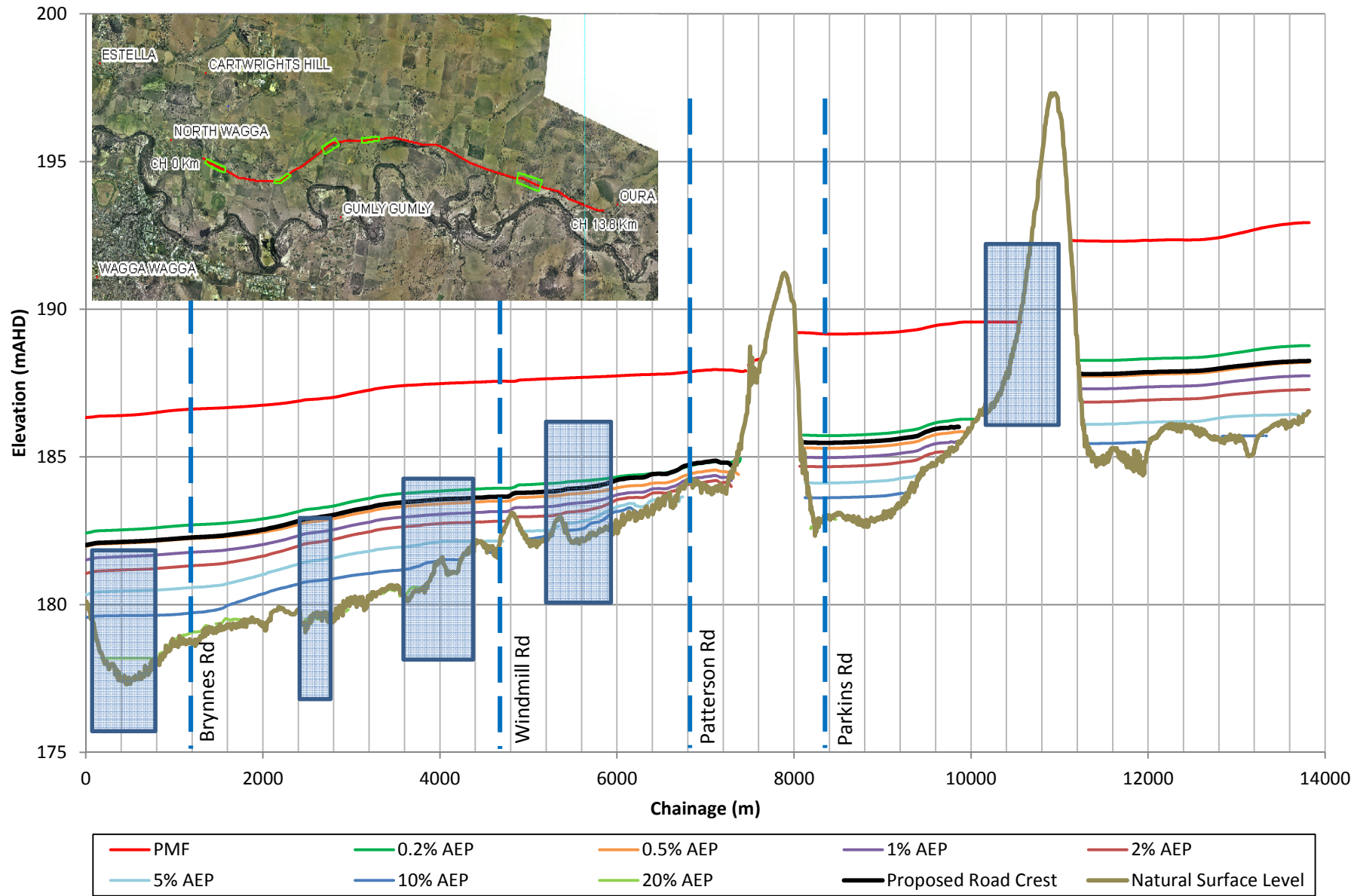




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OPTION R1: OURA ROAD RAISED TO 1% AEP LEVEL
DESIGN FLOOD EVENT PROFILE
FIGURE F2

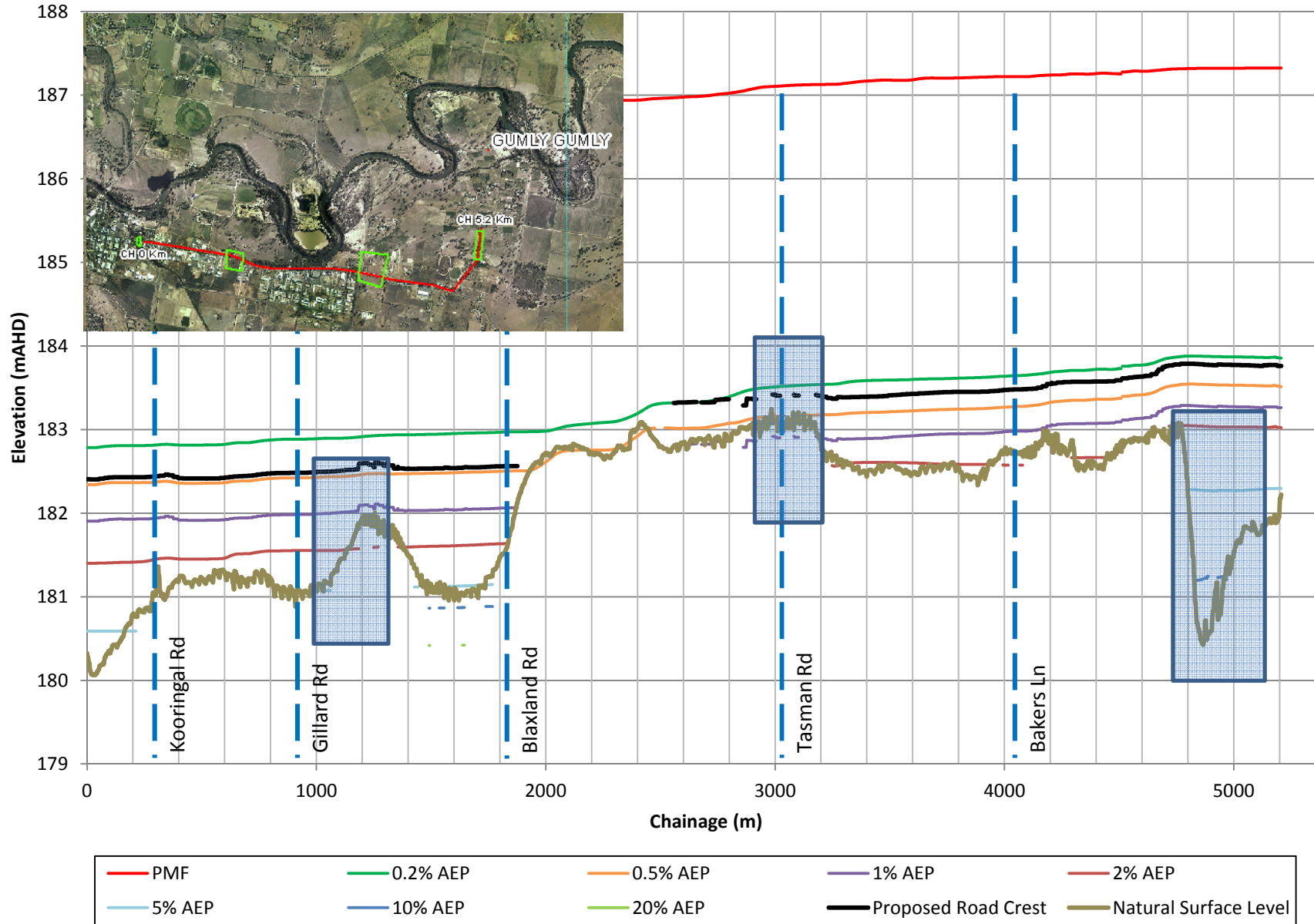


FIGURE F3
OPTION R2: STURT HIGHWAY RAISED TO 1% AEP LEVEL
DESIGN FLOOD EVENT PROFILE

Option L1

Oura Levee

Preliminary Bill of Quantities

The cost estimates are intended to be high level estimates only to produce a ball park figure that can be used in the preliminary cost/benefit assessment. It is noted that not all aspects have been considered in these estimates, but that the overall figure is in keeping with similar industry project values when compared on a per metre basis.

Fixed Costs	UNIT	QUANTITY	RATE (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	m	2,271	\$ 100.00	\$ 227,105
Detailed Survey	100m X-sections	23	\$ 400.00	\$ 9,200
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management (cost is estimated based on a range of factors including the levee length, anticipated community consultation and requirement of easement acquisition for expanding the levee footprint)	item	1	\$ 250,000.00	\$ 250,000
Total				\$ 601,300

Levee Construction (Earth Sections)	UNIT	QUANTITY	RATE (ex GST)	COST
Removal of top soil and vegetation (100 mm)	m ³	3,322	\$ 8.00	\$ 26,575
Excavation of cut-off trench	m ³	3,974	\$ 12.00	\$ 47,692
Fill in embankment	m ³	79,693	\$ 12.00	\$ 956,312
Fuel	l/m ³	79,693	\$ 0.75	\$ 59,769
Compaction of new material	m ³	79,693	\$ 8.00	\$ 637,541
Top soil placement	m ²	3,322	\$ 10.00	\$ 33,218
Top soil seeding	m ²	3,322	\$ 11.00	\$ 36,540
Purchase and installation of drainage pipes	m	23	\$ 7,500.00	\$ 170,329
Total				\$ 1,968,000

Sub-Total excluding 20% contingency				\$ 2,569,300
Total cost including contingency (ex GST)				\$ 3,083,160

Option L2

Gumly Gumly Levee

Preliminary Bill of Quantities

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Fixed Costs	UNIT	QUANTITY	RATE (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	m	3,400	\$ 100.00	\$ 340,000
Detailed Survey	100m X-sections	34	\$ 400.00	\$ 13,600
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management (cost is estimated based on a range of factors including the levee length, anticipated community consultation and requirement of easement acquisition for expanding the levee footprint)	item	1	\$ 250,000.00	\$ 250,000
Total				\$ 718,600

Levee Construction (Earth Sections)	UNIT	QUANTITY	RATE (ex GST)	COST
Removal of top soil and vegetation (100 mm)	m ³	6,539	\$ 8.00	\$ 52,314
Excavation of existing levee (if unsuitable material)	m ³	10,200	\$ 8.00	\$ 81,600
Excavation of cut-off trench	m ³	5,950	\$ 12.00	\$ 71,400
Fill in embankment	m ³	101,063	\$ 12.00	\$ 1,212,757
Fuel	l/m ³	101,063	\$ 0.75	\$ 75,797
Compaction of new material	m ³	101,063	\$ 8.00	\$ 808,505
Top soil placement	m ²	6,539	\$ 10.00	\$ 65,393
Top soil seeding	m ²	6,539	\$ 11.00	\$ 71,932
Purchase and installation of drainage pipes	m	34.00	\$ 7,500.00	\$ 255,000
Total				\$ 2,694,700

Sub-Total excluding 20% contingency				\$ 3,413,300
Total cost including contingency (ex GST)				\$ 4,096,000

Option L3

North Wagga 1% Levee

Preliminary Bill of Quantities

The cost estimates are intended to be high level estimates only to produce a ball park figure that can be used in the preliminary cost/benefit assessment.

Fixed Costs	UNIT	QUANTITY	Rate (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	item	1	\$ 20,000.00	\$ 20,000
Detailed Survey	100m X-sections	60	\$ 400.00	\$ 24,000
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management (cost is estimated based on a range of factors including the levee length, anticipated community consultation and requirement of easement acquisition for expanding the levee footprint)	item	1	\$ 1,750,000.00	\$ 1,782,000
Total				\$ 1,941,000.00

Levee Construction (Earth Sections)	UNIT	QUANTITY	RATE (ex GST)	COST
Removal of top soil and vegetation (100 mm)	m ³	12,713	\$ 8.00	\$ 101,706
Excavation of existing levee (if unsuitable material)	m ³	17,324	\$ 8.00	\$ 138,593
Excavation of cut-off trench	m ³	10,106	\$ 12.00	\$ 121,269
Fill in embankment	m ³	230,528	\$ 12.00	\$ 2,766,330
Haulage	km	10	\$ 25.00	\$ 250
Fuel	l/m ³	230,528	\$ 0.75	\$ 172,896
Compaction of new material	m ³	230,528	\$ 8.00	\$ 1,844,220
Top soil placement	m ²	12,713	\$ 10.00	\$ 127,133
Top soil seeding	m ²	12,713	\$ 11.00	\$ 139,846
Purchase and installation of drainage pipes	m	58	\$ 7,500.00	\$ 433,104
Total				\$ 5,845,300

Hampden Avenue Embankment Raising	UNIT	QUANTITY	RATE (ex GST)	COST
Removal of 'temporary' Hampden Ave earth levees	m ³	37,165	\$ 12.00	\$ 445,980
Removal of top soil and vegetation (100 mm)	m ³	1,025	\$ 8.00	\$ 8,202
Excavation of existing levee (if unsuitable material)	m ³	1,589	\$ 8.00	\$ 12,713
Excavation of cut-off trench	m ³	795	\$ 12.00	\$ 9,535
Fill in embankment	m ³	20,917	\$ 12.00	\$ 251,004
Haulage	km	15	\$ 25.00	\$ 375
Fuel	l/m ³	530	\$ 0.75	\$ 397
Compaction of new material	m ³	20,917	\$ 8.00	\$ 167,336
Road Surfacing	m	530	\$ 1,500.00	\$ 794,584
Line Marking	m	530	\$ 50.00	\$ 26,486
Traffic Control	m	530	\$ 30.00	\$ 15,892
Installation of other amenities (eg. Pedestrian crossings, street lights)	m	53	\$ 100.00	\$ 5,297
Raising of existing Wilks Park flood Bridge	m	73	\$ 10,000.00	\$ 730,000
Excavation beneath Wilks Park Flood Bridge	m ³	125,800	\$ 12.00	\$ 1,509,600
Total				\$ 3,977,400

Hampden Avenue Overland Bridge	UNIT	QUANTITY	RATE (ex GST)	COST
Removal of 'temporary' Hampden Ave earth levees	m ³	37,165	\$ 12.00	\$ 445,980
Excavation beneath Wilks Park Flood Bridge	m ³	125,800	\$ 12.00	\$ 1,509,600
Geotechnical feasibility study	item	1	\$ 10,000.00	\$ 10,000
Detailed bridge design	item	1	\$ 150,000.00	\$ 150,000
Bridge construction and associated costs	m	1	\$ 25,000,000.00	\$ 25,000,000
Total				\$ 27,115,600

Raising Main City Levee	UNIT	QUANTITY	RATE (ex GST)	COST
Increasing height of Main City Levee to maintain 1% AEP level of	item	1	\$ 1,060,000.00	\$ 1,060,000

Note: Price from Wagga Wagga Flood Futures March 2015

Total				\$ 1,060,000
Sub-Total excluding 20% contingency				
L3(A): LEVEE ALONE				\$ 8,846,300
L3(B): LEVEE AND RAISING HAMPDEN AVENUE AS EMBANKMENT				\$ 12,823,700
L3(C): LEVEE AND RAISING HAMPDEN AVENUE AS OVERLAND BRIDGE				\$ 35,961,900
Total cost including 20% contingency (ex GST)				
L3(A): LEVEE ALONE				\$ 10,615,600
L3(B): LEVEE AND RAISING HAMPDEN AVENUE AS EMBANKMENT				\$ 15,388,400
L3(C): LEVEE AND RAISING HAMPDEN AVENUE AS OVERLAND BRIDGE				\$ 43,154,300

Option L4

North Wagga 5% Levee

Preliminary Bill of Quantities

The cost estimates are intended to be high level estimates only to produce a ball park figure that can be used in the preliminary cost/benefit assessment.

Fixed Costs	UNIT	QUANTITY	RATE (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	item	1	\$ 15,000.00	\$ 15,000
Detailed Survey	100m X-sections	60	\$ 400.00	\$ 24,000
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management (cost is estimated based on a range of factors including the levee length, anticipated community consultation and requirement of easement acquisition for expanding the levee footprint)	item	1	\$ 850,000.00	\$ 1,013,000
Total				\$ 1,167,000

Levee Construction (Earth Sections)	UNIT	QUANTITY	RATE (ex GST)	COST
Removal of top soil and vegetation (100 mm)	m ³	8,107	\$ 8.00	\$ 64,859
Excavation of existing levee (if unsuitable material)	m ³	17,324	\$ 8.00	\$ 138,593
Excavation of cut-off trench	m ³	10,106	\$ 12.00	\$ 121,269
Fill in embankment	m ³	92,137	\$ 12.00	\$ 1,105,649
Fuel	l/m ³	92,137	\$ 0.75	\$ 69,103
Compaction of new material	m ³	92,137	\$ 8.00	\$ 737,099
Top soil placement	m ²	8,107	\$ 10.00	\$ 81,074
Top soil seeding	m ²	8,107	\$ 11.00	\$ 89,181
Purchase and installation of drainage pipes	m	58	\$ 7,500.00	\$ 433,104
Total				\$ 2,839,900

Hampden Avenue Embankment Raising	UNIT	QUANTITY	RATE (ex GST)	COST
Removal of 'temporary' Hampden Ave earth levees	m ³	37,165	\$ 12.00	\$ 445,980
Removal of top soil and vegetation (100 mm)	m ³	753	\$ 8.00	\$ 6,021
Excavation of existing levee (if unsuitable material)	m ³	1,589	\$ 8.00	\$ 12,713
Excavation of cut-off trench	m ³	795	\$ 12.00	\$ 9,535
Fill in embankment	m ³	9,338	\$ 12.00	\$ 112,051
Haulage	km	10	\$ 25.00	\$ 250
Fuel	l/m ³	530	\$ 0.75	\$ 397
Compaction of new material	m ³	9,338	\$ 8.00	\$ 74,700
Road Surfacing	m	530	\$ 1,500.00	\$ 794,584
Line Marking	m	530	\$ 50.00	\$ 26,486
Traffic Control	m	530	\$ 30.00	\$ 15,892
Installation of other amenities (eg. Pedestrian crossings, street lights)	m	53	\$ 100.00	\$ 5,297
Raising of existing Wilks Park flood Bridge	m	72	\$ 10,000.00	\$ 720,000
Excavation beneath Wilks Park Flood Bridge	m ³	835	\$ 12.00	\$ 10,020
Total				\$ 2,233,900

Hampden Avenue Overland Bridge	UNIT	QUANTITY	RATE (ex GST)	COST
Geotechnical feasibility study	item	1	\$ 10,000.00	\$ 10,000
Detailed bridge design	item	1	\$ 150,000.00	\$ 150,000
Bridge construction and associated costs	item	1	\$ 15,000,000.00	\$ 15,000,000
Total				\$ 15,160,000

Sub-Total excluding 20% contingency

L4(A): LEVEE ALONE	\$ 4,006,900
L4(B): LEVEE AND RAISING HAMPDEN AVENUE AS EMBANKMENT	\$ 6,240,800
L3(C): LEVEE AND RAISING HAMPDEN AVENUE AS OVERLAND BRIDGE	\$ 19,166,900

Total cost including 20% contingency (ex GST)

L4(A): LEVEE ALONE	\$ 4,808,300
L4(B): LEVEE AND RAISING HAMPDEN AVENUE AS EMBANKMENT	\$ 7,489,000
L3(C): LEVEE AND RAISING HAMPDEN AVENUE AS OVERLAND BRIDGE	\$ 23,000,300

Option CM1

Malebo Gap

Preliminary Bill of Quantities

The cost estimates are intended to be high level estimates only to produce a ball park figure that can be used in the preliminary cost/benefit assessment. It is noted that not all aspects have been considered in these estimates, but that the overall figure is in keeping with similar industry project values when compared on a per metre basis.

Fixed Costs	UNIT	QUANTITY	RATE (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	m	10	\$ 100.00	\$ 1,000
Detailed Survey	100m X-sections	58	\$ 400.00	\$ 23,000
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management	item	1	\$ 250,000.00	\$ 250,000
Total				\$ 389,000.00

Earth Works	UNIT	QUANTITY	RATE (ex GST)	COST
Excavation of banks	m ³	395,000	\$ 12.00	\$ 4,740,000
Fuel	l/m ³	395,000	\$ 0.75	\$ 296,250
Misc. Fencing, pipes, security etc	item	1	\$ 10,000.00	\$ 10,000
Total				\$ 5,046,300

Sub-Total excluding 20% contingency				\$ 5,435,300
Total cost including contingency (ex GST)				\$ 6,522,400

Option CM2
Gobbagombalin Bridge
Preliminary Bill of Quantities

The cost estimates are intended to be high level estimates only to produce a ball park figure that can be used in the preliminary cost/benefit assessment. It is noted that not all aspects have been considered in these estimates, but that the overall figure is in keeping with similar industry project values when compared on a per metre basis.

Fixed Costs	UNIT	QUANTITY	RATE (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	m	24	\$ 100.00	\$ 2,400
Detailed Survey	100m X-sections	54	\$ 400.00	\$ 21,600
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management	hrs	1	\$ 250,000.00	\$ 250,000
Total				\$ 389,000.00

Excavation	UNIT	QUANTITY	RATE (ex GST)	COST
Excavation	m ³	337,999	\$ 12.00	\$ 4,055,988
Fuel	l/m ³	337,999	\$ 0.75	\$ 253,499
Misc. Fencing, pipes, security etc	item	1	\$ 10,000.00	\$ 10,000
Total				\$ 4,319,500

Sub-Total excluding 20% contingency			\$	4,708,500
Total cost including contingency (ex GST)			\$	5,650,200

Option BF1
North Wagga Bypass Floodway
Preliminary Bill of Quantities

The cost estimates are intended to be high level estimates only to produce a ball park figure that can be used in the preliminary cost/benefit assessment. It is noted that not all aspects have been considered in these estimates, but that the overall figure is in keeping with similar industry project values when compared on a per metre basis.

Fixed Costs	UNIT	QUANTITY	RATE (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	m	5,600	\$ 100.00	\$ 560,000
Detailed Survey	100m X-sections	56	\$ 400.00	\$ 22,400
Detailed Research and Design	hrs	120	\$ 400.00	\$ 48,000
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management	item	1	\$ 250,000.00	\$ 250,000
Total				\$ 995,400.00

Excavation	UNIT	QUANTITY	RATE (ex GST)	COST
Excavation	m ³	405,000	\$ 12.00	\$ 4,860,000
Fuel	l/m ³	405,000	\$ 0.75	\$ 303,750
Compaction of new material	m ³	112,000	\$ 8.00	\$ 896,000
Misc. Fencing, pipes, security etc	item	1	\$ 10,000.00	\$ 10,000
Total				\$ 6,069,750

Sub-Total excluding 20% contingency			\$	7,065,200
Total cost including contingency (ex GST)			\$	8,478,200

Option L6
North Wagga Spillway
Preliminary Bill of Quantities

The cost estimates are intended to be high level estimates only to produce a ball park figure that can be used in the preliminary cost/benefit assessment. It is noted that not all aspects have been considered in these estimates, but that the overall figure is in keeping with similar industry project values when compared on a per metre basis.

Fixed Costs	UNIT	QUANTITY	RATE (ex GST)	COST
Detailed Design Study (including optimisation of design levels and locations of works)	item	1	\$ 100,000.00	\$ 100,000
Planning and approvals/ easement requirements	m	60	\$ 100.00	\$ 6,000
Detailed Survey	100m X-sections	60	\$ 400.00	\$ 24,000
Contractor Establishment	item	1	\$ 5,000.00	\$ 5,000
WHS Compliance	item	1	\$ 10,000.00	\$ 10,000
Project Management	item	1	\$ 250,000.00	\$ 250,000
Total				\$ 395,000.00

Levee Construction (Earth Sections)	UNIT	QUANTITY	RATE (ex GST)	COST
Excavation of banks	m	400	\$ 12.00	\$ 4,800
Fuel	l/m ³	400	\$ 0.75	\$ 300
Compaction of Spillways	item	1	\$ 10,000.00	\$ 10,000
Total				\$ 15,100

Sub-Total excluding 20% contingency				\$ 410,100
Total cost including contingency (ex GST)				\$ 492,100