THE CORPORATION OF THE TOWN OF

GANANOQUE

Canadian Gateway to the 1000 Islands

2023 Annual Wastewater Performance Report

Manager of Public Works, David Armstrong
Superintendent of Water and Wastewater Utilities, Don Richards

January 30, 2024

EXECUTIVE SUMMARY

The Corporation of the Town of Gananoque's Public Utilities Division is pleased to provide the 2023 Annual Wastewater Performance Report. The purpose of this report is to keep the public and Council informed regarding the quality of the Town's Wastewater Treatment and Collection System.

The employees of the Town of Gananoque are committed to and share in the responsibilities for implementing, maintaining, and contributing to the continual improvement of the wastewater system.

This Annual Wastewater Performance Report is prepared in accordance with the Certificate of Approval # 0999-7X8QL3. Included with this report is the analytical data, plant flows, process flow schematic and the overall performance of parameter removals.

David Armstrong
Manager of Public Works

Don Richards
Water and Wastewater Utilities Superintendent

TABLE OF CONTENTS

LIST OF ACRONYMS & DEFINITIONS

Annual Average Concentration	The arithmetic mean of all daily or weekly concentrations, of a contaminant measured during a calendar year.
Annual Average Loading	The value obtained by multiplying the *Annual Average Concentration* of a contaminant by the *Average Daily Flow*.
Average Daily Flow	The cumulative total sewage flow to the sewage works during a calendar year, divided by the number of days during which sewage was flowing to the sewage works that year.
C of A	Certificate of Approval
CFU	Colony Forming Units
L/s	litres per second
m3/d	cubic meters per day
mg/L	milligrams per litre
mL	Milliliter
ML/d	Mega (million) litres per day
MECP	Ministry of the Environment, Conservation and Parks (Ontario)
MOH	Medical Officer of Health
Monthly Average Concentration	The arithmetic mean of all daily or weekly concentrations of a contaminant by the *Average Daily Flow* over the calendar month.
Monthly Average Loading	The value obtained by multiplying the *Monthly Average Concentration* of a contaminate by the *Average Daily Flow.*
O. Reg.	Ontario Regulation

1. Introduction

The following 2023 Annual Wastewater Performance Report is submitted in accordance with Condition 8(4) (a) through (i) of the Certificate of Approval (CofA) # 0999-7X8QL3 for the Gananoque Sewage Lagoons. This report has been prepared by the Town of Gananoque's Public Utilities Staff.

2. Facility Description

The Gananoque Sewage Lagoons have been in operation for over 50 years. The facility is located north of Highway 401, occupying approximately a 1.5 sq. km (150 ha) parcel of land consisting of 3 Cells.

Raw sewage is received in Cell 1 from the East End Pumping Station (EEPS) through a 400mm diameter forcemain. At the EEPS, alum is added to assist in the reduction of phosphorus and total suspended solids. Once the sewage enters the first cell it flows from one cell to the next allowing the settling of solids and reduction of dissolved nutrients. The final effluent of the Lagoon then discharges to the St Lawrence River.

Refer to "**Appendix A"** to review the systematic drawing.

3. Monitoring Raw Influent and Treated Effluent Data

Refer to **"Appendix B"** to review the Summary Performance Report.

3.1 Influent and Effluent Lab Results, Limits and Objectives

Table 1: Raw Influent Results

Raw Influent Parameter	Annual Average Concentration in mg/l
$CBOD_5$	107.58
Total Suspended Solids	171.42
Total Phosphorous	5.68

Table 2: Effluent CBOD5 and Total Suspended Solids

The *Annual Average Concentrations* and *Annual Average Loading of* $CBOD_5$ and Total Suspended Solids shall not exceed the corresponding average and loading concentrations in the below table.

Effluent Parameter	Annual Average Concentration in mg/l	CofA Concentration Objective in mg/l	CofA Concentration Limit in mg/l	Annual Average Loading in kg/day	CofA Loading Objective in kg/day	CofA Loading Limit in kg/day
$CBOD_5$	6.81	25.0	30.0	25.30	133	159
Total Suspended Solids	20.46	25.0	30.0	62.48	133	159

Table 3: Effluent Total Phosphorous

The *Monthly Average Concentration* and *Monthly Average Loading* of Total Phosphorous shall not exceed the corresponding average and loading concentrations in the below table.

Effluent Parameter	Monthly Average Concentration in mg/l	CofA Concentration Objective in mg/l	CofA Concentration Limit in mg/l	Annual Average Loading in kg/day	CofA Loading Objective in kg/day	CofA Loading Limit in kg/day
Total Phosphorous	0.43	1.0	1.0	1.53	5.30	5.30

Table 4: Effluent pH

The effluent pH must be maintained within the range of 5.5 to 9.5 at all times.

Effluent Parameter	**Annual Minimum**	**CofA Minimum Objective**	**CofA Minimum Limit**	**Annual Maximum**	**CofA Maximum Objective**	**CofA Maximum Limit**
pH	5.7	6.0	5.5	9.6	9.0	9.5

The Lagoon treated effluent pH had an exceedance of 9.6 on May 30th, 2023. The pH result of 9.6 was not in conformance with the Certificate of Approvals effluent limits. The Caduceon lab results were received and reviewed on June 13th, 2023.

Once reviewed, the pH meter was re-calibrated to ensure it was operating correctly and samples were collected at each cell of the Lagoon and at the treated effluent discharge. The Ministry of the Environment, Conservation and Parks was notified of this event on June 14th, 2023.

On June 20th, 2023 the Lagoon treated effluent pH was no longer exceeding the effluent pH limit or objective. The below chart displays the pH sample results in response to the exceedance.

Date	Time	Location	Result
June 6, 2023	10:50	Treated Effluent Manhole	9.2
June 13, 2023	09:58	Lagoon Cell 1	7.2
	09:50	Lagoon Cell 2	7.5
	09:44	Lagoon Cell 3	8.9
	09:30	Treated Effluent Manhole	9.2
	11:35	Treated Effluent Manhole	9.3
June 20, 2023	12:23	Treated Effluent Manhole	8.0
June 27, 2023	10:25	Raw Sewage #18 Manhole	7.7
	10:20	Treated Effluent Manhole	7.4
June 28, 2023	15:55	Raw Sewage #18 Manhole	7.7
	14:47	Entering the Lagoon through Cell 1's influent chamber	7.2
	15:02	Leaving the Lagoon's Cell 1 through its effluent chamber	7.4
	15:13	Leaving the Lagoon's Cell 2 through its effluent chamber	7.6
	15:20	Leaving the Lagoon's Cell 3 through its effluent chamber	8.8
	15:50	Treated Effluent Manhole	8.6

Table 5: Effluent E. Coli

The E.Coli *Annual Average Geometric Mean Density* shall stay below 200 organisms/100ml. Geometric Mean Density is the nth root of the product of multiplication of the results of n number of samples over the year.

Effluent Parameter	Annual Average (Geometric Mean Density) Count organisms/100ml	Annual Average Geometric Mean Density Objective Count organisms/100ml
E. Coli	80.03	200

3.2 Flow Data

The annual average daily treated effluent flow in 2023 was 3,647 m3 and the annual average daily raw influent flow was 3,276 m3. Weather conditions account for variations in flow differentials throughout the year. The table below provides the average monthly raw influent and treated effluent flow.

Table 6: Average Monthly Flows

Month	Raw Influent	Treated Effluent
January	119,978	195,445
February	120,472	126,007
March	141,670	144,373
April	124,689	173,191
May	110,519	131,625
June	72,378	64,592
July	76,450	62,682
August	93,973	131,328
September	66,008	66,157
October	67,582	60,251
November	73,104	46,497
December	131,254	131,067

3.3 Bypasses and Overflows

There were 2 overflow events during 2023 at the East End Pumping Station and a breach in the berm of Cell 1 at the Lagoon. All events were reported to the Spills Action Centre, the Ministry of Health and a letter was sent to the Ministry of the Environment, Conservation and Parks Inspector.

Table 7: 2023 Bypass and Overflow Events

Date	Location	Event	Volume	Duration	Cause
January 4, 2023	East End Pumping Station	Overflow	118 m3	1 Hour 14 Minutes	Heavy Precipitation and Snow Melt
April 30, 2023	East End Pumping Station	Overflow	1579 m3	45 Minutes	Heavy Precipitation and Equipment Failure.

* The Lagoon berm leak was discovered on January 9th, 2023 during a routine Lagoon inspection. On October 18th, 2023 the repair of the Lagoon berm was complete. Monitoring of Cell 1 continued to ensure flows are operating as expected

4.0 Operating Challenges and Corrective Action

The operation for the Gananoque Lagoon desludging commenced on June 3rd, 2020 and was completed on July 7th, 2020. The work associated with the dewatered biosolids removal was intermittent between June 6th 2023 to September 27th 2023.

Refer to **"Appendix C"** for the Bishop Water Biosolids Final Report.

4.1 Maintenance on Major Structures and Equipment

All works are subject to the annual budget process and approval by Council. A 10 Year Capital Equipment Replacement Plan has been developed which includes an extensive breakdown of all capital equipment that requires allocated funds for refurbishment or replacement.

Refer to **"Appendix D"** to review the 2023 capital project highlights.

4.2 Effluent Quality Assurances/ Control Measure

The Corporation of the Town of Gananoque is committed to comply with all applicable legislation and regulatory requirements as it pertains to wastewater effluent quality, environmental protection, and customer satisfaction.

Gananoque continues to achieve these goals through the implementation of a Quality Management System consisting of policies, procedures, and forms. These documents demonstrate risk-based treatment process evaluation, Operating Authority competency, open communications, appropriate contingency/incident response measures and response to consumers' concerns in a timely manner.

The employees involved within the Wastewater System share responsibilities of implementing, maintaining and contributing to the continual improvement of the Wastewater QMS.

5.0 Calibrations/Maintenance of Effluent Monitoring Equipment

The influent, effluent and pump station flow meters are calibrated annually for accuracy to within plus or minus 10 percent (+/- 10%) of actual flowrate. The last annual calibration was completed on August 31, 2023.

6.0 Key Contacts

David Armstrong
Manager of Public Works
Phone: 613-382-2149 ext. 1615
Fax: 613-342-5035
Email: pwmanager@gananoque.ca

Don Richards
Utilities Superintendent
Phone: 613-382-2149 ext. 1118
Email: utilitysuperintendent@gananoque.ca

Christine Brennan
Utilities Compliance Coordinator
Phone: 613-382-2149 ext. 1612
Email: utilitycompliance@gananoque.ca

Appendix A

CELL 2

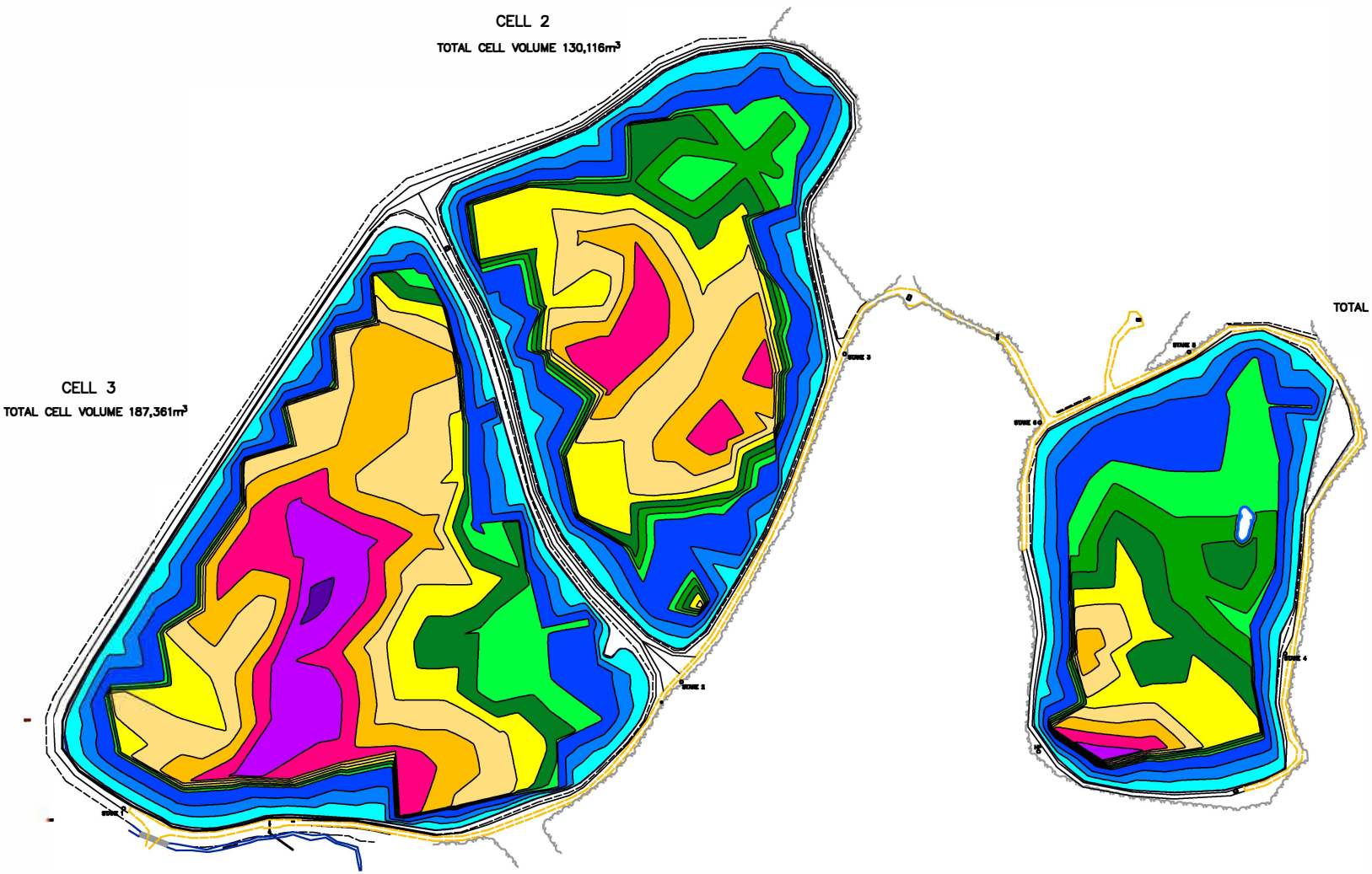
TOTAL CELL VOLUME 130,116m³

CELL 3

TOTAL CELL VOLUME 187,361m³

CELL 1

TOTAL CELL VOLUME 82,536m³



LEGEND
DEPTH OF CELL (METRES)

0.0 – 0.5	
0.5 – 1.0	
1.0 – 1.5	
1.5 – 1.6	
1.6 – 1.7	
1.7 – 1.8	
1.8 – 1.9	
1.9 – 2.0	
2.0 – 2.1	
2.1 – 2.2	
2.2 – 2.3	
>2.3	

TSH engineers architects planners
Totten Sims Hubicki Associates (1997) Limited
694 Norris Court
Kingston, Ontario
K7P 2R9
TEL: 613-389-3703
FAX: 613-389-5729
E-mail kingston@tsh.ca
www.tsh.ca

No.	DATE	BY	ISSUES / REVISIONS
1			

CLIENT: TOWN OF GANANOQUE

DRAWN BY:	CHECKED BY:
CTP	SAS
DESIGNED BY:	APPROVED BY:
SAS	GNL
SCALE: 1:1,000	DATE: SEPTEMBER 2007

PROJECT: GANANOQUE LAGOON SEWAGE TREATMENT SYSTEM

DRAWING: DEPTH OF CELL

PROJECT No.: 52-27908

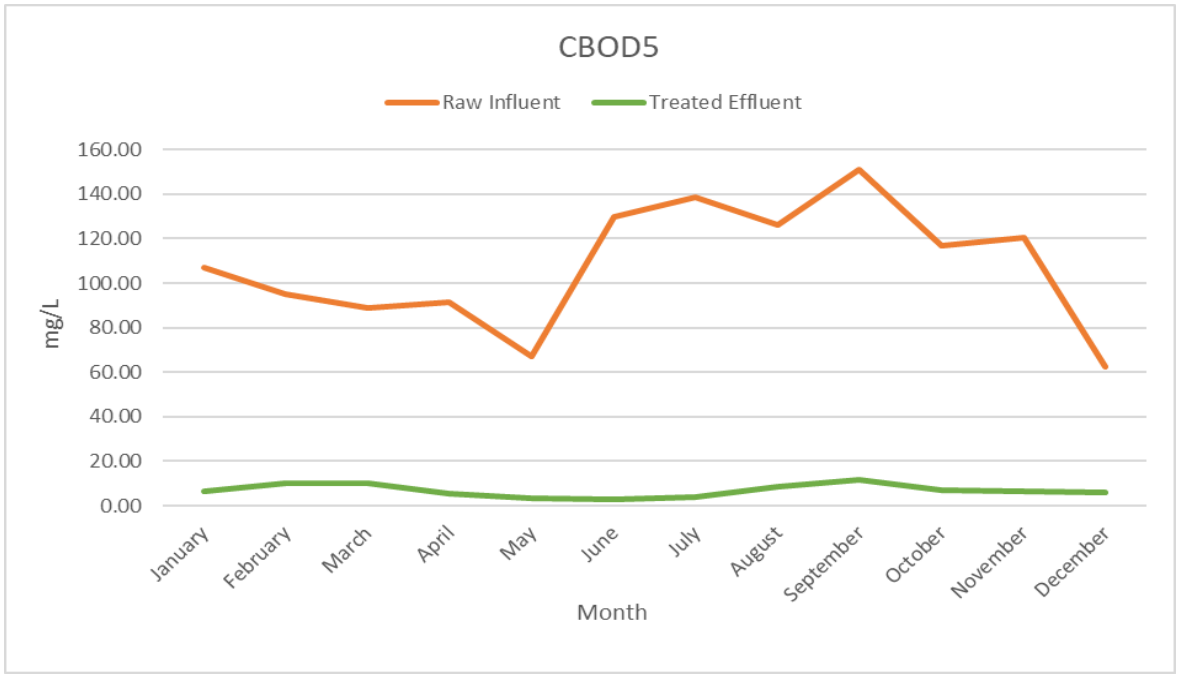
DRAWING No.: 1

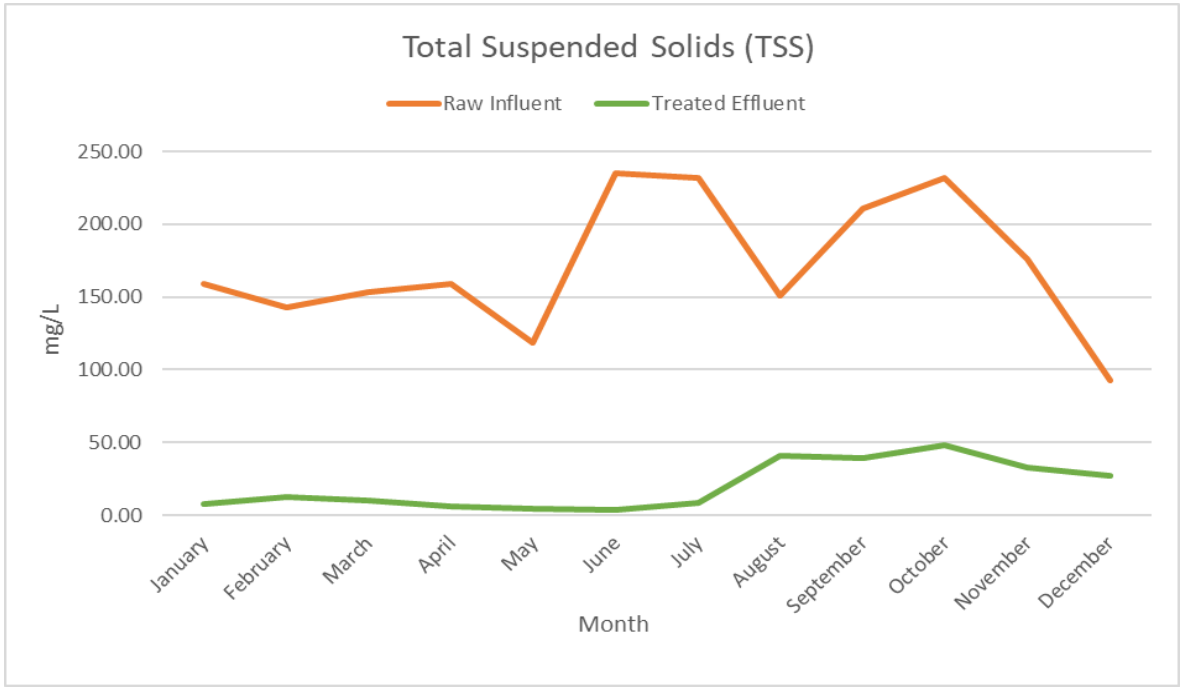
Appendix B

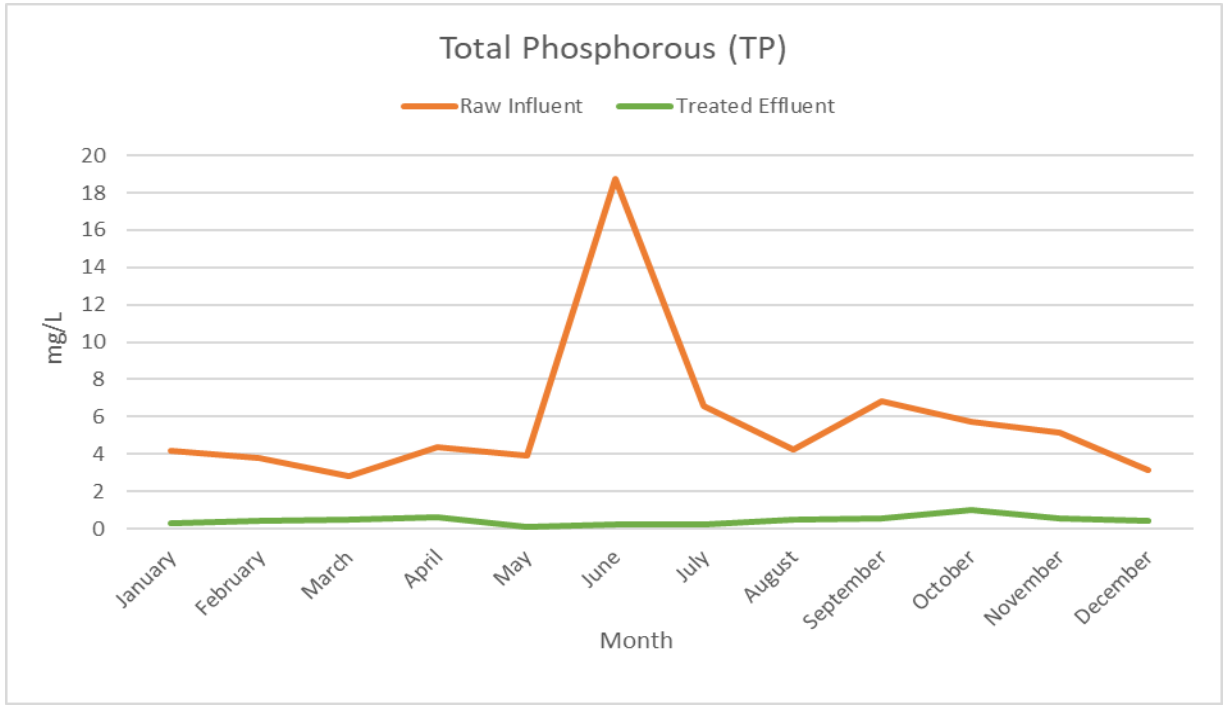
GANANOQUE

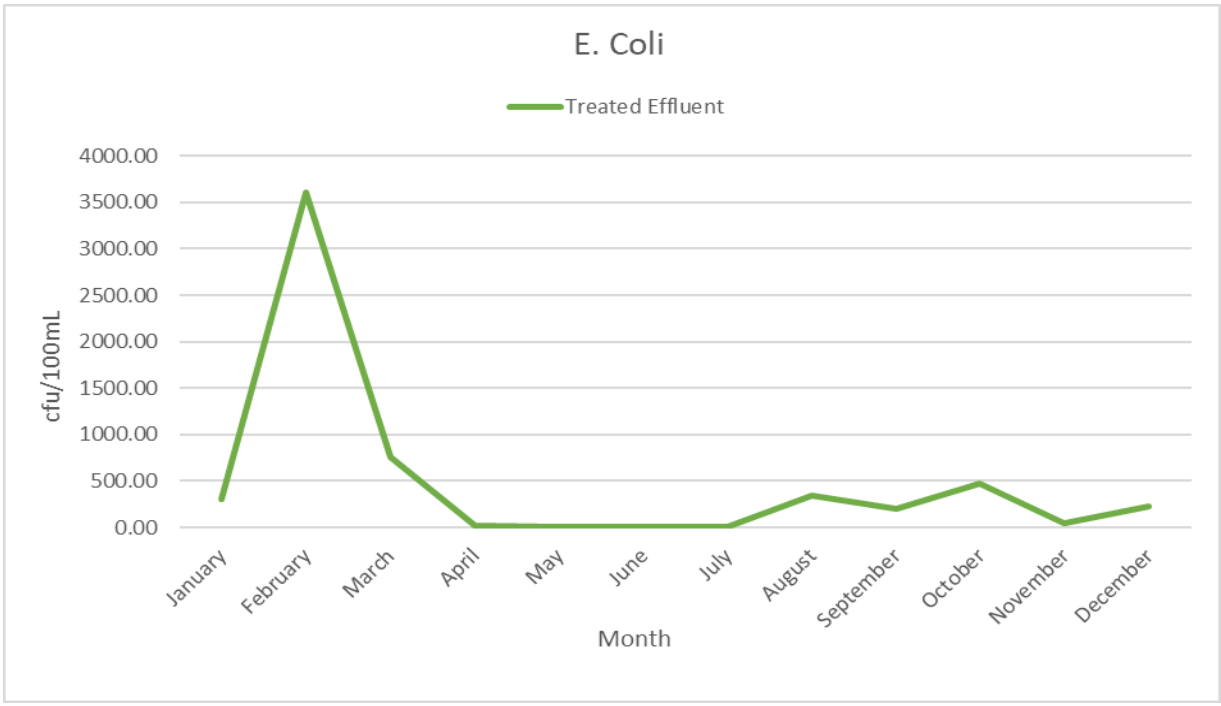
Summary Performance Report

		Flows				Raw			Treated				Performance		
Month	Days	Raw m3	Average Raw Day m3	Treated m3	Average Treated Day m3	Raw CBOD5 mg/L	Raw TSS mg/L	Raw TP mg/L	Treated CBOD5 mg/L	Treated TSS mg/L	Treated TP mg/L	E.Coli (Monthly Geometric Mean) cfu/100mL	Removals %CBOD5	%TSS	%TP
January	31	119,978	3,870	195,445	6,305	107.20	159.40	4.16	6.60	8.00	0.27	305.20	93.84	94.98	93.51
February	28	120,472	4,303	126,007	4,500	95.00	142.50	3.76	10.00	12.25	0.41	3602.64	89.47	91.40	89.10
March	31	141,670	4,570	144,373	4,657	88.75	153.75	2.8	10.25	10.50	0.46	760.53	88.45	93.17	83.57
April	30	124,689	4,156	173,191	5,773	91.25	158.75	4.39	5.25	6.25	0.64	24.30	94.25	96.06	85.42
May	31	110,519	3,565	131,625	4,246	67.00	118.60	3.94	3.20	4.20	0.07	4.80	95.22	96.46	98.22
June	30	72,378	2,413	64,592	2,153	129.75	235.25	18.72	3.00	3.50	0.26	1.32	97.69	98.51	98.61
July	31	76,450	2,466	62,682	2,022	138.50	232.00	6.56	4.00	8.25	0.22	2.51	97.11	96.44	96.65
August	31	93,973	3,031	131,328	4,236	126.20	151.20	4.22	8.40	40.60	0.46	342.80	93.34	73.15	89.10
September	30	66,008	2,200	66,157	2,205	151.25	211.25	6.83	11.50	39.25	0.53	195.21	92.40	81.42	92.24
October	31	67,582	2,180	60,251	1,944	116.8	232.00	5.75	7.20	48.00	0.98	474.84	93.84	79.31	82.96
November	30	73,104	2,358	46,497	1,500	120.3	176.00	5.13	6.75	33.00	0.54	49.66	94.39	81.25	89.47
December	31	131,254	4,234	131,067	4,228	62.25	92.50	3.12	6.00	27.00	0.42	232.50	90.36	70.81	86.54


CBOD5
Raw Influent
Treated Effluent
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
mg/L
January
February
March
April
May
June
July
August
September
October
November
December
Month


Total Suspended Solids (TSS)
Raw Influent
Treated Effluent
250.00
200.00
150.00
100.00
50.00
0.00
mg/L
January
February
March
April
May
June
July
August
September
October
November
December
Month


Total Phosphorous (TP)
Raw Influent
Treated Effluent
20
18
16
14
12
10
8
6
4
2
0
mg/L
January
February
March
April
May
June
July
August
September
October
November
December
Month


E. Coli
Treated Effluent
4000.00
3500.00
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
cfu/100mL
January
February
March
April
May
June
July
August
September
October
November
December
Month

Appendix C

BISHOPWATER
16 Edward Street South, Unit 203, Arnprior, ON K7S 3W4
www.bishopwater.ca info@bishopwater.ca
Phone: 343-361-0463
Fax: 1(844) 272-6102
INTELLIGENT SOLUTIONS FOR WATER

FINAL REPORT

Final Notification of Dewatered Biosolids Removal, Gananoque, ON

ECA 1426-8ADGZH
Section 23.2 (a) "Final Report"

2023-10-19

Attention:

Suzanne Smith

Water Inspector/Provincial Officer, Badge #1511
Ministry of the Environment, Conservation and Parks
Drinking Water and Environmental Compliance Division
Kingston District Office | P: 613-540-6871 \ C: 613-453-9687 \ F: 613-540-6876
Email: suzanne.smith@ontario.ca
CC - Cathy.Chisholm@ontario.ca

Prepared by:

Bishop Water Inc.
Unit 203 - 16 Edward St. S
Arnprior, Ontario, Canada
K7S 3W4

Table of Contents

1.0 Introduction

The following final report has been provided in accordance with Condition 23.2 (a) " Final report" of ECA 1426-8ADGZH for the sludge removal and sludge dewatering as well as dewatered biosolids removal at the Gananoque Sewage Lagoons.

Dewatered biosolids were removed from all four (4) 100' circumference x 86' length Geotube units at the Gananoque Sewage Lagoons. *(44.346623, -76.152075) in Gananoque, ON.*

2.0 Project Timeline

Operation for Gananoque lagoon desludging commenced on June 3, 2020 and was completed on July 7, 2020.

Please refer to Table 2 (located below) for a 2020 project timeline.

Table 1. *Lagoon Sludge Removal & Sludge Dewatering Project Timeline.*

Pre-Operation District Office Notification and Pre-Operation Municipal Notification (Section 19.1 and 19.2 ECA 1426-8ADGZH)	April 13th, 2020
Mobilization to Site	May 25th, 2020
Start of desludging operation	June 3th, 2020
End of desludging operation	July 7th, 2020
Demobilization of dredging equipment from Site	July 13th, 2020
MECP Extension Letter #1 (extend Geotube dewatering)	September 2, 2021
MECP Extension Letter #2 (extend Geotube dewatering)	August 3, 2022
MECP Extension Letter #3 (extend Geotube dewatering)	September 7th, 2023

Work associated with the dewatered biosolids removal was intermittent between June 6th - September 27th 2023. Work commenced with on-site treatment trials on June 6, 2023 and commenced with final removal from Site and demobilization of equipment on September 27, 2023.

Please refer to Table 2 (located below) for a timeline breakdown for the dewatered biosolids removal.

Table 2. Dewatered Biosolids Removal Project Timeline.

Pre-Operation District Office Notification and Pre-Operation Municipal Notification (Section 19.1 and 19.2 ECA 1426-8ADGZH)	May 19th, 2023
Trial Phase	June 6th - July 20th, 2023
Full Scale Trucking Phase	August 8th- September 27th, 2023
Demobilization from Site	September 27th, 2023

3.0 Summary of Dewatered Biosolids Removal Work

Bishop Water completed a trial (June 6th - 13th) consisting of ~8 m^3 of dewatered biosolids mixed with monopotassium phosphate fertilizer (MKP) to treat the leachable cadmium. The trial concluded that the MKP treated the leachable cadmium to non-hazardous levels, however the mixing process caused a liquefaction issue.

Bishop Water completed another trial (July 20th - 30th) with the same ~8 m^3 of dewatered biosolids mixed with monopotassium phosphate fertilizer (MKP) and Metaflo MF006 solidification agent. This both treated the leachable cadmium to non-hazardous level and solved the liquefaction issue (made it so the treated dewatered biosolids passed a slump test after mixing).

Bishop Water mixed the MKP and MF006 with all dewatered biosolids on Site with an excavator. Once each zone went through third-party lab testing to confirm non-hazardous levels of cadmium and a passing slump test the material was trucked off Site to GFL Moose Creek facility for disposal (August 8 - September 27th).

4.0 Volume/Weight Trucked Off-Site

A total of 94 truckloads for a total of 1493.36 metric tons (MT) was removed from the Site and taken to the GFL facility located at 17335 Allaire Rd - Moose Creek.

Please refer to Table 2 for a full load summary.

Table 2. Truckload summary.

Load #	Date	Net Weight	Unit of Measure
1	Sept /8/2023	8.74	MT
2	Sept/11/2023	18.85	MT
3	Sept/11/2023	14.85	MT
4	Sept/11/2023	16.37	MT
5	Sept/11/2023	15.03	MT
6	Sept/11/2023	15.68	MT
7	Sept/11/2023	16.67	MT
8	Sept/11/2023	14.43	MT
9	Sept/11/2023	16.94	MT
10	Sept/11/2023	16.14	MT
11	Sept/11/2023	16.06	MT
12	Sept/11/2023	13.19	MT
13	Sept/12/2023	15.05	MT
14	Sept/12/2023	15.8	MT

15	Sept/12/2023	14.48	MT
16	Sept/12/2023	15.33	MT
17	Sept/12/2023	18.64	MT
18	Sept/12/2023	14.8	MT
19	Sept/12/2023	16.35	MT
20	Sept/12/2023	16.01	MT
21	Sept/12/2023	11.56	MT
22	Sept/12/2023	14.74	MT
23	Sept/12/2023	16.25	MT
24	Sept/12/2023	14.16	MT
25	Sept/13/2023	15.35	MT
26	Sept/13/2023	13.84	MT
27	Sept/13/2023	14.19	MT
28	Sept/13/2023	17.98	MT
29	Sept/13/2023	15.22	MT
30	Sept/13/2023	13.81	MT
31	Sept/13/2023	13.49	MT
32	Sept/13/2023	14.93	MT
33	Sept/13/2023	17.91	MT
34	Sept/13/2023	15.93	MT
35	Sept/13/2023	17.61	MT
36	Sept/13/2023	15.73	MT
37	Sept/13/2023	15.33	MT
38	Sept/13/2023	14.79	MT
39	Sept/14/2023	16.09	MT
40	Sept/14/2023	15.09	MT
41	Sept/14/2023	17.02	MT
42	Sept/14/2023	16.21	MT
43	Sept/14/2023	16.33	MT
44	Sept/14/2023	15.09	MT

45	Sept/14/2023	15.89	MT
46	Sept/14/2023	16.63	MT
47	Sept/14/2023	18.8	MT
48	Sept/14/2023	17.19	MT
49	Sept/14/2023	15.85	MT
50	Sept/14/2023	15.18	MT
51	Sept/15/2023	15.6	MT
52	Sept/15/2023	16.12	MT
53	Sept/15/2023	14.49	MT
54	Sept/15/2023	18.5	MT
55	Sept/15/2023	14.88	MT
56	Sept/15/2023	13.16	MT
57	Sept/15/2023	15.66	MT
58	Sept/15/2023	14.63	MT
59	Sept/15/2023	16.21	MT
60	Sept/15/2023	19.21	MT
61	Sept/15/2023	15.52	MT
62	Sept/15/2023	17.9	MT
63	Sept/15/2023	14.36	MT
64	Sept/15/2023	15.09	MT
65	Sept/15/2023	15.7	MT
66	Sept/15/2023	14.73	MT
67	Sept/20/2023	16.42	MT
68	Sept/20/2023	15.82	MT
69	Sept/20/2023	13.88	MT
70	Sept/20/2023	13.5	MT
71	Sept/20/2023	15.88	MT
72	Sept/20/2023	14.38	MT
73	Sept/20/2023	19.23	MT
74	Sept/20/2023	17.72	MT

75	Sept/20/2023	16.16	MT
76	Sept/20/2023	17.11	MT
77	Sept/20/2023	16.53	MT
78	Sept/20/2023	16.72	MT
79	Sept/20/2023	15.57	MT
80	Sept/20/2023	16.38	MT
81	Sept/20/2023	21	MT
82	Sept/21/2023	16.4	MT
83	Sept/21/2023	14.95	MT
84	Sept/21/2023	16.81	MT
85	Sept/21/2023	14.75	MT
86	Sept/21/2023	18.14	MT
87	Sept/21/2023	19.16	MT
88	Sept/21/2023	14.04	MT
89	Sept/21/2023	15.75	MT
90	Sept/21/2023	14.81	MT
91	Sept/21/2023	9.98	MT
92	Sept/21/2023	16.42	MT
93	Sept/25/2023	26.83	MT
94	Sept/27/2023	19.66	MT
	TOTAL	1493.36	

5.0 Photographs

Below are key photographs collected during the work.

Figure 1. *Loading truck.*

6.0 Conclusion

Bishop Water was able to remove all dewatered biosolids from the site (1493.36 MT total).

Regards,

Breanna Foster
Project Coordinator
Bishop Water Inc.

Appendix D

CARRY FORWARD CAPITAL PROJECTS

PROJECT NAME:	Water / Wastewater Carry Forward Capital Projects (2020-2021-2022)
YEAR:	2023
COST CENTRE:	Capital reserve funded through wastewater revenues
LOCATION:	Gananoque Water Treatment Water Distribution Wastewater Collection Wastewater Treatment Lagoon System
LENGTH:	On-Going
YEAR FIRST INTRODUCED:	2020
PREPARED BY	D. Richards
DATE	November 10, 2022
SCOPE:	Provides for the capital needs for the Gananoque Water / Wastewater Treatment System
WHY REQUIRED:	Allows for coordinated planning for equipment upgrades and maintenance requirements
BENEFITS:	Ensures that all costs are being captured and financed through the wastewater water rates

PROJECT DESCRIPTION:	**NOTES**	**MGR:**	**BUDGET:**
WASTEWATER TREATMENT EAST END PUMP STATION : BLDG. & PROPERTY MNTCE:			
Force Main Upgrades (2016 Capital Carryover 2-5-08147-5400)	EEPS Force Main Upgrades	DR	113,000.00
Building / Structure (2022 Capital Carryover 2-5-08130-5400 / 2-5-08134-5400)	Chemical Building Structure / Chemical Storage	DR	475,000
Engineering Services (2022 Capital Carryover 2-5-08147-5400)	New Wet Well Forcemain / Chemical Building EEPS	DR	150,000
WASTEWATER TREATMENT LAGOON:			
Lagoon Sludge Removal Cell #1(2021-2022 Carryover 2-5-08105-5400)	Biosolids Disposal	DR	891,000
Lagoon Road & Berm (2022 Carryover 2-5-08124-5400)	Increase Freeboard Cell #1, Vegetation Removal	DR	101,000
WASTEWATER COLLECTION / PUMP STATIONS:			
Pump Station SPS#2 (2022 Carryover 2-5-08210-5400)	Station Shelter	DR	25,000
Stone Street SPS (2022 Carryover 2-5-08146-5400)	Communication Upgrades	DR	40,000
SERVICES / METERING:			
Curb Stop (2020/2021/2022 Capital Carryover 2-508322-5400 / 5318)	Replace Curb Stops	DR	33,140
WATER TREATMENT: BLDG. & PROPERTY MNTCE:			
MCC Electrical Upgrades (2022 Carryover 2-5-08320-5400)	Breaker Replacement	DR	50,000
High Lift Pump #4 (2022 Carryover 2-5-08381-5400)	Refurbishment	DR	105,000
High Lift Pump #4 & #5 (2022 Carryover 2-5-08382-5400)	New VFD	DR	220,000
High Lift Discharge Header (2022 Carryover 2-5-08383-5400)	New Pressure Transducer	DR	20,000
WATERMAINS / HYDRANTS / VALVES			
Leak Detection (2022 Carryover 2-5-08328-5400)	Detection Monitoring Equipment	DR	25,000
Distribution Hydraulic Modeling (2022 Carryover 2-5-08384-5400)	Engineering Services	DR	10,000
Water Tower Communications (2022 Carryover 2-5-08316-5400)	Upgrade Communications	DR	43,000
			2,301,140

WASTEWATER COLLECTION CAPITAL PROJECTS

PROJECT NAME:	Wastewater Collection/Construction
YEAR:	2023
COST CENTRE:	Capital reserve funded through wastewater revenues
LOCATION:	Gananoque Wastewater Collection System
LENGTH:	On-Going
YEAR FIRST INTRODUCED:	2020
PREPARED BY	D. Richards
DATE	November 1, 2021
SCOPE:	Provides for the capital needs for the Gananoque Wastewater Collection System
WHY REQUIRED:	Allows for coordinated planning for equipment upgrades and maintenance
BENEFITS:	Ensures that all costs are being captured and financed through the wastewater water rates

PROJECT DESCRIPTION:	NOTES	MGR:	BUDGET:
FULL RECONSTURCTION PROJECTS (SEWER MAINS & LATERALS)			
Engineering	Arthur Street Reconstruction	BW/DA	325,210
Service Lateral Replacements and Linning / Manhole Refurbishment	On-going program to replace failing sewer laterals and manholes	DR	25,000
WATER STREET PUMP STATION #2:			
MAIN STREET PUMP STATION #3:			
Pump #2 & #3	Pump Refurbishment	DR	60,000
STONE STREET PUMP STATION:			
Controls / Communications	PLC / SCADA Integration Upgrades (Additional Fund Request 2-5-08146-5400)	DR	75,000
			485,210

WASTEWATER TREATMENT CAPITAL PROJECTS

PROJECT NAME:	Wastewater Treatment/Construction
YEAR:	2023
COST CENTRE:	Capital reserve funded through wastewater revenues
LOCATION:	Gananoque Wastewater Treatment Lagoon System
LENGTH:	On-Going
YEAR FIRST INTRODUCED:	2020
PREPARED BY	D. Richards
DATE	November 1, 2022
SCOPE:	Provides for the capital needs for the Gananoque Wastewater Treatment System
WHY REQUIRED:	Allows for coordinated planning for equipment upgrades and maintenance
BENEFITS:	Ensures that all costs are being captured and financed through the wastewater water rates

PROJECT DESCRIPTION:	NOTES	MGR:	BUDGET:
WASTEWATER TREATMENT EAST END PUMP STATION : BLDG. & PROPERTY MNTCE:			
WASTEWATER TREATMENT EAST END PUMP STATION:			
EEP Pump #2 (South)	Pump Refurbishment	DR	65,000
WASTEWATER TREATMENT LAGOON:			
			65,000