SITE PLAN AND TRAFFIC ADVISORY REVIEW COMMITTEE
Internal Staff Meeting
Minnesota Valley Room, First Floor, Intergovernmental Center
****

1. **SITE PLAN ITEMS**

1. CY35-26

Request of ISG, on behalf of the property owner, Rolls Royce Solutions America, Inc., for a conditional use permit to allow the installation of one, 2,000-gallon HVO/diesel above-ground tank in P-I, Planned Industrial, zoning district. The subject property is described as Lots 1-3 and all of Lots 6-8, Block 1, and the east 200' of Lots 4 and 5, Lundin Industrial Park, and the southerly 62' of Lots 3 and 4, Block 2, Summit Industrial Park (304 Lundin).

2. CY36-26

Request of Bolton and Menk, on behalf of Kody Schendel of New Hope Board and Lodge and KD2 Properties, LLC, for a conditional use permit to construct and operate a 16-unit congregate micro-apartment addition; and for a variance to decrease the rear yard from 66' to 11.2' in the R-3, Limited Multiple Family Dwelling District. The variance is being requested in order to allow for an approximately 47' X 67' building addition. The property is described as Lots 6, 7, 8 and the westerly half of Lot 9, Block 16 of Mankato City, Blue Earth County (1429 3rd Avenue).

3. CY37-26

Request of Southwest Minnesota Housing Partnership for an amendment for Phase 2 to the previously approved planned unit development, PUD, to allow for the usage of Scheid Hall and to allow for parking lot and related infrastructure improvements at the property. The subject property is described as Outlot B, School Sisters of Notre Dame Subdivision, according to the plat thereof on file at the County Recorder's Office, Blue Earth County, Minnesota, to be described as Lot 1, Block 1, Good Counsel Hill subdivision (170 Good Counsel Drive, BE County PID's R010905379005, R010908201007).

4. CY38-26

Request of Spirits at Rest for a conditional use permit to allow a licensed residential substance use disorder treatment facility in the B-3, Highway Commercial, zoning district. The subject property is described as Lot 1, Block 3, Wolfe Addition No. 2 (80 Power Drive; BE County PID R010903378003).

5. CY39-26

Request of Bolton and Menk, on behalf of the property owner, for a preliminary and final plat review of Ironwood Estates No. 2. The subject properties are described as Lot 2, Lot 3 and Lot 4, Block 1, Ironwood Estates (Blue Earth County PID R010930301021 and R010930301024).

6. CY40-26

Request of Jones Haugh & Smith, with permission of the property owner, Scott Brown, for a preliminary plat review of Metcon Addition, and for the rezone of the subject property from T, Transition, to B-3, Highway Business and M-1, Light Industrial zoning district. The subject property is described as That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning;

Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota (Blue Earth County PIDR430911300021).

7. CY41-26

Request of RJC Rental Properties LLC to rezone the subject parcels from M-1, Light Industrial, to R-3, Limited Multiple Dwelling District. The subject properties are described as Lots 3, 4, and 5, Block 25, Mankato City subdivision (1618, 1620 and 1622 3rd Avenue).

8. CYV07-26

Request of Kody Schendel for a variance from Chapter 10, Article X, Division 1, Sec.10-1463 of the Mankato City Code to increase the allowable mechanical projection into a required yard from 3 feet (3') to ten feet (10') in the R-3, Limited Multiple Dwelling, zoning district. The variance is being requested in order to allow for the placement of two mechanical units in the 15.8 foot building setback area. The property is described as Lots 3, 4, 5, Block 16, Mankato City, Blue Earth County. (1422 2nd Avenue).

9. *****SITE PLAN AND TRAFFIC ADVISORY COMMITTEE REVIEW ONLY. Request of Darwin Lindahl. Architects, PA, on behalf of the owner, Mankato Building and Development, LLC, for a Site Plan and Traffic Advisory Committee review for the construction of a new, approximately 5,400 square foot structure at Blue Earth County PID R010909176010, address 1010 Raintree Road.**

10. *****SITE PLAN AND TRAFFIC ADVISORY COMMITTEE REVIEW ONLY. Request of Hyland Dental for a parking lot expansion at 810 Independence Drive.**

2. **TRAFFIC ITEMS**

1. **Adams Street and Hope Street Intersection Advanced Pedestrian Crossing Sign**

2. **Technology Drive Yield Signs; Technology Drive and Excel Drive Intersection and Power Drive and Technology Drive Intersection; Resolution for Directing Traffic Control Signage**

3. **Valliant Lane No Outlet**

4. **W 5th Street and Owatonna Street Intersection; Resolution for Directing Traffic Control Signage**

5. **No Parking Loading Zone signs in the public right of way at 215 E. Hickory Street**

Site Plan and Traffic Advisory Review Committee **1. 1.**

Meeting Date: 08/11/2026

Title

CY35-26

Request of ISG, on behalf of the property owner, Rolls Royce Solutions America, Inc., for a conditional use permit to allow the installation of one, 2,000-gallon HVO/diesel above-ground tank in P-I, Planned Industrial, zoning district. The subject property is described as Lots 1-3 and all of Lots 6-8, Block 1, and the east 200' of Lots 4 and 5, Lundin Industrial Park, and the southerly 62' of Lots 3 and 4, Block 2, Summit Industrial Park (304 Lundin).

Applicant

The applicant is ISG, on behalf of the property owner, Rolls-Royce Solutions America, Inc.

Request

The applicant is seeking approval of an amendment to the existing Conditional Use Permit to allow the installation of one 2,000-gallon HVO/Diesel aboveground storage tank in place of the previously approved 1,000-gallon HVO/Diesel aboveground storage tank. All other previously approved site improvements and conditions of the Conditional Use Permit will remain unchanged.

Location

The subject properties are described as all of Lots 1 through 3 and all of Lots 6, Lundin Industrial Park (304 Lundin Blvd; PID R010906126035).

Existing Land Use

The property contains a building that has been used for industrial purposes.

Zoning

The property is zoned PI, Planned Industrial.

Environmentally Sensitive Areas

There are no known environmentally sensitive areas on site.

Public Utilities

Public utilities are connected to the existing building. No modifications are proposed with this development.

City Code

Mankato City Code Chapter 10. Article VII. Division 2. Provides standards for the PI Planned Industrial District. Linked Here: https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=CH10LAUSDE_ARTVIIINDI_DIV2PIPLINDI

Mankato City Code Chapter 10. Article X. Division 2. Section 10-1503. Provides standards for Aboveground storage and dispensing of flammable and combustible liquids. Linked Here: https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=PTIICOOR_CH10LAUSDE_ARTXSTGEAP_DIV2SPPRAPSPPECOUS_S10-1503ABSTDIFLCOLI

Mankato City Code Chapter 10. Article X. Division 2. Section 10-1497. Provides standards for Outside storage of materials in commercial, and industrial districts. Linked Here: https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=PTIICOOR_CH10LAUSDE_ARTXSTGEAP_DIV2SPPRAPSPPECOUS_S10-1497OUSTMACOINDI

Review

The applicant is requesting an amendment to the existing Conditional Use Permit to allow the installation of one 2,000-gallon HVO/Diesel aboveground storage tank in place of the previously approved 1,000-gallon HVO/Diesel aboveground storage tank, in the Planned Industrial (PI) Zoning District. All other previously approved site improvements and conditions of the Conditional Use Permit will remain unchanged.

In the previous application, there was an approved conditional use permit for the installation of exterior fluid and fuel storage tanks on the property located at 304 Lundin Boulevard. The previously proposed use of the property included unenclosed storage of materials, products, equipment, and exterior fuel storage tanks.

The site was previously utilized as a multi-tenant industrial facility. With one tenant relocating, the applicant intends to occupy the entire building. Rolls-Royce Solutions America, Inc. plans to use the building for the assembly of low-power range (LPR) engine-generator sets, marketed under the "mtu, A Rolls-Royce Solution" brand. Three above-ground storage tanks are proposed for the site. An existing 1,000-pound liquid propane tank will remain in place. A 200-gallon diesel fuel tank will be relocated to the Southwest corner of the site near the new access drive, and a new 2,000-gallon split diesel/HVO tank with pump will be installed north of the building. The applicant has indicated that all tanks will be double-walled, self-contained units, thereby meeting Minnesota Pollution Control Agency (MPCA) and City requirements without the need for additional spill-containment features. Cut sheets for the tanks will be required prior to issuance of a building permit, and notification of installation must be submitted to the MPCA. The applicant has also acknowledged that fire permits and any additional required permits will be obtained. If onsite fueling of vehicles occurs, the transfer area must comply with MPCA standards.

Attachments

General Location Map

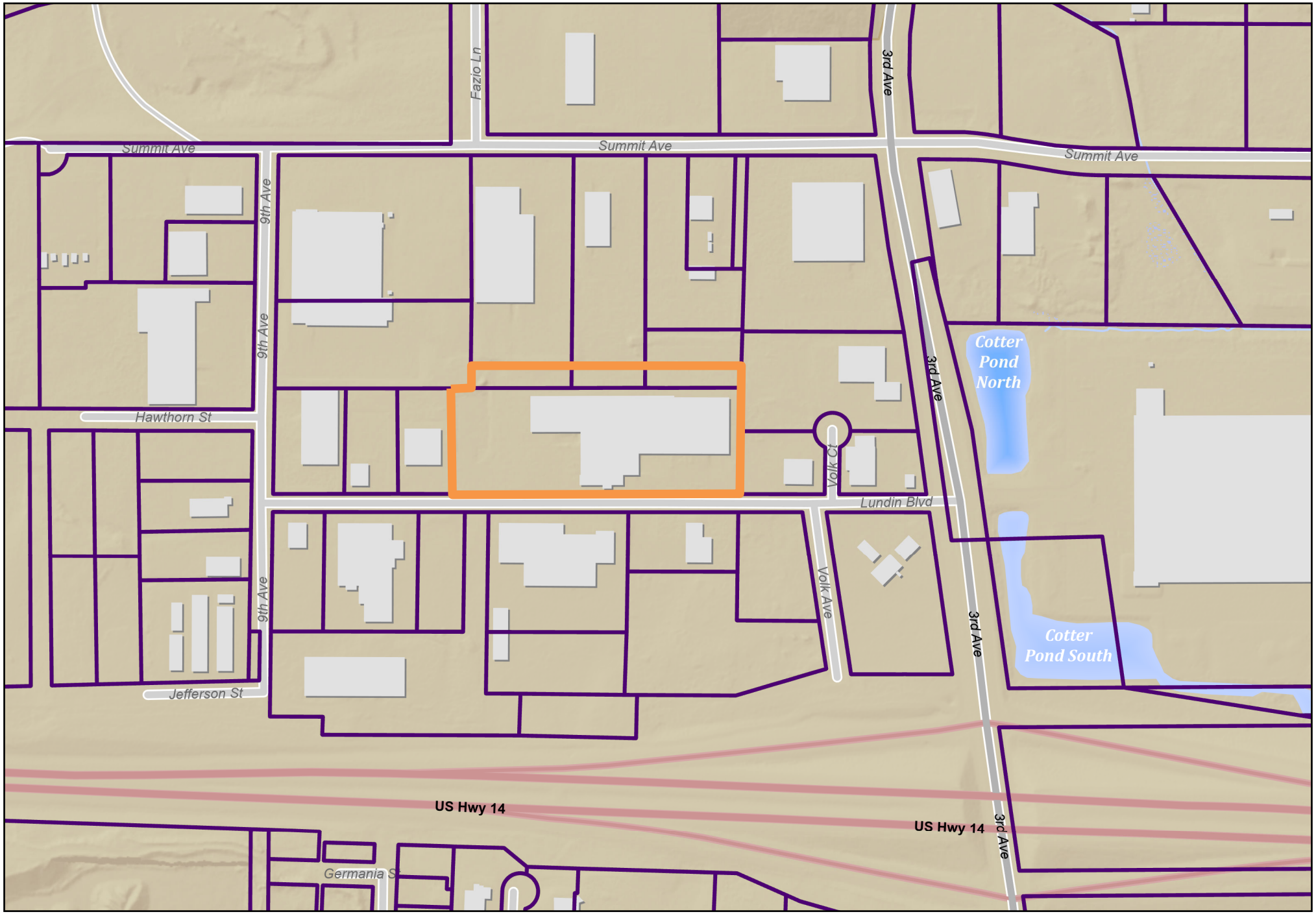
Aerial

Site Plan

Narrative

Civil Plans

General Location Map



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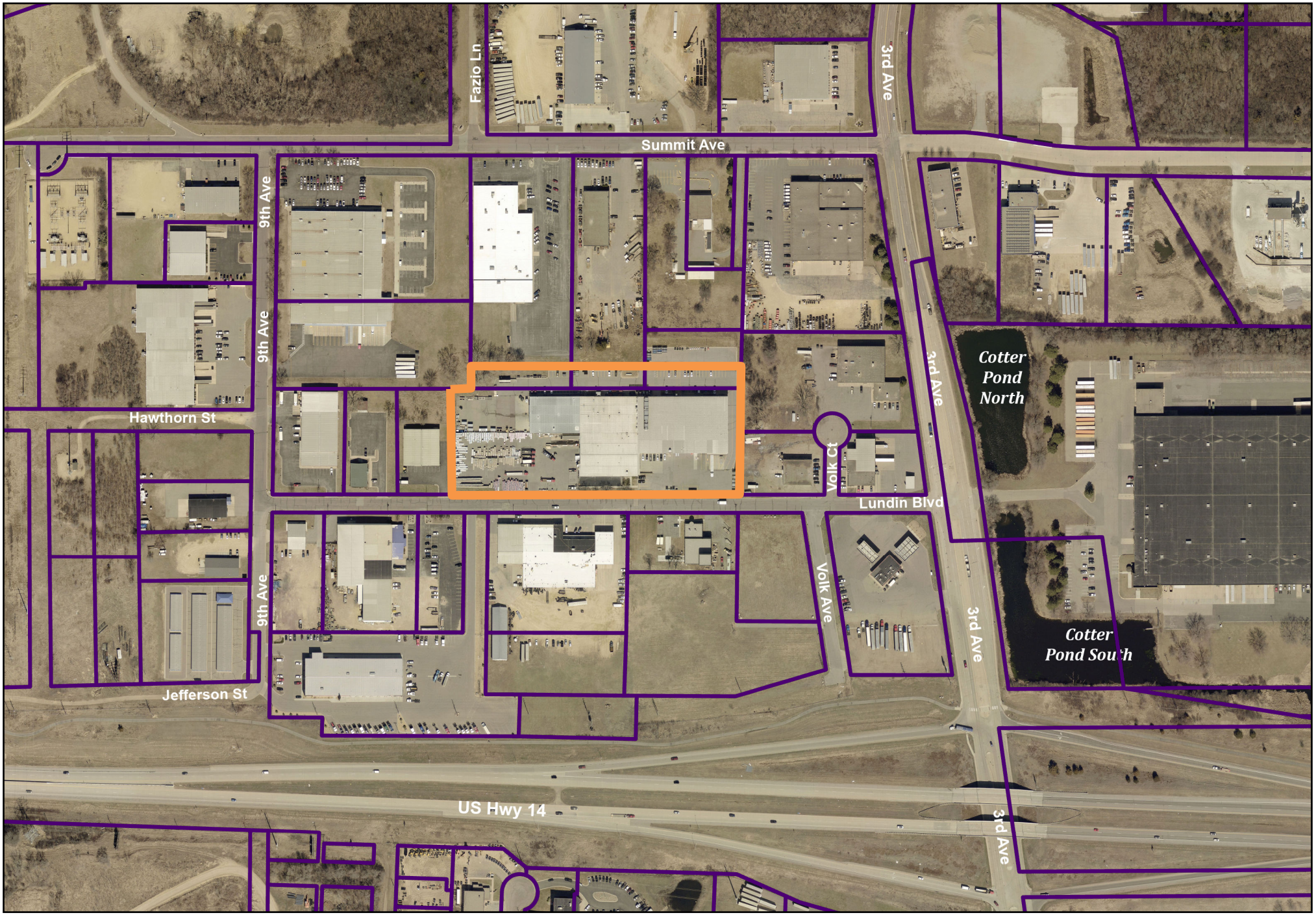
Produced by: City of Mankato GIS
Published: August 4, 2026

Mankato
Leading the way...

Aerial Map



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MANKATO
Leading the way...

SITE FURNISHING LEGEND

A	PATIO SEATING (BY OWNER)
B	DECORATIVE FENCE (57 LF) MONTAGE (MAJESTIC STYLE) BY AMERISTAR
C	HEAVY DUTY WINDER BIKE RACK BY MADRAX (7 BIKES)

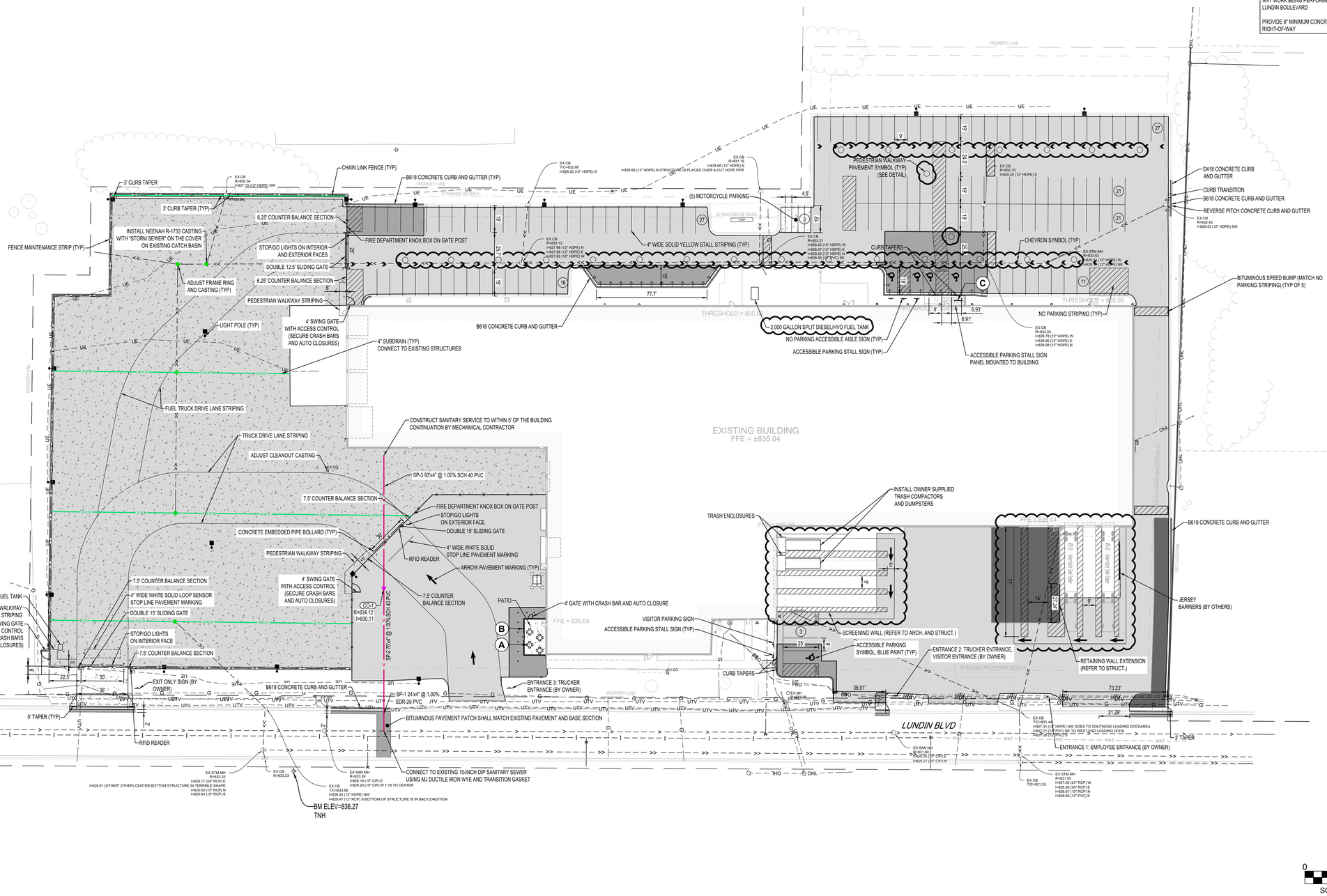
PAVEMENT LEGEND

SYMBOL	DESCRIPTION
	OVERLAY BITUMINOUS PAVEMENT
	MEDIUM DUTY BITUMINOUS PAVEMENT
	HEAVY DUTY BITUMINOUS PAVEMENT
	STANDARD HEAVY DUTY CONCRETE PAVEMENT
	EXTRA HEAVY DUTY CONCRETE PAVEMENT
	CONCRETE WALK
	REVERSE PITCH CONCRETE CURB AND GUTTER

NOTES: PROVIDE PRIVACY SLATS IN ALL CHAIN-LINK GATES AND FENCES EXCEPT FOR THE EAST GATE AND FENCE SECTION IN THE REAR (NORTH SIDE) OF THE BUILDING

CITY RIGHT OF WAY PERMIT SHALL BE SECURED PRIOR TO ANY WORK BEING PERFORMED IN THE RIGHT OF WAY OF LUNDIN BOULEVARD

PROVIDE 8" MINIMUM CONCRETE THICKNESS WITHIN CITY RIGHT-OF-WAY



PLOT DATE: 12/2/2025 3:55 PM

PRELIMINARY NOT FOR CONSTRUCTION

ISG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

BRYAN M. PETZEL

DATE _____ LIC. NO. 53191

SHEET NOT VALID UNLESS THIS TEXT IS COLOR.

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PROJECT

ROLLS ROYCE SOLUTIONS AMERICA, INC LUNDIN LPR #1180

MANKATO MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
03/20/26	ADDENDUM #2	AAQ
04/17/26	ADDENDUM #3	AAQ
06/02/26	SUPPLEMENTAL INSTRUCTION #1	AAQ
	PROPOSAL REQUEST #1	AAQ

PROJECT NO.	25-32426
FILE NAME	32426-C3-SITE
DRAWN BY	AAQ
DESIGNED BY	AAQ/BMP
REVIEWED BY	BMP
ORIGINAL ISSUE DATE	09/23/25
CLIENT PROJECT NO.	1180

TITLE

SITE AND UTILITY PLAN

SHEET

C3-10

July 28, 2026

Molly Westman
Planning & Zoning Administrator
City of Mankato
10 Civic Center Plaza
P.O. Box 3368
Mankato, MN 56002-3368
mwestman@mankatomn.gov

ISG

RE: Conditional Use Permit Amendment Request
Rolls Royce Solutions America, Inc. – Lundin LPR
304 Lundin Blvd – Mankato, MN

Molly,

Rolls-Royce Solutions America, Inc. (RRSA) respectfully requests approval of an amendment to the existing Conditional Use Permit to allow the installation of one (1) 2,000-gallon HVO/Diesel aboveground storage tank in place of the previously approved 1,000-gallon HVO/Diesel aboveground storage tank. All other previously approved site improvements and conditions of the Conditional Use Permit will remain unchanged.

An increase from a 1,000-gallon tank to a 2,000-gallon tank is requested to improve operational efficiency of the site. The additional storage capacity will provide greater flexibility for testing operations while supporting the use of renewable HVO fuel. Increasing the tank capacity will enhance facility operations without changing the nature or intensity of the approved use.

The proposed amendment does not increase building square footage, employee count, traffic volumes, hours of operation, noise levels, or other operational characteristics previously reviewed and approved by the city. The amendment is limited solely to increasing the fuel storage capacity of the approved HVO/Diesel tank.

The proposed 2,000-gallon HVO/Diesel tank will remain compatible with the surrounding industrial development and existing site operations. The amendment will not adversely affect neighboring properties and will not create additional impacts related to traffic, parking, lighting, or noise beyond those previously evaluated under the approved Conditional Use Permit.

Rolls-Royce Solutions America, Inc. respectfully requests approval of this Conditional Use Permit Amendment to replace the previously approved 1,000-gallon HVO/Diesel aboveground storage tank with a 2,000-gallon HVO/Diesel aboveground storage tank. The amendment represents a minor operational modification that improves efficiency while maintaining compliance with applicable regulations and preserving the conditions and intent of the original Conditional Use Permit.

Thank you for reviewing the attached documentation and drawings. Please contact us at 507.387.6651 or via email with any questions or if there is any additional information we can provide.

Sincerely,

Emily Nepp

Emily Nepp
Development Services Coordinator
Emily.Nepp@ISGInc.com

Sincerely,

Randy Potter

Randy Potter
Senior Project Manager
Randy.Potter@ISGInc.com

GENERAL CODE DATA

32426 – LUNDIN LPR – MANKATO, MINNESOTA
CODE DATA

BUILDING CODE

2020 MINNESOTA BUILDING CODE (BASED ON 2018 INTERNATIONAL BUILDING CODE)
2020 MINNESOTA CONSERVATION CODE FOR EXISTING BUILDINGS (BASED ON 2018 INTERNATIONAL EXISTING BUILDING CODE)

ACCESSIBILITY CODE AND STANDARDS

2020 MINNESOTA ACCESSIBILITY CODE

OCCUPANCY CLASSIFICATION AND USE

MAIN OCCUPANCY:
FACTORY GROUP F-1

ACCESSORY OCCUPANCIES:
ASSEMBLY GROUP A-3
BUSINESS GROUP B
HIGH-HAZARD GROUP H-3

SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE

415 GROUPS H-1, H-2, H-3, H-4 AND H-5

FIRE PROTECTION SYSTEMS

FULLY SPRINKLERED (NFPA 13)
FIRE ALARM SYSTEM THROUGHOUT
EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM THROUGHOUT

MIXED USE AND OCCUPANCY

ACCESSORY OCCUPANCIES

CONSTRUCTION TYPE

TYPE IIB
PRIMARY STRUCTURAL FRAME: 0 HOUR RATED
EXTERIOR BEARING WALLS: 0 HOUR RATED
INTERIOR BEARING WALLS: 0 HOUR RATED
EXTERIOR NONBEARING WALLS (BASED ON FIRE SEPARATION DISTANCE): 0 HOUR RATED
INTERIOR NONBEARING WALLS: 0 HOUR RATED
FLOOR CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS: 0 HOUR RATED
ROOF CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS: 0 HOUR RATED

FIRE AND SMOKE PROTECTION FEATURES

EXTERIOR WALLS: 1 HOUR RATED (FOR 4' AT INTERSECTION OF FIRE WALL)
FIRE WALLS
BUILDING SEPARATION: 3 HOUR RATED
FIRE BARRIERS
CONTROL AREAS: 1 HOUR RATED
HORIZONTAL ASSEMBLIES
CONTROL AREAS: 1 HOUR RATED
OPENING PROTECTIVES
FIRE WALLS (3 HOURS): 3 HOUR RATED
FIRE BARRIERS (1 HOUR)
OTHER FIRE BARRIERS (1 HOUR): ¾ HOUR RATED
EXTERIOR WALLS (1 HOUR): ¾ HOUR RATED

BUILDING HEIGHT

BUILDING 1
TABULAR ALLOWABLE HEIGHT: 3 STORIES ABOVE GRADE PLANE / 75 FEET ABOVE GRADE PLANE
ACTUAL HEIGHT: 1 STORIES ABOVE GRADE PLANE / 23 FEET ABOVE GRADE PLANE

BUILDING 2
TABULAR ALLOWABLE HEIGHT: 3 STORIES ABOVE GRADE PLANE / 75 FEET ABOVE GRADE PLANE
ACTUAL HEIGHT: 1 STORIES ABOVE GRADE PLANE / 32 FEET ABOVE GRADE PLANE

BUILDING AREA

BUILDING 1
TABULAR ALLOWABLE AREA FACTOR (A): 62,000 SF

TOTAL ACTUAL BUILDING AREA: SEE BUILDING AREA SCHEDULE

BUILDING 2
TABULAR ALLOWABLE AREA FACTOR (A_t): 62,000 SF
AREA FACTOR INCREASE DUE TO FRONTAGE (I_f) = [(F / P) – 0.25] (W / 30)
[(1,214 / 1,314) – 0.25] (60 / 30) = 1.35
PERIMETER WITH MINIMUM 20 FEET OPEN (F): 1,214 FEET
PERIMETER OF ENTIRE BUILDING (P): 1,314 FEET
WIDTH OF OPEN SPACE (W)
WEIGHTED AVERAGE WIDTH (W) = [(L_1)(W) + (L_2)(W) + (L_3)(W)] / F
[(250)(145) + (46)(60) + (116)(55) + (145)(360) + (100)(0) + (412)(80) + (155)(20) + (65)(270) + (25)(316)] / 1,214 = 131.8 (PER EXCEPTION W = 60)
ALLOWABLE AREA (A_a) = [A_t + (NS)(I_f)]
[62,000 + (15,500)(1.35)] = 82,891 SF PER STORY

TOTAL ACTUAL BUILDING AREA: SEE BUILDING AREA SCHEDULE
TOTAL MEZZANINE AREA: SEE BUILDING AREA SCHEDULE

OCCUPANT LOAD

BUILDING 1
FIRST FLOOR
BUSINESS AREAS: 138 SF / 150 GROSS SF = 1 OCCUPANTS
INDUSTRIAL AREAS: 13,508 SF / 100 GROSS SF = 136 OCCUPANTS
TOTAL FIRST FLOOR: 137 OCCUPANTS
TOTAL BUILDING 1 OCCUPANT LOAD: 137 OCCUPANTS

BUILDING 2
FIRST FLOOR
ACCESSORY STORAGE / MECHANICAL: 188 SF / 300 GROSS SF = 1 OCCUPANTS
ASSEMBLY WITHOUT FIXED SEATS
UNCONCENTRATED (TABLES / CHAIRS)
(BREAK AREAS): 1,222 SF / 15 NET SF = 82 OCCUPANTS
BUSINESS AREAS: 3,484 SF / 150 GROSS SF = 24 OCCUPANTS
INDUSTRIAL AREAS: 61,010 SF / 100 GROSS SF = 611 OCCUPANTS
LOCKER ROOMS: 547 SF / 50 GROSS SF = 11 OCCUPANTS
WAREHOUSES: 9,275 SF / 500 GROSS SF = 19 OCCUPANTS
TOTAL FIRST FLOOR: 750 OCCUPANTS
MEZZANINE
BUSINESS AREAS: 498 SF / 150 GROSS SF = 4 OCCUPANTS
WAREHOUSES: 2,403 SF / 500 GROSS SF = 5 OCCUPANTS
TOTAL MEZZANINE: 9 OCCUPANTS
TOTAL BUILDING 2 OCCUPANT LOAD: 759 OCCUPANTS

MEANS OF EGRESS

MINIMUM NUMBER OF EXITS REQUIRED (BASED ON OCCUPANT LOAD)
BUILDING 1 - FIRST FLOOR: 2
BUILDING 2 - FIRST FLOOR: 3

ACTUAL NUMBER OF EXITS
BUILDING 1 - FIRST FLOOR: 2
BUILDING 2 - FIRST FLOOR: 3

MINIMUM EGRESS WIDTH REQUIRED

BUILDING 1:
FIRST FLOOR
OTHER EGRESS COMPONENTS: (137 OCCUPANTS)(0.20) = 27.40 INCHES

BUILDING 2:
FIRST FLOOR
OTHER EGRESS COMPONENTS: (750 OCCUPANTS)(0.20) = 150.00 INCHES
MEZZANINE
STAIRWAYS: (9 OCCUPANTS)(0.30) = 2.70 INCHES
OTHER EGRESS COMPONENTS: (9 OCCUPANTS)(0.20) = 1.80 INCHES

ACTUAL EGRESS WIDTH

BUILDING 1:
FIRST FLOOR
OTHER EGRESS COMPONENTS: 68 INCHES

BUILDING 2:
FIRST FLOOR
OTHER EGRESS COMPONENTS: 306 INCHES
SECOND FLOOR
STAIRWAYS: 132 INCHES
OTHER EGRESS COMPONENTS: 102 INCHES

COMMON PATH OF EGRESS TRAVEL DISTANCE (A): 75 FEET MAXIMUM
COMMON PATH OF EGRESS TRAVEL DISTANCE (B, F): 100 FEET MAXIMUM
COMMON PATH OF EGRESS TRAVEL DISTANCE (H-2): 25 FEET MAXIMUM
EXIT ACCESS TRAVEL DISTANCE (A, F-1): 250 FEET MAXIMUM
EXIT ACCESS TRAVEL DISTANCE (B): 300 FEET MAXIMUM
EXIT ACCESS TRAVEL DISTANCE (H-2): 100 FEET MAXIMUM
PANIC HARDWARE OR FIRE EXIT HARDWARE REQUIRED AT LATCHING AND/OR LOCKING DOORS AND GATES SERVING A GROUP "A" OR GROUP "E" OCCUPANT LOAD OF 50 OR MORE

PLUMBING FIXTURES REQUIRED

ASSEMBLY
RESTAURANTS, BANQUET HALLS, FOOD COURTS
82 OCCUPANTS / 2 = 41 MEN AND 41 WOMEN
41 / 75 = 0.55 WATER CLOSETS FOR MEN
41 / 75 = 0.55 WATER CLOSETS FOR WOMEN
41 / 200 = 0.21 LAVATORIES FOR MEN
41 / 200 = 0.21 LAVATORIES FOR WOMEN
82 / 500 = 0.16 DRINKING FOUNTAINS
BUSINESS
29 OCCUPANTS / 2 = 15 MEN AND 15 WOMEN
15 / 1 PER 25 FIRST 50 THEN 1 PER 50 = 1.00 WATER CLOSETS FOR MEN
15 / 1 PER 25 FIRST 50 THEN 1 PER 50 = 1.00 WATER CLOSETS FOR WOMEN
15 / 1 PER 40 FIRST 80 THEN 1 PER 80 = 1.00 LAVATORIES FOR MEN
15 / 1 PER 40 FIRST 80 THEN 1 PER 80 = 1.00 LAVATORIES FOR WOMEN
29 / 100 = 0.29 DRINKING FOUNTAINS
FACTORY AND INDUSTRIAL
783 OCCUPANTS / 2 = 392 MEN AND 392 WOMEN
392 / 100 = 3.92 WATER CLOSETS FOR MEN
392 / 100 = 3.92 WATER CLOSETS FOR WOMEN
392 / 100 = 3.92 LAVATORIES FOR MEN
392 / 100 = 3.92 LAVATORIES FOR WOMEN
783 / 400 = 1.96 DRINKING FOUNTAINS
WAREHOUSES
2 OCCUPANTS / 2 = 1 MEN AND 1 WOMEN
1 / 100 = 0.01 WATER CLOSETS FOR MEN
1 / 100 = 0.01 WATER CLOSETS FOR WOMEN
1 / 100 = 0.01 LAVATORIES FOR MEN
1 / 100 = 0.01 LAVATORIES FOR WOMEN
2 / 1,000 = 0.002 DRINKING FOUNTAINS
TOTAL PLUMBING FIXTURES REQUIRED
5.47 (6) WATER CLOSETS FOR MEN
5.47 (6) WATER CLOSETS FOR WOMEN
5.12 (6) LAVATORIES FOR MEN
5.12 (6) LAVATORIES FOR WOMEN
2.41 (3) ACCESSIBLE DRINKING FOUNTAINS (2 HIGH SPOUT AND 2 LOW SPOUT)
1 SERVICE SINK

PLUMBING FIXTURES PROVIDED

5 WATER CLOSETS AND 3 URINALS FOR MEN
7 WATER CLOSETS FOR WOMEN
8 LAVATORIES FOR MEN (4 SINKS AND 1 4-PERSON HANDWASH STATION)
8 LAVATORIES FOR WOMEN (4 SINKS AND 1 4-PERSON HANDWASH STATION)
3 ACCESSIBLE DRINKING FOUNTAINS (1 HIGH SPOUT AND 2 LOW SPOUT)
1 SERVICE SINKS

CODE "BUILDING 1" AREA SCHEDULE

OCCUPANCY CLASSIFICATION	BUILDING AREA
FIRST FLOOR	
BUSINESS (GROUP B)	138 SF
FACTORY (GROUP F-1)	13,508 SF
	13,646 SF

CODE "BUILDING 2" AREA SCHEDULE

OCCUPANCY CLASSIFICATION	BUILDING AREA
FIRST FLOOR	
ASSEMBLY (GROUP A-3)	1,222 SF
BUSINESS (GROUP B)	3,484 SF
FACTORY (GROUP F-1)	71,019 SF
HIGH HAZARD (GROUP H-3)	606 SF
	76,330 SF
MEZZANINE	
BUSINESS (GROUP B)	498 SF
FACTORY (GROUP F-1)	2,403 SF
	2,901 SF

EGRESS PATH SCHEDULE

MARK	TRAVEL DISTANCE	CLEAR WIDTH	COMMENTS
EGRESS PATH 1	154'	34"	
EGRESS PATH 2	188'	34"	
EGRESS PATH 3	92'	34"	
EGRESS PATH 4	143'	34"	
EGRESS PATH 5	107'	34"	
EGRESS PATH 6	88'	34"	
EGRESS PATH 7	77'	34"	
EGRESS PATH 8	62'	34"	
EGRESS PATH 9	198'	34"	
EGRESS PATH 10	138'	34"	
EGRESS PATH 11	92'	34"	
EGRESS PATH 12	96'	34"	
EGRESS PATH 13	33'	34"	

WALL LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- EXISTING RATED INTERIOR CONSTRUCTION TO REMAIN
- EXISTING RATED EXTERIOR CONSTRUCTION TO REMAIN
- NEW CONSTRUCTION
- NEW RATED INTERIOR CONSTRUCTION
- NEW RATED EXTERIOR CONSTRUCTION

CONTRACTOR TO VERIFY EXISTING RATED WALL CONSTRUCTION IN FIELD AND REPORT ANY DISCREPANCIES TO THE PROJECT ARCHITECT.

CODE DATA PLAN KEY

- EGRESS PATH
- EXIT
- FE — FIRE EXTINGUISHER
- FEC — SEMI-RECESSED FIRE EXTINGUISHER CABINET
- FRONTAGE DISTANCE
- KB — KNOX BOX
- FIRE DEPARTMENT CONNECTION
- EW1 — 1-HOUR EXTERIOR WALL
- FW3 — 3-HOUR FIRE WALL
- FB1 — 1-HOUR FIRE BARRIER

FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENINGS OR PENETRATIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING. SUCH IDENTIFICATION SHALL:
1. BE LOCATED IN ACCESSIBLE CONCEALED FLOOR, FLOOR-CEILING OR ATTIC SPACES
2. BE LOCATED WITHIN 15 FEET OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30 FEET MEASURED HORIZONTALLY ALONG THE WALL OR PARTITION, AND
3. INCLUDE LETTERING NOT LESS THAN 3 INCHES IN HEIGHT WITH A MINIMUM 3/8" STROKE IN A CONTRASTING COLOR INCORPORATING THE SUGGESTED WORDING "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS" OR OTHER SIMILAR WORDING.

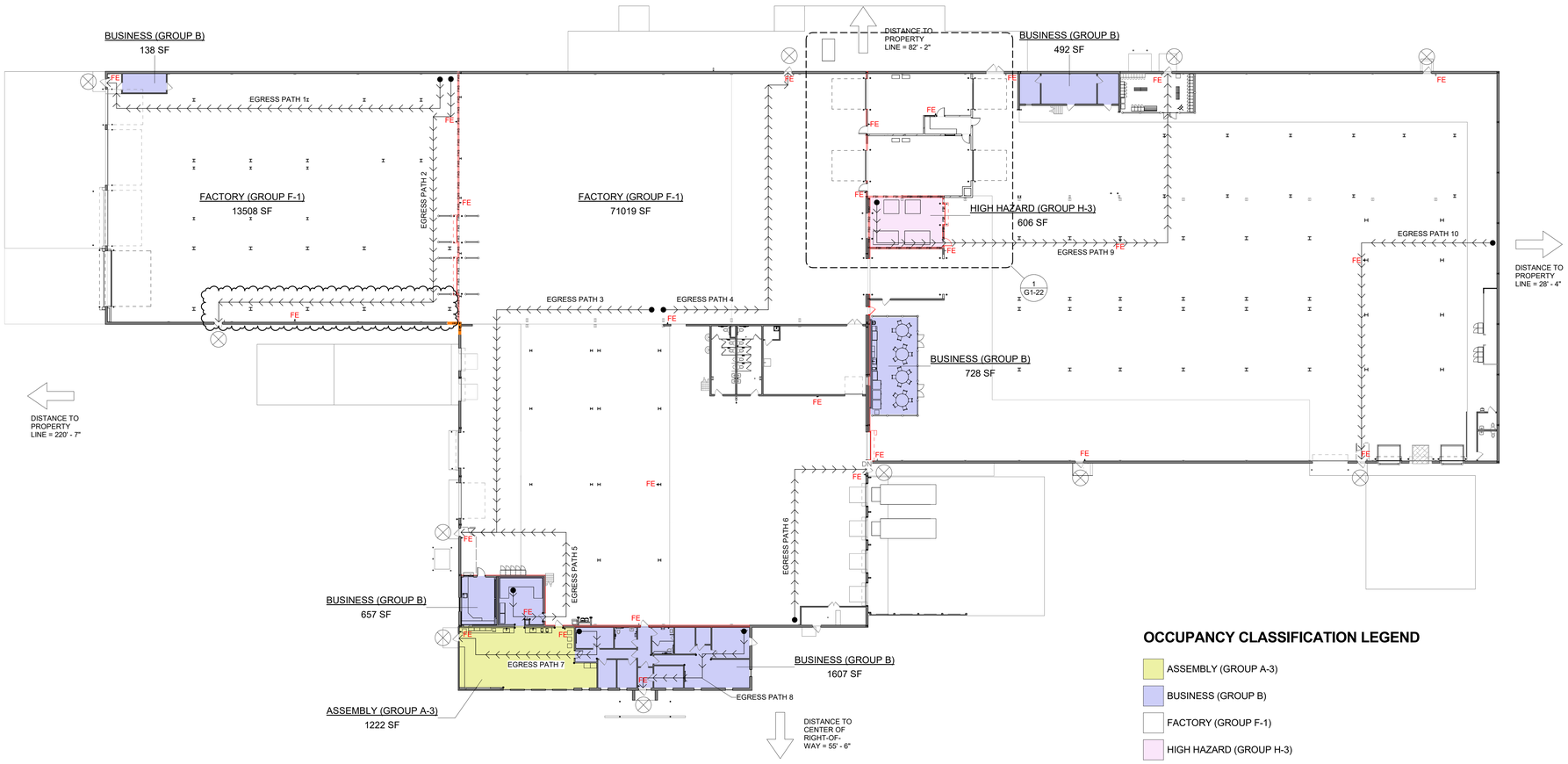
FIRE SUPPRESSION NOTES

(MODIFIED OR ADDITION TO EXISTING SPRINKLER SYSTEM)

THROUGHOUT AREA OF WORK, MODIFY EXISTING AND / OR PROVIDE A NEW NFPA 13 FIRE SUPPRESSION (SPRINKLER) SYSTEM. THE LICENSED AUTOMATIC SPRINKLER SYSTEM DESIGNER / INSTALLER SHALL FIELD VERIFY ALL CONDITIONS PRIOR TO BID. THE NFPA 13 SPRINKLER SYSTEM SHALL BE DESIGNED, INSTALLED, MODIFIED AND TESTED BY A LICENSED AUTOMATIC SPRINKLER SYSTEM DESIGNER / INSTALLER AND SHALL MEET ALL APPLICABLE CODE REQUIREMENTS. THE LICENSED AUTOMATIC SPRINKLER SYSTEM DESIGNER SHALL PROVIDE AUTOMATIC SPRINKLER SYSTEM DESIGN DOCUMENTS AND SHALL SUBMIT THEM TO ALL APPLICABLE JURISDICTIONS AND AUTHORITIES AND SHALL PROCURE ALL NECESSARY PERMITS. SPRINKLER DESIGNER / INSTALLER SHALL PAY ALL NECESSARY PERMITTING FEES.

DESIGN OF NEW / MODIFIED NFPA 13 SPRINKLER SYSTEM SHALL BE BASED ON, BUT NOT LIMITED TO THE FOLLOWING CRITERIA:

1. COMPLY WITH NFPA 13 AND ALL OTHER APPLICABLE CODES.
2. MODIFY EXISTING SPRINKLER HEAD LAYOUT TO PROVIDE ADEQUATE COVERAGE PER CODE REQUIREMENTS.
3. MODIFY EXISTING SPRINKLER HEAD AND PIPING LAYOUT INCLUDING ALL DROPS, ARM-OVERS AND MAIN PIPES TO AVOID RELOCATED DIFFUSERS, LIGHT FIXTURES, MECHANICAL WORK, PLUMBING WORK, ELECTRICAL WORK, DEMOLITION WORK, NEW CONSTRUCTION WORK AND ALL OTHER WORK AND COMPONENTS IN THE CONTRACT.
4. COMPLETE ALL TEMPORARY AND PERMANENT WORK NECESSARY FOR THE REMOVAL AND REPLACEMENT OF CEILING GRIDS, INCLUDING NEW CEILING GRIDS AND GRIDS REMOVED AND REPLACED ONLY TO COMPLETE OTHER WORK.
5. PROVIDE PROPER COVERAGE IN CONCEALED SPACES AS REQUIRED PER CODE.
6. WHERE INSTALLING NEW WORK ADJACENT TO EXISTING, MATCH NEW COMPONENTS TO EXISTING COMPONENTS WITHIN CODE LIMITATIONS.
7. ALL NEW AND RELOCATED SPRINKLER PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE CEILINGS AND WITHIN WALLS.
8. ALL SPRINKLER HEADS TO BE INSTALLED IN ACOUSTICAL CEILING TILE SHALL BE INSTALLED IN CENTER OF TILE.



1 FIRST FLOOR CODE DATA PLAN
3/64" = 1'-0"

OCCUPANCY CLASSIFICATION LEGEND

- ASSEMBLY (GROUP A-3)
- BUSINESS (GROUP B)
- FACTORY (GROUP F-1)
- HIGH HAZARD (GROUP H-3)

N

REFERENCE SCALE
1" = 1'
0 1 2 4 8 16 1/2"

4/17/2026 8:31:45 AM

ISG

1 2

CODE "BUILDING" KEYPLAN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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JOSHUA AARON GROSS

DATE 10/27/2025 LIC. NO. 64146

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PROJECT

ROLLS ROYCE SOLUTIONS AMERICA, INC.
LUNDIN LPR #1180

MANKATO MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
10/27/25	ADDENDUM #1	JG
03/20/26	ADDENDUM #2	
04/17/26	ADDENDUM #3	

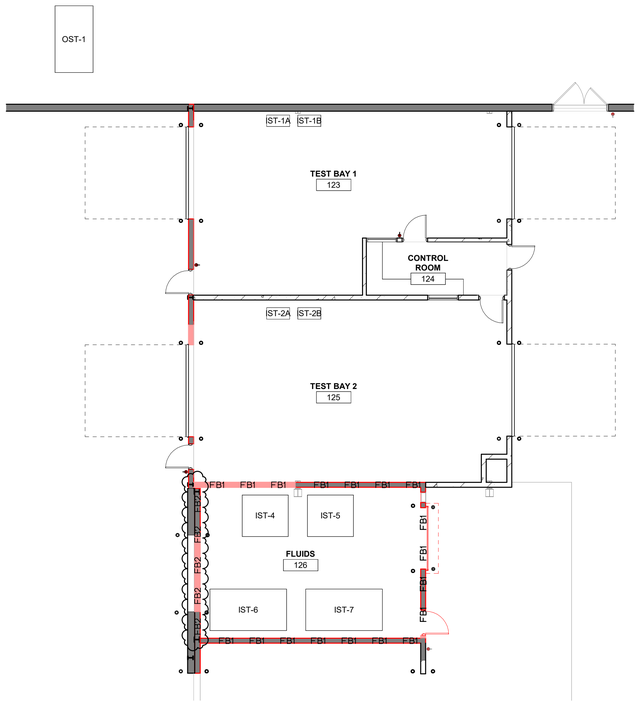
PROJECT NO.	25-32426
FILE NAME	32426 Arch R24.rvt
DRAWN BY	CZB
DESIGNED BY	JAG
REVIEWED BY	JAG
ORIGINAL ISSUE DATE	09/23/25
CLIENT PROJECT NO.	1180

TITLE

CODE DATA AND FIRST FLOOR CODE DATA PLAN

SHEET

G1-21



1 NEW STORAGE TANK LOCATION PLAN
1/8" = 1'-0"

INDOOR STORAGE TANK SCHEDULE

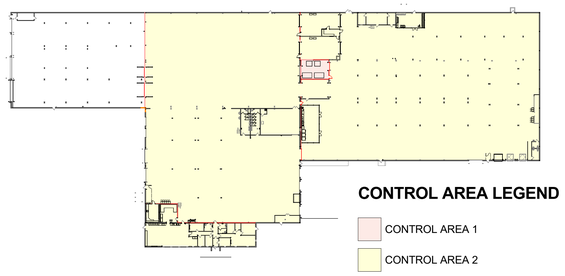
MARK	DESCRIPTION	CAPACITY (GALLONS)	LIQUID TYPE	LIQUID PRODUCT / MANUFACTURER	HAZARD CLASSIFICATION (2020 MN FIRE CODE)	COMMENTS
IST-4	DOUBLE-WALLED STORAGE TANK	750	OIL	TITAN CARGO MAXX 10W-40 / FUCHS SCHMIERSTOFFE GMBH	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
IST-5	DOUBLE-WALLED STORAGE TANK	750	WASTE		COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
IST-6	DOUBLE-WALLED STORAGE TANK	1500	COOLANT	FINAL CHARGE GLOBAL CONCENTRATE ANTIFREEZE AND COOLANT / OLD WORLD INDUSTRIES LLC	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
IST-7	DOUBLE-WALLED STORAGE TANK	1500	COOLANT	FLEET CHARGE 50/50 PREDILUTED ANTIFREEZE AND COOLANT / OLD WORLD INDUSTRIES LLC	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
BUILDING 2, CONTROL AREA 1		4500				
IST-1A	DOUBLE-WALLED STORAGE TANK / SPLIT: 25 GAL AND 25 GAL	50	DIESEL / HVO	-	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
IST-1B	DOUBLE-WALLED STORAGE TANK / SPLIT: 25 GAL AND 25 GAL	50	DIESEL / HVO	-	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
IST-2A	DOUBLE-WALLED STORAGE TANK / SPLIT: 25 GAL AND 25 GAL	50	DIESEL / HVO	-	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
IST-2B	DOUBLE-WALLED STORAGE TANK / SPLIT: 25 GAL AND 25 GAL	50	DIESEL / HVO	-	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
BUILDING 2, CONTROL AREA 2		200				

OUTDOOR STORAGE TANK SCHEDULE

MARK	DESCRIPTION	CAPACITY (GALLONS)	LIQUID TYPE	LIQUID PRODUCT / MANUFACTURER	HAZARD CLASSIFICATION (2020 MN FIRE CODE)	COMMENTS
OST-1	DOUBLE-WALLED STORAGE TANK / SPLIT: 1000 GAL AND 1000 GAL	2000	DIESEL / HVO	-	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1
OST-2	DOUBLE-WALLED STORAGE TANK / SPLIT: 100 GAL AND 100 GAL	200	DIESEL / HVO	-	COMBUSTIBLE LIQUIDS CLASS II	REFER TO NOTE 1, 2
		2200				

NOTES:

1. FURNISHED BY OWNER, GENERAL CONTRACTOR TO RECEIVE, UNLOAD, STORE, PROTECT, AND INSTALL.
2. EXISTING TANK TO BE RELOCATED, REFER TO CIVIL PLANS.



3 BUILDING 2, CONTROL AREA LOCATION PLAN
1/64" = 1'-0"

CODE "BUILDING 1" AREA SCHEDULE

OCCUPANCY CLASSIFICATION	BUILDING AREA
FIRST FLOOR	
BUSINESS (GROUP B)	138 SF
FACTORY (GROUP F-1)	13,508 SF
	13,646 SF

CODE "BUILDING 2" AREA SCHEDULE

OCCUPANCY CLASSIFICATION	BUILDING AREA
FIRST FLOOR	
ASSEMBLY (GROUP A-3)	1,222 SF
BUSINESS (GROUP B)	3,484 SF
FACTORY (GROUP F-1)	71,019 SF
HIGH HAZARD (GROUP H-3)	606 SF
	76,330 SF
MEZZANINE	
BUSINESS (GROUP B)	498 SF
FACTORY (GROUP F-1)	2,403 SF
	2,901 SF

EGRESS PATH SCHEDULE

MARK	TRAVEL DISTANCE	CLEAR WIDTH	COMMENTS
EGRESS PATH 1	154'	34"	
EGRESS PATH 2	188'	34"	
EGRESS PATH 3	164'	34"	
EGRESS PATH 4	143'	34"	
EGRESS PATH 5	107'	34"	
EGRESS PATH 6	88'	34"	
EGRESS PATH 7	77'	34"	
EGRESS PATH 8	62'	34"	
EGRESS PATH 9	198'	34"	
EGRESS PATH 10	138'	34"	
EGRESS PATH 11	92'	34"	
EGRESS PATH 12	96'	34"	
EGRESS PATH 13	33'	34"	

WALL LEGEND

- EXISTING CONSTRUCTION TO REMAIN
- EXISTING RATED INTERIOR CONSTRUCTION TO REMAIN
- EXISTING RATED EXTERIOR CONSTRUCTION TO REMAIN
- NEW CONSTRUCTION
- NEW RATED INTERIOR CONSTRUCTION
- NEW RATED EXTERIOR CONSTRUCTION

CONTRACTOR TO VERIFY EXISTING RATED WALL CONSTRUCTION IN FIELD AND REPORT ANY DISCREPANCIES TO THE PROJECT ARCHITECT.

CODE DATA PLAN KEY

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- FE — FIRE EXTINGUISHER
- FEC — SEMI-RECESSED FIRE EXTINGUISHER CABINET
- FRONTAGE DISTANCE
- KB — KNOX BOX
- FIRE DEPARTMENT CONNECTION
- EW1 — 1-HOUR EXTERIOR WALL
- FW3 — 3-HOUR FIRE WALL
- FB1 — 1-HOUR FIRE BARRIER

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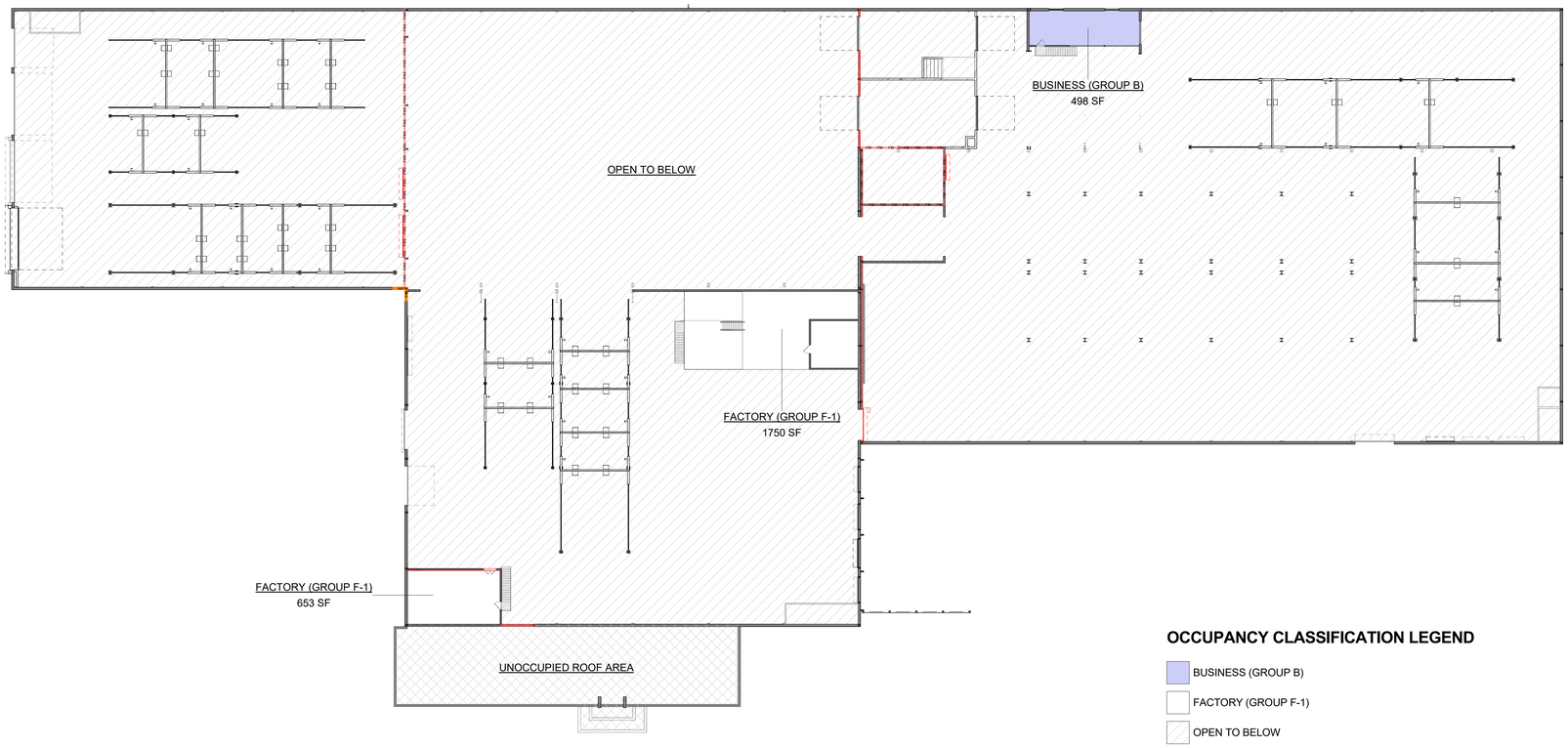
3. INCLUDE LETTERING NOT LESS THAN 3 INCHES IN HEIGHT WITH A MINIMUM 3/8" STROKE IN A CONTRASTING COLOR INCORPORATING THE SUGGESTED WORDING "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS" OR OTHER SIMILAR WORDING.



2 MEZZANINE CODE DATA PLAN
3/64" = 1'-0"

OCCUPANCY CLASSIFICATION LEGEND

- BUSINESS (GROUP B)
- FACTORY (GROUP F-1)
- OPEN TO BELOW
- UNOCCUPIED ROOF AREA

N

REFERENCE SCALE
1" = 1'
0 1/4" 1/2" 1" 2"

5/20/2026 11:52:38 AM

ISG

1 2

CODE "BUILDING" KEYPLAN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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DATE 10/27/2025 LIC. NO. 64146

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PROJECT

ROLLS ROYCE SOLUTIONS AMERICA, INC. LUNDIN LPR #1180

MANKATO MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
10/27/25	ADDENDUM #1	JG
03/20/26	ADDENDUM #2	
05/20/26	ADDENDUM #4	JG

PROJECT NO.	25-32426
FILE NAME	32426 Arch R24.rvt
DRAWN BY	CZB
DESIGNED BY	JAG
REVIEWED BY	JAG
ORIGINAL ISSUE DATE	09/23/25
CLIENT PROJECT NO.	1180

TITLE

MEZZANINE CODE DATA PLANS AND TANK LOCATION PLAN

SHEET

G1-22

Site Plan and Traffic Advisory Review Committee **1. 2.**

Meeting Date: 08/11/2026

Title

CY36-26

Request of Bolton and Menk, on behalf of Kody Schendel of New Hope Board and Lodge and KD2 Properties, LLC, for a conditional use permit to construct and operate a 16-unit congregate micro-apartment addition; and for a variance to decrease the rear yard from 66' to 11.2' in the R-3, Limited Multiple Family Dwelling District. The variance is being requested in order to allow for an approximately 47' X 67' building addition. The property is described as Lots 6, 7, 8 and the westerly half of Lot 9, Block 16 of Mankato City, Blue Earth County (1429 3rd Avenue).

Applicant

The applicant is Bolton and Menk, on behalf of the property owner, Kody Schendel.

Request

The applicant is requesting a variance to decrease the rear yard setback from the code required sixty-six feet (66') to eleven point two feet (11.2') in the R-3, Limited Multiple Dwelling, zoning district, and for a conditional use permit to allow a 16-unit congregate micro-apartment addition for the operation of supportive recovery housing.

The variance is being requested in order to allow for an approximately 47' X 67' building addition.

Location

The address for the property is 1429 3rd Ave.

Existing Land Use

The property is the location of New Hope Board and Lodge, formally House of Hope.

Zoning

The property is zoned R-3, Limited Multiple Dwelling District.

Environmentally Sensitive Areas

There are no known environmentally sensitive areas on the site.

Public Utilities

The property is currently served by public utilities.

City Code

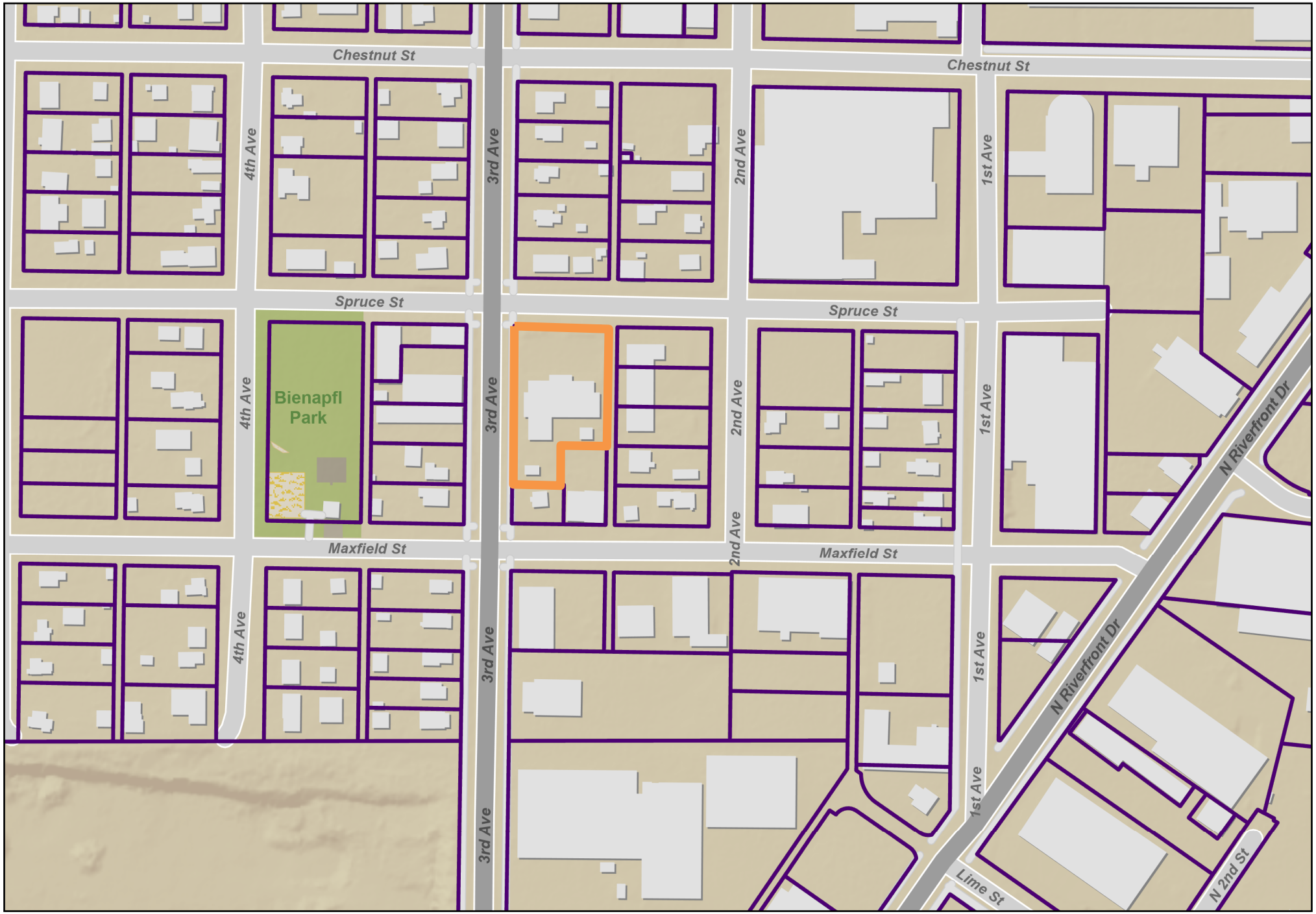
The City Code pertaining to the R-3, Limited Multiple Dwelling District may be viewed at the following link.

https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=PTIICOOR_CH10LAUSDE_ARTIIREDI_DIV5LIMUDWDI

Attachments

General Location Map
Aerial Plan
Site Plan
Site Plan - Variance
Architectural Plans
Applicant Narrative

General Location Map



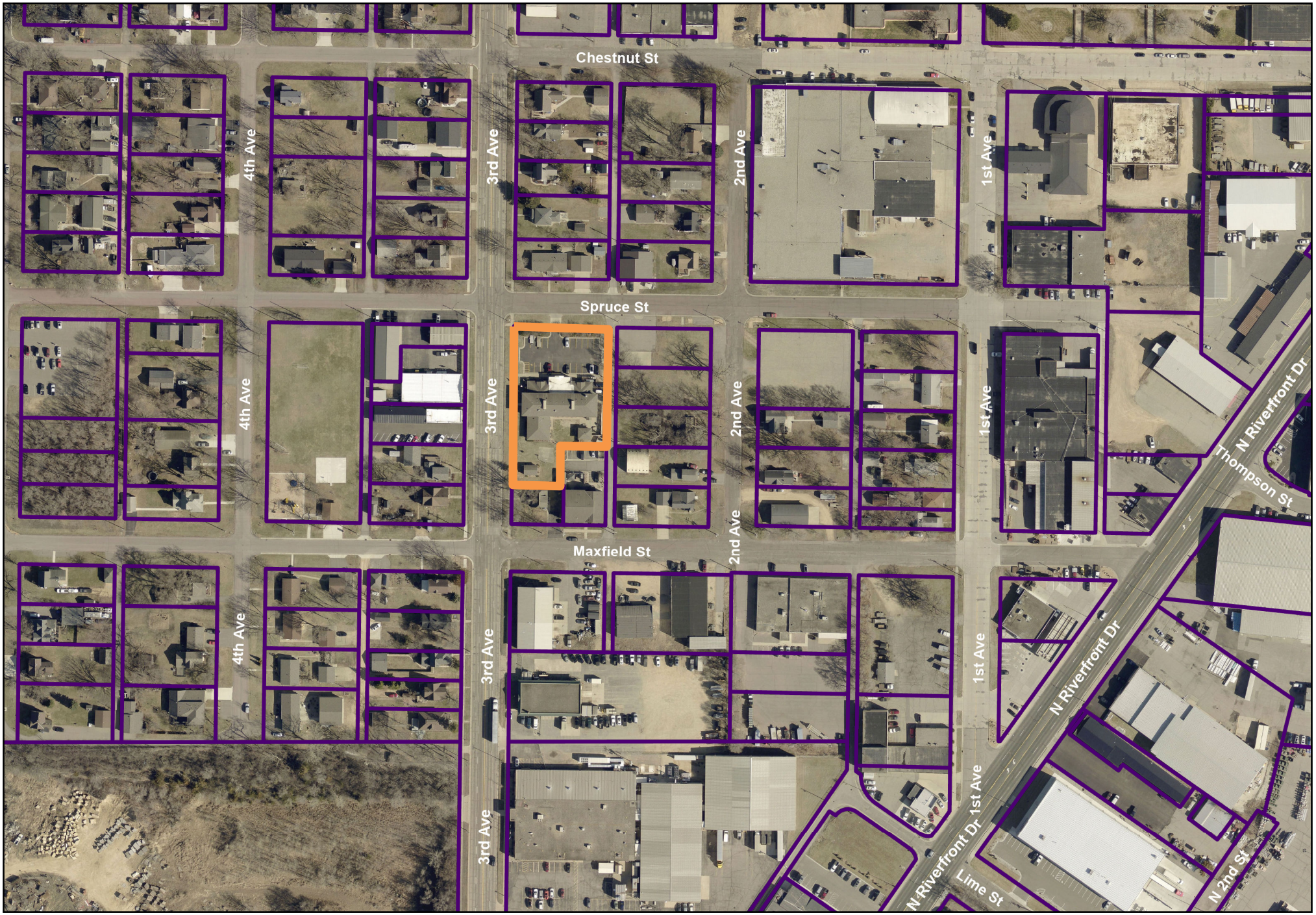
N W E S

0 0.06 0.1 0.2 mi

This information is to be used for reference purposes only. The City of Mankato does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation.

Produced by: City of Mankato GIS
Published: August 4, 2026

Aerial Map



N W E S

0 0.06 0.1 0.2 mi

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Produced by: City of Mankato GIS
Published: August 4, 2026

Mankato — Leading the way...



0 25 50
SCALE FEET

UTILITY & SITE DATA
All Zoning and Setback information was obtained from the City of Mankato Code. For detailed zoning information and specific interpretation of code requirements, contact the City of Mankato.

ZONING:
Property is Zoned R-3, Limited Multiple-Family Dwelling District

SETBACKS:
Front
Main and Accessory Building 25 feet

Side
Main and Accessory Buildings 6 feet

Rear
Main and Accessory Building
25 feet (one- and two-family dwellings)
25% of the lot depth provide is minimum of 25 feet to a max of 75 feet (for all other principal buildings)

Lot Area (minimum) = 10,000 sq.ft. (for the first 4 units)
Lot Width (minimum) = 60 feet
Maximum Ground Coverage = 35% by all structures
Maximum Building Height = 35 feet (principal) and 20 feet (accessory)

SITE DATA

BUILDING INFO:
Existing Building Area = 8,213 sqft
Proposed Building Area = 3,145 sqft
Total Building Area = 11,358 sqft
Ground Coverage by all structures = 31.2%

Existing number of units = 16 bedrooms
Proposed number of units = 16 bedrooms (micro apartments)
Total number of units = 32 bedrooms

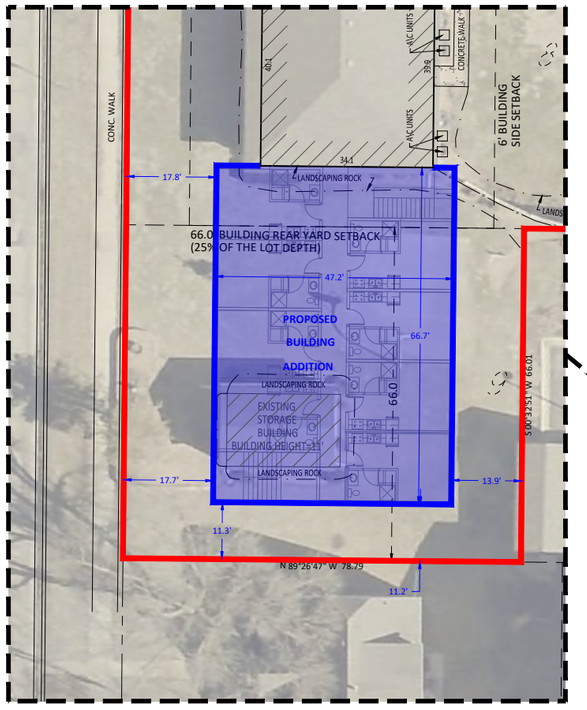
PARKING:
Existing parking stalls = 22
Required parking stalls = 16 (0.5 stalls per bedroom)

H:\KD2PROPT_PR\26X144147000\CAD\C3D\144147_V_CUP SITE PLAN.dwg 7/28/2026 8:20:13 AM

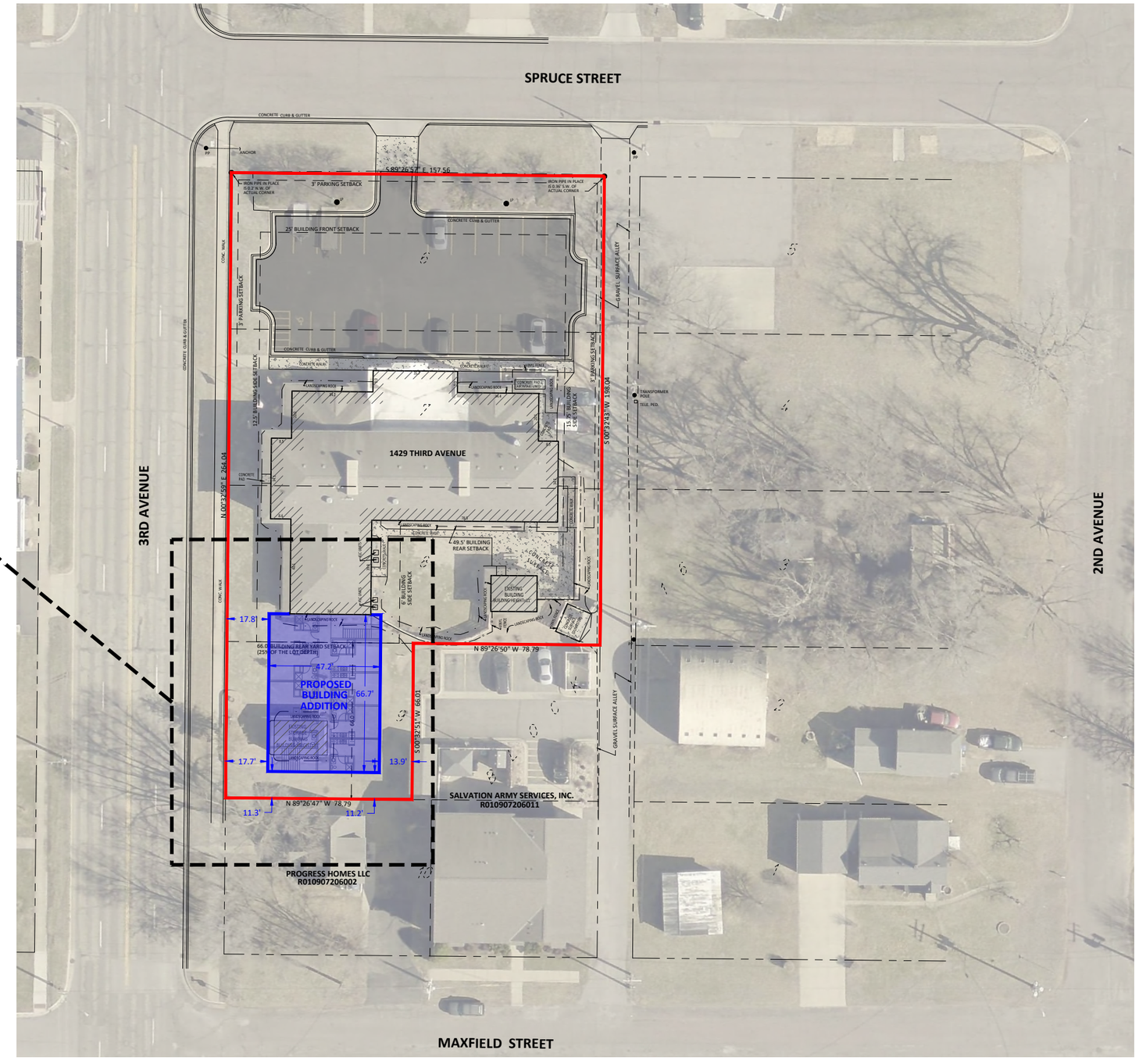
KD2 Properties
Mankato, Minnesota

Variance Request Drawing
July, 2026

BOLTON & MENK



VARIANCE REQUEST DETAIL
NOT TO SCALE



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0 25 50
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1 PROPOSED EXTERIOR DESIGN

RDS ARCHITECTS

Bright Pixel Design

PROJECT TITLE:

1618 3RD. AVE.
MANKATO, MN 56001

GENERAL NOTES:

CONTRACTORS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND INDUSTRY BEST PRACTICES FOR ALL PRODUCT INSTALLATIONS.

SHEET NOTES:

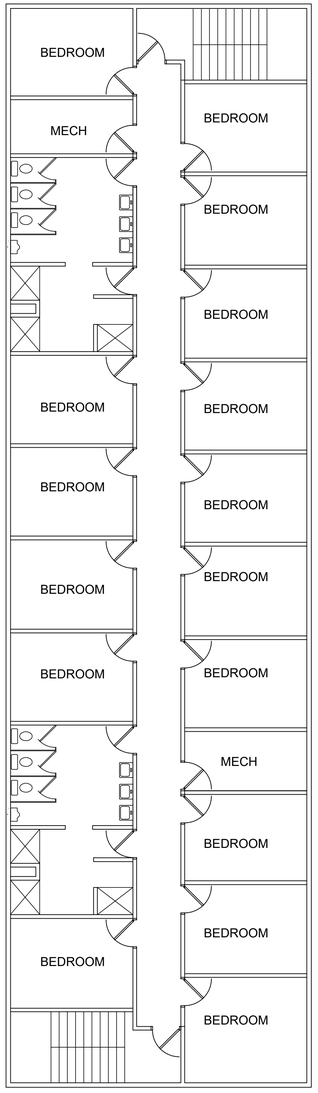
1 NOTE

No.	SUBMISSIONS & REVISIONS	Date

CONCEPT RENDERING

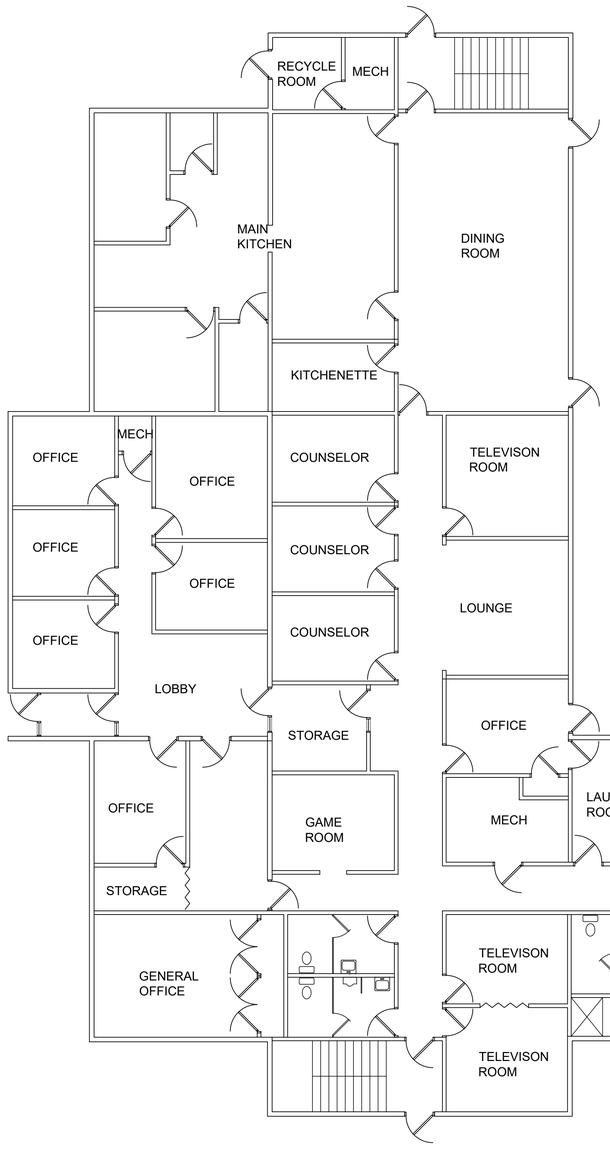
JOB. NO.: 26.32.5
DATE: 6-12-2026
DRAWN BY: MJB

A1.0



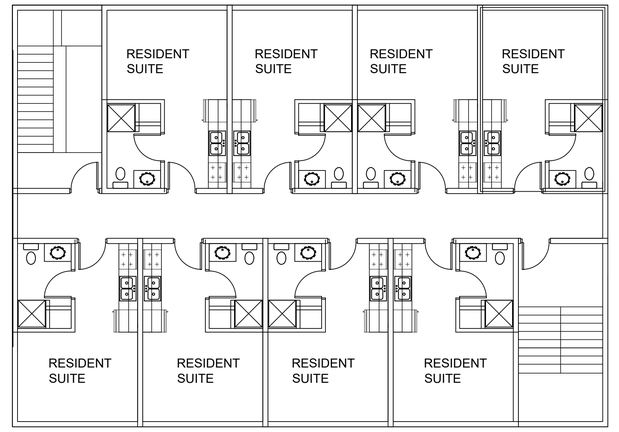
1 EXISTING 2ND LEVEL PLAN

0 4' 8' SCALE: 1/8"=1'-0"



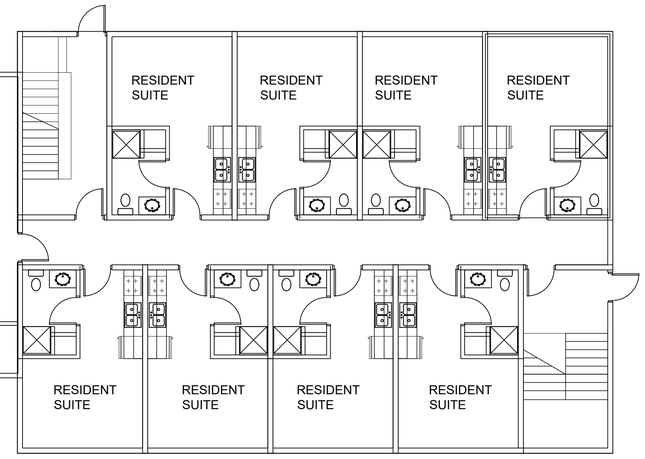
2 EXISTING FIRST LEVEL PLAN

0 4' 8' SCALE: 1/8"=1'-0"



4 PROPOSED 2ND LEVEL PLAN

0 4' 8' SCALE: 1/8"=1'-0"



EXISTING NEW

3 PROPOSED 1ST LEVEL PLAN

0 4' 8' SCALE: 1/8"=1'-0"

NORTH

RDS ARCHITECTS

Bright Pixel Design

PROJECT TITLE:

1618 3RD. AVE.
MANKATO, MN 56001

GENERAL NOTES:

CONTRACTORS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND INDUSTRY BEST PRACTICES FOR ALL PRODUCT INSTALLATIONS.

SHEET NOTES:

(1) NOTE

No.	SUBMISSIONS & REVISIONS	Date

CONCEPT FLOOR PLANS

JOB. NO.: 26.32.5
DATE: 6-12-2026
DRAWN BY: MJB

A1.1

1429 3rd Avenue PROJECT: Proposed 16-Unit Congregate Board and Lodge Addition Neighborhood Meeting Recap

1. Overview & Purpose

At the recommendation of the City Council, an informal neighborhood open house meeting was hosted at **1422 2nd Avenue (Wrestling Brotherhood)** to present plans for a proposed **16-unit micro-apartment addition** at the adjacent property (**1429 3rd Avenue**) and engage directly with surrounding property owners.

The goal was to review site plans, discuss the Conditional Use Permit (CUP) request for Congregate Housing expansion, explain day-to-day operations, and address any neighborhood questions prior to formal municipal public hearings.

2. Project Specifications

- **Subject Property:** 1429 3rd Avenue
- **Proposed Structure:** A 2-story, 16-unit addition physically connected to the existing facility.
- **Unit Layout:** Micro-apartments featuring individual private kitchenettes and private full bathrooms.
- **Common Amenities:** Centralized dining room, community lounge, private administrative meeting spaces, and an enclosed rear courtyard.
- **Requested Land Use:** Conditional Use Permit (CUP) for **Congregate Housing** under the existing multi-family zoning designation.
- **Program Model:** "Revive" independent, supportive housing serving individuals who have completed primary treatment/outpatient programming and are transitioning into long-term community independence.

3. Key Discussion Points & Neighborhood Clarifications

A. Parking & Transportation Impact

- **Neighborhood Inquiry:** Questions regarding off-street parking sufficiency and potential overflow onto adjacent streets.
- **Applicant Response:**
    - The requested CUP designation requires 0.5 parking stalls per dwelling unit, which the current site configuration satisfies.
    - Approximately 90% of program participants do not own personal vehicles or hold active driver's licenses.
    - The location is ideal for its proximity to public transit stops, bike routes, and walking access to employment and recovery support resources (e.g., local 5th Ave AA/NA Meetings).

B. Security, Resident Screening & House Rules

- **Neighborhood Inquiry:** Protocols regarding resident selection, safety oversight, and guest policies.
- **Applicant Response:**
    - **Screening:** All candidates undergo mandatory Minnesota state background checks prior to acceptance.
    - **Surveillance:** The facility is equipped with 24/7 video surveillance in all shared internal areas and exterior entry points.
    - **Drug/Alcohol Compliance:** Mandatory, 100% random drug and alcohol urinalysis screening is conducted.
    - **Rules:** Private living quarters carry a strict zero-guest policy. Nightly curfews are enforced. Relapses result in immediate discharge or managed referral with probation agents and outpatient program leads.

C. Operational Clarification

- **Applicant Response:** Clarified that the facility operates as an independent Board & Lodge framework. It is not an inpatient treatment center, medical facility, or emergency shelter. Rent is structured to remain accessible (capped at affordable out-of-pocket rates, ~$650/month for working residents at Revive locations) to foster financial stability and permanent housing transition.

4. Neighborhood Feedback & Summary of Sentiment

- **Track Record Acknowledgment:** Neighboring property owners in attendance (including adjacent commercial and residential neighbors) noted that over the applicants' three years of ownership at 1429 3rd Avenue, the site has been quiet, clean, and well-maintained with no notable police calls or public disturbances.
- **Overall Receptivity:** Attendees expressed support for the ownership's hands-on management approach, local roots, ongoing investment in the neighborhood, and clear communication regarding the addition.

5. Conclusion

The neighborhood meeting achieved its objective of providing complete transparency, clarifying land-use intent, and maintaining open dialogue with adjacent property owners. The applicants remain committed to being accessible contacts for the neighborhood throughout the development process and ongoing operations.

Meeting Date: 08/11/2026

Title

CY37-26

Request of Southwest Minnesota Housing Partnership for an amendment for Phase 2 to the previously approved planned unit development, PUD, to allow for the usage of Scheid Hall and to allow for parking lot and related infrastructure improvements at the property. The subject property is described as Outlot B, School Sisters of Notre Dame Subdivision, according to the plat thereof on file at the County Recorder's Office, Blue Earth County, Minnesota, to be described as Lot 1, Block 1, Good Counsel Hill subdivision (170 Good Counsel Drive, BE County PID's R010905379005, R010908201007).

Applicant

The applicant is Southwest Minnesota Housing Partnership.

Request

The applicant, Southwest Minnesota Housing Partnership, has requested an amendment to the previous planned unit development that was approved by the City Council on May 11, 2026.

This current application, referenced in the submittal materials as a Planned Unit Development, PUD #2, proposes to include the use of Scheid Hall and to get approval to implement parking and associated infrastructure on the subject property.

Location

The address associated with the property is 170 Good Counsel Dr.

Existing Land Use

The property was previously the location of the School Sisters of Notre Dame campus. The buildings and infrastructure still exist on the subject property and are not proposed to change with this proposal. The facilities are not currently occupied.

Zoning

The subject property is zoned O-R, Office Residential.

Environmentally Sensitive Areas

There are environmentally sensitive areas on the site, including bluffs/slopes, woodlands and wetlands.

Public Utilities

The site is served by city sanitary sewer. Water is currently provided to the site by a private system that includes two onsite wells.

City Code

The city code pertaining to the submittals for a Planned Unit Development can be viewed at the following link:

https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=PTIICOOR_CH10LAUSDE_ARTXIADEN_DIV4PLUNDE

Review

Southwest Minnesota Housing Partnership, is requesting an amendment to the previous planned unit development that was approved by the City Council on May 11, 2026.

This current application, referenced in the submittal materials as Planned Unit Development, PUD #2, proposes to include the use of Scheid Hall and to get approval to implement parking and associated infrastructure on the subject property. The amendment request includes the following:

The residential re-use of Scheid Hall for up to 5 residential units.

1. Floor plans show 1 unit on the lower level, 2 units on the second level, and 2 units on the third level.
2. Each unit contains two bedrooms, a bathroom, kitchen, living and dining rooms.
3. Parking will be provided for each unit.

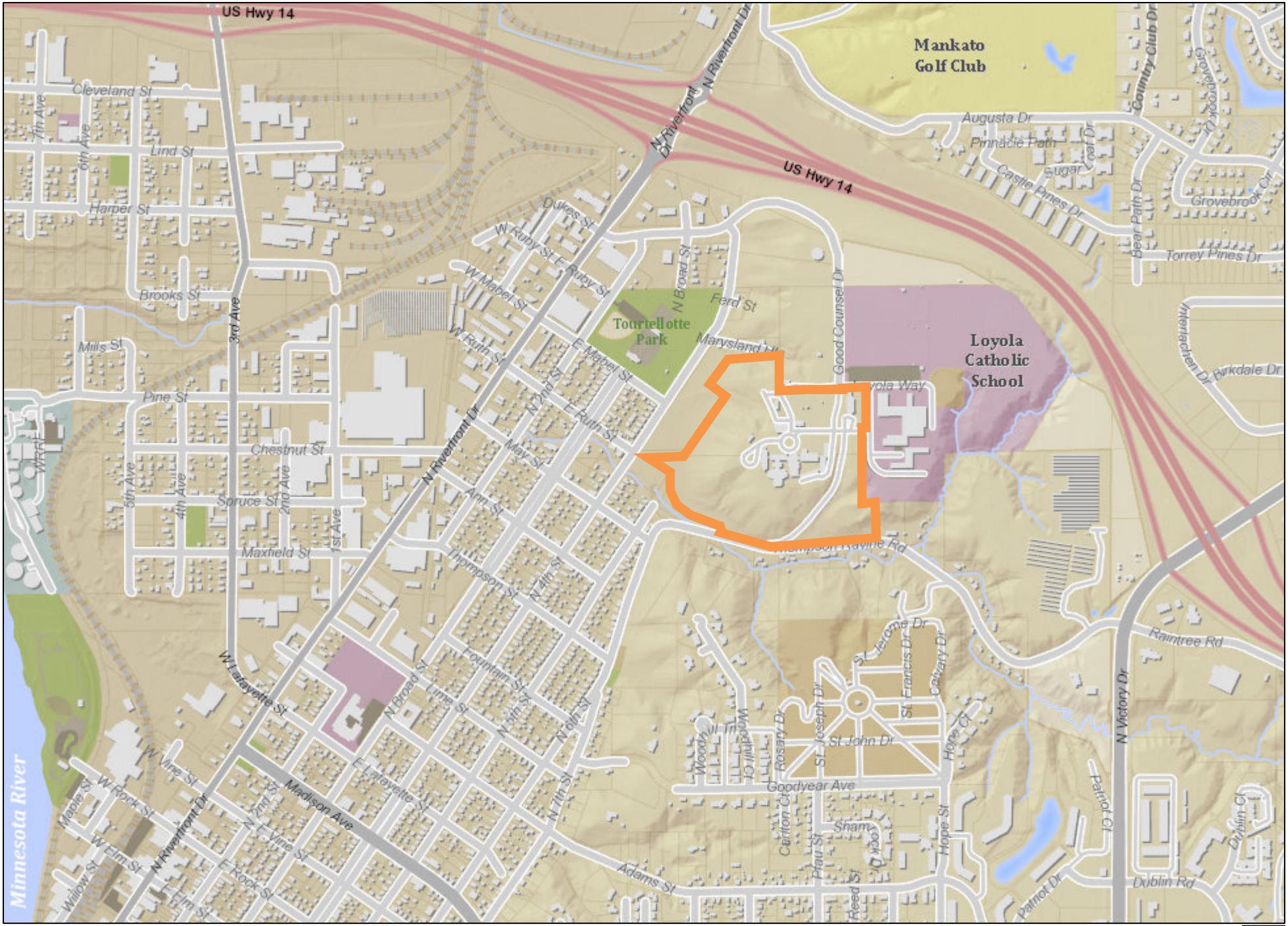
Parking for PUD amendment:

1. A total of 239 parking spots are planned to be constructed. SWMHP is requesting that this number be approved to be adequate to support the uses in the original PUD approval:
    1. 58 residential units in Isadore and Theresa Halls.
    2. 5 units in Scheid hall.
    3. 6,000 sf of office spaces.
    4. 400 seat chapel/event space in Theresa Hall.
    5. A 5 bed commercially leased area in Theresa Hall.
2. Stormwater management infrastructure is proposed to be constructed alongside the parking lot.

Attachments

General Location Map
Aerial Plan
Site Plan
Scheid Hall Plans
Proposed Parking Plan
Parking Calculations
Narrative

General Location Map



Date: June 2026

Author:

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N

Aerial Map



Date: February 2026

Author:

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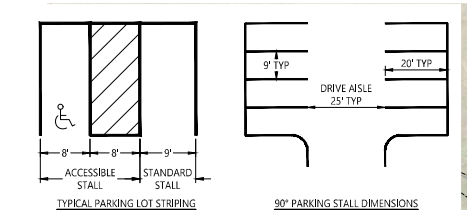

TYPICAL PARKING LOT STRIPING

90° PARKING STALL DIMENSIONS

PARKING:

EXISTING STALLS TO REMAIN:	34 STALLS
NEW SURFACE PARKING:	185 STALLS
GARAGE PARKING:	20 STALLS
TOTAL:	**239 STALLS**

PROPOSED LEGEND

- PHASE 2 BUILDING IMPROVEMENTS
- BITUMINOUS SURFACE
- CONCRETE SURFACE
- CURB & GUTTER
- UNDERGROUND STORMWATER TREATMENT
- STORM SEWER CATCH BASIN
- STORM SEWER INLET STRUCTURE
- STORM SEWER MANHOLE
- STORM SEWER GRAVITY MAIN
- STORM SEWER DRAINTILE
- HYDRANT
- WATER MAIN VALVE
- WATER MAIN PIPE

EXISTING LEGEND

- SHRUB
- TREE - CONIFEROUS
- TREE - DECIDUOUS
- EDGE OF WOODS
- BUILDING
- CHAINLINK FENCE
- RETAINING WALL
- UNDERGROUND FIBER OPTIC LINE
- OVERHEAD TELEPHONE LINE
- UNDERGROUND TELEPHONE LINE
- OVERHEAD TV LINE
- UNDERGROUND TV LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND TELEPHONE LINE
- LIGHT POLE
- UNDERGROUND ELECTRIC LINE
- NATURAL GAS LINE
- SANITARY MANHOLE
- SANITARY GRAVITY MAIN
- STORM SEWER CATCH BASIN
- CULVERT APRON
- STORM SEWER INLET STRUCTURE
- STORM SEWER MANHOLE
- STORM SEWER GRAVITY MAIN
- CURB STOP
- FIRE HYDRANT
- WATER MAIN LINE

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NOT FOR CONSTRUCTION

CRAIG N. BRITTON LIC. NO.: 44228 DATE: 7/28/2026

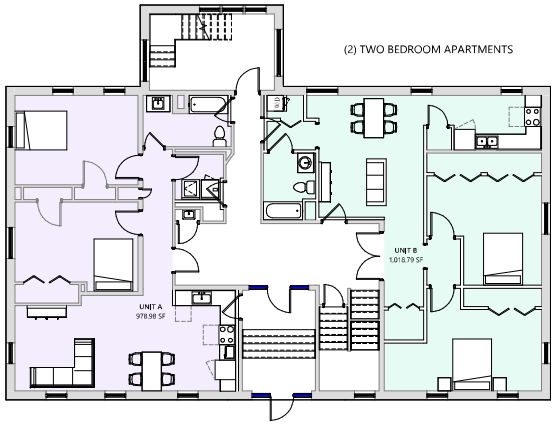
DATE	REV#	REVISIONS DESCRIPTION

GOOD COUNSEL

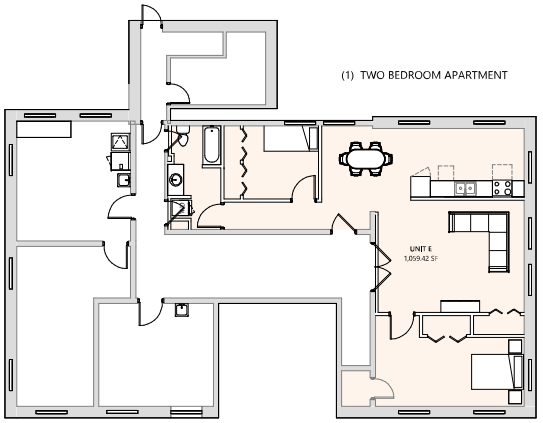
SITE PLAN - OVERALL - PUD 2

EXHIBIT 6

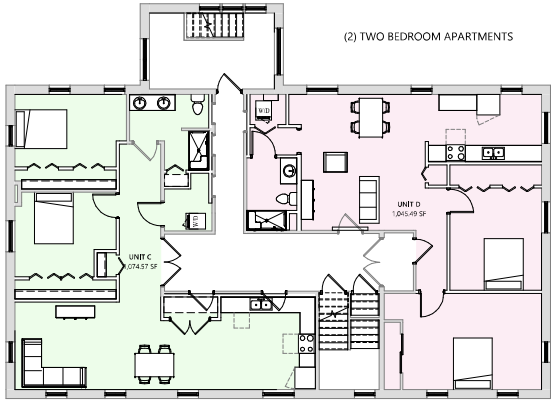
PROJECT #: 2025-10591



4 FIRST LEVEL PLAN
1/8" = 1'-0"



2 LOWER LEVEL FLOOR PLAN
1/8" = 1'-0"



6 SECOND LEVEL PLAN
1/8" = 1'-0"

SCHEID HALL:
Phase 2

FIVE PROPOSED - TWO BEDROOM APARTMENTS TOTAL



GRAPHIC SCALE 1/8"
0" 12'-0" 24'-0"
N

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07/24/2026

<PROJECT ARCHITECT> LIC. #: <#####> DATE: <MM-DD-YYYY>

DATE	REV#	REVISIONS DESCRIPTION

GOOD COUNSEL HILL PUD 2

SCHEID HALL FLOOR PLANS

EXHIBIT 12

PROJECT #: 2025-10591

2025-10591 GOOD COUNSEL HILL PUD 2

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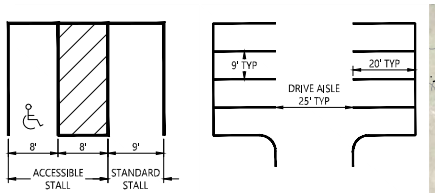

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CRAIG N. BRITTON LIC. NO.: 44228 DATE: 7/28/2026

DATE	REV#	REVISIONS DESCRIPTION

GOOD COUNSEL

SITE IMPROVEMENT PHASING PLAN - PHASE 2

EXHIBIT 7

PROJECT #: 2025-10591

	Use	Size	Unit of Measure	City Code Requirement	Total Parking Spaces required	Notes
PUD #1 / PROJECT 1						
Isidore Hall West	Residential	16	Units	1.5 per unit	24.0	
	Office	11,681	SF	1:250 sq ft	46.7	<< Phase 1 SWMHP Office area = 3752sf, Total Office area of 1st floor = 7191sf Other office areas in lower level.
Isidore Hall East	Residential	11	Units	1.5 per unit	16.5	
	Office	792	SF	1:250 sq ft	3.2	Office spaces on first floor level.
Chapel and other assembly	Guest Rms	5	Units	1:1 assumed	5.0	
	Assembly	370	Occ.	1 per 4 seats	92.5	Bench and chair seating. Parking to be shared with Office during regular business hours. Chapel will be restricted to up to 370 occupants until future Projects 3 and 4 (currently preliminary) increase parking to serve the historic 400 occupant capacity or alternative parking strategies are implemented.
1st Flr Conf. 1	Assembly	97	Occ.	1:4 Occ. Shared	To be accomodated with Chapel parking spaces (different times of day)	Tables and chairs
LL. Conf. 2	Assembly	231	Occ.	1:4 Occ. Shared		Tables and chairs
LL. Rounding Dining Rm	Assembly	120	Occ.	1:4 Occ. Shared		Tables and chairs
Gymnasium	Assembly	378	Occ.	1:4 Occ. Shared		Tables and chairs
Theresa Hall	Residential	26	Units	1.5 per unit	39.0	
	Office	1,126	SF	1:250 sq ft	4.5	Office spaces on first floor level.
Total Project					**231**	113 existing parking approved per PUD #1
PUD #2 proposed						
Scheid Hall	Residential	5	Units	1.5 per unit	7.5	
1st Flr Dining	Assembly	186	Occ.	1:4 Occ. Shared	Accomodated w/ Chapel parking	Tables and chairs
Total Project (new + existing surface and garage parking)					**239**	
Total required for all of Project 1 <u>with</u> parking shared between Office-Assembly uses					**185**	
Total available excluding existing garage stalls <u>not</u> available for Office or Assembly use					**219**	Exceeds minimum required with Office-Assembly parking share
PUD #3 preliminary						
Notre Dame	Residential	54	Beds	1:4 beds; 1:3 employee	22.0	Install new parking west of Notre Dame
Total Project					**26**	*Proof of Parking Evaluation w/ Apts and Asst Living occupied*
Total Cumulative (PUD #1 req'd + PUD #2 + PUD #3)					**265**	
Total required <u>with</u> Office-Assembly parking share					**211**	
PUD #4 preliminary						*Proof of Parking PUD Review w/ City*
St. Joseph's	Residential	60	Units	1.5 unit	90.0	If Loyola does not share parking, construct new required parking and potentially reduce parking shared between Office-Assembly. Residents will utilize some Phase 2 parking stalls closest to St Joseph.
Marion	TBD	TBD			0.0	
Total Project					**90**	*Proof of Parking Construction with approval*
Total Cumulative (PUD #1 req'd + PUD #2 + PUD #3 + PUD #4)					**355**	
Total Required <u>with</u> Office-Assembly parking share					**297**	
Grand Total <u>without</u> Office-Assembly parking share					**343**	Assembly parking shared between all assembly uses

SOUTHWEST MINNESOTA Housing Partnership

Date: June 23, 2026, revised July 6, 2026, revised July 28, 2026

To: Molly Westman, Planning Coordinator, City of Mankato

From: Jen Theneman, Director of Real Estate and Community Initiatives, SWMHP

Re: Good Counsel Planned Unit Development #2 Submission

This request from Southwest Minnesota Housing Partnership (SWMHP) to the City is to request PUD #2 to include Scheid Hall residential use and to gain approval of a revised parking plan to accommodate the full parking requirements of the approved uses from PUD #1. The city reviewed and deemed the first submission incomplete, therefore a response memo providing additional information per the city's request is included as an attachment to this memo.

On May 11, 2026, SWMHP received approval for a PUD, CUP, and Preliminary/Final Plat to reuse the existing buildings for a variety of uses for the Good Counsel Hill property. As part of the contingencies of approval from the City, the approving resolution clearly excluded Scheid Hall residential uses and limited the use of the property to the extent that parking compliant with city code could be achieved. Also, the approving resolution limited off-site parking allowances to 10 Chapel-only events per year. Over the past month, SWMHP has been working tirelessly to prepare the appropriate documents for meeting the contingencies of approval of PUD #1 land use applications, as well as preparing stormwater plans, building plans and permit sets for the development of additional parking and full re-use of Theresa, Isidore, and Scheid Halls. Additionally, SWMHP has been having discussions with potential tenants and partners for the eventual occupancy of the space. **Therefore, a second request is being made to add Scheid Hall and expand the parking lot and stormwater management areas. Additionally, there are small edits to the uses outlined in phase 1 to clarify square footages, locations, and occupancies.**

It should be noted that the re-use of this property is iterative, and that sizes, uses, and locations are subject to change in future submittals. As tenants are identified, solidified, and finalized, minor adjustments will be anticipated.

Specifically, the amendment request is to allow:

1) A total of 239 parking spots to be constructed, and associated stormwater management infrastructure. SWMHP is requesting that this number be approved to

be adequate to support the uses in the original PUD approval (with minor amendments as outlined below)

2) The residential re-use of Scheid Hall for 5 residential units

Parking Request

A total of 239 parking spots, and associated stormwater management infrastructure are planned to be constructed as part of the adaptive re-use projects associated with the original PUD approval. SWMHP is requesting that this number be approved to be adequate to support the following uses:

- 58 residential units in Isidore and Theresa Halls (same as previous PUD)
- Up to 5 residential units in Scheid Hall
- 4,000 square feet of office use (reduction in amount from previous PUD)
- 2,000 square feet of accessory office spaces
- A 400-seat chapel/event space (for unlimited events)
- Up to 400-seat conferencing/gathering areas in Theresa (lower and first floor - not to be used at the same time as the chapel)
- A 5-bed commercially-leased area in Theresa Hall previously designated as guest suites.

Providing parking on this site is inordinately difficult and has consumed the majority of thought, planning, and discussion about the re-use of this beautiful, historic community asset. There are four competing factors at play. The first factor is the city code. The second factor is the historic preservation requirements and guidelines governing the Historic Designation leading to the use of Historic Tax Credits, the primary financing source for several of the projects to maintain the integrity and condition of the complex. The third factor is the business need for parking on the site. And finally, the environmental attributes, including the sensitive bluff areas and the woodland along the bluff, both which limit the location and amount of parking and stormwater infrastructure that can be built. SWMHP is working to balance these competing interests and develop a reasonable, adequate parking plan that honors city code, environmental stewardship, and the historic nature of the site without under-building or over-building parking.

In order to meet the stormwater management requirements associated with the additional parking proposed, SWMHP has worked with its engineers to develop a stormwater management plan that accommodates a large underground storage pond to the east of the existing Scheid Hall, a smaller underground storage pond on the southwest side of the building, which will collect the runoff from the majority of the paved areas. This is an adjustment necessitated by historic design standards and to minimize disruption to the existing environmental landscape. These areas were carefully selected to minimize impact of the historic turnaround and lawn areas (in order to satisfy National Park Service and State Historic Preservation Office's requirements to minimize impact and honor historic significant features of the property). While tree removal will be required to accommodate these areas, the bluff and woodland conservation easement will not be impacted.

1) City Code. It is difficult to determine the total number of parking stalls required for this project for the following reasons:
    a. The assembly use functions more like a religious use design as the historic use, but is no longer “church” parking standards. Because there is more assembly space on site than will be used at once (at the same time), it is difficult to calculate the parking code requirements. SWMHP is requesting the city approve flexibility from city code regarding event parking and proposes to meet that demand through event coordination and provision of shuttle services to off site parking facilities as needed for larger events.
    b. Regarding commercial use of the 5 guest suites, there is no provision in city code for a care initiative that utilizes a non-medication administration model. The tenants are not planning medical healthcare, assisted living or hospice. Their intent is more closely considered master leasing of rooms for the short-term stay of a client who has chosen to live out their days with companion-assistance for comfort, food and bathing, rather than in a clinical or home setting. For more information on their model of care, see the document titled Threshold Home.
    c. Based on SWMHP’s evaluation, as outlined below, a total of 239 parking spaces are needed for the above uses.

    A full parking calculations chart is included as an attachment to this re-submittal.

2) Historic Preservation Requirements. The project is applying for Historic Designation, which will lead to the future ability to use Federal and Minnesota State Historic Tax Credits (HTCs). This is vital to the sustainability and preservation of a regional asset and to steward the historic impact of this campus and its previous owners in the Mankato area. Additionally, without the HTC’s, we would need to delay reuse for future years, thereby reducing the impact of critical housing solutions for the community. In pursuing Historic Designation, SWMHP has contracted with New History, who has supported the completion of a National Park Service (NPS-the ultimate grantor of designation for the National Historic Register) Part 1 application. Consequently, all work, including site work, is subject to review and approval by the State Historic Preservation Office (SHPO) and the National Park Service (NPS). All site work must meet the Secretary of the Interior's Standards for Rehabilitation (the "Standards"). To meet the Standards, SHPO and NPS expect sensitive site and landscaping improvements that retain the historic property's significant features. For the site, their desire is to maintain or recreate soft-to-hardscape ratio, (former agricultural) green areas, existing trees and vegetation, and unique

features such as statues, the historic turnaround/loop on the western portion of the grounds near Isidore Hall, and the green lawn in front of Theresa Hall.

During an in-person meeting on May 26, the applicant presented a site plan to SHPO reflecting the significant landscaping changes required to meet City Code parking requirements. SHPO stated that the planned improvements to meet City Code would not be approved by SHPO/NPS due to their significant impact and alteration on the historic site's character (i.e., the incremental loss of green space). Therefore, the revised plans we submit with this application attempt to accommodate the desires of SHPO, meet City requirements, while minimizing the impact to the environment.

3) Business Needs.
    a. The market need for parking is an important consideration for the housing, assembly and office uses. This includes both number of stalls and location of these stalls (as close to the building and its entrances as possible). Furthermore, the residential tenants have certain expectations and needs related to parking that run alongside, but not always in coordination with, the needs of office and assembly/event attendees. Each of these sub-populations have different needs, expectations, and behavior regarding parking.
    b. Over the past 3 months, interest in booking events on the property has been high. Demand for concerts, weddings, conferences, meetings, and performances is larger than expected, therefore SWMHP is requesting to accommodate unlimited events (with provision of a shuttle to off-site parking as the guest counts dictate) with the proposal. SWMHP views this as an interim solution. It is the expressed intent of SWMHP to eventually provide parking for all events on the hill through additional parking lots or the future possibility of a shared parking agreement with the neighboring property. Greater Mankato Growth Business After Hours was hosted in the Chapel recently, and accommodations to ensure parking did not exceed capacity included notice to attendees to carpool, signage, parking attendants and a shuttle van to the privately owned parcel to the north of Loyola Catholic School's parcels. Additionally, the President of Loyola Catholic Schools offered their parking lots as overflow for the event. With attendees coming and going at various times, the overflow parking was not needed. The applicant has mechanisms in place, which have been tested with two sizable events which have flowed smoothly without incident. Additional off-site property owners are willing to sign a memorandum of understanding to allow for parking of vehicles to use in conjunction with shuttling.
4) Environmental Constraints.
    a. This property offers gorgeous vistas, topography, and woodlands. As discussed at the last Council meeting, many community members,

including Tourtellotte and Loyola neighbors enjoy the beauty of the hill. It is the desire of all stakeholders to preserve and enhance the beauty and enjoyment of this space. Given the existing buildings' proximity to the bluff, adding parking in a convenient and sensible location becomes challenging.

b. SWMHP wishes to balance environmental impacts with City requirements, while maintaining historic significance and cost-conscious initiatives in order to keep housing and other uses reasonably priced for community benefit.

Based on balancing all these factors, SWMHP is proposing a total of 239 stalls located on the included site plan. SWMHP specifically requests that this parking plan be approved to satisfy the parking needs of the above uses, with the addition of allowances/requirements for shuttles for unlimited large events (over 100 people attending). **If this request cannot be accommodated, SWMHP asks that the City put a denial of the parking plan/allowance request in the resolution to be submitted with the SHPO Part 2 Historic Review application. SWMHP must show that efforts are being made to minimize historic and environmental impact through a PUD for parking as proposed in order to move forward in SHPO review.**

Scheid Hall Request

We request evaluation for the residential re-use of Scheid Hall for 5 residential units. At the time of PUD approval, the plans for Scheid Hall were not finalized. SWMHP has finalized building permit layouts for Scheid Hall and therefore, seeks to include the use of the building for residential apartments in this amendment. The plans are included for reference and the number of units is reflected in the parking calculation.

SWMHP is asking for PUD #2 to include Scheid Hall residential units in PUD approval.

Next Steps/Schedule

SWMHP is eager to finalize tenant finish/remodel plans for the first phase of this adaptive re-use, which includes:

1) Re-model/re-use of Scheid Hall for 5 rental units;
2) Isidore Hall West (original building) for 16 rental units and 3,000 sq. ft of leased office (to be used by SWMHP's offices and another Mankato-based non-profits);
3) Isidore Hall East for 11 rental units, and 500 square feet of office space;
4) Theresa Hall for use of the Chapel and conferencing/gathering space for assembly/events (unlimited), and 26 rental units, 5 commercially leased residential spaces (previously guest suites), and 1,000 sq ft of leased office space (to be used by a local non-profit and housing property management);
5) SWMHP desires to start construction on the residential component of the project July/August 2026, for occupancy by the end of 2026.

Future Requests
SWMHP intends to submit PUD#3 and IO amendment for the tenant finish and occupancy of Notre Dame Hall as an assisted living community (same as historic use) by September of 2026 for occupancy Spring of 2027. The partnership with local provider, Oak Terrace Senior Communities, was recently announced with favorable reaction and inquiries to be added to their waiting list have already been received.

SWMHP intends to submit PUD #4 for the remodel/re-use St. Joseph's Hall for approximately 50 rental units. In addition to a future request for local housing vouchers, applications for future funding to accomplish this complex task are intended to be submitted throughout 2027. Applicant is also having conversations about green building and sustainability considerations to employ in this renovation. If successful, construction could start in early 2028 for a Fall 2028 occupancy.

In Summary
SWMHP remains extremely excited about the potential of the reuse of the Good Counsel campus. Diligent pursuit of partners, financing, and the development of plans that find a balance between environmental and historic preservation, while at the same time meeting the desires of the city and the needs of the future residents, guests, and office occupants, are constantly top of mind. SWMHP feels confident this plan meets that balance, and that updated iterations and opportunities will necessitate amendments and innovations in the future. Our desire is to honor the legacy vision of this beautiful campus, therefore SWMHP is seeking alternative storm water designs (underground storage) to minimize the impact on existing green space and trees on top of the hill. The future of this campus is impactful for City of Mankato economic development, preservation of important history, and significantly impacts the City's number one strategic priority: housing. This project provides a place for workforce, individuals, families, seniors, small business, nonprofits and more, a safe place to call home.

We appreciate the collaboration with City Staff, Planning Commission and City Council to date, and invite all parties to recognize the uniqueness of the opportunities before us, and create successful outcomes for city policy, historic preservation and the community we all serve. We will be hosting the Blue Earth County Commissioners for a tour in September, and invite Staff and Council to visit this complex site to share ideas and better understand the vision for the future adaptive reuse.

Site Plan and Traffic Advisory Review Committee **1. 4.**

Meeting Date: 08/11/2026

Title

CY38-26

Request of Spirits at Rest for a conditional use permit to allow a licensed residential substance use disorder treatment facility in the B-3, Highway Commercial, zoning district. The subject property is described as Lot 1, Block 3, Wolfe Addition No. 2 (80 Power Drive; BE County PID R010903378003).

Applicant

The applicant is Spirits at Rest.

Request

The applicant is requesting a conditional use permit to allow for a licensed residential substance use disorder treatment facility in the B-3, Highway Commercial, zoning district.

Location

The subject property is located at 80 Power Drive and is legally described as Lot 1, Block 3, Wolfe Addition No. 2 (BEC PID R010903378003).

Existing Land Use

The subject property is primarily a vacant agricultural field with a notable paved parking area in the NE corner of the property.

Zoning

The property is zoned B-3, Highway Business District.

Environmentally Sensitive Areas

The applicant has provided copies of the Wolfe Addition No. 2 Wetland Type & Boundary and Incidental wetlands Application from June 2022, as well as a Wetland Replacement Plan from August 2022, and a Minnesota Wetland Bank Credits Withdrawal Form from October 2022.

The 2022 Type & Boundary Applicant did not identify any wetlands on the subject property. Significant construction has since occurred on adjacent properties and recent aerial imagery of the subject property appears to show a possible incidental wetland forming on the midpoint of the western property boundary. The applicant proposes to construct an earthen berm near the location of the aforementioned possible incidental wetland.

Public Utilities

The applicant proposes to extend utilities from the existing services present within Power Drive. The exertion would add two new hydrants within the subject property.

The applicant proposes to construct two onsite stormwater swales for onsite stormwater treatment.

Review

Spirits at Rest is seeking a conditional use permit to allow a licensed residential substance use disorder treatment facility at 50 Power Drive, a site located in the B-3, Highway Commercial zoning district. As proposed, the facility will provide licensed residential treatment. Daily programming will include individual and group counseling, recovery education, peer-support activities, recreation, meals, and personal reflection. The proposed project will not provide services for detoxification, hospital-level treatment, or services outside of the facility's licensed scope within this specified facility.

The applicant proposes to construct an approximately 20,915 square foot building. The building will contain 44 beds for clients along with necessary accessory spaces such as a kitchen, dining area, chapel, offices, and group rooms. An existing parking lot is located at the subject site, and will be repurposed and utilized for the proposed operation.

Use:

The property is zoned B-3 Highway Commercial District. The applicant attests that *"residential care facilities are expressly listed as conditional uses within this district."* Additionally, the applicant attests that the "*proposed licensed residential substance use disorder treatment facility qualifies as a residential care facility and is therefore eligible for consideration through the Conditional Use Permit process."* Residential care facilities are not expressly listed as a Conditional Use in the B-3 Zoning District. The B-3 Zoning District allows for unlisted commercial & residential uses (as Conditional Uses), only if they are determined by the planning agency to be of the same general character as the permitted and conditional uses listed in the district and if they are found not to be detrimental to existing uses and to the general public's' health, safety, and welfare.

The B-3, Highway Commercial District allows for permitted uses that are listed in the B-1 Zoning District. Medical Clinics are listed as a permitted use in the B-1 and apartments are listed as Conditional Uses* in the B-3 Zoning District. As a medical treatment facility with 24/7 residential services, the proposed residential treatment facility use may be determined to be similar in manner to a medical clinic and apartment use.

Additionally, uses operated outside of a completely enclosed structure, require a Conditional Use Permit in the B-3 Zoning District. As the applicant proposed to construct a large fenced area on the exterior of the building and hold onsite service operations within the fenced area, this may qualify as an exterior operation.

The proposed licensed residential substance use disorder treatment facility project is being sought by Spirits at Rest and their development partner, The Factor Group. Spirits at Rest has operated substance use disorder treatment and supportive housing programs in Montgomery, MN since July 2020 and has served more than 300 clients. Prior to any operations occurring, Spirits at Rest must receive licensure from the Minnesota Department of Human Services. Note: At the time of this request, Spirits at Rest is under a purchase agreement for the property and is completing its due diligence.

Exterior Elevations & Materials:

The design of the building is oriented into expansive wings forming a semi-cruciform shape, which features low-sloped-hipped roofs with multiple steeply angled gable-ends. The proposed exterior elevations show a large variety of design elements throughout each façade, creating a visually unique structure.

The applicant proposes a variety of exterior materials, primarily residential in nature, including, a thin stone veneer, Hardie square channel siding, wood-look steel siding, asphalt shingles, glazing, and an aluminum storefront.

The proposed shed/ trash enclosure building is presented as a continuation of the exterior elevations of the primary structure. Per Mankato City Code, accessory structures must be constructed of complementary materials and design to the primary structure, and as presented, the proposed structure appears to conform.

The proposed plans do not represent any utility equipment on the exterior of the building or within the subject property. As presented, all utility and mechanical equipment shall be installed internal to the building.

A significant outdoor fenced area is presented and shown as a privacy fence within the NW corner of the facility.

The applicant has not presented details on the fence or outdoor fenced area.

Proposed lighting is unknown, as the applicant has not provided a photometric plan or lighting cutsheets at this time.

Interior:
The interior of the proposed facility is arranged into non-segmented wings. The north-wing consists primarily of bedroom spaces and a group room. The east wing is constituted of primarily office spaces, staff space, and a waiting area. The south wing contains the primary amenity space, with a large commercial kitchen, dining room, chapel, laundry area, and lobby. The western wing is made up of bedrooms, an exercise space, group room, and access to the extensive outdoor fenced area. The midpoint of the building, the center of the cruciform where each wing meets, is home to an open nursing station, as well as a large lounge and group room. Bedroom spaces are arranged in single & double options with an internal bathroom suite in each unit.

Stormwater & Utilities:
The facility will connect to municipal water and sanitary-sewer services. Stormwater collection facilities are proposed to be provided onsite. The applicant proposes to construct two significant stormwater swales, 1) a long thin swale along the western and a portion of the northern property boundary, and 2) a large rectangular swale between the building and Power Drive. That applicant intends stormwater to be managed through these mow-able grass basins and swales, as they are designed to temporarily collect runoff during rain events and then drain and dry over the following days. The applicant states that these swales are not intended to function as permanent ponds and will be incorporated into the maintained landscape. The stormwater management memo provided by the applicant attests that stormwater treatment for the proposed project has already been accounted for by the Wolfe Addition No. 2 Subdivision's Drainage Plan, which depicts multiple regional stormwater basins throughout the subdivision.

The applicant proposes to install two hydrants within the subject property to serve the proposed facility.

The applicant has provided an exhibit showing the location of the proposed Snow Storage along the southern and western extent of the private drive, as well as a small area west of the parking lot. In the future, if additional structures are constructed on the subject property, the applicant shall provide an updated snow storage exhibit.

Landscaping:
The applicant proposes to install various shade trees along the southern and southeastern property lines. The grading and landscaping plans depict a short undulating berm along the western side of the subject property to support screening of the use / of adjacent uses. The applicant proposes to install Black Hills Spruce trees along the tops of the berms as well as along the NW portion of the property boundary. The applicant also proposes to install multiple areas of decorative landscaping within the subject property, including a spattering of Gingko trees throughout the property.

The applicant states that: "*Required trees, plantings, screening, and ground cover will be installed and maintained as shown on the approved landscaping plan*." The applicant proposes to install 4' tall hydrangeas along the full extent of the northern and eastern parking lot boundaries. Screening for the parking area must provide sufficient screening for the duration of the year. The proposed hydrangeas shall be reviewed to ensure compliant screening is provided regardless of season. Per Mankato City Code, perimeter landscaping shall consist of a combination of ground cover, shade trees or evergreen trees, shrubs, and appropriate screening devices such as decorative walls, fences, or berms.

The proposed landscaping plan depicts parking lot islands, but does not present landscaping within these islands. These interior islands shall be landscaped. Interior landscaping shall consist of planting islands with a minimum area of 60 square feet and a minimum width of six feet. The interior landscaping shall constitute at least five percent of the area of the parking lot.

A large vacant area is proposed along the southern portion of the subject property. The applicant's landscaping plan depicts the area to be planted with prairie grass and flowers. Based on the development of the lot, this open

space may serve as a potential location for any planned future expansions.

Access:
Site access will be provided via a singular access from Power Drive. This access is already existing due to the presence of the parking area onsite. This access will serve to provide the site with vehicle access for onsite parking, deliveries, client drop-off & pickup, and emergency access.

Parking & Loading:
The applicant proposes to use a blended parking standard for the facility of 0.5 stalls per bed and one stall per employee. The applicant has not specified the intended use type associated with the parking calculations provided. With 44 beds and 27 employees, 49 total stalls could be required to be provided onsite, if the blended standard was to be utilized. The applicant proposes to construct 69 off-street parking stalls onsite. Parking will occur primarily within the large existing surface lot. A small swath of parking will also be available opposite the resident pick-up & drop-off area on the SW side of the facility. A large loading dock area is proposed within the SW quadrant of the facility.

The applicant's site plan depicts the installation of a bike rack near the resident pick-up area. The plan does not depict the intended number of bicycle parking stalls. Based on the information provided by the applicant, a minimum of four off-street bicycle parking stalls must be provided.

The applicant provided an emergency vehicle turning movement exhibit showing our ladder truck accessing the site from the curb cut off of Power Drive and circulating to the loading dock at the SW corner of the facility. The applicant does not propose vehicle access to the northwest quadrant of the building.

Traffic:
The applicant has provided a Trip Generation Memo. This Traffic Memo stated that "*the proposed potential traffic generators include an estimated 44 inpatient treatment beds & 12 employees on the largest shift, as well as an onsite community meeting space for 10–20 people that is expected to be used once daily during the week. It is expected that the vast majority of the trips will travel to/from the south. The trip generation potential for the proposed development is below the typical MnDOT (250 peak-hour vehicle trips or 2,500 daily vehicle trips) and Blue Earth County (100 peak hour vehicle trips) thresholds for consideration of a Traffic Impact Study. Additionally, due to the low number of peak hour site trips generated, no additional turn lanes are recommended at the site driveway."*

The applicant further attests that, *"Traffic will be generated by a fixed residential population and a managed operating schedule, rather than by continuous customer turnover. Clients will reside onsite and receive most treatment, meals, recreation, and support services within the facility. Vehicle trips will consist primarily of employee arrivals and departures, scheduled admissions and discharges, weekend visitation, deliveries, and staff-coordinated client transportation. Admissions and discharges will generally occur between 9:00 a.m. and 5:00 p.m., while family visitation will be scheduled on weekends between 1:00 p.m. and 4:00 p.m. Staff scheduling, deliveries, and client transportation will be managed to avoid unnecessary concentrations of vehicle activity."*

It is not anticipated that the proposed use will not cause undue traffic congestion on Power Drive or the surrounding roadway network.

Facility & Operations:
The applicant has provided the following information pertaining to operations of the proposed facility:
"*The Mankato facility will provide licensed residential treatment only. It will not provide detoxification, hospital-level medical care, or onsite medical procedures. Prospective clients will be assessed before admission to confirm that the facility offers the appropriate level of care. Individuals requiring detoxification, hospital-level treatment, or services outside the facility's licensed scope will be referred to appropriate outside providers. The facility will create approximately thirty stable, skilled jobs for licensed clinical, nursing, and support personnel. The property will not operate as a walk-in clinic or high-volume commercial establishment. Clients will receive treatment, meals, recreation, and recovery-support services onsite, limiting unnecessary travel."*

"Clients will reside onsite while participating in a structured treatment program. Comprehensive substance use assessments will be completed by qualified professionals to confirm the appropriate level of care and support individualized treatment planning. Daily programming will include individual and group counseling, recovery education, peer-support activities, recreation, meals, and personal reflection. The campus includes residential accommodations with shower and bath facilities, laundry facilities, individual counseling offices, group rooms, dining and kitchen facilities, a chapel, indoor recreation, personal-reflection areas, and designated supervised outdoor spaces. Mental-health or psychiatric needs that exceed the facility's scope will be coordinated through appropriate outside providers. Outdoor activities will occur only in designated areas and will be supervised by staff. The building, grounds, parking areas, landscaping, and outdoor spaces will be professionally maintained."

"Clients will reside onsite and participate in a structured, supervised daily program. The facility will maintain an alcohol and drug-free environment governed by written policies and state licensing requirements. Safety measures will include continuous professional staffing, controlled building access, alarmed exterior doors and windows, overnight client checks, medication protocols, and written emergency procedures. Client movement off-site will be strictly managed and coordinated by staff as part of each structured treatment plan, preventing unmanaged wandering or unauthorized departures into surrounding commercial and residential areas."

"The facility will operate 24 hours a day, seven days a week. Admissions and discharges will occur between 9:00 a.m. and 5:00 p.m. Family visitation will be scheduled on Saturdays and Sundays from 1:00 p.m. to 4:00 p.m. Deliveries and staff-coordinated client transportation will be managed to avoid unnecessary concentrations of vehicle activity. The building, grounds, landscaping, parking areas, and outdoor spaces will be professionally maintained. Together, the site design and operating practices are intended to minimize traffic, noise, lighting, and other potential effects on neighboring properties."

"The professional team will include licensed alcohol and drug counselors, clinical leadership, nursing staff, recovery-support specialists, peer-services staff, and other trained employees appropriate to the licensed program. Nursing staff will assess client health needs, administer medications, and coordinate referrals when outside medical care is required. The facility's staffing model supports a high staff-to-client ratio. Staff will be trained in crisis prevention, relational response, verbal intervention, and de-escalation. Emergency protocols will direct staff to manage behavioral and medical concerns internally whenever appropriate and to contact local emergency responders only when a client's health needs exceed the facility's licensed scope or require outside emergency medical care."

"Mankato serves as a regional center for healthcare and human services in Southern Minnesota. The proposed facility is consistent with that regional role by expanding access to licensed residential substance use disorder treatment within the community. Blue Earth County Human Services has identified a continuing regional need for substance-use disorder services and has provided a letter supporting the Spirits at Rest project." The aforementioned letter of support provided by Andrew Carr with Blue Earth County Services is dated July 16th, 2026, and includes language regarding detoxification, a service that Spirits at Rest does not propose to provide at this time.

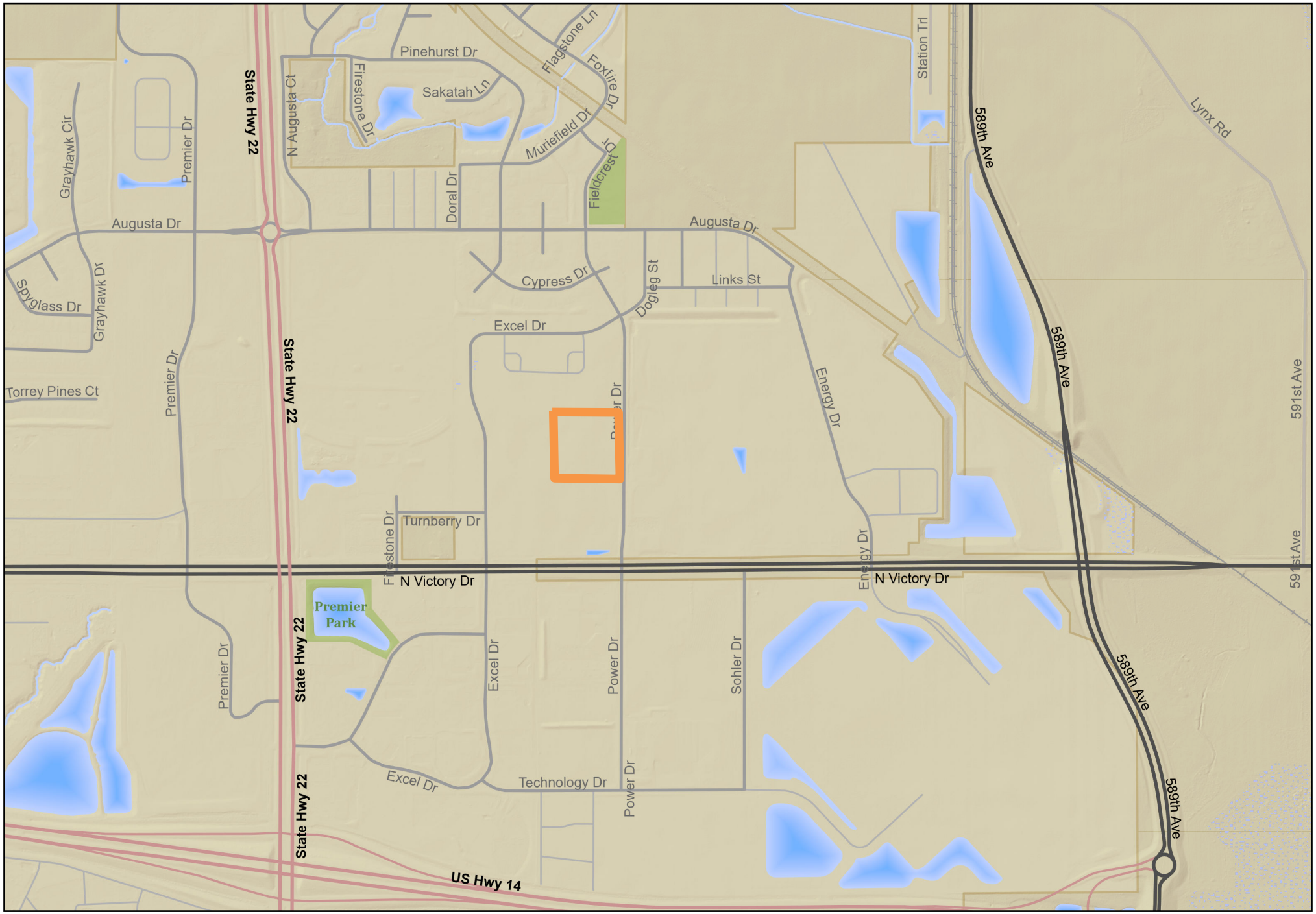
<u>Community Outreach:</u>
City Staff provided the applicant with a list of properties within the nearby residential subdivisions so that the applicant may directly interface with the residents of the adjacent neighborhood. City Staff recommended that the applicant provide Community Outreach prior to submission of the application. The applicant states that, "*Spirits at Rest will provide broader informational outreach to the neighborhood north of Augusta Drive, direct residents to project information and frequently asked questions, and conduct door knocking before the public hearing."* This includes hosting a Community Open House on Monday, August 24, 2026, from 6:30-8:00pm. An example copy of the open house invitation has been provided to Staff. The applicant states that they sent out letters/invites to 166 businesses and households.

The applicant attests that they will maintain ongoing communication with the adjacent neighborhood. Spirits at Rest will serve as the designated point of contact for neighboring property owners so operational questions and community feedback can be addressed promptly.

Attachments

General Location Map
Aerial
Site Plan
Project Overview
Exterior Elevations
Material Board
Floor Plans
Landscaping Plan
Grading Plan
Utility Plan
Narrative
Existing Conditions & Removal Plan
Detail Plans
Hydrant, Snow, & Emergency Vehicle Plan
Traffic - Trip Generation Memo
Stormwater Management Memo
SWPPP
Drainage Report
Wetland - T&B - Wolfe Add No. 2
Wetland - Replacement - Wolfe Add No. 2
Wetland - Credits Form - Wolfe Add No. 2
Open House Invite Letter

General Location Map



N W E S

0 0.3 0.6 1 mi

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Produced by: City of Mankato GIS
Published: August 4, 2026

City of Mankato — Leading the way...

Aerial Map



N W E S

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Produced by: City of Mankato GIS
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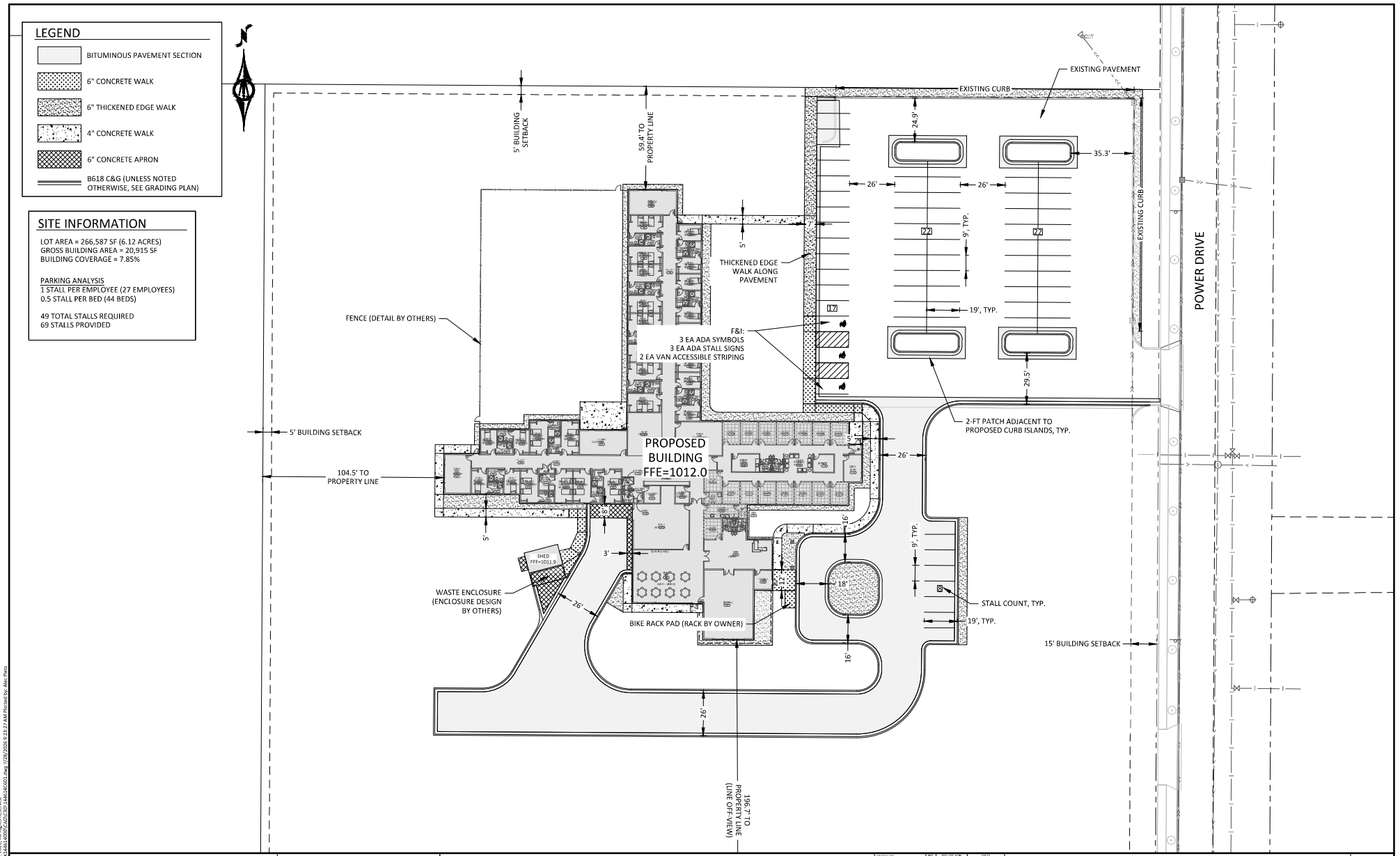
City of Mankato — Leading the way...



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HORZ. SCALE 0 25 50 FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

BOLTON & MENK

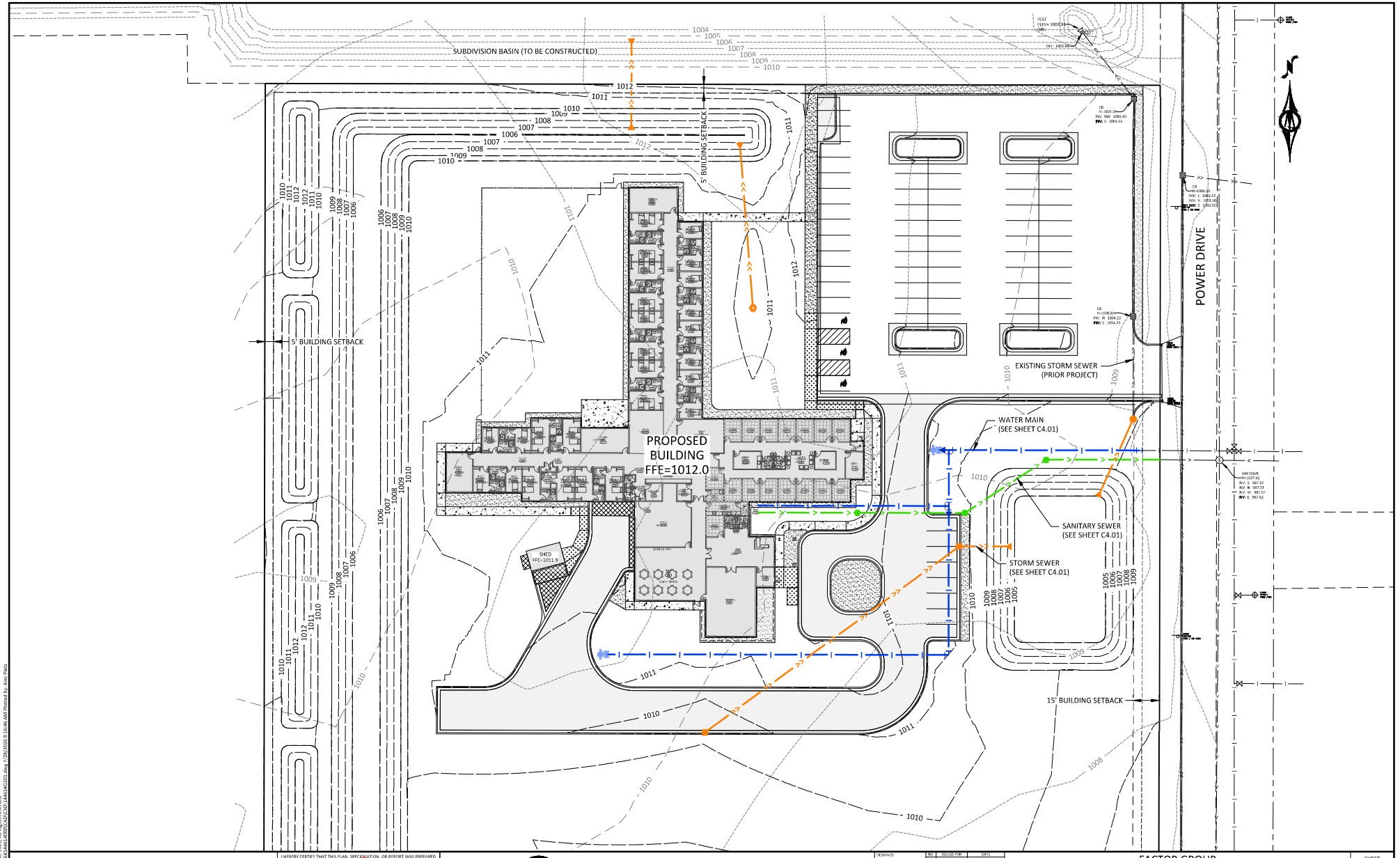
1960 PREMIER DRIVE
MANKATO, MN 56001
Phone: (507) 625-4171
Email: Mankato@bolton-menk.com
www.bolton-menk.com

DESIGNED	AWP
DRAWN	AWP
CHECKED	AWP
CLIENT PROJ. NO.	26X.144614

NO.	ISSUED FOR	DATE

FACTOR GROUP
SPIRITS AT REST
SITE PLAN

SHEET C5.01



HORZ. 0 25 50
SCALE FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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DESIGNED	AWP	NO.	ISSUED FOR	DATE
DRAWN	AWP			
CHECKED	AWP			
CLIENT PROJ. NO.	26X.144614			

FACTOR GROUP
SPIRITS AT REST
PROJECT OVERVIEW

SHEET G1.01

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EAST ELEVATION



SOUTH ELEVATION



WEST ELEVATION



NORTH ELEVATION

RDS ARCHITECTS

Bright Pixel Design

PROJECT TITLE:

SPIRITS AT REST
TREATMENT CENTER
POWER DRIVE
MANKATO, MN 56001

No.	SUBMISSIONS & REVISIONS	Date

EXTERIOR ELEVATIONS

JOB. NO.: 24.32.1
DATE: 7-27-2026
DRAWN BY: MJB

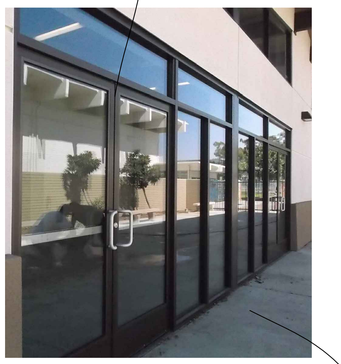
A3.1



EAST VIEW



THIN STONE VENEER
SAGE VALLEY CATHEDRAL



ALUMINUM STORE FRONT SYSTEM
TUBELITE T14000 - BLACK



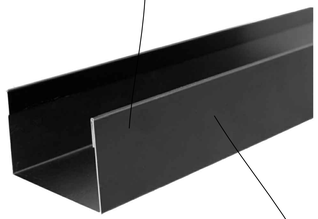
EDCO PERSPECTIVES WOOD
LOOK STEEL SIDING - WALNUT



HARDIE ARTISAN SIDING SQUARE
CHANNEL - WHITE



ASPHALT SHINGLES
PEWTER



PREFINISHED METAL CAP
FLASHING AND FASCIA - BLACK



SOUTH EAST VIEW

RDS ARCHITECTS

Bright Pixel Design

PROJECT TITLE:

SPIRITS AT REST
TREATMENT CENTER
POWER DRIVE
MANKATO, MN 56001

No.	SUBMISSIONS & REVISIONS	Date

EXTERIOR DESIGN & BUILDING MATERIALS LIST

JOB. NO.: 24.32.1
DATE: 7-27-2026
DRAWN BY: MJB

A2.1

BUILDING CODE REVIEW

BASED ON:
2020 MN STATE BUILDING CODE
2024 MN COMMERCIAL ENERGY CODE
2020 MN ACCESSIBILITY CODE

BUILDING TYPE VA
FIRE SPRINKLER SYSTEM TO BE INSTALLED
BUILDING IS 1 STORY WOOD FRAME CONSTRUCTION
(EXTERIOR WALLS, BEARING WALLS AND ROOF TO BE 1 HOUR)
UL P522 ROOF ASSEMBLY

BUILDING IS SINGLE TENANT BUILDING
MIXED OCCUPANCY
NON-SEPARATED OCCUPANCY
I-1 OCCUPANCY (TREATMENT/REHAB CENTER) CONDITION 1
(CODE TABLE 302.2 CARE FACILITIES)
CODE SECTION 308.1 AND 308.2.1
B OCC (OFFICE & COMMON AREA)
A-2 (CONF ROOMS, DINING AREA, CHAPEL)

TOTAL SQ. FTG. = 20,915 SQ. FT.
ALLOWABLE BUILDING AREA CALCULATIONS
BASE ALLOWABLE SQ. FTG. = 42,000 SQ. FT.

ACTUAL BUILDING AREA = 20,915 SQ. FT.
1 STORY BUILDING

FIRE SPRINKLER (NFPA 13) REQUIRED PER CODE SECTION
420.4 & SECTION 903.2.6 GROUP I

FIRE ALARM & SMOKE DETECTION SYSTEMS REQUIRED PER CODE SECTION
420.5 & SECTION 907.2.6. GROUP I-1 OCCUPANCIES

CODE SECTION 420.2 SEPARATION WALLS
SEPARATING SLEEPING UNITS TO BE CONSTRUCTED AS FIRE
PARTITIONS IN ACCORDANCE WITH SECTION 708
FIRE PARTITIONS TO BE CONTINUOUS TO ROOF DECK

CODE SECTION 420.2 SEPARATION WALLS (1 HOUR RATING)
SEPARATING SLEEPING UNITS TO BE CONSTRUCTED AS FIRE
PARTITIONS IN ACCORDANCE WITH SECTION 708
FIRE PARTITIONS TO BE CONTINUOUS TO ROOF DECK

CODE SECTION 1020 CORRIDORS, TABLE 1020.1 (1 HOUR RATING)
CORRIDOR WALLS TO BE CONSTRUCTED AS FIRE PARTITIONS IN
ACCORDANCE WITH SECTION 708
FIRE PARTITIONS TO BE CONTINUOUS TO ROOF DECK

OCCUPANT LOAD (TABLE 1004.5, FLOOR AREA ALLOWANCES)
I-1 (SUPERVISED LIVING)
SLEEPING ROOMS = 6,478 TOTAL SQ. FT. / 120 PER OCC. = 54 OCC.
BASED ON SQ. FTG. (40 OCC. BASED ON BED COUNT)
A-2 (ACCESSORY USE)
GROUP ROOMS = 1,283 SQ. FT.
DINING AREA = 1,230 SQ. FT.
CHAPEL AREA = 1,187 SQ. FT.
TOTAL= 3,700 SQ. FT. / 15 PER OCC. =247 OCC.
KITCHEN AREA = 907 SQ. FT. / 200 PER OCC. =5 OCC.
B (OFFICES & COMMON AREAS) 9,830 SQ. FT. / 150 PER OCC. = 66 OCC.

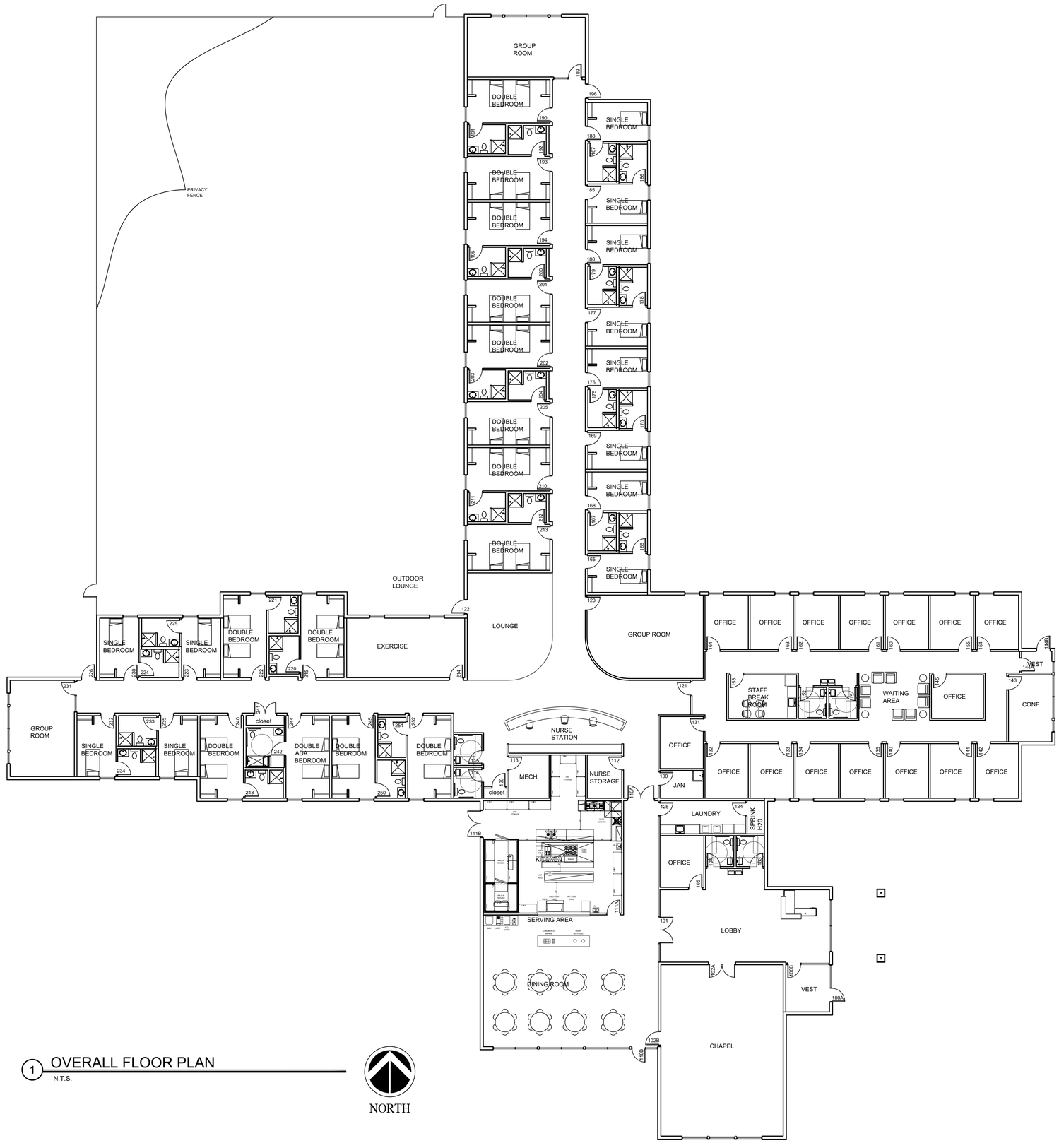
TOTAL OCC. LOAD BASED ON SQ. FTG. = 372 OCC.

EXITS REQUIRED FROM BUILDING (2) (7) PROVIDED

PLUMBING FIXTURE COUNT

OCCUPANT LOAD
I-1 OCC. LOAD (SUPERVISED LIVING) = 54 OCC.
B OCC. LOAD (OFFICE) = 65 OCC.

FIXTURES REQ'D BY CODE (TABLE 2902.1)
I-1 OCC. REQUIRES 1 TOILET/10 OCCUPANTS
TOILETS REQ'D (6) (26) PROVIDED
I-1 OCC. REQUIRES 1 SINK/10 OCCUPANTS
SINKS REQ'D (6) (26) PROVIDED
B OCC. (STAFF & VISITORS)
REQUIRES 1 TOILET/25 OCC. FIRST 50
TOILETS REQ'D (3) (6) PROVIDED FOR COMMON USE
B OCC. REQUIRES 1 SINK/40 OCC. FIRST 80
SINKS REQ'D (2) (6) PROVIDED
I-1 OCC. REQUIRES 1 SHOWER/PER 8 OCC.



1 OVERALL FLOOR PLAN
N.T.S.

NORTH

RDS ARCHITECTS

Bright Pixel Design

PROJECT TITLE:

SPIRITS AT REST
TREATMENT CENTER
POWER DRIVE
MANKATO, MN 56001

GENERAL NOTES:

CONTRACTORS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND INDUSTRY BEST PRACTICES FOR ALL PRODUCT INSTALLATIONS.

SHEET NOTES:

1 NOTE

No.	SUBMISSIONS & REVISIONS	Date

OVERALL FLOOR PLAN

JOB. NO.: 24.32.1
DATE: 7-27-2026
DRAWN BY: MJB

A1.1

TURF ESTABLISHMENT:
SEE EROSION & SEDIMENT CONTROL
PLAN FOR TURF ESTABLISHMENT

GENERAL LANDSCAPE IMPROVEMENT NOTES:

1. PERENNIAL GROUPINGS SHALL BE PLANTED AND MULCHED IN ONE CONTINUOUSLY MULCHED BED. ALL BEDS ABUTTING TURF AREAS SHALL BE EDGED WITH A NATURAL SPADED EDGE.

2. WHEREVER A SURFACE PARKING AREA FACES STREET FRONTAGE, THE PARKING AREA SHALL BE SCREENED WITH A HEDGE OR PLANTING THAT IS BETWEEN 4 AND 8 FEET. THIS SCREENING MUST BE YEAR ROUND. THE PLANT MATERIAL MUST BE ABLE TO ACHIEVE THIS HEIGHT (BETWEEN 4 AND 8 FEET) WITHIN 1 YEAR OF THE CONSTRUCTION OF THE PARKING LOT. CONTAINER SIZES LISTED SHALL BE VERIFIED TO MEET THIS REQUIREMENT BY THE CONTRACTOR AND/OR INSTALLER PRIOR TO ORDERING AND PLANTING. ADJUST THE SIZE AS NECESSARY.

3. ESTABLISH TURF IN ALL DISTURBED AREAS NOT COVERED BY STRUCTURES, PAVING, OR LANDSCAPING.

4. REFER TO MNDOT SPECIFICATION 2571 FOR PLANT INSTALLATION AND ESTABLISHMENT.

5. ROCK MULCH OR WOOD TO BE PLACED IN ALL PLANTING BEDS.

6. CONTRACTOR TO DESIGN AND BUILD PERMANENT IRRIGATION SYSTEM FOR ALL LANDSCAPED AREAS, IF NECESSARY OR REQUESTED BY THE OWNER. CONTRACTOR TO SUBMIT IRRIGATION AND SHOP DRAWING TO OWNERSHIP FOR APPROVAL.

CAUTION

LEGEND:

REFER TO NOTATIONS AND TABLE FOR PLANTINGS

LANDSCAPE ROCK OR MULCH

LANDSCAPE CODE REQUIREMENTS:

OFF-STREET PARKING LOT PERIMETER LANDSCAPING:

REQUIRED = 1075 LINEAR FEET / 50 = 22 OVERSTORY TREES
PROVIDED = 30 OVERSTORY TREES

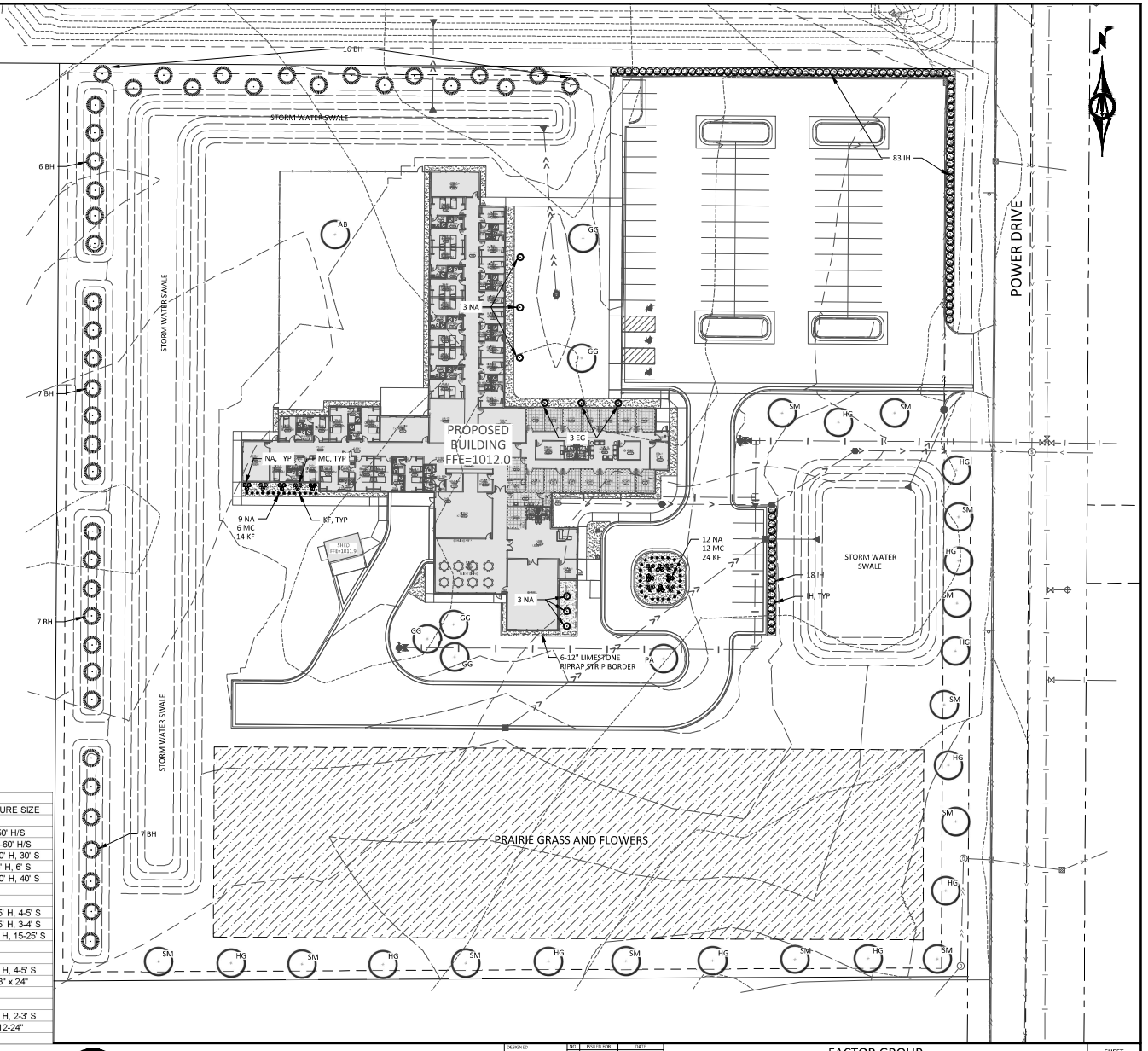
REQUIRED = 1075 LINEAR FEET / 25 = 43 EVERGREEN TREES
PROVIDED = 52 EVERGREEN TREES

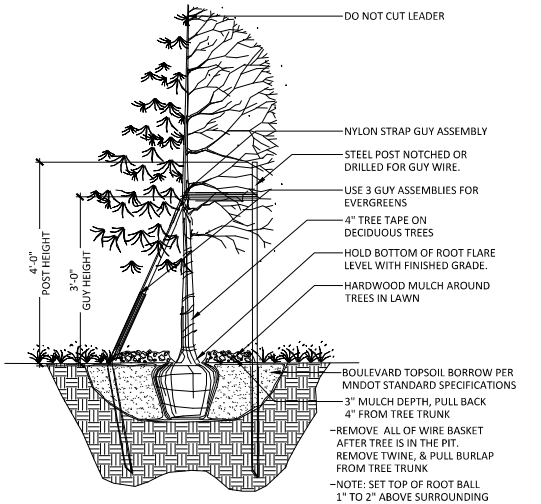
SCREENING:
REQUIRED (& PROVIDED) = 4-8-FT MATURE HEIGHT AT 80% OPACITY ALONG PARKING

FOUNDATION LANDSCAPING:
REQUIRED (& PROVIDED) = PLANT MATERIAL PLACED INTERMITTENTLY AGAINST LONG EXPANSES OF BUILDING WALLS

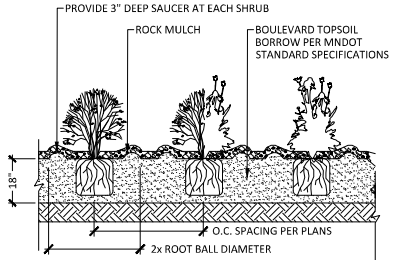
PLANT SCHEDULE

QTY.	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	ROOT TYPE	MATURE SIZE
			DECIDUOUS TREES			
12	SM	Acer saccharinum	Silver Maple	2.5" CAL	B&B	50' H/S
1	AB	Acer x freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5" CAL	B&B	50-60' H/S
11	HG	Tilia x mongolica 'Harvest Gold'	Harvest Gold Linden	2.5" CAL	B&B	30-40' H, 30' S
5	GG	Ginkgo biloba 'Goldspire'	Goldspire Ginkgo	2.5" CAL	B&B	15' H, 6' S
1	PA	Ulmus americana 'Princeton'	Princeton American Elm	2.5" CAL	B&B	50-80' H, 40' S
30	(TOTAL DECIDUOUS)					
			EVERGREEN TREES			
6	NA	Thuja plicata	Northern Spire Arborvitae	6' TALL	B&B	15-25' H, 4-5' S
3	EG	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	6' TALL	B&B	12-15' H, 3-4' S
43	BH	picea glauca var. densata	Black Hills Spruce	6' TALL	B&B	30-60' H, 15-25' S
52	(TOTAL EVERGREEN)					
			SHRUBS			
101	IH	Hydrangea arborescens 'Abetwo'	Incrediball Hydrangea	4' H	B&B	4-5' H, 4-5' S
18	MC	Spiraea japonica 'Walbuma'	Magic Carpet Spirea	1 GAL	B&B	18" x 24"
119	(TOTAL SHRUB)					
			PERENNIALS & GRASSES			
38	KF	Calamagrostis acutiflora	Karl Foerster Feather Reed Grass	1 GAL	B&B	4-6' H, 2-3' S
21	NA	Aster novae-angliae	New England Aster	1 GAL	B&B	12-24"
59	(TOTAL PERENNIALS & GRASSES)					

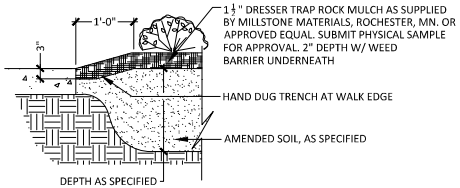

16 BH
STORM WATER SWALE
6 BH
7 BH
7 BH
7 BH
STORM WATER SWALE
STORM WATER SWALE
83 IH
POWER DRIVE
AB
GG
3 NA
GG
PROPOSED BUILDING FFE=1012.0
3 EG
NA, TYP
MC, TYP
KF, TYP
9 NA
6 MC
14 KF
12 NA
12 MC
24 KF
18 IH
IH, TYP
STORM WATER SWALE
3 NA
GG
GG
GG
6-12" LIMESTONE RIPRAP STRIP BORDER
PA
PRAIRIE GRASS AND FLOWERS
SM
HG
SM
HG
SM
HG



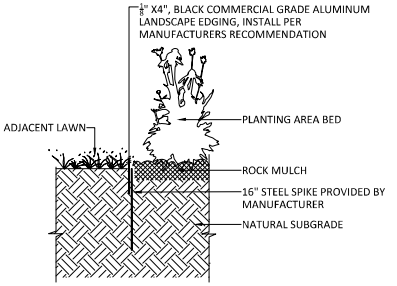
1 TREE PLANTING DETAIL
SCALE: N.T.S.



2 TYPICAL SECTION: SHRUB/PERENNIAL BED PLANTING
SCALE: N.T.S.



3 PLANTING EDGE AT CONC. WALK
SCALE N.T.S.



4 TYPICAL SECTION: ALUMINUM EDGE
NOT TO SCALE

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FACTOR GROUP
SPIRITS AT REST
PLANTING DETAILS

SHEET L1.02

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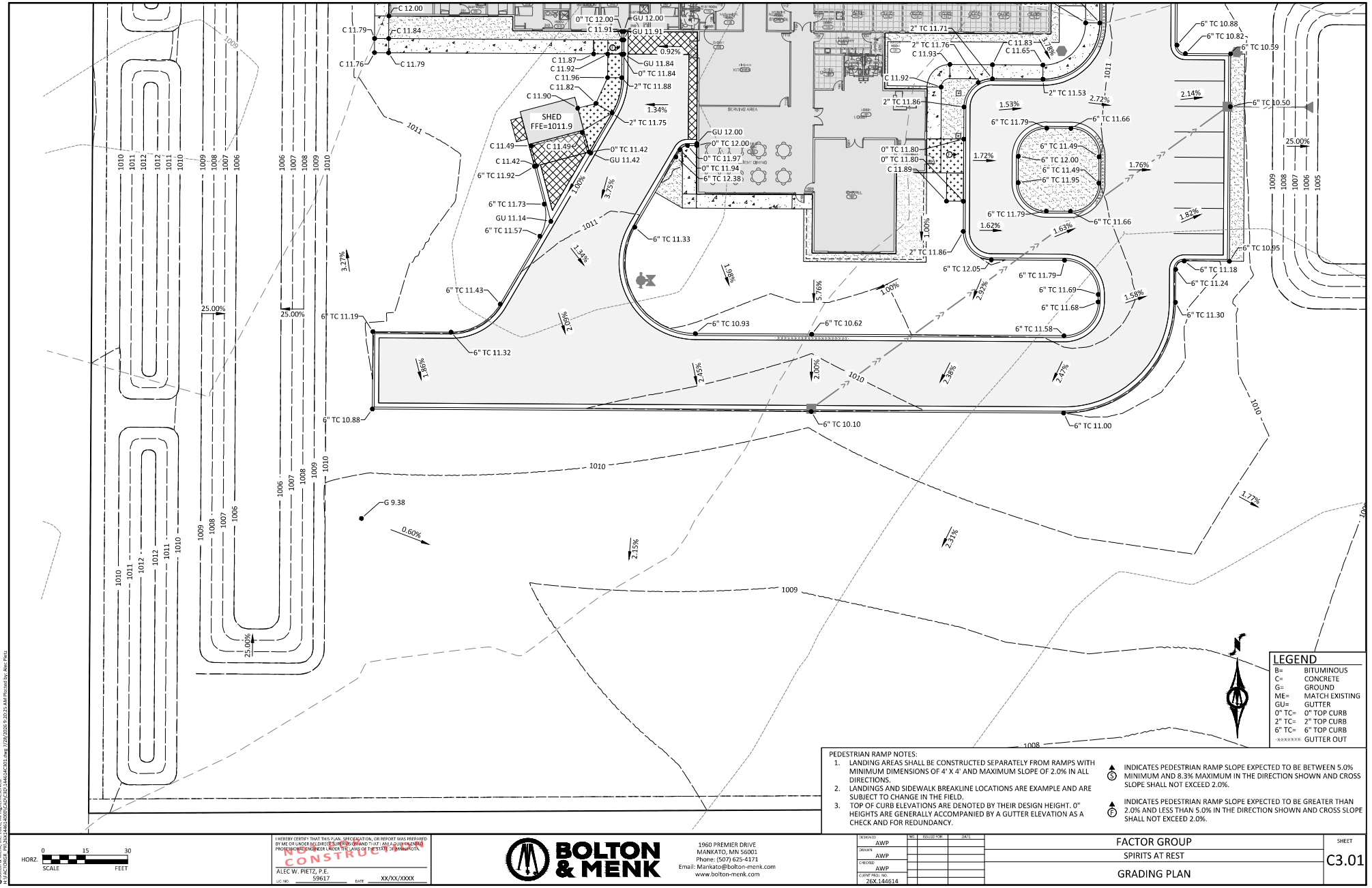

LEGEND

B=	BITUMINOUS
C=	CONCRETE
G=	GROUND
ME=	MATCH EXISTING
GU=	GUTTER
0" TC=	0" TOP CURB
2" TC=	2" TOP CURB
6" TC=	6" TOP CURB
-xxxxxxx-	GUTTER OUT

PEDESTRIAN RAMP NOTES:

1. LANDING AREAS SHALL BE CONSTRUCTED SEPARATELY FROM RAMPS WITH MINIMUM DIMENSIONS OF 4' X 4' AND MAXIMUM SLOPE OF 2.0% IN ALL DIRECTIONS.
2. LANDINGS AND SIDEWALK BREAKLINE LOCATIONS ARE EXAMPLE AND ARE SUBJECT TO CHANGE IN THE FIELD.
3. TOP OF CURB ELEVATIONS ARE DENOTED BY THEIR DESIGN HEIGHT. 0" HEIGHTS ARE GENERALLY ACCOMPANIED BY A GUTTER ELEVATION AS A CHECK AND FOR REDUNDANCY.

S — INDICATES PEDESTRIAN RAMP SLOPE EXPECTED TO BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

F — INDICATES PEDESTRIAN RAMP SLOPE EXPECTED TO BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

HORZ. 0 15 30
SCALE FEET

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SPIRITS AT REST
GRADING PLAN

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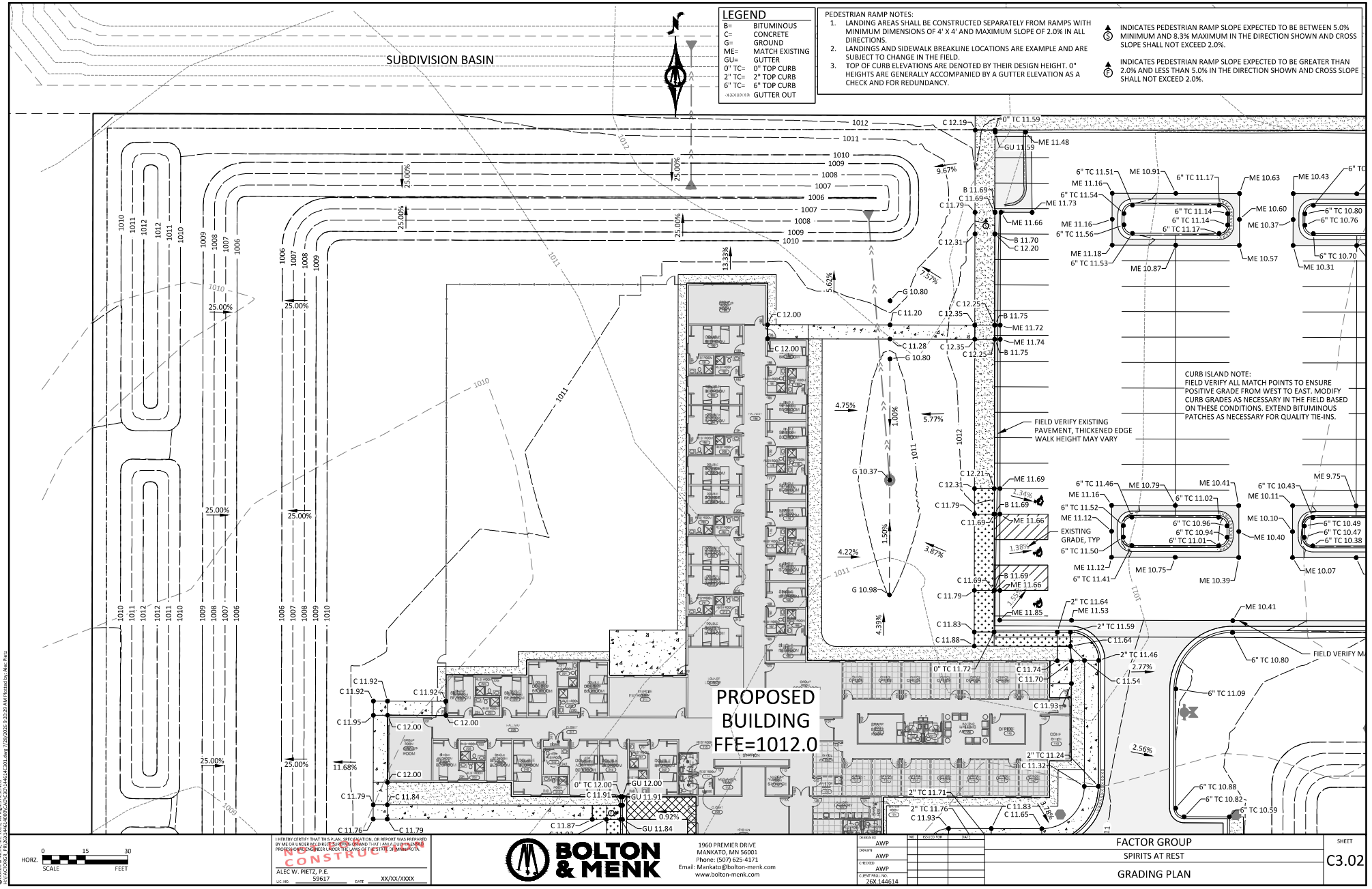

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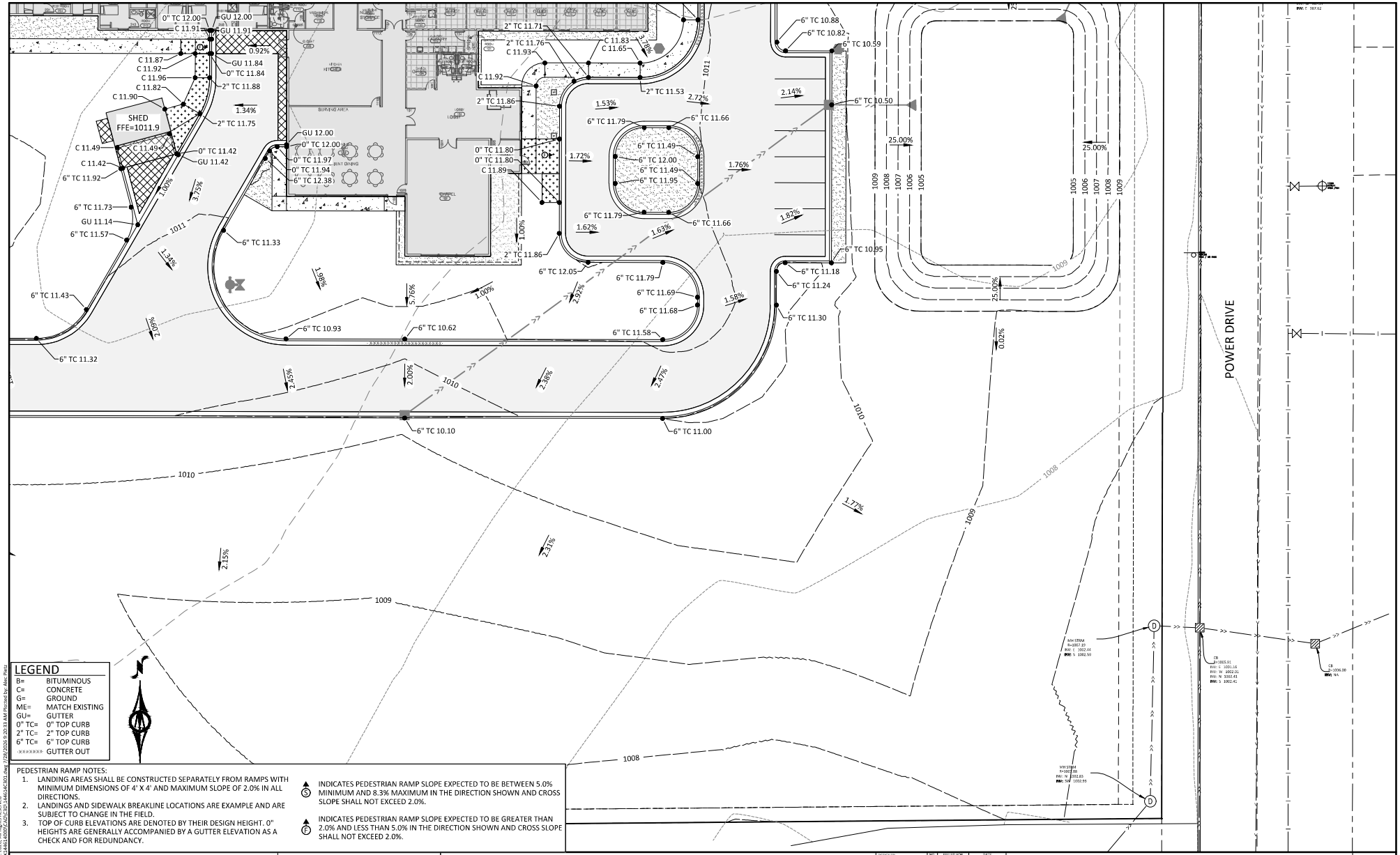

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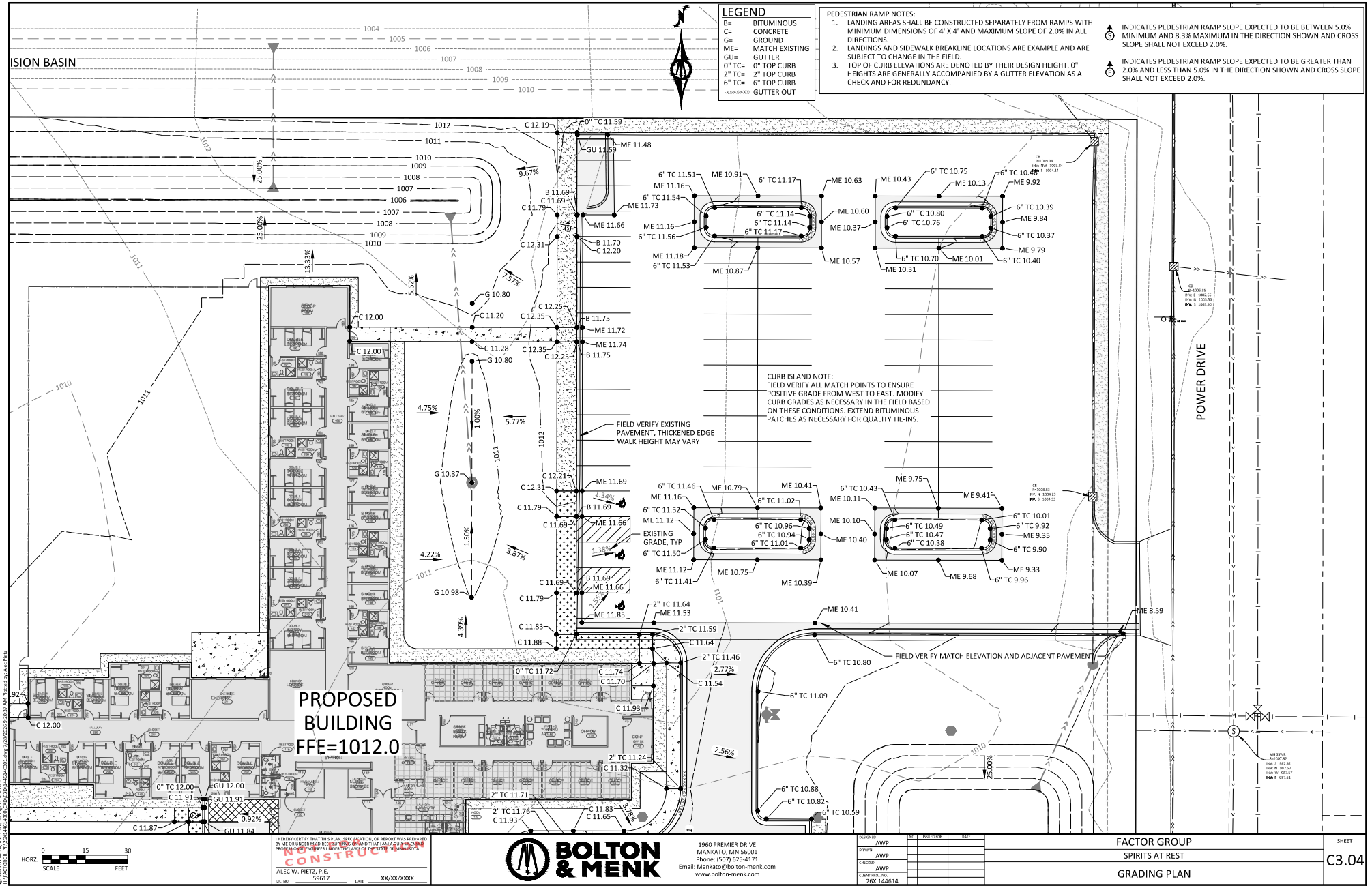

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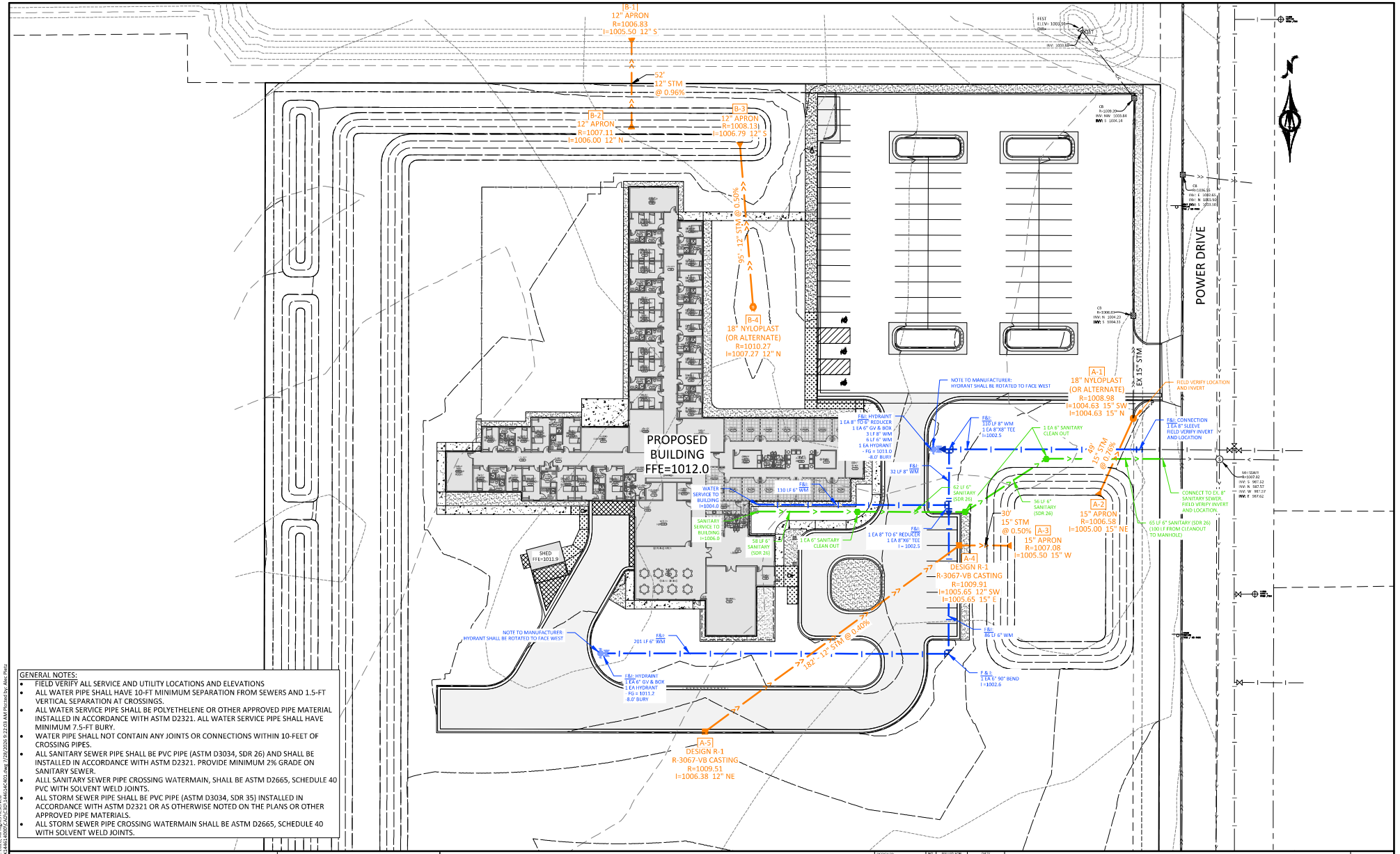

GENERAL NOTES:

- FIELD VERIFY ALL SERVICE AND UTILITY LOCATIONS AND ELEVATIONS
- ALL WATER PIPE SHALL HAVE 10-FT MINIMUM SEPARATION FROM SEWERS AND 1.5-FT VERTICAL SEPARATION AT CROSSINGS.
- ALL WATER SERVICE PIPE SHALL BE POLYETHELENE OR OTHER APPROVED PIPE MATERIAL INSTALLED IN ACCORDANCE WITH ASTM D2321. ALL WATER SERVICE PIPE SHALL HAVE MINIMUM 7.5-FT BURY.
- WATER PIPE SHALL NOT CONTAIN ANY JOINTS OR CONNECTIONS WITHIN 10-FEET OF CROSSING PIPES.
- ALL SANITARY SEWER PIPE SHALL BE PVC PIPE (ASTM D3034, SDR 26) AND SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321. PROVIDE MINIMUM 2% GRADE ON SANITARY SEWER.
- ALL SANITARY SEWER PIPE CROSSING WATERMAIN, SHALL BE ASTM D2665, SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS.
- ALL STORM SEWER PIPE SHALL BE PVC PIPE (ASTM D3034, SDR 35) INSTALLED IN ACCORDANCE WITH ASTM D2321 OR AS OTHERWISE NOTED ON THE PLANS OR OTHER APPROVED PIPE MATERIALS.
- ALL STORM SEWER PIPE CROSSING WATERMAIN SHALL BE ASTM D2665, SCHEDULE 40 WITH SOLVENT WELD JOINTS.

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SCALE FEET

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UTILITY PLAN

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SPIRITS AT REST

Conditional Use Permit

Narrative

Proposed Licensed Residential Substance Use Disorder Treatment Facility

50 Power Drive | Mankato, Minnesota

Prepared for City of Mankato Conditional Use Permit Review

July 28, 2026

Applicant: Spirits at Rest

Development Partner: The Factor Group

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2. Facility Program and Operations 5
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4. Conditional Use Permit Standards 8
5. Community Information and Outreach 14
6. Conclusion and Request for Approval 15

Supporting Exhibits

Exhibit A - Blue Earth County Human Services Letter of Support 16

Exhibit B - Existing Minnesota DHS License 18

Exhibit C - Frequently Asked Questions 19

Exhibit D - Community Open House Invitation 21

Exhibit E - Community Inquiry Resources for City Staff 22

Exhibit F - Demonstrated Community Need 23

Note: *Architectural and Civil plans are submitted separately as part of the formal application packet. This includes the following:*

1. *Building Floor Plans, Elevations, and Materials List*
2. *Civil CUP Plans (Construction Documents) Drainage Memo*
3. *Hydrant Coverage, Snow Storage/Removal Plan, and Turning Movement Plan*
4. *Traffic Memo*
5. *Wetland Information from the Wolfe Addition No. 2 (Delineation, mitigation and credit purchase – all wetlands were mitigated)*

Project Information

Project Name	Spirits at Rest - Mankato Campus
Applicant	Spirits at Rest (Jeremy Gerres, Founder)
Development Partner	The Factor Group (Joe Richter, Development Lead)
Property Address	50 Power Drive, Mankato, Minnesota
Parcel / Tax ID	R01.09.03.378.003
Current Zoning	B-3 Highway Commercial District
Requested Action	Approval of a Conditional Use Permit for a licensed residential substance use disorder treatment facility.
Property Interest	Spirits at Rest is under a purchase agreement for the property and is completing its due diligence.
Variance	No variance is requested in connection with this Conditional Use Permit application.

Project Schedule & Key Dates

CUP Application Submittal	Tuesday, July 28, 2026
Community Open House	Monday, August 24, 2026 | 6:30–8:00 p.m. | Location to be confirmed
Planning Commission Public Hearing	Wednesday, August 26, 2026 | 6:00 p.m.
Anticipated City Council Consideration	Monday, September 14, 2026 | 6:00 p.m. | Subject to the City's final meeting schedule

Key dates are provided for reviewer convenience and remain subject to the City's final meeting and notice schedule.

Primary Contacts

Spirits at Rest: Jeremy Gerres, Founder | 507-953-0172 | jeremy@spiritsatrest.com | spiritsatrest.com

The Factor Group: Joe Richter, Development Lead | 651-216-8983 | joe@factorgrp.co

1. Executive Summary

This Conditional Use Permit narrative is submitted on behalf of Spirits at Rest, with The Factor Group serving as development partner, to request approval for a licensed residential substance use disorder treatment facility at 50 Power Drive in the B-3 Highway Commercial District.

Spirits at Rest is under a purchase agreement for the property and is completing its due diligence. The proposed Mankato campus will expand access to structured residential treatment in Southern Minnesota while operating as a professionally managed, secure, and well-maintained community partner.

The project will also provide a thoughtful physical and visual enhancement to the Power Drive corridor. Professional property maintenance, architectural investment, the integrated western landscaping berm, and naturalized stormwater-management basins will improve the site's aesthetic and environmental quality compared with its current commercial condition.

Spirits at Rest has operated substance use disorder treatment and supportive housing programs in Montgomery since July 2020 and has served more than 300 clients. The organization is guided by a mission of hope, dignity, accountability, and whole-person recovery.

The Mankato facility will provide licensed residential treatment only. It will not provide detoxification, hospital-level medical care, or onsite medical procedures. Prospective clients will be assessed before admission to confirm that the facility offers the appropriate level of care. Individuals requiring detoxification, hospital-level treatment, or services outside the facility's licensed scope will be referred to appropriate outside providers.

From an economic perspective, the project represents a significant private investment in the B-3 corridor, transforming underutilized commercial property into a professionally developed campus. The facility will create approximately thirty stable, skilled jobs for licensed clinical, nursing, and support personnel while using existing municipal infrastructure efficiently. The project will contribute to localized economic activity and tax-base support through a managed operating model designed to limit public-service demands compared with intensive industrial or high-turnover commercial uses.

2. Facility Program and Operations

2.1 Residential Treatment Program

Clients will reside onsite while participating in a structured treatment program. Comprehensive substance use assessments will be completed by qualified professionals to confirm the appropriate level of care and support individualized treatment planning. Daily programming will include individual and group counseling, recovery education, peer-support activities, recreation, meals, and personal reflection.

The campus includes residential accommodations with shower and bath facilities, laundry facilities, individual counseling offices, group rooms, dining and kitchen facilities, a chapel, indoor recreation, personal-reflection areas, and designated supervised outdoor spaces. Mental-health or psychiatric needs that exceed the facility's scope will be coordinated through appropriate outside providers.

2.2 Hours, Admissions, and Visitation

Because it is a residential program, the facility will operate 24 hours a day, seven days a week. Continuous operation does not mean continuous traffic or exterior activity. Admissions and discharges will occur between 9:00 a.m. and 5:00 p.m. Family visitation will be scheduled on Saturdays and Sundays from 1:00 p.m. to 4:00 p.m. Deliveries and staff-coordinated client transportation will be managed to avoid unnecessary concentrations of vehicle activity.

The property will not operate as a walk-in clinic or high-volume commercial establishment. Clients will receive treatment, meals, recreation, and recovery-support services onsite, limiting unnecessary travel.

2.3 Staffing, Safety, and Security

The professional team will include licensed alcohol and drug counselors, clinical leadership, nursing staff, recovery-support specialists, peer-services staff, and other trained employees appropriate to the licensed program. Nursing staff will assess client health needs, administer medications, and coordinate referrals when outside medical care is required.

Clients will reside onsite and participate in a structured, supervised daily program. The facility will maintain an alcohol- and drug-free environment governed by written policies and state licensing requirements. Safety measures will include continuous professional staffing, controlled building access, alarmed exterior doors and windows, overnight client checks, medication protocols, and written emergency procedures. Client movement offsite will be strictly managed and coordinated by staff as part of each structured treatment plan, preventing unmanaged wandering or unauthorized departures into surrounding commercial and residential areas.

The facility's staffing model supports a high staff-to-client ratio. Staff will be trained in crisis prevention, relational response, verbal intervention, and de-escalation. Emergency protocols will direct staff to manage behavioral and medical concerns internally whenever appropriate and to contact local emergency responders only when a client's health needs exceed the facility's licensed scope or require outside emergency medical care.

Outdoor activities will occur only in designated areas and will be supervised by staff. The building, grounds, parking areas, landscaping, and outdoor spaces will be professionally maintained.

3. Site Design and Infrastructure

The project team includes The Factor Group as development partner, Bright Pixel Design as architect, and Bolton & Menk as civil engineer. The submitted architectural and civil plans coordinate the building, parking, vehicle circulation, utilities, grading, drainage, stormwater management, landscaping, screening, and outdoor areas.

Site access will be provided from Power Drive. The site plan provides onsite parking and internal circulation for employees, scheduled visitors, deliveries, client drop-off and pickup, and emergency access. The project will connect to municipal water and sanitary-sewer systems in accordance with City requirements.

The grading and landscaping plans include a berm along the western side of the property to support screening and site integration. The raw earthwork is expected to remain close to balanced, limiting the need to import or remove substantial quantities of soil.

Stormwater will be managed through mowable grass basins and swales designed to temporarily collect runoff during rain events and then drain and dry over the following days. These areas are not intended to function as permanent ponds and will be incorporated into the maintained landscape. Final engineering, erosion-control, utility, fire-access, landscaping, and stormwater details will remain subject to City review.

4. Conditional Use Permit Standards

The City evaluates conditional use requests against the applicable standards in the City Code. The proposed Mankato campus satisfies each required finding as described below.

Standard 1: Allowed Conditional Use

City Standard: *The proposed use must be one of the conditional uses listed in the applicable zoning district.*

Applicant Response: Although the property is zoned B-3 Highway Commercial, residential care facilities are expressly listed as conditional uses within this district. The proposed licensed residential substance use disorder treatment facility qualifies as a residential care facility and is therefore eligible for consideration through the Conditional Use Permit process.

Permitting a professionally managed, low-turnover residential treatment campus will not set an inappropriate commercial precedent. The facility will operate with a fixed residential population rather than the continuous public influx characteristic of retail strip centers or other high-volume commercial establishments.

The facility will operate in accordance with the approved Conditional Use Permit, applicable B-3 district requirements, City building and land-use regulations, and Minnesota Department of Human Services licensing requirements.

Standard 2: Comprehensive Plan Consistency

City Standard: *The proposed use must be in keeping with the comprehensive planning policies of the City and applicable land-use regulations.*

Applicant Response: Mankato serves as a regional center for healthcare and human services in Southern Minnesota. The proposed facility is consistent with that regional role by expanding access to licensed residential substance use disorder treatment within the community.

Blue Earth County Human Services has identified a continuing regional need for substance use disorder services and has provided a letter supporting the Spirits at Rest project. The proposed Mankato campus will address the residential-treatment component of that need and will operate within the scope of care described in the Executive Summary.

The project is also consistent with orderly land-use planning. It places an expressly allowed conditional use within the B-3 Highway Commercial District on a site with access to municipal services and the regional transportation network. Unlike retail strip centers or high-volume commercial establishments, the facility will serve a fixed residential population rather than a continuous influx of public customers. Its controlled access, scheduled visitation, managed transportation, and professionally maintained campus are designed to remain compatible with surrounding commercial and recreational uses.

By strengthening the regional continuum of care while using the property in a planned and compatible manner, the proposed facility is consistent with the City's comprehensive planning and land-use objectives.

Standard 3: Protection of Surrounding Property Uses

City Standard: *The proposed use must not interfere with or diminish the use of property in the immediate vicinity.*

Applicant Response: The proposed facility is designed and will be operated to remain compatible with neighboring commercial and recreational uses. Most counseling, group programming, dining, administrative work, and recreational activities will occur within the building. Outdoor activities will be limited to designated areas, supervised by staff, and residential in character.

Although the residential program operates continuously, its traffic pattern is tied to a fixed onsite resident population and a managed operating schedule rather than repeated customer visits or impulse traffic. By-right retail, restaurant, and office uses in the B-3 district may generate recurring vehicle activity and peak-hour spikes through daily public patronage. In contrast, the facility's principal trips will be limited to predictable staff shifts, scheduled admissions and discharges, weekend visitation, deliveries, and coordinated client transportation. The property will not operate as a walk-in clinic or high-volume commercial establishment.

Controlled access, professional supervision, scheduled operations, landscaping, screening, and regular maintenance of the building and grounds will help minimize noise, lighting, traffic, and visual impacts. Based on its site design and managed operating model, the proposed use will not interfere with or diminish the reasonable use and enjoyment of surrounding properties.

Standard 4: Adequate Public Facilities and Services

City Standard: *The proposed use must be capable of being adequately served by public facilities and services.*

Applicant Response: The property is located within a developed commercial area served by public roadways and municipal infrastructure. Access to the site will be provided from Power Drive, and the project will connect to municipal water and sanitary-sewer systems in accordance with City requirements.

The civil plans prepared by Bolton & Menk address proposed utility connections, grading, drainage, stormwater management, and site access. The stormwater design includes mowable grass basins and swales that will temporarily collect runoff during rain events and then drain and dry. These features are not intended to function as permanent ponds. The grading plan also incorporates a berm along the western side of the property and is designed to manage drainage while keeping the site's earthwork close to balanced.

Final utility sizing, connection details, fire access, and stormwater calculations will be reviewed by City staff through the civil-plan, building-permit, and construction-approval processes. The applicant will complete any infrastructure modifications required by the City as part of those approvals.

Based on the property's location within the municipal service area and the infrastructure improvements shown in the submitted civil plans, the proposed facility can be adequately served by public facilities and services.

Standard 5: Traffic and Congestion

City Standard: *The proposed use must not cause undue traffic congestion.*

Applicant Response: Traffic will be generated by a fixed residential population and a managed operating schedule, rather than by continuous customer turnover. Clients will reside onsite and receive most treatment, meals, recreation, and support services within the facility.

Vehicle trips will consist primarily of employee arrivals and departures, scheduled admissions and discharges, weekend visitation, deliveries, and staff-coordinated client transportation. Unlike by-right retail, restaurant, or office uses in the B-3 district—which may experience continuous customer turnover, impulse visits, and peak-hour traffic spikes—the residential program serves a fixed onsite population and does not depend on repeated daily public visits. Admissions and discharges will generally occur between 9:00 a.m. and 5:00 p.m., while family visitation will be scheduled on weekends between 1:00 p.m. and 4:00 p.m. Staff scheduling, deliveries, and client transportation will be managed to avoid unnecessary concentrations of vehicle activity.

Access will be provided from Power Drive. The submitted site plan provides onsite parking and internal vehicle circulation for employees, visitors, deliveries, client drop-off and pickup, and emergency access. Final parking calculations, access details, and circulation requirements will be reviewed by City staff as part of the site-plan and building-permit processes.

Because occupancy is fixed, visitor activity is scheduled, and client transportation is coordinated, the project is expected to produce a more predictable traffic pattern than customer-oriented commercial uses. Based on these operating characteristics and the onsite circulation shown on the submitted plans, the proposed use will not cause undue traffic congestion on Power Drive or the surrounding roadway network.

Standard 6: Preservation of Historical and Architectural Resources

City Standard: *The proposed use must not adversely affect significant historical or architectural resources.*

Applicant Response: No designated historical buildings, landmarks, or significant architectural resources have been identified within the proposed project area.

The project involves construction of a new facility on the site and will not require the demolition or alteration of an identified historical structure. Accordingly, the proposed use is not expected to adversely affect historical or architectural resources.

Standard 7: Protection of Natural and Environmental Features

City Standard: *The proposed use must not adversely affect significant natural or environmental features.*

Applicant Response: The project has been designed to responsibly address the site's existing topography, vegetation, drainage, and stormwater conditions. The proposed building, parking, outdoor areas, and utility improvements will require grading and some disturbance of the existing site. These impacts will be managed through the coordinated civil, grading, stormwater, and landscaping plans prepared for the project.

The grading plan includes a berm along the western side of the property to provide screening and help integrate the development into the surrounding area. The site's raw earthwork is expected to remain close to balanced, limiting the need to import or remove substantial quantities of soil.

Stormwater will be managed through mowable grass basins and swales designed to temporarily collect runoff during rain events and then drain and dry over the following days. These areas will not function as permanent ponds and will be incorporated into the maintained landscape. Together with the integrated western berm, architectural investment, and professional property maintenance, these site improvements will enhance the visual and environmental quality of the Power Drive corridor.

Disturbed areas will be stabilized and landscaped in accordance with City requirements. Required trees, plantings, screening, and ground cover will be installed and maintained as shown on the approved landscaping plan. Final grading, erosion control, stormwater calculations, and landscaping details will remain subject to City review.

Based on these measures, the proposed development will responsibly manage its environmental impacts and will not adversely affect significant natural or environmental features.

Standard 8: Cumulative Effects on the City as a Whole

City Standard: *The proposed use must not cause a negative cumulative effect or negatively affect the City as a whole.*

Applicant Response: The proposed facility is not expected to create negative cumulative impacts on municipal infrastructure, transportation, public safety, or surrounding land uses. The size and intensity of the operation will be limited by the approved Conditional Use Permit, building occupancy requirements, and Minnesota Department of Human Services licensing standards.

Clients will reside onsite, and most treatment, dining, recreation, and recovery-support activities will occur within the facility. Admissions, discharges, visitation, deliveries, and client transportation will be scheduled and managed by staff. These operating practices will limit traffic, exterior activity, and demands on the surrounding roadway network.

The facility will maintain continuous onsite staffing, including licensed alcohol and drug counselors, clinical leadership, and nursing personnel appropriate to the licensed program, supporting a high staff-to-client ratio. Staff will be trained in crisis prevention, relational response, verbal intervention, and de-escalation. Written emergency protocols will direct staff to manage behavioral and medical concerns internally whenever appropriate, with local emergency responders contacted only when health needs exceed the facility's licensed scope or require outside emergency medical care. These practices will help prevent routine operational concerns from creating an undue cumulative demand on City emergency services.

When considered together with other commercial, institutional, and residential-care uses within the City, the proposed facility will not create an undue concentration of traffic, infrastructure demand, or adverse land-use impacts. The project will therefore not cause a negative cumulative effect or negatively affect the City as a whole.

Standard 9: Compliance with Other Applicable Regulations

City Standard: *The proposed use must comply with all other applicable City, state, and federal regulations.*

Applicant Response: The project will be developed and operated in accordance with all applicable land-use, building, fire-safety, accessibility, environmental, and licensing requirements.

- Conditional Use Permit and site-plan approvals
- City building and related construction permits
- Approval of final grading, drainage, stormwater, utility, access, parking, and landscaping plans

- Applicable fire and life-safety approvals
- Minnesota Department of Human Services licensing for the proposed residential treatment program
- Any other permits or approvals required for construction and operation

The facility will operate within the scope of its state license and the conditions established through the City's approval. Approval of the Conditional Use Permit will not replace or supersede any separate building, engineering, fire-safety, environmental, or state licensing requirements.

Based on the submitted plans and the applicant's commitment to completing all required reviews and approvals, the proposed use can comply with applicable City, state, and federal regulations.

Standard 10: General Welfare and Public Interest

City Standard: *The proposed use must not be detrimental to the health, safety, morals, comfort, convenience, or general welfare of the community.*

Applicant Response: The proposed facility will operate as a licensed, professionally staffed residential substance use disorder treatment program. Continuous staffing, controlled access, written operating policies, scheduled admissions and visitation, managed transportation, medication protocols, and established emergency procedures will support the safe and orderly operation of the facility.

The program will maintain an alcohol- and drug-free environment. Clients will be admitted only after being assessed as appropriate for the facility's licensed level of care, consistent with the admission and referral procedures described in the Executive Summary.

Most treatment, dining, recreation, and recovery-support activities will occur onsite within a structured and supervised environment. Client movement offsite will be strictly managed and coordinated by staff as part of the treatment plan, preventing unmanaged wandering or unauthorized departures into surrounding commercial and residential areas. The building, grounds, landscaping, parking areas, and outdoor spaces will be professionally maintained. Together, the site design and operating practices are intended to minimize traffic, noise, lighting, and other potential effects on neighboring properties.

Spirits at Rest has operated substance use disorder treatment and supportive housing programs in Montgomery since July 2020 and has served more than 300 clients. This operating experience provides an established foundation for managing the proposed Mankato facility responsibly and in compliance with applicable licensing and land-use requirements.

Based on the facility's professional staffing, controlled operations, site design, and regulatory oversight, the proposed use will not be detrimental to the health, safety, comfort, convenience, or general welfare of the community.

5. Community Information and Outreach

Spirits at Rest and The Factor Group are committed to an open and transparent community-information process. The outreach described below supplements, but does not replace, the City's formal notice, hearing, and review procedures.

The Project Schedule & Key Dates summary near the beginning of this narrative identifies the application, open-house, Planning Commission, and anticipated City Council dates.

Mailed Notices: The City will provide required notice to property owners within 450 feet in accordance with its established process.

Direct Neighborhood Outreach: Spirits at Rest will provide broader informational outreach to the neighborhood north of Augusta Drive, direct residents to project information and frequently asked questions, and conduct door knocking before the public hearing.

Community Information Open House: Spirits at Rest will host an informational open house before the public hearing. Representatives of Spirits at Rest and the project team will present the proposal, answer questions, and receive community feedback.

Ongoing Neighborhood Communication: Beyond the public-hearing process, Spirits at Rest will maintain a designated point of contact for neighboring property owners so operational questions and community feedback can be addressed promptly after the facility begins operation.

6. Conclusion and Request for Approval

The proposed Spirits at Rest Mankato campus will establish a licensed residential substance use disorder treatment facility at 50 Power Drive within the B-3 Highway Commercial District.

As demonstrated by this narrative and the accompanying architectural, civil, grading, stormwater, landscaping, and operational materials, the project has been designed to satisfy the City's Conditional Use Permit standards. Its residential operating model, continuous professional staffing, controlled access, scheduled admissions and visitation, managed transportation, onsite programming, and maintained campus will support compatibility with surrounding properties.

The facility will operate within the scope of its Minnesota Department of Human Services license and comply with applicable City permitting, building, fire-safety, accessibility, engineering, environmental, and land-use requirements. Final technical details will remain subject to review and approval by the appropriate City departments and regulatory agencies.

Since receiving its initial treatment license in July 2020, Spirits at Rest has served more than 300 clients through its Montgomery operations. This experience provides an established foundation for operating the proposed Mankato facility responsibly, professionally, and in compliance with applicable licensing and land-use requirements.

For these reasons, Spirits at Rest respectfully requests that the City of Mankato approve the Conditional Use Permit for the proposed residential substance use disorder treatment facility at 50 Power Drive, subject to the plans submitted with the application and any reasonable conditions established through the City's review process.

Exhibit A

Blue Earth County Human Services Letter of Support



BLUE EARTH COUNTY

Effectively and Efficiently Delivering Essential Services

www.blueearthcountymn.gov

COMMISSIONERS

District 1 Patty O'Connor
District 2 Vance Stuehrenberg
District 3 Mark Piepho
District 4 Kevin Paap
District 5 Kip Bruender

Blue Earth County
Human Services Department
July 16th, 2026

To Whom It May Concern,

Blue Earth County is writing to express support for efforts to expand residential substance use treatment and detoxification services within our community. The need for these services has continued to grow, and we recognize the critical role that such programs play in improving safety, health outcomes, and long-term stability for individuals experiencing substance use challenges.

At present, Blue Earth County does not have a locally operated residential substance use treatment facility or detoxification center. Individuals in acute crisis must often seek care outside the area, which can result in delays, transportation barriers, and interruptions in service continuity. These gaps place additional strain on families, emergency departments, shelters, law enforcement, crisis providers, and the community at large.

A locally accessible treatment and detox service would help ensure that individuals receive:

- Timely and medically appropriate withdrawal support
- A safe and structured environment for stabilization
- An uninterrupted transition to ongoing treatment and recovery services
- Reduced reliance on emergency and law enforcement interventions
- Improved long-term outcomes and continuity of care

Blue Earth County has seen increasing community collaboration around substance use concerns, with many partners expressing the same need for expanded services. We strongly support continued exploration and development of residential treatment and detoxification options within our region. We appreciate and encourage any organization or initiative seeking to strengthen the continuum of care for individuals experiencing substance use disorders.

BLUE EARTH COUNTY
Effectively and Efficiently Delivering Essential Services
www.blueearthcountymn.gov

COMMISSIONERS
District 1 Patty O'Connor
District 2 Vance Stuehrenberg
District 3 Mark Piepho
District 4 Kevin Paap
District 5 Kip Bruender

expanding treatment and detoxification services in Blue Earth County. Efforts to enhance the local continuum of care are essential, and we welcome ongoing dialogue to support the development of these critical resources.

Sincerely,

Andrew Carr
Human Services Supervisor
Blue Earth County Human Services

Exhibit B

Existing Minnesota DHS License - Montgomery Operations

License Holder	Spirits at Rest
License Number	1103887
Identification Number	6528205
License Status	Active
Type of Service	Substance Use Disorder Treatment
Licensed Setting	Non-Residential Treatment
Population Served	Adults age 18 and older; all genders
Initial Effective Date	July 22, 2020
Last Renewal	January 1, 2026
Next Renewal Due	December 31, 2026

This exhibit documents Spirits at Rest's existing Montgomery treatment license and operating experience. It is not licensing approval for the proposed Mankato residential program. The Mankato facility must obtain its own applicable state approvals before opening.

Official license record: Minnesota DHS Licensing Information Lookup

Exhibit C

Frequently Asked Questions - Public Reference

Spirits at Rest Proposed Mankato Campus

1. What is Spirits at Rest proposing?

Spirits at Rest is proposing a licensed residential substance use disorder treatment facility at 50 Power Drive in Mankato. Clients will reside onsite while participating in structured treatment, counseling, recovery education, recreation, and personal-reflection activities.

2. Will the facility provide detoxification or hospital-level medical care?

No. Detoxification and hospital-level medical procedures are not proposed. Individuals requiring those services will be referred to appropriate outside providers.

3. How will clients be admitted?

Prospective clients will be assessed before admission to determine whether the facility provides the appropriate level of care. Clients whose medical, behavioral-health, or detoxification needs exceed the facility's licensed scope will be referred elsewhere.

4. What will a typical day include?

Clients will follow a structured schedule that includes individual and group counseling, recovery education, peer-support activities, recreation, meals, and personal reflection. Most daily activities will occur onsite.

5. Will the facility operate 24 hours a day?

Yes. Because it is a residential program, the facility will operate continuously with trained staff and licensed professionals onsite. Admissions and discharges will generally occur between 9:00 a.m. and 5:00 p.m. Family visitation will be scheduled on weekends between 1:00 p.m. and 4:00 p.m.

6. How will safety and security be managed?

The facility will maintain an alcohol- and drug-free environment governed by written policies. Safety measures will include continuous staffing, controlled building access, alarmed exterior doors and windows, overnight client checks, medication protocols, emergency procedures, and staff training in crisis prevention and de-escalation.

7. What traffic will the facility generate?

Vehicle activity will primarily consist of employee arrivals and departures, scheduled admissions and discharges, weekend visitation, deliveries, and staff-coordinated transportation. Because clients reside onsite and receive most services there, the facility will not generate the frequent customer turnover associated with a walk-in clinic or high-volume commercial use.

8. How will neighboring properties be protected?

Most treatment and daily activities will occur inside the building. Outdoor activities will be limited to designated, supervised areas. Landscaping, screening, the western berm, managed lighting, scheduled operations, and professional property maintenance will help minimize noise, traffic, and visual impacts.

9. What experience does Spirits at Rest have?

Spirits at Rest has operated substance use disorder treatment and supportive housing programs in Montgomery since July 2020 and has served more than 300 clients.

10. What approvals will be required before the facility opens?

In addition to the Conditional Use Permit, the project must obtain applicable City construction, engineering, building, fire-safety, accessibility, and site-plan approvals. The residential program must also receive the appropriate Minnesota Department of Human Services licensing before beginning operations.

11. Where can community members obtain additional information?

Operational and program information will be available at spiritsatrest.com. Questions may be directed to Jeremy Gerres, Founder, at 507-953-0172 or jeremy@spiritsatrest.com. Questions about zoning, the CUP process, public hearings, or City requirements should be directed to the City of Mankato.

Exhibit D

Community Open House Invitation

Spirits at Rest Proposed Mankato Campus

Dear Neighbor:

Spirits at Rest invites you to attend a community open house regarding its proposed licensed residential substance use disorder treatment facility at 50 Power Drive in Mankato. The project is being reviewed through the City of Mankato's Conditional Use Permit process.

Date: Monday, August 24, 2026

Time: 6:30 p.m. - 8:00 p.m.

Location: TBD

Representatives from Spirits at Rest and the project team will provide information about:

- The organization's mission and treatment program
- Proposed building and site plans
- Daily operations, staffing, safety, and security
- Traffic, parking, and neighborhood compatibility
- The City's review and approval process

Attendees will have an opportunity to ask questions, provide feedback, and speak directly with members of the project team. Project information, including plans and frequently asked questions, will also be available at spiritsatrest.com.

We value an open and transparent process and appreciate the opportunity to share information and hear from our neighbors.

Sincerely,

Jeremy Gerres
Founder, Spirits at Rest
507-953-0172
jeremy@spiritsatrest.com

Exhibit E

Community Inquiry Resources for City Staff

To: City of Mankato Staff

From: Spirits at Rest and The Factor Group

Subject: Resources for Questions Regarding the Proposed Spirits at Rest Facility

Property: 50 Power Drive, Mankato, Minnesota

Spirits at Rest is providing the following resources to assist City staff in directing questions regarding the proposed residential substance use disorder treatment facility. These resources are not intended to replace the City's independent review or its established public-notice, hearing, and approval procedures.

1. Program and Operational Information

Questions regarding Spirits at Rest, its treatment program, proposed operations, staffing, safety practices, or the services to be provided may be directed to spiritsatrest.com. The website will include project information, proposed plans, and answers to frequently asked questions.

2. Direct Contact with Spirits at Rest

Jeremy Gerres, Founder | Spirits at Rest | 507-953-0172 | jeremy@spiritsatrest.com

3. Community Open House

Date: Monday, August 24, 2026

Time: 6:30 p.m. - 8:00 p.m.

Location: TBD

Representatives from Spirits at Rest and the project team will present information, answer questions, and receive community feedback.

4. City Review and Technical Questions

Questions regarding zoning requirements, the Conditional Use Permit process, public notices, hearing dates, applicable City Code provisions, or the City's technical review should remain with the appropriate City department.

City staff should respond to these matters based on the City Code, the submitted application materials, established review procedures, and the City's independent evaluation of the proposal.

Exhibit F

Demonstrated Community Need

Blue Earth County Human Services has identified a continuing regional need for substance use disorder services and has provided written support for the proposed Spirits at Rest project. The County's July 16, 2026 letter is included as Exhibit A and incorporated into this exhibit by reference.

Blue Earth County's Community Resource Guide identifies existing assessment, outpatient treatment, peer-recovery, harm-reduction, and community-support resources serving the Mankato area. The proposed Spirits at Rest facility is intended to complement this existing network by providing licensed residential treatment for individuals who have been assessed as appropriate for that level of care.

The proposed facility will address one part of the regional continuum: licensed residential treatment. Its scope-of-care limitations and referral procedures are summarized in the Executive Summary and explained directly in the Frequently Asked Questions (Exhibit C).

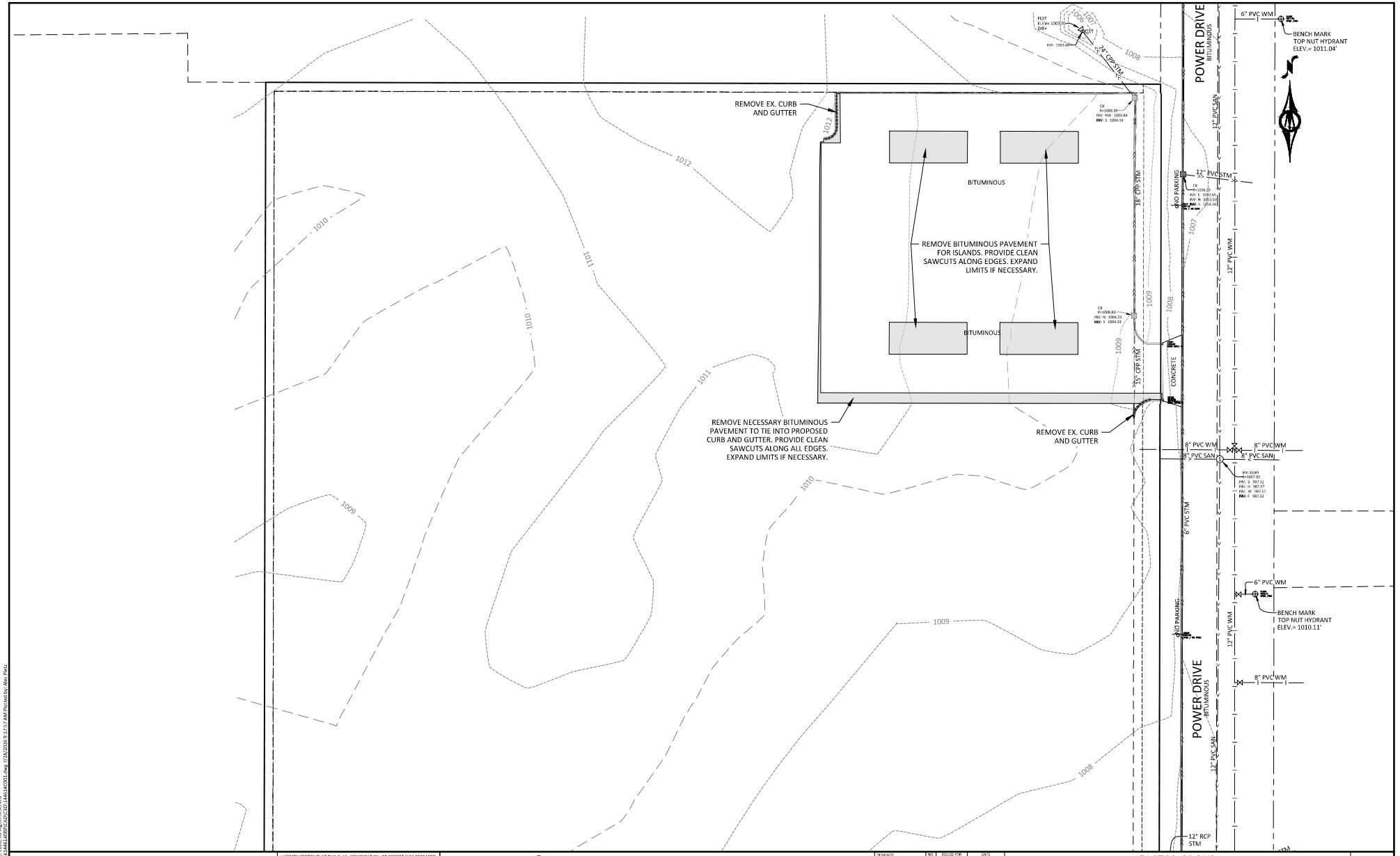
Minnesota continues to track fatal and nonfatal overdoses at the county level, demonstrating that substance use and overdose remain ongoing public-health concerns throughout the state.

The proposed Mankato campus will expand the range of treatment options available in Southern Minnesota while working in coordination with existing healthcare, human-services, and recovery-support providers.

Sources

Blue Earth County Community Resource Guide: blueearthcountymn.gov/DocumentCenter/View/24

Minnesota Department of Health overdose data: health.state.mn.us/communities/injury/midas/drugdeath.html



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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

BOLTON & MENK

1960 PREMIER DRIVE
MANKATO, MN 56001
Phone: (507) 625-4171
Email: Mankato@bolton-menk.com
www.bolton-menk.com

DESIGNED	AWP
DRAWN	AWP
CHECKED	AWP
CLIENT PROJ. NO.	26X.144614

NO.	ISSUED FOR	DATE

FACTOR GROUP
SPIRITS AT REST
EXISTING CONDITIONS & REMOVAL PLAN

SHEET C0.01

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FACTOR GROUP

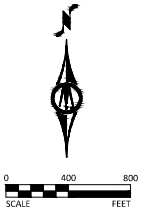
CONSTRUCTION PLANS FOR

SPIRITS AT REST

SITE GRADING, UTILITIES, STORMWATER MANAGEMENT, PAVEMENT CONSTRUCTION

JULY 2026

MAP OF THE
CITY OF MANKATO
BLUE EARTH COUNTY, MN





SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01	TITLE SHEET
G0.02	LEGEND
G1.01	PROJECT OVERVIEW
CIVIL	
C0.01	EXISTING CONDITIONS & REMOVAL PLAN
C1.01 - C1.03	CONSTRUCTION DETAILS
C2.01 - C2.06	STORMWATER POLLUTION PREVENTION PLAN
C3.01 - C3.04	GRADING PLAN
C4.01	UTILITY PLAN
C5.01	SITE PLAN
L1.01 - L1.02	PLANTING PLAN & DETAILS

THIS PLAN SET CONTAINS 21 SHEETS.

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

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✦ BM=1010.11
TOP NUT HYDRANT
EAST SIDE OF POWER DRIVE
DIRECT EAST OF PROJECT

PROJECT DATUM: BLUE EARTH COUNTY
HORIZONTAL: 2011 COUNTY COORDINATES
VERTICAL: NAVD 1988

RECORD DRAWING INFORMATION
OBSERVER:
CONTRACTOR:
DATE:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

BOLTON & MENK

1960 PREMIER DRIVE
MANKATO, MN 56001
Phone: (507) 625-4171
Email: Mankato@bolton-menk.com
www.bolton-menk.com

DESIGNED	AWP
DRAWN	AWP
CHECKED	AWP
CLIENT PROJ. NO.	26X.144614

NO.	ISSUED FOR	DATE

FACTOR GROUP
SPIRITS AT REST
TITLE SHEET

SHEET G0.01

EXISTING TOPOGRAPHIC SYMBOLS

- ACCESS GRATE
- AIR CONDITION UNIT
- ANTENNA
- AUTO SPRINKLER CONNECTION
- BARRICADE PERMANENT
- BASKETBALL POST
- BENCH
- BIRD FEEDER
- BOLLARD
- BUSH
- CATCH BASIN RECTANGULAR CASTING
- CATCH BASIN CIRCULAR CASTING
- CURB STOP
- CLEAN OUT
- CULVERT END
- DRINKING FOUNTAIN
- DOWN SPOUT
- FILL PIPE
- FIRE HYDRANT
- FLAG POLE
- FLARED END / APRON
- FUEL PUMP
- GRILL
- GUY WIRE ANCHOR
- HANDHOLE
- HANDICAP SPACE
- IRRIGATION SPRINKLER HEAD
- IRRIGATION VALVE BOX
- LIFT STATION CONTROL PANEL
- LIFT STATION
- LIGHT ON POLE
- LIGHT-GROUND
- MAILBOX
- MANHOLE-COMMUNICATION
- MANHOLE-ELECTRIC
- MANHOLE-GAS
- MANHOLE-HEAT
- MANHOLE-SANITARY SEWER
- MANHOLE-STORM SEWER
- MANHOLE-UTILITY
- MANHOLE-WATER
- METER
- ORDER MICROPHONE
- PARKING METER
- PAVEMENT MARKING
- PEDESTAL-COMMUNICATION
- PEDESTAL-ELECTRIC
- PEDESTRIAN PUSH BUTTON
- PICNIC TABLE
- POLE-UTILITY
- POLE-BRACE
- POST
- RAILROAD SIGNAL POLE
- REGULATION STATION GAS
- SATELLITE DISH
- SIGN NON TRAFFIC
- SIGN TRAFFIC
- SIGNAL CONTROL CABINET
- SOIL BORING
- SIREN
- TELEPHONE BOOTH
- TILE INLET
- TILE OUTLET
- TILE RISER
- TRANSFORMER-ELECTRIC
- TREE-CONIFEROUS
- TREE-DEAD
- TREE-DECIDUOUS
- TREE STUMP
- TRAFFIC ARM BARRIER
- TRAFFIC SIGNAL
- TRASH CAN
- UTILITY MARKER
- VALVE
- VALVE POST INDICATOR
- VALVE VAULT
- VAULT
- VENT PIPE
- WATER SPIGOT
- WELL
- WETLAND DELINEATED MARKER
- WETLAND
- WET WELL
- YARD HYDRANT

PROPOSED TOPOGRAPHIC SYMBOLS

- CLEANOUT
- MANHOLE
- LIFT STATION
- STORM SEWER CIRCULAR CASTING
- STORM SEWER RECTANGULAR CASTING
- STORM SEWER FLARED END / APRON
- STORM SEWER OUTLET STRUCTURE
- STORM SEWER OVERFLOW STRUCTURE
- CURB BOX
- FIRE HYDRANT
- WATER VALVE
- WATER REDUCER
- WATER BEND
- WATER TEE
- WATER CROSS
- WATER SLEEVE
- WATER CAP / PLUG
- RIP RAP
- DRAINAGE FLOW
- TRAFFIC SIGNS

SURVEY SYMBOLS

- BENCHMARK LOCATION
- CONTROL POINT
- MONUMENT FOUND
- CAST IRON MONUMENT
- STONE MONUMENT

EXISTING TOPOGRAPHIC LINES

- RETAINING WALL
- FENCE
- FENCE-DECORATIVE
- GUARD RAIL
- TREE LINE
- BUSH LINE

SURVEY LINES

- CONTROLLED ACCESS
- BOUNDARY
- CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- SETBACK LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- TEMPORARY EASEMENT

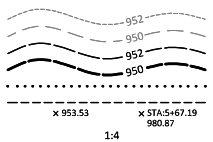
EXISTING UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE

PROPOSED UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE
- PIPE CASING
- TRENCHLESS PIPE (PLAN VIEW)
- TRENCHLESS PIPE (PROFILE VIEW)

GRADING INFORMATION



- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED GRADING LIMITS / SLOPE LIMITS
- PROJECT LIMITS
- PROPOSED SPOT ELEVATION
- RISE:RUN (SLOPE)

HATCH PATTERNS

- BITUMINOUS
- GRAVEL
- CONCRETE

EXISTING PRIVATE UTILITY LINES

NOTE:
EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA"

- UNDERGROUND FIBER OPTIC
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND COMMUNICATION
- OVERHEAD ELECTRIC
- OVERHEAD COMMUNICATION
- OVERHEAD UTILITY

UTILITIES IDENTIFIED WITH A QUALITY LEVEL :

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL
EXAMPLE: G-A G-A UNDERGROUND GAS, QUALITY LEVEL A
UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-02.

UTILITY QUALITY LEVELS:

QUALITY LEVEL D: PROVIDES THE MOST BASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. RECORDS MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES, CONSTRUCTION PLANS, ETC.

QUALITY LEVEL C: INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. INCLUDES QUALITY LEVEL D ACTIVITIES.

QUALITY LEVEL B: INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND COLLECTING THE INFORMATION THROUGH A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL A: PROVIDES THE HIGHEST LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN QUALITY LEVELS B, C, AND D. THE LOCATED FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND PROFILE INFORMATION.

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT
ADJ	ADJUST	GU	GUTTER	RT	RIGHT
ALT	ALTERNATE	GV	GATE VALVE	SAN	SANITARY SEWER
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BIT	BITUMINOUS	HH	HANDHOLE	SERV	SERVICE
BLDG	BUILDING	HP	HIGH POINT	SHLD	SHOULDER
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STA	STATION
BR	BEGIN RADIUS	HYD	HYDRANT	STD	STANDARD
BV	BUTTERFLY VALVE	I	INVERT	STM	STORM SEWER
CB	CATCH BASIN	K	CURVE COEFFICIENT	TC	TOP OF CURB
C&G	CURB AND GUTTER	L	LENGTH	TE	TEMPORARY EASEMENT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TEMP	TEMPORARY
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	TNH	TOP NUT HYDRANT
CL	CENTER LINE	LT	LEFT	TP	TOP OF PIPE
CL.	CLASS	MAX	MAXIMUM	TYP	TYPICAL
CLVT	CULVERT	MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VERT	VERTICAL
C.O.	CHANGE ORDER	MR	MID RADIUS	VPC	VERTICAL POINT OF CURVE
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	VPI	VERTICAL POINT OF INTERSECTION
CON	CONCRETE	NMC	NON-METALLIC CONDUIT	VPT	VERTICAL POINT OF TANGENT
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE	WM	WATERMAIN
DIA	DIAMETER	NWL	NORMAL WATER LEVEL		
DIP	DUCTILE IRON PIPE	OHW	ORDINARY HIGH WATER LEVEL		
DWY	DRIVEWAY	PC	POINT OF CURVE	AC	ACRES
E	EXTERNAL CURVE DISTANCE	PCC	POINT OF COMPOUND CURVE	CF	CUBIC FEET
ELEC	ELECTRIC	PE	PERMANENT EASEMENT	CV	COMPACTED VOLUME
ELEV	ELEVATION	PED	PEDESTRIAN, PEDESTAL	CY	CUBIC YARD
EOF	EMERGENCY OVERFLOW	PERF	PERFORATED PIPE	EA	EACH
ER	END RADIUS	PERM	PERMANENT	EV	EXCAVATED VOLUME
ESMT	EASEMENT	PI	POINT OF INTERSECTION	LB	POUND
EX	EXISTING	PL	PROPERTY LINE	LF	LINEAR FEET
FES	FLARED END SECTION	PRC	POINT OF REVERSE CURVE	LS	LUMP SUM
F-F	FACE TO FACE	PT	POINT OF TANGENT	LV	LOOSE VOLUME
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE PIPE	SF	SQUARE FEET
F&I	FURNISH AND INSTALL	PVMT	PAVEMENT	SV	STOCKPILE VOLUME
FM	FORCEMAIN	R	RADIUS	SY	SQUARE YARD
FO	FIBER OPTIC	R/W	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RCP	REINFORCED CONCRETE PIPE		
GRAN	GRANULAR	RET	RETAINING		

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ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

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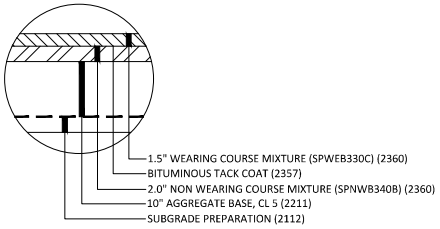
CLIENT PROJ. NO.	26X.144614

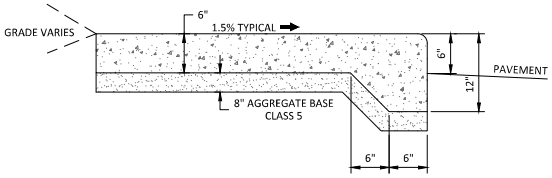
NO.	ISSUED FOR	DATE

FACTOR GROUP
SPIRITS AT REST
LEGEND

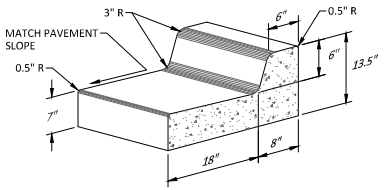
SHEET G0.02



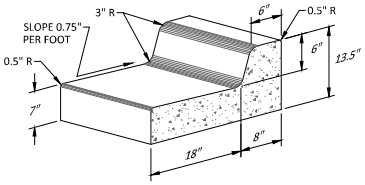
BITUMINOUS PAVEMENT SECTION
NOT TO SCALE



6" THICKENED EDGE WALK
NOT TO SCALE



CONCRETE CURB & GUTTER
DESIGN B618, GUTTER OUT
NOT TO SCALE



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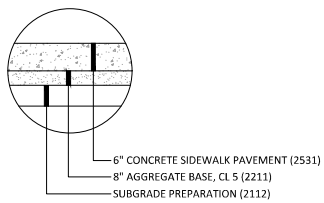
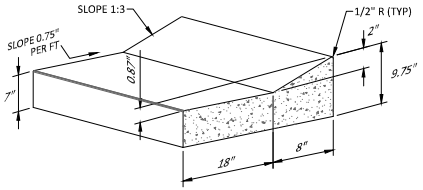
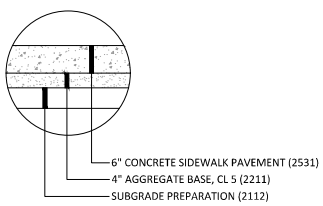


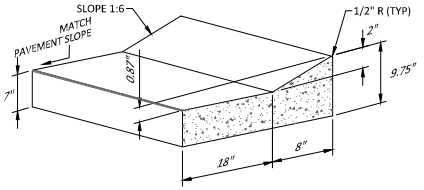
6" CONCRETE APRON
NOT TO SCALE



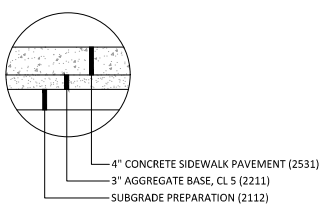
CONCRETE CURB & GUTTER
DESIGN D218
NOT TO SCALE



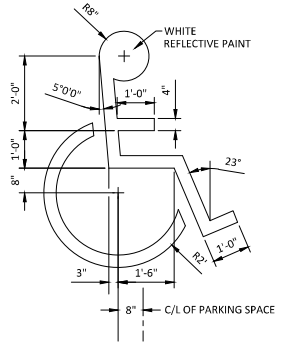
6" CONCRETE WALK
NOT TO SCALE



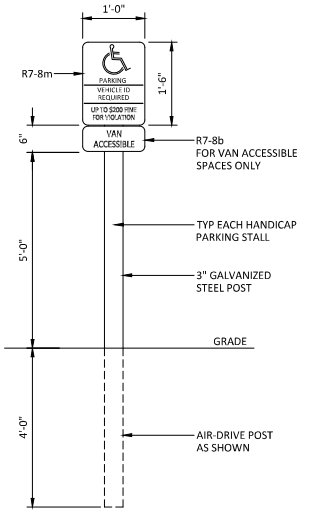
CONCRETE CURB & GUTTER
DESIGN D218, GUTTER OUT
NOT TO SCALE



4" CONCRETE WALK
NOT TO SCALE



INTERNATIONAL
ACCESSIBLE SYMBOL
NOT TO SCALE



ACCESSIBLE PARKING SIGN
NOT TO SCALE

NOTE:
SIDEWALKS, DRIVEWAYS, AND PEDESTRIAN RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH CURRENT MNDOT STANDARD PLANS 5-297.250 & 5-297.254

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LIC. NO. 59617 DATE XX/XX/XXXX

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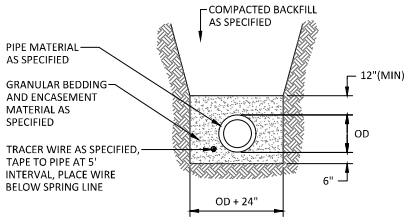
CHECKED	AWP			
CLIENT PROJ. NO.	26X.144614			

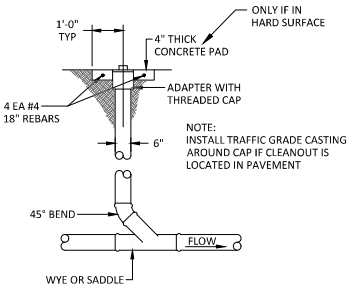
FACTOR GROUP
SPIRITS AT REST
SURFACE CONSTRUCTION DETAILS

SHEET
C1.01



NON-RIGID SANITARY SEWER TRENCH

NOT TO SCALE

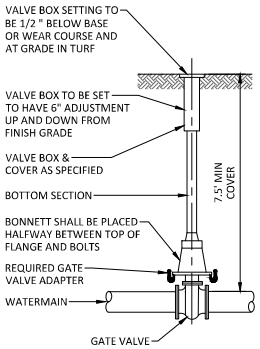


SANITARY SEWER CLEANOUT

NOT TO SCALE

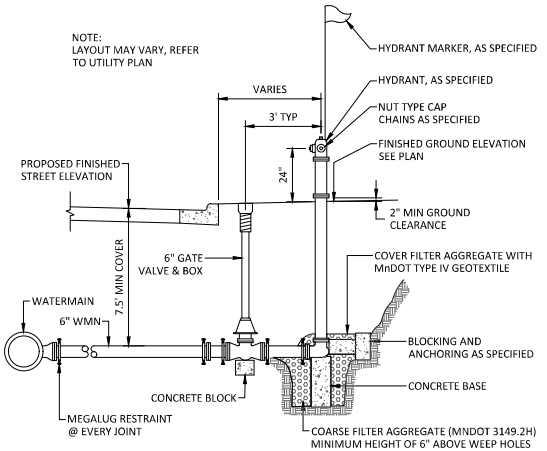
NOTES:

1. VALVE BOX SHALL BE CENTERED ON OPERATING NUTS, STRAIGHT, FREE FROM DEBRIS, AND ALL SECTIONS UNBROKEN
2. VALVES IN EASEMENTS SHALL HAVE CHANNEL POST WITNESS MARKERS WITH REFLECTIVE "GV" SIGN
3. DEEP VALVES SHALL HAVE NUT EXTENSIONS INSTALLED TO ELEVATION TO ACCOMMODATE STANDARD 10' KEY; BOTTOM NUT SHALL BE BOLTED TO VALVE NUT AND ONLY ONE SECTION
4. COMPACTION WITH MECHANICAL TAMPER AROUND VALVE BOX SHALL BE PLACED AND COMPACTED WITH 2' LIFTS TO ACHIEVE 95% COMPACTION
5. GATE VALVES LOCATED WITHIN THE CONCRETE SIDEWALK SHALL INCLUDE A METAL SEPARATOR BETWEEN THE VALVE BOX AND THE CONCRETE



GATE VALVE BOX INSTALLATION

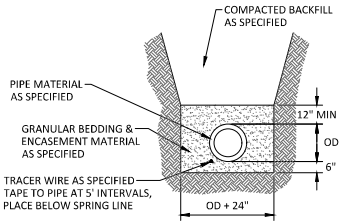
NOT TO SCALE



HYDRANTS LOCATED WHERE THE GROUNDWATER TABLE IS ABOVE THE DRAIN OUTLET SHALL HAVE THE OUTLET DRAIN PLUGGED AND SHALL BE EQUIPPED WITH A TAG STATING "PUMP AFTER USE"

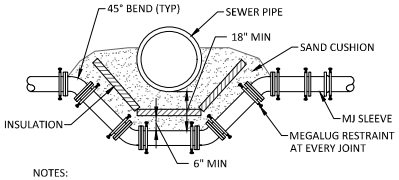
HYDRANT INSTALLATION, MEGALUGS

NOT TO SCALE



WATERMAIN TRENCH

NOT TO SCALE

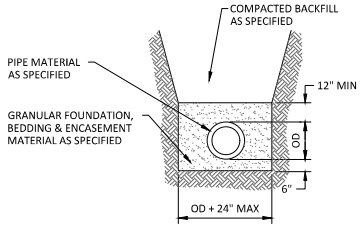


NOTES:

1. PROVIDE MEGALUG RESTRAINT AT JOINT ON BENDS AND AS SHOWN THIS DETAIL
2. COAT ALL ANCHORAGE AS PER SPECS
3. PROVIDE SAND CUSHION BETWEEN TOP OF WATERMAIN AND BOTTOM OF SEWER PIPE, MIN DIMENSIONS AS SHOWN THIS DETAIL (INCIDENTAL)
4. INSULATION TO BE 2" THICK POLYSTYRENE (IF NECESSARY, INCIDENTAL)

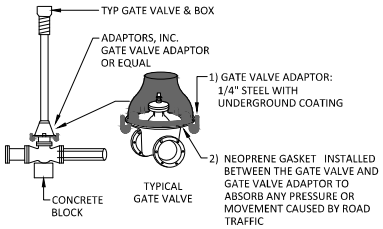
WATERMAIN OFFSET

NOT TO SCALE



NON-RIGID STORM SEWER TRENCH

NOT TO SCALE



GATE VALVE ADAPTOR

NOT TO SCALE

TRACER WIRE NOTE:
REFER TO THE MINNESOTA RURAL WATER ASSOCIATION (MRWA) TRACER WIRE SPECIFICATION GUIDE & DETAILS TO PROPERLY INSTALL TRACER WIRE WITH WATERMAIN AND SANITARY SEWER. THE GUIDE CAN BE FOUND AT:
mrwa.com/tools.html - Tracer Wire Specification Guide & Details

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CHECKED	AWP
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NO.	ISSUED FOR	DATE

FACTOR GROUP
SPIRITS AT REST
UTILITY DETAILS

SHEET
C1.02

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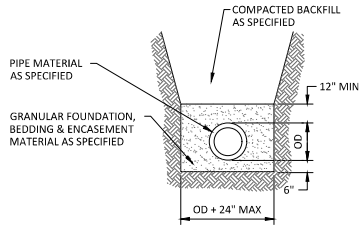
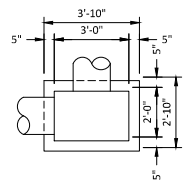
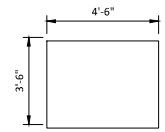


NON-RIGID STORM SEWER TRENCH

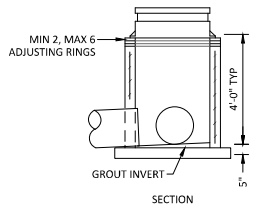
NOT TO SCALE



CATCH BASIN PLAN



BASE SLAB PLAN



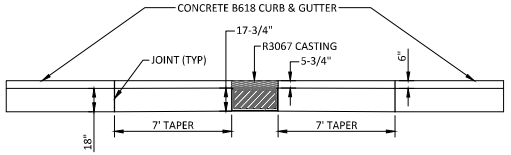
SECTION

NOTES:

1. CASTING PER CONSTRUCTION DOCUMENTS
2. PIPE CUT-OUTS PER CONSTRUCTION DOCUMENTS
3. ALTERNATE CAST-IN-PLACE BASE CAN BE USED
4. MIN REINFORCING SHALL BE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ IN PER FOOT IN BOTH DIRECTIONS

CATCH BASIN STRUCTURE
DESIGN R-1 (2'x3')

NOT TO SCALE



CATCHBASIN - CURB DETAIL FOR R-3067
IN "B" STYLE CURB

NOT TO SCALE

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DESIGNED	AWP	NO.	ISSUED FOR	DATE
DRAWN	AWP			
CHECKED	AWP			
CLIENT PROJ. NO.	26X.144614			

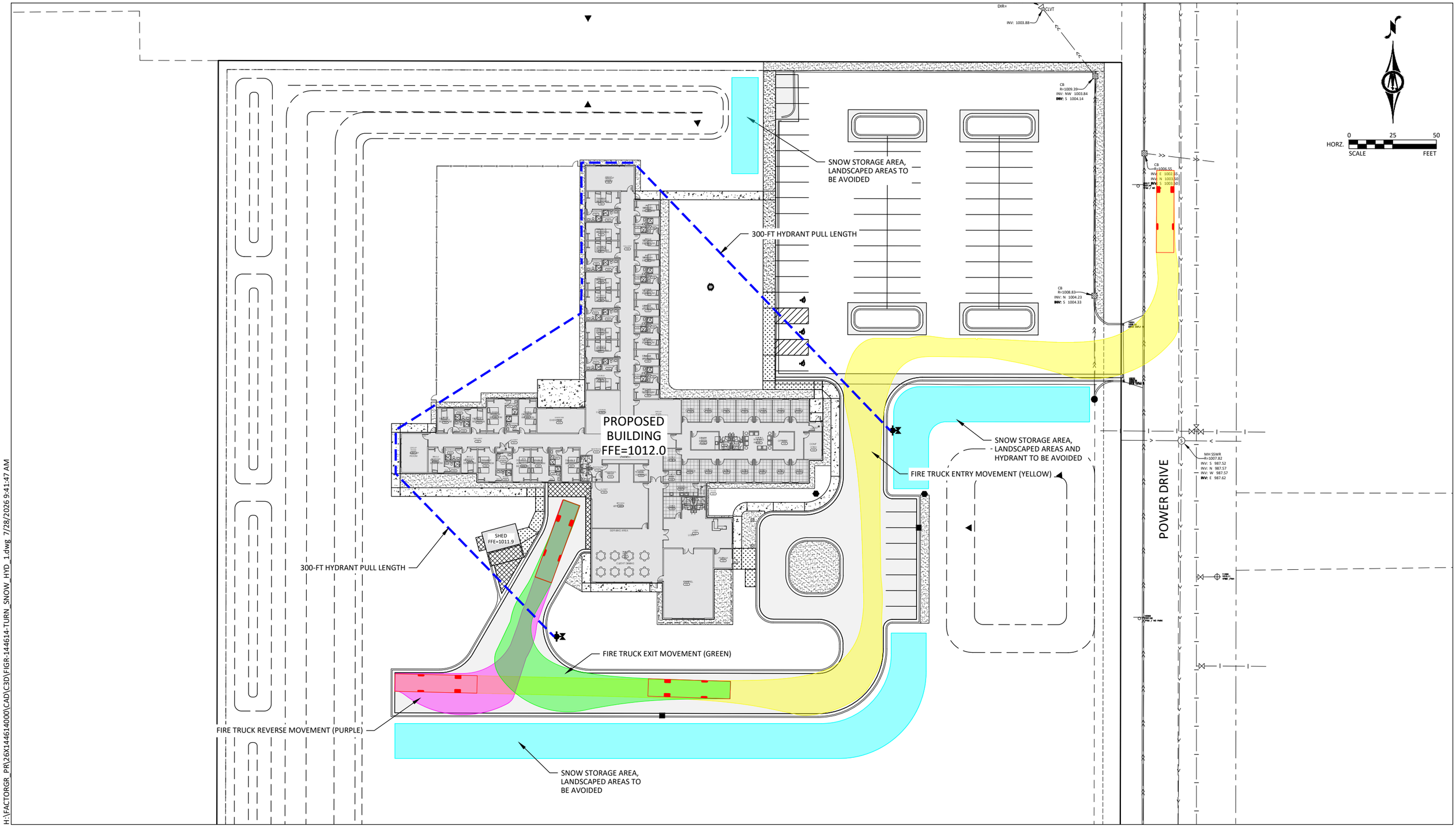
FACTOR GROUP
SPIRITS AT REST
STORM SEWER DETAILS

SHEET C1.03

Spirits at Rest
Mankato, Minnesota

Turning Movements, Snow Management, and Hydrant Coverage
July 2026

BOLTON & MENK



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Mankato, MN 56001

Phone: (507) 625-4171
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July 28, 2026

Cory Bienfang
City Engineer
City of Mankato
Desk: 507-387-8643

Reference: Spirits at Rest Treatment Facility
Mankato. MN

Subject: Trip Generation Memorandum

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: _____
Anna Irby, P.E.
License No. 63412

Date: July 28, 2026

This letter has been prepared to provide the trip generation potential and projected distribution for the proposed 40-bed treatment facility west of Power Drive in Mankato, MN. A site plan and site location map have been attached for reference.

Trip Generation

The proposed facility is estimated to include 40 inpatient treatment beds with 12 employees on the largest shift. Additionally, there is a planned on-site community meeting space for 10-20 people that is expected to be used once daily during the week. Average weekday daily, AM peak hour, and PM peak hour trips for multiple land use codes were estimated using methodology contained within the ITE *Trip Generation Manual*, 12th Edition. Since there was not one land use code that fully represented the site, multiple options were considered and are described below:

- LUC 610 – Hospital: an institution where medical or surgical care and overnight accommodations are provided to non-ambulator and ambulatory patients.
- LUC 253 – Congregate Care Facility: an independent living development that provides centralized amenities such as dining, housekeeping, transportation, and organized social/recreational activities.
- LUC 254 – Assisted Living: a residential setting that provides either routine protective oversight or assistance with activities necessary for independent living with mental or physical limitations.
- LUC 255 – Continuing Care Retirement Community: facility that enables a resident to transition from independent living to increased care as medical needs of the resident

change. Housing options include a combination of senior adult housing, congregate care, assisted living and nursing home.

Proposed Trip Generation Summary

Land Use (ITE Code)	Intensity	Daily Traffic (vpd)	Weekday AM Peak Hour Trips (vph)			Weekday PM Peak Hour Trips (vph)		
			Enter	Exit	Total	Enter	Exit	Total
Hospital (610)	40 Beds	955	52	20	72	22	46	68
Congregate Care Facility (253)	40 Units	97	2	2	4	3	4	7
Assisted Living (254)	40 Beds	166	6	4	10	6	8	14
Continuing Care Retirement Community (255)	40 Units	664	24	13	37	28	43	71

LUC 610: Hospital provides the most conservative trip generation which estimated the proposed development generating approximately 955 weekday daily trips with 72 total (total of entering and exiting) trips occurring during the AM peak hour and 68 total (total of entering and exiting) trips occurring during the PM peak hour. The proposed site is expected to have between 65-70 parking stalls, which would allow it to accommodate the hospital trip generation potential if all stalls are utilized during the peak; although the proposed site is likely to generate less traffic.

These expected trip generation volumes are below the typical MnDOT (250 peak-hour vehicle trips or 2,500 daily vehicle trips) and Blue Earth County (100 peak hour vehicle trips) thresholds for consideration of a Traffic Impact Study.

Distribution

Based on the development in the area, it is expected that the vast majority of the trips will travel to/from the south. North of the site is primarily residential land uses with small, local roadways. The arterial roads of N Victory Drive and Highway US-14 are located to the south making these corridors the most efficient route from any direction. No additional turn lanes are recommended at the site driveway.

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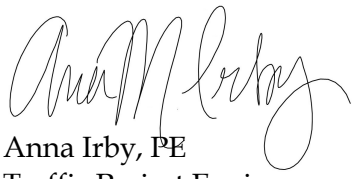
Conclusion

The trip generation potential for the proposed development is below the typical MnDOT (250 peak-hour vehicle trips or 2,500 daily vehicle trips) and Blue Earth County (100 peak hour vehicle trips) thresholds for consideration of a Traffic Impact Study.

Additionally, due to the low number of peak hour site trips generated, no additional turn lanes are recommended at the site driveway.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,
Bolton & Menk, Inc.



Anna Irby, PE
Traffic Project Engineer

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Stormwater Management Memorandum

Date: July 28, 2026

To: Construction Services, City of Mankato

From: Alec Pietz, P.E. – Land Development Project Manager

Subject: Spirits at Rest
BMI Project No.: 26X.144614

I. Project Introduction

The following report provides a summary and analysis of the existing and proposed hydrology for the proposed Spirits at Rest project on Lot 1 Block 3 of Wolfe Addition No. 2 in Mankato, Minnesota. The proposed project consists of a building, parking and pavement construction, site grading, utilities, and drainage improvements. An existing parking lot from a prior project exists on the lot and is considered new impervious area for the purposes of this memo. A planned regional stormwater basin from the Wolfe Addition No. 2 project will accommodate the impervious area of this project, however, on site management is still necessary to conform to overall planned storage within the subdivision. The SCS TR-20 hydrology method was utilized in Autodesk Storm and Sanitary Analysis (SSA) for the project. NOAA Atlas 14 rainfalls for Blue Earth County, Minnesota and MSE 3 distribution curves were used to develop rainfall events. The 2-yr (2.87”), 10-yr (4.29”), and 100-yr (7.20”) events are reported for relevant data in this report.

II. Existing/Previously Planned Site Hydrology

The site currently exists as farm field and the mentioned parking lot. For purposes of this study, the proposed site will be compared to the improvements as shown in the Wolfe Addition No. 2 Drainage Report, which is provided as an attachment to this memo. The original plan included a primarily impervious parcel with a shared stormwater basin (Pond D).

For purposes of modeling, the parcel as previously proposed in the subdivision report will be treated as a single catchment with its corresponding curve number. This results in an area of 6.12 acres with 4.87 acres of impervious area yielding a curve number of 94.32. Time of concentration is assumed to be 9 minutes.

Peak Flows of Subdivision Lot Improvements (cfs)			
Location	2-yr	10-yr	100-yr
Lot as Proposed in Subdivision Report	21.65	33.94	58.74
Total	**21.65**	**33.94**	**58.74**

The reported peak flows do not take stormwater management into consideration. The purpose of this is to establish a basis for the difference between direct runoff rates of the parcel as shown in the subdivision report and the proposed project.

III. Proposed Site Hydrology

The Utility Plan from the submittal civil drawings is provided with this memo to illustrate the site, grading, and storm sewer proposed for the project. Modeling the project like the prior planned improvements (a single catchment) results in the same area of 6.12 acres but significantly reduced impervious area of 1.79 acres yielding a curve number of 85.26. A 9-minute time of concentration was also used for the proposed catchment, but some areas may realistically have a larger time of concentration. No onsite stormwater management was taken into consideration for the peak flow.

Proposed peak flow rates for the design storms were determined in SSA to be:

Proposed Peak Flows (cfs)			
Location	2-yr	10-yr	100-yr
Proposed Project	15.30	27.50	53.07
Total	**15.30**	**27.50**	**53.07**

As expected, the peak flow is reduced for each event due to the decrease in impervious areas.

Water Quality Volume Analysis

The following exercise is to demonstrate the proposed project conforms to the provided water quality volume of regional ponding in the Wolfe Addition No. 2 plans. This would eliminate the water quality design criteria of on-site stormwater management.

Referring to Table 2 of the Wolfe Addition No. 2 report, the total water quality volume required and provided is reported for the entire subdivision. The required volume is **2.11 ac-ft** which equates to the **23.11 acres** of impervious as reported in Table 1. A total of **2.93 ac-ft** of water quality volume is reported to be provided, which accounts for **31.96 acres** of new impervious area. A calculation error for Pond B was discovered in review of this report that ultimately yields additional provided water quality volume, this will be detailed further.

Brief descriptions of each pond in the subdivision are below:

- Pond A – an anticipated basin for the westerly parcel adjacent to Excel Drive that ultimately drains to Pond B. This basin would be privately maintained and provide water quality and detention for its parcel.
- Pond B – A public filtration basin providing benefit to public improvements and private development. As mentioned, a calculation error was discovered that resulted in increased water quality volume compared to what was reported. Referring to the Pond B spreadsheet, it can be observed that the water quality volume was reported at elevation 1005.0 instead of 1005.5.
    - Interpolating the volume of 1005.5 yields a water quality volume of 1.29 ac-ft instead of 0.81 ac-ft (+0.48 ac-ft) which provides for an additional 5.24 acres of impervious area.
- Pond C – A public wet basin providing benefit to public improvements and private development.
- Pond D – Intended to be a shared private basin to accommodate additional retention for the project parcel and its western neighbor. This was planned based on the two parcels being vastly impervious. For the Spirits at Rest project, this shared basin is not proposed but a proportional amount of Pond D storage relative to its parcel size and the western parcel size is provided for conformance to the planned storage within the greater subdivision.

Summarizing the basin information above results in a modified total water quality volume within the subdivision:

- Wolfe Addition No. 2 Reported WQV = 2.93 ac-ft
- Pond B Calculation Correction = +0.48 ac-ft
- Elimination of Pond D = -1.15 ac-ft
- **Updated WQV = 2.26 ac-ft**

The updated WQV provides treatment for 24.65 acres of impervious area, still exceeding the requirement for the original 23.11 acres. The Spirits at Rest project currently proposes a decrease of 3.08 acres of impervious area from the original project leaving ample water quality volume for potential facility expansion.

On-Site Retention

As mentioned, water quality volume is accounted for within the public basins, but additional storage will be required to conform to the planned storage volume per the Wolfe Addition No. 2 report since Pond D is eliminated despite the drastic reduction of impervious area between the two plans.

A total of **4.03 ac-ft** of storage is provided in Pond D. The Spirits at Rest parcel is 6.12 acres and the neighboring property is 9.0 acres. By proportion of parcel area, the Spirits at Rest parcel will require **1.63 ac-ft** of storage volume. A sheet with storage curves for the two basins is provided with this memo showing a total volume of approximately **2.26 ac-ft** being provided, above the required volume.

IV. Conclusion

The proposed stormwater management for Spirits at Rest conforms to the requirements of the City of Mankato and more specifically to the Wolfe Addition No. 2 drainage plan. This document may be referenced for future development within the subdivision to guide project proposers and their engineers based on the modifications described.

Please feel free to contact Alec Pietz, P.E. with any questions or comments at Alec.Pietz@bolton-menk.com or 507-766-3283.

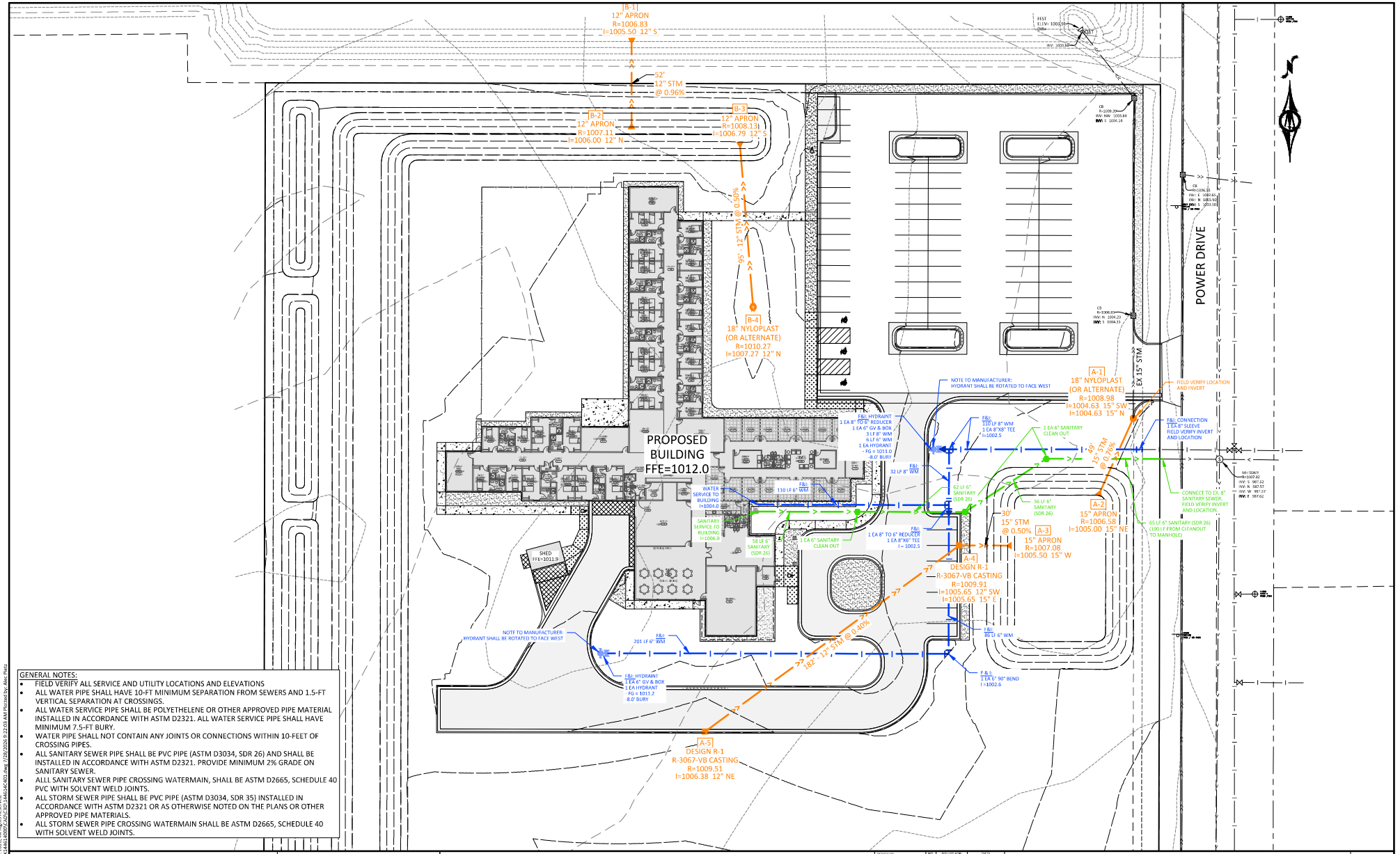
STORMWATER BASINS
SPIRITS AT REST
MANKATO, MINNESOTA
BMI Project No. 26X.144614

East Basin			
Elevation (ft)	**Area (sf)**	**Volume (cf)**	**Volume (ac-ft)**
1005	4430	0	0.00
1006	5593	5593	0.128
1007	6755	11185	0.257
1008	8213	19398	0.445
1009	**9670**	**27610**	**0.634**

West Basin			
Elevation (ft)	**Area (sf)**	**Volume (cf)**	**Volume (ac-ft)**
1006	6915	0	0.00
1007	12145	9630	0.221
1008	17500	24352	0.559
1009	22965	44585	1.024
1010	**29955**	**71045**	**1.631**

Total Provided	**98655**	**2.265**	**Req'm Met**
Total Req'd*	71003	1.63	

*Proportion of Subdivision Share



GENERAL NOTES:

- FIELD VERIFY ALL SERVICE AND UTILITY LOCATIONS AND ELEVATIONS
- ALL WATER PIPE SHALL HAVE 10-FT MINIMUM SEPARATION FROM SEWERS AND 1.5-FT VERTICAL SEPARATION AT CROSSINGS.
- ALL WATER SERVICE PIPE SHALL BE POLYETHELENE OR OTHER APPROVED PIPE MATERIAL INSTALLED IN ACCORDANCE WITH ASTM D2321. ALL WATER SERVICE PIPE SHALL HAVE MINIMUM 7.5-FT BURY.
- WATER PIPE SHALL NOT CONTAIN ANY JOINTS OR CONNECTIONS WITHIN 10-FEET OF CROSSING PIPES.
- ALL SANITARY SEWER PIPE SHALL BE PVC PIPE (ASTM D3034, SDR 26) AND SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321. PROVIDE MINIMUM 2% GRADE ON SANITARY SEWER.
- ALL SANITARY SEWER PIPE CROSSING WATERMAIN, SHALL BE ASTM D2665, SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS.
- ALL STORM SEWER PIPE SHALL BE PVC PIPE (ASTM D3034, SDR 35) INSTALLED IN ACCORDANCE WITH ASTM D2321 OR AS OTHERWISE NOTED ON THE PLANS OR OTHER APPROVED PIPE MATERIALS.
- ALL STORM SEWER PIPE CROSSING WATERMAIN SHALL BE ASTM D2665, SCHEDULE 40 WITH SOLVENT WELD JOINTS.

HORZ. 0 25 50
SCALE FEET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NOT FOR CONSTRUCTION

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

BOLTON & MENK

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FACTOR GROUP
SPIRITS AT REST
UTILITY PLAN

SHEET
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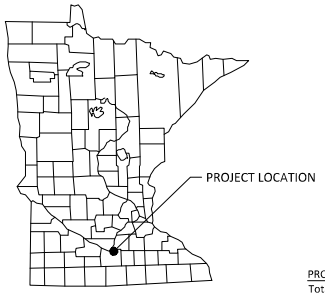
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

FACTOR GROUP - SPIRITS AT REST

BLUE EARTH COUNTY, MINNESOTA



LEGEND

- 1-MILE BOUNDARY
- PROJECT BOUNDARY
- IMPAIRED WATERS
- RECEIVING WATERS
- NATIONAL WETLANDS INVENTORY

RESPONSIBLE PARTIES:
The Contractor and Owner will be joint applicants under the MPCA's General Stormwater Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program.

The Contractor shall provide one or more trained Construction SWPPP Manager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPs.

A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	Spirits at Rest	xxxx	xxxx
SWPPP DESIGNER:	Bolton & Menk, Inc.	Alec Pietz, P.E.	507-625-4171
CONTRACTOR:	TBD	TBD	TBD
CONSTRUCTION SWPPP MANAGER:	TBD	TBD	TBD
PARTY RESPONSIBLE FOR LONG TERM O&M:	Spirits at Rest	xxxx	xxxx

The SWPPP Designer, Construction SWPPP Manager, and BMP Installer must have appropriate training. Documentation showing training commensurate with the job duties and responsibilities is required to be included in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on the Narrative sheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager and BMP Installer prior to the start of construction. This information shall be kept up to date until the project NOT is filed.

ADDITIONAL COMPENSATION
Payment for all work associated with Erosion and Sediment Control shall be as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any work required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001) including but not limited to inspection, maintenance, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

DOCUMENT RETENTION
Permittees must make the SWPPP, including all inspection reports, maintenance records, training records and other information required by this permit, available to federal, state, and local officials within three (3) days upon request for the duration of the permit and for three (3) years following the NOT.

GENERAL STORMWATER DISCHARGE REQUIREMENTS
All requirements listed in Section 5.1 of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to:

1. The expected amount, frequency, intensity, and duration of precipitation.
2. The nature of stormwater runoff and run-on at the site
3. Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion.
4. The range of soil particle sizes expected to be present on the site.

Permanent stormwater treatment systems for this project have been designed in accordance with the guidance in the MN Stormwater Manual in place at the time of bidding. Copies of the design information and calculations are part of this SWPPP and will be provided in digital format upon written request to the Engineer.

PROJECT AREAS:

Total Project Size (disturbed area) =	5.3	ACRES
Existing area of impervious surface =	0.7	ACRES
Post construction area of impervious surface =	1.1	ACRES
Total new impervious surface area created =	1.8	ACRES

Planned Construction Start Date:	Fall 2026
Estimated Construction Completion Date:	Spring 2027

PERMANENT STORMWATER MANAGEMENT SYSTEM:
Type of storm water management used if more than 1 acre of new impervious surface is created:

	Wet Sedimentation Basin
X	Infiltration/Filtration
	Regional Pond
	Permanent Stormwater Management Not Required

Note: basins are not exactly infiltration or filtration but intended to drain similar to swales and ditches

PROJECT LOCATION:

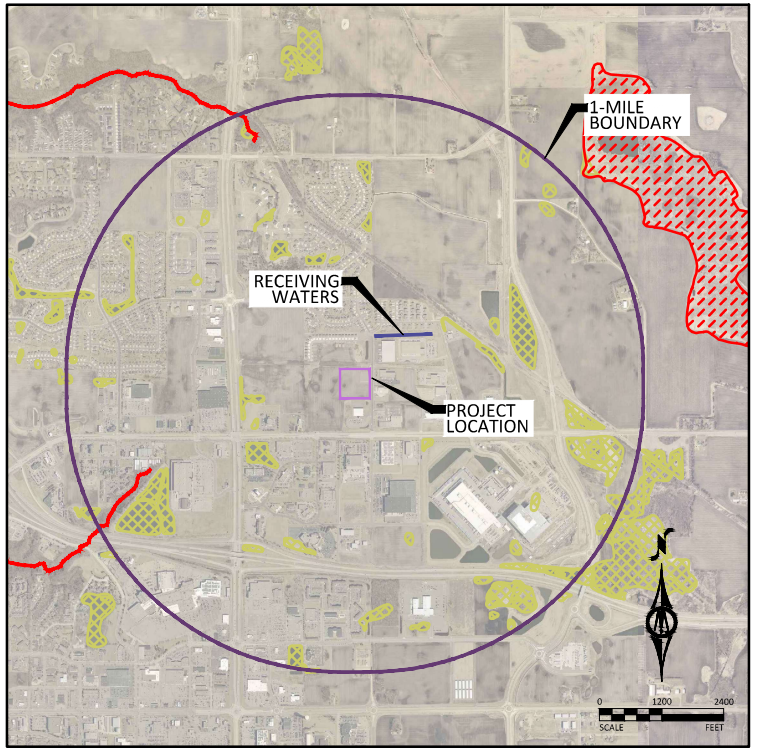
COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
Blue Earth County	T108N	R26W	9	44.1809° N	93.9614° W

BMP SUMMARY	QUANTITY	UNIT
STORM DRAIN INLET PROTECTION	7	EACH
STABILIZED CONSTRUCTION EXIT	1	LUMP SUM
PERIMETER CONTROL	1700	LIN FT
TURF ESTABLISHMENT	4.2	ACRE
ROLLED EROSION PREVENTION CATEGORY 20	5600	SQ YD
RANDOM RIPRAP CLASS III	24	CU YD
NOTE: QUANTITIES LISTED ACCOUNT FOR ONE INSTALLATION. ADDITIONAL INSTALLATIONS REQUIRED BY MAINTENANCE AND/OR PHASING SHALL BE CONSIDERED INCIDENTAL.		

DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:
Construction activities include: Site grading, building construction, pavements, utility installation, and temporary and permanent stablization.

Stormwater currently discharges by overland flow to adjacent properties, right-of-way, and regional ponding. The discharge locations do not materially change and onsite stormwater management is provided to conform to a proportional amount of required ponding within the parcel's subdivision. The impervious area, however, is accommodated by regional basins.

A copy of the SWPPP must remain on site at all times.



RECEIVING WATERS:
Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, within 1-mile of the project boundary are identified on the USGS 7.5 min quad map above. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in the permit for special, prohibited, restricted, or impaired have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for construction related waste load allocations have also been incorporated.

NAME OF WATER BODY	TYPE (ditch, pond, wetland, lake, etc.)	Special, Prohibited, Restricted Water [1]	Flows to Impaired Water Within 1-Mile [2]	USEPA Approved Construction Related TMDL [3]
Unnamed Pond	Pond	No	No	N/A

[1] Special, prohibited, and restricted waters are listed in Section 23 of the MN Construction Stormwater General Permit (MNR100001).
[2] Identified as impaired under section 303 (d) of the federal Clean Water Act for phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.
[3] Construction Related TMDLs include those related to: phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

IMPLEMENTATION SCHEDULE AND PHASING: The Contractor is required to provide an updated schedule and site management plan meeting the minimum requirements of Section 1717 of the Minnesota Standard Specifications for Construction.

1) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceptance of the SWPPP as designed with no changes.
2) Install perimeter sediment control, inlet protection, and construction exit.
3) Remove existing surfaces as required.
4) Complete site and utility improvements.
5) Install additional inlet protection as needed.
6) Reestablish turf.
7) Repeat steps 2-6 as necessary throughout the project.
8) Add additional temporary BMPs as necessary during construction based on inspection reports.
9) Ensure final stabilization measures are complete.
10) Provide digital copy of all Field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner.
11) Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is considered complete.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
NOT FOR CONSTRUCTION
ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

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NO.	ISSUED FOR	DATE

FACTOR GROUP
SPIRITS AT REST
STORMWATER POLLUTION PREVENTION PLAN
PROJECT INFORMATION & LOCATION MAP

SHEET C2.01

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Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN RI0000I (Permit) as they apply to this project. All provisions of the Permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the Permit is available at: https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf

SWPPP AMENDMENTS AND SUBMITTALS

Contractor must prepare and submit to the Engineer a SWPPP amendment as necessary to include additional Best Management Practices (BMPs) to correct problems identified or address the following situations.

1. Contact information and training documentation for Construction SWPPP Manager and BMP Installer,
2. There is a change in construction method of phasing, operation, maintenance, weather or seasonal conditions not anticipated during the design of the SWPPP including but not limited to:
   a. Types and/or Locations of BMPs
   b. Material Storage and Spill Response
   c. Fueling Plans
   d. Locations for Stockpiles, Concrete Washout, and Sanitation Facilities and
   e. Project Phasing
3. It is determined that the SWPPP is not achieving objectives of minimizing pollutants in stormwater discharges associated with construction activity, or
4. The SWPPP is not consistent with the terms and conditions of the permit.

The Contractor may implement SWPPP amendments immediately and is not required to wait for Engineer review of the submittal. The responsibility for completeness of SWPPP amendments and compliance with the Permit lies with the Contractor. Review, comment, or lack of comment by the Engineer on a SWPPP amendment shall not absolve the responsibilities of the Contractor in any way.

If a change order is issued for a design change the SWPPP amendment will be prepared by the Engineer and included in the change order.

In addition to SWPPP amendments, the Contractor shall submit to the Engineer Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.

The Contractor shall keep copies of all SWPPP amendments, Weekly Erosion and Sediment Control Schedules, inspection logs, and maintenance logs with the field copy of the SWPPP. A PDF copy of these documents will be provided along with a copy of the final Field Copy of the SWPPP to the Engineer along with the signed Notice of Termination when final stabilization is complete.

EROSION PREVENTION PRACTICES

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of the wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent.

Energy dissipation shall be installed at all temporary or permanent pipe outlets within 24 hours of connection to a surface water or permanent stormwater treatment system.

The Contractor shall phase construction and use construction methods to the extent practical to minimize exposed soils. The project phasing shall be documented in the Weekly Erosion and Sediment Control Schedule.

SEDIMENT CONTROL PRACTICES

Down gradient BMPs including perimeter BMPs must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All BMPs that have been adjusted or removed to accommodate short-term activities shall be re-installed or replaced the earlier of the end of the work day or before the next precipitation event even if the activity is not complete.

Inlet BMPs may be removed for specific safety concerns. The BMPs shall be replaced as soon as the safety concern is resolved. The removal shall be documented in the SWPPP as a SWPPP amendment.

Temporary stockpiles must have sediment control BMPs. The Contractor shall prepare and submit to the Engineer a SWPPP amendment showing the location of temporary stockpiles and the BMPs for each stockpile. The SWPPP amendment must meet the minimum requirements of Section 9 of the Permit.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

The use of polymers, flocculants, or other sedimentation treatment chemicals are not proposed as part of this SWPPP as designed by the Engineer. If methods or phasing of construction require the use of any of these chemicals, the Contractor shall prepare and submit to the Engineer a SWPPP amendment that meets the minimum requirements of Section 9 of the Permit.

TEMPORARY SEDIMENTATION BASINS

A temporary sedimentation basin has not been included in this SWPPP as designed by the Engineer. If a basin is later determined to be desirable or necessary the Contractor shall prepare and submit to the Engineer a SWPPP amendment. Temporary sedimentation basins shall meet or exceed the minimum requirements of Section 14 of the Permit and shall include a basin draining plan meeting or exceeding the minimum requirements of Section 10 of the Permit. Where the site discharges to Special and/or Impaired Waters the SWPPP amendment shall also meet or exceed the minimum requirements of Section 23 of the permit.

DEWATERING

A dewatering plan has not been included in this SWPPP as designed by the Engineer. If dewatering is required for this project, the Contractor shall prepare and submit to the Engineer a SWPPP amendment. All dewatering shall meet or exceed the minimum requirements of Section 10 of the Permit.

POLLUTION PREVENTION

Products and materials that have the potential to leach pollutants that are stored on the site must be stored in a manner designed to minimize contact with stormwater. Materials that are not a source of potential contamination to stormwater or that are designed for exposure to stormwater are not required to be covered.

Hazardous materials including but not limited to pesticides, fertilizer, petroleum products, curing compounds and toxic waste must be properly stored and protected from stormwater exposure as recommended by the manufacturer in an access restricted area.

Solid waste must be stored, collected and disposed of in compliance with Minnesota Administrative Rules Chapter 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. No engine degreasing is allowed on site. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

The Contractor shall prepare and submit a SWPPP amendment detailing the location and BMPs proposed for storage of materials, solid waste, portable toilets, and exterior vehicle or equipment washing on the site. The SWPPP amendment shall include a spill prevention and response plan that is appropriate for the materials proposed to be on the site. The SWPPP amendment shall meet or exceed the minimum requirements of Section 12 of the Permit.

INSPECTION & MAINTENANCE

A trained person shall routinely inspect the entire construction site at the time interval indicated on this sheet of the SWPPP during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted at the time interval indicated in the Receiving Waters Table found on the SITE PLAN AND INFORMATION SHEET of the SWPPP.

All inspections and maintenance conducted during construction must be recorded on the day it is completed and must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

The Contractor may request a change in inspection schedule for the following conditions:

a. Inspections of areas with permanent cover to be reduced to once per month,
b. Inspections of areas that have permanent cover and have had no construction activity for 12 months to be suspended until construction resumes,
c. Inspections of areas where construction is suspended due to frozen ground conditions, inspections to be suspended until the earlier of within 24 hours of runoff occurring, or upon resuming construction.

No change in inspection schedule shall occur until authorized by the Engineer.

Inspections must include:

1. All erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness.
2. Surface waters, including drainage ditches and conveyance systems for evidence of erosion and sediment deposition.
3. Construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles.
4. Infiltration areas to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

All non-functioning BMPs and those BMPs where sediment reaches one-half (1/2) of the depth of the BMP, or in the case of sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery, or as soon as field conditions allow.

Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.

Any sediment that escapes the site must be removed and the area stabilized within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access in which case the work shall be completed within 7 calendar days of authorization. Paved surfaces such as streets shall have any escaped or tracked sediment removed by the end of the day that it is discovered. Sediment release, other than paved surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery to the Engineer.

PUBLIC WATER RESTRICTIONS:

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period. MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by an Infested Waters Permit or written notification has been obtained from MN DNR stating that such permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

FINAL STABILIZATION

Final Stabilization is not complete until all the following requirements have been met:

1. Substantial Completion has been reached and no ground disturbing activities are anticipated.
2. Permanent cover has been installed with an established minimum uniform perennial vegetation density of 70 percent of its expected final growth. Vegetation is not required in areas where no vegetation is proposed by this project such as impervious surfaces or the base of a sand filter.
3. Accumulated sediment has been removed from all permanent stormwater treatment systems as necessary to ensure the system is operating as designed.
4. All sediment has been removed from conveyance systems
5. All temporary synthetic erosion prevention and sediment control BMPs have been removed. BMPs designated on the SWPPP to remain to decompose on-site may remain.
6. For residential construction only, permit coverage terminates on individual lots if the structures are finished and temporary erosion prevention and downgradient perimeter control is complete, the residence sells to the homeowner, and the permittee distributes the MPCA's "Homeowner Fact Sheet" to the homeowner.
7. For agricultural land only (e.g., pipelines across cropland), the disturbed land must be returned to its preconstruction agricultural use prior to submitting the NOT.

SITE STABILIZATION COMPLETION:

Stabilization of exposed soils shall begin immediately and shall be completed after the construction activity has temporarily or permanently ceased no later than:	14 calendar days

SITE INSPECTION INTERVAL:

A trained person shall routinely inspect the entire construction site during active construction at an interval of no more than:	7 calendar days

SPECIAL ENVIRONMENTAL CONSIDERATIONS AND PERMITS:

1)	Was an environmental review required for this project or any part of a common plan of development or sale that includes all or any portion of this project?	NO
2)	Does any portion of the site have the potential to affect threatened or endangered species or their critical habitat?	NO
3)	Does any portion of this site discharge to a Calcareous fen.	NO
4)	Will any portion of the site potentially affect properties listed on the National Register of Historic Places or a known or discovered archeological site?	NO
5)	Have any Karst features have been identified in the project vicinity?	NO
6)	Is compliance with temporary or permanent stormwater management design requirements infeasible for this project?	NO
7)	Has the MN DNR promulgated "work in water restrictions" for any Public Water this site disharges to during fish spawning?	NO

SWPPP DESIGNER TRAINING DOCUMENTATION:

UNIVERSITY OF MINNESOTA

Alec W. Pietz

Design of Construction SWPPP (May 31 2027)

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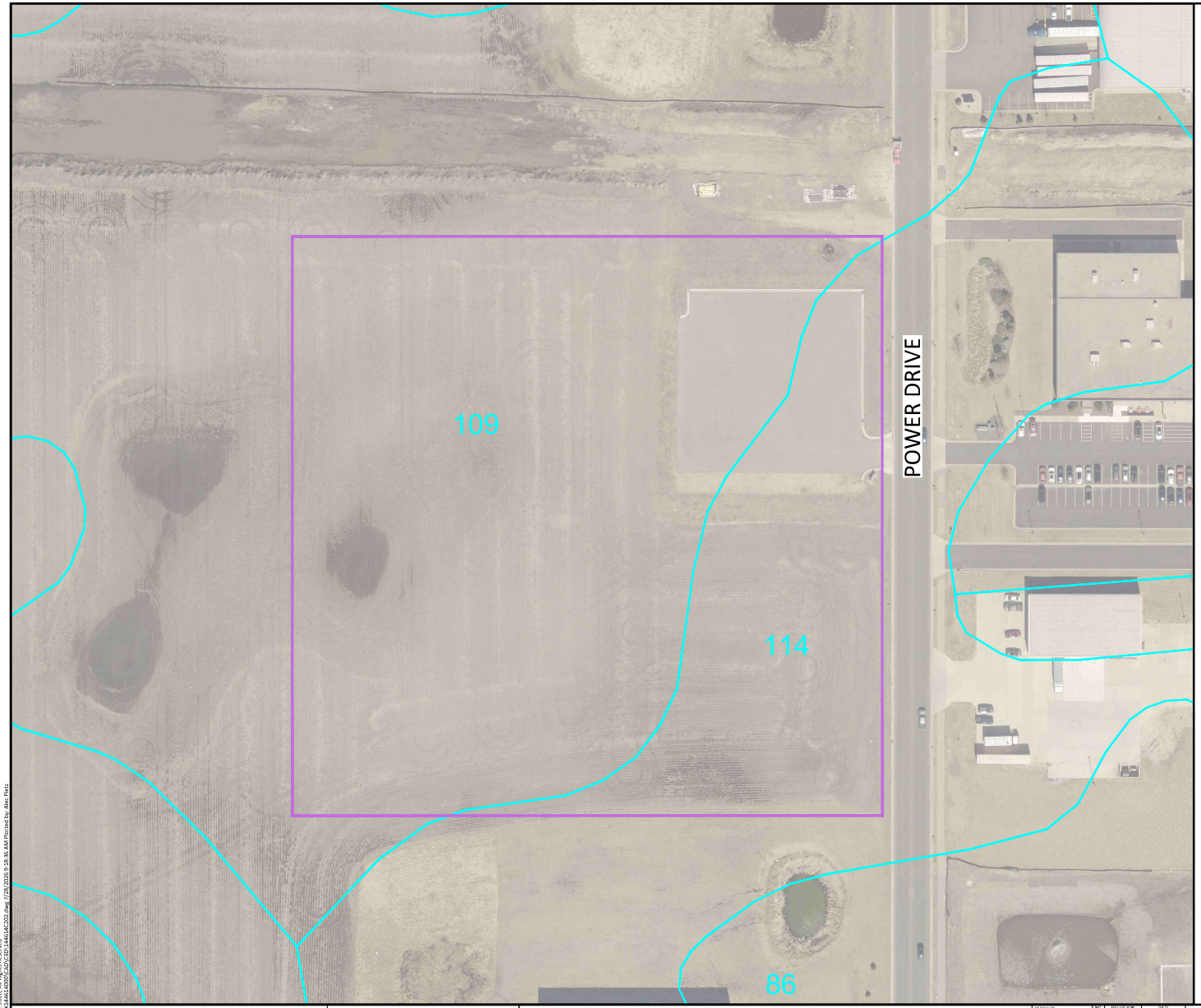
FACTOR GROUP
SPIRITS AT REST
STORMWATER POLLUTION PREVENTION PLAN
NARRATIVE

SHEET C2.02



LEGEND

PROJECT BOUNDARY

SOIL TYPE

N

0 50 100

SCALE FEET

SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
MUSYM	MUNAME	HYDGRP	MUHELCL
109	Cordova clay loam	C/D	NHEL
114	Glencoe silty clay loam	B/D	NHEL

NHEL - Not Highly Erodible Land
PHEL - Potentially Highly Erodible Land
HEL - Highly Erodible Land

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	SHEET NO.
SITE MAP	C2.01
NARRATIVE & NOTES	C2.01 - C2.02
SOILS	C2.03
EROSION & SEDIMENT CONTROL DETAILS	C2.04 - C2.05
DIRECTION OF FLOW	C2.06
FINAL STABILIZATION	C2.06

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FACTOR GROUP
SPIRITS AT REST
STORMWATER POLLUTION PREVENTION PLAN
SITE & SOILS MAP

SHEET C2.03

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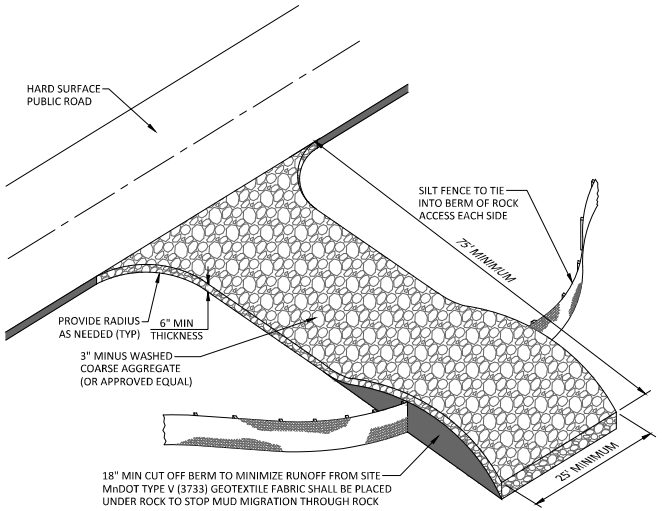
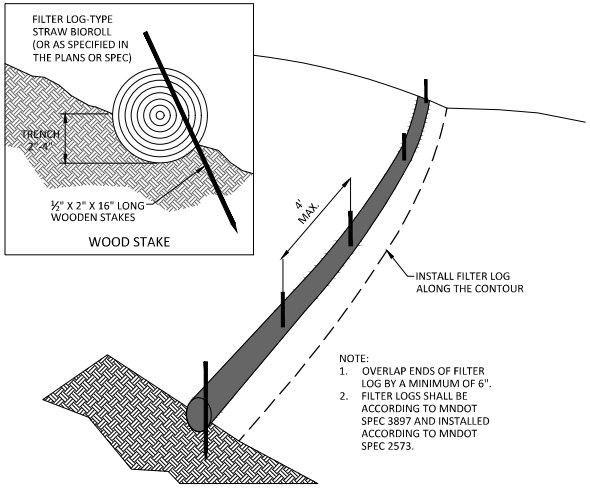


ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



NOTE:

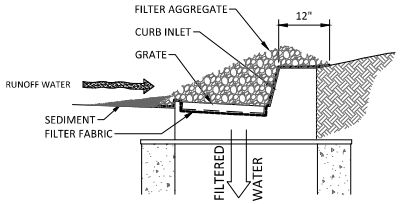
1. OVERLAP ENDS OF FILTER LOG BY A MINIMUM OF 6".
2. FILTER LOGS SHALL BE ACCORDING TO MNDOT SPEC 3897 AND INSTALLED ACCORDING TO MNDOT SPEC 2573.

PERIMETER PROTECTION-FILTER LOG

NOT TO SCALE

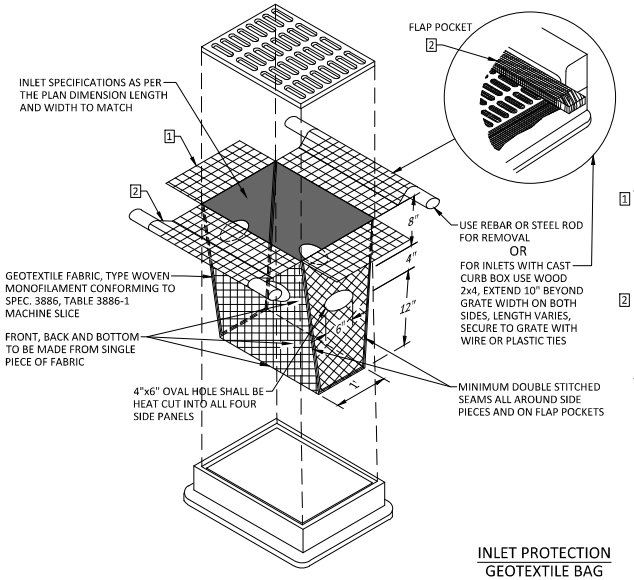
NOTES:

1. FILTER AGGREGATE TO BE 1 TO 2 INCH CLEAN ROCK
2. FILTER FABRIC SHALL MEET MnDOT SPECIFICATION 3733 GEOTEXTILE FABRIC TYPE II



INLET PROTECTION
FILTER AGGREGATE

NOT TO SCALE



NOTES:

1 INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENTS EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL IN THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

2 FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2x4.

INSTALLATION NOTES:

DO NOT INSTALL PROTECTION IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
GEOTEXTILE BAG

NOT TO SCALE

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STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL DETAILS

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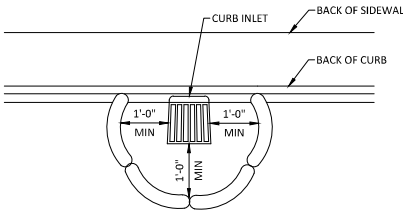
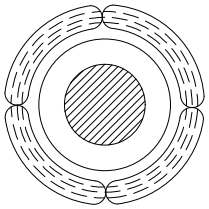


NOTE:
THIS INLET PROTECTION IS USED DURING ROUGH GRADING ONLY, USE BEFORE ROAD IS OPEN TO TRAFFIC OR IS PAVED

PAYMENT SHALL INCLUDE ALL MATERIALS, FILLING OF LOG, PLACEMENT, MAINTENANCE & REMOVAL;
80% OF BID PRICE SHALL BE PAID UPON PROPER PLACEMENT WITH THE FINAL 20% PAID UPON REMOVAL

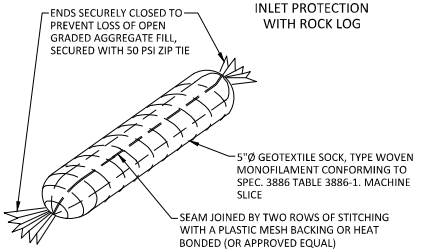


INLET PROTECTION
WITH ROCK LOG

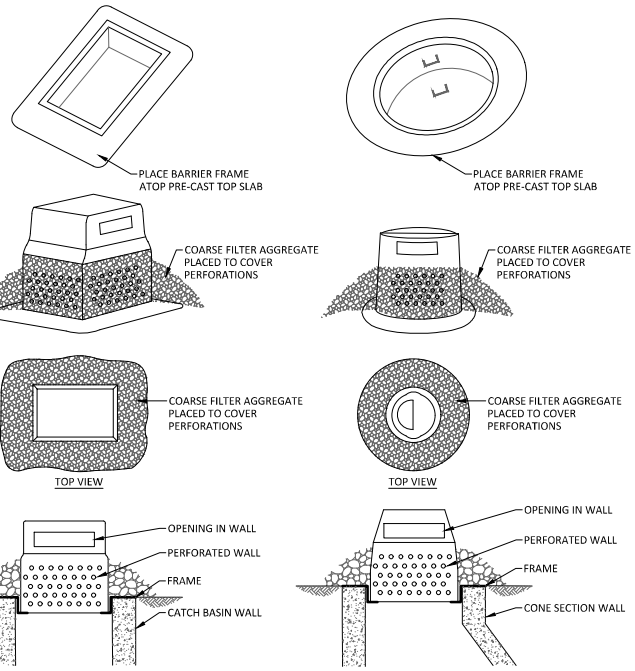
FILL ROCK LOG WITH 45 LBS. OF OPEN GRADED AGGREGATE CONSISTING OF SOUND, DURABLE PARTICLES OF CRUSHED QUARRY ROCK OR GRAVEL CONFORMING TO THE FOLLOWING GRADATION.

GRADATION	
SIEVE SIZE	PERCENT PASSING
1 1/2"	100
1"	95-100
3/4"	65-95
3/8"	30-65
NO 4	10-35
NO 10	3-20
NO 40	0-8
NO 200	0-3

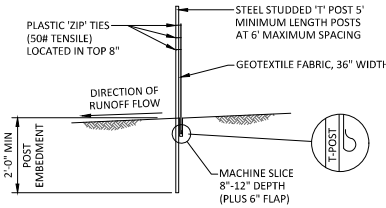
NOTE:
CRUSHED CONCRETE OR BITUMINOUS SHALL NOT BE USED FOR OPEN GRADED AGGREGATE.



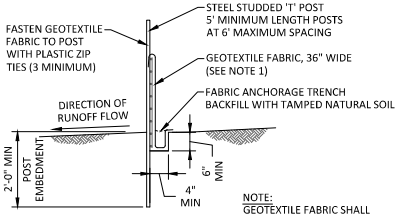
INLET PROTECTION
ROCK BAG
NOT TO SCALE



INLET PROTECTION
PERFORATED WALL
NOT TO SCALE



SILT FENCE - MACHINE SLICED
NOT TO SCALE



NOTE:
GEOTEXTILE FABRIC SHALL BE PER MnDOT SPEC 3886

SILT FENCE - HEAVY DUTY
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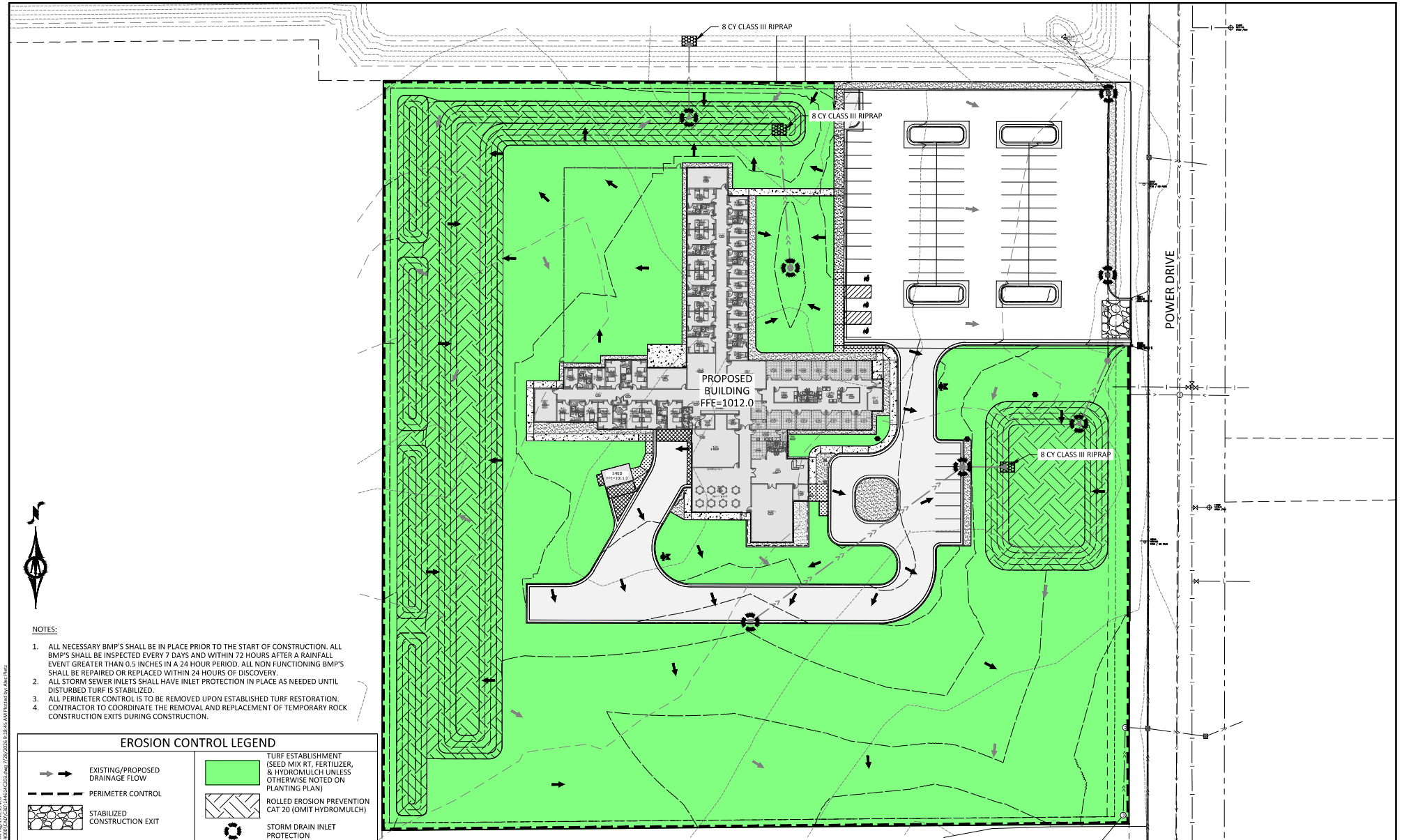

NOTES:

1. ALL NECESSARY BMP'S SHALL BE IN PLACE PRIOR TO THE START OF CONSTRUCTION. ALL BMP'S SHALL BE INSPECTED EVERY 7 DAYS AND WITHIN 72 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN A 24 HOUR PERIOD. ALL NON FUNCTIONING BMP'S SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF DISCOVERY.
2. ALL STORM SEWER INLETS SHALL HAVE INLET PROTECTION IN PLACE AS NEEDED UNTIL DISTURBED TURF IS STABILIZED.
3. ALL PERIMETER CONTROL IS TO BE REMOVED UPON ESTABLISHED TURF RESTORATION.
4. CONTRACTOR TO COORDINATE THE REMOVAL AND REPLACEMENT OF TEMPORARY ROCK CONSTRUCTION EXITS DURING CONSTRUCTION.

EROSION CONTROL LEGEND

- EXISTING/PROPOSED DRAINAGE FLOW
- PERIMETER CONTROL
- STABILIZED CONSTRUCTION EXIT
- TURF ESTABLISHMENT (SEED MIX RT, FERTILIZER, & HYDROMULCH UNLESS OTHERWISE NOTED ON PLANTING PLAN)
- ROLLED EROSION PREVENTION CAT 20 (OMIT HYDROMULCH)
- STORM DRAIN INLET PROTECTION

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EROSION & SEDIMENT CONTROL PLAN

SHEET C2.06

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Drainage Report

Wolfe Addition No. 2

Demars Construction

September 16, 2022

Submitted by:
Bolton & Menk, Inc.
1960 Premier Drive
Mankato, MN 56001-5900
P: 507-625-4171
F: 507-625-4177
BMI No. 0M1.126823

BOLTON & MENK

Real People. Real Solutions.

Certification

Drainage Report

For

Wolfe Addition No. 2

Demars Construction
0M1.127338

September 16, 2022

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: _____
Matthew Simon, P.E.
License No. 57832

Date: September 16, 2022

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III. Existing Conditions 1
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Appendix

Appendix A: Figures

Appendix B: Water Quality Spreadsheets

I. Introduction

Demars Construction will be developing the Wolfe Addition No. 2 property which will include constructing and extending Turnberry Drive and Excel Drive as part of a mixed commercial and private development plan. The project boundaries consist of: Power Drive to the east, N Victory Drive to the south, existing residential housing along Cypress Drive to the north, and Firestone Drive to the west. The proposed site development is planned to include a commercial warehouse, private townhome development, commercial condominium site, self-storage facility, and 2 parcels for future development. Bolton & Menk has completed the design for the Turnberry Drive & Excel Drive extension project and the private townhome development and is under contract to design the commercial condominium site, self-storage facility and the commercial warehouse with the preliminary layouts completed. This drainage report serves to outline the proposed stormwater management design for the entire Wolfe Addition No. 2 property.

II. Analysis

To understand the drainage conditions of the project area and guide the proposed stormwater management design, a hydrologic and hydraulic model was developed using Autodesk's Storm & Sanitary Analysis (SSA). SSA uses the Soil Conservation Service (SCS) Technical Release (TR-20) methodology to route watershed runoff through the system using a rainfall hydrograph. NOAA Atlas 14 rainfall depths were used along with the NRCS's MSE 3, 24-hour rainfall distribution. The rainfall depths used for the 2, 10, and 100-Year rainfall events were 2.87", 4.28" and 7.20", respectively. Time of concentrations were calculated using the NRCS's TR-55 methodology. Drainage areas were delineated using a combination of LiDAR data and survey data where available. Soil types within the project area are dominated by clay loams characterized by the hydrological soil group type D.

III. Existing Conditions

Land use in the project area currently is all straight-row cropland. There is existing storm sewer along Power Drive that flows north and discharges into a large swale on the northeast side of Power Drive. Excess runoff from Power Drive continues to flow north and enters the storm system on Fieldcrest Drive. Much of the runoff currently generated within the project area sits in low points in the row crop farmland. There is also runoff from the project area that flows southward to existing storm sewer along N Victory Drive at the intersection with Excel Drive. The site for "The Pickle Barn" lies southeast of the proposed project area and is currently under construction. The site has its own stormwater management, including treatment on site. Four wetlands were delineated within the site area, all of which will require mitigation.

Figure 1: Existing Drainage Area Map can be found in Appendix A which shows the delineated wetlands, existing storm sewer layout, drainage areas, and flow directions.

IV. Proposed Design

The proposed stormwater management system has been designed to meet the MPCA's NPDES Construction Stormwater Permit requirements and the City of Mankato Grading Manual design standards. Along with the necessary catch basins and storm sewer, the proposed stormwater management system will consist of: two filtration basin designed to serve the warehouse, storage facility and a portion of Excel Drive, and two wet sedimentation basins to serve the commercial condominium site, and the proposed townhomes on the north side of the project. The proposed project has two primary outfalls. The first outfall is the existing swale northeast of the project,

east of the Power Drive and Dogleg St intersection and the second outfall is the existing 30" storm pipe at Excel Drive that connects into the N Victory Drive storm system.

Storm sewer for the project has been sized based on four different design storm events. For sizing backyard storm systems, the 2-Year rainfall event was used. For the private townhome development, the 5-Year rainfall event. Lastly, per section 3.2.3 of the City of Mankato Grading Manual the City streets were designed for the 10-Year rainfall event and the 2-Year, 24-hour rainfall event with no soil infiltration.

Per section 3.2.3 of the City of Mankato Grading Manual, allowable gutter spread for a Non-State aid road is to maintain at least 1 driving lane 12 feet in width for every 2 driving lanes free from inundation. The proposed catch basins on City streets for this project has been designed to meet this standard

Figure 2: Proposed Drainage Area Map (North) & Figure 3: Proposed Drainage Area Map (South) can be found in Appendix A, and show the proposed storm sewer layout, treatment basins and drainage areas.

A. Water Quality Requirements

The proposed project has been designed to meet the more stringent water quality requirements of the City of Mankato Grading Manual Sec. 3.2.4.2.B., which states a permanent stormwater treatment basin is required for treatment of 1.1" of runoff over the new impervious surfaces. This exceeds the 1" requirement of the MPCA NPDES Construction Stormwater Permit. This requirement will be met through the construction of two filtration basins, and two wet sedimentation basins with water quality volumes set to meet this standard based upon the total proposed impervious area(s) that each basin serves.

Table 1 below shows the total change in impervious surfaces for the proposed project site.

Table 1 – Impervious Calculation

	AREA (ac)
Existing	0.0
Proposed	23.11
Difference	+23.11

Therefore, the project will be required to treat 2.1 ac-ft (~92,300 cf) of runoff. This treatment volume requirement excludes the two lots reserved for future development west and east of the Excel Drive and N Victory Drive intersection.

B. Filtration Basins

Two filtration basins were designed for the site denoted as "Pond B" and "Pond D" on the Proposed Drainage Area Map. Pond B was designed to treat runoff from Excel Drive south of the gas easement intersecting the site, while Pond D was designed to serve the proposed storage facility and commercial warehouse sites. Pond B will be maintained by the City of Mankato and Pond D will be privately maintained. The filtration basins were designed per the City of Mankato Grading Manual requirements outlined in section 3.2.4. Both filtration basins will be served by an 8" and 12" perforated underdrain pipe that has been sized so that the basins will draw down within 48 hours. The trench detail for the perforated pipe within the filtration basin has been designed using coarse filter aggregate based on specific recommendations from the City of Mankato staff.

Additionally, Pond B has been designed to provide above the required treatment volume to account for the two lots reserved for future development west and east of the Excel Drive and

N Victory Drive intersection.

C. Wet Sedimentation Basins

A wet sedimentation basin was designed for the project that will serve the townhome development and the northern portion of Excel Drive. This basin is denoted as "Pond C" and will lie between Power Drive and the townhome development. All runoff from the proposed development north of Turnberry Drive will ultimately route through this basin. A second detention basin, "Pond A", has been designed to serve and lie north of the commercial condominium site, west of Excel Drive. The wet sedimentation basins were designed per the MPCA NPDES Construction Stormwater Permit and MN Stormwater Manual best recommendations for allowable discharge rate and dead storage requirements.

D. Water Quality Provided

Table 2 below shows the designed water quality volume provided for each Pond. In Appendix B, detailed water quality worksheets can be viewed.

Table 2 – Water Quality Summary			
BASIN	**NWL/BOTTOM (ft)**	**WQ ELEVATION (ft)**	**WQ VOLUME (ac-ft)**
Pond A	1005.0	1006.5	0.30
Pond B	1004.0	1005.5	0.81
Pond C	1000.0	1001.0	0.67
Pond D	1004.0	1006.0	1.15
		TOTAL WQ Prov.	2.93
		TOTAL WQ Req.	2.11

V. Model Results

Table 3 below shows that the proposed design will reduce discharge rates to the Farmland west of the proposed project.

Table 3 – Discharge Rates (CFS) to Farmland West of Site			
	2-YEAR (2.87")	**10-YEAR (4.28")**	**100-YEAR (7.20")**
Existing	11.8	21.3	47.5
Proposed	6.8	11.6	23.4
Difference	-5.0	-9.7	-24.1

Table 4 below shows that the proposed design will reduce discharge rates to the existing Storm System on Fieldcrest Drive.

Table 4 – Discharge Rates (CFS) to Existing Fieldcrest Drive Storm System			
	2-YEAR (2.87")	**10-YEAR (4.28")**	**100-YEAR (7.20")**
Existing	10.3	15.4	16.8
Proposed	7.7	12.0	16.3
Difference	-2.6	-3.4	-0.5

Table 5 below shows that the proposed design will reduce the overall incoming discharge rates to the existing swale east of Power Drive for the 2-Year and the 10-Year rainfall event, while showing a minor increase for the 100-Year Rainfall event.

Table 5 – Discharge Rates (CFS) to Power Drive Swale			
	2-YEAR (2.87")	10-YEAR (4.28")	100-YEAR (7.20")*
Existing	34.8	100.6	154.0
Proposed	30.2	89.9	158.6
Difference	-4.6	-10.7	+4.6

*Note: Though the proposed discharge rate to the existing swale east of Power Drive for the 100-Year event is slightly higher than the existing discharge, the high-water level (HWL) does not change.

Table 6 below shows the overall proposed design reduces discharge rates leaving the site for all rainfall events.

Table 6 – Overall Project Discharge Rates (CFS)			
	2-YEAR (2.87")	10-YEAR (4.28")	100-YEAR (7.20")*
Existing	56.9	137.3	218.3
Proposed	44.7	113.5	198.3
Difference	-12.2	-23.8	-20.0

Table 7 below shows the basin characteristics and model results for the proposed basins.

Table 7 – Proposed Treatment Basins						
Basin	BASIN CHARACTERISTICS			2-YEAR (2.87")	10-YEAR (4.28")	100-YEAR (7.20")
	BOTTOM	NWL	EOF	HWL (ft)	HWL (ft)	HWL (ft)
Pond A	1000.0	1005.0	1009.0	1006.9	1007.4	1008.6
Pond B	1004.0	-	1009.0	1005.2	1006.1	1008.1
Pond C	996.0	1000.0	1006.0	1001.8	1003.0	1004.5
Pond D	1004.0	-	1009.0	1006.3	1007.0	1008.2

Table 8 below shows the existing and proposed high-water levels in the existing Power Drive Swale.

Table 8 – Power Drive Swale					
	BASIN CHARACTERISTICS		2-YEAR (2.87")	10-YEAR (4.28")	100-YEAR (7.20")
	BOTTOM	EOF	HWL (ft)	HWL (ft)	HWL (ft)
Existing	995.0	1004.0	998.0	999.0	1000.8
Proposed	994.0	1004.0	997.7	999.0	1000.8

Model results show that the proposed stormwater management design is providing a net benefit to the area with high-water levels and discharge rates improved or matched compared to the existing conditions, with the exception of a very minor increase in runoff rates to the Existing Power Drive Swale for the 100-Year rainfall event. The proposed project is providing a water quality treatment volume in excess of the requirements of the City and treatment in an area today that has no stormwater management.

VI. Summary

The Wolfe Addition No. 2 project is intended to bring multiple land uses to a growing area of Mankato, and achieves that through well laid-out properties and an effectively designed and placed stormwater management system. The proposed storm system, highlighted in this report, has been designed to properly manage the stormwater runoff that the developed parcels will produce, while minimizing any down-stream effects on the surrounding storm systems already in place. The proposed design meets the MPCA NPDES Construction Stormwater Permit and the Mankato Grading manual requirements and all impacted wetlands will be mitigated for.

This report is being provided along with the proposed construction plans for the Turnberry & Excel Drive Extension project. Please refer to the plan for additional design details.

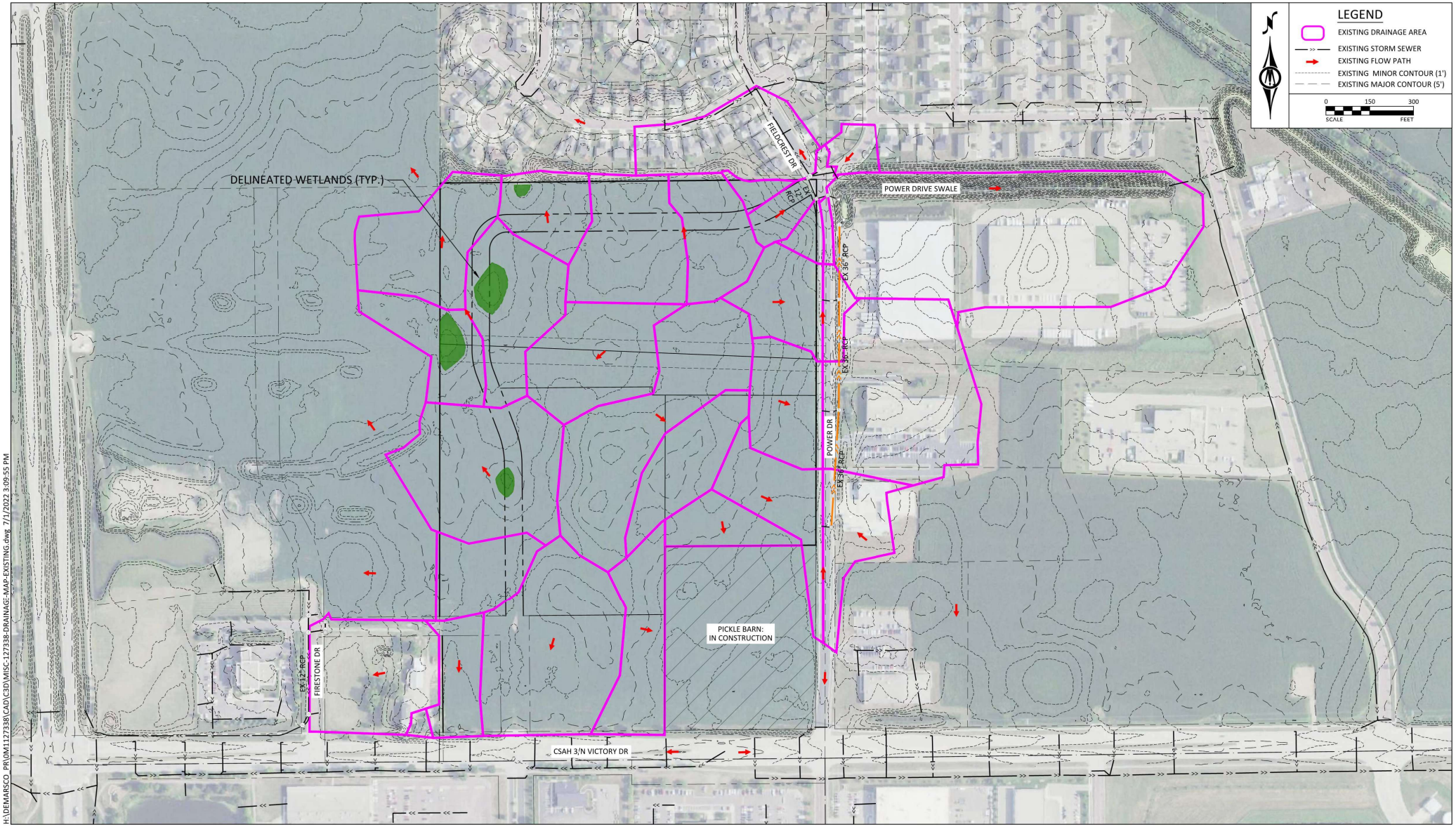
Please feel free to contact me with any questions or comments about this report at Matthew.Simon@Bolton-Menk.com or by phone at (507) 625-4171, x3295. You may also reach out to the the lead project engineer Alec Pietz at Alec.Pietz@Bolton-Menk.com or by phone at (507) 766-3283, x3310.

Appendix A: Figures

Wolfe Addition No. 2
Demars Construction

Figure 1: Existing Drainage Area Map
July 2022

BOLTON & MENK



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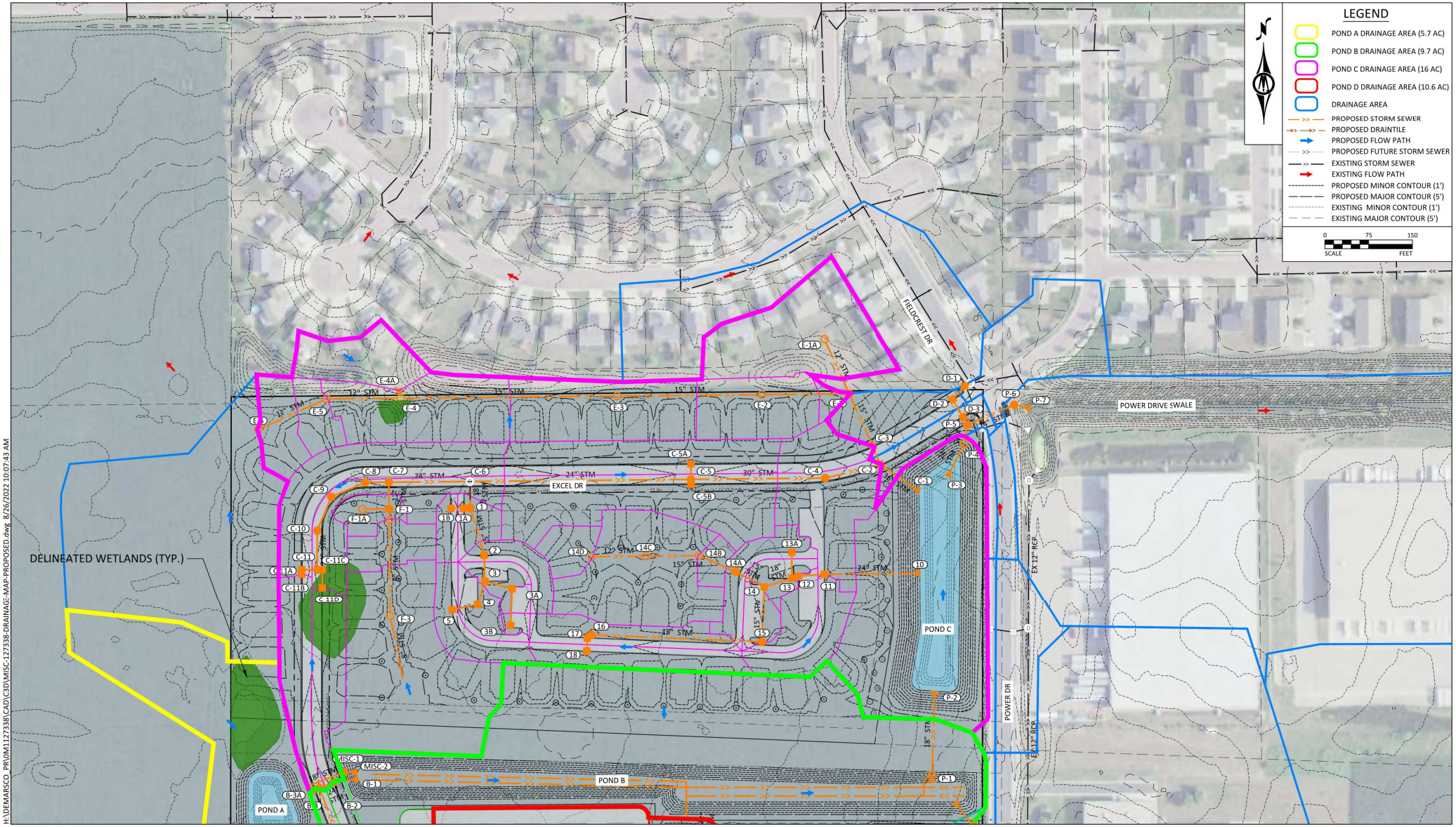
Wolfe Addition No. 2
Demars Construction

Figure 2: Proposed Drainage Area Map (North)
August 2022

BOLTON & MENK



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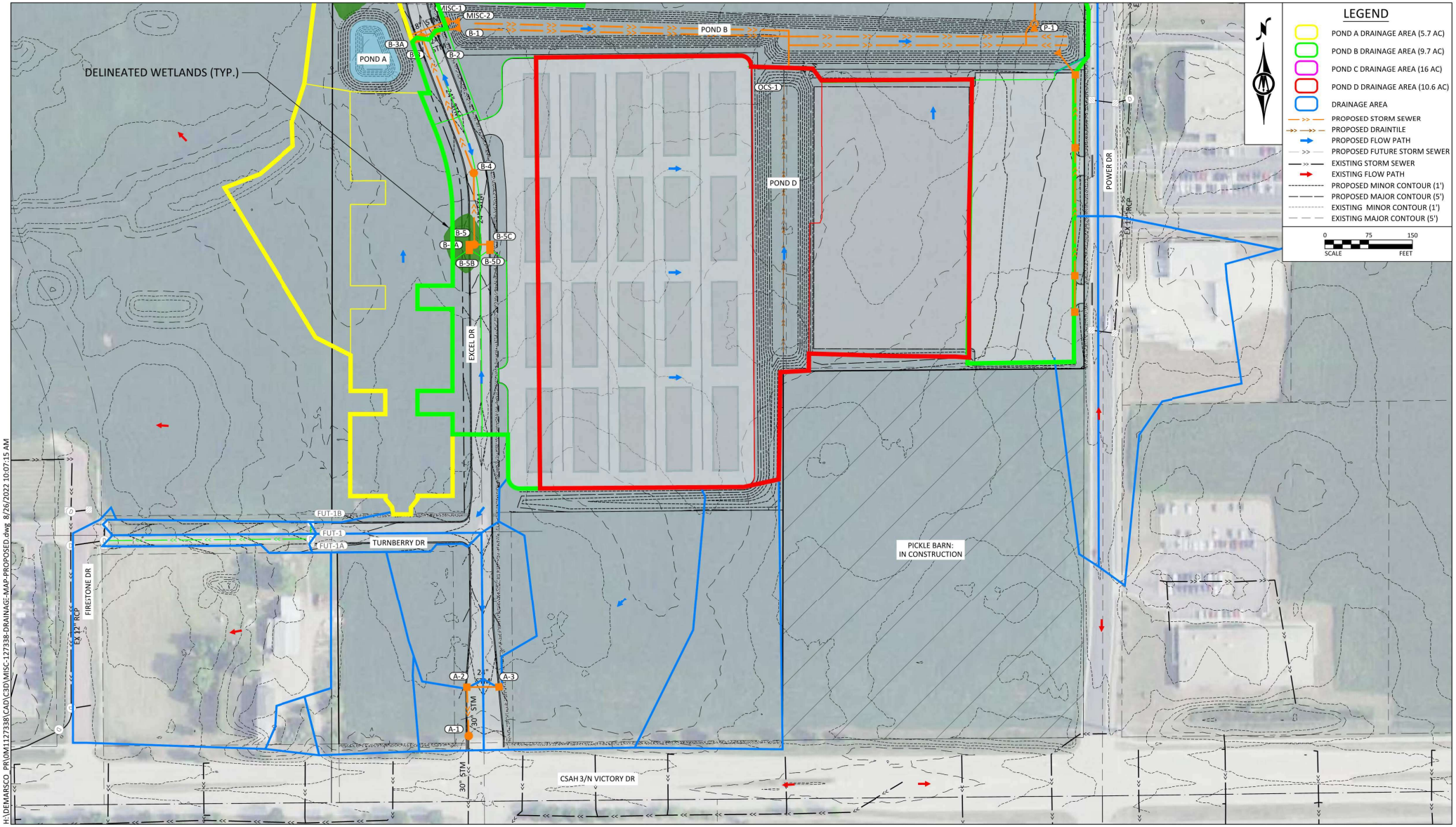
Wolfe Addition No. 2
Demars Construction

Figure 3: Proposed Drainage Area Map (South)
August 2022

BOLTON & MENK



Appendix B: Water Quality Spreadsheets

Demars Construction Wolfe Addition No.2 BMI Project No. 0M1.127338			
Subbasin Details			
INLET	AREA (AC)	CURVE NUMBER	TIME OF CONCENTRATION (MIN.)
C-11A	0.71	93.68	07
E-4	0.74	87.96	11
E-6	0.27	85.67	10
Out-02	2.73	88.36	12
C-11B	0.40	92.43	09
C-11D	0.39	93.87	07
64	0.26	93.39	07
POND-A	1.84	83.95	28
POND-A	2.40	98.00	12
B-3A	0.17	86.61	08
B-2	0.11	93.27	07
B-5B	0.46	85.50	12
B-5D	0.30	90.10	09
A-1A	0.18	93.38	07
EX18	0.19	98.00	07
EX19	0.18	98.00	07
A-3	0.74	90.33	09
A-1B	0.53	94.22	08
Out-05	0.14	79.00	09
A-3	1.12	87.48	09
A-3	0.31	91.63	09
EX23	3.34	86.10	15
A-4	3.07	89.38	12
A-4	1.73	88.27	12
64	0.78	98.00	07
B-5C	1.23	96.39	09
POND-B	6.26	84.00	25
POND-A	1.41	89.00	34
64	2.25	89.35	20
EX11	0.80	88.08	08
POND-D	6.27	98.00	18
Stor-EX	12.43	91.14	19
EX17	6.65	90.91	18
B-5A	0.25	88.61	08
POND-D	1.13	98.00	09
64	0.13	91.59	09
64	0.13	89.25	09
64	0.19	90.29	07
13A	0.26	92.70	10
14B	0.09	92.00	07
14C	0.98	87.34	19
14D	0.17	87.20	15
C-5B	0.98	89.68	21
64	0.33	93.83	08
64	0.18	93.73	07
64	0.12	87.52	07
64	0.04	98.00	07
64	0.04	91.37	07
D-1	0.80	90.51	15
D-2	0.37	83.58	12
D-3	0.23	90.75	07
EX20	0.17	92.79	07
EX9	0.13	98.00	07
EX14	0.59	95.57	07
EX6	0.49	87.30	08
E-1A	0.93	84.89	19
E-1	0.05	92.00	10
E-2	0.49	87.62	18
C-3	0.22	93.92	07
C-5A	0.63	93.80	11
E-3	0.76	87.92	14
F-1A	0.15	84.67	09
F-2	0.23	92.00	23
C-11C	0.47	95.04	08
POND-C/P-2	2.35	81.33	13
C-2	0.54	91.12	07
64	0.28	93.29	07
64	0.32	93.85	07
64	0.17	89.60	07
1A	0.13	93.25	07
F-3	0.69	92.00	15
F-3	0.86	82.52	24
E-5	0.18	86.65	19
EX21	0.10	98.00	07
1B	0.09	93.90	07
64	0.93	98.00	07
64	0.59	98.00	07
POND-D	1.71	80.00	21
64	0.04	98.00	07
EX10	2.04	90.05	21
A-4	0.44	92.28	12
E-4A	0.39	83.96	30

POND A

Demars Construction
Wolfe Addition No. 2
BMI PROJECT # 0M1.127338
DATE: 6/30/2022

Design Requirements:

a. Wet sedimentation basins must have a dead storage volume of1800 cf per acre draining to the pond.

b. The basin's water quality volume (WQV) is calculated as 1.1 inch of runoff from the new impervious surfaces created by the project for non-impaired receiving waters, or 1-inch of runoff for impaired receving waters.

c. Basin outlets shall be designed such that the WQV is discharged at no more than 5.66 cfs per acre of surface area at the WQV.

Newly constructed impervious area =	2.40	acres	
Required Water Quality Volume (WQV)=	**0.22**	**ac-ft**	
Designed WQV =	**0.30**	**ac-ft**	**OK**
Water surface elevation at WQV bounce =	1006.13	ft	
Surface area at WQV bounce =	0.21	ac	
Allowable Water Quality Release Rate =	**1.19**	cfs	
Designed Water Quality Release Rate at elev 1006.13 (From hydraulic modeling)	**0.75**	cfs	**OK**
Required Volume Below Outlet (dead storage) =	**0.23**	ac-ft	
Designed Volume Below Outlet (dead storage) =	**0.44**	ac-ft	**OK**

	ELEV. (FT)	AREA (AC)	VOLUME (AC-FT)	AREA (SQ-FT)
TOTAL POND		0.00	0.00	
VOLUME AT WQV		0.00	0.00	
0.66		0.00	0.00	
		0.00	0.00	
	1010.0	0.35	1.74	15393
	1009.0	0.31	1.41	13640
	1008.0	0.28	1.11	11988
	1007.0	0.24	0.86	10436
	1006.0	0.21	0.63	8984
NWL	1005.0	0.18	0.44	7634
SAFETY BENCH	1004.0	0.11	0.30	4696
	1003.0	0.09	0.20	3937
	1002.0	0.07	0.12	3234
	1001.0	0.06	0.05	2588
	1000.0	0.05	0.00	2000
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	

POND B

Demars Construction
Wolfe Addition No. 2
BMI PROJECT # 0M1.127338
DATE: 6/30/2022

Design Requirements:

a. The basin's water quality volume (WQV) is calculated as 1.1 inch of runoff from the new impervious surfaces created by the project for non-impaired receiving waters, or 1-inch of runoff for impaired receving waters.

Newly constructed impervious area =	6.56	acres	
Required Water Quality Volume (WQV)=	**0.60**	**ac-ft**	**OK**
Designed WQV =	**0.81**	**ac-ft**	
Water surface elevation at WQV bounce =	1004.75	ft	
Surface area at WQV bounce =	0.85	ac	

	ELEV. (FT)	AREA (AC)	VOLUME (AC-FT)	AREA (SQ-FT)
TOTAL POND		0.00	0.00	
VOLUME AT WQV		0.00	0.00	
0.60		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
	1008.0	1.39	4.21	60378
	1007.0	1.22	2.91	53036
	1006.0	1.05	1.78	45794
	1005.0	0.89	0.81	38654
Bottom	1004.0	0.73	0.00	31616
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	

POND C

Demars Construction
Wolfe Addition No. 2
BMI PROJECT # 0M1.127338
DATE: 6/30/2022

Design Requirements:

a. Wet sedimentation basins must have a dead storage volume of1800 cf per acre draining to the pond.

b. The basin's water quality volume (WQV) is calculated as 1.1 inch of runoff from the new impervious surfaces created by the project for non-impaired receiving waters, or 1-inch of runoff for impaired receving waters.

c. Basin outlets shall be designed such that the WQV is discharged at no more than 5.66 cfs per acre of surface area at the WQV.

Newly constructed impervious area =	6.78	acres	
Required Water Quality Volume (WQV)=	**0.62**	**ac-ft**	
Designed WQV =	**0.67**	**ac-ft**	**OK**
Water surface elevation at WQV bounce =	1000.93	ft	
Surface area at WQV bounce =	0.71	ac	
Allowable Water Quality Release Rate =	**4.00**	cfs	
Designed Water Quality Release Rate at elev 1000.93 (From hydraulic modeling)	**3.00**	cfs	**OK**
Required Volume Below Outlet (dead storage) =	**0.68**	ac-ft	
Designed Volume Below Outlet (dead storage) =	**1.45**	ac-ft	**OK**

	ELEV. (FT)	AREA (AC)	VOLUME (AC-FT)	AREA (SQ-FT)
TOTAL POND		0.00	0.00	
VOLUME AT WQV		0.00	0.00	
2.07		0.00	0.00	
	1006.0	1.19	6.86	51917
	1005.0	1.09	5.71	47663
	1004.0	0.99	4.67	43305
	1003.0	0.90	3.72	39085
	1002.0	0.80	2.87	35005
	1001.0	0.71	2.12	31062
NWL	1000.0	0.63	1.45	27284
SAFETY BENCH	999.0	0.42	0.92	18326
	998.0	0.34	0.54	14950
	997.0	0.27	0.23	11729
	996.0	0.20	0.00	8683
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	

POND D

Demars Construction
Wolfe Addition No. 2
BMI PROJECT # 0M1.127338
DATE: 6/30/2022

Design Requirements:

a. The basin's water quality volume (WQV) is calculated as 1.1 inch of runoff from the new impervious surfaces created by the project for non-impaired receiving waters, or 1-inch of runoff for impaired receving waters.

Newly constructed impervious area =	11.91	acres	
Required Water Quality Volume (WQV)=	**1.09**	**ac-ft**	**OK**
Designed WQV =	**1.15**	**ac-ft**	
Water surface elevation at WQV bounce =	1005.91	ft	
Surface area at WQV bounce =	0.67	ac	

	ELEV. (FT)	AREA (AC)	VOLUME (AC-FT)	AREA (SQ-FT)
TOTAL POND		0.00	0.00	
VOLUME AT WQV		0.00	0.00	
1.09		0.00	0.00	
		0.00	0.00	
	1009.0	1.30	4.03	56843
	1008.0	1.05	2.85	45741
	1007.0	0.84	1.91	36648
	1006.0	0.68	1.15	29561
	1005.0	0.57	0.52	24871
Bottom	1004.0	0.47	0.00	20663
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	
		0.00	0.00	

Wolfe Addition No. 2

Type & Boundary and Incidental Wetlands Application

Demars Construction
June 7, 2022

Submitted by:
Bolton & Menk, Inc.
1960 Premier Drive
Mankato, MN 56001
P: (507) 625-4171
F: (507) 625-4177

BOLTON & MENK
Real People. Real Solutions.

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Appendix

WETLAND DELINEATION REPORT

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name:	Max Demars | Demars Construction
Mailing Address:	3 Civic Center Plaza | Mankato, MN 56001
Phone:	(507) 387-5933
E-mail Address:	

Authorized Contact (do not complete if same as above):
Mailing Address:
Phone:
E-mail Address:

Agent Name:	Chad Ponce | Natural Resources Specialist | Bolton & Menk, Inc.
Mailing Address:	1960 Premier Drive | Mankato, MN | 56001
Phone:	(813) 833-2592
E-mail Address:	chad.ponce@bolton-menk.com

PART TWO: Site Location Information

County: Blue Earth County **City/Township:** Mankato
Parcel ID and/or Address: Parcel ID: R430903300012, N. Victory Drive, Mankato, MN 56001 (See Location Map)
Legal Description (Section, Township, Range): Sec 3, T108N, R26W

Lat/Long (decimal degrees):
Attach a map showing the location of the site in relation to local streets, roads, highways.
Approximate size of site (acres) or if a linear project, length (feet): Approximately 49 acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted ***prior to*** this application then describe that here and provide the Corps of Engineers project number.

N/A

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

Demars Construction has requested a wetland delineation of Parcel ID: R430903300012, located along the north side of North Victory Drive, in Mankato, MN.

PART FOUR: Aquatic Resource Impact[1] Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	**Aquatic Resource Type** (wetland, lake, tributary etc.)	**Type of Impact** (fill, excavate, drain, or remove vegetation)	**Duration of Impact** Permanent (P) or Temporary (T)[1]	**Size of Impact**[2]	**Overall Size of Aquatic Resource** [3]	**Existing Plant Community Type(s)** in Impact Area[4]	**County, Major Watershed #, and Bank Service Area #** of Impact Area[5]

[1]If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".
[2]Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).
[3]This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".
[4]Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.
[5]Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

N/A

PART FIVE: Applicant Signature

☐ Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: _____ Date: 6/9/2022

I hereby authorize **Bolton & Menk, Inc** to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

[1] The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

Attachment A

Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

☐ **Wetland Type Confirmation**

☐ **Delineation Concurrence**. Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

☐ **Preliminary Jurisdictional Determination**. A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

☒ **Approved Jurisdictional Determination**. An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).
http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx

A review of off-site data at the Wetland 1 (Site 1), Wetland 2 (Site 2), Wetland 3 (Site 3), and Wetland 4 (Site 4) locations, primarily review of historical aerials, indicates that the wetland locations are incidental, created by increased hydrology from development to the west and north. According to historical imagery, the Wetland 1 area has been in farmed agricultural production since at least 1938 to present day. The sites showed no clear signs of wet signatures from 1938 to: 1995 (Sites 1 and 2), 2003 (Site 3), and 2015 (Site 4). The first visible wet signature within the Wetland 1 and 2 locations are visible in the 2000 aerial imagery. The wet signature for Wetland 1 is more obvious than the wet signature at Wetland 2, primarily due to the relative size of the signatures. The first visible wet signature within Wetland 3 is seen on the 2008 aerial imagery and within Wetland 4 is seen on the 2017 aerial imagery. Adjacent construction to the west is first seen in in the 1995 aerial imagery, with the construction of a mini-golf course. Adjacent development to the north of the study area was visible by 2006 ***(Exhibits H)****. The review and field visit resulted in the four sites being considered a wetland at this time. However, these wetlands should be considered incidental, based on no wet signatures in the historical imagery prior to 1995 (Sites 1 and 2), 2003 (Site 3), and 2015 (Site 4). Development to the west since 1995 and to the north since 2006 have increased impervious surfaces and caused hydrology in the area to be altered and redirected to these four wetland areas. Therefore, Wetlands 1, 2, 3, and 4 should be considered non-jurisdictional under Section 404 Clean Water Act and should also be considered incidental under the Wetland Conservation Act.*

Attachment B

Supporting Information for Applications Involving Exemptions, No Loss Determinations, and Activities Not Requiring Mitigation

Complete this part ***if*** you maintain that the identified aquatic resource impacts in Part Four do not require wetland replacement/compensatory mitigation OR ***if*** you are seeking verification that the proposed water resource impacts are either exempt from replacement or are not under CWA/WCA jurisdiction.

Identify the specific exemption or no-loss provision for which you believe your project or site qualifies:

8420.0105.D – Incidental Wetlands

Provide a detailed explanation of how your project or site qualifies for the above. Be specific and provide and refer to attachments and exhibits that support your contention. Applicants should refer to rules (e.g. WCA rules), guidance documents (e.g. BWSR guidance, Corps guidance letters/public notices), and permit conditions (e.g. Corps General Permit conditions) to determine the necessary information to support the application. Applicants are strongly encouraged to contact the WCA LGU and Corps Project Manager prior to submitting an application if they are unsure of what type of information to provide:

8420.0105.D – Incidental Wetlands – *A review of off-site data at the Wetland 1 (Site 1), Wetland 2 (Site 2), Wetland 3 (Site 3), and Wetland 4 (Site 4) locations, primarily review of historical aerials, indicates that the wetland locations are incidental, created by increased hydrology from development to the west and north. According to historical imagery, the Wetland 1 area has been in farmed agricultural production since at least 1938 to present day. The sites showed no clear signs of wet signatures from 1938 to: 1995 (Sites 1 and 2), 2003 (Site 3), and 2015 (Site 4). The first visible wet signature within the Wetland 1 and 2 locations are visible in the 2000 aerial imagery. The wet signature for Wetland 1 is more obvious than the wet signature at Wetland 2, primarily due to the relative size of the signatures. The first visible wet signature within Wetland 3 is seen on the 2008 aerial imagery and within Wetland 4 is seen on the 2017 aerial imagery. Adjacent construction to the west is first seen in in the 1995 aerial imagery, with the construction of a mini-golf course. Adjacent development to the north of the study area was visible by 2006* ***(Exhibits H)****. The review and field visit resulted in the four sites being considered a wetland at this time. However, these wetlands should be considered incidental, based on no wet signatures in the historical imagery prior to 1995 (Sites 1 and 2), 2003 (Site 3), and 2015 (Site 4). Development to the west since 1995 and to the north since 2006 have increased impervious surfaces and caused hydrology in the area to be altered and redirected to these four wetland areas. Therefore, Wetlands 1, 2, 3, and 4 should be considered non-jurisdictional under Section 404 Clean Water Act and should also be considered incidental under the Wetland Conservation Act.*

Appendix

Wolfe Addition No. 2

Wetland Delineation Report

Demars Construction
June 7, 2022

Submitted by:
Bolton & Menk, Inc.
1960 Premier Drive
Mankato, MN 56001
P: (507) 625-4171
F: (507) 625-4177

BOLTON & MENK
Real People. Real Solutions.

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Exhibit C: National Wetlands Inventory Map
Exhibit D: Public Waters Inventory Map
Exhibit E: Blue Earth County Soil Survey Map
Exhibit F: Wetland Delineation Map
Exhibit G: Delineation Data Sheets
Exhibit H: Off-Site Hydrology Assessment

I. INTRODUCTION

This delineation was completed to determine the location and types of aquatic resources within the study area of Blue Earth County Parcel ID numbers: R430903300014 and R430903300015, located along the north side of North Victory Drive, in Mankato, MN. This report details the findings of the field delineation completed on May 16, 2022.

The project is found in Section 3, in Township 108 North of Range 26 West.

II. WETLAND DELINEATION METHODOLOGY

The wetland boundaries were delineated and staked in the field in May of 2022, using methods described in the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0)". Wetlands identified were classified using "Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al., 1979)", "Wetlands of the United States (United States Fish and Wildlife Service Circular No. 39, 1971 edition)" and "Wetland Plants and Plant Communities of Minnesota and Wisconsin" (Eggers and Reed Third Edition). Subsequently, the three mandatory technical criteria for wetland determinations are as follows:

Hydrophytic Vegetation. A hydrophytic plant community is present when the dominant plant species present can endure prolonged inundation and/or soil saturation during the growing season. A plant's Wetland Indicator Status is determined using the 2020 National Wetland Plant List (Midwest Regional List version 3.5), published by the Army Corp of Engineers.

Hydric Soils. A hydric soil is defined as a soil that is formed under conditions of saturation, flooding or ponding long enough during the growing season (the portion of the year when there is above ground growth and development of vascular plants and/or soil temperature at 12 inches below the soil surface is above 41 degrees Fahrenheit or higher) to develop anaerobic conditions in the upper part.

Wetland Hydrology. An area has wetland hydrology if it experiences 14 or more consecutive days of flooding, ponding or a water table within 12 inches of the surface during the growing season at a minimum frequency of five out of ten years. This is determined by using both primary and secondary Wetland Hydrology indicators.

III. BACKGROUND INFORMATION

Prior to conducting a field investigation of this site, Exhibits A through E and H were used to complete a preliminary evaluation. The data gathered during the preliminary investigation was used as described below:

Exhibit A is a location map of the study area.

Exhibits B is an aerial photo with topographic information overlaid on it. This provides information regarding topography of the site, helping to identify areas that may have wetland characteristics.

Exhibit C is the National Wetlands Inventory of the site and surrounding properties. This information is used to complete a preliminary investigation of the wetlands that may or may not exist on the site.

Exhibit D is used to identify waters that are regulated by the DNR. This exhibit shows where there are DNR public waters relative to the site.

Exhibit E is the Blue Earth County Soil Survey and is used to identify hydric soils that may lie within the study area.

Delineation Exhibits F and G were prepared from the information gathered at the site.

Exhibit F is the site map showing the delineated aquatic resources.

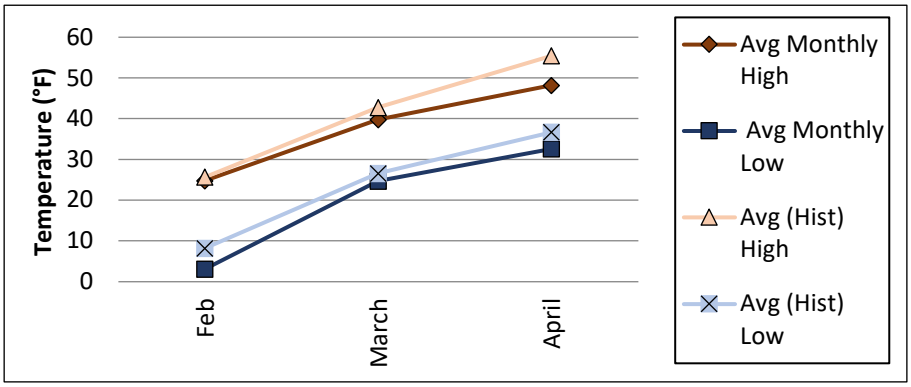
Exhibit G includes the wetland delineation data sheets.

Exhibit H includes the off-site hydrology assessment data sheets and historical imagery maps.

IV. CLIMATE DATA

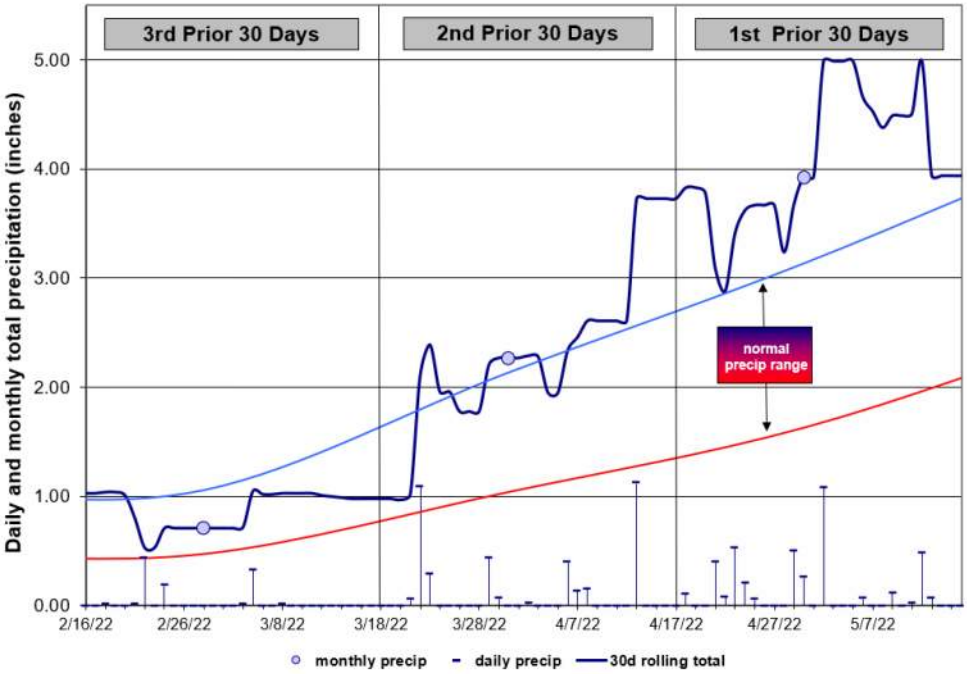
The monthly temperature table below shows the average high and low temperatures for the three months prior to the field delineation, along with the historical averages for these months. The monthly high and low temperatures have been below average for this period.

MONTHLY TEMPERATURE RANGE



Antecedent precipitation was evaluated using a combination of the NRCS Method and the Rolling Totals Method. We consider the precipitation to be normal for the 3rd prior 30 days and above normal for the 1st and 2nd prior 30 days leading to the delineation. Overall, antecedent precipitation conditions are considered above normal.

ANTECEDENT PRECIPITATION CONDITIONS



This climatic data was gathered using the Minnesota State Climatology Office Website, https://climateapps.dnr.state.mn.us/index.htm and the NOAA Regional Climate Centers ACIS Website, http://agacis.rcc-acis.org/. The information for the investigation was retrieved from the WETS Station for the Mankato Municipal Airport, MN.

V. FINDINGS

On May 16, 2022, a field investigation was performed to evaluate and verify the existence and boundary of any aquatic resources located within the study area. Four wetlands were found to exist within the study area. The following describes the aquatic resources identified, together with a brief description of wetland types and observations made during the field investigation.

Wetland 1 (W1-A & W1-B):
NWI Cowardin: None
PWI (Hydro) ID: None
Field Observation Circular 39: Type 2
Field Observation Eggers and Reed: Fresh (wet) Meadow
Soil Mapping Unit(s): 109-Cordova clay loam



Photo 1: View of the W1-A & W1-B sample points, facing north into the wetland basin.

Wetland 1 consists of a shallow depression within a farmed agricultural field, near the northwest section of the study area. The off-site hydrology assessment found the Site 1 location, located at the W1-A wetland pit location, showed wet signatures in 43% of normal years. The decision matrix resulted in the site requiring a field visit to determine if hydrology was present. In addition, the off-site assessment shows evidence of the Wetland 1 basin to be considered an incidental wetland (See Attachment B).

The field investigation found that the site has met all three wetland indicators and this wetland may be considered a palustrine emergent persistent temporarily flooded (PEM1A) wetland. Two sample points were taken to determine the wetland boundary, which was primarily determined based on topography.

The W1-A and W1-B sample points were taken within a farmed agricultural field with no vegetation present at the time of the site visit. As a result, the vegetation was considered problematic.

Soils in the W1-A wetland pit and the W1-B upland pit locations met the hydric soil indicator A12-Thick Dark Surface.

The W1-A wetland location met the secondary hydrology indicators B6-Surface Soil Cracks, C9-Saturation Visible on Aerial Imagery and D2-Geomorphic Position. The W1-B upland location did not meet any of the hydrology indicators.

Wetland 2 (W2-A & W2-B):
NWI Cowardin: None
PWI (Hydro) ID: None
Field Observation Circular 39: Type 2
Field Observation Eggers and Reed: Fresh (wet) Meadow
Soil Mapping Unit(s): 109-Cordova clay loam



Photo 2: View of the W2-A & W2-B sample points, facing south into the wetland basin.

Wetland 2 consists of a shallow depression within a farmed agricultural field, near the northwest section of the study area, northeast of Wetland 1. The off-site hydrology assessment found the Site 2 location, located at the W2-A wetland pit location, showed wet signatures in 29% of normal years. The decision matrix resulted in a determination that Site 2 is not a wetland and does not require a field visit. While on site hydrology was observed to be present at Site 2, therefore, the location was evaluated. In addition, the off-site assessment shows evidence of the Wetland 2 basin to be considered an incidental wetland (See Attachment B).

The field investigation found that the site has met all three wetland indicators and this wetland may be considered a palustrine emergent non-persistent temporarily flooded (PEM2) wetland. Two sample points were taken to determine the wetland boundary, which was primarily determined based on topography.

The W2-A and W2-B sample points were taken within a farmed agricultural field with no vegetation present at the time of the site visit. As a result, the vegetation was considered problematic.

Soils in the W2-A wetland pit and the W2-B upland pit locations met the hydric soil indicator A12-Thick Dark Surface.

The W2-A wetland location met the secondary hydrology indicators B6-Surface Soil Cracks, C9-Saturation Visible on Aerial Imagery and D2-Geomorphic Position. The W2-B upland location did not meet any of the hydrology indicators.

Wetland 3 (W3-A & W3-B):
NWI Cowardin: None
PWI (Hydro) ID: None
Field Observation Circular 39: Type 2
Field Observation Eggers and Reed: Fresh (wet) Meadow
Soil Mapping Unit(s): 211-Lura silty clay



Photo 3: View of the W3-A sample point, facing west into the wetland basin.

Wetland 3 consists of a shallow depression within a farmed agricultural field, at the north side of the study area. The off-site hydrology assessment found the Site 3 location, located at the W3-A wetland pit location, showed wet signatures in 43% of normal years. The decision matrix resulted in the site requiring a field visit to determine if hydrology was present. In addition, the off-site assessment shows evidence of the Wetland 3 basin to be considered an incidental wetland (See Attachment B).

The field investigation found that the site has met all three wetland indicators and this wetland may be considered a palustrine emergent persistent temporarily flooded (PEM1A) wetlands. Two sample points were taken to determine the wetland boundary, which was primarily determined based on topography.

The W3-A sample point was taken within a farmed agricultural field with no vegetation present at the time of the site visit. As a result, the vegetation was considered problematic. The W2-B upland pit location may be used as an upland reference location for this wetland.

Soils in the W3-A wetland pit location were assumed to meet the hydric soil indicator A12-Thick Dark Surface. This indicator was assumed based on the mapped hydric soils, mapped NWI, problematic vegetation, hydrology, and soils found at the W3-A wetland pit location. The W2-B upland pit location met the hydric soil indicator A12-Thick Dark Surface.

The W3-A wetland location met the secondary hydrology indicators C9 and D2. The W2-B upland location did not meet any of the hydrology indicators.

Wetland 4 (W4-A & W4-B):
NWI Cowardin: None
PWI (Hydro) ID: None
Field Observation Circular 39: Type 1
Field Observation Eggers and Reed: Seasonally Flooded Basin
Soil Mapping Unit(s): 109-Cordova clay loam



Photo 4: View of Wetland 4, facing south into the wetland basin.

Wetland 4 consists of a shallow depression within a farmed agricultural field, southeast of Wetland 1. The off-site hydrology assessment found the Site 4 location, located at the W4-A wetland pit location, showed wet signatures in 14% of normal years. The decision matrix resulted in a determination that Site 4 is not a wetland and does not require a field visit. While on site hydrology was observed to be present at Site 4, therefore, the location was evaluated. In addition, the off-site assessment shows evidence of the Wetland 4 basin to be considered an incidental wetland (See Attachment B).

The field investigation found that the site has met all three wetland indicators and this wetland may be considered a palustrine emergent non-persistent temporarily flooded (PEM1A) wetland. Two sample points were taken to determine the wetland boundary, which was primarily determined based on topography.

The W4-A and W4-B sample points were taken within a farmed agricultural field with no vegetation present at the time of the site visit. As a result, the vegetation was considered problematic.

Soils in the W4-A wetland pit and the W4-B upland pit locations met the hydric soil indicator A12-Thick Dark Surface.

The W4-A wetland location met the secondary hydrology indicators B6-Surface Soil Cracks, C9-Saturation Visible on Aerial Imagery and D2-Geomorphic Position. The W4-B upland location did not meet any of the hydrology indicators.

VI. CONCLUSION

The delineation was performed on May 16, 2022. The boundaries of the wetlands were staked in the field with three foot "Wetland Delineation" pin flags. The location of the pin flags were surveyed by Bolton & Menk, Inc. using a Juniper Geode GPS Data Collector and tied to the Blue Earth County coordinate system. The delineated limits are believed to be the upper limits of where all three of the required wetland criteria were present.

Bolton & Menk, Inc., was asked to determine the boundaries of those jurisdictional wetlands that exist upon this property as defined by the Wetland Conservation Act.

Based upon all available information, the existing conditions that currently prevail, and the on-site investigation, evidence supports the presence of four wetlands within the boundaries of the study area.

WETLAND SUMMARY

Id #	Wetland Type^	Size*
Wetland 1	Type 2- Fresh (wet) Meadow	0.28 ac
Wetland 2	Type 2- Fresh (wet) Meadow	0.31 ac
Wetland 3	Type 2- Fresh (wet) Meadow	0.04 ac
Wetland 4	Type 1 – Seasonally Flooded Basin (SFB)	0.11 ac
Total Wetland Acreage		0.74 ac

**size measured within study area.*
^wetland type within study area

Sincerely,
BOLTON & MENK, INC.



Chad Ponce
Professional Wetland Scientist (PWS# 3327)

APPENDIX

Wolfe Addition No. 2

Mankato, Blue Earth County, MN

Exhibit A: Location Map

May 2022

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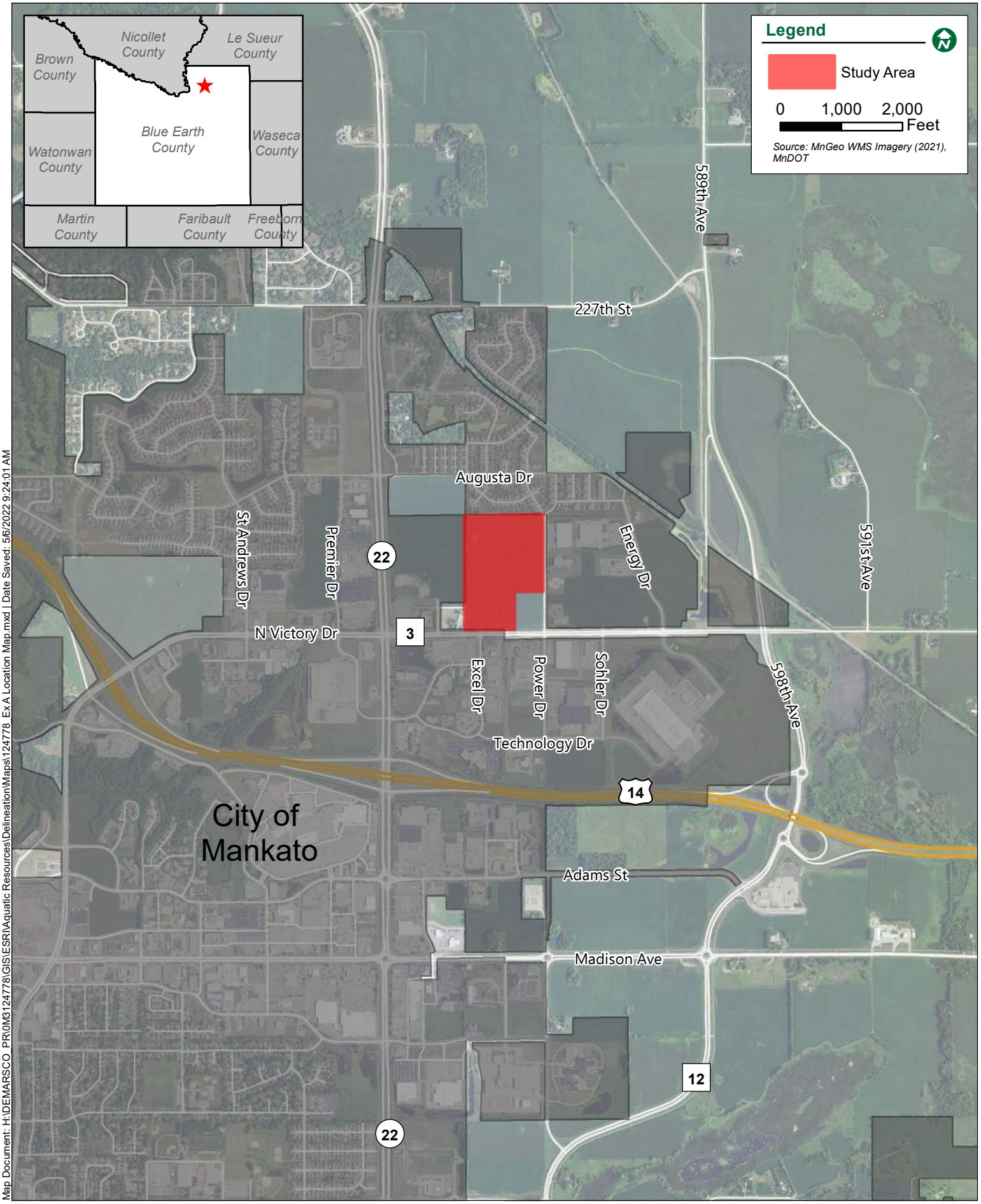

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Wolfe Addition No. 2

Mankato, Blue Earth County, MN

Exhibit B: 2-Foot LiDAR Contours

June 2022

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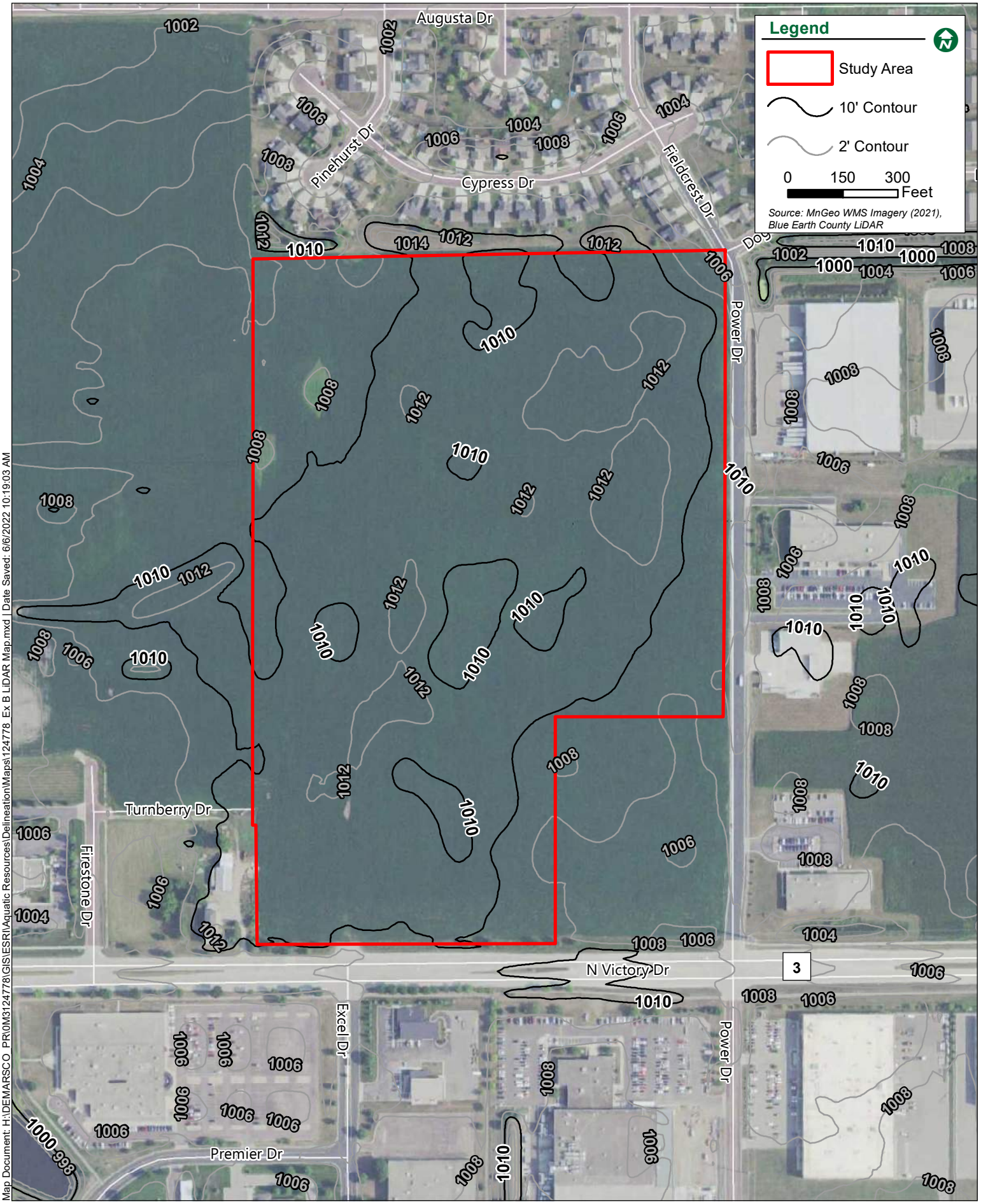

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Wolfe Addition No. 2

Mankato, Blue Earth County, MN

Exhibit C: National Wetlands Inventory Map

June 2022

BOLTON & MENK
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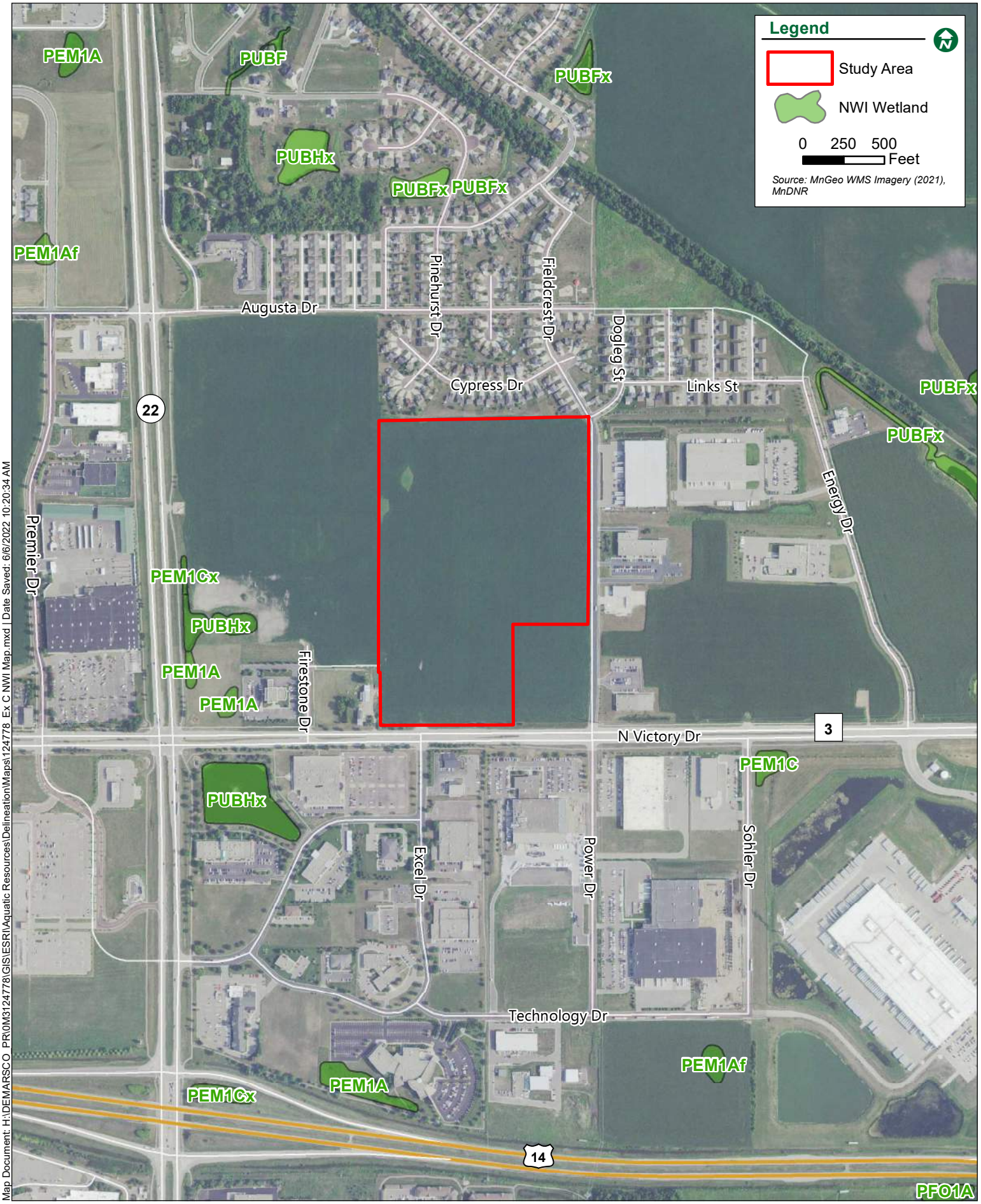

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Wolfe Addition No. 2

Mankato, Blue Earth County, MN

Exhibit D: Public Waters Inventory Map

May 2022

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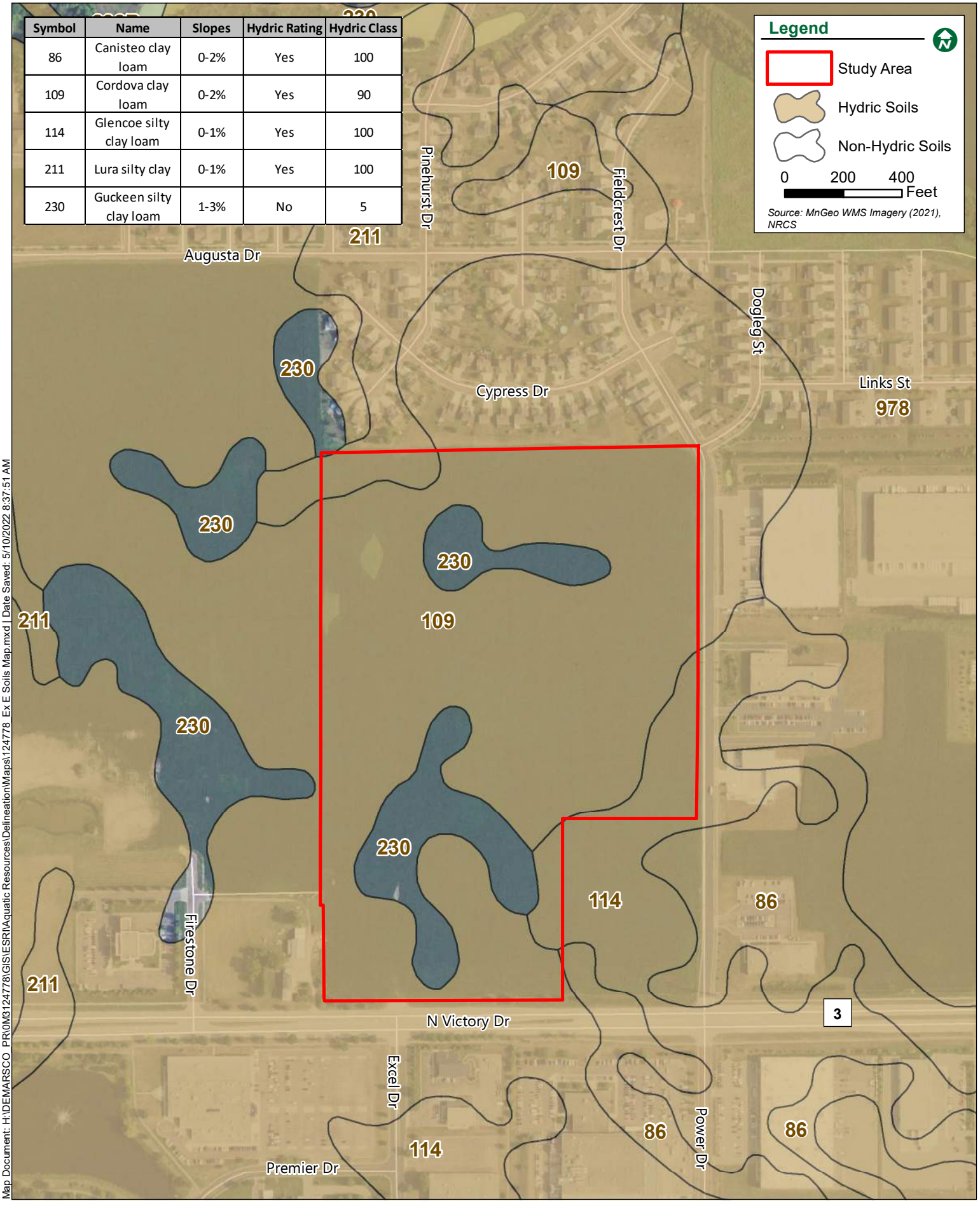
Map Document: H:\DEMARSCO_PR\0M3124778\GIS\ESRI\Aquatic Resources\DelineationMaps\124778_Ex D PWI Map.mxd | Date Saved: 5/6/2022 9:26:42 AM

Symbol	Name	Slopes	Hydric Rating	Hydric Class
86	Canisteo clay loam	0-2%	Yes	100
109	Cordova clay loam	0-2%	Yes	90
114	Glencoe silty clay loam	0-1%	Yes	100
211	Lura silty clay	0-1%	Yes	100
230	Guckeen silty clay loam	1-3%	No	5



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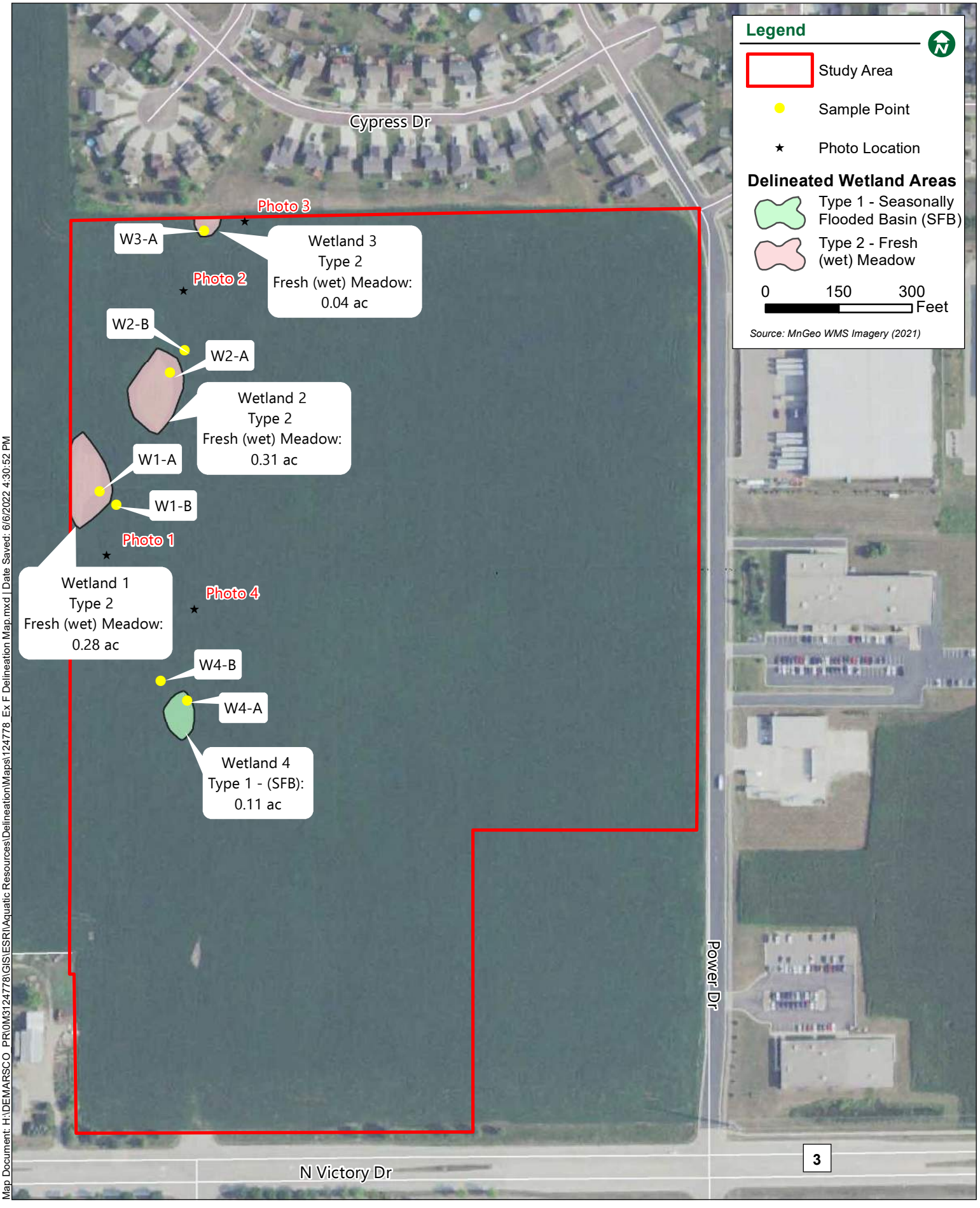

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM
(Midwest Region)

Project/Site: **Wolfe Addition No. 2** City/County: **Mankato/ Blue Earth County** Sampling Date: **5/16/2022**

Applicant/Owner: **Demars Construction** State: **Minnesota** Sample Point: **W1-A**

Investigator(s): **Eva Douma & Chad Ponce** Section, Township, Range: **Sec 10, T108N, R26W**

Landforms (hillside, terrace, etc.): **Basin** Local Relief (concave, convex, none): **Concave**

Slope (%): **0-2%** Latitude: Longitude: Datum: **BECO**

Soil Map Unit Name: **109- Cordova clay loam** NWI Classification: **None**

Are climatic/hydrologic conditions of the site typical for this time of year? **Yes** (If no, explain in remarks)

Are vegetation **X**, soils , or hydrology **X** significantly disturbed? Are normal circumstances present? **No**

Are vegetation , soils , or hydrology naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present? **Yes**

Hydric soils present? **Yes**

Wetland hydrology present? **Yes**

Is the sampled area within a wetland? **Yes**

Remarks: **Antecedent precipitation was normal at the time of the site visit. Sample taken at the off-site hydrology Site 1.**

VEGETATION - Use scientific names of plants

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Sapling/Shrub stratum (Plot size: 15 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Herb stratum: (Plot size: 5 feet)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0 =Total Cover		
Woody vine stratum: (Plot size: 15 feet)			
1			
2			
	0 =Total Cover		

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: **0** (A)

Total number of dominant species across all strata: **0** (B)

Percent of dominant species that are OBL, FACW or FAC: **0%** (A/B)

Prevalence Index Worksheet

Total % cover of:

OBL Species:	**0**	x 1 =	**0**
FACW Species:	**0**	x 2 =	**0**
FAC Species:	**0**	x 3 =	**0**
FACU species:	**0**	x 4 =	**0**
UPL Species:	**0**	x 5 =	**0**
Totals:	**0** (A)		**0** (B)

Prevalence Index (B/A):

Hydrophytic Vegetation Indicators

- Rapid test for hydrophytic vegetation
- Dominance test >50%
- Prevalence index is ≤3.0*
- Morphological adaptations* (Provide supporting data in remarks)
- **X** Problematic hydrophytic vegetation* (Explain in remarks)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? **Yes**

Remarks: **Sample taken within a regularly farmed field with no vegetation present at the time of the site visit.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM

(Midwest Region)

Sample Point: **W1-A**

SOILS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	**10YR 2/1**	**100**					**Clay**	
14-30	**10YR 2/1**	**98**	**10YR 5/1**	**2**	**D**	**M**	**Clay**	
30-40	**10YR 4/1**	**90**	**10YR 5/4**	**10**	**C**	**M**	**Clay**	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- **X** Thick Dark Surface (A12)
- ___ Sandy Mucky Material (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Material (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils*:

- ___ Coast Prairie Redox (A16)(**LRR K,L,R**)
- ___ Dark Surface (S7)(**LRR K, L**)
- ___ Iron-Manganese Masses (F12)(**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence or Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- **X** Surface Soil Crack (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- **X** Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- **X** Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	**No**	Depth (inches):	
Water Table Present?	**Yes**	Depth (inches):	**12"**
Saturation Present?	**Yes**	Depth (inches):	**40"**

Indicators of Wetland Hydrology Present? **Yes**

Remarks: **Standing water present within the basin, approximately 3-inches.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM
(Midwest Region)

Project/Site: **Wolfe Addition No. 2** City/County: **Mankato/ Blue Earth County** Sampling Date: **5/16/2022**

Applicant/Owner: **Demars Construction** State: **Minnesota** Sample Point: **W1-B**

Investigator(s): **Eva Douma & Chad Ponce** Section, Township, Range: **Sec 10, T108N, R26W**

Landforms (hillside, terrace, etc.): **Shoulder Slope** Local Relief (concave, convex, none): **Linear**

Slope (%): **3-5%** Latitude: _____ Longitude: _____ Datum: **BECO**

Soil Map Unit Name: **109- Cordova clay loam** NWI Classification: **None**

Are climatic/hydrologic conditions of the site typical for this time of year? **Yes** (If no, explain in remarks)

Are vegetation **X**, soils _____, or hydrology _____ significantly disturbed? Are normal circumstances present? **No**

Are vegetation _____, soils _____, or hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	**No**	**Is the sampled area within a wetland?** **No**
Hydric soils present?	**Yes**	
Wetland hydrology present?	**No**	

Remarks: **Antecedent precipitation was normal at the time of the site visit.**

VEGETATION - Use scientific names of plants

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Sapling/Shrub stratum (Plot size: 15 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Herb stratum: (Plot size: 5 feet)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0 =Total Cover		
Woody vine stratum: (Plot size: 15 feet)			
1			
2			
	0 =Total Cover		

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: **0** (A)

Total number of dominant species across all strata: **0** (B)

Percent of dominant species that are OBL, FACW or FAC: **0%** (A/B)

Prevalence Index Worksheet

Total % cover of:

OBL Species:	**0**	x 1 =	**0**
FACW Species:	**0**	x 2 =	**0**
FAC Species:	**0**	x 3 =	**0**
FACU species:	**0**	x 4 =	**0**
UPL Species:	**0**	x 5 =	**0**
Totals:	**0** (A)		**0** (B)

Prevalence Index (B/A): _____

Hydrophytic Vegetation Indicators

_____ Rapid test for hydrophytic vegetation

_____ Dominance test >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (Provide supporting data in remarks)

X Problematic hydrophytic vegetation* (Explain in remarks)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? **No**

Remarks: **Sample taken within a regularly farmed field with no vegetation present at the time of the site visit.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM

(Midwest Region)

Sample Point: **W1-B**

SOILS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-14	**10YR 2/1**	**100**					**Clay**	
14-26	**10YR 2/1**	**95**	**10YR 6/2**	**5**	**D**	**M**	**Clay**	
26-30	**10YR 4/1**	**90**	**10YR 6/3**	**10**	**C**	**M**	**Clay**	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- **X** Thick Dark Surface (A12)
- ___ Sandy Mucky Material (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Material (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils*:

- ___ Coast Prairie Redox (A16)(**LRR K,L,R**)
- ___ Dark Surface (S7)(**LRR K, L**)
- ___ Iron-Manganese Masses (F12)(**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence or Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Crack (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? **No** Depth (inches): _____

Water Table Present? **No** Depth (inches): _____

Saturation Present? **No** Depth (inches): _____

Indicators of Wetland Hydrology Present? **No**

Remarks:

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM
(Midwest Region)

Project/Site: **Wolfe Addition No. 2** City/County: **Mankato/ Blue Earth County** Sampling Date: **5/16/2022**

Applicant/Owner: **Demars Construction** State: **Minnesota** Sample Point: **W2-A**

Investigator(s): **Eva Douma & Chad Ponce** Section, Township, Range: **Sec 10, T108N, R26W**

Landforms (hillside, terrace, etc.): **Basin** Local Relief (concave, convex, none): **Concave**

Slope (%): **0-2%** Latitude: Longitude: Datum: **BECO**

Soil Map Unit Name: **109- Cordova clay loam** NWI Classification: **None**

Are climatic/hydrologic conditions of the site typical for this time of year? **Yes** (If no, explain in remarks)

Are vegetation **X**, soils , or hydrology significantly disturbed? Are normal circumstances present? **No**

Are vegetation , soils , or hydrology naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	**Yes**	**Is the sampled area within a wetland?** **Yes**
Hydric soils present?	**Yes**	
Wetland hydrology present?	**Yes**	

Remarks: **Antecedent precipitation was normal at the time of the site visit. Sample taken at the off-site hydrology Site 2.**

VEGETATION - Use scientific names of plants

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0	=Total Cover	

Sapling/Shrub stratum (Plot size: 15 feet)			
1			
2			
3			
4			
5			
	0	=Total Cover	

Herb stratum: (Plot size: 5 feet)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0	=Total Cover	

Woody vine stratum: (Plot size: 15 feet)			
1			
2			
	0	=Total Cover	

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: **0** (A)

Total number of dominant species across all strata: **0** (B)

Percent of dominant species that are OBL, FACW or FAC: **0%** (A/B)

Prevalence Index Worksheet

Total % cover of:

OBL Species:	**0**	x 1 =	**0**
FACW Species:	**0**	x 2 =	**0**
FAC Species:	**0**	x 3 =	**0**
FACU species:	**0**	x 4 =	**0**
UPL Species:	**0**	x 5 =	**0**
Totals:	**0** (A)		**0** (B)

Prevalence Index (B/A):

Hydrophytic Vegetation Indicators

- Rapid test for hydrophytic vegetation
- Dominance test >50%
- Prevalence index is ≤3.0*
- Morphological adaptations* (Provide supporting data in remarks)
- **X** Problematic hydrophytic vegetation* (Explain in remarks)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? **Yes**

Remarks: **Sample taken within a regularly farmed field with no vegetation present at the time of the site visit.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM

(Midwest Region)

Sample Point: **W2-A**

SOILS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	**10YR 2/1**	**100**					**Clay**	
20-30	**10YR 3/1**	**95**	**10YR 6/2**	**5**	**D**	**M**	**Clay**	
30+	**10YR 5/1**	**80**	**2.5Y 6/6**	**20**	**C**	**M**	**Sandy Clay**	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- **X** Thick Dark Surface (A12)
- ___ Sandy Mucky Material (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Material (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils*:

- ___ Coast Prairie Redox (A16)(**LRR K,L,R**)
- ___ Dark Surface (S7)(**LRR K, L**)
- ___ Iron-Manganese Masses (F12)(**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence or Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- **X** Surface Soil Crack (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- **X** Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- **X** Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? **No** Depth (inches): _____

Water Table Present? **No** Depth (inches): _____

Saturation Present? **No** Depth (inches): _____

Indicators of Wetland Hydrology Present? **Yes**

Remarks: **Standing water present within the basin, approximately 2-inches.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM
(Midwest Region)

Project/Site: **Wolfe Addition No. 2** City/County: **Mankato/ Blue Earth County** Sampling Date: **5/16/2022**

Applicant/Owner: **Demars Construction** State: **Minnesota** Sample Point: **W2-B**

Investigator(s): **Eva Douma & Chad Ponce** Section, Township, Range: **Sec 10, T108N, R26W**

Landforms (hillside, terrace, etc.): **Shoulder Slope** Local Relief (concave, convex, none): **Linear**

Slope (%): **0-2%** Latitude: Longitude: Datum: **BECO**

Soil Map Unit Name: **109- Cordova clay loam** NWI Classification: **None**

Are climatic/hydrologic conditions of the site typical for this time of year? **Yes** (If no, explain in remarks)

Are vegetation **X**, soils , or hydrology significantly disturbed? Are normal circumstances present? **No**

Are vegetation , soils , or hydrology naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	**No**	**Is the sampled area within a wetland?** **No**
Hydric soils present?	**Yes**	
Wetland hydrology present?	**No**	

Remarks: **Antecedent precipitation was normal at the time of the site visit.**

VEGETATION - Use scientific names of plants

Tree Stratum (Plot size: 30 feet)	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 =Total Cover		

Sapling/Shrub stratum (Plot size: 15 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		

Herb stratum: (Plot size: 5 feet)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0 =Total Cover		

Woody vine stratum: (Plot size: 15 feet)			
1			
2			
	0 =Total Cover		

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: **0** (A)

Total number of dominant species across all strata: **0** (B)

Percent of dominant species that are OBL, FACW or FAC: **0%** (A/B)

Prevalence Index Worksheet

Total % cover of:

OBL Species:	**0**	x 1 =	**0**
FACW Species:	**0**	x 2 =	**0**
FAC Species:	**0**	x 3 =	**0**
FACU species:	**0**	x 4 =	**0**
UPL Species:	**0**	x 5 =	**0**
Totals:	**0** (A)		**0** (B)

Prevalence Index (B/A):

Hydrophytic Vegetation Indicators

- Rapid test for hydrophytic vegetation
- Dominance test >50%
- Prevalence index is ≤3.0*
- Morphological adaptations* (Provide supporting data in remarks)
- **X** Problematic hydrophytic vegetation* (Explain in remarks)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? **No**

Remarks: **Sample taken within a regularly farmed field with no vegetation present at the time of the site visit.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM
(Midwest Region)

Project/Site: **Wolfe Addition No. 2** City/County: **Mankato/ Blue Earth County** Sampling Date: **5/16/2022**

Applicant/Owner: **Demars Construction** State: **Minnesota** Sample Point: **W3-A**

Investigator(s): **Eva Douma & Chad Ponce** Section, Township, Range: **Sec 10, T108N, R26W**

Landforms (hillside, terrace, etc.): **Basin** Local Relief (concave, convex, none): **Concave**

Slope (%): **0-2%** Latitude: Longitude: Datum: **BECO**

Soil Map Unit Name: **211- Lura silty clay** NWI Classification: **None**

Are climatic/hydrologic conditions of the site typical for this time of year? **Yes** (If no, explain in remarks)

Are vegetation **X**, soils , or hydrology significantly disturbed? Are normal circumstances present? **No**

Are vegetation , soils , or hydrology naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	**Yes**	**Is the sampled area within a wetland?** **Yes**
Hydric soils present?	**Yes**	
Wetland hydrology present?	**Yes**	

Remarks: **Antecedent precipitation was normal at the time of the site visit. Sample taken at the off-site hydrology Site 3.**

VEGETATION - Use scientific names of plants

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Sapling/Shrub stratum (Plot size: 15 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Herb stratum: (Plot size: 5 feet)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0 =Total Cover		
Woody vine stratum: (Plot size: 15 feet)			
1			
2			
	0 =Total Cover		

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: **0** (A)

Total number of dominant species across all strata: **0** (B)

Percent of dominant species that are OBL, FACW or FAC: **0%** (A/B)

Prevalence Index Worksheet

Total % cover of:

OBL Species:	**0**	x 1 =	**0**
FACW Species:	**0**	x 2 =	**0**
FAC Species:	**0**	x 3 =	**0**
FACU species:	**0**	x 4 =	**0**
UPL Species:	**0**	x 5 =	**0**
Totals:	**0** (A)		**0** (B)

Prevalence Index (B/A):

Hydrophytic Vegetation Indicators

- Rapid test for hydrophytic vegetation
- Dominance test >50%
- Prevalence index is ≤3.0*
- Morphological adaptations* (Provide supporting data in remarks)
- **X** Problematic hydrophytic vegetation* (Explain in remarks)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? **Yes**

Remarks: **Sample taken within a regularly farmed field with no vegetation present at the time of the site visit.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM

(Midwest Region)

Sample Point: **W3-A**

SOILS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-36	**10YR 2/1**	**100**					**Clay**	
36-40	**10YR 3/1**	**100**					**Clay**	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- **X** Thick Dark Surface (A12)
- ___ Sandy Mucky Material (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Material (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils*:

- ___ Coast Prairie Redox (A16)(**LRR K,L,R**)
- ___ Dark Surface (S7)(**LRR K, L**)
- ___ Iron-Manganese Masses (F12)(**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes**

Remarks: **A12 assumed based on mapped hydric soils and hydrology indicators.**

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence or Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Crack (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- **X** Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- **X** Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	**No**	Depth (inches): _____
Water Table Present?	**No**	Depth (inches): _____
Saturation Present?	**No**	Depth (inches): _____

Indicators of Wetland Hydrology Present? **Yes**

Remarks: **Standing water present within the basin, approximately 3-inches.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM
(Midwest Region)

Project/Site: **Wolfe Addition No. 2** City/County: **Mankato/ Blue Earth County** Sampling Date: **5/16/2022**

Applicant/Owner: **Demars Construction** State: **Minnesota** Sample Point: **W4-A**

Investigator(s): **Eva Douma & Chad Ponce** Section, Township, Range: **Sec 10, T108N, R26W**

Landforms (hillside, terrace, etc.): **Basin** Local Relief (concave, convex, none): **Concave**

Slope (%): **0%** Latitude: _____ Longitude: _____ Datum: **BECO**

Soil Map Unit Name: **109- Cordova clay loam** NWI Classification: **None**

Are climatic/hydrologic conditions of the site typical for this time of year? **Yes** (If no, explain in remarks)

Are vegetation **X**, soils _____, or hydrology _____ significantly disturbed? Are normal circumstances present? **No**

Are vegetation _____, soils _____, or hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	**Yes**	**Is the sampled area within a wetland?** **Yes**
Hydric soils present?	**Yes**	
Wetland hydrology present?	**Yes**	

Remarks: **Antecedent precipitation was normal at the time of the site visit. Sample taken at the off-site hydrology Site 4.**

VEGETATION - Use scientific names of plants

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Sapling/Shrub stratum (Plot size: 15 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Herb stratum: (Plot size: 5 feet)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0 =Total Cover		
Woody vine stratum: (Plot size: 15 feet)			
1			
2			
	0 =Total Cover		

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: **0** (A)

Total number of dominant species across all strata: **0** (B)

Percent of dominant species that are OBL, FACW or FAC: **0%** (A/B)

Prevalence Index Worksheet

Total % cover of:

OBL Species:	**0**	x 1 =	**0**
FACW Species:	**0**	x 2 =	**0**
FAC Species:	**0**	x 3 =	**0**
FACU species:	**0**	x 4 =	**0**
UPL Species:	**0**	x 5 =	**0**
Totals:	**0** (A)		**0** (B)

Prevalence Index (B/A): _____

Hydrophytic Vegetation Indicators

_____ Rapid test for hydrophytic vegetation

_____ Dominance test >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (Provide supporting data in remarks)

X Problematic hydrophytic vegetation* (Explain in remarks)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? **Yes**

Remarks: **Sample taken within a regularly farmed field with no vegetation present at the time of the site visit.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM

(Midwest Region)

Sample Point: **W4-A**

SOILS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-32	**10YR 2/1**	**100**					**Clay**	
32-42	**10YR 4/1**	**90**	**10YR 4/3**	**10**	**C**	**M**	**Clay**	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- **X** Thick Dark Surface (A12)
- ___ Sandy Mucky Material (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Material (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils*:

- ___ Coast Prairie Redox (A16)(**LRR K,L,R**)
- ___ Dark Surface (S7)(**LRR K, L**)
- ___ Iron-Manganese Masses (F12)(**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence or Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- **X** Surface Soil Crack (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- **X** Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- **X** Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	**No**	Depth (inches): _____
Water Table Present?	**No**	Depth (inches): _____
Saturation Present?	**No**	Depth (inches): _____

Indicators of Wetland Hydrology Present? **Yes**

Remarks:

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM
(Midwest Region)

Project/Site: **Wolfe Addition No. 2** City/County: **Mankato/ Blue Earth County** Sampling Date: **5/16/2022**

Applicant/Owner: **Demars Construction** State: **Minnesota** Sample Point: **W4-B**

Investigator(s): **Eva Douma & Chad Ponce** Section, Township, Range: **Sec 10, T108N, R26W**

Landforms (hillside, terrace, etc.): **Shoulder Slope** Local Relief (concave, convex, none): **Linear**

Slope (%): **3-5%** Latitude: _____ Longitude: _____ Datum: **BECO**

Soil Map Unit Name: **109- Cordova clay loam** NWI Classification: **None**

Are climatic/hydrologic conditions of the site typical for this time of year? **Yes** (If no, explain in remarks)

Are vegetation **X**, soils _____, or hydrology _____ significantly disturbed? Are normal circumstances present? **No**

Are vegetation _____, soils _____, or hydrology _____ naturally problematic? (If needed, explain any answers in Remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	**No**	**Is the sampled area within a wetland?** **No**
Hydric soils present?	**Yes**	
Wetland hydrology present?	**No**	

Remarks: **Antecedent precipitation was normal at the time of the site visit.**

VEGETATION - Use scientific names of plants

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum (Plot size: 30 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Sapling/Shrub stratum (Plot size: 15 feet)			
1			
2			
3			
4			
5			
	0 =Total Cover		
Herb stratum: (Plot size: 5 feet)			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
	0 =Total Cover		
Woody vine stratum: (Plot size: 15 feet)			
1			
2			
	0 =Total Cover		

Dominance Test Worksheet

Number of dominant species that are OBL, FACW, or FAC: **0** (A)

Total number of dominant species across all strata: **0** (B)

Percent of dominant species that are OBL, FACW or FAC: **0%** (A/B)

Prevalence Index Worksheet

Total % cover of:

OBL Species:	**0**	x 1 =	**0**
FACW Species:	**0**	x 2 =	**0**
FAC Species:	**0**	x 3 =	**0**
FACU species:	**0**	x 4 =	**0**
UPL Species:	**0**	x 5 =	**0**
Totals:	**0** (A)		**0** (B)

Prevalence Index (B/A): _____

Hydrophytic Vegetation Indicators

_____ Rapid test for hydrophytic vegetation

_____ Dominance test >50%

_____ Prevalence index is ≤3.0*

_____ Morphological adaptations* (Provide supporting data in remarks)

X Problematic hydrophytic vegetation* (Explain in remarks)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? **No**

Remarks: **Sample taken within a regularly farmed field with no vegetation present at the time of the site visit.**

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EXHIBIT G:
WETLAND DETERMINATION DATA FORM

(Midwest Region)

Sample Point: **W4-B**

SOILS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	**10YR 2/1**	**100**					**Clay**	
12-18	**10YR 2/1**	**92**	**10YR 6/2**	**8**	**D**	**M**	**Clay**	
18-24	**10YR 5/1**	**80**	**10YR 6/4**	**20**	**C**	**M**	**Clay**	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:

- ___ Histisol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- **X** Thick Dark Surface (A12)
- ___ Sandy Mucky Material (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Material (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils*:

- ___ Coast Prairie Redox (A16)(**LRR K,L,R**)
- ___ Dark Surface (S7)(**LRR K, L**)
- ___ Iron-Manganese Masses (F12)(**LRR K, L, R**)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in remarks)

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soils Present? **Yes**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence or Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Crack (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? **No** Depth (inches): _____

Water Table Present? **No** Depth (inches): _____

Saturation Present? **No** Depth (inches): _____

Indicators of Wetland Hydrology Present? **No**

Remarks:

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EXHIBIT H:
OFF-SITE HYDROLOGY ASSESSMENT RECORDING FORM

Project/Site:	**Wolfe Addition No. 2**	City/County:	**Mankato/Blue Earth**
Applicant/Owner:	**Demars Construction**	State:	**Minnesota**
Investigator(s):	**Chad Ponce**	Sec, Twp, Ran:	**Sec 3, T108N, R26W**
WETS Station ID:	**Mankato Municipal Airport**	Date:	**5/10/2022**

Date:	Source:	Assumed Month:	Climatic Condition:	Image Interpretations			
				Site 1	Site 2	Site 3	Site 4
9/1938	MHAPO	----	Dry	NV	NV	NV	NV
10/1949	MHAPO	----	Dry	NV	NV	NV	NV
9/1950	MHAPO	----	Dry	NV	NV	NV	NV
6/1964	MHAPO	----	Normal	NV	NV	NV	NV
1980	FSA	Sep	Normal	NV	NV	NV	NV
1990	FSA	Sep	Wet	NV	NV	NV	NV
4/1991	USGS	----	Normal	NV	NV	NV	NV
1995	FSA	May	Normal	NV	NV	NV	NV
2000	FSA	May	Dry	DO	DO	NV	NV
5/2003	FSA	----	Dry	NV	NV	NV	NV
5/2008	FSA	----	Normal	DO	NV	DO	NV
6/2009	FSA	----	Dry	CS	NV	CS	NV
6/2010	FSA	----	Dry	DO	CS	DO	NV
2013	FSA	June	Normal	DO	DO	DO	NV
2015	FSA	Sep	Wet	DO	NV	DO	NV
2017	FSA	July	Normal	SW	SW	CS	CS
2019	FSA	July	Wet	SW	SW	DO	SW
2021	FSA	July	Dry	CS	CS	CS	NV
			Hydric Soil	**Yes**	**Yes**	**Yes**	**Yes**
			NWI	**No**	**No**	**No**	**No**
			Normal Years	**7**	**7**	**7**	**7**
			Wet Signatures	**3**	**2**	**3**	**1**
			Percent Wet Signatures	**43%**	**29%**	**43%**	**14%**

NV - Normal Vegetation, WS - Wet Signature, CS - Crop Stress, DO - Drown Out, SW - Standing Water, AP - Altered Pattern, NC - Not Cropped

Decision Matrix

Hydric Soil	NWI	% Wet	Field visit?	Wetland?
Yes	Yes	>50%	No	Yes
Yes	Yes	30-50%	No	Yes
Yes	Yes	<30%	Yes	Yes, w/field hydro
Yes	No	>50%	No	Yes
Yes	No	30-50%	Yes	Yes, w/field hydro
Yes	No	<30%	No	No
No	Yes	>50%	No	Yes
No	Yes	30-50%	No	Yes
No	Yes	<30%	No	No
No	No	>50%	Yes	Yes, w/field hydro
No	No	30-50%	Yes	Yes, w/field hydro
No	No	<30%	No	No

Wolfe Addition No. 2

Mankato, Blue Earth County, MN

Exhibit H-1: Historical Imagery 1938-1990

June 2022

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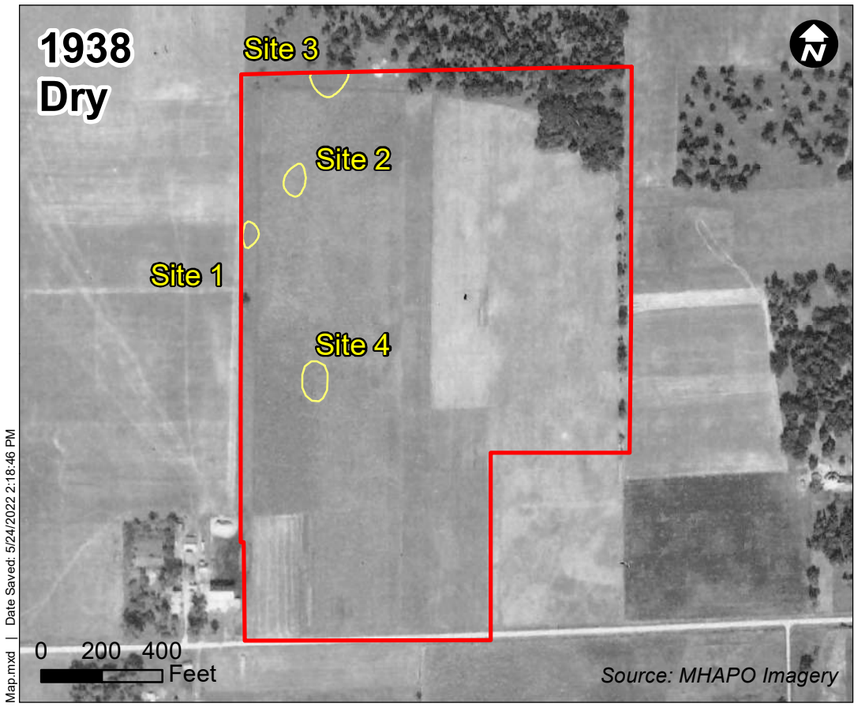

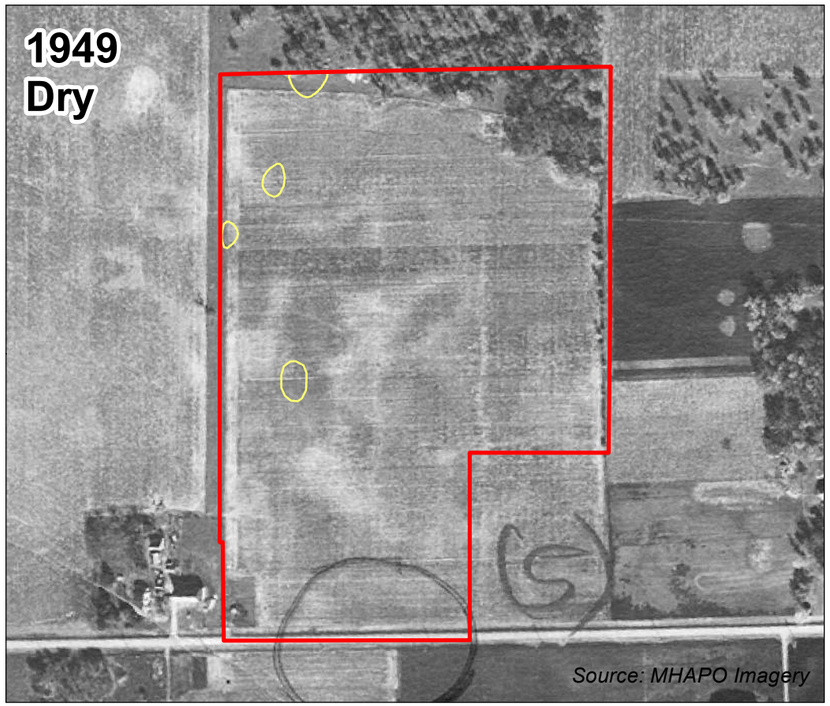



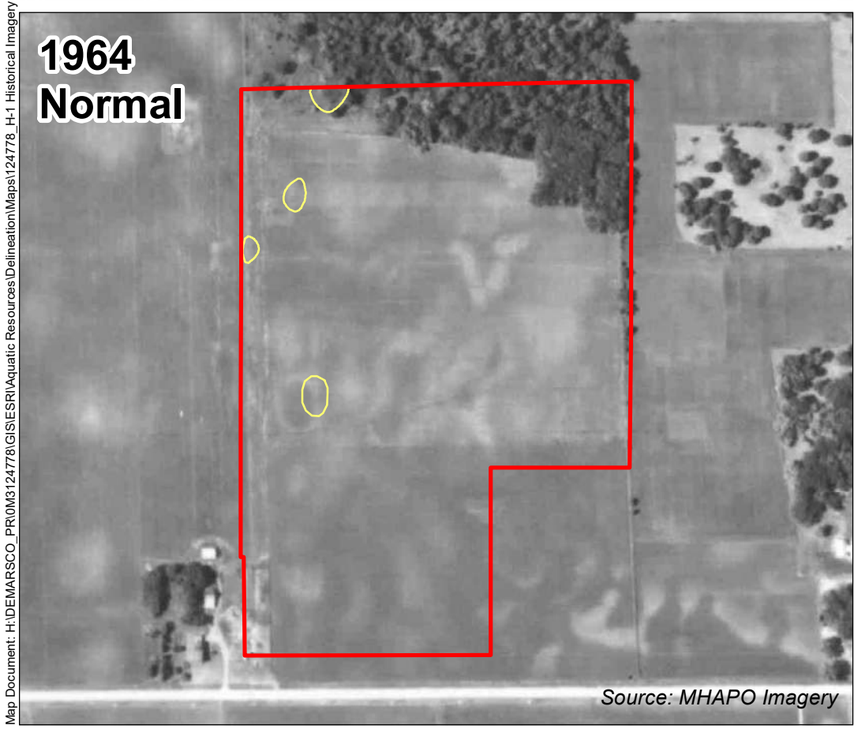

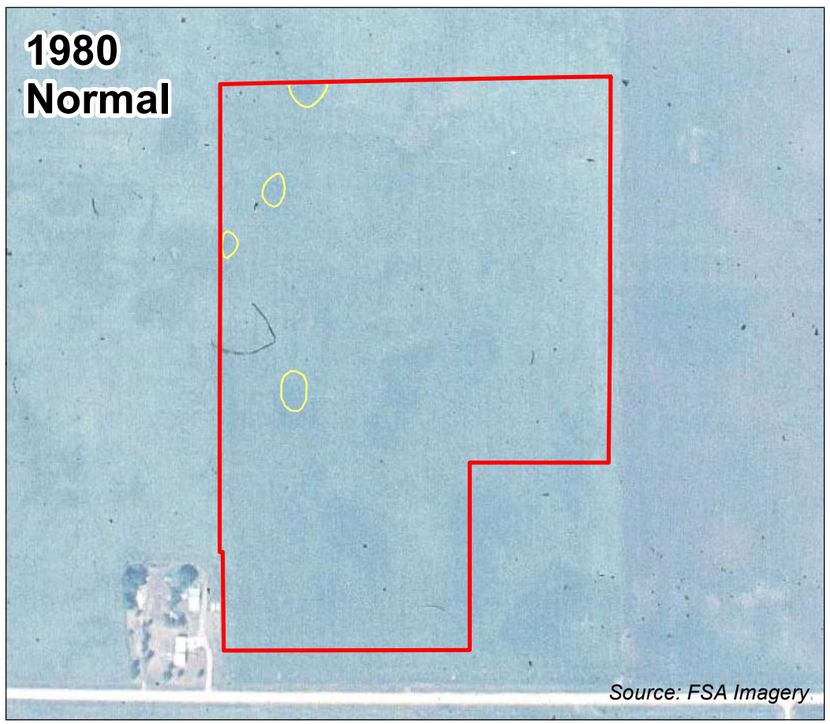

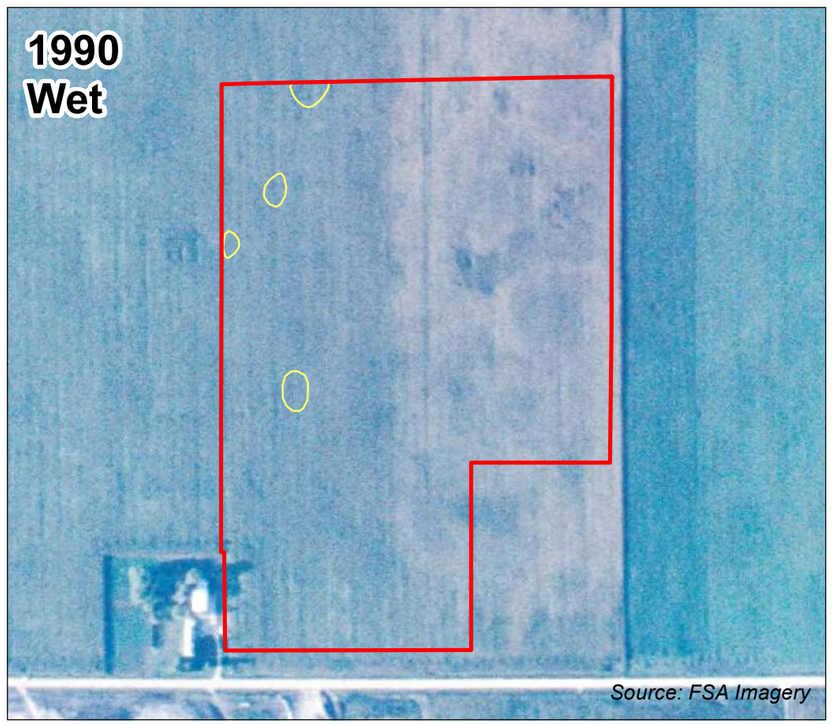

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Wolfe Addition No. 2

Mankato, Blue Earth County, MN

Exhibit H-2: Historical Imagery 1991-2009

June 2022

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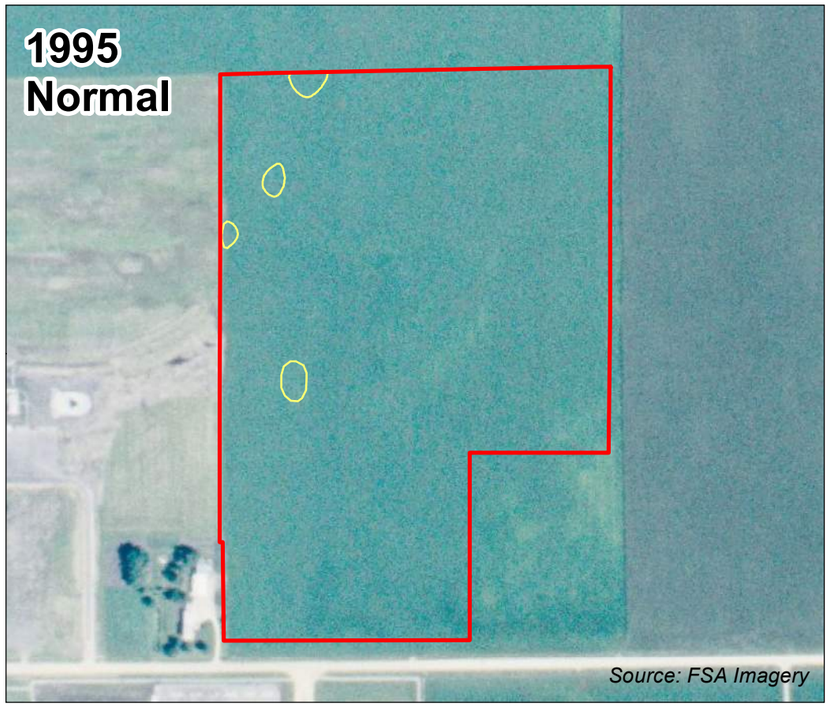

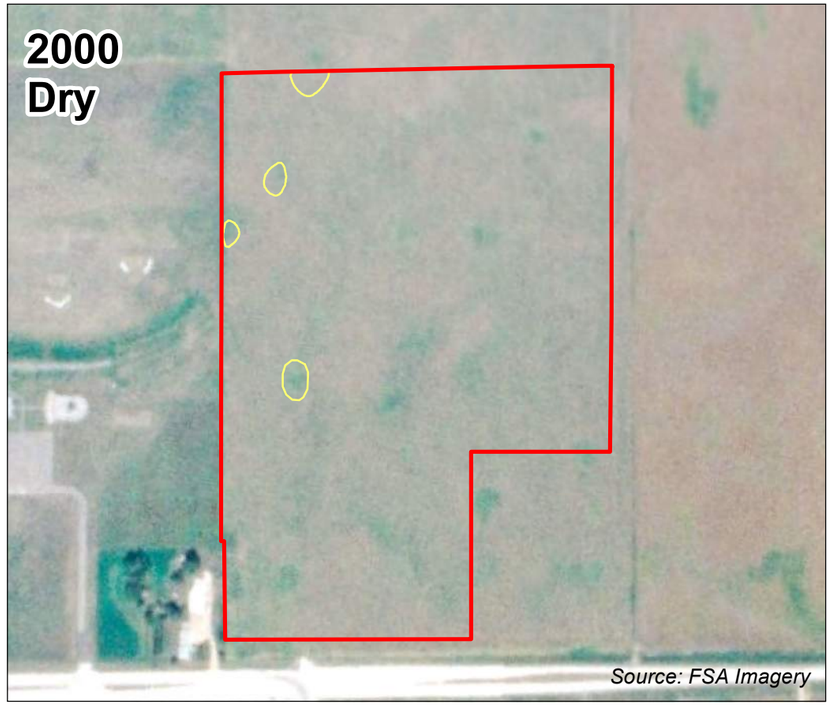

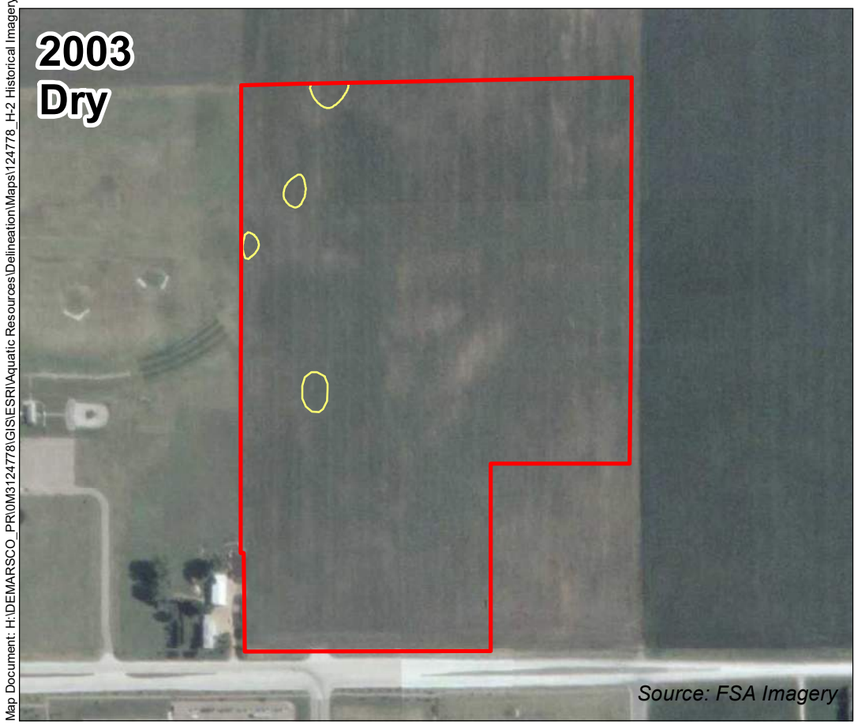

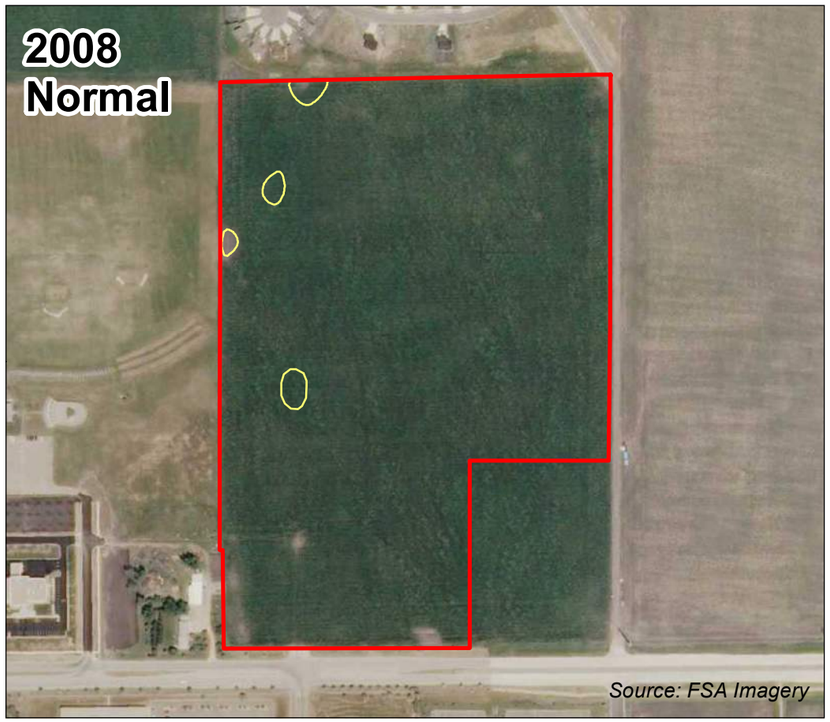

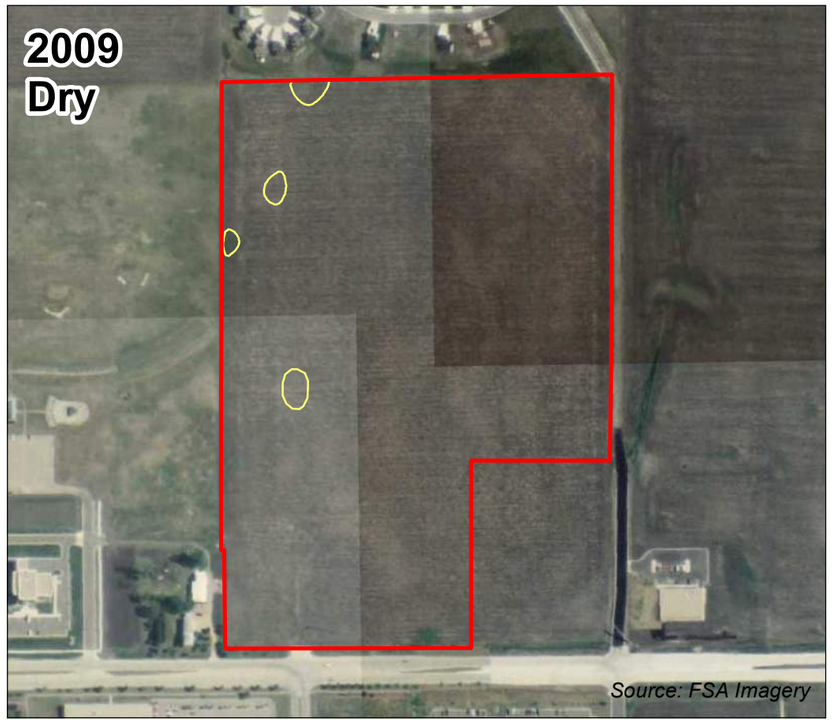

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Wolfe Addition No. 2

Mankato, Blue Earth County, MN

Exhibit H-3: Historical Imagery 2010-2021

June 2022

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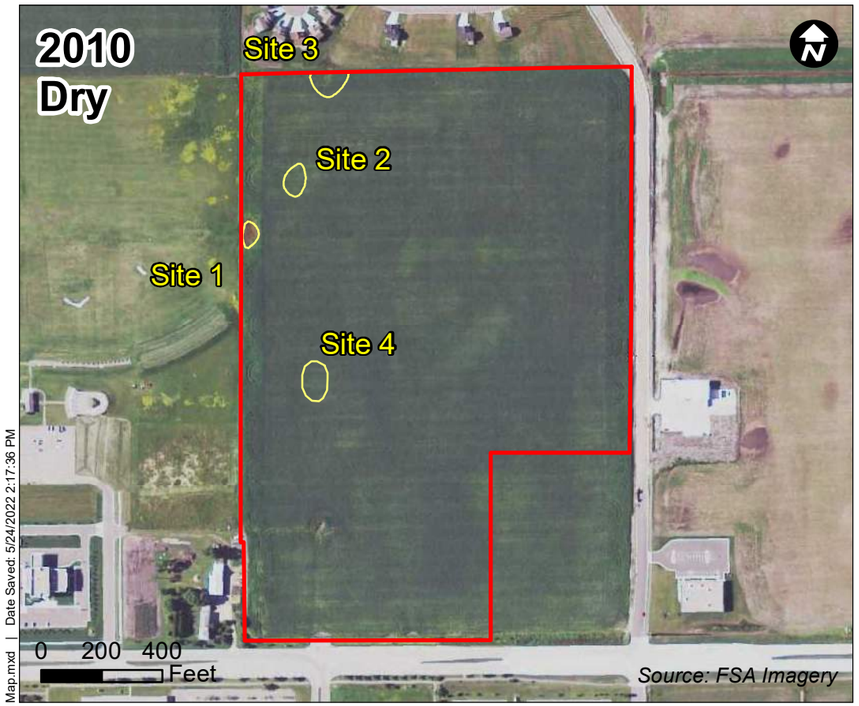

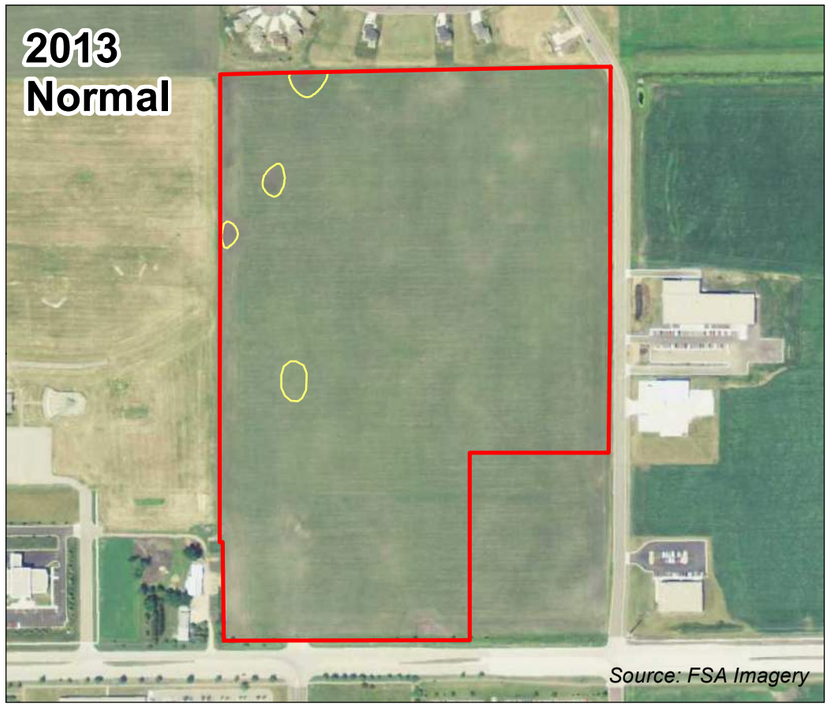

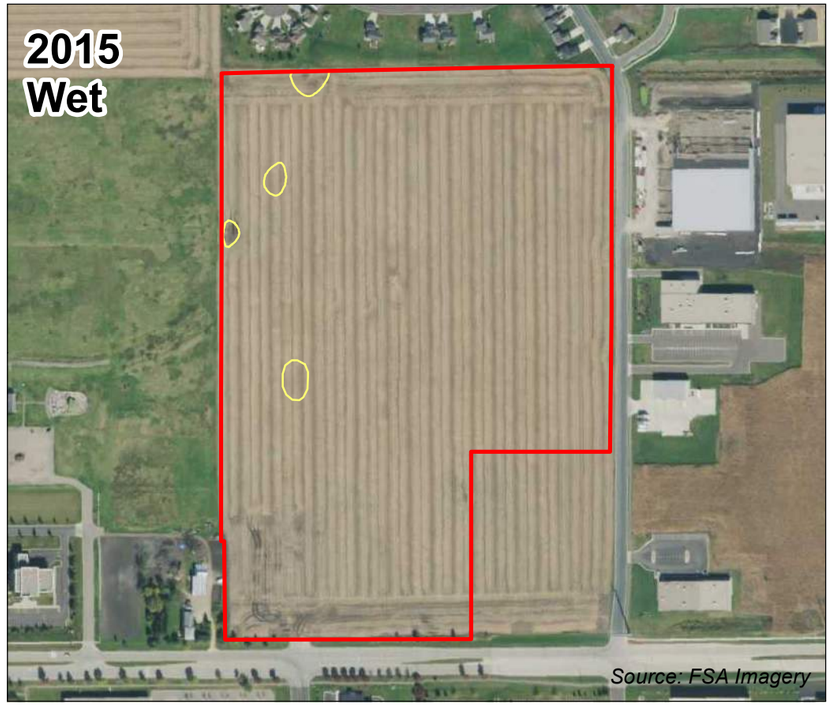

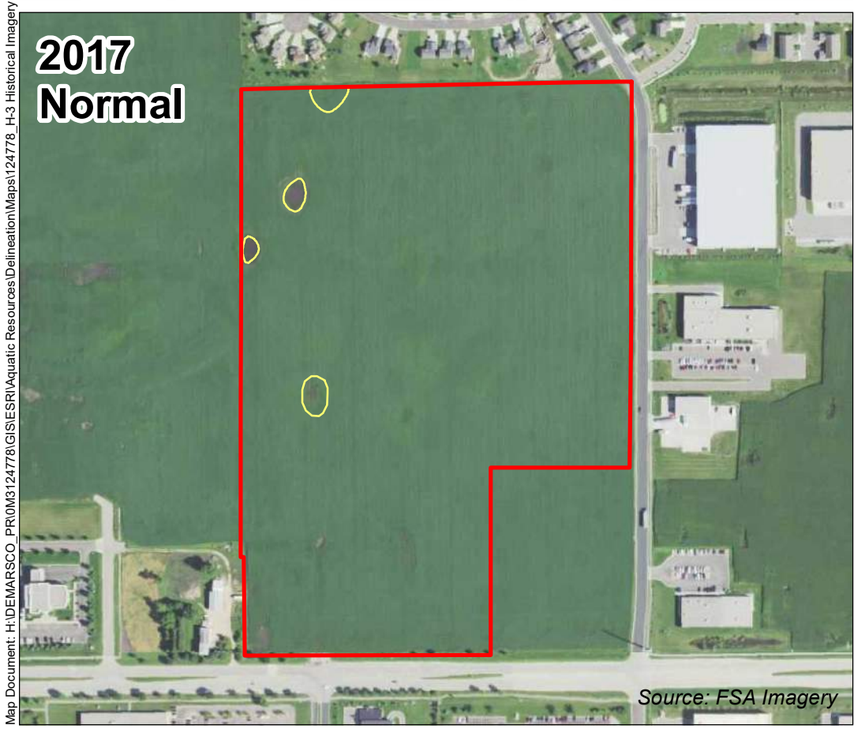



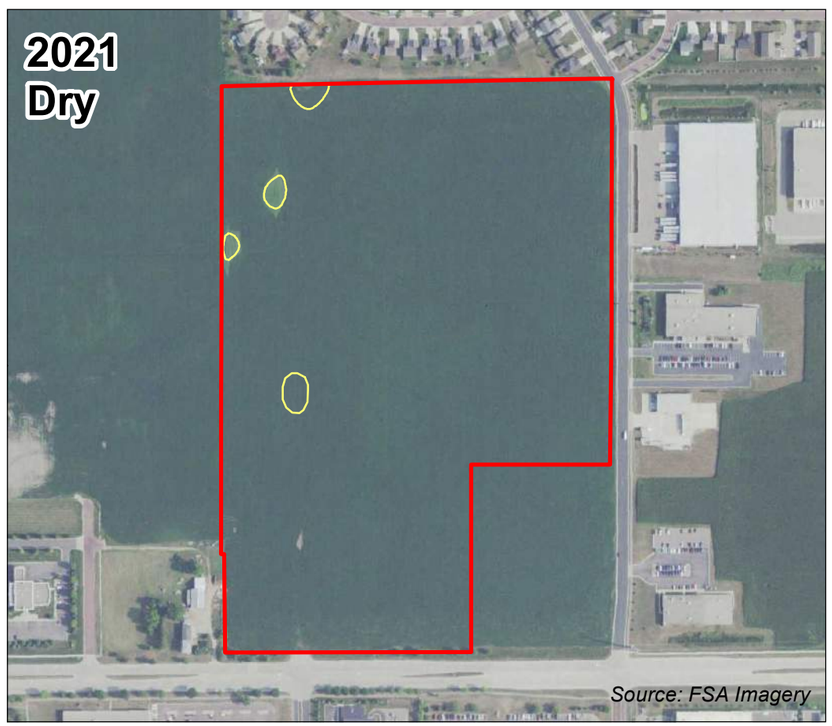

Map Document: H:\DEMARSCO_PR\0M3124778\GIS\ESRI\Aquatic Resources\Delineation\Maps\124778_H-3 Historical Imagery Map.mxd | Date Saved: 5/24/2022 2:17:36 PM

Wolfe Addition No. 2

Replacement Plan

Demars Construction
August 18, 2022

Submitted by:
Bolton & Menk, Inc.
1960 Premier Drive
Mankato, MN 56001
P: (507) 625-4171
F: (507) 625-4177

BOLTON & MENK
Real People. Real Solutions.

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Appendix

EXHIBIT A – LOCATION MAP
EXHIBIT B – PROJECT LAYOUT MAP
EXHIBIT C - PROPOSED WETLAND IMPACTS MAP

PLAN SET

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name:	Max DeMars | DeMars Construction
Mailing Address:	3 Civic Center Plaza | Mankato, MN 56001
Phone:	(507) 387-5933
E-mail Address:	max@demarsgc.com

Authorized Contact (do not complete if same as above):
Mailing Address:
Phone:
E-mail Address:

Agent Name:	Chad Ponce | Natural Resources Specialist | Bolton & Menk, Inc.
Mailing Address:	200 S. Tryon, Suite 1400 | Charlotte, NC | 28202
Phone:	(843) 286-3631
E-mail Address:	chad.ponce@bolton-menk.com

PART TWO: Site Location Information

County: Blue Earth County **City/Township:** Mankato
Parcel ID and/or Address: Parcel ID: R430903300012, N. Victory Drive, Mankato, MN 56001 (See Location Map)
Legal Description (Section, Township, Range): Sec 3, T108N, R26W

Lat/Long (decimal degrees):
Attach a map showing the location of the site in relation to local streets, roads, highways.
Approximate size of site (acres) or if a linear project, length (feet): Approximately 49 acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted ***prior to*** this application then describe that here and provide the Corps of Engineers project number.

A type and boundary application requesting an approved jurisdictional determination was submitted for the site on June 10, 2022. The US Army Corps acknowledged the request (MVP-2015-04603-RMH) on June 29, 2022. The delineation was Approved with Conditions by a WCA Notice of Decision dated July 12, 2022. The LGU decision indicates that Wetland 3 is incidental and Wetlands 1, 2, and 4 are not incidental.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

Demars Construction is proposing to develop the property with a Blue Earth County Parcel ID of R430903300012, located along the north side of North Victory Drive, in Mankato, MN. ***(Exhibit A)****. The proposed construction includes residential housing, commercial properties, roads, stormwater ponds, and utilities. The residential housing proposed are twin home style homes which are intended to add a buffer from the existing single-family homes to the north and the proposed commercial area to the south. This project supports the needs of the community for additional market-based work-force housing to meet the growing Mankato community and additional business opportunities to support the community. The site layout is shown on* ***Exhibit B****.*

Permanent impacts are proposed for the construction of the above activities. Total WCA permanent impacts are 0.70-acres (Wetland1, Wetland 2, and Wetland 4) and total WCA/CWA non-jurisdictional permanent impacts are 0.04 acres (Wetland 3) ***(Exhibit C)****.*

This site meets the criteria for:
MN rule 8420.0520 subp 7A *(****Sequencing Flexibility****)*
A(1) the wetland to be impacted has been degraded to the point where replacement of it would result in a certain gain in function and public value

Wetlands at the site are isolated and of low quality. The site, including wetlands contained on the site, have been used for agricultural since at least 1938.

Using a bank from same watershed will add greater value to the watershed than the degraded wetlands which would be impacted. Proposed permanent wetland impacts (0.70 acres) will be mitigated for through a state approved wetland bank with approved credits available at a ratio of 2:1 for a total of 1.40 credits. Wetland 3 is an incidental, non-jurisdictional wetland and therefore does not require mitigation. The following siting was used to determine the bank:

- *On-site mitigation was not a viable option due to spatial constraints. The project area is a future development with all areas within the site being accounted for through lots, roads, utility easements, and stormwater management, therefore it would not be a feasible location for a wetland restoration.*
- *Bank #1651 is in the same major watershed (28) and is in the same Bank Service Area (BSA 9) as the wetland impacts. The needed wetland credits will be drawn from this bank at the required 2:1 ratio.*

PART FOUR: Aquatic Resource Impact[1] Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	**Aquatic Resource Type** (wetland, lake, tributary etc.)	**Type of Impact** (fill, excavate, drain, or remove vegetation)	**Duration of Impact** Permanent (P) or Temporary (T)[1]	**Size of Impact**[2]	**Overall Size of Aquatic Resource** [3]	**Existing Plant Community Type(s)** in Impact Area[4]	**County, Major Watershed #, and Bank Service Area #** of Impact Area[5]
Wetland 1	Wetland	Fill	P	0.28 ac	0.28 ac	Fresh (wet) Meadow	Blue Earth, 28, 9
Wetland 2	Wetland	Fill	P	0.31 ac	0.31 ac	Fresh (wet) Meadow	Blue Earth, 28, 9
Wetland 3	Wetland	Fill	P	0.04 ac	0.04 ac	Fresh (wet) Meadow	Blue Earth, 28, 9
Wetland 4	Wetland	Fill	P	0.11 ac	0.11 ac	Seasonally Flooded Basin	Blue Earth, 28, 9

[1]If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".
[2]Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).
[3]This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".
[4]Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.
[5]Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

N/A

PART FIVE: Applicant Signature

☐ Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: _____ Date:

I hereby authorize Bolton & Menk to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

[1] The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

Attachment C
Avoidance and Minimization

Project Purpose, Need, and Requirements. Clearly state the purpose of your project and need for your project. Also include a description of any specific requirements of the project as they relate to project location, project footprint, water management, and any other applicable requirements. Attach an overhead plan sheet showing all relevant features of the project (buildings, roads, etc.), aquatic resource features (impact areas noted) and construction details (grading plans, storm water management plans, etc.), referencing these as necessary:

Demars Construction is proposing to develop the property with a Blue Earth County Parcel ID of R430903300012, located along the north side of North Victory Drive, in Mankato, MN. (Exhibit A). The proposed construction includes residential housing, commercial properties, roads, stormwater ponds, and utilities. The residential housing proposed are twin home style homes which are intended to add a buffer from the existing single-family homes to the north and the proposed commercial area to the south. This project supports the needs of the community for additional market-based work-force housing to meet the growing Mankato community and additional business opportunities to support the community. According to the Mankato Area Housing Study Update 2020 (available at Mankato.gov) vacancy rates for market-rate housing is approximately 1.3%. This project will support the needs of the community for additional market-rate housing units. The plans include the construction of 116 twin-home style units (58 buildings) with 2-3 bedrooms each.
The site layout is shown on Exhibit B.

Permanent impacts are proposed for the construction of the above activities. Total WCA permanent impacts are 0.70-acres (Wetland1, Wetland 2, and Wetland 4) and total WCA/CWA non-jurisdictional permanent impacts are 0.04 acres (Wetland 3) ***(Exhibit C)****.*

Avoidance. Both the CWA and the WCA require that impacts to aquatic resources be avoided if practicable alternatives exist. Clearly describe all on-site measures considered to avoid impacts to aquatic resources and discuss at least two project alternatives that avoid all impacts to aquatic resources on the site. These alternatives may include alternative site plans, alternate sites, and/or not doing the project. Alternatives should be feasible and prudent (see MN Rules 8420.0520 Subp. 2 C). Applicants are encouraged to attach drawings and plans to support their analysis:

1. *No build alternative. If the site is left undeveloped, the degraded/isolated wetlands would not be impacted by construction. However, the community needs for additional market-based work-force housing and additional business opportunities would not be met.*
2. *Avoidance of wetlands was considered. Site design was limited by an existing gas line right-of-way owned which is aligned east and west through the center of the property. The road right-of-way may only be crossed once at a 90 degree angle. Design was also limited by the established site entrances on the south and northeast sides of the property. Sewer alignment also affected the requirements for grading.*

Minimization. Both the CWA and the WCA require that all unavoidable impacts to aquatic resources be minimized to the greatest extent practicable. Discuss all features of the proposed project that have been modified to minimize the impacts to water resources (see MN Rules 8420.0520 Subp. 4):

Minimization was met at the site during site design. Site plans were developed such that the minimum amount of impacts could be achieved. Due to the needed features and site design limitations, wetlands were unavoidable.

Off-Site Alternatives. An off-site alternatives analysis is not required for all permit applications. If you know that your proposal will require an individual permit (standard permit or letter of permission) from the U.S. Army Corps of Engineers, you may be required to provide an off-site alternatives analysis. The alternatives analysis is not required for a complete application but must be provided during the review process in order for the Corps to complete the evaluation of your application and reach a final decision. Applicants with questions about when an off-site alternatives analysis is required should contact their Corps Project Manager.

Other properties were considered for this development, however, this location was selected because it allows both commercial and residential development. There is very limited medium density property available in the area.

Attachment D

Replacement/Compensatory Mitigation

Complete this part ***if*** your application involves wetland replacement/compensatory mitigation not associated with the local road wetland replacement program. Applicants should consult Corps mitigation guidelines and WCA rules for requirements.

Replacement/Compensatory Mitigation via Wetland Banking. Complete this section if you are proposing to use credits from an existing wetland bank (with an account number in the State wetland banking system) for all or part of your replacement/compensatory mitigation requirements.

Wetland Bank Account #	**County**	**Major Watershed #**	**Bank Service Area #**	**Credit Type** (if applicable)	**Number of Credits**
1651	Blue Earth	28	9	Withdraw	1.40

Applicants should attach documentation indicating that they have contacted the wetland bank account owner and reached at least a tentative agreement to utilize the identified credits for the project. This documentation could be a signed purchase agreement, signed application for withdrawal of credits or some other correspondence indicating an agreement between the applicant and the bank owner. *However, applicants are advised not to enter into a binding agreement to purchase credits until the mitigation plan is approved by the Corps and LGU.*

Project-Specific Replacement/Permittee Responsible Mitigation. Complete this section if you are proposing to pursue actions (restoration, creation, preservation, etc.) to generate wetland replacement/compensatory mitigation credits for this proposed project.

WCA Action Eligible for Credit[1]	**Corps Mitigation Compensation Technique[2]**	**Acres**	**Credit % Requested**	**Credits Anticipated[3]**	**County**	**Major Watershed #**	**Bank Service Area #**

[1]Refer to the name and subpart number in MN Rule 8420.0526.
[2]Refer to the technique listed in *St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota*.
[3]If WCA and Corps crediting differs, then enter both numbers and distinguish which is Corps and which is WCA.

Explain how each proposed action or technique will be completed (e.g. wetland hydrology will be restored by breaking the tile……) and how the proposal meets the crediting criteria associated with it. Applicants should refer to the Corps mitigation policy language, WCA rule language, and all associated Corps and WCA guidance related to the action or technique:

NA

Attach a site location map, soils map, recent aerial photograph, and any other maps to show the location and other relevant features of each wetland replacement/mitigation site. Discuss in detail existing vegetation, existing landscape features, land use (on and surrounding the site), existing soils, drainage systems (if present), and water sources and movement. Include a topographic map showing key features related to hydrology and water flow (inlets, outlets, ditches, pumps, etc.):

NA

Attach a map of the existing aquatic resources, associated delineation report, and any documentation of regulatory review or approval. Discuss as necessary:

NA

For actions involving construction activities, attach construction plans and specifications with all relevant details. Discuss and provide documentation of a hydrologic and hydraulic analysis of the site to define existing conditions, predict project outcomes, identify specific project performance standards and avoid adverse offsite impacts. Plans and specifications should be prepared by a licensed engineer following standard engineering practices. Discuss anticipated construction sequence and timing:

NA

For projects involving vegetation restoration, provide a vegetation establishment plan that includes information on site preparation, seed mixes and plant materials, seeding/planting plan (attach seeding/planting zone map), planting/seeding methods, vegetation maintenance, and an anticipated schedule of activities:

NA

For projects involving construction or vegetation restoration, identify and discuss goals and specific outcomes that can be determined for credit allocation. Provide a proposed credit allocation table tied to outcomes:

NA

Provide a five-year monitoring plan to address project outcomes and credit allocation:

NA

Discuss and provide evidence of ownership or rights to conduct wetland replacement/mitigation on each site:

NA

Quantify all proposed wetland credits and compare to wetland impacts to identify a proposed wetland replacement ratio. Discuss how this replacement ratio is consistent with Corps and WCA requirements:

NA

By signature below, the applicant attests to the following (only required if application involves project-specific/permittee responsible replacement):

- All proposed replacement wetlands were not:
  - Previously restored or created under a prior approved replacement plan or permit
  - Drained or filled under an exemption during the previous 10 years
  - Restored with financial assistance from public conservation programs
  - Restored using private funds, other than landowner funds, unless the funds are paid back with interest to the individual or organization that funded the restoration and the individual or organization notifies the local government unit in writing that the restored wetland may be considered for replacement.
- The wetland will be replaced before or concurrent with the actual draining or filling of a wetland.
- An irrevocable bank letter of credit, performance bond, or other acceptable security will be provided to guarantee successful completion of the wetland replacement.
- Within 30 days of either receiving approval of this application or beginning work on the project, I will record the Declaration of Restrictions and Covenants on the deed for the property on which the replacement wetland(s) will be located and submit proof of such recording to the LGU and the Corps.

Applicant or Representative: Title:

Signature: _____ Date:

Transaction Form to Withdraw Credits

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Bank Program

If the layout of this form looks incorrect, click on *View, Edit Document*, then save it to your computer.

1. Credit User

This space for BWSR use only.

Name: Max DeMars Company President	**Organization:** DeMars Construction
Address: 3 Civic Center Plaza Mankato, MN 56001	**Email:** max@demarsgc.com
Phone: (507) 387-5933	**LGU File #:**
Consultant: Chad Ponce, Bolton & Menk, Inc., chad.ponce@bolton-menk.com	

2. Wetland Impact Information

To be completed for the project impacting wetlands and with which this withdrawal is intended to replace.

Project Name: Wolfe Addition #2	**Impact Size (acres):** 0.70 ac
Impact County: Blue Earth	**Impact Wetland type:** Type 1 and 2
Impact Major Watershed/BSA: 28 / 9	**Replacement Ratio:** 2:1

Sec/Twp/Range: Sec 3, T108N, R26W

*Projects with multiple locations should use the most central location in relation to the project as a whole.

Are Federally authorized credits required for this impact? Yes **No**

Corps Regulatory File Number: MVP-2015-04603-RMH

Comments:

3. Credits to be Withdrawn

To be completed by the seller of the credits (account holder)

Account Information

Account: **County:** **Bank Service Area:**

Credit Subgroup	Wetland Type/Plant Community Type	Federally Approved?	Cost per Credit	Credit Amounts
A	2-Fresh Wet Meadow	Yes	60,000	1.40

Per Credit Withdrawal Fee by BSA

BSA 1	$520	BSA 6	$1,083
BSA 2	$371	BSA 7	$1,992
BSA 3	$725	BSA 8	$2,577
BSA 4	$1,412	BSA 9	$2,628
BSA 5	$685	BSA 10	$3,099

Enter the Withdrawal Fee for the BSA of the account: **2628**

Easement Stewardship Fee: **$302**

Total Credits:	1.40
(Withdrawal Fee x total credits)	
Withdrawal Fee:	$3,679.20
(Easement Stewardship fee x total credits)	
Stewardship Fee:	$422.80
Total Fees:	$4,102

Please make checks payable to the Minnesota Board of Water and Soil Resources. BWSR does not accept cash.

BWSR fee policy: http://www.bwsr.state.mn.us/wetlands/wetlandbanking/fee_and_sales_data/Wetland_Banking_Fee_Policy_Effective_June1_2017.pdf

Disclaimer: All transactions in the Wetland Bank system are public information

Transaction Form to Withdraw Credits

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Bank Program

If the layout of this form looks incorrect, click on *View, Edit Document*, then save it to your computer.

Project Name: Wolfe Addition No. 2

Confirmation email will be emailed to the user, seller, and regulatory representative when the transaction is complete. If anyone else should be notified please indicated their emails below:

_____ _____

4. Regulatory Authorization

By signing below, the identified agency and authorized representative hereby certifies that they have: a) verified that the subject wetland credits are deposited in the account of the owner/seller, **b)** approved a wetland replacement plan or similar agreement under their jurisdiction, and **c)** approve the proposed use of the wetland bank credit described above.

WCA LGU/Agency: LGU Representative:

Email Address:

_____ _____

Signature Date

For NRCS, DNR, etc. as applicable

Agency Name and Location: Representative:

Email Address:

_____ _____

Signature Date

5. Credit User Signature

By signing below the proposed credit user attests that he/she owns or has purchased the credits identified in this form and has received approval from the regulatory authority(ies).

_____ _____

Signature Date

6. Account Holder Signature

By signing below I, the seller and holder of the aforementioned account in the State of Minnesota Wetland Mitigation Bank, certify that:

1) The credits described in this transaction form have been sold to the credit user or will be used for my own project;
2) I have received payment in full from the buyer (if applicable);
3) The credits described in this transaction form have not been sold or used in any way to mitigate wetland losses other than for the project and location identified in the wetland impact information block on the previous page;
4) The credits described in this application should be withdrawn from my account; and
5) I will not have a negative balance of credits after the subject credits are debited from my account.

Name/Representative: Email Address:

Signature _____ Date _____

Send complete forms and fee payments to:
Wetland Bank Administration
Minnesota Board of Water and Soil Resources
520 Lafayette Road North
Saint Paul, MN 55155

Disclaimer: All transactions in the Wetland Bank system are public information

PURCHASE AGREEMENT
FOR
WETLAND BANKING CREDITS

THIS AGREEMENT is made this **16th** of **August, 2022** between

Barbara and Alan Stevensen (Seller) and **DeMars Construction** (Buyer).

1. Seller agrees to sell to Buyer, and Buyer agrees to buy from Seller, the wetland banking credits (Credits) listed below:

Credits to be Sold

Credit Subgroup	Wetland Type/Plant Community Type	Cost per Credit	Credit Amounts	Purchase Amount
A	Fresh Wet Meadow	60,000	1.40	84,000
	TOTAL:			$84,000

Per Credit Withdrawal Fee by BSA

BSA 1	$520	BSA 6	$1,083
BSA 2	$371	BSA 7	$1,992
BSA 3	$725	BSA 8	$2,577
BSA 4	$1,412	BSA 9	$2,628
BSA 5	$685	BSA 10	$3,099

Enter the Withdrawal Fee for the BSA of the account: **2,628**

Easement Stewardship Fee: **$302 per credit**

(Withdrawal Fee x total credits)

Withdrawal Fee: $3,679.20

(Easement Stewardship fee x total credits)

Stewardship Fee: $422.80

Total Fees: $4,102

BWSR fee policy: http://www.bwsr.state.mn.us/wetlands/wetlandbanking/fee_and_sales_data/Wetland_Banking_Fee_Policy_Effective_June1_2017.pdf

2. Seller represents and warrants as follows:

   a) The Credits are deposited in an account in the Minnesota Wetland Bank administered by the Minnesota Board of Water and Soil Resources (BWSR) pursuant to Minn. Rules Chapter 8420.0700-.0755.

   b) Seller owns the Credits and has the right to sell the Credits to Buyer.

3. Buyer will purchase from the Seller a total of **1.40** wetland credits at a rate of **$60,000 per credit**. The Buyer will pay the Seller a total of **$84,000** for the Credits. The Buyer will execute a check made out for this amount, payable to Alan Stevensen, at the time that the permit application is approved by the LGU.

4. Buyer agrees to pay a withdrawal fee of **$3,679.20** and Easement Stewardship Fee of **$422.80** to the State of Minnesota based on methods described in Box 3 of the Transaction Form to Withdrawal Credits. The Buyer will execute a check made out for this amount, payable to the **Board of Water and Soil Resources,** at the time that the permit application is approved by the LGU.

5. Upon payment of the balance of the purchase price, Seller will sign a fully executed Application for Withdrawal of the Credits in the form specified by BWSR, provide a copy of the Application for Withdrawal to the Buyer and forward the same to the BWSR along with the check for the Withdrawal Fee.

6. Buyer will apply to the **City of Mankato** (LGU) for approval of a replacement plan utilizing the Credits as the means of replacing impacted wetlands. If the LGU does not approve the Buyer's application for a replacement plan utilizing the Credits, then either Buyer or Seller may cancel this Agreement by giving written notice to the other. In this case neither Buyer nor Seller shall have any further obligations under this Agreement.

Alan Stevenson
(Signature of Seller)

8-16-2022
(Date)

(Signature of Buyer)

8-26-2022
(Date)

Landowner Statement and Contractor Responsibility
For Work in Wetlands or Public Waters

MN Statutes Sections 103G.2212 and 103G.241 stipulate that an agent or employee of another may not:

1) drain, excavate, or fill a wetland, wholly or partially; or
2) construct, reconstruct, remove, or make any change in any reservoir, dam, or the course, current, or cross-section of any public water;

unless the agent or employee has obtained a signed statement from the property owner stating that any permit or wetland replacement plan required for the work has been obtained, or that a permit or replacement plan is not required; **AND** this statement is mailed to the appropriate office with jurisdiction over the wetland or public water prior to initiating the work (see next page for information on where to send this notification).

This form is a notification only and is not an application or authorization for any activities described in it.

1. PROJECT INFORMATION

Project will affect (check all that apply):

☐ Lake, Watercourse, or Public Waters Wetland ☒ Non-Public Waters Wetland ☐ Wetland of Unknown Jurisdiction

Address or description of project location (attach map if necessary):

Legal address **Parcel IDs:** R430903300012						
County **Blue Earth**	Gov't Lot(s)	Quarter Section(s)	Section(s) **3**	Township(s) **108**	Range(s) **26**	Lot, Block, Subd.

Description of proposed work (include sketch and/or attach additional pages if needed):

Demars Construction is proposing to develop the property with a Blue Earth County Parcel ID of R430903300012, located along the north side of North Victory Drive, in Mankato, MN. ***(Exhibit A)****. The proposed construction includes residential housing, commercial properties, roads, stormwater ponds, and utilities.*

2. LANDOWNER STATEMENT

I certify that, as the owner of the property listed on this form (check one):

☐ I have obtained all permits or approvals required to perform the work described above.
☐ No permits or approvals are required for this work.

Property Owner (Print Name) **DeMars Constructino** **Max DeMars**	Address **3 Civic Center Plaza** **Mankato, MN 56001**	
Signature	Date	Phone Number and E-mail Address (Optional) **(507) 387-5933** **max@demarsgc.com**

3. CONTRACTOR VERIFICATION

By signing below, I verify that I have received a signed copy of this form and will be performing the indicated work as described above.

Company and Individual Performing Proposed Work (Print)	Address	
Signature	Date	Phone Number and E-mail Address (Optional)

Note: The contractor is responsible for ensuring this form is mailed to the appropriate office when complete.

This statement is invalid if any of the above information is not supplied or is inaccurate. Work in violation of this notification requirement is a separate and independent offense from other violations of Minnesota Statutes chapter § 103G and is a misdemeanor punishable by fines up to $1,000 and/or 90 days in jail. The State Department of Natural Resources (DNR) Commissioner also has the authority to require restoration of any work done without the necessary permits or approvals or work that is beyond what was authorized.

4. INFORMATION AND RESOURCES

A Wetland Conservation Act (WCA) replacement plan is required for any wetland draining, excavation, or filling activity that is not exempt under Minnesota Rules Chapter 8420.0420. A DNR Waters permit is required for any work in public waters.

National wetland inventory maps are available for review at the County Soil and Water Conservation District (SWCD) office and online at http://www.fws.gov/wetlands/Data/Mapper.html. Many wetlands are not identified on the maps but are still restricted from draining, excavating, or filling. If you are unsure the proposed work will affect a wetland, contact your local government unit (LGU) or SWCD for assistance.

Public Waters of the State of Minnesota include the channel to the top of the channel bank for watercourses and the basin from the ordinary high water level waterward for public waters (i.e. lakes) and public waters wetlands. Public waters inventory maps are available for review at the County Auditor's office, DNR Division of Waters regional offices, and online at http://www.dnr.state.mn.us/waters/watermgmt_section/pwi/download.html.

General information about public waters, wetlands, and related regulations are available on the DNR website at http://mndnr.gov and the MN Board of Water and Soil Resources (BWSR) website at http://www.bwsr.state.mn.us.

5. WHERE TO SEND THIS NOTIFICATION

- For work in public waters (lake, watercourse, or public waters wetland), send this completed form to the DNR Regional Enforcement Office serving the project's area. See below for DNR regional office information. A map of DNR regions can be found on the DNR website at: http://files.dnr.state.mn.us/aboutdnr/dnr_regions.pdf
- For work in any wetland that is not a public waters wetland, send this completed form to the WCA LGU with jurisdiction over the project area. The LGU is usually the County or SWCD, except in urban areas the City is often the LGU. Contact any of these local governments or BWSR for assistance. BWSR also maintains a list of LGUs on its website at: http://www.bwsr.state.mn.us/directories/WCA.pdf.
- If it is not known if the wetland is a public waters wetland, send the completed form to both the DNR Regional Enforcement Office and the WCA LGU.

Department of Natural Resources Regional Offices

Northwest Region:	Northeast Region:	Central Region:	Southern Region:
2115 Birchmont Beach Rd. NE Bemidji, MN 56601 Phone: 218-308-2700	1201 E. Hwy. 2 Grand Rapids, MN 55744 Phone: 218-327-4455	1200 Warner Road St. Paul, MN 55106 Phone: 651-259-5800	261 Hwy. 15 South New Ulm, MN 56073 Phone: 507-359-6000

Keep a copy of this form for your records!

Appendix

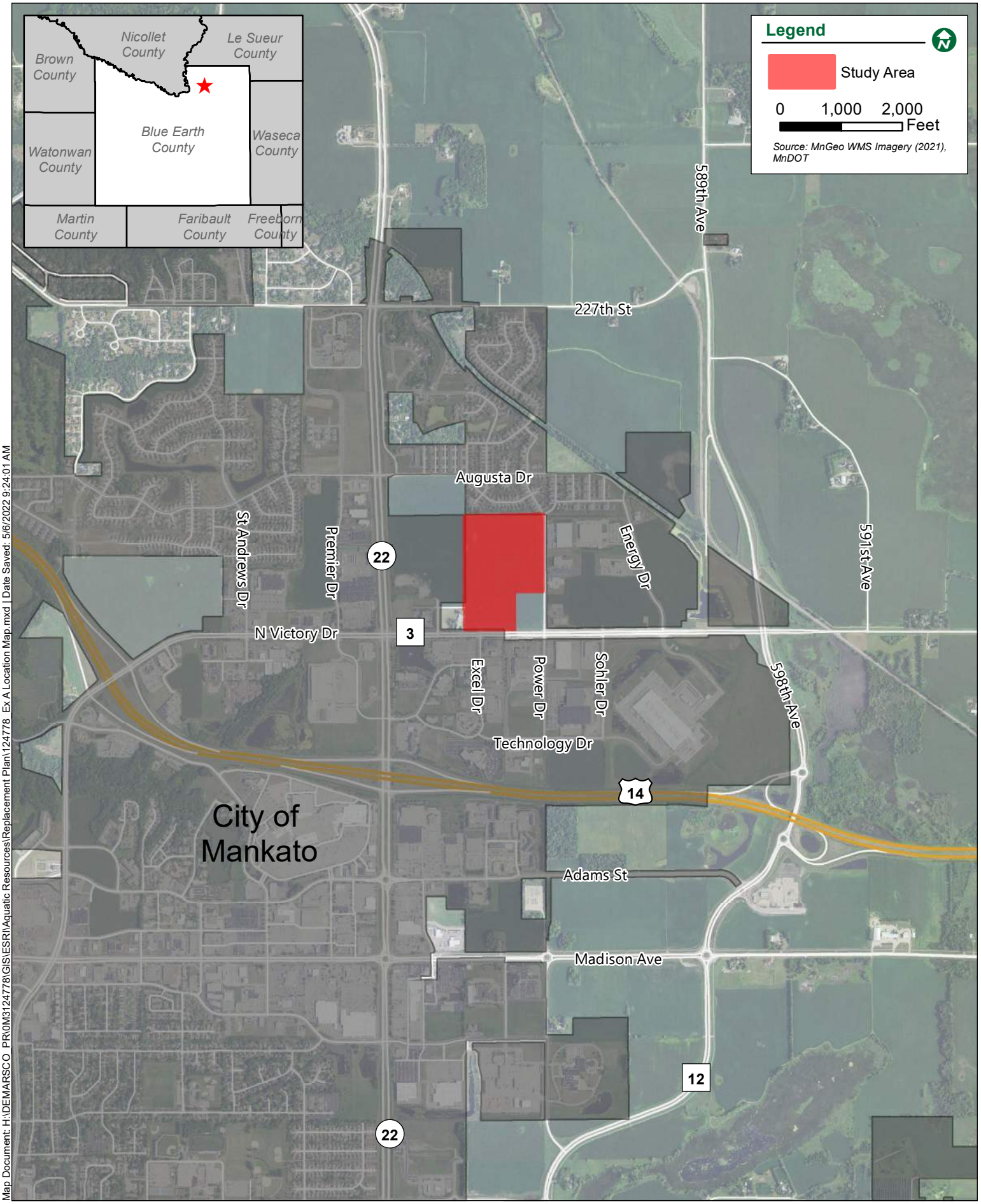
Wolfe Addition No. 2

Mankato, Blue Earth County, MN

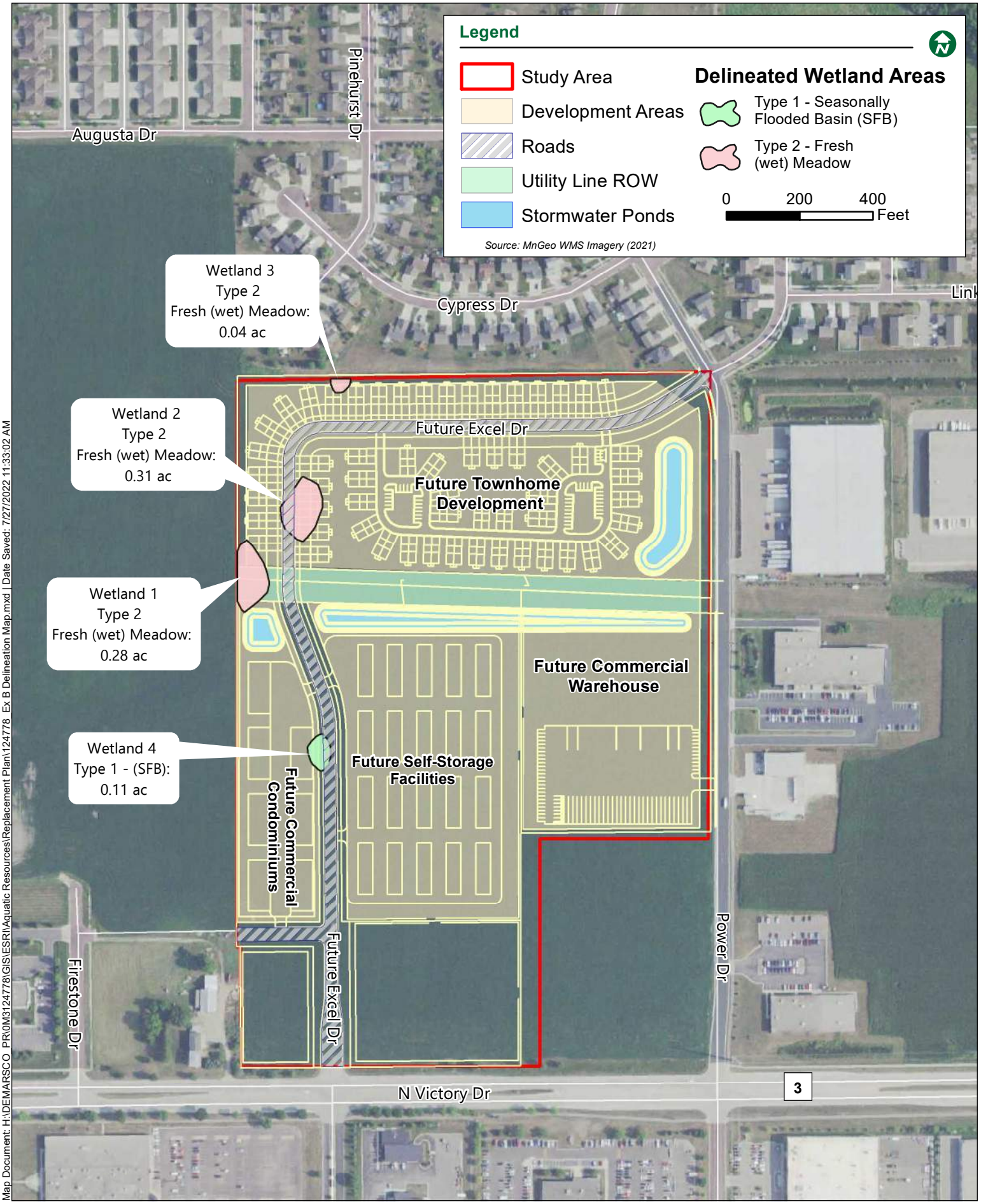
Exhibit A: Location Map

August 2022

BOLTON & MENK
Real People. Real Solutions.



Map Document: H:\DEM\ARSCO_PR\0M3124778\GIS\ESRI\Aquatic Resources\Replacement Plan\124778_Ex A Location Map.mxd | Date Saved: 5/6/2022 9:24:01 AM



Map Document: H:\DEM\ARSCO_PR\0M3124778\GIS\ESRI\Aquatic Resources\Replacement Plan\124778_Ex B Delineation Map.mxd | Date Saved: 7/27/2022 11:33:02 AM

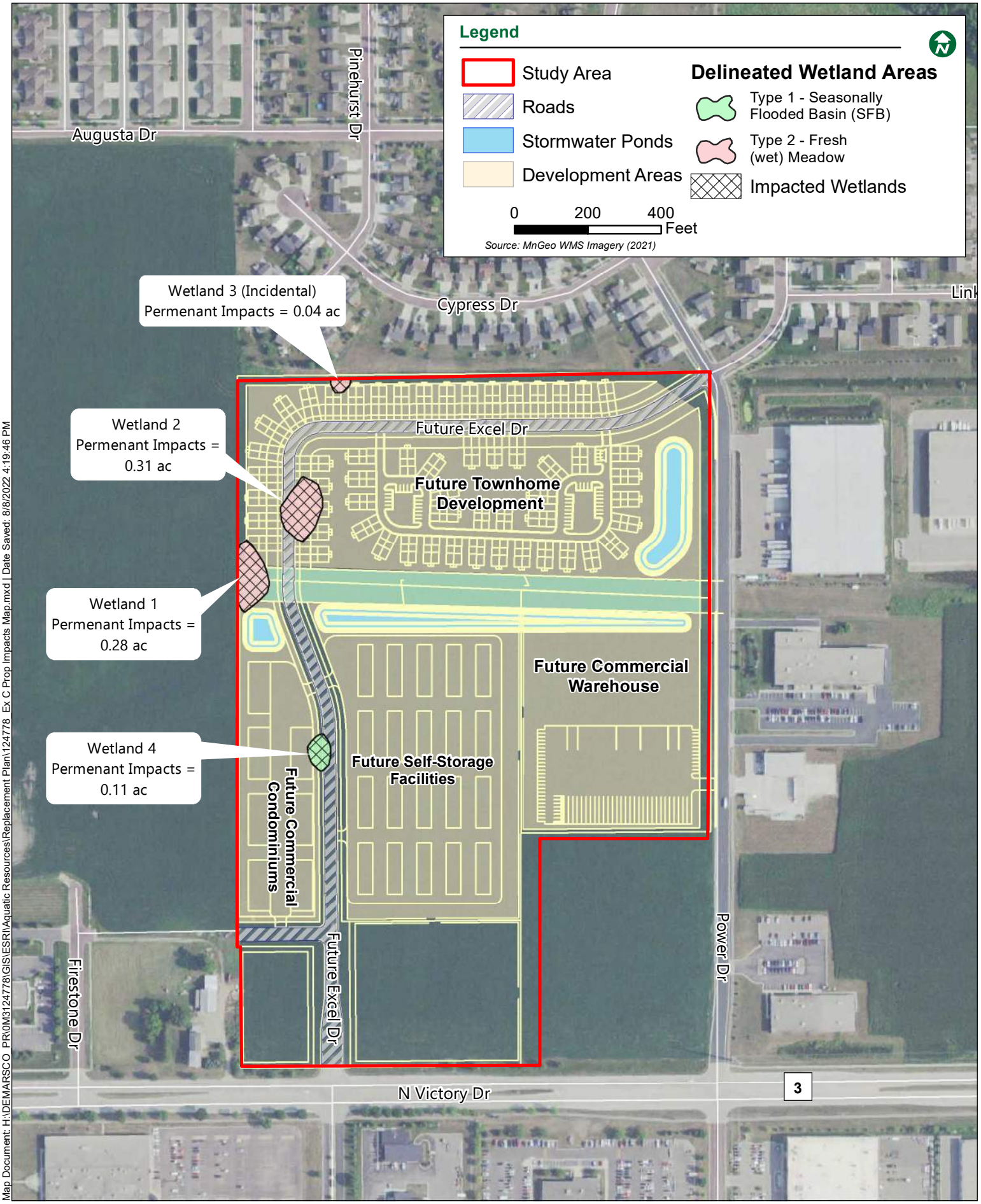
Wolfe Addition No. 2

Mankato, Blue Earth County, MN

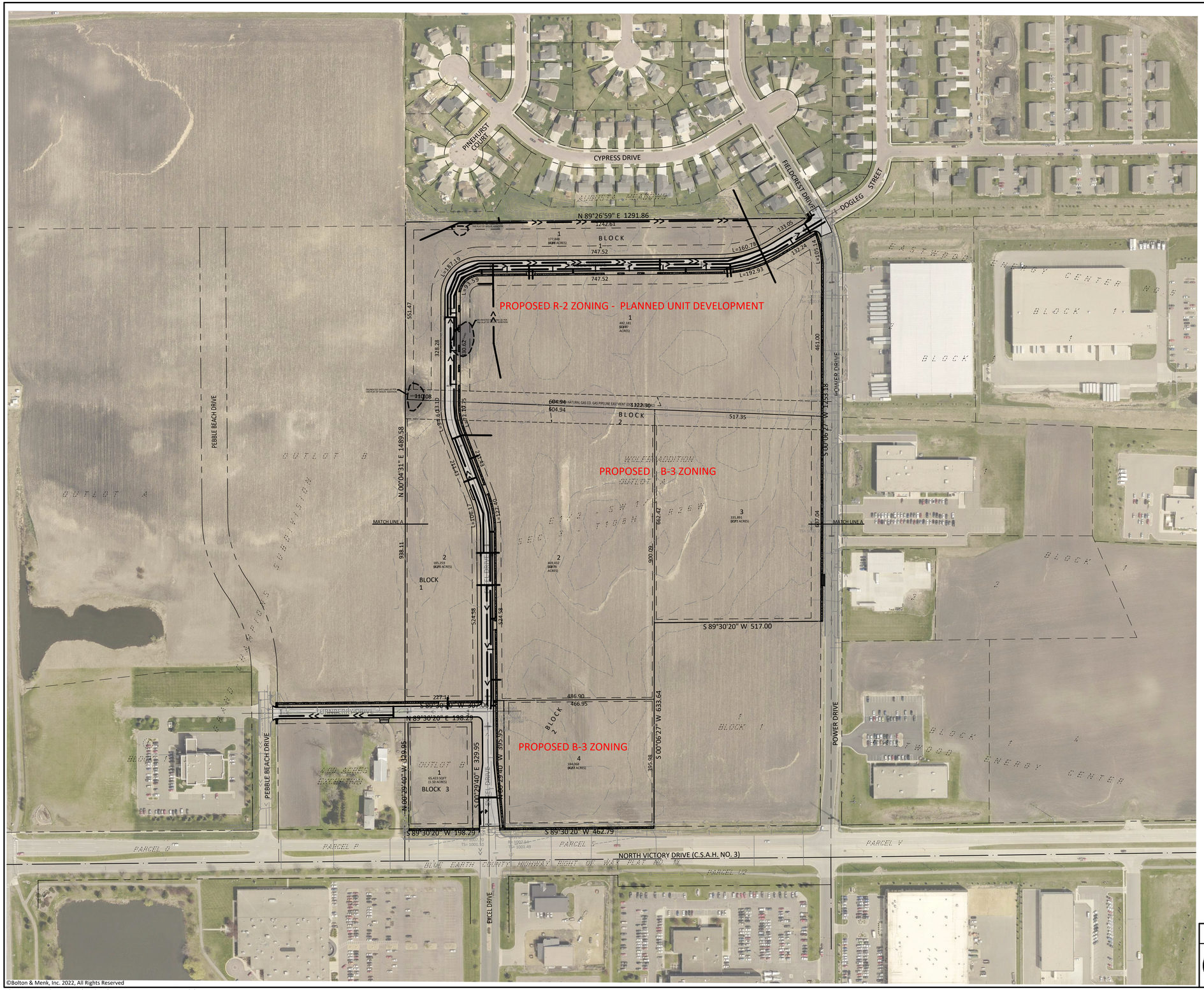
Exhibit C: Proposed Impacts Map

August 2022

BOLTON & MENK
Real People. Real Solutions.



Map Document: H:\DEM\ARSCO_PR\0M3124778\GIS\ESRI\Aquatic Resources\Replacement Plan\124778_Ex C Prop Impacts Map.mxd | Date Saved: 8/8/2022 4:19:46 PM



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0 150 300

SCALE IN FEET

UTILITY & SITE DATA

All Zoning, Setback, and Flood Zone information was obtained from the City of Mankato Code. For detailed zoning information and specific interpretation of code requirements, contact the City of Mankato.

ZONING:
Subject property - T - Transition District
Proposed Re-zone to R-2, One- and Two-family Dwelling District and B-3, Highway Commercial District.

SETBACKS (R-2, One- and Two-family Dwelling District):
Front
Main Building 30 feet

Side
Main Building 6 feet

Rear
Main Building 25 feet

Lot Area (minimum) = 6,000 sq.ft. (single) & 8,000 (two family) .
Lot Width (minimum) = 60 feet
Ground Coverage by all structures (maximum) = 35%
Building Height (maximum) = 35 feet

SETBACKS (B-3, Highway Commercial District):
Front
Main and Accessory Building 15 feet
Parking Areas 15 feet

Side
Main and Accessory Buildings 6 feet
Parking Areas 3 feet

Rear
Main and Accessory Building 6 feet
Parking Areas 3 feet

Lot Area (minimum) = 10,000 sq.ft.
Lot Width (minimum) = 150 feet
Maximum Ground Coverage = 75% by all structures
Maximum Building Height = No requirement

SURVEYOR'S CERTIFICATION

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael M. Eichers
License Number 46564

05/03/2022
Date

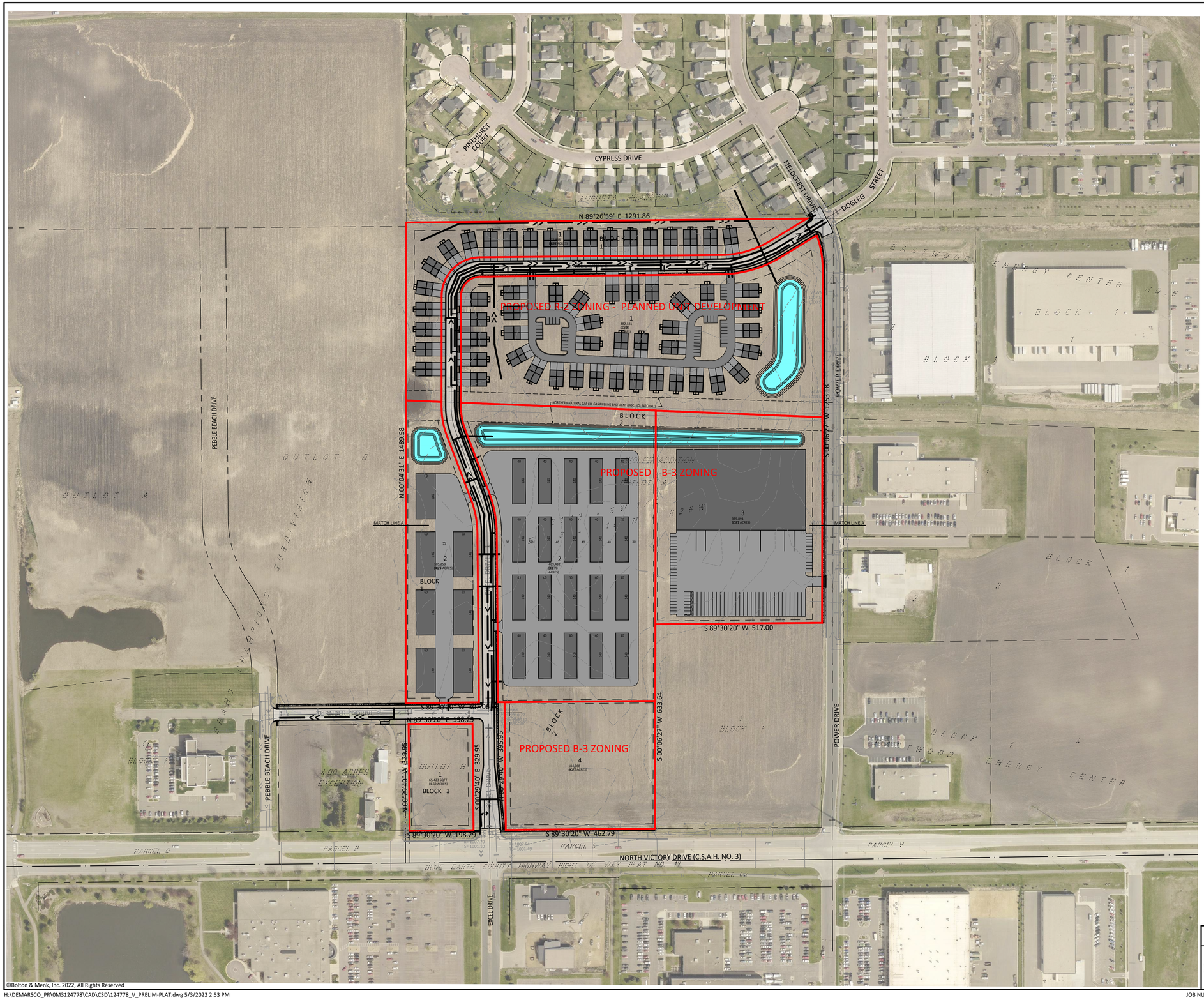
WOLFE ADDITION NO. 2

PRELIMINARY PLAT
MANKATO, MINNESOTA

PART OF THE E. 1/2 - SW 1/4, SEC. 3 -T108N-R26W

BOLTON & MENK
1960 PREMIER DRIVE
MANKATO, MINNESOTA 56001
(507) 625-4171

FOR: DEMARS CONSTRUCTION



0 150 300

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Main and Accessory Building 6 feet
Parking Areas 3 feet

Lot Area (minimum) = 10,000 sq.ft.
Lot Width (minimum) = 150 feet
Maximum Ground Coverage = 75% by all structures
Maximum Building Height = No requirement

SURVEYOR'S CERTIFICATION

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael M. Eichers
License Number 46564

12/07/2021
Date

WOLFE ADDITION NO. 2

CONCEPT PLAN
MANKATO, MINNESOTA

PART OF THE E. 1/2 - SW 1/4, SEC. 3 -T108N-R26W

BOLTON & MENK

1960 PREMIER DRIVE
MANKATO, MINNESOTA 56001
(507) 625-4171

FOR: DEMARS CONSTRUCTION

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DEMARS CONSTRUCTION

CONSTRUCTION PLANS FOR

TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
MANKATO, MN

PAVEMENT AND SIDEWALK CONSTRUCTION, SITE GRADING, STORMWATER MANAGEMENT
WATERMAIN, SANITARY SEWER AND STORM SEWER INSTALLATION

JULY 2022

RESOURCE LIST

CITY OF MANKATO, MN

City Hall
10 Civic Center Plaza
Mankato, MN 56001
507-387-8695

City Manager:
Susan Arntz

Mayor: Najwa Massad

City Council Members:
Mike Laven
Karen Foreman
Dennis Dieken
Mark Frost
Jenn Melby-Kelley
Jessica Hatanpa

Asst. City Engineer:
Michael McCarty, P.E.
10 Civic Center Plaza
Mankato, MN 56001
507-387-8600

Public Works Director:
Jeffrey Johnson, P.E.

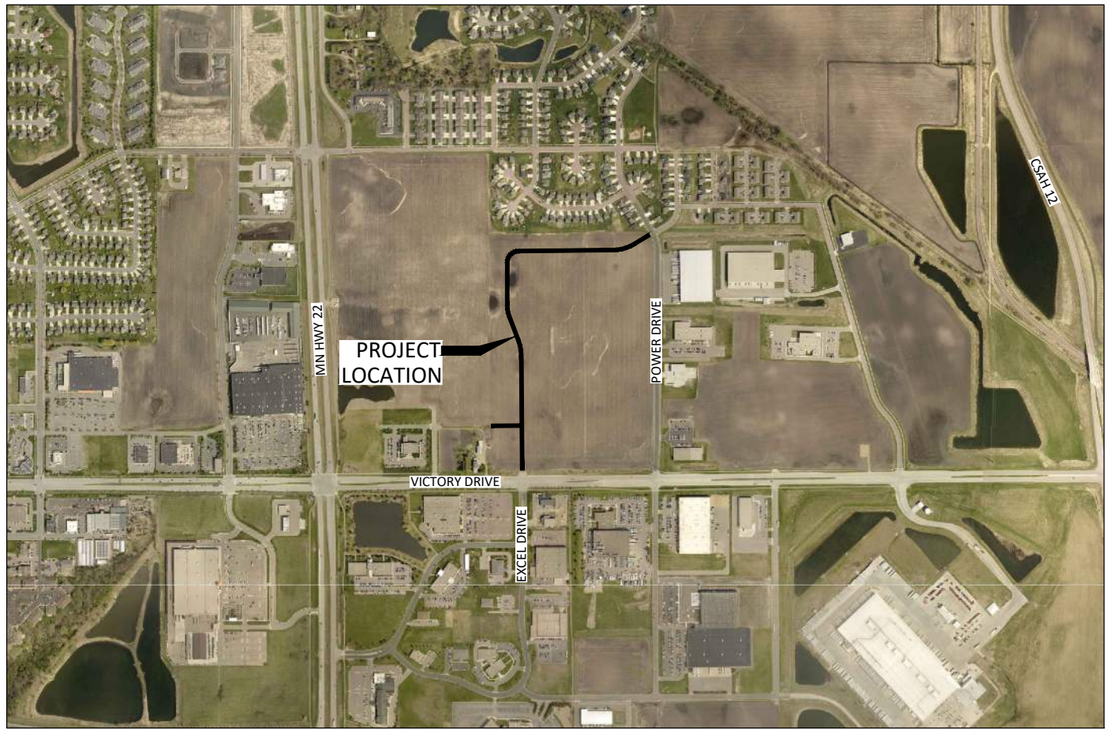
Infrastructure Superintendent:
Anthony Talamantez

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

MAP OF THE
CITY OF MANKATO
BLUE EARTH COUNTY, MN

0 600 1200
SCALE FEET



SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01 - G0.02	TITLE SHEET & LEGEND
G1.01	STATEMENT OF ESTIMATED QUANTITIES
G1.02 - G1.03	CONSTRUCTION TABLES
G2.01 - G2.03	PROJECT OVERVIEW
CIVIL	
C0.01 - C0.03	EXISTING CONDITIONS & REMOVAL PLAN
C1.01 - C1.02	CONSTRUCTION DETAILS
STORMWATER POLLUTION PREVENTION PLAN	
C2.01	PROJECT INFORMATION AND LOCATION MAP
C2.02	NARRATIVE
C2.03	SITE AND SOILS MAP
C2.04 - C2.05	BEST MANAGEMENT PRACTICE DETAILS
C2.06 - C2.12	EROSION & SEDIMENT CONTROL PLAN
TOWNHOME GRADING PLAN	
C3.01	TOWNHOME GRADING PLAN
SANITARY SEWER & WATERMAIN PLAN & PROFILE	
C4.01 - C4.05	EXCEL DRIVE
C4.06	TOWNHOME SERVICE LAYOUT
STORM SEWER PLAN & PROFILE	
C5.01 - C5.04	EXCEL DRIVE
C5.05 - C5.08	YARD DRAINAGE & NORTH BASIN OUTLET
STORMWATER MANAGEMENT PLAN	
C5.09	FILTRATION BASIN
C5.10	WET SEDIMENTATION BASIN
C5.11	SYSTEM CONNECTION AND OUTFALL PROFILES
STREET & SURFACE CONSTRUCTION	
C6.01 - C6.06	TURNBERRY DRIVE & EXCEL DRIVE - STREET PLAN & PROFILE
C6.07 - C6.08	INTERSECTION DETAILS
C6.09 - C6.12	SUBDIVISION SIDEWALK EXTENSIONS
C7.01 - C7.03	TRAFFIC CONTROL PLAN IN PROGRESS, NOT PROVIDED
E1.01 - E1.03	LIGHTING PLAN AND DETAILS
L1.01 - L1.04	TREE PLANTING PLAN AND DETAILS

THIS PLAN SET CONTAINS 65 SHEETS.

APPROVED: _____
CITY ENGINEER
LICENSE NUMBER: _____ DATE: _____

BM=1006.33	BM=1008.43	BM=1011.75	PROJECT DATUM: BLUE EARTH COUNTY HORIZONTAL: 2011 COUNTY COORDINATES VERTICAL: NAVD 1988	RECORD DRAWING INFORMATION OBSERVER: CONTRACTOR: DATE:
TOP NUT HYDRANT NORTHEAST QUADRANT OF POWER DRIVE / DOGLEG ROAD	TOP NUT HYDRANT NORTHEAST QUADRANT OF FIRESTONE/TURNBERRY DRIVE	TOP NUT HYDRANT SOUTHEAST QUADRANT OF EXCEL/VICTORY DRIVE		

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

REVIEW COPY

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

BOLTON & MENK

1960 PREMIER DRIVE
MANKATO, MINNESOTA 56001
Phone: (507) 625-4171
Email: Mankato@bolton-menk.com
www.bolton-menk.com

DESIGNED AWP
DRAWN AWP
CHECKED MS
CLIENT PROJ. NO. 0M1.127338

NO.	ISSUED FOR	DATE

DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
TITLE SHEET

SHEET G0.01

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EXISTING TOPOGRAPHIC SYMBOLS

- ACCESS GRATE
- AIR CONDITION UNIT
- ANTENNA
- AUTO SPRINKLER CONNECTION
- BARRICADE PERMANENT
- BASKETBALL POST
- BENCH
- BIRD FEEDER
- BOLLARD
- BUSH
- CATCH BASIN RECTANGULAR CASTING
- CATCH BASIN CIRCULAR CASTING
- CURB STOP
- CLEAN OUT
- CULVERT END
- DRINKING FOUNTAIN
- DOWN SPOUT
- FILL PIPE
- FIRE HYDRANT
- FLAG POLE
- FLARED END / APRON
- FUEL PUMP
- GRILL
- GUY WIRE ANCHOR
- HANDHOLE
- HANDICAP SPACE
- IRRIGATION SPRINKLER HEAD
- IRRIGATION VALVE BOX
- LIFT STATION CONTROL PANEL
- LIFT STATION
- LIGHT ON POLE
- LIGHT-GROUND
- MAILBOX
- MANHOLE-COMMUNICATION
- MANHOLE-ELECTRIC
- MANHOLE-GAS
- MANHOLE-HEAT
- MANHOLE-SANITARY SEWER
- MANHOLE-STORM SEWER
- MANHOLE-UTILITY
- MANHOLE-WATER
- METER
- ORDER MICROPHONE
- PARKING METER
- PAVEMENT MARKING
- PEDESTAL-COMMUNICATION
- PEDESTAL-ELECTRIC
- PEDESTRIAN PUSH BUTTON
- PICNIC TABLE
- POLE-UTILITY
- POLE-BRACE
- POST
- RAILROAD SIGNAL POLE
- REGULATION STATION GAS
- SATELLITE DISH
- SIGN NON TRAFFIC
- SIGN TRAFFIC
- SIGNAL CONTROL CABINET
- SOIL BORING
- SIREN
- TELEPHONE BOOTH
- TILE INLET
- TILE OUTLET
- TILE RISER
- TRANSFORMER-ELECTRIC
- TREE-CONIFEROUS
- TREE-DEAD
- TREE-DECIDUOUS
- TREE STUMP
- TRAFFIC ARM BARRIER
- TRAFFIC SIGNAL
- TRASH CAN
- UTILITY MARKER
- VALVE
- VALVE POST INDICATOR
- VALVE VAULT
- VAULT
- VENT PIPE
- WATER SPIGOT
- WELL
- WETLAND DELINEATED MARKER
- WETLAND
- WET WELL
- YARD HYDRANT

PROPOSED TOPOGRAPHIC SYMBOLS

- CLEANOUT
- MANHOLE
- LIFT STATION
- STORM SEWER CIRCULAR CASTING
- STORM SEWER RECTANGULAR CASTING
- STORM SEWER FLARED END / APRON
- STORM SEWER OUTLET STRUCTURE
- STORM SEWER OVERFLOW STRUCTURE
- CURB BOX
- FIRE HYDRANT
- WATER VALVE
- WATER REDUCER
- WATER BEND
- WATER TEE
- WATER CROSS
- WATER SLEEVE
- WATER CAP / PLUG
- RIP RAP
- DRAINAGE FLOW
- TRAFFIC SIGNS

SURVEY SYMBOLS

- BENCHMARK LOCATION
- CONTROL POINT
- MONUMENT FOUND
- CAST IRON MONUMENT
- STONE MONUMENT

EXISTING TOPOGRAPHIC LINES

- RETAINING WALL
- FENCE
- FENCE-DECORATIVE
- GUARD RAIL
- TREE LINE
- BUSH LINE

SURVEY LINES

- CONTROLLED ACCESS
- BOUNDARY
- CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING LOT LINE
- PROPOSED LOT LINE
- EXISTING RIGHT-OF-WAY
- PROPOSED RIGHT-OF-WAY
- SETBACK LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- TEMPORARY EASEMENT

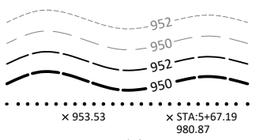
EXISTING UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE

PROPOSED UTILITY LINES

- FORCEMAIN
- SANITARY SEWER
- SANITARY SERVICE
- STORM SEWER
- STORM SEWER DRAIN TILE
- WATERMAIN
- WATER SERVICE
- PIPE CASING

GRADING INFORMATION



- EXISTING CONTOUR MINOR
- EXISTING CONTOUR MAJOR
- PROPOSED CONTOUR MINOR
- PROPOSED CONTOUR MAJOR
- PROPOSED GRADING LIMITS / SLOPE LIMITS
- PROPOSED SPOT ELEVATION
- RISE:RUN (SLOPE)

HATCH PATTERNS

- BITUMINOUS
- CONCRETE
- GRAVEL

EXISTING PRIVATE UTILITY LINES

NOTE:
EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA"

- UNDERGROUND FIBER OPTIC
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND COMMUNICATION
- OVERHEAD ELECTRIC
- OVERHEAD COMMUNICATION
- OVERHEAD UTILITY

UTILITIES IDENTIFIED WITH A QUALITY LEVEL :

LINE TYPES FOLLOW THE FORMAT: UTILITY TYPE - QUALITY LEVEL
EXAMPLE: G-A G-A UNDERGROUND GAS, QUALITY LEVEL A
UTILITY QUALITY LEVEL (A,B,C,D) DEFINITIONS CAN BE FOUND IN CI/ASCE 38-02.

UTILITY QUALITY LEVELS:

QUALITY LEVEL D: PROVIDES THE MOST BASIC LEVEL OF INFORMATION. IT INVOLVES COLLECTING DATA FROM EXISTING UTILITY RECORDS. RECORDS MAY INCLUDE AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICES MAPS, EXISTING GEOGRAPHIC INFORMATION SYSTEM DATABASES, CONSTRUCTION PLANS, ETC.

QUALITY LEVEL C: INVOLVES SURVEYING VISIBLE SUBSURFACE UTILITY STRUCTURES SUCH AS MANHOLES, HAND-HOLES, UTILITY VALVES AND METERS, FIRE HYDRANTS, PEDESTALS AND UTILITY MARKERS, AND THEN CORRELATING THE INFORMATION WITH EXISTING UTILITY RECORDS TO CREATE COMPOSITE DRAWINGS. INCLUDES QUALITY LEVEL D ACTIVITIES.

QUALITY LEVEL B: INVOLVES DESIGNATING THE HORIZONTAL POSITION OF SUBSURFACE UTILITIES THROUGH SURFACE DETECTION METHODS AND COLLECTING THE INFORMATION THROUGH A SURVEY METHOD. INCLUDES QUALITY LEVEL C AND D TASKS.

QUALITY LEVEL A: PROVIDES THE HIGHEST LEVEL OF ACCURACY. IT INVOLVES LOCATING OR POTHOLING UTILITIES AS WELL AS ACTIVITIES IN QUALITY LEVELS B, C, AND D. THE LOCATED FACILITY INFORMATION IS SURVEYED AND MAPPED AND THE DATA PROVIDES PRECISE PLAN AND PROFILE INFORMATION.

ABBREVIATIONS

A	ALGEBRAIC DIFFERENCE	GRAV	GRAVEL	RSC	RIGID STEEL CONDUIT
ADJ	ADJUST	GU	GUTTER	RT	RIGHT
ALT	ALTERNATE	GV	GATE VALVE	SAN	SANITARY SEWER
B-B	BACK TO BACK	HDPE	HIGH DENSITY POLYETHYLENE	SCH	SCHEDULE
BIT	BITUMINOUS	HH	HANDHOLE	SERV	SERVICE
BLDG	BUILDING	HP	HIGH POINT	SHLD	SHOULDER
BMP	BEST MANAGEMENT PRACTICE	HWL	HIGH WATER LEVEL	STA	STATION
BR	BEGIN RADIUS	HYD	HYDRANT	STD	STANDARD
BV	BUTTERFLY VALVE	I	INVERT	STM	STORM SEWER
CB	CATCH BASIN	K	CURVE COEFFICIENT	TC	TOP OF CURB
C&G	CURB AND GUTTER	L	LENGTH	TE	TEMPORARY EASEMENT
CIP	CAST IRON PIPE	LO	LOWEST OPENING	TEMP	TEMPORARY
CIPP	CURED-IN-PLACE PIPE	LP	LOW POINT	TNH	TOP NUT HYDRANT
CL	CENTER LINE	LT	LEFT	TP	TOP OF PIPE
CL.	CLASS	MAX	MAXIMUM	TYP	TYPICAL
CLVT	CULVERT	MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
CMP	CORRUGATED METAL PIPE	MIN	MINIMUM	VERT	VERTICAL
C.O.	CHANGE ORDER	MR	MID RADIUS	VPC	VERTICAL POINT OF CURVE
COMM	COMMUNICATION	NIC	NOT IN CONTRACT	VPI	VERTICAL POINT OF INTERSECTION
CON	CONCRETE	NMC	NON-METALLIC CONDUIT	VPT	VERTICAL POINT OF TANGENT
CSP	CORRUGATED STEEL PIPE	NTS	NOT TO SCALE	WM	WATERMAIN
DIA	DIAMETER	NWL	NORMAL WATER LEVEL		
DIP	DUCTILE IRON PIPE	OHW	ORDINARY HIGH WATER LEVEL		
DWY	DRIVEWAY	PC	POINT OF CURVE	AC	ACRES
E	EXTERNAL CURVE DISTANCE	PCC	POINT OF COMPOUND CURVE	CF	CUBIC FEET
ELEC	ELECTRIC	PE	PERMANENT EASEMENT	CV	COMPACTED VOLUME
ELEV	ELEVATION	PED	PEDESTRIAN, PEDESTAL	CY	CUBIC YARD
EOF	EMERGENCY OVERFLOW	PERF	PERFORATED PIPE	EA	EACH
ER	END RADIUS	PERM	PERMANENT	EV	EXCAVATED VOLUME
ESMT	EASEMENT	PI	POINT OF INTERSECTION	LB	POUND
EX	EXISTING	PL	PROPERTY LINE	LF	LINEAR FEET
FES	FLARED END SECTION	PRC	POINT OF REVERSE CURVE	LS	LUMP SUM
F-F	FACE TO FACE	PT	POINT OF TANGENT	LV	LOOSE VOLUME
FF	FINISHED FLOOR	PVC	POLYVINYL CHLORIDE PIPE	SF	SQUARE FEET
F&I	FURNISH AND INSTALL	PVMT	PAVEMENT	SV	STOCKPILE VOLUME
FM	FORCEMAIN	R	RADIUS	SY	SQUARE YARD
FO	FIBER OPTIC	R/W	RIGHT-OF-WAY		
F.O.	FIELD ORDER	RCP	REINFORCED CONCRETE PIPE		
GRAN	GRANULAR	RET	RETAINING		

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

REVIEW COPY

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

BOLTON & MENK
1960 PREMIER DRIVE
MANKATO, MINNESOTA 56001
Phone: (507) 625-4171
Email: Mankato@bolton-menk.com
www.bolton-menk.com

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
LEGEND

SHEET G0.02

STATEMENT OF ESTIMATED QUANTITIES				
ITEM NO.	MNDOT ITEM NO.	ITEM	ESTIMATED QUANTITY	UNIT
1	2021.501	MOBILIZATION	1	LS
2	2104.502	REMOVE HYDRANT	1	EA
3	2104.502	REMOVE DRAINAGE STRUCTURE	1	EA
4	2104.503	REMOVE WATER MAIN	25	LF
5	2104.503	REMOVE SEWER PIPE (STORM)	10	LF
6	2104.503	REMOVE SEWER PIPE (SANITARY)	15	LF
7	2104.503	SAWING CONCRETE PAVEMENT	31	LF
8	2104.503	SAWING BITUMINOUS PAVEMENT	160	LF
9	2104.503	REMOVE CURB AND GUTTER	170	LF
10	2104.504	REMOVE CONCRETE WALK	10	SY
11	2104.504	REMOVE BITUMINOUS PAVEMENT	360	SY
12	2105.504	GEOTEXTILE FABRIC TYPE 5	14800	SY
13	2105.507	COMMON EXCAVATION (P) (EV)	39400	CY
14	2211.509	AGGREGATE BASE, CLASS 3 (CV) (P)	6160	CY
15	2211.509	AGGREGATE BASE, CLASS 5 (CV) (P)	3160	CY
16	2231.604	BITUMINOUS PATCH SPECIAL (TRAIL PATCH)	70	SY
17	2360.504	TYPE SP 12.5 WEAR CRS MIX (3,C) 1.5" THICK	12200	SY
18	2360.504	TYPE SP 19.0 NON WEAR CRS MIX (3,B) 2.5" THICK	12200	SY
19	2411.502	CONCRETE TRANSFORMER PAD	1	EA
20	2501.502	18" RC PIPE APRON	2	EA
21	2501.502	24" RC PIPE APRON	3	EA
22	2501.502	36" RC PIPE APRON	1	EA
23	2502.503	4" PERF PVC PIPE DRAIN, SDR 35	5680	LF
24	2502.503	8" PERF PVC PIPE DRAIN, SDR 35	340	LF
25	2502.503	12" PERF PVC PIPE DRAIN, SDR 35	1230	LF
26	2502.602	4" PVC PIPE DRAIN CLEAN-OUT	13	EA
27	2502.602	8" PVC PIPE DRAIN CLEAN-OUT	6	EA
28	2503.503	8" PVC PIPE SEWER, SDR 35	1659	LF
29	2503.503	10" PVC PIPE SEWER, SDR 35	373	LF
30	2503.503	12" PIPE SEWER (STORM)	376	LF
31	2503.503	15" PIPE SEWER (STORM)	870	LF
32	2503.503	12" RC PIPE SEWER DESIGN 3006 CLASS IV	172	LF
33	2503.503	15" RC PIPE SEWER DESIGN 3006 CLASS IV	118	LF
34	2503.503	18" RC PIPE SEWER DESIGN 3006 CLASS IV	320	LF
35	2503.503	24" RC PIPE SEWER DESIGN 3006 CLASS IV	1489	LF
36	2503.503	30" RC PIPE SEWER DESIGN 3006 CLASS IV	401	LF
37	2503.503	36" RC PIPE SEWER DESIGN 3006 CLASS IV	113	LF
38	2503.602	CONNECT TO EXISTING SANITARY SEWER	2	EA
39	2503.602	CONNECT TO EXISTING STORM SEWER	2	EA
40	2503.602	8" X 4" PVC WYE, HEAVY WALL	58	EA
41	2503.603	4" PVC SANITARY SERVICE PIPE, SDR 26	2358	LF
42	2504.602	CONNECT TO EXISTING WATER MAIN	2	EA
43	2504.602	6" GATE VALVE AND BOX	7	EA
44	2504.602	8" GATE VALVE AND BOX	6	EA
45	2504.602	12" GATE VALVE AND BOX	6	EA
46	2504.602	HYDRANT	7	EA
47	2504.602	INSTALL HYDRANT	7	EA
48	2504.602	12"X8" WET TAP	1	EA
49	2504.602	1" CORPORATION STOP	58	EA
50	2504.602	1" CURB STOP & BOX	58	EA

STATEMENT OF ESTIMATED QUANTITIES				
ITEM NO.	MNDOT ITEM NO.	ITEM	ESTIMATED QUANTITY	UNIT
51	2504.603	1" TYPE PE PIPE	2642	LF
52	2504.603	6" PVC WATERMAIN	83	LF
53	2504.603	8" PVC WATERMAIN	190	LF
54	2504.603	12" PVC WATERMAIN	2522	LF
55	2504.608	WATERMAIN FITTINGS	2000	LBS
56	2506.503	CONSTRUCT DRAINAGE STRUCTURE SPECIAL (DES R-1)	24	LF
57	2506.503	CONSTRUCT DRAINAGE STRUCTURE SPECIAL (DES I-1)	32	LF
58	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 4007	156	LF
59	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	55	LF
60	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020	48	LF
61	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4022	5	LF
62	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4022	12	LF
63	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 72-4022	11	LF
64	2506.602	CONSTRUCT DRAINAGE STRUCTURE MANKATO STD. 3	8	EA
65	2506.602	CONSTRUCT DRAINAGE STRUCTURE SPECIAL (DES P-1)	1	EA
66	2506.602	CONSTRUCT DRAINAGE STRUCTURE SPECIAL (DES P-4)	1	EA
67	2506.602	STORM SEWER CASTING ASSEMBLY	37	EA
68	2506.502	SANITARY SEWER CASTING ASSEMBLY	11	EA
69	2511.507	RANDOM RIPRAP CLASS II	25	CY
70	2511.507	RANDOM RIPRAP CLASS III	75	CY
71	2521.518	4" CONCRETE WALK	22200	SF
72	2521.518	6" CONCRETE WALK	400	SF
73	2531.503	CONCRETE CURB & GUTTER DESIGN B618	6310	LF
74	2531.618	TRUNCATED DOMES	60	SF
75	2545.502	LIGHTING UNIT TYPE E	10	EA
76	2545.502	LUMINAIRE (LED)	10	EA
77	2545.502	LIGHT FOUNDATION DESIGN STEEL E	10	EA
78	2545.502	HANDHOLE	5	EA
79	2545.503	2" NON-METALLIC CONDUIT	2600	LF
80	2545.503	UNDERGROUND WIRE 1/C 4 AWG	2600	LF
81	2563.601	TRAFFIC CONTROL	1	LS
82	2565.602	TRANSFORMER AND SERVICE EQUIPMENT	1	EA
83	2571.524	DECIDUOUS TREE 2" CAL B&B - BICOLOR OAK	37	TREE
84	2571.524	DECIDUOUS TREE 2" CAL B&B - ELM	37	TREE
85	2571.524	DECIDUOUS TREE 2" CAL B&B - HACKBERRY	38	TREE
86	2571.524	DECIDUOUS TREE 2" CAL B&B - HONEY LOCUST	38	TREE
87	2573.502	STORM DRAIN INLET PROTECTION	36	EA
88	2573.501	STABILIZED CONSTRUCTION EXIT	2	EA
89	2573.503	SILT FENCE, TYPE MS	2200	LF
90	2574.508	FERTILIZER TYPE 3	2350	LB
91	2575.504	EROSION CONTROL BLANKETS, CATEGORY 20	26100	SY
92	2575.504	EROSION CONTROL BLANKETS, CATEGORY 3N	13700	SY
93	2575.508	SEED MIXTURE 25-141	120	LB
94	2575.508	SEED MIXTURE 25-151	960	LB
95	2575.508	SEED MIXTURE 33-261	200	LB
96	2575.605	SEEDING	8	ACRE
97	2582.501	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	40	SF
98	2582.503	4" SOLID LINE WHITE-PAINT	180	LF

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DEMARS CONSTRUCTION

TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

STATEMENT OF ESTIMATED QUANTITIES

SHEET G1.01

STORM SEWER TABLE									
SERIES / ALIGNMENT	STRUCTURE NUMBER	STRUCTURE DESIGN	STATION	CASTING	RIM ELEV	LOW INVERT ELEV	DOWNSTREAM STRUCTURE	HEIGHT	NOTES
EXCEL DRIVE - A-SERIES	A-1	60-4020	11+06.7	C-1	1007.73	1002.40	EXISTING	5.33 LF	VERIFY LOCATION AND ELEVATION
	A-2	72-4022	11+90.0	C-2	1008.22	1003.42	A-1	4.80 LF	
	A-3	48-4022	11+90.0	C-2	1008.42	1003.80	A-2	4.62 LF	
EXCEL DRIVE - B-SERIES	B-1	24" RC APRON	504+13.2	N/A	N/A	1004.00	BASIN	N/A	
	B-2	60-4022	504+23.0	C-2	1009.60	1004.13	B-1	5.47 LF	
	B-3	60-4020	504+23.0	C-1	1009.91	1004.29	B-2	5.62 LF	
	B-3A	MKTO 2402C	504+23.0	C-2	1009.65	1005.65	B-3	4.00 LF	
	B-4	48-4020	501+72.7	C-1	1010.26	1005.04	B-3	5.22 LF	
	B-5	60-4020	500+50.0	C-1	1009.20	1005.41	B-4	3.79 LF	
	B-5A	R-1	500+50.0	C-2	1008.94	1005.44	B-5	3.50 LF	
	B-5B	MKTO 2402C	500+40.0	C-2	1009.06	1005.47	B-5A	3.59 LF	
	B-5C	R-1	500+50.0	C-2	1008.94	1005.49	B-5	3.45 LF	
	B-5D	MKTO 2402C	500+40.0	C-2	1009.06	1005.52	B-5C	3.54 LF	
FUTURE CONNECTION	MISC-1	48-4020	504+33.0	C-1	1010.00	1004.11	MISC-2	5.89 LF	FOR FUTURE POND CONNECTION ON ADJACENT COMMERCIAL SITE
	MISC-2	18" RC APRON	504+23.5	N/A	N/A	1004.00	BASIN	N/A	
C-SERIES OUTFALL	C-1	36" RC APRON	573+66.6	N/A	N/A	1000.00	POND	N/A	
	C-2	60-4022	572+86.7	C-2	1006.39	1000.24	C-1	6.15 LF	
EXCEL DRIVE - C-SERIES	C-3	72-4022	521+49.3	C-2	1006.20	1000.34	C-2	5.86 LF	
	C-4	60-4020	520+42.1	C-1	1008.80	1000.66	C-3	8.14 LF	
	C-5	60-4020	518+31.0	C-1	1008.55	1001.29	C-4	7.26 LF	
	C-5A	MKTO 2402C	518+31.0	C-3	1008.29	1004.29	C-5	4.00 LF	
	C-5B	MKTO 2402C	518+31.0	C-3	1008.29	1004.29	C-5	4.00 LF	
	C-6	60-4020	514+51.4	C-1	1009.84	1002.43	C-5	7.41 LF	18" STUB SOUTH FOR ADJACENT PROJECT
	C-7	60-4020	513+12.4	C-1	1009.10	1002.85	C-6	6.25 LF	
	C-8	48-4020	512+68.2	C-1	1008.87	1002.98	C-7	5.89 LF	
	C-9	48-4020	511+94.3	C-1	1008.49	1003.20	C-8	5.29 LF	
	C-10	48-4020	511+20.3	C-1	1008.15	1003.42	C-9	4.73 LF	
	C-11	60-4020	510+50.0	C-1	1007.78	1003.63	C-10	4.15 LF	
	C-11A	R-1	510+50.0	C-2	1007.61	1003.67	C-11	3.94 LF	
	C-11B	MKTO 2402C	510+42.0	C-2	1007.55	1003.71	C-11A	3.84 LF	
	C-11C	R-1	510+50.0	C-2	1007.51	1003.76	C-11	3.75 LF	
	C-11D	MKTO 2402C	510+19.0	C-2	1007.67	1003.92	C-11C	3.75 LF	
EXCEL DRIVE - D-SERIES	D-1	R-1	39+84.8	C-2	1003.43	998.83	EXISTING	4.60 LF	
	D-2	R-1	39+55.0	C-2	1003.41	999.14	D-1	4.27 LF	
	D-3	MKTO 2402C	39+55.0	C-2	1003.41	999.41	D-2	4.00 LF	

STORM SEWER TABLE									
SERIES / ALIGNMENT	STRUCTURE NUMBER	STRUCTURE DESIGN	STATION	CASTING	RIM ELEV	LOW INVERT ELEV	DOWNSTREAM STRUCTURE	HEIGHT	NOTES
REAR YARD DRAINAGE - E-SERIES	E-1	48-4020	560+75.2	C-4	1009.57	1001.30	C-3	8.27 LF	
	E-1A	I-1	570+50.0	N/A	1007.70	1004.70	E-1	3.00 LF	SEE DETAIL, SHEET C1.02
	E-2	I-1	559+25.9	N/A	1008.79	1001.67	E-1	7.12 LF	
	E-3	I-1	556+77.9	N/A	1008.33	1002.29	E-2	6.04 LF	
	E-4	48-4020	553+05.9	C-4	1007.18	1003.22	E-3	3.96 LF	
	E-4A	12" CULVERT	553+03.0	N/A	N/A	1006.60	E-4	N/A	DAYLIGHT AND GRADE AREA TO DRAIN TOWARDS, INSTALL RODENT GUARD
	E-5	I-1	551+79.3	N/A	1008.26	1003.79	E-4	4.47 LF	SEE DETAIL, SHEET C1.02
	E-6	I-1	1007.78	N/A	1007.78	1004.37	E-5	3.41 LF	
BACK YARD DRAINAGE - F-SERIES	F-1	48-4020	583+93.9	C-4	1008.80	1005.28	C-7	3.52 LF	
	F-1A	I-1	583+93.9	N/A	1008.37	1005.39	F-1	2.98 LF	SEE DETAIL, SHEET C1.02
	F-2	I-1	583+75.0	N/A	1008.24	1005.40	F-1	2.84 LF	
	F-3	I-1	582+08.6	N/A	1008.15	1005.82	F-2	2.33 LF	
BASIN OUTFALL TO POND	P-1	SPECIAL P-1	591+00.0	N/A	1005.50	1000.50	P-2	5.00 LF	SEE DETAIL, SHEET C1.02
	P-2	18" RC APRON	592+53.8	N/A	N/A	1000.00	POND	N/A	
POND OUTFALL	P-3	24" RC APRON	595+50.0	N/A	N/A	997.00	P-4	N/A	
	P-4	SPECIAL P-4	596+13.1	N/A	1004.00	997.50	P-5	6.50 LF	SEE DETAIL, SHEET C1.02
	P-5	48-4020	596+45.8	C-1	1004.18	998.94	P-6	5.24 LF	
	P-6	48-4020	597+33.6	C-1	1004.53	998.06	P-7	6.47 LF	
	P-7	24" RC APRON	597+61.7	N/A	N/A	998.00	OUTFALL	N/A	OUTFALL TO EXISTING BASIN

SANITARY SEWER TABLE						
STRUCTURE	STATION	RIM ELEV	LOW INVERT ELEV	DOWNSTREAM STRUCTURE	HEIGHT	NOTES
A	404+50.0	1010.68	983.76	EX SAN - 3	26.92 LF	
B	426+61.1	1004.28	991.89	EXISTING	12.39 LF	
C	424+89.7	1006.01	992.68	B	13.33 LF	
D	424+01.6	1007.78	993.13	C	14.65 LF	
E	423+44.3	1008.86	993.46	D	15.40 LF	
F	419+56.5	1009.63	995.11	E	14.52 LF	
G	417+19.9	1009.92	996.16	F	13.76 LF	
H	415+65.4	1009.10	996.88	G	12.22 LF	
I	414+97.0	1008.73	997.25	H	11.48 LF	
J	414+28.6	1008.36	997.62	I	10.74 LF	
K	411+50.0	1009.07	998.83	J	10.24 LF	

CASTING ASSEMBLY TABLE			
CASTING ID	CASTING DESIGNATION	CASTING TYPE	NUMBER REQ'D
C-1	NEENAH R-1733	PLATEN LID LETTERED "STORM SEWER" WITH TWO CONCEALED PICKHOLES	15
C-2	NEENAH R-3067-V	CURB INLET FRAME & CURB BOX WITH TYPE V-VANE GRATE	17
C-3	NEENAH R-3067-VB	CURB INLET FRAME & CURB BOX WITH TYPE BIDIRECTIONAL V-VANE GRATE	2
C-4	NEENAH R-2573-C	INLET FRAME, TYPE C GRATE	3
C-5	NEENAH R-1642	FRAME W / SELF-SEALING SOLID LID LETTERED "SANITARY SEWER" WITH TWO CONCEALED PICKHOLES	11

TOWNHOME DRIVEWAY TABULATION			
TOWNHOME BUILDING	DRIVEWAY START STATION	DRIVEWAY END STATION	SIDE
1	24+89.3	25+31.3	RT
2	25+51.3	25+93.3	RT
3	26+13.3	26+55.3	RT
4	26+75.3	27+17.3	RT
5	27+37.3	27+82.2	RT
6	25+20.3	25+62.3	LT
7	25+82.3	26+24.3	LT
8	26+44.3	26+86.3	LT
9	27+06.3	27+48.3	LT
10	27+62.4	27+98.4	LT
11	28+00.4	28+35.4	LT
12	28+37.3	28+72.3	LT
13	28+74.2	29+09.3	LT
14	29+21	29+63	LT
15	29+83	30+25	LT
16	30+45	30+87	LT
17	31+07	31+49	LT
18	31+69	32+11	LT
19	32+31	32+73	LT
20	32+93	33+35	LT
21	33+55	33+97	LT
22	34+17	34+59	LT
23	34+79	35+21	LT
24	35+41	35+83	LT
25	36+03	36+45	LT
26	36+79.2	37+23.8	LT
27	32+96.8	33+38.8	RT
28	33+58.8	34+00.8	RT
29	34+20.8	34+62.8	RT

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
CONSTRUCTION TABLES

SHEET G1.02

SERVICE TABULATION TO BE
PROVIDED WITH FINAL PLANS

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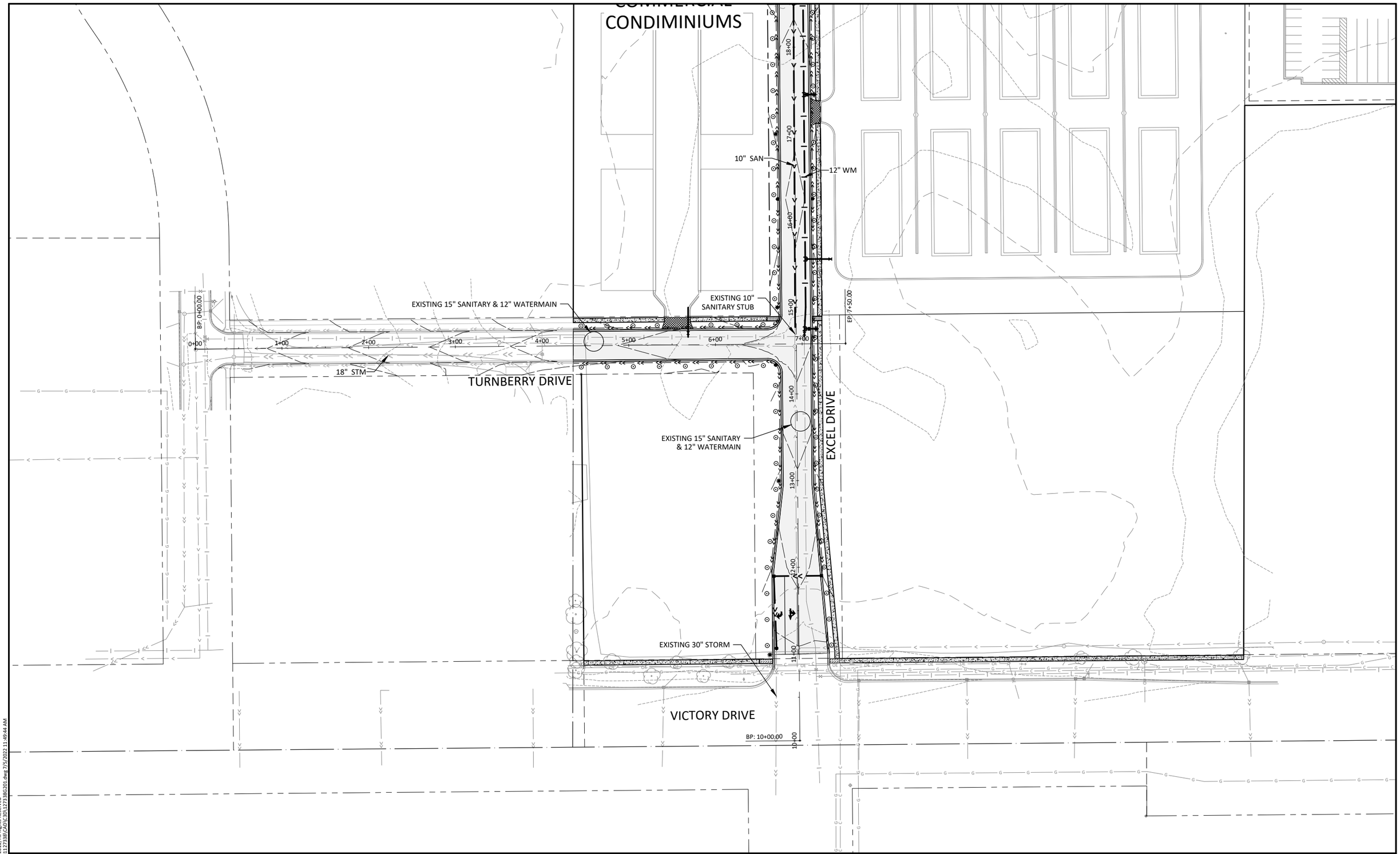
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
CONSTRUCTION TABLES

SHEET
G1.03



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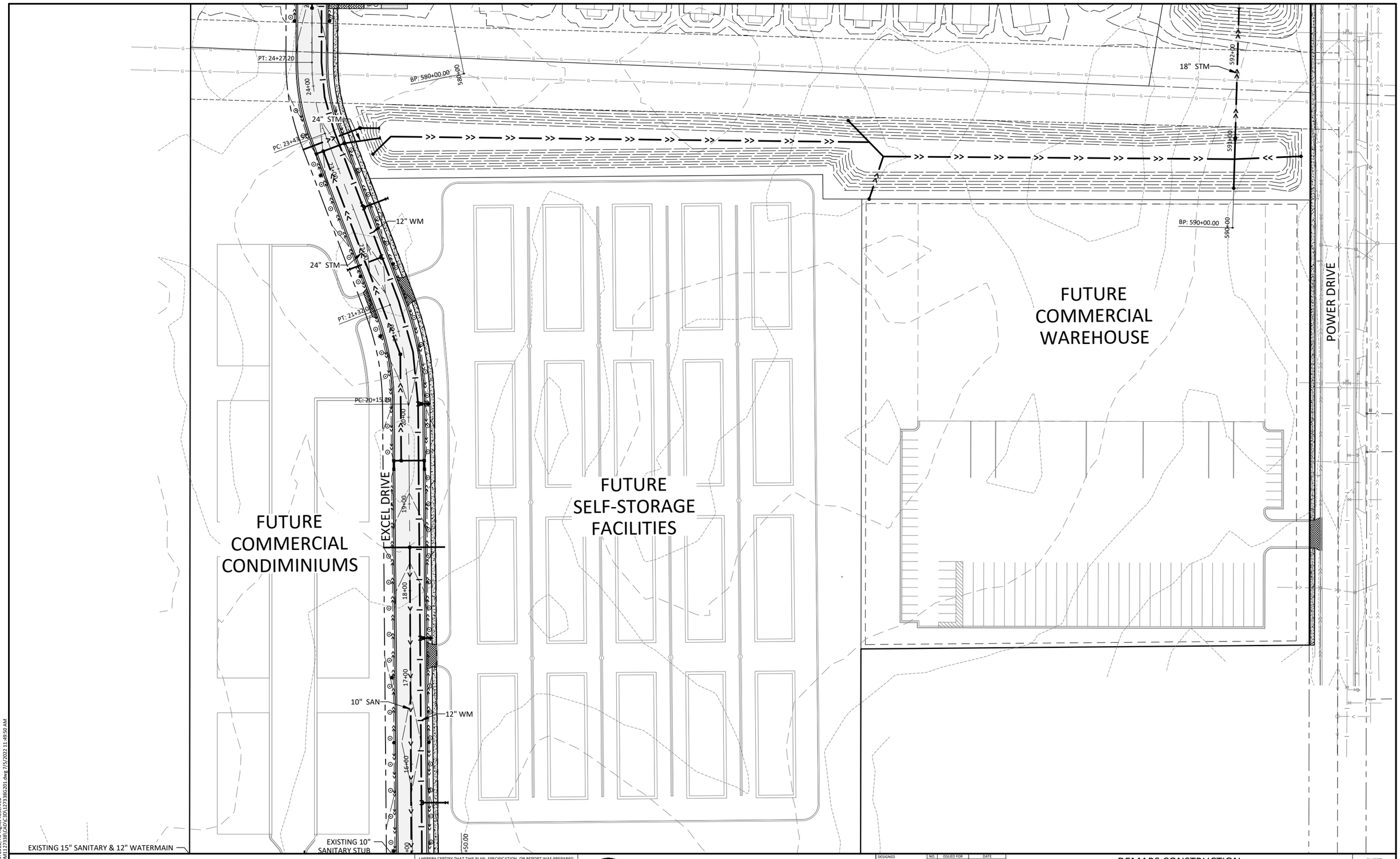
DEMARS CONSTRUCTION

TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

PROJECT OVERVIEW

SHEET G2.01



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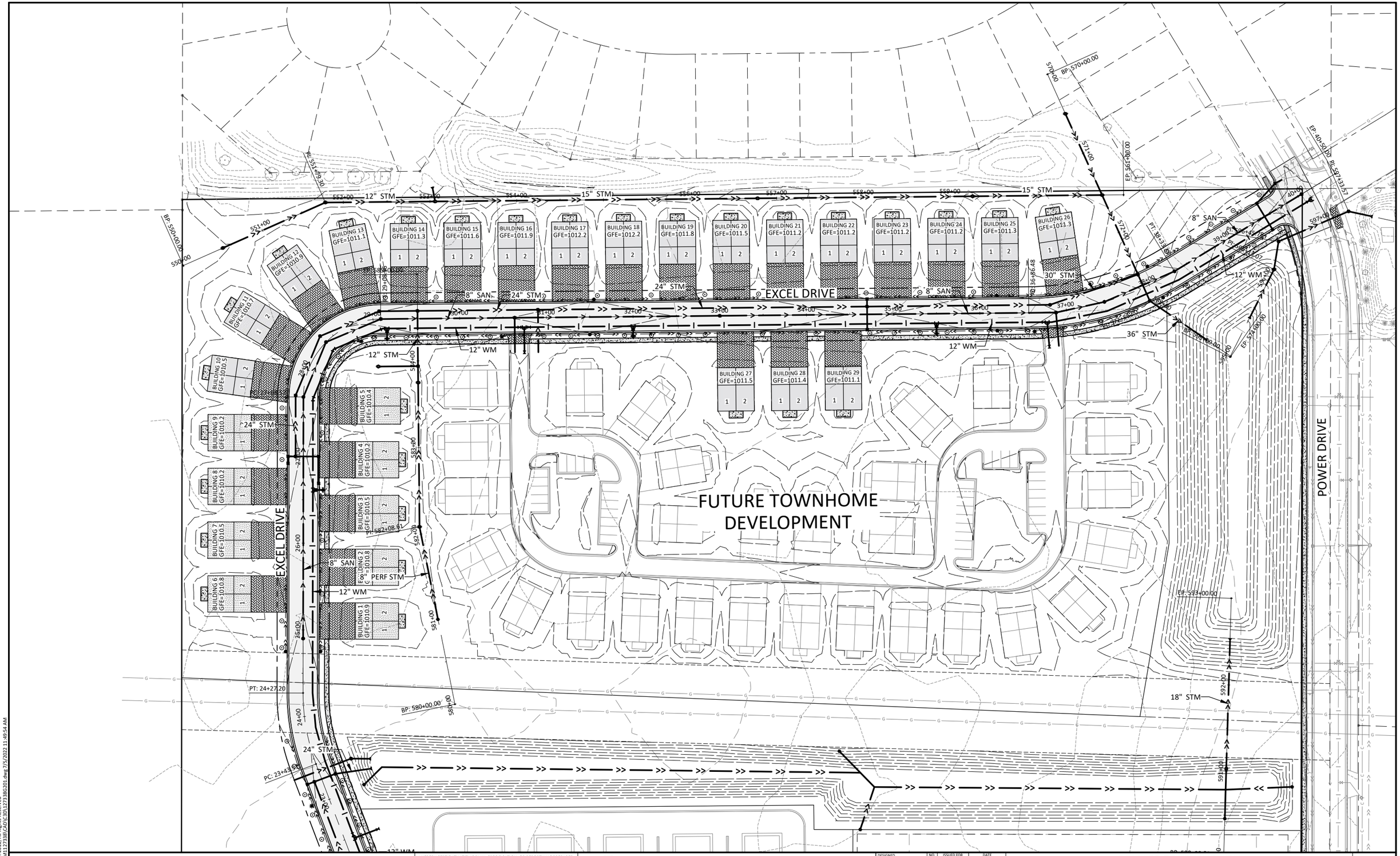
PROJECT OVERVIEW

SHEET G2.02



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HORZ. SCALE 0 50 100 FEET

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REVIEW COPY

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

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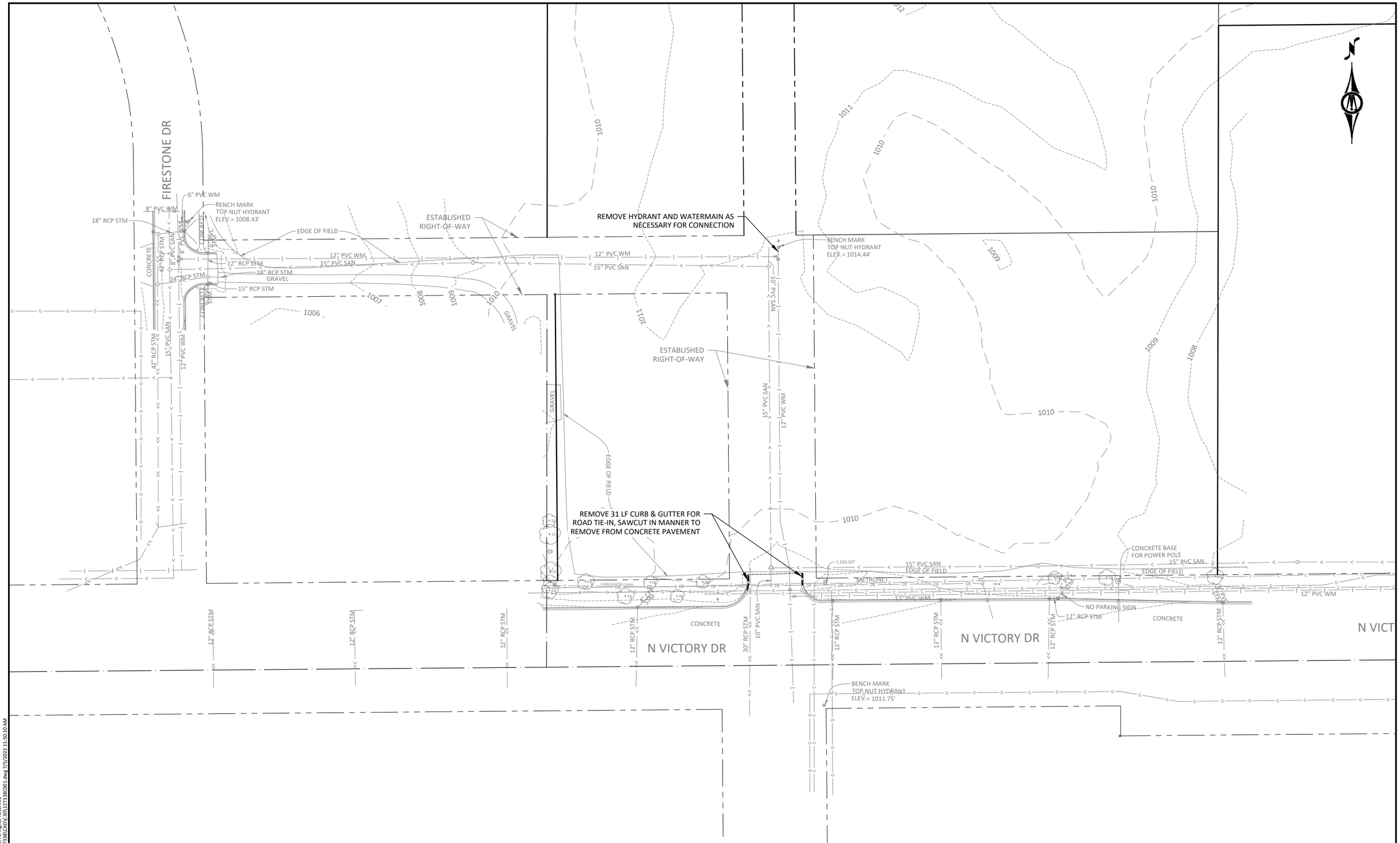
1960 PREMIER DRIVE
MANKATO, MINNESOTA 56001
Phone: (507) 625-4171
Email: Mankato@bolton-menk.com
www.bolton-menk.com

DESIGNED	AWP
DRAWN	AWP
CHECKED	MS
CLIENT PROJ. NO.	0M1.127338

NO.	ISSUED FOR	DATE

DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
PROJECT OVERVIEW

SHEET G2.03



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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
EXISTING CONDITIONS & REMOVAL PLAN

SHEET C0.01

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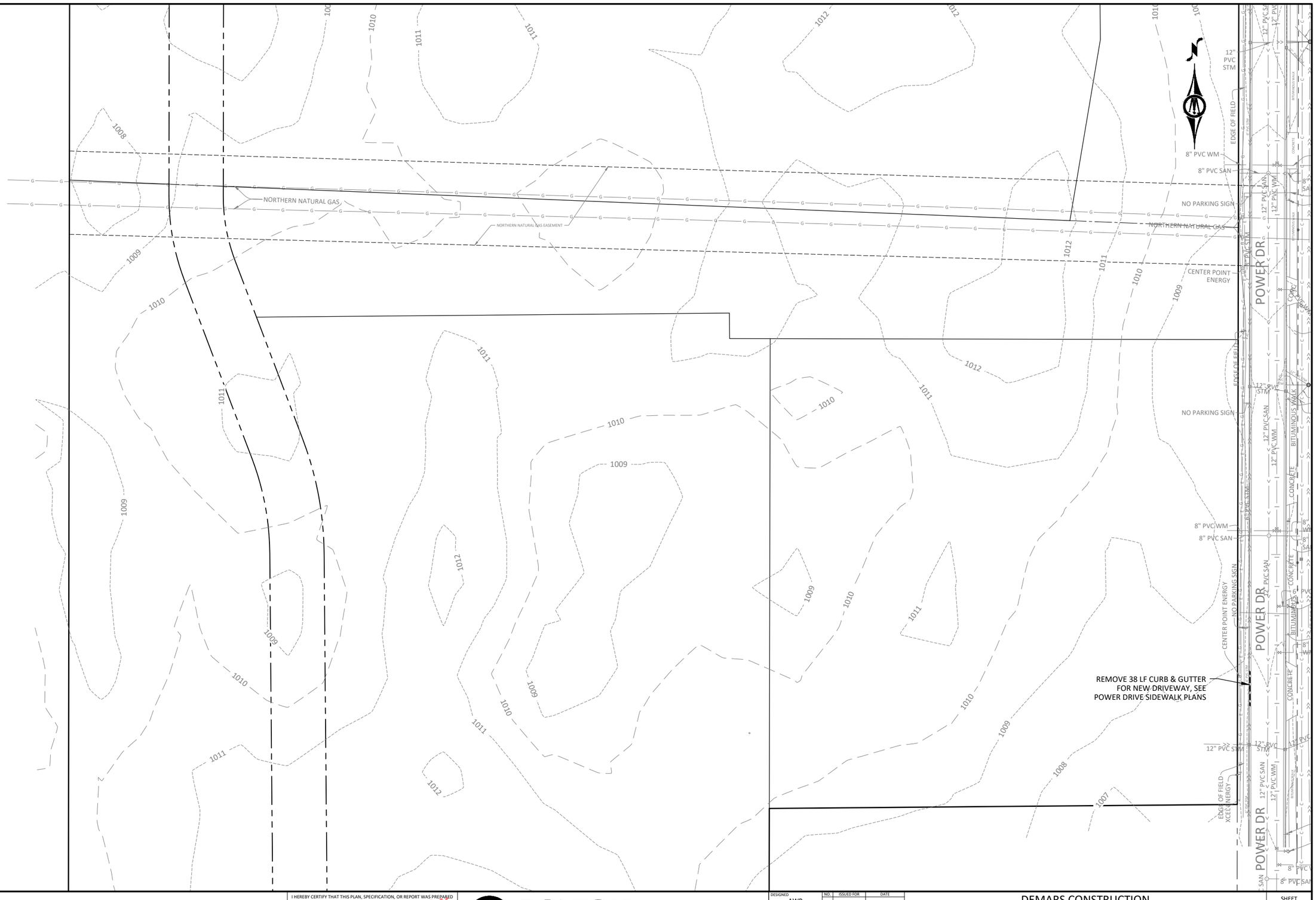

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0 50 100
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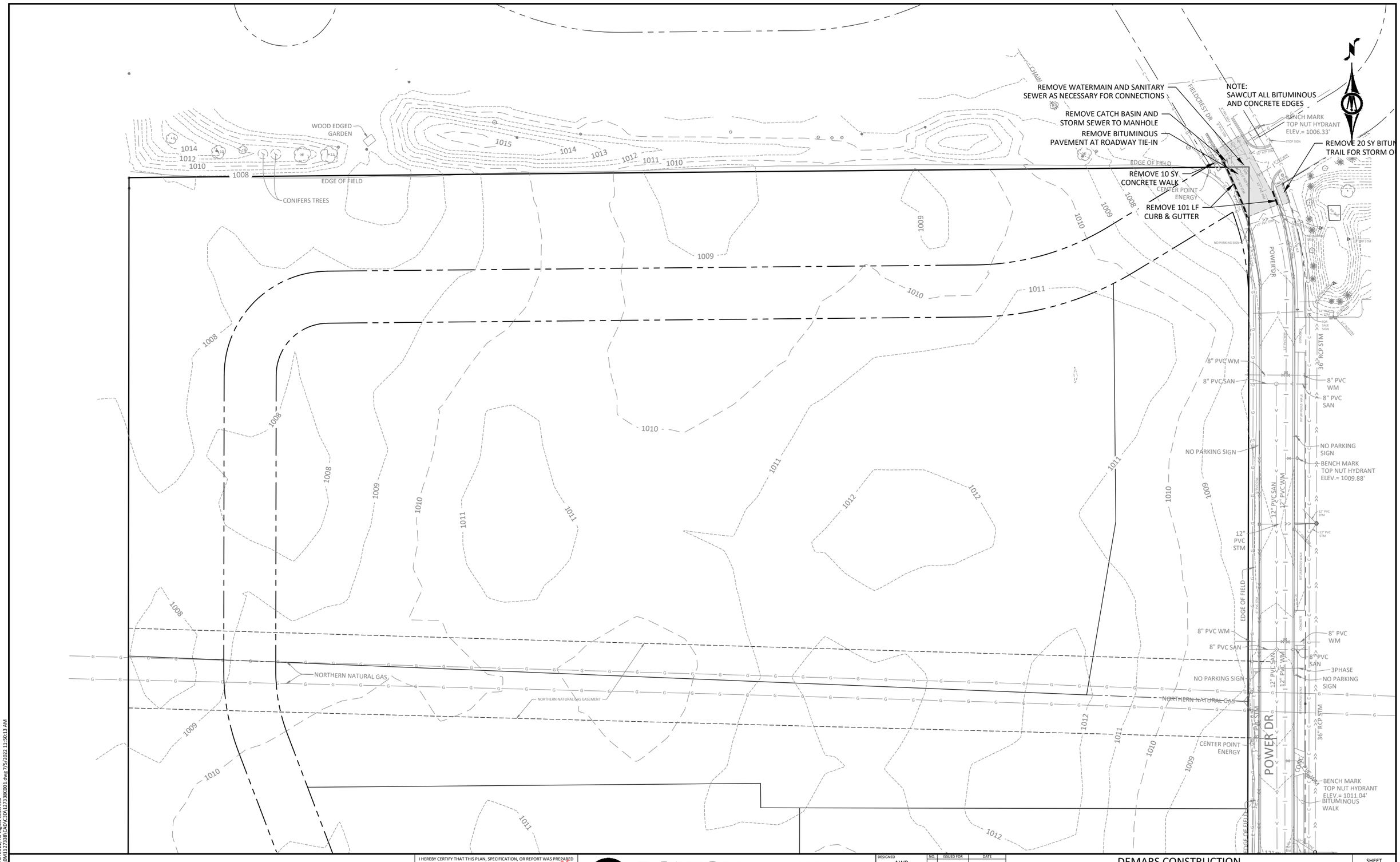
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
EXISTING CONDITIONS & REMOVAL PLAN

SHEET C0.02



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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
EXISTING CONDITIONS & REMOVAL PLAN

SHEET C0.03

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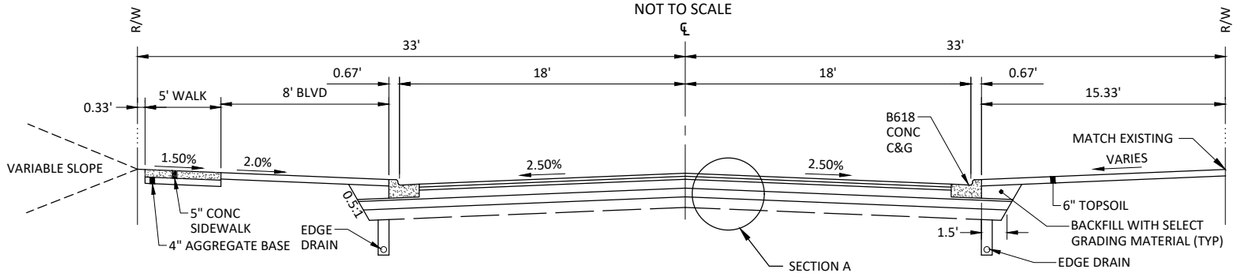
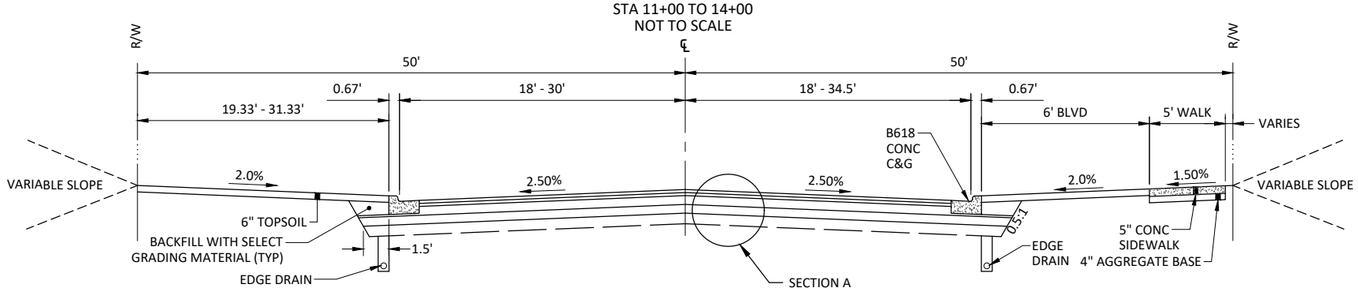
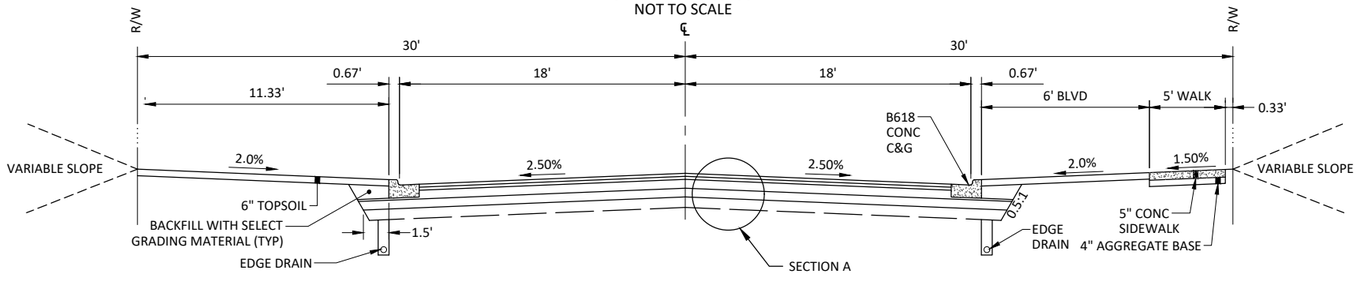
TYPICAL SECTION
TURNBERRY DRIVE
STA 0+50 TO 6+50
NOT TO SCALE

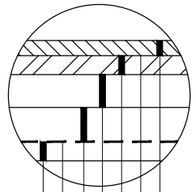


TYPICAL SECTION
EXCEL DRIVE
STA 11+00 TO 14+00
NOT TO SCALE



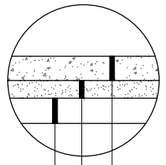
TYPICAL SECTION
EXCEL DRIVE
STA 15+00 TO 39+50
NOT TO SCALE





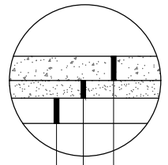
1.5" TYPE SP 12.5 WEARING COURSE (SPWEB340C) (2360)
BITUMINOUS TACK COAT
2.5" TYPE SP 19 NON-WEARING COURSE (SPNWB330C) (2360)
8" AGGREGATE BASE, CL 5 (2211)
15" AGGREGATE BASE, CL 3 MODIFIED (0-4% PASSING #200) (2211)
TYPE V GEOTEXTILE FABRIC
12" SUBGRADE PREPARATION (2112) (INCIDENTAL)

SECTION A
NOT TO SCALE



6" OR 8" CONCRETE DRIVEWAY PAVEMENT (AS SPECIFIED) (2531)
6" AGGREGATE BASE, CL 5 (2211) (INCIDENTAL)
SUBGRADE PREPARATION (2112) (INCIDENTAL)

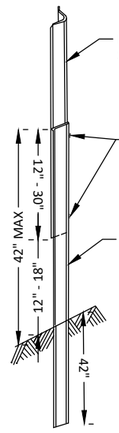
6" & 8" CONCRETE DRIVEWAY PAVEMENT
NOT TO SCALE



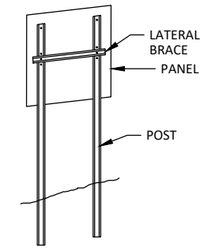
5" OR 6" CONCRETE SIDEWALK (AS SPECIFIED) (2531)
4" AGGREGATE BASE, CL 5 (2211) (INCIDENTAL)
SUBGRADE PREPARATION (2112) (INCIDENTAL)

5" & 6" CONCRETE SIDEWALK
NOT TO SCALE

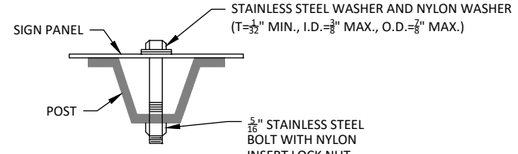
TYPE C & D POST



U-POST BREAKAWAY SPLICE



TYPICAL TYPE C INSTALLATION



U-POST MOUNTING - TYPE C SIGNS

TRACER WIRE NOTE:
REFER TO THE MINNESOTA RURAL WATER ASSOCIATION (MRWA) TRACER WIRE SPECIFICATION GUIDE & DETAILS TO PROPERLY INSTALL TRACER WIRE WITH WATERMAIN AND SANITARY SEWER. THE GUIDE CAN BE FOUND AT:
mrwa.com/tools.html - Tracer Wire Specification Guide & Details

PEDESTRIAN RAMP DETAILS:
SEE LATEST MNDOT STANDARD PLANS 5-297.250 FOR PROPER PEDESTRIAN RAMP DETAILS

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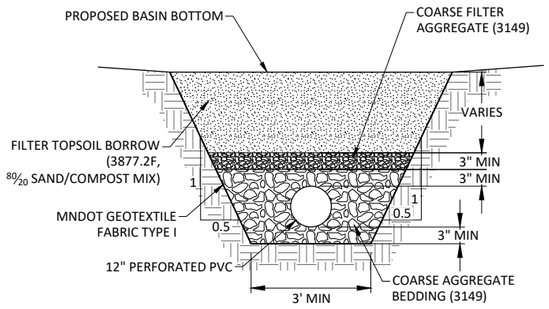
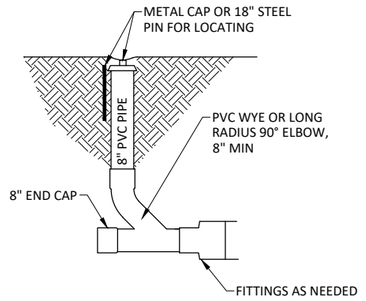
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
CONSTRUCTION DETAILS

SHEET C1.01

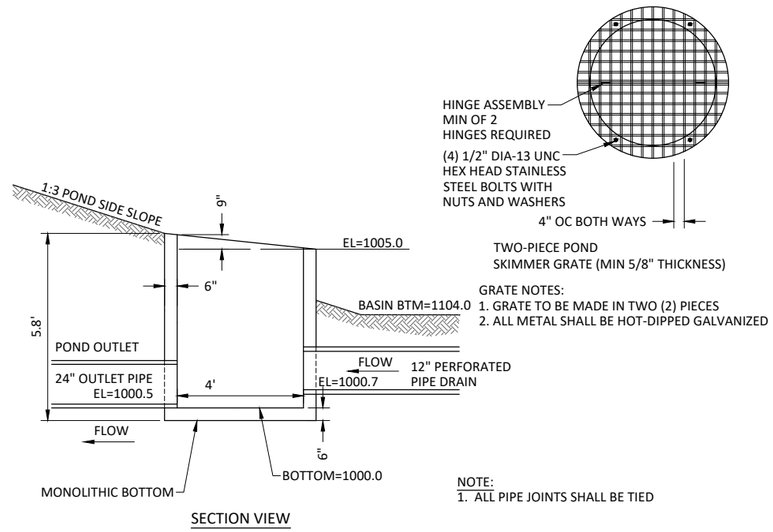
MANKATO STANDARD PLATES	
AVAILABLE ON CITY WEBSITE	
mankatomn.gov/your-government/departments/public-works/engineering	
PLATE NO.	DESCRIPTION
2002A	TEMPORARY MANHOLE INSERTS
2003A	STABILIZED CONSTRUCTION EXIT
2100A	GRANULAR BEDDING AND ENCASEMENT
2200A	SANITARY SEWER MANHOLE
2203A	INTERNAL CHIMNEY SEAL
2240A	STANDARD SANITARY SERVICE
2241A	DEEP SANITARY SERVICE
2320A	WATERMAIN CONSTRUCTION AROUND OBSTACLES
2321A	GATE VALVE ADAPTOR
2322A	HYDRANT DETAIL
2340B	WATER SERVICE
2402C	MANKATO STNADARD CATCH BASIN 3
2420B	DRAIN TILE TRENCH DETAIL
2421A	DRAIN TILE CLEANOUT END/THRU BOULEVARD
2440A	4" DRAIN STUB
2540B	STANDARD DRIVEWAY APPROACH FOR ALL CURB TYPES
2640A	EQUIPMENT PAD
2641A	LOW LEVEL LIGHT BASE
2650A	LIGHT BASE DESIGN STEEL (E)
2651A	LIGHT BASE DESIGN STEEL (P)
2660A	100 AMP LIGHTING SERVICE
2661A	200 AMP LIGHTING SERVICE



FILTRATION BASIN
12" PERFORATED PIPE DRAIN
NOT TO SCALE



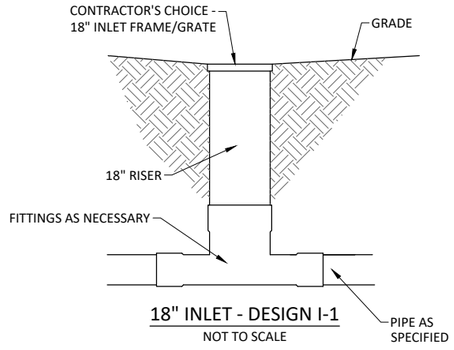
8" CLEANOUT
NOT TO SCALE



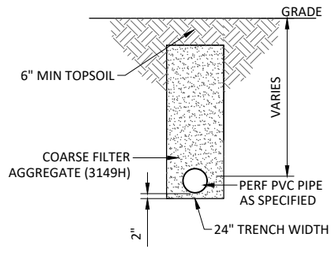
SECTION VIEW

OUTLET CONTROL STRUCTURE - P-1
NOT TO SCALE

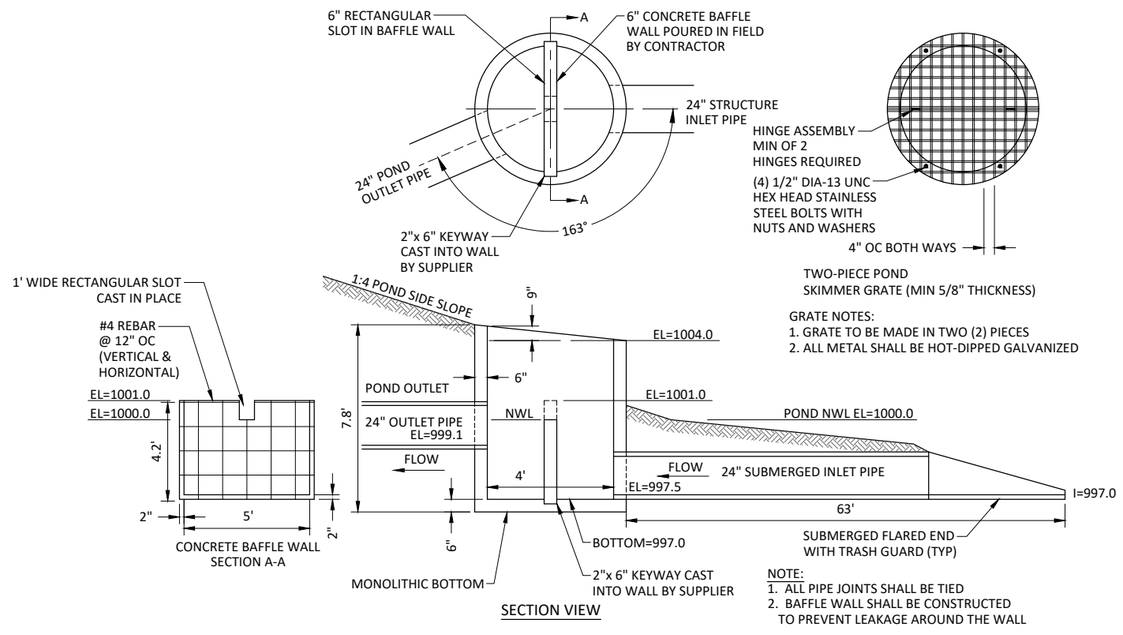
MNDOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
4007C	PRECAST MECHANICAL JOINT SEWER MANHOLE
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER (3 ft. X 2 ft. OPENING)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) - CASTING NO. 715 AND 716
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)



18" INLET - DESIGN I-1
NOT TO SCALE



8" PERFORATED PIPE DRAIN
NOT TO SCALE



SECTION VIEW

OUTLET CONTROL STRUCTURE - P-4
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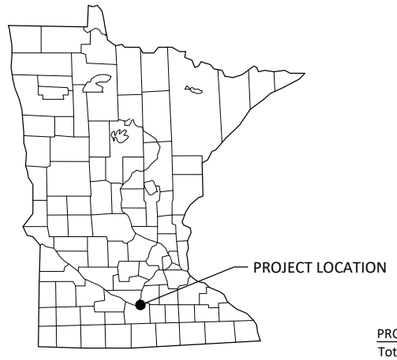
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
CONSTRUCTION DETAILS

SHEET
C1.02

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

TURNBERRY & EXCEL DRIVE EXTENSION - DEMARS CONSTRUCTION

CITY OF MANKATO
BLUE EARTH COUNTY, MINNESOTA



LEGEND

- 1-MILE BOUNDARY
- PROJECT BOUNDARY
- PROTECTED WATERS (OR)
- NATIONAL WETLANDS INVENTORY
- RECEIVING WATERS

RESPONSIBLE PARTIES:
The Contractor and Owner will be joint applicants under the MPCA's General Stormwater Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDES) Phase II program.

The Contractor shall provide one or more trained Construction SWPPP Manager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPs.

A Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	City of Mankato	Michael McCarty, P.E.	507-387-8695
SWPPP DESIGNER:	Bolton & Menk, Inc.	Alec W. Pietz, P.E.	507-625-4171
CONTRACTOR:	TBD	TBD	TBD
CONSTRUCTION SWPPP MANAGER:	TBD	TBD	TBD
PARTY RESPONSIBLE FOR LONG TERM O&M:	City of Mankato	Michael McCarty, P.E.	507-387-8695

The SWPPP Designer, Construction SWPPP Manager, and BMP Installer must have appropriate training. Documentation showing training commensurate with the job duties and responsibilities is required to be included in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on the Narrative sheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager and BMP Installer prior to the start of construction. This information shall be kept up to date until the project NOT is filed.

ADDITIONAL COMPENSATION
Payment for all work associated with Erosion and Sediment Control shall be as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any work required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Agency (MPCA) - General Stormwater Permit for Construction Activity (MN R100001) including but not limited to inspection, maintenance, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

DOCUMENT RETENTION
Permittees must make the SWPPP, including all inspection reports, maintenance records, training records and other information required by this permit, available to federal, state, and local officials within three (3) days upon request for the duration of the permit and for three (3) years following the NOT.

GENERAL STORMWATER DISCHARGE REQUIREMENTS
All requirements listed in Section 5.1 of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include but are not limited to:

1. The expected amount, frequency, intensity, and duration of precipitation.
2. The nature of stormwater runoff and run-on at the site
3. Peak flow rates and stormwater volumes to minimize erosion at outlets and downstream channel and stream bank erosion.

Permanent stormwater treatment systems for this project have been designed in accordance with the guidance in the MN Stormwater Manual in place at the time of bidding. Copies of the design information and calculations are part of this SWPPP and will be provided in digital format upon written request to the Engineer.

PROJECT AREAS:

Total Project Size (disturbed area) =	13.9	ACRES
Existing area of impervious surface =	0.1	ACRES
Post construction area of impervious surface =	6.1	ACRES
Total new impervious surface area created =	6.0	ACRES
Planned Construction Start Date:	TBD	
Estimated Construction Completion Date:	TBD	

PERMANENT STORMWATER MANAGEMENT SYSTEM:
Type of storm water management used if more than 1 acre of new impervious surface is created:

X	Wet Sedimentation Basin
X	Infiltration/Filtration
	Regional Pond
	Permanent Stormwater Management Not Required

PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
BLUE EARTH	T108N	R26W	14	44.1644° N	93.9213° W

BMP SUMMARY	QUANTITY	UNIT
STABILIZED CONSTRUCTION EXIT	2	EACH
STORM DRAIN INLET PROTECTION	36	EACH
SILT FENCE, TYPE MACHINE SLICED	2200	LIN FT
SEED MIX 25-141 & FERTILIZE	1.0	ACRE
SEED MIX 25-151 & FERTILIZE	4.0	ACRE
SEED MIX 33-261 & FERTILIZE	2.8	ACRE
EROSION CONTROL BLANKET CATEGORY 20	26100	SQ YD
EROSION CONTROL BLANKET CATEGORY 3N	13700	SQ YD
RANDOM RIPRAP CLASS II	25	CU YD
RANDOM RIPRAP CLASS III	75	CU YD
NOTE: QUANTITIES LISTED ACCOUNT FOR ONE INSTALLATION. ADDITIONAL INSTALLATIONS MAY BE NECESSARY AS A RESULT OF SCHEDULING AND MAINTENANCE.		

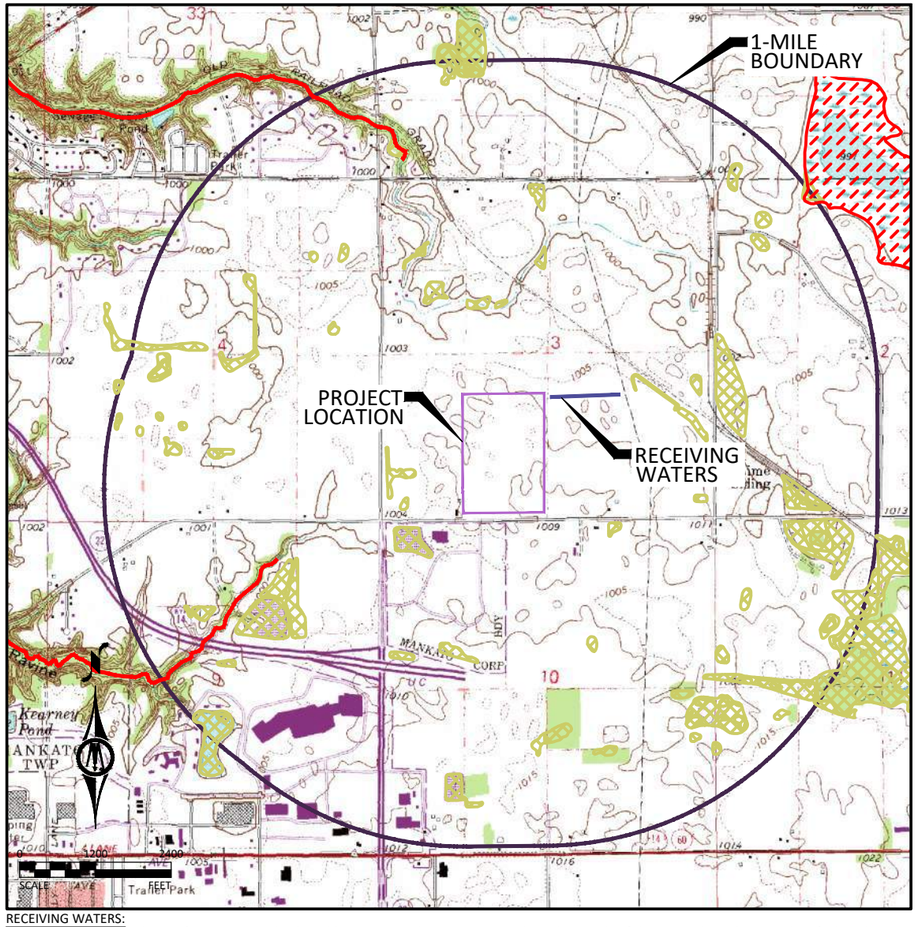
DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:
Construction activities include: Construction of public roadways and infrastructure in Mankato, Minnesota to provide service to proposed and future users such as dwellings and commercial/industrial developments. Site improvements include pavements, storm sewer, watermain, sanitary sewer, water and sanitary services, stormwater management, and site grading.

Existing drainage patterns discharge stormwater by overland flow from primarily agricultural land to adjacent property and existing streets. The existing streets contain storm sewer that discharge to different stormwater management bodies.

After development, overland flow is proposed to be captured by storm sewer and primarily routed to new stormwater management features throughout the subdivision. Ultimate discharge of stormwater is proposed at the existing management feature on the east side of the Power/Excel Drive intersection.

Two small extensions of storm sewer are proposed from existing stubs provided by the City to previously platted right-of-way for Excel Drive and Turnberry Drive.

The disturbed area and new impervious area reported are for the new roadway. However, the stormwater management was designed to accommodate the new impervious area for a portion of the overall subdivision. An all encompassing hydraulic model and report was developed with this plan and submitted to the City of Mankato to fully describe the stormwater management plan for the subdivision.



RECEIVING WATERS:
Receiving waters, including surface water, wetlands, Public Waters, and stormwater ponds, within 1-mile of the project boundary are identified on the USGS 7.5 min quad map above. Receiving waters that are impaired, the impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in the permit for special, prohibited, restricted, or impaired have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for construction related waste load allocations have also been incorporated.

NAME OF WATER BODY	TYPE (ditch, pond, wetland, lake, etc.)	Special, Prohibited, Restricted Water [1]	Flows to Impaired Water Within 1-Mile [2]	USEPA Approved Construction Related TMDL [3]
Unnamed Pond	Pond	No	No	N/A

[1] Special, prohibited, and restricted waters are listed in Section 23 of the MN Construction Stormwater General Permit (MNR100001).
[2] Identified as impaired under section 303 (d) of the federal Clean Water Act for phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.
[3] Construction Related TMDLs include those related to: phosphorus, turbidity, TSS, dissolved oxygen, and/or aquatic biota.

IMPLEMENTATION SCHEDULE AND PHASING: The Contractor is required to provide an updated schedule and site management plan meeting the minimum requirements of Section 1717 of the Minnesota Standard Specifications for Construction.

1) Submit SWPPP Updates to Engineer. Submittal shall include any requested changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Sanitation Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceptance of the SWPPP as designed with no changes.
2) Install perimeter sediment control, inlet protection, and construction exit.
3) Remove existing surfaces as required.
4) Complete site and utility improvements.
5) Install additional inlet protection as needed.
6) Reestablish turf.
7) Repeat steps 2-6 as necessary throughout the project.
8) Add additional temporary BMPs as necessary during construction based on inspection reports.
9) Ensure final stabilization measures are complete.
10) Provide digital copy of all Field SWPPP Documentation including Inspection Reports and SWPPP Revisions to the Owner.
11) Submit Notice of Termination (NOT) to MPCA. NOTE: The NOT must be submitted to MPCA before Final Stabilization is considered complete.

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
PROJECT INFORMATION AND LOCATION MAP

SHEET C2.01

Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN RI0000I (Permit) as they apply to this project. All provisions of the Permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the Permit is available at: https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf

SWPPP AMENDMENTS AND SUBMITTALS

Contractor must prepare and submit to the Engineer a SWPPP amendment as necessary to include additional Best Management Practices (BMPs) to correct problems identified or address the following situations.

1. Contact information and training documentation for Construction SWPPP Manager and BMP Installer,
2. There is a change in construction method of phasing, operation, maintenance, weather or seasonal conditions not anticipated during the design of the SWPPP including but not limited to:
   a. Types and/or Locations of BMPs
   b. Material Storage and Spill Response
   c. Fueling Plans
   d. Locations for Stockpiles, Concrete Washout, and Sanitation Facilities and
   e. Project Phasing
3. It is determined that the SWPPP is not achieving objectives of minimizing pollutants in stormwater discharges associated with construction activity, or
4. The SWPPP is not consistent with the terms and conditions of the permit.

The Contractor may implement SWPPP amendments immediately and is not required to wait for Engineer review of the submittal. The responsibility for completeness of SWPPP amendments and compliance with the Permit lies with the Contractor. Review, comment, or lack of comment by the Engineer on a SWPPP amendment shall not absolve the responsibilities of the Contractor in any way.

If a change order is issued for a design change the SWPPP amendment will be prepared by the Engineer and included in the change order.

In addition to SWPPP amendments, the Contractor shall submit to the Engineer Weekly Erosion and Sediment Control Schedule meeting the requirements of MnDOT 1717.

The Contractor shall keep copies of all SWPPP amendments, Weekly Erosion and Sediment Control Schedules, inspection logs, and maintenance logs with the field copy of the SWPPP. A PDF copy of these documents will be provided along with a copy of the final Field Copy of the SWPPP to the Engineer along with the signed Notice of Termination when final stabilization is complete.

EROSION PREVENTION PRACTICES

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of the wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent.

Energy dissipation shall be installed at all temporary or permanent pipe outlets within 24 hours of connection to a surface water or permanent stormwater treatment system.

The Contractor shall phase construction and use construction methods to the extent practical to minimize exposed soils. The project phasing shall be documented in the Weekly Erosion and Sediment Control Schedule.

SEDIMENT CONTROL PRACTICES

Down gradient BMPs including perimeter BMPs must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All BMPs that have been adjusted or removed to accommodate short-term activities shall be re-installed or replaced the earlier of the end of the work day or before the next precipitation event even if the activity is not complete.

Inlet BMPs may be removed for specific safety concerns. The BMPs shall be replaced as soon as the safety concern is resolved. The removal shall be documented in the SWPPP as a SWPPP amendment.

Temporary stockpiles must have sediment control BMPs. The Contractor shall prepare and submit to the Engineer a SWPPP amendment showing the location of temporary stockpiles and the BMPs for each stockpile. The SWPPP amendment must meet the minimum requirements of Section 9 of the Permit.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

The use of polymers, flocculants, or other sedimentation treatment chemicals are not proposed as part of this SWPPP as designed by the Engineer. If methods or phasing of construction require the use of any of these chemicals, the Contractor shall prepare and submit to the Engineer a SWPPP amendment that meets the minimum requirements of Section 9 of the Permit.

TEMPORARY SEDIMENTATION BASINS

A temporary sedimentation basin has not been included in this SWPPP as designed by the Engineer. If a basin is later determined to be desirable or necessary the Contractor shall prepare and submit to the Engineer a SWPPP amendment. Temporary sedimentation basins shall meet or exceed the minimum requirements of Section 14 of the Permit and shall include a basin draining plan meeting or exceeding the minimum requirements of Section 10 of the Permit. Where the site discharges to Special and/or Impaired Waters the SWPPP amendment shall also meet or exceed the minimum requirements of Section 23 of the permit.

DEWATERING

A dewatering plan has not been included in this SWPPP as designed by the Engineer. If dewatering is required for this project, the Contractor shall prepare and submit to the Engineer a SWPPP amendment. All dewatering shall meet or exceed the minimum requirements of Section 10 of the Permit.

POLLUTION PREVENTION

Products and materials that have the potential to leach pollutants that are stored on the site must be stored in a manner designed to minimize contact with stormwater. Materials that are not a source of potential contamination to stormwater or that are designed for exposure to stormwater are not required to be covered.

Hazardous materials including but not limited to pesticides, fertilizer, petroleum products, curing compounds and toxic waste must be properly stored and protected from stormwater exposure as recommended by the manufacturer in an access restricted area.

Solid waste must be stored, collected and disposed of in compliance with Minnesota Administrative Rules Chapter 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. No engine degreasing is allowed on site. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

The Contractor shall prepare and submit a SWPPP amendment detailing the location and BMPs proposed for storage of materials, solid waste, portable toilets, and exterior vehicle or equipment washing on the site. The SWPPP amendment shall include a spill prevention and response plan that is appropriate for the materials proposed to be on the site. The SWPPP amendment shall meet or exceed the minimum requirements of Section 12 of the Permit.

INSPECTION & MAINTENANCE

A trained person shall routinely inspect the entire construction site at the time interval indicated on this sheet of the SWPPP during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted at the time interval indicated in the Receiving Waters Table found on the SITE PLAN AND INFORMATION SHEET of the SWPPP.

All inspections and maintenance conducted during construction must be recorded on the day it is completed and must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

The Contractor may request a change in inspection schedule for the following conditions:

a. Inspections of areas with permanent cover to be reduced to once per month,
b. Inspections of areas that have permanent cover and have had no construction activity for 12 months to be suspended until construction resumes,
c. Inspections of areas where construction is suspended due to frozen ground conditions, inspections to be suspended until the earlier of within 24 hours of runoff occurring, or upon resuming construction.

No change in inspection schedule shall occur until authorized by the Engineer.

Inspections must include:

1. All erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness.
2. Surface waters, including drainage ditches and conveyance systems for evidence of erosion and sediment deposition.
3. Construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles.
4. Infiltration areas to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

All non-functioning BMPs and those BMPs where sediment reaches one-half (1/2) of the depth of the BMP, or in the case of sediment basins one-half (1/2) of the storage volume, must be repaired, replaced, or supplemented by the end of the next business day after discovery, or as soon as field conditions allow.

Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.

Any sediment that escapes the site must be removed and the area stabilized within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access in which case the work shall be completed within 7 calendar days of authorization. Paved surfaces such as streets shall have any escaped or tracked sediment removed by the end of the day that it is discovered. Sediment release, other than paved surfaces that can be cleaned up with street sweeping shall be reported immediately upon discovery to the Engineer.

PUBLIC WATER RESTRICTIONS:

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period. MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by an Infested Waters Permit or written notification has been obtained from MN DNR stating that such permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Waters Permit is obtained or that written notification is obtained stating that such permit is not required.

FINAL STABILIZATION

Final Stabilization is not complete until all the following requirements have been met:

1. Substantial Completion has been reached and no ground disturbing activities are anticipated.
2. Permanent cover has been installed with an established minimum uniform perennial vegetation density of 70 percent of its expected final growth. Vegetation is not required in areas where no vegetation is proposed by this project such as impervious surfaces or the base of a sand filter.
3. Accumulated sediment has been removed from all permanent stormwater treatment systems as necessary to ensure the system is operating as designed.
4. All sediment has been removed from conveyance systems
5. All temporary synthetic erosion prevention and sediment control BMPs have been removed. BMPs designated on the SWPPP to remain to decompose on-site may remain.
6. For residential construction only, permit coverage terminates on individual lots if the structures are finished and temporary erosion prevention and downgradient perimeter control is complete, the residence sells to the homeowner, and the permittee distributes the MPCA's "Homeowner Fact Sheet" to the homeowner.
7. For agricultural land only (e.g., pipelines across cropland), the disturbed land must be returned to its preconstruction agricultural use prior to submitting the NOT.

SITE STABILIZATION COMPLETION:

Stabilization of exposed soils shall begin immediately and shall be completed after the construction activity has temporarily or permanently ceased no later than:	14 calendar days

SITE INSPECTION INTERVAL:

A trained person shall routinely inspect the entire construction site during active construction at an interval of no less than:	7 calendar days

SPECIAL ENVIRONMENTAL CONSIDERATIONS AND PERMITS:

1)	Was an environmental review required for this project or any part of a common plan of development or sale that includes all or any portion of this project?	NO
2)	Does any portion of the site have the potential to affect threatened or endangered species or their critical habitat?	NO
3)	Does any portion of this site discharge to a Calcareous fen.	NO
4)	Will any portion of the site potentially affect properties listed on the National Register of Historic Places or a known or discovered archeological site?	NO
5)	Have any Karst features have been identified in the project vicinity?	NO
6)	Is compliance with temporary or permanent stormwater management design requirements infeasible for this project?	NO
7)	Has the MN DNR promulgated "work in water restrictions" for any Public Water this site disharges to during fish spawning?	NO

SWPPP DESIGNER TRAINING DOCUMENTATION:

UNIVERSITY OF MINNESOTA

Alec W. Pietz

Construction Site Management (May 31 2024)
Design of Construction SWPPP (May 31 2024)

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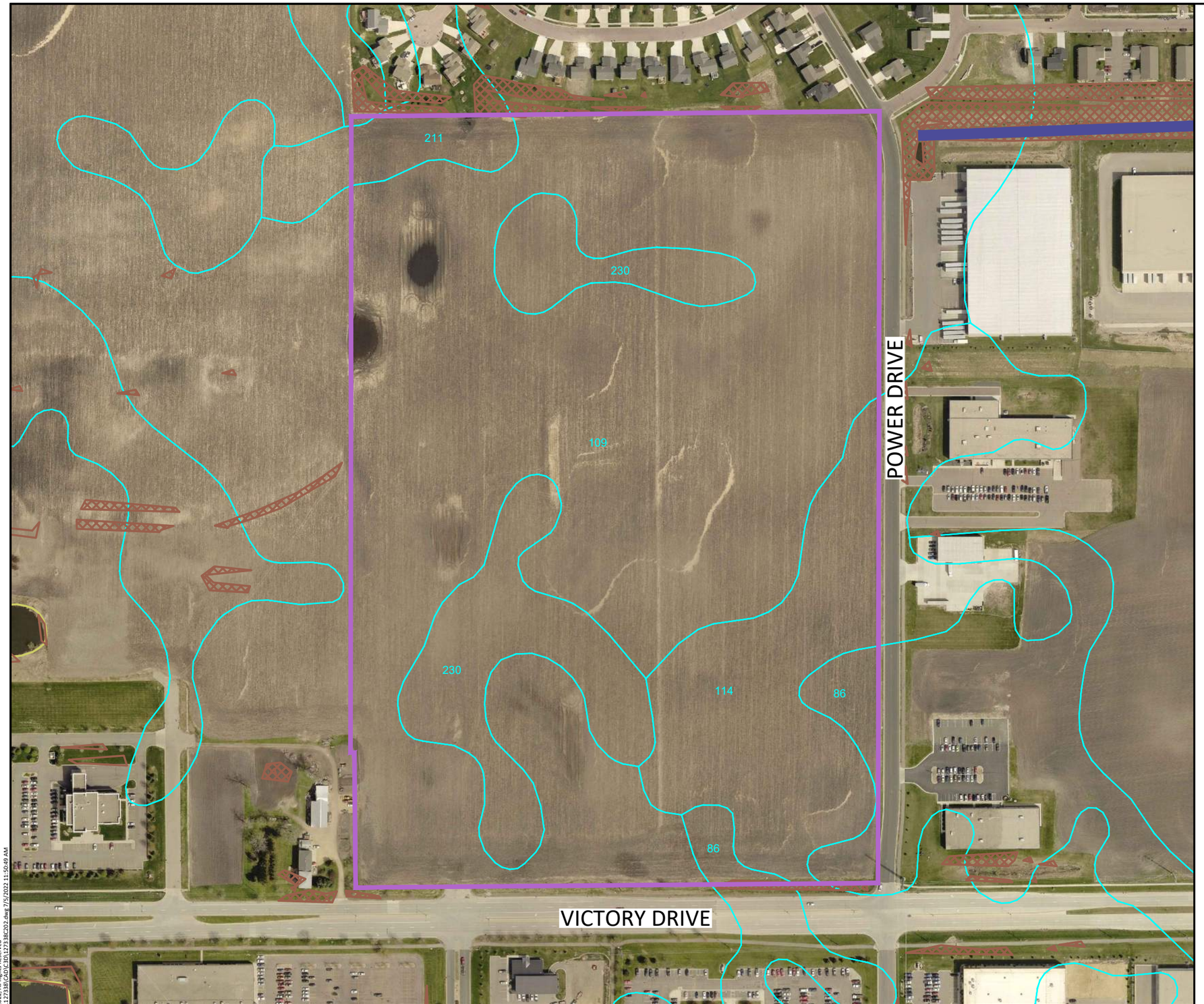
NO.	ISSUED FOR	DATE

DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
NARRATIVE

SHEET
C2.02



LEGEND

- PROJECT BOUNDARY
- SOIL TYPE
- STEEP SLOPES (>33.3%)
- RECEIVING WATERS

N

0 125 250
SCALE FEET

SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
86	Canisteo Silty Clay Loam	B/D	NHEL
109	Cordova Clay Loam	C/D	NHEL
114	Glencoe silty clay loam	B/D	NHEL
211	Lura Silty Clay	C/D	NHEL
230	Guckeen silty clay loam, 1 to 4 percent slopes	C	NHEL

NHEL - Not Highly Erodible Land
PHEL - Potentially Highly Erodible Land
HEL - Highly Erodible Land

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	SHEET NO.
SITE MAP	C2.01
NARRATIVE & NOTES	C2.01 - C2.02
SOILS	C2.03
EROSION & SEDIMENT CONTROL DETAILS	C2.04 - C2.05
DIRECTION OF FLOW	C2.06 - C2.12
FINAL STABILIZATION	C2.06 - C2.12
STORM SEWER & STORMWATER MANAGEMENT	C5.01 - C5.11, C6.02

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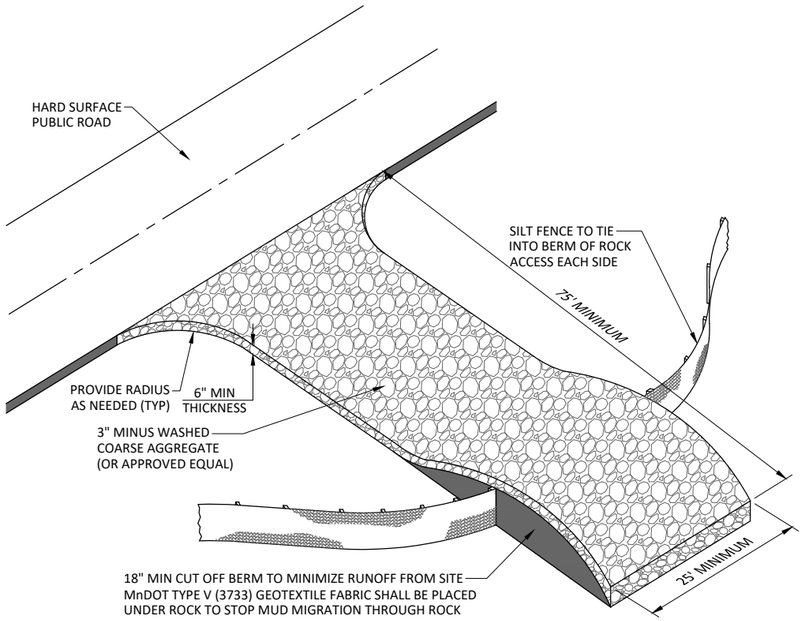
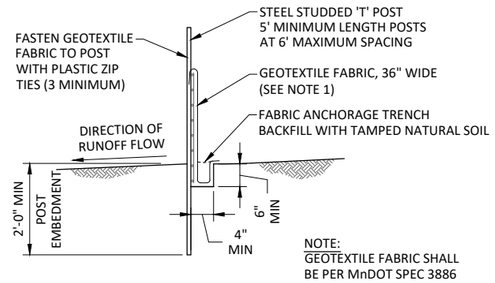
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
SITE AND SOILS MAP

SHEET C2.03



ROCK CONSTRUCTION ENTRANCE

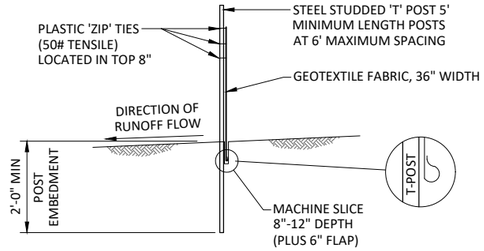
NOT TO SCALE



NOTE:
GEOTEXTILE FABRIC SHALL
BE PER MnDOT SPEC 3886

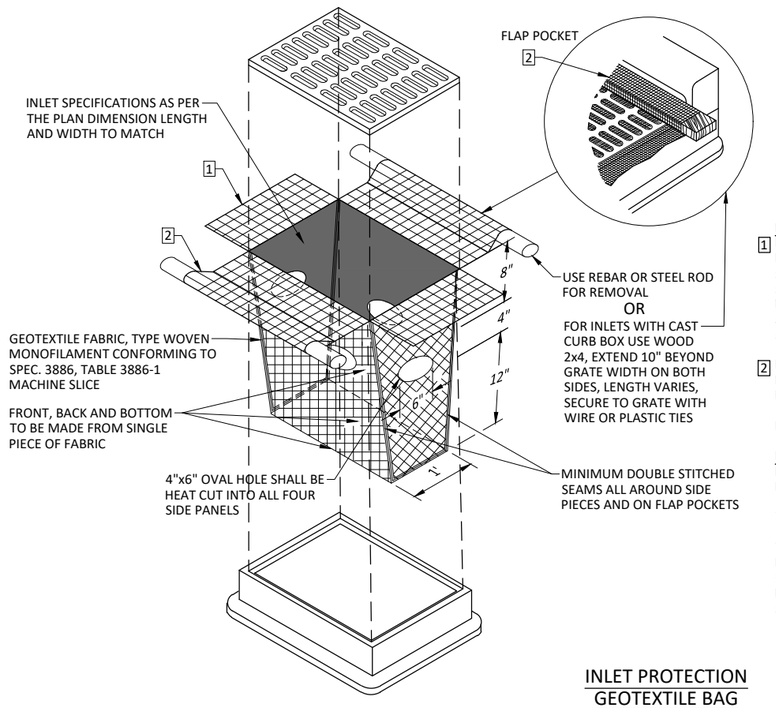
SILT FENCE - HEAVY DUTY

NOT TO SCALE



SILT FENCE - MACHINE SLICED

NOT TO SCALE



NOTES:

1 INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENTS EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL IN THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

2 FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2x4.

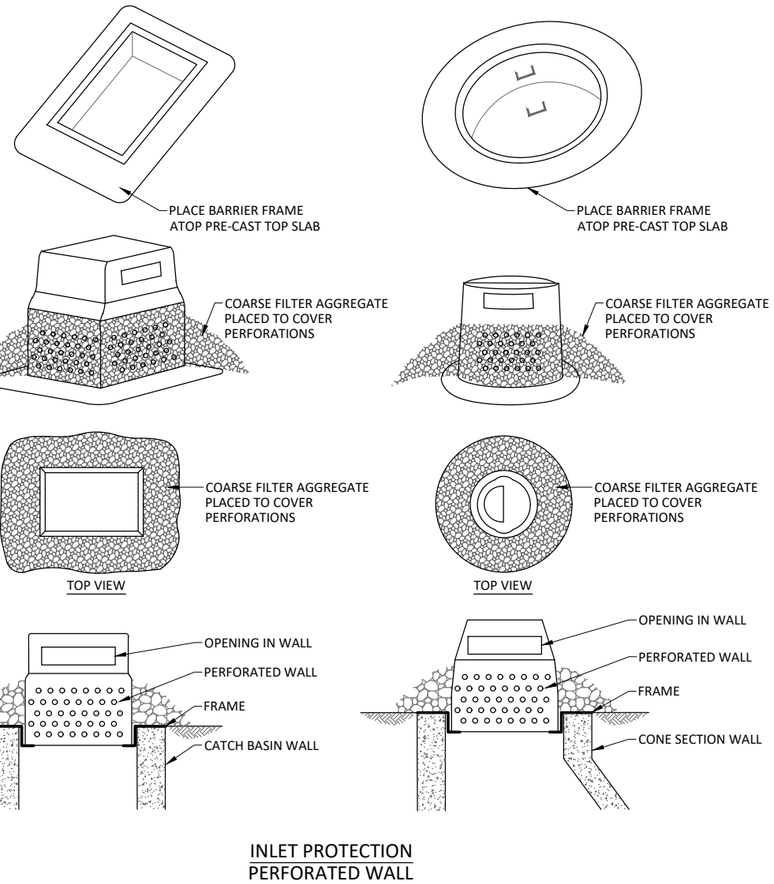
INSTALLATION NOTES:
DO NOT INSTALL PROTECTION IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
GEOTEXTILE BAG

NOT TO SCALE



INLET PROTECTION
PERFORATED WALL

NOT TO SCALE

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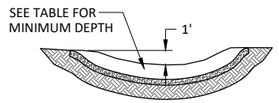
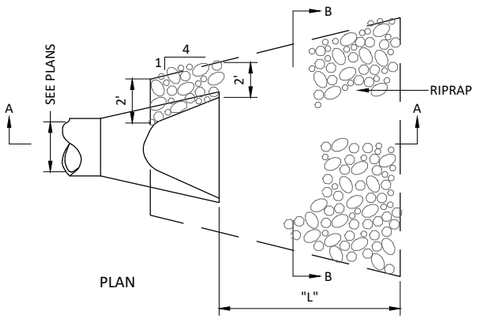
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
BEST MANAGEMENT PRACTICE DETAILS

SHEET
C2.04

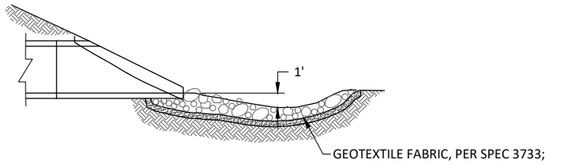


SECTION B-B



PLAN

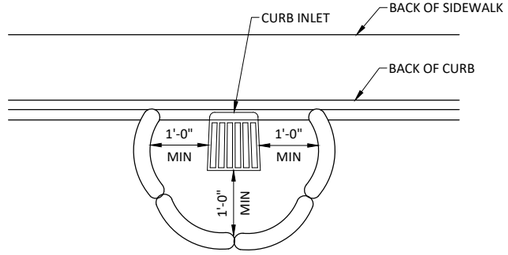
		CLASS II d50=6"	CLASS III d50=9"	CLASS IV d50=12"
DIA OF ROUND PIPE (IN)	L (FT)	12" DEPTH RIPRAP (CU YD)	18" DEPTH RIPRAP (CU YD)	24" DEPTH RIPRAP (CU YD)
12	8	5	8	10
15	8	5	8	10
18	10	6	10	15
21	10	8	15	15
24	12	10	15	20
27	12	10	15	20
30	14	15	20	25
36	16	18	25	30
42	18	20	30	40
48	20	20	40	50



SECTION A-A

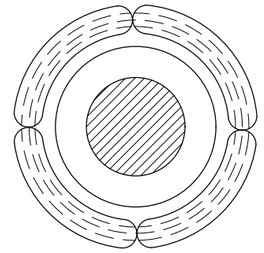
RIPRAP AT RCP CULVERT END

NOT TO SCALE



NOTE:
THIS INLET PROTECTION IS USED DURING ROUGH GRADING ONLY, USE BEFORE ROAD IS OPEN TO TRAFFIC OR IS PAVED

PAYMENT SHALL INCLUDE ALL MATERIALS, FILLING OF LOG, PLACEMENT, MAINTENANCE & REMOVAL;
80% OF BID PRICE SHALL BE PAID UPON PROPER PLACEMENT WITH THE FINAL 20% PAID UPON REMOVAL

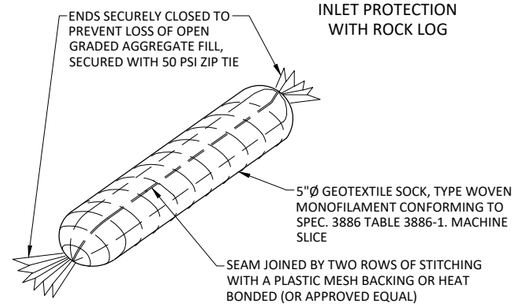


INLET PROTECTION
WITH ROCK LOG

FILL ROCK LOG WITH 45 LBS. OF OPEN GRADED AGGREGATE CONSISTING OF SOUND, DURABLE PARTICLES OF CRUSHED QUARRY ROCK OR GRAVEL CONFORMING TO THE FOLLOWING GRADATION.

GRADATION	
SIEVE SIZE	PERCENT PASSING
1 1/2"	100
1"	95-100
3/4"	65-95
3/8"	30-65
NO 4	10-35
NO 10	3-20
NO 40	0-8
NO 200	0-3

NOTE:
CRUSHED CONCRETE OR BITUMINOUS SHALL NOT BE USED FOR OPEN GRADED AGGREGATE.



INLET PROTECTION ROCK BAG

NOT TO SCALE

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Email: Mankato@bolton-menk.com
www.bolton-menk.com

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DRAWN AWP
CHECKED MS
CLIENT PROJ. NO. 0M1.127338

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
BEST MANAGEMENT PRACTICE DETAILS

SHEET C2.05

EROSION CONTROL LEGEND

- EXISTING/PROPOSED DRAINAGE FLOW
- MS — SILT FENCE, MACHINE SLICED OR APPROVED EQUAL
- STABILIZED CONSTRUCTION EXIT
- STORM DRAIN INLET PROTECTION
- SEED MIX 25-141 & FERTILIZE
- SEED MIX 25-151 & FERTILIZE
- SEED MIX 33-261, FERTILIZE, & BLANKET CATEGORY 3N
- EROSION CONTROL BLANKET CATEGORY 20

NOTES:

1. ALL NECESSARY BMP'S SHALL BE IN PLACE PRIOR TO THE START OF CONSTRUCTION. ALL BMP'S SHALL BE INSPECTED EVERY 7 DAYS AND WITHIN 72 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN A 24 HOUR PERIOD. ALL NON FUNCTIONING BMP'S SHALL BE REPAIRED OR REPLACED WITHIN 24 HOURS OF DISCOVERY.
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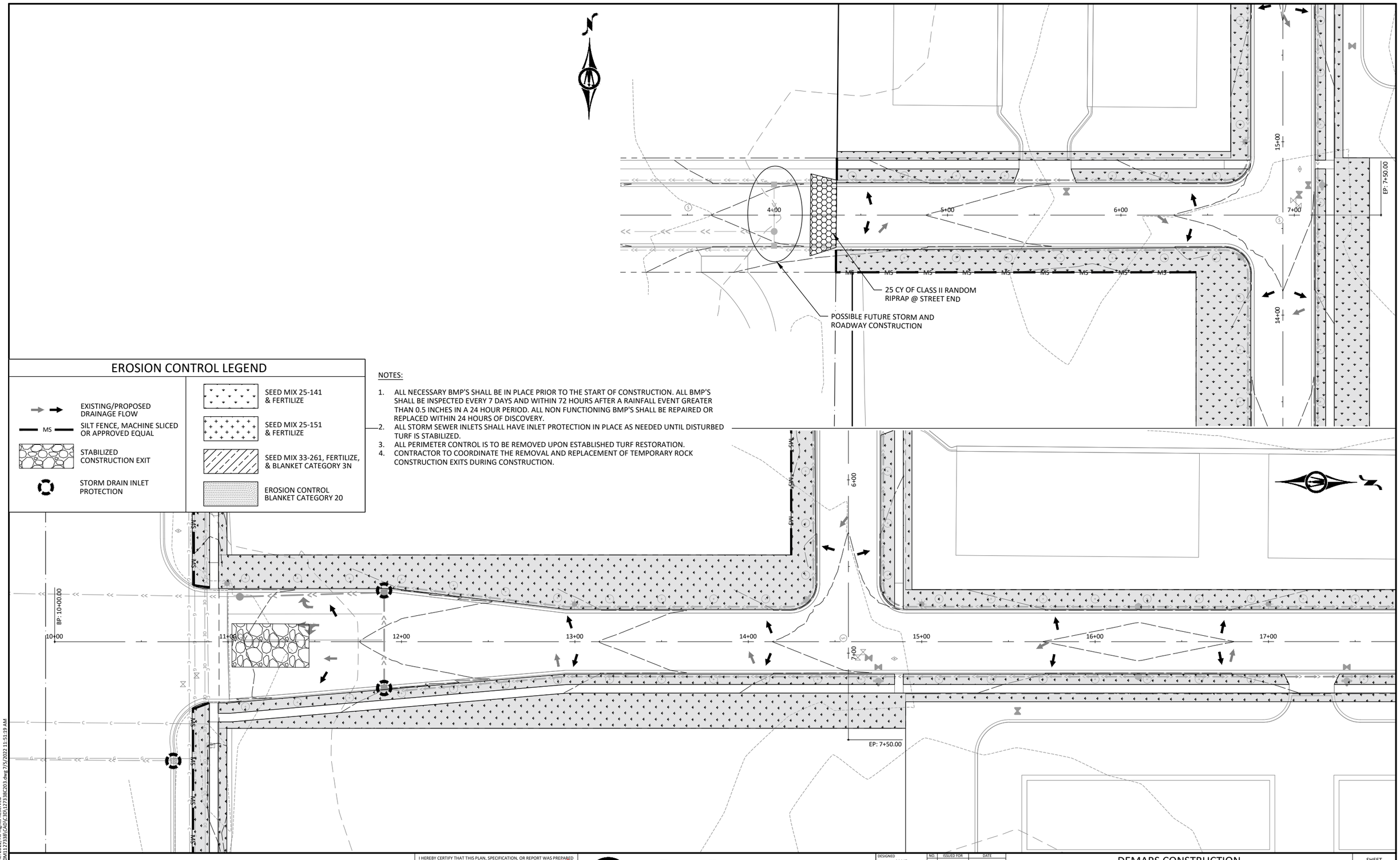
3. ALL PERIMETER CONTROL IS TO BE REMOVED UPON ESTABLISHED TURF RESTORATION.
4. CONTRACTOR TO COORDINATE THE REMOVAL AND REPLACEMENT OF TEMPORARY ROCK CONSTRUCTION EXITS DURING CONSTRUCTION.



HORZ. SCALE 0 25 50 FEET

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL PLAN - TURNBERRY & EXCEL DRIVE

SHEET C2.06

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EROSION CONTROL LEGEND

- EXISTING/PROPOSED DRAINAGE FLOW
- MS — SILT FENCE, MACHINE SLICED OR APPROVED EQUAL
- STABILIZED CONSTRUCTION EXIT
- STORM DRAIN INLET PROTECTION
- SEED MIX 25-141 & FERTILIZE
- SEED MIX 25-151 & FERTILIZE
- SEED MIX 33-261, FERTILIZE, & BLANKET CATEGORY 3N
- EROSION CONTROL BLANKET CATEGORY 20

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17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00

PC: 24+17.20 PT: 24+47.20 PC: 24+97.57 PT: 25+27.57 PC: 27+68.57 PT: 29+08.96

25 CY OF CLASS III RANDOM RIPRAP

BUILDING 1 GFE=1010.9
BUILDING 2 GFE=1010.8
BUILDING 3 GFE=1010.5
BUILDING 4 GFE=1010.2
BUILDING 5 GFE=1010.4
BUILDING 11 GFE=1010.7
BUILDING 12 GFE=1010.9
BUILDING 13 GFE=1011.1
BUILDING 14 GFE=1011.3

BF: 580+00.00 EP: 585+00.00

HORZ. 0 25 50 SCALE FEET

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL PLAN - EXCEL DRIVE

SHEET C2.07

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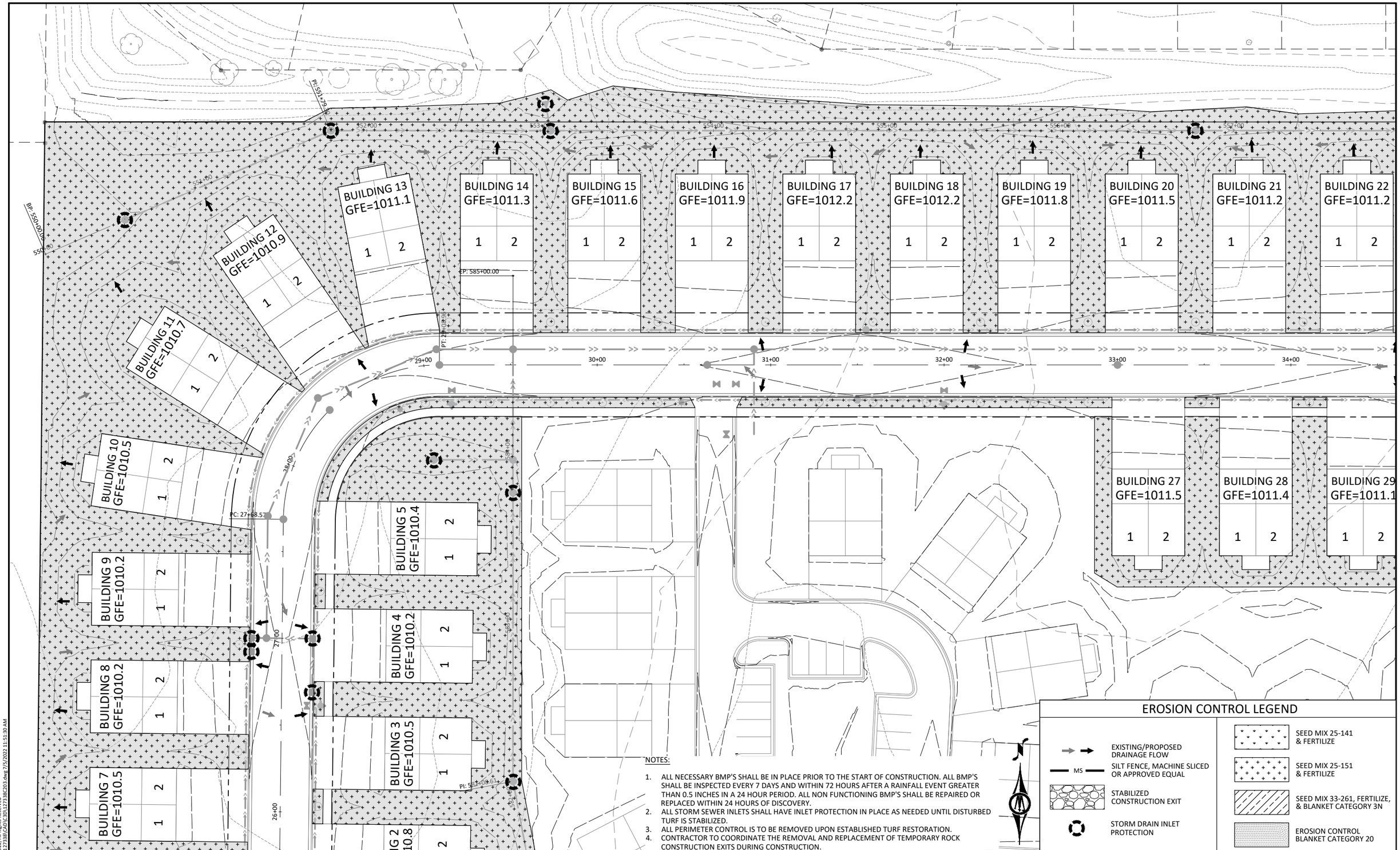

NOTES:

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4. CONTRACTOR TO COORDINATE THE REMOVAL AND REPLACEMENT OF TEMPORARY ROCK CONSTRUCTION EXITS DURING CONSTRUCTION.

EROSION CONTROL LEGEND

- EXISTING/PROPOSED DRAINAGE FLOW
- MS — SILT FENCE, MACHINE SLICED OR APPROVED EQUAL
- STABILIZED CONSTRUCTION EXIT
- STORM DRAIN INLET PROTECTION
- SEED MIX 25-141 & FERTILIZE
- SEED MIX 25-151 & FERTILIZE
- SEED MIX 33-261, FERTILIZE, & BLANKET CATEGORY 3N
- EROSION CONTROL BLANKET CATEGORY 20

HORZ. 0 25 50
SCALE FEET

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL PLAN - EXCEL DRIVE & TOWNHOMES

SHEET C2.08

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BUILDING 21
GFE=1011.2
1 2

BUILDING 22
GFE=1011.2
1 2

BUILDING 23
GFE=1011.2
1 2

BUILDING 24
GFE=1011.2
1 2

BUILDING 25
GFE=1011.3
1 2

BUILDING 26
GFE=1011.3
1 2

BUILDING 28
GFE=1011.4
1 2

BUILDING 29
GFE=1011.1
1 2

557+00 558+00 559+00 560+00

34+00 35+00 36+00 37+00

PC: 561+00.00

EP: 561+00.00

38+00 39+00 40+00

597+00 598+00

EP: 597+33.37

PI: 596+74.54

EP: 598+00.20

EP: 40+50.00

15 CY OF CLASS III
RANDOM RIPRAP

PI: 597+33.37

PI: 596+74.54

EP: 574+00.00

584+00

25 CY OF CLASS III
RANDOM RIPRAP

NOTES:

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EROSION CONTROL LEGEND

- EXISTING/PROPOSED DRAINAGE FLOW
- MS — SILT FENCE, MACHINE SLICED OR APPROVED EQUAL
- STABILIZED CONSTRUCTION EXIT
- STORM DRAIN INLET PROTECTION
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- SEED MIX 25-151 & FERTILIZE
- SEED MIX 33-261, FERTILIZE, & BLANKET CATEGORY 3N
- EROSION CONTROL BLANKET CATEGORY 20

HORZ. SCALE 0 25 50 FEET

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL PLAN - EXCEL DRIVE & TOWNHOMES

SHEET C2.09

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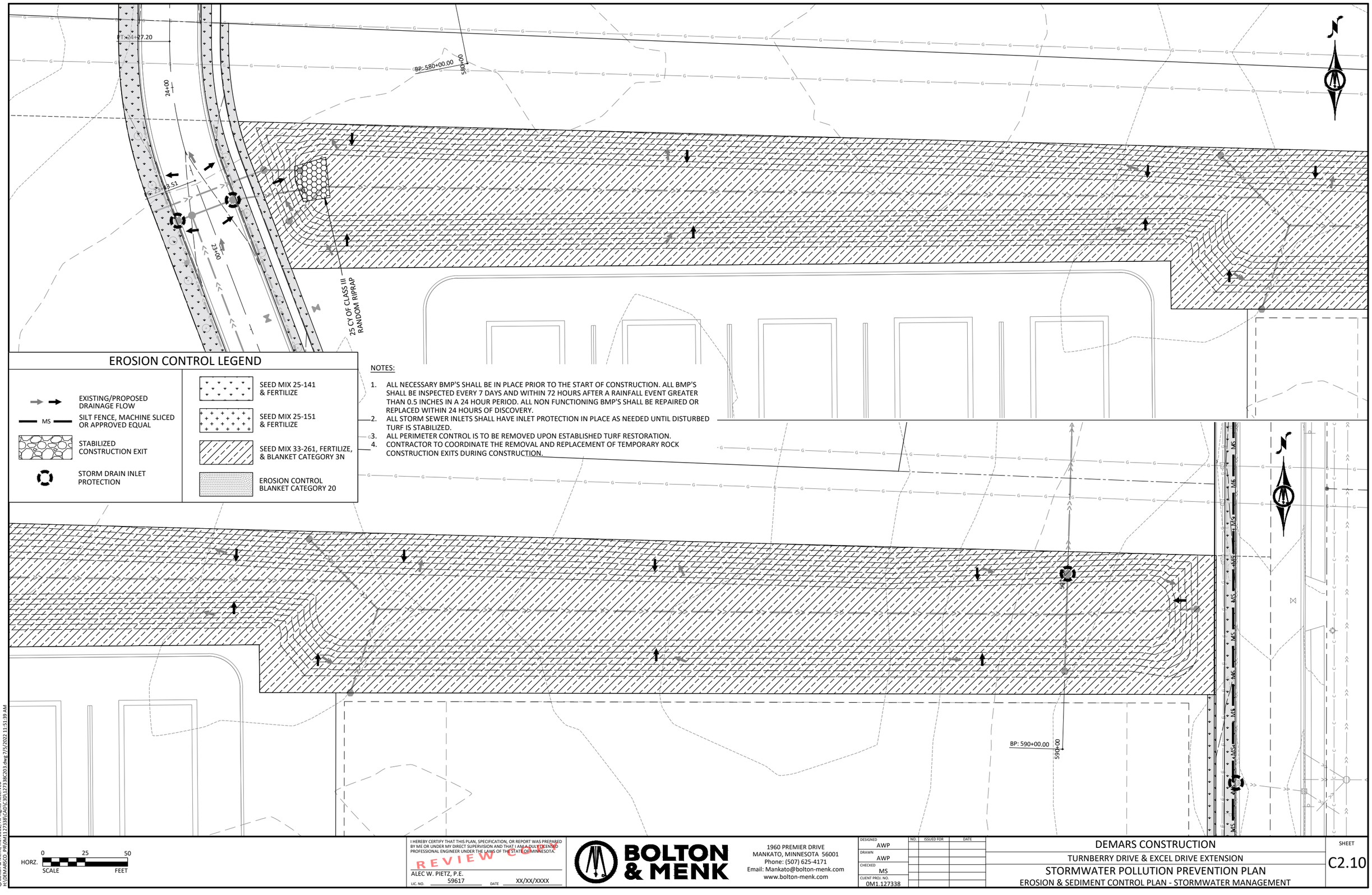

EROSION CONTROL LEGEND

- EXISTING/PROPOSED DRAINAGE FLOW
- MS — SILT FENCE, MACHINE SLICED OR APPROVED EQUAL
- STABILIZED CONSTRUCTION EXIT
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4. CONTRACTOR TO COORDINATE THE REMOVAL AND REPLACEMENT OF TEMPORARY ROCK CONSTRUCTION EXITS DURING CONSTRUCTION.

HORZ. SCALE 0 25 50 FEET

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DEMARS CONSTRUCTION
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STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL PLAN - STORMWATER MANAGEMENT

SHEET C2.10

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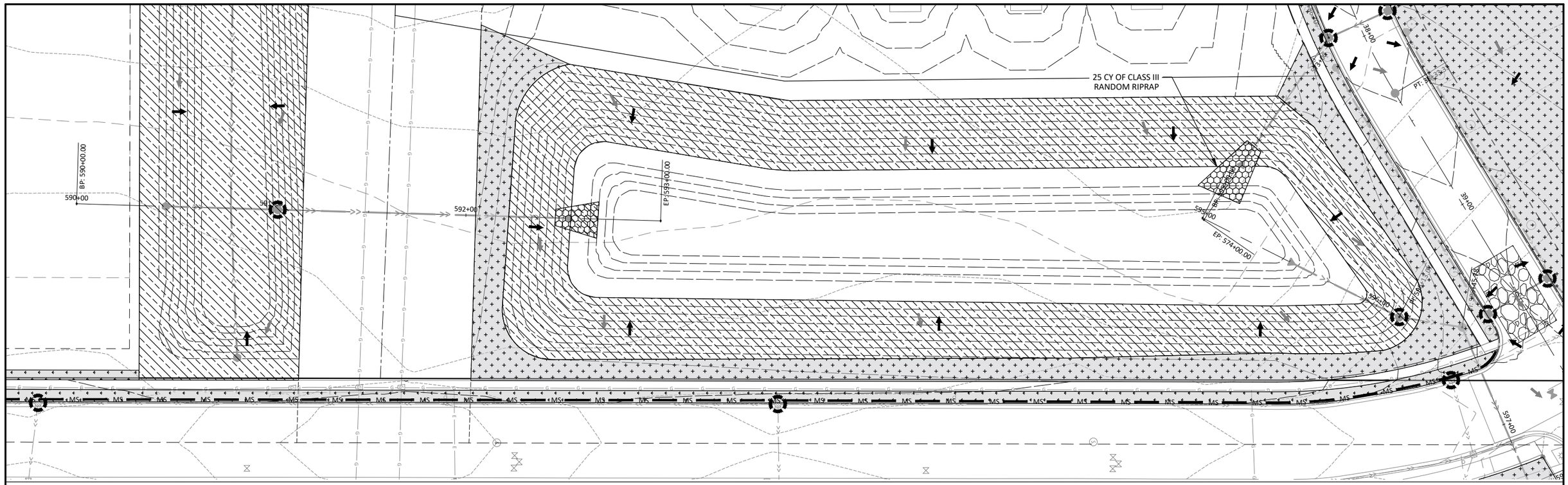

EROSION CONTROL LEGEND

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL PLAN - STORMWATER MANAGEMENT

SHEET C2.11

EROSION CONTROL LEGEND

- EXISTING/PROPOSED DRAINAGE FLOW
- MS — SILT FENCE, MACHINE SLICED OR APPROVED EQUAL
- STABILIZED CONSTRUCTION EXIT
- STORM DRAIN INLET PROTECTION
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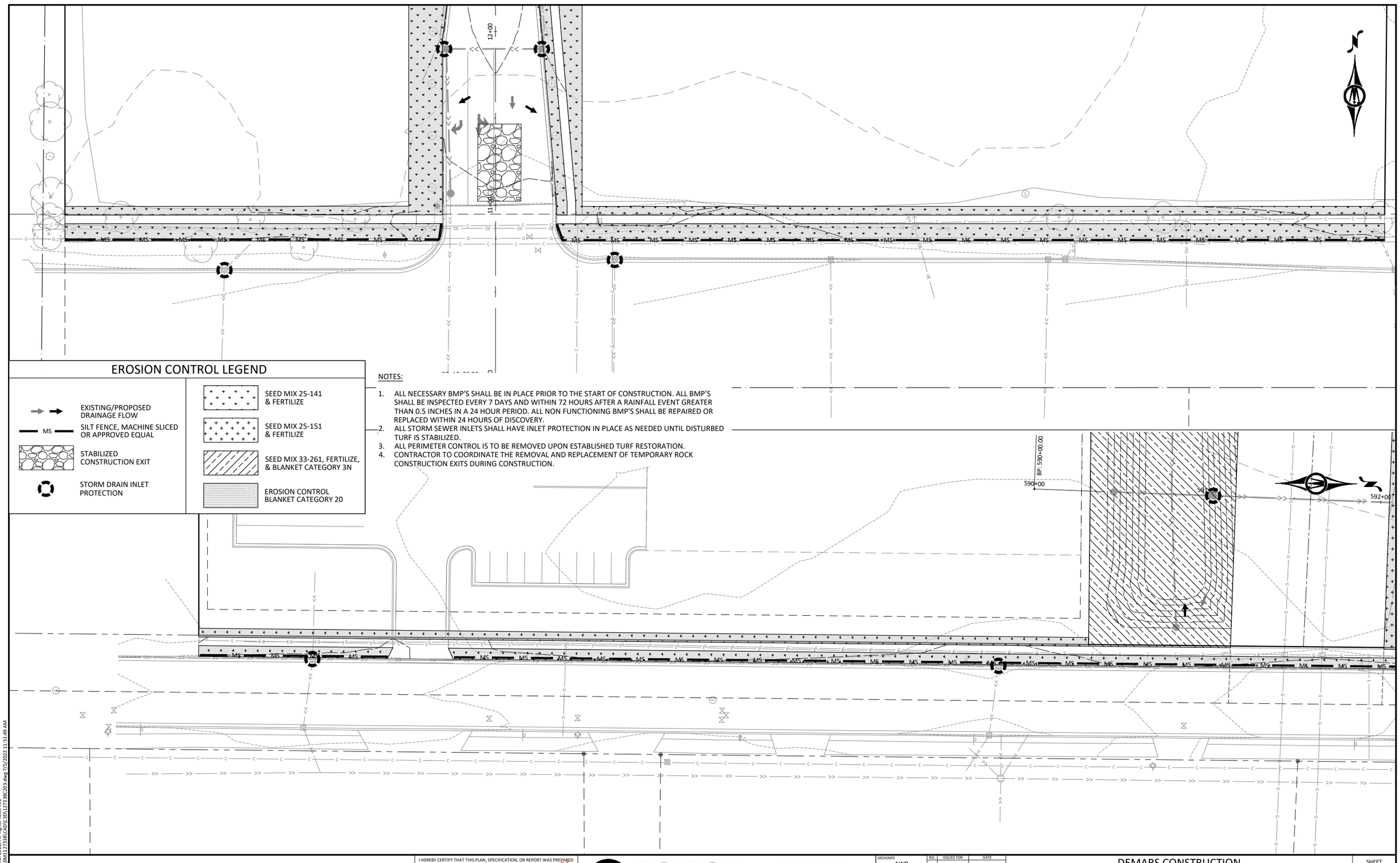

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER POLLUTION PREVENTION PLAN
EROSION & SEDIMENT CONTROL PLAN - VICTORY & POWER DRIVE SIDEWALK

SHEET C2.12

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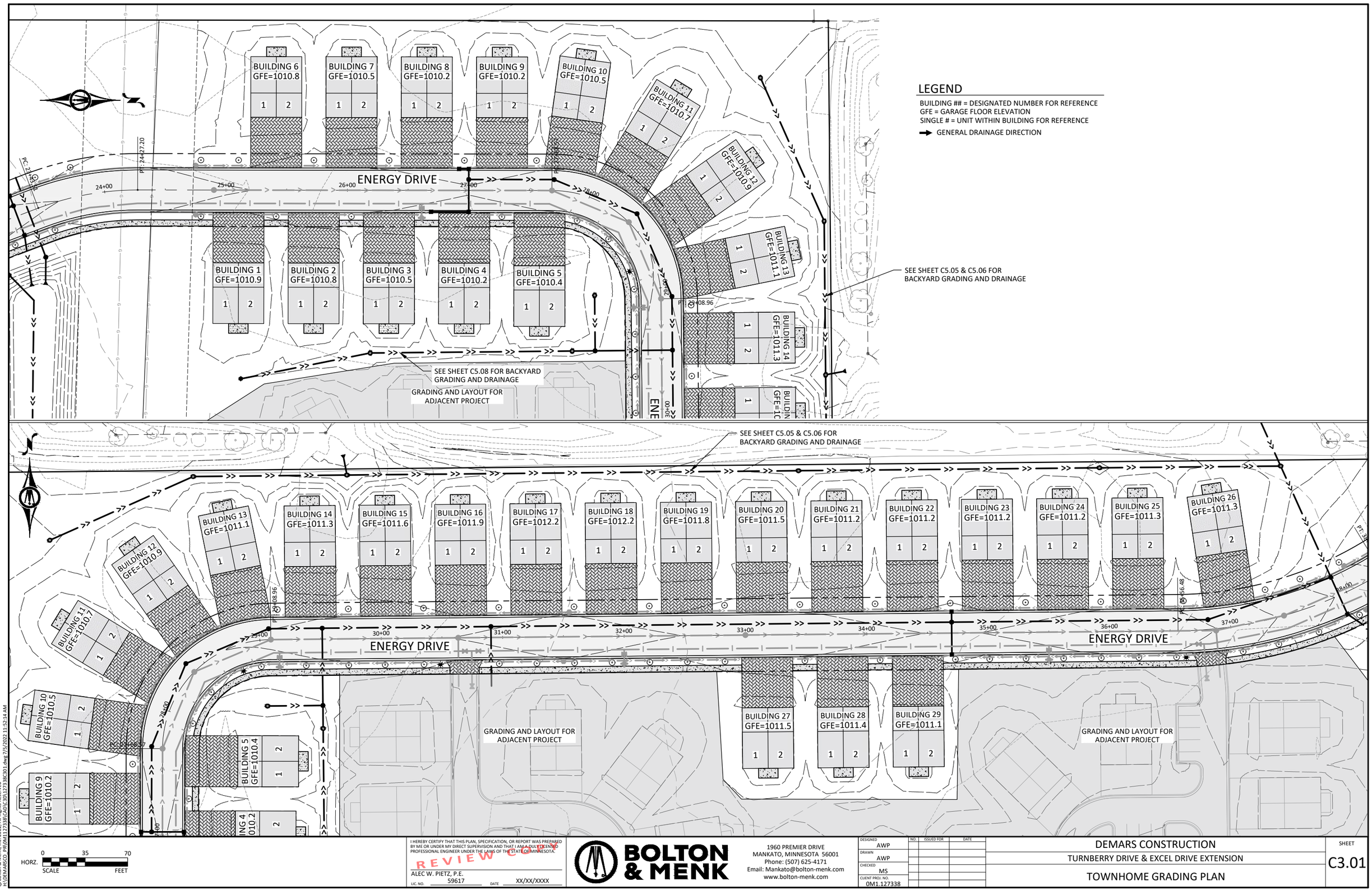

LEGEND

BUILDING ## = DESIGNATED NUMBER FOR REFERENCE
GFE = GARAGE FLOOR ELEVATION
SINGLE # = UNIT WITHIN BUILDING FOR REFERENCE
→ GENERAL DRAINAGE DIRECTION

HORZ. SCALE 0 35 70 FEET

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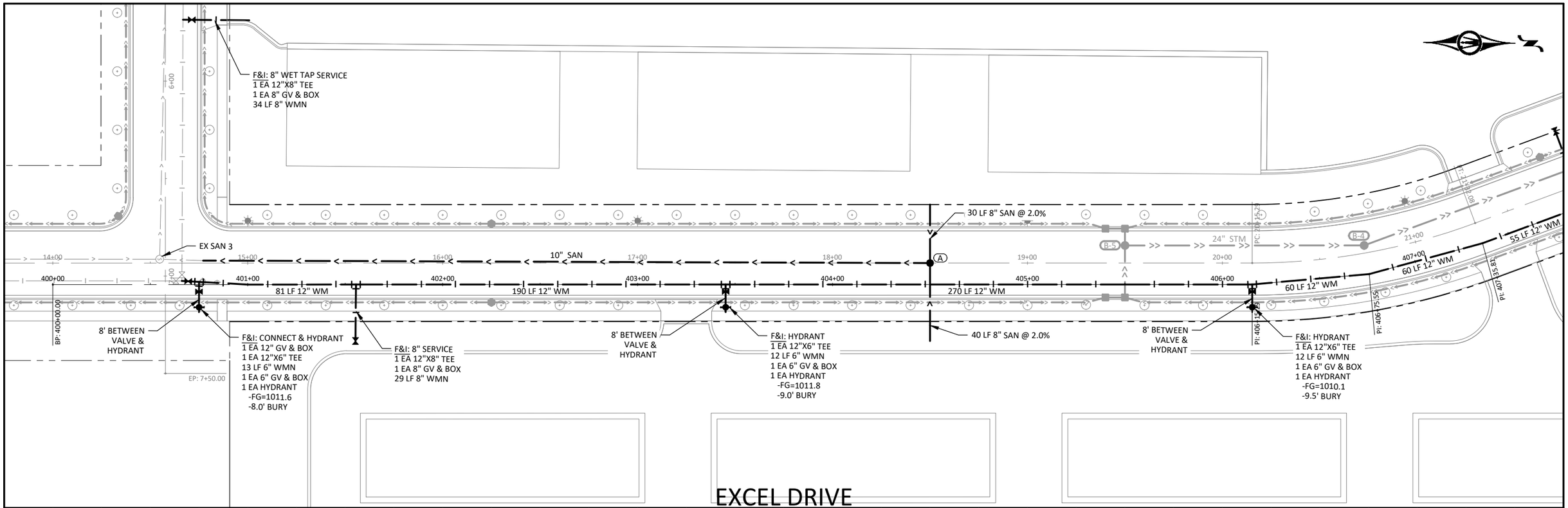
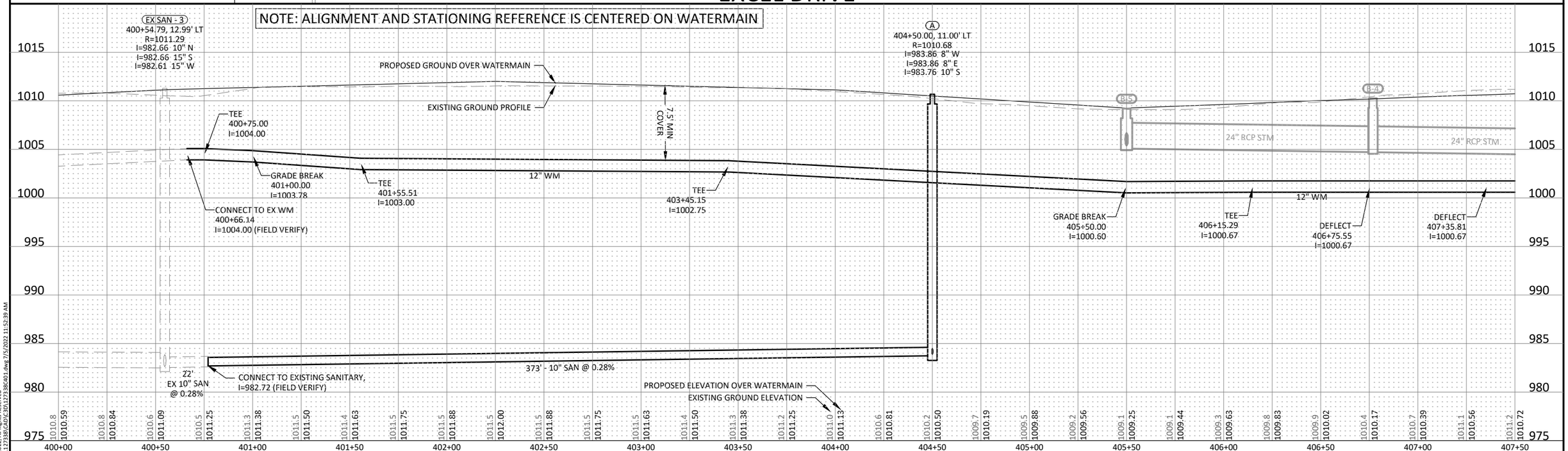
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
TOWNHOME GRADING PLAN

SHEET C3.01





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VERT. SCALE 0 5 10 FEET

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AWP			
CHECKED			
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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
SANITARY SEWER & WATERMAIN PLAN & PROFILE
EXCEL DRIVE - STA 400+00 TO 407+50

SHEET C4.01

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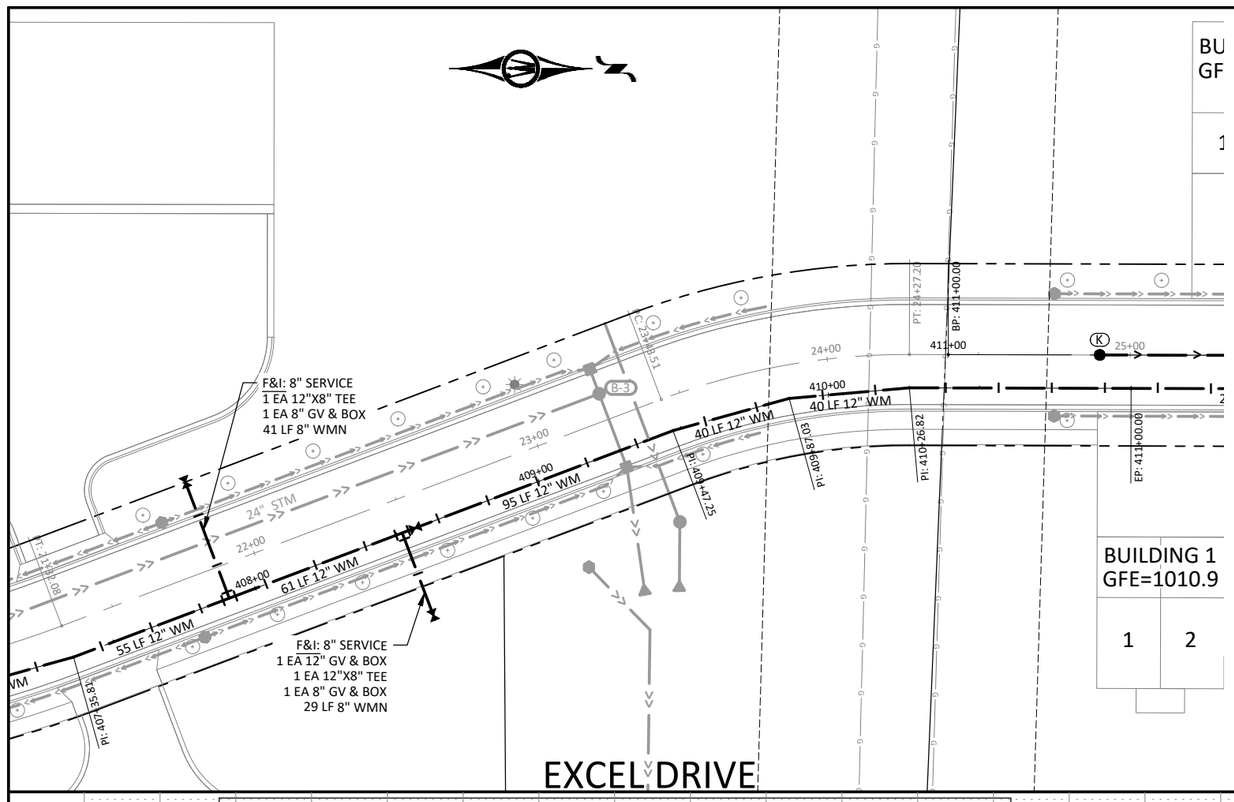

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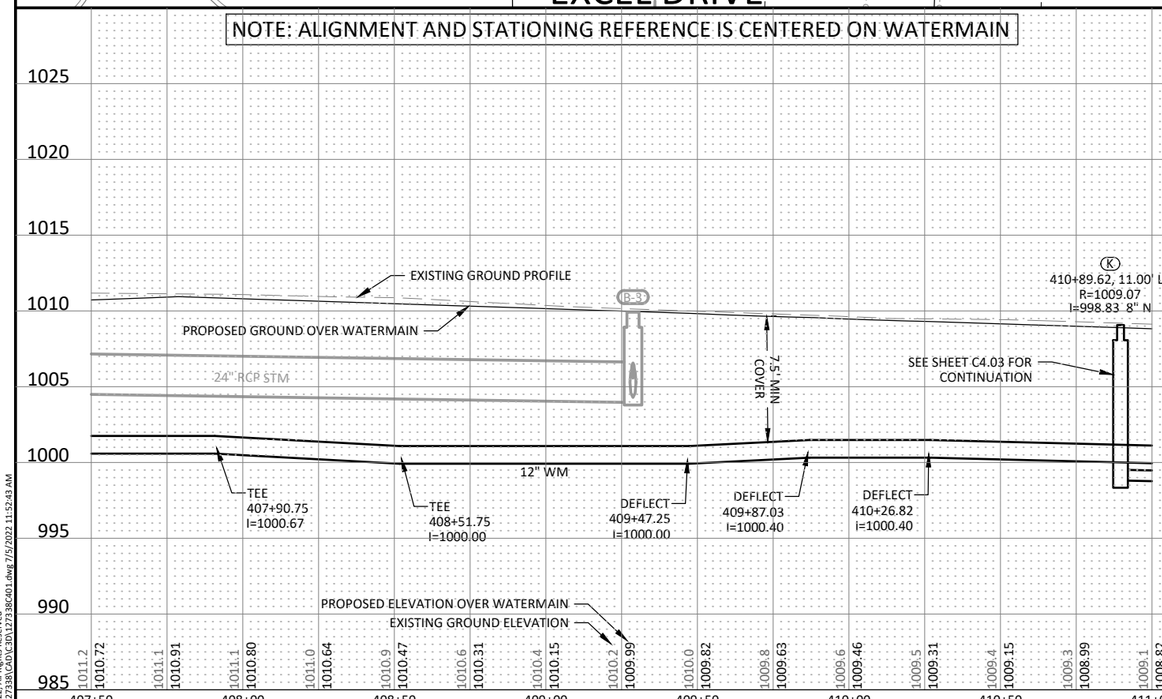

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www.bolton-menk.com

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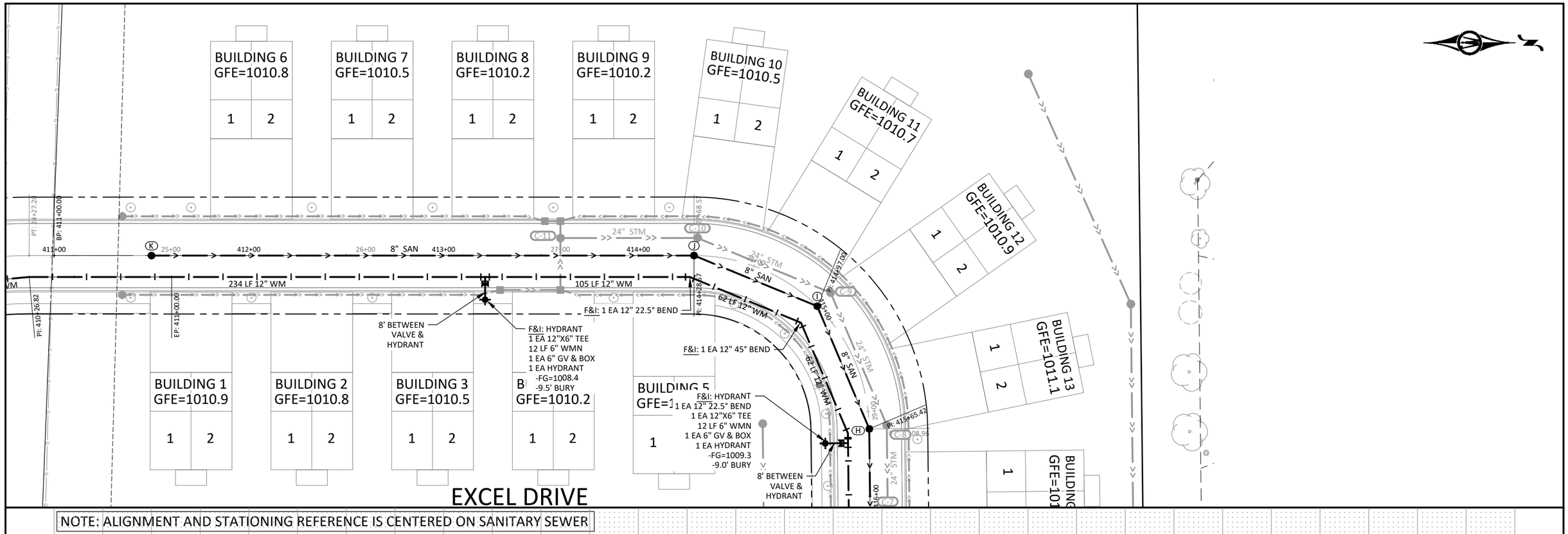
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
SANITARY SEWER & WATERMAIN PLAN & PROFILE
EXCEL DRIVE - STA 407+50 TO 411+00

SHEET
C4.02



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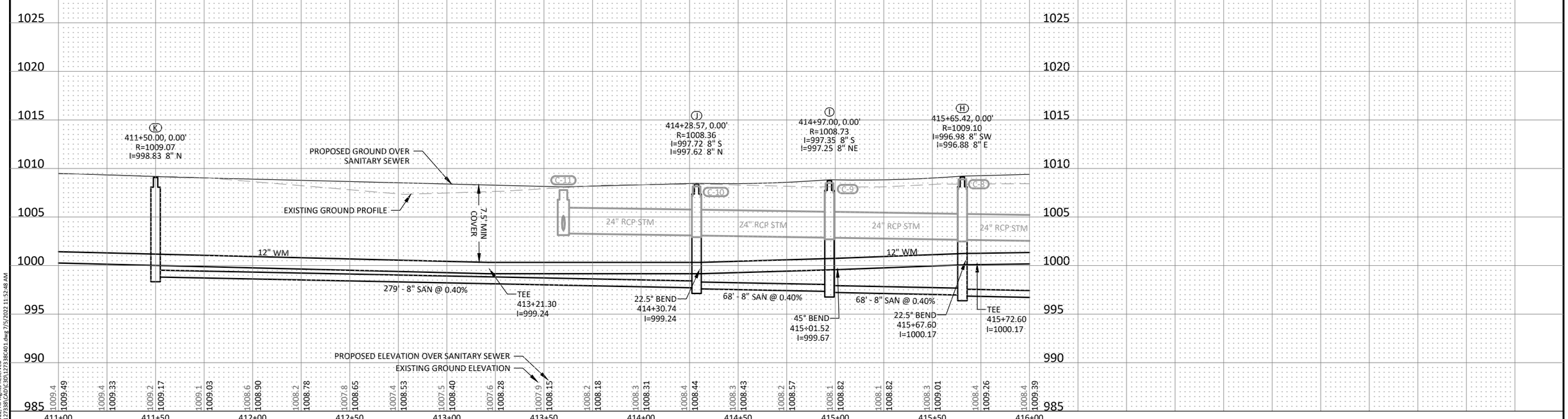

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TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

SANITARY SEWER & WATERMAIN PLAN & PROFILE

EXCEL DRIVE - STA 411+00 TO 416+00

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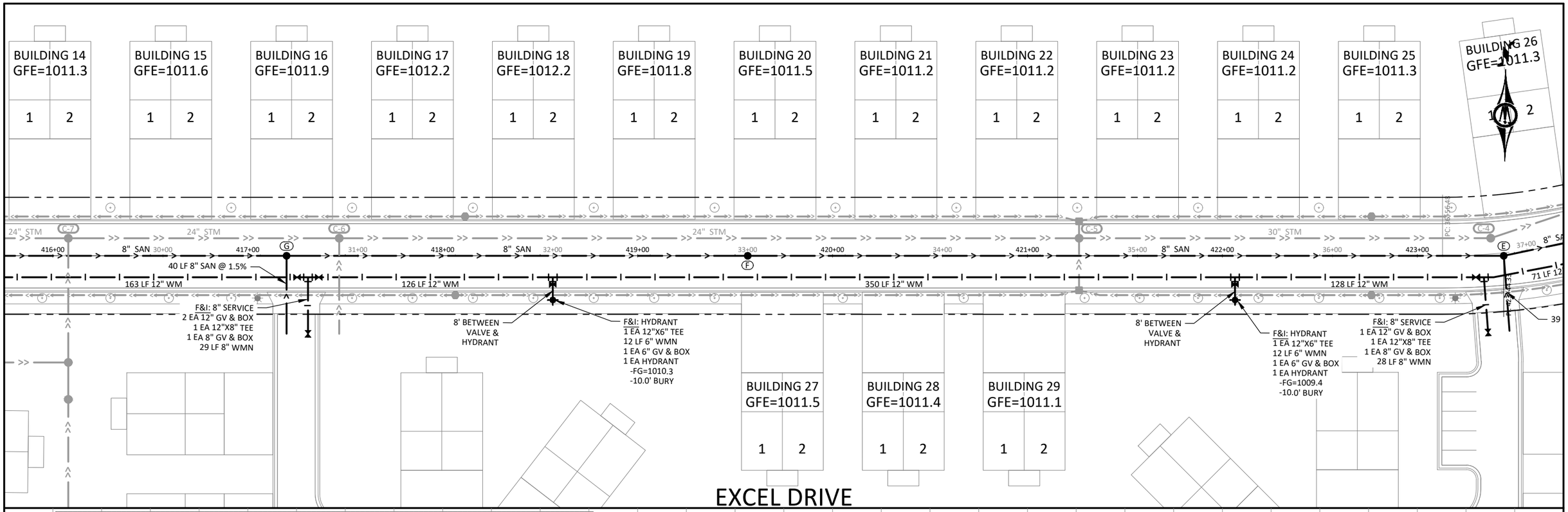

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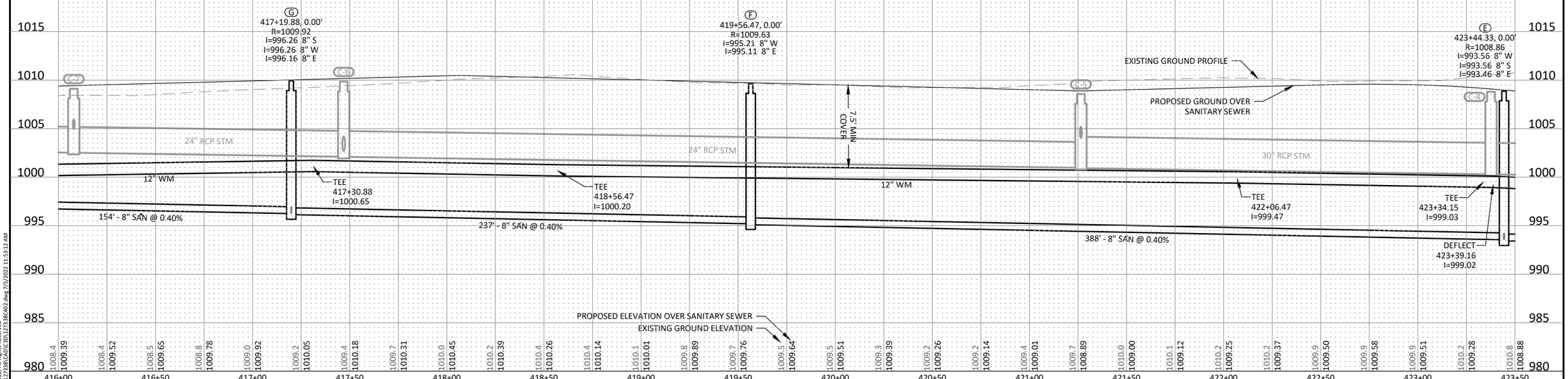

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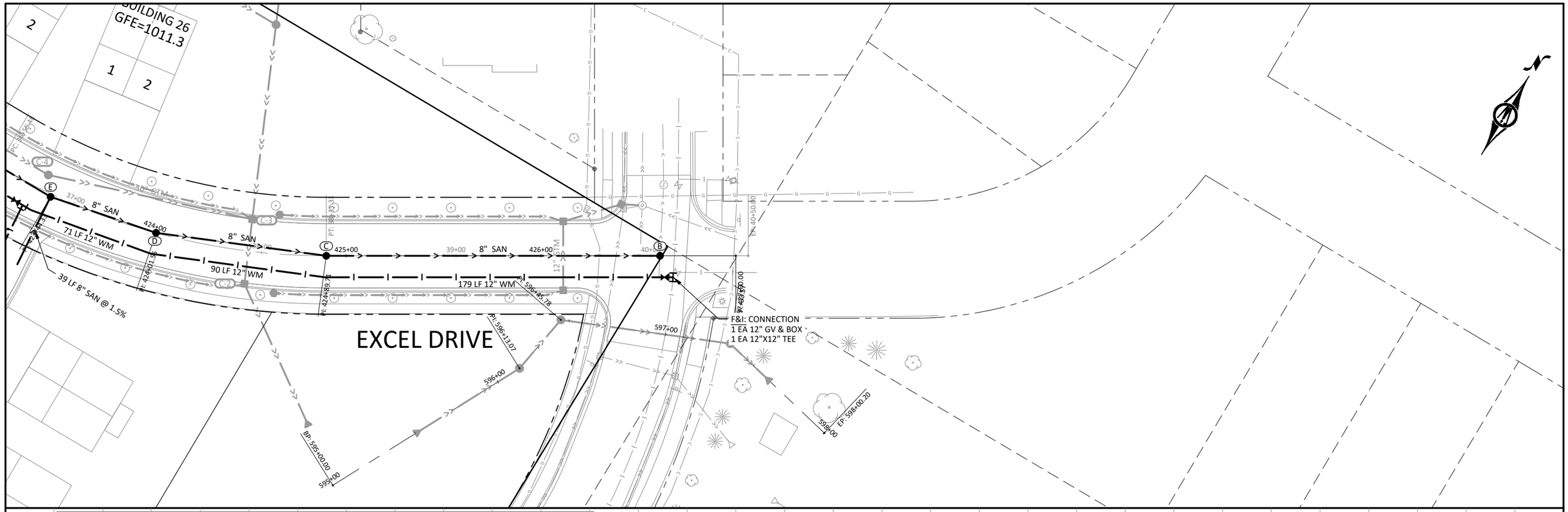
SANITARY SEWER & WATERMAIN PLAN & PROFILE
EXCEL DRIVE - STA 416+00 TO 423+50

SHEET C4.04



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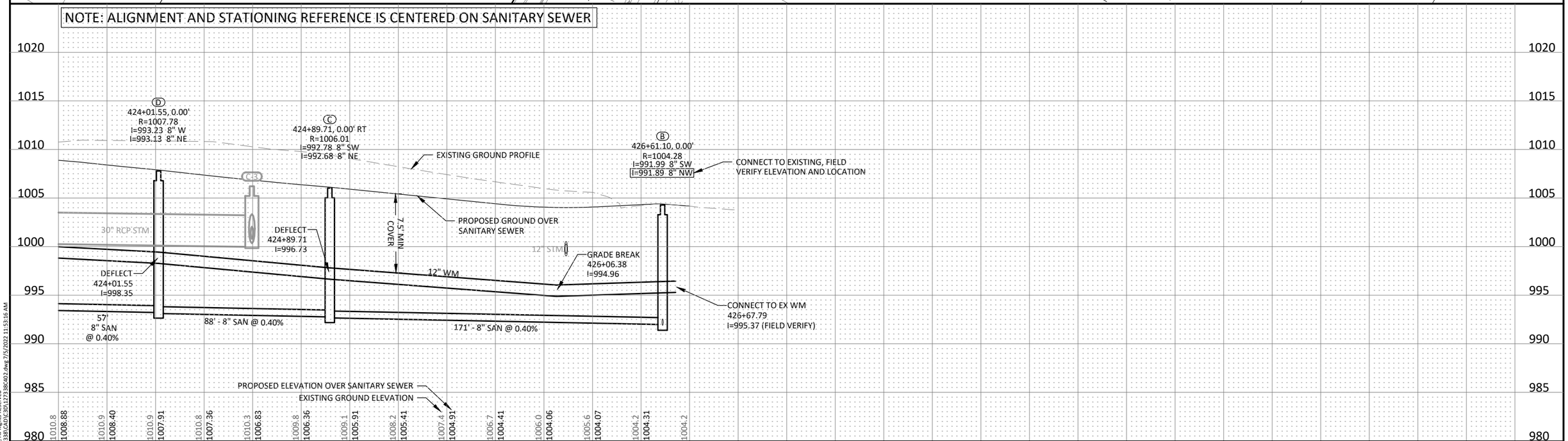

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DEMARS CONSTRUCTION
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EXCEL DRIVE - STA 423+50 TO 431+00

SHEET C4.05

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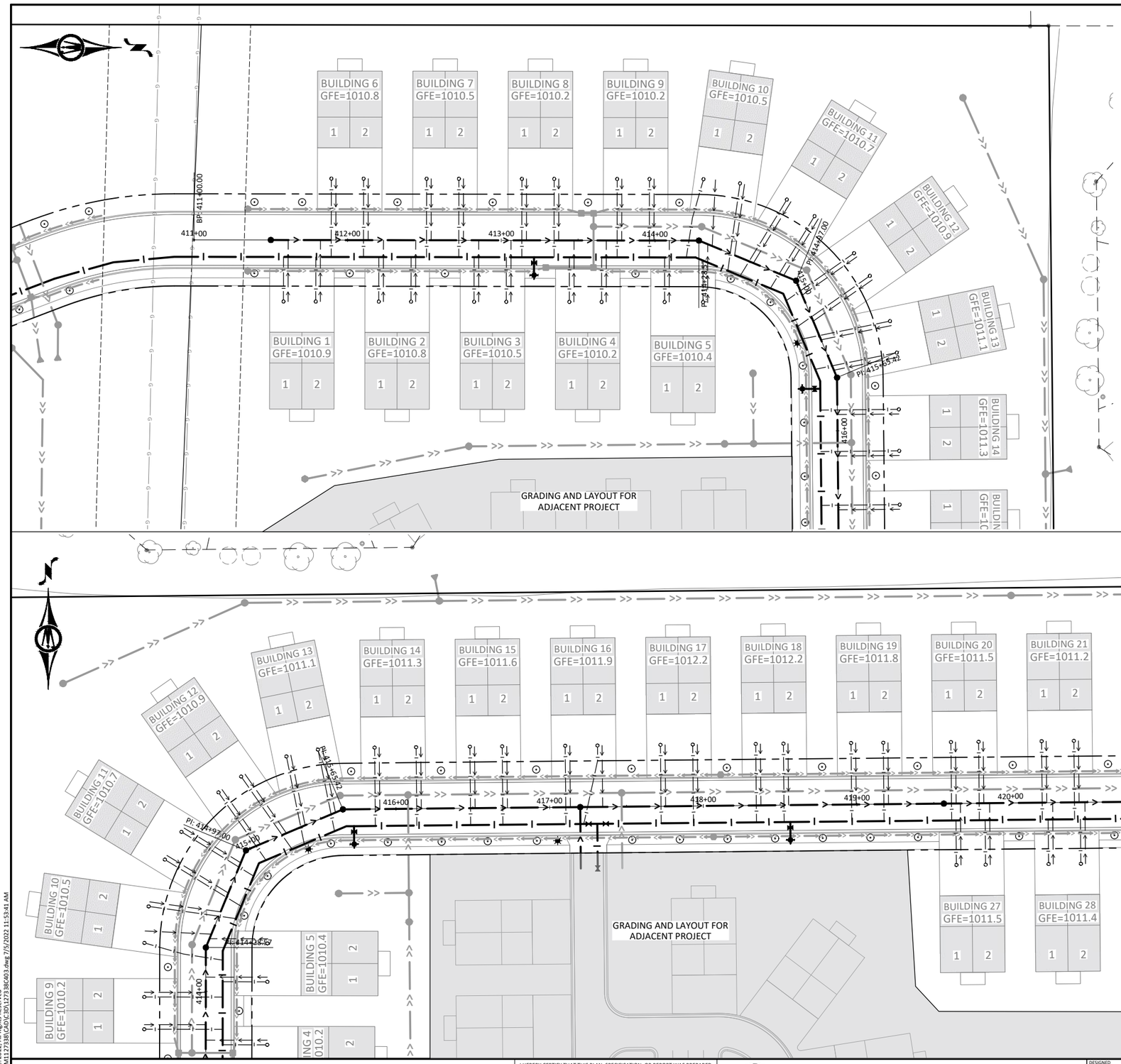

NOTE:
SEE SHEET G1.XX FOR SERVICE SCHEDULE

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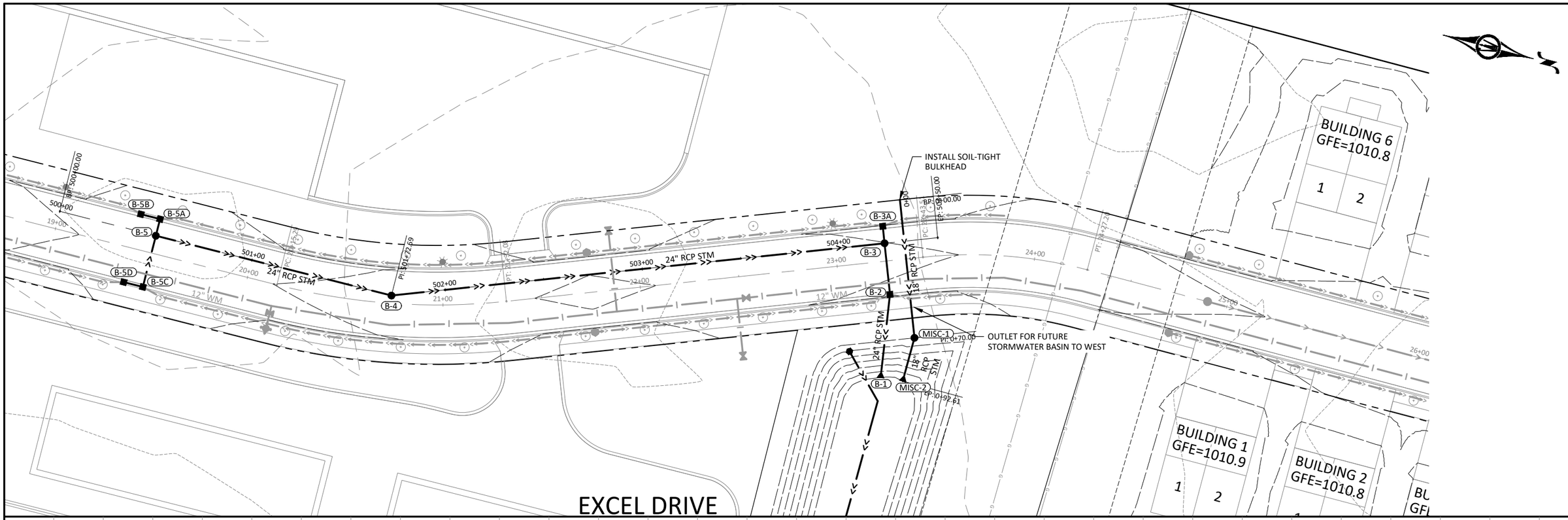
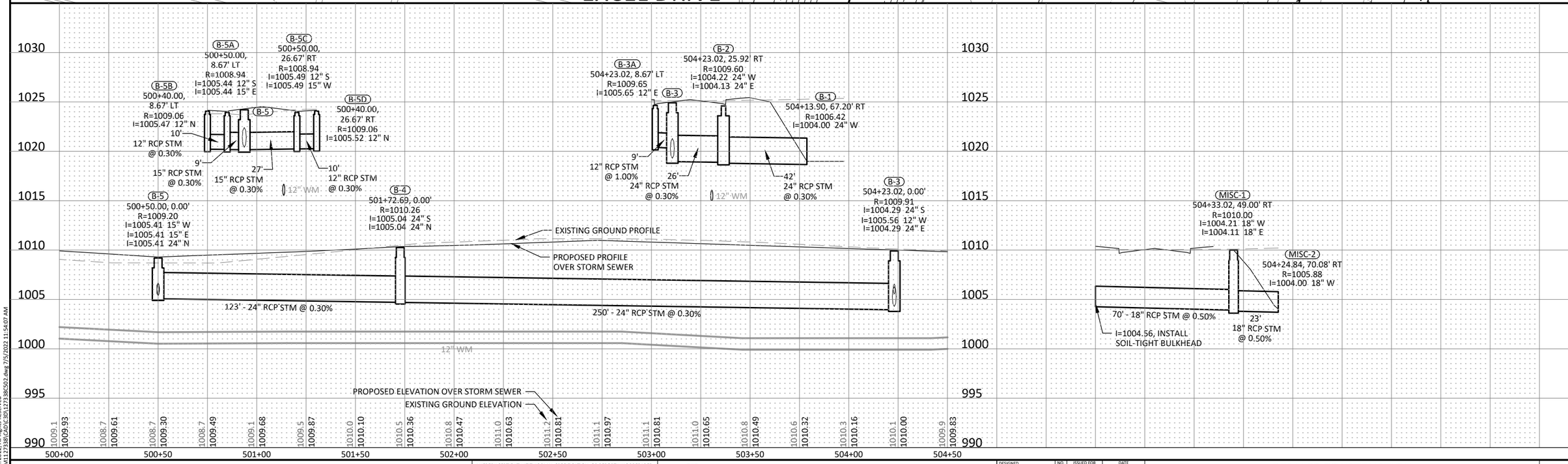
TOWNHOME SANITARY & WATER SERVICE LAYOUT

SHEET C4.06





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EXCEL DRIVE - STA 500+00 TO 504+50

SHEET C5.01

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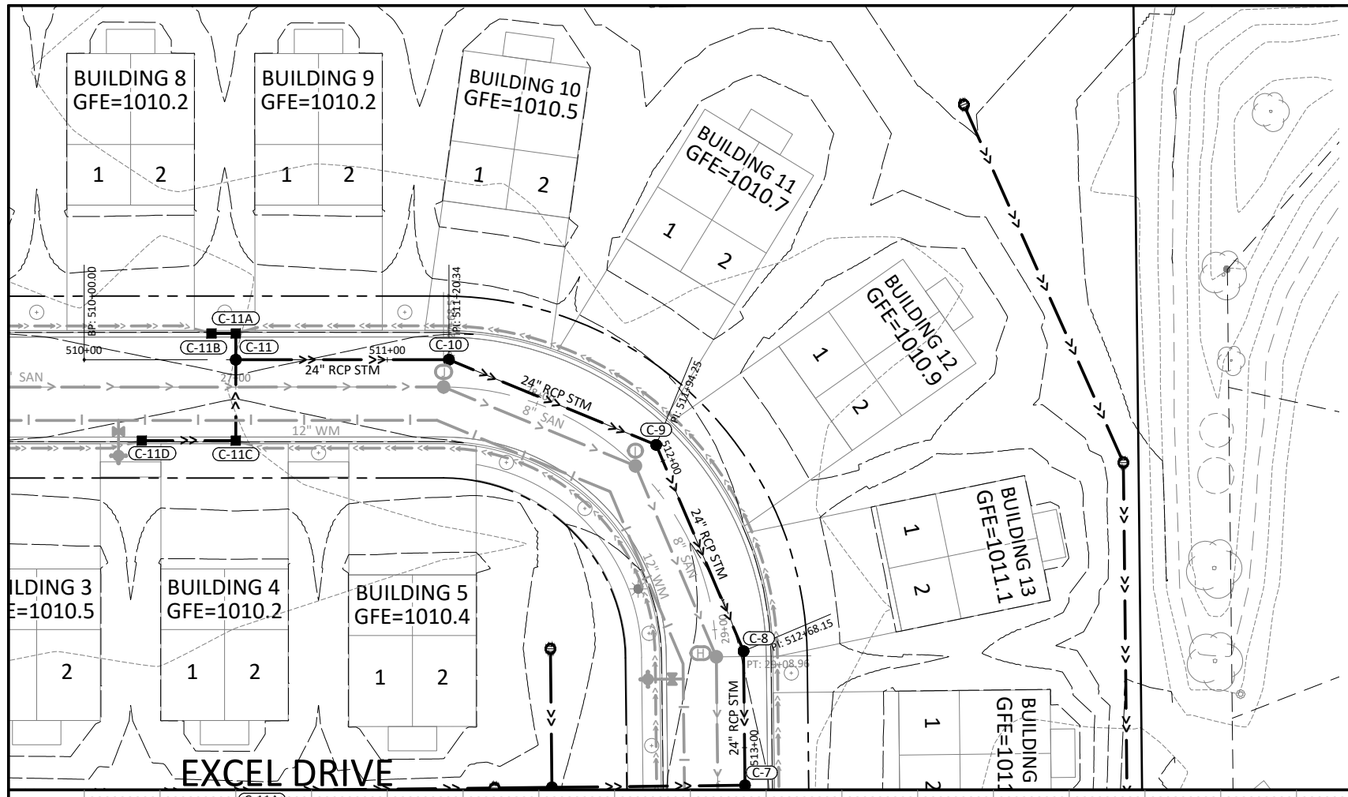

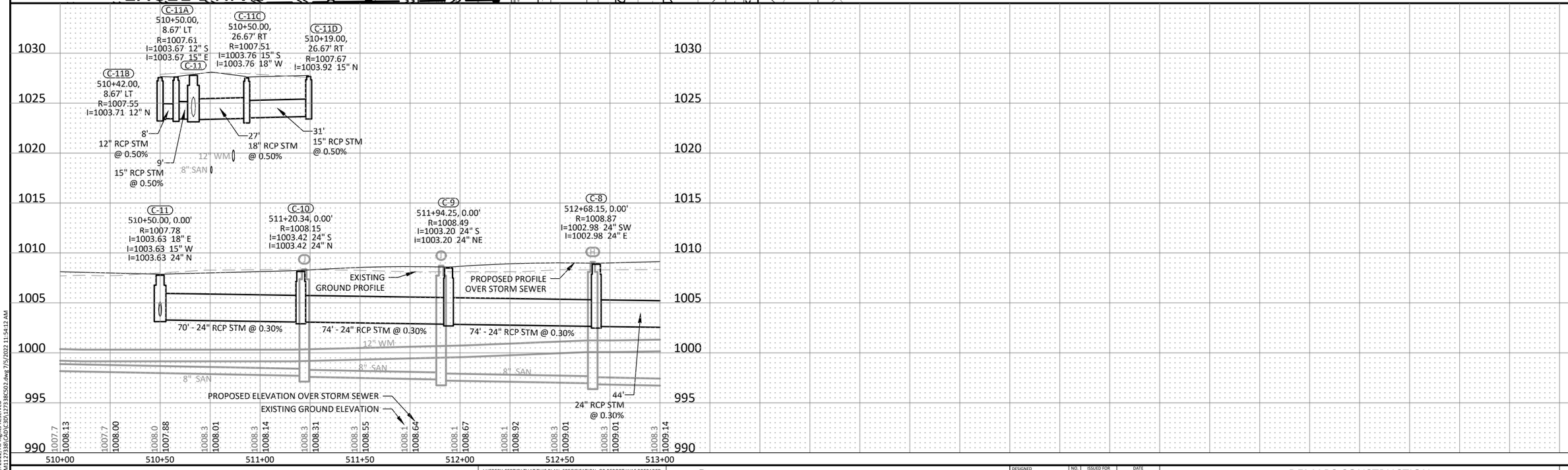

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STORM SEWER PLAN & PROFILE
EXCEL DRIVE - STA 510+00 TO 513+00

SHEET C5.02

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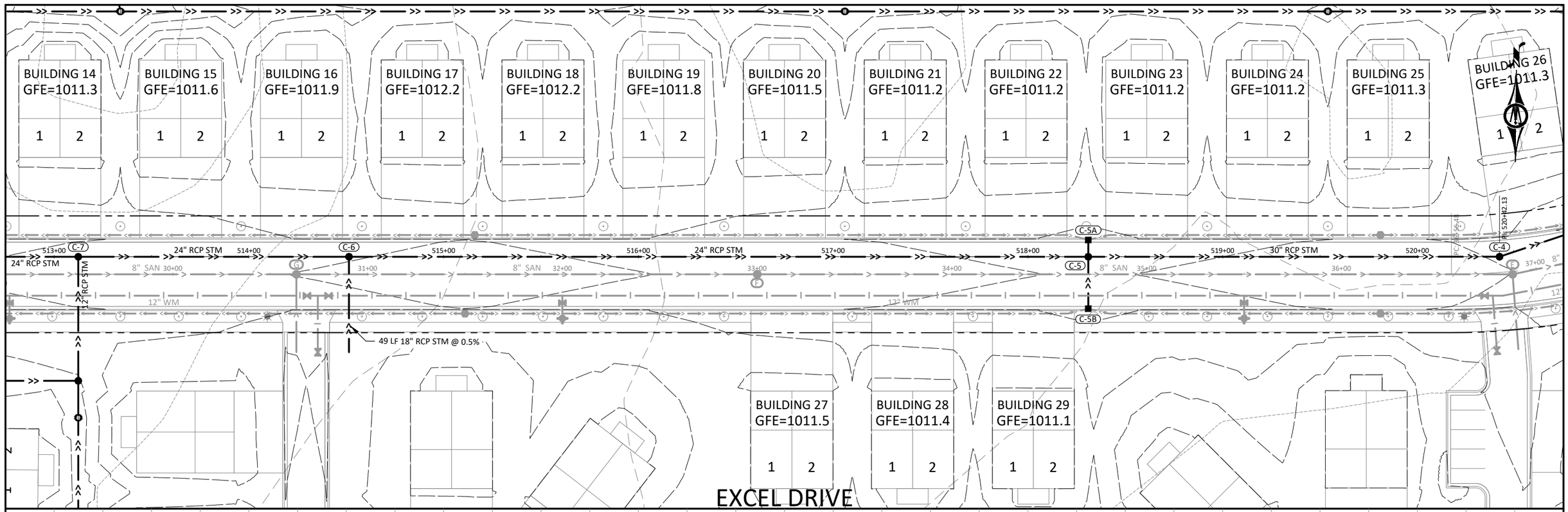

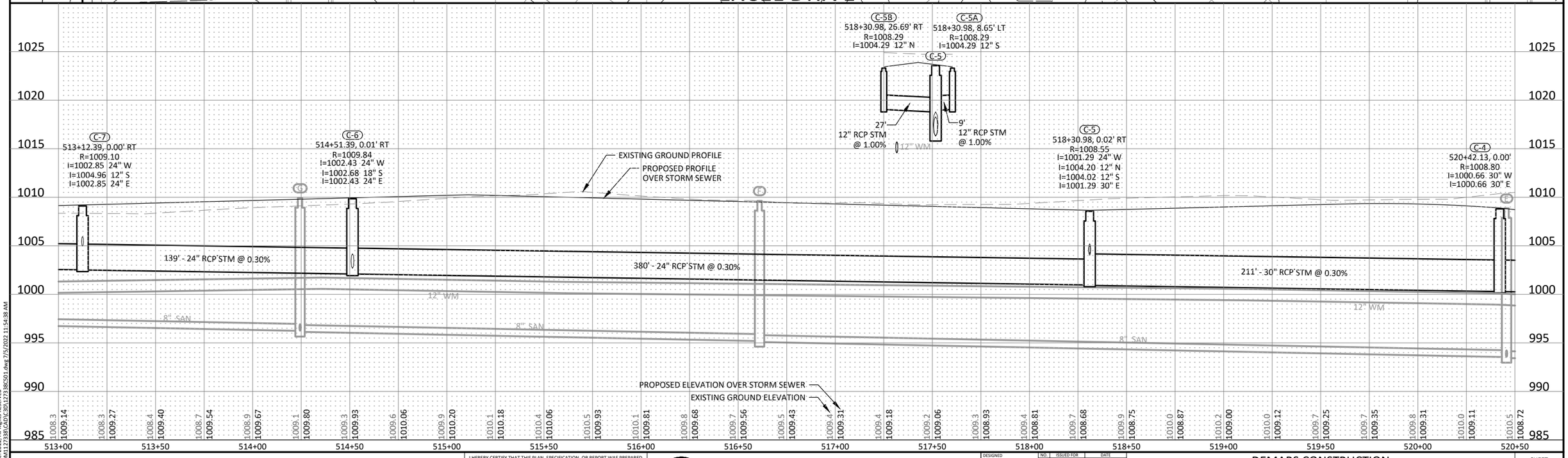

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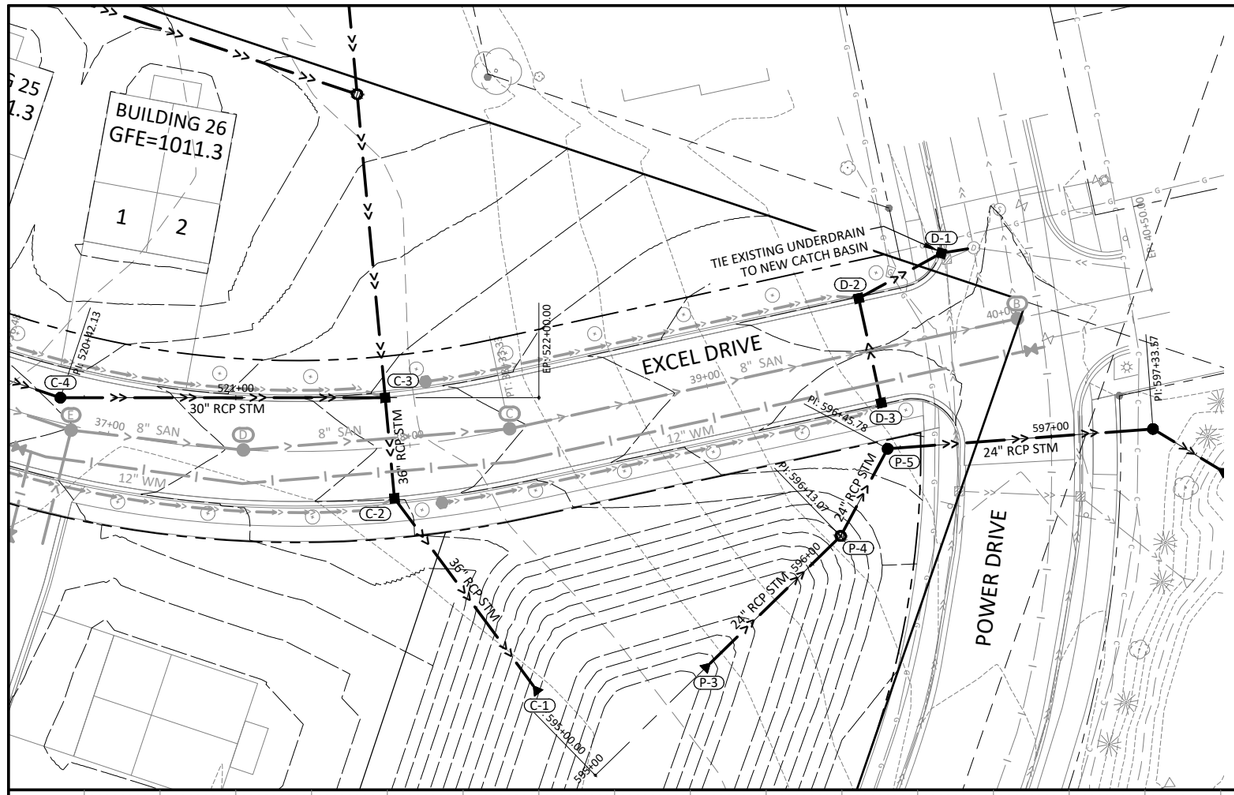
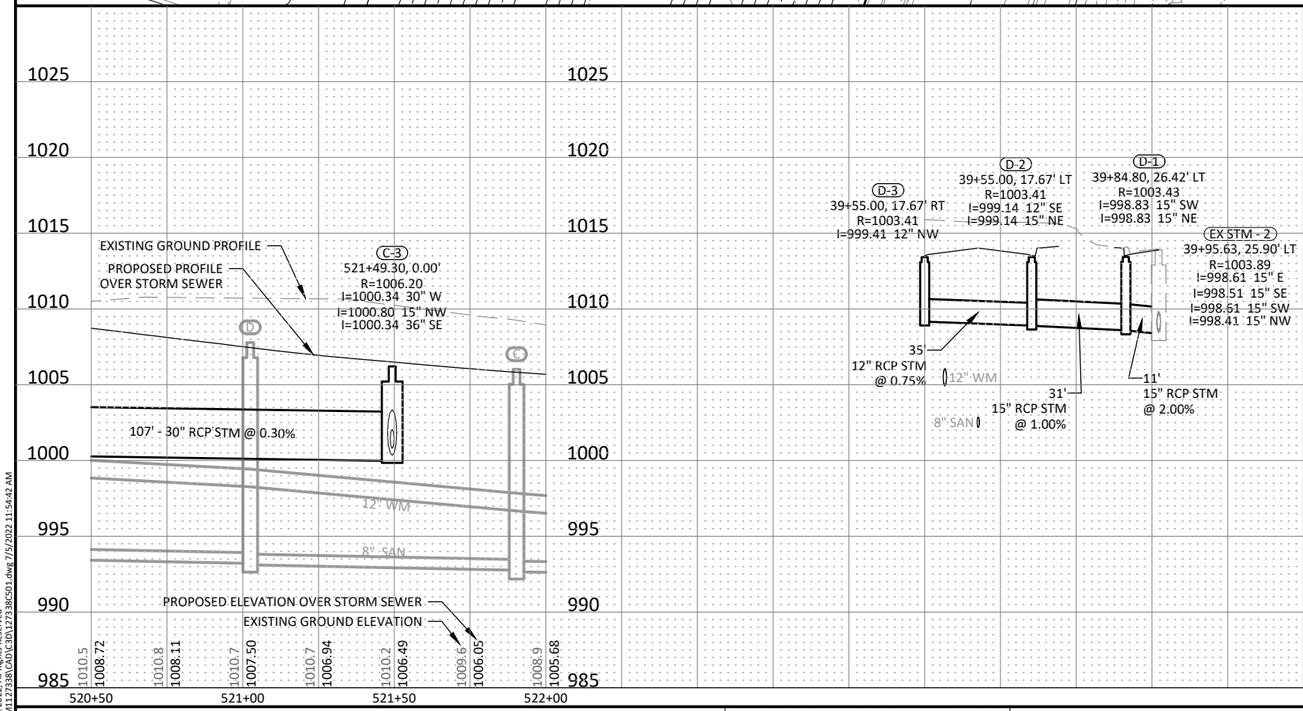
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORM SEWER PLAN & PROFILE
EXCEL DRIVE - STA 513+00 TO 520+50

SHEET C5.03





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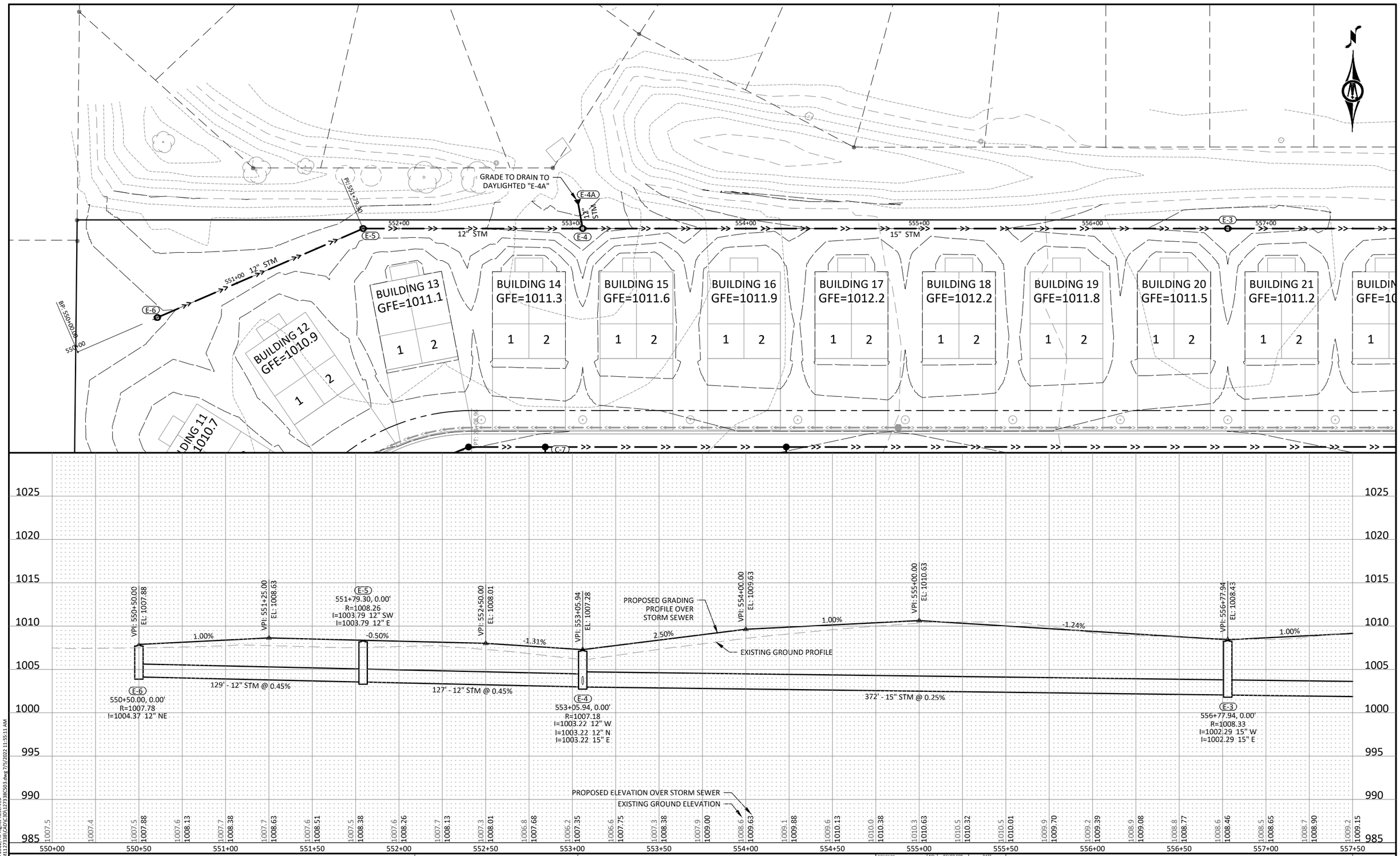
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORM SEWER PLAN & PROFILE
EXCEL DRIVE - STA 520+50 TO 522+00 AND POWER DRIVE INTERSECTION

SHEET C5.04



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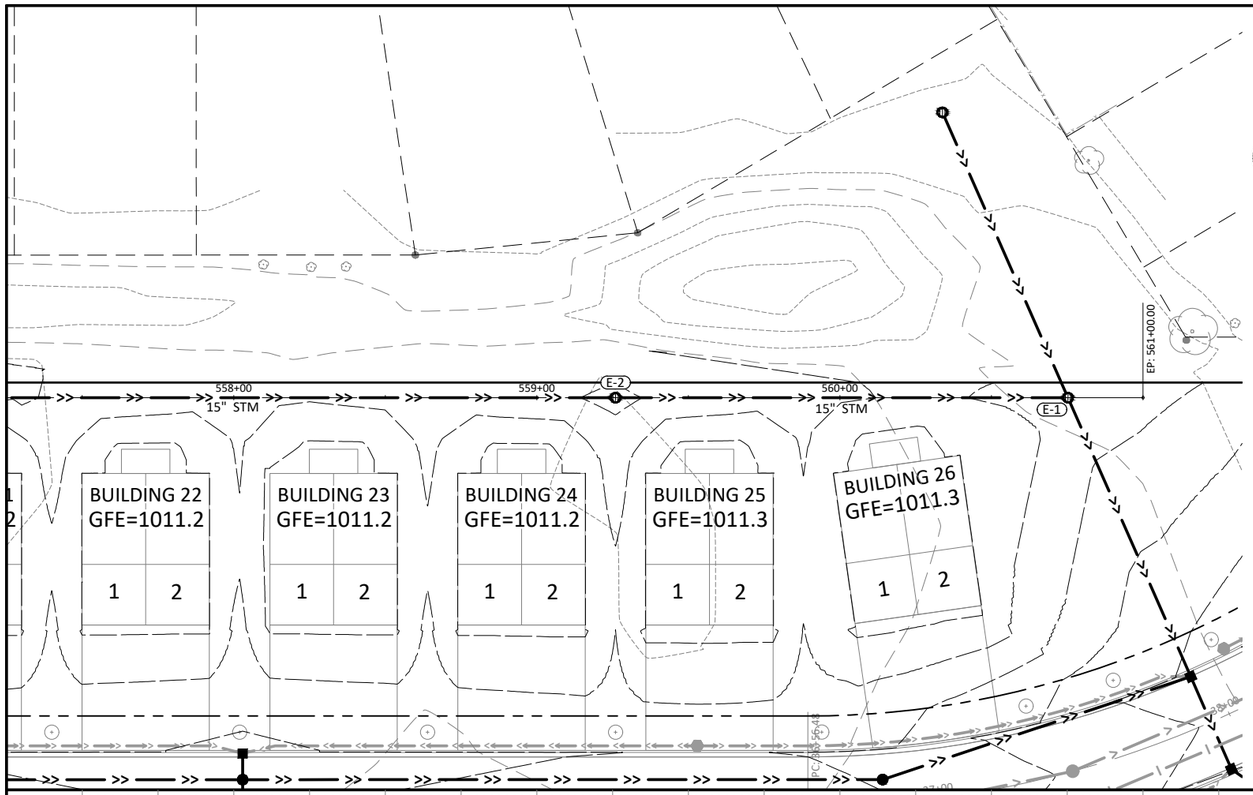
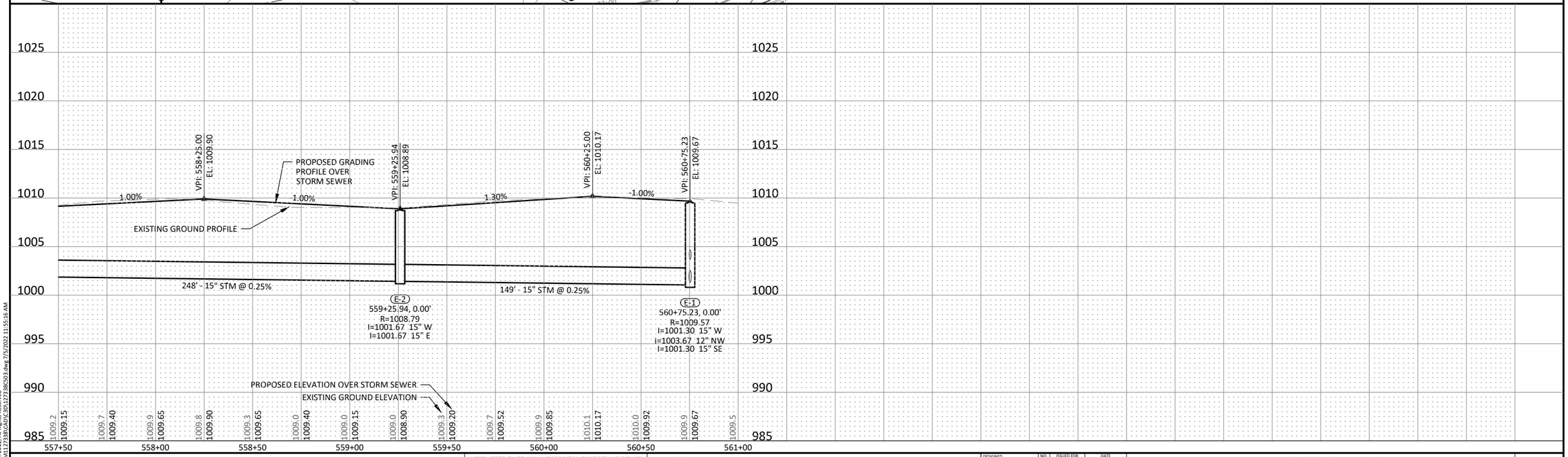
STORM SEWER PLAN & PROFILE
NORTHERN REAR YARD DRAINAGE - STA 550+00 TO 557+50

SHEET C5.05





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NORTHERN REAR YARD DRAINAGE - STA 557+50 TO 561+00

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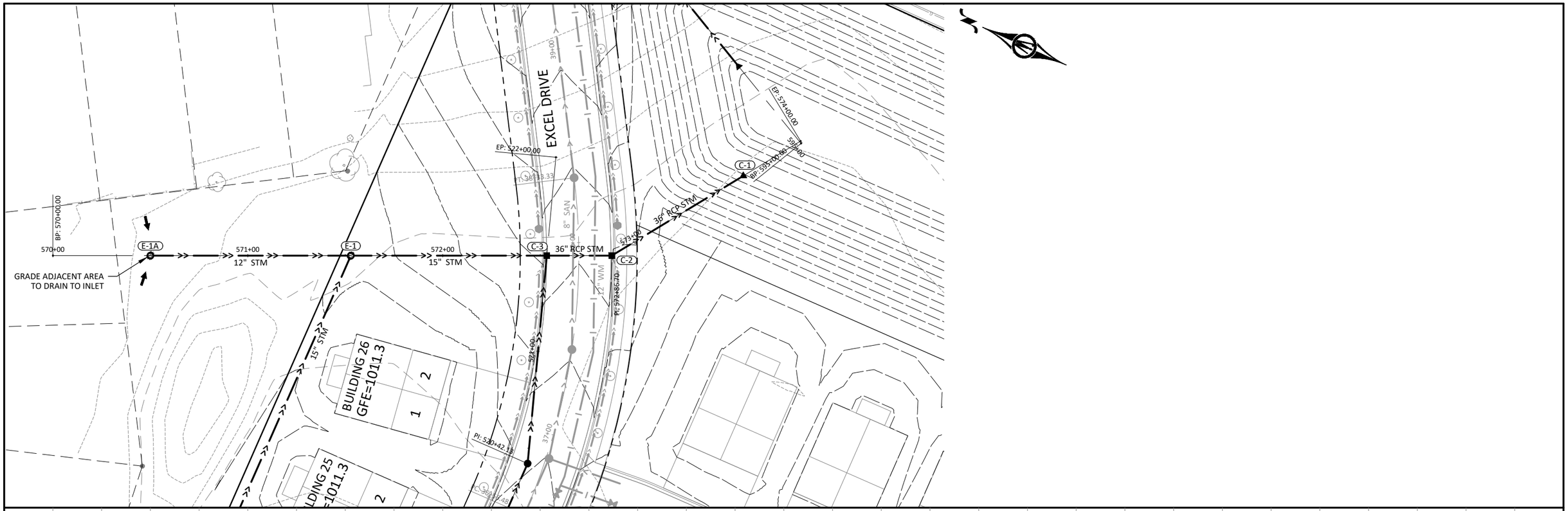

STRUCTURE E-1A NOTE:
INTENDED TO HELP ALLEVIATE EXISTING DRAINAGE ISSUES TO NORTH.
GRADE ADJACENT AREA, AS NECESSARY, TO DRAIN TO INLET.

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STORM SEWER PLAN & PROFILE
NORTH BASIN OUTLET - STA 570+00 TO 574+00

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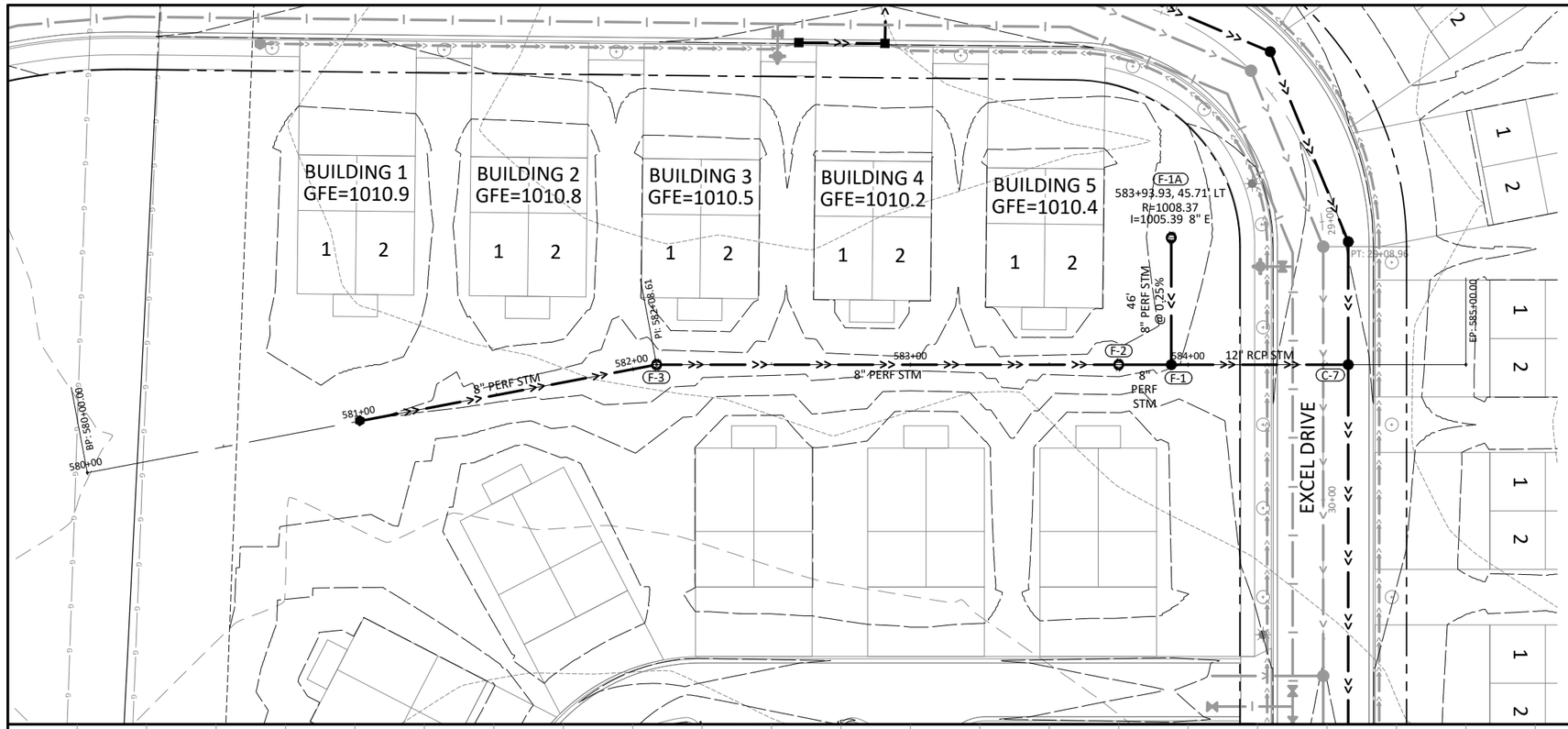

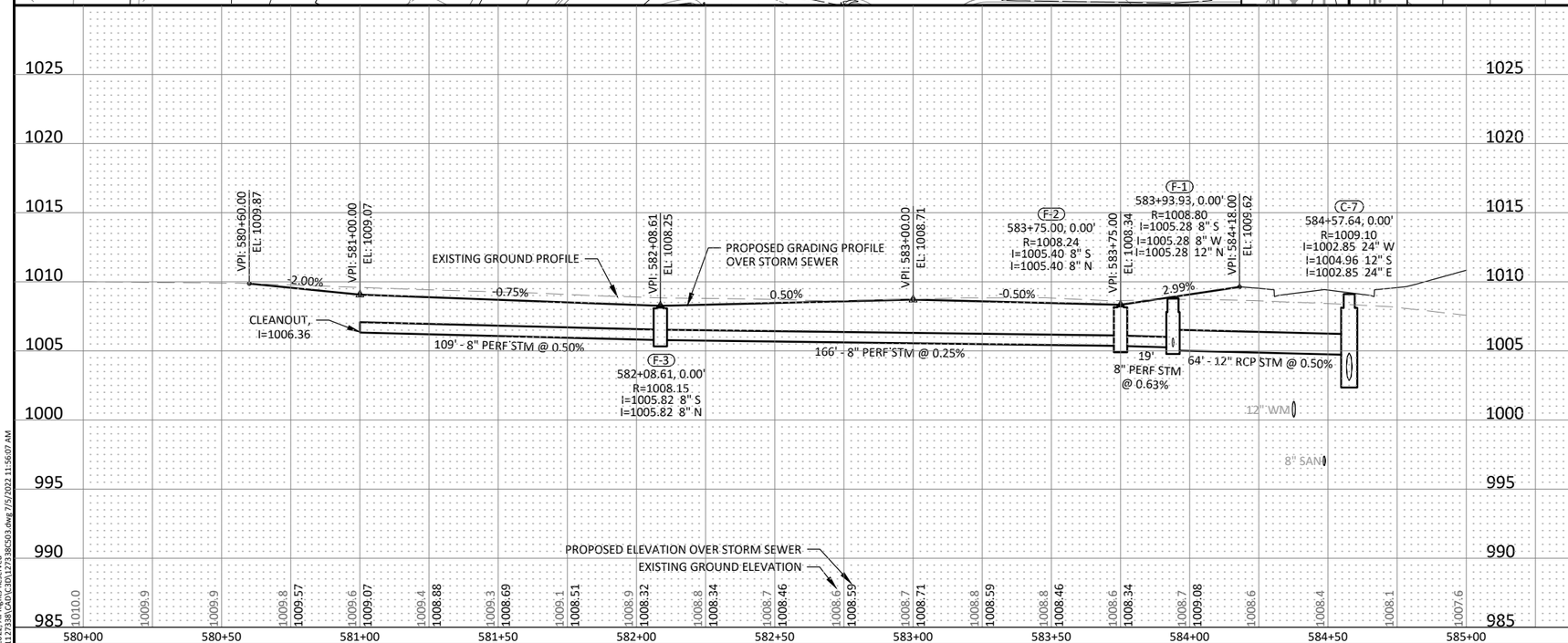

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STORM SEWER PLAN & PROFILE
BACKYARD DRAINAGE - STA 580+00 TO 585+00

SHEET C5.08

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PT: 24+27.20

24+00

PC: 23+43.51

23+00

22+00

EXCEL DRIVE

MATCH EXISTING ALONG GAS EASEMENT

18" RCP STM

MISC-1

MISC-2

B-1

B-2

24" RCP STM

3H:1V SLOPES, TYP

1010 1009 1008 1007 1006 1005 1004

552 LF 12" PERF STM @ 0.1%

29 LF 12" PERF STM @ 0.1%

8" CLEANOUT, I=1001.70

10' MAINTENANCE BUFFER

1004 1005 1006 1007 1008 1009 1010 1011

3H:1V SLOPES, TYP

8" CLEANOUT, I=1001.18

35 LF 12" PERF STM @ 0.1%

23 LF 12" PERF STM @ 0.1%

MATCH EXISTING ALONG GAS EASEMENT

3H:1V SLOPES, TYP

1004

PROVIDE FITTINGS AS NECESSARY

10' MAINTENANCE BUFFER

STUB TO FUTURE BASIN FOR ADJOINING PROPERTIES

52 LF 12" PERF STM @ 0.1%

10' MAINTENANCE BUFFER

8" CLEANOUT, I=1001.17

FILTRATION BASIN
BOTTOM = 1004.0
EOF = ~1009.0
2-YR HWL = 1005.2
10-YR HWL = 1006.1
100-YR HWL = 1008.1

MATCH EXISTING ALONG GAS EASEMENT

592+00

18" STM

FILTRATION BASIN OUTLET TO WET SEDIMENTATION BASIN, SEE SHEET C5.11 FOR PROFILE

MATCH EXISTING ALONG GAS EASEMENT

591+00

(P-1)

1009

3H:1V SLOPES, TYP

1004

POWER DRIVE

1008

8" CLEANOUT, I=1001.18

35 LF 12" PERF STM @ 0.1%

23 LF 12" PERF STM @ 0.1%

MATCH EXISTING ALONG GAS EASEMENT

3H:1V SLOPES, TYP

1004 1005 1006 1007 1008 1009 1010 1011

PROVIDE FITTINGS AS NECESSARY

405 LF 12" PERF STM @ 0.1%

77 LF 12" PERF STM @ 0.1%

10' MAINTENANCE BUFFER

STUB TO FUTURE BASIN FOR ADJOINING PROPERTIES

52 LF 12" PERF STM @ 0.1%

33 LF 12" PERF STM @ 0.1%

3H:1V SLOPES, TYP

1004 1005 1006 1007 1008 1009 1010

8" CLEANOUT, I=1000.58

10' MAINTENANCE BUFFER

8" CLEANOUT, I=1001.17

8" CLEANOUT, I=1001.21

EMERGENCY OVERFLOW DIRECTION, HIGH POINT @ ~1009.0

BP: 590+00.00

590+00

HORZ. 0 25 50
SCALE FEET

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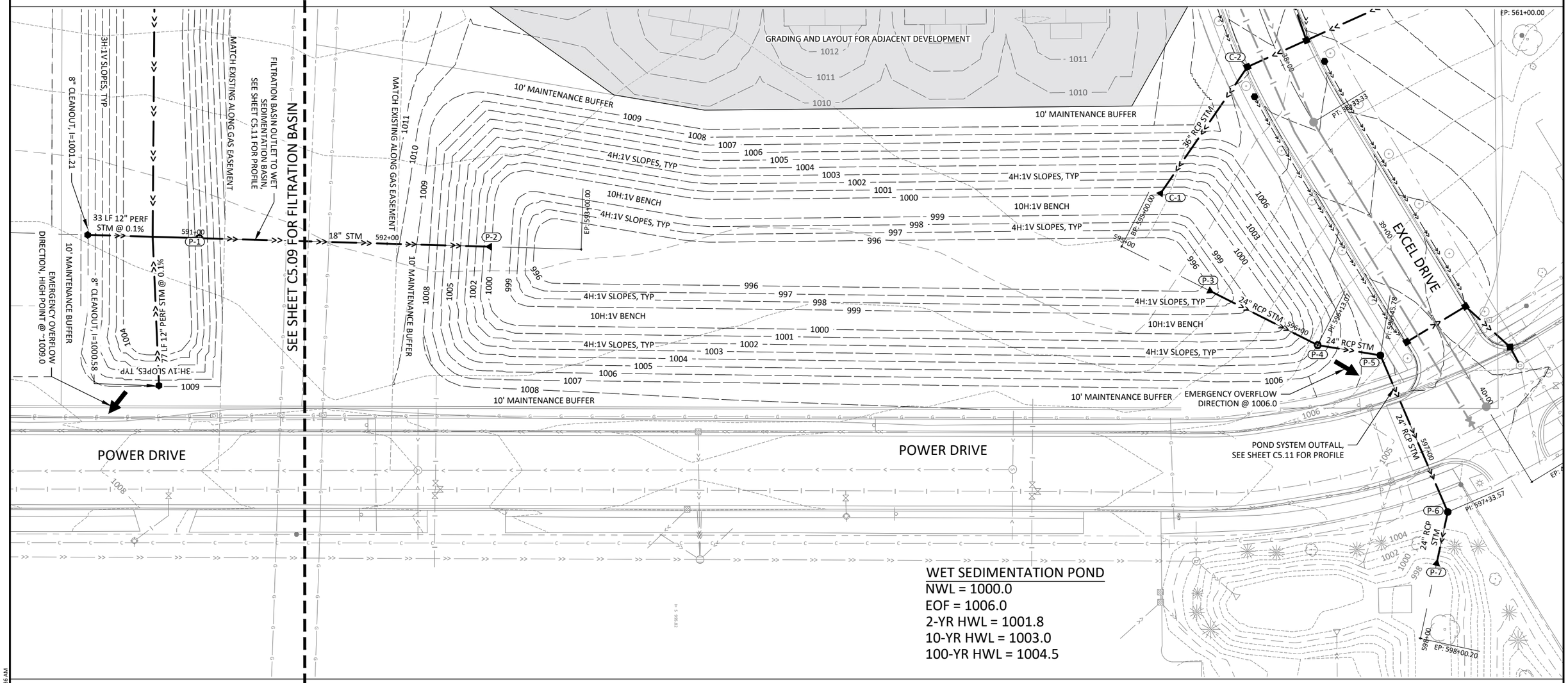
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER MANAGEMENT PLAN
FILTRATION BASIN

SHEET C5.09



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HORZ. 0 25 50
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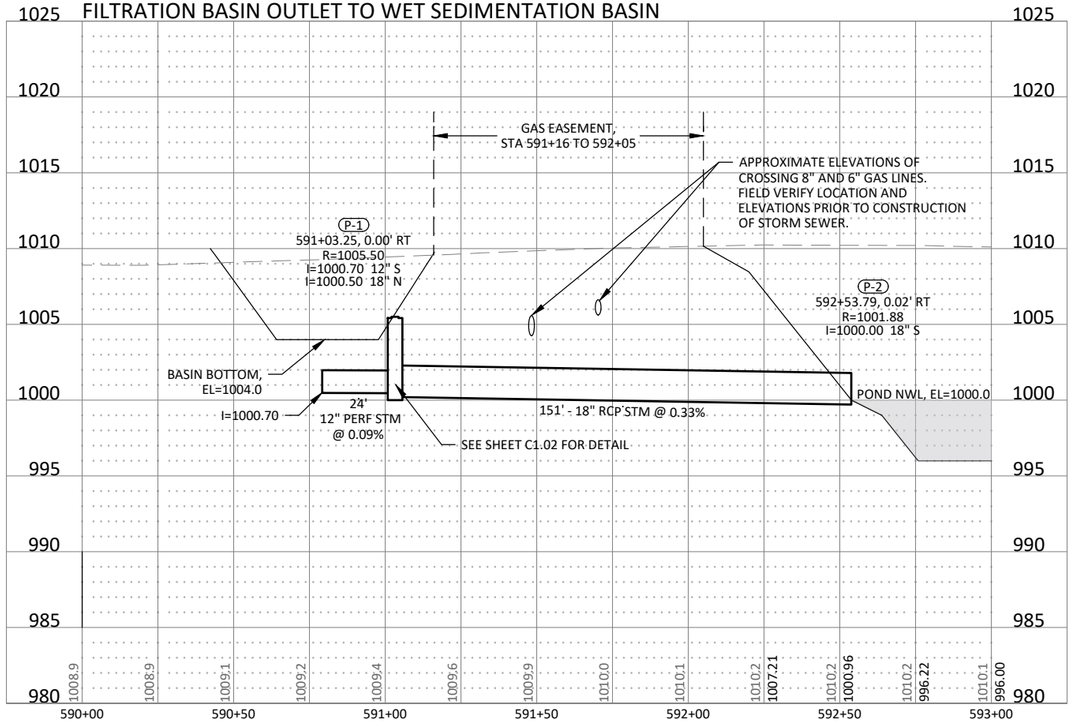
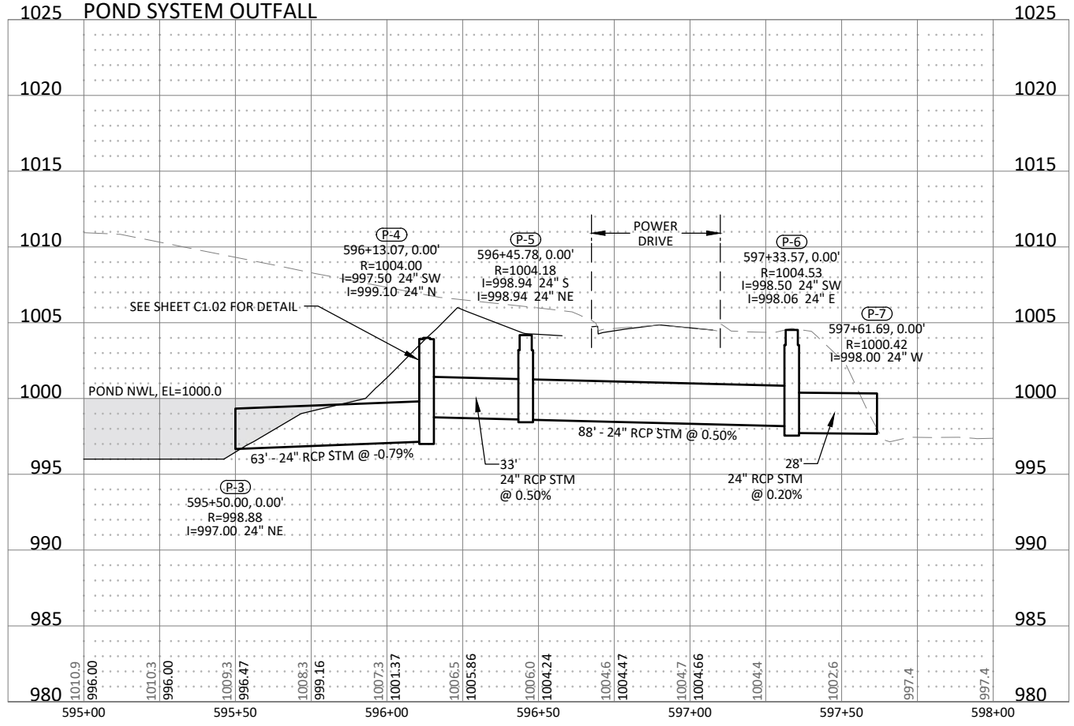
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER MANAGEMENT PLAN
WET SEDIMENTATION POND

SHEET C5.10

FILTRATION BASIN OUTLET TO WET SEDIMENTATION BASIN



POND SYSTEM OUTFALL



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HORZ. 0 25 50 SCALE FEET
VERT. 0 5 10 SCALE FEET

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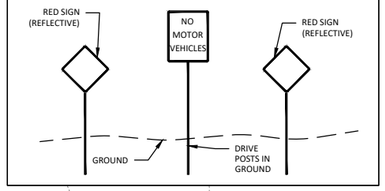
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STORMWATER MANAGEMENT PLAN
SYSTEM CONNECTION AND OUTFALL PROFILES

SHEET
C5.11

END OF ROAD ASSEMBLY
NOT TO SCALE

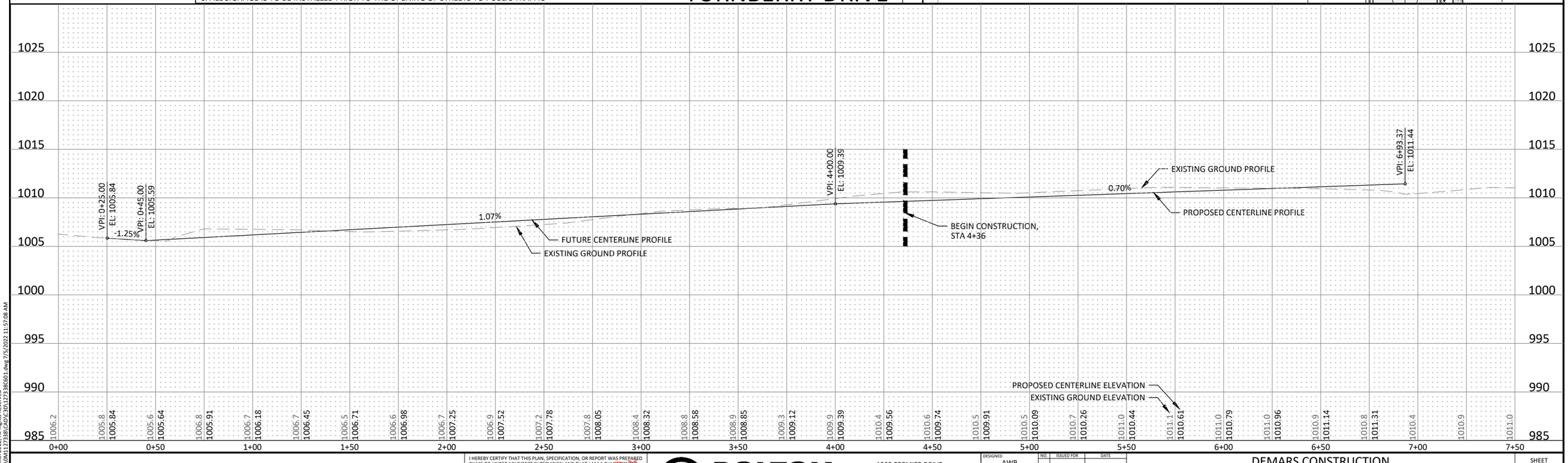


LEGEND

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- 6" CONCRETE DRIVEWAY
- 8" CONCRETE DRIVEWAY
- 5" CONCRETE WALK
- PEDESTRIAN RAMP CONCRETE WALK

SIGNAGE NOTES:
1. R1-1 SIGNS TO BE WHITE ON RED WITH 2 MOUNTING POSTS
2. STREET SIGNS TO BE MOUNTED ON 1 POST
3. ALL SIGNS TO BE MOUNTED AT 7-FOOT HEIGHT FROM FINAL GROUND ELEVATION
4. FOR MOUNTING PUNCH HOLE LOCATIONS, REFER TO THE MNDOT STANDARDS SIGNS MANUAL PAGE 106
5. ALL SIGNAGE SHALL CONFORM WITH THE LATEST VERSION OF THE MN MUTCD
6. ALL SIGNAGE IS TO BE INSTALLED PRIOR TO THE OPENING OF STREETS TO PUBLIC TRAFFIC

TURNBERRY DRIVE



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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STREET PLAN & PROFILE
TURNBERRY DRIVE - STA 0+00 TO 7+50

SHEET C6.01

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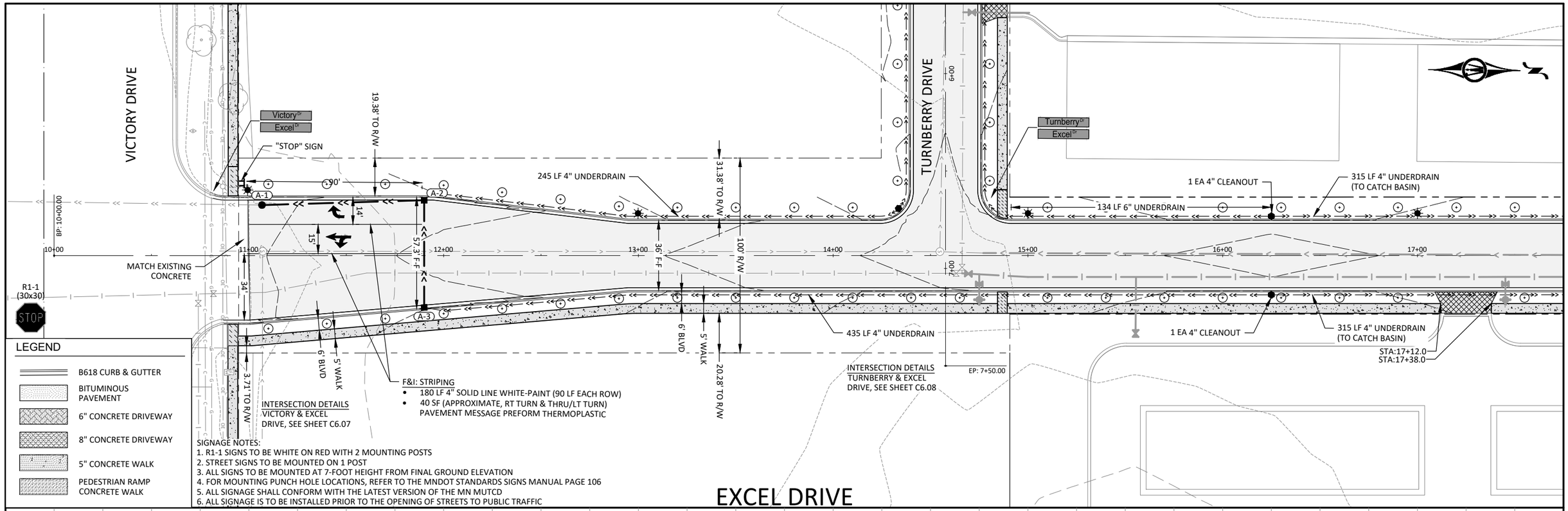

LEGEND

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- 6" CONCRETE DRIVEWAY
- 8" CONCRETE DRIVEWAY
- 5" CONCRETE WALK
- PEDESTRIAN RAMP CONCRETE WALK

SIGNAGE NOTES:
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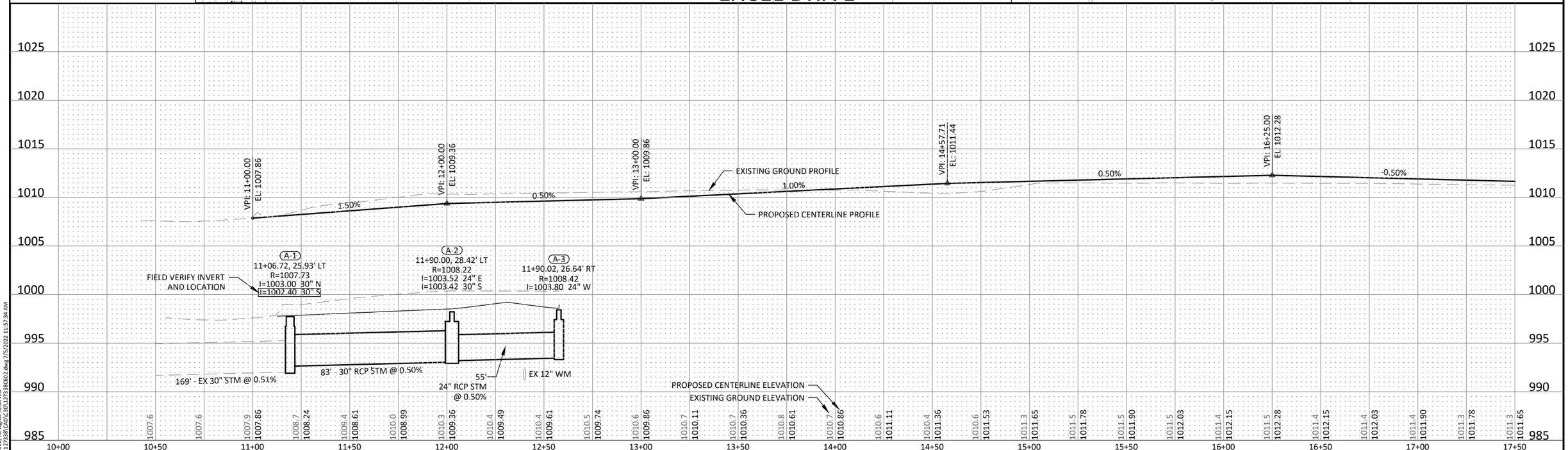
4. FOR MOUNTING PUNCH HOLE LOCATIONS, REFER TO THE MNDOT STANDARDS SIGNS MANUAL PAGE 106
5. ALL SIGNAGE SHALL CONFORM WITH THE LATEST VERSION OF THE MN MUTCD
6. ALL SIGNAGE IS TO BE INSTALLED PRIOR TO THE OPENING OF STREETS TO PUBLIC TRAFFIC

EXCEL DRIVE



HORZ. SCALE 0 25 50 FEET
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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STREET PLAN & PROFILE
EXCEL DRIVE - STA 10+00 TO 17+50

SHEET C6.02

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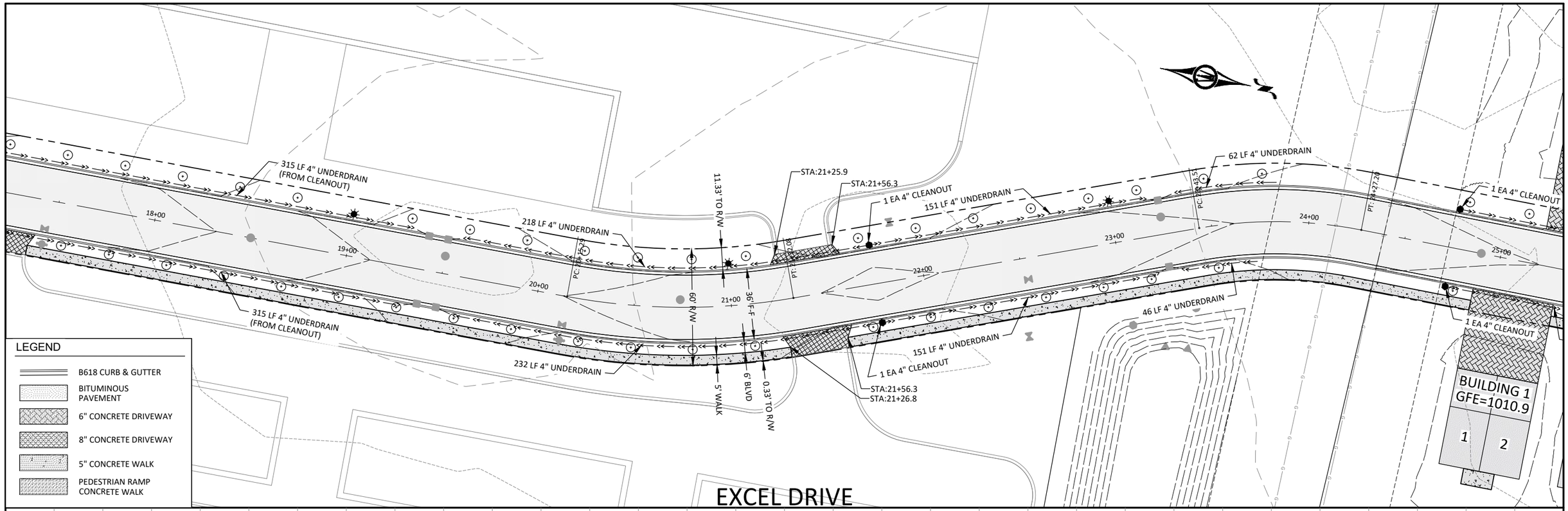

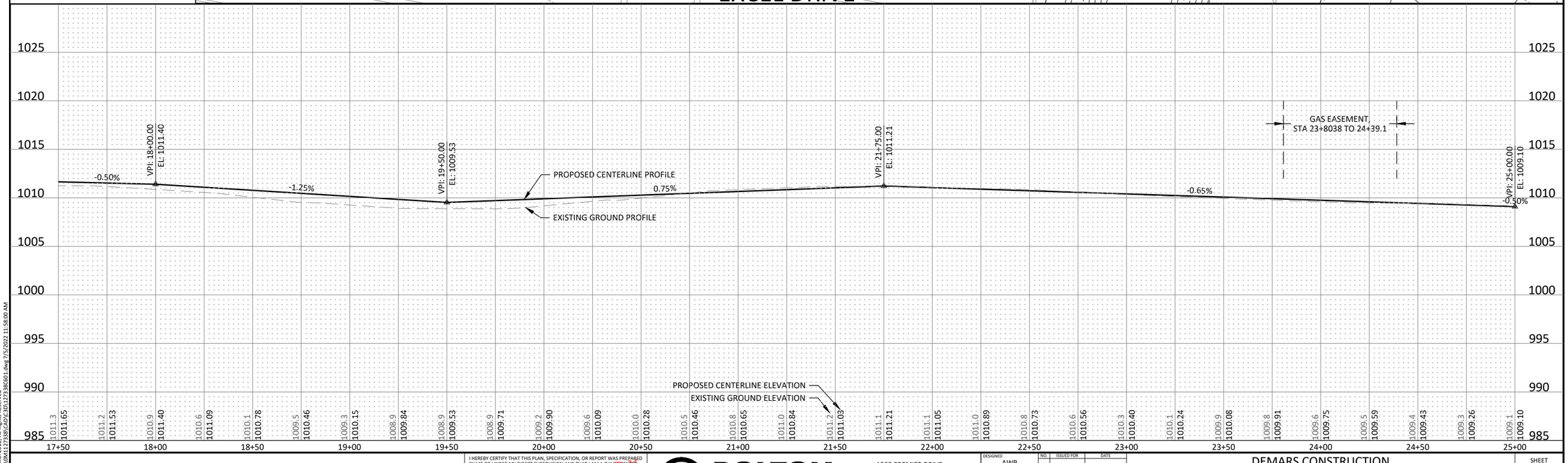

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VERT. SCALE 0 5 10 FEET

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STREET PLAN & PROFILE
EXCEL DRIVE - STA 17+50 TO 25+00

SHEET C6.03

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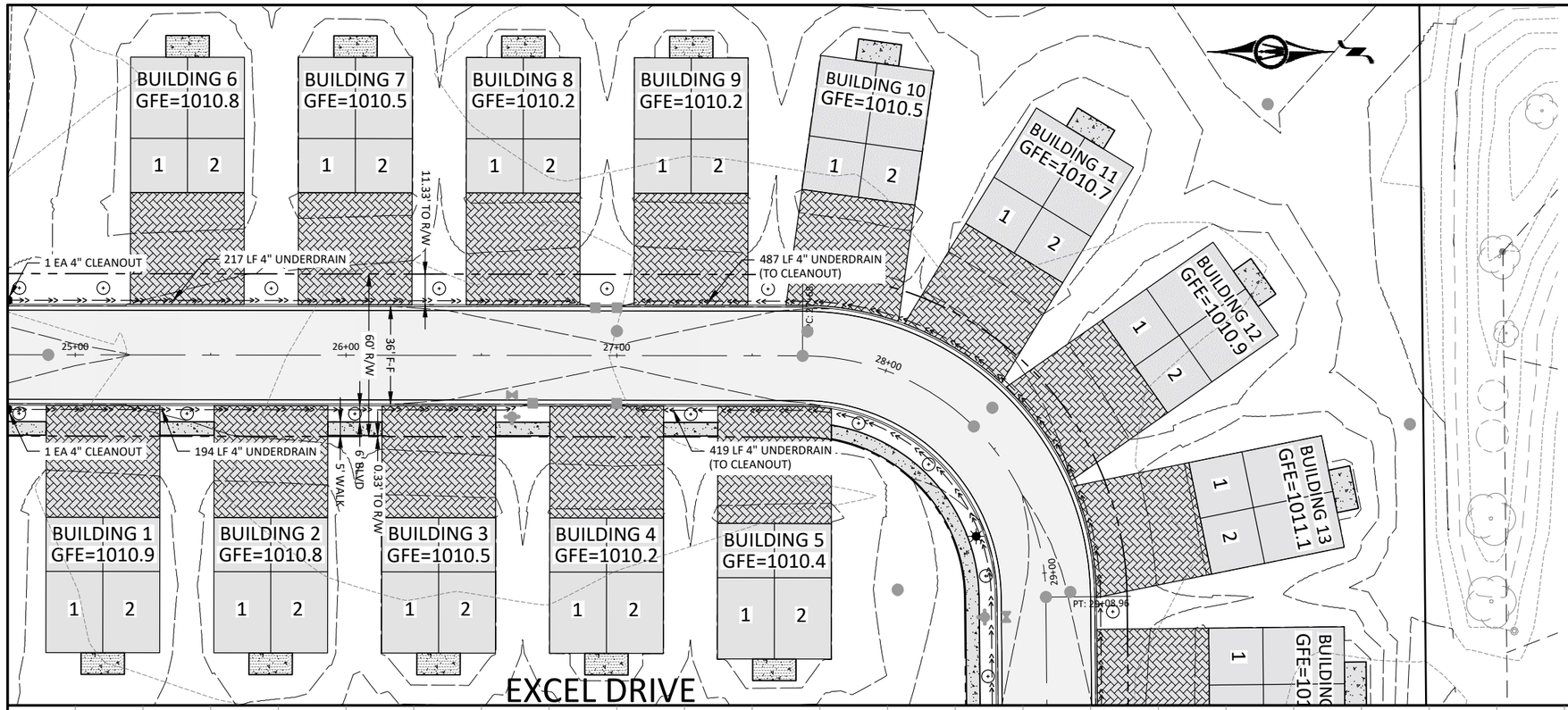
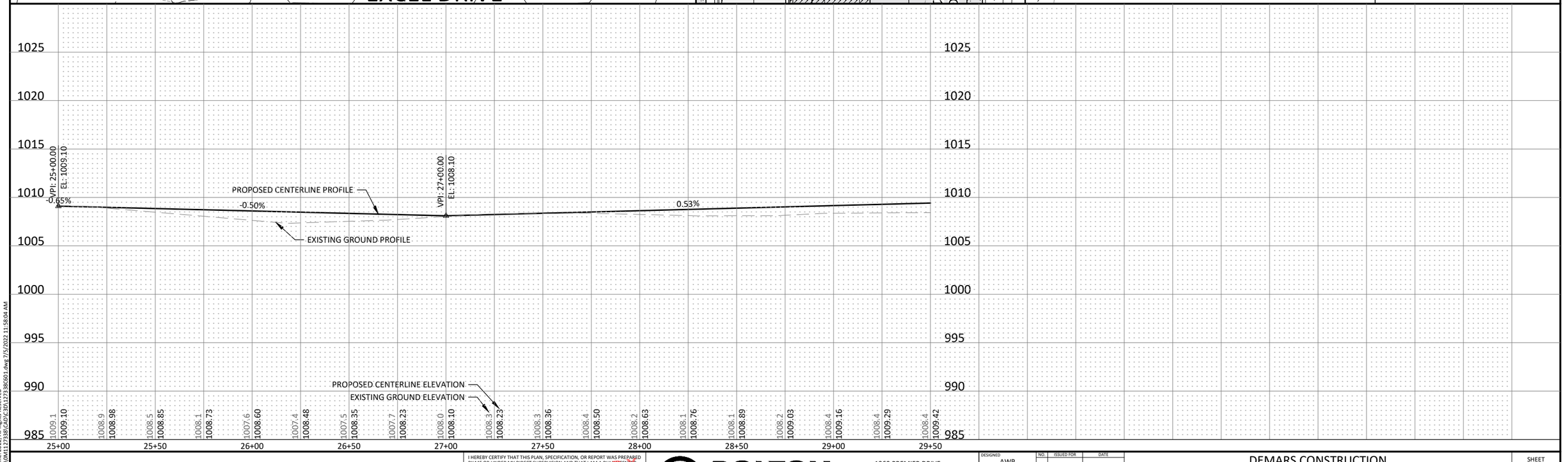


NOTE:
SEE TOWNHOME DRIVEWAY TABULATION ON SHEET G1.02

LEGEND

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- 6" CONCRETE DRIVEWAY
- 8" CONCRETE DRIVEWAY
- 5" CONCRETE WALK
- PEDESTRIAN RAMP CONCRETE WALK



HORZ. SCALE 0 25 50 FEET
VERT. SCALE 0 5 10 FEET

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STREET PLAN & PROFILE
EXCEL DRIVE - STA 25+00 TO 29+50

SHEET C6.04

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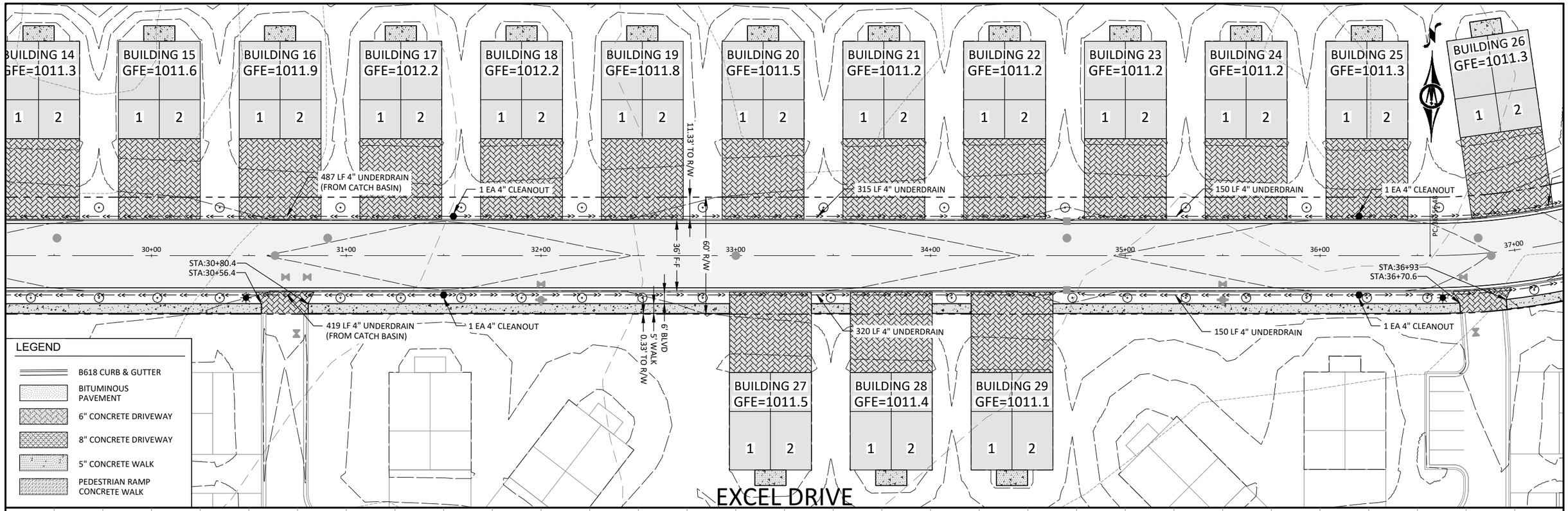
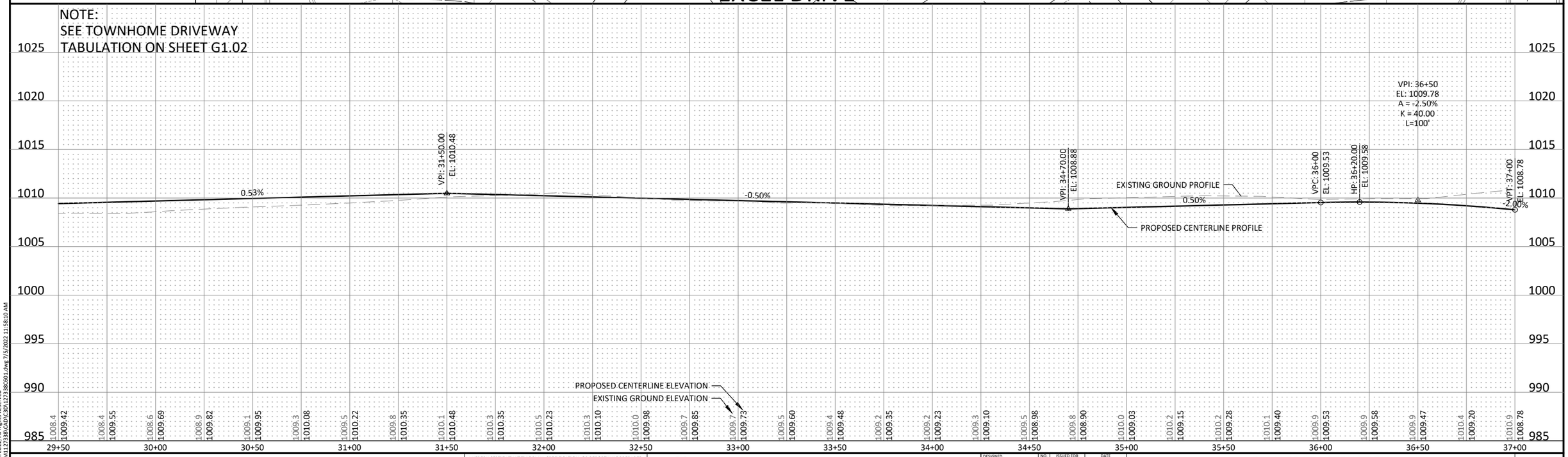


NOTE:
SEE TOWNHOME DRIVEWAY TABULATION ON SHEET G1.02



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HORZ. SCALE 0 25 50 FEET
VERT. SCALE 0 5 10 FEET

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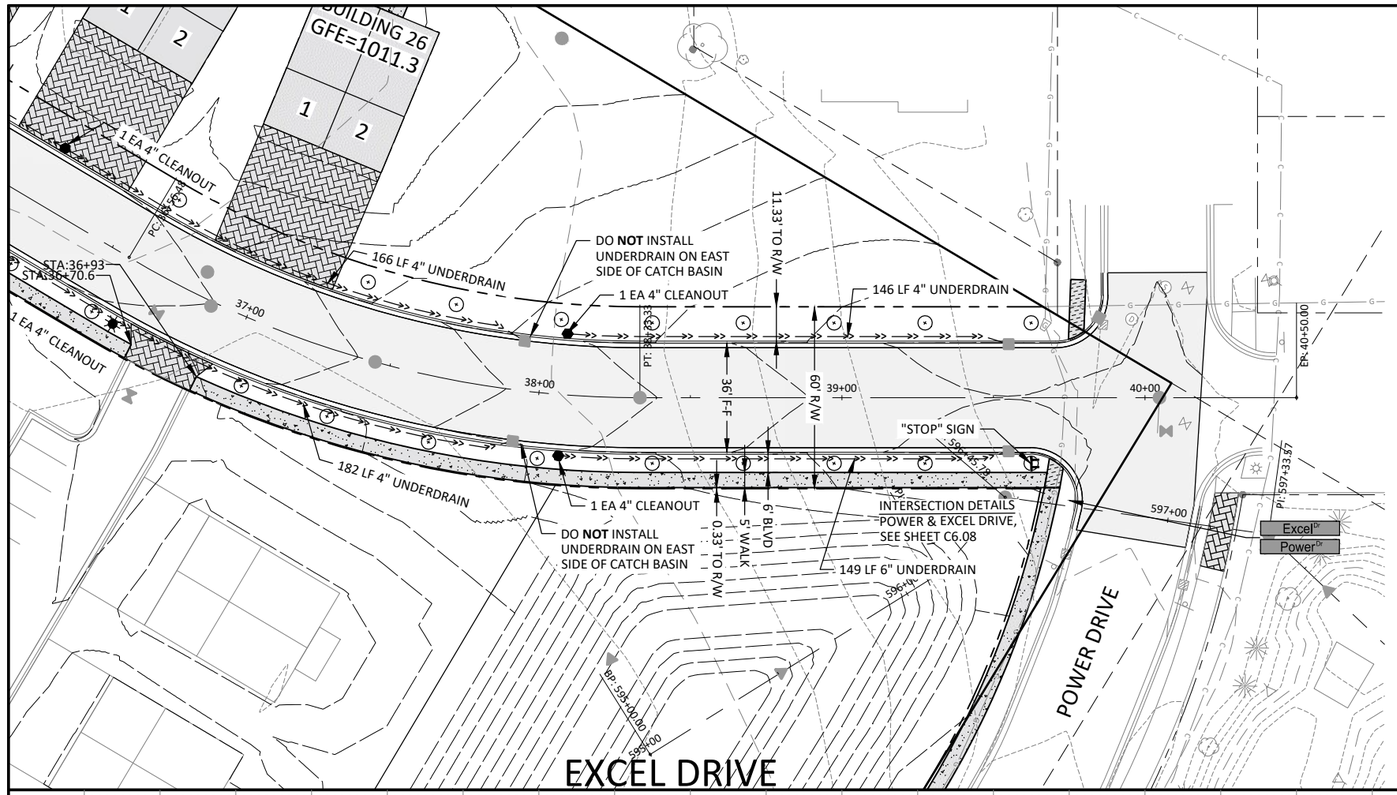
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STREET PLAN & PROFILE
EXCEL DRIVE - STA 29+50 TO 37+00

SHEET C6.05



R1-1
(30x30)

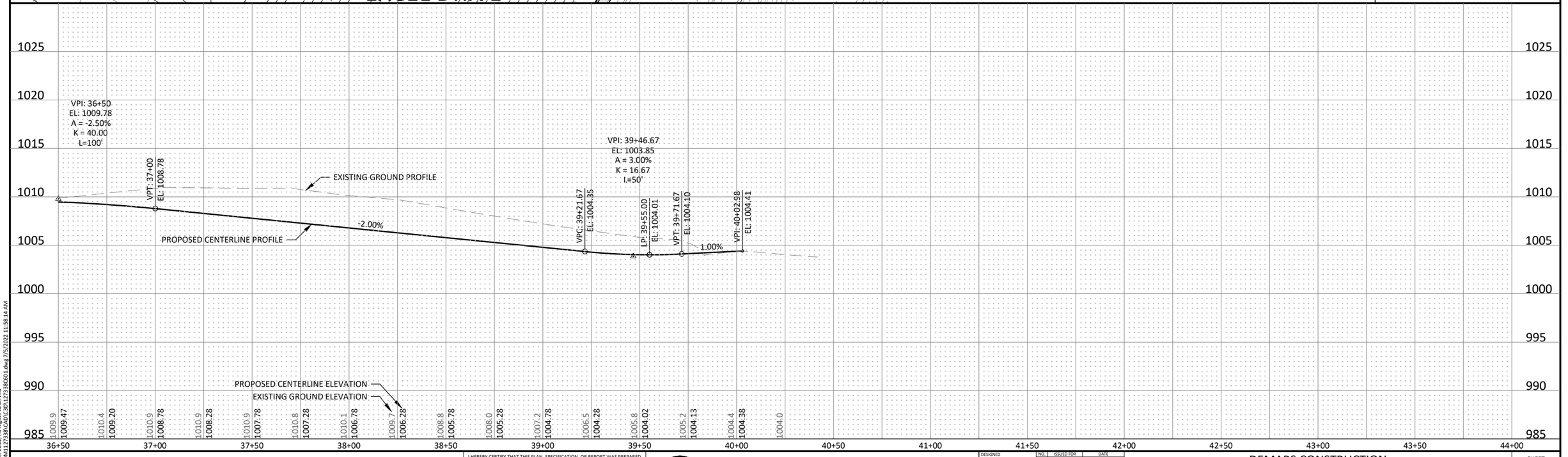
STOP

NOTE:
SEE TOWNHOME DRIVEWAY TABULATION ON SHEET G1.02

SIGNAGE NOTES:
1. R1-1 SIGNS TO BE WHITE ON RED WITH 2 MOUNTING POSTS
2. STREET SIGNS TO BE MOUNTED ON 1 POST
3. ALL SIGNS TO BE MOUNTED AT 7-FOOT HEIGHT FROM FINAL GROUND ELEVATION
4. FOR MOUNTING PUNCH HOLE LOCATIONS, REFER TO THE MNDOT STANDARDS SIGNS MANUAL PAGE 106
5. ALL SIGNAGE SHALL CONFORM WITH THE LATEST VERSION OF THE MN MUTCD
6. ALL SIGNAGE IS TO BE INSTALLED PRIOR TO THE OPENING OF STREETS TO PUBLIC TRAFFIC

LEGEND

- B618 CURB & GUTTER
- BITUMINOUS PAVEMENT
- 6" CONCRETE DRIVEWAY
- 8" CONCRETE DRIVEWAY
- 5" CONCRETE WALK
- PEDESTRIAN RAMP CONCRETE WALK



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VERT. SCALE 0 5 10 FEET

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
STREET PLAN & PROFILE
EXCEL DRIVE - STA 36+50 TO 44+00

SHEET C6.06

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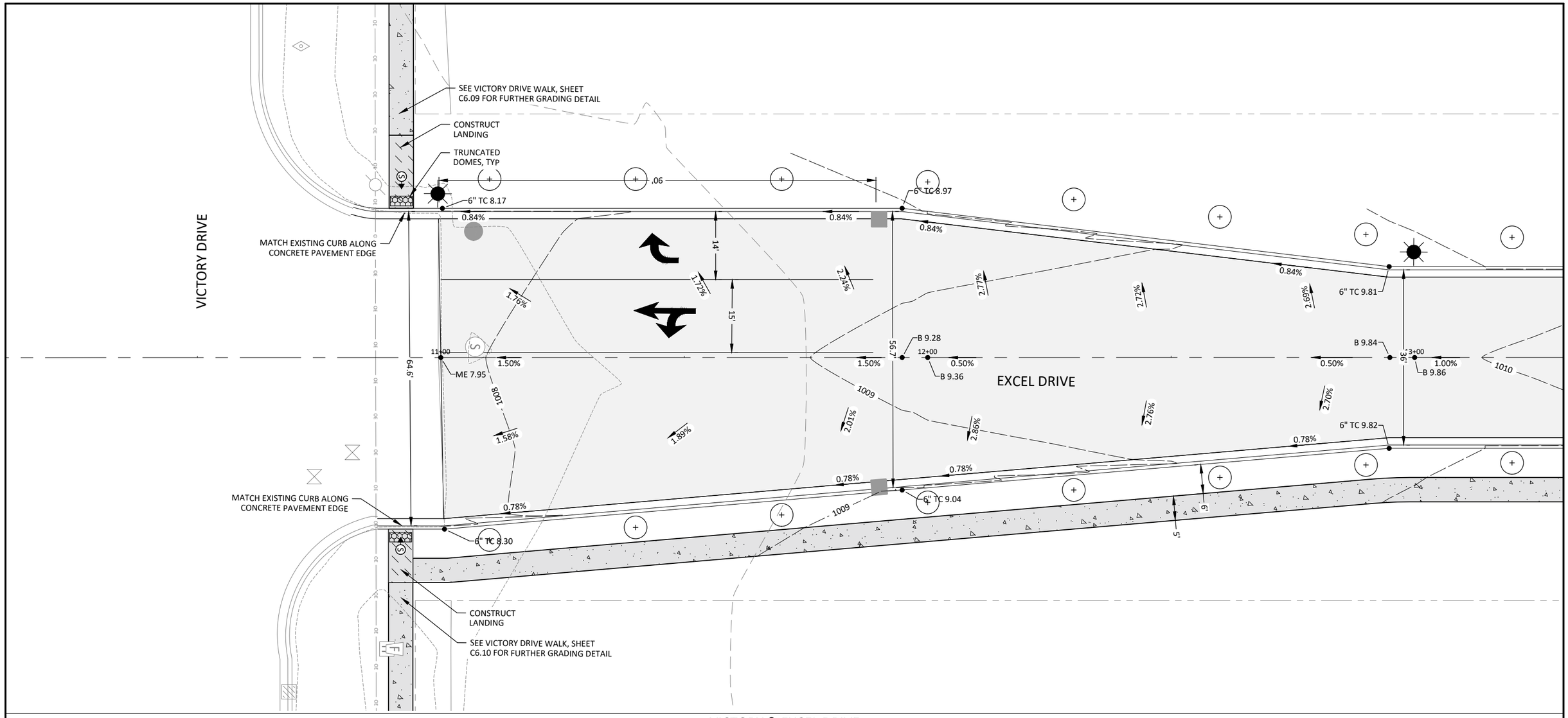

VICTORY & EXCEL DRIVE

PEDESTRIAN RAMP NOTES:

1. LANDING AREAS SHALL BE CONSTRUCTED SEPARATELY FROM RAMPS WITH MINIMUM DIMENSIONS OF 4' X 4' AND MAXIMUM SLOPE OF 2.0% IN ALL DIRECTIONS.
2. LANDINGS AND SIDEWALK BREAKLINE LOCATIONS ARE EXAMPLE AND ARE SUBJECT TO CHANGE IN THE FIELD.
3. SPOT ELEVATIONS INDICATED BY "6" TC" CAN BE SUBTRACTED BY 0.50' FOR THE 0" CURB HEIGHT.

▲ Ⓢ INDICATES PEDESTRIAN RAMP SLOPE EXPECTED TO BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

▲ Ⓕ INDICATES PEDESTRIAN RAMP SLOPE EXPECTED TO BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LEGEND	
B=	BITUMINOUS
ME=	MATCH EXISTING
6" TC=	6" HEIGHT CURB
GU=	GUTTER

HORZ. 0 10 20 SCALE FEET

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REVIEW ONLY

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
INTERSECTION DETAILS
VICTORY & EXCEL DRIVE

SHEET C6.07

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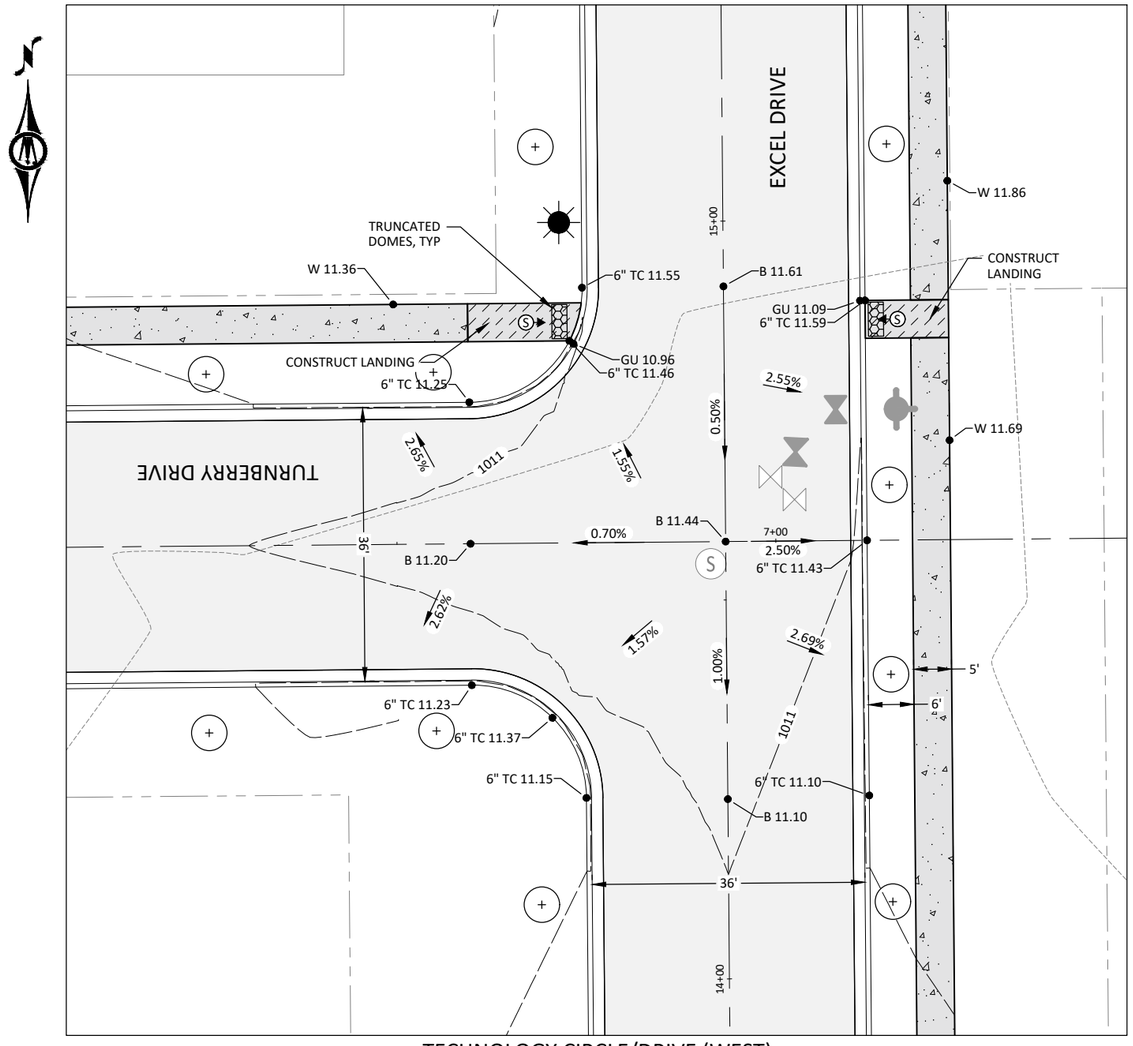
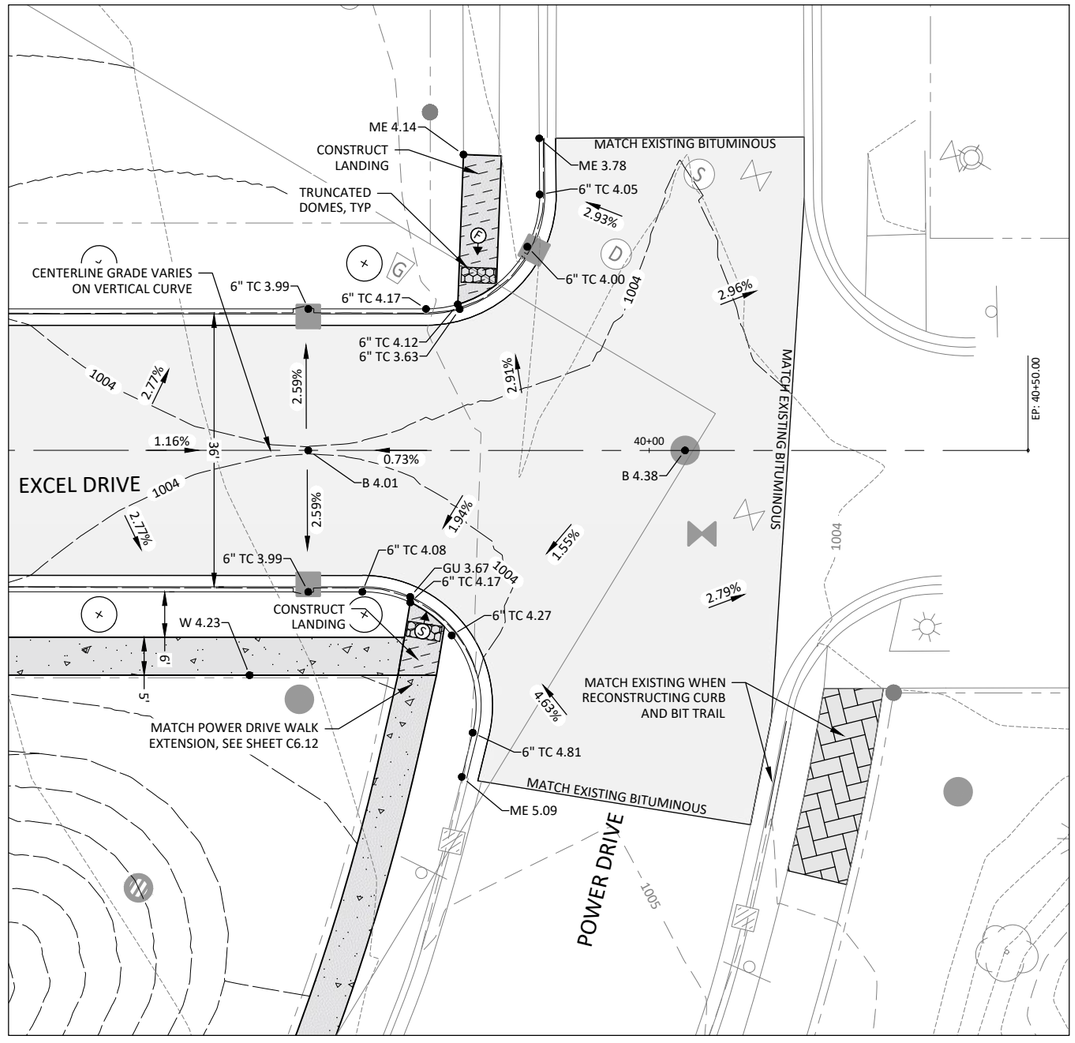


TECHNOLOGY CIRCLE/DRIVE (WEST)



PEDESTRIAN RAMP NOTES:

1. LANDING AREAS SHALL BE CONSTRUCTED SEPARATELY FROM RAMPS WITH MINIMUM DIMENSIONS OF 4' X 4' AND MAXIMUM SLOPE OF 2.0% IN ALL DIRECTIONS.
2. LANDINGS AND SIDEWALK BREAKLINE LOCATIONS ARE EXAMPLE AND ARE SUBJECT TO CHANGE IN THE FIELD.
3. SPOT ELEVATIONS INDICATED BY "6" TC" CAN BE SUBTRACTED BY 0.50' FOR THE 0" CURB HEIGHT.

▲ INDICATES PEDESTRIAN RAMP SLOPE EXPECTED TO BE BETWEEN 5.0% MINIMUM AND 8.3%
Ⓢ MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

▲ INDICATES PEDESTRIAN RAMP SLOPE EXPECTED TO BE GREATER THAN 2.0% AND LESS THAN 5.0% IN
Ⓕ THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LEGEND

B=	BITUMINOUS
ME=	MATCH EXISTING
6" TC=	6" HEIGHT CURB
GU=	GUTTER

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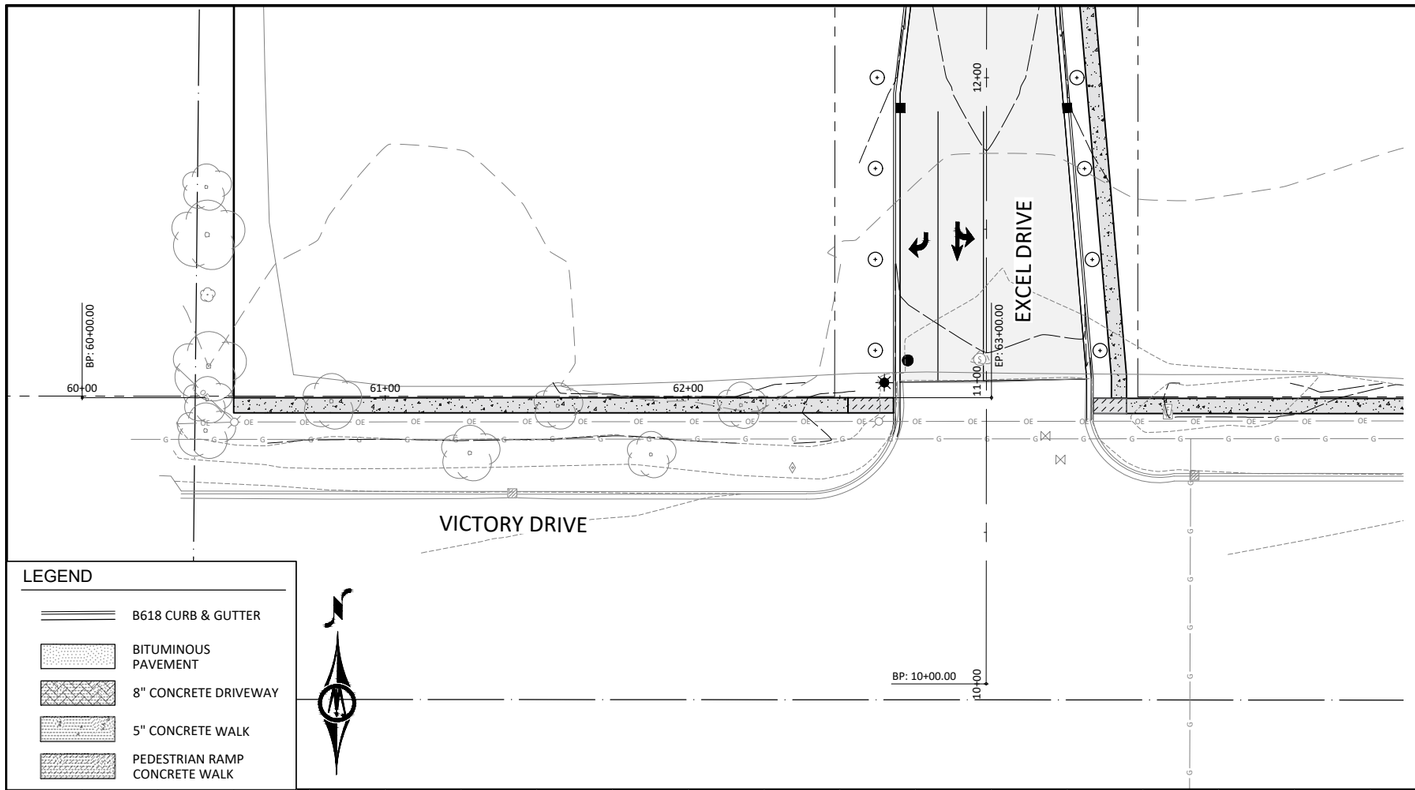
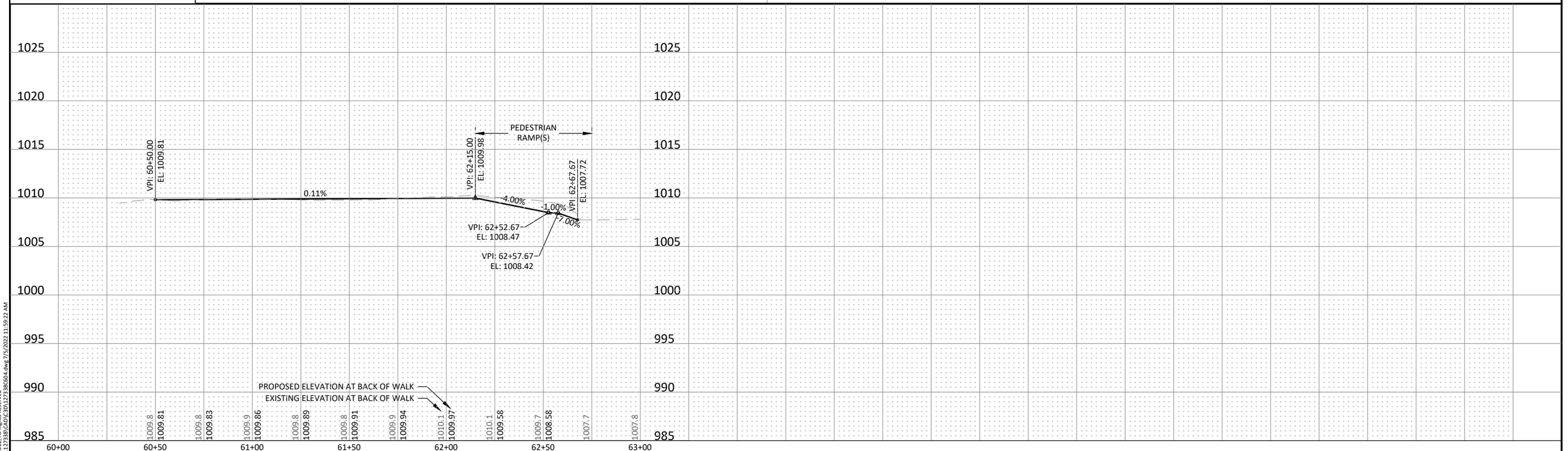
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
INTERSECTION DETAILS
TURNBERRY - EXCEL DRIVE & POWER - EXCEL DRIVE

SHEET C6.08





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VERT. SCALE 0 5 10 FEET

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DEMARS CONSTRUCTION

TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

SUBDIVISION SIDEWALK EXTENSIONS

VICTORY DRIVE (WEST OF EXCEL) - STA 60+00 TO 63+00

SHEET C6.09

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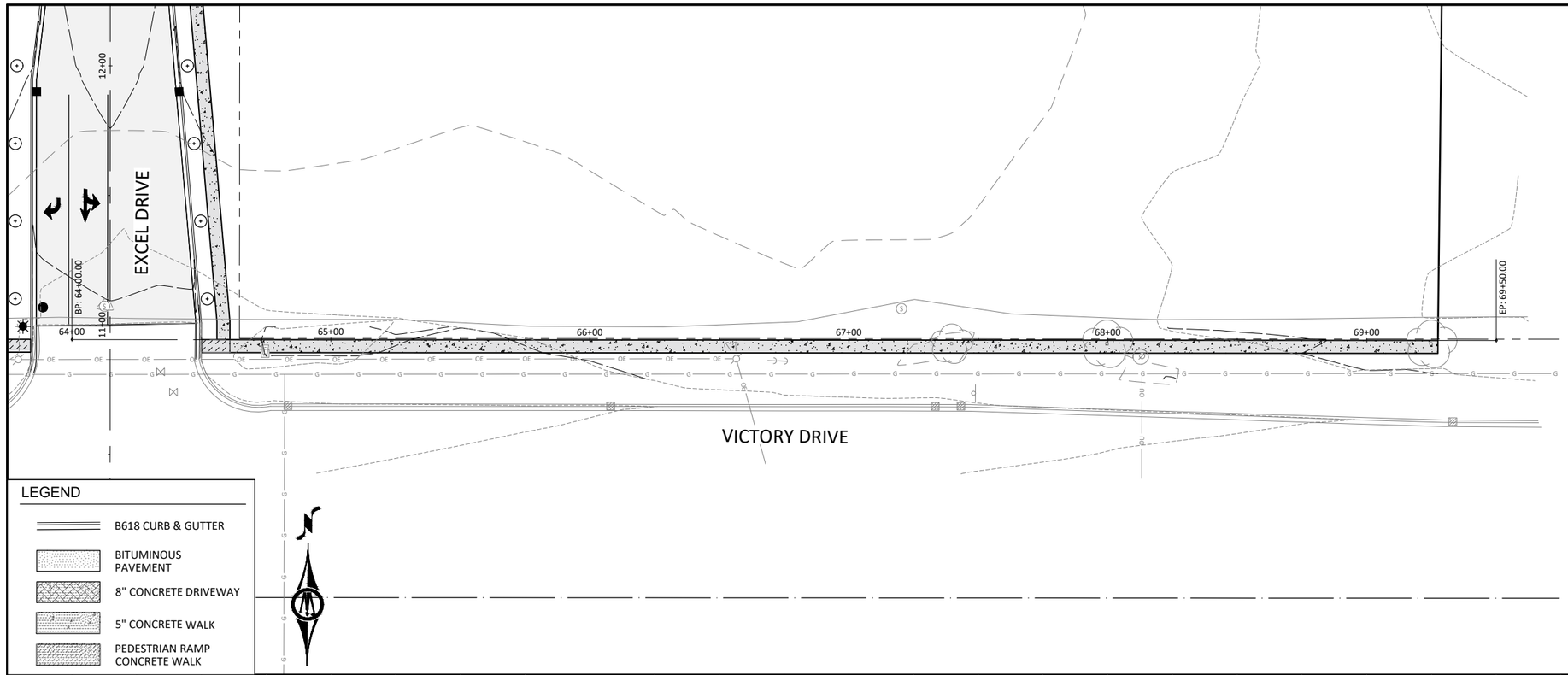

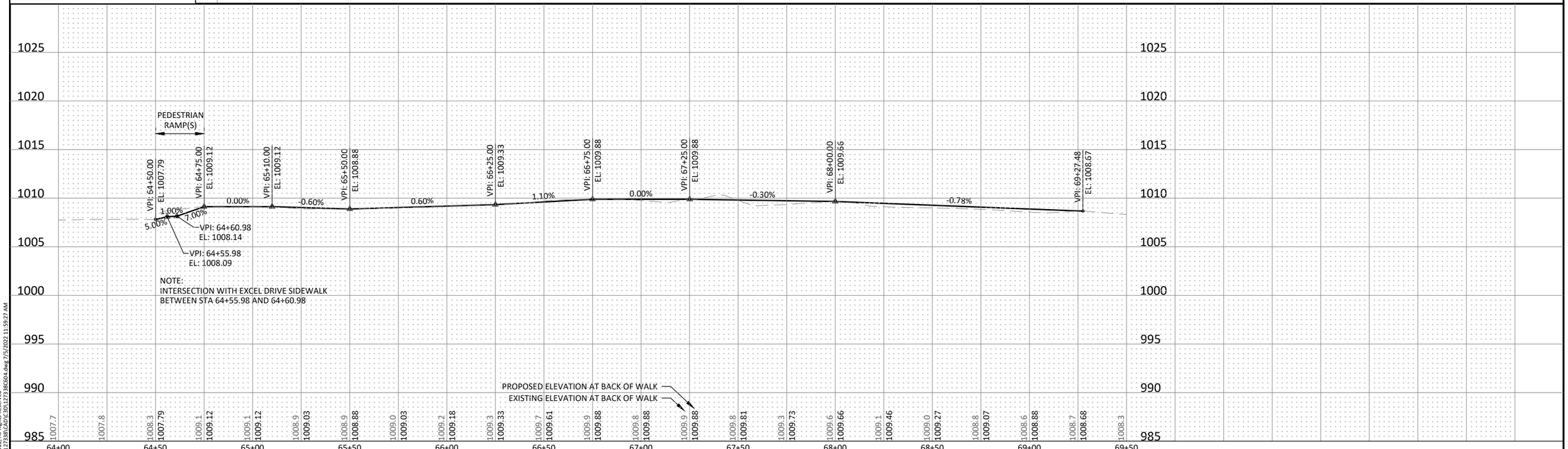

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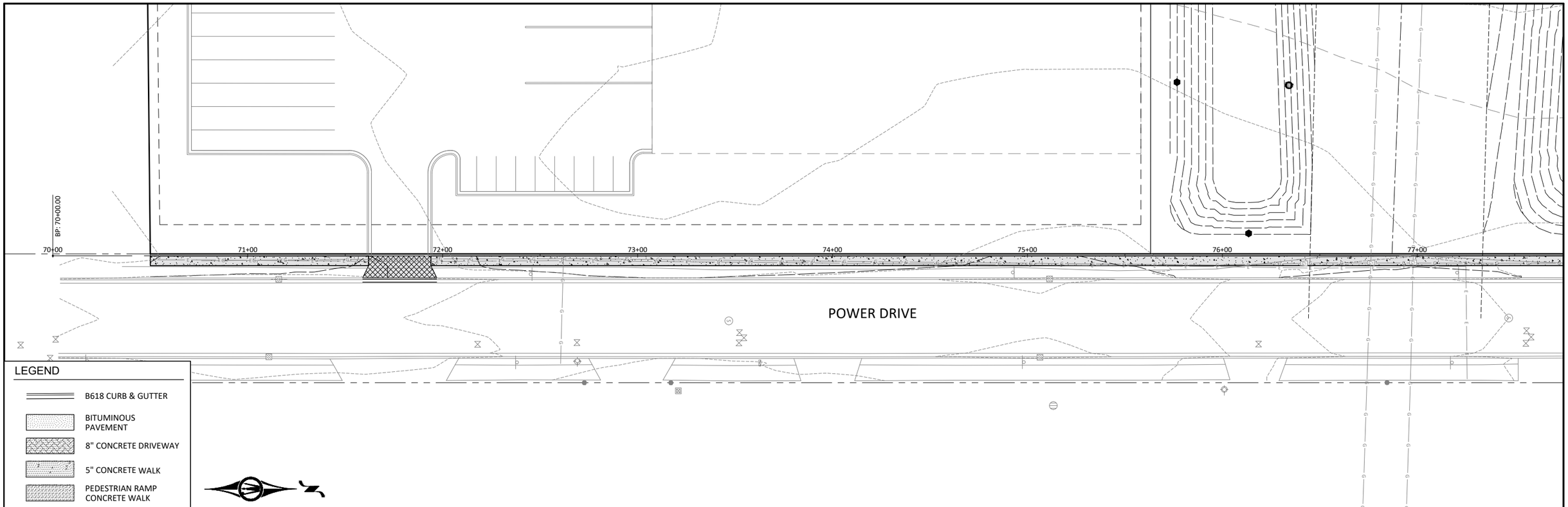
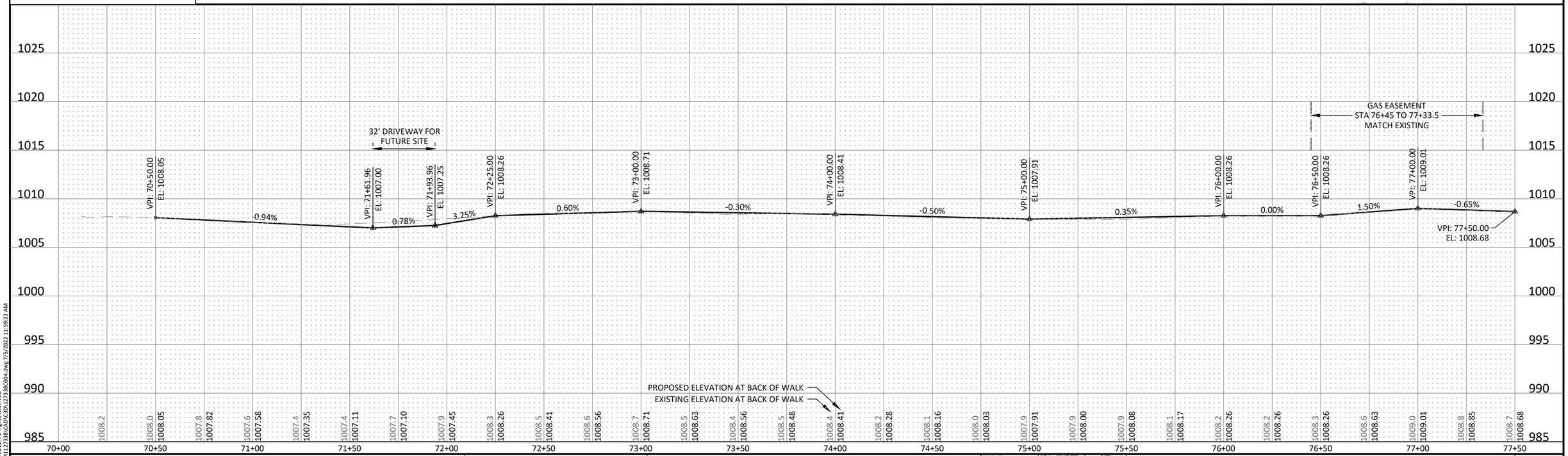
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
SUBDIVISION SIDEWALK EXTENSIONS
VICTORY DRIVE (EAST OF EXCEL) - STA 64+00 TO 69+50

SHEET C6.10





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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
SUBDIVISION SIDEWALK EXTENSIONS
POWER DRIVE - STA 70+00 TO 77+50

SHEET C6.11

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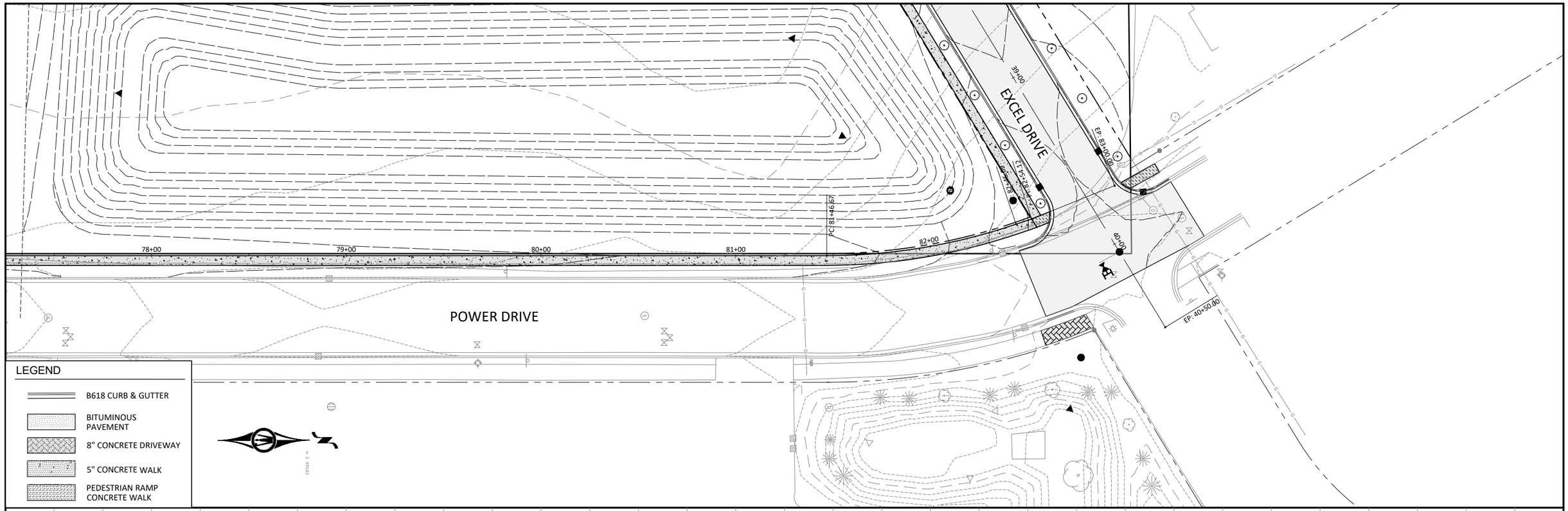

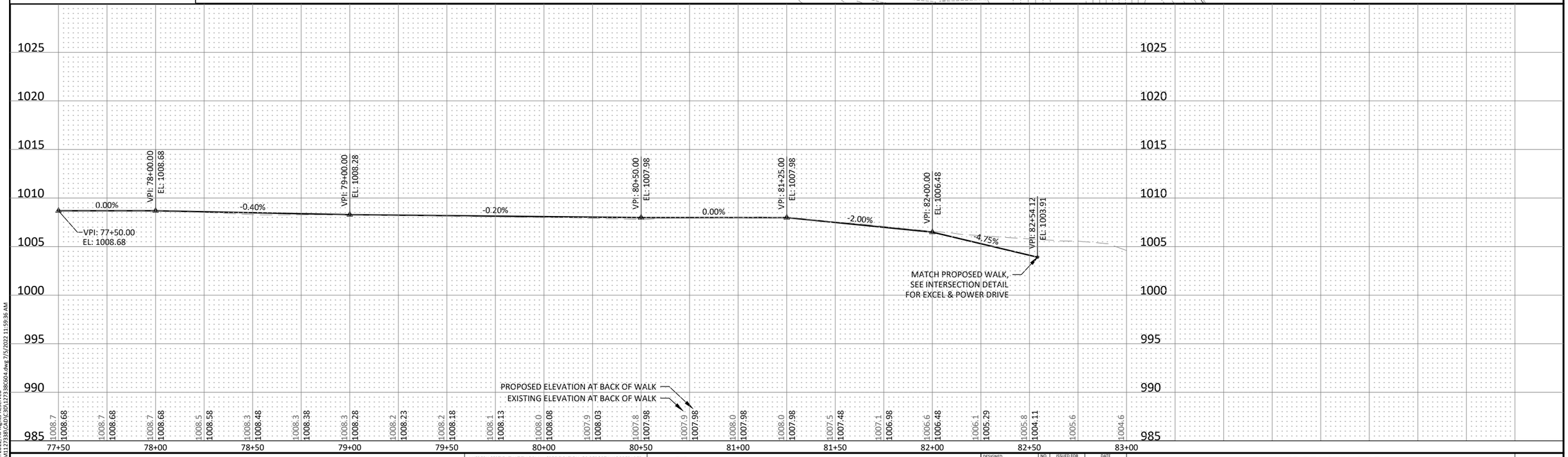

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DEMARS CONSTRUCTION

TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

SUBDIVISION SIDEWALK EXTENSIONS

POWER DRIVE - STA 77+50 TO 83+00

SHEET C6.12

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CONSTRUCTION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER FOR THE LIGHTING SYSTEM WITH XCEL ENERGY.
2. THIS PLAN SPECIFIES HANDHOLES AND CONDUIT, SIZE, TYPE, AND GENERAL LOCATIONS. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.
3. ALL CONDUIT SHALL BE TRENCHED UNLESS OTHERWISE NOTED IN THE PLAN.
4. ALL CONDUIT SHALL BE PVC SCHEDULE 80 OR APPROVED EQUAL AND SHALL CARRY 1-1/C #6 INSULATED GROUND, UNLESS OTHERWISE NOTED.
5. CONTRACTOR IS RESPONSIBLE FOR UTILIZING THE GOPHER ONE CALL EXCAVATION NOTICE SYSTEM FOR ALL UTILITY LOCATIONS.
6. SEE STREET LIGHTING SPECIFICATIONS FOR DETAILS OF THE EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
7. FOR ALL LIGHT FOUNDATION DESIGN SPECIAL LOCATIONS BEHIND CURB, OFFSET THE EDGE OF FOUNDATION A MINIMUM 1.5' FROM BACK OF CURB LINE UNLESS NOTED HEREON. CENTER LIGHTING FOUNDATION DESIGN SPECIALS WITH THE BOULEVARD. SEE FEED POINT TABLE FOR MORE SPECIFIC LOCATION INFORMATION.

LEGEND

- LIGHTING UNIT TYPE E
- [H] HANDHOLE
- CONDUIT

100"X75" CONCRETE PAD (6" THICK) FOR TRANSFORMER.
TRANSFORMER DETAIL/SPEC BY OTHERS.

VICTORY DRIVE

BP: 10+00.00

TURNBERRY DRIVE

6+00

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

EXCEL DRIVE

7+00

EP: 7+50.00

17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

PC: 20+15.29

PT: 21+32.08

PC: 23+43.51

EXCEL DRIVE

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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
LIGHTING PLAN

SHEET E1.01

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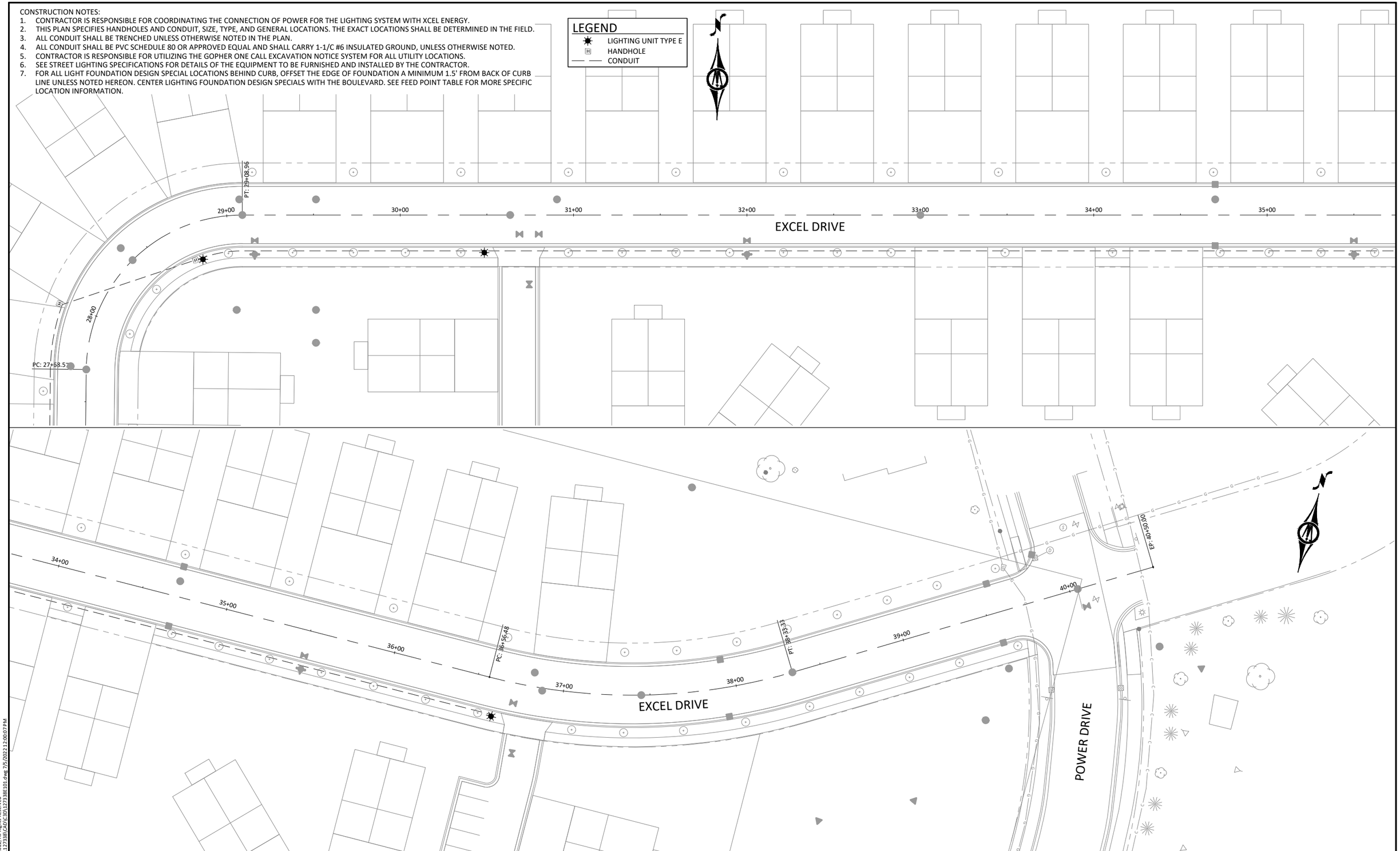
CONSTRUCTION NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF POWER FOR THE LIGHTING SYSTEM WITH XCEL ENERGY.
2. THIS PLAN SPECIFIES HANDHOLES AND CONDUIT, SIZE, TYPE, AND GENERAL LOCATIONS. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD.
3. ALL CONDUIT SHALL BE TRENCHED UNLESS OTHERWISE NOTED IN THE PLAN.
4. ALL CONDUIT SHALL BE PVC SCHEDULE 80 OR APPROVED EQUAL AND SHALL CARRY 1-1/C #6 INSULATED GROUND, UNLESS OTHERWISE NOTED.
5. CONTRACTOR IS RESPONSIBLE FOR UTILIZING THE GOPHER ONE CALL EXCAVATION NOTICE SYSTEM FOR ALL UTILITY LOCATIONS.
6. SEE STREET LIGHTING SPECIFICATIONS FOR DETAILS OF THE EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
7. FOR ALL LIGHT FOUNDATION DESIGN SPECIAL LOCATIONS BEHIND CURB, OFFSET THE EDGE OF FOUNDATION A MINIMUM 1.5' FROM BACK OF CURB LINE UNLESS NOTED HEREON. CENTER LIGHTING FOUNDATION DESIGN SPECIALS WITH THE BOULEVARD. SEE FEED POINT TABLE FOR MORE SPECIFIC LOCATION INFORMATION.

LEGEND

- LIGHTING UNIT TYPE E
- H HANDHOLE
- CONDUIT



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TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
LIGHTING PLAN

SHEET E1.02

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CONDUIT INSTALLATION

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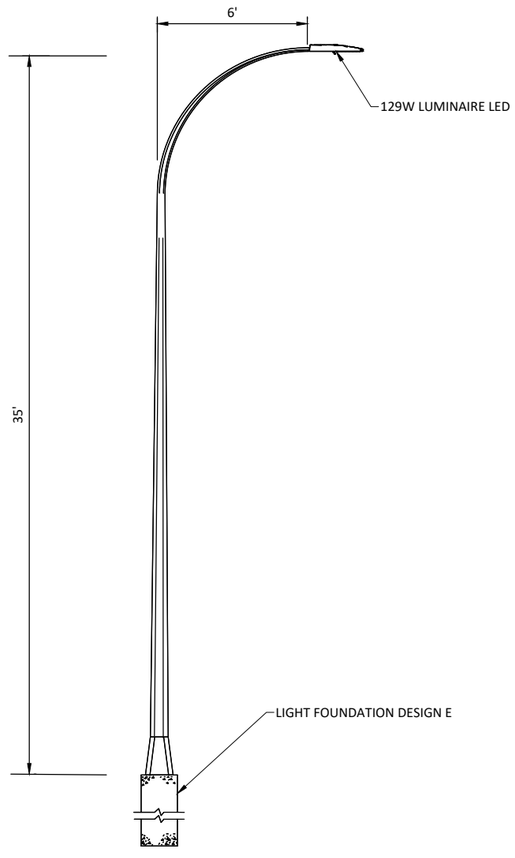
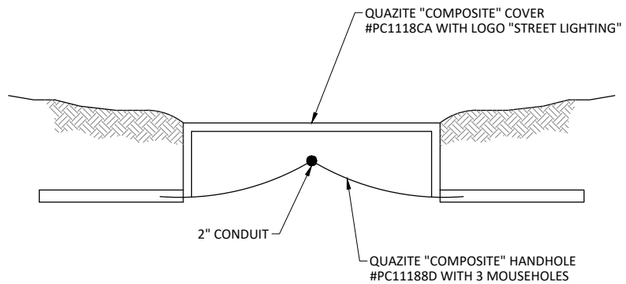


LIGHTING UNIT TYPE E

NOT TO SCALE



HANDHOLE

NOT TO SCALE

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DEMARS CONSTRUCTION

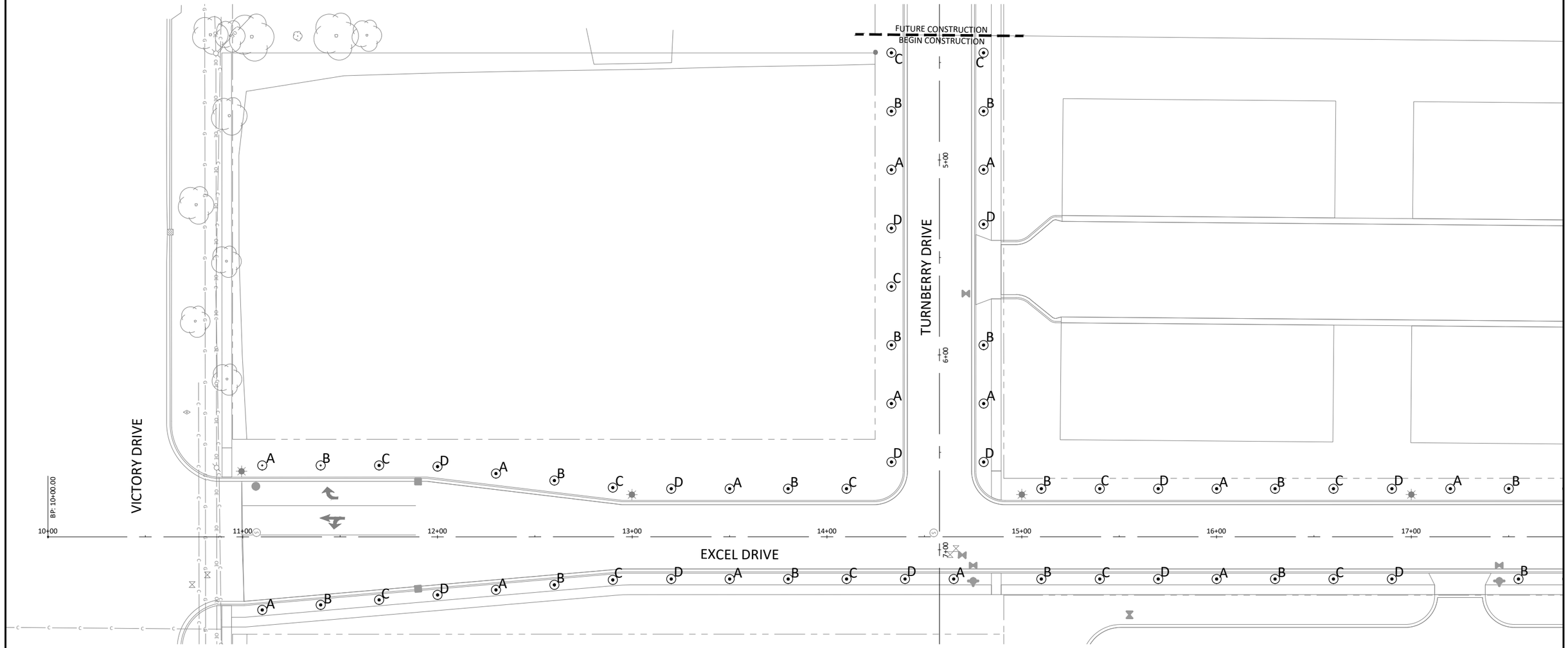
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

LIGHTING DETAILS

SHEET E1.03

LEGEND

- A BICOLOR OAK
- B DISCOVERY ELM
- C HACKBERRY
- D HONEY LOCUST



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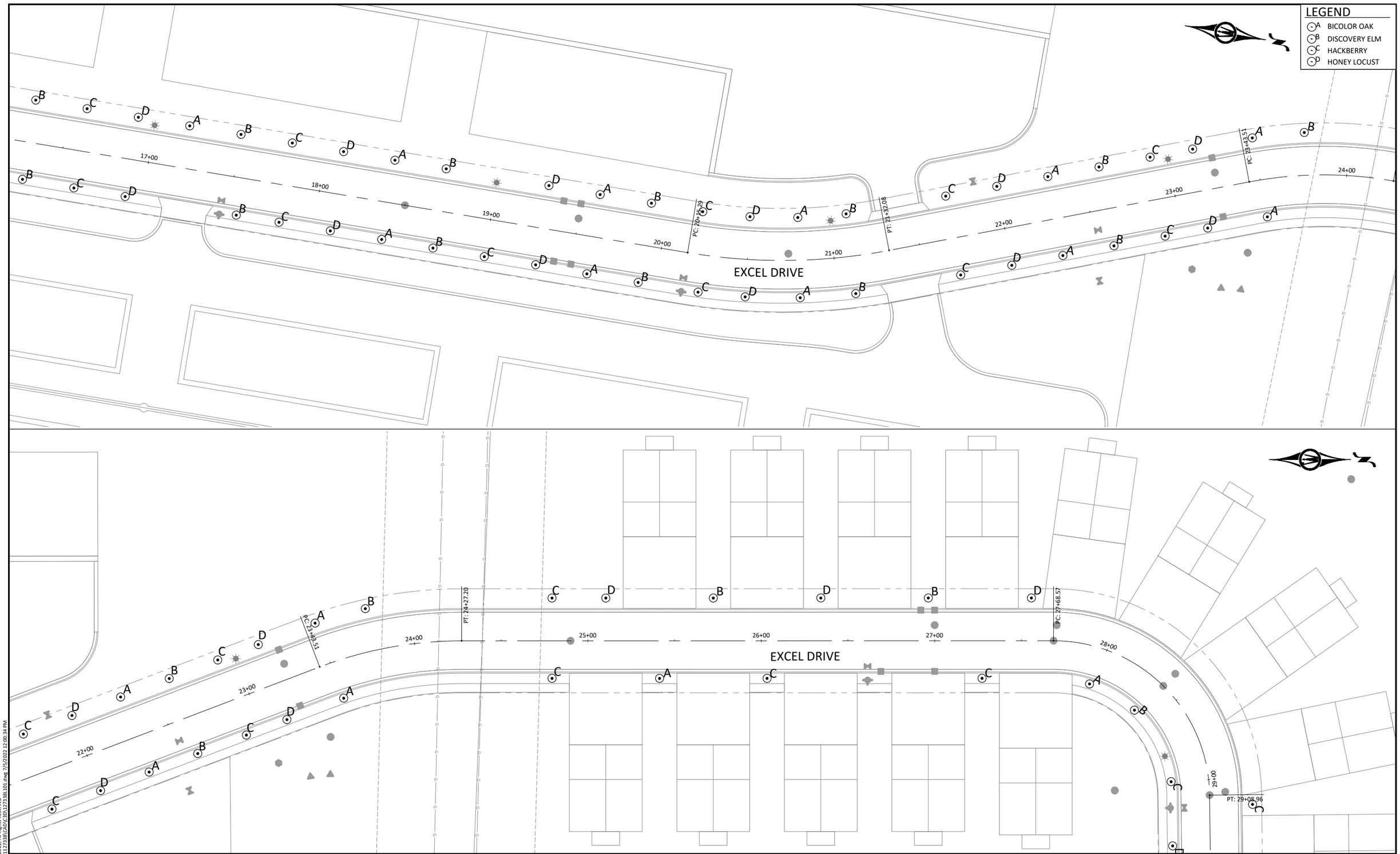
DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
TREE PLANTING PLAN

SHEET
L1.01



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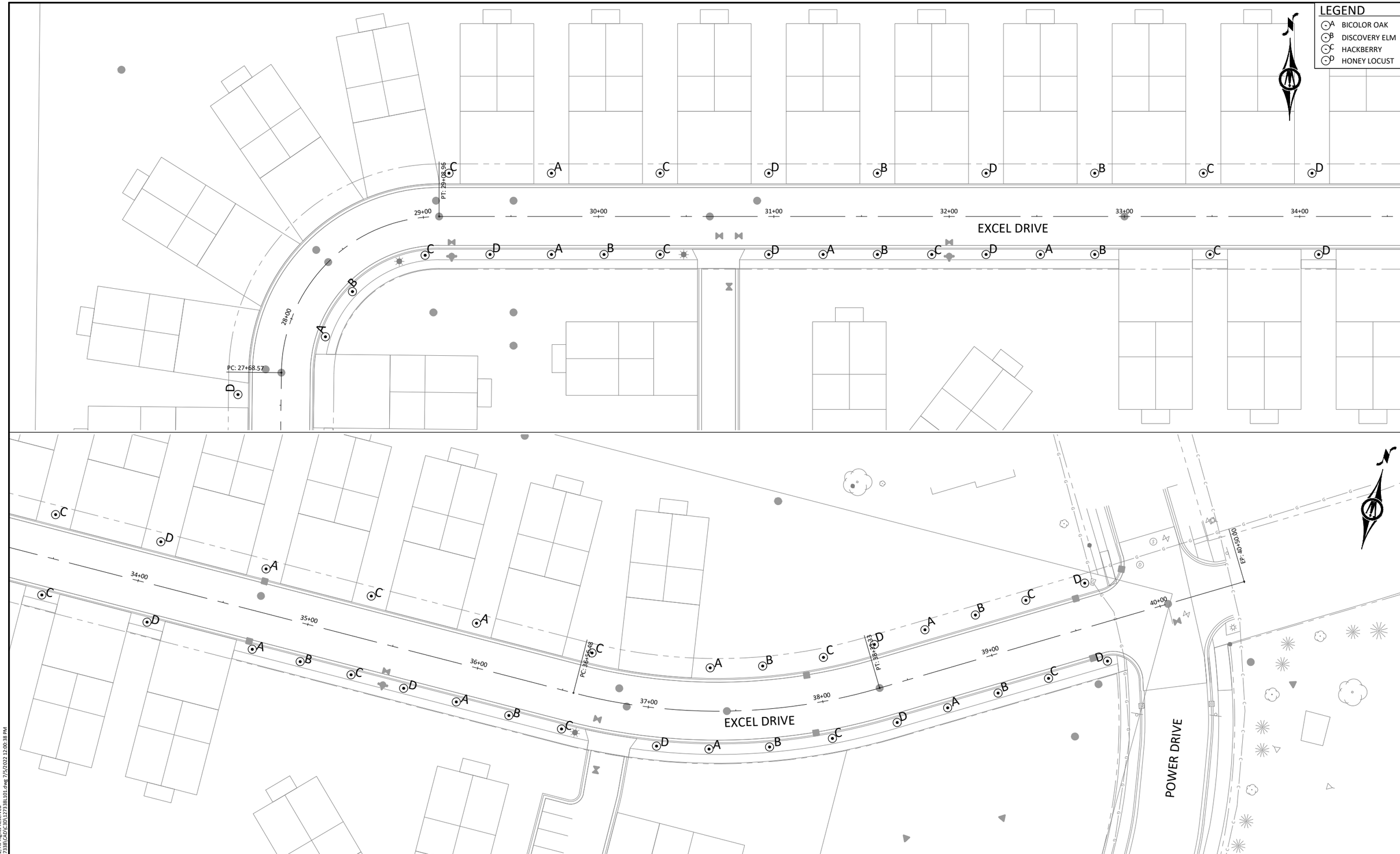
DEMARS CONSTRUCTION

TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

TREE PLANTING PLAN

SHEET L1.02



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DEMARS CONSTRUCTION
TURNBERRY DRIVE & EXCEL DRIVE EXTENSION
TREE PLANTING PLAN

SHEET L1.03

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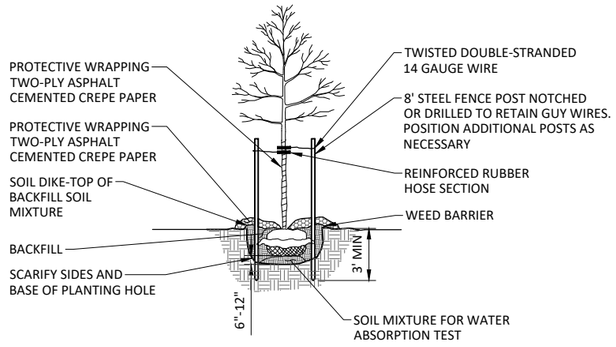
TREE PLANTING SCHEDULE TO BE
INCLUDED WITH FINAL PLANS

1. PROVIDE AND INSTALL HEALTHY PLANT MATERIALS THAT MEET ALL SPECIFICATIONS AND ARE OF THE SIZE, TYPE AND SPECIES NAMED ON THE PLANT SCHEDULE AND SHOWN ON THE PLANS.
2. DIG PLANT HOLE 1'-0" MINIMUM LARGER ON ALL SIDES THAN ROOT BALL.
3. PRIOR TO PLACING TREE, SCARIFY BOTTOM AND SIDES OF THE PLANTING HOLE.
4. TEST SOIL ABSORPTION. FILL HOLE PARTIALLY WITH SUPPLEMENTED SOIL MIXTURE, ADD WATER AND ALLOW TO PUDDLE AND SETTLE PRIOR TO SETTING TREE.
5. AFTER PUDDLING HAS SETTLED, SET TREE AND BACK FILL WITH SUPPLEMENTED SOIL MIXTURE.
6. WATER THOROUGHLY AND ADD BACK FILL AS NEEDED AFTER MOISTURE IS ABSORBED.
7. BUILD SOIL DIKE AROUND PERIPHERY OF TREE TO HOLD WATER.
8. AFTER SETTLEMENT, MULCH WITH MINIMUM 4" LAYER SHREDDED BARK, WOOD CHIPS OR AS OTHERWISE SPECIFIED. DO NOT MULCH UP AGAINST THE TRUNK.
9. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF THE TREE.



DECIDUOUS TREE PLANTING

NOT TO SCALE

BAG & BALL PLANTING NOTE:

1. REMOVE WRAPPING AND ALL TIES OR STRAPS. IF ROOT BALL IS WRAPPED IN BURLAP THE LOWER ½ PORTION OF THE FABRIC MAY BE LEFT AT THE BOTTOM OF THE HOLE. SYNTHETIC WRAP MUST BE REMOVED AND PROPERLY DISPOSED.
2. LOOSEN ROOTS TO ENSURE THEY ARE NOT GIRDLING THE ROOT BALL.
3. SALVAGE AND REUSE ALL SOIL THAT CAME WITH THE ROOT BALL.
4. IF ROOT BALL IS EXTREMELY DRY WATER IT PRIOR TO PLACING IT IN THE HOLE.
5. IF TREE IS CONTAINER GROWN, SALVAGE ALL SOIL AND MIX WITH SUPPLEMENTED SOIL FOR BACK FILL.

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

REVIEW ONLY

ALEC W. PIETZ, P.E.
LIC. NO. 59617 DATE XX/XX/XXXX

BOLTON & MENK

1960 PREMIER DRIVE
MANKATO, MINNESOTA 56001
Phone: (507) 625-4171
Email: Mankato@bolton-menk.com
www.bolton-menk.com

DESIGNED	NO.	ISSUED FOR	DATE
AWP			
DRAWN AWP			
CHECKED MS			
CLIENT PROJ. NO. 0M1.127338			

DEMARS CONSTRUCTION

TURNBERRY DRIVE & EXCEL DRIVE EXTENSION

TREE PLANTING DETAILS

SHEET L1.04

Transaction Form to Withdraw Credits

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Bank Program

If the layout of this form looks incorrect, click on *View, Edit Document*, then save it to your computer.

1. Credit User		*This space for BWSR use only.*
Name: Max DeMars Company President	**Organization:** DeMars Construction	
Address: 3 Civic Center Plaza Mankato, MN 56001	**Email:** max@demarsgc.com	
Phone: (507) 387-5933	**LGU File #:**	
Consultant: Chad Ponce, Bolton & Menk, Inc., chad.ponce@bolton-menk.com		

2. Wetland Impact Information

To be completed for the project impacting wetlands and with which this withdrawal is intended to replace.

Project Name: Wolfe Addition #2	**Impact Size (acres):** 0.70 ac
Impact County: Blue Earth	**Impact Wetland type:** Type 1 and 2
Impact Major Watershed/BSA: 28 / 9	**Replacement Ratio:** 2:1

Sec/Twp/Range: Sec 3, T108N, R26W

*Projects with multiple locations should use the most central location in relation to the project as a whole.

Are Federally authorized credits required for this impact? Yes **No**

Corps Regulatory File Number: MVP-2015-04603-RMH

Comments:

3. Credits to be Withdrawn To be completed by the seller of the credits (account holder)

Account Information

Account: 1651 **County:** Nicolett **Bank Service Area:** 9

Credit Subgroup	Wetland Type/Plant Community Type	Federally Approved?	Cost per Credit	Credit Amounts
A	2-Fresh Wet Meadow	Yes	60,000	1.40

Per Credit Withdrawal Fee by BSA

BSA 1	$520	BSA 6	$1,083
BSA 2	$371	BSA 7	$1,992
BSA 3	$725	BSA 8	$2,577
BSA 4	$1,412	BSA 9	$2,628
BSA 5	$685	BSA 10	$3,099

Enter the Withdrawal Fee for the BSA of the account: 2628

Easement Stewardship Fee: $302

Total Credits:	1.40
(Withdrawal Fee x total credits)	
Withdrawal Fee:	$3,679.20
(Easement Stewardship fee x total credits)	
Stewardship Fee:	$422.80
Total Fees:	$4,102

Please make checks payable to the Minnesota Board of Water and Soil Resources. BWSR does not accept cash.

BWSR fee policy: http://www.bwsr.state.mn.us/wetlands/wetlandbanking/fee_and_sales_data/Wetland_Banking_Fee_Policy_Effective_June1_2017.pdf

Disclaimer: All transactions in the Wetland Bank system are public information

Transaction Form to Withdraw Credits

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Bank Program

If the layout of this form looks incorrect, click on *View, Edit Document*, then save it to your computer.

Project Name: Wolfe Addition No. 2

Confirmation email will be emailed to the user, seller, and regulatory representative when the transaction is complete. If anyone else should be notified please indicated their emails below:

_____ _____

4. Regulatory Authorization

By signing below, the identified agency and authorized representative hereby certifies that they have: a) verified that the subject wetland credits are deposited in the account of the owner/seller, **b)** approved a wetland replacement plan or similar agreement under their jurisdiction, and **c)** approve the proposed use of the wetland bank credit described above.

WCA LGU/Agency: LGU Representative:

Email Address:

Signature 10/13/22 Date

For NRCS, DNR, etc. as applicable

Agency Name and Location: Representative:

Email Address:

Signature Date

5. Credit User Signature

By signing below the proposed credit user attests that he/she owns or has purchased the credits identified in this form and has received approval from the regulatory authority(ies).

Signature Date

6. Account Holder Signature

By signing below I, the seller and holder of the aforementioned account in the State of Minnesota Wetland Mitigation Bank, certify that:

1) The credits described in this transaction form have been sold to the credit user or will be used for my own project;
2) I have received payment in full from the buyer (if applicable);
3) The credits described in this transaction form have not been sold or used in any way to mitigate wetland losses other than for the project and location identified in the wetland impact information block on the previous page;
4) The credits described in this application should be withdrawn from my account; and
5) I will not have a negative balance of credits after the subject credits are debited from my account.

Name/Representative: Email Address:

Signature _____ Date _____

Send complete forms and fee payments to:
Wetland Bank Administration
Minnesota Board of Water and Soil Resources
520 Lafayette Road North
Saint Paul, MN 55155

Disclaimer: All transactions in the Wetland Bank system are public information

8/5/2026

RE: Spirits at Rest Proposed Mankato Campus

Dear Neighbor:

We'd like you to be a part of our initiative to help make Mankato and Blue Earth County a healthier and safer community through your feedback and community guidance. Spirits at Rest invites you to attend a community open house regarding its proposed licensed residential substance use disorder treatment facility at 50 Power Drive in Mankato. The project is being reviewed through the City of Mankato's Conditional Use Permit process.

Date: Monday, August 24, 2026
Time: 6:30 p.m. - 8:00 p.m.
Location: Caledonia Community Center
600 Hope Street
Mankato, Minnesota 56001

Representatives from Spirits at Rest and the project team will provide information about:

- The organization's mission and treatment program
- Proposed building and site plans
- Daily operations, staffing, safety, and security
- Traffic, parking, and neighborhood compatibility
- The City's review and approval process

Attendees will have an opportunity to ask questions, provide feedback, and speak directly with members of the project team. Project information, including plans and frequently asked questions, will also be available at www.spiritsatrest.com on the Mankato Project Page.

We value an open and transparent process and appreciate the opportunity to share information and hear from our neighbors.

Sincerely,

Jeremy Gerres, Founder
952.303.9585
jeremy@spiritsatrest.com

Site Plan and Traffic Advisory Review Committee **1. 5.**

Meeting Date: 08/11/2026

Title

CY39-26

Request of Bolton and Menk, on behalf of the property owner, for a preliminary and final plat review of Ironwood Estates No. 2. The subject properties are described as Lot 2, Lot 3 and Lot 4, Block 1, Ironwood Estates (Blue Earth County PID R010930301021 and R010930301024).

Applicant

Bolton and Menk, on behalf of the applicant.

Request

The applicant is requesting a preliminary and final plat review of Ironwood Estates No. 2.

Location

Subject properties are described as Lot 2, Lot 3 and Lot 4, Block 1, Ironwood Estates (Blue Earth County PID R010930301021 and R010930301024)(1004 Applewood Ct & 1008 Applewood Ct).

Existing Land Use

The property's current land use is Low Density Residential. A single-family home is present at the address of 1004 Applewood Ct.

Zoning

The subject properties are zoned R-1, A One-Family-Dwelling District.

Environmentally Sensitive Areas

The site contains wooded areas as well as Ravine Slope's (area exceeding 17.6% slope).
Applicant has not yet provided wetland information at this time.

Public Utilities

The existing dwelling is currently served by public utilities. Utilities services are available at the site within Applewood Court.

City Code

Mankato City Code Chapter 10, Article II, Division 3 provides the R-1 One-Family Dwelling District standards:
https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=PTIICOOR_CH10LAUSDE_ARTIIREDI_DIV3OMIDWDI

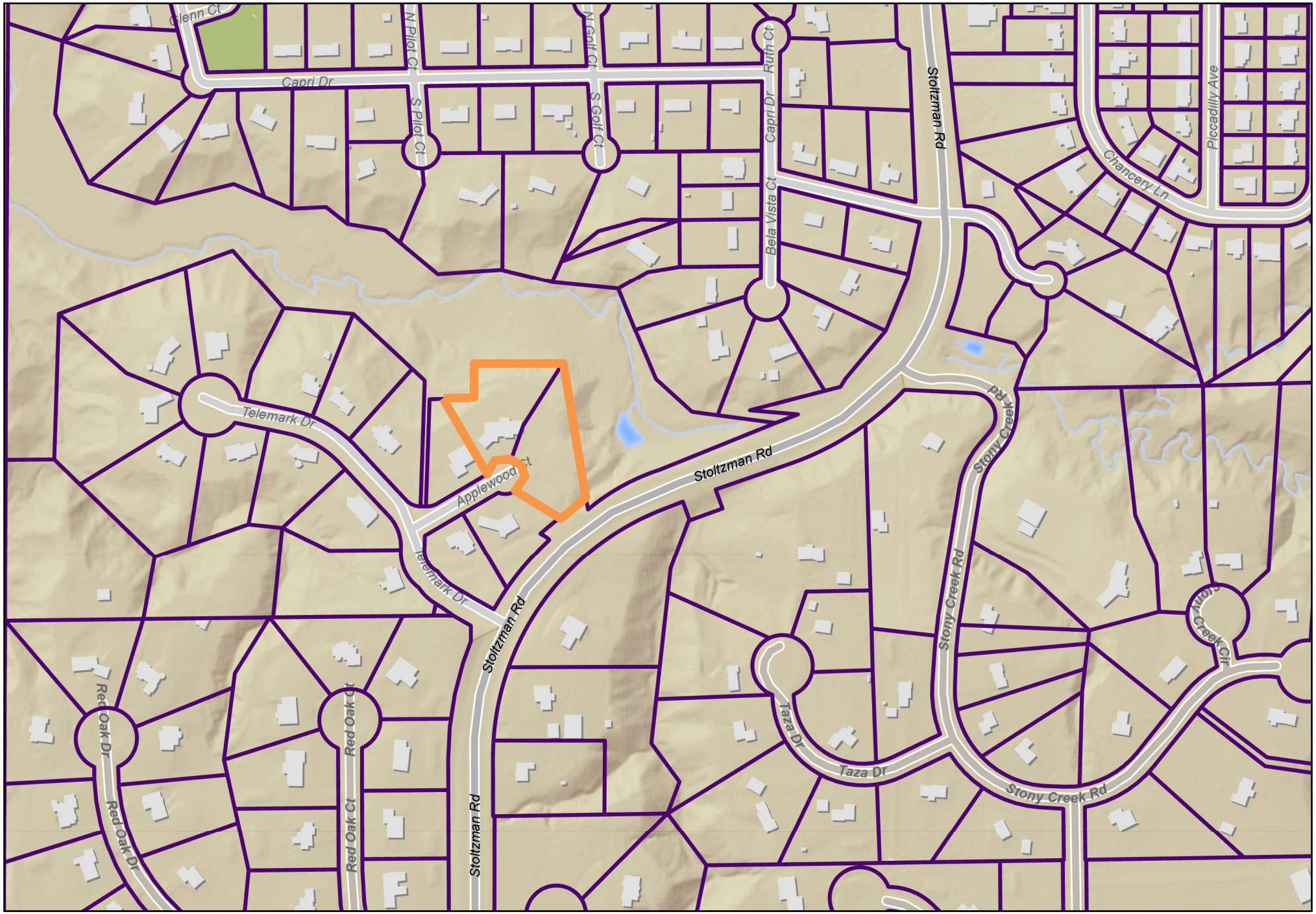
Review

The applicant is requesting a preliminary and final plat review of Ironwood Estates No. 2. Due to the lots previously containing a minor lot split, a plat is required to adjust property lines. In this case, the applicant seeks to adjust the property line between Lots 1 and 2, which are addressed as 1004 and 1008 Applewood Court. The adjustment makes Lot 1 approximately 5,998 square feet larger.
Applicant has not stated any intention to modify the existing condition of the subject properties in coordination with this replat.

Attachments

General Location Map
Aerial
Preliminary Plat
Preliminary Plat W/ Basemap
final plat
final plat w/ Basemap
final plat w/Basemap with highlighted change
Ironwood Estates old final plans

General Location Map



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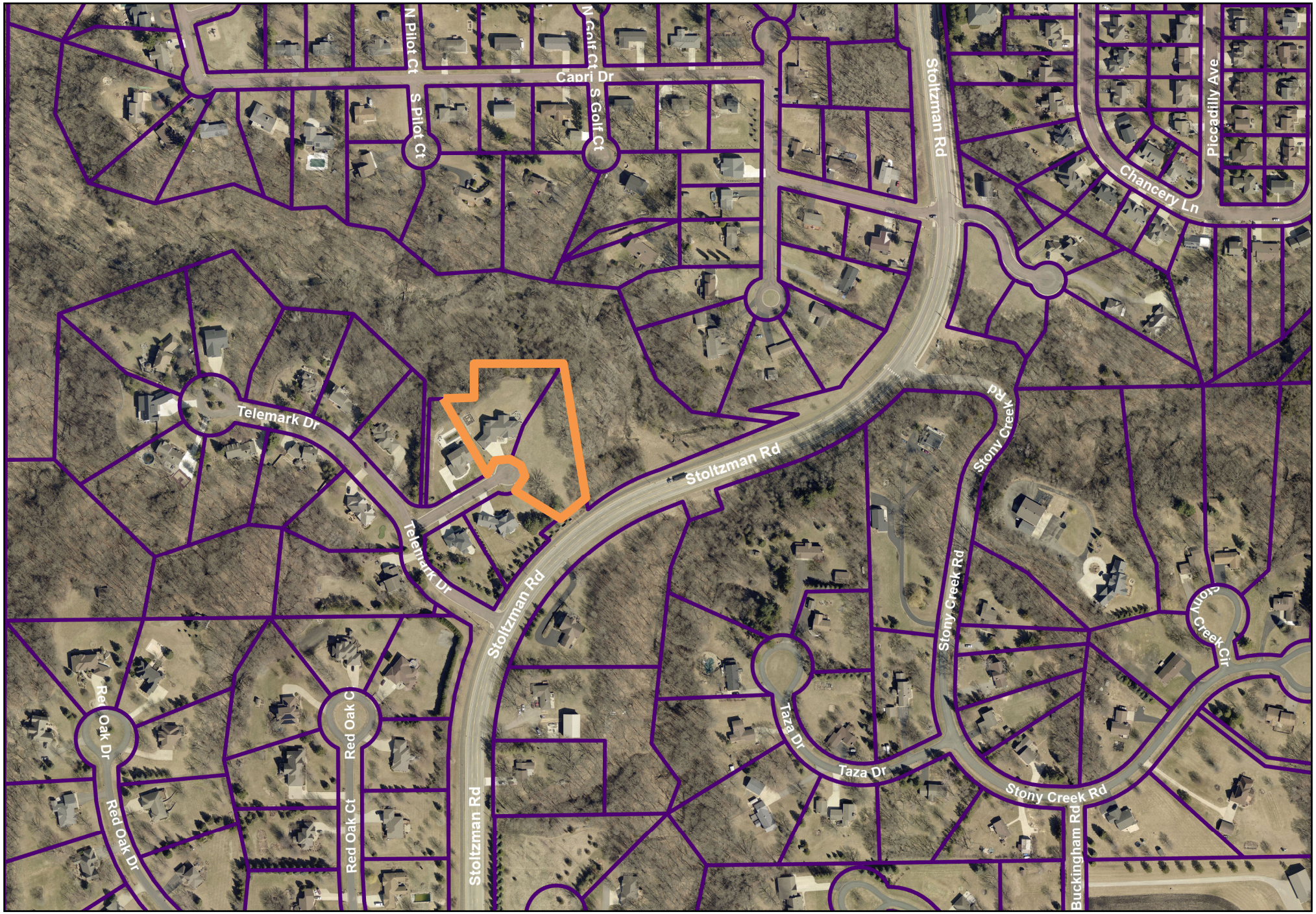
This information is to be used for reference purposes only. The City of Mankato does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation.

Produced by: City of Mankato GIS
Published: August 4, 2026

City of Mankato
Leading the way...

Aerial Map



N W E S

0 0.1 0.2 0.4 mi

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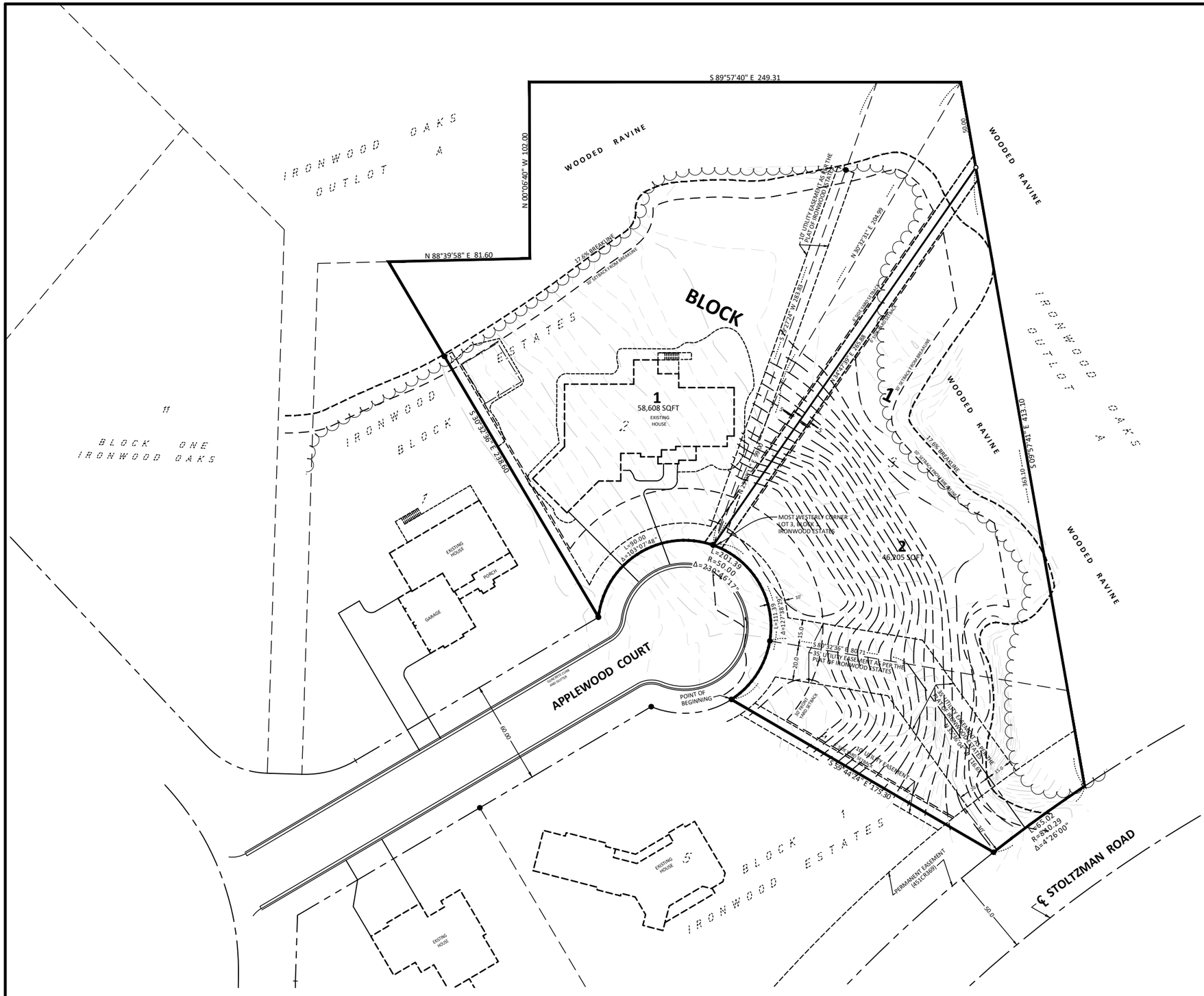
City of Mankato — Leading the way...



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SCALE IN FEET

LEGEND

- 3/4" IRON PIPE MONUMENT SET MARKED BY LIC. NO. 46564
- MONUMENT FOUND

LOT LINES — DRAINAGE & UTILITY EASEMENT LINES — RIGHT-OF-WAY LINE

BEING 5 FEET IN WIDTH AND ADJOINING LOT LINES AND BEING 10 FEET IN WIDTH AND ADJOINING RIGHT-OF-WAY LINES, UNLESS OTHERWISE INDICATED ON THE PLAT.

UTILITY & SITE DATA

All Zoning and Setback information was obtained from the City of Mankato Code. For detailed zoning information and specific interpretation of code requirements, contact the City of Mankato.

ZONING:
Current zone is R-1, One-Family Dwelling District

SETBACKS:
Front
Main and Accessory Building 30 feet

Side
Main and Accessory Buildings 6 feet

Rear
Main and Accessory Building 25 feet

Bluff
Main and Accessory Building 10 feet (from the 18% slope)

Lot Area (minimum) = 7,000 sq.ft. (one- family)
Lot Width (minimum) = 60 feet (one- and two-family)
Maximum Ground Coverage = 30% by all structures
Maximum Building Height = 35 feet

LEGAL DESCRIPTION

Lot 2 and that part of Lot 3, all in Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies westerly and northwesterly of the following described line:

Beginning at the most westerly corner of said Lot 3 (the westerly line of said Lot 3 which bears North 19 degrees 27 minutes 24 seconds East, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence North 23 degrees 08 minutes 11 seconds East, a distance of 99.00 feet; thence North 30 degrees 32 minutes 31 seconds East, a distance of 204.99 feet to the northeasterly corner of said Lot 3 and there terminating.

AND Mark Deichman and Candee Deichman, husband and wife, owners of the following described property to wit:

All that part of Lot 3, Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies easterly and southeasterly of the following described line:

Beginning at the most westerly corner of said Lot 3 (the westerly line of said Lot 3 which bears North 19 degrees 27 minutes 24 seconds East, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence North 23 degrees 08 minutes 11 seconds East, a distance of 99.00 feet; thence North 30 degrees 32 minutes 31 seconds East, a distance of 204.99 feet to the northeasterly corner of said Lot 3 and there terminating.

AND

All that part of Lot 4, Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies northeasterly of the following described line:

Commencing at the most westerly corner of said Lot 4 (the westerly line of said Lot 4 which bears North 30 degrees 32 minutes 36 seconds West, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence easterly, along the northerly line of said Lot 4, a distance of 48.42 feet along a circular curve having a radius of 50.00 feet, a central angle of 55 degrees 29 minutes 20 seconds to the point of beginning; thence South 59 degrees 44 minutes 24 seconds East, a distance of 175.30 feet to a point on the southeasterly line of said Lot 4 and there terminating.

Parcel A contains 52,193 square feet.

Containing 2.41 acres.

SURVEYOR'S CERTIFICATION

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael M. Eichers
License Number 46564

07/27/2026
Date

IRONWOOD ESTATES NO. 2

PRELIMINARY PLAT
MANKATO, MINNESOTA

LOTS 2, 3, AND PART OF 4, BLOCK 1, IRONWOOD ESTATES

BOLTON & MENK
1960 Premier Drive
Mankato, MN 56001
Phone: (507) 625-4171

FOR: KARI L. PRATT TRUST
MARK & CANDEE DEICHMAN

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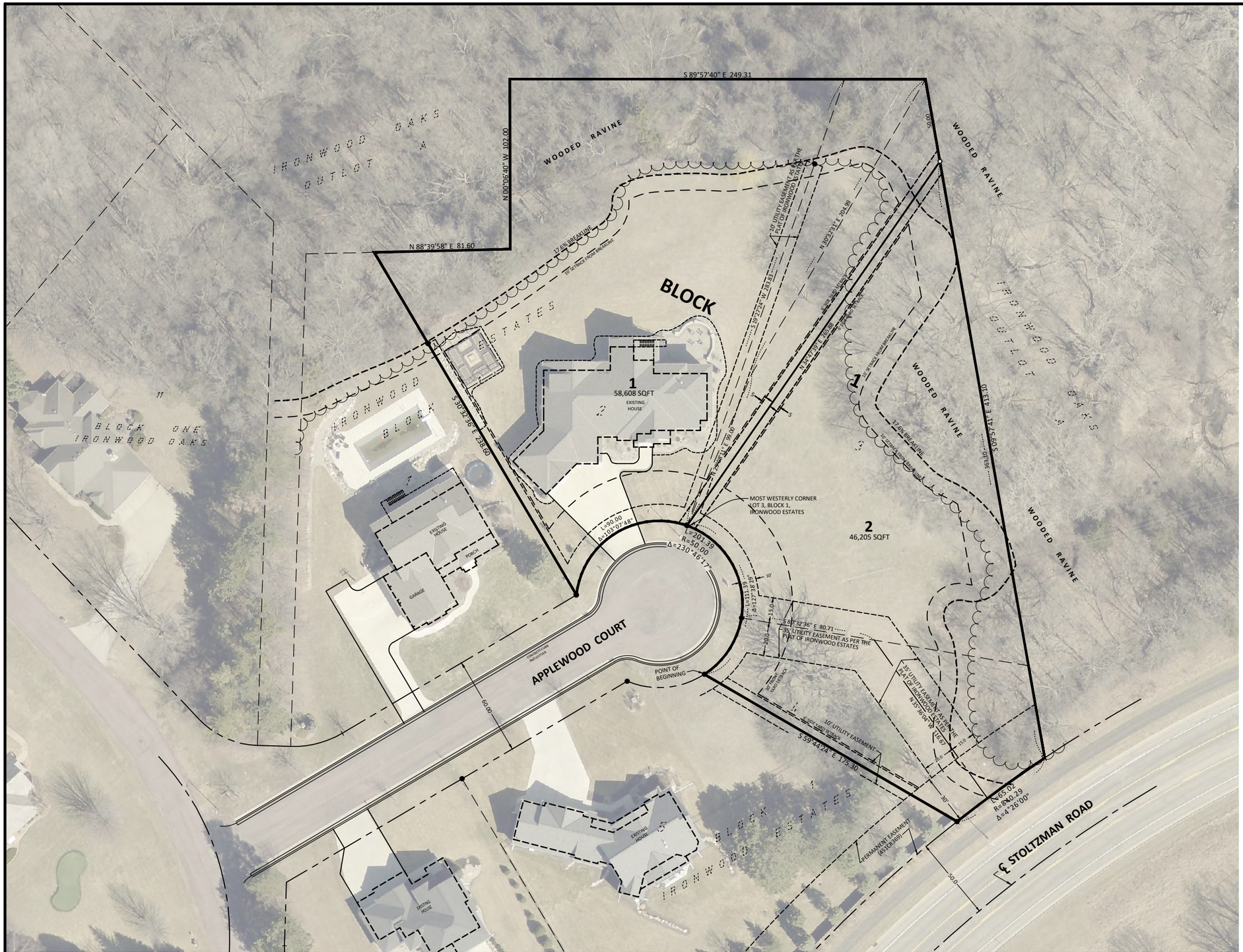
JOB NUMBER: FIELD BOOK: DRAWN BY:



LEGEND

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LOT LINES — DRAINAGE & UTILITY EASEMENT LINES — RIGHT-OF-WAY LINE

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UTILITY & SITE DATA

All Zoning and Setback information was obtained from the City of Mankato Code. For detailed zoning information and specific interpretation of code requirements, contact the City of Mankato.

ZONING:
Current zone is R-1, One-Family Dwelling District

SETBACKS:
Front
Main and Accessory Building 30 feet

Side
Main and Accessory Buildings 6 feet

Rear
Main and Accessory Building 25 feet

Bluff
Main and Accessory Building 10 feet (from the 18% slope)

Lot Area (minimum) = 7,000 sq.ft. (one- family)
Lot Width (minimum) = 60 feet (one- and two-family)
Maximum Ground Coverage = 30% by all structures
Maximum Building Height = 35 feet

LEGAL DESCRIPTION

Lot 2 and that part of Lot 3, all in Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies westerly and northwesterly of the following described line:

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AND

All that part of Lot 4, Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies northeasterly of the following described line:

Commencing at the most westerly corner of said Lot 4 (the westerly line of said Lot 4 which bears North 30 degrees 32 minutes 36 seconds West, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence easterly, along the northerly line of said Lot 4, a distance of 48.42 feet along a circular curve having a radius of 50.00 feet, a central angle of 55 degrees 29 minutes 20 seconds to the point of beginning; thence South 59 degrees 44 minutes 24 seconds East, a distance of 175.30 feet to a point on the southeasterly line of said Lot 4 and there terminating.

Parcel A contains 52,193 square feet.

Containing 2.41 acres.

SURVEYOR'S CERTIFICATION

I hereby certify that this survey, plan, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Michael M. Eichers
License Number 46564

07/27/2026
Date

IRONWOOD ESTATES NO. 2

PRELIMINARY PLAT
MANKATO, MINNESOTA

LOTS 2, 3, AND PART OF 4, BLOCK 1, IRONWOOD ESTATES

BOLTON & MENK
1960 Premier Drive
Mankato, MN 56001
Phone: (507) 625-4171

FOR: KARI L. PRATT TRUST
MARK & CANDEE DEICHMAN

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JOB NUMBER: FIELD BOOK: DRAWN BY:

IRONWOOD ESTATES NO. 2

LEGEND

- 3/4" IRON PIPE MONUMENT SET MARKED BY LIC. NO. 46564
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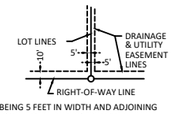

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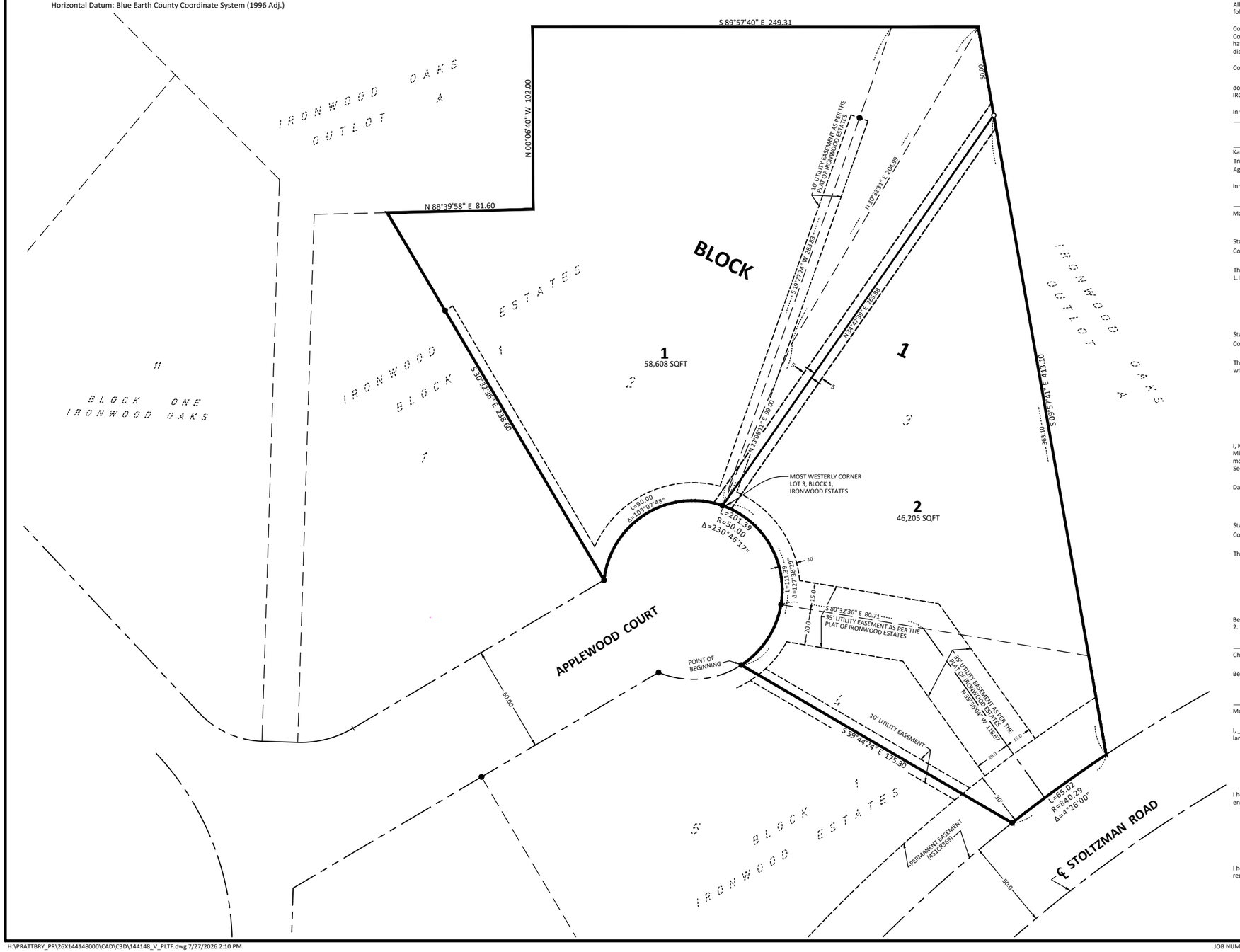
SCALE IN FEET

Horizontal Datum: Blue Earth County Coordinate System (1996 Adj.)



INSTRUMENT OF DEDICATION

KNOW ALL PERSONS BY THESE PRESENTS: Kari L. Pratt and Bryan W. Pratt as Trustees of the Kari L. Pratt Trust under Agreement dated June 3, 2024, owners of the following described property to wit:

Lot 2 and that part of Lot 3, all in Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies westerly and northwesterly of the following described line:

Beginning at the most westerly corner of said Lot 3 (the westerly line of said Lot 3 which bears North 19 degrees 27 minutes 24 seconds East, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence North 23 degrees 08 minutes 11 seconds East, a distance of 99.00 feet; thence North 30 degrees 32 minutes 31 seconds East, a distance of 204.99 feet to the northeasterly corner of said Lot 3 and there terminating.

AND Mark Deichman and Candee Deichman, husband and wife, owners of the following described property to wit:

All that part of Lot 3, Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies easterly and southeasterly of the following described line:

Beginning at the most westerly corner of said Lot 3 (the westerly line of said Lot 3 which bears North 19 degrees 27 minutes 24 seconds East, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence North 23 degrees 08 minutes 11 seconds East, a distance of 99.00 feet; thence North 30 degrees 32 minutes 31 seconds East, a distance of 204.99 feet to the northeasterly corner of said Lot 3 and there terminating.

AND

All that part of Lot 4, Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies northeasterly of the following described line:

Commencing at the most westerly corner of said Lot 4 (the westerly line of said Lot 4 which bears North 30 degrees 32 minutes 36 seconds West, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence easterly, along the northerly line of said Lot 4, a distance of 48.42 feet along a circular curve having a radius of 50.00 feet, a central angle of 55 degrees 29 minutes 20 seconds to the point of beginning; thence South 59 degrees 44 minutes 24 seconds East, a distance of 175.30 feet to a point on the southeasterly line of said Lot 4 and there terminating.

Containing 2.41 acres.

do hereby declare that we have caused the above described property to be surveyed and platted and monuments to be set, that we have named said platted area IRONWOOD ESTATES NO. 2, and that we dedicate to the public use the easements as shown hereon.

In witness whereof said Kari L. Pratt and Bryan W. Pratt, Trustee's of Kari L. Pratt Trust under Agreement dated June 3, 2024, have hereunto set their hands this _____ day of _____, 2026.

_____
Kari L. Pratt
Trustee of the Kari L. Pratt Trust under Agreement dated June 3, 2024

_____
Bryan W. Pratt
Trustee of the Kari L. Pratt Trust under Agreement dated June 3, 2024

In witness whereof said Mark Deichman and Candee Deichman, husband and wife, have hereunto set their hands this _____ day of _____, 2026.

_____
Mark Deichman

_____
Candee Deichman

NOTARY CERTIFICATES

State of Minnesota
County of _____

The foregoing instrument was acknowledged before me on this _____ day of _____, 2026, by Kari L. Pratt and Bryan W. Pratt, Trustees of the Kari L. Pratt Trust under Agreement dated June 3, 2024.

_____
_____, Notary Public
Notary Public-Minnesota,
My Commission Expires _____

State of Minnesota
County of _____

The foregoing instrument was acknowledged before me on this _____ day of _____, 2026, by Mark Deichman and Candee Deichman, husband and wife.

_____
_____, Notary Public
Notary Public-Minnesota,
My Commission Expires _____

SURVEYOR'S CERTIFICATE

I, Michael M. Eichers, do hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been, or will be correctly set within one year; that all water boundaries and wet lands, as defined in Minnesota Statutes, Section 505.01, Subd. 3, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated this _____ day of _____, 2026.

_____
Michael M. Eichers, Licensed Land Surveyor
Minnesota License No. 46564

State of Minnesota
County of Blue Earth

The foregoing Surveyor's Certificate was acknowledged before me this ____ day of _____, 2026, by Michael M. Eichers, a Licensed Land Surveyor.

_____
Nathan P Myhra, Notary Public
Notary Public-Minnesota
My Commission Expires Jan. 31, 2028

APPROVALS

Be it known that on this the ____ day of _____, 202___, the Planning Commission of the City of Mankato did duly review this plat of IRONWOOD ESTATES NO. 2.

_____
Chair person:

_____
Secretary:

Be it known that on this the ____ day of _____, 202___, the City Council of the City of Mankato did duly approve this plat of IRONWOOD ESTATES NO. 2.

_____
Mayor:

_____
Clerk:

TITLE OPINION

I, _____, Licensed Attorney, State of Minnesota, do hereby certify that the owner as indicated hereon represents all ownership interest in the land encompassed by this plat.

_____
_____, Licensed Attorney

BLUE EARTH COUNTY PROPERTY AND ENVIRONMENTAL RESOURCES

I hereby certify that there are no delinquent taxes and/or delinquent special assessments, that the current taxes have been paid and that the transfer has been entered on the land described herein on the _____ day of _____, 2026.

_____
Blue Earth County Property and Environmental Resources Director

COUNTY RECORDER

I hereby certify that this instrument was filed in my office for record on this, the ____ day of _____, 2026, at ___ o'clock, __m., and that it was duly recorded on _____ Plats, Number _____.

_____
County Recorder

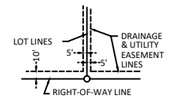
FINAL PLAT
PENDING FINAL REVIEW
(07-27-2026)

THIS PLAT PREPARED BY BOLTON & MENK, INC.

IRONWOOD ESTATES NO. 2

LEGEND

- 3/4" IRON PIPE MONUMENT SET MARKED BY LIC. NO. 46564
- MONUMENT FOUND



BEING 5 FEET IN WIDTH AND ADJOINING LOT LINES AND BEING 10 FEET IN WIDTH AND ADJOINING RIGHT-OF-WAY LINES, UNLESS OTHERWISE INDICATED ON THE PLAT.

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SCALE IN FEET

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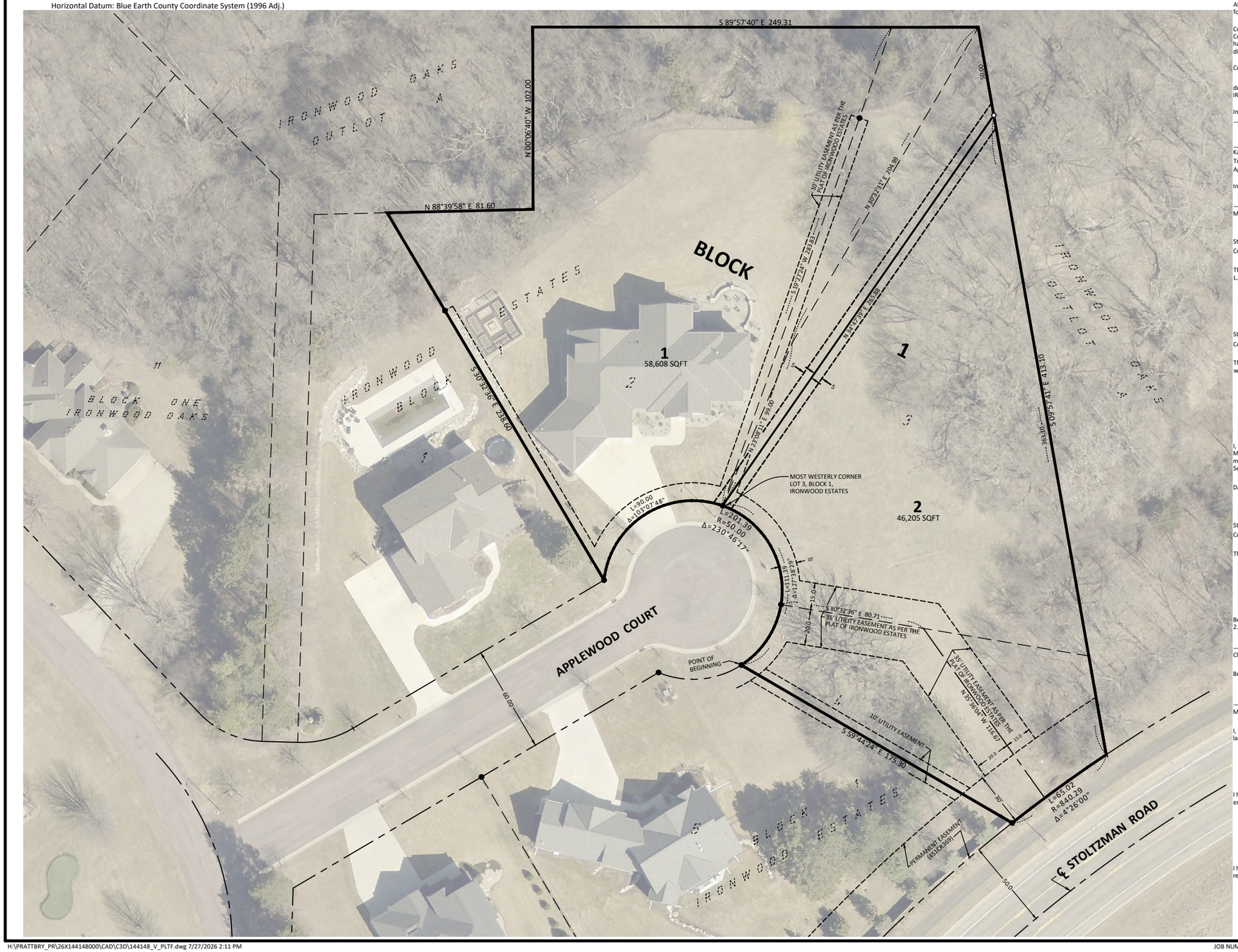


INSTRUMENT OF DEDICATION

KNOW ALL PERSONS BY THESE PRESENTS: Kari L. Pratt and Bryan W. Pratt as Trustees of the Kari L. Pratt Trust under Agreement dated June 3, 2024, owners of the following described property to wit:

Lot 2 and that part of Lot 3, all in Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies westerly and northwesterly of the following described line:

Beginning at the most westerly corner of said Lot 3 (the westerly line of said Lot 3 which bears North 19 degrees 27 minutes 24 seconds East, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence North 23 degrees 08 minutes 11 seconds East, a distance of 99.00 feet; thence North 30 degrees 32 minutes 31 seconds East, a distance of 204.99 feet to the northeasterly corner of said Lot 3 and there terminating.

AND Mark Deichman and Candee Deichman, husband and wife, owners of the following described property to wit:

All that part of Lot 3, Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies easterly and southeasterly of the following described line:

Beginning at the most westerly corner of said Lot 3 (the westerly line of said Lot 3 which bears North 19 degrees 27 minutes 24 seconds East, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence North 23 degrees 08 minutes 11 seconds East, a distance of 99.00 feet; thence North 30 degrees 32 minutes 31 seconds East, a distance of 204.99 feet to the northeasterly corner of said Lot 3 and there terminating.

AND

All that part of Lot 4, Block 1, Ironwood Estates, according to the plat thereof on file and of record with the Blue Earth County Recorder, which lies northeasterly of the following described line:

Commencing at the most westerly corner of said Lot 4 (the westerly line of said Lot 4 which bears North 30 degrees 32 minutes 36 seconds West, Minnesota County Coordinate System - Blue Earth County Zone - NAD83 - 1986); thence easterly, along the northerly line of said Lot 4, a distance of 48.42 feet along a circular curve having a radius of 50.00 feet, a central angle of 55 degrees 29 minutes 20 seconds to the point of beginning; thence South 59 degrees 44 minutes 24 seconds East, a distance of 175.30 feet to a point on the southeasterly line of said Lot 4 and there terminating.

Containing 2.41 acres.

do hereby declare that we have caused the above described property to be surveyed and platted and monuments to be set, that we have named said platted area IRONWOOD ESTATES NO. 2, and that we dedicate to the public use the easements as shown hereon.

In witness whereof said Kari L. Pratt and Bryan W. Pratt, Trustee's of Kari L. Pratt Trust under Agreement dated June 3, 2024, have hereunto set their hands this _____ day of _____, 2026.

_____
Kari L. Pratt
Trustee of the Kari L. Pratt Trust under Agreement dated June 3, 2024

_____
Bryan W. Pratt
Trustee of the Kari L. Pratt Trust under Agreement dated June 3, 2024

In witness whereof said Mark Deichman and Candee Deichman, husband and wife, have hereunto set their hands this _____ day of _____, 2026.

_____
Mark Deichman

_____
Candee Deichman

NOTARY CERTIFICATES

State of Minnesota
County of _____

The foregoing instrument was acknowledged before me on this _____ day of _____, 2026, by Kari L. Pratt and Bryan W. Pratt, Trustees of the Kari L. Pratt Trust under Agreement dated June 3, 2024.

_____
_____, Notary Public
Notary Public-Minnesota,
My Commission Expires _____

State of Minnesota
County of _____

The foregoing instrument was acknowledged before me on this _____ day of _____, 2026, by Mark Deichman and Candee Deichman, husband and wife.

_____
_____, Notary Public
Notary Public-Minnesota,
My Commission Expires _____

SURVEYOR'S CERTIFICATE

I, Michael M. Eichers, do hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been, or will be correctly set within one year; that all water boundaries and wet lands, as defined in Minnesota Statutes, Section 505.01, Subd. 3, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated this _____ day of _____, 2026.

_____
Michael M. Eichers, Licensed Land Surveyor
Minnesota License No. 46564

State of Minnesota
County of Blue Earth

The foregoing Surveyor's Certificate was acknowledged before me this ____ day of _____, 2026, by Michael M. Eichers, a Licensed Land Surveyor.

_____
Nathan P Myhra, Notary Public
Notary Public-Minnesota
My Commission Expires Jan. 31, 2028

APPROVALS

Be it known that on this the ____ day of _____, 202___, the Planning Commission of the City of Mankato did duly review this plat of IRONWOOD ESTATES NO. 2.

_____
Chair person:

_____
Secretary:

Be it known that on this the ____ day of _____, 202___, the City Council of the City of Mankato did duly approve this plat of IRONWOOD ESTATES NO. 2.

_____
Mayor:

_____
Clerk:

TITLE OPINION

I, _____, Licensed Attorney, State of Minnesota, do hereby certify that the owner as indicated hereon represents all ownership interest in the land encompassed by this plat.

_____
_____, Licensed Attorney

BLUE EARTH COUNTY PROPERTY AND ENVIRONMENTAL RESOURCES

I hereby certify that there are no delinquent taxes and/or delinquent special assessments, that the current taxes have been paid and that the transfer has been entered on the land described herein on the _____ day of _____, 2026.

_____
Blue Earth County Property and Environmental Resources Director

COUNTY RECORDER

I hereby certify that this instrument was filed in my office for record on this, the ____ day of _____, 2026, at ___ o'clock, __m., and that it was duly recorded on _____ Plats, Number _____.

_____
County Recorder

FINAL PLAT
PENDING FINAL REVIEW
(07-27-2026)

THIS PLAT PREPARED BY BOLTON & MENK, INC.

IRONWOOD ESTATES NO. 2

LEGEND

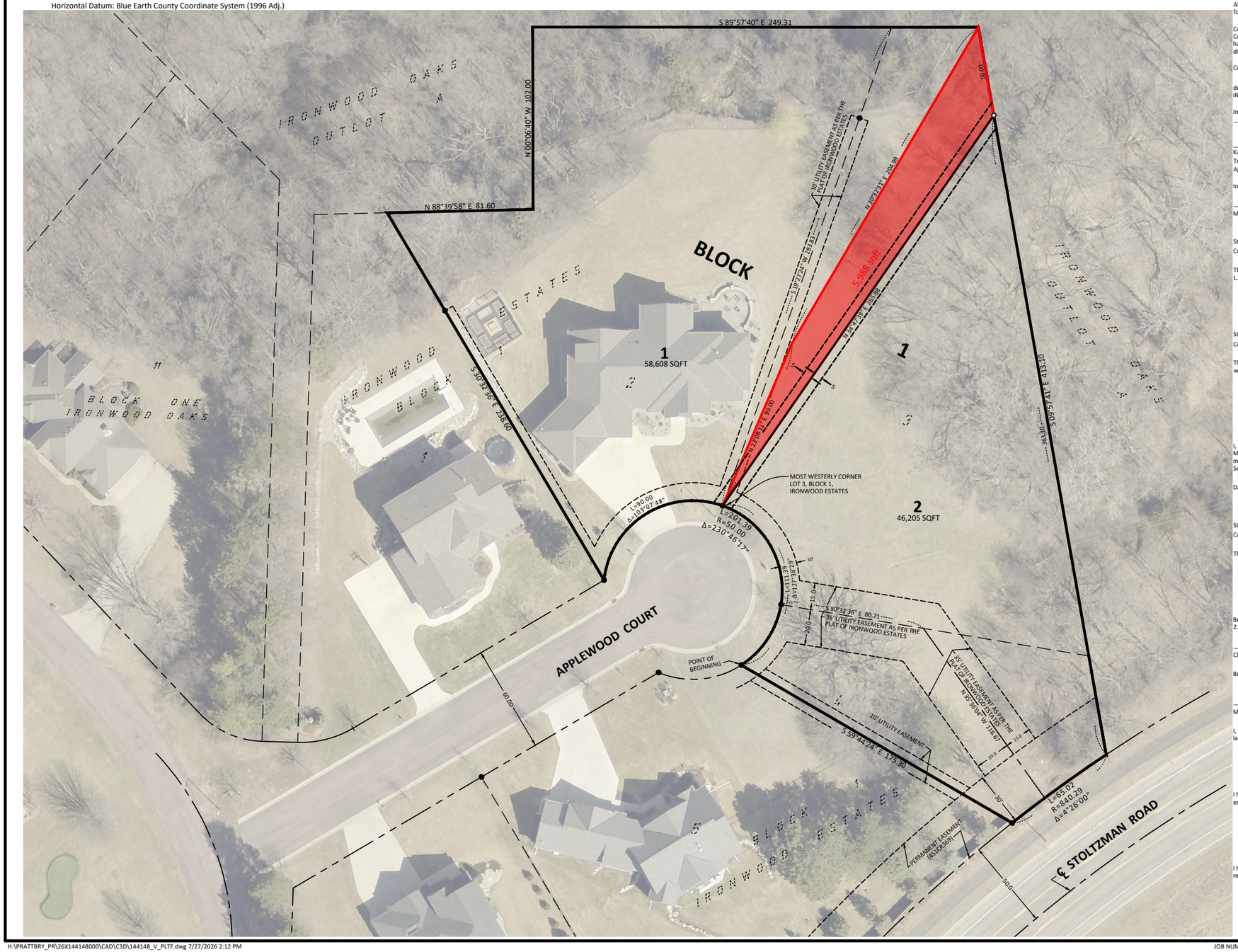
- 3/4" IRON PIPE MONUMENT SET MARKED BY LIC. NO. 46564
- MONUMENT FOUND

LOT LINES — DRAINAGE & UTILITY EASEMENT LINES — RIGHT-OF-WAY LINE

BEING 5 FEET IN WIDTH AND ADJOINING LOT LINES AND BEING 10 FEET IN WIDTH AND ADJOINING RIGHT-OF-WAY LINES, UNLESS OTHERWISE INDICATED ON THE PLAT.

0 30 60
SCALE IN FEET

Horizontal Datum: Blue Earth County Coordinate System (1996 Adj.)



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Kari L. Pratt
Trustee of the Kari L. Pratt Trust under Agreement dated June 3, 2024

_____
Bryan W. Pratt
Trustee of the Kari L. Pratt Trust under Agreement dated June 3, 2024

In witness whereof said Mark Deichman and Candee Deichman, husband and wife, have hereunto set their hands this _____ day of _____, 2026.

_____
Mark Deichman

_____
Candee Deichman

NOTARY CERTIFICATES

State of Minnesota
County of _____

The foregoing instrument was acknowledged before me on this _____ day of _____, 2026, by Kari L. Pratt and Bryan W. Pratt, Trustees of the Kari L. Pratt Trust under Agreement dated June 3, 2024.

_____
_____, Notary Public
Notary Public-Minnesota,
My Commission Expires _____

State of Minnesota
County of _____

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_____
_____, Notary Public
Notary Public-Minnesota,
My Commission Expires _____

SURVEYOR'S CERTIFICATE

I, Michael M. Eichers, do hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been, or will be correctly set within one year; that all water boundaries and wet lands, as defined in Minnesota Statutes, Section 505.01, Subd. 3, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated this _____ day of _____, 2026.

_____
Michael M. Eichers, Licensed Land Surveyor
Minnesota License No. 46564

State of Minnesota
County of Blue Earth

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_____
Nathan P Myhra, Notary Public
Notary Public-Minnesota
My Commission Expires Jan. 31, 2028

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_____
Chair person:

_____
Secretary:

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_____
Mayor:

_____
Clerk:

TITLE OPINION

I _____, Licensed Attorney, State of Minnesota, do hereby certify that the owner as indicated hereon represents all ownership interest in the land encompassed by this plat.

_____
_____, Licensed Attorney

BLUE EARTH COUNTY PROPERTY AND ENVIRONMENTAL RESOURCES

I hereby certify that there are no delinquent taxes and/or delinquent special assessments, that the current taxes have been paid and that the transfer has been entered on the land described herein on the _____ day of _____, 2026.

_____
Blue Earth County Property and Environmental Resources Director

COUNTY RECORDER

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_____
County Recorder

FINAL PLAT
PENDING FINAL REVIEW
(07-27-2026)

THIS PLAT PREPARED BY BOLTON & MENK, INC.

CITY OF MANKATO
IRONWOOD ESTATES
CONSTRUCTION PLANS FOR:

MANKATO, MINNESOTA

ISG PROJECT # 14-16889

GRADING, SANITARY SEWER, WATERMAIN, STORM SEWER AND STREET CONSTRUCTION

LEGEND

EXISTING

- CITY LIMITS
- SECTION LINE
- QUARTER SECTION LINE
- RIGHT OF WAY LINE
- PROPERTY / LOTLINE
- EASEMENT LINE
- ACCESS CONTROL
- WATER EDGE
- WETLAND BOUNDARY
- WETLAND / MARSH
- FENCE LINE
- CULVERT
- STORM SEWER
- SANITARY SEWER
- SANITARY SEWER FORCEMAIN
- WATER
- UNDERGROUND TELEPHONE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TV
- GAS
- UNDERGROUND FIBER OPTIC
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- MANHOLE
- CATCH BASIN
- HYDRANT
- VALVE
- CURB STOP
- POWER POLE
- UTILITY PEDESTAL / CABINET

PROPOSED

- LOT LINE
- RIGHT OF WAY
- EASEMENT
- CULVERT
- STORM SEWER
- STORM SEWER (PIPE WIDTH)
- SANITARY SEWER
- SANITARY SEWER (PIPE WIDTH)
- WATER
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TV
- GAS
- CONTOUR
- MANHOLE
- CATCH BASIN
- HYDRANT
- VALVE



LOCATION MAP

1"=1000'

Sheet List Table

1 TITLE
2 ESTIMATED QUANTITIES & STANDARD PLATES
3 UTILITY SCHEDULES
4 TYPICAL SECTION
5 FINAL PLAT
6 EXISTING SITE & REMOVAL PLAN
7 PUBLIC GRADING PLAN
8 PRIVATE GRADING PLAN
9 GRADING & PIPE INSULATION DETAILS
10 STORM WATER POLLUTION & PREVENTION PLAN (SWPPP) PUBLIC
11 STORM WATER POLLUTION & PREVENTION PLAN (SWPPP) PRIVATE
12 STORM WATER POLLUTION & PREVENTION PLAN NOTES
13 SWPPP DETAILS
14 OVERALL UTILITY PLAN
15 HYDRANT COVERAGE PLAN
16 PLANNED UTILITY CONSTRUCTION - TELEMARK COURT
17 PLANNED UTILITY CONSTRUCTION - SANITARY & WATERMAIN
18 PLANNED UTILITY CONSTRUCTION - STORM DRAIN

APPROVED: _____ DATE: 11/7/2014
CITY ENGINEER

REGISTRATION NUMBER 45826

PROJECT GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS, WHICH INCLUDE, BUT ARE NOT LIMITED TO, THE OWNER - CONTRACTOR AGREEMENT, THE PROJECT MANUAL (WHICH INCLUDES GENERAL SUPPLEMENTARY CONDITIONS AND SPECIFICATIONS), DRAWINGS OF ALL DISCIPLINES AND ALL ADDENDA, MODIFICATIONS AND CLARIFICATIONS ISSUED BY THE ARCHITECT/ENGINEER.
2. CONTRACT DOCUMENTS SHALL BE ISSUED TO ALL SUBCONTRACTORS BY THE GENERAL CONTRACTOR IN COMPLETE SETS IN ORDER TO ACHIEVE THE FULL EXTENT AND COMPLETE COORDINATION OF ALL WORK.
3. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
4. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
5. DETAILS SHOWN ARE INTENDED TO BE INDICATIVE OF THE PROFILES AND TYPE OF DETAILING REQUIRED THROUGHOUT THE WORK. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO DETAILS SHOWN. WHERE SPECIFIC DIMENSIONS, DETAILS OR DESIGN INTENT CANNOT BE DETERMINED, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
6. ALL MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, CLEANED AND CONDITIONED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. IN CASE OF DISCREPANCIES BETWEEN MANUFACTURERS' INSTRUCTIONS AND THE CONTRACT DOCUMENTS, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
7. ALL DISSIMILAR METALS SHALL BE EFFECTIVELY ISOLATED FROM EACH OTHER TO AVOID GALVANIC CORROSION.
8. THE LOCATION AND TYPE OF ALL INPLACE UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY AND ARE ACCURATE AND COMPLETE TO THE BEST OF THE KNOWLEDGE OF I+S GROUP (ISG). NO WARRANTY OR GUARANTEE IS IMPLIED. THE CONTRACTOR SHALL VERIFY THE SIZES, LOCATIONS AND ELEVATIONS OF ALL INPLACE UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM PLAN.
9. THE CONTRACTOR IS TO CONTACT "GOPHER STATE ONE CALL" FOR UTILITY LOCATIONS, 48 HOURS PRIOR TO EXCAVATION / CONSTRUCTION (1-800-252-1166) A "GOPHER STATE ONE CALL" WAS NOT PREFORMED AT THE TIME OF THE TOPOGRAPHIC SURVEY.

PROJECT INDEX:

OWNER:

CITY OF MANKATO
INTERGOVERNMENTAL CENTER
10 CIVIC CENTER PLAZA
P.O. BOX 3368
MANKATO, MN 56001
PH: 507.387.8634

PROJECT ADDRESS / LOCATION:
NORTHEAST CORNER OF STOLTZMAN ROAD & TELEMARK DR.

SECTION 25 & SECTION 30
MANKATO TWP
MANKATO, MINNESOTA

MANAGING OFFICE:

MANKATO OFFICE
115 EAST HICKORY STREET
SUITE 300
MANKATO, MN 56001
PHONE: 507.387.6651
FAX: 507.387.3583

PROJECT MANAGER: CHUCK BRANDEL
EMAIL: CHUCK.BRANDEL@IS-GRP.COM

ISG Architecture Engineering Environmental Planning
www.is-grp.com
I+S GROUP

SPECIFICATIONS REFERENCE

ALL CONSTRUCTION SHALL COMPLY WITH THE CITY OF MANKATO REQUIREMENTS AND MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2014 EDITION, AND THE STANDARD SPECIFICATIONS FOR SANITARY SEWER, STORM DRAIN AND WATERMAIN AS PROPOSED BY THE CITY ENGINEERS ASSOCIATION OF MINNESOTA 2013, UNLESS DIRECTED OTHERWISE.

PROJECT DATUM

HORIZONTAL COORDINATES HAVE BEEN REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), 1986 ADJUSTMENT (NAD83(1986) ON THE BLUE EARTH COUNTY COORDINATE SYSTEM, IN U.S. SURVEY FEET.
ELEVATIONS HAVE BEEN REFERENCED TO THE CITY OF MANKATO DATUM

B.M. ELEVATION=971.10
TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF TELEMARK DRIVE & STOLTZMAN ROAD

TOPGRAPHIC SURVEY

THIS PROJECTS TOPOGRAPHIC SURVEY CONSISTS OF DATA COLLECTED IN JUNE OF 2014 BY SURVEY SERVICES, INC.

ISG Architecture Engineering Environmental Planning
www.is-grp.com
I+S GROUP

KEY PLAN

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CHARLES J. BRANDEL
DATE 11/07/2014 LIC. NO. 43359

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE LIC. NO.

THIS DOCUMENT IS THE PROPERTY OF I+S GROUP, INC. AND MAY NOT BE USED, COPIED OR DUPLICATED WITHOUT PRIOR WRITTEN CONSENT.

PROJECT
IRONWOOD ESTATES
MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 TITLE
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE
TITLE

SHEET
1 OF 18

ESTIMATED QUANTITIES (PUBLIC)

Item No.	Description	Unit	Estimated Quantity
2021.501	Mobilization	LS	1
2101.501	Clearing & Grubbing	LS	1
2104.501	Remove Existing Concrete Curb & Gutter	LF	124
2104.501	Remove Sewer Pipe (Storm) (All Sizes)	LF	179
2104.501	Remove Storm Structure (Storm)	EA	2
2104.501	Remove Existing Bituminous Surface	SY	3783
2104.513	Sawcut Existing Bituminous Surface	LF	110
2105.501	Common Excavation, Topsoil Strip (EV) (P)	CY	1100
2105.501	Common Excavation (P)	CY	2566
2105.501	Common Borrow (CV)	CY	1991
2211.503	Aggregate Base, 8" Class 5 (CV) (P)	CY	359
2212.503	Aggregate Base, 6" Class 3 (CV) (P)	CY	268
2360.501	1.5" Type SPWEA340C, Bituminous Wear Course	SY	1340
2360.501	2.5" Type SPNWB330B, Bituminous Non-Wear Course	SY	1340
2511.515	Geotextile Fabric, Type V	SY	1610
2531.501	Concrete Curb & Gutter, Design S418 Modified	LF	704
2531.501	Concrete Curb & Gutter, Design B618	LF	57
2564.515	Sign Post	EA	1
2564.536	Sign Panel, Type Street Sign	EA	1
2564.536	Sign Panel, Type R1-1 Stop Sign	EA	1
2451.507	Granular Pipe Foundation	CY	10
2502.541	6" Perforated PVC Subdrain	LF	703
2502.541	6" PVC Cleanout	EA	3
2502.541	4" PVC Subdrain Stub	LF	79
2502.541	4" PVC Cap	EA	6
2503.511	15" RC Pipe Sewer	LF	208
2503.602	Connect to Existing Storm	EA	1
2506.501	Construct Drainage Structure, Type 3 C.B.	EA	2
2506.501	Construct Drainage Structure, MnDot 4020-48"	LF	4
2506.516	Casting Assembly Neenah R-3067 w/ "Type V" Grate	EA	2
2506.516	Casting Assembly Neenah R-4342	EA	1
2451.507	Granular Pipe Foundation	CY	15
2504.602	Connect to Inplace 8" Watermain	EA	2.0
2504.602	8"x8" Wet Tap	EA	1
2504.602	6" Gate Valve & Box	EA	1
2504.602	8" Gate Valve & Box	EA	1
2504.602	Hydrant	EA	1
2504.603	6" Watermain Pipe	LF	33
2504.603	8" Watermain Pipe	LF	553
2504.603	1" Water Service	LF	215
2504.603	1" Corporation Stop	EA	6
2504.603	1" Curb Stop & Box	EA	6
2504.604	2" Polystyrene Insulation	SY	15.6
2504.604	4" Polystyrene Insulation	SY	23
2504.608	Watermain Fittings (C153)	LBS	198
2451.507	Granular Pipe Foundation	CY	12
2503.602	Connect to Inplace 8" Sanitary	EA	1
2503.602	8"x4" Sanitary Wye	EA	6
2503.603	8" Sanitary Sewer Pipe (SDR-35)	LF	435
2503.603	4" PVC Sanitary Service (SDR-26)	LF	214
2504.602	4" Pipe Plug (SDR-26)	EA	6
2506.602	Chimney Seal	LF	4
2506.602	Casting Assembly MnDot 716 w/ Self Seal Cover	EA	4
2506.603	Sanitary Manhole, MnDot 4007C w/ Mechanical Joint & Seals	LF	44.3
2573.502	Silt Fence, Type Machine Sliced	LF	1,010
2573.530	Storm Drain Inlet Protection	EA	7
2573.535	Stabilized Construction Exit	EA	1
2573.623	Rapid Stabilization, Method 3	MGAL	12.0
2575.505	Sodding, Type Salt Resistant	SY	334
2575.511	Temporary Mulch Material, Type 1 (2 Tons Per Acre)	TON	5
2575.523	Erosion Control Blanket, Category 3 with Seed	SY	2,450
101	Concrete Washout Area	EA	1
2571.601	Plant Installation	LS	1
2572.602	1-Year Plant Maintenance	LS	1
2575.502	Boulevard Tree	EA	19

THE FOLLOWING STANDARD PLATES, APPROVED BY CITY OF MANKATO ENGINEER, SHALL APPLY ON THIS PROJECT http://www.mankato-mn.gov/upload/contents/344/2013_Standard Plates.pdf	
PLATE NO.	DESCRIPTION
2000A	INLET PROTECTION, TYPE 1
2001A	INLET PROTECTION, TYPE 2
2002A	TEMPORARY MANHOLE INSERTS
2003A	TEMPORARY ROCK CONSTRUCTION ENTRANCE
2100A	GRANULAR BEDDING & ENCASEMENT
2101B	DETAIL OF SANITARY & WATER IN THE SAME TRENCH
2200A	SANITARY SEWER MANHOLE
2203A	INTERNAL RUBBER SLEEVE
2240A	STANDARD SANITARY SERVICE
2321A	GATE VALVE ADAPTOR
2322A	HYDRANT DETAIL
2323A	POLYSTYRENE INSULATION
2340A	WATER SERVICE
2402B	MANKATO STD. CATCH BASIN NUMBER 3
2420A	DRAIN TILE TRENCH DETAIL
2421A	DRAIN TILE CLEANOUT END/THRU BOULDEVARD CONDITION
2440A	4" SUBDRAIN STUB
2500A	S4-18 MODIFIED CURB & GUTTER

THE FOLLOWING STANDARD PLATES, APPROVED BY THE MINNESOTA DEPARTMENT OF TRANSPORTATION, SHALL APPLY ON THIS PROJECT http://standardplates.dot.state.mn.us/StdPlate.aspx	
PLATE NO.	DESCRIPTION
4007C	PRECAST MECHANICAL JOINT SEWER MANHOLE
4020J	MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS)

ISG
Architecture
Engineering
Environmental
Planning
www.is-grp.com
I+S GROUP

MANKATO
Leading the way...

KEY PLAN

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DATE LIC. NO.

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 SCHEDULES-DETAILS
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE

ESTIMATED QUANTITIES & STANDARD PLATES

SHEET

2 OF 18

MH/CB TYPES		LENGTH (FT.)
1	TYPE 3 C.B.	9.9
2	MnDOT STRUCTURE 4020-48"	4.0
3	MnDOT 4007C W/ MECHANICAL JOINT & PIPE SLEEVE SEALS	44.3

CASTING TYPES		NO.
C-1	NEENAH R-3067-V	2
C-2	NEENAH R-4342	1
C-3	MnDOT 700-7 RING & SELF SEAL 716 COVER W/ CONCEALED PICK HOLES	4

SANITARY SEWER SCHEDULE

STRUCTURE NO.	ALIGNMENT	STATION	LOCATION	M.H. TYPE	CASTING TYPE	PAY HGT. LN. FT.	TOP OF CASTING ELEV.	OUTLET ELEVATION	PIPE NO.	DRAIN TO	PIPE SLOPE	PIPE OUTLET ELEVATION	8" PVC	PIPE CLASS
S-1	TELEMARK COURT 2	2+36	5' RT	3	C-3	8.1	950.98	942.90	EX 8"	EX MH	1.22%	941.77	-	SDR-35
S-2	TELEMARK COURT 2	1+32	5' RT	3	C-3	11.2	960.62	949.43	SP-1	S-1	6.17%	943.00	104	SDR-35
S-3	TELEMARK COURT	3+26	5' RT	3	C-3	12.5	967.50	955.00	SP-2	S-2	4.31%	949.53	127	SDR-35
S-4	TELEMARK COURT	1+22	5' RT	3	C-3	12.5	974.50	962.00	SP-3	S-3	3.38%	955.10	204	SDR-35
				TOTALS		44.3							435	

STORM DRAIN SCHEDULE

STRUCT. NO.	ALIGNMENT	STATION	LOCATION	M.H. TYPE	CASTING TYPE	PAY HGT. LN. FT.	* TOP OF CASTING ELEV.	OUTLET ELEVATION	PIPE NO.	DRAIN TO	PIPE SLOPE	PIPE OUTLET ELEVATION	15" RCP	PIPE CLASS
A-1	TELEMARK COURT	2+88	192' RT	2	C-2	4.04	960.58	956.54	EX 15	EX CB	7.75%	953.60	-	-
A-2	TELEMARK COURT	2+87	16' RT	1	C-1	5.15	967.18	962.03	P-1	A-1	2.99%	956.74	177	V
A-3	TELEMARK COURT	2+87	16' LT	1	C-1	4.75	967.18	962.43	P-2	A-2	0.64%	962.23	31	V
			STORM TOTALS			13.94							208	

* TOP OF CASTING ELEVATIONS ON CURB STYLE CATCH BASINS REPRESENT TOP OF CURB BOX, NOT GUTTER ELEVATION.

WATERMAIN SCHEDULE

STATION	LOCATION	6" WATERMAIN	8" WATERMAIN	MJ. GATE VALVE & BOX	TEE'S / CROSSES (lbs)*	8"x8" WET TAP & VALVE	BEND (lbs)*	5"x8'-0" HYDRANT
TELEMARK COURT								
0+19 TO 3+35	5' LT TO CL		310					
0+19	5' LT	CONNECT TO EXISTING 8" WATERMAIN						
0+19	5' LT					1		
3+29	5' LT						8"x45° (59) HORIZ.	
TELEMARK COURT 2								
0+6 TO 2+36	5' LT		243					
0+17	5' LT				8'x6" (80)			
1+30	5' LT						8"x45° (59) HORIZ.	
2+36	5' LT	CONNECT TO EXISTING 8" WATERMAIN						
0+17	5' LT TO 38' LT	33						
0+17	35' LT			6"				
0+17	38' LT							1
	TOTALS	33	553	1-6"	80 (lbs)	1	118 (lbs)	1

*ALL FITTING WEIGHTS ARE MECHANICAL JOINT C153 DUCTILE IRON

SUBDRAIN SCHEDULE

STATION	LOCATION	CONNECTION	6" PERF. PVC	PIPE
TELEMARK COURT				
0+34	RT	C.O.		
TO			251	D-1
2+87	RT	A-2		
0+43	LT	C.O.		
TO			242	D-2
2+87	LT	A-3		
2+87	RT	A-2		
TO			105	D-3
3+66	RT	C.O.		
2+87	LT	A-3		
TO			105	D-4
3+66	LT	C.O.		
		TOTAL	703	

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KEY PLAN

MANKATO
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CHARLES J. BRANDEL
DATE 11/07/2014 LIC. NO. 43359

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PROJECT
IRONWOOD ESTATES
MANKATO MINNESOTA

REVISION SCHEDULE

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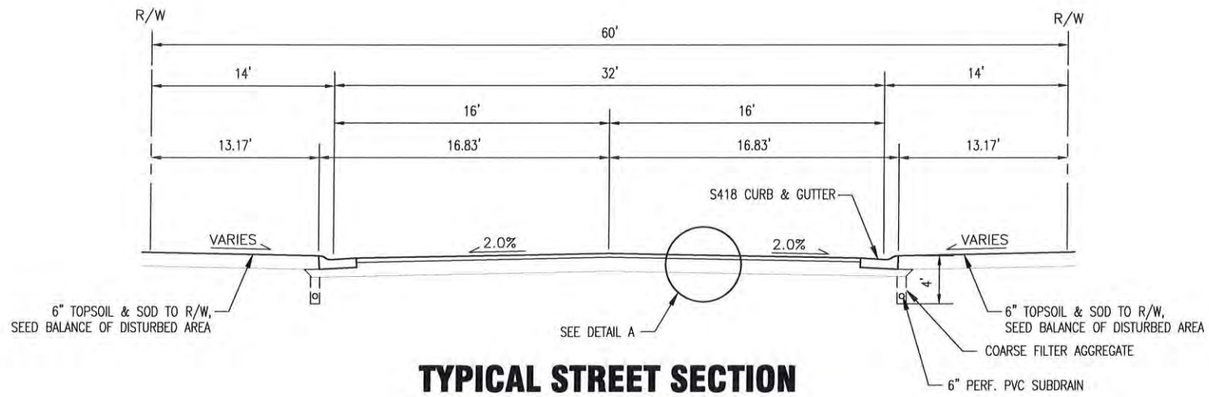
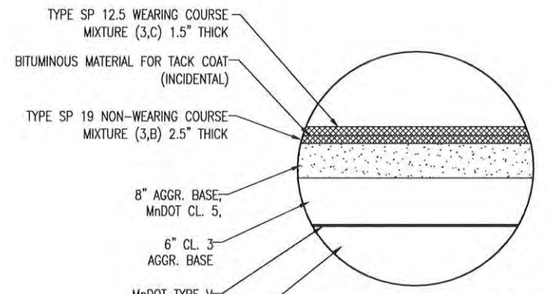
CITY PROJECT NO.	86006

TITLE
UTILITY SCHEDULES

SHEET
3
OF 18



TYPICAL STREET SECTION



DETAIL A

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

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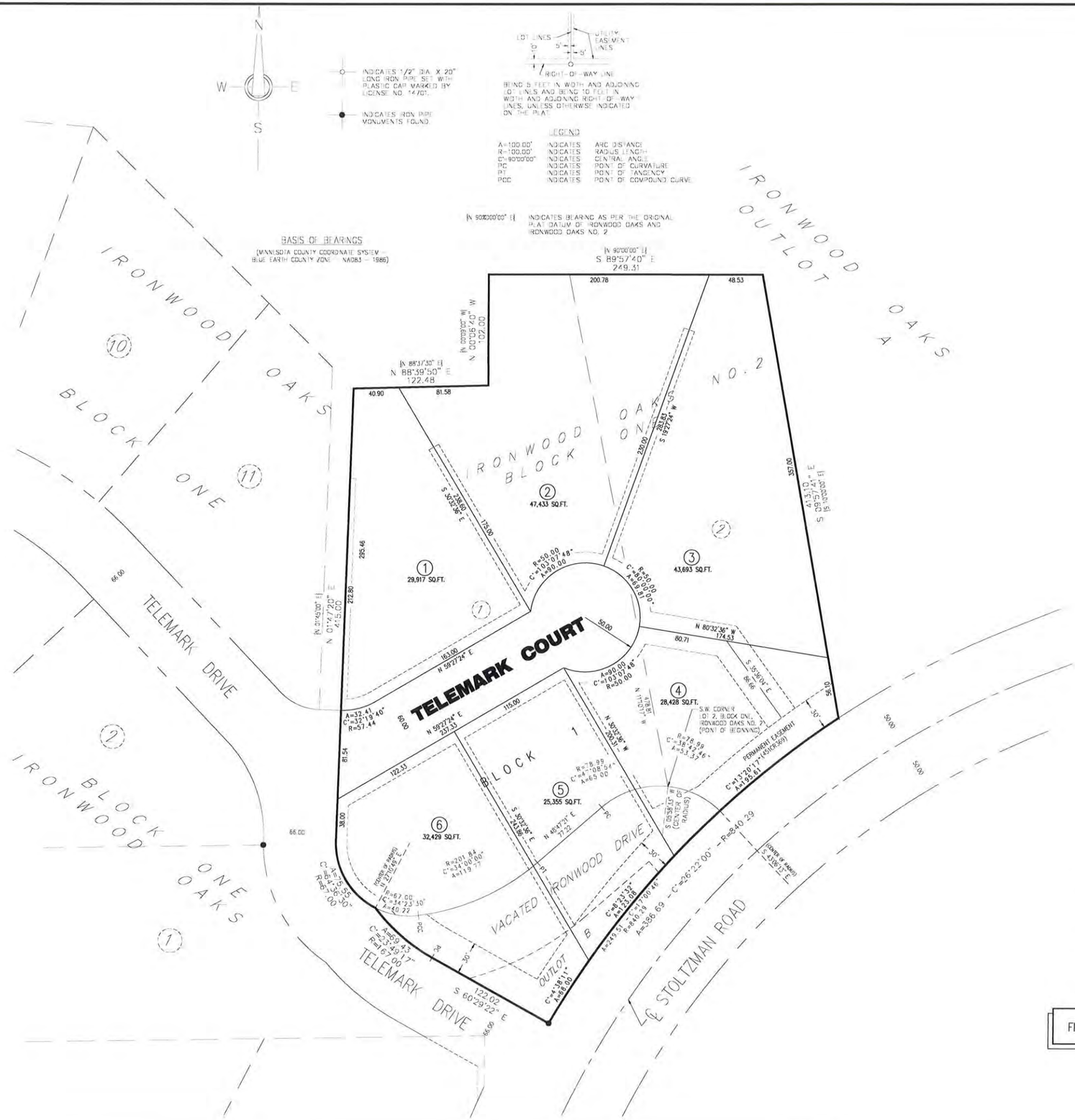
CITY PROJECT NO.	86006

TITLE

TYPICAL SECTION

SHEET

4 OF 18



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PROJECT
IRONWOOD ESTATES
MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 PLAT
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CLIENT PROJECT NO.	86006

TITLE
FINAL PLAT

SHEET
5
OF 18

CLEAR & GRUB EXISTING TREES & UNDERBRUSH

EXISTING POWER POLE TO BE REMOVED COORDINATE WITH UTILITY COMPANY

CLEAR & GRUB EXISTING TREES & UNDERBRUSH

SAWCUT 50 LF & REMOVE 33 SY EXISTING BITUMINOUS PAVEMENT

REMOVE EXISTING TREE/BUSH

REMOVE 3750 SY EXISTING BITUMINOUS PAVEMENT

REMOVE EXISTING TREE/BUSH

EXISTING POWER POLE TO BE REMOVED COORDINATE WITH UTILITY COMPANY

GAS LINE TO BE RELOCATED COORDINATE WITH UTILITY COMPANY

CLEAR & GRUB EXISTING TREES & UNDERBRUSH

PROTECT EXISTING TREE/BUSH, TYP

PROTECT EXISTING TREES

REMOVE STORM INLET

REMOVE SEPTIC SYSTEM (OTHERS)

PROTECT EXISTING TREE

REMOVE EXISTING CURB STOP & CAP SERVICE AT MAIN

REMOVE CATCH BASIN

EXISTING POWER POLE TO BE REMOVED COORDINATE WITH UTILITY COMPANY

REMOVE 179 LF 15" STORM SEWER

PROTECT EXISTING CATCH BASIN

SAWCUT 60 LF EXISTING BITUMINOUS PAVEMENT

REMOVE 124 LF EXISTING B618 CURB & GUTTER

TELEMARK DRIVE

STOLTZMAN ROAD

BENCHMARK LOCATION

N

0 30 60 90

Scale:

B.M. ELEVATION=971.10

TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF TELEMARK DRIVE & STOLTZMAN ROAD

NOTE:
ALL EXISTING STRUCTURES INCLUDING WELLS AND SEPTIC SYSTEMS TO BE REMOVED BY OTHERS

WELL & SEPTIC SYSTEM MUST BE DECOMMISSIONED PRIOR TO EXCAVATION OF UTILITIES.

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 SITE-UTL
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

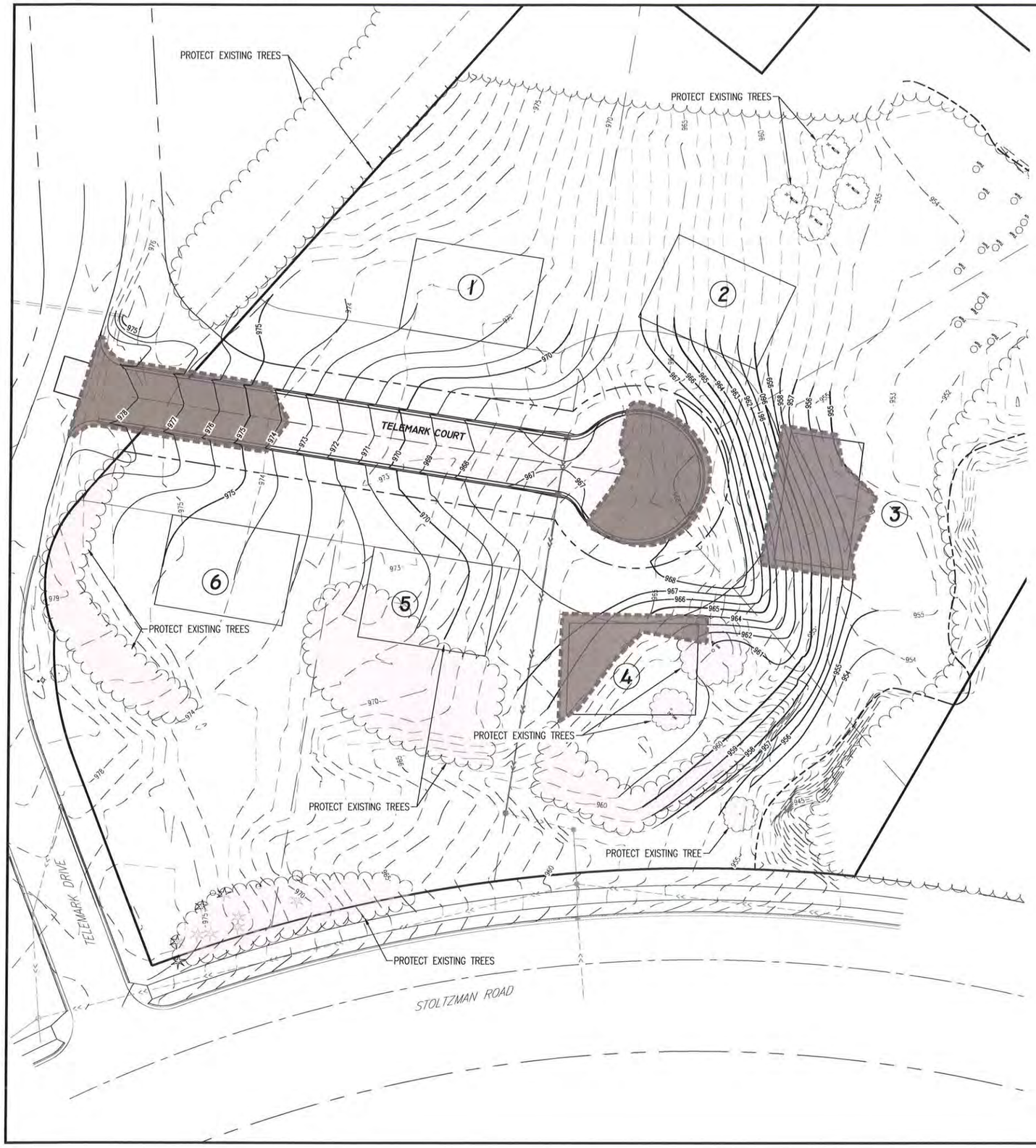
TITLE

EXISTING SITE & REMOVAL PLAN

SHEET

6

OF 18



SITE BALANCE (PUBLIC):

			Clay	Topsoil
Common Excavation		+	358 CY	1166 CY
Street Excavation		+	373 CY	0 CY
Reduction of Fill Space Due to Street Section		+	432 CY	
Fill Material Needed		-	969 CY	2466 CY
Topsoil from Topsoil Strip		+		1100 CY
Fill to Replace Topsoil Strip		-	1100 CY	
Common Excavation for Topsoil Redress		+	669 CY	
Topsoil Redress		-		669 CY
Muck Pit Excavation		+	0 CY	0 CY
Hold Down	Reduction of Fill	+	0 CY	0 CY
	Additional Cut	+	0 CY	0 CY
Shrink Losses	Excavations	-	507 CY	194 CY
	Topsoil	-		183 CY
	Muck	-	0 CY	0 CY
	Other	-	0 CY	0 CY
TOTAL:			-744 CY	-1247 CY

GRADING NOTES:

COMMON EXCAVATION: 2,566 CY

COMMON EXCAVATION TOPSOIL STRIP: 1,100 CY

A SHRINKAGE FACTOR OF 1.15 (EMBANKMENT) & 1.20 WAS (TOPSOIL) WERE APPLIED TO ALL EXCAVATION MATERIAL WHEN DETERMINING SITE BALANCE.

NO WARRANTY IS MADE OR IMPLIED AS TO THE ACCURACY, SUFFICIENCY OR RELIABILITY OF SHRINKAGE FACTORS.

24" OF TOPSOIL WAS ASSUMED IN ALL TOPSOIL STRIP AREAS. ALL AREAS SHALL BE DRESSED WITH A MINIMUM OF 6" OF TOPSOIL. A 6" TOPSOIL DRESS WAS UTILIZED IN EARTHWORK CALCULATION ABOVE.

ALL EXCESS MATERIAL SHALL BE HAULED FROM THE SITE AT NO ADDITIONAL COST TO THE OWNER

THE SITE BALANCE PROVIDED ABOVE IS FOR INFORMATIONAL PURPOSES. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL QUANTITIES PRIOR TO SUBMITTING A BID FOR THE PROJECT.

GENERAL GRADING NOTES:

EXCAVATED MATERIAL SHALL BE COMPACTED TO 98% PROCTOR DENSITY IN ALL BUILDING PADS AND 100% PROCTOR DENSITY UNDER ALL STREETS. REFER TO THE QUALITY COMPACTION METHOD IN ALL OTHER AREAS.

PROPOSED CONTOURS SHOW FINISHED GRADE ELEVATIONS. BUILDING PAD HOLD DOWNS ARE NOT INCLUDED. WHEN CONSTRUCTING BUILDING PADS WITH A HOLD DOWN, GRADE AREAS TO ENSURE POSITIVE BUILDING PAD DRAINAGE.

N

B.M. ELEVATION=971.10

TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF TELEMARK DRIVE & STOLTZMAN ROAD

0 30 60 90

Scale:

TOPSOIL STRIP IN AREAS OF FILL

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 GRADING PUBLIC
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	88006

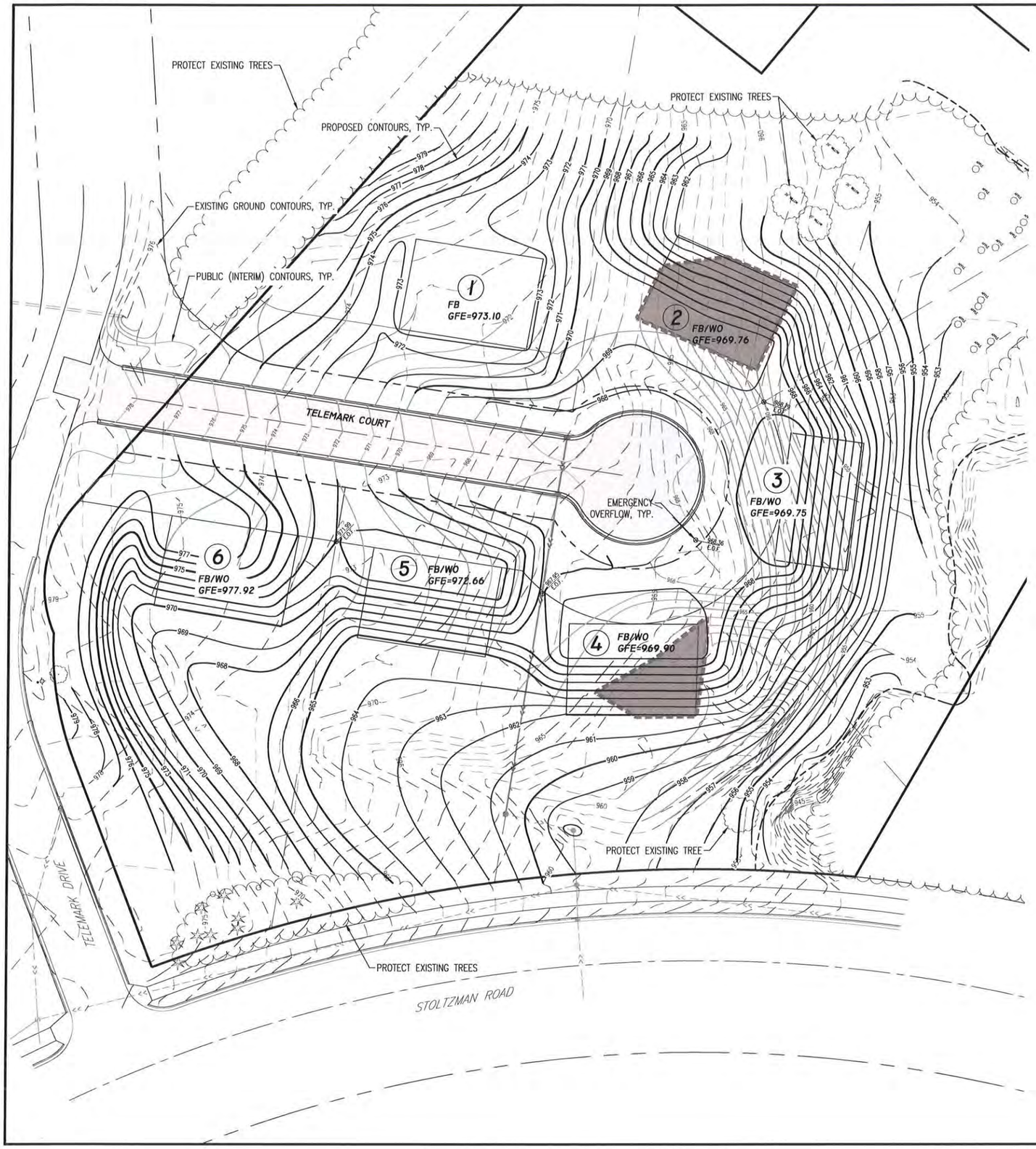
TITLE

PUBLIC GRADING PLAN (INTERIM)

SHEET

7

OF 18



SITE BALANCE (PRIVATE):		Clay	Topsoil
Common Excavation	+	2493 CY	3211 CY
Street Excavation	+	0 CY	0 CY
Reduction of Fill Space Due to Street Section	+	0 CY	
Fill Material Needed	-	3764 CY	2942 CY
Topsoil from Topsoil Strip	+		369 CY
Fill to Replace Topsoil Strip	-	369 CY	
Common Excavation for Topsoil Redress	+	2033 CY	
Topsoil Redress	-		2033 CY
Muck Pit Excavation	+	0 CY	0 CY
Hold Down: Reduction of Fill	+	567 CY	0 CY
Hold Down: Additional Cut	+	184 CY	0 CY
Shrink Losses: Excavations	-	590 CY	535 CY
Shrink Losses: Topsoil	-		61 CY
Shrink Losses: Muck	-	0 CY	0 CY
Shrink Losses: Other	-	0 CY	0 CY
TOTAL:		555 CY	-1993 CY

GRADING NOTES:

COMMON EXCAVATION: 7,921 CY

COMMON EXCAVATION TOPSOIL STRIP: 369 CY

A SHRINKAGE FACTOR OF 1.15 (EMBANKMENT) & 1.20 WAS (TOPSOIL) WERE APPLIED TO ALL EXCAVATION MATERIAL WHEN DETERMINING SITE BALANCE.

NO WARRANTY IS MADE OR IMPLIED AS TO THE ACCURACY, SUFFICIENCY OR RELIABILITY OF SHRINKAGE FACTORS.

24" OF TOPSOIL WAS ASSUMED IN ALL TOPSOIL STRIP AREAS. ALL AREAS SHALL BE DRESSED WITH A MINIMUM OF 6" OF TOPSOIL. 18" TOPSOIL DRESS WAS UTILIZED IN EARTHWORK CALCULATION ABOVE.

ALL EXCESS MATERIAL SHALL BE HAULED FROM THE SITE AT NO ADDITIONAL COST TO THE OWNER

THE SITE BALANCE PROVIDED ABOVE IS FOR INFORMATIONAL PURPOSES. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL QUANTITIES PRIOR TO SUBMITTING A BID FOR THE PROJECT.

GENERAL GRADING NOTES:

EXCAVATED MATERIAL SHALL BE COMPACTED TO 98% PROCTOR DENSITY IN ALL BUILDING PADS AND 100% PROCTOR DENSITY UNDER ALL STREETS. REFER TO THE QUALITY COMPACTION METHOD IN ALL OTHER AREAS.

PROPOSED CONTOURS SHOW FINISHED GRADE ELEVATIONS. BUILDING PAD HOLD DOWNS ARE NOT INCLUDED. WHEN CONSTRUCTING BUILDING PADS WITH A HOLD DOWN, GRADE AREAS TO ENSURE POSITIVE BUILDING PAD DRAINAGE.

N

B.M. ELEVATION=971.10

TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF TELEMARK DRIVE & STOLTZMAN ROAD

0 30 60 90

Scale:

TOPSOIL STRIP IN AREAS OF FILL

NOTES:
FB = FULL NON-WALKOUT BASEMENT

FB/WO = FULL WALKOUT BASEMENT

GFE = GARAGE FLOOR ELEVATION

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

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CITY PROJECT NO.	86006

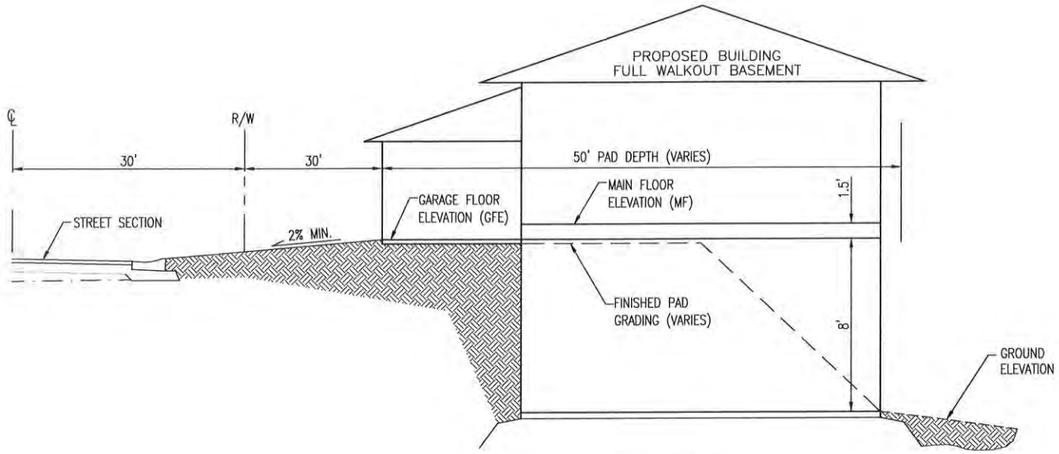
TITLE

PRIVATE GRADING PLAN (FULL BUILD-OUT)

SHEET

8

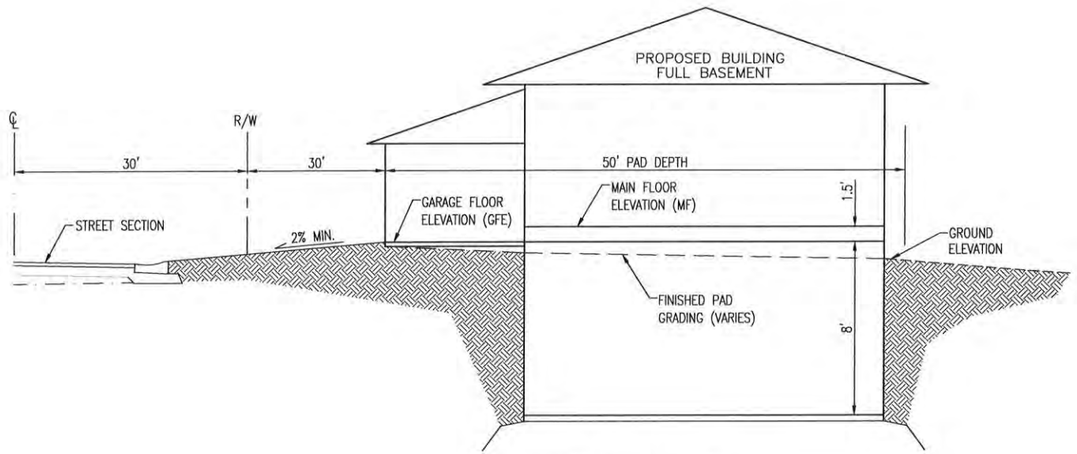
OF 18



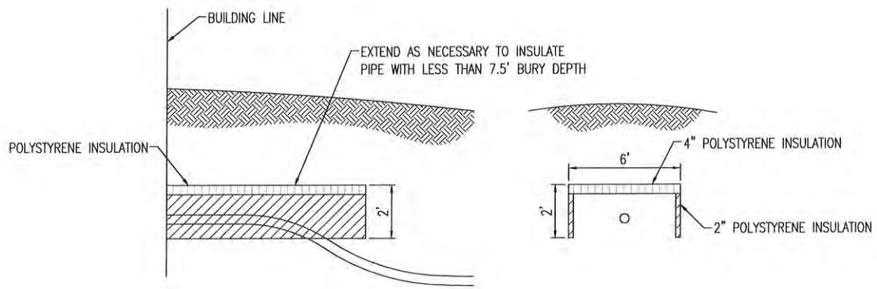
TYPICAL SITE SECTION
FULL WALKOUT BASEMENT (FBWO)

NOTE:
TOP OF FRONT BUILDING FOUNDATION WAS CALCULATED AS 4" ABOVE GFE.

MINIMUM TOP OF FOUNDATION WAS CALCULATED AS 2% GRADE FROM LOWEST BACK OF CURB ELEVATION AT EACH LOT +12".



TYPICAL SITE SECTION
FULL BASEMENT (FB)



PIPE INSULATION DETAIL
N.T.S

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PROJECT
IRONWOOD ESTATES
MANKATO MINNESOTA

REVISION SCHEDULE

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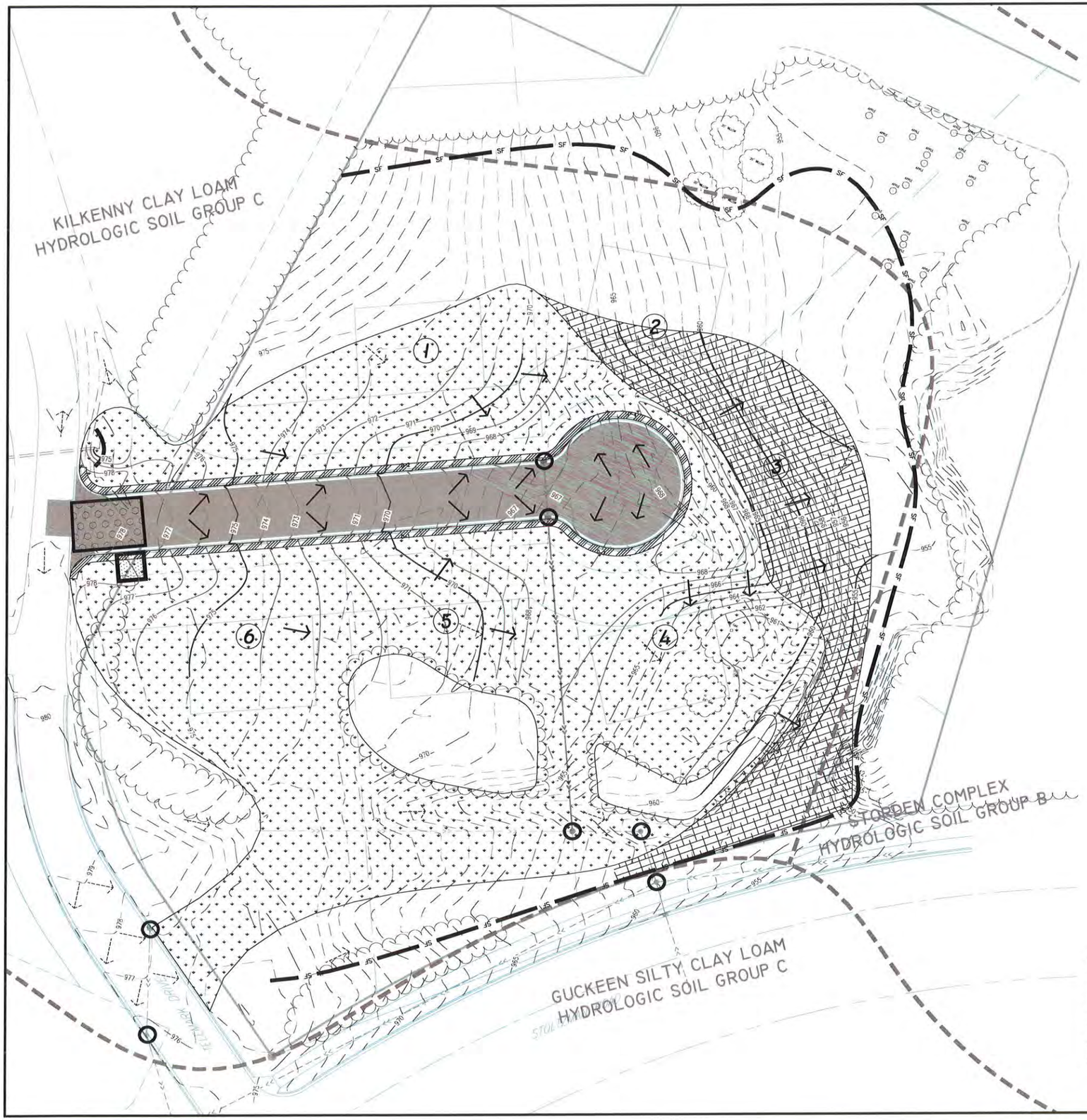
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE
GRADING & PIPE INSULATION DETAILS

SHEET
9
OF 18



SWPPP LEGEND

- PROPOSED SILT FENCE — SF
- PROPOSED INLET PROTECTION
- STABILIZED CONSTRUCTION EXIT
- EXISTING SURFACE FLOW DIRECTION
- PROPOSED SURFACE FLOW DIRECTION
- PROPOSED CONCRETE WASHOUT AREA
- PROPOSED SODDING TYPE LAWN & BOULEVARD
- PROPOSED RAPID STABILIZATION, METHOD 3
- MnDOT CATEGORY 3 EROSION CONTROL BLANKET

NOTE:
ANY DISTURBED AREA WHERE EXCESS MATERIAL IS PLACED SHALL BE STABILIZED.

N

0 30 60 90

Scale:

B.M. ELEVATION=971.10

TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF
TELEMARK DRIVE & STOLTZMAN ROAD

HYDROLOGIC SOIL GROUP - SUMMARY BY MAP UNIT - BLUE EARTH COUNTY, MINNESOTA (MN013)			
MAP UNIT SYMBOL	MAP UNIT NAME	RATING	PERCENT OF AOI
238C	KILKENNY CLAY LOAM	C	70.2%
961F	STORDEN COMPLEX	B	27.0%
230	GUCKEEN SILTY CLAY LOAM	C	2.8%
	TOTAL AREA OF INTEREST		100.0%

EROSION CONTROL QUANTITIES

ITEM NO.	DESCRIPTION	UNITS	QUANTITY
2573.502	SILT FENCE, TYPE MACHINE SLICED	LIN FT	1,010
2573.530	STORM DRAIN INLET PROTECTION	EACH	7
2573.535	STABILIZED CONSTRUCTION EXIT	EACH	1
2573.623	RAPID STABILIZATION, METHOD 3	MGAL	12.0
2575.505	SODDING, TYPE SALT RESISTANT	SQ YD	334
2575.511	TEMPORARY MULCH MATERIAL, TYPE 1 (2 TONS PER ACRE)	TON	5
2575.523	EROSION CONTROL BLANKET, CATEGORY 3 W/ SEED MIX 25-151	SQ YD	2,450
101	CONCRETE WASHOUT AREA	EA	1

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CHARLES J. BRANDEL
DATE 11/07/2014 LIC. NO. 43359

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

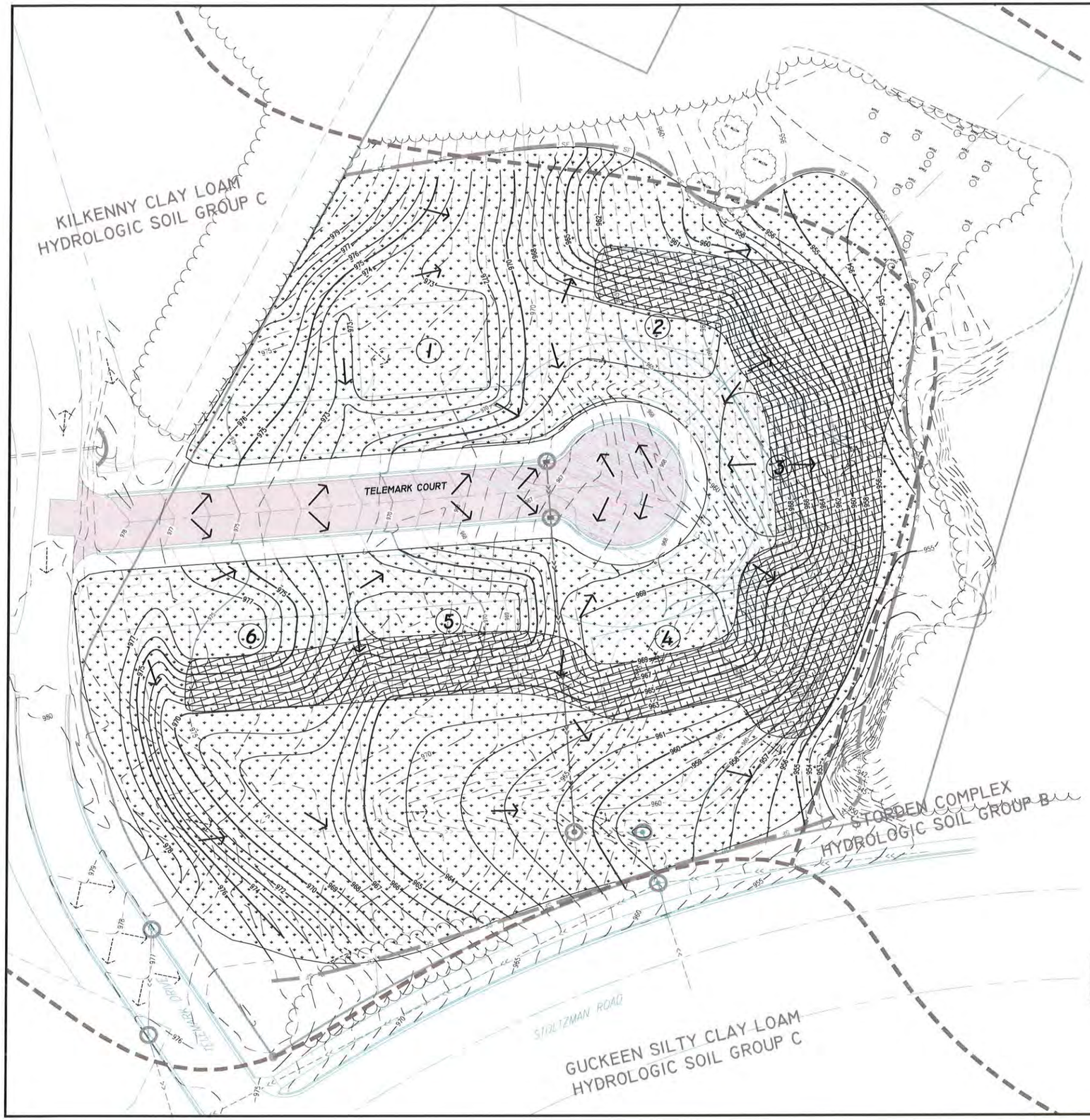
PROJECT NO.	14-16889
FILE NAME	16889 SWPPP PUBLIC
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PUBLIC

SHEET

10 OF 18



SWPPP LEGEND

- PROPOSED SILT FENCE — SF
- PROPOSED INLET PROTECTION
- EXISTING SURFACE FLOW DIRECTION
- PROPOSED SURFACE FLOW DIRECTION
- PROPOSED RAPID STABILIZATION, METHOD 3
- MnDOT CATEGORY 3 EROSION CONTROL BLANKET

NOTE:
SILT FENCE & INLET PROTECTION TO REMAIN FROM PUBLIC CONTRACT.

NOTE:
ANY DISTURBED AREA WHERE EXCESS MATERIAL IS PLACED SHALL BE STABILIZED.

N

0 30 60 90

Scale:

B.M. ELEVATION=971.10

TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF
TELEMARK DRIVE & STOLTZMAN ROAD

HYDROLOGIC SOIL GROUP - SUMMARY BY MAP UNIT - BLUE EARTH COUNTY, MINNESOTA (MN013)			
MAP UNIT SYMBOL	MAP UNIT NAME	RATING	PERCENT OF AOI
238C	KILKENNY CLAY LOAM	C	70.2%
961F	STORDEN COMPLEX	B	27.0%
230	GUCKEEN SILTY CLAY LOAM	C	2.8%
	TOTAL AREA OF INTEREST		100.0%

EROSION CONTROL QUANTITIES			
ITEM NO.	DESCRIPTION	UNITS	QUANTITY
2573.623	RAPID STABILIZATION, METHOD 3	MGAL	15.3
2575.523	EROSION CONTROL BLANKET, CATEGORY 3 W/ SEED MIX 25-151	SQ YD	3,356

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 SWPPP
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PRIVATE

SHEET

11 OF 18

STORM WATER POLLUTION PREVENTION PLAN NOTES:

GENERAL PROJECT INFORMATION:

PROJECT NARRATIVE:
This project consists of the construction of a 6 lot residential development.

PROJECT PHASING:
This project consists of the construction of sanitary sewer, storm drain, watermain, surfacing & grading.

RESPONSIBLE PARTIES:
Contractor and Owner are required to apply for and receive a National Pollution Discharge Elimination System (NPDES) Stormwater Construction Permit from the MPCA at least 7 days prior to beginning work.

Contractor and owner shall identify a person knowledgeable and experienced in the application of erosion prevention and sediment control BMP's who will oversee the implementation of the SWPPP.

Company: Contact Person: Phone:

Company: Contact Person: Phone:

Owner shall identify the entity responsible for the long term Operation and Maintenance of the storm water management system.

Company: Contact Person: Phone:

PROJECT AREAS:
Total project size (disturbed area) = 3.67 acres
Minimum area requiring MPCA permit = 1.00 acres
****PROJECT DOES REQUIRE AN MPCA NPDES PERMIT****
Existing area of impervious surface = 1.10 acres
Post construction area of impervious surface = ~0.79 acres

Total new impervious surface area created = 0.31 acres
Ultimate area of impervious surface created = 0.93 acres (incl. residential homes)

Minimum area of new impervious surface created requiring permanent storm water management = 1.00 acres

RECEIVING WATERS:
Surface waters which will receive storm water from the site within 1 mile (aerial radius measurement) of project boundary. Include waters shown on USGS 7.5 minute quad and all waters identified in appendix A of the permit.

Name of Water Body	Type (ditch, pond, wetland, lake, etc.)	Appendix A Special or Impaired Water?
UNNAMED	STREAM	YES
UNNAMED	STREAM	NO

Additional BMPs together with enhanced runoff controls are required for discharges to Special or Impaired waters within 1 mile of the site. (See Appendix A)

SOIL TYPES:
Particle sizes on site will range from 0.001 mm to 2 mm. See Hydrologic Soils Goup table, sheet 10 and 11.

CONSTRUCTION ACTIVITY NOTES:

EROSION PREVENTION:

Construction of silt fence and all other erosion control measures shall be complete before other construction activity occurs. Use phased construction wherever practical and establish turf as soon as possible to minimize sediment transport.

Turf establishment or temporary seeding or mulching of all exposed soil not being actively worked should be practiced following the table below:

Type of Slope or Disturbance Area	Time Area can Remain Open Without Being Actively Worked	
	Normal Water	IMPAIRED
Steeper than 3:1	14 days	7 days
10:1 to 3:1	14 days	7 days
Flatter 10:1	14 days	7 days
Ditches	1 day	1 day
Pipe Ends	1 day	1 day
Within 200 Feet of Surface Water	1 day	1 day

Temporary cover during construction is incidental.

Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours after connection to a surface water.

All exposed soils shall be seeded or sodded at the earliest possible time to prevent/reduce erosion.

A. Seed shall be MnDOT mixture 25-151 and shall be placed in accordance with MnDOT 2575. Seed shall meet MnDOT Specification 3876. Seed shall be applied utilizing MnDot Rapid Stabilization, Method 3.

B. Sod shall meet MnDOT Specification 3878.2A, Type Lawn & Boulevard Sod. Sodding shall be in accordance with MnDOT 2575.

C. Temporary mulching shall be applied at a rate of 2 tons/acre. Mulch shall be disc anchored.

Additional erosion prevention measures may be found in the permit and MPCA's Best Management Practices.

SEDIMENT CONTROL PRACTICES:

Construction of silt fence and all other erosion control measures shall be complete prior to land disturbing activities occur.

A rock construction entrance or other approved alternative must be constructed at the entry point to the project site. Rock construction entrance must be 40'x25' (min.) of 2" - 4" crushed rock, 8" deep.

Inlet erosion protection shall be installed and maintained until turf or pavement has been established.

The contractor shall be responsible to control erosion from leaving the construction zone. All eroded material that leaves the construction zone shall be collected by the contractor and returned to the site at the contractor's expense.

Contractor shall maintain a 50-foot natural buffer or use redundant sediment controls near surface waters if a buffer is not feasible.

Contractor shall take the necessary steps to minimize soil compaction and preserve topsoil on site.

All streets must be swept within 24 hours when any tracking occurs.

Silt fence or other effective erosion control measures must be installed around the perimeter of any soil stockpiled, including temporary stockpiles, at this location or any other on the project site. Stockpiles cannot be placed in surface waters, including storm water conveyances such as curb and gutter systems, or conduits and ditches.

Perimeter control shall be installed along the back of curb immediately following curb installation at all locations with positive drainage to parking lot and/or streets, and remaining until stabilization is achieved. This shall be accomplished through the use of silt fence. (Biorolls, Rock logs, or other methods approved by the engineer prior to installation shall also be placed acceptable)

CONSTRUCTION ACTIVITY NOTES:

DEWATERING AND BASIN DRAINING:

Dewater sediment-laden water to sedimentation basins if possible, or use other BMP's to prevent erosion when discharging to surface waters. Use appropriate energy dissipation measures on all discharges.

Dewatering practices cannot cause nuisance conditions, erosion or in receiving channels or inundation of wetlands resulting in adverse impacts.

POLLUTION PREVENTION:

All solid waste collected from the construction site must be disposed in accordance with all applicable regulations.

All hazardous materials (oil, gasoline, fuel, paint, etc) must be properly stored to prevent spills, leaks, or other discharge. Storage areas shall provide secondary containment and a hazardous materials spill kit. Equipment fueling and maintenance shall occur in a designated, contained area. Storage and disposal of hazardous waste must be in compliance with all applicable regulations. All runoff containing any hazardous material must be properly collected and disposed. No engine degreasing shall be allowed on site.

All sanitary wastes must be collected from portable units on site by a licensed sanitary waste management contractor. The units must be secured and shall be maintained on a regular basis as needed to prevent overfilling.

Emergency Spill Plan - The Contractor is responsible for all construction personnel to be informed of the manufacturers' recommended spill cleanup methods, and the location of that information and cleanup supplies. The Contractor shall modify the SWPPP as required within seven calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. Plans must identify measures to prevent the reoccurrence of such releases. If a spill occurs, the following steps shall be followed:

1. Observe the safety precautions associated with the spilled material. Stop the source of the spill, if you can do so safely. Call 911 if fire or public safety hazards are created.
2. Contain the spilled material. Dirt, sand, or any semi-impermeable material may be used to create a containment structure to prevent the material from flowing.
3. Report the spill to the Minnesota Duty Officer at (651) 649-5451.
4. Clean up the spilled material and dispose of the wastes properly. With the exception of used oil, waste generated from petroleum spills that have been reported and cleaned up immediately are exempt from Minnesota's Hazardous Waste Rules. Waste generated from used oil spills must be sent to a facility for energy recovery.

The contractor is responsible for monitoring air pollution and ensuring it does not exceed levels set by local, state, or federal regulations. This includes dust created by work being performed on the site. Air pollution and dust control correction is considered incidental to the unit bid prices for which work is being performed. Additional dust control measures may be required by the Engineer.

Concrete washout onsite: All liquid and solid wastes generated by concrete washout operations must be contained in a leak-proof containment facility or impermeable liner. A compacted clay liner that does not allow washout liquids to enter ground water is considered an impermeable liner. The liquid and solid wastes must not contact the ground, and there must not be runoff from the concrete washout operations or areas. Liquid and solid wastes must be disposed of properly and in compliance with MPCA regulations. A sign must be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

INSPECTION AND MAINTENANCE:

The Permittees must routinely inspect the construction site once every seven (7) days during active construction and within 24 hours of a rainfall event greater than 0.5 inches in a 24 hour period.

All inspections performed during construction must be recorded and records retained with the SWPPP in accordance with the Stormwater Permit. Contractor is responsible for keeping a record of all rainfall data & erosion control maintenance until final establishment of turf.

All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches ⅓ of the height of the fence. Erosion control and other BMP's must be replaced, repaired, or supplemented when they reach 33% design load.

See MPCA website for example of SWPPP inspection and maintenance forms.
http://www.pca.state.mn.us/index.php/view-document.html?gid=7409

FINAL STABILIZATION:

The Permittees must ensure final stabilization of the site. The Permittees must submit a Notice of Termination within 30 days after final stabilization is complete or control has been passed to another owner. All temporary erosion control measures and BMP's must be removed as part of the final site stabilization.

The storm water permit further defines final stabilization and its requirements.

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 SWPPP
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

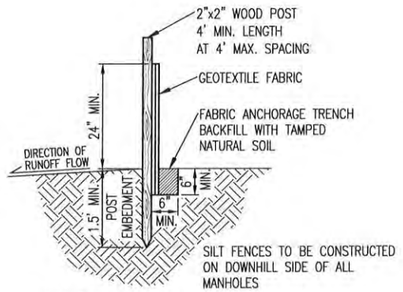
TITLE

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

SHEET

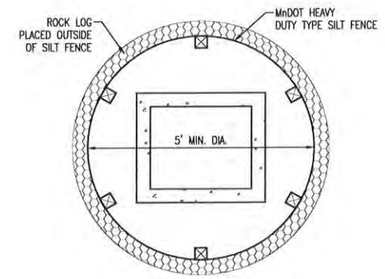
12 OF 18

THE FOLLOWING STANDARD PLATES, APPROVED BY CITY OF MANKATO ENGINEER, SHALL APPLY ON THIS PROJECT http://www.mankato-mn.gov/upload/contents/344/2011 Standard Plates.pdf	
PLATE NO.	DESCRIPTION
2000A	INLET PROTECTION, TYPE 1
2001A	INLET PROTECTION, TYPE 2
2002A	TEMPORARY MANHOLE INSERTS
2003A	TEMPORARY ROCK CONSTRUCTION ENTRANCE

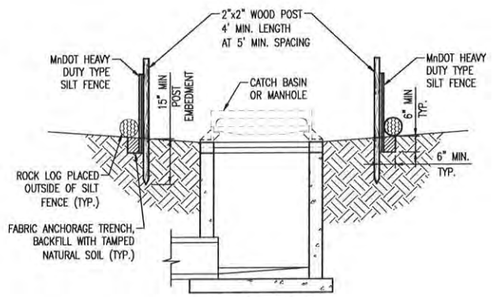


MACHINE SLICED
SILT FENCE DETAIL

N.T.S.



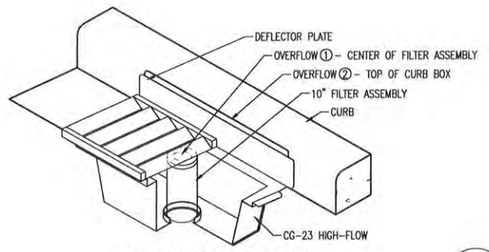
PLAN VIEW



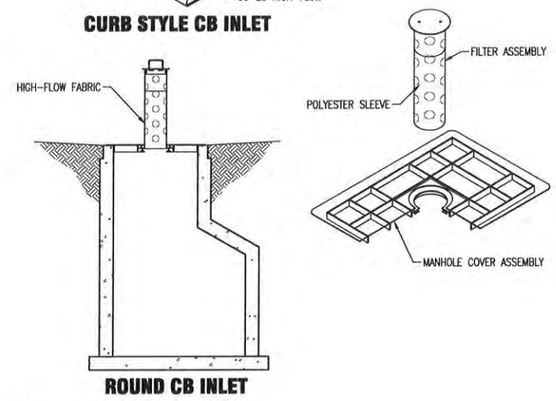
PROFILE VIEW

INLET PROTECTION DETAIL
(SILT FENCE AROUND CATCH BASIN)

N.T.S.



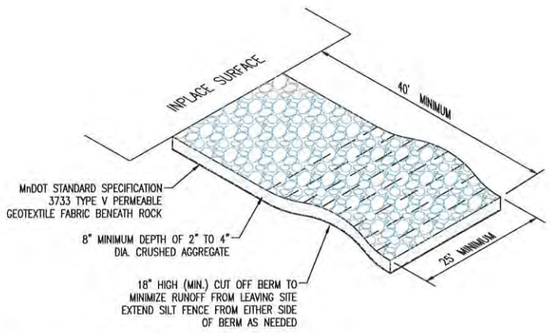
CURB STYLE CB INLET



ROUND CB INLET

INLET PROTECTION DETAIL
(CATCH BASIN IN STREET)

N.T.S.



ROCK CONSTRUCTION ENTRANCE

N.T.S.

NOTES:

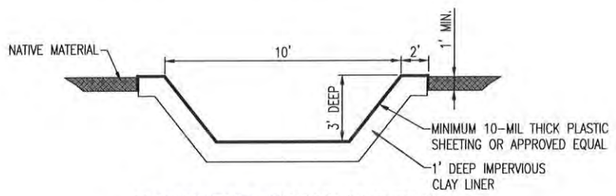
CONTRACTOR SHALL INSTALL A SIGN INDICATING THE CONCRETE WASHOUT AREA.

CONTRACTOR SHALL MAINTAIN WASHOUT AREA TO REMOVE MATERIALS BEYOND 75% CAPACITY.

WASHOUT AREA SHALL NOT BE PLACED WITHIN 50' OF STORM DRAINS, OPEN DITCHES OR BODIES OF WATER.

CONTRACTOR SHALL INSPECT WASHOUT AREA AS NECESSARY TO PREVENT LEAKS AND OVER TOPPING.

WASHOUT AREA SHALL BE REMOVED AFTER CONSTRUCTION IS COMPLETE.



CONCRETE WASHOUT DETAIL

N.T.S.

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

NO	DATE	DESCRIPTION

PROJECT NO.	14-16889
FILE NAME	16889 SWPPP
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

SHEET

13

OF 18

CITY STREET LIGHT (BY OTHERS)

STOP

R1-1 (30"x30")

TELEMARK COURT

PROPOSED 15" STORM

CITY STREET LIGHT (BY OTHERS)

PROPOSED HYDRANT, TYP

S-4

A-3

S-3

A-2

PROPOSED 8" SANITARY 8" WATERMAIN

5' UTILITY EASEMENT, TYP.

10' UTILITY EASEMENT, TYP.

10' UTILITY EASEMENT

15' UTILITY EASEMENT

PROPOSED 8" SANITARY

20' UTILITY EASEMENT

S-2

10' UTILITY EASEMENT

PROPOSED 15" STORM

PROPOSED 8" SANITARY

PROPOSED 8" WATERMAIN

EXISTING 15" STORM

A-1

30' UTILITY EASEMENT

CONSTRUCT 57 LF B618 CURB & GUTTER

CONNECT TO EXISTING 15" STORM

S-1

CONNECT TO EXISTING 8" SANITARY

CONNECT TO EXISTING 8" WATERMAIN

EXISTING 8" SANITARY

EXISTING 8" WATERMAIN

TELEMARK DRIVE

STOLTZMAN ROAD

27" STORM SEWER

12" SANITARY SEWER

8" SANITARY SEWER

1

2

3

4

5

6

N

0 25 50 75

Scale:

B.M. ELEVATION=971.10

TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF TELEMARK DRIVE & STOLTZMAN ROAD

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IRONWOOD ESTATES

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PROJECT NO.	14-16889
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DRAWN BY	RJA
DESIGNED BY	RJA
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ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

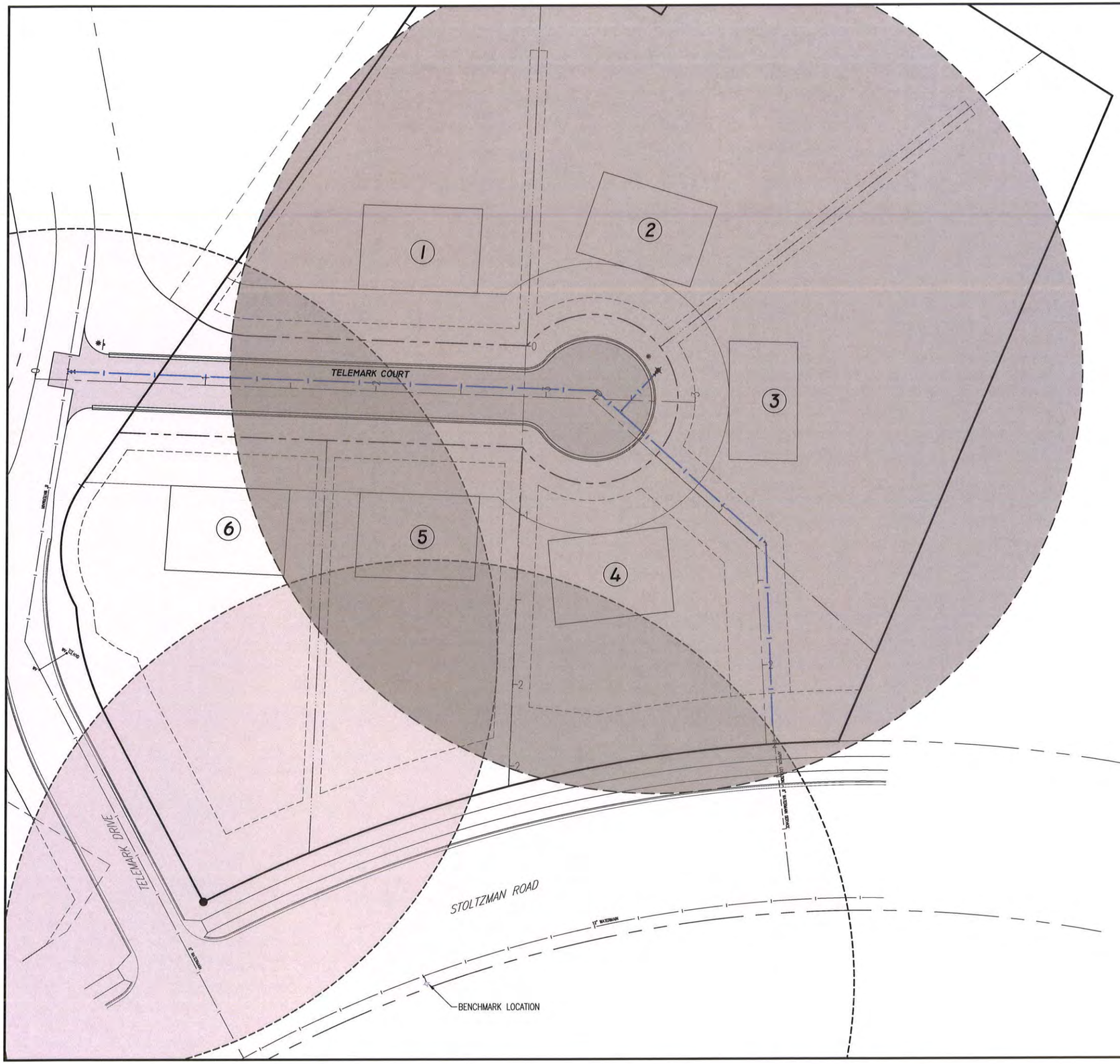
TITLE

OVERALL SITE & UTILITY PLAN

SHEET

14

OF 18



R250'

EXISTING HYDRANT

R250'

PROPOSED HYDRANT

70'

VARIES

PROPOSED BUILDING PAD

HYDRANT COVERAGE LEGEND

N

0 30 60 90

Scale:

B.M. ELEVATION=971.10

TOP NUT OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF
TELEMARK DRIVE & STOLTZMAN ROAD

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MANKATO MINNESOTA

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TITLE

HYDRANT COVERAGE PLAN

SHEET

15

OF 18

NOTE:
STA. 00+00–WYE STATION
S = 000.0 – SEWER INVERT ELEVATION
W = 000.0 – CURB BOX GROUND ELEVATION

SAN MH
R=979.3
I=969.0

TELEMARK DRIVE

F&I:
1–8"x8" WET TAP & VALVE

CONNECT TO EXISTING 8" WATERMAIN
(VERIFY DEPTH & LOCATION)

FLATTEN CROWN TO MATCH
TELEMARK DRIVE GRADES

CONSTRUCT SUBDRAIN CLEANOUT, TYP.

978.88 (MATCH)
978.29 (MATCH)
978.72 (MATCH)
978.50
978.93 (MATCH)
978.45 (MATCH)
978.37
978.13 (MATCH)

CONSTRUCT S418 CURB & GUTTER, TYP.

CONSTRUCT 6"
PERFORATED SUBDRAIN, TYP.

CONSTRUCT 3' TAPERS UP TO B–STYLE
CATCH BASIN CASTING (TYP.)

10' MIN. TYP.

TELEMARK COURT

F&I: 310'x8" WATERMAIN

SP–3

975.50
976.60
975.60

14'
16'
30'
60'
13.17'

D–1
D–2
D–4

A–1
A–2
A–3

P–2

S–4
S–3

STUB SUBDRAIN SERVICE
1' PAST R/W, TYP.

STUB INTO EACH LOT, TYP.
1–4" SANITARY SERVICE
1–1" WATER SERVICE
1–4" SUBDRAIN SERVICE

10' UTILITY EASEMENT, TYP.

5' UTILITY EASEMENT, TYP.

8" WATERMAIN

8" SANITARY SEWER

(1) STA. 2+22
S=958.43
W=969.84

(2) STA. 3+17
S=954.23
W=966.70

(3) STA. 0+34
S=952.59
W=965.31

(4) STA. 0+35
S=952.41
W=965.82

(5) STA. 2+42
S=957.41
W=968.81

(6) STA. 1+32
S=962.49
W=974.12

F&I:
1–8"x6" TEE
1–6" G.V. & BOX
1–HYDRANT
(HYD BREAK=968.5)
33 LF 6" WATERMAN

F&I:
1–8" 45° BEND

R15'
R36'

967.84
967.16
967.19
967.03
966.84
967.59
968.45
967.18
967.01
967.64

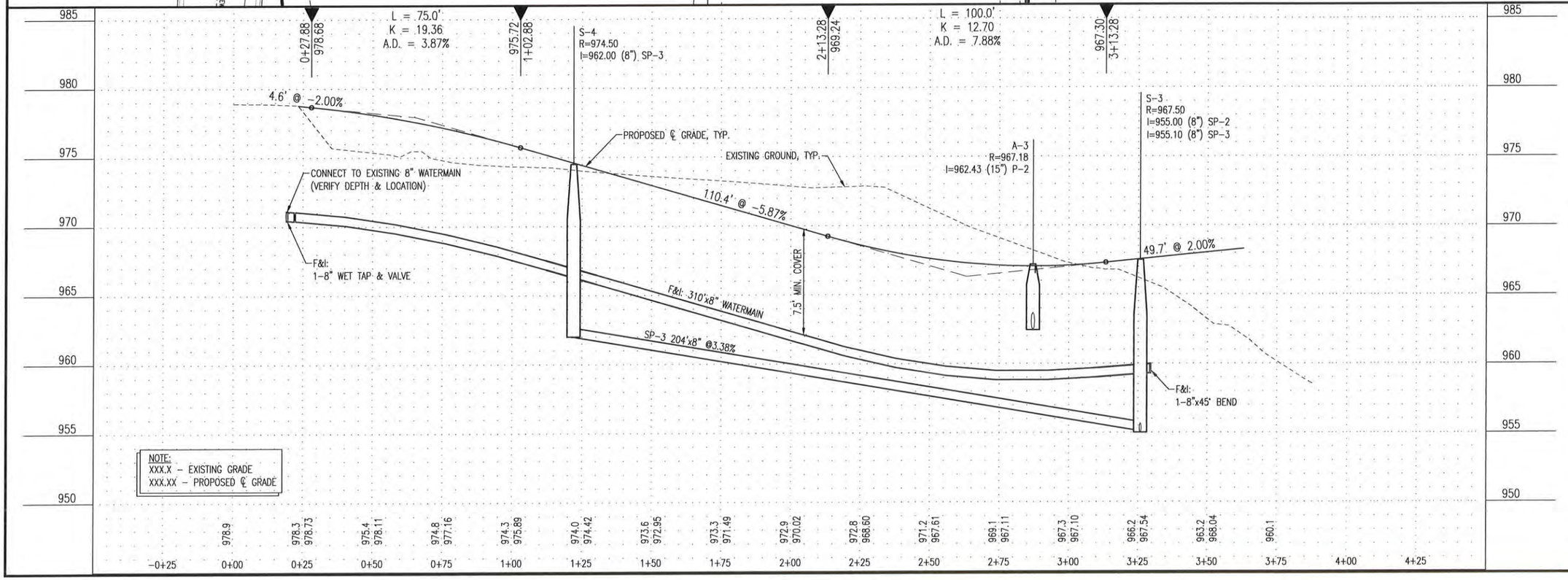
B.M. ELEVATION=971.10
TOP OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF
TELEMARK DRIVE & STOLTZMAN ROAD

N

0 20 40
Scale:

8
4
0
VERT.

KEY PLAN



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CHARLES J. BRANDEL
DATE 11/07/2014 LIC. NO. 43359

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DATE LIC. NO.

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PROJECT
IRONWOOD ESTATES
MANKATO MINNESOTA

REVISION SCHEDULE

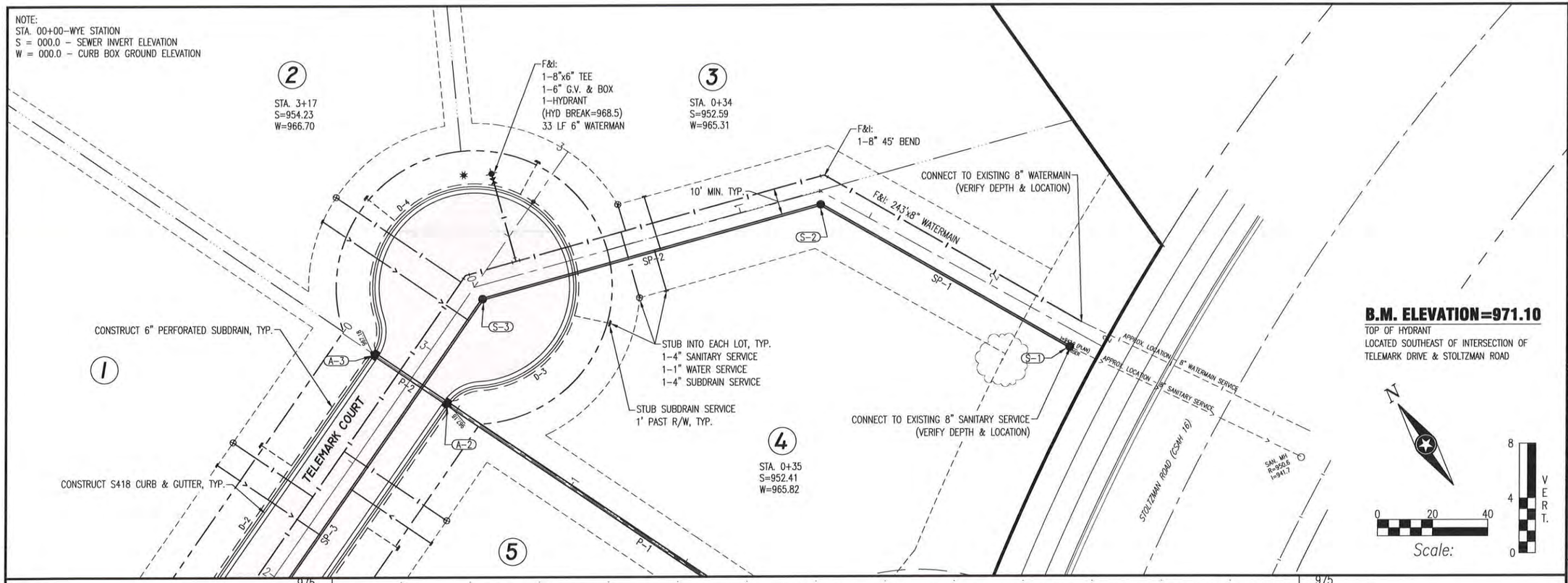
NO	DATE	DESCRIPTION

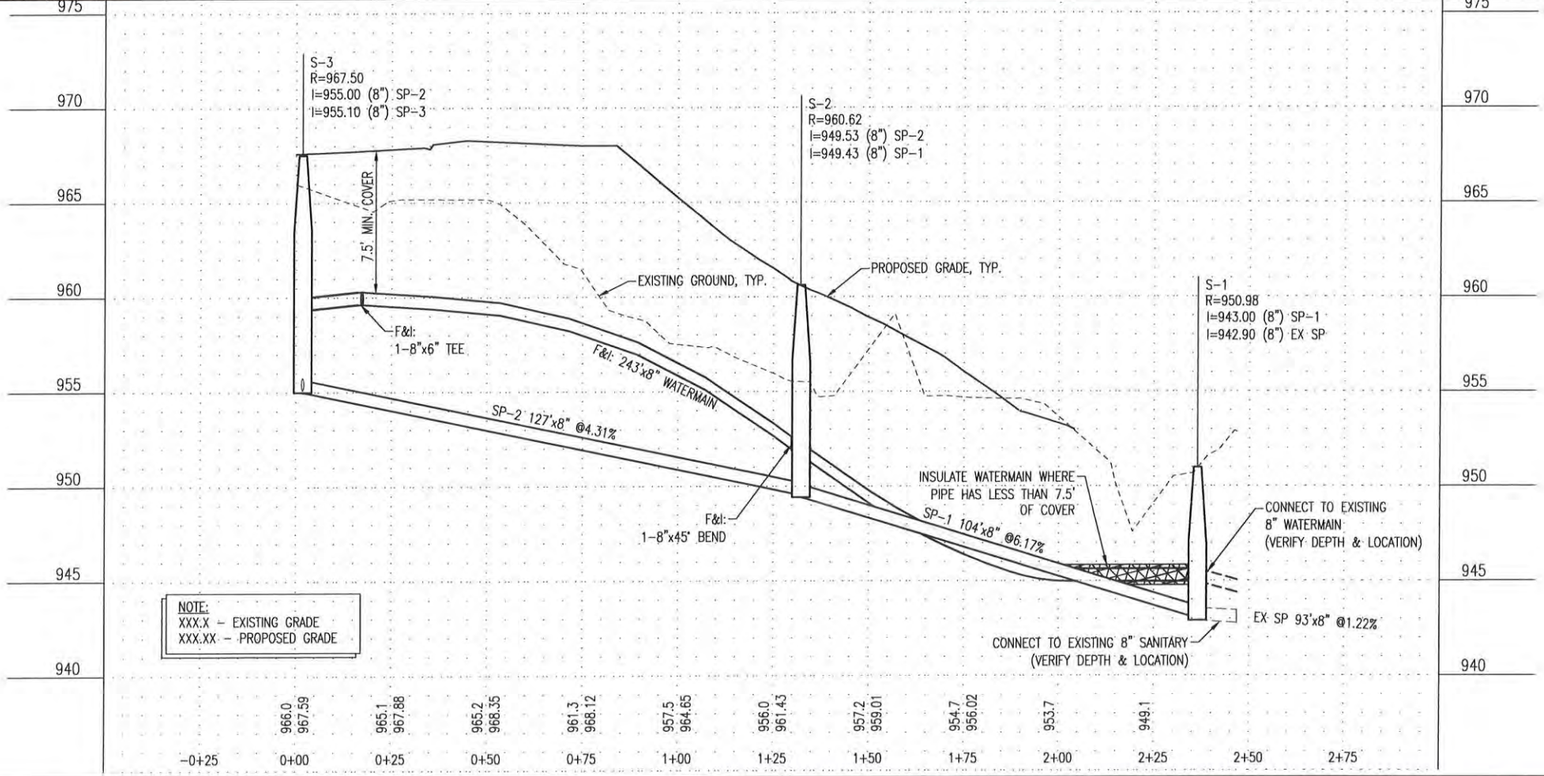
PROJECT NO.	14-16889
FILE NAME	16889 PROFILES
DRAWN BY	RJA
DESIGNED BY	RJA
REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE
PLANNED UTILITY CONSTRUCTION - TELEMARK COURT

SHEET
16
OF 18

NOTE:
STA. 00+00–WYE STATION
S = 000.0 – SEWER INVERT ELEVATION
W = 000.0 – CURB BOX GROUND ELEVATION





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KEY PLAN

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

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REVIEWED BY	CJB
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CITY PROJECT NO.	86006

TITLE
PLANNED UTILITY CONSTRUCTION - SANITARY & WATERMAIN

SHEET
17 OF 18

NOTE:
STA. 00+00–WYE STATION
S = 000.0 – SEWER INVERT ELEVATION
W = 000.0 – CURB BOX GROUND ELEVATION

F&I:
1–8"x6" TEE
1–6" G.V. & BOX
1–HYDRANT
(HYD BREAK=968.5)
33 LF 6" WATERMAN

10' MIN. TYP.

CONNECT TO EXISTING 15" STORM SEWER
(VERIFY DEPTH & LOCATION)

CONSTRUCT 6" PERFORATED SUBDRAIN, TYP.

STUB SUBDRAIN SERVICE
1' PAST R/W, TYP.

CONSTRUCT S418 CURB & GUTTER, TYP.

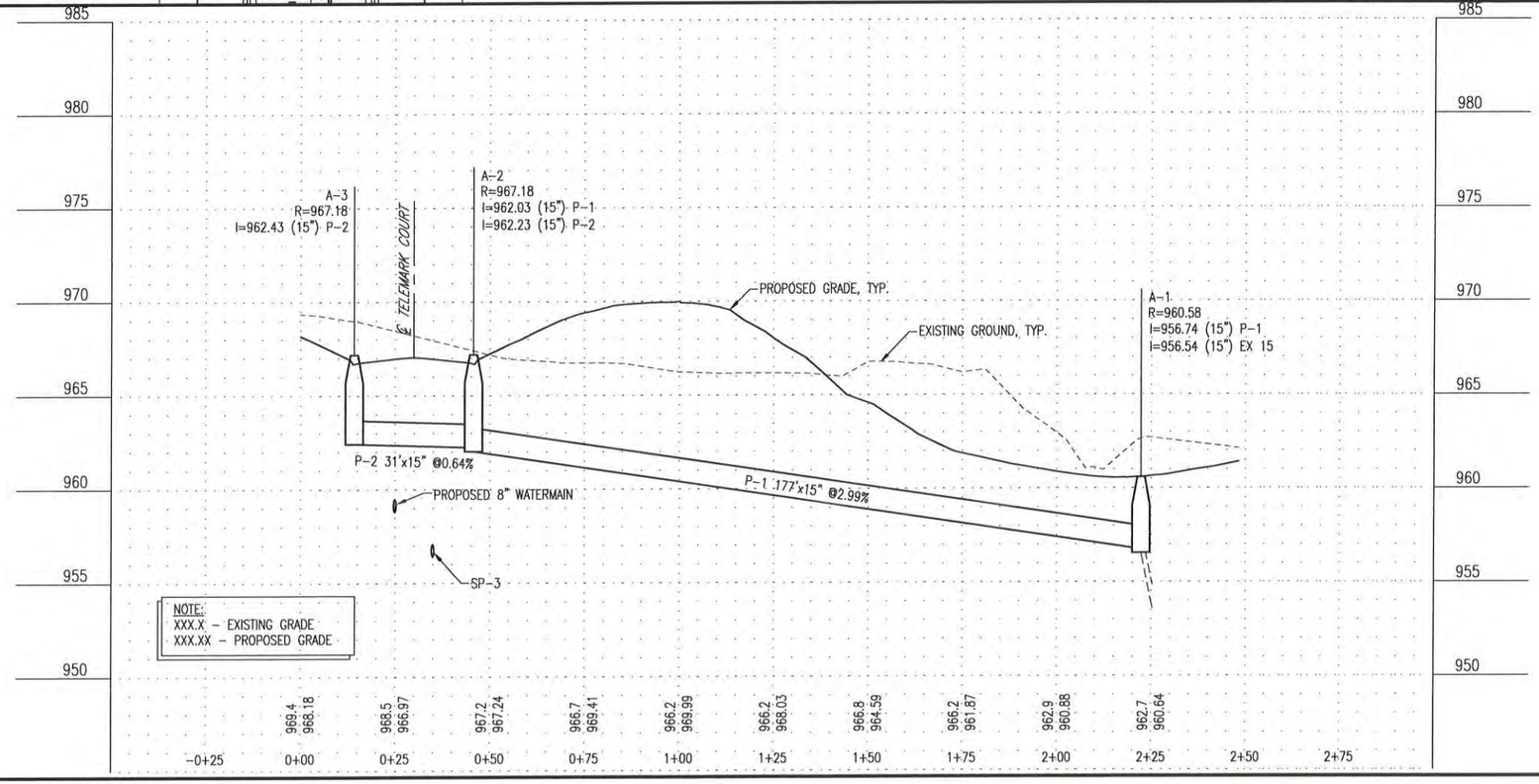
STUB INTO EACH LOT, TYP.
1–4" SANITARY SERVICE
1–1" WATER SERVICE
1–4" SUBDRAIN SERVICE

TELEMARK COURT

STOLTZMAN ROAD (CSAH 16)

B.M. ELEVATION=971.10
TOP OF HYDRANT
LOCATED SOUTHEAST OF INTERSECTION OF
TELEMARK DRIVE & STOLTZMAN ROAD

Scale: 0 20 40 — VERT. 0 4 8



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KEY PLAN

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PROJECT

IRONWOOD ESTATES

MANKATO MINNESOTA

REVISION SCHEDULE

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PROJECT NO.	14-16889
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REVIEWED BY	CJB
ISSUE DATE	11/6/2014
CITY PROJECT NO.	86006

TITLE

PLANNED UTILITY CONSTRUCTION - STORM DRAIN

SHEET

18 OF 18

Site Plan and Traffic Advisory Review Committee **1. 6.**

Meeting Date: 08/11/2026

Title

CY40-26

Request of Jones Haugh & Smith, with permission of the property owner, Scott Brown, for a preliminary plat review of Metcon Addition, and for the rezone of the subject property from T, Transition, to B-3, Highway Business and M-1, Light Industrial zoning district. The subject property is described as That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning; Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota (Blue Earth County PIDR430911300021).

Applicant

The applicant is Jones Haugh & Smith, with permission of the property owner, Scott Brown.

Request

The applicant is seeking a preliminary plat review of Metcon Addition, and the rezoning of the subject property from T, Transition, to B-3, Highway Business and M-1, Light Industrial zoning district.

Location

The subject property is located at Blue Earth County PID R430911300021 and is legally described as: That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning; Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota.

Existing Land Use

The subject property is currently an undeveloped agricultural field.

Zoning

Following the recent annexation into the City of Mankato, the subject property has been zoned T- Transition District.

Environmentally Sensitive Areas

Environmentally Sensitive Areas, Wetlands: Three wetland basins are present on the subject property. The preliminary plat represents the locations of these wetlands. Two wetlands are present within the proposed Block 1 and one wetland is located within Ponderosa Court & Outlot A. Due to the location of these wetlands, the applicant would be unable to construct the proposed subdivision as intended. It is the applicant's intent to remove these wetlands and purchase wetland replacement credits from a wetland bank.

The applicant has not provided wetland documentation allowing for removal of said wetlands. Until such time as all required documentation has been provided, the wetlands delineated onsite shall not be permitted to be impacted by the applicant.

Public Utilities

The applicant proposes to extend utilities to the subdivision via existing services located within Adams Street. The utility plan provided shows that Ponderosa Court shall act as the primary utility corridor into the subdivision.

The applicant proposed to construct an onsite stormwater pond within the subdivision.

Review

The applicant, Jones Haugh & Smith, with permission of the property owner, Scott Brown, is requesting a preliminary plat review of Metcon Addition, and the rezoning of the subject property from T, Transition, to B-3, Highway Business and M-1, Light Industrial zoning district.

Preliminary Plat:

Jones Haugh Smith, with permission of the property owner, Scott Brown, has submitted a request for a preliminary plat review of Metcon Addition. The plat creates a new public cul-de-sac, identified as "Ponderosa Court", a new retention pond within the Public Right-of-Way, and depicts a potential future extension of Evergreen Drive. The proposed Plat is a one block, one Outlot subdivision. Block 1, located on the eastern side of the newly created Ponderosa Court, contains three new lots. Lot 1 is proposed to contain 1.64 acres of area with a 118.59' frontage along Ponderosa Ct. Access to Lot 1 will come from Ponderosa Ct and will not be permitted from Madison Ave. Lot 1 includes two significant 60' & 40' portions of Drainage & Utility easements. Lot 2 is proposed to contain 2.41 acres of area with a frontage exceeding 300' along Ponderosa Ct. Access to Lot 2 will be limited to Ponderosa Ct and no access shall be permitted from Adams St. Lot 2 includes two 30' portions of Drainage & Utility easements. Lot 3 is proposed to contain 2.00 acres of area. Access for Lot 3 has not been specified. Access to the lot shall be permitted through Lot 2 or from the unimproved Evergreen Drive. Lot 3 shall not be permitted to access directly onto Adams Street.

The applicant proposes to zone these three lots for industrial uses. On the western side of the newly created Ponderosa Court is one Outlot, Outlot A, which will require future subdivision prior to development occurring. The applicant proposes to zone Outlot A for Highway Commercial uses.

Access & Right-of-Way:

The applicant proposes to install a dedicated turn lane on Adams St to serve Ponderosa Court, with continuation of the existing dedicated bike lane. Ponderosa Court is intended to serve as the access point for the subdivision. The applicant has provided a sidewalk network along the full duration of Ponderosa Court.

The applicant shall dedicate the eastern 66' of the subdivision for the Evergreen Drive ROW, including the 33' strip between the DCJK LCC Parcel and the adjacent Turner Property. Evergreen Drive is shown as a north-south connection from Adams Street to Madison Avenue. Evergreen Drive is not intended to be improved at this time, as insufficient Right-of-Way is currently available for the roadway. The existing stretch of Evergreen Drive is present on the south side of Madison Avenue and roughly aligns with the proposed ROW.

As a County Road, Blue Earth County limits access onto Madison Avenue. It proposed plat represents the Controlled Access limitations depicted on Blue Earth County's ROW plat. Due to the presence of the controlled access, potential roadway access from the subdivision onto Madison Avenue & CSAH 12 is strictly limited. Existing access along the north side of Madison Avenue shall be removed with the proposed project. The intended connection of Adams Street to Madison Avenue has not yet been determined, but dependent on the determination, Ponderosa Ct may be modified as a right-in, right-out.

Stormwater Pond:

The applicant proposes to construct a new wet retention pond within the Public Right-of-Way within the Southwestern corner of the subdivision. In order to provide continuous connection from the Right-of-Way dedicated for Ponderosa Ct and the stormwater pond Right-of-Way, a narrow strip of ROW has been proposed between the cul-de-sac and pond.

Rezoning:

The subject property was recently annexed into the City of Mankato. The applicant is seeking to zone the parcels. The parcels on the eastern side of Ponderosa Court are proposed to be M-1, Light Industrial District, and the

Outlot on the western side of Ponderosa Court is proposed to be zoned B-3, Highway Business District. The proposed zoning is consistent with the underlying land use plan which shows the parcels as, “Highway Commercial,” and “Industrial Commercial.”

The purpose of the rezoning request is to allow for the development and operation of three industrial lots and potential future commercial lots. Following annexation into the City of Mankato, the property is assigned to the T, Transition District, a designation that does not allow for new development until rezoning occurs. Therefore, the applicant requests the property be rezoned to a mixture of M-1, Light Industrial and B-3, Highway Business Zoning Districts. This request is guided by the City of Mankato’s future land use map.

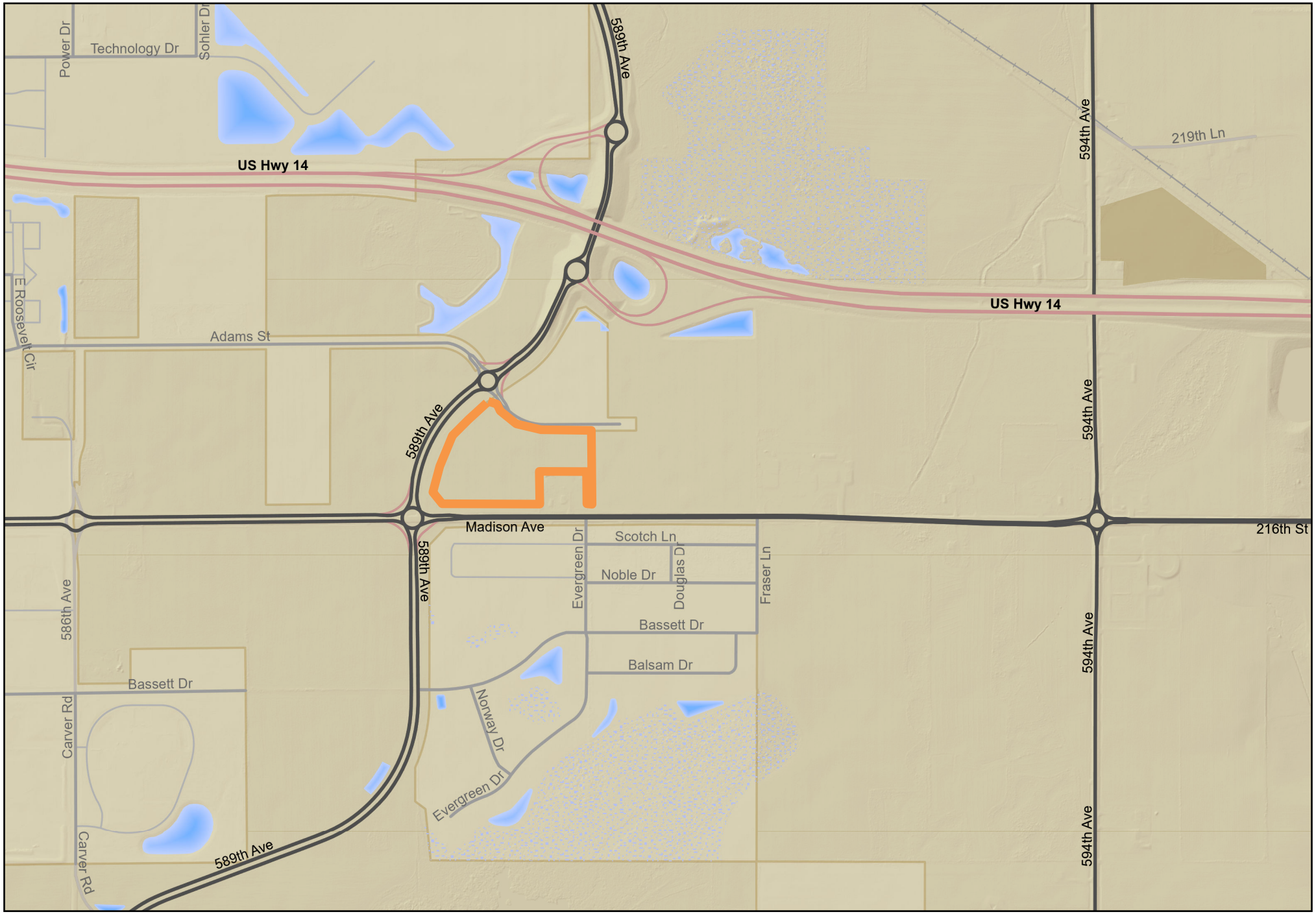
The proposed rezoning is consistent with the underlying land uses, as the subject property is designated as a mixture of Highway Commercial and Industrial Commercial land uses. The western portion of the property along CSAH 12 is designated as Highway Commercial, whilst the eastern portion of the property is designated for Industrial Commercial use.

The proposed rezoning is consistent with the B-3, Highway Business District, as it aligns with the zoning of the parcels located to the Northeast and South of the subject property. The proposed rezoning is also consistent with the M-1, Light Industrial District zoning, as City of Mankato parcels located within the nearby Industrial Commercial land use area are also zoned M-1.

Attachments

General Location Map
Aerial
Preliminary Plat & Site Plan
Final Plat
Rezoning Map
Grading Plan
Utility Plan
Traffic Study
Drainage Memo
Geotechnical Evaluation

General Location Map



N
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0 0.3 0.6 1 mi

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Produced by: City of Mankato GIS
Published: August 4, 2026

City of Mankato — Leading the way...

Aerial Map



N W E S

0 0.3 0.6 1 mi

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Produced by: City of Mankato GIS
Published: August 4, 2026

City of Mankato — Leading the way...

METCON ADDITION

EXISTING LEGAL DESCRIPTION:

That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: Commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No.27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System – Blue Earth County Zone – HARN NAD83 – 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning.
Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota.

OWNERS / DEVELOPERS:

METCON
15760 Acorn Trail
Faribault, MN 55021
(597)-332-2266

AREA TABLE:

Lot 1 Block 1 = 1.64 acres
Lot 2 Block 1 = 2.41 acres
Lot 3 Block 1 = 2.00 acres
Outlot A = 4.11 acres

PONDEROSA COURT = 3.64 acres
EVERGREEN DR = 0.67 acres

Total = 14.47 acres

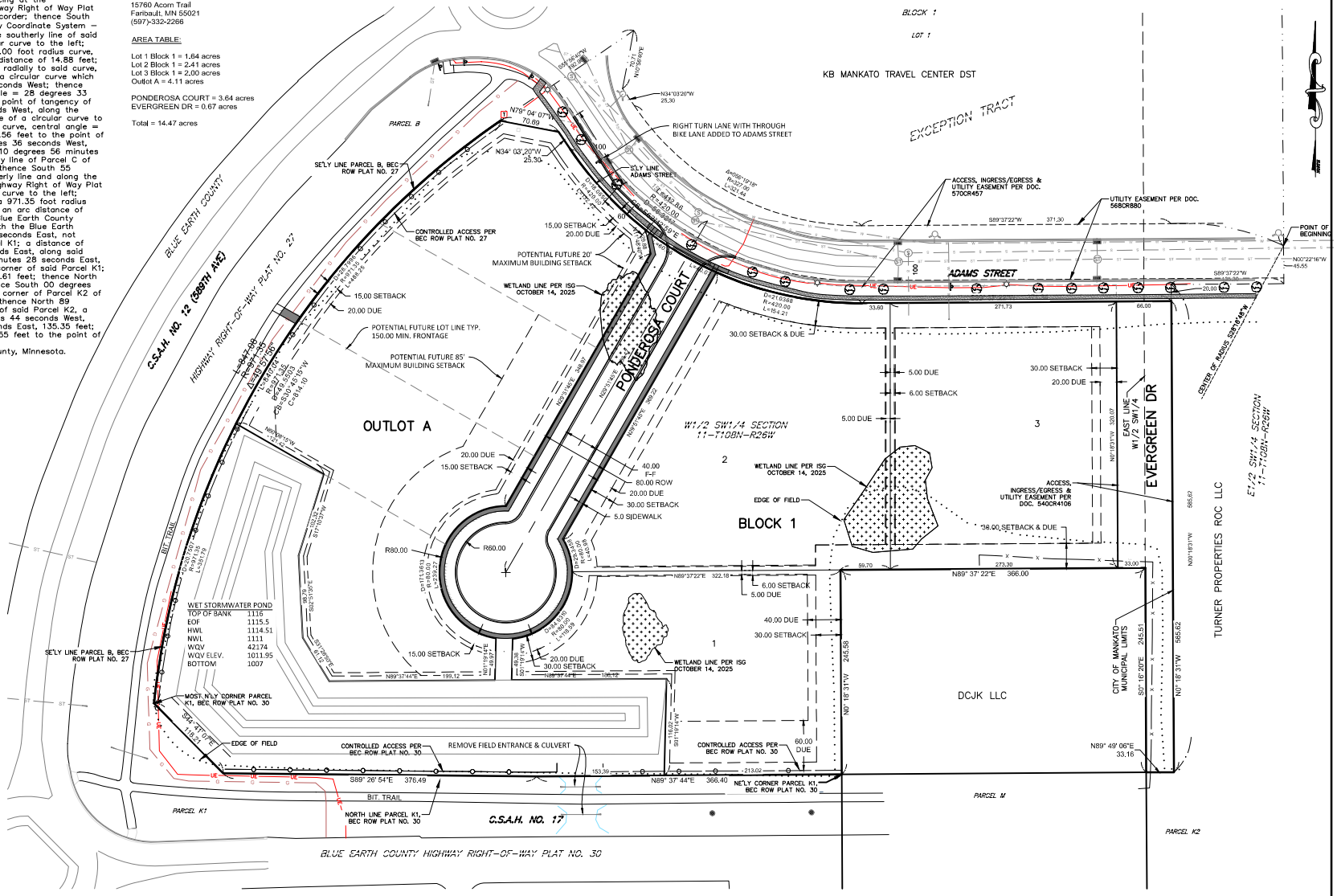
LEGEND

DUE	= Drainage & Utility Easement
W	= Water Main
S	= Sanitary Sewer
ST	= Storm Sewer
G	= Gas Main
UT	= Underground Telephone
OT	= Overhead Telephone
FO	= Fiber-Optics
UE	= Underground Electric
OE	= Overhead Electric
UTV	= Underground TV
JLM	= Judicial Landmark
X	= Chain Link Fence
	= Control Access
	= Sign
	= Stop Sign
	= Light Pole
	= Flood Lights
	= Power Pole
	= Guy Anchor
	= Fire hydrant
	= Water Main Valve
	= Culvert
	= Catch Basin & Catch Basin Numbers
	= Manholes & Manhole Numbers
1272	= Elevation Contour Line
1271.23	= Spot Elevation
RM1270.89	= Rim Elevation
FL1262.34	= FlowLine Elevation
	= Deciduous Tree
	= Coniferous Tree
	= Bush

ZONING NOTES:
Outlot A to be Zoned B-3 Highway Business
Commercial Gateway Overlay
Setbacks:
Front: 15' Impervious Surface or Structure
Structure Min. 15' and 20' Max Corner Lot
Structure Min. 15' and 85' Interior Lot
Rear: 3' Impervious Surface or Structure
Side: 6' Impervious Surface or Structure
Maximum Height: None

Lots 1-3 Block 1 to be Zoned M-1 Light Industrial
Setbacks:
Front: 15' Impervious Surface, 30' Structure
Rear: None
Side: 6' Impervious Surface or 15' Building
Transitional to Residential: 30'
Maximum Height: None

FLOOD ZONE:
The surveyed property shown on this survey map is in Flood Zone X, according to Flood Insurance Rate Map Community Panel No. 27013C0116F, published by the Federal Emergency Management Agency, effective date February 22, 2024



60 0 60
HORIZ. SCALE FEET
DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

REV.	BY	DATE	REVISION DESCRIPTION
-	-	-	-

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 507-451-4598

DESIGNED: JHS5
DRAWN: JHS5
CHECKED: BJJ
Date: 7/28/26
DWG: 25-1234PP

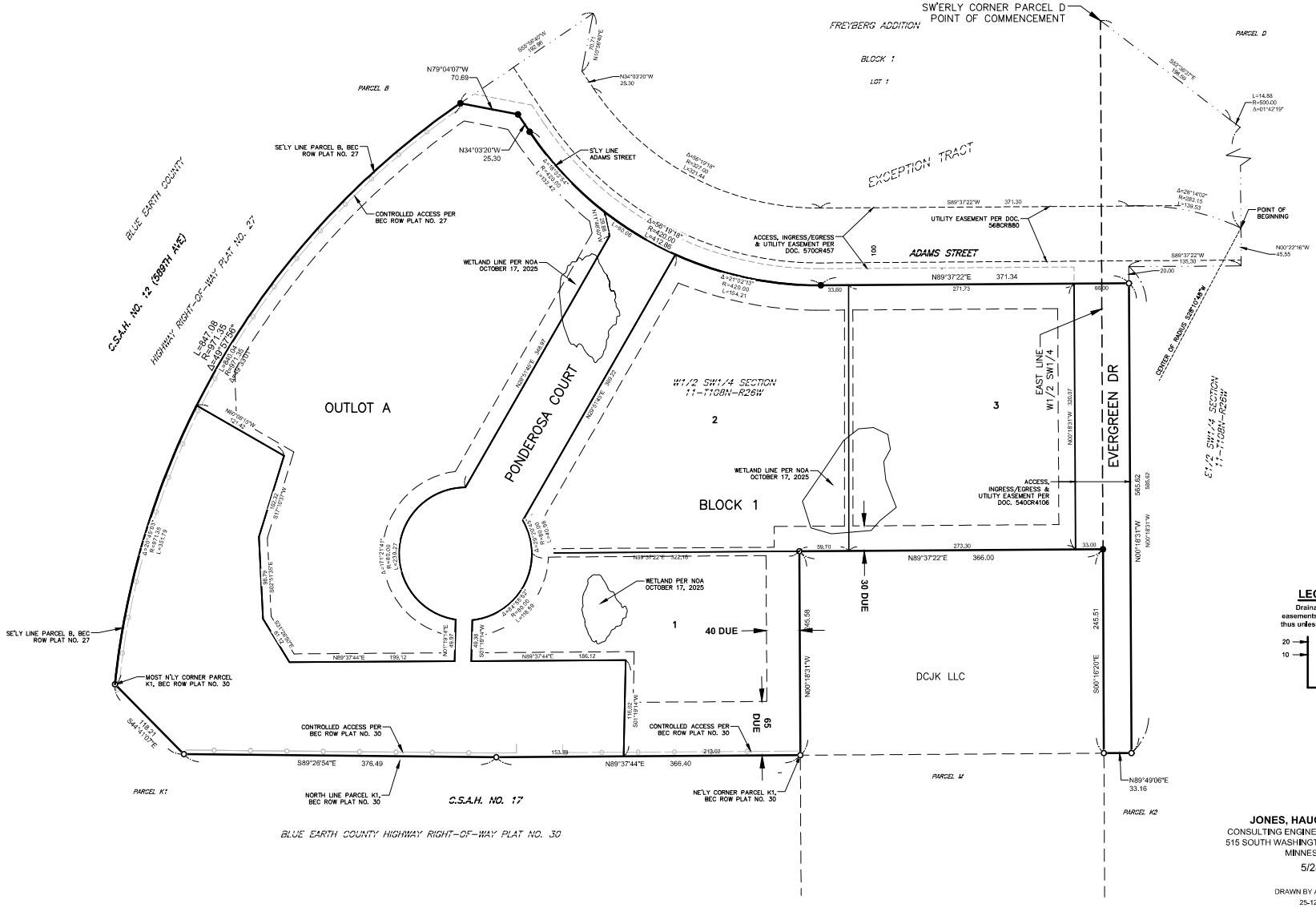
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
John H. Schulte V
License No. 44639 Date: 7/28/26

PRELIMINARY PLAT
METCON ADDITION
PART OF SW1/4 SECTION 11-T108N-R26W
SITE PLAN

SHEET 1 OF 3

OFFICIAL PLAT

METCON ADDITION

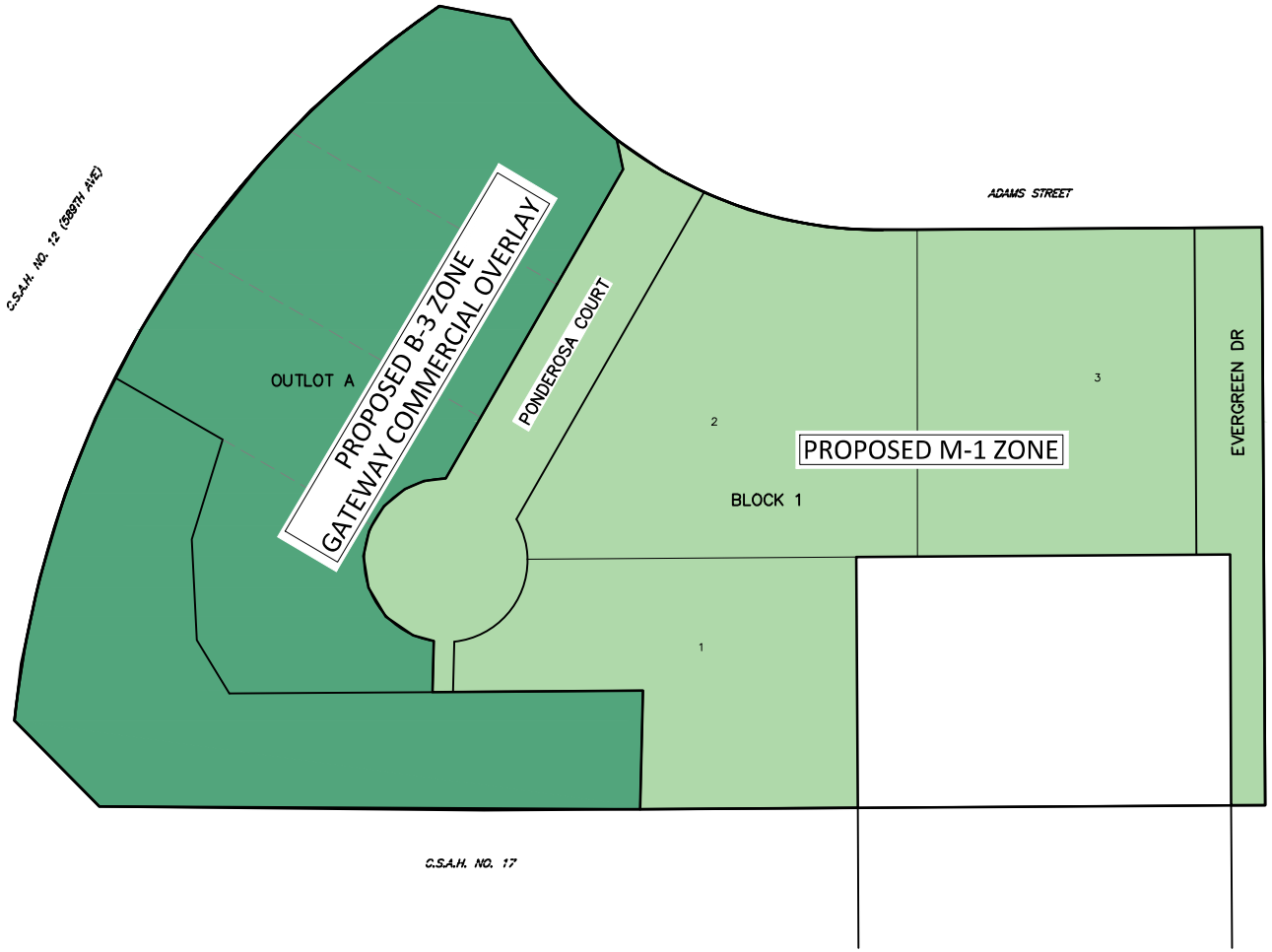


JONES, HAUGH & SMITH INC.
CONSULTING ENGINEERS & LAND SURVEYORS
515 SOUTH WASHINGTON AVENUE ALBERT LEA, MINNESOTA 56007

5/28/2026

DRAWN BY ANDY MCGOWAN
25-1243FP.dwg

METCON ADDITION



ZONING NOTES:
Outlot A to be Zoned B-3 Highway Business
Commercial Gateway Overlay
Setbacks:
Front: 15' Impervious Surface or Structure
Structure Min. 15' and 20' Max Corner Lot
Structure Min. 15' and 85' Interior Lot
Rear: 3' Impervious Surface or Structure
Side: 6' Impervious Surface or Structure
Maximum Height: None

Lots 1-3 Block 1 to be Zoned M-1 Light Industrial
Setbacks:
Front: 15' Impervious Surface, 30' Structure
Rear: None
Side: 6' Impervious Surface or 15' Building
Transitional to Residential: 30'
Maximum Height: None

60 0 60
HORIZ. SCALE FEET
DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

REV.	BY	DATE	REVISION DESCRIPTION
-	-	-	-

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 507-451-4598

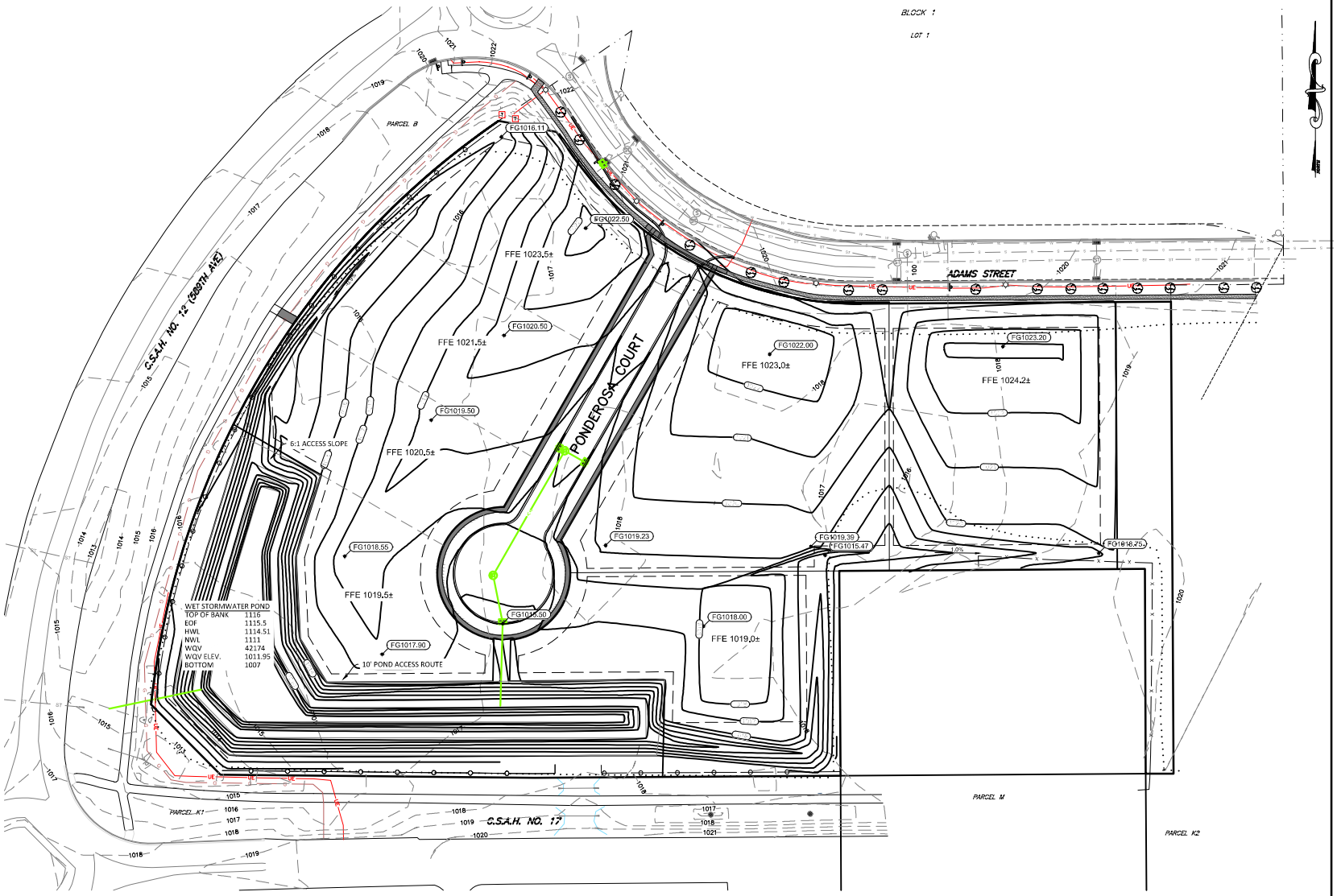
DESIGNED: JHS5
DRAWN: JHS5
CHECKED: BJJ
Date: 7/28/26
DWG: 25-1234PP

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
John H. Schulte V
License No. 44639 Date: 7/28/26

PRELIMINARY PLAT
METCON ADDITION
PART OF SW1/4 SECTION 11-T108N-R26W
ZONING MAP

SHEET 1 OF 1

METCON ADDITION



LEGEND

- W = Water Main
- S = Sanitary Sewer
- ST = Storm Sewer
- G = Gas Main
- UT = Underground Telephone
- OT = Overhead Telephone
- FO = Fiber-Optics
- UE = Underground Electric
- OE = Overhead Electric
- UTV = Underground TV
- JLM = Judicial Landmark
- X = Chain Link Fence
- = Control Access
- = Sign
- = Stop Sign
- = Light Pole
- = Flood Lights
- = Power Pole
- = Guy Anchor
- = Fire hydrant
- = Water Main Valve
- = Culvert
- = Catch Basin & Catch Basin Numbers
- = Manholes & Manhole Numbers
- 1272 = Elevation Contour Line
- 1271.23 = Spot Elevation
- RM1270.89 = Rim Elevation
- FL1262.34 = Flow Line Elevation
- = Deciduous Tree
- = Coniferous Tree
- = Bush

NOTE: CONTOUR SHOWN ARE FOR MASS GRADING AND INCLUDE A 1' HOLD-DOWN AT BUILDING PADS

60 0 60
HORIZ. SCALE FEET

DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

REV.	BY	DATE	REVISION DESCRIPTION
-	-	-	-

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 507-451-4598

DESIGNED: JHS5
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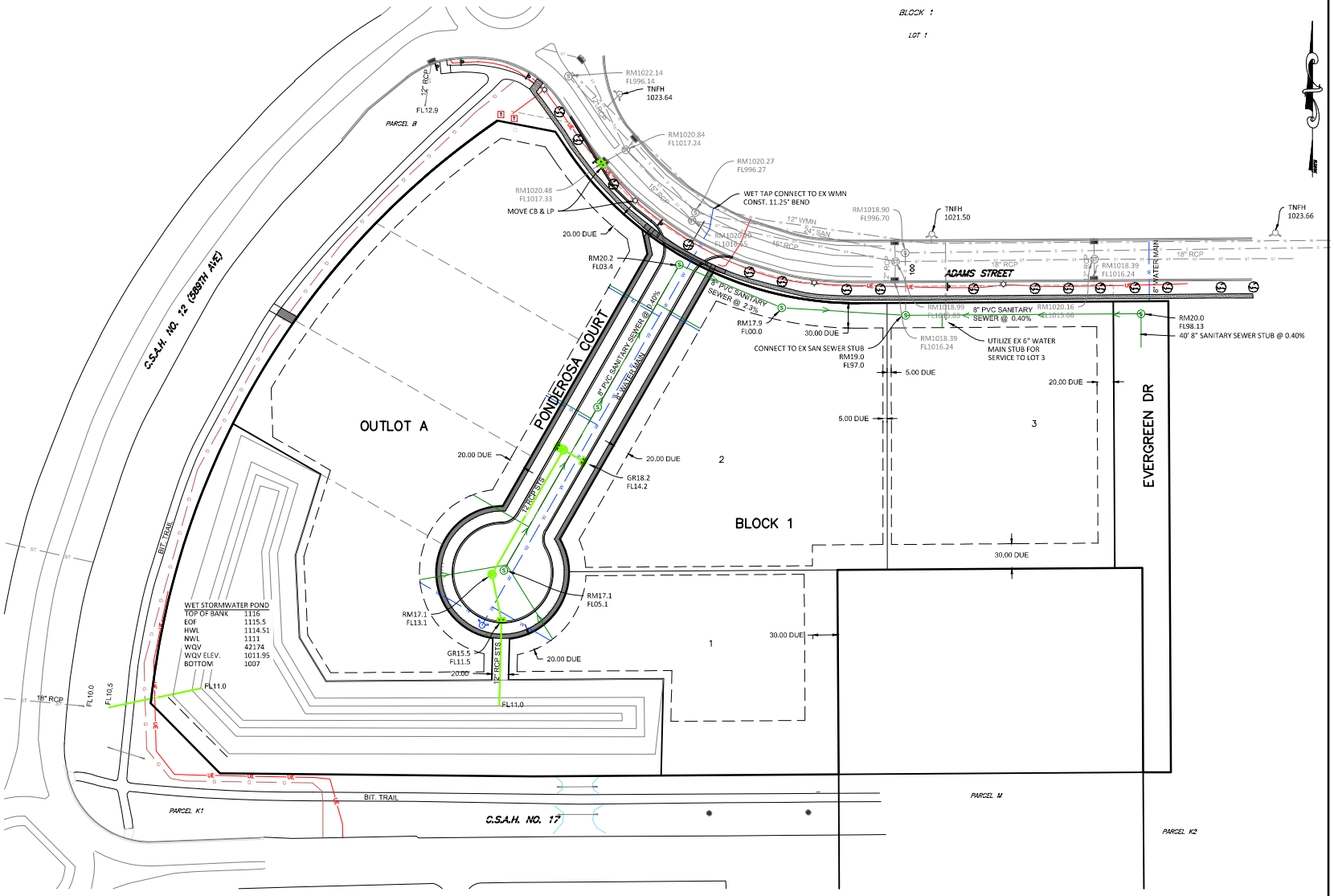
John H. Schulte V
License No. 44639 Date: 7/28/26

PRELIMINARY PLAT
METCON ADDITION
PART OF SW1/4 SECTION 11-T108N-R26W
GRADING PLAN

SHEET 2 OF 2

METCON ADDITION



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HORIZ. SCALE FEET

DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

REV.	BY	DATE	REVISION DESCRIPTION
-	-	-	-

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 507-451-4598

DESIGNED: JHS5
DRAWN: JHS5
CHECKED: BJJ
Date: 7/28/26
DWG: 25-1234PP

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

John H. Schulte V
License No. 44639 Date: 7/28/26

PRELIMINARY PLAT
METCON ADDITION
PART OF SW1/4 SECTION 11-T108N-R26W
UTILITY PLAN

SHEET 2 OF 3

Met-Con Development Traffic Study

Mankato, MN
June 3, 2026

Prepared For:	**Prepared By:**
Met-Con Companies	SSTS, LLC

I hereby certify that this plan, specification, or report was prepared by me, or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota:

K. Schmidt

Katie A Schmidt, P.E.

Date: 06/03/2026 Lic. No.: 47147

SSTS LLC

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1 INTRODUCTION

The Met-Con Mankato development, referred to as the "Proposed Project" in this study, is planned in Mankato, Blue Earth County, Minnesota. 16.61 acres are planned to be developed into retail and industrial uses. One outlot is designated for Met-Con Companies office and shop. At this time, tenants have not yet been secured for the remaining outlots and likely land uses are assumed. The Proposed Project is located south of Adams St and the TA Travel Center and Truck Stop, east of CSAH 12 (589th Ave) and north of CSAH 17 (Madison Ave).

1.1 Proposed Access

Main full access serving the west side of the site is proposed on Adams St at the westerly TA Travel Center Driveway (Driveway 1) through construction of a southern leg. This existing driveway/proposed access is spaced approximately 280 feet from the CSAH 12/Adams St roundabout. A second full access serving the eastern 20,000 SF industrial building outlot is proposed on Adams St at the TA Travel Center Driveway 2. The Proposed Project's location, layout, likely land uses and access are illustrated in Figure 1.

1.2 Study Purpose

The purpose of this study is to evaluate the impact of traffic generated by the Proposed Project on the operations and safety of the adjacent roadway network and access locations. This study reviews existing conditions and year 2030 conditions without the Proposed Project (termed No-Build conditions) and with the Proposed Project (termed Build conditions). Intersection and access operations and queuing are detailed. Queueing on Adams St between the CSAH 12/Adams St roundabout and Driveway 1/Access 1 is reviewed. Recommendations are provided for roadway and safety improvements to manage site-generated traffic and projected background traffic growth.

2 EXISTING CONDITIONS

2.1 Study Area

Input from the City of Mankato helped define the following existing study area intersections.

1. CSAH 12 (589th Ave) & CSAH 17 (Madison Ave) - Roundabout
2. CSAH 12 (589th Ave) & Adams St - Roundabout
3. CSAH 12 (589th Ave) & US Highway 14/MN Highway 60 Eastbound Ramps - Roundabout
4. CSAH 12 (589th Ave) & US Highway 14/MN Highway 60 Westbound Ramps - Roundabout
5. Adams St & Travel Center Driveway 1 - Side-Street Stop-Control
6. Adams St & Travel Center Driveway 2 - Side-Street Stop-Control
7. Adams St & Travel Center Driveway 3 - Side-Street Stop-Control
8. Adams St & Travel Center Driveway 4 - Side-Street Stop-Control

The study area roadway traffic characteristics are noted below.

CSAH 12 (589th Ave)

Jurisdiction:	Blue Earth County
Functional Class:	Major Collector north of CSAH 17, Minor Arterial south of CSAH 17
Parking:	No parking
Speed:	45 MPH
ADT:	5,781 vehicles/day (Year 2024)
Bike:	Off-street shared path on east side
Pedestrian:	Off-street shared path on east side
Transit:	None

CSAH 17 (Madison Ave)

Jurisdiction:	Blue Earth County
Functional Class:	Minor Collector
Typical Section:	4-lane divided west of CSAH 12, 3-lane w/center left turn lane east of CSAH 12
Parking:	No parking
Speed:	55 MPH
ADT:	4,887 vehicles/day (Year 2024)
Bike:	Off-street shared path on north side
Pedestrian:	Off-street shared path on north side
Transit:	None

Adams St

Jurisdiction:	Municipal, City of Mankato
Functional Class:	Minor Collector west of CSAH 12, Local east of CSAH 12
Typical Section:	3-lane w/center left turn lane
Parking:	No parking
Speed:	30 MPH
ADT:	Not available
Bike:	On-street bike lanes both sides
Pedestrian:	Off-street shared path on north side, sidewalk on south side
Transit:	None

2.2 Traffic Volumes

Turning movement counts for both AM and PM peak periods, including trucks as well as pedestrians and bicycles, were collected at study area intersections on Tuesday, April 7, 2026. The study area's morning peak hour is from 7:15 AM to 8:15 AM, while the evening peak hour is from 4:00 PM to 5:00 PM. Figure 2 illustrates the existing peak hour traffic volumes at study area intersections. Detailed count data is available in the Appendix.

2.3 Crash History

A review of intersection crash records was conducted to evaluate the safety of the study area intersection and to determine if the addition of future traffic growth could exacerbate existing safety issues. Historical crash data was obtained from MnDOT's Crash Mapping Analysis Tool (MnCMAT2). The most recent 5 years of data (2021 to 2025) was considered for the CSAH 12/CSAH 17 roundabout and the CSAH 12/Hwy 14 Ramps roundabouts. Due to the construction of the CSAH 12/Adams St roundabout and the TA travel center, the most recent 3 years of data (2023 to 2025) was considered for the Adams St intersections. The crash analysis considered two factors:

- **Crash Rate** - Crashes are a function of exposure. Roadways with higher traffic volumes experience more crashes than similar roadways with lower volumes and a crash rate is considered to normalize the locations and accurately assess safety. Intersection crash rates are defined by the number of crashes occurring per million entering vehicles (MEV).
- **Critical Crash Rate** - Critical crash rate comparison identifies locations that have a crash rate higher than similar facilities by a statistically significant amount. The critical crash rate is calculated by adjusting the system-wide average crash rate based on the amount of exposure and a statistical constant indicating the level of confidence (95th % confidence interval). At locations where the actual crash rate exceeds the critical crash rate (critical index >1.0), it is likely that the crashes are a result of deficiencies in the intersection design or other existing factors and further study is recommended.

Table 1 summarizes the crash data for the study area intersections and provides a comparison of crash rates to critical crash rates through the critical index. All study area intersections have a crash rate under the critical crash rate (critical index <1.0), indicating existing conditions are not currently contributing to an overall safety problem. It is noted the one crash on Adams St at TA Driveway 3 involved two trucks parked on Adams St with one truck backing up into the other truck.

Table 1. Intersection Crash Data

Intersection	Control	Years of Data	Crash Details		Entering ADT	Intersection Crash Rates (CR)			
			Total	F&A*		CR	MnDOT Ave. CR**	Critical CR	Critical Index
CSAH 12 (589th Ave) & CSAH 17 (Madison Ave)	RAB	5	13	0	9,528	0.75	0.986	1.63	0.46
CSAH 12 (589th Ave) & Adams St	RAB	3	4	0	6,000	0.61	0.986	2.06	0.30
CSAH 12 (589th Ave)& Hwy 14 EB Ramps	RAB	5	4	0	6,522	0.34	0.986	1.77	0.19
CSAH 12 (589th Ave) & Hwy 14 WB Ramps	RAB	5	3	0	5,805	0.28	0.986	1.82	0.16
Adams St & TA Driveway 1	Side Street Stop	3	0	0	680	0.00	0.151	1.98	0.00
Adams St & TA Driveway 2	Side Street Stop	3	0	0	380	0.00	0.151	2.90	0.00
Adams St & TA Driveway 3	Side Street Stop	3	1	0	330	2.77	0.151	3.20	0.86
Adams St & TA Driveway 4	Side Street Stop	3	0	0	130	0.00	0.151	6.32	0.00

* Fatal and "A" type serious injury crashes.

** System-wide average crash rates from MnDOT's Intersection Green Sheets

3 NO-BUILD TRAFFIC CONDITIONS

To assess how the Proposed Project affects the study area, traffic conditions for year 2030 without the project (the No-Build scenario) are used as a baseline. These are then compared to scenarios where the project is included (the Build scenario). Background traffic growth, planned developments and future roadway projects are considered to develop the No-Build scenarios.

3.1 Background Traffic Growth

A background traffic growth rate for study area roadways was developed by reviewing forecast 2050 daily traffic volumes from the ***Mankato/North Mankato Area Planning Organization (MAPO) 2050 Metropolitan Transportation Plan***[1]. A 1.5% annual growth rate was established and used to project existing 2026 traffic volumes forward to anticipated 2030 levels. Figure 3 shows the estimated 2030 No-Build traffic volumes.

3.2 Future Roadway Projects

The ***MAPO 2050 Metropolitan Transportation Plan*** identifies the future extension of Adams Rd from the cul-de-sac east of the TA Truck Stop to CSAH 17 (Madison Ave) in the 2031-2035 timeline. This roadway project will be dependent on development of the parcels to the east of the Proposed Project. Adams St is designated for a functional class change from a local street to a minor collector with the extension. This extension is not fully modeled in this traffic study, but a sensitivity analysis is provided in Section 5 reviewing access operations with increased through traffic on Adams St.

[1] ***MAPO 2050 Metropolitan Transportation Plan***, November 2025, Link .

4 BUILD TRAFFIC CONDITIONS

4.1 Site-Generated Traffic

The Proposed Project includes a 10,016 SF building designated for Met-Con Companies office and shop. There are no secured tenants for the remaining outlots and likely land uses are assumed. Retail land uses including a fast food restaurant, auto parts store and strip retail are assumed on the west side of the site due to higher visibility and easy accessibility, and industrial uses are assumed on the east side of the site (see Figure 1). The fast food restaurant and strip retail uses are high traffic generators, offering a cautious basis for analysis.

The volume of vehicle site generated trips has been estimated for the weekday AM and PM peak hours and on a daily basis using the data and methodology described in the Institute of Transportation Engineers' (ITE) ***Trip Generation Manual (TGM)*** [2]. Shared trips and pass-by trips for the retail uses were considered in the trip generation estimate. Shared trips account for the complementary nature of the land uses (i.e., visiting both strip retail and the fast food restaurant during the same trip). Pass-by trips are trips that are attracted to the site from existing traffic already passing on adjacent roadways. Table 2 summarizes the trip generation estimate.

Table 2. Trip Generation

Land Use	ITE Land Use Code	Size	Trips Generated:				
			AM Peak		PM Peak		Weekday ADT
			Enter	Exit	Enter	Exit	
Met-Con Office (Specialty Trade Contractor)	180	10,016 s.f.	12	4	6	13	98
Fast Food - w/Drive Thru	934	2,500 s.f.	42	41	41	38	1,120
Automobile Parts Sales	843	8,500 s.f.	12	10	20	21	464
Strip Retail Plaza (<40k)	822	17,000 s.f.	37	30	53	53	926
Industrial	130	20,000 s.f.	3	1	1	3	54
Industrial	130	20,000 s.f.	3	1	1	3	54
Totals - Gross			109	87	122	131	2,716
			196		253		
Shared Trips[1]			9	8	11	11	251
			17		22		
Pass-By Trips[2]			17	17	23	23	1,130
			34		46		
Totals - Net			**83**	**62**	**88**	**97**	**1,335**
			145		**185**		

[1] 10% shared trips between the retail uses was assumed.

[2] 50% of pass-by trips from Hwy14/60, 40% from CSAH 12 and 10% from Adams St.

4.2 Access Driveway Geometrics

Both access driveways are planned for full-movement, side-street stop-controlled with single entry and exit lanes. Adams St will retain its current layout: one eastbound shared through/right turn lane and westbound left turns from the center left turn lane. This setup was used for operational analysis. Section 6 provides more discussion on the need for an eastbound right turn lane on Adams St at Driveway 1/Access 1.

4.3 Trip Distribution and Assignment

Site-generated traffic was distributed to the study area network according to current volume patterns and expected site traffic origins and destinations. Figure 4 illustrates the distribution percentages and how site-generated traffic flows in and out of the study area network and access intersections.

4.4 Build Traffic Volumes

When combined, the site-generated traffic volumes and No-Build scenario traffic volumes result in the 2030 Build scenario traffic volumes shown in Figure 5.

[2] ***Trip Generation Manual (TGM)***, Institute of Transportation Engineers (ITE), 12th Edition

5 TRAFFIC OPERATIONAL ANALYSIS

5.1 Operational Analysis Methodology

Intersection performance is measured by driver delay and vehicle queues, which depend on capacity relative to traffic volume. Industry standards for evaluating capacity and resulting driver delay are detailed in the ***Highway Capacity Manual*** [3]. Driver delay is represented as a Level of Service (LOS) grade with "A" as the best conditions and "F" as the worst. Table 3 summarizes the LOS and delay criteria for unsignalized/roundabout and signalized intersections. Typically, LOS "D" represents the threshold for acceptable overall intersection operations, and LOS "E" represents the acceptable individual movement threshold operating during a peak hour. For side-street stop-controlled movements on high volume mainline roads, it is common for side-streets to operate at LOS "D" or "E".

Table 3. Level of Service Grading Criteria

LOS	A	B	C	D	E	F
Unsignalized/Roundabout Intersection Delay	0-10 seconds	>10-15 seconds	>15-25 seconds	>25-35 seconds	>35-50 seconds	>50 seconds
Signalized Intersection Delay	0-10 seconds	>10-20 seconds	>20-35 seconds	>35-55 seconds	>50-80 seconds	>80 seconds
Description	*Free-flow operation*	*Unimpeded operation*	*Stable operation*	*Less stable & more delay*	*Unstable & high delay*	*Congested & back-ups*

The operational analyses also considers vehicle queuing. An intersection can operate with acceptable LOS, but if queues extend back to block entrances to turn lanes or access driveways, unsafe operating conditions could result. 95th % queue lengths are considered in this study. The 95th % queue length refers to the length of vehicle queue that has a five-percent probability of occurring during an analysis hour.

The Synchro/SimTraffic software package (12th Edition) was used to evaluate the side-street stop-controlled intersections on Adams St and reported operations are from Synchro's HCM 7 reports. For side-street stop-controlled intersections, the worst opposing left or side-street movement delay is reported rather than the overall intersection delay. Overall intersection delay for side-street stop-controlled intersections can misrepresent operations, since most mainline free-flowing vehicles experience no delay. Rodel software was used to evaluate roundabout-controlled intersections. Existing truck percentages and peak hour factors were used in the analysis.

5.2 Operational Analysis Results

The results of the operational analysis for Existing, 2030 No-Build and 2030 Build conditions are summarized for the AM and PM peak hour. Table 4 summarizes the AM peak hour and Table 5 summarizes the PM peak hour. Proposed access driveway intersections are shaded light blue and critical movement operations and queues are noted. Westbound queues on Adams St at the CSAH 12/Adams St roundabout are noted to ensure they do not extend more than 280' to Driveway 1/Access 1. Detailed operational analysis tables are included in the Appendix.

[3] ***Highway Capacity Manual (HCM)***, Transportation Research Board, 7th Edition

Table 4. Traffic Operational Results - AM Peak Hour

Intersection	Control	MOE	Existing	2030 No-Build	2030 Build
CSAH 12 & CSAH 17 (Madison Ave)	Roundabout	*Overall LOS*	A-5.0	A-5.2	A-5.2
		Worst LOS	A-8.3 (WBLT)	A-8.7 (WBLT)	A-8.7 (WBLT)
		Queuing Notes	*None*	*None*	*None*
CSAH 12 & Adams St	Roundabout	*Overall LOS*	A-3.3	A-3.3	A-4.1
		Worst LOS	A-6.8 (WBLT)	A-7.0 (WBLT)	A-8.9 (WBLT)
		Queuing Notes	2' WBLT, 2' WBR	2' WBLT, 3' WBR	5' WBLT, 8' WBR
CSAH 12 & Hwy 14 EB Ramps	Roundabout	*Overall LOS*	A-5.0	A-5.0	A-5.5
		Worst LOS	A-8.4 (NBT)	A-8.7 (NBT)	A-9.1 (NBT)
		Queuing Notes	None	None	None
CSAH 12 & Hwy 14 WB Ramps	Roundabout	*Overall LOS*	A-4.3	A-4.4	A-4.7
		Worst LOS	A-6.2 (SBT)	A-6.4 (SBT)	A-6.7 (NBLT)
		Queuing Notes	None	None	None
Adams St & TA Driveway 1/ Proposed Access	Side-Street Stop	*NBLTR LOS/Q*			B-10.3 / 8'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.6 / 2'	A-8.6 / 2'	A-8.7 / 2'
		EBL LOS/Q	A-7.3 / 0'	A-7.3 / 0'	A-8.7 / 0'
Adams St & TA Driveway 2/ Proposed Access	Side-Street Stop	*NBLTR LOS/Q*			A-0.0 / 0'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.5 / 0'	A-8.5 / 0'	A-8.5 / 0'
		EBL LOS/Q	A-7.3 / 0'	A-7.3 / 0'	A-7.3 / 0'
Adams St & TA Driveway 3	Side-Street Stop	*Worst LOS*	A-9.3 (SBLTR)	A-9.4 (SBLTR)	A-9.4 (SBLTR)
		Queuing Notes	None	None	None
Adams St & TA Driveway 4	Side-Street Stop	*Worst LOS*	A-9.3 (SBLTR)	A-9.3 (SBLTR)	A-9.3 (SBLTR)
		Queuing Notes	None	None	None

Table 5. Traffic Operational Results - PM Peak Hour

Intersection	Control	MOE	Existing	2030 No-Build	2030 Build
CSAH 12 & CSAH 17 (Madison Ave)	Roundabout	*Overall LOS*	A-4.9	A-5.1	A-5.1
		Worst LOS	A-7.1 (SBLT)	A-7.3 (SBLT)	A-7.4 (SBLT)
		Queuing Notes	None	None	None
CSAH 12 & Adams St	Roundabout	*Overall LOS*	A-3.5	A-3.6	A-4.4
		Worst LOS	A-6.3 (WBLT)	A-6.4 (WBLT)	A-9.0 (WBLT)
		Queuing Notes	1' WBLT, 2' WBR	1' WBLT, 2' WBR	6' WBLT, 11' WBR
CSAH 12 & Hwy 14 EB Ramps	Roundabout	*Overall LOS*	A-4.8	A-5.0	A-5.4
		Worst LOS	A-7.1 (NBT)	A-7.3 (NBT)	A-8.0 (NBT)
		Queuing Notes	None	None	None
CSAH 12 & Hwy 14 WB Ramps	Roundabout	*Overall LOS*	A-4.7	A-4.9	A-5.0
		Worst LOS	A-8.0 (SBT)	A-8.3 (SBT)	A-8.6 (SBT)
		Queuing Notes	None	None	None
Adams St & TA Driveway 1/ Proposed Access	Side-Street Stop	*NBLTR LOS/Q*			B-10.6 / 12'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.5 / 2'	A-8.5 / 2'	A-8.6 / 2'
		EBL LOS/Q	A-7.3 / 0'	A-7.3 / 0'	A-8.6 / 0'
Adams St & TA Driveway 2/ Proposed Access	Side-Street Stop	*NBLTR LOS/Q*			A-0.0 / 0'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.4 / 0'	A-8.4 / 0'	A-8.4 / 0'
		EBL LOS/Q	A-7.2 / 0'	A-7.2 / 0'	A-7.2 / 0'
Adams St & TA Driveway 3	Side-Street Stop	*Worst LOS*	A-9.3 (SBLTR)	A-9.3 (SBLTR)	A-9.3 (SBLTR)
		Queuing Notes	None	None	None
Adams St & TA Driveway 4	Side-Street Stop	*Worst LOS*	A-9.3 (SBLTR)	A-9.3 (SBLTR)	A-9.3 (SBLTR)
		Queuing Notes	None	None	None

5.2.1 Existing Conditions Overview

All study area intersections operate acceptably for Existing Conditions. Overall intersection LOS is A and no individual lane group operates below LOS A. Queuing is acceptable and accommodated by existing geometry for all intersections. The westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and range from 1’ to 2’ and there are no back-up concerns related to the 280’ spacing to Driveway 1. There are no recommendations to improve Existing Conditions.

5.2.2 2030 No-Build Conditions Overview

All intersections operate acceptably for 2030 No-Build Conditions. Overall intersection LOS is A and no individual lane group operates below LOS A. Queuing is acceptable and accommodated by existing geometry for all intersections. The westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and range from 1’ to 3’ and there are no back-up concerns related to the 280’ spacing to Driveway 1. There are no recommendations to improve 2030 No-Build Conditions.

5.2.3 2030 Build Conditions Overview

All intersections operate acceptably for 2030 Build Conditions with the Proposed Project. Overall intersection LOS is A and no individual lane group operates below LOS B. Queuing is acceptable and accommodated by existing/proposed geometry for all intersections. The westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and range from 5’ to 11’ and there are no back-up concerns related to the 280’ spacing to Driveway 1/Proposed Access 1.

The Adams St/Driveway 1/Access 1 intersection operates acceptably. The single lane northbound approach experiences LOS B with a 12’ queue in the PM peak hour.

The Adams St/Driveway 2/Access 2 intersection operates acceptably. The single lane northbound approach experiences LOS A with no queueing in both peak hours.

There are no recommended development related mitigation measures to improve 2030 Build Conditions based on traffic operations.

5.2.4 2030 Build Conditions with Adams St Traffic Growth

A sensitivity analysis was conducted at the Adams St/Driveway 1/Proposed Access 1 intersection to evaluate the threshold for additional traffic growth beyond the Proposed Project on Adams St before operational performance becomes unacceptable (defined as reaching the LOS D/E boundary for the northbound left movement and/or roundabout queues extending to the driveway). The results indicate that through traffic on Adams St can accommodate an increase of 500-600 vehicles (depending on vehicle type) during peak hours before operations degrade. Notably, the northbound left turn operations reach failure prior to roundabout queue lengths extending to the driveway. Unacceptable operations could also occur if there is a statistically significant crash increase at the Adams St/Access 1 intersection.

If operations or safety at Access 1 deteriorate to unacceptable levels, the recommended mitigation would be to restrict Access 1 to right-in/right-out only movements by extending the median on Adams St. The Developer would agree to this restriction only if Adams St is extended to CSAH 17.

6 TURN LANE REVIEW

The need for an eastbound right turn lane at the Adams St/Driveway 1/Access 1 intersection was evaluated as part of the Proposed Project. 2030 Build traffic volumes show that there will be 96 eastbound right turns during the morning peak hour, 109 during the evening peak hour with steady retail traffic turning right all day. Although through traffic heading east is light, most vehicles are semi-trailer trucks headed to the truck stop. Operational analyses indicate LOS and queuing are adequate with a shared through/right turn lane. However, considering the high percentage of trucks and speed differential, safety concerns arise. Research indicates that providing

dedicated turn lanes on mainline roads at intersections with side streets controlled by stop signs helps reduce crashes. Given the relatively low cost to construct (available ROW and 13' boulevard), notable safety advantages, and retail tenant marketability, constructing an eastbound right turn lane on Adams St at Driveway 1/Access 1 is recommended. The right turn lane should be constructed with the initial phase of the site due to mobilization costs and to safely accommodate construction traffic as the outlots develop.

7 MULTI-MODAL TRAFFIC REVIEW

As noted in the Existing Conditions summary, the study area includes existing shared-use paths, sidewalks, and on-street bicycle facilities. It is recommended a sidewalk be constructed along the Access 1 roadway and connected to the existing sidewalk on Adams St. This sidewalk should remain continuous regardless of outlot development phasing. Connections to the existing shared-use paths along CSAH 12 and CSAH 17 should be considered during detailed site plan reviews for the outlots.

8 SUMMARY & RECOMMENDATIONS

The previous analysis assessed traffic impacts for the 16.61-acre Met-Con Mankato retail and industrial development. The traffic and safety review indicates:

- ★ The development includes a 10,016 SF building designated for Met-Con Companies' office and shop. There are no secured tenants for the remaining outlots and likely land uses were assumed. Retail land uses including a fast food restaurant, auto parts store and strip retail are assumed on west side of the site for higher visibility and easy accessibility and industrial uses are assumed on the east side of the site. The fast food restaurant and strip retail uses are high traffic generators, offering a cautious basis for analysis.
- ★ The project is estimated to generate 145 new trips (83 entering and 62 exiting) during the morning traffic peak hour, 185 new trips (88 entering and 97 exiting) during the evening traffic peak hour and 1,335 new daily trips to the study area. The retail component of the site includes pass-by trips, which are trips that are attracted to the site from existing traffic already passing on adjacent roadways.
- ★ Two full movement access driveways are proposed on Adams St. Main full access serving the west side of the site is proposed at the westerly TA Travel Center Driveway (Driveway 1) through construction of a southern leg. This access is spaced approximately 280 feet from the CSAH 12/Adams St roundabout. A second full access for an industrial outlot is proposed on Adams St at the TA Travel Center Driveway 2.
- ★ Traffic operations analysis were conducted for existing conditions, year 2030 conditions without the project (No-Build conditions) and year 2030 conditions with the project (Build conditions).
- ★ Traffic operations for Existing and 2030 No-Build conditions without the project are acceptable and there are no improvement recommendations.
- ★ 2030 Build conditions with the project are acceptable. Westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and there are no back-up concerns related to the 280' spacing to Driveway 1/Proposed Access 1.
- ★ A sensitivity analysis shows Adams St can accommodate an increase of up to 500-600 vehicles during peak hours (depending on vehicle type) before the Adams St/Driveway 1/Access 1 intersection operates unacceptably. Unacceptable operations could also occur if there is a statistically significant crash increase at the Adams St/Access 1 intersection.
- ★ If operations or safety at Access 1 deteriorate to unacceptable levels, the recommended mitigation would be to restrict Access 1 to right-in/right-out only movements by extending the median on Adams St. The Developer would agree to this restriction only if Adams St is extended to CSAH 17.

- ★ Construction of an eastbound right turn lane on Adams St at Driveway 1/Access 1 is recommended with the initial phase of the site. The right turn lane is cost-effective to construct due to available right-of-way and boulevard space, offers significant safety benefits, and enhances the marketability of retail tenants.
- ★ It is recommended a sidewalk be constructed along the Access 1 roadway and connected to the existing sidewalk on Adams St. This sidewalk should remain continuous regardless of outlot development phasing. Connections to the existing shared-use paths along CSAH 12 and CSAH 17 should be considered during detailed site plan reviews for the outlots.
- ★ It is recommended the City requires a traffic study for the development of the parcels located east of the project, as well as for the future extension of Adams Street to CSAH 17. While traffic patterns on Adams Street are expected to change, high level reviews suggest that traffic operations will remain within acceptable ranges.

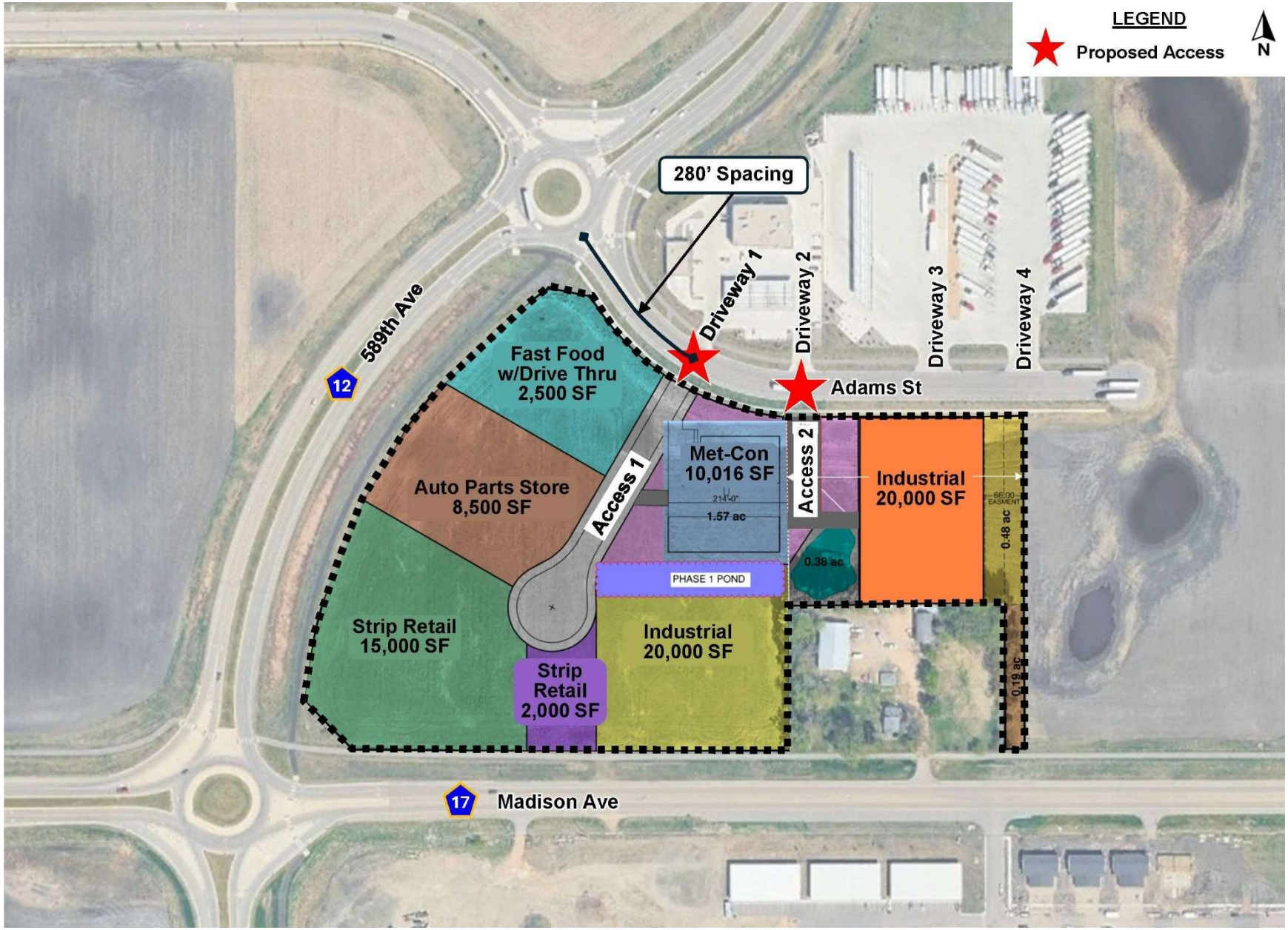


Figure 1. Conceptual Site Plan

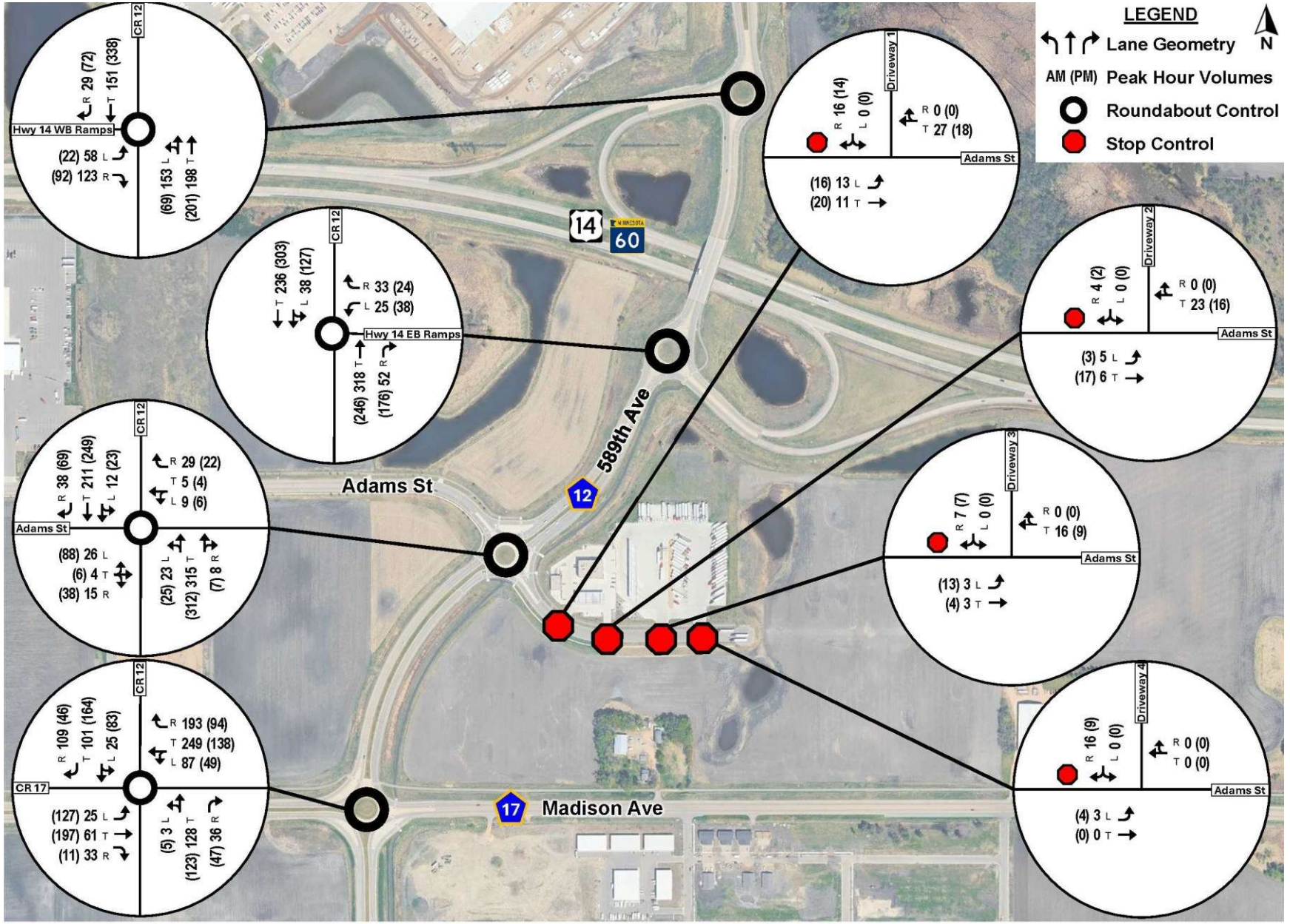


Figure 2. Existing Traffic Volumes

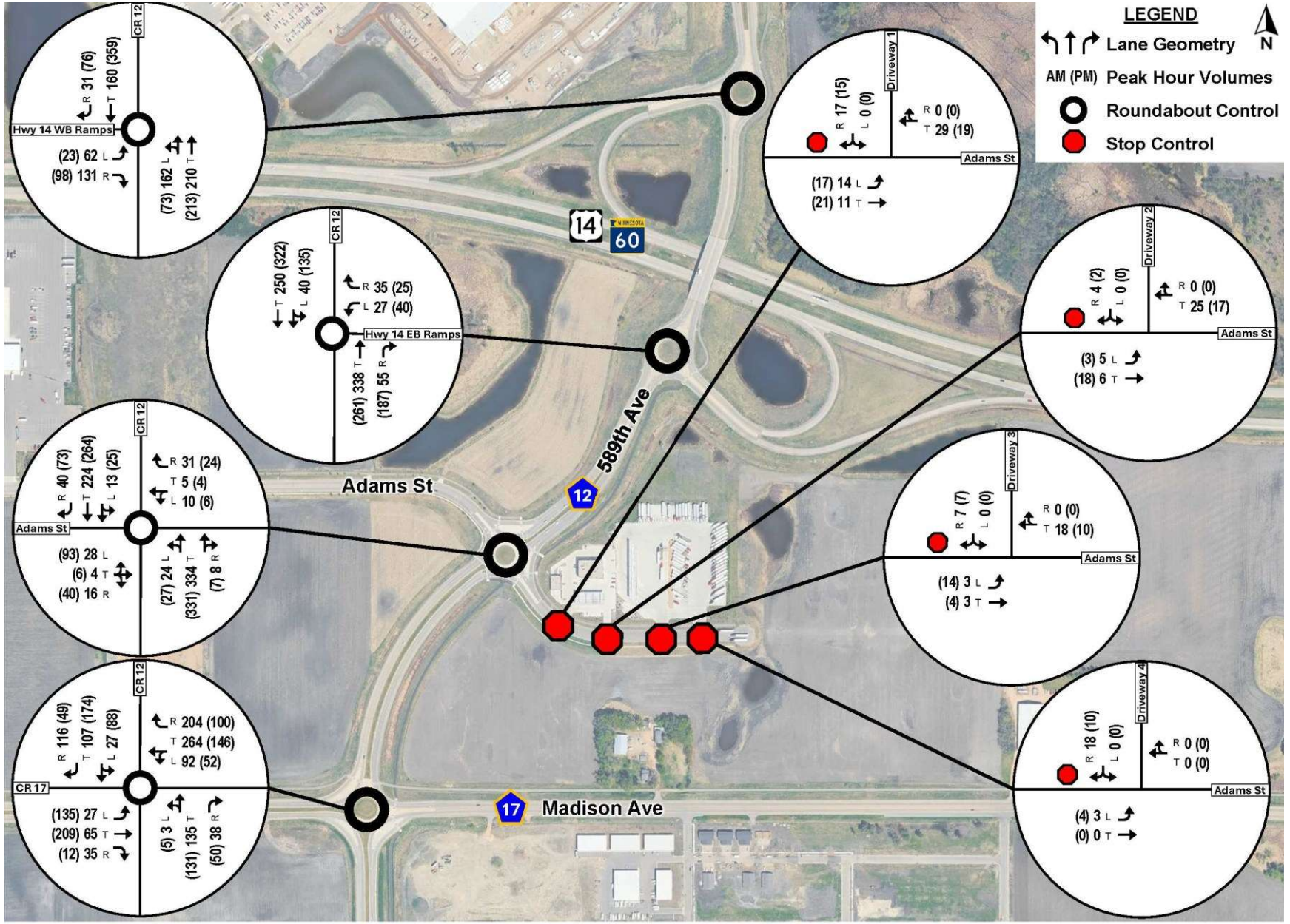


Figure 3. 2030 No-Build Traffic Volumes

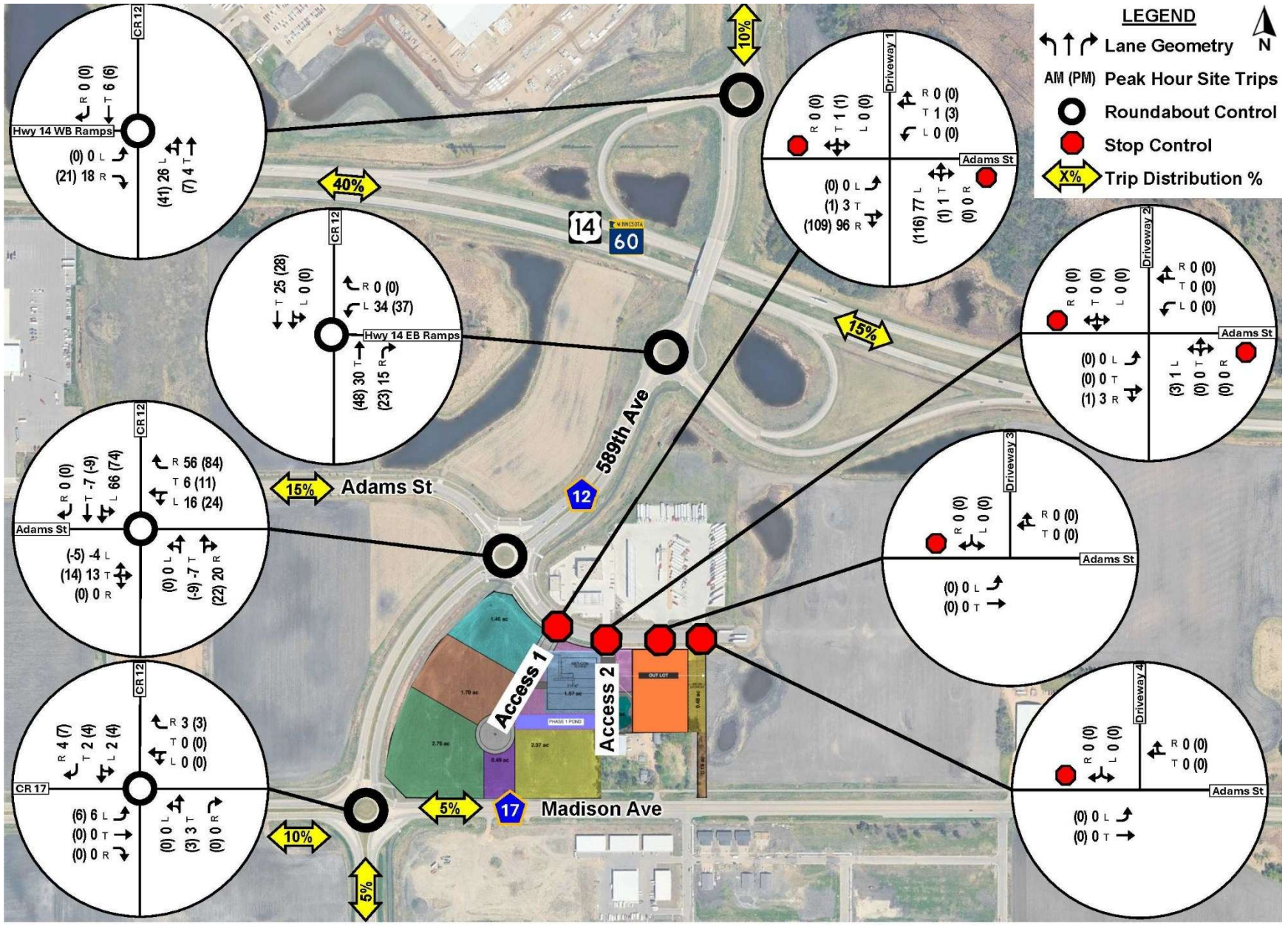


Figure 4. Trip Distribution and Assignment

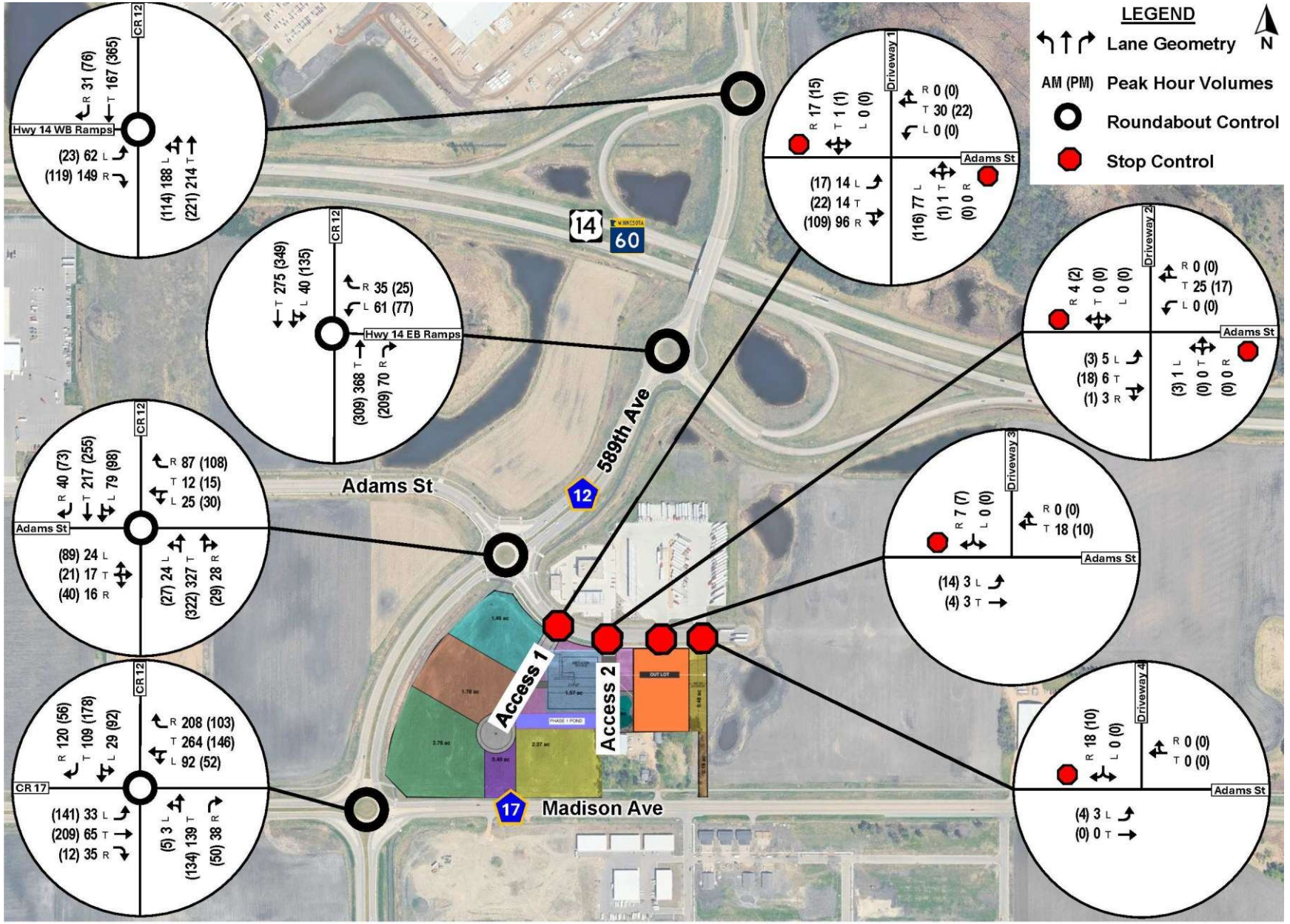


Figure 5. 2030 Build Traffic Volumes

Appendix A - Detailed Operational Analysis Tables

Table A- 1. AM Peak Hour Operations

Intersection	Lane Group	Bay	Existing			2030 No-Build			2030 Build		
			LOS	Delay	95th % Q	LOS	Delay	95th % Q	LOS	Delay	95th % Q
CSAH 12 & CSAH 17 (Madison Ave) (Roundabout)	NBLT		A	5.4	10	A	5.5	10	A	5.6	11
	NBR		A	4.0	2	A	4.1	2	A	4.1	2
	WBLT		A	8.3	36	A	8.7	40	A	8.7	40
	WBR	220'	A	6.5	16	A	6.7	17	A	6.8	18
	SBLT		A	6.2	11	A	6.4	12	A	6.5	12
	SBR		A	0.9	0	A	0.9	0	A	1.0	0
	EBLT		A	3.3	4	A	3.4	5	A	3.6	5
	EBR		A	0.3	0	A	0.3	0	A	0.3	0
	Overall		**A**	**5.0**		**A**	**5.2**		**A**	**5.2**	
CSAH 12 & Adams St (Roundabout)	NBLTR		A	4.1	13	A	4.2	14	A	4.5	16
	WBLT		A	6.8	2	A	7.0	2	A	8.9	5
	WBR	220'	A	5.5	2	A	5.6	3	A	7.1	8
	SBLT		A	3.2	8	A	3.3	8	A	4.3	14
	SBR		A	4.0	2	A	4.0	2	A	4.1	2
	EBLTR		A	4.5	3	A	4.6	3	A	4.9	4
	Overall		**A**	**3.3**		**A**	**3.3**		**A**	**4.1**	
CSAH 12 & Hwy 14 EB Ramps (Roundabout)	NBT		A	8.4	31	A	8.7	35	A	9.1	40
	NBR		A	4.5	3	A	4.6	4	A	4.8	5
	WBL		A	5.4	2	A	5.6	2	A	6.3	6
	WBR	230'	A	0.3	0	A	0.3	0	A	0.4	0
	SBLT		A	3.6	11	A	3.7	11	A	3.9	13
	Overall		**A**	**5.0**		**A**	**5.0**		**A**	**5.5**	
CSAH 12 & Hwy 14 WB Ramps (Roundabout)	NBLT		A	6.1	28	A	6.2	30	A	6.7	36
	SBT		A	6.2	13	A	6.4	14	A	6.6	16
	SBR		A	4.2	2	A	4.3	2	A	4.4	2
	EBL		A	5.3	5	A	5.4	6	A	5.7	6
	EBR	220'	A	1.1	0	A	1.1	0	A	1.3	0
	Overall		**A**	**4.3**		**A**	**4.4**		**A**	**4.7**	
Adams St & TA Driveway 1/Proposed Access (Side-Street Stop)	NBLTR		NA			NA			B	10.3	8
	WBL	50'							A	0	0
	SBLTR		A	8.6	2	A	8.6	2	A	8.7	2
	EBL	100'	A	7.3	0	A	7.3	0	A	7.3	0
	Worst Mvmnt.		**A**	**8.6**		**A**	**8.6**		**B**	**10.3**	
Adams St & TA Driveway 2/Proposed Access (Side-Street Stop)	NBLTR		NA			NA			A	8.9	0
	WBL	50'							A	0.0	0
	SBLTR		A	8.5	0	A	8.5	0	A	8.5	0
	EBL	50'	A	7.3	0	A	7.3	0	A	7.3	0
	Worst Mvmnt.		**A**	**8.5**		**A**	**8.5**		**A**	**8.9**	
Adams St & TA Driveway 3 (Side-Street Stop)	SBLTR		A	9.3	0	A	9.4	0	A	9.4	0
	EBL	50'	A	8.2	0	A	8.2	0	A	8.2	0
	Worst Mvmnt.		**A**	**9.3**		**A**	**9.4**		**A**	**9.4**	
Adams St & TA Driveway 4 (Side-Street Stop)	SBLTR		A	9.3	2	A	9.3	2	A	9.3	2
	EBL	50'	A	8.1	0	A	8.1	0	A	8.1	0
	Worst Mvmnt.		**A**	**9.3**		**A**	**9.3**		**A**	**9.3**	

Table A- 2. PM Peak Hour Operations

Intersection	Lane Group	Bay	Existing			2030 NB			2030 Build		
			LOS	Delay	95th % Q	LOS	Delay	95th % Q	LOS	Delay	95th % Q
CSAH 12 & CSAH 17 (Madison Ave) (Roundabout)	NBLT		A	5.8	10	A	6.0	10	A	6.0	11
	NBR		A	4.5	3	A	4.6	3	A	4.6	3
	WBLT		A	6.5	15	A	6.8	16	A	6.8	16
	WBR	220'	A	5.1	7	A	5.2	7	A	5.3	7
	SBLT		A	7.1	20	A	7.3	22	A	7.4	23
	SBR		A	0.4	0	A	0.4	0	A	0.4	0
	EBLT		A	5.5	20	A	5.7	22	A	5.8	23
	EBR		A	0.1	0	A	0.1	0	A	0.1	0
	Overall		**A**	**4.9**		**A**	**5.1**		**A**	**5.1**	
CSAH 12 & Adams St (Roundabout)	NBLTR		A	4.0	14	A	4.2	15	A	4.4	17
	WBLT		A	6.3	1	A	6.4	1	A	9.0	6
	WBR	220'	A	4.9	2	A	5.0	2	A	7.1	11
	SBLT		A	3.6	11	A	3.7	11	A	4.9	19
	SBR		A	4.5	5	A	4.5	5	A	4.6	5
	EBLTR		A	5.4	10	A	5.6	10	A	6.0	12
	Overall		**A**	**3.5**		**A**	**3.6**		**A**	**4.4**	
CSAH 12 & Hwy 14 EB Ramps (Roundabout)	NBT		A	7.1	24	A	7.3	27	A	8.0	35
	NBR		A	6.2	15	A	6.4	17	A	6.7	19
	WBL		A	5.5	4	A	5.6	4	A	6.6	8
	WBR	230'	A	0.3	0	A	0.3	0	A	0.3	0
	SBLT		A	5.2	26	A	5.3	29	A	5.4	31
	Overall		**A**	**4.8**		**A**	**5.0**		**A**	**5.4**	
CSAH 12 & Hwy 14 WB Ramps (Roundabout)	NBLT		A	4.1	14	A	4.2	15	A	4.9	21
	SBT		A	8.0	37	A	8.3	41	A	8.6	45
	SBR		A	4.5	5	A	4.6	6	A	4.7	6
	EBL		A	5.8	2	A	6.0	3	A	6.1	3
	EBR	220'	A	0.8	0	A	0.9	0	A	1.0	0
	Overall		**A**	**4.7**		**A**	**4.9**		**A**	**5.0**	
Adams St & TA Driveway 1 (Side-Street Stop)	NBLTR		NA			NA			B	10.6	12
	WBL	50'							A	0	0
	SBLTR		A	8.5	2	A	8.5	2	A	8.6	2
	EBL	100'	A	7.3	0	A	7.3	0	A	7.3	0
	Worst Mvmnt.		**A**	**8.5**		**A**	**8.5**		**B**	**10.6**	
Adams St & TA Driveway 2 (Side-Street Stop)	NBLTR		NA			NA			A	8.9	0
	WBL	50'							A	0.0	0
	SBLTR		A	8.4	0	A	8.4	0	A	8.4	0
	EBL	50'	A	7.2	0	A	7.2	0	A	7.2	0
	Worst Mvmnt.		**A**	**8.4**		**A**	**8.4**		**A**	**8.9**	
Adams St & TA Driveway 3 (Side-Street Stop)	SBLTR		A	9.3	0	A	9.3	0	A	9.3	0
	EBL	50'	A	8.2	0	A	8.2	0	A	8.2	0
	Worst Mvmnt.		**A**	**9.3**		**A**	**9.3**		**A**	**9.3**	
Adams St & TA Driveway 4 (Side-Street Stop)	SBLTR		A	9.3	0	A	9.3	0	A	9.3	0
	EBL	50'	A	8.1	0	A	8.1	0	A	8.1	0
	Worst Mvmnt.		**A**	**9.3**		**A**	**9.3**		**A**	**9.3**	

JONES HAUGH SMITH
Engineers + Surveyors

PRINCIPALS
Steven J. Thompson, P.L.S.
Brian J. Johnson, P.E.
Steven J. Penkava, P.E.
John H. Schulte V, P.E.
Scott A. Tuchtenhagen, P.L.S.

Established 1945

Drainage Memorandum
Preliminary Plat
Metcon Addition
Mankato
Prepared by: John H. Schulte V, PE

July 14, 2026

Introduction

Metcon intends to construct a new commercial / industrial subdivision off Adam Avenue Mankato. The project will include a new cul-de-sac from Adam Avenue, a right turn lane on Adams Avenue, sanitary sewer and water main extensions, and a wet stormwater treatment basin.

Basis of Design

The modeling that follows in this report was performed utilizing HydroCAD software. Pipes were sized utilizing State Plumbing Code and/or Rational Method Design and Manning's Equation. Rainfall was modeling with Atlas 14 Rainfall events.

Onsite soils per the Web Soil Survey and on-site borings show Hydric Type C/D clay soils. Infiltration as a method of stormwater treatment is therefore unavailable. Filtration was considered as an alternate method of treatment but a wet stormwater pond was selected to eliminate the costs of importing filtration viable materials as none exist on site, and to reduce the footprint required of the treatment basin. A filtration system would have required a higher outflow elevation to make room for the filtration materials, reducing the dry storage elevations available and thus increasing the overall basin footprint.

Existing Conditions

The site is bounded by Adams Avenue on the north, agricultural ground and a farm site to the east, CSAH 12 on the west and Madison Avenue to the south. The existing site is undeveloped and is maintained as agricultural row crop.

General surface water flows through the site east to west, with three wetlands scattered across the site. The site in general is very flat, with the three very shallow wetland basins providing almost no surface water storage. The eventual site discharge point is a centerline culvert under CSAH 12 near Madison Avenue discharging east to west.

Required Treatment

This site is greater than 1 acre and is thus required to provide stormwater treatment per the NPDES Construction Stormwater Permit with its associated 1" infiltration goal; a 1.1" Water Quality Volume requirement, and discharge rates controlled to not exceed existing conditions.

Below is a table of the requirements:

Platted Area:	14.47 acres
Proposed Impervious Surface:	10.56 acres
1" Infiltration Goal:	10.56 acres x 1" = 38333 cf
1.1" Water Quality Volume:	10.56 acres x 1.1" = 42166 cf
Basin Watershed Area:	15.03 acres
Wet Pond Wet Storage Volume:	15.03 acres x 1800 cf / acre = 27054 cf

Discussion of Proposed Improvements

The development of this site initially includes construction of Metcon Court and its associated roadway and utility infrastructure, the addition of a turn lane to Adams Avenue, and construction of the subdivision's wet stormwater pond. Future development will include the full buildout of the site's commercial and industrial lots. Right of Way for Evergreen Drive is being dedicated with this project, but there are currently no plans to construct that roadway.

Conveyance of stormwater flows to the wet stormwater pond is achieved via swales on the southeast and west sides of the development, while storm sewer will be constructed within Metcon Court.

Discussion of Proposed Stormwater Treatment

The wet stormwater pond is designed to treat the entire subdivision and a small portion of the farm site to the southeast that drains into the site. The area of Evergreen Drive is considered industrial development for the purposes of this design since there are currently no plans to construct it as a roadway.

The wet stormwater pond is designed to provide at least 1800 cf of wet volume per acre drained, to provide a Water Quality Volume of at least 1.1" of volume over the new impervious surface areas that discharges no faster than 5.66 cfs per acre of Water Quality Volume, and to not discharge faster than existing conditions. Since infiltration is not viable at this site, that goal is not met. A summary of the requirements and design is below:

	Required	Designed
Wet Volume	27054 cf	113212 cf
1.1" Water Quality Volume	42166 cf	46520 cf
Water Quality Volume Rate	6.04 cfs	3.5 cfs
2-year Discharge Rate	16.70 cfs	7.2 cfs
10-year Discharge Rate	28.80 cfs	10.47 cfs
100-year Discharge Rate	54.00 cfs	14.66 cfs

Other Pertinent Pond Data:

Pond Bottom Elevation	1007
Normal Water Level Elevation	1011
Water Quality Volume Elevation	1011.95
High Water Level	1014.75
Emergency Overflow Elevation	1015
Top of Bank Elevation	1016
Minimum FFE Draining to Basin	1016.75

Summary

In summary, the site's proposed wet stormwater pond provides the required treatment and attenuation that reduces flows leaving the site to less than existing.

Certification

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



John H. Schulte V Date: 7/14/26

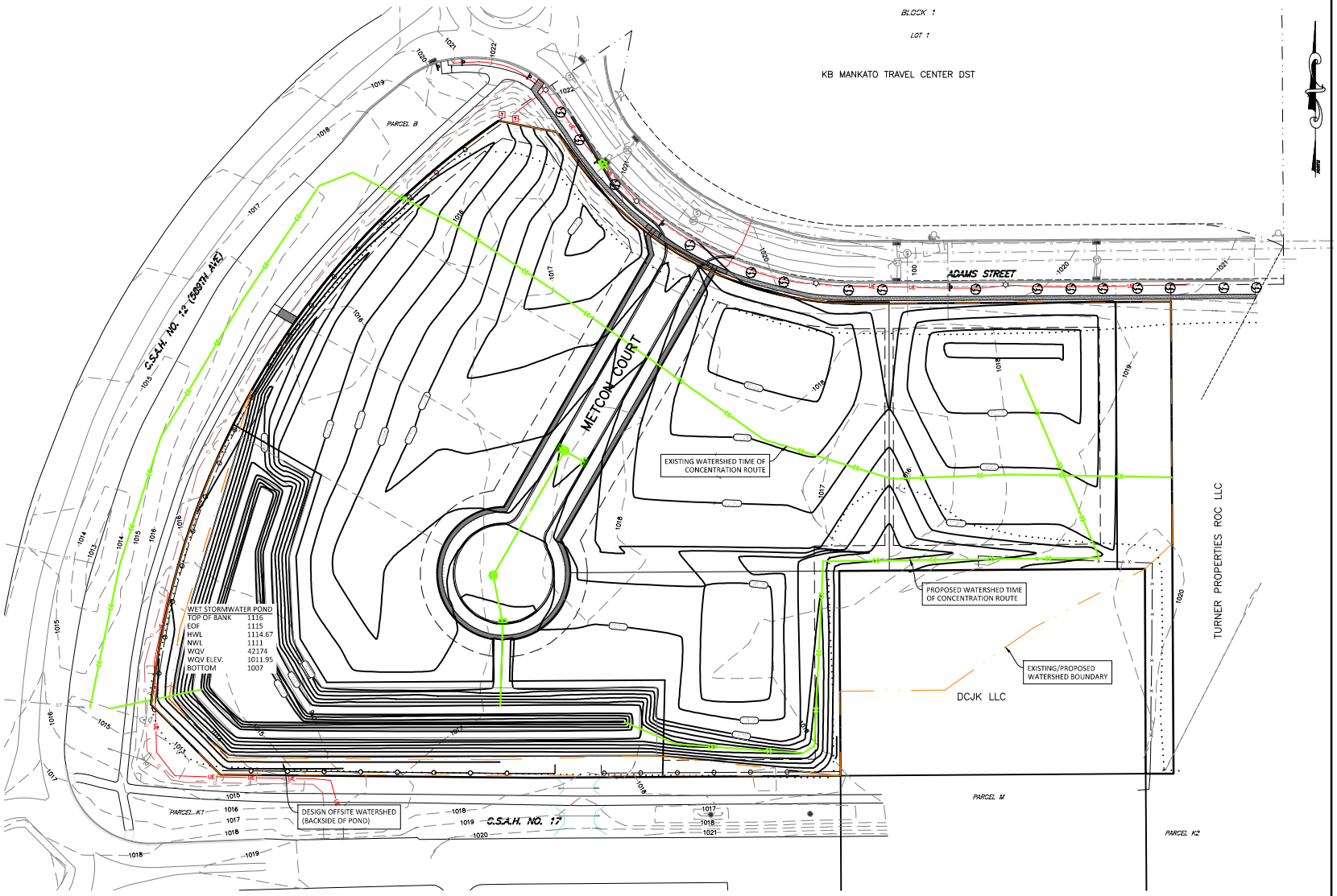
License No. 44639

Attachments:

Watershed Map
Calculations
Web Soil Survey
HydroCAD Model
Geotechnical Report

WATERSHED MAP

METCON ADDITION



LEGEND

- W = Water Main
- S = Sanitary Sewer
- ST = Storm Sewer
- G = Gas Main
- UT = Underground Telephone
- OT = Overhead Telephone
- FO = Fiber-Optics
- UE = Underground Electric
- OE = Overhead Electric
- UTV = Underground TV
- JLM = Judicial Landmark
- X = Chain Link Fence
- = Control Access
- = Sign
- = Stop Sign
- = Light Pole
- = Flood Lights
- = Power Pole
- = Guy Anchor
- = Fire hydrant
- = Water Main Valve
- = Culvert
- = Catch Basin & Catch Basin Numbers
- = Manholes & Manhole Numbers
- 1272 = Elevation Contour Line
- 1271.23 = Spot Elevation
- RM1270.89 = Rim Elevation
- FL1262.34 = FlowLine Elevation
- = Deciduous Tree
- = Coniferous Tree
- = Bush

60 0 60
HORIZ. SCALE FEET

DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

REV.	BY	DATE	REVISION DESCRIPTION
-	-	-	-

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 507-451-4598

DESIGNED: JHS5
DRAWN: JHS5
CHECKED: BJJ
Date: 6/16/26
DWG: 25-1234PP

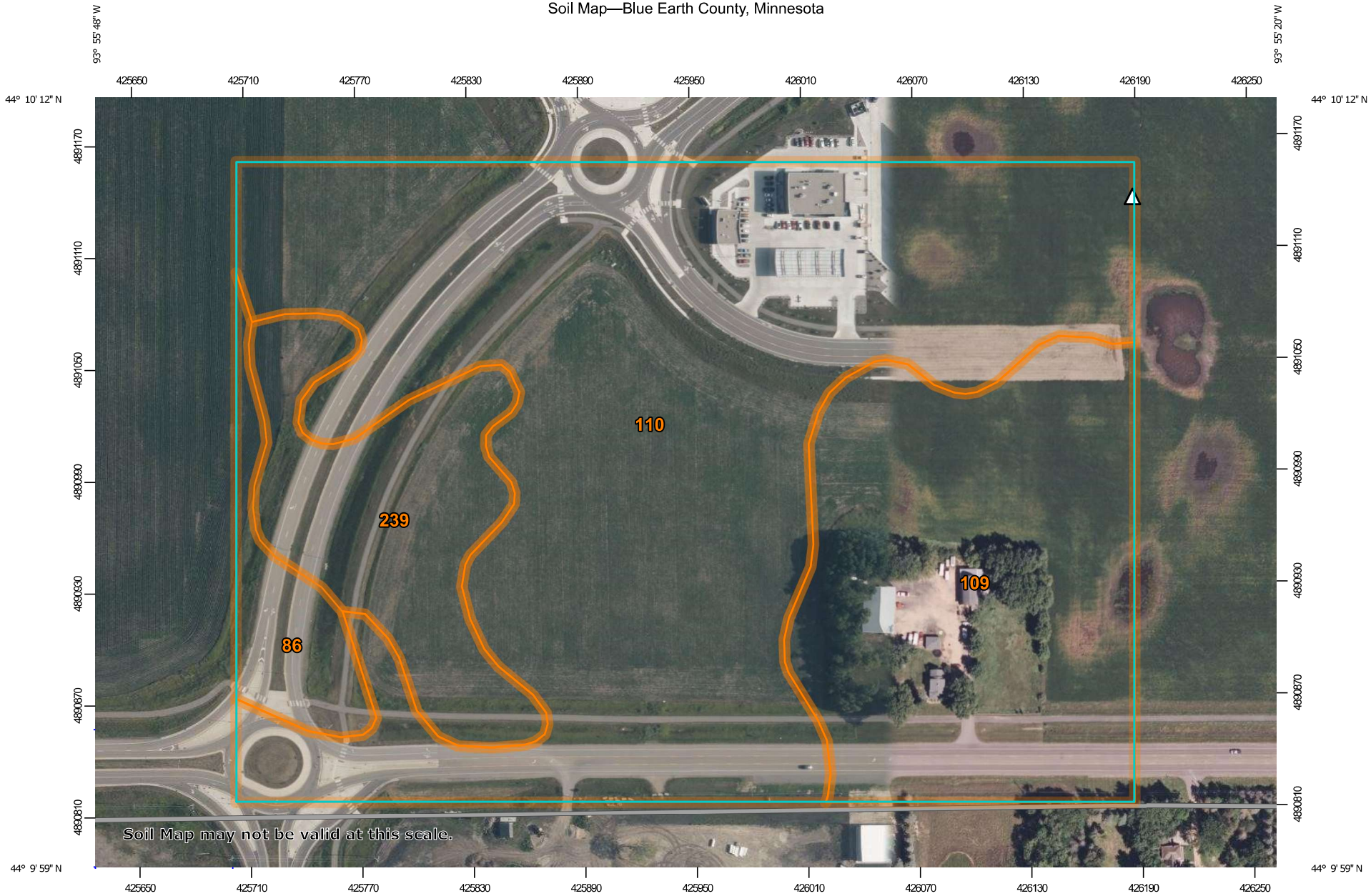
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

John H. Schulte V
License No. 44639 Date: 6/16/26

PRELIMINARY PLAT
METCON ADDITION
PART OF SW1/4 SECTION 11-T108N-R26W
WATERSHEDS MAP

SHEET 1 OF 1

WEB SOIL SURVEY



Map Scale: 1:2,910 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Blue Earth County, Minnesota
Survey Area Data: Version 23, Sep 9, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 30, 2020—Aug 8, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
86	Canisteo clay loam, 0 to 2 percent slopes	1.7	4.1%
109	Cordova clay loam, 0 to 2 percent slopes	10.2	24.7%
110	Marna silty clay loam, 0 to 2 percent slopes	24.6	59.7%
239	Le Sueur loam, 1 to 3 percent slopes	4.7	11.5%
Totals for Area of Interest		**41.2**	**100.0%**

CALCULATIONS

JONES HAUGH SMITH
Engineers + Surveyors
507-373-4876 Albert Lea
507-451-4598 Owatonna

Project: Metcom Addn
Project No. 25-1243
Date: 7-14-26
Designer: JHS

PP Design

Wet Pond

WS - 15.03 Ac Wet V = 27054 cf

New Imp. - 10.56 Ac

WQf = 1.1" x 10.56 Ac = 42146 cf

Pond Elev. 1011.95 Area - 46261

Allowed Q = 5.46 x $\frac{46261}{43560}$ = 4.27 cfs

Design Q < 4.11 cfs ✓

Hydrograph for Pond 3P: (new Pond) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
10.20	0.73	3,521	1,011.08	0.04
10.25	0.75	3,647	1,011.09	0.04
10.30	0.76	3,775	1,011.09	0.04
10.35	0.77	3,906	1,011.09	0.04
10.40	0.79	4,038	1,011.10	0.05
10.45	0.80	4,173	1,011.10	0.05
10.50	0.82	4,309	1,011.10	0.05
10.55	0.86	4,450	1,011.11	0.06
10.60	1.00	4,607	1,011.11	0.06
10.65	1.17	4,790	1,011.11	0.07
10.70	1.31	5,001	1,011.12	0.08
10.75	1.43	5,234	1,011.12	0.08
10.80	1.55	5,486	1,011.13	0.09
10.85	1.67	5,759	1,011.14	0.10
10.90	1.79	6,051	1,011.14	0.11
10.95	1.91	6,364	1,011.15	0.12
11.00	2.04	6,696	1,011.16	0.13
11.05	2.16	7,048	1,011.17	0.15
11.10	2.30	7,421	1,011.18	0.17
11.15	2.43	7,816	1,011.19	0.18
11.20	2.57	8,232	1,011.20	0.20
11.25	2.71	8,669	1,011.21	0.22
11.30	2.86	9,129	1,011.22	0.25
11.35	3.01	9,611	1,011.23	0.28
11.40	3.17	10,115	1,011.24	0.30
11.45	3.32	10,641	1,011.25	0.33
11.50	3.48	11,190	1,011.26	0.37
11.55	3.74	11,770	1,011.28	0.40
11.60	4.39	12,425	1,011.29	0.45
11.65	5.20	13,203	1,011.31	0.50
11.70	6.18	14,131	1,011.33	0.57
11.75	7.26	15,231	1,011.36	0.65
11.80	8.77	16,546	1,011.39	0.76
11.85	10.50	18,130	1,011.42	0.90
11.90	12.84	20,052	1,011.46	1.08
11.95	16.02	22,433	1,011.52	1.33
12.00	22.22	25,604	1,011.59	1.68
12.05	30.40	29,991	1,011.68	2.20
12.10	42.91	36,120	1,011.81	3.01
12.15	**51.89**	44,012	1,011.98	4.11
12.20	43.52	51,760	1,012.14	5.21
12.25	29.97	57,367	1,012.25	5.98
12.30	21.63	60,894	1,012.32	6.43
12.35	16.82	63,172	1,012.36	6.70
12.40	13.62	64,690	1,012.39	6.87
12.45	11.35	65,690	1,012.41	6.98
12.50	9.60	66,314	1,012.42	7.04
12.55	8.22	66,648	1,012.43	7.07
12.60	6.95	**66,739**	**1,012.43**	**7.08**
12.65	5.92	66,624	1,012.43	7.07
12.70	5.36	66,369	1,012.43	7.04
12.75	5.04	66,040	1,012.42	7.01

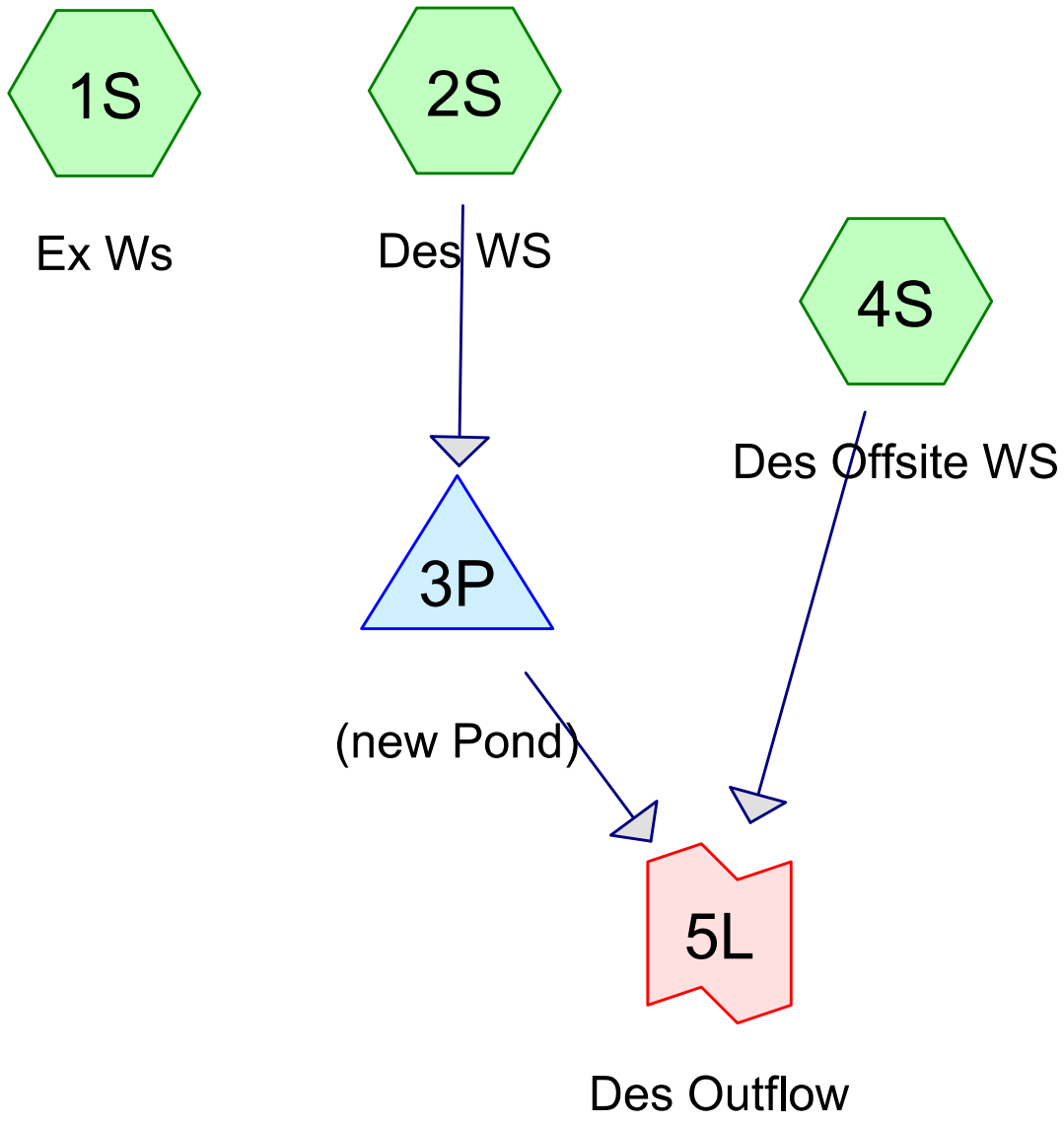
✓ vs 6.2

Stage-Area-Storage for Pond 3P: (new Pond)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,011.00	41,504	0	1,011.52	45,203	22,544
1,011.01	41,575	415	1,011.53	45,274	22,996
1,011.02	41,646	832	1,011.54	45,345	23,449
1,011.03	41,717	1,248	1,011.55	45,416	23,903
1,011.04	41,789	1,666	1,011.56	45,487	24,358
1,011.05	41,860	2,084	1,011.57	45,558	24,813
1,011.06	41,931	2,503	1,011.58	45,629	25,269
1,011.07	42,002	2,923	1,011.59	45,701	25,725
1,011.08	42,073	3,343	1,011.60	45,772	26,183
1,011.09	42,144	3,764	1,011.61	45,843	26,641
1,011.10	42,215	4,186	1,011.62	45,914	27,100
1,011.11	42,286	4,608	1,011.63	45,985	27,559
1,011.12	42,358	5,032	1,011.64	46,056	28,019
1,011.13	42,429	5,456	1,011.65	46,127	28,480
1,011.14	42,500	5,880	1,011.66	46,198	28,942
1,011.15	42,571	6,306	1,011.67	46,270	29,404
1,011.16	42,642	6,732	1,011.68	46,341	29,867
1,011.17	42,713	7,158	1,011.69	46,412	30,331
1,011.18	42,784	7,586	1,011.70	46,483	30,795
1,011.19	42,855	8,014	1,011.71	46,554	31,261
1,011.20	42,927	8,443	1,011.72	46,625	31,727
1,011.21	42,998	8,873	1,011.73	46,696	32,193
1,011.22	43,069	9,303	1,011.74	46,767	32,660
1,011.23	43,140	9,734	1,011.75	46,839	33,128
1,011.24	43,211	10,166	1,011.76	46,910	33,597
1,011.25	43,282	10,598	1,011.77	46,981	34,067
1,011.26	43,353	11,031	1,011.78	47,052	34,537
1,011.27	43,424	11,465	1,011.79	47,123	35,008
1,011.28	43,496	11,900	1,011.80	47,194	35,479
1,011.29	43,567	12,335	1,011.81	47,265	35,952
1,011.30	43,638	12,771	1,011.82	47,336	36,425
1,011.31	43,709	13,208	1,011.83	47,408	36,898
1,011.32	43,780	13,645	1,011.84	47,479	37,373
1,011.33	43,851	14,084	1,011.85	47,550	37,848
1,011.34	43,922	14,522	1,011.86	47,621	38,324
1,011.35	43,993	14,962	1,011.87	47,692	38,800
1,011.36	44,065	15,402	1,011.88	47,763	39,278
1,011.37	44,136	15,843	1,011.89	47,834	39,756
1,011.38	44,207	16,285	1,011.90	47,906	40,234
1,011.39	44,278	16,727	1,011.91	47,977	40,714
1,011.40	44,349	17,171	1,011.92	48,048	41,194
1,011.41	44,420	17,614	1,011.93	48,119	41,675
1,011.42	44,491	18,059	~~1,011.94~~	48,190	~~42,156~~
1,011.43	44,563	18,504	1,011.95	48,261	42,638
1,011.44	44,634	18,950	~~1,011.96~~	48,332	~~43,121~~
1,011.45	44,705	19,397	1,011.97	48,403	43,605
1,011.46	44,776	19,844	1,011.98	48,475	44,089
1,011.47	44,847	20,292	1,011.99	48,546	44,575
1,011.48	44,918	20,741	1,012.00	48,617	45,060
1,011.49	44,989	21,191	1,012.01	48,688	45,547
1,011.50	45,060	21,641	1,012.02	48,759	46,034
1,011.51	45,132	22,092	1,012.03	48,830	46,522

WQV

HYDROCAD MODEL



Subcat Reach Pond Link

Routing Diagram for 25-1243
Prepared by Jones Haugh & Smith Inc, Printed 7/20/2026
HydroCAD® 10.20-9a s/n 03815 © 2026 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Ex Ws

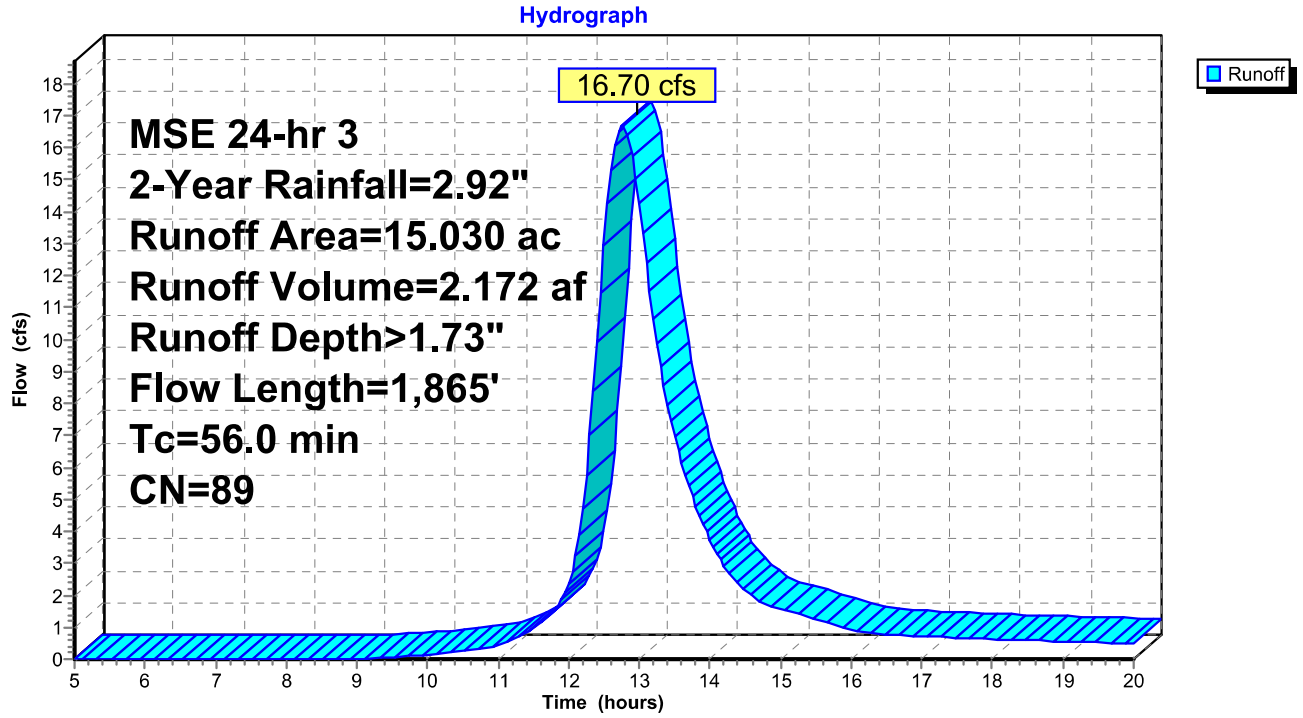
Runoff = 16.70 cfs @ 12.76 hrs, Volume= 2.172 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
14.670	89	Row crops, straight row, Good, HSG D
0.360	86	Farmsteads, HSG D
15.030	89	Weighted Average
15.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 4.40"
24.9	950	0.0050	0.64		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
3.1	715	0.0030	3.90	292.59	**Trap/Vee/Rect Channel Flow,** Bot.W=7.00' D=3.00' Z= 6.0 '/' Top.W=43.00' n= 0.030 Earth, grassed & winding
56.0	1,865	Total			

Subcatchment 1S: Ex Ws



Summary for Subcatchment 2S: Des WS

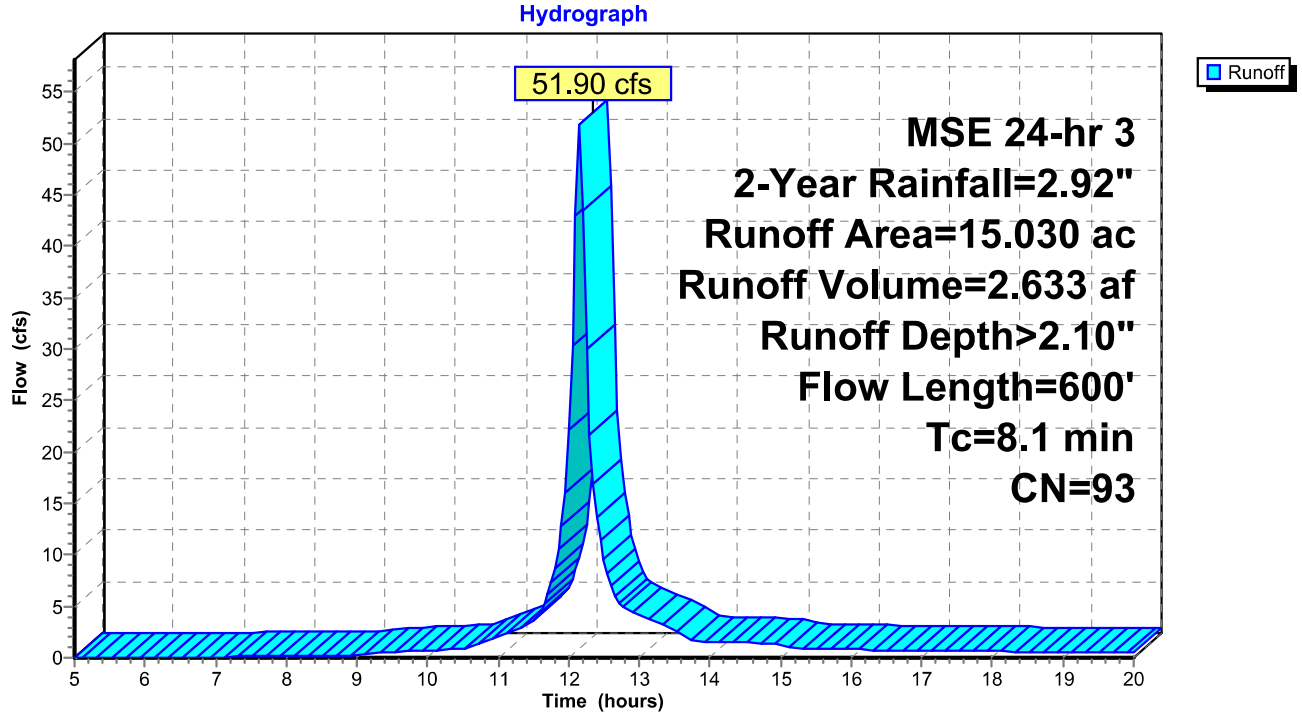
Runoff = 51.90 cfs @ 12.15 hrs, Volume= 2.633 af, Depth> 2.10"
Routed to Pond 3P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
14.670	93	Urban industrial, 72% imp, HSG D
0.360	86	Farmsteads, HSG D
15.030	93	Weighted Average
4.468		29.72% Pervious Area
10.562		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	200	0.0200	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 4.40"
6.3	400	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	600	Total			

Subcatchment 2S: Des WS



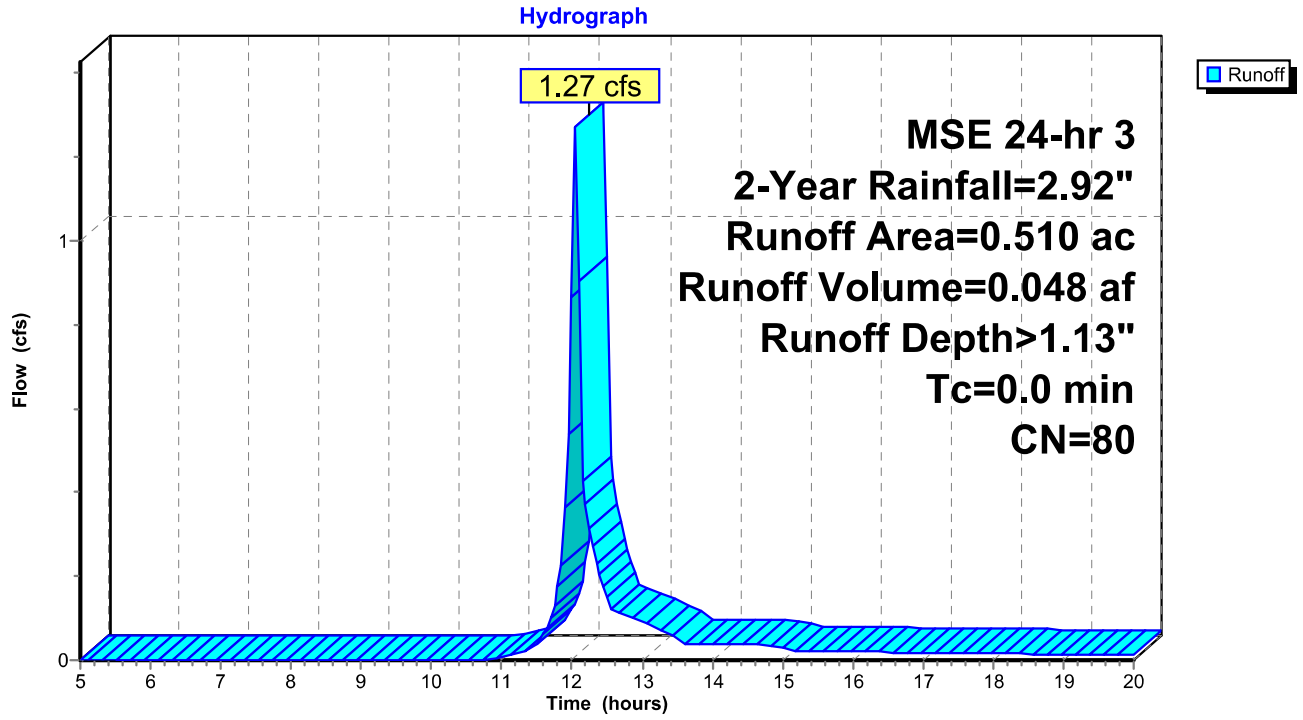
Summary for Subcatchment 4S: Des Offsite WS

Runoff = 1.27 cfs @ 12.05 hrs, Volume= 0.048 af, Depth> 1.13"
Routed to Link 5L : Des Outflow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
0.510	80	>75% Grass cover, Good, HSG D
0.510		100.00% Pervious Area

Subcatchment 4S: Des Offsite WS



Summary for Pond 3P: (new Pond)

Inflow Area = 15.030 ac, 70.28% Impervious, Inflow Depth > 2.10" for 2-Year event
Inflow = 51.90 cfs @ 12.15 hrs, Volume= 2.633 af
Outflow = 7.08 cfs @ 12.60 hrs, Volume= 2.196 af, Atten= 86%, Lag= 26.8 min
Primary = 7.08 cfs @ 12.60 hrs, Volume= 2.196 af
Routed to Link 5L : Des Outflow

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,012.43' @ 12.60 hrs Surf.Area= 51,691 sf Storage= 66,737 cf

Plug-Flow detention time= 152.8 min calculated for 2.189 af (83% of inflow)
Center-of-Mass det. time= 113.1 min (877.7 - 764.6)

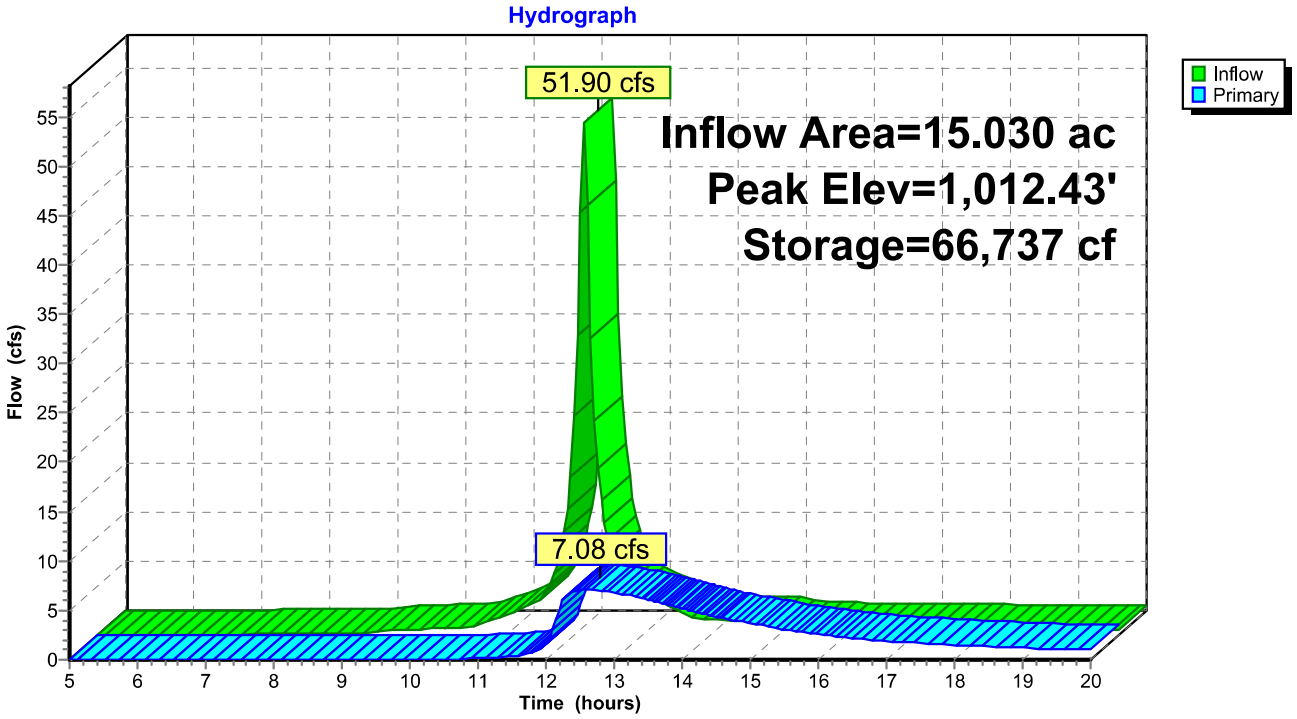
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	296,430 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	41,504	0	0
1,016.00	77,068	296,430	296,430

Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	**18.0" Round Culvert** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	1,008.00'	**18.0" Round Culvert** L= 30.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,008.00' / 1,008.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=7.08 cfs @ 12.60 hrs HW=1,012.43' (Free Discharge)
↑**1=Culvert** (Inlet Controls 7.08 cfs @ 4.07 fps)
↑**2=Culvert** (Passes 7.08 cfs of 10.18 cfs potential flow)

Pond 3P: (new Pond)

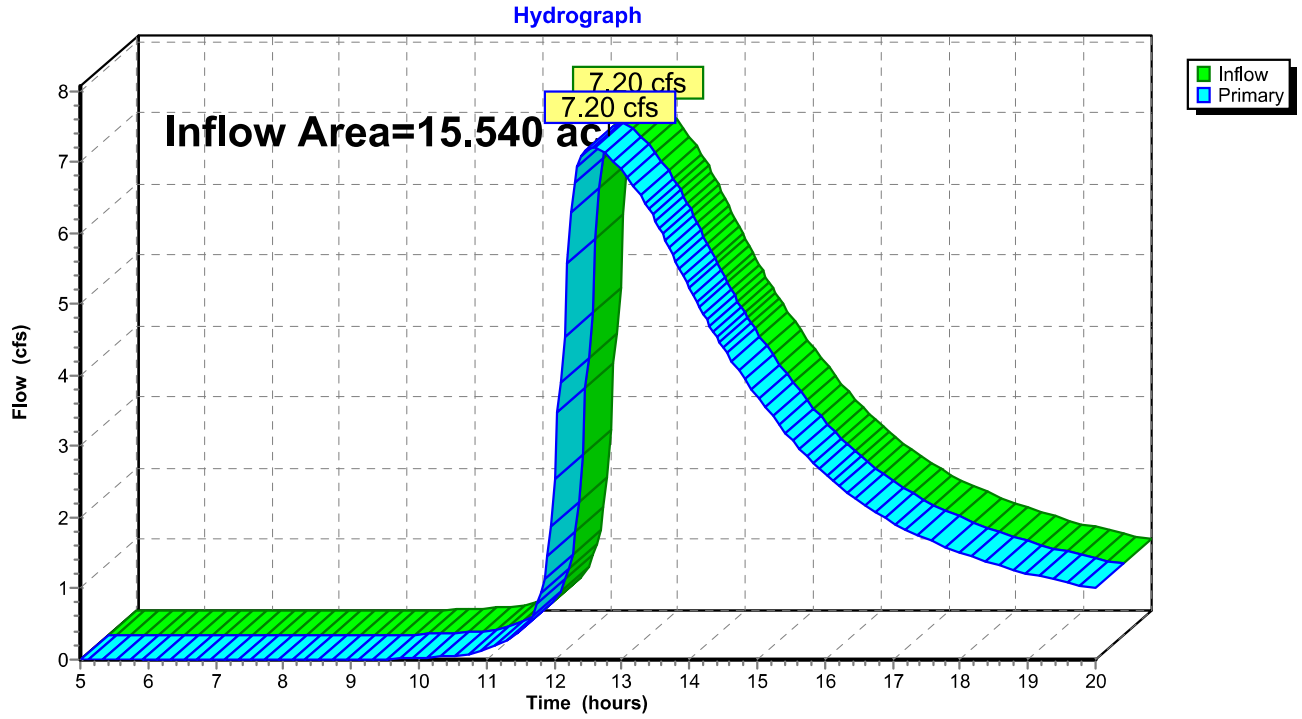


Summary for Link 5L: Des Outflow

Inflow Area = 15.540 ac, 67.97% Impervious, Inflow Depth > 1.73" for 2-Year event
Inflow = 7.20 cfs @ 12.59 hrs, Volume= 2.244 af
Primary = 7.20 cfs @ 12.59 hrs, Volume= 2.244 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: Des Outflow



Summary for Subcatchment 1S: Ex Ws

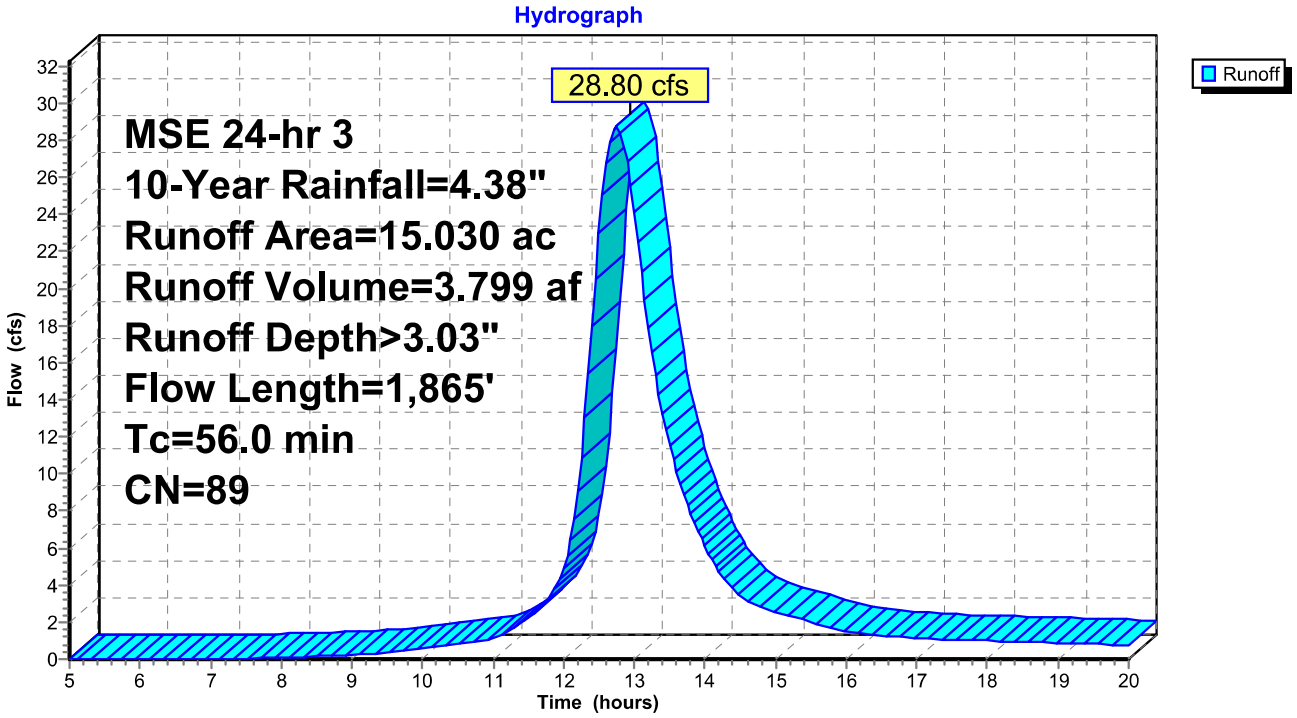
Runoff = 28.80 cfs @ 12.75 hrs, Volume= 3.799 af, Depth> 3.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
14.670	89	Row crops, straight row, Good, HSG D
0.360	86	Farmsteads, HSG D
15.030	89	Weighted Average
15.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 4.40"
24.9	950	0.0050	0.64		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
3.1	715	0.0030	3.90	292.59	**Trap/Vee/Rect Channel Flow,** Bot.W=7.00' D=3.00' Z= 6.0 '/' Top.W=43.00' n= 0.030 Earth, grassed & winding
56.0	1,865	Total			

Subcatchment 1S: Ex Ws



Summary for Subcatchment 2S: Des WS

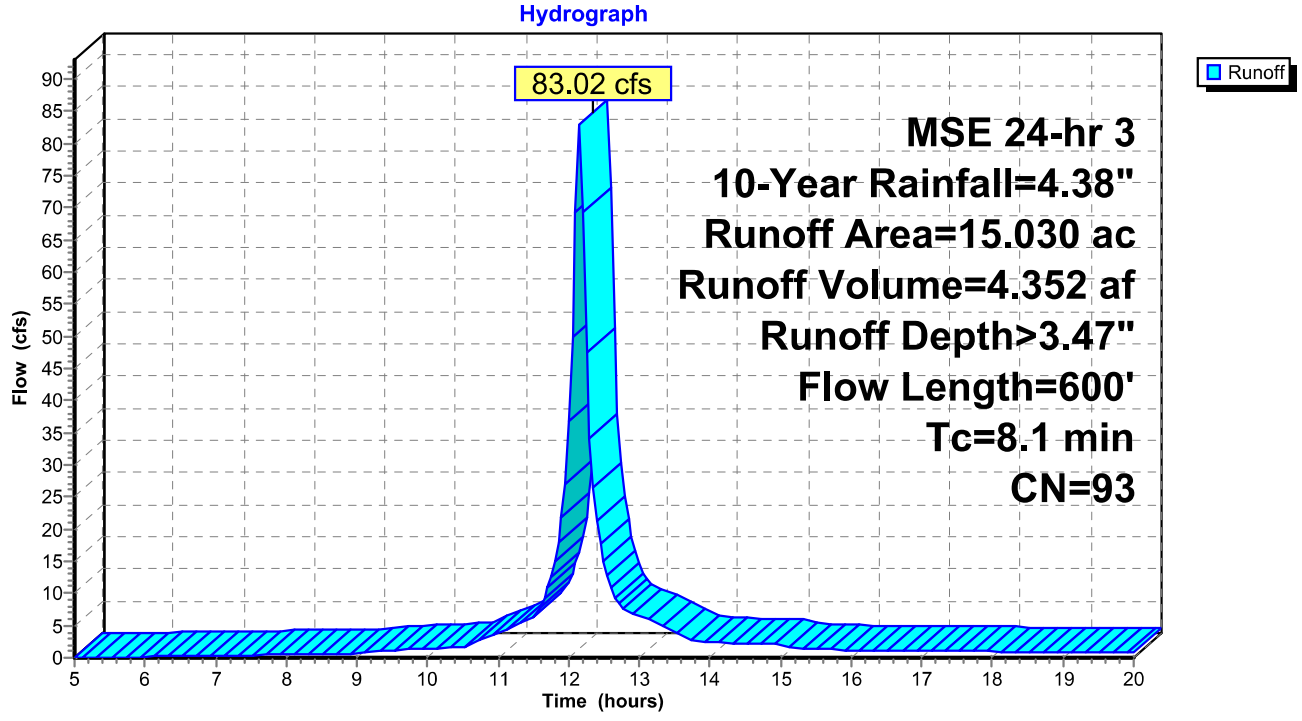
Runoff = 83.02 cfs @ 12.15 hrs, Volume= 4.352 af, Depth> 3.47"
Routed to Pond 3P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
14.670	93	Urban industrial, 72% imp, HSG D
0.360	86	Farmsteads, HSG D
15.030	93	Weighted Average
4.468		29.72% Pervious Area
10.562		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	200	0.0200	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 4.40"
6.3	400	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	600	Total			

Subcatchment 2S: Des WS



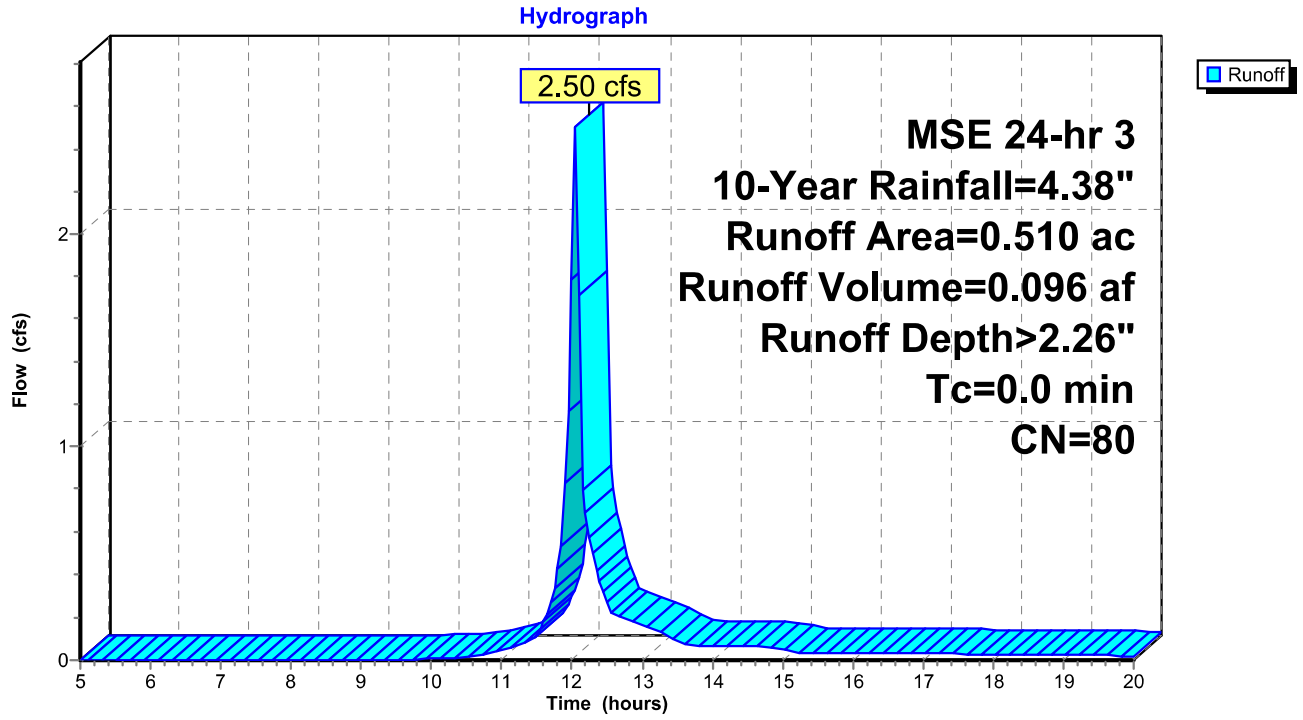
Summary for Subcatchment 4S: Des Offsite WS

Runoff = 2.50 cfs @ 12.05 hrs, Volume= 0.096 af, Depth> 2.26"
Routed to Link 5L : Des Outflow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
0.510	80	>75% Grass cover, Good, HSG D
0.510		100.00% Pervious Area

Subcatchment 4S: Des Offsite WS



Summary for Pond 3P: (new Pond)

Inflow Area = 15.030 ac, 70.28% Impervious, Inflow Depth > 3.47" for 10-Year event
Inflow = 83.02 cfs @ 12.15 hrs, Volume= 4.352 af
Outflow = 10.25 cfs @ 12.62 hrs, Volume= 3.797 af, Atten= 88%, Lag= 28.1 min
Primary = 10.25 cfs @ 12.62 hrs, Volume= 3.797 af
Routed to Link 5L : Des Outflow

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,013.24' @ 12.62 hrs Surf.Area= 57,420 sf Storage= 110,680 cf

Plug-Flow detention time= 156.3 min calculated for 3.797 af (87% of inflow)
Center-of-Mass det. time= 121.3 min (877.1 - 755.8)

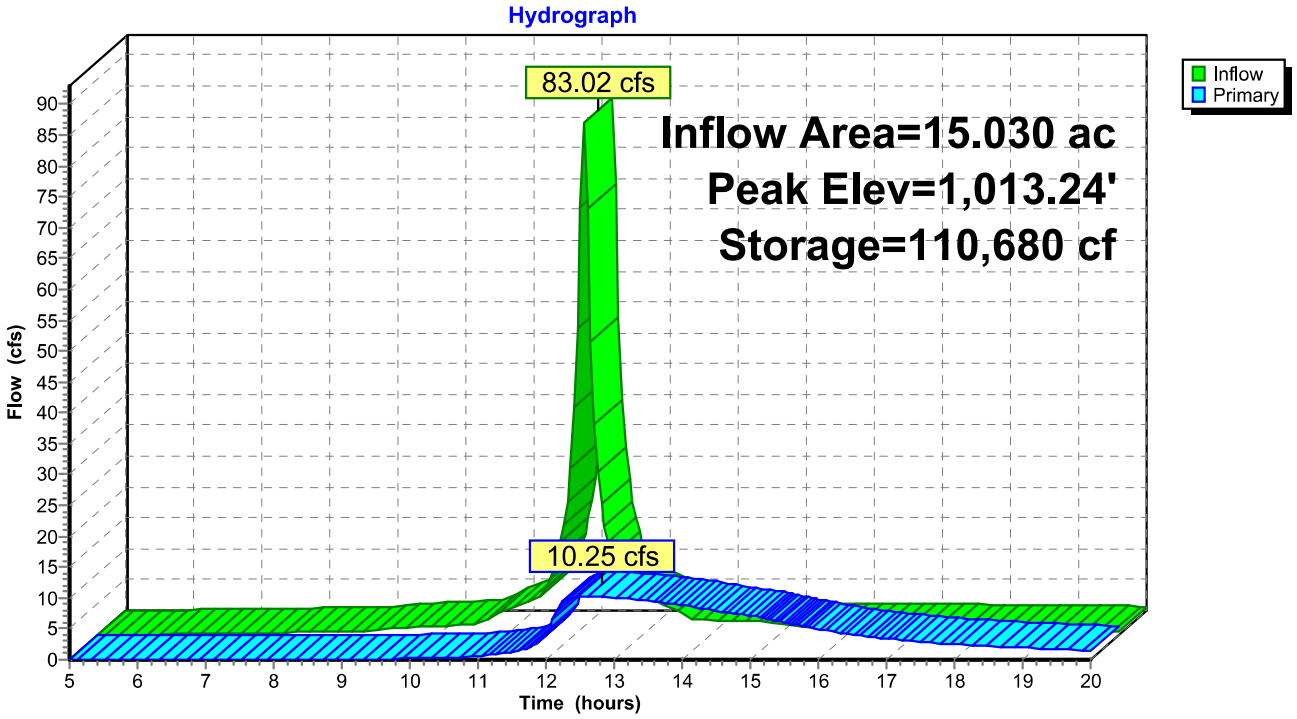
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	296,430 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	41,504	0	0
1,016.00	77,068	296,430	296,430

Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	**18.0" Round Culvert** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	1,008.00'	**18.0" Round Culvert** L= 30.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,008.00' / 1,008.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=10.24 cfs @ 12.62 hrs HW=1,013.24' (Free Discharge)
└**1=Culvert** (Barrel Controls 10.24 cfs @ 5.80 fps)
└**2=Culvert** (Passes 10.24 cfs of 12.73 cfs potential flow)

Pond 3P: (new Pond)

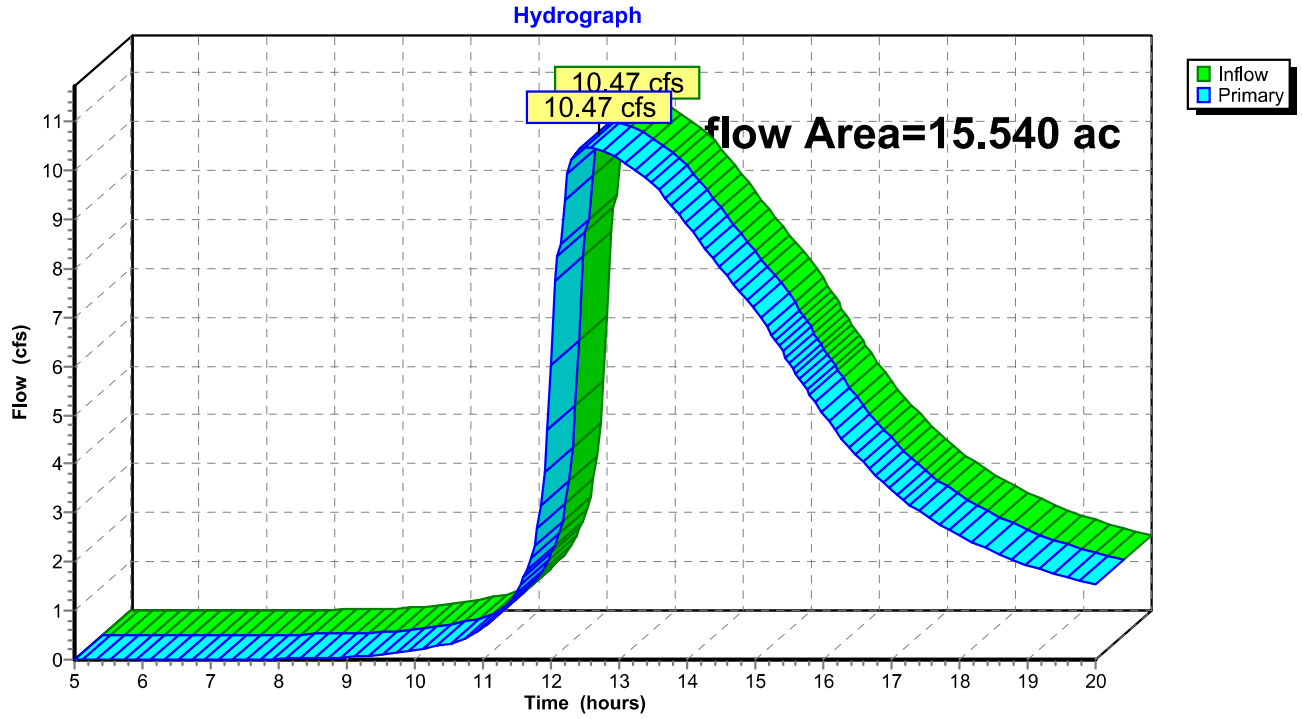


Summary for Link 5L: Des Outflow

Inflow Area = 15.540 ac, 67.97% Impervious, Inflow Depth > 3.01" for 10-Year event
Inflow = 10.47 cfs @ 12.49 hrs, Volume= 3.893 af
Primary = 10.47 cfs @ 12.49 hrs, Volume= 3.893 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: Des Outflow



Summary for Subcatchment 1S: Ex Ws

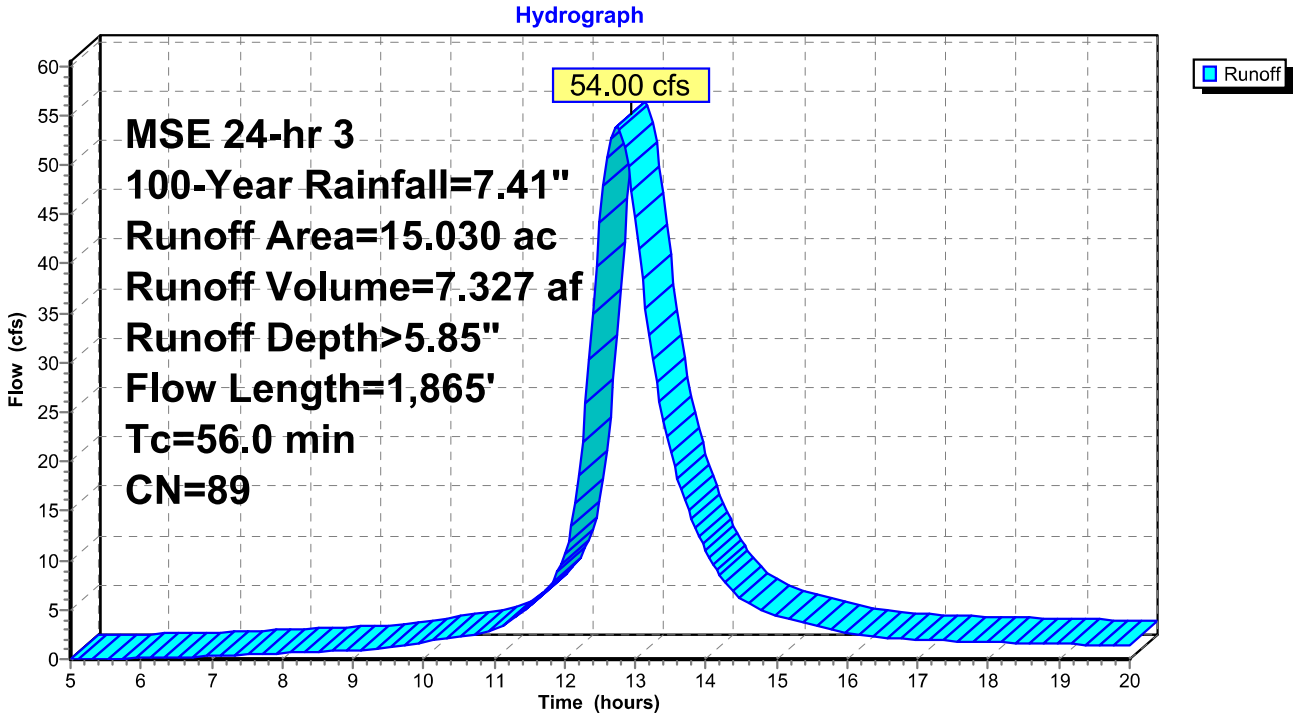
Runoff = 54.00 cfs @ 12.74 hrs, Volume= 7.327 af, Depth> 5.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
14.670	89	Row crops, straight row, Good, HSG D
0.360	86	Farmsteads, HSG D
15.030	89	Weighted Average
15.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 4.40"
24.9	950	0.0050	0.64		**Shallow Concentrated Flow,** Cultivated Straight Rows Kv= 9.0 fps
3.1	715	0.0030	3.90	292.59	**Trap/Vee/Rect Channel Flow,** Bot.W=7.00' D=3.00' Z= 6.0 '/' Top.W=43.00' n= 0.030 Earth, grassed & winding
56.0	1,865	Total			

Subcatchment 1S: Ex Ws



Summary for Subcatchment 2S: Des WS

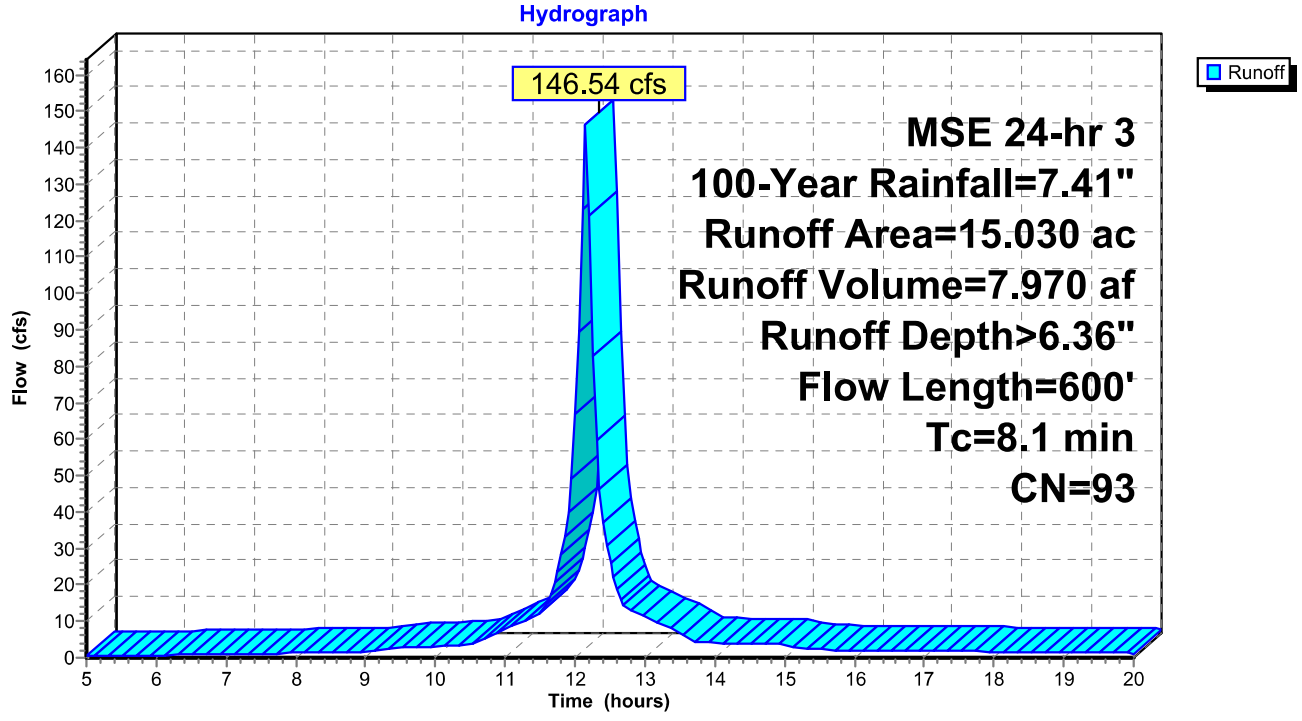
Runoff = 146.54 cfs @ 12.15 hrs, Volume= 7.970 af, Depth> 6.36"
Routed to Pond 3P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
14.670	93	Urban industrial, 72% imp, HSG D
0.360	86	Farmsteads, HSG D
15.030	93	Weighted Average
4.468		29.72% Pervious Area
10.562		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	200	0.0200	1.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 4.40"
6.3	400	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.1	600	Total			

Subcatchment 2S: Des WS



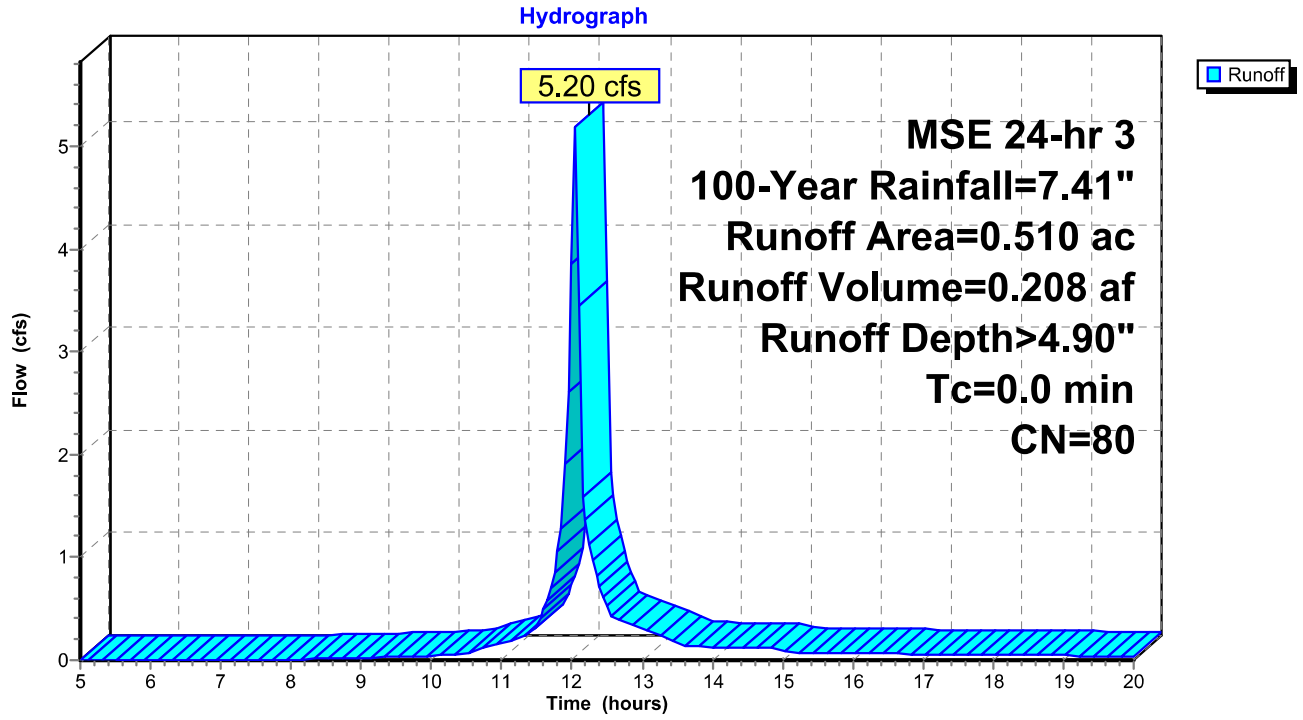
Summary for Subcatchment 4S: Des Offsite WS

Runoff = 5.20 cfs @ 12.05 hrs, Volume= 0.208 af, Depth> 4.90"
Routed to Link 5L : Des Outflow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
0.510	80	>75% Grass cover, Good, HSG D
0.510		100.00% Pervious Area

Subcatchment 4S: Des Offsite WS



Summary for Pond 3P: (new Pond)

Inflow Area = 15.030 ac, 70.28% Impervious, Inflow Depth > 6.36" for 100-Year event
Inflow = 146.54 cfs @ 12.15 hrs, Volume= 7.970 af
Outflow = 14.01 cfs @ 12.72 hrs, Volume= 7.063 af, Atten= 90%, Lag= 34.5 min
Primary = 14.01 cfs @ 12.72 hrs, Volume= 7.063 af
Routed to Link 5L : Des Outflow

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,014.75' @ 12.72 hrs Surf.Area= 68,173 sf Storage= 205,615 cf

Plug-Flow detention time= 181.3 min calculated for 7.062 af (89% of inflow)
Center-of-Mass det. time= 148.2 min (894.7 - 746.5)

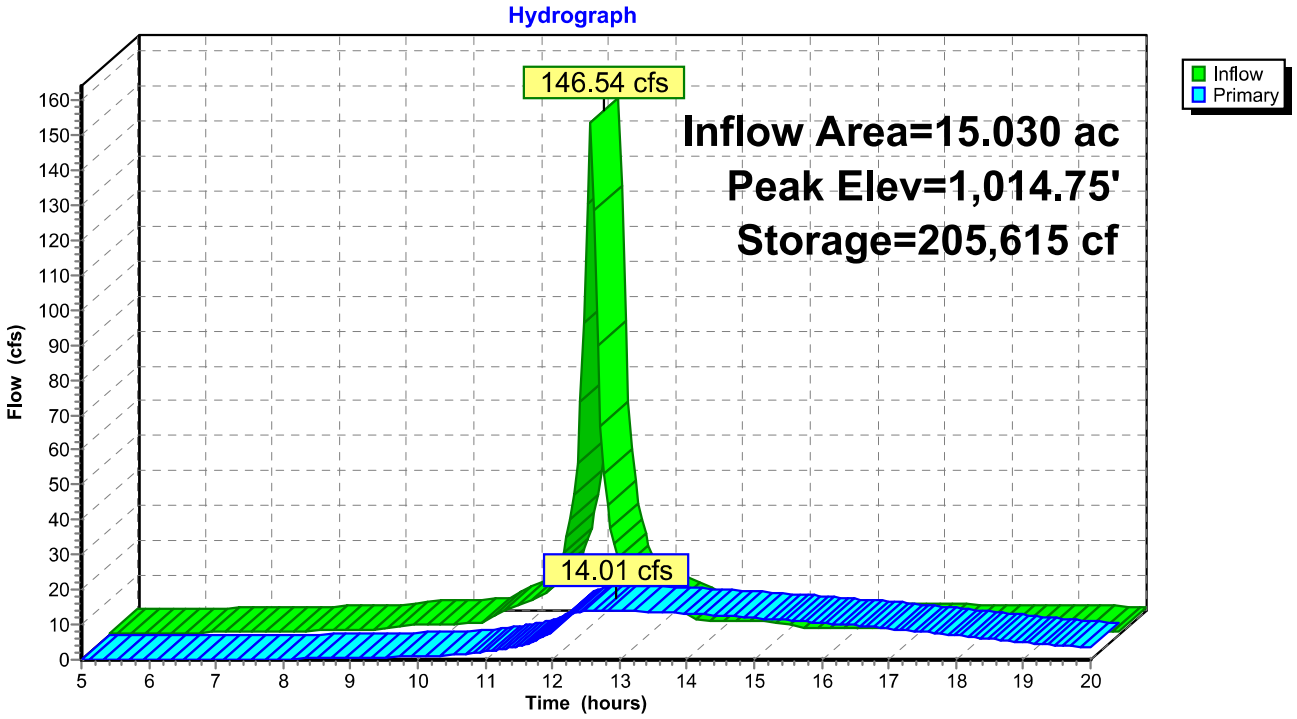
Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	296,430 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	41,504	0	0
1,016.00	77,068	296,430	296,430

Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	**18.0" Round Culvert** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	1,008.00'	**18.0" Round Culvert** L= 30.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,008.00' / 1,008.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=14.01 cfs @ 12.72 hrs HW=1,014.75' (Free Discharge)
↑**1=Culvert** (Barrel Controls 14.01 cfs @ 7.93 fps)
↑**2=Culvert** (Passes 14.01 cfs of 16.48 cfs potential flow)

Pond 3P: (new Pond)

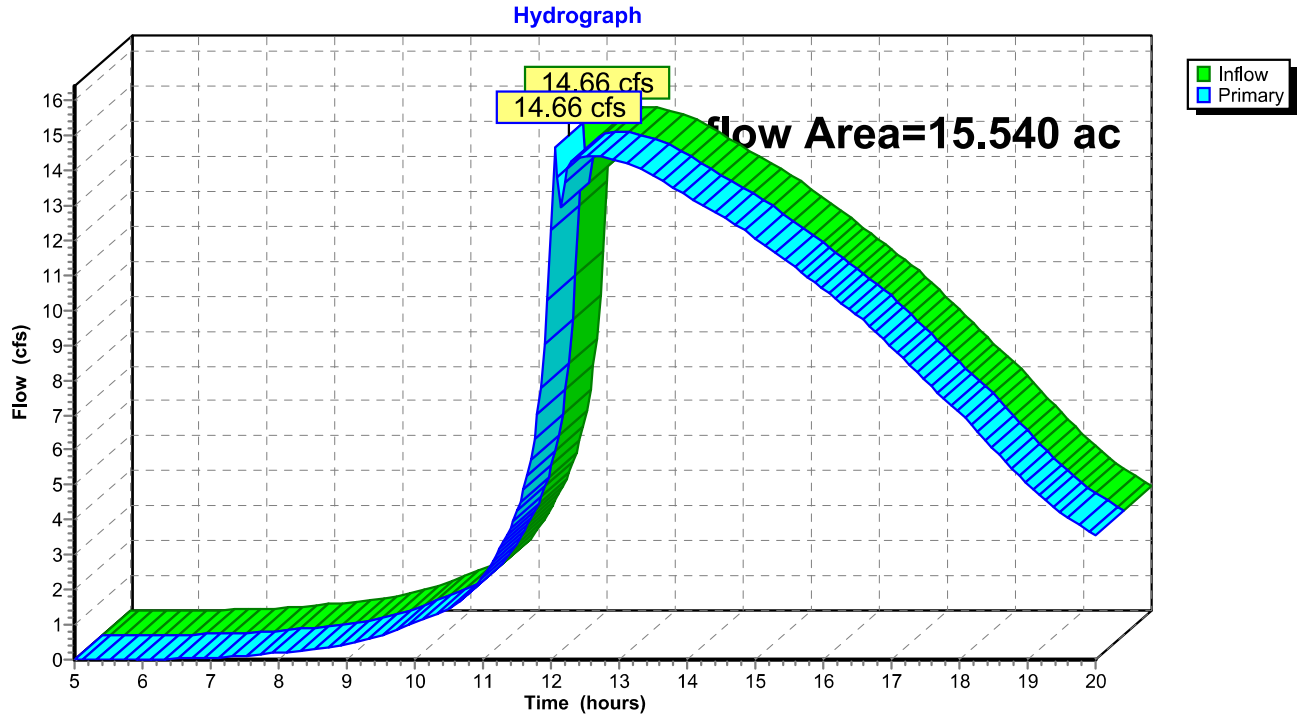


Summary for Link 5L: Des Outflow

Inflow Area = 15.540 ac, 67.97% Impervious, Inflow Depth > 5.61" for 100-Year event
Inflow = 14.66 cfs @ 12.06 hrs, Volume= 7.271 af
Primary = 14.66 cfs @ 12.06 hrs, Volume= 7.271 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: Des Outflow



February 3, 2026 Project B2508847

Scott Brown
Met-Con Companies, Inc.
PO Box 427
15760 Acorn Trail
Faribault, MN 55021

Re: Geotechnical Evaluation
Met-Con Mankato Office and Site Development
East of County Highway 12 between Adams Street and Madison Avenue
Mankato, Minnesota

Dear Mr. Brown:

We are pleased to present this geotechnical evaluation report for the Met-Con Mankato Office and Site Development project at the above referenced site.

Thank you for making Braun Intertec Corporation (Braun Intertec) your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Philip Bailey at 507.995.2788 or pbailey@braunintertec.com.

Sincerely,
Braun Intertec Corporation

Philip E. Bailey, PE
Associate Director, Senior Engineer

Brandon K. Wright, PE
Senior Manager, Senior Engineer

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Appendix

Soil Boring Location Sketch
Fence Diagram
Log of Boring Sheets ST-1 to ST-24
Descriptive Terminology of Soil

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1.0 Introduction

1.1 Project Description

This geotechnical evaluation report addresses the proposed design and construction of the proposed office building and site grading, located in the southeast quadrant of the intersection of County State Aid Highway 12 and Adams Street in Mankato, Minnesota. The project will include the construction of a single-story office building with multiple rental units within a 1.9-acre parcel (Lot 6). The proposed office building will be steel framed with sheet-metal and stone siding. Civil improvements will include concrete pavement, a gravel surfaced storage yard, detention pond, and a patio.

In addition to the development of Lot 6, we also understand Met-Con has purchased an additional five adjoining lots and intends to develop them in the future. We assume similar single-story, slab-on-grade, steel-framed, office- or warehouse-type buildings will be constructed on the five adjoining lots.

Table 1-1 and Table 1-2 summarize the provided and assumed project details used to prepare this report.

Table 1-1. Building Description

Aspect	Descriptions
Below grade levels	None (Provided)
Above grade levels	1 (Provided)
Lowest level floor elevation (feet)	1018 (Assumed)
Column loads (kips)	150 (Assumed)
Wall loads (kips/foot)	8 (Assumed)
Nature of construction	Single-story, slab-on-grade, steel-framed, office- or warehouse-type buildings (Provided)
Cuts or fills for buildings	1 to 3 feet of fill (Assumed)
Tolerable building settlements	1 inch total, ½ inch differential (Assumed)

Table 1-2. Site Aspects and Grading Description

Aspect	Descriptions
Pavement type(s)	Bituminous or concrete for parking and drive areas and aggregate surfacing for yard storage
Assumed pavement loads	Light-duty: 50,000 ESALs* for car parking
	Medium-duty: 100,000 ESALs* for main drive areas
Grade changes	Up to 3 feet of fill in pavement areas (Assumed)

*Equivalent 18,000-lb single axle loads based on 20-year design for bituminous and 35-year design for concrete.

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Figure 1-1below shows an illustration of the proposed development area.



Figure 1-1. Site Development Area
Figure provided by Met-Con Companies, Inc. not dated.

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Figure 1-2 below shows an illustration of the proposed site layout within Lot 6.

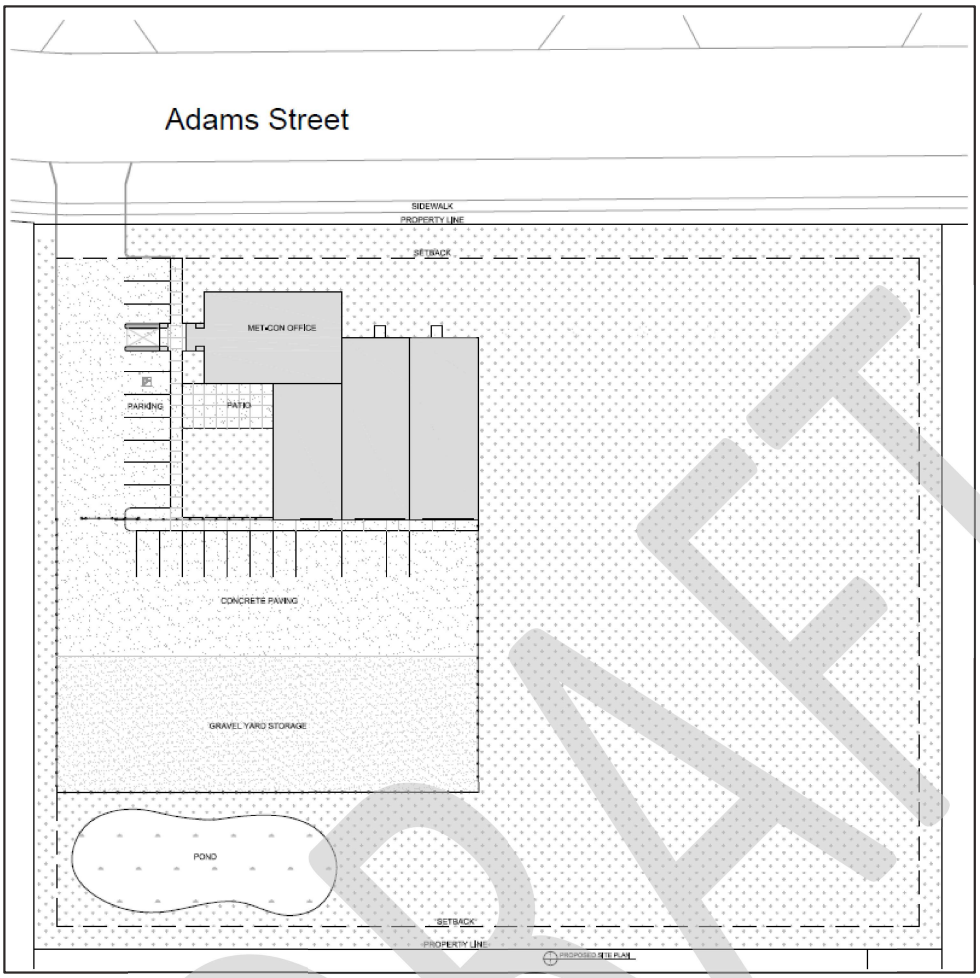

Figure 1-2. Site Layout
Figure provided by Met-Con Companies, Inc. dated June 26, 2025.

1.2 Site Conditions and History

Currently, the site exists as undeveloped agricultural fields. The project area is bounded by Adams Street on the north, County State Aid Highway (CSAH 12) on the west, Madison Avenue on the South and an existing farm and agricultural fields on the east.

Current grades range from about 1012 to 1018 feet with site slopes generally downward to the southeast.

Historically, the development area has remained as agricultural land. As shown in Figure 1-3 below, you will note the current site conditions.

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Figure 1-3. Aerial Photograph of the Site in 2025
Figure obtained from Google Earth™ dated May 5, 2025.

1.3 Purpose

The purpose of our geotechnical evaluation is to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of the proposed office building, pavements, and site development of Lots 1 to 5.

1.4 Background Information and Reference Documents

We reviewed the following information:

- Topographic data obtained from MnTOPO.
- Site Layout Plan prepared by Met-Con Companies, Inc. dated June 26, 2025.
- Surficial Geology Map of Blue Earth County, prepared by the University of Minnesota, Minnesota Geological Survey. The map is denoted as Atlas C-26, Part A, Plate 3, dated 2012.
- Google Earth aerial imagery with dates ranging from April 27, 1991 to May 5, 2025.
- Communications with Mr. Scott Brown of Met-Con Companies, Inc. regarding the proposed development.

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In addition to the provided sources, we have used several publicly available sources of information.

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses, and/or recommendations.

1.5 Scope of Services

We performed our scope of services for the project in accordance with our Proposal Mr. Scott Brown of Met-Con Companies, Inc., dated and authorized on September 30, 2025. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewing the background information and reference documents previously cited.
- Staking and clearing the exploration location of underground utilities. We selected and we staked the new exploration locations. We acquired the surface elevations and locations with GPS technology. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.
- Performing 24 standard penetration test (SPT) borings, denoted as ST-1 to ST-24, to nominal depths of 5 to 20 feet below grade across the site.
- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.
- Perform engineering analysis including settlement and bearing capacity for spread footing foundations and pavement analysis for pavement design.
- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for structure and pavement subgrade preparation and the design of foundations, floor slabs, exterior slabs, utilities, stormwater improvements, and pavements.

2.0 Results

2.1 Geologic Overview

We based the geologic origins used in this report on the soil types, in-situ and laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.

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2.2 Boring Results

Table 2-1 provides a summary of the soil boring results, in the general order we encountered the strata. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheets in the Appendix include definitions of abbreviations used in the table below.

Table 2-1. Subsurface Profile Summary

Strata	Soil Type -ASTM Classification	Range of Penetration Resistances	Commentary and Details
Topsoil	OL, CL, SM, SC	--	▪ Thicknesses at boring locations varied from 1 to 3 1/2 feet. ▪ Slightly organic to organic. ▪ Dark brown to black. ▪ Moisture condition generally moist to wet.
Glaciolacustrine	CL, SC, ML, OL	3 to 9 blows per foot (BPF)	▪ Primarily lean clay with varying sand contents but also silt and organic clay. ▪ Encountered to depths of about 4 to 11 feet. ▪ Locally slightly organic to organic. ▪ General penetration resistance of 3 to 6 BPF indicating the cohesionless silts and sands were very loose to loose in relative density and the cohesive clays were soft to stiff in consistency. ▪ Brown, gray, dark gray and black in color. ▪ Moisture condition generally moist.
Glacial deposits	SP-SC	5 to 9 BPF	▪ Primarily till composed of lean clay with varying sand contents but also outwash composed of sand with silt. ▪ Possible cobbles and boulders. ▪ Variable amounts of gravel and may contain cobbles and boulders. ▪ Locally slightly organic. ▪ General penetration resistance of 3 to 7 BPF, indicating the glacial soils were generally soft to medium in consistency and loose in relative density. ▪ Moisture condition generally moist to wet.
	CL, SC	3 to 16 BPF	

2.3 Groundwater

Table 2-3 summarizes the depths where we observed groundwater; the attached Log of Boring sheets in the Appendix also include this information and additional details. We did not observe groundwater while performing the remainder of our borings. Groundwater may take days or longer to reach equilibrium in the boreholes and we immediately backfilled the boreholes, in accordance with our scope of work. Given the coloration of soils and experience with projects in the area, we anticipate that perched groundwater will likely be encountered at depths of 4 to 8 feet. In addition, glacial till (composed of sandy lean clay) frequently

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contains isolated pockets and seams of water-bearing sands and gravels. These water-bearing layers are generally limited to extent but can produce a sudden influx of water when encountered during drilling operations or in excavations. If the project team identifies a need for more accurate determination of groundwater depth, we can install piezometers. Project planning should anticipate seasonal and annual fluctuations of groundwater.

Table 2-2. Groundwater Summary

Locations	Surface Elevation	Measured or Estimated Depth to Groundwater (ft)	Corresponding Groundwater Elevation (ft)
ST-2	1015.4	10	1005 1/2
ST-3	1016.2	10	1006 1/2
ST-4	1014.5	10	1004 1/2
ST-5	1017.1	12	1005 1/2
ST-15	1016.4	7 1/2	1009
ST-20	1016.9	10	1007

2.4 Laboratory Test Results

The boring logs show the results of laboratory testing we performed, next to the tested sample depth. The Appendix contains the results of these tests. The laboratory tests were completed in accordance with the current standards as specified by the American Society for Testing and Materials (ASTM).

The moisture content tests (ASTM D 2216) performed on select soil samples indicated a moisture content of 17 to 40 percent moisture by weight. The tests on the select soil samples indicate that the clay-laden soils are near to well above their estimated optimum moisture contents.

Sieve analysis tests (ASTM D 422) performed on select soil samples indicated 11 to 41 percent particles, by weight, passing the #200 sieve.

Liquid limits determined for the select soil samples ranged from 38 to 48; plastic limits ranged from 13 to 21. These results indicate that the select soil samples are classified as lean clay (CL) or silt.

We performed organic content tests (ASTM D2974) on selected samples to determine the reusability of the material for structure support and pavement design. The organic content of the selected material tested ranged from 4 to 6 percent, indicating the samples tested were slightly organic to organic.

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3.0 Recommendations

3.1 Design and Construction Discussion

Based on the results of our exploration, field and laboratory tests and our understanding of the proposed project, it is our opinion that the site is suitable for the proposed project, with the following geotechnical design and construction considerations.

3.1.1 Building Subgrade Preparation

All borings encountered topsoil at the surface that was between about 1 to 3 1/2 feet in thickness that is unsuitable for use as subgrade material as well as structural fill and will need to be removed from all building and pavement areas.

Portions of the glacial clays and clayey sands present throughout the site are soft, slightly organic to organic, and are considered compressible. If these soils are left in place below the proposed building footprints, there is an elevated risk of post-construction settlement, and the soils cannot be directly relied upon to support the proposed building foundations. Therefore, we recommend removing soft clays with penetration test values less 4 BPF during mass grading and soft clays with penetration test values less than 5 below foundations and replacing them with compacted granular structural fill as described in Table 3-2. Additionally, to allow for fill-induced consolidation to occur prior to placement of foundations, we recommend grade raises be completed prior to foundation construction.

3.1.2 Reuse of On-Site Soils

The majority of the on-site glacial clay soils tested were several percentage points to well above their estimated optimum moisture content, particularly in the upper 5 to 10 feet of the soil profile. Should these soils be selected for use as engineered fill, they will likely need to be moisture conditioned (dried) to achieve compaction. In our opinion, these materials are suitable for reuse if the contractor performs scarifying of these materials and are placed in the locations shown in Table 3-2. To reduce settlement and facilitate construction, we do not recommend the onsite clayey soils be re-used as structural fill directly below foundations. Additionally, the silt and organic soils present on the site will be highly moisture sensitive, difficult to compact and provide limited support, thus we do not recommend reusing them outside of green spaces. Granular material used as soil correction backfill will need to be imported. Soils with more than 2-percent organic content should not be considered suitable for reuse as structural fill.

To achieve the proper moisture content within the on-site soils, the soils should be dried during the summer months. If the contractor performs site grading in the spring or fall, on-site drying of these soils may not prove feasible and require importing drier soils. If project constraints do not allow the time, or ideal weather conditions, the overly wet soil may need to be replaced with suitable material. We recommend discussing the reuse of these materials and required import quantities with potential contractors at the bidding stages of the project.

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3.1.3 Groundwater

Perched water conditions will likely be present during construction. It is possible to encounter sand pockets and seams within the glacial clays and excavations may experience a sudden influx of groundwater. Temporary dewatering measures such as sumps pits should be anticipated during construction in clay areas as well as potential reconnection of disturbed field tile around the construction limits. Where clay soils are encountered in excavation bottoms, we recommend including provisions for placement of 4 to 6 inches of crushed aggregate in foundation excavations to provide a construction platform and a medium for removal of any accumulating water during construction.

3.1.4 Construction Disturbance

The contractor should note the on-site, clayey soils are highly susceptible to disturbance, due to repeated construction traffic. Disturbance of these soils may cause areas that were previously prepared, or that were suitable for pavement or structure support, to become unstable and require moisture conditioning and compaction. Subcutting and replacing the disturbed material with crushed, coarse gravel, free of fines is also an alternative. The contractor should use means and methods to limit disturbance of the soils.

If significant rainfall is anticipated during construction, the site should be graded to intercept surface water flow into the area and drain water from the area to an appropriate collection point. After grading, the soil surface should be compacted with a smooth drum roller to attempt to lower infiltration. After the rain, construction traffic should be limited until the surface has dried somewhat, to prevent traffic from mixing water that has accumulated at the surface into lower portions of the soil.

3.1.5 Frost Heave Mitigation

The soils encountered on the site are generally susceptible to frost heave. If heaving of exterior slabs and sidewalks is unacceptable, consideration should also be given to incorporating a granular subbase into these sections. A granular subbase enhances subgrade drainage, reduces the potential for subgrades to become saturated and heave upon freezing, and reduces the effects of subgrade strength loss upon thawing.

3.1.6 Pavement

In preparation of pavement subgrades, the project team should anticipate removal of topsoils within 3 feet of the pavements and some areas of unstable clayey or silty soils. If required, the contractor should perform scarification, drying and recompaction, as outlined in Section 3.2.7. Depending on the time of year and weather conditions, scarification, drying, and recompaction efforts may require multiple iterations to stabilize pavement subgrades.

To improve long-term pavement performance, the project team should consider a pavement design that incorporates non-frost-susceptible sand in paved areas. Incorporation of the sand into the pavement section will reduce the impact of the frost heave and subsequent thaw-weakening of the soils beneath the pavement. The sand will also provide better drainage throughout the year. Sand will not only increase the life of the pavement but will likely reduce reconstruction cost at the end of the pavement life. If the pavement design incorporates a sand subgrade, it could then decrease the aggregate base thickness.

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3.2 Site Grading and Subgrade Preparation

3.2.1 Building Subgrade Excavations

We recommend removing unsuitable materials from below the proposed buildings and their oversize areas. We define unsuitable materials as topsoil, existing fill, frozen materials, slightly organic to organic soils, existing utilities, draintile, vegetation, and soft/loose soils with penetration test values less than 4 BPF. Table 3-1 shows the anticipated excavation depths and bottom elevations for each of the borings.

Table 3-1. Building Excavation Depths

Location	Approximate Surface Elevation (ft)	Anticipated Excavation Depth (ft)**	Anticipated Bottom Elevation* (ft)
ST-1	1017.0	2	1015
ST-2	1015.4	7	1008
ST-3	1016.2	7	1009
ST-4	1014.5	5	1009 1/2
ST-5	1017.1	7	1010
ST-11	1014	7	1007
ST-12	1015.4	1	1014 1/2
ST-14	1016.5	1	1015 1/2
ST-15	1016.4	6	1010
ST-17	1013.4	1 1/2	1011 1/2
ST-18	1014.9	4	1010 1/2
ST-20	1016.9	10	1006 1/2
ST-21	1017.6	2	1015 1/2
ST-23	1015.4	1 1/2	1014
ST-24	1015.1	1	1014

*Rounded down to the nearest 1/2-foot.
**In addition to removals depths noted above, we recommend removing any soft to medium soils with penetration test values less than 6 BPF within 1/2 of a column width below column pads and a full footing width below continuous foundations and replacing them with select structural fill.

Excavation depths will vary between the borings. Portions of the excavations may also extend deeper than indicated by the borings. A geotechnical representative should observe the excavations to make the necessary field judgments regarding the suitability of the exposed soils.

The contractor should use equipment and techniques to minimize soil disturbance. If soils become disturbed or are wet, we recommend excavation and replacement.

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3.2.2 Excavation Oversizing

When removing unsuitable materials below structures or pavements, we recommend the excavation extend outward and downward at a slope of 1H:1V (horizontal:vertical) or flatter. See Figure 3-1 for an illustration of excavation oversizing.

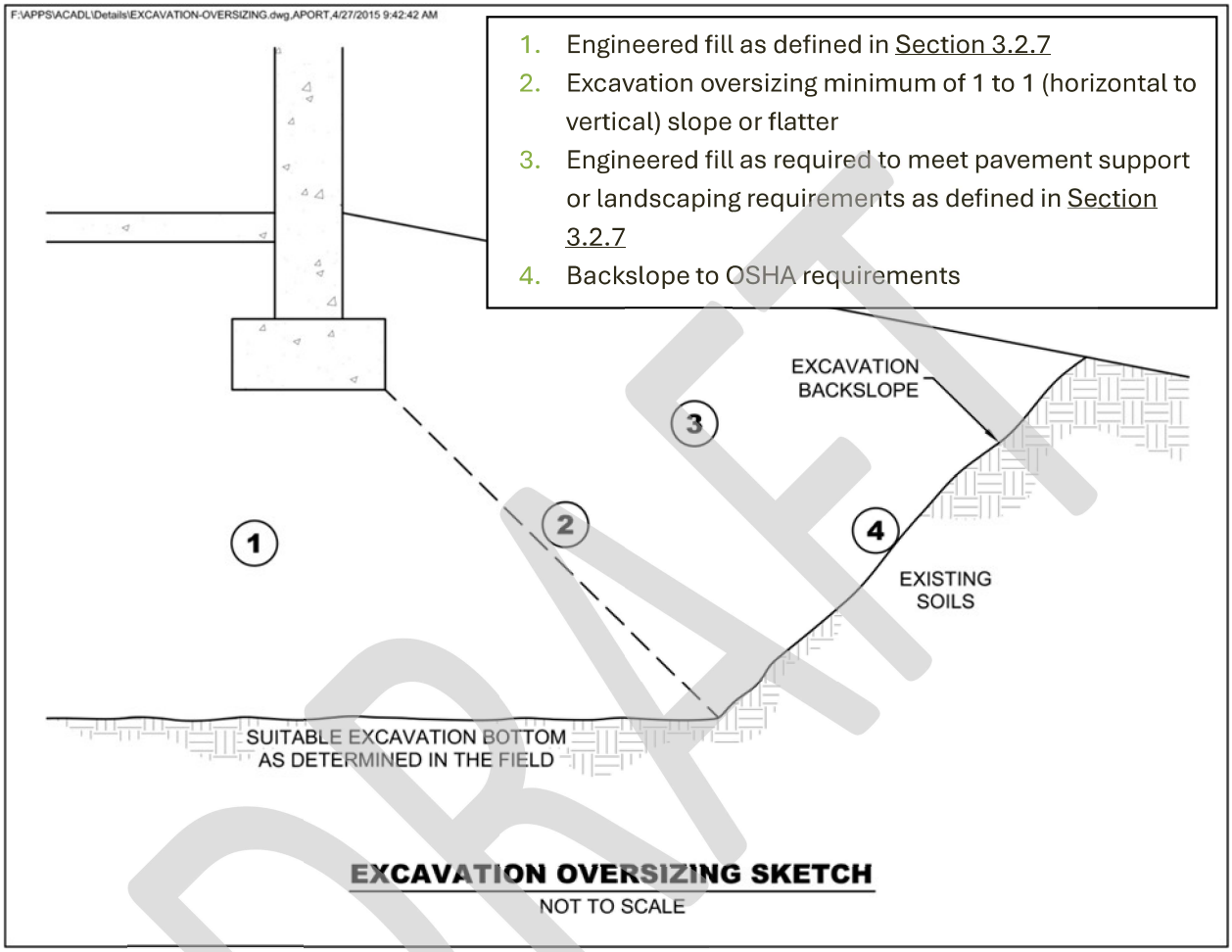

Figure 3-1. Generalized Illustration of Oversizing

3.2.3 Excavated Slopes

Based on the borings, we anticipate on-site soils in excavations will consist of soft to medium glacial clays and loose glacial sands and silts. These soils are typically considered Type C Soil under OSHA (Occupational Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type C soils should have a gradient no steeper than 1 1/2H:1V. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, “Excavations and Trenches.” This

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document states that excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

3.2.4 Excavation Dewatering

We recommend removing surface of water or groundwater from the excavations. Project planning should include temporary sumps and pumps for excavations in low-permeability soils, such as clays.

3.2.5 Pavement and Exterior Slab Subgrade Preparation

We recommend the following steps for pavement and exterior slab subgrade preparation, understanding the site will have a grade change of 3 feet or less. Note that project planning may require additional subcuts to limit frost heave.

1. Strip unsuitable soils consisting of topsoil, organic soils, vegetation, existing fill, and pavements from the area, within 3 feet of the pavement subgrade.
2. Subcut to allow for placement of the pavement and exterior slab section.
3. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.
4. Slope subgrade soils to areas of sand or drain tile to allow the removal of accumulating water.
5. Scarify, moisture condition and surface compact the subgrade with at least three passes of a large roller with a minimum drum diameter of 3 1/2 feet. It should be noted that multiple iterations of moisture conditioning may be required based on the high moisture content of the soils tested.
6. If overly soft or wet soils are encountered after the required removals that do not allow for placement of engineered fill, or if weather conditions do not allow for adequate drying and recompaction of engineered fill, we recommend performing subgrade stabilization that consists of either:
    a. Subexcavating below the existing subgrade soils to allow for placement of a minimum of 24 inches of clean, sand subbase to bridge the softer soils.
    b. Place geogrid reinforcement (Tensar NX750 or equivalent) on the surface of the clay subgrade in correction areas and place a thicker section of aggregate base. It should be noted that where stabilization is necessary, it may be necessary in localized areas to place a second layer of geogrid reinforcement approximately 6 to 8 inches below the top of aggregate base. We recommend initially constructing a test strip to evaluate the need for a second layer of geogrid.

       Ultimately, the method and thickness of stabilization will have to be based on test sections placed within the pavement areas and will be dependent on what is needed to meet the requirements of a proofroll.

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7. Place pavement engineered fill to grade and compact in accordance with Section 3.2.7 to bottom of pavement and exterior slab section. See Section 3.5 for additional considerations related to frost heave.

8. Proofroll the pavement or exterior slab subgrade as described in Section 3.2.6.

To improve long-term pavement performance, we recommend incorporating 12 to 18 inches of sand subbase engineered fill in paved areas, in addition to the recommendations above, as a sand subbase. Note, we recommend sloping subgrade soils to promote drainage and removal of accumulated water.

3.2.6 Pavement Subgrade Proofroll

After preparing the subgrade as described above and prior to the placement of the aggregate base, we recommend proofrolling the subgrade soils with a fully loaded tandem-axle truck. We also recommend having a geotechnical representative observe the proofroll. Areas that fail the proofroll likely indicate soft or weak areas that will require additional soil correction work to support pavements.

The contractor should correct areas that display excessive yielding or rutting during the proofroll, as determined by the geotechnical representative. Possible options for subgrade correction include moisture conditioning and recompaction, subcutting and replacement with soil or crushed aggregate, chemical stabilization, and/or geotextiles. We recommend performing a second proofroll after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

3.2.7 Engineered Fill Materials and Compaction

Table 3-2 below contains our recommendations for engineered fill materials.

Table 3-2. Engineered Fill Materials*

Locations To Be Used	Engineered Fill Classification	Possible Soil Type Descriptions	Gradation	Additional Requirements
▪ Mass grading ▪ Below interior slabs	Structural fill	SP, SP-SM, SM, SC, CL (excluding ML)	100% passing 2-inch sieve	< 2% Organic Content (OC) Liquid Limit (LL) < 50%
Non-frost-susceptible	▪ Free draining ▪ Non-frost-susceptible fill	GP, GW, SP, SW	100% passing 1-inch sieve < 50% passing #40 sieve < 5% passing #200 sieve	< 2% OC
▪ Soil Corrections below foundations ▪ Deep Structural Fill (>10 feet of fill)	▪ Deep sand fill ▪ Select structural fill	SP, SP-SM	100% passing 1-inch sieve < 12% passing #200 sieve	< 2% OC
Pavements	Pavement fill	SP, SP-SM, SM, SC, CL (excluding ML)	100% passing 3-inch sieve	< 3% OC PI < 20%

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Locations To Be Used	Engineered Fill Classification	Possible Soil Type Descriptions	Gradation	Additional Requirements
Below landscaped surfaces, where subsidence is not a concern	Non-structural fill	Any Soil Type	100% passing 6-inch sieve	< 10% OC

* More select soils comprised of coarse sands with < 5% passing #200 sieve may be needed to accommodate work occurring in periods of wet or freezing weather.

If there is a need for deeper soil correction work or if there is a need for large grade raises that will require more than 10 feet of compacted fill below the lowest floor grades, we recommend placing sand fill (less than 12 percent passing the #200 sieve) as structural fill at depths deeper than 10 feet. If only clay fill is used to fill building pads where more than 10 feet of fill is needed, a construction delay of at least 3 to 12 months may be needed, depending on the final depths of clay fill used. As an alternative, on lots where deep fills are needed, deep sand fill could be used to initially fill the excavations below these house pads. The deep sand fill should be placed in thin compacted lifts, up to an elevation of 10 feet or less from the finished lowest floor grades. On-site clay fill can then be used to complete construction of the building pads. If the alternative method of filling the building pads partially with deep sand fill is used, a construction delay would not be needed. Any sand fill needed for deeper fill will need to be imported to the site.

We recommend spreading engineered fill in loose lifts of approximately 8 to 10 inches thick. We recommend compacting engineered fill in accordance with the criteria presented below in Table 3-3. The project documents should specify relative compaction of engineered fill, based on the structure located above the engineered fill, and vertical proximity to that structure.

Table 3-3. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor) (ASTM D1557 – Modified Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically SP, SP-SM)	> 12% Passing #200 Sieve (typically CL, SC, SM)
Below foundations and oversizing zones and mass grading	98	±3	-1 to +3
Below interior slabs	5	±3	-1 to +3
Within 3 feet of pavement subgrade	100	±3	-2 to +1
More than 3 feet below pavement subgrade	95	±3	-1 to +3
Below landscaped surfaces	90	±6	±5

Increase compaction requirement to meet compaction required for structure supported by this engineered fill.

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The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material. Frost should not penetrate under foundations during construction.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

3.2.8 Special Inspections of Soils

We recommend including the site grading and placement of engineered fill within the building pad under the requirements of Special Inspections, as provided in Chapter 17 of the International Building Code, which is part of the Minnesota State Building Code . Special Inspection requires observation of soil conditions below engineered fill or footings, evaluations to determine if excavations extend to the anticipated soils, and if engineered fill materials meet requirements for engineered fill and compaction condition of engineered fill. A licensed geotechnical engineer should direct the Special Inspections of site grading and engineered fill placement. The purpose of these Special Inspections is to evaluate whether the work is in accordance with the approved geotechnical report for the project. Special Inspections should include evaluation of the subgrade, observing preparation of the subgrade (surface compaction or dewatering, excavation oversizing, placement procedures, and materials used for engineered fill, etc.) and compaction testing of the engineered fill.

3.3 Spread Footings

We assume the foundation subgrade will consist of native soils with penetration test values of at least 6 BPF or compacted engineered fill soils. We recommend including an allowance for subcutting soft, wet soils below the footings due to groundwater and replacing with at least 4 to 6 inches of clear, crushed gravel free of fines.

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Table 3-4 below contains our recommended parameters for foundation design. Given the limited information available for development of Lots 1 through 5, these recommendations should be considered preliminary, and we recommend additional exploration and evaluation be performed once further development information is available.

Table 3-4. Recommended Spread Footing Design Parameters

Item	Description
Maximum net allowable bearing pressure (psf)	1,500 (for Lot 6 based on subgrade improvement recommended here within)
Minimum factor of safety for bearing capacity failure	3.0
Minimum embedment below final exterior grade for heated structures (inches)	42
Minimum embedment below final exterior grade for unheated structures or for footings not protected from freezing temperatures during construction (inches)	60
Total estimated settlement (inches)	1*
Differential settlement (inches)	Typically, about 2/3 of total settlement**

* If the site is raised more than 3 feet, a time delay is recommended to allow the soft soils time to consolidate.
** Actual differential settlement amounts will depend on final loads and foundation layout. We can evaluate differential settlement based on final foundation plans and loadings.

3.4 Interior Slabs

3.4.1 Subgrade Modulus

The anticipated floor subgrade is engineered clay fill. We recommend using a modulus of subgrade reaction, k, of 100 pounds per square inch per inch of deflection (pci) to design the slabs. If the slab design requires placing 6 inches of compacted crushed aggregate base immediately below the slab, the slab design may increase the k-value by 50 pci. We recommend that the aggregate base materials be free of bituminous. In addition to improving the modulus of subgrade reaction, an aggregate base facilitates construction activities and is less weather sensitive.

3.4.2 Moisture Vapor Protection

Excess transmission of water vapor could cause floor dampness, certain types of floor bonding agents to separate, or mold to form under floor coverings. If project planning includes using floor coverings or coatings, we recommend placing a vapor retarder or vapor barrier immediately beneath the slab. We also recommend consulting with floor covering manufacturers regarding the appropriate type, use and installation of the vapor retarder or barrier to preserve warranty assurances.

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3.5 Frost Protection

3.5.1 General

Clayey and silty soils will underlie exterior slabs, as well as pavements. We consider clayey and silty soils to be moderately to highly frost susceptible. Soils of this type can retain moisture and heave upon freezing. In general, this characteristic is not an issue unless these soils become saturated, due to surface runoff or infiltration, or are excessively wet in-situ. Once frozen, unfavorable amounts of general and isolated heaving of the soils and the surface structures supported on them could develop. This type of heaving could affect design drainage patterns and the performance of exterior slabs and pavements, as well as any isolated exterior footings and piers.

Note that general runoff and infiltration from precipitation are not the only sources of water that can saturate subgrade soils and contribute to frost heave. Roof drainage and irrigation of landscaped areas in close proximity to exterior slabs, pavements, and isolated footings and piers, contribute as well.

3.5.2 Frost Heave Mitigation

To address most of the heave related issues, we recommend setting general site grades and grades for exterior surface features to direct surface drainage away from buildings, across large, paved areas and away from walkways. Such grading will limit the potential for saturation of the subgrade and subsequent heaving. General grades should also have enough “slope” to tolerate potential larger areas of heave, which may not fully settle after thawing.

Even small amounts of frost-related differential movement at walkway joints or cracks can create tripping hazards. Project planning can explore several subgrade improvement options to address this condition.

One of the more conservative subgrade improvement options to mitigate potential heave is removing any frost-susceptible soils present below the exterior slab areas down to a minimum depth of 4 feet below subgrade elevations. We recommend filling the resulting excavation with non-frost-susceptible fill. We recommend providing drainage at the base of the subcut, as well as gradual transitions from this subcut (3H:1V or flatter gradient). We also recommend sloping the bottom of the excavation toward one or more collection points to remove any water entering the engineered fill. This approach will not be effective in controlling frost heave without removing the water.

An important geometric aspect of the excavation and replacement approach described above is sloping the banks of the excavations to create a more gradual transition between the unexcavated soils considered frost susceptible and the engineered fill in the excavated area, which is not frost susceptible. The slope allows attenuation of differential movement that may occur along the excavation boundary. We recommend slopes that are 3H:1V, or flatter, along transitions between frost-susceptible and non-frost-susceptible soils.

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Figure 3-2 shows an illustration summarizing some of the recommendations.

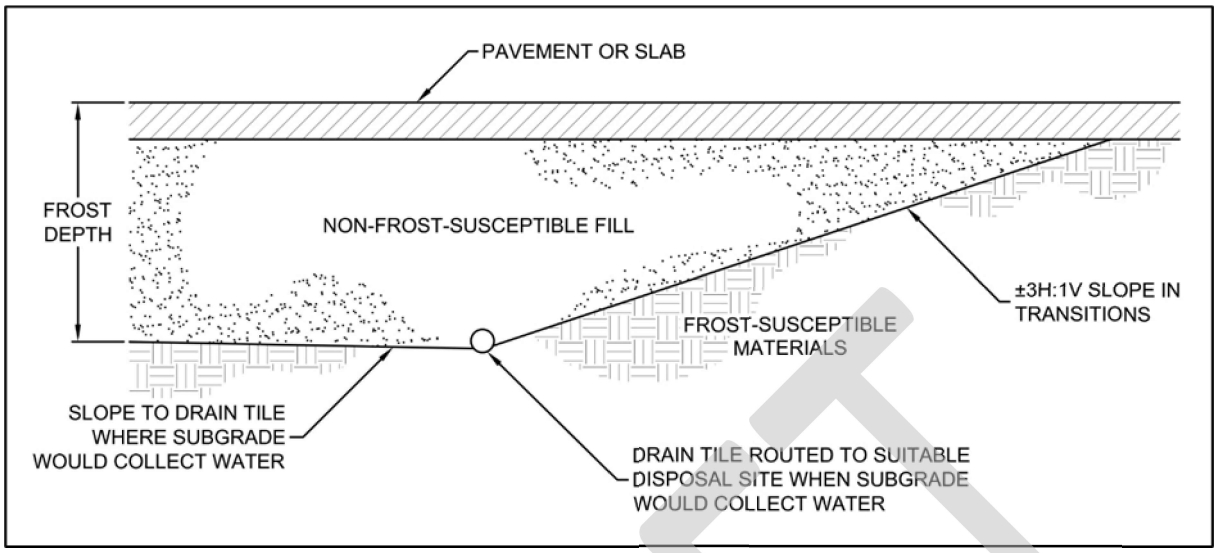

Figure 3-2. Frost Protection Geometry Illustration

Another option is to limit frost heave in critical areas, such as doorways and entrances, via frost-depth footings or localized excavations with sloped transitions between frost-susceptible and non-frost-susceptible soils, as described above.

Over the life of slabs and pavements, cracks will develop, and joints will open up, which will expose the subgrade and allow water to enter from the surface and either saturate or perch atop the subgrade soils. This water intrusion increases the potential for frost heave or moisture-related distress near the crack or joint. Therefore, we recommend implementing a detailed maintenance program to seal and/or fill any cracks and joints. The maintenance program should give special attention to areas where dissimilar materials abut one another, where construction joints occur and where shrinkage cracks develop.

3.6 Pavements and Exterior Slabs

3.6.1 Design Sections

Our scope of services for this project did not include laboratory tests on subgrade soils to determine an R-value for pavement design. Based on our experience with similar clayey soils anticipated at the pavement subgrade elevation, we recommend pavement design assume an R-value of 10. Note the contractor may need to perform limited removal of unsuitable or less suitable soils or mechanical or chemical stabilization to achieve this value. Table 3-6 provides recommended pavement sections, based on the soils support and traffic loads.

We based the concrete pavement designs on a modulus of subgrade reaction (k) of 75 pci.

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Table 3-5. Recommended Bituminous and Concrete Pavement Sections

Use	Light Duty Bituminous	Medium Duty Bituminous	Light Duty Concrete	Medium Duty Concrete
Minimum asphalt thickness (inches)	3 ½	4	---	---
Minimum concrete thickness (inches)	---	---	5	6
Minimum aggregate base thickness (inches)	6	8	4	4
Minimum granular subbase	12	18	12	18

3.6.2 Concrete Pavements

We assumed the concrete pavement sections in Table 3-6 will have edge support. We recommend placing an aggregate base below the pavement to provide a suitable subgrade for concrete placement, reduce faulting and help dissipate loads. Appropriate mix designs, panel sizing, jointing, doweling and edge reinforcement are critical to performance of rigid pavements. We recommend you contact your civil engineer to determine the final design or consult with us for guidance on these items.

3.6.3 Bituminous Pavement Materials

Appropriate mix designs are critical to the performance of flexible pavements. We can provide recommendations for pavement material selection during final pavement design.

3.6.4 Subgrade Drainage

We recommend installing perforated drainpipes throughout pavement areas at low points, around catch basins, and behind curb in landscaped areas. We also recommend installing drainpipes along pavement and exterior slab edges where exterior grades promote drainage toward those edge areas. The contractor should place drainpipes in small trenches, extended at least 8 inches below the granular subbase layer, or below the aggregate base material where no subbase is present.

3.6.5 Performance and Maintenance

We based the above pavement designs on a 20-year performance life for bituminous and a 35-year life for concrete. This is the amount of time before we anticipate the pavement will require reconstruction. This performance assumes routine maintenance, such as seal coating and crack sealing. The actual pavement life will vary depending on variations in weather, traffic conditions, and maintenance.

It is common to place the non-wear course of bituminous and then delay placement of wear course. For this situation, we recommend evaluating if the reduced pavement section will have sufficient structure to support construction traffic.

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Many conditions affect the overall performance of the exterior slabs and pavements. Some of these conditions include the environment, loading conditions and the level of ongoing maintenance. With regard to bituminous pavements in particular, it is common to have thermal cracking develop within the first few years of placement and continue throughout the life of the pavement. We recommend developing a regular maintenance plan for filling cracks in exterior slabs and pavements to lessen the potential impacts for cold weather distress due to frost heave or warm weather distress due to wetting and softening of the subgrade.

3.7 Utilities

3.7.1 Subgrade Stabilization

Earthwork activities associated with utility installations located inside the building area should adhere to the recommendations in Section 3.2.

For exterior utilities, we anticipate the soils at typical invert elevations will be suitable for utility support. However, if construction encounters unfavorable conditions such as soft clay, organic soils or perched water at invert grades, the unsuitable soils may require some additional subcutting and replacement with sand or crushed rock to prepare a proper subgrade for pipe support. Project design and construction should not place utilities within the 1H:1V oversizing of foundations.

3.7.2 Corrosion Potential

Based on our experience, the soils encountered in the borings are moderately corrosive to metallic conduits, but only marginally corrosive to concrete. We recommend specifying non-corrosive materials or providing corrosion protection, unless project planning chooses to perform additional tests to demonstrate the soils are not corrosive.

3.8 Equipment Support

The recommendations included in the report may not be applicable to equipment used for the construction and maintenance of this project. We recommend evaluating subgrade conditions in areas of shoring, scaffolding, cranes, pumps, lifts, and other construction equipment prior to mobilization to determine if the exposed materials are suitable for equipment support or require some form of subgrade improvement. We also recommend project planning consider the effect that loads applied by such equipment may have on structures they bear on or surcharge – including pavements, buried utilities, below-grade walls, etc. We can assist you in this evaluation.

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4.0 Procedures

4.1 Penetration Test Borings

We drilled the penetration test borings with a flotation tire-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance with ASTM D1586. The boring logs show the actual sample intervals and corresponding depths.

We sealed penetration test boreholes meeting the Minnesota Department of Health (MDH) Environmental Borehole criteria with an MDH-approved grout. We will forward a sealing record (or sealing records) for those boreholes to the MDH Well Management Section.

4.2 Exploration Logs

4.2.1 Log of Boring Sheets

The Appendix includes Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials and present the results of penetration resistance performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater measurements. The Appendix also includes a Fence Diagram intended to provide a summarized cross-sectional view of the soil profile across the site.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

4.2.2 Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past .

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4.3 Material Classification and Testing

4.3.1 Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

4.3.2 Laboratory Testing

The exploration logs in the Appendix note most of the results of the laboratory tests performed on geologic material samples. We performed the tests in general accordance with ASTM procedures.

4.4 Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the boreholes, as noted on the boring logs.

5.0 Qualifications

5.1 Variations in Subsurface Conditions

5.1.1 Material Strata

We developed our evaluation, analyses, and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation, and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

5.1.2 Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs and interpreted in the text of this report. Note that the observation periods were relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications, and other seasonal and annual factors.

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5.2 Continuity of Professional Responsibility

5.2.1 Plan Review

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

5.2.2 Construction Observations and Testing

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

5.3 Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

5.4 Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

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Appendix

Soil Boring Location Sketch
Fence Diagram
Log of Boring Sheets ST-1 to ST-24
Descriptive Terminology of Soil

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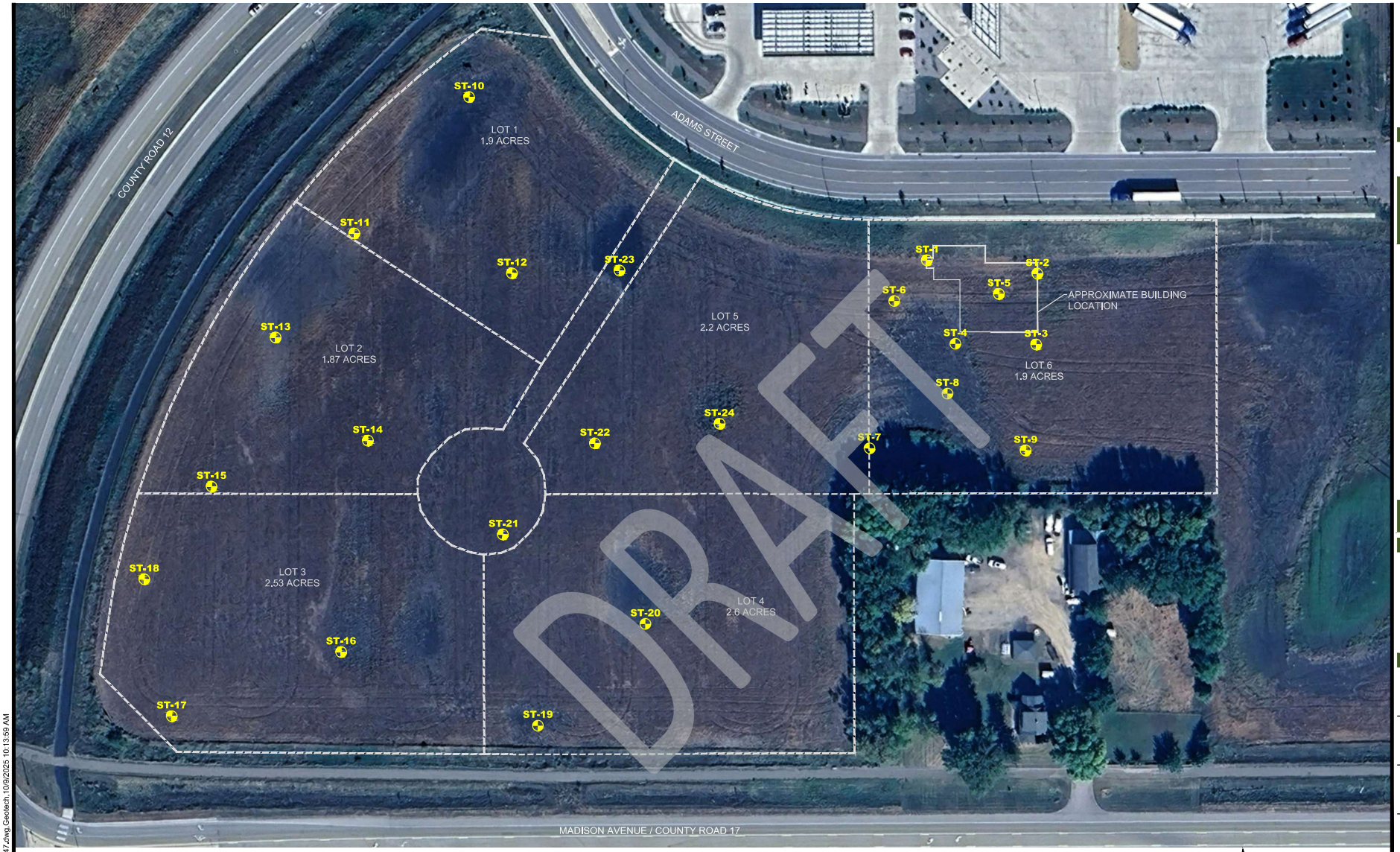

DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

50' 0 100'

SCALE: 1"=100'

BRAUN INTERTEC
the science you build on
2120 Howard Drive W, Suite B
North Mankato, MN 56003
507.594.3000
brauninertec.com

Drawing Information

Project No:	B2508847
Drawing No:	B2508847
Drawn By:	MMH
Date Drawn:	10/9/25
Checked By:	IB
Last Modified:	10/9/25

Project Information

Met-Con Mankato Office and Site Development

East of County Highway 12 Between Adams Street and Madison Avenue

Mankato, Minnesota

Soil Boring Location Sketch

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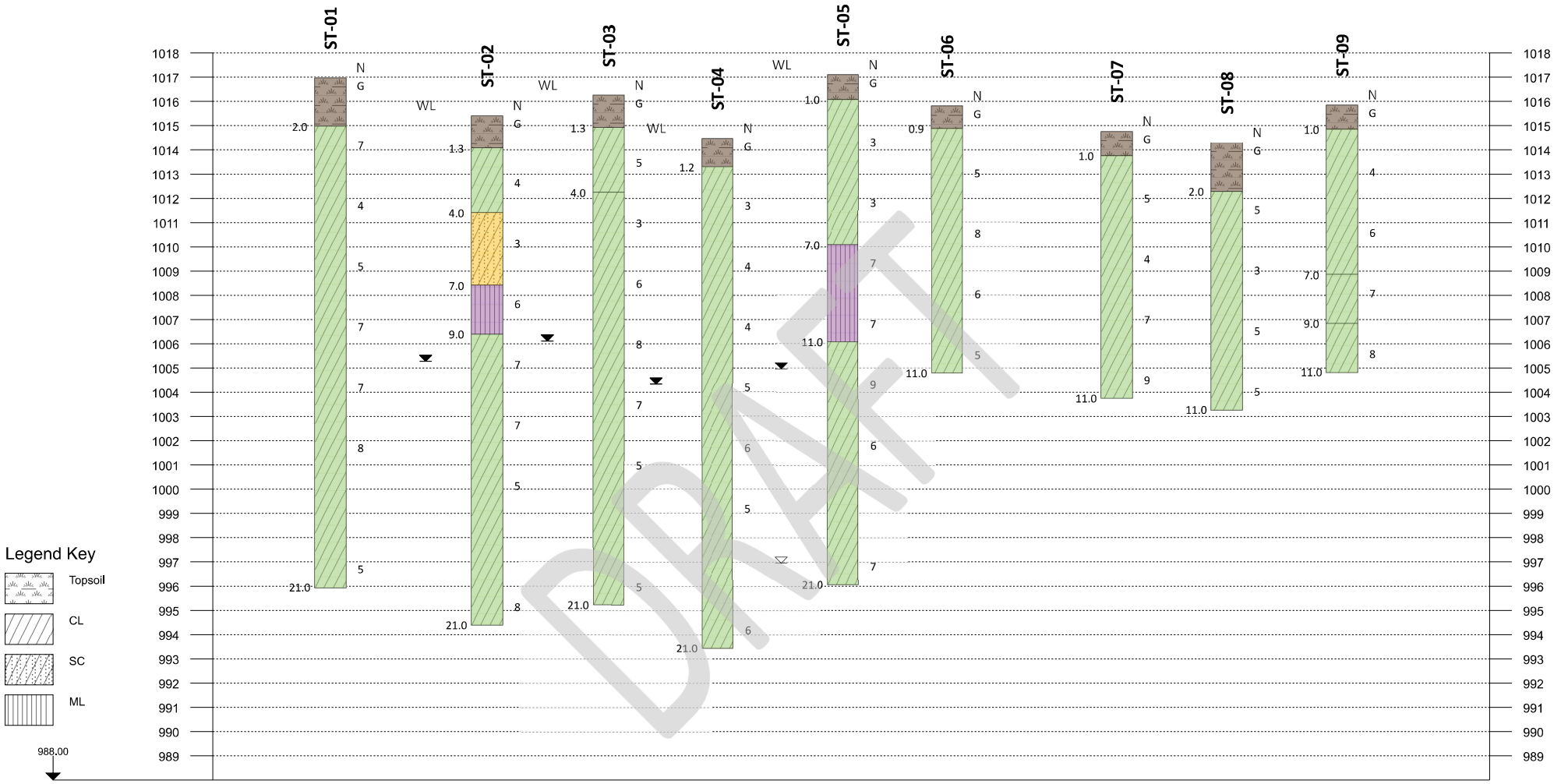

ST-01 to ST-09

Fence Diagram
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

Project ID:	B2508847
Vert. Scale:	1"= 4'
Hor. Scale:	NTS
Date:	02/03/2026

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ST-10 to ST-18

Fence Diagram
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

Project ID:	B2508847
Vert. Scale:	1"= 4'
Hor. Scale:	NTS
Date:	02/03/2026

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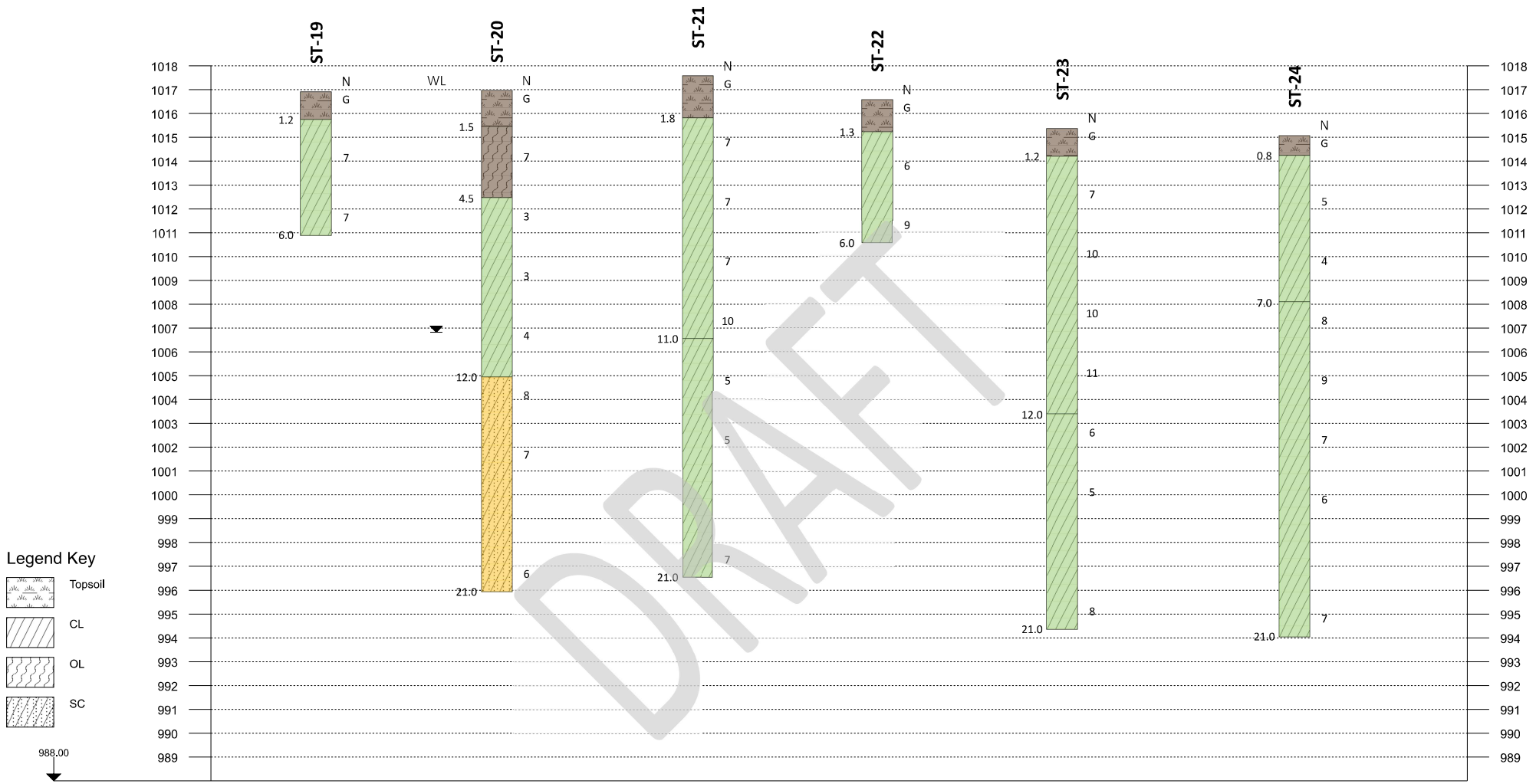

ST-19 to ST-24

Fence Diagram
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

Project ID:	B2508847
Vert. Scale:	1"= 4'
Hor. Scale:	NTS
Date:	02/03/2026

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING: **ST-01**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 217080.3 EASTING: 589641.5
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/06/25 END DATE: 10/06/25
SURFACE ELEVATION: 1017.0 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
1015.0							
2.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, soft to medium (GLACIAL TILL)		2-3-4 (7) 8"		27	
			5	1-2-2 (4) 10"			
				1-2-3 (5) 8"		27	
			10	1-2-5 (7) 12"			
				1-3-4 (7) 10"			
			15	2-3-5 (8) 14"		24	
			20	1-2-3 (5) 16"			
996.0							
21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					Water not observed immediately after withdrawal of auger.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
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BORING: **ST-02**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 217065.8 EASTING: 589761.1
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/06/25 END DATE: 10/06/25
SURFACE ELEVATION: 1015.4 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.1		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.3		LEAN CLAY (CL), light gray, moist, soft (GLACIAL LAKE)		1-2-2 (4) 6"		27	
1011.4							
4.0		CLAYEY SAND (SC), trace Gravel, gray, moist, soft (GLACIAL LAKE)	5	1-1-2 (3) 10"			
1008.4							
7.0		SANDY SILT (ML), brown, moist, loose (GLACIAL LAKE)		2-3-3 (6) 10"		28	LL=38, PL=25, PI=13
1006.4							
9.0	▼	SANDY LEAN CLAY (CL), trace Gravel, gray, moist, medium (GLACIAL TILL)	10	1-3-4 (7) 12"		36	
				2-3-4 (7) 0"			No recovery
			15	1-1-4 (5) 0"			No recovery
			20	3-4-4 (8) 16"			
994.4							
21.0		END OF BORING					Water observed at 10.0 feet while drilling.
		Boring then backfilled with bentonite grout					Water observed at 10.0 feet immediately after withdrawal of auger.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING:	**ST-03**		
LOCATION: Captured with RTK GPS.			
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
NORTHING: 216989.3		EASTING: 589759.7	
DRILLER: E. Rislov	LOGGED BY: I. Breitlow	START DATE: 10/06/25	END DATE: 10/06/25
SURFACE ELEVATION: 1016.2 ft	RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.9		SILTY SAND (SM), slightly organic, black, moist (TOPSOIL)					
1.3		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black to gray, moist, soft to medium (GLACIAL LAKE)		1-2-3 (5) 6"		30	OC=5%
1012.2							
4.0		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, soft to medium (GLACIAL TILL)	5	1-1-2 (3) 10"		26	
				1-2-4 (6) 12"			
	▼		10	2-4-4 (8) 0"			No recovery
				2-2-5 (7) 14"			
			15	1-2-3 (5) 0"			No recovery
			20	1-2-3 (5) 0"			No recovery
995.2							
21.0		END OF BORING					Water observed at 10.0 feet while drilling.
		Boring then backfilled with bentonite grout					Water observed at 10.0 feet immediately after withdrawal of auger.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING:	**ST-04**		
LOCATION: Captured with RTK GPS.			
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
NORTHING: 216989.8		EASTING: 589672.0	
DRILLER: E. Rislov	LOGGED BY: I. Breitlow	START DATE: 10/06/25	END DATE: 10/06/25
SURFACE ELEVATION: 1014.5 ft	RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1013.3		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
1.2		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, soft to medium (GLACIAL TILL)		1-1-2 (3) 0"			No recovery
			5	1-2-2 (4) 12"		23	
				1-1-3 (4) 10"		26	
	▼	*Wet and dark gray at 10 feet*	10	1-2-3 (5) 3"		27	
				2-3-3 (6) 0"			No recovery
			15	1-2-3 (5) 4"			
			20	1-2-4 (6) 6"			
993.5							
21.0		END OF BORING					Water observed at 10.0 feet while drilling.
		Boring then backfilled with bentonite grout					Water observed at 10.0 feet immediately after withdrawal of auger.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING: **ST-05**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 217043.9 EASTING: 589719.3
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/06/25 END DATE: 10/06/25
SURFACE ELEVATION: 1017.1 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1016.1		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
1.0		LEAN CLAY (CL), trace Sand, light gray to brown, moist, soft (GLACIAL LAKE)		1-1-2 (3) 6"		30	LL=38, PL=21, PI=17
			5	1-1-2 (3) 3"		28	
1010.1							
7.0		SANDY SILT (ML), brown, moist, loose (GLACIAL LAKE)		2-3-4 (7) 12"		40	LL=45, PL=27, PI=18
			10	1-3-4 (7) 8"		40	
1006.1							
11.0	▼	SANDY LEAN CLAY (CL), gray, moist, medium to stiff (GLACIAL TILL)		2-4-5 (9) 12"		23	
		Silt seams and sand seams present	15	2-2-4 (6) 3"			
	▽		20	3-3-4 (7) 0"			No recovery
996.1							
21.0		END OF BORING					Water observed at 20.0 feet while drilling.
		Boring then backfilled with bentonite grout					Water observed at 12.0 feet immediately after withdrawal of auger.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING: **ST-06**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 217035.8 EASTING: 589606.2
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/06/25 END DATE: 10/06/25
SURFACE ELEVATION: 1015.8 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.9		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
0.9		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, medium (GLACIAL TILL)		2-2-3 (5) 6"		24	
			5	1-3-5 (8) 12"		25	
		Sand seam from 7 to 8 feet		1-2-4 (6) 6"		27	
			10	1-2-3 (5) 12"			
1004.8							
11.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING:	**ST-07**		
LOCATION: Captured with RTK GPS.			
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
NORTHING: 216877.4		EASTING: 589579.5	
DRILLER: E. Rislov	LOGGED BY: I. Breitlow	START DATE: 10/06/25	END DATE: 10/06/25
SURFACE ELEVATION: 1014.8 ft	RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1013.8		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.0		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, soft to stiff (GLACIAL TILL)		2-2-3 (5) 6"			
			5	1-1-3 (4) 8"		28	
				1-3-4 (7) 10"			
			10	1-3-6 (9) 12"			
1003.8							
11.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING: **ST-08**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216936.0 EASTING: 589663.5
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/06/25 END DATE: 10/06/25
SURFACE ELEVATION: 1014.3 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1012.3		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
2.0		SANDY LEAN CLAY (CL), trace Gravel, black to gray, moist, soft to medium (GLACIAL TILL)		1-2-3 (5) 2"			
			5	1-1-2 (3) 8"		17	
				1-2-3 (5) 12"			
			10	1-2-3 (5) 12"			
1003.3							
11.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING: **ST-09**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216874.9 EASTING: 589748.2
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/06/25 END DATE: 10/06/25
SURFACE ELEVATION: 1015.8 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.8		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.0		SANDY LEAN CLAY (CL), trace Gravel, gray to brown, moist, soft to medium (GLACIAL TILL)		1-2-2 (4) 6"		26	
			5	1-3-3 (6) 10"		28	
1008.8							
7.0		LEAN CLAY (CL), trace Sand, brown, moist, medium (GLACIAL TILL)		2-3-4 (7) 14"		38	LL=48, PL=27, PI=21
1006.8							
9.0		SANDY LEAN CLAY (CL), with Gravel, brown, moist, medium (GLACIAL TILL)	10	1-3-5 (8) 12"		19	
1004.8							
11.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING:	**ST-10**		
LOCATION: Captured with RTK GPS.			
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
NORTHING: 217256.5		EASTING:	589147.2
DRILLER: E. Rislov	LOGGED BY: I. Breitlow	START DATE: 10/08/25	END DATE: 10/08/25
SURFACE ELEVATION: 1013.9 ft	RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)		1-1-2 (3) 4"		22	
1010.4 3.5		SANDY LEAN CLAY (CL), with Gravel, dark gray to brown, moist, medium (GLACIAL TILL)	5	1-2-3 (5) 8"		31	
1007.9 6.0		END OF BORING Boring then backfilled with auger cuttings					Water not observed while drilling.
			10				
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING: **ST-11**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 217109.3 EASTING: 589023.2
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/07/25 END DATE: 10/07/25
SURFACE ELEVATION: 1014.0 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1010.5		SANDY ORGANIC CLAY (OL), trace Gravel, black, dry to moist (TOPSOIL)		2-2-3 (5) 4"		25	OC=6%
3.5		SANDY LEAN CLAY (CL), trace Gravel, gray to brown, moist, soft to stiff (GLACIAL TILL)	5	1-1-2 (3) 10"		26	
				1-2-4 (6) 12"		25	
1003.0			10	2-3-6 (9) 14"			
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium to stiff (GLACIAL TILL)		2-3-4 (7) 14"		22	
			15	2-3-4 (7) 16"			
993.0			20	1-4-5 (9) 16"			
21.0		END OF BORING Boring then backfilled with bentonite grout					Water not observed while drilling.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING: **ST-12**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 217066.3 EASTING: 589193.4
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/07/25 END DATE: 10/07/25
SURFACE ELEVATION: 1015.4 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.6		SANDY ORGANIC CLAY (OL), black, moist to dry (TOPSOIL)					
0.8		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, medium to stiff (GLACIAL TILL)		2-3-4 (7) 0"			No recovery
			5	2-3-5 (8) 10"		20	
				1-4-6 (10) 12"			
			10	2-3-5 (8) 10"			
1004.4							
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium to stiff (GLACIAL TILL)		1-4-4 (8) 14"		23	
			15	1-3-5 (8) 10"			
			20	3-4-6 (10) 16"			
994.4							
21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING:	**ST-13**
LOCATION: Captured with RTK GPS.	
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)	
NORTHING: 216996.8	EASTING: 588938.2
DRILLER: E. Rislov / LOGGED BY: I. Breitlow	START DATE: 10/08/25 / END DATE: 10/08/25
SURFACE ELEVATION: 1015.4 ft / RIG: 8505 / METHOD: 3 1/4" HSA	SURFACING: Farm Field / WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1013.7		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.7		SANDY LEAN CLAY (CL), trace Gravel, dark gray to brown, moist, medium (GLACIAL TILL)		2-3-3 (6) 3"		25	
			5	2-2-4 (6) 2"			
1009.4							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING:	**ST-14**		
LOCATION: Captured with RTK GPS.			
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
NORTHING: 216885.6		EASTING: 589037.8	
DRILLER: E. Rislov	LOGGED BY: I. Breitlow	START DATE: 10/07/25	END DATE: 10/07/25
SURFACE ELEVATION: 1016.5 ft	RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 50°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1015.7		SANDY ORGANIC CLAY (OL), trace Gravel, black, dry to moist (TOPSOIL)					
0.8		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		2-2-4 (6) 6"		24	
			5	1-1-4 (5) 10"		22	
		Brown at 7 feet		1-2-3 (5) 12"		24	
			10	1-3-5 (8) 10"			
1005.5							
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium (GLACIAL TILL)		1-1-5 (6) 14"		23	
			15	2-2-4 (6) 18"			
			20	1-1-4 (5) 14"			
995.5							
21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

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BORING: **ST-15**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216836.0 EASTING: 588869.0
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/07/25 END DATE: 10/07/25
SURFACE ELEVATION: 1016.4 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1012.9		SANDY ORGANIC CLAY (OL), trace Gravel, black, dry to moist (TOPSOIL)		5-5-5 (10) 0"			No recovery
3.5 1010.4		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black to gray, moist, medium (GLACIAL LAKE)	5	2-2-3 (5) 5"		24	OC=4%
6.0 1005.4	▼	POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, trace Gravel, brown, moist to wet, loose (GLACIAL OUTWASH)		1-3-6 (9) 8"		22	P200=11%
			10	1-2-3 (5) 6"		23	
11.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, soft to stiff (GLACIAL TILL)		1-2-5 (7) 12"			
			15	1-2-2 (4) 10"		27	
995.4			20	2-4-7 (11) 14"			
21.0		END OF BORING Boring then backfilled with bentonite grout					Water observed at 7.5 feet while drilling. Water observed at 7.5 feet immediately after withdrawal of auger.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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BORING:	**ST-16**
LOCATION: Captured with RTK GPS.	
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)	
NORTHING: 216657.4	EASTING: 589009.0
START DATE: 10/08/25	END DATE: 10/08/25
SURFACING: Farm Field	WEATHER: Clear, 60°s

DRILLER: E. Rislov | LOGGED BY: I. Breitlow | SURFACE ELEVATION: 1016.2 ft | RIG: 8505 | METHOD: 3 1/4" HSA

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1015.0		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, dry to moist (TOPSOIL)					
1.2		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black to brown, moist, medium (GLACIAL TILL)		3-3-4 (7) 0"			No recovery
			5	3-3-4 (7) 2"			
1010.2							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING: **ST-17**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216588.1 EASTING: 588826.0
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/07/25 END DATE: 10/07/25
SURFACE ELEVATION: 1013.4 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1011.9		SILTY SAND (SM), trace Gravel, slightly organic, black, dry to moist (TOPSOIL)					
1.5		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium (GLACIAL TILL)		2-2-4 (6) 8"		23	
			5	1-3-4 (7) 10"		22	
				1-4-4 (8) 10"			
			10	1-4-4 (8) 14"			
1002.4							
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, stiff to very stiff (GLACIAL TILL)		7-7-9 (16) 0"			No recovery
			15	3-4-5 (9) 10"		23	
			20	2-6-8 (14) 12"			
992.4							
21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING: **ST-18**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216736.0 EASTING: 588796.3
START DATE: 10/07/25 END DATE: 10/08/25
SURFACE ELEVATION: 1014.9 ft RIG: 8505 METHOD: 3 1/4" HSA
SURFACING: Farm Field WEATHER: Clear, 60°s
DRILLER: E. Rislov LOGGED BY: I. Breitlow

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.0		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
0.9		SANDY ORGANIC CLAY (OL), trace Gravel, black, moist, stiff (GLACIAL LAKE)		3-4-5 (9) 6"		22	OC=6%
1010.9							
4.0		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium (GLACIAL TILL)	5	1-2-3 (5) 8"		30	
		Silt seams		2-2-4 (6) 10"		30	
			10	1-2-5 (7) 14"			
1003.9							
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium (GLACIAL TILL)		2-2-4 (6) 14"			
			15	1-3-4 (7) 14"			
			20	2-3-5 (8) 12"		25	
993.9							
21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING:	**ST-19**		
LOCATION: Captured with RTK GPS.			
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
NORTHING: 216578.2		EASTING: 589221.4	
DRILLER: E. Rislov	LOGGED BY: I. Breitlow	START DATE: 10/08/25	END DATE: 10/08/25
SURFACE ELEVATION: 1016.9 ft	RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1015.7		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, dry to moist (TOPSOIL)					
1.2		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium (GLACIAL TILL)		3-3-4 (7) 6"		23	
			5	1-3-4 (7) 10"		25	
1010.9							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING: **ST-20**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216688.0 EASTING: 589337.6
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/08/25 END DATE: 10/08/25
SURFACE ELEVATION: 1016.9 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1015.4		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, dry to moist (TOPSOIL)					
1.5		ORGANIC CLAY (OL), trace Gravel, black to gray, moist, soft to medium (GLACIAL LAKE)		2-3-4 (7) 4"		22	
1012.4							
4.5		SANDY LEAN CLAY (CL), with Gravel, slightly organic, brown, moist, soft (GLACIAL TILL)	5	1-1-2 (3) 8"		28	OC=2%
				1-1-2 (3) 10"			
	▼		10	1-2-2 (4) 10"		27	
1004.9							
12.0		CLAYEY SAND (SC), medium-grained, brown to gray, moist to wet, loose (GLACIAL TILL)		1-3-5 (8) 12"			
			15	1-3-4 (7) 8"		29	P200=41%
			20	2-3-3 (6) 12"			
995.9							
21.0		END OF BORING					Water observed at 10.0 feet while drilling.
		Boring then backfilled with bentonite grout					Water observed at 10.0 feet immediately after withdrawal of auger.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING: **ST-21**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216784.3 EASTING: 589183.8
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/08/25 END DATE: 10/08/25
SURFACE ELEVATION: 1017.6 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1015.8		SILTY SAND (SM), fine to medium-grained, slightly organic, black, dry to moist (TOPSOIL)					
1.8		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		2-3-4 (7) 8"		22	
			5	1-3-4 (7) 10"			
				1-2-5 (7) 10"			
			10	1-3-7 (10) 12"		22	
1006.6							
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium (GLACIAL TILL)		1-2-3 (5) 14"		23	
			15	2-2-3 (5) 12"			
			20	2-4-3 (7) 14"			
996.6							
21.0		END OF BORING Boring then backfilled with bentonite grout					Water not observed while drilling.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING:	**ST-22**
LOCATION: Captured with RTK GPS.	
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)	
NORTHING: 216882.6	EASTING: 589283.1
START DATE: 10/08/25	END DATE: 10/08/25
SURFACING: Farm Field	WEATHER: Clear, 60°s

DRILLER: E. Rislov | LOGGED BY: I. Breitlow | SURFACE ELEVATION: 1016.6 ft | RIG: 8505 | METHOD: 3 1/4" HSA

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1015.2		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.3		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		1-2-4 (6) 6"		23	
			5	3-4-5 (9) 10"			
1010.6							
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING: **ST-23**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 217069.3 EASTING: 589309.6
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/07/25 END DATE: 10/07/25
SURFACE ELEVATION: 1015.4 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.2		CLAYEY SAND (SC), trace Gravel, organic, black, moist (TOPSOIL)					
1.2		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		1-2-5 (7) 10"		23	
			5	2-4-6 (10) 12"			
				3-4-6 (10) 10"			
			10	4-4-7 (11) 10"			
1003.4							
12.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium (GLACIAL TILL)		1-3-3 (6) 16"		24	
			15	1-2-3 (5) 12"			
			20	1-3-5 (8) 12"			
994.4							
21.0		END OF BORING Boring then backfilled with bentonite grout					Water not observed while drilling.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847
Geotechnical Evaluation
Met-Con Mankato Office and Site Development
E of Cty Hwy 12 between Adams St and Madison Ave
Mankato, Minnesota

BORING: **ST-24**
LOCATION: Captured with RTK GPS.
DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)
NORTHING: 216903.7 EASTING: 589417.6
DRILLER: E. Rislov LOGGED BY: I. Breitlow START DATE: 10/07/25 END DATE: 10/07/25
SURFACE ELEVATION: 1015.1 ft RIG: 8505 METHOD: 3 1/4" HSA SURFACING: Farm Field WEATHER: Clear, 60°s

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
1014.2		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
0.8		SANDY LEAN CLAY (CL), trace Gravel, light gray, moist, soft to medium (GLACIAL LAKE)		1-2-3 (5) 4"			
			5	1-1-3 (4) 12"		29	
1008.1							
7.0		SANDY LEAN CLAY (CL), trace Gravel, dark brown to dark gray, moist, medium to stiff (GLACIAL TILL)		2-3-5 (8) 10"			
			10	2-3-6 (9) 6"			
				1-2-5 (7) 14"			
			15	2-2-4 (6) 12"			
			20	2-3-4 (7) 14"			
994.1							
21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

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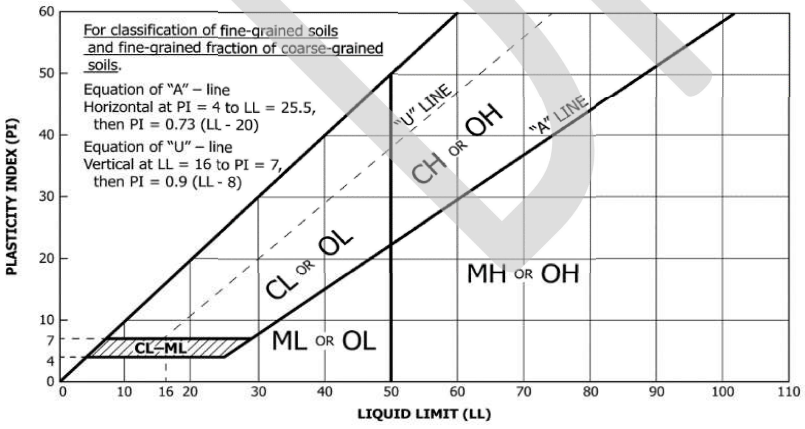
Descriptive Terminology of Soil

Based on Standards ASTM D2487/2488
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines[C])	$C_u \geq 4$ and $1 \leq C_c \leq 3$[D]	GW	Well-graded gravel[E]
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$)[D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12% fines[C])	Fines classify as ML or MH	GM	Silty gravel[E F G]
			Fines Classify as CL or CH	GC	Clayey gravel[E F G]
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines[H])	$C_u \geq 6$ and $1 \leq C_c \leq 3$[D]	SW	Well-graded sand[I]
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$)[D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12% fines[H])	Fines classify as ML or MH	SM	Silty sand[F G I]
			Fines classify as CL or CH	SC	Clayey sand[F G I]
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K L M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried < 0.75	OL	Organic clay[K L M N] / Organic silt[K L M O]
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay[K L M]
			PI plots below "A" line	MH	Elastic silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried < 0.75	OH	Organic clay[K L M P] / Organic silt[K L M Q]
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains ≥ 15% sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
I. If soil contains ≥ 15% gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
N. PI ≥ 4 and plots on or above "A" line.
O. PI < 4 or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	**q_p**	Pocket penetrometer strength, tsf
WD	Wet density, pcf	**q_u**	Unconfined compression test, tsf
P200	% Passing #200 sieve	**LL**	Liquid limit
MC	Moisture content, %	**PL**	Plastic limit
OC	Organic content, %	**PI**	Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
  Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
  Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
  Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
  Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
  Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions[L, M]

trace..... 0 to 5%
little..... 6 to 14%
with..... ≥ 15%

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose ..... 0 to 4 BPF
Loose ..... 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils	Blows Per Foot	Approximate Unconfined Compressive Strength
Very soft	0 to 1 BPF	< 0.25 tsf
Soft	2 to 4 BPF	0.25 to 0.5 tsf
Medium	5 to 8 BPF	0.5 to 1 tsf
Stiff	9 to 15 BPF	1 to 2 tsf
Very Stiff	16 to 30 BPF	2 to 4 tsf
Hard	over 30 BPF	> 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling ( ), at the end of drilling ( ), or at some time after drilling ( ).

Sample Symbols

Standard Penetration Test
Modified California (MC)
Auger
Grab Sample
Rock Core
Thinwall (TW)/Shelby Tube (SH)
Texas Cone Penetrometer
Dynamic Cone Penetrometer

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Meeting Date: 08/11/2026

Title

CY41-26

Request of RJC Rental Properties LLC to rezone the subject parcels from M-1, Light Industrial, to R-3, Limited Multiple Dwelling District. The subject properties are described as Lots 3, 4, and 5, Block 25, Mankato City subdivision (1618, 1620 and 1622 3rd Avenue).

Applicant

The applicant is RJC Rental Properties LLC

Request

The request is to rezone the subject parcels from M-1, Light Industrial, to R-3, Limited Multiple Dwelling District. The subject properties are described as Lots 3, 4, and 5, Block 25, Mankato City subdivision (1618, 1620 and 1622 3rd Avenue).

Location

The subject properties are described as Lots 3, 4, and 5, Block 25, Mankato City subdivision (1618, 1620 and 1622 3rd Avenue).

Existing Land Use

The current Land Use is Medium Density Residential. 1618 and 1620 3rd Ave are currently vacant commercial buildings. 1622 3rd Ave is a dwelling located on the subject parcels.

Zoning

The subject properties are zoned M-1.

Environmentally Sensitive Areas

There are no known environmentally sensitive areas on the site.

Public Utilities

Public utilities are available to serve the property.

City Code

Mankato City Code Chapter 10, Article XI, Chapter 9 related to zoning amendments can be found at this link:
https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=PTIICOOR_CH10LAUSDE_ARTIIREDI_DIV5LIMUDWDI

Review

RJC Rental Properties LLC, is requesting the rezoning of properties located on 3rd Avenue from M-1, Light Industrial, to R-3, Limited Multiple Dwelling District.

The subject properties are described as Lots 3, 4, and 5, Block 25, Mankato City subdivision (1618, 1620 and 1622 3rd Avenue). The Blue Earth County Parcel Identification Numbers associated with the parcels include R010906460008, R010906460012, R010906460011.

The applicant, RJC Rental Properties, LLC, has applied to rezone the properties addressed at 1618, 1620 and 1622 3rd Avenue from their current zoning designation of M-1, Light Industrial, to R-3, Limited Multiple Family Dwelling district. The proposed rezone is consistent within the neighborhood, as well as the adjacent neighborhood's south and west of the subject site for which the land use plan is also identified as, "Medium Density Residential."

The purposed zoning and use of subject property as a residential use is consistent with the adjacent neighborhood. Properties used for residential purposes are located adjacent to the subject property across 3rd Ave.

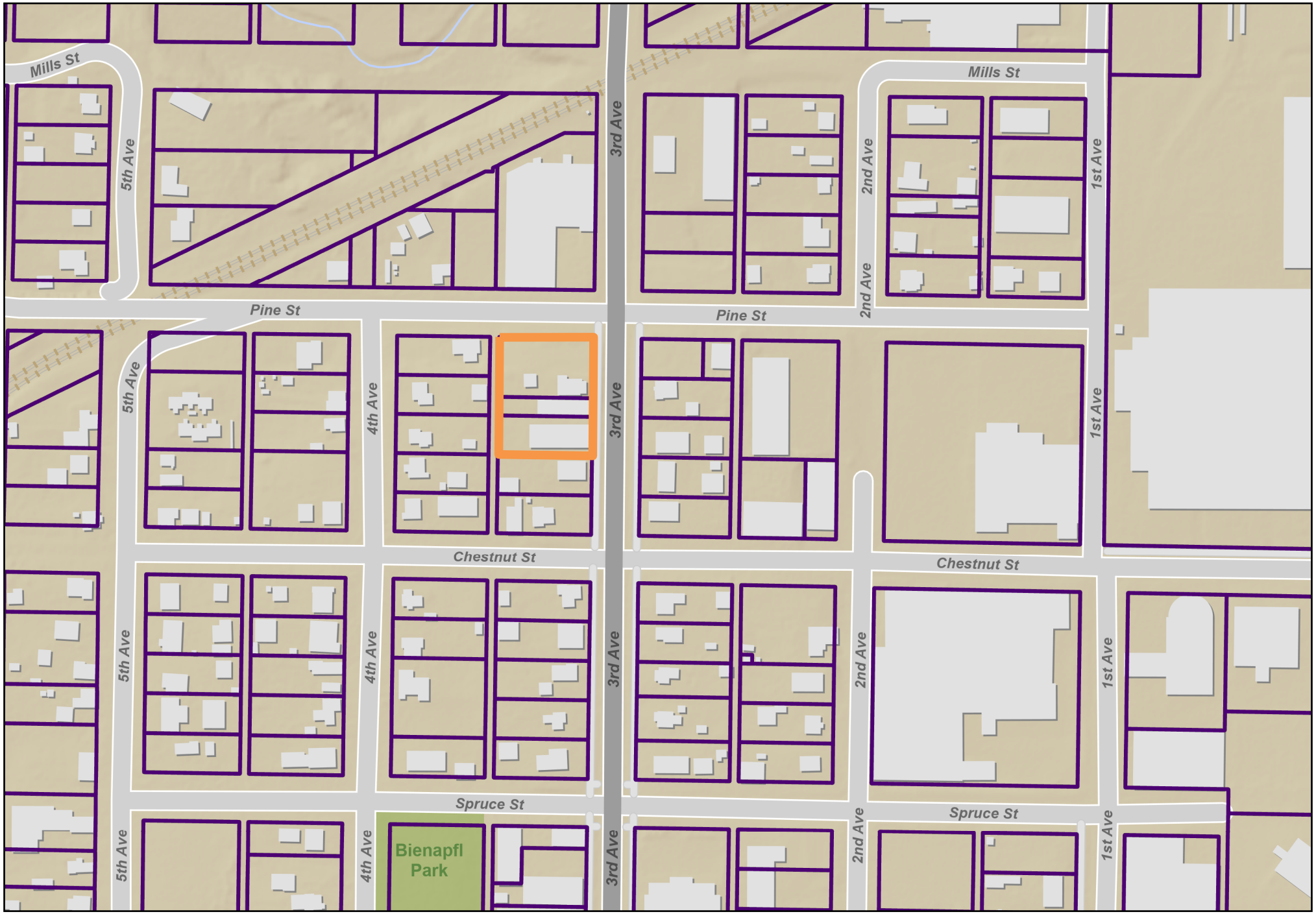
Directly East of the subject site is designated as R-1, One-Family Dwelling. North and south of the R-1 designation are properties used for residential purposes. Those properties maintain the M-I, Light Industrial, zoning designation and will do so until such a time as those property owners seek a rezoning of the subject properties. The property located to the North of the subject site, Mankato Makerspace, is zoned M-1, Light Industrial.

Future uses must comply with the R-3 ordinance. It is anticipated that a conditional use permit will be submitted in the upcoming months for an Intensive Outpatient Treatment Program (IOP) within the building. However, that is not being reviewed with this application, and when a complete application is received for that request, you will receive additional notice.

Attachments

General Location Map
Aerial
Current zoning map

General Location Map



N
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0 0.06 0.1 0.2 mi

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Produced by: City of Mankato GIS
Published: August 4, 2026

City of Mankato
Leading the way...

Aerial Map



N
W E
S

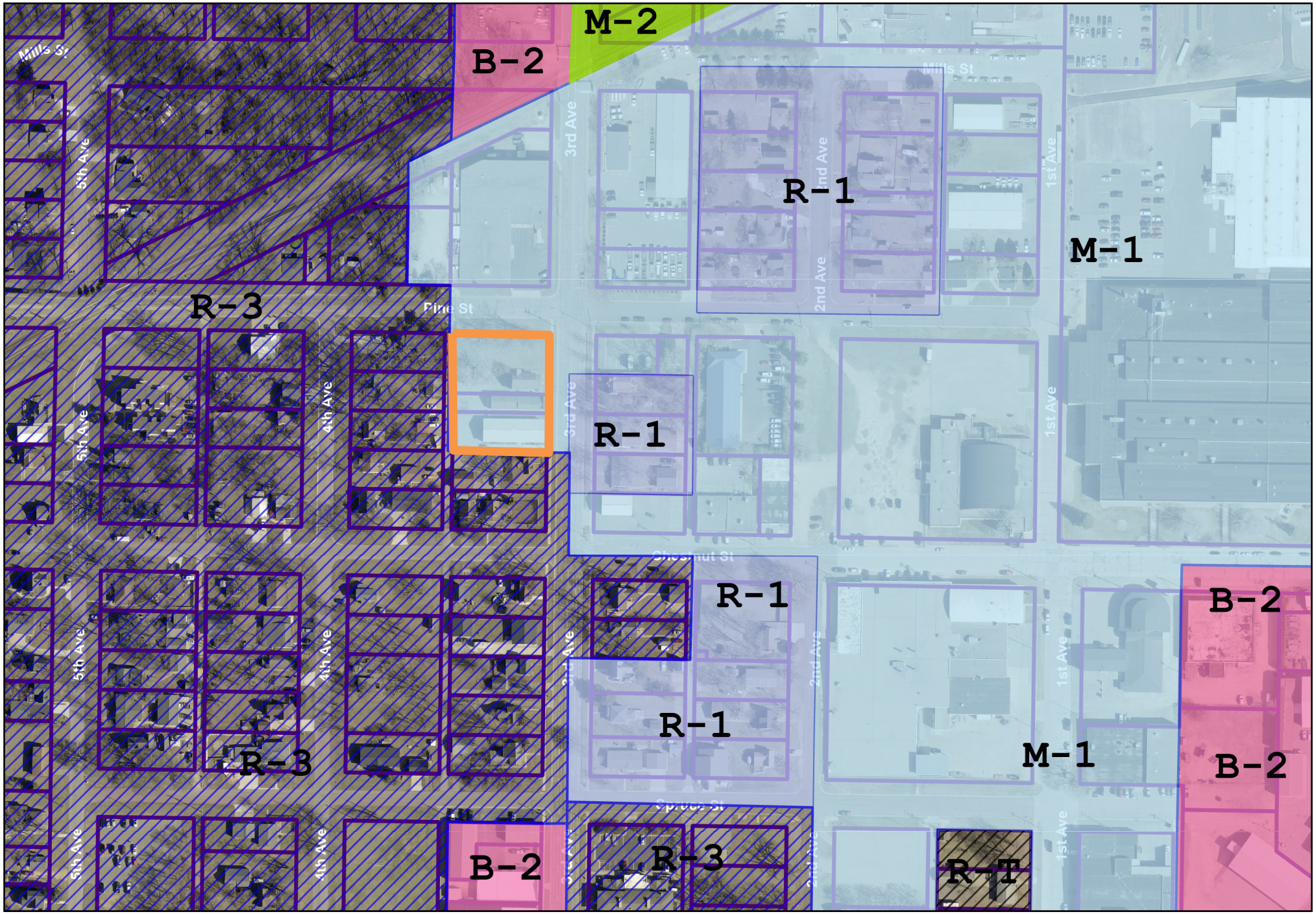
0 0.06 0.1 0.2 mi

This information is to be used for reference purposes only. The City of Mankato does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation.

Produced by: City of Mankato GIS
Published: August 4, 2026

City of Mankato
Leading the way...

Current Zoning - M-1, Light Industrial, proposed to change to R-3, Limited Multiple Family Dwelling District



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Produced by: City of Mankato GIS
Published: August 5, 2026

Mankato
Leading the way...

Site Plan and Traffic Advisory Review Committee **1. 8.**

Meeting Date: 08/11/2026

Title

CYV07-26

Request of Kody Schendel for a variance from Chapter 10, Article X, Division 1, Sec.10-1463 of the Mankato City Code to increase the allowable mechanical projection into a required yard from 3 feet (3') to ten feet (10') in the R-3, Limited Multiple Dwelling, zoning district. The variance is being requested in order to allow for the placement of two mechanical units in the 15.8 foot building setback area. The property is described as Lots 3, 4, 5, Block 16, Mankato City, Blue Earth County. (1422 2nd Avenue).

Applicant

The applicant is Bolton and Menk, with permission of the property owner.

Request

The applicant is requesting a variance to increase the allowable projection into a required yard for the placement of a mechanical system.

Location

The subject property is located at 1422 2nd Avenue, and is described as Lots 3, 4, and 5, Block 16, Mankato City, Blue Earth County.

Existing Land Use

The property is the location of the recently constructed Wrestling Brotherhood facility.

Zoning

The subject property is zoned R-3, Limited Multiple Family Dwelling District.

Environmentally Sensitive Areas

There are no known environmentally sensitive areas on the subject site.

Public Utilities

Public utilities serve the property.

Review

Kody Schendel is seeking a variance from Chapter 10, Article X, Division 1, Sec.10-1463 of the Mankato City Code to increase the allowable mechanical projection into a required yard from 3 feet (3') to ten feet (10') in the R-3, Limited Multiple Dwelling, zoning district. The variance is being requested in order to allow for the placement of two mechanical units in the 15.8 foot building setback area.

The property is the location of a recently constructed building that is used for the Wrestling Brotherhood facility, and is addressed as 1422 2nd Avenue. The legal description of the subject site is Lots 3, 4, 5, Block 16, Mankato City, Blue Earth County.

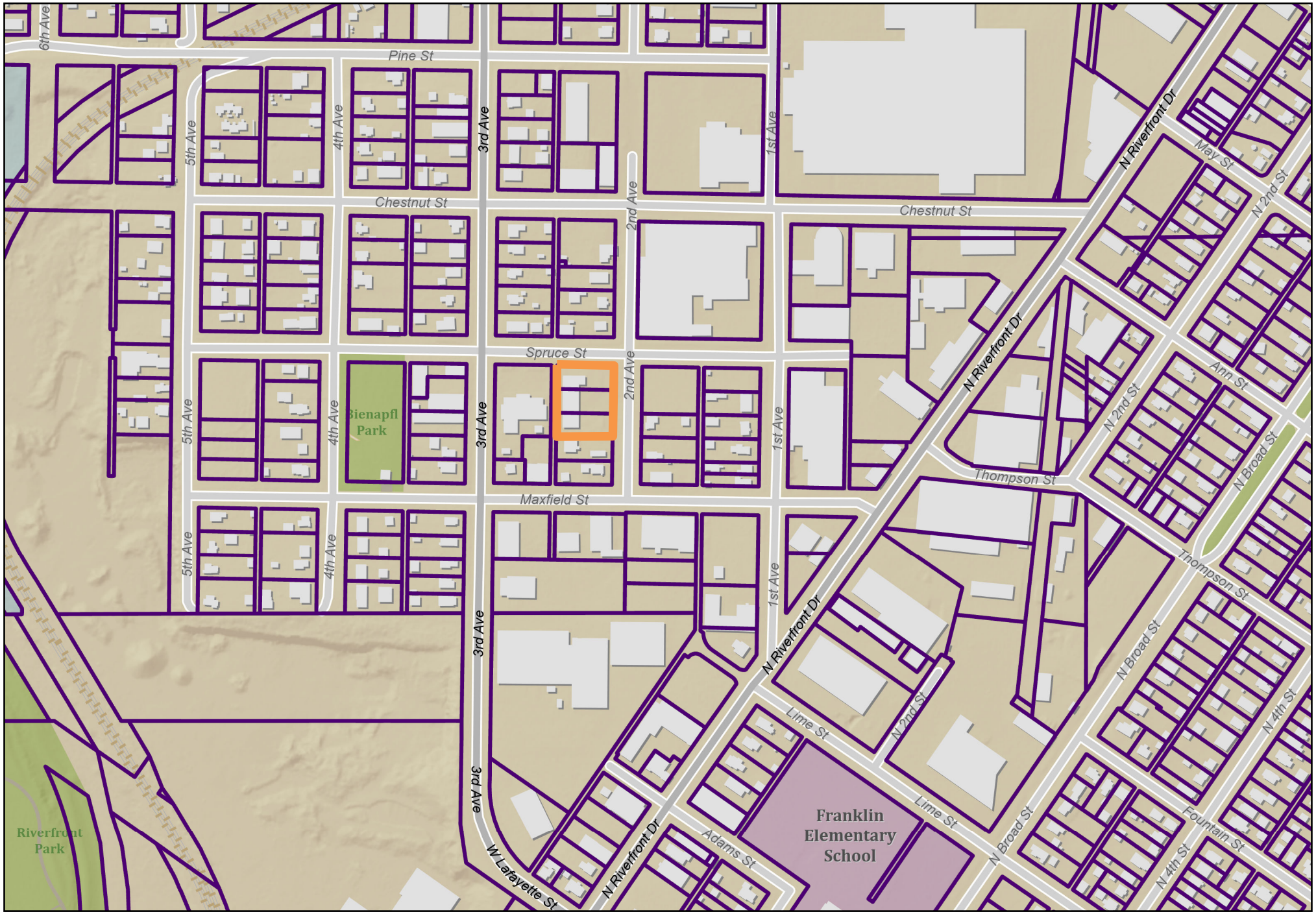
The Mankato City Code allows projection of mechanical units, including air conditioning condensing units, to project into a required yard by 3 feet. The applicant has installed two mechanical units that project 10' into the required 15.8' yard area. The applicant is seeking a variance to increase the allowable 3' projection of the units to

10’.

Attachments

General Location Map
Aerial Plan
Site Plan
Grading Plan
Equipment screening installation details
Equipment screening detail
Mechanical Plan
Variance Request statements from Applicant

General Location Map



N W E S

0 0.1 0.2 0.4 mi

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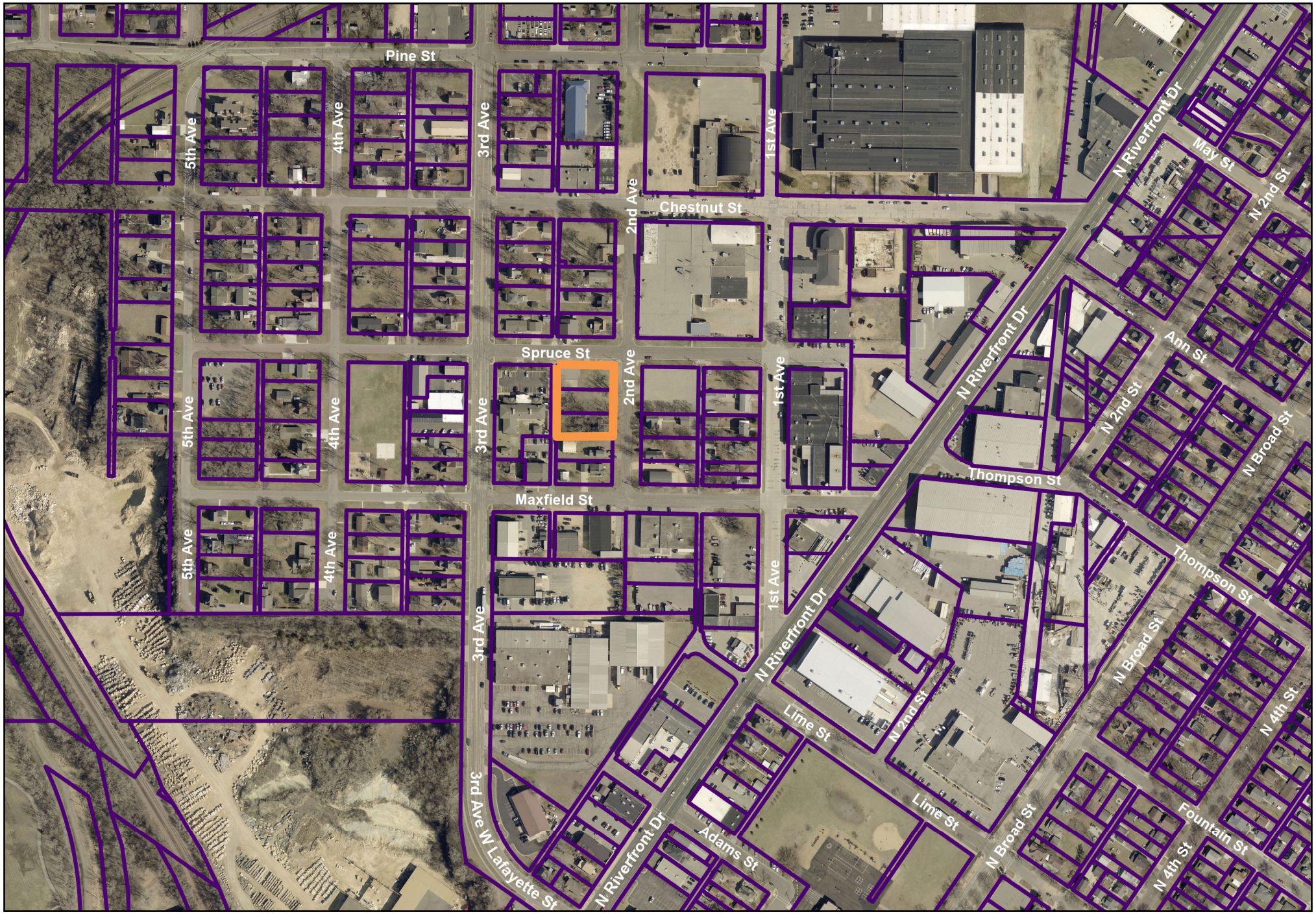
Produced by: City of Mankato GIS
Published: August 4, 2026

City of Mankato — Leading the way...

Aerial Map



N W E S

0 0.1 0.2 0.4 mi

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Produced by: City of Mankato GIS
Published: August 4, 2026

Mankato — Leading the way...

STORM DRAIN PIPE SCHEDULE

PIPE NO.	DRAIN FROM	INLET ELEVATION	DRAIN TO	OUTLET ELEVATION	PIPE SIZE (IN)	MATERIAL	PIPE CLASS	PIPE GRADE	PIPE LENGTH (FT)
P-1	ST-2	843.15	ST-1	842.56	12	PVC	SCH 40	1.00%	59
P-2	ST-3	844.26	ST-2	843.35	12	PVC	SCH 40	1.00%	91

STORM DRAIN STRUCTURE SCHEDULE

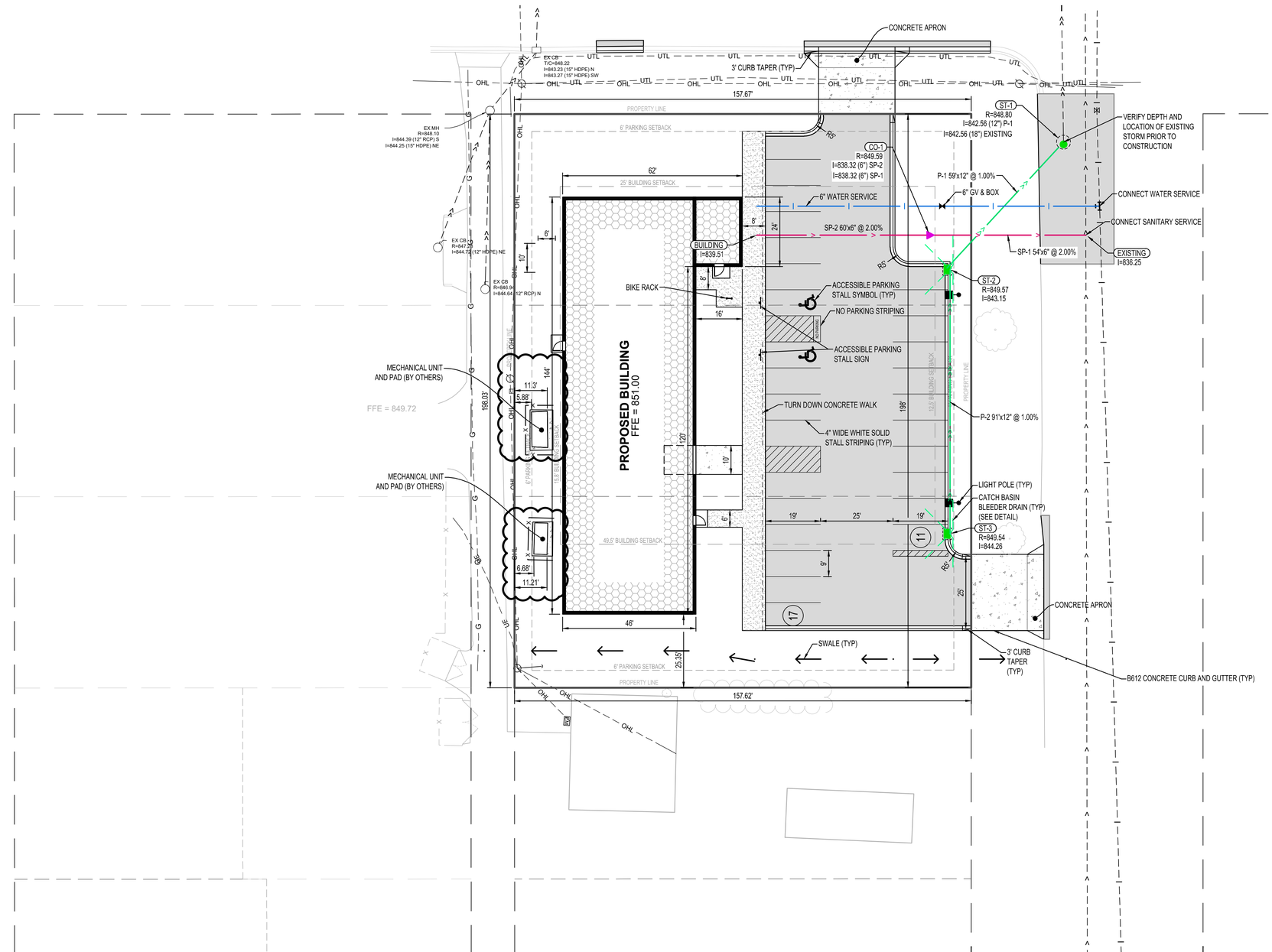
STRUCTURE NO.	STRUCTURE TYPE	STRUCTURE SIZE (IN)	STRUCTURE MATERIAL	CASTING	STRUCTURE HEIGHT (LN FT)	* TOP OF CASTING ELEVATION	OUTLET INVERT	OUTLET PIPE
ST-1	MnDOT 4020	48 Ø	RC	MNDOT 700-7 W/ 715 COVER	6.24	848.80	842.56	EXISTING
ST-2	MANKATO STD CB NO 3	24 Ø	PVC	NEENAH R-3067-V	6.42	849.57	843.15	P-1
ST-3	MANKATO STD CB NO 3	24 Ø	PVC	NEENAH R-3067-V	5.28	849.54	844.26	P-2

SANITARY SEWER PIPE SCHEDULE

PIPE NO.	DRAIN FROM	INLET ELEVATION	DRAIN TO	OUTLET ELEVATION	PIPE SIZE	MATERIAL	PIPE CLASS	PIPE GRADE	PIPE LENGTH (FT)
SP-1	CO-1	838.32	EXISTING	837.24	6"	PVC	SCH 40	2.00%	54
SP-2	BUILDING	839.51	CO-1	838.32	6"	PVC	SCH 40	2.00%	60

SANITARY SEWER STRUCTURE SCHEDULE

STRUCTURE NO.	STRUCTURE TYPE	STRUCTURE SIZE (IN)	STRUCTURE MATERIAL	CASTING	STRUCTURE HEIGHT (LN FT)	TOP OF CASTING ELEVATION	INVERT ELEVATION	OUTLET PIPE
CO-1	CLEANOUT	6 Ø	PVC	SEE DETAIL	11.27	849.59	838.32	SP-1



PAVEMENT LEGEND

SYMBOL	DESCRIPTION
	BITUMINOUS PAVEMENT
	CONCRETE PAVEMENT
	CONCRETE WALK
	TURN DOWN CONCRETE WALK

SITE SUMMARY

PROJECT ADDRESS/LOCATION:	1430 2ND AVENUE MANKATO, MINNESOTA 56001	
ZONING:	R-3 LIMITED MULTIPLE DWELLING DISTRICT	
SITE/LOT AREA:	40,572 SF	(0.9 AC)

REQUIRED SETBACKS

	PARKING	BUILDING
FRONT YARD	6'	25'
CORNER FRONT YARD	6'	12.5'
SIDE YARD	6'	15.8'
REAR YARD	6'	49.5'

PARKING SURFACE REQUIREMENTS IN SETBACKS

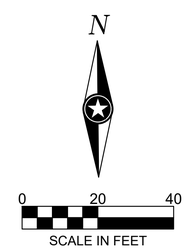
	MAX COVERAGE	PROPOSED COVERAGE
FRONT YARD	3,942 SF x 35.00% = 1,380 SF	1,164 SF / 3,942 SF = 29.53%
CORNER FRONT YARD	1,544 SF x 35.00% = 541 SF	504 SF / 1,544 SF = 32.64%
SIDE YARD	N/A	N/A
REAR YARD	7,803 SF x 35.00% = 2,731 SF	2,332 SF / 7,803 SF = 29.89%

BUILDING REQUIREMENTS

MAX STRUCTURE GROUND COVER	31,215 SF x 35.00% = 10,925 SF
PROPOSED STRUCTURE GROUND COVER	7,008 SF / 31,215 SF = 22.45%
MAX BUILDING HEIGHT	35'

PARKING DATA

LAND USE CLASSIFICATION	GYMNASIUM
PARKING SPACES REQUIRED (CODE)	ONE PARKING SPACE FOR EACH FOUR PERSONS OF THE MAXIMUM OCCUPANT LOAD
GOVERNING INFORMATION	MANKATO CITY CODE OF ORDINANCES
PARKING SPACES REQUIRED	108 OCCUPANTS / 4 = 27 SPACES
PARKING STALLS PROVIDED	
STANDARD	26
ACCESSIBLE	2
TOTAL	28



ISG

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

NATHAN J. HERMER

DATE 08/05/26 LIC. NO. 54848

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PROJECT

WRESTLING BROTHERHOOD

WRESTLING FACILITY

MANKATO MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
10/22/25	PROPOSAL REQUEST #1	AAQ
03/16/26	PLAN REVISION	AAQ
03/20/26	PLAN REVISION	AAQ
08/05/26	SUPPLEMENTAL INSTRUCTION #1	NJH

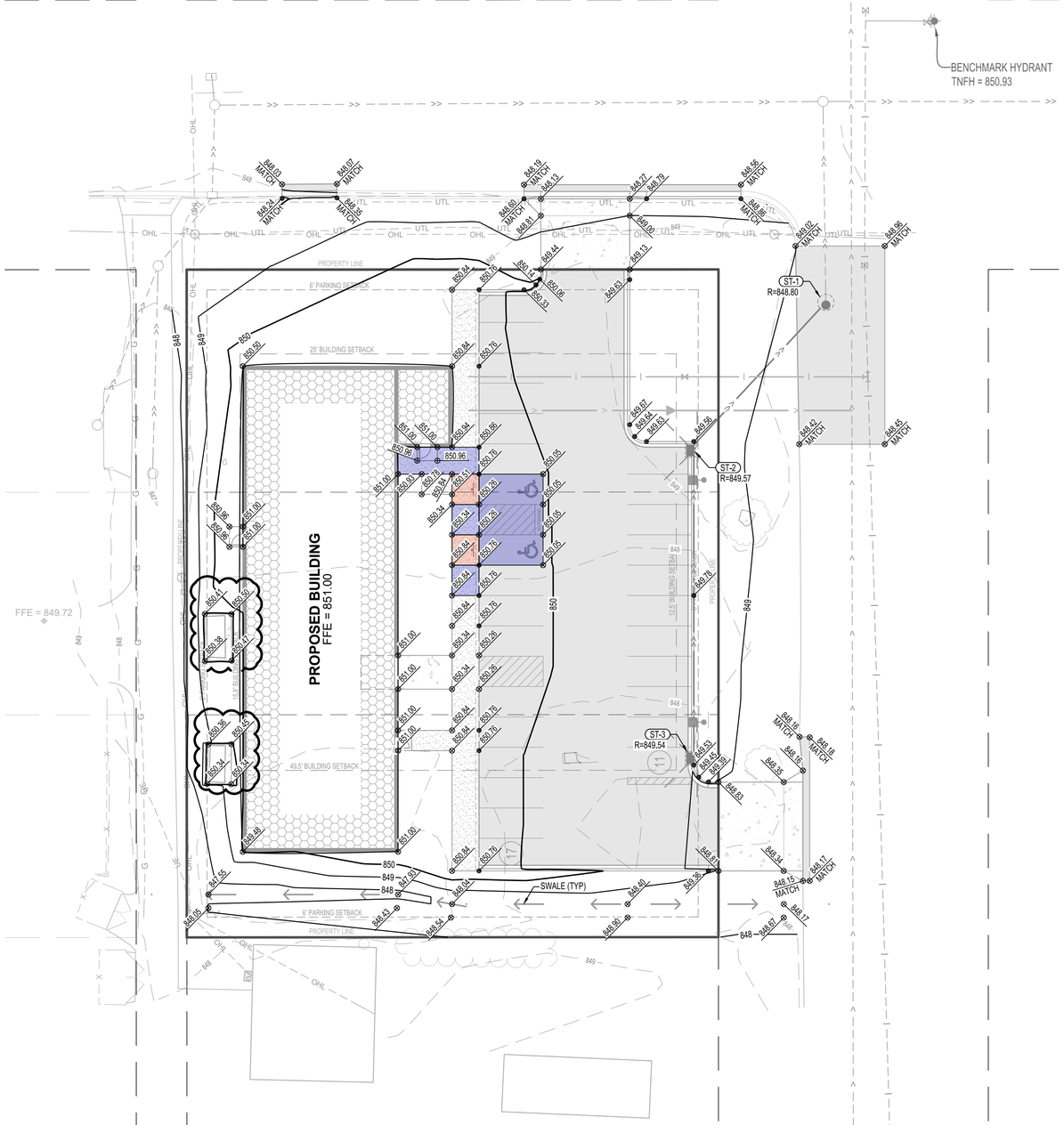
PROJECT NO.	25-32225
FILE NAME	32225 C3-SITE
DRAWN BY	AAQ
DESIGNED BY	AAQ/NJH
REVIEWED BY	NJH
ORIGINAL ISSUE DATE	09/09/25
CLIENT PROJECT NO.	-

TITLE

SITE AND UTILITY PLAN

SHEET

C3-10



N

0 20 40

SCALE IN FEET

GRADING LEGEND

101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)
XXX.XX	PROPOSED SPOT ELEVATION
XXX.XX	PROPOSED TOP BACK OF CURB SPOT ELEVATION
-X.X%	SURFACE GRADE / DIRECTION

GENERAL GRADING NOTES

PROPOSED CONTOURS SHOW FINISHED GRADE ELEVATIONS. BUILDING PAD AND PAVEMENT HOLD DOWNS ARE NOT INCLUDED. WHEN CONSTRUCTING BUILDING PADS WITH A HOLD DOWN, GRADE AREAS TO ENSURE POSITIVE BUILDING PAD DRAINAGE.

ADA ACCESSIBILITY LEGEND

	ACCESSIBLE PARKING / LANDING AREA (MAXIMUM 2.00% SLOPE IN ALL DIRECTIONS)
	ACCESSIBLE RAMP (SLOPE GREATER THAN 5.00%, LESS THAN 8.33%)

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DATE 03/16/26 LIC. NO. 54848

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PROJECT

WRESTLING BROTHERHOOD

WRESTLING FACILITY

MANKATO MINNESOTA

REVISION SCHEDULE

DATE	DESCRIPTION	BY
10/22/25	PROPOSAL REQUEST #1	AAQ
03/16/26	PLAN REVISION	AAQ

PROJECT NO.	25-32225
FILE NAME	32225 C4-GRADE
DRAWN BY	AAQ
DESIGNED BY	AAQ/NJH
REVIEWED BY	NJH
ORIGINAL ISSUE DATE	09/09/25
CLIENT PROJECT NO.	-

TITLE

GRADING PLAN

SHEET

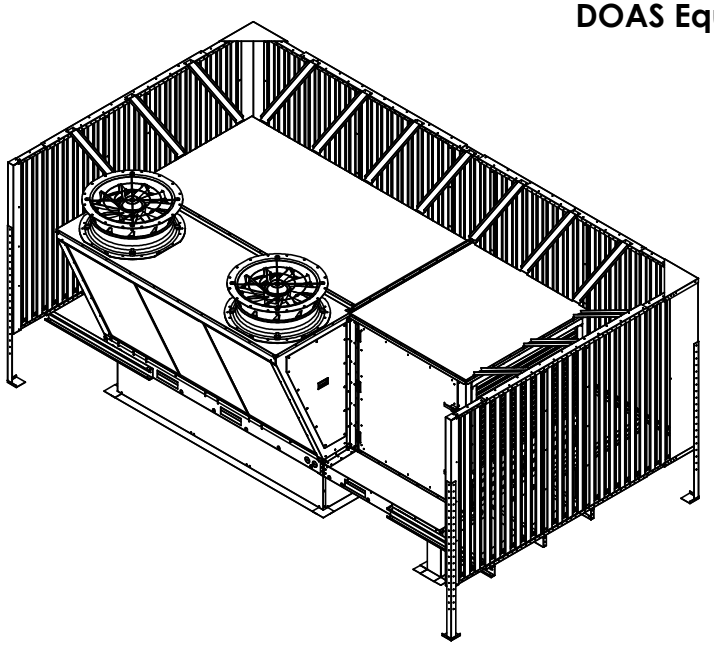
C4-10

DOAS Equipment Screen Assembly Instructions 5/30/2019

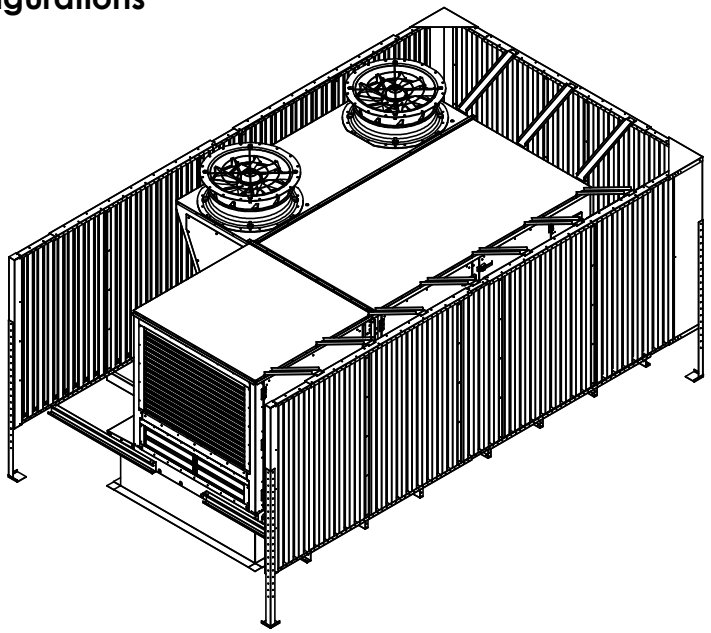
DOAS EQUIPMENT SCREEN ASSEMBLY INSTRUCTIONS

Revision History				
#	Description	Revised by	ECN#	Date
0	Release to Production	BFL	3049	5/30/19

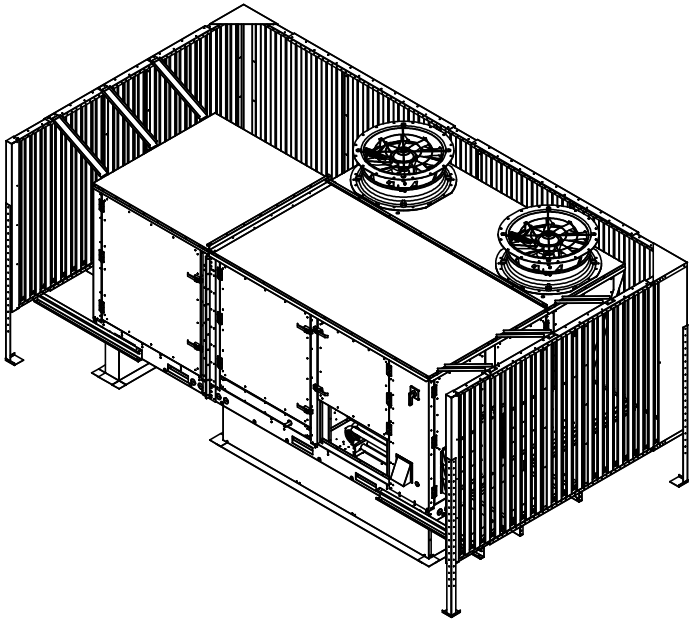
DOAS Equipment Screen Configurations



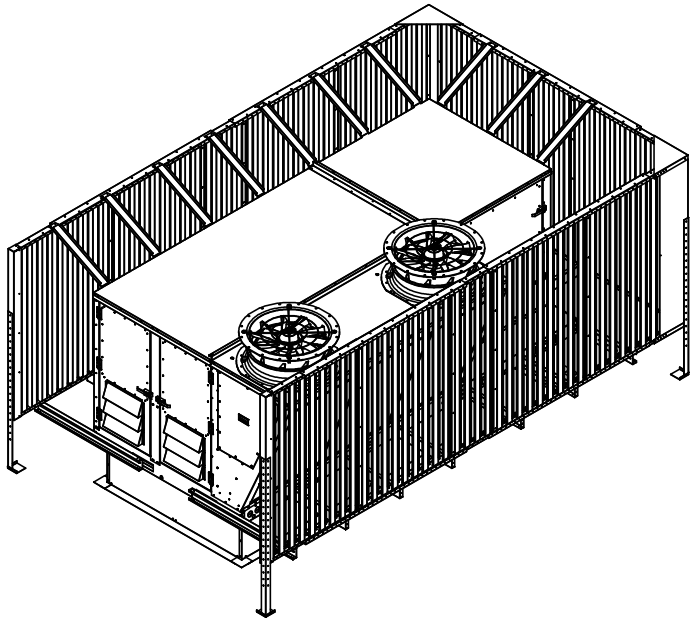
CONDENSER SIDE OPEN



ERV/INTAKE SIDE OPEN



BLOWER SIDE OPEN



ELECTRIC SIDE OPEN

DOAS EQUIPMENT SCREEN ASSEMBLY INSTRUCTIONS

Revision History				
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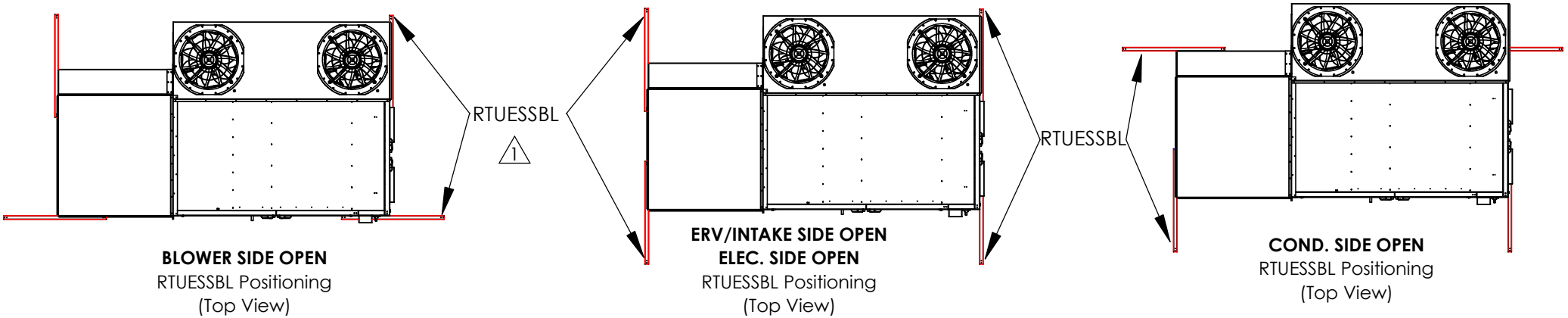
0	Release to Production	BFL	3049	5/30/19



BLOWER SIDE OPEN
RTUESSBL Positioning
(Top View)

ERV/INTAKE SIDE OPEN
ELEC. SIDE OPEN
RTUESSBL Positioning
(Top View)

COND. SIDE OPEN
RTUESSBL Positioning
(Top View)

FIGURE 1

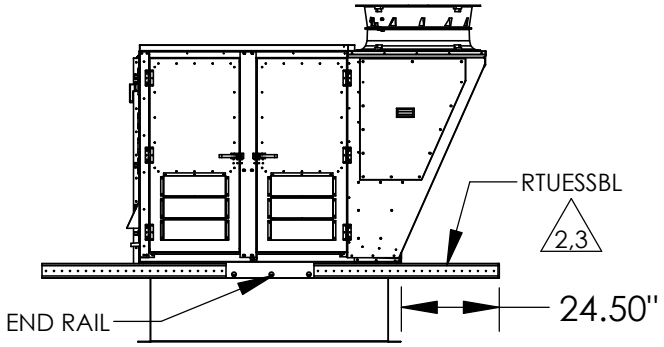
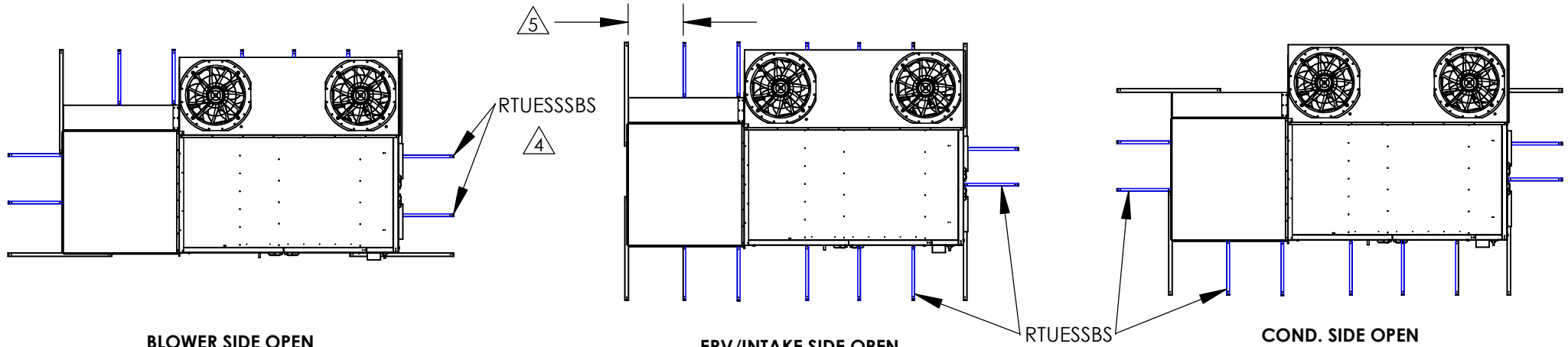


FIGURE 2

NOTES:
1. Position long support brace (RTUESSBL) in the desired configuration as shown in FIGURE 1. Reference exploded view/BOM for correct quantities.
2. Ensure all RTUESSBL are aligned flush and spaced from the end rail as shown in FIGURE 2.
3. Secure RTUESSBL to end rail using 1/4-14x1" self tapping screws with washer (A0005676). Ensure every available mounting hole is fastened. (minimum 3 holes.)
4. Position short support brace (RTUESSBS) in the desired configuration as shown in FIGURE 3. Reference exploded view/BOM for correct quantities.
5. Evenly space RTUESSBS inbetween RTUESSBL and secure to end rail using 1/4-14x1" self tapping screws with washer (A0005676).

*If unit is not installed with an ERV, mount support braces directly to DOAS end rails.



BLOWER SIDE OPEN
RTUESSBS Positioning
(Top View)

ERV/INTAKE SIDE OPEN
ELEC. SIDE OPEN
RTUESSBS Positioning
(Top View)

COND. SIDE OPEN
RTUESSBS Positioning
(Top View)

FIGURE 3

DOAS EQUIPMENT SCREEN ASSEMBLY INSTRUCTIONS

Revision History				
#	Description	Revised by	ECN#	Date
0	Release to Production	BFL	3049	5/30/19

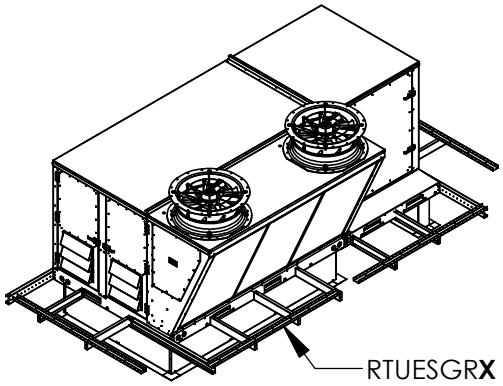


FIGURE 4

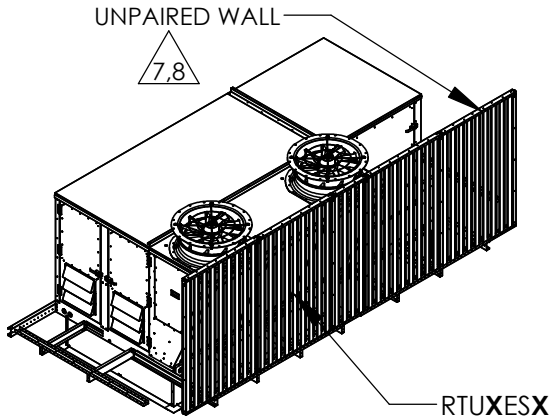


FIGURE 5

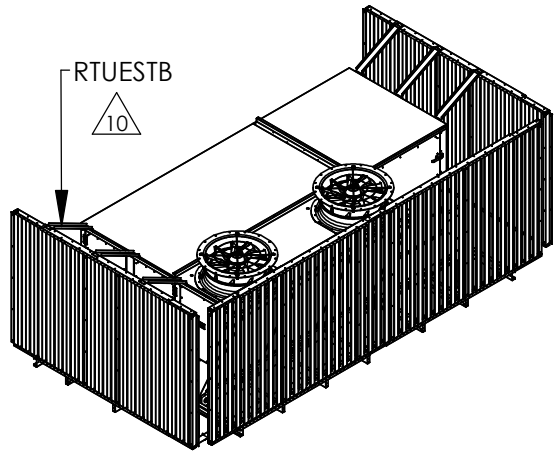


FIGURE 6

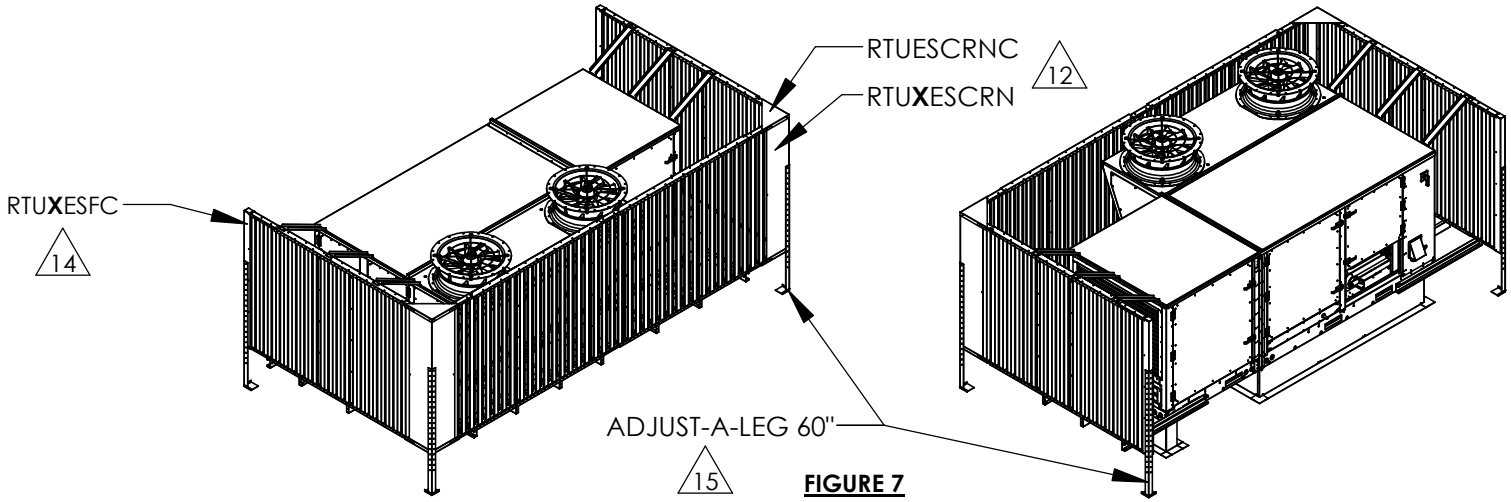
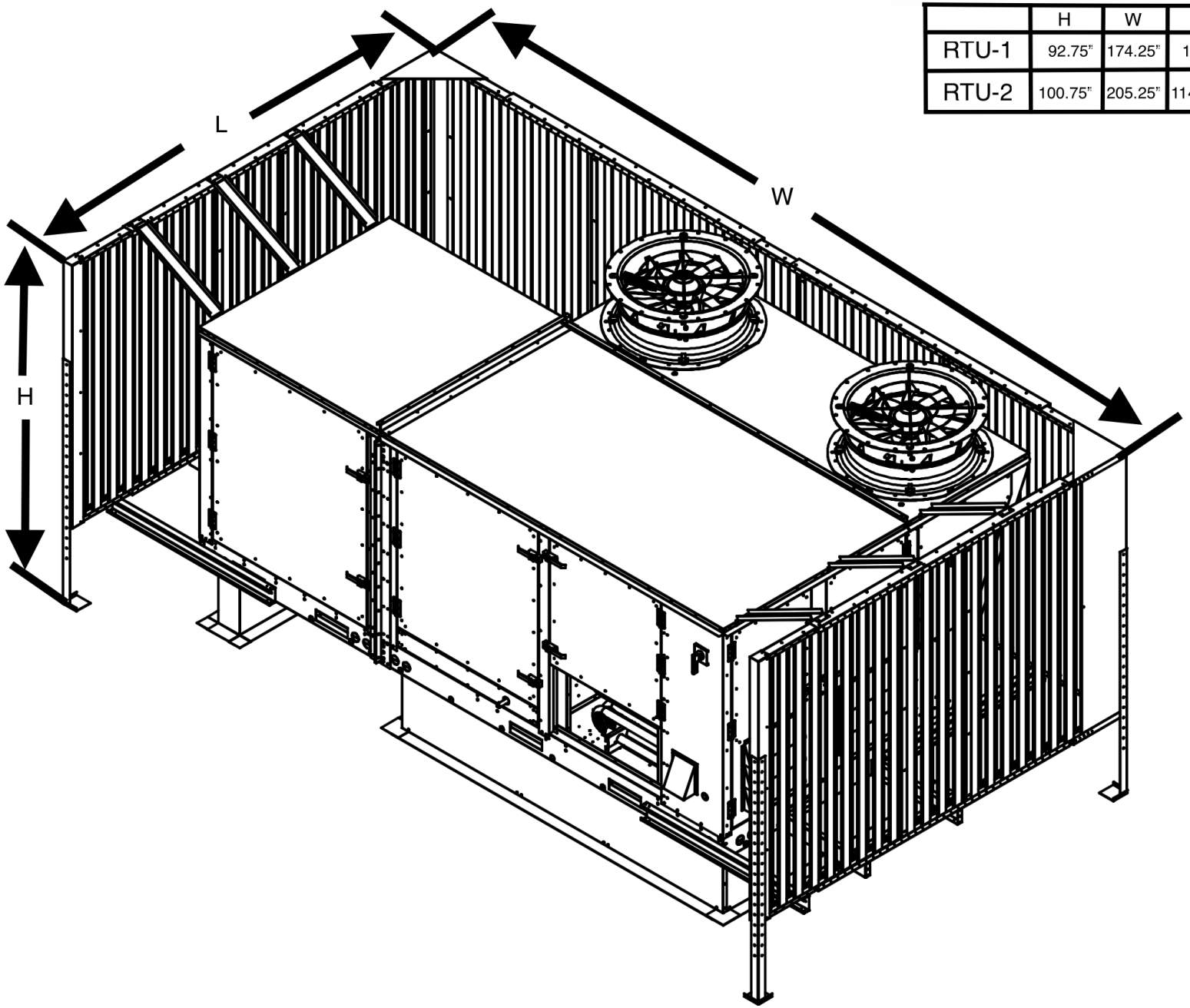


FIGURE 7

6. Center guide rails (RTUESGR**X)** on installed support braces, as shown in FIGURE 4. Do not secure RTUESGR**X** at this point.
7. Install unpaired wall by positioning screen sections (RTU**X**ES**X**) in RTUESGR**X** as shown in FIGURE 5.
8. Ensure unpaired wall is centered to the DOAS unit. Align RTU**X**ES**X** pilot holes and secure using 1/4-14x1" self tapping screws with washer (A0005676).
9. Secure RTU**X**ES**X** sections to RTUESGR**X** and support braces using 1/4-14x1" self tapping screws with washer (A0005676). Mount hardware, from bottom, through support brace pilot holes.
10. Install RTUESGR**X** and top braces (RTUESTB) atop RTU**X**ES**X**. Using 1/4-14x1" self tapping screws with washer (A0005676), secure RTUESTB to RTU**X**ES**X** by sandwiching RTUESGR**X**. Secure RTUESTB to unit lid.
    -RTU**X**ES**X** will be affixed directly to the condesor cobinet lid when the condesner side is hidden.
11. Repeat step 7,8,9 for the two remaining sides. Align RTU**X**ES**X** flush to allow for corner assembly installation, as shown in FIGURE 6.
12. Install top corner cap (RTUESCRNC) and corner (RTU**X**ESCRN). Ensure RTUESCRNC lies level atop RTU**X**ES**X**. Secure RTUESCRNC over RTU**X**ESCRN to RTU**X**ES**X** using 1/4-14x1" self tapping screws with washer (A0005676). Install and secure bottom RTUESCRNC using 1/4-14x1" self tapping screws with washer (A0005676).
13. Using a bubble level, ensure the RTU**X**ES**X** are flush and install adjustable legs (ADJUST-A-LEG 60") to corner assembly. Confirm the top, bottom and center holes of the adjustable leg are fastened.
14. Install flange caps (RTU**X**ESFC) to any open RTU**X**ES**X** ends. Secure using 1/4-14x1" self tapping screws with washer (A0005676).
15. Repeating step 13, install (ADJUST-A-LEG 60") to the RTU**X**ESFC, as shown in FIGURE 7.

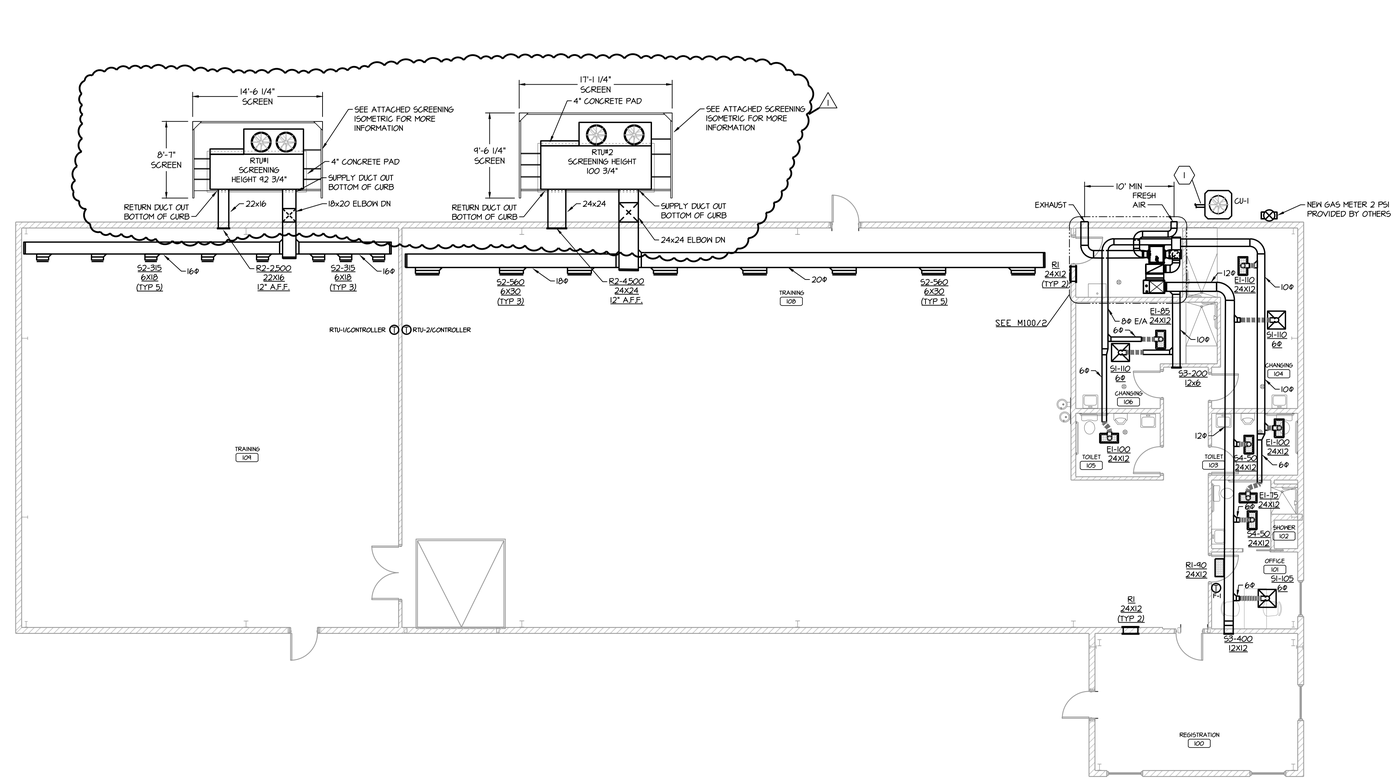
	H	W	L
RTU-1	92.75”	174.25”	103”
RTU-2	100.75”	205.25”	114.25”



BLOWER SIDE OPEN

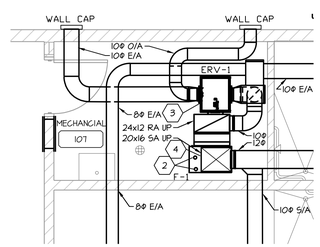
SHEET NOTES:

1. RL & RS, SIZE REFRIGERANT PIPING AS PER MANUFACTURERS RECOMMENDATIONS.
2. FURNACE COMBUSTION AIR AND VENT. ROUTE AND TERMINATE AS PER MANUFACTURERS RECOMMENDATIONS.
3. ROUTE RETURN AIR UP TO APPROXIMATELY 6' AFF AFTER MANUAL BALANCING DAMPER.
4. ROUTE 1/2" NATURAL GAS PIPING TO FURNACE. COORDINATE WITH OTHERS FOR LOCATION OF NATURAL GAS CONNECTION IN THE MECHANICAL ROOM.



1 MECHANICAL PLAN

SCALE: 1/8" = 1'-0"



2 ENLARGED MECHANICAL ROOM PLAN

SCALE: 1/4" = 1'-0"

CMTA
A Leonel Company
cmta.com | 877 380 0501

Project Name:

WRESTLING BROTHERHOOD

Project Location:
1430 2nd Ave
Mankato, MN 56001

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MARK	DATE	REVISION
1	07/27/26	SI#01

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Signature:

Printed Name: JAKE M. BRAATEN

Date: 07/27/2026 Reg. No.: 57966

Project Information:

Project No. :	2025090
Drawn By :	EWW
Checked By :	JMB, JW
Date :	07/27/2026
File Name:	x2025090_M100.dwg

Sheet Title:

MECHANICAL PLAN

Sheet Number:

M100

1. Extent of the Variance Request

- **Code Standard:** Per Mankato City Code, mechanical units are allowed to project up to **36 inches (3 feet)** into a required yard setback.
- **Mechanical Unit Projection:** The HVAC equipment/ductwork extends **48 inches (4 feet)** out from the primary building foundation wall.
- **Concrete Pad Projection:** The supporting concrete pad extends **50 inches (4 feet 2 inches)** from the building wall.
- **Variance Requested:** We are requesting a variance to permit an additional **12 to 14 inches** of projection beyond the standard 36-inch code limit (for a maximum total projection of **50 inches** to encompass the slab).
- **Remaining Setback/Clearance to Alley:** From the outer edge of the concrete pad to the edge of the adjacent alley asphalt, there is a remaining distance of **9 to 10 feet (108 to 120 inches)**.
- **Screening Fence:** We propose installing a **6-foot high screening fence** mounted along the outer boundary of the concrete pad to fully enclose the equipment and maintain a clean visual buffer along the alleyway.

2. Variance Criteria Responses

1. **Is the variance request in harmony with the general purpose and intent of the zoning ordinance and comprehensive plan?**
   - *Response:* Yes. The requested variance provides essential HVAC climate control for the facility while utilizing perimeter screening to preserve visual aesthetics and protect surrounding property sightlines along the alley.
2. **Is the applicant proposing to use the property in a reasonable manner not permitted by the zoning ordinance?**
   - *Response:* Yes. Modern HVAC equipment is a standard and necessary component of operating the facility. Given the fixed interior layout and building placement on the lot, placing the units along the western elevation is the most functional option for site operations.
3. **Are there unique circumstances to the property not created by the landowner?**
   - *Response:* Yes. The permanent footprint and location of the existing structure limit outdoor equipment options, creating site constraints that require minor setback relief along the side yard.
4. **Will the variance alter the essential character of the locality?**
   - *Response:* No. Enclosing the units with a 6-foot screening fence ensures the equipment remains hidden from view, preserving the character and sightlines of the alleyway and neighboring properties.
5. **Does the hardship involve more than economic considerations alone?**
   - *Response:* Yes. The location is dictated by structural geometry, sound mitigation considerations for adjacent land uses, and essential airflow/operational specifications for the mechanical equipment.
6.

Site Plan and Traffic Advisory Review Committee **1. 9.**

Meeting Date: 08/11/2026

Title

*****SITE PLAN AND TRAFFIC ADVISORY COMMITTEE REVIEW ONLY. Request of Darwin Lindahl. Architects, PA, on behalf of the owner, Mankato Building and Development, LLC, for a Site Plan and Traffic Advisory Committee review for the construction of a new, approximately 5,400 square foot structure at Blue Earth County PID R010909176010, address 1010 Raintree Road.**

Applicant

The applicant is Darwin Lindahl Architects, on behalf of the property owner.

Request

The applicant is requesting a Site Plan only review.

Location

The subject property is located at Blue Earth County parcel identification number R010909176010, which is located off of Raintree Road. There was previously a restaurant structure at this location.

Existing Land Use

There was previously a restaurant located at the subject site.

Zoning

The property is zoned B-3, Highway Commercial.

Environmentally Sensitive Areas

The site does contain woodlands, ravines, and is part of the shoreland district.

Review

The applicant is seeking a Site Plan and Traffic Advisory Committee review for the construction of an approximately 5,400 square foot structure to be located in approximately the same location as the previous building pad.

The subject site is located at 1010 Raintree Road, Blue Earth County parcel identification number R010909176010. The site was previously the location of a restaurant, the structure from which has been removed. The parking lot areas from the previous development on the site remain, and the provided site plans show the applicant intends to reuse these parking lot areas. The existing access from Raintree Road, shared access between this property and the adjacent hotel to the east of the site, will be reused for access to the site from Raintree Road.

The applicant's application indicates that the intended use of the building will be automotive detailing, and that there will be 5 employees working on the largest shift at the location.

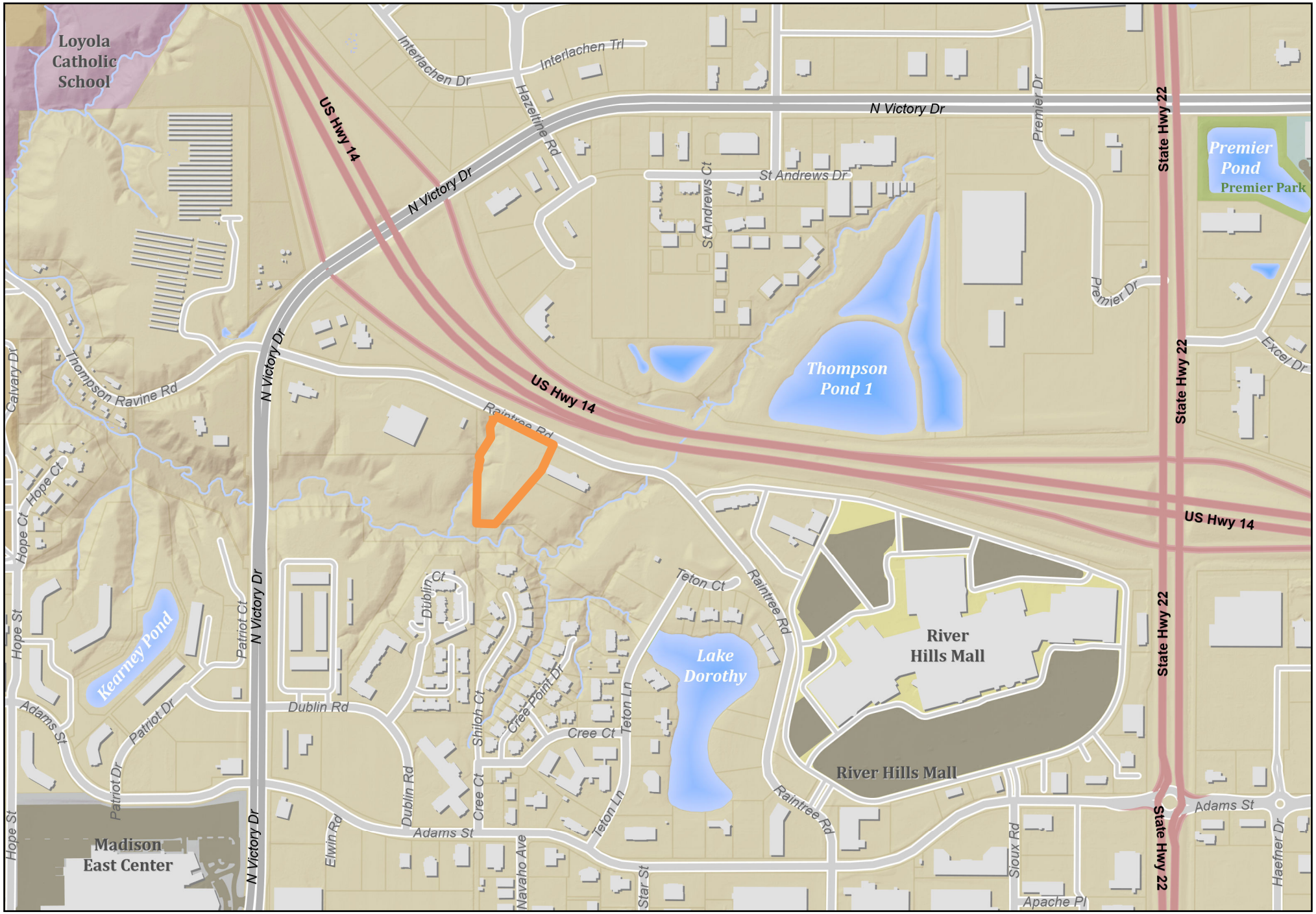
Attachments

General Location Map

Aerial Plan

Plans

General Location Map



N W E S

0 0.2 0.4 0.8 mi

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Produced by: City of Mankato GIS
Published: August 7, 2026

Aerial Map



N W E S

0 0.2 0.4 0.8 mi

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Produced by: City of Mankato GIS
Published: August 7, 2026



SITE DATA:	
ZONING DISTRICT : B-3 (HIGHWAY COMMERCIAL)	
SITE AREA	158,123 sq. ft. - 3.63 ACRES
IMPERVIOUS AREA	51,878 sq. ft. - 1.19 ACRES
IMPERVIOUS COVERAGE:	32.8%

PARKING:	
ZONING DISTRICT : B-3 (HIGHWAY COMMERCIAL)	
	5,400 SF - 200 = 27 EMPLOYEES = 5
SPACES REQUIRED	32 SPACES
SPACES PROVIDED	107 SPACES

0 20' 40' 80'

NORTH

1 SITE PLAN
1" = 40'-0"

Darwin Lindahl Architects, P.A.
4900 Highway 169 North Suite 240
Minneapolis, Minnesota 55428
Ph:763.560.0448 Fax:763.560.0441
e-mail: lindahlarch@gmail.com

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Project # : 2023-25

PROPOSED FACILITY FOR:

HYUNDAI OF MANKATO DETAIL

1010 RAINTREE ROAD
MANKATO, MINNESOTA 56001

Revisions:

No:	Revision:	Date:

Certification:

PRELIMINARY
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SITE PLAN

Sheet No:

A100

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0 20' 40' 80'

NORTH

1 GRADING PLAN

1" = 40'-0"

SITE DATA:

ZONING DISTRICT : B-3 (HIGHWAY COMMERCIAL)

SITE AREA . . . . . 158,123 sq. ft. - 3.63 ACRES

EXISTING IMPERVIOUS AREA. . . 42,784 sq. ft. - 0.98 ACRES

PROPOSED IMPERVIOUS AREA. . 51,878 sq. ft. - 1.19 ACRES

IMPERVIOUS COVERAGE: 32.8%

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e-mail: lindahlarch@gmail.com

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Project # : 2023-25

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HYUNDAI OF MANKATO DETAIL

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MANKATO, MINNESOTA 56001

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GRADING PLAN- PRELIMINARY

Sheet No:

C-1

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PLANTING MATERIAL SCHEDULE

SYMBOL	COUNT	SIZE	ROOT	BOTANICAL NAME	COMMON NAME	NOTES
TREES						
A	2	1.5"	B & B	MALUS "SPRING SNOW"	SPRING SNOW FLOWERING CRAB	
EX	4	--	--	EXISTING	EXISTING	
SHRUBS						
B	7	#5	POT	CALAMAGROSTIS X ACUTIFLORA "KARL FOERSTER"	KARL FOERSTER REED GRASS	
C	3	#5	POT	HYDRANGEA ARBORESCENS "NCHA5"	INVINCIBLELLE WEE WHITE HYDRANGEA	
D	4	#2	POT	ROSA "NEARLY WILD"	NEARLY WILD ROSE	

LANDSCAPE LEGEND

PROPOSED SOD / TURF

CONCRETE

LANDSCAPE ROCK (1" DRESSER TRAP ROCK)

LAWN IRRIGATION NOTES:

1. LAWN IRRIGATION SYSTEM TO BE A DESIGN-BUILD. SUBMIT DESIGN TO ARCHITECT FOR REVIEW.
2. ALL NEW SOD AREAS SHALL BE IRRIGATED WITH UNDERGROUND LAWN IRRIGATION SYSTEM SPRINKLER HEAD TO BE TYPE THAT WILL MINIMIZE OVER SPRAY ON VEHICLES, AND OR BUILDING.
3. ALL NEW LANDSCAPE AREAS SHALL BE IRRIGATED WITH UNDERGROUND LAWN IRRIGATION SYSTEM SPRINKLER HEADS TO BE TYPE THAT MINIMIZE OVER SPRAY ON VEHICLES, AND OR BUILDING.
4. PROVIDE BUBBLE TYPE HEADS AT LANDSCAPE AREA NEXT TO WINDOWS.
5. LAWN IRRIGATION SHALL CONNECT TO BUILDING. COORDINATE W/ PLUMBING CONTRACTOR.
6. PROVIDE P.V.C. PIPE SLEEVES UNDER PAVED AREAS AS REQUIRED.
7. COORDINATE LAWN IRRIGATION SYSTEM WITH GENERAL CONTRACTOR, AND ALL SUB-CONTRACTORS THAT MAYBE AFFECTED.

0 20' 40' 80'

NORTH

1 LANDSCAPING PLAN
1" = 40'-0"

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Project # : 2023-25

PROPOSED FACILITY FOR:

HYUNDAI OF MANKATO DETAIL

1010 RAINTREE ROAD
MANKATO, MINNESOTA 56001

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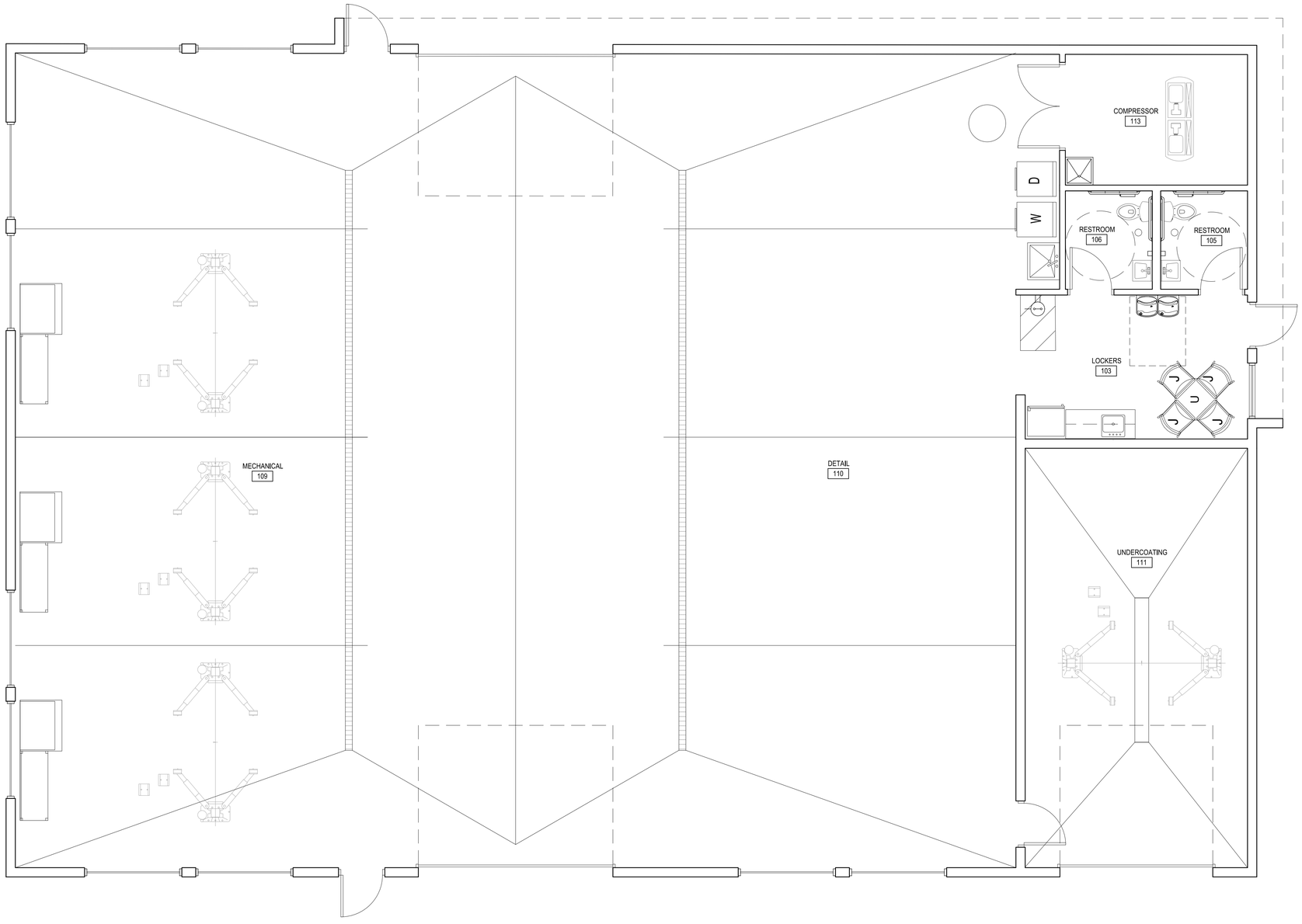
LANDSCAPING PLAN

Sheet No:

L-1

7/27/2026 11:04:42 PM Z:\Projects\AutoCAD\2023-25 HYUNDAI OF MANKATO DETAIL CENTER\Hyundai of Mankato Detail Center\Sheets\L-1 Landscaping Plan.dwg



TOTAL FLOOR AREA = 5,400 S.F.

0 2' 4' 8'

NORTH

1 MAIN LEVEL PLAN

1/4" = 1'-0"

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Project # : 2023-25

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HYUNDAI OF MANKATO DETAIL

1010 RAINTREE ROAD
MANKATO, MINNESOTA 56001

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FLOOR PLAN

Sheet No:

A111

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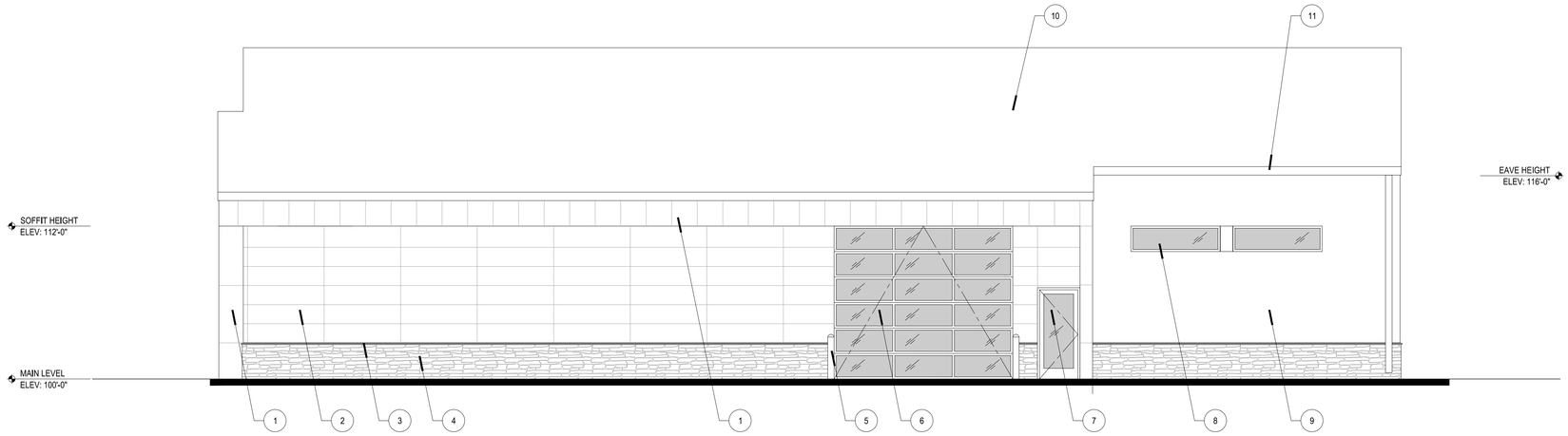
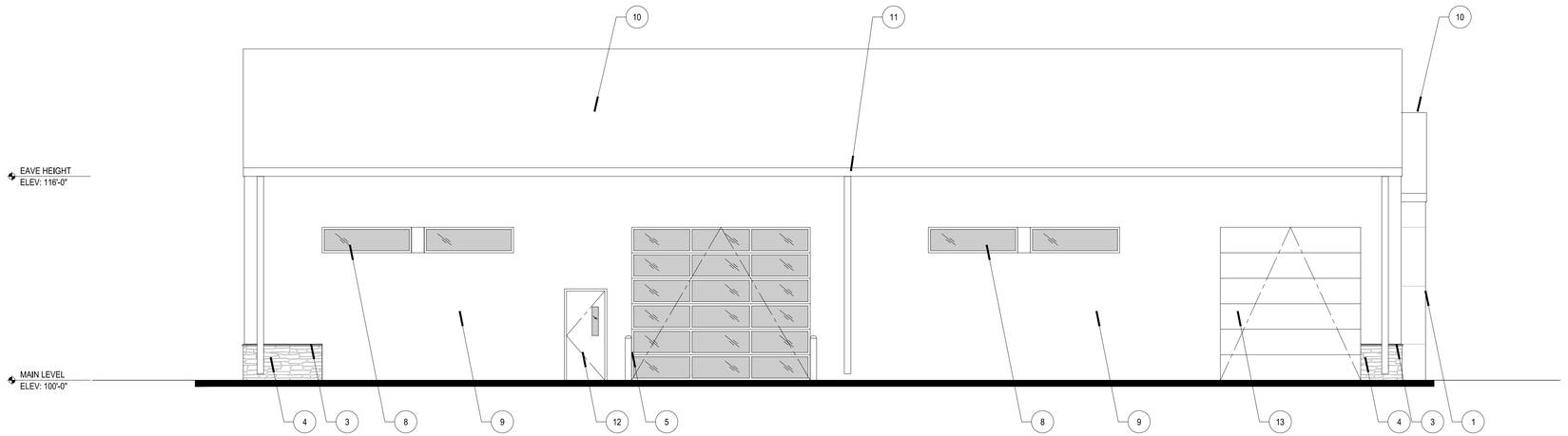


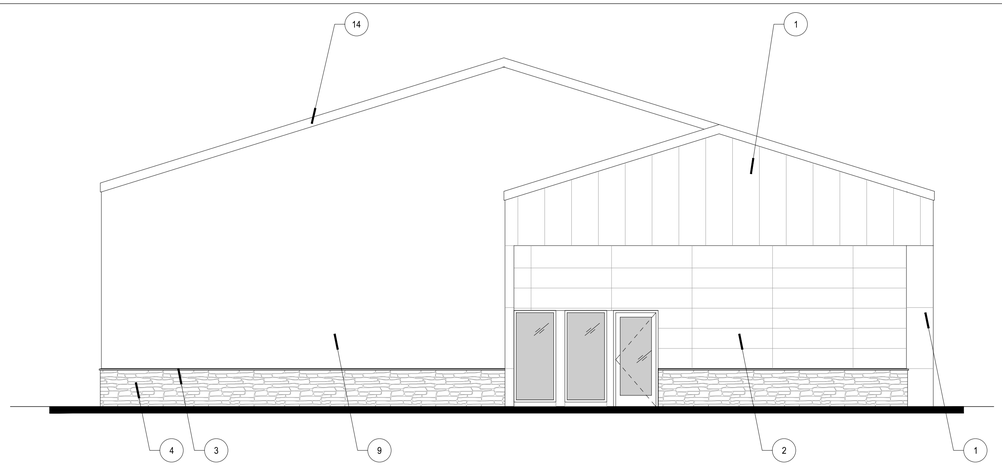
1 NORTH ELEVATION

3/16" = 1'-0"



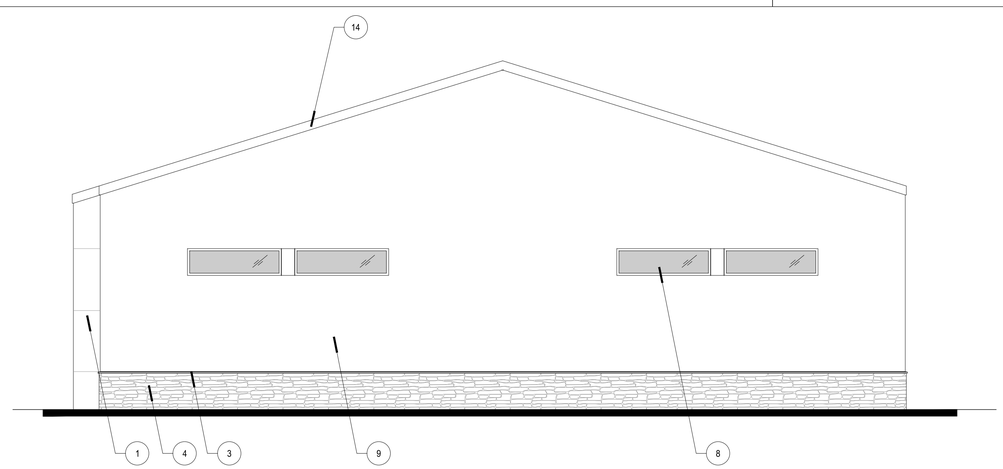
2 SOUTH ELEVATION

3/16" = 1'-0"



3 EAST ELEVATION

3/16" = 1'-0"



4 WEST ELEVATION

3/16" = 1'-0"

KEY NOTES:

1. SMOOTH FIBER CEMENT PANELS W/ VERTICAL JOINTS - WHITE
2. WOOD GRAINED FIBER CEMENT PANELS W/ HORIZONTAL JOINTS - CEDAR
3. PRE-FINISHED METAL CAP FLASHING
4. FAUX STONE WAINSCOT (36" HIGH) - MEDIUM GRAY COUNTRY STONE PATTERN
5. STEEL PIPE BOLLARD - PAINT
6. ALUMINUM/GLASS OVERHEAD SECTIONAL DOOR - BLACK ANODIZED
7. ALUMINUM/GLASS PASSAGE DOOR - BLACK ANODIZED
8. ALUMINUM FRAMED WINDOW - BLACK ANODIZED
9. PRE-FINISHED RIBBED METAL WALL PANELS - MATT CHARCOAL
10. PRE-FINISHED RIBBED METAL ROOF PANELS - MATT BLACK
11. PRE-FINISHED METAL RAIN GUTTERS/DOWNSPOUTS - MATT BLACK
12. STEEL DOOR & FRAME - PAINTED
13. INSULATED SECTIONAL OVERHEAD DOOR - MATT BLACK
14. PRE-FINISHED METAL ROOF EDGE FLASHING/TRIM - MATT BLACK

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Project # : 2023-25

PROPOSED FACILITY FOR:

HYUNDAI OF MANKATO DETAIL

1010 RAINTREE ROAD
MANKATO, MINNESOTA 56001

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EXTERIOR ELEVATIONS

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A201

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Site Plan and Traffic Advisory Review Committee **1. 10.**

Meeting Date: 08/11/2026

Title

*****SITE PLAN AND TRAFFIC ADVISORY COMMITTEE REVIEW ONLY. Request of Hyland Dental for a parking lot expansion at 810 Independence Drive.**

Applicant

The applicant is Hyland Dental.

Request

The applicant is requesting a Site Plan and Traffic Advisory Committee review for a parking lot expansion.

Location

The subject property is located at 810 Independence Drive.

Existing Land Use

The property is the location of a dental clinic.

Zoning

The subject property is zoned B-3, Highway Commercial.

Environmentally Sensitive Areas

There are no known environmentally sensitive areas on the site.

Review

Hyland Dental is requesting a Site Plan and Traffic Advisory Committee review for a parking lot expansion at 810 Independence Drive.

Plans provided show a new, approximately 64' X 135' parking lot area to be located to the south of the current parking lot. The parking lot will provide an additional 15 parking stalls, and will be accessed via the current access point on Independence Drive. Plans show the relocation of the current dumpster into the new parking lot area.

Attachments

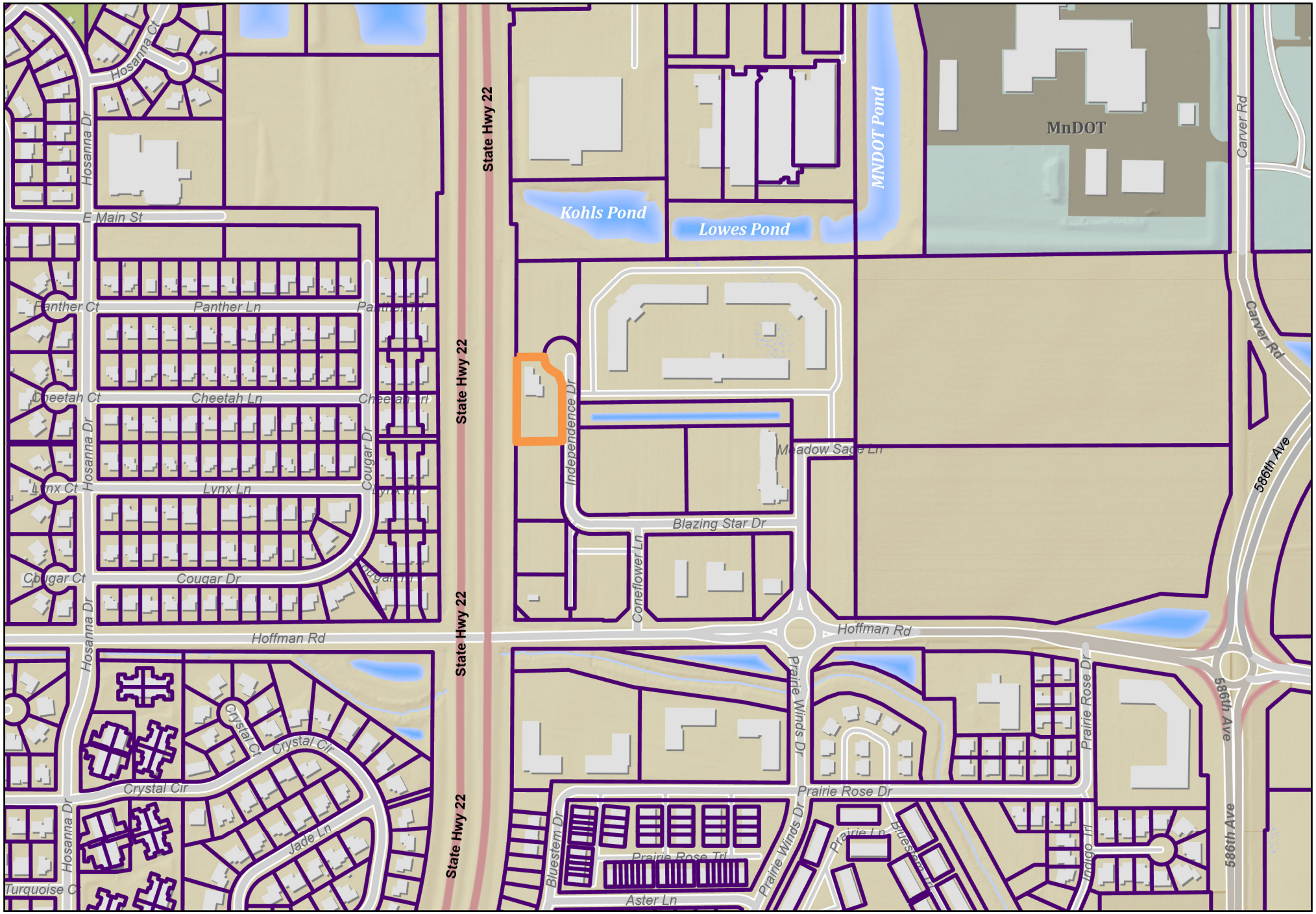
General Location Map

Aerial Plan

Location

Parking Lot Improvements

General Location Map



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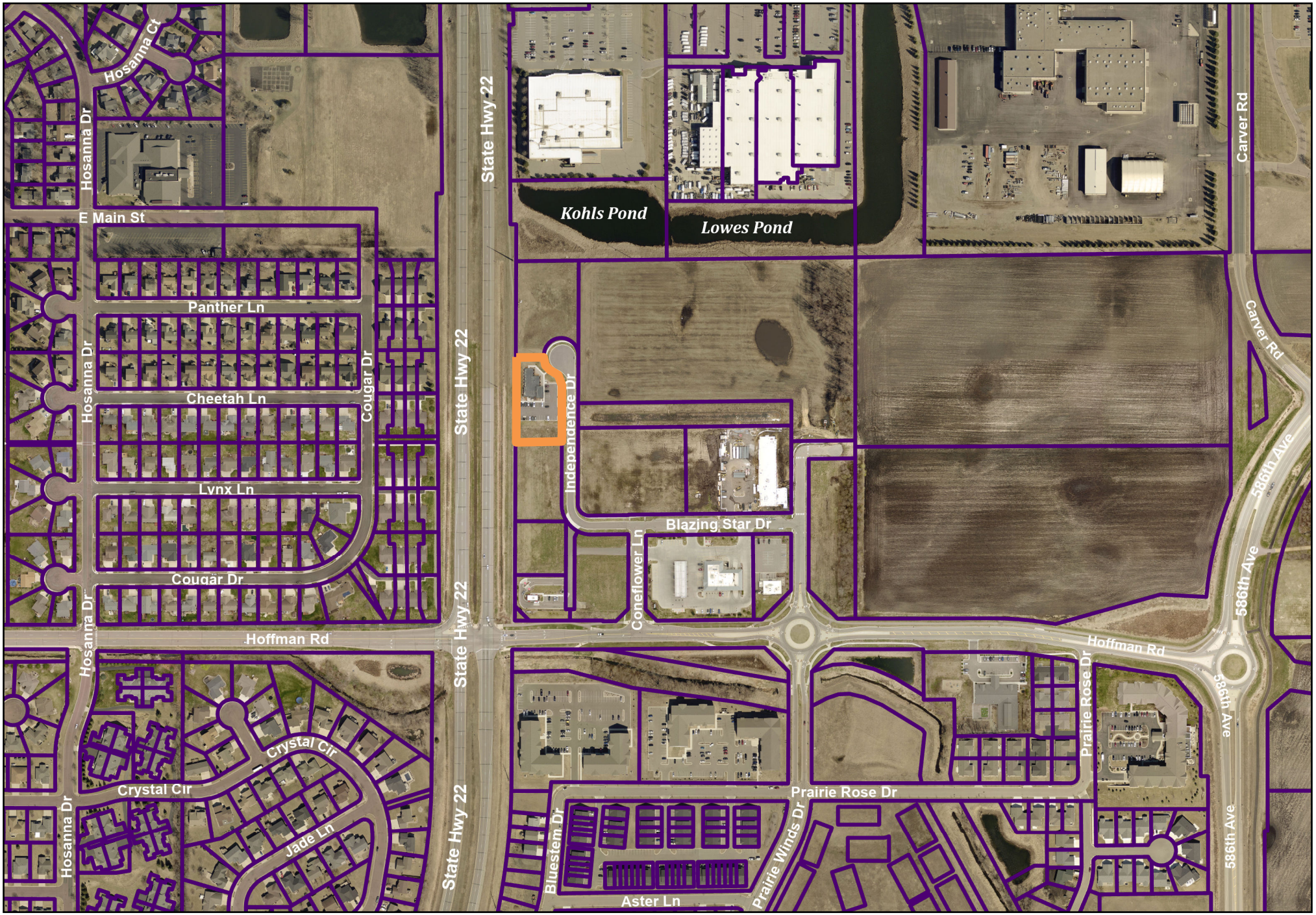
Aerial Map



N
W E
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0 0.1 0.3 0.5 mi

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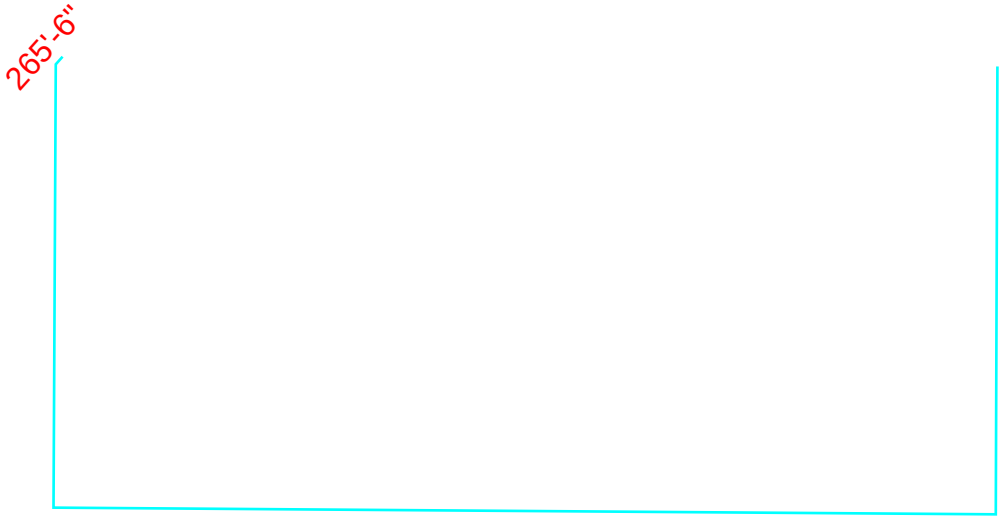
Mankato
Leading the way...


12 STALLS
8,745 sf
64'-0"
64'-0"
135'-0"
15 STALLS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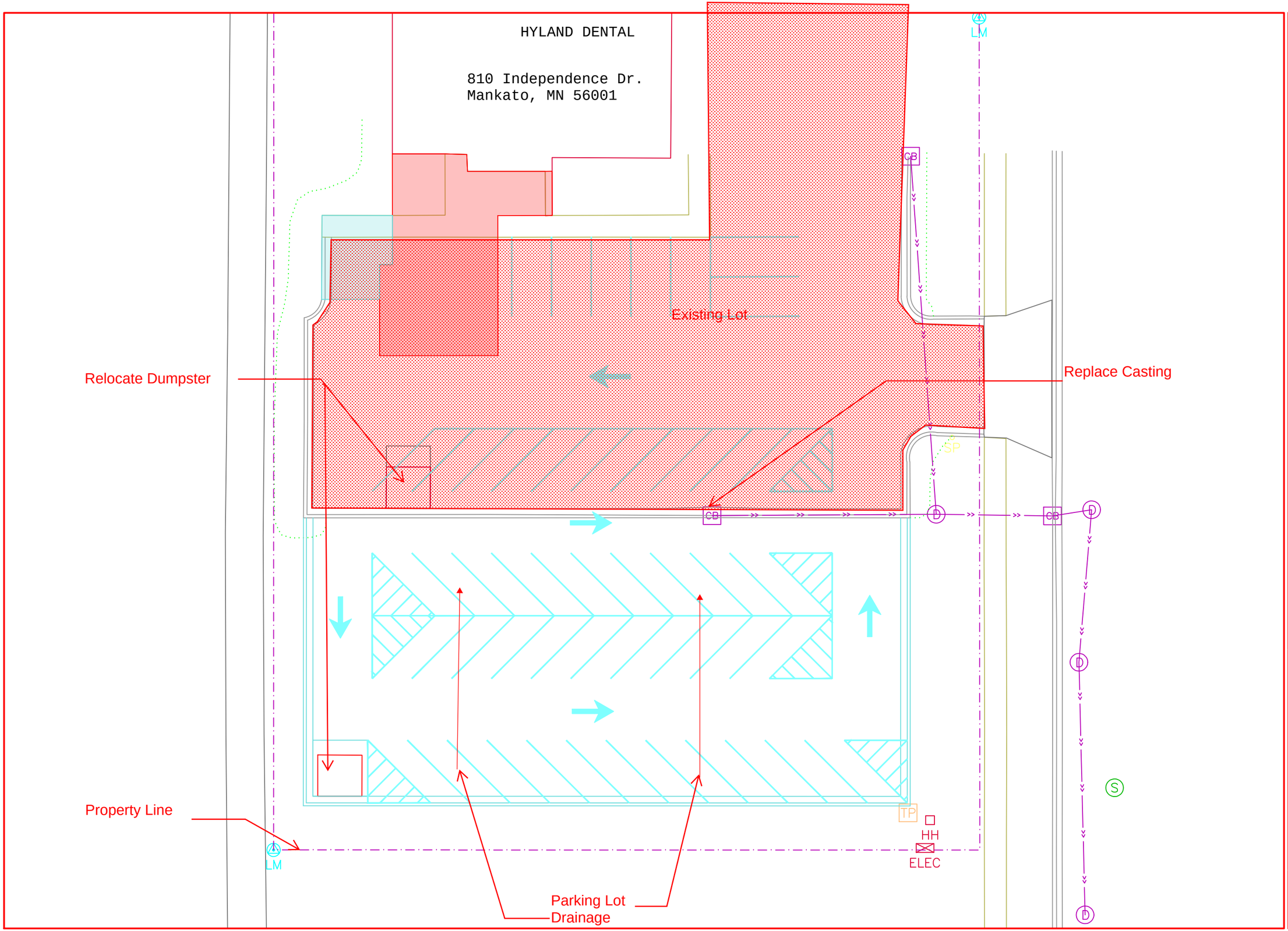


NIELSEN BLACKTOPPING INC.

MARK	DESCRIPTION	DATE	APP.

REVISION
DATE
DESIGNED BY
DRAWN BY
CHECKED BY
ASBUILT BY

VERT 0 ### SCALES ### HORIZ

NIELSEN BLACKTOPPING INC.
305 INDUSTRIAL ST E
KASOTA, MINNESOTA 56050

FROM #### TO ####
FROM STATION ### TO STATION ###

PROJECT NO. #### SAP. #### FED PROJ NO. ####

SHEET REFERENCE NUMBER: ###

SHEET #### OF #### SHEETS

Site Plan and Traffic Advisory Review Committee **2. 1.**

Meeting Date: 08/11/2026

Title

Adams Street and Hope Street Intersection Advanced Pedestrian Crossing Sign

Attachments

Memorandum

Supplemental information

City of Mankato, MN
10 Civic Center Plaza
PO 3368
Mankato, MN 56002-3368.

MEMORANDUM

Date: 8/05/2026

To: Site Plan and Traffic Advisory Committee

From: Joe Smith, PE – Assistant City Engineer
Maury Hooper, PE – Traffic Engineer

Subject: Resolution for Directing Traffic Control Signage
Adams Street and Hope Street Intersection

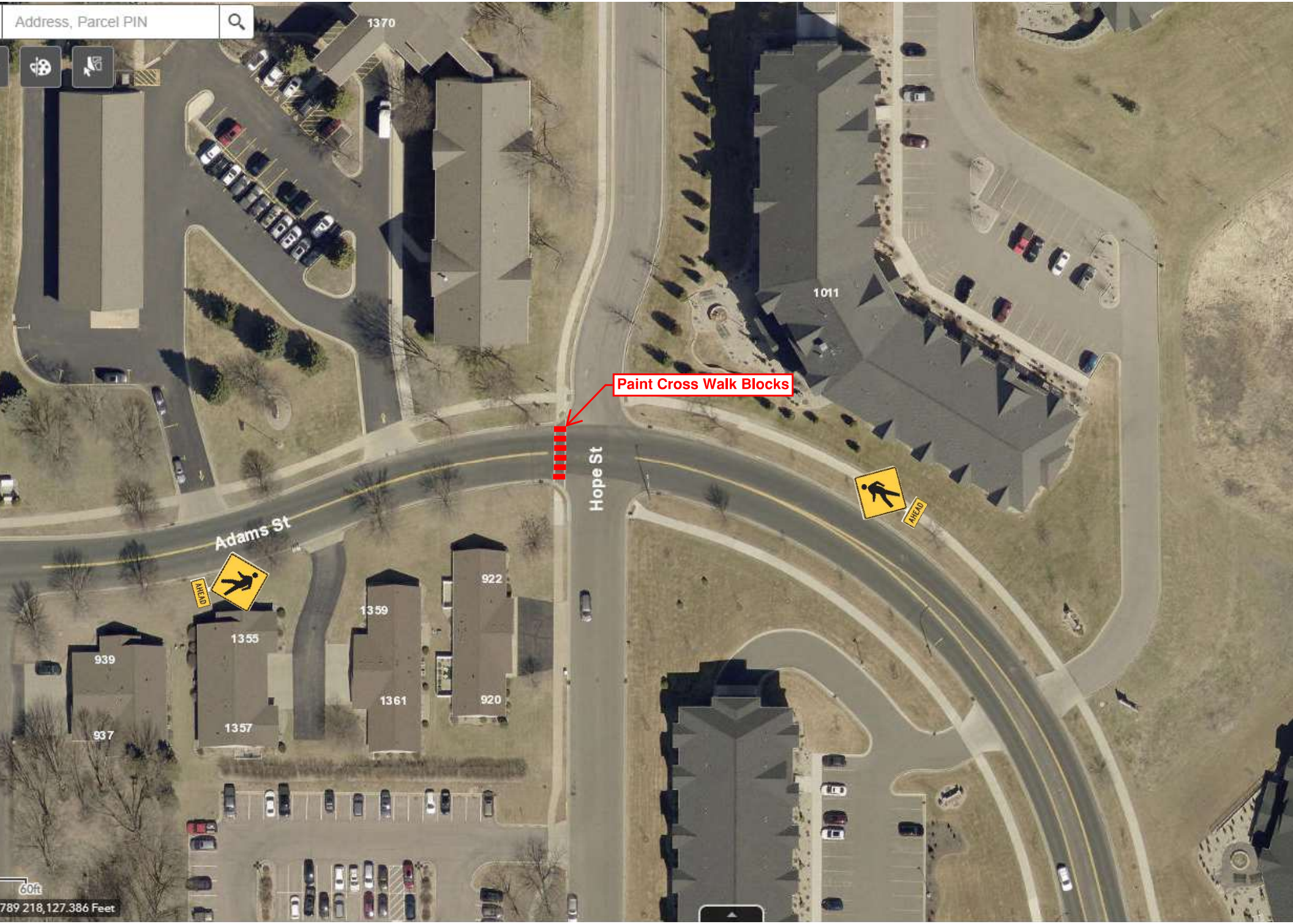
Construction Services staff recommend installing advanced PEDESTRIAN CROSSING (W11-2) signs with supplemental AHEAD (W16-9P) signs on the eastbound and westbound approaches of Adams Street at the intersection of Hope Street. These signs will support the existing signed and marked crosswalk at Hope Street. The signs will be mounted on new supports to ensure proper placement and visibility. The advanced placement shall be 200', which conforms to Table 2C-3 Guidelines for Advanced Placement of Warning Signs for the posted speed of 30 MPH, specified in the Mn MUTCD.



W11-2

W16-9P

The absence of advanced warning signs was noted as part of a separate study that evaluated the intersection for all-way stop control due to citizen safety concerns. The intersection did not meet warrants for an all-way stop condition. Updating the existing parallel crosswalk lines to higher visibility crosswalk blocks was also recommended in that separate study. The recommended pavement marking updates were implemented in the summer of 2026.


Address, Parcel PIN
1370
1011
Paint Cross Walk Blocks
Hope St
Adams St
AHEAD
AHEAD
922
1359
1355
939
1361
920
1357
937
60ft
789 218,127.386 Feet

Real People. Real Solutions.

MEMORANDUM

Date: July 22, 2026

To: Cory Bienfang, PE – City Engineer

From: Maury Hooper, PE – City Traffic Engineer

Subject: Hope Street and Adams Street Intersection
All-Way Stop Evaluation

City staff reviewed the Hope Street and Adams Street intersection to determine whether all-way stop control would be appropriate. The evaluation considered factors commonly used in all-way stop control warrants, including traffic volumes, crash history, sight distance, and intersection operations.

Based on the review, the intersection does not currently meet the established engineering warrants for installation of an all-way stop presented in Mn MUTCD Section 2B.11 (June 2026 Revision). Therefore, installation of an all-way stop at Hope Street and Adams Street is not recommended at this time. Instead, the City should advance lower-impact pedestrian crossing enhancements and reevaluate the intersection in the future should a change in conditions indicate that all-way stop control or additional crossing enhancement may be warranted.

The all-way stop warrant evaluation is presented below.

Warrant A – Crash Experience:

Observed Existing Condition

Hope Street and Adams Street intersection has 4 reported crashes in the last 10 years. Three of these occurred in the last 5 years (1 in 2022 and 2 in 2025).

Source: Minnesota's crash database (MnCMAT2)

Warrant Requirements (4-leg Intersection)

Five or more reported crashes within a 12-month period or six or more reported crashes within a 36-month period, which are of a type susceptible to correction by the installation of all-way stop control.

Conclusion

Warrant A is not met.

Warrant B – Sight Distance:

Observed Existing Condition

For the posted speed of 30 mph, which is close to the 85th-percentile speed of 32 mph obtained from Streetlight Data Analytics, a minimum sight distance of 335 feet measured along the roadway in both directions is required. Based on review of Google Maps and Street View imagery, the intersection currently provides sufficient sight distance.

Warrant Requirements

All-way stop control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a stop sign is not adequate for a vehicle to turn onto or cross the major uncontrolled road.

Conclusion

Warrant B is not met.

Warrant C – Transition to a Signal Control or Circular Intersection:

Observed Existing Condition

This intersection is not programmed for a traffic signal or circular intersection.

Warrant Requirements

All-way stop control may be installed at locations where an all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal or circular intersection.

Conclusion

Warrant C is not met.

Warrant D – 8 Hour Volume:

Observed Existing Condition

Intersection volumes were estimated using current average daily traffic (ADT) and a typical hourly distribution for an urban roadway. Based on this exercise, entering volumes on Adams Street are expected to be less than 300 vehicles/hour for all hours of the day, likewise, the entering volumes on Hope Street are expected to be less than 200 vehicles/hour for all hours of the day.

Speed data pulled from Streetlight Data Analytics indicates an 85th percentile speed of 32 mph on Adams Street approaches.

Warrant Requirements

All-way stop control may be installed at an intersection where an engineering study indicates:

A. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major- street approaches is at least 300 units per hour for each of any 8 hours of a typical day; **and**

B. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor- street approaches is at least 200 units per hour for each of any of the same 8 hours.

If the 85th-percentile approach speed of the major street traffic exceeds 40 mph, the minimum vehicular volume warrant may be reduced to 70 percent of the values given in Items A and B.

Conclusion

Warrant D is not met.

Warrant E – Other Factors:

Observed Existing Conditions

The crash history and lower volumes do not indicate a left-turn conflict issue at the intersection.

Adams Street and Hope Street differ in operating characteristics, with Adams Street functionally classified as a minor collector and serving a more significant role on the network. Hope Street is functionally classified as a local road and is not a through-street.

Pedestrian and bicyclist activity is not anticipated to be significant based on the volume review previously described under Warrant D.

Warrant Requirements

All-way stop control may be installed at an intersection where an engineering study indicates that all-way stop control is needed due to other factors not addressed in the other all-way stop control warrants. Such other factors may include, but are not limited to, the following:

A. The need to control left-turn conflicts,
B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection, or
C. Where pedestrian and/or bicyclist movements support the installation of all-way stop control.

Conclusion

Warrant E is not met.

While the intersection does not meet the criteria for an all-way stop at this time, the concerns raised by the constituent are recognized. During this evaluation, the following potential improvements to enhance pedestrian crossing safety at the intersection were noted:

- Pedestrian crossing ahead signs are lacking, adding these signs to the Adams Street approaches for the in-place signed pedestrian crosswalk would enhance awareness and improve crossing safety.
- The existing crosswalk is marked with parallel bars, changing the crosswalk markings to high-visibility crosswalk blocks would enhance visibility of the crossing and improve awareness.

These potential improvements could be implemented without introducing operational issues that may result from installing an unwarranted all-way stop.

The City should reevaluate the intersection if traffic volumes increase, crash patterns change, pedestrian or bicycle activity grows, or other conditions indicate that all-way stop control or additional crossing enhancements may be warranted.

Bolton & Menk is an equal opportunity employer.

Site Plan and Traffic Advisory Review Committee **2. 2.**

Meeting Date: 08/11/2026

Title

Technology Drive Yield Signs; Technology Drive and Excel Drive Intersection and Power Drive and Technology Drive Intersection; Resolution for Directing Traffic Control Signage

Attachments

Memorandum

Supplemental information

City of Mankato, MN
10 Civic Center Plaza
PO 3368
Mankato, MN 56002-3368.

MEMORANDUM

Date: 8/05/2026

To: Site Plan and Traffic Advisory Committee

From: Joe Smith, PE – Assistant City Engineer
Maury Hooper, PE – Traffic Engineer

Subject: Resolution for Directing Traffic Control Signage
Technology Drive and Excel Drive Intersection
Power Drive and Technology Drive Intersection

Construction Services staff recommend installing YIELD (R1-2) signs on the westbound approach of Technology Drive and Excel Drive intersection and the southbound approach of Power Drive and Technology Drive intersection. Each sign would be mounted on a new support to ensure proper placement and visibility.

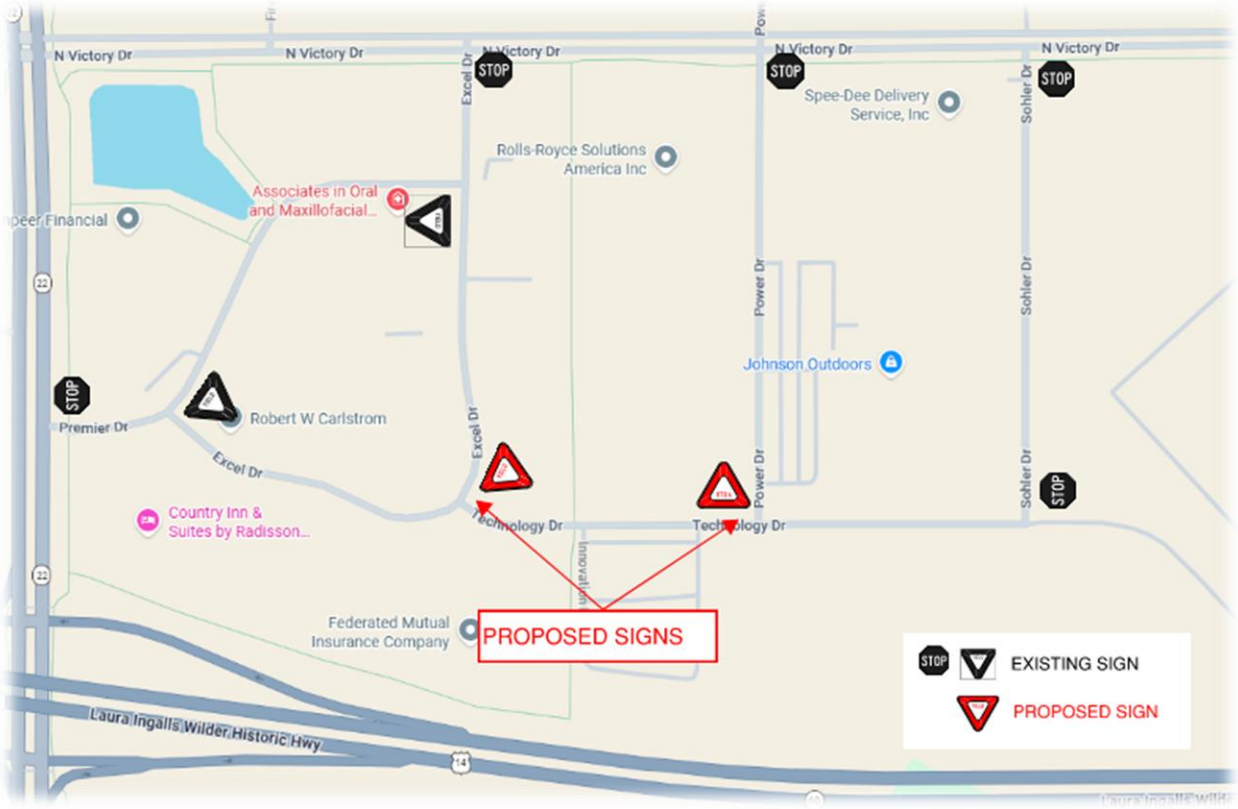


R1-2

Construction Services staff reviewed the existing intersection configuration, surrounding traffic control, observed roadway function, and the operating context created by adjacent industrial land uses. The review focused on whether supplemental traffic control would improve driver expectancy and clarify the intended major/minor street relationship at the Technology Drive/Excel Drive and Power Drive/Technology Drive intersections.

This recommendation is in response to concerns raised by the recently expanded Rolls-Royce Power Systems Logistics Center regarding the lack of traffic control signage at these two intersections. Section 2B.10 of the Minnesota MUTCD does not clearly establish a need for YIELD control at the Technology Drive/Excel Drive and Technology Drive/Power Drive intersections based on the standard criteria alone. However, staff found that the local operating context supports the use of YIELD control. The intersections are located in a light industrial area where surrounding intersections are signed, and truck traffic represents a higher share of total traffic than is typically encountered on local streets. In addition, the geometric configuration and natural traffic patterns create a clear major/minor roadway relationship that may not be readily apparent to unfamiliar drivers. Installing the two YIELD signs would reinforce the expected right-of-way assignment, improve operational consistency, and reduce the potential for driver uncertainty. Existing and proposed sign locations are depicted in Figure 1. Based on this review, staff recommend approval of the proposed YIELD sign installations at both intersections.

FIGURE 1


N Victory Dr
N Victory Dr
N Victory Dr
N Victory Dr
N Victory Dr
STOP
STOP
STOP
Excel Dr
Power Dr
Sohler Dr
Spee-Dee Delivery Service, Inc
Rolls-Royce Solutions America Inc
Associates in Oral and Maxillofacial...
Johnson Outdoors
Premier Dr
Robert W Carlstrom
Excel Dr
Country Inn & Suites by Radisson...
Technology Dr
Technology Dr
Federated Mutual Insurance Company
PROPOSED SIGNS
Laura Ingalls Wilder Historic Hwy
EXISTING SIGN
PROPOSED SIGN

Technology Drive Intersection Control Review

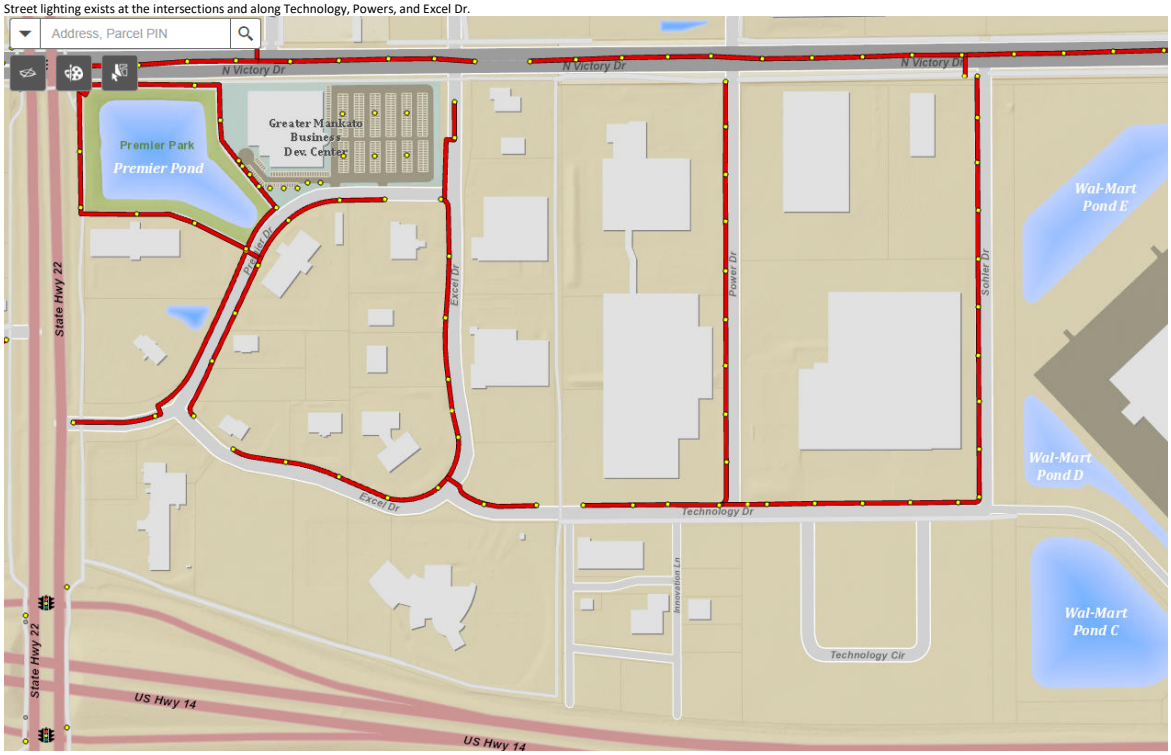
Friday, June 19, 2026 6:51 AM

Recommendations:

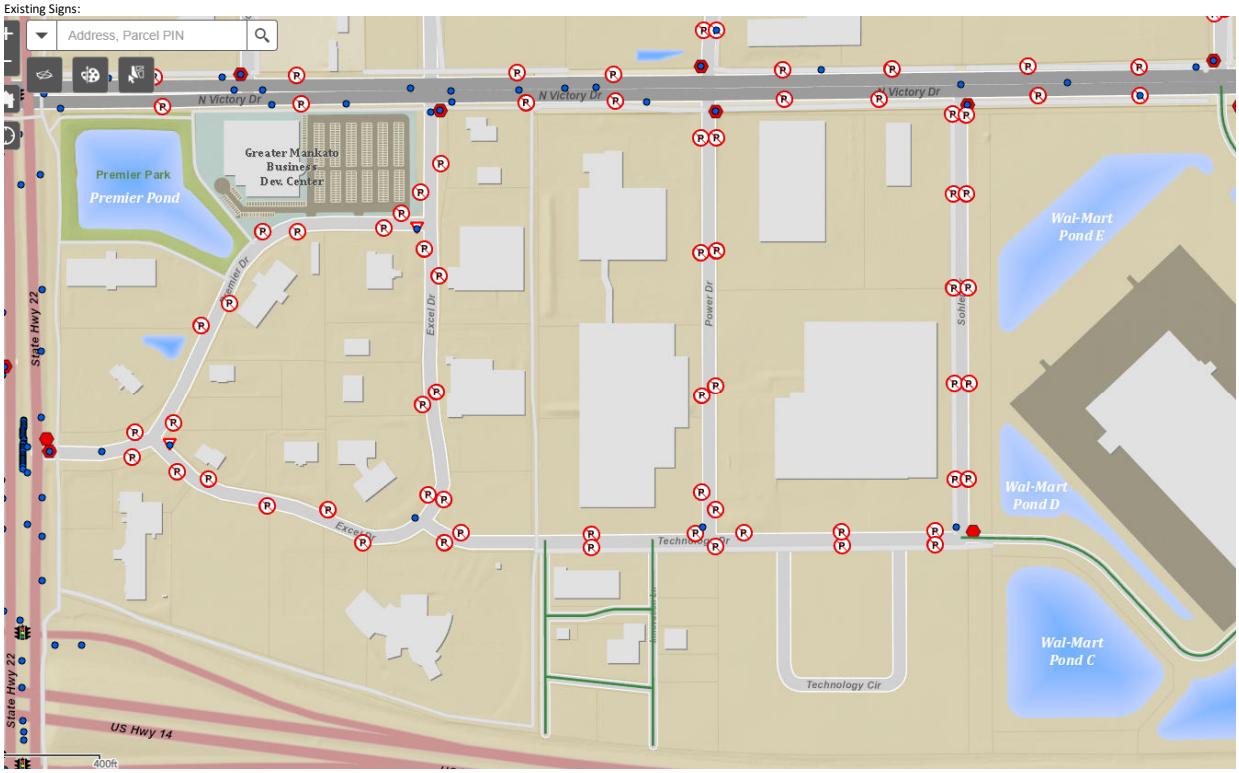
While the criteria outlined in Section 2B.10 of the Minnesota MUTCD do not clearly establish a need for YIELD control at both Excel Drive/Technology Drive and Technology Drive/Power Drive intersections, the unique operating characteristics of the intersection suggest that a YIELD sign may provide benefit. The intersection is located within a commercial/industrial business park where truck traffic comprises a higher percentage of total traffic than is typically encountered on local streets. In addition, the geometric configuration and natural traffic patterns create a clear major/minor roadway relationship that may not be readily apparent to unfamiliar drivers. Installation of a YIELD sign could reinforce the expected right-of-way assignment, improve operational consistency, and reduce the potential for driver uncertainty without imposing the greater delay associated with STOP control. Therefore, consideration of a YIELD sign based on engineering judgment may be appropriate despite the lack of a specific MUTCD warrant.

Existing Conditions:

- Street lighting exists at the intersections and along Technology, Powers, and Excel Dr.



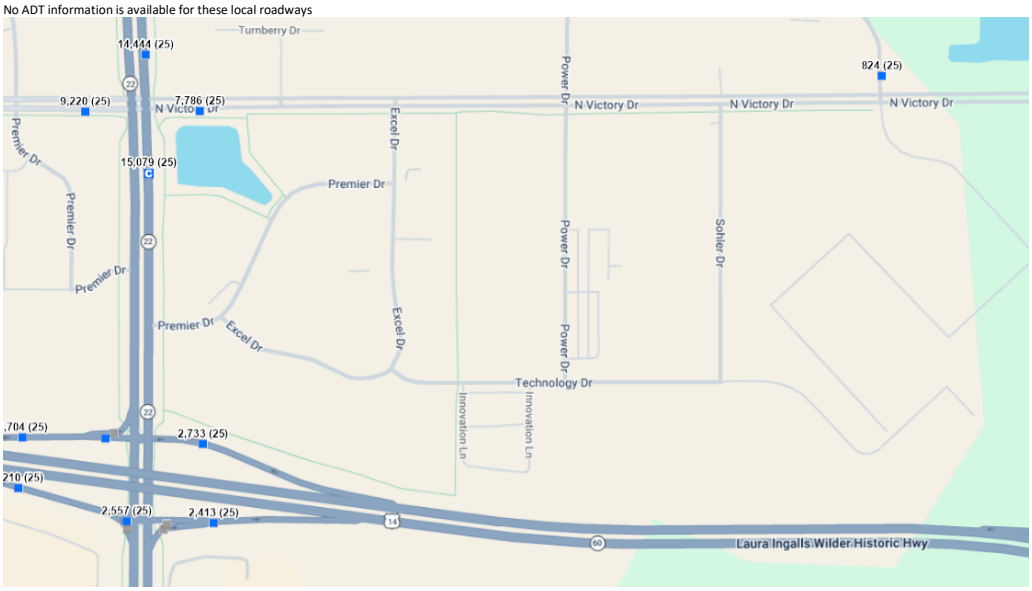
Existing Signs:





ADT Information:

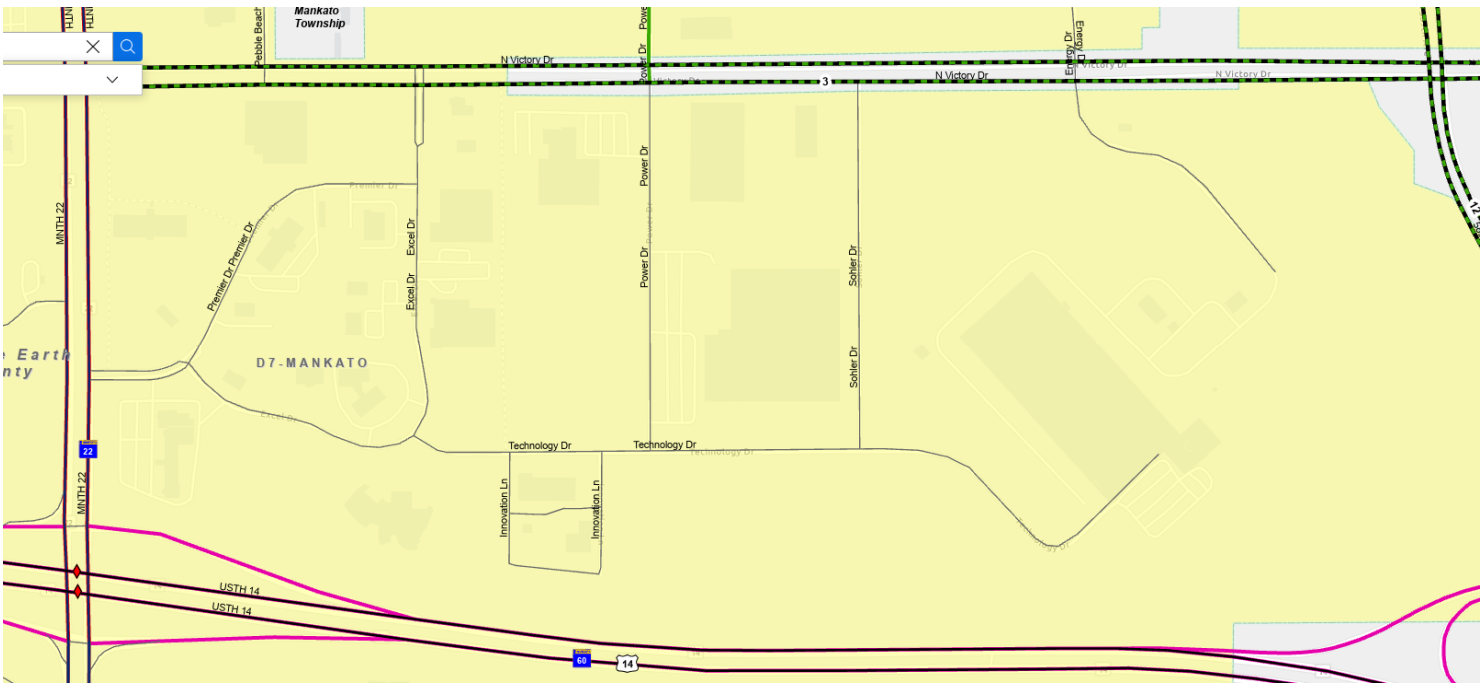
- No ADT information is available for these local roadways



FUNCTIONAL CLASS

- Technology - Local
- Powers - Local
- Excel Dr - Local

No MSAS status.



Crash History:

Nothing significant, 1-DWI, 1-slippery roadway related

Crash Summary
Technology Dr Crashes

Crash Severity/Crash Year												
Crash Severity	Total	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K - Fatal	0	0	0	0	0	0	0	0	0	0	0	0
A - Serious Injury	0	0	0	0	0	0	0	0	0	0	0	0
B - Minor Injury	0	0	0	0	0	0	0	0	0	0	0	0
C - Possible Injury	0	0	0	0	0	0	0	0	0	0	0	0
N - Prop Dmg Only	2	0	0	0	0	1	0	1	0	0	0	0
Total	2	0	0	0	0	1	0	1	0	0	0	0

Crash Summary
Technology Dr Crashes

Crash Severity/Crash Year

Crash Severity	Total	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
K - Fatal	0	0	0	0	0	0	0	0	0	0	0	0
A - Serious Injury	0	0	0	0	0	0	0	0	0	0	0	0
B - Minor Injury	0	0	0	0	0	0	0	0	0	0	0	0
C - Possible Injury	0	0	0	0	0	0	0	0	0	0	0	0
N - Prop Dmg Only	2	0	0	0	0	1	0	1	0	0	0	0
Total	2	0	0	0	0	1	0	1	0	0	0	0

Crash Severity/Number of Vehicles

Crash Severity	Total	0	1	2	3+
K - Fatal	0	0	0	0	0
A - Serious Injury	0	0	0	0	0
B - Minor Injury	0	0	0	0	0
C - Possible Injury	0	0	0	0	0
N - Prop Dmg Only	2	0	0	2	0
Total	2	0	0	2	0

Basic Type Summary	Total	%
Pedestrian	0	0.0
Bike	0	0.0
Single Vehicle Run Off Road	0	0.0
Single Vehicle Other	0	0.0
Sideswipe Same Direction	0	0.0
Sideswipe Opposing	0	0.0
Rear End	0	0.0
Head On	0	0.0
Left Turn	0	0.0
Angle	2	100.0
Other	0	0.0
Total	2	100.0

First Harmful Event Summary	Total	%
Pedestrian	0	0.0
Bicyclist	0	0.0
Motor Vehicle In Transport	2	100.0
Parked Motor Vehicle	0	0.0
Train	0	0.0
Deer/Animal	0	0.0
Other - Non Fixed Object	0	0.0
Collision Fixed Object	0	0.0
Non-Collision Harmful Events	0	0.0
Other/Unknown	0	0.0
Total	2	100.0

Relationship to Intersection Summary	Total	%
Not at Intersection/Interchange	0	0.0
Four-Way Intersection	0	0.0
T or Y Intersection	2	100.0
Five-Way Intersection or More	0	0.0
Roundabout	0	0.0
Intersection Related	0	0.0
Driveway Access Related	0	0.0
At School Crossing	0	0.0
Railway Grade Crossing	0	0.0
Shared Use Path or Trail	0	0.0
Interchange on Ramp	0	0.0
Interchange off Ramp	0	0.0
Interchange Other Areas	0	0.0
Crossover Related	0	0.0
Acceleration/Deceleration Lane	0	0.0
Other/Unknown	0	0.0
Total	2	100.0

Weather 1 Summary	Total	%
Clear	2	100.0
Cloudy	0	0.0
Rain	0	0.0
Snow	0	0.0
Sleet, Hail (Freezing Rain/Drizzle)	0	0.0
Fog/Smog/Smoke	0	0.0
Blowing Sand/Soil/Dirt/Snow	0	0.0
Severe Crosswinds	0	0.0
Other/Unknown	0	0.0
Total	2	100.0

Light Condition Summary	Total	%
Daylight	2	100.0
Sunrise	0	0.0
Sunset	0	0.0
Dark (Str Lights On)	0	0.0
Dark (Str Lights Off)	0	0.0
Dark (No Str Lights)	0	0.0
Dark (Unknown Light)	0	0.0
Other/Unknown	0	0.0
Total	2	100.0

Note:

Review indicated that striping was continued through two intersections:

- Excel striping continues through Technology Dr intersection
- Technology Dr continues through Powers Drive intersection

Pavement markings should be omitted and not striped through intersections (consider removal to better communicate to the driver the presence of the intersection. These are the two locations where intersection control is being considered.

SIDEWALKS AND PEDESTRIAN CROSSINGS:
There are no sidewalks or crosswalks at either intersection.

Section 2B.10 Yield Control

Guidance:

01 *At intersections where a full stop is not necessary at all times, consideration should first be given to using less restrictive measures such as YIELD signs.*

02 *Yield control should be considered when engineering judgment indicates that all of the following conditions exist:*

- *A. Intersection sight distance is adequate on the approaches to be controlled by YIELD signs.*
- *B. All approaches to the intersection are a single lane and there are no separate turn lanes.*
- *C. One of the following crash-related criteria applies:*
  1. *For changing from no intersection control to yield control, there have been two or more reported crashes in the previous 12 months that are susceptible to correction by the installation of a YIELD sign.*
  2. *For changing from minor road stop control to yield control, there have been two or fewer reported crashes in the previous 12 months.*
- *D. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection averages less than 1,800 units per day or 140 units in the peak hour.*
- *E. The angle of intersection is between 90 and 75 degrees.*
- *F. The functional classification of the intersecting streets is either the intersection of two local streets or the intersection of a local street with a collector street.*

Option:

03 YIELD signs may be installed at an intersection when any of the following conditions apply:

- A. At the second intersection of a divided highway crossing or median break functioning as two separate intersections (see Figure 2B-19). In this case, a YIELD sign may be installed at the entrance to the second intersection.
- B. For a channelized turn lane that is separated from the adjacent travel lanes by an island, even if the adjacent lanes at the intersection are controlled by a highway traffic control signal or by a STOP sign.
- C. At an intersection where a special problem exists and where engineering judgment indicates the problem to be susceptible to correction by the use of the YIELD sign.
- D. Facing the entering roadway for a merge-type movement if engineering judgment indicates that control is needed because acceleration geometry and/or sight distance is not adequate for merging traffic operation.

E. On low-volume rural roads if engineering judgment indicates that a YIELD sign would provide adequate control.
F. On an approach to an intersection where the only permissible movement is a right-turn movement with an intersection geometry similar to a channelized right-turn lane or an approach to a roundabout.

Guidance:

04 *The YIELD signs should be installed on opposing minor-street approaches (for a four-leg intersection) or on the minor-street approach (for a three-leg intersection). When two intersecting roadways have relatively equal volumes, speeds, and other characteristics, yield control should be installed on the approach that conflicts the most with established pedestrian crossing activity, school walking routes, or bicycle crossing activity.*

Standard:

05 **A YIELD sign shall be used to require road users to yield the right-of-way to other traffic at the entrance to a roundabout. YIELD signs at roundabouts shall be used to control the approach roadways and shall not be used to control the circulatory roadway.**

06 **YIELD signs shall not be placed on all of the approaches to an intersection, except at roundabouts.**

06.1 **If a YIELD sign is used at an intersection other than a roundabout, at least one other approach to an intersection shall remain uncontrolled.**

Site Plan and Traffic Advisory Review Committee **2. 3.**

Meeting Date: 08/11/2026

Title

Valliant Lane No Outlet

Attachments

Memorandum

City of Mankato, MN
10 Civic Center Plaza
PO 3368
Mankato, MN 56002-3368.

MEMORANDUM

Date: 8/05/2026

To: Site Plan and Traffic Advisory Committee

From: Joe Smith, PE – Assistant City Engineer

Subject: Resolution for Directing Traffic Control Signage
Valliant Lane and Woodland Avenue Intersection

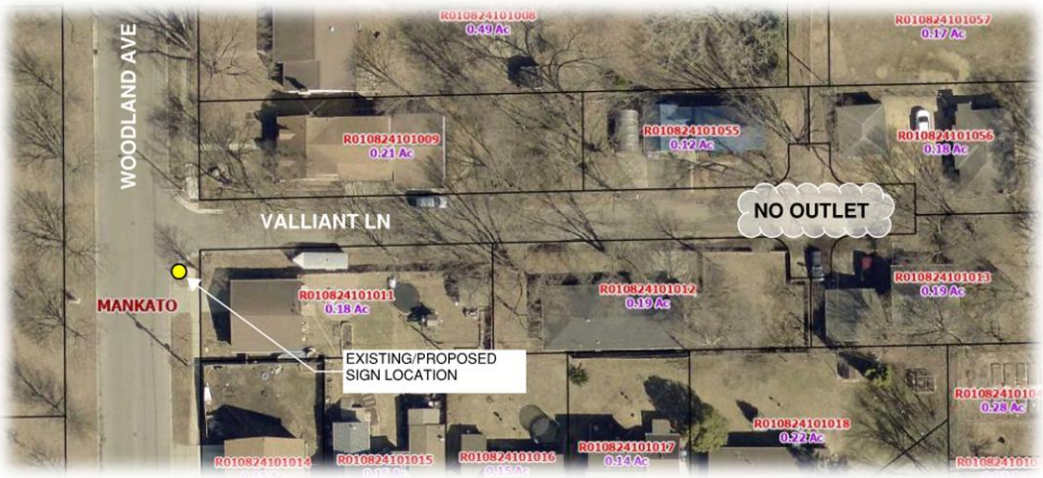
Construction Services staff recommend adding a NO OUTLET (W14-2a) sign to the existing street name sign assembly at the intersection of Valliant Lane and Woodland Avenue. The sign should be mounted below the Valliant Lane plaque on the current assembly if feasible; otherwise, a new support will be installed to ensure proper placement and visibility. Back-to-back signs should be provided so that the sign is visible from both directions along Woodland Avenue (arrow orientation as appropriate).



W14-2a

This recommendation addresses concerns raised by a resident along Valliant Lane of vehicles unintentionally turning down Valliant Lane. The sign location and existing condition are depicted in Figure 1.

Figure 1



Site Plan and Traffic Advisory Review Committee **2. 4.**

Meeting Date: 08/11/2026

Title

W 5th Street and Owatonna Street Intersection; Resolution for Directing Traffic Control Signage

Attachments

Memorandum

Supplemental information

City of Mankato, MN
10 Civic Center Plaza
PO 3368
Mankato, MN 56002-3368.

MEMORANDUM

Date: 8/05/2026

To: Site Plan and Traffic Advisory Committee

From: Joe Smith, PE – Assistant City Engineer
Maury Hooper, PE – Traffic Engineer

Subject: Resolution for Directing Traffic Control Signage
W 5th Street and Owatonna Street Intersection

Construction Services staff recommend installing YIELD (R1-2) signs on the eastbound and westbound approaches of W 5th Street at the intersection of Owatonna Street. The signs will be mounted on new supports to ensure proper placement and visibility.



R1-2

This recommendation is in response to citizen concerns regarding safety and the lack of intersection control, particularly given the intersection's proximity to Roosevelt Elementary School. Construction Services staff evaluated the intersection against the Mn MUTCD guidance for YIELD control and found that it satisfies five of the six listed criteria, with the only unmet condition being the occurrence of two reported crashes within a 12-month period. While crash history is an important consideration, traffic engineering practice also recognizes the need to proactively address locations where roadway and operational characteristics indicate an elevated potential for conflict before crashes occur.

Although the intersection does not currently satisfy every Mn MUTCD criterion for YIELD sign installation, the criteria are intended to support, not replace, sound engineering judgment. Staff determined that the combination of school-related pedestrian activity, the intersection sightlines, resident concerns, and support from school officials collectively warrant enhanced traffic control at this location. Waiting for the crash criterion to be met would require a documented history of collisions before acting. Staff believe the proposed YIELD signs represent a reasonable and proactive measure to improve safety and clarify vehicle right-of-way expectations.

ArcGIS Web Map



N W E S

0 0.02 0.05 0.1 mi

This information is to be used for reference purposes only. The City of Mankato does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation.

Produced by: City of Mankato GIS
Published: August 4, 2026

26-18786-001 W 5th St & Owatonna Intersection Control

Tuesday, March 10, 2026 1:09 PM

Recommendation:

Install YIELD signs for W 5th Street approaches to Owatonna. The Mn MUTCD indicates that YIELD signs should be considered if all of the conditions of Section 2B.10 exist. In this case, 5 of the 6 conditions exist, with only the 2 crashes in 12 months condition not being satisfied. Given this intersection is adjacent to the elementary school, waiting for crashes to happen is not good engineering judgement.

Additionally, the school has indicated support for the addition of YIELD signs at the intersection.

Section 2B.10 Yield Control

Guidance:

01 *At intersections where a full stop is not necessary at all times, consideration should first be given to using less restrictive measures such as YIELD signs.*

02 *Yield control should be considered when engineering judgment indicates that all of the following conditions exist:*

A. Intersection sight distance is adequate on the approaches to be controlled by YIELD signs.
B. All approaches to the intersection are a single lane and there are no separate turn lanes.
C. One of the following crash-related criteria applies:
1. For changing from no intersection control to yield control, there have been two or more reported crashes in the previous 12 months that are susceptible to correction by the installation of a YIELD sign.
2. For changing from minor road stop control to yield control, there have been two or fewer reported crashes in the previous 12 months.
D. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection averages less than 1,800 units per day or 140 units in the peak hour.
E. The angle of intersection is between 90 and 75 degrees.
F. The functional classification of the intersecting streets is either the intersection of two local streets or the intersection of a local street with a collector street.

Safety:

CRASH REVIEW: (SOURCE MCMAT2)

1 crash in last 10 years (side swipe)
0 right angle
0 non-motorized

Crash_Summary_202...

The intersection has a light.

The intersection has marked crosswalks on all approaches. The adjacency of the school is the likely reason the intersection has existing markings on all four approaches (versus min ped volume).

Subject	**Customer Service Request 26-18786-001**
Link to Outlook Item	Click here
From	Smith, Joe
To	Maury Hooper
Sent	**3/10/2026, 8:19:53 AM**

Attachments

26-18786-001

*** WARNING: This email is from outside the company. Proceed with Caution***

Good morning Maury,

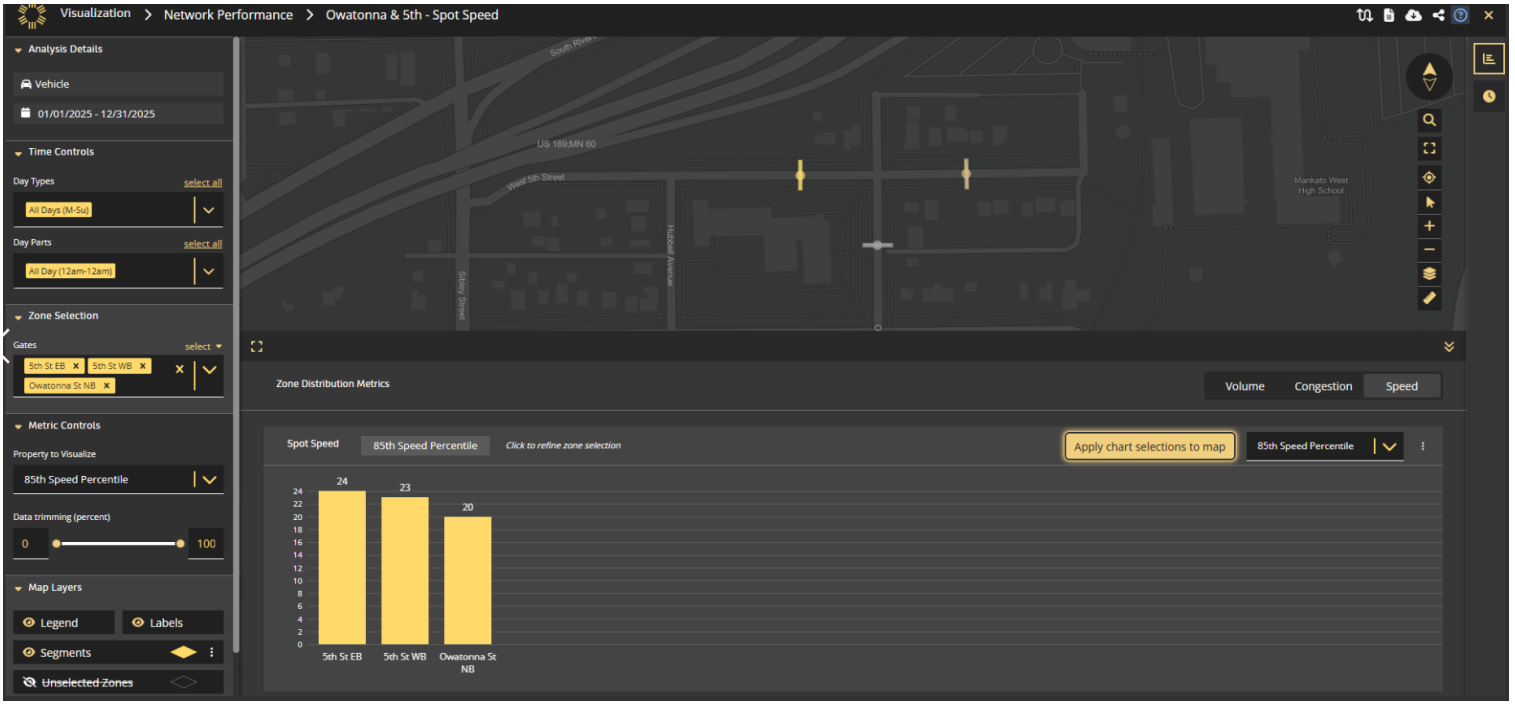
Please review and respond to the attached customer service request. The *summary* is below:

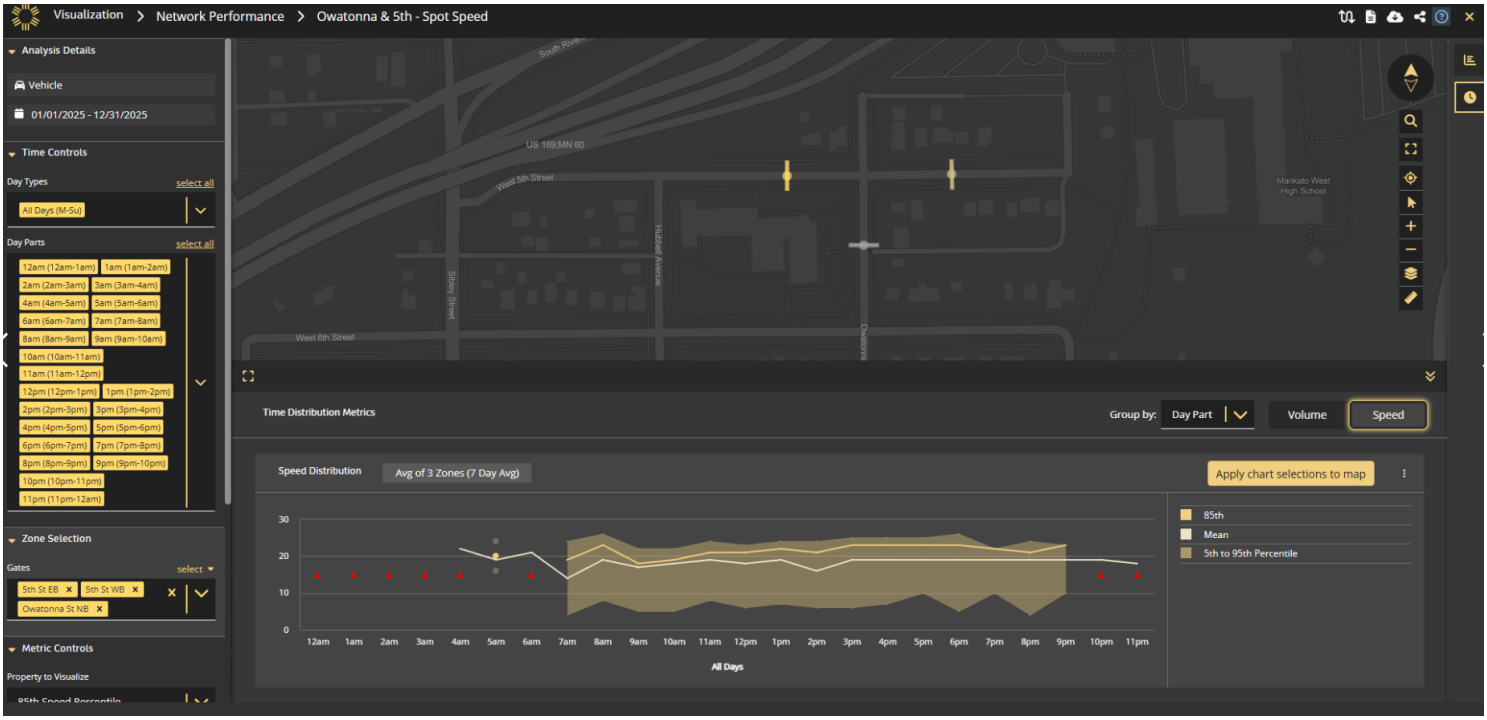
There is no stop or yield signs on the corner of Owatonna and W 5th street. If you are not familiar with the area there is no indication of who has the right of way. There's also no 20 mph school zone signs posted anywhere on either road. Traffic to the YMCA and West comes through fast, surprised there has not been an accident yet.

Thank you,

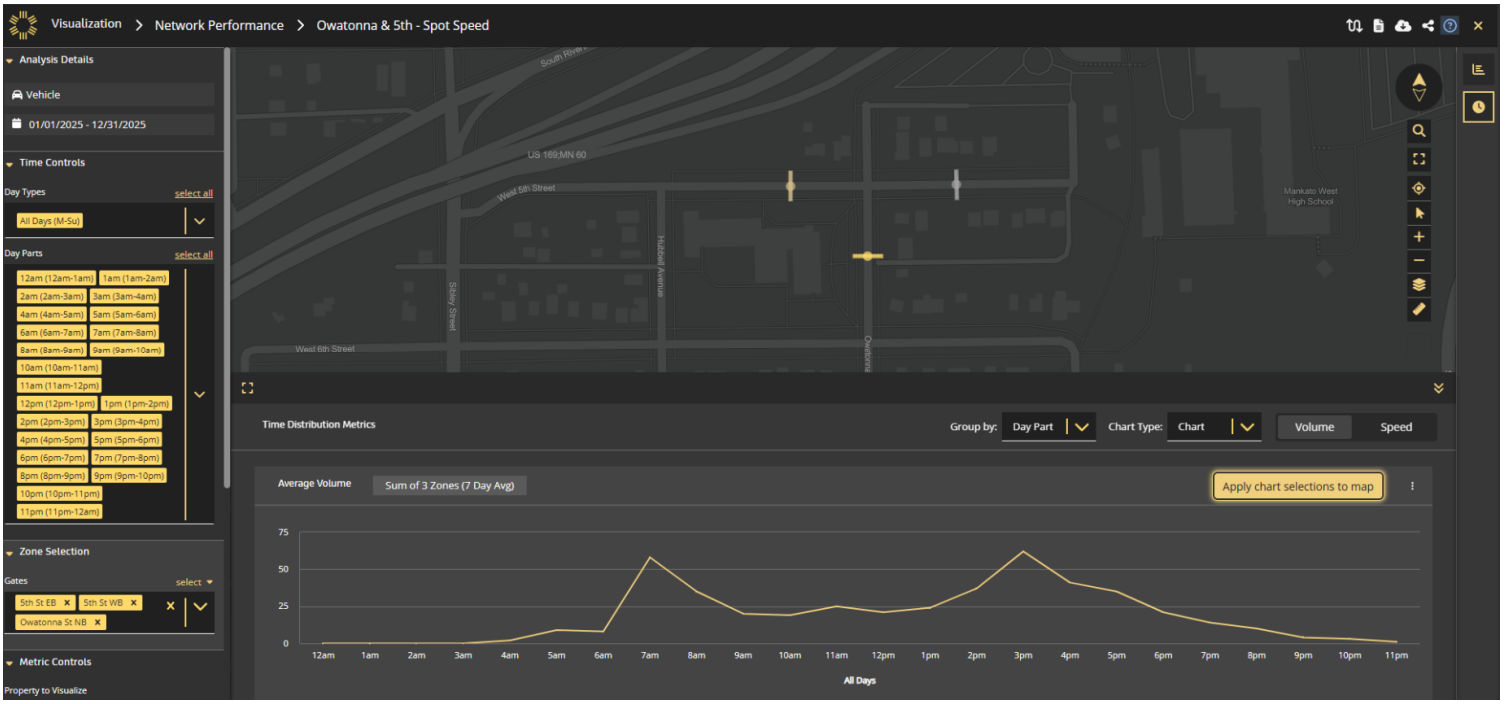
Joe Smith, P.E.
Assistant City Engineer

City of Mankato
Intergovernmental Center | 10 Civic Center Plaza | Mankato, MN 56001
Office: (507) 387-8643

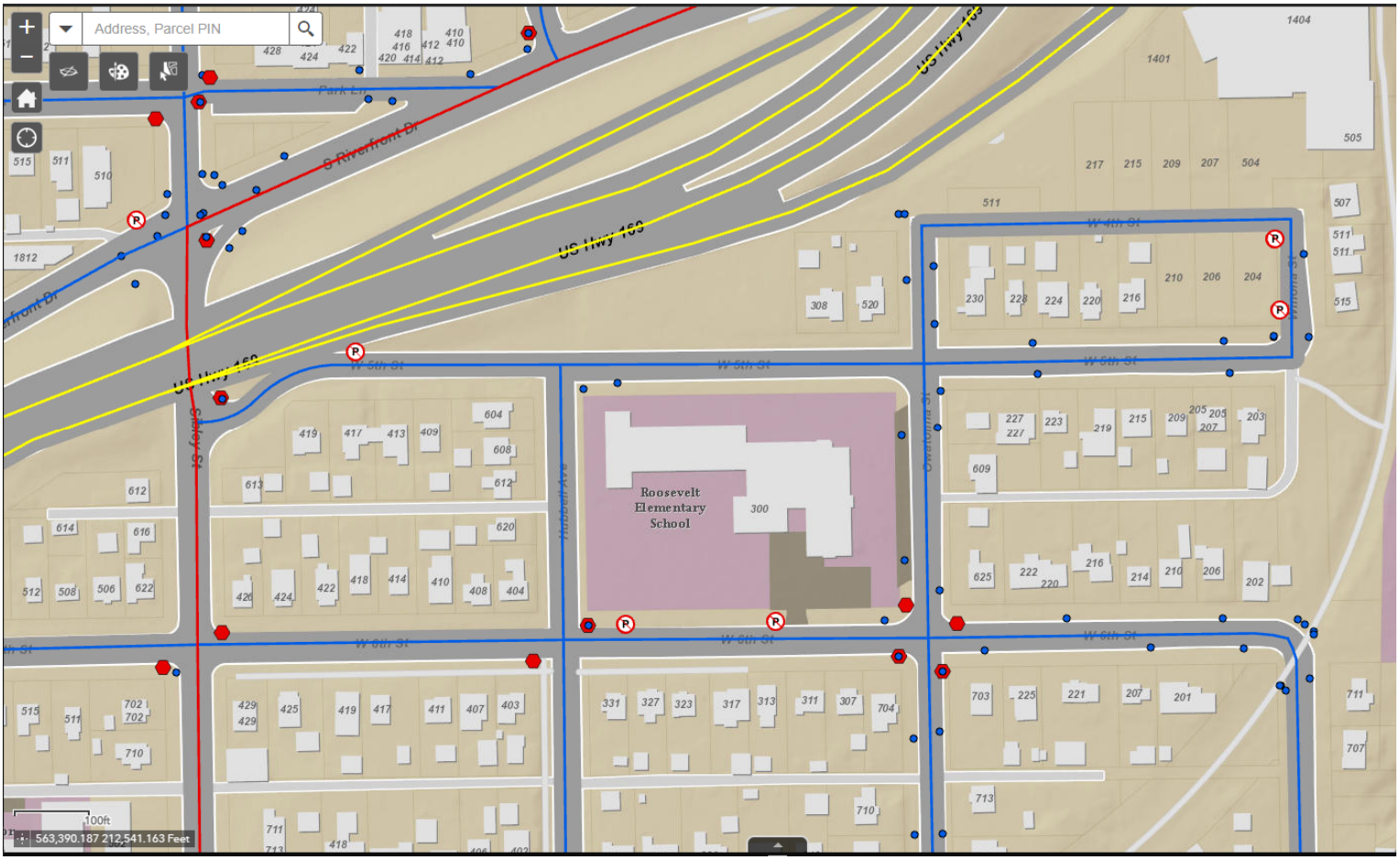

Visualization > Network Performance > Owatonna & 5th - Spot Speed
Analysis Details
Vehicle
01/01/2025 - 12/31/2025
Time Controls
Day Types
select all
All Days (M-Su)
Day Parts
select all
All Day (12am-12am)
Zone Selection
Gates
select
5th St EB
5th St WB
Owatonna St NB
Metric Controls
Property to Visualize
85th Speed Percentile
Data trimming (percent)
0
100
Map Layers
Legend
Labels
Segments
Unselected Zones
US 169;MN 60
West 5th Street
Hoffman Avenue
Mankato West High School
Zone Distribution Metrics
Volume
Congestion
Speed
Spot Speed
85th Speed Percentile
Click to refine zone selection
Apply chart selections to map
85th Speed Percentile
24
23
20
5th St EB
5th St WB
Owatonna St NB


Visualization > Network Performance > Owatonna & 5th - Spot Speed
Analysis Details
Vehicle
01/01/2025 - 12/31/2025
Time Controls
Day Types
select all
All Days (M-Su)
Day Parts
select all
12am (12am-1am)
1am (1am-2am)
2am (2am-3am)
3am (3am-4am)
4am (4am-5am)
5am (5am-6am)
6am (6am-7am)
7am (7am-8am)
8am (8am-9am)
9am (9am-10am)
10am (10am-11am)
11am (11am-12pm)
12pm (12pm-1pm)
1pm (1pm-2pm)
2pm (2pm-3pm)
3pm (3pm-4pm)
4pm (4pm-5pm)
5pm (5pm-6pm)
6pm (6pm-7pm)
7pm (7pm-8pm)
8pm (8pm-9pm)
9pm (9pm-10pm)
10pm (10pm-11pm)
11pm (11pm-12am)
Zone Selection
Gates
select
5th St EB
5th St WB
Owatonna St NB
Metric Controls
Property to Visualize
US 169;MN 60
West 5th Street
Hoffman Avenue
Mankato West High School
West 6th Street
Time Distribution Metrics
Group by:
Day Part
Volume
Speed
Speed Distribution
Avg of 3 Zones (7 Day Avg)
Apply chart selections to map
85th
Mean
5th to 95th Percentile
30
20
10
0
12am 1am 2am 3am 4am 5am 6am 7am 8am 9am 10am 11am 12pm 1pm 2pm 3pm 4pm 5pm 6pm 7pm 8pm 9pm 10pm 11pm
All Days





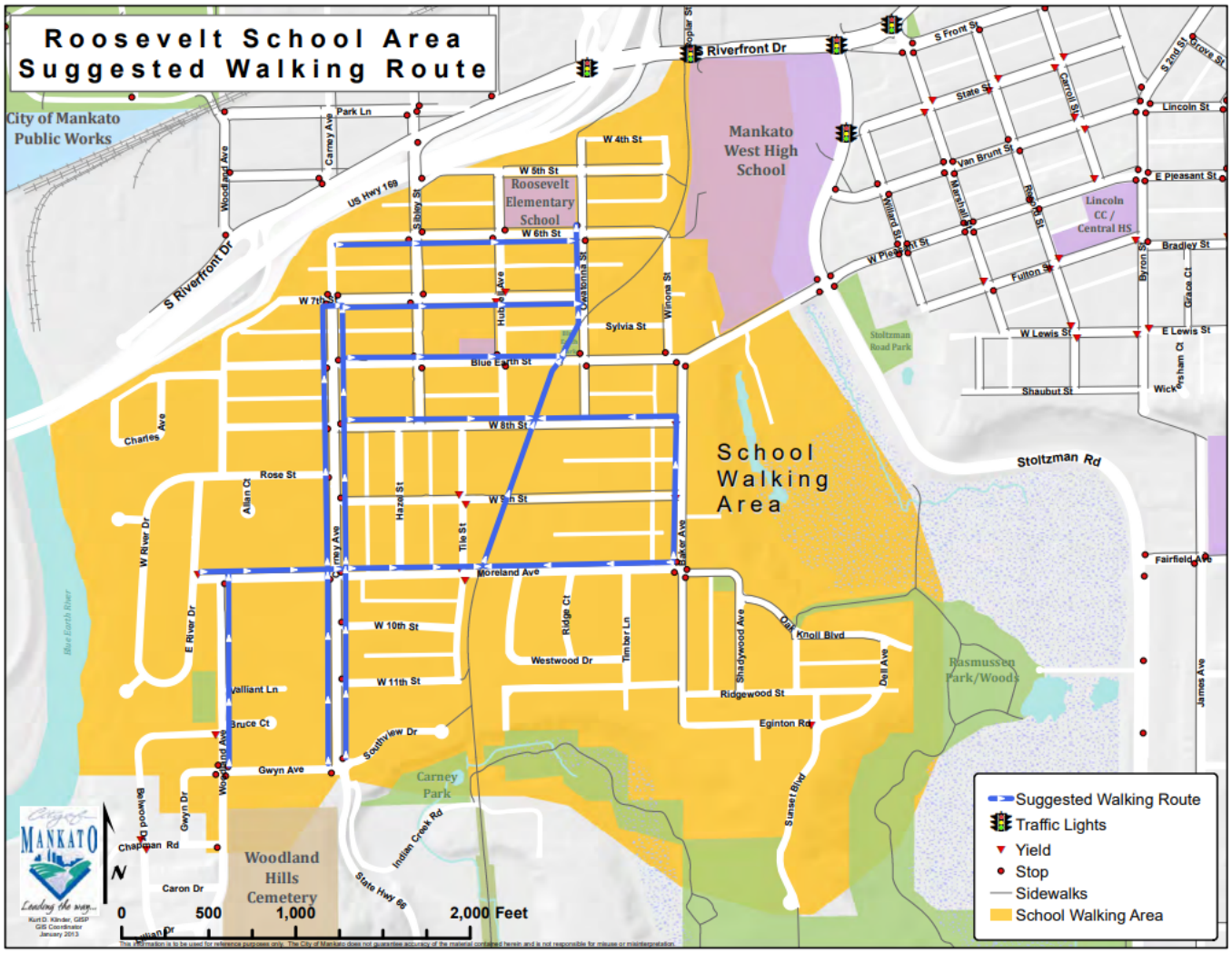
City GIS - Existing Signs
Functional Class of both 5th and Owatonna is LOCAL



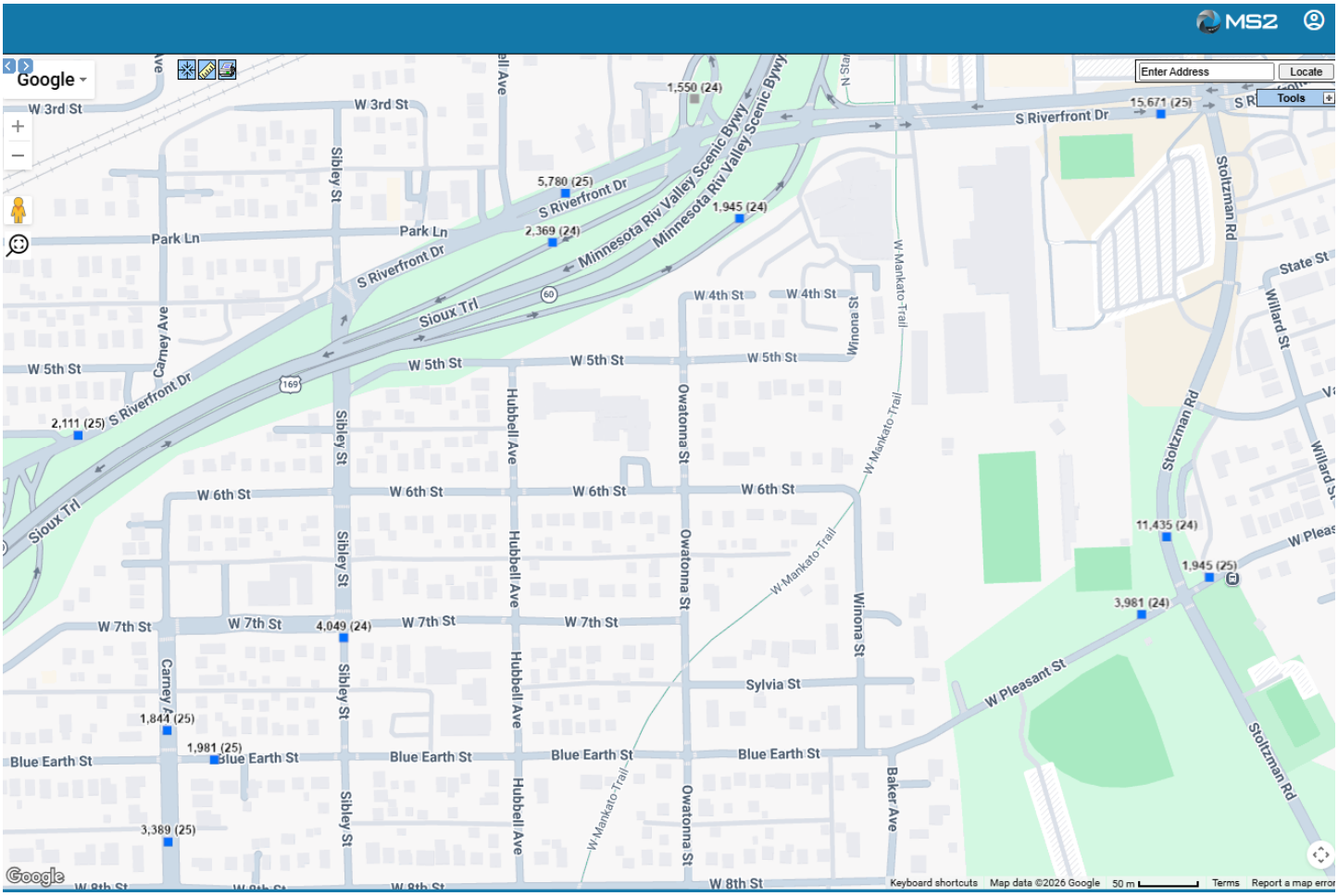
Roosevelt Elementary School SRTS Map (i.e. safe routes to school)

Feedback from Roosevelt School regarding interest in intersection control change:

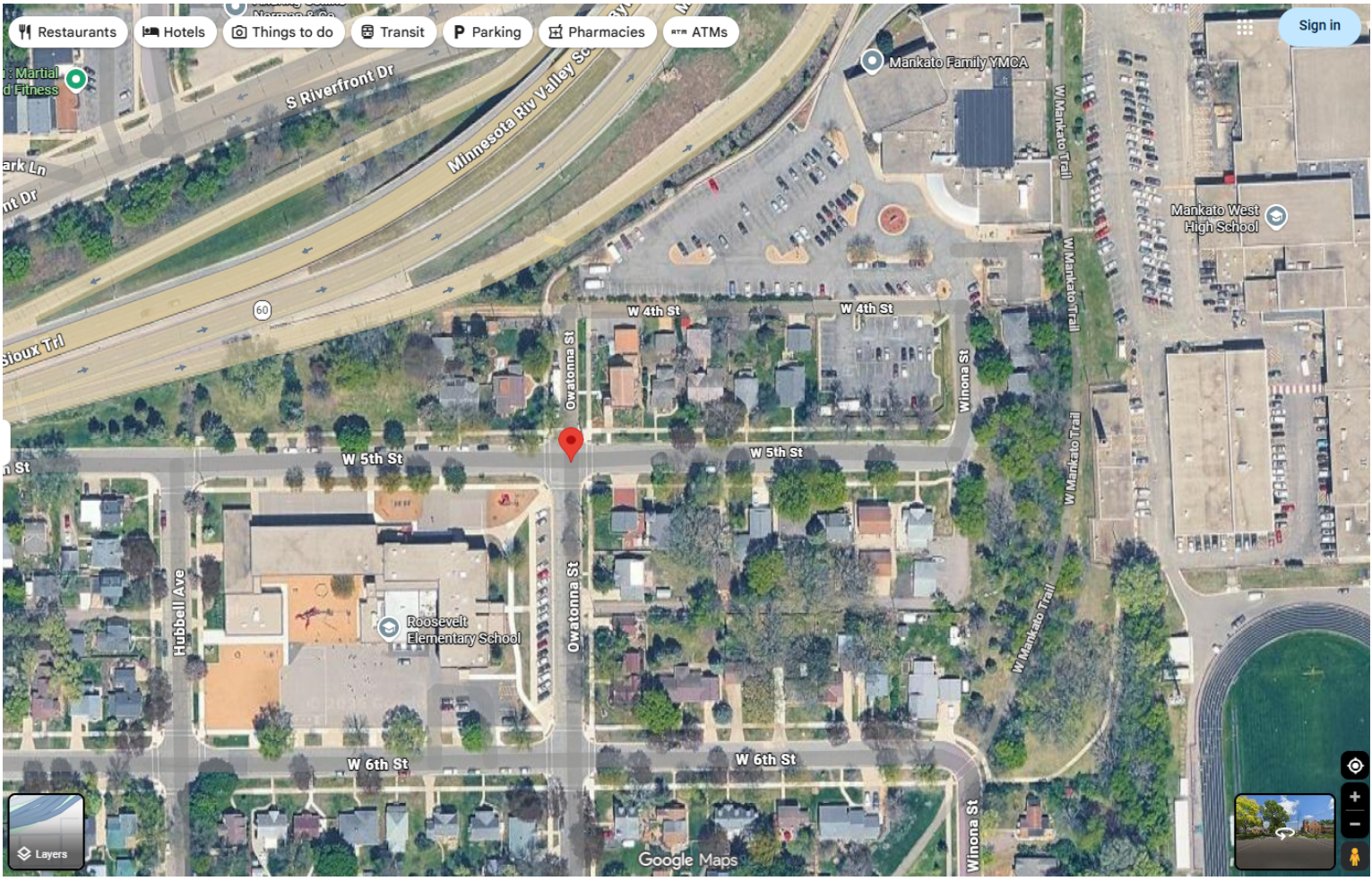
“I think stop or yield signs at the intersection would be very helpful to slow traffic down on fifth street. We would support the addition.”



NO ADT information available for w 5th or Owatonna in this area.



Mankato Family YMCA site has a connection via Winona Street that feeds traffic along W 5th St.



Section 2B.07 Determining the Minor Road for Unsignalized Intersections

Guidance:

01 *The selection of the minor road to be controlled by YIELD or STOP signs should be based on one or more of the following criteria:*

- *A. A roadway intersecting a designated through or numbered highway,*
- *B. A roadway with the lower functional classification,*
- *C. A roadway with the lower traffic volume,*
- *D. A roadway with the lower speed limit, and/or*
- *E. A roadway that intersects with a roadway that has a higher priority for one or more modes of travel.*

02 *When two roadways that have relatively equal volumes, speeds, and/or other characteristics intersect, the following factors should be considered in selecting the minor road for installation of YIELD or STOP signs:*

- *A. Controlling the direction that conflicts the most with established pedestrian crossing activity or school walking routes;*
- *B. Controlling the direction that has obscured vision, dips, or bumps that already require drivers to use lower operating speeds; and*
- *C. Controlling the direction that has the best sight distance from a controlled position to observe conflicting traffic.*

Site Plan and Traffic Advisory Review Committee **2. 5.**

Meeting Date: 08/11/2026

Title

No Parking Loading Zone signs in the public right of way at 215 E. Hickory Street

Attachments

Memorandum

City of Mankato, MN
10 Civic Center Plaza
PO 3368
Mankato, MN 56002-3368.

MEMORANDUM

Date: 8/05/2026

To: Site Plan and Traffic Advisory Committee

From: Joe Smith, PE – Assistant City Engineer
Luke Pederson – Construction Manager

Subject: Resolution for Directing Traffic Control Signage
Hotel Alexander – 215 E Hickory Street

Construction Services staff recommend installing two NO PARKING LOADING ZONE signs in the public right of way adjacent to curbline of Hotel Alexander at 215 E Hickory Street. The purpose of the signs is to allow hotel guests to check in and drop off their luggage at the front entrance of the hotel. The signs will be mounted on new supports to ensure proper placement and visibility.



This recommendation is in response to a request from the hotel owner to provide efficient check in and drop off for their customers. Staff previously denied a request from the hotel for specialty signage branded with the hotel logo to be placed in the public right of way.

ArcGIS Web Map



N W E S

0 0.02 0.05 0.1 mi

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