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

Report - Central Lockyer Tariff Group

April 2012

Document Status

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

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Appendices

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
- Dams Weirs Valuations 2010
- Water Meter Upgrade Plan
- 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

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%.

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

Notes: *Significance: HAV – Higher than Average Value (for period from 2013/14 to 2016/17) IA – Project has an impact on the annuity of greater than 10% (refer Section 3.3 for commentary)

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	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	53	53	53	53	53
Total	**104**	**154**	**177**	**77**	**110**	**180**	**101**	**60**	**124**	**362**	**291**	**42**	**137**	**53**	**58**	**601**	**94**

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	-	-	60	-	-	-	-	-	-	-	-	-	60	-	-	-	-
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	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Total	**63**	**168**	**177**	**163**	**89**	**72**	**53**	**8,852**	**113**	**84**	**63**	**1,066**	**118**	**848**	**84**	**1,539**	**53**

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 150m^3 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:

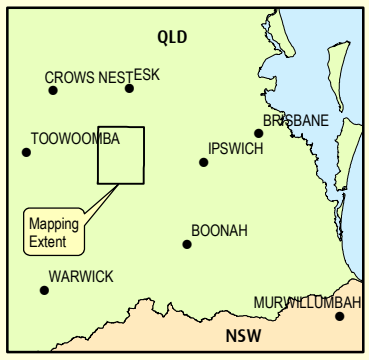
- Seqwater projections being based on more up-to-date information.
- Seqwater projections include more expenditure in the distribution system (channels and weirs).

Appendix A

Water Supply Scheme Schematic

LOWER LOCKYER VALLEY WATER SUPPLY SCHEME REFER A3-218142

CENTRAL LOCKYER VALLEY WATER SUPPLY SCHEME SYSTEM LAYOUT



LOCALITY PLAN

Lake Atkinson
Seven Mile Lagoon Diversion Channel
Seven Mile Lagoon
BLIND GULLY
FORREST HILL FERNDALE ROAD
LOCKYER CREEK
Schlects Lagoon
One Mile Lagoon
Upper Limit of Lower Lockyer Valley Water Supply Scheme
Kentville Weir 46.4km
Morton Vale Pipeline System
Diversion Compliance Pt
Lake Clarendon Pump Station
Lake Clarendon
Lake Clarendon Diversion Channel
REDBANK CREEK
Diversion Compliance Pt
Lake Clarendon Dam
143235A
Glenore Grove Weir 52.7km
CREEK
Clarendon Weir 57.2km
Diversion Compliance Pt
Excavated Channel Jordan I to Jordan II Weirs
LOCKYER
143230A
Redbank Ck Pump Station
Jordan II Weir 0.3km
Wilson Weir 61.3km
143231A
Jordan I Weir 65.2km
CREEK
143236A
50.9km
GATTON
GATTON AGRICULTURAL COLLEGE
Crowley Vale Weir 5.5km
NRM143229A
LAIDLEY
6.9km
WARREGO HIGHWAY
FOREST HILL
GATTON LAIDLEY ROAD
SANDY CREEK
Diversion Compliance Pt
Bill Gunn Dam
Lake Dyer
143228A
LAIDLEY
Sandy Creek Weir
Showgrounds Weir 17.6km
143225A
Diversion Compliance Pt
Lake Dyer Diversion Pipeline
19.1km
Laidley Creek Diversion Weir 20.9km
Diversion Compliance Pt
LAIDLEY CREEK

430000
435000
440000
445000
6965000
6960000
6955000
6950000
6945000
6940000
152°19'58"E
152°24'58"E
27°30'0"S
27°35'0"S
27°40'0"S

LEGEND

- Water Quality Station
- Stream Gauging Station
- Dams / Weirs
- Pump Station
- Blue Green Algae Monitoring Site
- Major Roads
- Urban Areas
- Proclaimed Groundwater Area
- Groundwater Benefit Zone 113
- Groundwater Benefit Zone 115
- Groundwater Benefit Zone 116
- Distribution Schemes

IROL Sections

- Laidley Ck - Section 113 (6.8km to 19.1km)
- Laidley Ck - Section 114 (0.0km to 6.8km)
- Lockyer Ck - Section 115 46.4km to 57.2km)
- Lockyer Ck - Section 116 (57.2km to 70.9km)

Scale 1:80,000 (before reduction A3)

0 0.5 1 2 3 4 5 Kilometers

MAP INFORMATION

Black tics outside the neatline indicate 5,000m intervals of the Universal Transverse Mercator Grid, Zone 56 (Mapping Grid of Australia), Australian National Spheroid. Latitude and Longitude values are shown in blue inside the neatline at minute intervals. Horizontal Datum: Geodetic Datum of Australia, Transverse Mercator projection. Cartography by I. Holmes, SunWater, Engineering Services, Ayr

SunWater
Engineering Services
www.sunwater.com.au

Prepared	*IDH*	Checked	*WDR*	Approved	*DG*
Revision	Date	Remarks			
A	04/02/02	Diversion Compliance Point added			
Drawing Number	A3-218310	A			

Appendix B

Renewal Projections

Asset Details		Renewal Details			Expenditure Forecast Each Year ($k)																																					
Parent Asset	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
Clarendon Dam	Fencing (Boundary, Internal, Security)	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	165	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Grids And Gates	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Access Roads	Replace	-	Est	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Embankment (Main Dam)	Refurbish	Replenish/Replace the Rip rap	FAMP	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Embankment (Main Dam)	Refurbish	Replenish/Replace the Rip rap	FAMP	-	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Embankment (Main Dam)	Refurbish	Replenish/Replace the Rip rap	FAMP	-	-	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Embankment (Main Dam)	Refurbish	Replenish/Replace the Rip rap	FAMP	-	-	-	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Embankment (Main Dam)	Refurbish	Replenish/Replace the Rip rap	FAMP	-	-	-	-	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Embankment (Main Dam)	Refurbish	Replenish/Replace the Rip rap	FAMP	-	-	-	-	-	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Earthworks/Formation	Refurbish	Embankment - Repair slips	FAMP	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Piezometers	Replace	-	DW Val 2010	-	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-	-	-	-	-
Clarendon Dam	Telemetry	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Water Level Recorder	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Surface Measurement	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-
Clarendon Dam	Earthworks	Refurbish	Refurbish Ewks - due to erosion - dispersive soils	20yr PW	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Clarendon Diverson / Supply Channel	Refurbish	Refurbish Channel - Repair eroision damage due to	20yr PW	-	21	-	-	-	-	21	-	-	-	-	21	-	-	-	-	21	-	-	-	-	21	-	-	-	-	21	-	-	-	-	21	-	-	-	-	-
Clarendon Diversion	Fencing And Gates	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	426	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Turn Outs	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Turn Outs	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Access Road	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Access Road	Refurbish	Repair Access Road	20yr PW	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5
Clarendon Diversion	Access Road	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Access Road	Refurbish	Repair Access Road	20yr PW	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5	-	-	-	-	5
Clarendon Diversion	Turn Outs	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Access Road	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Access Road	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Turn Outs	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Turn Outs	Refurbish	Repair Access Road	20yr PW	-	-	5	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Clarendon Diversion	Embankment	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1339
Clarendon Diversion	Protection Works	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	126
Clarendon Diversion	Outlet Valve	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Diversion Bank Protection Works	Refurbish	Refurbish: Protection works refurbishment as part of ongoing program - flood damage	20yr PW	-	-	-	-	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Access Road To Weir R/Bk	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Access Road To Weir R/Bk	Refurbish	Refurbish Road - gravel @ grade. Changed cost to reflect actual costs on notification	20yr PW	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Electrical Control Building	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Cable	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Control Equipment	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	137	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Control Equipment	Refurbish	Refurbish: control component	20yr PW	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-	-	-
Clarendon Diversion	Gate Actuating Mechanism	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Winch	-	Refurbish the winch	FAMP	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Control Gate	-	Refurbish and repaint the bulk gate	FAMP	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Submersible Pump	Replace	-	FAMP	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Pipework	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-	-	-	-	-	-
Clarendon Diversion	Switch Board	Replace	-	FAMP	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Redbank Ck Pump Station	Refurbish	Enhancement: $20000 on Scada	20yr PW	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Control Equipment	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Platform & Handrails (Outlet Valve)	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Pump Well	Refurbish	Refurbish metalwork; Paint fixines	20yr PW	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Work And Access Platform	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Temporary Pump Platform	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Trash Screen (3 Off)	Refurbish	Refurbish Screen: Galvanised steel - pump well - regal/paint - $7,500 mid-life	20yr PW	-	10	-	-	-	-	10	-	-	-	-	10	-	-	-	-	10	-	-	-	10	-	-	-	-	10	-	-	-	-	10	-	-	-	-	-
Clarendon Diversion	Pipe Work	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	118	-	-	-	-	-	-	-
Clarendon Diversion	Pipeline	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	532	-	-	-	-	-	-	-
Clarendon Diversion	Access Road	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Scada Equipment	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Switch Board	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	161	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Switch Board	Refurbish	Refurbish Critical components - PLC;	20yr PW	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Switch Board	Refurbish	Refurbish: Electrical equipment - Busbars etc. Itentified oct 04 PM.	20yr PW	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Valve, 750Mm Butf Keystone	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Valve, 750Mm Butf Keystone	-	Isolation valve pit - Seepage to be investigated and repaired	FAMP	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Diversion	Actuator, Mech	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Weir	Outlet Valve	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clarendon Weir	-	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gauging Stations	Gauging Stations-Central Lockyer	Replace	-	Workshop - 31 Jan 2012	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-	60	-	-	-	-	-	-	-	-
Kentville Weir	Kentville Weir - 46.4Km	Refurbish	Refurbish: recork construction joints	20yr PW	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Laidley Creek	Outlet Pipe	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wilson Weir	Wilson Weir - 61.3Km	Refurbish	Refurbish: recork construction joints	20yr PW	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	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	-	-	-	-	-	-	-	-	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wilson Weir	Outlet Valve	Replace	-	20yr PW	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Asset Details			Renewal Details		Expenditure Forecast Each Year ($k)																																					
Parent Asset	**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**
Boreholes	Observation Bores	Refurbish	Bore replacement program - Replace 20% of bores, every 5 years	Workshop - 31 Jan 2012	-	-	-	-	-	50	-	-	-	-	50	-	-	-	-	50	-	-	-	-	50	-	-	-	-	50	-	-	-	-	50	-	-	-
Bill Gunn Dam	Bulkhead Gate	-	Refurbish Bulk head gate	FAMP	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bill Gunn Dam	Cables & Cableways	Replace	-	DW Val 2010	-	-	-	-	-	-	-	-	-	34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bill Gunn Dam	Electric Chain Hoist & Monoral	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-
Bill Gunn Dam	Electric Chain Hoist & Monoral	Refurbish	Lifitng equipment - Repalce 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bill Gunn Dam	Rear Perimeter Track	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bill Gunn Dam	Pump, 32Mm Subm Flygt	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lake Dyer Diversion	Pipe From Dpd1 To Laidley Ck	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	625	-	-	-	-	-	-	-	-	-	-	-
Lake Dyer Diversion	Butterfly Valve - 3.46M	Replace	-	Static Asset Data	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-
Water Flow Meters	Water Meters	Replace	Replace batch of 15 meters each year	Est	-	-	-	-	-	-	-	-	-	-	-	-	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
				Total	**104**	**154**	**177**	**77**	**110**	**180**	**101**	**60**	**124**	**362**	**291**	**42**	**137**	**53**	**58**	**601**	**94**	**63**	**168**	**177**	**163**	**89**	**72**	**53**	**8852**	**113**	**84**	**63**	**1066**	**118**	**848**	**84**	**1539**	**53**