



Irrigation Infrastructure Renewal Projections - 2013/14 to 2046/47

Report - Central Lockyer Tariff Group

September 2012

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Document Status

Version	Date	Author	Reviewed	PCG Approval
1	20/4/12	AL/GH	MD	
2	23/4/12	GH	MD	
3	19/9/12	GH	MD	

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1. Introduction

Seqwater owns and operates the following seven irrigation schemes:

- ▶ Central Lockyer WSS;
- ▶ Lower Lockyer WSS;
- ▶ Logan River WSS;
- ▶ Mary River WSS;
- ▶ Cedar Pocket WSS;
- ▶ Warrill Valley WSS; and
- ▶ Central-Brisbane WSS.

Seqwater also owns and operates a distribution system, the Morton Vale Pipeline.

There are nine tariff groups associated with these schemes.

To assist with the determination of price paths, a forecast of future renewal expenditure is required at the individual tariff group level.

The renewal projections have been developed, in accordance with the scope and methodology separately documented in the Methodology report. The projections have been developed in separate reports, one for each tariff group.

This report outlines the projections for the Central Lockyer Tariff group. It should be read in conjunction with the Methodology report.

2. Asset Information

2.1 Irrigation Infrastructure

A summary of Seqwater's irrigation infrastructure facilities and assets is provided in **Table 1** below.

Table 1 Summary of Irrigation Infrastructure

WSS Scheme	Tariff Group	Dams	Weirs	Off-Stream Storage	Other Key Assets
Central Lockyer	Central Lockyer	NA	Jordan 1 Weir, Jordan 2 Weir, Clarendon Weir, Crowley Vale Weir, Kentville Weir, Wilson Weir, Laidley Creek Diversion Weir, Showground Weir	Clarendon Dam Bill Gunn Dam	Clarendon Diversion/Supply Channel, Clarendon Pump Station, Redbank Creek Pump Station, Laidley Creek, Flowmeters, Observation Bores, Lake Dyer Diversion, Morton Vale Outlet Works

A schematic drawing of the scheme is provided in Appendix A.

2.2 Relevant Asset Information

The following existing information was reviewed and where relevant, utilised to develop the renewal projections:

- ▶ Asset Register;
- ▶ Annual, 5 Year and Comprehensive Dam Safety Reviews and Assessments;
- ▶ Draft WSS 20 Year Programme of Work 2008/09 – 2028/29;
- ▶ 2011 Site Safety Assessments;
- ▶ Extracts from Financial Asset Register;
- ▶ 2009 Asset Valuation – Cardnos;
- ▶ 2010 Asset Valuation – Dams & Weirs – Cardnos;
- ▶ Bill Gunn Dam Facility Asset management Plan 2011;
- ▶ Clarendon Dam Facility Asset Management Plan 2011; and
- ▶ Business Case - Irrigation Customer Meters Renewal (SM 12/13 02).

3. Projections

3.1 Summary

A summary of the renewal and refurbishment projections for the period 2013/14 – 2046/47 is provided in Table 3.

Further details are provided in Appendix B.

It should be noted that all values are in \$2012-13.

3.2 Significant Projects

A list of projects that come under one of the following categories are outlined in Table 2 below:

- ▶ Scheduled between 2013/14 and 2016/17 financial years and having a project value greater than the average project value for that period; and
- ▶ A project that has an impact on the annuity of greater than 10%¹.

Table 2 Significant Projects

Asset	Description of Work	Timing of Work	Project Value	Signif.*
Clarendon Dam	Replenish/replace rip rap rock on dam wall	2014/15 to 2016/17	\$52k/year	HAV
Clarendon Pump Station	Refurbish electrical control equipment	2013/14	\$25k	HAV
Bill Gunn Dam	Replenish rip rap on embankment	2014/15 to 2016/17	\$25k/year	HAV
Bill Gunn Dam	Refurbish pump house	2015/16	\$30k	HAV
Bill Gunn Dam – Lake Dywer Diversion - Pipeline	Renewal of RC Pipeline	2037/38	\$7730k	IA
Water Meters	Water Meter Renewal Program	Annually, commencing 2013/14	\$2,315k over 33 years	HAV Ref. Footnote 1

Notes: *Significance: HAV – Higher than Average Value (for period from 2013/14 to 2016/17) IA – Project was assessed in April 2012 (refer Footnote 1 below) as having an impact on the annuity of greater than 10% (refer Section 3.3 for commentary).

¹ The impact on annuity was assessed in April 2012 when version 2 of this report was produced. At that time, the water meter renewal program had not been fully developed and included in the assessment. An updated assessment of impact has not been undertaken in updating this current version 3 of the report

Table 3 Summary of Renewal Projections

Parent Asset	Expenditure Forecast Each Year (\$k)																			
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30			
Clarendon Dam	52	52	52	52	52	88	50	-	39	-	201	-	-	-	-	10	-			
Clarendon Diversion	26	57	40	-	21	42	51	60	-	229	40	42	52	-	-	472	41			
Clarendon Weir	-	-	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-			
Crowley Vale Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Glenore Grove Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Gauging Stations	-	-	-	-	-	-	-	-	-	72	-	-	-	-	-	-	-			
Kentville Weir	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-			
Laidley Creek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Wilson Weir	-	-	-	-	-	-	-	-	85	-	-	-	3	-	-	-	-			
Boreholes	-	-	-	-	-	50	-	-	-	-	50	-	-	-	-	50	-			
Bill Gunn Dam	-	45	85	25	27	-	-	-	73	-	-	-	-	-	5	16	-			
Laidley Creek Diversion Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Lake Dyer Diversion	26	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-			
Water Flow Meters	132	132	168	168	168	168	168	168	168	35	35	35	35	35	35	35	35	35		
Total	236	286	345	245	278	348	269	228	292	409	326	77	119	35	40	583	76			

Parent Asset	Expenditure Forecast Each Year (\$k)																			
	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47			
Clarendon Dam	-	39	-	-	-	-	-	-	10	-	-	46	-	26	-	-	-			
Clarendon Diversion	10	76	42	26	36	15	-	72	-	31	10	426	-	719	31	1,480	-			
Clarendon Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Crowley Vale Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Glenore Grove Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Gauging Stations	-	-	72	-	-	-	-	-	-	-	-	-	-	72	-	-	-			
Kentville Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-			
Laidley Creek	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-			
Wilson Weir	-	-	-	-	-	-	-	-	-	-	-	541	-	-	-	3	-			
Boreholes	-	-	-	50	-	-	-	-	50	-	-	-	-	50	-	-	-			
Bill Gunn Dam	-	-	22	8	-	-	-	150	-	-	-	-	-	5	-	-	-			
Laidley Creek Diversion Weir	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Lake Dyer Diversion	-	-	-	26	-	-	-	8,577	-	-	-	-	-	-	-	-	-			
Water Flow Meters	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35		
Total	45	150	171	145	71	54	35	8,834	95	66	45	1,048	112	830	66	1,521	35			

3.3 Additional Commentary

Commentary on projects that have a higher than average project value includes:

- ▶ Replenishment of rock rip rap on upstream embankment of Clarendon Dam due to weathering of existing rip rap. Replenishment of approximately 150m³ of 200mm diam. rip rap every year for six years.
- ▶ Refurbishment of electrical control equipment at Clarendon Pump Station as assessed in FAMP.
- ▶ Replenishment of rock rip rap on Bill Gunn Dam embankment according to condition and criticality assessment completed as part of the FAMP development process.
- ▶ Refurbishment of pump house at Bill Gunn Dam according to condition and criticality assessment completed as part of the FAMP development process.

The following commentary is provided on the pipeline renewal project listed in Table 2 as having an annuity of greater than 10%:

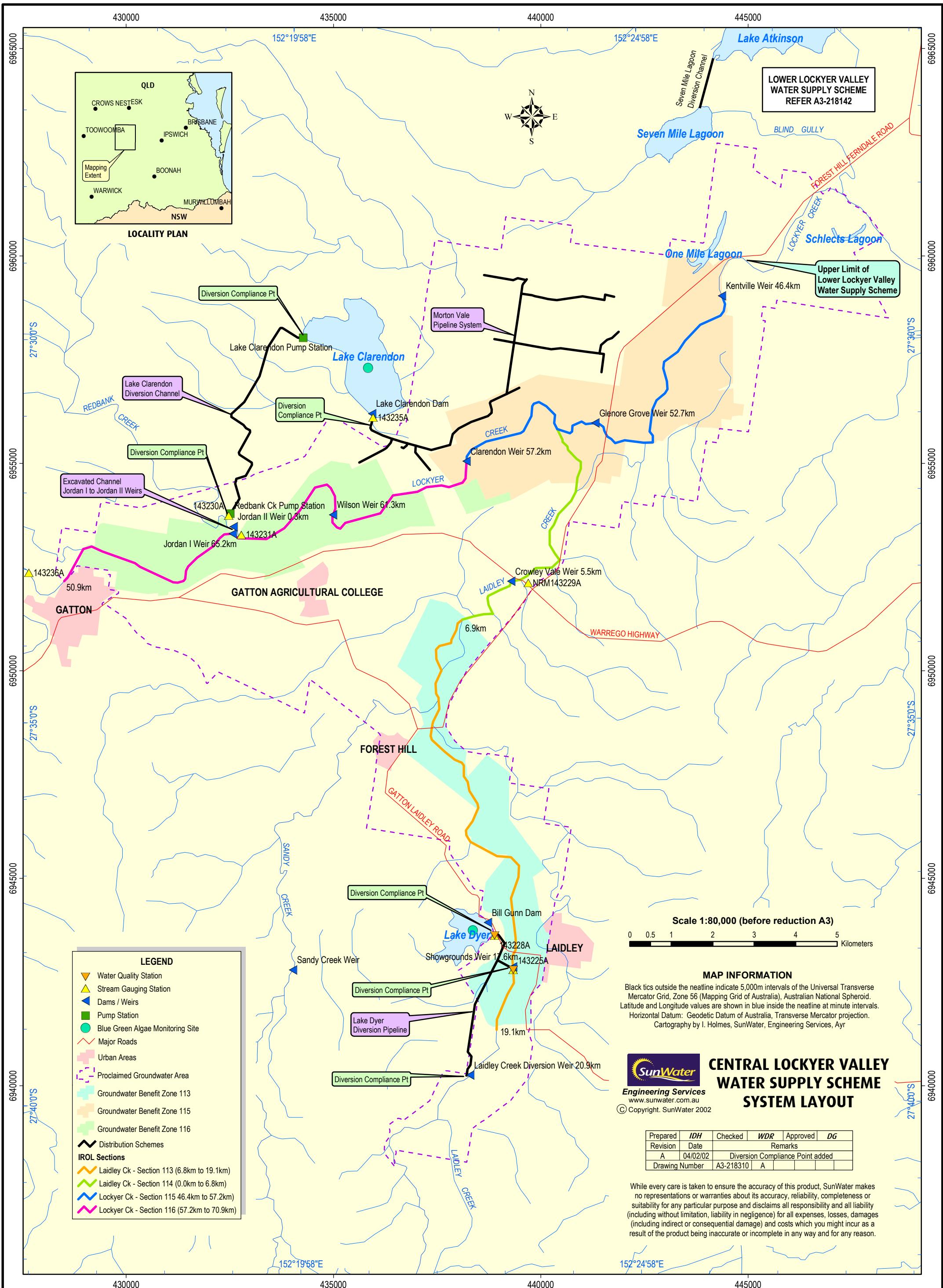
- ▶ The renewal work has been forecasted for when the pipeline is considered likely to reach the end of its useful life based on its age and typical useful asset life. The cost estimate shown is based on the replacement cost from the asset valuation data. The renewal work may comprise of staged refurbishment of the pipeline.

For the forecasted renewal expenditure between 2013/14 and 2016/17, values were compared with Sunwater's renewals projections which were the basis of the SunWater irrigation prices for 2006/07 to 2010/11. When excluding the water meter upgrade costs which will be excluded from the annuity, it was noted the total value of Seqwater's renewal forecast was approximately 120% of Sunwaters. The difference is believed to be primarily due to:

- ▶ Seqwater projections being based on more up-to-date information.
- ▶ Seqwater projections include more expenditure in the distribution system (channels and weirs).

Appendix A

Water Supply Scheme Schematic



Appendix B

Renewal Projections

Parent Asset	Asset Details		Renewal Details																		Expenditure Forecast Each Year (\$k)																								
	Asset Description	Works Description	Comments	Costing Source	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47							
Wilson Weir	Wilson Weir - 61.3Km	Refurbish	Refurbish: recork construction joints	20yr PW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3					
Wilson Weir	Embankment	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	515						
Wilson Weir	Outlet Works	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26						
Wilson Weir	Protection Works	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Wilson Weir	Outlet Valve	Replace	-	20yr PW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Boreholes	Observation Bores	Refurbish	Bore replacement program - Workshop - 31 Jan 2012 Replace 20% of bores, every 5 years		-	-	-	-	-	50	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50							
Bill Gunn Dam	Bulkhead Gate	-	Refurbish Bulk head gate	FAMP	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bill Gunn Dam	Cables & Cableways	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Electric Chain Hoist & Monoral	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20							
Bill Gunn Dam	Electric Chain Hoist & Monoral	Refurbish	Lifting equipment - Repalc material bag by lifting container	FAMP	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Switchboard	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bill Gunn Dam	Access Road & Guard Rail	Refurbish	Refurbish: Guard Rail main embankment	20Yr PW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Rear Perimeter Track	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bill Gunn Dam	Surface Water Meters	Replace	-	Workshop - 31 jan 2012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5						
Bill Gunn Dam	Cables & Cableways	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bill Gunn Dam	Rising Main&Valves-Drainage	Replace	Inlet/Outlet work - Replace butterfly valve	FAMP	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Main Wall Embankment	-	Replenish/replace the rip-rap	FAMP	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Main Wall Embankment	-	Replenish/replace the rip-rap	FAMP	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Main Wall Embankment	-	Replenish/replace the rip-rap	FAMP	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Pump, 32Mm Subm Flygt	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bill Gunn Dam	Pump, 32Mm Subm Flygt	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Pump House	Refurbish	Refurbish seepage pumping hut	FAMP	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Switchboard	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bill Gunn Dam	Inclinometers	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	97							
Bill Gunn Dam	Water Level Recorder (In Main Embankment)	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Bill Gunn Dam	Piezometers (Standpipe)	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33							
Lake Dyer Diversion	Lake Dyer Diversion	Refurbish	Change Out: Valves on air Vents / Air valves in the Lake Dyer Diversion-reduced from 450 year period	20yr PW	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6							
Lake Dyer Diversion	Air Vent At 609.51M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12							
Lake Dyer Diversion	Air Vent At 994.16M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12							
Lake Dyer Diversion	Air Valve At 1939.86M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9							
Lake Dyer Diversion	Air Valve At 2728.75M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9							
Lake Dyer Diversion	Air Valve At 3722.79M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1							
Lake Dyer Diversion	Conc Valve Box - Metalwork	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57							
Lake Dyer Diversion	Pipeline - Rc	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7731							
Lake Dyer Diversion	Pipeline - Mscl	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	37							
Lake Dyer Diversion	Pipeline - Mscl	Refurbish	Refurbish Pipwork - Special inside valve box - external paint	20Yr PW	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5							
Lake Dyer Diversion	Scour Outlet At 3540.30M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25							
Lake Dyer Diversion	Butterfly Valve At 3725.3M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45							
Lake Dyer Diversion	Butterfly Valve At 3725.3M	Refurbish	Refurbish valve at 1/2 life.Butterfly major overhaul. Also installation of spindle to valve to operate without entering a confined space	20Yr PW	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15							
Lake Dyer Diversion	Air Vent - 430M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Lake Dyer Diversion	Pipe From Dpd1 To Laidley Ck	Replace	-	Static Asset Data	-	-	-	-</td																																					