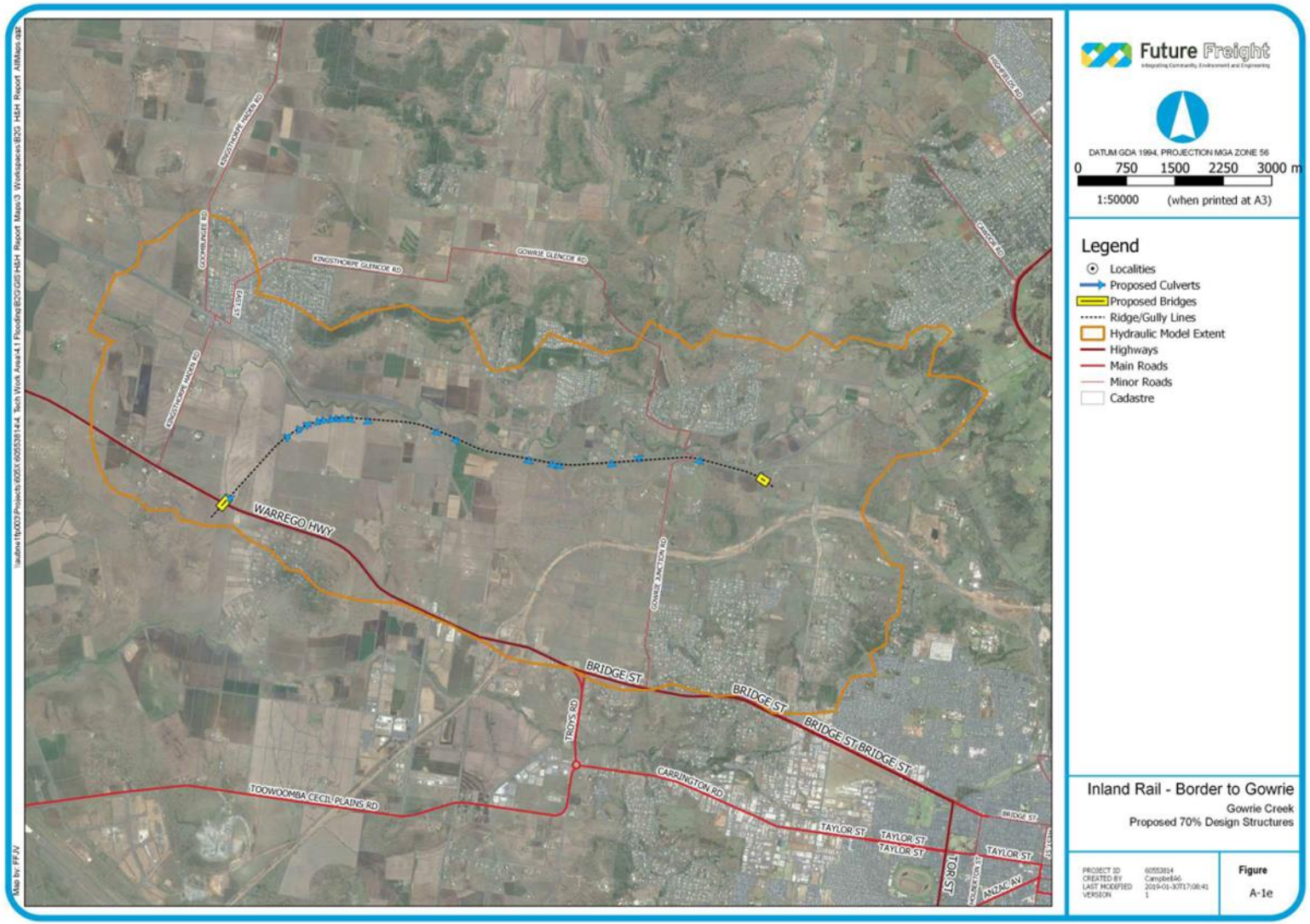
OVERVIEW

- Flood modelling approach
- Calibration
- Modelling results
- Potential flood impacts
- Questions

GOWRIE CREEK - HYDROLOGIC MODEL - XP RAFTS



GOWRIE CREEK - HYDRAULIC MODEL - TUFLOW



GOWRIE CREEK
PROPOSED STRUCTURES (B2G SECTION)

INLAND RAIL

Gowrie Creek – Proposed culvert locations and details (B2G section)

Structure Name	Type	US invert level (m AHD)	DS invert level (m AHD)	Diameter (m)	Number of Cells
1/206712	RCP	446.4	446.2	1.05	12
1/207498	RCP	449.5	449.0	1.05	7
1/204875	RCP	471.4	469.5	1.05	2
Post 30%3	RCP	448.1	447.5	1.05	2
Post30%4	RCP	447.3	446.7	1.05	2
Post30%5	RCP	449.5	449.1	1.20	5
Post30%6	RCP	446.9	446.7	1.05	15
Post30%8	RCP	446.8	446.0	1.05	4
Post30%9	RCP	446.9	446.7	1.05	2
Post30%11	RCP	446.8	446.0	1.05	2
Post30%12	RCP	447.8	447.4	1.05	5

GOWRIE CREEK CALIBRATION

- Dec 2010

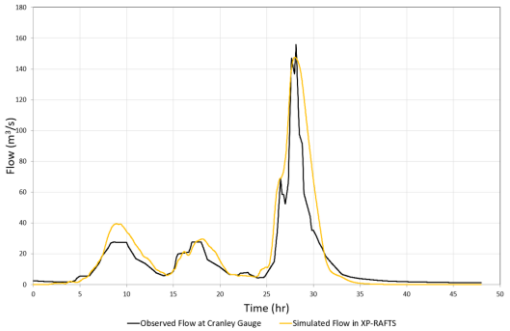


Figure 9 Comparison of gauged and simulated hydrographs at Cranley Gauge - 2010 event

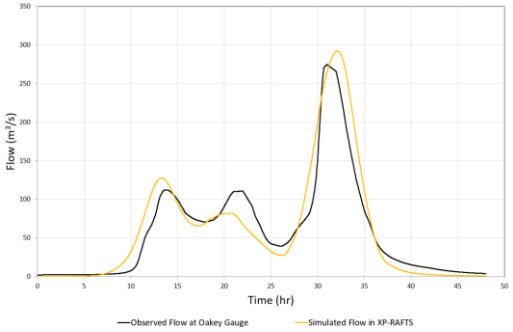


Figure 10 Comparison of gauged and simulated hydrographs at Oakey Gauge – 2010 event

- January 2011

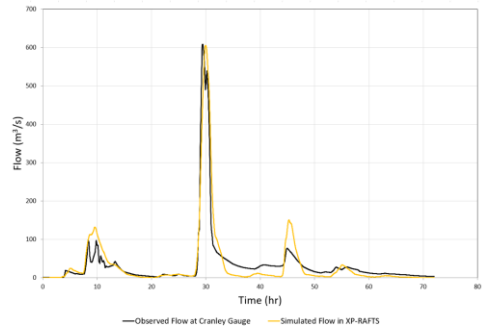


Figure 11 Comparison of gauged and simulated hydrographs at Cranley Gauge – 2011 event

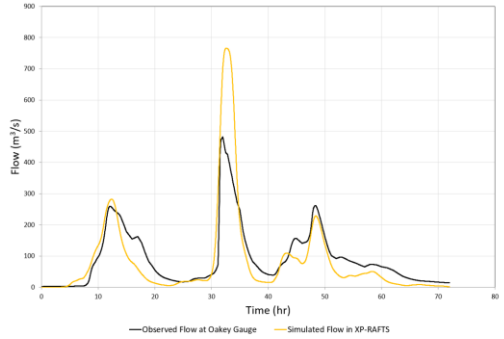
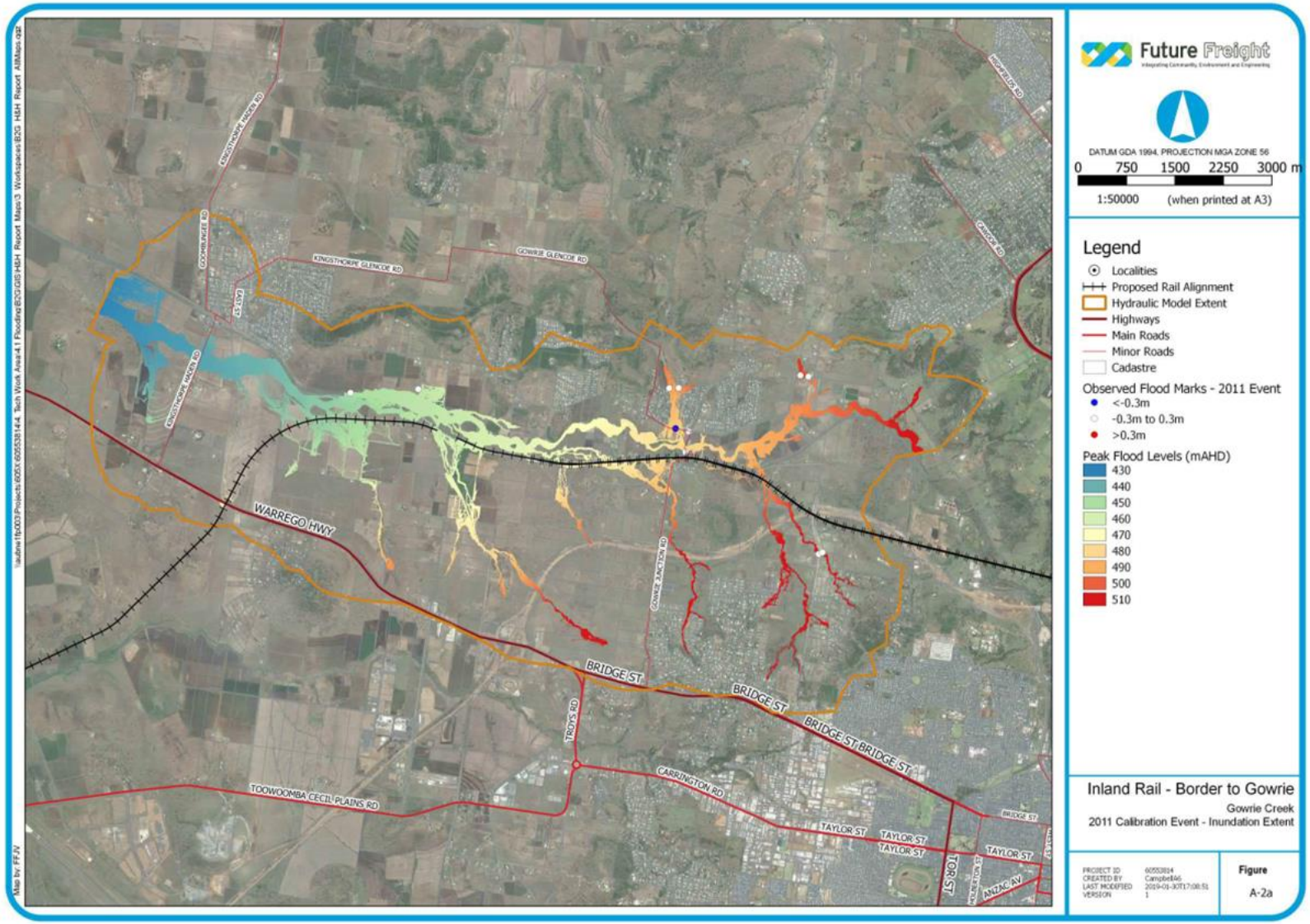


Figure 12 Comparison of gauged and simulated hydrographs at Oakey Gauge – 2011 event

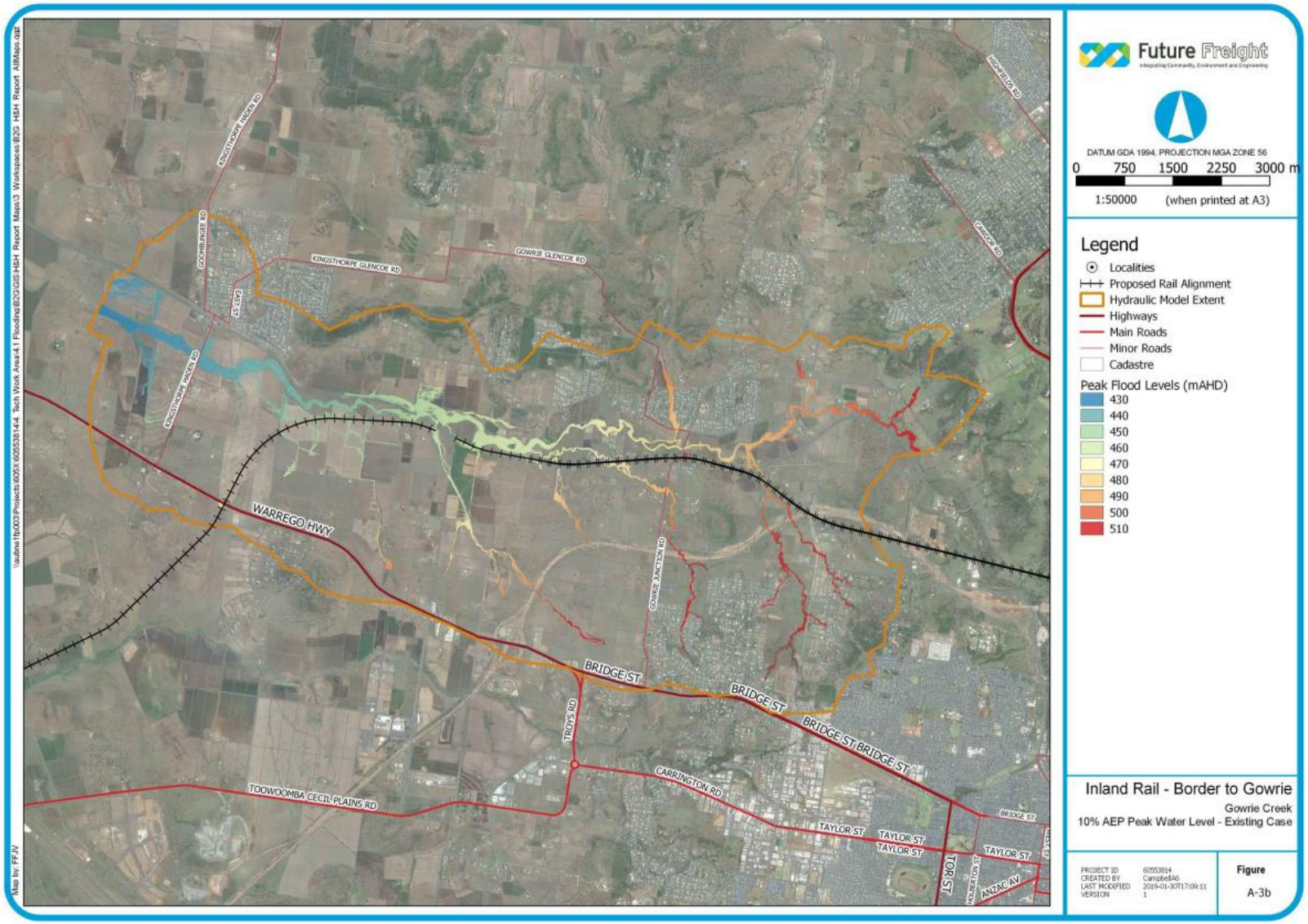
Table 28 Comparison between observed and simulated flood levels for January 2011 event

Location ID	Observed flood level at flood marks (m AHD)	Simulated water level in hydraulic model (m AHD)	Difference (mm)
1	503.07	503.07	0
2	501.28	501.20	+80
3	480.17	480.32	-150
4	482.61	482.91	-300
5	482.80	482.50	+300
6	492.91	492.97	-60
7	492.53	492.64	-110
8	519.02	518.84	+180
9	518.75	518.73	+20
10	450.17	450.15	+20
11	455.88	455.58	+300

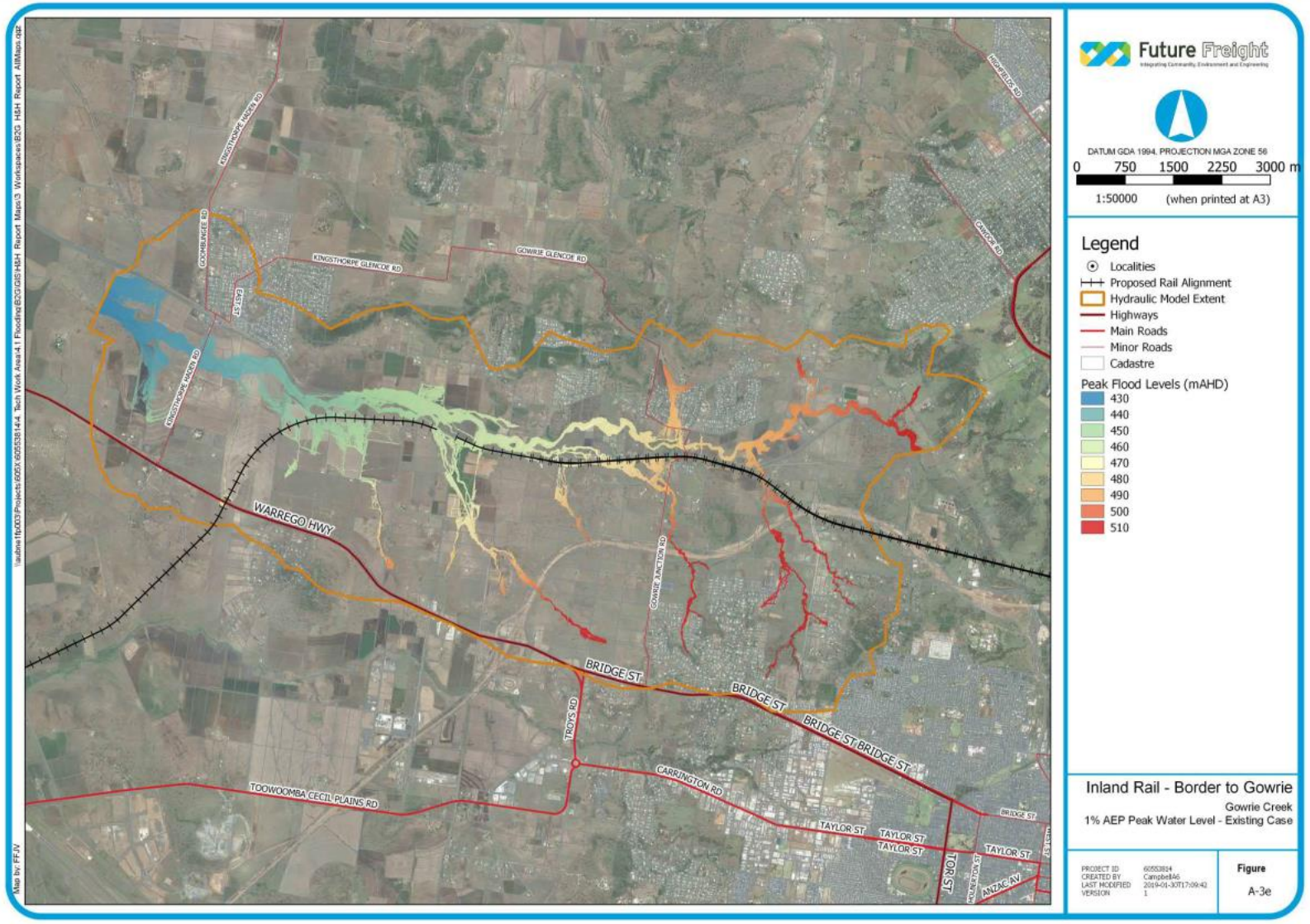
GOWRIE CREEK - JAN 2011 CALIBRATION



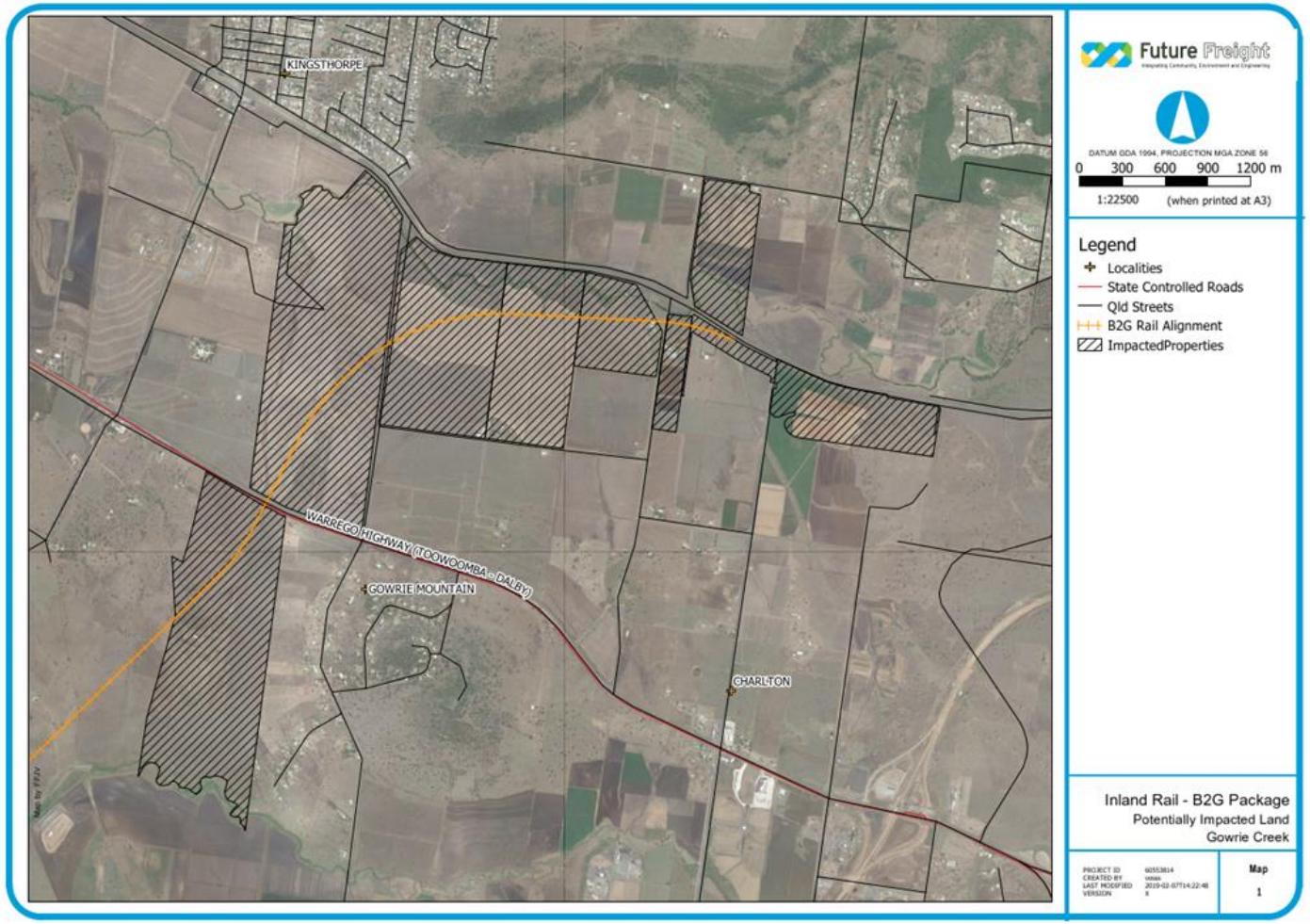
GOWRIE CREEK - 10% AEP WSE - EXISTING



GOWRIE CREEK - 1% AEP WSE - EXISTING

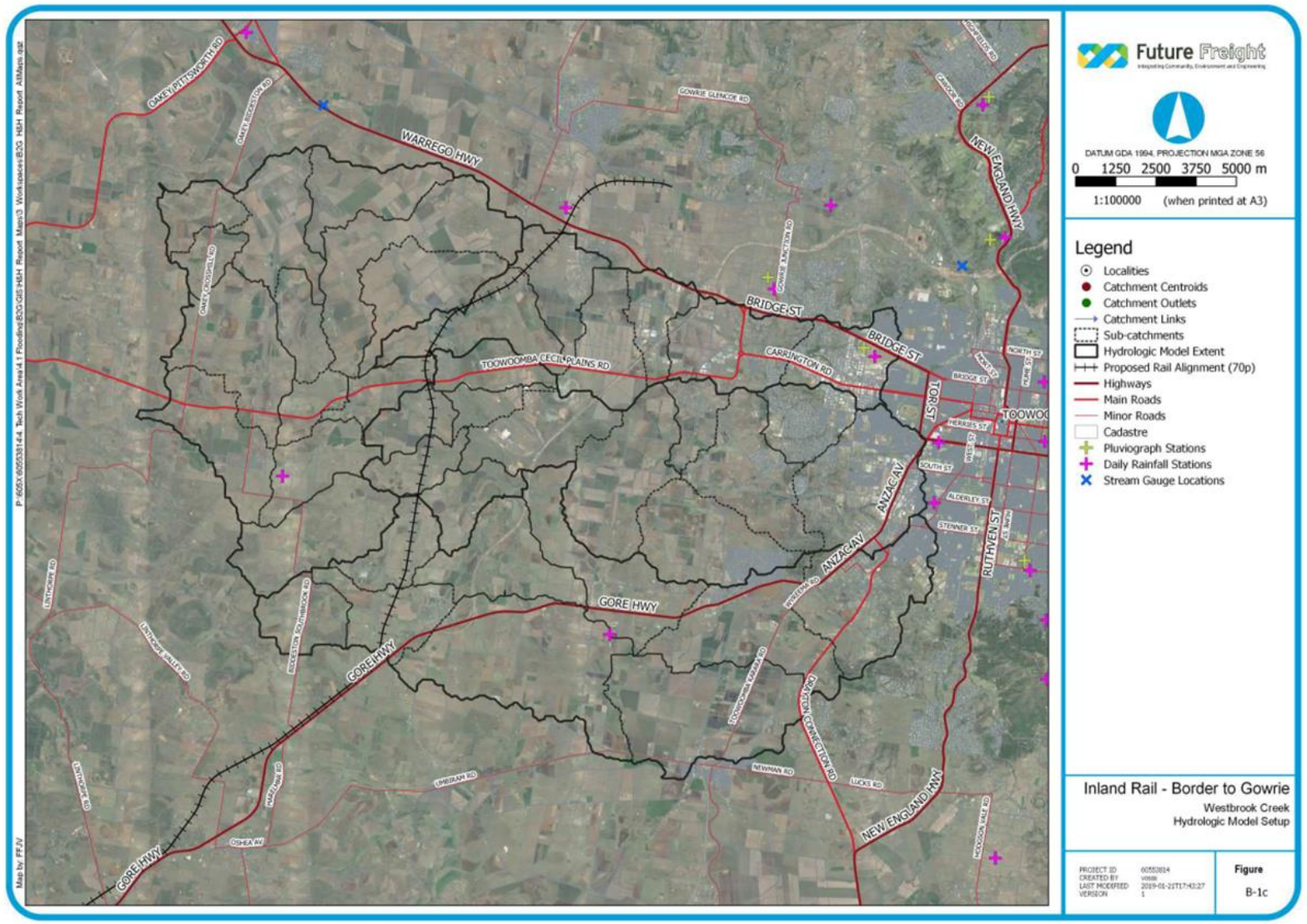


GOWRIE CREEK – 1% AEP FLOOD IMPACTED LAND (AFFLUX & DURATION)

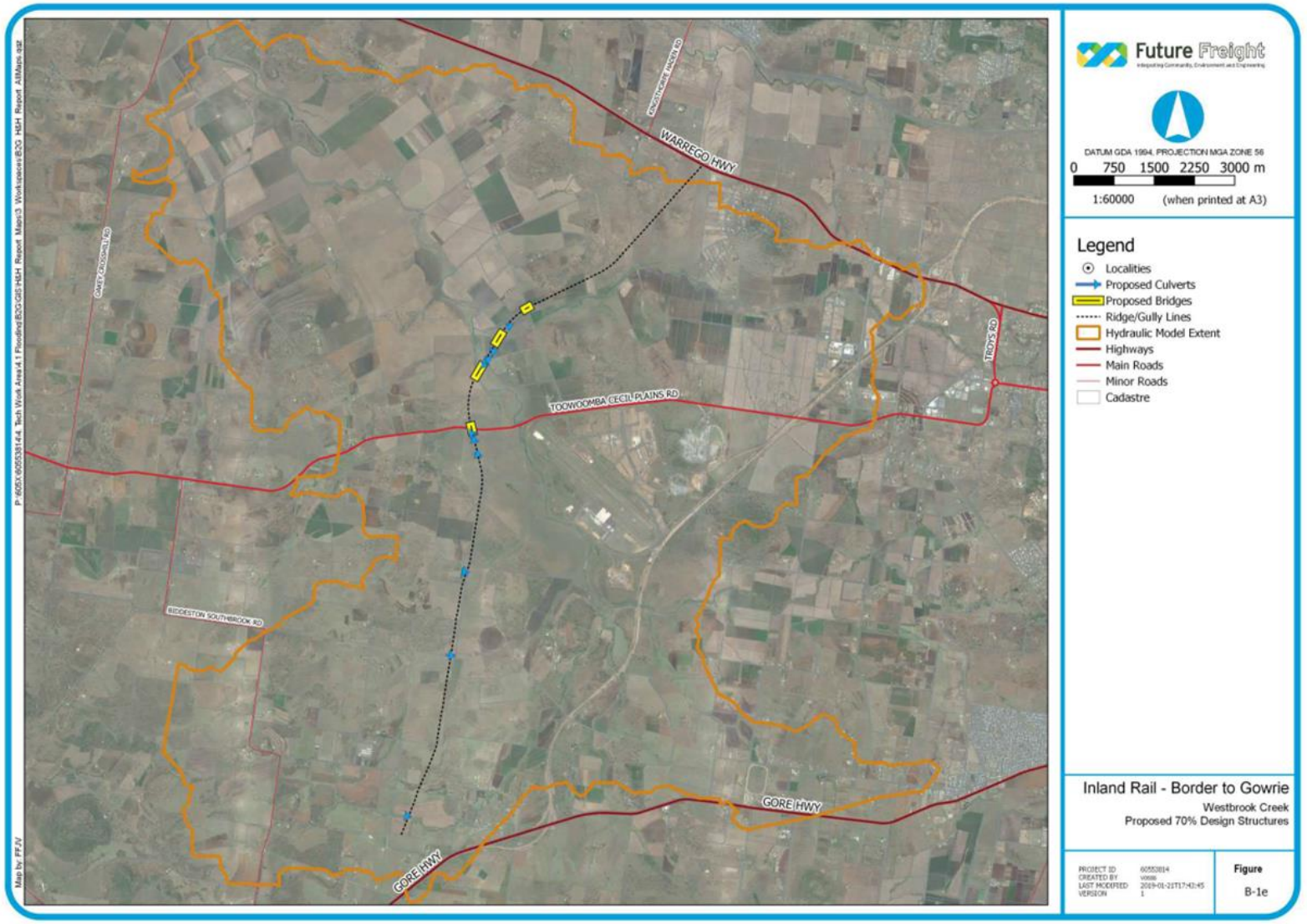


- No changes to the flood extent outside of project corridor
- No changes to velocities outside the project corridor
- No changes to flow direction
- Afflux contained mostly in project corridor
- Afflux affects nine lots owned by six landowners
- Max. afflux of 300mm outside of the project corridor in discrete pockets, but generally between 50 and 150mm
- No buildings affected by any changes in flood behaviour
- 350mm increase on one private access (further design and mitigation required)

WESTBROOK CREEK - HYDROLOGIC MODEL – XP RAFTS



WESTBROOK CREEK - HYDRAULIC MODEL - TUFLOW



WESTBROOK CREEK - PROPOSED STRUCTURES

INLAND RAIL

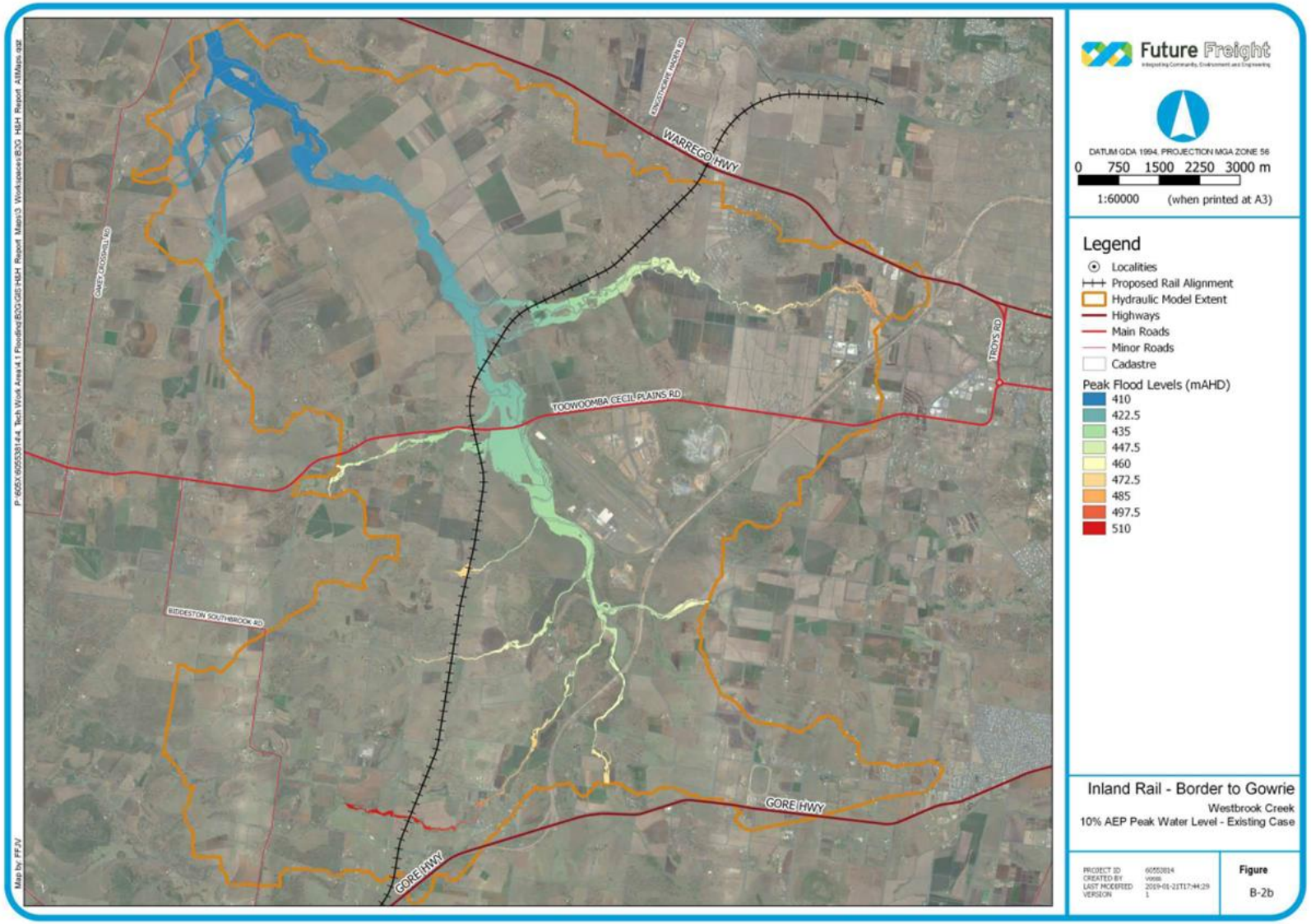
Westbrook Creek – Proposed culvert locations and details

Structure Name	Type	US invert (m AHD)	DS invert (m AHD)	Diameter (m)	Number of Cells
C04	RCP	510.4	509.9	1.20	20
C03	RCP	463.0	462.5	2.70	5
C01B	RCP	425.3	425.2	1.05	17
C01A	RCP	426.0	425.8	1.05	15
C05	RCP	432.2	431.8	1.05	14
C06	RCP	467.8	467.5	1.05	3
C07	RCP	423.8	423.7	2.40	20
C08	RCP	425.0	424.7	1.50	11
C09	RCP	425.3	425.0	1.20	10
C10	RCP	432.8	432.3	1.05	2
C11	RCP	467.6	467.2	1.05	3
C13	RCP	432.9	432.0	1.05	2

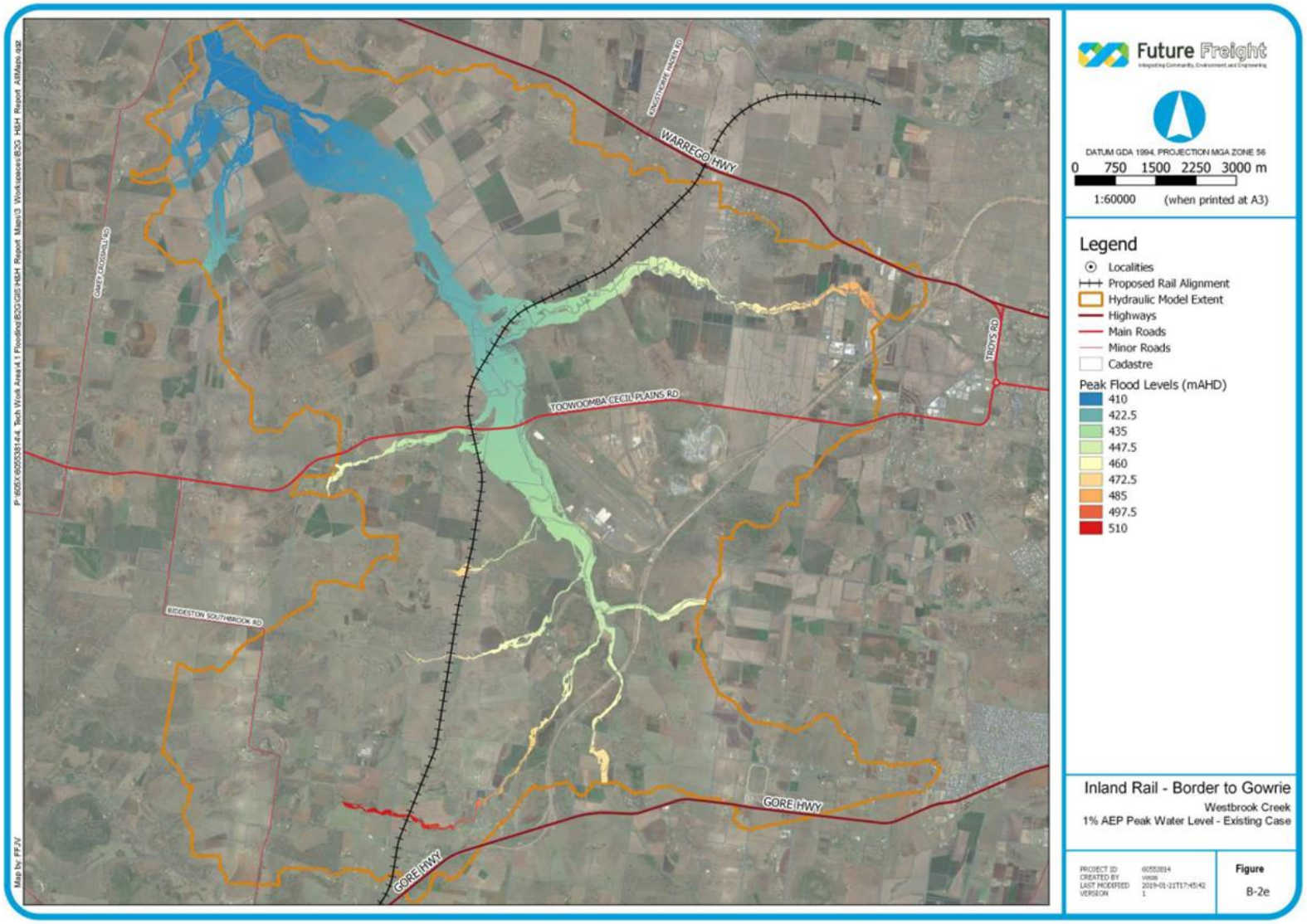
Westbrook and Dry Creeks – Proposed bridge locations and details

Bridge name	Obvert level (m AHD)	Length (m)
Dry Creek Bridge 310BR18	428.8 to 429.0	183
Westbrook Creek Bridge 310BR17	432.2 to 434.8	229

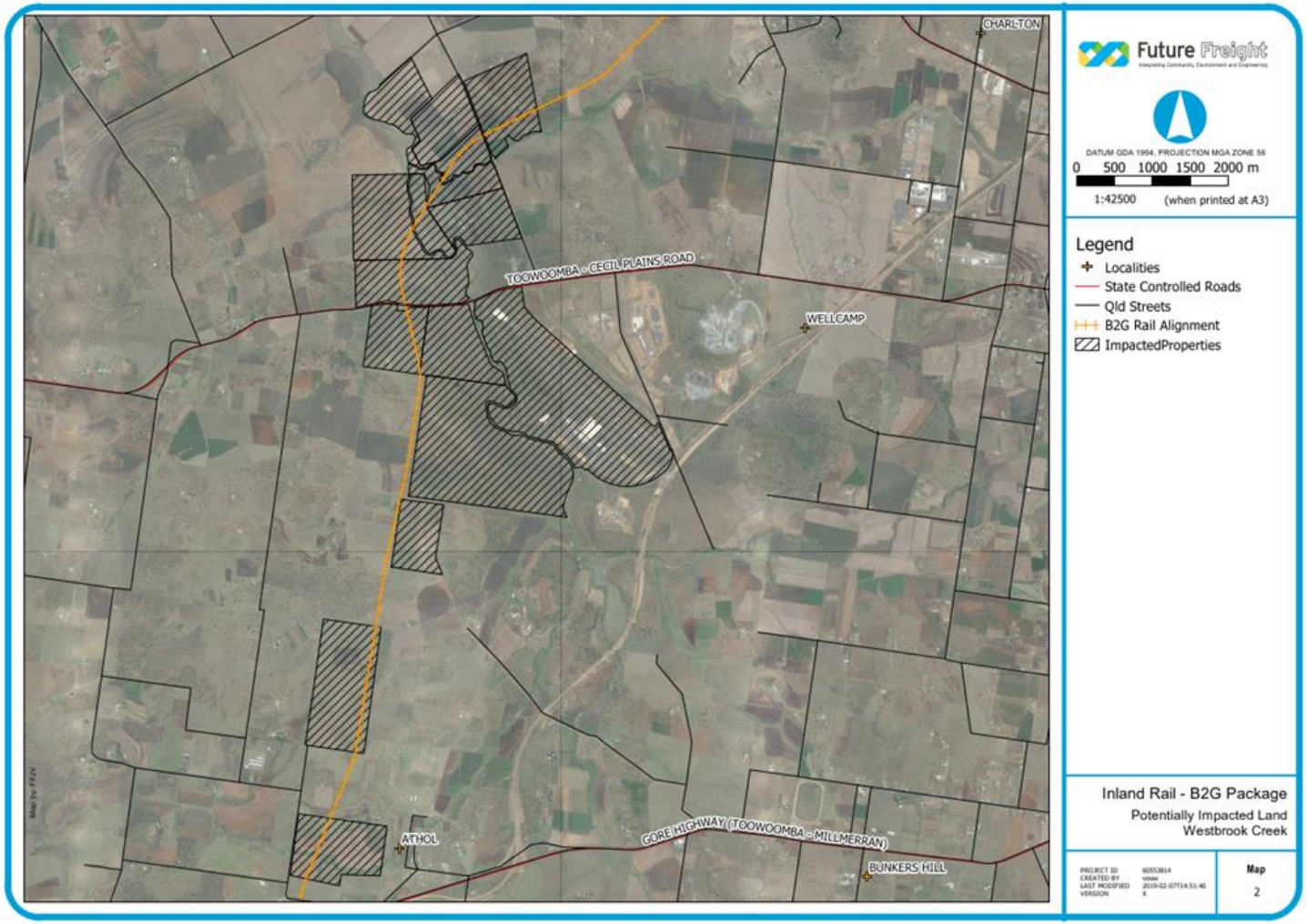
WESTBROOK CREEK - 10% AEP WSE - EXISTING



WESTBROOK CREEK - 1% AEP WSE - EXISTING



WESTBROOK CREEK – 1% AEP IMPACTED LAND (AFFLUX & DURATION)



- No changes to the flood extent outside of project corridor
- No changes to velocities outside the project corridor
- No changes to flow direction
- Afflux contained mostly in project corridor
- Afflux affects eleven lots owned by five landowners
- Max. afflux of 300mm outside of the project corridor in discrete pockets, but generally between 50 and 150mm
- No buildings affected by any changes in flood behaviour

INLAND RAIL

THANK YOU

ARTC

The Australian Government is delivering Inland Rail through the Australian Rail Track Corporation (ARTC), in partnership with the private sector.