City of Beloit Water Pollution Control Facility
Water Quality Trading Plan



City of Beloit Water Resources
555 Willowbrook Road
Beloit, WI 53511

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List of Abbreviations

BMPs	best management practices
DMR	Discharge Monitoring Report
EOMP	Establishment, Operation and Maintenance Plan
FFPAP	Facility Final Phosphorus Alternatives Plan
Rock County LCD	Rock County Land Conservation Department
NMP	Nutrient Management Plan
NRCS	Natural Resources Conservation Service
P	phosphorus
TMDL	total maximum daily load
TP	Total Phosphorus
USDA	United States Department of Agriculture
WDNR	Wisconsin Department of Natural Resources
WPCF	Water Pollution Control Facility
WQBEL	Water Quality Based Effluent Limits
WQT	Water Quality Trading
WQTP	Water Quality Trading Plan

Executive Summary

This document is submitted to meet the requirements of a Water Quality Trading Plan (WQTP) as defined by the Wisconsin Department of Natural Resources (WDNR) and as defined in:

1. *Guidance for Implementing Water Quality Trading in WPDES Permits* (Guidance Number 3800-2013-04, 8/21/2013) and
2. *A Water Quality Trading How to Manual* (Guidance Number 3400-2013-03, 9/9/2013).

The City of Beloit (City) prepared a *Final Phosphorus Alternatives Plan* (2019) to evaluate alternative approaches for meeting the phosphorus Water Quality Based Effluent Limits (WQBEL) for the City's Water Pollution Control Facility (WPCF). The plan concluded that conducting a point-to-nonpoint water quality trade for phosphorus is the most feasible and economical approach to meeting the phosphorus WQBEL. The plan further concluded that the WPCF would need to trade for 1,800 pounds of phosphorus on an annual basis to meet the WQBEL.

To implement the nonpoint source management measures, the City has contracted with the Rock County Land Conservation Department (Rock County LCD). The Rock County LCD had identified credit generators, negotiated with property owners, and assisted in advising and/or designing the phosphorus management measures. The Rock County LCD no longer is able to provide these services. The City will be seeking to have these services completed by the Wisconsin Clearinghouse LLC. Furthermore, the Rock County LCD will continue to conduct regular inspections of each management measure that was identified and registered in compliance with the WQT program to ensure that the required phosphorus control is achieved. The identified phosphorus management measures, locations, and pollutant control performance of each measure are further described in Sections 2 and 4 of this document. The Wisconsin Clearinghouse LLC will be conducting annual inspections with all WQT practices developed and registered and purchased through the Clearinghouse.

Section 1

General Information

1.1 Applicant Information

The applicant for this Water Quality Trade is:

City of Beloit Water Pollution Control Facility
555 Willowbrook Road
Beloit, WI 53511

Contact: Bill Frisbee
Public Works Director
2400 Springbrook Court
Beloit, WI 53511
(608)364-6699
frisbeew@beloitwi.gov

1.2 Rock County Land Conservation Department Information

The City of Beloit (City) contracted with the Rock County Land Conservation Department (Rock County LCD) to assist will all direct negotiations with agricultural operators. The Rock County LCD had established relations with landowners and is a trusted source of information regarding agricultural nonpoint source control practices. Rock County is no longer able to provide these services. The Rock County LCD's responsibilities will include:

1. Conducting annual inspection to verify that all management measures are properly maintained and functional.
2. Reporting to the City on progress and results of the annual inspections.

It should be noted that the actual agreements for the installed management measures will be between the City and the landowner (see Appendix B for an example agreement).

The Rock County LCD Contact is:

Andrew Baker
Director Land Conservation Department & Planning and Development Agency
Rock County LCD
440 N US Hwy 14
Janesville, WI 53546
608-289-1356
Andrew.Baker@co.rock.wi.us

1.3 Wisconsin Clearinghouse LLC

The City of Beloit (City) plans to contract with the Wisconsin Clearinghouse LLC. to assist will all direct negotiations with agricultural operators. The Wisconsin Clearinghouse LLC responsibilities will include:

1. Identifying and contacting landowners with phosphorus credit generating property.
2. Negotiating the management measures to maximize phosphorus runoff reduction.
3. Advising and providing design services to landowners for installation and management of the management measures.
4. Conducting annual inspection to verify that all management measures are properly maintained and functional.
5. Reporting to the City on progress and results of the annual inspections.

It should be noted that the actual agreements for the installed management measures will be between the City, Wisconsin Clearinghouse LLC, and the landowner (see Appendix B for an example agreement).

The Wisconsin Clearinghouse LLC. contact is:

Chris Murphy
Nutrient Trading Manager
Wisconsin Water Quality Trading Clearinghouse
608-844-3691
cmurphy@res.us

1.4 Beloit WPCF Discharge Information

WPDES Permit: WI-0023370-09-0

The Water Pollution Control Facility (WPCF) receives a mixture of domestic, commercial, and industrial wastewater, and treats it in compliance with the discharge standards contained in its WPDES Permit (No. WI-0023370-09-0). Treated effluent is discharged into the Rock River immediately north of the state line border with Illinois. The Rock River discharge location is in HUC 12 070900021502 and the Rock River total maximum daily load (TMDL) Reachshed 79. There are no expected changes in effluent quality or flow to the WPCF in the next 5 years.

WPDES Permit effluent limits for phosphorus are as follows:

- Limit: 1.0 mg/L monthly average
- Water Quality Based Effluent Limits (WQBEL) (based on average daily design flow of 13.2 MGD) These limits went into effect on October 1, 2020, with the exception of Sep and Oct, which went into effect in 2022.

Year	5 Year Flow Data	Table 1. 5 Year Total Phosphorus Daily Averages		
	MGD	Mass (lb/day)	Concentration (mg/L)	Annual Credits Utilized
2020	4.45	21.90	0.62	0
2021	3.85	45.46	1.43	0
2022	3.76	23.46	0.74	0
2023	3.89	15.94	0.51	1027.1
2024	4.13	14.64	0.43	639.0
2025	3.65	7.2	0.24	TBD

A previous study conducted for the City (*City of Beloit Water Pollution Control Facility Final Phosphorus Alternatives Plan* 2019) reported the phosphorus loading and effluent concentrations WQBEL / Rock River TMDL limits that would need to be met with the facility at its average treatment rate of 13.2 million gallons per day (MDG). A copy of the full *City of Beloit Water Pollution Control Facility Final Phosphorus Alternatives Plan* (FFPAP) (2019) can be found in Appendix E.

Table 1 below shows those results. The conclusion is that the facility is not able to meet the target phosphorus levels without substantial facility modifications. Section 1.5 of this document provides further information on the conclusions of the FFPAP and the phosphorus trading requirements to meet the WQBEL.

Table 2. Beloit WPCF Effluent Phosphorus WQBEL/Rock River TMDL Limits*		
Month	Monthly Average Effluent Phosphorus Limit (at 13.2 MGD design rate)	
	Mass (lb/day)	Concentration (mg/L)
Jan	33.0	0.300
Feb	35.1	0.319
Mar	30.8	0.280
Apr	33.0	0.300
May	31.3	0.284
Jun	30.4	0.276
Jul	23.5	0.213
Aug	20.3	0.184
Sep	18.5	0.168
Oct	20.2	0.183
Nov	24.4	0.222
Dec	29.5	0.268

**Source: "City of Beloit Water Pollution Control Facility Final Phosphorus Alternatives Plan" (2019) Table ES-1*

1.5 Overview of Credit Generator Information

Credits will be generated by several agricultural landowners in the Rock River Basin. The WQTP includes credits being generated by five landowners on thirteen (13) different parcels. An overview map of the locations is included as Appendix C2.

1.6 Parameter Being Traded and Target Credit Load

Based on the FFPAP, with optimization of the current WPCF's and current flows, the facility can "consistently and reliably achieve effluent total phosphorus (P) concentrations of less than 1.0 mg P/L, and often below 0.4 mg P/L, depending in part on influent loadings and effluent TSS [total suspended solids] concentrations." (see Section 1.5 of FFPAP). Based on the demonstrated phosphorus control performance level, the FFPAP further concludes that the City would require an annual trade mass of 1,500 – 1,800 pounds of phosphorus. Treatment will be maintained at higher levels to avoid effluent limit violations and the City will continue towards the FFPAP's recommendations. The City may seek more credits if the City does not install tertiary filters at the WPCF.

Section 2

Credit Generation Locations

2.1 Credit Generation Locations

Appendix C1 includes a list of each proposed trading practice by parcel. Appendix C2 details a map with the locations of the practices. Details of each of the practices are included in Appendices C3-C12. The details include:

1. Description of existing land uses
2. History of project sites
3. An overview map showing the all the credit generation sites.
4. A series of detailed maps showing each credit generation site along with pertinent information of soil, slope, water resources, and other features.
5. Calculations of credits for each trading practice.

Section 3

Protocol for Determining Water Quality Trading Credits

3.1 Introduction

To ensure consistency with the Clean Water Act, United States Environmental Protection Agency guidance and Wisconsin State Statute 283.84, the City is partnering with Rock County Land Conservation Department and the Wisconsin Clearinghouse LLC., to implement the following protocol for WQT in the Rock River TMDL Reaches 76 (HUC12 070900021303), 77 (HUC 12 070900021201), 78 (HUC 12 070900021202) and 79 (HUC 12 070900021502). While the protocol closely follows the Wisconsin Department of Natural Resources (WDNR) *Guidance for Implementing Water Quality Trading in WPDES Permits*, it should be recognized "that there will be situations when decisions inconsistent with the guidance document may be necessary because the assumptions upon which the guidance document is based on are not applicable" (see page 1, *Guidance for Implementing Water Quality Trading in WPDES Permits*) . When situations occur that are inconsistent with the guidance document, evidence will be provided to demonstrate that the results will improve water quality as stated in Wisconsin State Statute 283.84 (1m)(a).

3.2 Identification of Management Practices and Locations

The City previously relied on assistance from Rock County LCD to identify best management practices (BMPs) and landowners within Reaches 76-79 of the Rock River TMDL . The Rock County LCD had targeted locations for phosphorus management measures based on land cover, topography, soil conditions, and the Rock County LCD's knowledge of local agricultural conditions. Rock County LCD had contacted the landowners for the purpose of educating the landowners about WQT and to receive their commitment to install BMPs. Upon preliminary approval of this WQTP, formal agreements will be entered into between the City and the landowners. The City will now rely on assistance from the Wisconsin Clearinghouse LLC. for these services.

3.3 Overview of Phosphorus Management Calculation

Upon a landowner's verbal commitment to install BMPs, Rock County LCD and/or Wisconsin Clearinghouse LLC. conducted/will conduct phosphorus control modeling/calculations per methods described in the WDNR guidance documents as follows:

- Cropland Management: Rock County LCD gathered agronomic information on a field by field basis and incorporated it into the most recent version of SnapPlus to determine the before and after BMP installation amount of P runoff from the field.
- Gully Erosion: Rock County LCD utilized Natural Resources Conservation Service (NRCS) Gully Erosion Calculations for grassed waterway installations.

Results of the above analyses were documented in a proposal which was submitted to the City for approval. The proposal included the P reduction achieved for each management measure along with a cost estimate. Calculations are based on a 10 year crop rotation to obtain higher accuracy of phosphorus reduction.

3.4 City/Landowner Agreement

After the City receives preliminary approval on the WQTP, the City shall enter into a written agreement with the landowner. The written agreement shall contain signatures of commitment, contact information, conditions of agreement and description of BMPs, and schedule and payment amounts (see Agreements in Appendix B). The length of the agreements shall be for 10 years based on the understanding the credits generated are for the life of the BMPs. Rock County LCD and the Wisconsin Clearinghouse LLC. shall provide the Establishment, Operation and Maintenance Plan (EOMP) which will be an Addendum to the agreement (see example EOMP in Appendix D). The agreement shall be recorded at the Rock County Register of Deeds to ensure that the best management practices are maintained through the life of the agreement

3.5 Landowner/ Rock County LCD/ Wisconsin Clearinghouse LLC. Responsibilities

The landowner shall at their own cost install the agreed upon BMPs according to United States Department of Agriculture (USDA)-NRCS standards. Additionally, the landowner is responsible to maintain the agreed upon BMPs so that they retain their phosphorus pollution control functions. Rock County LCD and the Wisconsin Clearinghouse LLC.,will provide technical assistance with the installation of the BMPs upon request of the landowner.

Once the BMPs have been installed, landowners will notify the Rock County LCD and/or the Wisconsin Clearinghouse LLC who will inspect and certify that the BMPs have been installed according to standards. Vegetative BMPs will be evaluated by Rock County LCD and/or the Wisconsin Clearinghouse LLC using transect/plant populations, while structural BMPs will be evaluated according to an "as-built" drawing and certification statement from an individual who has job approval authority/certifications. Rock County LCD and/or the Wisconsin Clearinghouse LLC shall provide documentation to the City verifying the proper installation of the BMP and stating the amount of P reduction credits.

3.6 Trading Ratios

Determination of trading ratios for specific BMPs, factoring in their location, are clearly described in the WDNR's guidance documents: *Guidance for Implementing Water Quality Trading in WPDES Permits* (Guidance Number 3800-2013-04, 8/21/2013) and *A Water Quality Trading How to Manual* (Guidance Number 3400-2013-03, 9/9/2013).

The formula for a trade ratio is:

Trade Ratio = (Delivery + Downstream + Equivalency + Uncertainty – Habitat Adjustment): 1

Each factor impacts the final ratio. The factors are discussed below.

3.6.1 Delivery Factor

According to the WDNR *Water Quality Trading Guidance* 2.11.1 Delivery Factor: "When TMDLs do not include fate and transport, pollutant loads are assumed to move through the system in a conservative fashion with no losses due to settling of other processes. This results in downstream allocations being lower with an implicit margin of safety because there are no pollutant losses assumed to have occurred in the system. The *Total Maximum Daily Loads for total Phosphorus and Total Suspended Solids in the Rock River Basin* (TMDL July 2011) does not have fate and transport

factors. Therefore, there is no delivery factor that needs to be accounted for in the trade ratio calculation.

3.6.2 Downstream Factor

The fields where the credits will be generated are all located in the Rock River TMDL Reach 79 (HUC 12 070900021502) which is the same reach as Beloit's WPCF, TMDL Reach 77 Stevens Creek (HUC12 070900021201) and TMDL Reach 78 Bass Creek (HUC12 070900021202). Reaches 77 and 78 are immediately upstream of Reach 79. All credit generation locations are also upstream from the Beloit WPCF. From the WDNR *Water Quality Trading Guidance* 2.22.1 Downstream Trading Factor: "A downstream trading factor is not needed for trades that occur when the credit generator is upstream of the point of standards application (i.e., downstream trading factor equals zero)". Thus, there is no Downstream Factor applicable to the credits generated in this drainage area.

3.6.3 Equivalency Factor

WDNR *Water Quality Trading Guidance* (Section 2.11.3) states "Total Phosphorus (TP): An equivalency factor is not necessary (i.e., equals zero) for trading of TP credits.

3.6.4 Reserve Factor

Default reserve factor is set at 0.2 for a point-to-nonpoint trade.

3.6.5 Uncertainty Factor

The WDNR *Water Quality Trading Guidance* provides a table (see Table 4, pp 20 – 23) defining uncertainty factors for various nonpoint source management practices. Table 2 compares the most likely BMPs that will be applied in the Beloit trading area and comparing the WDNR Guidance proposed uncertainty factor with the Beloit WQTP proposed Uncertainty Factor. Justification for each proposed Uncertainty Factor is also included on the table.

Below is a table summarizing the factors for the trades proposed by the City. Each of these factors was reviewed with DNR prior to submittal of this plan.

Table 3. Uncertainty Factors for Beloit WQ Trading

Agricultural Practice	WDNR Guidance Uncertainty Factor	Beloit WQ Trade Uncertainty Factor	Justification
Filter Strip with No-Till, Grass Waterways, Nutrient Management Plan (NMP) *	2 (3)	2	WDNR *Water Quality Trading Guidance* (page 21, Table 4, notes) Indicates of adherence to NMP may be demonstrated with historic cropping records or soil testing that nutrient levels are stable or dropping. All efforts will be made to have the landowner participate in the formal documentation process of creating an NMP but, in the event the landowner does not believe in the process, we will utilize this method to demonstrate compliance with nutrient management.
Conservation Cover that may be harvested for forage	1	1	Land in perennial vegetation.
Wetland Creation–converting cropland to wetland	4	4	This practice is not used in conjunction with barnyard management systems. It is more similar to conservation easement (cover) permanent vegetation.
Grassed Waterway	1.5	2	To address specific gully erosion only.

Water and Sediment Control Basin (with Underground Outlet to Filter Strip)	2	2	Description: Water collected in basin and conveyed underground will outlet onto a rock spreader within filter strip. The filter strip shall be shaped to contain the water and force the sheet flow of water the length of the filter strip.
Filter Strip with Reduced-Till	2 (3)	2	Description: The residue to remain on the surface of the field shall be in the amount to meet the soil loss tolerance for that soil as determined by RUSLE2. Therefore a 1.5:1 trade ratio is justified.
Filter Strip with NMP	2 (3)	2	WDNR *Water Quality Trading Guidance* (page 21, Table 4, notes) Indicates of adherence to NMP may be demonstrated with historic cropping records or soil testing that nutrient levels are stable or dropping. All efforts will be made to have the landowner participate in the formal documentation process of creating an NMP but, in the event the landowner does not believe in the process, we will utilize this method to demonstrate compliance with nutrient management.
Streambank Stabilization with aquatic habitat	2	2	For livestock producers, streambank stabilization must be accompanied by riparian fencing or other controls to prevent destruction of streambanks.
Barnyard Runoff System	2	2	

Every effort was made to reach "whole field management" at all project locations, but there may be instances fields will achieve this condition over a schedule. Our approach is to use WQT as a process to improve water quality at locations that were previously unavailable due to landowner's reluctance in participating with government programs and/or regulations. For some locations, it may require two to three years to implement whole field management. We request that once whole field management occurs, the whole field is allowed to receive the higher level of phosphorus reduction credits from that time forward.

Example:

Year one - A landowner agrees to install a filter strip and has documentation proving nutrient management is occurring; therefore, a trading ratio of 2:1 is used to determine P reduction credit.

Year two - Landowner agrees to participate in farmer training to create a nutrient management plan that meets USDA-NRCS standard 590.

Year three - Landowner agrees to implement no-till thus reaching whole field management on this field.

Year four - Moving forward, use trading ratio of 1.2:1 to determine P reduction credit.

The City acknowledges that all Point-Nonpoint source trades will have a minimum trade ratio of 1.2:1

Section 4

Specific Trade Locations and Schedule

This section provides details regarding each specific trade included in this plan. A narrative for each specific trade including location, schedule, existing conditions, proposed practices, applicable trade ratio, credits generated, and quantification method are included in Appendix C. This information is summarized in Table 3, which includes a brief description for each trade and references the specific sub appendix in Appendix C for additional information. The City is continuing to work with Rock County to receive updated SnapPlus files that reflect the following installed practices.

Table 4. Summary of Trading Practices and Credits Generated								
Project #	Landowner	Year Installed	Practice Overview	Credits Generated (lb/year)	Credits Generated (lb/10 years)	Quantification Method	Stream HUC 12 Watershed	Appendix Reference
6-4-293A	D&S Hazeltine Trust	2021	0.5 acre grassed waterway	11.70	117.00	NRCS Gully Erosion Calculation Spreadsheet	Stevens Creek	C3
11460020, 11540010	Lakeshore Farms 2	2021	1.97 acre grassed waterway	69.30	693.00	NRCS Gully Erosion Calculation Spreadsheet	Beloit-Lower Rock	C4
11540010	Lakeshore Farms 2	2021	10.79 acre conservation easement w/ gully repair	17.98	179.83	SNAPPlus and NRCS Gully Erosion Calculation Spreadsheet	Beloit-Lower Rock	C5
11560010	Lakeshore Farms 2	2021	9.15 acre grassed waterway	264.80	2648.00	NRCS Gully Erosion Calculation Spreadsheet	Beloit-Lower Rock	C6
12220010, 12280010	Lakeshore Farms 2	2021	4.03 acre grassed waterway	199.10	1991.00	NRCS Gully Erosion Calculation Spreadsheet	Beloit-Lower Rock	C7

6-14-7	Janice Britton	2021	2.48 acre filter strip	14.37	71.85**	SNAPPlus	Beloit-Lower Rock	C8
6-14-7, 15	Janice Britton	2021	80.13 acre conservation easement	253.67	1268.35**	SNAPPlus	Beloit-Lower Rock	C9
6-17-298.2	Wil-Hu Acres	2022	1.4 acre grass waterways and 6.5 acre conservation easement	68.38	683.8	SNAPPlus	Beloit-Lower Rock	C10
6-15-241	Wil-Hu Acres	2021	1.48 acre grass waterway	47.15	471.5	NRCS Gully Erosion Calculation Spreadsheet	Beloit-Lower Rock	C11
6-10-153	Michael Millikin	2022	Diversion, water/sediment control basin w/outlet	80.65	806.5	NRCS Gully Erosion Calculation Spreadsheet	LaPrairie Township	C12
Total				**1027.10**	**8930.83**			

The City of Beloit used 1027.10 phosphorus credits in 2023. The City of Beloit used 639 phosphorus credits in 2024.

**The Britton practices were agreed upon for a 5 year term and will expire before a 10 year period. Credits shown are for the 5 year time period.

Section 5

Inspections and Reporting

5.1 Tracking Procedures

The City will track the status of each property owner, management measure, and phosphorus credit on a spreadsheet. Information for the tracking spreadsheet will be provided to the City by Rock County LCD/Wisconsin Clearinghouse LLC annually. For each property owner the spreadsheet will include:

- Property owner location and contact
- Status of Rock County LCD/landowner negotiations
- Status of City/landowner agreement
- Phosphorus credits calculations and results for each management measure
- Management measure implementation status and a schedule
- City payments for management measures
- Results of annual inspections and verification that management measures meet program requirements
- Issues, or lack of compliance, and steps taken to resolve compliance needs

An annual summary document will be prepared based on the annual progress.

5.2 Inspections

Inspections of newly established management measures will be conducted by Wisconsin Clearinghouse LLC. For structural management measures, the inspection will verify that the practice is constructed according to the approved design plan. For vegetated management practices, an inspection will be conducted within twelve weeks completion to verify that vegetation is established, and the site is stable.

Annual inspections of the established management measures will be conducted by the Rock County LCD and Wisconsin Clearinghouse LLC. Inspections will be conducted during the growing season to verify that vegetation is healthy, and corrections are made, if necessary. Inspections for specific management measures (such as sediment basins and streambank protection) may take place after large rain events to make sure the measures are stable and not damaged.

Any deficiencies of the management measures will be reported in writing to the landowner with a copy of the report sent to the City. The Rock County LCD/Wisconsin Clearinghouse LLC will schedule a follow-up landowner meeting to clarify the corrections necessary and establish a schedule for the corrections.

At a minimum, the inspection report will include the following information:

- Name and contact information of the inspector
- Inspection date
- Landowner name
- Relevant standards set forth in the Design Plan or Operation and Maintenance Plan
- Issues with deficient best management practices identified

- When and how any deficiencies identified were addressed
- When and how any issues identified will be addressed in the future

The most recent 2024 inspections are included in Appendix F.

5.3 Annual Water Quality Trading Report

By April 15th of each year, the City will submit the following information to the WDNR:

- The number of pollutant reduction credits (lbs/month) used each month of the previous year to demonstrate compliance.
- A summary of the annual inspection of the practices generating pollutant reduction credits used during the previous year. This inspection shall be completed by qualified staff from the Rock County LCD.
- Identification of noncompliance or failure to implement any terms or conditions of this permit with respect to WQT that have not been reported in discharge monitoring reports.
- A list of all noncompliance and the correction measures and timing to address the issues (noncompliance or failure to implement terms or conditions of this plan).
- An updated WQTP if management practices or fields change.

5.4 Notification of Failure to Generate Phosphorus Credits

Rock County LCD and the Wisconsin Clearinghouse LLC will notify the City immediately upon becoming aware the phosphorus control measure is not properly maintained or has failed. The City will, in turn, immediately notify the WDNR regional wastewater compliance engineer of the condition (either via email or telephone).

The City will submit a written notification to the WDNR within five days after becoming aware of the failure. The written notification will describe the failure, and planned steps to rectify the situation to fully restore the phosphorus control function of the management measure. The written notification will also include a schedule for repair, and measures to reduce or eliminate the potential for future failures of the management measure.

Finally, Rock County LCD and the Wisconsin Clearinghouse LLC will conduct an inspection of the repaired management measure and verify the full restoration of phosphorus control per the WQTP. Rock County LCD and the Wisconsin Clearinghouse LLC will provide an inspection report to the City and the City will forward this report to the WDNR.

Section 6

References

1. Donahue & Associates, Inc. 2019. *City of Beloit Water Pollution Control Facility Final Phosphorus Alternatives Plan*. June 2019.
2. Wisconsin Department of Natural Resources; *Total Maximum Daily Loads for total Phosphorus and Total Suspended Solids in the Rock River Basin*
3. Wisconsin Department of Natural Resources (WDNR). 2013a. *A Water Quality Trading How to Manual*. Guidance Number 3400-2013-03. 9/9/2013.
4. Wisconsin Department of Natural Resources (WDNR). 2013b. *Guidance for Implementing Water Quality Trading in WPDES Permits*. Guidance Number 3800-2013-04. 8/21/2013.
5. Wisconsin State Statute 283.84 (1m)(a).