ANNUAL REPORT

MOUNT FOREST
WASTEWATER TREATMENT SYSTEM

FOR THE PERIOD:
JANUARY 1, 2021 – DECEMBER 31, 2021

Prepared for the Township of Wellington North
by the Ontario Clean Water Agency

ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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1. System Description

In November 2008, the Mount Forest Water Pollution Control Plant began operation. The plant consists of a raw water pumping station, which used to be the old sewage treatment plant. This flow now enters the Influent Works building which contains a vertical bar screen, a washer screw compactor, a circular grit chamber complete with grit extraction equipment and blowers, and a grit dewatering screw all sized to accommodate the hydraulic peak flow rate of 15,000 m^3/d. This conventional wastewater plant uses diffused air supplied by two (2) duty aeration blowers and one (1) standby blower to supply its two (2) aeration tanks and supplements its phosphorous removal using alum. The plant applies its coagulant aid prior to its two square final clarifiers which are fitted with sludge removal scrapers.

Two final effluent single media filters including traveling backwash mechanism and return of backwash to the head of the aeration tanks follow the final clarifiers. The effluent then flows though the ultraviolet disinfection system which consists of two banks, one duty and one standby, with each bank sized for the Peak Flow Rate. The plant is designed to remove suspended solids, BOD_5, and phosphorus from the wastewater. Chlorination of bypasses which are metered is done though a manual sodium hypochlorite drip into the existing chlorine contact chamber at the Raw Sewage Pumping Station.

The sludge digestion and storage is located at the site, and receives sludge from the Mount Forest WPCP and from the Arthur WPCP on an as need basis. Sludge treatment system consists of a five (5) tank aerobic sludge digestion system with a total storage volume of 3,951m^3, equipped with coarse bubble diffusers, submersible mixers and supernatant decanting.

An overview of Mount Forest Wastewater Treatment Plant can be found in Table 1:

Table 1. Mount Forest Wastewater Treatment Plant Overview

Facility Name	Mount Forest Wastewater Treatment Plant
Facility Type	Extended Air STP with Tertiary Treatment
Plant Classification	WWT II
Works Number	120001381
Design Capacity	2,818 m^3/day
Receiving Water	South Saugeen River
Certificate of Approval	6134-73FHHU

2. Monitoring Data and Comparison to Effluent Limits

As per Section 10(5)(a) of C of A 6134-73FHHU, *a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works* is required.

2.1 Sampling Frequency

Both influent (raw sewage) and effluent are sampled on a regular basis. The sampling types and frequencies are summarized in Table 2 and Table 3. The sampling frequencies meet the requirements set out in Section 9 of C of A 6134-73FHHU.

Table 2. Influent **(**Raw Sewage) Monitoring – Sampling Frequencies

Parameter	Sample Type	Frequency
BOD_5*	24-hour Composite	Weekly
Total Suspended Solids*	24-hour Composite	Weekly
Total Phosphorous*	24-hour Composite	Weekly
Total Kjeldahl Nitrogen*	24-hour Composite	Weekly

*Refer to Appendix A for monthly sample results.

Table 3. Effluent Sampling Monitoring – Sampling Frequencies

Parameters	Sample Type	Frequency
$CBOD_{5*}$	24-hour Composite	Weekly
Total Suspended Solids*	24-hour Composite	Weekly
Total Phosphorous*	24-hour Composite	Weekly
Total Ammonia Nitrogen*	24-hour Composite	Weekly
Nitrate Nitrogen*	24-hour Composite	Weekly
E. Coli*	Grab	Weekly
pH	Grab (on-site)	Weekly
Temperature	Grab (on-site)	Weekly

*Refer to Appendix A for monthly sample results.

2.2 Effluent Objectives and Effluent Limits

The effluent objectives as per Section 6 of C of A 6134-73FHHU for the Mount Forest Wastewater Treatment Plant are:

Table 4. Effluent Objectives as per Section 6 of C of A 6134-73FHHU

Effluent Parameter	Concentration Objective (mg/L)	Loading Objective (kg/day)
$CBOD_5$	6.0	17.0
Total Suspended Solids	10.0	28.2
Total Ammonia Nitrogen Dec 01 to Apr 30 May 01 to Nov 30	 4.0 1.5	 11.3 4.2
Total Phosphorous	0.3	0.85
Free Chlorine Residual	0	-
E.Coli	100 CFU/100mL (Monthly Geometric Mean Density)	-
pH of the effluent to be maintained between 6.5 to 8.5, inclusive.		

The effluent limits that are to be met as per Section 7 of C of A 6134-73FHHU for the Mount Forest Wastewater Treatment Plant are found in Table 5. Any exceedance with the limits found in Table 5 constitutes a non-compliance with C of A 6134-73FHHU.

Table 5. Effluent Limits as per Section 7 of C of A 6134-73FHHU

Effluent Parameter	Concentration Limit (mg/L)	Loading Limit (kg/day)
$CBOD_5$	12.5	35
Total Suspended Solids	12.5	35
Total Ammonia Nitrogen Dec 01 to Apr 30 May 01 to Nov 30	 6.0 2.5	 17.0 7.0
Total Phosphorous	0.37	1.05
Free Chlorine Residual	0.02	-
E.Coli	200 CFU/100mL (Monthly Geometric Mean Density)	-
pH of the effluent to be maintained between 6.0 to 9.0, inclusive.		

2.3 Comparison of Data to Effluent Objectives and Effluent Limits

Analytical and monitoring data for the Mount Forest Wastewater Treatment Facility is stored in OCWA's data management system (WISKI). Annual and monthly averages for flows, $CBOD_5$, BOD_5, Total Suspended Solids, Total Phosphorous, Nitrogen-series and E.coli can be found in Appendix A. A comparison of analytical data from effluent samples to the effluent objectives and effluent limits are shown in the tables below:

Table 6.

	$CBOD_5$					
	Monthly Average Concentration (mg/L)	Within Objectives (6.00 mg/L)	Within Limits (12.50 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (17.00 kg/d)	Within Limits (35.00 kg/d)
January	2.00	Yes	Yes	3.01	Yes	Yes
February	2.00	Yes	Yes	2.21	Yes	Yes
March	2.00	Yes	Yes	4.61	Yes	Yes
April	2.00	Yes	Yes	3.39	Yes	Yes
May	2.00	Yes	Yes	2.78	Yes	Yes
June	2.00	Yes	Yes	2.46	Yes	Yes
July	2.00	Yes	Yes	2.69	Yes	Yes
August	2.00	Yes	Yes	2.58	Yes	Yes
September	2.00	Yes	Yes	4.25	Yes	Yes
October	2.50	Yes	Yes	5.76	Yes	Yes
November	2.00	Yes	Yes	3.92	Yes	Yes
December	2.00	Yes	Yes	4.47	Yes	Yes

Table 7.

	Total Suspended Solids					
	Monthly Average Concentration (mg/L)	Within Objectives (10.00 mg/L)	Within Limits (12.50 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (28.20 kg/d)	Within Limits (35.00 kg/d)
January	2.25	Yes	Yes	3.39	Yes	Yes
February	2.00	Yes	Yes	2.21	Yes	Yes
March	2.50	Yes	Yes	5.76	Yes	Yes
April	3.00	Yes	Yes	5.08	Yes	Yes
May	2.50	Yes	Yes	3.48	Yes	Yes
June	2.20	Yes	Yes	2.71	Yes	Yes
July	2.00	Yes	Yes	2.69	Yes	Yes
August	2.75	Yes	Yes	3.55	Yes	Yes
September	3.00	Yes	Yes	6.37	Yes	Yes
October	3.75	Yes	Yes	8.64	Yes	Yes
November	2.50	Yes	Yes	4.90	Yes	Yes
December	2.60	Yes	Yes	5.81	Yes	Yes

Table 8.

	Total Ammonia Nitrogen (Ammonia Nitrogen + Ammonium Nitrogen)									
	Monthly Average Concentration (mg/L)	Within Objectives (Dec 01-Apr 30 4.00 mg/L)	Within Objectives (May 01-Nov 30 1.50 mg/L)	Within Limits (Dec 01-Apr 30 6.00 mg/L)	Within Limits (May 01-Nov 30 2.50 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (Dec 01-Apr 30 11.30 kg/d)	Within Objectives (May 01-Nov 30 4.20 kg/d)	Within Limits (Dec 01-Apr 30 17.00 kg/d)	Within Limits (May 01-Nov 30 7.00 kg/d)
January	0.10	Yes	n/a	Yes	n/a	0.15	Yes	n/a	Yes	n/a
February	0.10	Yes	n/a	Yes	n/a	0.11	Yes	n/a	Yes	n/a
March	0.10	Yes	n/a	Yes	n/a	0.23	Yes	n/a	Yes	n/a
April	0.10	Yes	n/a	Yes	n/a	0.17	Yes	n/a	Yes	n/a
May	0.10	n/a	Yes	n/a	Yes	0.14	n/a	Yes	n/a	Yes
June	0.10	n/a	Yes	n/a	Yes	0.12	n/a	Yes	n/a	Yes
July	0.10	n/a	Yes	n/a	Yes	0.13	n/a	Yes	n/a	Yes
August	0.15	n/a	Yes	n/a	Yes	0.19	n/a	Yes	n/a	Yes
September	0.10	n/a	Yes	n/a	Yes	0.21	n/a	Yes	n/a	Yes
October	0.10	n/a	Yes	n/a	Yes	0.23	n/a	Yes	n/a	Yes
November	0.18	n/a	Yes	n/a	Yes	0.34	n/a	Yes	n/a	Yes
December	0.10	Yes	n/a	Yes	n/a	0.22	Yes	n/a	Yes	n/a

Table 9.

	Total Phosphorus					
	Monthly Average Concentration (mg/L)	Within Objectives (0.30 mg/L)	Within Limits (0.37 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (0.85 kg/d)	Within Limits (1.05 kg/d)
January	0.06	Yes	Yes	0.09	Yes	Yes
February	0.06	Yes	Yes	0.07	Yes	Yes
March	0.08	Yes	Yes	0.19	Yes	Yes
April	0.08	Yes	Yes	0.13	Yes	Yes
May	0.09	Yes	Yes	0.12	Yes	Yes
June	0.08	Yes	Yes	0.10	Yes	Yes
July	0.17	Yes	Yes	0.23	Yes	Yes
August	0.09	Yes	Yes	0.12	Yes	Yes
September	0.18	Yes	Yes	0.37	Yes	Yes
October	0.15	Yes	Yes	0.33	Yes	Yes
November	0.11	Yes	Yes	0.22	Yes	Yes
December	0.08	Yes	Yes	0.17	Yes	Yes

Table 10.

	E.coli		
	Monthly Geometric Mean Density (CFU/100mL)	Within Objectives (100 CFU/100mL)	Within Limits (200 CFU/100mL)
January	2.00	Yes	Yes
February	3.36	Yes	Yes
March	31.07	Yes	Yes
April	4.18	Yes	Yes
May	3.80	Yes	Yes
June	6.40	Yes	Yes
July	4.97	Yes	Yes
August	3.25	Yes	Yes
September	23.62	Yes	Yes
October	6.06	Yes	Yes
November	8.32	Yes	Yes
December	2.95	Yes	Yes

Table 11.

	pH		
	pH	Within Objectives (6.5-8.5)	Within Limits (6.0-9.0)
January	8.1	Yes	Yes
February	8.1	Yes	Yes
March	8.2	Yes	Yes
April	8.1	Yes	Yes
May	8.3	Yes	Yes
June	8.1	Yes	Yes
July	8.0	Yes	Yes
August	8.0	Yes	Yes
September	8.1	Yes	Yes
October	8.2	Yes	Yes
November	8.0	Yes	Yes
December	8.1	Yes	Yes

Table 12. Annual Effluent Results Summary, 2021

Parameters	Average	Minimum	Maximum	Average Annual Loading
$CBOD_5$	2.04	2.00	2.50	3.51
Total Suspended Solids	2.59	2.00	3.75	4.55
Total Phosphorus	0.10	0.06	0.18	0.18
Total Ammonia Nitrogen	0.11	0.10	0.18	0.19
E.Coli	8.33	2.00	31.07	-
pH	8.12	7.87	8.45	-
Temperature	7.13	5.00	14.40	-

2.4 Additional Monitoring Parameters

The following parameters in Table 13 do not have limits or objectives but are monitored on a regular basis (see Section 2.1 for sampling frequency) as required by C of A 6134-73FHHU. Table 13 summarizes the monitoring data for the reporting period.

Raw Sewage Quality:

Table 13. Raw Sewage Monitoring Parameters as required by C of A 6134-73FHHU for Mount Forest Wastewater Treatment Plant, 2021

Parameter	Average	Minimum	Maximum
BOD_5* (mg/L)	251.30	53.50	1853.20
Total Suspended Solids* (mg/L)	962.79	38.40	10350.00
Total Phosphorous* (mg/L)	8.56	1.74	71.75
Total Kjeldahl Nitrogen* (mg/L)	49.12	15.80	324.08

* Refer to the Appendix A PAR for monthly sample results.

2.5 Overview of Success and Adequacy of the Works

The annual average effluent TSS concentration was 2.59 mg/L with an average removal efficiency of >92.19%. The annual average effluent Total Phosphorus concentration was 0.10 mg/L with an average removal efficiency of >90.10%.

The bacteriological quality of the effluent complied with the certificate of approval requirement of <200 CFU per 100 mL sample. The annual geometric mean density of organisms for 2021 was 8.33 CFU per 100 mL, indicating extremely effective effluent disinfection.

The total raw sewage volume of wastewater treated in 2021 was 727,811.20 m^3. The annual average daily flow of raw sewage was 1,990.02 m^3/day was 70.62 % of the design flow (2,818 m^3/day). The maximum peak flow of 7,228.00 m^3/day occurred on September 23, 2021 due to higher seasonal precipitation for this month. This represents a peak flow of 2.5 times the rated capacity. The wastewater treatment plant operated within the rated capacity 89.6% of the time (327 out of 365 days of the year). The average daily flow is approaching the 80% rated capacity and the Township of Wellington North has been made aware of this. The Township is in the process of consulting with their engineer for a re-rating of the plant in the near future.

The sewage treatment operations for 2021 provided effluent quality that met all of the effluent requirements of the CofA and demonstrates average percentage of removal efficiency (>90.10%) for key parameters. The effluent for 2021 was within all effluent limits and all effluent objectives set out in the CofA. Based on this evidence, the current sewage treatment program is deemed adequate. OCWA will continue to stay within effluent limits and will continue to aim to meet effluent objectives during each reporting period.

3. Operating Problems and Corrective Actions

As per Section 10(5)(b) of C of A 6134-73FHHU, *a description of any operating problems encountered and corrective actions taken* is required.

There were no operating problems encountered or corrective actions required at the Mount Forest Water Pollution Control Plant during 2021 that affected the quality of the effluent leaving the plant. All repairs/maintenance can be found in Section 4.

4. Major Maintenance Activities

As per 10(5)(c) of C of A 6134-73FHHU, *a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanisms or thing forming part of the works* is required.

Plant maintenance, including non-scheduled maintenance is monitored using Maximo Workplace Management System. All routine and preventative maintenance was conducted as scheduled in 2021.

For 2021, major maintenance activities that occurred include:

Plant:

- North aeration cell cleanout
- Flow meter calibrations
- Gas meter calibrations
- Scum pit and clarifier cleaning
- Filter bridge repairs
- Septate receiving plug valve replacement
- Pump maintenance program
- Rotork valve inspection
- RAS pump #2 repair
- Waste pump repair
- UV unit inspection/servicing/repairs

Cork St. Pumping Station:

- Pump replacement
- Pump inspection/maintenance
- Wet well clean out
- Generator load test

Durham St. Pumping Station:

- Pump inspection/maintenance
- Wet well clean out
- Generator load test

North Water St. Pumping Station:

- Wet Well cleanout
- Generator load test
- Large pump repair
- EQ Tank Pump Repair
- Pump inspection/maintenance

5. Effluent Quality Assurance and Control

As per 10(5)(d) of C of A 6134-73FHHU, *a summary of any effluent quality assurance or control measures undertaken in the reporting period* is required:

All laboratory analyzed raw sewage and effluent samples (Section 2.1) are analyzed by SGS Canada Inc., which is an ISO 17025 accredited laboratory. In-house tests are conducted for monitoring purposes by licensed operators using standardized methods. The results from in-house tests are used to determine treatment efficiency and to effectively maintain process control. Calibrations and preventative maintenance are performed on facility equipment and monitoring equipment, see Section 4 for more details. In addition to sample analysis, preventative maintenance is scheduled for equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled in the work management system Maximo.

The sewage system is operated and maintained by licensed Operators. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Ontario Regulation 129/04. A licensed individual meets the education and experience requirements and has successfully passed the licensing examination.

6. Calibration and Maintenance Procedures

As per 10(5)(e) of C of A 6134-73FHHU, *a summary of the calibration and maintenance carried out on all effluent monitoring equipment* is required.

All in-house monitoring equipment is calibrated/verified as per manufacturer's recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. Preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled within the work management system Maximo, upon completion, Operators set the work order to complete. On a monthly basis, preventative work orders are reviewed for completion.

Indus Control was contracted to calibrate flow measuring equipment on August 26, 2021. Copies of these calibration reports can be found in Appendix C of this report.

7. Efforts and Results Achieved in Meeting Effluent Objectives

As per 10(5)(f) of C of A 6134-73FHHU, a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6 is required.

Condition 6 is imposed "to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliances limits of Condition 7 are exceeded."

OCWA as the Operating Authority (on behalf of the Owner) has made best efforts to stay within the Effluent Objectives in the CofA. These efforts are supported through:

- Continuous monitoring equipment
- Regular plant inspections/checks
- In-house sampling and testing
- Laboratory (3rd party) analysis of influent and effluent samples
- Data review

- Process optimization and adjustments (as required)
- Scheduled/preventative maintenance
- Repairs as necessary

A summary of the effluent quality in comparison to the effluent objectives can be found in Tables 6-12 of section 2.3 of this report. These results show that sewage treatment operations for 2021 provided effluent quality that was within all effluent objectives outlined in the CofA and minimized environmental impairment.

8. Sludge Generation

As per 10(5)(g) of C of A 6134-73FHHU, *a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed* is required.

Digested sludge produced at the Mount Forest Wastewater Treatment Plant is land-applied in accordance with the Nutrient Management Act 2002 and Ontario Regulation 267/03.

Grab samples of digested (aerobic) sludge are collected and tested as per these guidelines. In 2021, sludge sample analyses were carried out by SGS Lakefield Research Limited. A summary of sludge sample results is provided in Appendix B.

Wessuc Environmental Services Inc. was contracted to haul and spread sludge from the Mount Forest plant in 2021. (Certificate of Approval - Waste Management System #1603-4LGJBN)

Based on the design flow, average wastewater quality, and a linear regression with an R^2 value of 73.74%, the anticipated volume to be generated in the next reporting period is approximately 4,350 m^3.

The following certified sites were utilized in 2021

Table 14. Volume of Sludge Generated from Mount Forest Wastewater Treatment Plant in 2021

Site	Site Location	Volume of Biosolids (m^3)	Hauler
NASM Submission ID: 23730	W1007	1261.00	Wessuc
NASM Submission ID: 24583	W2003	2405.00	Wessuc

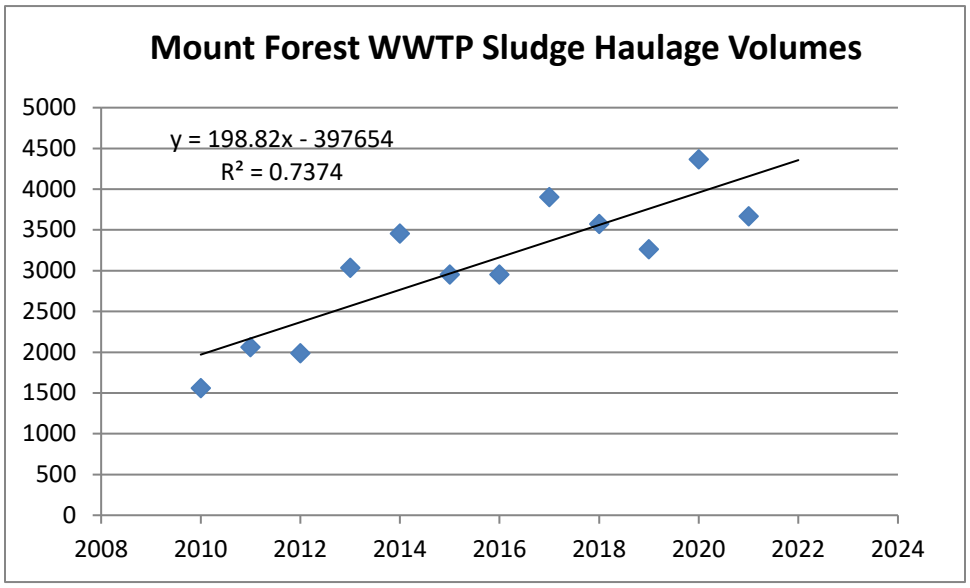


Figure 1. Mount Forest Wastewater Treatment Plant Haulage Volumes (2010 to 2021)

9. Complaints

As per 10(5)(h) of C of A 6134-73FHHU, *a summary of any complaints received during the reporting period and any steps taken to address the complaints* is required.

A standard operating procedure (SOP) is in place for addressing complaints received from the community. All complaints are addressed and documented in the facility logbook. Community complaint information is entered in OCWA's WMS database system "Maximo". This system contains all the required information and history of all complaints.

There were no complaints registered during the reporting period.

10. By-pass, Spill or Abnormal Discharge Events

As per 10(5)(i) of C of A 6134-73FHHU, *a summary of all By-pass, spill or abnormal discharge events* is required.

There were no bypass, spill or abnormal discharge events that occurred during the reporting period.

11. Additional Information

As per 10(5)(j) of C of A 6134-73FHHU, *any other information the Direct Manager requires from time to time* is required.

There were no requests from the District Manager for any other information during the reporting period.

2021 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-F3FHHU

Appendix A

Performance Assessment Report

2021

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

Report extracted 01/31/2022 17:00 **From: 01/01/2021 to 31/12/2021**

Facility: [5541] MOUNT FOREST WASTEWATER TREATMENT FACILITY

Works: [120001381]

	01/2021	02/2021	03/2021	04/2021	05/2021	06/2021	07/2021	08/2021	09/2021	10/2021	11/2021	12/2021	<--Total-->	<--Avg.-->	<--Max.-->	<--Criteria-->
Flows:																
Raw Flow: Total - Raw Sewage (m³)	58222.30	41305.40	84840.30	62291.10	50407.00	41034.20	46060.70	45130.70	70099.80	79270.60	68117.90	81031.20	727811.20			
Raw Flow: Avg - Raw Sewage (m³/d)	1878.14	1475.19	2736.78	2076.37	1626.03	1367.81	1485.83	1455.83	2336.66	2557.12	2270.60	2613.91		1990.02		2818.0000000000005
Raw Flow: Max - Raw Sewage (m³/d)	2343.70	1724.70	6129.80	2743.20	2014.30	1714.30	1968.50	1812.10	7228.00	3789.00	3210.10	4341.30			7228.00	
Eff. Flow: Total - Final Effluent (m³)	46710.90	30864.30	71419.40	50801.60	43159.10	36920.90	41627.60	39974.70	63698.00	71423.60	58745.70	69302.90	624648.70			
Eff. Flow: Avg - Final Effluent (m³/d)	1506.80	1102.30	2303.85	1693.39	1392.23	1230.70	1342.83	1289.51	2123.27	2303.99	1958.19	2235.58		1706.88		
Eff. Flow: Max - Final Effluent (m³/d)	1902.80	1355.40	5817.00	2256.90	1934.50	1617.60	1804.80	1716.30	6837.60	3470.00	2862.20	3898.50			6837.60	
Carbonaceous Biochemical Oxygen Demand: CBOD:																
Eff: Avg cBOD5 - Final Effluent (mg/L)	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.500	< 2.000	< 2.000		< 2.042	< 2.500	12.5
Eff: # of samples of cBOD5 - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: cBOD5 - Final Effluent (kg/d)	< 3.014	< 2.205	< 4.608	< 3.387	< 2.784	< 2.461	< 2.686	< 2.579	< 4.247	< 5.760	< 3.916	< 4.471		< 3.510	< 5.760	
Biochemical Oxygen Demand: BOD5:																
Raw: Avg BOD5 - Raw Sewage (mg/L)	75.750	116.250	59.000	54.400	96.500	192.600	169.250	153.500	96.200	1853.200	53.500	95.400		251.296	1853.200	
Raw: # of samples of BOD5 - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	5	4	5	53			
Total Suspended Solids: TSS:																
Raw: Avg TSS - Raw Sewage (mg/L)	48.500	58.000	44.250	38.400	58.000	295.800	191.500	239.750	79.400	10350.000	48.250	101.600		962.788	10350.000	
Raw: # of samples of TSS - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	5	4	5	53			
Eff: Avg TSS - Final Effluent (mg/L)	< 2.250	2.000	2.500	< 3.000	< 2.500	< 2.200	< 2.000	< 2.750	< 3.000	3.750	< 2.500	< 2.600		< 2.588	3.750	12.5
Eff: # of samples of TSS - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: TSS - Final Effluent (kg/d)	< 3.390	2.205	5.760	< 5.080	< 3.481	< 2.708	< 2.686	< 3.546	< 6.370	8.640	< 4.895	< 5.813		< 4.548	8.640	
Percent Removal: TSS - Final Effluent (mg/L)	95.361	96.552	94.350	92.188	95.690	99.256	98.956	98.853	96.222	99.964	94.819	97.441			99.964	
Total Phosphorus: TP:																
Raw: Avg TP - Raw Sewage (mg/L)	2.103	3.113	1.743	1.970	2.662	5.684	4.213	4.170	1.778	71.750	1.763	1.798		8.562	71.750	
Raw: # of samples of TP - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	5	4	5	53			
Eff: Avg TP - Final Effluent (mg/L)	0.060	0.060	0.083	0.076	0.085	0.082	0.168	0.090	0.176	0.145	0.110	0.076		0.101	0.176	0.37
Eff: # of samples of TP - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: TP - Final Effluent (kg/d)	0.090	0.066	0.190	0.129	0.118	0.101	0.225	0.116	0.374	0.334	0.215	0.170		0.177	0.374	
Percent Removal: TP - Final Effluent (mg/L)	97.146	98.072	95.265	96.142	96.808	98.557	96.024	97.842	90.101	99.798	93.759	95.773			99.798	
Nitrogen Series:																
Raw: Avg TKN - Raw Sewage (mg/L)	22.000	29.950	17.775	18.480	23.325	40.580	34.200	29.675	16.760	324.080	15.800	16.780		49.117	324.080	
Raw: # of samples of TKN - Raw Sewage (mg/L)	4	4	4	5	4	5	4	4	5	5	4	5	53			
Eff: Avg TAN - Final Effluent (mg/L)	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.150	< 0.100	< 0.100	< 0.175	< 0.100		< 0.110	< 0.175	- 2.5 - 2.5 - 2.5 - 2.5 - 2.5 - 2.5 - 2.5 - 6.0
Eff: # of samples of TAN - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Loading: TAN - Final Effluent (kg/d)	< 0.151	< 0.110	< 0.230	< 0.169	< 0.139	< 0.123	< 0.134	< 0.193	< 0.212	< 0.230	< 0.343	< 0.224		< 0.188	< 0.343	
Eff: Avg NO3-N - Final Effluent (mg/L)	22.475	26.200	20.175	19.360	21.825	31.620	29.475	27.675	19.520	16.225	17.008	16.380		22.328	31.620	
Eff: # of samples of NO3-N - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Eff: Avg NO2-N - Final Effluent (mg/L)	< 0.030	< 0.030	< 0.030	< 0.030	< 0.040	< 0.040	< 0.098	< 0.033	< 0.030	< 0.030	< 0.033	< 0.030		< 0.038	< 0.098	
Eff: # of samples of NO2-N - Final Effluent (mg/L)	4	4	4	5	4	5	4	4	5	4	4	5	52			
Disinfection:																
Eff: GMD E. Coli - Final Effluent (cfu/100mL)	2.000	3.364	31.070	4.183	3.798	6.402	4.966	3.253	23.619	6.055	8.324	2.952		8.332	31.070	200.0
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)	4	4	4	5	4	5	4	4	5	4	4	5	52			

2021 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-F3FHHU

Appendix B

Sludge Haulage Summary & Sludge Quality Analysis

2021

Mount Forest WWTP - Daily Haulage Summary			
Date	**Site**	**NASM #**	**Sludge Hauled (m^3)**
May			
05/17/21	W1007	23730	679.00
05/18/21	W1007	23730	582.00
August			
08/25/21	W2003	24583	228.00
08/26/21	W2003	24583	630.00
08/27/21	W2003	24583	591.00
08/30/21	W2003	24583	632.00
08/31/21	W2003	24583	324.00
		Total	3666.00

MOUNT FOREST WASTEWATER TREATMENT PLANT
SLUDGE QUALITY DATA

2021

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE
Nutrients														
TS	(mg/L)	14800	12300	10700	28800	27900	16500	17000	17300	20500	15900	31600	9710	18584
Ammonia+Ammonium	(mg/L)	14.8	4.1	8.3	6.1	70.4	122	289.0	5.7	77.6	27.6	5.3	7.4	53.2
Nitrate	(mg/L)	0.30	17.00	80.00	0.50	0.30	0.30	0.30	4.10	27.00	62.00	11.00	1.20	17.00
Ammonia + Nitrate	(mg/L)	15.1	21.1	88.3	6.6	70.7	122.3	289.3	9.8	104.6	89.6	16.3	8.6	70.2
TKN	(mg/L)	464	625	554	1340	1410	935	772	640	866	637	1020	456	810
Phosphorus	(mg/L)	520	302	310	860	740	440	430	430	730	640	790	250	537
Metal Concentrations														
Arsenic	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20	0.10	0.11
Cadmium	(mg/L)	0.007	0.005	0.005	0.012	0.012	0.006	0.007	0.008	0.011	0.009	0.022	0.005	0.01
Cobalt	(mg/L)	0.02	0.01	0.02	0.04	0.030	0.02	0.02	0.03	0.03	0.03	0.07	0.02	0.03
Chromium	(mg/L)	0.25	0.15	0.15	0.42	0.31	0.20	0.20	0.24	0.35	0.28	0.56	0.15	0.27
Copper	(mg/L)	6.90	4.20	4.30	12.00	8.70	5.40	5.30	5.80	9.10	7.60	16.00	3.80	7.43
Mercury	(mg/L)	0.012	0.007	0.008	0.027	0.0240	0.0120	0.020	0.014	0.0160	0.023	0.047	0.010	0.018
Potassium	(mg/L)	65	41	46	92	77	62	58	66	75	52	53	35	60
Molybdenum	(mg/L)	0.11	0.07	0.08	0.19	0.15	0.10	0.09	0.09	0.17	0.14	0.18	0.06	0.12
Nickel	(mg/L)	0.23	0.19	0.21	0.41	0.30	0.23	0.22	0.22	0.30	0.30	0.52	0.12	0.27
Lead	(mg/L)	0.30	0.20	0.20	0.50	0.40	0.20	0.20	0.30	0.30	0.30	0.60	0.10	0.30
Selenium	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Zinc	(mg/L)	8.00	4.00	5.00	13.00	10.00	6.00	6.00	8.00	11.00	8.00	22.00	6.00	8.92
Bacti														
E. coli (cfu/1g dried wgt)		94,595	178,862	38,318	24,306	103,943	169,697	9,412	80,925	170,732	44,025	56,962	257,467	102,437
E. coli (cfu/100mL)		140,000	220,000	41,000	70,000	290,000	280,000	16,000	140,000	350,000	70,000	180,000	250,000	170,583
Metal/Solids Concentration														
Arsenic [170]	(mg/kg)	7	8	9	3	4	6	6	6	5	6	6	10	6
Cadmium [34]	(mg/kg)	1	0	0	0	0	0	0	0	1	1	1	1	0
Cobalt [340]	(mg/kg)	1	1	2	1	1	1	1	2	1	2	2	2	2
Chromium [2800]	(mg/kg)	17	12	14	15	11	12	12	14	17	18	18	15	15
Copper [1700]	(mg/kg)	466	341	402	417	312	327	312	335	444	478	506	391	394
Mercury [11]	(mg/kg)	1	1	1	1	1	1	1	1	1	1	1	1	1
Molybdenum [94]	(mg/kg)	7	6	7	7	5	6	5	5	8	9	6	6	7
Nickel [420]	(mg/kg)	16	15	20	14	11	14	13	13	15	19	16	12	15
Lead [1100]	(mg/kg)	20	16	19	17	14	12	12	17	15	19	19	10	16
Selenium [34]	(mg/kg)	7	8	9	3	4	6	6	6	5	6	3	10	6
Zinc [4200]	(mg/kg)	541	325	467	451	358	364	353	462	537	503	696	618	473

2021 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-F3FHHU

Appendix C

Calibration Reports

2021

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE** ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region
Plant Name:	Mount Forest WWTP
Site/Plant Address:	650 Cork Street, Mount Forest, ON

Device Information	
Make:	Khrone
Model:	IFC 010D
Order Code:	NA
Serial No.:	C080284
Tag:	FIT-101
Job Location:	RAS Pump 1 Flow
Asset ID:	205520

Service Information	
Date:	August 26, 2021
Report No:	CO1264-2108-01
Job No:	CO1264-2108

Sensor Details	
Line size:	4"
GKL:	5.5354
Mounting:	Remote

Flow Details	
Unit:	l/sec
Flow Range:	0-50
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	50

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	3113809	3113814
FLOW (l/sec)	17.69	17.80

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	4.00	0.02
A	3.31	5.06	3.33	5.03	0.02
B	6.63	6.12	6.62	6.09	-0.01
C	13.25	8.24	13.28	8.21	0.03
D	33.13	14.60	33.14	14.59	0.01

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE** ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region
Plant Name:	Mount Forest WWTP
Site/Plant Address:	650 Cork Street, Mount Forest, ON

Device Information	
Make:	Khrone
Model:	IFC 010D
Order Code:	NA
Serial No.:	C080272
Tag:	FIT-102
Job Location:	RAS Pump 2 Flow
Asset ID:	205521

Service Information	
Date:	August 26, 2021
Report No:	CO1264-2108-02
Job No:	CO1264-2108

Sensor Details	
Line size:	4"
GKL:	5.4975
Mounting:	Remote

Flow Details	
Unit:	l/sec
Flow Range:	0-50
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	50

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	3754443	3754444
FLOW (l/sec)	18.09	18.05

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	3.99	0.02
A	3.29	5.05	3.31	5.03	0.02
B	6.58	6.11	6.60	6.09	0.02
C	13.16	8.21	13.19	8.17	0.03
D	32.90	14.53	32.93	14.49	0.03

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information		Service Information	
Make:	Khrone	Date:	August 26, 2021
Model:	IFC 010D	Report No:	CO1264-2108-03
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	C080308		
Tag:	FIT-103	**Flow Details**	
Job Location:	WAS PUMP FLOW	Unit:	l/sec
Asset ID:	205522	Flow Range:	0-30
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	0
Line size:	3"	20 mA Set Point	30
GKL:	5.3725		
Mounting:	Remote		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	152559	152559
FLOW (l/sec)	0.006	0.004

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.003	4.01	0.00
A	2.06	5.10	2.077	5.11	0.02
B	4.12	6.19	4.146	6.23	0.03
C	8.23	8.39	8.248	8.40	0.02
D	20.58	14.97	20.593	14.97	0.01

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information		Service Information	
Make:	Khrone	Date:	August 26, 2021
Model:	IFC 090	Report No:	CO1264-2108-04
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	C081357		
Tag:	NA		
Job Location:	Septage receiving		
Asset ID:	205514		

Sensor Details		Flow Details	
Line size:	4"	Unit:	l/sec
GK:	2.7538	Flow Range:	0-40
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	40

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	16310668	16310668
FLOW (l/sec)	0.08	0.04

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.00	0.01
A	1.65	4.66	1.67	4.67	0.02
B	3.30	5.32	3.31	5.31	0.01
C	6.59	6.64	6.63	6.64	0.04
D	16.48	10.59	16.49	10.60	0.01
E	32.96	17.18	32.98	17.18	0.02

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information		Service Information	
Make:	Khrone	Date:	August 26, 2021
Model:	IFC 020D	Report No:	CO1264-2108-05
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	0429/03		
Tag:	NA		
Job Location:	Sludge Receiving flow		
Asset ID:	205524		

Sensor Details		Flow Details	
Line size:	6"	Unit:	l/sec
GK:	3.24	Flow Range:	0-100
Mounting:	Compact	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	100

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	176777	176781
FLOW (l/sec)	0.01	0.00

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.00	0.01
A	8.73	5.40	8.74	5.40	0.01
B	17.45	6.79	17.47	6.81	0.02
C	34.90	9.58	34.89	9.52	-0.01
D	87.26	17.96	87.24	17.91	-0.02

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information		Service Information	
Make:	Khrone	Date:	August 26, 2021
Model:	IFC 020D	Report No:	CO1264-2108-06
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	0427/03		
Tag:	NA		
Job Location:	Sludge Loading flow		
Asset ID:	205525		

Sensor Details		Flow Details	
Line size:	4"	Unit:	l/sec
GK:	2.587	Flow Range:	0-90
Mounting:	Compact	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	90

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	288069	288081
FLOW (l/sec)	0.02	52.11

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.00	4.00	0.00
A	3.10	4.55	3.12	4.57	0.02
B	6.19	5.10	6.21	5.10	0.02
C	12.39	6.20	12.92	6.21	0.53
D	30.97	9.50	31.00	9.51	0.03
E	61.93	15.01	61.96	15.03	0.03

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT- **MULTIRANGER 200**
OPEN CHANNEL FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information		Service Information	
Make:	Siemens	Date:	August 26, 2021
Model:	Multiranger 200	Report No:	CO1264-2108-07
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	PBD/V7040026		
Tag:	LIT-201	**Flow Details**	
Job Location:	Final Effluent	Unit:	l/sec
		Flow Range:	0-245
		Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	245

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	918939.94	918945.31
FLOW (L/S)	4.88	4.87

Maintenance Checklist				Remarks
Visual Inspection:	☑	OK	☐ NOT OK	
Electrical Inspection:	☑	OK	☐ NOT OK	

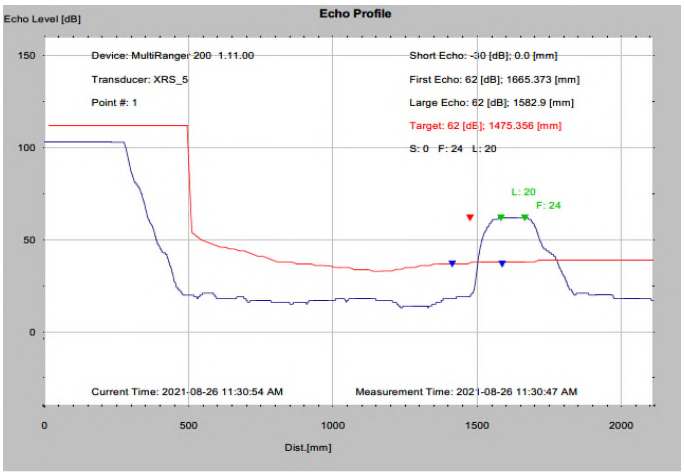
Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
P001	Operation	6.00000	P601	Flow Exponent	1.53
P002	Material	1.000	P602	PMD Dimension	NA
P004	Transducer	112(XRS-5)	P603	Maximum Head	0.600
P005	Units	1	P604	Maximum Flow	245 l/s
P006	Empty	0.862	P605	Zero Head	0 m
P007	Span	0.600	P608	Flow rate Units	0(Ratiometric)
P620	Low Flow cuttoff	0.030	P210	4mA Setpoint	0.00
P600	Primary Mea. Device	1	P211	20mA Setpoint	245.00

Instrument Test Information and Results

Input (%)	Calculated Flow(l/sec)	Calculated Input (mA)	Flow on Scada (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.00	0.01
25	61.25	8.00	61.29	8.03	0.04
50	122.50	12.00	123.10	11.99	0.60
75	183.75	16.00	184.09	16.03	0.34
100	245.00	20.00	246.20	19.97	1.20

Eco Profile



Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model
Electrical Multimeter	Fluke	179

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Program parameters verified

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT- **MULTIRANGER 200**
OPEN CHANNEL FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information		Service Information	
Make:	Siemens	Date:	August 26, 2021
Model:	Multiranger 200	Report No:	CO1264-2108-08
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	PBD/V7100076		
Tag:	LIT-001	**Flow Details**	
Job Location:	Influent Flow	Unit:	l/sec
		Flow Range:	0-245
		Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	245

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	789026.4	789048.8
FLOW (L/S)	49.6	27.31

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	

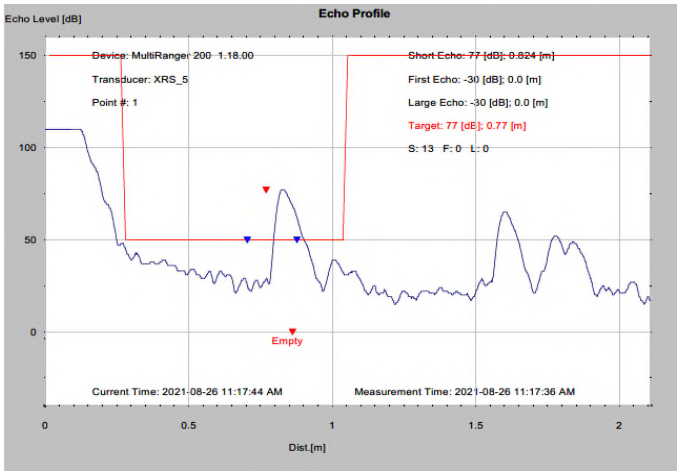
Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
P001	Operation	6.00000	P601	Flow Exponent	1.53
P002	Material	1.000	P602	PMD Dimension	NA
P004	Transducer	112(XRS-5)	P603	Maximum Head	0.600
P005	Units	1	P604	Maximum Flow	245 l/s
P006	Empty	0.862	P605	Zero Head	0 m
P007	Span	0.600	P608	Flow rate Units	0(Ratiometric)
P620	Low Flow cuttoff	0.030	P210	4mA Setpoint	0.00
P600	Primary Mea. Device	1	P211	20mA Setpoint	245.00

Instrument Test Information and Results

Input (%)	Calculated Flow(l/sec)	Calculated Input (mA)	Flow on Scada (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	3.99	0.01
25	61.25	8.00	61.09	7.93	-0.16
50	122.50	12.00	121.73	11.97	-0.77
75	183.75	16.00	183.47	15.99	-0.28
100	245.00	20.00	245.00	20.00	0.00

Eco Profile



Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model
Electrical Multimeter	Fluke	179

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Program parameters verified

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

DTM Version: 3.25.00

Flowmeter Verification Certificate Transmitter

Georgian Highlands Region	Cork St PS
Customer	Plant
	FIT-01
Order code	Tag Name
PROMAG 50 W DN200	1.0427 - 1.0427
Device type	K-Factor
D6020C16000	-3
Serial number	Zero point
V2.03.00	V1.04.01
Software Version Transmitter	Software Version I/O-Module
26.08.2021	13:07
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.55 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Not tested	0 P
Test Sensor	Passed	

FieldCheck Details	**Simubox Details**
551063	8818965
Production number	Production number
1.07.10	1.00.01
Software Version	Software Version
07/2021	07/2021
Last Calibration Date	Last Calibration Date

26.08.21		
Date	Operator's Sign	Inspector's Sign

Overall results:

The achieved test results show that the instrumment is completely functional, and the measuring results lie within +/- 1% of the original calibration.[1)]

The calibration of the Fieldcheck test system is fully traceable to national standards.

1) Prerequisite is an additional proof of electrode integrity with a high voltage test.

Endress+Hauser

People for Process Automation

FieldCheck - Result Tab Transmitter

Customer	**Georgin Highlands Region**	Plant	Cork st PS
Order code		Tag Name	**FIT-01**
Device type	**PROMAG 50 W DN200**	K-Factor	**1.0427 - 1.0427**
Serial number	**D6020C16000**	Zero point	**-3**
Software Version Transmitter	**V2.03.00**	Software Version I/O-Module	**V1.04.01**
Verification date	**26.08.2021**	Verification time	**13:07**

Verification Flow end value (100 %): 125.664 l/s
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	6.283 l/s (5%)	1.50 %	0.10 %
✓		12.566 l/s (10.0%)	1.00 %	0.10 %
✓		62.832 l/s (50.0%)	0.60 %	0.10 %
✓		125.665 l/s (100%)	0.55 %	0.07 %
✓	Current Output 1	4.000 mA (0%)	0.05 mA	0.001 mA
✓		4.800 mA (5%)	0.05 mA	0.001 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.014 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.001 mA
✓		20.000 mA (100%)	0.05 mA	-0.009 mA
–	Pulse Output 1	---	---	---
		Start value	**Limits range**	**Measured value**
	Test Sensor			
✓	Coil Curr. Rise	13.300 ms	0.000..27.625 ms	18.685 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.001 mV	3.260 mV

Legend of symbols

✓	✗	–	?	!
Passed	Failed	not tested	not testable	Attention

FieldCheck: Parameters Transmitter

Customer	**Georgin Highlands Region**		Plant	**Cork St. PS**
Order code			Tag Name	**FIT-01**
Device type	**PROMAG 50 W DN200**		K-Factor	**1.0427 - 1.0427**
Serial number	**D6020C16000**		Zero point	**-3**
Software Version Transmitter	**V2.03.00**		Software Version I/O-Module	**V1.04.01**
Verification date	**26.08.2021**		Verification time	**13:07**

Curent Output	**Assign**	**Current Range**	**Value 0_4mA**	**Value 20 mA**		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 l/s	200.01 l/s		
Pulse Output	**Assign**	**Pulse Value**	**Output signal**	**Pulse width**		
Terminal 24/25	VOLUME FLOW	1.000 m3/P	Passive/Positive	100.01 ms		

Actual System Ident. 133.0

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region
Plant Name:	Mount Forest WWTP
Site/Plant Address:	304 Foster st, Mount Forest, ON

Device Information	
Make:	Khrone
Model:	IFC 100W
Order Code:	NA
Serial No.:	C104591
Tag:	FIT1
Job Location:	Foster street PS Flow
Asset ID:	205530

Service Information	
Date:	August 26, 2021
Report No:	CO1264-2108-10
Job No:	CO1264-2108

Sensor Details	
Line size:	12"
GK:	7.9112
Mounting:	Remote

Flow Details	
Unit:	l/sec
Flow Range:	0-250
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	250

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	604583.27	604590.71
FLOW (l/sec)	0.08	47.78

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.00	0.01
A	42.61	6.73	43.50	6.77	0.89
B	85.22	9.45	86.20	9.49	0.98
C	170.45	14.91	169.89	14.87	-0.56

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT- **SINTRANS LUT 400**
OPEN CHANNEL FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information	
Make:	Siemens
Model:	SINTRANS LUT440
Order Code:	7ML50500CA111DA0
Serial No.:	PBD/M2280284

Service Information	
Date:	August 26, 2021
Report No:	CO1264-2108-11
Job No:	CO1264-2108

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (L)	0	0
FLOW (L/S)	0	0

Flow Details	
Unit:	L/S
Flow Range:	0-100
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	100

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	

Programming Parameter of Instrument

Parameter	Value	Parameter	Value
Sensor Mode	Level	4 mA Set Point	0.00
Transducer	XRS-5	20 mA Set Point	100
Unit	m	Flowrate Unit	L/S
Low Calibration Point	1.286 m	Method of Flow calculation	Ratio Metric
High Calibration Point	0.54 m	Low Flow Cutoff	0 m
Sensor Offset	0.498 m	Zero Head Offset	0.53 m
Maximum Head	0.6 m	Flow Exponent	2.50

Instrument Test Information and Results

Set-Point	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
1	0.00	4.00	0.01	4.00	0.01
2	25.00	8.00	25.00	8.03	0.00
3	50.00	12.00	50.10	11.93	0.10
4	75.00	16.00	75.10	15.99	0.10
5	100.00	20.00	100.00	20.00	0.00

Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model
Electrical Multimeter	Fluke	179

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Program parameters verified

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

Version: 19-12

IndusControl Inc
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	650 Cork Street,
Plant Name:	Mount Forest WWTP		Mount Forest, ON

Device Information		Service Information	
Make:	Khrone	Date:	August 26, 2021
Model:	IFC 300W	Report No:	CO1264-2108-12
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	C080273		
Tag:	FIT-401	**Flow Details**	
Job Location:	Pump Station Flow	Unit:	l/sec
Asset ID:	205535	Flow Range:	0-300
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	0
Line size:	12"	20 mA Set Point	300
GK:	3.6471		
GKL:	7.295		
Mounting:	Remote		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	9347499.52	9347501.22
FLOW (l/sec)	10.6	0.0

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.10	4.03	0.10
A	39.29	6.10	40.10	6.12	0.81
B	78.58	8.19	77.90	8.15	-0.68
C	157.15	12.38	158.20	12.38	1.05

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Tushar Patel	Stamp/Signature	
Printed Date:	August 26, 2021		

End of Report

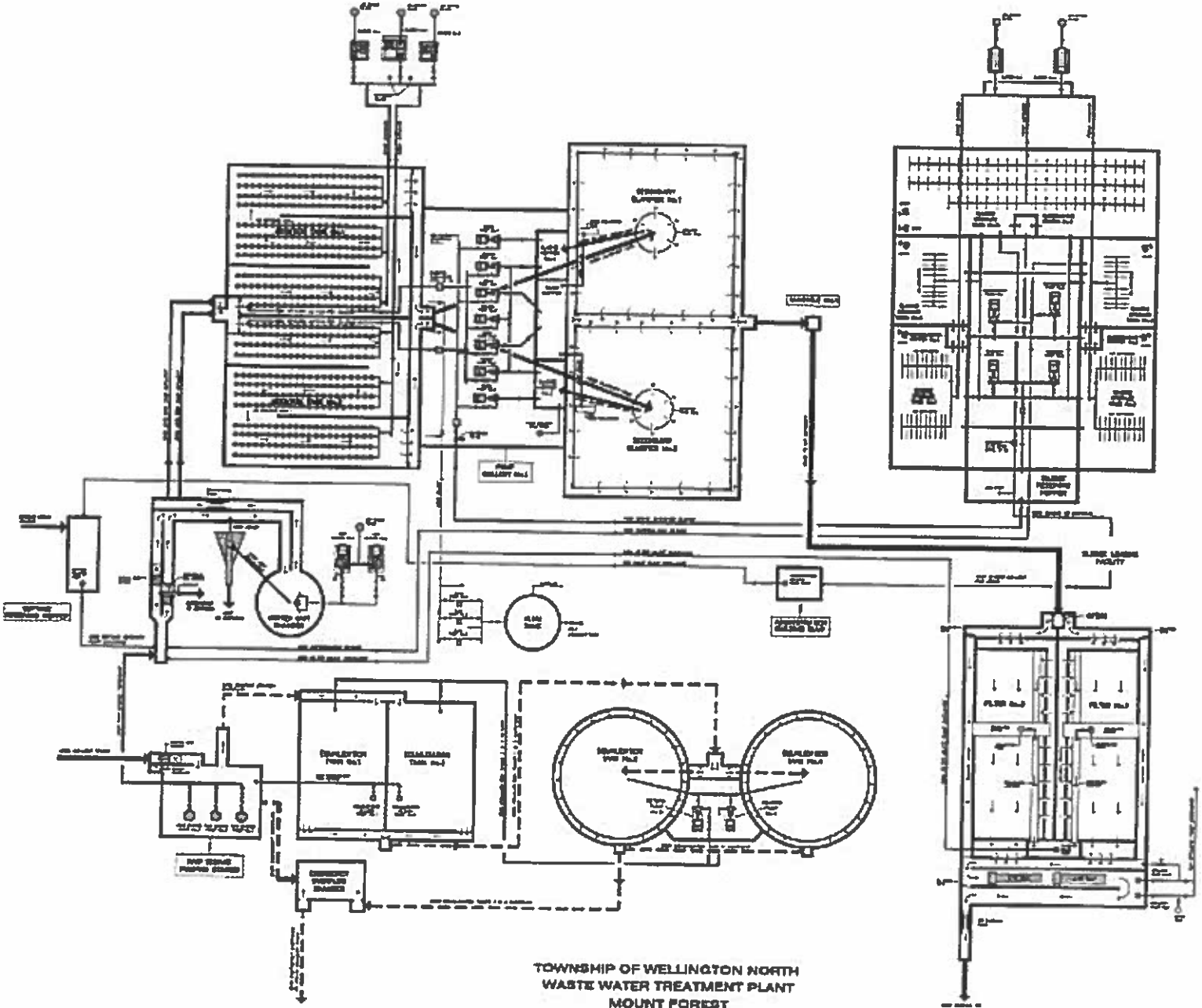
Version: 19-12

2021 Annual Performance Report
Mount Forest Wastewater Treatment Plant
Certificate of Approval No. 6134-F3FHHU

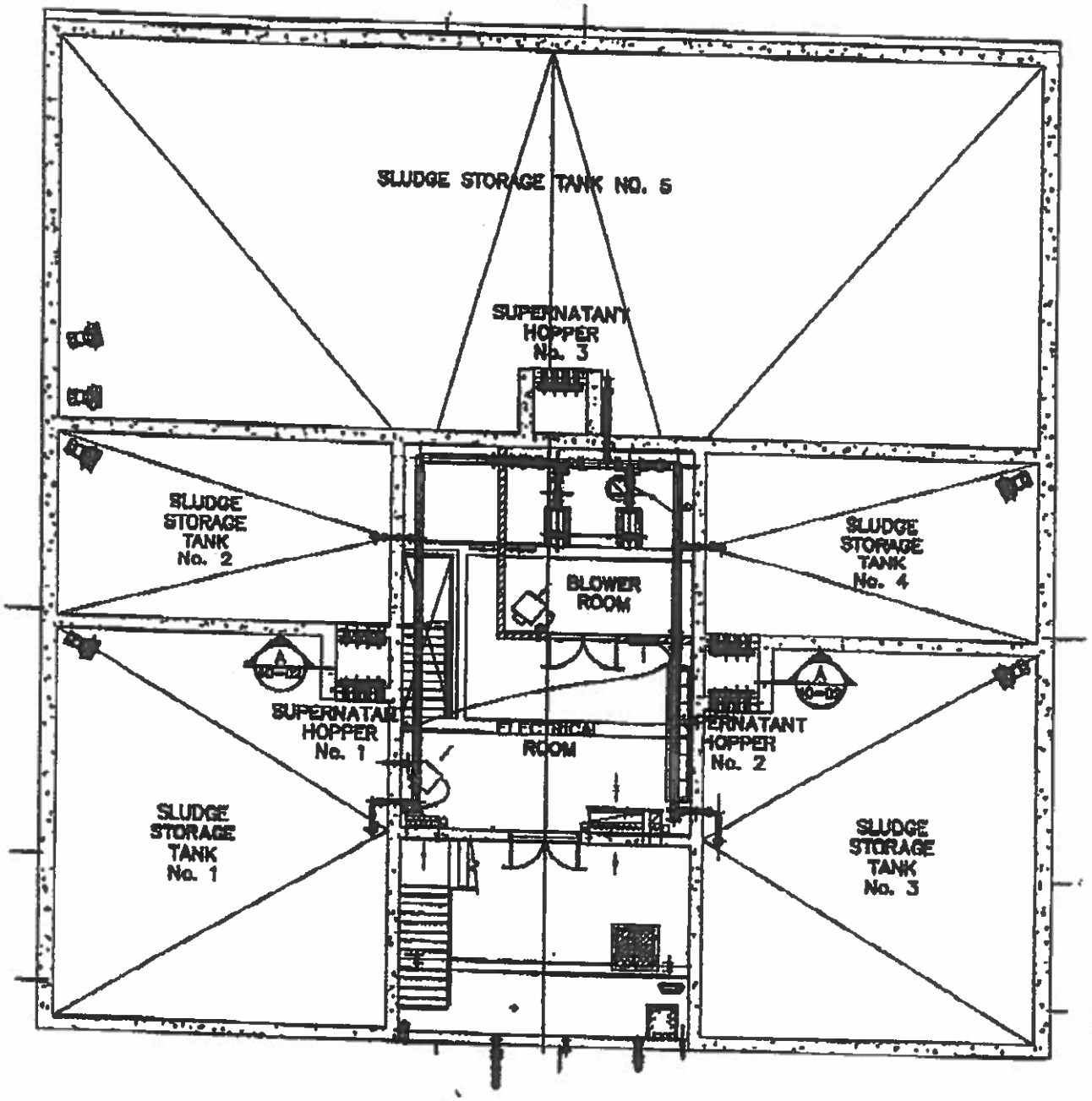
Appendix D

Process Flow Schematic

2021



TOWNSHIP OF WELLINGTON NORTH
WASTE WATER TREATMENT PLANT
MOUNT FOREST
PROCESS FLOW SCHEMATIC



SECTIONAL PLAN