

MEETING: REGULAR MEETING OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

DATE & TIME: Wednesday, September 4, 2024 at 5:30 PM

**LOCATION: Germantown Village Hall Board Room
N112 W17001 Mequon Road**

Any member of the body and/or citizen may attend the meeting virtually through the WebEx platform, Meeting #: **2555 672 0428** Password: **ZNmFyjsD343** which can be accessed by phone at 408-418-9388 or by logging on at: <https://villageofgermantown.my.webex.com/villageofgermantown.my/j.php?MTID=mc28ed9f85300bb8f63267a15d2f40b55>

Citizens not wishing to attend the meeting personally or virtually may submit any public comments by sending an email to comments@germantownwi.gov by 4 p.m. on the day of the meeting so that it can be provided to the members of the body for their consideration.

Previously recorded Village Board Meeting Videos can be viewed at https://www.youtube.com/channel/UCOYp0EgELzTCa9X_iCohyhQ.

AGENDA

- I. **CALL TO ORDER:** *This meeting has been given public notice in accordance with Section 19.83 and 19.84, Wis. Stats, in such form that will apprise the general public and news media of subject matter that is intended for consideration and action.*
- II. **ROLL CALL:**
- III. **APPROVAL OF MINUTES:**
 - A. August 14, 2024
- IV. **PUBLIC COMMENT:** *Please be advised per State Statute Section 19.84(2), information will be received from the public. It is the policy of this municipality that there be a three-minute time period, per person, with time extensions per the Chief Presiding Officer's discretion; be further advised that there may be limited discussion on the information received, however, NO ACTION will be taken under public comments.*
- V. **UNFINISHED BUSINESS**
 - A. Approval of the Public Works Engineering Division Development Handbook Update
- VI. **NEW BUSINESS:**
 - A. Ruekert & Mielke Sewer Facilities Plan Review and Discussion
 - B. Recommendation of the Sanitary Sewer System Facilities Plan Update
 - C. Approval of the Development Agreement between the Village and Truck Country
 - D. Division Road Conceptual Design Public Information Meeting
 - E. Approval of Grant Application for Agricultural Road Improvement Program
 - F. Award of the fall tree planting contract to Dan Larsen Landscaping for an amount not to exceed \$9,120.00.
 - G. Award of Public Works Engineering Division system furniture contract to Emmons Business Interiors (EBI) for an amount not to exceed \$35,338.11.

- H. Award of a 3-year building cleaning services contract to Vanguard Cleaning Systems for a total of \$562,752.00.
- I. Award of a 4-year contracted towel and mat service contract to ITU AbsorbTech for a total of \$49,206.83.

VII. DIRECTORS'S REPORT:

- A. September Director's Report

VIII. NEXT MEETING DATE:

IX. ANNOUNCEMENTS:

X. ADJOURNMENT:

UPON REASONABLE NOTICE, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information or to request this service, please contact the Village Clerk at (262)250-4745 at least 2 days prior to the meeting.

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DATE AND TIME:	Wednesday, August 14, 2024 5:30 PM
LOCATION:	Germantown Village Hall Board Room N112 W17001 Mequon Road

MINUTES

I. CALL TO ORDER:

Chairperson Kaminski called the Public Works and Highways Committee meeting to order at 5:30 PM.

II. ROLL CALL:

Present: Trustee Robert Warren, Trustee Phil Hudson, Trustee Terri Kaminski, Trustee Rick Miller

Absent: NONE

Excused: NONE

III. APPROVAL OF MINUTES:

A. Minutes: July 3, 2024

Motion: Approve as presented (with spelling correction to Chairperson Kaminski's name)

Motioned By: Phil Hudson

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

IV. PUBLIC COMMENT:

Three citizens spoke:

Melanie Smythe (N140W17938 Cedar Ln)

Pamela Parrott (W202N11468 Merkel Dr)

Jan Miller, Trustee District 4 (W151N10297 Windsong Cir W)

V. UNFINISHED BUSINESS

There was no unfinished business to discuss.

VI. NEW BUSINESS:

- A. Resolution adopting the Comprehensive Tree Plan as required per municipal code 17.60.

Director of Public Works Matthew Mortwedt requested approval of the resolution to adopt the Comprehensive Tree Plan, as required per Municipal Code Section 17.60. Mortwedt advised that with the adoption of the Comprehensive Tree Plan, changes to the Municipal Code would be needed to avoid conflicts and for consistency. These changes would be addressed/considered at a future meeting.

Highlights of the Comprehensive Tree Plan include:

- Creation of a Tree Board, including a citizen member.
- Creation of a permit process, managed by DPW, for work on public trees, including provisions for HOA's to become a permittee.
- Creation of communication standards with residents based on the type of tree maintenance activity being performed.
- Standards for new subdivisions and developers.
- A new list of approved trees based on size, as required by code.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Phil Hudson

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- B. Award of Kinderberg splash pad repairs to Carrico Aquatics for an amount not to exceed \$57,800 from accounts 91591000-592100 and 10591000-1000.

Park and Recreation Director Guilford Standridge requested to award Kinderberg Splash Pad Repairs (mechanical room and equipment) to Carrico Aquatics for an amount not to exceed \$57,800 from accounts 91591000-592100 (\$55,000) and 10591000-1000 (\$2,800). Standridge notes that \$55,000 was approved through the ARPA budget and the additional \$2,800 would come out of the Recreation & Maintenance expense for spray pad account. Lastly, the repairs do not include media blasting (\$16,292.00) or surface painting (\$11,466) based on 2024 pricing. These figures would have to be requested in the 2025 budget.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- C. Authorization to temporarily overfill Water Utility staffing by one position from September - December 2024.

Public Works Director Mortwedt requested approval for the temporary overfill of one position in Water Utility as part of a succession plan to replace the Water Utility Foreman's retirement in December 2024. The overfill would be used to hire a new operator while an existing operator would be shifted to shadowing the Foreman in anticipation of a promotion. The fiscal impact of the overfill position would be approximately \$35,856, which would come from the Utility Fund.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Robert Warren

No: Phil Hudson

Abstain: None

Motion Passed (Yes 3, No 1, Abstained 0)

- D. Award of Fireman's Park restroom, exterior and interior painting project to MACORP, LLC for an amount not to exceed \$9,082.00 from capital account 40564000-592300.

Public Works Director Mortwedt recommended awarding the Fireman's Park Restroom Painting Project to MACORP LLC for an amount not to exceed \$9,082.00. If approved, funds shall be allocated from the Buildings & Grounds non-borrowed capital account: 40564000-592300. As reflected in the 2024 Parks non-borrowed capital budget, funds were allocated to paint the exterior and interior of the Fireman's Park seasonal restroom shelter. This project is being completed in conjunction with a new roof, and the tuckpointing and resealing of the exterior split-faced block.

Motion: Approve as presented

Motioned By: Rick Miller

Seconded By: Phil Hudson

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- E. Award of library copula roof leak repair to Noffke Roofing in amount not to exceed \$23,500.00 from capital account 40564000-592300.

Public Works Director Mortwedt recommended awarding a contract with Noffke Roofing to complete the Library Roof repairs associated with the copula leak to an amount not to exceed \$23,500.00. If approved, funds shall be allocated from the Parks borrowed capital account: 40564000-592300. The Library roof was replaced in the fall of 2021 and, since that time and during periods of significant temperature change accompanied by precipitation, a leak formed in the community room. If not addressed, staff is concerned about damage to insulation, drywall, and even mold on the interior of the building.

On several occasions, staff worked closely with the roofing contractor who completed the roofing project in 2021. Testing the area with water did not identify deficiencies within the shingled area, which would have been included in the original project scope. The original contractor worked to help identify the leak at no additional cost to the Village.

Recently, staff met with Noffke Roofing, who in 2012 assisted with a significant leak near the Library's main entrance. A plan has been formulated to remove all the shingles around the perimeter of the copula. This will allow for inspection of the roof deck and flashing, which is where the leak's origin is suspected. The project will inspect the top of the copula and replace deficient shingles as needed. The project will also include a new and larger finial near the lightning rod.

Although this Roof project is unbudgeted, there are funds remaining from a project at Haupt Strass Park. Staff recommends using these remaining Park funds to cover the cost of this project.

Motion: Approve as presented

Motioned By: Robert Warren

Seconded By: Rick Miller

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

- F. Award of Fireman's Park standing seam roof project to JK Contractors in an amount not to exceed \$19,060.00 from capital account 40564000-592300.

Public Works Director Mortwedt recommended awarding the Fireman's Park standing seam roof project to JK Contractors for an amount not to exceed \$19,060.00. If

approved, funds shall be allocated from the Buildings & Grounds non-borrowed capital account: 40564000-592300.

As reflected in the 2024 Parks non-borrowed capital budget, funds were allocated in the amount of \$22,000.00 to replace the asphalt shingled roof on the Fireman's Park seasonal restroom shelter. The roof will be replaced with a standing seam metal roof, similar to the roof of the new shelter and band shell. Included in the project scope is the addition of gutters and downspouts to move water away from the building. This project is being completed in conjunction with the tuckpointing and resealing of the exterior split-faced block, and an exterior / interior painting project.

Motion: Approve as presented

Motioned By: Phil Hudson

Seconded By: Robert Warren

Yes: Terri Kaminski, Rick Miller, Phil Hudson, Robert Warren

No: None

Abstain: None

Motion Passed (Yes 4, No 0, Abstained 0)

G. Review of Development Handbook Update

Public Works Director Mortwedt advised the last update to the Development Handbook was in 2020 and noted that current revisions are indicated by color and tracking methods. This handbook is for discussion only to provide Committee members with additional time to review the Handbook in its entirety. The Handbook will be presented for approval in September.

As a note, staff would conduct an annual review of the handbook for updates, which would eliminate the need for a more time-consuming revision.

H. Department of Public Works 5 Year Strategy

Public Works Director Mortwedt presented the 5-Year Strategy for the Department of Public Works. Mortwedt highlights the DPW Mission Values: "The Village of Germantown Department of Public Works enhances the quality of life, health and safety of all citizens by providing top quality services through a very responsive and responsible team committed to high ethical standards, accountability and effective maintenance of the Village's infrastructure (highways, water infrastructure, sewer infrastructure, facilities, and parks)" and the DPW 5-year Plan (broken down by categories such as technology, training, plan development updates, ordinance updates, and policy development).

VII. DIRECTORS'S REPORT:

A. August Director's Report

Public Works Director Mortwedt presented the August Director's Report noting that construction projects will be continued into late summer/early fall. The presentation included Engineering and Engineering Tech; Water; Wastewater; and Highway, Parks, Buildings & Grounds top three projects with anticipated start/completion dates.

VIII. NEXT MEETING DATE:

The next Public Works & Highway Committee meeting will be held September 4, 2024 at 5:30 PM.

IX. ANNOUNCEMENTS:

There were no announcements.

X. ADJOURNMENT:

Chairperson Kaminski adjourned the meeting at 6:50 PM.

DRAFT

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Approval of the Public Works Engineering Division Development Handbook Update

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

The Development Handbook was last updated in 2020. The copy presented has gone through multiple staff reviews over the course of 2024. Revisions are tracked with the attached change log.

This item was presented for review and discussion at the August 2024 Public Works and Highway Committee. We are now bringing this item back to the committee for approval.

Following adoption of the revised handbook, staff will conduct an annual review to determine if additional changes are needed. The annual review process should eliminate the need for more time consuming revisions like the one we just undertook.

ATTACHMENT:

1. V1 2024 Development Handbook 8-30-2024
2. Change Log 2024

STAFF RECOMMENDATION:

Positive recommendation of the Development Handbook to the Village Board for approval.

ACTION BY Committee:



DEVELOPMENT HANDBOOK

VILLAGE OF GERMANTOWN INFRASTRUCTURE STANDARDS

Approved by:

Public Works & Highway Committee – DATE

Village Board – DATE

TABLE OF CONTENTS

1	CONSTRUCTION PLAN REQUIREMENTS	7
1.1	GENERAL SPECIFICATIONS	7
1.1.1	Sheet Requirements	7
1.2	PLAN REVIEW	8
1.2.1	Detail Sheet	8
1.2.2	Plan View	9
1.2.3	Profile View	9
1.3	MASTER GRADING & DRAINAGE PLANS.....	9
1.3.1	General.....	9
1.3.2	Plan View shall show the following:	9
1.3.3	Grading Record Drawing	11
1.4	EROSION CONTROL PLAN.....	11
1.4.1	General.....	11
1.4.2	Plan View shall show the following:	11
1.4.3	Proposed conditions of the site shall include:.....	12
1.5	STORM WATER MANAGEMENT PLAN.....	12
1.5.1	General.....	12
1.5.2	Plan View	13
1.6	STORM SEWER PLANS.....	13
1.6.1	Plan View	13
1.6.2	Profile view	14
1.7	SANITARY SEWER & WATER MAIN PLANS	14
1.7.1	General.....	14
1.7.2	Plan View	15
1.7.3	Profile View	16
1.8	ROADWAY PLANS.....	16
1.8.1	General.....	16
1.8.2	Plan View	16
1.8.3	Profile View	17
1.9	PRELIMINARY PLAT	18
1.9.1	General.....	18
1.10	FINAL PLAT	18
1.10.1	General.....	18
1.11	PLAN SET SUBMITTAL SCHEDULE.....	18
1.11.1	Village of Germantown Submittals	18
1.11.2	Sanitary Sewer Plan Submittal to MMSD/DNR	18
1.11.3	Water main Plan Submittal to DNR.....	19
1.11.4	Storm Sewer Submittal to MMSD	19
1.11.5	Storm Water Management Plan Submittal to MMSD/DNR	19

2	WATER SYSTEM.....	20
2.1	<i>SPECIFICATIONS</i>	<i>20</i>
2.1.1	Water Main Pipe	20
2.1.2	Water Services	21
2.1.3	Trench Check Dam.....	23
2.1.4	Valves	24
2.1.5	Valve Boxes	25
2.1.6	Valve Vaults.....	26
2.1.7	Hydrants	27
2.1.8	Fittings.....	29
2.1.9	Water Metering Requirements	30
2.1.10	Polyethylene Wrap	32
2.1.11	Tracer Wire.....	32
2.1.12	Tapping.....	33
2.1.13	Bedding, Cover, & Backfill	35
2.1.14	Caps & Plugs	36
2.1.15	Casing/Carrier Pipe.....	36
2.2	<i>ABANDONMENT.....</i>	<i>37</i>
2.2.1	General.....	37
2.2.2	Water Services	38
2.3	<i>INSPECTION.....</i>	<i>38</i>
2.3.1	Submittals & Samples.....	38
2.3.2	Disinfecting.....	39
2.3.3	Acceptance Testing	39
2.4	<i>OTHER REQUIREMENTS</i>	<i>41</i>
2.4.1	General.....	41
3	SANITARY SEWER SYSTEM.....	43
3.1	<i>SPECIFICATIONS</i>	<i>43</i>
3.1.1	Sanitary Sewer Main and Laterals.....	43
3.1.2	Sanitary Force Main	45
3.1.3	Tracer Wire.....	46
3.1.4	Bedding, Cover, and Backfill	47
3.1.5	Sanitary Manholes.....	48
3.1.6	Sanitary Sewer Laterals	52
3.1.7	Lateral Connections.....	53
3.1.8	Casing Pipe	54
3.1.9	Trench Check Dam.....	55
3.1.10	Polyethylene Wrap and Corrosion Protection.....	55
3.1.11	Grease Interceptors.....	55
3.1.12	Lift Stations.....	57
3.1.13	Insulation.....	57
3.2	<i>ABANDONMENT.....</i>	<i>57</i>
3.2.1	GENERAL.....	57
3.2.2	SANITARY SEWER	58
3.3	<i>INSPECTION.....</i>	<i>59</i>

3.3.1	SUBMITTALS AND SAMPLES	59
3.3.2	ACCEPTANCE TESTING	59
3.3.3	CLEANING	60
3.3.4	CCTV – Private Interceptor Sewers	61
4	STORM SEWER SYSTEM	62
4.1	<i>SPECIFICATIONS</i>	62
4.1.1	STORM SEWER PIPE	62
4.1.2	STORM LATERALS (From main to lot line)	63
4.1.3	CULVERTS	64
4.1.4	FLARED END SECTIONS.....	65
4.1.5	DITCHES	65
4.1.6	STORM MANHOLE & JUNCTION CHAMBERS.....	66
4.1.7	CATCH BASINS	67
4.1.8	FIELD INLETS.....	68
4.1.9	ROAD UNDERDRAINS	68
4.1.10	BEHIND CURB COLLECTORS.....	69
4.1.11	FRAMES, GRATES AND LIDS.....	70
4.1.12	FRAME ADJUSTMENTS	71
4.1.13	SUMP PUMPS, DOWN SPOUTS, AND ROOF DRAINS.....	71
4.1.14	BEDDING/COVER/BACKFILL.....	71
4.1.15	PIPE TO MANHOLE CONNECTIONS.....	72
4.2	<i>INSPECTION</i>	73
4.2.1	SUMBITTALS AND SAMPLES	73
4.2.2	ACCEPTANCE TESTING.....	73
5	ROAD SYSTEM	75
5.1	<i>GEOMETRICS</i>	75
5.1.1	RIGHT-OF-WAY WIDTHS.....	75
	Per tables 2 & 2A of Chapter 18 of the Village of Germantown Municipal Code	75
5.1.2	PAVEMENT WIDTHS	75
	Per tables 2 & 2A of Chapter 18 of the Village of Germantown Municipal Code	75
5.1.3	BOULEVARD SECTIONS.....	75
5.1.4	CUL-DE-SACS	75
5.1.5	CLOSE/LOOP STREET	76
5.1.6	STREET GRADES.....	76
5.1.7	CROSS SLOPE	76
5.1.8	HORIZONTAL CURVES.....	76
5.1.9	VERTICAL CURVES.....	77
5.1.10	SIGHT DISTANCE	77
5.1.11	INTERSECTION RADII	77
5.1.12	ACCELERATION/DECELERATIONS/BYPASS LANES	77
5.1.13	TRANSITIONS	77
5.2	<i>SPECIFICATIONS</i>	77
5.2.1	SUBGRADE.....	77
5.2.2	GEOTEXTILE FABRIC.....	78
5.2.3	BASE COURSE	79

5.2.4	FROST BARRIER – As required by the Village Engineer	80
5.2.5	SHOULDERS	80
5.2.6	ASPHALT PAVEMENT	80
5.2.7	CONCRETE PAVEMENT	82
	The use of concrete pavement requires the approval of the Village Engineer.	82
5.2.8	ADMIXTURES	84
5.2.9	CURB AND GUTTER.....	84
5.2.10	ROAD UNDERDRAIN PIPE	86
5.2.11	DRIVEWAYS	86
5.2.12	PARKING LOTS	88
5.2.13	SIDEWALK AND PATHWAYS	89
5.3	<i>INSPECTION</i>	90
	Contractor shall be responsible for the horizontal and vertical control.....	90
5.3.1	ACCEPTANCE TESTING	90
5.4	<i>STREET LIGHTING</i>	91
	This section covers lighting for Municipally owned streets, sidewalks, parking lots, and parks. The Municipal Lighting is comprised of Municipally owned and maintained lighting and street lighting owned and maintained by We-energies.....	91
5.4.1	WE-ENERGIES OWNED & MAINTAINED STREET LIGHTING	92
5.4.2	VILLAGE OWNED PUBLIC STREET LIGHTS	92
5.4.3	INSTALLATION	93
5.4.4	INSPECTION/APPROVAL	93
6	Project Close-Out	94
6.1	<i>CONSTRUCTION INSPECTOR BINDER</i>	94
6.1.1	General.....	94
6.2	<i>LIEN WAIVERS</i>	94
6.2.1	General.....	94
6.3	<i>RECORD DRAWINGS</i>	94
6.3.1	GENERAL.....	94
6.3.2	SANITARY SYSTEM.....	95
6.3.3	WATER SYSTEM	96
6.3.4	STORM SYSTEM	97
6.3.5	ELECTRICAL SYSTEM	97
6.3.6	GRADING CERTIFICATION PLAN	98
6.3.7	STORM WATER BMP CERTIFICATION PLAN.....	98
6.3.8	EASEMENTS	99
6.3.9	STORM SYSTEM	99
7	Surveying Standards	101
7.1	<i>GENERAL</i>	101
7.1.1	General.....	101
7.2	<i>HORIZONTAL AND VERTICAL CONTROL</i>	101
7.2.1	General.....	101
7.3	<i>CONSTRUCTION STAKING</i>	102

7.3.1	General.....	102
7.4	<i>MONUMENTS</i>	102
7.4.1	General.....	102
7.5	<i>PLATTING</i>	103
7.5.1	General.....	103

1 CONSTRUCTION PLAN REQUIREMENTS

1.1 GENERAL SPECIFICATIONS

1.1.1 Sheet Requirements

1.1.1.1 Plans submitted for approval shall be on "D" size paper, 24-inches x 36-inches. The only exception is the master grading plan. The master grading plan shall not exceed a size of 30-inches x 36-inches and shall show the entire development if possible. If additional sheets are required match lines shall be used. Plans may be submitted electronically on a flash drive or through a file sharing program and/or on 11-inch x 17-inch paper if approved by Director of Public Works. If submitted electronically, the drawings shall be a .pdf file type.

1.1.1.2 Plans shall be drawn to a recognized Engineering scale, i.e.: 1"= 40' or 1" = 50' horizontal and 1" = 4', 1" = 5' vertical.

1.1.1.3 Plans shall use local datum (NVD 1988 datum) in establishing benchmarks and elevations.

1.1.1.4 Title blocks are required on each plan page and shall include all of the following fields:

1.1.1.4.1 Consulting Firm and Contact Information

1.1.1.4.2 Drawn By

1.1.1.4.3 Designed By

1.1.1.4.4 Checked By

1.1.1.4.5 Date

1.1.1.4.6 Scale

1.1.1.4.7 Revision History

1.1.1.4.8 Project Name

1.1.1.4.9 Project Location

1.1.1.4.10 Plan Sheet Type

1.1.1.4.11 Sheet Number

1.1.1.5 Stationing shall be at 100-foot intervals from South to North or West to East and shall be indicated on plan and profiles. Every 100-foot station shall be noted.

1.1.1.6 Each set of plans, drawings, documents, specifications, and reports shall be signed, dated, and stamped by a registered Professional Engineer in the State of Wisconsin, according to the Wisconsin Administrative Code Chapter A-E 2(4). The design Engineer shall bear the responsibility for the coordination of submitting all development plans for review. Any plans that are submitted without a professional seal will be rejected.

- 1.1.1.7 A cover sheet is required for the plan set. The cover sheet shall include a 1" =200' scale drawing of the project area that shows the locations of the proposed improvements. Plan sheets shall be indexed on this 200-scale system plan. NAD83 and NAVD88 are to be used.
- 1.1.1.8 Each cover sheet shall show the locations, elevations, and descriptions of the project benchmarks as established by the project surveyor. The cover sheet shall also show a location map with township, range, and section labeled.
- 1.1.1.9 Profile view shall be located below the plan view on plan/profile drawings and the two views should be in alignment vertically.
- 1.1.1.10 Each plan sheet shall show a north arrow. North direction shall be to the top or to the right of the sheet and indicated by a north arrow.
- 1.1.1.11 A legend shall be included in the plan set to designate line types.
- 1.1.1.12 Four (4) sets of all preliminary plans and specifications shall be submitted for initial review and corrections. Plans and support documents (i.e. stormwater management report, maintenance agreement, etc.) requiring state approval from MMSD and DNR, shall be processed through the Village. After Village review and approval, the documents will be sent to the appropriate state agencies by the Village Engineer.
- 1.1.1.13 Two full size and two half size sets of approved complete construction plans and specifications which meet all the requirements shall be submitted to the Village at least three working days prior to the preconstruction meeting. The preconstruction meeting is to be overseen by the Director of Public Works or their designee. Failure to submit plans and specs within the required time frame will result in the cancellation of the preconstruction meeting. These construction plans shall include but not be limited to the following:

1.2 PLAN REVIEW

1.2.1 Detail Sheet

- 1.2.1.1 A minimum of five (5) working days shall be required for approval of any revisions or changes to previously approved plans. The approval shall be in writing from the Village Engineer. No construction related to these proposed revisions or changes shall proceed prior to the approval of such revisions.
- 1.2.1.2 Preliminary proposed and existing grading plans (with plan view of preliminary sanitary sewer) shall be reviewed prior to all other preliminary construction plans being submitted. Complete detail and calculations for detention/retention objectives should be shown.
- 1.2.1.3 Digger's Hotline number of 1-800-242-8511 shall be noted on the plan set.
- 1.2.1.4 All requirements of the Village of Germantown Municipal Code, the DNR, and MMSD shall be met.

1.2.1.5 A construction estimate including materials, quantities, and cost will be included with the plans for water, sanitary, roadway, storm water, and grading.

1.2.1.6 A copy of the approved plans shall be submitted to the Village on CD in AutoCAD v2020.

1.2.2 Plan View

1.2.2.1 Lot, block, street, property, $\frac{1}{4}$ section, and easement line shall be shown.

1.2.2.2 Lot and block numbers, subdivision name, and existing physical features shall be shown.

1.2.2.3 Lot or property frontage, street width and easement dimensions shall be indicated.

1.2.2.4 Street names shall be shown.

1.2.2.5 Street centerline shall be indicated.

1.2.2.6 Match lines shall be shown to next plan sheet.

1.2.2.7 Dimensions showing offset from right-of-way and proposed roadway or easement centerline to proposed utility alignment.

1.2.3 Profile View

1.2.3.1 Elevations shall be based on the Village of Germantown datum (NAVD88) and given to the nearest 0.01 of a foot. Benchmarks used shall be indicated on the plans.

1.2.3.2 Conversion factor to Milwaukee Metropolitan Sewerage District datum shall be shown on the plans. (-580.61')

1.2.3.3 Signage Plan

1.2.3.4 Sign types, locations, and regulations to be listed and clearly stated.

1.3 MASTER GRADING & DRAINAGE PLANS

1.3.1 General

1.3.1.1 Scale of the plans shall be 1" = 100' for the master plan and 1" = 40' for the individual plan sheets.

1.3.1.2 A note shall be prominently placed on each sheet of the Master Grading Plan indicating "The Village of Germantown shall not approve any grade change in excess of 0.25 feet unless authorized to do so by the Village Engineer."

1.3.2 Plan View shall show the following:

1.3.2.1 Subdivision boundary lines and all lot lines.

1.3.2.2 Adjoining and inclusive roadways and their names.

- 1.3.2.3 Contour lines at 2-foot intervals. These contour lines shall extend at least 100 feet into adjacent parcels. Contours shall show all offsite drainage that is tributary to the site. Existing contour lines shall be dashed while proposed contour lines shall be solid, with the 10-foot increments in boldface.
- 1.3.2.4 Existing and proposed culvert locations, invert elevations, sizes, and materials on and within 200 feet of the proposed development.
- 1.3.2.5 Existing and proposed storm sewer locations, invert elevations, sizes, and materials on and within 200 feet of the proposed development, including catch basins, manholes, inlets, and BMP's.
- 1.3.2.6 Location of existing trees with Diameter at Breast Height (DABH) and type.
- 1.3.2.7 Location of proposed topsoil stockpile.
- 1.3.2.8 Proposed building pad locations and finished floor elevation for each lot, which incorporate setbacks and offsets and show finished yard grade, and exposure grade, if applicable, elevations to the nearest tenth of a foot. If it is desirable to maintain post grading/pre-building construction yard grades low, to not exceed 1.5 feet, it shall be noted prominently on plan.
- 1.3.2.9 Proposed elevations at all property corners.
- 1.3.2.10 Show all high points, low points, and overland drainage paths with elevations.
- 1.3.2.11 Notes required to sequence the construction activities (i.e. erosion and grading notes and plans which shall be done ahead of other operations on site to manage storm water runoff).
- 1.3.2.12 Specific details on all retention/detention basins, ponds, overflows, outlet structures, etc.
- 1.3.2.13 Obstructions within the project limits including but not limited to: trees, landscaping, fences, structures, light poles, etc.
- 1.3.2.14 Finished street centerline elevations shall be indicated at 100-foot stations, all intersections, cul-de-sacs, and other changes in slope. At vertical curves, elevations shall be shown at P.V.C., P.O.C., P.V.T. and at 25-foot intervals for curves 100 feet long or less. For vertical curves over 100 feet long, elevations at 50-foot intervals along the V.C., plus the P.O.C. and P.V.I.
- 1.3.2.15 Channel or swale flow-line elevations shall be indicated every 25 feet within public land or easement.
- 1.3.2.16 Arrows indicating path and direction of sheet flow shall be shown for each proposed lot.
- 1.3.2.17 Mapped wetland boundaries and 100-year floodplain shall be delineated along with setbacks.

1.3.2.18 Overflow discharge and overland flow path.

1.3.3 Grading Record Drawing

1.3.3.1 After finished grading is accomplished, a grading record drawing shall be created and submitted to verify conformance with the approved grading plan. The drawing shall consist of the following:

1.3.3.1.1 Use approved grading plan as the base sheet. Denote “record drawing” in bold letters at the top and specify the firm doing the record. Cross out the name of the design firm if different than the firm doing record drawings. Drawings should denote a Record Drawing (As-Built) Date.

1.3.3.1.2 Spot elevations in the center of all lot building pads to the nearest tenth of a foot.

1.3.3.1.3 Spot elevations at all property corners to the nearest tenth of a foot.

1.3.3.1.4 Crossroad culvert invert elevations to the nearest hundredth of a foot.

1.3.3.1.5 Flowline ditch elevations at every even station to the nearest tenth of a foot.

1.3.3.1.6 Berm elevations to the nearest tenth of a foot.

1.3.3.1.7 Spot elevations at all high and low points to the nearest tenth of a foot.

1.3.3.1.8 Verify topo lines as directed by the Village Engineer.

1.3.3.1.9 Field inlet grate elevations.

1.4 EROSION CONTROL PLAN

1.4.1 General

1.4.1.1 Plans shall conform to Chapter 17 Zoning Code, Section 17.44 Erosion Control of the Municipal Code.

1.4.1.2 Plans shall conform to The Wisconsin Stormwater Manual and the Wisconsin Construction Site Best Management Practice Handbook.

1.4.1.3 In certain instances, it is accepted to combine the grading and drainage plan with the erosion control plan, as long as all required items are discernible.

1.4.2 Plan View shall show the following:

1.4.2.1 Site boundaries and adjacent lands.

1.4.2.2 Vegetative cover and soil type.

1.4.2.3 The limits of any areas which need special stabilization techniques.

1.4.2.4 Mapped wetland boundaries, 100-year floodplain, and watercourses shall be delineated along with setbacks.

1.4.2.5 Location and dimensions of storm water drainage systems and natural drainage patterns on and immediately adjacent to the site for 200 feet.

1.4.2.6 Locations and dimensions of existing; utilities, structures, roads, highways, paving, lot lines and outlots.

1.4.3 Proposed conditions of the site shall include:

1.4.3.1 Locations and dimensions of all proposed land disturbing activities, including finished topography.

1.4.3.2 Location and dimensions of all temporary soil and dirt stockpiles with erosion control method.

1.4.3.3 Location and dimensions of all construction site sediment and erosion control measures necessary. From the WI Construction Site Handbook, best management practices include the following categories: diverting flow, managing overland flow, trapping sediment in channelized flow, establishing permanent drainageways, protecting inlet trapping sediment during site dewatering, preventing tracking, and others. Construction details should be shown on the plan.

1.4.3.4 Location, dimensions and description of all channels, pipes, structures, basins or reservoirs, or other conveyances proposed to carry runoff to the nearest adequate outlet, including applicable design assumptions and computations. The application, design discharge rate, in cubic feet per second, for each structure, pipe, channel, or conveyance. Design flow velocity for channels and outlets shall be indicated.

1.4.3.5 Areas to be sodded or seeded and mulched or otherwise, stabilized with vegetation, describing type of final vegetative cover. Type and quality of mulch and method of anchoring shall be indicated, as well as seeding mixtures, rates, lime and fertilizer application rate for temporary or permanent seeding.

1.4.3.6 Schedule of anticipated starting and completion date of each land disturbing and land developing activity including the installation of construction site control measures.

1.4.3.7 Provisions for maintenance of the construction site control measures during construction.

1.4.3.8 Completion of weekly DNR form for maintenance of erosion control as required in permit.

1.5 STORM WATER MANAGEMENT PLAN

1.5.1 General

1.5.1.1 MMSD Rules and Regulations Chapter 13 shall be followed for developments that involve an increase of one-half acre or more of impervious surface.

1.5.1.2 DNR Chapters NR 151 and NR 216 shall be followed for construction sites with 1 acre or more of land disturbance.

1.5.1.3 The Village's Storm Water Management Guidelines shall be followed for developments with > 3,000 SF of land disturbance.

1.5.2 Plan View

1.5.2.1 Highlight drainage basins and specify acres of each basin for existing and proposed conditions. Show contours to determine accuracy of constructed basin.

1.5.2.2 Show time of concentration paths including lengths and slopes.

1.5.2.3 Indicate soil groups and curve numbers.

1.5.2.4 Show detention basin volumes, high water level (HWL), overflow location and elevation. Indicate basins with a title to be referenced by details and in the report.

1.5.2.5 Provide detail of basin discharge structure, size, and materials, showing the 2-yr and 100-yr elevations and restrictions.

1.5.2.6 Existing and proposed contours in pond area at one-foot contour interval.

1.5.2.7 Flood routing for runoff greater than design capacity.

1.5.2.8 Flood stage elevation of 100-year 24 hour storm event.

1.5.2.9 Accompanying the plan shall be a signed and sealed Detailed Storm Water Management Report including a narrative, design assumptions, conclusions, calculations, and recommendations.

1.6 STORM SEWER PLANS

1.6.1 Plan View

1.6.1.1 Right-of-way and its width.

1.6.1.2 Lot lines, lot and block numbers, frontages, and house addresses.

1.6.1.3 Name of each roadway and any intersecting roadways in which the storm sewer will be located.

1.6.1.4 Edge of pavement or face and back of curb and sidewalk.

1.6.1.5 All easement limits and widths, including existing and proposed, permanent and temporary.

1.6.1.6 All proposed and existing sanitary sewer and laterals (existing-dashed, proposed-solid).

1.6.1.7 All proposed and existing water main and laterals (existing-dashed, proposed-solid).

1.6.1.8 Proposed size and diameter of manholes, catch basins, inlets, and junction boxes.

1.6.1.9 Inlets at intersections shall be located at the end of the curb and gutter radius and not in pedestrian walkways.

1.6.1.10 Dimensions showing offset from right-of-way and roadway centerline to the storm sewer. Typically, the storm sewer should be located 10 feet south or west of roadway centerline.

1.6.1.11 Length and diameter of storm sewer between structures, from center to center of manholes, and other structures shall be dimensioned.

1.6.1.12 Material and size of any existing storm sewer to be tied into.

1.6.1.13 Details of outfall or ditch inlet protection requirements such as riprap, end sections or headwalls as needed.

1.6.1.14 Additional details shall include typical manholes, catch basins, inlets, etc.

1.6.1.15 Location of sump pump collection system, field drains, and drainage tiles, as well as construction elevations and details.

1.6.1.16 All obstructions/appurtenances located within the project limits, including, but not limited to: trees, signs, utilities, fences, light poles, structures, etc.

1.6.1.17 A note shall be included that states storm sewer construction shall be according to the latest addition of the Standard Specifications for Sewer and Water construction in Wisconsin and Village of Germantown Construction Standards and Specifications. Germantown's municipal code and standard specifications supersede other standard specifications, when there are conflicting requirements.

1.6.2 Profile view

1.6.2.1 Existing and proposed surface profiles over the storm sewer.

1.6.2.2 The proposed size, material, and diameter of manholes, catch basins, inlets, culverts, and junction boxes.

1.6.2.3 Distances, slope, size, and material of storm sewer shall be labeled between structures center to center.

1.6.2.4 Rim and invert elevations at structures.

1.6.2.5 Invert of storm sewer pipe if different than structure invert elevation.

1.6.2.6 Material and size of any existing storm sewer to be tied into.

1.6.2.7 Sanitary sewer (dashed).

1.6.2.8 Water main (dashed).

1.6.2.9 Backfill material to be used shall be labeled and compacted according to designated methods as approved by the Village Engineer.

1.7 SANITARY SEWER & WATER MAIN PLANS

1.7.1 General

1.7.1.1 Sanitary sewer and water main may be shown on the same sheet as approved by Village Engineer.

1.7.1.2 Plans shall state that construction shall be according to Standard Specifications for Sewer and Water Construction in Wisconsin, and the Construction Standards and Specifications of the Village of Germantown.

1.7.1.3 All sanitary sewer drawings shall include a Lateral Table. The table must show all lengths of sanitary sewer laterals and confirm clearance underneath future footing elevations.

1.7.2 Plan View

1.7.2.1 Right-of-way and its width.

1.7.2.2 Lot lines, lot and block numbers, frontages, and addresses.

1.7.2.3 Edge of pavement or face and back of curb and sidewalk where applicable.

1.7.2.4 All easement limits and widths; easements shall be a minimum of 20 feet wide.

1.7.2.5 Proposed water main pipe material, diameter, hydrant, valve and lateral locations. (existing-dashed, proposed-solid).

1.7.2.6 Existing water facilities on, or adjacent to, the development. This shall include material and size of any existing water main.

1.7.2.7 Proposed sanitary sewer manholes, pipe slopes and center-to-center distances between manholes, pipe diameter, laterals, and rim and invert elevations. (existing-dashed, proposed-solid).

1.7.2.8 Existing sanitary facilities on, or adjacent to, the development. This shall include material and size of any existing sewer.

1.7.2.9 Sanitary sewers shall generally be located at the centerline of the street. Water mains shall be located 10 feet to the north or east of centerline of the street and shall maintain all necessary clearances as defined by standard specifications.

1.7.2.10 Dimensions showing offset from right-of-way to the sewer line and water line. Dimensions shall also show the separation between the sanitary sewer, water main, and other utilities.

1.7.2.11 Length of each sanitary sewer lateral and length of any lateral risers, as measured from the centerline of the mainline.

1.7.2.12 Elevations of sewer and water shall refer to flowline or invert of pipe.

1.7.2.13 Name of each roadway and any intersecting roadways in which the sanitary sewer will be located.

1.7.2.14 All manholes, valves, and hydrants should be labeled.

1.7.2.15 Proposed or existing storm sewer and appurtenances (existing-dashed, proposed-solid).

1.7.2.16 All improvements are to use roadway stationing.

1.7.2.17 All obstructions/appurtenances located within the project limits including but not limited to trees, signs, utilities, fences, light poles, structures, etc.

1.7.3 Profile View

1.7.3.1 Existing and proposed surface profiles over the sanitary sewer and water main.

1.7.3.2 The proposed label, diameter, rim and invert elevations of sanitary sewer manholes (inches) for existing and proposed.

1.7.3.3 Invert of sanitary sewer pipe if different than structure invert elevation.

1.7.3.4 Pipe material, slope and diameter of sanitary sewer between each manhole as plus or minus foot per foot.

1.7.3.5 Center-to-center distance between manholes.

1.7.3.6 The proposed water main pipe material and its diameter.

1.7.3.7 Center of hydrant nozzle, and hydrant shoe elevations shall be indicated.

1.7.3.8 Limits of gravel, spoil, and/or slurry backfill.

1.7.3.9 Proposed or existing storm sewer and appurtenances (existing-dashed, proposed-solid).

1.7.3.10 Crossings with existing or proposed underground improvements shall be drawn with the name, diameter, elevation and station indicated.

1.7.3.11 Material and size of any existing sanitary sewer and water main to be tied into.

1.7.3.12 Stationing shall be done for all appurtenances.

1.7.3.13 Areas of concrete cradle and envelope shall be dimensioned and labeled.

1.8 ROADWAY PLANS

1.8.1 General

1.8.1.1 Both typical sections and cross-sections shall be shown on the Plan and Detail sheets. Cross-sections details shall also be shown for a cul-de-sacs and t-turnarounds.

1.8.1.2 Elevations shall refer to finished centerline grade.

1.8.1.3 Plans shall state that paving construction shall be according to WIS DOT Standard Specifications for Road and Bridge Construction, latest edition. Germantown's municipal code and specifications supersede if there is any conflict.

1.8.1.4 Wisconsin Traffic Impact Analysis Guidelines

1.8.1.4.1 The Village requires developers and their engineers to use the Wisconsin Department of Transportation's (DOT's) Traffic Impact Analysis Guidelines. Traffic impacts, and how to mitigate them, are an important consideration for any community when a significant development is proposed. Public policy makers, citizens, and developers all have a stake in understanding and responding to additional demands on the transportation system. All share the common interest of a safe and efficient transportation network. A properly developed traffic impact analysis study can provide the factual basis for good decision making and facilitate the timely implementation of effective mitigation measures.

1.8.1.5 Potential Traffic Impacts

1.8.1.5.1 A traffic impact analysis (TIA) is a specialized engineering study that determines the potential traffic impacts of a proposed traffic generator and should answer the following fundamental questions:

1.8.1.5.1.1 What are the existing traffic conditions, the expected future traffic conditions without the development, and the expected future traffic conditions with the development in place?

1.8.1.5.1.2 Can the existing and planned transportation system accommodate the additional traffic generated by the planned development?

1.8.1.5.1.3 Are roadway system improvements needed to maintain an acceptable level of service (LOS) beyond those already programmed or included in the local transportation plan?

1.8.1.5.1.4 What are the recommended roadway improvements that may be necessary to accommodate the expected development traffic?

1.8.1.5.2 A TIA must be completed prior to finalizing the development design, while there is still flexibility in the development's site design.

1.8.2 Plan View

1.8.2.1 Right-of-way and its width.

1.8.2.2 Edge of pavement face and back of curb and sidewalk.

1.8.2.3 Stationing along the centerline of the roadway, including cul-de-sacs and t-turnarounds.

1.8.2.4 Stations shall be indicated by tick marks along the centerline and every 100-foot station shall be labeled.

1.8.2.5 Width of pavement flange to flange.

1.8.2.6 Lot lines, numbers, frontage lengths, and house addresses.

1.8.2.7 Name of each roadway and any adjoining roadways.

1.8.2.8 Curb radii shall be dimensioned to the back of curb. Curb radii are to be verified and approved by the Village Engineer.

1.8.2.9 Flange lines and back-of-curb lines shall be drawn.

1.8.2.10 Flange elevations shall be shown at the beginning, end, and change of slope, at all curb and gutter sections, cul-de-sacs, and warped pavement sections. Length of curve and slope shall also be shown.

1.8.2.11 Specific details of all existing roadways being connected to. Pavement, shoulders, ditches, curb alignment and grades shall be shown as needed to adequately make the transition to match existing grades.

1.8.2.12 All driveways within 500 feet of the proposed development.

1.8.2.13 All roadside ditch locations, flow line elevations at 100-foot intervals, and slope of the ditch.

1.8.2.14 All obstructions/appurtenances located within the project limits including but not limited to: trees, signs, utilities, fences, light poles, structures, etc.

1.8.3 Profile View

1.8.3.1 Existing and proposed roadway profiles along centerline of roadway, cul-de-sacs, and turnarounds.

1.8.3.2 Stationing and final centerline grades at all fifty- and hundred-foot stations and at all grade breaks.

1.8.3.3 Proposed grades and stationing shall be shown at each station, at intersections, at street lines extended and at 25-foot intervals, P.C., P.T., and P.I., of vertical and horizontal curves.

1.8.3.4 Slopes shall be indicated as plus or minus foot per foot.

1.9 PRELIMINARY PLAT

1.9.1 General

1.9.1.1 Two (2) copies of a preliminary plat shall be submitted with the other required preliminary plans for initial review.

1.9.1.2 Three (3) copies of an approved, recorded preliminary plat conforming to Section 236.11 (1)(a) of the Wisconsin Statutes shall be required at least one month prior to the start of any construction.

1.10 FINAL PLAT

1.10.1 General

1.10.1.1 The final plat will not be certified by the Village until conditions of the development agreement are met.

1.10.1.2 One (1) full size 24" x 36" and one (1) 8½"x11" 200 scale copy of the final plat conforming to Section 236.25 (2)(c) and (d) of the Wisconsin Statutes shall be submitted to the Village within 10 days of recording. A digital file compatible with AutoCAD in .DWG format shall also be submitted.

1.10.1.3 The AutoCAD digital plat will be mapped using the Wisconsin State Plane Coordinate System – South Zone and based on the NAD83. All construction plans and record documents will be based on this same survey requirement. The coordinates of all section and quarter section monuments are available from the Village Engineering Department.

1.11 PLAN SET SUBMITTAL SCHEDULE

1.11.1 Village of Germantown Submittals

1.11.1.1 When submitting plans to the Village for: sanitary sewer, water main, storm sewer, paving, grading, and erosion control, provide the following number of plan sets:

1.11.1.1.1 For the FIRST submittal, the plans shall go through the Village Planner and receive Village board approval. Their requirements shall be followed. Please provide four (4) copies of the plans in digital form and 24-inch x 36-inch plan sets.

1.11.1.1.2 For each SUBSEQUENT submittal after approval by Village Board, two (2) copies of each plan set.

1.11.1.1.3 For the FINAL submittal, two (2) copies of each plan set.

1.11.1.2 The Village shall be copied on all correspondence to and from governing agencies including MMSD, DNR, Army Corps of Engineers (ACOE).

1.11.2 Sanitary Sewer Plan Submittal to MMSD/DNR

1.11.2.1 Sanitary Sewer submittals shall follow the requirements of NR 110 and all other chapters, along with MMSD Chapter 2. Projects eligible for DNR 'Fast-Track' – as designated on DNR's website. This information is located on Form 3400-160.

1.11.2.2 Any additional data or documents required by MMSD or DNR shall be furnished by the consulting Engineer.

1.11.3 Water main Plan Submittal to DNR

1.11.3.1 Water Main Extensions shall follow the requirements of NR 811 and all other applicable chapters.

1.11.3.1.1 One copy of the cover letter/Village approval letter.

1.11.3.1.2 One set of plans and specifications.

1.11.3.1.3 Form 3400-105 Acknowledgement of Receipt by DNR

1.11.3.1.4 Form 3300-66 Water Main Submittal Checklist

1.11.3.2 Any additional data or documents required by MMSD or DNR shall be furnished by the consulting Engineer.

1.11.4 Storm Sewer Submittal to MMSD

1.11.4.1 Storm Sewer shall follow the requirements of Chapter 2.

1.11.4.1.1 One copy of the cover letter/Village approval letter.

1.11.4.1.2 One copy of the plans and specifications.

1.11.4.1.3 One copy of the relevant system plan

1.11.4.1.4 One copy of the design computations.

1.11.5 Storm Water Management Plan Submittal to MMSD/DNR

1.11.5.1 An electronic copy of the Storm Water Management Plan shall be submitted to MMSD via Sharepoint and shall follow the requirements of Chapter 13 and the Surface Water and Storm Water Rules.

1.11.5.2 Construction activities that disturb more than 1 acre of land shall apply for an NOI and an NOT from the DNR and shall follow the requirements of NR 216 and NR 151.

1.11.5.3 Chapter 30 permits and Water Quality permits shall be obtained as required. ACOE permits for work in wetlands shall also be obtained.

2 WATER SYSTEM

All labor and material shall be governed by requirements of the latest edition and all amendments thereto of the Standard Specifications for Sewer and Water Construction in Wisconsin (SWS), Public Service Commission (PSC) Rules, and Wisconsin Department of Natural Resources (WDNR) Regulations, unless otherwise specified in this document, whichever is more restrictive. All products specified in this section shall be manufactured domestically.

2.1 SPECIFICATIONS

2.1.1 Water Main Pipe

2.1.1.1 MATERIALS

2.1.1.1.1 All pipe used for water main shall comply with SWS and the following:

2.1.1.1.1.1 6" PVC – Hydrant leads

2.1.1.1.1.2 8" PVC or Fusible PVC C-900 and/or C90/RJIB Certa-Lok

2.1.1.1.1.3 12" PVC or Fusible PVC C-900 and/or C90/RJIB Certa-Lok

2.1.1.1.1.4 16" PVC or Fusible PVC C-900 and/or C90/RJIB Certa-Lok

2.1.1.1.1.5 Sizing of private mains requires approval by the Village Engineer.

2.1.1.1.2 PVC or PVCO water main for sizes 4" through 16" diameter, excepting service laterals shall conform to the outer diameter (OD) of Ductile Iron pipe and be AWWA C-900 or AWWA C-909, Class 150 or 200, DR-18 or -14. Shall conform to Standard Specifications Ch. 4.6.0 and 8.20.0. All pipe shall be furnished with Push-On type integral elastomeric bell-spigot joints. USA manufactured products only.

2.1.1.1.3 Fire and Combination Fire/Water service lines from the connection at the main to the backflow prevention device connection, shall be:

2.1.1.1.3.1 PVC/PVCO for sizes 3" through 12" diameters only, conforming to the OD of Ductile Iron pipe, AWWA C-900 or AWWA C-909, Class 200, DR-14

2.1.1.1.3.2 All pipe shall be furnished with Push-On type integral elastomeric bell-spigot joints.

2.1.1.2 DESIGN STANDARDS

2.1.1.2.1 Main sizes (Minimum).

2.1.1.2.1.1 Residential: 8" minimum

2.1.1.2.1.2 Multifamily and commercial: 12" subject to Village Engineer approval.

2.1.1.2.1.3 Industrial: 12" subject to Village Engineer approval.

2.1.1.2.2 Watermain Location

2.1.1.2.2.1 In streets & easements: 10 feet from sanitary sewer; north and east.

2.1.1.2.3 Watermain Bury Depth/Pipe Design Cover

2.1.1.2.3.1 Turf – 6.5 feet (below final grade);

2.1.1.2.3.2 Paved Areas - 7 feet minimum

2.1.1.2.3.3 Special situations (i.e.: ditches, etc.)- 5 feet minimum cover with insulation.

2.1.1.2.3.4 Under 4 feet of cover water main shall be offset to achieve 6 foot cover.

2.1.1.2.4 Tracer wire installation is required on all water mains, branches, and services.

2.1.2 Water Services

2.1.2.1 MATERIALS

2.1.2.1.1 Sizes thru 2" diameter shall be of one manufacturer only, as follows:

2.1.2.1.1.1 Service Lines

2.1.2.1.1.2 PVC

2.1.2.1.1.3 250 psi pressure rated, SDR-9,

2.1.2.1.1.4 Copper tube size, ASTM D-2737, NSF 14, AWWA C-901

2.1.2.1.2 With tracer wire run to the building, terminate in same type and manor as hydrant detail

2.1.2.1.3 There shall be no joints between the corporation valve and curb stop and no joint between the curb stop and meter horn valve.

2.1.2.1.4 Laying length of PVC lines shall afford enough slack to allow for thermal contraction of the plastic and in such manner as to avoid placing it under any undue tension.

2.1.2.1.5 All curb stop boxes shall be wrapped with polyethylene.

2.1.2.1.6 Fittings

2.1.2.1.6.1 Terminal couplings on PVC services shall be made with a pressure tight joint with a Buna-N beveled gasket, and stainless-steel insert sleeve equal to Ford 50-series, and compression fitting which includes a grooved clamp equal to:

2.1.2.1.7 Valves

2.1.2.1.7.1 Corporation (Ball) Valves: Mueller B-25008N; Ford FB1000-Q-NL; A.Y. McDonald 74701BQ.

2.1.2.1.7.2 Curb (Ball) Valves: Mueller B-25155N; Ford B44-Q-NL; A.Y. McDonald 76104T.

2.1.2.1.7.3 Curb Boxes: (Minn. Pattern) Mueller H-10300 and H-10302; Ford E.M. 2-65-56/57 and 2-70-56/57; A.Y. McDonald 5614/15.

2.1.2.1.8 Sizes 3" diameter and larger shall be as follows for Service Lines, Valves, and Fittings:

2.1.2.1.8.1 Connection to Main: Anchoring tee with service line valve anchored to the main branch tee or tapping sleeve and reducing fitting, when appropriate.

2.1.2.1.8.2 Lines: Per "Water Main – Materials" section.

2.1.2.1.8.3 (Curb) Valves: Per "Valves – Materials" section.

2.1.2.1.8.4 Valve Boxes: Per "Valve Boxes – Materials" section.

2.1.2.1.8.5 Fittings: Per "Fittings – Materials" section.

2.1.2.1.9 All stop boxes and service valves shall be exposed, plumb, clean, and operable, when initially installed during new construction, as well as during rehabilitation or repaving projects.

2.1.2.2 DESIGN STANDARDS

2.1.2.2.1 Location, as you face the property, shall be to the left of the sanitary sewer lateral. Each habitable building shall have its own unshared service connection to the main.

2.1.2.2.2 On new construction, curb stop shall not be located within 5 feet of the driveway.

2.1.2.2.3 Water services shall have a trench check dam installed on the property side of the curb stop. See Specification 2.1.3 and Detail Figure 20.

2.1.2.2.4 Pipe design cover:

2.1.2.2.4.1 Turf (Ultimate grade) - 6 feet minimum

2.1.2.2.4.2 Paved areas - 7 feet minimum

2.1.2.2.4.3 Special Situation (i.e.: ditches, etc.) - 5 feet minimum cover with insulation

2.1.2.2.4.4 Under 4 feet of cover water main shall be offset to achieve 6-foot cover.

2.1.2.2.5 Following sizes are minimums, larger sizes may be required based upon fixture units and point of service pressure:

TABLE 1				
Type	Distance (building to main)	No. Of Units		Size
Single Family	<55'			1 ¼" ID
	>55'			1 ½" ID
Two Family	<55'			1 ½" ID
	>55'			2" ID
Multi-Family		<=4		2" ID

		<=8		4" ID
		<=12		4" ID
		<=24		6" ID
		<=48		8" ID
Commercial				2" ID
Industrial				2" ID

2.1.2.2.6 Laterals 2" diameter and smaller may be installed in common trench with the sanitary sewer; Place the shut off at the (future) ROW or easement line.

2.1.2.2.7 Laterals greater than 2" diameter shall be installed a minimum of 8.0 feet away from sanitary or storm laterals; place the shut off at the water main connection tee.

2.1.2.2.8 Generally, PVC service lines shall be installed in accordance with SWS Chapters 5.1.0, 5.2.0 and 5.5.0, and File Nos. 50 & 51, and the following requirements:

2.1.2.2.9 PVC service pipe 1¼" diameter and smaller shall be installed with NO coupling or joint from the corporation stop to the curb stop valves, and the run from the curb stop valve to the meter horn.

2.1.2.2.10 PVC service pipe 1½" and 2" diameter shall be installed with NO coupling or joint from the corporation stop to the curb stop valve, and the run from the curb stop to the meter horn. In the event of a run greater than 55 ft., then the shortest pipe length shall be 20 ft.

2.1.2.2.11 Existing laterals not used in a development shall be abandoned at the main when a development, land division or building razing occurs. See Section 2.2 regarding Abandonment.

2.1.2.2.12 When an existing water service is stubbed to a parcel and is deemed not functional, it will be abandoned, per Section 2.2, and a new service line shall be installed.

2.1.2.2.13 When laterals greater than 2" diameter is existing and the new construction connects to lateral, it will be at the discretion of the Village to allow the connection or abandon at the main and reinstall a new lateral paid for by the property owner. See section 2.2.1.1

2.1.3 Trench Check Dam

2.1.3.1 Materials

2.1.3.1.1 Clay material shall have no organic matter and shall be compacted to 95% standard proctor, or;

2.1.3.1.2 Pre-approved equals such as AquaBlok®, slurry, and others.

2.1.3.2 Design Standards

2.1.3.2.1 A trench check dam shall be installed on all water services.

2.1.3.2.2 For water main pipe, if groundwater is present, a trench check dam shall be installed on all Water Main Pipe or as directed by the Village Engineer.

2.1.3.2.3 The check dam shall be located on the property side of the curb stop.

2.1.3.2.4 Install check dam with bentonite chips 2 feet across the full width of the trench and 4 feet above pipe crown.

2.1.4 Valves

2.1.4.1 Materials

2.1.4.1.1 All valves shall be Resilient type. Acceptable valves are:

2.1.4.1.2 Butterfly Valves - for 16" and larger diameters, conforming to AWWA C504-94, stems sealed by at least two O-Rings, and worm gear operators for 2" square valve key operation from above, turn left (CCW) to open. Install with operating nut on North or East side of water main. Acceptable valves include:

2.1.4.1.2.1 M&H 4500

2.1.4.1.2.2 Kennedy

2.1.4.1.2.3 Pratt Groundhog

2.1.4.1.2.4 Mueller LineSeal III-321-20 or XP-5227-20, or

2.1.4.1.2.5 Pre-approved equal

2.1.4.1.3 RW Gate Valves – For 12" and smaller diameters, conforming to AWWA C-509-94, 250 psi rated, non-rising stems sealed with two O-rings, MJ ends (or MJ-F), turn left (CCW) to open, 2" square operating nut. Acceptable valves include:

2.1.4.1.3.1 Kennedy R/W – 4571

2.1.4.1.3.2 Mueller R/W A-2361 or 2362

2.1.4.1.3.3 Pre-approved equal

2.1.4.1.4 All exposed and non-epoxy coated bolts and nuts on hydrants and valves shall be stainless steel; T-Bolts shall be Cor-Blue or have a fluoropolymer coating as pre-approved by the Village Engineer.

2.1.4.1.5 All valves shall be furnished with interior and exterior epoxy coatings per AWWA C-550-90. All valves not installed in vaults or manholes shall be installed per SWS File No. 37 and shall be wrapped with polyethylene per Section 2.1.10 of these Specifications.

2.1.4.2 Design Standards

2.1.4.2.1 Valve Locations

2.1.4.2.1.1 On all legs of branch lines: Mega-lugged to watermain

2.1.4.2.2 Maximum spacing between valves:

2.1.4.2.2.1 At each intersection

2.1.4.2.2.2 Every 800 feet

2.1.4.2.2.3 Not greater than 24 residential equivalent units (i.e.: 24 SF units; 3 – 8 Family Units)

2.1.5 Valve Boxes

2.1.5.1 Materials

2.1.5.1.1 Valve boxes shall be cast iron, manufactured in the USA, and shall properly accommodate the selected valves. Acceptable manufacturers are:

2.1.5.1.1.1 Tyler Series 6860 US Domestic

2.1.5.1.1.2 Pre-approved equal

2.1.5.1.2 Valve and enclosure type:

Size	Box	Type	Manhole Vault
4"	YES	RW-GV	
6"	YES	RW-GV	
8"	YES	RW-GV	(Special Circumstances)
12"	YES	RW-GV	(Special Circumstances)
16"	YES**	RW-BV	(6 Foot Diameter Option**)

2.1.5.1.3 A valve box #6 base adaptor by Adapter, Inc., or pre-approved equal, shall be furnished as part of the complete valve box for direct-bury gate & butterfly valves.

2.1.5.1.4 Top sections of valve boxes shall be whole factory lengths. Breaking of the top section to shorten its length is not acceptable.

2.1.5.1.5 Screw-in risers are acceptable and preferred. Slip in risers may be used with prior approval.

2.1.5.1.6 Valve box cover shall be a 5-1/4" "MWW" drop in lid with the word "Water" stamped on the top surface.

2.1.5.1.7 All valve boxes shall be wrapped with polyethylene per Section 2.1.10 of these Specifications.

2.1.5.1.8 All valve boxes shall be installed straight and plumb when initially installed during new construction, as well as during rehabilitation or repaving projects. The top of the valve box shall be set flush with pavement grade to avoid damage from snowplows and streets cleaning equipment.

2.1.5.1.9 Valve boxes shall be operable, cleaned and free of debris after installation, after rehabilitation or repaving projects or after any work done by non-Utilities and Streets Department personnel.

2.1.5.1.10 Adjustment to road boxes can be made using slip type, screw insert type and/or slip rings to accommodate a 5 ¼" lid. Smaller than 5 ¼" will not be allowed. The contractor will make Final alignment to the valve box after binder and before the final lift of asphalt.

2.1.6 Valve Vaults

2.1.6.1 Materials

2.1.6.1.1 When designated on the plans or required by the Village Engineer, valve vaults/manholes shall be installed in accordance with this Section.

2.1.6.1.2 All manholes shall be pre-cast concrete with integral base and reinforced concrete flat slab top or approved equal.

2.1.6.1.3 All pre-cast manhole barrel joints shall be made with preformed butyl rubber gasket material (i.e. "Easy Stik" or equal).

2.1.6.1.4 All manhole steps shall comply with SWS Section 8.40.1.A or B.

2.1.6.1.5 All pre-cast manhole barrel sections shall be rotated to align all manhole steps vertically in the manhole.

2.1.6.1.6 All manhole lids shall be equal to Neenah R-1900-D with gasketed lid.

2.1.6.1.7 All frame/casting adjusting rings shall be reinforced concrete rings having 36" I.D. The minimum height for a chimney section shall be the height associated with the proper placement of one 2" adjusting ring. The maximum height of adjusting rings above the cone as measured from the slab top is 16". If more than 16" of adjusting rings are needed to set the casting to finished grade, then an additional barrel section shall be installed on the manhole. Paving rings which have an adjustable diameter is not allowed.

2.1.6.1.8 All chimney joints, including the frame-chimney joint, and all barrel & cone section lifting holes shall be sealed with a premixed, non-metallic, high-strength, non-shrink cementitious grout such as Pennegrout by IPA Systems, or approved equal, which meets requirements of ASTM C-1-91 and C-827 as well as CRD C-588 and C-621.

2.1.6.1.9 Waterproofing mastic shall be placed over all lift holes and exterior of manhole chimneys that are approved to remain raised above existing grade. Trowelable grade mastic, Tremco 60 or approved equal, shall be applied to a minimum 50 mil WFT.

2.1.6.1.10 An external sealing wrap shall be placed at all joints between pre-cast manhole sections. The external sealing wrap shall meet, or exceed, the requirements of ASTM C-877, Type II. External joint seals shall be MacWrap, as manufactured by Mar-Mac Manufacturing Co. Inc. or pre-approved equal.

2.1.6.1.11 Coal-tar epoxy coating (two coats @ 8.0 mils DFT each) shall be applied to the exterior of ALL manholes in accordance with SWS 8.7.0. Alternate waterproofing materials and application may be pre-approved by the Village Engineer.

2.1.6.1.12 Pipe-Manhole Connection device shall be Kor-N-Seal boot with stainless steel Snap-In banding rings or pre-approved equal.

2.1.6.2 Sample Station

2.1.6.2.1 Eclipses #88SS SMPL STN 7'-0" Extreme Cold

2.1.6.2.2 Installed with its own water curb stop and curb box

2.1.7 Hydrants

2.1.7.1 Materials

2.1.7.1.1 Acceptable manufacturers are:

2.1.7.1.1.1 Kennedy Guardian K-81 UL/FM

2.1.7.1.1.2 Mueller A-403 Super Centurion

2.1.7.1.1.3 Mueller Super Centurion UL/FM

2.1.7.1.1.4 Pre-approved equal

2.1.7.1.2 All hydrants shall be provided as follows:

2.1.7.1.2.1 MJ connection

2.1.7.1.2.2 Turn left to open

2.1.7.1.2.3 Depth of bury 6.5'

2.1.7.1.2.4 Painted Brite Hydrant Red (5 mil DFT)

2.1.7.1.2.5 Break flange (traffic) type

2.1.7.1.2.6 5.25" main valve opening

2.1.7.1.2.7 Two 2.5" hose nozzles

2.1.7.1.2.8 One 4.5" pumper nozzle

2.1.7.1.2.9 One 4' long fiberglass, red reflective tape and white reflective tape with spring hydrant marker. Part #35000W (R&W)-10501

2.1.7.1.3 If during installation and construction the Village deems the coating has been compromised, it will be sandblasted and repainted per section 2.1.7.1.9 at the contractor's expense.

2.1.7.1.4 Hydrant leads shall be six (6) inch, C900.

2.1.7.1.5 Tapping saddle will be an all stainless-steel Smith Blair 663 with a stainless steel Hymax H-304 MJ outlet or Romac SST-MJ stainless steel MJ outlet or equal use core-10 blue bolts. Poly wrap fitting, valves. With Valve box-Tyler only - #6860/MWW lid, Adaptor Inc. #6 base adaptor.

2.1.7.1.6 All fasteners will be stainless steel on all valves and hydrants and on all MJ fittings will be, Cor-Blue T-bolts Birmingham Fastener or equal.

2.1.7.1.7 Contractor shall provide for a 6.5' burial depth for all hydrant leads shown on plans. If a water main burial depth is greater than 6.5', Contractor shall install fitting(s) to raise the hydrant lead to meet the required burial depth.

2.1.7.1.8 Hydrants that are not placed in service shall have a "Not in Service" tag attached to the pumper nozzle and baggy wrapped and tapped.

2.1.7.1.9 Preparation for painting – Sandblast to 100% clean white metal from ground level up to top of hydrant. Dispose of spent materials. Fully enclose hydrant during blasting, priming, and painting. Air dryer shall be used to prevent moisture in the air supply.

2.1.7.1.10 Primer-Devoe 224 high build epoxy primer (or Engineer-approved equal) to a thickness of 4-8 mils (1 mil = 25.4 millimeters).

2.1.7.1.11 Topcoat – Devoe 379UVA urethane epoxy (or Engineer-approved equal) with a minimum thickness of 4 mils. All hydrants shall be fully enclosed during blasting, priming, and painting.

2.1.7.2 Design Standards

2.1.7.2.1 Location

2.1.7.2.1.1 Maximum spacing: 400-ft. diameter from center of hydrant to center of hydrant. If different spacing is required, verify differing condition with Village Engineer and Fire Chief.

2.1.7.2.1.2 At all high points in distribution system.

2.1.7.2.1.3 At intersections, far end of cul-de-sac at lot line extended, and mid-block at lot line extended, where practical. In the event a hydrant location conflicts with a valve location at an intersection, the hydrant tee shall be located 6 feet away from the main valve.

2.1.7.2.1.4 Rural: 3 feet off Right-of-Way. Provide 5-ft. deep x 10-ft. wide hydrant easement.

2.1.7.2.1.5 Urban: 4 feet behind back of curb line.

2.1.7.2.1.6 Side paths, recreation trails and other pedestrian ways: Minimum separation distance from edge of pathway to closest physical feature of the hydrant shall be 18".

2.1.7.2.2 Design Height

2.1.7.2.2.1 Pumper Nozzle shall be above the surrounding final grade by 18 to 24 inches.

2.1.7.2.3 Design Cover

2.1.7.2.3.1 6.5 feet minimum bury depth

2.1.7.2.4 Branch pipe design cover

2.1.7.2.4.1 In Turf: 6.5 feet (Ultimate grade)

2.1.7.2.4.2 In Paved Areas: 7 feet minimum

2.1.7.2.4.3 Special situations (i.e. ditches, etc.): 5 feet minimum cover with insulation

2.1.7.2.4.4 Under 4 feet of cover water main shall be offset to achieve 6 foot cover.

2.1.7.2.5 Break flange shall be at grade or not greater than 6 inches above grade.

2.1.7.2.6 Branch tee shall be Anchor T with gate valve at the tee.

2.1.7.2.7 An asphalt service drive with culvert shall be installed in all ditch crossings greater than 2 feet deep or that have transverse slopes greater than 4H:1V.

2.1.7.2.7.1 The service drive shall be 10 feet wide and extend to 2 feet behind the hydrant. The drive shall be constructed with 10 feet wide by 6 inches deep of No. 2 open graded base course and 10 feet wide by 3 inch depth of asphalt.

2.1.7.2.7.2 Culverts shall be hydraulically sized for each location consistent with Section 4 of the Development Handbook.

2.1.8 Fittings

2.1.8.1 Materials

2.1.8.1.1 All pipe fittings used for water main shall comply with SWS and be manufactured in the USA.

2.1.8.1.2 All fittings shall be Ductile Iron and be Class 350 or greater, conforming to the current ANSI/AWWA C-153/A21.53.

2.1.8.1.3 Fittings shall have a cement mortar lining on the interior in accordance with current (USA Domestic Only) ANSI/AWWA C-104/A21.4.

2.1.8.1.4 Fittings and accessories shall be furnished with mechanical-type joints with lugged retainer glands in accordance with current (USA Domestic Only) ANSI/AWWA C111/A21.11.

2.1.8.1.5 All nuts and bolts shall be stainless steel on hydrants and valves. All T-Bolts shall be Cor-Blue.

2.1.8.1.6 All tees and fittings shall be anchored with restraints or pre-approved equal.

2.1.8.1.7 Angle Fittings shall be as follows:

2.1.8.1.7.1 All 90° bends: Full body, long radius, anchored, and mega-lugged or buttressed.

2.1.8.1.7.2 Other Angle Fittings: Short body acceptable; anchored and buttressed.

2.1.8.1.8 Acceptable manufacturers of Ductile Iron pipe fitting include the following:

2.1.8.1.8.1 American Cast Iron Pipe Co.

2.1.8.1.8.2 Tyler Union

2.1.8.1.8.3 Water Main Couplers

2.1.8.1.8.4 Hymax 4"-16"

2.1.8.1.8.5 Romac 4"-12"

2.1.8.1.8.6 Or approved equal

2.1.8.1.9 Acceptable restraints include the following:

2.1.8.1.9.1 EBAA Mega-Lug

2.1.8.1.9.2 Romac Roma Grip

2.1.8.1.9.3 Stainless steel rodding with stainless steel star bolts

2.1.8.1.9.4 Or approved equal

2.1.8.2 Design Standards

2.1.8.2.1 All fittings shall be wrapped with polyethylene per Section 2.1.10 of the Development Handbook.

2.1.9 Water Metering Requirements

2.1.9.1 Design Standards

2.1.9.1.1 Refer to Village of Germantown Code Chapter 13.37 for general requirements.

2.1.9.1.2 Two-Family units shall require a split service lateral into the building in accordance with Standard Detail Figure No. 19.

2.1.9.1.3 Multi-Family Condominium buildings (4 livable units and over): A water metering room shall be required at the water service entrance location. Each water meter room shall be designed to meet the requirements of the Germantown Water Utility, including an outside doorway. An entry key shall be provided to the Germantown Water Utility. An individual meter required for each unit.

2.1.9.1.4 Multi-Tenant Commercial and Industrial buildings: A water metering room shall be required at the water service entrance location. Each meter room shall be designed to meet the requirements of the Germantown Water Utility, including an outside

doorway. All commercial and industrial buildings shall have ball valves installed on the inlet, outlet, and bypass for water meters. An entry key shall be provided to the Germantown Water Utility. An individual meter required for each unit.

2.1.9.1.5 The water meter room shall:

2.1.9.1.5.1 Be large enough to allow work on the water meters. The size of the meter room would vary depending on the meter size(s) and number of meters going into the building. The Utility Department shall approve the size of the meter room.

2.1.9.1.5.2 Be unobstructed by water softeners, vacuum cleaners, garbage cans, electric service, phone services, etc.

2.1.9.1.5.3 Not be used for cleaning supply storage or storage area.

2.1.9.1.5.4 Have adequate heating and lighting

2.1.9.1.5.5 Have a floor drain

2.1.9.1.5.6 The size of the water meter shall be on the plan to make sure the room is big enough to house the entire meter.

2.1.9.1.5.7 Not installed in a ceiling

2.1.9.1.5.8 Minimum 2'-3' off the floor

2.1.9.1.5.9 If meter is installed in a cabinet, minimum 2'x2' removable opening.

2.1.9.1.6 At the meter setting:

2.1.9.1.6.1 1"-2" valves will be all brass USA made only, full port ball valves and brass nipples, 600psi rated Nibco T-585-70 or equal.

2.1.9.1.6.2 A by-pass will be installed on meters 1 ½" and larger.

2.1.9.1.6.3 Bypass pipe to match the diameter of the through pipe.

2.1.9.1.6.4 Bypass pipe to have its own separate shut off valve.

2.1.9.1.7 All gate valves used for branch piping at the meter setting inlet, outlet, and bypass piping 3" and greater will be AWWA resilient wedge epoxy coated C509, NRS (non-rising stem). MJ connection and flanged face at the meter, all stainless-steel bolts and washers-install anti-corrosive agent on threads.

2.1.9.1.8 Irrigation and/or Sprinkler Meter:

2.1.9.1.8.1 A sprinkler or deduct meter is required.

2.1.9.1.8.2 A sprinkler meter is installed parallel to the main meter (New construction).

2.1.9.1.8.3 A deduct meter is installed after the main meter (Existing).

2.1.10 Polyethylene Wrap

2.1.10.1 Materials

2.1.10.1.1 Polyethylene film materials shall comply with SWS Chapter 8.21.0.

2.1.10.1.2 Wrap all ductile iron pipes, valves, fittings, and valve boxes with polyethylene film. When wrapping valve boxes, only wrap the bell portion and the bottom of the first section.

2.1.11 Tracer Wire

2.1.11.1 Materials

2.1.11.1.1 Open Cut tracer wire will be Copperhead #1230-HS-30mil

2.1.11.1.2 Directional Drilling/Boring tracer wire will be Copperhead SoloShot @1245-EHS

2.1.11.1.3 Pipe Bursting tracer wire will be Copperhead SoloShot Extreme – 7x7 stranded, HDPE coated

2.1.11.1.4 Terminate single wire at the back side of each hydrant inside 3" x 4' PVC pipe with a threaded cap. If no hydrant is available, install wire(s) inside a separate Tyler #6860 top section set on bricks road box location field verified. All wires will have a minimum of 2' of slack.

2.1.11.1.5 All mainline tracer wires shall be interconnected in intersections, at mainline tees, and mainline crosses.

2.1.11.2 Design Standards

2.1.11.2.1 Tracer Wire is required on ALL mains and services.

2.1.11.3 Installation

2.1.11.3.1 Open cut-Tracer wire will be Copperhead #1230-HS-30mil.

2.1.11.3.2 Directional drilling/boring-Copperhead SoloShot#1245-EHS

2.1.11.3.3 Pipe bursting-Copperhead SoloShot Extreme-7x7 stranded, HDPE Coated

2.1.11.3.4 Terminate wire at the back side of each hydrant inside 3" x 4' PVC pipe with a FNPT x Spigot PVC DWV clean-out adapter with plug and threaded cap

2.1.11.3.5 If no hydrant is available install wire/s inside a separate Tyler top section set on brick #6860

2.1.11.3.6 Road box location field verified. All wires will have a minimum of 2' slack.

2.1.11.3.7 All mainline tracer wires shall be interconnected in intersections, at mainline tees and mainline crosses

2.1.11.3.8 Tracer wire splicing and connecting to existing tracer wires will use a Copperhead 3-Way Twist lock waterproof connector for 30mil for direct bury-Part #LSC1230B-CTR25. And at the hydrant lead use a "Service lateral lug" connector Part #3WB-01

2.1.11.3.9 At the termination points install ground rod Copperhead #ANO-12. Connect the red wire to the blue tracer wire inside the 3" tube with a double wire lug connector.

2.1.11.3.10 If no hydrant is available install wire inside a separate Tyler full gate valve box top section set on brick #6860 road box location field verified

2.1.11.3.11 Install tracer wire from main to the building using "Copperhead" 1230-HS-Blue wire connect the new tracer wire to existing wire at the main using a Copperhead lockable waterproof connector for direct bury.

2.1.11.3.12 Service Laterals-Terminate tracer wire by building using Copperhead ANO-12 termination rod, connect the red termination wire to the blue tracer wire using a standard wire nut sized for this wire and install the two wires in a 3" X 4' long PCV tube with thread cap. The exposed end needs to be a minimum of 6"-12" visible after finished grade.

2.1.11.3.13 If tracer wire does not exist at the main, install the wire with the service and terminate wire at the main using a Copperhead ANO-12 termination rod. Splice the red wire with the blue wire using a Copperhead lockable waterproof connector for direct bury.

2.1.11.3.14 Proper stripping of HDPE coating will be made using an approved electrical stripping tool, NOT a pocketknife.

2.1.11.3.15 Service Lateral private property-Connect the red wire from the grounding rod and the blue tracer wire using a Copperhead waterproof connector-no ANO-12 termination is needed at the building.

2.1.11.3.16 Install tracer wire in a 3" X 4' long PVC tube with thread cap. The exposed end needs to be a minimum of 6"-12" visible after finished grade.

2.1.11.3.17 Testing-All new tracer wire installation shall be located using a low frequency line tracing equipment, witnessed by the inspector/owner/engineer. This verification shall be performed after rough grading and before finished grade and asphalt.

2.1.12 Tapping

2.1.12.1 Materials

2.1.12.1.1 Service saddles shall be used on all corporation valve sizes larger than 1", subject to specific pipe manufacturer restrictions for the pipe to be tapped. Saddles shall be all 304 stainless, double bolt saddle. Acceptable product for service sizes through 2" corps include, 360 full circumference:

2.1.12.1.1.1 Romac SS1

2.1.12.1.1.2 Smith-Blair 264

2.1.12.1.1.3 Power Seal 3131AS

2.1.12.1.1.4 Hymax Tapped Clamp

2.1.12.1.1.5 Pre-approved equal

2.1.12.1.2 Tapping sleeves that have a flanged outlet shall be used when tapping all existing pipe in service for branch lines 3" and larger in size. The body shall be 304 stainless steel, have a minimum of 1/3 of the interior surface fully lined with a raised "donut" area around the brand opening, and a test port. All bolts, washers, and nuts shall be stainless steel. Acceptable tapping sleeves include:

2.1.12.1.2.1 Hymax Tap

2.1.12.1.2.2 Romac Series SST with 204 stainless steel MJ outlet

2.1.12.1.2.3 Smith-Blair 663 with stainless steel outlet

2.1.12.1.2.4 Ford

2.1.12.1.2.5 Pre-approved equal

2.1.12.2 Design Standards

2.1.12.2.1 Locations of all taps, tapping devices, or fittings/valves for ALL water pipes shall be in accordance with the following:

2.1.12.2.2 The minimum distance from the beginning/end of the Bell or MJ of a water pipe fitting or another tap shall be:

2.1.12.2.2.1 Corporation direct tap = 2 feet

2.1.12.2.2.2 Corporation Tapping Saddle (Up to 2" size) = not less than 2 feet

2.1.12.2.2.3 Branch Tapping Sleeve = not less than 4 feet.

2.1.12.3 Installation

2.1.12.3.1 Activation of tap can only be authorized by the Water Utility after passing pressure tests and safe water tests. A Utility representative shall be present on-site during tapping and sleeve work and any connection(s) to existing main(s). Two working days advance notice before making the connection is required by the Water Utility.

2.1.12.3.2 All taps to water mains shall be made under full system pressure, with the main full of water. No taps may be made on an inactive or non-pressurized main.

2.1.12.3.3 All curb stops shall be installed under full system pressure prior to hydrostatic testing for acceptance of installation.

2.1.12.3.4 When tapping, thoroughly clean and inspect the pipe surface. Wet the pipe surface with a soap/water solution prior to placing a saddle, sleeve or repair clamp. Confirm that the main OD falls within the tapping device's OD range. Ensure that

the tapping device is properly aligned to connect with the branch pipe. Ensure that the tapered ends of the gasket are smooth, not folded or rolled in any manner.

2.1.12.3.5 The saddle, sleeve or repair clamp shall be installed and all bolts finger-tightened for uniform gap. Tighten all bolts working from the ends to the center using torque wrenches in accordance with manufacturers specifications. After approximately 10 minutes to allow the gasket to fully compress, all bolts shall be re-tightened to manufacturer's specifications. Make sure the tapping device and tapping machine are fully supported and all cutting edges sharpened. Teflon tape or Teflon pipe dope shall be used on the corporation stop and all other pipe threads.

2.1.12.3.6 If the tapping device is for 3" or larger branch line, the sleeve shall have a test port and be tested at 100 psi for 5 minutes by the Contractor BEFORE the actual tap proceeds. A Water Utility representative shall witness the tapping device installation, pressure test and tapping procedure.

2.1.12.3.7 All taps to existing and new mains shall be "live" or "wet" taps, utilizing a tapping machine with appropriate cutting tools and sharp cutting heads. All tap cut-outs shall be given to the Construction Inspector or Water Utility representative witnessing the tap.

2.1.12.3.8 No taps will be permitted to begin after 1:00 P.M. Additionally, pre-approval by the Water Utility is required for tapping on a Friday or preceding a holiday.

2.1.12.3.9 Two business days prior notice to Water Utility is required to be given prior to installation of new taps on existing mains.

2.1.12.3.10 Notice shall also be given to the Superintendent of Water Utility (Department of Public Works 262-253-7780) for new taps on existing mains.

2.1.13 Bedding, Cover, & Backfill

2.1.13.1 Materials

2.1.13.1.1 Pipe bedding: In accordance with SWS, Section 8.43.2: 3/8" limestone chips for PVC/PVCO pipe. No. 1 clean stone shall be placed within a 5 foot radius of valves and valve boxes.

2.1.13.1.2 Cover Material: In accordance with SWS, Sections 8.42.2 & 8.42.3: 12" above top of pipe. No stone, rock, or other similar material with a sieve size greater than 3/8" shall be permitted. Sand and gravel are prohibited.

2.1.13.1.3 Granular Backfill: In accordance with SWS, Section 8.43.4, Table 39 Graded Aggregates, 1 1/2" graded limestone. In spot construction in trench lengths less than 50' Granular Backfill shall be crushed limestone per SWS, Section 8.43.6.

2.1.13.1.4 Spoil Backfill: In accordance with SWS, Section 8.43.5. No stone, rock or other similar material with a sieve size greater than 3-inches shall be permitted within 2.0 ft. above or beside the pipe. For HDPE service lines, the sieve size shall not be greater than 1 1/4" within 2.0 ft. above or beside the pipe.

2.1.13.1.5 Slurry Backfill: Aggregate slurry in accordance with SWS, Section 8.43.8, or in accordance with a street opening permit, when issued. In special cases, Village Engineer may require Sand Slurry consisting of 50 pounds of flyash and a ½ bag of Portland cement per cubic yard of mix.

2.1.13.2 Design Standards

2.1.13.2.1 Mechanically compact all trench backfill per Section 2.6.14(b) of SWS. Conform to 95% standard proctor density tested at the Contractor's expense.

2.1.13.2.1.1 Initial lift – 2 feet maximum

2.1.13.2.1.2 Subsequent lifts – 1.5 feet maximum

2.1.13.2.2 Backfill in accordance with all street opening permit(s); generally, this will be slurry aggregate. All areas not within 5 ft. of paved surface (and above a 45-degree intercept line) may receive suitable spoil backfill as provided herein. Prohibited: Debris, frozen material, large clods or stones, organic material, blast rock, stones larger than 6", sand. Contractor shall haul away and dispose of these materials at Contractor's expense.

2.1.14 Caps & Plugs

2.1.14.1 Materials

2.1.14.1.1 Acceptable caps and plugs include:

2.1.14.1.1.1 Clow F-1155, F1159, and F1165 solid cap or Pre-approved equal

2.1.14.1.1.2 Poured buttresses shall be used

2.1.14.1.1.3 Mega-lugs or pre-approved equals shall also be used when appropriate

2.1.15 Casing/Carrier Pipe

2.1.15.1 Materials

2.1.15.1.1 Installation of water lines within casings shall be accomplished by using Stainless Steel Casing Spacers installed in accordance with the manufacturers recommendations. Spacers shall be:

2.1.15.1.1.1 Style CCS by Cascade Waterworks Mfg. Co. of Yorkville, IL

2.1.15.1.1.2 Model 4810 by PowerSeal Pipeline Products of Wichita Falls, TX

2.1.15.1.1.3 Pre-approved equal

2.1.15.1.2 End seals, installed on both ends of each casing, shall be:

2.1.15.1.2.1 Cascade Style CCES

2.1.15.1.2.2 PowerSeal 4810ES

2.1.15.1.2.3 Pre-approved equal

2.1.15.1.3 Water mains within the casing shall be installed with mechanical joints and mega-lugs or pre-approved equal

2.1.15.2 Design Standards

2.1.15.2.1 Casing watermain shall be used for all plastic pipe crossing a right-of-way and for all arterial crossings.

2.2 ABANDONMENT

2.2.1 General

2.2.1.1 All existing water mains and service lines that will not be used in new construction or re-used for reconstruction of existing building sites shall be abandoned at the main, unless approved by the Village Engineer or Water Utility.

2.2.1.2 A representative from the Village Engineering Department or Water Utility shall be present to witness the abandonment.

2.2.1.3 All excavations within public rights-of-way shall require Village and/or County Permits.

2.2.1.4 Excavations within 5 ft. of and under paved surfaces shall be backfilled with Slurry Aggregate per the SWS to within 1.0 ft. of surface, followed by appropriate street restoration and not less than 3-inches of binder and 2-inches of wearing surface bituminous pavements.

2.2.1.5 In special circumstances, when approved in writing by the Village Engineer, water service lines may be temporarily made inactive at the right-of-way or easement boundary. The service shut-off valve shall be turned off and the pipe plugged or capped at the property line. Water services not abandoned at the main shall meet the following conditions:

2.2.1.5.1 As part of the demolition permit, a certified check or Letter of Credit, in the amount of \$5,000 per lateral, shall be submitted to the Village Engineer to guarantee the permanent abandonment of the service at the main is completed in a timely manner.

2.2.1.5.2 Any service line that is not abandoned at the main shall be subject to separate "availability" or "ready to serve" charges in the interim period until properly abandoned.

2.2.1.5.3 Water lines made inactive in this manner shall be marked with a marker post placed 1 ft. from the end of the pipe and extending from the pipe to 3 ft. above the ground surface and painted a blue color.

2.2.1.5.4 The location of the terminal pipe locations shall be surveyed or otherwise "tied" to permanent objects that will remain undisturbed at the site, with an as-built drawing provided to the Village Engineer and Utility Department for record purposes.

2.2.2 Water Services

2.2.2.1 All water services 2" diameter and smaller shall be abandoned at the street main by Turning off the main, remove the corp. and install a Hymax, Smith Blair 261 or equal stainless-steel repair clamp.

2.2.2.2 The remaining service line may be left in place, but the valve box/curb stop shall be removed. Backfill of gate valve box shall consist of stone and/or slurry.

2.2.2.3 The completed work shall be double wrapped with polyethylene per SWS, Chapter 6.21.0.

2.2.2.4 For water service lines larger than 2" diameter, the abandonment procedure would consist of:

2.2.2.4.1 Removal of the service shut-off valve (if at the main), plus 2 - 3 ft. of service pipe at the street main branch fitting. If a blind flange cannot be installed on the T, and the Village deems the fittings are defective the main will be shut down. Cut and remove that section of pipe fittings. Install new pipe with two water main couplers and wrap with baggy.

2.2.2.4.2 Installation of a gasketed blind flange or MJ plug at the branch fitting, as appropriate.

2.2.2.5 All bolts and gaskets shall comply with these standards.

2.2.2.6 In the event that the shut-off valve is not at the street main branch fitting, then 2 - 3 ft of the service pipe shall be removed and a gasketed blind flange or plug installed onto the branch fitting at the main.

2.2.2.7 The valve box/curb stop shall be removed.

2.3 INSPECTION

2.3.1 Submittals & Samples

2.3.1.1 Material samples shall be taken as provided in SWS 8.1.0 and the Contract Documents.

2.3.1.2 All materials delivered to the Work Site shall have legible markings in accordance with ANSI, ASTM, AWWA and SWS 8.3.0.

2.3.1.3 All materials of each type or use shall be from a single manufacturer for the entire Contract.

2.3.1.4 Prior to the start of work, the Contractor shall submit six sets of the following for approval:

2.3.1.4.1 Letter of Certification and representative test reports by manufacturer for all pipe delivered to the Work Site for EACH material item furnished.

2.3.1.4.2 Representative test reports for EACH material item furnished to the Work Site.

2.3.1.4.3 Installation manuals for all mechanical equipment furnished to the Work Site.

2.3.1.4.4 Generally, installation shall be in accordance with SWS and as modified by these Specifications.

2.3.1.4.5 All material specifications to be delivered as a .PDF filetype.

2.3.2 Disinfecting

2.3.2.1 No chlorination or flushing between safe samples.

2.3.2.2 Use only calcium hypochlorite tablets affixed to the top interior wall of the pipe (no powder) to disinfect pipelines and service/fire lines in accordance with SWS, Section 4.3.12. The Contractor Water Utility will collect samples of the chlorinated water for safe water testing. Contractor shall supply all labor assistance to flush mains and to take sample(s). The Water Utility will provide chain of custody bags that will be sealed with the sample onsite.

2.3.2.3 The samples will be taken to a State Certified lab, the water will not be turned back on for new main construction, new development, or new facilities until the Water Utility receives the sample test results.

2.3.2.4 Water wasted to surface may not contain any substances in concentrations that adversely affect the water as determined by the Wisconsin Administrative Code, NR 105 and 106. For chlorine, no total residual chlorine may be measured in the water being discharged to a surface water greater than ambient total chlorine residual in system water supply (typically 0.5 mg/L). Advise the Water Utility and Village Engineer of proposed discharge schedule to arrange DNR-required chlorine residual measurements for main flushing water.

2.3.3 Acceptance Testing

2.3.3.1 General

2.3.3.1.1 Pressure and leakage testing shall include all installed system components, such as mains, branches, services and fire protection taps to terminus of all lines to be installed under the Contract.

2.3.3.1.2 Two (2) business days' notice to the Engineering Department (262-250-4721) and Water Utility shall be required.

2.3.3.1.3 Water for filling, testing and flushing for safe sampling of watermain will be supplied only by permission of the Water Utility via permit. All water that is used for filling new mains, pressure testing, flushing of mains, trench flushing, and safe sampling etc., will be witnessed by an inspector or Utility employee. Water used will be charged at the current rate.

2.3.3.2 Tests

2.3.3.2.1 Prior to pre-punch list work, tracer wires shall be tested by Contractor prior to Village accepting the work. The Utility Department has the option to spot check the continuity of the tracer wires.

2.3.3.2.2 Pressure and leakage tests shall be performed in accordance with SWS and under the jurisdiction of the Engineering Project Inspector and Water Utility.

2.3.3.2.3 Pressure Test: After the test connections are made and the main filled with water, the test section shall be subjected to water pressure normal to the area. After examination of exposed parts of the system, the test pressure will be increase to 150 psi on the main at the lowest elevation. The main shall be examined and if any defects are found, the Contractor shall immediately make the necessary repairs at his own expense. The pressure test shall be repeated until no defects can be found. The duration of the final pressure test shall be one hour. The pipe shall pass if the final pressure is within 5% of the test pressure for 1 hour. If it is found unnecessary to add water during the duration of the pressure test, the leakage test may be waived at the direction of the Inspector/engineer or Water Utility. If waived by the Inspector and Water Utility, a combination leak/pressure test will be performed.

2.3.3.2.3.1 For HDPE pipe, test duration to be less than 8 hours. If testing is not completed for any reason, de-pressurize and allow to “relax” for 8 hours before resuming test.

2.3.3.2.3.2 PVC Pipe: Conform to Standard Specifications Ch. 4.15.0

2.3.3.2.3.3 Test shall include a Bac-T safe sample.

2.3.3.2.4 Leakage Test: The leakage test, if required, shall be conducted after satisfactory completion of the pressure test. The test section shall be subjected to approximately 100 psi gauge pressure at eh point of highest elevation of the main under test. The duration of the leakage test shall be two hours unless otherwise specified. Should any test section fails to meet the leakage test, the Contractor shall immediately make the necessary repairs at his own expense. The duration of the final leakage test shall be one continuous hour.

2.3.3.2.5 Fire and Combination water/fire service lines shall be tested at 200 psi for 2.0 hours.

2.3.3.2.6 Contractor is responsible for taking samples, witnessed by the Village or onsite inspector and samples put in a sealed chain of custody bag provided by the Village.

2.3.3.2.6.1 No first sample will be taken on a Friday, weekend, or adjacent to a holiday.

2.3.3.2.6.2 Bacteriological Testing: Conform to Standard Specifications Ch. 4.16.0 and NR 811.07. Contractor shall provide analysis results to Village Engineering Dept in PDF form. If the bacteriological test fails, conform to Standard Specifications Ch. 4.16.3 to re-chlorinate the main.

2.3.3.2.6.3 No Bac-T sample will be accepted if the sample is not taken from a smooth bore sample tap upstream from the discharge flowing pipe. Samples from a hose spigot will not be accepted.

2.3.3.2.7 Tracer Wire Connectivity: All new tracer wire installation shall be located using a low frequency line tracing equipment, witness by the inspector/owner/engineer. This verification shall be performed after rough grading and before finished grade and asphalt.

2.4 OTHER REQUIREMENTS

2.4.1 General

2.4.1.1 Contractor shall be responsible for Digger's Hotline locates, site safety, resident access, traffic control, erosion & sediment control, and protection of existing facilities, features and structures at all times

2.4.1.2 At end of each day and during breaks, Contractor shall install waterproof, leak-proof plugs.

2.4.1.3 At the end of each day, open excavations shall not exceed 25 ft. in length.

2.4.1.4 All lateral trenches shall be backfilled at end of day.

2.4.1.5 At end of each day, contractor shall erect barricades with flashers and snow fencing surrounding excavations.

2.4.1.6 Mainline Installation: Conform to Standard Specifications Ch. 4.3.0 Sawcut Exist Pavements: Wheel-mounting saw required. Sawcut full depth.

2.4.1.7 List of Standard Village Details

2.4.1.7.1 HDPE Hydrant Branch

2.4.1.7.2 Standard Hydrant Bollard

2.4.1.7.3 Relocate Water Main HDPE Pipe

2.4.1.7.4 Relocated Existing Water Main PVC Pipe Only

2.4.1.7.5 HDPE Joint Restraint

2.4.1.7.6 Water Main Reconnection

2.4.1.7.7 Water Main Service Lateral Schematic

2.4.1.7.8 Tracer Wire Construction Layout

2.4.1.7.9 Sample Station Detail

2.4.1.7.10 Meter Sizes/Laying Lengths and Charges

2.4.1.7.11 Bulk Water Purchasing Process and Charges

3 SANITARY SEWER SYSTEM

All labor and material shall be governed by requirements of the Milwaukee Metropolitan Sewerage District (MMSD) and the latest edition and all amendments thereto of the Standard Specifications for Sewer and Water Construction in Wisconsin (SWS), Public Service Commission (PSC) Rules and Wisconsin Department of Natural Resources (WDNR) Regulations, WisDOT Standard Specifications for Highway and Structural Construction, Chapter DSPS 382, and Village of Germantown Municipal Code unless otherwise specified in these Specifications, whichever is more restrictive.

3.1 SPECIFICATIONS

3.1.1 Sanitary Sewer Main and Laterals

3.1.1.1 Materials

3.1.1.1.1 All pipe used for sanitary and private main interceptor sewers shall be:

3.1.1.1.1.1 PVC (solid wall) SWS Section 8.10.0, ASTM D3034, SDR-26, SDR-30

3.1.1.1.1.2 PVC (solid wall, green in color for in-ground identification) SWS Section 8.20.0, AWWA C-900 or C-905

3.1.1.1.1.3 Or Engineer approved equal

3.1.1.2 Design Standards

3.1.1.2.1 Design flow coefficients as determined by the Village Engineer, subject to the following:

3.1.1.2.1.1 Residential/Multi-Family (Per MMSD Flow Allocation Worksheet)

Base Sanitary Flow	102 gpcd
Max Daily	1,269 gpcd
Residential densities are to be determined per MMSD Annual Cost Recovery Manual	

3.1.1.2.1.2 Industrial & Institutional Areas (Per MMSD Flow Allocation Worksheet):

Base Sanitary Flow	1,500 gpd/Acre
Max Daily	3,250 gpd/Acre

3.1.1.2.1.3 Large Commercial (Per MMSD Flow Allocation Worksheet):

Base Sanitary Flow	2,250 gpd/Acre
Max Daily	4,000 gpcd/Acre

3.1.1.2.2 Design flows and peaking factors are to be referenced to MMSD Rules and Regulations and as determined by the Village Engineer. Design objectives shall result in elimination, to the greatest extent possible, of all infiltration and inflow.

3.1.1.2.3 Minimum Main and Lateral Sizes:

Residential	8" main / 6" Lateral
Industrial/Commercial/Multi-Family & PUD	8" main / 6" Lateral
Shall accommodate future tributary areas as directed by the Village Engineer	

3.1.1.2.4 Minimum Slopes:

Pipe Size	Minimum Slopes
8"	0.40% (Dead end reach 0.60%)
10"	0.28% (Dead end reach 0.40%)
12"	0.22%
15"	0.15%
18"	0.12%
21"	0.10%
24"	0.08%
Other Sizes	Per Engineering Services Division

3.1.1.2.5 Complete sewer design calculations and sewer system plans are required with construction plan submittals.

3.1.1.2.6 Conceptual sewer system plans are required for proposed developments located within the Ultimate MMSD Service Area even if sanitary sewer currently is not available. A determination is needed at the conceptual stage that future gravity sewer systems will work when needed.

3.1.1.2.7 Center of manhole shall coincide with street centerline, and center of main shall be within 5 feet of centerline on curvilinear street segments.

3.1.1.2.8 Invert shall not be less than:

Distance below the centerline grade of the street	Road ROW Width
11.0 Feet	60/66 FT
12.0 Feet	80 FT
13.0 Feet	>80 FT and Cul-De Sacs

3.1.1.2.9 Minimum sewer depth shall be 8 feet from finished grade to top of pipe under exceptional circumstances and approval of Village Engineer. Sewer depths shall provide gravity flow for basement floor drains and plumbing fixtures. "Hung" services are prohibited. Grinder pumps may be considered by Village Engineer.

3.1.1.2.10 Pipe with cover depth of greater than 20 feet shall have the pipe material approved by the Village Engineer and shall be designed conforming to Standard Specification Ch. 5.3.12 and Table 12.

3.1.1.2.11 All sewer pipes shall be laid in accordance with SWS, Chapter 3.2.0

3.1.1.2.12 All connections to manholes shall be in accordance with SWS, Section 3.5.7.

Connections to manholes with preformed troughs in the bench shall be made in accordance with the procedure described in Section 3.1.7.3.5.

3.1.1.2.13 All sewer pipes shall terminate with top of pipe flush to the inside wall of the manhole. All annular spaces shall be filled with a cementitious filler to prevent the breakage of the pipe while cleaning.

3.1.2 Sanitary Force Main

3.1.2.1 MATERIALS

3.1.2.1.1 All pipe used for sanitary force (pressure) mains shall be:

3.1.2.1.2 PVC (solid wall) SWS 8.51.2, AWWA C-900 or C-905

3.1.2.1.3 PVCO AWWA C-909, Class 150

3.1.2.1.4 High density black Polyethylene Force Main Pipe SWS 8.51.3, ASTM F-714; or Green Stripe

3.1.2.1.5 Fusible PVC C-900

3.1.2.1.6 Linked PVC C-900

3.1.2.2 All pipe shall conform to Ductile Iron Pipe OD.

3.1.2.3 Valves shall be:

3.1.2.3.1 Dezurik Series 100 Eccentric Valves cast iron epoxy-coated body, hard rubber-lined, MJ,

3.1.2.3.2 Low friction Buna-vee packing, neoprene plug facing, ABG6H6 actuator, with stainless steel bolts, and plug valve adaptor bracket with valve box

3.1.2.3.3 Alternatives shall be pre-approved by the Village Engineer.

3.1.2.4 DESIGN STANDARDS

3.1.2.4.1 Minimum design depth shall have 8 feet of cover.

3.1.2.4.2 Buried tracer location wire is required above the force main.

3.1.2.4.3 Maximum spacing of location boxes: 300 feet or as directed by the Village Engineer.

3.1.2.4.4 Velocity/Size:

3.1.2.4.4.1 Hazen-Williams formula "C" value of 120.

3.1.2.4.4.2 Velocity 2.0 – 6.0 fps for lowest energy pumping cost, as approved by the Village Engineer.

3.1.2.4.5 High/Low Points:

3.1.2.4.5.1 Air relief valve sizing calculations shall be submitted with Plans. A.R.I to be used.

3.1.2.4.5.2 Clean-outs shall be installed at designated points.

3.1.2.4.5.3 6-ft. diameter manhole enclosures shall be installed.

3.1.2.4.6 HDPE Connections & Fittings: Joined by heated butt fusion for HDPE. Conform to ASTM D2657 and manufacturer specifications. Internal/external beads shall not be removed.

3.1.2.4.7 HDPE Main & branch joints: Joined by electrofusion conforming to manufacturer specifications. Internal/external beads shall not be removed.

3.1.2.4.8 PVC water class pipe. 4" thru 12" dia. = Class 150-DR18 conforming to AWWA C-900, conforming to standard specifications Ch. 4.6.0 and 8.20.01.

3.1.2.4.8.1 Fittings = ductile iron conforming to Standard Specification 8.22.0.

3.1.2.4.8.2 4" thru 12" dia. = Class 250 mechanical joints

3.1.2.4.8.3 Nuts & Bolts = Cor-Blue

3.1.2.4.8.4 Mechanical joint retainer glands = Mega-Lug; Buttresses also required.

3.1.2.4.8.5 Tees, crosses, bends, offsets, and other fittings shall conform to Standard Specification CH. 8.22.0. Acceptable supplier shall be Tyler or equal.

3.1.2.4.8.6 Triple wrap all ductile iron fittings with polyethylene. Conform to Standard Specifications Ch. 4.4.4 and 8.21.0

3.1.2.5 Warning Tape

3.1.2.5.1 Terra Tape Standard 250 manufactured by Reef Industries, Inc., Shieldtec manufactured by Empire Level Manufacturing Corp., Milwaukee, WI, (or Engineer approved equal). Tape shall read "Caution – Sanitary Line Buried Below". Tape shall be green and 3" wide. Install over the cover material.

3.1.3 Tracer Wire

3.1.3.1 Materials

3.1.3.1.1 Tracer wire for sanitary laterals shall be "Copperhead" 1230-HS-Green wire.

3.1.3.1.2 Tracer wire for force main shall be "Copperhead" 1230-HJS-Green wire.

3.1.3.1.3 Tracer wire for directional drilling/boring shall be "Copperhead" #1245-EHS.

3.1.3.1.4 Tracer wire for pipe bursting shall be "Copperhead" Soloshot Extreme – 7x7 Stranded, HDPE coated.

3.1.3.1.5 Connectors for open cut laterals shall be a Snakebite Twistlock or direct bury lug connector.

3.1.3.1.6 Termination of lateral tracer wire at main shall be a ground rod "Copperhead" @ANO-12. Connect the red wire to green wire using Twist Lock or buried lug connector.

3.1.3.2 Design Standards

3.1.3.2.1 Tracer wire shall be required on all force mains.

3.1.3.2.2 Tracer wire shall be required on all laterals.

3.1.3.2.3 Tracer wire shall be required on all directionally drilled pipe.

3.1.3.3 Installation

3.1.3.3.1 Contractor shall verify during backfilling of cover material that the tracer wire has remained on top of the lateral.

3.1.3.3.2 Connections with the tracer wire shall require approval by Wastewater Superintendent.

3.1.3.3.3 Lateral tracer wire shall be terminated at start-end points. At the main use a ground rod and at ROW run to surface with a minimum of 2 feet of wire wrapped around marking post.

3.1.3.3.4 A 1½" diameter PVC sch. 40 pipe with screw cap to be used at termination point when extended to dwelling. A 1.5-ft. pigtail of excess tracer wire shall stick out of the top of the pipe.

3.1.3.4 Testing

3.1.3.4.1 All tracer wire shall be tested prior to acceptance by Village Engineer. Testing by using a radio frequency locator.

3.1.4 Bedding, Cover, and Backfill

3.1.4.1 MATERIALS

3.1.4.1.1 Pipe Bedding/Cover: In accordance with SWS, as follows –

3.1.4.1.1.1 Flexible wall pipe shall be Class "B" up to 12" above top of pipe; 3/8"-5/8" limestone chips.

3.1.4.1.1.2 Rigid wall pipe with diameters equal to or less than 21" shall have 3/8"-5/8" limestone chips up to 12" above top of pipe.

3.1.4.1.1.3 Rigid wall pipe with diameters greater than 21" shall have ¾" limestone chips up to 12" above top of pipe.

3.1.4.1.1.4 Ductile Iron pipe shall be Class B to 12" above top of pipe, torpedo sand.

3.1.4.1.1.5 Fittings/Valves shall be Class B to 12" above top of pipe, torpedo sand.

3.1.4.1.2 Cover Material: In accordance with SWS, Section 8.43.3. No stone, rock or other similar material with a sieve size greater than 1" shall be permitted.

3.1.4.1.3 Granular Backfill: In accordance with SWS, Section 8.43.4. No stone, rock or other similar material with a sieve size greater than 3" shall be permitted. Granular backfill shall be crushed recycled concrete or crushed limestone per SWS, Section 8.43.6.

3.1.4.1.4 Spoil Backfill: In accordance with SWS, Section 8.43.5. No stone, rock or other similar material with a sieve size greater than 3" shall be permitted within 2.0 ft. above the pipe. Not allowed under pavement or stone walkways.

3.1.4.1.5 Slurry Backfill: Aggregate slurry in accordance with SWS, Section 8.43.8 and requirements of Village Engineer, or in accordance with street opening permit, when issued. In special cases, Village Engineer may direct the use of Sand Slurry consisting of 50 pounds of fly ash and a ½ bag of Portland cement per cubic yard of mix.

3.1.4.1.6 Prohibited: Debris, frozen materials, large clods or stones, organic material, black rock (uncrushed), stones/rocks larger than 3", and sand. Contractor shall haul away and dispose of these materials at contractors expense.

3.1.4.2 DESIGN STANDARDS

3.1.4.2.1 Backfill in accordance with all street opening permit(s), generally will be slurry aggregate. All areas greater than 5 ft. from a paved surface (and above a 45-degree intercept line) may receive suitable spoil backfill as provided herein.

3.1.4.3 INSTALLATION

3.1.4.3.1 Care shall be taken by the Contractor when backfilling to prevent any movement of the pipe from proper alignment and grade. Contractor is responsible for determining that the finished sewer remains at the required elevation and grade.

3.1.4.3.2 Mechanically compact all trench backfill to a minimum 95% standard Proctor density per SWS, Section 2.6.14(b). The initial lift to be compacted shall have a 2 ft. loose thickness. Each subsequent lift to be compacted shall have a maximum 18" loose thickness. Contractor shall place smaller lifts if the required compaction cannot be achieved.

3.1.5 Sanitary Manholes

3.1.5.1 MATERIALS

3.1.5.1.1 All sanitary manholes shall be pre-cast concrete conforming to Standard Specifications Ch. 8.39.0 and File No. 12

3.1.5.1.2 All sanitary manholes shall have a wall thickness of 5" minimum.

3.1.5.1.3 The manholes shall be sized as follows:

Downstream Pipe Size	Minimum Manhole I.D.
8-24"	48"
30-42"	60"
>42"	72"
Sampling Manholes	48" (No flat decks allowed)

3.1.5.1.4 All sanitary and sampling manhole cone sections shall be eccentric. Concentric cones are prohibited.

3.1.5.1.5 All manholes shall have spray epoxy coating:

3.1.5.1.6 MH Exterior: 2 coats (black) of Ameron International, Amercoat 78 HB at 8-10 mils. each.

3.1.5.1.7 MH Interior: 2 coats (white) of Permite PCS-9043 Type II Permox pipe glaze at 20 mils. each.

3.1.5.1.8 Coatings shall be applied by suppliers at the plant.

3.1.5.1.9 All joint seals shall consist of one of the following:

3.1.5.1.9.1 Kentseal butyl rubber sealant

3.1.5.1.9.2 Or Engineer approved equal

3.1.5.1.10 External joint seals shall consist of following:

3.1.5.1.10.1 MacWrap External Joint Sealers by MarMac Manufacturing

3.1.5.1.10.2 Or Engineer approved equal

3.1.5.1.11 External for MH w/ Precast Outside Drop: EZ-Wrap by Press Seal Gasket Corp. primed with EZ-Stick No. 4 Primer

3.1.5.1.11.1 Extruded butyl adhesive tape bonded to the concrete.

3.1.5.1.12 Chimneys shall use HDPE or EPP 5000 Series rings meeting ASTM D4976 or ASTM D3575. Precast concrete rings are not allowed.

3.1.5.1.13 Chimneys shall have a minimum height of 2" and a maximum height of 16".

3.1.5.1.14 HDPE Rings in pavements:

3.1.5.1.14.1 Drill two ½" diameter holes 180o apart on mandatory 2" thick EPP ring (Cretex part number 40-27GF-200). Drill into corbelled section of the manhole, ring shall be drilled prior to placing on manhole.

3.1.5.1.14.2 Apply 2 beads of M-1 adhesive 1/2"x1/2" in a continuous circle on corbal. Install drilled EPP ring and anchor

3.1.5.1.14.3 with a 4" Rawl Power Bolt utilizing a 2" diameter fender washer. Tighten until bolt head is flush with the top of the 2" ring.

- 3.1.5.1.14.4 Install ¼" Ladtech topper ring set in M-1 Adhesive as described above.
- 3.1.5.1.14.5 Dry stack chimney to proper height, including solid HDPE topper ring. Pay special attention to slope and use appropriate slope rings.
- 3.1.5.1.14.6 Once desired height and slope are achieved, mark rings to align desired stacking order and placement.
- 3.1.5.1.14.7 Apply bead of caulk around lip of adjusting ring and re-stack rings. Apply 2 beads of caulk on topper ring, one towards the outside and one towards the inside. Topper ring does not have a locking lip so be cautious ring does not slip during seal installation.
- 3.1.5.1.14.8 Install seal per manufactures specifications.
- 3.1.5.1.15 Adhesives: M-1 (Chem-Link Corp.) used on EPP rings. Gun grade butyl rubber adhesive sealant on HDPE rings.
- 3.1.5.1.16 Seals to have order-to-fit Adapter internal/external with rubber sleeve sealing exterior from frame to corbel.
- 3.1.5.1.17 PE wrap to be installed using double 6 -mil polyethylene wrap from top of frame to 84" min. depth.
- 3.1.5.1.18 EPP Rings in turf to adhere to following:
- 3.1.5.1.18.1 Drill two ½" diameter holes 180° apart on mandatory 2" thick EPP ring (Cretex part number 40-27G-200). Drill into corbelled section of the manhole, ring shall be drilled prior to placing on manhole.
- 3.1.5.1.18.2 Apply 2 beads of M-1 adhesive 1/2"x1/2" on corbal. Install drilled EPP ring and anchor with a 4" Rawl Power Bolt utilizing a 2" diameter fender washer. Tighten until bolt head is flush with the top of the 2" ring.
- 3.1.5.1.18.3 Dry stack chimney to proper height, including solid Grade Finish ring. Pay special attention to slope and use appropriate slope rings.
- 3.1.5.1.18.4 Once desired height and slope are achieved, mark rings to align desired stacking order and placement.
- 3.1.5.1.18.5 Apply 2 beads of M-1 in keyway area of adjusting rings and re-stack rings.
- 3.1.5.1.18.6 Adjusting rings will be lag bolted in 4" height increments with a ½" x 5" steel wood lag bolt and 2" fender washer with bolts alternating 180° apart with each 4" rise in height
- 3.1.5.1.18.7 Install seal per manufacturer's specifications.
- 3.1.5.1.19 For frames in pavement, use Neenah R-1661 frame with solid gasketed lid and 2 concealed pick holes. Conform to Standard Specifications Ch. 3.5.0 For frames in turf, use: Neenah R-1661 bolt-down frame w/ solid gasketed lid and 2 concealed

pick holes. Conform to Standard Specifications Ch. 3.5.0. Bolts coated with anti-seize compound. Frames to be anchored to chimney with 1/2" dia. steel wood lag bolts extending 6" into chimney or to a depth that is practical for the chimney height and sealed with Permatex Ultra Series black, blue or grey silicone adhesive.

3.1.5.1.20 Pavement Ring required to be Neenah R-1979 Series Ref. #1661-7158.

3.1.5.1.21 Pavement ring elevations as follows:

3.1.5.1.21.1 Top of frame equal to binder grade less ¼"

3.1.5.1.21.2 2" Paving rings used for surface lift adjustment.

3.1.5.1.22 Grout, if approved by Village Engineer and Utility Superintendent, can be acrylamide or polyurethane grout for manhole repair/rehabilitation.

3.1.5.2 DESIGN STANDARDS

3.1.5.2.1 Maximum manhole spacing for 15" diameter or less DIPS mainline = 400'.

3.1.5.2.2 Maximum manhole spacing for > 15" diameter DIPS mainline shall conform to NR 110.13(3)(b).

3.1.5.2.3 Manholes shall connect 2 pipes having differing diameter.

3.1.5.2.4 Minimum elevation difference between influent and effluent pipes in manholes = 0.1'.

3.1.5.2.5 Maximum elevation difference between influent and effluent pipes without outside drop in manholes = 2.0'.

3.1.5.2.6 Lift holes: Exterior lift holes only (interior lift holes are prohibited).

3.1.5.2.7 Full benches are prohibited. Conform to Standard Specifications Ch. 3.5.4© and File No. 13. w/e full benches and with long radii.

3.1.5.2.8 Outside drops to conform to Standard Specifications Ch. 3.5.8 and Fil No. 19/20

3.1.5.2.9 One full-length of pipe shall precede the tee connecting the manhole and the drop segment.

3.1.5.2.10 Elevation for top of frame shall be equal to binder grade less ¼". 2" Paving ring required for surface lift adjustment.

3.1.5.2.11 Connections shall be cored. Cutting or breaking is prohibited.

3.1.5.2.12 Bulkheads for future connections are prohibited.

3.1.5.2.13 Manhole steps shall conform to Standard Specifications Ch. 2.5.4(g) and 8.40.0, and File #15 and #12. Steps in chimney are prohibited.

3.1.5.2.14 Sampling manholes are required at all commercial laterals and shall conform to Village of Germantown standard detail.

3.1.5.2.15 Sampling manholes to be minimum 48" diameter. No flat deck allowed.

3.1.5.2.16 Minimum elevation difference between influent and effluent pipes in manholes = 0.1'.

3.1.5.2.17 Manhole installations to be inspected by Village Engineer or Wastewater Utility.

3.1.6 Sanitary Sewer Laterals

3.1.6.1 MATERIALS

3.1.6.1.1 All pipe used for sanitary laterals shall be:

3.1.6.1.2 PVC (solid wall) SWS 8.10.0, ASTM D-3034, SDR-35 or 26

3.1.6.1.3 PVC (solid wall) SWS, Section 8.20.0, AWWA C-900 or C-905

3.1.6.1.4 Risers shall be as required by the plans in accordance with these standards or as pre-approved by the Village Engineer.

3.1.6.1.5 Risers (shall be tees): Minimum depth below road centerline shall be per Section or 5 feet below basement, whichever is greater. Sewer depth to be greater than 14 feet for riser. (Per SWS File Nos: 10A, 10B, 10C, 10D, & 10E).

3.1.6.1.6 Tracer wire required on laterals. See section 3.1.3 for specifications.

3.1.6.2 DESIGN STANDARDS

3.1.6.2.1 Sites are allowed one (1) sanitary lateral connection. In special circumstances, additional laterals may be allowed with the written permission of the Village Engineer and the Wastewater Superintendent and with approval of the State.

3.1.6.2.2 Minimum size shall be 6" diameter.

3.1.6.2.3 Slope at ¼" per foot. Under exceptional conditions, the Village Engineer may permit minimum slope = 1/8" per foot in ROW/easement.

3.1.6.2.4 All connections to existing mains and manholes shall be in accordance with Section 3.1.5.

3.1.6.2.5 Lateral connections to manholes shall not be made unless pre-approved by the Wastewater Superintendent. Connections to manholes in new construction shall not be above the outlet sewer crown and have a smooth paved channel constructed to convey lateral waste to main outlet channel.

3.1.6.2.6 Laterals may not connect to manholes except in cul-de-sacs (permanent end of line). In cul-de-sacs, special manhole detail and construction of benches and lateral pipe connections are required.

3.1.6.2.7 If it is deemed necessary to install a lateral to an existing manhole, and the manhole has to be cored and booted to accept this lateral, this manhole shall be vacuum tested according to the SWS.

3.1.6.2.8 Existing laterals not used in a development shall be abandoned at the main when a development, land division or building razing occurs. See Section 3.2.

3.1.6.2.9 Each habitable building shall have a separate lateral connection to the sewer main.

3.1.6.2.10 Sanitary laterals shall have a trench check dam installed at the property line. See Specification 3.1.4.

3.1.7 Lateral Connections

3.1.7.1 Connection of New Sanitary Laterals to Existing Mains shall be as follows based on existing main material:

3.1.7.1.1 ABS - Truss Pipe

3.1.7.1.1.1 Location - not closer than 36" to an existing joint or fitting.

3.1.7.1.1.2 Hole - Core drill or saw-cut with appropriate cutting tools. Deliver "cut-out" to Construction Inspector or Utility Department representative.

3.1.7.1.1.3 Insert Tee only allowed connection. With exception on 8" only, a wye shall be used.

3.1.7.1.2 Concrete Pipe

3.1.7.1.2.1 Location - not closer than 24" to an existing joint or fitting.

3.1.7.1.2.2 Hole - Core with appropriate cutting tools. Deliver "cut-out" to Construction Inspector or Utility Department representative.

3.1.7.1.2.3 Insert Tee only allowed connection. With exception on 8" only, a wye shall be used.

3.1.7.1.3 PVC Pipe

3.1.7.1.3.1 Location - Not closer than 36" to an existing joint or fitting.

3.1.7.1.3.2 Hole - Core drill or saw-cut with appropriate cutting tools. Deliver "cut-out" to Construction Inspector or Utility Department representative.

3.1.7.1.3.3 Inserta Tee on 10" and greater pipe and manufactured wye on 8" pipe and below shall be used, with repair coupling. Fernco coupling will not be allowed.

3.1.7.1.4 Vitrified Clay Pipe

3.1.7.1.4.1 Location - not closer than 24" to an existing joint or fitting.

3.1.7.1.4.2 8" wye shall be installed for connection device with PVC pipe up and down with Fernco Strong Back connection device.

3.1.7.2 Due to increasing incidents with plugs being left in sewer lines, the Village of Germantown Utility Department is requiring Contractors use a mechanical plug only.

This shall be performed and documented by the Germantown Utility personnel. The Germantown Utility shall be notified when a plug is to be removed.

3.1.7.3 Prior to applying curing material on the concrete, the face of the curb shall be “branded” with a “S” designating the location(s) of sanitary laterals. Physical placement of the branding shall be reasonably accurate in a vertical plane above the respective lateral.

3.1.7.4 Connection of New Sanitary Laterals to Existing Sanitary Manholes will only be allowed on a case-by-case basis and when pre-approved by the Director of Public Works or their designee, and shall be subject to following requirements:

3.1.7.4.1 Location: Invert of new lateral may be permitted a maximum of 12” above spring line of outlet sewer, or use outside drop inlet per SWS for main sewers;

3.1.7.4.2 Connection Device: Kor-N-Seal boot or pre-approved equal with stainless steel snap-in ring.

3.1.7.4.3 Any lateral that is connected into a manhole shall have a smooth concrete bench/channel placed to convey lateral waste flow into mainline channel.

3.1.7.4.4 Prior to applying curing material on the concrete, the face of the curb shall be “branded” with a “S” designating the location(s) of sanitary laterals. Physical placement of the branding shall be reasonably accurate in a vertical plane above the respective lateral.

3.1.8 Casing Pipe

3.1.8.1 MATERIALS

3.1.8.1.1 Installation of sewer lines and force mains within casings shall be accomplished by using Stainless Steel Casing Spacers installed in accordance with the manufacturer’s recommendations. Spacers shall be:

3.1.8.1.1.1 Cascade Style CCS; or

3.1.8.1.1.2 PowerSeal 481; or

3.1.8.1.1.3 Pre-approved equal.

3.1.8.1.2 End seals shall be installed on either end of each casing and shall be one of the following:

3.1.8.1.2.1 Cascade Style CCES; or

3.1.8.1.2.2 PowerSeal 4810 ES; or

3.1.8.1.2.3 Pre-approved equal.

3.1.8.1.3 Force main piping within the casing shall be installed with mechanical joints and mega-lugs.

3.1.9 Trench Check Dam

3.1.9.1 MATERIALS

3.1.9.1.1 Clay material shall have no organic material and shall be compacted to 95 percent standard proctor. Or;

3.1.9.1.2 Pre-approved equals such as: AquaBlok®, slurry and others.

3.1.9.2 DESIGN STANDARDS

3.1.9.2.1 Trench check dam shall be installed on all sanitary laterals.

3.1.9.2.2 The check dam shall be located at the property line.

3.1.10 Polyethylene Wrap and Corrosion Protection

3.1.10.1 MATERIALS

3.1.10.1.1 Polyethylene film materials shall comply with SWS, Section 8.21.0.

3.1.10.2 DESIGN STANDARDS

3.1.10.2.1 All metallic pipe, fittings and valves shall be wrapped and protected per SWS, Section 4.4.4 and 4.4.5.

3.1.11 Grease Interceptors

3.1.11.1 All buildings with food service preparation on-site (now or at any future time) shall be required to install, maintain, and operate an exterior or interior grease interceptor tank sized in accordance with the Department of Safety and Professional Services (DSPS). State plumbing reviews by the DSPS shall be completed before a plumbing permit will be issued. Construction of the Grease Interceptor shall, in addition to requirements of the Plumbing Code, conform to the following standards. These standards are intended to minimize the potential for groundwater infiltration and inflow or rainwater from entering the sanitary sewer system via this system component.

3.1.11.2 MATERIALS

3.1.11.2.1 Interior grease interceptors shall be constructed in a watertight manner of one of the following materials:

3.1.11.2.1.1 Precast reinforced concrete

3.1.11.2.1.2 Reinforced monolithic concrete

3.1.11.2.1.3 Coated 12-gauge steel

3.1.11.2.1.4 Fiberglass

3.1.11.2.1.5 Plastic

3.1.11.2.1.6 Other approved materials

3.1.11.2.2 Exterior grease interceptors shall be pre-cast concrete with integral base when required by the Village Engineer and shown on the Plans.

3.1.11.2.3 Exterior grease interceptors shall be equipped with water-tight locking frame and lids.

3.1.11.2.4 The exterior walls of the tank shall be coated with coal-tar epoxy per SWS, Chapter 8.49.2, (2 coats at 8 mil DFT minimum each, totaling 16 mil DFT minimum). The coating material shall be equal to:

3.1.11.2.4.1 Tnemec Series 253 H.S. Tnemec Tar; or

3.1.11.2.4.2 ICI Devoe DEVTAR 5A; or

3.1.11.2.4.3 Pre-approved equal.

3.1.11.2.5 Coating(s) shall be applied in accordance with the coating manufacturer's recommendations and preferably at the place of tank manufacture. Each manhole section shall be inspected and marked for proof of inspection prior to delivery to the project site. Alternate waterproofing materials and application may be used if pre-approved by the Village Engineer. Manhole sections that are not properly coated with coal-tar epoxy will be rejected and shall be removed from the project site.

3.1.11.2.6 All barrel joints shall have a mastic or gasket type joint seal. The exterior shall be wrapped with an additional joint seal that meets requirements of ASTM C-877, Type II, such as "Mac-Wrap" or pre-approved alternate.

3.1.11.2.7 All manhole or tank access or inspection chimneys will be HDPE or EPP adapter seal frame – R1661 – Bolt down.

3.1.11.3 DESIGN STANDARDS

3.1.11.3.1 The approach section of pipe approaching the tank shall be straight for a distance of at least 20 pipe diameters with no connections, drops, or bends.

3.1.11.3.2 There should be no grade changes, angle points, or connections at the structure.

3.1.11.3.3 In Flood Plain Areas: Tank access or inspection chimneys shall be 2.0 feet above 100-yr Flood elevations as determined via FEMA Mapping.

3.1.11.3.4 When practicable, grade earth at 5H:1V slope around manhole openings. In paved areas, slope drainage away from the manhole openings.

3.1.11.3.5 Because inlet and outlet pipe slopes are critical, the location of the exterior grease trap tank shall require prior approval of the Village Engineer for location and grades. For projects requiring prior Site Plan Approval requirements, this site element shall be included on the Site Plan Submittal(s).

3.1.12 Lift Stations

3.1.12.1 Consult with the Village Engineer and Wastewater Utility for design requirements.

3.1.13 Insulation

3.1.13.1 MATERIALS

3.1.13.1.1 Minimum of 2" thick Styrofoam plastic foam boards as manufactured by:

3.1.13.1.1.1 Upjohn; or

3.1.13.1.1.2 Dow Chemical Company, or

3.1.13.1.1.3 Pre-approved equal.

3.1.13.2 DESIGN STANDARDS

3.1.13.2.1 All sanitary sewer pipes (mains, force mains & laterals), having less than 5.0 ft. of cover material, shall be insulated.

3.2 ABANDONMENT

3.2.1 GENERAL

3.2.1.1 All existing sanitary sewer mains and service lines, that will not be used in new or re-used in reconstruction of existing building sites, shall be abandoned at the main.

3.2.1.2 Abandonment shall be witnessed by the Village Inspector or a Utility Representative.

3.2.1.3 Main and/or service abandonment at the street main shall be a condition of any site demolition permit(s) issued or in the case of duplication, service lines that will remain unused on new construction.

3.2.1.4 All excavations within public rights-of-way shall require Village and/or County Permits.

3.2.1.5 Excavations within 5 ft. of and under paved surfaces shall be backfilled with Slurry Aggregate per the SWS to within 1.5 ft. of surface, followed by appropriate street restoration and not less than 3-inch of binder and 2-inch of wearing surface bituminous pavements.

3.2.1.6 In special circumstances, when approved in writing by the Village Engineer and the Utility Superintendent, sanitary sewer service lines may be temporarily made inactive at the right-of-way or easement boundary. Sanitary sewer lines shall be plugged or capped to be made watertight at the property line. Sewer service lines not abandoned at the main shall meet the following conditions:

3.2.1.6.1 As part of the demolition permit, a certified check or Letter of Credit, in the amount of \$5,000 per lateral, shall be submitted to the Village Engineer to guarantee the permanent abandonment of the service at the main is completed in a timely manner.

3.2.1.6.2 Any service line that is not abandoned at the main shall be subject to separate “availability” or “ready to serve” charges in the interim period until properly abandoned.

3.2.1.6.3 Sanitary lines made inactive in this manner shall be marked with a marker post placed 1 ft. from the end of the pipe and extending from the pipe to 3 ft. above the ground surface and painted a brilliant green color.

3.2.1.6.4 The location of the terminal pipe locations shall be surveyed or otherwise “tied” to permanent objects that will remain undisturbed at the site, with an as-built drawing provided to the Village Engineer and Wastewater Utility for record purposes.

3.2.2 SANITARY SEWER

3.2.2.1 All sanitary lines shall be abandoned at the street main fitting by disconnecting and removing 2 - 3 ft. of pipe and installing a water-tight cap or plug at the main fitting and on the abandoned line.

3.2.2.1.1 For Poly Vinyl Chloride (PVC) gasketed fittings, a Spigot Plug shall be installed.

3.2.2.1.2 A cured in-place plug will be allowed to abandon services deemed by the Utility to be 100% effective.

3.2.2.1.3 For PVC solvent weld or glued joint fittings, a gasketed Cap shall be installed on an undisturbed and undamaged max. 1.0 ft. spool piece.

3.2.2.1.4 For Concrete, Vitrified Clay, ABS/Truss, DIP or CIP (NOT soil pipe), a PVC Spigot Plug shall be installed using the appropriate Fernco Strong Back coupling onto an undisturbed and undamaged max. 1.0 ft. spool piece.

3.2.2.1.5 All Cast Iron Soil Pipe shall be removed and ONE of the above procedures used.

3.2.2.1.6 If connection to the main is via a “break-in”, then an appropriate length of main shall be cut and removed, with an identical length of PVC SDR 35 or 28 installed using appropriate couplings.

3.2.2.1.7 “Buffalo type” saddles are not acceptable for concrete and PVC pipe materials. Use of solvent weld or glued caps or plugs will not be acceptable.

3.2.2.2 Sanitary or other special manholes or structures that are part of an abandoned system shall also be abandoned by removing the casting, chimney and cone or corbel sections, followed by plugging the outlet and inlet pipe(s) with non-shrink cementitious grout.

3.2.2.3 The manhole barrel shall be filled with crushed stone compacted to 95% minimum standard Proctor density.

3.2.2.4 The property owner shall be responsible for proper disposal of all manhole components removed. All waste materials shall be removed from pipelines and structures before abandonment.

4 STORM SEWER SYSTEM

All labor and material provided under this contract shall be governed by the latest edition and all amendments thereto of the Standard Specifications for Sewer and Water Construction in Wisconsin (SWS) and State of Wisconsin Department of Transportation Standard Specifications for Road and Bridge Construction, unless otherwise specified in these Specifications, whichever is more restrictive. A full-time inspector is required to be at the project site to observe pipe unloading, inspect construction materials, and observe and document the construction of storm sewers and laterals. THESE STANDARDS SHALL APPLY TO ALL PUBLIC STORM SEWERS. Any and all modifications to these Specifications shall be approved by the Village Engineer.

Design shall follow SWS Specifications, Milwaukee Metropolitan Sewerage District (MMSD) Rules, Village of Germantown Municipal Code Chapter 27 and be designed in accordance with the NOAA Atlas 14. For private property in new development, if Department of Commerce procedures are used, the designer shall verify that off-site flows meet all of the requirements of the Rational Method or TR-55 Method. Design shall also conform to the following:

4.1 SPECIFICATIONS

4.1.1 STORM SEWER PIPE

4.1.1.1 MATERIALS

4.1.1.1.1 All storm sewers shall be constructed with a minimum Class III reinforced concrete pipe per SWS, Section 8.6.0 or as approved by Village Engineer:

4.1.1.1.2 Reinforced Concrete Pipe – ASTM C76

4.1.1.1.3 Horizontal Elliptical Reinforced Concrete Pipe – ASTM C507.

4.1.1.1.4 Joints for concrete storm sewer pipe shall have rubber gaskets conforming to SWS, Section 8.41.2.

4.1.1.2 DESIGN STANDARDS

4.1.1.2.1 Minimum size: 12"

4.1.1.2.2 Location:

4.1.1.2.2.1 In streets and easements: 10 feet west or south of the sanitary sewer.

4.1.1.2.3 Pipe cover:

4.1.1.2.3.1 3 feet minimum from finish design grade to outside top of storm sewer.

4.1.1.2.4 Storm sewers with diameters greater than 24" equivalent, daylighting in ditches shall have safety grates, meeting design standards, installed at the upstream and downstream ends.

4.1.1.2.5 Mainline and conveyance storm sewer design storm: 25-yr.; Storm sewers may not be surcharged in a 25-yr. or less design storm condition. Surge condition is defined as to the crown of pipe (full pipe flow - no pressure).

4.1.1.2.6 Minimum slope shall be 0.2% and achieve minimum velocity = 2.0 feet per second when pipe is flowing half-full. Village Engineer may waive the 0.2% minimum slope for runs of pipe longer than 400 feet. Village Engineer may limit maximum velocities.

4.1.1.2.7 Complete sewer design calculations are required with submittals, including Drainage Areas Map.

4.1.1.2.8 Storm sewer shall be required in public Rights-of-Way in new developments where the depth of proposed ditches exceed 3 feet as measured from the edge of pavement.

4.1.2 STORM LATERALS (From main to lot line)

4.1.2.1 MATERIALS

4.1.2.1.1 Unless otherwise specified, all pipe used for storm laterals shall be:

4.1.2.1.1.1 Class III concrete sewer pipe; or

4.1.2.1.1.2 PVC (SDR 26) pipe

4.1.2.2 DESIGN STANDARDS

4.1.2.2.1 Minimum size in ROW/easement areas shall be 6" diameter.

4.1.2.2.2 The minimum slope on laterals shall be 1/8" per foot.

4.1.2.2.3 The maximum slope on laterals shall be 1/2" per foot.

4.1.2.2.4 Minimum cover for storm sewer laterals in paved areas shall be 12" as measured from the top of the pipe to the top of the subgrade.

4.1.2.2.5 A clay dam across the trench shall be constructed adjacent to pavement low points with all storm sewer laterals.

4.1.2.2.6 Connection of laterals to storm sewer shall be subject to following:

4.1.2.2.6.1 Location of invert of new lateral may be permitted a maximum of 12" above spring line of outlet sewer or use outside drop inlet per SWS for main sewers.

4.1.2.2.6.2 Hole - Core drill only. Deliver "cut-out" to the Construction Inspector.

4.1.2.2.6.3 Connection Device - Kor-N-Seal boot, or pre-approved equal with stainless steel snap-in ring.

4.1.2.2.6.4 Any lateral that is connected into a manhole shall have a smooth concrete bench/channel placed to convey lateral flow into the storm sewer.

4.1.2.2.7 Storm sewer lateral lines shall be designed to receive the storm water runoff from window wells, footing drains and sump pumps.

4.1.2.2.8 In areas with storm sewer, a storm sewer lateral shall be provided for each lot or building. The Village Engineer may waive this requirement for lots that are adjacent to and drain to adjacent public drainage easements, wetlands or waters of the State.

4.1.2.2.9 Sump discharges for all buildings shall be located at the front of building (facing street). Village Engineer may waive this requirement for lots that are adjacent to and drain directly to public drainage easements, wetlands or waters of the State.

4.1.2.2.10 Storm laterals shall be located to the right of sanitary sewer lateral when looking from the street.

4.1.2.2.11 Covers installed on lateral cleanouts shall not be bolted to the cleanout pipe.

4.1.3 CULVERTS

4.1.3.1 MATERIALS

4.1.3.1.1 Culverts shall be manufactured and installed in accordance with the requirements of the Standard Specifications for Highway and Bridge Construction in Wisconsin.

4.1.3.1.2 Damaged or rusted culvert pipes shall not be reused.

4.1.3.2 DESIGN STANDARDS

4.1.3.2.1 Culverts located in a Primary Storm Water Management System (PSMS) shall provide at least the 100-year level of protection for capacity and road overtopping.

4.1.3.2.2 Culverts located in a minor storm water management system shall be designed to safely convey surface water runoff from a 10-year storm event. Culverts may not be surcharged in a 10-year or less design storm condition. Surge condition is defined as to the crown of pipe (full pipe flow – no pressure).

4.1.3.2.3 Minimum size shall be 12" diameter for driveways and 15" for roadway cross culverts.

4.1.3.2.4 Minimum culvert lengths:

< 24" diameter	20 feet
24" – 30" diameter	22 feet
36" – 42" diameter	24 feet
48" and larger diameters	26 feet

4.1.3.2.5 Culverts less than 24 feet in length shall consist of one piece of pipe.

4.1.3.2.6 All crossroad culverts shall be designed to provide a minimum of 12 inches of cover to the top of the pipe at the edge of the finished pavement of the road.

4.1.4 FLARED END SECTIONS

4.1.4.1 MATERIALS

4.1.4.1.1 The end sections shall be manufactured and installed in accordance with the requirements of the WisDOT Standard Specifications, Section 521 or Section 522 as applicable.

4.1.4.2 DESIGN STANDARDS

4.1.4.2.1 In areas with greater than 35 miles per hour, flared end sections shall be required to be installed on the ends of driveway culvert.

4.1.5 DITCHES

4.1.5.1 DESIGN STANDARDS

4.1.5.1.1 Slopes.

4.1.5.1.2 Grassed Invert

4.1.5.1.2.1 1½% minimum

4.1.5.1.2.2 4% maximum

4.1.5.1.3 Concrete Invert:

4.1.5.1.3.1 Greater than 4% or less than 1½%.

4.1.5.1.3.2 10 % maximum, 0.7% minimum.

4.1.5.1.3.3 Invert shall be placed on a minimum of 3" of crushed aggregate base course.

4.1.5.1.3.4 Place sod within the initial 1½ feet of ditch side slopes adjacent to the concrete invert.

4.1.5.1.3.5 2-ft. minimum width, v-bottom

4.1.5.1.3.6 V-bottom formed by 4H:1V sloped top surface

4.1.5.1.3.7 Minimum concrete thickness: 6"

4.1.5.1.4 Alternative methods may be used after approval of the Village Engineer is obtained.

4.1.5.1.5 Fore slope: 4H:1V maximum.

4.1.5.1.6 Backslope: 4H:1V maximum.

4.1.5.1.7 The minimum ditch depth shall be 12" below the shoulder point at roadway high points. Other ditch locations shall have a minimum depth of 20" below the shoulder point and be graded to accommodate a properly sized driveway culvert.

4.1.5.1.8 Adopt and administer the WDNR Technical Standards 1053, 1058, and 1059 for erosion control. All roadside ditches shall be covered with a minimum of 4" of topsoil, and either seeded, fertilized and matted or sodded. Sod placement shall be required on longitudinal slopes greater than 4%

4.1.5.1.9 If the back slope of a ditch extends beyond the right-of-way, drainage easements shall be required adjacent to the street right-of-way at a uniform distance from the road centerline or pipe to be buried within right-of-way as to avoid encroaching on private property, as approved by the Village Engineer.

4.1.5.1.10 Turf reinforcement may be used as a substitute for concrete invert in ditches with slopes between 4% - 5%. Village Engineer shall pre-approve turf reinforcement type.

4.1.6 STORM MANHOLE & JUNCTION CHAMBERS

4.1.6.1 MATERIALS

4.1.6.1.1 All storm manholes shall be pre-cast concrete with integral base, with pre-cast flattops (slab or deck) with an opening for the casting.

4.1.6.1.2 The manholes shall be sized as follows:

Downstream Pipe O.D.*	Minimum Manhole I.D.
27" or less	42"
28" – 30"	48"
31" – 36"	60"
37" – 42"	72"
>42"	Special Design Requiring Village Engineer Approval
*O.D. is the largest horizontal outside pipe dimension	

4.1.6.1.3 Where field conditions allow, the manhole shall be constructed with an offset cone.

4.1.6.1.4 All chimney joints, including the frame-chimney joint, and all barrel & cone section lifting holes shall be sealed with a cementitious grout with a struck joint. Grout shall be premixed, non-metallic, high-strength, non-shrink, Pennegrout. by IPA Systems, or approved equal, which meets requirements of ASTM C-1-91 and C-827 as well as CRD C-588 and C-621. When mixed to a mortar or "plastic" consistency, the grout shall have a minimum 1-day and 28-day compressive strength of 6,000 and 9,000 psi, respectively. Dry stacking of riser rings or flat decks shall not be permitted. They shall be laid in a bed of grout as described above.

4.1.6.1.5 Steps meeting the requirements of SWS, Section 6.40.1 shall be installed in all manholes or junction chambers deeper than 4', from floor to rim.

4.1.6.1.6 Drop pipes or other energy-dissipating structures shall be provided for all sewers entering a manhole with their invert at an elevation more than 24" above the invert of the sewer leaving the manhole.

4.1.7 CATCH BASINS

4.1.7.1 MATERIALS

4.1.7.1.1 Shall consist of masonry, pre-cast or monolithic construction in accordance with Chapter 3.6.1 and File No. 25 or 26 of SWS. All catch basins shall be designed and constructed to allow easy access for maintenance and cleaning.

4.1.7.1.2 Steps meeting the requirements of SWS shall be installed in all catch basins deeper than 4', from floor to rim.

4.1.7.1.3 Size (minimum).

4.1.7.1.3.1 For mountable curb, use Neenah castings 3501 Rectangular 24" x 30" (Internal Dimensions).

4.1.7.1.3.2 For vertical face curb, use Neenah casting 3228 Rectangular 24" x 36" (Internal Dimensions).

4.1.7.1.3.3 Round 48" ID.

4.1.7.1.3.4 Manhole inlets - Allowed only in cases where an angle point in the storm sewer occurs under the curb line. (These shall be avoided whenever possible.)

4.1.7.1.4 A continuous 4" diameter perforated, corrugated polyethylene drainpipe, meeting the requirements of AASHTO Designation: M-252, shall be installed under the curb and gutters and extend 50 feet in either direction from storm water catch basins located at low points. For catch basins in other locations, the 50-ft length of drainage pipe shall be connected only to the upstream side.

4.1.7.1.5 Where underdrain pipe is specified, a 4" diameter hole shall be cored in opposite sides of each catch basin located at low points to allow the connection of 4" diameter perforated, corrugated polyethylene underdrain pipe. Catch basins located in other locations shall have a 4" diameter hole cored in the upstream side to allow the connection of 4" diameter underdrain pipe. The holes shall be cored at an elevation that is below the subgrade elevation to allow for positive drainage and proper placement of the underdrain. Village Engineer may waive underdrain requirement.

4.1.7.1.6 All chimney joints, including the frame-chimney joint, and all barrel & cone section lifting holes shall be sealed with a cementitious grout bed with a struck joint. Grout shall be premixed, non-metallic, high-strength, non-shrink, Pennegrout. by IPA Systems, or approved equal, which meets requirements of ASTM C-1-91 and C-827 as well as CRD C-588 and C-621. When mixed to a mortar or "plastic" consistency, the grout shall have a minimum 1-day and 28-day compressive strength of 6,000 and 9,000 psi, respectively.

4.1.7.2 DESIGN STANDARDS

4.1.7.2.1 Inlet capacity design storm: 25-yr. storm event. In a 25-yr. storm event, the maximum spread of ponded storm water shall be 8 feet as measured from the face of curb.

4.1.7.2.2 Inlet capacity design storm: 50-yr. storm event for areas with no overland flow relief. In roadways, storm water ponding shall not exceed 6" on paved parking areas and 4" at the centerline in a 100-yr. storm event.

4.1.7.2.3 At low points, curb pan shall be pitched a ½ inch five feet on both sides of catch basins.

4.1.7.2.4 Where only front yard drainage flows to the curb, maximum separation or run to a catch basin is 300 feet unless in the opinion of the Village Engineer a lesser distance is required. Where the collective drainage from more than one lot discharges over the curb at a single point, a catch basin shall be required at the lot line extended

4.1.8 FIELD INLETS

4.1.8.1 MATERIALS

4.1.8.1.1 Shall consist of masonry, pre-cast or monolithic construction in accordance with Chapter 3.6.3 and File No. 28 or 29 of SWS.

4.1.8.1.2 Inlets shall be designed and constructed to allow easy access for maintenance and cleaning.

4.1.8.1.3 All chimney joints, including the frame-chimney joint, and all barrel & cone section lifting holes shall be sealed with a cementitious grout bed with a struck joint. Grout shall be premixed, non-metallic, high-strength, non-shrink, Pennegrout. by IPA Systems, or approved equal, which meets requirements of ASTM C-1-91 and C-827 as well as CRD C-588 and C-621. When mixed to a mortar or "plastic" consistency, the grout shall have a minimum 1-day and 28-day compressive strength of 6,000 and 9,000 psi, respectively.

4.1.8.2 DESIGN STANDARDS

4.1.8.2.1 Inlet capacity design storm: 25-yr. storm event. In a 25-yr. storm event, the maximum spread of ponded storm water shall be 8 feet as measured from the face of curb.

4.1.8.2.2 Inlet capacity design storm: 50-yr. storm event for areas with no overland flow relief. In roadways, storm water ponding shall not exceed 6" on paved parking areas and 4" at the centerline in a 100-yr. storm event.

4.1.9 ROAD UNDERDRAINS

4.1.9.1 MATERIALS

4.1.9.1.1 Underdrain systems shall be installed under curb and gutters to collect water and convey it to catch basins.

4.1.9.1.2 The underdrain system shall be constructed with:

4.1.9.1.2.1 4" diameter perforated, corrugated polyethylene drainage pipe meeting the requirements of AASHTO Designation: M-252.

4.1.9.1.2.2 Pipe perforations may be holes or slots and may be in 3 or 4 lines spaced around the circumference of the pipe at 120° or 90° respectively.

4.1.9.1.3 The trench shall be backfilled with open graded $\frac{3}{4}$ " crushed stone.

4.1.9.1.4 Geotextile fabric, as specified in Section 612.2.8 of the Standard Specifications, shall be used to line the underdrain trench before the drainage pipe is installed and backfilled. Enough fabric shall be provided as to cover the sides and bottom of the trench and overlap across the top of the trench by a minimum of 4 inches.

4.1.9.2 DESIGN STANDARDS

4.1.9.2.1 The 4" drainage pipe shall be laid in an 8" deep by 8" wide trench with flat bottom with square sides as shown in the Figure 7 of the Details. The trench, constructed at an elevation lower than the base course, shall extend 50 feet in either direction from a storm water catch basin located at the low point of the road, aligned with the proposed centerline of the flange of the curb and gutter. For catch basins in other locations, the 50' drainage pipe shall be connected only to the upstream side.

4.1.9.2.2 The drainage pipe shall be connected to catch basins in cored holes and grouted in-place in the cored holes. The end of drainage pipe opposite the catch basin shall be capped with a cap suitable for installing on the drainage pipe.

4.1.10 BEHIND CURB COLLECTORS

4.1.10.1 MATERIALS

4.1.10.1.1 All behind the curb collector systems shall be constructed with minimum 6" diameter PVC (SDR 35) pipe.

4.1.10.1.2 The clean out shall consist of a standard pre-cast 24" x 36" box inlet with a Neenah R-1878-B7L frame and lid as shown in Figure 15 of the Details.

4.1.10.2 DESIGN STANDARDS

4.1.10.2.1 Connected to sump pump drainage lines in lieu of storm sewer.

4.1.10.2.1.1 36" from flow line to surface.

4.1.10.2.1.2 1 % minimum grade.

4.1.10.2.1.3 300-ft. maximum run to outlet.

4.1.10.2.1.4 Maximum run of 250 feet in curvilinear street.

4.1.10.2.1.5 Maximum of 4 lots contributing area.

4.1.10.2.2 Behind the curb collector systems shall be installed 2' behind the curb at cul-de-sacs and hill crests where storm sewers are not located.

4.1.10.2.3 The collector pipe shall be connected to the nearest catch basin.

4.1.10.2.4 A clean out shall be installed at the upstream end of the collector system.

4.1.10.2.5 Sump lines for lots not served by the storm sewer shall be connected to the PVC collector pipe by a wye or tee fitting.

4.1.10.2.6 Tracer wire installation is required on all behind the curb collector pipe.

4.1.11 FRAMES, GRATES AND LIDS

4.1.11.1 MATERIALS

4.1.11.1.1 Vertical curb catch basin frames and grates shall be

4.1.11.1.1.1 Neenah R-3228-K, (with Rectangular 24" x 36" structure).

4.1.11.1.1.2 or equal as pre-approved by the Village Engineer.

4.1.11.1.2 Driveway frame and grate shall be 3290-A.

4.1.11.1.2.1 Mountable curb catch basin frames and grates shall be:

4.1.11.1.2.2 Neenah R-3501-R, (with Rectangular 24" x 30" structure).

4.1.11.1.2.3 or equal as pre-approved by the Village Engineer. (Add a flat frame and grate for driveway curb head reductions)

4.1.11.1.3 Field inlet frames and grates shall be:

4.1.11.1.3.1 Neenah R-3210-A, (with 35" x 35" structure).

4.1.11.1.3.2 or equal as pre-approved by the Village Engineer.

4.1.11.1.3.3 A Neenah R-2561 series beehive frame and grate shall be used where required by the Village (with 30" OD structure).

4.1.11.1.4 Manhole frames and grates in field inlet applications shall be:

4.1.11.1.4.1 Neenah R-2577-1, or

4.1.11.1.4.2 equal as pre-approved by the Village Engineer.

4.1.11.1.5 Manhole frames and lids in pavement applications shall be:

4.1.11.1.5.1 Neenah R-1661, or

4.1.11.1.5.2 equal as pre-approved by the Village Engineer.

4.1.11.1.6 Covers shall have machined bearing surface and will be permitted to have eight (8) vent holes.

4.1.11.1.7 A pipe grate with maximum opening size of 6" shall be installed on storm sewer inlets 18" or larger. Grate shall be hot-dipped galvanized after fabrication or be constructed of corrosion resistant material approved by Village Engineer.

4.1.12 FRAME ADJUSTMENTS

4.1.12.1 MATERIALS

4.1.12.1.1 All frame/casting adjusting rings for manholes, catch basins and inlets shall be:

4.1.12.1.2 Pro-Ring™ by Cretex, or

4.1.12.1.3 approved equal

4.1.12.1.4 The minimum for a chimney section shall be the height associated with the proper placement of one 2" adjusting ring. The maximum height of adjusting rings above the cone or slab top is 16 inches as measured from the top of cone or slab top. If more than 16 inches of adjusting rings are needed to set the casting to finished grade, then an additional barrel section shall be installed on the manhole.

4.1.12.1.5 The minimum thickness of individual pre-cast concrete adjusting rings shall be a nominal 2". The maximum thickness shall be a nominal 4".

4.1.13 SUMP PUMPS, DOWN SPOUTS, AND ROOF DRAINS

4.1.13.1 DESIGN STANDARDS

4.1.13.1.1 Sump pumps shall be connected to a storm sewer system if one exists adjacent to the lot.

4.1.13.1.2 Down spouts and roof drains, if not buried, may be connected to a sump collector. If buried, they shall be connected to sump collector.

4.1.13.1.3 If storm sewer is not provided or if a rural roadway section exists, then sump pumps shall be installed to receive and discharge ground water from footing drains.

4.1.13.1.4 Sump pumps, down spouts and roof drains shall discharge on the ground to the front of the lot so that:

4.1.13.1.4.1 Adjoining properties are not adversely affected.

4.1.13.1.4.2 If no drainage easement exists along a side or rear lot line, the discharge point within the site, shall be at least 10' from the lot line.

4.1.13.1.4.3 If a public open drainage easement exists adjacent to any lot, the discharge point for down spouts and/or roof drains shall be discharged directly into the easement.

4.1.14 BEDDING/COVER/BACKFILL

4.1.14.1 MATERIALS

4.1.14.1.1 Pipe Bedding/Cover: In accordance with SWS as follows -

4.1.14.1.1.1 Flexible wall pipe shall be Class "B" up to 12" above the top of pipe; 3/8" limestone chips.

4.1.14.1.1.2 Rigid wall pipe with diameters equal to or less than 21" shall have 3/8" limestone chips up to 6" above the top of pipe.

4.1.14.1.1.3 Rigid wall pipe with diameters greater than 21" shall have 3/4" limestone chips up to 6" above the top of pipe.

4.1.14.1.2 Cover Material: In accordance with SWS, Section 8.43.3. No stone, rock or other similar material with a sieve size greater than 1" shall be permitted.

4.1.14.1.3 Granular Backfill: In accordance with SWS, Section 8.43.4. No stone, rock or other similar material with a sieve size greater than 3" shall be permitted. Granular material shall be crushed limestone.

4.1.14.1.4 Spoil Backfill: In accordance with SWS, Section 8.43.5. No stone, rock or other similar material with a sieve size greater than 3-inches shall be permitted. In areas where excavated material(s) are determined to be not acceptable, in the judgement of the Village Engineer, then imported backfill material meeting the requirements of SWS will be required.

4.1.14.1.5 Slurry Backfill: Aggregate slurry in accordance with SWS, Section 8.43.8 and requirements of the Village Engineer, or in accordance with street opening permit, when issued. In special cases, the Village Engineer may direct the use of Sand Slurry consisting of 50 pounds of fly ash and a 1/2 bag of Portland cement per cubic yard of mix.

4.1.14.2 DESIGN STANDARDS

4.1.14.2.1 Backfill in accordance with all street opening permit(s), generally this will be aggregate slurry. All areas greater than 5 ft from a paved surface (and above a 45-degree intercept line) may receive suitable spoil backfill as provided herein.

4.1.14.3 INSTALLATION

4.1.14.3.1 Care shall be taken by the Contractor when backfilling to prevent any movement of the pipe from proper alignment and grade. Contractor is responsible for determining that the finished sewer remains at the required elevation and grade.

4.1.14.3.2 Mechanically compact all trench backfill per SWS, Section 2.614(b). The initial lift to be compacted shall have a 2' loose thickness. Each subsequent lift to be compacted shall have a maximum 18" loose thickness. Contractor shall place thinner lifts if the required compaction cannot be achieved.

4.1.15 PIPE TO MANHOLE CONNECTIONS

4.1.15.1 MATERIALS

4.1.15.1.1 In accordance with SWS, Section 3.5.7, except as modified below:

4.1.15.1.2 Amend the last sentence of Section 3.5.7(a) by adding the following: “using boots or cast-in-place cementitious material.”

4.1.15.1.3 Delete the last paragraph of Section 3.5.7 (c) & replace with: “To maintain seal flexibility, the annular space between the pipe and manhole wall shall be plugged with flexible butyl rubber gasket material prior to pouring the manhole invert and bench in accordance with SWS, Section 6.41.6. When connecting pipe to existing pre-cast concrete manholes, core hole in manhole wall prior to installing pipe to manhole seal.”

4.2 INSPECTION

4.2.1 SUBMITTALS AND SAMPLES

4.2.1.1 All materials and installations shall conform to SWS and are subject to the Village Engineer’s approval. All materials of each type or use shall be from a single manufacturer. Contractor shall submit for approval six (6) sets of material specifications, certification and testing results by manufacturer on EACH material item required on the Project.

4.2.2 ACCEPTANCE TESTING

4.2.2.1 General

4.2.2.1.1 Installation shall be in accordance with SWS, and these specifications.

4.2.2.1.2 All storm sewer pipe shall be laid uniformly to line and grade. Noticeable variation from true alignment and grade will be considered, by the Village, sufficient cause for rejection of the work. Care should be taken to ensure that the entering pipe is forced tightly against the last pipe laid.

4.2.2.1.3 Storm sewer, storm sewer inlets, storm sewer catch basins, and lateral alignment shall be uniform in line and grade as measured from the inlet to the outlet of the pipe section. Vertical misalignment of greater than $\frac{3}{4}$ ” in a single pipe section or a crest in the pipe grade extending for more (longer) than one-and-one-half (1-1/2) sections of pipe shall be cause for rejection and correction by the Contractor at no cost to the Village.

4.2.2.1.4 Manhole barrel joint(s) gasket material (“E-Z-Stik”) shall be placed on the vertical slope of each joint and shall be of the size necessary to fill the annular space of the joint. Lifting holes shall be grouted with Pennegrout and struck smooth on the interior and exterior surfaces. Chimney joints shall be grouted with Pennegrout. The grout shall extend the full width of each grade ring and each joint shall be struck-off vertically, even with the inside and outside chimney surfaces.

4.2.2.1.5 Rim elevations for manholes located in paved areas shall be set $\frac{3}{8}$ " – $\frac{1}{2}$ " below the asphalt binder grade elevation. Ramping of manholes will not be allowed.

4.2.2.1.6 Final adjustments to raise rim elevations to $\frac{1}{2}$ " below the grades shown on the final paving plans shall be made by installing adjusting rings as needed just prior to placement of the final lift of the pavement (surface course).

4.2.2.1.7 Catch basins shall be initially constructed to approximate $\frac{3}{4}$ " below binder grade prior to the curb and gutter construction. When curb and gutter is constructed, the concrete curb and gutter shall be stopped 5 feet on either side of the inlet. At intersections, catch basins are to be constructed 5 feet from the end of radii (to side of inlet). Temporary curb and gutter in the 5-foot gap on either side of the inlet shall be constructed with asphalt transitioning from the final grades of the concrete curb and gutter to the grade of the grate set at binder grade.

4.2.2.1.8 At the time of placement of the final surface course of pavement, the temporary asphaltic curb and gutter shall be removed, and the inlet frame shall be set to final grade by adding one 2" adjusting ring and applying Type "M" mortar per SWS, Section 6.37.1. The concrete curb and gutter shall be completed. No wood shims shall be left in place. With this method, tuck pointing beneath the frame should not be required.

4.2.2.1.9 Any catch basin out of horizontal alignment by more than 2 inches shall be reconstructed to match the curb and gutter.

4.2.2.1.10 Contractor shall furnish and place a temporary 2" x 6" stake at the end of each storm lateral.

4.2.2.1.11 Existing field tiles shall be connected to a storm sewer or have a positive outfall provided.

4.2.2.1.12 All storm sewers shall be free from debris, sedimentation, or garbage prior to Village acceptance.

4.2.2.1.13 Downspout cleanouts and catch basins shall be inspected by the Village prior to acceptance by the Village.

4.1 INSPECTION

When starting an installation, the farthest downstream location of the new sanitary sewer system shall have a plug installed and maintained by the utility Contractor. That plug shall not be removed until the system has been accepted by the Wastewater Utility Village Engineer and deemed operational by the Village and/or the Utility Department.

4.1.1 SUBMITTALS AND SAMPLES

4.1.1.1 All materials of each type or use shall be from a single manufacturer. Contractor shall submit for approval six (6) sets of material specifications, certification and testing results by manufacturer on EACH material item required on the Project.

4.1.2 ACCEPTANCE TESTING

4.1.2.1 General

4.1.2.1.1 Deflection and Leakage tests in accordance with SWS and under supervision of the Engineering Project Inspector and the Wastewater Utility.

4.1.2.1.2 All sewer pipes shall be laid uniformly to line and grade. Noticeable variation from true alignment and grade will be considered to be sufficient cause for rejection of the work by the Village. Care should be taken to ensure that the entering pipe is forced tightly against the last pipe laid.

4.1.2.1.3 Sanitary main and lateral alignment shall be uniform in line and grade as measured from the inlet to the outlet of the pipe section. Vertical misalignment of greater than $\frac{3}{4}$ " in a single pipe section or a sag in the pipe grade extending for more (longer) than one-and-one-half (1.5) sections of pipe shall be cause for rejection. Any correction by the Contractor shall be at no cost to the Village or Utility.

4.1.2.1.4 Two (2) business days' notice is required to be given to the Village's Inspector and the Wastewater Utility.

4.1.2.1.5 All water that is used for construction purposes will be charged at the current rates for such use. A PERMIT IS REQUIRED FROM THE WATER UTILITY PRIOR TO ANY WATER USE.

4.1.2.2 Tests

4.1.2.2.1 Deflection testing for flexible mains shall be at the 95% of specified minimum I.D.

4.1.2.2.2 Leakage testing shall include all installed system components, such as mains, branches, laterals, risers and taps to the terminus of lines installed. For each foot that the test section is below ground water level, the test pressure shall be increased by 0.43 PSI for each foot that the average ground water height for the test section is above the spring line. In absence of recorded data on ground water table above pipe invert, it shall be assumed to begin at six (6) feet below finished

manhole grade. Therefore, the minimum increase in test pressure shall be 6.6 psi and the maximum test pressure shall be 10.0 psi.

4.1.2.2.3 Sanitary Manholes shall be vacuum tested for leakage in accordance with standard test methods outlined in ASTM C-1244-93 or current edition, and minimum test time periods of:

42" & 48" dia. Manholes	60 sec.
60" dia. Manholes	75 sec.
72" dia. & greater Manholes	90 sec.

4.1.2.2.4 Interior manhole walls to be vacuum tested shall be dry. As required by MMSD, sanitary manholes shall be vacuum tested from the lid down to the invert. If a vacuum test fails, all remedial sealing is to be done on the exterior of the manhole prior to re-testing following proper curing time. Manholes receiving repairs shall be vacuum tested again after repairs are completed.

4.1.2.2.5 As an alternative, sanitary manholes may be vacuum tested from the top of the cone to the invert provided that the frame/cone internal seal and extension, if installed, are water tested during installation as required by MMSD. Reports summarizing the vacuum testing shall be submitted to the Utility Department.

4.1.2.2.6 Follow hydrostatic testing procedures outlined in SWS, Section 4.15, at 100 psi and no leakage.

4.1.2.2.7 Testing of both internal and external seals shall be with a gallon of dyed water behind the seal for a period of 1 minute without any leakage through the bottom clamp.

4.1.2.2.8 Prior to pre-punch list work, tracer wires shall be tested by Contractor prior to Village accepting the work. The Utilities Department has the option to spot check the continuity of the tracer wires.

4.1.2.2.9 As part of the pre-punch list work, Contractor required to notify when CCTV is ready to start. CCTV will be completed by the Village Wastewater Utility at no cost to Contractor.

4.1.3 CLEANING

4.1.3.1 Cleaning Precautions

4.1.3.1.1 During the cleaning process, a mechanical plug of appropriate size will be installed at the furthest downstream manhole, and all efforts shall be made to keep foreign materials and water from adjoining sewer systems.

4.1.3.1.2 Contractor shall clean all sanitary sewer line sections between manholes using high-velocity jet, or mechanically powered equipment. All dirt, sand, rocks, and other solid or semi-solid material resulting from the construction of the system shall be removed before acceptance.

4.1.3.2 Contractor shall be required to repair all visible damage and leaks in the mains.

4.1.3.3 This procedure is in addition to any testing required by SWS and/or MMSD.

4.1.3.4 Acceptance of sewer line cleaning and construction will be made upon the successful completion of the CCTV inspection by the Village, and to the satisfaction of the Wastewater Utility. If the CCTV inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to re-clean and re-inspect the sewer line until the cleaning is shown to be satisfactory. Second inspection by CCTV due to dirt in pipe will be charged to Contractor.

4.1.4 CCTV – Private Interceptor Sewers

4.1.4.1.1 Contractor will perform CCTV after construction is complete. A copy of the CCTV video and report shall be provided to the Wastewater Utility.

4.1.4.1.2 Color videotape recordings of the data shall be made by the Contractor. Copies of each videotape, in USB digital format (USB flashdrives) or approved media, shall be provided to the Wastewater Utility. PipeTech Compatible P.A.C.P. codes are required.

4.1.4.1.3 A set of system map Plan Sheets shall be included with all CCTV report books.

5 ROAD SYSTEM

5.1 GEOMETRICS

5.1.1 RIGHT-OF-WAY WIDTHS

Type	Minimum ROW Width (feet)
Local Street	60
Service Alley	30
Manufacturing and Industrial	80
Collectors and Arterials	Per adopted County Highway Width Map and/or Official Village Map

Per tables 2 & 2A of Chapter 18 of the Village of Germantown Municipal Code

5.1.2 PAVEMENT WIDTHS

5.1.2.1 Pavement widths are measured from edge of pavement to edge of pavement.

Standard Urban Residential Section Using Curb & Gutter (Face of curb to face of curb)	30 Feet
Standard Rural Residential Section With Open Ditches (Face of curb to face of curb)	24 Feet
Standard Commercial or Industrial Section	40 Feet

Per tables 2 & 2A of Chapter 18 of the Village of Germantown Municipal Code

5.1.3 BOULEVARD SECTIONS

5.1.3.1 Entrance

5.1.3.1.1 Minimum pavement width (flange to flange of curb and gutter) shall be 16 feet for a single lane.

5.1.3.1.2 Minimum pavement width (flange to flange of curb and gutter) shall be 24 feet for a double lane.

5.1.3.2 Exits

5.1.3.2.1 Minimum pavement width (flange to flange of curb and gutter) shall be 24 feet (double lane).

5.1.3.2.2 Minimum median width shall be 20 feet back of curb to back of curb.

5.1.3.2.3 Median length shall be adequate for queuing, but generally shall not extend beyond the first side street.

5.1.4 CUL-DE-SACS

5.1.4.1 Local streets open at one end only shall end with a cul-de-sac.

5.1.4.2 No less than 3 parcels and no more than 15 parcels may be served by a cul-de-sac.
Block length between intersections shall not exceed 1,500 feet nor be less than 500

feet. Block length is measured from the center line of the right-of-way to the center line of the right-of-way of the two cross streets.

5.1.4.3 Residential:

5.1.4.3.1 All pavement widths for a standard residential cul-de-sac shall have a minimum bulb radius of 42 feet as measured from the center of the cul-de-sac to the edge of pavement.

5.1.4.3.2 The minimum bulb radius for the Right-of-Way shall be 66 feet as measured from the center of the cul-de-sac.

5.1.4.4 Commercial or Industrial:

5.1.4.4.1 All pavement widths for a standard commercial or industrial cul-de-sac shall have a 48-ft. radius measured from the center of the cul-de-sac to the face of curb.

5.1.4.4.2 The minimum radius for the Right-of-Way shall be 66 feet.

5.1.4.5 Central planting islands are acceptable in the middle of the cul-de-sac.

5.1.4.5.1 Minimum pavement width (edge of pavement to edge of pavement for rural cross-section or flange to flange for curb and gutter) shall be 16 feet for a single lane.

5.1.4.5.2 Plantings should be installed outside of the 5' clear zone for snow plowing.

5.1.5 CLOSE/LOOP STREET

5.1.5.1 The close or loop street, may be used in lieu of a short cul-de-sac, and shall be designed as two parallel lanes, 16-ft. wide lanes separated by a central planting strip or bio-retention area having a minimum width of 50 feet.

5.1.5.2 Maximum length for a close or loop street shall be 1,200 feet.

5.1.6 STREET GRADES

Type	Max Grade
Arterial	4%
Collector	7%
Local	10%

5.1.6.1 Urban roadway sections shall have a minimum of 0.7% centerline profile gradient.

5.1.7 CROSS SLOPE

5.1.7.1 All roadway sections (urban or rural) shall have a crown, with a cross slope of 3% from the pavement centerline to the edge of pavement.

5.1.8 HORIZONTAL CURVES

5.1.8.1 Minimum horizontal curve requirements, per WDOT Geometric Design of Highways and Streets, Current Edition including all updates.

5.1.8.2 Compound Curves

5.1.8.2.1 Compound curves are only allowed on roads with a posted speed limit of 25 mph or less.

5.1.8.2.2 A minimum horizontal curve radius of 250 feet is required along the roadway centerline.

5.1.8.2.3 A horizontal curve radius of 200 feet may be accepted when a 100' long tangent length is provided between curves.

5.1.9 VERTICAL CURVES

5.1.9.1 Maintain "K" Values per AASHTO Geometric Design of Highways and Streets, Current Edition including all updates.

5.1.10 SIGHT DISTANCE

5.1.10.1 For minimum sight distance requirements at intersections and driveways, refer to AASHTO Geometric Design of Highways and Streets, Current Edition including all updates.

5.1.11 INTERSECTION RADII

5.1.11.1 Internal to development for minor streets (measured from the edge of pavement/flange line):

5.1.11.1.1 Residential and multi-family: 25 feet

5.1.11.1.2 Commercial and industrial: 42 feet

5.1.11.1.3 Intersection radii at side roads, shall be as approved by the Village Engineer.

5.1.12 ACCELERATION/DECELERATIONS/BYPASS LANES

5.1.12.1 Any roadway intersecting with a collector or arterial street projected to have more than 100 ADT shall require Acceleration/Decelerations/Bypass Lanes per Detail Figure No. 4.

5.1.13 TRANSITIONS

5.1.13.1 Transitions areas, such as lane additions, bypass lanes, traffic shifting lanes, and areas between existing pavement and new pavement sections with varying widths, shall be transitioned based on speed and road type.

5.2 SPECIFICATIONS

5.2.1 SUBGRADE

5.2.1.1 DESIGN STANDARDS

5.2.1.1.1 Soil borings to a minimum depth of 10 feet below finish grade shall be taken every 50-500 feet along the proposed centerline of the roadway. A site map showing the location of the borings along with laboratory soils classifications for each boring shall be submitted to the Village Engineer.

5.2.1.1.2 Should the geotechnical data submitted to the Village not be sufficient to satisfy the Village Engineer, the Developer shall grant the Village with a right of entry to obtain the required data. Costs associated with obtaining the required data shall be at the Developer's sole expense.

5.2.1.2 INSTALLATION

5.2.1.2.1 The subgrade shall be proof rolled, checked for proper grade and approved by the Village Engineer or designee before crushed stone base and, if necessary geotextile fabric, is to be applied. Proof rolls are to be witnessed by a designated Village representative.

5.2.1.2.2 All earth fills under roadways shall be placed in 12" maximum lifts and a Proof Roll shall be witnessed by the Village Inspector or designated Village representative.

5.2.1.2.3 All soft spots located as a result of proof rolling with a fully loaded tri-axle truck approved by Village Engineer or designee shall be undercut and filled in a manner agreed upon by the Contractor and the Village Engineer.

5.2.1.2.4 All repaired soft spots shall be re-proof rolled after subgrade elevation has been re-established. Process shall be repeated until the project passes proof roll.

5.2.1.2.5 In unstable soil conditions, undercutting in excess of 3 feet shall be backfilled with 3" breaker run or other materials as approved in writing by the Village Engineer. 1-1/4 inch select crushed aggregate may also be used.

5.2.1.2.6 If open graded material is used, drainage at the bottom of the undercut is required by use of a French drain or perforated pipe bedded in crushed stone, where grades allow. In many situations, dense graded coarse TB shall be used to eliminate water that would be trapped if clear stone was used.

5.2.1.2.7 In unstable soil conditions, additional subdrains may be required as directed by the Village Inspector.

5.2.1.2.8 Method of drainage of the filled area shall be approved by the Village Inspector.

5.2.2 GEOTEXTILE FABRIC

5.2.2.1 MATERIAL

5.2.2.1.1 Geotextile fabric conforming to WisDOT Standard Specification, Section 645 shall be pre-approved by the Village Engineer prior to installation for:

5.2.2.1.1.1 subgrade separation and stabilization (Type SAS)

5.2.2.1.1.2 drainage filtration (Type DF)

5.2.2.1.1.3 subgrade reinforcement (Type SR)

5.2.2.1.1.4 under riprap (Types R & HR).

5.2.2.2 INSTALLATION

5.2.2.2.1 Geotextile fabric shall be placed on substandard subgrade in all areas that will receive crushed aggregate base course material, unless a Clear Stone Frost Barrier is to be used. Geotextile fabric is not required where Clear Stone Frost Barrier is to be used.

5.2.2.2.2 Geotextile fabric shall have a minimum 24" overlap for longitudinal seams and minimum 36" overlap for transverse seams.

5.2.2.2.3 Subsequent open cuts of the pavement requiring excavations below the subgrade of roadways having geotextile fabric in place shall be backfilled with approved slurry.

5.2.3 BASE COURSE

5.2.3.1 MATERIALS

5.2.3.1.1 The crushed aggregate base course for the roadway shall consist of dense graded base conforming to WisDOT Standard Specification Section 305.2.2.1 for 1 ¼-inch.

5.2.3.2 INSTALLATION

5.2.3.2.1 The finished base course elevation shall be a minimum of:

5.2.3.2.1.1 10" above the approved subgrade for a local roadway,

5.2.3.2.1.2 14" above the approved subgrade for a commercial or industrial roadway

5.2.3.2.2 New Construction or Reconstruction:

5.2.3.2.2.1 Bottom Layer: 3" gradation crushed interlocking limestone aggregate from a quarry source

5.2.3.2.2.2 Middle Layer: 1 ¼" gradation crushed interlocking limestone aggregate from a quarry source

5.2.3.2.2.3 Quarry Source: Quarry source shall be listed on the WisDOT Pit and Quarry Listing (latest edition) and be approved by Germantown.

5.2.3.2.2.4 Gradations shall conform to WisDOT Standard Specifications Sec. 305

5.2.3.2.3 Pulverize & Overlay: Pulverized pavement acceptable when recommended by Geotechnical Services Report, as approved by the Village Engineer.

5.2.3.2.4 The dense graded base shall be spread, shaped, compacted, and proof-rolled to produce a stabilized base which conforms to the required cross-sections.

5.2.3.2.5 Special compaction testing may be required dependent on-site conditions in accordance with 301.3.4.3 of the WisDOT Standard Specifications at the contractor's expense.

5.2.3.2.6 Surface Elevation tolerance to be +/- 1/2 inch.

5.2.3.2.7 Base course to be compacted to 95% Modified Proctor and conform to WisDOT Standard Specification 305.3.2

5.2.4 FROST BARRIER – As required by the Village Engineer

5.2.4.1 MATERIALS

5.2.4.1.1 The Frost Barrier shall be #3 Clear Stone with a minimum depth of 12" or as specified for a given project.

5.2.4.2 DESIGN STANDARDS

5.2.4.2.1 Where specified by the Village, a layer of Clear Stone Frost Barrier shall be required to prevent or minimize future frost heave damage to the roads.

5.2.5 SHOULDERS

5.2.5.1 MATERIALS

5.2.5.1.1 The aggregate for shoulder shall consist of: Crushed stone conforming to WisDOT Standard Specification Section 305.2.2.1 for ¾-inch dense graded base; or Recycled asphalt as approved by the Village Engineer.

5.2.5.2 DESIGN STANDARDS

5.2.5.2.1 For rural cross sections, a minimum 4-ft. wide shoulder shall be constructed, with recycled asphalt, along both edges of pavement.

5.2.6 ASPHALT PAVEMENT

5.2.6.1 MATERIALS

5.2.6.1.1 Asphalt pavement materials shall conform to the requirements of the Wisconsin Asphalt Pavement Association's (WAPA) latest pavement design guide.

5.2.6.1.2 Mix designs for all other classifications shall be as approved by the Village Engineer.

5.2.6.2 INSTALLATION

5.2.6.2.1 All asphalt binder courses shall be constructed on a dry, rolled and compacted crushed stone base, free of loose and foreign materials. Hand operated vibrating compactors shall be used around all manholes and valve boxes.

5.2.6.2.2 A tack coat, meeting the requirements of WisDOT Standard Specification Section 455.2.5, shall be used as a bonding agent between binder and surface courses, and the separate lifts of binder when not placed on the same day. The binder surface

shall be thoroughly cleaned and any debris removed prior to applying the tack coat. Tack coat shall be uniformly applied at a rate of 0.07 gallon per square yard with an allowable variation of +/- 0.02 gallon per square yard over the entire receiving surface. Daily application of the tack coat shall be limited to approximately that area of surface that can reasonably be expected to be paved during the same day.

5.2.6.2.3 Saw cutting

5.2.6.2.3.1 When saw cutting existing concrete or asphalt pavements, curb and gutter, driveways, or sidewalks, the saw cut shall be straight, and shall be full depth.

5.2.6.2.3.2 No payment shall be made for sawing that is not straight or for sawing where the sawing debris is not washed off of the pavement or driveways.

5.2.6.2.3.3 Longitudinal joints in the surface course shall at no time be placed immediately over similar joints in the binder course beneath, with the exception of the centerline. A minimum distance of 6" shall be required between the location of the joints in any given course and the location of similar joints in the course placed above it unless approved by the Village Engineer.

5.2.6.2.4 Paving shall be done in stages so that the first pass does not cool below 125° F, prior to second pass of the next lane.

5.2.6.2.5 Any asphalt paving after October 15th of any year shall be done only with special, alternate methods approved by the Germantown Village Engineer.

5.2.6.2.6 If the roadway will not receive the final lift prior to October 15th, a minimum 18" wide wedge of asphalt shall be placed against the flange line for protection.

5.2.6.2.7 On roadways with rural cross-section, the edge of the pavement shall be sloped, and no materials shall extend beyond the limits of the previous layer. Irregularities in alignment along the outside edges shall be corrected by adding or removing asphalt. Excess asphalt deposited on the existing base, binder or surface course outside the limits of the lane being laid, shall be immediately removed.

5.2.6.2.8 Prior to placement of the surface course:

5.2.6.2.8.1 All foreign matter shall be removed from the binder course surface.

5.2.6.2.8.2 On streets with curb and gutter, the 18" wide wedge of protective asphalt previously placed against the curb and gutter shall be removed by milling.

5.2.6.2.8.3 Developer/Contractor, at his sole expense, shall repair any depressions or other signs of failure in the binder course as directed by the Village Engineer.

5.2.6.2.8.4 Developer/Contractor, at his sole expense, shall repair any damaged curb and gutter as directed by the Village Engineer.

5.2.6.2.8.5 All manhole rims and water valve boxes shall be left 3/8" –1/2" below binder course and adjusted to 3/8" –1/2" below the final pavement elevation prior to

placement of surface course of asphalt. Paving rings which have an adjustable diameter are not allowed.

5.2.6.2.9 All excavations associated with manhole adjustments shall be backfilled with slurry as specified in Standard Specification for Sewer and Water Construction in Wisconsin Section 8.43.8. The slurry shall be backfilled to 6-inches below the final pavement elevation for residential, commercial, and industrial streets.

5.2.6.2.10 Asphalt pavement installation will not be permitted after October 15th unless approved by the Village Engineer.

5.2.6.2.11 Asphaltic binder course shall not be installed after October 1st, unless approved by the Village Engineer.

5.2.6.2.12 Asphaltic surface course shall be installed in the same calendar year as the binder course, unless approved by the Village Engineer.

5.2.7 CONCRETE PAVEMENT

The use of concrete pavement requires the approval of the Village Engineer.

5.2.7.1 MATERIALS

5.2.7.1.1 Portland Cement and aggregates used in all concrete mixes shall conform to WisDOT Standard Specification Section 501.

5.2.7.1.2 Aggregates used in concrete shall conform to the requirements of WisDOT Standard Specification Section 501.

5.2.7.1.3 Concrete shall be air entrained, Grade A, conforming to WisDOT Standard Specification Section 501, and in particular, meet the following requirements:

5.2.7.1.3.1 Minimum concrete content, 6.0 sacks per cubic yard;

5.2.7.1.3.2 Compressive strength after 28 days cured: 4,000 psi;

5.2.7.1.3.3 Maximum amount of water per bag of cement: 6.0 gallons;

5.2.7.1.3.4 Size of course aggregates required: No. 1 plus No. 2;

5.2.7.1.3.5 Slump: 1"-3"; and

5.2.7.1.3.6 Air content: 4.5% - 7.5%.

5.2.7.2 DESIGN STANDARD

Pavement Thickness (in)	Dowel Bar Dia. (in)	Joint Spacing (ft)
5 ½, 6, 6 ½	None	12
7, 7 ½	1	14
8, 8 ½	1 ¼	15
9, 9 ½	1 ¼	15
10 and above	1 ½	15

5.2.7.2.1 Alternative designs, such as high early, shall be as approved by the Village Engineer.

5.2.7.3 INSTALLATION

5.2.7.3.1 Contractor shall submit a mix design 10 days prior to paving and receive the approval of the Village Engineer.

5.2.7.3.2 A pre-pour meeting shall be scheduled with the Village's Engineering Department prior to paving.

5.2.7.3.3 Water used shall conform to WisDOT Specification Section 501.2.4. If Village water is used, it will be charged at the current rates for such use; a PERMIT IS REQUIRED from the Water Utility for any Village water use.

5.2.7.3.4 The consistency of the concrete shall be such that when measured by means of a 4" x 8" x 12" slump cone, the slump shall not exceed 3".

5.2.7.3.5 Test cylinders shall be required meeting AASHTO standards, stored under site conditions and then tested at Contractor expense. Testing to be performed by a licensed geotechnical consultant i.e. third party must make and test cylinders. Three test cylinders per 1,000 lineal feet shall be taken during the course of the curb and gutter operations. A testing firm, hired by the Developer, shall pick up the cylinders at the project site within 24 hours of paving, break the cylinders at the appropriate time (7, 14, and 28 days) and submit a test report to the Developer. The Developer shall submit a copy of the report to the Village Engineer or designee.

5.2.7.3.6 Concrete pavement shall be constructed in accordance with WisDOT Standards Specifications, Section 415.

5.2.7.3.7 Curing Time and Cleanup

5.2.7.3.8 Concrete pavements shall be closed to all traffic for 7 days unless otherwise directed by the Village Engineer. When directed to open the street to vehicular traffic, the Contractor shall clean the area of all forms, lumber, dirt and other debris to the satisfaction of the Village Engineer. The Contractor shall then flush and sweep the street.

5.2.7.3.9 When a concrete saw has been utilized to cut joints, the Contractor will be required to flush the pavement with water, removing all residual materials of the sawing operation, prior to opening the street to vehicular traffic.

5.2.7.3.10 Apply curing agent according to Wisconsin Concrete Paving Association (WCPA) Concrete Pavement and Flatwork Specification Guide.

5.2.7.3.11 Concrete Placement During Cold Weather (Follow WisDOT Specifications)

5.2.7.3.12 Concrete shall not be placed on a frozen subgrade. The Contractor shall remove and replace at his expense any concrete damaged by frost or freezing.

5.2.7.3.13 When placing concrete during cold weather, the water and the aggregates in the concrete mixture may be heated. When specifically allowed by the Village Engineer, the Contractor may use magnesium free calcium chloride as an admixture in the concrete. The maximum quantity to be used shall not exceed 1% of the cement content of the mix.

5.2.7.3.14 When the air temperature is expected to drop below freezing, the Contractor shall cover the surface of the concrete with straw, hay, or blankets to a sufficient depth to prevent freezing and such protection shall be furnished for at least 5 days after the concrete has been poured. Other methods of protection from freezing may be used when approved by the Village Engineer.

5.2.8 ADMIXTURES

5.2.8.1 Water Reducing

5.2.8.1.1 The Contractor may incorporate into the concrete mixture an approved water reducing admixture meeting the requirements of AASHTO Specification M-194, Type A or D when approved by the Village Engineer. The cement content may be reduced to 5.8 sacks per cu. yd. when the admixture is used at the manufacturer's recommended rate.

5.2.8.1.2 Accelerator: When specifically allowed by the Village Engineer, the Contractor may use magnesium free calcium chloride as an admixture in the concrete. The maximum quantity to be used shall not exceed 1% of the cement content of the mix.

5.2.9 CURB AND GUTTER

5.2.9.1 MATERIALS

5.2.9.1.1 All concrete curb construction shall conform to WisDOT Standard Specification, Section 601.

5.2.9.1.2 Concrete for curbs shall be air entrained, Grade A, conforming to WisDOT Standard Specification Section 501, and in particular, meet the following requirements:

5.2.9.1.2.1 Minimum concrete content: 6.0 sacks per cubic yard;

5.2.9.1.2.2 Compressive strength after 28 days cured: 4,000 psi;

5.2.9.1.2.3 Size of course aggregates required: No. 1;

5.2.9.1.2.4 Slump: 1" - 3"; and

5.2.9.1.2.5 Air content: 4.5% - 7.5%.

5.2.9.1.3 Concrete that is rejected on the work site for any reason shall not be re-tempered and used in the work without specific approval of the Village Engineer.

5.2.9.1.4 Concrete Curb and Gutter shall be a standard 6" vertical face curb and gutter type that is 30" wide (6" top curb and 24" flange), 9½" deep at the flange and 14" deep at the back of curb.

5.2.9.1.5 Concrete Curb joints to be spaced at 10 ft. intervals.

5.2.9.1.6 A V-Bottom mountable curb and gutter type that is 30" wide, 9" deep at the flange and 12" deep at the back of curb may be allowed at the discretion of the Village Engineer, on local streets only.

5.2.9.1.7 Where connection is made to existing road, dowels (longitudinally) are required. Dowels conforming to WisDOT Standard Specification Section 505.2.6, shall be installed per WisDOT Standard Specification Section 416.3.6.

5.2.9.1.8 Where connection is made to existing curb and gutter, ties (transversely) are required. Ties conforming to WisDOT Standard Specification Section 505.2.6, shall be installed per WisDOT Standard Specification Section 416.3.6.

5.2.9.2 DESIGN STANDARDS

5.2.9.2.1 Minimum curb grade: 0.7 % (along the gutter flow line).

5.2.9.3 INSTALLATION

5.2.9.3.1 Before the concrete is placed, the crushed aggregate base course under the curb and gutter shall be checked for correct elevation.

5.2.9.3.2 The concrete shall be placed in as nearly a continuous operation as possible.

5.2.9.3.3 Three test cylinders per 1,000 lineal feet shall be taken during the course of the curb and gutter operations. A testing firm, hired by the Developer, shall pick up the cylinders at the project site within 24 hours of paving, break the cylinders at the appropriate time (7, 14, and 28 days) and submit a test report to the Developer. The Developer shall submit a copy of the report to the Village Engineer or designee.

5.2.9.3.4 Prior to applying curing material on the concrete, the face of the curb shall be "branded" with a "W" designating the location(s) of water services, "S" designating the location(s) of sanitary laterals and "SS" for storm sewer laterals. Physical placement of the branding shall be reasonably accurate in a vertical plane above the respective lateral.

5.2.9.3.5 Prior to applying curing material on the concrete, the face of the curb shall be stamped with the contractor's name and year of installation. A stamp is required for each non-contiguous section of curb and gutter.

5.2.9.3.6 The concrete surface shall be sealed, once concrete has set up enough to prevent marring or dilution of surface, by spraying a uniform coating of white curing material meeting the requirements of WisDOT Standard Specification Section 415.2.4, in such a manner as to provide a continuous water-impermeable film on the entire concrete surface which includes the back of the curb and gutter.

5.2.9.3.7 Transverse contraction joints for curbs shall be cut or sawed 1/3 the depth of pavement at a maximum 10-foot intervals. One-inch expansion joints shall be provided at ends of radii, points of considerable change in grade and alignment, at intervals not to exceed 300 feet and where abutting existing curb and gutter.

5.2.9.3.8 Concrete curb and gutter shall cure a minimum of days, based on cylinder breaks, prior to backfilling and crushed stone base installation.

5.2.9.3.9 10 days after the curbs have been placed, or as determined by the 7-day cylinder breaks, and the Village has approved the concrete work, the Contractor shall immediately backfill behind the curbs to preclude any erosion or undermining.

5.2.10 ROAD UNDERDRAIN PIPE

5.2.10.1 MATERIALS

5.2.10.1.1 A continuous 4" diameter perforated, corrugated polyethylene drainpipe, meeting the requirements of AASHTO Designation: M-252, shall be installed under the curb and gutters and extend 25 feet in either direction from storm water catch basins located at low points. For catch basins in other locations, the 25-ft. drainpipe shall be connected only to the upstream side.

5.2.10.1.2 Pipe perforations may be holes or slots and may be in 3 or 4 lines spaced around the circumference of the pipe at 120° or 90° respectively. The end of the drainage pipe opposite the catch basin shall be capped with a cap suitable for installing on the drainage pipe of midstream structures.

5.2.10.1.3 Enough geotextile fabric shall be provided as to cover the sides and bottom of the trench and overlap across the top of the trench by a minimum of 4 inches or the pipe in a sock may be used, see Detail Figure No. 7.

5.2.10.1.4 The trench shall be backfilled with open graded ¾" clear stone.

5.2.10.2 INSTALLATION

5.2.10.2.1 The 4" drainage pipe shall be laid in an 8" deep by 8" wide trench with flat bottom with square sides. The trench, constructed at an elevation lower than the base course, shall be aligned with the proposed centerline of the flange of the curb and gutter. Any damaged drainpipe shall be replaced before the open graded stone is backfilled in the trench.

5.2.11 DRIVEWAYS

5.2.11.1 DESIGN STANDARDS

5.2.11.1.1 Driveway approaches are to be constructed by removing existing curb and gutter and installing poured in-place concrete. This activity requires a Driveway Approach Permit issued by the Village.

5.2.11.1.2 Driveway slopes shall not exceed 10%.

5.2.11.1.3 Driveway slopes shall not exceed 5% in all areas within 25 feet of a building.

5.2.11.1.4 For commercial, industrial and multi-family buildings, if the initial 25 feet of driveway is deemed to be an accessible passenger loading zone, the American Disabilities Act (ADA) requires accessibility routes with longitudinal slopes of not greater than 5% and cross slopes of 2% to be connected to the loading zone and the accessible building entrance.

5.2.11.1.5 AASHTO Sight Distance requirements shall be required at all driveway locations.

5.2.11.1.6 Sidewalks located behind driveway approaches should be the same thickness as the driveway.

5.2.11.2 RESIDENTIAL DRIVEWAYS

5.2.11.2.1 Only one driveway is allowed per parcel for residential developments.

5.2.11.2.2 For multi-family developments, the Plan Commission may grant one or more additional access points, based on the size of the development.

5.2.11.2.3 All residential driveways along roadways with vertical face curb and gutter and side path shall be constructed with a driveway apron.

5.2.11.2.4 Residential width at curb or shoulder = 25' max

5.2.11.3 COMMERCIAL DRIVEWAYS

5.2.11.3.1 The number of commercial driveways shall be the minimum necessary to provide reasonable access for regular traffic and emergency vehicles, while preserving operations and safety along the public roadway. Unless a Traffic Impact Analysis (TIA) shows that a single driveway cannot provide this, only one driveway access will be permitted unless one or more of the following conditions are met.

5.2.11.3.2 The continuous frontage of the parcel is over 300 feet long, in which case an additional driveway per each 300 feet or frontage may be granted by the Plan Commission. Commercial or Retail width at curb or shoulder = 45' max

5.2.11.3.3 Two one-way driveways may be permitted along frontage of at least 150 feet provided the driveways do not interfere with operations at other driveways or along the street.

5.2.11.3.4 The Plan Commission may determine additional driveways are justified due to the amount of traffic generated by the use without compromising traffic operations along the public street.

5.2.11.3.5 All commercial driveways along roadways with vertical face curb and gutter shall be constructed with a minimum of a driveway apron. Certain locations with heavy amounts of traffic will need to use a street type entrance as directed by the Village Engineer.

5.2.11.4 INSTALLATION

5.2.11.4.1 The concrete surface shall be sealed, after the concrete has set up substantially to avoid marring or damage to the concrete, with a uniform coating of curing material meeting the requirements of WisDOT Standard Specification Section 415.2.4, in such a manner as to provide a continuous water-impermeable film on the entire concrete surface. Back of flatwork must be sprayed as well.

5.2.11.4.2 Concrete driveway approaches shall be a minimum of 7" thick. Sidewalks behind driveway approaches shall be the same thickness as the driveway.

5.2.11.4.3 Asphalt driveway approaches shall be a minimum of 3" thick.

5.2.11.4.4 The modification of the curb and gutter and the construction of the driveway approach shall be done in accordance with the driveway approach permit and the construction detail.

5.2.11.4.5 Concrete curb and gutter shall not be saw cut horizontally at driveways. Reconstruction of the curb and gutter is required with pavement ties and felt.

5.2.11.4.6 Expansion joint material, ½" thick for full depth of concrete, shall be placed between the curb and gutter and the approach. Ties shall be required at the joints between existing curb and new curb.

5.2.12 PARKING LOTS

5.2.12.1 Parking lots shall be designed and constructed according to the standards in the Village of Germantown Code Section 17.45

5.2.12.2 Off street parking lots shall be designed to accommodate traffic volumes and pedestrian circulation based on the land use served. And should be situated as close to accessible building entrances as possible.

5.2.12.3 The internal circulation pattern shall be designed with 24-ft. wide driving aisles (measured from edge of pavement marking to edge of pavement marking) for two-way traffic to allow users to maneuver in an efficient & safe manner.

5.2.12.4 The use of landscaped islands & medians shall be used to provide positive guidance to motorist and establish proper driving patterns.

5.2.12.5 Sidewalks adjacent to parking stalls shall be 8 feet wide. Smaller sidewalks may be allowed with prior Village approval. Appeals may be made to the Plan Commission.

5.2.12.6 Turning radii for a single unit truck (SU Design Vehicle) shall be provided as a minimum to all portions of the lot.

5.2.12.7 Slope shall be 2% max in all directions

5.2.12.8 The van-to-regular accessible space ration should equal 1:6.

5.2.12.8.1 Stall dimensions should be as follows:

5.2.12.8.2 Stall Lengths = 20 foot min.

5.2.12.8.3 Stall Widths:

5.2.12.8.3.1 Car = 9 foot min.

5.2.12.8.3.2 Van = 11 foot min; or 8 foot min with 8 foot aisle.

5.2.12.9 Signage and pavement marking required for each stall.

5.2.12.10 Pavement:

5.2.12.10.1 General parking areas are recommended to have at least a minimum of 8-inches of crushed aggregate base course and 2-inches of 3 LT 58-28S Asphaltic Concrete and 2 inches of 4 LT 58-28S Asphaltic Concrete.

5.2.12.10.2 Areas of heavy traffic, such as loading docks, shall have at least a minimum of 10-inches of crushed aggregate base course and 4-inches of 3 LT 58-28S Asphaltic Concrete and 4 inches of 4 LT 58-28S Asphaltic Concrete. Inverted parking lots are discouraged.

5.2.13 SIDEWALK AND PATHWAYS

5.2.13.1 MATERIALS

5.2.13.1.1 Concrete for sidewalks shall be Grade A, conforming to WisDOT Standard Specifications, Section 501, meeting the following requirements:

5.2.13.1.1.1 Minimum concrete content, 6.0 sacks per cubic yard;

5.2.13.1.1.2 Compressive strength after 28 days cured: 3,500 psi;

5.2.13.1.1.3 Maximum amount of water per bag of cement: 6.0 gallons;

5.2.13.1.1.4 Size of course aggregates required: No. 1 plus No. 2;

5.2.13.1.1.5 Slump: 1"-3"; and

5.2.13.1.1.6 Air content: 4.5% - 7.5%.

5.2.13.1.2 Sidewalks are to be constructed of 5-inches of concrete over a 4-inch crushed aggregate base course.

5.2.13.1.3 Driveway crossings shall be 7-inches of concrete over a 6-inch crushed aggregate base course.

5.2.13.1.4 Pathways shall be constructed of a 4 LT 58-28S mix asphalt 3-inches thick over a 5-inch crushed aggregate base course or as directed by the Village Engineer.

5.2.13.2 DESIGN STANDARDS

5.2.13.2.1 Current and future planned side path and trail locations are identified in the Village's Comprehensive Plan. Any development that occurs on or adjacent to these locations is required to connect to, or construct its portion of the system, if not

currently in place, or provide detailed rationale and request a waiver from the Plan Commission and/or Common Council

5.2.13.2.2 Sidewalks and pathways shall be separated from the street by a minimum 6-foot wide grassy terrace with shade trees.

5.2.13.2.3 The outside edge of Sidewalks and pathways shall be located 1-foot from the right-of-way line or as directed by the Village Engineer except at intersection crossings. At intersection crossing, the proper placement shall be determined by the location of the crosswalk and as directed by the Village Engineer.

5.2.13.2.4 Widths of Sidewalks

Local Roads	5 Feet
Collectors and Arterials	6 Feet

5.2.13.2.5 Pathways shall be a minimum of 10 feet wide with 2 feet of gravel shoulder on both sides and in conformance with AASHTO's Guide for the Development of Bicycle Facilities.

5.2.13.2.6 Traverse grade of 2% (1/4" per foot) draining toward the road.

5.2.13.2.7 The maximum allowed longitudinal grade shall be 5%. This grade shall not be exceeded unless the road grade is of a steeper grade, in which case the longitudinal sidewalk grade shall not exceed the road grade.

5.2.13.3 INSTALLATION

5.2.13.3.1 Sidewalk shall be placed by formed methods.

5.2.13.3.2 Contraction joints shall be not less than ¼" wide and ½" deep. Contraction joint spacing shall be 5' or as directed.

5.2.13.3.3 Expansion joints shall be located at a minimum 100 ft O.C. Finished joints shall have ¼" radius. After floating, troweling, and jointing, the concrete shall be brushed with a damp bristle brush.

5.2.13.3.4 Prior to applying curing material on the concrete, the face of the sidewalk or pathway shall be stamped with the contractor's name and year of installation. A stamp is required for each non-contiguous section of sidewalk or pathway.

5.2.13.3.5 The concrete surface shall be sealed, directly after finishing operations, with a uniform coating of white curing material meeting the requirements of WisDOT Standard Specification Section 415.2.4, in such a manner as to provide a continuous water-impermeable film on the entire concrete surface.

5.3 INSPECTION

Contractor shall be responsible for the horizontal and vertical control.

5.3.1 ACCEPTANCE TESTING

5.3.1.1 Tests

5.3.1.1.1 The subgrade shall be inspected before the crushed stone base may be applied. This inspection is done by the Village Inspector or its contracted inspection services. An average tolerance of +/- 0.04-ft. from the approved subgrade elevation shall be allowed.

5.3.1.1.2 The base course shall be inspected and approved by the Village Inspector before the first layer of asphalt can be placed. An average tolerance of +/- 0.04-ft. from the approved base course thickness shall be allowed. Improvements to the base course may be required if, in the opinion of the Village Engineer, conditions for paving do not meet the standard of the Village Engineer.

5.3.1.1.3 A Village Inspector shall be present for the placement of all-concrete curb and gutter. This includes the inspection of the base under the curb and gutter, and a check of the alignment and grade of the curb and gutter.

5.3.1.1.4 Three test cylinders per 1,000 lineal feet shall be taken during the course of the curb and gutter operations. A testing firm, hired by the Developer, shall pick up the cylinders at the project site within 24 hours of paving, break the cylinders at the appropriate time (7, 14, and 28 days) and submit a test report to the Developer. The Developer shall submit a copy of the report to the Village Engineer or designee.

5.3.1.1.5 Curb and gutter elevations will be considered acceptable if certified elevations (by the Village Inspector) are within ¼" of design elevations.

5.3.1.1.6 If evidence indicates that there is standing water in the gutter flange, that portion of the curb and gutter shall be reconstructed to establish positive drainage.

5.3.1.1.7 A Village inspector shall be present whenever any asphalt pavement is being constructed.

5.3.1.1.8 Asphalt to be placed on a roadway, shall arrive at the job site at a temperature of 275° F +/- 25° F. The asphalt inspector will periodically test the temperature of the arriving trucks for the temperature of the asphalt. Any trucks not falling within the guidelines for asphalt temperatures shall be rejected. Paving shall not be done at temperatures below 40 degrees F.

5.3.1.1.9 Both the binder course and the surface course shall be compacted to not less than 91.5% maximum density. Contractor shall have testing done by an independent Lab unless otherwise approved.

5.3.1.1.10 An average tolerance of +/- 0.04-ft. for the binder thickness and +/- 0.04-ft. from the approved final pavement surface elevation shall be allowed.

5.4 STREET LIGHTING

This section covers lighting for Municipally owned streets, sidewalks, parking lots, and parks. The Municipal Lighting is comprised of Municipally owned and maintained lighting and street lighting owned and maintained by We-energies.

5.4.1 WE-ENERGIES OWNED & MAINTAINED STREET LIGHTING

5.4.1.1 This lighting system is owned and maintained by We-energies. We-energies performs the installation and maintenance on all the light poles owned by We-energies.

5.4.1.2 The LED lighting fixture and pole approved by the Village of Germantown is:

5.4.1.2.1 Pole - #20L-LEG-FG Smooth-25'-Bronze

5.4.1.2.2 LED Fixture – LED-3K-Rectangular-Low-Bronze-Class “D”

5.4.2 VILLAGE OWNED PUBLIC STREET LIGHTS

5.4.2.1 The light fixtures & poles owned and maintained by the Village of Germantown fall into several categories of application. Areas of use are for street lighting, lighting along walkways, parking lot lighting (does not include private) and Parks. The type and specific light fixtures and poles to be approved by the Village Engineer/Highway Superintendent.

5.4.2.2 Street Light Approved Materials:

5.4.2.2.1 Control Cabinet; Eagle Traffic Control Systems Model Size – M or sized to match project.

5.4.2.2.2 Concrete Pole by “Traditional Concrete, Inc Model #D715-SP-EA-3x4TO (use with Harp Lights)

5.4.2.2.3 Aluminum Pole by “hapco”. Drawing # B82525-001

5.4.2.2.4 Steel Round Light Pole by LSI; # 5RP-B5-S07G-28-S-BRZ-DGPGA

5.4.2.2.5 Harp Series Light Fixtures by “Holophane; 55w-4K-AS-3-B-5-A

5.4.2.2.6 Milwaukee Harp LighWis

5.4.2.2.7 ts by TAPCO; Model MH100 w/LED 203-100525121421

5.4.2.2.8 Roadway Luminaire by Eaton; # OVH-E20-LED-E-U-T3-AP-U-K ARM A25410 or A69771

5.4.2.2.9 Area Luminaire by Eaton; # RDG-E02-LED-E-U-T3-BZ-U-7050 ARM A25410 or A69771

5.4.2.2.10 Mirada Medium LED Area Light by LSI; # MRMLED12LSIL3UNVDIM4070CRI-BRZ

5.4.2.2.11 Pole Mounting Bracket by LSI; BKSPQMHCLR

5.4.2.2.12 LED Bollard Light by Traditional Concrete, Inc; # D303-SP-EA-10 w/CAV6-LED Light Fixture

5.4.2.2.13 Casting Lid for CMP Junction Box by Neenah Foundry # R-5900-E (Electric Lid)

5.4.2.2.14 Enclosure Box-Polymer Concrete by Quazite; (12”x12”) #PC1212BA12; LID #PC1212CA0017 (w/electric logo)

5.4.2.2.15 Enclosure Box-Polymer Concrete by Quazite; (13"x24") #PG1324BA12; LID

5.4.2.2.16 #PG1324HA00017A (w/ electric logo)

5.4.2.3 Street Lighting Cabinet

5.4.2.3.1 Cabinet may vary in size depending on project but shall be bare stainless steel and surface mounted to concrete base.

5.4.2.3.2 Concrete base shall follow Wisconsin DOT standards. Base type to match cabinet size.

5.4.2.3.3 Cabinet should be sized for expansion of system if necessary.

5.4.2.3.4 Photo control shall be in the lighting cabinet and run all lighting.

5.4.2.3.5 Cabinet shall include "Hand Off Auto" switch for testing.

5.4.2.3.6 Cabinet shall have 1 duplex outlet.

5.4.2.3.7 Cabinet shall include 1 light switched to door open/closed.

5.4.2.3.8 Cabinet shall have at least 1 pull box in proximity (within 5') for splitting wiring/circuits.

5.4.2.3.9 Cabinet shall have a minimum of 4 unused 2" conduits between concrete base and pull box for future expansion.

5.4.3 INSTALLATION

5.4.3.1 See the typical drawing in section 8.2.16 (Details) for the typical installation of the public owned streetlights. All other installations shall be approved by the Village Engineer.

5.4.4 INSPECTION/APPROVAL

5.4.4.1 An electrical permit must be obtained from the Village Building Inspection Department for the new electrical service installation and the installation of all lighting wire. Approval will include sign off by electrical inspector and Village Engineer/Highways Superintendent.

6 Project Close-Out

6.1 CONSTRUCTION INSPECTOR BINDER

6.1.1 General

6.1.1.1 Village Inspector shall provide the Village with a Construction Inspection Binder including the following documents.

6.1.1.2 Material Submittals

6.1.1.3 Inspection Reports

6.1.1.4 Test Results/Reports

6.1.1.5 Change Orders / Substitutions

6.1.1.6 Punch list

6.1.1.7 Pay Applications

6.1.1.8 Final Record Set of Construction Plans

6.1.1.9 Warranty waivers (if any)

6.2 LIEN WAIVERS

6.2.1 General

6.2.1.1 Developer shall provide the Village with all lien waivers pertaining to the Public Infrastructure prior to final acceptance by the Village.

6.3 RECORD DRAWINGS

6.3.1 GENERAL

6.3.1.1 Plans shall be prepared by the Contractor on sheets measuring 12" high by 36" wide 24 inches by 36 inches and show Plan and Profile for all sections of underground utilities. Sheets shall have minimum margins of ½ inch on all sides.

6.3.1.2 The title block shall be in the lower right corner of the as built and include at a minimum, the following information:

6.3.1.2.1 Village of Germantown or Consultants Logo

6.3.1.2.2 Location of Utility: Street or Easement

6.3.1.2.3 Record Drawing File Number (Provided by Village Engineer)

6.3.1.2.4 Inspected By

6.3.1.2.5 Date of Plan Approval

6.3.1.2.6 Name of Contractor

6.3.1.2.7 Date of Construction

6.3.1.2.8 Scale (text and line)

6.3.1.2.9 A table of quantities for all utilities shown on each sheet.

6.3.1.2.10 Signature Line for Village Engineer.

6.3.1.3 North shall be to the top or right of the sheet and shall be shown by a 2" long north arrow, clearly, shown without intrusion.

6.3.1.4 The scale of the record drawings shall be same as construction drawings, 1"=50' or 1"=40'. This shall be shown with a graphic scale and text.

6.3.1.5 The seal and signature of the professional engineer responsible for the preparation of the record drawing shall be shown immediately adjacent to the title block.

6.3.1.6 All existing lot, property, and utility easement lines in the area in which the utility is located shall be shown.

6.3.1.7 Screen any existing features, including but not limited to building corners and parking lots.

6.3.1.8 The address, lot and block numbers, and subdivision or development name shall be indicated. Addresses shall be labeled with italics. Unplatted lands and the address of any home on such lands shall be so indicated.

6.3.1.9 All street names and easements with record numbers shall be clearly shown.

6.3.1.10 Two SEWRPC reference benchmarks shall be shown on each sheet.

6.3.1.11 Plan sheets shall start and terminate at match lines and show adjacent As-Built record drawing file numbers.

6.3.1.12 Pipe invert elevations shall be clearly shown.

6.3.1.13 Screening of existing sanitary sewer, storm sewer and watermain and service locations either in screened or dashed format.

6.3.1.14 Dimensions showing offset from right-of-way and roadway or easement centerline to utility alignment.

6.3.1.15 Concurrent with the hard copy submittal. Provide complete set of records printed on record drawing paper as approved by the Village Engineer.

6.3.1.16 Provide complete set of records in PDF format.

6.3.1.17 Provide complete set of records in AutoCAD (.DWG) format on CD tied to the Wisconsin State Plane NAD 1927/1983 Wisconsin South Grid coordinate system and profiles in NAVD 1988.

6.3.1.18 The cost of archiving the record drawings and insertion of the data into the Village's GIS System shall be the sole responsibility of the DEVELOPER.

6.3.2 SANITARY SYSTEM

6.3.2.1 A general note on each sheet giving the size, class, type, ASTM designation, and manufacturer of every main and lateral shall be shown, with material quantities clearly tabulated. Complete information on manhole frames / lids / barrel structure shall be noted. Manholes shall be ID'd with Systems Plan Number provided by Village Engineer on record drawing.

6.3.2.2 Sanitary mainline should be thickest line on plan.

6.3.2.3 The percent grade, direction of flow, and center to center length of sanitary sewer installed between manholes and laterals shall be shown.

6.3.2.4 All laterals shall have invert elevations at right-of-way lines or easement line and lengths clearly shown.

6.3.2.5 The following information shall be shown for each manhole:

6.3.2.5.1 Invert elevation of each sewer pipe

6.3.2.5.2 Rim Elevation

6.3.2.5.3 Pipe size of each sewer

6.3.2.5.4 Type of frame to chimney seal

6.3.2.6 Indicate External seals or internal chimney seals

6.3.2.7 All record drawings shall reference NVGD 1988

6.3.3 WATER SYSTEM

6.3.3.1 The size, class, type, and manufacturer of every main shall be shown. The location of the main shall be dimensioned from the centerline of the right-of-way. The center to center length of main installed between valves, fittings, and laterals shall be shown.

6.3.3.2 Water mainline shall be the thickest line on plan.

6.3.3.3 The location of all fittings (including valves, tees, crosses, reducers, air vents, bends, and lateral taps) shall be dimensioned from/to centerline of each fitting. All fittings shall be suitably labeled for identification.

6.3.3.4 Curved lines shall indicate deflected pipe (with curve data provided); lines shall be straight between fittings.

6.3.3.5 Show which side of the main the operating nut for butterfly valves is located on.

6.3.3.6 A general note on each sheet giving the brand and manufacturer (model, size, etc.) for each valve used shall be provided, with quantities of each clearly tabulated. Services shall include footage and count. Complete information on valve boxes and manhole frames / lids / barrel structure shall be noted.

6.3.3.7 All laterals shall be shown giving the length and type of material used. The manufacturer and model of tapping saddle or tee, corporation, curb stop, and box shall be given.

6.3.3.8 Contractor to include latitude, longitude and elevation of the location of all:

6.3.3.8.1 Valves, tees, crosses, reducers, air vents, bends and lateral taps.

6.3.3.8.2 The location shall be tied-in by distance to at least two permanent surface points. These can be manholes, hydrants, other valves, or other suitable points. The point used should be clearly referenced.

6.3.3.8.3 Hydrants.

6.3.3.8.4 The size and type of every hydrant shall be also shown.

6.3.3.8.5 The shutoff valve shall be tied-in to at least two permanent surface points.

6.3.3.8.6 All hydrants differing from 6.5' bury shall have the bury depth or length of extensions installed noted.

6.3.3.8.7 Elevation of each hydrant tied to the northwest nut of the top flange should be shown.

6.3.3.8.8 Provide depth of cover.

6.3.4 STORM SYSTEM

6.3.4.1 The size and type of all mains and leads shall be shown. Their location relative to the centerline of the right-of-way shall be dimensioned. The total length of sewer installed shall be shown.

6.3.4.2 The center-to-center distance between laterals and/or manholes shall be shown.

6.3.4.3 GPS coordinates, using State Plane NAD 1927 Wisconsin South coordinate system size, type and manufacturer of all manholes, catch basins, inlets, or outlet sections shall be shown. Material quantities shall be clearly tabulated.

6.3.4.4 Elevations of all rims, flow lines, catch basins, gutter inlets, and outlet sections shall be given. Invert elevations shall be given for gutter inlets, catch basins, and manholes. Elevations shall be based on the Village of Germantown datum.

6.3.5 ELECTRICAL SYSTEM

6.3.5.1 The size and type of all conduit and cable shall be shown. Their location relative to the centerline of the right-of-way shall be dimensioned. The total length of electrical infrastructure installed shall be shown.

6.3.5.2 The center-to-center distance between all electrical structures shall be shown.

6.3.5.3 GPS coordinates, size, type, and manufacturer of all structures shall be shown. Material quantities shall be clearly tabulated.

6.3.5.4 Elevations of all rims, pedestals, and other essential infrastructure shall be based on the Village of Germantown datum.

6.3.6 GRADING CERTIFICATION PLAN

6.3.6.1 In preparing a Certification Plan, the Developer's Design Grading Plan shall be shown as screened background.

6.3.6.2 Record drawing grades shown on lot lines shall be no less than 0.30 ft. lower than final grades shown on approved master grading plan or higher than 0.10 ft. above the final grades shown on approved master grading plan. The Developer is required to establish final grades within 5 feet of side lot lines, rear lot lines and the front right-of-way area between the front-line lot line and the back of curb in an urban setting or edge of shoulder in a rural setting. These areas shall be described as a "no-touch zone". All grades within the "no-touch zones" shall be certified by Developer's Engineer. Developer shall typically show spot grades alongside lot line at front curb, front property corners, front setback, back of house extended, any high points, and rear property corners.

6.3.6.3 The grades alongside lot lines are needed even in wooded, ungraded areas.

6.3.6.4 Existing house pad grade (elevation taken at the center and each corner of a typical 66' x 54' house, except for lots designed for rear exposure house show existing grade at front and back of typical house). House pads are to be left 1.75' below finish yard grade with a +/- 3" tolerance.

6.3.6.5 Elevations every 50 feet along developer graded swales and ditches.

6.3.6.6 Elevations every 100-ft. Station along the road alignment. Locations shall include:

6.3.6.6.1 Pavement centerline and edges

6.3.6.6.2 Edge of shoulder

6.3.6.6.3 Ditch flowline

6.3.6.6.4 Top of embankment on the backslope of the ditches.

6.3.6.7 After analyzing certified grades, Developer shall identify on plan those areas not within above tolerance. Show areas to be regraded, or areas where it may be desirable to revise the proposed grades in the Master Grading Plan.

6.3.7 STORM WATER BMP CERTIFICATION PLAN

6.3.7.1 Elevations (minimum of every 50')

6.3.7.1.1 Top of Berm

6.3.7.1.2 Top of Slope

6.3.7.1.3 Toe of Slope

6.3.7.1.4 Safety Shelf Edges

6.3.7.1.5 Bottom of BMP

6.3.7.2 Spillway-Top of Slope & Toe of Slope (detailing length, width and height)

6.3.7.3 Structure Locations and Elevations

6.3.7.3.1 Outfall (invert elevation and size)

6.3.7.3.2 Overflow structures (corners of opening) and Piping (invert elevation and size)

6.3.7.3.3 Inlet Structures (center of manhole) and Piping (invert elevation and size)

6.3.7.3.4 Outlet Structures (center of manhole) and Piping (invert elevation and size)

6.3.7.3.5 Weirs (invert elevation and size)

6.3.7.3.6 Orifice (invert elevation and size)

6.3.7.3.7 Inlet/Outlet (invert elevation and size)

6.3.8 EASEMENTS

6.3.8.1 GENERAL

6.3.8.1.1 The Developer shall prepare formal written easement documents, including exhibits and written legal description attachments for each easement and record the same with the County Register of Deeds after review and approval by the Village of Germantown for each easement (Utility, drainage, access, etc.) shown on the subdivision plat (or CSM) as a condition of Final Plat (CSM) approval.

6.3.8.1.2 All ponds are to be in platted outlots.

6.3.8.1.3 No encroachment by structures, berms, trees, shrubs, paved surfaces or changes in grade greater than 4" are allowed in easement areas without approval of the Village Engineer.

6.3.8.1.4 20-ft. wide minimum width for a single utility. The utility shall be located in the center of the final easement based on record drawing. Easement width may be increased to 50 feet based on pipe size and depth.

6.3.8.1.5 Easements with multiple utilities, the minimum separation from outside of the utility to the easement line shall not be less than 10 feet subject to approval by the Village Engineer. Add not less than 10 feet per additional utility in the easement.

6.3.8.1.6 Maximum ground slope along easements:

6.3.8.1.6.1 transverse: 25%

6.3.8.1.6.2 longitudinal: 10%.

6.3.9 STORM SYSTEM

6.3.9.1 The Village requires public storm sewer and/or drainage easements for any storm water conveyance system that drains public ROW areas or neighboring off-site areas.

6.3.9.2 A storm sewer running along the rear lot lines within a subdivision, specifically to drain backyards, does not warrant a public easement. The Village considers this to be a private system built for the lot owners of the subdivision and owned/maintained by the property owners.

7 Surveying Standards

7.1 GENERAL

7.1.1 General

7.1.1.1 Surveys shall conform to the provisions of Chapter 236 of the Wisconsin Statutes, A-E7 of the Wisconsin Administration Code and all applicable ordinances of the Village of Germantown.

7.2 HORIZONTAL AND VERTICAL CONTROL

7.2.1 General

7.2.1.1 Horizontal and vertical control shall be maintained throughout the entire project area from the staking of rough grading to final restoration.

7.2.1.2 Horizontal and vertical control points shall be clearly marked and protected (i.e. lath) during construction.

7.2.1.3 Second order precision shall be required for vertical control, and the following formula will be used in determining the second order of precision. $E = 0.035 \div M$; where E = error and M = length of the line in miles.

7.2.1.4 Vertical control points shall be established at least every 800 feet and within 100 feet of any improvement proposed. These control points will be established in accordance with Section 1.1.6, 1.1.7, and 1.1.8 of these Standards.

7.2.1.5 When plans are submitted for approval to the Village Engineer, the Project Engineer will also at this time submit a list of all permanent benchmarks, all temporary benchmarks, a description of their location and the basis or origin of the vertical control network and the error of closure for the entire network. This section shall be complied with before the Village of Germantown will schedule inspections.

7.2.1.6 All benchmarks shall be run in from one of the following; listed in priority order.

7.2.1.6.1 A U. S. Coastal and Geodetic survey monument.

7.2.1.6.2 A National Geodetic Survey monument.

7.2.1.6.3 A U. S. Public land survey monument and its accompanying reference benchmark.

7.2.1.6.4 Permanent benchmarks shall be set only on the following objects:

7.2.1.6.4.1 Concrete door stoops.

7.2.1.6.4.2 Concrete headwalls.

7.2.1.6.4.3 Existing permanent manhole rim (note: manhole shall not be in the general construction area, nor is it to be affected in any way by the project construction).

7.2.1.6.5 Fire hydrants on marked flange bolt.

7.2.1.6.6 Temporary benchmarks may be set in the following objects.

7.2.1.6.6.1 Power poles.

7.2.1.6.6.2 Trees 12 inches in diameter or greater.

7.2.1.6.7 The error in latitude and departure closure for horizontal traverses shall be no greater than the ratio of one in 10,000 (1:10,000).

7.3 CONSTRUCTION STAKING

7.3.1 General

7.3.1.1 Roadways shall be staked for subgrade and for final gravel grade and meet the following conditions:

7.3.1.2 Stakes shall be set along the centerline of the roadway, or approved offset.

7.3.1.3 Stakes shall be set at 50-foot intervals.

7.3.1.4 Stakes shall be set for vertical curves at a maximum of 50-foot intervals.

7.3.1.5 Stakes shall be set for horizontal curves having a degree of curve greater than 30° at a maximum of 50-foot intervals.

7.3.1.6 Stakes shall be set at points of curvature, points of tangency, and all low/high points on vertical curves.

7.3.1.7 Lath shall be set next to all roadway stakes and shall have the station labeled with indelible magic marker. Labeling shall indicate station and offsets, in addition to coordinate points.

7.3.1.8 Staking for curb and gutter will be done on a minimum three (3) foot off back of curb with cut/fill to the top of curb.

7.3.1.9 Staking for sanitary sewer/watermain shall be centerline type or on an offset as requested by the contractor and approved by the Village Engineer.

7.3.1.10 Staking for sanitary sewer/watermain shall be done every fifty (50) feet along the pipe centerline or agreed to interval between the Village and contractor.

7.3.1.11 Manholes shall have stakes at the following locations:

7.3.1.11.1 Centerline of manhole.

7.3.1.11.2 Offset (determined by contractor and approved by the Village Engineer—minimum 10-foot).

7.3.1.11.3 Straddle point.

7.3.1.12 Catch basins, and hydrants shall have an offset stake (minimum offset 5-foot).

7.4 MONUMENTS

7.4.1 General

7.4.1.1 Lot corner monuments (i.e. iron pipe, rebar) shall be pounded flush with existing ground, thus conforming with Wisconsin Statute 236.15 (1).

7.4.1.2 All 1-inch iron pipe or iron rebar to be used to monument a lot corner it shall include a plastic or aluminum survey cap on top which bears the project surveyor's state registration number. Both types of monuments are to conform to the current minimum length and weight requirements

7.4.1.3 A subdivision corner which is also a U.S. Public Land Survey corner shall be monumented using the following type of monument in the specified area:

7.4.1.4 6-inch x 6-inch concrete monument with 4-inch brass cap Monuments will be supplied by the Washington County Surveyor. The County Surveyor shall be notified in writing of any USPLSS corners that will be disturbed by construction 30 days prior to the start of construction. This is a Wisconsin Statutory requirement. Replacement monuments will then be installed by the County Surveyor and/or the Village of Germantown. This will be done at the Developer's expense.

7.5 PLATTING

7.5.1 General

7.5.1.1 Final subdivision plats will be signed by the Village once all construction has been completed and accepted, all punch list items resolved, all record drawings have been submitted and approved and all boundary markers have been set in conformance

0.0 Changed cover page to reflect anticipated acceptance dates.

1.1.1 Added clarification for approved electronic plan submission. Plans may be submitted electronically **on a flash drive or through a file sharing program** and/or on 11-inch x 17-inch paper if approved by Director of Public Works. **If submitted electronically, the drawings shall be a .pdf file type.**

1.1.2 Updated datum to NVGD 1988. (~~NGVD 1929~~)

1.7.1.3 Added **All sanitary sewer drawings shall include a Lateral Table. The table must show all lengths of sanitary sewer laterals and confirm clearance underneath future footing elevations.**

1.8.1.4 Created guidance for performing traffic impact analyses.

1.8.1.5 Created additional guidance for the above impact analyses.

Numbering for section 2 needs to be redone completely prior to publication.

2.iii.2.c Removed and replaced reference to a "Figure 20" with **Install check dam with bentonite chips 2 feet thick across the full width of the trench and 4 feet above pipe crown.**

WATER MAINS WITH CHECK DAMS ON LONG LENGTHS, check with cedar about creating a spec.

2.iv.1.a.ii Added **Kennedy** as an acceptable valve option.

2.iv.1.b.i Removed ~~Clow RAW~~ from the list of acceptable valves.

2.v.1.j Added **The contractor will make Final alignment to the valve box after binder and before the final lift of asphalt.**

2.vi.2.c Detail 21? Seems to be another ghost figure.

2.VII.1.a Removed ~~Clow Medallion UL/FM~~ and ~~U.S. Pipe Sentinel 250~~ from the acceptable manufacturers list and added **Mueller A-403 Super Centurion** and **Mueller Super Centurion UI/FM**

2.vii.1.e Added **Hymax H-304**

2.viii.1.h Removed ~~Clow Water Systems, Co.~~ and added **"Or approved equal"** to the list of acceptable ductile iron fitting manufacturers.

2.viii.1.i.iii Added **Stainless steel rodding with stainless steel star bolts.**

2.ix.1.c Added **"(4 livable units and over)"**

2.ix.1.f.ii Not sure what needs to be done here, clarification needed.

Irrigation/Sprinkler meter changes, new figure.

2.xi.3.k Replaced ~~"top"~~ with **"full gate valve box"**

2.xii.1.b Removed ~~Power Seal 3480MJ CS Tapping Sleeve~~ and added **Ford and Hymax** as accepted tapping sleeves.

32.3.ii.1 Added **Hymax** as an approved stainless steel repair clamp.

42.2.ii.2 Changed ~~Water Utility~~ to Contractor and added "The samples will be taken to a State Certified lab, the water will not be turned back on for new main construction, new development, or new facilities until the Water Utility receives the sample test results."

42.2.iii.2.c Added engineer.

42.2.iii.2.f Added onsite inspector.

3.1.4.1.1.A Added up to 5/8" allowable sizing of limestone chips.

3.1.4.1.1.B Added up to 5/8" allowable sizing of limestone chips.

3.1.5.1.7 Removed.

3.1.5.1.8 Removed.

3.1.5.1.9 Removed.

3.1.5.1.13.B Added "in a continuous circle"

3.1.5.1.20.A Added "less 1/4"

3.1.5.2.10 Added "less 1/4". 2"

3.1.5.2.17 Added "Wastewater"

3.1.6.2.10 Removed "and detail figure 20"

3.1.7.1.4.B Specified Fernco Strong Back connector

3.1.9.2.3 Removed.

3.1.12.1 Replaced ~~Engineering Services Division~~ with Village Engineer

3.2.1.6 Added "Superintendent"

3.2.1.6.4 Replaced ~~Utility Department~~ with Wastewater Utility

3.2.2.1.4 Specified Fernco Strong Back connector

3.3 Replaced ~~Utility Department~~ with Wastewater Utility

3.3.3.1.1 Added "a mechanical plug of appropriate size will be installed at the furthest downstream manhole"

3.3.3.4 Added "by the Village" and replaced the Utility ~~Department~~ with Wastewater Utility.

3.3.4.1 Replaced ~~has the option to contract directly with the Utility Department for performing CCTV inspection.~~ with will perform CCTV after construction is complete.

4.1.2.2.1 Change minimum size from 6" to 8" diameter.

4.1.11 Discuss comment and how to clarify in handbook: Ensure that frame / grate is matched to the appropriate size concrete structure. This has been problematic in the last few projects / developments. 3501 sits on a 24x30" basin, 3228 sits on a 24x36" basin.

4.1.12.1.1.A Removed.

5.2.9.3.5. Prior to applying curing material on the concrete, the face of the curb shall be stamped with the contractor's name and year of installation. A stamp is required for each non-contiguous section of curb and gutter.

5.2.11.1.6 Added "approaches"

5.2.11.4.2 Added "approaches"

5.2.13.3.4. Prior to applying curing material on the concrete, the face of the side path shall be stamped with the contractor's name and year of installation. A stamp is required for each non-contiguous section of side path.

6.3.1.1 Updated record drawings size and display requirements to 24x36" and Plan and Profile.

6.3.1.2.9 Added a requirement for A table of quantities for all utilities shown on each sheet.

6.3.1.6 Added and easements with record numbers

6.3.1.11 Added and show adjacent As-Built record drawing file numbers.

6.3.1.14 Updated wording to be consistent with other requirements.

6.3.1.16 Removed CD specification and updated required datum to NAD 1983.

6.3.2.7 Updated vertical datum to NVGD 1988

6.3.3.8.8 Require depth of cover.

6.3.5 Created an ELECTRICAL SYSTEM subsection to better define requirements of electrical system record drawings.

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Presentation

ITEM TITLE: Ruekert & Mielke Sewer Facilities Plan Review and Discussion

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

The Village of Germantown has contracted with Ruekert & Mielke, Inc. (R/M) to complete an analysis of the existing sanitary sewer system facilities and plan for future development needs within the sanitary system facilities. The most recent Sanitary Sewer Service Plan report for the Village of Germantown was published in 1983 by the Southeastern Wisconsin Regional Planning Commission (SEWRPC), with multiple subsequent amendments to the refined Sanitary Sewer Service Area (SSSA) defined in the original 1983 report. The original report was planned for the year 2000.

The Village of Richfield has initiated the process of extending the Village of Germantown's sanitary sewer service to serve a recently proposed development within the Village of Richfield. This potential development, subsequent changes to the related sanitary sewer service area, and age of the original SEWRPC Sanitary Sewer Service Area Plan have served as an impetus to update Germantown's sanitary sewer facilities plan. The updated facilities plan will consider growth within Germantown as well as near- and long-term growth in a portion of Richfield. With the analysis of future development within the broad planning area, an accurate assessment for future improvements can be made.

R/M staff will present the plan and facilitate discussion.

ATTACHMENT:

1. Village of Germantown Sanitary Sewer System Facilities Plan Update DRAFT

STAFF RECOMMENDATION:

None.

ACTION BY Committee:

None.

FACILITIES PLAN UPDATE

DRAFT



Village of Germantown Sanitary Sewer System Facilities Plan Update

April 17, 2024

PREPARED FOR:

Village of Germantown
N122 W17177 Fond Du Lac Avenue
Germantown, WI 53022

PREPARED BY:

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TABLE OF CONTENTS

INTRODUCTION AND NEED FOR UPDATED FACILITIES PLAN	1
INTERGOVERNMENTAL AGREEMENT	1
BACKGROUND	2
History of the existing SSSA & Planning Area	2
Existing Sanitary Sewer System	6
Critical Sewer Flow Path	7
Pumping Stations	9
BASIS OF ANALYSIS FOR INCREMENTAL PLANNING AREA & UNSEWERED AREAS	10
Design Period.....	10
Land Use	11
Flow Factors.....	11
Sanitary Sewer Design Criteria	11
COST ESTIMATING METHODOLOGY	12
Sanitary Sewer Force Main, Trunk & Interceptors	12
Pump Station Upgrades & Construction	12
LAND USE ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA.....	12
Estimating Population	14
Identifying Analysis Basins.....	14
Pump Station Tributary Area	16
FLOW ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA	18
Flow Calculation Methodology	18
VILLAGE OF RICHFIELD INCREMENTAL PLANNING AREA	19
Topography	20
Soil Types.....	20
Wetlands & Flooding Areas	20
Transportation Corridors	20

Preliminary Environmental Screening.....	20
Land Use Analysis.....	21
Population and Flow Calculation.....	22
Conceptual Sewerage System Serving Richfield IPA.....	23
OVERALL FLOW AND CAPACITY ANALYSIS	25
Gravity Sewers	26
Pumping Stations	27
ALTERNATIVES ANALYSIS.....	28
Existing Gravity Sanitary Sewer System.....	28
Existing Pump Stations	28
Sanitary Sewer System Extensions & Expansion.....	31
Cost Analysis for Alternatives.....	32
SUMMARY OF ALTERNATIVES AND IMPLEMENTATION	34

LIST OF APPENDICES

Appendix A – Village of Germantown Existing Sanitary Sewer Service Area Map
Appendix B – 2050 Full Sanitary Sewer Service Area Amendment Map
Appendix C – Village of Richfield Incremental Planning Area Map
Appendix D – Village of Germantown Sanitary Sewer System Map
Appendix E – Village of Germantown Future Land Use Map
Appendix F – Sanitary Sewer Analysis Basin Map
Appendix G – Richfield Incremental Planning Area Topographical Map
Appendix H – Richfield Incremental Planning Area Soils Type Map
Appendix I – Richfield Incremental Planning Area FEMA Floodplain and Wetlands Map
Appendix J – Richfield Incremental Planning Area Environmental Review
Appendix K – Richfield Incremental Planning Area Future Land Use Map
Appendix L – Preliminary Route of Sewer and Water Extensions to Serve the Richfield SSSA
Appendix M – Germantown Connection Sewer & Water Extension Opinion of Probably Cost
Appendix N – Sanitary System Map with Flow Analysis Points
Appendix O – Conceptual Sanitary Sewer System Extension & Expansion – Northeast Area
Appendix P – Conceptual Sanitary Sewer System Extension & Expansion – Northwest Area

SANITARY SEWER SYSTEM FACILITIES PLAN UPDATE

INTRODUCTION AND NEED FOR UPDATED FACILITIES PLAN

The Village of Germantown has contracted with Ruekert & Mielke, Inc. (R/M) to complete an analysis of the existing sanitary sewer system facilities and plan for future development needs within the sanitary system facilities. The most recent Sanitary Sewer Service Plan report for the Village of Germantown was published in 1983 by the Southeastern Wisconsin Regional Planning Commission (SEWRPC), with multiple subsequent amendments to the refined Sanitary Sewer Service Area (SSSA) defined in the original 1983 report. The original report was planned for the year 2000.

The Village of Richfield has initiated the process of extending the Village of Germantown's sanitary sewer service to serve a recently proposed development within the Village of Richfield. This potential development, subsequent changes to the related sanitary sewer service area, and age of the original SEWRPC Sanitary Sewer Service Area Plan have served as an impetus to update Germantown's sanitary sewer facilities plan. The updated facilities plan will consider growth within Germantown as well as near- and long-term growth in a portion of Richfield. With the analysis of future development within the broad planning area, an accurate assessment for future improvements can be made.

The Villages of Germantown and Richfield have recently requested an immediate amendment to Germantown's (SSSA) to continue moving forward on the potential development in Richfield. A development entity has expressed sincere interest in developing a vacant area near the I-41/Holy Hill Road interchange for office and light industrial uses. Market conditions have necessitated the immediate amendment of the SSSA so that the developer can be assured sewer service will be approved by SEWRPC, Milwaukee Metropolitan Sewerage District (MMSD), and the Wisconsin Department of Natural Resources (WDNR) for the proposed development. This will allow them to proceed with their acquisition of the property and subsequent development plans in a timely manner. The Village of Germantown Sanitary Sewer System Facilities Plan Update is being completed as a trailing condition of said immediate SSSA amendment along with a full amendment to the Germantown SSSA consistent with the Village's 2050 Comprehensive Plan.

INTERGOVERNMENTAL AGREEMENT

The Villages of Germantown and Richfield have entered into an Intergovernmental Agreement (IGA) to define the parameters for a cooperative approach in the extension of sanitary sewer into the Village of Richfield. Richfield desires to encourage commercial and light industrial development due to the subject area's proximity to I-41, a major transportation arterial. Germantown has determined that in serving a portion of Richfield to facilitate development, they can capitalize on the financial benefit of a larger customer base as well as having non-Germantown property owners bear a portion of their capital costs.

The IGA details how costs will be shared for design, construction, administration, approvals, and land acquisitions for extension of infrastructure into Richfield. Germantown's existing construction standards and practices must be utilized.

The incremental area within the Village of Richfield to be served is detailed within the IGA, however for the purpose of this Facilities Plan the entire section of land within Richfield will be used for the SSSA Planning Area. The quantity and strength of the domestic wastewater stream from Richfield is defined based on Germantown's and the MMSD's guidelines. The IGA allows a quantity of domestic wastewater not to exceed 0.4 MGD Average Daily Flow with 0.7 MGD allowable Daily Peak Flow. This allowable flow is relative to the immediate SSSA amendment and not inclusive of the entire incremental planning area. Flow will be metered at a strategic location to accurately track the volume of wastewater generated within the Richfield SSSA.

A general route for gravity sewer has been planned by the Village of Richfield to run through undeveloped areas of Germantown for connection to the Richfield portion of the SSSA. The remainder of the route

may flow by gravity or be delivered via force main at Richfield's discretion. The general route assumes a connection point to a recently installed interceptor sewer at the intersection of Goldendale and Freistadt Roads. Germantown will own, operate, and maintain the entire sanitary sewer system, including the sanitary sewer system within Richfield's boundaries. Germantown will also be responsible for any necessary improvements downstream of this connection point, which will be identified within this Facilities Plan. Permits and inspections for new connections to the sanitary sewer system within Richfield will be administered and approved by Germantown. Sewage treatment rates have been established within the IGA, as well as determinations as to who will pay the costs for future expansions and upgrades to the system for development within Richfield.

BACKGROUND

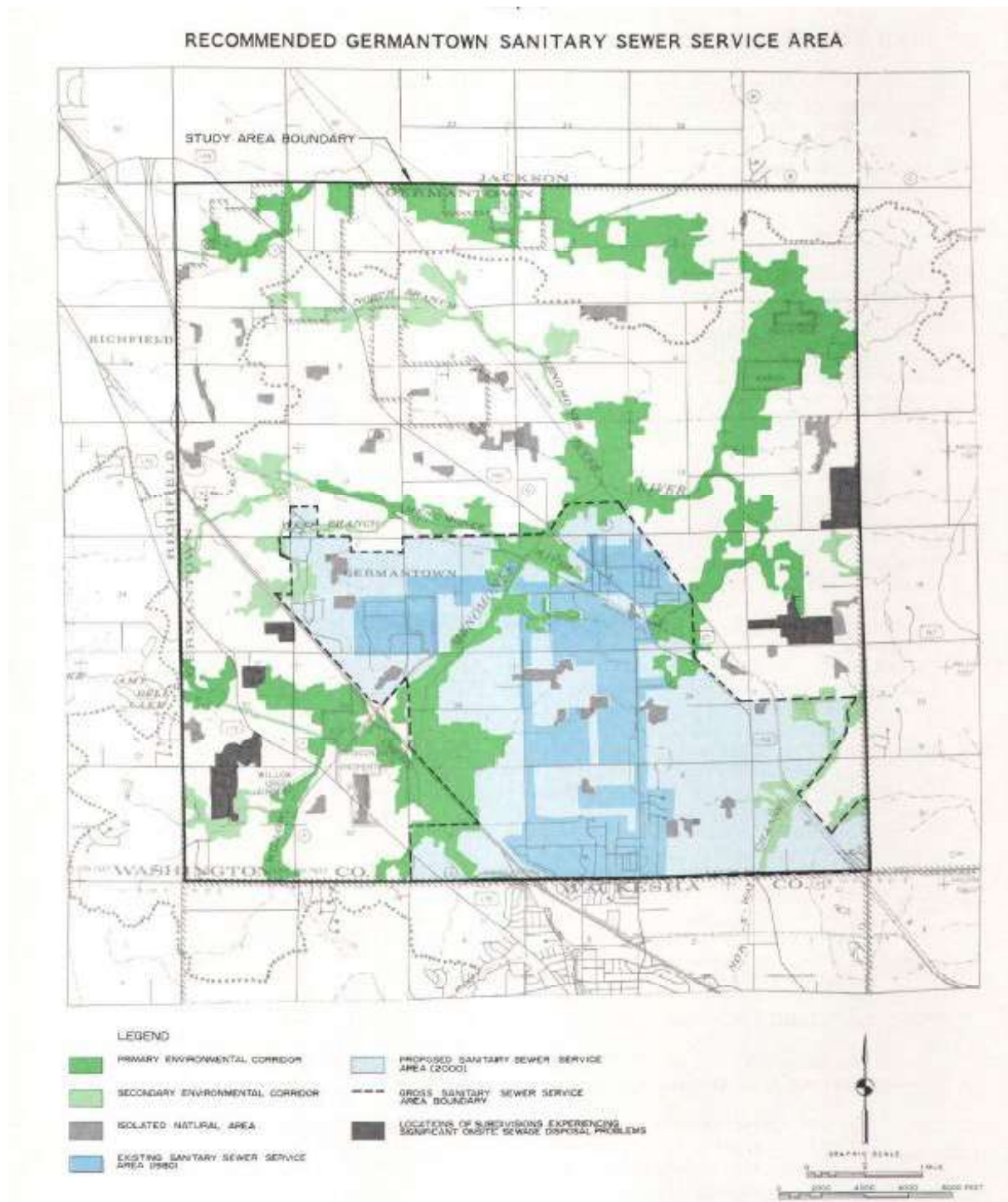
History of the existing SSSA & Planning Area

The initial analysis and planning report for Village of Germantown's SSSA was authored by SEWRPC and published in July 1983. At the time, there was a recognized need for an area-wide water quality management plan, and in turn a need to accurately define future planned SSSA's for public sanitary sewer systems throughout Southeastern Wisconsin. The purpose of this report was to provide a framework for SSSA planning based on recommended land use through the year 2000.

At the time of the report, the area served by the Village's sanitary sewer system was approximately 1,984 acres. The Village operated its own wastewater treatment plant that was operating near its design capacity. With recommendations from SEWRPC and the MMSD, the Village concluded that a sewer connection should be made to the MMSD and that the Village's existing sewage treatment plant should be abandoned.

The delineation of the initial proposed SSSA considered not only current and future land use, but also failing septic systems, sewer tributary areas, existing and planned trunk sewers, and natural resource data. The resulting refined proposed SSSA totaled approximately 6,464 acres as shown in Figure 1 below:

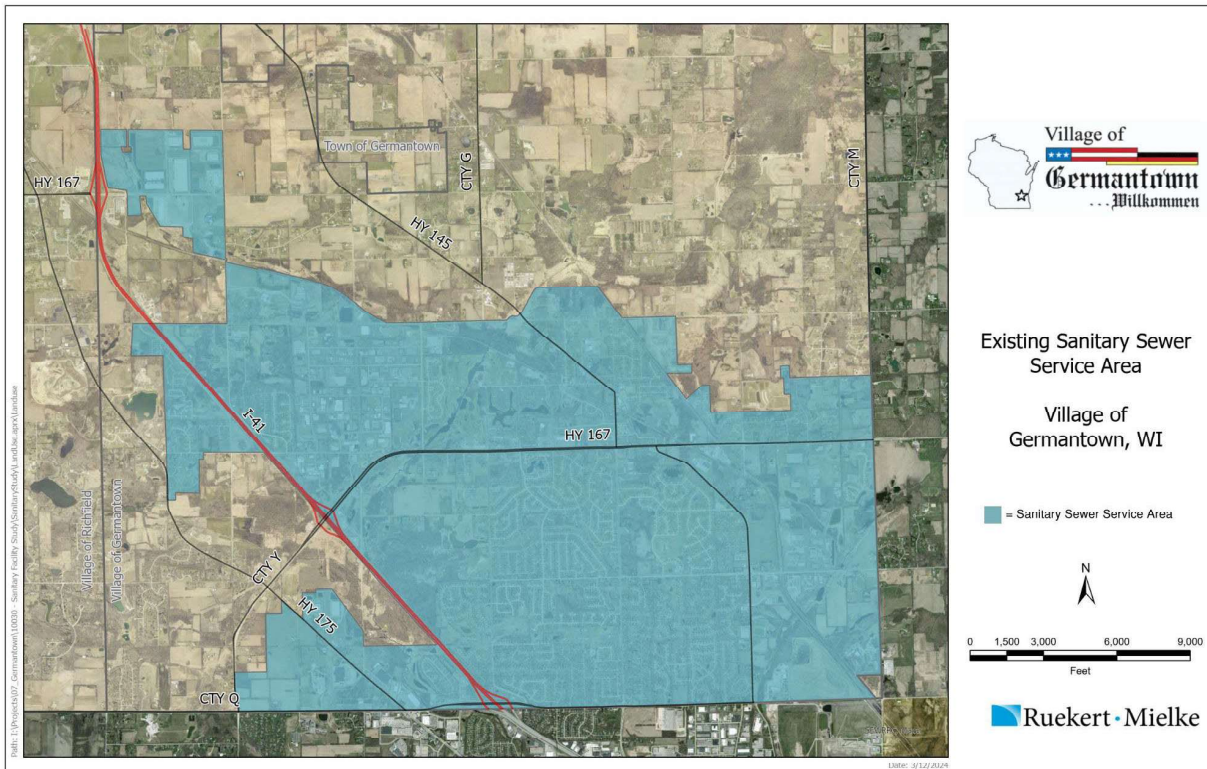
Figure 1 SEWRPC 1983 Planning Report - Sanitary Sewer Service Area



Source: SEWRPC 1983 Planning Report No. 70

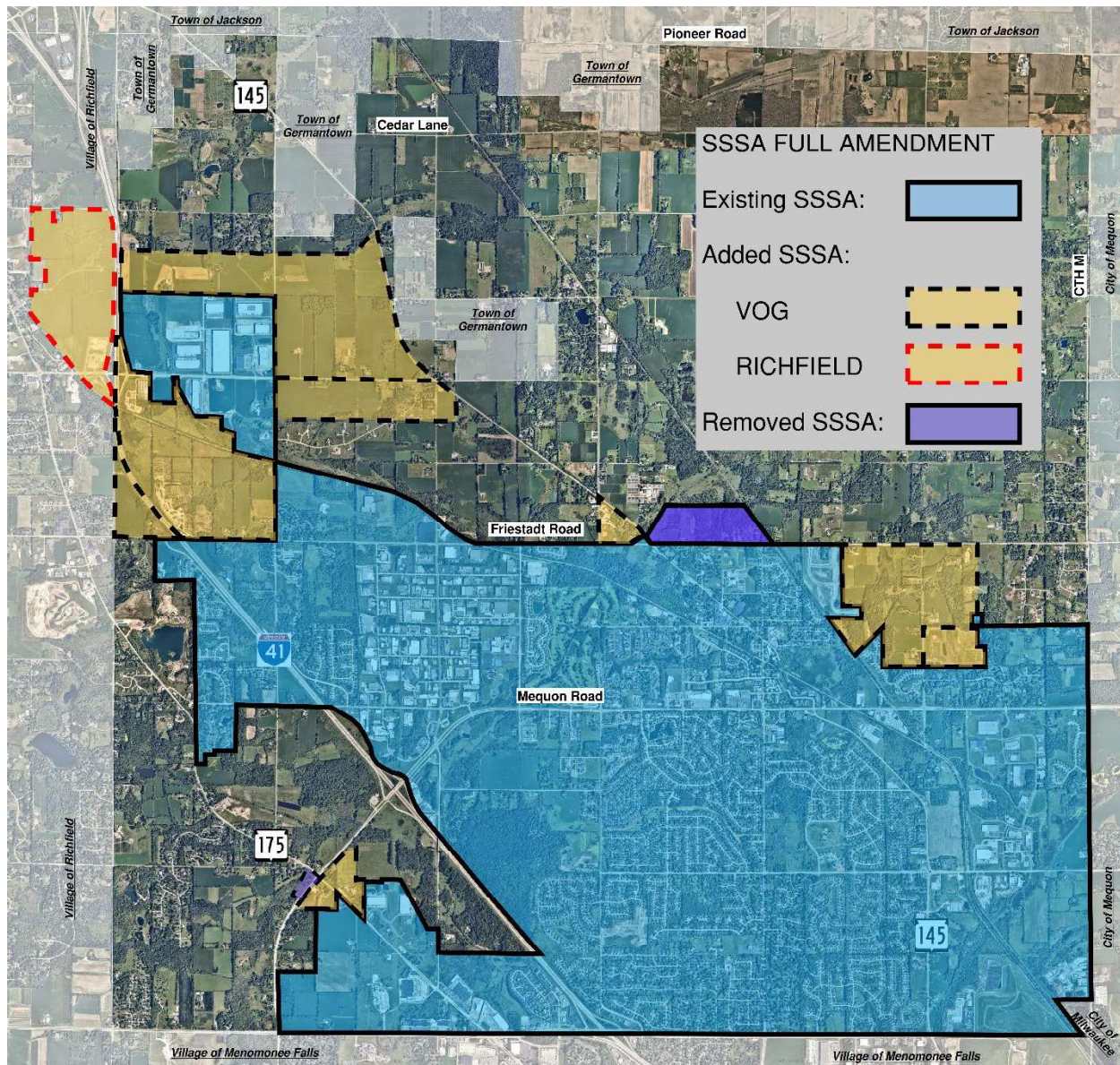
The proposed year 2000 SSSA was subsequently amended several times after the SEWRPC 1983 report was finalized. These amendments were approved in 1989, 1998, 2003, 2009, 2015, and most recently 2018 as the Village has expanded with development. The resulting Village of Germantown Sanitary Sewer Service Area is currently 9,432 acres and is delineated by SEWRPC as shown in Figure 2 below and included in Appendix A.

Figure 2 Existing Village of Germantown Sanitary Sewer Service Area



The pending immediate amendment, which is a portion of a larger full amendment, to the Germantown SSSA that is concurrent with this Facilities Plan will add a combined total of 814 acres to the SSSA, of which 526 acres are in the Village of Germantown and 288 acres are in the Village of Richfield. Beyond the immediate amendment, a full amendment has been defined for the 2050 planning term expansion to the existing SSSA and will be utilized as the future SSSA analysis area. The 2050 full amendment area is as shown in Figure 3 below and included in Appendix B:

Figure 3 2050 Full Sanitary Sewer Service Area Amendment

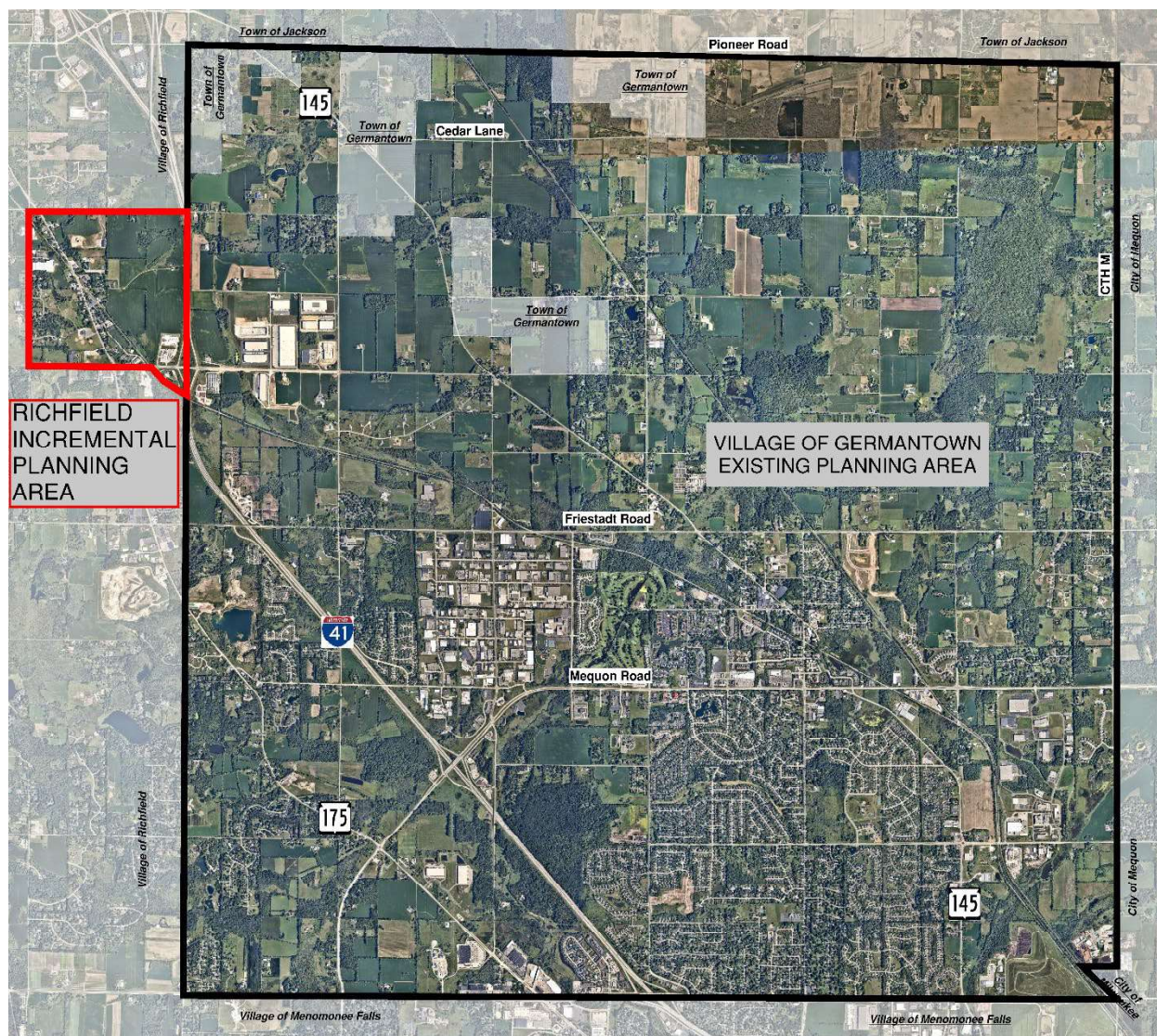


Source: Village of Germantown Planning

With the full amendment to the existing SSSA, the total area included in the Village of Germantown SSSA, herein referred to as the “expanded” SSSA could potentially be 10,964 acres.

For planning purposes, this Sanitary Sewer System Facilities Plan Update will also include the “Incremental Planning Area” within the Village of Richfield as a stand-alone incremental area tributary to the Village of Germantown’s expanded Future SSSA. This area of Richfield would potentially add another 665 acres in total to the fully amended Germantown SSSA described above. This area of Richfield is designated in Figure 4 below and included in Appendix C.

Figure 4 Village of Richfield Incremental Planning Area



Source: Village of Germantown Planning

Existing Sanitary Sewer System

In general, wastewater flow originates from the northwest region of the Village of Germantown near Holy Hill Road and I-41. The Richfield area to be added to the SSSA is located near this point, which makes adding sewer service in Richfield viable with the overall design of Germantown's existing sanitary sewer system. Wastewater moves generally southeast through the network of trunk sewers, interceptors, and pump stations to a single connection point to the MMSD's Metropolitan Intercepting Sewer (MIS) infrastructure at County Line Road and Wausaukee Road. At this connection point, the Village is allowed a peak hourly flow rate of 22.27 million gallons per day (MGD). Measured by a metering station at the connection point, the current average dry weather daily flow rate is 2.53 MGD with the peak hourly flow rate being approximately 12.67 MGD.

To determine peak flows, rain event data from the National Oceanic and Atmospheric Administration (NOAA) was used to verify if peak flow events corresponded to a rain event. Several rain events of note in 2022 and 2023 were observed at the Wastewater Utility Building weather station, with the most intense event being a 5.5-inch rainfall on September 12th of 2022. This event corresponded to the maximum

peak hourly flow observed during any rain events, and this maximum was used to calculate the peak hourly flow rate for the Wrenwood and the MMSD metering station.

The existing sewerage area within the Village of Germantown SSSA is served by approximately 99.2 miles of gravity sewer ranging in size from 8-inch to 48-inch diameter, and approximately 4.4 miles of force main sewer ranging in size from 6-inch to 20-inch diameter, as broken down by size category in Table 1. The system was constructed beginning in the mid-1960's with the largest portion of the system being constructed in the 1990's and 2000's. Pipe materials are largely Polyvinyl Chloride (PVC), Reinforced Concrete Pipe(RCP), and Ductile Iron, with a minimal quantity of Vitrified Clay, Nonreinforced Concrete Pipe, and ABS Truss pipe. The majority of the Village's 48" RCP interceptor has been rehabilitated with Cured-In-Place-Pipe. The Village has also completed a considerable amount of sewer replacement and extension projects to eliminate pump stations, provide service for new development, and upgrade capacity for undersized and outdated sewers.

Table 1 Existing Village of Germantown Sanitary Sewer Pipe Sizes & Lengths

Gravity Sewer		Force Main	
Diameter	Miles	Diameter	Miles
		6"	0.9
8"	59.3		
10"	6.5	10"	0.7
12"	9.2	12"	1.5
15"	5.1		
		16"	0.5
18"	4.8		
		20"	0.8
21"	2.0		
24"	2.1		
27"	2.1		
30"	3.6		
36"	0.9		
48"	3.5		
99.2		4.4	

Critical Sewer Flow Path

As the Village of Germantown's sanitary sewer system is analyzed, a critical path method can be used to identify the route conveying the bulk of the flow through the Village. This path is also the one most affected by future development, as the origin is in a largely undeveloped area of the Village, including the adjoining Village of Richfield area to be amended into the SSSA. Once this critical path through various trunk sewers, interceptors, and pump stations is determined, it can be used for analysis of future predicted flow conditions to identify any areas where future development may create a need for improvements.

At the northeast extents of the Village, the critical path begins just east of I-41 on Holy Hill Road with an 18-inch sanitary sewer that flows east and south continuing along Goldendale Road south to Freistadt Road. At Freistadt Road, the 18-inch sanitary sewer turns east to follow Freistadt Road. At the intersection of Freistadt Road and McCormick Drive, the sewer upsizes to 24-inch and continues to flow east following Freistadt Road. At the Wisconsin & Southern Railroad right-of-way (ROW), the sanitary

sewer deflects to the southeast and upsizes to 27-inch diameter. The 27-inch sewer continues southeast in alignment with the railroad ROW to a point approximately 1,000 feet east of River Road. At this point, the sewer turns to flow south and increases to 30-inch diameter.

The 30-inch sewer continues south through easement areas and along the east extents of the Blackstone Creek Subdivision. On the east side of the intersection of Blackstone Circle And Prestwick Court, the 30-inch sanitary sewer turns east and increases to 36-inch in diameter. The 36-inch sewer then flows east through the Blackstone Creek golf course and converges with a 30-inch sewer and 18-inch sewer that serve portions central to the Village before it terminates at the Main Street Pump Station at the intersection of Main Street and Division Road.

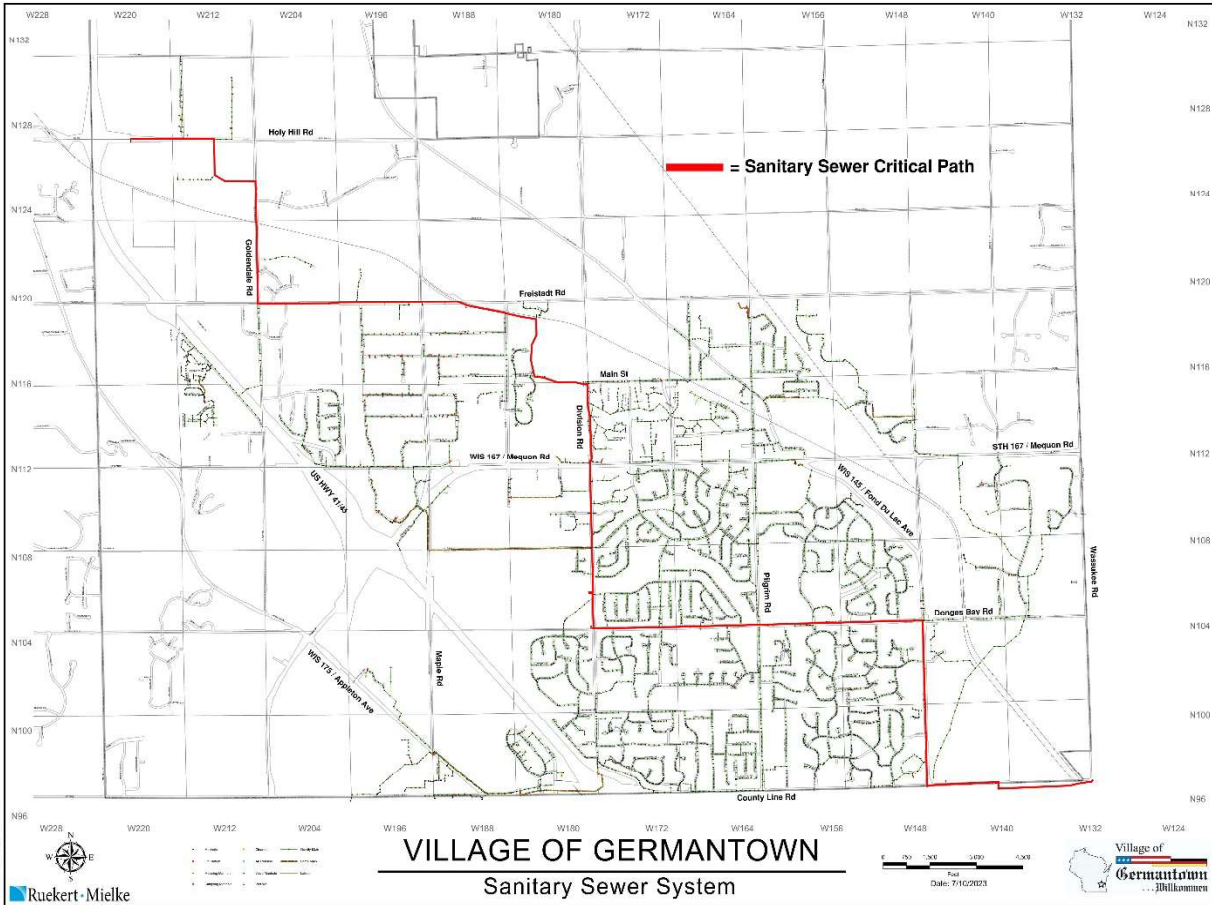
From the Main Street Lift Station, the wastewater is conveyed south through a 16-inch force main following Division Road until discharging into a manhole located approximately 100 feet north of State Highway 167, also known as Mequon Road where it returns to gravity flow through a 30-inch diameter sanitary sewer. This 30-inch sewer continues to flow south along Division Road until it reaches a convergence point at Old Farm Road where it meets a separate 36-inch sewer and combines with flow from the adjacent 36-inch sewer into the Old Farm Pump Station.

Wastewater flowing into the Old Farm Pump Station is discharged via a 20-inch diameter force main directed south along Division Road. At the intersection with Donges Bay Road, the force main turns east to follow Donges Bay Road until a point approximately 250 feet east of Ridgeview Lane where the force main discharges into a manhole that is located at the upstream end of a 48-inch diameter interceptor sewer.

The 48-inch interceptor sewer gravity flows east along Donges Bay Road to Fond Du Lac Avenue where it turns to the south and follows Fond Du Lac Avenue to County Line Road. At County Line Road, the 48-inch interceptor turns east. At the east side of the intersection of Fond Du Lac Avenue and County Line Road, a separate 30-inch sanitary sewer connects to the 48-inch interceptor and the conjoined flows continue in the easterly direction along County Line Road. The 48-inch interceptor follows the County Line Road (ROW) flowing east and meanders from the north side of County Line Road to the south side where it runs through a portion of the Old Orchard Landfill site. On the east extent of the Old Orchard Landfill Site, the interceptor flows through a metering station and then connects to a 54-inch diameter MIS sewer owned by the MMSD at the intersection of County Line Road and Wausaukee Road. This point is the singular connection point for all flow conveyed by the Village of Germantown's sanitary sewer system.

The Village of Germantown's full sanitary system map including the Critical Path as described can be found in Figure 5 below and in Appendix D.

Figure 5 Village of Germantown Sanitary Sewer System Map



Pumping Stations

Another critical aspect of future analysis and planning is the existing pump station facilities within the sanitary sewer system. The Village owns and operates 6 pump stations of various sizes and capacities within the collection system. Germantown conducted a study of 5 of the 6 pump stations owned by the Village in 2022. The data collected within that study is being presented in summary within the Sanitary Sewer System Facilities Plan Update. The study included Pump Stations 3, 6, 7, Main Street, and Old Farm. The Village's newest pump station, Wrenwood, was not part of the study area. For this report, data for the Wrenwood Pump Station has been collected independently of the pump stations included in the study.

GIS data from the Village of Germantown was utilized in the study to approximate the sewer service areas attributed to each pump station. Pump Stations 3, 7, Wrenwood, and Main Street handle flows exclusively from their respective sewershed basin. Pump Station 6 handles flow from its sewershed basin as well as flow from Pump Station 3. Old Farm Pump Station handles flow from its sewershed basin as well as Pump Stations 3, 6, 7, and Main Street.

Flow data was collected from the Village's Supervisory Control and Data Acquisition (SCADA) system for Pump Stations 3, 6, 7, Main Street, and Old Farm for analysis related to the Pump Station study. Data for the Wrenwood Pump Station and the MMSD connection point was collected independently of the data included in the previous referenced study. The data collected included average dry weather flow, peak hourly flow during selected heavy rainfall events, and pumping capacities of each pump station. An

hourly peaking factor and remaining peak capacity were established for each pump station. The tributary area for each pump station includes all land use types, including wetlands and ROW.

The peaking factors have been determined from the prior pump station study utilizing flow data from the Village's SCADA system; however this study did not include the Wrenwood Pump Station or the MMSD metering station. To determine peak flows at those locations, rain event data from NOAA was used to verify if peak flow events corresponded to a rain event. Several rain events of note in 2022 and 2023 were observed at the Wastewater Utility Building weather station, with the most intense event being a 5.5" rainfall on September 12th of 2022. This event corresponded to the maximum peak hourly flow observed during any rain events, and this maximum was used to calculate the peak hourly flow rate for the Wrenwood and the MMSD metering station. Table 2 summarizes the data collected and calculated.

Table 2 Pumping Station Capacity Summary

Pump Station	Existing Tributary Area (Ac)	Existing Dry Weather Flow (GPM)	Peak Flow from Analyzed Rain Events (GPM)	Peaking Factor	Existing Maximum Capacity (GPM)	Peak / Capacity	Remaining Peak Capacity (GPM)
PS 3	292.3	13	83	6.38	310	27%	227
PS 6	146.0	60	203	3.75	950	24%	725
PS 7	486.0	143	504	3.52	1,300	39%	796
Wrenwood	157.4	47	267	5.68	410	65%	143
Main Street	2461.1	1,007	2,818	2.80	6,250	45%	3432
Old Farm	4567.3	1,464	4,858	3.32	7,400	65%	2542
Connection to MMSD	9432.0	1,832	8,801	4.80	15,465	57%	6664

The analyzed data shows that in the current condition, there is some room for growth and, in turn, increased flow at each pump station. Analysis of the wastewater flow within the fully amended SSSA and Richfield SSSA will be incrementally compared to the existing design capacities to assess what, if any, upgrades may be required in the future to accommodate planned development. The need for upgrades will be assessed based on a threshold of 80 percent of design flow on a peak hour basis.

BASIS OF ANALYSIS FOR INCREMENTAL PLANNING AREA & UNSEWERED AREAS

To analyze future theoretical flow conditions for the Village of Germantown's sanitary sewer system, certain parameters must be established for the basis for the analysis. Establishing a design period consistent with the Village's 2050 Comprehensive Plan provides a cohesive analysis with the Village's future overall plan. Both existing and future land uses are utilized to predict how the Village will develop over time and provide a basis for where improvements may be needed. Flow calculations will utilize factors for land use types, and population density assumptions can be made using occupancy factors. Base parameters established for design of new sewer facilities aid in preliminary concepts for potential future sewer facilities.

Design Period

For this Facilities Plan, a 20-year design period has been chosen. This design period coincides closely with Village of Germantown's 2050 Comprehensive Plan for future growth and development.

Land Use

Land use is assigned assuming a fully developed condition using a combination of existing land use information and known future planning for the respective municipalities. Land use is assigned on a parcel-by parcel basis and individual land parcels are not broken into smaller land use fractions. The exception is those parcels which contain wetlands, which were separated into a single land use category and a wetland category to exclude wetland areas from flow generation calculations.

In existing developed areas, the actual quantity of transportation corridor has been calculated for the respective areas and included in the land use calculations. Areas that are mostly undeveloped in their current condition have been assumed to contain 30% public transportation corridors in the future fully developed condition. This gives a more accurate depiction of future flow conditions as public transportation corridors have also been excluded from calculations related to flow generation.

Village of Germantown - For determination of future land use of undeveloped areas, the Village's 2050 Comprehensive Plan is used as a guide to the fully developed land use condition for those areas currently undeveloped within the unsewered expanded SSSA. For residential areas, dwelling units per acre can be calculated based on future planned density. Population within these residential areas can be estimated using existing and future planned dwelling unit density and occupancy factor. Residential areas have been split into a "Single-Family" category and a "Multifamily" category to account for more densely populated areas containing apartments, senior housing, or condominiums.

Village of Richfield - The area of the Village of Richfield included in the expanded planning area has been analyzed for future land use characteristics as well. Richfield's 2033 Comprehensive Plan includes an adopted future land use plan specifically related to its incremental planning area. The future land use in the planning area is generalized into broad categories of land use types. For residential areas, a density of one dwelling unit per three acres has been determined by the Village of Richfield. Population within these residential areas can be estimated using the planned unit density and occupancy factor.

Flow Factors

In determining the future requirements for capacity within the existing sanitary sewer system and any required new sanitary sewer extensions, the potential flow must be calculated to determine if adequate capacity exists or if there is a future need for upgraded infrastructure. Flow factors used in this Facilities Plan are based on the MMSD's methodology for flow calculation:

Base Flow

- Occupancy Factor – 2.50 people per dwelling unit (single-family).
- Occupancy Factor – 1.80 people per dwelling unit (multifamily).
- Residential – 68 gallons per capita, per day.
- Commercial – 1500 gallons per acre, per day.
- Industrial – 1000 gallons per acre, per day.
- Institutional – 1000 gallons per acre, per day.

Once the base flow is calculated using the above parameters and future determined land uses, a peaking factor is then applied to calculate the theoretical peak hourly flow within the system.

Sanitary Sewer Design Criteria

Additions to the existing sanitary sewer system will be necessary for development within the unsewered portions of the existing SSSA as well future additions to the SSSA. The design should consider anticipated flows for the existing & future land use in a fully developed condition. Preliminary design of trunk sewers related to the expansion of the SSSA into the Village of Richfield has been completed by the Village of Richfield and provided to the Village of Germantown for use in this report.

The following criteria for future sewer extensions are assumed for analysis purposes:

- Minimum slope per Wisconsin Administrative Code.
- Minimum velocity: 2 feet per second when flowing full.
- Mannings “N” Value: Concrete Pipe – 0.013, PVC Pipe – 0.011.

COST ESTIMATING METHODOLOGY

Sanitary Sewer Force Main, Trunk & Interceptors

Unit costs for gravity sanitary sewers are based on bids and information from recent projects. In estimating costs for future projects, consideration is also given to consider depth of excavation, size of pipe, pipe material, groundwater conditions, bedrock, and soil type. Preliminary cost estimates related to the expansion of the SSSA into the Village of Richfield have been completed by the Village of Richfield and provided to the Village of Germantown for use in this Facilities Plan.

Pump Station Upgrades & Construction

Costs associated with upgrades to existing pump stations and/or construction of new Pump Stations are based on historical R/M project information tabulated into graphical format. The estimated costs for pumping stations consider the same general parameters that affect gravity sewer construction as mentioned above.

LAND USE ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA

In analyzing the existing and full amendment the Village of Germantown SSSA, there are areas currently not served by sanitary sewers that may be sewerred in the future according to the Village's 2050 Comprehensive Plan. The analysis will incrementally analyze these areas in a fully developed condition prior to adding in the incremental planning area from the Village of Richfield. Future land use is assigned to the undeveloped portions using the 2050 Plan as well as existing land uses as a guide to determine what future land use will most likely be as shown in Figure 6 and Appendix E.

Figure 6 Village of Germantown Future Land Use Map

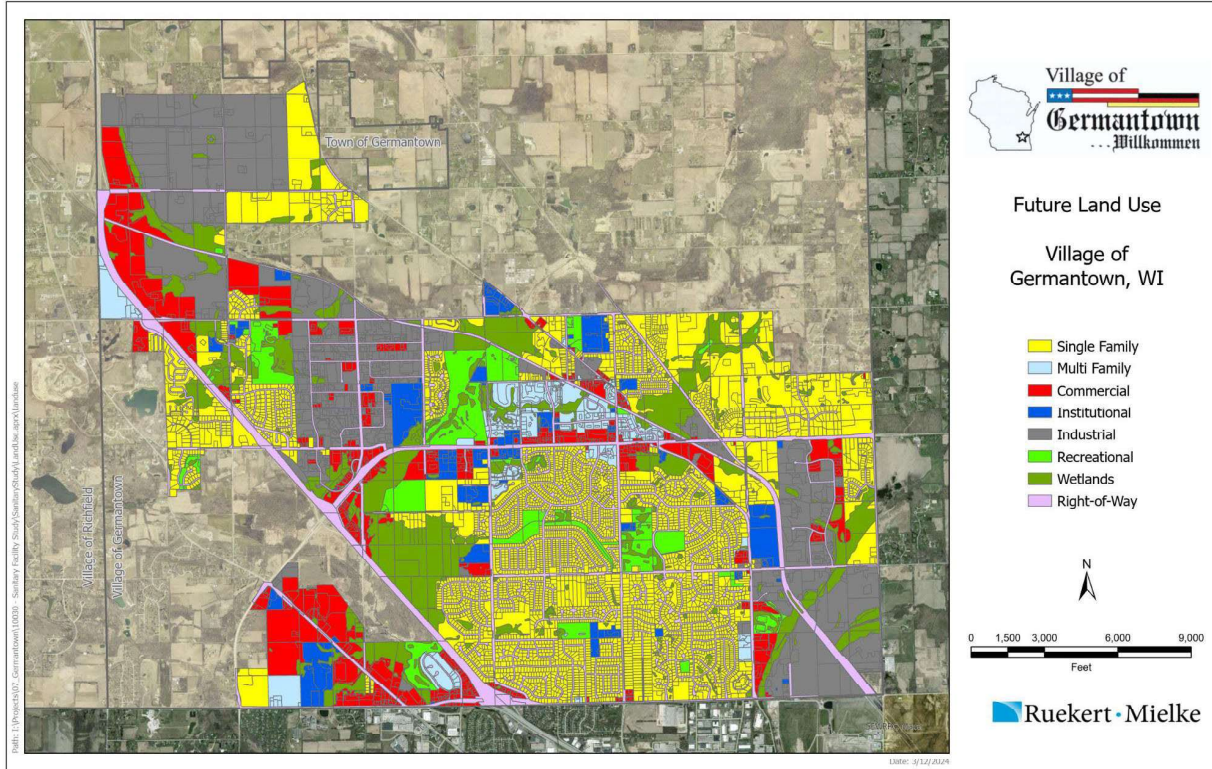


Table 3 breaks down the categories of assumed future land use conditions in the fully developed existing and expanded Germantown SSSA.

Table 3 Village of Germantown Future Land Use by Category

Germantown SSSA Fully-Developed Future Land Use (Acres) (Not including Richfield)							
Commercial	Industrial	Institutional	Multifamily	Recreational	Transportation	Single-Family	Wetlands
1,000.8	1,803.2	430.7	353.9	504.4	2,185.9	3,307.1	1,377.5
Total Expanded SSSA				10,963.5			
Net Flow Generation Area*				6,895.8			

*Excludes Recreational, Transportation, and Wetlands land use categories

Estimating Population

For single-family residential land use, an average density factor of 3.0 dwelling units/acre is appropriate based on the existing and desired density ranges described in the Village of Germantown's 2050 Comprehensive Plan. Most of the future development of residential areas falls into this category.

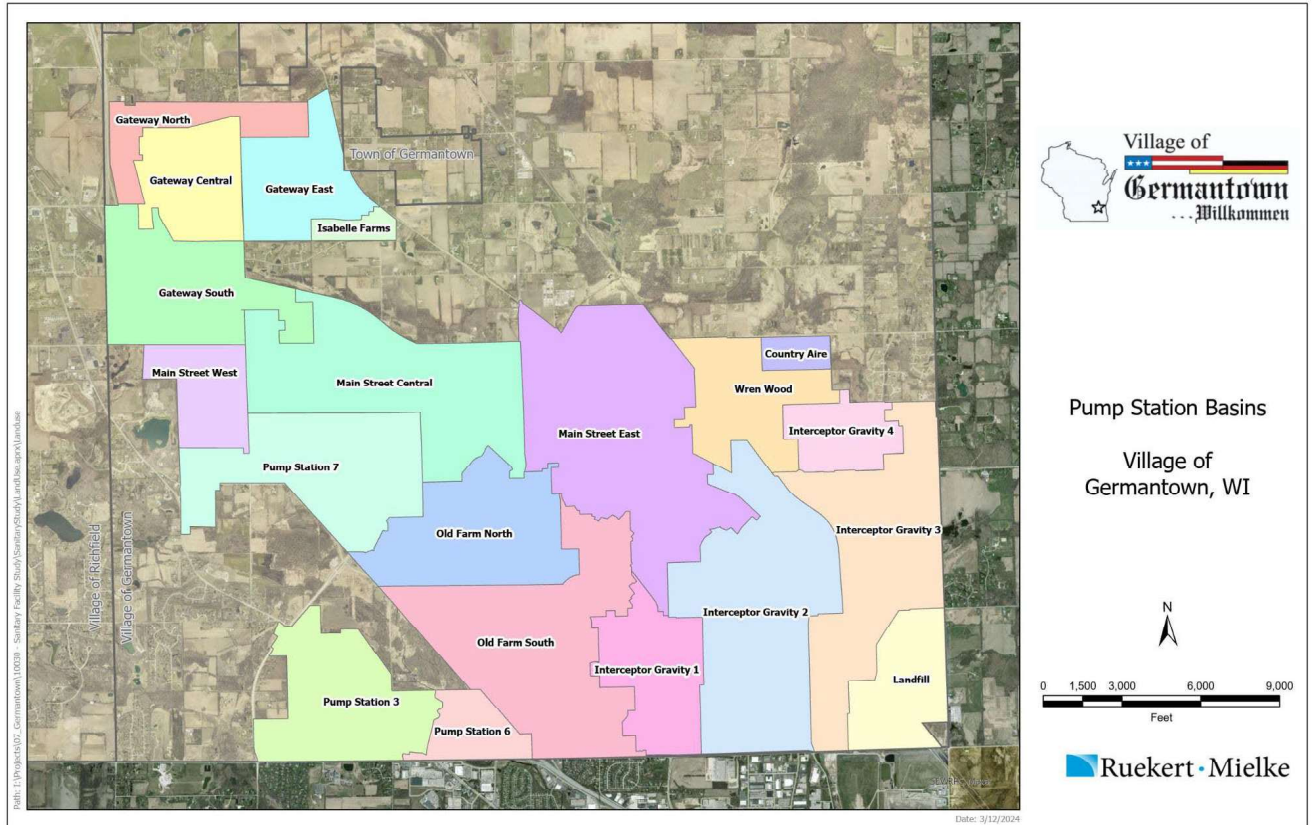
For multifamily residential land use, an average density factor of 8.0 dwelling units/acre is appropriate based on density ranges described in the Village of Germantown's 2050 Comprehensive Plan. Large-scale addition of multifamily residential development is not consistent with the Village's future plan, however, there is a potential for pockets of medium density residential mixed-use development within the Holy Hill Gateway Corridor. Because the Holy Hill Gateway Corridor has the potential for higher density residential development, the future multifamily land use in this basin alone was assigned a density of 16 dwelling units/acre.

Using the land use area, occupancy factor of 2.50 (single-family) or 1.80 (multifamily) people/dwelling unit and residential density factors described above, the total population of the fully developed existing and expanded Germantown SSSA is approximately 30,482. This is consistent with SEWRPC's Vision 2050 recommended population of 29,080 and high-growth population of 34,500. This population projection does not include the Richfield Incremental Planning Area (IPA).

Identifying Analysis Basins

To provide a more comprehensive analysis of the future tributary areas and flow conditions for the entire system, the expanded Germantown SSSA is divided into analysis basins based on physical characteristics of each respective basin. Direction of flow, existing pump station locations, sewer system configuration, existing and future SSSA borders, and future "conceptual" pump station basins all were considered when delineating each basin. Figure 7 depicts the basin delineations and naming convention used for analysis within this Facilities Plan. The Sanitary Sewer Analysis Basin Map is also included in Appendix F.

Figure 7 Sanitary Sewer Analysis Basin Map



The basins can then be broken down into a more detailed description of future fully-developed land use using the same categories as the broad future land use breakdown. Table 4 details the future land use break-down of each individual basin.

Table 4 Future Land Use by Analysis Basin

Germantown SSSA Future Land Use (Acres) (Not including Richfield)									
Basin Name	Commercial	Industrial	Institutional	Multifamily	Recreational	Right-of-Way	Single-Family	Wetlands	Basin Total
Country Aire					1.2	13.4	31.2	30.5	76.2
Gateway Central	9.0	245.5				109.1		15.6	379.2
Gateway East		113.0				114.7	154.7	13.3	395.7
Gateway North	36.7	132.4				72.5	0.1	5.4	247.2
Gateway South	187.6	129.1		40.4	1.6	155.0	4.7	101.2	619.6
Interceptor Gravity 1	4.6		18.9		21.1	67.8	316.9	4.7	434.0
Interceptor Gravity 2	43.5	46.8	77.8	16.8	75.6	200.7	596.7	51.4	1109.3
Interceptor Gravity 3	75.3	257.7	2.9		17.3	226.4	192.5	128.9	900.9
Interceptor Gravity 4					0.1	68.8	160.5	8.3	237.8
Isabelle Farms						19.5	45.4	2.9	67.7
Landfill		279.9				37.5		44.1	361.5
Main Street Central	49.5	341.6	85.2	3.6	154.4	104.9	102.4	147.0	988.5
Main Street East	97.8	28.9	91.6	205.6	75.0	188.8	357.6	156.2	1201.7
Main Street West	48.7	0.0	5.9	0.5	2.6	64.9	96.4	61.4	280.4
Old Farm North	75.7		67.3	22.6	100.8	76.9	162.2	153.0	658.5
Old Farm South	21.2	3.4	17.0	1.6	12.9	206.6	603.7	193.0	1059.3
Pump Station 3	221.5	9.9	57.4	29.4	0.1	152.9	36.1	86.5	593.8
Pump Station 6	52.3	4.5	0.3	33.3	29.1	50.5	0.2	16.0	186.2
Pump Station 7	77.7	209.7	6.4		10.3	158.6	222.0	48.4	733.1
Wrenwood		0.7	0.0	0.0	2.2	96.3	223.9	109.7	432.9
Total	1000.8	1803.2	430.7	353.9	504.4	2185.9	3307.1	1377.5	10963.5

Pump Station Tributary Area

With the expansion of the Village of Germantown, the aggregate tributary for each pump station is inclusive of not only the immediate area tributary directly to the pump station, but also those areas upstream in other pump station basins that are tributary to more than one pump station. The acreages calculated include all land use types within the basin, including wetlands and ROW. The increase in tributary area includes areas within the existing SSSA that are currently unsewered as well as areas that will be amended into the expanded SSSA. The connection point to the MMSD contains all lands assumed to be included in the fully amended, fully developed SSSA. Summary of the changes to each pump station's tributary area is calculated in Table 5.

Table 5 Future Change in Pump Station Tributary Areas

Existing Pump Station	Existing Aggregate Tributary Area (Ac)	Future Expanded SSSA Aggregate Tributary Area (Ac)	Future Richfield IPA Tributary Area (Ac)	Total Future Increase in Aggregate Tributary (Ac)	Percent Increase in Tributary Area
LS 3	292.3	593.8		301.5	103.1%
LS 6	438.3	780.0		341.7	78.0%
LS 7	486.0	733.1		247.1	50.8%
Wrenwood	157.4	432.9		275.5	175.0%
Main Street	2,461.1	4,180.0	665.4	2,384.3	96.9%
Old Farm	4,567.3	7,410.8	665.4	3,508.9	76.8%
Connection to MMSD	9,432.0	10,963.5	665.4	2,196.6	23.3%

A detailed analysis of the changes within each pump station's aggregate basins follows:

Pump Station #3 - The area tributary to Pump Station #3 would increase approximately 301.5 acres to a total of 593.8 acres in a fully developed expanded SSSA. This area has substantial potential for development and expansion, with most of potential development already being within the existing SSSA, but not currently sewered. The incremental future land use in the tributary area is planned as a mixture of commercial, single-family residential, and multifamily residential development. This increase in area would subsequently be added to Pump Station #6.

Pump Station #6 - The area tributary to Pump Station #6 would increase 341.7 acres to a total of 780 acres in a fully developed expanded SSSA. Most of this increase comes from the expansion of the area tributary to Pump Station #3. The tributary area for Pump Station #6 is largely fully developed and unlikely to undergo any significant future growth. The increase in tributary area to Pump Station #6 is primarily the area added to the Pump Station #3 tributary area that flows in aggregate through Pump Station #6. This increase in area would subsequently be added to the Old Farm Lift Station.

Pump Station #7 - The area tributary to Pump Station #7 would increase 247.1 acres to a total of 733.1 acres in the fully developed expanded SSSA. The incremental increase in area tributary to Pump Station #7 is mostly developed and falls within the existing SSSA. The area contains unsewered areas of single-family residential homes and mobile homes that would become part of the tributary area to Pump Station #7 with a future sewer extension. This increase in area would subsequently be added to the Old Farm Pump Station.

Main Street Pump Station - The area tributary to the Main Street Pump Station would increase 2,384.3 acres to a total of 4,180 acres in the fully developed expanded SSSA and Richfield incremental planning area. This pumping station could see a substantial increase in flow from the future development of the Richfield planning area as well as large areas of Commercial and Residential development within the "Gateway" district in the northwestern portions of the expanded SSSA for the Village. This increase in area would subsequently be added to the Old Farm Pump Station.

Old Farm Pump Station - The area tributary to the Old Farm Pump Station would increase 3,508.9 acres to a total of 7,410.8 acres in the fully developed expanded SSSA and Richfield incremental planning area. While this pumping station's immediate tributary has a relatively small area with any potential development of single-family residential homes, most of the future flow to the Old Farm Pump Station will come in aggregate from Pump Stations 3, 6, 7, and Main Street.

Wrenwood Pump Station - The area tributary to the Wrenwood Pump Station would increase 275.5 acres to a total of 432.9 acres in the fully developed expanded SSSA. The incremental future land use in the tributary area is planned as predominately single-family residential development. The Wrenwood Pump Station ultimately contributes to gravity flow to the Village's interceptor, and currently does not accept flow from any basins other than its own.

FLOW ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA

Flow Calculation Methodology

Flows calculated for the expanded Germantown SSSA are a blend of existing developed land uses as well as the additional development potential and associated future land use within the expanded SSSA. The entire expanded SSSA is assumed in a full-developed condition for the theoretical future flow conditions.

Theoretical flows are calculated for each analysis basin separately using the applicable occupancy and flow factors for each existing and future land use type and population within each basin. A spreadsheet method is utilized to calculate an average daily base flow, which is the total of flows within each land use category multiplied by their respective flow factor per acre or calculated population multiplied by gallons per capita. The average daily base flow is then multiplied by an applicable peaking factor to account for inflow and infiltration and calculate the peak hourly flow. Capacity analyses of sewers and pumping stations are made utilizing this peak hourly flow.

At the direction of Village Staff, a single point user was added into the calculated flow for the Gateway South Basin. This manufacturing operation consumes approximately 28 million gallons of water per year, so the associated sanitary wastewater flows equating to 53 GPM have been incorporated into the total calculated average base flow for the Gateway South Basin. At the time of this Facilities Plan, the Village does not have any other substantial single point users to be incorporated into the flow calculations.

Peaking factors for basins with mostly existing development have been determined using known flow data measured at each pump station and the MMSD metering station. The factors are calculated based on the largest increase in measured flow noted during multiple heavy rain events. Where no existing flow data is available, factors for basins which are mainly undeveloped were assigned a value of 2.50 based on the Wisconsin Administrative Code (range of 2.0-2.5) for municipalities with a population of 10,000 to 100,000.

Some exceptions to these determinations are the peaking factors for the Pump Station 3 Basin and the Wrenwood Basin. These basins currently have a very low dry weather flow, and therefore even a small amount of inflow and infiltration can cause an unusually high peaking factor. The Pump Station 3 basin in this case has a peaking factor of 6.38 determined by the R/M Lift Station Study. The Wrenwood Pump Station has a calculated peaking factor of 5.68 from recent flow metering data from the Village's SCADA system. Because both basins have the potential to develop to a size more than double the existing condition, some attenuation in the peaking factor can be expected. To provide a realistic estimate of future flow, a peaking factor of 3.50 was chosen for these basins.

Using the parameters as described to calculate generated theoretical future flows, Table 6 summarizes average flow, peaking factors, and theoretical peak-hour flow rate for each respective basin.

Table 6 Summary of Future Sanitary Sewer Flows by Analysis Basin

Basin Name	Total Basin Area (Ac)	Net Flow Generation Area (Ac)	Applied Peaking Factor	Theoretical Peak-Hour Flow Rate Fully Developed (GPM)	Theoretical Peak-Hour Flow Rate - SSSA Fully Developed (CFS)
Country Aire	76.2	31.1	2.50	28	0.06
Gateway Central	379.2	254.5	2.50	449	1.00
Gateway East	395.7	267.7	2.50	333	0.74
Gateway North	247.2	169.3	2.50	326	0.73
Gateway South	619.6	361.8	2.50	907	2.02
Interceptor Gravity 1	434.0	340.4	4.80	625	1.39
Interceptor Gravity 2	1,109.3	781.6	4.80	1,702	3.79
Interceptor Gravity 3	901.0	528.4	4.80	1,572	3.50
Interceptor Gravity 4	237.8	160.5	4.80	273	0.61
Isabelle Farms	67.7	45.4	2.50	40	0.09
Landfill	361.5	279.9	4.80	933	2.08
Main Street Central	988.5	582.2	2.80	1,083	2.41
Main Street East	1,201.7	781.5	2.80	1,266	2.82
Main Street West	280.4	151.5	2.80	250	0.56
Old Farm North	658.5	327.8	3.32	659	1.47
Old Farm South	1,059.3	646.9	3.32	834	1.86
Pump Station 3	593.8	354.3	3.50	1,086	2.42
Pump Station 6	186.2	90.6	3.75	302	0.67
Pump Station 7	733.1	515.8	3.52	1,090	2.43
Wrenwood	432.9	224.7	3.50	280	0.62
Total	10,963.5	6895.8		14,036	31.27

The theoretical peak-hour flow rate for the fully-developed future expanded Village of Germantown SSSA is 31.27 cubic feet per second (CFS). This equates to 20.21 MGD, which is below the MMSD's allowable peak hour flow rate of 22.27 MGD at the Village of Germantown's connection point to the MIS.

VILLAGE OF RICHFIELD INCREMENTAL PLANNING AREA

The area within the Village of Richfield that will be served by the Village of Germantown sanitary sewer system, the Richfield IPA, requires a more detailed analysis of the characteristics of the planning area. This area of Richfield has not been part of any other sanitary sewer planning area, whereas the entire Village of Germantown is within an existing planning area that has been previously analyzed by SEWRPC in the 1983 Planning Report.

The Richfield IPA is best described as all of Section 12 of Township 9 North, Range 19 East within the Village of Richfield, also including one individual parcel of land at the Northeast corner of Section 13 Township 9 North Range 19 East, also known as Tax Parcel #035000C. The individual parcel has been included within the IPA due to it being a probable location for sanitary sewer to enter the Village of Richfield. The pending amendment to the Germantown SSSA does not include the entire IPA at this point in time, however the entire IPA is being included in calculations and analysis in this Facilities Plan for simplicity of future expansion within the IPA in Richfield.

Topography

The area of Richfield encompassed by the IPA has a variety of terrain and changing topographical features. In general, the land is rolling and hilly with slopes ranging from 2% to 20%. From Washington County's Geographical Information System (GIS) topographical data based on the NAVD 88 Datum, the lowest point within the IPA is at the very Northeast corner with an elevation of +/- 862.0. The highest elevation found within the IPA is +/- 1,018.0 located in the Southwest portion of the IPA near the eastern extent of Evergreen Court. The topography slopes from higher elevations in the west and south towards lower elevations in the east and north. There are multiple intermittent low and high glacial features of kettles and hills that may provide challenges when providing sewer service to the entire IPA. The topographical map included in Appendix G gives an overall view of the IPA in 5' contours.

Soil Types

Soil types within the Richfield IPA are predominately within the Ozaukee, Hochheim, Lamartine, Mayville, Theresa, Ashkum, and Brookston series. These soils series generally classify as Silt Loam, Loam, and Silty Clay Loam which range widely from well-drained to poorly drained. With exception to drainageways and lowlands, most of the IPA is defined as well-drained or moderately well-drained. Seasonal perched water tables are consistently noted in the soils throughout the IPA. Soils of this nature are typically not conducive to in-ground (conventional) Private Onsite Wastewater Treatment Systems (POWTS), and typically would require construction of a Mound type POWTS or Holding Tank if adequate area is not available for a Mound type POWTS. Extension of sewer service in areas with such soil conditions provides greater opportunity for larger scale development. A complete map of the soil types in the Richfield IPA is included in Appendix H.

Wetlands & Flooding Areas

Wetlands and floodways also play an important role in planning for sewer service in any area. The map included in Appendix I shows WDNR delineated wetlands within the Richfield IPA, as well floodways where a flood elevation has been determined by the WDNR. The IPA has few waterways and surface water. The rolling, hilly topography is fairly protected from flooding. At the far Northeast corner of the IPA, there is a drainageway that lies on the west side of Hwy 41. This drainageway is the only area noted as a floodway within the entire IPA. There are multiple scattered, relatively small areas of wetlands delineated in lowland areas and drainageways. These areas must be further investigated and considered during development and planning for sanitary sewer service.

Transportation Corridors

One of the characteristics that makes the Richfield IPA desirable for large-scale development is its proximity to transportation corridors. The IPA is bordered on the east by US HWY 41, and on the south by STH 167. The intersection of US HWY 41 and STH 167 at the southeast corner of the IPA is an interchange providing easy access to both highways to and from the IPA. Other transportation corridors of note include STH 175 which generally bisects the IPA on an angle from southeast to northwest, and a railroad ROW owned by the State of Wisconsin running nearly in parallel with STH 175.

Preliminary Environmental Screening

A preliminary environmental screening was conducted for the Richfield IPA. During the preliminary environmental screening, the following environmentally sensitive resources and assumptions were assessed:

- Presence of wetland and waterway features,
- Presence of 303d impaired waterways,
- Presence of areas of special natural resource interest,
- Documented wetland and waterway disturbance permits,

- Presence of Federal Emergency Management Agency (FEMA) floodplains, floodways, and flood fringe,
- Presence of WDNR Bureau of Remediation and Reclamation (BRR) Sites,
- Presence of Solid and Hazardous Waste Information System (SHWIMS) Sites,
- Presence of Shoreland Zoning,
- Presence of Planned or Existing County Trails,
- Presence of National Register of Historic Places,
- Presence of United States Department of Agriculture Drainage Districts, and
- Potential presence of Threatened and Endangered Species.

For wetlands and waterways, the WDNR Surface Water Data Viewer (SWDV) was accessed. Throughout the planning area, there are multiple wetland and waterway complexes. Wisconsin Wetland Inventory (WWI) listed wetlands include Emergent/wet meadow, Flats/unvegetated wet soil, Forested, and open water. The WWI also lists five unnamed waterways, three first order, and two second order waterways and three waterbodies. No features within the study area were identified as 303d impaired or are designated as an area of special natural resource interest.

The presence of FEMA designated floodplains, floodways and flood fringe were assessed for the study area. A study was conducted for the waterway in the northeast corner of the study area. The FEMA panels included in the study area are 55131C0264E effective 2/25/2022 and 55131C0268E effective 2/25/2022. Within panel 55131C0268E there are areas designated as Zone A and Zone AE.

The presence of shoreland zones were assessed for the study area. No known shoreland zones are provided by the Washington County GIS viewer. The Village of Germantown Code of Ordinance No. 24.04, defines the shoreland-wetland zoning district as all wetlands in the Village which are equal to or greater than 5 acres within 1,000 feet of the ordinary high-water mark (OHWM) of navigable lakes, ponds or flowages and within 300 feet of the OHWM of navigable rivers or streams, or the landward side of the floodplain, whichever distance is greater.

Using the National Register of Historic Places GIS viewer, the study area was assessed. There are no registered sites within the study area.

Using the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) Drainage Districts Interactive Map tool, the study area was assessed for presence of drainage districts. There are no drainage districts within the study area.

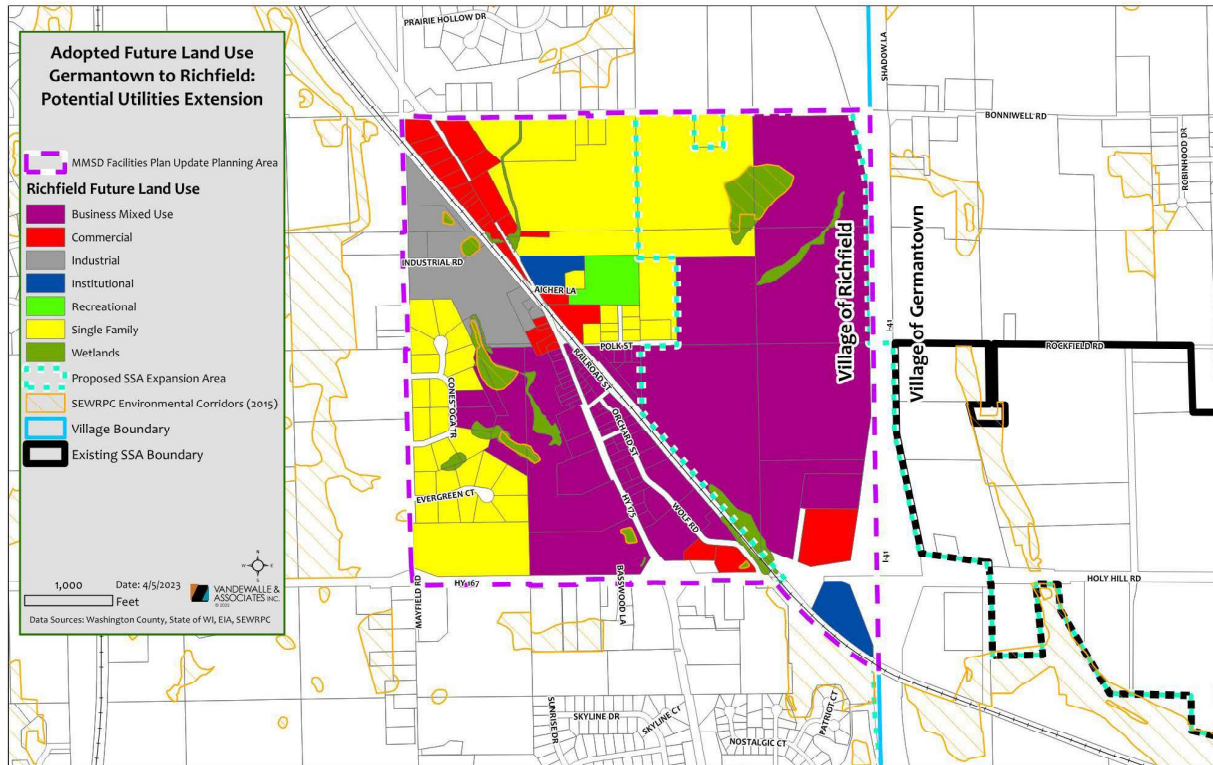
Using the Wisconsin Department Natural Resources Natural Heritage Inventory (NHI) Portal, the study area was assessed. Based on the assessment state endangered fish may be present within the study area. A preliminary Information for Planning and Consultation (IPaC) assessment was performed to identify potential habitat that may support federally threatened or endangered species. The IPaC results included the federally endangered northern long-eared bat, the proposed endangered tricolored bat, and the candidate endangered monarch butterfly. Further investigations will be needed to assess likelihood of presence, and potential impacts.

The complete Preliminary Environmental Screening report including referenced tables and listings can be found in Appendix J.

[Land Use Analysis](#)

Similar to the future land use analysis for the Village of Germantown SSSA, the Village of Richfield IPA was also analyzed for future land use in a fully developed condition. In the case of the Richfield IPA, a future land use plan was available from SEWRPC, based on Richfield's 2033 Comprehensive Plan. The future land use for the Richfield IPA is shown in Figure 8 and included in Appendix K.

Figure 8 Richfield Incremental Planning Area Future Land Use Map



Source: Vandewalle & Associates, Inc. via SEWRPC

Table 7 breaks down the categories of assumed future land use conditions in the fully developed Richfield Incremental Planning Area.

Table 7 Richfield Incremental Planning Area Future Land Use by Category

Richfield IPA Fully-Developed Future Land Use (Acres)							
Commercial	Industrial	Institutional	Multifamily	Recreational	Transportation	Single-Family	Wetlands
255.5	26.1	9.1	N/A	8.8	199.6	138.1	28.2
Total Expanded SSSA				665.4			
Net Flow Generation Area*				428.8			

*Excludes Recreational, Transportation, and Wetlands land use categories

*Transportation area assumed at 30% of total land area

Population and Flow Calculation

For single-family residential land use, an average density factor of 1.0 dwelling unit / 3.0 acres is appropriate based on the desired density indicated by the Village of Richfield. Using the same occupancy factor of 2.50 as used in the Germantown calculations, we arrive at a population of 114. Likewise, the same flow factors are used for each non-residential land category as described for the flow calculations related to the Germantown Expanded SSSA.

For analysis purposes, the Richfield IPA is treated as its own basin to be incrementally added to the basins previously described for the Village of Germantown. As a stand-alone basin, the calculated flow from the Village of Richfield IPA is shown in Table 8 below:

Table 8 Richfield Incremental Planning Basin Flow Summary

Basin Name	Total Basin Area (Ac)	Net Flow Generation Area (Ac)	Applied Peaking Factor	Theoretical Peak-Hour Flow Rate Fully Developed (GPM)	Theoretical Peak-Hour Flow Rate - SSSA Fully Developed (CFS)
Richfield IPA	665.4	428.8	2.50	740	1.65

The theoretical peak-hour flow rate calculated in this report for the fully-developed future expanded Village of Germantown SSSA is 31.27 cubic feet per second (CFS). Adding the calculated peak-hour flow rate for the Richfield IPA, the total peak-hour flow rate at the Village of Germantown's connection point to the MMSD's MIS is 32.92 CFS, or 21.28 MGD. This flow rate is just below the MMSD's allowable peak-hour flow of 22.27 MGD for the Village of Germantown. If development within the Village of Germantown and Richfield IPA is to progress in the manner set forth in this Facilities Plan, further coordination with the MMSD will be critical to preventing a hold on further development due to meeting or exceeding allowable flow allocations from the MMSD.

Conceptual Sewerage System Serving Richfield IPA

The Village of Richfield has undertaken planning and design of new sewerage facilities required to service the Richfield IPA. As a requirement of the IGA between Richfield and Germantown, the Village of Richfield must fund said planning and design. The design work led by the Village of Richfield is incorporated into this section of the Facilities Plan for efficiency.

Preliminary construction plans provided by Richfield show a feasible design for sanitary sewer extension to serve the Richfield IPA as well as the immediate Germantown SSSA amendment area. The 12-inch gravity sanitary sewer extension connects to the existing Germantown sanitary sewer system at the intersection of Goldendale Road and Freistadt Road, just upstream of Pour Point #2 analyzed within this report. The proposed gravity sewer runs generally west along Freistadt Road and then north and west through existing undeveloped lands until the gravity portion of the extension terminates at the Wisconsin & Southern Railroad ROW. This point will be the discharge point for a 6-inch force main which continues northwest following the Wisconsin & Southern Railroad ROW. The force main crosses underneath U.S. Highway 41 into the Richfield IPA and turns north to follow Richfield Parkway. The 6-inch force main will terminate at the location of a future pumping station within the Village of Richfield which will convey all sanitary sewer flows generated within the Richfield IPA. Figure 9 depicts the preliminary layout of the sanitary sewer extension. The full preliminary plans are included in Appendix L.

Figure 9 Preliminary Route of Sewer and Water Extensions to Serve the Richfield SSSA



Source: Cedar Corporation Preliminary Plans dated September 26th, 2023

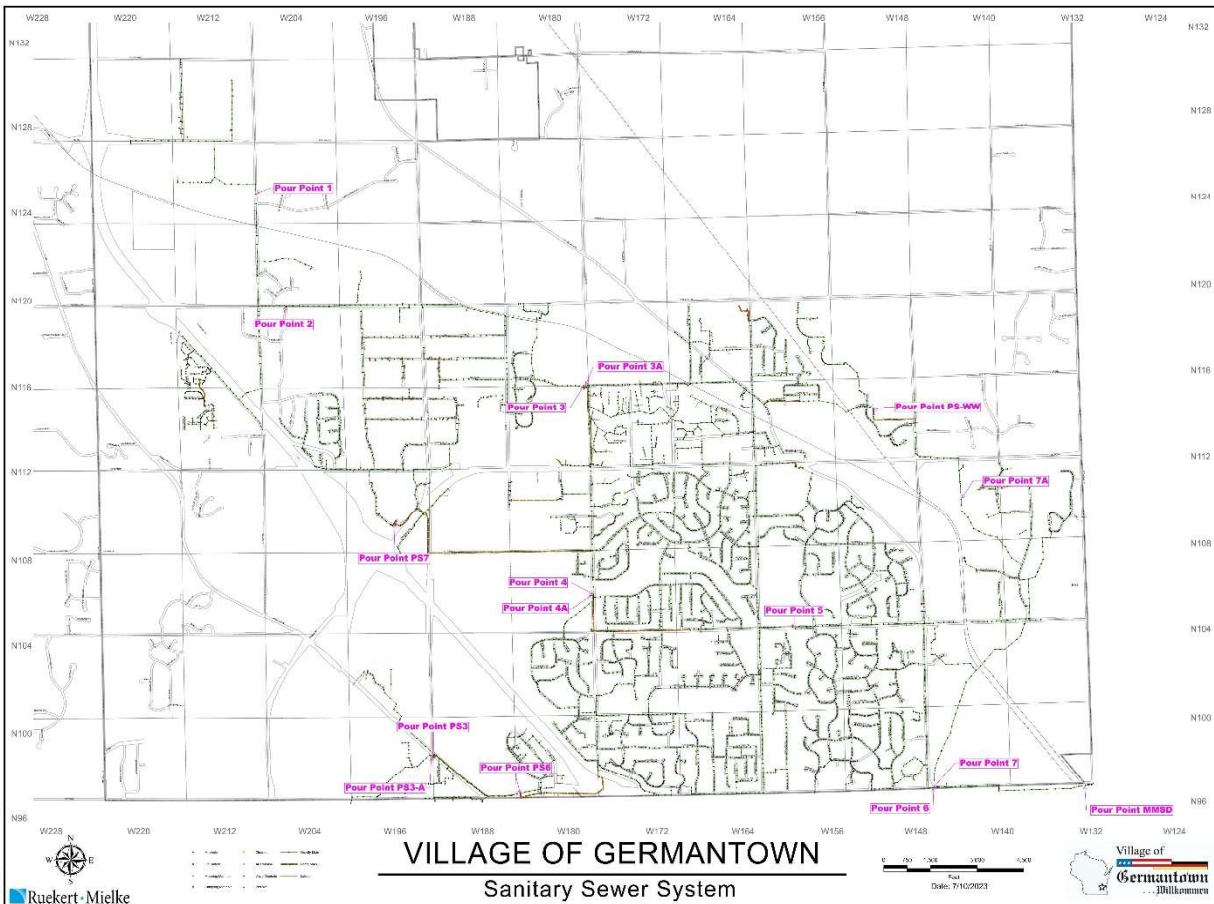
The Richfield IPA will be primarily served by gravity sewers that will flow to a common pumping station, ultimately pumping wastewater via connection to the 6-inch force main installed as part of the Richfield-Germantown Connection project as shown in the included Preliminary Plans. Per the IGA between Germantown and Richfield, the cost of installation of the Germantown Connection sewer and water infrastructure will be paid by the Village of Richfield. The Opinion of Probable Project Cost dated September 27th, 2023 is approximately \$5,186,000 in today's dollars for the sanitary sewer portion of the extension to Richfield. The project cost estimate document has been included in Appendix M.

The Richfield-Germantown Connection sanitary sewer extension project will not only allow the Village of Richfield to connect to sanitary sewer service, but also an area of the Village of Germantown that is currently undeveloped. The proposed sewer and water extension infrastructure will have a substantial positive impact on development of the Holy Hill Gateway Corridor for both Villages by facilitating development that would otherwise not be possible without sanitary sewer service available.

OVERALL FLOW AND CAPACITY ANALYSIS

With the expanded SSSA broken into the defined basins, tributary areas to each pump station as well as specific points within the sanitary sewer system can be analyzed with respect to current and future theoretical flows. Existing flow data was collected through the Village's SCADA system at each pumping station as well as the metering station just upstream of the connection point to the MMSD. These points were used as analysis or "pour" points for theoretical future flow calculations, as well as other strategic points within the Village's gravity sanitary sewer system. The pour points were chosen based on configuration of sewers, location of pumping stations, and contributory basin delineations. Typically, these points consist of an existing manhole or an existing pumping station. At pumping stations that receive flow from more than one nearby contributory sewer, multiple pour points are utilized to accurately calculate capacity in each contributory sewer. Figure 10 shows a map of the Village's sanitary sewer system with the pour points identified for use in analysis and comparison throughout the system. The map has also been included in Appendix N.

Figure 10 Sanitary Sewer System Map with Flow Analysis Points



In prior steps, theoretical flows were calculated for each analysis basin independently. The individual theoretical flow from each basin can be added to calculate a combined theoretical flow for each "pour" point identified in Figure 10. The calculated theoretical future flow at each pour point can then be compared to sewer and lift station capacities to identify the need for upgrades or improvements to handle development growth within the planning period.

Gravity Sewers

Analysis of the existing capacity of the gravity sanitary sewer system is critical to determine future needs for upsizing of sewers, relief sewers, or other capacity improvements required to serve future planned development. With the Village of Germantown having a single connection discharge point to the MMSD, the analysis is equally important to determine the adequacy of the MMSD's sanitary sewer infrastructure to handle future predicted peak flows originating from Germantown.

At each pour point, a sanitary sewer pipe capacity assessment is made using data derived from the Village of Germantown's GIS as well as as-built information from available construction plans. The capacity is calculated at a point just upstream of the pour point. The following criteria have been assumed for existing sewer capacity calculations:

- "Full" capacity assumes pipe flow of 2/3 full.
- Mannings "N" Value: Concrete Pipe – 0.013, PVC Pipe – 0.011, CIPP Liner - 0.011.
- Length and diameter – From Village GIS.
- Invert Elevations – From GIS or available as-built plans, unknown inverts were assumed to have like slope of adjacent comparable sewers.
- Slope – From actual or assumed inverts.

Capacity is then calculated using the Manning Equation, and the average is taken for 2 or 3 pipe segments upstream of the pour point dependent upon the configuration of the sewers upstream of the pour point. Engineering judgement is used to eliminate anomalies in averaging and take a conservative approach. Any pipe segment having a considerably higher capacity in comparison to an adjacent segment was eliminated from the average. Table 9 below summarizes the existing sewer capacity available and analyzes future capacity using the theoretical flow for the fully developed expanded Germantown SSSA and Richfield IPA.

Table 9 Gravity Sanitary Sewer Hydraulic Capacity Analysis

Pour Point	Theoretical Peak-Hour Flow Rate - Germantown Expanded SSSA (cfs)	Estimated Capacity - Avg. of Applicable Spans (cfs) (2/3 full)	Theoretical Peak-Hour Flow Rate from Richfield Planning Area (cfs)	Theoretical Peak-Hour Flow Rate Including Richfield Planning Area (cfs)	Estimated Remaining Capacity (cfs)	% Remaining Capacity (to 2/3 full)
PS-3	0.80	4.45		0.80	3.65	82.0%
PS-3A	1.62	7.64		1.62	6.02	78.8%
PS-6	3.09	9.23		3.09	6.14	66.5%
PS-7	2.43	5.31		2.43	2.88	54.3%
PS-WW	0.62	2.52		0.62	1.90	75.3%
1	2.56	3.77		2.56	1.21	32.1%
2	5.14	8.33	1.65	6.79	1.54	18.5%
3	7.55	24.75	1.65	9.20	15.55	62.8%
3A	2.82	3.79		2.82	0.97	25.5%
4	14.26	27.62	1.65	15.91	11.70	42.4%
4A	4.95	44.61		4.95	39.66	88.9%
5	20.61	45.15	1.65	22.25	22.90	50.7%
6	24.40	65.49	1.65	26.05	39.44	60.2%
7	4.80	23.02		4.80	18.23	79.2%
7A	1.29	29.69		1.29	28.39	95.6%
MMSD	31.27	63.37	1.65	32.92	30.44	48.0%

Overall, Germantown's sanitary sewer system appears to be adequate to serve the future fully developed and expanded Sanitary Sewer Service Area within the 20-year design period of this plan. Typically, maximum sanitary sewer capacity is based on a 2/3 full flow depth. In Table 9, the remaining capacity is shown as a percentage of two-thirds full flow. In the case of Germantown's sanitary sewer system, none of the existing sanitary sewers are at or above the 2/3 full flow threshold during the theoretical peak-hour flow as calculated based on future land uses and peaking factors in Table 6. Of note, however, are pour points 1, 2, and 3A which are near enough to the threshold to warrant closer future study as development continues in the Village. Any substantial deviations from the land uses, densities, or SSSA used for flow and capacity calculations herein could impact sewers at these locations and render their capacity inadequate.

Pumping Stations

Like the sanitary sewer pipe capacity analysis, an analysis of the existing pumping stations is equally critical to determine the need for future capacity upgrades. Using the theoretical flows calculated for each Basin in Table 6, we can aggregate the flow from each basin that is tributary to a particular pumping station. Table 10 calculates the total flow to each lift station by summing the individual basin flows tributary to the respective lift station. This method allows a clear picture of which basins flow to any individual lift station, including wastewater that is conveyed by more than one pumping station.

Table 10 Pumping Station Aggregate Peak Hour Theoretical Future Flow (GPM)

Analysis Basin Name	Pumping Station (Flow in GPM)					
	PS-3	PS-6	PS-7	PS-WW	Main St	Old Farm
Gateway Central					449	449
Gateway East					333	333
Gateway North					326	326
Gateway South					907	907
Isabelle Farms					40	40
Main Street Central					1,083	1,083
Main Street East					1,266	1,266
Main Street West					250	250
Old Farm North						659
Old Farm South						834
Pump Station 3	1,086	1,086				1,086
Pump Station 6		302				302
Pump Station 7			1,090			1,090
Wrenwood				280		
Total Aggregate	1,086	1,388	1,090	280	4,654	8,624

The analysis basins that do not contribute flow to any existing pumping station have been omitted from Table 10. Flow from the Richfield IPA is also omitted in this calculation and will be added incrementally to the further capacity analysis. The summation for "Total Aggregate" is the theoretical peak-hour flow at each pumping station. This peak-hour flow is used in Table 12 as the basis for pumping station capacity analysis. Table 11 adds the Richfield IPA theoretical flow incrementally and then compares future theoretical flow to the existing pumping station capacities.

Table 11 Sanitary Sewer Pumping Station Capacity Analysis

Existing Pump Station	Theoretical Peak-Hour Flow Rate into Pump Station - Germantown Expanded SSSA (GPM)	Existing Maximum Capacity of Pump Station (GPM)	Theoretical Peak-Hour Flow Rate from Richfield Planning Area (GPM)	Theoretical Peak-Hour Flow Rate Including Richfield Planning Area (GPM)	Estimated Remaining Capacity (GPM)	% Capacity Utilized
PS-3	1,086	310		1,086	-776	350.3%
PS-6	1,388	950		1,388	-438	146.1%
PS-7	1,090	1,300		1,090	210	83.8%
Wrenwood	280	410		280	130	68.2%
Main Street	4,654	6,250	740	5,394	856	86.3%
Old Farm	8,624	7,400	740	9,364	-1,964	126.5%

At the 20-year design period, assuming a fully developed condition in the existing and expanded SSSA including the Richfield IPA, the Village's pumping stations will very likely need major upgrades to provide adequate capacity for the predicted development. The typical threshold for action is at 80% of existing capacity utilized for a pump station. At the 80% threshold, a plan should be put in motion for upgrades to existing pump stations, new pump stations, or relief sewers to increase pump station capacities or reduce the amount of flow into the pump station.

In the Village of Germantown, the theoretical peak-hour flow for the future fully developed condition predicts all but one of the existing pump stations to exceed the 80% threshold. PS-3, PS-6, and Old Farm pump stations far exceed 100% of their existing capacity, indicating that the Village needs a plan in place for major upgrades or additions to the pumping station infrastructure to accommodate future development. These upgrades and additions are detailed in the alternatives analysis portion of this report.

ALTERNATIVES ANALYSIS

After analyzing the sanitary system flow and capacity in both gravity sanitary sewers and pump stations, a high-level analysis can be conducted for various options to improve capacity in areas of need to accommodate future development within the expanded SSSA and Richfield IPA.

Existing Gravity Sanitary Sewer System

Overall, the Village of Germantown's existing gravity sanitary system has adequate capacity to support future development as theorized in this Facilities Plan. Significant variations from the assumed future land use, population, and SSSA used for calculations in this study may require more in-depth analysis to determine impacts to the capacity needs of the sanitary sewer system. In addition, any new single point users consuming significant capacity will need to be accounted for in addition to the results shown in this Facilities Plan. Because the existing gravity sanitary sewers can adequately support future growth in the Village of Germantown, no analysis of alternatives for relay or relief sewers has been completed within this study.

Existing Pump Stations

As mentioned in the flow and capacity analysis section of this report, there appears to be a substantial future weak point in the Village's existing pump stations with respect to future capacity needs. Having a plan in place to reconstruct or upgrade these pump stations is critical to keeping the overall sanitary sewer system on pace with the anticipated future development in the Village and in Richfield. Alternatives presented in this Facilities Plan have been analyzed for feasibility and favorability factors at a high level.

As the Village continues to pursue these alternatives, more in-depth design and study will be needed to thoroughly detail and choose the most favorable alternatives.

Future capacity need for each pump station is sized based on setting the 80% threshold at the theoretical peak hour flow. This provides a 20% buffer of utilized capacity versus maximum capacity.

Pump Stations #3 & #6 – Alternative A (PS 3) – Upgrade of PS #3 from an existing capacity of 310 GPM to a future capacity need of 1,086 GPM would require two new 1,086 GPM pumps, new station discharge piping, new valves, a new standby generator and new controls with pump motor variable frequency drives (VFDs), and replacement of the existing 6" force main with approximately 3,200 LF of new 10" force main. It is assumed that a new building would be required for the generator, controls, and valves. It is assumed the existing wet well could accommodate the proposed upgrades with the incorporation of pump motor VFDs.

Alternative A (PS 6) – Upgrade of PS #6 from an existing capacity of 950 GPM to a future capacity need of 1,388 GPM would need to be done in tandem with upgrades to PS #3, as PS #6 is immediately downstream of the discharge point for PS #3. The existing 10" force main for PS #6 can accommodate a maximum capacity of 1,500 GPM. Upgrades to PS #6 would require two new 1,388 GPM submersible pumps, new station discharge piping, new valves, a new standby generator, and new controls with pump motor variable frequency drives. The station is a dry well/wet well station with the dry well consisting of a buried steel chamber housing the suction and discharge piping, valves, fittings, pumps, electrical components, and controls. The chamber is crowded and there is not space for larger piping, valves, and pumps. It is assumed that the station would be converted to a submersible style. It is assumed the existing wet well could accommodate the proposed upgrades with the incorporation of pump motor VFDs. A new building would be required for the generator, controls, and valves.

PS #6 is located on a relatively small parcel of land near the Menomonee River, so expansion of the station with the upgrades described may not be a viable alternative.

Alternative B (PS 3/6) – A more favorable alternative to the Village may be consolidation of PS #3 and #6 into one single pumping station. The proximity to one another creates an ideal opportunity to consolidate the two stations into one. In this alternative, land acquisition would likely be necessary to construct a new pumping station to replace existing PS #6. The Village has discussed utilizing the vacant commercial property just to the west of PS #6 for this purpose. A new pumping station of approximately 1,500 GPM capacity with submersible pumps, backup generator and control building, and valve building would be constructed in the vicinity of the existing PS #6. The existing 10" force main could be extended to the new pump station location and reused.

Elimination of PS #3 would then be possible by installation of approximately 3,400 LF of 18" sanitary sewer from the new pump station location along the path of existing 8" sanitary sewer west on County Line Road and then northwest along Appleton Avenue to connect to an existing 18" sanitary sewer that flows into PS #3. The new sewer installation would range in depth from 15-feet to 25-feet.

While the complexity and expense of this alternative may be greater than other alternatives for PS #3 and PS #6, there is considerable value in eliminating ongoing maintenance and operating costs with consolidation of the two pumping stations to one new reliable station.

Pump Station #7 – Alternative A (PS 7) – At the future theoretical peak-hour flow of 1,090 GPM, PS #7 will still be under its maximum capacity of 1,300 GPM. The predicted future utilized capacity is just over the 80% threshold at 83.8%. As development of the tributary basin for PS #7 happens, detailed data should be collected and monitored to see if peak-hour flow rates begin to approach the 80% threshold. As land uses, developments, and consumers may change from the predicted conditions, the peak-hour flow may or may not ever reach a threshold critical for upgrades. If PS #7 needed to be upgraded, it is feasible to expand the capacity to 1,750 GPM using the existing 12" force main and upgrading the three existing submersible pumps to 875 GPM each. A detailed analysis would have to be done to determine if the

existing 125kW standby generator would have to be replaced. For the purpose of this study, it is assumed the generator would not have to be replaced.

A secondary alternative for PS #7 has not been analyzed as this alternative is very likely to be the preferred alternative in this scenario.

Main Street Pumping Station – The Main Street Pumping Station is a major part of the sanitary sewer infrastructure in the Village. This pumping station is expected to convey approximately 40% of the Village's peak-hour flow in the future fully developed land use condition. At the future theoretical peak-hour flow of 5,394 GPM, the Main Street PS will still be under its existing maximum capacity of 6,250 GPM. It should be noted that the existing maximum capacity of 6,250 GPM creates a velocity greater than 6 feet per second in the existing 16-inch force main. Velocities greater than 6 feet per second can cause undesirable pressure transients in the force main and ultimately lead to catastrophic failure. A detailed pressure transient analysis is recommended for any peak flow at the Main Street PS more than 4,100 GPM.

The predicted future utilized capacity is over the 80% threshold, however, at 86.3%. This utilized capacity is based on the maximum capacity of 6,250 GPM. If the velocity limitation is used as the governing factor, the Main Street PS is 31.5% over the 4,100 GPM capacity determined in the prior R/M Lift Station Study report. This is cause for concern as a large portion of the tributary area to the Main Street PS is yet to be developed, so any deviations to the predicted land use, developments, and consumers could easily have an adverse impact on available capacity.

Alternative A(MS) – To increase the available capacity at the Main Street PS, velocities in the existing 16-inch force main would need to exceed the recommended 6 feet per second threshold. Installation of a new larger force main or a parallel force main would be needed to reduce total dynamic head (TDH) and maintain acceptable velocities in the force main.

To increase the capacity to meet future demand, approximately 2,650 LF of new parallel 14-inch force main could be installed along the path of the existing 16-inch force main. The reduction in TDH would provide adequate capacity for peak-flow events. The parallel force main would also provide redundancy in the event of maintenance or repairs on one of the two parallel lines. If this alternative were chosen, it would also be recommended to assess the structural condition of the existing 16-inch force main due to its age of approximately 37 years.

In conjunction with the installation of the new parallel force main, the existing force main could be rehabilitated with Cured-In-Place Pipe to extend its lifespan without the cost of full replacement. This alternative would likely be feasible without major upgrades to the wet well, pumps, generator, and controls unless otherwise desired by the Village. There would be miscellaneous upgrades to the station required to update the HVAC, plumbing, and to replace the bridge crane.

Alternative B(MS) – For comparative purposes, the Village could potentially replace the Main Street PS with a new PS with a capacity of approximately 5,400 GPM. While this would bear greater cost and complexity, it is a viable alternative given the availability of open space in the vicinity of the existing Main Street PS. A new pumping station would still require a new, larger force main, or similar parallel arrangement as described in Alternative A.

Old Farm Pumping Station – The Old Farm Pumping Station is the largest pumping station within the Village's sanitary sewer system. This pumping station is expected to convey approximately 67% of the Village's peak-hour flow in the future fully developed land use condition. The future theoretical peak-hour flow of 9,364 GPM will exceed Old Farm's maximum capacity of 7,400 GPM by 26.5%. It should be noted that the existing maximum capacity of 7,400 GPM creates a velocity greater than 6 feet per second in the existing 20-inch force main. Velocities greater than 6 feet per second can cause undesirable pressure transients in the force main and ultimately lead to catastrophic failure. A detailed pressure transient analysis is recommended for any peak flow at the Old Farm PS more than 6,300 GPM.

Alternative A (OF) – To increase the available capacity at the Old Farm PS, velocities in the existing 20-inch force main would need to exceed the recommended 6 feet per second threshold. Installation of a new larger force main or a parallel force main would be needed to reduce total dynamic head (TDH) and maintain acceptable velocities in both force mains while increasing the capacity to meet demand.

Approximately 4,400 LF of new parallel 16-inch force main could be installed along the path of the existing 20-inch force main. The parallel force main would also provide redundancy in the event of maintenance or repairs on one of the two parallel lines. If this alternative were chosen, it would also be recommended to assess the structural condition of the existing 20-inch force main due to its age of approximately 37 years. In conjunction with the installation of the new parallel force main, the existing force main could be rehabilitated with Cured-In-Place Pipe to extend its lifespan without the cost of full replacement.

In addition to a parallel force main, this alternative may require upgrades to the pumping station itself including three larger pumps and motors, larger suction piping, and a larger generator. Other miscellaneous upgrades to the station would be required to upgrade the HVAC, plumbing, and to replace the bridge crane. A detailed investigation would be needed to determine the feasibility of installing these upgrades within the existing building configuration. It is assumed that the existing wet well could be reused with the use of pump motor VFDs. This would have to be confirmed with a detailed analysis.

Alternative B (OF) – For comparative purposes, the Village could potentially replace the Old Farm PS with a new PS with a capacity of approximately 9,400 GPM. This alternative would be the most expensive option by far, but it is a viable alternative given the availability of open space in the vicinity of the existing Old Farm PS. A new pumping station would still require a new, larger force main, or similar parallel arrangement as described in Alternative A.

Sanitary Sewer System Extensions & Expansion

For unsewered areas within the existing SSSA and areas to be added in the full SSSA amendment, sanitary sewer extensions will be required to offer sanitary sewer service to development within those areas. A preliminary general route and design has been analyzed for each of these areas based on each Analysis Basin used for flow calculation in earlier steps. The analysis determines where any new pumping stations may need to be constructed as well as the general route and feasibility of construction for sewers anticipated to be 12 inches in diameter or greater. Unsewered areas in the existing and expanded SSSA anticipated to be served by sewers less than 12 inches in diameter have not been analyzed for construction feasibility or costs for new sewers within this report. Unsewered or expanded basins anticipated to require a new pumping station to be served in the future have been analyzed at a high level for general placement and size of the pumping station.

Appendices O and P show layouts, locations, and general design of sewer extensions and pump stations in various basins as detailed below:

Country Aire Basin – A new pumping station would likely be needed to expand sanitary sewer service to this undeveloped basin. Topography limits the extension of gravity sewers into this basin, so a pumping station could be installed near the local low point within the basin on Country Aire Drive approximately 1,000 feet south of Freistadt Road. The pumping station would need a maximum capacity of approximately 30 GPM and would discharge through 2,100 LF of 4-inch force main to the south on Country Aire Drive. These proposed improvements are shown in Appendix O. With low predicted flow in this basin, the Village could also explore the option of publicly or privately owned individual grinder pumps and low-pressure sewers for properties developed within the basin.

Wrenwood Basin – This basin is partially developed and served by the Wrenwood PS. The portion of this basin that is currently undeveloped can be served by the existing Wrenwood PS with extended sanitary trunk sewers. Extension of approximately 2,300 LF of 12-inch diameter sanitary sewer, varying in depth from 12 to 29 feet, from the existing Wrenwood PS to the north could serve the future development within this basin. These proposed improvements are shown in Appendix O.

Interceptor Gravity 4 Basin – This basin is mostly developed with the majority being low-density residential homes currently served by septic systems. Extension of approximately 4,000 LF of 12-inch diameter sanitary sewer, varying in depth from 15 to 40 feet, could serve the entire basin and allow for future SSSA expansion to areas north of the basin. A 24-inch interceptor installed in 2019 offers a connection point on Mequon Road which would ultimately flow by gravity to the Village's 48-inch interceptor sewer. These proposed improvements are shown in Appendix O.

Gateway North Basin – A new pumping station would likely be needed to expand sanitary sewer service into this undeveloped basin. Topography limits the extension of gravity sewers in this area, so a pumping station could be constructed at the far northwest corner of the basin. The pumping station would need a maximum capacity of approximately 350 GPM and would discharge through 1,600 LF of 6-inch force main to the south and east on Rockfield Road. From the discharge point of the 6-inch force main, 1,400 LF of 12-inch gravity sewer would need to be constructed in Rockfield Road to a connection point to the east at Gateway crossing. In addition, approximately 6,500 LF of 12-inch trunk sanitary sewer, varying in depth from 10 to 27 feet, would be installed from the new pumping station to the east along the northern border of the basin to serve the development within. These proposed improvements are shown in Appendix P.

Gateway East Basin – This undeveloped basin can utilize existing sanitary sewers in Goldendale Road to serve future development primarily by gravity. Serving this basin would include construction of approximately 1,300 LF of 15-inch and 8,700 LF of 12" trunk sanitary sewer, varying in depth from 16' to 30' starting at the connection point in Goldendale Road and routing two branches to the north and east. It may be possible to reduce the sewer depth in certain areas depending upon the configuration of future developments. These proposed improvements are shown in Appendix P.

Isabelle Farms Basin – This basin has some low-density residential development currently served by septic systems, as well as some undeveloped areas. A new pumping station would likely be needed to expand sanitary sewer service to this basin. Topography limits the extension of gravity sewers into this basin, so a pumping station could be installed near the local low point within the basin on Maple Road approximately 1,200 feet south of Holy Hill Road. The pumping station would need a maximum capacity of approximately 40 GPM and would discharge through 3,000 LF of 4-inch force main to gravity sewers constructed within the Gateway East Basin. These proposed improvements are shown in Appendix O. With low predicted flow in this basin, the Village could also explore the option of publicly or privately owned individual grinder pumps and low-pressure sewers for properties developed within the basin.

Cost Analysis for Alternatives

After determining viable needed upgrades and extensions to serve future demands, estimated costs associated with the alternatives for improvements to existing Village sanitary sewer infrastructure are summarized in Table 12. Estimated costs for extensions and new infrastructure to support future development are summarized in Table 13. These costs are presented in today's dollars using the cost estimating methodology described previously within this report. These estimates include a 30% engineering and contingency to account for modest price increases, engineering design, and engineering construction administration. The estimates do not account for land acquisition costs, environmental remediation, or ancillary utility relocations.

Table 12 Cost Estimate for Potential Improvements to Existing Infrastructure

Alternative	Improvement	Unit	Quantity	Unit Price	Cost
Pump Stations #3 and #6					
A (PS 3)	Replacement station with new 1,086 gpm pumps, piping, new generator, valves, electrical and controls.	EA	1	\$900,000	\$900,000
	New 10" Force Main	LF	3,200	\$265	\$848,000
A (PS 6)	Replacement station with new 1,388 gpm pumps, piping, generator, valves, electrical and controls all inside new building.	EA	1	\$1,820,000	\$1,820,000
Alternative A Total					\$3,568,000
B (PS 3/6)	Full Reconstruction of PS #6	LS	1	\$1,950,000	\$1,950,000
	18" Sanitary Sewer to Eliminate PS #3	LF	3,400	\$900	\$3,060,000
Alternative B Total					\$5,010,000
Pump Station #7					
A (PS 7)	875 GPM Submersible Pump Upgrade	EA	3	\$45,000	\$135,000
Alternative A Total					\$135,000
Main Street Pump Station					
A (MS)	Addition of Parallel 14" Force Main	LF	2,650	\$410	\$1,086,500
	CIPP Rehabilitation of 16" Force Main	LF	2,650	\$200	\$530,000
	Miscellaneous Upgrades to MS PS	LS	1	\$500,000	\$500,000
Alternative A Total					\$2,116,500
B (MS)	Full Reconstruction of MS PS	LS	1	\$6,100,000	\$6,100,000
	Addition of Parallel 14" Force Main	LF	2,650	\$420	\$1,113,000
	CIPP Rehabilitation of 16" Force Main	LF	2,650	\$200	\$530,000
Alternative B Total					\$7,743,000
Old Farm Pump Station					
A (MS)	Addition of Parallel 16" Force Main	LF	4,400	\$440	\$1,936,000
	CIPP Rehabilitation of 20" Force Main	LF	4,400	\$250	\$1,100,000
	Pump and Motor Upgrade	EA	3	\$110,000	\$330,000
	Generator Upgrade	LS	1	\$450,000	\$450,000
	Suction Piping Upgrade	LS	1	\$150,000	\$150,000
	Miscellaneous Upgrades to OF PS	LS	1	\$500,000	\$500,000
Alternative A Total					\$4,466,000
B (MS)	Full Reconstruction of OF PS	LS	1	\$8,060,000	\$8,060,000
	Addition of Parallel 16" Force Main	LF	4,400	\$440	\$1,936,000
	CIPP Rehabilitation of 20" Force Main	LF	4,400	\$250	\$1,100,000
Alternative B Total					\$11,096,000

Table 13 Cost Estimate for Potential New Infrastructure for Future Development

	Improvement	Unit	Quantity	Unit Price	Cost
Country Aire Basin					
	200 GPM Pumping Station	LS	1	\$750,000	\$750,000
	4" Force Main	LF	2,100	\$120	\$252,000
Country Aire Basin Total					\$1,002,000
Wrenwood Basin					
	12" Sanitary Sewer, 12'-29' depth	LF	2,300	\$650	\$1,495,000
Wrenwood Basin Total					\$1,495,000
Interceptor Gravity 4 Basin					
	12" Sanitary Sewer, 12'-40' depth	LF	4,000	\$800	\$3,200,000
Interceptor Gravity 4 Basin Total					\$3,200,000
Gateway North Basin					
	350 GPM Pumping Station	LS	1	\$925,000	\$925,000
	6" Force Main	LF	1,600	\$150	\$240,000
	12" Sanitary Sewer - Rockfield Road	LF	1,400	\$400	\$560,000
	12" Sanitary Sewer - 10'-27' depth	LF	6,500	\$650	\$4,225,000
Gateway North Basin Total					\$5,950,000
Gateway East Basin					
	15" Sanitary Sewer - 20' depth	LF	1,300	\$700	\$910,000
	12" Sanitary Sewer - 16'-30' depth	LF	8,700	\$650	\$5,655,000
Gateway North Basin Total					\$6,565,000
Isabelle Farms Basin					
	200 GPM Pumping Station	LS	1	\$750,000	\$750,000
	4" Force Main	LF	3,000	\$120	\$360,000
Isabelle Farms Basin Total					\$1,110,000

SUMMARY OF ALTERNATIVES AND IMPLEMENTATION

Through the data collection and analysis in this Facilities Plan, the Village of Germantown's future sanitary sewer infrastructure needs have been identified in detail, as well as feasible alternatives to meet these needs. With the addition of the Richfield IPA to Germantown's existing SSSA and subsequent development in those areas, the needs associated with the Germantown/Richfield connection are most critical in the near term.

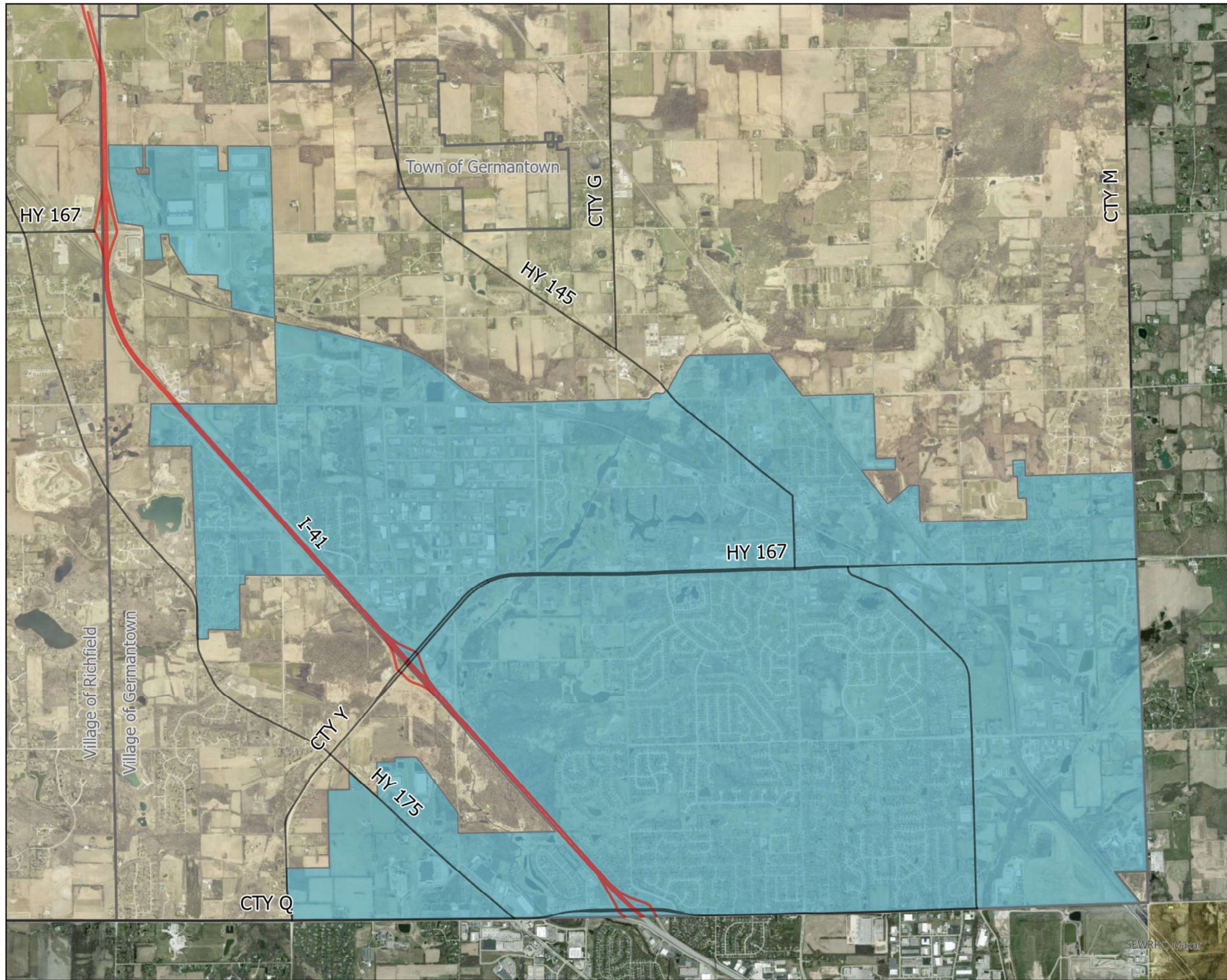
The most critical of these needs appear to be within the Village's two main pump stations, Main Street and Old Farm. With the bulk of near-term development likely within basins tributary to these two pump stations, measures should be taken as soon as possible to investigate the alternatives in detail so that plans for construction of upgrades and new facilities can take place well in advance of capacity issues. As development continues coincident with planning, design, and construction for capacity upgrades, the Main Street and Old Farm pump stations can be ready for increased capacity before reaching a critical point.

Pump stations #3, #6, and #7 are less critical for immediate analysis and planning, as their tributary basins are less likely to see considerable development in the near-term basis. In these basins, the Village can monitor the future potential for development and institute measures for detailed investigation of capacity upgrades as development proceeds.

The needs for new infrastructure in unsewered areas can be further assessed as proposals for development within those basins are brought to the Village. The new infrastructure in the unsewered basins identified in the alternatives analysis is not critical to development in the Village at this time.

The costs associated with construction of new sanitary sewers to connect Richfield are to be paid by Richfield per the IGA between the two municipalities. Costs associated with upgrades or capacity expansion of Germantown's existing sanitary sewer infrastructure will be the responsibility of Germantown. For improvements to existing infrastructure, the Village may be able to take advantage of low-interest Clean Water Fund loans or Bonds typical to municipal infrastructure projects. For new infrastructure, the Village may be able to defray all or a portion of the cost for sewer service extensions to the development entity proposing and construction the new developments in those areas.

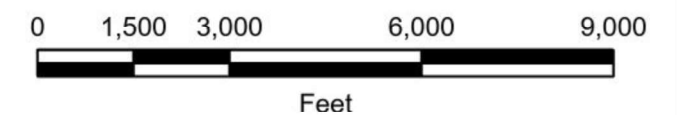
Appendix A – Village of Germantown Existing Sanitary Sewer Service Area Map



Existing Sanitary Sewer
Service Area

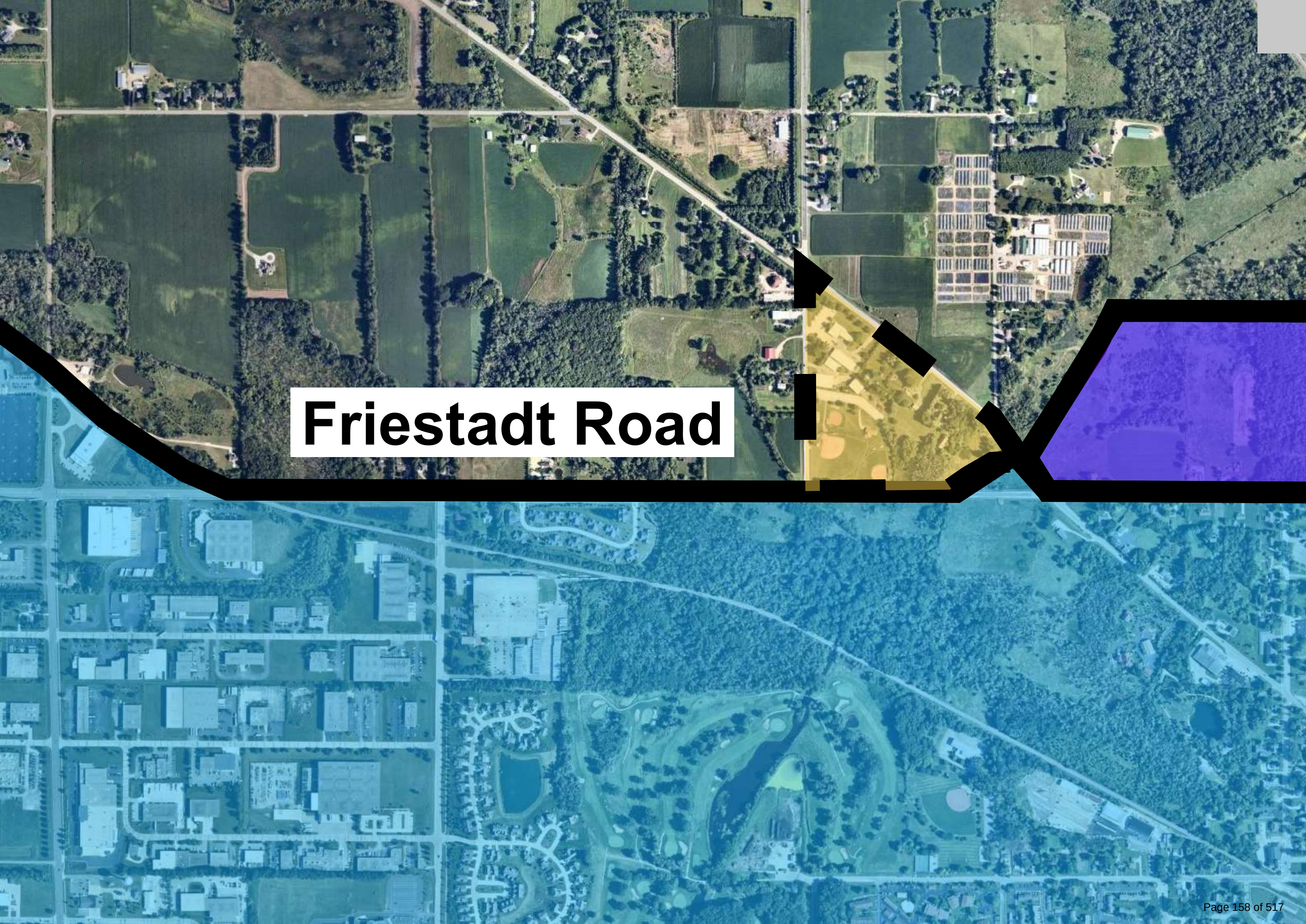
Village of
Germantown, WI

 = Sanitary Sewer Service Area



 **Ruekert • Mielke**

Appendix B – 2050 Full Sanitary Sewer Service Area Amendment Map



The image is an aerial photograph of a suburban area. A road, labeled 'Friestadt Road', runs diagonally from the top left towards the bottom right. To the right of this road, there is a large, rectangular area highlighted in yellow. Further to the right, there is a large, irregularly shaped area highlighted in purple. A thick black line runs along the left side of the yellow area. A thick black arrow points from the yellow area towards the purple area. The text 'Friestadt Road' is written in a white box with a black border, positioned over the road. The bottom of the image is a blue-tinted aerial view of a residential area with many houses and streets.

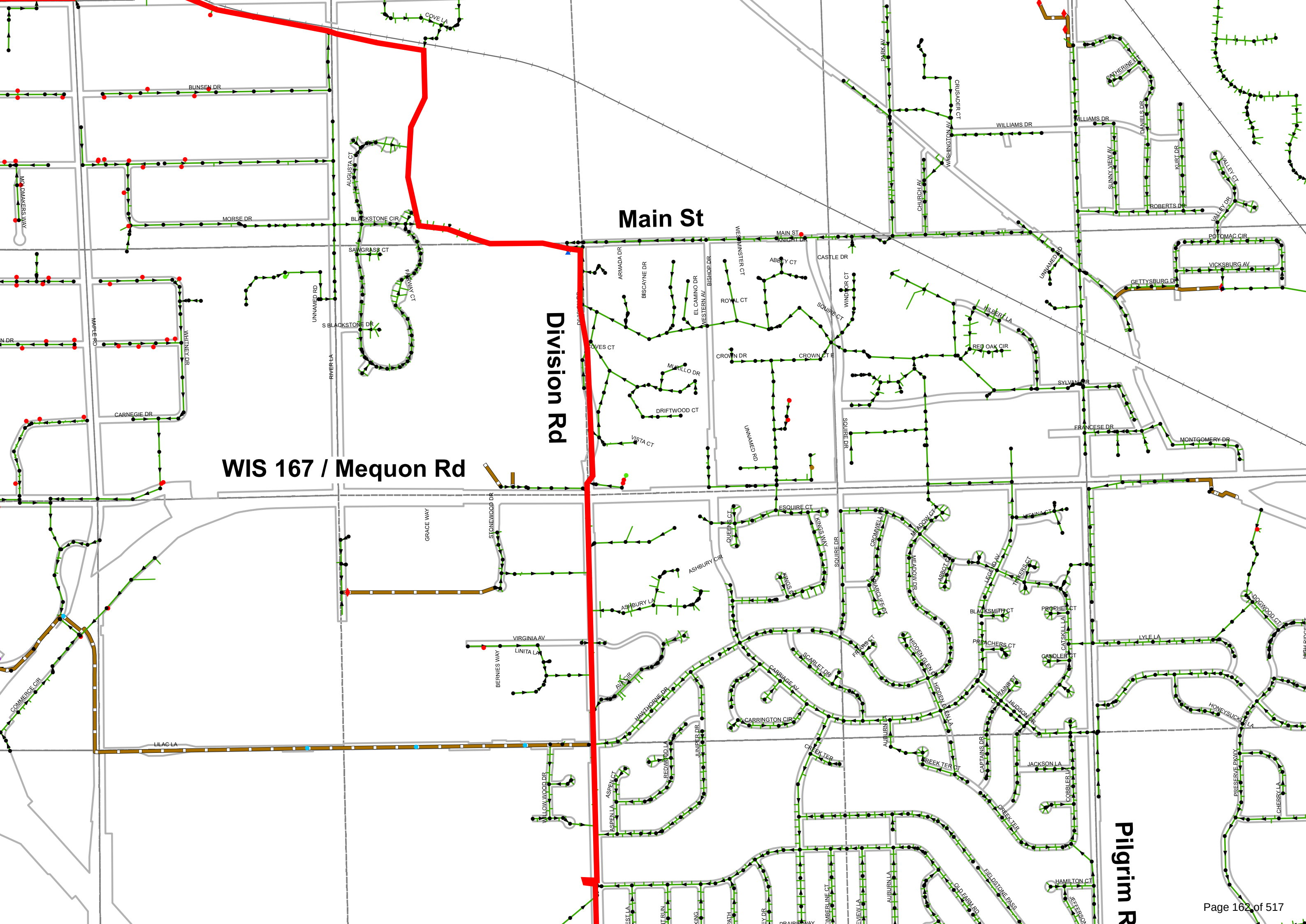
Friestadt Road

Appendix C – Village of Richfield Incremental Planning Area Map

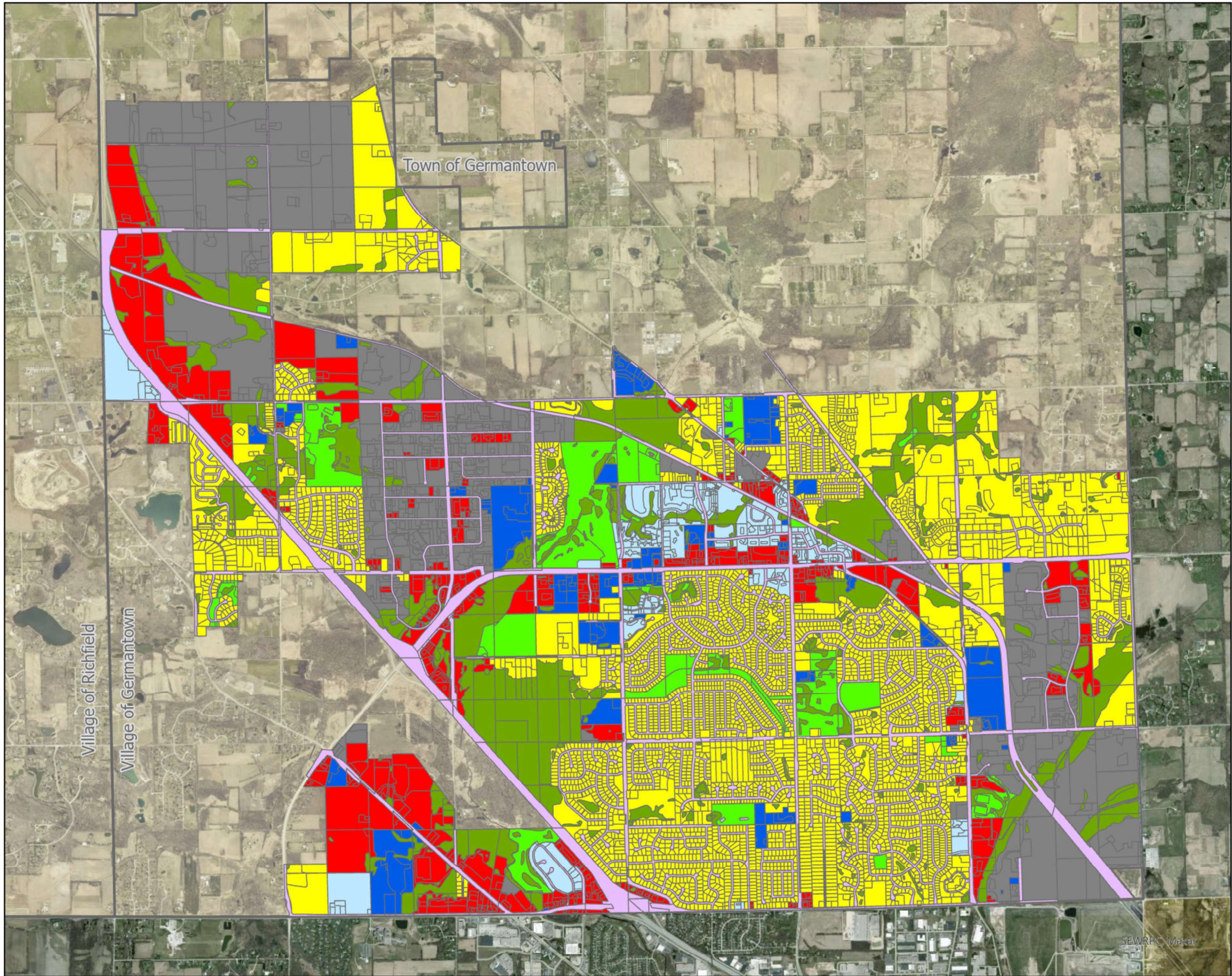
An aerial photograph showing a suburban landscape. A horizontal road, labeled 'Friestadt Road', runs across the middle. To the left of the road is a large, dark-roofed industrial building. To the right is a large, rectangular solar farm. Below the road, there's a residential area with many houses, followed by a golf course with a prominent pond and a baseball field. The background consists of green fields and more trees.

Friestadt Road

Appendix D – Village of Germantown Sanitary Sewer System Map



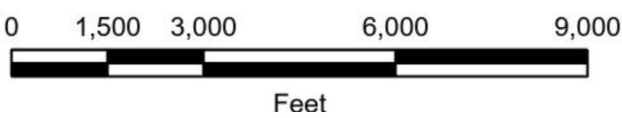
Appendix E – Village of Germantown Future Land Use Map



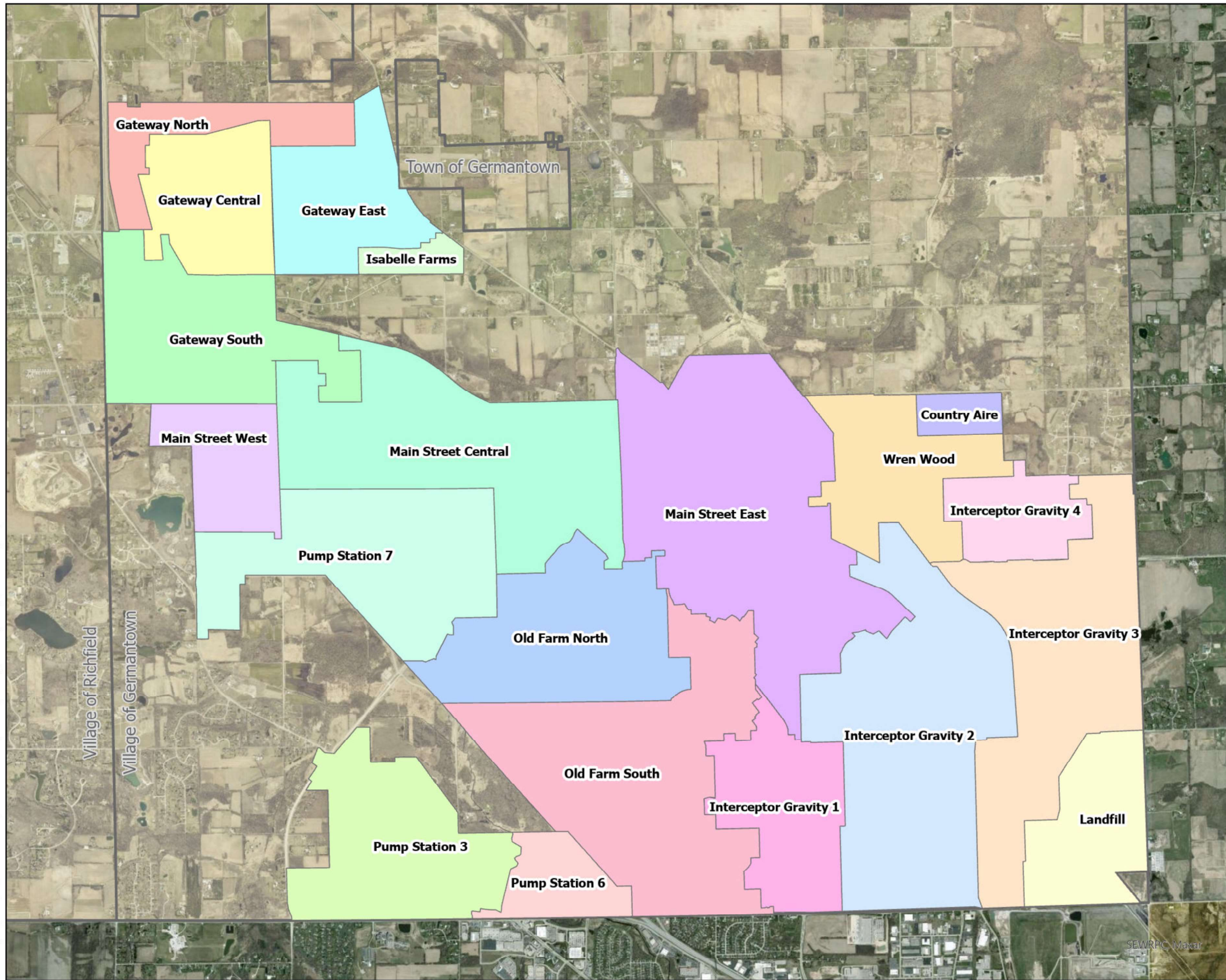
Future Land Use

Village of
Germantown, WI

- Single Family
- Multi Family
- Commercial
- Institutional
- Industrial
- Recreational
- Wetlands
- Right-of-Way



Appendix F – Sanitary Sewer Analysis Basin Map



Pump Station Basins

Village of
Germantown, WI



 Ruekert • Mielke

Appendix G – Richfield Incremental Planning Area Topographical Map



Appendix H – Richfield Incremental Planning Area Soils Type Map



AICHER LA

MoB

HmC2

DdB

WOODSIDE LA

POLK ST

OU D2

HY 115

RAILROAD ST

ThB2

DEPOT ST

RaA

LmA

HmB2

HmD2

ORCHARD ST

SVD2

ELM ST

MoB

ThB2

RICHFIELD SERVICE DR

Ph

HmC2

MoB

ThC2

WOLF RD

Appendix I – Richfield Incremental Planning Area FEMA Floodplain and Wetlands Map



AICHER LA

WOODSIDE LA

POLK ST

RAILROAD ST

HY 175

DEPOT ST

ORCHARD ST

ELM ST

RICHFIELD SERVICE DR

WOLF RD

Appendix J – Richfield Incremental Planning Area Environmental Review

The overall site is comprised of a large planning area to the east of the Town of Germantown, Washington County, Wisconsin.

General project location lat/long: 43.25828, -88.19166 (center), bounded by 43.26548, -88.20209; 43.26533, -88.18172; 43.25082, -88.20214; 43.25061, -88.18193.

Section / Township / Range: S12 T09N R19E

During the preliminary environmental screening, the following environmentally sensitive resources and assumptions were assessed:

- Presence of wetland and waterway features,
- Presence of 303d impaired waterways,
- Presence of areas of special natural resource interest,
- Documented wetland and waterway disturbance permits,
- Presence of FEMA floodplains, floodways and flood fringe,
- Presence of WDNR Bureau of Remediation and Reclamation (BRR) Sites,
- Presence of Solid and Hazardous Waste Information System (SHWIMS) Sites,
- Presence of Shoreland Zoning,
- Presence of Planned or Existing County Trails,
- Presence of National Register of Historic Places,
- Presence of United States Department of Agriculture Drainage Districts, and
- Potential presence of Threatened and Endangered Species.

A summary of findings is described below.

Wetlands and Waterways

The WDNR Surface Water Data Viewer (SWDV) was accessed. Throughout the planning area, there are multiple wetland and waterway complexes. Wisconsin Wetland Inventory (WWI) listed wetlands include: Emergent/wet meadow, Flats/unvegetated wet soil, Forested, and open water. The WWI also lists five unnamed waterways, three first order, and two second order waterways and three waterbodies. No features within the study area were identified as 303d impaired or are designated as an area of special natural resource interest.

The SWDV maintains a list of permitted activities and informal decisions held by the WDNR. Please refer to Table 1 below for a summary of WDNR actions.

Table 1. WDNR Actions

Permit ID	Docket Number	Applicant	Permit Date	Activity	Permit Decision
6076221	GP-SE-2019-67-01338	Koehnke	5/29/2019	Wetland Fill - Residential/Commercial/Industrial	A - Approved
5013080	IP-SE-2007-67-0439	Riverwoods Parkway Group, LLC	12/12/2007	Wetland WQC (Federal)	A - Approved
5013081	GP-SE-2007-67-0440MW	Riverwoods Parkway Group, LLC	12/12/2007	Pond-stormwater	A - Approved
5013082	GP-SE-2007-67-0441MW	Riverwoods Parkway Group, LLC	12/12/2007	Pond-stormwater	A - Approved

Permit ID	Docket Number	Applicant	Permit Date	Activity	Permit Decision
5013083	GP-SE-2007-67-0442MW	Riverwoods Parkway Group, LLC	12/12/2007	Pond-stormwater	A - Approved
5013084	GP-SE-2007-67-0443MW	Riverwoods Parkway Group, LLC	12/12/2007	Culvert w/o engineering	A - Approved
5013085	GP-SE-2007-67-0444MW	Riverwoods Parkway Group, LLC	12/12/2007	Culvert w/o engineering	A - Approved
N/A	INF-SE-2006-67-1046	Baudhuin Incorporated	10/26/2006	Shoreland Zoning	N/A
N/A	INF-SE-2007-67-0354	J.D. Knowles	5/29/2007	Ordinary High Water Mark Determination	N/A
N/A	INF-SE-2005-67-1088	Bauduin Inc	9/27/2005	Jurisdictional Determination	N/A
N/A	INF-SE-2005-67-0987	Northern Lakes Development	9/12/2005	Wetland Delineation	N/A

Please note, this is not representative of all possible wetlands and waterways within the project area. Refer to Figures 1, 2, and 3.

FEMA Floodplains, Floodways and Flood fringe

The presence of FEMA designated floodplains, floodways and flood fringe were assessed for the study area. A study was conducted for the waterway in the northeast corner of the study area. The FEMA panels included in the study area are 55131C0264E effective 2/25/2022 and 55131C0268E effective 2/25/2022. Within panel 55131C0268E there are areas designated as Zone A and Zone AE.

Refer to Figure 4.

Bureau of Remediation and Reclamation and Solid and Hazardous Waste Information System

The Bureau of Remediation and Reclamation, and the Solid and Hazardous Waste Information System were assessed for the study area. There are multiple open and closed sites with continuing obligations present throughout the study area. Care needs to be taken when considering impacting listed sites.

Table 2. Known BRRS Sites

DNR BRRS #	Site Status	Site Name	Facility ID #	Start Date / End Date	Has Continuing Obligations (Yes/No)	X Coordinate (m, WTM91)	Y Coordinate (m, WTM91)
0367563012	Open	WI DOT Kosterman Parcel	267200120	12/16/2014 / N/A	N/A	666007	311840
0267578745	Open	Laubenheimers Garage**	267032480	2/3/2017 / N/A	N/A	666605	310833
0367107634	Closed	Wolf Brothers Fuel Inc	267056130	7/9/1996 / 6/5/2000	Y	666381	311217.7
0367168387	Closed	White, Robert Property	267162500	7/23/1997 / 11/20/2003	Y	665929	311161

DNR BRRTS #	Site Status	Site Name	Facility ID #	Start Date / End Date	Has Continuing Obligations (Yes/No)	X Coordinate (m, WTM91)	Y Coordinate (m, WTM91)
0367201172	Closed	Richfield Truck Stop	267026760	9/21/1998 / 3/20/2000	N	667398.7	310323.7
0367004277	Closed	Laubenheimers Garage**	267032480	6/13/1994 / 12/12/2017	Y	666586.3	310844.7
0367001520	Closed	Gotez Garage	267032700	4/22/1991 / 6/8/2018	Y	666878.6	310283.4
0367246102	Closed	Craden MFG Inc	267064930	3/10/2000 / 6/19/2009	N	666423.3	311115.7
0367583781	Closed	Richfield Truck Stop	267026760	5/20/2019 / 6/17/2019	N	667423.9	310343.3
0367585483	Closed	Exxon Richfield Truckstop Proposed KT 1013	267026760	12/16/2019 / 12/16/2019	N	667410.1	310366.7
0367000546	Closed	Richfield Truck Stop	267026760	12/29/1989 / 11/9/2012	Y	667412.5	310370.5
0367005194	Closed	Richfield Service	267150400	3/25/1995 / 10/21/2009	Y	667387	310212
** LAUBENHEIMERS GARAGE has been identified as impacting another property.							

Additionally, the study area was examined using the WDNR Solid and Hazardous Waste Information System (SHWIMS). This system provides access to information on sites, and facilities operating at sites, that are regulated by the Wisconsin DNR Waste and Materials Management (WMM) program. The following sites were identified within the study area:

Table 3. SHWIMS Sites

Status	Facility Name	Address	FID	Region
Operating	Craden MFG Inc	1961 STH 175	267064930	Southeast
Closed	Johnson Equipment	1704 STH 175	267032700	Southeast
Closed	Richfield Truck Stop	2900 STH 167	267026760	Southeast

Refer to Figure 5 and the SHWIMS Database Export.

Shoreland Zoning

The presence of shoreland zones were assessed for the study area. No known shoreland zones are provided by the Washington County GIS viewer. The Village of Germantown Code of Ordinance No. 24.04, defines the shoreland-wetland zoning district as all wetlands in the Village which are equal to or greater than 5 acres within 1,000 feet of the ordinary high water mark (OHWM) of navigable lakes,

ponds or flowages and within 300 feet of the OHWM of navigable rivers or streams, or the landward side of the floodplain, whichever distance is greater.¹

Planned or Existing County Trails

Using the Washington County Adopted Bikeway and Trail Network Plan, Adopted June 2019², the study area has two wide shoulder paths and one side path existing. No new paths are proposed for the study area.

National Historic Register

Using the National Register of Historic Places GIS viewer, the study area was assessed. There are no registered sites within the study area.³

United States Department of Agriculture Drainage Districts

Using the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) Drainage Districts Interactive Map tool, the study area was assessed for presence of drainage districts. There are no drainage districts within the study area.⁴

Threatened and Endangered Species

Using the Wisconsin Department Natural Resources Natural Heritage Inventory (NHI) Portal, the study area was assessed. Based on the assessment state endangered fish may be present within the study area. A preliminary Information for Planning and Consultation (IPaC) assessment was performed to identify potential habitat that may support federally threatened or endangered species. The IPaC results included the federally endangered northern long-eared bat, the proposed endangered tricolored bat, and the candidate endangered monarch butterfly. Further investigations will be needed to assess likelihood of presence, and potential impacts.

Refer to the attachments for the NHI Portal assessment and the IPaC assessment.

¹ Reference: https://library.municode.com/wi/germantown/codes/code_of_ordinances?nodeId=CH24SHTLZOCOCROR5-88_24.04SHTLZODI

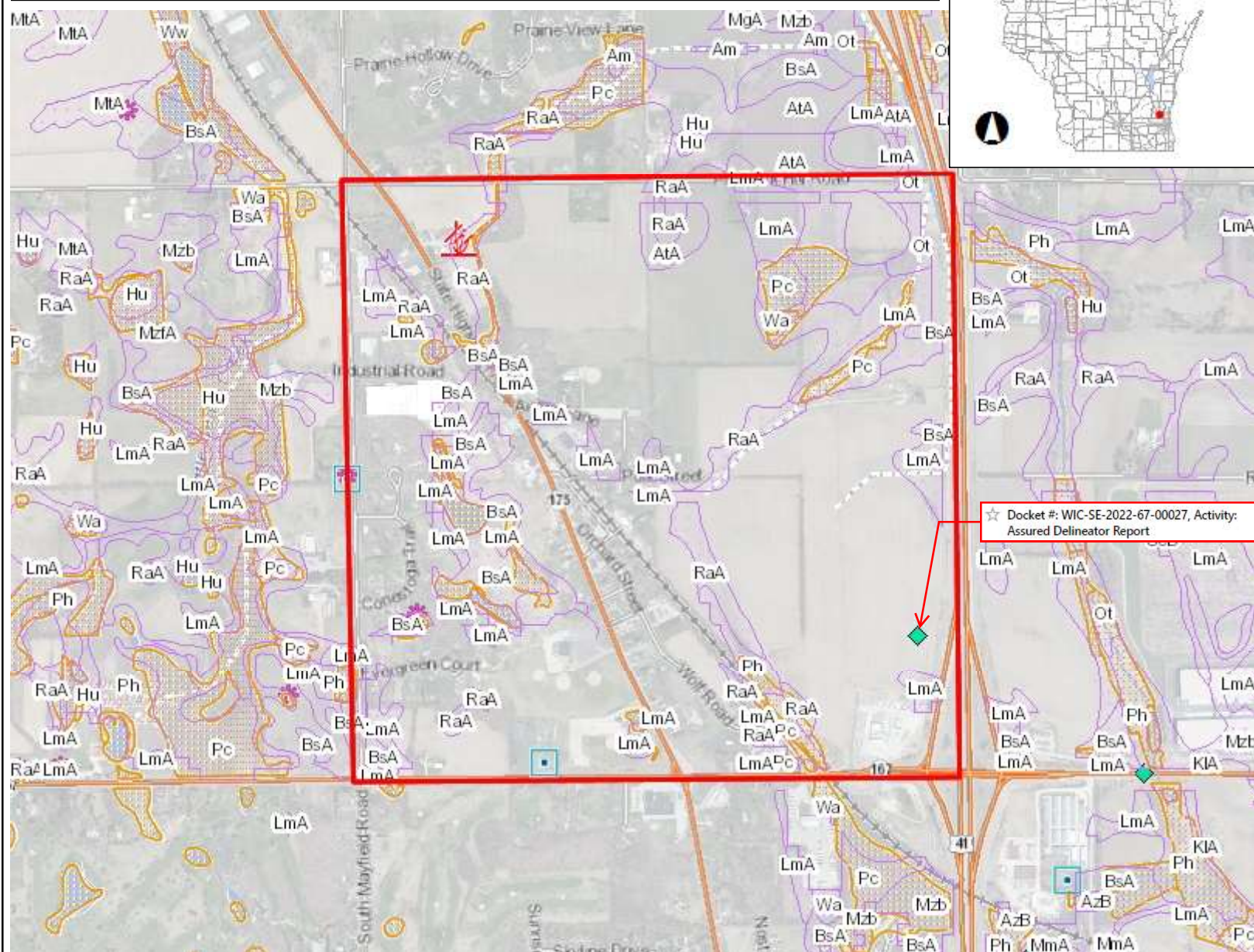
² Reference:
<https://www.washcowisco.gov/common/pages/DownloadFileByUrl.aspx?key=5xm1up4mTLLDgP3Y8GLTDcwqZlPhTR1nv9N17WjzjgHThLXmHzcSHnlll0qUmAHPXI4Ei2uaZtd1NZ3h2NIAzBGZYRMZ%2bk%2f90KZhJusQa9K%2b0n3y13lBvBhuCbwVTr80aVZdiatZOukhs6QP13w8v1IS%2bOmOjBkn%2fsmpliUj%2fL3jYs1VYHftEjKJo87tFBBQfLI5eeK%2ffUh81M0t%2bI2Q8F48Ks%3d>

³ Reference: <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466>

⁴ Reference: <https://datcpgis.wi.gov/maps/?viewer=dd>



Figure 1: Wetlands and Waterways



Legend

- Wetland Indicators
- Wetland Class Areas
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
 - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Class Areas
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
 - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
 - Interstate Highway
 - State Highway
 - US Highway
- County and Local Roads
 - County HWY
 - Local Road
- Railroads

☆ Docket #: WIC-SE-2022-67-00027, Activity: Assured Delineator Report

0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840

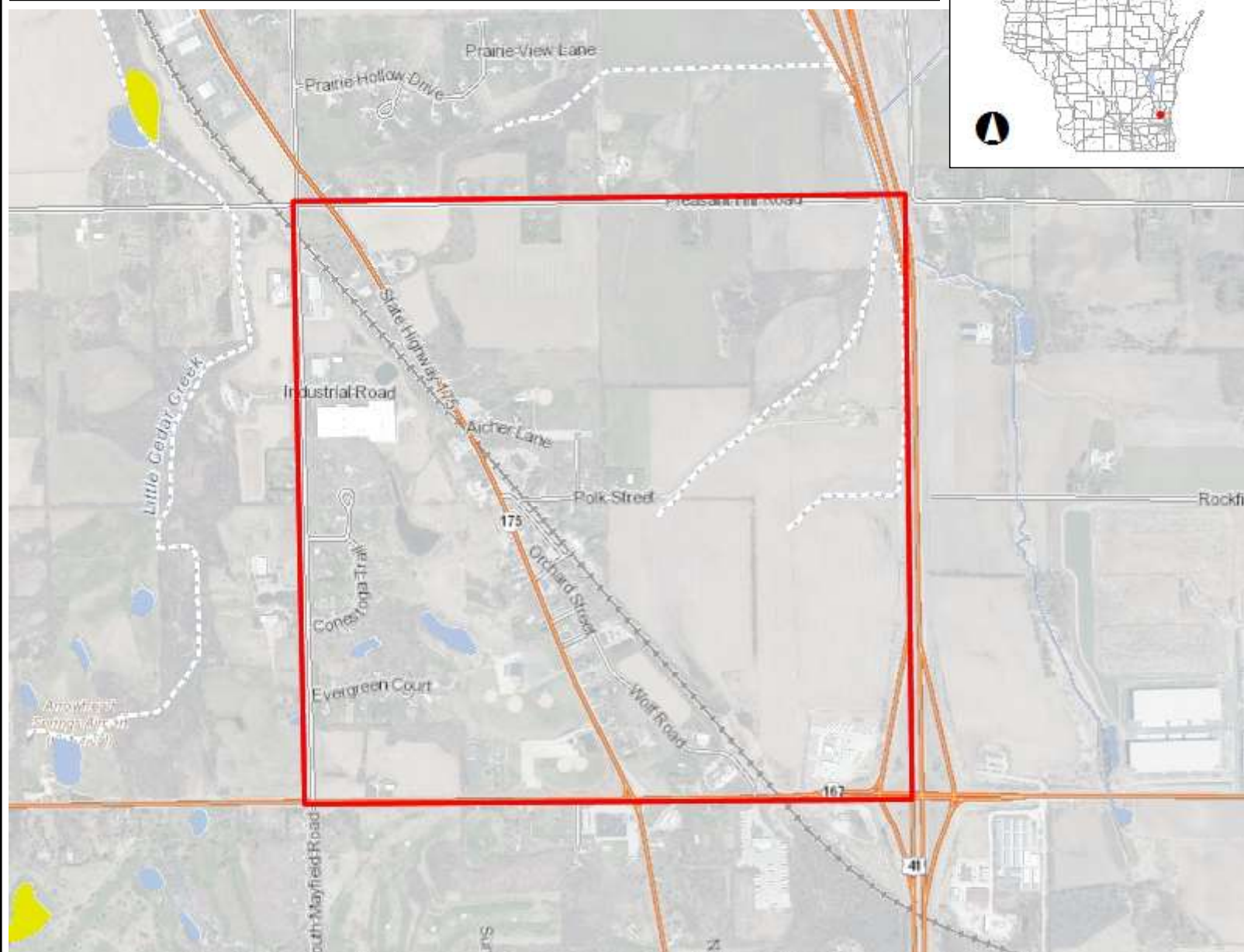
DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>

Notes

Surface Water Data Viewer Layers:
Wetlands, Hydric soils



Figure : Additional Surface Water Resources



Legend

- Impaired Rivers and Streams
- Impaired Lakes
- TMDL Category Lines**
 - Other or Multiple Factors
 - Contaminated Sediment Dominated
 - Atmospheric Deposition Dominated
 - Physical or Habitat Dominated
 - Nonpoint Source Dominated
 - Point and Nonpoint Source Blend
 - Point Source
 - Proposed for 303d listing
- TMDL Category Areas**
 - Other or Multiple Factors
 - Contaminated Sediment Dominated
 - Atmospheric Deposition Dominated
 - Physical or Habitat Dominated
 - Nonpoint Source Dominated
 - Point and Nonpoint Source Blend
 - Point Source
 - Proposed for 303d listing
- PNW-ASNRI Sensitive Areas of Lakes
- PNW-ASNRI Wild and Scenic Rivers
- PNW-ASNRI Outstanding and Exceptional Streams
- PNW-ASNRI Trout Streams
- PNW-ASNRI Wild Rice Streams
- PNW-ASNRI Outstanding and Exceptional Lakes
- PNW-ASNRI Special Area Management Plan Streams

Notes

Surface Water Data Viewer Layers:
Impaired Waterways, PNW-ASNRI,
Fisheries Management

0.5 0 0.25 0.5 Miles

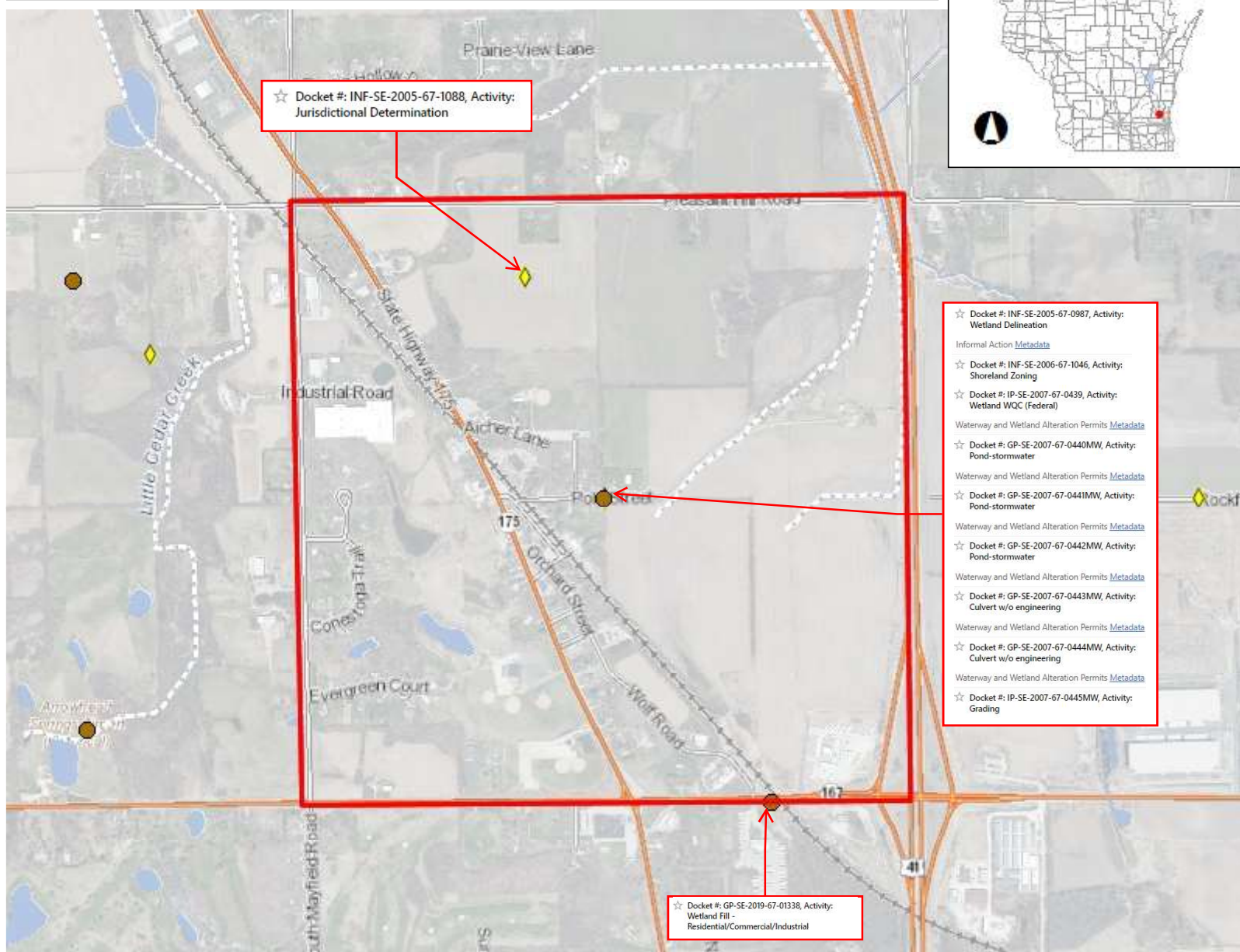
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DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>



Figure 3: WDNR Permits and Determinations



Legend

- Waterway and Wetland Alterations
- Formal/Informal Actions
- Exemption Determinations
- Ordinary High Water Mark Determinations
- Navigability Determinations
 - Yes
 - Yes with Agricultural Exemption
 - No
- Surface Water Outfalls
- 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

Notes

0.5 0 0.25 0.5 Miles

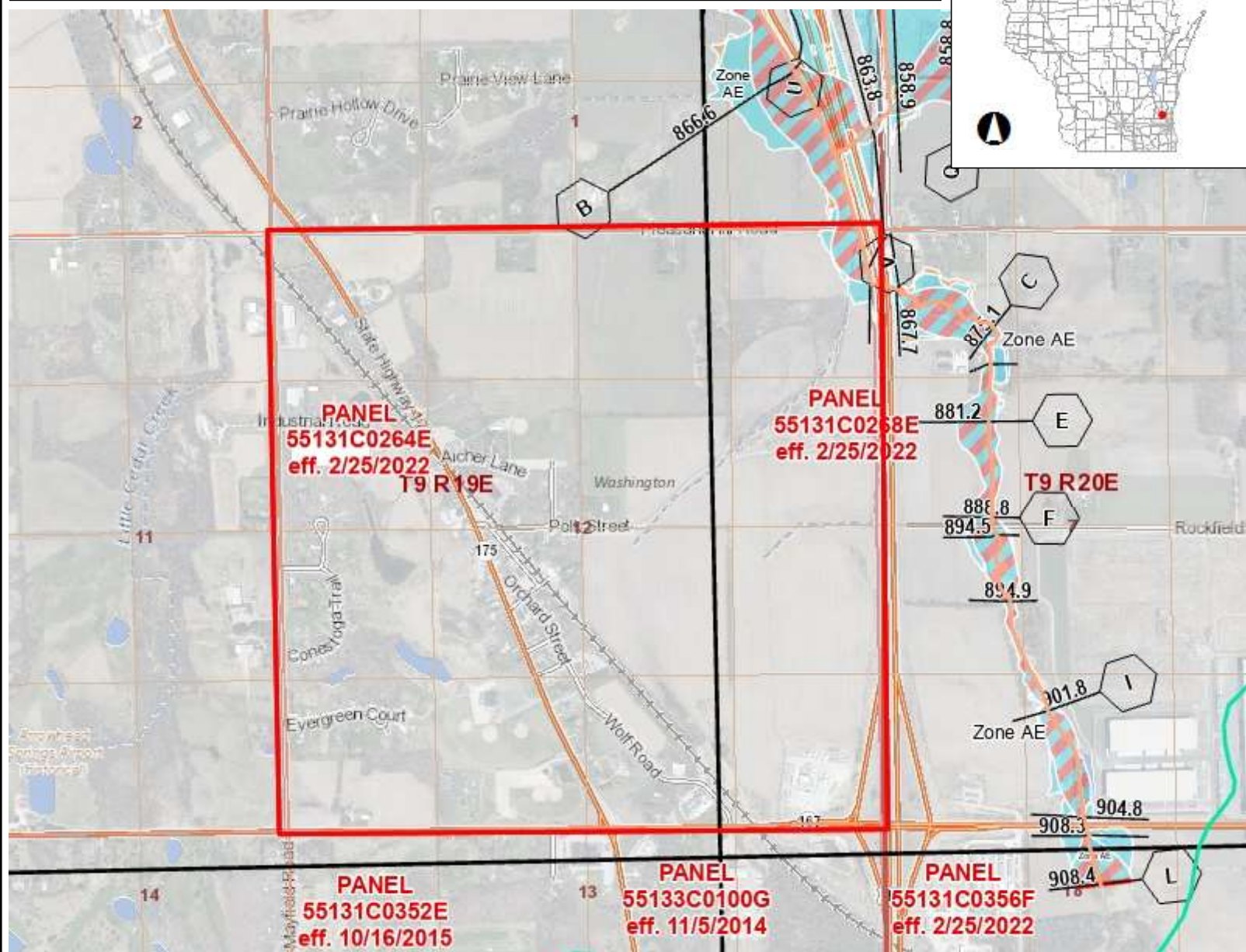
NAD_1983_HARN_Wisconsin_TM

1: 15,840

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Figure 4: FEMA Floodplain Firmette



Legend

2D Water Surface Elevation Grid

High : 937.629

Low : 853.184

Dams

Dam

FERC and FERC Exempt Dam

Cranberry Dam

Removed Dam

Structure not on Waterway

<all other values>

Levees

+ Geomarks

Floodplain Analysis Lines

Case by Case Analysis for Development in Floodplain

Dam Failure Analysis

Encroachment Analysis

Flood Insurance Study

Flood Storage Analysis

Floodplain Study (Locally Funded)

Hydrology/Hydraulics developed at a Dam

<all other values>

Floodplain Analysis Catchments

Floodplain Analysis Points

Case by Case Analysis for Development in Floodplain

Dam Failure Analysis

Encroachment Analysis

Flood Insurance Study

Flood Storage Analysis

Floodplain Study (Locally Funded)

Hydrology/Hydraulics developed at a Dam

Notes

0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840

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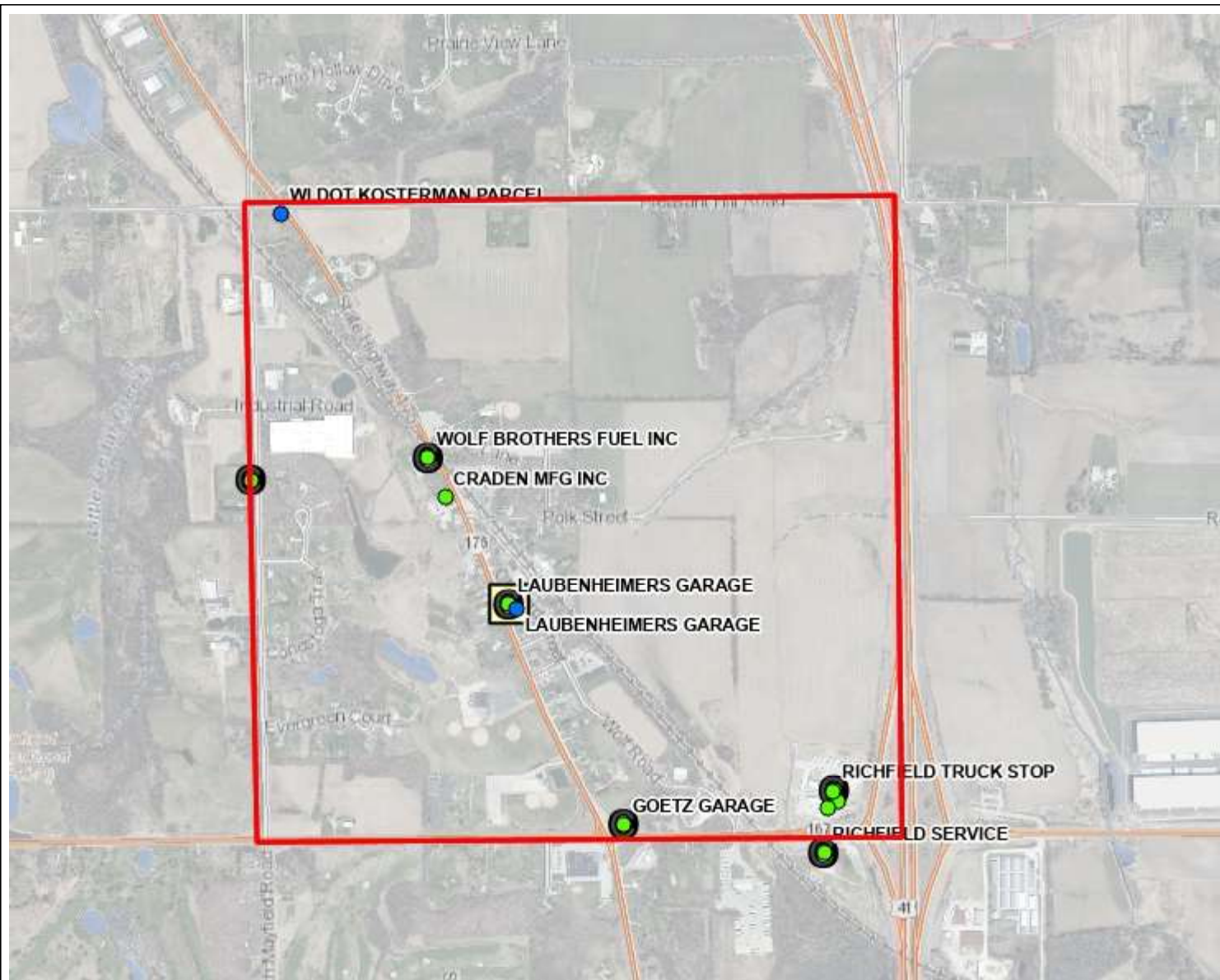


Figure 5: BRRTs Export



Legend

- Open Site
- Closed Site
- Continuing Obligations Apply
- Impacted Another Property(ies) or Right-
- Facility-wide Site



0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840



DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/org/legal/>

Note: Not all sites are mapped.

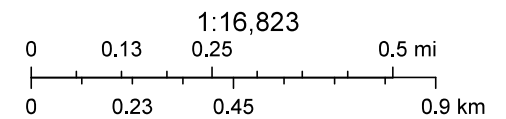
Notes

Shoreland Zoning



8/8/2023, 3:14:15 PM

- | | | | | |
|--------------------------|----------------------------------|--|---|---------------------|
| Override 1 | Federal Highway | Intermittent Lake, Pond, Stream or Watercourse | Assessor Plat; Cemetery Plat; Subdivision | Local Road Labels |
| Current Parcel | Railroad Centerlines | Perennial Lake, Pond, Stream or Watercourse | Lot | Local Road |
| Road Centerline STH, CTH | Shoreland Zoning District | Perennial Lake, Pond, Stream or Watercourse | PLSS Boundary | Named Private Drive |
| State Highway | Non-Navigable Stream in Ag. Area | Floodway Zoning District | PLSS Section | |
| Ramp | NNAGSTREAM | 100 Year Floodplain Zoning District | Right-of-Way | |
| Road Centerline I, USH | Perennial Lake | Plat | Municipality | |
| Interstate | NOBUFFER; PLAKE; PSTREAM | Certified Survey Map | | |



ATTACHMENT

Wisconsin Department of Natural Resources

WDNR SHWIMS on the Web

Navigation: [SOTW Home](#) >> [Advanced Search](#) >> [Search Results](#) >> [Location Detail](#)

The Official Internet site for the Wisconsin Department of
Natural Resources
101 S. Webster Street . PO Box 7921 . Madison,
Wisconsin 53707-7921 . 608,266,2621

CRADEN MFG INC
Facility Name

[HELP](#)

General Information

Facility Name		County	WDNR Region	
CRADEN MFG INC		WASHINGTON	SOUTHEAST REGION	
Facility Status	FID	EPA ID	SIC Code	NAICS Code
OPERATING	267064930	WID063499693	NONE	NONE
Physical Address Find on Google Maps [Exit DNR]		Municipality	State	Zip
1961 STH 175		RICHFIELD	WI	53076
Mailing Address		City	State	Zip
1961 HWY 175		RICHFIELD	WI	53076
Facility Owner Type	Public Land Survey System Desc.		Latitude and Longitude	
PRIVATE	SE 1/4 of the NW 1/4 of Sec 12, T9N, R19E		NOT AVAILABLE	

Facility Owner(s)

SOL CRADEN 1961 HWY 175 RICHFIELD, WI 53076

Waste Management Activities at this Location

Activity Type Click to view details	Activity Status	License No.
HW GENERATOR - VERY SMALL	ACTIVE	N/A

Other Activities at this Location

Activity Number and Name Click to view details on AW/RR BOTW	Type/Status
03-67-246102 CRADEN MFG INC	LUST - CLOSED

Wisconsin Department of Natural Resources

WDNR SHWIMS on the Web

Navigation: [SOTW Home](#) >> [Advanced Search](#) >> [Search Results](#) >> [Location Detail](#)

The Official Internet site for the Wisconsin Department of
Natural Resources
101 S. Webster Street . PO Box 7921 . Madison,
Wisconsin 53707-7921 . 608,266,2621

JOHNSON EQUIPMENT
Facility Name

HELP				
General Information				
Facility Name		County	WDNR Region	
JOHNSON EQUIPMENT		WASHINGTON	SOUTHEAST REGION	
Facility Status	FID	EPA ID	SIC Code	NAICS Code
CLOSED	267032700	WID988597605	7538	NONE
Physical Address Find on Google Maps [Exit DNR]		Municipality	State	Zip
1704 STH 175		RICHFIELD	WI	53076
Mailing Address		City	State	Zip
1704 HWY 175		RICHFIELD	WI	53076
Facility Owner Type	Public Land Survey System Desc.		Latitude and Longitude	
PRIVATE	SW 1/4 of the SE 1/4 of Sec 12, T9N, R19E		NOT AVAILABLE	

Facility Owner(s)	
STEVEN & TERRY FASSBENDERS 1704 HWY 175 RICHFIELD, WI 53076	

Waste Management Activities at this Location		
Activity Type Click to view details	Activity Status	License No.
HW GENERATOR - VERY SMALL	INACTIVE	N/A
HW GENERATOR - SMALL	INACTIVE	N/A

Other Activities at this Location	
Activity Number and Name Click to view details on AW/RR BOTW	Type/Status
03-67-001520 GOETZ GARAGE	LUST - CLOSED

Wisconsin Department of Natural Resources

WDNR SHWIMS on the Web

Navigation: [SOTW Home](#) >> [Advanced Search](#) >> [Search Results](#) >> [Location Detail](#)

The Official Internet site for the Wisconsin Department of
Natural Resources
101 S. Webster Street . PO Box 7921 . Madison,
Wisconsin 53707-7921 . 608,266,2621

RICHFIELD TRUCK STOP
Facility Name

[HELP](#)

General Information

Facility Name		County	WDNR Region	
RICHFIELD TRUCK STOP		WASHINGTON	SOUTHEAST REGION	
Facility Status	FID	EPA ID	SIC Code	NAICS Code
CLOSED	267026760	WIR000017699	NONE	NONE
Physical Address Find on Google Maps [Exit DNR]		Municipality	State	Zip
2900 STH 167		RICHFIELD	WI	53076
Mailing Address		City	State	Zip
NONE		NONE	NONE	NONE
Facility Owner Type	Public Land Survey System Desc.		Latitude and Longitude	
UNKNOWN	SE 1/4 of the SE 1/4 of Sec 12, T9N, R19E		NOT AVAILABLE	

Facility Owner(s)

J-ARROW INC 2900 HWY 167 W RICHFIELD, WI 53076

Waste Management Activities at this Location

Activity Type Click to view details	Activity Status	License No.
HW GENERATOR - SMALL	INACTIVE	N/A

Other Activities at this Location

Activity Number and Name Click to view details on AWR/R BOTW	Type/Status
03-67-000546 RICHFIELD TRUCK STOP	LUST - CLOSED
03-67-201172 RICHFIELD TRUCK STOP	LUST - CLOSED
03-67-583781 RICHFIELD TRUCK STOP	LUST - CLOSED
03-67-585483 EXXON RICHFIELD TRUCKSTOP PROPOSED KT 1013	LUST - CLOSED
04-67-551867 RICHFIELD TRUCK STOP	SPILL - CLOSED



Endangered Resources Preliminary Assessment

Created on **8/8/2023**. This report is good for one year after the created date.

DNR staff will be reviewing the ER Preliminary Assessments to verify the results provided by the Public Portal. ER Preliminary Assessments are only valid if the project habitat and waterway-related questions are answered accurately based on current site conditions. If an assessment is deemed invalid, a full ER review may be required even if the assessment indicated otherwise.

Results

A search was conducted of the NHI Portal within a 1-mile buffer (for terrestrial and wetland species) and a 2-mile buffer (for aquatic species) of the project area. Based on these search results, below are your next steps.

An ER Review is needed to ensure compliance with Wisconsin's Endangered Species Law (s. 29.604 Wis. Stats.) and the Federal Endangered Species Act (16 USC ss 1531-43). Therefore you should request an Endangered Resources Review <https://dnr.wi.gov/topic/ERReview/Review.html>. The ER Review will list the endangered resources that have been recorded within the vicinity of the project area and follow-up actions may be necessary.

One (or more) of the following situations apply:

- The species recorded are state or federal threatened or endangered animals.
- The species recorded are state threatened or endangered plants on public land.
- The species recorded are federal threatened or endangered plants on federal land or involve federal funds or a federal permit.
- The project site overlaps the Karner Blue Butterfly High Potential Range.
- The project overlaps the Rusty Patched Bumble Bee High Potential Zone.

A copy of this document can be kept on file and submitted with any other necessary DNR permit applications to show that the need for an ER Review has been met. This notice only addresses endangered resources issues. This notice does not constitute DNR authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the DNR and/or other permitting authorities.

Project Information

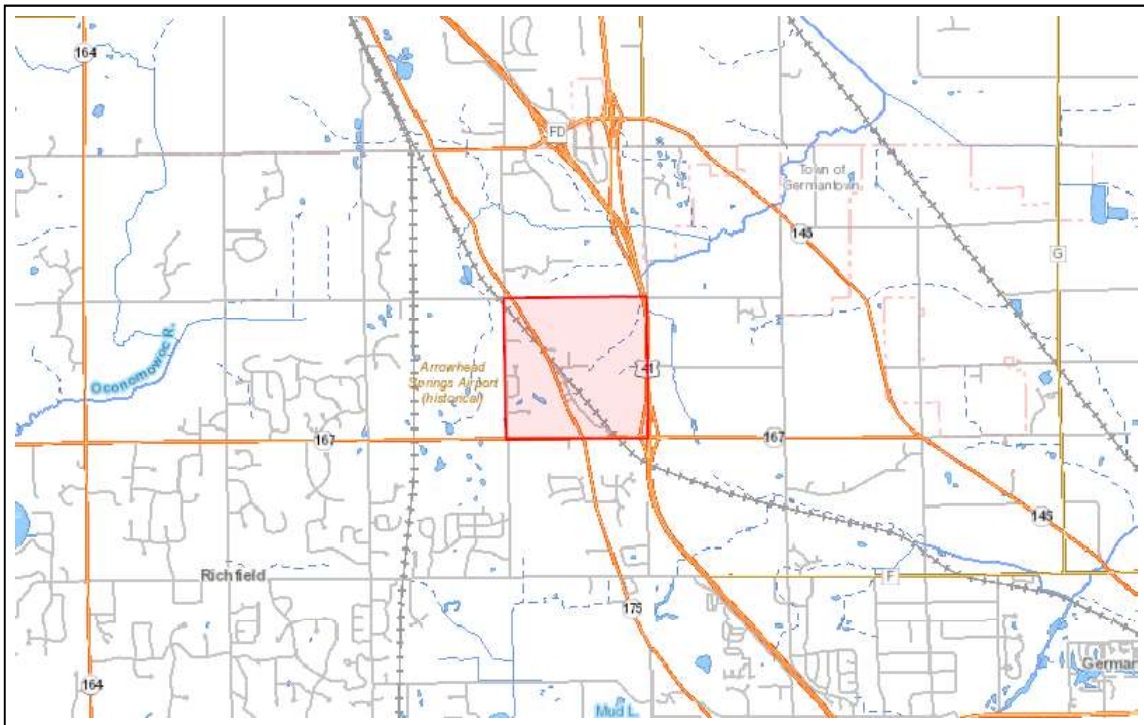
Landowner name	Village of Germantown
Project address	
Project description	Study area

Project Questions

Does the project involve a public property?	Yes
Is there any federal involvement with the project?	Yes
Is the project a utility, agricultural, forestry or bulk sampling (associated with mining) project?	No
Is the project property in Managed Forest Law or Managed Forest Tax Law?	No
Project involves tree or shrub removal?	No
Is project near (within 300 ft) a waterbody or a shoreline?	Yes
Is project within a waterbody or along the shoreline?	Yes

Does the project area (including access routes, staging areas, laydown yards, select sites, source/fill sites, etc.) occur **entirely within** one or more of the following habitats?

Urban/residential	No
Manicured lawn	No
Artificial/paved surface	No
Agricultural land	No
Areas covered in crushed stone or gravel	No



The information shown on these maps has been obtained from various sources, and is of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. Users of these maps should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>.

<https://dnrx.wisconsin.gov/nhiportal/public>

101 S. Webster Street . PO Box 7921 . Madison, Wisconsin 53707-7921

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Washington County, Wisconsin



Local office

Minnesota-Wisconsin Ecological Services Field Office

☎ (952) 858-0793

📠 (952) 646-2873

3815 American Blvd East

Bloomington, MN 55425-1659

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Bald and Golden Eagle information is not available at this time

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory bird information is not available at this time

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1F](#)

[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1Bg](#)

[PFO1C](#)

FRESHWATER POND

[PUBHx](#)[PUSC](#)[PUBGx](#)

RIVERINE

[R4SBC](#)[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should

seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

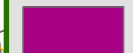
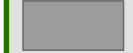
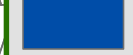
NOT FOR CONSULTATION

Appendix K – Richfield Incremental Planning Area Future Land Use Map

Adopted Future Land Use Germantown to Richfield: Potential Utilities Extension

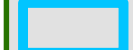
 MMSD Facilities Plan Update Planning Area

Richfield Future Land Use

-  Business Mixed Use
-  Commercial
-  Industrial
-  Institutional
-  Recreational
-  Single Family
-  Wetlands

 Proposed SSA Expansion Area

 SEWRPC Environmental Corridors (2015)

 Village Boundary

 Existing SSA Boundary

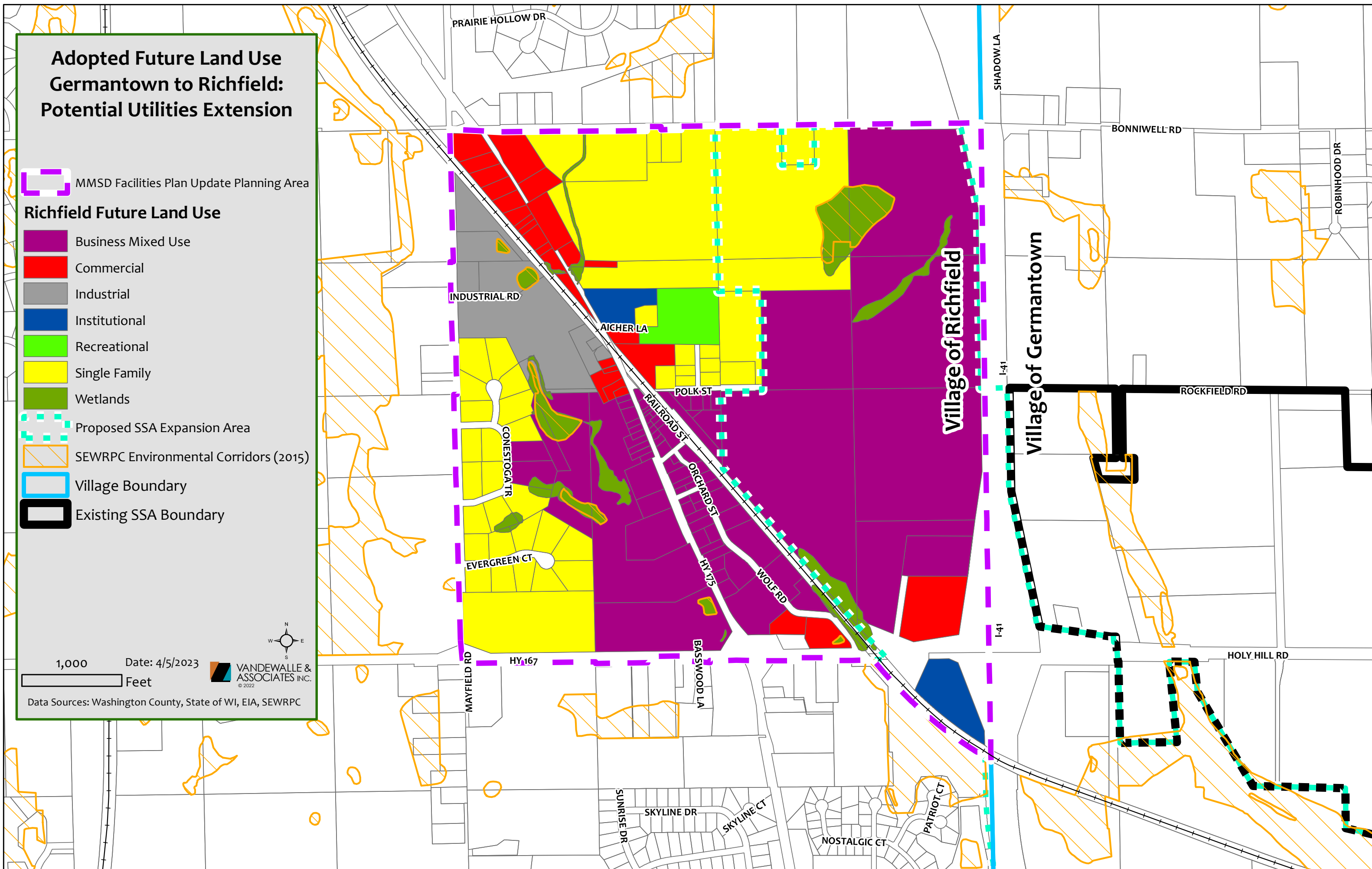


1,000
Feet

Date: 4/5/2023



Data Sources: Washington County, State of WI, EIA, SEWRPC



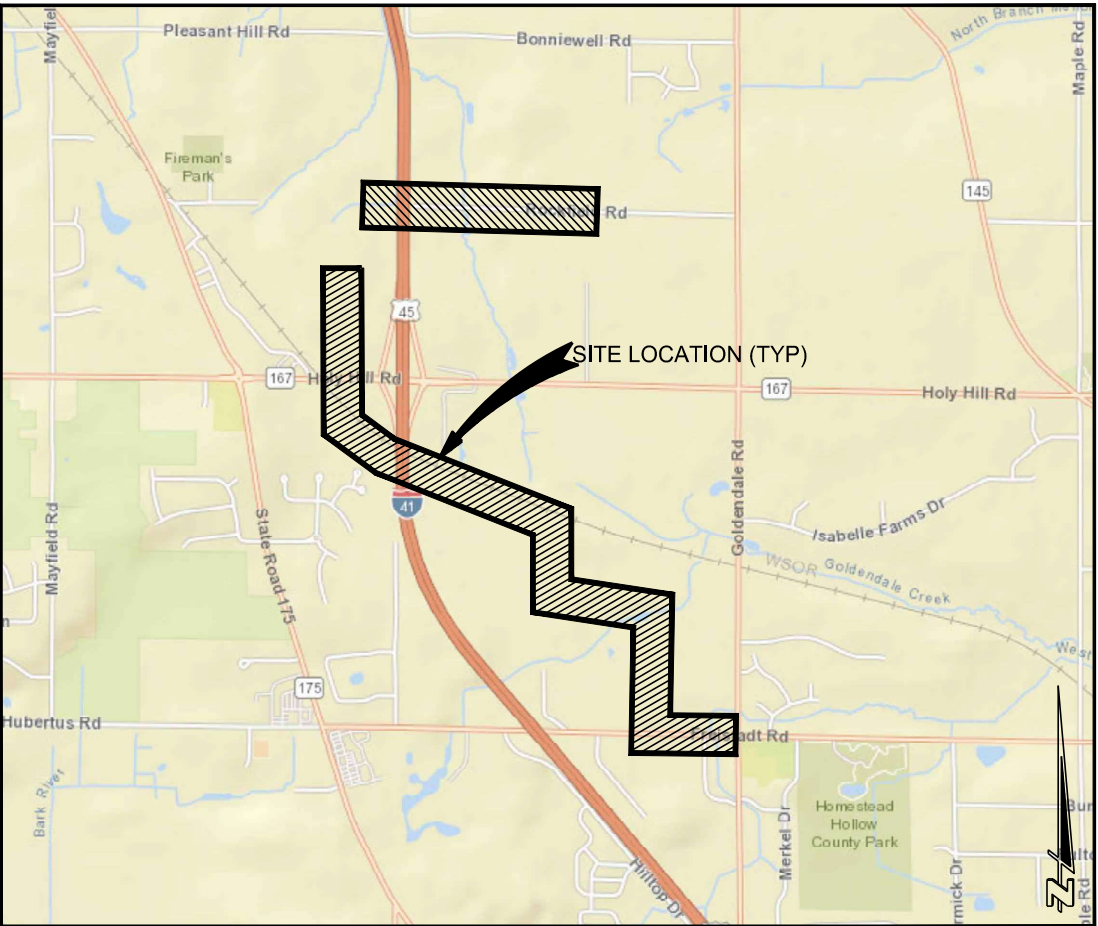
Appendix L – Preliminary Route of Sewer and Water Extensions to Serve the Richfield SSSA

CONSTRUCTION DRAWINGS
FOR
GERMANTOWN CONNECTION
VILLAGE OF RICHFIELD
WASHINGTON COUNTY, WI
September 26, 2023

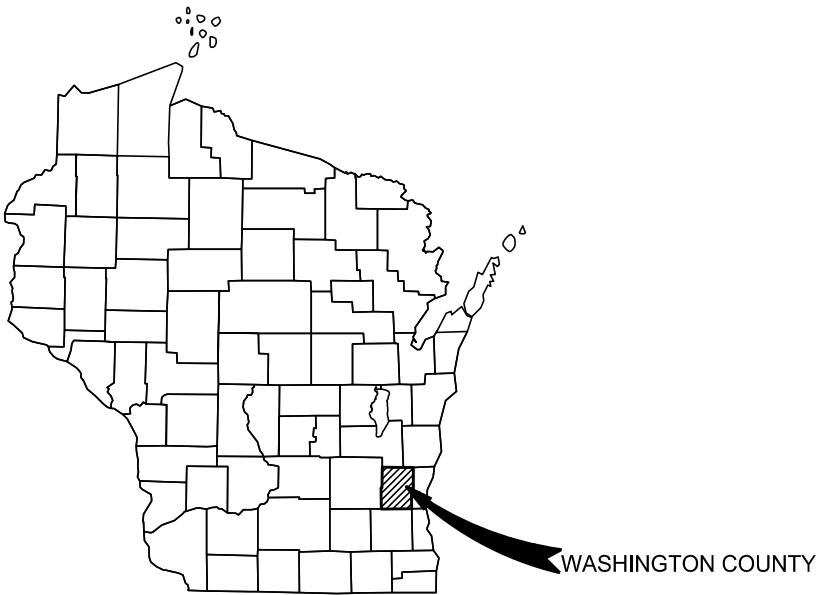
Prepared By



PROJECT I.D. 05771-0017



SITE LOCATION MAP



COUNTY LOCATION MAP

INDEX TO DRAWINGS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD SYMBOLS AND ABBREVIATIONS
3	OVERVIEW SHEET
4 - 6	FREISTADT ROAD PLAN AND PROFILE
7 - 18	FUTURE ROAD PLAN AND PROFILE
19 - 23	RAILROAD EASEMENT PLAN AND PROFILE
24 - 26	RICHFIELD PARKWAY PLAN AND PROFILE
27 - 32	ROCKFIELD ROAD PLAN AND PROFILE
33 - 35	STANDARD DETAILS

ATTENTION:
DOWNLOADED PLANS ARE NOT SCALABLE. NEITHER THE OWNER NOR THE
ENGINEER SHALL BE HELD RESPONSIBLE FOR THE SCALE OR PRINT
QUALITY OF DOWNLOADED PLANS. ONLY PRINTED PLANS FROM CEDAR
CORPORATION SHALL BE CONSIDERED TO BE SCALEABLE PLANS.

I:\Clients-Corbyg\R\05771 Richfield Village.dwg 09/27/23 12:33:52 PM

MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL	
	EXISTING	PROPOSED
SANITARY SEWER (PLAN) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L.) SAN	LENGTH – SIZE MATL SAN
STORM SEWER (PLAN) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L.) STM	LENGTH – SIZE MATL STM
WATER MAIN (PLAN)– LENGTH–DIA. MATERIAL–(FITTING–FITTING)	(SIZE & MAT'L.) WTR	LENGTH – SIZE MATL WTR
SANITARY SEWER (PROFILE) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L.)	XXX'– XX" PVC SAN @ 0.00%
SANITARY FORCEMAIN (PROFILE) – DIA. MATERIAL	(SIZE & MAT'L.)	XXX'– XX" FORCEMAIN @ 0.00%
STORM SEWER (PROFILE) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L.)	XXX'– XX" RCP STM @ 0.00%
WATER MAIN (PROFILE)– DIA. MATERIAL	(SIZE & MAT'L.)	X" PVC WM.
GAS MAIN	GAS	GAS
ELECTRIC – BURIED	UGE	UGE
ELECTRIC – OVERHEAD	OE	OE
TELEPHONE – BURIED	TEL	TEL
TELEPHONE – BURIED (FIBER OPTIC)	FO	FO
TELEPHONE – OVERHEAD	OH	OH
CABLE TELEVISION – BURIED	TV	TV
CABLE TELEVISION – OVERHEAD	OH	OH
CENTERLINE		
RIGHT–OF–WAY LINE		
PROPERTY LINE		
PAVEMENT (STREET, DRIVE, SIDEWALK, ETC.)		
GRAVEL		
CURB & GUTTER		
RAILROAD		
GUARDRAIL		
FENCE – AS LABELED		

CONTACTS

XXXXX

MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL	
	EXISTING	PROPOSED
BENCHMARK		
CATCH BASIN/INLET		
CONTROL POINT		
CULVERT	(DIA. & TYPE)	(LENGTH–DIA. & TYPE)
CURB STOP G=GAS W=WATER	WSO	G OR W
ELECTRIC PEDESTAL		
FIRE HYDRANT		
IRON PIPE = IP IRON ROD = IR	OR O _{IR}	IP OR IR
LIGHT – ORNAMENTAL		
LIGHT – STREET		
MAILBOX		
MANHOLE ELECTRIC		
MANHOLE GAS		
MANHOLE MISCELLANEOUS		
MANHOLE SANITARY		
MANHOLE SIGNAL		
MANHOLE STORM		
MANHOLE STORM INLET CATCH BASIN		
MANHOLE WATER		
MANHOLE TELEPHONE		
METER – GAS		
METER – WATER		
PEDESTAL CABLE TV		
PEDESTAL TELEPHONE		
SIGN		
BUSH CONIFER		
BUSH DECIDUOUS		
TREE DECIDUOUS/INCH DIA	12"	
TREE CONIFEROUS/INCH DIA	10"	
TREE LINE		
VALVE: W=WATER, G=GAS	OR WV	WV OR GV
UTILITY POLE		
SILT FENCE	SF	SF
MAJOR CONTOURS	890	890
MINOR CONTOURS		
SPOT ELEVATIONS	+891.2	+891.22
INLET PROTECTION		

GENERAL NOTES:

- THESE DRAWINGS ARE NEITHER A LEGALLY RECORDED MAP, NOR A SURVEY, AND IS NOT INTENDED TO BE USED AS ONE.
- ALL PROPERTY LINES SHOWN ARE ESTABLISHED FROM COUNTY GIS FILES. PROPERTY LINES MAY NOT REFLECT ACTUAL LOT LINE LOCATIONS AND ARE FOR INFORMATIONAL PURPOSES ONLY.
- UTILITY LOCATIONS SHOWN ON THE PLANS WERE PROVIDED BY THE UTILITY OWNER. FIELD LOCATIONS MAY VARY AND ADDITIONAL UTILITIES MAY EXIST. CONTRACTOR SHALL CONTACT DIGGERS HOTLINE A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.
- ALL LENGTHS OF PROPOSED UTILITIES SHOWN ON THE PLANS ARE PER DESIGN, ACTUAL LENGTHS MAY VARY DURING CONSTRUCTION.

LIST OF STANDARD ABBREVIATIONS

ASPH	ASPHALT	NTS	NOT TO SCALE
B/B	BACK TO BACK	PC	POINT OF CURVATURE
BOC	BACK OF CURB	PCC	POINT OF COMPOUND CURVE
BLDG	BUILDING	PED	PEDESTAL
BM	BENCHMARK	PVMT	PAVEMENT
BSMT	BASEMENT	PI	POINT OF INTERSECTION
C	CUT	PL	PROPERTY LINE
C&G	CURB AND GUTTER	PP	POWER POLE
C/C	CENTER TO CENTER	PROP	PROPOSED
CABC	CRUSHED AGGREGATE BASE COURSE	PT	POINT OF TANGENCY
CB	CATCH BASIN	PVC	POLYVINYL CHLORIDE
CI	CAST IRON PIPE	PVC	OR POINT OF VERTICAL CURVATURE
CL	CENTERLINE	PVI	POINT OF VERTICAL INTERSECTION
CMP	CORRUGATED METAL PIPE	PVT	POINT OF VERTICAL TANGENCY
CO	CLEAN OUT	R	RANGE OR RADIUS
CONC	CONCRETE	RCP	REINFORCED CONCRETE PIPE
CP	CONTROL POINT	REBAR	REINFORCEMENT BAR
CTH	COUNTY TRUNK HIGHWAY	REOD	REQUIRED
CTV	CABLE TV	RL	REFERENCE LINE
CS	CURB STOP	ROW	RIGHT–OF–WAY
DIA	DIAMETER	SAN	SANITARY
DI	DUCTILE IRON PIPE	WALK	SIDEWALK
EA	EACH	SF	SILT FENCE
ELEC	ELECTRIC (E WHEN USED IN LINE STYLE)	SL	SANITARY LATERAL
EP	EDGE OF PAVEMENT	SHLDR	SHOULDER
EXIST	EXISTING	STA	STATION
FH	FIRE HYDRANT	STH	STATE TRUNK HIGHWAY
FL	FLOW LINE	STM	STORM OR STORM SEWER
FM	FORCE MAIN	TEL	TELEPHONE
FO	FIBER OPTIC	TEMP	TEMPORARY
G	GAS	TOC	TOP OF CURB
GV	GAS VALVE	TYP	TYPICAL
GW	GUY WIRE	VC	VERTICAL CURVE
INV	INVERT	WM	WATER MAIN
IP	IRON PIPE OR PIN	WS	WATER SERVICE
L	LENGTH (OF CURVE)	WV	WATER VALVE
LC	LONG CHORD OF CURVE		
LP	LIGHT POLE		
MB	MAILBOX		
MG	METER–GAS		
MH	MANHOLE		

BENCHMARKS

	XXXX	XXX.XX
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NOTE: ALL BENCHMARK LOCATIONS ARE SHOWN ON PLAN

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STANDARD SYMBOLS AND ABBREVIATIONS

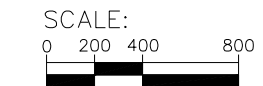
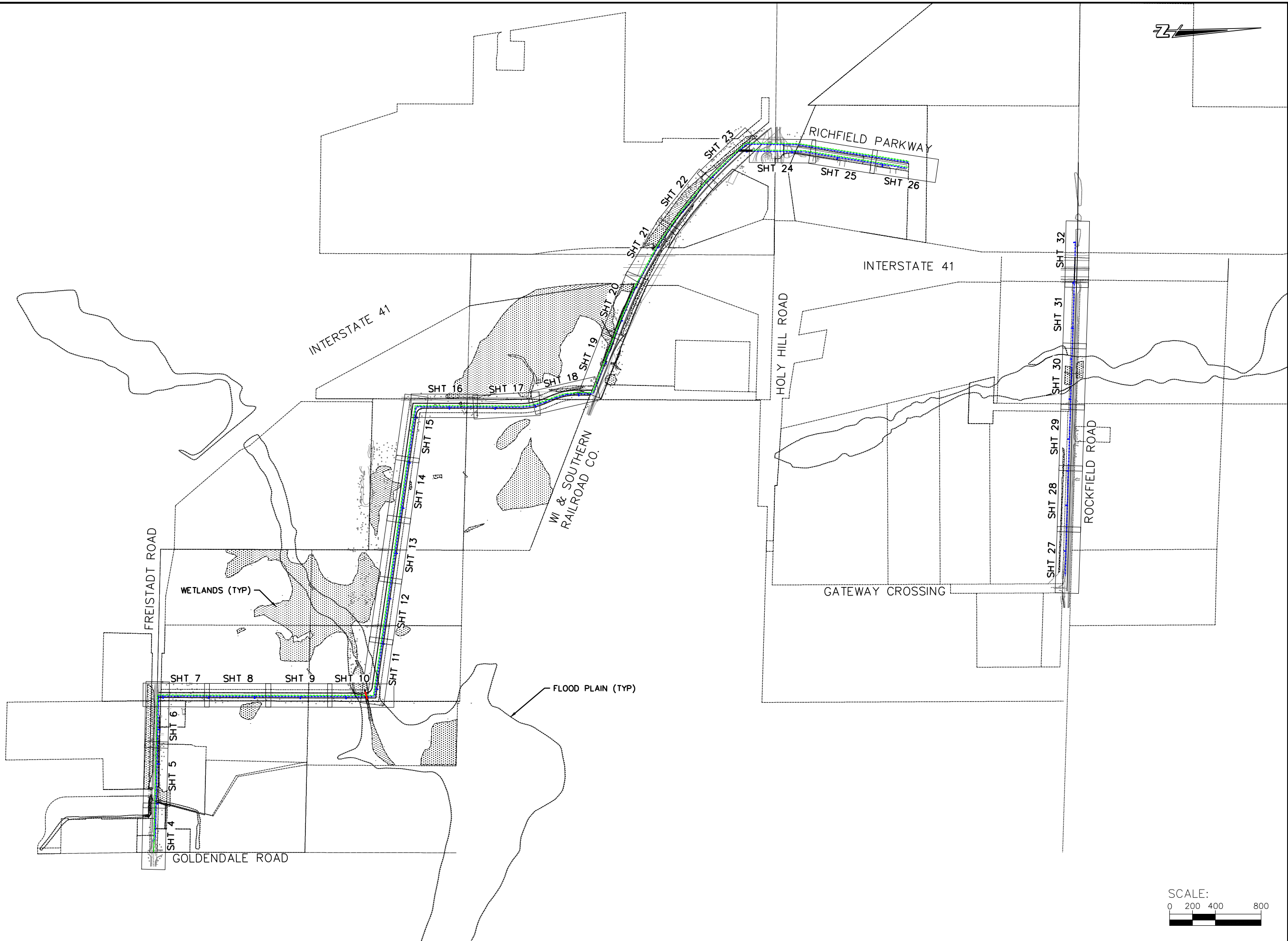


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2 OF X

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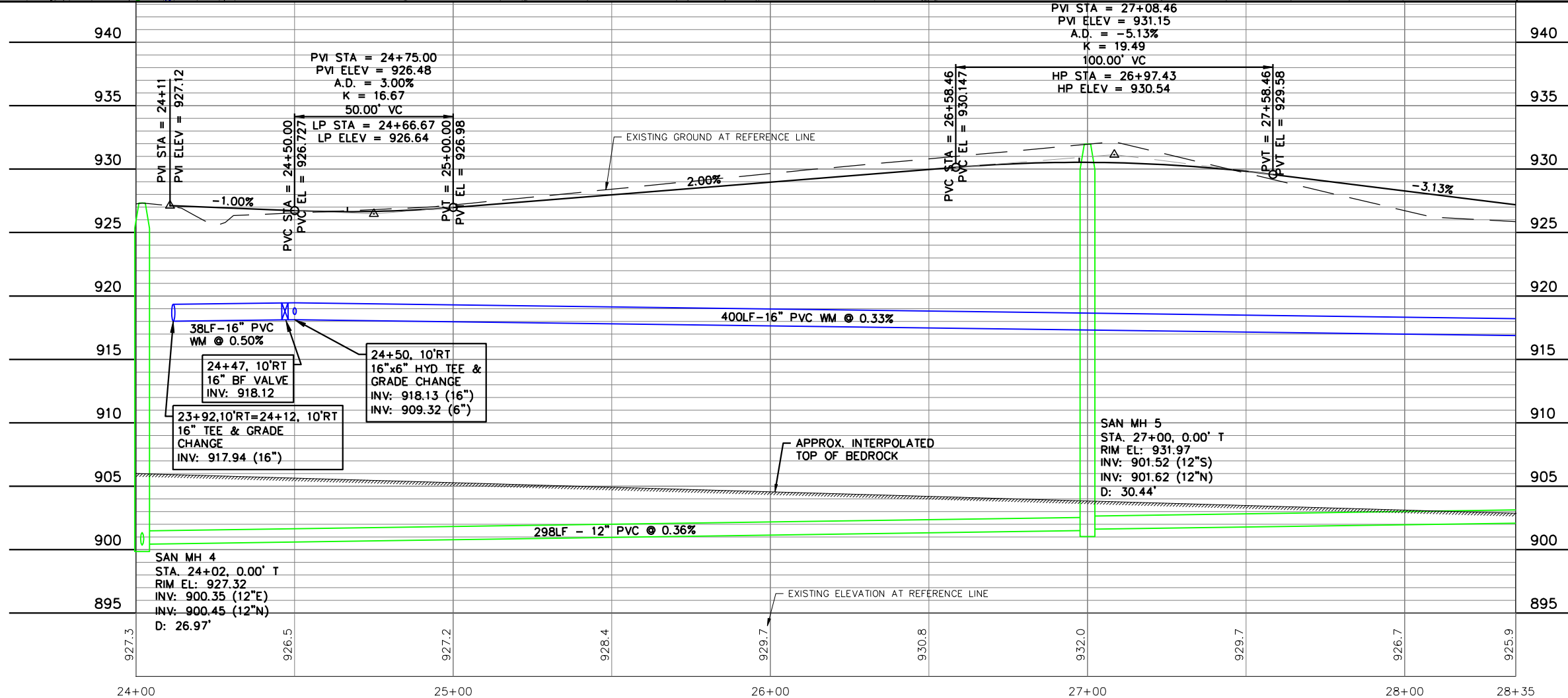
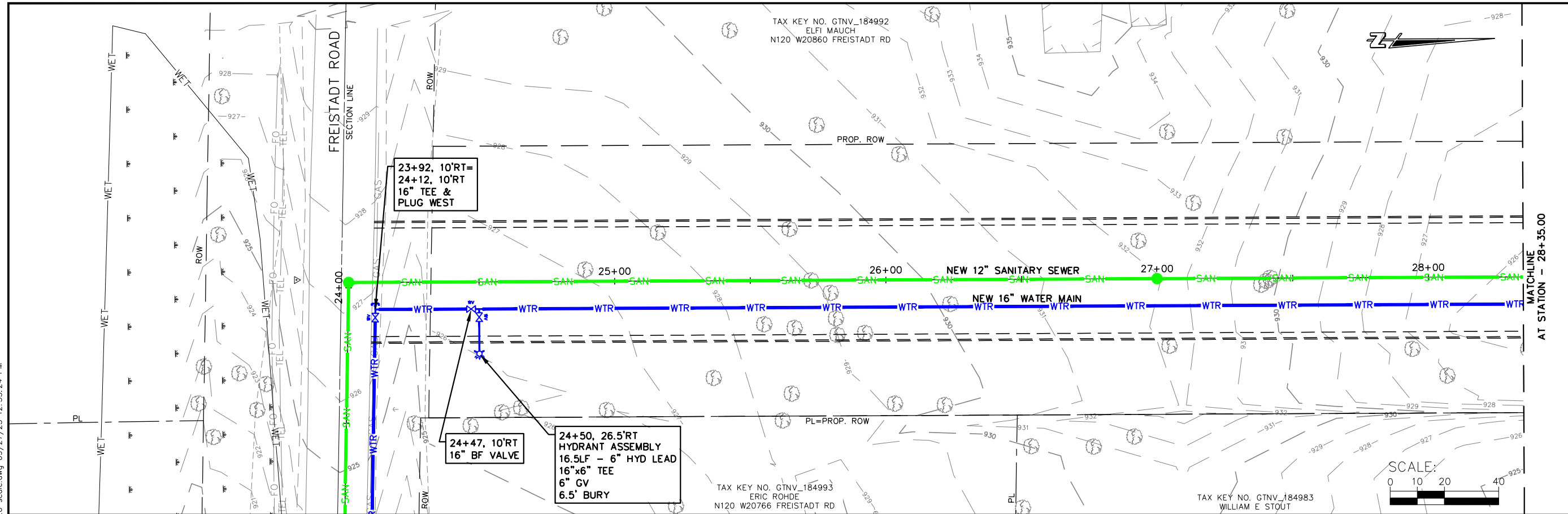
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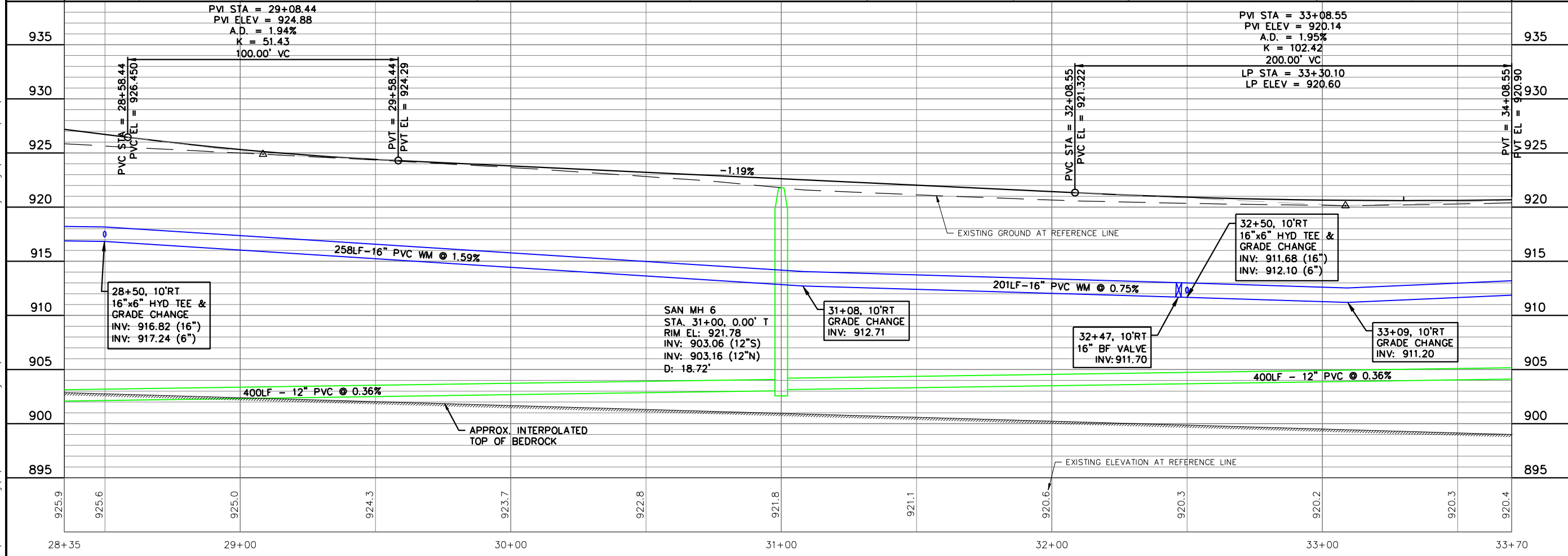
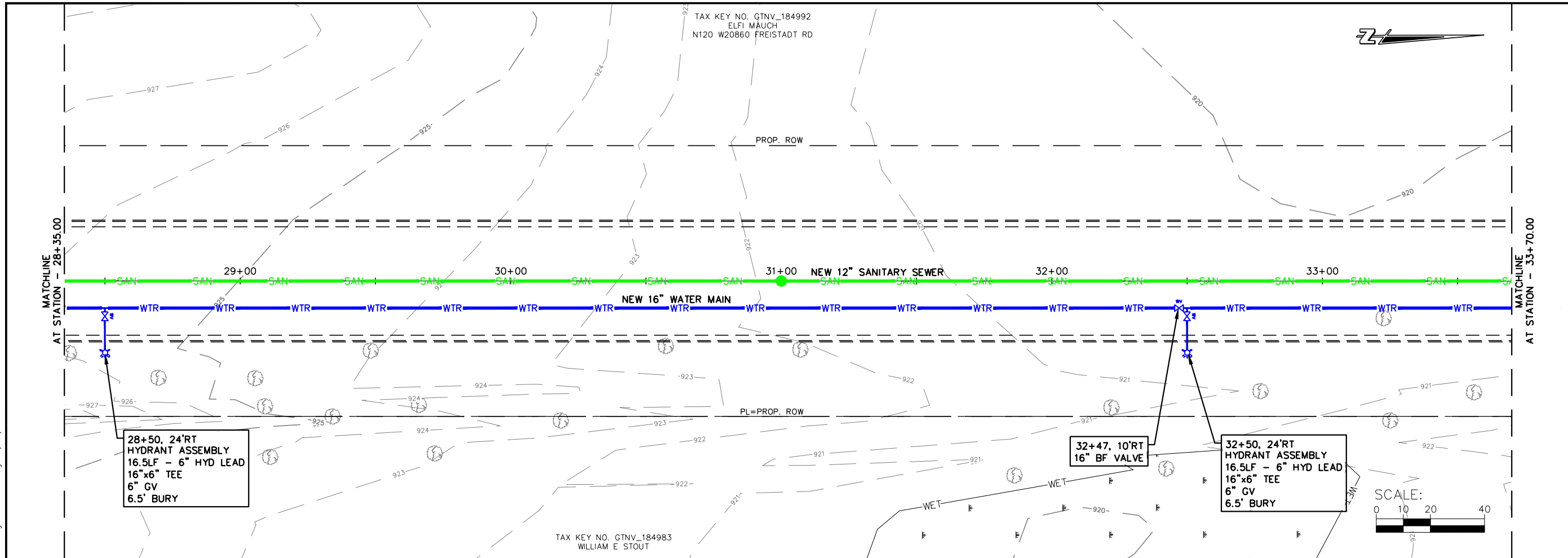
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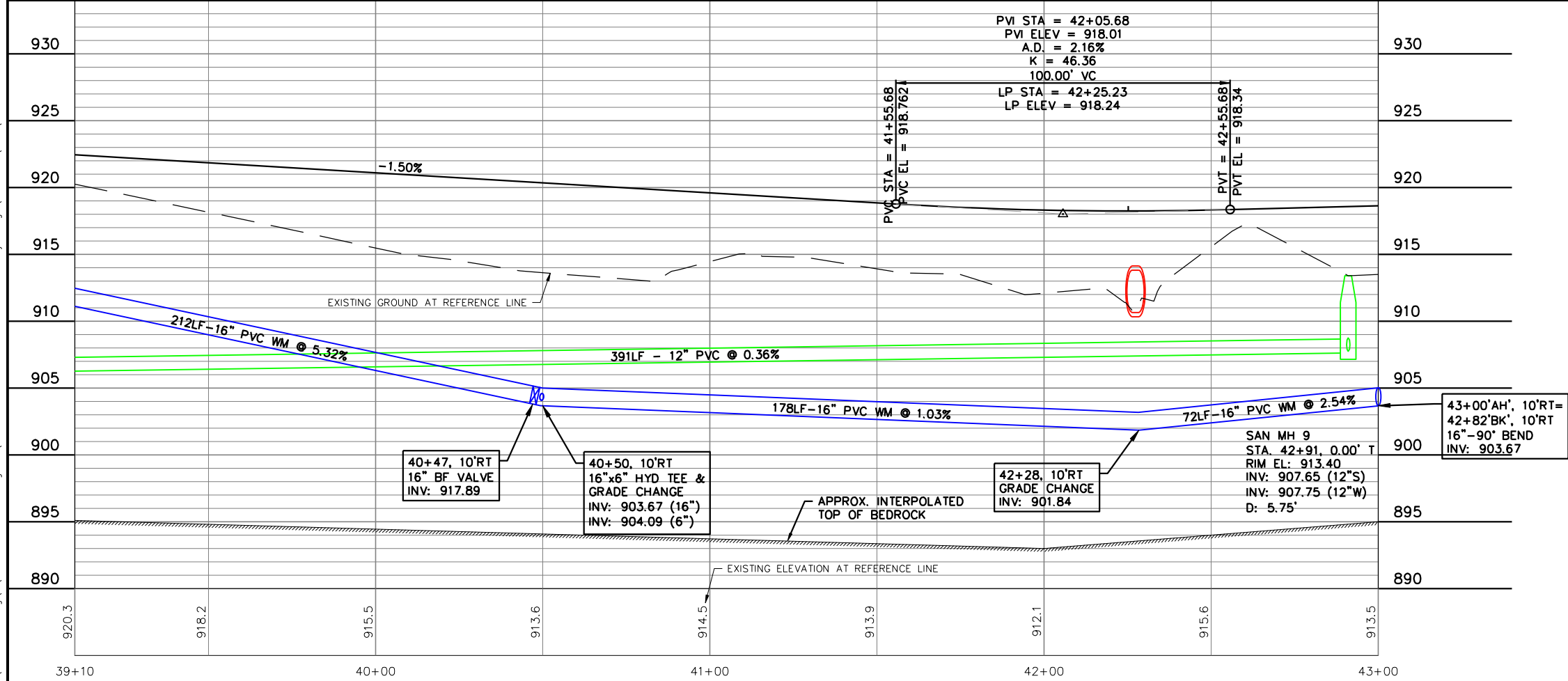
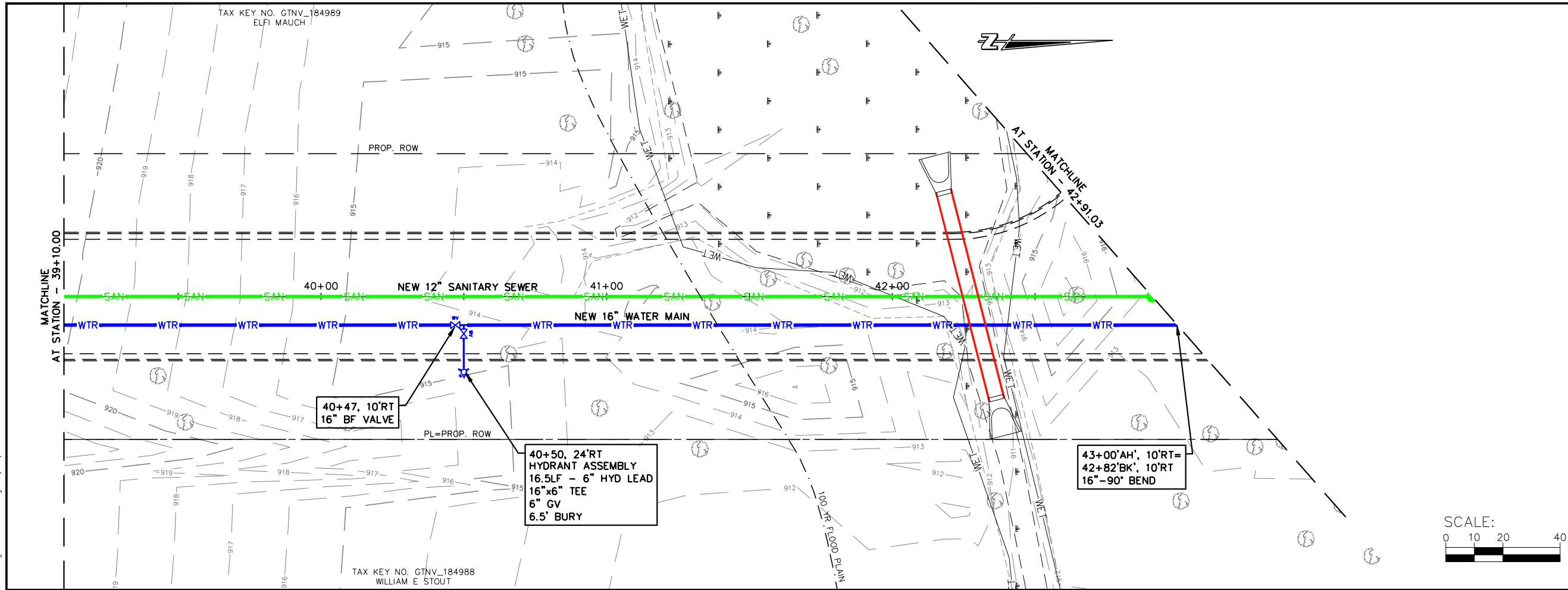
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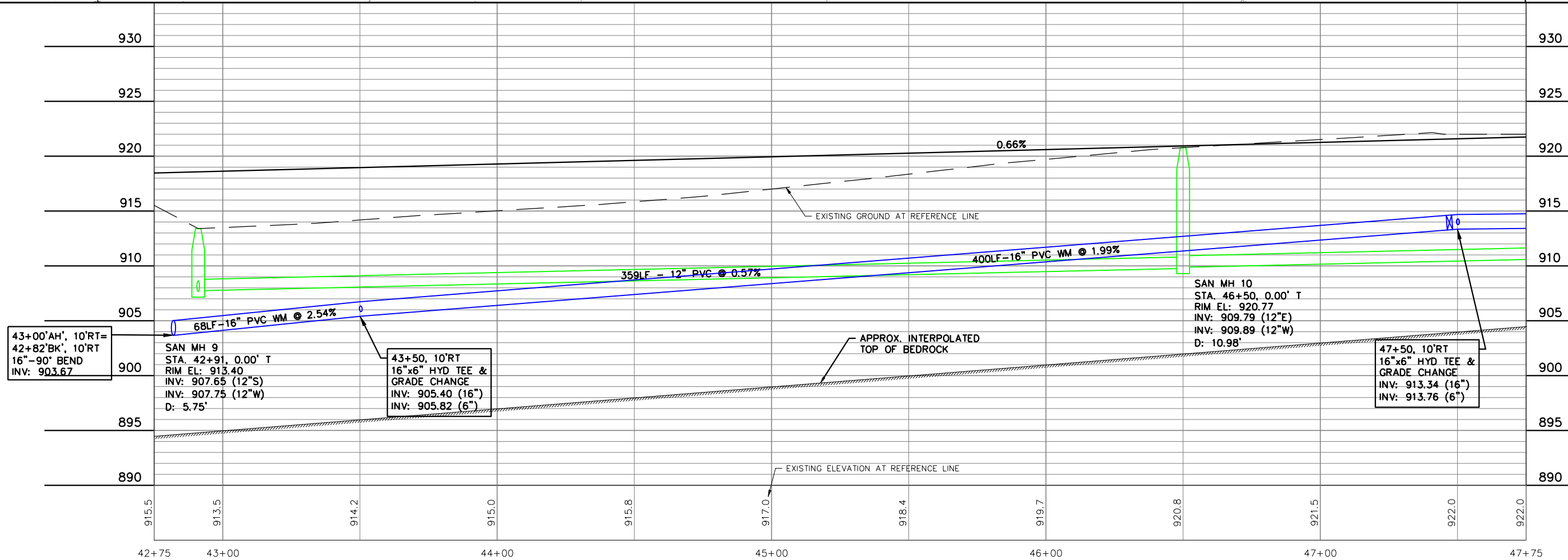
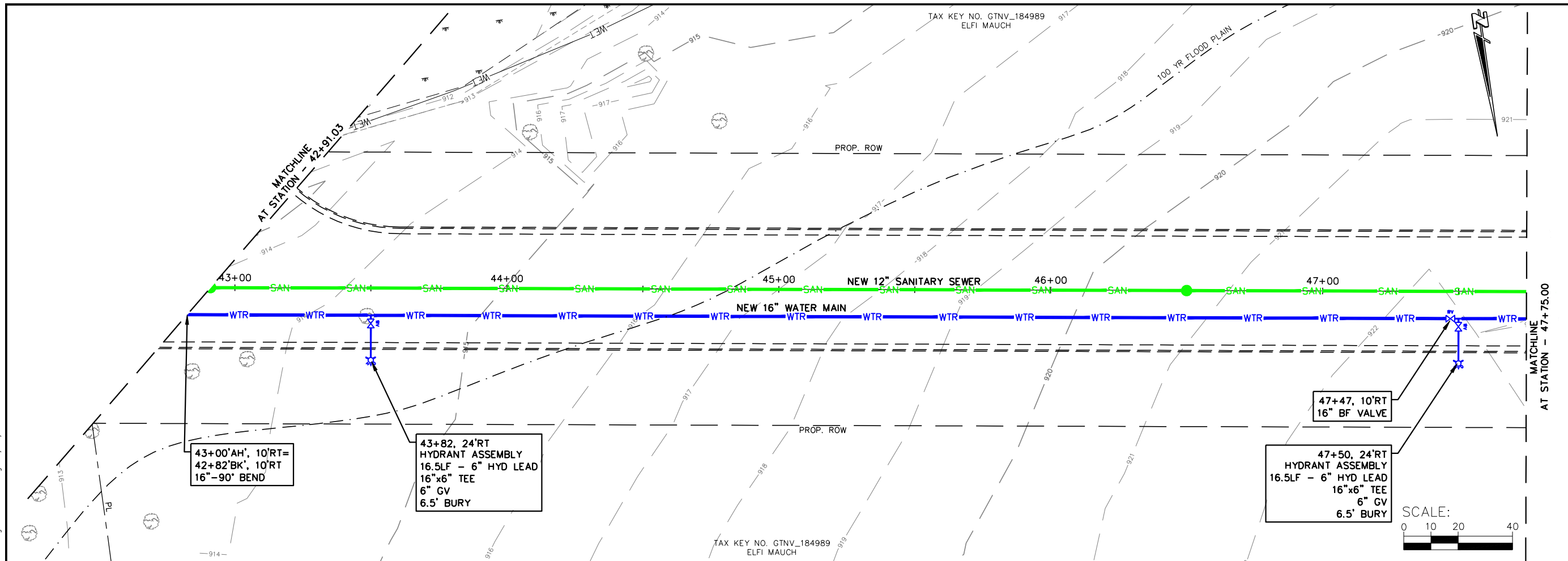
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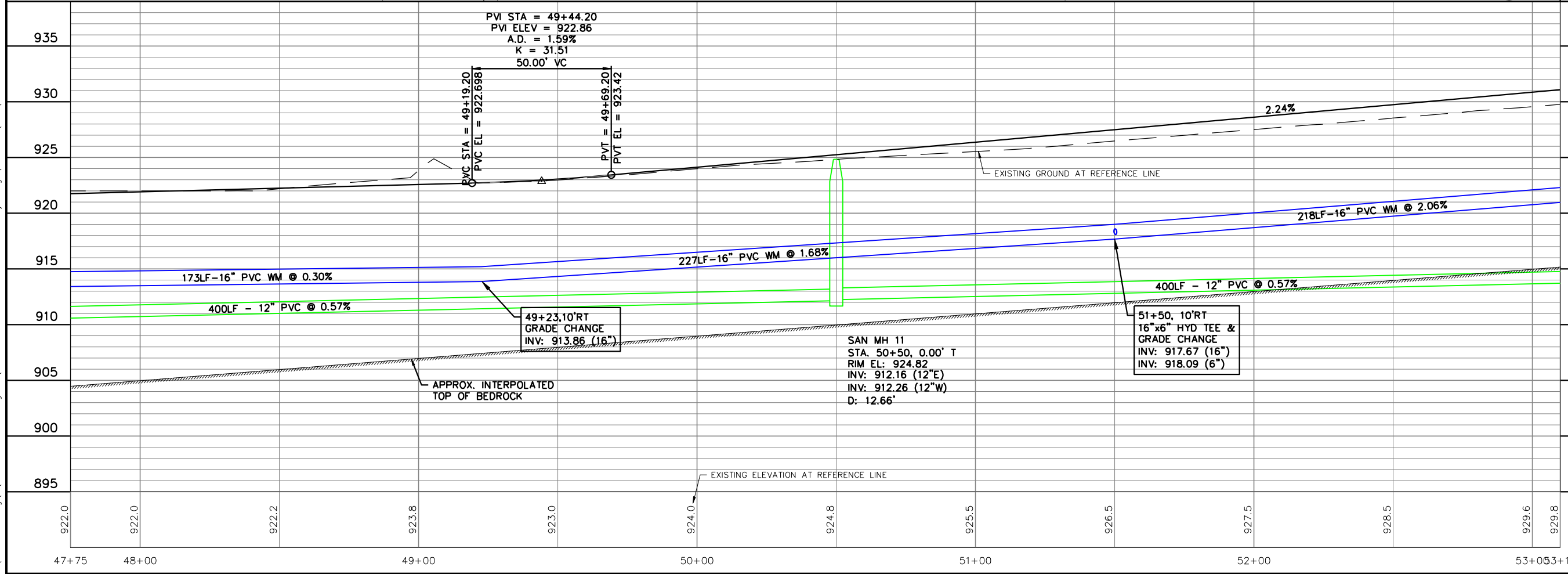
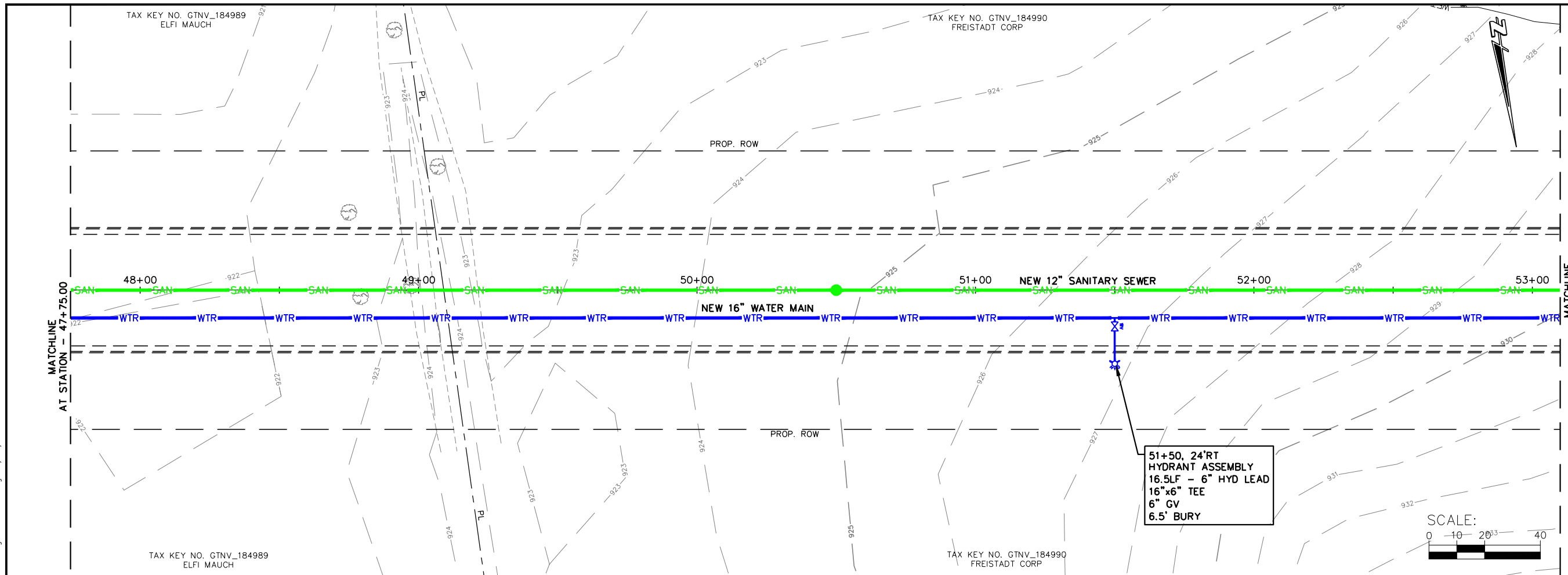
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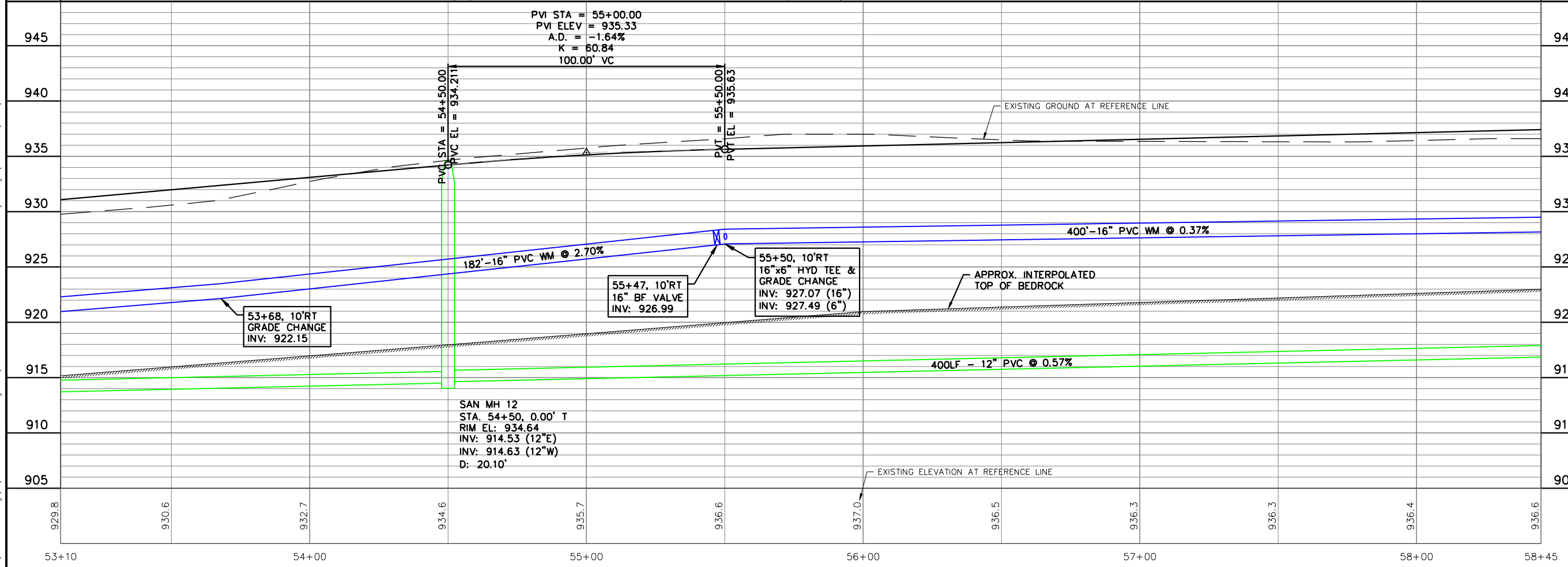
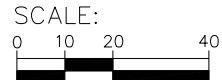
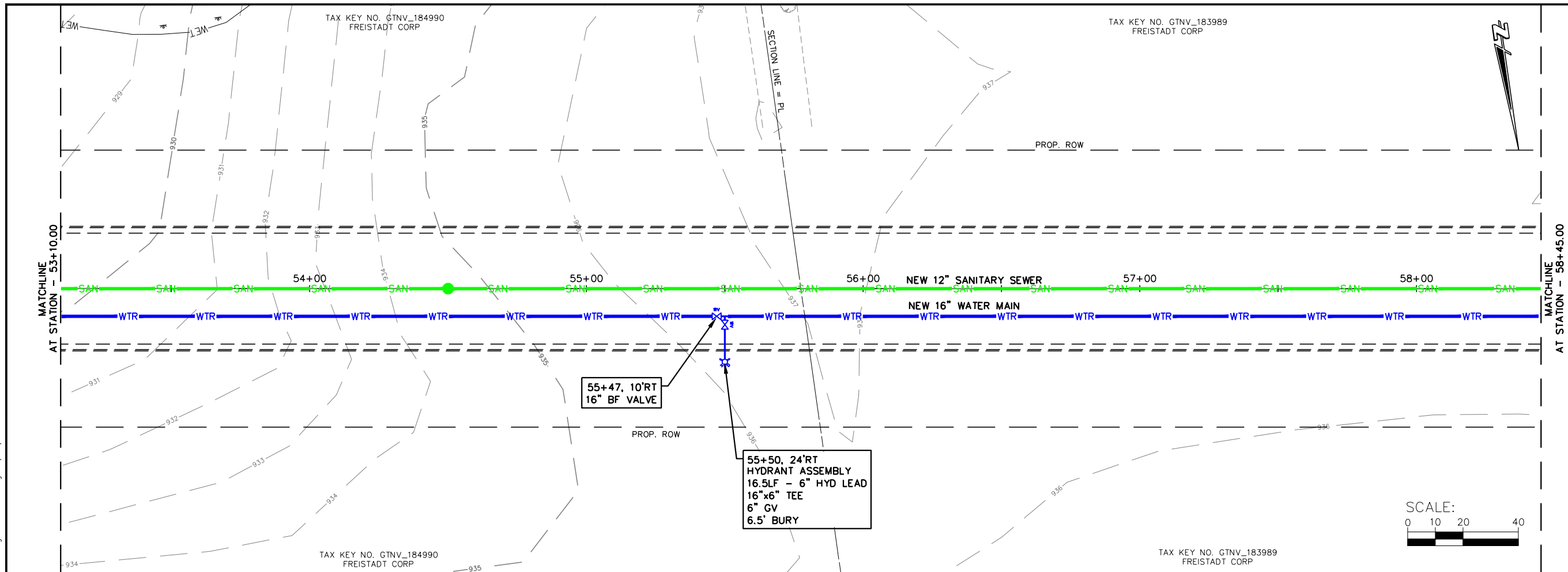
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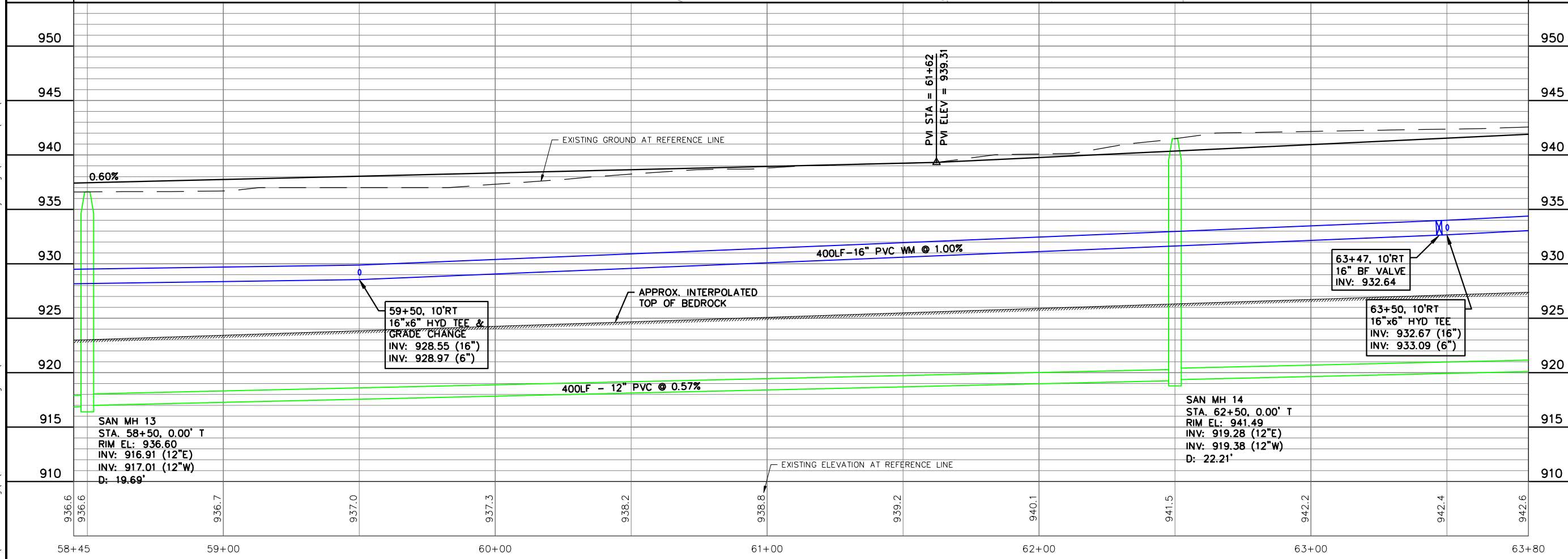
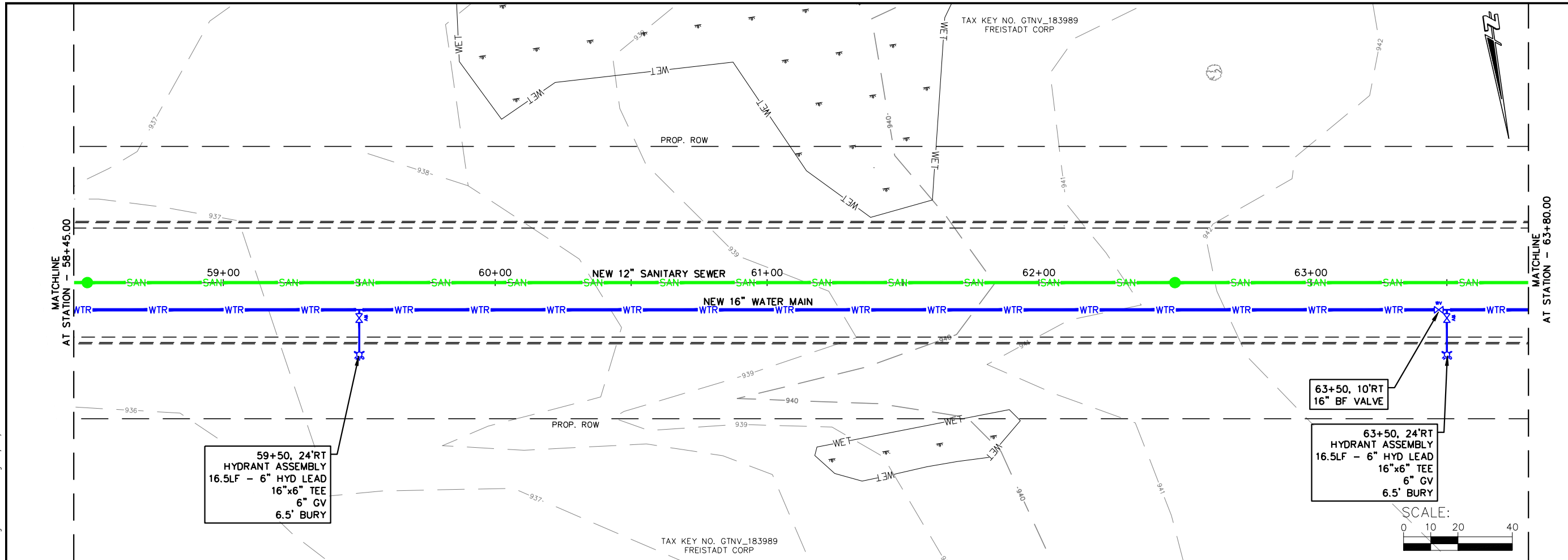
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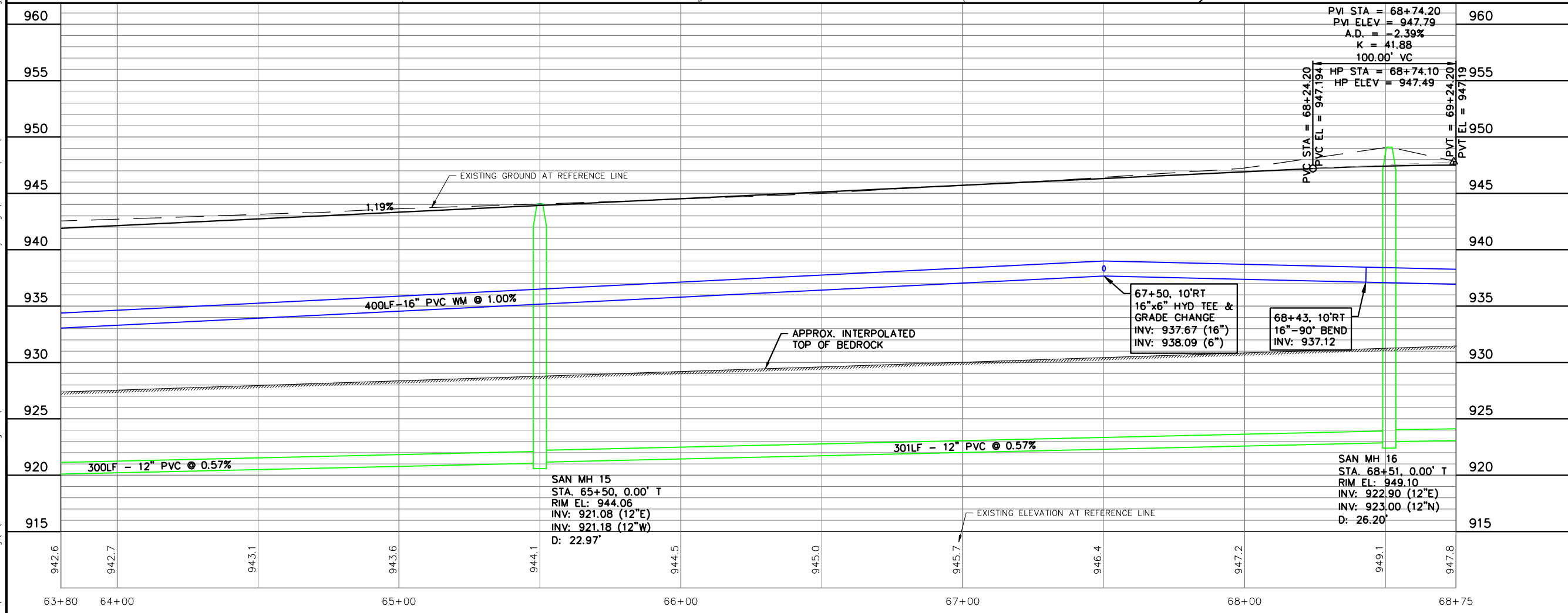
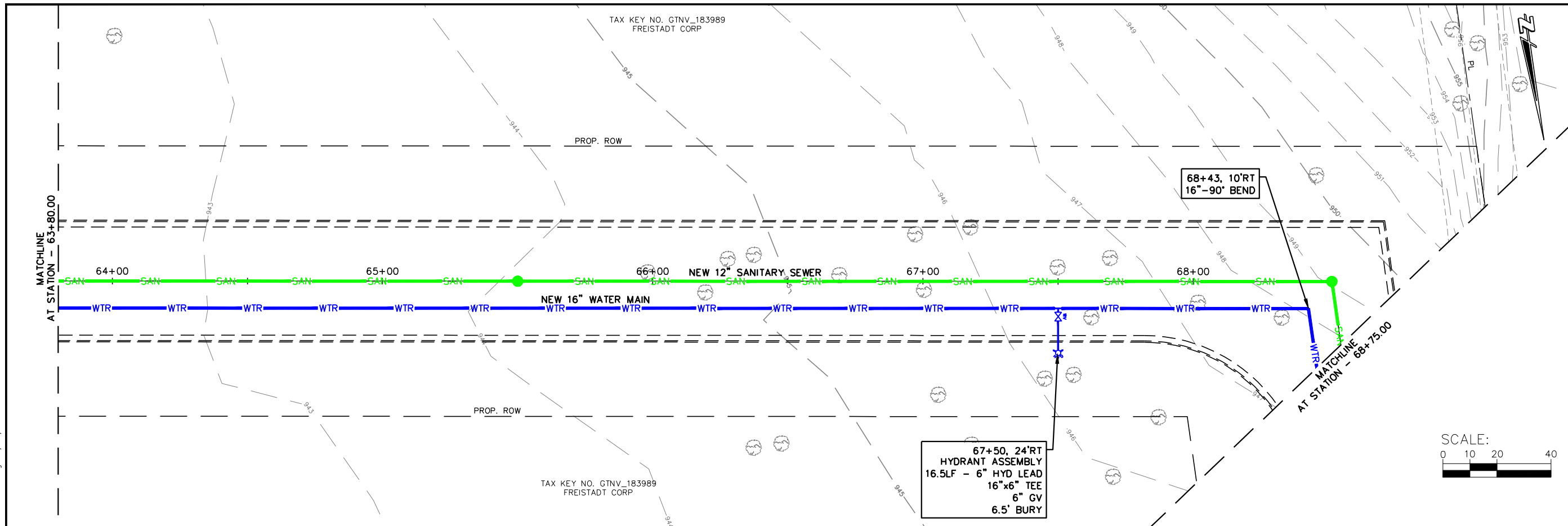
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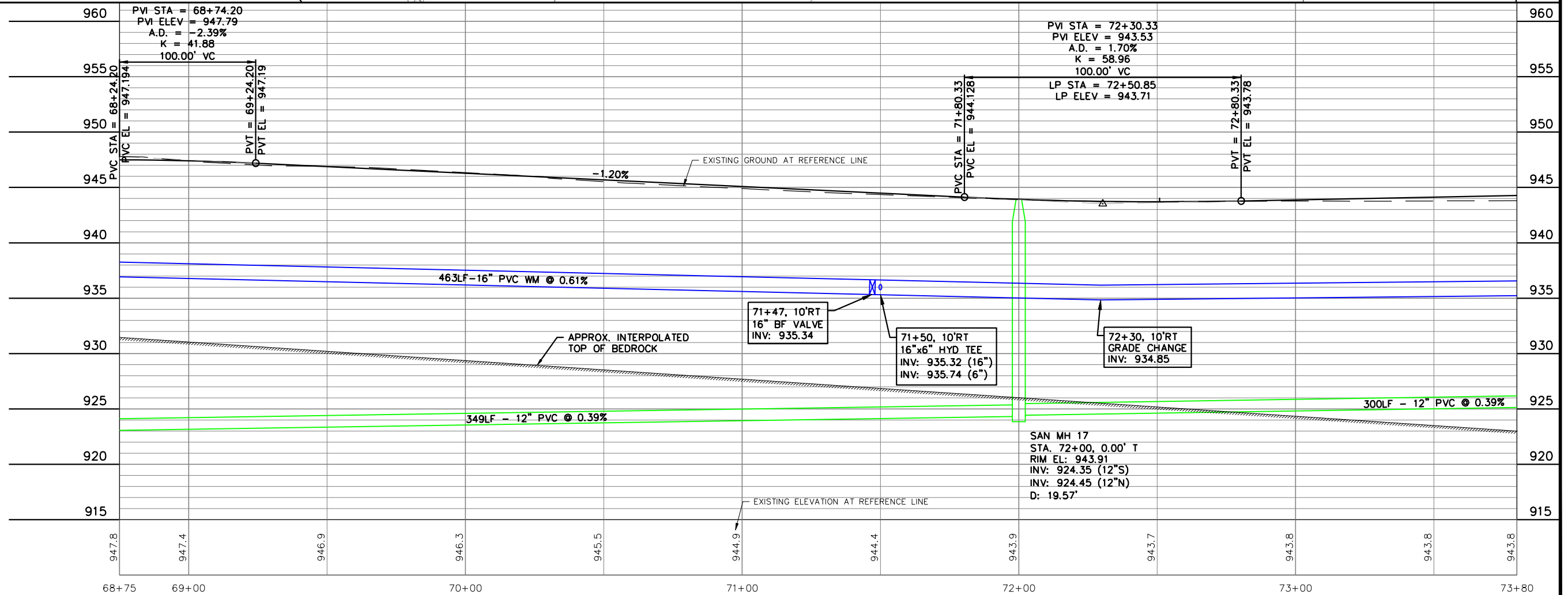
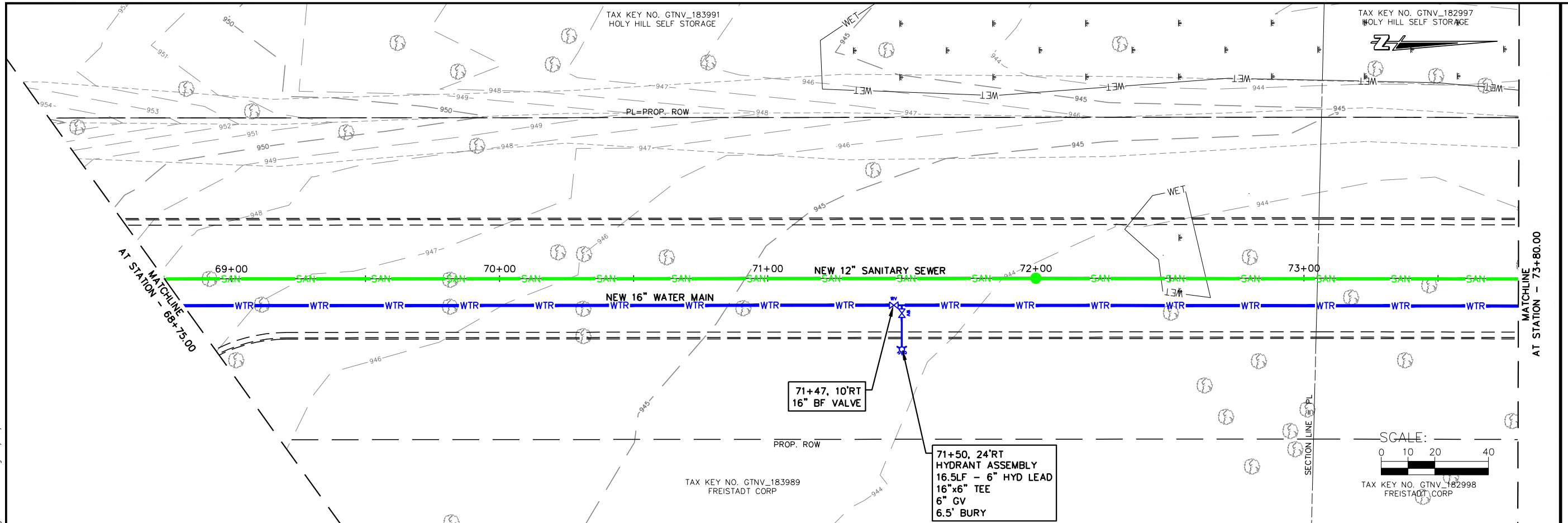
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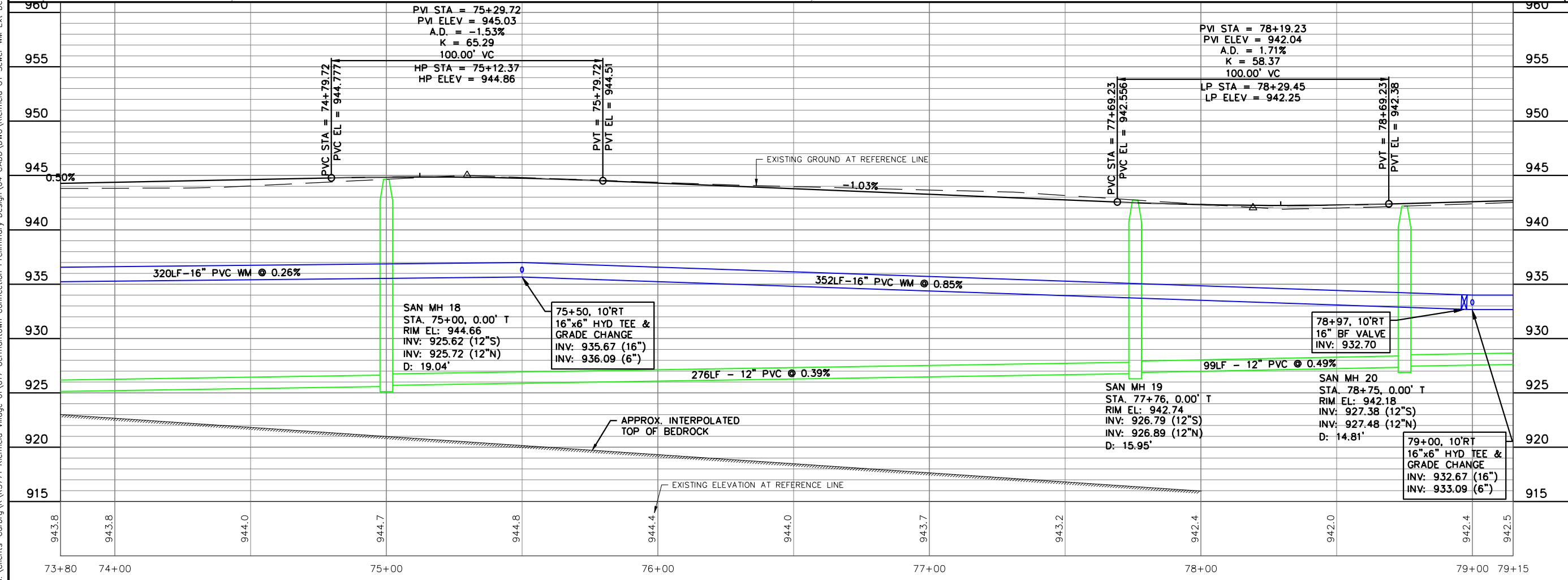
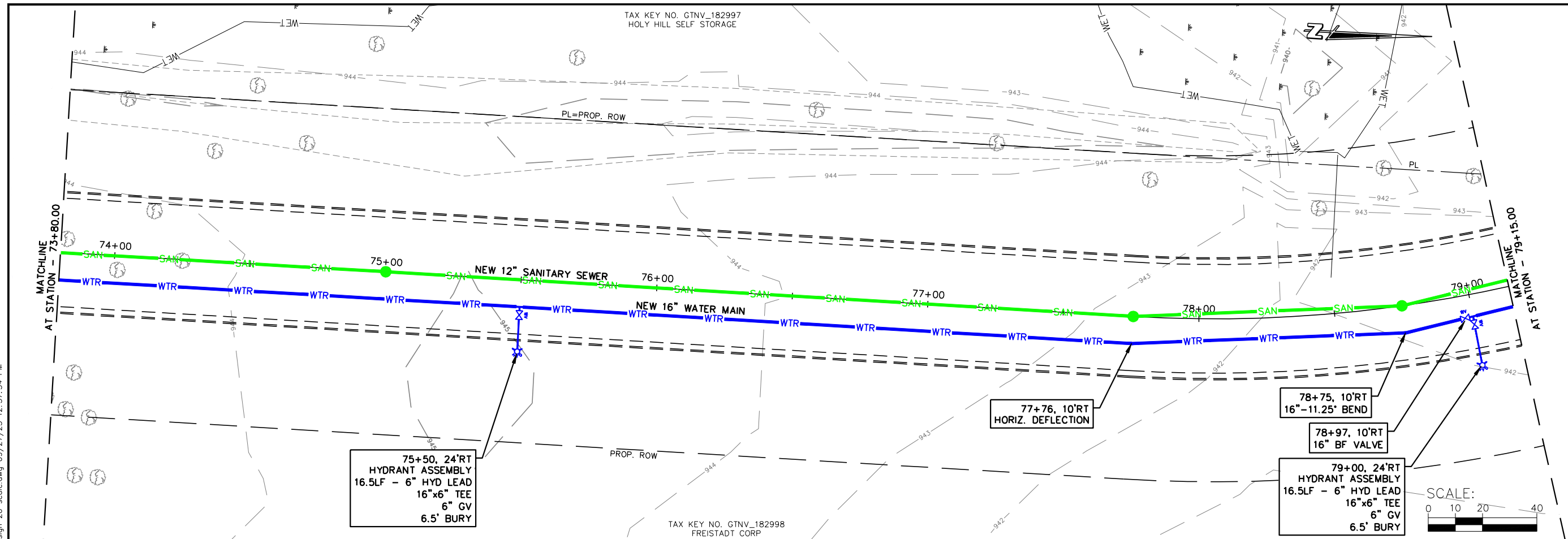
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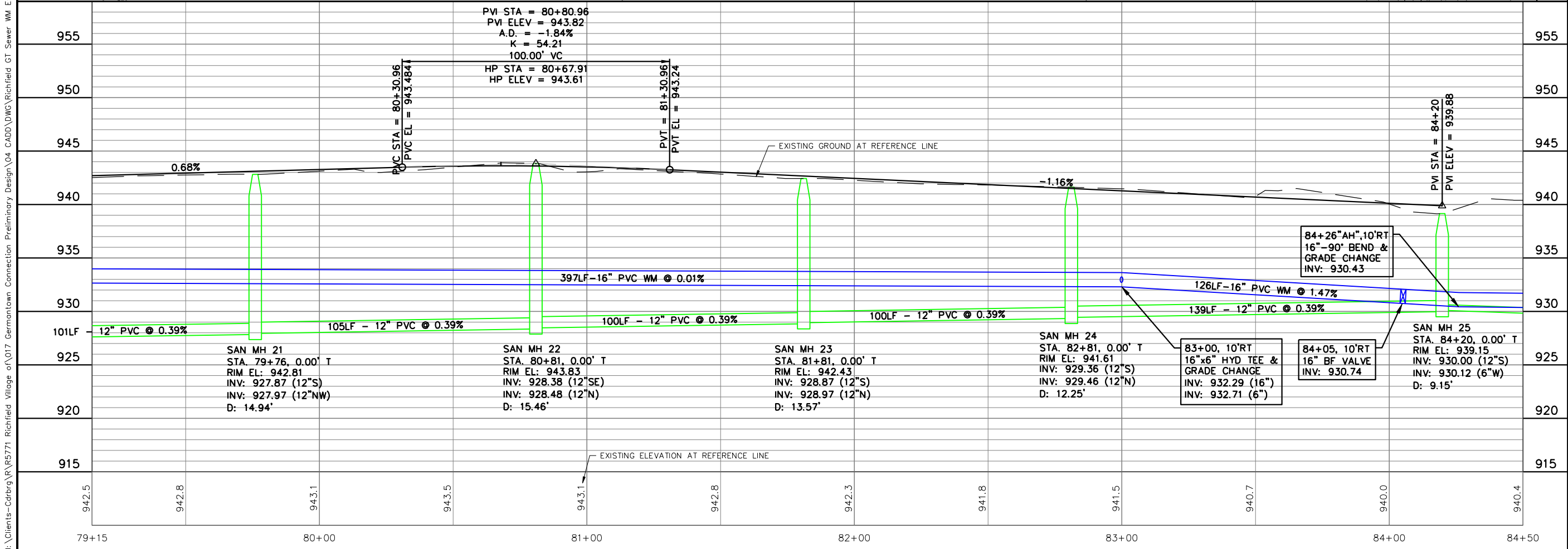
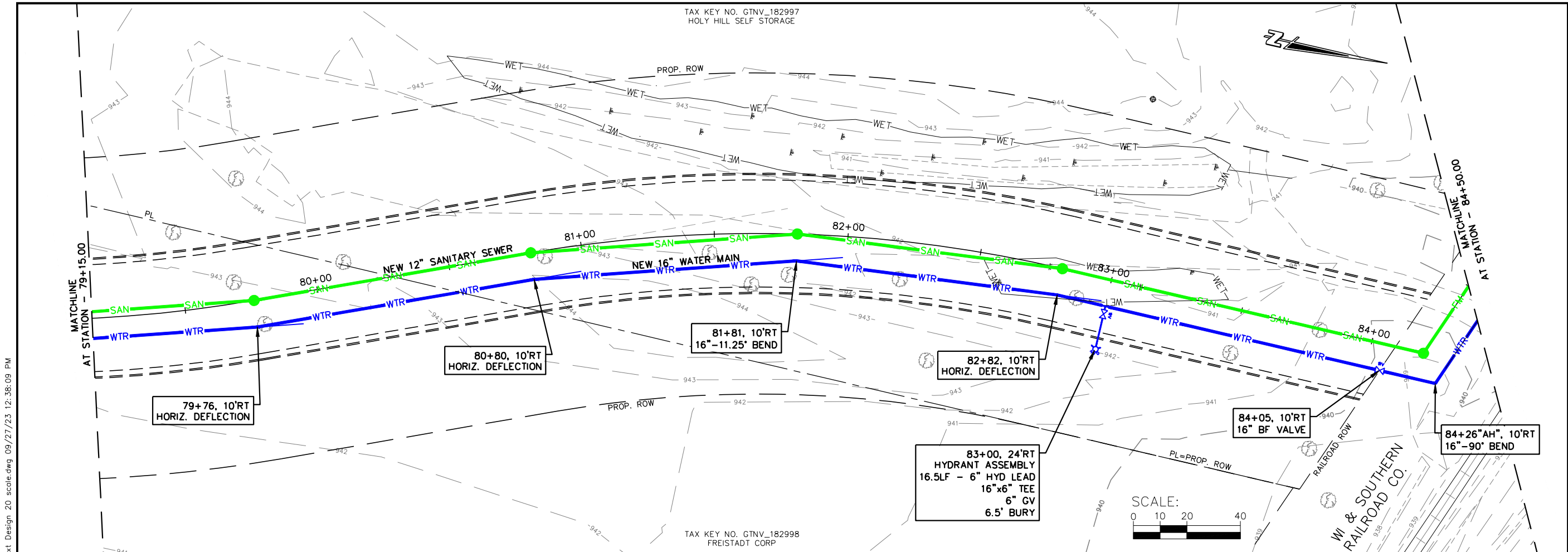
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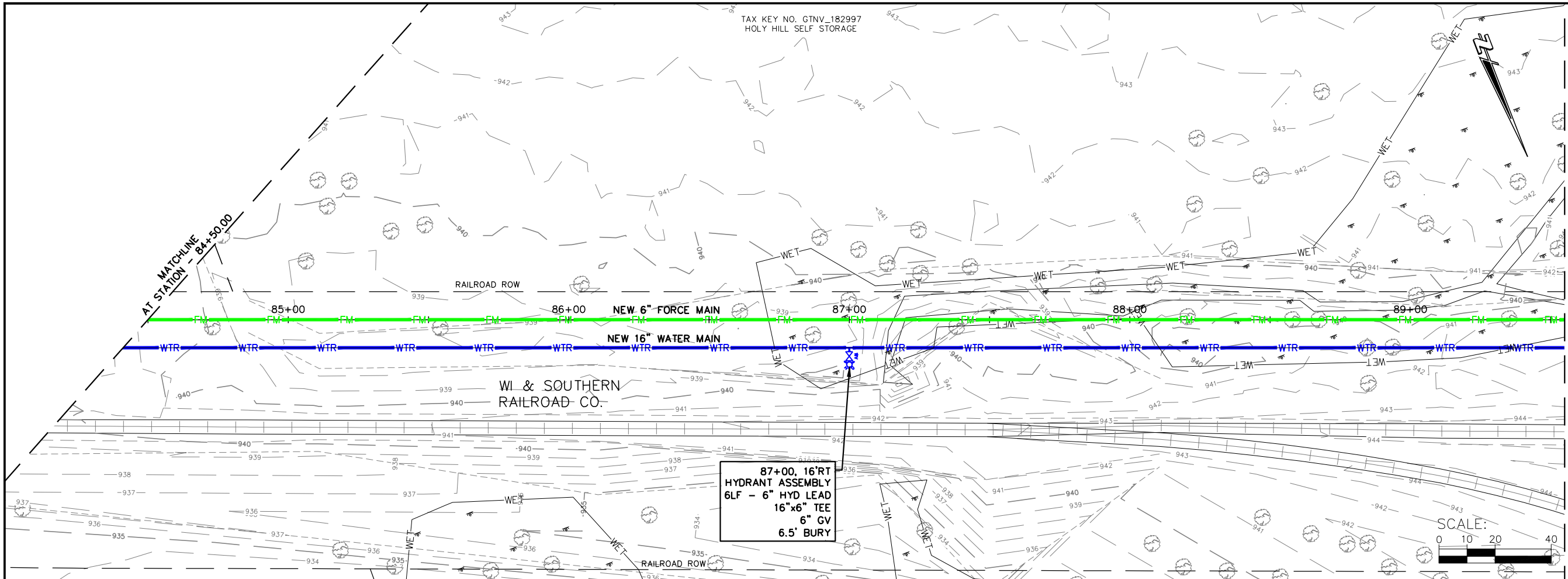
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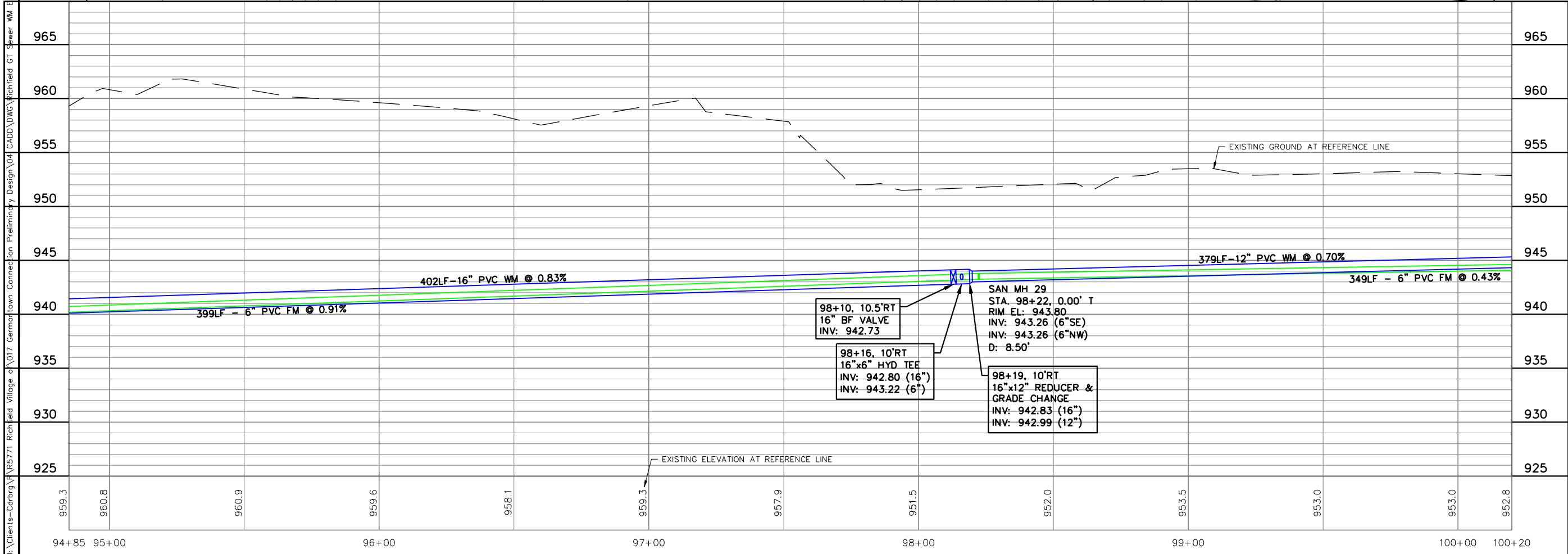
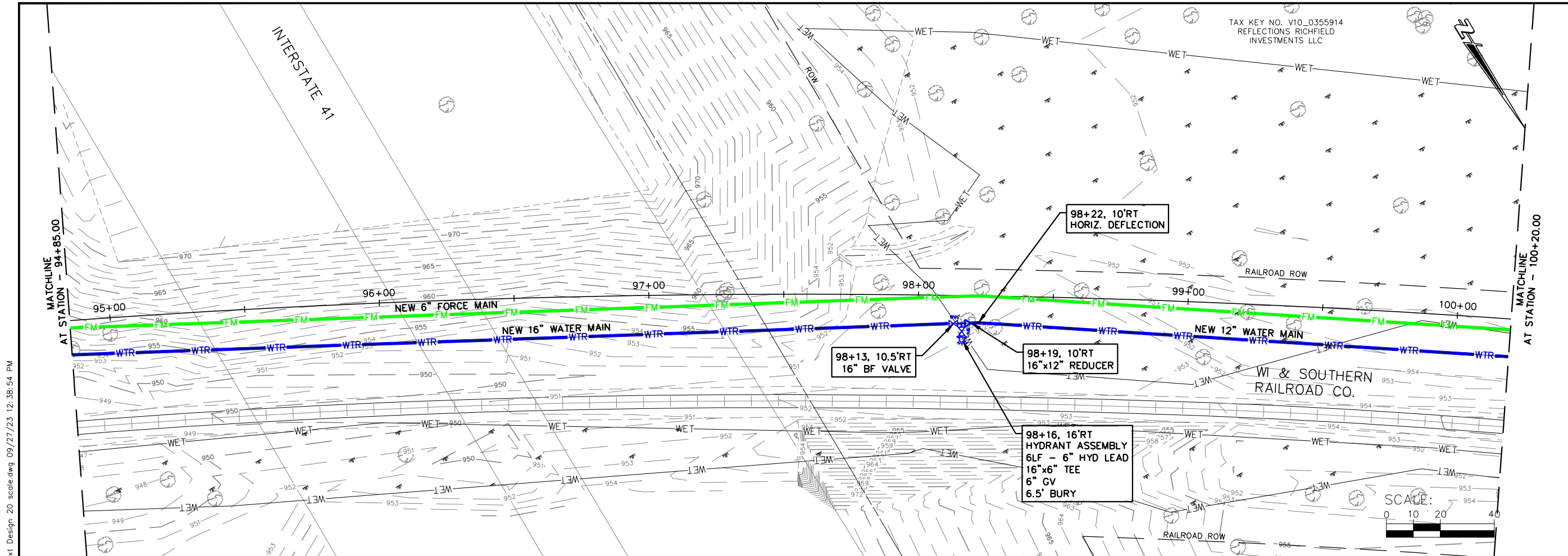
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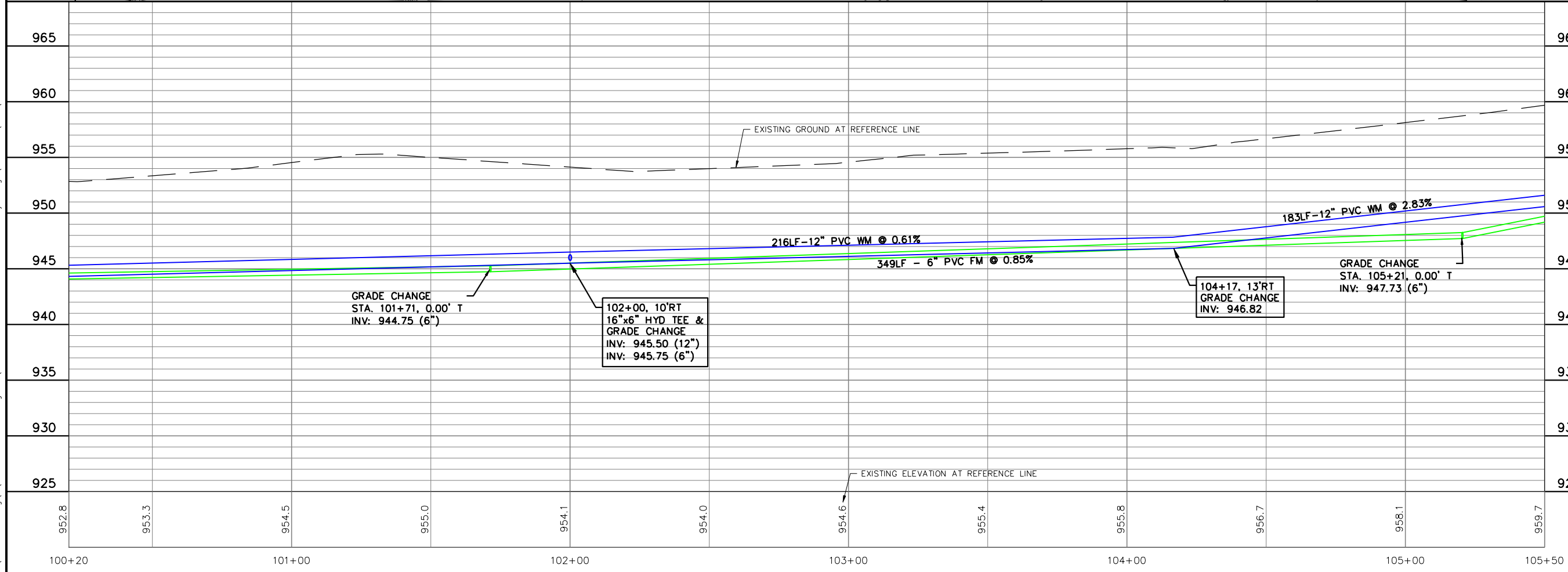
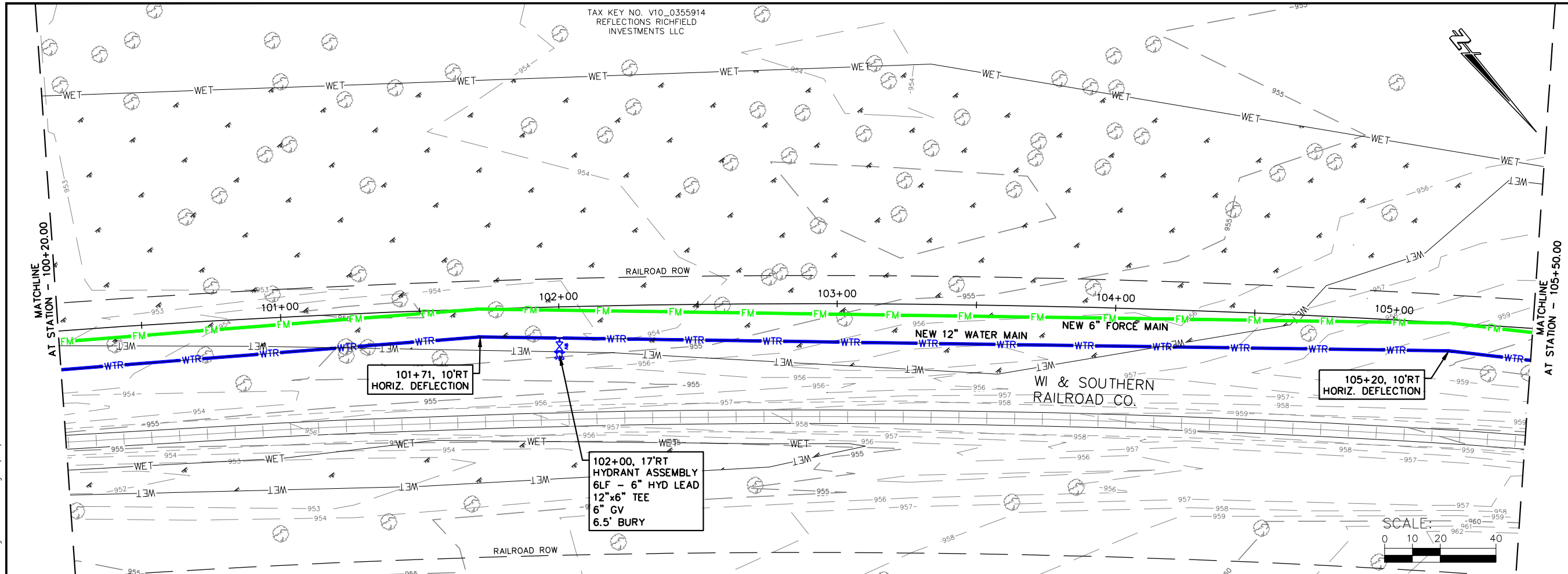
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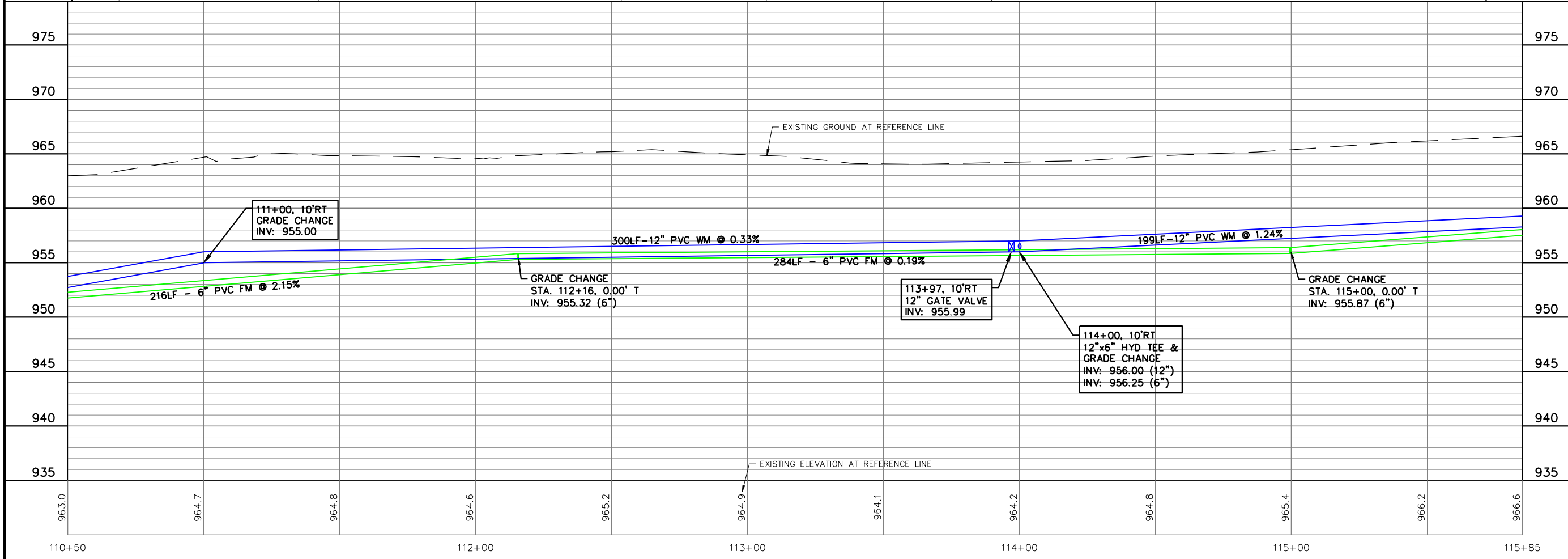
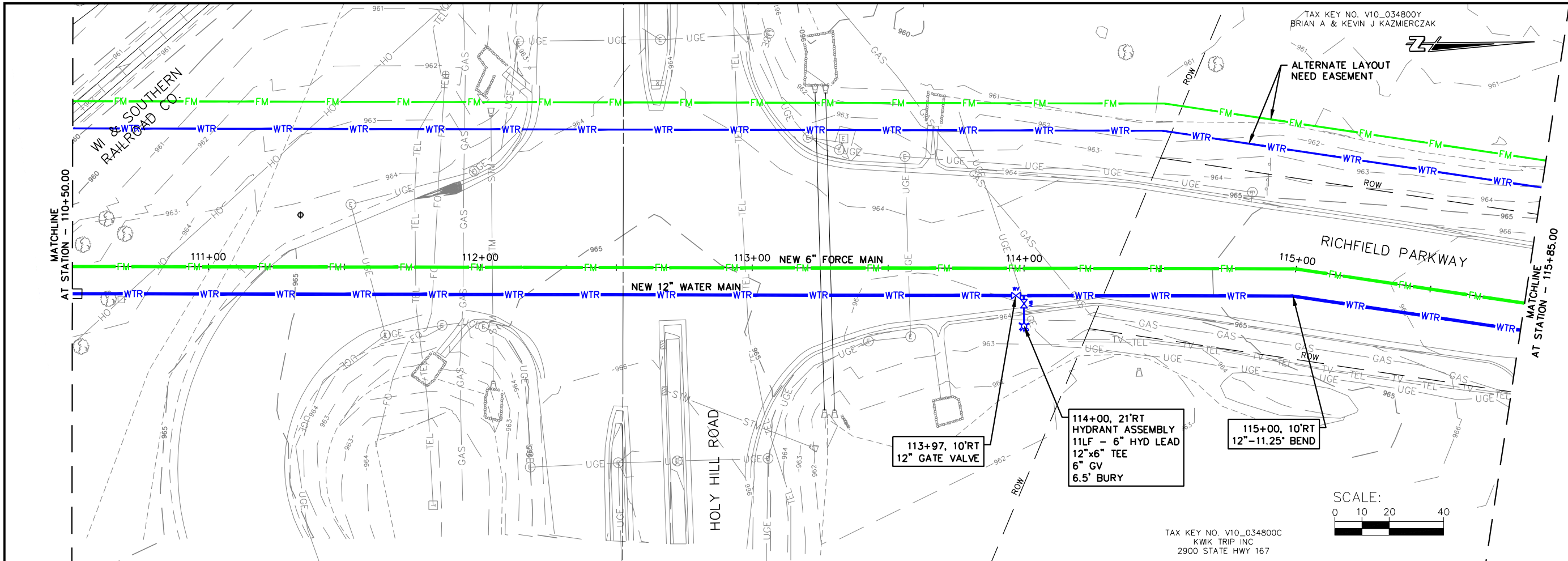
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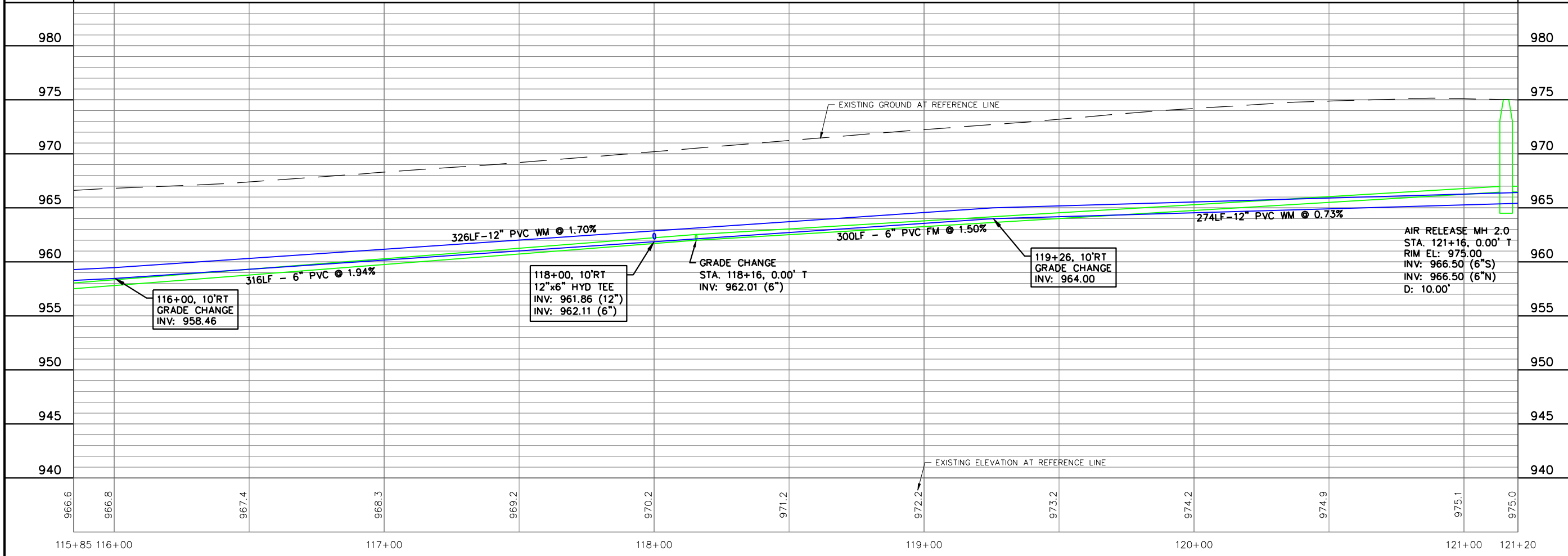
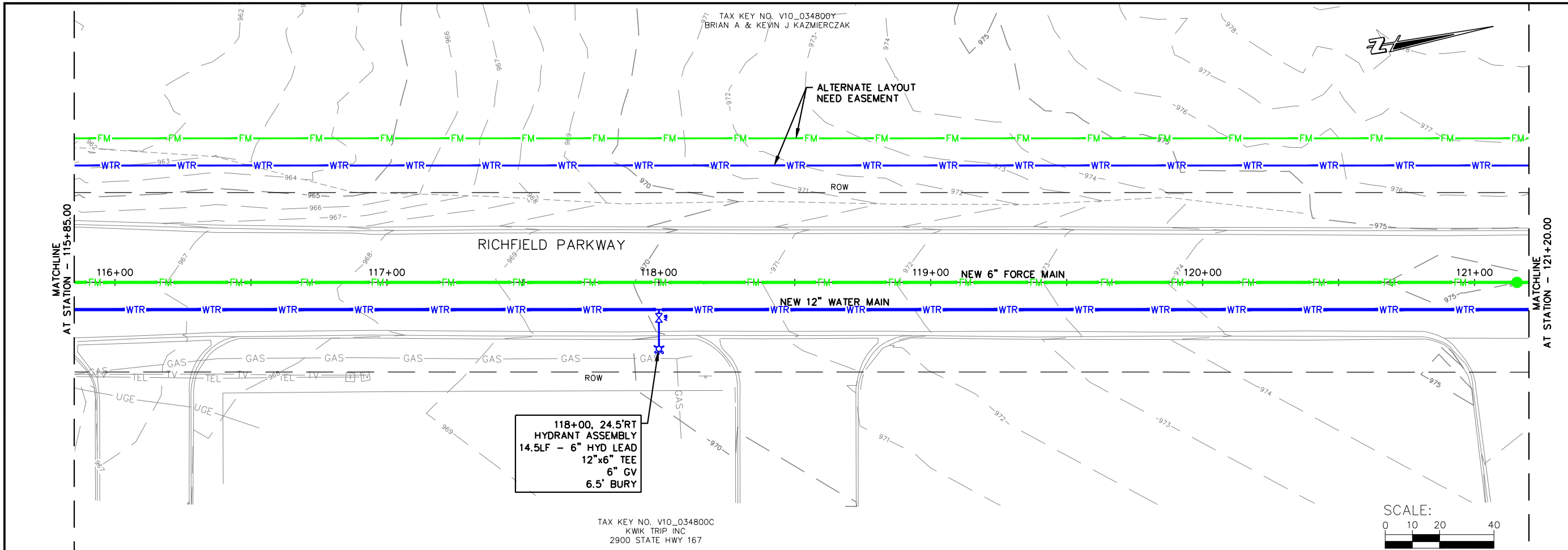
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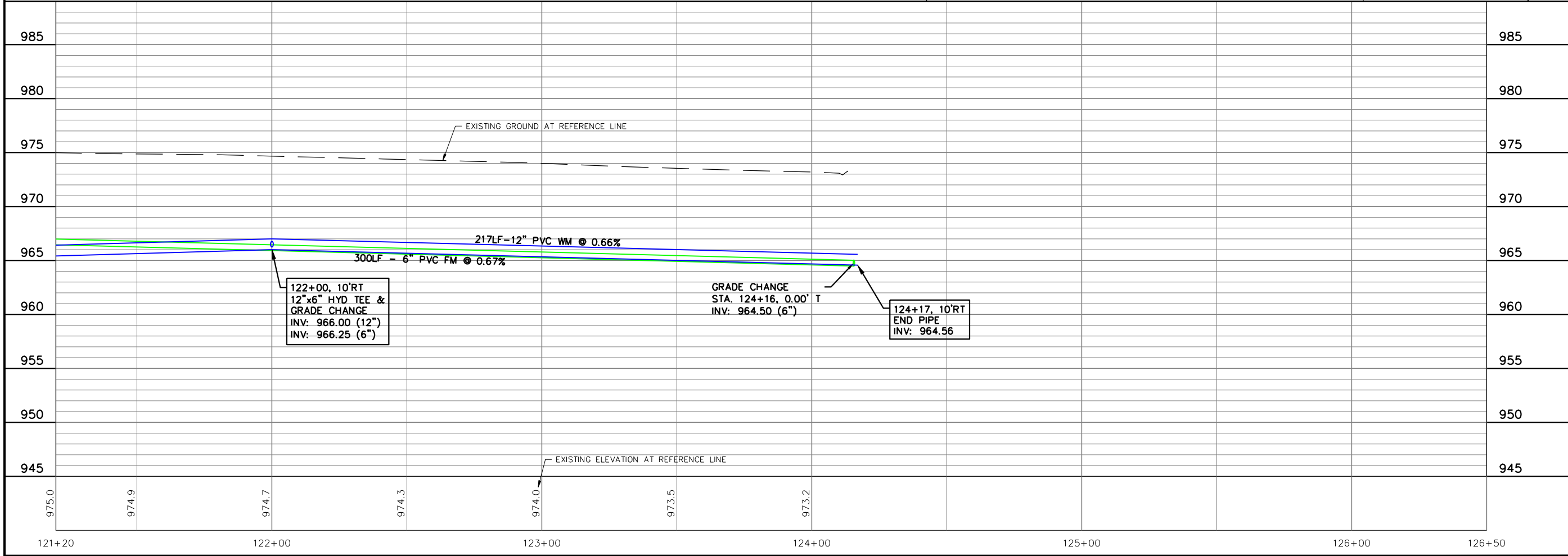
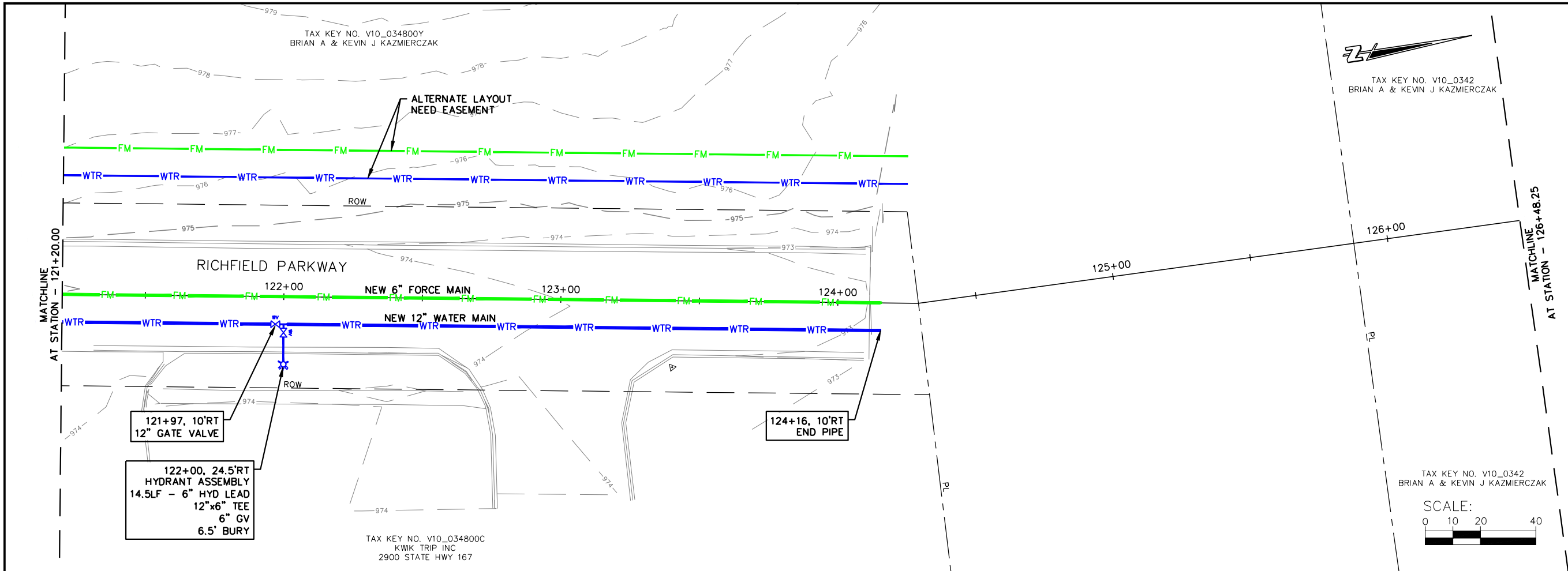
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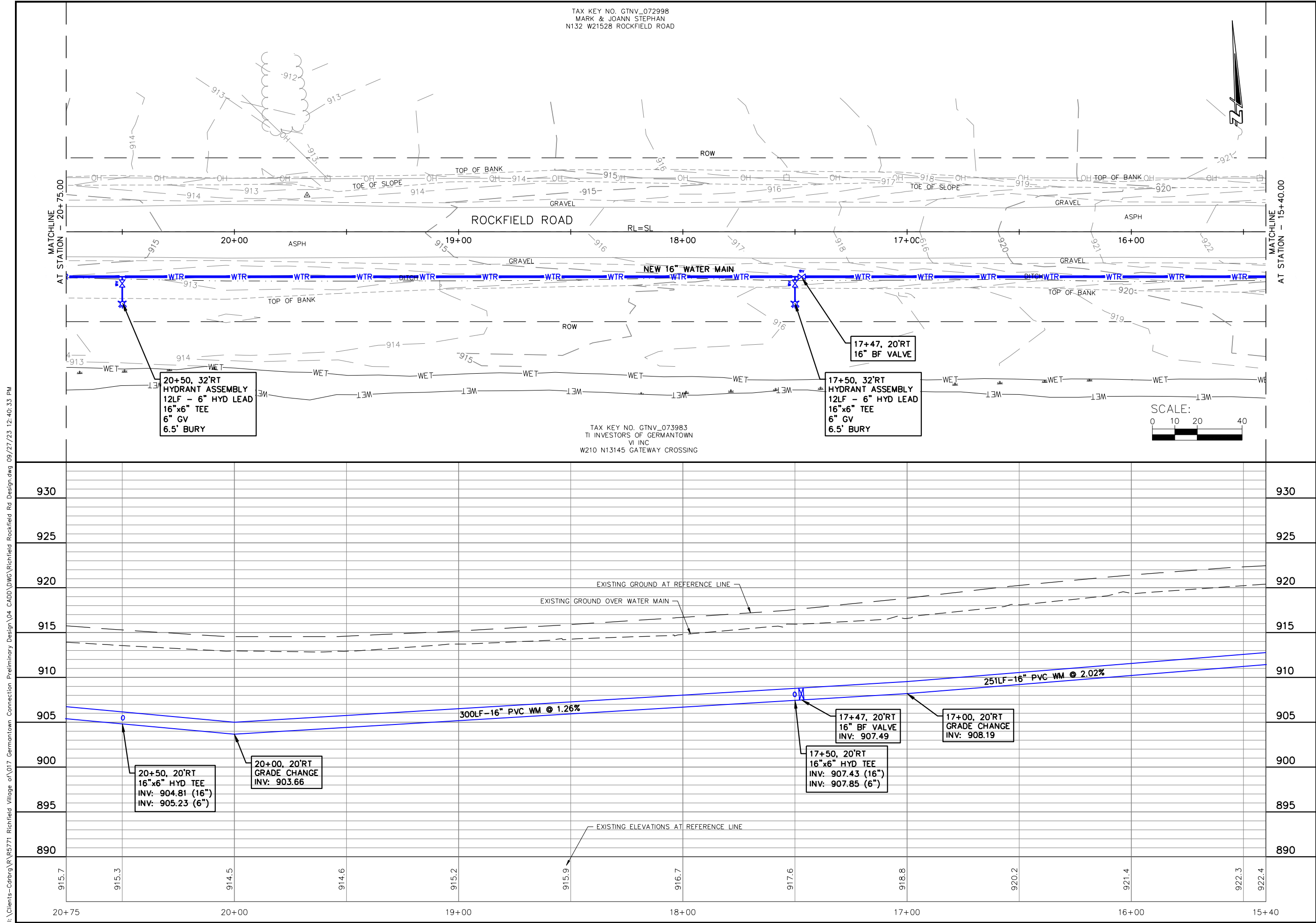
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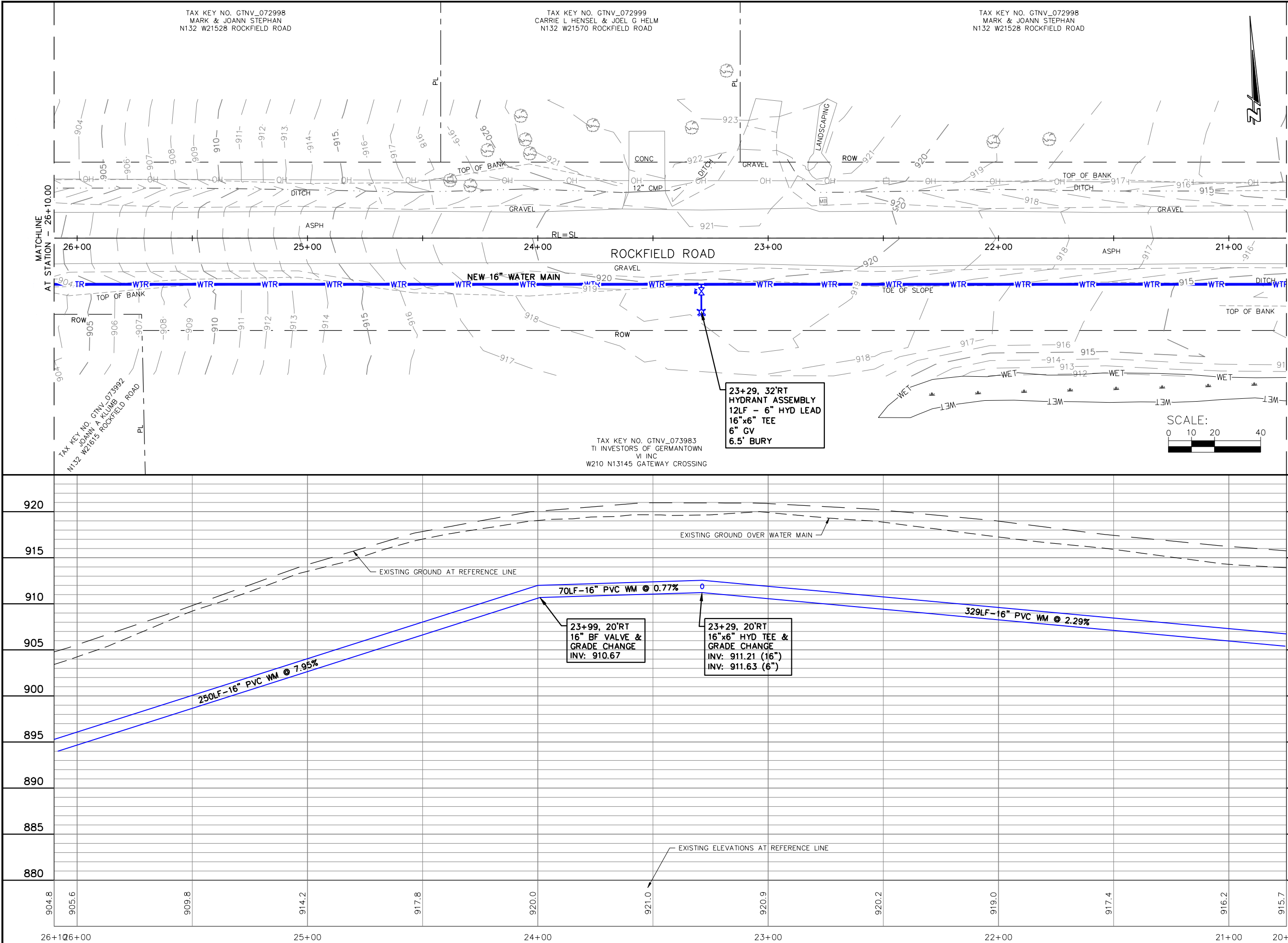
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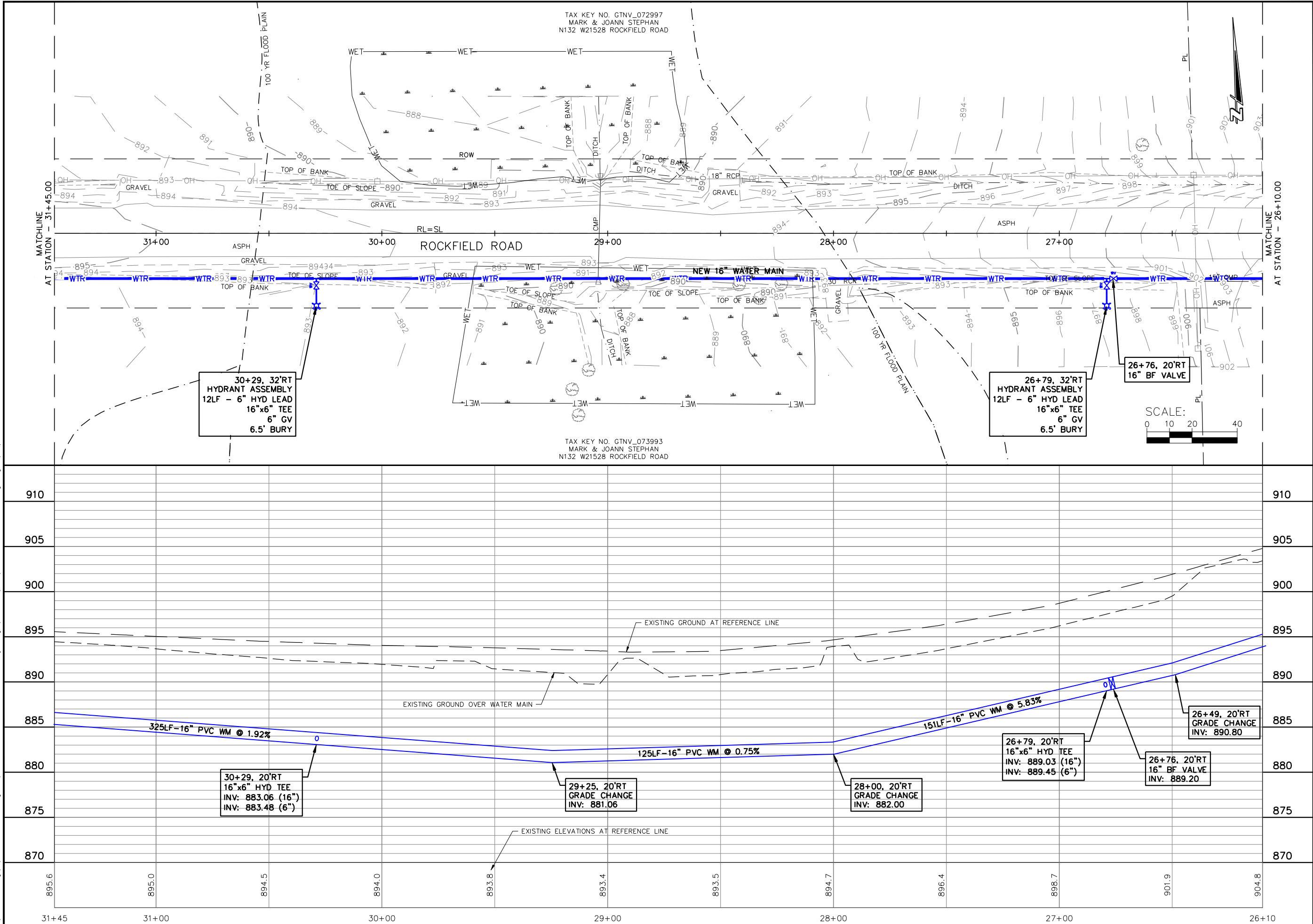
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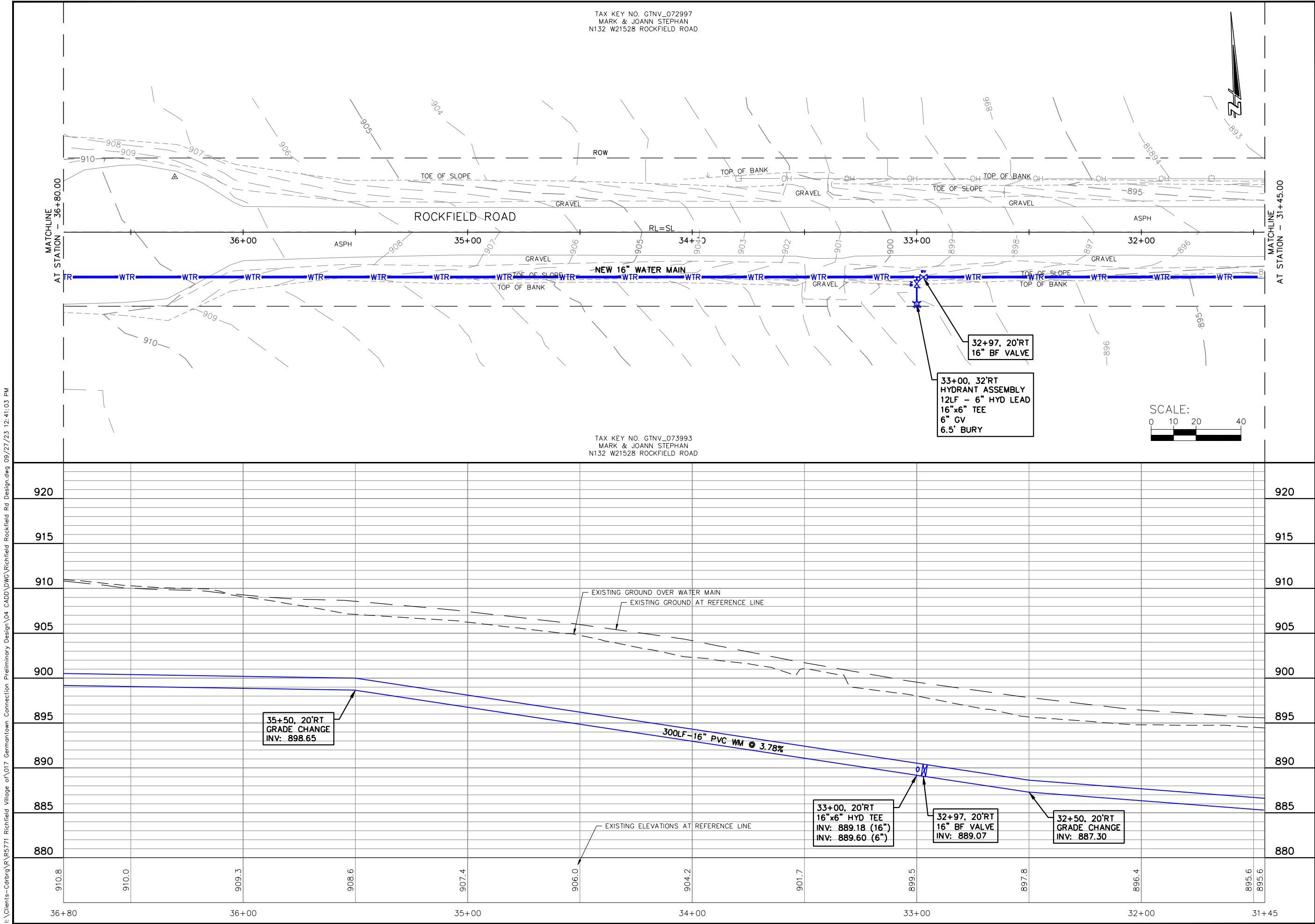
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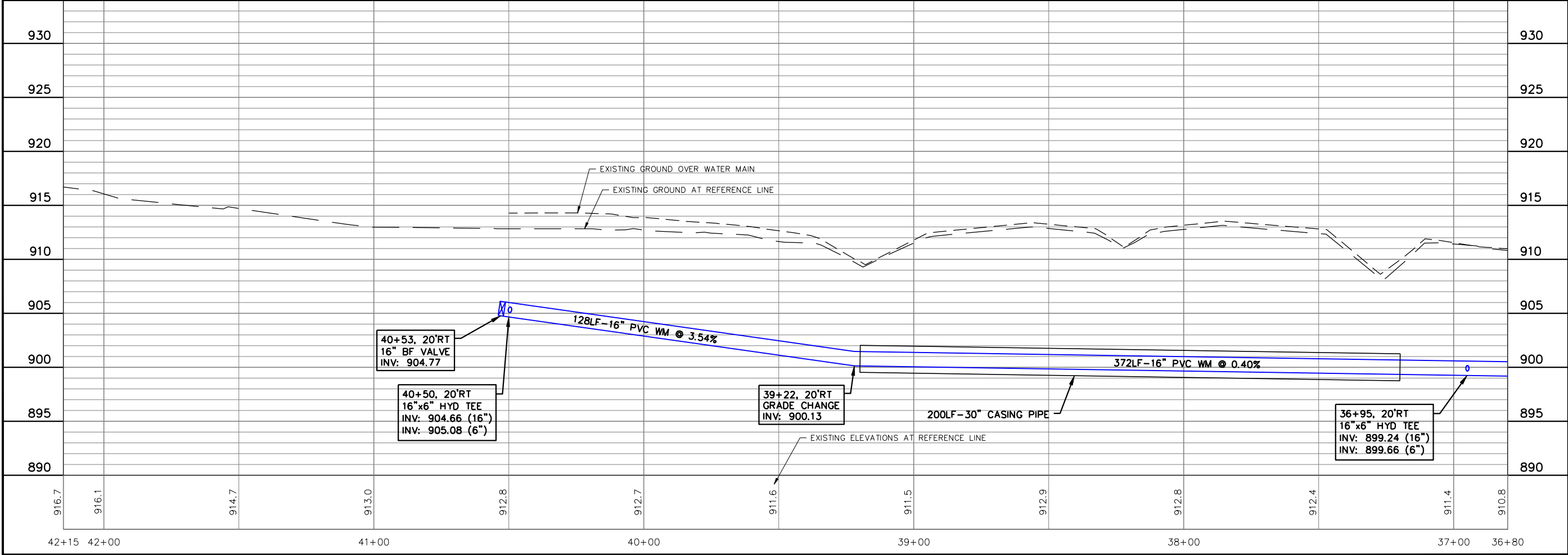
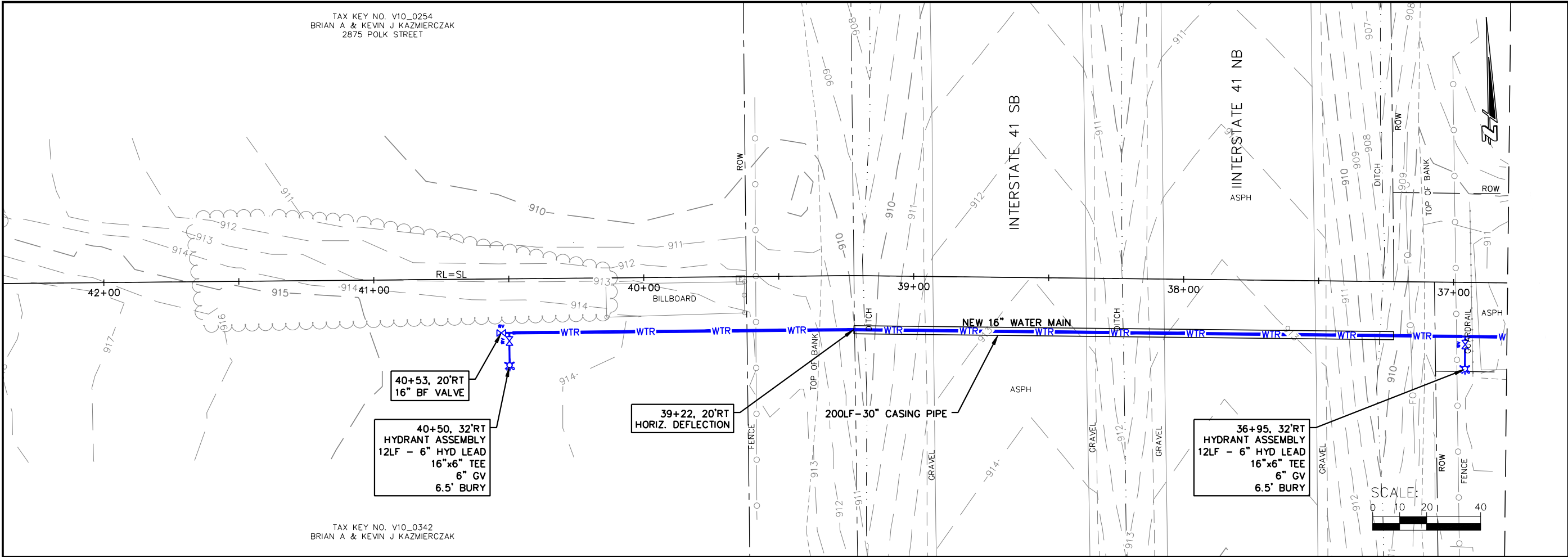
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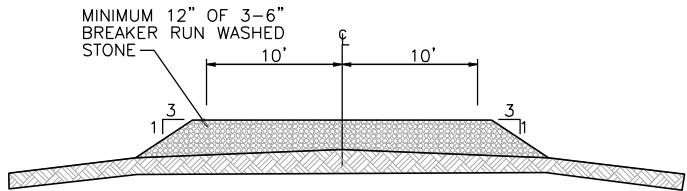
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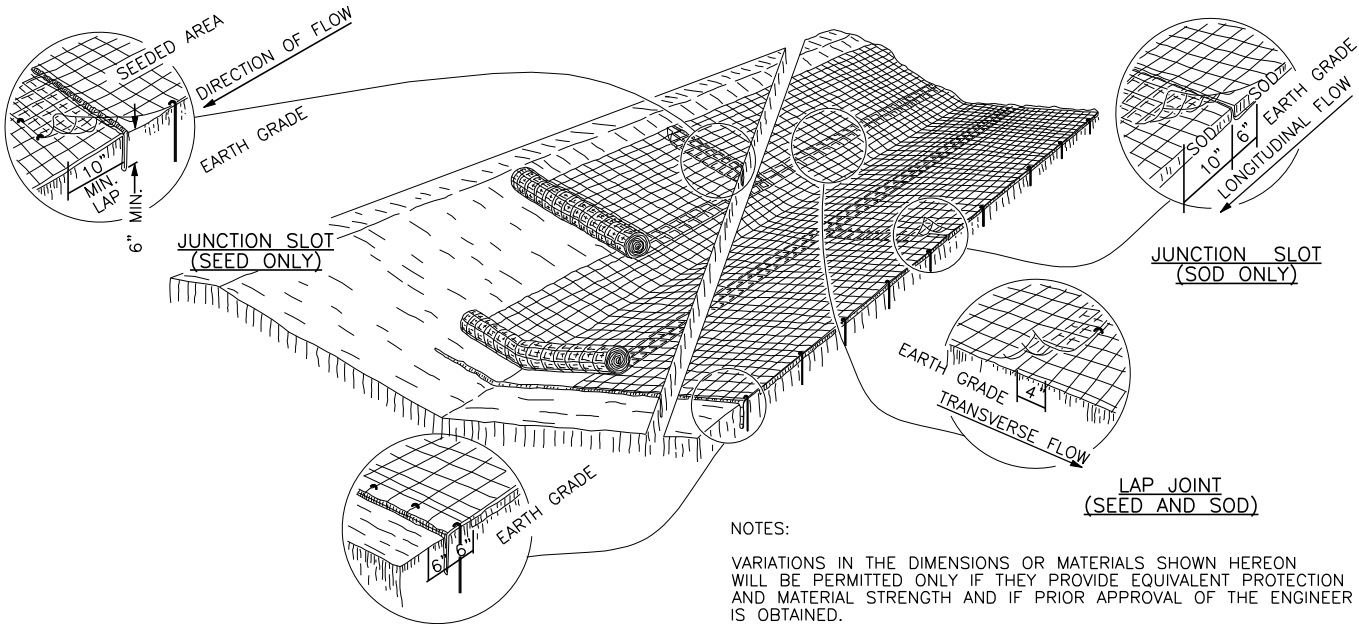
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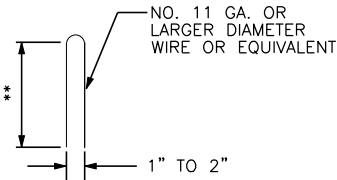


- NOTES:
1. TRACKING PAD TO BE A MINIMUM LENGTH OF 50'.
 2. REMOVE & REPLACE AGGREGATE WHEN VOIDS BECOME FILLED W/ SEDIMENT OR IF SURFACE OPENINGS BECOME PLUGGED SO THAT TRACKING AREA DOES NOT FUNCTION.
 3. REMOVE TRACKING PAD AND RESTORE AREA UPON COMPLETION OF THE PROJECT.

TYPICAL TRACKING PAD



**ANCHOR SLOT
AT BEGINNING AND END OF EROSION MAT
(SEED AND SOD)**



**
6" MIN. FOR FIRM SOILS
12" MIN. FOR LOOSE SOILS
8" MIN. WHERE BOTH SOD AND
MATS ARE USED
**DETAIL OF
TYPICAL STAPLE**

NOTES:
VARIATIONS IN THE DIMENSIONS OR MATERIALS SHOWN HEREON
WILL BE PERMITTED ONLY IF THEY PROVIDE EQUIVALENT PROTECTION
AND MATERIAL STRENGTH AND IF PRIOR APPROVAL OF THE ENGINEER
IS OBTAINED.

DO NOT PLACE LAP JOINTS AT THE BOTTOM OF V-SHAPED DITCHES.

JUNCTION SLOTS ON ADJACENT STRIPS OF MATTING WILL BE
STAGGERED A MINIMUM OF 4 FEET APART

IMPRESS ALL EDGES OF THE EROSION MAT INTO THE SOIL.

EROSION MAT OVER SOD

ONLY JUTE FABRIC WILL BE PERMITTED OVER SOD

WOOD STAKES FOR SOD MAY BE OMITTED IF THE EXISTING
SLOPE AND SOIL CONDITIONS SO WARRANT.

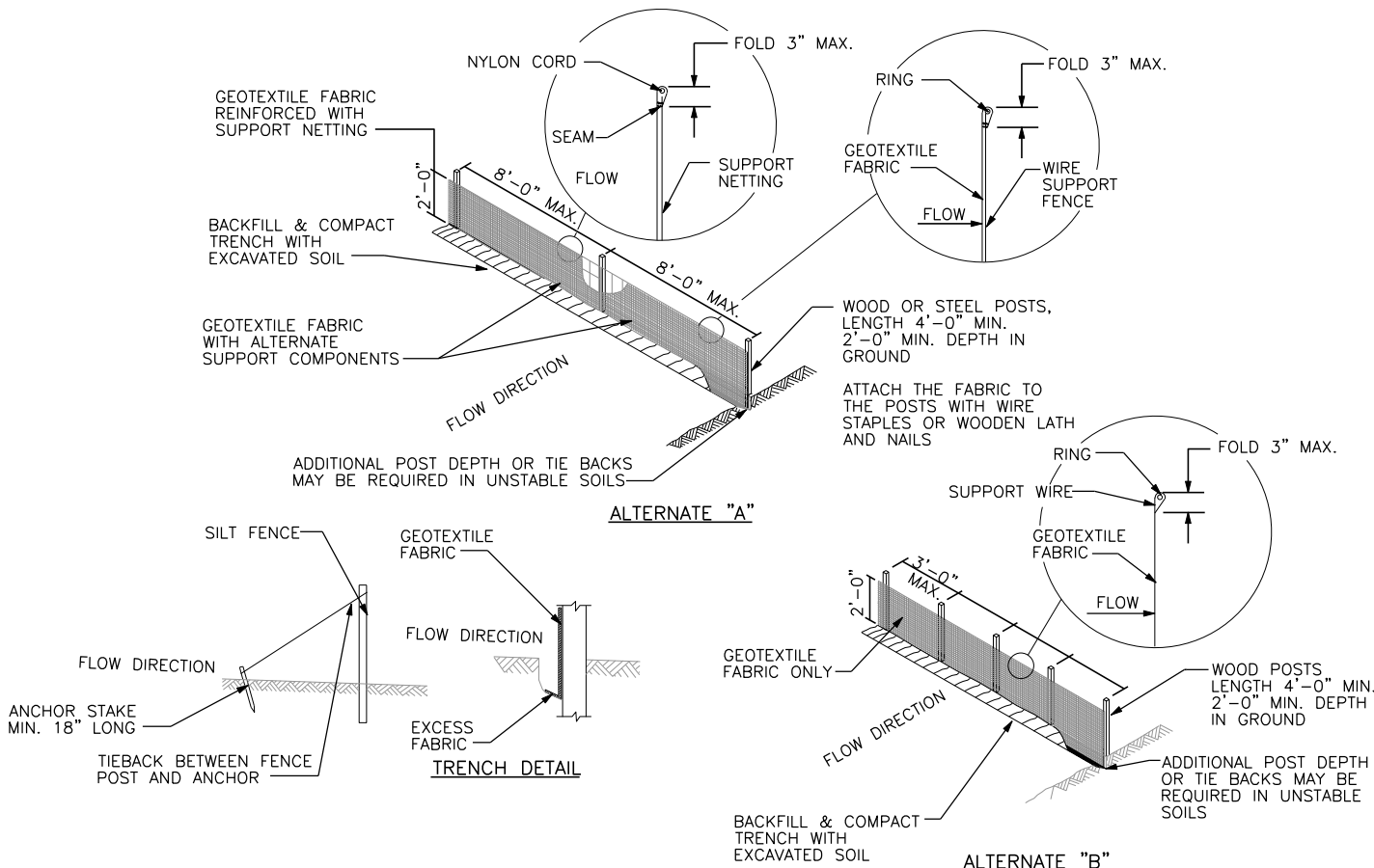
THE WIDTH OF THE EROSION MAT SHALL EQUAL THE SOD WIDTH.

SOD STRIPS MAY BE PLACED EITHER LONGITUDINALLY OR
TRANSVERSELY TO THE FLOW LINE OF THE DITCH.

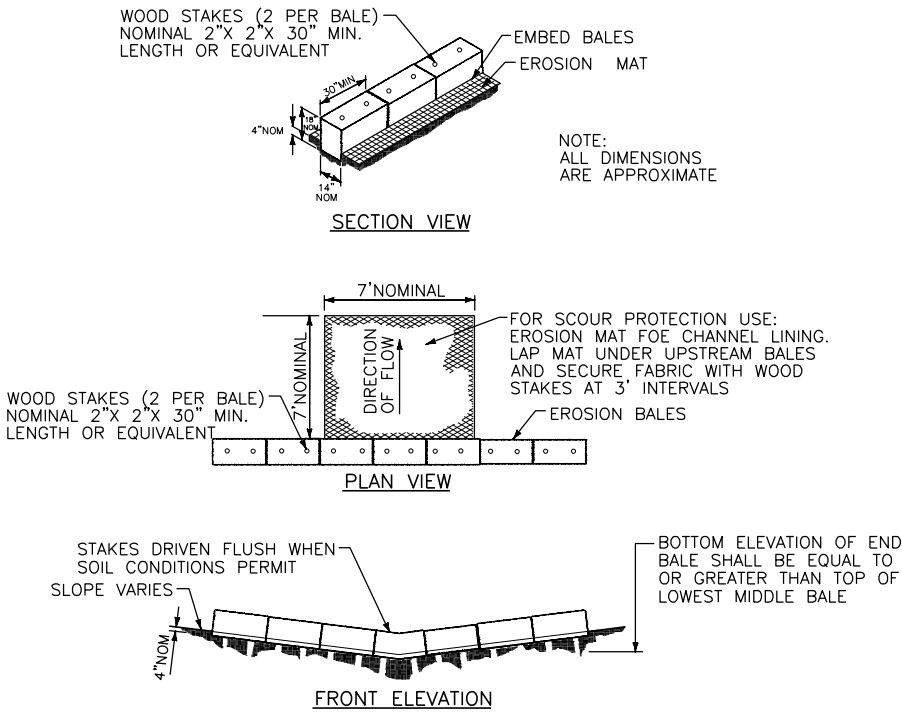
EROSION MAT OVER SEEDING

JUNCTION OR ANCHOR SLOTS WILL BE AT MINIMUM INTERVALS
OF 100 FEET ON GRADES UP TO AND INCLUDING 3 PERCENT,
AND 50 FEET ON GRADES EXCEEDING 3 PERCENT.

EROSION MAT



SILT FENCE



TEMPORARY DITCH CHECK DETAIL

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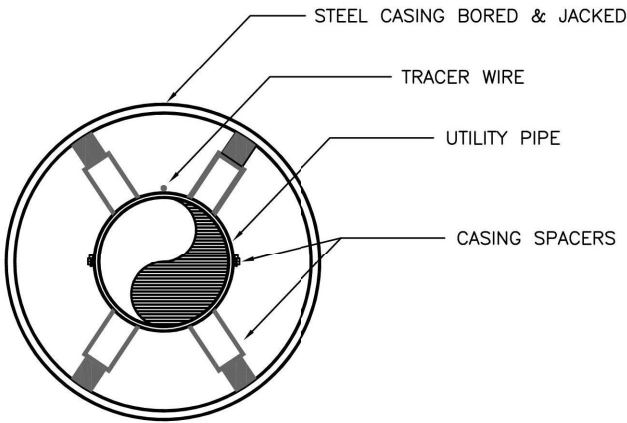
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STANDARD DETAILS

SHEET NO.	33 OF X
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STEEL CASING PIPE SHALL MEET THE REQUIREMENTS AS DESCRIBED IN THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN SECTION 6.2.3 AND DRAWING FILE NO. 19.

THE PIPE SHALL BE SUPPORTED AND BRACED USING CASING SPACERS AS MANUFACTURED BY ADVANCE PRODUCTS & SYSTEMS OR EQUAL, AS APPROVED BY THE ENGINEER.

A TRACER WIRE SHALL BE INSTALLED AS PER THE VILLAGE SPECIFICATIONS.

EACH END OF THE CASING SHALL RECEIVE A 12" CONCRETE OR BRICK MORTARED BULKHEAD.

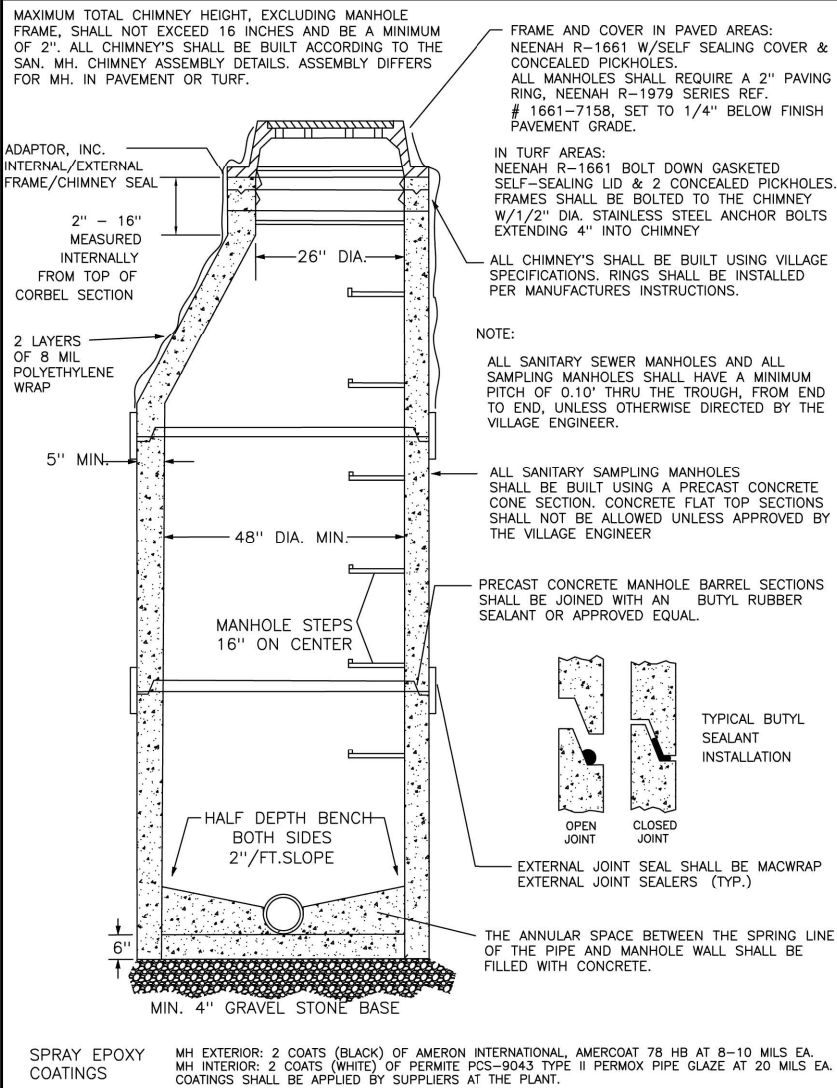
NEW UTILITY PIPE TO BE CENTERED IN THE CASING PIPE.



BORING OR JACKING CASING PIPE
WITH CASING SPACERS

REV. 10/10/2018 RCB

NOT TO SCALE



STANDARD
SANITARY MANHOLE &
SAMPLING MANHOLE DETAIL

REVISED DATE: 10/11/2019 FJR

NOT TO SCALE

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WASHINGTON COUNTY, WISCONSIN
STANDARD DETAILS

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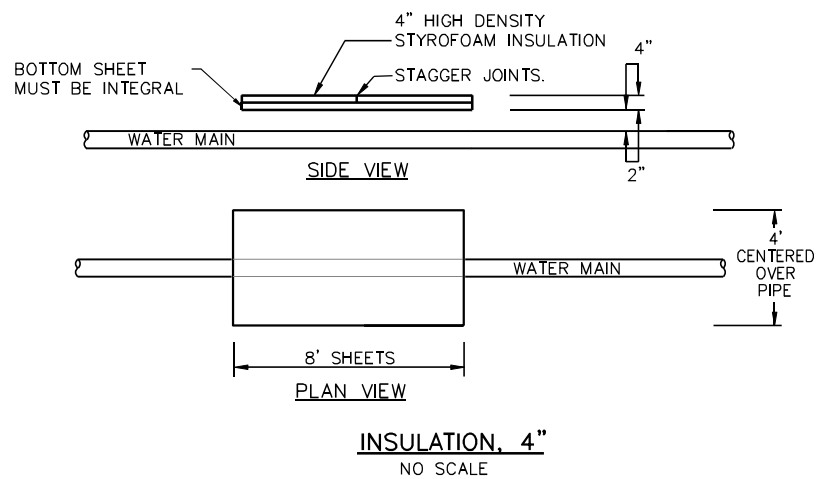
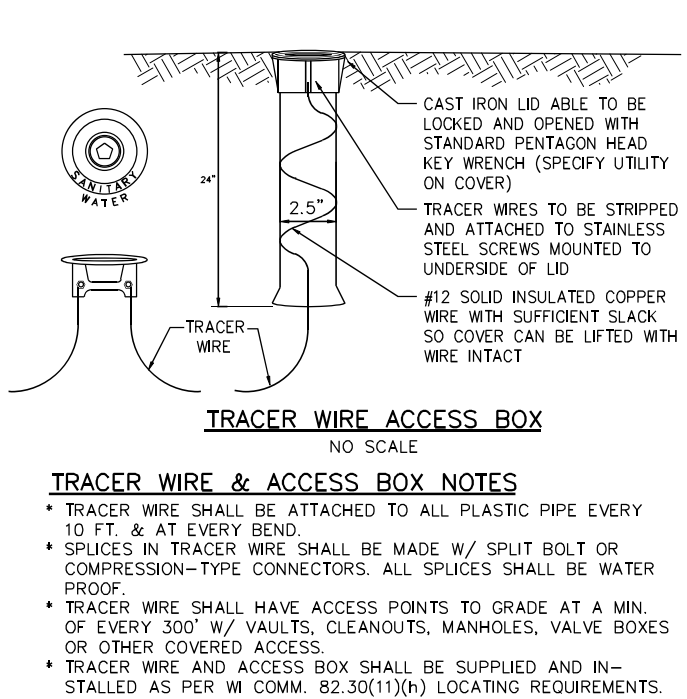
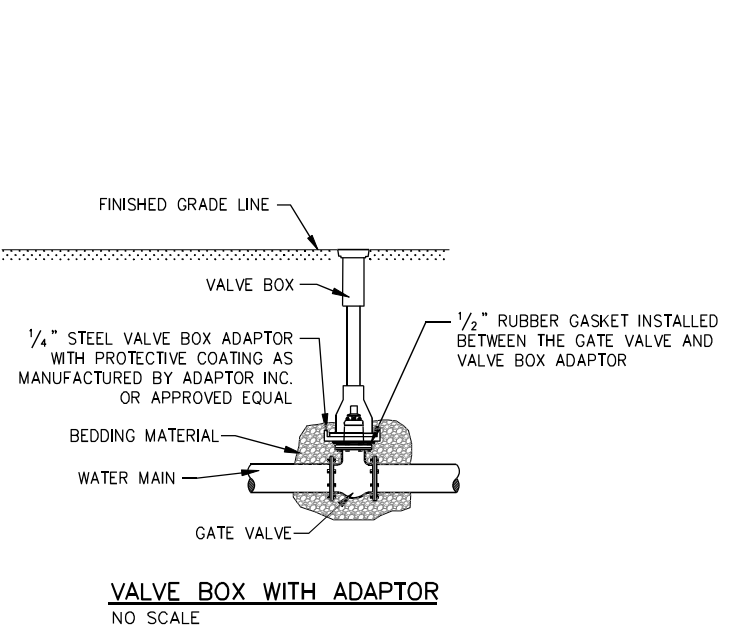
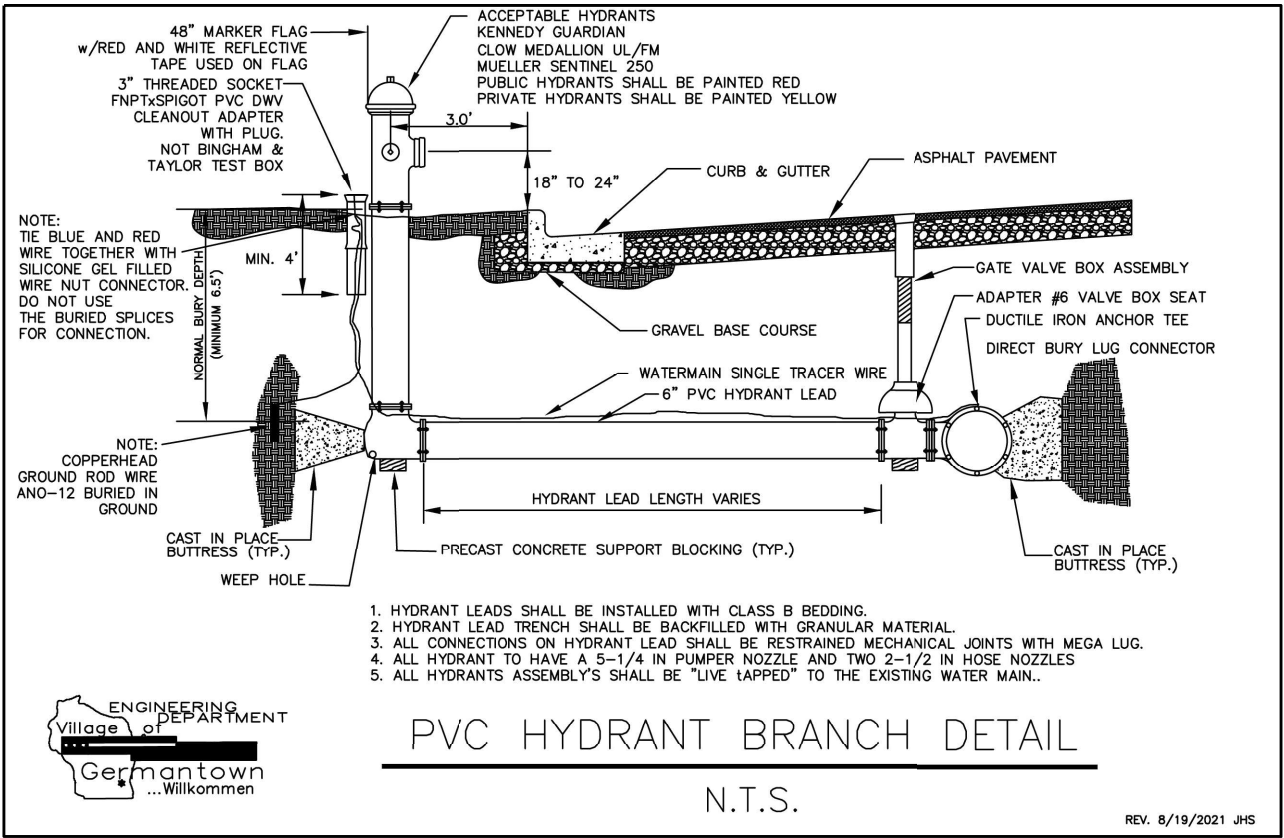
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Appendix M – Germantown Connection Sewer & Water Extension Opinion of Probably Cost



OPINION OF PROBABLE PROJECT COST

Community Infrastructure • Architecture • Environmental Services

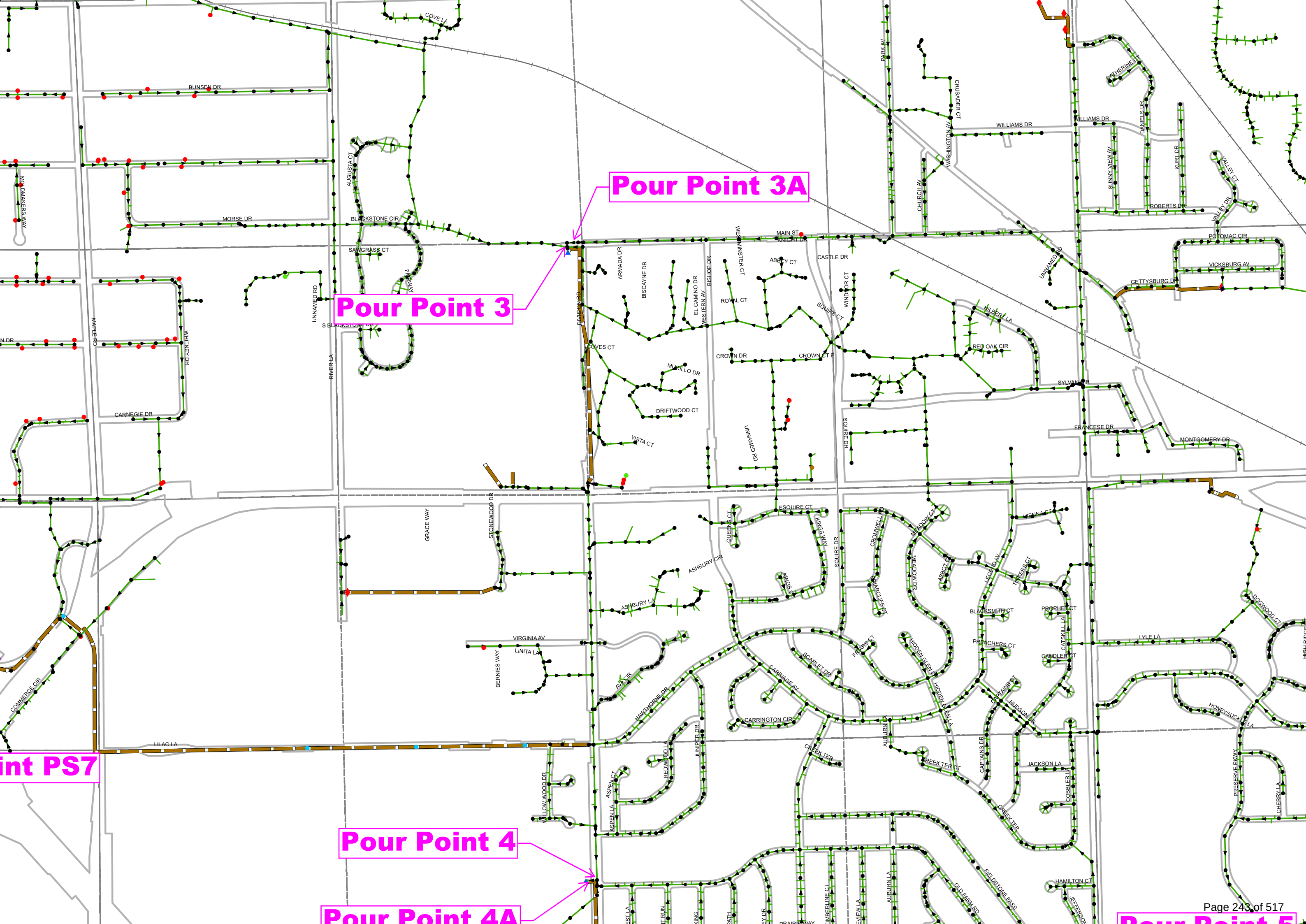
Client	Village of Richfield
Project	Germantown Sanitary and Water Connections
Prepared By	M. Stephan / B. Greisch

Project No.	R5771-0017
Date	9/27/2023
Revised Date	

Item	Unit	Qty	Unit Price	Cost
<u>Sanitary Sewer</u>				
Connection to Existing MH @ Freistadt	EA	1	\$20,000.00	\$20,000.00
12-inch PVC Sanitary Sewer	LF	7390	\$500.00	\$3,695,000.00
6-inch Force Main - Open Cut or Directional Drilled	LF	4000	\$200.00	\$800,000.00
Sanitary Sewer Manholes (25 Unit)	VF	435	\$600.00	\$261,000.00
Rock Excavation (Sanitary Sewer)	CY	1900	\$140.00	\$266,000.00
18-inch Steel Casing under RR	LF	120	\$900.00	\$108,000.00
Air Release / Air Vacuum Valve and Vault	EA	2	\$12,000.00	\$24,000.00
6-inch Plug Valve	EA	4	\$3,000.00	\$12,000.00
<u>Watermain - South</u>				
16-inch PVC Water Main - open cut	LF	7300	\$200.00	\$1,460,000.00
16-inch Water Main - Directional Drilled along RR and Under I-41	LF	1550	\$200.00	\$310,000.00
12-inch Water Main - Directional Drilled along RR and Richfield Parkway	LF	2560	\$180.00	\$460,800.00
Hydrant Assembly	EA	29	\$12,000.00	\$348,000.00
16-inch Butterfly Valve	EA	14	\$10,000.00	\$140,000.00
12-inch Gate Valve	EA	3	\$7,000.00	\$21,000.00
24-inch Steel Casing under RR	LF	120	\$1,250.00	\$150,000.00
<u>Watermain - From Rockfield Rd.</u>				
16-inch PVC Water Main - open cut	LF	2620	\$200.00	\$524,000.00
16-inch Water Main - Directional Drilled	LF	300	\$200.00	\$60,000.00
Hydrant Assembly	EA	9	\$12,000.00	\$108,000.00
16-inch Butterfly Valve	EA	4	\$10,000.00	\$40,000.00
30-inch Steel Casing under I-41	LF	200	\$1,500.00	\$300,000.00
<u>Street</u>				
Reconstruct Freistadt Road	LF	1400	\$250.00	\$350,000.00
Tracking Pads	EA	4	\$2,500.00	\$10,000.00
Silt Fence	LF	15000	\$2.50	\$37,500.00
Traffic Control	LS	1	\$20,000.00	\$20,000.00

Subtotal Construction	\$9,525,300
Contingency	\$800,700
Engineering and Administration	\$1,500,000
TOTAL PROJECT COST	\$11,826,000

Appendix N – Sanitary System Map with Flow Analysis Points



Pour Point 3A

Pour Point 3

Pour Point PS7

Pour Point 4

Pour Point 4A

Pour Point 5

Appendix O – Conceptual Sanitary Sewer System Extension & Expansion – Northeast Area

"Country Aire" Basin
- Future SSSA Tributary to 24" interceptor
- Probable Pump Station "CA" required
- Approx. 2,100 LF 4" FM to existing 10" sewer in Country Aire Dr

Potential PS "CA" location

Border of Expanded Future SSSA

"Wrenwood" Basin
- Future SSSA tributary to Wrenwood LS, Partial
sewered in existing SSSA
- Gravity to existing sewers & WW Pump Station
- Approx. 2,300 LF 12" trunk sewer

Node WW.4
FG +/- 865.0
12" IE = 853.0
D = 12.0'

Node WW.3
FG +/- 866.0
12" IE = 851.6
D = 14.4'

Node WW.2
FG +/- 870.0
12" IE = 850.0
D = 20.0'

Node WW.1
FG +/- 876.0
12" IE = 847.7
D = 28.3'

Conn. to
Existing
FG +/- 876.5
12" IE = 847.2
D = 29.3'

Country Aire Dr.

PARK

"Interceptor Gravity 4" Basin
- Existing Unsewered Area in SSSA, tributary
to 24" interceptor
- Gravity to existing interceptor in Mequon Rd
- Possible future expansion to north
- Approx. 4,000 LF 12" trunk sewer

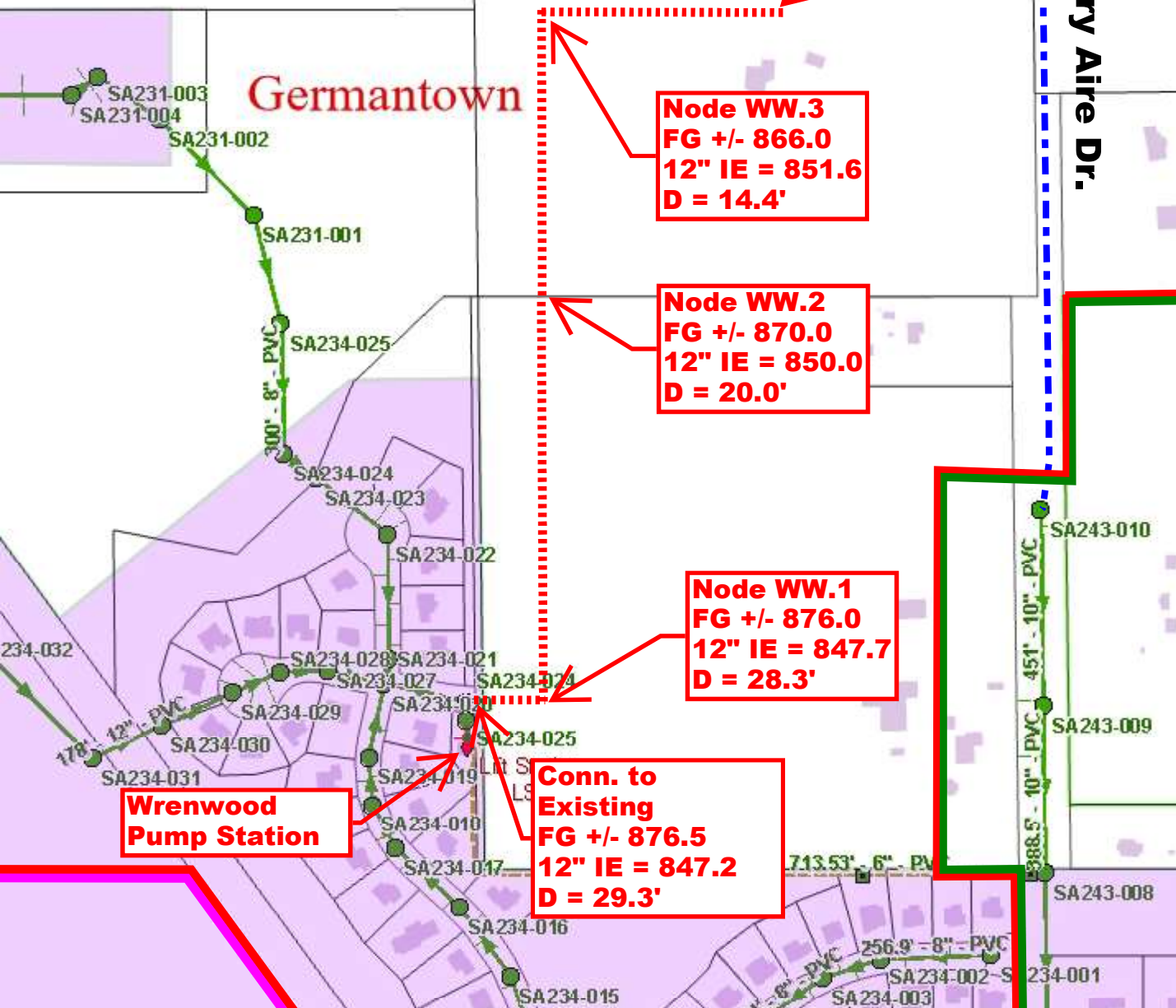
Node IG-4.6
FG +/- 888.5
12" IE = 872.6
D = 15.9'

Node IG-4.5
FG +/- 898.0
12" IE = 873.0
D = 25.0'

Node IG-4.4
FG +/- 894.0
12" IE = 870.6
D = 23.4'

Wrenwood
Pump Station

Germantown



Appendix P – Conceptual Sanitary Sewer System Extension & Expansion – Northwest Area

"Gateway North" Basin
- Future SSSA Tributary to Main Street PS, Partial unsewered in existing SSSA
- New PS constructed in undeveloped area
- Approx. 6,500 LF 12" gravity sewer to new PS
- Approx. 1,600 LF 6" FM to new 12" sewer in Rockfield Rd.
- Approx. 1,400 LF 12" gravity sewer in Rockfield Rd. to existing 12" sewer in Gateway X-ing

Rockfield Rd

"Gateway Central" Basin

Germantown

Goldendale Rd

"Gateway East" Basin
- Future SSSA Tributary to Main Street PS
- New gravity sewers to existing 18" sewer in Goldendale Rd.
- Approx. 1,300 LF of 15" gravity sewer
- Approx. 8,700 LF of 12" gravity sewer

NODE GW-E.6
FG +/- 960.0
12" IE = 934.6
D = 25.4'

NODE GW-E.9A
FG +/- 952.0
12" IE = 920.2
D = 31.8'

NODE GW-E.8A
FG +/- 935.0
12" IE = 911.9
D = 23.1'

NODE GW-E.7A
FG +/- 936.0
12" IE = 907.6
D = 28.4'

NODE GW-E.5
FG +/- 945.0
12" IE = 923.4
D = 21.6'

NODE GW-E.6A
FG +/- 925.0
12" IE = 904.3
D = 20.7'

NODE GW-E.4
FG +/- 940.0
12" IE = 919.3
D = 20.7'

Holy Hill Rd

NODE GW-E.5A
FG +/- 926.5
12" IE = 903.9
D = 22.6'

NODE GW-E.4A
FG +/- 918.0
12" IE = 900.0
D = 20.7'

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Recommendation of the Sanitary Sewer System Facilities Plan Update

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

Following discussion, and provided no additional follow-up is necessary, this item is presented to gain the recommendation of the Utility Advisory Committee.

ATTACHMENT:

1. Village of Germantown Sanitary Sewer System Facilities Plan Update DRAFT

STAFF RECOMMENDATION:

Staff suggest a positive recommendation of the Sanitary Sewer System Facilities Plan Update from the Public Works and Highways Committee to the Village Board.

ACTION BY Committee:

Unanimously recommended by the Utility Advisory Committee.

FACILITIES PLAN UPDATE

DRAFT



Village of Germantown Sanitary Sewer System Facilities Plan Update

April 17, 2024

PREPARED FOR:

Village of Germantown
N122 W17177 Fond Du Lac Avenue
Germantown, WI 53022

PREPARED BY:

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TABLE OF CONTENTS

INTRODUCTION AND NEED FOR UPDATED FACILITIES PLAN	1
INTERGOVERNMENTAL AGREEMENT	1
BACKGROUND	2
History of the existing SSSA & Planning Area	2
Existing Sanitary Sewer System	6
Critical Sewer Flow Path	7
Pumping Stations	9
BASIS OF ANALYSIS FOR INCREMENTAL PLANNING AREA & UNSEWERED AREAS	10
Design Period.....	10
Land Use	11
Flow Factors.....	11
Sanitary Sewer Design Criteria	11
COST ESTIMATING METHODOLOGY	12
Sanitary Sewer Force Main, Trunk & Interceptors	12
Pump Station Upgrades & Construction	12
LAND USE ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA.....	12
Estimating Population	14
Identifying Analysis Basins.....	14
Pump Station Tributary Area	16
FLOW ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA	18
Flow Calculation Methodology	18
VILLAGE OF RICHFIELD INCREMENTAL PLANNING AREA	19
Topography	20
Soil Types.....	20
Wetlands & Flooding Areas	20
Transportation Corridors	20

Preliminary Environmental Screening.....	20
Land Use Analysis.....	21
Population and Flow Calculation.....	22
Conceptual Sewerage System Serving Richfield IPA.....	23
OVERALL FLOW AND CAPACITY ANALYSIS	25
Gravity Sewers	26
Pumping Stations	27
ALTERNATIVES ANALYSIS.....	28
Existing Gravity Sanitary Sewer System.....	28
Existing Pump Stations	28
Sanitary Sewer System Extensions & Expansion.....	31
Cost Analysis for Alternatives.....	32
SUMMARY OF ALTERNATIVES AND IMPLEMENTATION	34

LIST OF APPENDICES

Appendix A – Village of Germantown Existing Sanitary Sewer Service Area Map
Appendix B – 2050 Full Sanitary Sewer Service Area Amendment Map
Appendix C – Village of Richfield Incremental Planning Area Map
Appendix D – Village of Germantown Sanitary Sewer System Map
Appendix E – Village of Germantown Future Land Use Map
Appendix F – Sanitary Sewer Analysis Basin Map
Appendix G – Richfield Incremental Planning Area Topographical Map
Appendix H – Richfield Incremental Planning Area Soils Type Map
Appendix I – Richfield Incremental Planning Area FEMA Floodplain and Wetlands Map
Appendix J – Richfield Incremental Planning Area Environmental Review
Appendix K – Richfield Incremental Planning Area Future Land Use Map
Appendix L – Preliminary Route of Sewer and Water Extensions to Serve the Richfield SSSA
Appendix M – Germantown Connection Sewer & Water Extension Opinion of Probably Cost
Appendix N – Sanitary System Map with Flow Analysis Points
Appendix O – Conceptual Sanitary Sewer System Extension & Expansion – Northeast Area
Appendix P – Conceptual Sanitary Sewer System Extension & Expansion – Northwest Area

SANITARY SEWER SYSTEM FACILITIES PLAN UPDATE

INTRODUCTION AND NEED FOR UPDATED FACILITIES PLAN

The Village of Germantown has contracted with Ruekert & Mielke, Inc. (R/M) to complete an analysis of the existing sanitary sewer system facilities and plan for future development needs within the sanitary system facilities. The most recent Sanitary Sewer Service Plan report for the Village of Germantown was published in 1983 by the Southeastern Wisconsin Regional Planning Commission (SEWRPC), with multiple subsequent amendments to the refined Sanitary Sewer Service Area (SSSA) defined in the original 1983 report. The original report was planned for the year 2000.

The Village of Richfield has initiated the process of extending the Village of Germantown's sanitary sewer service to serve a recently proposed development within the Village of Richfield. This potential development, subsequent changes to the related sanitary sewer service area, and age of the original SEWRPC Sanitary Sewer Service Area Plan have served as an impetus to update Germantown's sanitary sewer facilities plan. The updated facilities plan will consider growth within Germantown as well as near- and long-term growth in a portion of Richfield. With the analysis of future development within the broad planning area, an accurate assessment for future improvements can be made.

The Villages of Germantown and Richfield have recently requested an immediate amendment to Germantown's (SSSA) to continue moving forward on the potential development in Richfield. A development entity has expressed sincere interest in developing a vacant area near the I-41/Holy Hill Road interchange for office and light industrial uses. Market conditions have necessitated the immediate amendment of the SSSA so that the developer can be assured sewer service will be approved by SEWRPC, Milwaukee Metropolitan Sewerage District (MMSD), and the Wisconsin Department of Natural Resources (WDNR) for the proposed development. This will allow them to proceed with their acquisition of the property and subsequent development plans in a timely manner. The Village of Germantown Sanitary Sewer System Facilities Plan Update is being completed as a trailing condition of said immediate SSSA amendment along with a full amendment to the Germantown SSSA consistent with the Village's 2050 Comprehensive Plan.

INTERGOVERNMENTAL AGREEMENT

The Villages of Germantown and Richfield have entered into an Intergovernmental Agreement (IGA) to define the parameters for a cooperative approach in the extension of sanitary sewer into the Village of Richfield. Richfield desires to encourage commercial and light industrial development due to the subject area's proximity to I-41, a major transportation arterial. Germantown has determined that in serving a portion of Richfield to facilitate development, they can capitalize on the financial benefit of a larger customer base as well as having non-Germantown property owners bear a portion of their capital costs.

The IGA details how costs will be shared for design, construction, administration, approvals, and land acquisitions for extension of infrastructure into Richfield. Germantown's existing construction standards and practices must be utilized.

The incremental area within the Village of Richfield to be served is detailed within the IGA, however for the purpose of this Facilities Plan the entire section of land within Richfield will be used for the SSSA Planning Area. The quantity and strength of the domestic wastewater stream from Richfield is defined based on Germantown's and the MMSD's guidelines. The IGA allows a quantity of domestic wastewater not to exceed 0.4 MGD Average Daily Flow with 0.7 MGD allowable Daily Peak Flow. This allowable flow is relative to the immediate SSSA amendment and not inclusive of the entire incremental planning area. Flow will be metered at a strategic location to accurately track the volume of wastewater generated within the Richfield SSSA.

A general route for gravity sewer has been planned by the Village of Richfield to run through undeveloped areas of Germantown for connection to the Richfield portion of the SSSA. The remainder of the route

may flow by gravity or be delivered via force main at Richfield's discretion. The general route assumes a connection point to a recently installed interceptor sewer at the intersection of Goldendale and Freistadt Roads. Germantown will own, operate, and maintain the entire sanitary sewer system, including the sanitary sewer system within Richfield's boundaries. Germantown will also be responsible for any necessary improvements downstream of this connection point, which will be identified within this Facilities Plan. Permits and inspections for new connections to the sanitary sewer system within Richfield will be administered and approved by Germantown. Sewage treatment rates have been established within the IGA, as well as determinations as to who will pay the costs for future expansions and upgrades to the system for development within Richfield.

BACKGROUND

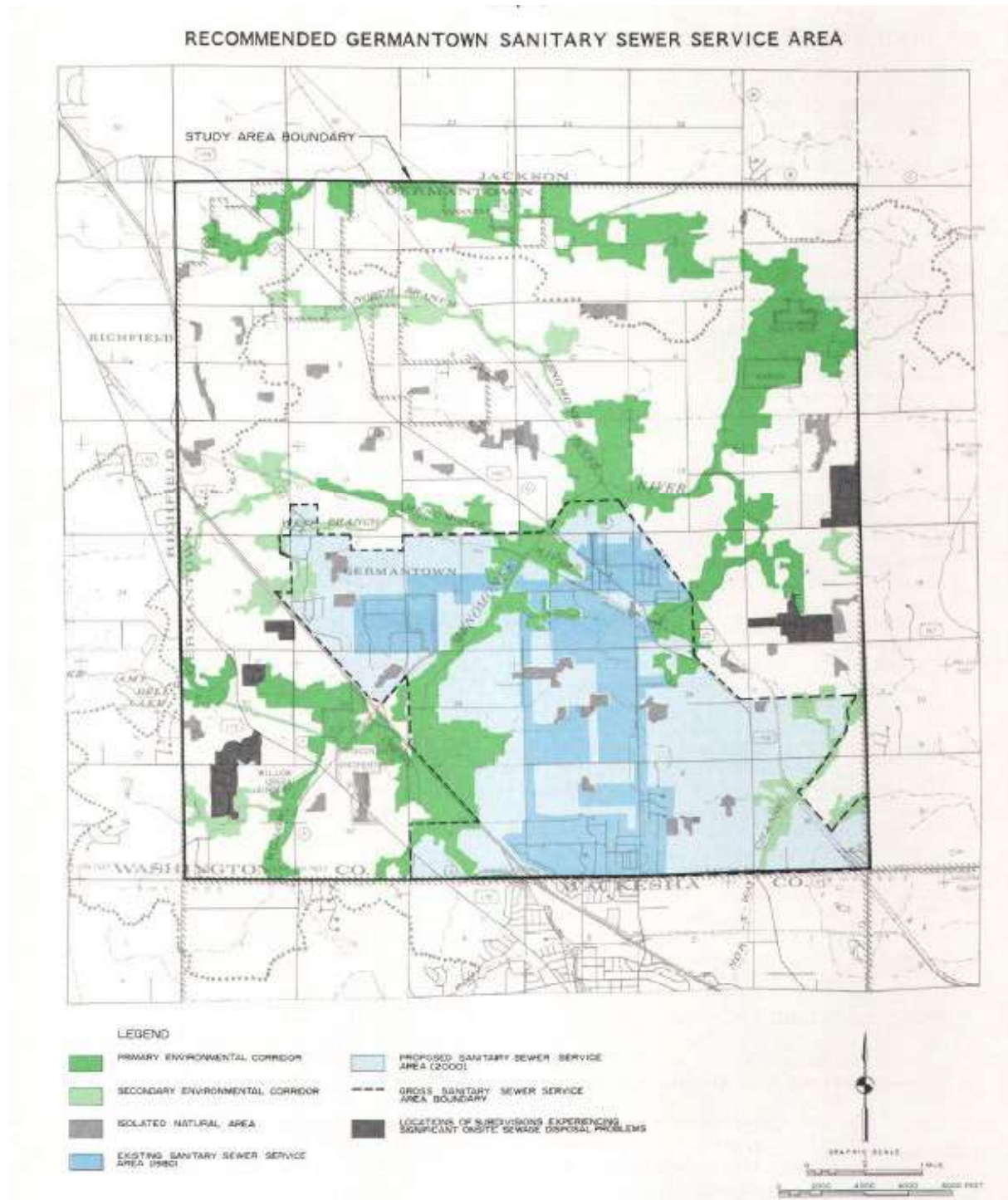
History of the existing SSSA & Planning Area

The initial analysis and planning report for Village of Germantown's SSSA was authored by SEWRPC and published in July 1983. At the time, there was a recognized need for an area-wide water quality management plan, and in turn a need to accurately define future planned SSSA's for public sanitary sewer systems throughout Southeastern Wisconsin. The purpose of this report was to provide a framework for SSSA planning based on recommended land use through the year 2000.

At the time of the report, the area served by the Village's sanitary sewer system was approximately 1,984 acres. The Village operated its own wastewater treatment plant that was operating near its design capacity. With recommendations from SEWRPC and the MMSD, the Village concluded that a sewer connection should be made to the MMSD and that the Village's existing sewage treatment plant should be abandoned.

The delineation of the initial proposed SSSA considered not only current and future land use, but also failing septic systems, sewer tributary areas, existing and planned trunk sewers, and natural resource data. The resulting refined proposed SSSA totaled approximately 6,464 acres as shown in Figure 1 below:

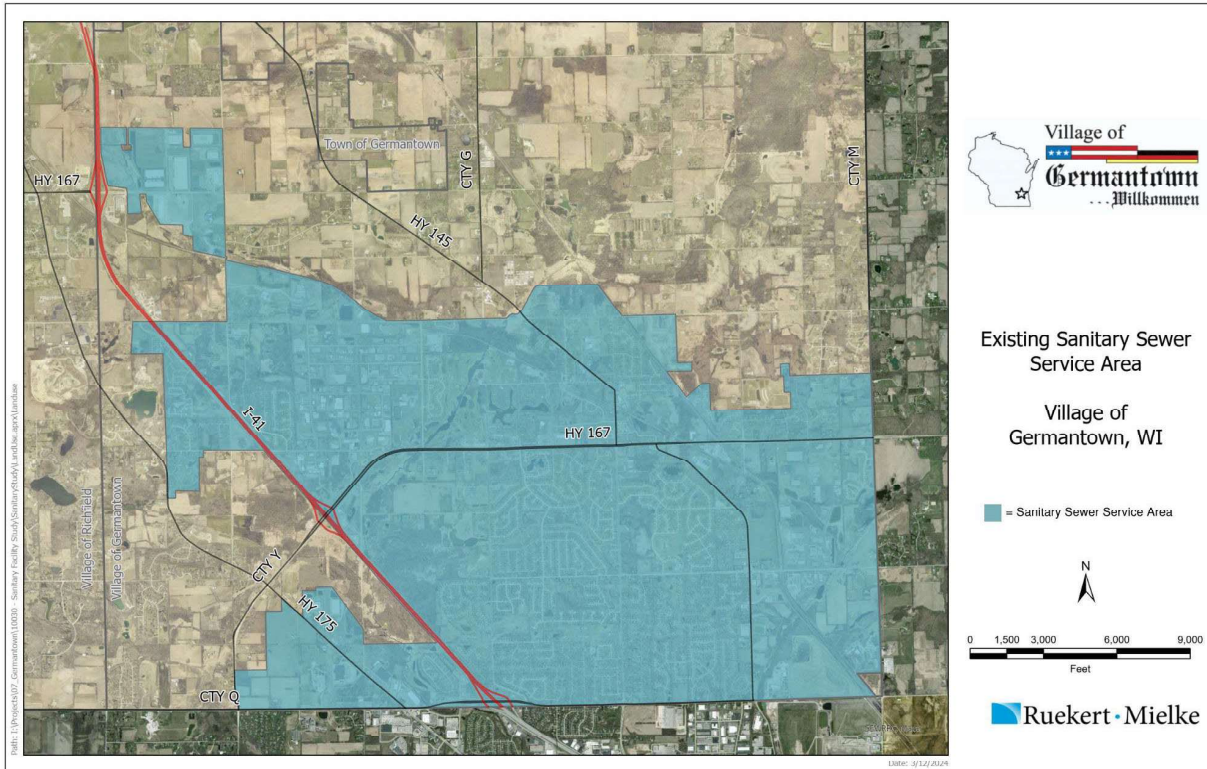
Figure 1 SEWRPC 1983 Planning Report - Sanitary Sewer Service Area



Source: SEWRPC 1983 Planning Report No. 70

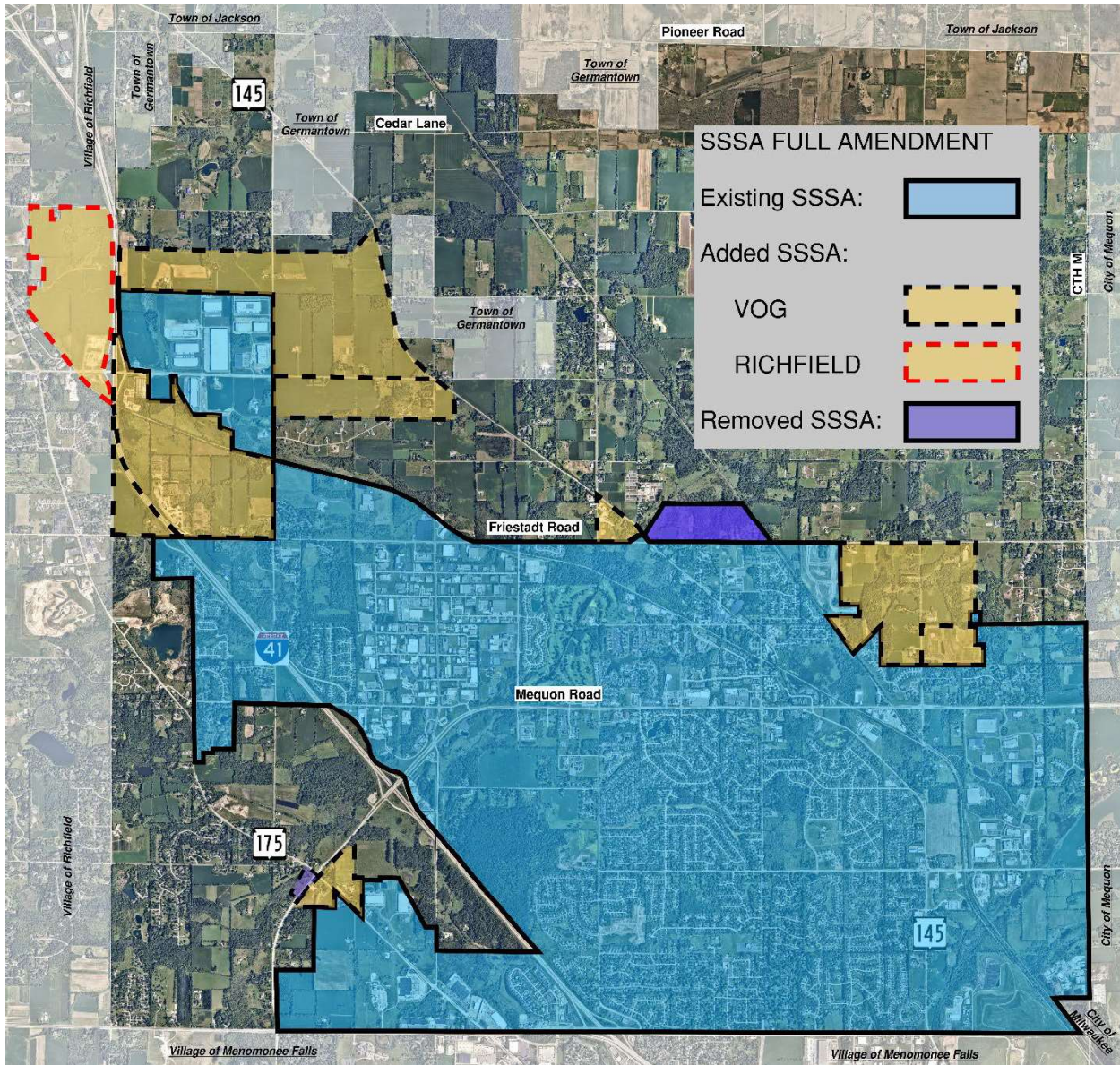
The proposed year 2000 SSSA was subsequently amended several times after the SEWRPC 1983 report was finalized. These amendments were approved in 1989, 1998, 2003, 2009, 2015, and most recently 2018 as the Village has expanded with development. The resulting Village of Germantown Sanitary Sewer Service Area is currently 9,432 acres and is delineated by SEWRPC as shown in Figure 2 below and included in Appendix A.

Figure 2 Existing Village of Germantown Sanitary Sewer Service Area



The pending immediate amendment, which is a portion of a larger full amendment, to the Germantown SSSA that is concurrent with this Facilities Plan will add a combined total of 814 acres to the SSSA, of which 526 acres are in the Village of Germantown and 288 acres are in the Village of Richfield. Beyond the immediate amendment, a full amendment has been defined for the 2050 planning term expansion to the existing SSSA and will be utilized as the future SSSA analysis area. The 2050 full amendment area is as shown in Figure 3 below and included in Appendix B:

Figure 3 2050 Full Sanitary Sewer Service Area Amendment

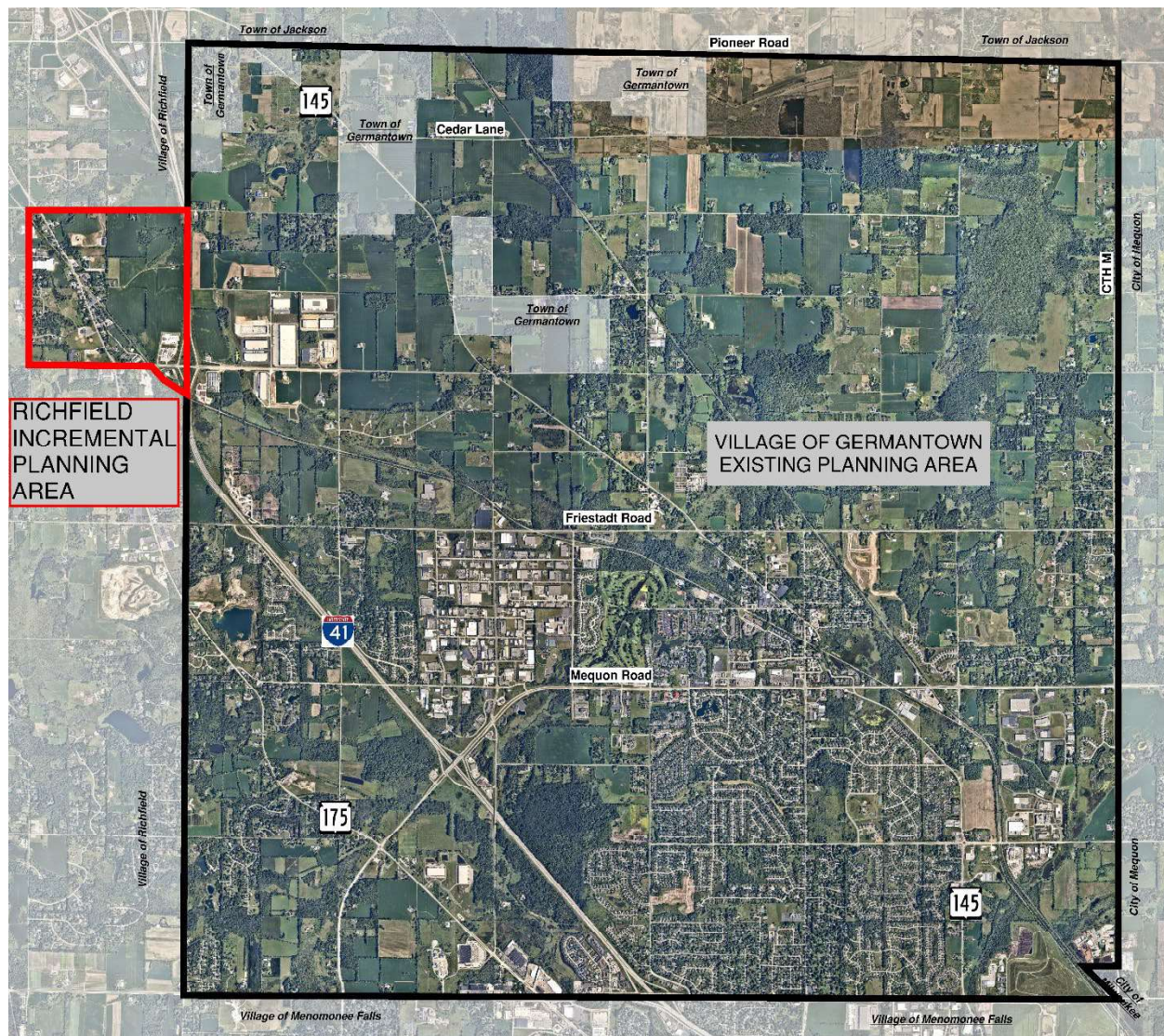


Source: Village of Germantown Planning

With the full amendment to the existing SSSA, the total area included in the Village of Germantown SSSA, herein referred to as the “expanded” SSSA could potentially be 10,964 acres.

For planning purposes, this Sanitary Sewer System Facilities Plan Update will also include the “Incremental Planning Area” within the Village of Richfield as a stand-alone incremental area tributary to the Village of Germantown’s expanded Future SSSA. This area of Richfield would potentially add another 665 acres in total to the fully amended Germantown SSSA described above. This area of Richfield is designated in Figure 4 below and included in Appendix C.

Figure 4 Village of Richfield Incremental Planning Area



Source: Village of Germantown Planning

Existing Sanitary Sewer System

In general, wastewater flow originates from the northwest region of the Village of Germantown near Holy Hill Road and I-41. The Richfield area to be added to the SSSA is located near this point, which makes adding sewer service in Richfield viable with the overall design of Germantown's existing sanitary sewer system. Wastewater moves generally southeast through the network of trunk sewers, interceptors, and pump stations to a single connection point to the MMSD's Metropolitan Intercepting Sewer (MIS) infrastructure at County Line Road and Wausaukee Road. At this connection point, the Village is allowed a peak hourly flow rate of 22.27 million gallons per day (MGD). Measured by a metering station at the connection point, the current average dry weather daily flow rate is 2.53 MGD with the peak hourly flow rate being approximately 12.67 MGD.

To determine peak flows, rain event data from the National Oceanic and Atmospheric Administration (NOAA) was used to verify if peak flow events corresponded to a rain event. Several rain events of note in 2022 and 2023 were observed at the Wastewater Utility Building weather station, with the most intense event being a 5.5-inch rainfall on September 12th of 2022. This event corresponded to the maximum

peak hourly flow observed during any rain events, and this maximum was used to calculate the peak hourly flow rate for the Wrenwood and the MMSD metering station.

The existing sewerage area within the Village of Germantown SSSA is served by approximately 99.2 miles of gravity sewer ranging in size from 8-inch to 48-inch diameter, and approximately 4.4 miles of force main sewer ranging in size from 6-inch to 20-inch diameter, as broken down by size category in Table 1. The system was constructed beginning in the mid-1960's with the largest portion of the system being constructed in the 1990's and 2000's. Pipe materials are largely Polyvinyl Chloride (PVC), Reinforced Concrete Pipe(RCP), and Ductile Iron, with a minimal quantity of Vitrified Clay, Nonreinforced Concrete Pipe, and ABS Truss pipe. The majority of the Village's 48" RCP interceptor has been rehabilitated with Cured-In-Place-Pipe. The Village has also completed a considerable amount of sewer replacement and extension projects to eliminate pump stations, provide service for new development, and upgrade capacity for undersized and outdated sewers.

Table 1 Existing Village of Germantown Sanitary Sewer Pipe Sizes & Lengths

Gravity Sewer		Force Main	
Diameter	Miles	Diameter	Miles
		6"	0.9
8"	59.3		
10"	6.5	10"	0.7
12"	9.2	12"	1.5
15"	5.1		
		16"	0.5
18"	4.8		
		20"	0.8
21"	2.0		
24"	2.1		
27"	2.1		
30"	3.6		
36"	0.9		
48"	3.5		
99.2		4.4	

Critical Sewer Flow Path

As the Village of Germantown's sanitary sewer system is analyzed, a critical path method can be used to identify the route conveying the bulk of the flow through the Village. This path is also the one most affected by future development, as the origin is in a largely undeveloped area of the Village, including the adjoining Village of Richfield area to be amended into the SSSA. Once this critical path through various trunk sewers, interceptors, and pump stations is determined, it can be used for analysis of future predicted flow conditions to identify any areas where future development may create a need for improvements.

At the northeast extents of the Village, the critical path begins just east of I-41 on Holy Hill Road with an 18-inch sanitary sewer that flows east and south continuing along Goldendale Road south to Freistadt Road. At Freistadt Road, the 18-inch sanitary sewer turns east to follow Freistadt Road. At the intersection of Freistadt Road and McCormick Drive, the sewer upsizes to 24-inch and continues to flow east following Freistadt Road. At the Wisconsin & Southern Railroad right-of-way (ROW), the sanitary

sewer deflects to the southeast and upsizes to 27-inch diameter. The 27-inch sewer continues southeast in alignment with the railroad ROW to a point approximately 1,000 feet east of River Road. At this point, the sewer turns to flow south and increases to 30-inch diameter.

The 30-inch sewer continues south through easement areas and along the east extents of the Blackstone Creek Subdivision. On the east side of the intersection of Blackstone Circle And Prestwick Court, the 30-inch sanitary sewer turns east and increases to 36-inch in diameter. The 36-inch sewer then flows east through the Blackstone Creek golf course and converges with a 30-inch sewer and 18-inch sewer that serve portions central to the Village before it terminates at the Main Street Pump Station at the intersection of Main Street and Division Road.

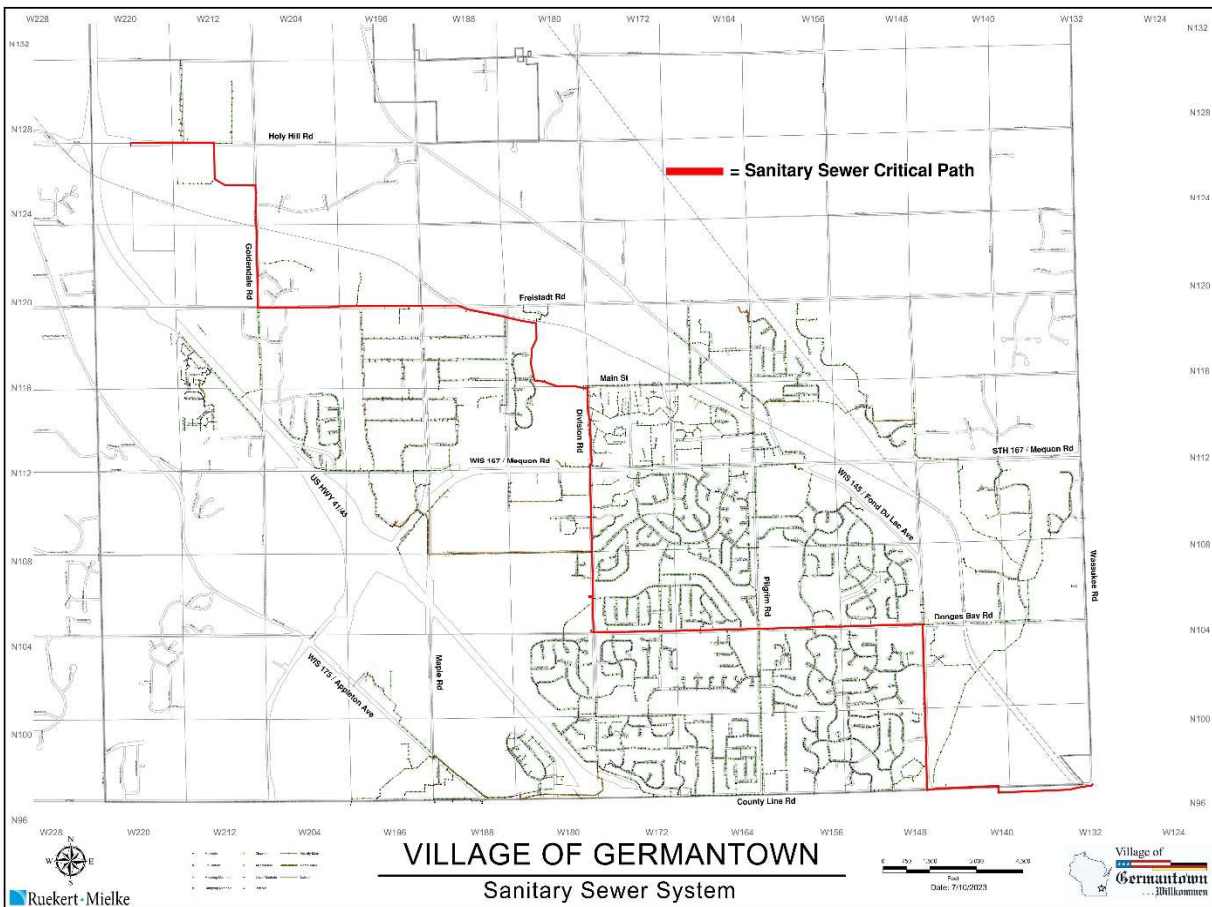
From the Main Street Lift Station, the wastewater is conveyed south through a 16-inch force main following Division Road until discharging into a manhole located approximately 100 feet north of State Highway 167, also known as Mequon Road where it returns to gravity flow through a 30-inch diameter sanitary sewer. This 30-inch sewer continues to flow south along Division Road until it reaches a convergence point at Old Farm Road where it meets a separate 36-inch sewer and combines with flow from the adjacent 36-inch sewer into the Old Farm Pump Station.

Wastewater flowing into the Old Farm Pump Station is discharged via a 20-inch diameter force main directed south along Division Road. At the intersection with Donges Bay Road, the force main turns east to follow Donges Bay Road until a point approximately 250 feet east of Ridgeview Lane where the force main discharges into a manhole that is located at the upstream end of a 48-inch diameter interceptor sewer.

The 48-inch interceptor sewer gravity flows east along Donges Bay Road to Fond Du Lac Avenue where it turns to the south and follows Fond Du Lac Avenue to County Line Road. At County Line Road, the 48-inch interceptor turns east. At the east side of the intersection of Fond Du Lac Avenue and County Line Road, a separate 30-inch sanitary sewer connects to the 48-inch interceptor and the conjoined flows continue in the easterly direction along County Line Road. The 48-inch interceptor follows the County Line Road (ROW) flowing east and meanders from the north side of County Line Road to the south side where it runs through a portion of the Old Orchard Landfill site. On the east extent of the Old Orchard Landfill Site, the interceptor flows through a metering station and then connects to a 54-inch diameter MIS sewer owned by the MMSD at the intersection of County Line Road and Wausaukee Road. This point is the singular connection point for all flow conveyed by the Village of Germantown's sanitary sewer system.

The Village of Germantown's full sanitary system map including the Critical Path as described can be found in Figure 5 below and in Appendix D.

Figure 5 Village of Germantown Sanitary Sewer System Map



Pumping Stations

Another critical aspect of future analysis and planning is the existing pump station facilities within the sanitary sewer system. The Village owns and operates 6 pump stations of various sizes and capacities within the collection system. Germantown conducted a study of 5 of the 6 pump stations owned by the Village in 2022. The data collected within that study is being presented in summary within the Sanitary Sewer System Facilities Plan Update. The study included Pump Stations 3, 6, 7, Main Street, and Old Farm. The Village's newest pump station, Wrenwood, was not part of the study area. For this report, data for the Wrenwood Pump Station has been collected independently of the pump stations included in the study.

GIS data from the Village of Germantown was utilized in the study to approximate the sewer service areas attributed to each pump station. Pump Stations 3, 7, Wrenwood, and Main Street handle flows exclusively from their respective sewershed basin. Pump Station 6 handles flow from its sewershed basin as well as flow from Pump Station 3. Old Farm Pump Station handles flow from its sewershed basin as well as Pump Stations 3, 6, 7, and Main Street.

Flow data was collected from the Village's Supervisory Control and Data Acquisition (SCADA) system for Pump Stations 3, 6, 7, Main Street, and Old Farm for analysis related to the Pump Station study. Data for the Wrenwood Pump Station and the MMSD connection point was collected independently of the data included in the previous referenced study. The data collected included average dry weather flow, peak hourly flow during selected heavy rainfall events, and pumping capacities of each pump station. An

hourly peaking factor and remaining peak capacity were established for each pump station. The tributary area for each pump station includes all land use types, including wetlands and ROW.

The peaking factors have been determined from the prior pump station study utilizing flow data from the Village's SCADA system; however this study did not include the Wrenwood Pump Station or the MMSD metering station. To determine peak flows at those locations, rain event data from NOAA was used to verify if peak flow events corresponded to a rain event. Several rain events of note in 2022 and 2023 were observed at the Wastewater Utility Building weather station, with the most intense event being a 5.5" rainfall on September 12th of 2022. This event corresponded to the maximum peak hourly flow observed during any rain events, and this maximum was used to calculate the peak hourly flow rate for the Wrenwood and the MMSD metering station. Table 2 summarizes the data collected and calculated.

Table 2 Pumping Station Capacity Summary

Pump Station	Existing Tributary Area (Ac)	Existing Dry Weather Flow (GPM)	Peak Flow from Analyzed Rain Events (GPM)	Peaking Factor	Existing Maximum Capacity (GPM)	Peak / Capacity	Remaining Peak Capacity (GPM)
PS 3	292.3	13	83	6.38	310	27%	227
PS 6	146.0	60	203	3.75	950	24%	725
PS 7	486.0	143	504	3.52	1,300	39%	796
Wrenwood	157.4	47	267	5.68	410	65%	143
Main Street	2461.1	1,007	2,818	2.80	6,250	45%	3432
Old Farm	4567.3	1,464	4,858	3.32	7,400	65%	2542
Connection to MMSD	9432.0	1,832	8,801	4.80	15,465	57%	6664

The analyzed data shows that in the current condition, there is some room for growth and, in turn, increased flow at each pump station. Analysis of the wastewater flow within the fully amended SSSA and Richfield SSSA will be incrementally compared to the existing design capacities to assess what, if any, upgrades may be required in the future to accommodate planned development. The need for upgrades will be assessed based on a threshold of 80 percent of design flow on a peak hour basis.

BASIS OF ANALYSIS FOR INCREMENTAL PLANNING AREA & UNSEWERED AREAS

To analyze future theoretical flow conditions for the Village of Germantown's sanitary sewer system, certain parameters must be established for the basis for the analysis. Establishing a design period consistent with the Village's 2050 Comprehensive Plan provides a cohesive analysis with the Village's future overall plan. Both existing and future land uses are utilized to predict how the Village will develop over time and provide a basis for where improvements may be needed. Flow calculations will utilize factors for land use types, and population density assumptions can be made using occupancy factors. Base parameters established for design of new sewer facilities aid in preliminary concepts for potential future sewer facilities.

Design Period

For this Facilities Plan, a 20-year design period has been chosen. This design period coincides closely with Village of Germantown's 2050 Comprehensive Plan for future growth and development.

Land Use

Land use is assigned assuming a fully developed condition using a combination of existing land use information and known future planning for the respective municipalities. Land use is assigned on a parcel-by parcel basis and individual land parcels are not broken into smaller land use fractions. The exception is those parcels which contain wetlands, which were separated into a single land use category and a wetland category to exclude wetland areas from flow generation calculations.

In existing developed areas, the actual quantity of transportation corridor has been calculated for the respective areas and included in the land use calculations. Areas that are mostly undeveloped in their current condition have been assumed to contain 30% public transportation corridors in the future fully developed condition. This gives a more accurate depiction of future flow conditions as public transportation corridors have also been excluded from calculations related to flow generation.

Village of Germantown - For determination of future land use of undeveloped areas, the Village's 2050 Comprehensive Plan is used as a guide to the fully developed land use condition for those areas currently undeveloped within the unsewered expanded SSSA. For residential areas, dwelling units per acre can be calculated based on future planned density. Population within these residential areas can be estimated using existing and future planned dwelling unit density and occupancy factor. Residential areas have been split into a "Single-Family" category and a "Multifamily" category to account for more densely populated areas containing apartments, senior housing, or condominiums.

Village of Richfield - The area of the Village of Richfield included in the expanded planning area has been analyzed for future land use characteristics as well. Richfield's 2033 Comprehensive Plan includes an adopted future land use plan specifically related to its incremental planning area. The future land use in the planning area is generalized into broad categories of land use types. For residential areas, a density of one dwelling unit per three acres has been determined by the Village of Richfield. Population within these residential areas can be estimated using the planned unit density and occupancy factor.

Flow Factors

In determining the future requirements for capacity within the existing sanitary sewer system and any required new sanitary sewer extensions, the potential flow must be calculated to determine if adequate capacity exists or if there is a future need for upgraded infrastructure. Flow factors used in this Facilities Plan are based on the MMSD's methodology for flow calculation:

Base Flow

- Occupancy Factor – 2.50 people per dwelling unit (single-family).
- Occupancy Factor – 1.80 people per dwelling unit (multifamily).
- Residential – 68 gallons per capita, per day.
- Commercial – 1500 gallons per acre, per day.
- Industrial – 1000 gallons per acre, per day.
- Institutional – 1000 gallons per acre, per day.

Once the base flow is calculated using the above parameters and future determined land uses, a peaking factor is then applied to calculate the theoretical peak hourly flow within the system.

Sanitary Sewer Design Criteria

Additions to the existing sanitary sewer system will be necessary for development within the unsewered portions of the existing SSSA as well future additions to the SSSA. The design should consider anticipated flows for the existing & future land use in a fully developed condition. Preliminary design of trunk sewers related to the expansion of the SSSA into the Village of Richfield has been completed by the Village of Richfield and provided to the Village of Germantown for use in this report.

The following criteria for future sewer extensions are assumed for analysis purposes:

- Minimum slope per Wisconsin Administrative Code.
- Minimum velocity: 2 feet per second when flowing full.
- Mannings “N” Value: Concrete Pipe – 0.013, PVC Pipe – 0.011.

COST ESTIMATING METHODOLOGY

Sanitary Sewer Force Main, Trunk & Interceptors

Unit costs for gravity sanitary sewers are based on bids and information from recent projects. In estimating costs for future projects, consideration is also given to consider depth of excavation, size of pipe, pipe material, groundwater conditions, bedrock, and soil type. Preliminary cost estimates related to the expansion of the SSSA into the Village of Richfield have been completed by the Village of Richfield and provided to the Village of Germantown for use in this Facilities Plan.

Pump Station Upgrades & Construction

Costs associated with upgrades to existing pump stations and/or construction of new Pump Stations are based on historical R/M project information tabulated into graphical format. The estimated costs for pumping stations consider the same general parameters that affect gravity sewer construction as mentioned above.

LAND USE ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA

In analyzing the existing and full amendment the Village of Germantown SSSA, there are areas currently not served by sanitary sewers that may be sewerred in the future according to the Village's 2050 Comprehensive Plan. The analysis will incrementally analyze these areas in a fully developed condition prior to adding in the incremental planning area from the Village of Richfield. Future land use is assigned to the undeveloped portions using the 2050 Plan as well as existing land uses as a guide to determine what future land use will most likely be as shown in Figure 6 and Appendix E.

Figure 6 Village of Germantown Future Land Use Map

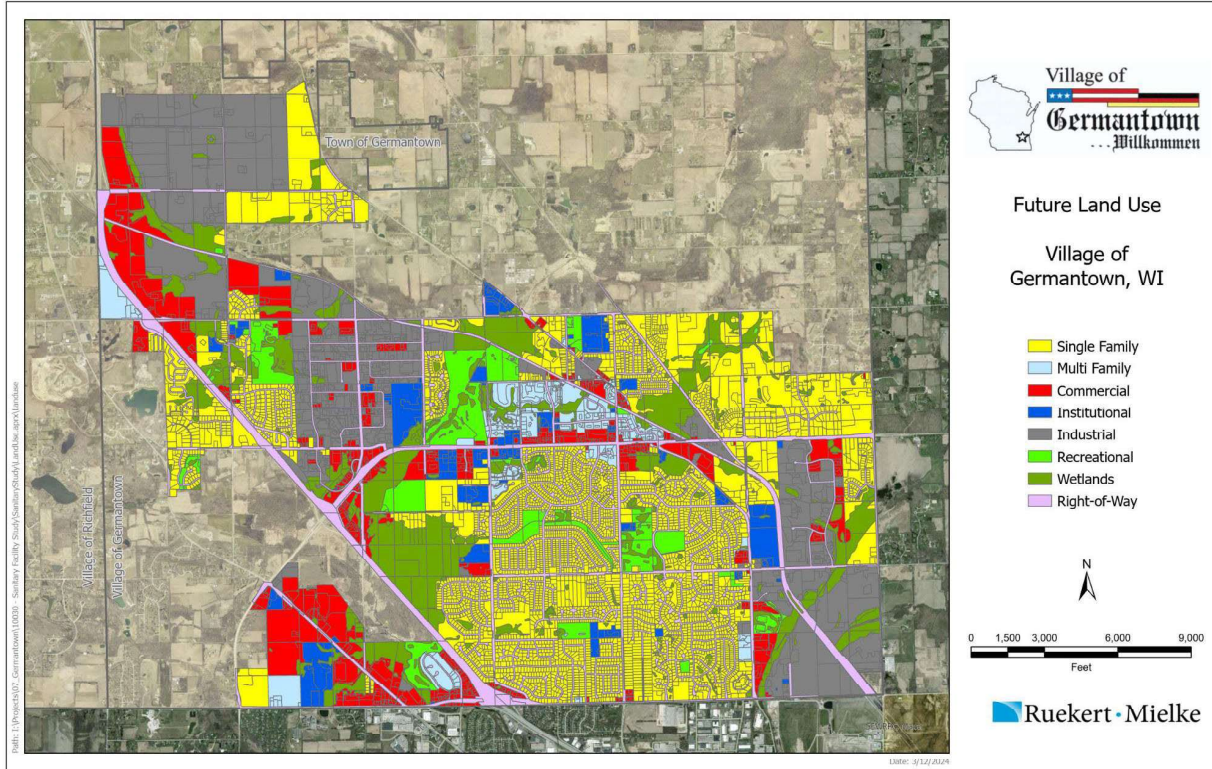


Table 3 breaks down the categories of assumed future land use conditions in the fully developed existing and expanded Germantown SSSA.

Table 3 Village of Germantown Future Land Use by Category

Germantown SSSA Fully-Developed Future Land Use (Acres) (Not including Richfield)							
Commercial	Industrial	Institutional	Multifamily	Recreational	Transportation	Single-Family	Wetlands
1,000.8	1,803.2	430.7	353.9	504.4	2,185.9	3,307.1	1,377.5
Total Expanded SSSA				10,963.5			
Net Flow Generation Area*				6,895.8			

*Excludes Recreational, Transportation, and Wetlands land use categories

Estimating Population

For single-family residential land use, an average density factor of 3.0 dwelling units/acre is appropriate based on the existing and desired density ranges described in the Village of Germantown's 2050 Comprehensive Plan. Most of the future development of residential areas falls into this category.

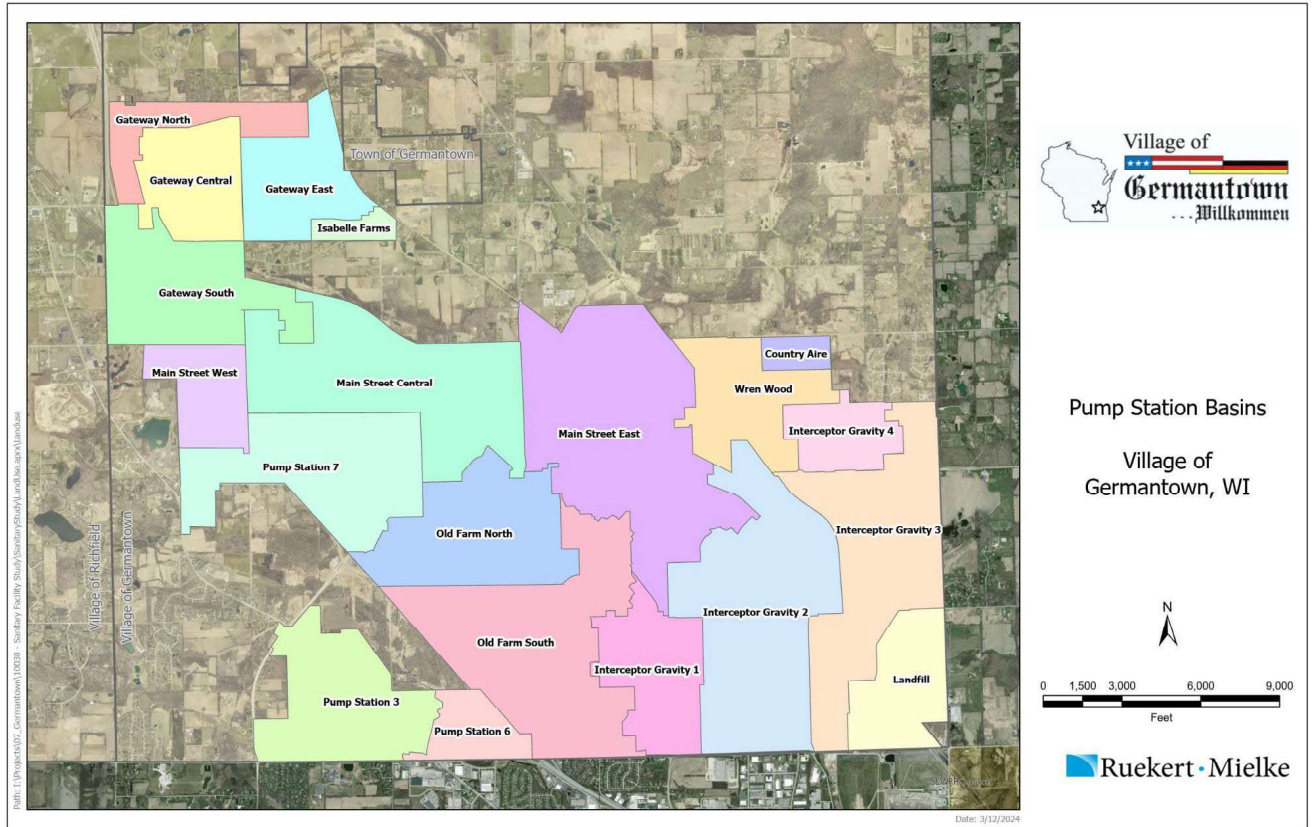
For multifamily residential land use, an average density factor of 8.0 dwelling units/acre is appropriate based on density ranges described in the Village of Germantown's 2050 Comprehensive Plan. Large-scale addition of multifamily residential development is not consistent with the Village's future plan, however, there is a potential for pockets of medium density residential mixed-use development within the Holy Hill Gateway Corridor. Because the Holy Hill Gateway Corridor has the potential for higher density residential development, the future multifamily land use in this basin alone was assigned a density of 16 dwelling units/acre.

Using the land use area, occupancy factor of 2.50 (single-family) or 1.80 (multifamily) people/dwelling unit and residential density factors described above, the total population of the fully developed existing and expanded Germantown SSSA is approximately 30,482. This is consistent with SEWRPC's Vision 2050 recommended population of 29,080 and high-growth population of 34,500. This population projection does not include the Richfield Incremental Planning Area (IPA).

Identifying Analysis Basins

To provide a more comprehensive analysis of the future tributary areas and flow conditions for the entire system, the expanded Germantown SSSA is divided into analysis basins based on physical characteristics of each respective basin. Direction of flow, existing pump station locations, sewer system configuration, existing and future SSSA borders, and future "conceptual" pump station basins all were considered when delineating each basin. Figure 7 depicts the basin delineations and naming convention used for analysis within this Facilities Plan. The Sanitary Sewer Analysis Basin Map is also included in Appendix F.

Figure 7 Sanitary Sewer Analysis Basin Map



The basins can then be broken down into a more detailed description of future fully-developed land use using the same categories as the broad future land use breakdown. Table 4 details the future land use break-down of each individual basin.

Table 4 Future Land Use by Analysis Basin

Germantown SSSA Future Land Use (Acres) (Not including Richfield)									
Basin Name	Commercial	Industrial	Institutional	Multifamily	Recreational	Right-of-Way	Single-Family	Wetlands	Basin Total
Country Aire					1.2	13.4	31.2	30.5	76.2
Gateway Central	9.0	245.5				109.1		15.6	379.2
Gateway East		113.0				114.7	154.7	13.3	395.7
Gateway North	36.7	132.4				72.5	0.1	5.4	247.2
Gateway South	187.6	129.1		40.4	1.6	155.0	4.7	101.2	619.6
Interceptor Gravity 1	4.6		18.9		21.1	67.8	316.9	4.7	434.0
Interceptor Gravity 2	43.5	46.8	77.8	16.8	75.6	200.7	596.7	51.4	1109.3
Interceptor Gravity 3	75.3	257.7	2.9		17.3	226.4	192.5	128.9	900.9
Interceptor Gravity 4					0.1	68.8	160.5	8.3	237.8
Isabelle Farms						19.5	45.4	2.9	67.7
Landfill		279.9				37.5		44.1	361.5
Main Street Central	49.5	341.6	85.2	3.6	154.4	104.9	102.4	147.0	988.5
Main Street East	97.8	28.9	91.6	205.6	75.0	188.8	357.6	156.2	1201.7
Main Street West	48.7	0.0	5.9	0.5	2.6	64.9	96.4	61.4	280.4
Old Farm North	75.7		67.3	22.6	100.8	76.9	162.2	153.0	658.5
Old Farm South	21.2	3.4	17.0	1.6	12.9	206.6	603.7	193.0	1059.3
Pump Station 3	221.5	9.9	57.4	29.4	0.1	152.9	36.1	86.5	593.8
Pump Station 6	52.3	4.5	0.3	33.3	29.1	50.5	0.2	16.0	186.2
Pump Station 7	77.7	209.7	6.4		10.3	158.6	222.0	48.4	733.1
Wrenwood		0.7	0.0	0.0	2.2	96.3	223.9	109.7	432.9
Total	1000.8	1803.2	430.7	353.9	504.4	2185.9	3307.1	1377.5	10963.5

Pump Station Tributary Area

With the expansion of the Village of Germantown, the aggregate tributary for each pump station is inclusive of not only the immediate area tributary directly to the pump station, but also those areas upstream in other pump station basins that are tributary to more than one pump station. The acreages calculated include all land use types within the basin, including wetlands and ROW. The increase in tributary area includes areas within the existing SSSA that are currently unsewered as well as areas that will be amended into the expanded SSSA. The connection point to the MMSD contains all lands assumed to be included in the fully amended, fully developed SSSA. Summary of the changes to each pump station's tributary area is calculated in Table 5.

Table 5 Future Change in Pump Station Tributary Areas

Existing Pump Station	Existing Aggregate Tributary Area (Ac)	Future Expanded SSSA Aggregate Tributary Area (Ac)	Future Richfield IPA Tributary Area (Ac)	Total Future Increase in Aggregate Tributary (Ac)	Percent Increase in Tributary Area
LS 3	292.3	593.8		301.5	103.1%
LS 6	438.3	780.0		341.7	78.0%
LS 7	486.0	733.1		247.1	50.8%
Wrenwood	157.4	432.9		275.5	175.0%
Main Street	2,461.1	4,180.0	665.4	2,384.3	96.9%
Old Farm	4,567.3	7,410.8	665.4	3,508.9	76.8%
Connection to MMSD	9,432.0	10,963.5	665.4	2,196.6	23.3%

A detailed analysis of the changes within each pump station's aggregate basins follows:

Pump Station #3 - The area tributary to Pump Station #3 would increase approximately 301.5 acres to a total of 593.8 acres in a fully developed expanded SSSA. This area has substantial potential for development and expansion, with most of potential development already being within the existing SSSA, but not currently sewered. The incremental future land use in the tributary area is planned as a mixture of commercial, single-family residential, and multifamily residential development. This increase in area would subsequently be added to Pump Station #6.

Pump Station #6 - The area tributary to Pump Station #6 would increase 341.7 acres to a total of 780 acres in a fully developed expanded SSSA. Most of this increase comes from the expansion of the area tributary to Pump Station #3. The tributary area for Pump Station #6 is largely fully developed and unlikely to undergo any significant future growth. The increase in tributary area to Pump Station #6 is primarily the area added to the Pump Station #3 tributary area that flows in aggregate through Pump Station #6. This increase in area would subsequently be added to the Old Farm Lift Station.

Pump Station #7 - The area tributary to Pump Station #7 would increase 247.1 acres to a total of 733.1 acres in the fully developed expanded SSSA. The incremental increase in area tributary to Pump Station #7 is mostly developed and falls within the existing SSSA. The area contains unsewered areas of single-family residential homes and mobile homes that would become part of the tributary area to Pump Station #7 with a future sewer extension. This increase in area would subsequently be added to the Old Farm Pump Station.

Main Street Pump Station - The area tributary to the Main Street Pump Station would increase 2,384.3 acres to a total of 4,180 acres in the fully developed expanded SSSA and Richfield incremental planning area. This pumping station could see a substantial increase in flow from the future development of the Richfield planning area as well as large areas of Commercial and Residential development within the "Gateway" district in the northwestern portions of the expanded SSSA for the Village. This increase in area would subsequently be added to the Old Farm Pump Station.

Old Farm Pump Station - The area tributary to the Old Farm Pump Station would increase 3,508.9 acres to a total of 7,410.8 acres in the fully developed expanded SSSA and Richfield incremental planning area. While this pumping station's immediate tributary has a relatively small area with any potential development of single-family residential homes, most of the future flow to the Old Farm Pump Station will come in aggregate from Pump Stations 3, 6, 7, and Main Street.

Wrenwood Pump Station - The area tributary to the Wrenwood Pump Station would increase 275.5 acres to a total of 432.9 acres in the fully developed expanded SSSA. The incremental future land use in the tributary area is planned as predominately single-family residential development. The Wrenwood Pump Station ultimately contributes to gravity flow to the Village's interceptor, and currently does not accept flow from any basins other than its own.

FLOW ANALYSIS OF UNSEWERED AREA IN EXISTING AND EXPANDED SSSA

Flow Calculation Methodology

Flows calculated for the expanded Germantown SSSA are a blend of existing developed land uses as well as the additional development potential and associated future land use within the expanded SSSA. The entire expanded SSSA is assumed in a full-developed condition for the theoretical future flow conditions.

Theoretical flows are calculated for each analysis basin separately using the applicable occupancy and flow factors for each existing and future land use type and population within each basin. A spreadsheet method is utilized to calculate an average daily base flow, which is the total of flows within each land use category multiplied by their respective flow factor per acre or calculated population multiplied by gallons per capita. The average daily base flow is then multiplied by an applicable peaking factor to account for inflow and infiltration and calculate the peak hourly flow. Capacity analyses of sewers and pumping stations are made utilizing this peak hourly flow.

At the direction of Village Staff, a single point user was added into the calculated flow for the Gateway South Basin. This manufacturing operation consumes approximately 28 million gallons of water per year, so the associated sanitary wastewater flows equating to 53 GPM have been incorporated into the total calculated average base flow for the Gateway South Basin. At the time of this Facilities Plan, the Village does not have any other substantial single point users to be incorporated into the flow calculations.

Peaking factors for basins with mostly existing development have been determined using known flow data measured at each pump station and the MMSD metering station. The factors are calculated based on the largest increase in measured flow noted during multiple heavy rain events. Where no existing flow data is available, factors for basins which are mainly undeveloped were assigned a value of 2.50 based on the Wisconsin Administrative Code (range of 2.0-2.5) for municipalities with a population of 10,000 to 100,000.

Some exceptions to these determinations are the peaking factors for the Pump Station 3 Basin and the Wrenwood Basin. These basins currently have a very low dry weather flow, and therefore even a small amount of inflow and infiltration can cause an unusually high peaking factor. The Pump Station 3 basin in this case has a peaking factor of 6.38 determined by the R/M Lift Station Study. The Wrenwood Pump Station has a calculated peaking factor of 5.68 from recent flow metering data from the Village's SCADA system. Because both basins have the potential to develop to a size more than double the existing condition, some attenuation in the peaking factor can be expected. To provide a realistic estimate of future flow, a peaking factor of 3.50 was chosen for these basins.

Using the parameters as described to calculate generated theoretical future flows, Table 6 summarizes average flow, peaking factors, and theoretical peak-hour flow rate for each respective basin.

Table 6 Summary of Future Sanitary Sewer Flows by Analysis Basin

Basin Name	Total Basin Area (Ac)	Net Flow Generation Area (Ac)	Applied Peaking Factor	Theoretical Peak-Hour Flow Rate Fully Developed (GPM)	Theoretical Peak-Hour Flow Rate - SSSA Fully Developed (CFS)
Country Aire	76.2	31.1	2.50	28	0.06
Gateway Central	379.2	254.5	2.50	449	1.00
Gateway East	395.7	267.7	2.50	333	0.74
Gateway North	247.2	169.3	2.50	326	0.73
Gateway South	619.6	361.8	2.50	907	2.02
Interceptor Gravity 1	434.0	340.4	4.80	625	1.39
Interceptor Gravity 2	1,109.3	781.6	4.80	1,702	3.79
Interceptor Gravity 3	901.0	528.4	4.80	1,572	3.50
Interceptor Gravity 4	237.8	160.5	4.80	273	0.61
Isabelle Farms	67.7	45.4	2.50	40	0.09
Landfill	361.5	279.9	4.80	933	2.08
Main Street Central	988.5	582.2	2.80	1,083	2.41
Main Street East	1,201.7	781.5	2.80	1,266	2.82
Main Street West	280.4	151.5	2.80	250	0.56
Old Farm North	658.5	327.8	3.32	659	1.47
Old Farm South	1,059.3	646.9	3.32	834	1.86
Pump Station 3	593.8	354.3	3.50	1,086	2.42
Pump Station 6	186.2	90.6	3.75	302	0.67
Pump Station 7	733.1	515.8	3.52	1,090	2.43
Wrenwood	432.9	224.7	3.50	280	0.62
Total	10,963.5	6895.8		14,036	31.27

The theoretical peak-hour flow rate for the fully-developed future expanded Village of Germantown SSSA is 31.27 cubic feet per second (CFS). This equates to 20.21 MGD, which is below the MMSD's allowable peak hour flow rate of 22.27 MGD at the Village of Germantown's connection point to the MIS.

VILLAGE OF RICHFIELD INCREMENTAL PLANNING AREA

The area within the Village of Richfield that will be served by the Village of Germantown sanitary sewer system, the Richfield IPA, requires a more detailed analysis of the characteristics of the planning area. This area of Richfield has not been part of any other sanitary sewer planning area, whereas the entire Village of Germantown is within an existing planning area that has been previously analyzed by SEWRPC in the 1983 Planning Report.

The Richfield IPA is best described as all of Section 12 of Township 9 North, Range 19 East within the Village of Richfield, also including one individual parcel of land at the Northeast corner of Section 13 Township 9 North Range 19 East, also known as Tax Parcel #035000C. The individual parcel has been included within the IPA due to it being a probable location for sanitary sewer to enter the Village of Richfield. The pending amendment to the Germantown SSSA does not include the entire IPA at this point in time, however the entire IPA is being included in calculations and analysis in this Facilities Plan for simplicity of future expansion within the IPA in Richfield.

Topography

The area of Richfield encompassed by the IPA has a variety of terrain and changing topographical features. In general, the land is rolling and hilly with slopes ranging from 2% to 20%. From Washington County's Geographical Information System (GIS) topographical data based on the NAVD 88 Datum, the lowest point within the IPA is at the very Northeast corner with an elevation of +/- 862.0. The highest elevation found within the IPA is +/- 1,018.0 located in the Southwest portion of the IPA near the eastern extent of Evergreen Court. The topography slopes from higher elevations in the west and south towards lower elevations in the east and north. There are multiple intermittent low and high glacial features of kettles and hills that may provide challenges when providing sewer service to the entire IPA. The topographical map included in Appendix G gives an overall view of the IPA in 5' contours.

Soil Types

Soil types within the Richfield IPA are predominately within the Ozaukee, Hochheim, Lamartine, Mayville, Theresa, Ashkum, and Brookston series. These soils series generally classify as Silt Loam, Loam, and Silty Clay Loam which range widely from well-drained to poorly drained. With exception to drainageways and lowlands, most of the IPA is defined as well-drained or moderately well-drained. Seasonal perched water tables are consistently noted in the soils throughout the IPA. Soils of this nature are typically not conducive to in-ground (conventional) Private Onsite Wastewater Treatment Systems (POWTS), and typically would require construction of a Mound type POWTS or Holding Tank if adequate area is not available for a Mound type POWTS. Extension of sewer service in areas with such soil conditions provides greater opportunity for larger scale development. A complete map of the soil types in the Richfield IPA is included in Appendix H.

Wetlands & Flooding Areas

Wetlands and floodways also play an important role in planning for sewer service in any area. The map included in Appendix I shows WDNR delineated wetlands within the Richfield IPA, as well floodways where a flood elevation has been determined by the WDNR. The IPA has few waterways and surface water. The rolling, hilly topography is fairly protected from flooding. At the far Northeast corner of the IPA, there is a drainageway that lies on the west side of Hwy 41. This drainageway is the only area noted as a floodway within the entire IPA. There are multiple scattered, relatively small areas of wetlands delineated in lowland areas and drainageways. These areas must be further investigated and considered during development and planning for sanitary sewer service.

Transportation Corridors

One of the characteristics that makes the Richfield IPA desirable for large-scale development is its proximity to transportation corridors. The IPA is bordered on the east by US HWY 41, and on the south by STH 167. The intersection of US HWY 41 and STH 167 at the southeast corner of the IPA is an interchange providing easy access to both highways to and from the IPA. Other transportation corridors of note include STH 175 which generally bisects the IPA on an angle from southeast to northwest, and a railroad ROW owned by the State of Wisconsin running nearly in parallel with STH 175.

Preliminary Environmental Screening

A preliminary environmental screening was conducted for the Richfield IPA. During the preliminary environmental screening, the following environmentally sensitive resources and assumptions were assessed:

- Presence of wetland and waterway features,
- Presence of 303d impaired waterways,
- Presence of areas of special natural resource interest,
- Documented wetland and waterway disturbance permits,

- Presence of Federal Emergency Management Agency (FEMA) floodplains, floodways, and flood fringe,
- Presence of WDNR Bureau of Remediation and Reclamation (BRR) Sites,
- Presence of Solid and Hazardous Waste Information System (SHWIMS) Sites,
- Presence of Shoreland Zoning,
- Presence of Planned or Existing County Trails,
- Presence of National Register of Historic Places,
- Presence of United States Department of Agriculture Drainage Districts, and
- Potential presence of Threatened and Endangered Species.

For wetlands and waterways, the WDNR Surface Water Data Viewer (SWDV) was accessed. Throughout the planning area, there are multiple wetland and waterway complexes. Wisconsin Wetland Inventory (WWI) listed wetlands include Emergent/wet meadow, Flats/unvegetated wet soil, Forested, and open water. The WWI also lists five unnamed waterways, three first order, and two second order waterways and three waterbodies. No features within the study area were identified as 303d impaired or are designated as an area of special natural resource interest.

The presence of FEMA designated floodplains, floodways and flood fringe were assessed for the study area. A study was conducted for the waterway in the northeast corner of the study area. The FEMA panels included in the study area are 55131C0264E effective 2/25/2022 and 55131C0268E effective 2/25/2022. Within panel 55131C0268E there are areas designated as Zone A and Zone AE.

The presence of shoreland zones were assessed for the study area. No known shoreland zones are provided by the Washington County GIS viewer. The Village of Germantown Code of Ordinance No. 24.04, defines the shoreland-wetland zoning district as all wetlands in the Village which are equal to or greater than 5 acres within 1,000 feet of the ordinary high-water mark (OHWM) of navigable lakes, ponds or flowages and within 300 feet of the OHWM of navigable rivers or streams, or the landward side of the floodplain, whichever distance is greater.

Using the National Register of Historic Places GIS viewer, the study area was assessed. There are no registered sites within the study area.

Using the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) Drainage Districts Interactive Map tool, the study area was assessed for presence of drainage districts. There are no drainage districts within the study area.

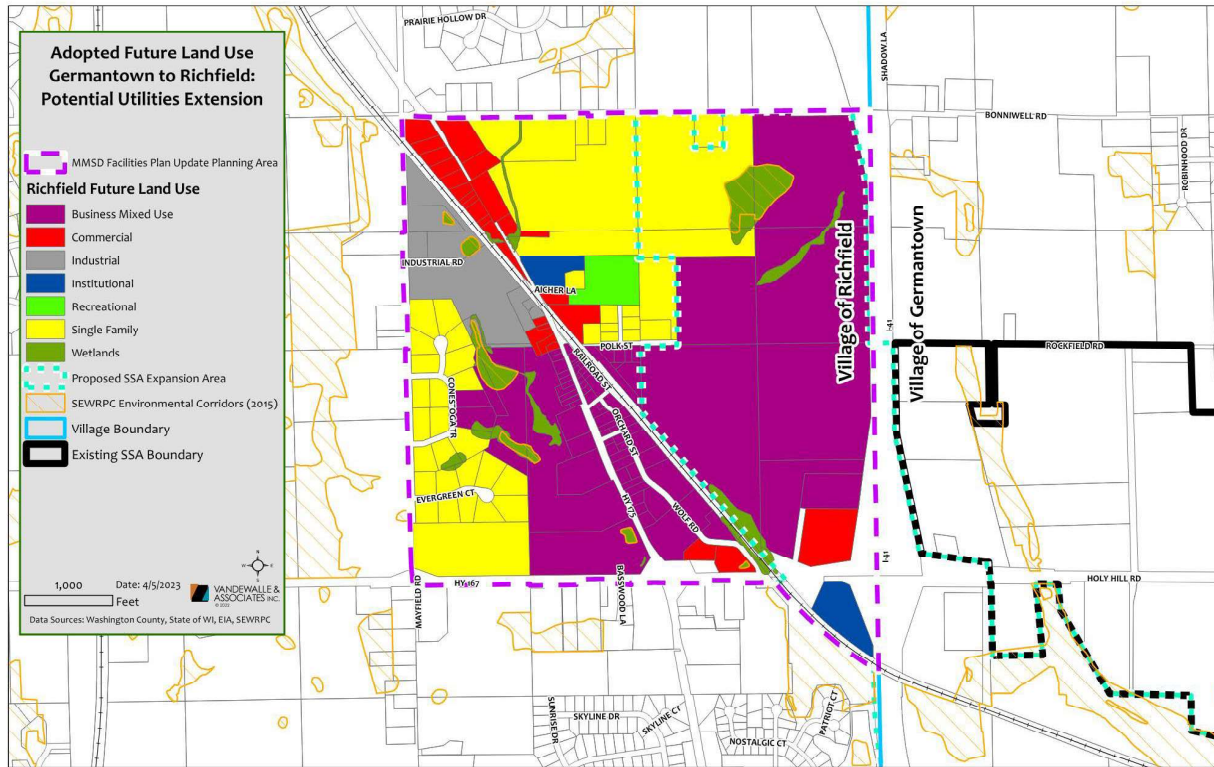
Using the Wisconsin Department Natural Resources Natural Heritage Inventory (NHI) Portal, the study area was assessed. Based on the assessment state endangered fish may be present within the study area. A preliminary Information for Planning and Consultation (IPaC) assessment was performed to identify potential habitat that may support federally threatened or endangered species. The IPaC results included the federally endangered northern long-eared bat, the proposed endangered tricolored bat, and the candidate endangered monarch butterfly. Further investigations will be needed to assess likelihood of presence, and potential impacts.

The complete Preliminary Environmental Screening report including referenced tables and listings can be found in Appendix J.

[Land Use Analysis](#)

Similar to the future land use analysis for the Village of Germantown SSSA, the Village of Richfield IPA was also analyzed for future land use in a fully developed condition. In the case of the Richfield IPA, a future land use plan was available from SEWRPC, based on Richfield's 2033 Comprehensive Plan. The future land use for the Richfield IPA is shown in Figure 8 and included in Appendix K.

Figure 8 Richfield Incremental Planning Area Future Land Use Map



Source: Vandewalle & Associates, Inc. via SEWRPC

Table 7 breaks down the categories of assumed future land use conditions in the fully developed Richfield Incremental Planning Area.

Table 7 Richfield Incremental Planning Area Future Land Use by Category

Richfield IPA Fully-Developed Future Land Use (Acres)							
Commercial	Industrial	Institutional	Multifamily	Recreational	Transportation	Single-Family	Wetlands
255.5	26.1	9.1	N/A	8.8	199.6	138.1	28.2
Total Expanded SSSA				665.4			
Net Flow Generation Area*				428.8			

*Excludes Recreational, Transportation, and Wetlands land use categories

*Transportation area assumed at 30% of total land area

Population and Flow Calculation

For single-family residential land use, an average density factor of 1.0 dwelling unit / 3.0 acres is appropriate based on the desired density indicated by the Village of Richfield. Using the same occupancy factor of 2.50 as used in the Germantown calculations, we arrive at a population of 114. Likewise, the same flow factors are used for each non-residential land category as described for the flow calculations related to the Germantown Expanded SSSA.

For analysis purposes, the Richfield IPA is treated as its own basin to be incrementally added to the basins previously described for the Village of Germantown. As a stand-alone basin, the calculated flow from the Village of Richfield IPA is shown in Table 8 below:

Table 8 Richfield Incremental Planning Basin Flow Summary

Basin Name	Total Basin Area (Ac)	Net Flow Generation Area (Ac)	Applied Peaking Factor	Theoretical Peak-Hour Flow Rate Fully Developed (GPM)	Theoretical Peak-Hour Flow Rate - SSSA Fully Developed (CFS)
Richfield IPA	665.4	428.8	2.50	740	1.65

The theoretical peak-hour flow rate calculated in this report for the fully-developed future expanded Village of Germantown SSSA is 31.27 cubic feet per second (CFS). Adding the calculated peak-hour flow rate for the Richfield IPA, the total peak-hour flow rate at the Village of Germantown's connection point to the MMSD's MIS is 32.92 CFS, or 21.28 MGD. This flow rate is just below the MMSD's allowable peak-hour flow of 22.27 MGD for the Village of Germantown. If development within the Village of Germantown and Richfield IPA is to progress in the manner set forth in this Facilities Plan, further coordination with the MMSD will be critical to preventing a hold on further development due to meeting or exceeding allowable flow allocations from the MMSD.

Conceptual Sewerage System Serving Richfield IPA

The Village of Richfield has undertaken planning and design of new sewerage facilities required to service the Richfield IPA. As a requirement of the IGA between Richfield and Germantown, the Village of Richfield must fund said planning and design. The design work led by the Village of Richfield is incorporated into this section of the Facilities Plan for efficiency.

Preliminary construction plans provided by Richfield show a feasible design for sanitary sewer extension to serve the Richfield IPA as well as the immediate Germantown SSSA amendment area. The 12-inch gravity sanitary sewer extension connects to the existing Germantown sanitary sewer system at the intersection of Goldendale Road and Freistadt Road, just upstream of Pour Point #2 analyzed within this report. The proposed gravity sewer runs generally west along Freistadt Road and then north and west through existing undeveloped lands until the gravity portion of the extension terminates at the Wisconsin & Southern Railroad ROW. This point will be the discharge point for a 6-inch force main which continues northwest following the Wisconsin & Southern Railroad ROW. The force main crosses underneath U.S. Highway 41 into the Richfield IPA and turns north to follow Richfield Parkway. The 6-inch force main will terminate at the location of a future pumping station within the Village of Richfield which will convey all sanitary sewer flows generated within the Richfield IPA. Figure 9 depicts the preliminary layout of the sanitary sewer extension. The full preliminary plans are included in Appendix L.

Figure 9 Preliminary Route of Sewer and Water Extensions to Serve the Richfield SSSA



Source: Cedar Corporation Preliminary Plans dated September 26th, 2023

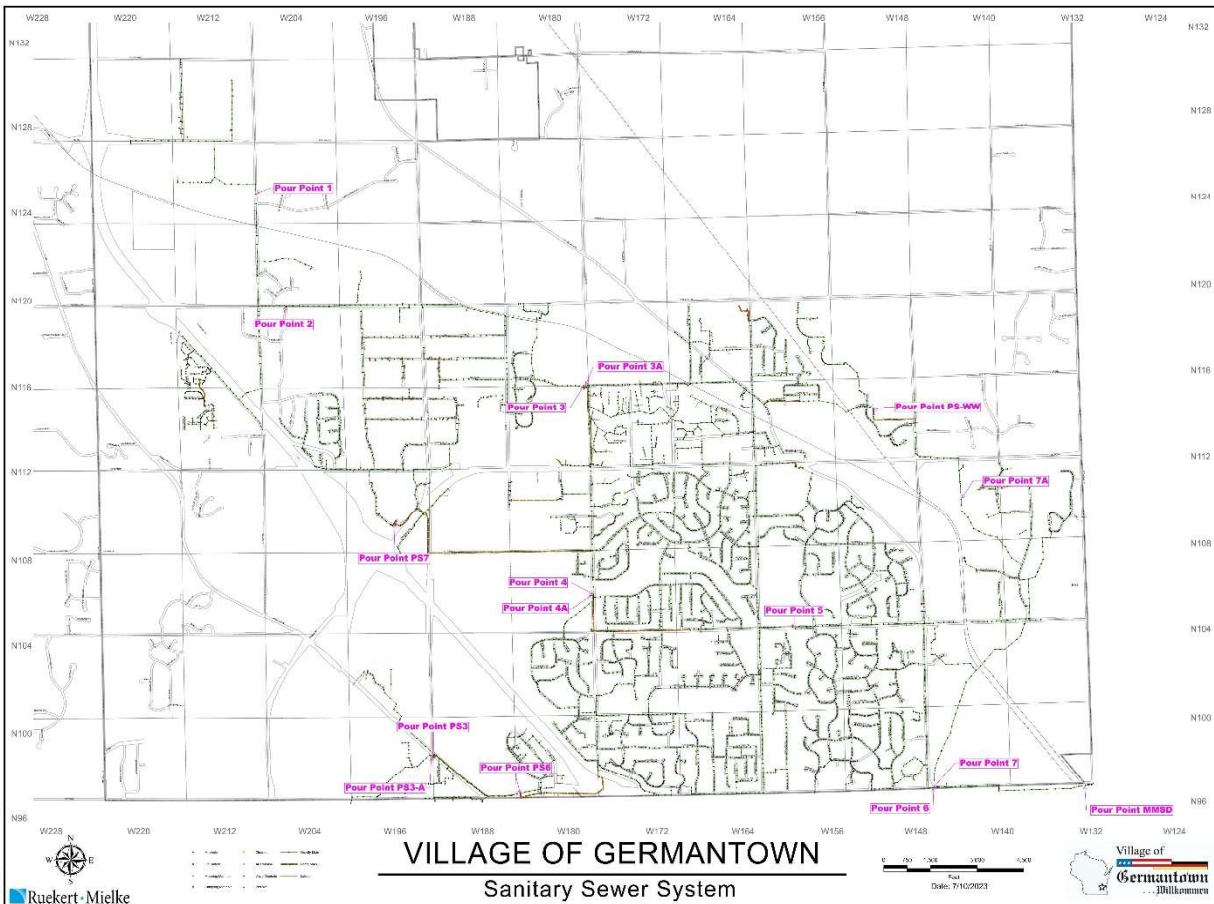
The Richfield IPA will be primarily served by gravity sewers that will flow to a common pumping station, ultimately pumping wastewater via connection to the 6-inch force main installed as part of the Richfield-Germantown Connection project as shown in the included Preliminary Plans. Per the IGA between Germantown and Richfield, the cost of installation of the Germantown Connection sewer and water infrastructure will be paid by the Village of Richfield. The Opinion of Probable Project Cost dated September 27th, 2023 is approximately \$5,186,000 in today's dollars for the sanitary sewer portion of the extension to Richfield. The project cost estimate document has been included in Appendix M.

The Richfield-Germantown Connection sanitary sewer extension project will not only allow the Village of Richfield to connect to sanitary sewer service, but also an area of the Village of Germantown that is currently undeveloped. The proposed sewer and water extension infrastructure will have a substantial positive impact on development of the Holy Hill Gateway Corridor for both Villages by facilitating development that would otherwise not be possible without sanitary sewer service available.

OVERALL FLOW AND CAPACITY ANALYSIS

With the expanded SSSA broken into the defined basins, tributary areas to each pump station as well as specific points within the sanitary sewer system can be analyzed with respect to current and future theoretical flows. Existing flow data was collected through the Village's SCADA system at each pumping station as well as the metering station just upstream of the connection point to the MMSD. These points were used as analysis or "pour" points for theoretical future flow calculations, as well as other strategic points within the Village's gravity sanitary sewer system. The pour points were chosen based on configuration of sewers, location of pumping stations, and contributory basin delineations. Typically, these points consist of an existing manhole or an existing pumping station. At pumping stations that receive flow from more than one nearby contributory sewer, multiple pour points are utilized to accurately calculate capacity in each contributory sewer. Figure 10 shows a map of the Village's sanitary sewer system with the pour points identified for use in analysis and comparison throughout the system. The map has also been included in Appendix N.

Figure 10 Sanitary Sewer System Map with Flow Analysis Points



In prior steps, theoretical flows were calculated for each analysis basin independently. The individual theoretical flow from each basin can be added to calculate a combined theoretical flow for each "pour" point identified in Figure 10. The calculated theoretical future flow at each pour point can then be compared to sewer and lift station capacities to identify the need for upgrades or improvements to handle development growth within the planning period.

Gravity Sewers

Analysis of the existing capacity of the gravity sanitary sewer system is critical to determine future needs for upsizing of sewers, relief sewers, or other capacity improvements required to serve future planned development. With the Village of Germantown having a single connection discharge point to the MMSD, the analysis is equally important to determine the adequacy of the MMSD's sanitary sewer infrastructure to handle future predicted peak flows originating from Germantown.

At each pour point, a sanitary sewer pipe capacity assessment is made using data derived from the Village of Germantown's GIS as well as as-built information from available construction plans. The capacity is calculated at a point just upstream of the pour point. The following criteria have been assumed for existing sewer capacity calculations:

- "Full" capacity assumes pipe flow of 2/3 full.
- Mannings "N" Value: Concrete Pipe – 0.013, PVC Pipe – 0.011, CIPP Liner - 0.011.
- Length and diameter – From Village GIS.
- Invert Elevations – From GIS or available as-built plans, unknown inverts were assumed to have like slope of adjacent comparable sewers.
- Slope – From actual or assumed inverts.

Capacity is then calculated using the Manning Equation, and the average is taken for 2 or 3 pipe segments upstream of the pour point dependent upon the configuration of the sewers upstream of the pour point. Engineering judgement is used to eliminate anomalies in averaging and take a conservative approach. Any pipe segment having a considerably higher capacity in comparison to an adjacent segment was eliminated from the average. Table 9 below summarizes the existing sewer capacity available and analyzes future capacity using the theoretical flow for the fully developed expanded Germantown SSSA and Richfield IPA.

Table 9 Gravity Sanitary Sewer Hydraulic Capacity Analysis

Pour Point	Theoretical Peak-Hour Flow Rate - Germantown Expanded SSSA (cfs)	Estimated Capacity - Avg. of Applicable Spans (cfs) (2/3 full)	Theoretical Peak-Hour Flow Rate from Richfield Planning Area (cfs)	Theoretical Peak-Hour Flow Rate Including Richfield Planning Area (cfs)	Estimated Remaining Capacity (cfs)	% Remaining Capacity (to 2/3 full)
PS-3	0.80	4.45		0.80	3.65	82.0%
PS-3A	1.62	7.64		1.62	6.02	78.8%
PS-6	3.09	9.23		3.09	6.14	66.5%
PS-7	2.43	5.31		2.43	2.88	54.3%
PS-WW	0.62	2.52		0.62	1.90	75.3%
1	2.56	3.77		2.56	1.21	32.1%
2	5.14	8.33	1.65	6.79	1.54	18.5%
3	7.55	24.75	1.65	9.20	15.55	62.8%
3A	2.82	3.79		2.82	0.97	25.5%
4	14.26	27.62	1.65	15.91	11.70	42.4%
4A	4.95	44.61		4.95	39.66	88.9%
5	20.61	45.15	1.65	22.25	22.90	50.7%
6	24.40	65.49	1.65	26.05	39.44	60.2%
7	4.80	23.02		4.80	18.23	79.2%
7A	1.29	29.69		1.29	28.39	95.6%
MMSD	31.27	63.37	1.65	32.92	30.44	48.0%

Overall, Germantown's sanitary sewer system appears to be adequate to serve the future fully developed and expanded Sanitary Sewer Service Area within the 20-year design period of this plan. Typically, maximum sanitary sewer capacity is based on a 2/3 full flow depth. In Table 9, the remaining capacity is shown as a percentage of two-thirds full flow. In the case of Germantown's sanitary sewer system, none of the existing sanitary sewers are at or above the 2/3 full flow threshold during the theoretical peak-hour flow as calculated based on future land uses and peaking factors in Table 6. Of note, however, are pour points 1, 2, and 3A which are near enough to the threshold to warrant closer future study as development continues in the Village. Any substantial deviations from the land uses, densities, or SSSA used for flow and capacity calculations herein could impact sewers at these locations and render their capacity inadequate.

Pumping Stations

Like the sanitary sewer pipe capacity analysis, an analysis of the existing pumping stations is equally critical to determine the need for future capacity upgrades. Using the theoretical flows calculated for each Basin in Table 6, we can aggregate the flow from each basin that is tributary to a particular pumping station. Table 10 calculates the total flow to each lift station by summing the individual basin flows tributary to the respective lift station. This method allows a clear picture of which basins flow to any individual lift station, including wastewater that is conveyed by more than one pumping station.

Table 10 Pumping Station Aggregate Peak Hour Theoretical Future Flow (GPM)

Analysis Basin Name	Pumping Station (Flow in GPM)					
	PS-3	PS-6	PS-7	PS-WW	Main St	Old Farm
Gateway Central					449	449
Gateway East					333	333
Gateway North					326	326
Gateway South					907	907
Isabelle Farms					40	40
Main Street Central					1,083	1,083
Main Street East					1,266	1,266
Main Street West					250	250
Old Farm North						659
Old Farm South						834
Pump Station 3	1,086	1,086				1,086
Pump Station 6		302				302
Pump Station 7			1,090			1,090
Wrenwood				280		
Total Aggregate	1,086	1,388	1,090	280	4,654	8,624

The analysis basins that do not contribute flow to any existing pumping station have been omitted from Table 10. Flow from the Richfield IPA is also omitted in this calculation and will be added incrementally to the further capacity analysis. The summation for "Total Aggregate" is the theoretical peak-hour flow at each pumping station. This peak-hour flow is used in Table 12 as the basis for pumping station capacity analysis. Table 11 adds the Richfield IPA theoretical flow incrementally and then compares future theoretical flow to the existing pumping station capacities.

Table 11 Sanitary Sewer Pumping Station Capacity Analysis

Existing Pump Station	Theoretical Peak-Hour Flow Rate into Pump Station - Germantown Expanded SSSA (GPM)	Existing Maximum Capacity of Pump Station (GPM)	Theoretical Peak-Hour Flow Rate from Richfield Planning Area (GPM)	Theoretical Peak-Hour Flow Rate Including Richfield Planning Area (GPM)	Estimated Remaining Capacity (GPM)	% Capacity Utilized
PS-3	1,086	310		1,086	-776	350.3%
PS-6	1,388	950		1,388	-438	146.1%
PS-7	1,090	1,300		1,090	210	83.8%
Wrenwood	280	410		280	130	68.2%
Main Street	4,654	6,250	740	5,394	856	86.3%
Old Farm	8,624	7,400	740	9,364	-1,964	126.5%

At the 20-year design period, assuming a fully developed condition in the existing and expanded SSSA including the Richfield IPA, the Village's pumping stations will very likely need major upgrades to provide adequate capacity for the predicted development. The typical threshold for action is at 80% of existing capacity utilized for a pump station. At the 80% threshold, a plan should be put in motion for upgrades to existing pump stations, new pump stations, or relief sewers to increase pump station capacities or reduce the amount of flow into the pump station.

In the Village of Germantown, the theoretical peak-hour flow for the future fully developed condition predicts all but one of the existing pump stations to exceed the 80% threshold. PS-3, PS-6, and Old Farm pump stations far exceed 100% of their existing capacity, indicating that the Village needs a plan in place for major upgrades or additions to the pumping station infrastructure to accommodate future development. These upgrades and additions are detailed in the alternatives analysis portion of this report.

ALTERNATIVES ANALYSIS

After analyzing the sanitary system flow and capacity in both gravity sanitary sewers and pump stations, a high-level analysis can be conducted for various options to improve capacity in areas of need to accommodate future development within the expanded SSSA and Richfield IPA.

Existing Gravity Sanitary Sewer System

Overall, the Village of Germantown's existing gravity sanitary system has adequate capacity to support future development as theorized in this Facilities Plan. Significant variations from the assumed future land use, population, and SSSA used for calculations in this study may require more in-depth analysis to determine impacts to the capacity needs of the sanitary sewer system. In addition, any new single point users consuming significant capacity will need to be accounted for in addition to the results shown in this Facilities Plan. Because the existing gravity sanitary sewers can adequately support future growth in the Village of Germantown, no analysis of alternatives for relay or relief sewers has been completed within this study.

Existing Pump Stations

As mentioned in the flow and capacity analysis section of this report, there appears to be a substantial future weak point in the Village's existing pump stations with respect to future capacity needs. Having a plan in place to reconstruct or upgrade these pump stations is critical to keeping the overall sanitary sewer system on pace with the anticipated future development in the Village and in Richfield. Alternatives presented in this Facilities Plan have been analyzed for feasibility and favorability factors at a high level.

As the Village continues to pursue these alternatives, more in-depth design and study will be needed to thoroughly detail and choose the most favorable alternatives.

Future capacity need for each pump station is sized based on setting the 80% threshold at the theoretical peak hour flow. This provides a 20% buffer of utilized capacity versus maximum capacity.

Pump Stations #3 & #6 – Alternative A (PS 3) – Upgrade of PS #3 from an existing capacity of 310 GPM to a future capacity need of 1,086 GPM would require two new 1,086 GPM pumps, new station discharge piping, new valves, a new standby generator and new controls with pump motor variable frequency drives (VFDs), and replacement of the existing 6" force main with approximately 3,200 LF of new 10" force main. It is assumed that a new building would be required for the generator, controls, and valves. It is assumed the existing wet well could accommodate the proposed upgrades with the incorporation of pump motor VFDs.

Alternative A (PS 6) – Upgrade of PS #6 from an existing capacity of 950 GPM to a future capacity need of 1,388 GPM would need to be done in tandem with upgrades to PS #3, as PS #6 is immediately downstream of the discharge point for PS #3. The existing 10" force main for PS #6 can accommodate a maximum capacity of 1,500 GPM. Upgrades to PS #6 would require two new 1,388 GPM submersible pumps, new station discharge piping, new valves, a new standby generator, and new controls with pump motor variable frequency drives. The station is a dry well/wet well station with the dry well consisting of a buried steel chamber housing the suction and discharge piping, valves, fittings, pumps, electrical components, and controls. The chamber is crowded and there is not space for larger piping, valves, and pumps. It is assumed that the station would be converted to a submersible style. It is assumed the existing wet well could accommodate the proposed upgrades with the incorporation of pump motor VFDs. A new building would be required for the generator, controls, and valves.

PS #6 is located on a relatively small parcel of land near the Menomonee River, so expansion of the station with the upgrades described may not be a viable alternative.

Alternative B (PS 3/6) – A more favorable alternative to the Village may be consolidation of PS #3 and #6 into one single pumping station. The proximity to one another creates an ideal opportunity to consolidate the two stations into one. In this alternative, land acquisition would likely be necessary to construct a new pumping station to replace existing PS #6. The Village has discussed utilizing the vacant commercial property just to the west of PS #6 for this purpose. A new pumping station of approximately 1,500 GPM capacity with submersible pumps, backup generator and control building, and valve building would be constructed in the vicinity of the existing PS #6. The existing 10" force main could be extended to the new pump station location and reused.

Elimination of PS #3 would then be possible by installation of approximately 3,400 LF of 18" sanitary sewer from the new pump station location along the path of existing 8" sanitary sewer west on County Line Road and then northwest along Appleton Avenue to connect to an existing 18" sanitary sewer that flows into PS #3. The new sewer installation would range in depth from 15-feet to 25-feet.

While the complexity and expense of this alternative may be greater than other alternatives for PS #3 and PS #6, there is considerable value in eliminating ongoing maintenance and operating costs with consolidation of the two pumping stations to one new reliable station.

Pump Station #7 – Alternative A (PS 7) – At the future theoretical peak-hour flow of 1,090 GPM, PS #7 will still be under its maximum capacity of 1,300 GPM. The predicted future utilized capacity is just over the 80% threshold at 83.8%. As development of the tributary basin for PS #7 happens, detailed data should be collected and monitored to see if peak-hour flow rates begin to approach the 80% threshold. As land uses, developments, and consumers may change from the predicted conditions, the peak-hour flow may or may not ever reach a threshold critical for upgrades. If PS #7 needed to be upgraded, it is feasible to expand the capacity to 1,750 GPM using the existing 12" force main and upgrading the three existing submersible pumps to 875 GPM each. A detailed analysis would have to be done to determine if the

existing 125kW standby generator would have to be replaced. For the purpose of this study, it is assumed the generator would not have to be replaced.

A secondary alternative for PS #7 has not been analyzed as this alternative is very likely to be the preferred alternative in this scenario.

Main Street Pumping Station – The Main Street Pumping Station is a major part of the sanitary sewer infrastructure in the Village. This pumping station is expected to convey approximately 40% of the Village's peak-hour flow in the future fully developed land use condition. At the future theoretical peak-hour flow of 5,394 GPM, the Main Street PS will still be under its existing maximum capacity of 6,250 GPM. It should be noted that the existing maximum capacity of 6,250 GPM creates a velocity greater than 6 feet per second in the existing 16-inch force main. Velocities greater than 6 feet per second can cause undesirable pressure transients in the force main and ultimately lead to catastrophic failure. A detailed pressure transient analysis is recommended for any peak flow at the Main Street PS more than 4,100 GPM.

The predicted future utilized capacity is over the 80% threshold, however, at 86.3%. This utilized capacity is based on the maximum capacity of 6,250 GPM. If the velocity limitation is used as the governing factor, the Main Street PS is 31.5% over the 4,100 GPM capacity determined in the prior R/M Lift Station Study report. This is cause for concern as a large portion of the tributary area to the Main Street PS is yet to be developed, so any deviations to the predicted land use, developments, and consumers could easily have an adverse impact on available capacity.

Alternative A(MS) – To increase the available capacity at the Main Street PS, velocities in the existing 16-inch force main would need to exceed the recommended 6 feet per second threshold. Installation of a new larger force main or a parallel force main would be needed to reduce total dynamic head (TDH) and maintain acceptable velocities in the force main.

To increase the capacity to meet future demand, approximately 2,650 LF of new parallel 14-inch force main could be installed along the path of the existing 16-inch force main. The reduction in TDH would provide adequate capacity for peak-flow events. The parallel force main would also provide redundancy in the event of maintenance or repairs on one of the two parallel lines. If this alternative were chosen, it would also be recommended to assess the structural condition of the existing 16-inch force main due to its age of approximately 37 years.

In conjunction with the installation of the new parallel force main, the existing force main could be rehabilitated with Cured-In-Place Pipe to extend its lifespan without the cost of full replacement. This alternative would likely be feasible without major upgrades to the wet well, pumps, generator, and controls unless otherwise desired by the Village. There would be miscellaneous upgrades to the station required to update the HVAC, plumbing, and to replace the bridge crane.

Alternative B(MS) – For comparative purposes, the Village could potentially replace the Main Street PS with a new PS with a capacity of approximately 5,400 GPM. While this would bear greater cost and complexity, it is a viable alternative given the availability of open space in the vicinity of the existing Main Street PS. A new pumping station would still require a new, larger force main, or similar parallel arrangement as described in Alternative A.

Old Farm Pumping Station – The Old Farm Pumping Station is the largest pumping station within the Village's sanitary sewer system. This pumping station is expected to convey approximately 67% of the Village's peak-hour flow in the future fully developed land use condition. The future theoretical peak-hour flow of 9,364 GPM will exceed Old Farm's maximum capacity of 7,400 GPM by 26.5%. It should be noted that the existing maximum capacity of 7,400 GPM creates a velocity greater than 6 feet per second in the existing 20-inch force main. Velocities greater than 6 feet per second can cause undesirable pressure transients in the force main and ultimately lead to catastrophic failure. A detailed pressure transient analysis is recommended for any peak flow at the Old Farm PS more than 6,300 GPM.

Alternative A (OF) – To increase the available capacity at the Old Farm PS, velocities in the existing 20-inch force main would need to exceed the recommended 6 feet per second threshold. Installation of a new larger force main or a parallel force main would be needed to reduce total dynamic head (TDH) and maintain acceptable velocities in both force mains while increasing the capacity to meet demand.

Approximately 4,400 LF of new parallel 16-inch force main could be installed along the path of the existing 20-inch force main. The parallel force main would also provide redundancy in the event of maintenance or repairs on one of the two parallel lines. If this alternative were chosen, it would also be recommended to assess the structural condition of the existing 20-inch force main due to its age of approximately 37 years. In conjunction with the installation of the new parallel force main, the existing force main could be rehabilitated with Cured-In-Place Pipe to extend its lifespan without the cost of full replacement.

In addition to a parallel force main, this alternative may require upgrades to the pumping station itself including three larger pumps and motors, larger suction piping, and a larger generator. Other miscellaneous upgrades to the station would be required to upgrade the HVAC, plumbing, and to replace the bridge crane. A detailed investigation would be needed to determine the feasibility of installing these upgrades within the existing building configuration. It is assumed that the existing wet well could be reused with the use of pump motor VFDs. This would have to be confirmed with a detailed analysis.

Alternative B (OF) – For comparative purposes, the Village could potentially replace the Old Farm PS with a new PS with a capacity of approximately 9,400 GPM. This alternative would be the most expensive option by far, but it is a viable alternative given the availability of open space in the vicinity of the existing Old Farm PS. A new pumping station would still require a new, larger force main, or similar parallel arrangement as described in Alternative A.

Sanitary Sewer System Extensions & Expansion

For unsewered areas within the existing SSSA and areas to be added in the full SSSA amendment, sanitary sewer extensions will be required to offer sanitary sewer service to development within those areas. A preliminary general route and design has been analyzed for each of these areas based on each Analysis Basin used for flow calculation in earlier steps. The analysis determines where any new pumping stations may need to be constructed as well as the general route and feasibility of construction for sewers anticipated to be 12 inches in diameter or greater. Unsewered areas in the existing and expanded SSSA anticipated to be served by sewers less than 12 inches in diameter have not been analyzed for construction feasibility or costs for new sewers within this report. Unsewered or expanded basins anticipated to require a new pumping station to be served in the future have been analyzed at a high level for general placement and size of the pumping station.

Appendices O and P show layouts, locations, and general design of sewer extensions and pump stations in various basins as detailed below:

Country Aire Basin – A new pumping station would likely be needed to expand sanitary sewer service to this undeveloped basin. Topography limits the extension of gravity sewers into this basin, so a pumping station could be installed near the local low point within the basin on Country Aire Drive approximately 1,000 feet south of Freistadt Road. The pumping station would need a maximum capacity of approximately 30 GPM and would discharge through 2,100 LF of 4-inch force main to the south on Country Aire Drive. These proposed improvements are shown in Appendix O. With low predicted flow in this basin, the Village could also explore the option of publicly or privately owned individual grinder pumps and low-pressure sewers for properties developed within the basin.

Wrenwood Basin – This basin is partially developed and served by the Wrenwood PS. The portion of this basin that is currently undeveloped can be served by the existing Wrenwood PS with extended sanitary trunk sewers. Extension of approximately 2,300 LF of 12-inch diameter sanitary sewer, varying in depth from 12 to 29 feet, from the existing Wrenwood PS to the north could serve the future development within this basin. These proposed improvements are shown in Appendix O.

Interceptor Gravity 4 Basin – This basin is mostly developed with the majority being low-density residential homes currently served by septic systems. Extension of approximately 4,000 LF of 12-inch diameter sanitary sewer, varying in depth from 15 to 40 feet, could serve the entire basin and allow for future SSSA expansion to areas north of the basin. A 24-inch interceptor installed in 2019 offers a connection point on Mequon Road which would ultimately flow by gravity to the Village's 48-inch interceptor sewer. These proposed improvements are shown in Appendix O.

Gateway North Basin – A new pumping station would likely be needed to expand sanitary sewer service into this undeveloped basin. Topography limits the extension of gravity sewers in this area, so a pumping station could be constructed at the far northwest corner of the basin. The pumping station would need a maximum capacity of approximately 350 GPM and would discharge through 1,600 LF of 6-inch force main to the south and east on Rockfield Road. From the discharge point of the 6-inch force main, 1,400 LF of 12-inch gravity sewer would need to be constructed in Rockfield Road to a connection point to the east at Gateway crossing. In addition, approximately 6,500 LF of 12-inch trunk sanitary sewer, varying in depth from 10 to 27 feet, would be installed from the new pumping station to the east along the northern border of the basin to serve the development within. These proposed improvements are shown in Appendix P.

Gateway East Basin – This undeveloped basin can utilize existing sanitary sewers in Goldendale Road to serve future development primarily by gravity. Serving this basin would include construction of approximately 1,300 LF of 15-inch and 8,700 LF of 12" trunk sanitary sewer, varying in depth from 16' to 30' starting at the connection point in Goldendale Road and routing two branches to the north and east. It may be possible to reduce the sewer depth in certain areas depending upon the configuration of future developments. These proposed improvements are shown in Appendix P.

Isabelle Farms Basin – This basin has some low-density residential development currently served by septic systems, as well as some undeveloped areas. A new pumping station would likely be needed to expand sanitary sewer service to this basin. Topography limits the extension of gravity sewers into this basin, so a pumping station could be installed near the local low point within the basin on Maple Road approximately 1,200 feet south of Holy Hill Road. The pumping station would need a maximum capacity of approximately 40 GPM and would discharge through 3,000 LF of 4-inch force main to gravity sewers constructed within the Gateway East Basin. These proposed improvements are shown in Appendix O. With low predicted flow in this basin, the Village could also explore the option of publicly or privately owned individual grinder pumps and low-pressure sewers for properties developed within the basin.

Cost Analysis for Alternatives

After determining viable needed upgrades and extensions to serve future demands, estimated costs associated with the alternatives for improvements to existing Village sanitary sewer infrastructure are summarized in Table 12. Estimated costs for extensions and new infrastructure to support future development are summarized in Table 13. These costs are presented in today's dollars using the cost estimating methodology described previously within this report. These estimates include a 30% engineering and contingency to account for modest price increases, engineering design, and engineering construction administration. The estimates do not account for land acquisition costs, environmental remediation, or ancillary utility relocations.

Table 12 Cost Estimate for Potential Improvements to Existing Infrastructure

Alternative	Improvement	Unit	Quantity	Unit Price	Cost
Pump Stations #3 and #6					
A (PS 3)	Replacement station with new 1,086 gpm pumps, piping, new generator, valves, electrical and controls.	EA	1	\$900,000	\$900,000
	New 10" Force Main	LF	3,200	\$265	\$848,000
A (PS 6)	Replacement station with new 1,388 gpm pumps, piping, generator, valves, electrical and controls all inside new building.	EA	1	\$1,820,000	\$1,820,000
Alternative A Total					\$3,568,000
B (PS 3/6)	Full Reconstruction of PS #6	LS	1	\$1,950,000	\$1,950,000
	18" Sanitary Sewer to Eliminate PS #3	LF	3,400	\$900	\$3,060,000
Alternative B Total					\$5,010,000
Pump Station #7					
A (PS 7)	875 GPM Submersible Pump Upgrade	EA	3	\$45,000	\$135,000
Alternative A Total					\$135,000
Main Street Pump Station					
A (MS)	Addition of Parallel 14" Force Main	LF	2,650	\$410	\$1,086,500
	CIPP Rehabilitation of 16" Force Main	LF	2,650	\$200	\$530,000
	Miscellaneous Upgrades to MS PS	LS	1	\$500,000	\$500,000
Alternative A Total					\$2,116,500
B (MS)	Full Reconstruction of MS PS	LS	1	\$6,100,000	\$6,100,000
	Addition of Parallel 14" Force Main	LF	2,650	\$420	\$1,113,000
	CIPP Rehabilitation of 16" Force Main	LF	2,650	\$200	\$530,000
Alternative B Total					\$7,743,000
Old Farm Pump Station					
A (MS)	Addition of Parallel 16" Force Main	LF	4,400	\$440	\$1,936,000
	CIPP Rehabilitation of 20" Force Main	LF	4,400	\$250	\$1,100,000
	Pump and Motor Upgrade	EA	3	\$110,000	\$330,000
	Generator Upgrade	LS	1	\$450,000	\$450,000
	Suction Piping Upgrade	LS	1	\$150,000	\$150,000
	Miscellaneous Upgrades to OF PS	LS	1	\$500,000	\$500,000
Alternative A Total					\$4,466,000
B (MS)	Full Reconstruction of OF PS	LS	1	\$8,060,000	\$8,060,000
	Addition of Parallel 16" Force Main	LF	4,400	\$440	\$1,936,000
	CIPP Rehabilitation of 20" Force Main	LF	4,400	\$250	\$1,100,000
Alternative B Total					\$11,096,000

Table 13 Cost Estimate for Potential New Infrastructure for Future Development

	Improvement	Unit	Quantity	Unit Price	Cost
Country Aire Basin					
	200 GPM Pumping Station	LS	1	\$750,000	\$750,000
	4" Force Main	LF	2,100	\$120	\$252,000
Country Aire Basin Total					\$1,002,000
Wrenwood Basin					
	12" Sanitary Sewer, 12'-29' depth	LF	2,300	\$650	\$1,495,000
Wrenwood Basin Total					\$1,495,000
Interceptor Gravity 4 Basin					
	12" Sanitary Sewer, 12'-40' depth	LF	4,000	\$800	\$3,200,000
Interceptor Gravity 4 Basin Total					\$3,200,000
Gateway North Basin					
	350 GPM Pumping Station	LS	1	\$925,000	\$925,000
	6" Force Main	LF	1,600	\$150	\$240,000
	12" Sanitary Sewer - Rockfield Road	LF	1,400	\$400	\$560,000
	12" Sanitary Sewer - 10'-27' depth	LF	6,500	\$650	\$4,225,000
Gateway North Basin Total					\$5,950,000
Gateway East Basin					
	15" Sanitary Sewer - 20' depth	LF	1,300	\$700	\$910,000
	12" Sanitary Sewer - 16'-30' depth	LF	8,700	\$650	\$5,655,000
Gateway North Basin Total					\$6,565,000
Isabelle Farms Basin					
	200 GPM Pumping Station	LS	1	\$750,000	\$750,000
	4" Force Main	LF	3,000	\$120	\$360,000
Isabelle Farms Basin Total					\$1,110,000

SUMMARY OF ALTERNATIVES AND IMPLEMENTATION

Through the data collection and analysis in this Facilities Plan, the Village of Germantown's future sanitary sewer infrastructure needs have been identified in detail, as well as feasible alternatives to meet these needs. With the addition of the Richfield IPA to Germantown's existing SSSA and subsequent development in those areas, the needs associated with the Germantown/Richfield connection are most critical in the near term.

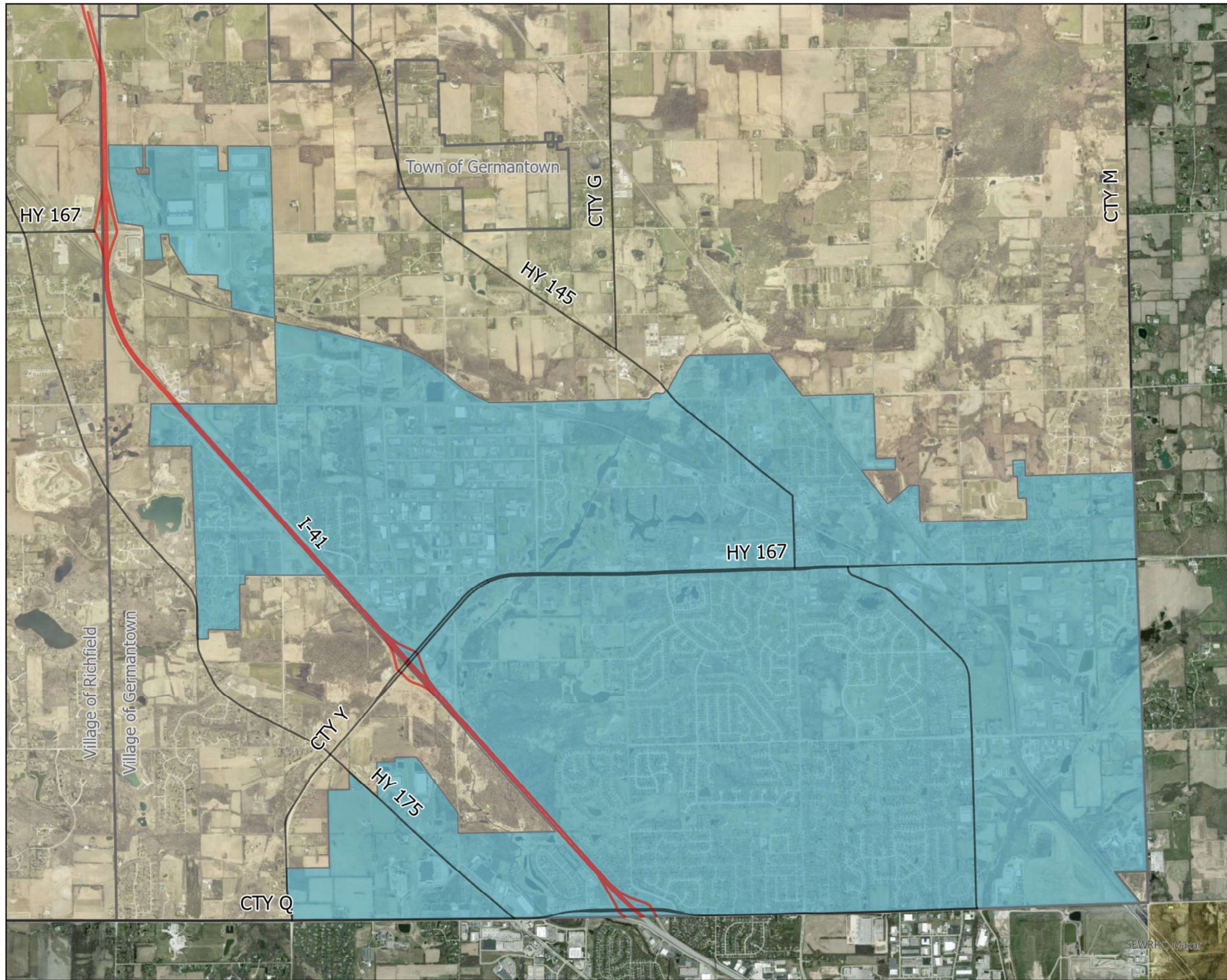
The most critical of these needs appear to be within the Village's two main pump stations, Main Street and Old Farm. With the bulk of near-term development likely within basins tributary to these two pump stations, measures should be taken as soon as possible to investigate the alternatives in detail so that plans for construction of upgrades and new facilities can take place well in advance of capacity issues. As development continues coincident with planning, design, and construction for capacity upgrades, the Main Street and Old Farm pump stations can be ready for increased capacity before reaching a critical point.

Pump stations #3, #6, and #7 are less critical for immediate analysis and planning, as their tributary basins are less likely to see considerable development in the near-term basis. In these basins, the Village can monitor the future potential for development and institute measures for detailed investigation of capacity upgrades as development proceeds.

The needs for new infrastructure in unsewered areas can be further assessed as proposals for development within those basins are brought to the Village. The new infrastructure in the unsewered basins identified in the alternatives analysis is not critical to development in the Village at this time.

The costs associated with construction of new sanitary sewers to connect Richfield are to be paid by Richfield per the IGA between the two municipalities. Costs associated with upgrades or capacity expansion of Germantown's existing sanitary sewer infrastructure will be the responsibility of Germantown. For improvements to existing infrastructure, the Village may be able to take advantage of low-interest Clean Water Fund loans or Bonds typical to municipal infrastructure projects. For new infrastructure, the Village may be able to defray all or a portion of the cost for sewer service extensions to the development entity proposing and construction the new developments in those areas.

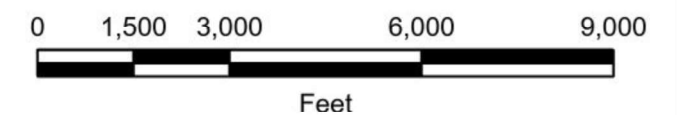
Appendix A – Village of Germantown Existing Sanitary Sewer Service Area Map



Existing Sanitary Sewer
Service Area

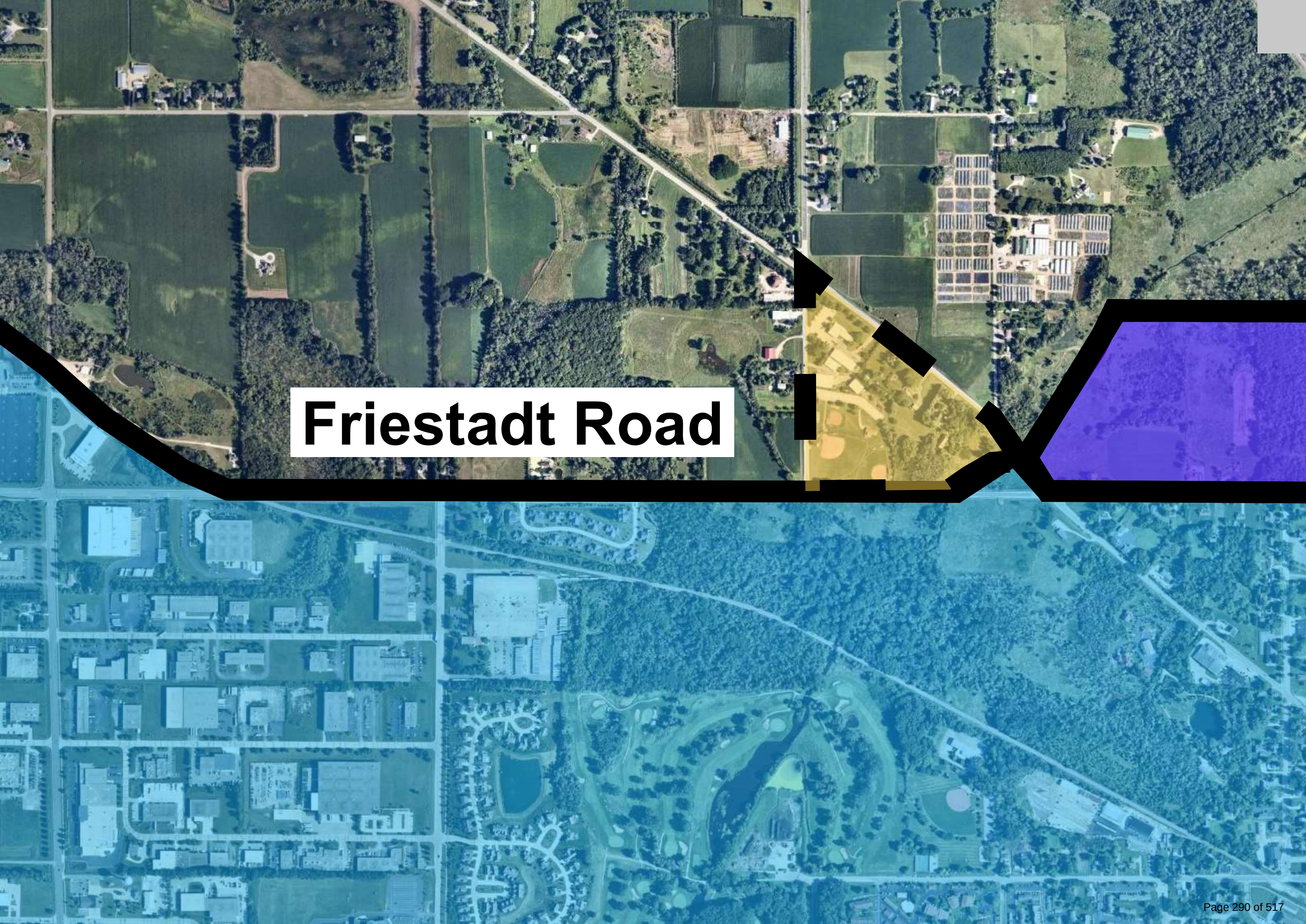
Village of
Germantown, WI

 = Sanitary Sewer Service Area



 Ruekert • Mielke

Appendix B – 2050 Full Sanitary Sewer Service Area Amendment Map



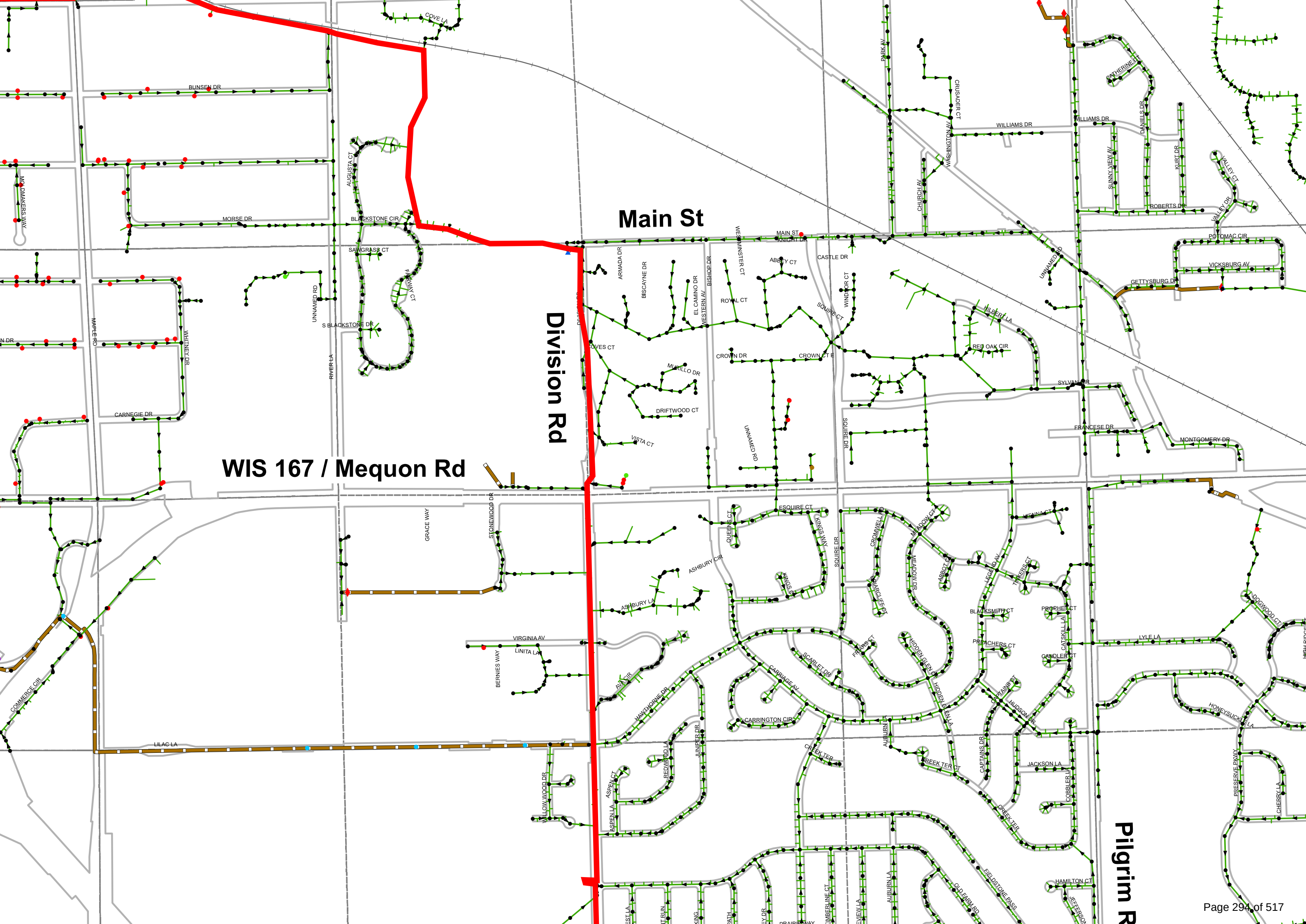
Friestadt Road

Appendix C – Village of Richfield Incremental Planning Area Map

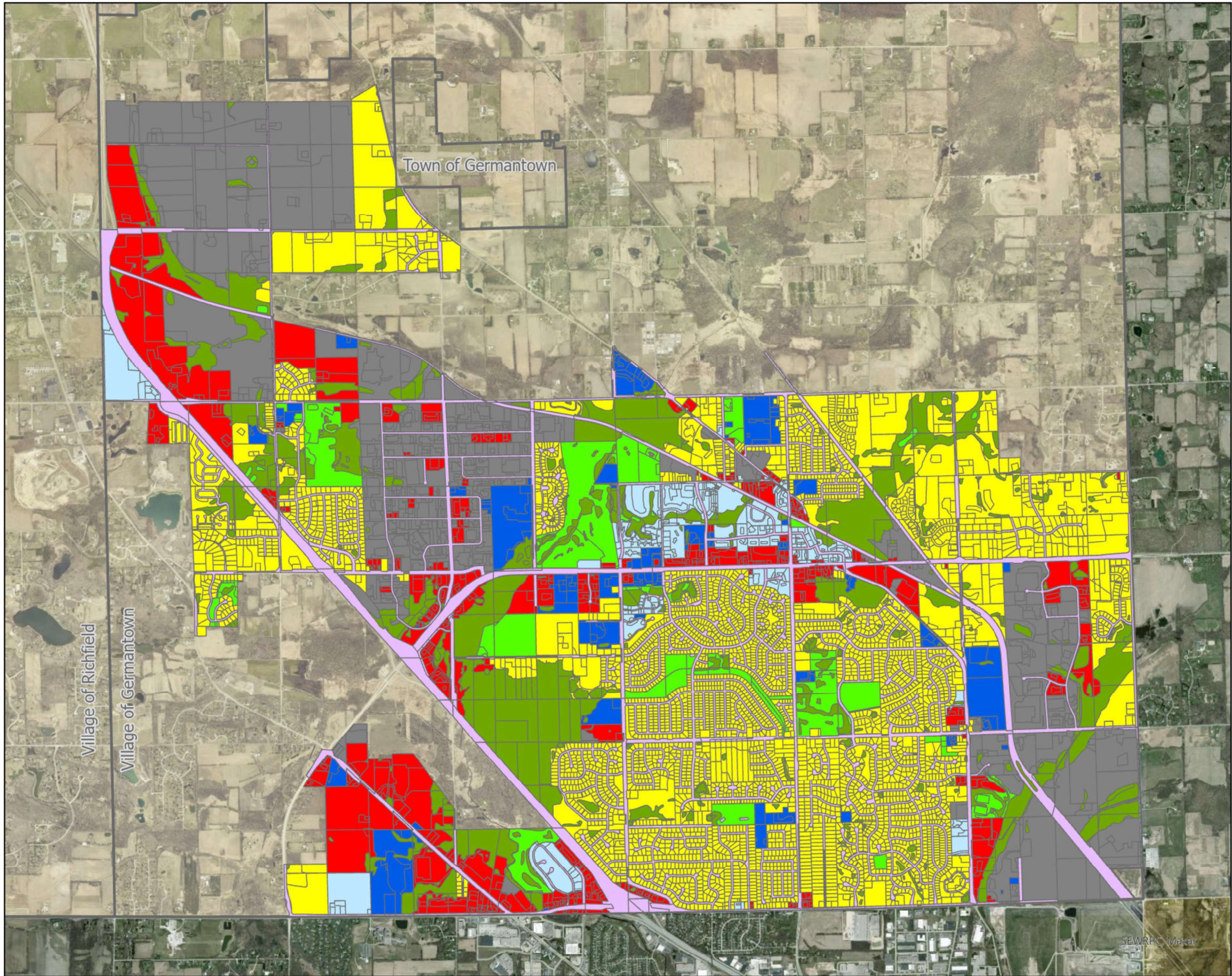
An aerial photograph showing a suburban landscape. A horizontal road, labeled 'Friestadt Road', runs across the middle. To the left of the road is a large, dark-roofed industrial building. To the right is a large, rectangular solar farm. Below the road, there's a residential area with many houses, followed by a golf course with a prominent pond and a baseball field. The background features more green fields and scattered trees.

Friestadt Road

Appendix D – Village of Germantown Sanitary Sewer System Map



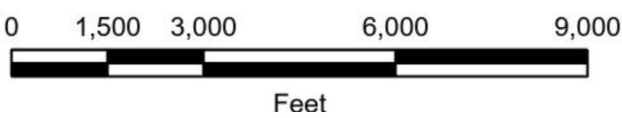
Appendix E – Village of Germantown Future Land Use Map



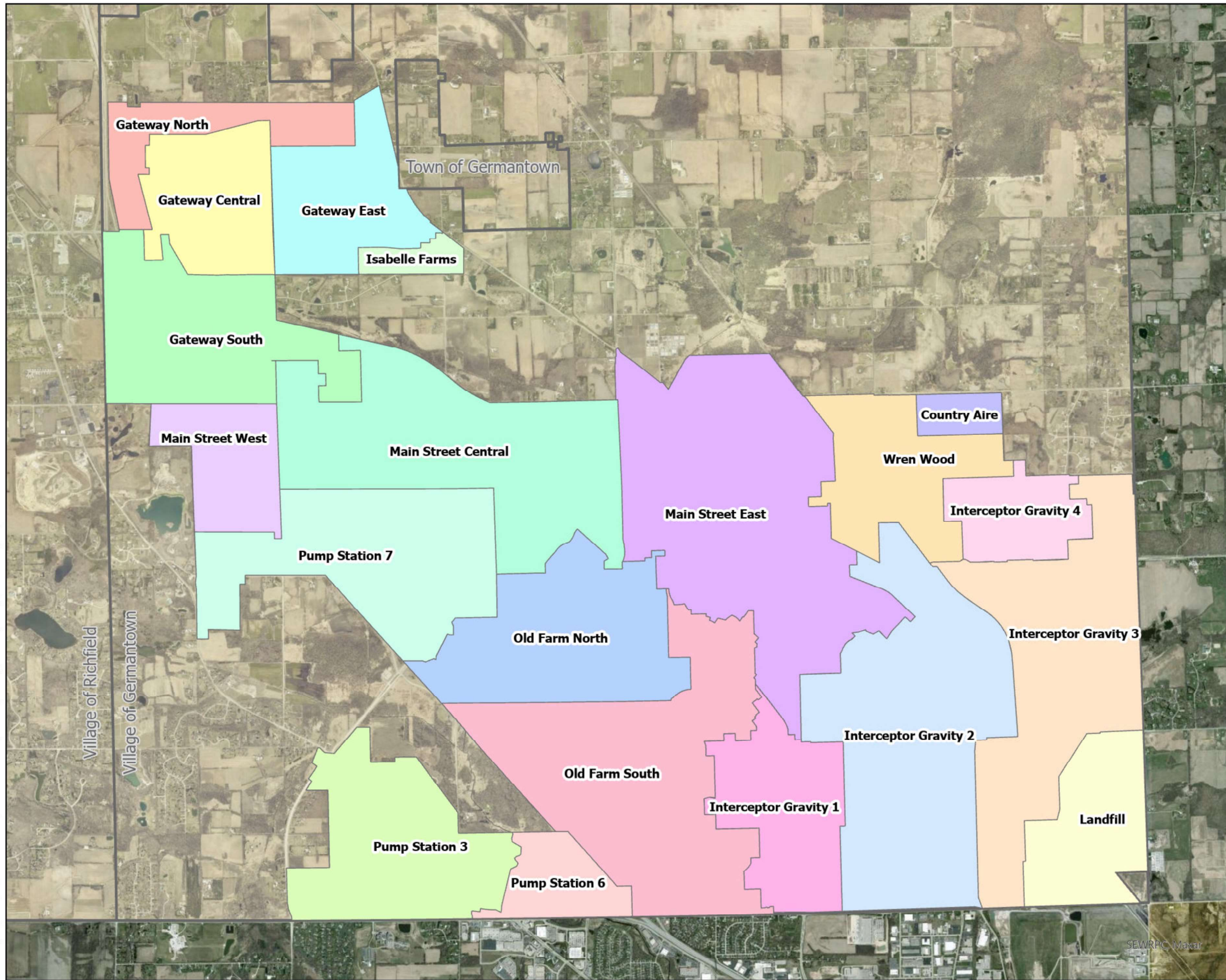
Future Land Use

Village of
Germantown, WI

- Single Family
- Multi Family
- Commercial
- Institutional
- Industrial
- Recreational
- Wetlands
- Right-of-Way



Appendix F – Sanitary Sewer Analysis Basin Map



Pump Station Basins

Village of
Germantown, WI



 Ruekert • Mielke

Appendix G – Richfield Incremental Planning Area Topographical Map



Appendix H – Richfield Incremental Planning Area Soils Type Map



Appendix I – Richfield Incremental Planning Area FEMA Floodplain and Wetlands Map



Appendix J – Richfield Incremental Planning Area Environmental Review

The overall site is comprised of a large planning area to the east of the Town of Germantown, Washington County, Wisconsin.

General project location lat/long: 43.25828, -88.19166 (center), bounded by 43.26548, -88.20209; 43.26533, -88.18172; 43.25082, -88.20214; 43.25061, -88.18193.

Section / Township / Range: S12 T09N R19E

During the preliminary environmental screening, the following environmentally sensitive resources and assumptions were assessed:

- Presence of wetland and waterway features,
- Presence of 303d impaired waterways,
- Presence of areas of special natural resource interest,
- Documented wetland and waterway disturbance permits,
- Presence of FEMA floodplains, floodways and flood fringe,
- Presence of WDNR Bureau of Remediation and Reclamation (BRR) Sites,
- Presence of Solid and Hazardous Waste Information System (SHWIMS) Sites,
- Presence of Shoreland Zoning,
- Presence of Planned or Existing County Trails,
- Presence of National Register of Historic Places,
- Presence of United States Department of Agriculture Drainage Districts, and
- Potential presence of Threatened and Endangered Species.

A summary of findings is described below.

Wetlands and Waterways

The WDNR Surface Water Data Viewer (SWDV) was accessed. Throughout the planning area, there are multiple wetland and waterway complexes. Wisconsin Wetland Inventory (WWI) listed wetlands include: Emergent/wet meadow, Flats/unvegetated wet soil, Forested, and open water. The WWI also lists five unnamed waterways, three first order, and two second order waterways and three waterbodies. No features within the study area were identified as 303d impaired or are designated as an area of special natural resource interest.

The SWDV maintains a list of permitted activities and informal decisions held by the WDNR. Please refer to Table 1 below for a summary of WDNR actions.

Table 1. WDNR Actions

Permit ID	Docket Number	Applicant	Permit Date	Activity	Permit Decision
6076221	GP-SE-2019-67-01338	Koehnke	5/29/2019	Wetland Fill - Residential/Commercial/Industrial	A - Approved
5013080	IP-SE-2007-67-0439	Riverwoods Parkway Group, LLC	12/12/2007	Wetland WQC (Federal)	A - Approved
5013081	GP-SE-2007-67-0440MW	Riverwoods Parkway Group, LLC	12/12/2007	Pond-stormwater	A - Approved
5013082	GP-SE-2007-67-0441MW	Riverwoods Parkway Group, LLC	12/12/2007	Pond-stormwater	A - Approved

Permit ID	Docket Number	Applicant	Permit Date	Activity	Permit Decision
5013083	GP-SE-2007-67-0442MW	Riverwoods Parkway Group, LLC	12/12/2007	Pond-stormwater	A - Approved
5013084	GP-SE-2007-67-0443MW	Riverwoods Parkway Group, LLC	12/12/2007	Culvert w/o engineering	A - Approved
5013085	GP-SE-2007-67-0444MW	Riverwoods Parkway Group, LLC	12/12/2007	Culvert w/o engineering	A - Approved
N/A	INF-SE-2006-67-1046	Baudhuin Incorporated	10/26/2006	Shoreland Zoning	N/A
N/A	INF-SE-2007-67-0354	J.D. Knowles	5/29/2007	Ordinary High Water Mark Determination	N/A
N/A	INF-SE-2005-67-1088	Bauduin Inc	9/27/2005	Jurisdictional Determination	N/A
N/A	INF-SE-2005-67-0987	Northern Lakes Development	9/12/2005	Wetland Delineation	N/A

Please note, this is not representative of all possible wetlands and waterways within the project area. Refer to Figures 1, 2, and 3.

FEMA Floodplains, Floodways and Flood fringe

The presence of FEMA designated floodplains, floodways and flood fringe were assessed for the study area. A study was conducted for the waterway in the northeast corner of the study area. The FEMA panels included in the study area are 55131C0264E effective 2/25/2022 and 55131C0268E effective 2/25/2022. Within panel 55131C0268E there are areas designated as Zone A and Zone AE.

Refer to Figure 4.

Bureau of Remediation and Reclamation and Solid and Hazardous Waste Information System

The Bureau of Remediation and Reclamation, and the Solid and Hazardous Waste Information System were assessed for the study area. There are multiple open and closed sites with continuing obligations present throughout the study area. Care needs to be taken when considering impacting listed sites.

Table 2. Known BRRS Sites

DNR BRRS #	Site Status	Site Name	Facility ID #	Start Date / End Date	Has Continuing Obligations (Yes/No)	X Coordinate (m, WTM91)	Y Coordinate (m, WTM91)
0367563012	Open	WI DOT Kosterman Parcel	267200120	12/16/2014 / N/A	N/A	666007	311840
0267578745	Open	Laubenheimers Garage**	267032480	2/3/2017 / N/A	N/A	666605	310833
0367107634	Closed	Wolf Brothers Fuel Inc	267056130	7/9/1996 / 6/5/2000	Y	666381	311217.7
0367168387	Closed	White, Robert Property	267162500	7/23/1997 / 11/20/2003	Y	665929	311161

DNR BRRTS #	Site Status	Site Name	Facility ID #	Start Date / End Date	Has Continuing Obligations (Yes/No)	X Coordinate (m, WTM91)	Y Coordinate (m, WTM91)
0367201172	Closed	Richfield Truck Stop	267026760	9/21/1998 / 3/20/2000	N	667398.7	310323.7
0367004277	Closed	Laubenheimers Garage**	267032480	6/13/1994 / 12/12/2017	Y	666586.3	310844.7
0367001520	Closed	Gotez Garage	267032700	4/22/1991 / 6/8/2018	Y	666878.6	310283.4
0367246102	Closed	Craden MFG Inc	267064930	3/10/2000 / 6/19/2009	N	666423.3	311115.7
0367583781	Closed	Richfield Truck Stop	267026760	5/20/2019 / 6/17/2019	N	667423.9	310343.3
0367585483	Closed	Exxon Richfield Truckstop Proposed KT 1013	267026760	12/16/2019 / 12/16/2019	N	667410.1	310366.7
0367000546	Closed	Richfield Truck Stop	267026760	12/29/1989 / 11/9/2012	Y	667412.5	310370.5
0367005194	Closed	Richfield Service	267150400	3/25/1995 / 10/21/2009	Y	667387	310212
** LAUBENHEIMERS GARAGE has been identified as impacting another property.							

Additionally, the study area was examined using the WDNR Solid and Hazardous Waste Information System (SHWIMS). This system provides access to information on sites, and facilities operating at sites, that are regulated by the Wisconsin DNR Waste and Materials Management (WMM) program. The following sites were identified within the study area:

Table 3. SHWIMS Sites

Status	Facility Name	Address	FID	Region
Operating	Craden MFG Inc	1961 STH 175	267064930	Southeast
Closed	Johnson Equipment	1704 STH 175	267032700	Southeast
Closed	Richfield Truck Stop	2900 STH 167	267026760	Southeast

Refer to Figure 5 and the SHWIMS Database Export.

Shoreland Zoning

The presence of shoreland zones were assessed for the study area. No known shoreland zones are provided by the Washington County GIS viewer. The Village of Germantown Code of Ordinance No. 24.04, defines the shoreland-wetland zoning district as all wetlands in the Village which are equal to or greater than 5 acres within 1,000 feet of the ordinary high water mark (OHWM) of navigable lakes,

ponds or flowages and within 300 feet of the OHWM of navigable rivers or streams, or the landward side of the floodplain, whichever distance is greater.¹

Planned or Existing County Trails

Using the Washington County Adopted Bikeway and Trail Network Plan, Adopted June 2019², the study area has two wide shoulder paths and one side path existing. No new paths are proposed for the study area.

National Historic Register

Using the National Register of Historic Places GIS viewer, the study area was assessed. There are no registered sites within the study area.³

United States Department of Agriculture Drainage Districts

Using the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) Drainage Districts Interactive Map tool, the study area was assessed for presence of drainage districts. There are no drainage districts within the study area.⁴

Threatened and Endangered Species

Using the Wisconsin Department Natural Resources Natural Heritage Inventory (NHI) Portal, the study area was assessed. Based on the assessment state endangered fish may be present within the study area. A preliminary Information for Planning and Consultation (IPaC) assessment was performed to identify potential habitat that may support federally threatened or endangered species. The IPaC results included the federally endangered northern long-eared bat, the proposed endangered tricolored bat, and the candidate endangered monarch butterfly. Further investigations will be needed to assess likelihood of presence, and potential impacts.

Refer to the attachments for the NHI Portal assessment and the IPaC assessment.

¹ Reference: https://library.municode.com/wi/germantown/codes/code_of_ordinances?nodeId=CH24SHTLZOCOCROR5-88_24.04SHTLZODI

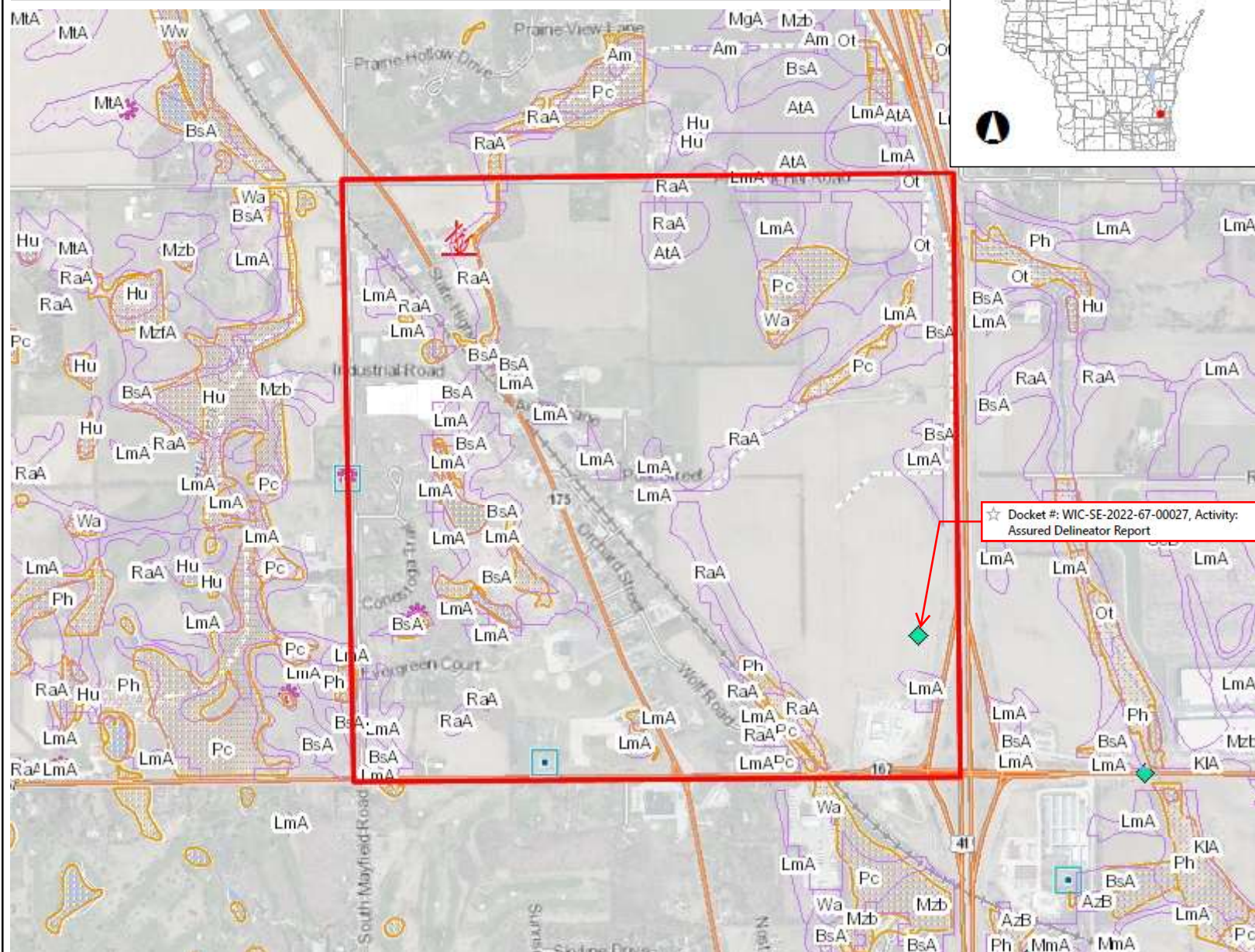
² Reference:
<https://www.washcowisco.gov/common/pages/DownloadFileByUrl.aspx?key=5xm1up4mTLLDgP3Y8GLTDcwqZlPhTR1nv9N17WjzjgHThLXmHzcSHnlll0qUmAHPXI4Ei2uaZtd1NZ3h2NIAzBGZYRMZ%2bk%2f90KZhIusQa9K%2b0n3y13lbvBhuCbwVTr80aVZdiatZOukhs6QP13w8v1IS%2bOmOjBkn%2fsmpliUj%2fL3jYs1VYHftEjKJo87tFBBQfLI5eeK%2ffUh81M0t%2bI2Q8F48Ks%3d>

³ Reference: <https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466>

⁴ Reference: <https://datcpgis.wi.gov/maps/?viewer=dd>



Figure 1: Wetlands and Waterways



Legend

- Wetland Indicators
- Wetland Class Areas
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
 - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Class Areas
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
 - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
 - Interstate Highway
 - State Highway
 - US Highway
- County and Local Roads
 - County HWY
 - Local Road
- Railroads

☆ Docket #: WIC-SE-2022-67-00027, Activity: Assured Delineator Report

0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840

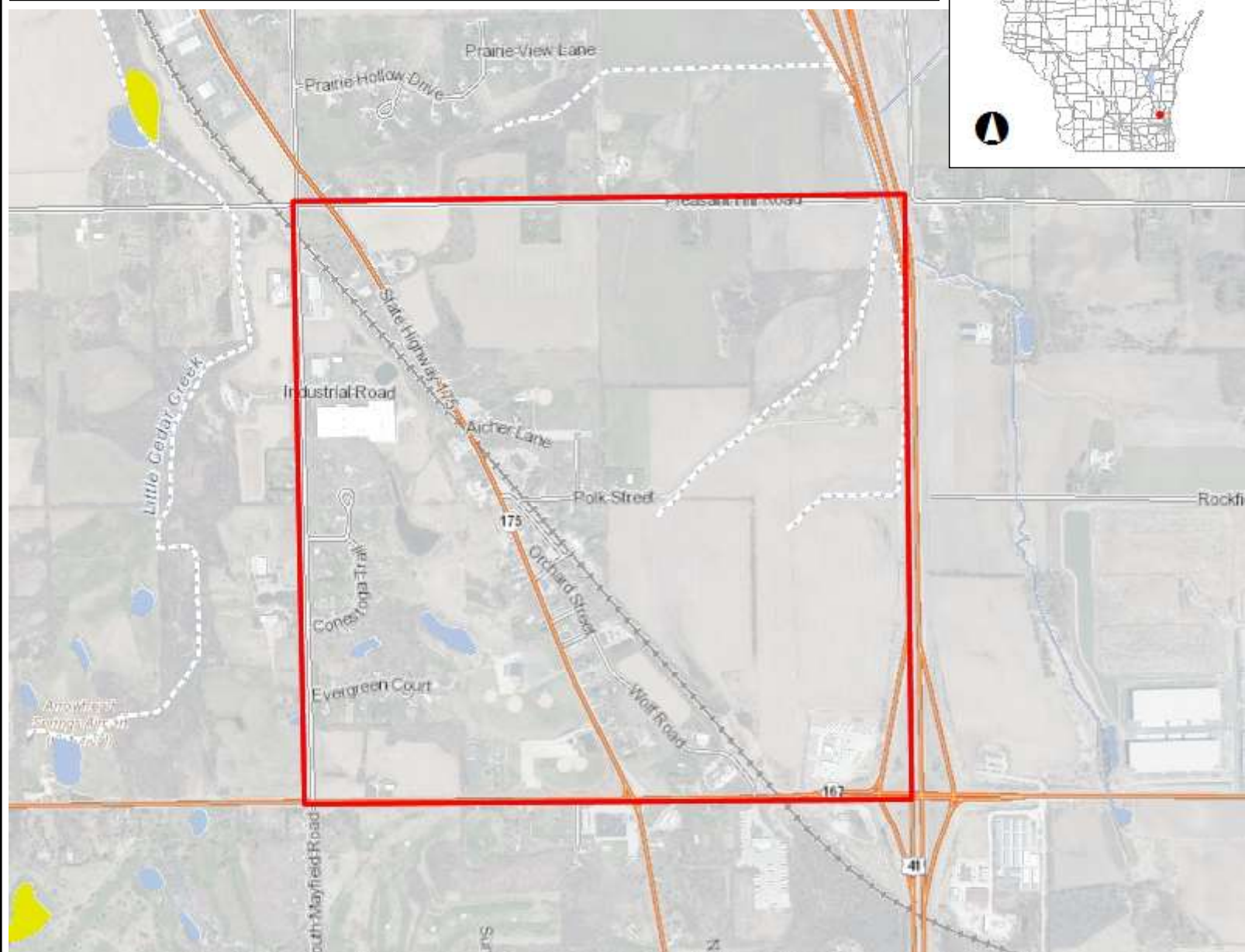
DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>

Notes

Surface Water Data Viewer Layers:
Wetlands, Hydric soils



Figure : Additional Surface Water Resources



Legend

- Impaired Rivers and Streams
- Impaired Lakes
- TMDL Category Lines**
 - Other or Multiple Factors
 - Contaminated Sediment Dominated
 - Atmospheric Deposition Dominated
 - Physical or Habitat Dominated
 - Nonpoint Source Dominated
 - Point and Nonpoint Source Blend
 - Point Source
 - Proposed for 303d listing
- TMDL Category Areas**
 - Other or Multiple Factors
 - Contaminated Sediment Dominated
 - Atmospheric Deposition Dominated
 - Physical or Habitat Dominated
 - Nonpoint Source Dominated
 - Point and Nonpoint Source Blend
 - Point Source
 - Proposed for 303d listing
- PNW-ASNRI Sensitive Areas of Lakes
- PNW-ASNRI Wild and Scenic Rivers
- PNW-ASNRI Outstanding and Exceptional Streams
- PNW-ASNRI Trout Streams
- PNW-ASNRI Wild Rice Streams
- PNW-ASNRI Outstanding and Exceptional Lakes
- PNW-ASNRI Special Area Management Plan Streams

Notes

Surface Water Data Viewer Layers:
Impaired Waterways, PNW-ASNRI,
Fisheries Management

0.5 0 0.25 0.5 Miles

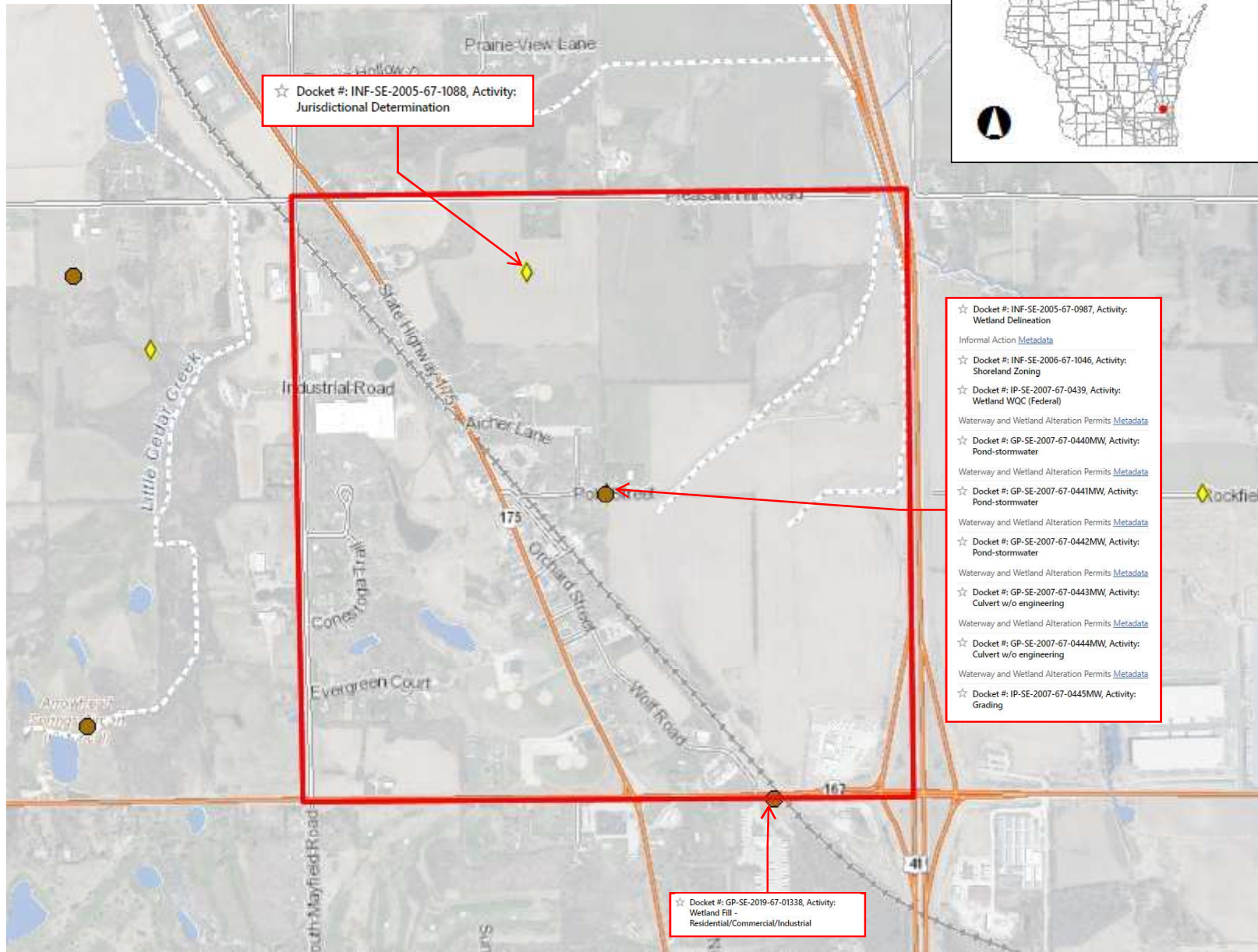
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1: 15,840

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>



Figure 3: WDNR Permits and Determinations



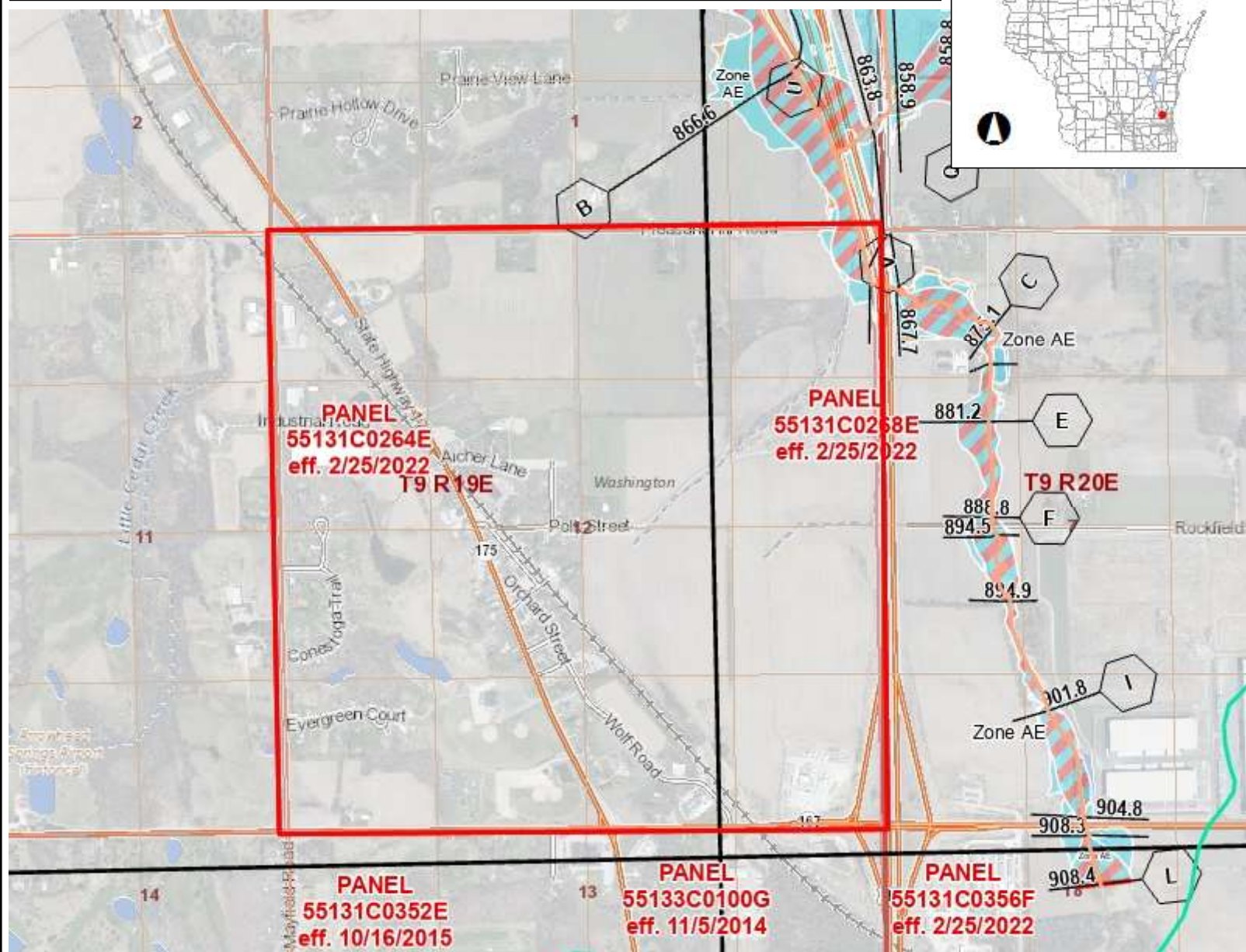
Legend

- Waterway and Wetland Alterations
- Formal/Informal Actions
- Exemption Determinations
- Ordinary High Water Mark Determinations
- Navigability Determinations
 - Yes
 - Yes with Agricultural Exemption
 - No
- Surface Water Outfalls
- 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

Notes



Figure 4: FEMA Floodplain Firmette



Legend

2D Water Surface Elevation Grid

High : 937.629

Low : 853.184

Dams

Dam

FERC and FERC Exempt Dam

Cranberry Dam

Removed Dam

Structure not on Waterway

<all other values>

Levees

+ Geomarks

Floodplain Analysis Lines

Case by Case Analysis for Development in Floodplain

Dam Failure Analysis

Encroachment Analysis

Flood Insurance Study

Flood Storage Analysis

Floodplain Study (Locally Funded)

Hydrology/Hydraulics developed at a Dam

<all other values>

Floodplain Analysis Catchments

Floodplain Analysis Points

Case by Case Analysis for Development in Floodplain

Dam Failure Analysis

Encroachment Analysis

Flood Insurance Study

Flood Storage Analysis

Floodplain Study (Locally Funded)

Hydrology/Hydraulics developed at a Dam

Notes

0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840

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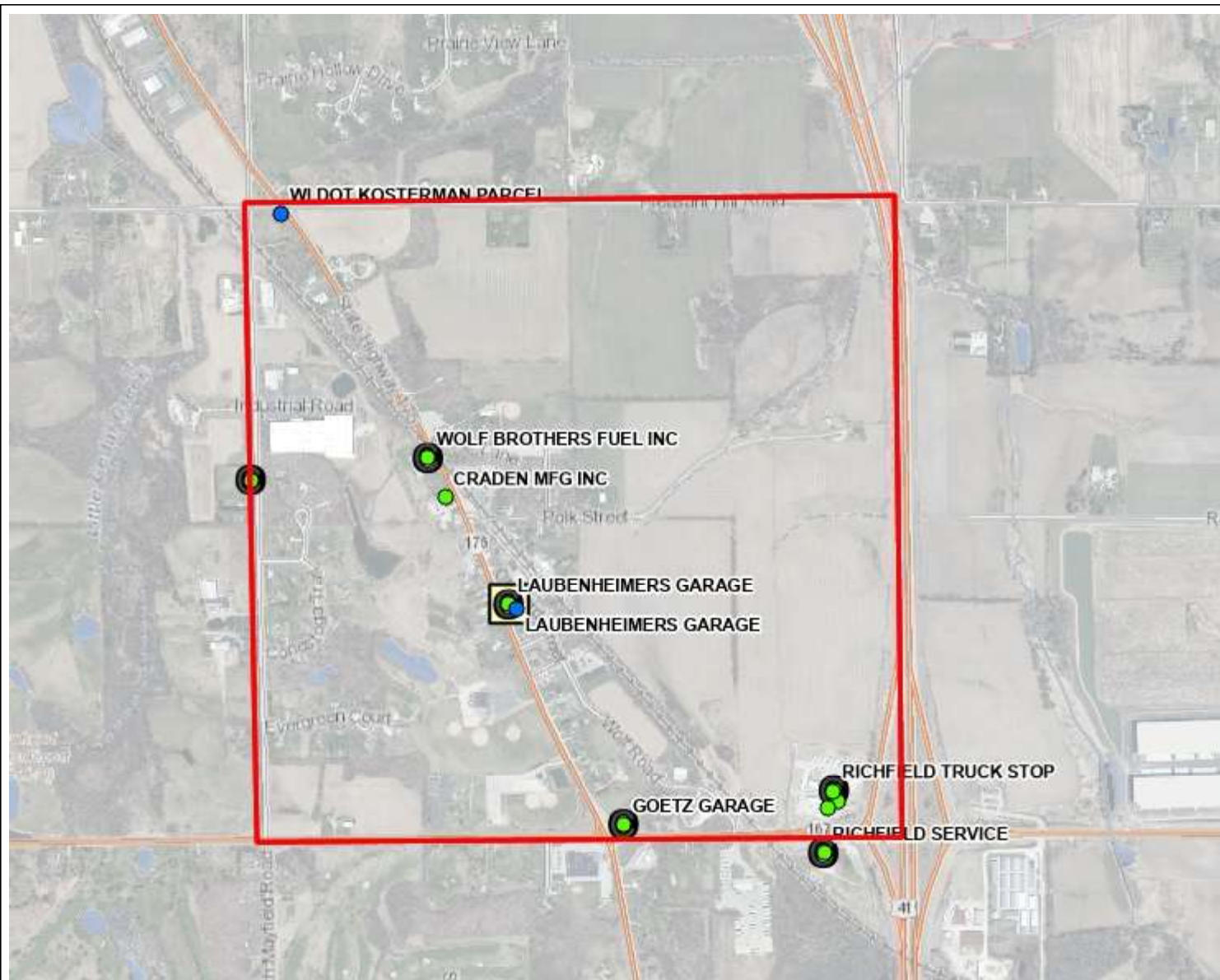


Figure 5: BRRTs Export



Legend

- Open Site
- Closed Site
- Continuing Obligations Apply
- Impacted Another Property(ies) or Right-
- Facility-wide Site



0.5 0 0.25 0.5 Miles

NAD_1983_HARN_Wisconsin_TM

1: 15,840



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Note: Not all sites are mapped.

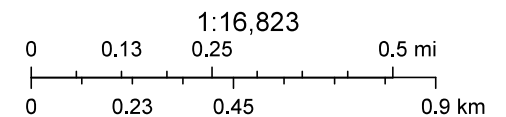
Notes

Shoreland Zoning



8/8/2023, 3:14:15 PM

- | | | | | |
|--------------------------|----------------------------------|--|---|---------------------|
| Override 1 | Federal Highway | Intermittent Lake, Pond, Stream or Watercourse | Assessor Plat; Cemetery Plat; Subdivision | Local Road Labels |
| Current Parcel | Railroad Centerlines | Perennial Lake, Pond, Stream or Watercourse | Lot | Local Road |
| Road Centerline STH, CTH | Shoreland Zoning District | Perennial Lake, Pond, Stream or Watercourse | PLSS Boundary | Named Private Drive |
| State Highway | Non-Navigable Stream in Ag. Area | Floodway Zoning District | PLSS Section | |
| Ramp | NNAGSTREAM | 100 Year Floodplane Zoning District | Right-of-Way | |
| Road Centerline I, USH | Perennial Lake | Plat | Municipality | |
| Interstate | NOBUFFER; PLAKE; PSTREAM | Certified Survey Map | | |



Washington County GIS

ATTACHMENT

WDNR SHWIMS on the Web

Navigation: [SOTW Home](#) >> [Advanced Search](#) >> [Search Results](#) >> [Location Detail](#)

The Official Internet site for the Wisconsin Department of
Natural Resources
101 S. Webster Street . PO Box 7921 . Madison,
Wisconsin 53707-7921 . 608,266,2621

CRADEN MFG INC
Facility Name

HELP				
General Information				
Facility Name		County	WDNR Region	
CRADEN MFG INC		WASHINGTON	SOUTHEAST REGION	
Facility Status	FID	EPA ID	SIC Code	NAICS Code
OPERATING	267064930	WID063499693	NONE	NONE
Physical Address Find on Google Maps [Exit DNR]		Municipality	State	Zip
1961 STH 175		RICHFIELD	WI	53076
Mailing Address		City	State	Zip
1961 HWY 175		RICHFIELD	WI	53076
Facility Owner Type	Public Land Survey System Desc.		Latitude and Longitude	
PRIVATE	SE 1/4 of the NW 1/4 of Sec 12, T9N, R19E		NOT AVAILABLE	

Facility Owner(s)	
SOL CRADEN 1961 HWY 175 RICHFIELD, WI 53076	

Waste Management Activities at this Location		
Activity Type Click to view details	Activity Status	License No.
HW GENERATOR - VERY SMALL	ACTIVE	N/A

Other Activities at this Location	
Activity Number and Name Click to view details on AW/RR BOTW	Type/Status
03-67-246102 CRADEN MFG INC	LUST - CLOSED

Wisconsin Department of Natural Resources

WDNR SHWIMS on the Web

Navigation: [SOTW Home](#) >> [Advanced Search](#) >> [Search Results](#) >> [Location Detail](#)

The Official Internet site for the Wisconsin Department of
Natural Resources
101 S. Webster Street . PO Box 7921 . Madison,
Wisconsin 53707-7921 . 608,266,2621

JOHNSON EQUIPMENT
Facility Name

HELP				
General Information				
Facility Name		County	WDNR Region	
JOHNSON EQUIPMENT		WASHINGTON	SOUTHEAST REGION	
Facility Status	FID	EPA ID	SIC Code	NAICS Code
CLOSED	267032700	WID988597605	7538	NONE
Physical Address Find on Google Maps [Exit DNR]		Municipality	State	Zip
1704 STH 175		RICHFIELD	WI	53076
Mailing Address		City	State	Zip
1704 HWY 175		RICHFIELD	WI	53076
Facility Owner Type	Public Land Survey System Desc.		Latitude and Longitude	
PRIVATE	SW 1/4 of the SE 1/4 of Sec 12, T9N, R19E		NOT AVAILABLE	

Facility Owner(s)	
STEVEN & TERRY FASSBENDERS 1704 HWY 175 RICHFIELD, WI 53076	

Waste Management Activities at this Location		
Activity Type Click to view details	Activity Status	License No.
HW GENERATOR - VERY SMALL	INACTIVE	N/A
HW GENERATOR - SMALL	INACTIVE	N/A

Other Activities at this Location	
Activity Number and Name Click to view details on AW/RR BOTW	Type/Status
03-67-001520 GOETZ GARAGE	LUST - CLOSED

The Official Internet site for the Wisconsin Department of
Natural Resources
101 S. Webster Street . PO Box 7921 . Madison,
Wisconsin 53707-7921 . 608.266.2621

Navigation: [SOTW Home](#) >> [Advanced Search](#) >> [Search Results](#) >> Location Detail

HELP

Facility Name			County	WDNR Region
RICHFIELD TRUCK STOP			WASHINGTON	SOUTHEAST REGION
Facility Status	FID	EPA ID	SIC Code	NAICS Code
CLOSED	267026760	WIR000017699	NONE	NONE
Physical Address Find on Google Maps [Exit DNR]		Municipality	State	Zip
2900 STH 167		RICHFIELD	WI	53076
Mailing Address		City	State	Zip
NONE		NONE	NONE	NONE
Facility Owner Type	Public Land Survey System Desc.		Latitude and Longitude	
UNKNOWN	SE 1/4 of the SE 1/4 of Sec 12, T9N, R19E		NOT AVAILABLE	

J-ARROW INC 2900 HWY 167 W RICHFIELD, WI 53076

Activity Type Click to view details	Activity Status	License No.
HW GENERATOR - SMALL	INACTIVE	N/A

Activity Number and Name Click to view details on AW/RR BOTW	Type/Status
03-67-000546 RICHFIELD TRUCK STOP	LUST - CLOSED
03-67-201172 RICHFIELD TRUCK STOP	LUST - CLOSED
03-67-583781 RICHFIELD TRUCK STOP	LUST - CLOSED
03-67-585483 EXXON RICHFIELD TRUCKSTOP PROPOSED KT 1013	LUST - CLOSED
04-67-551867 RICHFIELD TRUCK STOP	SPILL - CLOSED



Endangered Resources Preliminary Assessment

Created on **8/8/2023**. This report is good for one year after the created date.

DNR staff will be reviewing the ER Preliminary Assessments to verify the results provided by the Public Portal. ER Preliminary Assessments are only valid if the project habitat and waterway-related questions are answered accurately based on current site conditions. If an assessment is deemed invalid, a full ER review may be required even if the assessment indicated otherwise.

Results

A search was conducted of the NHI Portal within a 1-mile buffer (for terrestrial and wetland species) and a 2-mile buffer (for aquatic species) of the project area. Based on these search results, below are your next steps.

An ER Review is needed to ensure compliance with Wisconsin's Endangered Species Law (s. 29.604 Wis. Stats.) and the Federal Endangered Species Act (16 USC ss 1531-43). Therefore you should request an Endangered Resources Review <https://dnr.wi.gov/topic/ERReview/Review.html>. The ER Review will list the endangered resources that have been recorded within the vicinity of the project area and follow-up actions may be necessary.

One (or more) of the following situations apply:

- The species recorded are state or federal threatened or endangered animals.
- The species recorded are state threatened or endangered plants on public land.
- The species recorded are federal threatened or endangered plants on federal land or involve federal funds or a federal permit.
- The project site overlaps the Karner Blue Butterfly High Potential Range.
- The project overlaps the Rusty Patched Bumble Bee High Potential Zone.

A copy of this document can be kept on file and submitted with any other necessary DNR permit applications to show that the need for an ER Review has been met. This notice only addresses endangered resources issues. This notice does not constitute DNR authorization of the proposed project and does not exempt the project from securing necessary permits and approvals from the DNR and/or other permitting authorities.

Project Information

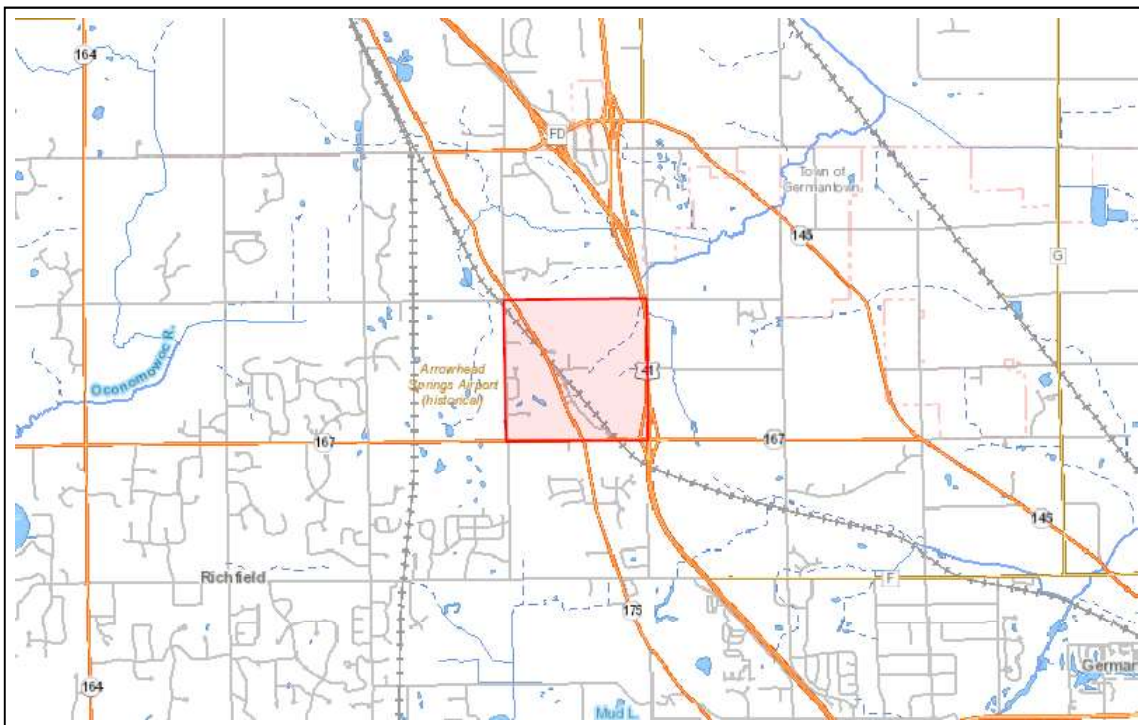
Landowner name	Village of Germantown
Project address	
Project description	Study area

Project Questions

Does the project involve a public property?	Yes
Is there any federal involvement with the project?	Yes
Is the project a utility, agricultural, forestry or bulk sampling (associated with mining) project?	No
Is the project property in Managed Forest Law or Managed Forest Tax Law?	No
Project involves tree or shrub removal?	No
Is project near (within 300 ft) a waterbody or a shoreline?	Yes
Is project within a waterbody or along the shoreline?	Yes

Does the project area (including access routes, staging areas, laydown yards, select sites, source/fill sites, etc.) occur **entirely within** one or more of the following habitats?

Urban/residential	No
Manicured lawn	No
Artificial/paved surface	No
Agricultural land	No
Areas covered in crushed stone or gravel	No



The information shown on these maps has been obtained from various sources, and is of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. Users of these maps should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>.

<https://dnrx.wisconsin.gov/nhiportal/public>

101 S. Webster Street . PO Box 7921 . Madison, Wisconsin 53707-7921

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Washington County, Wisconsin



Local office

Minnesota-Wisconsin Ecological Services Field Office

☎ (952) 858-0793

📅 (952) 646-2873

3815 American Blvd East

Bloomington, MN 55425-1659

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

-
1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Bald and Golden Eagle information is not available at this time

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the [Eagle Act](#) should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

Migratory bird information is not available at this time

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1F](#)

[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PSS1Bg](#)

[PFO1C](#)

FRESHWATER POND

[PUBHx](#)[PUSC](#)[PUBGx](#)

RIVERINE

[R4SBC](#)[R5UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should

seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Appendix K – Richfield Incremental Planning Area Future Land Use Map

Adopted Future Land Use Germantown to Richfield: Potential Utilities Extension

 MMSD Facilities Plan Update Planning Area

Richfield Future Land Use

	Business Mixed Use
	Commercial
	Industrial
	Institutional
	Recreational
	Single Family
	Wetlands
	Proposed SSA Expansion Area
	SEWRPC Environmental Corridors (2015)
	Village Boundary
	Existing SSA Boundary

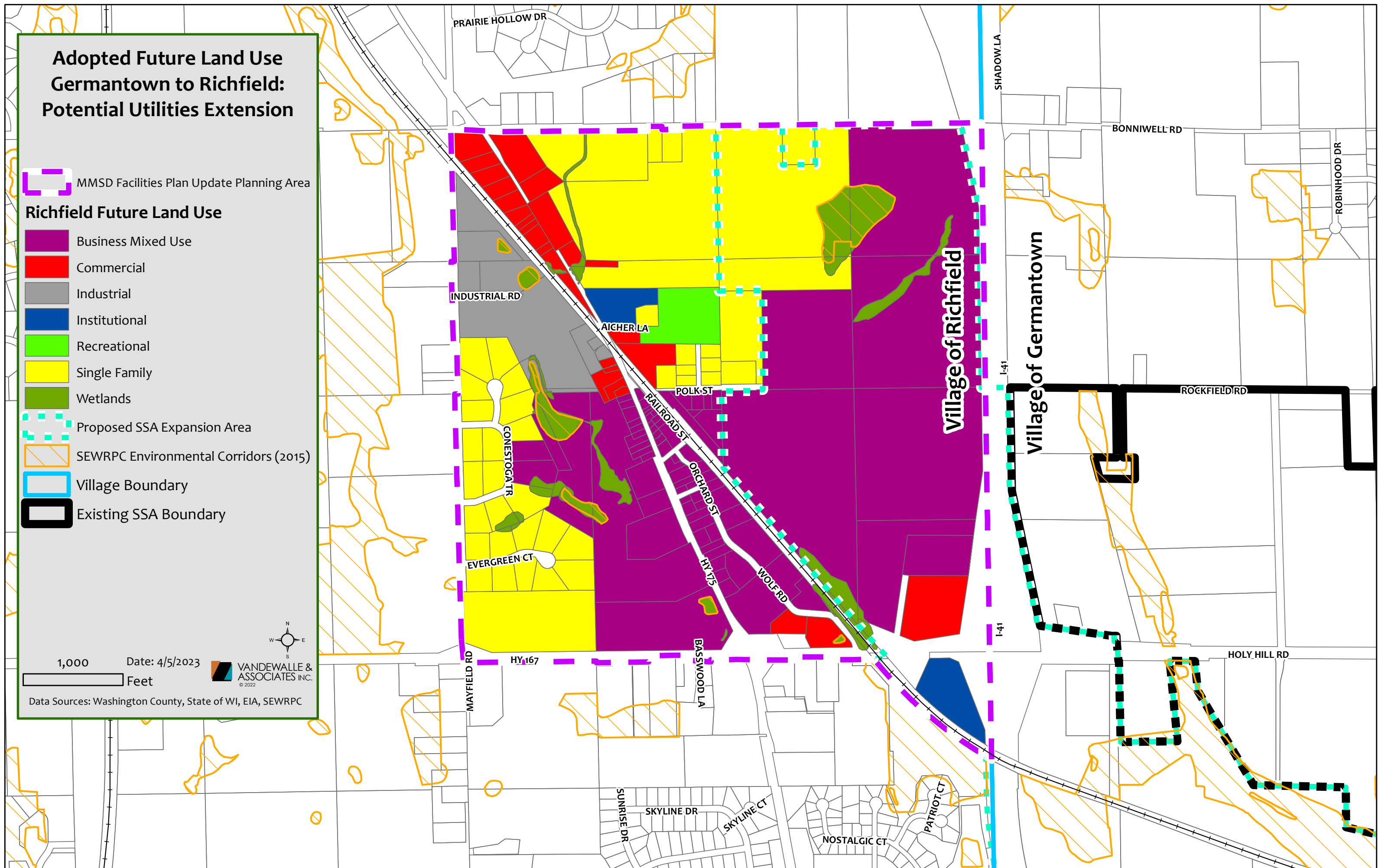
1,000 Feet

Date: 4/5/2023

**VANDEWALLE &
ASSOCIATES INC.**

© 2022

Data Sources: Washington County, State of WI, EIA, SEWRPC



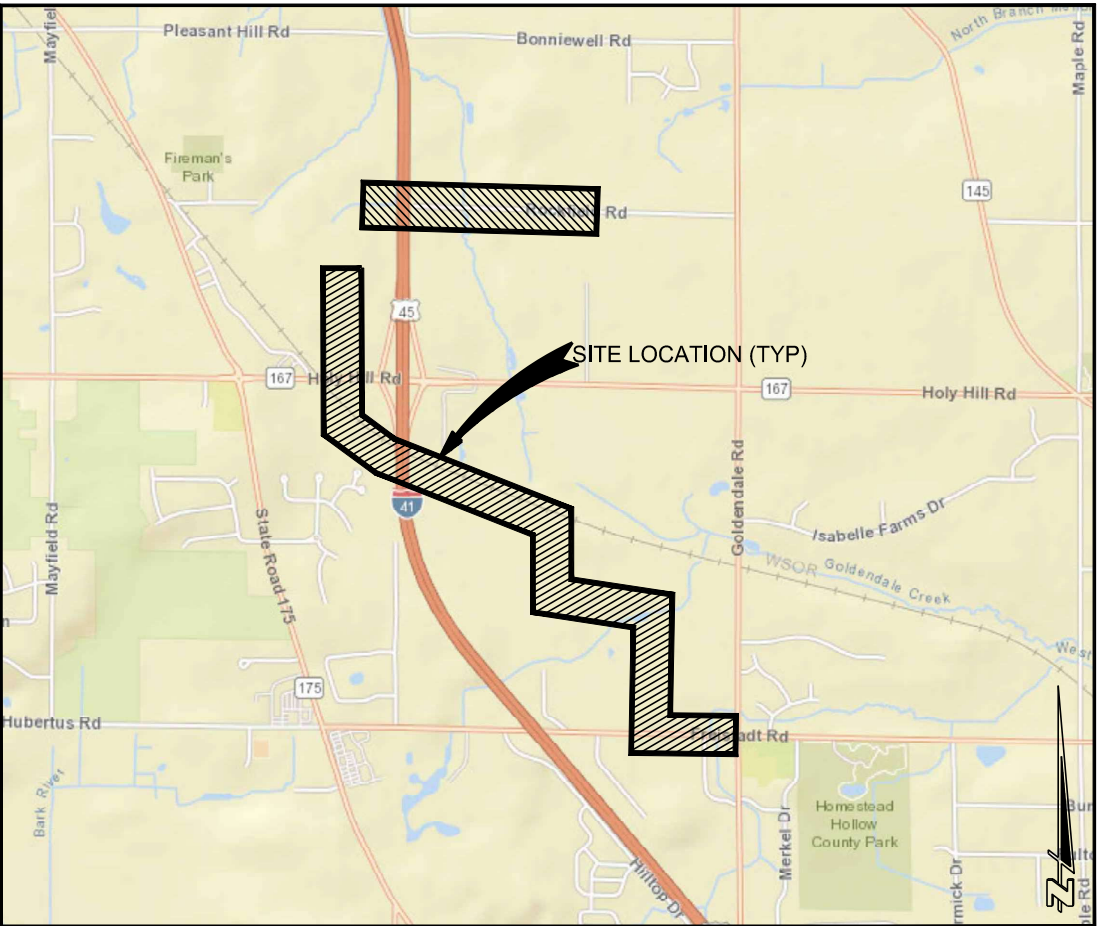
Appendix L – Preliminary Route of Sewer and Water Extensions to Serve the Richfield SSSA

CONSTRUCTION DRAWINGS
FOR
GERMANTOWN CONNECTION
VILLAGE OF RICHFIELD
WASHINGTON COUNTY, WI
September 26, 2023

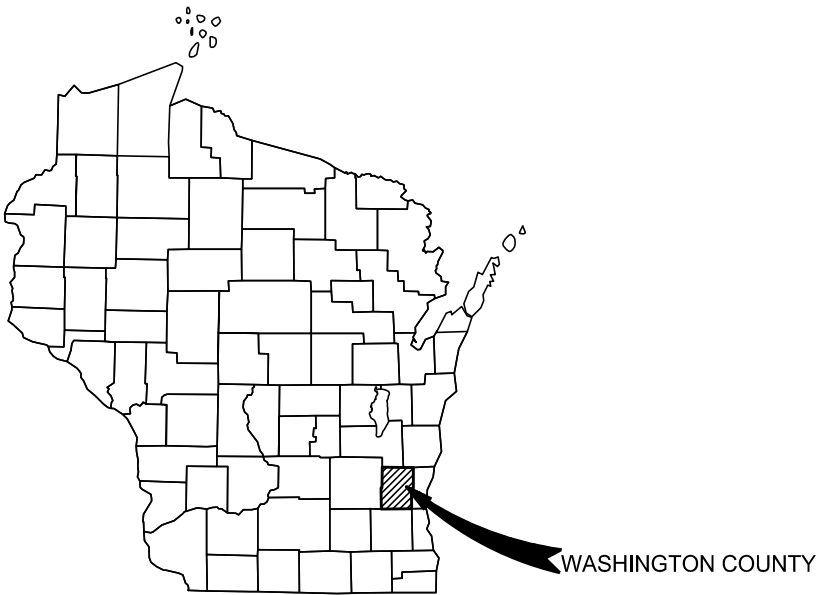
Prepared By



PROJECT I.D. 05771-0017



SITE LOCATION MAP



COUNTY LOCATION MAP

INDEX TO DRAWINGS	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD SYMBOLS AND ABBREVIATIONS
3	OVERVIEW SHEET
4 - 6	FREISTADT ROAD PLAN AND PROFILE
7 - 18	FUTURE ROAD PLAN AND PROFILE
19 - 23	RAILROAD EASEMENT PLAN AND PROFILE
24 - 26	RICHFIELD PARKWAY PLAN AND PROFILE
27 - 32	ROCKFIELD ROAD PLAN AND PROFILE
33 - 35	STANDARD DETAILS

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MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL	
	EXISTING	PROPOSED
SANITARY SEWER (PLAN) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L) SAN	LENGTH – SIZE MATL SAN
STORM SEWER (PLAN) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L.) STM	LENGTH – SIZE MATL STM
WATER MAIN (PLAN)– LENGTH–DIA. MATERIAL–(FITTING–FITTING)	(SIZE & MAT'L.) WTR	LENGTH – SIZE MATL WTR
SANITARY SEWER (PROFILE) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L)	XXX'– XX" PVC SAN @ 0.00%
SANITARY FORCEMAIN (PROFILE) – DIA. MATERIAL	(SIZE & MAT'L)	XXX'– XX" FORCEMAIN @ 0.00%
STORM SEWER (PROFILE) – LENGTH–DIA. MATERIAL @ GRADE	(SIZE & MAT'L.)	XXX'– XX" RCP STM @ 0.00%
WATER MAIN (PROFILE)– DIA. MATERIAL	(SIZE & MAT'L.)	X" PVC WM.
GAS MAIN	GAS	GAS
ELECTRIC – BURIED	UGE	UGE
ELECTRIC – OVERHEAD	OE	OE
TELEPHONE – BURIED	TEL	TEL
TELEPHONE – BURIED (FIBER OPTIC)	FO	FO
TELEPHONE – OVERHEAD	OH	OH
CABLE TELEVISION – BURIED	TV	TV
CABLE TELEVISION – OVERHEAD	OH	OH
CENTERLINE		
RIGHT–OF–WAY LINE		
PROPERTY LINE		
PAVEMENT (STREET, DRIVE, SIDEWALK, ETC.)		
GRAVEL		
CURB & GUTTER		
RAILROAD		
GUARDRAIL		
FENCE – AS LABELED		

CONTACTS

xxxxx

MAPPING & TOPOGRAPHY SYMBOLOGY

DESCRIPTION	SYMBOL	
	EXISTING	PROPOSED
BENCHMARK		
CATCH BASIN/INLET		
CONTROL POINT		
CULVERT	(DIA. & TYPE)	(LENGTH–DIA. & TYPE)
CURB STOP G=GAS W=WATER	WSO	G OR W
ELECTRIC PEDESTAL		
FIRE HYDRANT		
IRON PIPE = IP IRON ROD = IR	@ OR O _{IR}	IP OR IR
LIGHT – ORNAMENTAL		
LIGHT – STREET		
MAILBOX	MB	
MANHOLE ELECTRIC	E	
MANHOLE GAS	G	
MANHOLE MISCELLANEOUS	MH	MH SAN MH SIG MH STM MH
MANHOLE SANITARY	SA	
MANHOLE SIGNAL	SI	
MANHOLE STORM	SM	
MANHOLE STORM INLET CATCH BASIN		
MANHOLE WATER	W	
MANHOLE TELEPHONE	T	
METER – GAS	G	
METER – WATER	W	
PEDESTAL CABLE TV		
PEDESTAL TELEPHONE		
SIGN		
BUSH CONIFER		
BUSH DECIDUOUS		
TREE DECIDUOUS/INCH DIA	12"	
TREE CONIFEROUS/INCH DIA	10"	
TREE LINE		
VALVE: W=WATER, G=GAS	OR WV	WV OR GV
UTILITY POLE		
SILT FENCE	SF	SF
MAJOR CONTOURS	890	890
MINOR CONTOURS		
SPOT ELEVATIONS	+891.2	+891.22
INLET PROTECTION		

GENERAL NOTES:

- THESE DRAWINGS ARE NEITHER A LEGALLY RECORDED MAP, NOR A SURVEY, AND IS NOT INTENDED TO BE USED AS ONE.
- ALL PROPERTY LINES SHOWN ARE ESTABLISHED FROM COUNTY GIS FILES. PROPERTY LINES MAY NOT REFLECT ACTUAL LOT LINE LOCATIONS AND ARE FOR INFORMATIONAL PURPOSES ONLY.
- UTILITY LOCATIONS SHOWN ON THE PLANS WERE PROVIDED BY THE UTILITY OWNER. FIELD LOCATIONS MAY VARY AND ADDITIONAL UTILITIES MAY EXIST. CONTRACTOR SHALL CONTACT DIGGERS HOTLINE A MINIMUM OF 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.
- ALL LENGTHS OF PROPOSED UTILITIES SHOWN ON THE PLANS ARE PER DESIGN, ACTUAL LENGTHS MAY VARY DURING CONSTRUCTION.

LIST OF STANDARD ABBREVIATIONS

ASPH	ASPHALT	NTS	NOT TO SCALE
B/B	BACK TO BACK	PC	POINT OF CURVATURE
BOC	BACK OF CURB	PCC	POINT OF COMPOUND CURVE
BLDG	BUILDING	PED	PEDESTAL
BM	BENCHMARK	PVMT	PAVEMENT
BSMT	BASEMENT	PI	POINT OF INTERSECTION
C	CUT	PL	PROPERTY LINE
C&G	CURB AND GUTTER	PP	POWER POLE
C/C	CENTER TO CENTER	PROP	PROPOSED
CABC	CRUSHED AGGREGATE BASE COURSE	PT	POINT OF TANGENCY
CB	CATCH BASIN	PVC	POLYVINYL CHLORIDE
CI	CAST IRON PIPE	PVC	OR POINT OF VERTICAL CURVATURE
CL	CENTERLINE	PVI	POINT OF VERTICAL INTERSECTION
CMP	CORRUGATED METAL PIPE	PVT	POINT OF VERTICAL TANGENCY
CO	CLEAN OUT	R	RANGE OR RADIUS
CONC	CONCRETE	RCP	REINFORCED CONCRETE PIPE
CP	CONTROL POINT	REBAR	REINFORCEMENT BAR
CTH	COUNTY TRUNK HIGHWAY	REOD	REQUIRED
CTV	CABLE TV	RL	REFERENCE LINE
CS	CURB STOP	ROW	RIGHT–OF–WAY
DIA	DIAMETER	SAN	SANITARY
DI	DUCTILE IRON PIPE	WALK	SIDEWALK
EA	EACH	SF	SILT FENCE
ELEC	ELECTRIC (E WHEN USED IN LINE STYLE)	SL	SANITARY LATERAL
EP	EDGE OF PAVEMENT	SHLDR	SHOULDER
EXIST	EXISTING	STA	STATION
FH	FIRE HYDRANT	STH	STATE TRUNK HIGHWAY
FL	FLOW LINE	STM	STORM OR STORM SEWER
FM	FORCE MAIN	TEL	TELEPHONE
FO	FIBER OPTIC	TEMP	TEMPORARY
G	GAS	TOC	TOP OF CURB
GV	GAS VALVE	TYP	TYPICAL
GW	GUY WIRE	VC	VERTICAL CURVE
INV	INVERT	WM	WATER MAIN
IP	IRON PIPE OR PIN	WS	WATER SERVICE
L	LENGTH (OF CURVE)	WV	WATER VALVE
LC	LONG CHORD OF CURVE		
LP	LIGHT POLE		
MB	MAILBOX		
MG	METER–GAS		
MH	MANHOLE		

BENCHMARKS

	XXXX	XXX.XX
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NOTE: ALL BENCHMARK LOCATIONS ARE SHOWN ON PLAN

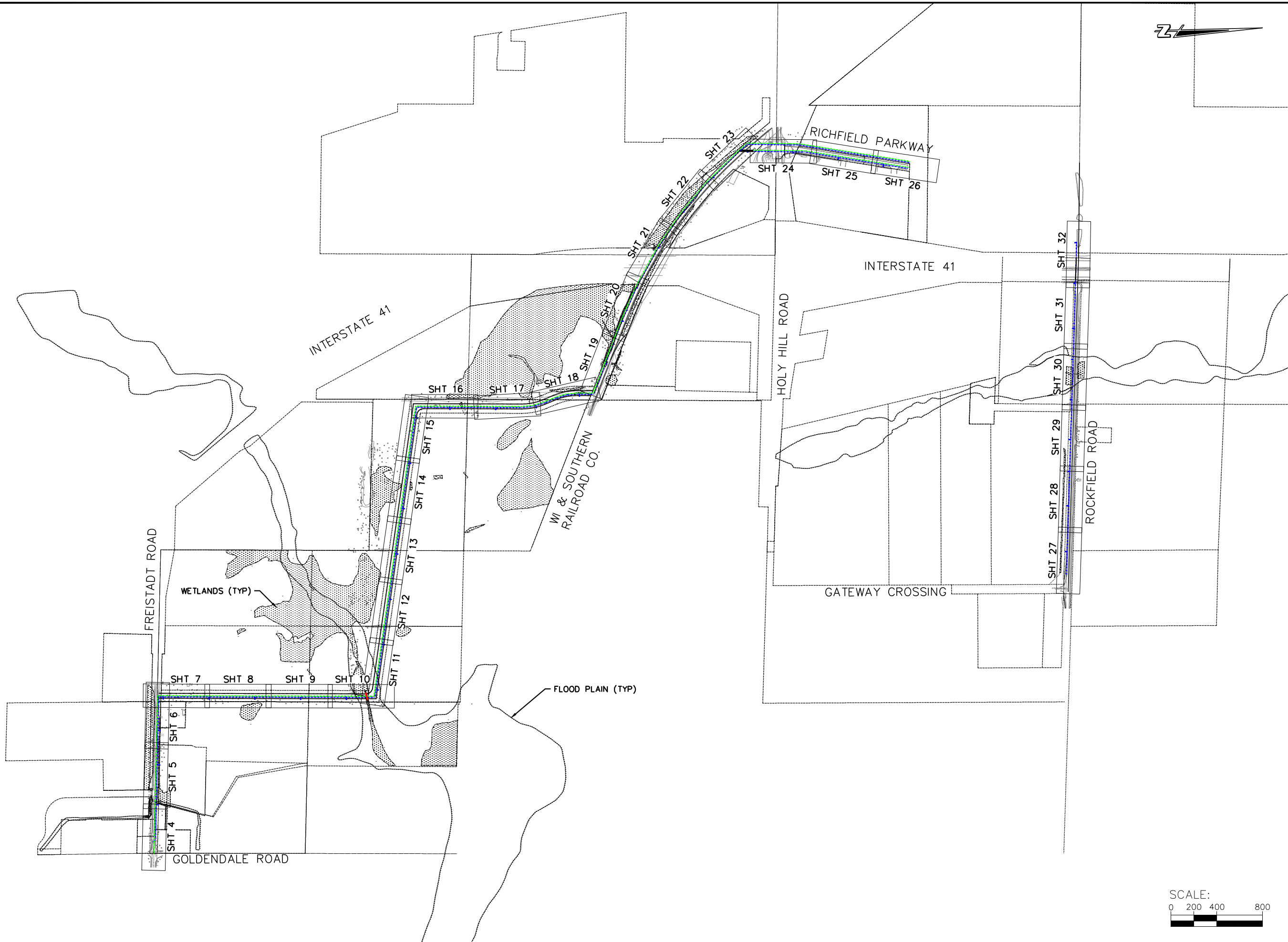
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STANDARD SYMBOLS AND ABBREVIATIONS



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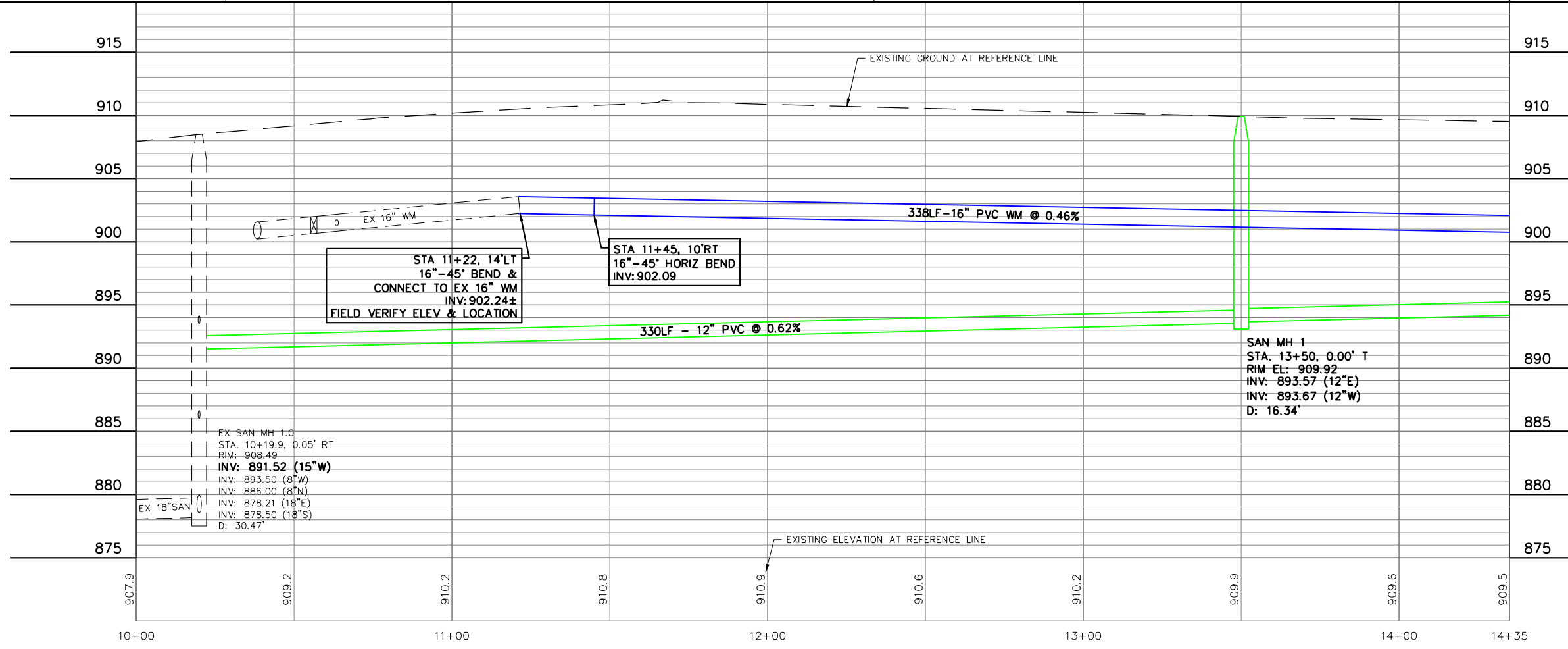
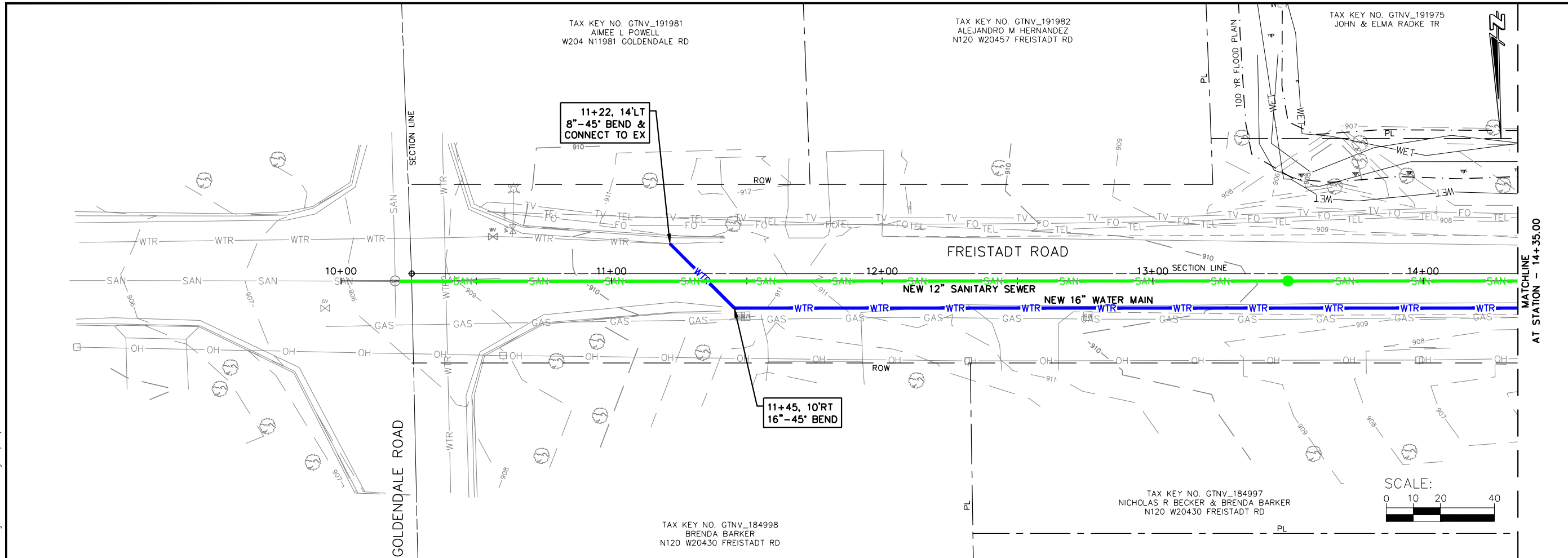
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VILLAGE OF RICHFIELD
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FREISTADT ROAD PLAN AND PROFILE

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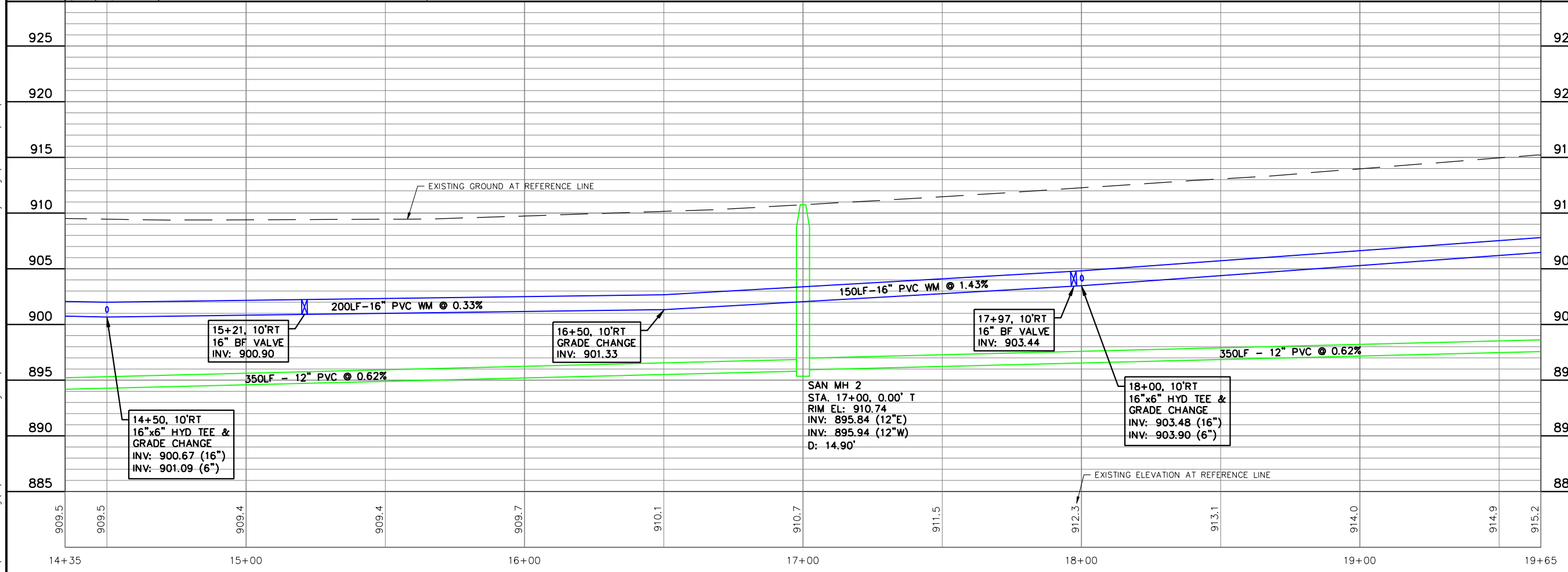
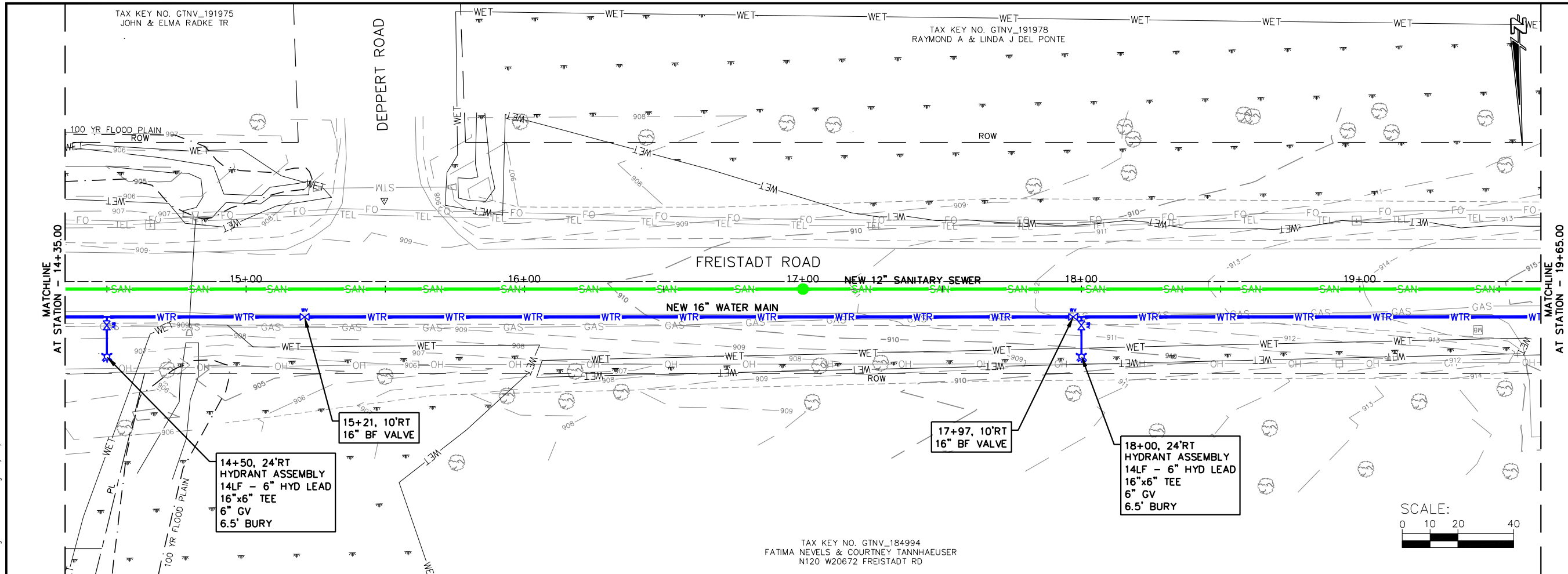
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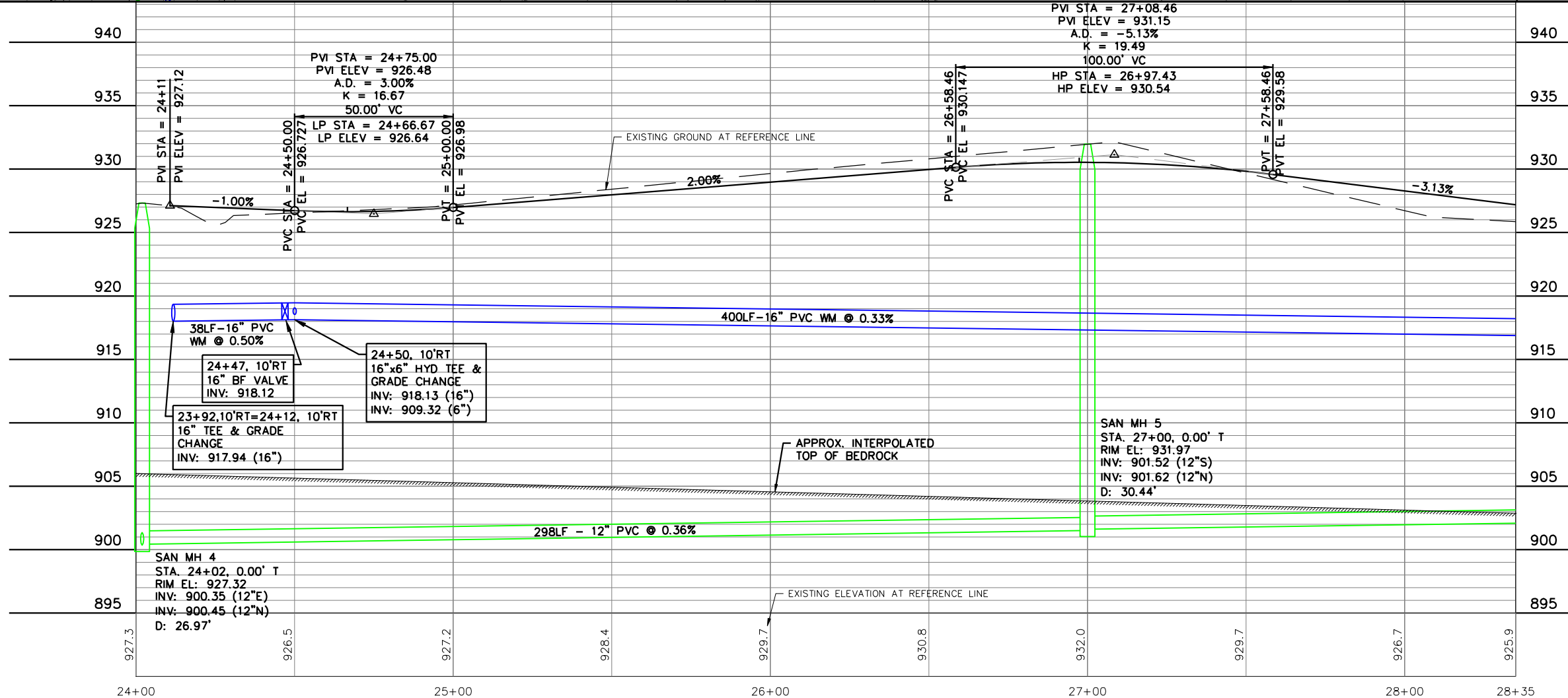
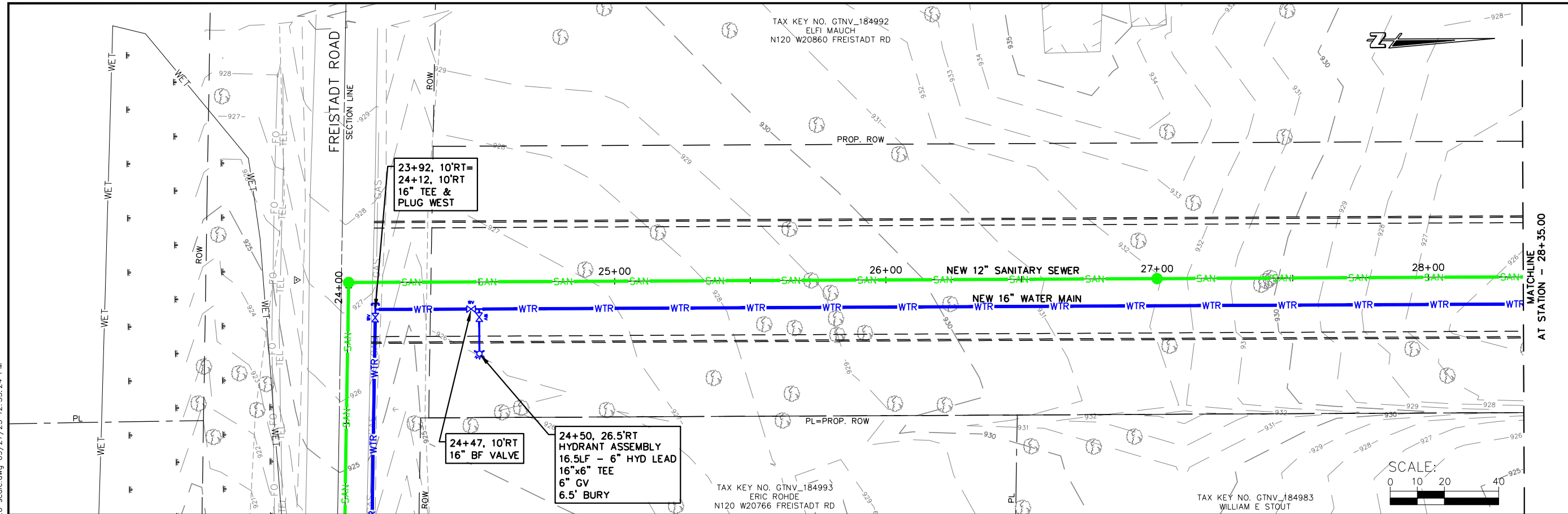
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Green Bay, WI 54311
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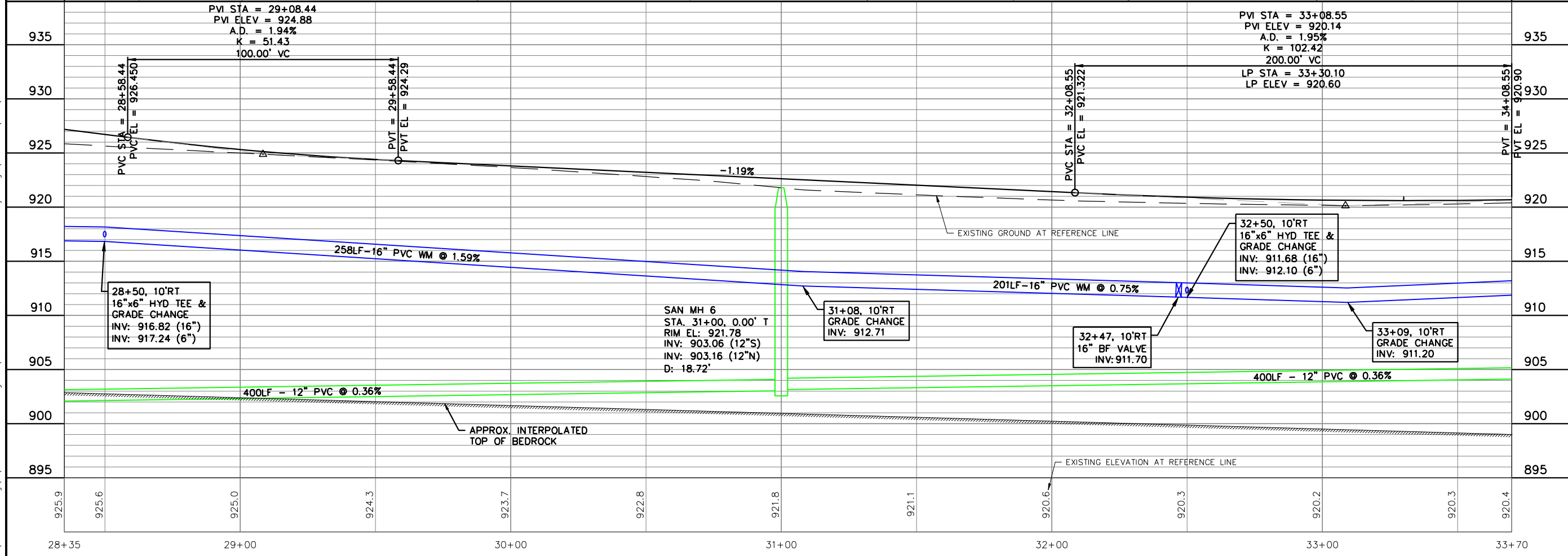
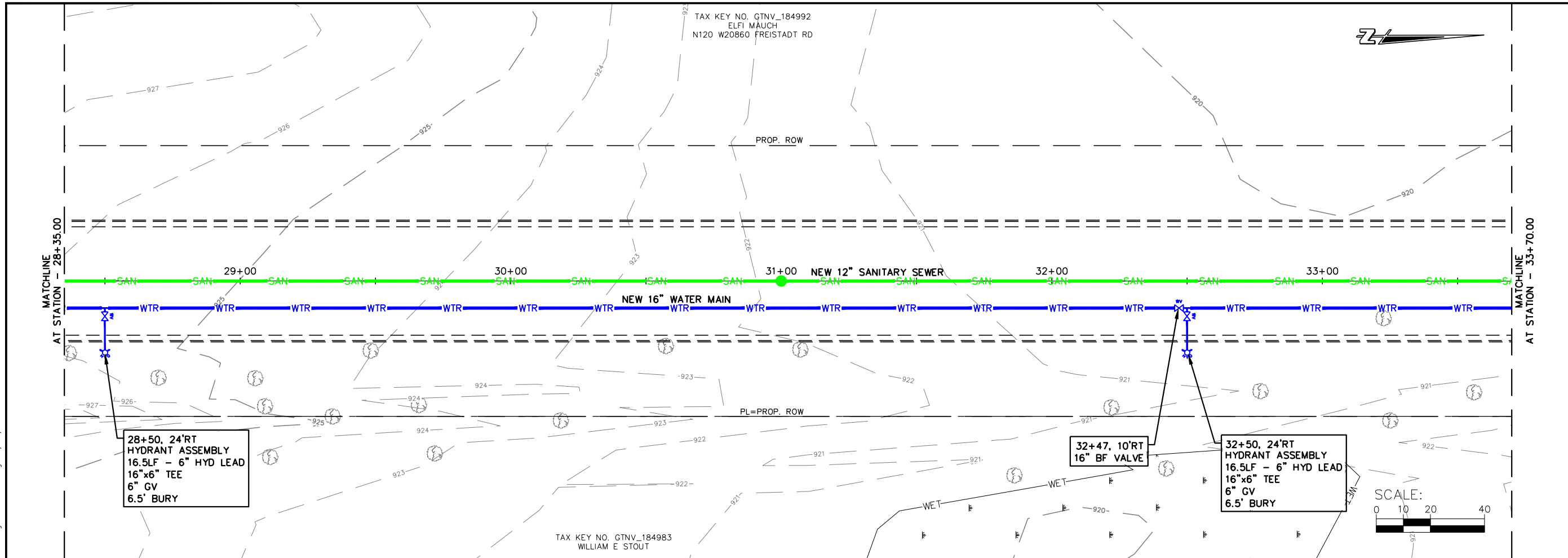
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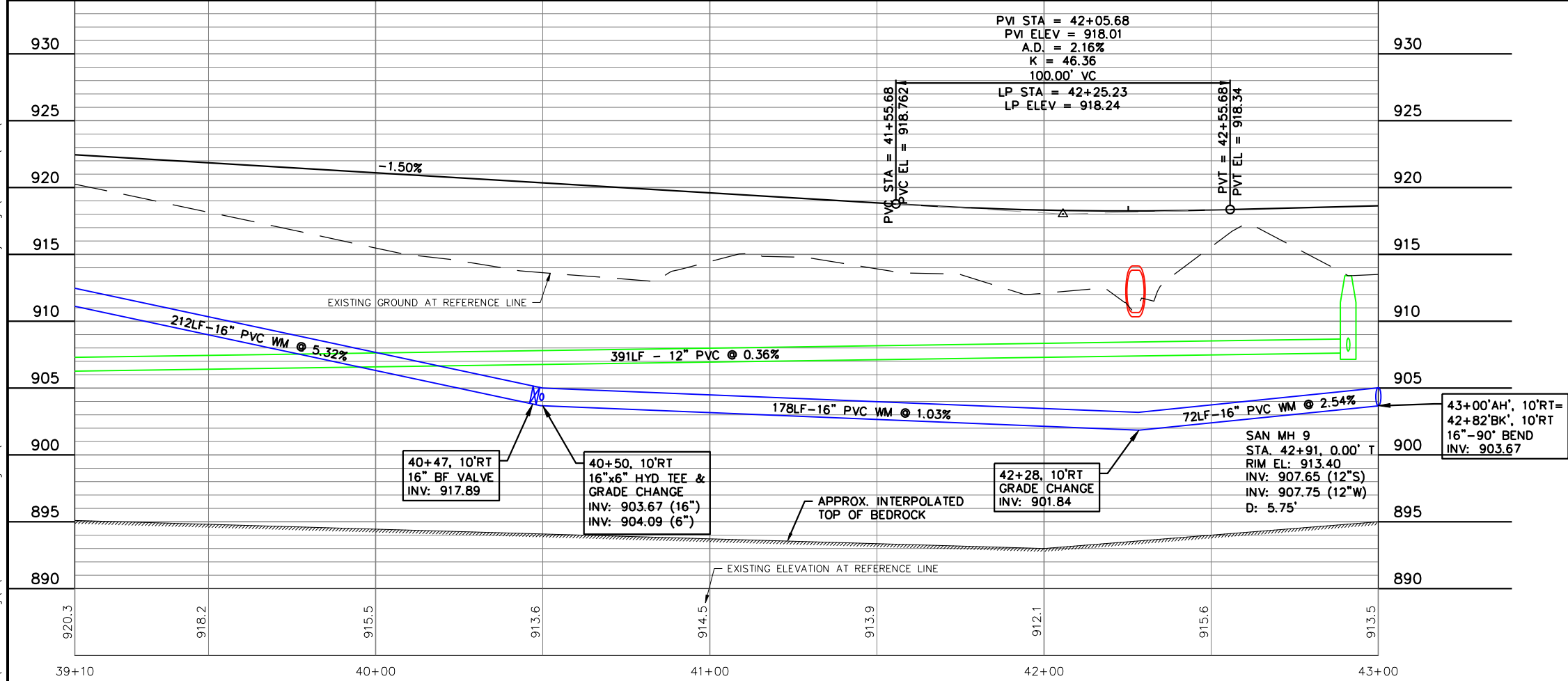
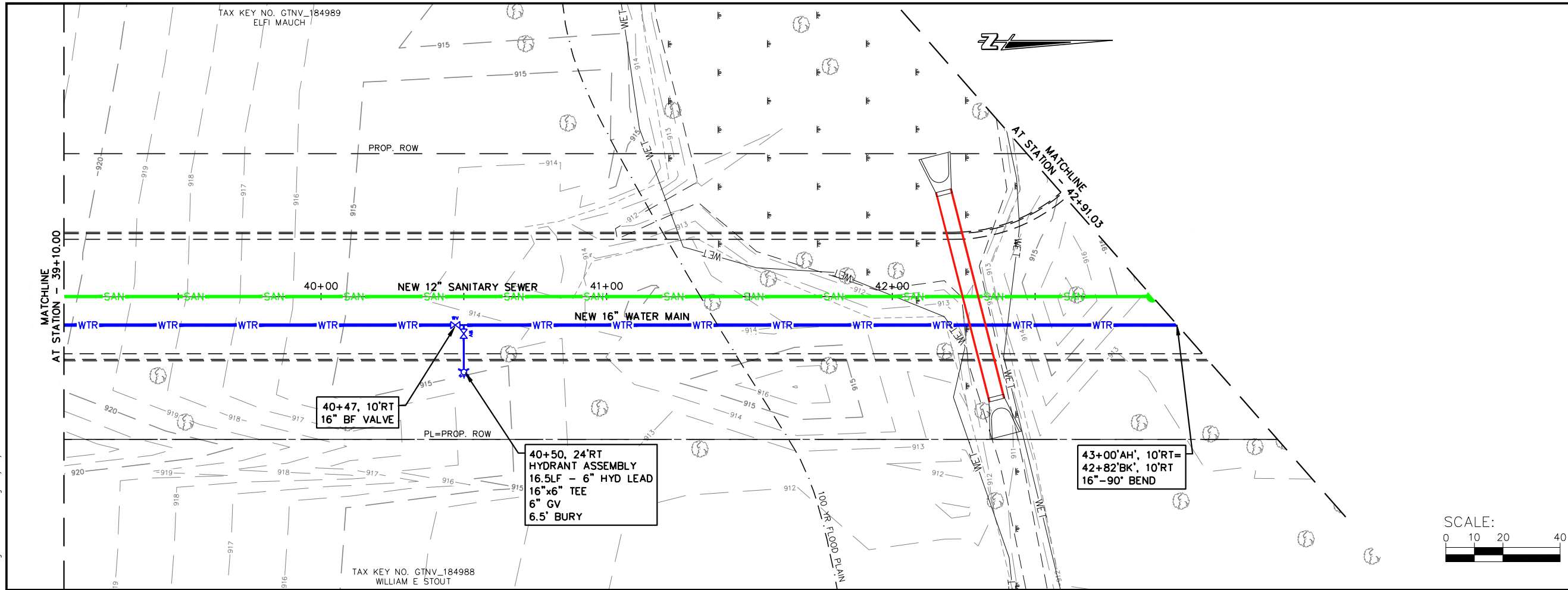
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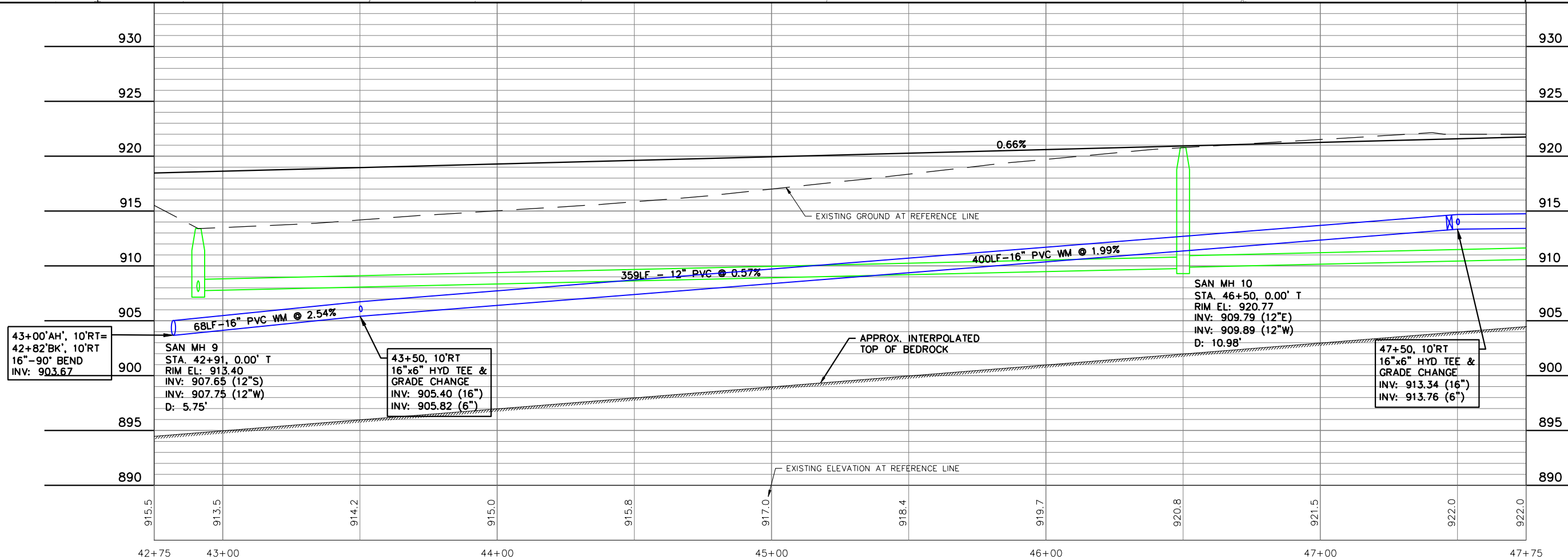
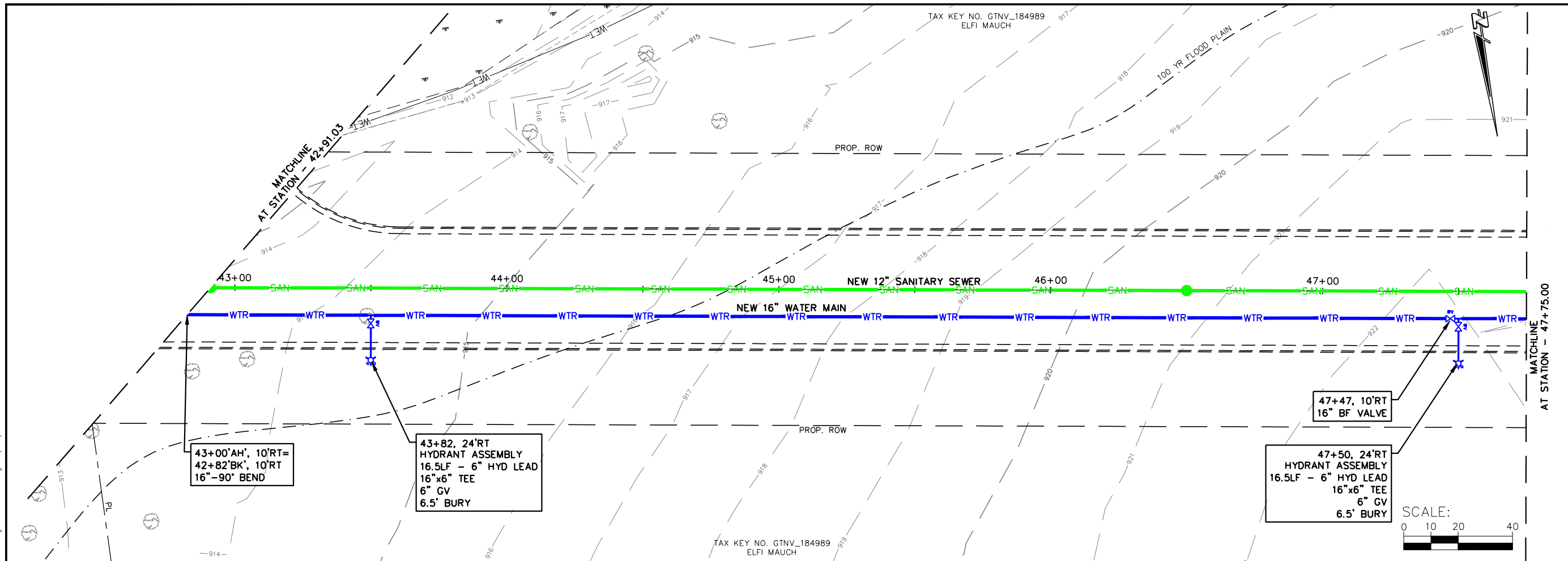
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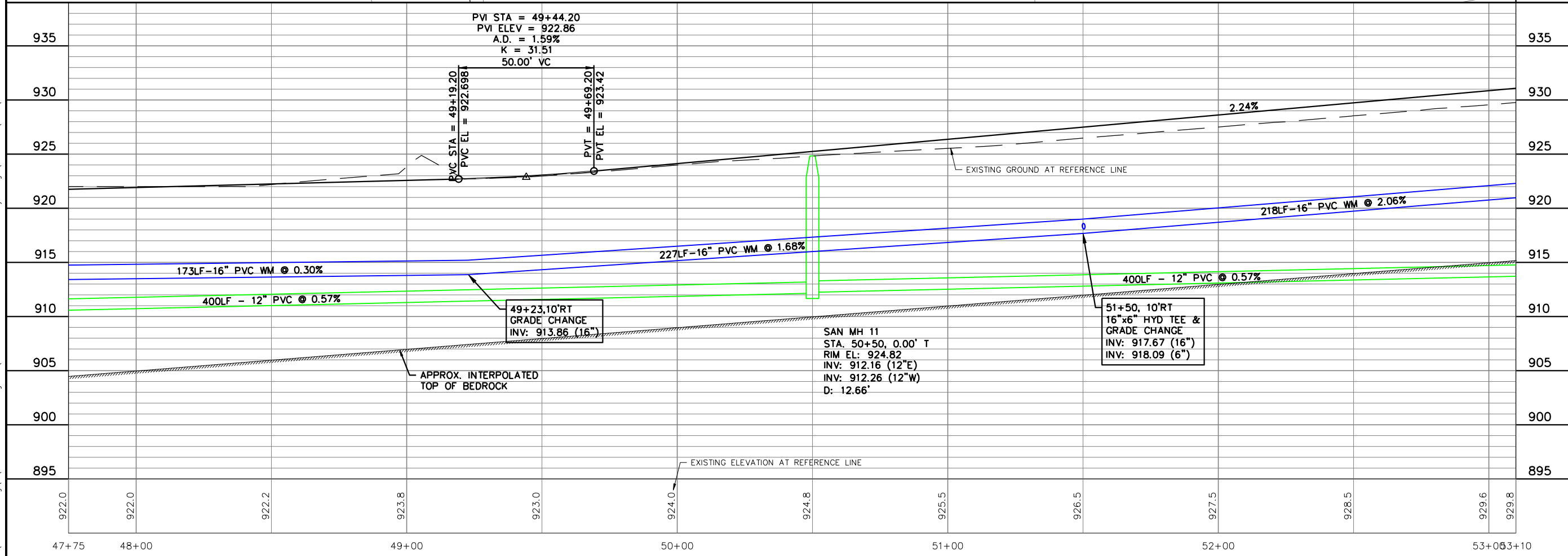
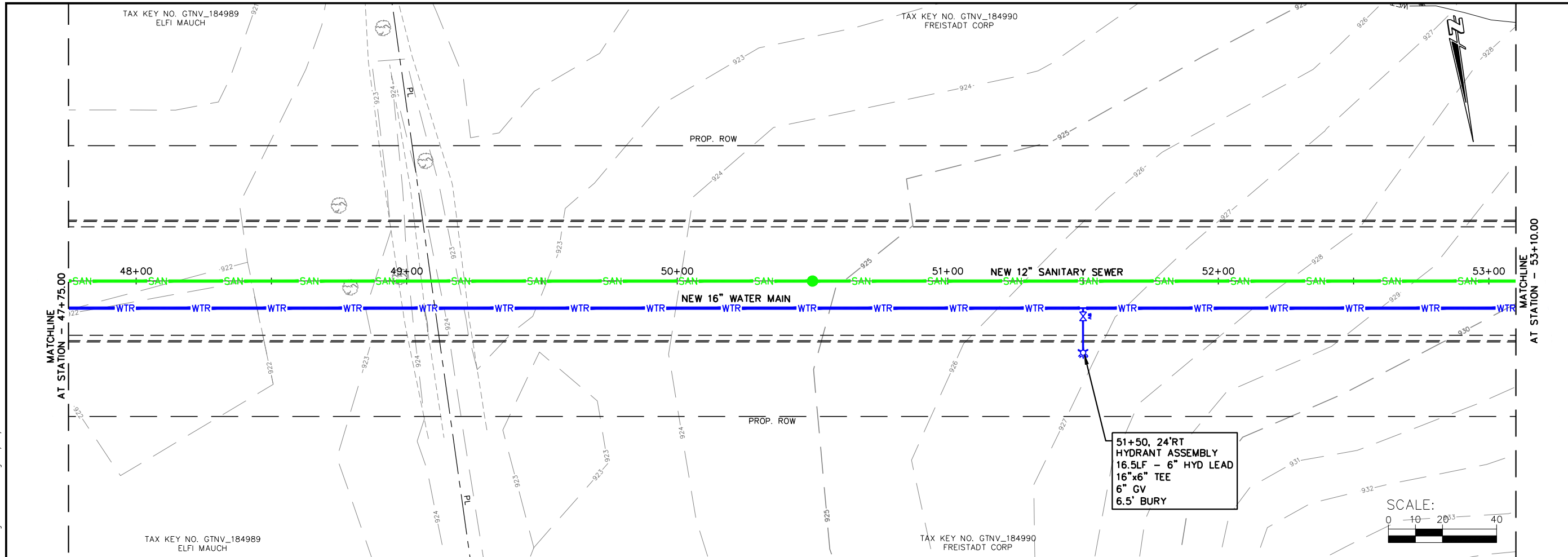
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SHEET NO.
11 OF XX

Page 347 of 517

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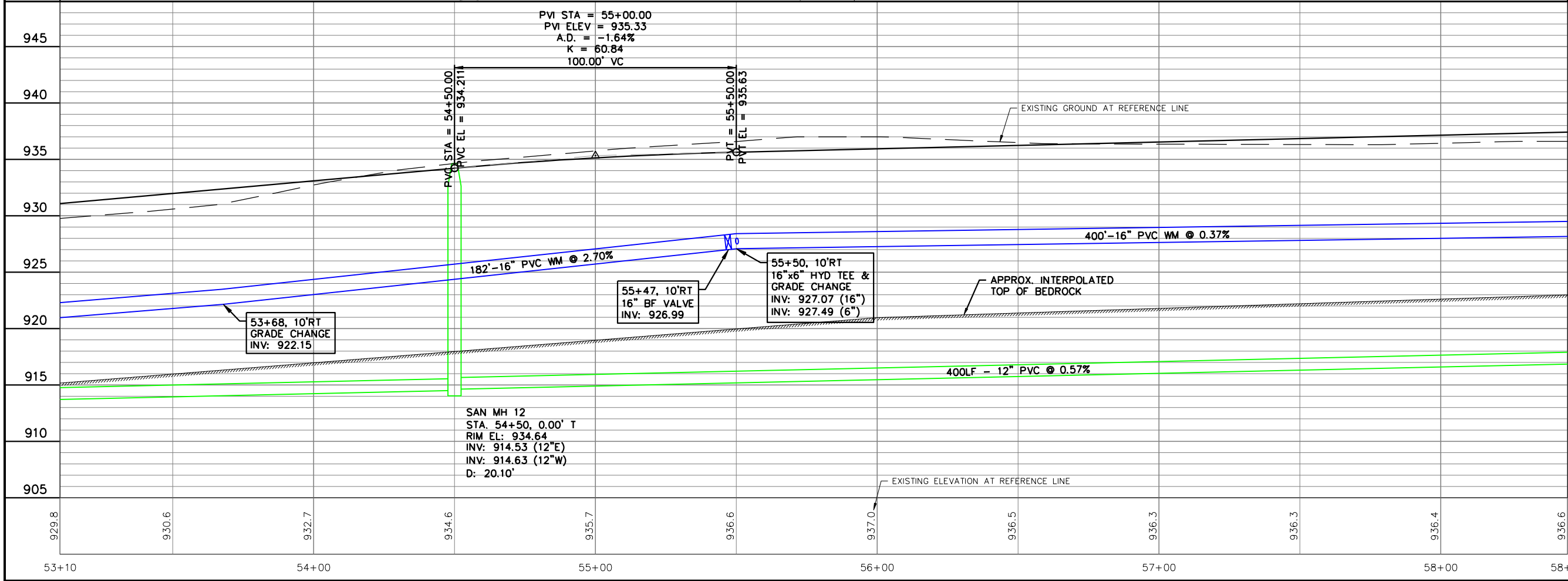
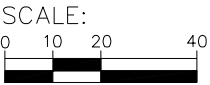
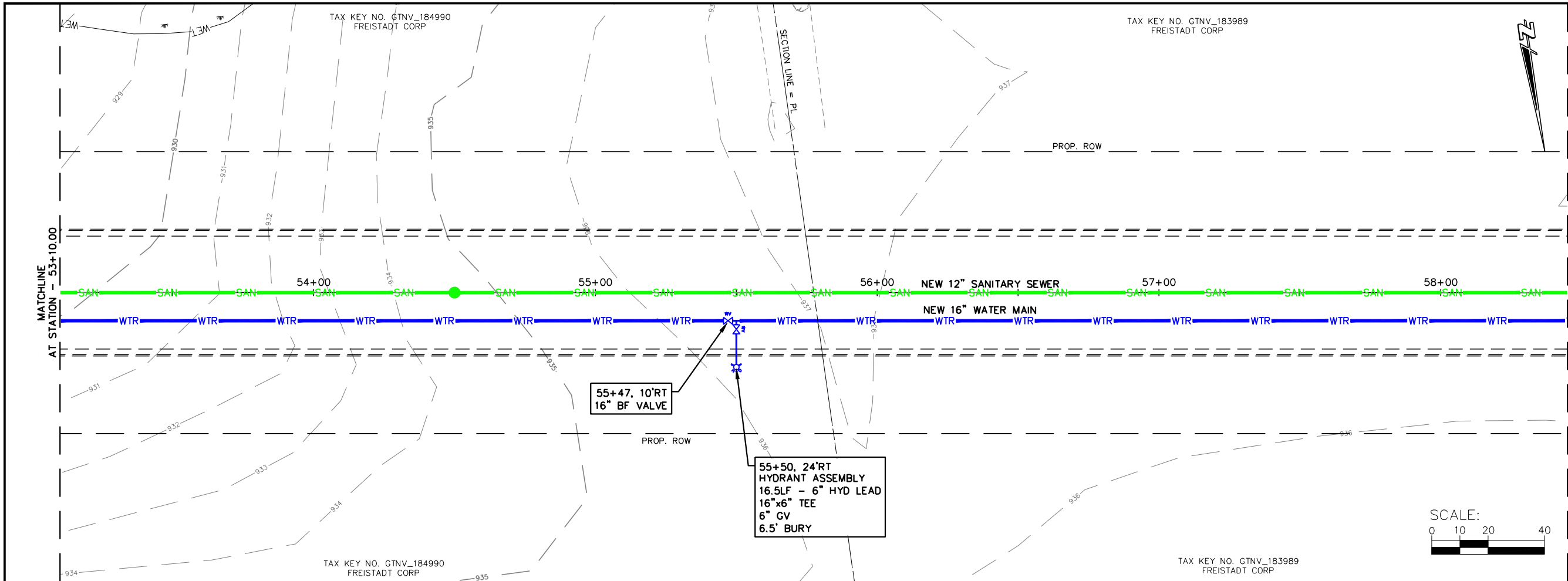
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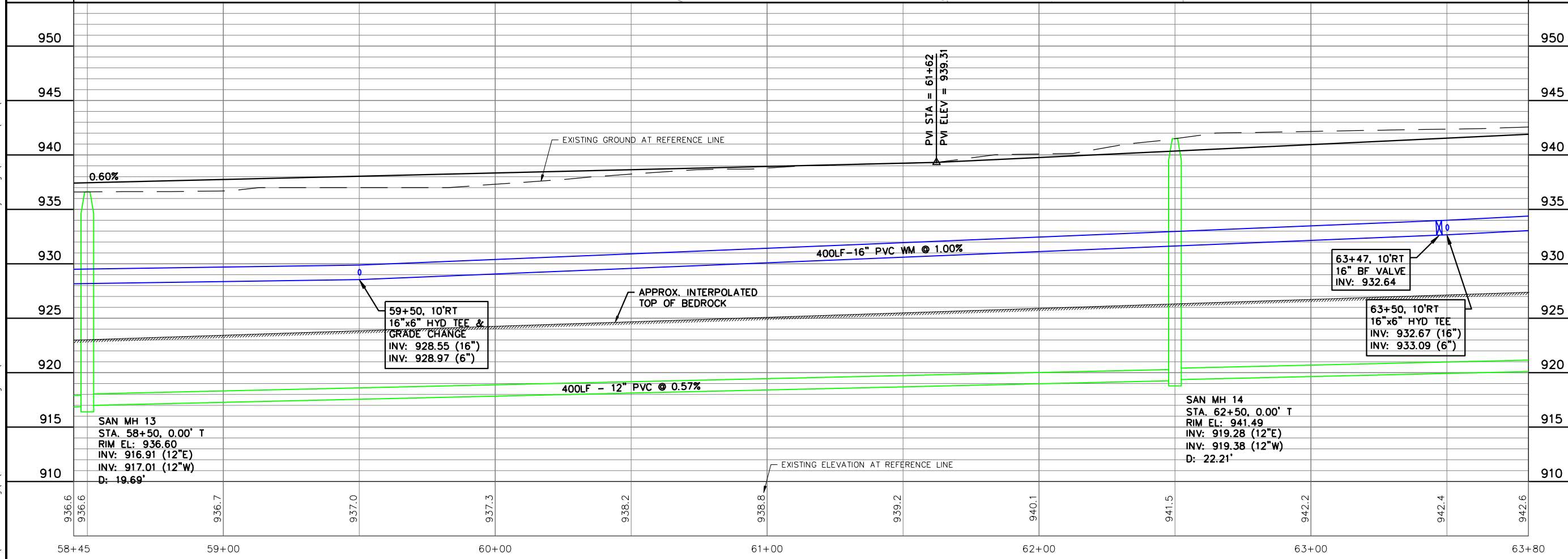
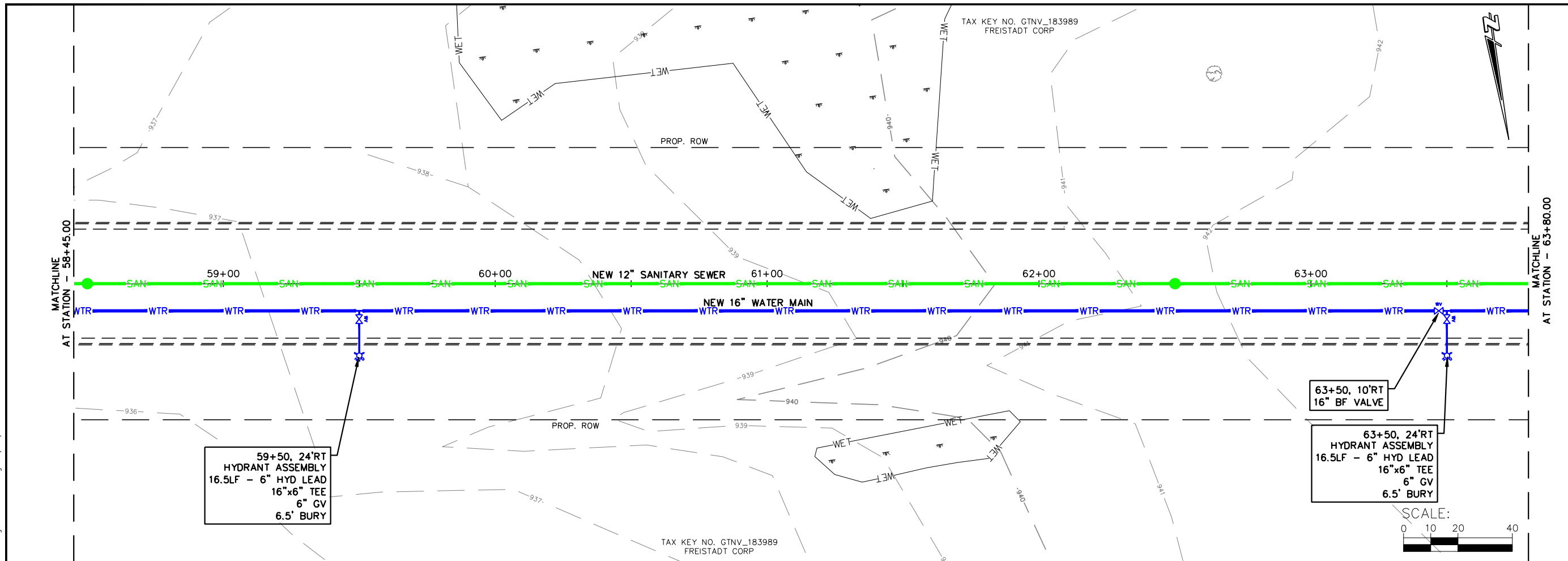
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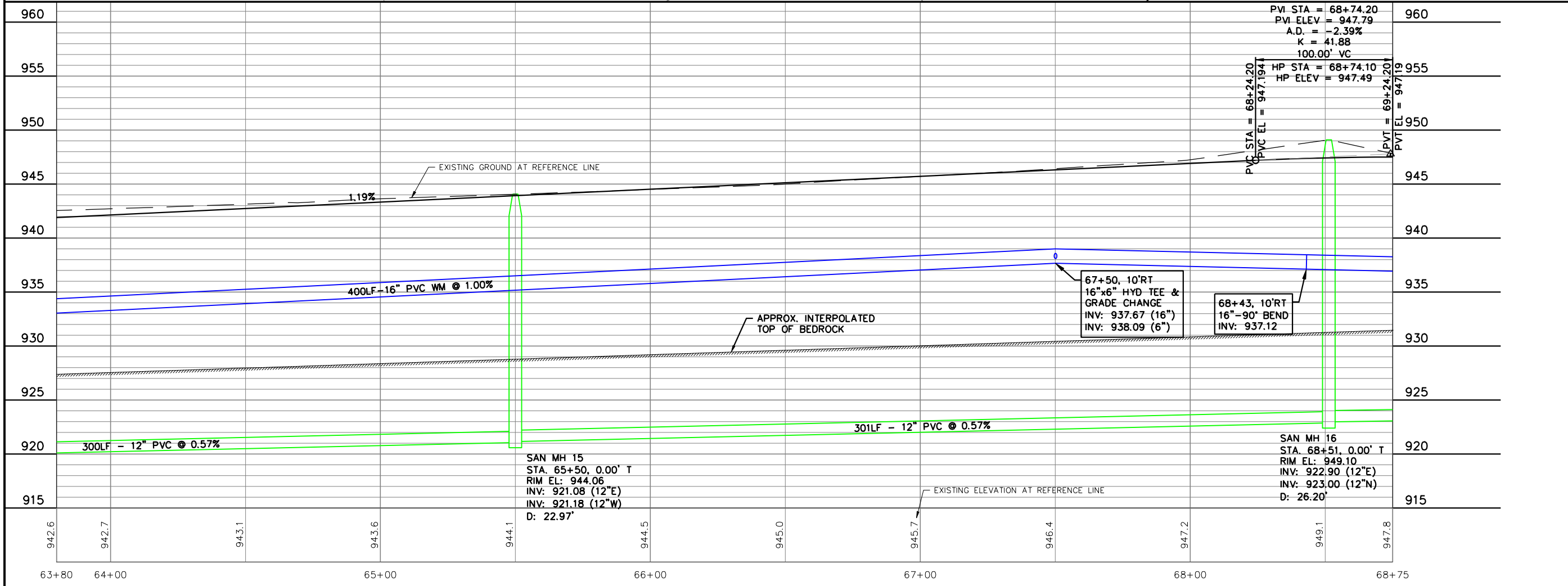
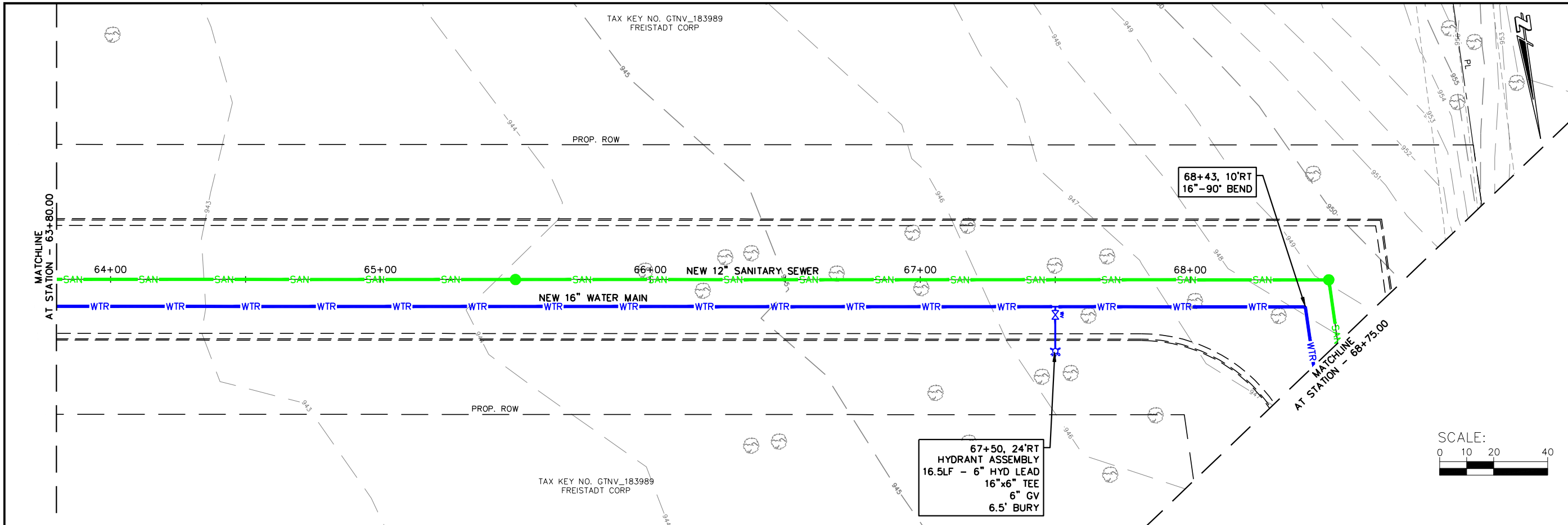
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14 OF XX

Page 350 of 517

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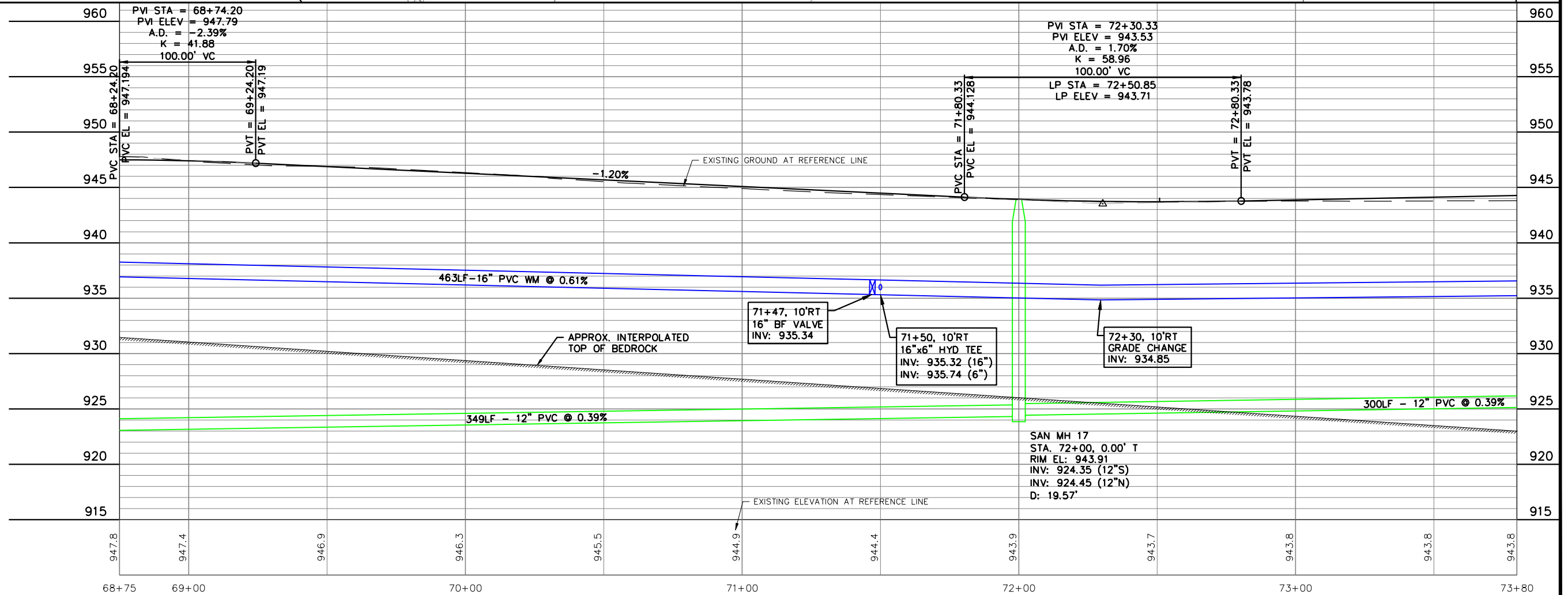
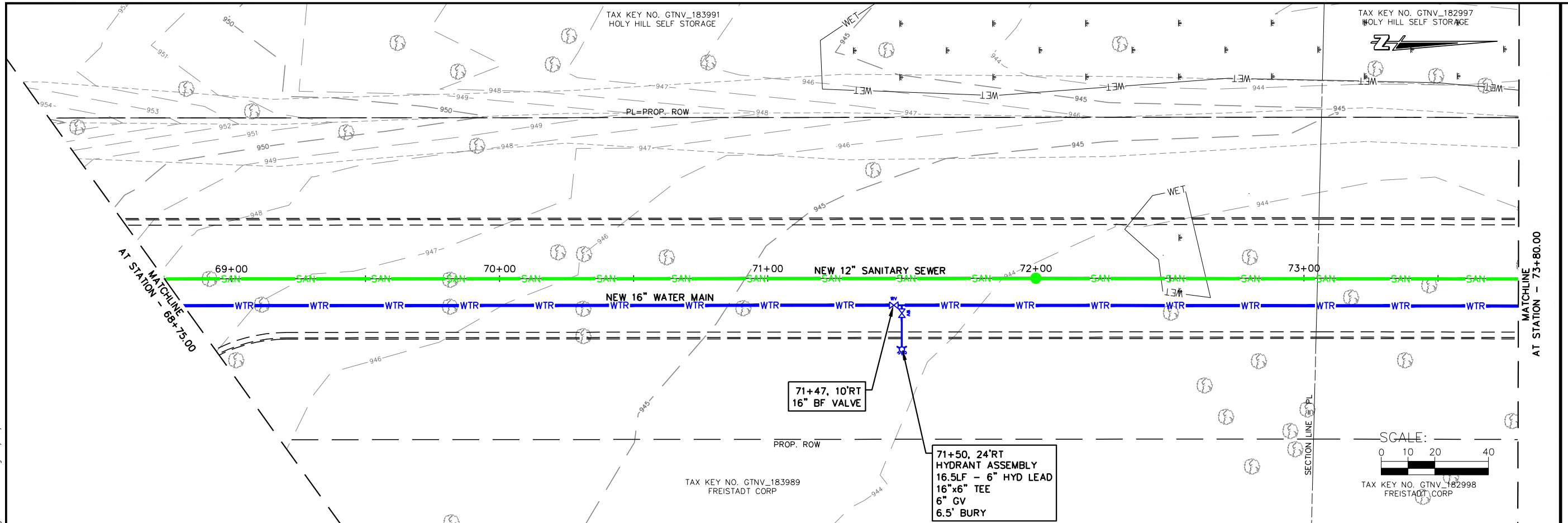
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15 OF XX

Page 351 of 517

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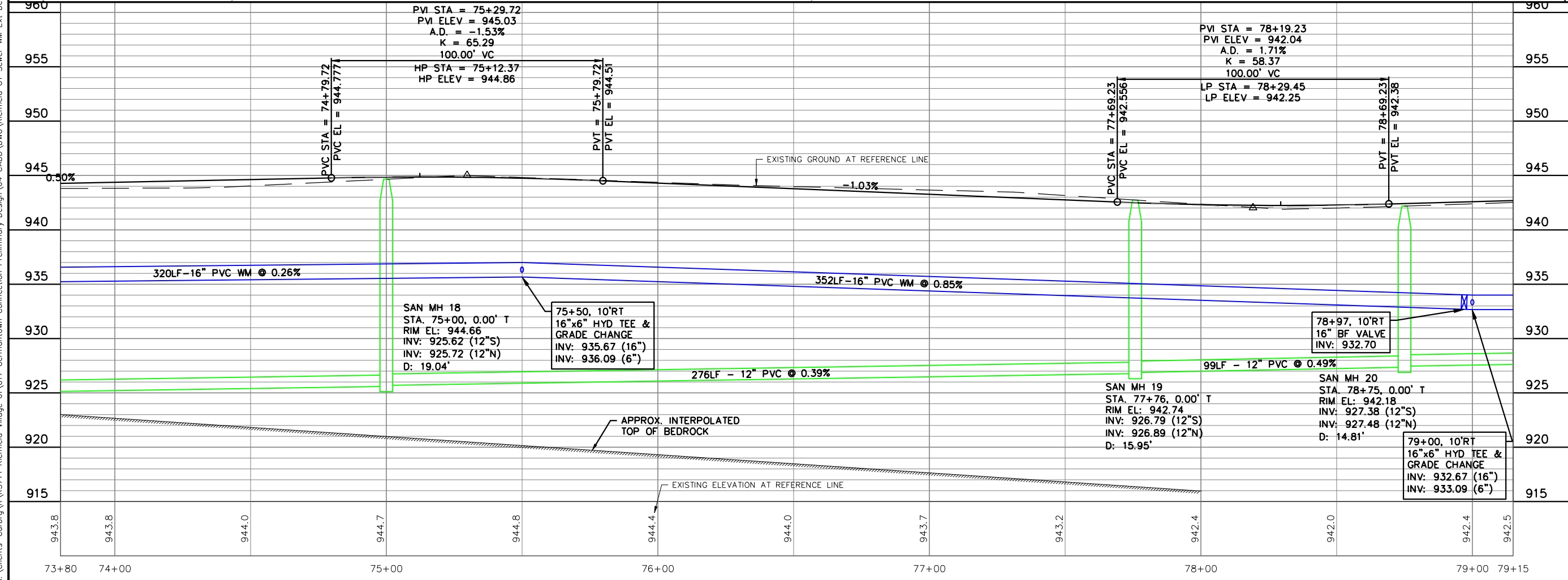
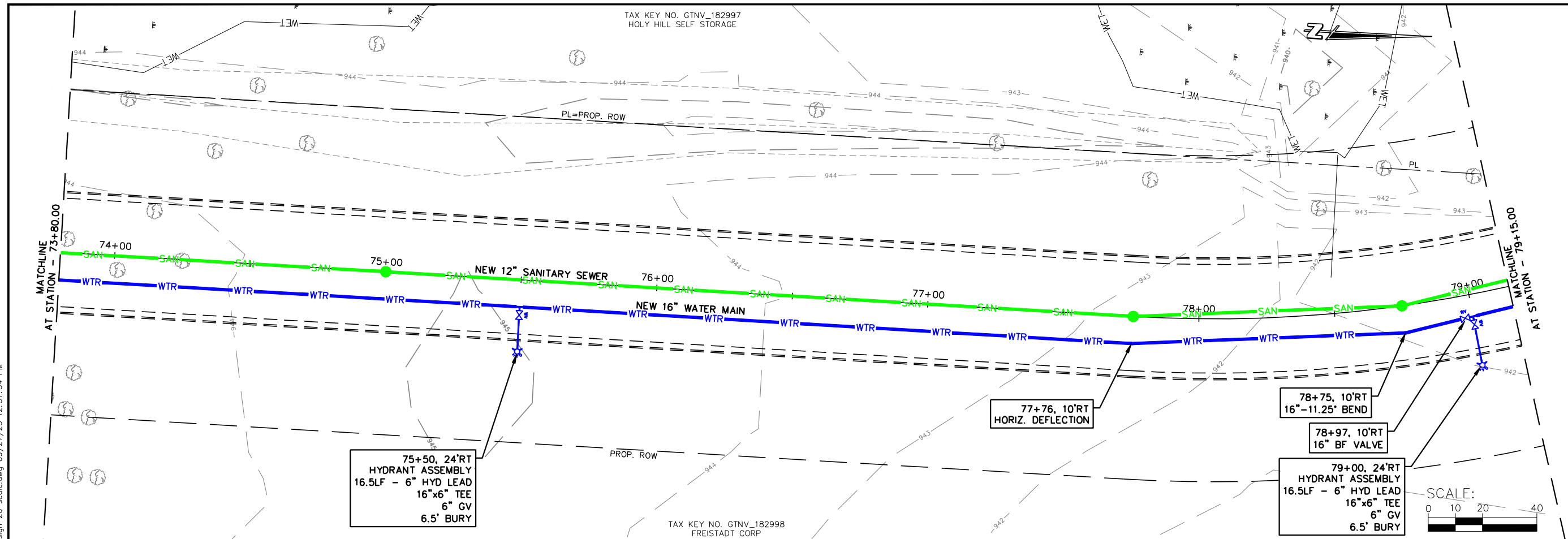
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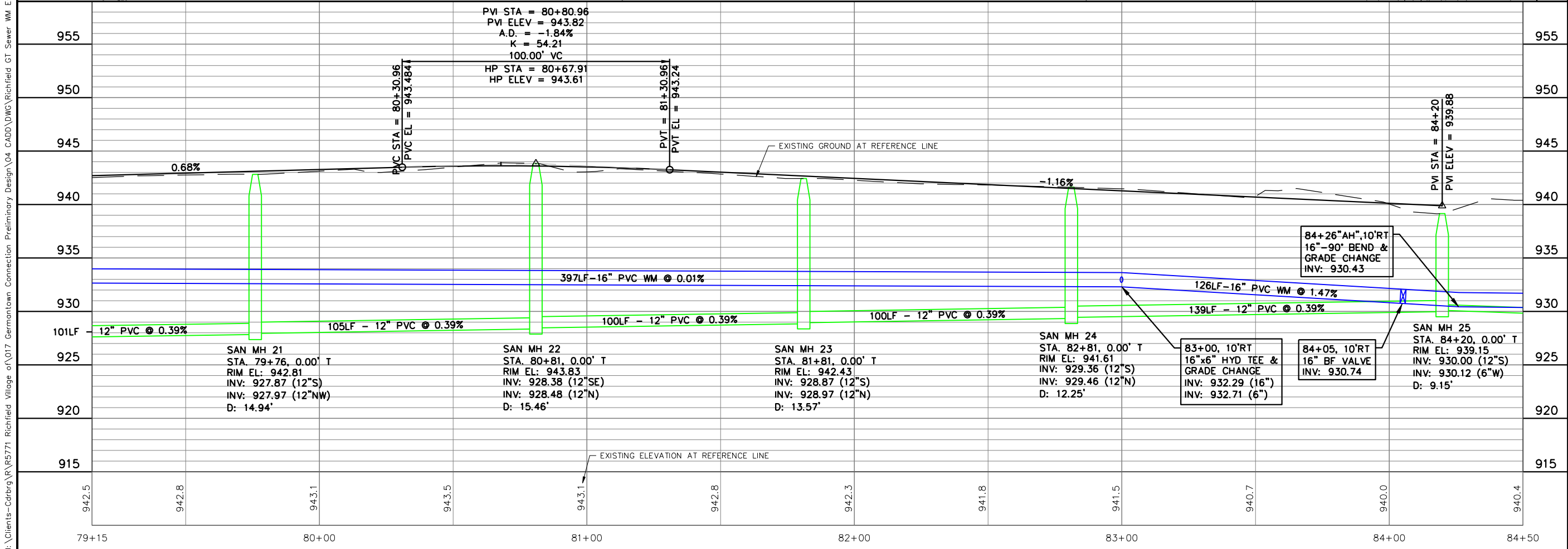
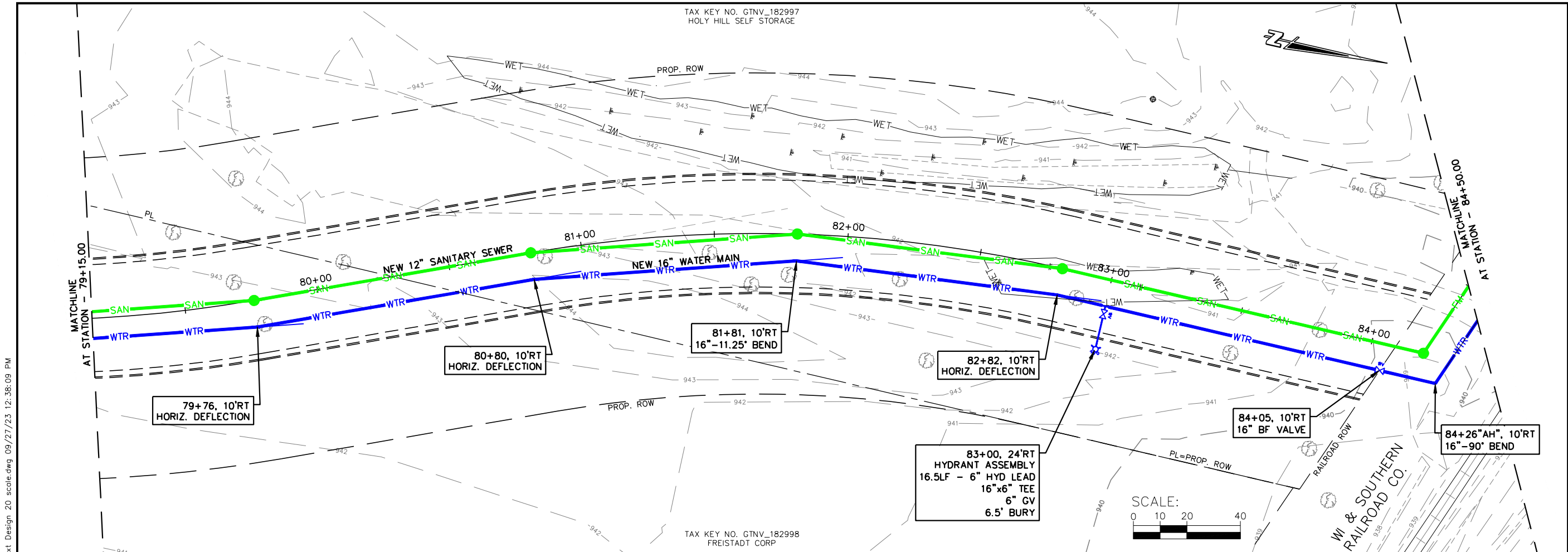
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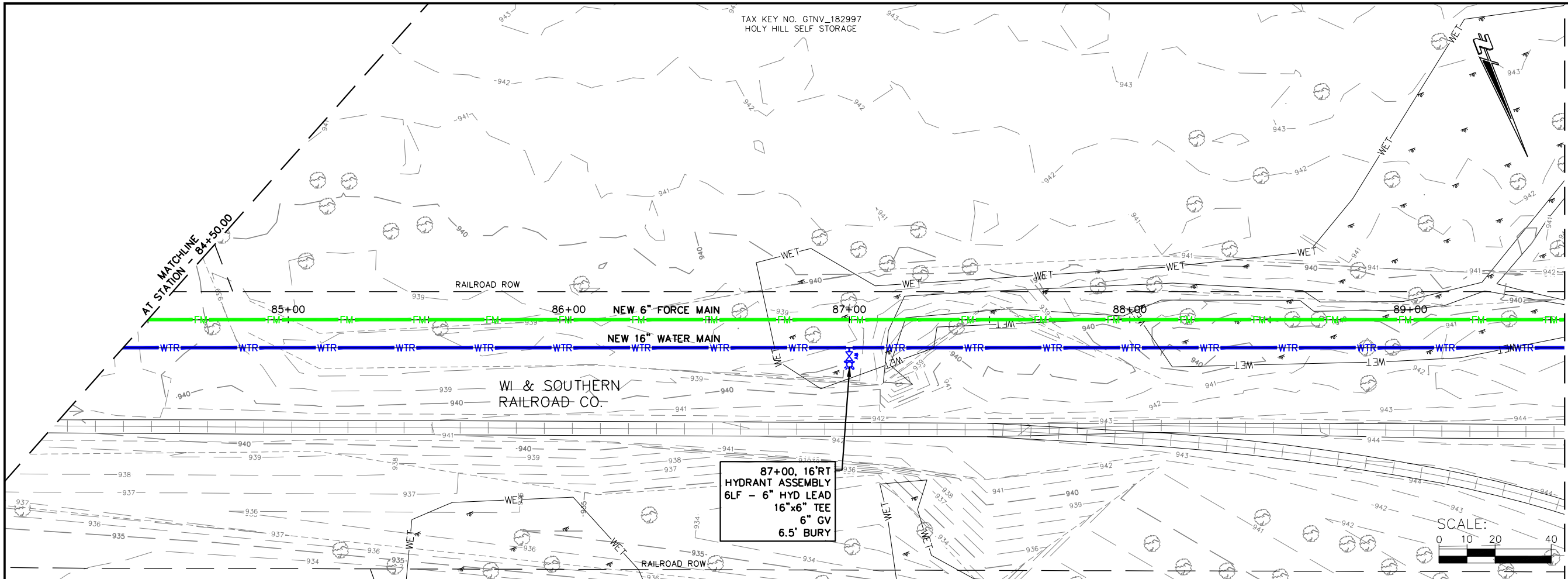
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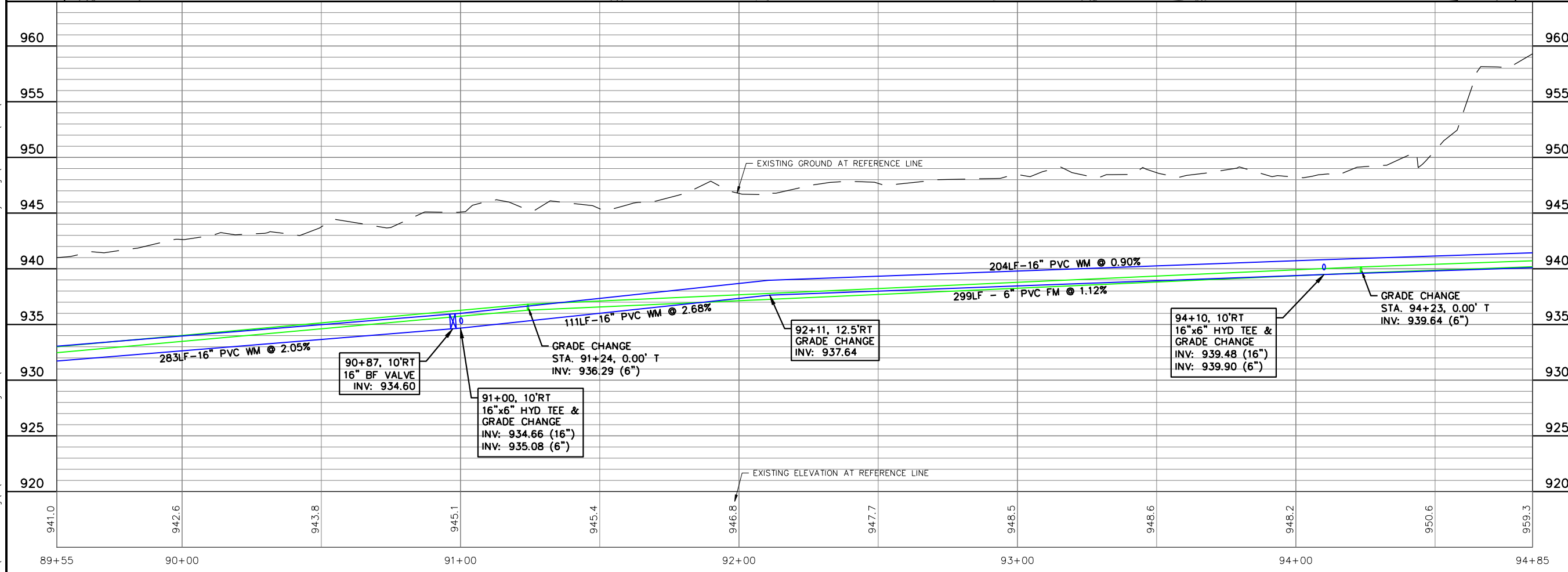
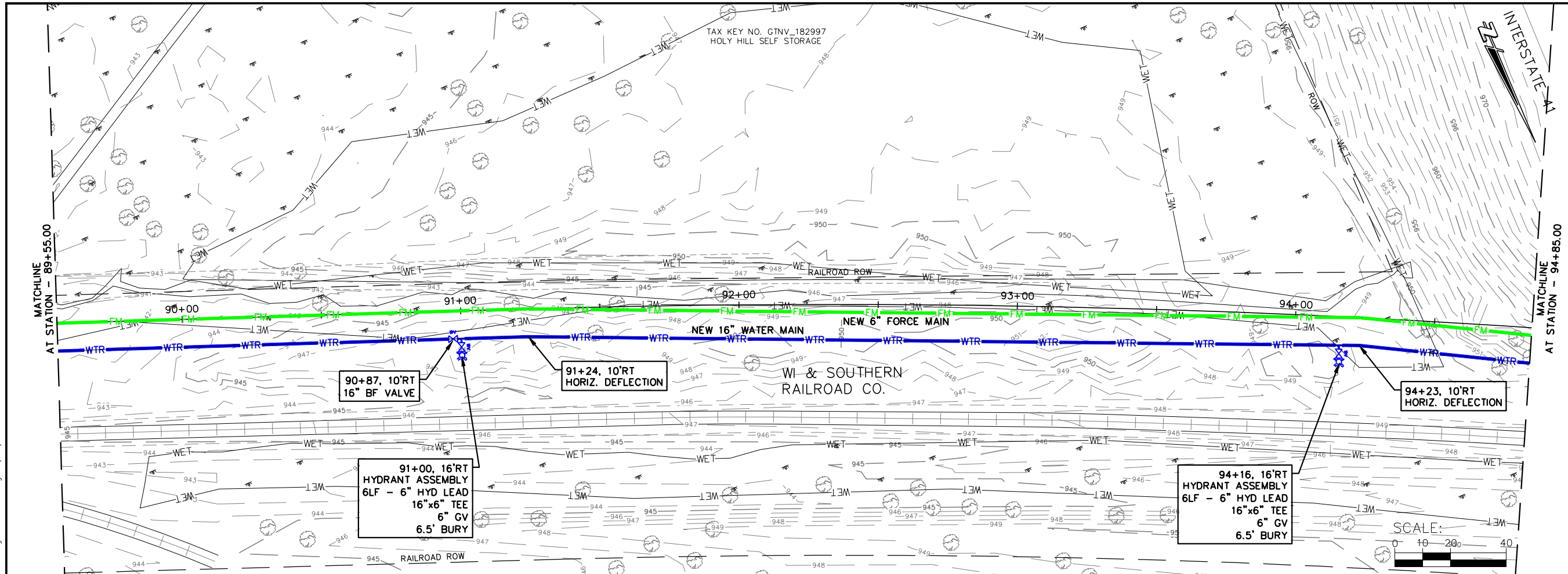
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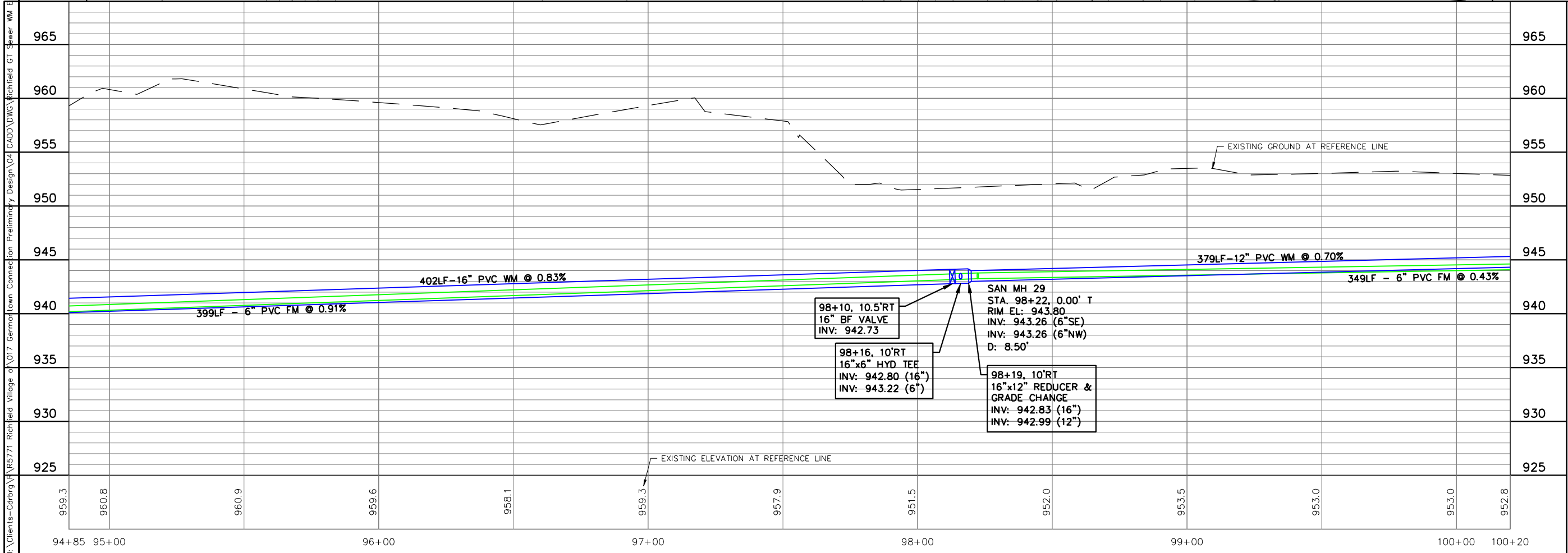
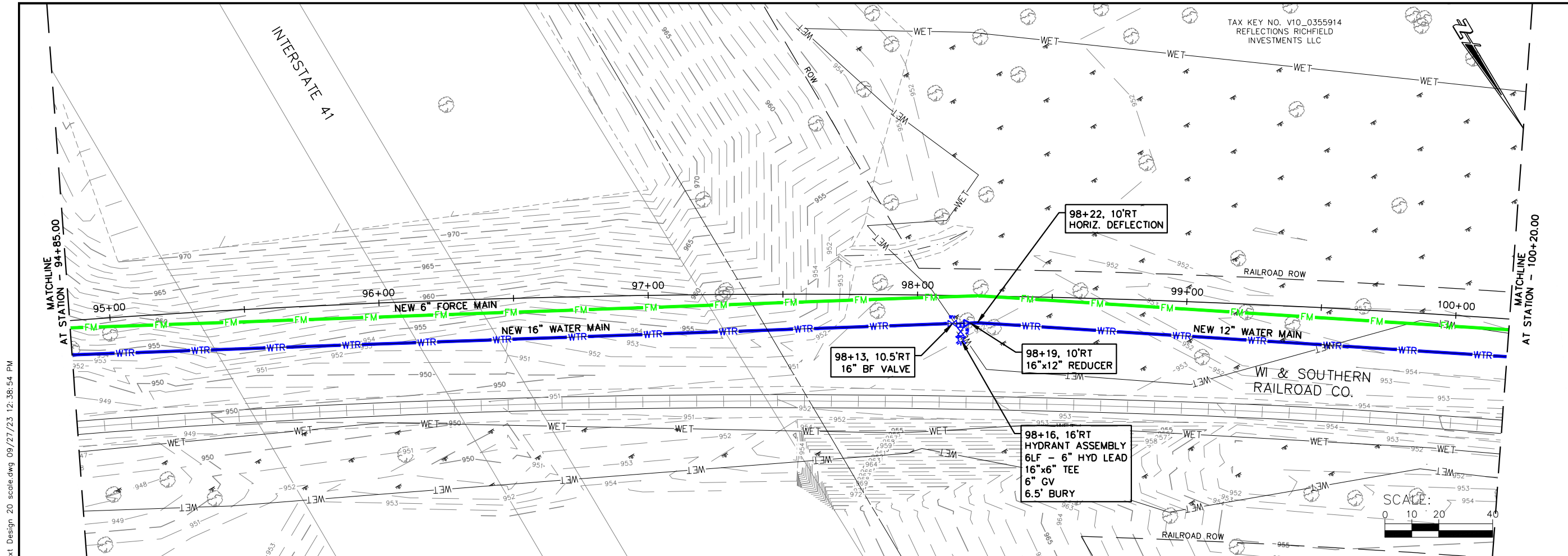
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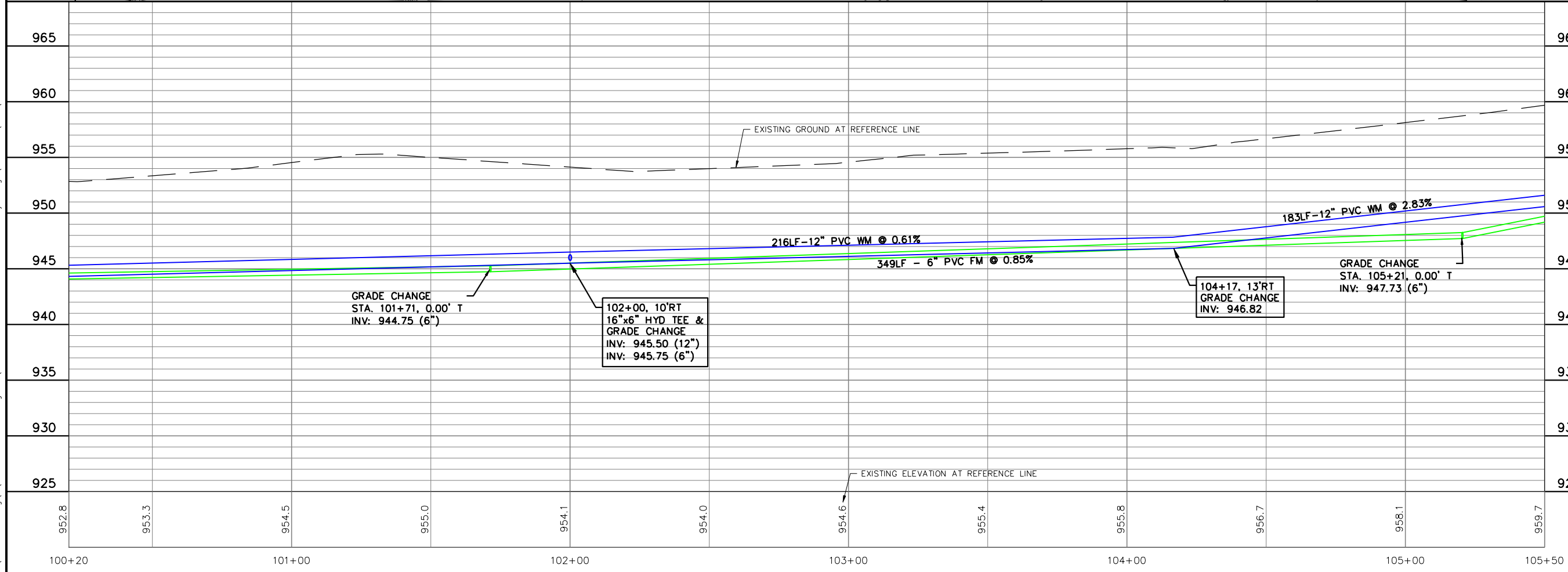
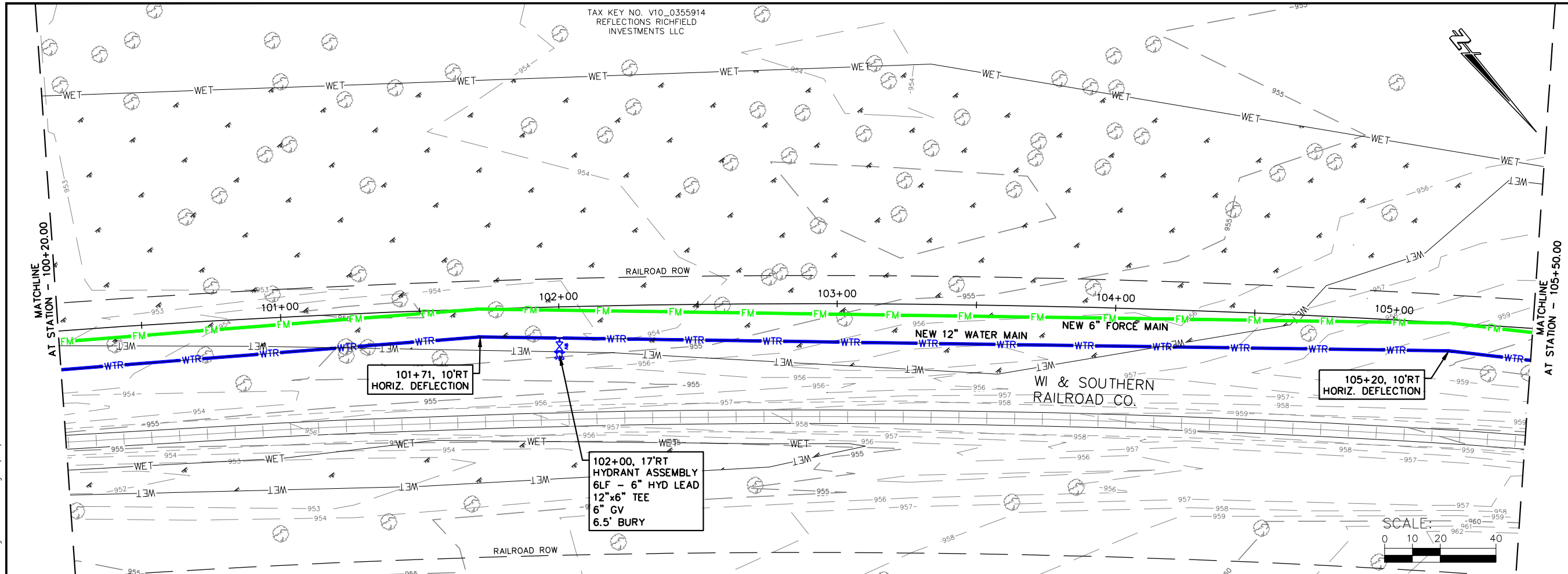
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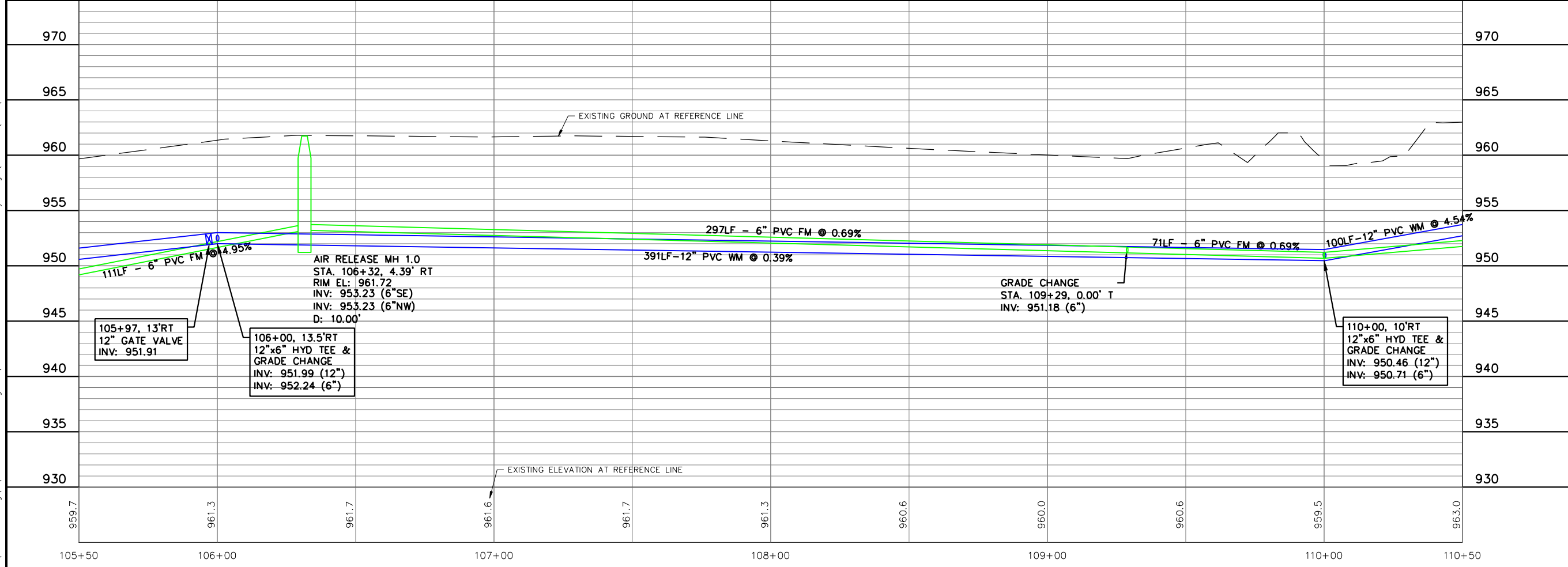
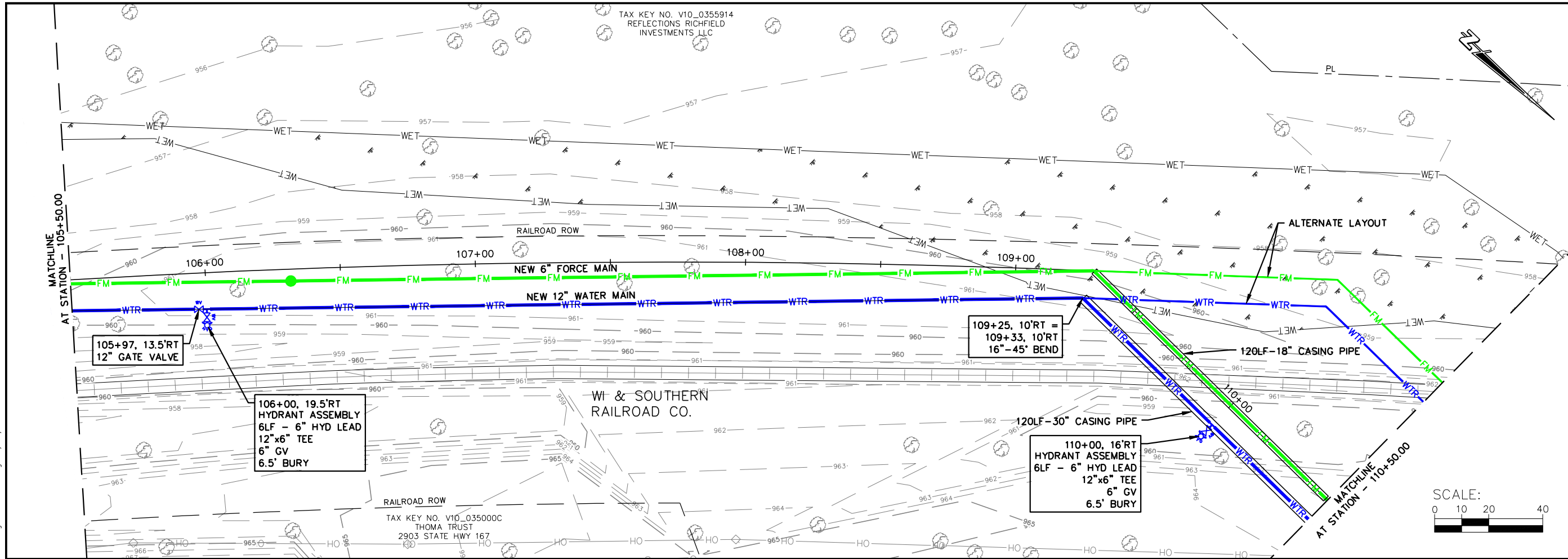
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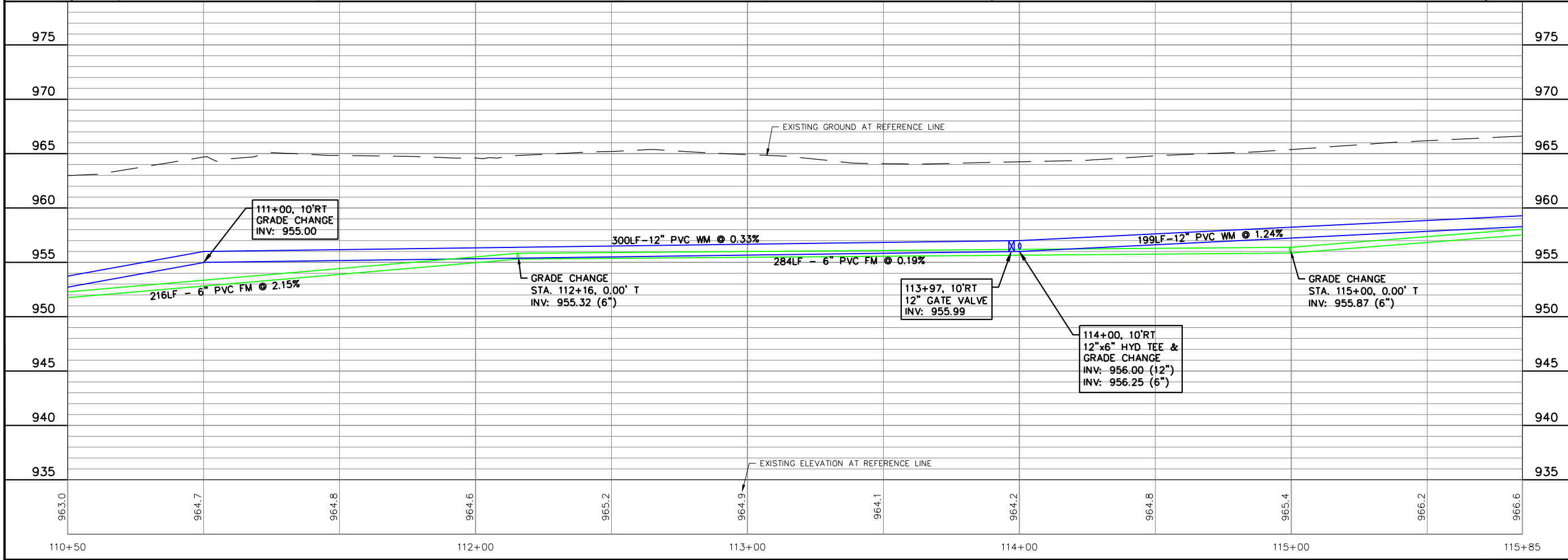
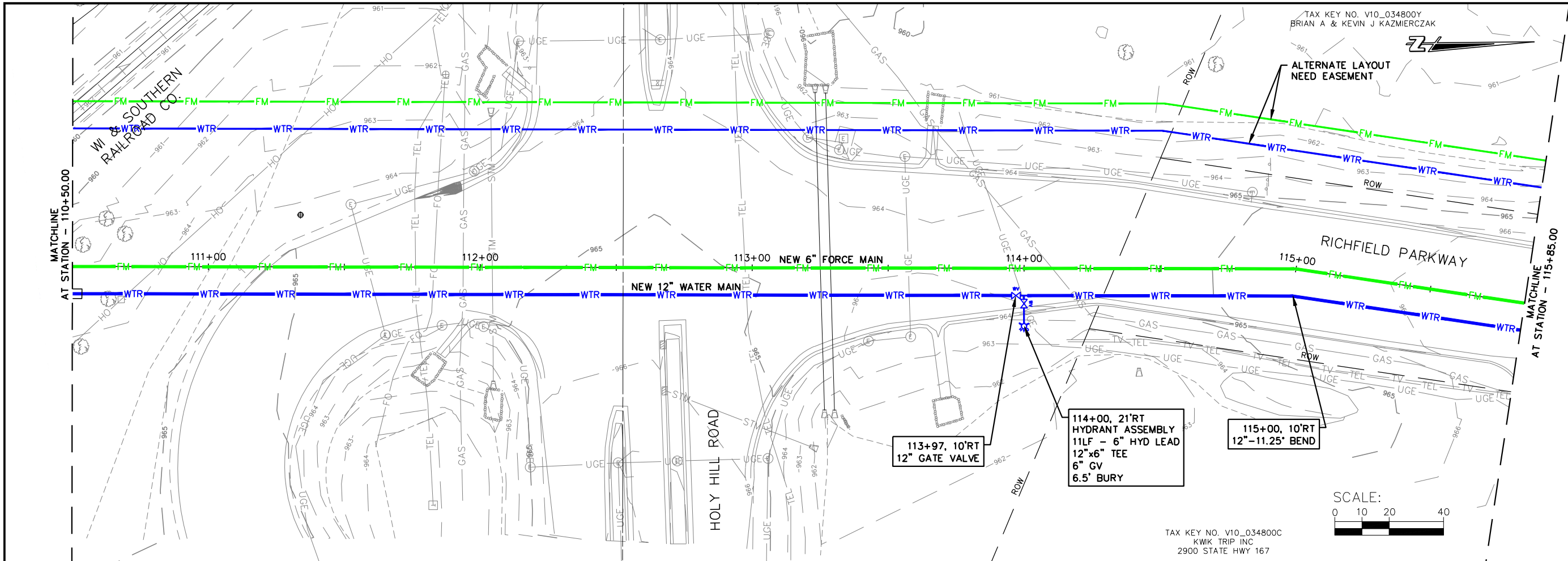
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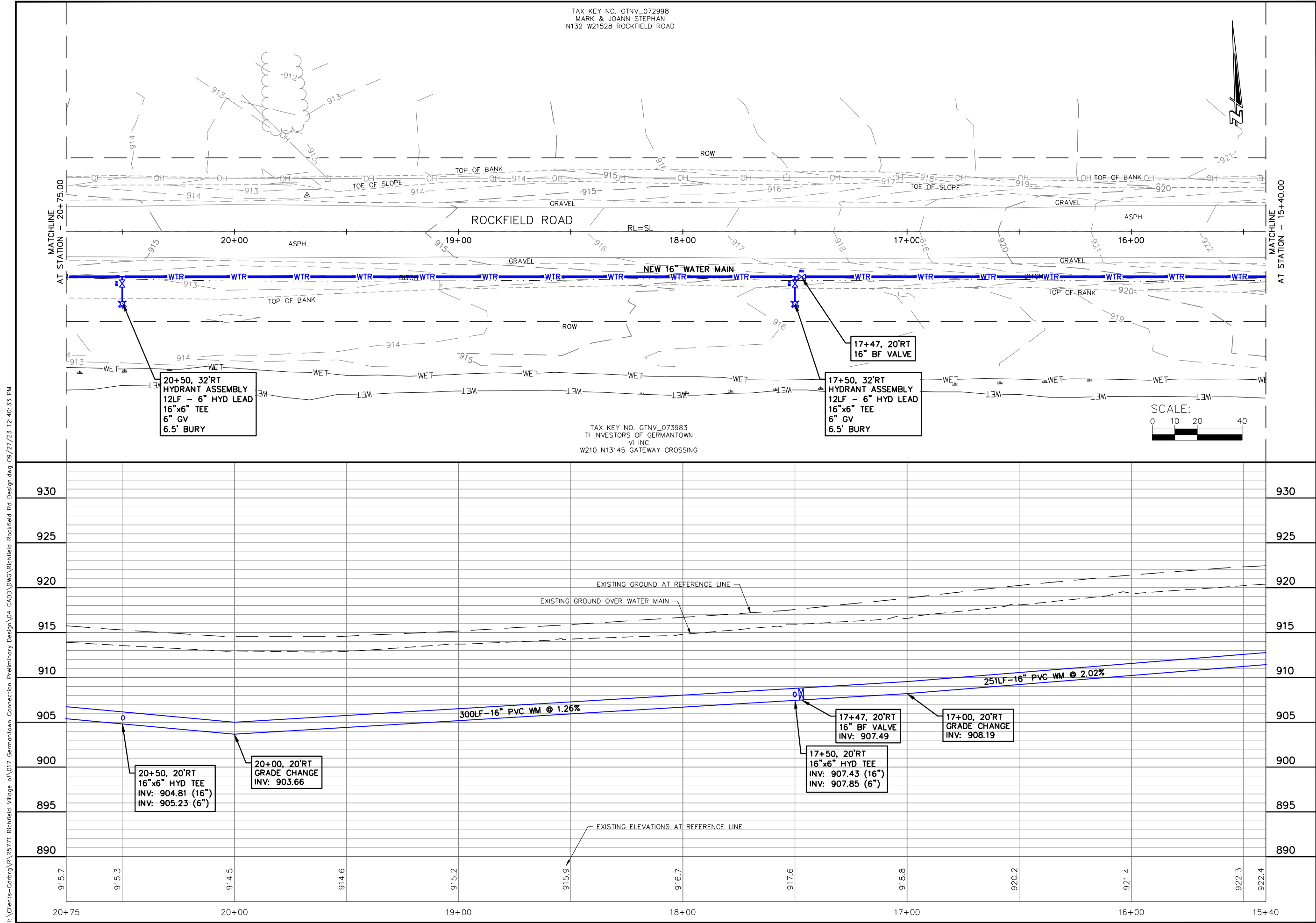
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FAX 262-375-2668

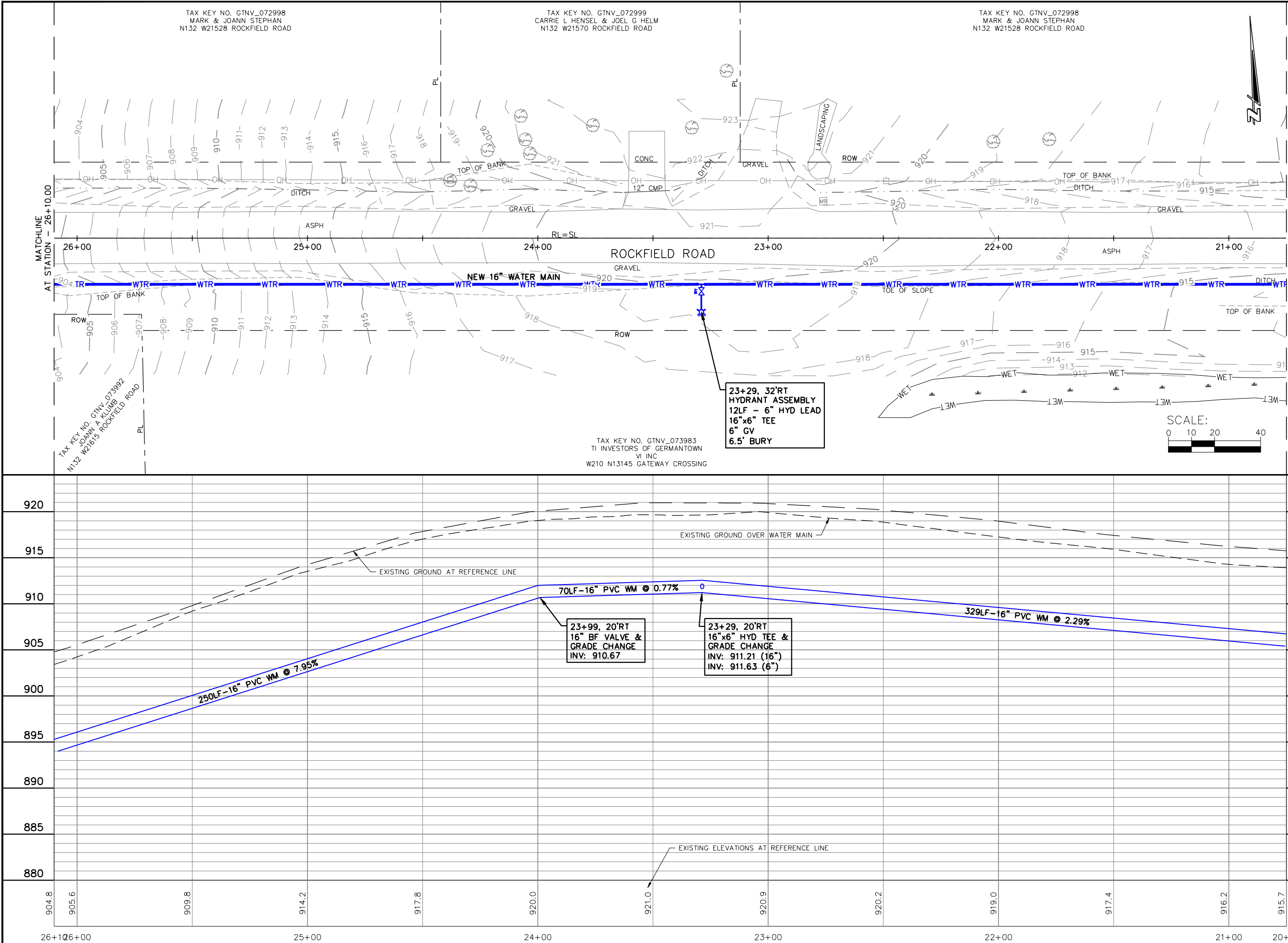
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920-491-9080
FAX 920-491-9020

604 Wilson Ave.
Menomonee, WI 54751
715-235-9080
FAX 715-235-2727

VILLAGE OF RICHFIELD
GERMANTOWN CONNECTION
WASHINGTON COUNTY, WISCONSIN
ROCKFIELD ROAD PLAN AND PROFILE

SHEET NO.
31 OF X

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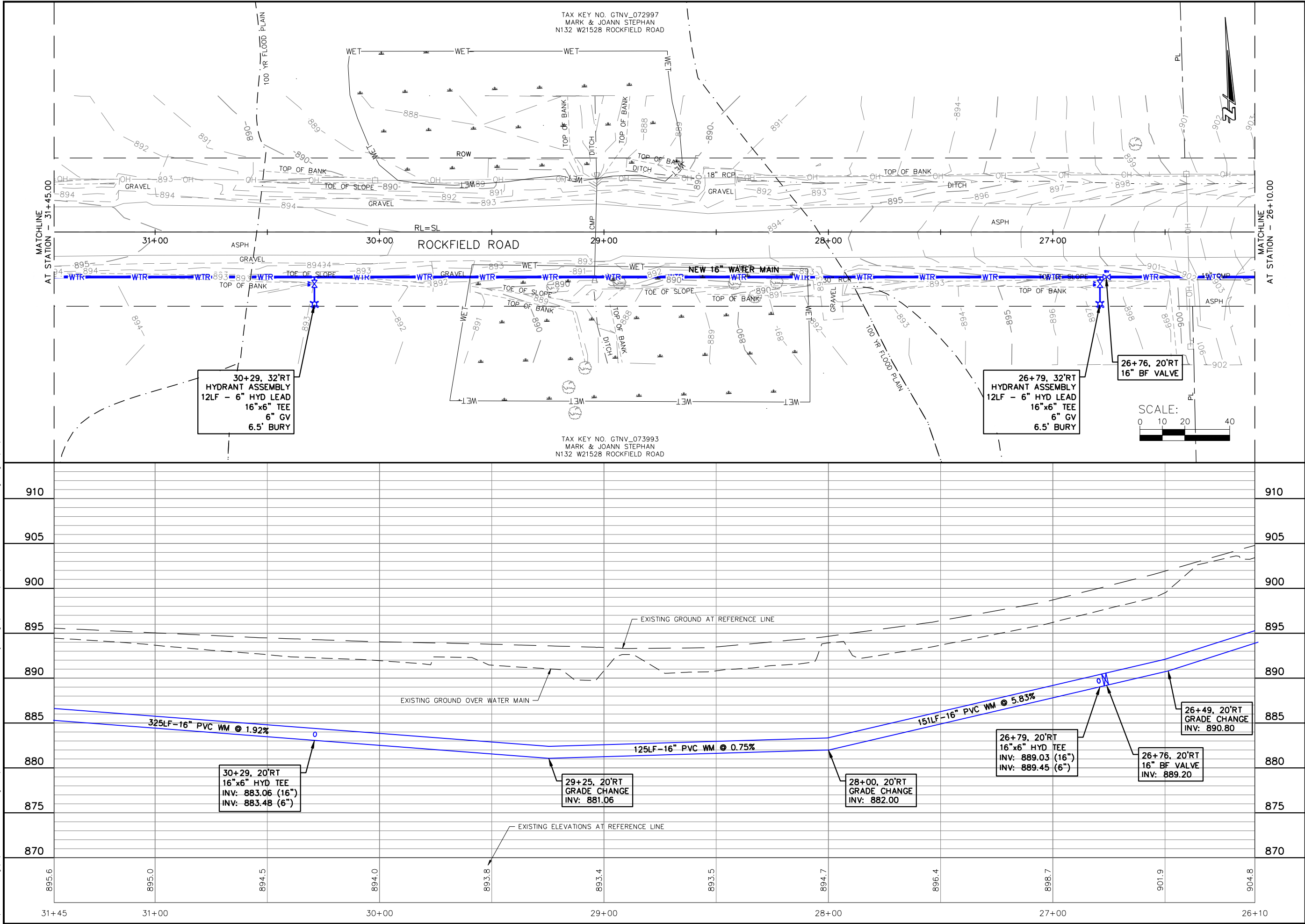
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WASHINGTON COUNTY, WISCONSIN
ROCKFIELD ROAD PLAN AND PROFILE

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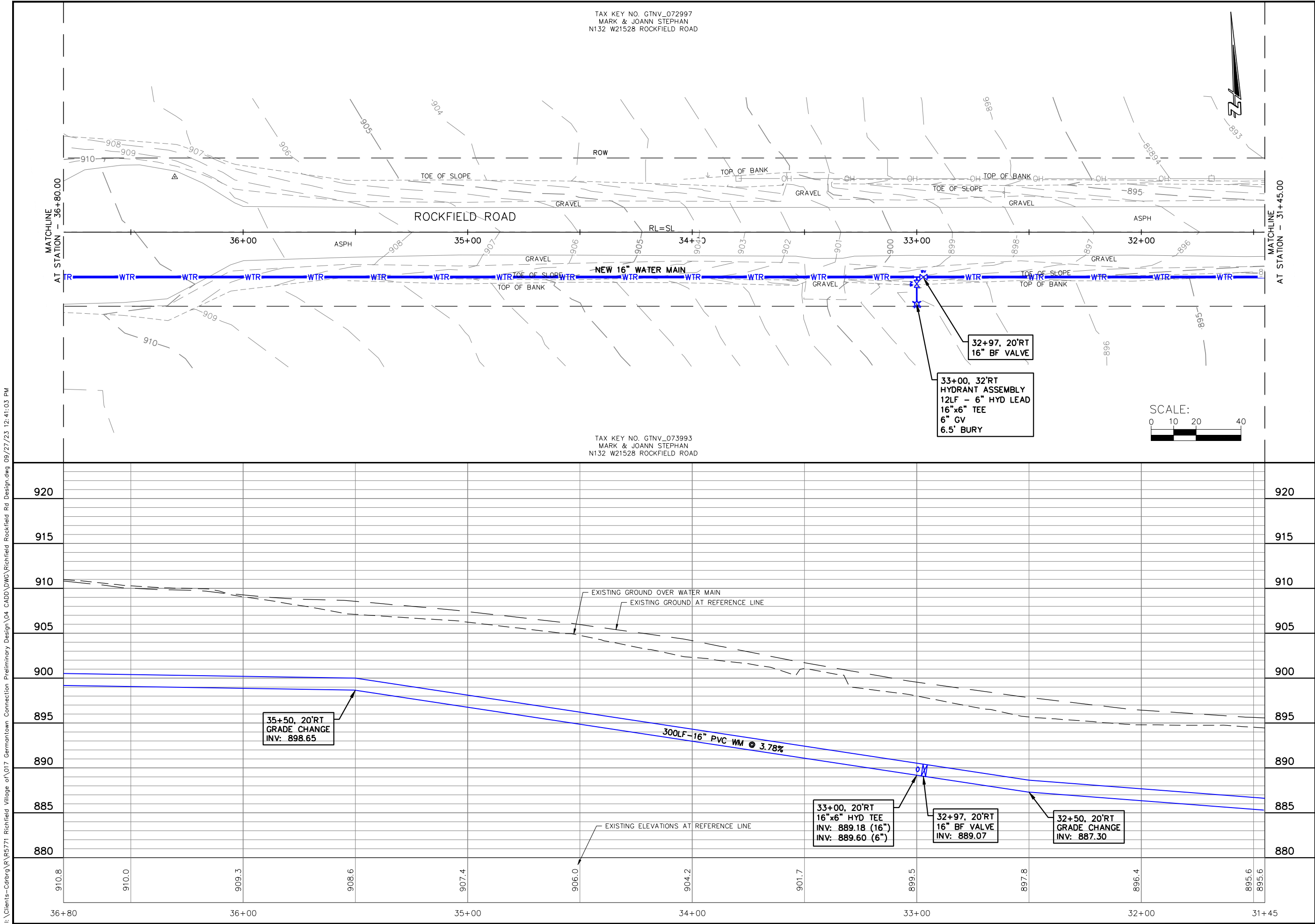
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VILLAGE OF RICHFIELD
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WASHINGTON COUNTY, WISCONSIN
ROCKFIELD ROAD PLAN AND PROFILE

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33 OF X

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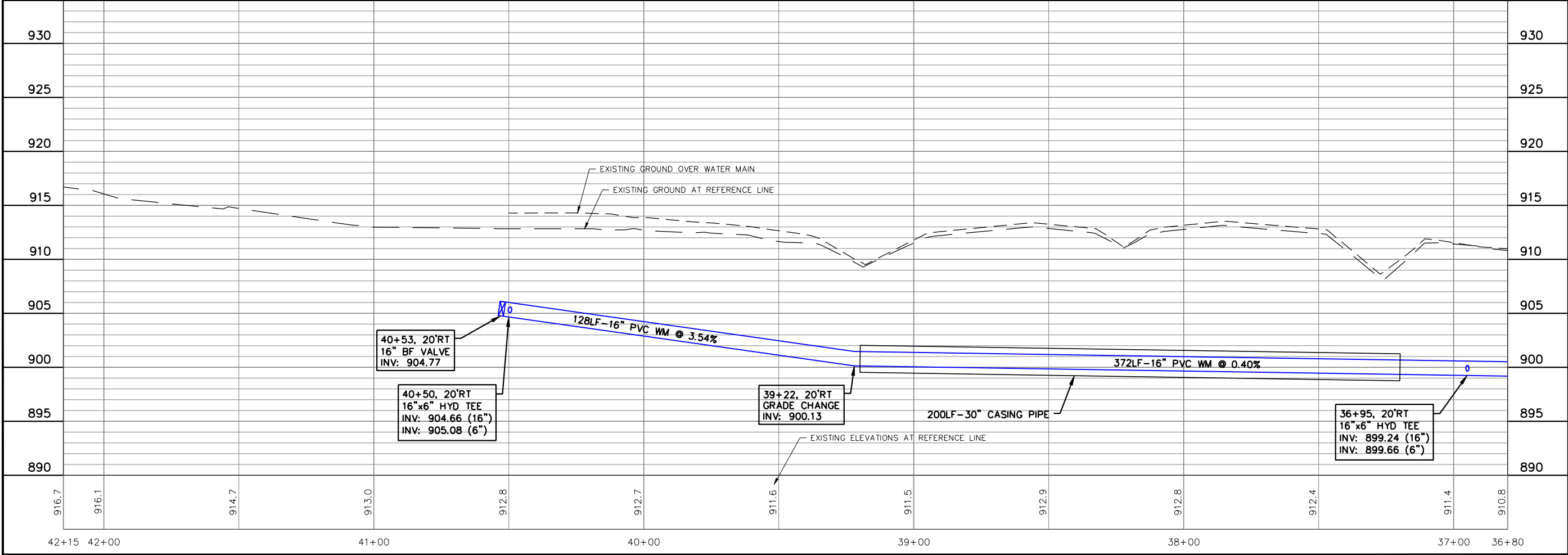
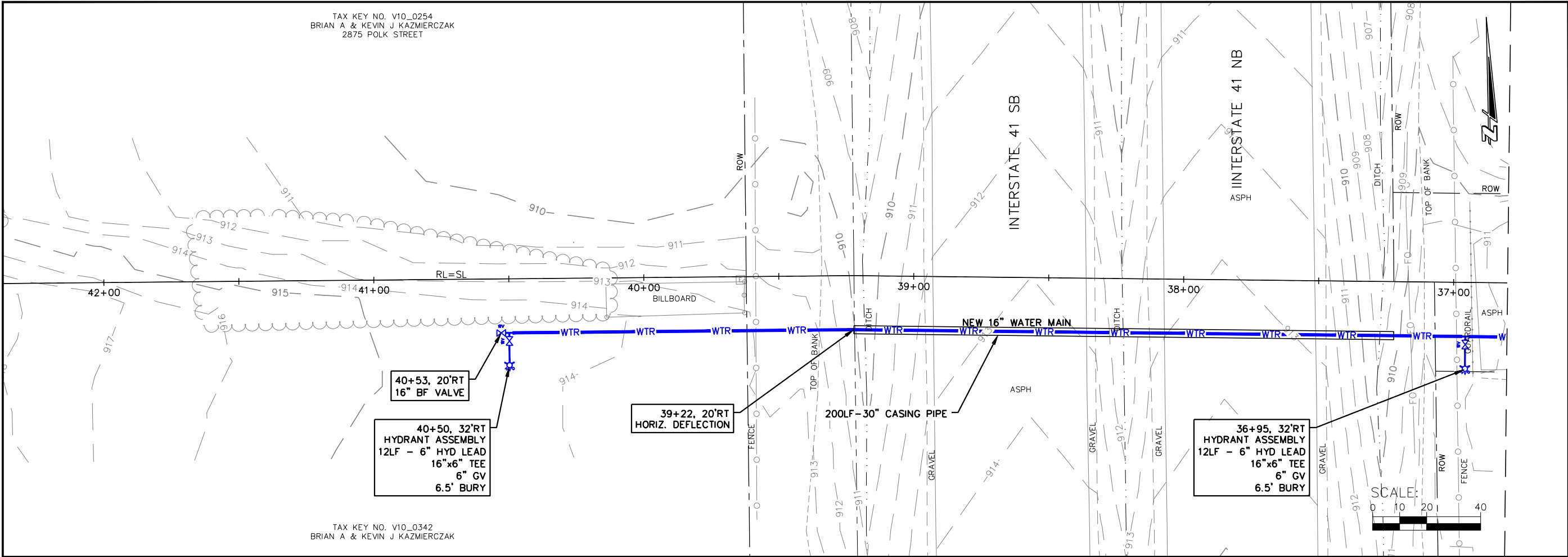
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ROCKFIELD ROAD PLAN AND PROFILE

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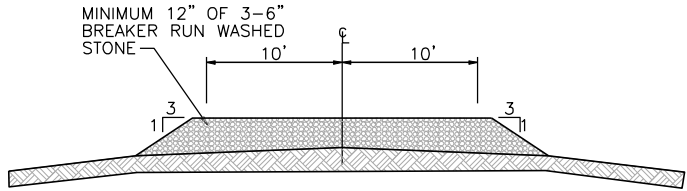
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VILLAGE OF RICHFIELD
GERMANTOWN CONNECTION
WASHINGTON COUNTY, WISCONSIN
ROCKFIELD ROAD PLAN AND PROFILE

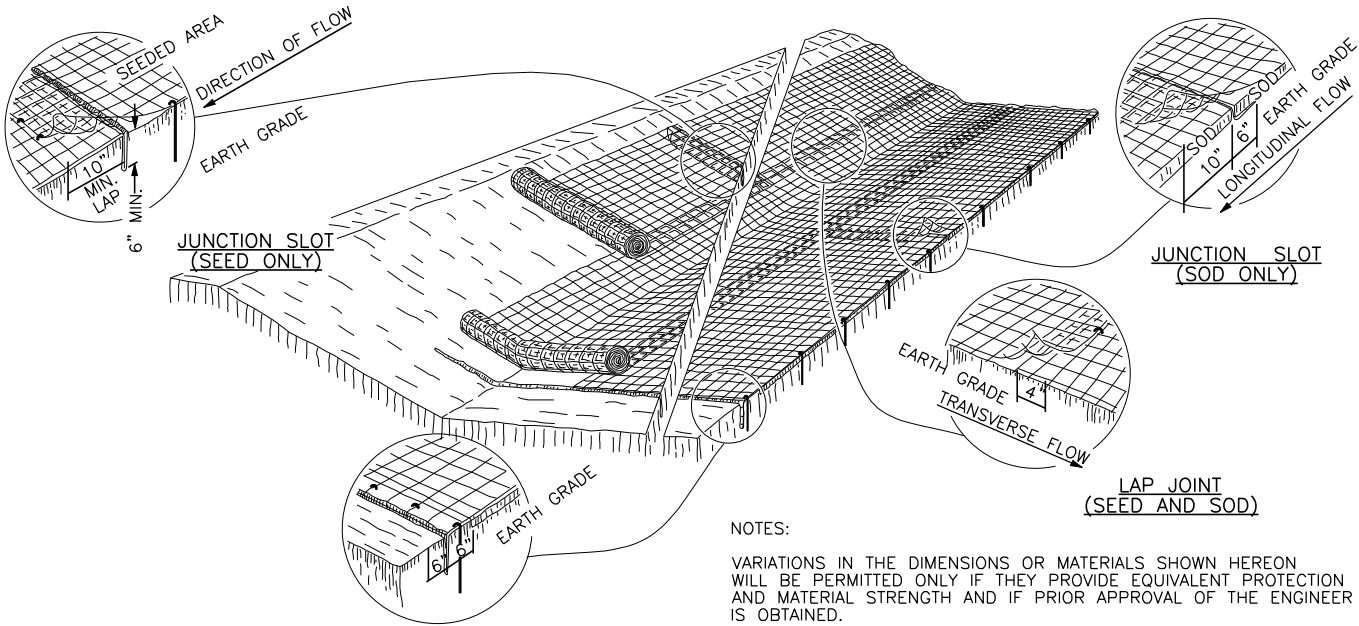
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35 OF X

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- NOTES:
1. TRACKING PAD TO BE A MINIMUM LENGTH OF 50'.
 2. REMOVE & REPLACE AGGREGATE WHEN VOIDS BECOME FILLED W/ SEDIMENT OR IF SURFACE OPENINGS BECOME PLUGGED SO THAT TRACKING AREA DOES NOT FUNCTION.
 3. REMOVE TRACKING PAD AND RESTORE AREA UPON COMPLETION OF THE PROJECT.

TYPICAL TRACKING PAD



NOTES:

VARIATIONS IN THE DIMENSIONS OR MATERIALS SHOWN HEREON WILL BE PERMITTED ONLY IF THEY PROVIDE EQUIVALENT PROTECTION AND MATERIAL STRENGTH AND IF PRIOR APPROVAL OF THE ENGINEER IS OBTAINED.

DO NOT PLACE LAP JOINTS AT THE BOTTOM OF V-SHAPED DITCHES.

JUNCTION SLOTS ON ADJACENT STRIPS OF MATTING WILL BE STAGGERED A MINIMUM OF 4 FEET APART

IMPRESS ALL EDGES OF THE EROSION MAT INTO THE SOIL.

EROSION MAT OVER SOD

ONLY JUTE FABRIC WILL BE PERMITTED OVER SOD

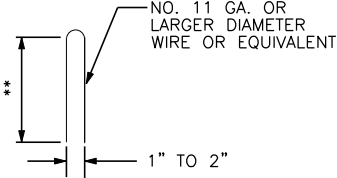
WOOD STAKES FOR SOD MAY BE OMITTED IF THE EXISTING SLOPE AND SOIL CONDITIONS SO WARRANT.

THE WIDTH OF THE EROSION MAT SHALL EQUAL THE SOD WIDTH.

SOD STRIPS MAY BE PLACED EITHER LONGITUDINALLY OR TRANSVERSELY TO THE FLOW LINE OF THE DITCH.

EROSION MAT OVER SEEDING

JUNCTION OR ANCHOR SLOTS WILL BE AT MINIMUM INTERVALS OF 100 FEET ON GRADES UP TO AND INCLUDING 3 PERCENT, AND 50 FEET ON GRADES EXCEEDING 3 PERCENT.



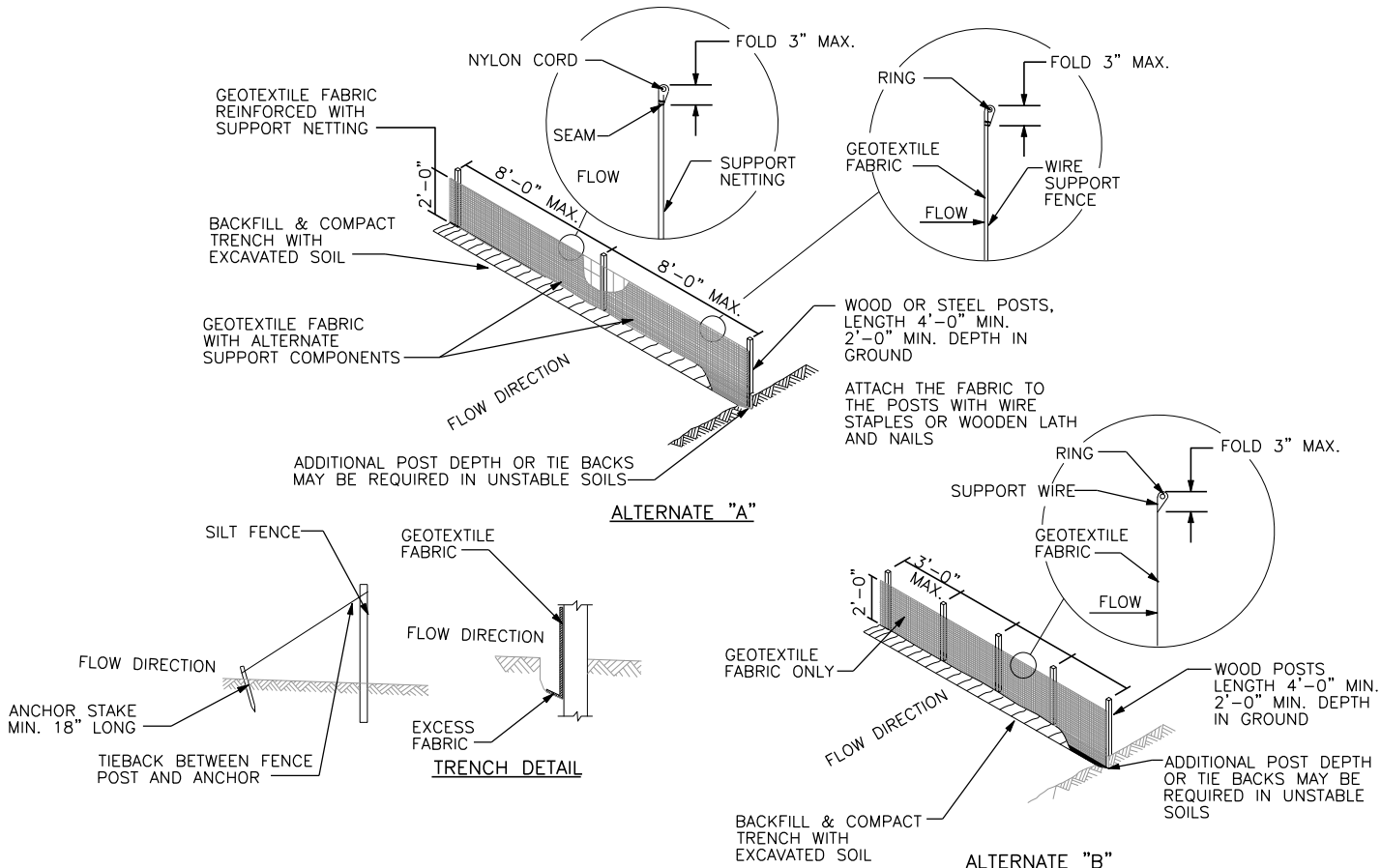
DETAIL OF TYPICAL STAPLE

NO. 11 GA. OR LARGER DIAMETER WIRE OR EQUIVALENT

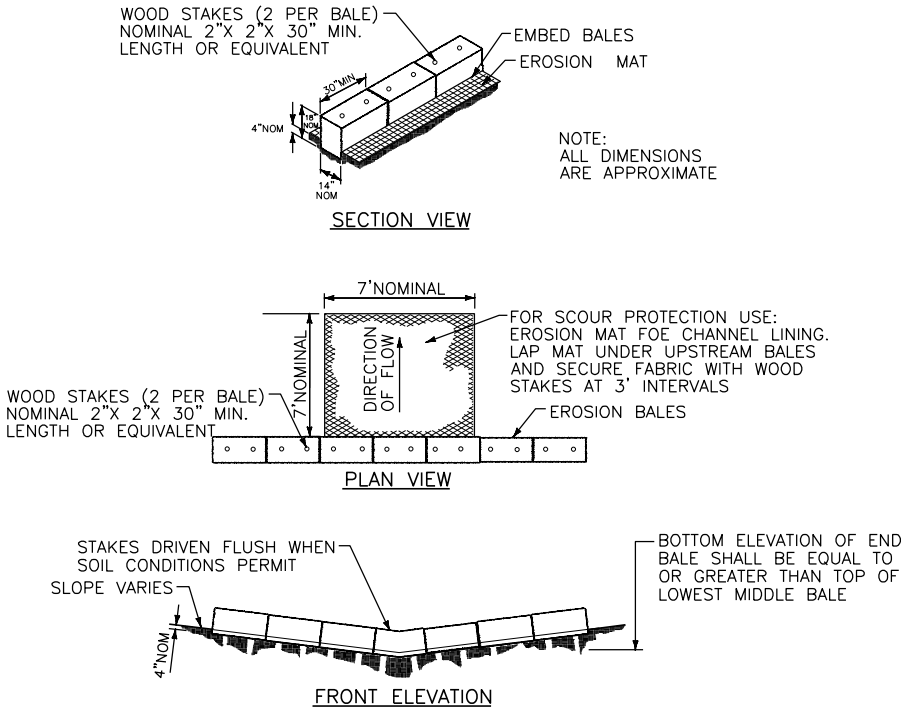
1" TO 2"

6" MIN. FOR FIRM SOILS
12" MIN. FOR LOOSE SOILS
8" MIN. WHERE BOTH SOD AND MATS ARE USED

EROSION MAT



SILT FENCE



TEMPORARY DITCH CHECK DETAIL

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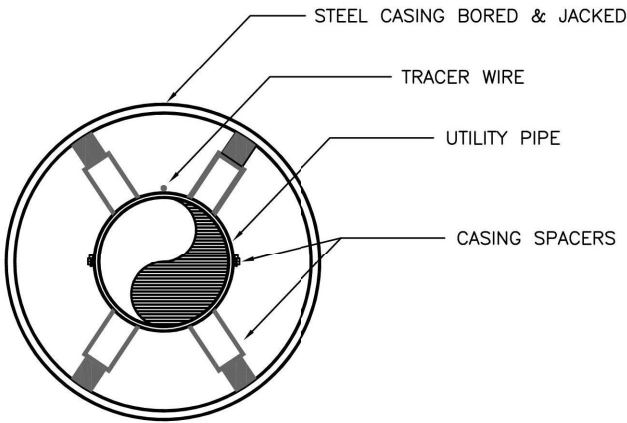
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WEIN497 Washington Ave.
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VILLAGE OF RICHFIELD
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WASHINGTON COUNTY, WISCONSIN
STANDARD DETAILS

SHEET NO.	33 OF X
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STEEL CASING PIPE SHALL MEET THE REQUIREMENTS AS DESCRIBED IN THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN SECTION 6.2.3 AND DRAWING FILE NO. 19.

THE PIPE SHALL BE SUPPORTED AND BRACED USING CASING SPACERS AS MANUFACTURED BY ADVANCE PRODUCTS & SYSTEMS OR EQUAL, AS APPROVED BY THE ENGINEER.

A TRACER WIRE SHALL BE INSTALLED AS PER THE VILLAGE SPECIFICATIONS.

EACH END OF THE CASING SHALL RECEIVE A 12" CONCRETE OR BRICK MORTARED BULKHEAD.

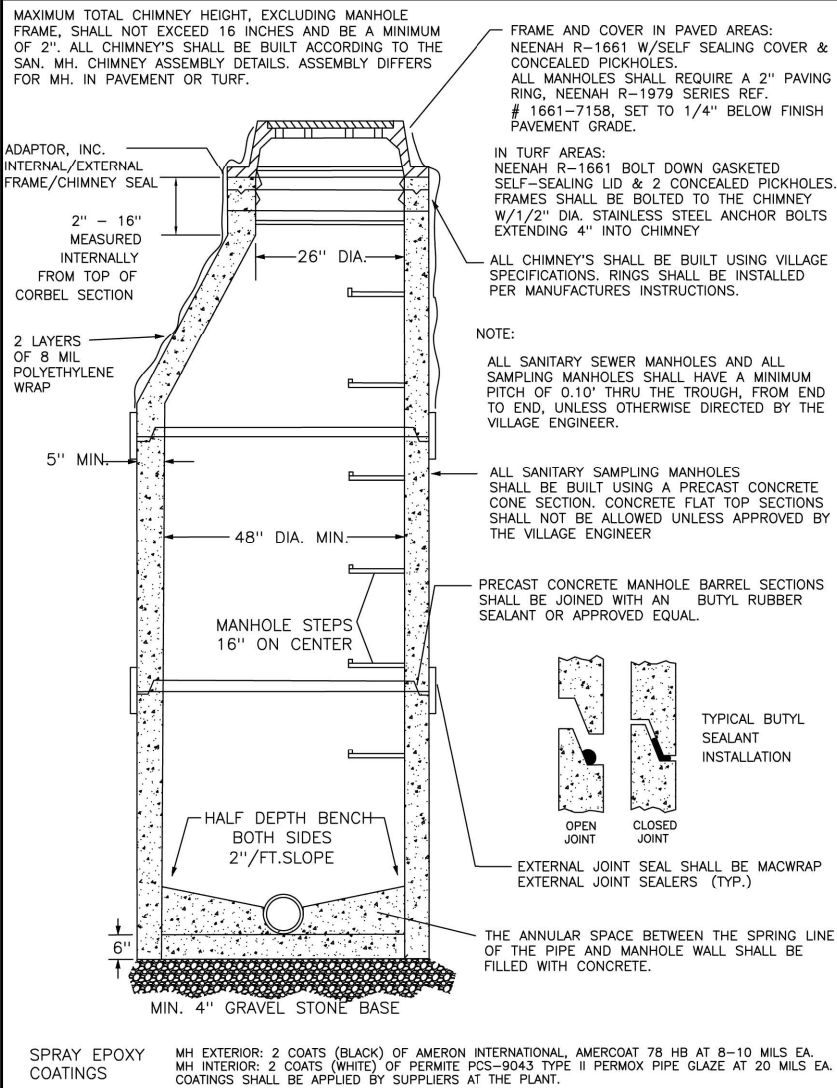
NEW UTILITY PIPE TO BE CENTERED IN THE CASING PIPE.



ENGINEERING DEPARTMENT
BORING OR JACKING CASING PIPE
WITH CASING SPACERS

REV. 10/10/2018 RCB

NOT TO SCALE



ENGINEERING DEPARTMENT
STANDARD
SANITARY MANHOLE &
SAMPLING MANHOLE DETAIL

REVISED DATE: 10/11/2019 FJR

NOT TO SCALE

VILLAGE OF RICHFIELD
GERMANTOWN CONNECTION
WASHINGTON COUNTY, WISCONSIN
STANDARD DETAILS

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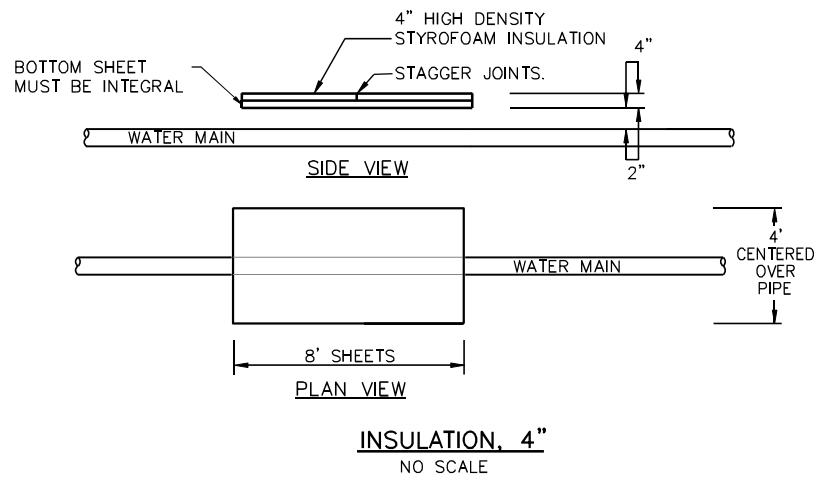
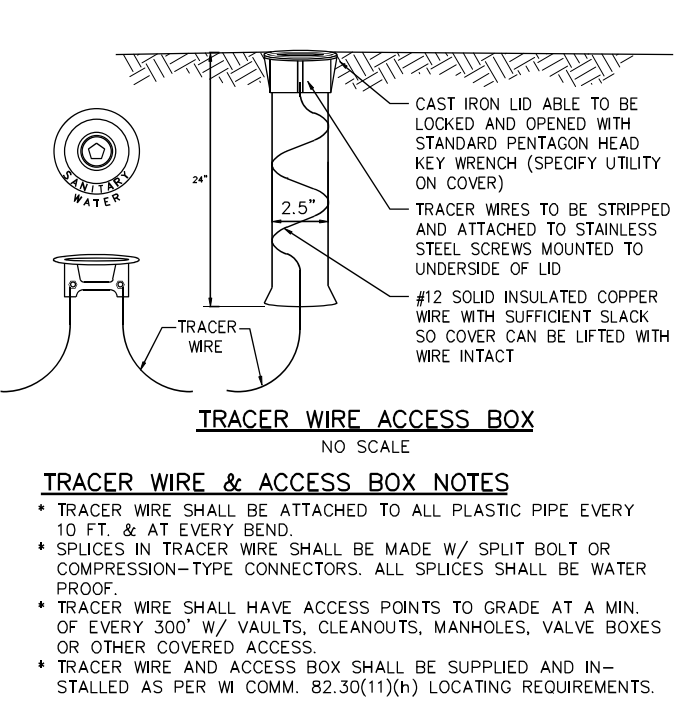
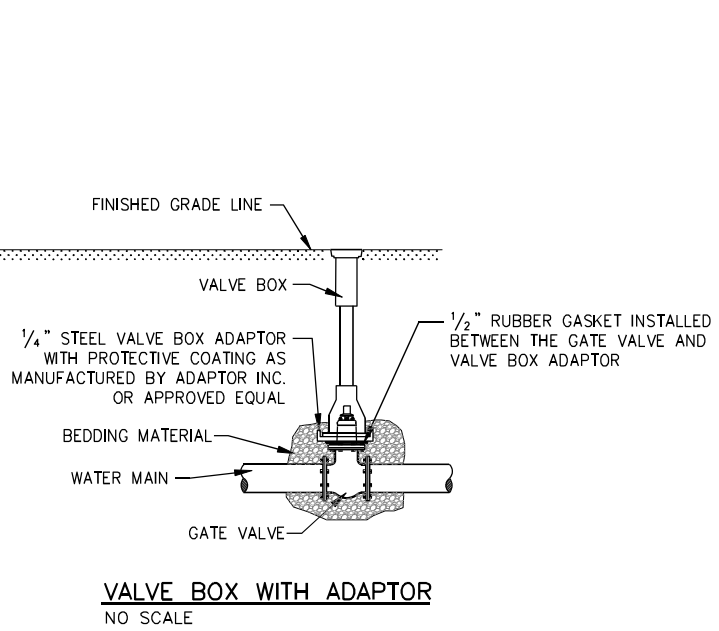
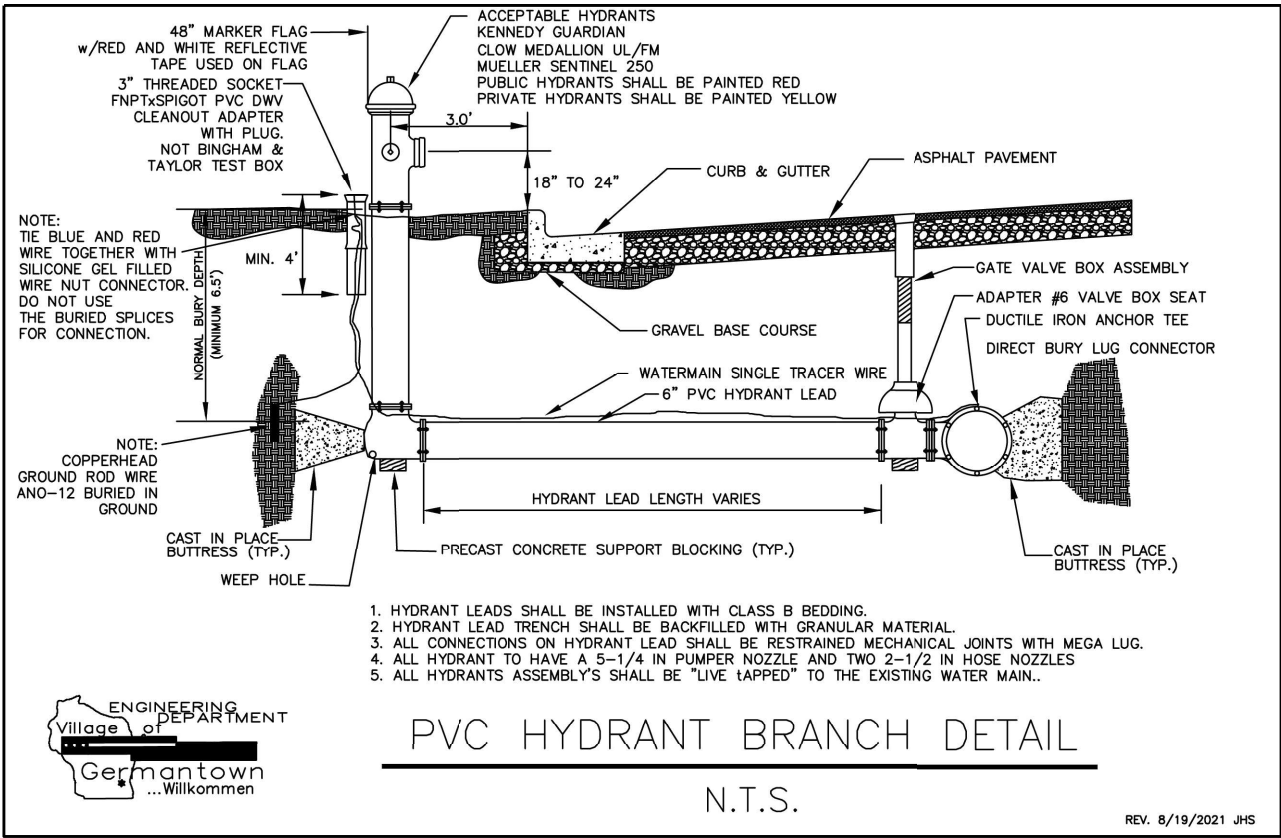
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34 OF X

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VILLAGE OF RICHFIELD
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SHEET NO.
35 OF X

Appendix M – Germantown Connection Sewer & Water Extension Opinion of Probably Cost



OPINION OF PROBABLE PROJECT COST

Community Infrastructure • Architecture • Environmental Services

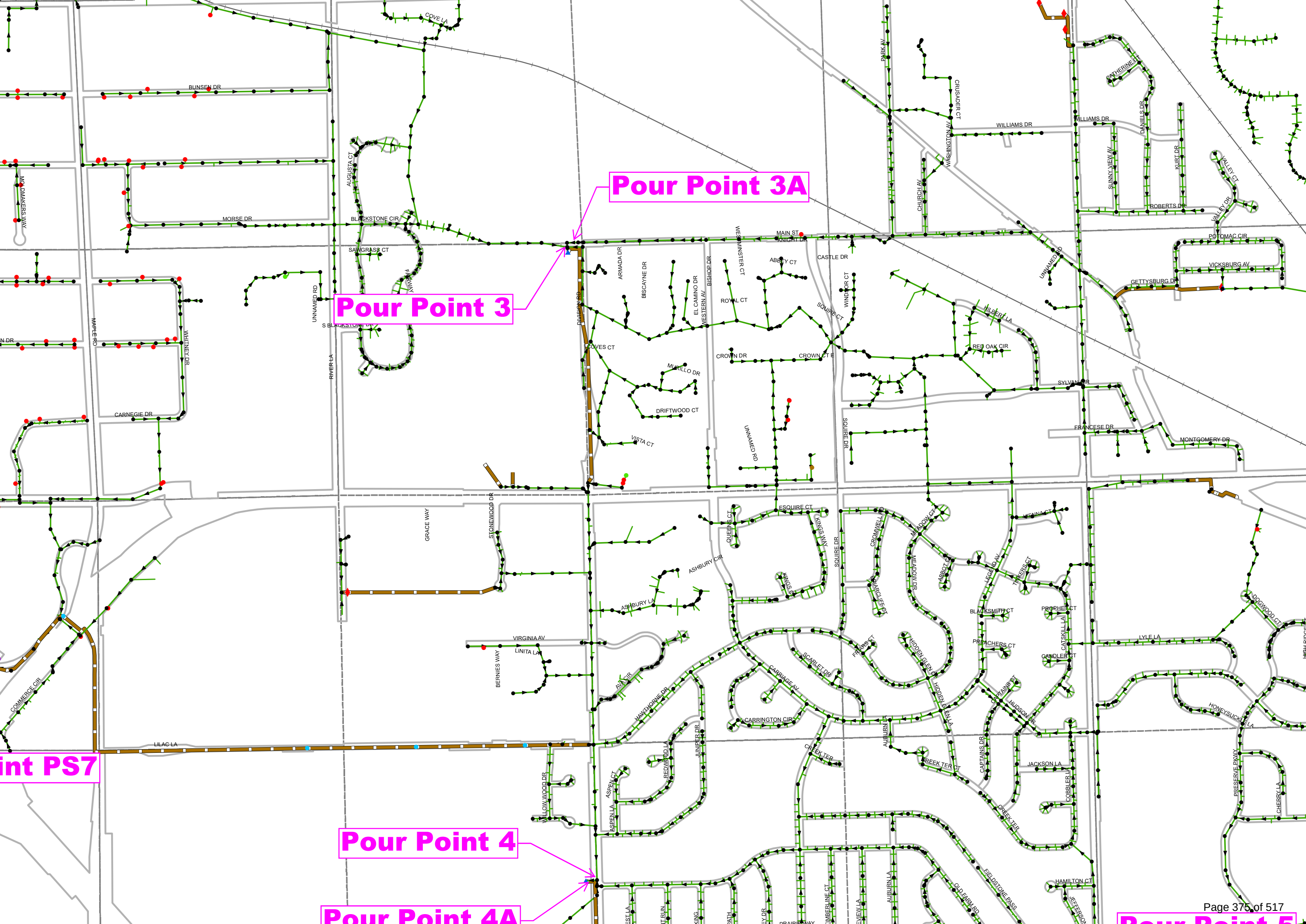
Client	Village of Richfield
Project	Germantown Sanitary and Water Connections
Prepared By	M. Stephan / B. Greisch

Project No.	R5771-0017
Date	9/27/2023
Revised Date	

Item	Unit	Qty	Unit Price	Cost
<u>Sanitary Sewer</u>				
Connection to Existing MH @ Freistadt	EA	1	\$20,000.00	\$20,000.00
12-inch PVC Sanitary Sewer	LF	7390	\$500.00	\$3,695,000.00
6-inch Force Main - Open Cut or Directional Drilled	LF	4000	\$200.00	\$800,000.00
Sanitary Sewer Manholes (25 Unit)	VF	435	\$600.00	\$261,000.00
Rock Excavation (Sanitary Sewer)	CY	1900	\$140.00	\$266,000.00
18-inch Steel Casing under RR	LF	120	\$900.00	\$108,000.00
Air Release / Air Vacuum Valve and Vault	EA	2	\$12,000.00	\$24,000.00
6-inch Plug Valve	EA	4	\$3,000.00	\$12,000.00
<u>Watermain - South</u>				
16-inch PVC Water Main - open cut	LF	7300	\$200.00	\$1,460,000.00
16-inch Water Main - Directional Drilled along RR and Under I-41	LF	1550	\$200.00	\$310,000.00
12-inch Water Main - Directional Drilled along RR and Richfield Parkway	LF	2560	\$180.00	\$460,800.00
Hydrant Assembly	EA	29	\$12,000.00	\$348,000.00
16-inch Butterfly Valve	EA	14	\$10,000.00	\$140,000.00
12-inch Gate Valve	EA	3	\$7,000.00	\$21,000.00
24-inch Steel Casing under RR	LF	120	\$1,250.00	\$150,000.00
<u>Watermain - From Rockfield Rd.</u>				
16-inch PVC Water Main - open cut	LF	2620	\$200.00	\$524,000.00
16-inch Water Main - Directional Drilled	LF	300	\$200.00	\$60,000.00
Hydrant Assembly	EA	9	\$12,000.00	\$108,000.00
16-inch Butterfly Valve	EA	4	\$10,000.00	\$40,000.00
30-inch Steel Casing under I-41	LF	200	\$1,500.00	\$300,000.00
<u>Street</u>				
Reconstruct Freistadt Road	LF	1400	\$250.00	\$350,000.00
Tracking Pads	EA	4	\$2,500.00	\$10,000.00
Silt Fence	LF	15000	\$2.50	\$37,500.00
Traffic Control	LS	1	\$20,000.00	\$20,000.00

Subtotal Construction	\$9,525,300
Contingency	\$800,700
Engineering and Administration	\$1,500,000
TOTAL PROJECT COST	\$11,826,000

Appendix N – Sanitary System Map with Flow Analysis Points



Pour Point 3A

Pour Point 3

Pour Point PS7

Pour Point 4

Pour Point 4A

Appendix O – Conceptual Sanitary Sewer System Extension & Expansion – Northeast Area

Appendix P – Conceptual Sanitary Sewer System Extension & Expansion – Northwest Area

"Gateway North" Basin
- Future SSSA Tributary to Main Street PS, Partial unsewered in existing SSSA
- New PS constructed in undeveloped area
- Approx. 6,500 LF 12" gravity sewer to new PS
- Approx. 1,600 LF 6" FM to new 12" sewer in Rockfield Rd.
- Approx. 1,400 LF 12" gravity sewer in Rockfield Rd. to existing 12" sewer in Gateway X-ing

Rockfield Rd

"Gateway Central" Basin

Germantown

Goldendale Rd

"Gateway East" Basin
- Future SSSA Tributary to Main Street PS
- New gravity sewers to existing 18" sewer in Goldendale Rd.
- Approx. 1,300 LF of 15" gravity sewer
- Approx. 8,700 LF of 12" gravity sewer

NODE GW-E.6
FG +/- 960.0
12" IE = 934.6
D = 25.4'

NODE GW-E.9A
FG +/- 952.0
12" IE = 920.2
D = 31.8'

NODE GW-E.8A
FG +/- 935.0
12" IE = 911.9
D = 23.1'

NODE GW-E.7A
FG +/- 936.0
12" IE = 907.6
D = 28.4'

NODE GW-E.5
FG +/- 945.0
12" IE = 923.4
D = 21.6'

NODE GW-E.6A
FG +/- 925.0
12" IE = 904.3
D = 20.7'

NODE GW-E.4
FG +/- 940.0
12" IE = 919.3
D = 20.7'

Holy Hill Rd

NODE GW-E.5A
FG +/- 926.5
12" IE = 903.9
D = 22.6'

NODE GW-E.4A
FG +/- 918.0
12" IE = 903.9
D = 22.6'

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Approval of the Development Agreement between the Village and Truck Country

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

The attached development agreement has been negotiated between Village staff and Truck Country. The Truck Country development does not involve Truck Country building and contributing public infrastructure, so the development is substantially private. The development also no longer involves cooperation with the Richfield utilities extension.

In the same vicinity of this project, the Village has committed, through previously approved TID projects, to:

- Construct High Point Pass over the existing private road south of Holy Hill Rd to the railroad.
- Extend utilities to the main driveway of Truck Country

Additional items that will come before the PWHC and Village Board regarding the related projects could include:

- Award of the construction contract for High Point Pass and utility extensions.
- Agreements with MLG for acquiring right of way and an easement for utilities.

ATTACHMENT:

1. Truck Country - Germantown Dev Agreement - For PW Committee

STAFF RECOMMENDATION:

Recommend approval of the development agreement with Truck Country to the Village Board for ultimate approval.

ACTION BY Committee:

DEVELOPMENT AGREEMENT

THIS AGREEMENT is entered into by and between the Village of Germantown, a municipal corporation of the State of Wisconsin located in Washington County (the "Village"), and Truck County of Wisconsin, Inc., a Wisconsin Corporation ("Developer").

RECITALS:

WHEREAS, Developer has a contractual right to purchase approximately 15.85 acres of land located at N128W21795 Holy Hill Rd in the Village of Germantown (Tax Key No. GTNV 182-987), which is more fully described in the attached Exhibit A (the "Property"); and

WHEREAS, Developer intends to develop the Property as a truck sales and service facility consisting of an approximately 37,760 sq. ft. building (the "Project"); and

WHEREAS, the Project will necessitate the expansion of the Village's public roadway infrastructure and water and sanitary sewer facilities to serve the Property, including water and sanitary sewer mains, roadway improvements, and storm water facilities being comprised of the "Village's Plans" (attached hereto as Exhibit B-1) and the "Developer's Plans" (attached hereto as Exhibit B-2), as the case may be; and

WHEREAS, the public works schedule and budget of the Village does not now include the improvements required for the Project without a considerable delay in the installation of the improvements unless this Agreement is entered into by the parties; and

WHEREAS, the Village seeks to protect the health, safety and general welfare of the Village as a whole and, in particular, property owners who abut the site or are potentially affected by the project through application of the Municipal Code of Germantown (the "Municipal Code") and rules and regulations of governmental agencies with jurisdiction.

NOW, THEREFORE, in consideration of these Recitals, which are hereby made a part of this Agreement, the mutual agreements, benefits and responsibilities outlined herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

ARTICLE I – DEVELOPER OBLIGATIONS

1.01 GENERALLY. It is the intent of this Agreement that all public improvements included and described as "Developer Obligations" herein and detailed in the Developer's Plans shall be installed on the Property, in a good and workmanlike manner by Developer with the exception of those improvements located offsite and to be installed by the Village as detailed in the Village's Plans and Article II. For purposes of clarification, all public improvements located outside the Property shall be the responsibility of the Village.

1.02 IMPROVEMENTS. Developer shall, except as may otherwise be provided herein, generally prepare the Property for use as a business to include site grading and the installation of internal driveways and water, sanitary sewer, storm water and other utilities as is more fully described herein. Additionally, Developer shall undertake the construction of an approximately 37,760 sq. ft. building with a minimum assessed value including the real estate thereunder of \$_____ to be commenced not later than _____, and substantially completed not later than September 2026, which dates shall be contingent upon the timely completion of the Village's construction of the contemplated public improvements herein. Further, if the Village has not completed the public improvements contemplated by this Agreement within the timeframes set forth in this Agreement, Developer shall have the option of completing the uncompleted utility work at the Village's sole expense without prejudice to any and all remedies available at law or equity to Developer.

1.03 WATER SUPPLY FACILITIES. It is intended that the Project will tie into the water main installed by the Village at the intersection of the main driveway for the Project and the public road described in Sec. 1.09, with the Developer being responsible for the cost and installation of all necessary service laterals located on the Property.

Design and installation of the service laterals shall conform to Sec. 18.08(8) of the Municipal Code and the Village of Germantown Infrastructure Standards Development Handbook, Sec. 6.0 "Water Distribution System Requirements." All such documents shall be prepared in accordance with state and local standards by a Professional Engineer registered in the State of Wisconsin and submitted stamped and signed for review by the Village Engineer and by all applicable governmental agencies. Implicit in this provision is the right of the Village Engineer and Building Inspector to require reasonable document revisions and modifications in the reasonable best interests of the Village.

The Developer shall allow Village to construct on its timeline, however, Developer's performance of its obligations shall be dependent and conditioned upon the Village's timely construction of the public improvements. In addition, the Developer may, at Developer's sole cost and expense, connect directly to the available water main in Holy Hill Road to service their parcel in the event the Village's schedule does not accommodate the Developer's schedule.

1.04 SANITARY SEWER FACILITIES. It is intended that the Project will tie into the sanitary sewer main installed by the Village at the intersection of the main driveway for the Project and the public road described in Sec. 1.09, with the Developer being responsible for the cost and installation of all necessary service laterals located on the Property.

Design and installation of the service laterals shall conform to Sec. 18.08(7) of the Municipal Code and the Village of Germantown Infrastructure Standards Development Handbook, Sec. ____ "Sanitary Sewer Distribution System Requirements." All such documents shall be prepared in accordance with state and local standards by a Professional Engineer registered in the State of Wisconsin and submitted stamped and signed for review by the Village Engineer and by all applicable governmental agencies. Implicit in this

provision is the right of the Village Engineer and Building Inspector to require reasonable document revisions and modifications in the reasonable best interests of the Village.

The Developer shall allow Village to construct on its timeline, however, Developer's performance of its obligations shall be dependent and conditioned upon the Village's timely construction of the public improvements. In addition, the Developer may, at Developer's sole cost and expense, connect directly to the available sanitary sewer main in Holy Hill Road to service their parcel in the event the Village's schedule does not accommodate the Developer's schedule.

1.05 OTHER UTILITIES. Developer shall be responsible for and cause electrical power, telephone and/or other similar telecommunications facilities, and natural gas facilities to be installed on the Property. All such services shall be located underground in accordance with applicable codes.

1.06 EROSION CONTROL. In order to minimize and control erosion, siltation, sedimentation and washing of soils during the period of construction, Developer shall evaluate, initiate and undertake such measures as may be necessary from time to time and as the Village Engineer may reasonably require or direct pursuant to Sec. 17.441 and Chapter 29 of the Municipal Code, and, in addition, shall undertake the following measures to insure sediment control:

- (1) Developer shall file and comply with an erosion control plan.
- (2) Developer is required to obtain an erosion control permit from the Building Inspection Department. Developer is required to maintain all erosion control until the final top-soiling, grading, seeding, mulching, sodding, has been completed for the entire project and until the vegetation has sufficient growth to control the run-off as shall be reasonably determined by the Village engineering staff. Silt fencing shall be removed by Developer promptly, following establishment of vegetation on all disturbed areas sufficient to control run-off from the site, as shall be reasonably determined by the Village's engineering staff.
- (3) Developer shall promptly undertake topsoiling, fine grading, seeding and fertilizing of all drainage easements and areas within the public right-of-way and all approved drainage swales, all in accordance with the Developer's Plans after installation of all electric, gas, telephone, cable TV and drainage utilities and appurtenances. All surface restoration shall be completed prior to acceptance of dedicated public improvements, if any, by the Public Works Committee.
- (4) Off-site sediment tracking is closely monitored by Village and County Inspectors. To assist in reduction of sediment infiltration of ponds and streams, violations of tracking practices shall result in the Village cleaning the streets traveled by construction equipment with a street sweeper, as deemed necessary by the Village Building Inspector, Engineer and/or their assignees. Such cleaning shall not exceed a frequency of twice weekly. Developer shall be charged and invoiced at standard rates set by the Village for any such street sweeping services rendered,

and Developer shall remit payment within thirty (30) days of receipt of such invoice(s). Notwithstanding the foregoing, the right of the Village to respond to off-site sediment tracking hereunder shall not excuse Developer from strict compliance with required erosion control measures or be considered a substitute or replacement for such measures.

(5) Developer shall maintain all vegetation on undeveloped parcels and within drainage areas in a neat, orderly and weed-free appearance.

1.07 STORM WATER DRAINAGE FACILITIES. Developer shall design and submit to the Village Engineer for approval storm water drainage facilities, if required, adequate to accommodate expected surface water flow on and from the Property, in accordance with Sec. 18.08(10) of the Municipal Code and Chapter 13 of the Milwaukee Metropolitan Sewerage District rules.

1.08 LANDSCAPING. Developer shall complete all landscaping in accordance with the landscaping plans to be filed with and approved by the Village and seeding, matting/mulching or sodding of Village right-of-way to the extent shown on the Developer's Plans, all to be completed prior to acceptance of the improvements by the Public Works Committee. Acceptance of the improvements by the Public Works Committee will not be delayed where landscaping would be completed but for adverse weather conditions or seasonality impacting completion. Any delay in completion due to adverse weather or seasonality shall not relieve Developer of the obligation to promptly complete the landscape improvement when weather permits.

1.09 STREET IMPROVEMENTS. The Village intends on installing a new public roadway along the eastern property line of the Property as shown on the attached Exhibit _____. Developer presently has lands under contract for this purpose. Developer shall either complete the transaction and then dedicate the roadway area to the Village, or shall assign the purchase agreement to the Village to allow the Village to acquire the roadway area. In the event that the Developer acquires the roadway area, the Village shall contribute \$30,000 for the acquisition within 30 days of written request by Developer. If Developer assigns the purchase agreement to the Village, such assignment shall be accompanied by a monetary contribution of \$206,700.

The Village shall design plans, specifications and contract documents for all street/driveway improvements to provide access to the Property. This street construction shall include those driveway access improvements to abutting the development in accordance with Sec. 18.08(15) of the Municipal Code. All such documents shall be prepared in accordance with state and local standards by a Professional Engineer registered in the State of Wisconsin and submitted stamped and signed for review by the Village Engineer and by all applicable governmental agencies. Implicit in this provision is the right of the Village Engineer and Building Inspector to require reasonable document revisions and modifications in the reasonable best interests of the Village.

The Village intends on completing the roadway by August 31, 2025, and will coordinate with the Developer to ensure access to the Property during construction. The

Developer shall allow Village to construct on its timeline. Alternatively, Developer may accelerate its schedule and the Developer may build and contribute the street improvements at Developer's sole cost.

1.10 ADDITIONAL REQUIREMENTS.

- (1) Developer shall, by the date of substantial completion of the Project, remove the existing advertising billboard sign (located in the southeast part of the Property) from the Property.
- (2) The buildings and improvements to be constructed on the Property and their uses shall be in compliance with all applicable municipal zoning ordinances of the Village.

1.11 DRIVEWAY IMPROVEMENTS. Access to the Property is presently through a driveway located on the north side of the Property. For the purposes of constructing the Project, Developer will be allowed to utilize this driveway "as is" (i.e., in the same encroachment alignment and with gravel construction) on a temporary basis as described more fully in Sec. 2.02. Once the allowed temporary use terminates, Developer shall either:

- (1) remove the north driveway; or
- (2) modify it into one that allows "emergency access only" where the driveway is physically gated and inaccessible to the general public and enter into a basic right-of-way encroachment agreement with the Village.

ARTICLE II – VILLAGE OBLIGATIONS

2.01 PUBLIC UTILITY EXTENSIONS. The Village shall design, construct and install an extension of both the public water main and the public sanitary sewer from their current terminus located on Holy Hill Rd, east of 48th St, to the intersection of the Project's main driveway and the public road described in Sec. 1.09. The design and construction of the public utility extensions shall be done pursuant to the Village's Plans and shall be sufficient to serve and accommodate the Project on the Property. The Village anticipates completion of all public utility extension work, including appropriate testing, inspection and completion of "punch-list" items, ready and available for connection to Developer's utility work, no later than August 1, 2025. Alternatively, sanitary and water infrastructure exists in Holy Hill Road and is available for Developer to connect.

2.02 ROADWAY IMPROVEMENTS. Upon acquisition of the roadway area as described in Paragraph 1.09, the Village, entirely at its own expense shall design, construct and install improvements to the public road, as shown on the Plans, from the Holy Hill Road south to the railroad owned by WisDOT pursuant to the Village's Plans. The Village's work shall be substantially complete it not later than August 31, 2025. As part of the construction, the following driveway access points will be modified (Developer shall be responsible for the installation of the driveways located on the Property):

- (1) North driveway will remain accessible during construction and then closed or converted to an emergency access with the completion of construction work for the Project and construction of the public roadway.
- (2) South driveway/Private Road to be primary access to the Property;
- (3) Primary driveway on east side of the property located at N128 W21661 Holy Hill Rd (GTNV 182-988) to be provided as shown on plans;

In addition, the Village shall be responsible for future public road improvements (including but not limited to Lighting and Signals for the extension of Holy Hill Road to the south access road and frontage along the Property and facilities to be dedicated to the Village, and the related utility systems) that may be required to serve and accommodate the completed full development on the Property, including any improvements (direct or indirect) required as a result of any current or future traffic impact analysis or similar studies that serve as a basis for current or future improvement requirements.

The Village's financial commitment hereunder is limited to those costs traditionally paid for by the Village, and notwithstanding anything in this paragraph, WisDOT, Washington County and/or future developers on other properties within the Village shall contribute to these costs in the customary manner.

2.03 FINANCING. In order to finance the Village's obligations hereunder and under the applicable TID Project Plan (the "TID Obligations"), the Village may issue bonds, notes or other debt instruments of its choice (the "Bonds"). It is intended that the principal and interest on the Bonds be paid from tax incremental revenues generated from the applicable TID as it is developed and other real estate within the TID, and/or capitalized interest available under the Bonds, in accordance with Wis. Stat. § 66.1105. The Bonds issued to finance the TID Obligations shall be in an amount adequate to finance all costs for such the TID Obligations. The Village shall not assess the Property, nor charge Developer or any subsequent owner of any parcel of the Property, any "impact" or other assessment or fees which have the effect of (a) reimbursing the Village for improvements financed by the Bonds, or (b) paying the Village for municipal services provided to the District on a different basis than similar services supplied to other land in the Village; provided, however, that following completion of the TID Obligations, the Village may specially assess land in the District for subsequent repairs and replacements to the public improvements installed as part of the TID Obligations to the same extent and in the same manner that the Village assesses for repair or replacement of any other municipal improvement upon similar real estate within the Village. The preceding sentence shall not prevent the Village from requiring the payment of (i) general real estate tax assessments, (ii) utility reserve capacity assessments (RCAs), hook-up fees and service charges, and (iii) any other similar "impact" fees or other assessments, fees or charges, as long as they apply consistently to all land in the Village.

ARTICLE III - CONSTRUCTION

3.01 GENERALLY. Developer, entirely at its own expense, shall construct and install improvements on the Property contemplated by this Agreement to be installed by

the Developer in accordance with the Developer's Plans. A pre-construction meeting shall be scheduled between Developer, the contractors and the Village prior to commencement of any construction on the site improvements to confirm coordination of construction. Developer shall, prior to such meeting, notify all utilities of the planned construction and the date and location of the pre-construction meeting.

3.02 OCCUPANCY PERMITS. No occupancy permits under Chapter 14 of the Municipal Code shall be issued until connected to water utility, sanitary sewer utility, and the storm sewer improvements are installed, inspected by the Village utilities and approved by the Village Engineer, all record-drawings are filed with the Village approved by the Village Engineer in accordance with Section 3.05 below, and all other improvements required by this Agreement are installed and accepted by the Public Works Committee unless otherwise agreed to by Village staff.

3.03 REQUIRED PLANS. Developer shall submit to the Village Engineer for approval all of the Developer's Plans, profiles and specifications required by Sec. 18.09(3) of the Municipal Code. Required plans for improvements shall include the following:

- (1) Site grading plan; and
- (2) Water service connection plans; storm sewer drawings, sanitary sewer connection plans; and
- (3) Landscaping Plans; and
- (4) Erosion and sedimentation controls.

In addition, Developer shall submit to the Village Engineer for approval all specifications before authorization for construction will be given. Implicit in this provision is the right of the Village Engineer to require reasonable document revisions and modifications to conform to Municipal Code.

3.04 EXISTING FLORA. Developer shall, in accordance with Sec. 18.09(5) of the Municipal Code, make reasonable efforts to protect and retain all existing trees, shrubbery, vines and grasses located within and on the berm along the northern edge of the Property and within the wetland areas which are protected and retained (e.g., those for which a fill permit or other permit has not been granted). Such trees are to be protected and preserved during construction in accordance with sound conservation practices, including the preservation of trees by use of wells or islands or retaining walls whenever abutting grades are altered.

3.05 RECORD-DRAWING DOCUMENTS. Developer shall, not later than sixty (60) days following Final Acceptance (as defined below) of the improvements, provide the Village with record-drawing documents in digital format using the latest version of AutoCAD and on non-fading, double matte mylar (4 mil minimum thickness) of the storm water management facilities, and any public sanitary or water facilities constructed by the Developer. Reproducible copies of all final plans supplied by Developer

to the Village pursuant to Sec. 18.09(3) of the Municipal Code shall include record-drawing information for all improvements. All record-drawing measurements shall include horizontal and vertical location referenced to the Village coordinate system (Wisconsin State Plane Coordinate System, South Zone, based on North American Vertical Datum of 1988 (NAVD 88)). If Developer is unable to furnish the location and digital files as required, the Village Engineer shall complete the record-drawing plans with costs charged back to Developer. Each original or copy shall be certified by Developer's engineer and/or architect, in accordance with requirements of the Village Engineering Department.

ARTICLE IV - DEDICATION AND ACCEPTANCE

Developer agrees that the improvements will not be accepted by the Village until (i) all applicable outstanding charges to be paid by Developer under the Municipal Code have been paid in full, (ii) affidavits and lien waivers are received by the Village indicating that all contractors providing work, services or materials in connection with the improvements have been paid in full for all such work, services and materials, and (iii) the Village has received evidence satisfactory to it that no liens or other encumbrances (except those approved in writing by the Village) encumber the improvements.

Developer shall submit a written request to the Village Engineer for acceptance of the public improvements. The Village Engineer will order an inspection of the improvements by the Village Inspector and a punch-list of corrections (if required) shall be forwarded to Developer for completion prior to acceptance. Upon completion of corrective action and satisfaction of the conditions set forth in this Agreement, Developer shall inform the Village Engineer in writing and request acceptance by the Public Works Committee and upon written request by Developer, the Village shall accept the improvements (the "Final Acceptance"). The acceptance of the public improvements by the Public Works Committee shall commence running of the one-year warranty period provided for and in accordance with Section 8.01 of this Agreement.

ARTICLE V - PAYMENT OF FEES

5.01 GENERALLY. Developer shall pay all fees, expenses, costs and disbursements which Developer is required to pay, pursuant to Sec. 18.10 of the Municipal Code. Unless required to be pre-paid as a condition of the approval of this Agreement, such amount shall be paid by Developer within thirty (30) days after being billed by the Village. Nothing in this provision, nor in the remaining provisions of this article, shall be construed as exempting Developer, its successors and assigns, from such future fees, expenses, costs, or assessments which might be imposed by way of general operation of law or ordinance, and as otherwise assessable against properties within the Village. A reasonable estimate of fees described herein has been provided by the Village to Developer and shall be included in the "Village Fee Schedule" attached hereto as Exhibit C. Final fees set to be paid by Developer shall not materially increase from the amounts shown on the Village Fee Schedule except as may result from a change in Developer's Plans.

5.02 DEVELOPMENT FEES.

(1) Impact Fees. As a condition of the approval of this Agreement by the Village, Developer shall pay to the Village Treasurer tax impact fees/Residential Unit that have been determined in accordance with Sec. 3.14 of the Municipal Code. These fees shall consist of the following:

- (a) Water: \$832.00/REC.
- (b) Fire: \$0.63549/\$1000 Building Cost.
- (c) Police: \$ 0.2809/\$1000 Building Cost.

(2) Sewer Connection Fee. As a condition of the approval of this Agreement by the Village, Developer shall pay to the Village Treasurer sewer connection fee that have been determined in accordance with Sec. 15.07 of the Municipal Code and Resolution No. 27-07. These fees shall consist of the following:

- (a) Sewer Connection Fee: \$4,060.00/REC.

(3) A REC is a residential unit equivalent for pumping and storing municipal water or as per Section 15.07(2) of the Municipal Code and per Resolution No. 27-07, establishing the sewer connection charge. These fees are payable at the time of Building Permit issuance. One year following the issuance of the occupancy permit, Water and the Sewer Connection Fees paid hereunder shall be reviewed and adjusted based upon the average actual usage with a final settlement to be completed and payable within thirty (30) days of the completion of the review.

5.03 IMPROVEMENT REVIEW FEE. Developer shall pay a fee based on the cost of required development improvements for all phases of the project to cover the cost of the Village for checking and reviewing plan and specification documents. Such improvement review fee shall be as provided by Sec.18.10 (3) of the Municipal Code. The fee shall be calculated as follows:

- 2.25% of the first \$250,000 of construction costs of public facilities/improvements; and
- 1.75% of the next \$250,000 of construction costs of public facilities/improvements; and
- 1.25% of construction costs of public facilities/improvements which exceed \$500,000.

The fee as calculated based upon the required improvements hereunder is as shown in Exhibit C.

5.04 PROFESSIONAL FEES AND INSPECTION FEES. In accordance with Sec. 18.10(7) and (8) of the Municipal Code, Developer shall be responsible for all reasonable professional (technical and legal) fees incurred by the Village solely in

connection with the improvements constructed by Developer within the Property. The Village shall be reimbursed for reasonable engineering and inspection services, whether provided by a staff engineer or technician or designated employee or by a consultant, and shall also be reimbursed for reasonable services rendered by the Village Attorney.

5.05 DATA CONVERSION FEE. In accordance with Section 18.10(13) of the Municipal Code, Developer shall be responsible for all fees associated with the upload of Geographic Information System data incurred by the Village in connection with this project.

5.06 DEVELOPMENT AGREEMENT REVIEW FEE. In accordance with Section 18.10(3) of the Municipal Code, the Developer shall pay a development agreement review fee of a minimum of \$5,000.

ARTICLE VI - SPECIAL PROVISIONS

6.01 SEWER CONNECTIONS. Developer shall install sewer connections, grease interceptors and sampling manholes at the Property as required by Village code, however, any such connections, grease interceptors or sampling manholes associated with any specific building development shall not be the responsibility of Developer under this Agreement.

6.02 WETLAND AND FLOODPLAIN CONDITIONS. It shall be an explicit condition that Developer shall comply with all required regulations and shall obtain all necessary approvals in writing from the appropriate agencies relative to the wetlands and floodplain areas which may be on the Property, including a wetlands delineation report. Approval of the subject development plan by the Village Plan Commission shall not be construed to be Village approval of intrusions into wetland or floodplain areas, or Village approval of filling or modifications to wetlands or floodplain areas. Developer, except as shown on the approved plans, will not be allowed to grade, fill, or conduct any other type of development within seventy-five (75) feet of the high water mark of a navigable waterway or twenty-five (25) feet from a wetland, without first implementing appropriate shoreland protection measures and/or receipt of required approvals to conduct such work. A note regarding this restriction shall be placed on the Final Plat, if any.

ARTICLE VII - FINANCIAL GUARANTY

7.01 AMOUNT. Developer shall at the time of issuance of the initial building permit pay to the Village such funds as itemized in the Village Fee Schedule, in the form of a cash deposit or letter of credit, which shall assure the faithful performance of Developer's payment of such fees. The Village shall maintain these funds as security and upon an event of default by Developer pursuant to Section 9.02(1), the Village shall have the right to draw upon the security. Upon Developer's payment of any cost item set forth on the Village Fee Schedule, the Developer may request, and the Village so grant, a commensurate reduction in the cash deposit or letter of credit. The Village shall provide regular updates as to the balance of the funds. Upon final acceptance of the public improvements, there shall be a final settlement on the funds based upon actual costs, with

any excess cash balance or the letter of credit instrument, as the case may be, promptly returned to Developer.

7.02 LIABILITY NOT RELEASED. All deposits given hereunder are security devices only which in no manner limit the liability of Developer to the Village, however arising and regardless of the amount.

7.03 RESERVATION OF ASSESSMENT RIGHTS. In addition to the remedies for default provided to the Village by this financial guaranty, the Village reserves the right subject to the notice and cure requirements set forth in Section 9.02, to impose special assessments or charges for any amounts to which it is specifically entitled by virtue of this Agreement for improvements specifically provided for herein upon the Property. Such special assessments or charges shall be collected on the next succeeding tax roll as are other special assessments or charges. As specifically related to Developer's obligations under this Agreement, this provision constitutes Developer's Waiver of Notice and Consent to all special assessment or special charges proceedings which may be required by law.

7.04 REMEDIES. At the option of the Village and subject to the notice and cure requirements set forth in Section 9.02, a material breach of this Agreement shall result in the Village having the right to withhold the initial issuance of any and all occupancy permits until such breach is cured. In addition, subject to the notice and cure requirements set forth in Section 9.02, the Village shall have the right to remedy such breach at its expense and assess the cost thereof against the subject property and/or draw upon the financial guaranty (whether certified check or letter of credit) to pay for the necessary cost for the Village to complete the public improvements in accordance with the Plans. All remedies as stated herein shall be deemed alternative remedies, and cumulative as and to such other remedies in law or equity as the Village may assert and herein reserves.

ARTICLE VIII - GUARANTEE AND INDEMNIFICATION

8.01 GUARANTEE OF IMPROVEMENTS. Developer's contractors shall guarantee all dedicated improvements against defects due to faulty materials or workmanship which appear within one (1) year from the date of Final Acceptance by the Village, as delivered in Article IV of this Agreement. Developer's contractors shall repair or replace any such improvements as reasonably required by the Village Engineer to eliminate such defects and shall pay for the actual damages incurred by Village property directly resulting from such defects. Each repair or replacement performed pursuant to this paragraph shall be guaranteed for one (1) year from the completion thereof.

8.02 GENERAL INDEMNIFICATION. Developer shall indemnify and hold the Village harmless against and from any and all liability, judgments, costs and expenses incurred by the Village as the result of any action by whomsoever or whenever brought or obtained against the Village or Developer, or both, which may in any manner result from or arise in the course of, out of, or as a result of the negligence of Developer, its agents, contractors or employees (except to the extent caused by the negligence or willful misconduct of the Village, its employees, agents or contractors), in connection with Developer's performance of this Agreement. In every case where judgment is recovered

against the Village and where notice of the pendency of the suit and an opportunity to defend the same has been given to Developer within ten (10) days after service of such suit upon the Village, the judgment shall be conclusive upon Developer, not only as to the amount of damages, but also as to its liability to the Village. The Village shall indemnify and hold Developer harmless against and from any and all liability, judgments, costs and expenses incurred by Developer as the result of any action by whomsoever or whenever brought or obtained against the Village or Developer, or both, which may in any manner result from or arise in the course of, out of, or as a result of the negligence of the Village, its agents, contractors or employees (except to the extent caused by the negligence or willful misconduct of the Developer, its employees, agents or contractors), in connection with the Village's performance of this Agreement. In every case where judgment is recovered against Developer and where notice of the pendency of the suit and an opportunity to defend the same has been given to the Village within ten (10) days after service of such suit upon Developer, the judgment shall be conclusive upon the Village, not only as to the amount of damages, but also as to its liability to Developer.

8.03 INDEMNIFICATION FOR ENVIRONMENTAL CONTAMINATION. Developer shall indemnify, and hold the Village and its officers, agents and employees harmless from and against any and all losses, damages, costs, expenses, liabilities, obligations, claims or suits (including, without limitation, reasonable attorneys' fees, fines and penalties) resulting from or relating in any way to the presence of toxic or hazardous material or substances present in or on the real property dedicated or conveyed to the Village, pursuant to, or in connection with this Agreement, provided that such materials or substances were likely present at the time of such dedication or conveyance; and, further provided, that such materials or substances exist on the Property because of the acts of Developer or Developer's contractors or employees. For purposes of this Agreement, "toxic or hazardous material or substances" is defined as any pollutant, contaminant, waste or toxic or hazardous chemicals, wastes or substances, including, without limitation, asbestos, urea formaldehyde insulation, petroleum, PCBs, lead, air pollutants, water pollutants, soil pollutants and other substances defined as hazardous or toxic or words of similar import under federal, state or local statute, rule, regulation or order of any government entity having jurisdiction over the control of such wastes or substances.

8.04 INDEMNIFICATION CLAIMS. Upon either the Village or Developer becoming aware of the occurrence of any event or the existence of any state of facts in respect of which such party has or will have a claim for indemnification under this Agreement ("Claim"), as soon as reasonably practicable thereafter:

- (1) The indemnified party shall provide the indemnifying party notice of the losses, damages, costs, expenses, liabilities, obligations, claims or suits (including, without limitation, reasonable attorney's fees, punitive damages, fines, penalties, and consequential damages) as and when reasonably apprehended. Notwithstanding anything to the contrary contained herein, the indemnified party's failure to timely notify the indemnifying party shall not prevent or in any way impair recovery by such party unless the indemnifying party is materially prejudiced as a result of such failure;

(2) Subject to paragraphs (c) through (f) below, the indemnifying party diligently, at its own expense, shall control and shall be responsible for the defense, negotiation and/or settlement of the Claim, including the diligent performance of any remediation associated therewith;

(3) The indemnified party may at its own expense hire counsel or consultants to monitor the Claim;

(4) The indemnifying party shall not, without the prior written consent of the indemnified party, which consent shall not be unreasonably delayed, withheld or conditioned, settle any Claim;

(5) The indemnifying party shall lose its right to defend, negotiate and settle any Claim if, in the reasonable judgment of the indemnified party, it fails to diligently defend, negotiate or settle such Claim. In the event that the indemnifying party has lost its right to defend, negotiate or settle any Claim: (i) the indemnified party shall have the right, without prejudice to its right of indemnification hereunder, at the indemnifying party's cost and expense, to defend, negotiate and settle any Claim, and (ii) the indemnifying party shall pay such reasonable costs and expenses incurred by the indemnified party within twenty (20) days of receipt of written notice from the indemnified party;

(6) If the indemnifying party does not timely assume responsibility for any Claim, the indemnified party shall have the right, without prejudice to its right of indemnification hereunder, at the sole cost and expense of the indemnifying party, to assume control of the defense, negotiation and/or settlement of the Claim, and may engage counsel or other agents, consultants, and contractors to contest, defend, settle or otherwise dispose of such Claim, including, without limitation, hiring any environmental consultant or contractor to perform any remediation necessary to address the Property or the toxic or hazardous materials or substances at the Property.

8.05 CONTRACTOR INSURANCE. Contractors engaged by Developer to perform the work required by this Agreement within public rights-of-way shall, prior to commencing such work, submit to the Village proof of the following:

(1) Unemployment and Workers' Compensation insurance which is in strict compliance with state laws.

(2) Personal and public liability insurance having limits of not less than \$1,000,000.00.

(3) Property damage insurance having limits of not less than \$500,000.00.

(4) Fire and extended coverage which shall insure against losses and damage to completed work, materials or equipment until the same has been accepted by the Village.

ARTICLE IX - TIME OF COMPLETION

9.01 COMPLETION DATE. Subject to the terms of this Agreement, Developer shall complete buildings or building of the Project, which shall include installation of utility service, construction of connections to the water utility and sanitary sewer system stormwater facilities, private road with a driveways, parking lots, landscaping berms, and all other site work and improvements as may be required pursuant to the Developer's Plans for the Project, consistent with the schedule identified in Section 1.02. Each building shall be deemed completed upon a certificate of occupancy (whether the certificate is temporary, final, conditional or unconditional) being issued by the Village and the Village accepting the water and sanitary sewer main extensions in accordance with the terms of this Agreement.

9.02 DEFAULT.

(1) The occurrence of any one or more of the following events shall constitute a default by Developer:

(a) Developer fails to pay any amounts when due under this Agreement and further fails to pay such amounts on or before fifteen (15) days following written notice of such failure; or

(b) Developer materially breaches or fails to perform timely or observe timely any of its covenants or obligations under this Agreement (other than relating to the payment of money), and such failure shall continue for thirty (30) days following notice thereof from the Village (or such longer period of time as is otherwise expressly set forth herein or as is reasonably necessary to cure the default as long as the Developer has commenced the cure of the default within the thirty (30) day period, is diligently pursuing the cure of the default and as long as the default is cured not later than one hundred twenty (120) days following the notice thereof from the Village or such longer period of time as is reasonably agreed to by the Village); or

(c) Developer:

(i) Makes a general assignment for the benefit of creditors or to an agent authorized to liquidate any substantial amount of its assets; or

(ii) becomes the subject of an "order for relief" within the meaning of the United States Bankruptcy Code, or files a petition in bankruptcy, for reorganization or to effect a plan or other arrangement with creditors; or

(iii) has a petition or application filed against it in bankruptcy or any similar proceeding, or has such a proceeding commenced against it and such petition, application or proceeding shall remain

undismissed for a period of ninety (90) days or Developer shall file an answer to such a petition or application, admitting the material allegations thereof; or

(iv) applies to a court for the appointment of a receiver or custodian for any of its assets or properties, with or without consent, and such receiver shall not be discharged within ninety (90) days after his appointment; or

(v) adopts a plan of complete liquidation of its assets.

(2) The Village shall be deemed to be in default in the event it materially breaches or fails to perform timely or observe timely any of its covenants or obligations under this Agreement, and such failure shall continue for thirty (30) days following notice thereof from Developer (or such longer period of time as is otherwise expressly set forth herein or as is reasonably necessary to cure the default as long as the Village has commenced the cure of the default within the thirty (30) day period, is diligently pursuing the cure of the default and as long as the default is cured not later than one hundred twenty (120) days following the notice thereof from Developer or such longer period of time as is reasonably agreed to by the Developer).

(3) Upon the occurrence of any default by either party and following the notice requirements set forth above, without further demand or action of any kind by the nondefaulting party and except as expressly set forth below, the nondefaulting party may, at its option, pursue any or all rights and remedies available at law or in equity.

(4) No remedy shall be exclusive of any other remedy and each and every remedy shall be cumulative and shall be in addition to every other remedy given under this Agreement, and/or now or hereafter existing at law or in equity. No failure or delay on the part of any party in exercising any right or remedy shall operate as a waiver thereof nor shall any single or partial exercise of any right preclude other or further exercise thereof or the exercise of any other right or remedy.

(5) In the event of the default by either party, all reasonable fees, cost and expenses incurred by the nondefaulting party, including reasonable attorney's fees, in connection with the enforcement of this Agreement shall be paid by the defaulting party, including without limitation the enforcement of the nondefaulting party's rights in any bankruptcy, reorganization or insolvency proceeding.

9.03 FORCE MAJEURE. Notwithstanding anything herein to the contrary, in the event that Developer is delayed or hindered in or prevented from the performance of any act required hereunder by reason of strikes, lockouts, labor troubles, inability to procure materials, failure of power, restrictive governmental regulations, orders or decrees, riots, insurrection, war, acts of God, inclement weather, or other reasons beyond Developer's reasonable control, then performance of such act shall be excused for the

period of the delay and the period for the performance of any such act shall be extended for the period of such delay.

ARTICLE X – NOTICES

All notices required or permitted by this Agreement shall be in writing and shall be deemed to have been given (i) upon delivery to an officer or designated representative of the person entitled to such notice, if hand delivered, or (ii) two business days following deposit in the United States mail, postage prepaid, or (iii) two business days following deposit with a nationally recognized overnight commercial carrier that will certify as to the date and time of delivery, or (iv) upon transmission if by facsimile or email, and each such communication or notice shall be addressed as follows, unless and until any of such parties notifies the other in accordance with this Article of a change of address:

If to the Village: Village of Germantown
ATTN: Steven Kreklow, Administrator
PO Box 337
N112 W17001 Mequon Road
Germantown, WI 53022
Email address: skreklow@village.germantown.wi.us

AND a copy to: Brian C. Sajdak, Esq.
Wesolowski, Reidenbach & Sajdak, S.C.
11402 W. Church St.
Franklin, WI 53132
Email address: brian@wrslegal.net

If to Developer: Truck Country of Wisconsin, Inc.

AND a copy to:

ARTICLE XI - GENERAL PROVISIONS

11.01 ORDINANCES AND REGULATIONS. All provisions of the Village's subdivision and platting code as set forth in Chapter 18 of the Municipal Code which are not inconsistent with or in conflict with any of the provisions of this Agreement are incorporated herein by reference and all such provisions shall bind the parties hereto and be a part of this Agreement as fully as if set forth herein. In the event any provision set forth in this Agreement is in conflict with any provision set forth in any other Village code or ordinance, this Agreement shall control.

11.02 AGREEMENT FOR BENEFIT OF PURCHASER. Developer agrees that in addition to the Village's rights herein, the provisions of this Agreement shall be for the benefit of the purchaser of any building, lot or parcel of land within the Property.

11.03 ENTIRE AGREEMENT. This written Agreement and written amendments and any referenced attachments thereto shall constitute the entire agreement between the Developer and the Village.

11.04 AMENDMENTS. This Agreement may be amended or modified only by an instrument in writing executed by all of the parties to this Agreement.

11.05 OWNERSHIP. Developer certifies and warrants to the Village that as of the Effective Date (as defined below) of this Agreement it is the sole owner of the real estate that comprises the Property. Village hereby consents to the periodic transfer of certain parcels of the Property (to be created by approved certified survey maps(s)), to single-purpose entities controlled by Developer, for purposes of development of parcels within the Property and/or obtaining lender financing. Developer shall provide the Village written notice of such transfer and notwithstanding any such transfer, shall remain responsible for all Developer obligations as otherwise set forth herein.

11.06 AUTHORITY. Developer, by the undersigned, represents, certifies and warrants that the undersigned has the authority to bind Developer as an authorized officer of the same.

11.07 NO VESTED RIGHTS GRANTED. Except as expressly provided by law or as expressly provided by this Agreement, no vested rights in connection with this project shall inure to the Developer, its heirs, successors or assigns.

11.08 NO WAIVER. No waiver of any provision of this Agreement shall be deemed to constitute a waiver of any other provision, nor shall it be deemed or constitute a continuing waiver unless expressly provided for by a duly signed and executed, written amendment by all parties to this Agreement. The Village's failure to act or exercise any right under this Agreement shall not constitute the approval or a waiver of its right to act or exercise any right under this Agreement or a ratification of any wrongful or negligent act by the Developer or the acceptance of any improvement or performance on the part of the Developer.

11.09 SEVERABILITY. If any part, term or provision of this Agreement is held by a court to be illegal or otherwise unenforceable, such illegality or unenforceability shall not affect the validity of any other part, term or provision; and the right of the parties will be construed as if the part, term or provision was never part of the Agreement.

11.10 REAL ESTATE TAXES. Developer agrees to timely pay or cause to be paid to the Village general property taxes assessed and levied by the Village in connection with the Project under its applicable property tax laws, rules, rates, regulations and ordinances in effect from time to time. Nothing in this Agreement shall impair any statutory rights of the Village with respect to the assessment, levy, priority, collection and/or enforcement of real estate and personal property taxes. Developer further agrees that, until the closure of TID No. 8, it will not knowingly sell, lease, assign or otherwise transfer or convey any ownership interest in the Project to a person or entity that would directly result in the Property becoming exempt from general property taxation, nor

otherwise use the Property in any manner that would cause all or a portion of the Property to be exempt from general property taxation unless the exempt entity or user first enters into a Payment in Lieu of Taxes (PILOT) Agreement with the Village upon such terms as are agreeable to the Village.

11.11 MEMORANDUM. A Memorandum of Agreement shall be recorded in the office of the Register of Deeds of Washington County, Wisconsin, prior to the recording of the mortgages securing any construction loan, or any other mortgage on the Project, it being understood by the parties that this Agreement will run with the land and will be binding upon the Project and any owner of all or any portions of the Project and their successors and assigns in a form in substantial conformance with the attached Exhibit E.

11.12 TERMINATION. This Agreement and all rights and obligations hereunder shall terminate upon the earlier to occur of (i) full performance by Developer and the Village of all of their respective obligations under this Agreement; and (ii) upon mutual termination of this Agreement by the Village and Developer. Upon such termination, the parties shall execute and record a termination of all Memorandum of Agreement(s) recorded against the Property.

11.13 TIME. Time is of the essence as to completion by the parties of their respective obligations and is a critical component in success of the Project and the District. The parties agree that all actions, approvals, and consents required herein, shall be acted upon promptly and with diligence, and shall not be unreasonably withheld, conditioned or delayed.

11.14 ASSIGNMENT. Prior to substantial completion of Building 2, this Agreement may not be assigned by the Developer without the Village's consent, which may be granted or withheld in the Village's sole discretion, provided, however, Developer may assign or partially assign this Agreement to an entity that controls, is controlled by, or is under common control with, Developer without the consent of the Village. Notwithstanding the foregoing, the Developer may collaterally assign this Agreement to the Developer's lender(s) upon reasonable approval of the Village Attorney as to the form of the assignment. In the event that any such lender forecloses on its collateral and succeeds as Developer of the Property, the Village shall fulfill its obligations hereunder provided that such lender, or the party purchasing the Property at a foreclosure sale, assumes in writing all of the obligations of the Developer hereunder.

11.15 EFFECTIVE DATE. This Agreement shall be binding on the Developer and deemed of full force and effect as of the date the Developer takes fee simple title to the Property ("Effective Date"). In the event Developer does not close on the acquisition of the Property, this Agreement shall be null and void.

IN WITNESS WHEREOF, Developer and the Village have caused this Agreement to be signed in duplicate originals this _____ day of _____, 2024.

[SIGNATURE PAGES FOLLOW]

DEVELOPER:

TRUCK COUNTRY OF WISCONSIN, INC.

By: _____

Personally came before me this ____ day of _____, 2024, the above-named, -- _____, to me known to be the person who executed the foregoing instrument and to me known to be such officer of said corporation and acknowledged that he executed the foregoing instrument in such capacity.

By: _____
 Print Name: _____
 Notary Public, State of Wisconsin
 My Commission Expires: _____

VILLAGE OF GERMANTOWN

By _____
Dean Wolter, Village President

ATTEST:

By _____
Donna Ott, Village Clerk

Per Village Board Approval: Dated _____

[illegible]

Personally came before me this ____ day of <Month> 2024, the above-named, Dean Wolter, Village President, and Donna Ott, Village Clerk, to me known to be the persons who executed the foregoing instrument and to me known to be such President and Clerk of the above-named municipal corporation, Village of Germantown, and acknowledged that they executed the foregoing instrument as such officers, as the deed of said municipal corporation.

By _____
 Print Name: _____
 Notary Public, State of Wisconsin
 My Commission Expires: _____

Approved as to form:

Brian C. Sajdak, Village Attorney

EXHIBIT A

LEGAL DESCRIPTION

EXHIBIT B

IMPROVEMENT PLANS

EXHIBIT B-1
VILLAGE'S PLANS
(SEE ATTACHED)

EXHIBIT B-2
DEVELOPER'S PLANS
(SEE ATTACHED)

EXHIBIT C
VILLAGE FEE SCHEDULE FOR PROJECT
(SEE ATTACHED)

EXHIBIT E

**MEMORANDUM OF
DEVELOPMENT AGREEMENT**

Document Number

Document Title

THIS MEMORANDUM OF DEVELOPMENT AGREEMENT (“Memorandum”) is made effective as of the ____ day of _____, 2024, by and between **Truck Country of Wisconsin, Inc.**, a Wisconsin limited liability company (“**Developer**”), and the **VILLAGE OF GERMANTOWN**, a municipal corporation of Washington County, Wisconsin (“**Village**”).

Recording Area

Name and Return Address

WITNESSETH:

PIN: _____

WHEREAS, Developer and the Village entered into that certain Development Agreement dated _____, 2024 (“**Development Agreement**”). The full Development Agreement is available for inspection and copies can be obtained at the Village of Germantown Village Hall; and

WHEREAS, this Memorandum is being executed for the purpose of providing notice of the Development Agreement and certain terms thereof in the Office of the Register of Deeds for Washington County, State of Wisconsin in order to place third parties on notice of the Development Agreement and the Developer’s and the Village’s rights and obligations thereunder, some of which are hereinafter summarized.

NOW, THEREFORE, in consideration of the mutual covenants and promises contained in the Development Agreement, Developer and the Village hereby acknowledge as follows:

1. **PROPERTY.** The “**Property**” is land located in the Village of Germantown, Washington County, State of Wisconsin, legally described on Exhibit A attached hereto.

2. **TERM.** The Development Agreement shall run with the land pursuant to its terms unless terminated pursuant to its terms.

3. **NO MODIFICATION; DEVELOPMENT AGREEMENT CONTROLLING.** This Memorandum is only a summary of some of the terms and conditions contained in the Development Agreement and this Memorandum is not intended in any way to amend, alter, modify, abrogate, substitute or otherwise affect any of the terms or conditions contained in the Development Agreement, all of which are hereby incorporated herein in full by this reference. It is hereby understood and agreed that, notwithstanding this Memorandum, the terms and conditions contained in the Development Agreement shall in all events control the relationship between Developer and the Village with respect to the subject matter therein contained. This Memorandum is solely for recording and notice purposes.

4. **COUNTERPART SIGNATURES.** This Memorandum may be signed in two or more counterparts, all of which, when taken together, shall constitute one and the same instrument.

[SIGNATURES APPEAR ON FOLLOWING PAGE]

IN WITNESS WHEREOF, Developer and the Village have executed this Memorandum effective as of the date first written above.

DEVELOPER:

VILLAGE:

TRUCK COUNTRY OF WISCONSIN

VILLAGE OF GERMANTOWN

By: _____
Name:
Title:

By: _____
Dean Wolter, Village President

Attest:

By: _____
Donna Ott, Village Clerk

STATE OF WISCONSIN)
) SS.
COUNTY)

Personally appeared before me this ____ day of _____ 2024, the above-named _____, the _____ of _____, to me known to be the persons who executed the foregoing agreement on behalf of the Developer and by its authority.

Notary Public State of Wisconsin
My commission expires: _____

STATE OF WISCONSIN)
) SS.
WASHINGTON COUNTY)

Personally appeared before me this ____ day of _____ 2024, the above-named Dean Wolter and Donna Ott, Village President and Village Clerk, respectively, of the Village of Germantown, Wisconsin, to me known to be the persons who executed the foregoing agreement on behalf of the Village and by its authority.

Notary Public State of Wisconsin
My commission expires: _____

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Presentation

ITEM TITLE: Division Road Conceptual Design Public Information Meeting

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

The Village Board authorized staff to contract with a consultant for public information meetings and preparation of design concepts for Division Road from Mequon Road to County Line Road. Two public information meetings were held this summer and well attended by the public. The first meeting had 28 people sign in, and the second meeting had 55 people sign in at the Village Boardroom with numerous comments. An online survey was also prepared, and 41 comments were received. In general, the themes of safety for pedestrians and speeding were predominant. These comments are attached along with meeting summary memos by the consultant, a traffic engineer.

Based on traditional approaches by the Village of Germantown, three options were presented:

- Full Reconstruction with new base, full replacement of paths, and new curb and gutter;
- Pulverize Existing Asphalt and Reconstruct with select base replacement, select path replacement, select curb and gutter replacement/extensions;
- Mill and Overlay without base improvements, without path improvements.

The costs estimated for these options range from \$7.4m to \$1.5m. For each of the options outlined in the table, borrowing is expected.

A summary of the alternatives presented at the PIM are in the table below and detailed costs estimates are attached.

Option	Alternative	Roadlife	Estimate	Description
1	Mill and Overlay	5-10 years	\$1.5m	No Path Work
2	Pulverize and Reconstruct	15-20 years	\$2.4m	Selective work on Paths, Curb and Gutter
3	Full Reconstruction	25-30 years	\$7.4m	Full replacement of paths with new curb and gutter

For the three options outlined in the table, staff is seeking direction from the Public Works and Highways Committee in addition to the Village Board, to begin with design once the 2025 budget is approved.

Finally, of the three options outlined in the table, for a **Full Reconstruction**, we would anticipate contracting for consultant services due to village staff workload. This consultant services design contract would be similar to recent design projects, such as the Holy Hill Road project (from Interstate 41 to Goldendale Road) and Donges Bay

Road project (from Fond du Lac to Wausaukee).

Mill-and-Overlay or **Pulverize-and-Reconstruct** both require less effort but may still require consultant services, especially as path and pedestrian improvements are considered. Mill and Overlay would not require survey, however pulverize and reconstruct would require survey to design the curb work, pathway work and any select storm sewer/drainage work.

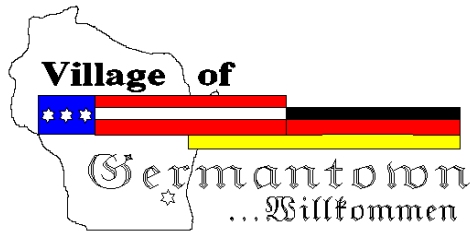
ATTACHMENT:

1. 2024-08-26_Division Road Engineering Memo
2. 3 - Cost Estimate - Option 1 - Mill & Overlay
3. 3 - Cost Estimate - Option 2 - Pulverize and Reconstruct
4. 3 - Cost Estimate - Option 3 - Full Reconstruct
5. 1 - 240626_Division Road_PIM #1 Debrief Presentation_edited
6. 2 - 240730_Division Road PIM #2 Debrief_edited

STAFF RECOMMENDATION:

Pass a motion recommending an approach for the Village Board to consider.

ACTION BY Committee:



Engineering Department Memorandum

To: Matt Mortwedt, Director of Public Works

From: Kevin Driscoll, PE, Village Engineer

Date: August 26, 2024

Re: Division Road Public Information Meeting and Conceptual Design Summary

The Village Board authorized staff to contract with a consultant for public information meetings and preparation of design concepts for Division Road from Mequon Road to County Line Road. Two public information meetings were held this summer and well attended by the public. The first meeting had 28 people sign in, and the second meeting had 55 people sign in at the Village Board room with numerous comments. An online survey was also prepared, and 41 comments were received. In general, the themes of safety for pedestrians and speeding were predominant. These comments are attached along with meeting summary memos by the consultant, a traffic engineer.

Based on traditional approaches by the Village of Germantown, three options were presented:

- Full Reconstruction with new base, full replacement of paths, and new curb and gutter;
- Pulverize Existing Asphalt and Reconstruct with select base replacement, select path replacement, select curb and gutter replacement/extensions;
- Mill and Overlay without base improvements, without path improvements.

The costs estimated for these options range from \$7.4m to \$1.5m. For each of the options outlined in the table, borrowing is expected.

A summary of the alternatives presented at the PIM are in the table below and detailed costs estimates are attached.

Option	Alternative	Roadlife	Estimate	Description
1	Mill and Overlay	5-10 years	\$1.5m	No Path Work
2	Pulverize and Reconstruct	15-20 years	\$2.4m	Selective work on Paths, Curb and Gutter
3	Full Reconstruction	25-30 years	\$7.4m	Full replacement of paths with new curb and gutter

For the three options outlined in the table, Staff is seeking direction from the Public Works and Highways Committee in addition to the Village Board, to begin with design once the 2025 budget is approved budget.

Finally, of the three options outlined in the table, for a **Full Reconstruction**, we would anticipate contracting for consultant services due to village staff workload. This consultant services design

August 29, 2024

contract would be similar to recent design projects, such as the Holy Hill Road project (from Interstate 41 to Goldendale Road) and Donges Bay Road project (from Fond du Lac to Wausaukee).

Mill-and-Overlay or **Pulverize-and-Reconstruct** both require less effort but may still require consultant services, especially as path and pedestrian improvements are considered. Mill and Overlay would not require survey, however pulverize and reconstruct would require survey to design the curb work, pathway work and any select storm sewer/drainage work.

Major Project
Conceptual Cost Estimate
SUMMARY
Version 3.6

Project I.D. Highway Project Title Project Limits	Division Road Conceptual Designs		
	County Line Road to Menquon Road		
	Village of Germantown		
	Washington County		
Estimate Date (MM/DD/YYYY)	6/11/2024	Start Construction (20xx)	2026
	2025		2026
Start Preliminary Design Date		End Construction (20xx)	
Alternative #:	Mill and Overlay Alternative		

[Project Scope](#)
[Project Assumptions](#)

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	Total
ROADWAY ITEMS				
Milling Pavement (see PAVEMENT tab)	SY	41,655	\$ 2.90	\$121,000
Detectable Warning Fields (see PAVEMENT tab)	SF	656	\$ 50.00	\$33,000
Pavement Markings - Stop Bar (see PAVEMENT tab)	LF	385	\$ 15.00	\$6,000
Pavement Markings - Crosswalk (see PAVEMENT tab)	LF	1,966	\$ 12.00	\$24,000
Pavement Markings - Centerline (see PAVEMENT tab)	LF	22,180	\$ 1.00	\$22,000
Curb and Gutter (see PAVEMENT tab)	LF	2,015	\$ 32.00	\$64,000
Earthwork				
Common	CY	1,059	\$ 18.00	\$19,000
Pavement (see PAVEMENT tab)				
Mainline	TON	5,006	\$ 85.00	\$426,000
Pathway (Asphalt)	TON	413	\$ 180.00	\$74,000
Base (see PAVEMENT tab)				
Mainline, Shoulder, & Pathway	TON	1,293	\$ 20.00	\$26,000
Major Roadway Subtotal (MRS)				\$815,000

ROADWAY ALLOWANCE ITEMS		Historical Data	Estimator Data	Total
Drainage	% of MRS	10.8%	17.70%	\$144,000
Erosion Control & Restoration	% of MRS	9.7%	5.00%	\$41,000
Signals & Lighting	% of MRS	3.3%	0.00%	\$0
Roadway Incidentals	% of MRS	27.1%	10.00%	\$82,000
Signing & Marking	% of MRS	4.3%	1.50%	\$12,000
Traffic Control & Staging	% of MRS	4.5%	3.00%	\$24,000
ITS/ FTMS	% of MRS	1.0%	0.00%	\$0
Allowance Subtotal				\$303,000

STRUCTURES (see STRUCTURE tab)	UNIT	QUANTITY	UNIT PRICE	Total
Structure SubTotal				\$0

SPECIAL CONSTRUCTION ELEMENTS	UNIT	QUANTITY	UNIT PRICE	Total
Special Construction Elements Subtotal				\$0

DESIGN ALLOWANCE		Default	User Input	Engineering and Contingency Costs
	% of Construction Items Subtotal	15.0%		\$168,000
Design Allowance Subtotal				\$168,000

Construction Items Subtotal			\$1,286,000
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MOBILIZATION		Default	User Input	Mobilization Costs
	% of Construction Items Subtotal	11.2%		\$144,000
Mobilization Subtotal				\$144,000

Estimated Construction Let Amount (ECLA)			\$1,430,000
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Total Project Estimate (Current Year \$)			\$1,430,000
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Construction Items Subtotal = Major Roadway Items + Roadway Allowance Items + Structures + Special Construction Elements + Design Allowance
Estimated Construction Let Amount (ECLA) = Construction Items Subtotal + Mobilization
Base Project Estimate= ECLA + Project Delivery Allowance Items + Non-Let Costs
Contingency = Risk Adjustments + Estimate Uncertainty
Total Project Estimate = Base Project Estimate + Contingency

Major Project
Conceptual Cost Estimate
SUMMARY
Version 3.6

Project I.D. Highway Project Title Project Limits	Division Road Conceptual Designs		
	County Line Road to Menquon Road		
	Village of Germantown		
	Washington County		
Estimate Date (MM/DD/YYYY)	6/11/2024	Start Construction (20xx)	2026
Start Preliminary Design Date	2024	End Construction (20xx)	2026
Alternative #:		Pulverize and Relay Alternative	

[Project Scope](#)
[Project Assumptions](#)

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	Total
ROADWAY ITEMS				
Pulverizing Pavement (see PAVEMENT tab)	SY	44,863	\$ 2.00	\$90,000
Detectable Warning Fields (see PAVEMENT tab)	SF	656	\$ 50.00	\$33,000
Pavement Markings - Stop Bar (see PAVEMENT tab)	LF	385	\$ 15.00	\$6,000
Pavement Markings - Crosswalk (see PAVEMENT tab)	LF	1,966	\$ 12.00	\$24,000
Pavement Markings - Centerline (see PAVEMENT tab)	LF	22,180	\$ 1.00	\$22,000
Curb and Gutter (see PAVEMENT tab)	LF	2,015	\$ 32.00	\$64,000
Earthwork				
Common	CY	1,059	\$ 18.00	\$19,000
Marsh	CY	-	\$ 18.00	\$0
Rock	CY	-	\$ 18.00	\$0
Borrow	CY	-	\$ 18.00	\$0
EBS	CY	-	\$ 18.00	\$0
Pavement (see PAVEMENT tab)				
Mainline Surface Course	TON	5,480	\$ 85.00	\$466,000
Mainline Binder	TON	8,220	\$ 75.00	\$616,000
Pathway (Asphalt)	TON	413	\$ 180.00	\$74,000
Base (see PAVEMENT tab)				
Mainline, Shoulder, & Pathway	TON	1,293	\$ 20.00	\$26,000
Major Roadway Subtotal (MRS)				\$1,440,000

ROADWAY ALLOWANCE ITEMS		Historical Data	Estimator Data	Total
Drainage	% of MRS	10.8%	10.00%	\$144,000
Erosion Control & Restoration	% of MRS	9.7%	5.00%	\$72,000
Signals & Lighting	% of MRS	3.3%	0.00%	\$0
Roadway Incidentals	% of MRS	27.1%	10.00%	\$144,000
Signing & Marking	% of MRS	4.3%	1.50%	\$22,000
Traffic Control & Staging	% of MRS	4.5%	3.00%	\$43,000
ITS/ FTMS	% of MRS	1.0%	0.00%	\$0
Allowance Subtotal				\$425,000

STRUCTURES (see STRUCTURE tab)	UNIT	QUANTITY	UNIT PRICE	Total
Structure SubTotal				\$0

SPECIAL CONSTRUCTION ELEMENTS	UNIT	QUANTITY	UNIT PRICE	Total
Special Construction Elements Subtotal				\$0

DESIGN ALLOWANCE	% of Construction	Default	User Input	Engineering and Contingency Costs
	Items Subtotal	15.0%		\$280,000
Design Allowance Subtotal				\$280,000

Construction Items Subtotal				\$2,145,000
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MOBILIZATION	% of Construction	Default	User Input	Mobilization Costs
	Items Subtotal	11.2%		\$240,000
Mobilization Subtotal				\$240,000

Estimated Construction Let Amount (ECLA)				\$2,385,000
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Total Project Estimate (Current Year \$)				\$2,385,000
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Construction Items Subtotal = Major Roadway Items + Roadway Allowance Items + Structures + Special Construction Elements + Design Allowance
Estimated Construction Let Amount (ECLA) = Construction Items Subtotal + Mobilization
Base Project Estimate= ECLA + Project Delivery Allowance Items + Non-Let Costs
Contingency = Risk Adjustments + Estimate Uncertainty
Total Project Estimate = Base Project Estimate + Contingency

Major Project
Conceptual Cost Estimate
SUMMARY
Version 3.6

Project I.D. Highway Project Title Project Limits	Division Road Conceptual Designs		
	County Line Road to Menquon Road		
	Village of Germantown		
	Washington County		
Estimate Date (MM/DD/YYYY)	6/11/2024	Start Construction (20xx)	2028
Start Preliminary Design Date	2024	End Construction (20xx)	2029
Alternative #:		Full Reconstruct Alternative	

[Project Scope](#)
[Project Assumptions](#)

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	Total
ROADWAY ITEMS				
Removing Pavement (see PAVEMENT tab)	SY	-	\$ 15.00	\$0
Detectable Warning Fields (see PAVEMENT tab)	SF	656	\$ 50.00	\$33,000
Pavement Markings - Stop Bar (see PAVEMENT tab)	LF	385	\$ 15.00	\$6,000
Pavement Markings - Crosswalk (see PAVEMENT tab)	LF	1,966	\$ 12.00	\$24,000
Pavement Markings - Centerline (see PAVEMENT tab)	LF	22,180	\$ 1.00	\$22,000
Curb and Gutter (see PAVEMENT tab)	LF	22,125	\$ 32.00	\$708,000
Earthwork				
Common	CY	25,895	\$ 18.00	\$466,000
EBS	CY	1,862	\$ 18.00	\$34,000
Pavement (see PAVEMENT tab)				
Mainline Surface Course	TON	7,124	\$ 85.00	\$606,000
Mainline Binder	TON	10,686	\$ 75.00	\$801,000
Shared-Use Path (Asphalt)	TON	2,310	\$ 175.00	\$404,000
Base (see PAVEMENT tab)				
Mainline, Shoulder, & Pathway	TON	41,925	\$ 20.00	\$838,000
Major Roadway Subtotal (MRS)				\$3,942,000

ROADWAY ALLOWANCE ITEMS		Historical Data	Estimator Data	Total
Drainage	% of MRS	10.8%	25.00%	\$986,000
Erosion Control & Restoration	% of MRS	9.7%	5.00%	\$197,000
Signals & Lighting	% of MRS	3.3%	0.00%	\$0
Roadway Incidentals	% of MRS	27.1%	10.00%	\$394,000
Signing & Marking	% of MRS	4.3%	2.50%	\$99,000
Traffic Control & Staging	% of MRS	4.5%	5.00%	\$197,000
ITS/ FTMS	% of MRS	1.0%	0.00%	\$0
Allowance Subtotal				\$1,873,000

STRUCTURES (see STRUCTURE tab)	UNIT	QUANTITY	UNIT PRICE	Total
Structure SubTotal				\$0

SPECIAL CONSTRUCTION ELEMENTS	UNIT	QUANTITY	UNIT PRICE	Total
Special Construction Elements Subtotal				\$0

DESIGN ALLOWANCE		Default	User Input	Engineering and Contingency Costs
	% of Construction Items Subtotal	15.0%		\$872,000
Design Allowance Subtotal				\$872,000

Construction Items Subtotal				\$6,687,000
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MOBILIZATION		Default	User Input	Mobilization Costs
	% of Construction Items Subtotal	11.2%	10.0%	\$669,000
Mobilization Subtotal				\$669,000

Estimated Construction Let Amount (ECLA)				\$7,356,000
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Total Project Estimate (Current Year \$)				\$7,356,000
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Construction Items Subtotal = Major Roadway Items + Roadway Allowance Items + Structures + Special Construction Elements + Design Allowance
Estimated Construction Let Amount (ECLA) = Construction Items Subtotal + Mobilization
Base Project Estimate= ECLA + Project Delivery Allowance Items + Non-Let Costs
Contingency = Risk Adjustments + Estimate Uncertainty
Total Project Estimate = Base Project Estimate + Contingency

DIVISION ROAD MEQUON ROAD TO COUNTY LINE ROAD



Date of Meeting:

June 20, 2024

Location:

Spassland Park
W160N10000 Colonial Dr,
Germantown, WI 53022

Times:

5-7p.m.

Purpose of Meeting:

The purpose of this Public Involvement Meeting was to inform the community of the conceptual designs for Division Road to help identify areas of safety pedestrian improvements.

Meeting Summary

The meeting was held June 20th from 5 – 7 p.m. at Spassland Park in Germantown. Representatives from The Village of Germantown and Kapur set up the meeting's six exhibits, including two large roll plot maps of the corridor and four exhibits of the six design concepts. A member of the public involvement team was stationed at the sign-in table at the entrance of the pavilion. Attendees had an opportunity to sign-in virtually or manually. An interactive comment form activity to place allowing participants to provide comments on specific areas and boards. Attendees received a comment form and four numbered stickers at arrival and were asked to provide comments by placing one of the dotted number stickers on an exhibit and the other sticker with the same number on their comment form. Staff encouraged attendees to leave their comments on the large roll plot sheets as well as on the combined exhibit board addressing safety issues they see, commenting on concepts they did and didn't like. Table toppers with QR codes encouraging attendees to participate in the Division Road survey were placed around the pavilion on multiple tables. The meeting had a total of 22 attendees who signed-in.

Attachment A - Attendance

Attachment B - Meeting Materials and Exhibits

Attachment C - DOT Sticker Exhibits and Comment Forms

Attachment D - Survey and Survey Results

STAFF:

Village of Germantown

- Kevin Driscoll
- Matt Mortwedt
- Steve Kreklow
- Sokrat Kuri
- Linda Granec
- Jacob Sajdak
- Rick Lamb

Kapur

- Neal Styka
- Athena Kuhl
- Grace Marino

DIVISION ROAD MEQUON ROAD TO COUNTY LINE ROAD



Written Comment Summary

Many people at the meeting shared their ideas about the concepts shared at the public meeting, and what they would like to see happen with Division Road. One of the comments brought up by a few different attendees was the concern of the large trucks currently being able to utilize the roadway, which were not be able to do so in prior years. Residents worry about the wear and tear of the roadway due to the weight of the truck traffic as well as the safety issues this causes.

Many residents wanted to see a continuous path the entire length of this project or added onto the existing path. Many liked the option B.1, with no bike lanes on Division Road, but a widened pathway. Allowing for more space for bicyclists and pedestrians along the pathway. Sidewalks between Wendy Lane and Dotty Way was a comment that many residents' thought is needed.

Several residents mentioned the need for a speed bump or some type of traffic calming measure to assist in slowing down traffic coming from the bend west of Wendy Lane and north of Chippewa Drive. This corner has become a concern with many residents due to incidents that have occurred at the curve causing cars to spin out or end up in the ditch. Residents have seen this as a big safety issue for anyone walking, biking, or motorists.

Survey Summary

Through the survey, we gathered information from the residents about their opinions on Division Road. We had a total of seven participants complete the survey as of 6/25/2024. The survey remains active currently and is up on Germantown's Facebook post from the public involvement meeting.

All participants who took the survey claimed their primary mode of transportation on Division Road was vehicular, however we did have one person mention they would love the ability to walk more along this route. Many of the participants concerns about Division Road circulated around pedestrian crossings, and making the corridor safe for those who are walking along the roadway and speed control.

The survey had residents choose what's most important to them with the Division Road project. Majority of the concerns were about improving pathways conditions as well as updated, improved, or additional pedestrian crossings. Other participants had concerns about traffic calming measures, increased lighting, and increased signage.

Four participants of the survey claimed they had witnessed a crash or near miss along Division Road. The survey asked for identification of the areas along Division Road where they felt the least safe. Many mentioned the curve by Wendy Lane, ditch near the bridge and pedestrian crossings near Donges Bay Road and Revere Lane, and pulling out anywhere along Division Road at the curve between Chippewa Drive and Concord Road.

Overall, the survey gave residents another platform to address their comments on aspects of the project and what they see within there community daily that could aide us during the conceptual process.

Attachment B - Meeting Materials and Exhibits

YOU'RE
Invited!



The Village of Germantown is hosting a meeting to gather public feedback on the conceptual designs for Division Road, from Mequon Road to County Line Road. *The project aims to enhance roadway conditions, improve safety, and provide pedestrian accommodations along the project limits.*

Join us at the open house meeting to provide your feedback! We'll be showcasing conceptual designs for Division Road on:

- Sidewalk Improvements
- Pedestrian Crossing Improvements
- Typical Section Considerations
- Roadway Improvements

PIM #1:

Spassland Park
W160 N10000 Colonial Drive
Germantown, WI 53022
June 20, 2024
5 p.m. - 7 p.m.

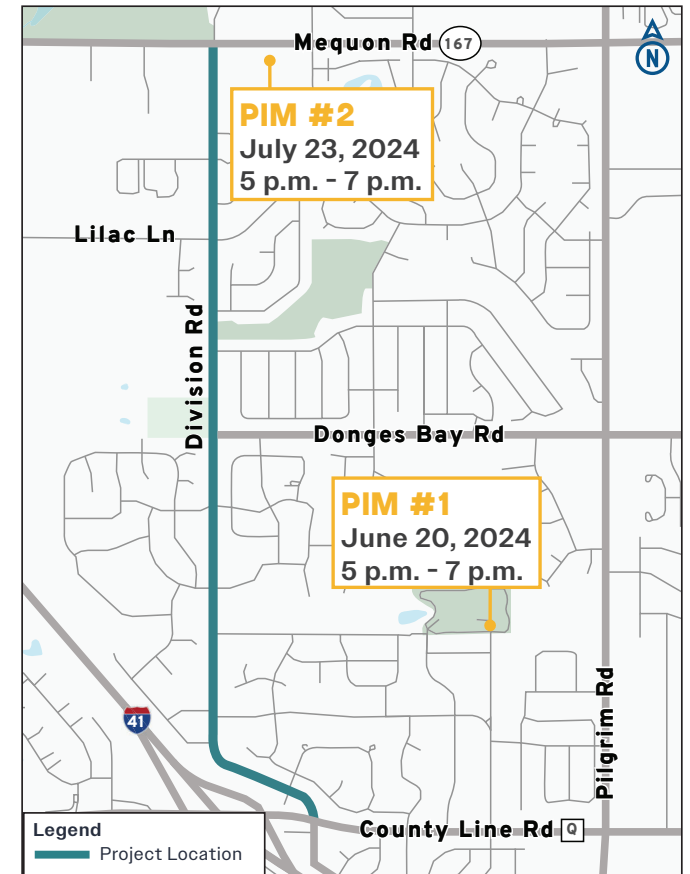
PIM #2:

Germantown Village Hall
N122 W17001 Mequon Road
Germantown, WI 53022
July 23, 2024
5 p.m. - 7 p.m.

PROJECT CONTACTS:

Kevin Driscoll, P.E.
Village Engineer
p: (262) 250-4724
e: kdriscoll@germantownwi.gov

Neal Styka, P.E., PTOE, RSP1
Project Manager
p: (414) 751-7238
e: nstyka@kapurinc.com



Division Road

Mequon Road to County Line Road

Village of



YOU'RE **Invited!** PUBLIC INVOLVEMENT MEETING

PIM #1:

Spassland Park

W160 N10000 Colonial Drive
Germantown, WI 53022

June 20, 2024

5 p.m. - 7 p.m.

PIM #2:

Germantown Village Hall

N122 W17001 Mequon Road
Germantown, WI 53022

July 23, 2024

5 p.m. - 7 p.m.

If you have any
questions about the
meeting or need any
assistance, please
contact:

Neal Styka, P.E., PTOE, RSP1

Project Manager

p: (414) 751-7238

e: nstyka@kapurinc.com

STAY UP TO DATE

Scan the QR code below



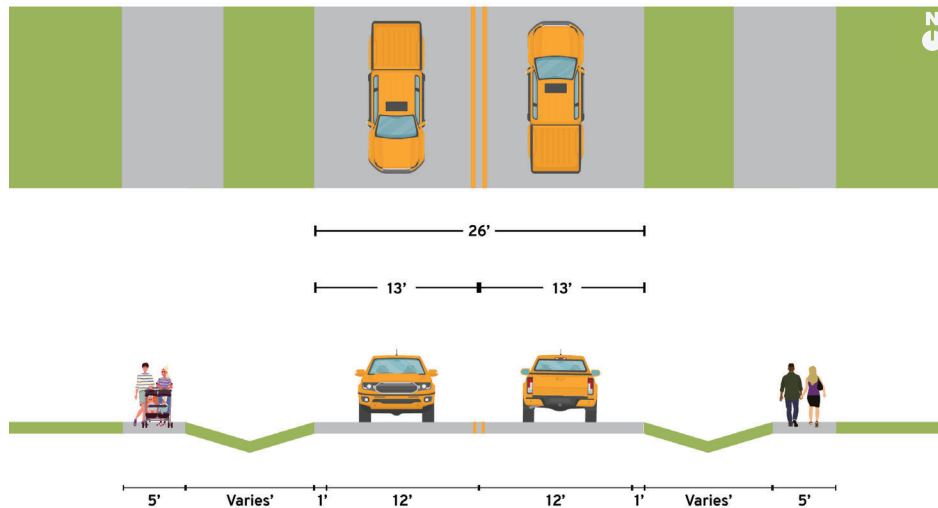
Concept A: PARTIAL RECONSTRUCT

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD



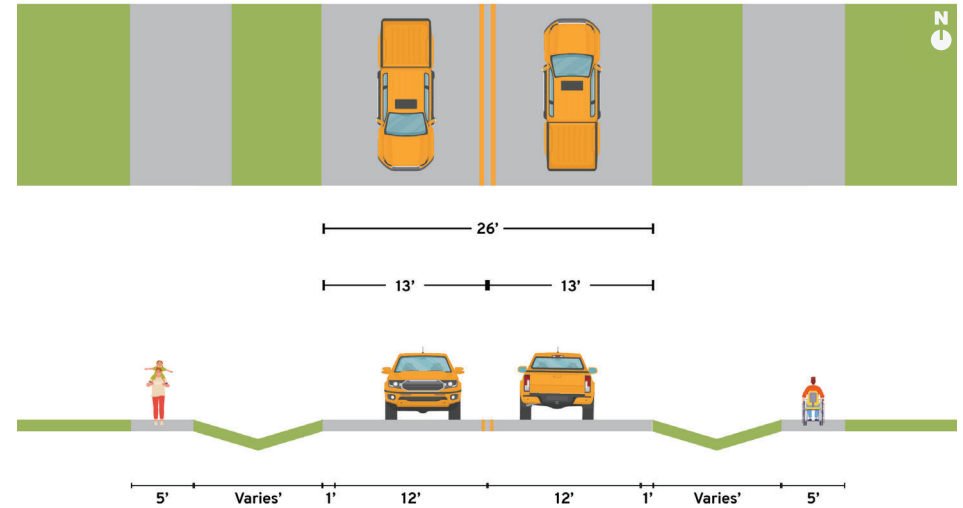
Concept A.1

2-inch mill and 2-inch overlay of asphalt pavement.



Concept A.2

Pulverize and relay with 5 inches of new asphalt pavement.



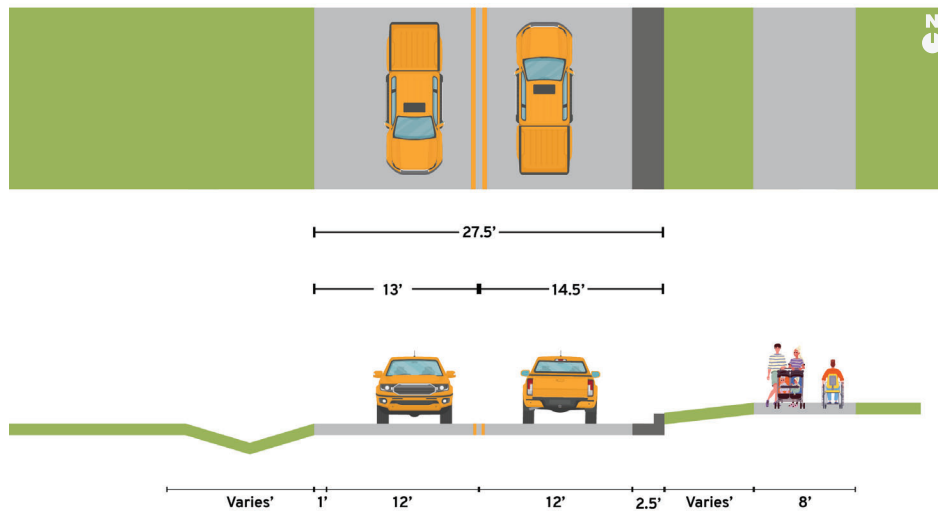
Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept A.1: 2-inch mill and 2-inch overlay of asphalt pavement.	\$\$\$\$	Limited (mill and overlay provides a short-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Short	No	No
Concept A.2: pulverize and relay with 5 inches of new asphalt pavement.	\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	No	No

Concept B: HYBRID RECONSTRUCT

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD

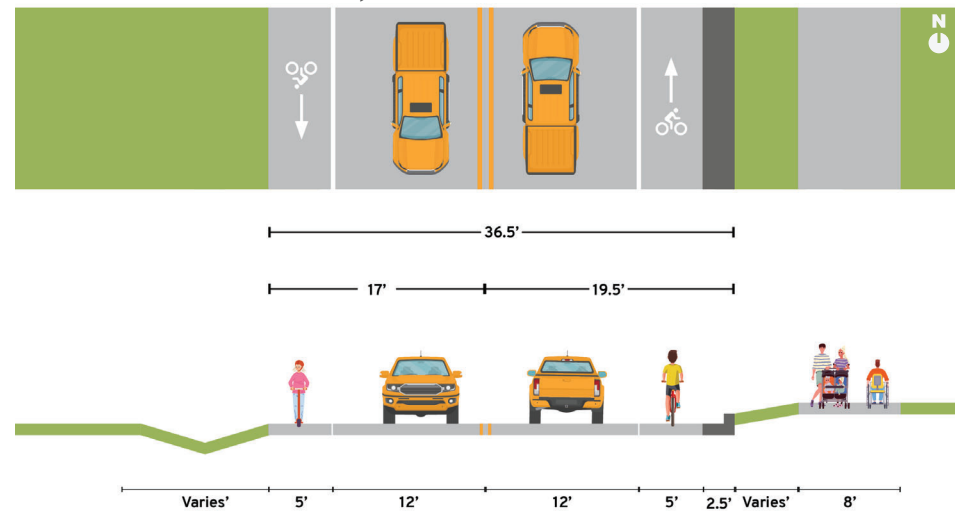
Concept B.1

Pulverize and relay with 5 inches of new asphalt pavement, partial curb and gutter additions, reconstruction of the deteriorated path (widened to 8 feet), and other spot treatments.



Concept B.2

Pulverize and relay with 5 inches of new asphalt pavement, 5-foot paved shoulder, partial curb and gutter additions, reconstruction of the deteriorated path (widened to 8 feet), and other spot treatments.



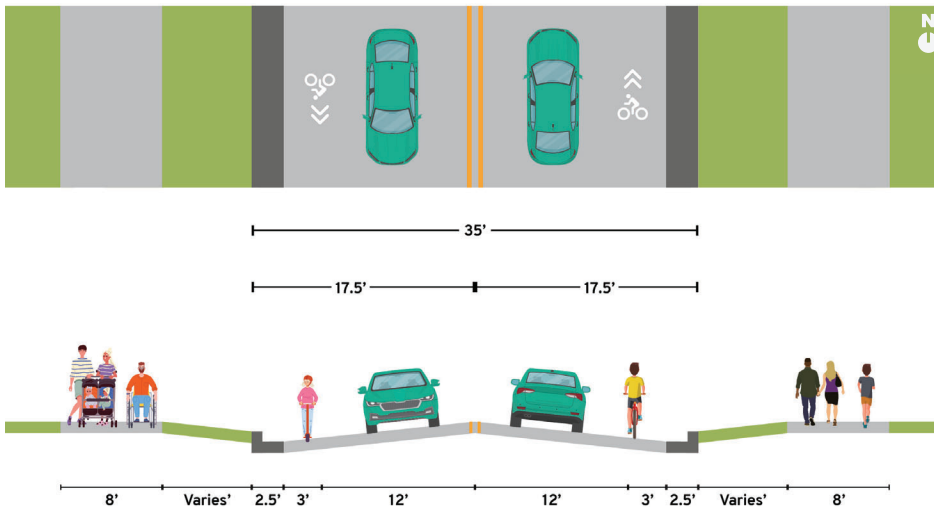
Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept B.1: roadway reconditioning with partial curb and gutter additions and reconstruction of deteriorated path (widened to 8 feet), and other spot treatments.	\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	No	Limited (selectively widens pathways to 8 feet).
Concept B.2: roadway reconditioning, 5-foot paved shoulder with partial curb and gutter additions and reconstruction of deteriorated path (widened to 8 feet), and other spot treatments.	\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	Yes (provides a 5-foot paved shoulder).	Limited (selectively widens pathways to 8 feet).

Concept C: FULL RECONSTRUCT

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD

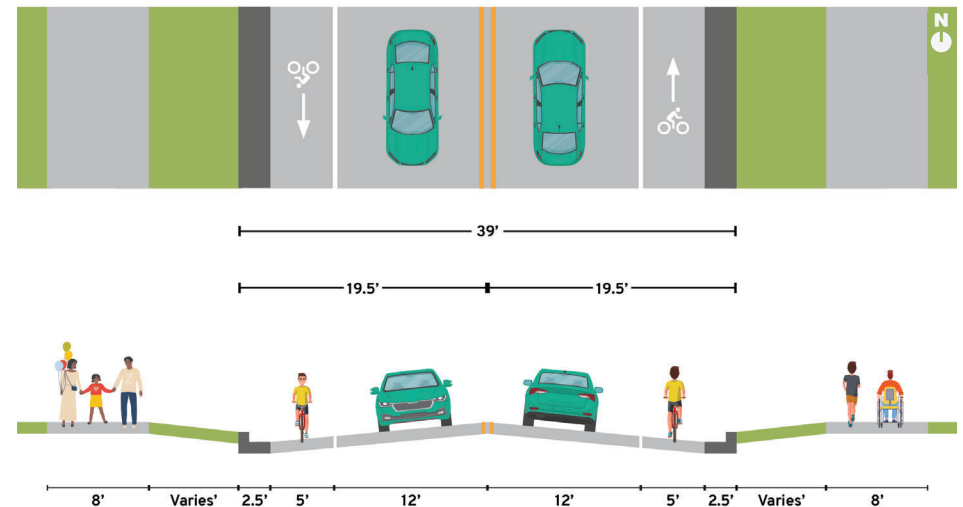
Concept C.1

Full reconstruct with curb & gutter, storm sewer, 3-foot paved shoulder, and new 8-foot pathways.



Concept C.2

Full reconstruct with curb & gutter, storm sewer, 5-foot paved shoulder, and new 8-foot pathways.

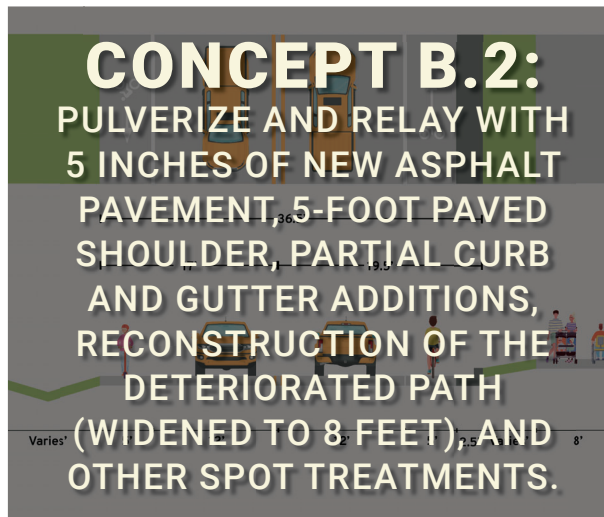
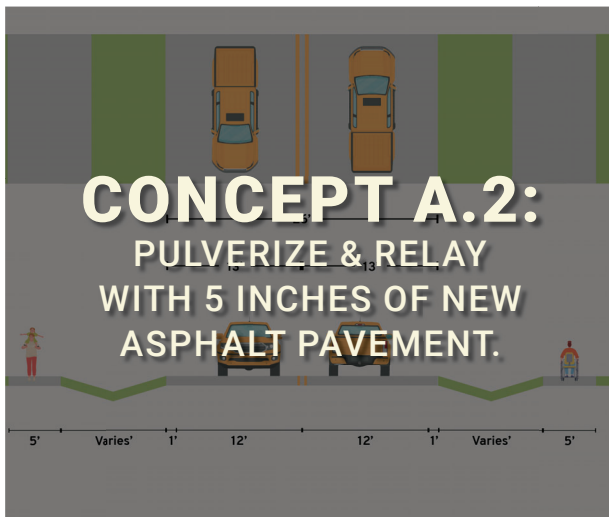
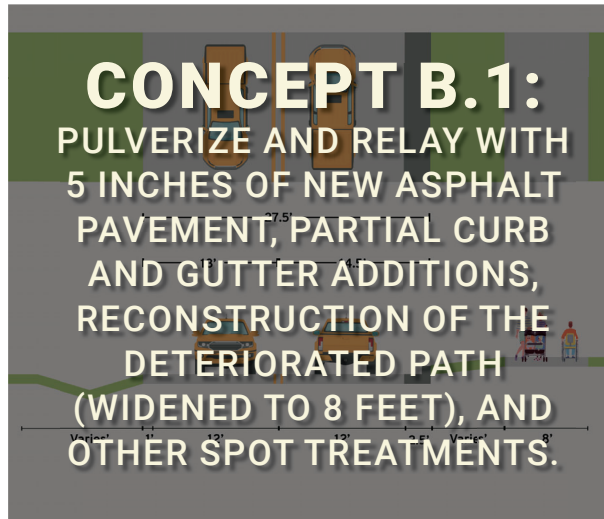
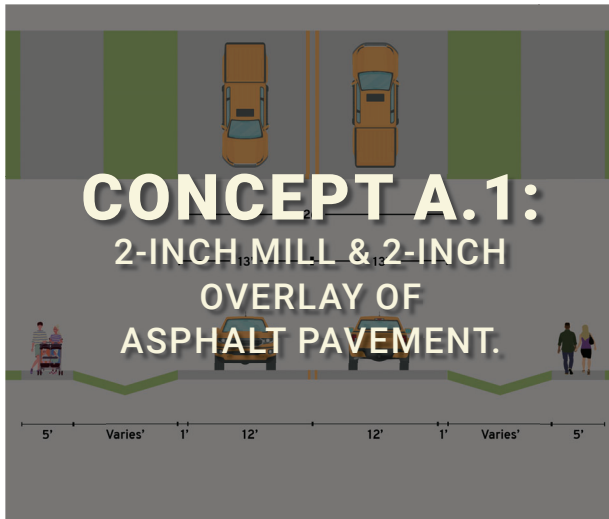


Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept C.1: full reconstruct with curb and gutter, storm sewer, 3-foot paved shoulder, and new 8-foot pathways.	\$\$\$\$	Yes	Limited (provides new crossing across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Long	Limited (provides a 3-foot narrow shoulder).	Yes
Concept C.2: full reconstruct with curb and gutter, storm sewer, 5-foot paved shoulder, and new 8-foot pathways.	\$\$\$\$	Yes	Yes (provides new crossings across Division Road, on-street bike lanes and 8-foot pathways).	Long	Yes (provides a 5-foot paved shoulder).	Yes

Conceptual Designs

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD

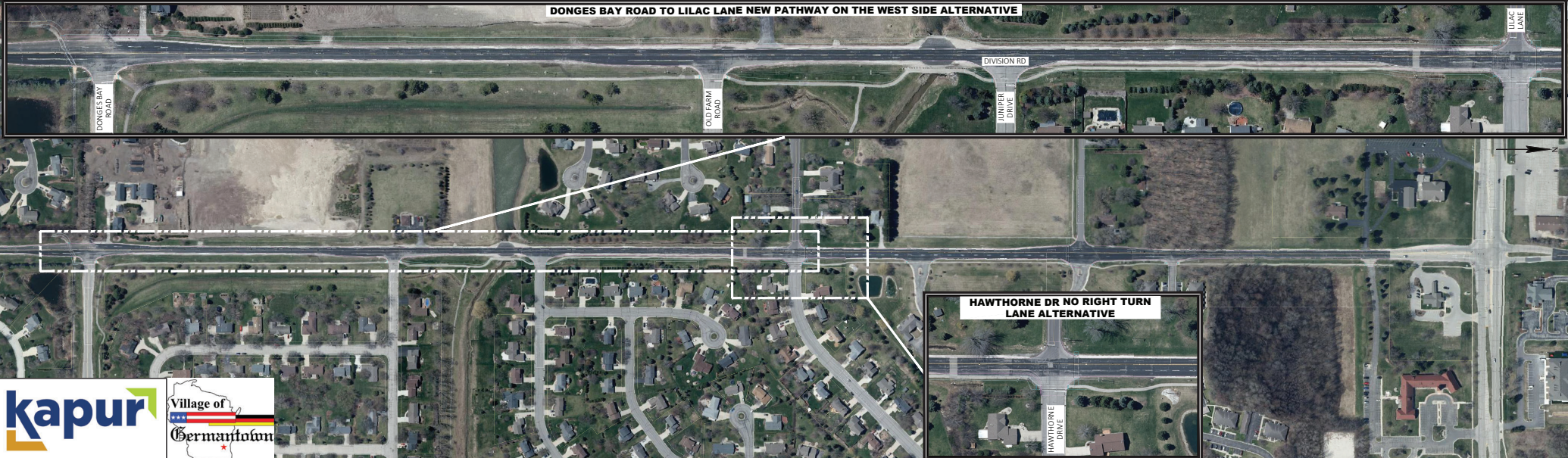
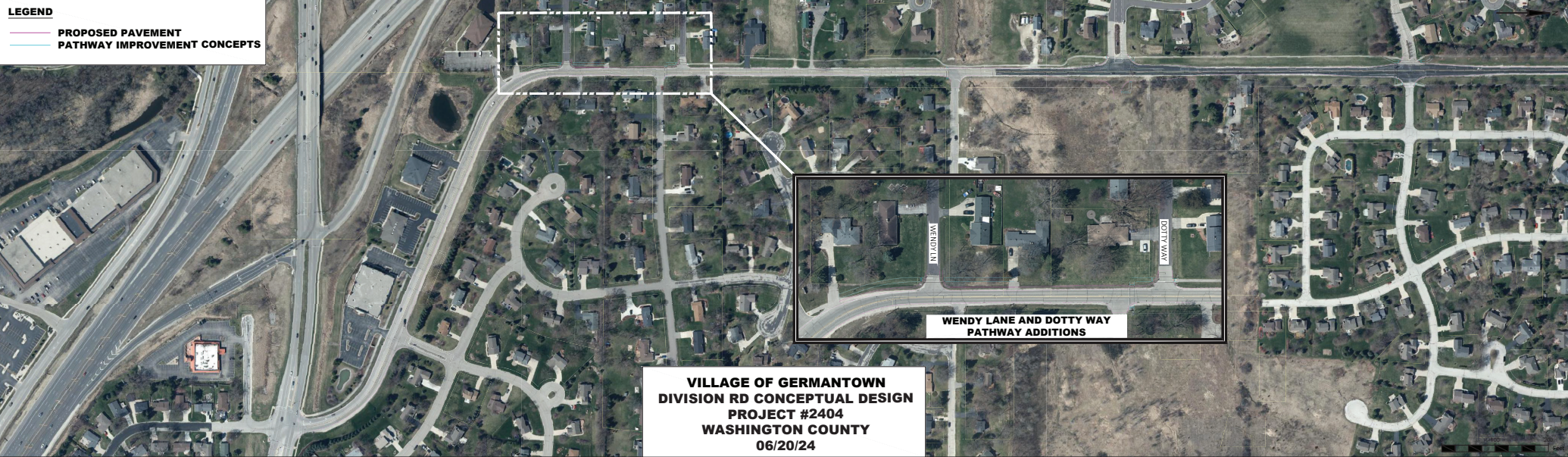
PLACE A STICKER OVER YOUR PREFERRED CONCEPT



LEGEND

— PROPOSED PAVEMENT

— PATHWAY IMPROVEMENT CONCEPTS



kapur

Village of
German town



Division Road Conceptual Design
(Mequon Road to County Line Road)
Village of Germantown

Comment Input Form

June 20, 2024

Name: _____

Address: _____

Email Address (optional): _____

Place a numbered sticker on the map or exhibit on the comment exhibit near the location for which you would like to comment. Place the second sticker number in the box below and comment in the adjacent spaces:

Comment:

Comment:

Comment:

General Comments:



How to Participate in the Input Exercise

What is the input exercise?

This input exercise is a method of gathering feedback at public meetings. Numbered stickers are used to identify specific locations and/or issues on the maps/exhibits. This allows the project team to easily identify the location of the issue/comment.

What am I supposed to do?

This is a simple and interactive exercise. All that is required of you is to place a numbered sticker on the map or exhibit labeled “**comment exhibit**” near the location of the issue you would like to comment on. Place the same dot number sticker in a box on the input form and write your comment next to the number. It’s that easy.

If you have a general comment, write it on the bottom of the form in the general comments section.

What types of issues should I comment on?

There is no limit to the comments that can be provided, however, some examples of issues that are related to transportation and land use could include:

- Pedestrian crossing concerns such as convenience or accessibility.
- Important areas for future roadway or pathway maintenance.
- Areas where safety is a concern because of the number of crashes or unsafe conditions.

Example:

Place the colored dot number in this box.

	<i>I would like to see updated pedestrian crossings along Division Road.</i>

DIVISION ROAD
MEQUON ROAD TO COUNTY LINE ROAD



**SCAN THE QR CODE TO
TAKE THE DIVISION ROAD
SURVEY TODAY!**



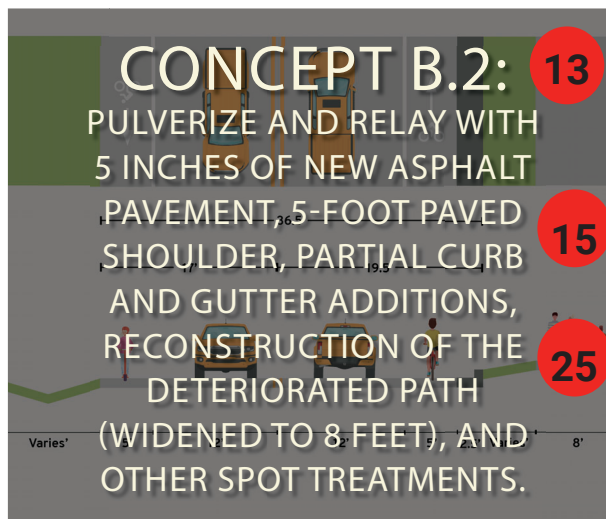
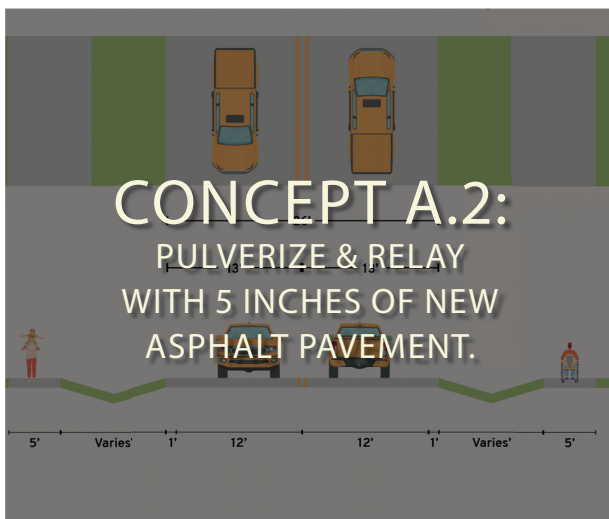
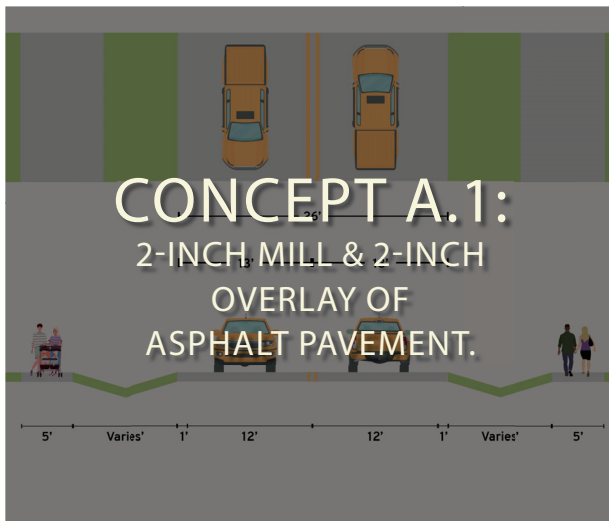
We Want to Hear From You!

Attachment C - DOT Stickers and DOT Comments

Conceptual Designs

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD

PLACE A STICKER OVER YOUR PREFERRED CONCEPT



LEGEND

- PROPOSED PAVEMENT
- PATHWAY IMPROVEMENT CONCEPTS
- PROPOSED RECTANGULAR RAPID FLASHING BEACON (RRFB)

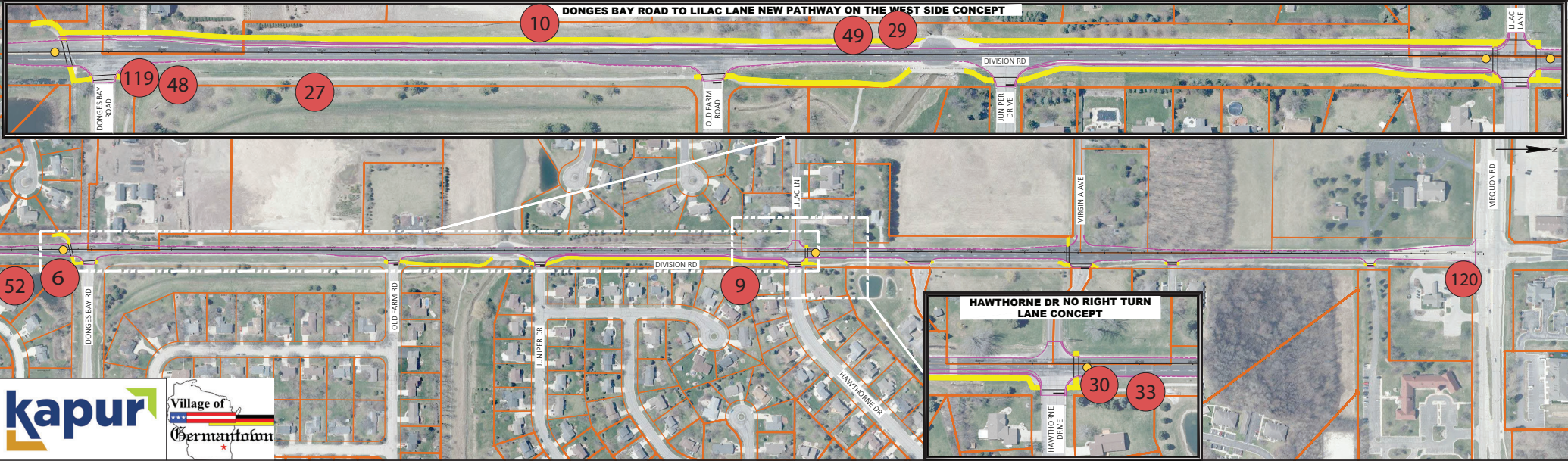
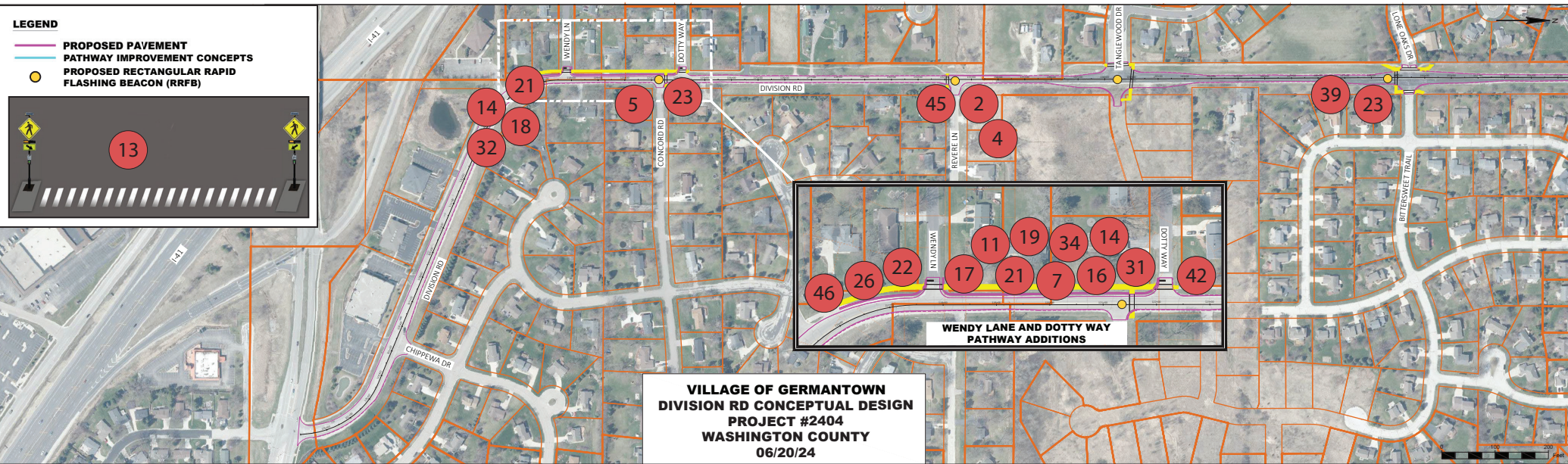


Exhibit / Concept	#	Comment:	General Comments:
Concept	1	8 ft wide path OFF the road allow bikers and people to share pedestrian bike path would be waste of time due to short season.	
Exhibit	2	Raised Wooden Walkways 8 ft wide 3 ft bike and 5 ft walk	
Concept	3	Concept B.1 make part of 8 foot path a bike path.	
Exhibit	4	Move flashing beacon on Revere lane to other side of Revere lane.	
Exhibit	5	Appreciate flashing crosswalk beacons at intersections. Recommend moving crosswalk to other side of Revere (Gas/preserve side).	Would appreciate crosswalks at all intersections even if beacons aren't included.
Exhibit	6	Need more research into traffic flows for left turns, particularly @ Donges Bay. Possible Stop sign?	Widen the shoulders slightly for bikers but I'd rather see part of the 8 foot sidewalk dedicated to bikers.
Exhibit	7	Happy to have the gap in sidewalk path connected south of Dotty Way. Widened sidewalk looks good.	
Concept	8	Widened path plus bike lanes on road seems unnecessary. Widened path in my opinion is sufficient.	
Exhibit	9	Keep right turn lane at Hawthorne. There is a lot of Left turn lane traffic onto Lilac lane especially during school year.	
Exhibit	10	One path as far as possible on the East or West side of Division Rd. If possible, from Mequon Rd. to Countyline Rd. Limit pedestrian crossing areas across Division.	Prefer adding bike lanes to roadway. As concept B.2, this concept gives additional pedestrian traffic access; roadway longevity plus bike lanes access.
Exhibit	11	I think a sidewalk in this section is needed.	
Concept	12	I think a widened path is all that is needed, a bike lane and a bike path seems like overkill.	
Concept	13	We need bike lanes as more e-bikes are being used and foot traffic, bikes are a hazard.	
Exhibit	13	We need RRFB Crosswalks to make Ped. Crossings safe. Especially at Dotty Way to Concord due to vehicles rounding curve.	
Exhibit	14	Need to extend sidewalk all the way through.	
Exhibit	14	Speed calming measures radar feedback signs, rubber speed humps before curve - people take curve at 45 mph.	Why do we allow semi's and quad axels on Division? Never used to. This is deteriorating the road and is unsafe.
Concept	15	The B options seem to be the way to go. More cost effective and helps with safety. The B bike lane would be a great option.	Can we add a crosswalk from Dotty Way to Concord? SO many kids have come close to being hit especially on Halloween. Can we do something to curb the speeding? People drive so fast on Division.
Exhibit	16	We are very concerned about having a sidewalk from Dr. Daub's office to Dotty Way. We have seen so many people almost get hit.	Is there anything that can be done about trucks driving down Division Road? I would hate to spend all this much on repairs for trucks to damage it with the weight.
Exhibit	17	Continuation of complete walking path greatly needed to connect existing path continuing to County Line rd.	
Exhibit	18	Speed regulation desperately needed. Up to and including speed bumps/hump. Speed enforcement zone etc... Live at current address for 10 years and have had no less than 10 vehicle incidents with cars in ditch, spin outs, collisions. The speed of travel in the bend between Chippewa Dr. and Concord makes it difficult to even enter or exit our driveway.	
Exhibit	19	Yes! Need Sidewalks between Wendy + Dotty	
Concept	20	Wider paths would be good of bikes can ride on path along with walkers. Bike lanes not needed.	
Exhibit	21	Need speed bump or something to slow people down going around the bend between Kessler + Wendy Lane. Multiple people have ended up in our ditch.	
Exhibit	21	Support a RRFB by Dotty. It's so dangerous.	
Exhibit	22	Continuous path at least from Chippewa dr. to Mequon would be great.	
Concept	22	B.1-No bike paths/extensions.	

Exhibit	23	Lone Oaks crosswalk with signal would be great!	
Exhibit	23	Concord Rd. crosswalk is very needed here to help children on bikes and moms with strollers access concord rd. Hopping over the curb is very dangerous.	
Concept	24	I feel option C.1 is the best option to make Division Road safer as well as polished looking. A concept with pulverizing and curb/gutter is very necessary.	Thank you for allowing for public input!
Concept	25	Bike lanes are okay, especially with growing use of e-bikes.	Keep the long term in mind. Create a concept that will support pedestrian bicycle + auto traffic.
Concept	26	We really need to have a continuous pathway the entire length of the project.	
Exhibit	27	With concept B1 or B2, shows walking path on 1 Side. Seems to make sense to have path on the West side between Donges Bay and Mequon AND eliminate path on the East side.	
Concept	28	I prefer Concept B1.	
Exhibit	29	Any consideration of blocking people fishing from parking on bridge & Division.	
Exhibit	30	Keep turn lane to the south and shorten slightly eliminating it to the North of Hawthorne because people are using it as a passing lane and don't realize it doesn't go to Mequon Road.	Concern with all options that have bike lanes by traffic lanes. He bike lane should be in the green space combined with the walking path.
Exhibit	31	Finish Pathway from Dotty/Wendy to Countyline. (#1)	I don't care how you rebuild road engineers known better. Must do #1 and #2.
Exhibit	32	Widen curve because people crossing line. (#2)	Widen Walkways to 8 ft, make bike paths, Concept B.2 is my choice. Do you need gutters all the way environmentally better to not have them by nurse frontage or ponds.
Exhibit	33	Stop the sign turn lane N. of Hawthorne road.	
Exhibit	34	Continue the walking/bike path. Need path all the way from Mequon to County Line.	
Concept	35	No more Band-Aids. Do it the right way this time. Getting very busy so we need a good road.	
Concept	38	Concept B.1 was chosen over B.2 exclusively for reasons stated above regarding vehicular traffic speed. Should There be implementation of speed control, designated bike lanes would be preferred.	
Exhibit	39	Traffic calming to slow the high rate of speed travel between Mequon and County Line.	
Exhibit	45	RFB @ Revere needs to be on top of hill for North bound traffic for kids to cross safely. Yes, to RFB on Revere for kids going to Spassland/ Countyline School. Division is very dangerous for kids to cross safely.	
Exhibit	46	Keep Right turn lane on Hawthorne for safety. Yes, add Walkway from Dotty to curve to connect East side. Add walkway from Revere to Tanglewood.	Yes to B.2 to long of a shut down for going North on 7-9 months C.1, C.2 plans.
Exhibit	48	Turn Lane accel/decel lanes @ Division Rd. and Donges Bay Rd.	
Exhibit	49	Fishing parking angles heading S. on Donges Bay road.	
Concept	50	Best in show! B1 mid price and no bike path on road.	
Exhibit	52	Add RFB to Donges Bay crosswalk. Add RFB to Tanglewood Dr.	
Concept	59	Best option - Keeps bikes away from traffic. Financially conservative given state of our budget.	
Exhibit	119	Donges Bay Rd. going North to Mequon create an acceleration round.	
Exhibit	120	Need longer turn lanes N on Division Rd. to Mequon	
			B-2 + best option
			C1-C2 shut down of road is too long.
			Don't get rid of Right turn lane to Hawthorne Dr.

Attachment D - Survey and Survey Results



Village of Germantown
Division Road Conceptual Design Survey
Public Involvement Meeting #1

This survey consists of 20 questions and will take approximately 5 to 7 minutes to complete.

We appreciate your time and honest responses, as your feedback is valuable. Once you've answered all the questions, please hit "Submit" to complete the survey.

Let's get started!

Full Name

Street Address

Address Line 2

City

State/Province/Region

Postal/Zip

USA



1. What is your primary mode of transportation on Division Road? *

- ☐ Walk/Run
- ☐ Bike
- ☐ Vehicle
- ☐ Other (Please specify).

2. What are your main concerns about Division Road? *

3. Are there any changes that you would you like to see on or along Division Road? *

4. Please select what's important to you with the Division Road Project. *

- ☐ More roadway capacity
- ☐ Improved/additional pedestrian crossings
- ☐ Improved pathway conditions (Wider/resurface)
- ☐ Increased signage
- ☐ Increased lighting at intersections

- ☐ Traffic calming measures
- ☐ Extending curb and gutter/and removing ditches
- ☐ Improve wait time at stop signs prior to entering the intersection
- ☐ Other (Please specify)

5. Have you ever witnessed a crash or near miss on Division Road? *

- ☐ No
- ☐ Yes (Please specify)

6. On a scale of 1 to 5, how safe do you feel DRIVING along Division Road? *

1	2	3	4	5
---	---	---	---	---

Least safe

Most safe

7. Are there any areas where you feel particularly unsafe along Division Road? *

8. How often do you walk/bike along Division Road? *

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Never

9. What is the primary purpose of your walk or bike ride along Division Road? *

- ☐ Commuting
- ☐ Exercise and fitness
- ☐ Leisure and recreation
- ☐ Running errands or shopping
- ☐ Other (Please specify).

10. Where do you usually cross Division Road? *

11. If improvements were made to the sidewalks/pathways, how likely would you be to use the sidewalks/pathways more frequently? *

1	2	3	4	5
---	---	---	---	---

Less Frequently

More Frequently

12. Are there enough pedestrian crossings along Division Road and are they clearly marked and maintained currently? If not, where would you like to see new crossings? *

- ☐ No
- ☐ Yes (Please specify).

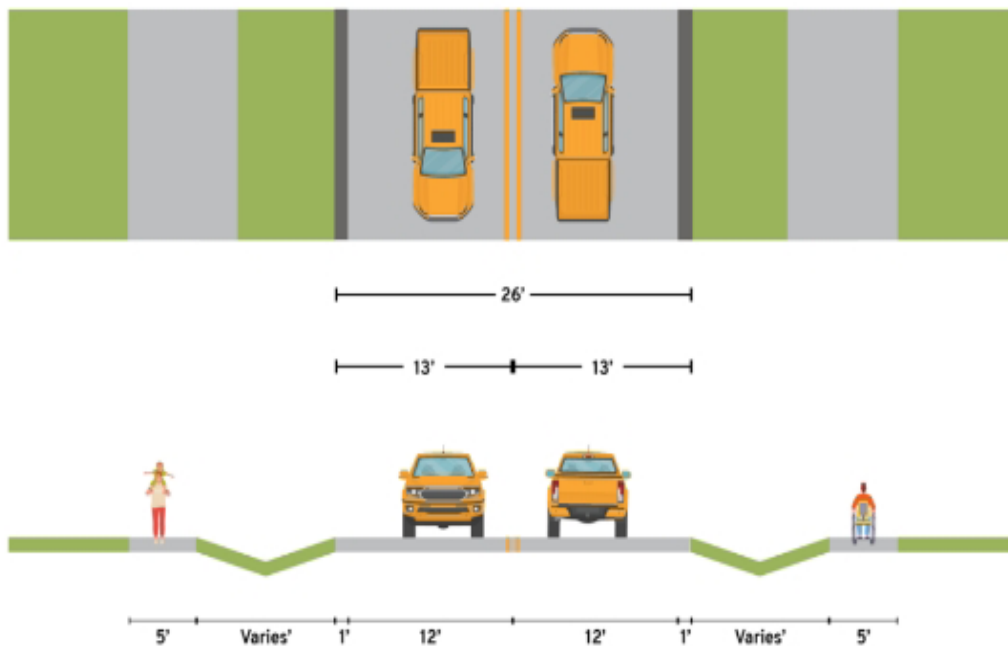
13. Do you have any accessibility issues along Division Road? *

- ☐ No
- ☐ Yes (Please specify).

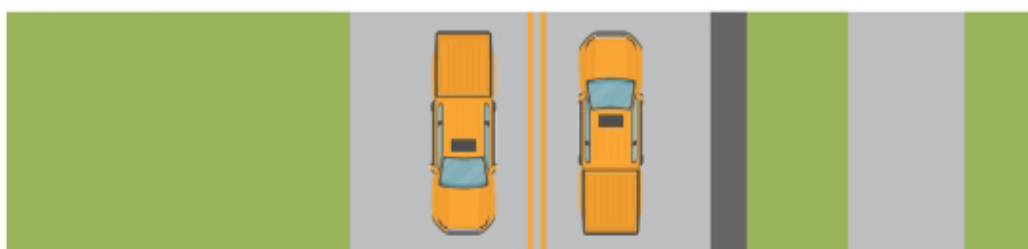
14. Are you satisfied with how long it takes you to travel your route along Division Road? *

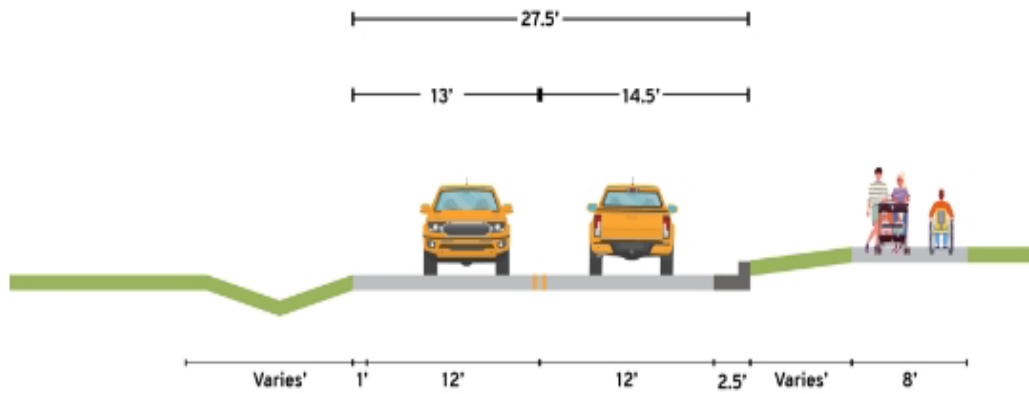
- ☐ Yes
- ☐ No (Please specify).

Concept 1: Existing

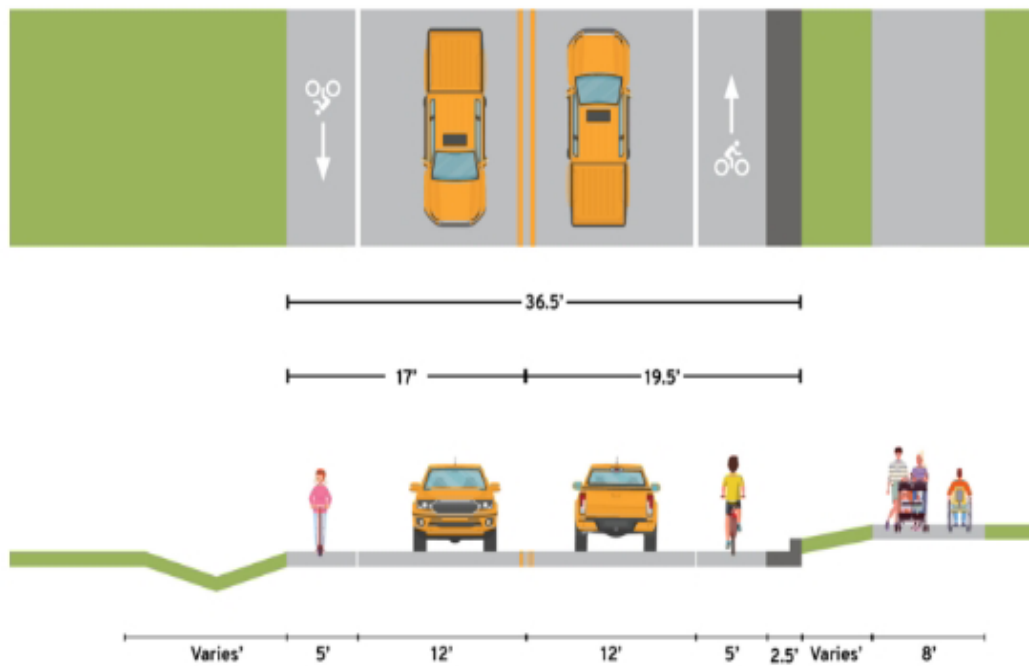


Concept 2: Hybrid Reconstruct with No Bike Lane

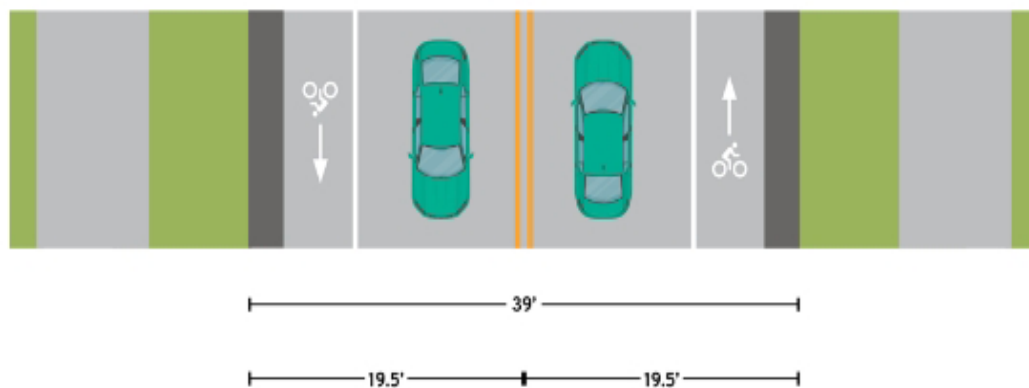




Concept 3: Hybrid Reconstruct with Bike Lane



Concept 4: Curb and Gutter with Bike Lane



15. Which concept from the photos above do you prefer? *

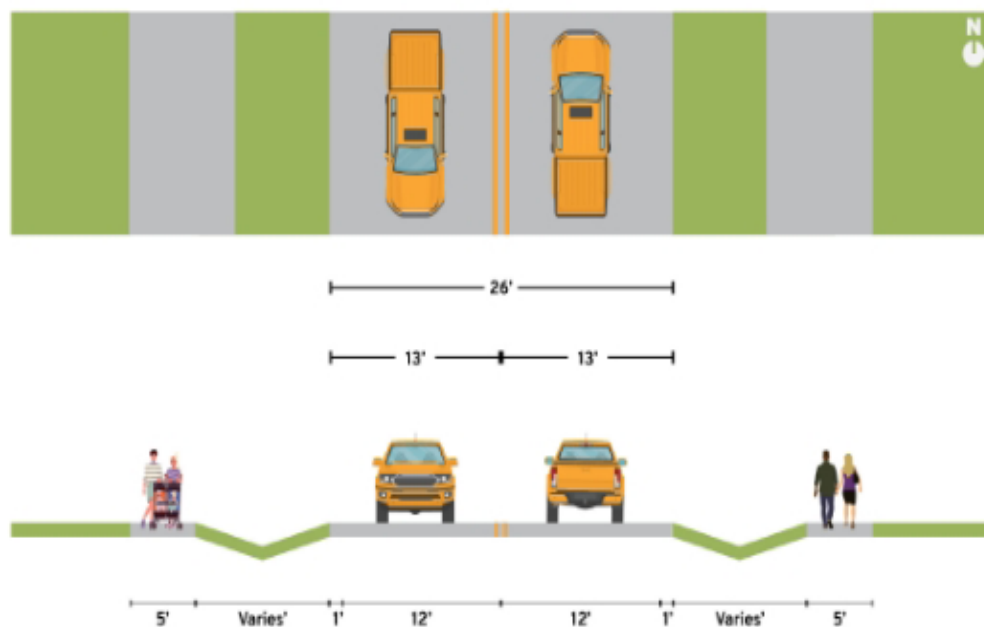
- ☐ Concept 1
- ☐ Concept 2
- ☐ Concept 3
- ☐ Concept 4
- ☐ Concept 5

16. Pick your top priority for repairs/reconstruction of Division Road. *

- ☐ Project construction duration
- ☐ Cost of construction
- ☐ Project lifespan (before replacement required)

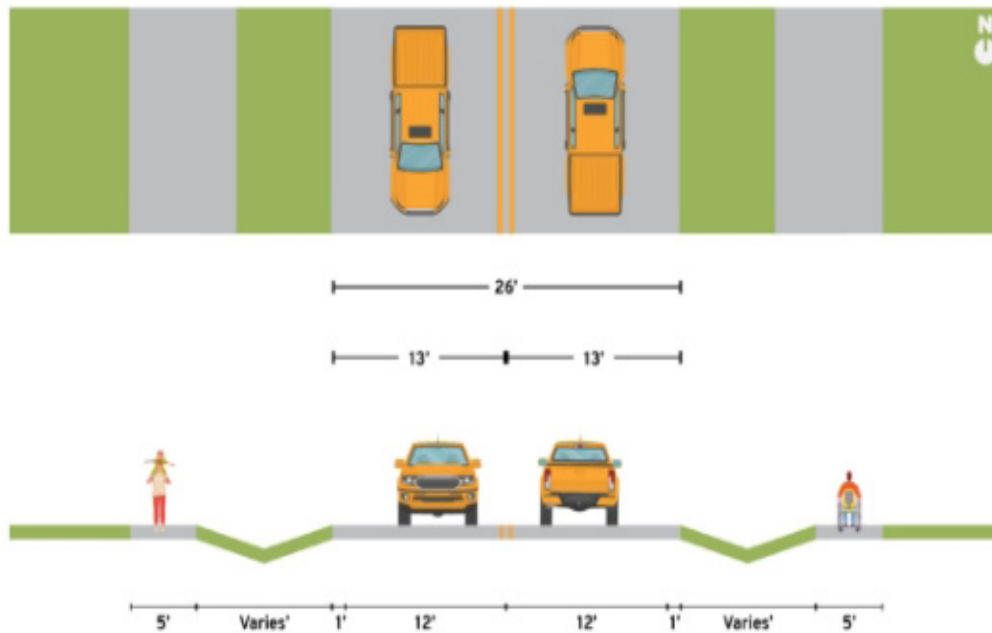
Concept A.1

2-inch mill and 2-inch overlay of asphalt pavement.



Concept A.2

Pulverize and relay with 5 inches of new asphalt pavement.



Concept A.1 and A.2 Breakdown

Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept A.1: 2-inch mill and 2-inch overlay of asphalt pavement.	\$\$\$\$	Limited (mill and overlay provides a short-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Short	No	No
Concept A.2: pulverize and relay with 5 inches of new asphalt pavement.	\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	No	No

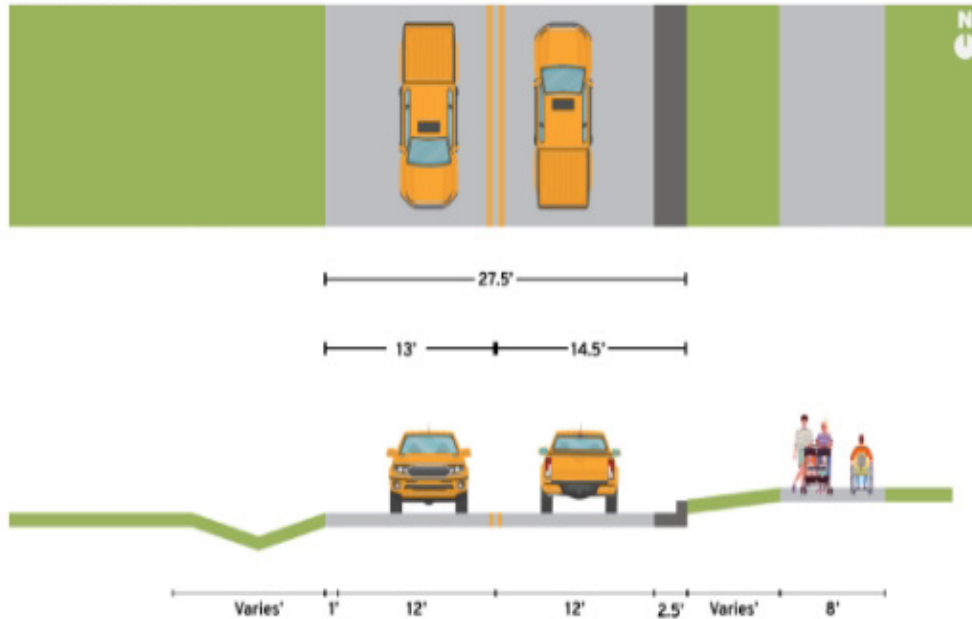
17. Looking at the two images above, which of the concepts do you prefer? *

- ☐ Mill and Overlay Roadway (A.1)

Concept B.1 Hybrid Reconstruction

Concept B.1

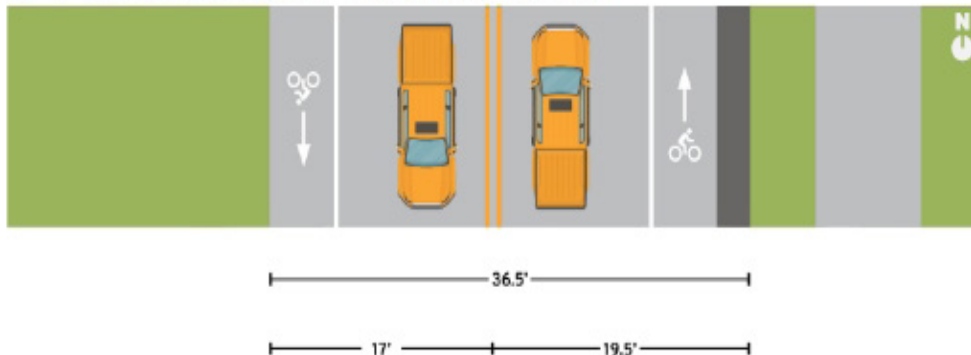
Pulverize and relay with 5 inches of new asphalt pavement, partial curb and gutter additions, reconstruction of the deteriorated path (widened to 8 feet), and other spot treatments.

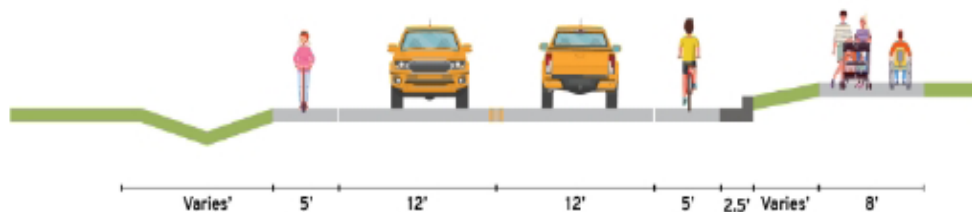


Concept B.2 Hybrid Reconstruct with Bike Lane

Concept B.2

Pulverize and relay with 5 inches of new asphalt pavement, 5-foot paved shoulder, partial curb and gutter additions, reconstruction of the deteriorated path (widened to 8 feet), and other spot treatments.





Concept B.1 and B.2 Breakdown

Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept B.1: roadway reconditioning with partial curb and gutter additions and reconstruction of deteriorated path (widened to 8 feet), and other spot treatments.	\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	No	Limited (selectively widens pathways to 8 feet).
Concept B.2: roadway reconditioning, 5-foot paved shoulder with partial curb and gutter additions and reconstruction of deteriorated path (widened to 8 feet), and other spot treatments.	\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	Yes (provides a 5-foot paved shoulder).	Limited (selectively widens pathways to 8 feet).

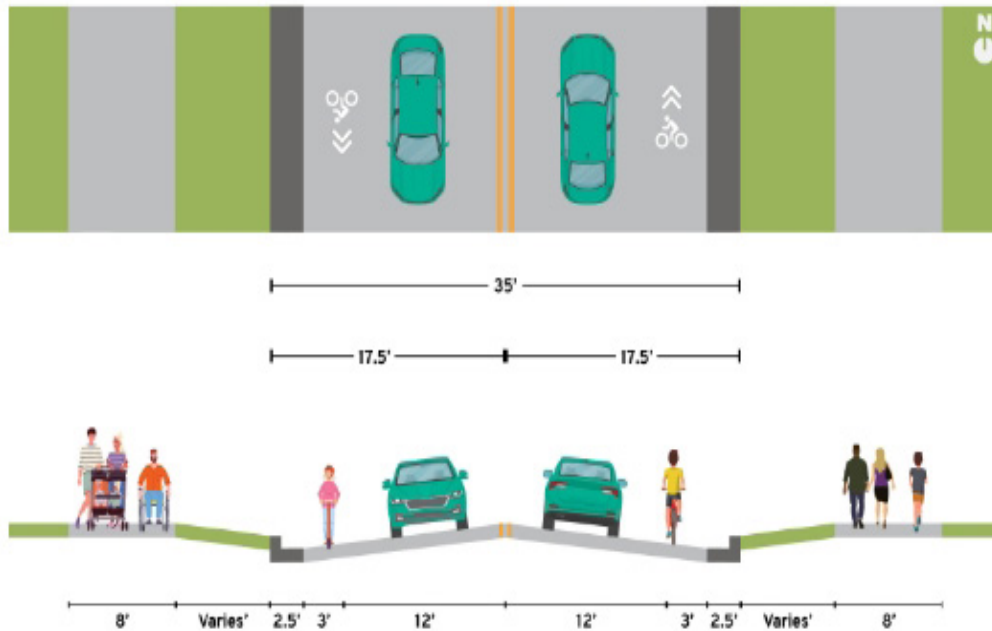
18. Looking at the two images above, which of the concepts do you prefer?

- ☐ Hybrid Reconstruction with NO bike lane (B.1)
- ☐ Hybrid reconstruction WITH bike lane (B.2)

Concept C.1

Concept C.1

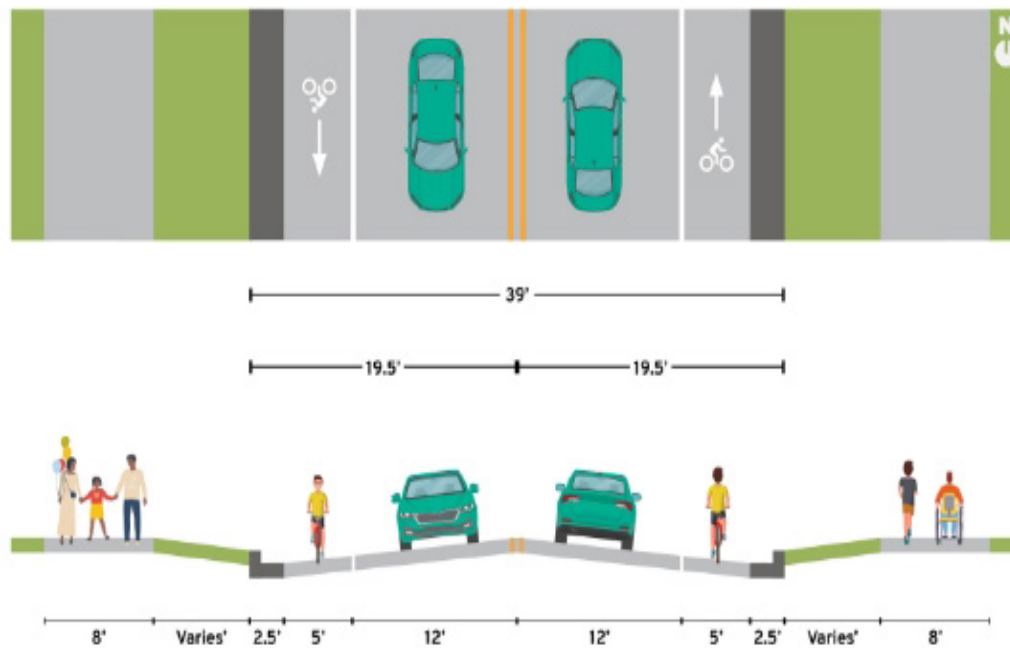
FULL RECONSTRUCT WITH CURB & GUTTER, STORM SEWER, 3-FOOT PAVED SHOULDER, AND NEW 8-FOOT PATHWAYS.



Concept C.2

Concept C.2

FULL RECONSTRUCT WITH CURB & GUTTER, STORM SEWER, 5-FOOT PAVED SHOULDER, AND NEW 8-FOOT PATHWAYS.



Concept C.1 and C.2 Breakdown

Concept C.1 and C.2 Breakdown

Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept C.1: full reconstruct with curb and gutter, storm sewer, 3-foot paved shoulder, and new 8-foot pathways.	\$\$\$	Yes	Limited (provides new crossing across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Long	Limited (provides a 3-foot narrow shoulder).	Yes
Concept C.2: full reconstruct with curb and gutter, storm sewer, 5-foot paved shoulder, and new 8-foot pathways.	\$\$\$\$	Yes	Yes (provides new crossings across Division Road, on-street bike lanes and 8-foot pathways).	Long	Yes (provides a 5-foot paved shoulder).	Yes

19. Looking at the two images above, which of the concepts do you prefer? *

- ☐ Full Reconstruction of Roadways (C.1)
- ☐ Full Reconstruction of Roadways and Pathways (C.2)

20. Any additional comments?

Submit

Division Road PIM Survey

Question 1 has 6 answers (Contact Information)

“Full Name”

Melissa Thundercloud said:
"Melissa Thundercloud"

Michael Herriges said:
"Michael Herriges"

Jan Miller said:
"Jan Miller"

Steven Chycinski said:
"Steven Chycinski"

Amber Chycinski said:
"Amber Chycinski"

Mr. TEST Anonymous said:
"Mr. TEST Anonymous "

Question 2 has 6 answers (Contact Information)

“”

Melissa Thundercloud said:
"W162N9749 Mayflower Dr
Germantown, WI 53022 USA"

Michael Herriges said:
"W173N10770 Willow Wood Dr
Germantown, Wisconsin 53022 USA"

Jan Miller said:
"PO Box 837, W151N10207
Germantown, WI 53022 USA"

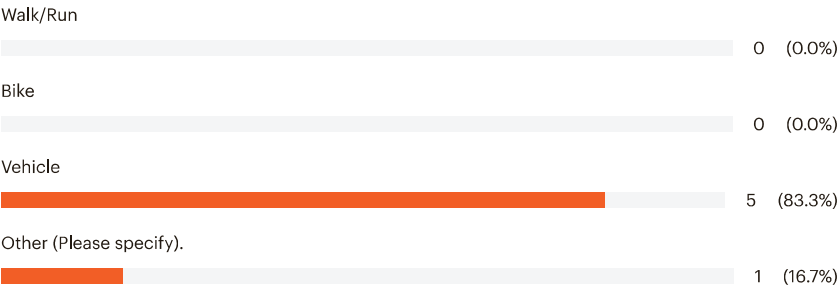
Steven Chycinski said:
"W172N9790 Division Road
GERMANTOWN, WI 53022-4604 USA"

Amber Chycinski said:
"w172n9790 division rd
germantown, WI 53022 USA"

Mr. TEST Anonymous said:
"
 , USA"

Question 3 has 6 answers (Radio Buttons)

“1. What is your primary mode of transportation on Division Road?”



Open text responses to "other":

Amber Chycinski said:
"Vehicle but would love to be able walk more. "

Question 4 has 7 answers (Open Text)

“2. What are your main concerns about Division Road?”

Melissa Thundercloud said:

"The condition of the road is terrible, people turning left is a block to traffic flow"

Michael Herriges said:

"Pedestrian Crossing"

Jan Miller said:

"Needs repaving & bike/trail path."

Steven Chycinski said:

"Speed enforcement, specifically between Chippewa Dr. And Concord. "

Amber Chycinski said:

"The curve by kesslers is horrible. Need a speedbump. People fly down the road and end up on our ditch almost monthly. My kid can't play outside. "

Mr. TEST Anonymous said:

"Bumpy"

Unknown contact said:

"None"

Question 5 has 7 answers (Open Text)

“3. Are there any changes that you would you like to see on or along Division Road?”

Melissa Thundercloud said:

"Smoother road, wider, turn lanes "

Michael Herriges said:

"Safer pedestrian crossing"

Jan Miller said:

"Bike/ trail path. Sometimes there is a need for a turn lane or merge lane. Major streets like Divsion & Donges Bay Road intersection. Also, Divsion and Mequon Road. Make sure that the pump station sewer line is part of the plan so we dont RIP up the road for that again. "

Steven Chycinski said:
"A continuation of the walking path between Wendy and Concord"

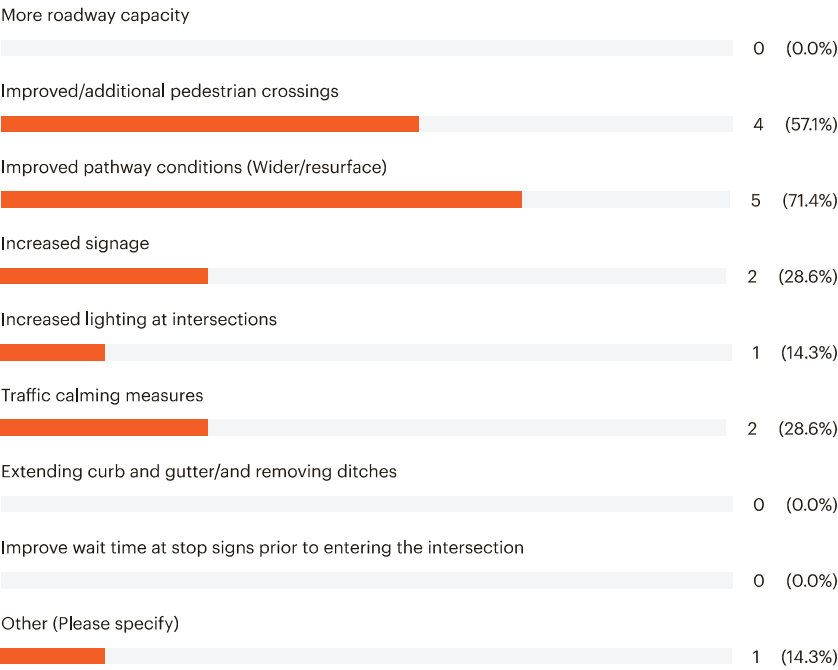
Amber Chycinski said:
"Sidewalk extended at least on 1 side. "

Mr. TEST Anonymous said:
"Smooth it out"

Unknown contact said:
"No"

Question 6 has 7 answers (Checkboxes)

“4. Please select what’s important to you with the Division Road Project.”

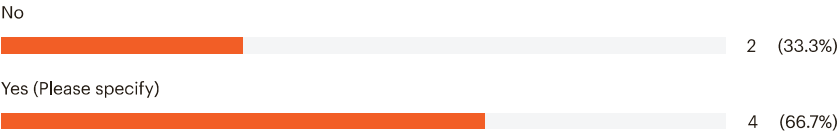


Open text responses to "other":

Mr. TEST Anonymous said:
"It's bumpy, repave to smooth it out"

Question 7 has 6 answers (Radio Buttons)

“5. Have you ever witnessed a crash or near miss on Division Road?”



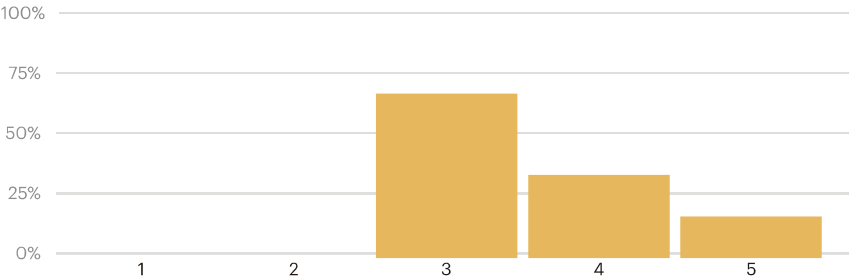
Open text responses to "other":

- Melissa Thundercloud said:
"People stopping to turn left and getting rear ended"
- Jan Miller said:
"People are driving too fast and I was almost rear ended. "
- Steven Chycinski said:
"Countless in the 10 years living at current address. Multiple collisions/cars in ditch in front of home."
- Amber Chycinski said:
"In front of our home speeding around curve by wendy"

Question 8 has 7 answers (Range) Avg rating: 3.6



“6. On a scale of 1 to 5, how safe do you feel DRIVING along Division Road?”



Question 9 has 7 answers (Open Text)

“7. Are there any areas where you feel particularly unsafe along Division Road?”

Melissa Thundercloud said:
"From concord to mequon"

Michael Herriges said:
"No"

Jan Miller said:
"Divdion and Donges Bay Road.
Division and Mequon Road. Not long enough turn lanes and/or merge lanes."

Steven Chycinski said:
"Pulling out of driveway... Anywhere in curve between Chippewa and Concord"

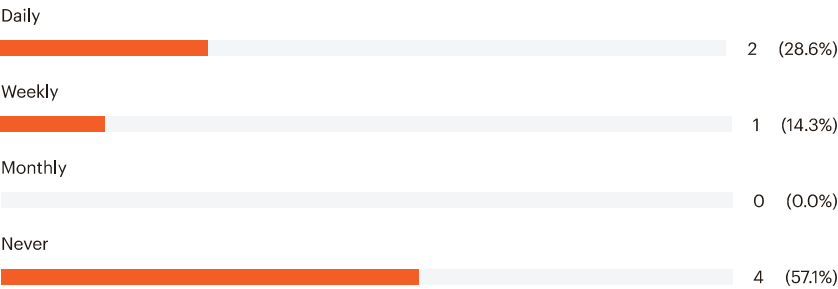
Amber Chycinski said:
"Curve by wendy"

Mr. TEST Anonymous said:
"Ditch near bridge, and pedestrians crossing near Donges and Revere"

Unknown contact said:
"No"

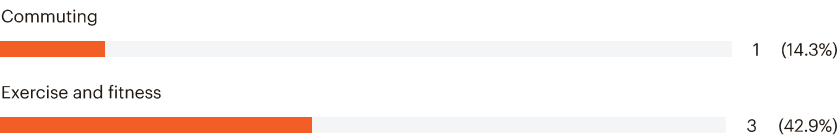
Question 10 has 7 answers (Radio Buttons)

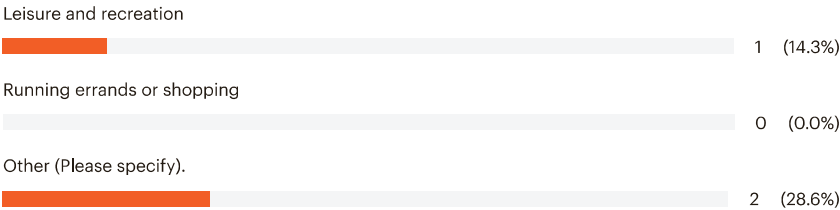
“8. How often do you walk/bike along Division Road?”



Question 11 has 7 answers (Radio Buttons)

“9. What is the primary purpose of your walk or bike ride along Division Road?”





Open text responses to "other":

Steven Chycinski said:
"No path access immediately near home, otherwise, I would utilize weekly"

Amber Chycinski said:
"I only drive "

Question 12 has 7 answers (Open Text)

“10. Where do you usually cross Division Road?”

Melissa Thundercloud said:
"I won't walk my children on division- there's too many bumps/cracks, people driving high speeds. "

Michael Herriges said:
"Lilac"

Jan Miller said:
"Donges Bay Road."

Steven Chycinski said:
"I currently do not."

Amber Chycinski said:
"I don't and can't. It's not safe"

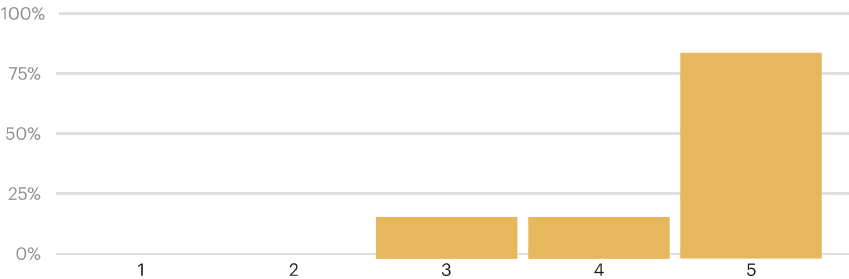
Mr. TEST Anonymous said:
"Lilac when walking, in marked Donges Bay Rd crosswalk to get to west side and avoid Tanglewood unmarked crossing"

Unknown contact said:
"Test"

Question 13 has 7 answers (Range) Avg rating: 4.6

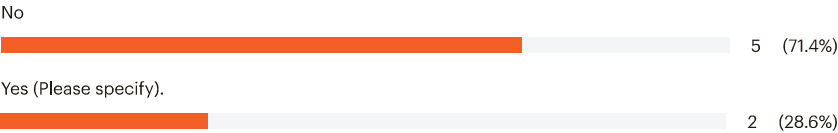


“11. If improvements were made to the sidewalks/pathways, how likely would you be to use the sidewalks/pathways more frequently?”



Question 14 has 7 answers (Radio Buttons)

“12. Are there enough pedestrian crossings along Division Road and are they clearly marked and maintained currently? If not, where would you like to see new crossings?”



Open text responses to "other":

Mr. TEST Anonymous said:
"Tanglewood, Revere, Concord, Lilac"

Unknown contact said:
"Test"

Question 15 has 7 answers (Radio Buttons)

“13. Do you have any accessibility issues along Division Road?”



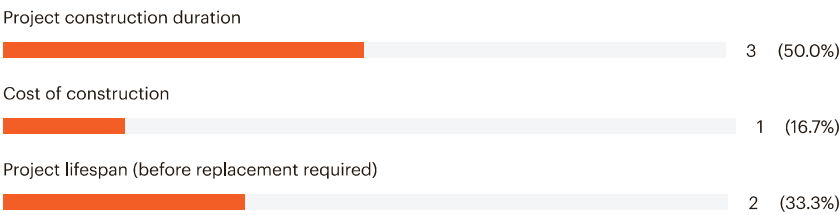
3 (42.9%)

2 (33.3%)

2 (33.3%)

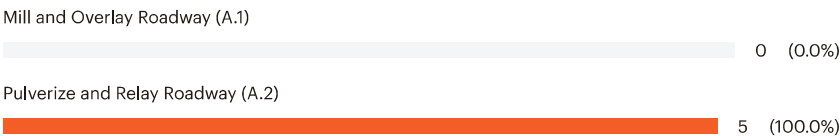
Question 18 has 6 answers (Radio Buttons)

“16. Pick your top priority for repairs/reconstruction of Division Road.”



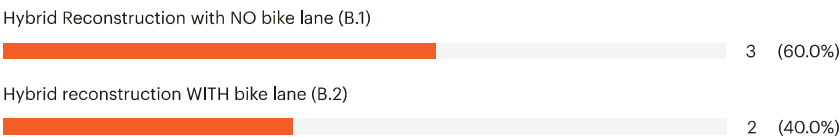
Question 19 has 5 answers (Radio Buttons)

“17. Looking at the two images above, which of the concepts do you prefer?”



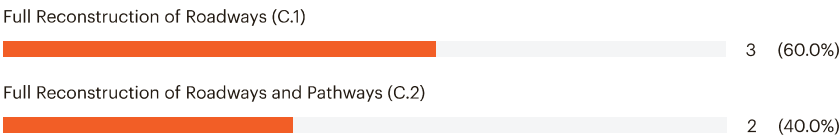
Question 20 has 5 answers (Radio Buttons)

“18. Looking at the two images above, which of the concepts do you prefer?”



Question 21 has 6 answers (Radio Buttons)

“19. Looking at the two images above, which of the concepts do you prefer?”



Question 22 has 4 answers (Open Text)

“20. Any additional comments?”

Jan Miller said:

"The event was well put together. I think you need to go to other neighbor hoods. Kinderberg Park would be a good venue. Right off Donges Bay and residents use Division Road. Make sure you advertise in Express news and post on the EMC - Ele tronic Message board outside Village Hall. Also the QR Code should be in the back of the Room for all Committee and Board Meetings. Pmus at every window where residents come in and do business. How about adding it to the website. Show the diagrams on the website and attach the survey QR Code. It was suggested tonight to take the QR Code to Firemans Park for Music in the Pavilion and Concerts at the Pavilion. I like B1 design the best. Best on show! Thanks!"

Steven Chycinski said:

"See paper copy of comment input form"

Mr. TEST Anonymous said:

"Thank you, KRD
"

Unknown contact said:

"Test "

DIVISION ROAD MEQUON ROAD TO COUNTY LINE ROAD



Date of Meeting:

July 23, 2024

Location:

Germantown Village Hall

N122 W17001 Mequon Road
Germantown, WI 53022

Times:

5 p.m. - 7p.m.

Purpose of Meeting:

The purpose of the second Public Involvement Meeting was to inform the community of the advanced conceptual designs for Division Road to help identify areas of safety pedestrian improvements.

Meeting Summary

The meeting was held July 23rd from 5 p.m. – 7 p.m. at the Germantown Village Hall in Germantown. Representatives from The Village of Germantown and Kapur set up the meeting's ten exhibits, including two large roll plot maps of the corridor and 8 exhibits of the 4 new design concepts as well as 3 previous concept designs from the first public meeting. A member of the public involvement team was stationed at the sign-in table at the entrance of the room. While attendees signed in manually, they were given an interactive comment form activity that allowed participants to provide comments on specific areas and board with stickers. Attendees received four numbered stickers with the meeting materials and were asked to provide comments by placing one of the dotted number stickers on an exhibit and the other sticker with the same number on their comment form. Staff encouraged attendees to leave their comments on the large roll plot sheets as well as on the combined exhibit board addressing safety issues they see, and commenting on concepts they did and didn't like. Table toppers with QR codes encouraging attendees to participate in the Division Road survey were placed around the room on multiple tables. The meeting had a total of 61 attendees who signed in.

Attachment A - Attendance

Attachment B - Meeting Materials and Exhibits

Attachment C - DOT Sticker Exhibits and Comment Forms

Attachment D - Survey and Survey Results

STAFF:

Village of Germantown

- Kevin Driscoll
- Matt Mortwedt
- Sokrat Kuri
- Linda Granec
- Jacob Sajdak
- Rick Lamb

Kapur

- Neal Styka
- Grace Marino

DIVISION ROAD MEQUON ROAD TO COUNTY LINE ROAD



Written Comment Summary

Many people at the meeting shared their ideas about the concepts shared at the public meeting, and what they would like to see happen with Division Road. One of the comments brought up by a few different attendees was their concern about safety for bikes and pedestrians on the trails. Many residents liked the idea of having wider pathway while others didn't think it was necessary.

Many of the residents commented about their concern for the speeding that takes place along the road. Many who mentioned the issue of speed had concerns if there were to be bike lanes added along the road that the wider roadway would encourage more speeding.

Several residents mentioned wanting to see a continuous pathway the entire length of this project from Mequon Road to Division Road as well as adding parking for the pond near Division Road and Juniper Drive for community members who fish there. The most liked and commented concept was option 2B, with no bike lanes on Division Road, but a widened pathway, allowing for more space for bicyclists and pedestrians along the pathway.

Survey Summary

Through the survey, we gathered information from the residents about their opinions on Division Road. We had a total of 2 new participants that completed the survey at the PIM on Tuesday, July 23. The survey received a surplus of responses between PIM #1 and PIM #2 after Germantown posted it on their Facebook page on Wednesday, July 3. As of today, the Division Road survey has received a total of 41 responses. The survey remains active currently and remains up on Germantown's Facebook post from the public involvement meeting.

All participants who took the survey stated their primary mode of transportation on Division Road was vehicular, however we did have one person mention they would love the ability to walk more along this route. Many of the participants concerns about Division Road circulated around pedestrian crossings, and making the corridor safe for those who are walking along the roadway and speed control.

The survey had residents choose what's most important to them with the Division Road project. Majority of the concerns were about improving pathways conditions as well as updated, improved, or additional pedestrian crossings. Other participants had concerns about traffic calming measures, increased lighting, and increased signage within the project limits.

Four participants of the survey stated they had witnessed a crash or near miss along Division Road. The survey asked for identification of the areas along Division Road where they felt the least safe. Many mentioned the curve by Wendy Lane, ditch near the bridge and pedestrian crossings near Donges Bay Road and Revere Lane, and pulling out anywhere along Division Road at the curve between Chippewa Drive and Concord Road. Other residents mentioned the unsafe parking that takes place near Division Road and Juniper Drive for those who fishing at the pond. Residents were concerned about the children's safety that park and walk along the road to reach the pond.

Overall, the survey gave residents another platform to address their comments on aspects of the project and what they see within their community daily that could aide us during the conceptual process.

Attachment A: Attendance

Attachment B - Meeting Materials and Exhibits

YOU'RE
Invited!

PUBLIC INVOLVEMENT MEETING #2

DIVISION ROAD MEQUON ROAD TO COUNTY LINE ROAD

The Village of Germantown is hosting a meeting to gather public feedback on the conceptual designs for Division Road, from Mequon Road to County Line Road. *The project aims to enhance roadway conditions, improve safety, and provide pedestrian accommodations along the project limits.*

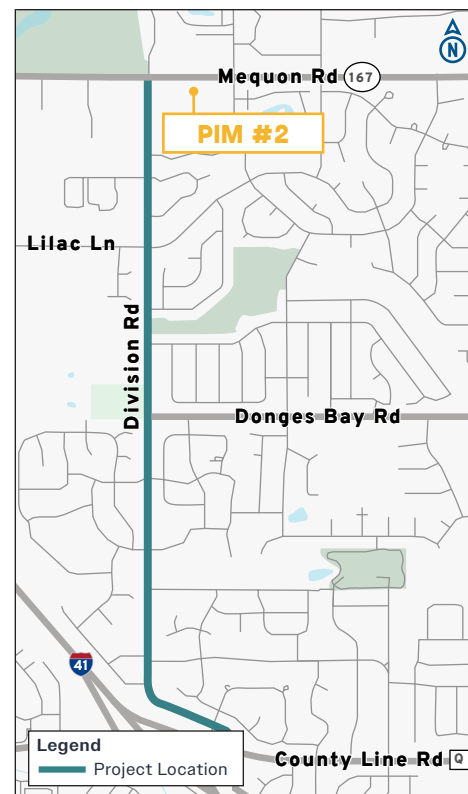
Join us at the open house meeting to provide your feedback! We'll be showcasing conceptual designs for Division Road.

WHEN:

July 23, 2024
5 p.m. - 7 p.m.

WHERE:

Germantown Village Hall
N122 W17001 Mequon Road
Germantown, WI 53022



STAY UP TO DATE

Scan the QR
code to the left to
learn more about
the project

PROJECT CONTACTS:

Kevin Driscoll, P.E.

Village Engineer

p: (262) 250-4724

e: kdriscoll@germantownwi.gov

Neal Styka, P.E., PTOE, RSP1

Project Manager

p: (414) 751-7238

e: nstyka@kapurinc.com

PUBLIC INVOLVEMENT MEETING #2

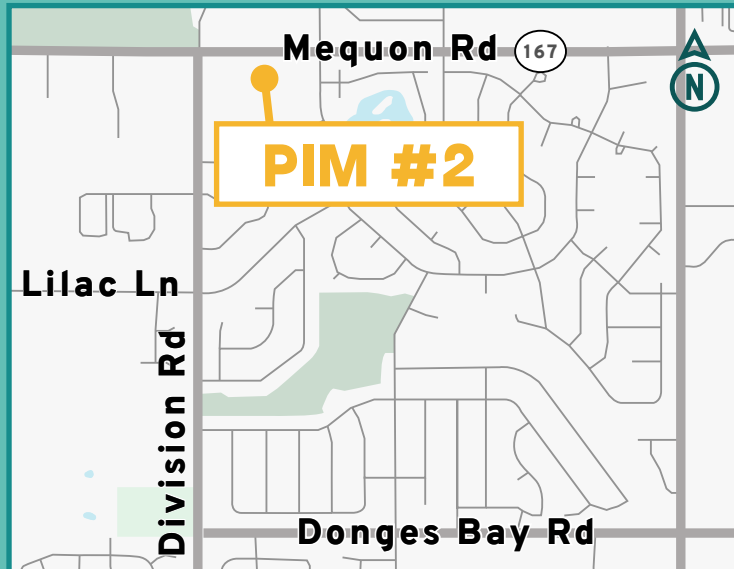
DIVISION ROAD

MEQUON ROAD TO COUNTY LINE ROAD



YOU'RE
Invited!

Join us at the open house meeting to provide your feedback! We'll be showcasing the conceptual designs for Division Road.



**STAY UP
TO DATE**

Scan the QR
code above

WHEN:

July 23, 2024
5 p.m. - 7 p.m.

WHERE:

Germantown Village Hall
N122 W17001 Mequon Road
Germantown, WI 53022

QUESTIONS? CONTACT THE TEAM:

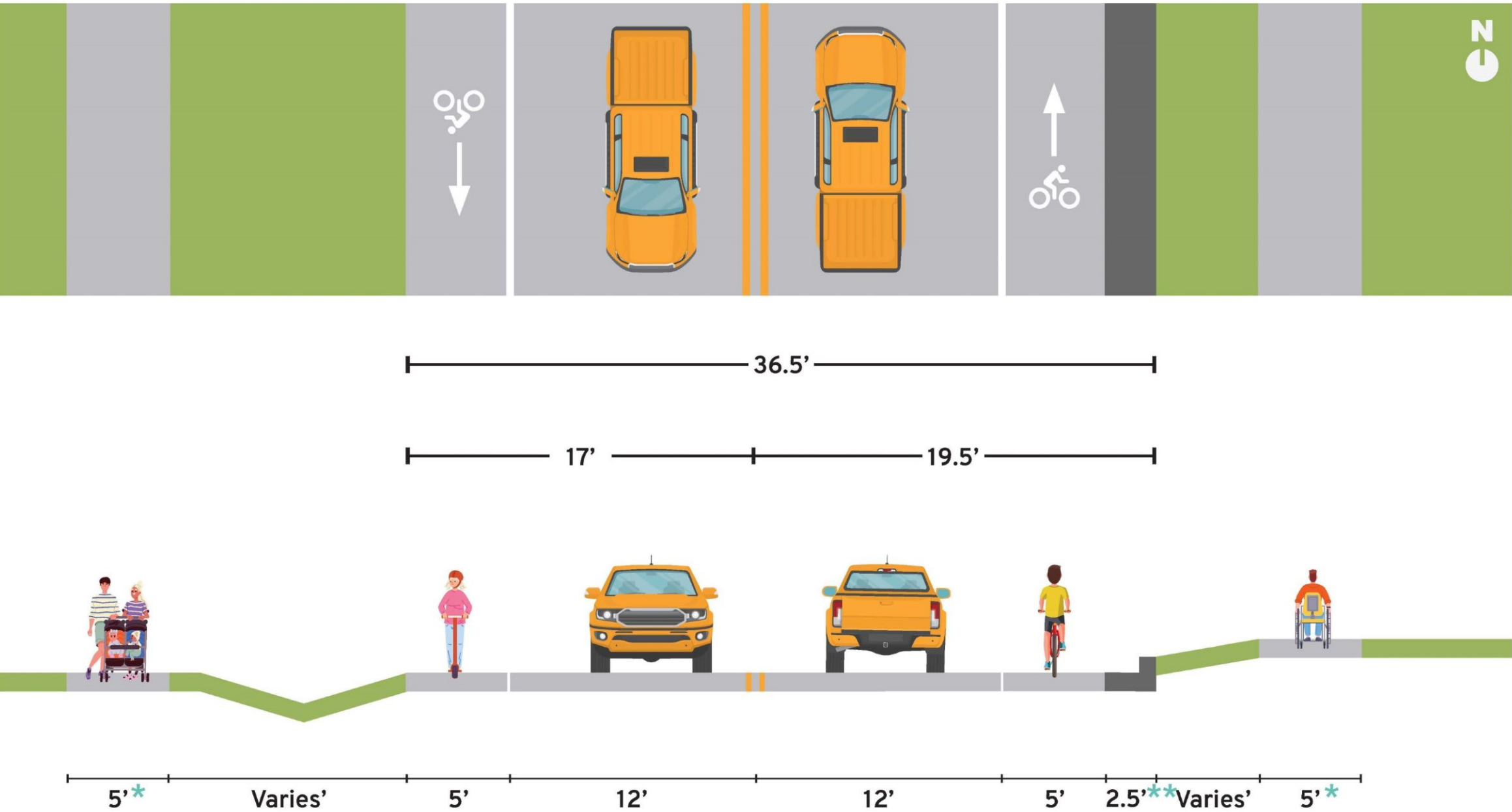
Kevin Driscoll, P.E.
Village Engineer
kdriscoll@germantownwi.gov

Neal Styka, P.E. PTOE, RSP1
Project Manager
nstyka@kapurinc.com

Concept 1:

Pulverize and relay pavement, widen shoulder to provide a 5-foot bike lane, and existing pathways to remain unchanged.

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD



* Existing pathways to remain, the existing pathway may not exist on both sides of the roadway.

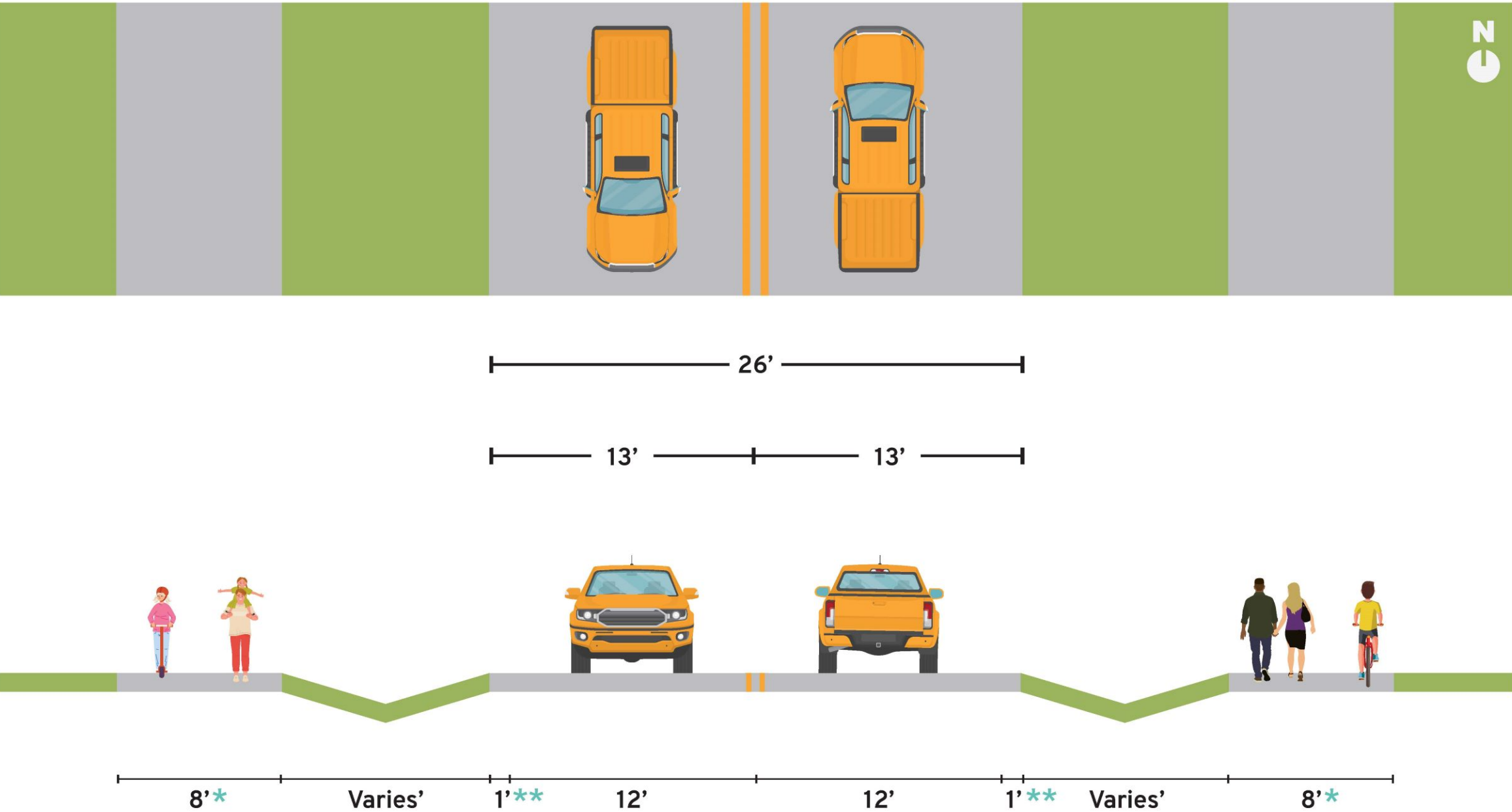
** Adding curb and gutter will be evaluated in areas where widening the road would impact the ditches

Concept 1	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8-Foot Per The Recommendations of The 2050 Master Plan
Pulverize and relay pavement, widen shoulder to provide a 5-foot bike lane, and existing pathways to remain unchanged.	\$\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, widens and provides continuous pathway along the corridor).	Medium	Yes	No

Please place the concept preference stickers here:

Concept 2A: Pulverize and relay the pavement, and replace and add 8-foot pathways on both sides.

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD



* Existing pathways will be replaced and widened to 8-feet, New pathways will be added where the pathway doesn't currently exist on both sides of the roadway.

** The existing infrastructure will dictate whether curb and gutter or a gravel shoulder is used.

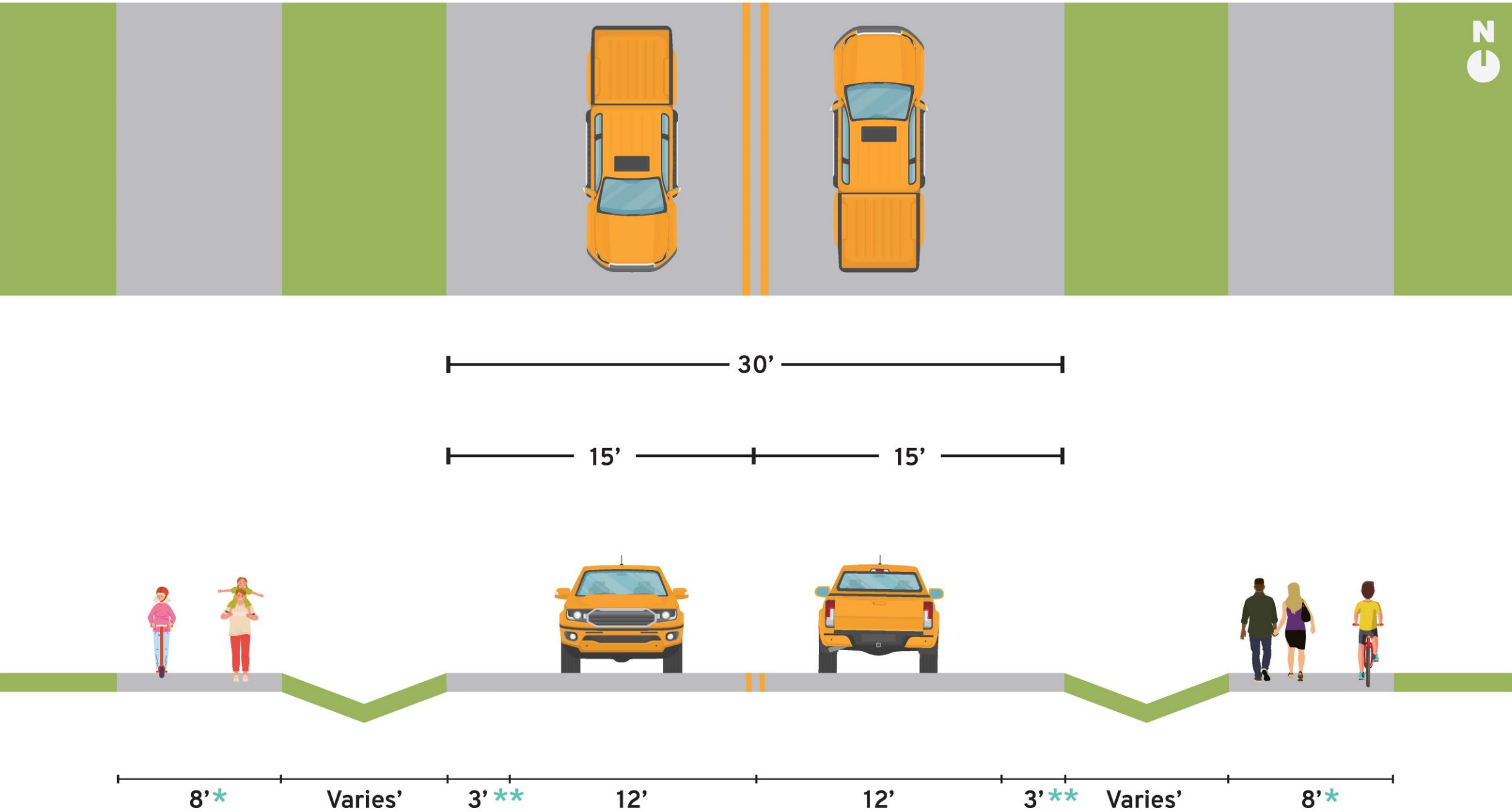
Concept 2A	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8-Foot Per The Recommendations of The 2050 Master Plan
Pulverize and relay the pavement, and replace and add 8-foot pathways on both sides.	\$\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, and provides continuous pathway along the corridor).	Medium	No	Yes

Please place the concept preference stickers here:

Concept 2B:

Pulverize and relay the pavement, and replace and add 8-foot pathways on both sides.

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD



* Existing pathways will be replaced and widened to 8-feet, New pathways will be added where the pathway doesn't currently exist on both sides of the roadway.

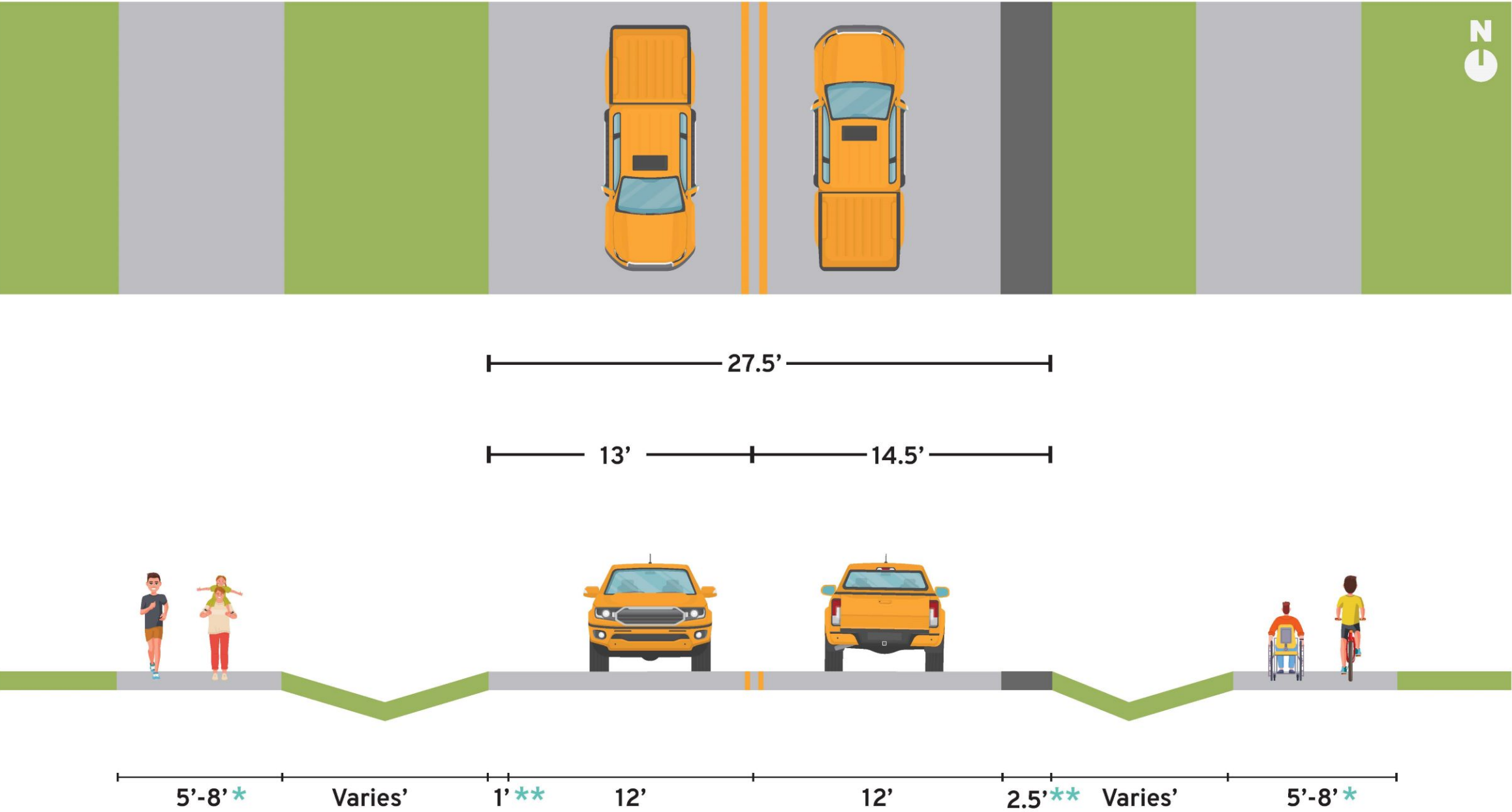
** The existing infrastructure will dictate whether curb and gutter or a gravel shoulder is used.

Concept 2B	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8-Foot Per The Recommendations of The 2050 Master Plan
Pulverize and relay the pavement, and replace and add 8-foot pathways on both sides.	\$\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, and provides continuous pathway along the corridor).	Medium	No	Yes

Please place the concept preference stickers here:

Concept 3: Roadway reconditioning with partial curb and gutter additions, selective reconstruction of the deteriorated path (widened to 8-feet), and other spot treatments.

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD



* Existing pathways will be selectively replaced and widened to 8-feet, pathway may not currently exist on both sides of the roadway.

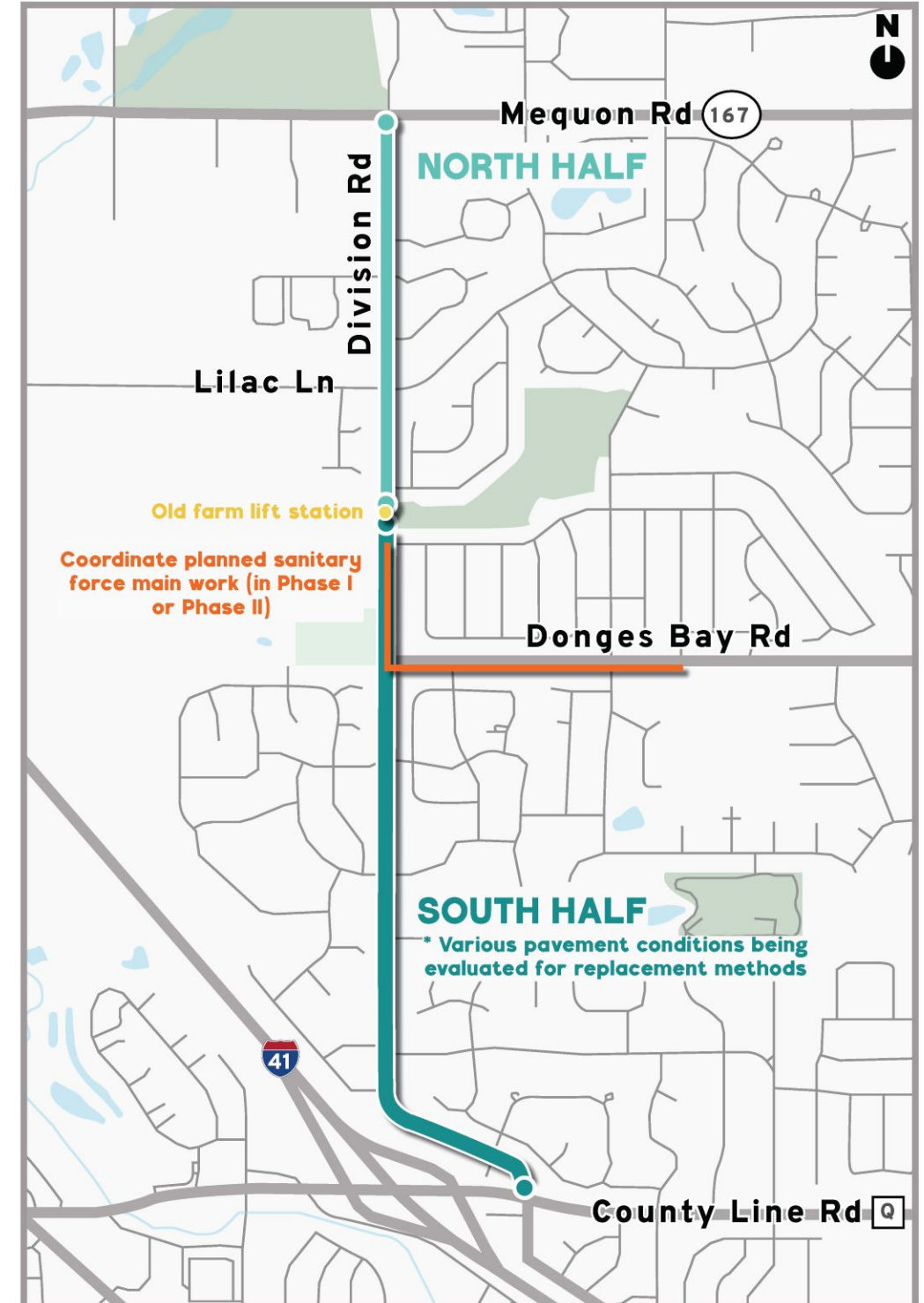
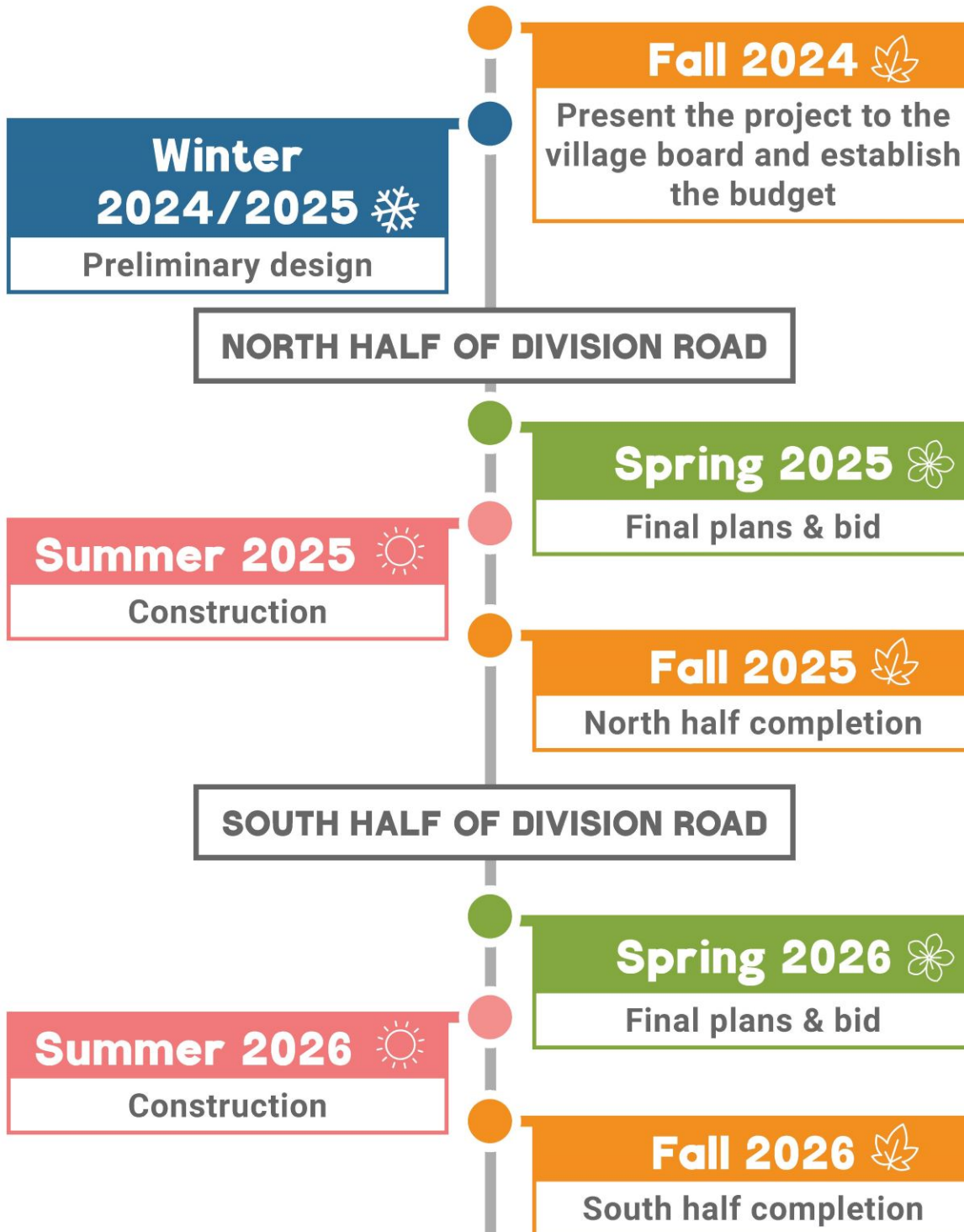
** The existing infrastructure will dictate whether curb and gutter or a gravel shoulder is used.

Concept 3	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8-Foot Per The Recommendations of The 2050 Master Plan
Pulverize and relay the pavement with partial curb and gutter additions, selective reconstruction of the deteriorated path (widened to 8-feet), and other spot treatments.	\$\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, widens pathways, and provides continuous pathway along the corridor).	Medium	No	Limited (selectively widens pathways to 8-feet).

Please place the concept preference stickers here:

Anticipated Schedule

DIVISION ROAD FROM MEQUON ROAD TO COUNTY LINE ROAD





Division Road Conceptual Design
(Mequon Road to County Line Road)
Village of Germantown

Comment Input Form

July 23, 2024

Name: _____

Address: _____

Email Address (optional): _____

Place a numbered sticker on the map or exhibit on the comment exhibit near the location for which you would like to comment. Place the second sticker number in the box below and comment in the adjacent spaces:

Comment:

Comment:

Comment:

General Comments:



How to Participate in the Input Exercise

What is the input exercise?

This input exercise is a method of gathering feedback at public meetings. Numbered stickers are used to identify specific locations and/or issues on the maps/exhibits. This allows the project team to easily identify the location of the issue/comment.

What am I supposed to do?

This is a simple and interactive exercise. All that is required of you is to place a numbered sticker on the map or exhibit labeled “**comment exhibit**” near the location of the issue you would like to comment on. Place the same dot number sticker in a box on the input form and write your comment next to the number. It’s that easy.

If you have a general comment, write it on the bottom of the form in the general comments section.

What types of issues should I comment on?

There is no limit to the comments that can be provided, however, some examples of issues that are related to transportation and land use could include:

- Pedestrian crossing concerns such as convenience or accessibility.
- Important areas for future roadway or pathway maintenance.
- Areas where safety is a concern because of the number of crashes or unsafe conditions.

Example:

Place the colored dot number in this box.

23

I would like to see updated pedestrian crossings along Division Road.

DIVISION ROAD
MEQUON ROAD TO COUNTY LINE ROAD



**SCAN THE QR CODE TO
TAKE THE DIVISION ROAD
SURVEY TODAY!**



We Want to Hear From You!

Attachment C - DOT Stickers and DOT Comment Forms

Exhibit / Concept	#	Comment	General Comments:
Concept 1	53	It would be nice feature to put some street lighting in.	
Concept 1	55	Would like light by Ashbury Condo entrance - currently no light and hard to see walkers/joggers coming into lane to cross street. Hope having bike lanes on both sides will stop speeders using road, as a racetrack. Like the idea of crosswalks, having flashing pedestrian lights, and reflective materials.	
	57	Why do we need a sidewalk on the west side from Lilac to Donges Bay Rd when most of it is wiledand Nursery?	
Concept 2B	58	Concpet 2B	
Roll Plot	61	Why do they need a sidewalk on the west side of Division road + on the east side?	
Roll Plot	62	Not many people cross Division road at Hawthorne (many people use the walking path on the east side of Division. The problem is crossing Hawthorne. Don't realize that there's a cross walk there.	
Roll Plot	63	I love the additional crosswalks especially the one by Revere.	
Concept 2A	64	I love the idea of having pathways the whole way on both sides.	
Concept 2B	65	I prefer the wider walking paths that bikes could use. I would like to see options that include turn lanes. A crosswalk is needed from Alt Bayer Park to the Fishing pond.	
Concept 2B	67	I like this option because the bike path is wider and there is more space between the road and the paths.	
Roll Plot	70	Pulverize + 5" top no curbs 3 ft wide path. Start as soon as possible.	
	73	No need for path on both sides of road & the one way signs will be useless.	
Concept 3	75	I believe the road is safe but does need resurfacing. Will a wider shoulder really matter?	
Concept 1	76	Bike lanes are not worth the cost. There is very little bike traffic. The bike could use the pathway if necessary.	
Concept 1	77	There is such limited bike traffic > 1-2 weekly. I do not see need for bike lanes.	
Concept 3	78	I'm concerned that widening the road will encourage speeding. I'm happy with width as it is.	
Concept 2B	79	I picked 2B over 2A but would like to know the difference in price between the 3ft width of 2B and the 1 ft Width of 2A	
Roll Plot	80	I believe the added expense doesn't justify a pathway on the west side of Division along the Wentland's Nursery.	
Concept 2B	81	Like plan but only want path on one side.	
Roll Plot	83	I have saftey concerns about this curve. Please address line of sight.	

Roll Plot	84	A passing lane heading south would be helpful when people are making left turns and blocking the flow of traffic. This applies to all entrances to the subdivision, not just where I placed the sticker.	As a bicyclist, I prefer Concept 1. LED lights Dividing the road + the bike path would add safety.
Concept 1	85	This Option seems excessive + not cost effective. Division Rd does not need to be that wide.	
Concept 2A	86	This seems to be the best option cost wise and width of Division Rd.	
Concept 2B	87	Prefered proposal	
Concept 2A	88	Second Option	At controlled intersections, The left lane should be for turning left or going straight. The right Lane should be only for turning right.
Concept 1	89	I see very few bikers + not many need walk/bike path. One Side is sufficient.	
Concept 2B	91	Allow for traffic to pass & bigger strollers, wheel Chairs.	
Concept 2B	93	I like side path in both sides of road for traffic + safety. Like how it allows for bike lanes.	
Concept 2A	94	Same reasons as above onlyu here less of bike lane.	
Concept 1	95	Dedicated bike lane is good. There have been close calls as it currently is.	
Roll Plot	96	Question the number of flashing caution lights along the south end part of Division.	
Concept 2A	97	I like the set-up. Not too big/not too small. Everything will work out (cars - bikes) ok.	
Concept 2B	98	Best option! Wider road, Wider continous path.	Great way to show options and get feedback!
Roll Plot	99	Jefferson ditch concerns. Please see pages 3 + 4 of my attached handout.	
Roll Plot	100	Mequon at Division Rd. Please see page 6 of my attached Handout. (Recommendations By: Steven Wesolowski)	
Concept 1	101	Put in a bike lane would good. Do something about speed.	Crosswalk by Lilac Lane + Hawthorne Dr.
	103	Take Division resurfacing all the way to Mequon Rd.	
	104	Sidewalk on West Side of Division is not needed. It would not service sufficient # of houses for cost improvement to east side would be all that is needed.	
Roll Plot	105	Very concerned with the speed once Rd. is improved. People are speeding all the time now.	
Concept 1	106	Maybe lower speed limit or add stop sign on Donges Bay Rd.	
Concept 2B	107	I'm not a fan of bike lanes in the road. I like having 8 ft wide paths on both sides of road. I like widened lanes too. 2B is best Plan.	
Concept 3	108	Halfway approach. It saves some money but doesn't solve problems for long term. Big advantage to have wide paths on both sides. This would be an improvement.	Great way to show options and solicite feedback!

Concept 2B	112	I like the widen pedestrian pathway but don't think we need a lighted beacon at the crosswalk.	Please add a right turn lane at Division + Mequon Rd. The stop + go light at this intersection is so long. An you bump up the project to fix the roads from Division Rd. + Wagon Trail Rd + all the Cul du Sacs off Santa Fe Rd.
Concept 2B	113	No crosswalks flashing signals if nobody is present at crosswalk. Only one pathway, take construction all the way to Mequon. Put in right turn lane to Mequon Rd.	Is this the Same procedure that you will do the Maple Road? Like you're doing to Division?
Concept 1	115	Bike lane is desperate need. Pedestrian + bikes don't mix well with e-bike/power assisted bike.	
Roll Plot	116	Need a walkway to extend all the way to county Line from Mequon.	
Anticipated Schedule Board	117	I would like the south portion of Division Rd. Repaired prior to repairing the North portion of Division Rd.	
Concept 2B	118	I like the 2B Concept because it separates the bike & motor vehicle lanes. I do not like contending with bicycles when driving.	Thank you for consulting us!!
Concept 2B	119	Don't mind sharing walkway with bikes (as long as common sense is used) Move over if you see a bike coming or a bicyclist slow down and ring bell if in back of walkers to let them know they will pass.	
Concept 2B	121	I'd pick this concept	Disappointed in the choices. It's a cheap fix and more is needed. I voted for better solution. Hell, Pilgrim rd. speeds are 50-50 and Division 45-50. I wanted the most expensive and safest fix, but that was voted down. Walk + drive this road daily. I think it should be like Pilgrim Rd for safety. Speeds are 45-50 on Division - never policed. Walking is not safe, bike either. Tired of doing 40-45 and being tailgated down the road. Lots of volume!
Roll Plot	123	I totally agree with my husband's comment above, going north on Division and wanting to turn right on Mequon is a terrible bottleneck and should be addressed.	
Concept 1	123	I like the concept of "concept 1" I like the designated bike lane on the side of the road because adult bikers are going to ride on the road even if a "bike path" is provided.	
Roll Plot	124	Why can't the left turn lane also handle the straight-ahead traffic so the cars turning aren't held u by the "one" car wanting to go straight ahead.	
Concept 2A	124	Concept 2A - I like the 8' path, plus keeping bike lanes off the road. Poor Lighting could contribute to accident with bike you never saw.	
Concept 1	125	I selected concept 1 to add bike lanes, possible alternative would be to have bike lane on one side only (ride in both directions) if space is challenging. This may allow widening pathway a little more than proposed.	Major disappointment in the village was not putting in bike lanes on Donges Bay Road when that was done.

Concept 1	127	One concern is the grade of the Hill just North of Lone Oaks. Cars are unseen at the bottom of the Hill when leaving Lone Oaks Subdivision.	
Concept 2A	129	Make the paths all the way from Mequon to Division. The "chunks" of current paths is lame.	
Concept 1	131	I like the idea of dedicated bike lanes, Would prefer to see wide path all the way along Division Rd.	
Concept 3	132	Let's do a complete job not a patching up.	
Concept 2A	135	Recommend only placing pathways on east side of Division Rd from Donges Bay to Lilac. Will save lots of money on construction costs and there are no crosswalks between those two roads.	
Concept 2A	136	Bridge - will a parking area for fisherman be made at or near the bridge? Parking lot could be placed in area between ponds + city pumping buildings.	
Concept 2B	137	Need to have right-turn lanes at ALL intersections to allow traffic to pass when left turns block traffic.	
Roll Plot	139	Parking spaces for people fishing in the pond across from Old Farm Jefferson Ditch.	
Concept 2B	140	Min. of 8'+ paths as nig as possible. Super like! Concept 2B.	
Concept 1	143	LED speed lighting with flashing camera.	
Concept 1	144	LED light in pavement north + south for safety?	
Concept 2B	145	Highly recommend pedestrian traffic off road and on paths. This road leads from residential and feeds towards the high school so wide road would be preferred for the young drivers driving school days. Width will play a factor in accidents.	
Concept 3	147	More areas of the curb + gutter for saftey of walkers + bikers. Change MPH to 40 from 35 mph. Plan road for 30 year use.	
Concept 2B	148	More areas of the curb + gutter for safety of walkers + bikers. Change MPH to 40 from 35 mph. Plan Road for 30 year use.	
Concept 2B + Roll Plot	149	Needs to be wider both directions.	
Roll Plot	150	Parking for fishing - saftey issues.	
Concept 2B	151	2B no bike lanes.	
Roll Plot	152	The curve is dangerous. Need a speed bump desperately. We would not be able to use proposed pathway as it is not safe for us to cross. We need paths to go on the east side or a crosswalk by Wendy Lane to get to the other side.	
Roll Plot	153	West side of Division Rd. - from Jefferson Ditch to Lilac Lane. No sidewalks on the west of roadway. No installation of storm sewer pipe, manholes, catch Basin.	
Roll Plot	154	West side of Division Rd. from Jefferson ditch to Donges Bay Rd. No sidewalk on the west side of roadway. Leave the rural look as is by Wentland Nursery.	
Concept 2B	155	Top choice. 2A would also work.	
Concept 1	156	Waste of money. Never any bikes on the road.	

Roll Plot	157	Crosswalks- please make them like your example. This example should be for all crosswalks in the Village of Germantown.	
	158	This meeting was very well thought out and well attended. Everyone was very knowledgeable and helpful. The VOG should hold these sessions for the neighborhoods.	
Roll Plot	159	Glad to see this intersection and walking path being addressed.	
Roll Plot	160	I think it will be important to make crosswalks more visible/noticeable especially across such a busy road.	
Roll Plot	161	Division onto Mequon - make right turn lane, straight lane, and left turn lane.	
Concept 2B	162	Our choice of option #2	
Concept 2A	165	Concept A, I prefer the bike path not included in street since there is enough room on the sides. If the room wouldn't be there, I would then go on the street bike accommodations.	
Roll Plot	166	I live in Ashbury Woods. Consider some type of added lane for traffic going south on Division to be able to get around us turning into Ashbury Woods.	
		Scott Hefle -->	Good community involvement

Attachment D: Survey and Survey Results



Village of Germantown
Division Road Conceptual Design Survey
Public Involvement Meeting #1

This survey consists of 20 questions and will take approximately 5 to 7 minutes to complete.

We appreciate your time and honest responses, as your feedback is valuable. Once you've answered all the questions, please hit "Submit" to complete the survey.

Let's get started!

Full Name

Street Address

Address Line 2

City

State/Province/Region

Postal/Zip

USA

1. What is your primary mode of transportation on Division Road? *

- ☐ Walk/Run
- ☐ Bike
- ☐ Vehicle
- ☐ Other (Please specify).

2. What are your main concerns about Division Road? *

3. Are there any changes that you would you like to see on or along Division Road? *

4. Please select what's important to you with the Division Road Project. *

- ☐ More roadway capacity
- ☐ Improved/additional pedestrian crossings
- ☐ Improved pathway conditions (Wider/resurface)
- ☐ Increased signage
- ☐ Increased lighting at intersections
- ☐ Traffic calming measures
- ☐ Extending curb and gutter/and removing ditches
- ☐ Improve wait time at stop signs prior to entering the intersection
- ☐ Other (Please specify)

5. Have you ever witnessed a crash or near miss on Division Road? *

- ☐ No
- ☐ Yes (Please specify)

6. On a scale of 1 to 5, how safe do you feel DRIVING along Division Road? *

1	2	3	4	5
Least safe				Most safe

7. Are there any areas where you feel particularly unsafe along Division Road? *

8. How often do you walk/bike along Division Road? *

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Never

9. What is the primary purpose of your walk or bike ride along Division Road? *

- ☐ Commuting
- ☐ Exercise and fitness
- ☐ Leisure and recreation
- ☐ Running errands or shopping
- ☐ Other (Please specify).

10. Where do you usually cross Division Road? *

11. If improvements were made to the sidewalks/pathways, how likely would you be to use the sidewalks/pathways more frequently? *

1

2

3

4

5

Less Frequently

More Frequently

12. Are there enough pedestrian crossings along Division Road and are they clearly marked and maintained currently? If not, where would you like to see new crossings?

- ☐ No
- ☐ Yes (Please specify).

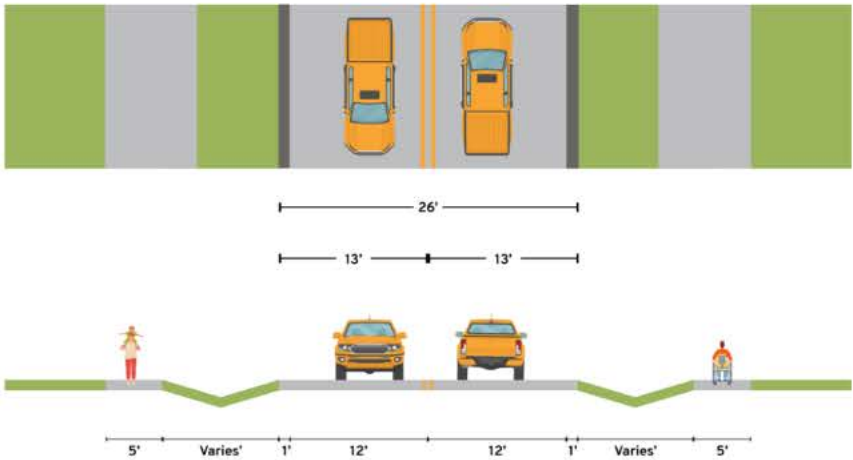
13. Do you have any accessibility issues along Division Road? *

- ☐ No
- ☐ Yes (Please specify).

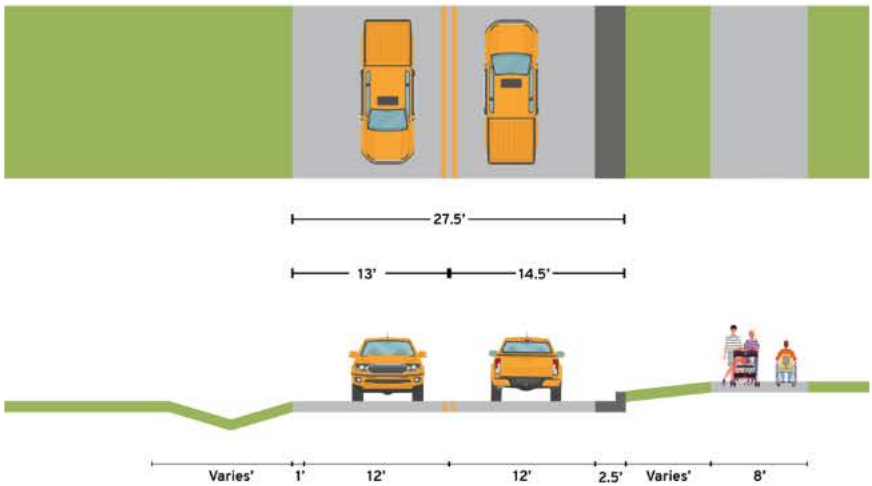
14. Are you satisfied with how long it takes you to travel your route along Division Road? *

- ☐ Yes
- ☐ No (Please specify).

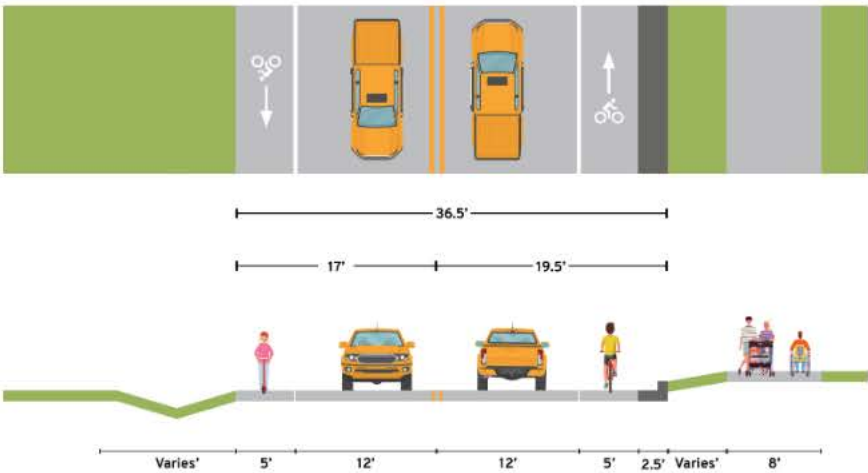
Concept 1: Existing



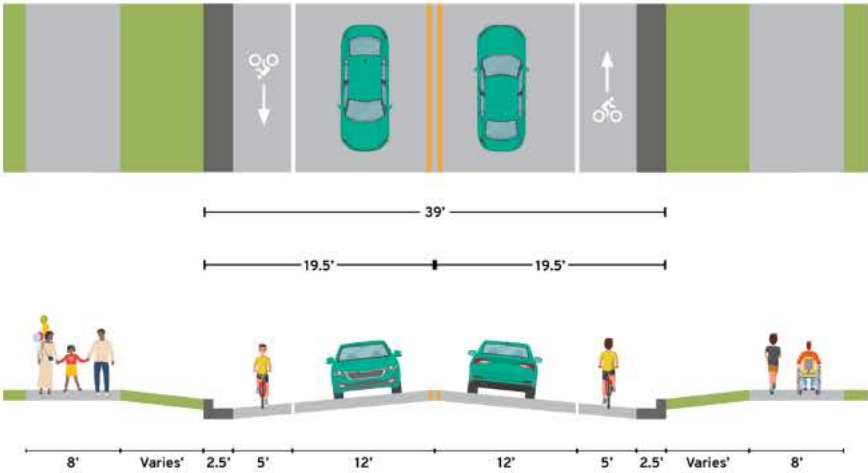
Concept 2: Hybrid Reconstruct with No Bike Lane



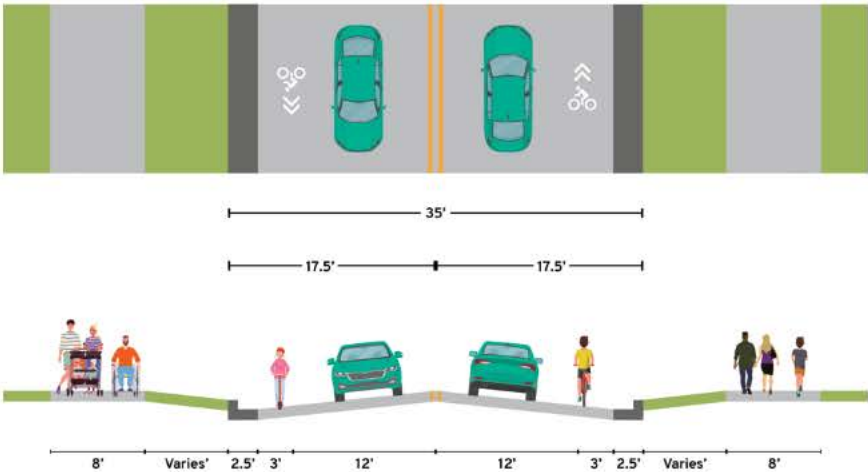
Concept 3: Hybrid Reconstruct with Bike Lane



Concept 4: Curb and Gutter with Bike Lane



Concept 5: Curb and Gutter with No Bike Lane



15. Which concept from the photos above do you prefer? *

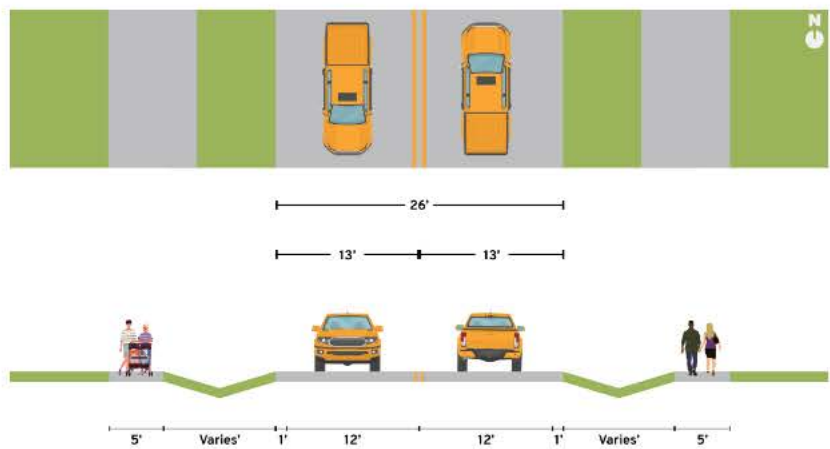
- ☐ Concept 1
- ☐ Concept 2
- ☐ Concept 3
- ☐ Concept 4
- ☐ Concept 5

16. Pick your top priority for repairs/reconstruction of Division Road. *

- ☐ Project construction duration
- ☐ Cost of construction
- ☐ Project lifespan (before replacement required)

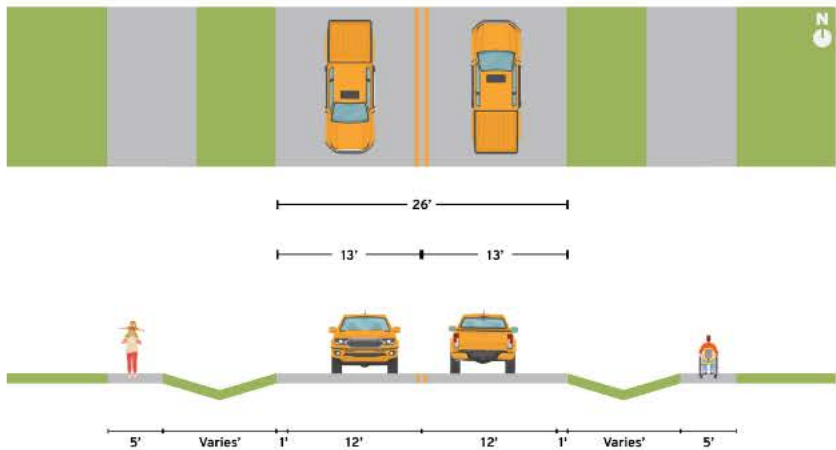
Concept A.1

2-inch mill and 2-inch overlay of asphalt pavement.



Concept A.2

Pulverize and relay with 5 inches of new asphalt pavement.



Concept A.1 and A.2 Breakdown

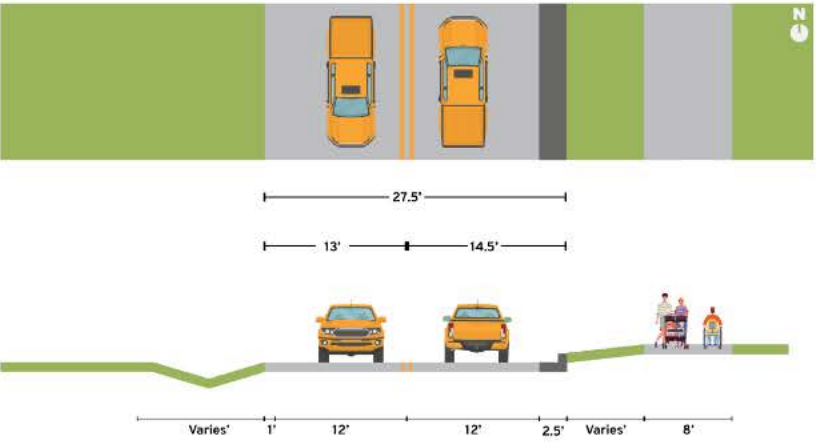
Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept A.1: 2-inch mill and 2-inch overlay of asphalt pavement.	\$\$\$\$	Limited (mill and overlay provides a short-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Short	No	No
Concept A.2: pulverize and relay with 5 inches of new asphalt pavement.	\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	No	No

17. Looking at the two images above, which of the concepts do you prefer? *

- ☐ Mill and Overlay Roadway (A.1)
- ☐ Pulverize and Relay Roadway (A.2)

Concept B.1

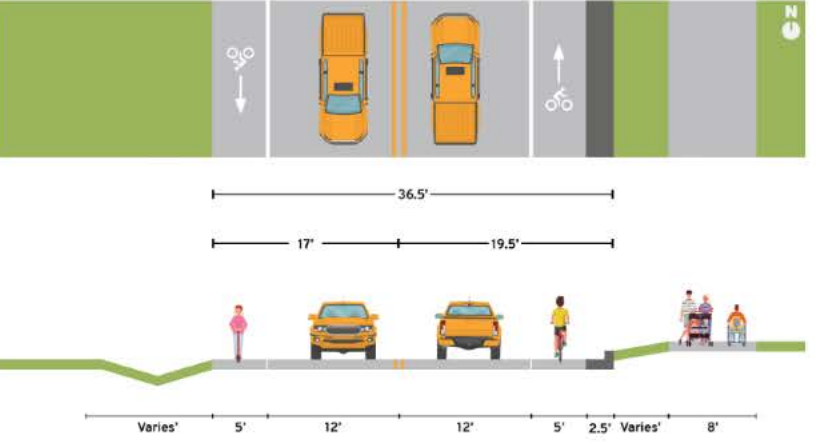
Pulverize and relay with 5 inches of new asphalt pavement, partial curb and gutter additions, reconstruction of the deteriorated path (widened to 8 feet), and other spot treatments.



Concept B.2 Hybrid Reconstruct with Bike Lane

Concept B.2

Pulverize and relay with 5 inches of new asphalt pavement, 5-foot paved shoulder, partial curb and gutter additions, reconstruction of the deteriorated path (widened to 8 feet), and other spot treatments.



Concept B.1 and B.2 Breakdown

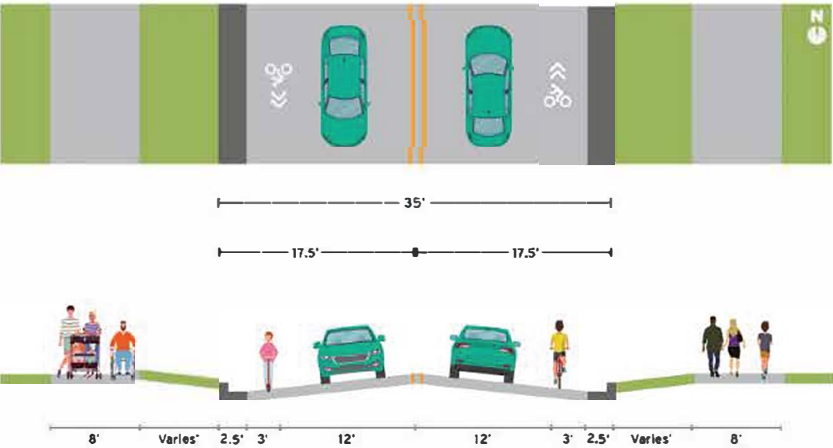
Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept B.1: roadway reconditioning with partial curb and gutter additions and reconstruction of deteriorated path (widened to 8 feet), and other spot treatments.	\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	No	Limited (selectively widens pathways to 8 feet).
Concept B.2: roadway reconditioning, 5-foot paved shoulder with partial curb and gutter additions and reconstruction of deteriorated path (widened to 8 feet), and other spot treatments.	\$\$\$	Limited (pulverize and relay provides a medium-term fix).	Limited (provides new crossings across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Medium	Yes (provides a 5-foot paved shoulder).	Limited (selectively widens pathways to 8 feet).

18. Looking at the two images above, which of the concepts do you prefer?

- ☐ Hybrid Reconstruction with NO bike lane (B.1)
- ☐ Hybrid reconstruction WITH bike lane (B.2)

Concept C.1

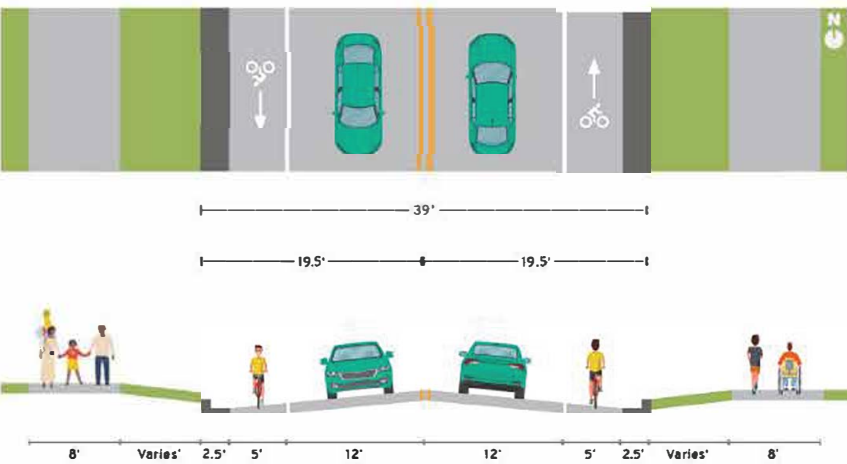
FULL RECONSTRUCT WITH CURB & GUTTER, STORM SEWER, 3-FOOT PAVED SHOULDER, AND NEW 8-FOOT PATHWAYS.



Concept C.2

Concept C.2

FULL RECONSTRUCT WITH CURB & GUTTER, STORM SEWER, 5-FOOT PAVED SHOULDER, AND NEW 8-FOOT PATHWAYS.



Concept C.1 and C.2 Breakdown

Concepts	Estimated Cost	Roadway Reconstruction Due to Poor Conditions	Enhance Recreational Activities & User Safety	Project Lifespan	Adds On-Street Bike Accommodations	Widens All Pathways to 8 feet Per The Recommendations of The 2050 Master Plan
Concept C.1: full reconstruct with curb and gutter, storm sewer, 3-foot paved shoulder, and new 8-foot pathways.	\$\$\$	Yes	Limited (provides new crossing across Division Road, selectively widens pathways, provides continuous pathway along the corridor).	Long	Limited (provides a 3-foot narrow shoulder).	Yes
Concept C.2: full reconstruct with curb and gutter, storm sewer, 5-foot paved shoulder, and new 8-foot pathways.	\$\$\$\$	Yes	Yes (provides new crossings across Division Road, on-street bike lanes and 8-foot pathways).	Long	Yes (provides a 5-foot paved shoulder).	Yes

19. Looking at the two images above, which of the concepts do you prefer? *

- ☐ Full Reconstruction of Roadways (C.1)
- ☐ Full Reconstruction of Roadways and Pathways (C.2)

20. Any additional comments?

Question 1: Full Name	Question 2: Address	Question 3: What is your primary mode of transportation on Division Road?	Question 4: What are your main concerns about Division Road?	Question 5: Are there any changes that you would like to see along Division Road?	Question 6: Please select what's important to you with the Division Road Project.	Question 7: Have you ever witnessed a crash or near miss on Division Road?	Question 8: On a scale of 1 to 5, how safe do you feel DRIVING along Division Road?	Question 9: Are there any areas where you feel particularly unsafe along Division Road?	Question 10: How often do you walk/bike along Division Road?	Question 11: What is the primary purpose of your walk or bike ride along Division Road?	Question 12: When do you usually cross Division Road?	Question 13: If improvements were made to the sidewalks/pathways, how likely would you be to use the sidewalks/pathways more frequently?	Question 14: Are there enough pedestrian crossings along Division Road and are they clearly marked and maintained currently? If not, where would you like to see new crossings?	Question 15: Do you have any accessibility issues along Division Road?	Question 16: Are you satisfied with how long it takes you to travel your route along Division Road? Why/Why not?	Question 17: Which concept from the photos above do you prefer?	Question 18: Pick your top priority for repave/reconstruction of Division Road.	Question 19: Looking at the two images above, which of the concepts do you prefer?	Question 20: Looking at the two images above, which of the concepts do you prefer?	Question 21: Looking at the two images above, which of the concepts do you prefer?	Question 22: Any additional comments?
Amber Chycinski	W1256790 Division of Germantown, WI 53022 USA	Vehicle but would love to be able walk more.	The curve by Kessler's is horrible. Road is speedbumpy. People fly down the road and end up on our ditch almost monthly. My kid can't play outside.	Sidewalk extended at least on 1 side.	Improved/additional pedestrian crossings, increased signage, Traffic calming measures	In front of our home speeding around curve by windy	3	Curve by windy	Never	Lonely drive	I don't and can't, it's not safe	5	No	No	Yes	Concept 2	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	
Steven Chycinski	W12960790 Division Road GERMAN TOWN, WI 53022-4804 USA	Vehicle	Speed enforcement, specifically between Chippewa Dr. And Concord	A continuation of the walking path between Windy and Concord	Improved pathway conditions (Wider/surface), Improved additional pedestrian crossings, Traffic calming measures	Courteous in the 10 years living at current address. Multiple collisions/cars in ditch in front of home.	3	Pulling out of driveway... Anywhere in curve between Chippewa and Concord	Never	No path access immediately near home, otherwise, I would utilize weekly	I currently do not.	5	No	No current pathways/sidewalk access close enough to feel safe	Yes	Concept 3	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	See paper copy of comment input form
Jan Miller	PO Box 837, W153160287 Germantown, WI 53022 USA	Vehicle	Needs repaving & bike/trail path.	Bike/trail path. Sometimes there is a need for a turn lane or merge lane. Major streets like Division & Danges Bay Road intersection. Also, Division and Mequon Road. Make sure that the pump station sewer line is part of the plan so we don't RFP up the road for that again.	Improved pathway conditions (Wider/surface), Improved additional pedestrian crossings, Increased lighting at intersections, Increased signage	People are driving too fast and I was almost run ended.	3	Division and Danges Bay Road. Division and Mequon Road. Not long enough turn lanes and/or merge lanes.	Never	Exercise and fitness	Danges Bay Road.	5	No	No	Need longer turn lanes	Concept 2	Cost of construction	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways and Pathways (C.2)	The event was well put together. I think you need to go to other neighbor hoods. Kinderberg Park would be a good venue. Right off Danges Bay and residents use Division Road. Make sure you selection in Express news and post on the ENC - Electronic Message board outside Village Hall. Also the QR Code should be in the back of the Room for all Committees and Board Members. Press at every window where residents come in and do business. How about adding it to the website. Show the diagrams on the website and attach the survey QR Code. It was suggested tonight to take the QR Code to Fremont Park for Music in the Pavilion and Concerts at the Pavilion. I like B1 design the best. Best on show! Thank!
Michael Hertiges	W273960776 Willow Wood Dr Germantown, Wisconsin 53022 USA	Vehicle	Pedestrian Crossing	Safer pedestrian crossing	Improved pathway conditions (Wider/surface), Improved additional pedestrian crossings	No	5	No	Daily	Exercise and fitness	Utic	5	No	No	Yes	Concept 5	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Melissa Thundercloud	W162607460 Haywood Dr Germantown, WI 53022 USA	Vehicle	The condition of the roads is terrible, people turning left is a block to traffic flow	Smother road, wider, turn lanes	Improved pathway conditions (Wider/surface)	People stopping to turn left and getting our robot	3	From concord to mequon	Never	Leisure and recreation	I don't walk my children on division, there's too many bumps/cracks, people driving high speeds.	3	No	No		Concept 5	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
Casey Maleschek	W1031917591 Murly Huming Way Germantown, WI 53022 USA	Vehicle	Quality of road, very bumpy	4 lanes or more left turn lanes, bike lane. Better crosswalk especially for wheelchairs and more lane. Wider road and sidewalk in southern side where it starts to turn	Extending curb and gutter and removing ditches, Improved pathway conditions (Wider/surface), Improved additional pedestrian crossings, Increased lighting at intersections, More roadway capacity	Tanglewood and division	4	Turn by Windy Lane, and pedestrian crossing	Weekly	Exercise and fitness	Meadow Creek crossing	5	No	No	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
Steven Weber	W1729165259 Harvest Ln Germantown, Wisconsin 53022-3919 USA	Vehicle	Traffic load	Wider road, bike lanes and better walk lane	More roadway capacity	Richard's house division, Old Farm subdivision	2	Curve before Kessler's	Daily	Exercise and fitness	Dodges Bay rd	5	No	No	Yes	Concept 4	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	Finish in one summer. Work on wagon trail a different year. Leaving old farm subdivision with limited emergency access one year is foolish. Then to go back following year and close division right. Hold off on wagon trail, and finish division in one summer. Very foolish to inconvenience drivers two years in a row on division.
Angie Packer	W147968128 Remnick Road Germantown, WI 53022 USA	Vehicle	Horrible surface condition and the same poor nighttime lighting that we have throughout the village	Center turn lane to accommodate continuing traffic flow while vehicles attempt left-hand turns.	Improved pathway conditions (Wider/surface), Increased lighting at intersections, Traffic calming measures	No	3	Intersections	Never	Running errands or shopping	I don't.	3	No	No	Going 26 mph isn't even ideal with the poor condition of current roadway surface.	Concept 2	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	Rather than taking up road space with unnecessary bike lanes, was a center turn lane considered?
Daniel Bishop	W147968128 Remnick Rd Germantown, WI 53022 USA	Vehicle	Rough pavement. Old surface.	Turn lanes	Improve wait time at stop sign prior to entering the intersection, Improved pathway conditions (Wider/surface), More roadway capacity	No	3	No	Never	Don't walk	Dodges Bay	3	No	Dodges Bay	Time is fine	Concept 2	Project construction duration	Mix and Overlay Roadway (A.1)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	
Steven Fynark	W160r16923 Meadow Dr Germantown, WI 53022 USA	Walk/Run	Walking paths being under water and no maintained well	Better high water management	Extending curb and gutter and removing ditches, Improved pathway conditions (Wider/surface), Increased lighting at intersections, Increased signage	Cars not coming to a stop and riding through stop signs onto Division Road	4	Near the Gabbers	Weekly	Leisure and recreation	Dodges Bay	4	No	No	Yes	Concept 4	Cost of construction	Mix and Overlay Roadway (A.1)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
Allen F Barth	W160R169813 Wagon Trail Germantown, WI 53022 USA	Vehicle	How rough it is	bike lanes or wider path along road	Extending curb and gutter and removing ditches, Improved pathway conditions (Wider/surface), Improved additional pedestrian crossings, Increased lighting at intersections	No	4	Southern side crossing	Daily	Exercise and fitness	Southern side crossing	5	No	No	Yes	Concept 5	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways and Pathways (C.2)	
Misung	N 124 W 38460 LOVERS LANE GERMAN TOWN, WI 53022 USA	Vehicle	Division road gets redone too often. Why aren't they using quality materials	None just more quality road material so it lasts years longer	Stronger longer lasting materials	No	5	No	Daily	Running errands or shopping	I follow the entire road between mequon rd to Chippewa Division rd to the public works needs a roundabout intersection at 445 and division	2	No	No	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	I think you need to make sure it lasts. Not a bandaid
Brian Depies		Vehicle	Maintenance, width and continued access without flooding to the trail system.	New trail from Mequon Road to County Line Road.	Improved pathway conditions (Wider/surface), Improved additional pedestrian crossings	No	4	Corner by Orthodontics office	Monthly	Exercise and fitness	Dodges Bay intersection.	5	No	No	Yes	Concept 3	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Kathryn Krotzer	W168R161763 Juniper Dr Germantown, WI 53022 USA	Vehicle	Safety of road materials on main thoroughfare of Germantown	Improved bike and running infrastructure (inconsistent segments which require crossing division, large cuts for using trailers/adapted transport methods). Dangerous lack of maintenance to road or crossing near concord road.	Improved pathway conditions (Wider/surface), More roadway capacity, Improved trail infrastructure along road.	No	4	Concord corner, Danges bay corner	Daily	Exercise and fitness	Mequon, Danges bay (trail stops) and concord (trail stops).	5	No	Cuts to path are high, especially for road bikers, leaving transition of bikers to roadway	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
Dan Day	W1739165259 Woodbridge Lane Germantown, WI 53022 USA	Vehicle	Pedestrian and bike travel safety	Sidewalks connecting our trails and paths to the trails in Mequon (lets by water at bridge over the highway)	Improved pathway conditions (Wider/surface), Improved additional pedestrian crossings, Traffic calming measures	Curves south of dotty, danges bay	3	Pool crossing at danges bay and crossing at the top of the hill south of danges bay, no paths or shoulder south of Dotty. No it's too late and cars move too fast. Bike route not existent in most parts, narrow shared paths in the north end.	Daily	Leisure and recreation	Dodges bay, lean oak, revere, concord or ilac	5	No	No	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	Protected bike lanes would be preferred

Morgan Kautzor	W158N15753 Juniper Dr Germantown, WI 53022 USA	Vehicle	The side walks are bumpy and not smooth to bike/hike on. Redding the road would help structurally in the long run.	A better side walk along with not as steep transitions between side walks and road to provide more accessibility	Improved pathway conditions (Wider/surface), improved additional pedestrian crossings, increased lighting at intersections	No	4	No	Weekly	Exercise and fitness	Donges Bay	5	See more crossing between the subdivisions down closer to county line road.	The side walks going to county line road are either not existent or not safe enough to feel comfortable walking over them.	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	No
Gregory Anderson	N100w17704 Whitetail Run Germantown, WI 53022 USA	Vehicle	Current quality of roads is just has been for a decade. Needs near complete replacement. Though that will be struggle to site it not done efficiently. Eventually seems appropriate for now. Better turn signals at Q and Mequon road are needed.	Current design is fine. Needs no increase in lanes. Just needs to be repaired and done well so it LASTS.	Increased lighting at intersections	An intersection with Q. Left turn signal at Mequon road would also help	4	Intersections at Mequon and Q.	Never	NA	NA	3	No	No	Yes	Concept 4	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Christine Prescott	W108N10274 Juniper Dr Germantown, WI 53022 USA	Vehicle	Safety when walking/running/ biking as the path runs right near county line rd	Continuous path along road for walking/running/ biking along road for biking. Traffic light at county line division rd should have a sensor for low traffic times so wait time is shorter	Improve wait time at stop signs prior to entering the intersection	No	4	Near county line rd	Daily	Exercise and fitness	I stay on the east side while walking and running	4	No	No	Traffic light timing is lengthy especially when no cars are present	Concept 3	Cost of construction	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Celeste L Eby	W173N103265 WOODBRIDGE LN GERMANTOWN, WI 53022 USA	Vehicle	There are no bike lanes along Division which makes it extremely challenging to ride from the suburbs to the more rural areas of the village on road or touring bikes.	Overall construction of the road - it's been replaced three times since I moved to Germantown and within 2-3 years it's broken down again. With the volume of traffic on this road, the village needs to look at spending more upfront to maintain the road rather than doing the bare minimum to get by.	Improved additional pedestrian crossings, Bike lane	I've seen several near misses at the light at Mequon Road especially on weekday mornings with the heavy traffic headed to the high school.	4	Between Donges Bay and Mequon Road	Weekly	Exercise and fitness	Lone Oaks	5	No	No	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
Kristin Terke	W160N10476 Brook Hollow Dr Germantown, WI 53022 USA	Vehicle	Surfacing worn - light at Mequon road is the excessively long- intersection at Donges bay	More lighting at intersections esp uncontrolled ones	Extending curb and gutter and removing ditches, improve wait time at stop signs prior to entering the intersection, improved pathway conditions (Wider/surface), improved additional pedestrian crossings, increased lighting at intersections	No	3	Walkways south of Donges bay	Daily	Exercise and fitness	Donges Bay	5	No	No	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
Michelle Haase	n110w18867 Anthony Circle Germantown, WI 53022 USA	Vehicle	No bike lane. Consistent sidewalk.	Rounded off Mequon and Division	Improve wait time at stop signs prior to entering the intersection. Improved pathway conditions (Wider/surface), improved additional pedestrian crossings, increased lighting at intersections	No	4	At the curve on the south end of Division	Monthly	Exercise and fitness	Mequon Rd, Donges Bay, County Line	5	No	No	Yes	Concept 4	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	None
Kenny Kneitzer	W168N101763 Juniper Dr Germantown, WI 53022 USA	Vehicle	Narrow shoulder, very rough, appears top coat is not working.	Wider and improved blackwall curbs along the road. They are also in significant disrepair and are usually flooded after heavy rains north of things bay	Improved pathway conditions (Wider/surface), improved additional pedestrian crossings	No	3	The top of the hill at Tanglewood drive.	Daily	Exercise and fitness	Donges bay, mequon road, Hawthornville, juniper dr	5	No	No	Yes	Concept 4	Project lifespan (before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
Betty Bruhn	W108N10254 Brookhollow Dr. Germantown, WI 53022 USA	Vehicle	Very poor condition. Asphalt is cracked and crumbling. Fairly heavy traffic.	At Donges Bay, driving south. Needs more room for cars turning onto DE.	Improved pathway conditions (Wider/surface), increased lighting at intersections	No	4	No	Never	Leisure and recreation	Donges Bay	5	No	No	Yes	Concept 3	Cost of construction	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Shannon Hansen		Vehicle	The road itself, it has not been smooth in years. Very uneven and not a pleasant drive at all.	The sidewalk is quite often flooded	Improved pathway conditions (Wider/surface)	No	4	The roadway itself is safe and does not need any stop signs added to any intersections, nor does it need any speed bumps or bump outs. Too many roads in Milwaukee have added these items and I've noticed an increase in danger for pedestrians as they are standing in the road, and the bump outs actually narrow the road and I've had many cars weave in my lane. Speed bumps are also used on cars and not ideal for young kids in the car.	Monthly	Exercise and fitness	Donges Bay	3	The one on Donges is close. I don't think any to the south by the hill make sense has the view is obstructed	No	Yes	Concept 3	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Brian Gold	W173N103367 Woodbridge Ln Germantown, WI 53022 USA	Vehicle	Road is in rough shape. Need better way to cross for walkers/bikers	Smooth the road. Better crosswalks	Improved pathway conditions (Wider/surface), improved additional pedestrian crossings, increased lighting at intersections. Traffic calming measures	No	4	Top of the hill near Lone Oaks Rd	Weekly	Exercise and fitness	Donges Bay	5	No	No	Yes	Concept 4	Project construction duration	MB and Overlay Roadway (A.1)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	
David McManus	W168N101762 Juniper Dr Germantown, WI 53022 USA	Vehicle	It was required several years ago and it is in bad shape now. It needs to be resurfaced and additional lanes would be helpful.	Resurfacing	Extending curb and gutter and removing ditches, improved pathway conditions (Wider/surface)	No	4	N/A	Weekly	Exercise and fitness	Lone Oaks	4	No	No	Yes	Concept 3	Project lifespan (before replacement required)	MB and Overlay Roadway (A.1)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Brandon Preiss	W164N10662 Water Street Germantown, WI 53022 USA	Vehicle	Road condition	Bike lane	Improved pathway conditions (Wider/surface), Traffic calming measures	Cars missing curve by Concord	4	Curve by Kisslers	Weekly	Exercise and fitness	LiAc	5	No	No	Yes	Concept 4	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	Good luck
Brian Baker	N108W17594 LiAc Lane Germantown, Wisconsin 53022 USA	Vehicle	No concerns	I would like to see the lanes northbound at Mequon road made right turn only and straighten the turn. I believe this would relieve congestion at the stop lights	Improve wait time at stop signs prior to entering the intersection	LiAc and Division a car pulled out of LiAc in front of north bound car on Division	5	None	Monthly	Leisure and recreation	Division and LiAc	3	I feel there is enough	No	Yes	Concept 1	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	
Michael Wab	W168N101737 Juniper Dr Germantown, Wisconsin 53022 USA	Vehicle	Safety and condition of road. It is bumpy and rough. It is as though it was never finished. Unlike the wonderful surface on LiAc.	A bike lane would be nice.	Extending curb and gutter and removing ditches, improved pathway conditions (Wider/surface), More roadway capacity	No	4	When riding a bike going across the bridge near Juniper Dr I was unsafe at times.	Daily	Exercise and fitness	Around Windlands.	5	No	No	Yes	Concept 3	Project construction duration	MB and Overlay Roadway (A.1)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	
Gretchen Shuriff	W168N10606 Redwood Ln. Germantown, WI 53022 USA	Vehicle	Difficult to turn left than either direction.	Would a roundabout help at LiAc and Donges bay intersection?	Improve wait time at stop signs prior to entering the intersection. Improved pathway conditions (Wider/surface), improved additional pedestrian crossings, Traffic calming measures	No	4	LiAc and Donges bay intersections.	Weekly	Exercise and fitness	LiAc	5	No	No	Yes	Concept 2	Cost of construction	MB and Overlay Roadway (A.1)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	

Dustin Sylvesten	N67W98844 Chippewa Dr Germantown, WI 53022 USA	Vehicle	Road surface is in extremely rough shape and potentially widened in some areas. Wideway crossings can be a little dangerous especially near Donges Bay intersection	There is a gap in sidewalk/walkway Doty Way and Wendy Lane. It would be great if there was one continuous path from County Line all the way to Mequon Rd.	Improve wait time at stop signs prior to entering the intersection. Improved additional pedestrian crossings. More roadway capacity. Traffic calming measures	People spending out of Donges Bay Rd onto Division to avoid waiting at the stop sign.	4	Donges Bay Intersection	Monthly	Exercise and fitness	Donges Bay and Concord Intersections	5	No	No	Yes	Concept 5	Project 1 (Spartan Before replacement required)	Mix and Overlay Roadway (A.1)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)		
Bradley Buxler	W144615758 Lincoln Dr Germantown, WI 53022 USA	Vehicle	Intersection of Donges Bay and Division, cars move rather quick down the hill for cars to cross at times and especially pedestrians	Wider bike lane and more pedestrian friendly crossing at Donges and Division. Also possible roundabout to slow traffic coming from the hill northbound. Maybe use pedestrian islands or curb extensions to slow traffic and give pedestrians more visibility	improve wait time at stop signs prior to entering the intersection. Improved pathway conditions (Wider/resurfacing), improved additional pedestrian crossings. Traffic calming measures	Two accidents as of recent years at the division and Donges intersection and a few close calls with pedestrians especially for kids using pathways.	5	Crossings of pedestrians at donges bay and into neighborhood to south of Donges Bay near the hill. It is a blind crossing	Weekly	Leisure and recreation	At Donges Bay	5	No	No	Yes	Concept 4	Project 1 (Spartan Before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)	Slow traffic down with calming measures. Don't see some really fast moving vehicles	
Joan Richie	N103W18577 Hawthorne Drive Germantown, WI 53022 USA	Vehicle	I run and walk on Division Road. There is no path near Kissler's, so you need to run and walk on the shoulder / road. This is quite dangerous. (The same problem exists on Pigeon Road. It would be great if there could be continuous sidewalk for the 6 miles from Mequon Division - County Line - Pigeon.) The path also floods a bit, especially this spring and summer, and grass near the path gets very soggy. This means that runners/walkers walk on the shoulder or the road itself.	Please extend the walkway path along the entire road and also for the spots on the path that flood.	Improved pathway conditions (Wider/resurfacing), improved additional pedestrian crossings. Traffic calming measures	No	4	that occurs where there is no path near Kissler's. I don't want to hit a pedestrian.	Daily	Exercise and fitness	When I am running, I cross Division Road at Donges Bay to go to the sidewalk on the west side of the road.	5	No	No	Yes	Concept 4	Project 1 (Spartan Before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)		
Kory Schaefer	N103W17657 Stoneledge Dr N103W17657 Stoneledge Dr Germantown, WI 53022 USA	Vehicle	The condition of the road itself could be improved. I also think the crosswalk near the library needs to be more prominent as a lot of people miss it.	Maybe add a flashing light or something to make the crosswalk by westbards stand out more.	Improved additional pedestrian crossings	No	5	As a driver no, as a pedestrian I've noticed people don't stop at the crosswalk.	Monthly	Leisure and recreation	By Westbards	4	No	No	Yes	Concept 1	Project construction duration	Mix and Overlay Roadway (A.1)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)		
Kathryn Holms	W159N8833 Butternut Road Germantown, Wisconsin 53022 USA	Vehicle	Mid near line side road cannot see past when cars are turning causing potential accidents. Sharp curve near dental offices, just had a motorcycle crash there.	Widen the lanes, leave it 1 lane each way maybe with some turn lanes but lanes should be wider with a shoulder to pull off. Many cars stop on the bridge to fish, widen this area also.	Improved pathway conditions (Wider/resurfacing)	Motorcycle crash on division and Wendy lane just a few weeks ago. Near misses frequently by the time lane subdivision.	3	The curve by Wendy lane and the time lane are.	Monthly	Exercise and fitness	Reverse lane, easy to see traffic both directions here.	2	No	No	Stop lights at Mequon. Should have a dedicated left turn and straight lane, and a separate right turn lane. Right turns must wait for the light to cycle currently.	Concept 5	Project 1 (Spartan Before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways (C.1)	I like the idea of widening the road, would caution if doing a bike lane that there should be periodic barriers between the bike lane and traffic lane so people do not try to go around cars as they do in a nearby city.	
Jim Mueller	W172N9096 Division of Germantown, WI 53022 USA	Vehicle	none	no	Increased signage	No	5	no	Daily	Leisure and recreation	at intersections	3		No	Yes	Concept 1	Cost of construction	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	We walk division rd on a daily basis, and rarely see bikes so I'd like to see roadwork for the added expense and maintenance of bike lanes. With regard to widening the sidewalks I feel it is adequate for the amount of foot traffic they get regarding concept C1 and C2 I would not choose either but cannot submit without choosing 1	
Samuel Whitehead	W159N10485 Fultstone Pass Germantown, WI 53022 USA	Vehicle	Road condition	Just improving road for long term use	Improved pathway conditions (Wider/resurfacing), increased lighting at intersections. More roadway capacity	No	5	n/a	Never	n/a	Donges bay and Liac	2	No	No	Yes	Concept 4	Project 1 (Spartan Before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)		
Mary Darrac	W136N10438 Sunney Germantown, WI 53022 USA	Vehicle	None	None	Traffic calming measures	No	5	No	Never	None	Donges Bay	1	No	No	Yes	Concept 1	Project construction duration	Mix and Overlay Roadway (A.1)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	like it the way it is. Have had no problems... lived here 47 years	
Wendy Whelan	W159N10577 Legrand Ave, Germantown, WI 53022 USA	Walk/Run	Lack of sidewalk in some places.	Wider road so bikes can go down safely.	Improved pathway conditions (Wider/resurfacing), Bike path	No	5	Driving no, Running, yes	Daily	Exercise and fitness	Hawthorn/Liac	5	By Wendy In	No	Yes	Concept 4	Project 1 (Spartan Before replacement required)	Mix and Overlay Roadway (A.1)	Hybrid reconstruction WITH bike lane (B.2)	Full Reconstruction of Roadways and Pathways (C.2)		
Michelle Brish	N103W17263 Woodbridge court Germantown, Wisconsin 53022 USA		I walk/run and drive along division road daily.	Both heading through crosswalks and paths on either side.	Paths on both sides for walking	Improved pathway conditions (Wider/resurfacing)	No	4	Near jumper where the path turns into the shoulder while walking	Daily	Exercise and fitness	Donges bay but would love to be able to sit at home.	5	No	No	Yes	Concept 1	Project construction duration	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways (C.1)	
Sue Heaton	N104W18539 Thompsons Row Germantown, WI 53022 USA	Vehicle	Better traffic flow	The straight on the corner of division and mequon road should be changed as the majority of people want to turn right. The left lane should accommodate those turning left and cars can go straight leaving the right lane only for making right turns. This would relieve the bottleneck of that intersection and greatly improve traffic flow	Improve wait time at stop signs prior to entering the intersection. Increased lighting at intersections	No	5	At the fishing bridge going over the creek there are a number of cars parked there, so they can fish that sometimes that area is unusable with children in that area.	Weekly	Exercise and fitness	At Donges Bay	3	They seem fine to me	No	Concerning the right turn lane onto mequon from division road traffic flow is not good at that intersection	Concept 1	Project 1 (Spartan Before replacement required)	Pulverize and Relay Roadway (A.2)	Hybrid Reconstruction with NO bike lane (B.1)	Full Reconstruction of Roadways and Pathways (C.2)	No more comments to add	

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Approval of Grant Application for Agricultural Road Improvement Program

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

WisDOT started the Agricultural Road Improvement program (ARIP) with \$50 million eligible in 2024 and \$100 million eligible in 2025. Eligibility is based on pavement condition ratings of 2-4. The poor conditions of Pleasant View Drive and Rockfield Road make them ideal candidates for this program. ARIP funding guidelines indicate these roads are eligible for a cost share of 90/10.

Pleasant View Rd from Freistadt Rd to Bonniwell Road is 10,750 feet, and the estimate to pulverize and reconstruct is \$1,130,000. Rockfield Road from Pleasant View to Division Road is 7,900 feet, and the estimate to pulverize and reconstruct is \$830,000. In addition, the culvert replacement with safety improvements on Pleasant View Road at the Menomonee River is included for \$250,000. This work would be anticipated in 2025 once the State Municipal Agreement is signed. The total project estimate is \$2,557,000. The Village's share would be \$255,700. If awarded the Village would use annual road program funding to cover the 10% share. The reconstruction of these roads would be otherwise delayed if the only available funding was the typical \$1,500,000 annual road program.

ATTACHMENT:

STAFF RECOMMENDATION:

A motion to support Village staff in applying for the Agricultural Road Improvement Program for sections Pleasant View Road and Rockfield Road.

ACTION BY Committee:

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Award of the fall tree planting contract to Dan Larsen Landscaping for an amount not to exceed \$9,120.00.

SUBMITTED BY: Scott Anderson, Superintendent

SUMMARY EXPLANATION:

Each year trees around the village are removed for various reasons which include vehicle damage, storm damage and disease. The village currently has an estimated 311 "vacant" planting sites as reflected on our GIS layer. As part of the 2024 budget, tree planting is incorporated into the general fund street tree maintenance line item. While it would be cost prohibitive to replace every tree at one time, staff works to maintain the urban tree canopy by planting a portion of these vacant sites annually. Trees provide significant value to our community, but the most prevalent would be the aesthetic value that can be seen as you travel our roadways and walk in our parks. This year's project will replace 30 trees in various areas around the village. The project areas may include main throughfares, around village buildings and in the park system. Again this year, replacement of trees within residential areas is also part of the project scope. Trees planted in residential areas, have been confirmed to be a previous planting site. This year's project is consistent with the 5-year planting map as outlined within the Comprehensive Tree Plan.

Staff has solicited pricing from area contractors and the results are listed below.

Dan Larsen Landscaping, Inc.	\$9,120.00
Property Solutions Contracting:	\$10,050.00
Century Landscape:	\$15,239.00
Your Personal Gardner & Arborist:	\$23,250.00

ATTACHMENT:

STAFF RECOMMENDATION:

Award of the fall tree planting contract to Dan Larsen Landscaping for an amount not to exceed \$9,120.00 from account 10564000-552100.

ACTION BY Committee:

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Award of Public Works Engineering Division system furniture contract to Emmons Business Interiors (EBI) for an amount not to exceed \$35,338.11.

SUBMITTED BY: Matthew Mortwedt, Public Works Director

SUMMARY EXPLANATION:

The Public Works engineering division has some of the oldest furniture in the Village. The furniture had been largely unused for the last 5-7 years because staffing levels were at a minimum. Now that the engineering division is fully staffed, and the furniture is used on a daily basis, it is clear it has reached the end of its useful life. The proposal would create 4 cubicles and enhance storage and filing options. The fourth cubicle space will allow some room for future growth.

The quote from EBI gives the Village access to cooperative pricing through an existing government contract. EBI also provided system furniture to the new DPW as a subcontractor to Moore Construction.

The funding for this project uses unspent Engineering Division funds for equipment dating back to 2021 from accounts 40561000-541700 and 40561000-591000.

ATTACHMENT:

1. QUOTE_205-096_Germantown DPW_8.26.2024

STAFF RECOMMENDATION:

Recommend award of the contract to Emmons Business Interiors (EBI) for an amount not to exceed \$35,338.11 from accounts 40561000-541700 and 40561000-591000.

ACTION BY Committee:

Emmons Business Interiors
N115 W18500 Edison Drive
Germantown, WI 53022
Phone: (262)255-5500
www.ebiweb.com

Prepared For:

**Village of Germantown -
Director of Public Works**

N112 W17001 Mequon Rd
Mequon, WI 53022

CONTACT

Sales | Jon Kaml
jonk@ebiweb.com

Designer | Alia Gallo
aliag@ebiweb.com
205-096



QUOTE

Village of Germantown - DPW

8/26/2024

8:07:56 AM

Valid Until: 30 Days From Above

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
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Extra Chairs

1		3	HIWMM Ignition 2 Task Mid-back, ilira back .Y1 Synchro-Tilt W Seat Slider .A Height and Width Adj. Arm .H Hard Caster .IM 4-Way Black \$(2) Grade 2 Uph .SPNN Spin Seating 04 Cobblestone .BL Black Adjustable Lumbar .SB Standard Base .T Black	\$423.86	\$1,271.58
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Subtotal for: Extra Chairs \$1,271.58

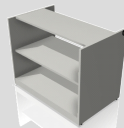
Storage

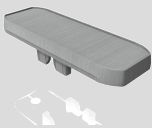
2		4	H9193A Flagship 42W 3-Drw "A" Pull Lateral 42W 39-1/8H 18D .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$1,064.83	\$4,259.32
3		7	HF23S Contain Satin Removable Lock Core Kit .X105E 105E	\$29.74	\$208.18
4		3	HFSC183664A Flagship Stg Cab 64 1/4Hx36Wx18D A Pulls&4 Adj Shlf .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$987.42	\$2,962.26

Subtotal for: Storage \$7,429.76

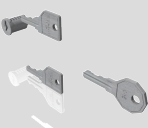
LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
Workstation 1					
5		1	H19723A Flagship Pedestal "A" Pull Freestanding B/B/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
6		1	H19823A Flagship Series Pedestal "A" Pull Freestanding F/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
7		1	H512C 510 Series 2 Drawer Legal w/Lock .P Standard Random Key Lock \$(P1) P1 Paint Opt .Q Light Gray	\$413.47	\$413.47
8		1	HEC65PLN 65H "L" Connector Post \$(P1) P1 Paint Opt .Q Light Gray	\$92.98	\$92.98
9		1	HECSL "L" Connector Strap	\$10.38	\$10.38
10		1	HEFEC65P Panel Finished End Covers 65H \$(P1) P1 Paint Opt .Q Light Gray	\$42.48	\$42.48
11		1	HETC24 Panel Top Cap 24"W \$(P1) P1 Paint Opt .Q Light Gray	\$25.49	\$25.49
12		2	HETC42 Panel Top Cap 42"W \$(P1) P1 Paint Opt .Q Light Gray	\$40.12	\$80.24

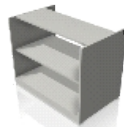
LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
13		1	HETP6524FP Tackable Panel w/o TC 65H x 24W \$(A) Grd A Fabric .ECH Etch 12 Cast \$(P1) P1 Paint Opt .Q Light Gray	\$234.11	\$234.11
14		2	HETP6542FP Tackable Panel w/o TC 65H x 42W \$(A) Grd A Fabric .ECH Etch 12 Cast \$(P1) P1 Paint Opt .Q Light Gray	\$287.92	\$575.84
15		2	HETP6542FP Tackable Panel w/o TC 65H x 42W \$(A) Grd A Fabric .ECH Etch 12 Cast \$(P1) P1 Paint Opt .Q Light Gray	\$287.92	\$575.84
16		1	HEWS65P Wall Starter Kit for Panels 65H \$(P1) P1 Paint Opt .Q Light Gray	\$68.44	\$68.44
17		4	HF23S Contain Satin Removable Lock Core Kit .X101E 101E	\$29.74	\$118.96
18		1	HHN831124 Flat Bracket 24D .S Charcoal	\$41.54	\$41.54

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
19		1	HIWMM Ignition 2 Task Mid-back, ilira back .Y1 Synchro-Tilt W Seat Slider .A Height and Width Adj. Arm .H Hard Caster .IM 4-Way Black \$(2) Grade 2 Uph .SPNN Spin Seating 04 Cobblestone .BL Black Adjustable Lumbar .SB Standard Base .T Black	\$423.86	\$423.86
20		1	HL5LZ5SC60 48"W External Stiffener .P Black	\$65.14	\$65.14
21		1	HL5LZ5SC60 48"W External Stiffener .P Black	\$65.14	\$65.14
22		1	HNL233628PBK 36Wx23-1/8Dx28-1/2H Bookcase Pedestal .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$458.78	\$458.78
23		1	HNL233628PLF 36Wx23-1/8Dx28-1/2H Lateral File Pedestal .E Loop/Satin .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$678.74	\$678.74
24		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72
25		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
26		1	HSCKTPS Straight Connector Kit .X No Option	\$14.16	\$14.16
27		1	HSDEP2429F 24'D End-Panel Supports: Freestanding \$(P1) P1 Paint Opt .Q Light Gray	\$125.55	\$125.55
28		1	HSDG Gussets (1 Pr) \$(P1) P1 Paint Opt .Q Light Gray	\$74.10	\$74.10
29		1	HDSL29 Abode Shared Leg \$(P1) P1 Paint Opt .Q Light Gray	\$238.83	\$238.83
30		1	HWR2424PN Systems Rectangular Wksfc Edgeband 24D X 24W N \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray	\$191.63	\$191.63
31		1	HWR2454P Systems Rectangular Worksurface Edgeband 24D x 54W \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray .Q Light Gray	\$268.10	\$268.10
32		1	HWR2472PN Systems Rect Wksfc Edgeband 24D x 72W No Grom \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray	\$330.40	\$330.40
33		1	HWSB2 Worksurface Bracket Kit \$(P1) P1 Paint Opt .Q Light Gray	\$30.21	\$30.21

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
34		1	HWV75AALP Systems 60x48x24x24 Lft Corner Cove Worksurface Edgebd \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray .Q Light Gray	\$386.57	\$386.57
35		5	Z. 24013 Wall Attachment Hardware	\$1.36	\$6.80
Subtotal for: Workstation 1					\$6,813.06
Workstation 2					
36		1	H19723A Flagship Pedestal "A" Pull Freestanding B/B/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
37		1	H19823A Flagship Series Pedestal "A" Pull Freestanding F/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
38		1	HEC65PLN 65H "L" Connector Post \$(P1) P1 Paint Opt .Q Light Gray	\$92.98	\$92.98
39		1	HECSL "L" Connector Strap	\$10.38	\$10.38
40		1	HEFEC65P Panel Finished End Covers 65H \$(P1) P1 Paint Opt .Q Light Gray	\$42.48	\$42.48

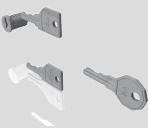
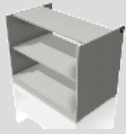
LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
41		1	HETC24 Panel Top Cap 24"W \$(P1) .Q P1 Paint Opt Light Gray	\$25.49	\$25.49
42		2	HETC42 Panel Top Cap 42"W \$(P1) .Q P1 Paint Opt Light Gray	\$40.12	\$80.24
43		1	HETP6524FP Tackable Panel w/o TC 65H x 24W \$(A) .ECH Grd A Fabric Etch 12 Cast \$(P1) .Q P1 Paint Opt Light Gray	\$234.11	\$234.11
44		2	HETP6542FP Tackable Panel w/o TC 65H x 42W \$(A) .ECH Grd A Fabric Etch 12 Cast \$(P1) .Q P1 Paint Opt Light Gray	\$287.92	\$575.84
45		1	HEWS65P Wall Starter Kit for Panels 65H \$(P1) .P8C P1 Paint Opt Salt	\$68.44	\$68.44
46		3	HF23S Contain Satin Removable Lock Core Kit .X102E 102E	\$29.74	\$89.22
47		1	HHN831124 Flat Bracket 24D .S Charcoal	\$41.54	\$41.54

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
48		1	HIWMM Ignition 2 Task Mid-back, ilira back .Y1 Synchro-Tilt W Seat Slider .A Height and Width Adj. Arm .H Hard Caster .IM 4-Way Black \$(2) Grade 2 Uph .SPNN Spin Seating 04 Cobblestone .BL Black Adjustable Lumbar .SB Standard Base .T Black	\$423.86	\$423.86
49		1	HNL233628PBK 36Wx23-1/8Dx28-1/2H Bookcase Pedestal .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$458.78	\$458.78
50		1	HNL233628PLF 36Wx23-1/8Dx28-1/2H Lateral File Pedestal .E Loop/Satin .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$678.74	\$678.74
51		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72
52		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72
53		1	HSCKTPS Straight Connector Kit .X No Option	\$14.16	\$14.16
54		1	HSDG Gussets (1 Pr) \$(P1) P1 Paint Opts .Q Light Gray	\$74.10	\$74.10

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
55		1	HSDSL29 Abode Shared Leg \$(P1) .Q P1 Paint Opt Light Gray	\$238.83	\$238.83
56		1	HWR2424PN Systems Rectanular Wksfc Edgeband 24D X 24W N \$(L1STD) .B9 Grd L1 Standard Laminates .Q Silver Mesh .Q Light Gray	\$191.63	\$191.63
57		1	HWR2454P Systems Rectangular Worksurface Edgeband 24D x 54W \$(L1STD) .B9 Grd L1 Standard Laminates .Q Silver Mesh .Q Light Gray .Q Light Gray	\$268.10	\$268.10
58		1	HWR2472PN Systems Rect Wksfc Edgeband 24D x 72W No Grom \$(L1STD) .B9 Grd L1 Standard Laminates .Q Silver Mesh .Q Light Gray	\$330.40	\$330.40
59		2	HWSB2 Worksurface Bracket Kit \$(P1) .Q P1 Paint Opt Light Gray	\$30.21	\$60.42
60		1	HWV75AALP Systems 60x48x24x24 Lft Corner Cove Worksurface Edgebd \$(L1STD) .B9 Grd L1 Standard Laminates .Q Silver Mesh .Q Light Gray .Q Light Gray	\$386.57	\$386.57
61		5	Z. 24013 Wall Attachment Hardware	\$1.36	\$6.80

Subtotal for: Workstation 2 \$5,568.39

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
Workstation 3					
62		1	H19723A Flagship Pedestal "A" Pull Freestanding B/B/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
63		1	H19823A Flagship Series Pedestal "A" Pull Freestanding F/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
64		1	HEC65PLN 65H "L" Connector Post \$(P1) P1 Paint Opt .Q Light Gray	\$92.98	\$92.98
65		1	HECSL "L" Connector Strap	\$10.38	\$10.38
66		1	HEFEC65P Panel Finished End Covers 65H \$(P1) P1 Paint Opt .Q Light Gray	\$42.48	\$42.48
67		1	HETC24 Panel Top Cap 24"W \$(P1) P1 Paint Opt .Q Light Gray	\$25.49	\$25.49
68		2	HETC42 Panel Top Cap 42"W \$(P1) P1 Paint Opt .Q Light Gray	\$40.12	\$80.24
69		1	HETP6524FP Tackable Panel w/o TC 65H x 24W \$(A) Grd A Fabric .ECH Etch 12 Cast \$(P1) P1 Paint Opt .Q Light Gray	\$234.11	\$234.11

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
70		2	HETP6542FP Tackable Panel w/o TC 65H x 42W \$(A) Grd A Fabric .ECH Etch 12 Cast \$(P1) P1 Paint Opt .Q Light Gray	\$287.92	\$575.84
71		1	HEWS65P Wall Starter Kit for Panels 65H \$(P1) P1 Paint Opt .Q Light Gray	\$68.44	\$68.44
72		3	HF23S Contain Satin Removable Lock Core Kit .X103E 103E	\$29.74	\$89.22
73		1	HHN831124 Flat Bracket 24D .S Charcoal	\$41.54	\$41.54
74		1	HIWMM Ignition 2 Task Mid-back, ilira back .Y1 Synchro-Tilt W Seat Slider .A Height and Width Adj. Arm .H Hard Caster .IM 4-Way Black \$(2) Grade 2 Uph .SPNN Spin Seating 04 Cobblestone .BL Black Adjustable Lumbar .SB Standard Base .T Black	\$423.86	\$423.86
75		1	HLSLZ5SC60 48"W External Stiffener .P Black	\$65.14	\$65.14
76		1	HNL233628PBK 36Wx23-1/8Dx28-1/2H Bookcase Pedestal .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$458.78	\$458.78

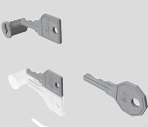
LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
77		1	HNL233628PLF 36Wx23-1/8Dx28-1/2H Lateral File Pedestal .E Loop/Satin .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$678.74	\$678.74
78		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72
79		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72
80		1	HSCKTPS Straight Connector Kit .X No Option	\$14.16	\$14.16
81		1	HSDG Gussets (1 Pr) \$(P1) P1 Paint Opt .Q Light Gray	\$74.10	\$74.10
82		1	HSDSL29 Abode Shared Leg \$(P1) P1 Paint Opt .Q Light Gray	\$238.83	\$238.83
83		1	HWR2424PN Systems Rectanular Wksfc Edgeband 24D X 24W N \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray	\$191.63	\$191.63
84		1	HWR2454P Systems Rectangular Worksurface Edgeband 24D x 54W \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray .Q Light Gray	\$268.10	\$268.10

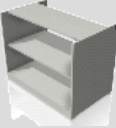
LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
85		1	HWR2472PN Systems Rect Wksfc Edgeband 24D x 72W No Grom \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray	\$330.40	\$330.40
86		1	HWSB2 Worksurface Bracket Kit \$(P1) P1 Paint Opt .Q Light Gray	\$30.21	\$30.21
87		1	HWV75AARP Systems 60x48x24x24 Rt Corner Cove Worksurface Edgebnd \$(L1STD) Grd L1 Standard Laminates .B9 Silver Mesh .Q Light Gray .Q Light Gray	\$386.57	\$386.57
88		5	Z. 24013 Wall Attachment Hardware	\$1.36	\$6.80

Subtotal for: Workstation 3 \$5,603.32

Workstation 4

89		1	H19723A Flagship Pedestal "A" Pull Freestanding B/B/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
90		1	H19823A Flagship Series Pedestal "A" Pull Freestanding F/F .X OMT Core to Order Key Alike \$(P1) P1 Paint Opt .Q Light Gray	\$464.92	\$464.92
91		1	HEC65PLN 65H "L" Connector Post \$(P1) P1 Paint Opt .Q Light Gray	\$92.98	\$92.98

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
92		1	HECSL "L" Connector Strap	\$10.38	\$10.38
93		1	HEFEC65P Panel Finished End Covers 65H \$(P1) P1 Paint Opts .Q Light Gray	\$42.48	\$42.48
94		1	HETC24 Panel Top Cap 24"W \$(P1) P1 Paint Opts .Q Light Gray	\$25.49	\$25.49
95		2	HETC42 Panel Top Cap 42"W \$(P1) P1 Paint Opts .Q Light Gray	\$40.12	\$80.24
96		1	HETP6524FP Tackable Panel w/o TC 65H x 24W \$(A) Grd A Fabric .ECH Etch 12 Cast \$(P1) P1 Paint Opts .Q Light Gray	\$234.11	\$234.11
97		1	HEWS65P Wall Starter Kit for Panels 65H \$(P1) P1 Paint Opts .Q Light Gray	\$68.44	\$68.44
98		3	HF23S Contain Satin Removable Lock Core Kit .X104E 104E	\$29.74	\$89.22
99		1	HHN831124 Flat Bracket 24D .S Charcoal	\$41.54	\$41.54

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
100		1	HIWMM Ignition 2 Task Mid-back, ilira back .Y1 Synchro-Tilt W Seat Slider .A Height and Width Adj. Arm .H Hard Caster .IM 4-Way Black \$(2) Grade 2 Uph .SPNN Spin Seating 04 Cobblestone .BL Black Adjustable Lumbar .SB Standard Base .T Black	\$423.86	\$423.86
101		1	HL5LZ5SC60 48"W External Stiffener .P Black	\$65.14	\$65.14
102		1	HNL233628PBK 36Wx23-1/8Dx28-1/2H Bookcase Pedestal .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$458.78	\$458.78
103		1	HNL233628PLF 36Wx23-1/8Dx28-1/2H Lateral File Pedestal .E Loop/Satin .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$678.74	\$678.74
104		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72
105		1	HNLMP3628 36W x 27-7/8H Modesty / Ped Back Panel .X No Grommet \$(L1STD) Grd L1 Standard Laminates .LOFT Loft	\$122.72	\$122.72
106		1	H5CKTPS Straight Connector Kit .X No Option	\$14.16	\$14.16

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
107		1	HSDEP2429F 24'D End-Panel Supports: Freestanding \$(P1) .Q P1 Paint Opt Light Gray	\$125.55	\$125.55
108		1	HSDG Gussets (1 Pr) \$(P1) .Q P1 Paint Opt Light Gray	\$74.10	\$74.10
109		1	HSDSL29 Abode Shared Leg \$(P1) .Q P1 Paint Opt Light Gray	\$238.83	\$238.83
110		1	HWR2424PN Systems Rectanular Wksfc Edgeband 24D X 24W N \$(L1STD) .B9 Grd L1 Standard Laminates Silver Mesh .Q Light Gray	\$191.63	\$191.63
111		1	HWR2454P Systems Rectangular Worksurface Edgeband 24D x 54W \$(L1STD) .B9 Grd L1 Standard Laminates Silver Mesh .Q Light Gray .Q Light Gray	\$268.10	\$268.10
112		1	HWR2472PN Systems Rect Wksfc Edgeband 24D x 72W No Grom \$(L1STD) .B9 Grd L1 Standard Laminates Silver Mesh .Q Light Gray	\$330.40	\$330.40
113		2	HWSB2 Worksurface Bracket Kit \$(P1) .Q P1 Paint Opt Light Gray	\$30.21	\$60.42
114		1	HWV75AARP Systems 60x48x24x24 Rt Corner Cove Worksurface Edgebnd \$(L1STD) .B9 Grd L1 Standard Laminates Silver Mesh .Q Light Gray .Q Light Gray	\$386.57	\$386.57

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
115		5	Z. 24013 Wall Attachment Hardware	\$1.36	\$6.80
Subtotal for: Workstation 4					\$5,183.24
X. DESIGN					
116		1	DESIGN DESIGN SERVICES - FREE OF CHARGE	\$0.00	\$0.00
X. DESIGN					
Subtotal for: X. DESIGN					\$0.00
Y. FREIGHT					
117		1	FREIGHT HON FREIGHT - FREE	\$0.00	\$0.00
Y. FREIGHT					
Subtotal for: Y. FREIGHT					\$0.00
Z. INSTALL					
118		1	LABOR DELIVERY & INSTALLATION	\$3,468.76	\$3,468.76
Z. INSTALL					
Subtotal for: Z. INSTALL					\$3,468.76
ZZ. CONTRACT					
119		1	CONTRACT HON UW CONTRACT #23-5665	\$0.00	\$0.00
ZZ. CONTRACT					
Subtotal for: ZZ. CONTRACT					\$0.00

LINE	IMAGE	QTY	PRODUCT	UNIT SELL	EXT SELL
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GRAND TOTAL

\$35,338.11

Applicable Sales Tax is additional.

EBI Terms and Conditions apply.

Authorized Customer Signature:

Printed Name / Title:

Date:

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Award of a 3-year building cleaning services contract to Vanguard Cleaning Systems for a total of \$562,752.00.

SUBMITTED BY: Scott Anderson, Superintendent

SUMMARY EXPLANATION:

The Village is currently under contract with Cleanpower LLC to perform cleaning services as necessary throughout various buildings within the village. The existing contract is set to expire December 31st, 2024. During the review process, each building manager has an opportunity to comment on the task frequency sheet specific to each building for changes that may be necessary.

Staff solicited area cleaning contractors who have toured each facility and have returned proposals for the services as outlined by the village. The contract will be a 3-year term. The results are listed below.

Vanguard Cleaning Systems \$562,752.00	\$187,584.00 (3 years w/ no increases)
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Cleanpower LLC \$597,294.30	\$193,242.84 (3 years w/increases)
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JB Janitorial \$843,426.00	\$281,142.00 (3 years w/ no increases)
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Coverall Cleaning \$860,965.76	\$285,088.00 (3 years w/increases)
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ATTACHMENT:

STAFF RECOMMENDATION:

Staff recommends entering into a 3-year agreement with Vanguard Cleaning System to perform building cleaning services at various buildings for \$562,752.00 over the life of the agreement, and to forward this request to the Village Board with a positive recommendation. If approved, funds shall be allocated from the Buildings & Grounds non-borrowed capital account: 10563000-541000.

ACTION BY Committee:

BUSINESS OF THE PUBLIC WORKS & HIGHWAYS COMMITTEE

MEETING DATE: September 4, 2024

PLACEMENT: Action Item

ITEM TITLE: Award of a 4-year contracted towel and mat service contract to ITU AbsorbTech for a total of \$49,206.83.

SUBMITTED BY: Scott Anderson, Superintendent

SUMMARY EXPLANATION:

The Village is currently in an agreement with ITU AbsorbTech to provide towels, mop heads, and floor mats as necessary throughout various buildings within the village. The existing agreement is set to expire September 30th, 2024, however staff has extended the agreement at the current monthly rate through the end of this year. Staff has solicited pricing from area vendors who specialize in providing this type of service. The agreement will be a 4-year term. The results are listed below.

ITU AbsorbTech:	\$11,938.75 / \$49,206.83 (4 years w/increases).
Unifirst:	\$15,197.52 / \$65,503.22 (4 years w/increases)
Vestis Uniform:	\$18,408.00 / \$79,391.18 (4 years w/increases).
Packerland:	\$31,270.38 / \$130,823.61 (4 years w/increases).

ATTACHMENT:

STAFF RECOMMENDATION:

Staff recommends entering into a 4-year agreement with ITU AbsorbTech to preform towel and mat service at various buildings for \$49,206.83 over the life of the agreement, and to forward this request to the Village Board with a positive recommendation. If approved, funds shall be allocated from the Buildings & Grounds non-borrowed capital account: 10563000-531040.

ACTION BY Committee:

Director's Report - September 2024

Staff Top 3 Projects

Village Engineer

1	Donges Bay Road Reconstruction	Construction substantially complete.
2	Glenwood Park Water Main Relays	Construction substantially complete.
3	Maple Rd Reconstruction	Reconstruction from I-43 Bridge south to Appleton. Work began 9/3.

Engineering Tech

1	2024 Road Program	Work began on School Rd. Will continue through mid-September in Glenwood Park and Willow Creek Heights
2	2024 Sealcoating Program	All sealcoating is complete.
3	2024 Wastewater CIPP Specification	Specification to be developed for fall bid.

Water Superintendent

1	Goldendale Booster	Booster station has started up. Working on commissioning.
2	Well 12 Construction / Well 12 Rehab	WQI to work on liner specification. Hassinger remobilizing for well house construction.
3	Tower 4 Construction	Tower 4 raised and welded. Painting and internal work scheduled.

Wastewater Superintendent

1	Ruekert and Mielke Facilities Study and amendment	Recommended to PWHC by UAC. Presentation to PWHC on 9/4/24.
2	DPW Move	Plan to work out of new DPW on 9/9/24.
3	2024 Cured in Place Sewer Lining	Anticipate fall bid and coordination with Engineering Division.

Highway, Parks, Buildings & Grounds Superintendent

1	DPW Move	Plan to work out of new DPW on 9/9/24.
2	Tree planting	Planting will begin following PWHC approval.
3	Crackfilling, Road Painting, Octoberfest, Stumpgrinding.	In progress.

Director's Report - September 2024, cont.

Director

1	DPW Move	Last minute coordination with network, etc.
2	Public Safety Building Needs Assessment and Feasibility Study RFP	Working on site analysis, concept plans, estimates
3	Fire Department Station No 2 Remodel	Preliminary conversations regarding Fire Station No. 2 Remodel.
4	Budget Prep	Coordinating budget between the DPW divisions.

Richfield IGA Update

Richfield is proceeding with acquisition of the right of way and easements necessary then pausing the project until developmnet advances. An agreement with GBP appears to be in place.

Work By Other Agencies

WISDOT - Lannon & Maple Intersection - In Progress
WE Energies - Various Locations - 2024
ANR Pipeline - Reline through Village - Spring/Summer 2025
WISDOT - 145 & Division Rd Roundabout - Summer 2026
WISDOT - 145 Resurfacing from Mequon Rd to Brown Deer Rd - 2028
WISDOT - Resurfacing Mequon Rd from Division to Pilgrim - 2028
WISDOT - US 167/Lannon/Mequon- 1-41 to US 145 - 2028

Compliance Milestones

1	PSC CPR Report Development - Hired R-M to assist with CPR Development.
2	DNR Storm Water Polution Prevention Plan (SWPPP) - overdue
3	MS4 Permit Application - 9/24 - Hired GRAEF to assist with application development.

Department Update

1	Linda Granec resignation. Recruitment underway to fill.
2	Permit policy development: 1st meeting held
3	Public Works Website Updates
4	Impact Fee Study led by Village Administrator
5	DPW Move: Anticipate operating out of the facility on 9/9/24.
6	DPW Ribbon Cutting 5:30 PM on 9/17; DPW Open House 10/26
8	Water Rate Step II Increase and Sewer Rate Increase to be announced in Utility Bill flyer.

*Complaint Log - 8/1 - 8/30***

Engineering - Drainage	3
Tree - Miscellaneous	1
Street - Sidewalk Condition	1
Water - Low Pressure	1
Garbage - Damaged Cart	1
Total	7

**Incomplete data without admin assistant staffed

7/1/2024	Tom Kranick
7/8/2024	Dave Skrober
7/9/2024	Mary Schultz
7/10/2024	Melaine Smythe
7/11/2024	James Scheppe
7/15/2024	Diane Jellison
7/24/2024	Craig Ostovich
7/29/2024	Lynn Mohr
7/29/2024	

W190N11350 Carnegie Drive	414-671-1255	Engineering - Drainage	1
N136W21815 Bonnie Well Road	414-732-5803	Engineering - Misc.	1
W140N10337 Fond du Lac Avenue	920-207-2275	Garbage - General Complaint	1
	262-247-6301	Garbage - Missed Garbage	1
W156N10531 Jefferfson Lane	414-702-5466	Water - Miscellaneous	1
N98W15826 School Road	262-844-0572	Street -Miscellaneous	5
W168N12340 Century Lane	414-380-9163	Street - Pothole	2
N100W16922 Revere Lane	262-305-5583	Street - Street Light Out	1
Pilgrim and Starlight		Water - Meter	1
Total			14