Gundagai STP EPL 1721

Effluent Quality fortnightly Report

September 2020

Contents

Gundagai Sewage Treatment Plant

1.0 Background

Gundagai Sewerage system was constructed during 1930s and the sewerage systems consists of reticulation sewers, sewage pump stations and rising main and a sewage treatment plant. The existing plant has passed its use by date and a contract has been let to construct a new sewage treatment plant to replace the existing sewage treatment plant and part of the existing sewerage infrastructure.

The existing treatment plant consist inlet works, Imhoff tank and trickling filters, humus tank with sludge digester. Digested sludge is discharged into drying beds and disposed at landfill sites. Treated effluent is used to irrigate parks, sporting fields and golf course.

Figure 1- Layout of Gundagai Sewage Treatment Plant

At present a new Sewage Treatment Plant is under construction with Intermittently Decanted Extended Aeration (IDEA) with sludge dewatering facilities. Upon completion of testing and commissioning of the new treatment plant which is designed to produce higher quality treated effluent for irrigation reuse.

The new plant will have screens, grit removal IDEA process with sludge dewatering facilities. The treatment effluent will be disinfected with UV light unit and the treated effluent will be used for irrigation of parks, garden, sporting fields and golf course.

2.0 Water Quality Monitoring

2.1 Water Quality Monitoring Locations

Sampling and testing of the Treated effluent is done at fortnightly interval at three locations which include;

- Maturation pond outlet
- Inlet to the irrigation pond
- Outlet to the irrigation pond

The location of sampling points are shown in figure 2.

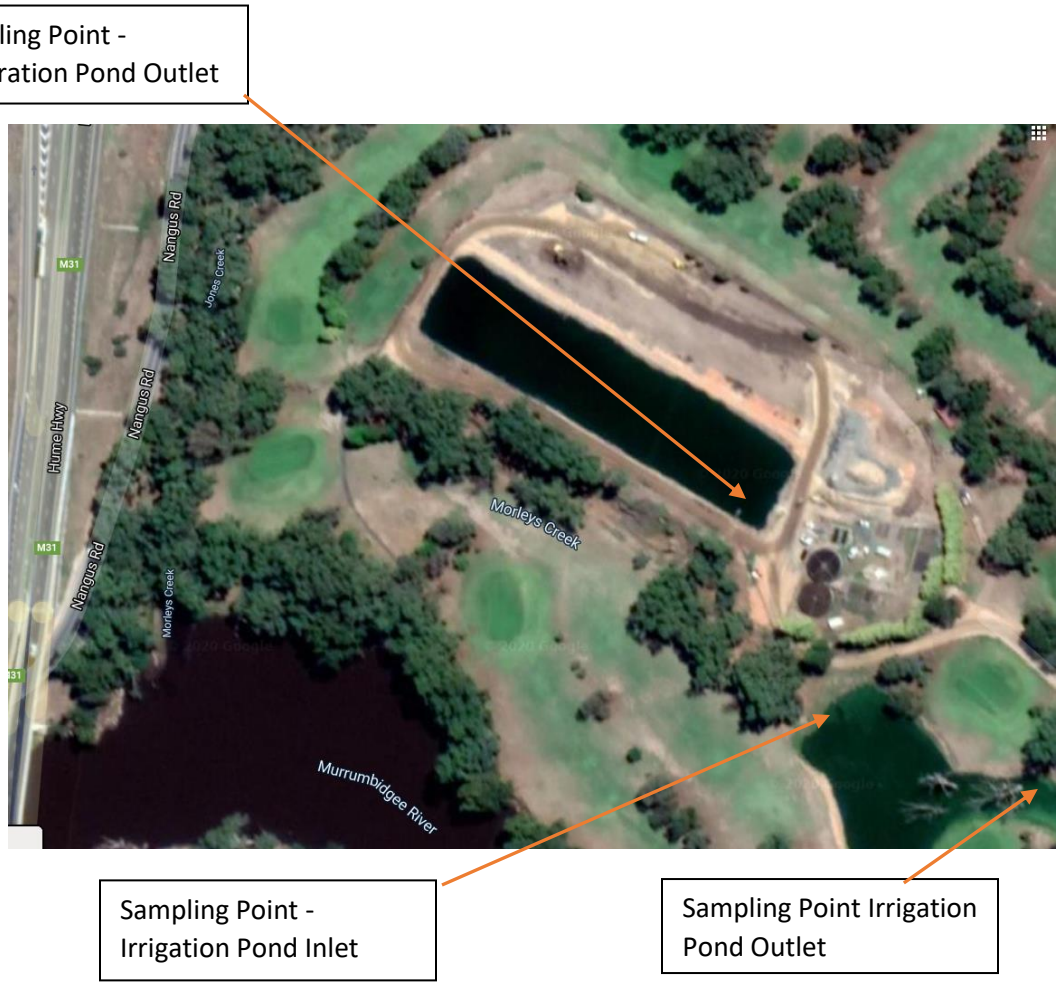

Figure 2- Location of Sampling Points

2.1 Water quality monitoring and reporting

Water samples are collected and dispatches for testing at NATA accredited laboratories and the test results are submitted.

3.0 Water Quality Monitoring Results

Fortnightly Sampling of Treated Effluent - Bidgee Banks Golf Course (Point 1 Irrigation)	
Parameter	**Faecal coliforms**
Units	cfu/100mL
16/3/20	2020
31/3/20	1410
14/4/20	800
22/4/20	210
13/5/19	3200
19/5/19	3100
22/5/20	3500
29/5/20	3330
2/6/20	108
5/6/20	800
9/6/20	1100
12/6/20	1110
16/6/20	372
19/6/20	3670
24/6/20	1670
26/6/20	12400
30/6/20	111
3/7/20	4670
14/7/20	26700
17/7/20	5330
21/7/20	1890
24/7/20	667
29/7/20	5110
31/7/20	1210
4/8/20	667
6/8/20	1560
11/8/20	222
25/8/20	73
25/8/20	1
Average	**2029**

Bidgee Banks Golf Course (Golf Course Pond Inlet)	
Parameter	**Faecal coliforms**
Units	cfu/100mL
16/3/20	28300
31/3/20	48500
14/4/20	280000
22/4/20	20000
13/5/19	3800
19/5/19	24400
22/5/20	222000
29/5/20	233000
2/6/20	14000
5/6/20	167000
9/6/20	22200
12/6/20	14400
16/6/20	10000
19/6/20	100000
24/6/20	178000
26/6/20	389000
30/6/20	55600
3/7/20	144000
30/6/20	233000
17/7/20	75600
21/7/20	12200
24/7/20	1110
30/6/20	27800
31/7/20	11100
4/8/20	4440
6/8/20	16200
11/8/20	4040
25/8/20	5050
25/8/20	7070
Average	**63631**

Bidgee Banks Golf Course (Maturation Pond Outlet)	
Parameter	**Faecal coliforms**
Units	cfu/100mL
16/3/20	45400
31/3/20	52500
14/4/20	300000
22/4/20	100000
13/5/19	
19/5/19	23200
22/5/20	3330000
29/5/20	189000
2/6/20	12700
5/6/20	411000
9/6/20	33300
12/6/20	322000
16/6/20	5300
19/6/20	100000
24/6/20	300000
26/6/20	511000
30/6/20	44400
3/7/20	189000
30/6/20	66700
17/7/20	82200
21/7/20	32200
24/7/20	27600
30/6/20	62200
31/7/20	47500
4/8/20	1110
6/8/20	10100
11/8/20	1010
25/8/20	13100
25/8/20	7070
Average	**143431**

Fortnightly Sampling of Treated Effluent - Bidgee Banks Golf Course (Point 1 Irrigation)														
Parameter	Units	31/3/20	14/4/20	22/4/20	22/5/20	2/6/20	19/6/20	30/6/20	14/7/20	29/7/20	11/8/20	25/8/20	25/8/20	**Average**
Biochemical Oxygen Demand	mg/L	17	12	12	11	11	7	12	16	7	9	17	Pending	**12**
Calcium (dissolved)	mg/L	17.6	20.5	17.8	20.1	22.7	25.3	20.7	22.8	22.5	22.3	24.9	25.9	**21**
Faecal coliforms	cfu/100mL	1410	800	210	3500	108	3670	111	26700	5110	222	73	<1	**1819**
Conductivity	µS/cm	466	514	535	553	619	699	793	815	764	758	669	695	**638**
Magnesium (dissolved)	mg/L	5.92	6.45	6.00	7.14	8.59	9.20	7.54	8.83	8.63	8.43	10.50	10.20	**7**
Nitrogen, total	mg/L	8	14	15	10	15	27	24	42	36	34	29	Pending	**23**
Nitrate/Nitrite as N	mg/L	3.5	10.0	8.6	<0.1	<0.1	3.4	2.1	6.1	3.6	3.6	7.0	Pending	**5**
Oil & Grease	mg/L	3	3	<1	2	2	6	2	4	3	6	16	Pending	**3**
Phosphorus, Total	mg/L	4.33	2.73	2.24	1.98	3.78	4.03	3.98	7.36	7.27	6.22	3.84	Pending	**5**
pH	pH units	7.3	7.4	7.8	7.0	7.1	6.4	7.5	7.4	7.6	7.6	7.4	7.4	**8**
Sodium Adsorption Ratio	Ratio	3	3	3	3	3	3	3	3	3	3	3	Pending	**3**
Sodium (dissolved)	mg/L	50.9	70.3	62.2	55.4	62.8	73.6	62.6	72.5	68.8	64.2	68.2	62.6	**70**
Total Kjeldahl Nitrogen	mg/L	5	4	6	10	15	24	22	36	32	30	22	Pending	**18**
Total Suspended Solids	mg/L	58	50	49	21	26	28	12	14	10	6	37	Pending	**35**

Fortnightly Sampling of Treated Effluent - Bidgee Banks Golf Course (Golf Course Pond Inlet)														
Parameter	Units	31/3/20	14/4/20	22/4/20	22/5/20	2/6/20	19/6/20	30/6/20	14/7/20	29/7/20	11/8/20	25/8/20	25/8/20	**Average**
Biochemical Oxygen Demand	mg/L	46	29	32	19	20	37	21	9	10	10	41	Pending	**22**
Calcium (dissolved)	mg/L	19	24.1	26.5	21.4	24.4	24.5	20.8	22.2	22	23	26.5	27	**21**
Faecal coliforms	cfu/100mL	48500	280000	20000	222000	14000	100000	55600	233000	27800	4040	5050	7070	**56766**
Conductivity	µS/cm	537	569	627	690	725	693	788	740	747	742	648	749	**689**
Magnesium (dissolved)	mg/L	6.18	7.62	9.42	7.50	8.38	9.31	8.22	8.25	8.81	9.19	12.80	10.20	**7**
Nitrogen, total	mg/L	24	26	24	31	31	36	34	31	38	34	25	Pending	**35**
Nitrate/Nitrite as N	mg/L	6.9	12.0	8.7	5.8	5.6	5.0	4.9	2.3	6.6	6.6	7.9	Pending	**8**
Oil & Grease	mg/L	4	3	1	1	1	4	3	3	8	4	7	Pending	**4**
Phosphorus, Total	mg/L	4.79	3.30	3.48	4.82	6.98	5.16	5.54	6.19	7.31	4.72	3.73	Pending	**7**
pH	pH units	9.1	8.7	8.1	7.3	7.6	6.9	7.8	7.5	7.6	7.6	7.6	7.4	**8**
Sodium Adsorption Ratio	Ratio	3	3	4	3	3	3	3	3	3	3	3	Pending	**3**
Sodium (dissolved)	mg/L	54.8	77.2	82.7	59.9	68.8	72.5	67	64.4	63.2	61	75.8	60.7	**69**
Total Kjeldahl Nitrogen	mg/L	17	14	15	25	25	31	29	29	31	27	17	Pending	**24**
Total Suspended Solids	mg/L	131	111	58	43	26	66	47	9	11	12	10	Pending	**59**

Bidgee Banks Golf Course (Maturation Pond Outlet)														
Parameter	Units	31/3/20	14/4/20	22/4/20	22/5/20	2/6/20	19/6/20	30/6/20	14/7/20	29/7/20	11/8/20	25/8/20	25/8/20	**Average**
Biochemical Oxygen Demand	mg/L	41	22	32	43	23	30	24	13	26	10	7	Pending	**21**
Calcium (dissolved)	mg/L	18.9	24.6	21.2	22.3	23.5	25.2	22.7	22.5	21.9	24.5	25.3	28.0	**20**
Faecal coliforms	cfu/100mL	52500	300000	100000	3330000	12700	100000	44400	66700	62200	1010	13100	7070	**142605**
Conductivity	µS/cm	525	584	675	761	743	684	800	818	723	722	583	775	**667**
Magnesium (dissolved)	mg/L	6.11	7.92	7.62	7.69	8.03	9.83	9.03	8.62	9.30	10.00	12.70	10.10	**7**
Nitrogen, total	mg/L	25	40	20	44	35	37	35	36	39	34	26	Pending	**34**
Nitrate/Nitrite as N	mg/L	7.1	24	<0.1	9.3	6.3	5.7	5.8	4.2	9.7	8	10.7	Pending	**8**
Oil & Grease	mg/L	6	5	<1	1	2	4	2	3	4	4	7	Pending	**5**