

SUPPLEMENTARY PROJECT MEMO TID#2

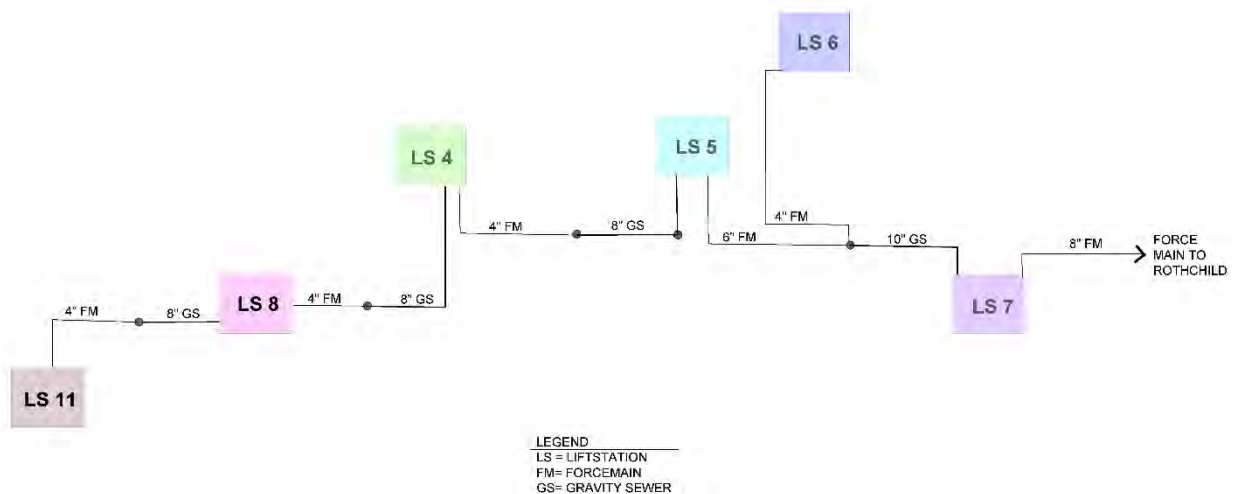
Date: September 1, 2023

To: Village of Kronenwetter

Re: Lift Station #8 and Related Service Area as it Relates to TID #2
Lift Station, Force main & Electric Service Upgrades

This memo is intended to provide a high-level planning document for decision making and budget estimate purposes for a specific portion of the Village’s wastewater collection system. The memo is the product of focused efforts in evaluation of Lift Station #8 and connected basins lying within TID #2 (hereinafter TID2).

The connected basin along old highway “51” and I-39 (hereinafter westside collection system) is tied together within a linked lift station system starting at lift station #11 (LS11) and continuing to LS8, LS4 and LS5. The entire leg of the area served by TID2 eventually flows to LS7, which is a main lift station that is metered and discharges to the Village of Rothschild and Rib Mountain Metropolitan Sewerage District. A graphic flow diagram of the westside collection system is provided below:



WESTSIDE LIFTSTATION SCHEMATIC

The make-up of the westside collection system requires that, currently, Lift Station #8 (hereinafter LS8) flows through two (2) other lift stations on its way to the main LS7. LS8 resides within TID2 and LS4. Therefore, if in analysis of LS8 there are improvements required in other stations, it is possible there are improvements within the 1.5-mile area boundary of TID2 and potentially eligible as a tax incremental district expense pending inclusion within the TID2 Plan.

This supplementary break-out study focused on such improvements and evaluated short-term and long-term considerations with the westside collection system, particularly LS4 & LS5, as they pertain to TID2.

EVALUATION CRITERIA

Under the main LS Assessment and Sewer Capacity study the following general lift station criteria were evaluated:

Site & Structural	Operational	Current Service	Collector Service	Future Service (Within 208 area)
Flood Issues, General Access, Safety	Power & Electrical	Existing Service Area	Flow from Other Lift Stations	Future Service Area, 5-10 Years ²
Condition of Wet well	Functionality, Controls, Communications	Infiltration & Inflow (I&I)	Reduction, Peaking, I&I, Run Times	Future Service Area, 10+ Years ²
Condition of Valve Vault	Pump Configuration	Reduction & Peaking Factors	Likelihood of Collector Upsizing	Lift Station Sizing
Metal Material Condition	Valve & Force main Configuration	Basic Sizing	Modeling of Interceptors	Modeling of Interceptors
Panel Condition	Serviceability	Pump Run Times	Modeling of Collector Lift Stations Together	Modeling of Collector Lift Stations Together
Gas Issues	Back-up Power	Pump Sizing	Force main Configuration	Force main Configuration

Each lift station was evaluated with these general criteria. Cost estimates were prepared for necessary repairs or upgrades where significant deficiencies are identified. Due to high variability in project items, a 15% contingency was utilized. The full landscape of improvement options were considered, leaving several alternatives for consideration.

For more detail regarding the full evaluation of each lift station, see the *Lift Station Assessment and Sewer Capacity Study, September 2023*.



SUMMARY EVALUATION OF LS8

In our review LS8 summarizes the following issues:

- Electrical issues (random phase fails, shorts, overheats)
- Lack of full 3-phase power
- No back-up power supply
- Undersized lift station capacity
- Undersized force main
- Pump performance issues
- Long run times
- Reduced pump off periods

Currently, LS8 is fed primarily with flows from LS11. LS8 is sized approximately the same as LS11 in terms of wet well size, force main discharge, and pump capacity. LS11 is fed primarily by apartments with some single family residential and commercial. The basin for LS11 lies adjacent to Mosinee corporate boundary and is built-out to about 80-85%, whereby the basin for LS8 is approximately 25% built-out and includes the entire TID2 area as well as additional areas within the 208-sewer service area.

With the potential for additional service area likely in the development of TID2, and the issues already present in LS8, an evaluation of possible upgrades to LS8 was completed. Since LS8 flows to LS4-LS5-LS7, other stations require review so the full cost of improvements can be reviewed. Several alternatives have been identified (see below Cost Summary Analysis). As mentioned above, a true evaluation calls for a life cycle cost analysis for each alternative.

SUMMARY EVALUATION OF LS4

As noted above, LS4 receives wastewater from LS8. The station was retrofitted in 2020. It lies within 0.5-miles of the TID2 boundary. In review of LS4, we determined there are some limitations to the current station setup to receive future expansion flows from LS8. Specifically with its existing 4-inch forcemain that would be a restriction for the current pumping conditions where future flows are added. There is some potential for future flow within the basin of LS4, approximately 185 acres within the 208 sewer service area. This flow is anticipated to occur out into the planning period at least 10-years and more likely to about 20-years.

Costs for LS4 in connection with LS8 improvements are provided above. The basis for those costs is included below:

COST SUMMARY LS4 UPGRADE

Item	Quantity	Units	Budget Cost
Replacement pumps, valves, vault	1 LS	\$120,000	\$120,000
Electrical service – 277/480	1 LS	\$50,000	\$50,000
Controls upgrade	1 LS	\$30,000	\$30,000
Pipe burst 4” to 6” FM	3,210 LF	\$70/LF	\$224,700
Restorations*	1 LS	\$15,000	\$15,000
Subtotal			\$439,700
Ancillaries	10%	---	\$43,970
Planning, Engineering, Surveying, Legal	10%	---	\$43,970
Contingencies	15%	---	\$65,955
Total Estimated LS4 Upgrade Cost			\$594,000

* Road Rehabilitation is not required in this option; therefore, it is not included.



Costs presented for the LS4 upgrade are not necessarily required at the present time. However, as LS8 expands to receive TID2 development and lands within the remaining 208 area (including its own basin 20-year flows), LS4 will be required to upgrade its 4” forcemain and upsize the pumping and valving. For the purpose of our analysis, we assumed 10-years.

SUMMARY EVALUATION OF LS5

LS5 receives flow from LS4. There have been little to no upgrades to the station since its initial build in 1999, including original pumps operating at the present time. LS5 is outside the TID2 improvement area. It is sensitive to increased flow, but on a lesser degree than LS4. Where there are increased flows from LS4, the existing forcemain will need to be increased from 8” to 10” along Old Highway 51. Similar to LS4, LS5 will require a forcemain and pump upgrade when the increased development occurs for TID2, as well as the areas remaining within the 208 sewer service area. With the increase in future flows, existing 6” force main will need to be upgraded to an 8-inch force main and an interceptor from receiving point to LS7 on Gate of Heaven Drive would need to be constructed to handle the increased flow. At that future time, the pumps would be upgraded, the electrical service improved to 277/480V, and valving/piping will be reconfigured. Because LS5 is outside the TID2 area, it was not included in any present value cost analysis herein. However, a high-level cost estimate is provided for reference:

COST SUMMARY FOR LS5

Item	Quantity	Units	Budget Cost
Pipe burst 6” to 8”	4,770 LF	\$81/LF	\$333,900
Upgrade pumps & controls	1 LS	\$75,000	\$75,000
Electrical service	1 LS	\$40,000	\$40,000
Piping & Valves	1 LS	\$50,000	\$50,000
Increase 8” gravity 10” interceptor	2,960 LF	\$70/LF	207,200
Restorations*	1 LS	\$35,000	\$35,000
Subtotal			\$533,900
Ancillaries	10%	---	\$53,390
Planning, Engineering, Surveying, Legal	10%	---	\$53,390
Contingencies	15%	---	\$80,085
Total Estimated Cost			\$721,000

* Road Rehabilitation is not required in this option; cost not included.

SUMMARY EVALUATION OF LS6

LS6 takes primarily residential flows within its basin and discharges directly to LS7. Since LS6 is outside TID2 and is also outside of the 0.5-mile project boundary limit, it is not further evaluated in this supplementary memo except for total flow capacity for LS7. Similar to LS11, LS6 is well-developed with limited developable area remaining except by addition of small diameter low pressure force main systems possibly along the Wisconsin River waterway and nearby areas for a total of approximately 10 acres. Such flow would not impact LS6 or LS7 in our review. Further recommendations for LS6 will be addressed in the main Lift Station Assessment and Sewer Capacity Study.

SUMMARY EVALUATION OF LS7

LS7 receives flow from the entire westside collection system (LS11+LS8+LS4+LS5+LS6) and its own basin. As any development occurs in the TID2, LS7 may require upgrades. However, this may occur later in the planning period to allow for such development to occur. LS7 is outside of the TID2 boundary and 0.5-mile expenditure limit. Further recommendations for LS7 will be addressed in the main *Lift Station Assessment and Sewer Capacity Study, September 2023.*

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SUMMARY OF ALTERNATIVES

This memo is intended to outline a general framework for a particular alternative and then put budgetary numbers to those possible alternatives. Since lift stations incur expense to the sewer utility perennially, in the form of operation and maintenance expense, life cycle cost analysis method was utilized to develop present worth costs on each alternative on an apples-to-apples basis. Because almost all of the lift stations include a concrete wetwell & valve vault with a relatively long service life, 50-years are estimated for each lift station to be in service. Pumps & valves were assumed to have a 20-year replacement life, but on a lesser interest rate schedule as a derivative of inflation.

The ultimate selected alternative will involve further input, factor all topographical and property considerations, and follow a design process that allows for further refinement/evaluation of potential options. Alternatives are generally described as follows:

- A. Refurbish LS8. Use existing wet well and valve vault. Replace valves, controls, install one new pump (keep one that was installed in May 2023), upgrade electrical service. Increase force main from 4" to 6" by pipe burst method. Replace existing air release valve about 300 ft north of Beranek Road. This option requires a replacement cost at roughly the 10-year annum to address future capacity.
- B. Replace station, new electrical service, and controls. Pipe burst 4" FM to 6" FM to existing discharge point, and air release valve replacement. This option requires an upgrade cost for larger pumps at the 10-year annum to address future capacity, and for a future 10-year annum upgrade on LS4 including an upsizing of the force main of LS4.
- C. This is essentially Alternate B with the modification that LS4 costs (including the forcemain upsizing) would be completed with TID2 expenditures at the present time. That would make all costs capital costs for this alternative, except for the long-term lift station operation and maintenance.
- D. Lift Station Elimination. These options consider the possibility of eliminating either LS8 or LS4:
 - D1. Eliminate LS4. New gravity line from LS4 to TID2, TID 2 new gravity line as part of TID2 costs, bore across I-39, deepen LS8 and extend forcemain to LS5 basin, with a portion being pipe-burst from LS4 to LS5. Abandon LS4 & remaining unused forcemain.
 - D2. Eliminate LS8. Station 4 would be redesigned and deepened approximately 13 feet. New 12" gravity interceptor from LS8 to Beranek Road (LS11 to remain), bore across I-39, relay gravity line on Flanner to Old 51 as part of TID2 work, relay gravity line to LS4. Abandon LS8 & force main.



BUDGETARY COSTS ANALYSIS

Budgetary estimates are provided as follows for alternatives described above:

A. REFURBISH LS8, 6" FORCEMAIN - ALTERNATE A

Item	Quantity	Units	Budget Cost
Upgrade, pumps, valves, vault	1 LS	---	\$75,000
Electrical service – 277/480	1 LS	---	\$64,000
Controls upgrade	1 LS	---	\$30,000
Pipe burst 4" to 6" FM	3,500 LF	\$77/LF	\$270,000
Restorations*	1 LS	---	\$20,000
Subtotal			\$459,000
Ancillaries	10%	---	\$45,000
Planning, Engineering, Surveying, Legal	15%	---	\$69,000
Contingencies	15%	---	\$69,000
Total Estimated Alternative Cost (Present Worth)			\$642,000
Interest Rate for Present Value	5%	---	----
Life Cycle	50	Years	----
Annual Cost per Lift Station (LS4 & LS8)	2 LS	\$26,350/Ea./Year	----
Present Value of Annual Expenses			\$962,000
LS8 Capacity Upgrade @ 10-Year Annum, 2.5%	1 LS	\$400,000	----
LS4 Capacity Upgrade & FM @ 10-Year Annum, 2.5%	1 LS	\$594,000	----
Pump Replacements @ 20-Year Annum, 2.5%	2 LS	\$50,000/Ea./Year	----
Present Value of One-Time Future Costs			\$874,000
Alternate A - Total Estimated Present Worth			\$2,478,000

* Road Rehabilitation is not required in this option; therefore, it is not included.

B. REPLACE AND UPSIZE LS8 WITH 6" FORCEMAIN - ALTERNATE B

Item	Quantity	Units	Budget Cost
Replacement wet well, pumps, valves, vault	1 LS	---	\$300,000
Electrical service – 277/480	1 LS	---	\$64,000
Controls upgrade	1 LS	---	\$30,000
Pipe burst 4" to 6" FM	3,500 LF	\$77/LF	\$270,000
Restorations*	1 LS	---	\$50,000
Subtotal			\$714,000
Ancillaries	10%	---	\$71,000
Planning, Engineering, Surveying, Legal	15%	---	\$107,000
Contingencies	15%	---	\$107,000
Total Estimated Alternative Cost (Present Worth)			\$999,000
Interest Rate for Present Value	5%	---	----
Life Cycle	50	Years	----
Annual Cost per Lift Station	2 LS	\$26,350/Ea./Year	----
Present Value of Annual Expenses			\$962,000
LS8 Capacity Modification @ 10-Year Annum, 2.5%	1 LS	\$75,000	----
LS4 Capacity Upgrade & FM @ 10-Year Annum, 2.5%	1 LS	\$594,000	----
Pump Replacements @ 20-Year Annum, 2.5%	2 LS	\$50,000/Ea./Year	----
Present Value of One-Time Future Costs			\$599,000
Alternate B - Total Estimated Present Worth			\$2,560,000

* Road Rehabilitation is not required in this option; therefore, it is not included.



C. REPLACE AND UPSIZE LS8, UPGRADE LS4 & FORCEMAIN - ALTERNATE C

NOTE: ALTERNATE C REQUIRES WORK RELATED TO STATION 4

Item	Quantity	Units	Budget Cost
New station, wet well, pumps, valves, vault	1 LS	---	\$300,000
LS8 Electrical service – 277/480	1 LS	---	\$50,000
Controls upgrade	1 LS	---	\$50,000
Pipe burst 4” to 6” FM (LS8)	3,500 LF	\$77/LF	\$270,000
Upgrade LS4	1 LS	---	\$300,000
Pipe Burst 4” to 6” FM (LS4)	3,500 LF	\$77/LF	\$270,000
Restorations*	1 LS	\$50,000	\$50,000
Subtotal			\$1,290,000
Ancillaries	10%	---	\$129,000
Planning, Engineering, Surveying, Legal	10%	---	\$129,000
Contingencies	15%	---	\$194,000
Total Estimated Alternative Cost (Present Worth)			\$1,742,000

Interest Rate for Present Value	5%	---	----
Life Cycle	50	Years	----
Annual Cost per Lift Station	2 LS	\$26,350/Ea./Year	----
Present Value of Annual Expenses			\$962,000
Pump Replacements @ 20-Year Annum, 2.5%	2 LS	\$50,000/Ea./Year	----
Present Value of One-Time Replacements			\$98,000
Alternate C - Total Estimated Present Worth			\$2,802,000

D1. REPLACE AND UPSIZE LS8, ABANDON LS4, INTERCEPTOR TO LS8 - ALTERNATE D1

NOTE: ALTERNATE D1 REQUIRES WORK RELATED TO STATION 4

Item	Quantity	Units	Budget Cost
New station, valves, & vault (increase 6’ deep)	1 LS	---	\$350,000
Electrical service – 277/480	1 LS	---	\$64,000
Controls upgrade	1 LS	---	\$50,000
Pipe burst 4” to 6” FM	3,500 LF	\$80/LF	\$280,000
Install 6” FM w/restoration (current discharge 8 to 4 fm)	1,860 LF	\$70/LF	\$130,200
Pipe burst 4” to 6” (Fm from LS4 to LS5)	3,220 LF	\$80/LF	\$257,600
Install 12” interceptor sewer (from discharge to LS5)	1,700 LF	\$75/LF	\$127,500
Bore 6” FM under interstate w/pipe	300 LF	\$650/LF	\$195,000
Abandon Station 4	1 LS	---	\$50,000
Install 10” interceptor from Station 4 to Station 8 (4)	4,300 LF	\$70/LF	\$301,000
Bore 10” gravity under interstate w/pipe (4)	450 LF	\$750/LF	\$337,500
Restorations*	1 LS	---	\$50,000
Subtotal			\$2,192,000
Ancillaries	10%	---	\$219,000
Planning, Engineering, Surveying, Legal	10%	---	\$219,000
Contingencies	15%	---	\$329,000
Total Estimated Alternative Cost (Present Worth)			\$2,959,000

Interest Rate for Present Value	5%	---	----
Life Cycle	50	Years	----
Annual Cost per Lift Station (10 Stations)	1 LS	\$29,000/Ea./Year	----
Savings of Abandoned Lift Station	1 LS	(\$29,000/Ea./Year)	----
Present Value of Annual Expenses			Net Zero
Pump Replacements @ 20-Year Annum, 2.5%	1 LS	\$50,000/Ea./Year	----
Present Value of One-Time Replacements			\$49,000
Alternate D1 - Total Estimated Present Worth			\$3,008,000

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D2. DEEPEN LS4, ELIMINATE LS8, INTERCEPTOR FROM LS8 TO LS4, ALTERNATE D2

NOTE: ALTERNATE D2 REQUIRES WORK RELATED TO STATION 4

Item	Quantity	Units	Budget Cost
New station, wet well, pumps, valves, vault @ Station 4	1 LS	---	\$750,000
Controls upgrade	1 LS	---	\$50,000
Pipe burst 4" to 6" FM (LS4 to LS5)	3,500 LF	\$77/LF	\$269,500
Install 12" interceptor sewer (8 to 4) (average 30 ft deep)	4,940 LF	\$160/LF	\$790,400
Bore 12" under interstate w/pipe (8 to 4)	260 LF	\$750/LF*	\$195,000
Manholes (approx. 15 @ 30' deep)	1 LS	---	\$100,000
Restorations*	1 LS	---	\$50,000
Subtotal			\$2,205,000
Ancillaries	10%	---	\$220,000
Planning, Engineering, Surveying, Legal	10%	---	\$220,000
Contingencies	15%	---	\$331,000
Total Estimated Alternative Cost (Present Worth)			\$2,976,000

Interest Rate for Present Value	5%	---	----
Life Cycle	50	Years	----
Annual Cost per Lift Station (10 Stations)	1 LS	\$29,000/Ea./Year	----
Savings of Abandoned Lift Station	1 LS	(\$29,000/Ea./Year)	----
Present Value of Annual Expenses			Net Zero
Pump Replacements @ 20-Year Annum, 2.5%	1 LS	\$50,000/Ea./Year	----
Present Value of One-Time Replacements			\$49,000
Alternate D2 - Total Estimated Present Worth			\$3,025,000

SUMMARY OF COSTS:

Alt.	Description	Capital Cost	Present Worth Cost
A	Refurbish LS8, 6" Forcemain (LS4 & LS8 Upgrade in 10-years)	\$642,000	\$2,478,000
B	Rebuild LS8 with 6" Forcemain (LS4 Upgrade in 10-years)	\$999,000	\$2,560,000
C	Replace and Upsize LS8, Upgrade LS4 & Forcemain (LS4 Upgrade at Present Time)	\$1,742,000	\$2,802,000
D1	Replace and Upsize LS8, Abandon LS4, Interceptor to LS8 (All Costs at Present Time)	\$2,959,000	\$3,008,000
D2	Abandon LS8, Deepen LS4, Interceptor from LS8 to LS4 (All Costs at Present Time)	\$2,976,000	\$3,025,000

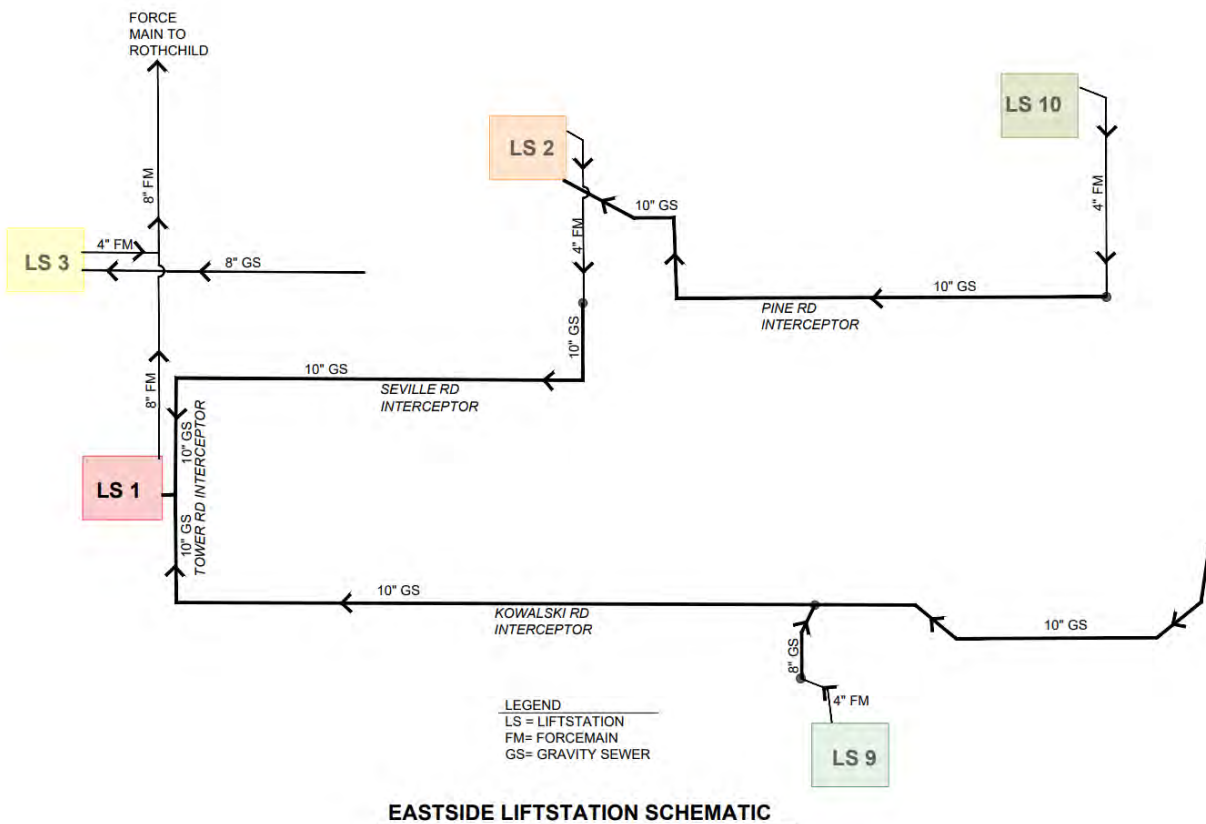


EASTSIDE COLLECTION SYSTEM COMMENTARY

Although the Eastside system does not affect TID#2, LS8 or LS4, it is appropriate to mention the outcome of our analysis with respect to required capital improvement costs to the utility. Our analysis of the eastside indicates that all interceptors and forcemains are adequate for their current capacity. Additionally, the lift stations are adequate for their current purpose and demand. There are no immediate capital improvement projects stemming from a critical system need, other than power and generator service to the stations, especially the collector lift stations.

A summary of power service costs is as follows for the Eastside Collection System:

LS1 Generator System Upgrade	\$150,000
LS2 Generator System & 3-Phase Power	\$100,000
LS1 3-Phase Power	\$300,000



As for future projects, where additional development occurs in the areas east of Pleasant Road, this area can be served by the gravity sewer interceptor system of LS1 and avoid future lift stations should that area go into continued rural residential development as the Comprehensive Plan calls for. This requires upsizing of the existing Kowalski interceptor as it collects to LS1.

The area on the south side of the Bull Junior Creek can be served by LS9 if development should occur in the near occurrence. In the long term, LS9 could potentially be eliminated with careful planning and the extension of an interceptor as those projects are able to be phased in over time.

Similarly LS10, with careful planning can be eliminated with the extension of an an interceptor to LS2 and its existing interceptor system.

RECOMMENDATION

Since LS8 and LS4 are within the TID expenditure range and are linked in system required upgrades that are needed for TID2 development as well as future capacity within the 208 area, those projects are recommended to be moved along a timeframe that allows for contracting by the end of 2024 prior to the close out deadline of TID2. The ultimate design and final improvement schedule will be identified as more detail and design is completed. But overall, the improvements would go towards better system reliability, improved planning capacity, and orderly minimization of long-term replacement costs with those lift stations.

Respectfully,

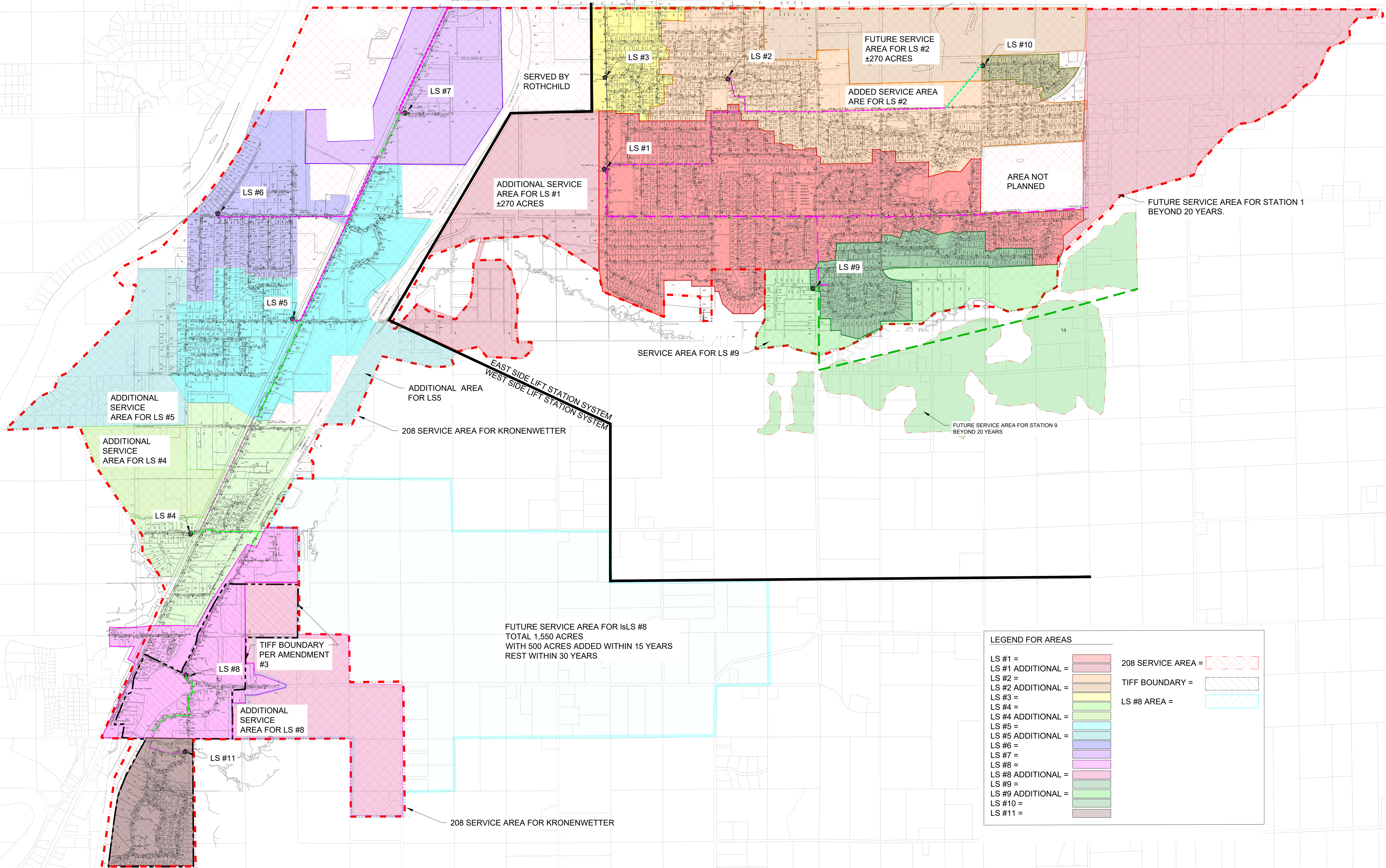
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Robert J. Roth, PE

Attachments: Overall Sewer Collection & LS Basin Map
 Westside Sewer Collection System Map
 TID2 & LS8, LS4 Area Map
 Eastside Sewer Collection System Map

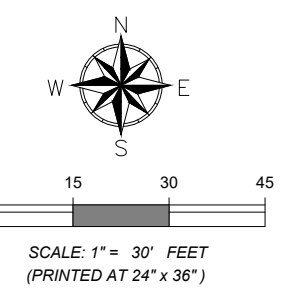




LEGEND FOR AREAS

LS #1 =	[Red Box]	208 SERVICE AREA =	[Red Dashed Box]
LS #1 ADDITIONAL =	[Red Box]	TIFF BOUNDARY =	[Dashed Line]
LS #2 =	[Orange Box]	LS #8 AREA =	[Light Green Box]
LS #2 ADDITIONAL =	[Orange Box]		
LS #3 =	[Yellow Box]		
LS #4 =	[Light Green Box]		
LS #4 ADDITIONAL =	[Light Green Box]		
LS #5 =	[Cyan Box]		
LS #5 ADDITIONAL =	[Cyan Box]		
LS #6 =	[Blue Box]		
LS #7 =	[Purple Box]		
LS #8 =	[Pink Box]		
LS #8 ADDITIONAL =	[Pink Box]		
LS #9 =	[Green Box]		
LS #9 ADDITIONAL =	[Green Box]		
LS #10 =	[Light Orange Box]		
LS #11 =	[Brown Box]		

SUBMITTED TO:
 CLIENT
 XXXX



PROJECT NO: 2022-004 (C)

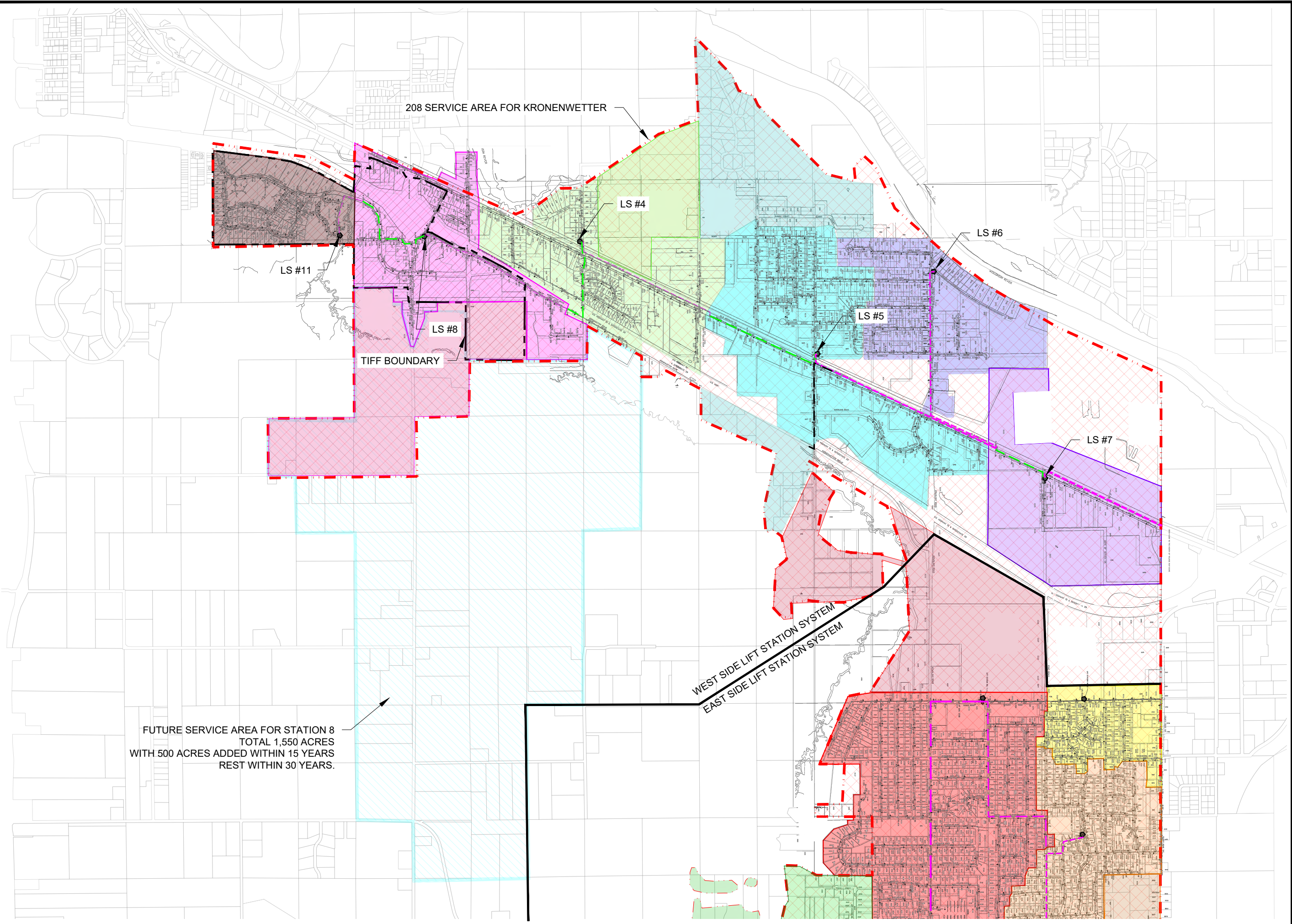
DATE: 09/01/23

DESIGNED BY: RR

DRAWN BY: WAC

SHEET WS.1.1 & ES.2.1

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208 SERVICE AREA FOR KRONENWETTER

LS #4

LS #6

LS #11

LS #8

TIFF BOUNDARY

LS #5

LS #7

WEST SIDE LIFT STATION SYSTEM
EAST SIDE LIFT STATION SYSTEM

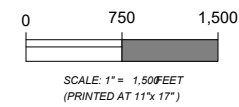
FUTURE SERVICE AREA FOR STATION 8
TOTAL 1,550 ACRES
WITH 500 ACRES ADDED WITHIN 15 YEARS
REST WITHIN 30 YEARS.

SERVICE AREA FOR STATION 8 & ALTERNATES

LIFT STATION REVIEWS

KRONENWETTER SEWER SERVICE AREA

VILLAGE OF KRONENWETTER, MARATHON COUNTY, WISCONSIN



PROJECT NO: --

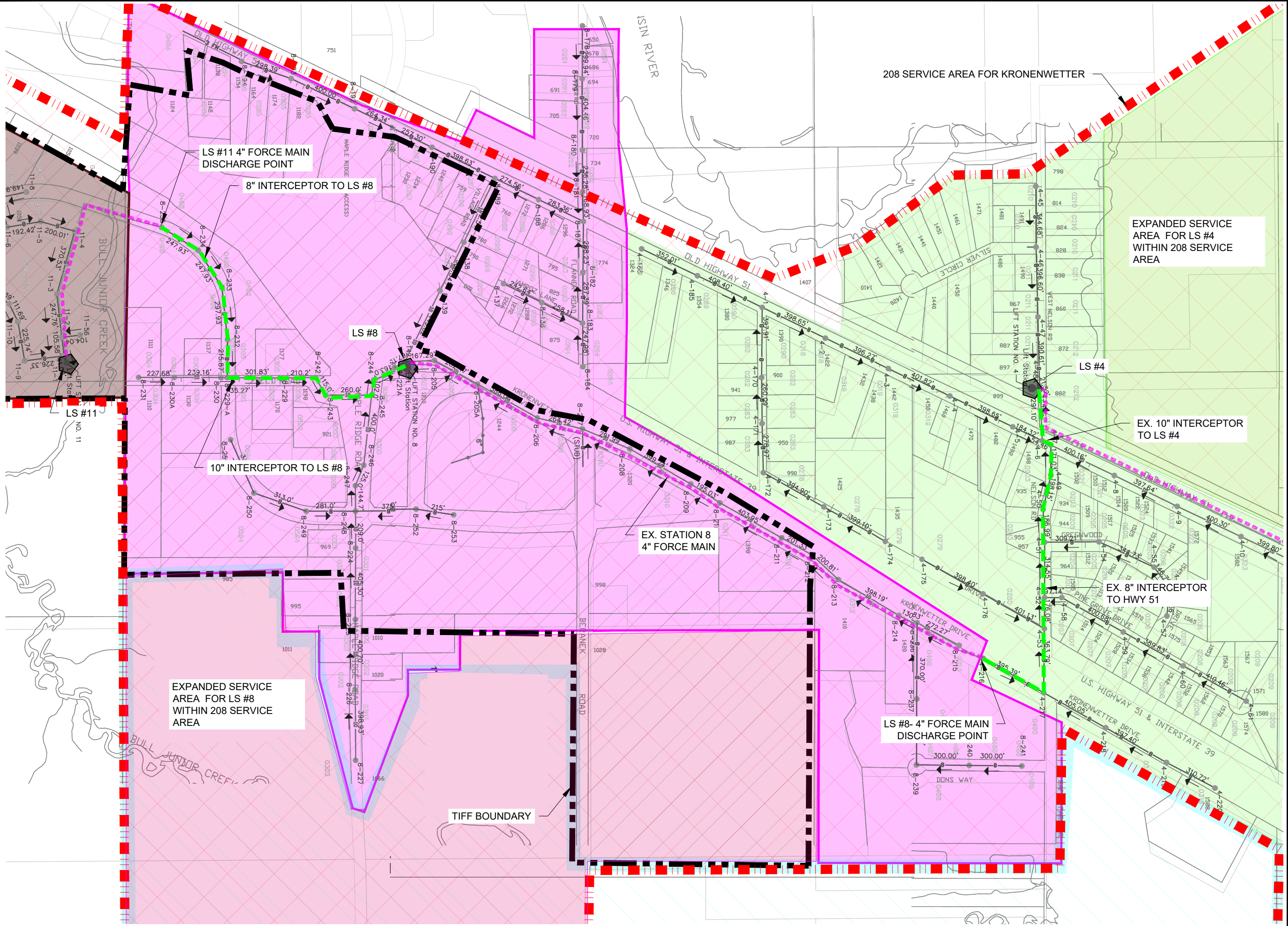
DATE: 8/16/2023

DESIGNED BY: RJR

DRAWN BY: --

SHEET: WS 1.1

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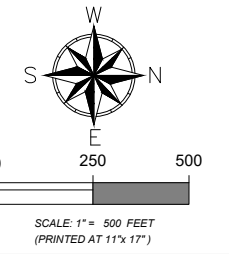


WEST SIDE INTERCEPTORS

LIFT STATIONS

KRONENWETTER LIFT STATIONS REPORT

VILLAGE OF KRONENWETTER, MARATHON COUNTY, WISCONSIN



PROJECT NO:	2023-020 (C)
DATE:	08/18/23
DESIGNED BY:	RJR
DRAWN BY:	--
SHEET:	WS 1.2

208 SERVICE AREA FOR KRONENWETTER

FUTURE SERVICE AREA FOR LS 2 (APPROX 270 ACRES)

NEW 10" INTERCEPTOR WHEN LS10 NEEDS REPLACEMENT AND NEW 12" IS IN PLACE

REPLACE EX. 10" INTERCEPTOR TO 12" INTERCEPTOR APPROX 5 YEARS

LS #10

FUTURE SERVICE AREA FOR LS 1 (APPROX 510 ACRES)

REBUILD EX. 10" INTERCEPTOR TO 15" INTERCEPTOR WITHIN 15 YEARS

REBUILD EX. 10" INTERCEPTOR TO 21" INTERCEPTOR APPROX 5 YEARS

REBUILD EX. 10" INTERCEPTOR TO 21" INTERCEPTOR APPROX 5 YEARS

REBUILD EX. 10" INTERCEPTOR TO 15" INTERCEPTOR APPROX 10 YEARS

REBUILD EX. 10" INTERCEPTOR TO 15" INTERCEPTOR WITHIN 10 YEARS

NEW 18" INTERCEPTOR FOR DEPTH NOT CAPACITY APPROX 5 YEARS ELIMINATE LS 9

FUTURE SERVICE AREA FOR LS 9

LS #9

208 SERVICE AREA FOR KRONENWETTER

FUTURE 18" INTERCEPTOR FOR DEPTH, NOT CAPACITY GRAVITY UNDER BULL JUNIOR CREEK SERVE AREA TO EAST WITH GRAVITY INCLUDED IN FUTURE SERVICE AREA

FUTURE SERVICE AREA FOR LS 9

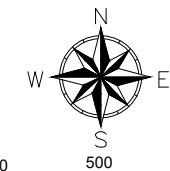
FUTURE 18" INTERCEPTOR FOR DEPTH, NOT CAPACITY GRAVITY UNDER BULL JUNIOR CREEK SERVE AREA TO EAST WITH GRAVITY

INTERCEPTOR REPLACEMENT FOR LS 1 & 2

LIFT STATION REVIEWS

KRONENWETTER SEWER SERVICE AREA

VILLAGE OF KRONENWETTER, MARATHON COUNTY, WISCONSIN



SCALE: 1" = 1000 FEET (PRINTED AT 11"x17")

PROJECT NO: --

DATE: 8/16/2023

DESIGNED BY: RJR

DRAWN BY: --

SHEET: ES 1.1

File: F:\PROJECT FILES\2023\2023-2024 VILLAGE OF KRONENWETTER LIFT STATIONS\KRONENWETTER LIFT STATIONS\KRONENWETTER LIFT STATIONS SERVICE AREA.DWG - Sheet Name: 2 - ASST FULL BLEED B (11.00X 17.00 INCHES). Date: 8/16/2023 11:46 AM. By: Wayne Casper