

**SOUTH TIPPERARY COUNTY COUNCIL**



**CAPPAWHITE**

**WASTEWATER DISCHARGE LICENCE**

**REGISTER NUMBER D0440-01**

**ANNUAL ENVIRONMENTAL REPORT**

**1<sup>st</sup> JANUARY 2011 to DECEMBER 31<sup>ST</sup> 2011**

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## **1. INTRODUCTION**

The Environmental Protection Agency on 19<sup>th</sup> January 2011 granted South Tipperary County Council a Wastewater Discharge Licence (Register No D0440-01) in respect of the agglomeration named Cappawhite. One of the provisions of the licence (Condition 6.10) is that the Council submit to the Agency at the end of the year an 'Annual Environmental Report' (AER) to provide a summary of activities relevant to the discharges for that year. This is the first Annual Environmental Report (AER) for Cappawhite Wastewater Treatment Plant and includes the information specified in Schedule D of the licence.

This AER has been prepared in accordance with the Environmental Protection Agency (EPA) document: - "Guidance on the Preparation & Submission of the Annual Environmental report (AER) for Waste Water Discharge Licences".

### **1.1 Site Information**

The Cappawhite Wastewater Treatment Plant is located in the townland of Philipstown, approximately 1.5km south of Cappawhite village, Co. Tipperary.

Wastewater flows to the plant by gravity via a combined sewer system and comprises domestic and non-domestic wastewater sources.

The plant is designed for a biological capacity of 1750 pe. The plant provides tertiary treatment via an activated sludge membrane bio reactor system, including pre treatment, phosphorus removal and sludge storage facilities.

The Primary discharge occurs into the Cappawhite stream which is a tributary of the River Dead. There are tow storm water overflows in the agglomeration. There are no secondary discharges or emergency overflows in the agglomeration.

An audit of the Cappawhite Wastewater Treatment Plant was also undertaken by the EPA in December 2011.

### **1.2 Primary Discharge Point SW1**

The Primary Discharge Point SW1, discharges to the Cappawhite Stream at 188612 E, 146179 N

### **1.3 Storm Water Overflows**

There are 2 storm water overflow discharge locations each of which when operational discharges to the Cappawhite Stream or a tributary of it. The locations of the storm water overflows are as follows.

- SW1 located at overflow discharge from inlet sump and storm tank at the WWTP, 188612 E, 146179 N
- SW2 located east of Crescent Court housing estate, 188868 E, 147600 N.

### **1.4 Wastewater Treatment Plant Management**

Cappawhite wastewater treatment plant is operated and managed by the Water Services Section of South Tipperary County Council, County Hall, Emmet Street, Clonmel.

## 2. SUMMARY OF MONITORING REPORTS

### 2.1 Summary report on monthly influent monitoring

Table 1 is a tabular presentation of the wastewater treatment plant influent monthly monitoring results for BOD, COD, Suspended Solids, Total Nitrogen and Total Phosphorus as required by Condition 4.13 of the Discharge Licence. Monitoring results for Ph, Ammonia (N) and Ortho P are also included.

**Table 1: Waste water treatment plant influent monitoring results.**

Date	Flow	BOD	COD	SS	TN	TP	pH	Amm	Ortho P
	m3	mg/l	mg/l	mg/l	mg/l	mg/l	value	mg/l	mg/l
25/1/2011	73	76	195	86	49.5	5.9	7.86	NT	NT
8/2/2011	52	NT	NT	NT	NT	NT	NT	NT	NT
29/3/2011	131	152	463	280	44	6.13	7.78	NT	NT
21/4/2011	97	46.5	146	55	30	1.7	7.52	NT	NT
18/5/2011	134	75.4	201	70	25	3.85	7.74	24	NT
15/6/2011	140	172.8	393	130	29	8.5	7.89	6.2	NT
20/7/2011	63	NT	NT	NT	NT	NT	NT	NT	NT
23/8/2011	67	289	973	422	NT	NT	7.62	79	7.25
16/9/2011	197	NT	351	92	NT	NT	8.61	37	2.5
27/10/2011	168	98.4	260	112	NT	NT	7.92	18.4	2.5
23/11/2011	258	62.2	164	82	NT	NT	7.6	9	0.75
8/12/2011	158	14.1	63.4	27	NT	NT	7.7	4.1	0.35
<i>Average</i>		<i>109.6</i>	<i>321</i>	<i>136</i>	<i>35.5</i>	<i>5.2</i>	<i>7.8</i>	<i>25.4</i>	<i>2.67</i>

#### Determination of the Population Equivalent load to the WWTP

The total influent for the year 2011 was 51,145 m3 per Tables No 3 and No 4 below

The flow weighted averaged influent BOD as calculated per Table 2 below is 96.6 mg/l

Cappawhite population equivalent was determined by the following formula:

Total Influent Flow for 2011 x flow-weighted averaged influent BOD divided by (0.06x365x1000).

Therefore the PE = (51,145 x 96.9) / (0.06 x 365 x 1000) = **226**

**Table 2: Influent BOD Calculation sheet**

Date	Influent Flow	Influent BOD	BOD (Kg)
25/1/2011	73	76	5.6
29/3/2011	131	152	19.9
21/4/2011	97	46.5	4.5
18/5/2011	134	75.4	10.1
15/6/2011	140	172.8	24.2
20/7/2011	63 (N/A)	NT	N/A
23/8/2011	67	289	19.4
16/9/2011	197(N/A)	NT	N/A
27/10/2011	168	98.4	16.5
23/11/2011	258	62.2	16
8/12/2011	158	14.1	2.22
<b>Total</b>	<b>1226 m3</b>		<b>118.4 Kg</b>

The Flow weighted average BOD is  $118.4 \text{ Kg} \times 1000 / 1226 \text{ m}^3 = 96.6 \text{ mg/l}$

## 2.2 Discharges from the agglomeration

The primary discharge point monitoring results for the parameters as set out in Schedule B.1 of the licence is presented in tabular form on the following Tables 3, 4, and 5. Tables 3 and 4 contain daily flows (m<sup>3</sup>/day)

The highest daily flow of 399 m<sup>3</sup> was recorded on 28/11/2011

The lowest daily flow of 40 m<sup>3</sup> was recorded on 13/7/2011

The average daily flow for 2011 was 140 m<sup>3</sup> /day

The total flow for the year 2011 was 51,145 m<sup>3</sup>

### 2.2.1 Nutrient Removal Efficiencies

A summary of the nutrient removal efficiencies for N and P are given in Table 2.1 below. The removal efficiency was calculated at 64 % for N and 77 % for P based on annual average figures.

**Table 2.1 Removal Efficiencies for P and N**

Annual Average Influent TN (mg/l)	Annual Average Effluent TN (mg/l)	Removal Efficiency %
35.5 mg/l	12.8 mg/l	64%
Annual Average Influent TP (mg/l)	Annual Average Effluent TP (mg/l)	Removal Efficiency
5.2 mg/l	1.2 mg/l	77%

**Table 3: Primary discharge point daily monitoring results as set out in Schedule B.1 of the licence for Flow (m3/day) for the months of January to June 2011**

<b>Day</b>	<b>January</b>	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>
1	122	69	153	119	236	120
2	121	73	152	230	272	123
3	115	49	154	159	247	126
4	109	67	150	143	249	80
5	91	103	151	147	194	60
6	82	131	150	136	272	75
7	80	142	149	128	247	65
8	79	52	146	129	249	227
9	79	131	145	126	194	235
10	78	169	145	123	126	231
11	77	167	144	115	127	144
12	79	166	135	130	140	136
13	82	164	143	199	130	148
14	82	160	141	98	135	132
15	76	160	142	72	150	140
16	78	156	141	33	120	119
17	80	154	142	34	138	122
18	74	151	143	53	134	116
19	76	153	135	76	131	119
20	74	150	139	98	141	121
21	73	154	141	97	134	117
22	72	153	98	98	138	119
23	74	156	73	96	139	176
24	73	151	82	98	133	169
25	73	150	62	97	140	181
26	76	146	77	88	132	173
27	74	151	88	87	131	179
28	71	150	131	89	143	89
29	75		131	90	140	99
30	71		178	119	136	95
31	70		93		138	



**Table 4: Primary discharge point daily monitoring results as set out in Schedule B.1 of the licence for Flow (m3/day) for the months of July to December 2011.**

<b>Day</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>October</b>	<b>November</b>	<b>December</b>
1	92	76	66	227	184	198
2	96	101	84	175	202	215
3	84	71	140	150	202	203
4	104	68	167	87	185	196
5	93	66	138	114	171	180
6	211	73	195	180	158	162
7	207	99	146	91	145	151
8	201	85	104	172	145	158
9	193	96	75	111	172	179
10	86	72	172	107	181	134
11	90	123	112	97	180	132
12	74	116	85	126	185	164
13	40	121	87	96	191	156
14	53	116	68	137	191	188
15	48	125	74	156	193	209
16	42	114	197	109	189	211
17	49	83	360	134	177	256
18	41	82	287	184	278	263
19	73	74	143	123	269	303
20	63	77	93	111	265	279
21	66	67	84	107	247	332
22	80	70	77	171	238	345
23	79	67	112	170	258	304
24	80	95	77	215	353	298
25	71	105	95	188	337	276
26	54	82	62	180	340	254
27	76	86	116	168	349	308
28	79	64	82	166	399	312
29	72	65	72	185	375	348
30	67	64	227	168	361	352
31	71	68		183		322

### 2.2.2 Monitoring of Primary Wastewater Discharge SW1

Table 5 below shows the results for the parameters BOD, COD, Suspended Solids, TN, TP, Ortho P, Ammonia (N), and pH. The monitoring results demonstrate that the wastewater treatment plant is generally operating well.

**Table 5 Monitoring of Primary Wastewater Discharge SW1**

	BOD mg/l	COD mg/l	SS mg/l	TN mg/l	TP mg/l	Ortho P mg/l	Amm mg/l	pH value
25/1/2011	0	45	0	8.1	0.9	NT	NT	7.98
29/3/2011	0.4	39	13	2	2.38	NT	0.04	8.48
21/4/2011	0.6	31	6	20.6	0.07	0.47	0.6	7.89
10/5/2011	NT	22	NT	NT	NT	NT	NT	NT
18/5/2011	1.08	30	6	13	1.08	NT	0.39	8.27
15/6/2011	1.14	28	6	7.8	1.4	0.41	4.2	7.7
20/7/2011	2.18	20	3	NT	NT	1.8	0.14	8.01
23/8/2011	5.68	82.5	58	NT	NT	2.4	0.8	8.32
16/9/2011	0.51	30.8	2	NT	NT	0.49	0.09	7.89
27/10/2011	2.48	16	5	NT	NT	1	0.14	8.06
23/11/2011	0.75	12	3	NT	NT	0.38	0.05	8.12
8/12/2011	2.85	54	12	NT	NT	0.25	0.08	8.3
<b>Average</b>	<b>1.6</b>	<b>34.2</b>	<b>10.4</b>	<b>12.8</b>	<b>1.2</b>	<b>0.90</b>	<b>0.65</b>	<b>8.1</b>

**Comment:**

An analysis of the results and compliance with licence requirements are given in Appendix A of this AER. Exceedences on the Suspended Solids occurred on 29/3/2011, 23/8/2011 and 8/12/2011. The exceedences on the 29/3/2011 and 23/8/2011 were minimal at 13 mg/l and 12mg/l respectively. These exceedences were due to transient operational issues with the plant. Exceedences of Ortho P also occurred on the 20/7/2011 and 23/8/2011. Full testing of all parameters will be undertaken in 2012.

### 2.3 Ambient monitoring summary

The ambient monitoring results for the parameters as set out in **Schedule B.4** of the licence is presented in table No 6 (Upstream) and table No 7 (Downstream) below.

**Table 6 Ambient monitoring at aSW-I U upstream of SW I (189019E 146310N)**

Sample Date	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH
	mg/l as N	mg/l	mg/l	mg/l as P	value
25/01/2011	0.0817	0.26	11.82	0.039	8.01
29/03/2011	0.0358	0.5	10.79	0.042	8.16
23/08/2011	0.016	0.24	8.5	0.033	8.03
15/10/2011	0.08	0.62	NT	NT	7.34

**Table 7 Ambient monitoring at aSW-Id downstream of SW I (188287E 146311N)**

Sample Date	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH
	mg/l	mg/l	mg/l	mg/l	value
25/01/2011	1.2468	0.8	10.54	0.09	7.8
29/03/2011	0.0207	0.51	10.12	0.061	8.02
23/08/2011	0.066	0.3	9.13	0.04	8.09
15/10/2011	1.64	2.02	NT	NT	7.22

#### Small Stream Risk Score Assessment

**SSRS Score Upstream 8.0**

**SSRS Score Downstream 8.8**

#### **2.4 Data and reporting requirements under the Urban Waste Water Treatment Directive**

It is confirmed that the annual urban wastewater information for agglomerations and treatment Plants with a population equivalent greater than 500 for the year 2011 was submitted to the EPA in electronic form in 2011.

#### **2.4 Pollutant Release and Transfer Register (PRTR) – Report for previous year (2011)**

This information has been submitted electronically to the EPA.

Both the AER/PRTR Emissions Data information (i.e all relevant worksheets including the Facility ID and Activities sheet) has been printed out and included in this section of the AER -see Appendix B attached.

#### **2.5 Pollutant Release and Transfer Register (PRTR) – Report for current year.**

This requirement is covered under the electronic submission in 2.5 above and no further details are included as part of this AER.

### 3.0 Complaint and Incident Reports

#### 3.1 Complaints summary

There were no complaints of an environmental nature related to the discharge to water from the Cappawhite wastewater treatment plant in 2011.

*Table 8: Complaints*

<b>Date and Time</b>	<b>Name of Complainant</b>	<b>Nature of Complaint</b>	<b>Response to Complaint</b>	<b>Closed (Y/N)</b>
None	None	None	None	N/A

#### 3.2 Reported Incidents Summary

There was no recorded incident in relation to the Cappawhite wastewater treatment facility in 2011.

*Table 9: Incidents Summary*

<b>Date and Time</b>	<b>Incident Description</b>	<b>Authorities Contacted</b>	<b>Corrective Action</b>	<b>Closed (Y/N)</b>
None	None	None	None	N/A

#### **4.0 Infrastructural Assessments and Programme of Improvements**

##### **4.1 Treatment capacity**

The total influent flow for the year 2011 was 51,145 m<sup>3</sup> per Tables No3 and No 4

The flow-weighted averaged influent BOD as calculated per Table 2 is 96.9 mg/l

The Cappawhite population equivalent was determined at 226pe, while the design pe for the plant is 1,750 pe. This demonstrates that the plant is operating within its treatment and design capacity at present.

##### **4.2 Storm water overflow identification and inspection report**

This report is not required for submission to the EPA until the second AER and will be submitted then.

##### **4.3 Report on progress made and proposals being developed to meet the improvement programme requirements**

This report is not required for submission to the EPA until the second AER and will be submitted then.

## Appendix A

### Summary of Cappawhite Effluent Data and Non compliant tests recorded in 2011

Sample From Effluent		Ammonia mg/l as N	Suspended Solids mg/l	cBOD 5d with nitrification inhibition mg/l	Chemical Oxygen Demand mg/l	pH Value pH unit	Total Phosphorus (as P) mg/l	Soluble Reactive Phosphorus (as P) mg/l	Total Nitrogen (as N) mg/l
elv		5	10	10	125	6-9		0.8	
Cappawhite	25/01/2011	NT	0	0	45	7.98	0.9	NT	8.1
Cappawhite	29/03/2011	NT	13	0.4	39	8.48	2.38	NT	2
Cappawhite	21/04/2011	0.46	6	0.6	31	7.89	1.01	NT	20.6
Cappawhite	10/05/2011	NT	NT	NT	22	NT	NT	NT	NT
Cappawhite	18/05/2011	NT	6	1.08	30	8.27	1.08	NT	13
Cappawhite	15/06/2011	4.255	6	1.14	28	7.7	1.4	NT	78
Cappawhite	20/07/2011	0.1463	3	2.18	20	8.01	AR	1.8	AR
Cappawhite	23/08/2011	0.801	58	5.68	82.5	8.32	NT	2.4	NT
Cappawhite	16/09/2011	0.09	2	0.51	30.8	7.89	AR	0.49	AR
Cappawhite	27/10/2011	0.14	5	2.48	16	8.06	AR	1	AR
Cappawhite	23/11/2011	0.05	3	0.75	12	8.12	AR	0.38	AR
Cappawhite	08/12/2011	0.08	12	2.85	54	8.3	NT	0.25	NT
<b>No Tests</b>		8.0	11.0	11.0	12.0	11	5.0	6.0	5.0
<b>Maximum</b>		4.3	58.0	5.7	82.5	8.5	2.38	2.4	78.0
<b>Average Value</b>		0.75	10.4	1.6	34.2	8.1	1.4	1.05	24.3
<b>No samples Failing</b>		0.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0
<b>Compliance with licence</b>		yes	No	yes	yes	yes	yes	No	yes