Village of Fredonia
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AGENDA

FREDONIA PUBLIC WORKS COMMITTEE MEETING
MONDAY, MARCH 7, 2022 – 5:30 P.M.
Fredonia Government Center – East Conference room
242 Fredonia Avenue, Fredonia, Wisconsin

THE FOLLOWING BUSINESS WILL BE BEFORE THE PUBLIC WORKS COMMITTEE FOR INITIATION, DISCUSSION, CONSIDERATION, DELIBERATION AND POSSIBLE FORMAL ACTION

AGENDA

1. Call meeting to order
2. Approve minutes from January 24, 2022, Public Works and Utilities/Tree Board Committee meeting
3. Review of Phosphorus Optimization and Facility Evaluation
4. Review Water Tower Request for Proposals
5. Discussion and recommendation for Engineering Services by Pinnacle Engineering for Preparation of Wetland Fill permit on S. Milwaukee
6. Recommendation for approval of purchase of Ventrac lawn tractor attachments
7. Discussion on infrastructure funds and transportation projects
8. Items for future consideration
9. Adjourn

NOTICE IS HEREBY GIVEN that a majority of the Fredonia Village Board may attend this meeting in order to gather information about a subject over which they have decision-making responsibility.

UPON REASONABLE NOTICE, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information or to request this service, contact the village clerk at 692-9125.

Posted at Port Washington State Bank, Fredonia Post Office, and Village Hall on 3/2/2022
Emailed to village trustees, committee members, papers, and Friends of Fredonia on 3/2/2022

DRAFT - OWNER REVIEW (2/16/2022)

Strand Associates, Inc.®
126 N. Jefferson Street, Suite 350
Milwaukee, WI 53202
(P) 414.271.0771

February 16, 2022

Mr. Roger Strohm, Director of Public Works
Village of Fredonia
242 Fredonia Avenue, P.O. Box 159
Fredonia, WI 53021

Re: Phosphorus Optimization and Facility Evaluation
Village of Fredonia, WI

Dear Mr. Strohm:

Enclosed is one draft copy of the Phosphorus Optimization and Facility Evaluation report.

Please call me with questions.

Sincerely,

STRAND ASSOCIATES, INC.®

Philip A. Bzdusek, P.E.

Enclosure: Report

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Report for

Village of Fredonia, Wisconsin

Phosphorus Optimization and Facility Evaluation

Prepared by:

STRAND ASSOCIATES, INC.®
126 North Jefferson Street, Suite 350
Milwaukee, WI 53202
www.strand.com

February 2022

STRAND ASSOCIATES®

This report provides a summary of the Village of Fredonia's (Village) existing and future effluent phosphorus limits, effluent monthly phosphorus loadings from January 2018 to September 2021, jar testing results for three phosphorus removal chemicals: ferric chloride, hyper-ion, and UP-2313, existing phosphorus removal facilities, and proposed improvements to the phosphorus removal facilities.

BACKGROUND INFORMATION

In 2017, the Village completed a Phosphorus Operational Evaluation report that reviewed baseline phosphorus data, possible external phosphorus contributors such as commercial facilities and industries, and phosphorus levels in the water supply. The report identified action items for phosphorus source reduction or optimization activities such as biological phosphorus removal (BPR) potential testing and chemical phosphorus removal (CPR) jar testing.

In 2018, the Village completed a Phosphorus Compliance Alternatives, Source Reduction, Operational Improvements, and Modifications report that evaluated action items from the 2017 Phosphorus Operational Evaluation report. As part of the 2018 report, BPR and CPR were evaluated. BPR potential testing determined that the wastewater treatment plant (WWTP) raw wastewater is not amenable to BPR and further evaluation was not completed. CPR jar testing was completed with primary clarifier effluent and aeration tank mixed liquor (ML) using ferric chloride, alum, and Sorb-X 100 (now known as RE-100). CPR jar testing results indicated ferric chloride was the most cost-effective chemical. The CPR jar testing also provided an estimate of the dose required to meet a 0.225 milligrams per liter (mg/L) limit.

In 2019, the Village completed a Preliminary Phosphorus Compliance Alternatives Plan (PCAP). The Preliminary PCAP reviewed alternatives available to meet anticipated total maximum daily load (TMDL)-based monthly total phosphorus (TP) loading limits at various flow rates as required by the Milwaukee River Basin TMDL that was approved by the United States Environmental Protection Agency (USEPA) in March 2018. At the Village's current average flow rate, it is anticipated that the TMDL-based limits can be achieved with the existing WWTP infrastructure. To optimize the CPR system, an orthophosphate analyzer was recommended for consideration to optimize the chemical dosing rate for varying phosphorus loadings at effluent flow rates up to 0.31 million gallons per day (MGD). Greater than 0.31 MGD and less than 0.36 MGD it was recommended that an orthophosphate analyzer be installed. For flows greater than 0.36 MGD, it is anticipated that tertiary filtration or alternative approaches, such as water quality trading (WQT) will be required to meet the TMDL limit. Alternative approaches to meet the TMDL limits were also reviewed, including adaptive management, WQT, and the statewide multi-discharger variance (MDV). None of these approaches were determined to be cost-effective at current flows but should be re-evaluated if flows increase and the existing WWTP can no longer meet the TMDL limits.

After the Village submitted the Final Compliance Alternatives Plan (FCAP) by letter in 2020, the Wisconsin Department of Natural Resources (WDNR) sent the Village an e-mail questioning whether the Village was planning to apply for the MDV or install cloth filters. The Village responded that it was applying for the MDV. On February 22, 2021, the WDNR sent a letter indicating the Village is not eligible for the MDV because the Village did not demonstrate that an upgrade is required that will result in economic hardship. An e-mail dated February 22, 2021, from WDNR indicated the TMDL mass limits should be relatively attainable for the WWTP. On April 15, 2021, the Village clarified by e-mail that it is not applying for the MDV and planned to optimize the CPR system. This report reviews options to upgrade and optimize the existing CPR system.

As part of its latest Wisconsin Discharge Elimination System (WPDES) permit, the Village WWTP is required to meet TMDL limits for TP beginning July 1, 2023. Refer to the Appendix for the current WPDES permit. The Village's current effluent TP limit, and interim limit until the TMDL limits are implemented, is 1.0 mg/L on a monthly average basis. The future TMDL limits from the current WPDES permit are listed in Table 1 as monthly average effluent TP limits and equivalent monthly average TP effluent concentrations assuming an average effluent flow of 0.33 MGD, which is more than the Village's daily average flow from January 2018 to September 2021 of 0.20 MGD. The 0.33 MGD is used in Table 1 because it is the highest average monthly effluent flow from January 2018 through September 2021 as shown in Table 2.

Month	Monthly Average Effluent TP Limit (lbs/month)	Monthly Average Effluent TP Concentration (mg/L)[1]
January	38.1	0.45
February	39.5	0.51
March	49.9	0.58
April	30.9	0.37
May	67.9	0.80
June	40.8	0.49
July	36.6	0.43
August	28.5	0.33
September	52.2	0.63
October	36.3	0.43
November	40.5	0.49
December	34.4	0.40

[1]Assumes an average effluent flow of 0.33 mgd. Concentration will vary with flow rate.
lb/month=pounds per month

Table 1 Future Mass-Based Effluent TP Limits for the Village's WWTP

	Flow (MGD)			
	2018	**2019**	**2020**	**2021**
January	0.17	0.22	0.21	0.17
February	0.18	0.20	0.20	0.18
March	0.16	0.28	0.28	0.24
April	0.21	0.29	0.21	0.18
May	0.26	0.21	0.33	0.17
June	0.14	0.19	0.27	0.14
July	0.13	0.17	0.26	0.14
August	0.14	0.16	0.18	0.15
September	0.31	0.22	0.18	0.14
October	0.24	0.31	0.16	
November	0.21	0.24	0.16	
December	0.19	0.23	0.17	
Average Annual Flow (MGD)	**0.20**	**0.23**	**0.22**	**0.17**

Table 2 Average Monthly Effluent Flow (MGD)

A. Existing WWTP

The Village's WWTP was designed and constructed in the early 1980s to treat an average daily flow of 0.6 MGD, an average 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) of 651 lb/day, 867 lb/day of total suspended solids (TSS), and 50 lb/day of TP. Raw wastewater enters the WWTP through a mechanical fine screen, which removes objects greater than 1/4-inch in size. After screening, wastewater flows to the raw sewage pump wet well where it is pumped to a vortex grit removal system. Effluent from the grit system flows by gravity to the equalization basin and then to the primary clarifier. Effluent from the primary clarifier flows to the biotower wet well where it is combined with return activated sludge. Wastewater is pumped to the top of the biotower where it trickles down through a biologically active media and flows to the aeration basins. ML flows by gravity to the final clarifiers from the aeration basins. Effluent from the final clarifiers flows to the ultraviolet (UV) disinfection tank for disinfection with UV light. Ferric chloride is added for phosphorus removal at the end of the aeration tanks.

Sludge management facilities include aerobic digestion and sludge storage. Waste sludge from the aeration system is removed from the final clarifiers and flows to the raw sewage pump wet well for removal in the primary clarifier. Co-thickened sludge from the primary clarifier is pumped to the aerobic digesters. After digestion, sludge is transferred to the sludge storage tanks before final disposal via land application. Sludge can be thickened in the digesters or in Sludge Storage Tank No. 1 by gravity decanting or by a submersible pump in Sludge Storage Tank No. 2.

A process schematic of the WWTP is provided in Figure 1.

B. WWTP Data

The Village currently collects effluent samples for TP multiple times each week in accordance with its WPDES permit. Effluent flow and TP data from January 2018 to September 2021 are presented in Table 3. During the period from January 2018 to September 2021, effluent TP loadings were less than the future permit requirements for all months except August 2020 and August 2021, which exceeded the future limit by 3.75 and 1.51 pounds of TP, respectively. The lowest TP TMDL loading month is August at 0.92 lb/day. In August 2020, there were effluent TP samples on August 12, 2020, and August 20, 2020, that were 1.4 mg/L and 1.1 mg/L, respectively. Influent TP concentrations from samples on August 11, and August 19, 2020, were higher than average at 10.8 mg/L and 8.1 mg/L, respectively, likely leading to the higher effluent concentrations and loadings. If the effluent TP concentrations had been 0.9 mg/L or lower, the future August monthly average permit limit would have been met in August 2020. In August 2021, there were two samples on August 4 and August 5, 2021, that had effluent TP concentrations of 1.7 mg/L. The influent TP concentration on August 3, 2020, was higher than average at 8.8 mg/L, likely leading to the higher effluent concentrations and loadings. Had these effluent TP concentrations been 1.5 mg/L, or lower, the future permit limit would have been met in 2021.

Currently, the phosphorus chemical feed is adjusted manually based on TP sampling data that is received several days after sampling, making it difficult for WWTP staff to complete timely adjustments to the chemical feed pumping rate when there are spikes in influent TP. Installation of an orthophosphate analyzer is discussed later in this report as a tool for optimizing chemical feed to adjust to increases or decreases in TP.

At best we adjust weekly

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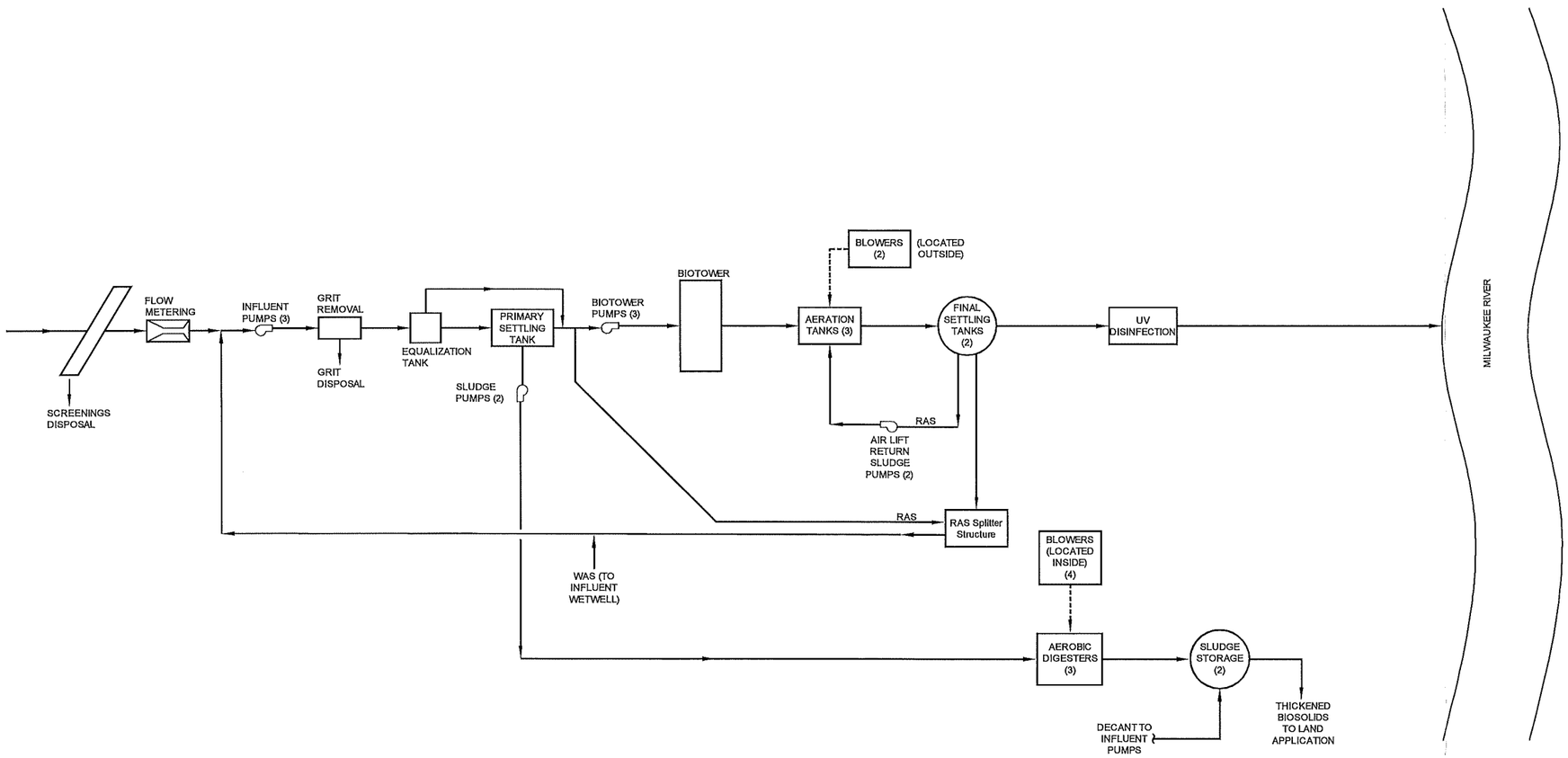

EXISTING WASTEWATER PROCESS SCHEMATIC

WASTEWATER TREATMENT PLANTNING REPORT
VILLAGE OF FREDONIA
FREDONIA, WISCONSIN

STRAND ASSOCIATES®

Figure 1
3844.012

Month	Effluent Flow (mgd)	Influent TP (mg/L)	Effluent TP Loading[1] (lb/day)	TMDL Effluent TP Limit (lb/day)	Difference Between Effluent TP and TMDL TP Loading (lb/day)
January 2018	0.17	8.06	0.89	1.23	0.34
February 2018	0.18	4.35	0.62	1.41	0.79
March 2018	0.16	5.60	0.72	1.61	0.89
April 2018	0.21	4.34	0.64	1.03	0.39
May 2018	0.26	3.76	0.79	2.19	1.40
June 2018	0.14	7.70	0.84	1.36	0.52
July 2018	0.13	6.58	0.85	1.18	0.33
August 2018	0.14	8.33	0.70	0.92	0.22
September 2018	0.31	3.58	1.00	1.74	0.74
October 2018	0.24	4.58	0.91	1.17	0.26
November 2018	0.21	14.43	0.58	1.35	0.77
December 2018	0.19	5.33	0.38	1.11	0.73
January 2019	0.22	5.96	0.41	1.23	1.23
February 2019	0.20	4.25	0.52	1.41	0.67
March 2019	0.28	3.88	0.76	1.61	0.61
April2019	0.29	3.35	0.67	1.03	0.36
May 2019	0.21	3.94	0.62	2.19	1.57
June 2019	0.19	4.05	0.48	1.36	0.88
July 2019	0.17	5.36	0.70	1.18	0.48
August 2019	0.16	4.85	0.67	0.92	0.25
September 2019	0.22	4.33	0.82	1.74	0.92
October 2019	0.31	3.82	1.02	1.17	0.15
November 2019	0.24	4.28	0.42	1.35	0.93
December 2019	0.23	5.51	0.29	1.11	0.82
January 2020	0.21	5.08	0.35	1.23	1.23
February 2020	0.20	9.93	0.33	1.41	0.79
March 2020	0.28	14.14	0.44	1.61	0.59
April 2020	0.21	4.85	0.51	1.03	0.52
May 2020	0.33	4.10	0.57	2.19	1.62
June 2020	0.27	5.04	0.62	1.36	0.74
July 2020	0.26	6.55	0.80	1.18	0.38
August 2020	0.18	7.15	1.04	0.92	(0.12)
September 2020	0.18	7.26	0.81	1.74	0.93
October 2020	0.16	6.58	0.80	1.17	0.37
November 2020	0.16	9.68	0.44	1.35	0.91
December 2020	0.17	4.88	0.55	1.11	0.56
January 2021	0.17	4.70	0.83	1.23	1.23
February 2021	0.18	9.60	0.41	1.41	0.80
March 2021	0.24	3.75	1.58	1.61	0.57
April 2021	0.18	6.45	0.50	1.03	0.53
May 2021	0.17	9.64	0.74	2.19	1.45
June 2021	0.14	7.40	0.39	1.36	0.97
July 2021	0.14	7.67	1.05	1.18	0.13
August 2021	0.15	7.02	0.96	0.92	(0.04)
September 2021	0.14	10.43	0.42	1.74	1.32
Average	**0.20**	**6.27**	**0.66**	**1.37**	**0.71**

[1]Calculated using the daily concentration and daily effluent flow times 8.34 and then averaging the daily mass values for the month.

Table 3 Summary of Effluent Flow and TP Data from January 2018 to September 2021

CPR JAR TESTING

As part of the Preliminary PCAP, full scale testing with polyaluminum chloride (PAC) for CPR was discussed as a potential option to more cost-effectively remove TP to a lower level than ferric chloride because both ferric chloride and PAC are being used successfully in several WWTPs in southeast Wisconsin to meet a low level TP limit. Before completing full scale testing, additional jar testing was completed on December 13, 2021, on primary influent samples. The results are summarized in Table 4. Two PAC chemicals were used, Hyper-Ion 1997 and UP2313. Hyper-Ion 1997 removed more TP than UP2313 and similar amounts as ferric chloride. Because Hyper-Ion 1997 did not remove more TP than ferric chloride, a full scall test of PAC (Hyper-Ion 1997) was not completed. In addition, ferric chloride is a commodity chemical with more potential suppliers that should allow it to be more cost-competitive. Consistent with previous jar testing results, ferric chloride is able to reduce the TP concentration to less than 0.30 mg/L with doses of 100 to 150 parts per million by volume (ppmV), which should be sufficient to meet TMDL limits at flow rates up to 0.36 MGD. Note these dose rates were for influent TP concentrations of 4.2 to 4.4 mg/L. Higher or lower influent concentrations will impact the dose rates.

Coagulant	Dose (ppmV)	TP Concentration (mg/L)
Ferric Chloride	0	4.21
	75	1.13
	150	0.11
	225	0.21
Hyper-Ion 1997	0	4.28
	75	1.95
	150	0.37
	225	0.16
UP2313	0	4.36
	75	1.67
	150	0.52
	225	0.30

Table 4 CPR Jar Testing Results

CPR FACILITIES EVALUATION

This section provides an overview of the Village's current CPR facilities and evaluates improvements to the CPR facilities including upgrades to the existing chemical room, construction of a new chemical building to replace the existing chemical room, retrofitting the blower room into a chemical room, and installation of an orthophosphate analyzer.

60/40

A. Existing CPR Facilities

The Village's CPR facilities currently include two single-wall, 2,200-gallon fiberglass chemical storage tanks (manufactured in 1982), one 250-gallon fiberglass day tank (manufactured in 1981) with mixer, and one 22-gallon per day (gpd) chemical feed pump. The mixer is no longer operational as the paddles have corroded off. An emergency eyewash and shower station are also located in the chemical room. Currently, WWTP staff mixes water with ferric chloride in the day tank to create a 50/50 mixture that is pumped to the feed point at the end of the aeration tanks. The chemical room is located on the west end of the garage in the Administration Building. See Figure 2 for a plan view of the existing chemical room. The chemical room is connected to the garage through a man door. In the chemical room there are stairs down to a lower level where the chemical day tank, pump, eyewash, and shower are located. The chemical storage tanks are located above the pump on a concrete platform at the same elevation as the garage floor. No chemical containment walls are present. The exterior chemical fill connection is located on the south wall of the chemical room. Equipment in the chemical room, with the exception of the feed pump, was installed within the timeframe of 1982 to 1983 and is nearing the end of its useful life. Replacement of the chemical equipment is recommended in the next five years based on age.

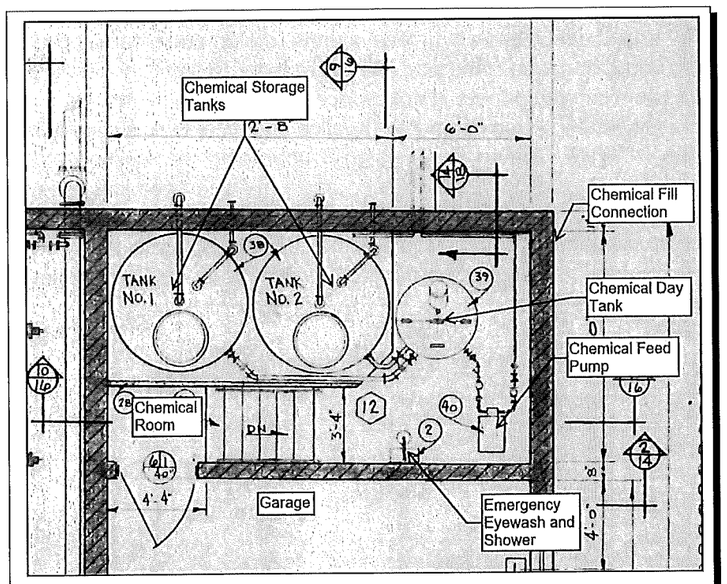

Figure 2 Existing Chemical Room

B. Proposed CPR Facilities

This section evaluates repurposing the existing chemical room, construction of a new chemical building to replace the existing chemical room, and repurposing the blower room in the Administration Building as a chemical room. The new chemical equipment is planned to include two new chemical pumps, one chemical storage tank, space for a second chemical storage tank (only in the new building and blower room), double-walled polyvinyl chloride (PVC) piping, chemical containment walls, fire protection system, heating, ventilation, and air conditioning (HVAC) system, and emergency eyewash and shower.

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To determine the size of the chemical storage tank, the anticipated monthly chemical use was calculated based on the TP removal measured for various ferric chloride doses during jar testing and the average influent TP concentration from January 2018 through September 2021 of 6.1 mg/L.

At monthly average flow rates of 0.22 and 0.33 MGD, approximately 1,200 and 2,200 gallons per month of ferric chloride are anticipated for the most stringent monthly TP limits, based on jar testing results. The current chemical usage varies from approximately 150 to 325 gallons per month. The proposed size for a new chemical tank is 2,200 gallons. Two chemical pumps with a capacity of approximately 75 gpd are recommended. Multiple chemical feed pipes are recommended to provide redundancy. 3 pumps one for lower dosage

1. Upgrade Existing Chemical Room

Several upgrades to the existing chemical room are recommended to meet current standards and codes including, but not limited to, filling the depressed area to provide outside access to the room, installing a containment system to store the volume of the storage tank, installing a fire-rated wall between the garage and chemical room, installing a fire protection system, installing chemical piping below shoulder level or installing double-wall piping, HVAC and electrical improvements, and chemical tank high level alarms to alert chemical suppliers of a high level in the tank during filling. Because of the size (10 feet wide by 18 feet 8 inches long) and configuration of the existing chemical room, there is only space for one chemical tank and no additional space for a future chemical tank. A minimum 2,200-gallon chemical tank is recommended and a larger size should be evaluated during final design if upgrading the existing chemical room is the selected alternative. Based upon the existing and projected chemical usage, 2,200 gallons of storage provides a minimum of 30 days storage at 0.33 MGD and current TP loads for the most stringent month. Although, it is beneficial to have additional space for a future storage tank to address future regulatory changes, increased TP loadings, or other unforeseeable items, it does not appear to be necessary.

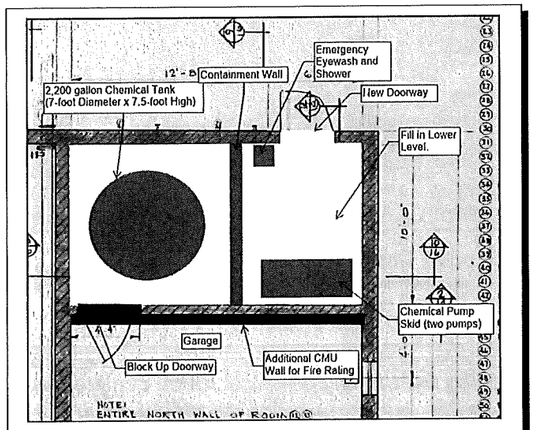

Figure 3 Upgrade Existing Chemical Room

2. Construct Chemical Building

Instead of upgrading the existing chemical room, a new chemical building was evaluated. The proposed footprint for the new chemical building is 30 by 30 feet, which includes space for an electrical room and a future chemical tank. Figure 4 shows two potential locations for the new chemical building.

Chemical Building–Location No.1 is located west of the existing final clarifiers and is adjacent to the existing driveway. This location is closer to the proposed feed points at the upstream and downstream end of the aeration tanks, requiring less underground piping.

Chemical Building–Location No. 2 is located west of the Sludge Storage Tanks and is adjacent to the existing driveway. This location is further from the proposed feed points at the upstream and downstream end of the aeration tanks requiring more underground piping.

Both locations provide access for chemical deliveries via the existing asphalt driveway. Chemical Building–Location No. 1 is located between the existing piping and adjacent to Final Clarifier No. 1, making construction in this area more challenging. In addition, the location where Chemical Building–Location No. 1 is shown is also noted as a potential location for a future final clarifier on record drawings.

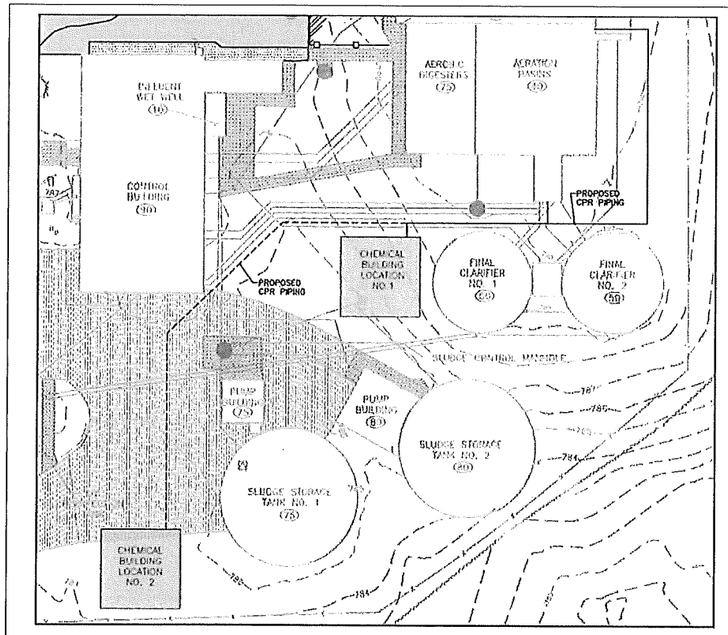

Figure 4 Proposed Locations for the Chemical Building

3. Retrofit Existing Blower Room

One recommendation in the Village's *2015 WWTP Process Change Considerations* report is to convert the WWTP to an extended aeration process. As part of the conversion, either new blowers or rehabilitation of the existing blowers is required. The decision to rehabilitate or replace the existing blowers is a monetary decision that will be made by the Village at a future date. Currently, it is assumed that the existing blowers will be rehabilitated; however, if new blowers are desired, they could be installed outside near the existing blowers at the west end of the aeration tanks and all blowers in the blower room would be abandoned allowing the blower room to be retrofitted into a chemical room. The footprint of the blower room is 25.5 feet long by 13 feet wide with a ceiling height of 12 feet, which is large enough to accommodate two 2,200-gallon storage tanks, two chemical pumps, eyewash, shower, and sink. Electrical equipment can be installed in the Motor Control Center (MCC) Room. The room will require significant upgrades such as installation of a fire protection system, exterior entrance, HVAC improvements, electrical improvements, and construction of fire-rated walls. There was a mercury spill in this room that was remediated; however, there is the potential that mercury still exists within the floor coating. A layout of the proposed upgrades is shown in Figure 5.

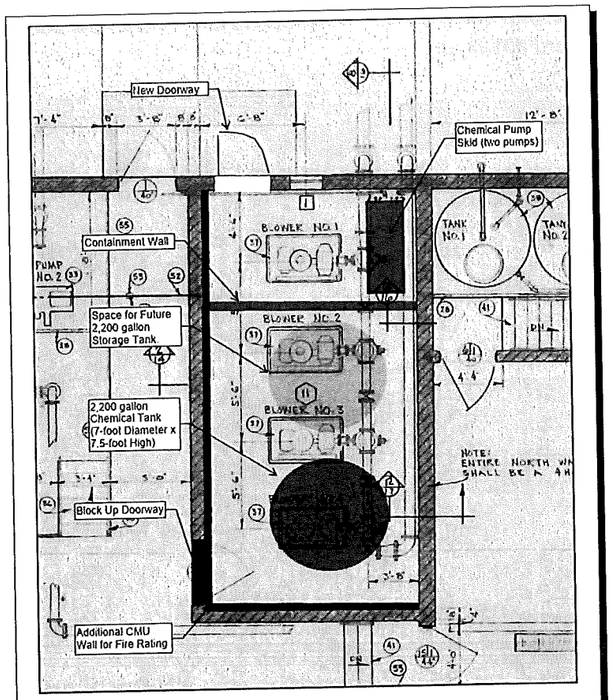

Figure 5 Proposed Layout for the Chemical Room in the Existing Blower Room

C. Chemical Feed Points

The existing phosphorus removal chemical feed point is between the aeration basins and final clarifiers. This feed point would also be the primary feed point for the new CPR system. An additional feed point is proposed at the upstream end of the aeration tanks as shown in Figure 4. This alternative chemical feed point will provide additional flexibility to meet future TMDL TP limits.

D. Orthophosphorus Analyzer

Currently, the village samples effluent TP multiple times per week and manually adjusts the pumping rate for the CPR pump. Because of the limited sample data, and a delay in receiving the sampling data results, it is difficult to adjust the chemical pumping rate to react to increased or decreased TP influent loadings. Installation of an orthophosphate analyzer will provide real-time orthophosphate measurements that can be used to control the CPR pump pumping rate, which will allow the pump to increase or decrease the pumping rate based on varying monthly permit limits and influent phosphorus concentrations, improving the efficiency and reliability of the CPR system. Note, the existing pump is not connected to the supervisory control and data acquisition (SCADA) system so a pump control module is required to automate the existing pump based on orthophosphate data communicated through SCADA. A drawback of the pump control module is the existing pump would turn on and off for periods of time versus adjusting speeds up and down to meet increased or decreased demands. This leads to an inconsistent feed, which may not be as efficient as a continuous feed. In addition, there are costs to install the module and program SCADA to control the module. A new chemical metering pump that has all the necessary components for integration into SCADA and will adjust speeds up and down based on SCADA controls, are typically less than $5,000 and is recommended along with maintaining the existing pump as an emergency backup.

Two potential locations for the orthophosphate analyzer in the UV Disinfection Building are shown in Figure 6. The dimensions of the orthophosphate analyzer are approximately 12 inches wide by 34 inches high by 7 inches deep. Location No. 1 will require relocation of existing conduit. Location No. 2 may require SAM-60-01 to be shifted slightly. Both locations will allow tubing to be run through 6-inch PVC conduit for the sampler tubing without crossing a doorway. During final design the final location should be determined based on cost and access.

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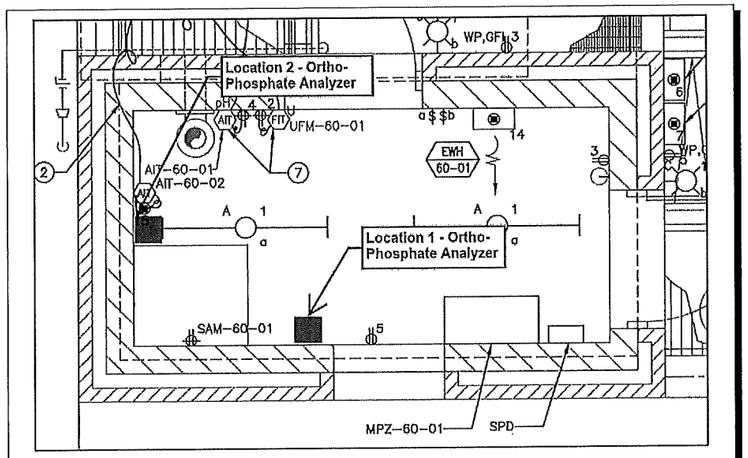


Figure 6 Proposed Locations for the Orthophosphate Analyzer

OPINION OF PROBABLE CONSTRUCTION COSTS (OPCC)

Table 5 lists OPCCs for upgrading the existing chemical room, both chemical building locations, and retrofitting the existing blower room. The common costs for all alternatives include a 2,200-gallon chemical storage tank, two chemical pumps, emergency eyewash and shower, associated HVAC, fire protection, underground piping to two feed locations, electrical equipment, and an orthophosphate analyzer installed in the UV Disinfection Building.

The costs for upgrading the chemical room include all costs for blocking up the existing doorway, installing a new doorway, removing existing equipment, installing a fire wall between the garage and chemical room, and filling in the low area.

The costs for the new chemical building include a 30- by 30-foot brick and block building, space for a future 2,200-gallon chemical tank, excavation, site work, and asphalt replacement.

The costs for retrofitting the blower room include all costs for blocking up the existing doorway, installing a new doorway, installing fire walls, and removing existing equipment. Costs for additional mercury remediation are not included in the budgetary costs.

There is not a significant cost difference for either location for the new chemical building. The cost to upgrade the chemical room and retrofit the blower room into a chemical room are approximately $500,000 and $400,000 less than a new chemical building, respectively.

The cost to install the orthophosphate analyzer and a new chemical pump in the existing chemical room is approximately $100,000. This cost assumes the pump and orthophosphate analyzer will be connected to the SCADA system. No other upgrades to the chemical room are included.

	Chemical Room	Location 1	Location 2	Blower Room
Demolition	$55,000	$0	$0	$65,000
Storage Tank	$30,000	$30,000	$30,000	$30,000
Pump Skid	$34,000	$34,000	$34,000	$34,000
Underground Piping	$28,000	$21,000	$59,000	$42,000
Structural	$150,000	$510,000	$510,000	$200,000
Orthophosphate Analyzer	$50,000	$50,000	$50,000	$50,000
Subtotal	**$347,000**	**$645,000**	**$683,000**	**$421,000**
Sitework	$25,000	$60,000	$25,000	$20,000
Mechanical	$100,000	$100,000	$100,000	$100,000
Electrical and Controls	$125,000	$125,000	$125,000	$125,000
Subtotal	**$597,000**	**$930,000**	**$933,000**	**$666,000**
Contractors General Conditions at10%	$60,000	$93,000	$93,000	$67,000
Contingencies and Technical Services at 40%	$239,000	$372,000	$373,000	$266,000
Total Capital Costs	**$900,000**	**$1,400,000**	**$1,400,000**	**$1,000,000**

Table 5 Opinion of Probable Cost

SUMMARY

The Village's existing CPR facilities have demonstrated an ability to meet future effluent TP limits at current flows with ferric chloride. Jar testing was completed using ferric chloride, Hyper-Ion 1997, and UP2313. Jar testing indicated ferric chloride is the most cost-effective CPR chemical and is capable of reducing effluent TP below 0.3 mg/L. Installation of an orthophosphate analyzer is recommended to provide an additional tool for the village to optimize chemical feed to adjust to varying influent TP concentrations and monthly TP limits. The existing CPR facilities are nearing the end of their useful life and replacement is recommended within the next five years. Two locations for a new chemical building were evaluated along with upgrading the existing chemical room and retrofitting the blower room in the Administration Building into a chemical room. An OPCC was developed for each alternative with upgrading the existing chemical room being the lowest cost alternative at approximately $900,000. It is recommended that the Village budget for replacement of the CPR facilities within the next five years. In the interim, it is recommended that an orthophosphate analyzer is installed in the UV Building, along with a new chemical metering pump capable of being integrated into the SCADA system, in the chemical room. This will allow automation of the chemical feed system, which will help the Village meet the upcoming monthly TP limits that are implemented July 1, 2023. A cost of $100,000 is estimated for installation of the orthophosphate analyzer and chemical feed pump.

APPENDIX
2021 FINAL PERMIT

WISCONSIN
DEPT. OF NATURAL RESOURCES

WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

Village of Fredonia

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility located at

210 Park Road, Fredonia, WI, 53021

to

the Milwaukee River (Milwaukee River South Watershed, Milwaukee River Basin) in Ozaukee County

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis. Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By _____
Bryan Hartsook
Wastewater Field Supervisor

_____
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - October 01, 2021 **EXPIRATION DATE - September 30, 2026**

TABLE OF CONTENTS

1 INFLUENT REQUIREMENTS **1**

1.1 SAMPLING POINT(S) 1
1.2 MONITORING REQUIREMENTS 1
1.2.1 Sampling Point 701 - INFLUENT PLANT *1*

2 SURFACE WATER REQUIREMENTS **2**

2.1 SAMPLING POINT(S) 2
2.2 MONITORING REQUIREMENTS AND EFFLUENT LIMITATIONS 2
2.2.1 Sampling Point (Outfall) 001 - EFFLUENT *2*

3 LAND APPLICATION REQUIREMENTS **9**

3.1 SAMPLING POINT(S) 9
3.2 MONITORING REQUIREMENTS AND LIMITATIONS 9
3.2.1 Sampling Point (Outfall) 002 - Aerobic Liquid Sludge *9*

4 SCHEDULES **14**

4.1 EFFLUENT LIMITATIONS FOR E. COLI 14
4.2 TOTAL MAXIMUM DAILY LOADS (TMDLS) FOR TOTAL PHOSPHORUS 15

5 STANDARD REQUIREMENTS **16**

5.1 REPORTING AND MONITORING REQUIREMENTS 16
5.1.1 Monitoring Results *16*
5.1.2 Sampling and Testing Procedures *16*
5.1.3 Recording of Results *16*
5.1.4 Reporting of Monitoring Results *16*
5.1.5 Compliance Maintenance Annual Reports *17*
5.1.6 Records Retention *17*
5.1.7 Other Information *18*
5.1.8 Reporting Requirements – Alterations or Additions *18*
5.2 SYSTEM OPERATING REQUIREMENTS 18
5.2.1 Noncompliance Reporting *18*
5.2.2 Flow Meters *19*
5.2.3 Raw Grit and Screenings *19*
5.2.4 Sludge Management *19*
5.2.5 Prohibited Wastes *19*
5.2.6 Bypass *19*
5.2.7 Scheduled Bypass *19*
5.2.8 Controlled Diversions *20*
5.2.9 Proper Operation and Maintenance *20*
5.2.10 Operator Certification *20*
5.3 SEWAGE COLLECTION SYSTEMS 20
5.3.1 Sanitary Sewage Overflows and Sewage Treatment Facility Overflows *20*
5.3.2 Capacity, Management, Operation and Maintenance (CMOM) Program *22*
5.3.3 Sewer Cleaning Debris and Materials *22*
5.4 SURFACE WATER REQUIREMENTS 23
5.4.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit *23*
5.4.2 Appropriate Formulas for Effluent Calculations *23*
5.4.3 Effluent Temperature Requirements *23*
5.4.4 Visible Foam or Floating Solids *24*
5.4.5 Surface Water Uses and Criteria *24*
5.4.6 Percent Removal *24*
5.4.7 Fecal Coliform *24*
5.4.8 E. coli *24*

5.4.9 Seasonal Disinfection 24
5.4.10 Whole Effluent Toxicity (WET) Monitoring Requirements 24
5.4.11 Whole Effluent Toxicity (WET) Identification and Reduction 25
5.5 LAND APPLICATION REQUIREMENTS 25
5.5.1 Sludge Management Program Standards And Requirements Based Upon Federally Promulgated Regulations 25
5.5.2 General Sludge Management Information 25
5.5.3 Sludge Samples 25
5.5.4 Land Application Characteristic Report 26
5.5.5 Calculation of Water Extractable Phosphorus 26
5.5.6 Monitoring and Calculating PCB Concentrations in Sludge 26
5.5.7 Annual Land Application Report 27
5.5.8 Other Methods of Disposal or Distribution Report 27
5.5.9 Approval to Land Apply 27
5.5.10 Soil Analysis Requirements 27
5.5.11 Land Application Site Evaluation 27
5.5.12 Class B Sludge: Fecal Coliform Limitation 28
5.5.13 Class B Sludge: Aerobic Digestion 28
5.5.14 Class B Sludge - Vector Control: Injection 28
5.5.15 Class B Sludge - Vector Control: Incorporation 28
5.5.16 Sludge Hauling 28

6 SUMMARY OF REPORTS DUE **29**

1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
701	INFLUENT: 24-hour flow proportional composite samples shall be collected from the raw influent chamber after screening. Flow is measured in the raw influent chamber.

1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Point 701 - INFLUENT PLANT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
$CBOD_5$		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	

2 Surface Water Requirements

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
001	EFFLUENT: 24-hour flow proportional composite samples and grab samples shall be collected from the outfall of the disinfection tank.

2.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

2.2.1 Sampling Point (Outfall) 001 - EFFLUENT

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
$CBOD_5$	Weekly Avg	40 mg/L	3/Week	24-Hr Flow Prop Comp	
$CBOD_5$	Monthly Avg	25 mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective year-round.
Suspended Solids, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective September-March and May-July.
Suspended Solids, Total	Monthly Avg	12 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective in April and August.
Suspended Solids, Total	Weekly Avg	135 lbs/day	3/Week	Calculated	Limit effective in January.
Suspended Solids, Total	Weekly Avg	125 lbs/day	3/Week	Calculated	Limit effective in February.
Suspended Solids, Total	Weekly Avg	146 lbs/day	3/Week	Calculated	Limit effective in March.
Suspended Solids, Total	Weekly Avg	79.4 lbs/day	3/Week	Calculated	Limit effective in April.
Suspended Solids, Total	Weekly Avg	205 lbs/day	3/Week	Calculated	Limit effective in May.
Suspended Solids, Total	Weekly Avg	143 lbs/day	3/Week	Calculated	Limit effective in June.
Suspended Solids, Total	Weekly Avg	142 lbs/day	3/Week	Calculated	Limit effective in July.
Suspended Solids, Total	Weekly Avg	101 lbs/day	3/Week	Calculated	Limit effective in August.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total	Weekly Avg	207 lbs/day	3/Week	Calculated	Limit effective in September.
Suspended Solids, Total	Weekly Avg	156 lbs/day	3/Week	Calculated	Limit effective in October.
Suspended Solids, Total	Weekly Avg	203 lbs/day	3/Week	Calculated	Limit effective in November.
Suspended Solids, Total	Weekly Avg	134 lbs/day	3/Week	Calculated	Limit effective in December.
Suspended Solids, Total	Monthly Avg	65.4 lbs/day	3/Week	Calculated	Limit effective in January.
Suspended Solids, Total	Monthly Avg	60.5 lbs/day	3/Week	Calculated	Limit effective in February.
Suspended Solids, Total	Monthly Avg	70.8 lbs/day	3/Week	Calculated	Limit effective in March.
Suspended Solids, Total	Monthly Avg	99.1 lbs/day	3/Week	Calculated	Limit effective in May.
Suspended Solids, Total	Monthly Avg	69.2 lbs/day	3/Week	Calculated	Limit effective in June.
Suspended Solids, Total	Monthly Avg	68.4 lbs/day	3/Week	Calculated	Limit effective in July.
Suspended Solids, Total	Monthly Avg	99.9 lbs/day	3/Week	Calculated	Limit effective in September.
Suspended Solids, Total	Monthly Avg	75.5 lbs/day	3/Week	Calculated	Limit effective in October.
Suspended Solids, Total	Monthly Avg	98.2 lbs/day	3/Week	Calculated	Limit effective in November.
Suspended Solids, Total	Monthly Avg	64.7 lbs/day	3/Week	Calculated	Limit effective in December.
pH Field	Daily Min	6.0 su	3/Week	Grab	
pH Field	Daily Max	9.0 su	3/Week	Grab	
Fecal Coliform	Geometric Mean - Monthly	400 #/100 ml	Weekly	Grab	Interim limit effective May through September annually until the final E. coli limit goes into effect per the Effluent Limitations for E. coli schedule.
E. coli		#/100 ml	Weekly	Grab	Monitoring only May through September annually until the final E. coli limit goes into effect per the Effluent Limitations for E. coli schedule.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit effective May through September annually per the Effluent Limitations for E. coli schedule.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May through September annually per the Effluent Limitations for E. coli schedule. See the E. coli Percent Limit Section below. Enter the result in the DMR on the last day of the month.
Nitrogen, Ammonia Variable Limit		mg/L	3/Week	Calculated	Report the calculated variable Ammonia limit on the DMR year round. See Maximum Ammonia limits table in section 2.2.1.3 below.
Nitrogen, Ammonia (NH_3-N) Total	Daily Max - Variable	mg/L	3/Week	24-Hr Flow Prop Comp	Report Ammonia effluent value on the DMR. Year-round.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	23 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective October through April.
Nitrogen, Ammonia (NH_3-N) Total	Weekly Avg	79 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective May through September.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	15 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective October through March.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	16 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective in April.
Nitrogen, Ammonia (NH_3-N) Total	Monthly Avg	57 mg/L	3/Week	24-Hr Flow Prop Comp	Limit effective May through September.
Phosphorus, Total	Monthly Avg	1.0 mg/L	3/Week	24-Hr Flow Prop Comp	This is an interim limit. The final TMDL-derived water quality based limits are listed in the 'Total Maximum Daily Load (TMDL) Limitations' section and go into effect on July 1, 2023 per the schedules section. See Phosphorus sections below.
Phosphorus, Total	Monthly Avg	1.23 lbs/day	3/Week	Calculated	Limit effective during the month of January starting in 2024.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Total	Monthly Avg	1.41 lbs/day	3/Week	Calculated	Limit effective during the month of February starting in 2024.
Phosphorus, Total	Monthly Avg	1.61 lbs/day	3/Week	Calculated	Limit effective during the month of March starting in 2024.
Phosphorus, Total	Monthly Avg	1.03 lbs/day	3/Week	Calculated	Limit effective during the month of April starting in 2024.
Phosphorus, Total	Monthly Avg	2.19 lbs/day	3/Week	Calculated	Limit effective during the month of May starting in 2024.
Phosphorus, Total	Monthly Avg	1.36 lbs/day	3/Week	Calculated	Limit effective during the month of June starting in 2024.
Phosphorus, Total	Monthly Avg	1.18 lbs/day	3/Week	Calculated	Limit effective during the month July starting in 2023.
Phosphorus, Total	Monthly Avg	0.92 lbs/day	3/Week	Calculated	Limit effective during the month of August starting in 2023.
Phosphorus, Total	Monthly Avg	1.74 lbs/day	3/Week	Calculated	Limit effective during the month of September starting in 2023.
Phosphorus, Total	Monthly Avg	1.17 lbs/day	3/Week	Calculated	Limit effective during the month of October starting in 2023.
Phosphorus, Total	Monthly Avg	1.35 lbs/day	3/Week	Calculated	Limit effective during the month of November starting in 2023.
Phosphorus, Total	Monthly Avg	1.11 lbs/day	3/Week	Calculated	Limit effective during the month of December starting in 2023.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annual in rotating quarters. See Nitrogen Series Monitoring section below.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Annual in rotating quarters. See Nitrogen Series Monitoring section below. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.

Monitoring Requirements and Effluent Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Chloride		mg/L	Monthly	24-Hr Flow Prop Comp	Monitor during calendar year 2024.
Acute WET		TU_a	See Listed Qtr(s)	24-Hr Flow Prop Comp	See 'WET Testing' section below.
Chronic WET		7.7 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See 'WET Testing' section below.

2.2.1.1 Annual Average Design Flow

The annual average design flow of the permittee's wastewater treatment facility is 0.6 MGD.

2.2.1.2 Total Maximum Daily Load (TMDL) Limitations

Approved TMDL: The Milwaukee River Basin TMDL Waste Load Allocation (WLA) for Total Phosphorus, and Total Suspended Solids was approved by the U.S. Environmental Protection Agency in March 2018. The approved TMDL WLA limits for Total Phosphorus and Total Suspended Solids are shown in the table below. Total Phosphorus WLA limits become effective July 1, 2023 per the schedule in section 4.2 of the permit.

Month	Monthly Ave TSS Effluent Limit (lbs/day)	Weekly Ave TSS Effluent Limit (lbs/day)	Monthly Average TP Effluent Limit (lbs/day)
Jan	65.4	135	**1.23**
Feb	60.5	125	**1.41**
Mar	70.8	146	**1.61**
Apr	-	79.4	**1.03**
May	99.1	205	**2.19**
Jun	69.2	143	**1.36**
Jul	68.4	142	**1.18**
Aug	-	101	**0.92**
Sep	99.9	207	**1.74**
Oct	75.5	156	**1.17**
Nov	98.2	203	**1.35**
Dec	64.7	134	**1.11**

2.2.1.3 *E. coli* Percent Limit

No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 #/100 ml. Bacteria samples may be collected more frequently than required. All samples shall be reported on the monthly discharge monitoring reports (DMRs). The following calculation should be used to calculate percent exceedances.

$$\frac{\#\ of\ Samples\ greater\ than\ 410\ \#/100}{Total\ \#\ of\ samples} \times 100 = \%\ Exceedance$$

2.2.1.4 Daily Maximum Ammonia Limits

The daily maximum limits for ammonia correspond to the daily pH value, in accordance with the following table:

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14
6.1 < pH ≤ 6.2	106	7.1 < pH ≤ 7.2	59	8.1 < pH ≤ 8.2	11
6.2 < pH ≤ 6.3	104	7.2 < pH ≤ 7.3	52	8.2 < pH ≤ 8.3	9.4
6.3 < pH ≤ 6.4	101	7.3 < pH ≤ 7.4	46	8.3 < pH ≤ 8.4	7.8
6.4 < pH ≤ 6.5	98	7.4 < pH ≤ 7.5	40	8.4 < pH ≤ 8.5	6.4
6.5 < pH ≤ 6.6	94	7.5 < pH ≤ 7.6	34	8.5 < pH ≤ 8.6	5.3
6.6 < pH ≤ 6.7	89	7.6 < pH ≤ 7.7	29	8.6 < pH ≤ 8.7	4.4
6.7 < pH ≤ 6.8	84	7.7 < pH ≤ 7.8	24	8.7 < pH ≤ 8.8	3.7
6.8 < pH ≤ 6.9	78	7.8 < pH ≤ 7.9	20	8.8 < pH ≤ 8.9	3.1
6.9 < pH ≤ 7.0	72	7.9 < pH ≤ 8.0	17	8.9 < pH ≤ 9.0	2.6

2.2.1.5 Nitrogen Series Monitoring

Monitoring for Total Kjeldahl Nitrogen (TKN), Nitrite + Nitrate Nitrogen, and Total Nitrogen shall be conducted once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- October-December 2021; April-June 2022, July-September 2023, January-March 2024, October-December 2025

Nitrogen Series monitoring shall continue after the permit expiration date (until the permit is reissued) in accordance with the monitoring requirements specified in the last full calendar year of this permit. For example, the next test would be required in **October-December 2026**.

Testing: Monitoring shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during testing.

2.2.1.6 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Milwaukee River, upstream and out of the influence of the mixing zone and any other known discharge.

Instream Waste Concentration (IWC): 13%

Dilution series: At least five effluent concentrations and dual controls must be included in each test.

- **Acute:** 100, 50, 25, 12.5, 6.25% and any additional selected by the permittee.
- **Chronic:** 100, 30, 10, 3, 1% and any additional selected by the permittee.

WET Testing Frequency:

Acute tests shall be conducted twice during the permit term in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Acute:** April-June 2022, October-December 2025

Acute WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in **October-December 2026**.

Chronic tests shall be once each year in rotating quarters in order to collect seasonal information about the discharge. Tests are required during the following quarters.

- **Chronic:** October-December 2021, April-June 2022, July-September 2023, January-March 2024, October-December 2025

Chronic WET testing shall continue after the permit expiration date (until the permit is reissued) in accordance with the WET requirements specified for the last full calendar year of this permit. For example, the next test would be required in **October-December 2026**.

Testing: WET testing shall be performed during normal operating conditions. Permittees are not allowed to turn off or otherwise modify treatment systems, production processes, or change other operating or treatment conditions during WET tests.

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (Section 6, "*State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition*"), for each test. The original, complete, signed version of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion. The Discharge Monitoring Report (DMR) form shall be submitted electronically by the required deadline.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is greater than 1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100 \div LC_{50}$. A chronic toxicity test shall be considered positive if the Toxic Unit - Chronic (TU_c) is greater than 7.7 for either species. The TU_c shall be calculated as follows: $TU_c = 100 \div IC_{25}$.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The 90-day reporting period shall begin the day after the test which showed a positive result. The retests shall be completed using the same species and test methods specified for the original test (see the Standard Requirements section herein).

3 Land Application Requirements

3.1 Sampling Point(s)

The discharge(s) shall be limited to land application of the waste type(s) designated for the listed sampling point(s) on Department approved land spreading sites or by hauling to another facility.

Sampling Point Designation	
Sampling Point Number	**Sampling Point Location, WasteType/Sample Contents and Treatment Description (as applicable)**
002	Aerobically digested, Class B liquid sludge, stored in onsite storage tank. Sludge shall be sampled prior to hauling and taken from the outlet of the sludge pump located in sludge mixing room.

3.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

3.2.1 Sampling Point (Outfall) 002 - Aerobic Liquid Sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH_4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Sample once during calendar year 2022.
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Sample once during calendar year 2022.

Other Sludge Requirements	
Sludge Requirements	**Sample Frequency**
List 3 Requirements – Pathogen Control: The requirements in List 3 shall be met prior to land application of sludge.	**Annual**
List 4 Requirements – Vector Attraction Reduction: The vector attraction reduction shall be satisfied prior to, or at the time of land application as specified in List 4.	**Annual**

3.2.1.1 List 2 Analysis

If the monitoring frequency for List 2 parameters is more frequent than "Annual" then the sludge may be analyzed for the List 2 parameters just prior to each land application season rather than at the more frequent interval specified.

3.2.1.2 Changes in Feed Sludge Characteristics

If a change in feed sludge characteristics, treatment process, or operational procedures occurs which may result in a significant shift in sludge characteristics, the permittee shall reanalyze the sludge for List 1, 2, 3 and 4 parameters each time such change occurs.

3.2.1.3 Multiple Sludge Sample Points (Outfalls)

If there are multiple sludge sample points (outfalls), but the sludges are not subject to different sludge treatment processes, then a separate List 2 analysis shall be conducted for each sludge type which is land applied, just prior to land application, and the application rate shall be calculated for each sludge type. In this case, List 1, 3, and 4 and PCBs need only be analyzed on a single sludge type, at the specified frequency. If there are multiple sludge sample points (outfalls), due to multiple treatment processes, List 1, 2, 3 and 4 and PCBs shall be analyzed for each sludge type at the specified frequency.

3.2.1.4 Sludge Which Exceeds the High-Quality Limit

Cumulative pollutant loading records shall be kept for all bulk land application of sludge which does not meet the high-quality limit for any parameter. This requirement applies for the entire calendar year in which any exceedance of Table 3 of s. NR 204.07(5)(c), is experienced. Such loading records shall be kept for all List 1 parameters for each site land applied in that calendar year. The formula to be used for calculating cumulative loading is as follows:

[(Pollutant concentration (mg/kg) x dry tons applied/ac) ÷ 500] + previous loading (lbs/acre) = cumulative lbs pollutant per acre

When a site reaches 90% of the allowable cumulative loading for any metal established in Table 2 of s. NR 204.07(5)(b), the Department shall be so notified through letter or in the comment section of the annual land application report (3400-55).

3.2.1.5 Sludge Analysis for PCBs

The permittee shall analyze the sludge for Total PCBs one time during **2022**. The results shall be reported as "PCB Total Dry Wt". Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with Table EM in s. NR 219.04, Wis. Adm. Code and the conditions specified in Standard Requirements of this permit. PCB results shall be submitted by January 31, following the specified year of analysis.

3.2.1.6 Lists 1, 2, 3, and 4

List 1 **TOTAL SOLIDS AND METALS** See the Monitoring Requirements and Limitations table above for monitoring frequency and limitations for the List 1 parameters
Solids, Total (percent)
Arsenic, mg/kg (dry weight)
Cadmium, mg/kg (dry weight)
Copper, mg/kg (dry weight)
Lead, mg/kg (dry weight)
Mercury, mg/kg (dry weight)
Molybdenum, mg/kg (dry weight)
Nickel, mg/kg (dry weight)
Selenium, mg/kg (dry weight)
Zinc, mg/kg (dry weight)

List 2 **NUTRIENTS** See the Monitoring Requirements and Limitations table above for monitoring frequency for the List 2 parameters
Solids, Total (percent)
Nitrogen Total Kjeldahl (percent)
Nitrogen Ammonium (NH4-N) Total (percent)
Phosphorus Total as P (percent)
Phosphorus, Water Extractable (as percent of Total P)
Potassium Total Recoverable (percent)

List 3
PATHOGEN CONTROL FOR CLASS B SLUDGE

The permittee shall implement pathogen control as listed in List 3. The Department shall be notified of the pathogen control utilized and shall be notified when the permittee decides to utilize alternative pathogen control.

The following requirements shall be met prior to land application of sludge.

Parameter	Unit	Limit
Fecal Coliform*	MPN/gTS or CFU/gTS	2,000,000
OR, ONE OF THE FOLLOWING PROCESS OPTIONS		
Aerobic Digestion	Air Drying	
Anaerobic Digestion	Composting	
Alkaline Stabilization	PSRP Equivalent Process	

* The Fecal Coliform limit shall be reported as the geometric mean of 7 discrete samples on a dry weight basis.

List 4
VECTOR ATTRACTION REDUCTION

The permittee shall implement any one of the vector attraction reduction options specified in List 4. The Department shall be notified of the option utilized and shall be notified when the permittee decides to utilize an alternative option.

One of the following shall be satisfied prior to, or at the time of land application as specified in List 4.

Option	Limit	Where/When it Shall be Met
Volatile Solids Reduction	≥38%	Across the process
Specific Oxygen Uptake Rate	≤1.5 mg O_2/hr/g TS	On aerobic stabilized sludge
Anaerobic bench-scale test	<17 % VS reduction	On anaerobic digested sludge
Aerobic bench-scale test	<15 % VS reduction	On aerobic digested sludge
Aerobic Process	>14 days, Temp >40°C and Avg. Temp > 45°C	On composted sludge
pH adjustment	>12 S.U. (for 2 hours) and >11.5 (for an additional 22 hours)	During the process
Drying without primary solids	>75 % TS	When applied or bagged
Drying with primary solids	>90 % TS	When applied or bagged
Equivalent Process	Approved by the Department	Varies with process
Injection	-	When applied
Incorporation	-	Within 6 hours of application

3.2.1.7 Daily Land Application Log

Daily Land Application Log		
Discharge Monitoring Requirements and Limitations		
The permittee shall maintain a daily land application log for biosolids land applied each day when land application occurs. The following minimum records must be kept, in addition to all analytical results for the biosolids land applied. The log book records shall form the basis for the annual land application report requirements.		
Parameters	**Units**	**Sample Frequency**
DNR Site Number(s)	Number	Daily as used
Outfall number applied	Number	Daily as used
Acres applied	Acres	Daily as used
Amount applied	As appropriate * /day	Daily as used
Application rate per acre	unit */acre	Daily as used
Nitrogen applied per acre	lb/acre	Daily as used
Method of Application	Injection, Incorporation, or surface applied	Daily as used

*gallons, cubic yards, dry US Tons or dry Metric Tons

4 Schedules

4.1 Effluent Limitations for E. coli

The permittee shall comply with surface water limitations for E. coli as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification

Required Action	Due Date
Status Update: The permittee shall submit information within the discharge monitoring report (DMR) comment section documenting the steps taken in preparation for properly monitoring and testing for E. coli including, but not limited to, selected test method and location of sampling.	11/21/2021
Operational Evaluation Report: The permittee shall prepare and submit an Operational Evaluation Report to the Department for review and approval. The report shall include an evaluation of collected effluent data and proposed operational improvements that will optimize efficacy of disinfection at the treatment plant during the period prior to complying with final E. coli limitations and, to the extent possible, enable compliance with the final E. coli limitations. The report shall include a plan and schedule for implementation of the operational improvements. These improvements shall occur as soon as possible, but not later than April 30, 2023. The report shall state whether the operational improvements are expected to result in compliance with the final E. coli limitations. The permittee shall implement the operational improvements in accordance with the approved plan and schedule specified in the Operational Evaluation Report and in no case later than April 30, 2023. If the Operational Evaluation Report concludes that the operational improvements are expected to result in compliance with the final E. coli limitations, the permittee shall comply with the final E. coli limitations by April 30, 2023 and the permittee is not required to comply with subsequent milestones identified below in this compliance schedule ('Submit Facility Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet Limitations', 'Construction Upgrade Progress Report', 'Complete Construction', 'Achieve Compliance'). FACILITY PLAN - If the Operational Evaluation Report concludes that operational improvements alone are not expected to result in compliance with the final E. coli limitations, the permittee shall initiate development of a facility plan for meeting final E. coli limitations and comply with the remaining required actions in this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final E. coli limitations using the existing treatment system with only operational improvements, the Department may reopen and modify the permit to include an implementation schedule for achieving the final E. coli limitations sooner than April 30, 2026.	10/31/2022
Submit Facility Plan: If the Operational Evaluation Report concluded that the permittee cannot achieve final E. coli limitations with operational improvements alone, the permittee shall submit a Facility Plan per s. NR 110.09, Wis. Adm. Code. The permittee may submit an abbreviated facility plan if the Department determines that the modifications are minor.	04/30/2023
Final Plans and Specifications: The permittee shall submit final construction plans to the Department for approval pursuant to ch. NR 108, Wis. Adm. Code, specifying treatment plant upgrades that must be constructed to achieve compliance with final E. coli limitations and a schedule for completing construction of the upgrades by the complete construction date specified below.	03/31/2024
Treatment Plant Upgrade to Meet Limitations: The permittee shall initiate bidding, procurement, and/or construction of the project. The permittee shall obtain approval of the final construction plans	09/30/2024

and schedule from the Department pursuant to s. 281.41. Stats., prior to initiating activities defined as construction under ch. NR 108, Wis. Adm. Code. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2025
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2026
Achieve Compliance: The permittee shall achieve compliance with final E. coli limitations.	04/30/2026

4.2 Total Maximum Daily Loads (TMDLs) for Total Phosphorus

The permittee shall comply with the TMDLs for Phosphorus as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53 (2), Wis. Stats.)	12/31/2021
Treatment Plant Upgrade : The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Wis. Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s, 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications.	06/30/2022
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction upgrades.	09/30/2022
Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades.	03/31/2023
Achieve Compliance: The permittee shall achieve compliance with the TMDL Phosphorus limits as specified in section 2.2.1.2 of the permit.	06/30/2023

5 Standard Requirements

NR 205, Wisconsin Administrative Code: The conditions in ss. NR 205.07(1) and NR 205.07(2), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(2).

5.1 Reporting and Monitoring Requirements

5.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report. The report may require reporting of any or all of the information specified below under 'Recording of Results'. This report is to be returned to the Department no later than the date indicated on the form. A copy of the Wastewater Discharge Monitoring Report Form or an electronic file of the report shall be retained by the permittee.

Monitoring results shall be reported on an electronic discharge monitoring report (eDMR). The eDMR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

5.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

5.1.3 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

5.1.4 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.

- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.

- For purposes of calculating NR 101 fees, the 2 mg/l lower reporting limits for BOD_5 and Total Suspended Solids shall be considered to be limits of quantitation

- For the purposes of reporting a calculated result, average or a mass discharge value, the permittee may substitute a "0" (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.

- If no discharge occurs through an outfall, flow related parameters (e.g. flow rate, hydraulic application rate, volume, etc.) should be reported as "0" (zero) at the required sample frequency specified for the outfall. For example: if the sample frequency is daily, "0" would be reported for any day during the month that no discharge occurred.

5.1.5 Compliance Maintenance Annual Reports

Compliance Maintenance Annual Reports (CMAR) shall be completed using information obtained over each calendar year regarding the wastewater conveyance and treatment system. The CMAR shall be submitted and certified by the permittee in accordance with ch. NR 208, Wis. Adm. Code, by June 30, each year on an electronic report form provided by the Department.

In the case of a publicly owned treatment works, a resolution shall be passed by the governing body and submitted as part of the CMAR, verifying its review of the report and providing responses as required. Private owners of wastewater treatment works are not required to pass a resolution; but they must provide an Owner Statement and responses as required, as part of the CMAR submittal.

The CMAR shall be certified electronically by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The certification verifies that the electronic report is true, accurate and complete.

5.1.6 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings or electronic data records for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application. All pertinent sludge information, including permit application information and other documents specified in this permit or s. NR 204.06(9), Wis. Adm. Code shall be retained for a minimum of 5 years.

5.1.7 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

5.1.8 Reporting Requirements – Alterations or Additions

The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is only required when:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source.
- The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification requirement applies to pollutants which are not subject to effluent limitations in the existing permit.
- The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use of disposal sites not reported during the permit application process nor reported pursuant to an approved land application plan. Additional sites may not be used for the land application of sludge until department approval is received.

5.2 System Operating Requirements

5.2.1 Noncompliance Reporting

Sanitary sewer overflows and sewage treatment facility overflows shall be reported according to the 'Sanitary Sewer Overflows and Sewage Treatment Facility Overflows' section of this permit.

The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance:

- any noncompliance which may endanger health or the environment;
- any violation of an effluent limitation resulting from a bypass;
- any violation of an effluent limitation resulting from an upset; and
- any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit, either for effluent or sludge.

A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.

A scheduled bypass approved by the Department under the 'Scheduled Bypass' section of this permit shall not be subject to the reporting required under this section.

NOTE: Section 292.11(2)(a), Wisconsin Statutes, requires any person who possesses or controls a hazardous substance or who causes the discharge of a hazardous substance to notify the Department of Natural Resources **immediately** of any discharge not authorized by the permit. **The discharge of a hazardous substance that is not authorized by this permit or that violates this permit may be a hazardous substance spill. To report a hazardous substance spill, call DNR's 24-hour HOTLINE at 1-800-943-0003.**

5.2.2 Flow Meters

Flow meters shall be calibrated annually, as per s. NR 218.06, Wis. Adm. Code.

5.2.3 Raw Grit and Screenings

All raw grit and screenings shall be disposed of at a properly licensed solid waste facility or picked up by a licensed waste hauler. If the facility or hauler are located in Wisconsin, then they shall be licensed under chs. NR 500-555, Wis. Adm. Code.

5.2.4 Sludge Management

All sludge management activities shall be conducted in compliance with ch. NR 204 "Domestic Sewage Sludge Management", Wis. Adm. Code.

5.2.5 Prohibited Wastes

Under no circumstances may the introduction of wastes prohibited by s. NR 211.10, Wis. Adm. Code, be allowed into the waste treatment system. Prohibited wastes include those:

- which create a fire or explosion hazard in the treatment work;
- which will cause corrosive structural damage to the treatment work;
- solid or viscous substances in amounts which cause obstructions to the flow in sewers or interference with the proper operation of the treatment work;
- wastewaters at a flow rate or pollutant loading which are excessive over relatively short time periods so as to cause a loss of treatment efficiency; and
- changes in discharge volume or composition from contributing industries which overload the treatment works or cause a loss of treatment efficiency.

5.2.6 Bypass

This condition applies only to bypassing at a sewage treatment facility that is not a scheduled bypass, approved blending as a specific condition of this permit, a sewage treatment facility overflow or a controlled diversion as provided in the sections titled 'Scheduled Bypass', 'Blending' (if approved), 'SSO's and Sewage Treatment Facility Overflows' and 'Controlled Diversions' of this permit. Any other bypass at the sewage treatment facility is prohibited and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats. The Department may approve a bypass if the permittee demonstrates all the following conditions apply:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance. When evaluating feasibility of alternatives, the department may consider factors such as technical achievability, costs and affordability of implementation and risks to public health, the environment and, where the permittee is a municipality, the welfare of the community served; and
- The bypass was reported in accordance with the Noncompliance Reporting section of this permit.

5.2.7 Scheduled Bypass

Whenever the permittee anticipates the need to bypass for purposes of efficient operations and maintenance and the permittee may not meet the conditions for controlled diversions in the 'Controlled Diversions' section of this permit, the permittee shall obtain prior written approval from the Department for the scheduled bypass. A permittee's written

request for Department approval of a scheduled bypass shall demonstrate that the conditions for bypassing specified in the above section titled 'Bypass' are met and include the proposed date and reason for the bypass, estimated volume and duration of the bypass, alternatives to bypassing and measures to mitigate environmental harm caused by the bypass. The department may require the permittee to provide public notification for a scheduled bypass if it is determined there is significant public interest in the proposed action and may recommend mitigation measures to minimize the impact of such bypass.

5.2.8 Controlled Diversions

Controlled diversions are allowed only when necessary for essential maintenance to assure efficient operation. Sewage treatment facilities that have multiple treatment units to treat variable or seasonal loading conditions may shut down redundant treatment units when necessary for efficient operation. The following requirements shall be met during controlled diversions:

- Effluent from the sewage treatment facility shall meet the effluent limitations established in the permit. Wastewater that is diverted around a treatment unit or treatment process during a controlled diversion shall be recombined with wastewater that is not diverted prior to the effluent sampling location and prior to effluent discharge;
- A controlled diversion does not include blending as defined in s. NR 210.03(2e), Wis. Adm. Code, and as may only be approved under s. NR 210.12. A controlled diversion may not occur during periods of excessive flow or other abnormal wastewater characteristics;
- A controlled diversion may not result in a wastewater treatment facility overflow; and
- All instances of controlled diversions shall be documented in sewage treatment facility records and such records shall be available to the department on request.

5.2.9 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

5.2.10 Operator Certification

The wastewater treatment facility shall be under the direct supervision of a state certified operator. In accordance with s. NR 114.53, Wis. Adm. Code, every WPDES permitted treatment plant shall have a designated operator-in-charge holding a current and valid certificate. The designated operator-in-charge shall be certified at the level and in all subclasses of the treatment plant, except laboratory. Treatment plant owners shall notify the department of any changes in the operator-in-charge within 30 days. Note that s. NR 114.52(22), Wis. Adm. Code, lists types of facilities that are excluded from operator certification requirements (i.e. private sewage systems, pretreatment facilities discharging to public sewers, industrial wastewater treatment that consists solely of land disposal, agricultural digesters and concentrated aquatic production facilities with no biological treatment).

5.3 Sewage Collection Systems

5.3.1 Sanitary Sewage Overflows and Sewage Treatment Facility Overflows

5.3.1.1 Overflows Prohibited

Any overflow or discharge of wastewater from the sewage collection system or at the sewage treatment facility, other than from permitted outfalls, is prohibited. The permittee shall provide information on whether any of the following conditions existed when an overflow occurred:

- The sanitary sewer overflow or sewage treatment facility overflow was unavoidable to prevent loss of life, personal injury or severe property damage;
- There were no feasible alternatives to the sanitary sewer overflow or sewage treatment facility overflow such as the use of auxiliary treatment facilities or adequate back-up equipment, retention of untreated wastes, reduction of inflow and infiltration, or preventative maintenance activities;
- The sanitary sewer overflow or the sewage treatment facility overflow was caused by unusual or severe weather related conditions such as large or successive precipitation events, snowmelt, saturated soil conditions, or severe weather occurring in the area served by the sewage collection system or sewage treatment facility; and
- The sanitary sewer overflow or the sewage treatment facility overflow was unintentional, temporary, and caused by an accident or other factors beyond the reasonable control of the permittee.

5.3.1.2 Permittee Response to Overflows

Whenever a sanitary sewer overflow or sewage treatment facility overflow occurs, the permittee shall take all feasible steps to control or limit the volume of untreated or partially treated wastewater discharged, and terminate the discharge as soon as practicable. Remedial actions, including those in NR 210.21 (3), Wis. Adm. Code, shall be implemented consistent with an emergency response plan developed under the CMOM program.

5.3.1.3 Permittee Reporting

Permittees shall report all sanitary sewer overflows and sewage treatment overflows as follows:

- The permittee shall notify the department by telephone, fax or email as soon as practicable, but no later than 24 hours from the time the permittee becomes aware of the overflow;
- The permittee shall, no later than five days from the time the permittee becomes aware of the overflow, provide to the department the information identified in this paragraph using department form number 3400-184. If an overflow lasts for more than five days, an initial report shall be submitted within 5 days as required in this paragraph and an updated report submitted following cessation of the overflow. At a minimum, the following information shall be included in the report:

  - The date and location of the overflow;
  - The surface water to which the discharge occurred, if any;
  - The duration of the overflow and an estimate of the volume of the overflow;
  - A description of the sewer system or treatment facility component from which the discharge occurred such as manhole, lift station, constructed overflow pipe, or crack or other opening in a pipe;
  - The estimated date and time when the overflow began and stopped or will be stopped;
  - The cause or suspected cause of the overflow including, if appropriate, precipitation, runoff conditions, areas of flooding, soil moisture and other relevant information;
  - Steps taken or planned to reduce, eliminate and prevent reoccurrence of the overflow and a schedule of major milestones for those steps;
  - A description of the actual or potential for human exposure and contact with the wastewater from the overflow;
  - Steps taken or planned to mitigate the impacts of the overflow and a schedule of major milestones for those steps;
  - To the extent known at the time of reporting, the number and location of building backups caused by excessive flow or other hydraulic constraints in the sewage collection system that occurred

concurrently with the sanitary sewer overflow and that were within the same area of the sewage collection system as the sanitary sewer overflow; and
◦The reason the overflow occurred or explanation of other contributing circumstances that resulted in the overflow event. This includes any information available including whether the overflow was unavoidable to prevent loss of life, personal injury, or severe property damage and whether there were feasible alternatives to the overflow.

NOTE: A copy of form 3400-184 for reporting sanitary sewer overflows and sewage treatment facility overflows may be obtained from the department or accessed on the department's web site at http://dnr.wi.gov/topic/wastewater/SSOreport.html. As indicated on the form, additional information may be submitted to supplement the information required by the form.

- The permittee shall identify each specific location and each day on which a sanitary sewer overflow or sewage treatment facility overflow occurs as a discrete sanitary sewer overflow or sewage treatment facility overflow occurrence. An occurrence may be more than one day if the circumstances causing the sanitary sewer overflow or sewage treatment facility overflow results in a discharge duration of greater than 24 hours. If there is a stop and restart of the overflow at the same location within 24 hours and the overflow is caused by the same circumstance, it may be reported as one occurrence. Sanitary sewer overflow occurrences at a specific location that are separated by more than 24 hours shall be reported as separate occurrences; and
- A permittee that is required to submit wastewater discharge monitoring reports under NR 205.07 (1) (r) shall also report all sanitary sewer overflows and sewage treatment facility overflows on that report.

5.3.1.4 Public Notification

The permittee shall notify the public of any sanitary sewer and sewage treatment facility overflows consistent with its emergency response plan required under the CMOM (Capacity, Management, Operation and Maintenance) section of this permit and s. NR 210.23 (4) (f), Wis. Adm. Code. Such public notification shall occur promptly following any overflow event using the most effective and efficient communications available in the community. At minimum, a daily newspaper of general circulation in the county(s) and municipality whose waters may be affected by the overflow shall be notified by written or electronic communication.

5.3.2 Capacity, Management, Operation and Maintenance (CMOM) Program

- The permittee shall have written documentation of the Capacity, Management, Operation and Maintenance (CMOM) program components in accordance with s. NR 210.23(4), Wis. Adm. Code. Such documentation shall be available for Department review upon request. The Department may request that the permittee provide this documentation or prepare a summary of the permittee's CMOM program at the time of application for reissuance of the WPDES permit.
- The permittee shall implement a CMOM program in accordance with s. NR 210.23, Wis. Adm. Code.
- The permittee shall at least annually conduct a self-audit of activities conducted under the permittee's CMOM program to ensure CMOM components are being implemented as necessary to meet the general standards of s. NR 210.23(3), Wis. Adm. Code.

5.3.3 Sewer Cleaning Debris and Materials

All debris and material removed from cleaning sanitary sewers shall be managed to prevent nuisances, run-off, ground infiltration or prohibited discharges.

- Debris and solid waste shall be dewatered, dried and then disposed of at a licensed solid waste facility.
- Liquid waste from the cleaning and dewatering operations shall be collected and disposed of at a permitted wastewater treatment facility.

- Combination waste including liquid waste along with debris and solid waste may be disposed of at a licensed solid waste facility or wastewater treatment facility willing to accept the waste.

5.4 Surface Water Requirements

5.4.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantitation (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

5.4.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average concentration limits and mass limits and total load limits:

Weekly/Monthly/Six-Month/Annual Average Concentration = the sum of all daily results for that week/month/six-month/year, divided by the number of results during that time period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Weekly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the month.

Six-Month Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the six-month period. [Note: When a six-month average effluent limit is specified for Total Phosphorus the applicable periods are May through October and November through April.]

Annual Average Mass Discharge (lbs/day): Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34, then average the daily mass values for the entire year.

Total Monthly Discharge: = monthly average concentration (mg/L) x total flow for the month (MG/month) x 8.34.

Total Annual Discharge: = sum of total monthly discharges for the calendar year.

12-Month Rolling Sum of Total Monthly Discharge: = the sum of the most recent 12 consecutive months of Total Monthly Discharges.

5.4.3 Effluent Temperature Requirements

Weekly Average Temperature – The permittee shall use the following formula for calculating effluent results to determine compliance with the weekly average temperature limit (as applicable): Weekly Average Temperature = the sum of all daily maximum results for that week divided by the number of daily maximum results during that time period.

Cold Shock Standard – Water temperatures of the discharge shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock. 'Cold Shock' means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavior or physiological performance and may lead to death.

Rate of Temperature Change Standard – Temperature of a water of the state or discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state.

5.4.4 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

5.4.5 Surface Water Uses and Criteria

In accordance with NR 102.04, Wis. Adm. Code, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

a) Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

b) Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

c) Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

d) Substances in concentrations or in combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

5.4.6 Percent Removal

During any 30 consecutive days, the average effluent concentrations of BOD_5 and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively. This requirement does not apply to removal of total suspended solids if the permittee operates a lagoon system and has received a variance for suspended solids granted under NR 210.07(2), Wis. Adm. Code.

5.4.7 Fecal Coliform

The monthly limit for fecal coliform shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

5.4.8 *E. coli*

The monthly limit for *E. coli* shall be expressed as a geometric mean. In calculating the geometric mean, a value of 1 is used for any result of 0.

5.4.9 Seasonal Disinfection

Disinfection shall be provided from May 1 through September 30 of each year. Monitoring requirements and the limitations for Fecal Coliform (interim) and *E. coli* apply only during the period in which disinfection is required. Whenever chlorine is used for disinfection or other uses, the limitations and monitoring requirements for residual chlorine shall apply. A dechlorination process shall be in operation whenever chlorine is used.

5.4.10 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the *"State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, 2nd Edition" (PUB-WT-797*, November 2004) as required by NR 219.04, Table A, Wis. Adm. Code). All of the WET tests required in this permit, including any required retests, shall be conducted on the

Ceriodaphnia dubia and fathead minnow species. Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

5.4.11 Whole Effluent Toxicity (WET) Identification and Reduction

Within 60 days of a retest which showed positive results, the permittee shall submit a written report to the Biomonitoring Coordinator, Bureau of Water Quality, 101 S. Webster St., PO Box 7921, Madison, WI 53707-7921, which details the following:

- A description of actions the permittee has taken or will take to remove toxicity and to prevent the recurrence of toxicity;
- A description of toxicity reduction evaluation (TRE) investigations that have been or will be done to identify potential sources of toxicity, including some or all of the following actions:
  - (a) Evaluate the performance of the treatment system to identify deficiencies contributing to effluent toxicity (e.g., operational problems, chemical additives, incomplete treatment)
  - (b) Identify the compound(s) causing toxicity
  - (c) Trace the compound(s) causing toxicity to their sources (e.g., industrial, commercial, domestic)
  - (d) Evaluate, select, and implement methods or technologies to control effluent toxicity (e.g., in-plant or pretreatment controls, source reduction or removal)
- Where corrective actions including a TRE have not been completed, an expeditious schedule under which corrective actions will be implemented;
- If no actions have been taken, the reason for not taking action.

The permittee may also request approval from the Department to postpone additional retests in order to investigate the source(s) of toxicity. Postponed retests must be completed after toxicity is believed to have been removed.

5.5 Land Application Requirements

5.5.1 Sludge Management Program Standards And Requirements Based Upon Federally Promulgated Regulations

In the event that new federal sludge standards or regulations are promulgated, the permittee shall comply with the new sludge requirements by the dates established in the regulations, if required by federal law, even if the permit has not yet been modified to incorporate the new federal regulations.

5.5.2 General Sludge Management Information

The General Sludge Management Form 3400-48 shall be completed and submitted prior to any significant sludge management changes.

5.5.3 Sludge Samples

All sludge samples shall be collected at a point and in a manner which will yield sample results which are representative of the sludge being tested, and collected at the time which is appropriate for the specific test.

5.5.4 Land Application Characteristic Report

Each report shall consist of a Characteristic Form 3400-49 and Lab Report. The Characteristic Report Form 3400-49 shall be submitted electronically by January 31 following each year of analysis.

Following submittal of the electronic Characteristic Report Form 3400-49, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report is true, accurate and complete. The Lab Report must be sent directly to the facility's DNR sludge representative or basin engineer unless approval for not submitting the lab reports has been given.

The permittee shall use the following convention when reporting sludge monitoring results: Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 1.0 mg/kg, report the pollutant concentration as < 1.0 mg/kg .

All results shall be reported on a dry weight basis.

5.5.5 Calculation of Water Extractable Phosphorus

When sludge analysis for Water Extractable Phosphorus is required by this permit, the permittee shall use the following formula to calculate and report Water Extractable Phosphorus:
Water Extractable Phosphorus (% of Total P) =
[Water Extractable Phosphorus (mg/kg, dry wt) ÷ Total Phosphorus (mg/kg, dry wt)] x 100

5.5.6 Monitoring and Calculating PCB Concentrations in Sludge

When sludge analysis for "PCB, Total Dry Wt" is required by this permit, the PCB concentration in the sludge shall be determined as follows.

Either congener-specific analysis or Aroclor analysis shall be used to determine the PCB concentration. The permittee may determine whether Aroclor or congener specific analysis is performed. Analyses shall be performed in accordance with the following provisions and Table EM in s. NR 219.04, Wis. Adm. Code.

- EPA Method 1668 may be used to test for all PCB congeners. If this method is employed, all PCB congeners shall be delineated. Non-detects shall be treated as zero. The values that are between the limit of detection and the limit of quantitation shall be used when calculating the total value of all congeners. All results shall be added together and the total PCB concentration by dry weight reported. **Note**: It is recognized that a number of the congeners will co-elute with others, so there will not be 209 results to sum.
- EPA Method 8082A shall be used for PCB-Aroclor analysis and may be used for congener specific analysis as well. If congener specific analysis is performed using Method 8082A, the list of congeners tested shall include at least congener numbers 5, 18, 31, 44, 52, 66, 87, 101, 110, 138, 141, 151, 153, 170, 180, 183, 187, and 206 plus any other additional congeners which might be reasonably expected to occur in the particular sample. For either type of analysis, the sample shall be extracted using the Soxhlet extraction (EPA Method 3540C) (or the Soxhlet Dean-Stark modification) or the pressurized fluid extraction (EPA Method 3545A). If Aroclor analysis is performed using Method 8082A, clean up steps of the extract shall be performed as necessary to remove interference and to achieve as close to a limit of detection of 0.11 mg/kg as possible. Reporting protocol, consistent with s. NR 106.07(6)(e), should be as follows: If all Aroclors are less than the LOD, then the Total PCB Dry Wt result should be reported as less than the highest LOD. If a single Aroclor is detected then that is what should be reported for the Total PCB result. If multiple Aroclors are detected, they should be summed and reported as Total PCBs. If congener specific analysis is done using Method 8082A, clean up steps of the extract shall be performed as necessary to remove interference and to achieve as close to a limit of detection of 0.003

mg/kg as possible for each congener. If the aforementioned limits of detection cannot be achieved after using the appropriate clean up techniques, a reporting limit that is achievable for the Aroclors or each congener for the sample shall be determined. This reporting limit shall be reported and qualified indicating the presence of an interference. The lab conducting the analysis shall perform as many of the following methods as necessary to remove interference:

3620C – Florisil	3611B - Alumina
3640A - Gel Permeation	3660B - Sulfur Clean Up (using copper shot instead of powder)
3630C - Silica Gel	3665A - Sulfuric Acid Clean Up

5.5.7 Annual Land Application Report

Land Application Report Form 3400-55 shall be submitted electronically by January 31, each year whether or not non-exceptional quality sludge is land applied. Non-exceptional quality sludge is defined in s. NR 204.07(4), Wis. Adm. Code. Following submittal of the electronic Annual Land Application Report Form 3400-55, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

5.5.8 Other Methods of Disposal or Distribution Report

The permittee shall submit electronically the Other Methods of Disposal or Distribution Report Form 3400-52 by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality sludge is distributed or land applied. Following submittal of the electronic Report Form 3400-52, this form shall be certified electronically via the 'eReport Certify' page by a responsible executive or municipal officer, manager, partner or proprietor as specified in s. 283.37(3), Wis. Stats., or a duly authorized representative of the officer, manager, partner or proprietor that has been delegated signature authority pursuant to s. NR 205.07(1)(g)2, Wis. Adm. Code. The 'eReport Certify' page certifies that the electronic report form is true, accurate and complete.

5.5.9 Approval to Land Apply

Bulk non-exceptional quality sludge as defined in s. NR 204.07(4), Wis. Adm. Code, may not be applied to land without a written approval letter or Form 3400-122 from the Department unless the Permittee has obtained permission from the Department to self approve sites in accordance with s. NR 204.06 (6), Wis. Adm. Code. Analysis of sludge characteristics is required prior to land application. Application on frozen or snow covered ground is restricted to the extent specified in s. NR 204.07(3) (l), Wis. Adm. Code.

5.5.10 Soil Analysis Requirements

Each site requested for approval for land application must have the soil tested prior to use. Each approved site used for land application must subsequently be soil tested such that there is at least one valid soil test in the four years prior to land application. All soil sampling and submittal of information to the testing laboratory shall be done in accordance with UW Extension Bulletin A-2100. The testing shall be done by the UW Soils Lab in Madison or Marshfield, WI or at a lab approved by UW. The test results including the crop recommendations shall be submitted to the DNR contact listed for this permit, as they are available. Application rates shall be determined based on the crop nitrogen recommendations and with consideration for other sources of nitrogen applied to the site.

5.5.11 Land Application Site Evaluation

For non-exceptional quality sludge, as defined in s. NR 204.07(4), Wis. Adm. Code, a Land Application Site Request Form 3400-053 shall be submitted to the Department for the proposed land application site. The Department will

evaluate the proposed site for acceptability and will either approve or deny use of the proposed site. The permittee may obtain permission to approve their own sites in accordance with s. NR 204.06(6), Wis. Adm. Code.

5.5.12 Class B Sludge: Fecal Coliform Limitation

Compliance with the fecal coliform limitation for Class B sludge shall be demonstrated by calculating the geometric mean of at least 7 separate samples. (Note that a Total Solids analysis must be done on each sample). The geometric mean shall be less than 2,000,000 MPN or CFU/g TS. Calculation of the geometric mean can be done using one of the following 2 methods.

Method 1:

Geometric Mean = $(X_1 \times X_2 \times X_3 \ldots \times X_n)^{1/n}$

Where X = Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Method 2:

Geometric Mean = $\text{antilog}[(X_1 + X_2 + X_3 \ldots + X_n) \div n]$

Where X = $\log_{10}$ of Coliform Density value of the sludge sample, and where n = number of samples (at least 7)

Example for Method 2

Sample Number	Coliform Density of Sludge Sample	$\log_{10}$
1	6.0×10^5	5.78
2	4.2×10^6	6.62
3	1.6×10^6	6.20
4	9.0×10^5	5.95
5	4.0×10^5	5.60
6	1.0×10^6	6.00
7	5.1×10^5	5.71

The geometric mean for the seven samples is determined by averaging the $\log_{10}$ values of the coliform density and taking the antilog of that value.

$(5.78 + 6.62 + 6.20 + 5.95 + 5.60 + 6.00 + 5.71) \div 7 = 5.98$

The antilog of $5.98 = 9.5 \times 10^5$

5.5.13 Class B Sludge: Aerobic Digestion

Agitate the sludge with air or oxygen to maintain an aerobic condition for a mean cell residence time and temperature between 40 days at 20° C and 60 days at 15° C.

5.5.14 Class B Sludge - Vector Control: Injection

No significant amount of the sewage sludge shall be present on the land surface within one hour after the sludge is injected.

5.5.15 Class B Sludge - Vector Control: Incorporation

Class B sludge shall be incorporated within 6 hours of surface application, or as approved by the Department.

5.5.16 Sludge Hauling

The permittee is required to submit Form 3400-52 to the Department. If sludge is hauled to another facility, information shall include the quantity of sludge hauled, the name, address, phone number, contact person, and permit number of the receiving facility. Form 3400-52 shall be submitted annually by January 31 each year whether or not sludge is hauled.

6 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Effluent Limitations for E. coli -Status Update	November 21, 2021	14
Effluent Limitations for E. coli -Operational Evaluation Report	October 31, 2022	14
Effluent Limitations for E. coli -Submit Facility Plan	April 30, 2023	14
Effluent Limitations for E. coli -Final Plans and Specifications	March 31, 2024	14
Effluent Limitations for E. coli -Treatment Plant Upgrade to Meet Limitations	September 30, 2024	15
Effluent Limitations for E. coli -Construction Upgrade Progress Report	September 30, 2025	15
Effluent Limitations for E. coli -Complete Construction	March 31, 2026	15
Effluent Limitations for E. coli -Achieve Compliance	April 30, 2026	15
Total Maximum Daily Loads (TMDLs) for Total Phosphorus -Final Plans and Specifications	December 31, 2021	15
Total Maximum Daily Loads (TMDLs) for Total Phosphorus -Treatment Plant Upgrade	June 30, 2022	15
Total Maximum Daily Loads (TMDLs) for Total Phosphorus -Construction Upgrade Progress Report	September 30, 2022	15
Total Maximum Daily Loads (TMDLs) for Total Phosphorus -Complete Construction	March 31, 2023	15
Total Maximum Daily Loads (TMDLs) for Total Phosphorus -Achieve Compliance	June 30, 2023	15
Compliance Maintenance Annual Reports (CMAR)	by June 30, each year	17
General Sludge Management Form 3400-48	prior to any significant sludge management changes	25
Characteristic Form 3400-49 and Lab Report	by January 31 following each year of analysis	26
Land Application Report Form 3400-55	by January 31, each year whether or not non-exceptional quality sludge is land applied	27
Other Methods of Disposal or Distribution Report Form 3400-52	by January 31, each year whether or not sludge is hauled, landfilled, incinerated, or exceptional quality	27

	sludge is distributed or land applied	
Wastewater Discharge Monitoring Report	no later than the date indicated on the form	16

Report forms shall be submitted electronically in accordance with the reporting requirements herein. Any facility plans or plans and specifications for municipal, industrial, industrial pretreatment and non-industrial wastewater systems shall be submitted to the Bureau of Water Quality, P.O. Box 7921, Madison, WI 53707-7921. All other submittals required by this permit shall be submitted to:
Southeast Region - Plymouth, 1155 Pilgrim Road, Plymouth, WI 53073

REQUEST FOR WATER TOWER PLANNING

VILLAGE OF FREDONIA

1. Introduction

Proposals are due by 2:00 PM on March 31, 2022.

The Village of Fredonia Water Utility intends to hire an engineering consulting firm to evaluate the installation of a second water tower. The Village currently has a 300,000 gallon tower and two 30,000 gallon reservoirs each fed by its own well pump. From the reservoir, water is pumped to the water tower.

Currently the water utility has 300,000 gallons of storage capacity. A maximum day demand of 612,000 gallons and is projected to grow to 1,274,000 gallons by 2035. Current fire demand is 300,000 gallons. Average or typical demand is 175,000 gallons with a 2035 projection of 364,000. Attached is a graph of the water use during 2021. The two booster pumps at the reservoir are rated for 350 gpm and 430 gpm respectively from Maple Lawn well house and Village Hall well house. The two well pumps are rated for 450 gpm and 500 gpm. Respectively from Maple Lawn well house and Village Hall well house.

This project will be funded entirely by the Fredonia Water Utility. The Village has budgeted $10,000 for the completion of the study to provide a preliminary plan for a second water tower.

During 2008, a well test was conducted for the possible location of a third well. This data will be made available upon request to proposers and to the selected consultant.

2. Engineering Consultant Eligibility Requirements

To be considered for this project, the proposer must have experience with five similar projects and include in their proposal a list of such projects with the proposer's role in the project. The proposer shall confirm that it can meet the project schedule. The proposer shall also be licensed in Wisconsin and provide the license number of each licensed employee planned to be used for the project.

Also with your proposal include the project team (with resume and office location), a project approach, project schedule, and a task breakdown with anticipated hours for each employee type. The task break down may be combined with the schedule.

3. Scope of Services and Special Provisions

A summary of the service required include:

Preparation of a written plan, bound and in color. 10 copies of the final plan.

- Evaluation of need for more storage and how much storage
- Possible locations of water tower and well
- Estimated cost of water tower and well
- Pros & cons evaluation of the potential sites
- Discussion on how the two towers would operate
- Discussion of possible financing mechanisms
- Recommendation of additional studies if any

Two meetings with the Public Works and Utilities Committee with handouts and visual aids as appropriate.

One meeting with the Village Board with handouts and visual aids.

A digital copy of the report shall be provided to the Village.

4. Equal Employment Opportunity

The consultant shall abide by all existing federal, state, and local equal opportunity laws. This project will not have a minority or disadvantaged business requirement.

5. Project Schedule

The contract for consultant service is expected to be signed by April 22, 2022. The consultant shall commence work upon execution of the contract. Work shall be completed by June 30, 2022

6. Proposal Evaluation and Selection of Engineering Consultant

Proposals for this project will be evaluated by a committee on the following criteria:

(a) Consultant's professional qualifications	10%
(b) Experience and qualification of your project team	40%
(c) Consultant's present and committed work load	10%
(d) Cost	40%

The Evaluation Committee will consist of the Public Works and Utility Committee (3 members) and the Director of Public Works.

7. Interview

The evaluation may include an interview with the Evaluation Committee of selected finalists at the engineering firm's expense. **However, an award is likely to be made without discussion with proposers.**

8. Insurance Requirements

The proposers are directed to pay special attention to the insurance requirements of the Village of Fredonia which are as follows:

Worker's Compensation.....Statutory
General Liability
Bodily Injury - Per Incident / Annual Aggregate.....$1,000,000/$2,000,000
Automobile Liability
Bodily Injury.....$1,000,000
Property Damage.....$1,000,000
Professional Liability Coverage.....$2,000,000

A Certificate of Insurance shall be submitted with the signed contract.

9. Caveat

The Village of Fredonia reserves the right, at its sole discretion, to reject any or all responses, issue addenda, request clarification, waive technicalities, alter the nature and/or scope of the proposed project, request resubmittals, and/or discontinue this process.

The Village shall not be responsible for oral interpretations given by any Village employee, representative, or others. All proposals should use this written document and its attachments as the sole basis for proposal.

The issuance of a written amendment is the only official method whereby interpretation, clarification or additional information can be given. Respondents who do not acknowledge the amendments in their response may have their proposals rejected.

Proposals will not be publicly opened.

Note: This is a request for proposal, not a bid; therefore the Village is not bound to accept the lowest cost for professional services.

10. Submission of Proposal

Submission – Hard Copy via U.S. Mail:
Respondent shall submit one (1) original, unbound, clearly marked and identified as such, and four (4) copies of their proposal, no later than 2:00 p.m. CST on March 31, 2022 to

Village of Fredonia
242 Fredonia Avenue
P. O. Box 159
Fredonia, Wisconsin 53021-0159

If delivering your response in person, go to the Fredonia Government Center, 242 Fredonia Avenue, and give to the Clerk-Treasurer to be time stamped.

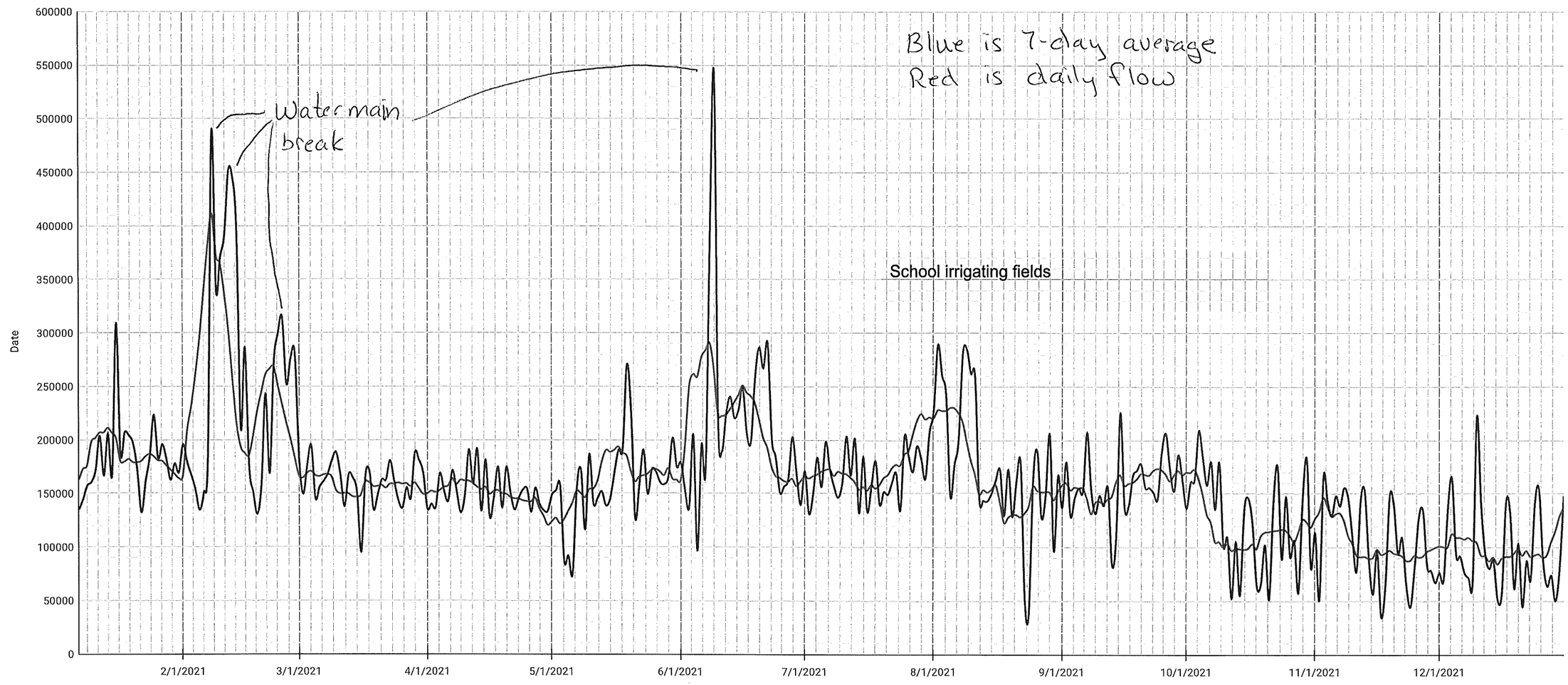
Each **HARD COPY** proposal should be bound, with the exception of the original.

12. Pre-Submission Meeting

No meeting is scheduled. The Village of Fredonia will **only** entertain questions concerning this request for proposal until 3:00 PM on March 30, 2022. All questions should be submitted in writing to Roger Strohm, Director of Public Works. Any pertinent information will be distributed to all vendors by an amendment.

All proposers should use this written document and its attachments as the sole basis for submitting a proposal.

7-Day Average Flow Rate



2/8/2022

Roger Strohm | Director of Public Works
Village of Fredonia
242 Fredonia Avenue Fredonia, WI 53201

Re: PROPOSAL FOR PROFESSIONAL SERVICES
Fredonia Business Park
Village of Fredonia, Ozaukee County, WI
PEG #2231.02-WI

Mr. Strohm,

Thank you for the opportunity to submit this proposal package to provide professional services for this development. Below we outline our scope of services to be provided for the various contract phases. For purposes of this Agreement, VILLAGE OF FREDONIA will be identified as "CLIENT" and PINNACLE ENGINEERING GROUP, LLC. will be identified as "PEG." This proposal package is divided into three sections including the Proposal for Professional Services, Standard Rate Schedule, and Agreement for Professional Services.

SECTION 1 – PROPOSAL FOR PROFESSIONAL SERVICES

PROJECT DESCRIPTION:

Our proposal is based on our understanding of the project scope through the information provided by the Village of Fredonia in conjunction with our initial investigation. The Scope of Services provides a detailed analysis of the tasks that we anticipate completing in the preparation of wetland fill permitting.

The site is known as Parcel No. 09-035-15-011.00 in the Village of Fredonia, Ozaukee County, Wisconsin and encompasses approximately 2.9± acres. The fee estimate in this proposal is based on the Village's desire to obtain a wetland fill permit for this parcel.

SCOPE OF SERVICES:

***NATURAL RESOURCES SERVICES*:**

WETLAND DELINEATION: PEG will engage a QUALIFIED assured wetland consultant to perform a wetland delineation of the 2.9± acres of parcel 09-035-15-011.00. A report will be delivered to the client for review prior to submittal to the USACE. This service also includes a Farm Agency Slide Review, which is required because of the current agricultural use.

WETLAND IMPACT PERMITTING (<1 Acre | Non-Jurisdictional): PEG will prepare the necessary documents, exhibits, and applications for the required Wetland Fill/Impact Permitting with both the WDNR and USACE. This includes the required Alternative Analysis and other follow-up information requested by the agencies. A separate fee is required to be paid to the WDNR for completing the application submittal and will be the responsibility of the CLIENT.

GENERAL PROJECT UNDERSTANDING:

1. The Client will coordinate site access and notification of all adjacent landowners involved in the project.
2. Printing, plotting and reproduction costs, including mailing, distribution expenses and administration labor associated with the listed reimbursables are considered a direct reimbursable expense and are not included in the above fees. All reimbursables will be invoiced referencing "Reimbursable Expenses".
3. Permit fees will be paid directly by the Client/Owner at the time of permit application submittal.
4. Drawings will be prepared in AutoCAD format in accordance with plan standards developed by PEG.
5. This proposal does not include services beyond design unless specifically noted herein.
6. After documents/reports/studies for each phase of the scope of services are prepared and submitted to CLIENT, modifications and/or supplemental design will be addressed and invoiced on a time and materials basis. Revisions to the contract will be presented to the Client and approved via Authorization to Proceed documentation.
7. PEG takes no responsibility for any underground structures or buried materials such as foundations, wells, septic, holding tanks, utilities, hazardous materials, or any other items that may exist on the property. The utility locations are limited to the public utilities based upon plans readily available from the municipality and private underground utilities marked in the field by "Digger's Hotline." If additional utilities are known to exist on the property, the Client will provide existing plans of other utilities serving the site that otherwise cannot be located by a visual inspection of the property or of which the surveyor would have no knowledge. The existing utilities are shown for informational purposes only and are not guaranteed to be accurate or all-inclusive.

COST TO COMPLETE SCOPE OF SERVICES

PEG will provide the services in exchange for compensation of the fees below.

NATURAL RESOURCE SERVICES	
WETLAND DELINEATION	$ 2,900
WETLAND IMPACT PERMITTING (<1 AC)	$ 3,500
TOTAL	**$ 6,400**

Additional services outside of the scope of this proposal will be provided at PEG's Hourly Rate Schedule via a Contract Amendment via separated Authorization. The hourly rates indicated on the attached Standard Rate Schedule are subject to change on an annual basis.

ADDITIONAL SERVICES:

The following categories of work are NOT-included in this proposal and are considered Additional Services. These services are not included as part of Scope of Services unless specifically referenced therein. If CLIENT wishes PEG to perform any of the following Additional Services, CLIENT shall so request in writing, and if agreed by PEG in writing, PEG shall perform or retain others to provide such services. PEG will be paid based on the PEG'S then current hourly rates, or based on a supplemental agreement between PEG and CLIENT. Additional services for the project include, but are not limited to the following:

- Services due to changes in scope of the project.
- Services to verify the accuracy of drawings furnished by CLIENT or other consultants to the CLIENT.
- Services resulting from conditions inconsistent with previously supplied information, or unknown, concealed and unobservable conditions.
- Revising studies, reports and design documents which have been previously approved by the CLIENT and/or municipality or other governmental agencies.
- Services requiring out-of-town travel.
- Revisions and/or modifications to engineering plans or survey documents due to changes in building structure type, site plans, architectural plans, or site conditions.
- Serving as a consultant or witness for the CLIENT in litigation, arbitration, or other legal or administrative proceedings involving the project.
- Providing pavement thickness design.
- Providing permit submittals in addition to those specifically listed.
- Providing engineering design and/or construction phase services for unforeseeable, unusual or unanticipated offsite improvements required by the local municipality, other governmental agencies, or necessary to the project development.
- Multiple, phased engineering plans requiring quantity summaries, cost opinions, and permit applications on a phased basis, beyond that referenced as specifically included.
- Jointing plans for concrete pavement and walkways.
- Grading design (other than typical transitional grading) beyond property lines, including offsite detention basin design).
- Air Permitting.
- Design of "dry utilities" (i.e. gas, phone, electric, and cable, etc.)
- Design of "public" or offsite infrastructure other than identified herein.
- Signage plans (for commercial developments).
- Marketing plans.
- Landscape irrigation plans.
- Geotechnical Engineering Investigations/Recommendations.
- Any structural elements requiring the knowledge, expertise or stamp of a licensed structural engineer, or any structural retaining walls necessary due to grading or site conditions.
- Preparation of documents, negotiations, or other services associated with acquiring any offsite easements, additional right-of-way from other property owners, etc.
- Providing services related to dam safety analysis and/or permit applications, conditional letters of map revision, letters of map revision, or flood plain approvals.
- Providing traffic studies or construction contract documents for traffic control devices (signals, etc.).
- Soil boring location surveys or layouts.
- Design of footbridges, observation decks, recreational facilities, etc. for park/open space areas.
- Preparation of any special documents for CLIENT'S use in obtaining financing for the project.
- Providing an onsite resident project representative for full-time observation of construction phase activities.
- Review of contractor pay requests.
- Providing construction staking for site work.
- Recording of any documents.

NOTICE TO OWNER:

As required by the Wisconsin construction lien law, claimant hereby notifies owner that persons or companies performing, furnishing or procuring labor, services, materials, plans or specifications for the construction on owner's land may have lien rights on owner's land and buildings if not paid. Those entitled to lien rights, in addition to the undersigned claimant, are those who contract directly with the owner or those who give the owner notice within 60 days after they first perform, furnish or procure labor, services, materials, plans or specifications for the construction. Accordingly, owner probably will receive notices from those who perform, furnish or procure labor, services, materials, plans, or specifications for the construction, and should give a copy of each notice received to the mortgage lender, if any. Claimant agrees to cooperate with the owner and the owner's lender, if any, to see that all potential lien claimants are duly paid.

AUTHORIZATION:

Please indicate your acceptance of this proposal by signing the attached Agreement for Professional Services and returning it to PEG. CLIENT'S authorization to commence any services contained within this Proposal, by any means (oral, written, email, etc.), represents CLIENT'S acceptance of the Proposal, the Standard Rate Schedule, and the Terms and Conditions contained within the Agreement for Professional Services.

If you have any questions about the information presented within, please do not hesitate to contact us. The fees listed herein are valid for 60 days from the date of this proposal.

Sincerely,
PINNACLE ENGINEERING GROUP

Todd G. Mueller, P.E.
Associate Project Manager

SECTION 2 – STANDARD RATE SCHEDULE

Effective Thru Project Duration

DESIGN CLASSIFICATION	STRAIGHT-TIME RATES	OVER-TIME RATES
1 Principal	$175	$175
2 Senior Project Manager	$165	$165
3 Project Manager	$160	$160
4 Associate Project Manager	$155	$155
5 Senior Project Engineer	$150	$150
6 Project Engineer	$135	$135
7 Staff Engineer	$115	$115
8 Senior Engineering Technician	$95	$95
9 Engineering Technician	$90	$90
10 Landscape Architect	$115	$115
11 Natural Resources Specialist	$135	$135
12 Water Resources Engineer	$135	$135
13 Professional Land Surveyor	$125	$125
14 Surveying Drafter	$115	$115
15 Survey Field Crew (Crew Chief only)	$160*	$210*
16 Survey Field Crew (Crew Chief & Tech)	$200*	$260*
17 Project Coordinator	$90	$100
18 Administrative Staff	$65	$75
19 Finance/Audit Accountant	$125	$145

* Excludes survey equipment that will be charged separately.

Expert witness services, including trial preparation, depositions and court appearances will be charged at 1.5 times the above rates.

EQUIPMENT EXPENSES:

Survey Equipment (GPS Instrument & Equipped Truck) $400/day
Survey Equipment (Robot Instrument & Equipped Truck) $400/day
Survey Equipment (Total Station & Equipped Truck) $285/day
Field Equipment (Auto Level) $285/day
Personal All Terrain Vehicle (ATV) & Trailer $75/day
Multi-Person All Terrain Vehicle (ATV) & Trailer $115/day
Company Vehicle $100/day
Company Job Trailer $75/day
Company Computer & Printer/Fax/Scanner $20/day
Company Level & Rod $15/day
Employee Mileage $1.00/mile
Travel Per Diem (Housing, Meals & Incidental Expenses) ..... IRS Allowances

DIRECT EXPENSES:

Direct expenses incurred on the client's behalf are charged at our cost plus 10%. Such items include, but are not limited to, equipment rental, subsistence, printing and reproduction, transportation and travel charges and any special equipment or fees unique to the project. Subconsultant fees are charged at our cost plus 15%. Automobile mileage will be charged at $1.00. Direct Expenses are due immediately upon receipt of invoice.

SECTION 3 - AGREEMENT FOR PROFESSIONAL SERVICES

CONSULTANT:
Pinnacle Engineering Group, LLC
20725 Watertown Rd | Suite 100
Brookfield, WI 53186

CLIENT:
Village of Fredonia
242 Fredonia Avenue Fredonia, WI 53201

SCOPE EXECUTION:

CONSULTANT will perform/provide professional services for the PROJECT on behalf of the CLIENT, according to the TERMS AND CONDITIONS contained within this AGREEMENT and as defined within SECTION 1 – PROPOSAL FOR PROFESSIONAL SERVICES, in exchange for the stated fee that shall be the provided in accordance with the payment terms specified herein.

CLIENT may request CONSULTANT to provide additional services in exchange for additional compensation. CLIENT shall compensate CONSULTANT according to SECTION 2 – STANDARD RATE SCHEDULE in affect at the time of CLIENT's request. CONSULTANT'S additional services will be provided according to the TERMS AND CONDITIONS contained within this AGREEMENT in exchange for the additional compensation provided in accordance with the payment terms specified herein.

TERMS AND CONDITIONS:

1) **Payment, Billing, and Retainer:** The CLIENT shall pay the CONSULTANT for all services, reimbursable expenses, and equipment charges in accord with this Agreement and as designated in the PROFESSIONAL SERVICES PROPOSAL enhancing this AGREEMENT. Invoices for services, reimbursable expenses, and charges will be submitted at the CONSULTANT'S discretion, most commonly either upon completion of such services or on a monthly interval basis, and are due when rendered. Invoices shall be considered PAST DUE if not paid within 30 days after the invoice date and CONSULTANT may, without waiving any claim or right against Client, and without liability whatsoever to the Client, terminate the performance of the service. A service charge will be charged at 1.5% (or the legal rate) per month on the unpaid balance. In the event any portion or all of an account remains unpaid 90 days after billing, the Client shall the pay cost of collection, including all reasonable attorneys' fees. Any invoice inquiries or disputes must be made within 30 days of the invoice date.
   In the event Client disputes an amount identified in any invoice, only that disputed portion may be withheld from payment, and the undisputed portion must be paid. The Client shall promptly furnish Consultant with a written statement identifying the nature of the dispute and all information relative to it before payment would otherwise be due.
   Prior to providing services, the CLIENT shall deposit a $0 RETAINER with the CONSULTANT. RETAINERS shall be credited on the final invoice.
2) **Indemnification:** To the fullest extent permitted by law, Client shall indemnify and hold harmless Consultant, its officers, directors, partners, and employees, from and against any and all costs, losses, and damages to the extent caused by the negligent acts or omissions of Client, or its officers, directors, partners, employees, contractors, construction managers, or other consultants Client retains, with respect to this Agreement or the Project. To the fullest extent permitted by law, Consultant shall indemnify and hold harmless Client, its officers, directors, partners, and employees, from and against any and all costs, losses, and damages to the extent caused by the negligent acts or omissions of Consultant, its officers, directors, partners, employees, and consultants, in the performance and furnishing of Consultant's services under this Agreement.
   Neither the CLIENT nor the CONSULTANT shall be obligated to indemnify the other party in any way whatsoever for the other party's own negligence.
3) **Information for the Sole Use and Benefit of the CLIENT:** All opinions and conclusions of the CONSULTANT, whether written or oral, and any plans, specifications or other documents and services provided by the CONSULTANT are, except as hereinafter provided, for the sole use and benefit of the CLIENT and are not to be provided to any other person or entity without the prior written consent of the CONSULTANT. All documents produced by the CONSULTANT under this Agreement are instruments of the CONSULTANT'S professional service for use in the project for which the CONSULTANT was retained. These documents

may not be used by the CLIENT for any other purpose without the prior written consent of the CONSULTANT. If written consent to reuse the documents is given by Consultant, any reuse of the documents will be at CLIENT'S sole risk, and without liability or legal exposure to CONSULTANT. CLIENT shall indemnify and hold harmless CONSULTANT from all claims, damages, losses and expenses, including attorneys' fees, arising out of or resulting therefrom.

4) **Certifications, Guarantees and Warranties:** CONSULTANT makes no warranty, either express or implied, with respect to its services. The CONSULTANT shall not be required to execute any document that would result in the CONSULTANT certifying, guaranteeing or warranting the existence of any conditions. The CONSULTANT will render services in accordance with a manner consistent with the level of care and skill ordinarily exercised by others in this profession in the same jurisdiction.

5) **Risk Allocation:** In recognition of the relative risks, rewards and benefits of the project to both the CLIENT and the CONSULTANT, the risks have been allocated such that the CLIENT agrees that, to the fullest extent permitted by law, the CONSULTANT'S total liability to the CLIENT for any and all injuries, damages, claims, losses or expenses arising out of this Agreement from any cause or causes, shall not exceed the face amount of professional errors and omissions insurance coverage the CONSULTANT is required to carry under this Agreement (as more fully set forth in Section 9) hereof. Such causes include, but are not limited to, CONSULTANT'S negligence, errors, omissions, strict liability, breach of contract or breach of warranty.

6) **Dispute Resolution:** In the event of a dispute under this Agreement, CLIENT shall notify CONSULTANT within ten (10) days of the date said dispute first arises. Any claims or disputes between the CLIENT and the CONSULTANT arising out of the services provided, or to be provided, by the CONSULTANT or out of this Agreement shall be first submitted to non-binding mediation.

7) **Termination of Services:** This Agreement may be terminated at any time by either party should the other party fail to perform its obligations hereunder upon giving the party at least seven (7) days prior written notice. In the event of termination, the CLIENT shall pay the CONSULTANT for all services rendered to the date of termination, all expenses incurred prior to termination, and reasonable termination services and expenses incurred to terminate this Agreement.

8) **Post Commencement Hold/Delay Notification:** CLIENT notification to CONSULTANT to hold/delay professional services shall result in automatic termination of project schedule requirements. CONSULTANT will determine a reasonable stopping point to avoid unnecessary loss of work, and stop any and all activities prior to the determined stopping point. Unless specifically directed by the CLIENT, the stopping point shall be within two (2) business days of the hold/delay notification. CONSULTANT shall be compensated on a time and material basis for services and expenses exhausted for the purposes of preparing the project to be delayed.
If recommencement of professional services following a hold/delay occurs less than 30 days, the contracted amount shall automatically be adjusted to reflect the added delay preparation services. If recommencement of professional services following a hold/delay occurs more than 30 days, but less than 90 days, CONSULTANT reserves the right to adjust the original contract amount with an increase reflecting up to 50% of the CONSULTANT'S charge for services and expenses exhausted prior to the hold/delay notification AND the added delay preparation services. If recommencement of professional services following a hold/delay occurs more than 90 days, the CONSULTANT reserves the right to adjust the original contract amount with an increase reflecting up to 50% of the CONSULTANT'S charge for services and expenses exhausted prior to the hold/delay notification AND the added delay preparation services AND solely reserves the right to terminate continuation of services.

9) **Insurance Coverage:** The CONSULTANT and any design engineer subconsultants working for the CONSULTANT on the CLIENT'S project shall, at their sole cost, carry the following policies of insurance during the term of their services and as otherwise provided herein.
a) Professional errors and omissions insurance in the amount of at least One Million Dollars ($1,000,000).
b) Worker's Compensation Insurance in amounts required by law.
c) Commercial general liability insurance in the minimum amount of One Million Dollars ($1,000,000) per occurrence and One Million Dollars ($1,000,000) in the aggregate with completed operations coverage of One Million Dollars ($1,000,000) in the aggregate.
d) The CONSULTANT will provide a copy of confirmation of said coverages upon the request of the CLIENT.

10) **Access to Site:** Unless otherwise stated, the CONSULTANT will have access to the site for activities necessary for the performance of the services. The CONSULTANT will take reasonable precautions to minimize damage due to these activities, but has not included in the fee the cost of

restoration of any resulting damage and will not be responsible for such costs.

11) **Assignment:** This Agreement shall not be assigned in whole or in part by either party without the written consent of the other.

12) **Entire Understanding of Agreement:** This Agreement and its exhibits represents and incorporates the entire understanding of the parties hereto, and each party acknowledges that there are no warranties, representations, covenants, or understandings of any kind, matter or description whatsoever, made by either party to the other except expressly set forth herein.

13) **Force Majeure:** Neither Client nor Consultant shall be liable for any fault or delay caused by any contingency beyond their control including, but not limited to, acts of God, wars, strikes, walkouts, fires, natural calamities, or demands or requirements of governmental agencies.

14) **Hazardous Materials:** It is acknowledged by both parties that CONSULTANT'S scope of project does not include any services related to any hazardous, toxic or dangerous materials, chemicals, pollutants or contaminants, including but by no means limited to asbestos, mold, fungi, and/or bacteria. In the event of discovery of any hazardous, toxic or dangerous materials, chemicals, pollutants or contaminants, CONSULTANT shall have no liability related thereto, including but not limited to damages arising from their presence, existence, remediation, abatement and/or removal.

15) **Notices:** Any notice required under this Agreement shall be in writing, addressed to the appropriate party at its address on the first page of this Agreement and given personally, or by registered or certified mail postage prepaid, or by a commercial courier service. All notices shall be effective upon the date of receipt.

16) **Severability:** If any provision of this Agreement is determined to be illegal, invalid or unenforceable by any court of competent jurisdiction, the remainder of this Agreement shall not be affected thereby and shall remain in full force and effect.

17) **Applicable Law:** This Agreement shall be interpreted and enforced in and according to the laws of the State of Wisconsin.

18) **Modifications:** Any modifications to this Agreement must be done in writing and with the agreement of both the CLIENT and CONSULTANT.

AUTHORIZATION:

This AGREEMENT in its entirety, including the attached PROPOSAL FOR PROFESSIONAL SERVICES and STANDARD RATE SCHEDULE are agreed upon:

Consultant Authorization:
Pinnacle Engineering Group, LLC

Todd G. Mueller, P.E. Assoc. PM

Signature 2/8/2022
Date

Client Authorization:
Village of Fredonia

Printed Name Title

Signature Date

Special Instructions:

Q U O T A T I O N

WALDSCHMIDT'S TOWN & COUNTRY
N94 W17937 APPLETON AVE.
MENOMONEE FALLS, WI 53051
Phone #: (262)251-1400
Fax #: (262)251-1491

PHONE #: **(262)692-9179**
CELL #:
ALT. #: **(262)483-0275 Ext: CELL**
P.O.#:
TERMS: **Net 15 EOM**
SALES TYPE: **Quote**

DATE: **1/13/2022**
ORDER #: **1341940**
CUSTOMER #: **10528**
CP: **3**
LOCATION: **1**
STATUS: **Active**

BILL TO 10528

Fredonia, Village Of
P.O. Box 159
Fredonia, WI 53021

SHIP TO

Village Of Fredonia
420 Wheeler Ave.
Fredonia, WI 53021

MFR	PRODUCT NUMBER	DESCRIPTION	QTY	PRICE	NET	TOTAL
VEN	39.55401	KJ520 BROOM	1	$5,700.00	$5,700.00	$5,700.00
VEN	70.8211	Kit, 12V Actuator KJ broom	1	$350.00	$350.00	$350.00
VEN	70.4104	Kit, 12V Front 4500 broom	1	$310.00	$310.00	$310.00
****	SETUP/PREP VEN	SETUP/FREIGHT/PREP VENTRAC EQUIPMENT broom	1	$750.00	$400.00	$400.00
VEN	39.55436	KG540 POWER RAKE-HYDRAULIC ADJ.	1	$7,910.00	$7,910.00	$7,910.00
VEN	70.4164	HYDRAULIC FRONT DUAL VALVE, KIT power rake	1	$575.00	$575.00	$575.00
VEN	70.4104	Kit, 12V Front 4500 power rake	1	$310.00	$310.00	$310.00
****	SETUP/PREP VEN	SETUP/FREIGHT/PREP VENTRAC EQUIPMENT power rake	1	$750.00	$475.00	$475.00
VEN	39.55431	KR 502 TERRA RAKE 49"	1	$2,675.00	$2,675.00	$2,675.00
VEN	70.8035	Kit, KR Hyd Height Adj W/ Directional Vlv terra rake	1	$560.00	$560.00	$560.00
VEN	70.4164	HYDRAULIC FRONT DUAL VALVE, KIT terra rake	1	$575.00	$575.00	$575.00
VEN	70.4104	Kit, 12V Front 4500 terra rake	1	$310.00	$310.00	$310.00
VEN	39.55280	DG550, BALL PARK GROOMER, FRONT	1	$2,815.00	$2,815.00	$2,815.00
VEN	47.0115	Weight, Suitcase - 42 LBS w/Box front ball park groomer	5	$110.00	$110.00	$550.00
****	SETUP/PREP VEN	SETUP/FREIGHT/PREP VENTRAC EQUIPMENT front ball park groomer	1	$750.00	$350.00	$350.00
VEN	39.55285	DR540, BALL PARK GROOMER, REAR	1	$2,525.00	$2,525.00	$2,525.00
VEN	70.8156	KIT, BRUSH GROOMER rear groomer	1	$1,360.00	$1,360.00	$1,360.00
VEN	70.8154	KIT, GROOMER DRAGS rear groomer	1	$2,345.00	$2,345.00	$2,345.00
VEN	70.4137	Kit, Weight Bar Mid 4500 rear groomer	1	$300.00	$300.00	$300.00
VEN	47.0115	Weight, Suitcase - 42 LBS w/Box rear groomer	6	$110.00	$110.00	$660.00
****	SETUP/PREP VEN	SETUP/FREIGHT/PREP VENTRAC EQUIPMENT rear groomer	1	$750.00	$350.00	$350.00
VEN	39.55361	RV602 COLLECTION VAC, HIGH LIFT (ONLY FOR 60" & 72" MOWERS)	1	$8,660.00	$8,660.00	$8,660.00
VEN	70.8092	Kit, Docking Station	1	$775.00	$775.00	$775.00
VEN	70.8210	Kit, Vac Boot MS/MT Mowers	1	$440.00	$440.00	$440.00
VEN	70.4160	3-POINT HITCH (INSTALL EXTRA)	1	$2,250.00	$2,250.00	$2,250.00
VEN	70.4169	CANOPY	1	$1,000.00	$1,000.00	$1,000.00
****	SETUP/PREP VEN	SETUP/FREIGHT/PREP VENTRAC VAC CANAOPY	1	$750.00	$350.00	$350.00
VEN	39.55110	MS600 60" FINISH MOWER	1	$4,685.00	$4,685.00	$4,685.00
****	SETUP/PREP VEN	SETUP/FREIGHT/PREP VENTRAC EQUIPMENT60"MOWER	1	$750.00	$400.00	$400.00
VEN	39.55111	MS720 72" FINISH MOWER	1	$4,850.00	$4,850.00	$4,850.00
****	SETUP/PREP VEN	SETUP/FREIGHT/PREP VENTRAC EQUIPMENT 72" MOWE	1	$750.00	$400.00	$400.00

Prices reflected on this quotation are subject to change per market market condition.

Q U O T A T I O N

WALDSCHMIDT'S TOWN & COUNTRY
N94 W17937 APPLETON AVE.
MENOMONEE FALLS, WI 53051
Phone #: (262)251-1400
Fax #: (262)251-1491

PHONE #:	**(262)692-9179**	DATE:	**1/13/2022**
CELL #:		ORDER #:	**1341940**
ALT. #:	**(262)483-0275 Ext: CELL**	CUSTOMER #:	**10528**
P.O.#:		CP:	**3**
TERMS:	**Net 15 EOM**	LOCATION:	**1**
SALES TYPE:	**Quote**	STATUS:	**Active**

We appreciate the opportunity to offer you this quote.

SUBTOTAL:	**$55,215.00**
TAX:	**$0.00**
ORDER TOTAL:	**$55,215.00**

Authorized By: _____