Water Quality Trading Plan

Village of Belmont

Lafayette County, Wisconsin

Prepared by:

Delta 3 Engineering, Inc.
875 South Chestnut Street
Platteville, Wisconsin 53818

Engineer's Project Number: D15-064

December 20, 2019

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Belmont Water Quality Trading Plan

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I. Executive Summary

This Water Quality Trading Report summarizes the Village of Belmont's plan to use Water Quality trading for compliance with their phosphorus limit as provided in the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit WI-0020419-10-0. In 2018 the Belmont Wastewater Treatment Facility (WWTF) treated and average of 0.186 MGD with an average effluent concentration of Total Phosphorus (TP) of 0.72 mg/L. The WWTF will be required exchange 272.1 lbs of TP per year (using the Maximum Month TP Discharge) to meet their final six-month average effluent TP limit of 0.075 mg/L, which will become effective April 1, 2021.

NRCS Streambank Erosion Modeling methods were used to calculate the TP credits that would be generated based on the implementation of best management practices (BMPs). These credits will be used to demonstrate the compliance with the final TP limit as proposed in the WPDES permit.

Table 1.0: NRCS Modeling Results

Property Owner	Proposed BMP	Current Phosphorus Loading (lbs./yr)	Future Phosphorus Loading (lbs./yr)	Required Phosphorus Reduction (lbs./yr)	Trade Ratio	Min. Phosphorus Credits Required (lbs./year)
All Properties	Stream Stabilization	272.1	167.4	439.5	3:1	1,318.5

As identified in the table, the WWTF plans to generate a minimum of 1,318.5 credits. Putting this plan into action will help the WWTF become in compliance with the final TP limits. The WWTF plans to monitor the TP requirement and construct additional BMPs as needed to comply with their WPDES Permit Limits. The Notice of Intent to Conduct Water Quality Trading Permit, located in Attachment #1, has been prepared as has The Water Quality Trading Checklist, located in Attachment #2. If there are changes to this plan, a new Water Quality Trading Plan will be submitted to address those changes.

II. Background

The purpose of this Water Quality Trading (WQT) Plan is to comply with the total phosphorus (TP) limits in WPDES Permit WI-0020419-10-0.

The Village of Belmont is a small, rural community located in the northwestern portion of Lafayette County along United State Highway “151” in Southwestern Wisconsin. The Village operates and maintains its own public wastewater and water systems. The Village is located in Sections 11, 12, 13, and 14, Town 3 North, Range 1 East of the Fourth Principal Meridian. The Village currently has a population of 1,017 and contains one service area, which includes the entire Village.

The downtown portion of the Village is comprised mostly of commercial and residential development and is situated between surrounding residential development with commercial and industrial development located in the southeast and north portions of the Village. The Village has many rolling hills with the grade sloping throughout the area anywhere from 3% to 12%. Elevations in the area range from approximately 1,010’± at the Wastewater Treatment Facility (WWTF) to 1,120’± at the commercial and industrial development located at the northern edge of the Village. The topography of the area is shown in Attachment #3.

The existing sanitary sewer collection system consists of approximately 198 sanitary sewer manholes; 42,320 feet of 8” sanitary sewer; 1,580 feet of 10” sanitary sewer; and 460 feet of 12” sanitary sewer. One raw pumping station is utilized at the WWTF to assist with the delivery of wastewater to the WWTF. The Village currently has a CMOM Program utilized for maintaining the sanitary collection system. Please refer to Attachment #4 for the location of the sanitary sewer collection system components.

The Village of Belmont operates a WWTF consisting of a vertical screen, raw wastewater pumps, chemical addition for phosphorus removal, aeration tanks, final clarifier, ultraviolet disinfection (UV), and post aeration treatment processes. Sludge from the treatment process is aerobically digested and stored prior to land-spreading on DNR approved sites. Currently alum is used at the WWTF for the removal of phosphorus. The current WWTF treats 0.186 million gallons per day (MGD) on an annual average with an average daily design flow of 0.243 MGD. Please see Attachment #5 for the hydraulic profile of the Village of Belmont's WWTF and see Attachment #6 for the WWTF Schematic. The Village of Belmont’s WWTF effluent currently discharges to the waters of Bonner Branch (Outfall 001).

The monthly average effluent discharge limits under the current WPDES permit at the WWTF for **Outfall 001** effluent are as follows:

Table 2.0 – 2018 Monthly Averages

Month	Outfall	Flow MGD Effluent	Phosphorus mg/L Effluent	Phosphorus lbs./day Effluent	
Jan. ('18)	001	0.171	0.5986	0.97	
Feb. ('18)	001	0.206	1.2733	2.19	
Mar. ('18)	001	0.205	1.4969	2.68	
Apr. ('18)	001	0.207	0.9575	1.61	
May ('18)	001	0.173	1.1740	1.59	
June ('18)	001	0.162	1.0275	1.38	
July ('18)	001	0.068	0.4438	0.21	
Aug. ('18)	001	0.133	0.2115	0.24	
Sept. ('18)	001	0.210	0.2774	0.45	
Oct. ('18)	001	0.307	0.3621	0.93	
Nov. ('18)	001	0.207	0.4968	0.85	
Dec. ('18)	001	0.179	0.3649	0.55	
Average =		**0.186**	**0.7237**	**1.14**	w/ all months
			0.39	**0.60**	w/o Feb-June

Table 2.1 – 2019 Monthly Averages

Month	Outfall	Flow MGD Effluent	Phosphorus mg/L Effluent	Phosphorus lbs./day Effluent
Jan. ('19)	001	0.184	0.39	0.59
Feb. ('19)	001	0.212	0.44	0.79
Mar. ('19)	001	0.221	0.53	1.13
Apr. ('19)	001	0.210	0.36	0.65
May ('19)	001	0.231	0.49	0.89
June ('19)	001	0.216	0.42	0.78
July ('19)	001	0.218	0.51	0.99
Aug. ('19)	001	0.192	0.92	1.42
Average =		**0.210**	**0.51**	**0.90**

Typically, the previous year's data, 2018, is to be used to determine the average TP concentration and pounds of TP that is to be used in determining the number of credits that the Village of Belmont must generate. However, 2018 was a very uncharacteristic year for the WWTF. From February to June the TP effluent concentration exceeded their current permit limit of 1.0 mg/L due to operational and maintenance issues at the WWTF. Included in Attachment #7 is the non-compliance letter that was submitted on behalf of the Village addressing the exceedance of the TP limit during that timeframe and the Village's plan to prevent future exceedance. Later in 2018, the Village began two separate chemical feed trials using RE-300 to attempt to lower their TP discharge to 0.0.75 mg/L. They were successful in lowering their effluent TP concentration for brief periods of time in August and September of 2018, but the monthly averages were above 0.20 mg/L at a tremendously high cost. Using a different chemical for several months skewed their effluent TP concentration lower than "normal" and so these months are not a good representation of the current condition at the WWTF.

The Village strongly feels that starting in late 2018 and all of 2019 through August is more representative of what the Village's effluent TP concentration is. From January to August 2019 the average effluent TP concentration was 0.50 mg/L, which is what is being proposed to be the Village's basis point for determining the number of credits required in lieu of reducing their effluent TP to 0.075 mg/L.

- The current annual Phosphorus loading discharged at the WWTF is calculated below:

  2019 Average Daily Flow (Q) = 0.210 MGD

  2019 Average Phosphorus concentration = 0.50 mg/L

  0.50 mg/L x 0.210 MGD x 8.34 x 365 days/yr. = 320 lbs./yr**.**

- The proposed allowable annual Phosphorus mass limit at the WWTF is calculated as follows:

  Average Daily Flow (Q) = 0.210 MGD

  Proposed Seasonal Phosphorus Concentration Limit = 0.075 mg/L

  0.075 mg/L x 0.210 MGD x 8.34 x 365 days/yr. = 47.9 lbs./yr.

- Reduction of Total Phosphorus required at WWTF:

  320 lbs./yr. – 47.9 lbs./yr. = 272.1 lbs./yr.

Utilizing a 3:1 ratio to determine the amount of phosphorus credits that would be needed, the required non-point source TP reduction would be **816.3 lbs./yr.** The justification for using a 3:1 ratio is discussed in Section IV of this report.

Anticipating that the Village of Belmont will grow in the next 10 years, the Village is proposing to generate more credits than currently required. The assumption at this time is that the average daily flow may increase over time and the average effluent TP concentration would increase to 0.60 mg/L. This assumption will also give the Village a safety factor.

- Maximum Monthly Flow (Q) = 0.243 MGD
- Average Phosphorus Concentration = 0.60 mg/L
- Proposed Seasonal Phosphorus Concentration Limit = 0.075 mg/L
- Revised calculation:

  (0.60 mg/L – 0.075 mg/L) x 0.275 MGD x 8.34 x 365 days/yr. = 439.5 lbs./yr.

Utilizing a 3:1 ratio to determine the amount of phosphorus credits that would be needed, the required non-point source TP reduction, with a safety factor, would be **1,318.5 lbs./yr.**

To generate the 1,318.5 lbs. of credits, the Village intends to perform streambank stabilization. Streambank stabilization will utilize grading and riprap to prevent erosion of

sediment from the streambanks. This will not only prevent sediment buildup but prevent phosphorus, nitrogen, and other pollutants from discharging into the Bonner Branch. Reducing pollutant discharge will restore stream habitat and generate water quality tradingcredits.

III. Location and Description of Credit Generation Site(s)

The Village of Belmont discharges to the Bonner Branch which has a HUC-12 identification number of 070900030301. A HUC-12 map can be found in Attachment #8. The Village plans to complete all of the proposed streambank improvements within the drainage area of the Bonner Branch, upstream of the WWTF. All of the sites will be located within the Village of Belmont corporate boundaries. The sites vary between developed, urban "lawn" areas and rural pastures or undeveloped property.

The Bonner Branch, in determining which areas that were going to be investigated for streambank restoration, was broken up into 8 segments. Each of these segments was analyzed based upon the severity of streambank erosion, cost to repair/restore, and who the current property owner was. The segment names and location can be found on Attachment #9.

IV. Methods for Nonpoint Source Load Reduction

The Village would like to create a minimum of 1,318.5 lbs./year of WQT trading credits in order to meet the projected TP overage in addition to future TP loadings due to Village growth. 1,318.5 lbs./year is based upon a trade ratio of 3:1, which is based upon the following:

Trade Ratio:
(Delivery + Downstream + Equivalency + Uncertainty - Habitat Adjustment): 1
Delivery = 0 (Trading within same HUC-12 Watershed)
Downstream = 0 (All Trades are upstream from Outfall 1)
Equivalency = 0 (Not Necessary of Total Phosphorus)
Uncertainty = 3 (Streambank stabilization without habitat restoration)
Habitat Adj = 0 (None being provided)

This plan identifies trading practices that will reduce TP runoff along the banks of the Bonner Branch by 1,335.5 lbs./year.

Methods Used to Generate Load Reductions

The Village plans to use streambank stabilization to generate TP load reductions by regrading and rip rapping approximately 7,395' along the Bonner Branch through the Village of Belmont. Stream Stabilization will be performed per NR 328 *Shore Erosion Control Structures in Navigable Waterways* and NR 580 *Streambank and Shoreline Protection.* The regrading and riprapping of the banks will eliminate the discharge of sediment to the stream.

The Village is will be working with Delta 3 Engineering, Inc. to design the streambank BMPs that will be used as well as prepare construction plans and specifications for the work. Upon completion of the work, an operation and maintenance manual will be prepared. The Village will apply for Trade Agreements for each property owner and have all the required permits and authorizations prior to the commencement of construction.

History of Project Site

All of the project sites are located within the Village of Belmont along the Bonner Branch. Since this is a combination of urban and rural area, trading agreements with several property owners will need to be secured. The Village has talked to nearly all of them prior to proposing this project and all that they have talked to have agreed in principal to allowing the work to be completed. Property owners and corresponding parcel numbers can be found on Attachment #9.

The current streambanks have been eroding away at an extremely high rate and the recent floods of 2018 and 2019 have exacerbated their condition. Field visits, conducted in August 2019 prior to the most recent floods, indicate severe erosion in many sections of the Bonner Branch. Photo documentation was taken of each segment in order to

determine the degree of erosion. These photos are included in Attachment #10. All of the segments display evidence of stream bank erosion: steep unvegetated slopes, banks that have slumped, exposed tree roots, etc. Also included are the re-inspection photos from November 2020. In the most severely eroded areas, there are trees that have fallen into the stream and storm sewer outlet pipes are suspended in the air above the stream. As a result, the lateral recession rate of the streambank has been determined to be between severe (0.3-0.5 ft/yr) and extremely severe (>0.5 ft/yr.).

Model Used to Derive Load Reductions

NRCS Streambank Erosion Calculator Modeling methods were used to calculate the total phosphorus credits that would be generated after the BMPs have been installed, which is included in Attachment #11.

Soil samples were taken at 50' to 100' intervals along both sides of the streambank from the WWTF to western edge of the Village. Two samples were taken at each sampling location to provide a representative example. Soil testing data and soil samples for the project are included in Attachment #12. A site and topographical survey of the streambank and the location of soil samples was performed horizontally and vertically using Global Position System (GPS) Equipment.

Inputting the survey data and soil sample data into the NRCS Streambank Erosion Estimator provided the amount of TP loss for each segment. As previously mentioned, this has been included in Attachment #11. The TP loss for each segment will be eliminated by performing one of the following streambank repairs:

- In areas where there is sufficient land and the sheer stresses of the stream will allow, the streambank slope will be reconstructed to remove it steepness and then protected with a permanent turf reinforcement mat. Existing vegetation (trees, shrubs, grasses, etc.) will be removed and replaced solely with grasses to protect the bank in conjunction with the turf reinforcement mat. To prevent the newly graded bank from eroding until the vegetation has been established, a temporary erosion control revegetation mat will be installed.

- In areas where there is not sufficient land to reconstruct the bank to a "flatter" slope or where the sheer stresses are too great, heavy riprap will be installed to protect the bank. Under the riprap a geotextile fabric will be installed to prevent the loss of soil under the riprap. In these areas all existing vegetation will be removed.

In locations where the storm sewer culverts are suspended in the air, the bank will be reconstructed to eliminate the condition and riprap will be installed to protect the bank below the culvert. Any trees that have fallen into the stream or are on the verge of doing so will be removed along with their roots.

All work will conform to NR 328 *Shore Erosion Control Structures in Navigable Waterways* and NR 580 *Streambank and Shoreline Protection*.

Prior to any work being completed along the Bonner Branch, the Village will submit the final design plans and specifications to the DNR for approval and apply for any necessary permits. TP Credits will be registered following construction and approval of the BMPs.

If the plan of construction or the modeling results change, the Village will resubmit the Plan to accurately represent the credits generated.

Operation and Maintenance

The BMPs will be inspected annually by a licensed Professional Engineer to make sure that they are functioning as designed in order to meet the requirements of this WQT Plan.

V. Trade Timeline

Schedule for the installation of the above-mentioned trading practices for Total Phosphorus Credit Generation for TP compliance is provided below:

Item	Completion Date
Site Investigation	Completed
Preliminary Design	September 2019
Final Design	February 2020
Construction Permits	March 2020
DNR Review of Final Design	March 2020
Bidding	April 2020
Construction	May – October 2020
Phosphorus Credit Registration	November 2020
Use of Phosphorus Credits by Village of Belmont	April 2021

VI. Inspection Reporting

Tracking Procedures

The Village will track credits used monthly and will report credit usage to the DNR on a monthly basis in the Discharge Monitoring Reports (DMRs). The annual report will summarize the 12 months of credit usage and credit generation. Any concern that the Village has they will report to the DNR which may result in the modification of the trade agreement or this WQT Plan.

Inspection

Inspections should occur during the construction phase to insure the BMPs are up to code and the permits. When construction has been completed, inspections should occur every

month at a minimum or after a large rain event. A licensed Professional Engineer shall perform an annual certification to ensure that the BMP is performing as designed.

The inspection reports should include at least the following information:

i. Name and contact information of the inspector
ii. Inspection date
iii. Relevant standards set from the Design Plan or O&M Plan
iv. Identify any issues that need to be addressed
v. Timeline for issues to be addressed
vi. Completion date and summary of any required work

Inspection reports that are completed will be included in the Annual Water Quality Trading Report submitted by the Village to the DNR. Annual inspections should take place either in April or May. This time of the year should be ideal to inspect the conditions of the BMPs as it follows the freeze/thaw cycle as there is minimal vegetation cover that will allow for an easier visual inspection.

Management Practice Registration Form

The Village will complete registration form 3400-207 for Water Quality Trading Management Practice Registration once the work has been completed.

Annual Water Quality Trading Report Submittal

The Village shall submit the following to the DNR by January 31 of each year:

1. The number of pollutant reduction credits (lbs./month) used each month of the previous year to demonstrate compliance;
2. A summary of the annual inspection of each nonpoint source management practice that generated any pollutant reduction credits used during the previous year, this inspection shall be performed by a licensed Professional Engineer;
3. All the monthly inspection reports;
4. Identification of noncompliance or failure to implement any terms or conditions of this permit with respect to water quality trading that have not been reported in discharge monitoring reports; and
5. An updated WQT Plan if the management practices have or will change.

Monthly Certification of Management Practices

Each month, the Village will certify that the BMPs are maintained and operating in a manner consistent with this Water Quality Trading Plan or provide a statement noting noncompliance with this Plan. The monthly Discharge Monitoring Report (DMR) will include the following statement as a certification of compliance when the Credit Generating Practice is operating in a manner consistent with the Plan:

"I certify that the management practices identified in the approved water quality trading plan as the source of phosphorus credits is installed, established and properly maintained."

Notification of Failure to Generate Credits

The Village will notify the DNR if there is a segment that is not generating the amount of TP credit as outlined above. An estimate of the number of credits that are not being generated will be provided which will be compared to the total number of credits initially being provided versus the required amount. If the area that is not providing credits does not go under the amount of credits that are required to be generating, then nothing will be required be done. However, if the problem segment causes the total number of credits to go under the required amount, then that area will be required to be repaired in order to meet the WQT plan.

Conditions under which Management Practices May Be Inspected

Any DNR authorized officer, employee, or representative has the right to access and inspect the credit generating practice so long as the Village's trade agreement with the property owner(s) and this Water Quality Trading Plan remain in effect.

VII. Certification

The undersigned hereby certifies that this Water Quality Trading Plan is accurate and correct to the best of their knowledge.

Village of Belmont Wastewater Treatment Facility

By: _____

Tony Kunz
Director of Public Works
Village of Belmont
222 S. Mound Ave.
Belmont, WI 53510
Telephone: (608) 762-5142
Email: belpubwrk@lagrant.net

ATTACHMENT 1

Notice of Intent

State of Wisconsin
Department of Natural Resources
101 South Webster Street
Madison WI 53707-7921
dnr.wi.gov

Notice of Intent to Conduct Water Quality Trading

Form 3400-206 (1/14)

Notice: Pursuant to s. 283.84, Wis. Stats., and ch. NR 217 Wis. Adm. Code, this form must be completed by any WPDES permittee that is using water quality trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information

Permittee Name	Permit Number	Facility Site Number
Village of Belmont	WI- 0020419-10-0	

Facility Address	City	State	ZIP Code
222 S. Mound Ave. P.O. Box 6	Belmont	WI	53510

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Daniel Dreessens (Delta 3 Eng.)	875 South Chestnut Street	Platteville	WI	53818

Project Name: Belmont WQT Plan

Receiving Water Name	Parameter(s) being traded	HUC 12(s)
Bonner Branch	Total Phosphorus	070900030301

Is the permittee in a point or nonpoint source dominated watershed? (See PRESTO results - http://dnr.wi.gov/topic/surfacewater/presto.html)
- ◯ Point source dominated
- ◉ Nonpoint source dominated

Credit Generator Information

Credit generator type (select all that apply):
- ☐ Permitted Discharge (non-MS4/CAFO)
- ☐ Permitted MS4
- ☐ Permitted CAFO
- ☐ Urban nonpoint source discharge
- ☒ Agricultural nonpoint source discharge
- ☐ Other - Specify: _____

Are any of the credit generators in a different HUC 12 than the applicant?
- ◯ Yes; HUC 12: _____
- ◉ No
- ◯ Unsure

Are any of the credit generators downstream of the applicant?
- ◯ Yes
- ◉ No
- ◯ Unsure

Will a broker/exchange be used to facilitate trade?
- ◯ Yes; Name: _____
- ◉ No
- ◯ Unsure

Point to Point Trades (Traditional Municipal / Industrial Discharge, MS4, CAFO)

Discharge Type	Permit Number	Name	Contact Address	Is the point source credit generator currently in compliance with their permit requirements?
◯ Traditional ◯ MS4 ◯ CAFO				◯ Yes ◯ No ◯ Unsure
◯ Traditional ◯ MS4 ◯ CAFO				◯ Yes ◯ No ◯ Unsure
◯ Traditional ◯ MS4 ◯ CAFO				◯ Yes ◯ No ◯ Unsure
◯ Traditional ◯ MS4 ◯ CAFO				◯ Yes ◯ No ◯ Unsure
◯ Traditional ◯ MS4 ◯ CAFO				◯ Yes ◯ No ◯ Unsure

Point to Nonpoint Trades (Non-permitted Agricultural, Non-Permitted Urban, etc.)

List the practices that will be used to generate credits:

Practices to generate credits will be streambank repair including the grading of banks (with restoration being erosion matting and vegetation) and the use of riprap in the areas that are affected by erosion along the streambank. Areas that are being targeted for this plan are areas that are in severe to extremely severe condition. The streambank is near several trails and streets, which will make them safer.

Method for quantifying credits generated:

- ☐ Monitoring
- ☒ Modeling, Names: NRCS Stream bank Modeling
- ☐ Other: _____

Projected date credits will be available: 11/30/2020

The preparer certifies all of the following:

- I am familiar with the specifications submitted for this application, and I believe all applicable items in this checklist have been addressed.
- I have completed this document to the best of my knowledge and have not excluded pertinent information.

Signature of Preparer	Date Signed

Authorized Representative Signature

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative	Date Signed

ATTACHMENT 2

Water Quality Trading Checklist

State of Wisconsin
Department of Natural Resources
101 South Webster Street
Madison WI 53707-7921
dnr.wi.gov

Water Quality Trading Checklist

Notice: Pursuant to s. 283.84, Wis. Stats., this form must be completed by any WPDES permittee that intends to pursue pollutant trading as a method of complying with a permit limitation. Failure to complete this form would not result in penalties. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Applicant Information

Permittee Name	Permit Number	Facility Site Number
Village of Belmont	WI- 0020419-10-0	

Facility Address	City	State	ZIP Code
222 S. Mound Ave. P.O. Box 6	Belmont	WI	53510

Project Contact Name (if applicable)	Address	City	State	ZIP Code
Daniel Dreessens (Delta 3 Eng.)	875 South Chestnut Street	Platteville	WI	53818

Project Name
Village of Belmont WQT Plan

Receiving Water Name	Parameter(s) being traded	HUC 12(s)
Bonner Branch	Total Phosphorus	070900030301

Credit Generator Information

Credit generator type (select all that apply):

- ☐ Permitted Discharge (non-MS4CAFO)
- ☐ Permitted MS4
- ☐ Permitted CAFO
- ☐ Urban nonpoint source discharge
- ☒ Agricultural nonpoint source discharge
- ☐ Other - Specify: _____

Are any of the credit generators in a different HUC 12 than the applicant?
- ○ Yes; HUC 12: _____
- ◉ No

Are any of the credit generators downstream of the applicant?
- ○ Yes
- ◉ No

Will a broker/exchange be used to facilitate trade?
- ○ Yes *(include description and contact information in WQT plan)*
- ◉ No

Point to Point Trades (Traditional Municipal / Industrial, MS4, CAFO)

Are each of the point source credit generators identified in this section in compliance with their WDPES permit requirements?
- ○ Yes
- ◉ No

Discharge Type	Permit Number	Name	Contact Information	Trade Agreement Number
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				
○ Traditional ○ MS4 ○ CAFO				

Point to Point Trades (Traditional Municipal / Industrial, MS4, CAFO) *cont.*

Does plan have a narrative that describes:			Plan Section
a. Summary of discharge and existing treatment including optimization	◯ Yes	◯ No	
b. Amount of credit being generated	◯ Yes	◯ No	
c. Timeline for credits and agreements	◯ Yes	◯ No	
d. Method for quantifying credits	◯ Yes	◯ No	
e. Tracking and verification procedures	◯ Yes	◯ No	
f. Location of credit generator in proximity to receiving water and credit user	◯ Yes	◯ No	
g. Other: ______________________________	◯ Yes	◯ No	

Point to Nonpoint Trades (Non-Permitted Urban, Agricultural, Other)

Discharge Type	Practices Used to Generate Credits	Method of Quantification	Trade Agreement Number	Have the practice(s) been formally registered?
◯ Urban NPS ◉ Agricultural NPS ◯ Other	Streambank Stabilization	NRCS Estimator	N/A	◯ Yes ◉ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part
◯ Urban NPS ◯ Agricultural NPS ◯ Other				◯ Yes ◯ No ◯ Only in part

Does plan have a narrative that describes:			Plan Section
a. Description of existing land uses	◉ Yes	◯ No	
b. Management practices used to generate credits	◉ Yes	◯ No	
c. Amount of credit being generated	◉ Yes	◯ No	
d. Description of applicable trade ratio per agreement/management practice	◉ Yes	◯ No	
e. Location where credits will be generated	◉ Yes	◯ No	
f. Timeline for credits and agreements	◉ Yes	◯ No	
g. Method for quantifying credits	◉ Yes	◯ No	

Does plan have a narrative that describes:			Plan Section
h. Tracking procedures	◉ Yes	○ No	
i. Conditions under which the management practices may be inspected	◉ Yes	○ No	
j. Reporting requirements should the management practice fail	◉ Yes	○ No	
k. Operation and maintenance plan for each management practice	○ Yes	◉ No	
l. Location of credit generator in proximity to receiving water and credit user	◉ Yes	○ No	
m. Practice registration documents, if available	○ Yes	◉ No	
n. History of project site(s)	◉ Yes	○ No	
o. Other: _____	○ Yes	○ No	

The preparer certifies all of the following:

- I am familiar with the specifications submitted for this application, and I believe all applicable items in this checklist have been addressed.
- I have completed this document to the best of my knowledge and have not excluded pertinent information.
- I certify that the information in this document is true to the best of my knowledge.

Signature of Preparer	Date Signed

Authorized Representative Signature

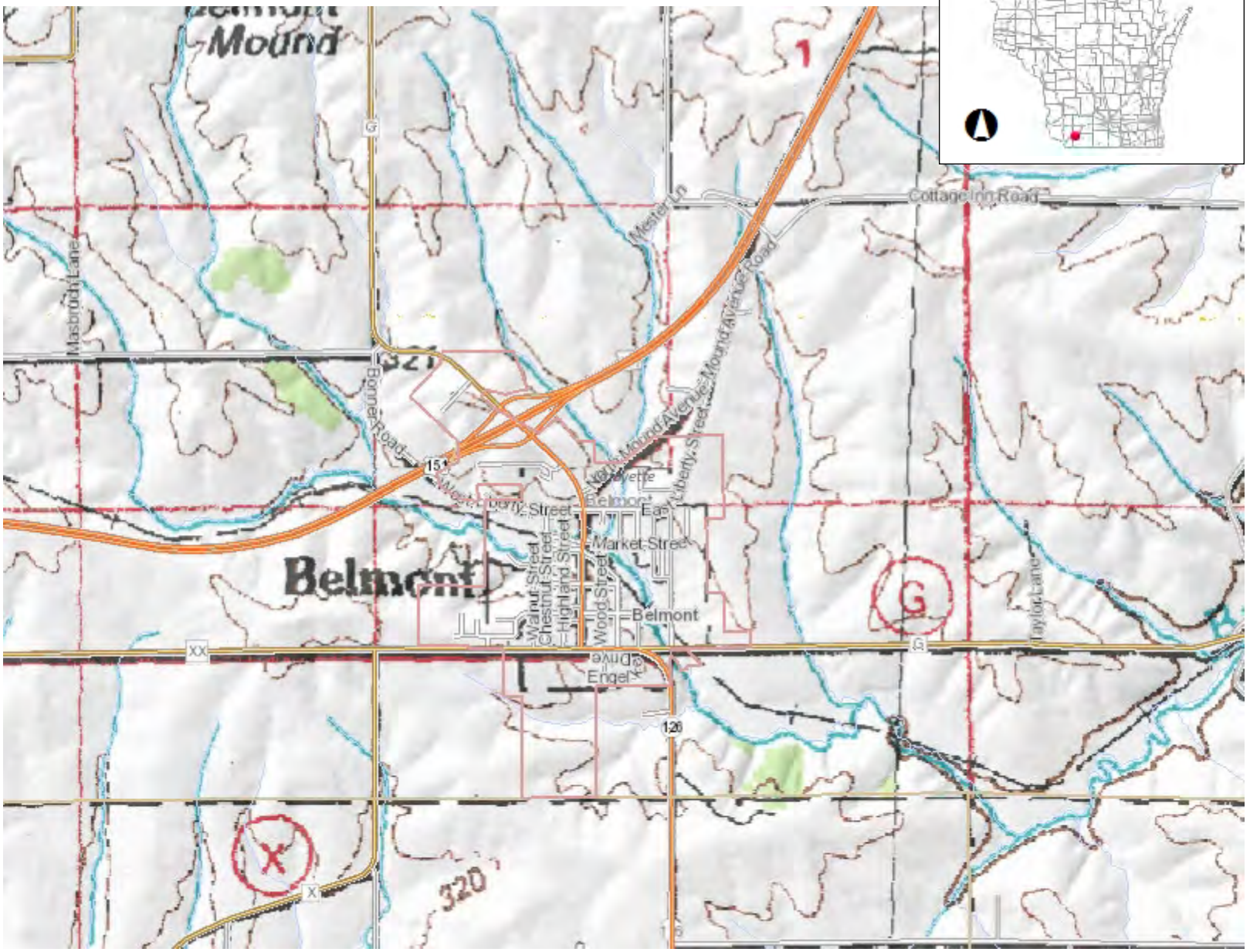
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision. Based on my inquiry of those persons directly responsible for gathering and entering the information, the information is, to the best of my knowledge and belief, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Authorized Representative	Date Signed

ATTACHMENT 3

Topographic Map

Village of Belmont Location Map



Legend

- County Boundary
- Cities, Towns & Villages
  - City
  - Village
  - Civil Town
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water
- 24K USGS Quad Index - Level 7 - 16

Notes

Surface Water Data View Map

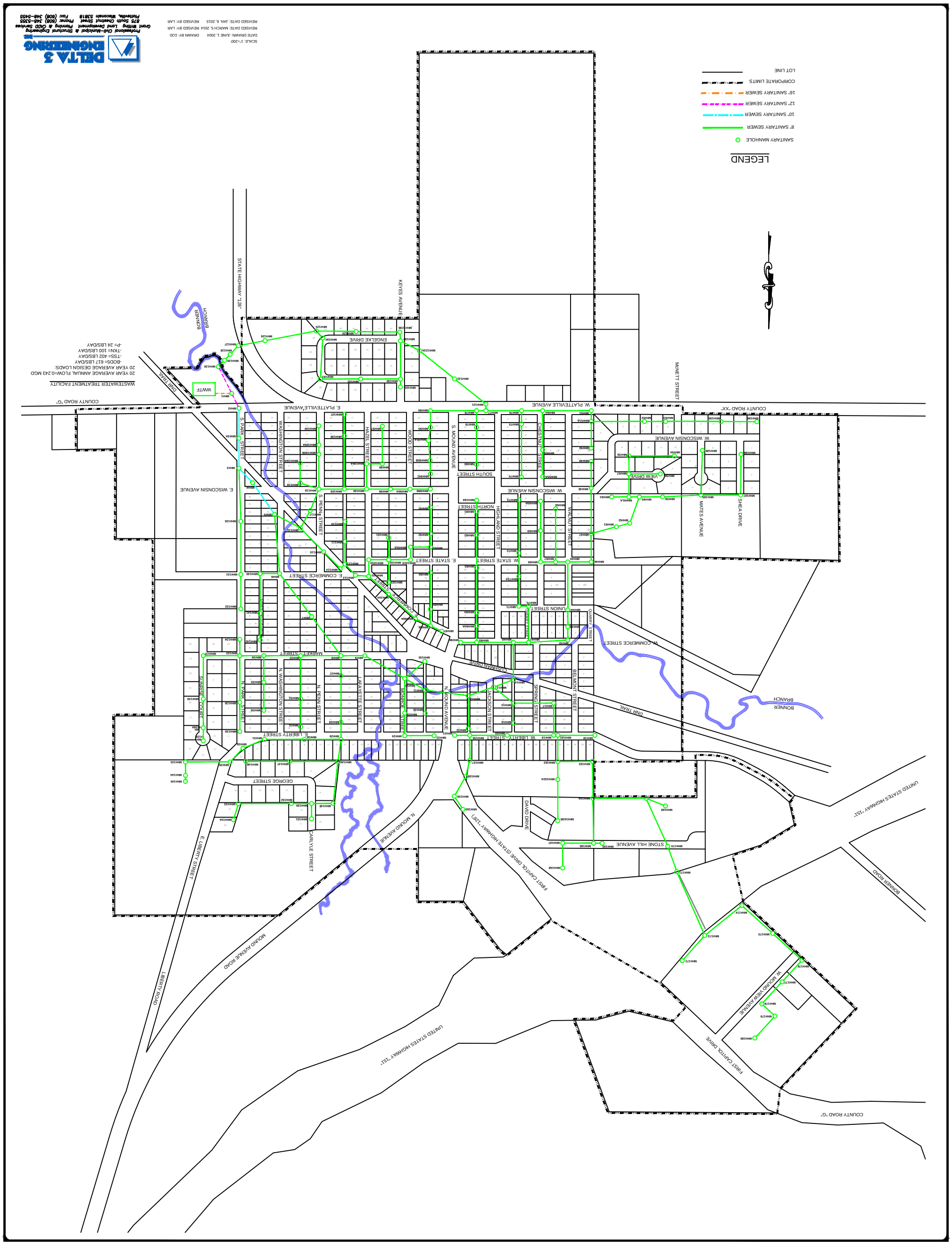
1.0 0 0.50 1.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 31,680

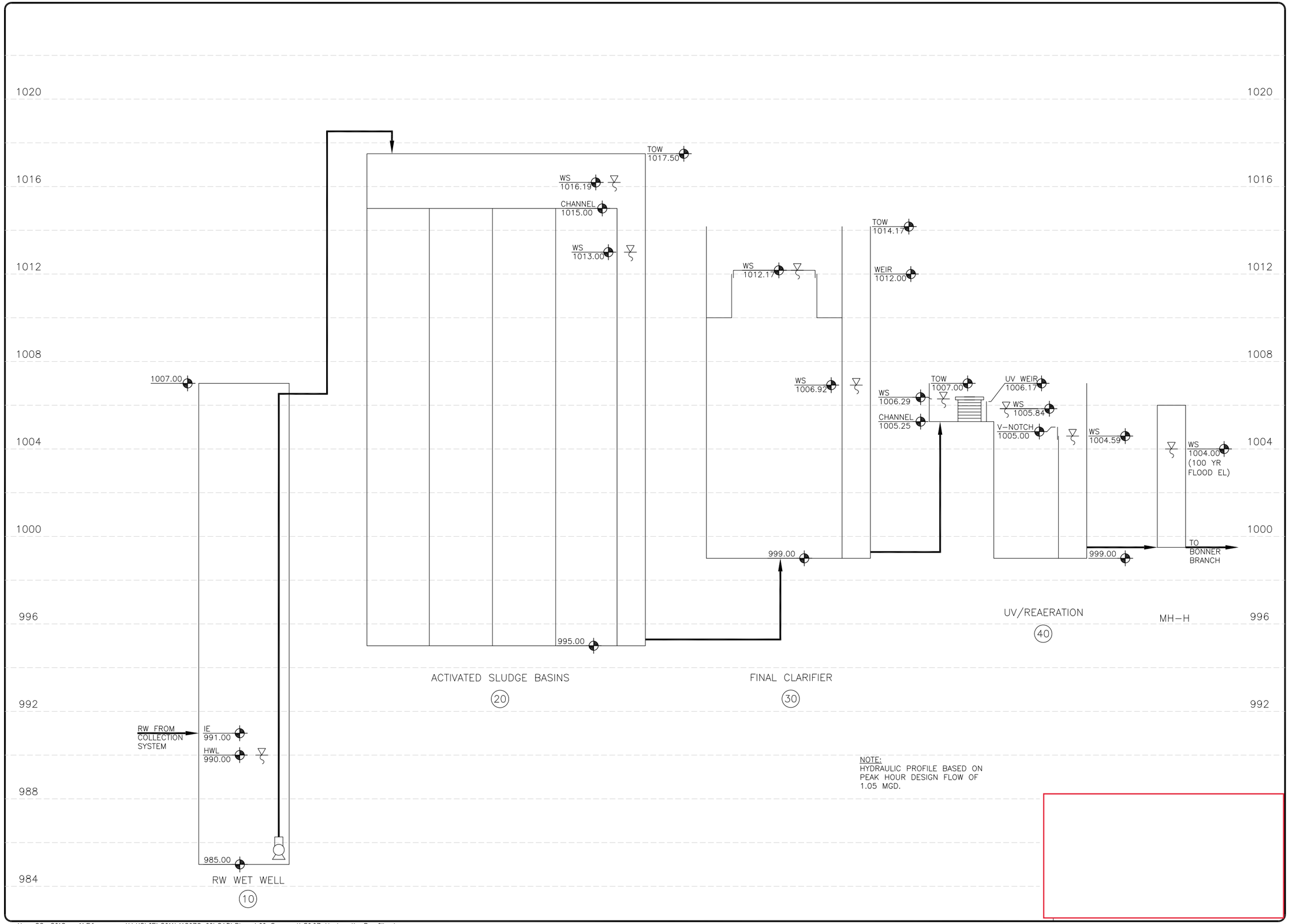
ATTACHMENT 4

Sanitary Sewer Map


LEGEND
SANITARY MANHOLE
8" SANITARY SEWER
10" SANITARY SEWER
12" SANITARY SEWER
16" SANITARY SEWER
CORPORATE LIMITS
LOT LINE
SCALE: 1"=200'
DATE DRAWN: JUNE 1, 2004 DRAWN BY: DJD
REVISED DATE: MARCH 5, 2014 REVISED BY: LAR
REVISED DATE: JAN. 6, 2015 REVISED BY: LAR
DELTA 3 ENGINEERING LLC
Professional Civil-Municipal & Structural Engineering
Grant Mining Land Development Planning & CADD Services
875 South Chestnut Street Phone: (608) 348-5355
Platteville, Wisconsin 53818 Fax: (608) 348-5435
WASTEWATER TREATMENT FACILITY
20 YEAR AVERAGE ANNUAL FLOW=0.243 MGD
20 YEAR AVERAGE DESIGN LOADS:
-BOD5= 617 LBS/DAY
-TSS= 402 LBS/DAY
-TKN= 100 LBS/DAY
-P= 24 LBS/DAY
WWTF
BONNER BRANCH
STATE HIGHWAY "80"
KEYES AVENUE
ENGELKE DRIVE
McNETT STREET
COUNTY ROAD "G"
COUNTY ROAD "XX"
E. PLATTEVILLE AVENUE
W. PLATTEVILLE AVENUE
S. PARK STREET
WASHINGTON STREET
HAZEL STREET
WOOD STREET
S. MOUND AVENUE
CHESTNUT STREET
SOUTH STREET
W. WISCONSIN AVENUE
E. WISCONSIN AVENUE
VIEW DRIVE
MATES AVENUE
SHEA DRIVE
S. PENN STREET
NORTH STREET
HIGHLAND STREET
WALNUT STREET
E. STATE STREET
W. STATE STREET
E. COMMERCE STREET
COMMERCE STREET
UNION STREET
QUARRY STREET
W. COMMERCE STREET
MARKET STREET
CUSHMAN DRIVE
BELMONT STREET
SUNRISE COURT
N. PARK STREET
N. WASHINGTON STREET
N. PENN STREET
LAFAYETTE STREET
MONROE STREET
N. MOUND AVENUE
JACKSON STREET
SPRING STREET
E. LIBERTY STREET
W. LIBERTY STREET
DUNN TRAIL
BONNER BRANCH
GEORGE STREET
CARLYLE STREET
DAVID DRIVE
FIRST CAPITOL DRIVE (STATE HIGHWAY "130")
STONE HILL AVENUE
UNITED STATES HIGHWAY "151"
BONNER ROAD
N. MOUND AVENUE
E. LIBERTY STREET
MOUND AVENUE ROAD
LIBERTY ROAD
W. MOUND VIEW AVENUE
FIRST CAPITOL DRIVE
COUNTY ROAD "G"

ATTACHMENT 5

WWTF Hydraulic Profile



NOTE:
HYDRAULIC PROFILE BASED ON PEAK HOUR DESIGN FLOW OF 1.05 MGD.

CONSULTANT:

DELTA 3 ENGINEERING INC
Professional Civil-Municipal & Structural Engineering
Planning & CADD Services
Grant Writing Land Development
825 South Chestnut Street
Platteville, Wisconsin 53818
Phone: (608) 348-5455
Fax: (608) 348-5455

WASTEWATER TREATMENT PLANT UPGRADE AND EXPANSION

EDA Award No.: 06-79-05419
CONTRACT "A-12"
VILLAGE OF BELMONT

LAFAYETTE COUNTY WISCONSIN

NO.	BY	DATE	REVISION / ISSUE DESCRIPTION
1			
2			
3			
4			

RECORD DRAWING OF COMPLETED CONSTRUCTION BY
RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.
BY_____ DATE_____

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	PRW	5/29/12
DESIGNED	MJE	5/29/12
CHECKED	PAK	5/29/12

HYDRAULIC PROFILE

GENERAL

PROJECT ID 11C079

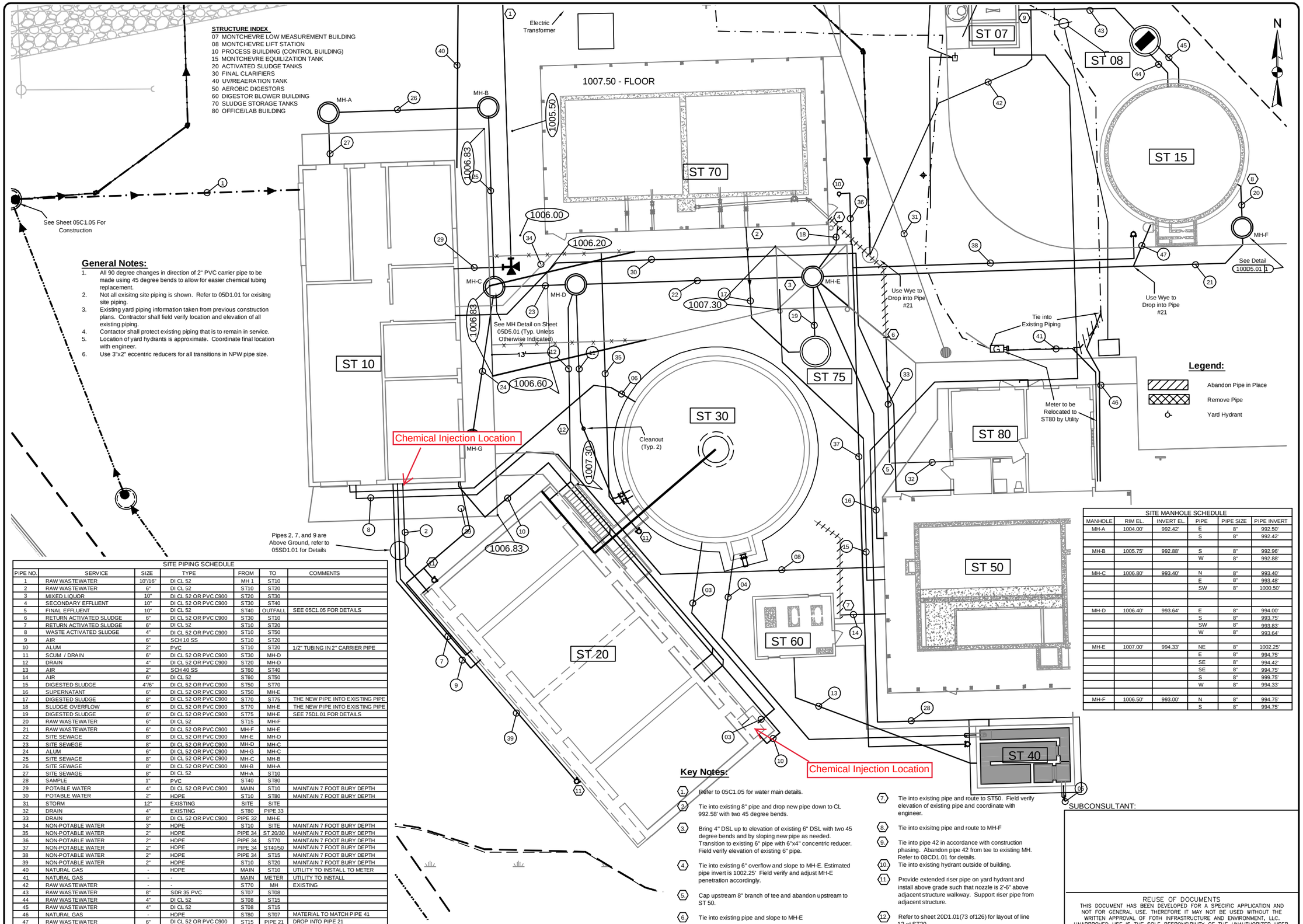
00G0.07

SHEET 7 OF 126

May 29, 2012 - 11:56am prw X:\MS\IE\2011\11C079-00\CAD\Plans\00-General\G0.07-Hydraulic Profile.dwg

ATTACHMENT 6

WWTF Flow Schematic



General Notes:

1. All 90 degree changes in direction of 2" PVC carrier pipe to be made using 45 degree bends to allow for easier chemical tubing replacement.
2. Not all exisitng site piping is shown. Refer to 05D1.01 for exisitng site piping.
3. Existing yard piping information taken from previous construction plans. Contractor shall field verify location and elevation of all existing piping.
4. Contactor shall protect existing piping that is to remain in service.
5. Location of yard hydrants is approximate. Coordinate final location with engineer.
6. Use 3"x2" eccentric reducers for all transitions in NPW pipe size.

SITE PIPING SCHEDULE

PIPE NO.	SERVICE	SIZE	TYPE	FROM	TO	COMMENTS
1	RAW WASTEWATER	10"/16"	DI CL 52	MH 1	ST10	
2	RAW WASTEWATER	6"	DI CL 52	ST10	ST20	
3	MIXED LIQUOR	10"	DI CL 52 OR PVC C900	ST20	ST30	
4	SECONDARY EFFLUENT	10"	DI CL 52 OR PVC C900	ST30	ST40	
5	FINAL EFFLUENT	10"	DI CL 52	ST40	OUTFALL	SEE 05C1.05 FOR DETAILS
6	RETURN ACTIVATED SLUDGE	6"	DI CL 52 OR PVC C900	ST30	ST10	
7	RETURN ACTIVATED SLUDGE	6"	DI CL 52	ST10	ST20	
8	WASTE ACTIVATED SLUDGE	4"	DI CL 52 OR PVC C900	ST10	ST50	
9	AIR	6"	SCH 10 SS	ST10	ST20	
10	ALUM	2"	PVC	ST10	ST20	1/2" TUBING IN 2" CARRIER PIPE
11	SCUM / DRAIN	6"	DI CL 52 OR PVC C900	ST30	MH-D	
12	DRAIN	4"	DI CL 52 OR PVC C900	ST20	MH-D	
13	AIR	2"	SCH 40 SS	ST60	ST40	
14	AIR	6"	DI CL 52	ST60	ST50	
15	DIGESTED SLUDGE	4"/6"	DI CL 52 OR PVC C900	ST50	ST70	
16	SUPERNATANT	6"	DI CL 52 OR PVC C900	ST50	MH-E	
17	DIGESTED SLUDGE	8"	DI CL 52 OR PVC C900	ST70	ST75	THE NEW PIPE INTO EXISTING PIPE
18	SLUDGE OVERFLOW	6"	DI CL 52 OR PVC C900	ST70	MH-E	THE NEW PIPE INTO EXISTING PIPE
19	DIGESTED SLUDGE	6"	DI CL 52 OR PVC C900	ST75	MH-E	SEE 75D1.01 FOR DETAILS
20	RAW WASTEWATER	6"	DI CL 52	ST15	MH-F	
21	RAW WASTEWATER	6"	DI CL 52 OR PVC C900	MH-F	MH-E	
22	SITE SEWAGE	8"	DI CL 52 OR PVC C900	MH-E	MH-D	
23	SITE SEWEGE	8"	DI CL 52 OR PVC C900	MH-D	MH-C	
24	ALUM	6"	DI CL 52 OR PVC C900	MH-G	MH-C	
25	SITE SEWAGE	8"	DI CL 52 OR PVC C900	MH-C	MH-B	
26	SITE SEWAGE	8"	DI CL 52 OR PVC C900	MH-B	MH-A	
27	SITE SEWAGE	8"	DI CL 52	MH-A	ST10	
28	SAMPLE	1"	PVC	ST40	ST80	
29	POTABLE WATER	4"	DI CL 52 OR PVC C900	MAIN	ST10	MAINTAIN 7 FOOT BURY DEPTH
30	POTABLE WATER	2"	HDPE	ST10	ST80	MAINTAIN 7 FOOT BURY DEPTH
31	STORM	12"	EXISTING	SITE	SITE	
32	DRAIN	4"	EXISTING	ST80	PIPE 33	
33	DRAIN	8"	DI CL 52 OR PVC C900	PIPE 32	MH-E	
34	NON-POTABLE WATER	3"	HDPE	ST10	SITE	MAINTAIN 7 FOOT BURY DEPTH
35	NON-POTABLE WATER	2"	HDPE	PIPE 34	ST 20/30	MAINTAIN 7 FOOT BURY DEPTH
36	NON-POTABLE WATER	2"	HDPE	PIPE 34	ST70	MAINTAIN 7 FOOT BURY DEPTH
37	NON-POTABLE WATER	2"	HDPE	PIPE 34	ST40/50	MAINTAIN 7 FOOT BURY DEPTH
38	NON-POTABLE WATER	2"	HDPE	PIPE 34	ST15	MAINTAIN 7 FOOT BURY DEPTH
39	NON-POTABLE WATER	2"	HDPE	ST10	ST20	MAINTAIN 7 FOOT BURY DEPTH
40	NATURAL GAS	-	HDPE	MAIN	ST10	UTILITY TO INSTALL TO METER
41	NATURAL GAS	-	-	MAIN	METER	UTILITY TO INSTALL
42	RAW WASTEWATER	-	-	ST70	MH	EXISTING
43	RAW WASTEWATER	8"	SDR 35 PVC	ST07	ST08	
44	RAW WASTEWATER	4"	DI CL 52	ST08	ST15	
45	RAW WASTEWATER	4"	DI CL 52	ST08	ST15	
46	NATURAL GAS	-	HDPE	ST80	ST07	MATERIAL TO MATCH PIPE 41
47	RAW WASTEWATER	6"	DI CL 52 OR PVC C900	ST15	PIPE 21	DROP INTO PIPE 21

SITE MANHOLE SCHEDULE

MANHOLE	RIM EL.	INVERT EL.	PIPE	PIPE SIZE	PIPE INVERT
MH-A	1004.00'	992.42'	E	8"	992.50'
			S	8"	992.42'
MH-B	1005.75'	992.88'	S	8"	992.96'
			W	8"	992.88'
MH-C	1006.80'	993.40'	N	8"	993.40'
			E	8"	993.48'
			SW	8"	1000.50'
MH-D	1006.40'	993.64'	E	8"	994.00'
			S	8"	993.75'
			SW	8"	993.83'
			W	8"	993.64'
MH-E	1007.00'	994.33'	NE	8"	1002.25'
			E	8"	994.75'
			SE	8"	994.42'
			SE	8"	994.75'
			S	8"	999.75'
			W	8"	994.33'
MH-F	1006.50'	993.00'	N	8"	994.75'
			S	8"	994.75'

Key Notes:

1. Refer to 05C1.05 for water main details.
2. Tie into existing 8" pipe and drop new pipe down to CL 992.58' with two 45 degree bends.
3. Bring 4" DSL up to elevation of existing 6" DSL with two 45 degree bends and by sloping new pipe as needed. Transition to existing 6" pipe with 6"x4" concentric reducer. Field verify elevation of existing 6" pipe.
4. Tie into existing 6" overflow and slope to MH-E. Estimated pipe invert is 1002.25' Field verify and adjust MH-E penetration accordingly.
5. Cap upstream 8" branch of tee and abandon upstream to ST 50.
6. Tie into existing pipe and slope to MH-E
7. Tie into existing pipe and route to ST50. Field verify elevation of existing pipe and coordinate with engineer.
8. Tie into exisitng pipe and route to MH-F
9. Tie into pipe 42 in accordance with construction phasing. Abandon pipe 42 from tee to existing MH. Refer to 08CD1.01 for details.
10. Tie into existing hydrant outside of building.
11. Provide extended riser pipe on yard hydrant and install above grade such that nozzle is 2'-6" above adjacent structure walkway. Support riser pipe from adjacent structure.
12. Refer to sheet 20D1.01(73 of126) for layout of line 12 at ST20.

SUBCONSULTANT:

CONSULTANT:

DELTA 3 ENGINEERING
Professional Civil–Municipal & Structural Engineering
Planning & GIS Services
Grant Writing Land Development
875 South Cheetuh Street
Platteville, Wisconsin 53818
Phone: (608) 348-3305
Fax: (608) 348-3405

WASTEWATER TREATMENT PLANT UPGRADE AND EXPANSION

EDA AWARD NO.: 06-79-05419
CONTRACT "A-12"
VILLAGE OF BELMONT
LAFAYETTE COUNTY WISCONSIN

NO.	BY	DATE	REVISION / ISSUE
1	DD	9/25/12	PLANT RECONFIGURATION

RECORD DRAWING OF COMPLETED CONSTRUCTION BY
RECORD DRAWINGS OF COMPLETED CONSTRUCTION CONFORMING TO CONTRACTOR AND/OR OWNERS RECORDS.
BY DATE

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN	CDC	5/29/12
DESIGNED	SJK	5/29/12
CHECKED	DJD	5/29/12

PROCESS PIPING PLAN

SITE

SCALE
0 10 20

PROJECT ID 11C079

05D1.02

SHEET 36 OF 126

ATTACHMENT 7

2018 Non- Compliance Letter

DELTA 3
Platteville, Wisconsin
Dubuque, Iowa
P 608.348.5355
P 563.542.9005
E mail@delta3eng.biz
W www.delta3eng.biz

Date: June 18, 2019

Ms. Caitlin O'Connell
Wastewater Engineer
Wisconsin Department of Natural Resources
South Central Region
1500 N. Johns Street
Dodgeville, WI 53533

Re: 2018 Phosphorus Permit Limit Exceedance
Permit 0020419-09-0
Village of Belmont, Lafayette County, Wisconsin

Dear Ms. O'Connell:

The purpose of this letter is to address the four months in 2018 that the Village of Belmont did meet their Monthly Average Phosphorus Limit of 1.0 mg/L. Those four months and their corresponding average were as follows:

February	1.273 mg/L
March	1.497 mg/L
May	1.174 mg/L
June	1.028 mg/L

In late 2017 Saputo Cheese USA Inc. purchased Montchevre-Betin, Inc. and began operating its cheese making facility as well as its pre-treatment facility in early 2018. As the new personnel for Saputo were learning to operate the pre-treatment facility, their phosphorus concentration of their effluent began to increase starting in mid-January until the first part of April. Their monthly average phosphorus discharge for January through April varied between 8.7 mg/L and 40.9 mg/L with a high daily concentration of 319 mg/L. Unfortunately, these high values also coincided with increased discharge due to the milk production of goats being higher in February through April.

Village staff immediately contacted Saputo regarding the increase in the concentration of phosphorus and since early April, Saputo's monthly average for phosphorus has typically been much lower and more consistent. In 2019, January through May's average phosphorus concentration has been 5.3 mg/L. This has resulted in much lower phosphorus concentrations in the Village's effluent.

In May 2018 the mixer in the anaerobic selector tank stopped working and as a result, the tank was unable to be mixed and ultimately bypassed until the mixer was able to be fixed. As a result, the biological phosphorus removal process was hindered, requiring the need for more chemical to be added to aid in the removal of phosphorus. Unfortunately, it took several weeks for the operator to determine the proper feed rate, resulting in effluent levels greater than 1.0 mg/L. It also took several months to fix the mixer as replacement parts were difficult to find. Since the mixer was repaired in late summer, the biological phosphorus removal process has vastly improved.

In summary, the Village of Belmont did exceed their phosphorus limit four times in 2018 but have contacted Saputo regarding excessively high discharges and have fixed broken equipment within

the plant that is critical to biological phosphorus removal. The Village has also worked on their sludge management which they believe has also helped lower their effluent phosphorus concentration. All of these items have allowed them to better control their effluent phosphorus concentration to well under 1.0 mg/L (2019 phosphorus average to date has been 0.44 mg/L).

If you have any questions regarding this project, please feel free to contact me at your convenience.

Sincerely,

DELTA 3 ENGINEERING, INC.

Daniel J. Dreessens, P.E.
Vice-President/Civil Engineer

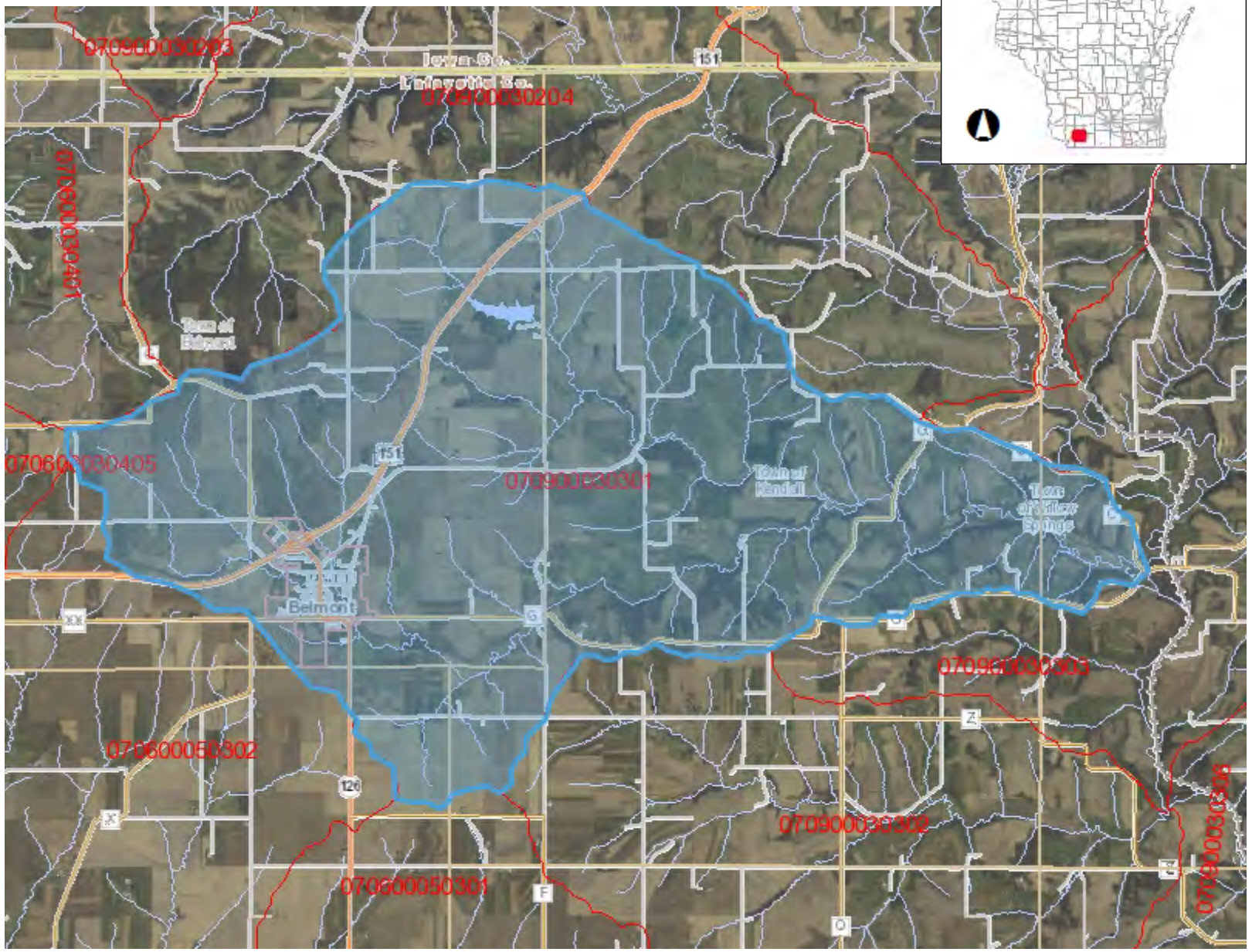
DD:dd

cc: Tony Kunz, Director of Public Works, Village of Belmont

ATTACHMENT 8

HUC-12 Watershed Map

Village of Belmont HUC-12 Map



Legend

- 12-digit HUCs (Subwatersheds)
- County Boundary
- Cities, Towns & Villages
  - City
  - Village
  - Civil Town
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway
  - US Highway
- County and Local Roads
  - County HWY
  - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water
- Index to EN_Image_Basemap_Leaf_Off

Notes

Surface Water Data Viewer Map

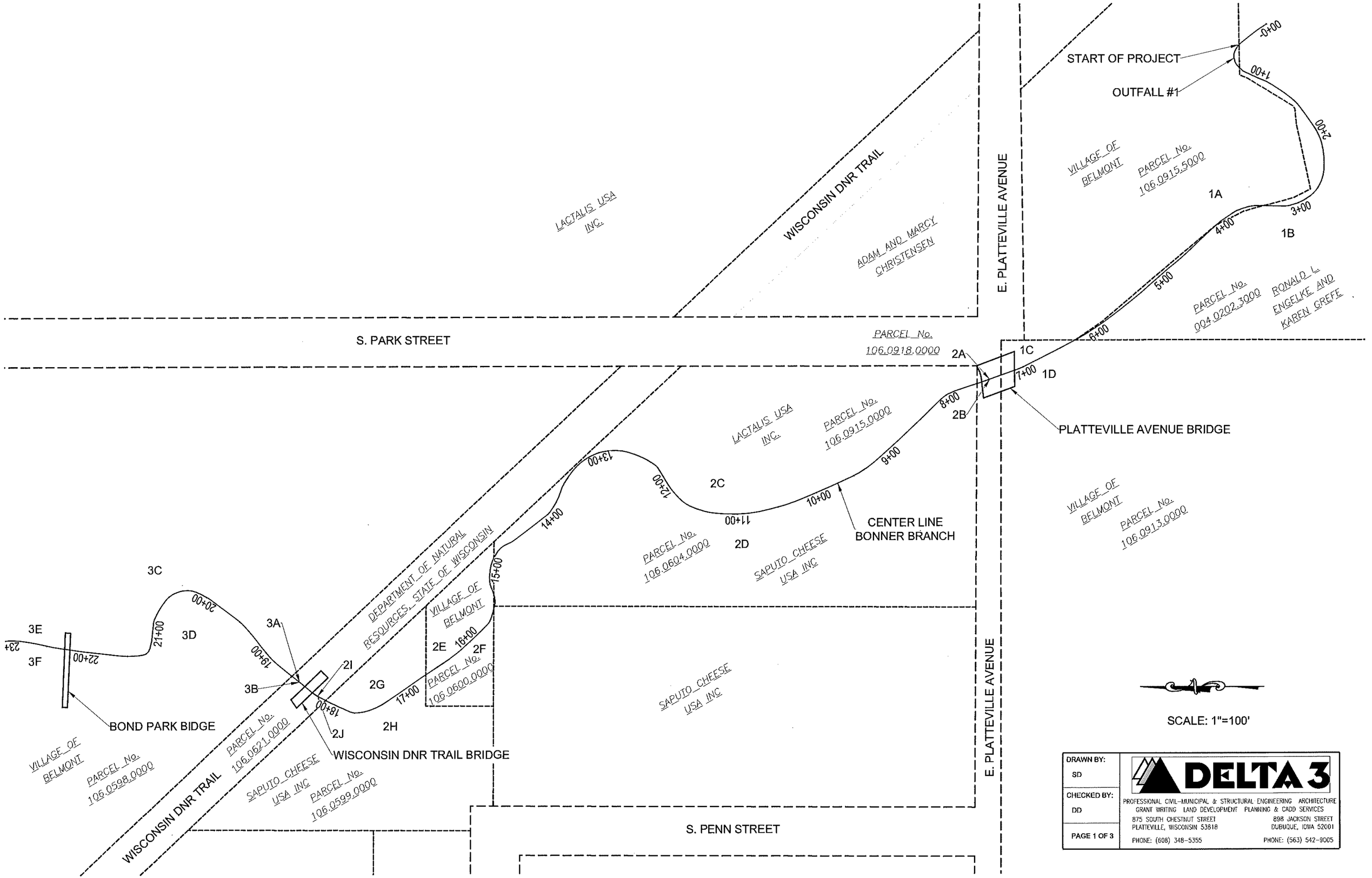
3.0 0 1.50 3.0 Miles

NAD_1983_HARN_Wisconsin_TM

1: 95,040

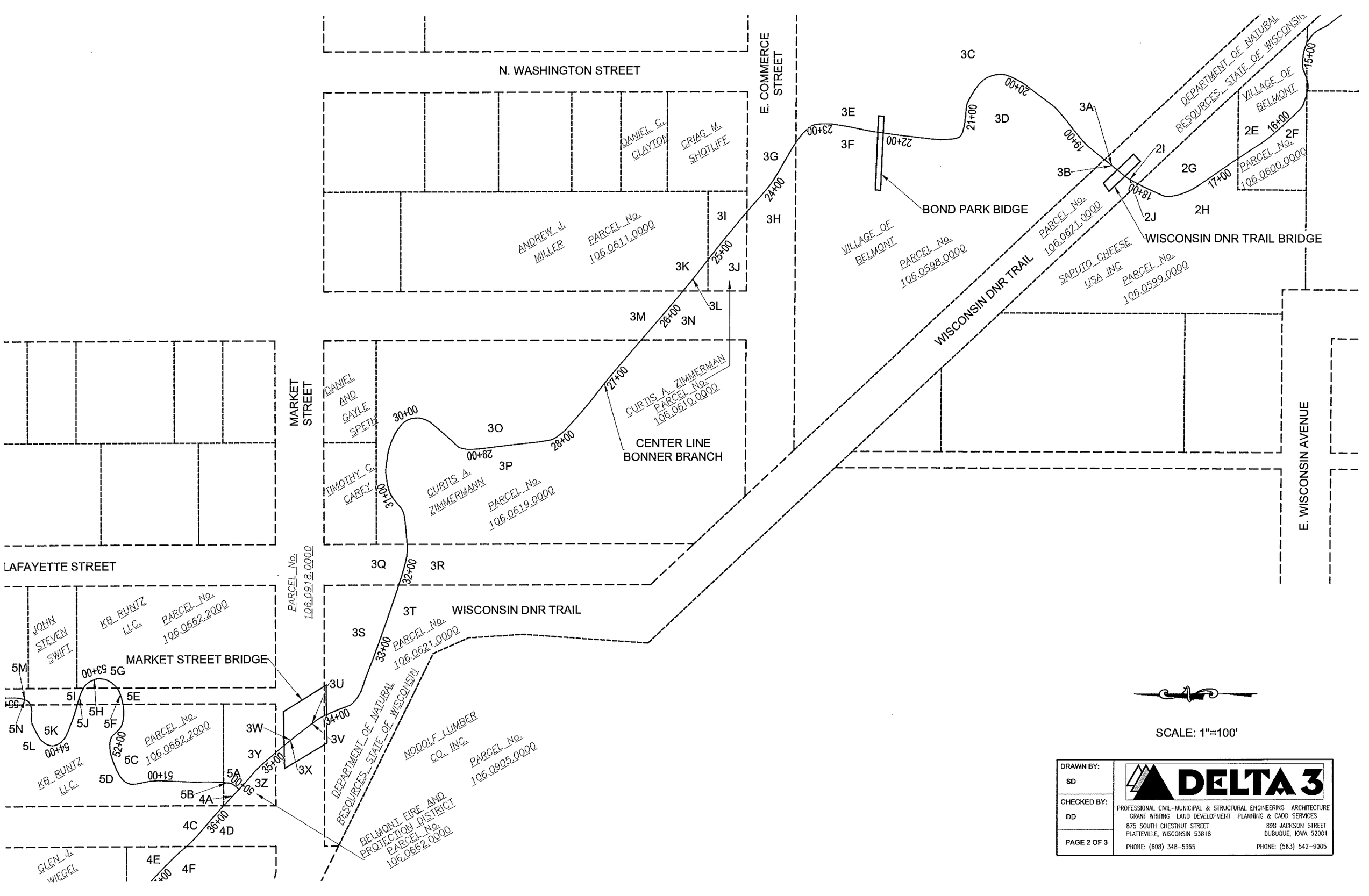
ATTACHMENT 9

Location of Streambank Segments and Parcel Information



SCALE: 1"=100'

DRAWN BY: SD	DELTA 3
CHECKED BY: DD	PROFESSIONAL CIVIL–MUNICIPAL & STRUCTURAL ENGINEERING ARCHITECTURE GRANT WRITING LAND DEVELOPMENT PLANNING & CADD SERVICES
PAGE 1 OF 3	875 SOUTH CHESTNUT STREET, PLATTEVILLE, WISCONSIN 53818, PHONE: (608) 348-5355 898 JACKSON STREET, DUBUQUE, IOWA 52001, PHONE: (563) 542-9005



SCALE: 1"=100'

DRAWN BY: SD	DELTA 3
CHECKED BY: DD	PROFESSIONAL CIVIL-MUNICIPAL & STRUCTURAL ENGINEERING ARCHITECTURE GRANT WRITING LAND DEVELOPMENT PLANNING & CADD SERVICES
PAGE 2 OF 3	875 SOUTH CHESTNUT STREET, PLATTEVILLE, WISCONSIN 53818, PHONE: (608) 348-5355 898 JACKSON STREET, DUBUQUE, IOWA 52001, PHONE: (563) 542-9005

W. LIBERTY STREET

W. LIBERTY STREET BRIDGE

END OF PROJECT

SPRING STREET

JACKSON STREET

N. MOUND AVENUE

MONROE STREET

LAFAYETTE STREET

MARKET STREET

MARKET STREET BRIDGE

SPRING STREET BRIDGE

WISCONSIN DNR TRAIL

CENTER LINE BONNER BRANCH

PARCEL No. 106.0918.0000

PARCEL No. 106.0682.0000

PARCEL No. 106.0681.0000

PARCEL No. 106.0677.0000

PARCEL No. 106.0675.0000

PARCEL No. 106.0669.0000

PARCEL No. 106.0670.0000

PARCEL No. 106.0668.0000

PARCEL No. 106.0667.0000

PARCEL No. 106.0666.0000

PARCEL No. 106.0665.0000

PARCEL No. 106.0662.1000

PARCEL No. 106.0662.2000

PARCEL No. 106.0664.0000

PARCEL No. 106.0663.0000

PARCEL No. 106.0621.0000

PARCEL No. 106.0674.0000

PARCEL No. 106.0727.1000

PARCEL No. 106.0620.1000

PARCEL No. 106.0620.000

PARCEL No. 106.0662.0000

PARCEL No. 106.0905.0000

PARCEL No. 106.0619.0000

VILLAGE OF BELMONT

DEPARTMENT OF NATURAL RESOURCES, STATE OF WISCONSIN

BELMONT FIRE AND PROTECTION DISTRICT

CONNIE REA AND WILLIAM J. KAMPS

GERALD J. AND JOAN C. MILLER

WENDY L. DOUGLAS

KRIS M. AND MARY J. FURE

ANDREW L. RIECHERS

GERALD J. AND JOAN C. MILLER

GLEN J. WIEGEL

CAROL J. AND DOUGLAS W. AUSTIN

DANIEL C. IVEY

RANDALL G. AND CATHERINE L. FRONTZ

JOHN STEVEN SWIFT

KB RUNTZ LLC.

TIMOTHY C. CAREY

DANIEL AND GAYLE SPETH

CURTIS A. ZIMMERMANN

NODOLF LUMBER CO. INC.

SCALE: 1"=100'

DRAWN BY: SD	DELTA 3
CHECKED BY: DD	PROFESSIONAL CIVIL-MUNICIPAL & STRUCTURAL ENGINEERING ARCHITECTURE GRANT WRITING LAND DEVELOPMENT PLANNING & CADD SERVICES
PAGE 3 OF 3	875 SOUTH CHESTNUT STREET, PLATTEVILLE, WISCONSIN 53818, PHONE: (608) 348-5355 898 JACKSON STREET, DUBUQUE, IOWA 52001, PHONE: (563) 542-9005

Section Identification Number	Start Station	End Station	Property Owner
Bonner Branch Alignment 1 (0+00 to 47+79)			
Start of Project - STA: 0+42			
Outfall #1 (at Belmont WWTF) - STA: 0+65			
1A	0+42	6+29	Village of Belmont
1B	0+42	6+29	Ronald L. Engelke and Karen Grefe
1C	6+29	7+29	Village of Belmont
1D	6+29	7+29	Village of Belmont
Platteville Avenue Bridge Crosses Bonner Branch - STA: 7+29			
2A	7+29	7+60	Village of Belmont
2B	7+29	7+60	Village of Belmont
2C	7+60	14+85	Lactalis USA Inc.
2D	7+60	14+85	Saputo Cheese USA Inc.
2E	14+85	16+68	Village of Belmont
2F	14+85	16+68	Village of Belmont
2G	16+68	18+07	Saputo Cheese USA Inc.
2H	16+68	18+07	Saputo Cheese USA Inc.
2I	18+07	18+32	Wisconsin DNR
2J	18+07	18+32	Wisconsin DNR
Wisconsin DNR Trial Bridge Crosses Bonner Branch - STA:18+32			
3A	18+32	18+58	Wisconsin DNR
3B	18+32	18+58	Wisconsin DNR
3C	18+58	22+24	Village of Belmont
3D	18+58	22+24	Village of Belmont
Bond Park Bridge Crosses Bonner Branch - STA: 22+24			
3E	22+24	23+38	Village of Belmont
3F	22+24	23+38	Village of Belmont
3G	23+38	24+43	Village of Belmont
3H	23+38	24+43	Village of Belmont
3I	24+43	25+18	Curtis A. Zimmerman
3J	24+43	25+18	Curtis A. Zimmerman
3K	25+18	25+67	Andrew J. Miller
3L	25+18	25+67	Andrew J. Miller
3M	25+67	26+46	Village of Belmont
3N	25+67	26+46	Village of Belmont
3O	26+46	31+68	Curtis A. Zimmerman
3P	26+46	31+68	Curtis A. Zimmerman
3Q	31+68	32+20	Village of Belmont
3R	31+68	32+20	Village of Belmont
3S	32+20	34+14	Wisconsin DNR
3T	32+20	34+14	Wisconsin DNR

3U	34+14	34+43	Village of Belmont
3V	34+14	34+43	Village of Belmont
Market Street Bridge Crosses Bonner Branch - STA: 34+43			
3W	34+43	34+89	Village of Belmont
3X	34+43	34+89	Village of Belmont
3Y	34+89	35+53	Belmont Fire Protection District
3Z	34+89	35+53	Belmont Fire Protection District
Alignment 2 Starts at STA: 35+53 of Alignment 1 (where Bonner Branch forks)			
4A	35+53	35+81	Belmont Fire Protection District
4B	35+53	35+81	Belmont Fire Protection District
4C	35+81	36+49	Village of Belmont
4D	35+81	36+49	Village of Belmont
4E	36+49	37+53	Belmont Fire Protection District
4F	36+49	37+53	Belmont Fire Protection District
4G	37+53	38+20	Glen J. Wiegel
4H	37+53	38+20	Glen J. Wiegel
4I	38+20	38+54	Village of Belmont
4J	38+20	38+54	Village of Belmont
4K	38+54	39+91	Kris M. and Mary J. Fure
4L	38+54	39+91	Kris M. and Mary J. Fure
4M	39+91	40+18	Village of Belmont
4N	39+91	40+18	Village of Belmont
Mound Avenue Bridge Crosses Bonner Branch - STA: 40+18			
8A	40+18	40+51	Village of Belmont
8B	40+18	40+51	Village of Belmont
8C	40+51	41+77	Gerald J. and Joan C. Miller
8D	40+51	41+77	Gerald J. and Joan C. Miller
8E	41+77	41+97	Village of Belmont
8F	41+77	41+97	Village of Belmont
8G	41+97	43+30	Connie Rae and William J. Kamps
8H	41+97	43+30	Connie Rae and William J. Kamps
8I	43+30	43+84	Village of Belmont
8J	43+30	43+84	Village of Belmont
8K	43+84	44+25	Connie Rae and William J. Kamps
8L	43+84	44+25	Connie Rae and William J. Kamps
8M	44+25	46+64	Village of Belmont
8N	44+25	46+64	Village of Belmont
8O	46+64	47+05	Wisconsin DNR
8P	46+64	47+05	Wisconsin DNR
8Q	47+05	47+29	Village of Belmont
8R	47+05	47+29	Village of Belmont
8S	47+29	47+54	Village of Belmont
8T	47+29	47+54	Village of Belmont
Spring Street Bridge Crosses Bonner Branch - STA: 47+54			

8U	47+54	47+79	Village of Belmont
8V	47+54	47+79	Village of Belmont
Bonner Branch Alignment 2 (50+00 to 58+26)			
Alignment 2 Starts at STA: 35+53 of Alignment 1 (where Bonner Branch forks)			
5A	50+00	50+21	Belmont Fire Protection District
5B	50+00	50+21	Belmont Fire Protection District
5C	50+21	52+50	KB Runtz LLC.
5D	50+21	52+50	KB Runtz LLC.
5E	52+50	52+71	Village of Belmont
5F	52+50	52+71	Village of Belmont
5G	52+71	53+20	KB Runtz LLC.
5H	52+71	53+20	KB Runtz LLC.
5I	53+20	53+42	Village of Belmont
5J	53+20	53+42	Village of Belmont
5K	53+42	54+67	KB Runtz LLC.
5L	53+42	54+67	KB Runtz LLC.
5M	54+67	55+69	Village of Belmont
5N	54+67	55+69	Village of Belmont
5O	55+69	56+22	Randall G. and Catherine L. Frontz
5P	55++69	56+22	Randall G. and Catherine L. Frontz
5Q	56+22	56+83	Daniel C. Ivey
5R	56+22	56+83	Daniel C. Ivey
5S	56+83	57+20	Village of Belmont
5T	56+83	57+20	Village of Belmont
5U	57+20	57+65	Daniel C. Ivey
5V	57+20	57+65	Daniel C. Ivey
5W	57+65	58+00	Village of Belmont
5X	57+65	58+00	Village of Belmont
W. Liberty Street Bridge Crosses Bonner Branch - STA: 58+00			
5Y	58+00	58+26	Village of Belmont
5Z	58+00	58+26	Village of Belmont

ATTACHMENT 10

Photographic Evidence of Streambank Erosion

Belmont Water Quality Trading

Date of Pictures: 8/21/2019

Segment 1E:

Category- MODERATE

Vegetation overhanging bank with some roots coming out of the bank.

Segment 1W:

Category-SEVERE

U-shaped, bare banks with some trees falling in and growing out of the bank.

Figure 1.1: 1E/1W East of County G Bridge

Figure 1.2: 1E/1W at County G Bridge

Figure 1.3: 1E/1W at County G Bridge

Figure 1.4: 1E/1W at County G Bridge

Station R & L	Bank Height (ft)	Soil Sample ID	Soil Total Phosphorus (ppm)
0+50	15	1	719
1+50	15	2	1044.2
3+00	12.5	3	865.5
4+00	12.5	4	487.4
5+00	12	5	890.1
6+00	8.5	6	667.3
7+00	8.5	7	791.4
Average	**12**		**780.7**

Segment 3E(A):

Category-SEVERE

Some vegetation overhang, bank erosion with bare bank with some slumping

Segment 3W(A):

Category-SLIGHT

Some bank slumping with vegetation overhang

Figure 3.1: 3A

Figure 3.2: 3A

Figure 3.3: 3A

Figure 3.4: 3A

Figure 31.5: 3E(A)/3W(A) North of WDNR Bridge

Segment 3E(B):

Category-MODERATE

Vegetation overhang, some tree roots within the stream channel

Segment 3W(B):

Category-MODERATE

Vegetation overhang, some tree roots within the stream channel

Figure 3.6: Transition Between 3B/3C

Segment 3E(D):

Category-SEVERE

Trees falling into stream, bank slumping, with vegetation overhang

Segment 3W(D):

Category-SEVERE

Exposed pipes, u-shaped, vegetation overhang

Figure 2.7: 3D WDNR Property

Figure 3.8: 3D

Figure 3.9: 3D

Figure 3.10: Transition Between 3C/3D

Station R & L	Bank Height (ft)	Soil Sample ID	Soil Total Phosphorus (ppm)
18+50	19.5	20	725.7
20+00	8	21	783.05
21+00	5.5	22	1021
22+00	3	24	506.3
23+00	8.25	26	1153.8
24+00	6.7	27	741.3
25+00	3.5	28	1128.6
26+50	11	29	520.2
28+00	5	31	839.4
28+50	8.45	32	824.8
29+00	6.5	33	987.9
30+00	10.6	36	1268.2
31+00	11	37	781.2
33+50	9.8	39	731.8
34+00	9.15	41	1042.8
Average	**8.4**		**870.4**

Segment 4E:

Category-SEVERE

Most of the bank has slumped, many roots within the stream channel

Segment 4W:

Category-SEVERE

Vegetation overhang, banks slumped

Figure 3.1: 4E/4W at the Intersection with SE/SW

Figure 4.2: 4E/4W from Market Street Bridge

Station R & L	Bank Height (ft)	Soil Sample ID	Soil Total Phosphorus (ppm)
35+50	11.6	42	599
36+50	9.65	60	1015.7
37+50	14.65	61	915.7
38+00	10	62	1144.1
39+00	10	63	950.6
40+00	14.5	64	1145.7
Average	**35.2**		**961.8**

Segment 5E:

Category-SEVERE

Trees and roots within the stream channel and vegetation overhang

Segment 5W:

Category-SEVERE

Trees and roots, vegetation overhang

Figure 4.1: From Liberty Street Bridge

Figure 5.2: from Liberty Street Bridge

Station R & L	Bank Height (ft)	Soil Sample ID	Soil Total Phosphorus (ppm)
50+00	9.75	43	515.5
51+00	9.75	44	620.7
52+00	9.75	46	469.6
53+00	11.25	49	375.2
53+50	11.25	51	522.3
54+00	11.25	52	1455.1
54+50	11.25	54	333.3
55+50	5.65	55	461.4
56+50	5.65	57	361.6
57+00	5.65	58	608.6
57+50	5.65	59	667.2
Average	**8.80**		**583.4**

Segment 8E:

Category-SEVERE

Slumping, roots within the stream channel, vegetation overhang, exposed culvert

Segment 8W:

Category-SEVERE

2 culverts exposed, bare banks with drop offs close to the walking trail.

Figure 8.1: 8E/8W at Sports Page

Figure 8.2:8E/8W at Sports Page

Figure 5.3: 8E/8W off Cushman Drive

Figure 8.4: 8E/8W off Cushman Drive

Figure 8.5: 8E/8W at WDNR Property

Figure 8.6: 8E/8W at WDNR Property

Figure 8.7: at Spring Street Bridge

Station R & L	Bank Height (ft)	Soil Sample ID	Soil Total Phosphorus (ppm)
40+50	11.8	65	1256.5
41+50	11.8	66	1248.5
42+00	11.8	67	1122.5
43+00	5	68	1109.5
44+00	5	69	1151
45+00	6.5	70	998.4
45+50	6.5	71	981.1
46+50	3.8	72	911.7
47+00	3.8	73	1380
Average	**7.3**		**1128.8**

ATTACHMENT 10a

Photographic Evidence of Streambank Erosion

Taken November 12, 2020

Segment 1:

Location of Belmont wastewater treatment plant outfall.

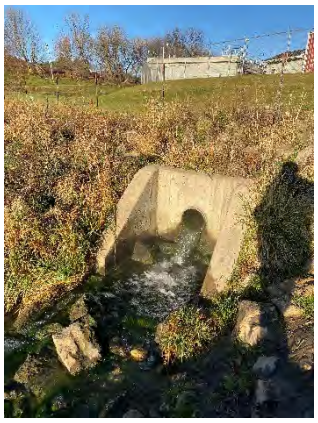


Figure 1.0: Sta. 0+00-0+50

1A:

Figure 2.0: Sta. 0+50-3+50 Slight. Vegetated banks with some bare banks.

Figure 3.0: Sta. 3+50-6+00 Slight/Moderate. Exposed tree roots, bare banks, and some slumps.

1B:

Figure 4.0: Sta.0+50-3+50 Severe. Bank is bare with severe vegetative overhang.

Figure 5.0: 3+50-5+00 Slight/Moderate. Slumps and slips present.

Figure 6.0: 5+00-6+00 Severe. Bank is bare, washouts, and tree roots exposed.

1C:

Figure 7.0: Sta. 6+00-7+00 Slight/Moderate. Vegetation overhang and slumps present.

1D:

Figure 8.0: Sta.6+00-7+00 Moderate/Severe. Bare bank with vegetation overhanging and slumps present.

Segment 2:

2C:

Figure 9.0: Sta. 12+00-12+50 Severe. Outfall is eroding, banks bare and channel is U-shaped.

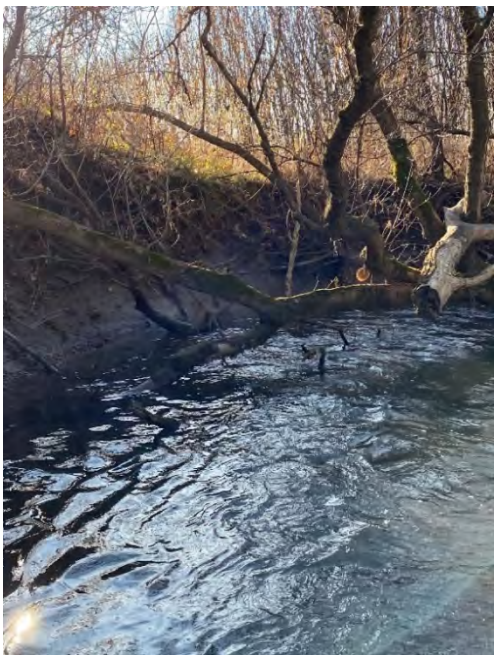


Figure 10.0: 12+50-14+00 Severe. Bank is bare with vegetative overhang and exposed roots.

Segment 3:

3C:

Figure 11.0: Sta. 19+00-20+00 Slight/Moderate. Vegetative overhang and bank slumps

Figure 12.0: Sta. 20+00-21+50 Moderate. Bank is bare in areas, exposed tree roots with some fallen trees.

3D:

Figure 13.0: Sta. 19+00-22+00 Moderate. Bare banks, vegetative overhang and channel cross section is U-shaped.

3E:

Figure 14.0: 22+00-23+50 Severe. Bare banks, exposed tree roots, with fallen trees, and channel cross-section is U-Shaped.

Figure 15.0: Sta. 22+00-23+50 Severe.

3F:

Figure 16.0: Sta. 22+00-23+50 Moderate/Severe. Bare banks, vegetative overhang, and slumps.

3G/3H:

Figure 17.0: Sta. 23+50 Exposed water main.

Figure 18.0: Sta. 23+50-24+50 Severe. Exposed roots, vegetative overhang, and some bare banks.

3S:

Figure 19.0: Sta. 32+25-34+22 Slight/Moderate. Some bare banks, vegetative overhang, and bank slumps.

3T:

Figure 20.0: Sta. 32+25-34+22 Severe. Bare banks, vegetative overhang, slumps, and channel cross-section is U-shaped.

3U:

Figure 21.0: Sta. 34+22-34+50 Slight/Moderate. Some bare banks, slumps, and vegetative overhang.

3V:

Figure 22.0: Sta. 34+22-34+50 Moderate/Severe. Bare banks, vegetative overhang, and channel cross-section is U-Shaped

3W/3X: no change

3Y:

Figure 23.0: Sta. 35+00-35+50 Slight/Moderate. Vegetative overhang and bank slumps.

3Z:

Figure 24.0: Sta. 35+00-35+50 Severe. Bare banks, vegetative overhang, slumps, and channel cross-section U-shaped

Segment 4:

4A:

Figure 25.0: Sta. 35+50-36+00 Slight

4B:

Figure 26.0: Sta. 35+50-36+00 Severe. Bank exposed, channel cross-section U-shaped, slumps/slips, and vegetative overhang.

4E:

Figure 27.0: Sta. 36+50-37+50 Slight/Moderate. Some bare banks, vegetative overhang, and slumps.

4F:

Figure 28.0 Sta. 36+50-37+50 Severe. Bare banks, vegetative overhang, slumps, exposed roots, and channel cross-section U-Shaped.

4K:

Figure 29: Sta. 38+75-40+00 Severe. Bare banks, exposed tree roots, trees falling into stream, vegetative overhang, and channel cross-section is U-shaped

4L:

Figure 30.0: Sta. 38+75-40+00 Moderate. Bare banks, slumps, vegetative overhang, and exposed roots.

4M:

Figure 31.0: Sta. 40+00-40+25 Moderate. Slumps, vegetative overhang, and channel cross-sections U-Shaped.

4N:

Figure 32.0: Sta. 40+00-40+25 Moderate. Slumps, vegetative overhang, and channel cross-section is U-shaped.

Segment 5:

5A:

Figure 33.0: Sta. 50+00-50+20 Severe. Bare banks, exposed roots, tree falling into stream, and channel cross-section U-shaped.

5B:

Figure 34.0: Sta. 50+00-50+20 Moderate. Bare banks, exposed roots and trees falling into stream.

5C:

Figure 35.0: Sta. 50+20-52+50 Slight/Moderate. Bare banks, exposed roots, trees falling into stream, and channel cross-section U-Shaped.

5D:

Figure 36.0: Sta. 50+20-52+50 Severe. Bare bank and vegetative overhang.

5I:

Figure 37.0: Sta. 53+00-53+20 Severe. Bare banks, exposed roots, trees falling into stream, and channel cross-section U-shaped.

5M:

Figure 38.0: Sta. 54+50-55+50 Severe. Bare banks, exposed roots, slumps, and channel cross-section is U-shaped.

5N:

Figure 39.0: Sta. 54+50-55+50 Slight/Moderate. Bare banks, exposed roots and trees falling into stream.

5Q:

Figure 40.0: Sta.56+00-56+50 Slight/Moderate. Bare banks, vegetative overhang, exposed tree roots, and trees falling into stream.

5R:

Figure 41.0: Sta. 56+00-56+50 Slight/Moderate. Bare banks, vegetative overhang, exposed roots, and trees falling into stream.

5S:

Figure 42.0: Sta. 56+50-56+90 Moderate. Bare banks, vegetative overhang, slumps, exposed outfall, and channel cross-section is U-Shaped.

5T:

Figure 43.0: Sta. 56+50-56+90 Moderate/Severe. Bare banks, exposed roots, slumps, and trees falling into stream.

5U:

Figure 44.0: Sta. 56+90-57+35 Moderate/Severe. Bare banks, exposed tree roots, slumps and trees falling into stream.

5V:

Figure 45.0: Sta. 56+90-57+35 Moderate/Severe. Bare banks, exposed roots, slumps, and trees falling into stream.

5W:

Figure 46.0: Sta. 57+35-57+75 Slight. Vegetative overhang and outfall exposed.

5X:

Figure 47.0 Sta. 57+75-58+00 Slight. Vegetative overhang. Culvert within bridge.

5Y/5Z: Moderate to Slight

ATTACHMENT 10b

Severity Reference Map November 12, 2020

SLIGHT / MODERATE

MODERATE

MODERATE / SEVERE

SEVERE

START OF PROJECT

OUTFALL #1

0+00

1+00

2+00

3+00

4+00

5+00

6+00

7+00

8+00

9+00

10+00

11+00

12+00

13+00

14+00

15+00

16+00

17+00

18+00

19+00

20+00

21+00

22+00

23+

1A

1B

1C

1D

2A

2B

2C

2D

2E

2F

2G

2H

2I

2J

3A

3B

3C

3D

3E

3F

PLATTEVILLE AVENUE BRIDGE

CENTER LINE
BONNER BRANCH

BOND PARK BIDGE

WISCONSIN DNR TRAIL BRIDGE

E. PLATTEVILLE AVENUE

S. PARK STREET

S. PENN STREET

WISCONSIN DNR TRAIL

LACTALIS USA INC.

PARCEL No. 106.0915.5000

VILLAGE OF BELMONT

ADAM AND MARCY CHRISTENSEN

PARCEL No. 106.0918.0000

PARCEL No. 004.0202.3000

RONALD L. ENGELKE AND KAREN GREFE

PARCEL No. 106.0913.0000

PARCEL No. 106.0604.0000

SAPUTO CHEESE USA INC

DEPARTMENT OF NATURAL RESOURCES, STATE OF WISCONSIN

PARCEL No. 106.0600.0000

PARCEL No. 106.0621.0000

PARCEL No. 106.0598.0000

PARCEL No. 106.0599.0000

SCALE: 1"=100'

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PAGE 1 OF 3	875 SOUTH CHESTNUT STREET, PLATTEVILLE, WISCONSIN 53818, PHONE: (608) 348-5355 898 JACKSON STREET, DUBUQUE, IOWA 52001, PHONE: (563) 542-9005

N. WASHINGTON STREET

E. COMMERCE STREET

DANIEL C. CLAYTON

CRAIG M. SHOTLIFF

ANDREW J. MILLER

PARCEL No. 106.0611.0000

3C

3D

3E

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30+00

31+00

32+00

33+00

34+00

35+00

50+00

51+00

52+00

53+00

54+00

55+

BOND PARK BIDGE

VILLAGE OF BELMONT

PARCEL No. 106.0598.0000

WISCONSIN DNR TRAIL

PARCEL No. 106.0621.0000

DEPARTMENT OF NATURAL RESOURCES, STATE OF WISCONSIN

VILLAGE OF BELMONT

PARCEL No. 106.0600.0000

WISCONSIN DNR TRAIL BRIDGE

SAPUTO CHEESE USA INC

PARCEL No. 106.0599.0000

E. WISCONSIN AVENUE

MARKET STREET

DANIEL AND GAYLE SPETH

TIMOTHY C. CAREY

CURTIS A. ZIMMERMANN

PARCEL No. 106.0619.0000

CURTIS A. ZIMMERMAN PARCEL No. 106.0610.0000

CENTER LINE BONNER BRANCH

LAFAYETTE STREET

PARCEL No. 106.0918.0000

JOHN STEVEN SWIFT

KB RUNTZ LLC.

PARCEL No. 106.0662.2000

MARKET STREET BRIDGE

KB RUNTZ LLC.

PARCEL No. 106.0662.2000

DEPARTMENT OF NATURAL RESOURCES, STATE OF WISCONSIN

PARCEL No. 106.0621.0000

NODOLF LUMBER CO. INC.

PARCEL No. 106.0905.0000

BELMONT FIRE AND PROTECTION DISTRICT PARCEL No. 106.0662.0000

GLEN J. WIEGEL

SCALE: 1"=100'

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W. LIBERTY STREET

SPRING STREET

JACKSON STREET

N. MOUND AVENUE

MONROE STREET

LAFAYETTE STREET

N. MOUND AVENUE BRIDGE

SPRING STREET BRIDGE

W. LIBERTY STREET BRIDGE

MARKET STREET BRIDGE

MARKET STREET

MARKET STREET

WISCONSIN DNR TRAIL

WISCONSIN DNR TRAIL

END OF PROJECT

END OF PROJECT

CENTER LINE BONNER BRANCH

PARCEL No. 106.0918.0000

GERALD A. MORRISSEY

SPENSLEY GRAIN LLC. PARCEL No. 106.0682.0000

MACHELLE M. AND PHILIP T. SPENSLEY

CONNIE REA AND WILLIAM J. KAMPS PARCEL No. 106.0681.0000

DOUGLAS A. AND PAMELA J. NODOLF

CONNIE REA AND WILLIAM J. KAMPS PARCEL No. 106.0677.0000

CONNIE REA AND WILLIAM J. KAMPS

GERALD J. AND JOAN C. MILLER PARCEL No. 106.0675.0000

WENDY L. DOUGLAS

KRIS M. AND MARY J. FURE PARCEL No. 106.0669.0000

PARCEL No. 106.0670.0000

ANDREW L. RIEGHERS

GERALD J. AND JOAN C. MILLER

GLEN J. WIEGEL PARCEL No. 106.0668.0000

CAROL J. AND DOUGLAS W. AUSTIN PARCEL No. 106.0665.0000

DANIEL C. IVEY PARCEL No. 106.0662.1000

PARCEL No. 106.0662.2000

RANDALL G. AND CATHERINE L. FRONTZ PARCEL No. 106.0664.0000

JOHN STEVEN SWIFT

KB RUNTZ LLC. PARCEL No. 106.0663.0000

KB RUNTZ LLC. PARCEL No. 106.0662.2000

PARCEL No. 106.0620.1000

PARCEL No. 106.0620.000

VILLAGE OF BELMONT

VILLAGE OF BELMONT

VILLAGE OF BELMONT

PARCEL No. 106.0918.0000

PARCEL No. 106.0674.0000

PARCEL No. 106.0727.1000

PARCEL No. 106.0621.0000

DEPARTMENT OF NATURAL RESOURCES, STATE OF WISCONSIN

BELMONT FIRE AND PROTECTION DISTRICT PARCEL No. 106.0667.0000

BELMONT FIRE AND PROTECTION DISTRICT PARCEL No. 106.0666.0000

BELMONT FIRE AND PROTECTION DISTRICT PARCEL No. 106.0662.0000

NODOLF LUMBER CO. INC. PARCEL No. 106.0905.0000

CURTIS A. ZIMMERMANN PARCEL No. 106.0619.0000

TIMOTHY C. CAREY

DANIEL AND GAYLE SPETH

SCALE: 1"=100'

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ATTACHMENT 11

NRCS Streambank Erosion Estimator Report

NRCS Streambank and Irrigation Ditch Erosion Estimator (Direct Volume Method)

Farmer / Cooperator Name:
Tract Number: Varies

Evaluated By: K.RASH
Evaluation Date: November 19, 2020

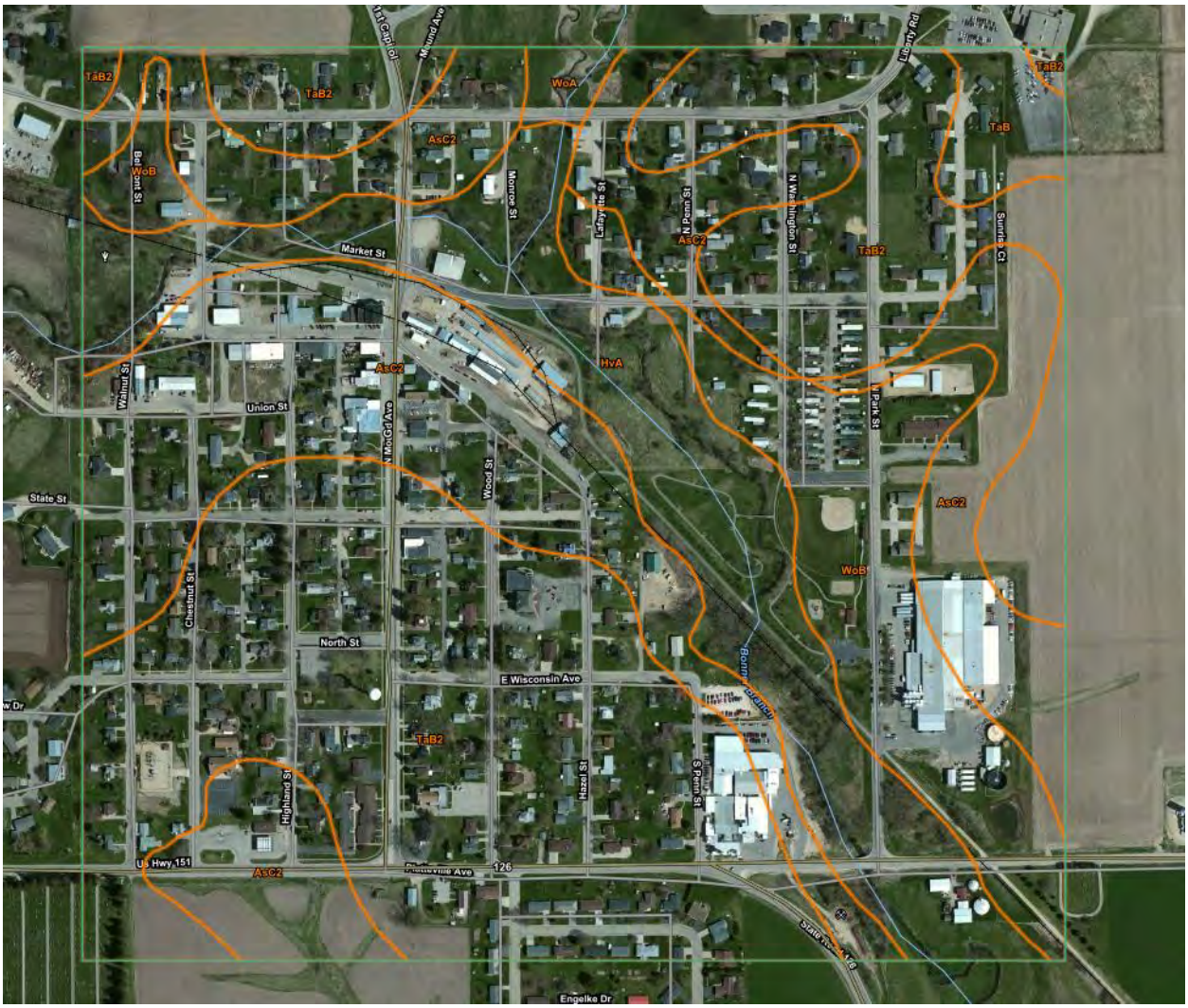
Field Number	Eroding Strmbnk Reach #; or Ditch Side/Bottom	Eroding Bank or Ditch Length (Feet)	Eroding Bank Height; or Ditch Bottom Width* (Feet)	Area of Eroding Strmbank or Ditch (FT^2)	Lateral or Ditch Bottom Recession Rate (Estimated) (FT / Year)	Estimated Volume (FT^3) Eroded Annually	Soil Texture	Approximate Pounds of Soil per FT^3	Estimated Soil Loss (Tons/Year)	Soil Total Phosphorus (ppm)	Estimated Phosphorus Loss (Pounds/Year)
1A	Village of Belmont Sta. 0+00-0+50	50	10.0	500	0.05	25.0	Silt Loam	85	1.1	886.3	1.9
	Sta. 0+50-3+50	300	10.0	3,000	0.05	150.0	Silt Loam	85	6.4	886.3	11.3
	Sta. 3+50-5+00	150	10.0	1,500	0.10	150.0	Silt Loam	85	6.4	886.3	11.3
	Sta. 5+00-6+00	100	10.0	1,000	0.10	100.0	Silt Loam	85	4.3	886.3	7.5
1B	Ronald L. Engelke and Karen Grefe Sta. 0+00-0+50	50	14.0	700	0.05	35.0	Silt Loam	85	1.5	730.0	2.2
	Sta. 0+50-3+50	300	14.0	4,200	0.50	2,100.0	Silt Loam	85	89.3	730.0	130.3
	Sta. 3+50-5+00	150	14.0	2,100	0.10	210.0	Silt Loam	85	8.9	730.0	13.0
	Sta. 5+00-6+00	100	14.0	1,400	0.50	700.0	Silt Loam	85	29.8	730.0	43.4
1C	Village of Belmont Sta. 6+00-7+00	100	10.0	1,000	0.10	100.0	Silt Loam	85	4.3	886.3	7.5
1D	Village of Belmont Sta. 6+00-7+00	100	14.0	1,400	0.30	420.0	Silt Loam	85	17.9	730.0	26.1
2C	Lactalis Sta. 12+00-12+50	50	11.0	550	0.50	275.0	Silt Loam	85	11.7	670.4	15.7
	Sta. 12+50-14+00	150	11.0	1,650	0.50	825.0	Silt Loam	85	35.1	670.4	47.0
3A	Wisconsin DNR Sta. 18+50-19+00	50	5.0	250	0.05	12.5	Silt Loam	85	0.5	611.0	0.6
3B	Wisconsin DNR Sta. 18+50-19+00	50	5.0	250	0.05	12.5	Silt Loam	85	0.5	840.3	0.9
3C	Village of Belmont Sta. 19+00-20+00	100	7.0	700	0.10	70.0	Silt Loam	85	3.0	636.8	3.8
	Sta. 20+00-21+50	150	7.0	1,050	0.20	210.0	Silt Loam	85	8.9	636.8	11.4
	Sta. 21+50-22+00	50	7.0	350	0.05	17.5	Silt Loam	85	0.7	636.8	0.9
3D	Village of Belmont Sta. 19+00-20+00	100	5.0	500	0.30	150.0	Silt Loam	85	6.4	929.3	11.8
	Sta. 20+00-21+50	150	5.0	750	0.30	225.0	Silt Loam	85	9.6	929.3	17.8
	Sta. 21+50-22+00	50	5.0	250	0.05	12.5	Silt Loam	85	0.5	929.3	1.0
3E	Village of Belmont Sta. 22+00-23+50	150	8.0	1,200	0.40	480.0	Silt Loam	85	20.4	633.9	25.9
3F	Village of Belmont Sta. 22+00-23+50	150	3.0	450	0.25	112.5	Silt Loam	85	4.8	1,557.0	14.9
3G	Village of Belmont Sta. 23+50-24+50	100	5.0	500	0.40	200.0	Silt Loam	85	8.5	741.3	12.6
3H	Village of Belmont Sta. 23+50-24+50	100	5.0	500	0.40	200.0	Silt Loam	85	8.5	741.3	12.6
3Q	Village of Belmont Sta. 32+00-32+25	25	3.0	75	0.25	18.8	Silt Loam	85	0.8	659.6	1.1
3R	Village of Belmont Sta. 32+00-32+25	25	5.0	125	0.10	12.5	Silt Loam	85	0.5	659.6	0.7
3S	Wisconsin DNR Sta. 32+25-34+22	197	5.0	985	0.10	98.5	Silt Loam	85	4.2	659.6	5.5
3T	Wisconsin DNR Sta. 32+25-34+22	197	8.0	1,576	0.50	788.0	Silt Loam	85	33.5	659.6	44.2
3U	Village of Belmont Sta. 34+22-34+50	28	8.0	224	0.05	11.2	Silt Loam	85	0.5	1,042.7	1.0
3V	Village of Belmont Sta. 34+22-34+50	28	8.0	224	0.25	56.0	Silt Loam	85	2.4	1,042.7	5.0
3W	Village of Belmont Sta. 34+50-35+00	50	11.0	550	0.25	137.5	Silt Loam	85	5.8	990.6	11.6
3Y	Belmont Fire Protection District Sta. 35+00-35+50	50	11.0	550	0.10	55.0	Silt Loam	85	2.3	523.5	2.4
3X	Village of Belmont Sta. 34+50-35+00	50	8.0	400	0.25	100.0	Silt Loam	85	4.3	743.7	6.3
3Z	Belmont Fire Protection District Sta. 35+00-35+50	50	8.0	400	0.40	160.0	Silt Loam	85	6.8	1,562.0	21.2
4A	Belmont Fire Protection District Sta. 35+50-36+00	50	17.0	850	0.05	42.5	Silt Loam	85	1.8	510.2	1.8
4C	Village of Belmont Sta. 36+00-36+50	50	17.0	850	0.50	425.0	Silt Loam	85	18.1	584.4	21.1
4E	Belmont Fire Protection District Sta. 36+50-37+50	100	17.0	1,700	0.10	170.0	Silt Loam	85	7.2	580.4	8.4
4G	Glen J. Wiegel Sta. 37+50-38+10	60	17.0	1,020	0.15	153.0	Silt Loam	85	6.5	750.2	9.8
4I	Village of Belmont Sta. 38+50-38+75	25	17.0	425	0.10	42.5	Silt Loam	85	1.8	705.3	2.5
4K	Kris M. and Mary J. Fure 38+75-40+00	125	17.0	2,125	0.30	637.5	Silt Loam	85	27.1	1,594.0	86.4
4B	Belmont Fire Protection District Sta. 35+50-36+00	50	6.0	300	0.30	90.0	Silt Loam	85	3.8	824.2	6.3
4D	Village of Belmont Sta. 36+00-36+50	50	6.0	300	0.30	90.0	Silt Loam	85	3.8	1,015.7	7.8
4F	Belmont Fire Protection District Sta. 36+50-37+50	100	6.0	600	0.30	180.0	Silt Loam	85	7.7	1,015.7	15.5
4H	Glen J. Wiegel Sta. 37+50-38+10	60	6.0	360	0.15	54.0	Silt Loam	85	2.3	1,144.1	5.3
4J	Village of Belmont Sta. 38+50-38+75	25	6.0	150	0.06	9.0	Silt Loam	85	0.4	1,144.1	0.9
4L	Kris M. and Mary J. Fure Sta. 38+75-40+00	125	6.0	750	0.20	150.0	Silt Loam	85	6.4	1,145.7	14.6
4M	Village of Belmont Sta. 40+00-40+25	25	6.0	150	0.15	22.5	Silt Loam	85	1.0	1,145.7	2.2
4N	Village of Belmont Sta. 40+00-40+25	25	17.0	425	0.15	63.8	Silt Loam	85	2.7	1,145.7	6.2
5A	Belmont Fire Protection District Sta. 50+00-50+20	20	11.0	220	0.30	66.0	Silt Loam	85	2.8	395.2	2.2
5C	KB Runtz LLC. Sta. 50+20-52+50	230	11.0	2,530	0.10	253.0	Silt Loam	85	10.8	477.0	10.3
5E	Village of Belmont Sta. 52+50-52+75	25	11.0	275	0.05	13.8	Silt Loam	85	0.6	721.0	0.8
5G	KB Runtz LLC. Sta. 52+75-53+00	25	11.0	275	0.30	82.5	Silt Loam	85	3.5	739.7	5.2
5I	Village of Belmont 53+00-53+20	20	11.0	220	0.30	66.0	Silt Loam	85	2.8	605.2	3.4
5B	Belmont Fire Protection District Sta. 50+00-50+20	20	12.0	240	0.15	36.0	Silt Loam	85	1.5	672.8	2.1
5D	KB Runtz LLC. Sta. 50+20-52+50	230	12.0	2,760	0.30	828.0	Silt Loam	85	35.2	791.8	55.7
5F	Village of Belmont Sta. 52+50-52+75	25	6.0	150	0.05	7.5	Silt Loam	85	0.3	980.7	0.6
5H	KB Runtz LLC. Sta. 52+75-53+00	25	6.0	150	0.05	7.5	Silt Loam	85	0.3	659.0	0.4
5J	Village of Belmont Sta. 53+00-53+20	20	6.0	120	0.05	6.0	Silt Loam	85	0.3	612.0	0.3
5K	KB Runtz LLC. Sta. 53+20-54+50	130	11.0	1,430	0.10	143.0	Silt Loam	85	6.1	676.1	8.2
5L	KB Runtz LLC. Sta. 53+20-54+50	130	6.0	780	0.35	273.0	Silt Loam	85	11.6	676.1	15.7
5M	Village of Belmont Sta. 54+50-55+50	100	11.0	1,100	0.30	330.0	Silt Loam	85	14.0	461.4	12.9
5N	Village of Belmont Sta. 54+50-55+50	100	6.0	600	0.10	60.0	Silt Loam	85	2.6	461.4	2.4
5O	Randall G. and Catherine L. Fontz Sta. 55+50-56+00	50	11.0	550	0.20	110.0	Silt Loam	85	4.7	737.8	6.9
5P	Randall G. and Catherine L. Fontz Sta. 55+50-56+00	50	6.0	300	0.20	60.0	Silt Loam	85	2.6	737.8	3.8
5Q	Danley C. Ivey Sta. 56+00-56+50	50	6.0	300	0.15	45.0	Silt Loam	85	1.9	361.6	1.4
5R	Danley C. Ivey Sta. 56+00-56+50	50	6.0	300	0.15	45.0	Silt Loam	85	1.9	361.6	1.4
5S	Village of Belmont Sta. 56+50-56+90	40	11.0	440	0.20	88.0	Silt Loam	85	3.7	608.6	4.6
5T	Village of Belmont Sta. 56+50-56+90	40	10.0	400	0.30	120.0	Silt Loam	85	5.1	608.6	6.2
5U	Danley C. Ivey Sta. 56+90-57+35	45	11.0	495	0.30	148.5	Silt Loam	85	6.3	608.6	7.7
5V	Danley C. Ivey Sta. 56+90-57+35	45	10.0	450	0.30	135.0	Silt Loam	85	5.7	608.6	7.0
5W & 5X	Village of Belmont Sta. 57+35-57+75	40	11.0	440	0.05	22.0	Silt Loam	85	0.9	667.2	1.2
5Y & 5Z	Village of Belmont 57+75-58+00	25	6.0	150	0.05	7.5	Silt Loam	85	0.3	667.2	0.4
8A	Village of Belmont	34	8.0	272	0.50	136.0	Silt Loam	85	5.8	1,439.0	16.6
8C	Gerald J. and Joan C. Miller	123	8.0	984	0.50	492.0	Silt Loam	85	20.9	1,371.0	57.3
8E	Village of Belmont	20	8.0	160	0.50	80.0	Silt Loam	85	3.4	1,083.0	7.4
8G	Connie Rae and William J. Kamps	132	8.0	1,056	0.50	528.0	Silt Loam	85	22.4	1,462.0	65.6
8I	Village of Belmont	53	8.0	424	0.50	212.0	Silt Loam	85	9.0	1,029.0	18.5
8K	Connie Rae and William J. Kamps	42	8.0	336	0.50	168.0	Silt Loam	85	7.1	1,561.0	22.3
8B	Village of Belmont	34	6.0	204	0.50	102.0	Silt Loam	85	4.3	1,074.0	9.3
8D	Gerald J. and Joan C. Miller	123	6.0	738	0.50	369.0	Silt Loam	85	15.7	1,183.0	37.1
8F	Village of Belmont	20	6.0	120	0.50	60.0	Silt Loam	85	2.6	918.0	4.7
8H	Connie Rae and William J. Kamps	132	6.0	792	0.50	396.0	Silt Loam	85	16.8	535.0	18.0
8J	Village of Belmont	53	6.0	318	0.50	159.0	Silt Loam	85	6.8	933.1	12.6
8L	Connie Rae and William J. Kamps	42	6.0	252	0.50	126.0	Silt Loam	85	5.4	998.4	10.7
8M	Village of Belmont	237	8.0	1,896	0.50	948.0	Silt Loam	85	40.3	998.4	80.5
8N	Village of Belmont	237	6.0	1,422	0.50	711.0	Silt Loam	85	30.2	998.4	60.3
8O	Wisconsin DNR	42	8.0	336	0.50	168.0	Silt Loam	85	7.1	1,380.0	19.7
8P	Wisconsin DNR	42	6.0	252	0.50	126.0	Silt Loam	85	5.4	1,380.0	14.8
8Q	Village of Belmont	20	8.0	160	0.50	80.0	Silt Loam	85	3.4	1,380.0	9.4
8R	Village of Belmont	20	6.0	120	0.50	60.0	Silt Loam	85	2.6	1,380.0	7.0
8S & 8T	Village of Belmont	42	7.0	294	0.50	147.0	Silt Loam	85	6.2	1,380.0	17.2
8U & 8V	Village of Belmont	42	7.0	294	0.50	147.0	Silt Loam	85	6.2	1,380.0	17.2
		7,395.0		TOTAL		18094.0			769.0		**1335.5**

ATTACHMENT 12

Soils Map and Soil Testing Data (Rock River Laboratory, Inc.)

Delta 3 Engineering

Village of Belmont Soil Map



Village of Belmont Soil Tests

Segment	1
Segment	2
Segment	3
Segment	4
Segment	5
Segment	8

Delta 3 Engineering

STA Right Belmont, WI	
Sample ID	Total P (ppm)
1	625.3
3	894.5
7	1148
9	503.7
10	850.6
14	979
16	1219
17	864.1
18	1194
21	636.8
22	1021
23	1557
24	411.9
25	737.3
26	520.5
27	464.6
28	1258
29	578.6
33	970.9
36	706.4
37	475.3
38	733.4
40	990.6
41	523.5
42	395.2
43	358.1
44	439.9
45	477
46	368.8
47	432.8
48	356.7
49	184.4
50	265.9
51	413.3
52	721
53	199.8

STA Right Belmont, WI (cont)	
Sample ID	Total P (ppm)
54	93.09
55	375.1
56	739.7
57	222.7
58	605.2
59	510.2
60	584.4
61	580.4
62	750.2
63	705.3
64	1594
65	1439
66	1371
67	1062
68	1083
69	1384
70	1462
71	1029
72	1043
73	1561

STA RIGHT Belmont, WI	
Sample ID	Total P (ppm)
2	1255
4	607.7
5	706.2
6	967.4
8	746.9
11	692.8
12	298.1
13	745.6
13.5	518.5
15	657.5
19	543.8
20	611
30	920.2
31	843.6
32	835.9
34	608.1
35	633.9
39	826.4

Delta 3 Engineering

STA LEFT Belmont, WI	
Sample ID	Total P (ppm)
1	812
2	833.4
2.5	588.1
3	836.5
4	893.7
5	1074
6	367.1
7	434.7
8	293.6
9	535.2
10	461
11	628.5
12	656.3
13	745.2
13.5	533.6
14	594.5

STA LEFT Belmont, WI	
Sample ID	Total P (ppm)
15	428.9
16	436
17	536.8
18	502.1
19	514.1
20	840.4
21	929.3
22	1021
23	432.1
24	600.7
29	461.8
37	1087
38	585.8
39	637.2
40	743.7
42	802.8

STA Left Belmont, WI	
Sample ID	Total P (ppm)
25	1527
26	1787
27	1018
28	999.1
30	988
31	835.2
32	813.7
33	1005
34	1563
35	1557
36	1830
41	1562

STA Left Belmont, WI (cont)	
Sample ID	Total P (ppm)
43	672.8
44	801.5
45	666.6
46	570.3
47	791.8
48	805.1
49	565.9
50	980.7
51	631.2
52	734.1
53	659.2
54	573.6
55	547.6
56	735.9
57	500.4
58	612
59	824.2
60	1447
61	1251
62	1538
63	1196
64	697.3
65	1074
66	1126
67	1183
68	1157
69	918
70	534.8
71	933.1
72	780.4
73	1199