Coleambally IRRIGATION

ANNUAL COMPLIANCE REPORT

2016

Cover photos courtesy of Andrew Silcocks, David Klienert, Mark Robb and Michael Wilson.

Contents

Overview

15/16 year was a challenging season for Coleambally irrigators due to low water allocations at the time summer planting decisions had to be made. The collective wisdom of those irrigators who limited their summer crop program was borne out when inflows into an storage levels at Blowering and Burrinjuck dams were lower than the norm and the allocation to General Security water entitlement holders only reached 37%.

Rainfall totals in the Murrumbidgee Valley in 15/16 were below the long term average (LTA) for 7 out of 12 months, with the months February through to April being particularly dry. However a dramatic change in late autumn/early winter saw significant falls across the Murrumbidgee catchment and resulted in the total annual rainfall being 435mm, compared to the long term average for Coleambally of 399.7mm.

The area under cropping within CICL's area of operations was 32,725 ha, compared to 45,529 ha and 50,725 ha in 14/15 and 13/14 respectively. The predominant crops were rice, wheat, corn, cotton and barley, with the most significant of these (in terms of area and water use) being rice. That said, rice production within the area of operations was much lower than the norm.

The key water statistics for the year, and 14/15, for the purpose of comparison are as indicated in the following table:

Key Statistics	2015/16	2014/15
Final Allocation	37%	53%
Metered net diversions into the Area of Operations	219,658 ML	327,780 ML
Metered usage to customers in CID	183,687 ML	300,807 ML
Net channel losses	35,971 ML[1]	26,973 ML
Groundwater usage within Area of Operations	89,630 ML	104,848 ML
Groundwater usage in CIA	43,054 ML	19,666 ML

Groundwater levels dropped during 2015/16; in the shallow aquifer, the average drop was 0.54m and in the deep aquifer 0.70m.

In September 2015, an area of 3,295 ha within the CIA was within 2m of ground level, but by September 2016 that area had reduced to 2,582 ha. Both levels are well below the Land and Water Management Plan remediation trigger point of 10,000 ha (at which the requirement for increased net recharge activity is activated).

There were five reportable water quality incidents in 15/16 each involving the detection of Metolachlor at CODW (Wonga Station) or at the DC800A Outfall into Yanco Creek.

CICL continues to manage the Coleambally Irrigation Biodiversity Reserve Trust (CIBRT) land for the purpose of sustaining local flora and fauna. The reserve comprises 10 individual blocks encompassing an area of approximately 1,700 ha. Most of the land, formerly Crown leasehold, was used for grazing stock and dry land cropping until its gazettal as a reserve in March 2007. The most important species being protected are remnant native vegetation communities, including woodland types such as weeping myall (boree), black box, white cypress pine, and yellow box. The reserves also provide an important resource for science-based field days and student and public excursions. Maintenance work is regularly undertaken to control weeds and feral animals and to upgrade fire breaks.

[1] This number is the subject of ongoing discussion with WaterNSW.

At the conclusion of the 2015/16 year the General Security allocation within the Murrumbidgee stood at 37% compared to 53% at the end of the previous season. At the time this report was compiled, 16/17 allocations for both high security and general security users had reached 100%.

1. Introduction

1.1. General

This is CICL's 18th Annual Compliance Report (ACR)[2] with this iteration being submitted in to demonstrate CICL's compliance with it's:

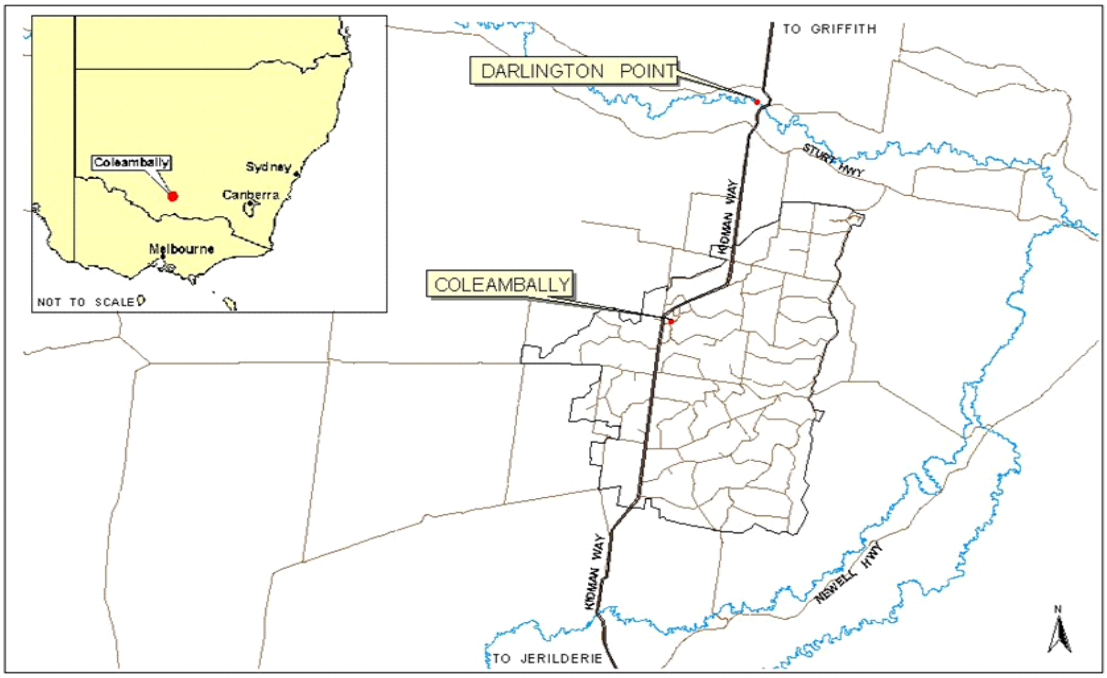
- Environment Protection Licence issued by the Environment Protection Authority, under the Protection of Environment Operations Act 1995 (POEO Act before 1995); and
- Operating Licences, as issued by the NSW Office of Water's Water Access Licences and Nominated Works and Water Use Approvals issued under the Water Management Act 2000 – specifically, amended approval 40CA401473 of August 2012 (herein referred to as 'approval 2012'), approval 40CA403808 (amended 2016) and 40WA404593 (issued 15 March 2011).

The format of the report closely mirrors those conditions specified under Schedule 1, reporting conditions 12.1 to 12.2, of the 'approval 2012'.

1.2. Coleambally Irrigation Area of Operations and Location

The Coleambally Irrigation District (CID) is located south of Griffith between the towns of Darlington Point and Jerilderie, New South Wales in the southern Murray-Darling Basin of Australia –refer to Figure 1.1

Figure 1.1 CID Location Diagram



[2] Known as Annual Environment Report (AER) prior to 2009/10

The CID comprises 498 irrigation farms containing 79,000 ha of irrigated land supplied through open earthen channels and approximately 325,000 ha of West Coleambally Channel District to which CICL supplies stock, tank and opportunistic irrigation water. In addition, CICL also supplies water to the Kerarbury Irrigation Area.

CICL's irrigation water is sourced from the Snowy Mountains via the Murrumbidgee River. The two major storages en route are Burrinjuck and Blowering dams with water being diverted into the Coleambally Main Canal upstream of Gogelderie Weir. CICL's delivery system is gravity-fed and incorporates state of the art and solar-powered metering and flow regulation technologies which provide for fully automated water ordering, water delivery and water accounting.

CICL's irrigation system consists of 41 km of Main Canal from the Murrumbidgee River, 477 km of supply channels, and a further 734 km of drainage channels. CICL remains the most sophisticated and efficient open channel operator within Australia.

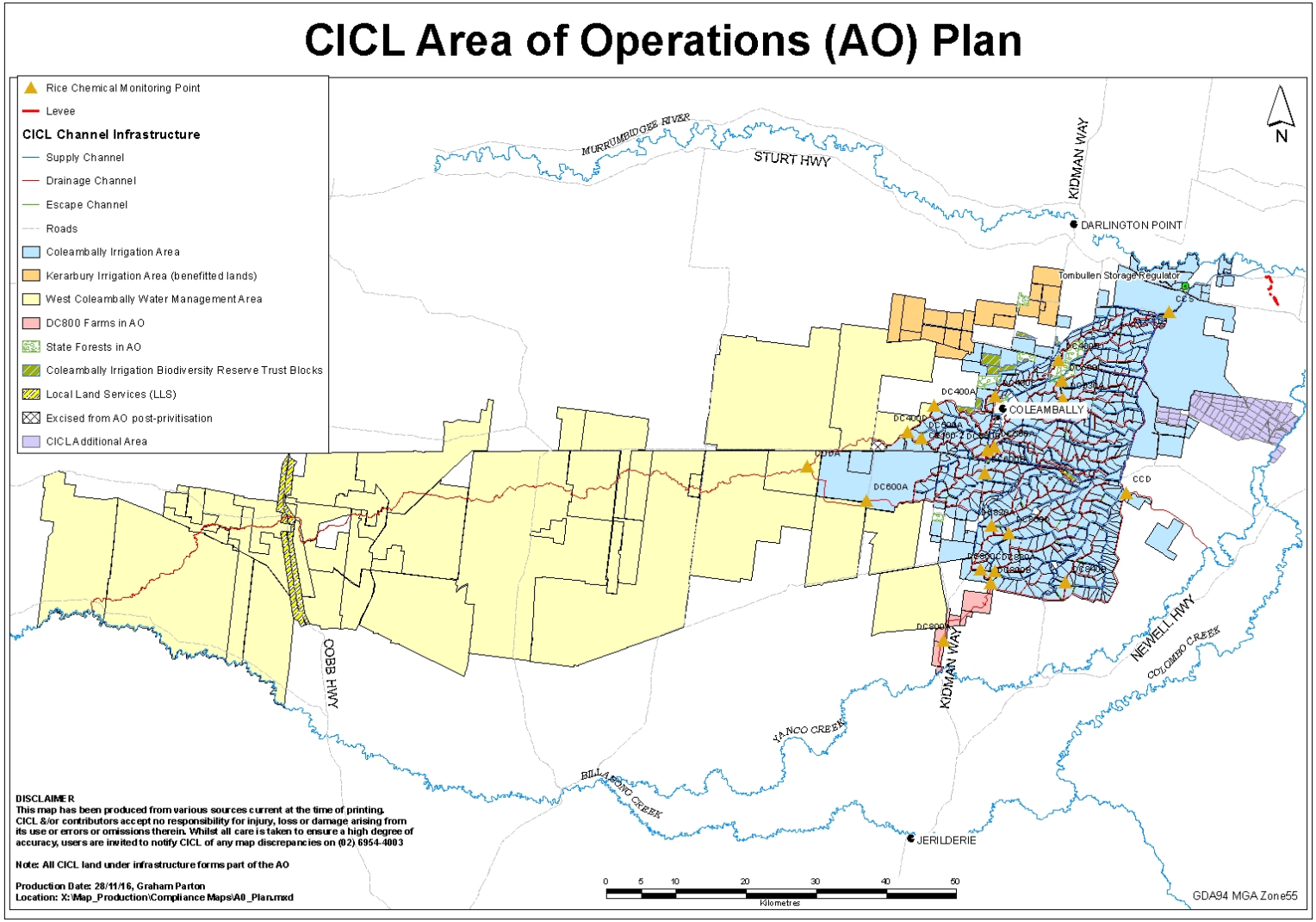
CICL's Area of Operations is depicted in Figure 1.2.

1.3. Other Environmental Activities

Additional environmental activity undertaken by CICL during 15/16 included:

- active participation in the Restoring Western Riverina Sandhills Project'' being managed by Greening Australia;
- delivery of NSW environmental water through CICL's supply system onto farms identified by the Office of Envirnment and Heritage as having important habitat worthy of environmental watering
- provision of financial and ground support to the Rice Growers Association's "Bitterns in Rice Project" to monitor and protecting the endangered Australasian Bittern *(Botaurus poiciloptilus*); and
- participation in a delegation that gave a presentation on the "Bitterns in Rice Project" to the 2nd Conference on Global Food Security at Cornell University, in Ithaca New York, in October 2015.

Figure 1.2 Current Area of Operation of CICL including benefitted lands.[3] (See attached Appendices A7 for higher level of detail)



[3] The term "benefitted lands" is given to land that receives a benefit from our licence and or licenced works but which are not defined as being within the AO.

1.4. Plans of Works and Monitoring Sites (Piezometers)

Figure 1.3 shows the location of approved Works. The approval 2012 and the Groundwater work approvals 40CA403808 and 40WA404593 issued by the NSW Office of Water include three water extraction works, namely: Coleambally Main Canal Off-take, Col Bore and Hort Bore. The approval 2012 also includes three drainage discharge points - CCD on the Coleambally Catchment Drain; DC 800A on Drainage Channel 800; and CODD at Bundy on the West Coleambally Channel. One additional monitoring point has also been approved - CODA, on the West Coleambally Channel. The CODA monitoring point is used in conjunction with CICL's Rice Chemical Monitoring Program in lieu of CODD due to CODA's closer proximity to Coleambally. Figure 1.3 also shows the location of the Kerarbury Channel Off-take Regulator, which supplies water to the benefitted lands of the Kerarbury Irrigation District.

Furthermore, and as agreed with NSW Office of Water in 2012, the A3 formatted map at Appendix A7 is included to provide additional detail.

A total of 737 piezometers have been approved as monitoring works to measure Groundwater pressure levels in the Upper and Lower Shepparton Aquifers. Their locations are shown in Figure 1.4.

Figure 1.3 Works Plan

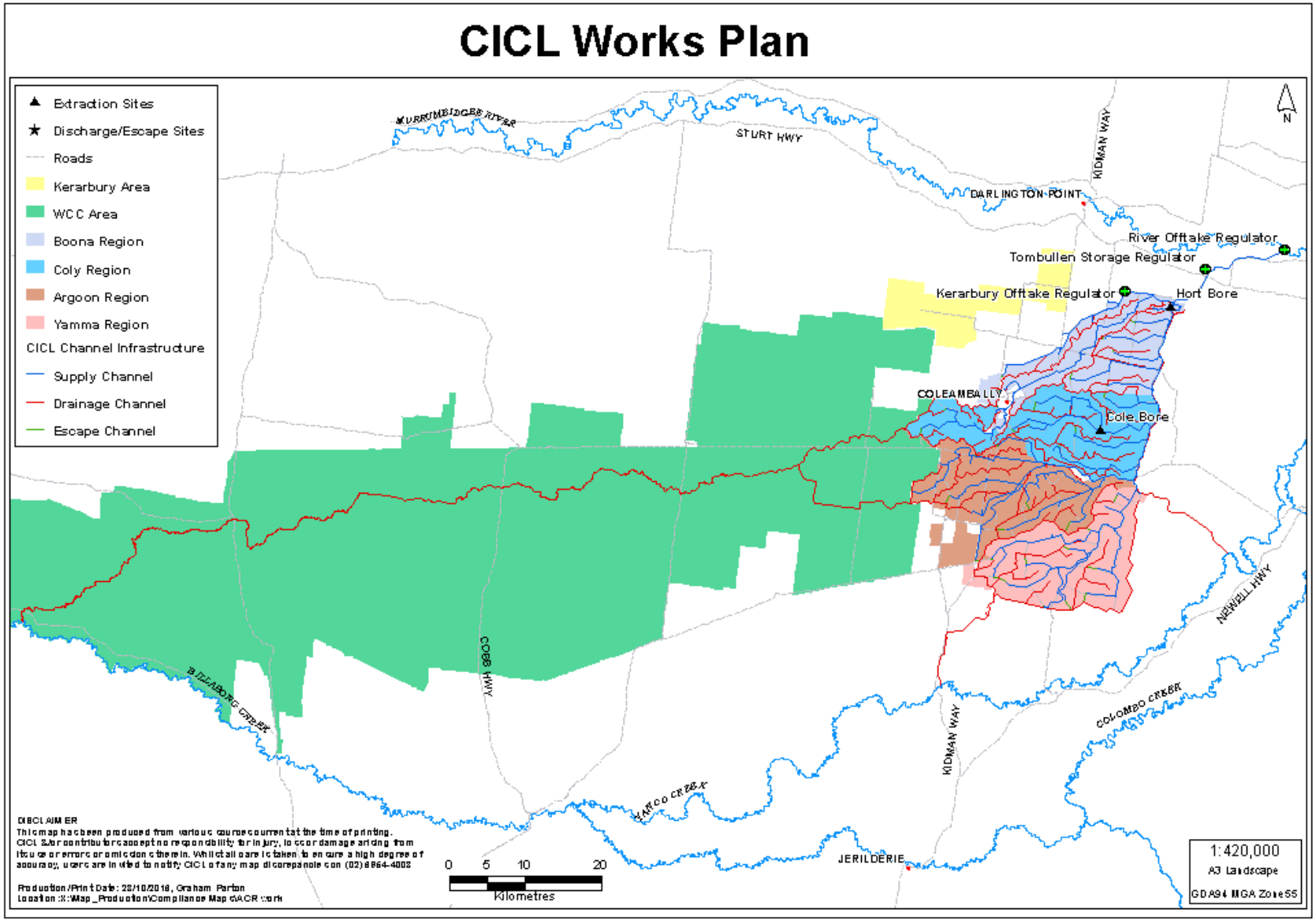
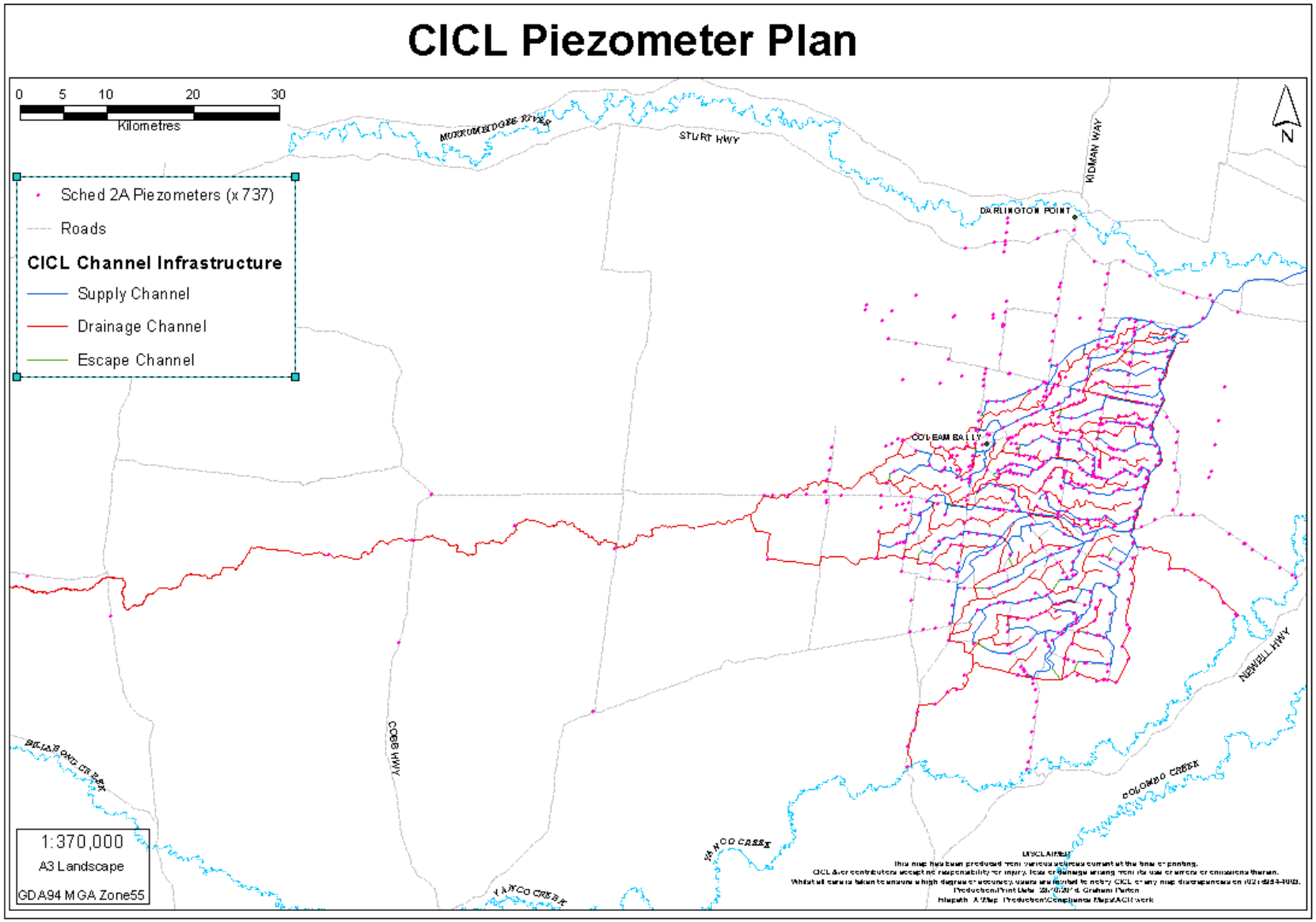
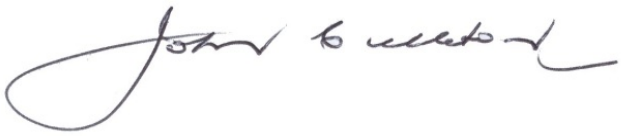


Figure 1.4 Piezometer (Monitoring Sites) Plan



2. Statement of Compliance

This is to certify that from 1st July 2015 to 30th June 2016, CICL has, with the exception of those matters explained in Section 3.4, complied with all monitoring and reporting requirements of the Water Access Licences, Water Supply Works, Approval 2012, Groundwater works Approvals 40CA403808 and 40WA404593 and Environment Protection Licence (4652) issued to it by the NSW Government. The information presented in this report is also certified as being complete, true and accurate to the best of my knowledge.



John Culleton
Chief Executive Officer

3. Data and Analysis

3.1 Water Allocation

Table 3.1 shows the dates and announced General Security allocations in the Murrumbidgee Valley during 2015/16. The year commenced with an allocation of 8%, increased slowly to 29% by the time of summer crop planting and reached 37% by the end of the season.

Table 3.1 Cumulative General Security Water Allocations for 2015/16

Date	Cumulative GS Allocation (%)
1/07/2015	8%
15/07/2015	12%
3/08/2015	17%
1/09/2015	27%
15/10/2015	29%
16/11/2015	31%
15/12/2015	32%
1/02/2016	35%
15/02/2016	36%
1/03/2016	37%

Figure 3.1 shows annual General Security allocations in the Murrumbidgee Valley since 1982/83.

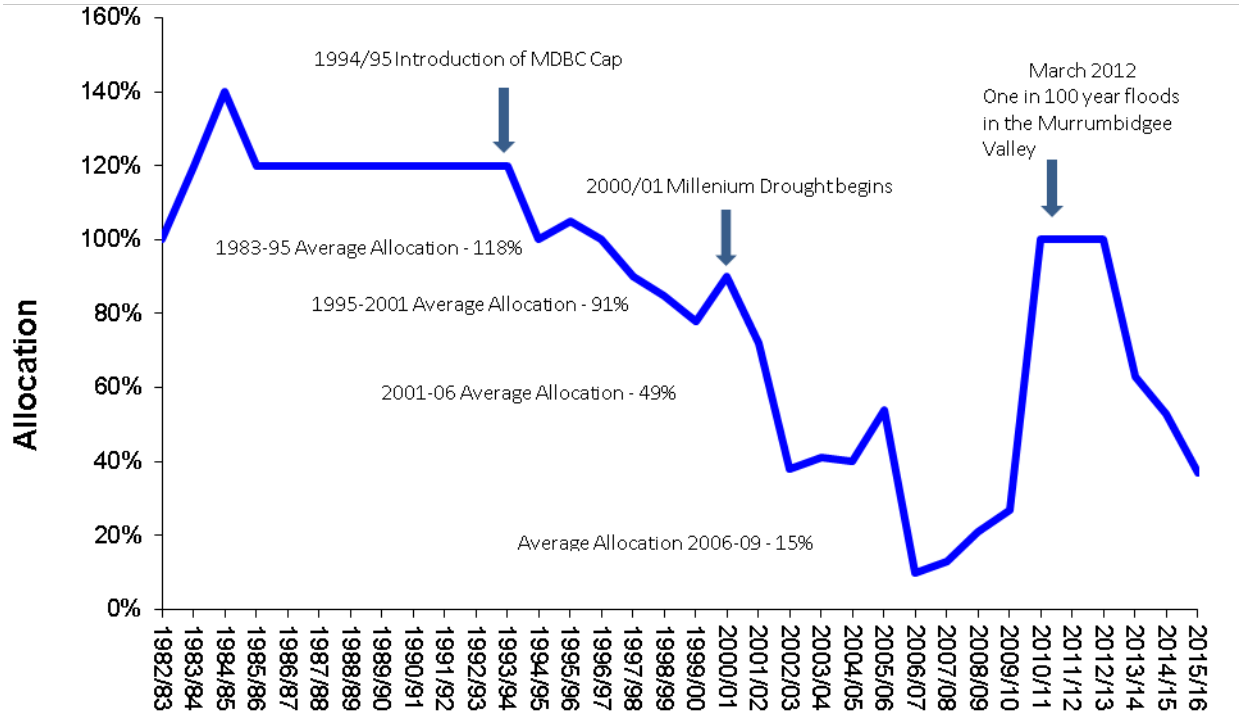


Figure 3.1: Annual allocations for General Security entitlement in the Murrumbidgee Valley since 1982/83

3.2 Monitoring Data

In compliance with condition 12 of the approval 2012, the following monitoring data is included:

- Plan of the Area of Operations at Part 1.2
- Plan showing the current location of works at Part 1.3
- Statement of Compliance, at Part 2
- Piezometer pressure level data, in Appendix A1
- Surface Water Extraction and Salinity, in Appendix A2
- Drainage, Salinity and Flow Data at Appendix A3
- Groundwater Extraction from CICL's Approved Works, Salinity and Salt Load, at Appendix A4
- Groundwater Extraction from other Approved Works, in Appendix A4
- Drainage Flow and Salinity data from three licensed discharge sites and one licensed monitoring site, in Appendix A3
- Drainage Water quality data for Nutrients in Appendix A5
- Drainage Water quality data for Chemicals, in Appendix A5
- Crop Type, Crop Area and Water Usage data, in section 3.3 and 5.9
- Rice Chemical Monitoring Program results in Appendix A6
- Additional Detailed Map Appendix A7

3.3 Trends

Salinity

Tables 3.2 to 3.5 show monthly average salinity readings at three licensed discharge points and one licensed monitoring point. In the tables, 2015/16 data is compared with data from the previous two years and with the benchmark data. The benchmark was set up through averaging the data of the three seasons immediately preceding the privatisation of CICL in 2000. In the case of salinity data, n/a (not applicable) indicates no flow.

Table 3.2: MONTHLY SALINITY READINGS AT LICENSED DISCHARGE POINT CCD on the Coleambally Catchment Drain (µS/cm)

Month	2015/2016	2014/2015	2013/2014	Benchmark
July	n/a	148	174	120
August	176	153	180	164
September	190	n/a	141	213
October	286	n/a	91	143
November	228	n/a	80	98
December	135	99	104	96
January	219	139	87	128
February	143	194	113	16
March	217	168	159	64
April	194	103	52	94
May	192	90	n/a	106
June	145	70	n/a	158
Average	**193**	**129**	**118**	**117**
Median	**192**	**139**	**108**	**113**

Higher than normal salinity levels in the CCD are attributed to the larger tributary flows into the Murrumbidgee upstream of CICL's Main Offtake, coupled with increased use of the CCD to effect water delivery for WaterNSW.

Table 3.3: MONTHLY SALINITY READINGS AT LICENSED DISCHARGE POINT DC800A on the Drainage Channel DC800 (µS/cm)

Month	2015/2016	2014/2015	2013/2014	Benchmark
July	151	411	647	1,496
August	168	166	1,166	1,661
September	202	167	399	338
October	351	128	247	257
November	261	117	311	314
December	122	140	298	306
January	138	189	211	268
February	153	297	330	240
March	190	180	282	268
April	162	135	293	215
May	168	135	323	226
June	145	168	247	534
Average	**184**	**186**	**396**	**510**
Median	**165**	**167**	**305**	**287**

Table 3.4: MONTHLY SALINITY READINGS AT LICENSED MONITORING POINT CODA on the West Coleambally Channel (µS/cm)

Month	2015/16	2014/2015	2013/2014	Benchmark
July	168	n/a	258	1,359
August	190	407	199	1,504
September	201	174	312	886
October	369	139	176	399
November	211	95	150	524
December	179	109	133	526
January	158	201	138	457
February	168	260	207	437
March	151	151	221	367
April	190	115	132	459
May	221	152	208	487
June	244	195	247	1,133
Average	**204**	**182**	**199**	**712**
Median	**190**	**152**	**203**	**506**

Table 3.5: MONTHLY SALINITY READINGS AT LICENSED DISCHARGE POINT CODD at BUNDY on the West Coleambally Channel (µS/cm)

Month	2015/2016	2014/2015	2013/2014	Benchmark
July	227	n/a	235	1,868
August	n/a	n/a	n/a	1,829
September	n/a	n/a	n/a	536
October	n/a	256	216	415
November	227	256	192	450
December	227	n/a	n/a	531
January	n/a	256	193	416
February	n/a	n/a	162	409
March	227	256	259	374
April	227	186	296	362
May	n/a	196	307	330
June	227	n/a	272	406
Average	**227**	**234**	**237**	**660**
Median	**227**	**256**	**235**	**415**

The above data shows that the monthly average salinity in the last three years at CODA and DC800A has remained relatively low in comparison to the benchmark years.

The mostly lower levels of salinity at the drainage monitoring sites, compared to the benchmark, is due to the lowering of Groundwater (and by association, water-tables and salt intrusion into drains) within the CID.

Unfortunately, some of the data obtained in this and previous years is not entirely accurate due to localised flood events on the Yanco and Billabong Creeks, which resulted in creek levels being above flow gauging instrumentation at CCD and CODD. The related instrumentation, which belongs to the State, needs to be upgraded and relocated and the fact that CICL has to continue to report inaccurate data because of the condition and location of this instrumentation is a source of considerable frustration to CICL.

Flow

Tables 3.6 to 3.9 show monthly average drainage flows at three licensed discharge points and one licensed monitoring point. Again 15/16 data is compared with the previous two years' data and with benchmark data. The benchmark was established through averaging the data from the three season's immediately preceding privatisation of CICL in 2000.

Table 3.6: MONTHLY FLOW READINGS (ML) AT LICENSED DISCHARGE POINT CCD escape on the Coleambally Catchment Drain substituted for CCD

Month	2015/2016	2014/2015	2013/2014	Benchmark
July		100	11	21
August	5,710	1	36	290
September	587		1,526	887
October	2,333		1,213	1,853
November	782		626	2,073
December	3,102	80	1,403	2,305
January	2,952	214	3,222	3,619
February	2,101	346	3,155	1,843
March	4,856	2,923	2,853	2,112
April	2,752	1,194	30	1,756
May	70	1		1,430
June	86	252		279
Total	**25,331**	**5,112**	**14,075**	**18,468**
Average	**2,111**	**426**	**1,173**	**1,539**
Median	2,217	214	919	1,800

Table 3.7: MONTHLY FLOW READINGS (ML) AT LICENSED DISCHARGE POINT DC800A on the Drainage Channel DC800

Month	2015/2016	2014/2015	2013/2014	Benchmark
July	105	1	16	432
August	192	166	9	1,197
September	475	1,073	418	4,455
October	770	1,986	1,012	5,962
November	315	814	240	5,119
December	984	718	474	5,162
January	1,463	627	1,084	7,660
February	945	516	545	6,795
March	2,333	1,321	789	7,816
April	579	255	712	3,721
May	317	282	165	2,961
June	2,652	1,305	648	1,675
Total	**11,128**	**9,064**	**6,113**	**52,955**
Average	**927**	**755**	**509**	**4,413**
Median	674	673	510	4,787

Table 3.8: MONTHLY FLOW READINGS (ML) AT LICENSED MONITORING POINT CODW on the West Coleambally Channel substituted for CODA

Month	2015/2016	2014/2015	2013/2014	Benchmark
July	116	0	0	619
August	471	51	62	739
September	1,095	181	513	4,983
October	558	1,631	2,027	4,494
November	1,142	897	664	5,014
December	1,426	987	846	4,041
January	741	1,265	3,358	6,806
February	742	710	894	5,540
March	2,557	2,497	1,934	8,438
April	3,652	1,699	2,095	4,427
May	268	171	814	4,209
June	3,982	3,488	1,512	2,183
Total	**16,749**	**13,576**	**14,719**	**51,493**
Average	**1,396**	**1,131**	**1,227**	**4,291**
Median	**918**	**987**	**870**	**4,460**

Table 3.9: MONTHLY FLOW READINGS (ML) AT LICENSED DISCHARGE POINT CODO on the West Coleambally Channel substituted for CODD at Bundy

Month	2015/2016	2014/2015	2013/2014	Benchmark
July	3	8	82	282
August	0			2,150
September	0			3,327
October	0		7	1,914
November	4		11	3,187
December	147			1,536
January	0		209	3,523
February	0		30	4,461
March	181		76	3,517
April	8	41	469	1,814
May	0		180	2,511
June	247		242	3,053
Total	**590**	**49**	**1,305**	**31,275**
Average	**49**	**4**	**109**	**2,606**
Median	1	25	53	2,782

Table 3.10 shows the amount of water supplied through the Boona and Argon escapes to provide supply water flows through CODA and CODW and is reported in accordance with the requirements of section M2.5 of EPA licence 4652.

Table 3.10: Monthly Flow Readings at Boona and Argoon Escapes

Month	Boona	Argoon
July		1
August	82	250
September		1,050
October		586
November		982
December	147	1,572
January	4	996
February		936
March	427	2,617
April	912	2,890
May	126	151
June	172	738
Total	**1,869**	**12,768**

Extraction

Table 3.11 shows monthly average extraction at the Coleambally Main Canal Off-take. For all three extraction points 2015/16 data is compared with the previous two seasons' data and with benchmark data. The benchmark was established through averaging the data of three seasons immediately preceding the privatisation of CICL in 2000.

Table 3.11: MONTHLY EXTRACTIONS (ML) AT LICENCE POINT CCS (Main Canal Off-take)

Month	2015/2016	2014/2015	2013/2014	Benchmark
July	9,702			
August	21,519	3,00	26,665	0
September	28,766	31,988	34,845	42,294
October	46,097	68,385	56,080	38,311
November	23,409	55,235	41,184	57,310
December	52,397	20,480	73,132	66,774
January	47,695	71,120	74,856	95,277
February	35,315	48,830	64,840	61,406
March	27,313	26,930	35,380	105,786
April	16,132	18,305	4,783	54,865
May	1,467	4,475	3,572	33,506
June				
Total	**309,812**	**348,948**	**415,337**	**555,533**
Average	**25,818**	**29,079**	**34,611**	**46,294**
Median	25,361	23,705	35,113	48,580

The above data shows extractions below the previous two years and below the benchmark.

Tables 3.12 to 3.13 show monthly average extractions from both Col Bore and Hort Bore.

Table 3.12: MONTHLY EXTRACTIONS (ML) COL BORE

Month	2015/2016	2014/2015	2013/2014	Benchmark 2007/08
July				
August				184
September			147	459
October		29		376
November	2		303	180
December	481	166		228
January	364			317
February	363			218
March	476			302
April				339
May				209
June	95			
Total	**1,781**	**195**	**450**	**2,812**

Table 3.13: MONTHLY EXTRACTIONS (ML) HORT BORE

Month	2015/2016	2014/2015	2013/2014	Benchmark 2008/09
July				
August	10	50		
September		31		
October	62	9	32	559
November		152	188	120
December				1
January		551		
February		156		
March		92	113	744
April		4		404
May				
June	1			
Total	**73**	**1,045**	**333**	**1,828**

Hort Bore is typically used to supply high security water on demand outside of the normal CICL irrigation supply period with quantity required being influenced by the cost of temporary water relative to pumping costs. Notwithstanding that the pump was unserviceable until late November; extractions from Col Bore were higher than the previous two years but still only about half the longer term average.

Crop Water Use

Table 3.14 shows the crops grown by area within the CID, the quantity of irrigation water supplied by CICL, average crop water usage and the proportion of water supplied to each crop as a percentage of total water supplied by CICL.

Table 3.14: Crop Area, Total Crop Use, Crop Water Use and Proportion of Total Deliveries

Crop	Area (Ha)	Intensity (ML/Ha)	% Total Use
Rice	3,603	14.65	34.60%
Wheat	10,906	2.46	14.77%
Corn	3,515	6.27	13.51%
Cotton	3,446	9.18	20.59%
Pasture	6,479	2.54	7.48%
Barley	2,045	1.87	2.38%
Soybeans	595	7.43	2.96%
Canola	918	1.61	0.93%
Oats	266	2.51	0.38%
Other	952	n/a	2.40%
TOTAL	**32,725**		**100.00%**

It is noted that the above data was supplied by CICL's Members at the beginning of the irrigation and as such only serves as an approximation of the area actually planted.

Table 3.15 shows the change in area of seven major crops in the CID over the last 19 years. The decline in rice growing in 2015/16 can be attributed to the low water allocation, the high price of temporary water and increasing competition from other crops, especially cotton. CICL expects that the cropping mix will continue to respond to three major drivers: commodity prices (grower returns); the timing and quantum of water allocations and the availability and price of temporary water.

Table 3.15: Crop Areas and Relative Water Usage over Time

Season	Rice		Corn/Maize		Soybeans		Cotton		Wheat		Pasture		Canola		
	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Area (ha)	Proportion of delivery (%)	Total (%)
2015/16	3,603	34.6	3,515	13.5	595	3	3446	20.6	10,906	14.8	6,479	7	918	0.1	94
2014/15	9,103	44	6,757	13	1,666	2	2,602	7	14,226	18	4,737	4	1,716	1	91
2013/14	12,500	43.6	4,358	8.4	1,734	2.4	5,587	6.9	15,071	9.8	5,264	2.8	2,540	1.5	75
2012/13	19,071	52.7	4,872	7.7	2,583	3.9	2,089	3	13,698	7.2	6,545	3.6	4,182	1.3	7
2011/12	16,745	62.1	4,767	8.2	2,238	2.7	5,280	7.9	15,989	8.7	7,472	4	5,244	1.6	9
2010/11	14,512	68.3	4,367	7.2	1,240	1.5	885	1.4	11,334	5.1	8,119	4.2	3,381	1.5	8
2009/10	3,668	46	311	2	495	1	0	0	10,635	10	6,903	12	2,523	2	73
2008/09	2,135	33.1	2,472	3.4	308	1.4	0	0	4,215	9.5	4,481	16.3	1,471	4.9	69
2007/08	90	1.4	941	1.2	152	0.7	0	0	6,575	20	5,004	20	1,584	6.1	49
2006/07	8,518	54.3	1,863	7.6	478	0.8	0	0	12,509	15.9	9,958	7.8	1,602	1	87
2005/06	18,025	62.8	3,306	7	2,106	2.9	0	0	13,610	8.4	15,440	8.7	1,748	0.9	90
2004/05	8,142	44	3,671	7.2	1,495	2.2	0	0	20,287	18.8	12,865	10.8	2,681	1.3	84
2003/04	12,597	55.8	3,545	5.7	1,938	3.5	0	0	21,192	15	12,131	7.5	1,763	0.7	88
2002/03	11,395	46	4,788	9.3	1,788	1	0	0	21,346	20.4	10,183	7.4	2,095	1.7	86
2001/02	27,493	67.5	3,808	4.2	3,297	3.4	0	0	21,103	9.2	11,581	6.1	2,191	0.6	91
2000/01	30,440	73.9	4,074	5.7	4,551	5.9	0	0	14,276	4.6	11,998	4.7	2,153	0.4	95
1999/00	24,138	77.7	1,178	3.1	2,185	3.9	0	0	12,649	6.1	7,485	4.4	2,152	0.7	96
1998/99	24,491	73.8	1,059	1.3	4,339	5.7	0	0	13,963	1.7	13,879	8.1	2,184	1.7	92
1997/98	24,624	70.4	1,059	1.3	4,998	7.5	0	0	14,943	7.4	9,964	6.1	2,053	0.4	94

The table above shows that over time, irrigation water supplied by CICL has been primarily used to grow rice, and that rice continues to be the predominant summer crop. The area committed to the production of soybeans, corn, wheat, pasture and canola can also be seen to have varied greatly over the period in response to the availability of water and changing commodity prices.

3.4 Data Omissions and Discrepancies

This section identifies the discrepancies and data omissions and details of any action undertaken or proposed to remedy any monitoring and/or reporting deficiencies in satisfying condition 12.4 of the approval 2012.

Salinity data was omitted where no flow was detected. CICL has chosen to use flow figures for CODA from the Wonga Rubicon FlumeGate regulator because the installation of this regulator has rendered the CODA gauging less accurate (backflow affects).

The previous flow and salinity monitoring site and CCD has been adjusted so that flow is recorded from a FlumeGate at the CCD escape. This is a supply point for WaterNSW to supply the Yanco Creek. Salinity data is still recorded at the CCD site.

COD Oaklands (CODO) has replaced CODD for flow data as it now has more accurate metering than the previously-used gauging point at CODD. Flow data from COD Wonga (CODW) has replaced CODA flow data for the same reason.

As a result of the above changes in flow sites some salinity data was not available; in such instances, averaged salinity data has been substituted. Similarly where salinity data was available but there was no flow, the salinity data was disregarded.

Only 86% of the 737 piezometers were read because heavy rainfall and flooding over winter and autumn months made it impossible to reach some piezometers. DPI Water advised[4] on 24 October 2016 that it accepted that the weather and ground conditions constituted a satisfactory reason for not completing the required reading of 90% of piezometers.

3.5 Monitoring and Testing Data

A hard copy of monitoring and testing data is included at Appendix A2 and A3. The electronic data required under Section 12.7 of the Combined Licence Package was forwarded by email.

3.6 Quality Assurance and Control Standards

The following section lists various parameters monitored in compliance with the licence conditions and explains the methodology used for data collection and analysis, and for the calibration of measuring devices.

3.7 Flow Monitoring

Coleambally Main Canal Off-take

Surface water extraction by CICL is measured at the point of take from the Murrumbidgee River into CICL's Main Canal using an Accusonic meter containing eight sensors. The meter calibration is independently verified on a monthly basis and subjected to in-house inspection on a weekly basis. Notwithstanding these measures, the Accusonic is subject to silting especially during extended periods of high flows, as was the case in the latter half of the reporting period and this impacts on measurement (n.b. CICL installed a second Accusonic 600m downstream of the Main Off-take structure in 2016, to add further veracity to its measurement of 'take').

[4] Email 24/1/16 J Nestor (DPI) to G Parton (CICL)

Irrigators' Water Supply Points

There are 738 water supply points within CICL's Area of Operations - 537 of these are FlumeGates and 2 are SlipGates (with both gates produced by Rubicon Water Australia); 24 are AgriFlo Doppler flow meters (MACE products); 47 are propeller meters on Horticulture pump outlets and 128 are Stock and Garden meters (small diameter propeller meters).

Calibration checks of meters at supply points is undertaken twice a year by appropriately qualified CICL staff, with additional checks being undertaken when requested by landholders.

Col Bore and Hort Bore

In addition to its take of surface water, CICL extracts water Groundwater from its deep water bores – the Col Bore and Hort Bore. Magflow meters are installed at both bores, with the associated metering being upgraded during 15/16 as part of a NSW upgrade program.

3.8 Salinity and Salt Load

Salinity at Water Extraction Works

CICL monitors monthly salinity levels at the Main Canal Offtake using an YSI hand-held salinity meter. This meter is calibrated monthly using the standards supplied by the then NSW Office of Water.

Salinity at Licensed Discharge Points

CICL uses data collected at three licensed discharge points and one licensed monitoring point. This data is automatically and continuously collected by salinity sensors and was previously communicated to the NSW Office of Water using a radio telemetry system. CICL remains unsure of whether this data will now have to be referred to DPI Water or WaterNSW. The instrumentation at these sites was calibrated and maintained by the hydrographic unit of NSW Office of Water and CICL has assumed that this function has been/will be devolved to WaterNSW.

Salt Load Calculation

The Salt Load has been calculated by using the following formula, which assumes that 1 ML @ 1000µg/L contains 640 kg of salt:

(EC/1000 x .064) x ML

3.9 Pesticides in Supply and Drainage Water

CICL monitors a range of pesticides and nutrients in both supply and drainage water. Details of results obtained are contained at Appendices A5 and A6.

3.10 Turbidity and pH

CICL monitor these parameters in both supply and drainage water using hand-held meters. These meters are calibrated annually by CICL staff.

3.11 Crop Type and Crop Area

This information is collected from landholders through summer and winter crop type/area forms. Satellite imagery was again used to verify that rice crops were grown on land classified as suitable.

3.12 Crop Water Usage

Crop water usage information is calculated on the water orders and crop information provided by landholders prior to the commencement of the irrigation season and as such is an approximation of the actual final plantings. The amount of water diverted onto crops is however measured very precisely.

3.13 Groundwater Levels and Groundwater Salinity

These parameters are measured by appropriately trained CICL staff. The methodology for Groundwater levels and Groundwater salinity monitoring was developed in conjunction with NSW Office of Water.

4. New Measures to Limit Groundwater Recharge and the Release of Salt

CICL did not adopt any new measures to limit groundwater recharge / release of salt. CICL notes however that its Water Use Policy was adjusted in 2012/13 to focus on all water usage rather than just rice water usage and this policy remains in place. The policy considers the overall cropping intensity of each farm against previously established sustainability limit benchmarks.

5. Water Management

Table 5.1 is intended to satisfy the conditions in 12.10 of the approval 2012. It must be noted however that the data provided reflects an irrigation season which runs from September to June. Tables 5.1 and 3.2 display reconciled monthly volumes of water:

- taken through each authorised water supply work against the Approval Holder's water access licences;
- taken through each authorised water supply work against other water access licences; and
- released from each escape as an authorised credit.

Table 5.1: 2015/16 Water taken through Water Supply Works against Water Access Licences (Data from mid-month Board report.)

Surface Water Licences (Works Approval 40CA401473)	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Landholder High Security Access Licence 40AL401469	-	-	-	-	-	3,201	-		-	-	-	-	3,201
Converted High Security 40AL405230	-	-	-	-	-	-	5,579		-	-	-	-	5,579
2nd Converted High Security 40AL405343	-	-	-	-	-	564	-		-	-	-	-	564
General Security Access Licence 40 AL401471	-	-	-	-	-	-	4,667	28,615	25,438	14,229	7,687	-2,320	78,316
General Security Access Licence 40 AL405267	-	-	-	-	-	-	-	1,731	-	-	-	-	1,731
Town Water Supply High Security Access Licence 40AL401470	-	-	-	-	-	-	-	70	-	-	-	-	70
Outfall Drain High Security S & T Access Licence 40AL416255	-	-	-	-	-	-	-	3,227	-	-	-	-	3,227
Conveyance Loss Allowance Access Licence 40AL402990	-	-		28,454	21,684	28,811	23,397		-	-	-	-	102,346
Supplementary Access Licence 40AL402991	-	11,516	10,119	1,498	0	0	0	0	0	0	0	0	23,133
Total	**0**	**11,516**	**10,119**	**29,952**	**21,684**	**32,576**	**33,643**	**33,643**	**25,438**	**14,229**	**7,687**	**-2,320**	**218,167**
Aquifer Access Licence 40AL403806 & Supp 40AL403807													
Col Bore (Works Approval 40CA403808)	-	-	-	-	2	481	363	363	476	-	-	95	1,781
Hort Bore (Works Approval 40WA404593)	-	10	-	62	-	-	-	-	-	-	-	2	74
Groundwater Bore Total	0	24591	20414	40294	24724	39530	46713.5	46713.5	38350	19053	9402	27	
Combined Total	0	0	16,386	38,367	20,703	34,642	33,544	25,878	20,653	10,341	1,368	97	219,658

The following information is provided to satisfy condition 12.11 of the approval 2012.

5.1 Monthly volumes of water released without credit from escapes

The amounts of water released without credit from escapes during the 2015/16 irrigation season is shown in table 5.2.

5.2 Monthly volumes of water released from each drain

The quantity of water released without credit from drains during the 2015/16 irrigation season is shown in table 5.2.

5.3 Monthly volumes of water delivered to Members and Customers and accounted by each water supply work

There was a total of 183,687 ML delivered to Members in 2015/16 (with Table 5.2 showing the monthly delivery volumes in ML)

Table 5.2: 2015/16 Volumes (ML) Released without Credit, Released from Drain, and Released to CID Customers

2015/16	ML Released without credit from escapes	ML Released from Drains	ML Delivered to CID Customers
Jul	2	0	0
Aug	30	0	12,836
Sep	298	0	27,999
Oct	102	0	18,031
Nov	5	0	28,028
Dec	93	0	27,726
Jan	-68	0	27,726
Feb	-38	0	23,343
Mar	20	0	11,565
Apr	-64	0	4,402
May	-2	0	2,032
Jun	0	0	0
Total	**377**	**0**	**183,687**

The releases from drains were the result of dilution flows. Releases without credit from escapes were, with the exception of 377ML, taken up by WCC landholders. Data for Delivered to CID customers are derived from operational mid monthly report.

The following information is provided to satisfy condition 12.12 of the approval 2012.

5.4 Estimated Annual Volumes

Table 5.3 indicates the estimated annual volumes of net channel losses, including deliveries, escapes, recycling, evaporation, rainfall, change in storage and seepage.

The channel losses through escape channels, evaporation, change in storage, seepage and gains in the channel system through rainfall, are shown in Table 5.3. The gains from rainfall and losses through evaporation have been calculated for the 15/16 irrigation season only. For the purpose of Table 5.3, the channel area has been estimated as 555 ha.

Table 5.3: Net Channel Loss Accounting

Losses	Estimated volume (ML)
Escapes	-377
Evaporation	-7,843
Change in storage	0
Seepage	-30,075
Total Losses	**-38,295**
Rainfall	2,324
Net Channel Losses	**-35,971**

5.5 Estimated change in the volume of water held in off-line storages

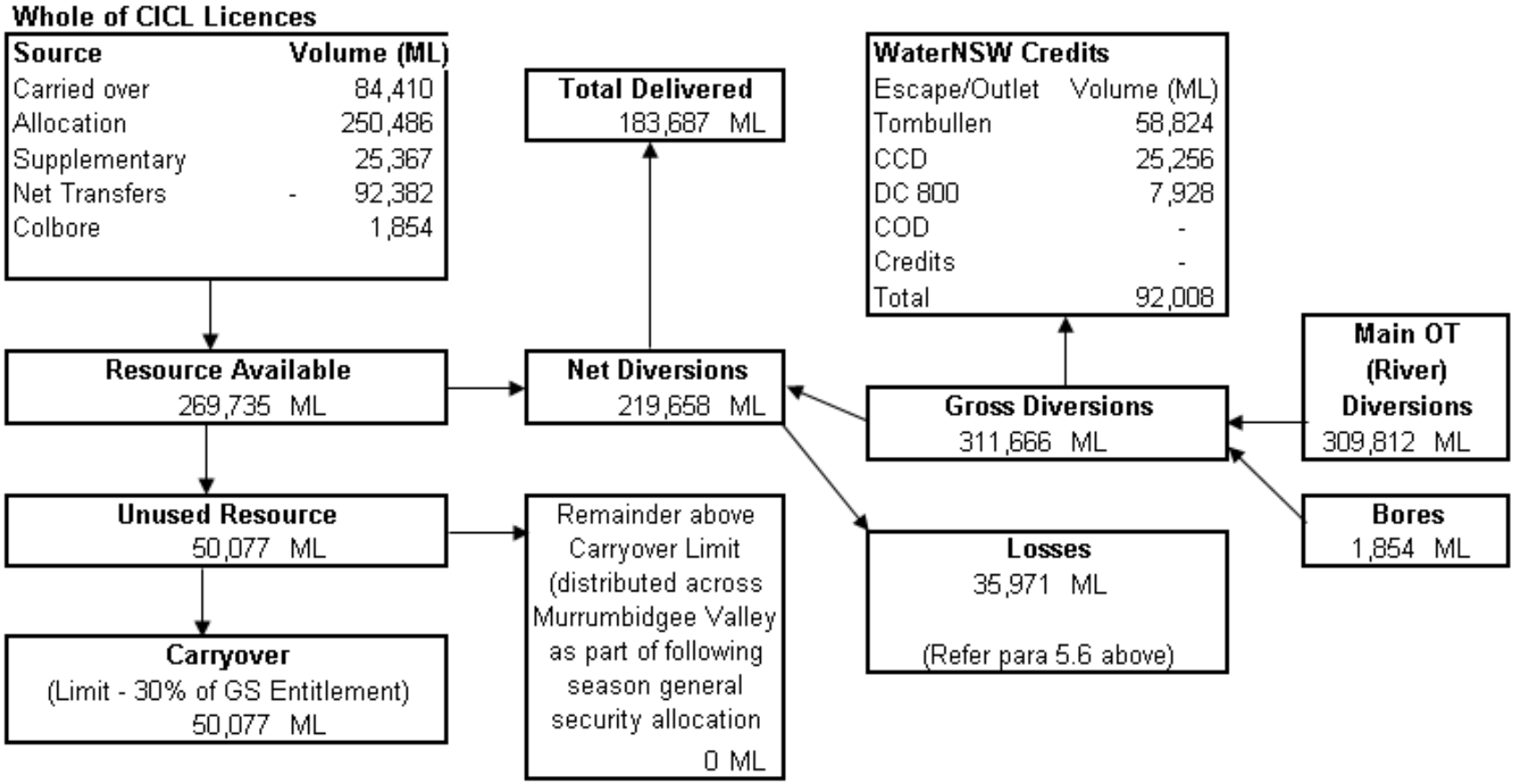
There was no change to the volume of water held in off-line storages during 2015/16.

5.6 Water Balance for the entire Area of Operations

This water balance is presented together with data from conditions 12.10 and 12.11

Figure 5.1 indicates the water balance including the above data and conditions for 2015/16. CICL's higher than normal seasonal water losses are explained by a delivery season that extended for one month longer than usual (shorter winter works period); water normally taken from CICL's delivery system by landholders at the time of the winter shutdown not being taken because of the extremely wet autumn conditions; the operation for the first time of an in-line storage that returned a net benefit to landholders but increased losses for CICL and metering challenges at the Main Off-take due to silting problems that were exacerbated because they could not be addressed due to very high river levels. The estimated losses associated with the latter factor remain the subject of ongoing discussion with WaterNSW at the time of the submission of this report.

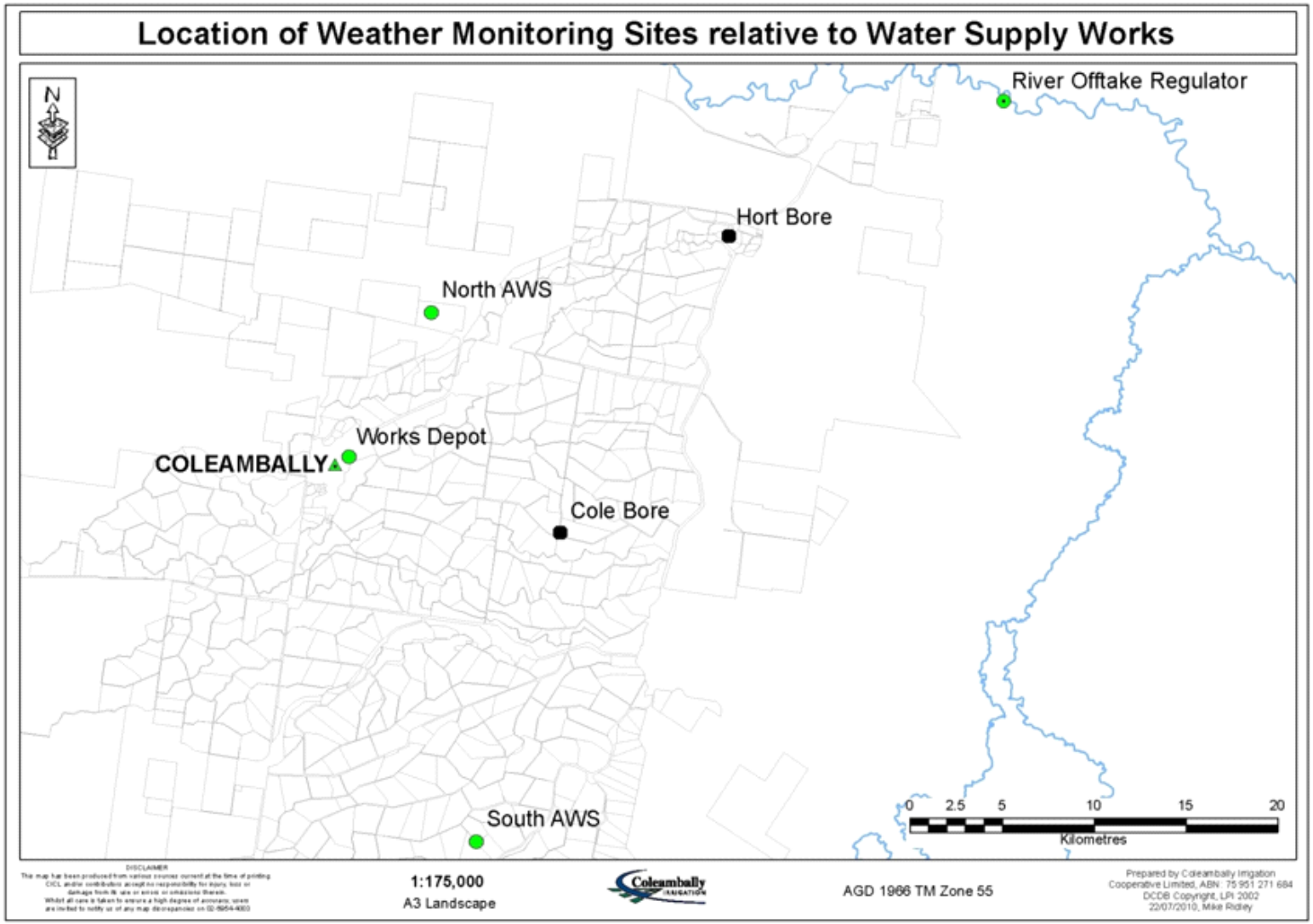
Figure 5.1: Water Use - Year to Date



5.7 Estimated Annual Rainfall at each Water Supply Work

A map depicting the locations of all weather monitoring sites relative to all water supply works is shown in Figure 5.2 below.

Figure 5.2: Location of Weather Monitoring Sites relative to Water Supply Works. (AWS = Automatic Weather Station)



5.8 Estimated Annual Evapo-transpiration / Rainfall at each Water Supply Work

Both North and South Automatic Weather Stations (AWS) record many parameters—including Rainfall (logged as 'accumulative') and reference evapo-transpiration (ET_o).

Geographically, the North-AWS is almost equidistant from both Hort Bore and Col Bore water supply works and is significantly closer to both than the South-AWS. Rainfall and ET_o values from the North-AWS have consequently been used in this report. As such, for the 2015/16 period and in the general area encompassing all water supply works, the annual Rainfall and ET_o is recorded as 418.8 mm and 1413.3 mm respectively.

Table 5.4: Rainfall and Evaporation AWS/1 – 2015/16

AWS/1 (North AWS)	Rain (mm)	ETo (mm)
Jul	25.2	38.1
Aug	32.4	47.1
Sep	15.4	90.1
Oct	37.2	152.1
Nov	23	179.9
Dec	25	216.4
Jan	72.4	182
Feb	0.2	181
Mar	20.4	149
Apr	14.6	94.1
May	60.6	53.4
Jun	92.4	30.1
2015/16 TOTAL	**418.8**	**1413.3**

5.9 Water Deliveries

Table 5.5 describes water deliveries and associated land areas for irrigation purposes during the reporting year.

Table 5.5: Water Deliveries and Associated Land Areas for Irrigation Purposes 2015/16

	ML	Ha
Water deliveries for rice	51,750	3,603
Water deliveries for horticulture	1,617	284
Water deliveries for all other summer crops (including pasture)	66,397	13,876
Water deliveries for winter crops	29,268	14,857
Water deliveries for domestic and stock purposes	6,905	
Water deliveries for all other purposes	27,750	

5.10 Distribution of Irrigation Intensity

The irrigation intensity for the main supply sub-divisions/ areas is represented in Table 5.6.

Table 5.6: Distribution of Irrigation Intensity (ML/ha)

REGION	USE (ML)	AREA (Ha)	INTENSITY ML/Ha	% of Use
Boona	36,840	33,452	1.10	20%
Coly	39,235	22,432	1.75	21%
Argoon	53,957	35,427	1.52	29%
Yamma	30,162	23,313	1.29	16%
Kerarbury	11,872	13,335	0.89	6%
WCC	11,621	317,218	0.04	6%
Total	**183,687**	**445,177**		**100.00%**

6. Salinity and Salt Load

Table 6.1 is provided in satisfaction of requirement 12.14 of approval 2012. For further elaboration refer to attachment A2

Table 6.1: Volume of Water Entering CICL's Operational Area (ML), Salinity (µS/cm) and Salt Load (Tonnes) in 2015/16

Month	MAIN CANAL			COL BORE			HORT BORE		
	ML	µS/cm	Salt (T)	ML	µS/cm	Salt (T)	ML	µS/cm	Salt (T)
July	9,702	141	870						
August	21,519	148	2,022				10	320	2
September	28,766	195	3,635						
October	46,097	227	6,999				62	320	13
November	23,409	142	2,165	2	620	1			
December	52,397	163	5,230	481	620	191			
January	47,695	116	3,546	364	620	144			
February	35,315	125	2,871	363	620	144			
March	27,313	146	2,582	476	620	189			
April	16,132	145	1,476						
May	1,467	155	144						
June				95	620	38	2	320	
Total	**309,812**		**31,540**	**1,781**		**707**	**74**		**15**
Salt TOTAL	**32,262**								
ML TOTAL	**311,667**								

Tables 6.2 to 6.4 are provided in satisfaction of requirement 12.15 of approval 2012 – for further elaboration, refer to attachment A3.

Table 6.2: Volume of Water exiting CICL's Operational Area (ML), Salinity (µS/cm) and Salt Load (Tonnes) in 2015/16

Month	DC 800@ OUTFALL			Flow @ DC 500 at Wonga			Flow @ CCD Escape			Tombullen		
				EC @ CODA			EC @ CCD			Storage		
	ML	µS/cm	Salt (T)	ML	µS/cm	Salt (T)	ML	µS/cm	Salt (T)	ML	µS/cm	Salt (T)
July	105	151	10	116	168	13	0	n/a	0	0		0
August	192	168	21	471	190	51	5,710	176	644	8,150	148	773
September	475	202	63	1,095	201	141	587	190	71	10,231	195	1,279
October	769	351	173	558	369	129	2,333	286	428	7,834	227	1,139
November	315	261	54	1,142	208	149	782	228	112	2,559	142	233
December	984	122	77	1,426	184	168	3,102	135	268	3,536	163	369
January	1,463	138	129	741	158	76	2,952	221	425	0		0
February	945	153	90	742	169	84	2,101	143	194	19,740	125	1,582
March	2,333	190	291	2,557	151	247	4,856	217	684	6,774	146	633
April	579	136	59	3,652	190	432	2,752	194	344	0		0
May	317	150	24	268	221	39	70	192	9	0		0
June	2,652	145	251	3,982	244	630	86	145	8	0		0
Total	**11,127**			**16,749**			**25,331**			**58,824**		
Salt TOTAL	**12,597**		**1,243**			**2,158**			**3,188**			**6,008**
ML TOTAL	**59,215**											

Note: In this report DC500 @Outfall has been replaced by DC500 @ Wonga, and CCD has been replaced by CCD@Escape; in both cases, this is due to improved measurement following the installation of FlumeGates. For the same reason, in the following table sampling at CODD@Bundy is now replaced by sampling @CODO.

Table 6.3: Volume of Water exiting CICL's Operational Area at CODO @ Bundy, Salinity (µS/cm) and Salt Load (Tonnes) in 2015/16

Month	Flow @ COD Oaklands		
	EC @ CODD at OUTFALL BUNDY		
	ML	µS/cm	Salt (T)
July	3	227	
August	-		
September	-		
October	-		
November	4	227	1
December	147	227	21
January	-		-
February	-		-
March	181	227	26
April	8	227	1
May	-		-
June	247	227	36
Total	**590**		**85**

Table 6.4 represents a **Simple Annual Salt Balance** comprising the imported, exported and retained Salt Load for the area associated with each separate water supply work. This satisfies requirement 12.16 in the approval 2012.

Table 6.4: CIA Simple Salt Balance (Tonnes) in 2015/16

IMPORTED SALT	Tonnes	EXPORTED SALT	Tonnes
Main Canal	31,540	**DC800A**	1,243
Col Bore	707	**DC500**	2,158
Hort Bore	15	**CCD**	3,188
		Tombullen	6,008
TOTAL	**32,262**		**12,597**
Balance	19,665		

For this report, a conversion factor of 1,000 µS/cm in 1 L = 640 mg of salt has been used. In effect, 1 ML of water at an EC of 1000 µS/cm contains 640 kg of salt. This is equivalent to the calculation in Section 3.8.

7. Groundwater Conditions

7.1 Groundwater Conditions within the Area of Operations

CICL has a network of piezometers throughout its Area of Operations which is used to monitor Groundwater conditions. The licence requires that piezometers be read in August (+/- 2 wks), and it is CICL's practice to read them again in March in order to have a more complete understanding of Groundwater conditions. The related data is analysed using Arc Map GIS and MS Excel software.

From July to October 2016, 635 of CICL's 737 licensed piezometers were read. Of those read, 50 were recorded as being dry, and a further 15 as damaged. Due to an extraordinarily wet winter period, 87 of the licensed piezometers remained inaccessible.

Piezometers are read to an accuracy of +/- 5cm with the data obtained presented as per the Licence monitoring requirements. Data analysis and mapping is based on a split set of data: Pressure Levels from the upper Shepparton aquifer via piezometers < 12m deep, and pressure Levels from the lower Shepparton aquifer via piezometers 12m - 60m deep.

Readings from the upper Shepparton aquifer represent the water table, while readings from the lower Shepparton aquifer represent the potentiometric of pieziometric level of the lower confined aquifer.

All Licence piezometers with a recorded depth are mapped, except those recorded as dry/blocked within 4m of the natural surface, and all those recorded as buried/damaged – their inclusion would skew the Groundwater modelling.

For comparative purposes, Groundwater levels in the previous year and in the baseline year of 1998 are presented along with the current year. The inclusion of the previous year highlights the change in conditions from the last season to the present, whilst the inclusion of the baseline year allows a comparison with Groundwater conditions in the year following CICL's privatisation.

Figures 7.1 and 7.2 are contour maps of the piezometric levels below natural surface for September 2016. A 3D surface of piezometric levels was created from point measurements (depth to water below natural surface at each piezometer) by using the inverse distance weighted (IDW) method of interpolation. This method requires inputs of XY locational coordinates and a Z coordinate for the piezometric level.

Tables 7.1 and 7.2 are tabular representations of Figures 7.1 and 7.2 respectively.

Tab 7.1: Groundwater depth below natural surface; 0-12m piezometers; Sep 2015

Groundwater Depth Below Natural Surface (m)	2016 Area (ha)	2015 Area (ha)	Benchmark Area (Ha)
0-1	258	210	1,939
1-2	2,324	3,085	34,102
2-4	40,485	45,287	41,559
4-6	29,245	25,090	13,442
6-8	11,841	9,626	4,256
8+	11,649	12,504	504
Total	**95,802**	**95,802**	**95,802**

From Table 7.1 for 0-12m depth piezometers 43,067 ha or 46 % of the mapped Groundwater area existed in the 0-4m zone in 2015, which in Figure 7.1 is represented in red, orange and yellow combined.

Fig 7.1: Groundwater depth below natural surface; 0-12m piezometers; Sep 2016

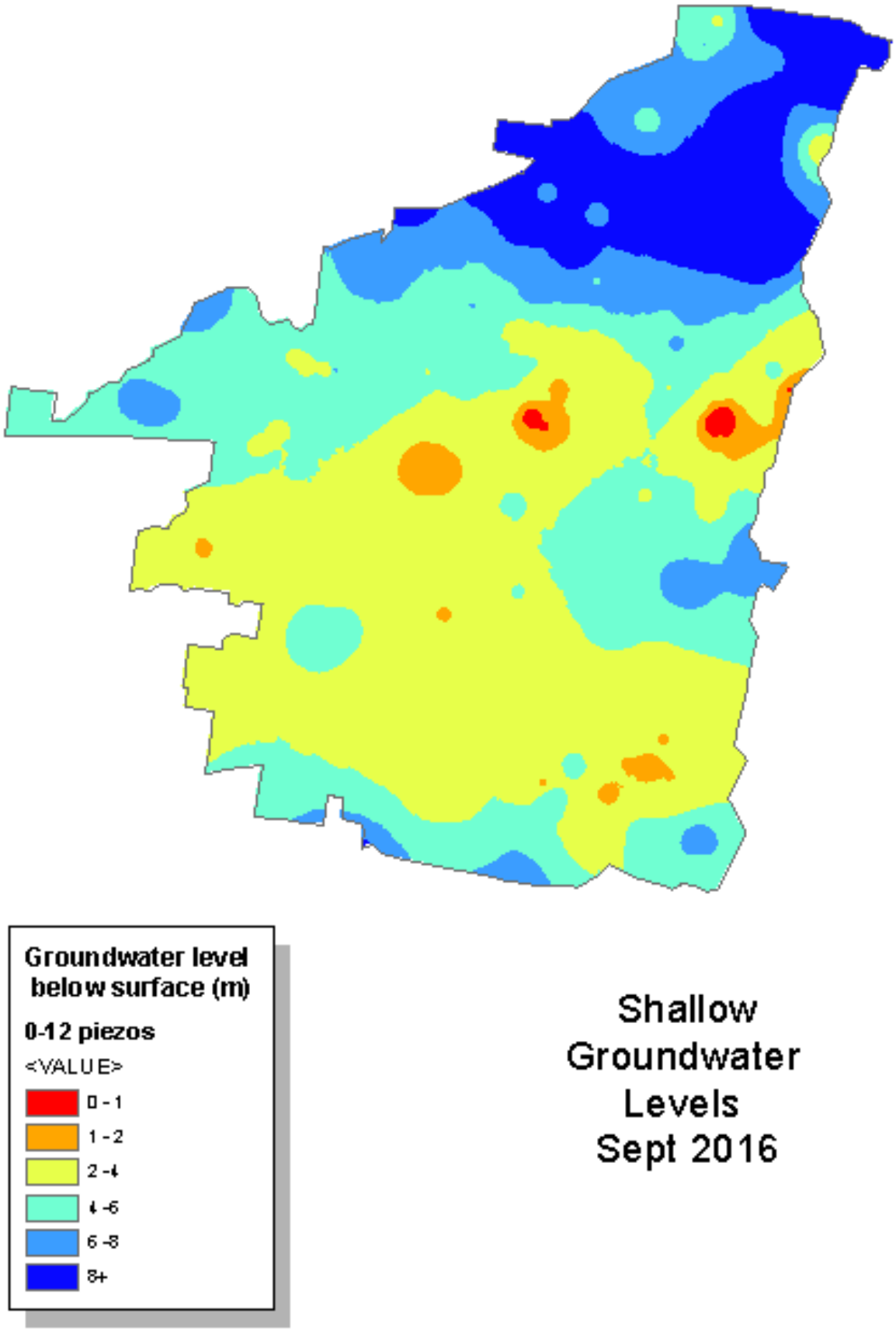
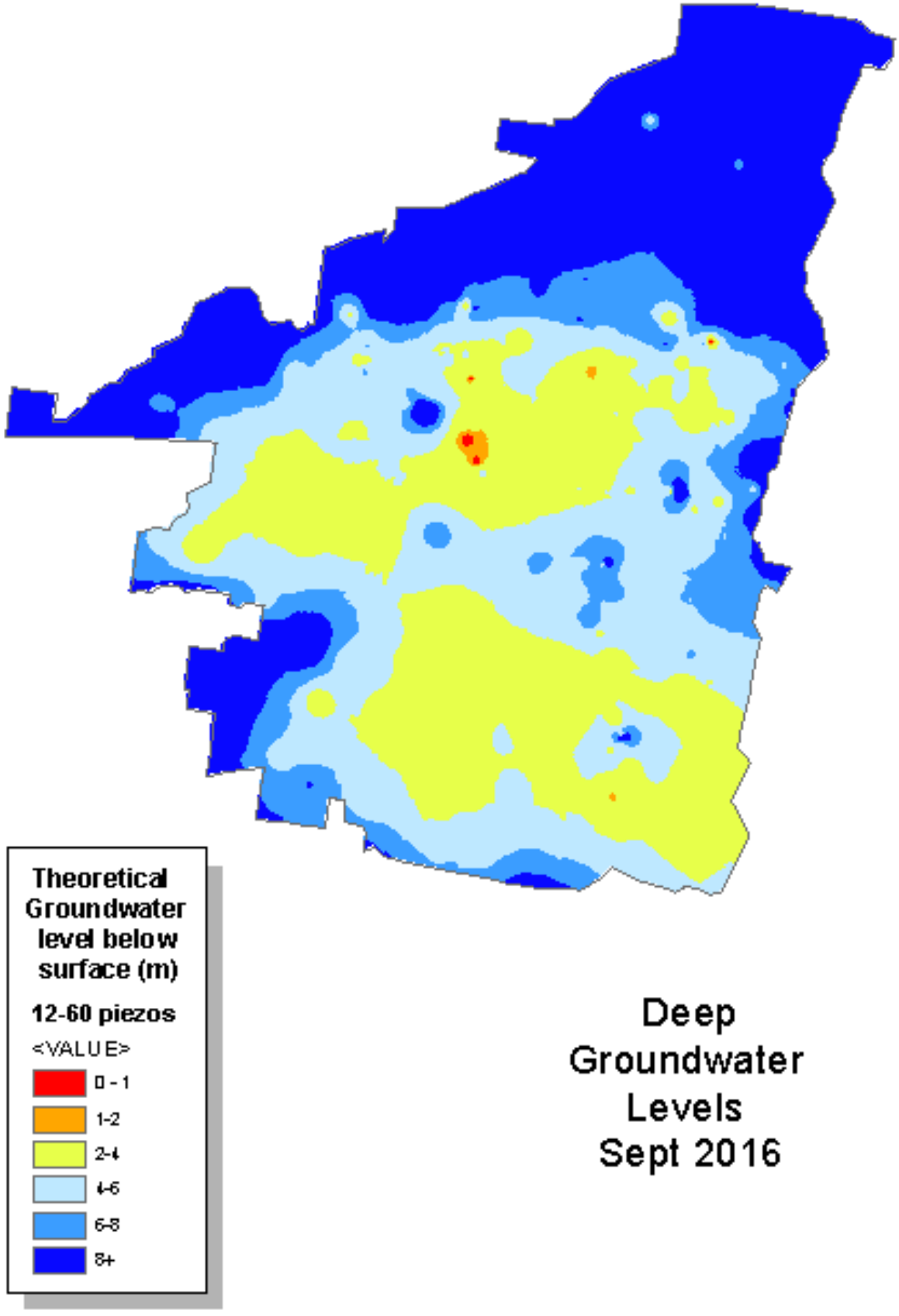


Fig 7.2: Pieziometric depth below natural surface; 12-60m piezometers Sep 2016



Tab 7.2: Groundwater depth below natural surface; 12-60m piezometers; Sep 2016

Groundwater Depth Below Natural Surface (m)	2016 Area (Ha)	2015 Area (ha)	Benchmark Area (Ha)
0-1	44	14	760
1-2	220	381	22,264
2-4	28,561	31,444	33,481
4-6	25,405	23,340	17,300
6-8	11,502	11,287	10,549
8+	30,070	29,336	11,448
Total	**95,802**	**95,802**	**95,802**

From Table 7.2 for 12-60m depth piezometers, 28,825 ha or 30% of the mapped Groundwater area existed in the 0-4m zone in 2016 – refer to the areas depicted in red, orange and yellow.

Figures 7.3 and 7.4 depict the Groundwater depth below natural surface, in the years 2016 and 1998, as converted to the Australian Height Datum (mAHD) and mapped for all of the 0-12m and 12-60m piezometers. These are the upper and lower parts of the Shepparton Aquifer, respectively. These levels represent the Groundwater height above sea level (metres above sea level, mASL) and can be used to identify the direction of Groundwater flow. In general, the direction of Groundwater flow is WSW.

Tables 7.3 and 7.4 are tabular representations of Figures 7.3 and 7.4 respectively.

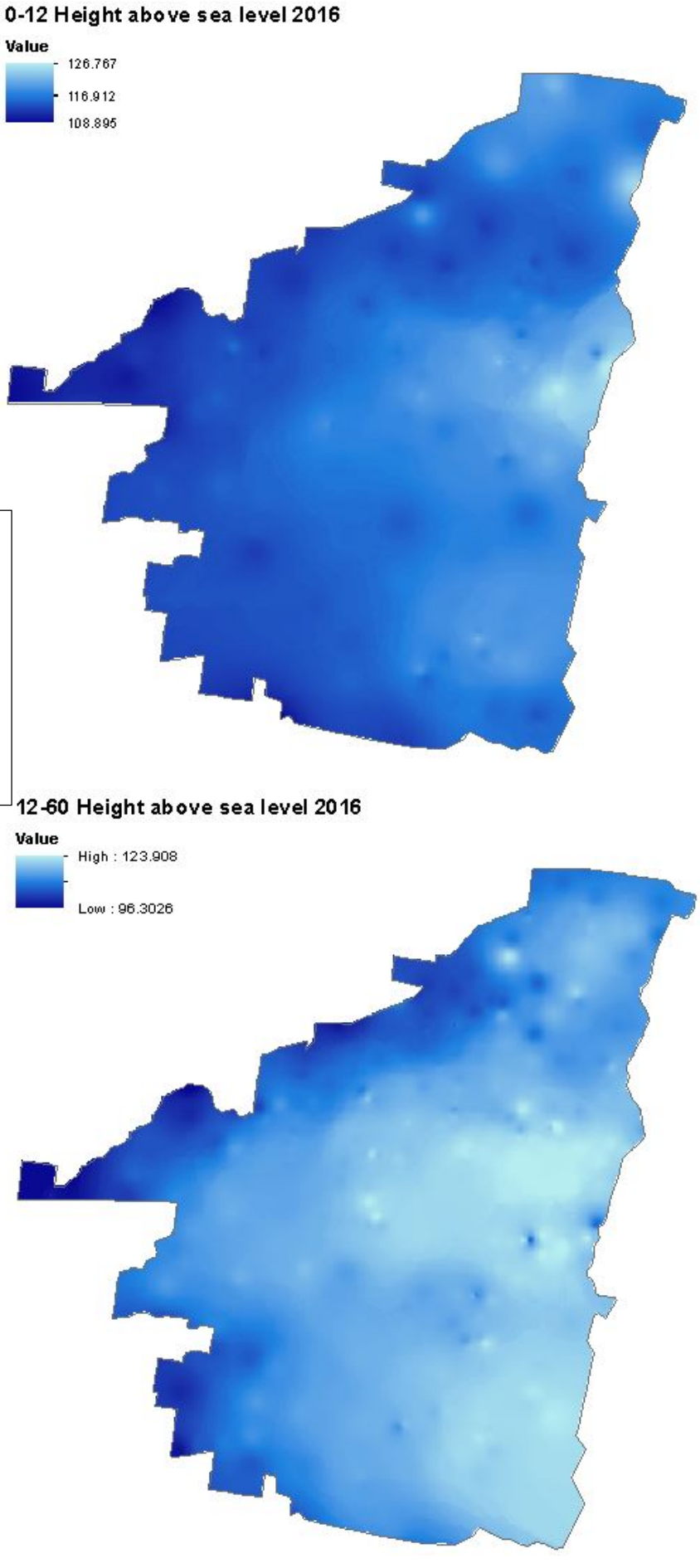
Tab 7.3: Groundwater Depth, below natural surface; 0-12m piezometers; Sep 2016 versus Sep 1998

Groundwater Depth Below Natural Surface (mAHD)	2016 Area (ha)	1998 Area (ha)
123 – 127 (higher)	3,697	6,381
119 - 122	32,960	42,337
115 - 118	44,152	34,921
111 - 114	13,878	11,432
107 - 110	1,115	731
94 – 106 (lower)	0	0
Total	**95,802**	**95,802**

Tab 7.4: Groundwater Depth, below natural surface; 12-60m piezometers; Sep 2016 versus Sep 1998

Groundwater Depth Below Natural Surface (mAHD)	2016 Area (ha)	1998 Area (ha)
123 – 127 (higher)	115	4,151
119 - 122	27,859	39,182
115 - 118	32,846	31,548
111 - 114	19,877	11,211
107 - 110	11,231	5,724
94 – 106 (lower)	3,874	3,986
Total	**95,802**	**95,802**

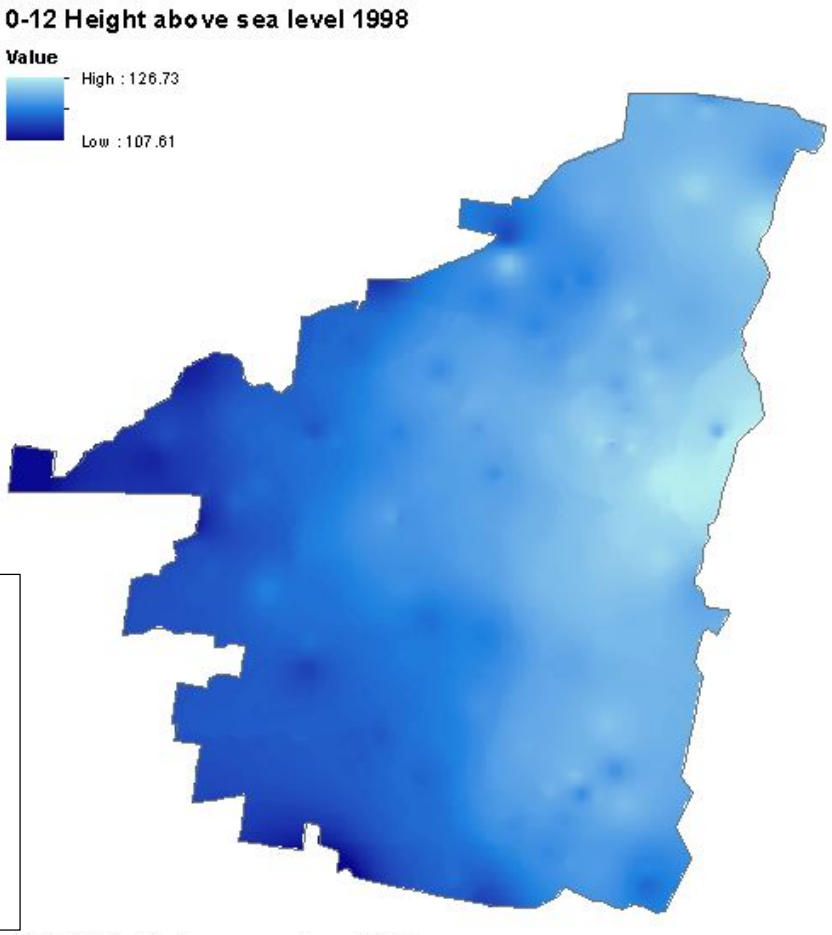
Fig 7.3: Groundwater Level (mAHD); 0-12 m and 12-60m piezometers; Sep 2016

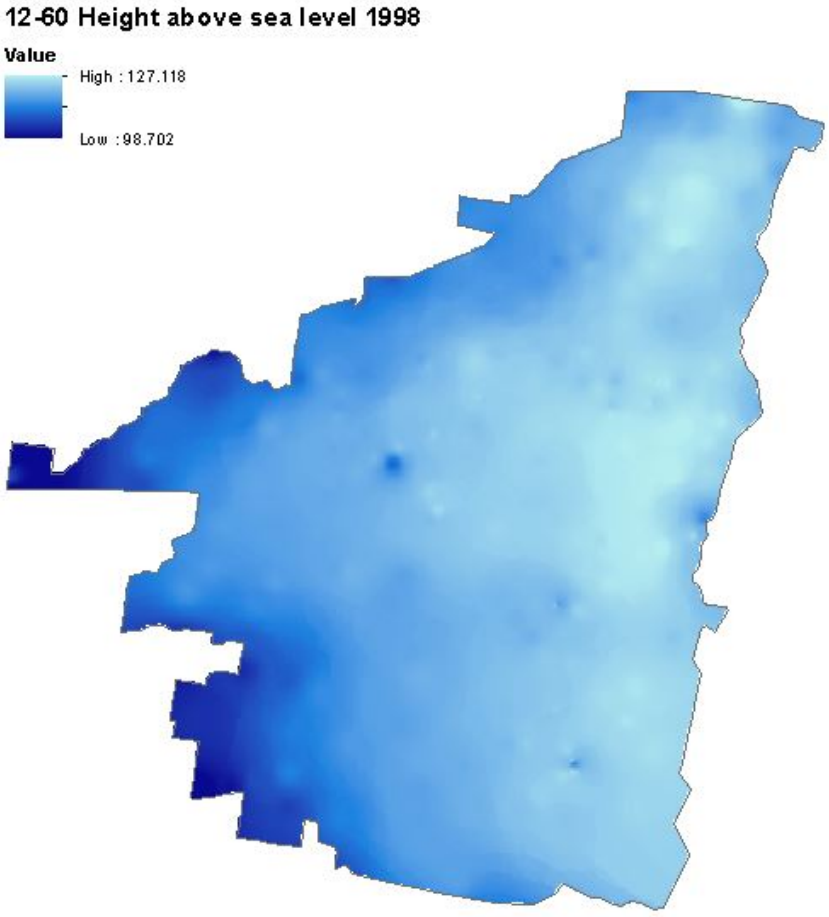


Shallow and Deep Groundwater Levels above Sea Level (mAHD) September 2016

Fig 7.4: Groundwater Level (AHD); 0-12 m & 12-60m piezometers; Sep 1998

Shallow and Deep Groundwater levels above Sea Level (mAHD) September 1988





Tables 7.5 and 7.6 represent a comparison of change in area of key groundwater depth ranges from 2015 to 2016 and from 1998 to 2016.

Tab 7.5: Change in area of Groundwater Depth Ranges below natural surface; 0-12m piezometers; years 2015 to 2016, and years 1998 to 2016

Groundwater Depth Range Below Natural Surface (m)	Years and Area of Groundwater Depth (ha)			Change in Area of Groundwater Depth (ha) [+ = rising][– = falling]	
	1998	2015	2016	2016 vs 1998	2016 vs 2015
0-1	1,939	210	258	-1,681	48
1-2	34,102	3,085	2,324	-31,778	-761
2-4	41,559	45,287	40,485	-1,074	-4,802
4-6	13,442	25,090	29,245	15,803	4,155
6-8	4,256	9,626	11,841	7,585	2,215
8+	504	12,504	11,649	11,145	-855
Total	**95,802**	**95,802**	**95,802**	**0**	**0**

Tab 7.6: Change in area of Groundwater Depth Ranges, below natural surface; 12-60m piezometers; years 2015 to 2016, and years 1998 to 2016

Groundwater Depth Range Below Natural Surface (m)	Years and Area of Groundwater Depth (ha)			Change in Area of Groundwater Depth (ha) [+ = rising][– = falling]	
	1998	2015	2016	2016 vs 1998	2016vs 2015
0-1	760	14	44	-716	30
1-2	22,264	381	220	-22,044	-161
2-4	33,481	31,444	28,561	-4,920	-2,883
4-6	17,300	23,340	25,405	8,105	2,065
6-8	10,549	11,287	11,502	953	215
8+	11,448	29,336	30,070	18,622	734
Total	**95,802**	**95,802**	**95,802**		

Fig 7.5: Changes in Groundwater Depth, below natural surface; 0-12m piezometers; years 2015 to 2016, and years 1998 to 2016

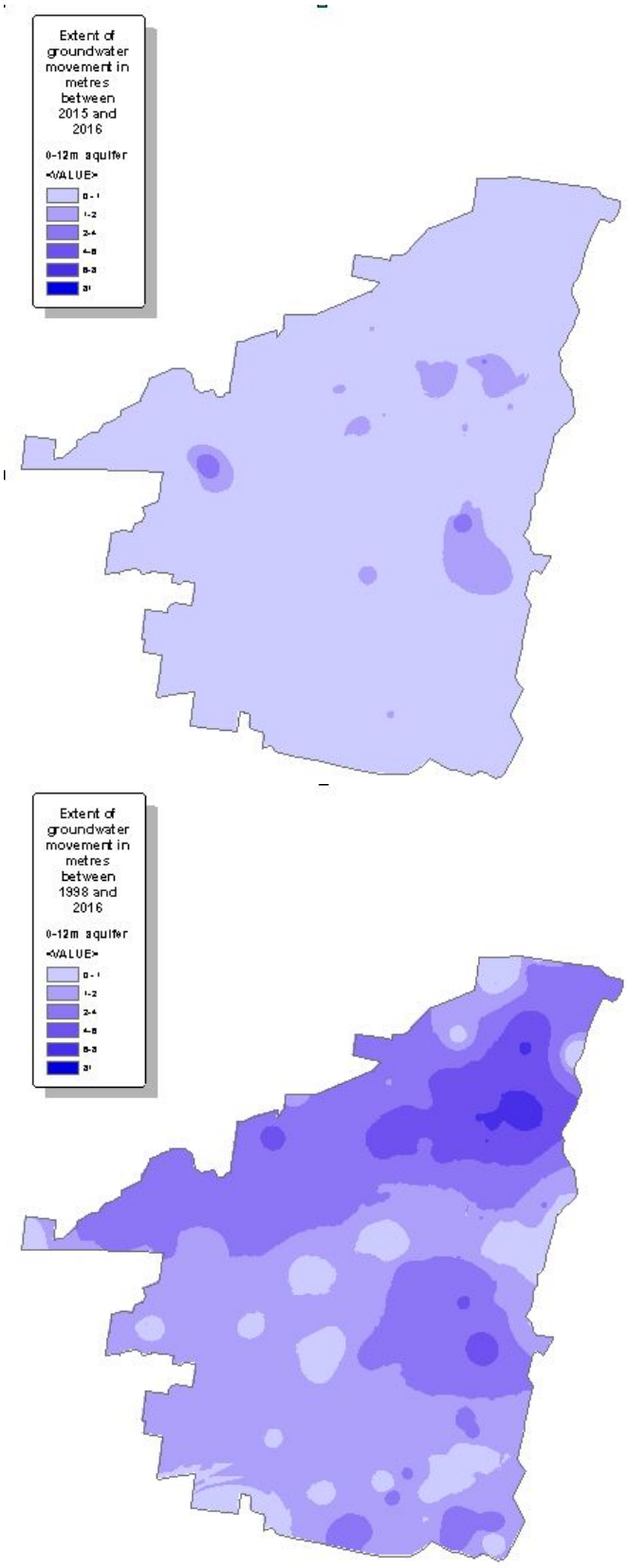
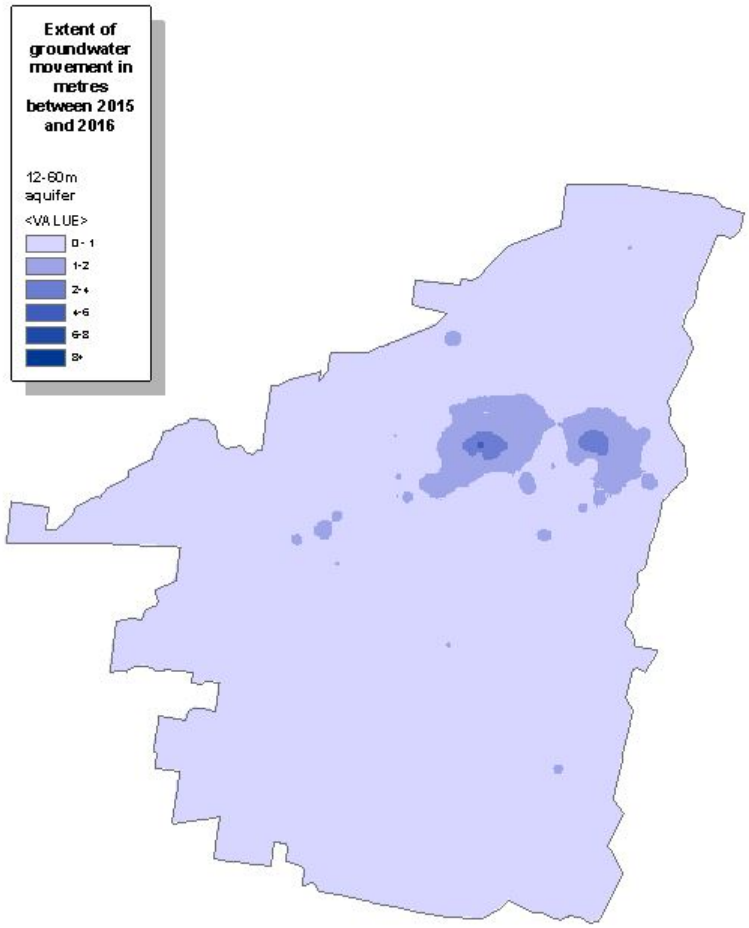


Fig 7.6: Changes in Groundwater Depth, below natural surface; 12-60m piezometers; years 2015 to 2016, and years 1998 to 2016



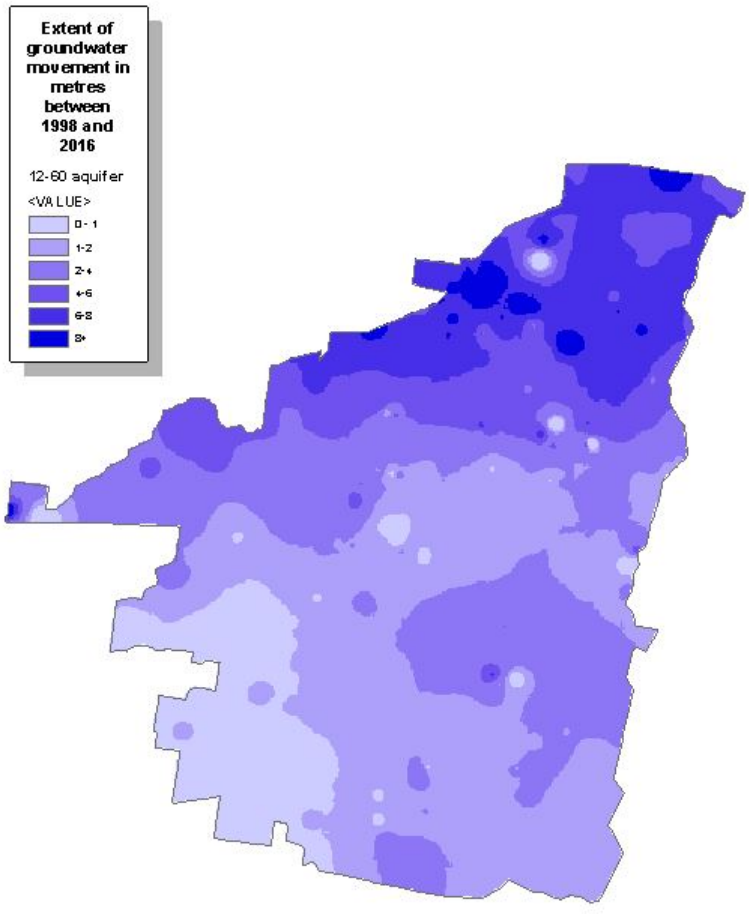


Table 7.5 (0-12m piezometers) indicates that from 1998 to 2016, the area associated with the two uppermost depth ranges (bands) decreased by an average of 2.30m within this band. The area that increased in depth was redistributed amongst the four bands below. From 2015 to 2016, the water table fell by an average of 0.34m.

Table 7.6 (12-60m piezometers) indicates that from 1998 to 2016, the area associated with the two uppermost depth ranges (bands) decreased by an average of 2.73m across this band. From 2015 to 2016 the average decrease was 0.41 metres.

The above changes are shown graphically in Fig 7.5 and 7.6.

7.2 Groundwater Usage

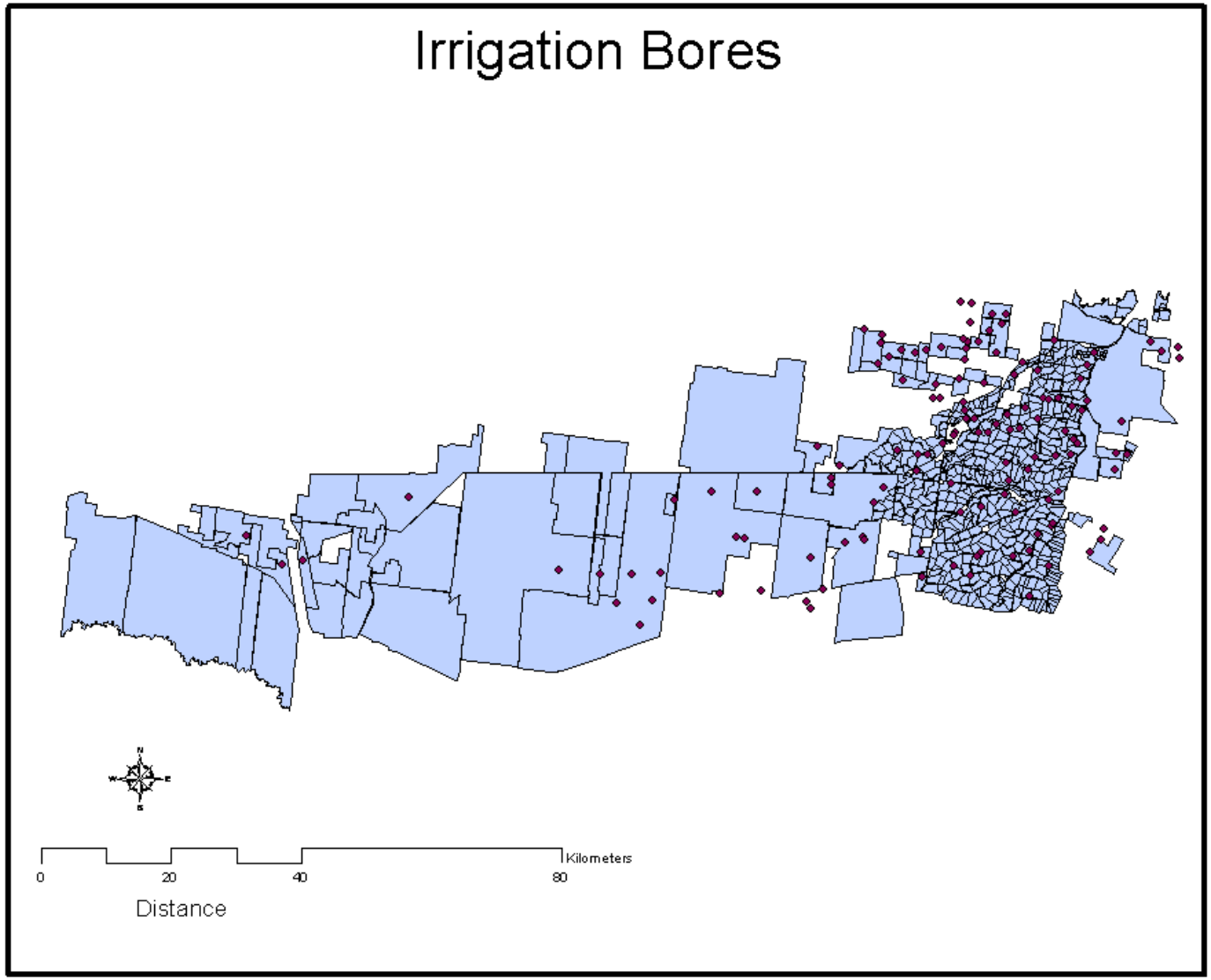
The total metered Groundwater usage for the past two seasons and for the baseline season of 1998/99 is presented in Table 7.6. For the 2015/16 season, the total Groundwater extraction within the reporting area was 89,630 ML.

Table 7.7: Groundwater Extractions in CICL's Area of Operation in 2015/16

Area	Number of bore licences (2015/16)	Extraction 2015/16 (ML)	Extraction 2014/15 (ML)	Extraction 2013/14 (ML)	Extraction 1998/99 (ML) [Baseline]
CIA	52	43,054	19,666	38,777	28,714
CIA Ext	11	14,347	8,600	n/a	n/a
Kerarbury	14	24,026	46,800	37,620	29,161
WCC/Outfall	20	8,204	29,783	9,763	11,065
Total	**97**	**89,630**	**104,849**	**86,160**	**68,940**

Figure 7.7: Location of CID Irrigation Bores

Irrigation Bores located within CICL's Area of Operations comprising CIA, Kerarbury and WCC



8. Environment Protection Licence

8.1 Water Quality

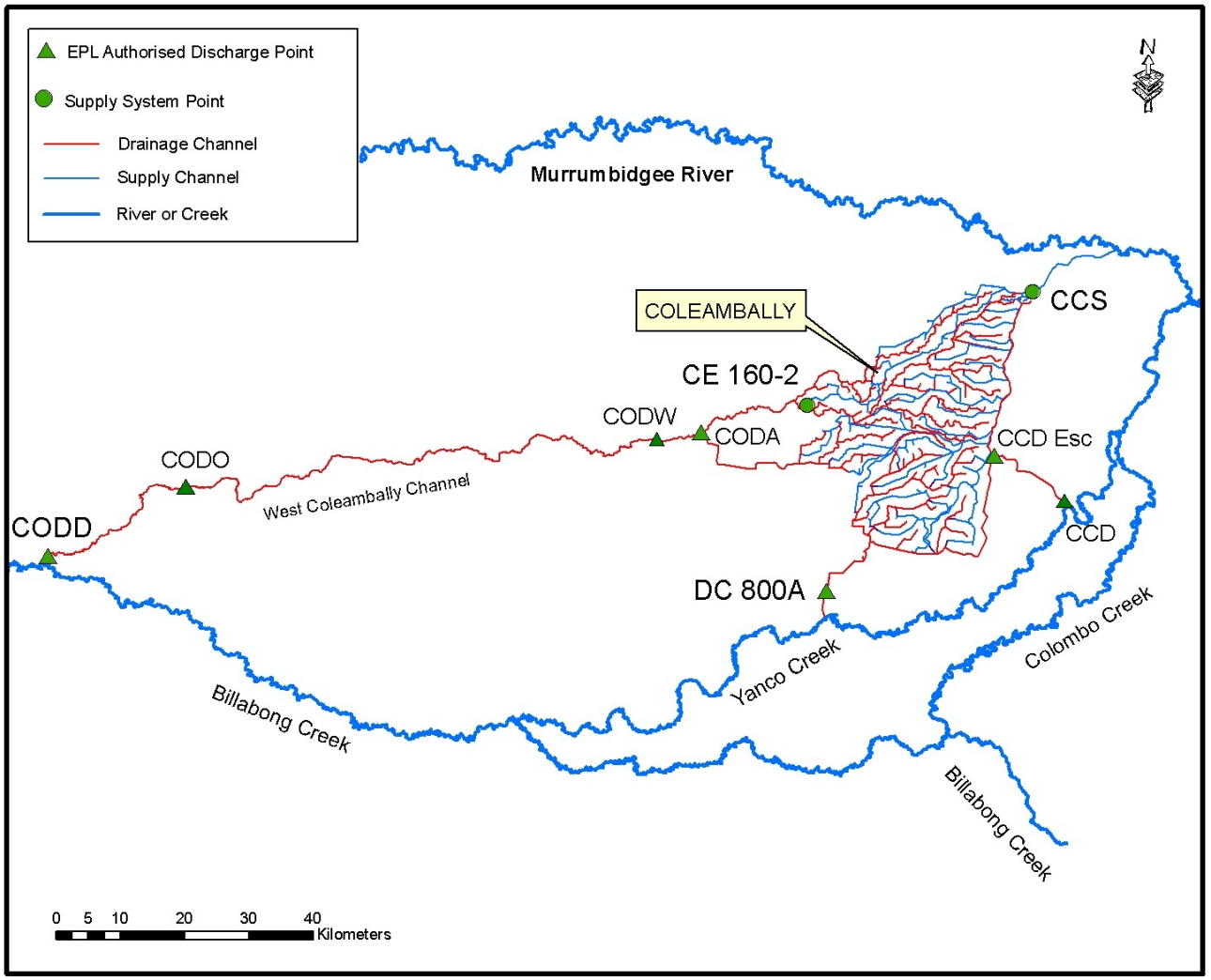
CICL's surface water quality program is aimed at monitoring supply and drainage water quality within CICL's operational area, including at the licensed discharge points. The program monitors flow, turbidity, dissolved oxygen, pH, salinity, chemical and nutrient levels at various points in compliance with licence conditions. CICL's water quality monitoring sites are shown in Figure 9.1.

There are three licensed drainage discharge points; Coleambally Outfall Drain monitoring site A (CODA) is used as a licensed site in place of Coleambally Outfall Drain monitoring site D (CODD) for the Rice Chemical Management Program (RCMP). Although the CODA site is not identified in the Environment Protection Licence (EPL), the site has been selected for its accessibility and is listed as an approved monitoring site. This arrangement has previously been agreed with the Department of Environment and Conservation (DEC), NSW Office of Water and the NSW Environmental Protection Agency.

The approval 2012 refers to the above discharge points; however a different terminology has been used to identify these sites.

At the licensed sites, flow, salinity and the temperature of drainage water are monitored continuously. Monthly water samples are collected from these sites and are analysed for foe the presence of chemicals as required by CICL's EPL. Samples are also collected and analysed from one supply site at the Main Canal (CCS) and one escape site (CE-160-2) when flowing. Salinity levels at the CCS are monitored constantly.

Figure 8.1: Water Quality Monitoring Sites



8.2 Site Names used within the EPL and Approval 2012

The EPA Licence and the Approval 2012 describe the following monitoring sites:

8.3 EPA Licence Sites

1. Coleambally Outfall Drain Discharge labelled “COD Wonga” on map titled “West Coleambally Water Management Area” dated 19 February 2014 and on EPA file EF13/2805 replacing CODA.
2. DC800A on map titled “CICL Water Quality Monitoring Site” dated 12 August 2008 and on EPA file LIC07/2508
3. Coleambally Catchment Drain labelled ‘CCD’ on map titled “CICL Water Quality Monitoring Site” dated 12 August 2008 and on EPA file LIC07/2508
4. Coleambally Outfall Drain labelled “CODOaklands on map titled “West Coleambally Water Management Area” dated 19 February 2014 and on EPA file EF13/2805 replacing CODD at Bundy.

8.4 Office of Water Approval sites

1. Coleambally Outfall Drain A (CODA) - 410110 Drainage Canal 500 / DC500
2. Coleambally Outfall Drain D, 410133 Coleambally Outfall Drain at Bundy
3. Drainage Canal DC800A to Yanco Creek, 410108 Drainage Canal 800 at Outfall
4. Coleambally Catchment Drain at Outfall, Site 410191 CCD Into Yanco Creek

Flow monitoring is also conducted at the Boona and Argoon escapes as these are the main sources of water for the COD.

8.5 Rice Chemical Monitoring Program (RCMP)

From October to December each year, water samples are collected from a maximum number of 21 sites (dependent on flow) and are analysed for Molinate residue levels as part of the RCMP.

Molinate residue levels are used as an indicator to the presence of other rice chemicals in the drainage water.

15/16’s low water allocation resulted in a limited amount of rice being grown across the area; the RCMP therefore focussed on only two of the four licensed drainage points - CODW and DC800A.

Weekly sampling commenced on the 19th of October and concluded on the 14th of December 2015 and there were no detections of Molinate exceeding either the Notification Level or Action Level. The related results are at Table A6.1.

8.6 Chemical Use

Table 8.1: CICL Chemical Usage in 2015/16

Product	Litres	Kg	Application
Access	60		Boxthorns
Bluestone		100	Slime control
Dalapon 740		10,200	Cumbungi, water cooch
Dicam (Kamba)/Cutlass	2,340		Horehound, Bathurst Burr
Goal/ Cavalier/ Striker	30		Additive
LI700 / VC700 / Wilt(wetter)	280		Drift reduction
Roundup CT	2,000		Cumbungi in Channels & Drains
Sulfomac 750		4	Weeds around structures
Surefire Fortune 500	1		Ants and wasps
Tordon	55		Suckers
Weedmaster DST	330		General weeds
Wetta (Hotup / Blood e Good) /Bowlem	3,040		With Goal and Amitrol
Total	**8,136**	**10,304**	

8.7 Reportable Incidents

There were five reportable water quality incidents in 2015/16 with Metolachlor being detected in October at both CODW (Wonga Station) and at DC800A. The residue level detected at CODW exceeded the Action Level, while the level at DC800A was above the Notification Level.

There were no discharges of noxious weeds or blue-green algae during the reporting period.

9. Appendices

A1 Piezometer pressure level data (raw data)

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
767	Argoon	12-60	123.40	0.08	123.32	24.30	4.07
770	Argoon	12-60	124.80	0.12	124.68	17.80	4.73
771	Argoon	12-60	125.63	0.02	125.61	26.00	3.72
772	Argoon	12-60	122.50	0.06	122.44	18.30	2.74
773	Argoon	12-60	122.40	0.11	122.29	25.30	2.505
774	Argoon	12-60	121.10	0.36	120.74	25.10	3.16
776	Argoon	0-12	122.20	0.04	122.16	7.30	3.9
778	Argoon	12-60	121.00	0.02	120.98	20.90	5.26
779	Argoon	12-60	120.20	0.25	119.95	18.60	3.89
987	Argoon	12-60	120.50	0.00	120.50	24.30	Not Read
992	Argoon	12-60	121.60	0.16	121.44	32.80	7.3
993	Argoon	0-12	121.50	0.07	121.43	8.40	3.91
1000	Argoon	12-60	118.90	0.06	118.84	24.90	Not Read
1001	Argoon	12-60	118.90	0.00	118.90	14.90	Not Read
1002	Argoon	12-60	118.50	0.00	118.50	15.20	2.57
1003	Argoon	12-60	117.70	0.00	117.70	28.10	4.35
1004	Argoon	12-60	117.80	0.20	117.60	15.00	4.58
1006	Argoon	12-60	117.30	0.27	117.03	20.50	3.42
1007	Argoon	0-12	117.10	0.17	116.93	6.10	3.03
1008	Argoon	12-60	118.30	0.05	118.25	18.00	4.03
1009	Argoon	12-60	118.80	0.08	118.72	18.10	2.84
1015	Argoon	12-60	119.80	0.35	119.45	16.90	4.05
1016	Argoon	0-12	119.60	0.16	119.44	8.00	3.82
1018	Argoon	12-60	118.80	0.00	118.80	30.10	3.75
1022	Argoon	0-12	119.10	0.15	118.95	6.50	2.75
1048	Argoon	12-60	119.30	0.00	119.30	16.20	Dry
1049	Argoon	0-12	118.50	0.10	118.40	11.40	5.85
1052	Argoon	12-60	117.40	0.12	117.28	17.50	5.12
1060	Argoon	0-12	118.40	0.17	118.23	5.10	Not Read
1061	Argoon	0-12	119.10	0.64	118.46	6.90	Not Read
1070	Argoon	12-60	119.10	0.08	119.02	37.60	14.14
1071	Argoon	12-60	116.50	0.08	116.42	13.50	9.64
1080	Argoon	0-12	118.90	0.07	118.83	6.40	2.82
1082	Argoon	0-12	117.49	0.21	117.28	3.75	5.21
1148	Argoon	12-60	114.40	0.15	114.25	32.30	18.72
1149	Argoon	12-60	114.60	0.42	114.18	13.50	5.84
1150	Argoon	12-60	114.10	0.18	113.92	31.80	19.06
1151	Argoon	12-60	114.60	0.37	114.23	16.40	14.65

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
1152	Argoon	0-12	118.70	0.15	118.55	9.80	3.84
1168	Argoon	12-60	115.20	0.14	115.06	29.70	11.38
1169	Argoon	12-60	115.53	0.08	115.45	15.60	8.71
1170	Argoon	12-60	116.43	0.04	116.39	14.60	4.45
1178	Argoon	12-60	113.60	0.10	113.50	31.20	17.21
1179	Argoon	0-12	113.80	0.26	113.54	5.60	Not Read
1180	Argoon	12-60	114.00	0.00	114.00	30.90	16.52
1181	Argoon	12-60	114.70	0.12	114.58	18.90	16.37
1190	Argoon	0-12	116.43	0.04	116.39	3.30	3.01
1256	Argoon	0-12	116.30	0.07	116.23	8.60	2.36
1257	Argoon	0-12	116.70	0.07	116.63	10.70	2.39
1262	Argoon	0-12	114.90	0.00	114.90	11.10	Not Read
1263	Argoon	12-60	115.64	0.10	115.54	20.40	12.55
1264	Argoon	12-60	115.90	0.35	115.55	15.00	12.13
1279	Argoon	0-12	119.11	0.34	118.77	7.40	3.62
1853	Argoon	12-60	114.10	0.26	113.84	19.70	19.32
1868	Argoon	12-60	114.30	0.17	114.13	22.20	18.94
1878	Argoon	12-60	114.80	0.12	114.68	18.60	Dry
2338	Argoon	12-60	119.72	0.12	119.60	25.00	4.8
2428	Argoon	0-12	119.92	0.38	119.54	9.50	2.76
2431	Argoon	0-12	118.90	0.24	118.56	9.10	1.9
2519	Argoon	0-12	122.70	0.00	122.70	7.70	4.42
2951	Argoon	0-12	124.00	0.13	123.87	6.90	4.65
3371	Argoon	0-12	119.81	0.38	119.43	8.70	4.06
4193	Argoon	0-12	123.31	0.11	123.20	7.60	4.79
4237	Argoon	12-60	121.00	0.07	120.93	22.90	5.39
4238	Argoon	12-60	122.20	0.05	122.15	24.40	3.65
4941	Argoon	12-60	117.70	0.34	117.36	23.10	4.34
4942	Argoon	12-60	116.65	0.18	116.47	12.20	2.69
12181	Argoon	12-60	118.69	0.25	118.57	15.00	2.77
12184	Argoon	12-60	119.46	0.24	119.41	16.50	2.08
12346	Argoon	12-60	119.30	0.10	119.20	21.30	3.4
12352	Argoon	12-60	115.81	0.20	115.61	27.00	14.44
12354	Argoon	12-60	115.76	0.26	115.50	24.30	7.71
12355	Argoon	12-60	115.80	0.23	115.57	28.00	4.79
12373	Argoon	12-60	110.39	0.32	110.07	20.00	16.52
12374	Argoon	12-60	112.61	0.44	112.17	23.30	Dry
12375	Argoon	12-60	110.26	0.19	110.07	24.00	Dry
12376	Argoon	12-60	113.34	0.15	113.19	32.00	21.04
12377	Argoon	12-60	117.44	0.13	117.31	22.00	5.39
12378	Argoon	12-60	119.28	0.19	119.09	30.00	Not Read

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12379	Argoon	12-60	116.71	0.32	116.39	23.30	7.5
12384	Argoon	12-60	119.28	0.27	119.01	16.00	8.02
12387	Argoon	0-12	116.66	0.20	116.46	10.50	7.32
12618	Argoon	12-60	120.70	0.05	120.65	18.80	2.04
12633	Argoon	12-60	122.20	0.02	122.18	29.80	4.33
12634	Argoon	12-60	122.50	0.28	122.23	17.50	0.44
12635	Argoon	12-60	122.20	0.22	121.98	18.80	0.36
12636	Argoon	12-60	121.90	0.27	121.63	18.80	3.37
12638	Argoon	12-60	121.30	0.16	121.14	16.30	5.1
12638	Argoon	12-60	121.30	0.23	121.07	47.80	16.16
12640	Argoon	12-60	120.40	0.18	120.22	18.80	4.65
12644	Argoon	12-60	120.90	0.22	120.68	19.00	3.76
12645	Argoon	0-12	120.90	0.03	120.87	3.50	1.12
12646	Argoon	12-60	121.20	0.24	120.96	21.50	3.43
12647	Argoon	12-60	123.10	0.05	123.05	20.30	3.1
12655	Argoon	12-60	122.00	0.32	121.68	13.00	3.17
12658	Argoon	12-60	121.30	0.06	121.04	24.50	6.18
12665	Argoon	12-60	119.80	0.20	119.60	30.00	4.63
12672	Argoon	12-60	119.20	0.06	119.14	20.30	3.36
12675	Argoon	12-60	118.90	0.07	118.83	23.30	Not Read
12681	Argoon	12-60	118.80	0.09	118.71	14.30	5.12
12682	Argoon	12-60	118.50	0.24	118.26	25.30	3.97
12683	Argoon	12-60	118.50	0.21	118.29	13.80	3.57
12684	Argoon	12-60	119.50	0.23	119.27	13.30	2.46
12686	Argoon	12-60	122.40	0.16	122.24	17.50	4.84
12687	Argoon	12-60	124.80	0.26	124.54	16.30	4.12
12688	Argoon	12-60	123.40	0.46	122.94	23.30	4.56
12689	Argoon	12-60	123.60	0.26	123.34	20.80	6.24
12690	Argoon	12-60	120.70	0.30	120.40	26.50	5.77
12691	Argoon	12-60	122.00	0.11	121.89	27.30	7.58
12701	Argoon	12-60	122.60	0.12	122.48	24.50	5.83
12711	Argoon	12-60	122.53	0.12	122.41	17.80	5.9
12854	Argoon	12-60	116.60	0.20	116.40	27.00	2.46
12855	Argoon	0-12	116.60	0.23	116.37	8.80	1.49
12880	Argoon	12-60	114.90	0.29	114.61	19.50	Not Read
12901	Argoon	0-12	114.90	0.21	114.69	4.80	Not Read
12943	Argoon	12-60	120.12	0.35	119.77	14.30	Not Read
12944	Argoon	0-12	120.12	0.25	119.87	2.28	Not Read
12957	Argoon	12-60	118.16	0.34	117.82	44.20	5.55
12958	Argoon	12-60	118.56	0.25	118.31	33.00	2.91
12960	Argoon	12-60	122.24	0.22	122.02	40.50	10.68

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12967	Argoon	12-60	123.22	0.17	123.05	20.00	4.65
12967	Argoon	12-60	123.22	0.15	123.07	24.50	1.89
12975	Argoon	12-60	116.10	0.19	115.91	25.00	12.4
13011	Argoon	0-12	120.12	0.09	120.03	5.00	1.33
13011	Argoon	0-12	120.23	0.20	120.03	6.70	1.45
13012	Argoon	0-12	119.92	0.17	119.75	5.00	1.26
13012	Argoon	0-12	119.92	0.18	119.74	7.00	1.28
13034	Argoon	0-12	116.23	0.65	115.58	7.08	5.11
13035	Argoon	0-12	116.47	0.21	116.26	5.14	Dry
13036	Argoon	0-12	116.72	0.26	116.46	7.34	Not Read
13037	Argoon	0-12	115.86	0.53	115.33	7.80	6.43
13038	Argoon	12-60	116.22	0.67	115.55	15.44	Not Read
13040	Argoon	12-60	115.46	0.35	115.11	16.19	Not Read
1	Boona	12-60	128.60	0.08	128.52	20.60	17.98
4	Boona	12-60	128.90	0.38	128.52	24.70	17.24
5	Boona	12-60	128.00	0.20	127.80	20.60	16.2
10	Boona	12-60	128.00	0.50	127.50	21.60	10
17	Boona	12-60	124.40	0.20	124.20	27.00	17.35
19	Boona	12-60	124.30	0.55	123.75	18.50	Dry
25	Boona	12-60	125.00	0.00	125.00	26.90	Dry
94	Boona	12-60	128.20	0.60	127.60	20.60	9.88
96	Boona	12-60	127.30	0.25	127.05	24.40	13.38
200	Boona	12-60	128.40	0.10	128.30	25.30	15.54
201	Boona	12-60	128.40	0.10	128.30	32.40	10.58
202	Boona	12-60	125.80	0.35	125.45	18.70	12.18
203	Boona	12-60	124.80	0.35	124.45	26.90	16.45
204	Boona	12-60	127.60	0.40	127.20	34.90	11.34
207	Boona	12-60	124.10	0.40	123.70	25.90	17.69
208	Boona	12-60	124.30	0.30	124.00	35.40	18.58
376	Boona	12-60	127.30	0.44	126.86	31.90	16.62
392	Boona	12-60	120.90	0.90	120.00	14.20	10.12
396	Boona	12-60	122.10	0.73	121.37	32.50	12.04
437	Boona	12-60	119.90	0.10	119.80	26.90	10.84
443	Boona	12-60	121.10	0.28	120.82	26.10	11.24
502	Boona	12-60	119.30	0.82	118.48	28.40	11.08
503	Boona	12-60	120.50	0.20	120.30	27.60	14.34
504	Boona	12-60	120.40	0.33	120.07	28.80	16.34
507	Boona	12-60	120.60	0.20	120.40	39.00	22.26
508	Boona	12-60	120.50	0.18	120.32	25.40	22.62
509	Boona	12-60	119.20	0.05	119.15	21.90	20.02
510	Boona	12-60	120.90	0.27	120.63	23.20	Dry

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
520	Boona	12-60	121.80	0.28	121.52	21.60	13.07
521	Boona	12-60	123.40	0.54	122.86	21.60	15.36
594	Boona	12-60	121.80	0.41	121.39	17.70	12.46
595	Boona	12-60	122.90	0.20	122.70	21.20	14.67
596	Boona	12-60	123.10	0.25	122.85	23.30	14.97
598	Boona	12-60	121.70	0.00	121.70	22.90	14.48
614	Boona	12-60	122.70	0.45	122.25	15.50	Dry
615	Boona	12-60	123.60	0.12	123.30	15.80	Dry
617	Boona	12-60	124.90	0.60	124.30	24.90	8.26
618	Boona	12-60	124.60	0.46	124.14	12.60	8.59
619	Boona	12-60	124.90	0.00	124.90	24.10	8.9
620	Boona	12-60	123.90	0.30	123.60	26.90	9.73
621	Boona	12-60	126.90	0.23	126.67	14.00	13.3
622	Boona	12-60	125.90	0.63	125.27	22.10	12.27
623	Boona	12-60	125.30	0.47	124.83	12.40	7.73
624	Boona	12-60	127.20	0.00	127.20	19.80	10.57
625	Boona	12-60	123.30	0.13	123.17	26.90	11.7
629	Boona	12-60	129.80	0.30	129.50	29.40	15.67
631	Boona	12-60	130.30	0.13	130.17	31.30	20.11
635	Boona	12-60	129.60	0.31	129.29	31.90	19.19
636	Boona	12-60	129.20	0.26	128.94	16.80	12.89
637	Boona	12-60	128.90	0.24	128.66	28.20	11.42
643	Boona	12-60	127.30	0.27	127.03	21.90	13.83
644	Boona	12-60	127.30	0.45	126.85	12.30	Dry
645	Boona	0-12	126.60	0.32	126.28	11.90	8.48
647	Boona	0-12	128.50	0.25	128.25	11.90	Not Read
648	Boona	12-60	127.90	0.60	127.30	10.50	Dry
651	Boona	12-60	126.40	0.50	125.90	12.90	10.2
652	Boona	12-60	125.90	0.80	125.10	12.60	Dry
653	Boona	12-60	127.00	0.00	127.00	21.80	11.8
654	Boona	12-60	126.50	0.25	126.25	32.50	17.77
656	Boona	12-60	126.40	0.00	126.40	27.30	5.43
661	Boona	12-60	128.60	0.19	128.41	14.40	14.15
662	Boona	12-60	126.50	0.28	126.22	13.80	12.39
667	Boona	0-12	127.00	0.70	126.30	7.50	5.66
697	Boona	12-60	123.40	0.54	122.86	21.90	18.73
698	Boona	12-60	123.50	0.19	123.31	20.60	Not Read
725	Boona	12-60	126.30	0.25	126.05	27.10	Not Read
726	Boona	0-12	126.60	0.55	126.05	5.10	Not Read
730	Boona	12-60	124.90	0.12	124.78	23.90	20.58
732	Boona	12-60	124.90	0.28	124.62	23.20	Not Read

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
734	Boona	12-60	124.70	0.14	124.56	18.90	Not Read
738	Boona	0-12	126.50	0.25	126.25	10.90	10.85
739	Boona	12-60	126.20	0.40	125.80	18.30	10.4
752	Boona	0-12	127.30	0.00	126.94	11.80	10.9
790	Boona	0-12	127.30	0.25	127.05	9.40	Dry
804	Boona	12-60	123.30	0.30	123.00	32.50	16.86
805	Boona	0-12	123.30	0.25	123.05	11.80	Dry
806	Boona	12-60	123.50	0.27	123.23	34.70	16.1
807	Boona	12-60	123.30	0.05	123.25	20.40	16.05
834	Boona	12-60	127.30	0.15	127.15	36.40	18.99
835	Boona	0-12	127.30	0.15	127.15	5.90	1.55
836	Boona	12-60	126.20	0.20	126.00	23.60	16.32
837	Boona	0-12	126.30	0.25	126.05	11.50	Dry
839	Boona	12-60	130.50	0.10	130.40	22.60	13.2
843	Boona	12-60	127.30	0.10	127.20	21.70	18.3
845	Boona	12-60	127.40	0.00	127.40	23.50	18.56
846	Boona	12-60	126.80	0.05	126.75	20.90	Dry
946	Boona	12-60	125.22	0.26	124.96	23.30	18.04
949	Boona	0-12	128.60	0.17	128.43	10.50	Dry
952	Boona	12-60	126.00	0.00	126.00	30.30	14.9
954	Boona	12-60	126.60	0.00	126.60	14.10	Dry
964	Boona	12-60	124.20	0.13	124.07	27.50	15.8
966	Boona	12-60	124.90	0.10	124.80	21.00	18.08
967	Boona	12-60	123.80	0.20	123.60	26.60	14.53
968	Boona	12-60	129.70	0.16	129.54	24.80	13.02
969	Boona	12-60	130.00	0.45	129.55	14.30	11.97
974	Boona	12-60	128.30	0.23	128.07	25.70	13.55
977	Boona	12-60	129.90	0.13	129.77	24.00	18.25
980	Boona	0-12	128.32	1.10	127.22	11.60	10.85
983	Boona	12-60	130.10	0.00	130.10	33.20	19.56
985	Boona	12-60	126.60	0.19	126.41	30.60	Dry
986	Boona	0-12	126.70	0.30	126.40	11.10	Dry
1154	Boona	12-60	122.20	0.00	122.20	27.90	12.56
1165	Boona	12-60	122.50	0.23	122.27	32.30	13.87
1166	Boona	0-12	122.70	0.05	122.65	9.20	8.3
1177	Boona	12-60	121.30	0.08	121.22	31.80	11.16
1596	Boona	0-12	123.50	0.12	123.38	9.70	Dry
1616	Boona	0-12	121.80	0.16	121.64	5.60	Dry
1635	Boona	12-60	126.20	0.15	126.05	13.60	11.78
1659	Boona	12-60	128.60	0.12	128.48	27.50	13
1660	Boona	12-60	128.20	0.10	128.10	30.90	13.2

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
1661	Boona	0-12	128.40	0.27	128.13	12.00	Dry
1740	Boona	12-60	118.90	0.34	118.56	25.70	20.96
1780	Boona	0-12	123.20	0.20	123.00	10.80	10.42
2141	Boona	12-60	130.64	0.30	130.34	22.40	17.92
2142	Boona	12-60	130.60	0.17	130.43	23.30	17.45
2288	Boona	0-12	123.00	0.15	122.85	11.10	Dry
2377	Boona	0-12	119.85	0.25	119.60	10.50	Dry
2456	Boona	0-12	120.61	0.20	120.41	10.80	Dry
2458	Boona	0-12	119.61	0.28	119.33	11.10	Dry
2723	Boona	0-12	123.05	0.22	122.83	7.40	6.63
2727	Boona	0-12	122.83	0.24	122.59	5.20	4.36
4250	Boona	12-60	125.30	0.28	125.02	20.10	10.26
4372	Boona	0-12	122.29	0.00	122.29	9.10	8.78
4375	Boona	12-60	122.29	0.44	121.85	18.20	10.76
4546	Boona	12-60	121.19	0.35	120.84	19.40	14.11
4547	Boona	12-60	121.30	0.23	121.07	19.10	15.49
4548	Boona	12-60	128.00	0.35	127.65	18.30	Dry
4558	Boona	12-60	127.10	0.20	126.90	21.50	16.63
4912	Boona	12-60	129.20	0.20	129.00	13.70	Dry
4914	Boona	0-12	128.45	0.32	128.13	6.90	2.81
5588	Boona	12-60	118.81	0.16	118.65	25.50	Not Read
5911	Boona	12-60	115.97	0.29	115.68	13.10	Not Read
5915	Boona	0-12	116.34	0.18	116.16	8.80	Not Read
5935	Boona	12-60	116.57	0.15	116.42	20.70	11.65
6102	Boona	0-12	117.39	0.22	117.17	11.60	Dry
9320	Boona	12-60	129.49	0.00	129.49	13.80	Dry
9323	Boona	12-60	128.17	0.18	127.99	14.20	10.54
9324	Boona	12-60	128.58	0.20	128.38	14.10	Dry
9326	Boona	12-60	123.66	0.20	123.46	13.40	11.82
9329	Boona	0-12	130.20	0.05	130.15	9.20	Dry
9331	Boona	0-12	124.95	0.33	124.62	7.10	Dry
9376	Boona	0-12	128.25	0.27	127.98	4.50	Dry
9379	Boona	12-60	127.90	0.21	127.69	12.40	9.07
12166	Boona	12-60	122.85	0.30	122.55	31.83	17.7
12171	Boona	12-60	122.65	0.07	122.58	16.00	11.41
12188	Boona	0-12	121.37	0.10	121.27	9.70	8.09
12190	Boona	12-60	121.73	0.26	121.47	22.01	17.84
12191	Boona	12-60	121.23	0.15	121.08	22.00	19.82
12192	Boona	0-12	120.91	0.14	120.77	10.15	8.96
12194	Boona	0-12	119.59	0.24	119.37	9.25	7.48
12197	Boona	12-60	127.20	0.22	126.98	19.02	18.08

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12201	Boona	12-60	128.92	0.25	128.67	23.60	2.1
12202	Boona	12-60	129.31	0.25	129.06	32.23	17.51
12297	Boona	12-60	124.00	0.21	123.79	21.00	Destroyed
12298	Boona	0-12	124.02	0.16	123.86	8.90	10.54
12299	Boona	12-60	124.77	0.20	124.57	22.20	11.9
12311	Boona	0-12	127.20	0.15	127.05	10.50	Not Read
12312	Boona	0-12	127.13	0.27	126.86	6.00	Not Read
12313	Boona	12-60	126.64	0.29	126.35	19.00	Not Read
12314	Boona	0-12	126.63	0.26	126.37	8.20	7.03
12315	Boona	0-12	126.62	0.22	126.40	6.00	4.66
12316	Boona	12-60	127.07	0.16	126.91	21.00	17.49
12317	Boona	0-12	127.09	0.39	126.70	6.60	3.69
12321	Boona	0-12	128.72	0.19	128.53	11.30	10.01
12323	Boona	0-12	127.53	0.37	127.16	9.50	8.21
12332	Boona	0-12	128.32	0.30	128.02	9.00	Not Read
12333	Boona	0-12	127.51	0.26	127.25	9.40	Dry
12334	Boona	0-12	128.69	0.22	128.47	8.50	7.78
12347	Boona	12-60	119.93	0.22	119.71	15.90	7.48
12349	Boona	12-60	121.16	0.26	120.90	16.30	9.12
12350	Boona	0-12	118.68	0.14	118.54	6.00	Dry
12381	Boona	0-12	124.69	0.30	124.39	9.00	Dry
12383	Boona	12-60	126.83	0.13	126.70	15.50	13.3
12389	Boona	12-60	130.48	0.23	130.25	21.90	15.29
12391	Boona	12-60	131.28	0.25	131.03	17.00	15.01
12393	Boona	0-12	125.20	0.00	125.20	10.00	8.2
12394	Boona	0-12	125.59	1.00	124.59	12.00	10.26
12401	Boona	12-60	127.82	0.15	127.67	15.00	11.8
12402	Boona	12-60	125.99	0.16	125.83	19.50	8.14
12403	Boona	0-12	127.05	0.28	126.77	9.80	Dry
12404	Boona	12-60	125.86	0.27	125.59	12.70	11.83
12405	Boona	12-60	125.94	0.29	125.65	14.50	12.09
12406	Boona	12-60	125.38	0.22	125.16	17.00	12.48
12407	Boona	12-60	126.24	0.23	126.01	12.10	Destroyed
12409	Boona	0-12	125.84	0.05	125.79	11.30	Dry
12430	Boona	0-12	126.34	0.25	126.09	9.80	Destroyed
12431	Boona	0-12	125.97	0.20	125.77	9.80	11.94
12432	Boona	12-60	125.37	0.04	125.33	17.10	11.56
12434	Boona	0-12	126.16	0.18	125.98	10.80	9.58
12436	Boona	0-12	123.32	0.22	123.10	11.30	7.08
12437	Boona	0-12	124.34	0.11	124.23	8.00	7.59
12438	Boona	0-12	123.89	0.10	123.79	8.80	7.8

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12512	Boona	12-60	129.21	0.34	128.87	22.50	17.86
12514	Boona	12-60	131.26	0.34	130.92	16.30	13.81
12528	Boona	12-60	126.96	0.20	126.76	17.50	Dry
12529	Boona	0-12	127.18	0.10	127.08	10.30	Dry
12534	Boona	12-60	126.72	0.17	126.55	15.80	7.27
12542	Boona	12-60	125.80	0.00	125.32	11.77	Dry
12564	Boona	12-60	125.60	0.30	125.30	19.50	17.34
12567	Boona	12-60	127.70	0.25	127.45	18.00	15.05
12568	Boona	0-12	128.70	0.10	128.60	12.00	Dry
12569	Boona	12-60	124.10	0.17	123.93	12.16	8.13
12570	Boona	0-12	123.40	0.30	123.10	11.60	10.54
12571	Boona	0-12	123.10	0.16	122.94	11.00	8.39
12572	Boona	0-12	122.60	0.25	122.23	11.30	7.35
12573	Boona	12-60	123.10	0.20	122.90	26.50	Not Read
12574	Boona	0-12	123.10	0.10	123.00	11.30	Not Read
12576	Boona	12-60	121.60	0.20	121.40	14.30	Not Read
12577	Boona	0-12	121.30	0.20	121.10	11.80	Not Read
12578	Boona	0-12	121.00	0.38	120.62	11.30	Not Read
12580	Boona	0-12	119.60	0.13	119.47	8.80	Not Read
12619	Boona	12-60	119.80	0.18	119.62	17.30	Not Read
12622	Boona	12-60	119.66	0.16	119.50	17.80	Not Read
12623	Boona	12-60	120.51	0.30	120.21	24.50	9.28
12708	Boona	0-12	122.64	0.18	122.46	11.30	9.61
12848	Boona	12-60	122.47	0.20	122.27	21.80	Not Read
12962	Boona	12-60	132.16	0.35	131.81	33.00	19.8
12972	Boona	12-60	125.06	0.17	124.89	18.50	15.53
12972	Boona	12-60	125.05	0.18	124.87	48.00	8.62
12998	Boona	12-60	120.48	0.17	120.31	26.50	15.93
12999	Boona	12-60	121.65	0.21	121.44	23.00	15.77
13000	Boona	12-60	121.93	0.11	121.82	23.00	14.67
13001	Boona	12-60	123.25	0.16	123.09	20.50	16.15
13002	Boona	12-60	117.62	0.24	117.38	21.50	10.1
13003	Boona	12-60	116.52	0.23	116.29	25.18	10.7
13004	Boona	12-60	116.82	0.29	116.53	26.00	23.79
13005	Boona	12-60	118.49	0.32	118.17	17.80	Dry
496	Coly	12-60	118.90	1.30	117.60	27.10	2.57
498	Coly	12-60	120.50	0.10	120.40	20.50	5.42
499	Coly	12-60	118.20	0.38	117.82	23.80	3.52
501	Coly	12-60	119.40	0.47	118.93	16.00	5.75
626	Coly	12-60	122.90	0.23	122.67	25.50	8.02
627	Coly	0-12	122.80	0.13	122.67	9.60	7.34

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
630	Coly	12-60	128.20	0.56	127.64	19.30	9.7
655	Coly	12-60	127.50	0.24	127.26	35.90	9.92
657	Coly	12-60	126.90	0.00	126.90	36.50	10.74
658	Coly	12-60	124.00	0.34	123.66	22.30	2.06
659	Coly	0-12	124.30	0.63	123.67	10.20	5.61
663	Coly	0-12	125.20	0.10	125.10	7.30	6.55
664	Coly	12-60	125.90	0.16	125.74	19.10	9.11
665	Coly	12-60	123.20	0.15	123.05	20.10	6.2
668	Coly	12-60	123.20	0.00	123.20	26.50	8.71
669	Coly	0-12	123.00	0.00	123.00	11.00	7.52
673	Coly	12-60	125.10	0.05	125.05	24.90	4.54
676	Coly	12-60	125.20	0.14	125.06	23.40	3.5
677	Coly	12-60	125.00	0.05	124.95	15.50	3.5
678	Coly	12-60	126.70	0.13	126.57	23.60	43.77
679	Coly	12-60	126.70	0.50	126.20	13.70	4.37
680	Coly	12-60	126.10	0.00	126.10	23.10	4.26
681	Coly	12-60	125.90	0.00	125.90	18.70	4.23
682	Coly	0-12	125.80	0.00	125.80	10.50	4.1
683	Coly	12-60	126.50	0.00	126.50	23.80	4.85
684	Coly	0-12	126.50	0.00	126.50	11.20	3.8
685	Coly	12-60	127.40	0.10	127.30	12.70	5.9
687	Coly	12-60	127.60	0.00	127.60	22.90	Not Read
688	Coly	12-60	127.80	0.20	127.60	13.70	7.18
689	Coly	12-60	128.00	0.60	127.40	26.10	12.19
690	Coly	12-60	127.90	0.26	127.64	27.70	10.92
691	Coly	12-60	126.70	0.13	126.57	20.70	8.92
692	Coly	12-60	126.70	0.20	126.50	15.80	Not Read
693	Coly	12-60	127.90	0.41	127.49	24.50	8.41
695	Coly	12-60	126.40	0.05	126.35	20.40	Not Read
696	Coly	12-60	126.90	0.22	126.68	58.50	18.25
700	Coly	12-60	123.10	0.17	122.93	24.60	2.54
701	Coly	12-60	123.20	0.30	122.90	17.10	0.53
702	Coly	0-12	122.90	0.13	122.77	11.20	2.5
704	Coly	12-60	123.70	0.05	123.65	24.30	3.6
708	Coly	12-60	123.80	0.08	123.72	26.20	3.78
709	Coly	12-60	123.90	0.30	123.60	19.40	3.7
711	Coly	12-60	125.60	0.00	125.60	27.10	4.39
753	Coly	12-60	126.50	0.40	126.10	26.70	8.59
757	Coly	12-60	126.90	0.32	126.58	30.40	7.95
758	Coly	12-60	126.90	0.35	126.55	15.80	9.06
762	Coly	12-60	126.10	0.00	126.10	25.90	4.09

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
763	Coly	12-60	125.80	0.10	125.70	17.00	4.12
764	Coly	12-60	124.80	0.10	124.70	20.90	4.34
765	Coly	12-60	122.40	0.00	122.40	15.60	2.7
766	Coly	0-12	122.30	0.00	122.30	3.90	Dry
768	Coly	12-60	122.40	0.05	122.35	21.40	2.71
769	Coly	12-60	122.70	0.30	122.40	16.60	2.56
789	Coly	12-60	128.10	0.44	127.66	23.70	9.64
791	Coly	0-12	124.10	0.00	124.10	10.10	4.5
792	Coly	0-12	124.10	0.06	124.04	4.90	4.52
793	Coly	0-12	124.20	0.05	124.15	4.50	3.655
794	Coly	0-12	124.30	0.12	124.18	4.20	5.9
798	Coly	12-60	122.80	0.15	122.65	19.10	4.88
799	Coly	0-12	122.90	0.27	122.63	10.90	4.86
800	Coly	12-60	123.30	0.13	123.17	30.40	4.67
801	Coly	0-12	123.30	0.18	123.12	8.30	4.27
802	Coly	12-60	121.20	0.00	121.20	15.00	4.32
803	Coly	0-12	121.20	0.00	121.20	7.70	4.38
809	Coly	12-60	119.79	0.00	119.79	25.85	4.82
810	Coly	12-60	119.82	0.08	119.74	17.10	5.08
813	Coly	12-60	119.10	0.35	118.75	25.20	11.31
814	Coly	0-12	118.70	0.00	118.70	7.40	5.18
815	Coly	12-60	117.50	0.00	117.50	28.70	14.15
821	Coly	12-60	119.20	0.02	119.18	25.90	4.9
822	Coly	0-12	118.90	0.02	118.88	9.80	4.86
826	Coly	0-12	114.90	0.25	114.65	5.80	Dry
828	Coly	0-12	114.90	0.86	114.60	9.80	8.54
830	Coly	12-60	116.90	0.34	116.56	19.50	9.36
831	Coly	0-12	116.90	0.05	116.85	6.30	4.77
841	Coly	12-60	115.00	0.12	114.88	37.10	16.91
1012	Coly	12-60	124.50	0.00	124.50	20.80	4.02
1050	Coly	12-60	117.60	0.18	117.42	33.20	3.79
1896	Coly	12-60	116.51	0.15	116.36	26.20	11.36
1897	Coly	12-60	117.50	0.15	117.29	26.40	11.33
6804	Coly	12-60	128.47	0.00	128.47	28.00	Not Read
9317	Coly	0-12	126.74	1.18	125.56	5.60	Dry
9318	Coly	0-12	125.67	0.13	125.54	4.70	3.38
9325	Coly	12-60	127.08	0.11	126.97	16.40	8.47
9327	Coly	12-60	125.01	0.40	124.61	31.20	Not Read
9349	Coly	0-12	121.58	0.34	121.24	9.50	2.34
9351	Coly	0-12	122.43	0.20	122.23	4.00	Not Read
9352	Coly	0-12	122.87	0.10	122.77	8.50	3.7

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
9353	Coly	0-12	123.31	0.16	123.15	6.40	4.2
9354	Coly	0-12	123.25	0.12	123.13	6.70	4.18
9355	Coly	0-12	122.75	0.27	122.50	6.40	3.75
9356	Coly	12-60	122.26	0.12	122.14	13.60	3.18
9357	Coly	0-12	122.10	0.12	121.98	4.30	2.68
9358	Coly	12-60	121.56	0.22	121.34	12.95	3.36
9359	Coly	0-12	122.73	0.00	122.73	6.90	3.3
9380	Coly	0-12	124.52	0.30	124.22	11.50	3.5
9381	Coly	0-12	124.42	0.22	124.20	11.30	3.54
9388	Coly	0-12	121.45	0.25	121.20	11.50	0.99
9393	Coly	0-12	122.13	0.10	122.03	5.18	0.92
9394	Coly	0-12	120.74	0.25	120.49	7.50	0.21
9395	Coly	0-12	121.66	0.16	121.50	10.80	2.04
9396	Coly	0-12	122.37	0.15	122.22	9.40	2.12
9397	Coly	12-60	123.38	0.28	123.23	16.50	2.58
9398	Coly	0-12	123.35	0.12	123.23	6.77	2.14
9399	Coly	0-12	122.36	0.20	122.16	5.18	Not Read
12101	Coly	0-12	121.85	0.19	121.66	3.05	Not Read
12102	Coly	0-12	122.90	0.14	122.76	5.50	Not Read
12103	Coly	0-12	126.38	0.14	126.24	3.60	0.34
12104	Coly	0-12	127.07	0.30	126.77	3.20	0.14
12116	Coly	0-12	124.37	0.00	124.37	6.30	3.36
12178	Coly	0-12	121.52	0.16	121.36	9.35	4.29
12179	Coly	0-12	120.36	0.23	120.13	6.10	3.97
12180	Coly	0-12	121.23	0.23	121.00	7.21	4.98
12199	Coly	12-60	123.49	0.02	123.47	27.17	7.43
12200	Coly	12-60	123.57	0.17	123.40	14.38	6.53
12245	Coly	12-60	129.33	0.21	129.12	18.30	16.2
12247	Coly	12-60	128.81	0.18	128.63	23.10	14.79
12250	Coly	12-60	127.94	0.16	127.78	24.40	15.32
12251	Coly	12-60	128.32	0.13	128.19	22.40	13.64
12253	Coly	12-60	127.42	0.46	126.96	20.06	Not Read
12272	Coly	12-60	129.17	0.14	129.03	24.60	14.92
12351	Coly	0-12	120.62	0.26	120.36	7.20	5.37
12395	Coly	12-60	125.88	0.17	125.71	15.60	4.97
12396	Coly	0-12	125.67	0.05	125.62	6.90	1.97
12397	Coly	12-60	124.37	0.17	124.20	13.00	3.59
12398	Coly	12-60	123.36	0.17	123.19	13.00	6.49
12399	Coly	12-60	126.07	0.42	125.65	17.70	4.53
12410	Coly	0-12	126.89	0.28	126.61	10.10	4.13
12411	Coly	0-12	126.38	0.14	126.24	9.00	3.77

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12412	Coly	0-12	124.67	0.29	124.38	11.80	5.29
12413	Coly	12-60	126.41	0.27	126.14	19.00	4.65
12441	Coly	12-60	127.06	0.17	126.89	18.10	6.85
12442	Coly	12-60	126.87	0.20	126.67	18.50	5.98
12445	Coly	12-60	126.19	0.80	126.19	19.50	3.65
12448	Coly	0-12	126.15	0.38	125.77	3.50	Dry
12449	Coly	0-12	126.34	0.00	126.34	2.87	Not Read
12481	Coly	0-12	124.83	0.10	124.73	11.70	7.2
12482	Coly	0-12	124.53	0.17	124.36	11.30	4.23
12483	Coly	12-60	124.68	0.18	124.50	12.80	3.4
12484	Coly	12-60	124.88	0.22	124.66	20.30	6.24
12485	Coly	12-60	124.91	0.32	124.59	20.00	0.56
12486	Coly	0-12	124.93	0.30	124.63	9.30	4.36
12487	Coly	0-12	125.89	0.12	125.77	10.30	5.28
12488	Coly	0-12	126.17	0.21	125.96	7.00	6.43
12489	Coly	12-60	126.19	0.00	126.19	14.20	9.21
12490	Coly	12-60	126.39	0.12	126.27	12.80	8.91
12491	Coly	12-60	126.62	0.15	126.47	14.30	8.95
12555	Coly	0-12	123.30	0.15	123.15	11.30	4.69
12556	Coly	12-60	124.30	1.20	123.10	13.80	4
12557	Coly	12-60	122.60	0.15	122.45	17.80	3.9
12558	Coly	12-60	121.60	0.21	121.39	20.80	3.97
12559	Coly	12-60	120.90	0.15	120.75	22.00	3.35
12560	Coly	12-60	121.10	0.18	120.92	14.00	3.68
12562	Coly	12-60	120.90	0.04	120.86	14.50	4.17
12563	Coly	12-60	120.20	1.12	120.11	15.00	4.06
12620	Coly	12-60	121.80	0.30	121.50	17.00	0.66
12621	Coly	12-60	121.53	0.10	121.43	15.80	3.92
12624	Coly	0-12	121.60	0.13	121.47	10.80	5.3
12625	Coly	0-12	121.90	0.20	121.60	8.80	4.23
12626	Coly	0-12	122.20	0.08	122.12	9.50	4.16
12627	Coly	0-12	122.20	0.19	122.01	8.80	4.32
12628	Coly	12-60	123.30	0.60	123.15	16.00	7.05
12629	Coly	12-60	121.30	0.12	121.18	18.80	3.18
12630	Coly	12-60	121.80	0.15	121.58	17.30	4.09
12631	Coly	12-60	121.90	0.30	121.60	18.50	4
12648	Coly	12-60	123.00	0.18	122.82	23.30	3.37
12666	Coly	12-60	120.10	0.21	119.89	25.80	5.11
12676	Coly	12-60	127.40	0.14	127.26	16.30	5.43
12677	Coly	12-60	126.40	0.15	126.25	20.00	3.44
12678	Coly	12-60	125.50	0.22	125.28	19.30	3.61

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12679	Coly	12-60	124.50	0.16	124.34	23.80	3.87
12680	Coly	12-60	123.40	0.10	123.30	24.30	3.57
12709	Coly	12-60	122.71	0.11	122.60	14.80	6.76
12710	Coly	0-12	124.07	0.00	124.07	11.30	6.36
12751	Coly	12-60	123.29	0.00	123.29	14.00	7.55
12753	Coly	12-60	124.70	0.80	123.70	16.30	8
12759	Coly	0-12	122.15	0.15	122.00	8.30	5.85
12760	Coly	12-60	123.10	0.08	123.02	18.30	7.48
12841	Coly	12-60	123.30	0.25	123.05	18.30	6.33
12842	Coly	12-60	123.40	0.25	123.15	15.40	6.01
12843	Coly	12-60	123.40	0.27	123.13	18.90	5.02
12844	Coly	12-60	123.40	0.22	123.18	17.30	8.58
12845	Coly	12-60	123.00	0.19	122.81	22.80	4.18
12846	Coly	12-60	124.80	0.28	124.52	17.80	8.14
12963	Coly	12-60	130.65	0.15	130.50	19.00	Not Read
12963	Coly	12-60	130.67	0.15	130.52	41.50	Not Read
12964	Coly	12-60	130.88	0.11	130.77	22.00	Not Read
12966	Coly	0-12	121.22	0.23	120.99	11.00	6.14
12966	Coly	12-60	121.20	0.25	120.95	20.00	6.15
12966	Coly	12-60	121.19	0.29	120.90	27.50	8.31
12968	Coly	12-60	132.02	0.35	131.67	20.50	Not Read
12968	Coly	12-60	131.96	0.29	131.67	42.00	Not Read
12969	Coly	12-60	130.92	0.22	130.66	24.50	Not Read
12970	Coly	12-60	130.26	0.22	130.04	19.50	Not Read
12973	Coly	0-12	125.92	0.19	125.73	7.50	4.09
12973	Coly	12-60	125.84	0.06	125.78	23.00	4.17
12973	Coly	12-60	125.90	0.10	125.80	44.50	17.41
12976	Coly	0-12	127.93	0.18	127.75	1.90	1.66
12976	Coly	12-60	127.93	0.22	127.71	19.70	8.16
12977	Coly	0-12	127.93	0.08	127.85	4.60	0.96
12978	Coly	0-12	127.33	0.13	127.20	8.00	0.3
12979	Coly	0-12	127.57	0.08	127.49	6.50	0.96
12984	Coly	0-12	126.66	0.20	126.46	11.80	4.4
12985	Coly	0-12	127.31	0.11	127.20	10.00	4.08
12986	Coly	0-12	127.91	0.14	127.77	9.30	4.5
12987	Coly	0-12	125.61	0.05	125.56	8.30	4.63
12988	Coly	0-12	125.10	0.10	125.00	9.20	4.64
12989	Coly	0-12	125.43	0.10	125.33	8.80	4.5
12990	Coly	12-60	125.93	0.16	125.77	12.50	2.25
12991	Coly	0-12	125.15	0.25	124.90	10.00	4.15
12992	Coly	0-12	125.33	0.17	125.16	9.60	4.33

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12993	Coly	12-60	125.87	0.21	125.66	16.00	4.18
12994	Coly	0-12	125.12	0.13	124.99	10.45	4.19
12995	Coly	0-12	125.22	0.13	125.09	7.10	3.7
12996	Coly	0-12	119.32	0.19	119.13	8.90	Not Read
12996	Coly	12-60	119.32	0.10	119.22	20.60	Not Read
13007	Coly	0-12	116.80	0.17	116.63	8.50	2.56
13008	Coly	0-12	119.62	0.00	119.62	11.40	5.07
13009	Coly	0-12	119.01	0.17	118.84	7.00	2.23
13016	Coly	0-12	118.01	1.00	117.79	10.00	4.68
13019	Coly	0-12	118.96	0.20	118.76	10.50	6.31
13020	Coly	0-12	120.08	0.28	119.80	7.00	5.47
13020	Coly	12-60	120.09	0.23	119.86	13.50	5.69
13022	Coly	12-60	121.71	0.54	121.17	13.00	6.32
13023	Coly	12-60	119.50	0.32	118.96	16.00	6.09
13024	Coly	12-60	116.88	0.70	116.68	13.50	2.9
13030	Coly	12-60	119.80	0.27	119.53	13.50	6.91
13031	Coly	0-12	118.59	0.32	118.27	9.00	5.76
13041	Coly	12-60	117.32	0.65	116.67	20.80	Not Read
13042	Coly	12-60	116.69	0.67	116.02	17.30	Not Read
13043	Coly	12-60	116.55	0.40	116.15	18.10	Not Read
755	Yamma	0-12	126.90	0.20	126.70	9.30	7.38
756	Yamma	0-12	127.00	0.46	126.54	4.40	Dry
781	Yamma	0-12	126.70	0.21	126.49	8.50	6.63
4109	Yamma	12-60	125.38	0.25	125.65	17.90	7.92
4113	Yamma	0-12	123.88	0.37	123.51	8.50	7.03
4131	Yamma	12-60	124.91	0.33	124.64	26.20	6.25
4137	Yamma	0-12	126.56	0.42	126.14	8.50	Dry
4209	Yamma	12-60	125.60	0.30	125.30	12.20	6.15
4239	Yamma	12-60	121.10	0.18	120.92	22.90	2.83
4241	Yamma	12-60	124.66	0.19	124.47	17.10	4.63
4242	Yamma	0-12	124.58	0.24	124.34	9.90	3.88
4921	Yamma	0-12	119.30	0.17	119.13	10.70	2.74
4925	Yamma	12-60	120.70	0.40	120.30	12.30	3.22
4927	Yamma	0-12	120.50	0.12	120.38	11.70	2.2
4929	Yamma	0-12	122.30	0.24	122.06	5.40	2.65
4930	Yamma	12-60	121.50	0.40	121.10	13.70	2.18
4934	Yamma	0-12	118.54	0.05	118.49	10.80	2.51
4935	Yamma	0-12	118.00	0.28	117.72	10.80	2.34
4936	Yamma	0-12	117.84	0.27	117.57	11.10	3.15
4937	Yamma	12-60	117.95	0.24	117.71	25.20	2.85
4938	Yamma	0-12	117.89	0.12	117.77	11.00	3.15

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
4944	Yamma	0-12	123.88	0.28	123.60	8.40	3.84
4956	Yamma	12-60	116.80	0.43	116.37	17.40	4.89
4960	Yamma	12-60	118.60	0.12	118.48	28.70	4.35
4962	Yamma	12-60	118.30	0.30	118.00	12.80	2.62
4963	Yamma	0-12	118.60	0.13	118.47	9.70	3.37
4999	Yamma	0-12	119.49	0.37	119.12	11.30	5.44
5000	Yamma	12-60	119.40	0.13	119.27	14.90	5.23
5001	Yamma	12-60	119.61	0.07	119.54	17.40	6.02
5002	Yamma	0-12	119.97	0.42	119.55	10.50	6.7
5003	Yamma	0-12	117.56	0.22	117.34	3.50	Not Read
5004	Yamma	12-60	118.13	0.14	117.99	15.00	Not Read
5011	Yamma	12-60	120.87	0.29	120.58	17.10	4.48
5436	Yamma	0-12	121.97	0.25	121.72	7.30	5.61
5439	Yamma	0-12	122.03	0.19	121.84	4.30	1.83
5443	Yamma	12-60	124.70	0.15	124.55	24.40	2.97
5447	Yamma	12-60	123.83	0.13	123.70	23.40	3.36
5448	Yamma	0-12	122.90	0.00	122.90	11.00	1.72
5449	Yamma	0-12	122.63	0.32	122.31	9.40	1.46
5528	Yamma	0-12	123.04	0.17	122.87	8.20	4.95
5577	Yamma	0-12	122.88	0.00	122.88	8.50	7.9
5952	Yamma	0-12	121.21	0.21	121.00	7.60	2.85
5954	Yamma	0-12	120.71	0.14	120.57	11.80	2.61
5955	Yamma	0-12	120.25	0.10	120.15	9.40	2.58
5957	Yamma	0-12	120.14	0.24	119.90	10.10	7.36
5960	Yamma	0-12	119.43	0.12	119.31	7.00	Not Read
5961	Yamma	0-12	120.05	0.13	119.92	6.40	Not Read
5964	Yamma	12-60	121.00	0.35	120.65	20.20	Not Read
5965	Yamma	12-60	122.82	0.36	122.46	15.50	2.69
6801	Yamma	12-60	127.46	0.20	127.26	20.70	10.89
6802	Yamma	12-60	128.23	0.24	127.99	18.30	12.14
6803	Yamma	12-60	128.29	0.32	127.97	16.20	12.1
12205	Yamma	12-60	126.54	0.22	126.32	22.50	Not Read
12207	Yamma	12-60	125.30	0.16	125.14	12.75	Not Read
12210	Yamma	12-60	125.57	0.30	125.27	27.25	Not Read
12211	Yamma	12-60	125.57	0.30	125.27	17.30	Not Read
12215	Yamma	12-60	123.77	0.05	123.72	22.80	Not Read
12217	Yamma	12-60	124.38	0.35	124.03	22.50	Not Read
12218	Yamma	0-12	124.30	0.29	124.01	7.38	Not Read
12220	Yamma	12-60	122.97	0.02	122.95	15.80	Not Read
12221	Yamma	0-12	122.75	0.21	122.54	11.45	Not Read
12222	Yamma	0-12	121.82	0.18	121.64	10.00	Not Read

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12223	Yamma	12-60	121.30	0.41	120.89	20.00	Not Read
12224	Yamma	12-60	121.36	0.15	121.21	20.05	Not Read
12225	Yamma	12-60	120.51	0.09	120.42	20.60	Not Read
12226	Yamma	0-12	120.98	0.06	120.92	10.10	Not Read
12229	Yamma	12-60	120.69	0.12	120.57	24.00	Not Read
12230	Yamma	0-12	122.36	0.38	121.98	9.80	5.34
12232	Yamma	0-12	122.05	0.22	121.83	5.50	6.09
12233	Yamma	0-12	122.02	0.19	121.83	5.50	4.52
12234	Yamma	12-60	121.94	0.16	121.78	23.25	3.19
12235	Yamma	0-12	121.30	0.14	121.16	6.15	1.87
12237	Yamma	0-12	123.37	0.20	123.17	11.00	2.32
12238	Yamma	12-60	120.67	0.18	120.49	17.80	1.88
12239	Yamma	0-12	120.60	0.08	120.52	7.50	1.24
12241	Yamma	0-12	121.90	0.17	121.73	8.50	1.89
12242	Yamma	12-60	123.85	0.19	123.66	19.10	2.62
12243	Yamma	12-60	123.35	0.15	123.20	18.90	3.56
12244	Yamma	0-12	123.55	0.13	123.42	8.30	3.63
12260	Yamma	12-60	127.29	0.40	126.89	12.05	12.61
12261	Yamma	12-60	128.48	0.10	128.38	16.45	13.85
12262	Yamma	12-60	129.32	0.05	129.27	19.10	15.93
12263	Yamma	12-60	129.41	0.20	129.21	18.00	Not Read
12264	Yamma	0-12	129.41	0.13	129.28	10.30	10.99
12265	Yamma	12-60	126.90	0.00	126.70	17.20	Not Read
12266	Yamma	12-60	128.29	0.18	128.11	18.20	16.53
12267	Yamma	0-12	128.29	0.30	127.99	10.10	9.7
12268	Yamma	12-60	129.25	0.15	129.10	22.50	17.93
12270	Yamma	12-60	128.32	0.15	128.17	23.55	18.89
12271	Yamma	12-60	128.18	0.24	127.94	24.68	17.64
12274	Yamma	0-12	115.80	0.24	115.56	10.40	10.23
12275	Yamma	12-60	115.80	0.29	115.51	16.48	6.81
12276	Yamma	12-60	115.42	0.15	115.27	18.30	11.25
12277	Yamma	12-60	116.65	0.12	116.53	22.33	14.98
12278	Yamma	12-60	120.66	0.16	120.50	21.78	10.35
12279	Yamma	12-60	118.19	0.11	118.08	22.45	12.67
12280	Yamma	12-60	117.61	0.29	117.32	19.50	13.91
12294	Yamma	0-12	119.53	0.22	119.31	9.00	8.54
12356	Yamma	12-60	115.93	0.16	115.77	23.50	8.05
12357	Yamma	12-60	115.63	0.08	115.55	23.00	10.52
12358	Yamma	0-12	115.63	0.20	115.43	11.00	10.51
12362	Yamma	12-60	125.79	0.05	125.74	19.20	Not Read
12363	Yamma	12-60	125.63	0.25	125.38	21.70	Not Read

No	sub-region	Piezo depth range (m)	Top of pipe (m AHD)	Top of pipe above NS (m)	Natural Surface (m AHD)	Pipe depth below NS (m)	Reading
12364	Yamma	12-60	125.78	0.21	125.57	17.60	Not Read
12365	Yamma	12-60	125.31	0.23	125.08	20.00	Not Read
12366	Yamma	12-60	124.35	0.27	124.08	17.20	Not Read
12367	Yamma	12-60	126.73	0.08	126.65	19.00	Not Read
12368	Yamma	12-60	126.79	0.10	126.69	16.20	Not Read
12370	Yamma	12-60	115.34	0.07	115.27	20.00	13.57
12371	Yamma	12-60	115.40	0.18	115.22	24.00	14.54
12372	Yamma	12-60	114.83	0.10	114.73	20.00	2.01
12420	Yamma	12-60	117.95	0.06	117.89	15.50	2.27
12421	Yamma	0-12	118.05	0.11	117.94	7.30	2.1
12454	Yamma	12-60	122.42	0.18	122.24	20.00	2.79
12455	Yamma	0-12	122.43	0.12	122.31	10.50	2.72
12458	Yamma	12-60	122.95	0.04	122.91	16.50	2.52
12459	Yamma	12-60	123.81	0.17	123.64	17.50	3.05
12460	Yamma	12-60	120.49	0.12	120.37	14.50	3.47
12462	Yamma	12-60	120.37	0.05	120.32	16.50	2.81
12465	Yamma	12-60	120.26	0.15	120.11	23.80	2.51
12466	Yamma	12-60	119.75	0.23	119.52	34.00	6.04
12467	Yamma	12-60	119.31	0.13	119.18	18.10	2.89
12468	Yamma	12-60	118.46	0.15	118.31	19.50	2.28
12471	Yamma	12-60	124.88	0.14	124.74	20.00	4.32
12472	Yamma	0-12	124.67	0.24	124.43	4.80	2.17
12473	Yamma	12-60	124.50	0.00	124.50	18.80	3.61
12477	Yamma	12-60	124.23	0.10	124.13	18.50	4.08
12502	Yamma	12-60	122.20	0.19	122.01	15.50	3.37
12551	Yamma	12-60	111.27	0.48	110.79	19.80	15.53
12552	Yamma	12-60	111.46	0.08	111.38	14.30	14.88
12553	Yamma	12-60	111.88	0.18	111.70	13.30	13.11
12554	Yamma	12-60	114.02	0.20	113.82	24.50	15.95
12961	Yamma	12-60	117.71	0.24	117.47	26.00	2.41
12974	Yamma	0-12	123.60	0.29	123.31	10.00	3.4
12974	Yamma	12-60	123.60	0.29	123.31	28.50	4.039
12974	Yamma	12-60	123.52	0.21	123.31	50.50	14.98

9.1 A2 Surface Water Extraction and Salinity

Table A 2.1: Flow (ML) for CCS Coleambally Main Off-take

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1		1,976	234	1,616	650	1,278	1,421	706	1,079	712	82	
2		1,889	270	1,741	745	1,390	1,285	269	1,282	713	153	
3		1,686	188	1,781	932	1,074	1,286	326	1,386	700	341	
4		1,347	201	1,782	280	1,066	1,073	356	1,425	602	468	
5		977	172	1,713	100	1,069	967	572	1,413	550	352	
6		514	1,303	1,457	40	1,110	1,411	710	1,041	524	71	
7		645	1,632	1,999		1,095	1,424	713	1,065	645		
8		518	1,836	2,006	7	1,130	1,649	1,028	1,196	712		
9		363	1,063	1,971	42	1,247	1,425	1,024	1,356	713		
10		265	236	2,015	22	1,246	1,425	1,168	1,318	712		
11		688	352	1,727	269	1,246	1,615	1,290	1,069	712		
12		893	1,616	1,636	278	1,725	1,778	1,160	921	713		
13		1,077	1,996	1,467	228	2,027	1,753	1,057	879	705		
14		971	2,050	1,397	612	2,402	1,716	952	1,071	680		
15		889	2,136	1,423	820	2,668	1,230	1,000	1,063	700		
16		807	1,339	1,342	880	2,469	1,209	2,399	1,035	580		
17		733	680	1,388	1,130	1,959	1,430	2,848	516	600		
18		812	890	1,159	1,228	1,406	1,419	2,878	480	620		
19		749	713	1,337	1,387	1,495	1,659	2,616	713	472		
20		745	845	1,233	1,415	1,425	1,764	2,403	712	396		
21		669	436	1,374	1,243	1,224	1,478	1,240	712	481		
22		287	719	1,306	1,068	963	484	1,059	545	452		
23		332	891	1,062	980	1,062	2,151	1,076	361	186		
24		381	891	1,225	1,020	2,481	2,519	1,289	352	220		
25	700	353	1,037	899	1,242	2,676	2,519	1,004	347	233		
26	1,410	256	983	1,069	1,485	2,488	2,836	1,069	379	541		
27	600	133	898	1,740	1,515	2,260	2,192	1,067	461	346		
28	1,140	173	891	1,768	1,410	2,315	1,802	975	363	291		
29	1,920	124	1,026	1,505	1,132	2,144	942	1,058	942	427		
30	1,979	113	1,239	1,235	1,247	2,078	902		902	193		
31	1,952	152		720		2,174	927		927			

Table A 2.2: Salinity (µS/cm) for CCS Coleambally Main Off-take

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1		138.3	152	256.3	137.9	182.8	109.6	89.9	152.4	127.9	159.4	
2		137.9	153.6	260	133	188.7	120	87.8	154.2	128.9	160	
3		140.4	156.8	267.4	136.2	181.6	119.4	92.9	157.4	132.4	154.3	
4		145.2	158.9	277.5	139.2	185.8	113.9	92.8	145	132.2	150.8	
5		153.5	158.1	287.5	140	197.5	107.9	89.8	139.1	133.1	151.6	
6		159.9	160.7	299	138.9	209.8	100.6	93.4	148.1	136.1	153.2	
7		158.9	162	307.4		218.4	106.6	95	153.5	138.6		
8		156.3	162.9	301.7	137.5	219.1	112.6	98.3	162.3	138.2		
9		156.1	161.9	296.5	133.1	210.7	114.1	100.9	161	138.6		
10		153	163.6	305.1	138	202.7	116.1	125.2	148	138.7		
11		150.7	166.7	314.1	143.7	203.1	122.4	125.2	146.3	141.3		
12		153.4	174.3	314.6	142.2	193.3	126.7	125.2	149.5	142.2		
13		149.7	180.8	300.4	143.2	176.6	128	125.2	146.3	142.7		
14		145.5	185.8	286.4	143	169.1	131.3	125.2	151.6	143.5		
15		149.1	192.3	283.1	142.6	168.2	126.3	125.2	155.3	145.5		
16		154.5	201.1	283.4	137.7	169.7	114	125.2	150.1	150.8		
17		156.2	213.6	263.4	137.9	167.1	113.8	109.4	151.9	152.9		
18		155.3	218.5	180.9	138	168.3	116.4	107.1	158.5	152.5		
19		150.1	213.5	154	139.9	161.6	119.7	113.4	158.8	153.6		
20		142.9	211.5	147.9	140.7	153.5	121.8	127.5	146.1	155.3		
21		138.6	220.4	149.3	143.5	143.4	120.4	157.2	136.5	155.9		
22		136.9	228.7	147.9	137.3	136.1	118.2	171.1	133.7	154.7		
23		135.6	231	146.5	129.3	130.4	116.9	168	137.1	152.8		
24		138.8	222.7	146.2	129.1	131.7	115.4	165	135.4	147.7		
25	144.8	140.5	219.4	151.3	137.6	125.4	116	153.1	137.9	145.6		
26	143.3	140.5	222.6	155.9	148.6	122.9	112.5	153.9	138	146.9		
27	142.1	143.9	229.5	160.1	154.6	118.9	115.5	165.9	137.1	149.1		
28	138.1	152.1	237.4	156.5	157.9	109.6	113.5	156.6	136.3	150.7		
29	138.5	153.4	246.4	150.6	168.8	105.5	110.9	165.4	134.3	154.3		
30	139.5	152.6	254.9	148.8	177.2	102.4	105.7		132.4	156.7		
31	138.8	151.6		144.8		100.7	97.1		132.1			

9.2 A3 Drainage Salinity and Flow Data

Table A3.1: Flow (ML) for DC 800 at Outfall into Yanco Creek

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	8	0	17	69	1	53	35	33	72	0	2	55
2	4	0	15	72	3	50	40	35	72	0	2	56
3	2	0	16	71	10	49	40	32	72	0	2	68
4	2	0	14	74	10	50	52	19	73	0	1	77
5	1	0	10	70	11	53	54	11	70	1	12	99
6	1	0	6	78	22	54	50	4	92	1	31	150
7	1	0	12	77	20	0	48	2	105	1	20	183
8	0	0	14	44	18	0	49	1	64	1	6	162
9	0	0	14	25	21	0	48	2	72	1	6	167
10	0	0	9	16	21	49	47	3	77	26	12	152
11	0	0	4	11	16	36	53	4	88	37	18	143
12	0	0	2	9	13	28	50	2	114	37	12	122
13	1	0	2	8		28	45	23	122	44	6	96
14	1	0	1	12		28	46	43	118	63	8	86
15	7	0	1	17		26	47	47	116	73	6	69
16	14	0	0	18		27	48	52	117	73	3	59
17	11	0	8	13		27	49	50	129	34	2	41
18	5	0	11	10		27	47	41	123	13	6	38
19	8	6	8	6		27	48	44	109	3	16	40
20	6	8	7	16		27	49	43	118	1	15	28
21	5	6	11	16		27	53	43	116	1	17	42
22	4	8	6	13		34	50	48	115	0	14	174
23	5	8	3	12		31	50	53	112	12	6	206
24	6	8	6	5		24	52	45	41	28	1	138
25	5	8	15	2		15	50	45	16	29	2	67
26	3	13	30	1		25	46	44	8	28	3	40
27	2	34	49			35	46	44	2	27	1	36
28	2	37	57	1	41	43	48	60	2	28		26
29	1	20	61	1	55	42	47	72	1	14		18
30	0	19	65		53	40	41			2		15
31	0	17		1		32	35				88	

Table A3.2: Salinity (µS/cm) for DC 800 at Outfall into Yanco Creek*

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	169.6		177.3	351	235.7	122	133	127.9	190		175.7	126
2	154.5		184.7	351	238	122	135.6	126.9	149.7		178.5	126.6
3	148.2		205.2	351	225.7	122	130.6	127.5	160.3		166.5	128.2
4	151		179.6	351	203.7	122	124.6	117.7	173.5			129.3
5	143.3		177.4	351	215.3	122	121.7	120.2	177.1		175.2	133.2
6	141.9		182	351	230.4	122	124.4	139.4	146.9		163.3	137.1
7	142.4		190.5	351	277.9		131.6	143.4	157.6		155.8	138.8
8			190	351	285.2		135.9	154.7	177.6	173.4	155.8	161.3
9			164.7	299.6	303.8		139.5	169.9	196.7	174.8	168	172.3
10			166.2	330.9	359.6	122	143	183.6	206.6	169	168	172.2
11			172	353.7	293	122	144.9	198.1	217.8	164	168	168.2
12			184.6	362.7	263.1	122	145.8	207.9	224.6	168.3	168	159.1
13	151		187.7	356.2		122	149	197.7	234.2	170	168	147.7
14	151		200.5	351.3		122	156.7	152.4	243.3	170.4	168	141.6
15	158.5		202	390		122	153.4	146.2	243.5	149.3	159.4	141.1
16	151			395		122	135.8	137.7	230.5	150.1	175	137.2
17	151		244.7	366.1		122	136.7	140.1	227.5	158.3	177.2	136
18	151		270.4	353.6		122	138.1	137.9	226.9	157.2	179.4	148
19	151	147.8	217.4	342.6		122	140.8	151.6	195.2	152.5	175	149.9
20	151	158.5	218	316.2		122	144.7	162.9	165.8	154.1	168.8	149.2
21	151	160.5	222.2	351		122	138.8	157.5	162.3		166.7	142.7
22	151	157.3	232.2	351		122	139.3	152.6	163.2		162	136.7
23	151	162.9	216.2	351		122	136.8	159	165.3	185.9	162.2	150.4
24	151	166.2	196.8	351		122	138.2	162.5	169	151.9	160.8	150.6
25	151	162.6	208.2	351		122	139.3	157.5	173.6	146.8	168	146.1
26	151	168	217.7	351		122	139.6	158.1	177.4	153.4	168	136.8
27	151	163.6	208.4			122	141.9	153.4	175.8	156.7		134.7
28	151	184.7	206.4	351	261	122	138.5	153.2	175.5	158.8		140.5
29	151	197.7	219	351	261	122	142.1	149	190	166.6		146.9
30	151	183.6	228.1		261	122	136.4			165.5		157.8
31	151	175.1				122	130.3					

*Highlighted cells indicate averaging of available salinity data

Table A3.3: Flow (ML) for CODA at West Coleambally Channel

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	12		43		57	60	43	17	27	163		88
2	2		47		61	53	81	34	27	167		95
3			46		58	75	79	34	47	166		99
4			31		55	72	77	22	79	165		123
5			22		56	60	79	19	96	165		155
6			48		61	60	79	13	92	165		178
7			92		56	61	79	14	91	164		200
8			120		60	61	78	13	88	165		180
9			121		60	61	77	2	87	164		152
10			114		53	49	73	5	91	162		146
11			95		44	63	42	18	122	162		148
12			122		39	79	35	22	122	161		135
13		7	108	1	41	81	41	32	123	161		126
14		34	89	1	20	80	50	35	127	161		119
15		67	69	2		80	51	54	127	160		112
16		53	11	2		105	45	66	122	158		109
17		39		2		113	36	66	116	157		100
18		45		3		120	23	65	116	157		74
19		62		4	15	128	20	69	118	157		55
20		66		3	26	133	20	46	117	156		48
21		31		2	39	85	19	39	119	122		65
22				3	35	33	23	39	119	60		137
23				3	33	31	61	52	120	49		211
24				2	44	32	85	61	90	10		182
25				94	50	54	68	56	76			140
26				104	44	47	50	49	76			109
27				98	98	46	47	37	76		10	86
28				92	135	46	42	31	76		58	69
29		10		67	118	38	35	29	79		88	55
30		3		53	63	32	25		102		90	41
31		44		53		26	15		125		90	

Table A3.4: Flow (ML) for CODW (Wonga)

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1		2	55		51	44	14	14	15	171		77
2		2	29		38	39	38	38	16	172	2	82
3		2	27		57	65	39	39	35	169		93
4		2	14		46	51	39	39	70	169		148
5		0	13		50	45	41	41	79	168		183
6			42		56	45	39	39	75	157		194
7			90		51	47	40	40	74	173		230
8			107		54	47	39	39	71	174		182
9			103	1	53	51	39	39	71	182		188
10	7		96	4	41	53	33	33	82	178		183
11	10		91	4	36	44	10	10	117	179		182
12	10		97	5	32	63	8	8	104	179		159
13	9	12	96	6	54	70	18	18	124	176		144
14	9	47	100	5	28	73	26	26	119	177		133
15	8	80	84	5	2	78	23	23	118	171		124
16	8	51	18	3		106	7	7	108	172		119
17	7	31	8	5		109			104	172		103
18	6	30	7	5		110			99	172		72
19	5	23	6	6		106			97	172		55
20	4	20	4	5	9	110			81	161		52
21	4	19	4	5	12	57	6	6	88	105		77
22	4	27	5	7	10	5	13	13	110	53		200
23	5	3		6	7	1	48	48	103	38		277
24	4	3		5	17	1	61	61	67	9		225
25	4	5		87	18	5	41	41	65	4		159
26	3	12		88	16	0	31	31	57	1		114
27	3	3		90	111	1	27	27	55		10	85
28	2	3		80	147		27	27	63		60	68
29	2	16		51	108		17	17	69		72	54
30	2	22		42	39		11	11	93		60	24
31	2	55		43			7	7	129		65	

Table A3.6: Salinity (µS/cm) for CODA at West Coleambally Channel *

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	168.1	n/a	201	n/a	189.8	216.6	155.9	169	151	190	n/a	216.4
2	167.7	n/a	201	n/a	181.5	214.4	185.6	169	151	190	n/a	219.7
3	n/a	n/a	201	n/a	180.1	186.9	170.8	149.5	151	190	n/a	226.7
4	n/a	n/a	201	n/a	174.2	177.2	155.9	151.4	151	190	n/a	230.7
5	n/a	n/a	201	n/a	175.3	175	158.4	148.8	151	190	n/a	228.6
6	n/a	n/a	201	n/a	176	172.1	156.6	145.3	151	190	n/a	246.1
7	n/a	n/a	201	n/a	180.8	169.7	161.7	138.5	151	190	n/a	248.2
8	n/a	n/a	201	n/a	185.9	164.3	155.9	142.9	151	145.8	n/a	250.8
9	n/a	n/a	201	n/a	184.6	184	155.9		151	150.1	n/a	249.2
10	n/a	n/a	201	n/a	197.1	184	167.8		151	150.9	n/a	252.4
11	n/a	n/a	201	n/a	208.9	184	155.9	169	151	158.3	n/a	261.1
12	n/a	n/a	201	n/a	209	184	155.9	169	151	165	n/a	269.5
13	n/a	184.7	201	368.3	189.8	184	155.9	180.9	151	172	n/a	241.6
14	n/a	190	194.5	377.2	187.3	184	155.9	133.7	151	174.9	n/a	225.1
15	n/a	152.8	201.9	406.3	208	184	157.1	169	151	180.2	n/a	220.5
16	n/a	161	206.2	426.9	n/a	184	132.1	140.2	151	191.2	n/a	216.6
17	n/a	176.4	n/a	400	n/a	184	152.8	158.6	151	203.3	n/a	216.9
18	n/a	153.4	n/a	367.8		184	161.6	158	155.8	204.9	n/a	242.3
19	n/a	150	n/a	366.5		184	155.9	167.2	146	208.5	n/a	248.8
20	n/a	158	n/a	376.7	276.2	184	155.9	187.4	151	214	n/a	241
21	n/a	166.7	n/a	367.2	268.1	184	150.2	155.8	151	225.7	n/a	220.4
22	n/a	n/a	n/a	357.2	232.4	184	151.7	172.1	151	232.8	n/a	238.7
23	n/a	190	n/a	345.7	211.2	184	143	207.1	151	235.8	n/a	266.5
24	n/a	190	n/a	354.6	214.4	184	164.1	231.6	151	226.7	n/a	288.6
25	n/a	190	n/a	281.3	227.2	192.6	178.7	228.6	151	190	n/a	295.3
26	n/a	190	n/a	369	242.7		174.3	228.5	151	190	n/a	252
27	n/a	190	n/a	369	235.5	166.3	173.4	148.8	151	n/a	176.9	236
28	n/a	190	n/a	369	220.9		155.2	169	151	n/a	237	240.2
29	n/a	184.7	n/a	369	226.6		149.3	169	151	n/a	235.6	250
30	n/a	395.2	n/a	369	224		124.5	n/a	151	n/a	229.1	267.2
31	n/a	203.8		369			158	n/a	151		226	

*Highlighted cells indicate averaging of available salinity data

Table A3.7: Flow (ML) for CCD at Coleambally Catchment Drain Outfall into Yanco Creek

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	80	93	92		1	94		61	108	87	9	
2	78	136	96	105	1	92		61	108	39	14	4
3	74	224	110	119	1	92		59	107	30		
4	65	253	106	138		93		59	107	46		
5	52	257	105	138		94		52	112	62		
6	30	254	85	138	1	94		1	139	63		3
7	6	254	56	130	2	96		21	139	75		13
8	2	251	54	60	2	95		24	139	78		104
9	1	252	67	55	1	95	88	24	139	75		63
10	1	256	81	65	1	94	89	7	156	72		46
11		255	89	96	1	95	89	21	157	74		
12		222	88	96		92	89	31	157	75		
13		252	76	96		93	90	80	156	71		
14		256	51	96		96	90	80	156	70		2
15		255	12	94		96	91	80	156	74		11
16		253	2	94		92	92	80	156	85		31
17		251		95		93	93	79	156	81		50
18		249		96		95	93	81	148	81		60
19		248		95		95	93	81	113	86		62
20		230		92	15	96	93	80	111	83		60
21		165		93	41	96	93	80	110	84		71
22		106		84	48	98	94	79	108	86		66
23	1	49		83	51	95	96	79	96	87		54
24	4	29		71	49	93	95	86	95	87		37
25	4	17		2	52	92	94	108	91	87		31
26	5	12	13		46	95	94	108	95	87		32
27	7	11	121		56	94	94	108	91	88		36
28	23	15	102		92		100	108	96	88		44
29	46	30	100		92		88	108	97	86		65
30	66	61	19	1	94		61		97	20		87
31	84	91					62		96			

Table A3.8: Salinity (µS/cm), for CCD at Coleambally Catchment Drain Outfall into Yanco Creek

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1		187	190	286		175	221	143	187	170	197	145
2		178	191	252		159	221	143	186	179	187	145
3		198	191	301		133	221	143	192	170		
4		197	187	308		134	221	143	199	163		
5		182	190	306		137	221	132	217	164		145
6		176	193	266		137	221	143	154	187		
7		172		286		135	221	143	162	177		
8		172		286		128	221	143	193	182		
9		183		286		119	221	130	280	189		
10		194		286		117	172	170	233	159		
11		187		286		114	225	176	245	181		
12		179		286		135	258	145	198	177		
13		174		286		135	277	128	249	196		
14		174		286		135	299	124	245	155		
15		182		286		135	301	143	260	161		
16		172		286		135	281	126	286	173		
17		155		286		135	289	127	248	191		
18		155		286		135	281	143	231	213		
19		157		286	228	135	269	127	217	236		
20		162		286	228	135	264	131	219	258		
21		169		286	211	135	253	132	225	252		
22		171		286	257	135	248	133	239	222		
23				286	274	135	230	136	233	196		
24				286	242	135	222	138	231	201		
25					236	135	175	142	208	212		
26			190		237	135	132	149	206	216		
27			190		233	135	119	159	214	221		
28			190		204	135	120	173	224	218		
29			190		202	135	117	186	214	204		
30		176	190		188	135	119		174	191		
31		176				135	221		158			

*Highlighted cells indicate averaging of available salinity data

Table A3.9: Flow (ML) for CCD Escape

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	n/f	50	11	64	n/f	100	100	56	102	84	50	35
2	n/f	200	89	100	n/f	100	100	60	148	66	20	25
3	n/f	301	12	158	n/f	100	100	34	100	50	n/f	n/f
4	n/f	301	38	181	n/f	100	100	50	150	50	n/f	n/f
5	n/f	301	50	112	n/f	100	100	26	150	100	n/f	26
6	n/f	301	9	150	n/f	100	100	25	150	100	n/f	n/f
7	n/f	301	n/f	100	n/f	100	100	50	200	104	n/f	n/f
8	n/f	301	n/f	50	n/f	100	100	42	150	96	n/f	n/f
9	n/f	251	n/f	58	n/f	100	100	8	200	100	n/f	n/f
10	n/f	301	n/f	106	n/f	100	100	50	200	100	n/f	n/f
11	n/f	250	n/f	86	n/f	100	100	10	200	100	n/f	n/f
12	n/f	300	n/f	100	n/f	100	100	90	200	100	n/f	n/f
13	n/f	301	n/f	100	n/f	100	100	100	200	107	n/f	n/f
14	n/f	301	n/f	107	n/f	100	100	56	200	94	n/f	n/f
15	n/f	300	n/f	93	n/f	100	100	94	200	100	n/f	n/f
16	n/f	301	n/f	100	n/f	100	100	50	200	100	n/f	n/f
17	n/f	300	n/f	100	n/f	103	100	100	200	100	n/f	n/f
18	n/f	300	n/f	100	n/f	98	100	100	150	100	n/f	n/f
19	n/f	301	n/f	100	32	100	100	50	150	100	n/f	n/f
20	n/f	200	n/f	100	50	100	100	100	150	100	n/f	n/f
21	n/f	100	n/f	100	50	100	103	78	152	104	n/f	n/f
22	n/f	57	n/f	50	50	100	98	73	98	113	n/f	n/f
23	n/f	n/f	n/f	100	50	106	100	100	150	83	n/f	n/f
24	n/f	n/f	n/f	18	50	95	100	100	150	100	n/f	n/f
25	n/f	n/f	n/f	n/f	50	100	100	100	100	100	n/f	n/f
26	n/f	n/f	92	n/f	50	100	100	150	150	100	n/f	n/f
27	n/f	n/f	120	n/f	100	100	105	100	150	100	n/f	n/f
28	n/f	n/f	121	n/f	100	100	95	100	100	119	n/f	n/f
29	n/f	n/f	9	n/f	100	109	50	150	150	37	n/f	n/f
30	n/f	43	37	n/f	100	91	50		100	44	n/f	n/f
31		50				100	50		150			

Table A3.10: Flow (ML) for CODD at West Coleambally Channel at Bundy

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												18
21												29
22												24
23												17
24												15
25												17
26												22
27												49
28												72
29												89
30												102
31												

Table A3.11: Salinity (µS/cm) for CODD West Coleambally Channel at Bundy

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1										227		227
2										227		227
3												227
4												227
5												227
6												227
7												227
8									227			227
9									227			227
10									227			227
11	227								227			227
12	227								227			227
13	227					227			227			227
14	227				227	227			227			227
15					227	227			227			227
16					227	227			227			227
17						227			227			227
18						227			227			227
19									227			
20	227					227			227			
21	227					227			227			
22						227			227			
23						227			227			213.2
24						227			227			224.2
25						227			227			234.6
26									227			235.4
27									227			
28									227			
29									227			
30									227			
31									227			

*Highlighted cells indicate averaging of available salinity data

Table A3.12: Flow (ML) for CODO

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1										6		1
2										2		12
3												9
4												12
5												12
6												10
7												13
8									3			14
9									9			18
10									11			7
11	0								2			19
12	1								15			14
13	1					12			18			12
14	0				1	15			13			8
15					1	17			8			11
16					2	10			9			10
17						2			8			13
18						1			9			9
19									6			
20	0					13			8			
21	0					17			10			
22						17			9			
23						17			10			11
24						17			14			10
25						8			9			13
26									3			9
27									0			
28									1			
29									1			
30									2			
31									2			

Table A3.13: Flow (ML) for Argoon Escape

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1			30.3		39.9	35.0	55.3	10.1	29.8	148.8		30.3
2			10.1		40.4	72.8	55.0	10.1	30.3	146.7		30.2
3			0.5		40.4	50.9	55.1	10.1	65.5	144.2		30.3
4			18.2		40.0	50.3	55.3	10.1	70.0	146.9		30.2
5			30.4		40.5	50.3	55.5	10.0	70.5	144.7		30.4
6			90.7		39.8	50.3	54.9	10.1	70.0	144.0		39.8
7			100.5		40.4	49.8	55.4	10.1	70.5	145.0		40.1
8			100.0		40.4	50.3	55.5	10.0	70.0	144.8		41.5
9			79.9		32.8	50.4	37.9	19.3	70.5	146.1		39.9
10			113.2		30.1	77.1	20.3	20.3	99.3	145.7		51.3
11	0.3		148.5		30.3	80.2	19.8	27.6	100.6	145.6		50.2
12	0.2		106.6		29.9	80.1	33.5	35.0	100.0	145.6		49.7
13		21.3	79.2		2.5	80.5	35.5	35.5	100.5	146.8		50.2
14		46.6	0.1			90.1	35.0	63.7	100.0	142.6		50.2
15		42.9				100.5	26.5	65.4	100.6	139.0		50.2
16		39.9		21.6		100.0	16.2	65.2	100.0	138.7		29.1
17		40.4		25.4	14.2	100.6	15.1	65.3	100.6	138.5		13.2
18		28.8		24.9	20.3	99.9	15.6	55.5	100.0	139.4		11.1
19		2.6		25.4	20.2	100.6	15.2	40.4	100.6	138.6		10.1
20		0.4		19.8	19.8	23.1	15.1	40.4	100.0	83.8		9
21				7.4	20.2	0.2	25.8	40.5	100.6	50.6		8.1
22					20.3	7.7	39.4	39.8	100.1	23.4		6.3
23			7.0		20.2	15.1	40.2	40.5	66.0	0.1		5.7
24			25.0	66.4	20.2	15.1	30.8	40.3	65.3			3.5
25			25.4	80.7	20.3	15.2	30.3	39.8	65.2		1.9	4
26			24.9	80.1	94.0	15.1	29.8	30.3	65.0			8.1
27			25.3	74.3	100.0	15.7	30.2	30.3	65.5		27.9	9.5
28			24.9	41.5	73.6	15.1	11.6	30.3	74.9		30.3	3.5
29			8.6	40.0	50.2	15.1	10.1	30.3	90.4		30.8	1.5
30			0.4	38.3	41.0	15.2	10.0		121.7		30.2	1
31		27.0		40.5		49.6	10.1		152.6		29.7	

Table A3.14: Flow (ML) for Boona Escape

Day	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1										58.0		19.5
2									10.1	29.4		30.5
3									4.0	50.0		30.2
4									14.2	50.0		19.8
5									14.7	50.1		10.5
6									21.1	50.0		22.2
7									15.4	50.0		8.0
8									18.2			3.8
9									18.2	55.4		2.5
10									9.6	56.1		1.5
11		1.6							38.6	55.7		
12		6.7							10.0	55.8		1.1
13		33.4							40.0	55.6		0.6
14		12.2							32.7	21.5		0.4
15		26.6				8.5			29.1	50.0		
16		1.2				24.2				50.1		0.6
17									18.3	50.0		0.4
18						35.6			20.0	50.0		0.4
19						13.0			16.3	50.0		1.3
20						18.9			18.3	23.8		0.0
21									15.4			1.2
22									2.8			1.8
23									15.2			1.6
24							4.0					1.5
25												1.5
26											0.8	
27											25.4	0.9
28											28.6	1.0
29											21.4	0.7
30									0.1		8.9	0.4
31									44.5		41.1	

9.3 A4 Groundwater Extraction from other Approved Works

Table A4.1 & Flow (ML), Salinity (µS/cm), Salt Load (Tonnes) at Col Bore Hort Bore for 2015/16

	Col Bore			Hort Bore		
	ML	EC	Salt (T)	ML	EC	Salt (T)
Jul	0					
Aug	0			10	320	2
Sep	0					
Oct	0			62	320	13
Nov	2	620	1			
Dec	481	620	191			
Jan	364	620	144			
Feb	363	620	144			
Mar	476	620	189			
Apr						
May						
Jun	95	620	38	2	320	0
	1781		**707**	**74**		**15**

9.4 A5: Water Quality Data

Table A5.1 Nutrient (mg/L) and Pesticide Data (µg/L) for CCS at Coleambally Main Canal (Tubbo Wells) for 2015/16

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep	0.24	<0.01	0.9	0.05	21	0.034	<0.005	<0.005	<0.005	NA	NA	NA	0.125	NA	<0.01	<0.01
Oct	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nov	0.03	<0.01	0.30	0.02	19	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	0.006	<0.005	<0.01	<0.01
Dec	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Feb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Jun	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NF = No Flow
NA = Not Applicable

Table A5.2 Nutrient (mg/L) and Pesticide Data (µg/L) for CODW (WCC) at Wonga Station for 2015/16

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep	0.03	<0.01	0.6	0.06	47	0.006	<0.005	<0.005	<0.005	NA	NA	NA	0.016	NA	<0.01	<0.01
Oct	0.04	<0.01	0.85	0.11	200	0.043	<0.007	<0.007	0.14	<0.007	0.01	<0.007	0.18	<0.007	<0.034	0.02
Nov	0.02	<0.01	0.8	0.14	112	0.109	<0.005	<0.005	<0.005	<0.002	0.058	0.018	0.016	<0.005	<0.010	<0.01
Dec	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Jan	<0.01	<0.01	0.6	0.12	168	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	0.009	NA	<0.010	<0.01
Feb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr	0.18	<0.01	0.6	0.07	39	<0.005	<0.005	<0.005	<0.005	<0.002	NA	NA	0.026	NA	<0.01	<0.01
May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NA	NA	NA	NF	NA	NF	NF
Jun	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NF = No Flow
NA = Not Applicable

Table A5.3 Nutrient (mg/L) and Pesticide Data (µg/L) for DC800A at Outfall into Yanco Creek for 2015/16

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep	0.04	<0.01	1.2	0.14	100	0.034	<0.005	<0.005	0.007	NA	NA	NA	0.049	NA	<0.01	<0.01
Oct	0.04	<0.01	0.75	0.08	114	0.02	<0.007	<0.007	<0.007	<0.007	0.008	<0.007	0.04	<0.007	<0.034	0.01
Nov	0.03	<0.01	3.2	0.64	285	6.56	<0.005	<0.005	0.056	<0.002	0.457	<0.005	0.017	<0.005	<0.010	<0.01
Dec	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Jan	<0.01	<0.01	0.5	0.08	114	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	0.007	NA	<0.010	0.45
Feb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr	0.06	<0.01	0.7	0.06	12	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	0.047	NA	<0.010	<0.01
May	0.02	<0.01	0.8	0.13	146	0.018	<0.005	<0.005	<0.005	NA	NA	NA	0.033	NA	<0.005	0.02
Jun	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NF = No Flow
NA = Not Applicable

Table A5.4 Nutrient (mg/L) and Pesticide Data (µg/L) for Coleambally Catchment Drain at Outfall into Yanco Creek for 2015/16

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep	0.04	<0.01	1.2	0.14	100	0.034	<0.005	<0.005	0.007	NA	NA	NA	0.049	NA	<0.01	<0.01
Oct	0.04	<0.01	0.75	0.08	114	0.02	<0.007	<0.007	<0.007	<0.007	0.008	<0.007	0.04	<0.007	<0.034	0.01
Nov	0.03	<0.01	3.2	0.64	285	6.56	<0.005	<0.005	0.056	<0.002	0.457	<0.005	0.017	<0.005	<0.010	<0.01
Dec	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Jan	<0.01	<0.01	0.5	0.08	114	<0.005	<0.005	<0.005	<0.005	NA	<0.005	NA	0.007	NA	<0.010	0.45
Feb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr	0.06	<0.01	0.7	0.06	12	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	0.047	NA	<0.010	<0.01
May	0.02	<0.01	0.8	0.13	146	0.018	<0.005	<0.005	<0.005	NA	NA	NA	0.033	NA	<0.005	0.02
Jun	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NF = No Flow
NA = Not Applicable

Table A4.5 Nutrient (mg/L) and Pesticide Data (µg/L) for CODO (WCC) at Oaklands Station for 2015/16

Month	Oxidised Nitrogen as N	Soluble Phosphorous	Total Nitrogen	Total Phosphorous	Total Suspended Solids	Atrazine	Chlorpyrifos	Diazinon	Diuron	Malathion	Metolachlor	Molinate	Simazine	Thiobencarb	Trifluralin	2, 4-D
July	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aug	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sep	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Oct	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Nov	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Dec	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Jan	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Feb	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr	NF	NF	NF	NF	NF	NF	NF	NF	NF	NA	NA	NA	NF	NA	NF	NF
May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF
Jun	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NF = No Flow
NA = Not Applicable

9.5 A6 RCMP Results

Table A 6.1 RCMP Licence Point Results 2015

Date	Sample Number	Sample point	Molinate µg/L
19/10/2015	ES1534021-001	CODW	<0.005
19/10/2015	ES1534021-002	DC800A	<0.005
26/10/2015	ES1534611-001	CODW	<0.005
2/11/2015	ES1535333-001	CODW	0.01
2/11/2015	ES1535333-003	DC800A	0.027
9/11/2015	ES1535889-001	CODW	3.32
9/11/2015	ES1535889-002	DC800A	0.009
19/11/2015	ES1536894-002	DC800A	<0.005
24/11/2015	ES1537359-001	CODW	<0.005
24/11/2015	ES1537359-002	DC800A	<0.005
2/12/2015	ES1537959-001	CODW	<0.005
1/12/2015	ES1537959-002	DC800A	<0.005
7/12/2015	ES1538347-001	CODW	<0.005
7/12/2015	ES1538347-002	DC800A	<0.005
14/12/2015	ES1538941-001	CODW	<0.005
14/12/2015	ES1538941-002	DC800A	<0.005

9.6 Gauging Information

In addition to the twice yearly checks of all farm supply points, the calibration of the Accusonic meter at the Main Offtake is independently verified on a monthly basis. The results of the independent check are as indicated in the table immediately below. It should be noted that the consistent negative bias was itself subjected to expert independent analysis which determined that it was highly probable that the Accusonic had 'over-read' because siltation had reduced the measurement of the channel cross-section.

Date	Area (m^2)	Velocity (m/sec)	Gauged Flow M^3 / sec	Accusonic Reading M^3/sec	% Deviation from Accusonic
12/8/15	108.23	0.124	13.37	13.30	+0.55
24/9/15	104.64	0.112	11.73	12.27	-4.43
19/10/15	108.54	0.146	15.83	16.60	(-5.23)
19/10/15	107.66	0.151	16.21	16.77	(-3.34) Av -4.28
No gauging in November					
15/12/15	105.72	0.26	27.44	29.20	(-6.04)
15/12/15	106.26	0.26	28.18	28.90	(-2.50) Av -4.27
13/1/16	94.88	0.209	19.83	20.25	-2.08
11/2/16	91.24	0.157	14.35	14.90	-3.68
7/3/16	91.75	0.115	10.56	11.19	-5.61
15/4/16	60.84	0.122	7.430	8.03	-7.43
					Av – 3.9

9.7 A7 Additional Detail (Map)

CICL Area of Operations (AO) Plan

- Rice Chemical Monitoring Point
- Levee

CICL Channel Infrastructure

- Supply Channel
- Drainage Channel
- Escape Channel
- Roads
- Coleambally Irrigation Area
- Kerarbury Irrigation Area (benefitted lands)
- West Coleambally Water Management Area
- DC800 Farms in AO
- State Forests in AO
- Coleambally Irrigation Biodiversity Reserve Trust Blocks
- Local Land Services (LLS)
- Excised from AO post-privitisation
- CICL Additional Area

MURRUM BIDGEE RIVER
STURT HWY
KIDMAN WAY
DARLINGTON POINT
Tombullen Storage Regulator
CCS
DC600C
DC400C
DC530A
DC400A
COLEAMBALLY
DC400D
CE160-2DC500A
DC550A
DC530B
CODA
DC600B
DC600A
CCD
DC820A
DC800D
DC800C
DC830A
DC800B
DC840B
DC800A
COBB HWY
KIDMAN WAY
NEWELL HWY
COLOMBO CREEK
TARCO CREEK
BILLABONG CREEK
JERILDERIE

N

0 5 10 20 30 40 50
Kilometres

GDA94 MGA Zone55

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Note: All CICL land under infrastructure forms part of the AO

Production Date: 28/11/16, Graham Parton
Location: X:\Map_Production\Compliance Maps\A0_Plan.mxd

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