Village of Germantown ...Willkommen

Fee must accompany application

- ☐ $700 Minor Addition
- ☐ $1,240 Construction <10,000 SF
- ☐ $2,095 Construction 10,000 SF to 50,000
- ☐ $3,460 Industrial Construction >50,000 SF
- ☐ $3,460 Commercial Construction >50,000
- ☐ $200 Plan Commission Consultation
- ☐ $125 Fire Department Plan Review

PAID _____ DATE _____

SITE PLAN REVIEW APPLICATION

Pursuant to Section 17.43 of the Municipal Code

Please read and complete this application carefully. **All applications must be signed and dated.**

1 APPLICANT OR AGENT

Sundance, Inc.
Tim Krause
7915 Kensington Court
Brighton, MI 48116

Phone (248) 563-8016
E-Mail Tim.Krause@teamlyders.com

PROPERTY OWNER

Future property owner - same as applicant

Phone ( )
E-Mail

2 PROPERTY ADDRESS

N96W19058 County Line Rd

3 NEIGHBORING USES – Specify name and type of use, e.g. Enviro Tech – Industrial, Smith – Residential, etc.

North	South	East	West
Menomonee River/Vacant NW - Fleet Farm - Commerical	Tri-City National Bank, Kohls - Commercial	Menomonee River/Vacant	Fleet Farm - Commercial

4 READ AND INITIAL THE FOLLOWING:

__X__ I am aware of the Village of Germantown ordinance requiring fire sprinklers in most new construction.

__X__ I understand that all new development is subject to Impact and/or Connection Fees that must be paid before building permits will be issued.

__X__ I understand that an incomplete application will be withdrawn from the Plan Commission agenda and that all resubmissions to the Plan Commission are subject to a new application fee.

5 SIGNATURES – ALL APPLICATION MUST BE SIGNED BY OWNER!

10/2/2020
Applicant Date

Clint Lyden-Peters 10/2/2020
Owner - Future Date

SITE PLAN REVIEW CHECKLIST

Pursuant to Section 17.43 of the Municipal Code

This checklist provides a summary of requirements found in the Municipal Code. It is intended purely as a guide for developers and should not substitute for a full review of the Code and applicable regulations. (Revised 1/02)

GENERAL INFORMATION

- [X] Provide Completed Checklist with submittal
- [X] Names and addresses of owner/developer/designer
- [X] Graphic scale, north arrow
- [X] Location sketch
- [X] Size of site (gross and net acreage)
- [X] Existing zoning
- [X] Adjacent zoning and uses
- [NA] Number of residents (subdivisions)
- [X] Number of employees

EXISTING SITE INFORMATION

- [X] Dimensions of site and lot lines (pipes found, pipes set, monuments)
- [X] Existing grades (2' contours minimum)
- [X] Adjacent property grades (within 10' minimum of property lines)
- [X] Adjacent structures (within 20' minimum of property lines)
- [X] Drainage systems and structures
- [X] Natural features (woods, streams, lakes, ponds, outcroppings)
- [X] Wetland boundaries (provide date of staking)
- [X] Floodplain elevation and boundaries
- [NA] Environmental concerns (underground tanks, etc)
- [X] Roads, curbs, parking lots, pavement areas
- [X] Structures (location, size)
- [X] Rights-of-Way (existing/ultimate)
- [X] Easements (drainage, utility)
- [X] Existing utilities (sanitary, water, electric, gas, telephone)
- [X] Benchmark locations and elevations
- [X] Location of fences, wells, borings, etc.

ARCHITECTURAL PLANS

- [X] Existing building location
- [X] Existing building elevations/materials
- [X] Proposed use (use list from Section 17.45)
- [X] Statement of design intent (narrative)
- [X] Proposed floor plans (dimension)
- [X] Square footage (total and individual rooms/stores)
- [X] Proposed elevations (dimension)
- [X] Proposed building height
- [X] Proposed materials and colors (material sample board required for new construction)
- [X] Proposed signage (elevations, color, square footage, height, construction material, lighting)
- [X] Details of any special features

PROPOSED SITE PLAN

- [X] Grading and spot elevations
- [X] Erosion control measures (silt fencing, hay bales, rip-rap, tracking mat, stockpile locations)
- [X] Stormwater management
  - stormwater management design report
  - general drainage pattern
  - swales w/ arrows for direction of flow
  - pond design with outfalls
  - culverts (location/size)
- [X] Utilities (size, invert elevations, length, slope, etc.)
  - sanitary
  - water
  - stormsewer
- [X] Building location (dimension)
- [X] Building elevation (finished grade)
- [X] Location of proposed signage
- [X] Details of outside storage (including trash receptacles)
- [X] Setbacks (clearly marked and dimensioned)
- [X] Vehicular entrances (dimension to centerline of nearest intersection)
- [NA] Streets (dimension and direction for one-ways)
- [X] Curve radii
- [X] Sidewalks (dimension)
- [X] Parking areas (show striping/spot elevations)
- [X] Parking setback from property line
- [NA] Loading areas (dimension)
- [X] Lot coverage
  - Square footage total
  - Impervious surfaces total (%)
  - Green space total (%)
  - Percent permitted (over/under %)
- [X] Municipal utility connections
  - Sanitary sewer (pipe size/elevations)
  - Water (size, valve location, elevations)
  - Location of hydrants
- [NA] Easement for public water mains

LIGHTING PLAN

- [X] Major improvements for context
- [X] Location/nature of existing fixtures
- [X] Location of proposed fixtures
- [X] Photometric report (to scale on plan)
- [X] Manufacturers cut-sheets of all fixtures
- [X] Lighting schedule
  - key to plan
  - number/type of fixtures
  - output (wattage)
- [X] Installation details as appropriate

LANDSCAPING PLAN

- [X] Major improvements for context (building, drives, walks)
- [X] Proposed outdoor amenities (benches, paths, etc.)
- [X] Existing vegetation
  - Species
  - Size
  - Approximate canopy in plan
- [X] Vegetation to be destroyed
  - List and show location
- [X] Proposed method of saving existing vegetation during construction

- [X] Proposed landscape features (berms, fountains)
- [X] Existing/proposed lighting
- [NA] Irrigation/watering systems (locate outlets)
- [X] Plant lists or schedules
  - Keyed to plan
  - Number of each species
  - Size when planted (caliper)
- [X] Installation details/staking

MODEL SUBMITTAL INCLUDES THE FOLLOWING PLANS:

1. Cover / Title Page
2. Existing Conditions Survey
3. General Site Plan
4. Grading, Paving & Erosion Control Plan
5. Utility Plan
6. Site Details (curbing, catch basins, detention ponds, pavement, erosion control and sign details)
7. Landscape Plan
8. Landscape details (planting schedule, berming cross-sections, method of installation)
9. Lighting Plan
10. Floor Plan
11. Exterior Building Elevations
12. Building Material Sample Board

In addition to the items on this list, Village Staff and/or the Plan Commission may require additional drawings and data to be submitted for approval.

If any public improvements or work is to be done in the Public Right-of-Way, the Village will require that a Developer's Agreement be submitted and approved by the Village Board.

Village of Germantown ...Willkommen

Fee must accompany application

☐ **$1460** Paid _____ Date_____

CONDITIONAL USE PERMIT APPLICATION

Pursuant to Section 17.42 of the Municipal Code

Please read and complete this application carefully. **All applications must be signed and dated.**

1 APPLICANT OR AGENT

Sundance, Inc.
Tim Krause
7915 Kensington Court
Brighton, MI 48116
Phone (248)563-8016
Fax ( )
E-Mail Tim.Krause@teamlyders.com

PROPERTY OWNER

Future property owner - same as applicant

Phone ( )

2 TO WHOM SHOULD THE PERMIT BE ISSUED?

Sundance, Inc.

3 PROPERTY ADDRESS / TAX KEY NUMBER

PROPERTY ADDRESS	TAX KEY NUMBER
N96W19058 County Line Rd	GTNV_333999

4 DESCRIPTION OF EXISTING OPERATION

Briefly describe the use as it exists today, including use, size, number of employees, hours of operation, etc. If this permit involves new construction, describe the current status of the property, e.g. "vacant." Use additional pages as necessary.

See project narrative

5 DESCRIPTION OF PROPOSED OPERATION

Write the name of the proposed conditional use exactly as it appears in the Municipal Code

See project narrative

Describe the proposed use, including size, number of employees, hours of operation and extent of any new construction/alterations.

See project narrative

6 METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

See attached legal description

7 SUPPORTING DOCUMENTATION:

- [x] Site Plan and elevations for new construction (can be conceptual)
- [x] Photos of existing use and/or proposed use operating elsewhere - Colored Perspectives
- [ ] _____
- [ ] _____

8 READ AND INITIAL THE FOLLOWING:

_X_ I understand that the Village is under no obligation to issue a Conditional Use Permit and will do so only if the applicant successfully demonstrates that the proposed use is harmonious with the neighborhood and the long range goals of the Village.

_X_ I will notify the Village if <u>any</u> aspects of the conditional use changes. I understand that failure to do so may result in the revocation of the CUP.

_X_ I understand that a Conditional Use Permit is valid only if the conditions and restrictions of the permit are met. I understand that failure to comply with any aspect of the permit may result in revocation.

_X_ I understand that Village Staff is required to post one or more signs along the street frontage of and/or on the property subject of this application that indicate to nearby property owners and the general public that a public hearing of my application will be held before the Village Plan Commission and/or Village Board prior to action being taken on this application; I hereby grant Village Staff permission to enter onto the property for the expressed purpose of installing said sign(s) provided Village Staff is responsible for installing, maintaining and removing said signs in a reasonable manner and timeframe.

9 SIGNATURES – ALL APPLICATIONS MUST BE SIGNED BY OWNER!

Applicant _____ Date 10/2/2020

Owner - Future Clint Lyden-Peters Date 10/2/2020

Village of Germantown
Willkommen

FEES MUST BE PAID AT TIME OF APPLICATION

$200 Plan Commission Consultation
$1,085 Rezoning
$1,240 PDD < 5 acres
$2,095 PDD 5-20 acre site
$3,460 PDD > 20 acre site

Date Paid: _____ Received by: _____

REZONING & PDD APPLICATION

Pursuant to Section 17.51 of the Municipal Code

Please read and complete this application carefully. **All applications must be signed and dated.**

1

APPLICANT OR AGENT

Sundance, Inc.
Tim Krause
7915 Kensington Court
Brighton, MI 48116
Phone (248)563-8016
E-Mail Tim.Krause@teamlyders.com

PROPERTY OWNER

Marshall Peebles
PO Box ~~855~~ 105
Butler, WI 53007
Phone (262) 790 - 1358
E-Mail Peeblessarwash@aol.com

2

PROPERTY ADDRESS OR GENERAL LOCATION	TAX KEY NUMBER
N96W19058 County Line Rd	GTNV_333999

3

REZONING REQUEST

FROM	TO
B-1	B-5

4

METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

See attached

5 PURPOSE OF REZONING REQUEST

Briefly describe why the applicant is rezoning the property. Include a description of the proposed use, including any new construction and number of employees, if applicable.

See attached narrative

6 SUPPORTING DOCUMENTATION:

☒ Plat of Survey (1:100) - Rezone Exhibit

☒ Site Plan and elevations for new construction (can be conceptual)

7 READ AND INITIAL THE FOLLOWING:

X I understand that the Village is under no obligation to rezone property and that density and lot coverages provided in the Zoning Code are maximums. Actual build out will depend on myriad factors including topography and other natural conditions, surrounding neighborhood context and the detailed design of a project.

X I understand that Village Staff, Plan Commission and/or Village Board may request additional information to properly evaluate this request and failure to provide such information may in itself by sufficient cause to deny the petition.

X I am aware that this rezoning shall go into effect immediately upon the final approval of the Village Board and its execution of the rezoning ordinance

X I understand that Village Staff is required to post one or more signs along the street frontage of and/or on the property subject of this application that indicate to nearby property owners and the general public that a public hearing of my application will be held before the Village Plan Commission and/or Village Board prior to action taken on this application; I hereby grant Village Staff permission to enter onto the property for the expressed purpose of installing said sign(s) provided Village Staff is responsible for installing, maintaining and removing said signs in a reasonable manner and time frame.

8 SIGNATURES – ALL APPLICATIONS MUST BE SIGNED BY OWNER!

Oct 15 2020

Applicant Date

Marshall Peebles 10/2/2020

Owner Date

October 5, 2020

Project Narrative

Project: Taco Bell
N96W18058 County Line Rd
Germantown, WI 53022
Excel Project No: 2005200

Sundance, Inc. is requesting a rezone, conditional use permit, site plan review and Architectural Review Board review and approval for a Taco Bell quick-serve restaurant with drive-through located at N96W18058 County Line Rd. The property is currently zoned B-1, Neighborhood Business. Rezoning is proposed to B-5; a drive-through associated with a restaurant is permitted in the B-5 zoning district. The B-5 rezone will also be consistent with the Village Land Use Plan. The Menomonee River runs through the property and a Conditional Use Permit is required for development within 75' of the ordinary highwater mark. The existing land use is a multi-tenant building/salon; this building will be demolished for the proposed development.

The overall parcel is 4.91 acres, and the proposed site disturbance is 0.83 acres; all disturbance is occurring on that part of the property located west of the Menomonee River. Surrounding land uses include commercial developments. Wetlands located on the property were delineated by Evergreen Consultants, LLC, Wisconsin DNR Certified Assured Delineators. The proposed site improvements will not encroach into the 25-foot wetland setback required by Section 24.04 (3) (c) (5) of the Village of Germantown Municipal Code, however, minor site disturbance will be required in a small portion of the setback area. This area of disturbance will be compensated for by providing a vegetated filter strip suited to a wet mesic soil site. No filling is proposed within the mapped floodplain area on site.

The existing and proposed development encroaches into the 75-foot development setback from the ordinary high water mark required by Section 24.04 (3) (c) (5) of the Village of Germantown Municipal Code. To mitigate the impacts of this encroachment, the total area of impervious surface on the developed area of the subject property will be reduced from 27,908 square feet to 24,904 square feet, a vegetated filter strip suited to a wet mesic soil site will be provided between the developed area and the undisturbed wooded area east of the development as noted above, and two foot (2') deep sumps will be provided in the storm sewer catch basins to allow for settlement of sediment prior to discharge to the Menomonee River.

The proposed Taco Bell will be single-story, and the building footprint will be 1,786 square feet. An outdoor dining patio with railing system is proposed on the south end of the building. The new building will be in the approximate same location as the existing salon building and a new waste enclosure is proposed to the east of the building. The drive through is proposed on the west side of the building. The facility will be in operation from 7 AM to 3 AM, 7 days per week. The anticipated number of employees is 25.

The building design represents Taco Bell's newest concept restaurant consisting of simple massing and crisp material lines. Tower elements accent the main entrance and building corner.

The main entrance tower provides an inviting entry to the restaurant. The corner tower in prefinished rust wall panels provides a contemporary signature element unique to Taco Bell. Brick veneer in earth tone colors creates a warm appearance that blends with the surrounding development. In keeping with previous Taco Bell designs, vibrantly colored artwork panels provide accents on the walk-up and drive-thru sides of the building. Exterior materials are represented in the attached color elevations and renderings. Building signage is proposed approximately as illustrated in the attached elevations and renderings. A pylon sign is also proposed on the side of the site. Official sign submittals for permitting will be provided at a later date by the tenant.

Access to the site will remain in the existing location off County Line Rd. Proposed parking includes 22 spaces, including two (2) handicap stalls. New water and sanitary services are proposed for the site. Stormwater from the proposed site will be conveyed via sheet drainage and storm sewer to the Menomonee River directly east of the development. Stormwater drainage for the site will match the current drainage patterns. Post-construction stormwater management requirements do not apply to this site due to it being less than 1 acre of site disturbance while also reducing overall impervious land cover on the site.

Landscaping will be provided in accordance with the Village ordinance, in an approach which ensures species resiliency and complimentary aesthetics. Additional landscaping has been provided along the frontage of County Line Road per Village requests. New site lighting will also meet the Village ordinance in a fashion that provides appropriate foot candles for safety and cut-off fixtures for minimal light trespass. Building sconces are also proposed in a decorative style that compliments the development and building architecture.

LEGAL DESCRIPTION

PARCEL A:

A part of the Southwest 1/4 of Section 33, in Town 9 North, Range 20 East, in the Village of Germantown, County of Washington, State of Wisconsin, described as follows:

Beginning at the Southeast corner post of the Southwest 1/4 of Section 33, Township 9 North, Range 20 East, on the County line between Waukesha and Washington Counties; thence North 40 rods; thence West far enough to make 5 1/4 acres; thence South 40 rods to the county line; thence East on said line to the place of beginning.

EXCEPTING therefrom that part conveyed to the State of Wisconsin, Department of Transportation, Division of Highways, by Deed recorded as Document No. 304757, also excepting that part taken for highway by Award of Damages recorded in Volume 476, Page 542, as Document No. 312605, also excepting that part conveyed to the Wisconsin Department of Transportation by Deed recorded March 26, 1990, in Volume 1064, Page 61, as Document No. 557015 and excepting that part conveyed to the State of Wisconsin, Department of Transportation, by Deed recorded in Volume 1545, Page 224, as Document No. 703241.

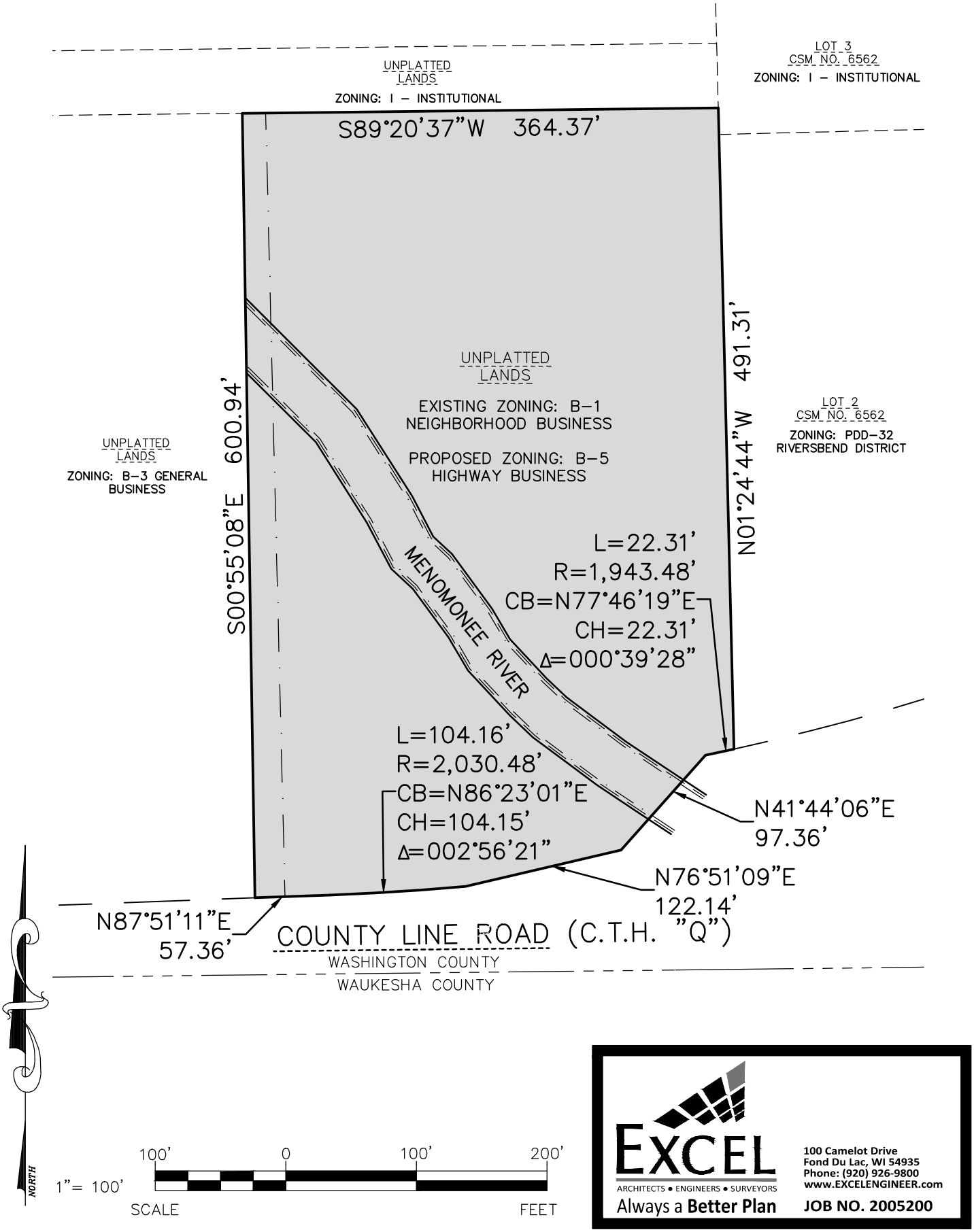
PARCEL B:

All that part of the Southwest 1/4 of Section 33, in Township 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin, bounded and described as follows:

Commencing at the Southeast corner of the Southwest 1/4 of said Section 33; thence N 01 degrees 24 minutes 44 seconds W along the East line of said Southwest 1/4 Section, 660.00 feet; thence S 89 degrees 20 minutes 37 seconds W, 346.50 feet to the point of beginning of the land to be described; thence S 01 degrees 24 minutes 44 seconds E, 600.38 feet to the North right-of-way line of C.T. H. "Q"; thence S 87 degrees 51 minutes 12 seconds W along said right-of-way line 23.04 feet; thence N 0 degrees 55 minutes 08 seconds W, 600.94 feet; thence N 89 degrees 20 minutes 37 seconds E, 17.87 feet to the point of beginning.

Tax Key No. GTNV 333999
Address: N96 W18058 County Line Road

ZONING EXHIBIT



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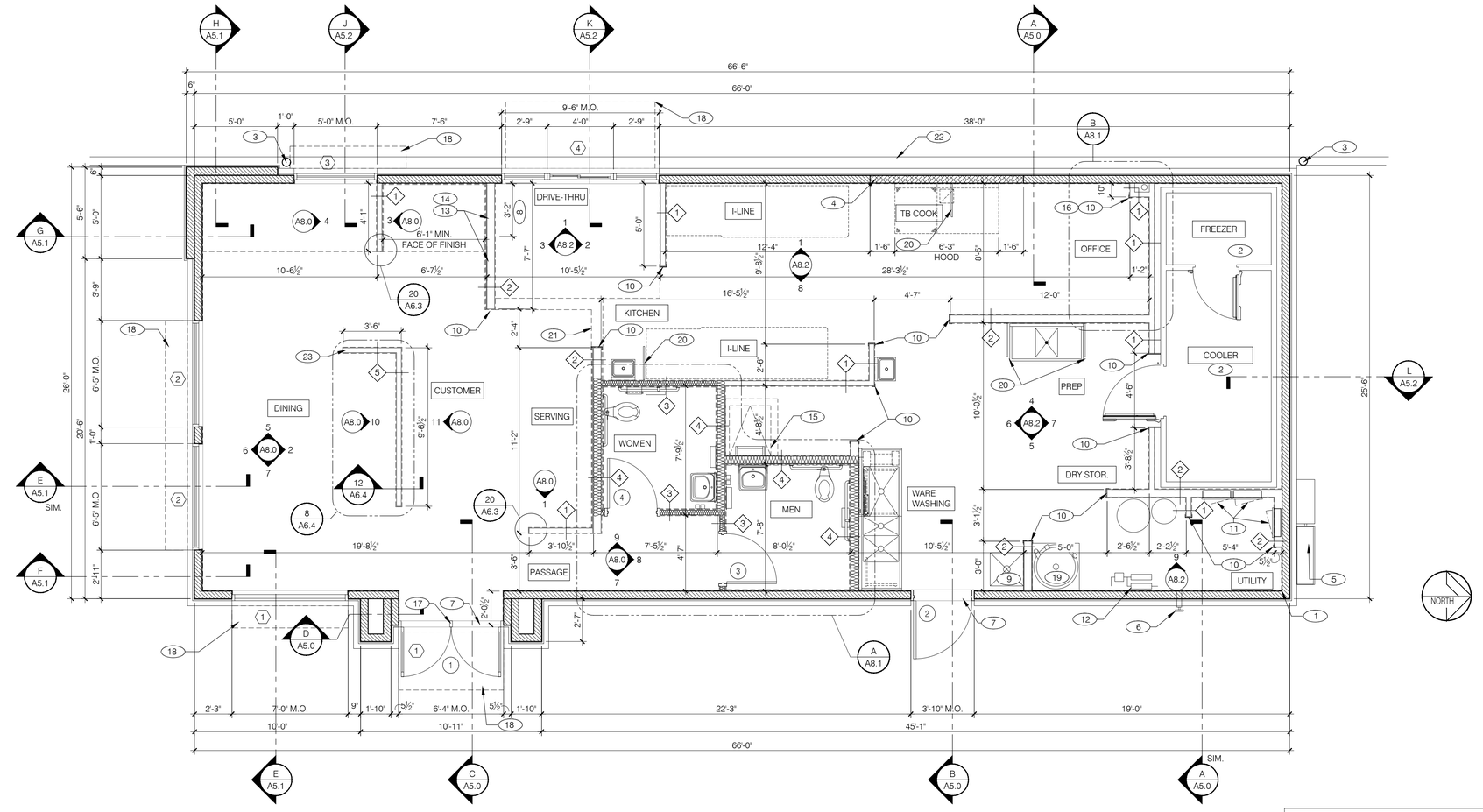

- 1,600 SF FLOOR PLAN (INSIDE FACE OF EXTERIOR WALLS)
- RESTAURANT USE
- TYPE VB WOOD FRAMED CONSTRUCTION
- 45 TOTAL OCCUPANTS

FLOOR PLAN 1/4"=1'-0" A

EXTERIOR WALLS:
BRICK WITH AIR SPACE OVER
- "TYVEK COMMERCIAL WRAP" WEATHER BARRIER OVER
- 15/32" EXPOSURE 1, APA RATED SHEATHING OVER
- 2x6 WOOD STUDS AT 16" O.C. OVER
- R-19 FIBERGLASS BATT INSULATION U.O.N. (USE FSK-25 FLAME-RESISTANT FIBERGLASS BATT INSULATION WHERE EXPOSED TO THE INTERIOR OF THE BUILDING).

INTERIOR SURFACES:
- 1/2" GWB @ DINING ROOM.
- 15/32" APA RATED SHEATHING @ B.O.H. & OFFICE.
- 1/2" CEMENT BOARD @ RESTROOM WALLS.

NOTE:
SEE STRUCTURAL DRAWINGS FOR SHEAR WALL MATERIAL AND NAILING REQUIREMENTS. IF STRUCTURAL WOOD SHEATHING OCCURS, GYPSUM BOARD AND OTHER FINISHES SHALL BE APPLIED OVER STRUCTURAL WOOD SHEATHING.

HOODWALL:
STAINLESS STEEL PANEL OVER 1/2" CEMENT BOARD OVER 20 GAGE 6" METAL STUDS @ 16" O.C. PANEL TO COVER ENTIRE WALL FROM 18" ABOVE TOP OF HOOD DOWN TO TOP OF BASE TILE. PANEL TO EXTEND 18" BEYOND EACH SIDE OF HOOD. NO EXPOSED SCREWS OR ATTACHMENTS. REFER TO MECHANICAL DRAWINGS.

1 2X4 WOOD STUDS
2 2X6 WOOD STUDS

TYPICAL INTERIOR WALL:
2x4 WOOD STUDS AT 16" O.C. (2x6, 2x8 OR 2x10 WHERE NOTED).
FRONT OF HOUSE: W/ 1/2" GYP. BOARD. SUBSTRATE U.O.N. USE CEMENT BOARD BEHIND ALL CERAMIC WALL TILE.
BACK OF HOUSE: 15/32" APA RATED SHEATHING.

3 2X4 WOOD STUDS
4 2X6 WOOD STUDS

INTERIOR SOUND-RATED WALL:
CONSTRUCT TYPICAL INTERIOR WALL W/ UN-FACED FIBERGLASS BATT INSULATION TO FILL STUD CAVITY.

5 2X4 WOOD STUDS

LOW WALL:
2x4 WOOD STUDS AT 16" O.C. WITH 1/2" PLYWOOD SHEATHING ON BOTH SIDES - 4'-0" TALL

DASHED LINE INDICATES SUBSTRATE LOCATION.
ALL WALLS SHALL BE AS INDICATED EXCEPT FROM TOP OF SLAB TO 12" ABOVE SLAB SHALL BE 1/2" CEMENT BOARD, U.O.N. THIS NOTE DOES NOT APPLY TO EXTERIOR FACE OF EXTERIOR WALLS, AND PLYWOOD SHEAR CONDITIONS.

WALL LEGEND E

DIMENSIONS:
A. ALL DIMENSIONS ARE TO FACE OF STUD U.O.N. REFER TO FOUNDATION PLAN FOR FACE OF CONCRETE DIMENSIONS.
B. DIMENSIONS NOTED AS "CLEAR" OR "HOLD" ARE MIN. REQUIRED NET CLEARANCE FROM FACE OF WALL / WAINSCOT FINISH. VERIFY FINAL EQUIPMENT SIZES W/ VENDOR PRIOR TO INTERIOR WALL FRAMING.

WINDOWS / DOORS:
A. SEE SHEET A1.1 FOR WINDOW TYPES AND DOOR SCHEDULE.
B. ALL DOOR AND WINDOW OPENING DIMENSIONS ARE TO ROUGH OPENING.

FINISH SUBSTRATES:
A. PROVIDE 1/2" THICK CEMENTITIOUS BOARD FROM FLOOR SLAB TO 12" A.F.F. MIN. IN LIEU OF GYP. BOARD AT ALL WALLS EXCEPT SHEARWALL SURFACES, U.O.N.
B. ALL JOINTS, GAPS OR SPACES LEADING TO ALL HOLLOW OR INACCESSIBLE SPACES SHALL BE SEALED WITH "NSF INTERNATIONAL" APPROVED SEALANTS.
C. ALL BACK OF HOUSE AND OFFICE WALLS SHALL HAVE 1/2" CDX PLYWOOD SUBSTRATE, U.O.N.

DECOR:
A. SEE A2.0 FOR SEATING PLAN AND DETAILS.
B. SEE A7.0 FOR FLOOR FINISHES.
C. SEE A8.0 - A8.3 FOR WALL FINISHES.
D. SEE A7.1 FOR CEILING FINISHES.

GENERAL:
A. PROVIDE (1) K EXTINGUISHER WITHIN 30 FEET OF THE COOKING EQUIPMENT IN THE KITCHEN. PROVIDE AT LEAST (2) ABC EXTINGUISHERS IN THE BUILDING LOCATED WITHIN 50 FEET FROM ANY POINT WITHIN THE BUILDING. PLEASE CONFIRM QUANTITIES AND LOCATIONS WITH THE LOCAL FIRE MARSHALL.
B. DRAWINGS ARE BASED UPON WOOD FRAMING. UTILIZATION OF METAL STUDS ON NON-BEARING INTERIOR PARTITIONS, BULKHEADS AND SOFFITS IS ACCEPTABLE.

FLOOR PLAN NOTES D

1. STARTING POINT. ALL SUB-TRADES SHALL USE THIS POINT AS A BEGINNING LAY-OUT (INSIDE FACE OF EXTERIOR WALL STUDS.
2. NO FRP BEHIND WALK-IN COOLER/FREEZER.
3. PIPE BOLLARD. SEE CIVIL DRAWINGS.
4. METAL STUD HOOD WALL. SEE WALL LEGEND.
5. ELECTRICAL MAIN SWITCH BOARD. SEE ELECTRICAL DRAWINGS.
6. CO2 FILL BOX LOCATION.
7. METAL THRESHOLD.
8. KEEP CLEAR SPACE FOR UTILITIES & SYRUP LINES INSTALLED IN FINISH AREA.
9. MOP SINK.
10. S.S. CORNER GUARD / WALL CAP TYP. ALL CORNERS IN BACK-OF-HOUSE FROM REAR WALL TO THE KITCHEN SIDE OF THE SERVICE COUNTER. SEE DETAIL 19/A6.3.
11. ELECTRICAL PANELS RECESSED IN 2x6 WALL.
12. WATER METER AND VALVING - SEE PLUMBING DRAWINGS.
13. SYRUP LINE CHASE (ABOVE). SEE DETAIL 15/A6.3 AND 16/A6.3.
14. 14"X14" HORIZONTAL OPENING FOR SYRUP TUBES. COORDINATE WALL PENETRATION WITH COUNTER INSTALLER. SEE DETAIL 13/A6.3.
15. ROOF LADDER AND HATCH. SEE DETAILS 16/A6.0, 18/A6.0, AND B/A8.3.
16. DO NOT INSULATE.
17. REMOVABLE MULLION FROM INSIDE ONLY.
18. LINE OF CANOPY ABOVE.
19. WATER HEATER PLATFORM - SEE DETAIL 3/A6.4.
20. SPLASH GUARD. SEE DETAIL 5/A6.3.
21. MENU BOARD BULKHEAD - SEE DETAILS 2/A6.4 AND 4/A6.4.
22. CONCRETE CURB, SEE CIVIL DRAWINGS.
23. LOW WALL BY G.C. SEE DETAIL 8/A6.4.

KEY NOTES XX B

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Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

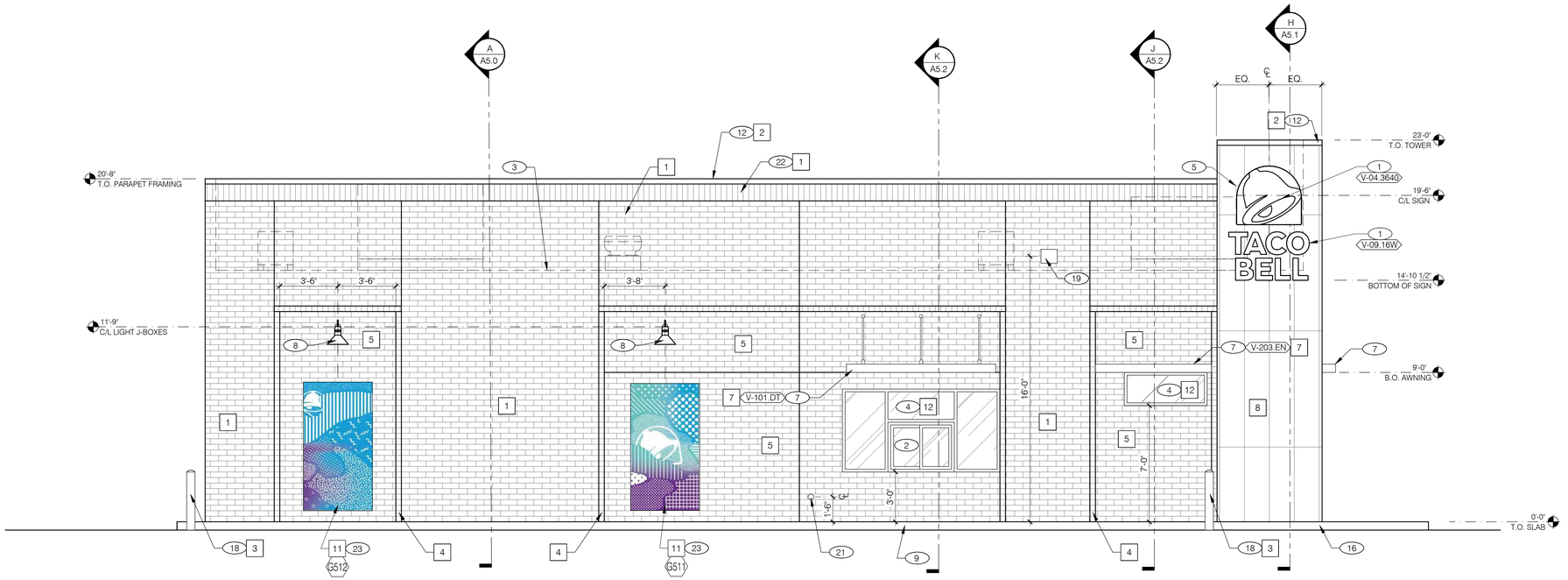
NEW BUILDING FOR:
SUNDANCE - TACO BELL
N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

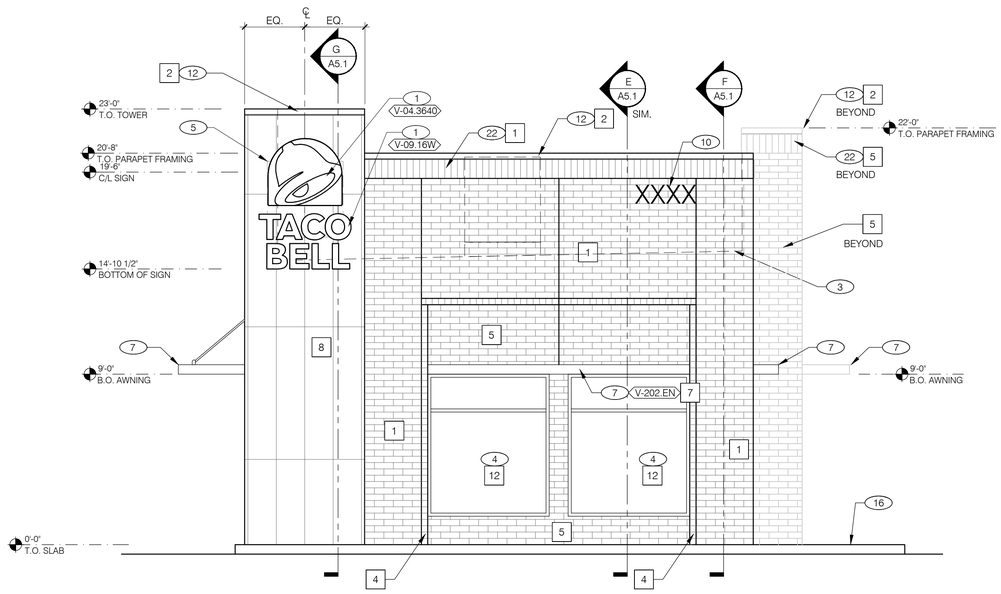
SHEET DATES
ISSUE DATE OCT. 5, 2020
REVISIONS

JOB NUMBER
2005200

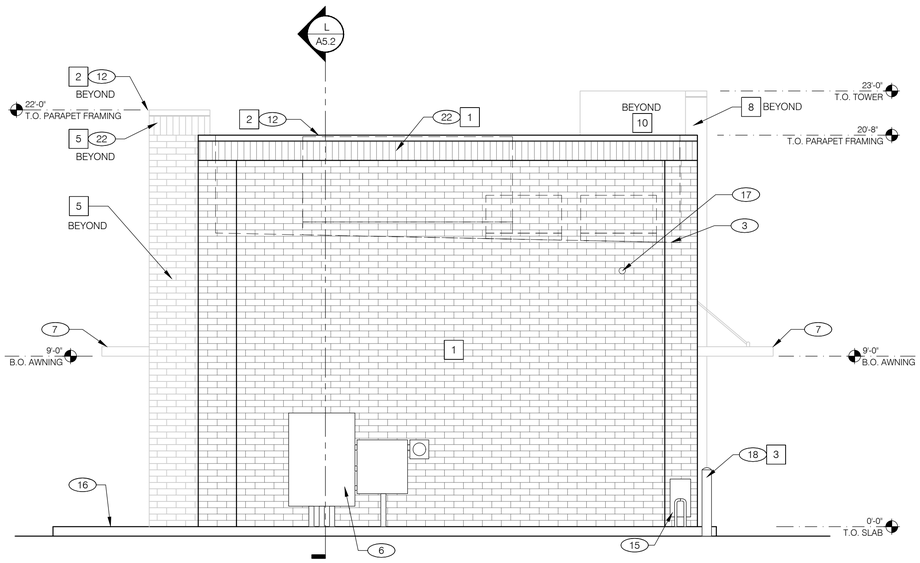
SHEET NUMBER
A1.0



DRIVE THRU ELEVATION 1/4"=1'-0" **A**



FRONT ELEVATION 1/4" = 1'-0" **C**



REAR ELEVATION 1/4" = 1'-0" **B**

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Fond Du Lac, WI 54935
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PROJECT INFORMATION

NEW BUILDING FOR:

SUNDANCE - TACO BELL

N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

SHEET DATES

ISSUE DATE OCT. 5, 2020

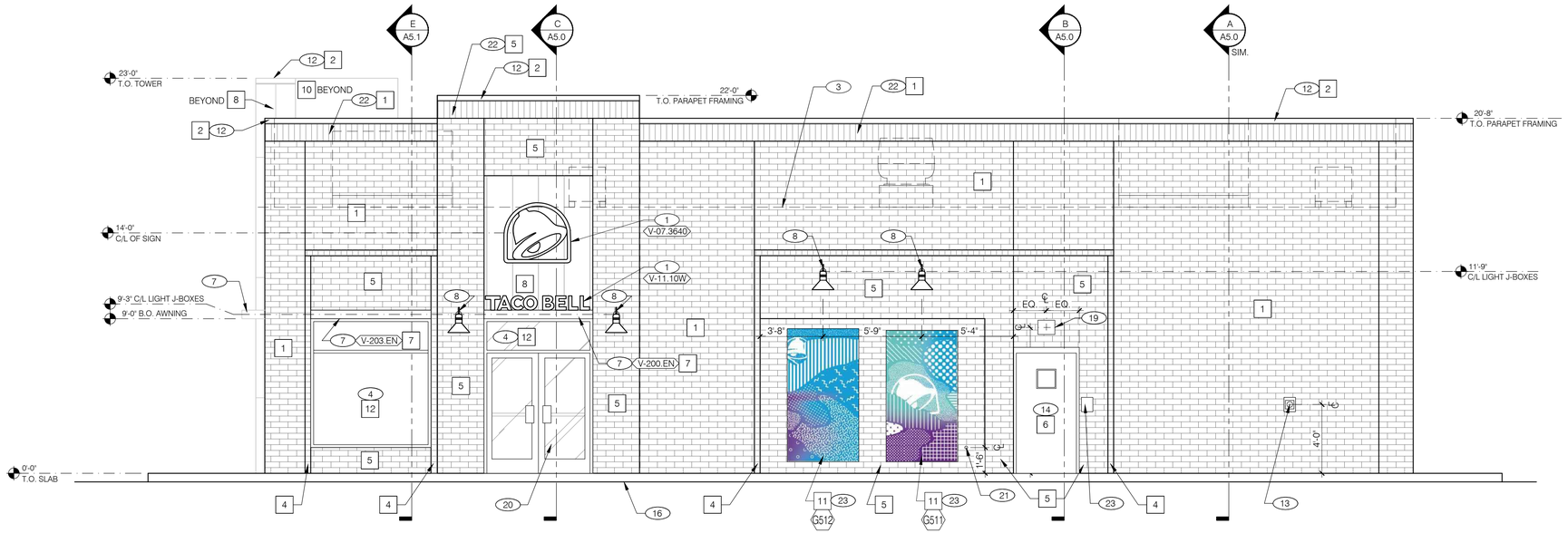
REVISIONS

JOB NUMBER

2005200

SHEET NUMBER

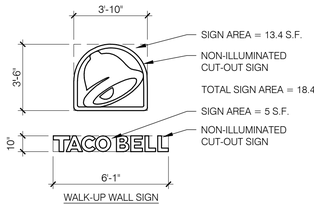
A4.1



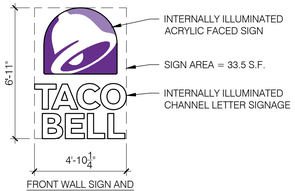
WALK UP ELEVATION 1/4"=1'-0" **A**

BUILDING SIGNAGE REGULATIONS:

WALL SIGNS SHALL NOT EXCEED 1.5 SQUARE FEET OF SIGNAGE PER ONE LINEAR FOOT OF BUILDING FRONTAGE, UP TO 300 SQUARE FEET FOR ANY INDIVIDUAL USE. SIGNAGE IS ONLY PERMITTED ON BUILDING FRONTAGE. HOWEVER, THE PLAN COMMISSION MAY APPROVE SIGNAGE ON ANY FACADE OF A BUILDING WHEN DEEMED APPROPRIATE FOR THE USE. IN ADDITION TO SIGNAGE ON A BUILDING FRONTAGE, THE PLAN COMMISSION MAY ALSO PERMIT DIRECTIONAL WALL SIGNAGE ON ANY FACADE OF A BUILDING WHEN IT IS NECESSARY AND APPROPRIATE FOR THE USE. WALL SIGNS SHALL NOT EXTEND ABOVE THE CEILING LEVEL OF THE TOP FLOOR OF THE BUILDING UPON WHICH THEY ARE LOCATED.



WALK-UP WALL SIGN



FRONT WALL SIGN AND
DRIVE-THRU WALL SIGN

WALL SIGNAGE REGULATIONS **E**

SYMBOL	AREA	MANUFACTURER	COLOR	NOTES
1	FACE BRICK - LIGHT GRAY @ 4"x12"x4"	INTERSTATE BRICK	70% PEWTER/30% PLATINUM - RANDOM MIX	MORTAR COLOR TO MATCH BRICK
2	PRE-FINISHED METAL PARAPET CAP	DURALAST	MATCH SW7076	
3	STEEL PIPE BOLLARDS WITH 1/4" THICK PLASTIC COVER	IDEAL-SHIELD	MDOT YELLOW	OR EQUAL MANUFACTURER
4	FACE BRICK - DARK GRAY ROWLOCK "FRAME" @ 4"x4"x4"	INTERSTATE BRICK	MIDNIGHT BLACK	MORTAR COLOR TO MATCH BRICK
5	FACE BRICK - DARK GRAY @ 4"x12"x4"	INTERSTATE BRICK	MIDNIGHT BLACK	MORTAR COLOR TO MATCH BRICK
6	HOLLOW METAL DOOR AND FRAME	-	SEMI-GLOSS	PAINT TO MATCH BRICK
7	AWNING - ANODIZED ALUMINUM	AWNING-TECH	BLACK PAINT FINISH	
8	PRE-FINISHED T-GROOVE METAL PANEL	WESTERN STATES	WEATHERED RUSTIC	
9	NOT USED			
10	PARAPET BACK - SINGLE PLY ROOFING MEMBRANE	DURALAST	FACTORY COLORED "TAN."	
11	ARTWORK PANELS	-	-	SEE SHEET A2.0
12	GLASS WINDOW IN ALUMINUM FRAMES	-	DARK BRONZE	CLEAR LOW-E GLASS ANODIZED ALUMINUM FRAMES

EXTERIOR FINISH SCHEDULE **F**

MISCELLANEOUS
A. SEE SHEET A1.1 "WINDOW TYPES" FOR WINDOW ELEVATIONS.

GENERAL NOTES:
A. ALL ROOF TOP MECHANICAL EQUIPMENT ARE SHIELDED FROM VIEW BY THE PARAPET WALLS.
B. ALL LIGHTING SHALL BE DIRECTED DOWNWARD.

SEALERS:
A. PROVIDE SEALANT AT ALL WALL AND ROOF PENETRATIONS.
B. PROVIDE SEALANT AT ALL WINDOW AND DOOR FRAMES AT HEAD AND JAMB. DO NOT SEAL SILL AT WINDOWS.
C. APPLY NEOPRENE GASKET (CONTINUOUS) BETWEEN BUILDING AND AWNING.

NOTE:
NO EXTERIOR SIGNS ARE WITHIN THE SCOPE OF WORK COVERED BY THE BUILDING PERMIT APPLICATION. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE INSTALLATION OF ALL EXTERIOR SIGNS AND INSTALLATION OF REQUIRED BLOCKING AND ELECTRICAL CONNECTIONS FOR FINAL APPROVED SIGNS.

GENERAL NOTES **C**

NOTE: SIGNAGE SUBMITTED UNDER SEPARATE PERMIT

V-XXX	QTY	ITEM DESCRIPTION	ELEC
V-04.3640	2	3'-6" x 4'-0" LARGE SWINGING BELL, PURPLE LOGO - FACE LIT	YES
V-09.16W	2	16" LARGE CHANNEL LETTERS	YES
V-07.3640	1	3'-6" x 4'-0" LARGE SWINGING BELL, FLAT CUT-OUT, WALL MTD.	
V-11.10W	1	TB 10" LETTER, WHITE FLAT CUT-OUT, LINEAR, AWNING MTD.	
V-101.DT	1	DRIVE-THRU AWNING, 9'-0" W. x 6" HI. x 4'-0" DP., BLACK	YES
V-200.EN	1	SIDE ENTRY AWNING, 6-4" W. x 6" HI. x 3'-6" DP., BLACK	YES
V-202.EN	1	FRONT EYEBROW AWNING, 13'-10" W. x 6" HI. x 1'-4" DP., BLACK	YES
V-203.EN	2	SIDE EYEBROW AWNINGS, 7'-0" W. x 6" HI. x 1'-4" DP., BLACK	YES

SIGN AND AWNING SCHEDULE **B**

1. BUILDING SIGN, BY VENDOR. SEE ELECTRICAL PLANS FOR POWER REQUIREMENTS.
2. DRIVE THRU WINDOW. SEE SHEET A1.0 AND A1.1.
3. DASHED LINE INDICATES ROOF BEYOND.
4. STOREFRONT, TYPICAL.
5. ACCESS LOUVERS IN BACK OF PARAPET. SEE DETAIL 7/A6.0.
6. SWITCH GEAR. PAINT TO MATCH WALL. WALL SHALL BE FINISHED PRIOR TO INSTALLATION OF SWITCHGEAR.
7. AWNING.
8. WALL LANTERN.
9. D/T LANE SURFACE IS 6" BELOW THE FINISH FLOOR. REFER TO CIVIL DRAWINGS.
10. 12" HIGH ADDRESS NUMBERS, ADDRESS SHALL BE VISIBLE FROM THE STREET. VERIFY THE ADDRESS AND REQUIREMENTS WITH THE AUTHORITY HAVING JURISDICTION. COLOR = BLACK.
11. CONTROL JOINT, TYP. SEE DETAIL 4/A6.2.
12. PRE-FINISHED METAL PARAPET CAP.
13. CO2 FILLER VALVE & COVER. SEE DETAIL 9/A6.2.
14. PAINT DOOR AND FRAME TO MATCH BRICK.
15. GAS SERVICE - DO NOT PAINT.
16. CONCRETE CURB.
17. LAMB'S TONGUE ROOF OVERFLOW.
18. BOLLARD.
19. WALL PACK LIGHT FIXTURE.
20. STOREFRONT DOOR. REFER TO DOOR SCHEDULE SHEET A1.1.
21. HOSE BIBB LOCATION. REFER TO PLUMBING DRAWINGS AND DETAIL 10/A6.2.
22. BRICK SOLDIER COURSE - ALL SOLDIER COURSES SHALL CORBEL OUT 1/2" FROM BRICK VENEER WALL.
23. ARTWORK PANELS.
24. PROVIDE KNOX BOX. VERIFY LOCATION AND TYPE WITH AHJ.

KEY NOTES **D**

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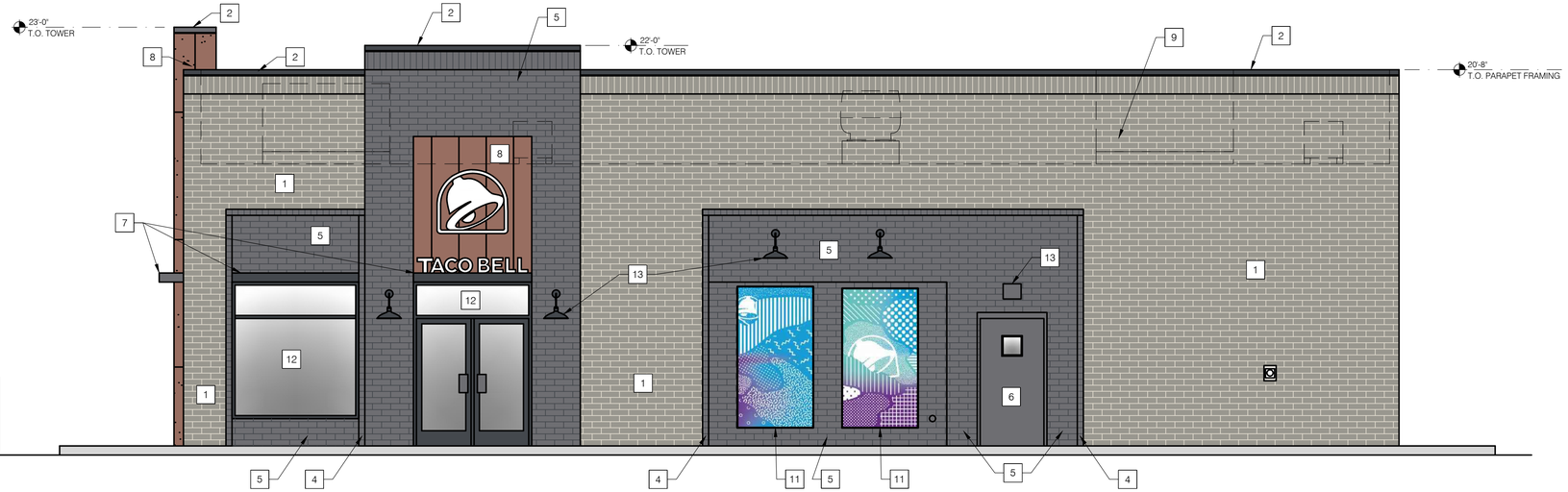
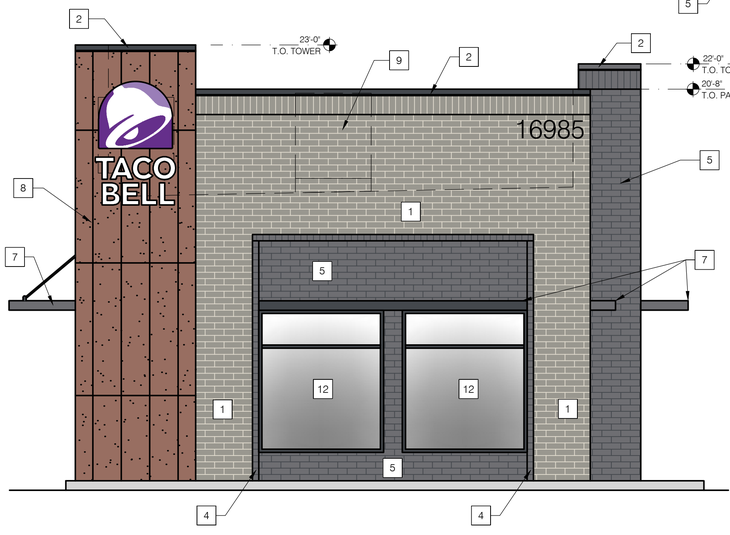


WALK-UP ELEVATION

1/4" = 1'-0"



FRONT ELEVATION

1/4" = 1'-0"

EXTERIOR FINISH SCHEDULE

SYMBOL	AREA	MANUFACTURER	COLOR	NOTES
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3	STEEL PIPE BOLLARDS WITH 1/4" THICK PLASTIC COVER	IDEAL-SHIELD	MDOT YELLOW	OR EQUAL MANUFACTURER
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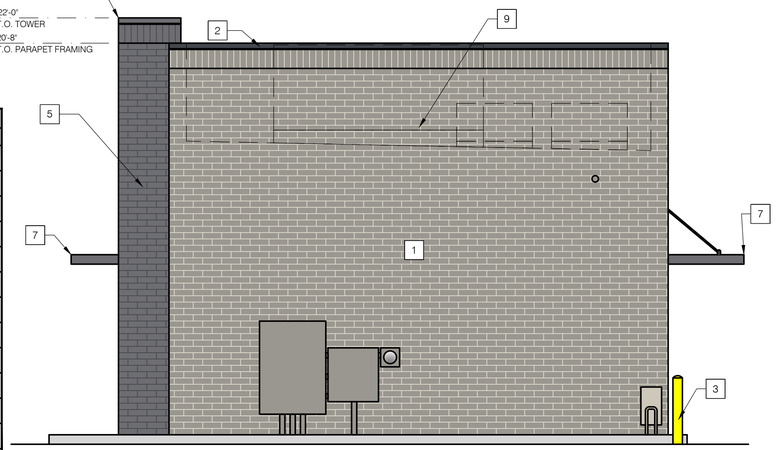
6	HOLLOW METAL DOOR AND FRAME	-	SEMI-GLOSS	PAINT TO MATCH BRICK
7	AWNING - ANODIZED ALUMINUM	AGI	BLACK PAINT FINISH	
8	PRE-FINISHED T-GROOVE METAL PANEL	WESTERN STATES	WEATHERED RUSTIC	
9	ROOFTOP EQUIPMENT BEYOND	-	-	-
10	NOT USED	-	-	
11	ARTWORK PANELS			
12	GLASS WINDOW IN ANOD. ALUM. FRAMES		CLEAR LOW-E GLASS DARK BRONZE ANOD. ALUM. FRAMES	
13	LIGHT FIXTURE			REFER TO ELECTRICAL DRAWINGS



REAR ELEVATION

1/4" = 1'-0"

DRIVE-THRU ELEVATION

1/4" = 1'-0"

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PROFESSIONAL SEAL

PRELIMINARY DATES

SEPT. 21, 2020
OCT. 5, 2020

NOT FOR CONSTRUCTION

JOB NUMBER

2005200

SHEET NUMBER

A4.3


TACO
BELL
TACO BELL


TACO BELL
TACO BELL


TACO
BELL


TACO BELL


TACO BELL
TACO BELL

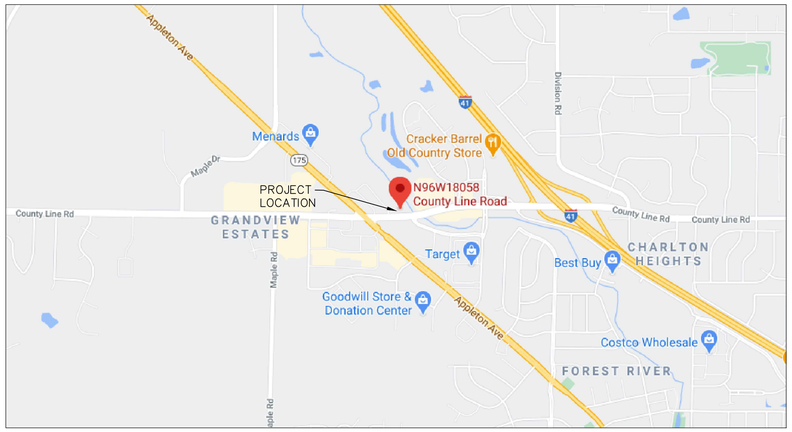
PROPOSED NEW BUILDING FOR:
SUNDANCE - TACO BELL
GERMANTOWN, WISCONSIN

LEGEND

- 000.00 — PROPOSED SPOT ELEVATIONS (FLOW LINE OF CURB UNLESS OTHERWISE SPECIFIED)
- 000.00 EG — EXISTING GRADE SPOT ELEVATIONS
- 000.00 BG / 000.00 FG — PROPOSED SPOT ELEVATIONS (REFERENCE R–WALL DETAIL) BG–FINISHED SURFACE GRADE AT BACK OF WALL FG–FINISHED SURFACE GRADE AT FRONT OF WALL
- 000.00 TC / 000.00 BC — PROPOSED SPOT ELEVATIONS (TOP OF CURB, BOTTOM OF CURB)
- 000.00 TW / 000.00 BW — PROPOSED SPOT ELEVATIONS (TOP OF WALK, BOTTOM OF WALK)
- EXISTING WATER VALVE IN BOX
- PROPOSED WATER VALVE IN BOX
- EXISTING WATER VALVE IN MANHOLE
- EXISTING WATER SERVICE VALVE
- EXISTING TELEPHONE MANHOLE
- EXISTING STORM CATCH BASIN
- PROPOSED STORM CATCH BASIN – ST CB
- PROPOSED STORM FIELD INLET – ST FI
- EXISTING SQUARE CATCH BASIN
- EXISTING STORM CURB INLET
- PROPOSED STORM CURB INLET – ST CI
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE WITH GUY WIRE
- EXISTING STREET LIGHT
- EXISTING TELEPHONE PEDESTAL
- EXISTING ELECTRIC PEDESTAL
- EXISTING ELECTRIC BOX
- EXISTING CABLE TV PEDESTAL
- PROPOSED DRAINAGE FLOW
- 1–1/4" REBAR SET WEIGHING 4.30 LB/FT.
- 3/4" REBAR SET WEIGHING 1.50 LB/FT.
- 1–1/4" REBAR FOUND
- 3/4" REBAR FOUND
- 2" IRON PIPE FOUND
- 1" IRON PIPE FOUND
- EXISTING FLOOD LIGHT
- SECTION CORNER
- PROPOSED APRON END SECTION
- EXISTING MARSH AREA
- EXISTING DECIDUOUS TREE WITH TRUNK DIAMETER
- EROSION MATTING
- IP — PROPOSED INLET PROTECTION

- EXISTING CONIFEROUS TREE
- EXISTING SHRUB
- EXISTING STUMP
- SOIL BORING
- EXISTING WELL
- PROPOSED WELL
- EXISTING LIGHT POLE
- EXISTING SIGN
- CENTER LINE
- EXISTING HANDICAP PARKING STALL
- PROPOSED HANDICAP PARKING STALL
- EXISTING GAS VALVE
- EXISTING WOODED AREA
- EXISTING HEDGE
- EXISTING CHAINLINK FENCE
- EXISTING WOOD FENCE
- EXISTING BARBED WIRE FENCE
- PROPOSED PROPERTY LINE
- EXISTING GUARD RAIL
- ST — EXISTING STORM SEWER AND MANHOLE
- ST — PROPOSED STORM SEWER AND MANHOLE – ST MH
- SA — EXISTING SANITARY SEWER AND MANHOLE
- SA — PROPOSED SANITARY SEWER AND MANHOLE – SAN MH
- W — EXISTING WATER LINE AND HYDRANT
- W — PROPOSED WATER LINE AND HYDRANT
- OU — EXISTING OVERHEAD UTILITY LINE
- FO — EXISTING UNDERGROUND FIBER OPTIC LINE
- E — EXISTING UNDERGROUND ELECTRIC CABLE
- T — EXISTING UNDERGROUND TELEPHONE CABLE
- G — EXISTING UNDERGROUND GAS LINE
- PROPOSED CURB AND GUTTER
- EXISTING CURB AND GUTTER
- GRADING/SEEDING LIMITS
- RIGHT–OF–WAY LINE
- INTERIOR PROPERTY LINE
- RAILROAD TRACKS
- 800 — EXISTING GROUND CONTOUR
- 800 — PROPOSED GROUND CONTOUR

CIVIL SHEET INDEX



PROJECT LOCATION MAP

CONSTRUCTION SEQUENCE

PHASE	TYPE OF ACTION
1. PRE–CONSTRUCTION ACTION	1. CONTRACTOR TO CALL DIGGERS HOTLINE AT A MINIMUM OF 3 DAYS PRIOR TO CONSTRUCTION.
	2. PLACE ALL SILT FENCE.
	3. CONSTRUCT TRACKING STONE ENTRANCES AND ANY TEMPORARY CONSTRUCTION ROADWAYS AS NEEDED.
	4. CONSTRUCT PERMANENT STORMWATER CONVEYANCE SYSTEMS.
	5. CONSTRUCT ANY TEMPORARY STORMWATER CONVEYANCE SYSTEMS AS NEEDED.
	6. STABILIZE ALL TEMPORARY AND PERMANENT EROSION CONTROL AND STORMWATER CONVEYANCE SYSTEMS BEFORE TOPSOIL CAN BE STRIPPED.
2. CONSTRUCTION ACTION	1. SITE DEMOLITION AS REQUIRED.
	2. STRIP AND RELOCATE TOPSOIL TO THE DESIGNATED TOPSOIL STOCKPILE. LOCATION BY OWNER. FINAL LOCATION BY CONTRACTOR. PROVIDE PERIMETER SILT FENCE UNTIL STABLIZED.
	3. BEGIN MASS EARTH WORK FOR THE BUILDING PAD AND PAVEMENT AREAS.
	4. CONSTRUCT ANY REMAINING STORMWATER CONVEYANCE SYSTEMS, AND INSTALL ALL OTHER UTILITIES ON SITE.
	5. DIG AND POUR ALL BUILDING FOOTINGS.
	6. PLACE GRAVEL FOR ALL PROPOSED PAVEMENT AREAS, INCLUDING FIRE LANES.
	7. TOPSOIL, SEED, AND MULCH ALL DISTURBED AREAS OUTSIDE THE BUILDING AND PROPOSED PAVEMENT AREAS.
	8. CONSTRUCT BUILDING.
	9. PAVE DRIVEWAYS AND PARKING AREAS.
	10. TOPSOIL, SEED, AND MULCH ALL OTHER DISTURBED AREAS. PLACE EROSION MATTING AND RIP RAP.
3. POST CONSTRUCTION ACTION	1. CONTRACTOR TO REMOVE TEMPORARY EROSION CONTROL MEASURES UPON SITE STABILIZATION.
	2. SEE THE POST CONSTRUCTION MAINTENANCE PLAN FOR PERMANENT STORMWATER MANAGEMENT SYSTEMS.

CONTRACTOR TO FOLLOW THE EROSION CONTROL SPECIFICATIONS FOR CONSTRUCTION EROSION CONTROL INSPECTION AND MAINTENANCE.

CONSTRUCTION STAKING SERVICES

CONSTRUCTION STAKING SHALL BE COMPLETED BY EXCEL ENGINEERING AS REQUESTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. CONTRACTOR TO CONTACT RYAN WILGREEN AT 920–926–9800 OR ryan.w@excelengineer.com TO GET STAKING PRICE TO INCLUDE IN BID TO OWNER. PAYMENT OF STAKING COSTS ABOVE AND BEYOND THE BASE PRICE DUE TO RESTAKING WILL BE THE RESPONSIBILITY OF THE CONTRACTOR, NOT THE OWNER. CAD DRAWING FILES AND SURVEY CONTROL WILL NOT BE PROVIDED FOR STAKING PURPOSES.

GENERAL PROJECT NOTES

1. ALL DRIVEWAYS AND CURB CUTS TO BE CONSTRUCTED ACCORDING TO LOCAL ORDINANCES. CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL WORK IN ROW PERMITS.

TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

CALL DIGGERS HOTLINE 1–800–242–8511

TOLL FREE
TELEFAX (414) 259–0947
TDD (FOR THE HEARING IMPAIRED) 1–800 542–2289
WISCONSIN STATUTE 182.0175 (1974) REQUIRES MINIMUM OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

CONTACTS

OWNER
SUNDANCE, INC
7915 KENSINGTON COURT
BRIGHTON, MI 48116
CONTACT: TIM KRAUSE
P: (248) 446-0100 EXT. 223
TimKrause@teamlyders.com

CIVIL
EXCEL ENGINEERING
100 CAMELOT DRIVE
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CONTACT:
JASON DAYE
P: (920) 926-9800
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jason.d@excelengineer.com

CIVIL COVER SHEET

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PROFESSIONAL SEAL
WISCONSIN JASON DAYE 38777-006 FOND DU LAC WISCONSIN PROFESSIONAL ENGINEER

PRELIMINARY DATES
OCT. 5, 2020

NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C0.1

PLAN SPECIFICATIONS (BASED ON CSI FORMAT)

DIVISION 31 EARTH WORK

31 10 00 SITE CLEARING (DEMOLITION)

A. CONTRACTOR SHALL CALL DIGGER'S HOT LINE AND CONDUCT A PRIVATE UTILITY LOCATE AS REQUIRED TO ENSURE THAT ALL UTILITIES HAVE BEEN LOCATED BEFORE STARTING SITE DEMOLITION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
B. DEMOLITION PLAN IS AN OVERVIEW OF DEMOLITION TO TAKE PLACE ON SITE. CONTRACTOR TO FIELD VERIFY EXISTING SITE CONDITIONS PRIOR TO BIDDING. CONTRACTOR SHALL REMOVE, REPLACE, OR DEMOLISH ALL ITEMS AS NEEDED DURING CONSTRUCTION.
C. CONTRACTOR TO PROTECT EXISTING IMPROVEMENTS THAT ARE SCHEDULED TO REMAIN. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPLACED AT CONTRACTORS EXPENSE.
D. ALL CONCRETE NOTED TO BE REMOVED SHALL BE REMOVED TO THE NEAREST CONTROL JOINT.

31 20 00 EARTH MOVING

A. CONTRACTOR SHALL CALL DIGGER'S HOT LINE AND CONDUCT A PRIVATE UTILITY LOCATE AS REQUIRED TO ENSURE THAT ALL UTILITIES HAVE BEEN LOCATED BEFORE STARTING EXCAVATION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
B. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT FOR ALL EXCAVATION, GRADING, FILL AND BACKFILL WORK AS REQUIRED TO COMPLETE THE GENERAL CONSTRUCTION WORK. ALL EXCAVATION AND BACKFILL FOR ELECTRICALS AND MECHANICALS ARE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTOR UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS.
C. ALL ORGANIC TOPSOIL INSIDE THE BUILDING AREA, UNDER PAVED AREAS, AND AT SITE FILL AREAS SHALL BE REMOVED. PROOF ROLL SUBGRADES BEFORE PLACING FILL WITH HEAVY PNEUMATIC-TIRED EQUIPMENT, SUCH AS A FULLY-LOADED TANDEM AXLE DUMP TRUCK, TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. CONTRACTOR SHALL VERIFY TOPSOIL DEPTHS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW AND FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT AND ACCOUNT FOR EXISTING CONDITIONS PRIOR TO SUBMITTING BID FOR THE PROJECT. EXCESS MATERIALS SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE DIRECTED IN THE PLANS OR BY LOCAL ZONING REQUIREMENTS.
D. PLACE AND COMPACT FILL MATERIAL IN LAYERS TO REQUIRED ELEVATIONS. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT FILL OR BACKFILL LAYER BEFORE COMPACTION AS RECOMMENDED TO ACHIEVE SPECIFIED DRY DENSITY. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT IS TOO WET TO COMPACT TO SPECIFIED DRY DENSITY.
E. PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
F. COMPACT THE SOIL TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF MAXIMUM DRY DENSITY ACCORDING TO ASTM D 698, STANDARD PROCTOR TEST. FILL MAY NOT BE PLACED ON FROZEN GROUND AND NO FROZEN MATERIALS MAY BE USED FOR BACK FILL. APPLY THE MORE STRINGENT REQUIREMENTS WHEN COMPARING BETWEEN THE FOLLOWING AND THE GEOTECHNICAL REPORT.

1. UNDER FOUNDATIONS - SUBGRADE, AND EACH LAYER OF BACKFILL OR FILL MATERIAL, TO NOT LESS THAN 98 PERCENT.
2. UNDER INTERIOR SLAB-ON-GRADE WHERE GROUNDWATER IS MORE THAN 3 FEET BELOW THE SLAB - PLACE A DRAINAGE COURSE LAYER OF 3/4" CRUSHED STONE, WITH 5% TO 12% FINES, PER THICKNESS INDICATED ON FOUNDATION PLANS ON PREPARED SUBGRADE. COMPACT THE SUBGRADE AND DRAINAGE COURSE TO NOT LESS THAN 95 PERCENT.
3. UNDER INTERIOR SLAB-ON-GRADE WHERE GROUNDWATER IS WITHIN 3 FEET OF THE SLAB SURFACE- PLACE A DRAINAGE COURSE LAYER OF CLEAN 3/4" CRUSHED STONE, WITH NO MORE THAN 5% FINES, PER THICKNESS INDICATED ON FOUNDATION PLANS ON PREPARED SUBGRADE. COMPACT THE SUBGRADE AND DRAINAGE COURSE TO NOT LESS THAN 95 PERCENT.
4. UNDER EXTERIOR CONCRETE AND ASPHALT PAVEMENTS - COMPACT THE SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL TO NOT LESS THAN 95 PERCENT.
5. UNDER WALKWAYS - COMPACT SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL TO NOT LESS THAN 95 PERCENT.
6. UNDER LAWN OR UNPAVED AREAS - COMPACT SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL, TO NOT LESS THAN 85 PERCENT.

G. CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS. IT IS SUGGESTED THAT THE GEOTECHNICAL FIRM USED TO PERFORM THE SUBSURFACE SOIL INVESTIGATION BE ENGAGED FOR THE FIELD QUALITY CONTROL TESTS.
H. ALLOW THE TESTING AGENCY TO TEST AND INSPECT SUBGRADES AND EACH FILL OR BACKFILL LAYER. PROCEED WITH SUBSEQUENT EARTHWORK ONLY AFTER TEST RESULTS FOR PREVIOUSLY COMPLETED WORK COMPLY WITH REQUIREMENTS. PROVIDE ONE TEST FOR EVERY 2000 SQUARE FEET OF PAVED AREA OR BUILDING SLAB, ONE TEST FOR EACH SPREAD FOOTING, AND ONE TEST FOR EVERY 50 LINEAR FEET OF WALL STRIP FOOTING.
I. WHEN THE TESTING AGENCY REPORTS THAT SUBGRADES, FILLS, OR BACKFILLS HAVE NOT ACHIEVED DEGREE OF COMPACTION SPECIFIED, SCARIFY AND MOISTEN OR AERATE, OR REMOVE AND REPLACE SOIL TO DEPTH REQUIRED; RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION IS OBTAINED.
J. THE BUILDING SITE SHALL BE GRADED TO PROVIDE DRAINAGE AWAY FROM THE BUILDING AS INDICATED ON THE PLANS. SITE EARTHWORK SHALL BE GRADED TO WITHIN 0.10' OF REQUIRED EARTHWORK ELEVATIONS ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE GRADING PLAN.

31 30 00 EROSION CONTROL

A. THE GRADING PLAN REFLECTS LESS THAN 1 ACRE OF DISTURBED AREA. THE SITE IS THEREFORE EXEMPT FROM WISCONSIN DEPARTMENT OF NATURAL RESOURCES NR 216 NOTICE OF INTENT REQUIREMENTS. THE DESIGN ENGINEER SHALL PREPARE AN EROSION CONTROL PLAN TO MEET NR 151.105 CONSTRUCTION SITE PERFORMANCE STANDARDS FOR NON-PERMITTED SITES.
B. EROSION AND SEDIMENT CONTROL IMPLEMENTED DURING CONSTRUCTION SHALL STRICTLY COMPLY WITH THE GUIDELINES AND REQUIREMENTS SET FORTH IN WISCONSIN ADMINISTRATIVE CODE (W.A.C.) NR 151, THE STATE OF WISCONSIN DEPARTMENT OF NATURAL RESOURCES RUNOFF MANAGEMENT PERFORMANCE STANDARDS. TECHNICAL STANDARDS PUBLISHED BY THE WISCONSIN DNR SHALL ALSO BE UTILIZED TO IMPLEMENT THE REQUIRED PERFORMANCE STANDARDS. THE METHODS AND TYPES OF EROSION CONTROL WILL BE DEPENDENT ON THE LOCATION AND TYPE OF WORK INVOLVED. ALL SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION, AND INSTALLED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL. BELOW IS A LIST OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES TO ACHIEVE THE PERFORMANCE STANDARDS REQUIRED.

1. SILT FENCE SHALL BE PLACED ON SITE AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN. SILT FENCE SHALL ALSO BE PROVIDED AROUND THE PERIMETER OF ALL SOIL STOCKPILES THAT WILL EXIST FOR MORE THAN 7 DAYS. FOLLOW PROCEDURES FOUND IN WISCONSIN DNR TECHNICAL STANDARD 1056 (CURRENT EDITION).
2. DITCH CHECKS SHALL BE PROVIDED TO REDUCE THE VELOCITY OF WATER FLOWING IN DITCH BOTTOMS. PLACE AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN. FOLLOW PROCEDURES FOUND IN WISCONSIN DNR TECHNICAL STANDARD 1062 (CURRENT EDITION).
3. STONE TRACKING PADS AND TRACKOUT CONTROL PRACTICES SHALL BE PLACED AT ALL CONSTRUCTION SITE ENTRANCES AND SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE CONSTRUCTION SITE. SEE THE EROSION CONTROL PLAN FOR LOCATIONS. THE AGGREGATE USED FOR THE STONE TRACKING PAD SHALL BE 3/8" TO 3 INCH CLEAR OR WASHED STONE AND SHALL BE PLACED IN A LAYER AT LEAST 12 INCHES THICK. THE STONE SHALL BE UNDERLAIN WITH A WISDOT TYPE R GEOTEXTILE FABRIC AS NEEDED. THE TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT (12' MIN WIDTH) AND SHALL BE A MINIMUM OF 50 FEET LONG. SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. OTHER TRACKOUT CONTROL PRACTICES INCLUDING STABILIZED WORK SURFACES, MANUFACTURED TRACKOUT CONTROL DEVICES, TIRE WASHING, AND STREET/PAVEMENT CLEANING SHALL BE IMPLEMENTED AS NECESSARY TO MITIGATE THE TRACKOUT OF SEDIMENT OFFSITE. FOLLOW PROCEDURES FOUND IN WISCONSIN DNR TECHNICAL STANDARD 1057 (CURRENT EDITION).
4. STORM DRAIN INLET PROTECTION SHALL BE PROVIDED FOR ALL NEW AND DOWNSTREAM STORM CATCH BASINS AND CURB INLETS. TYPE B OR C PROTECTION SHOULD BE PROVIDED AND SHALL BE IN CONFORMANCE WITH WISCONSIN DNR TECHNICAL STANDARD 1060 (CURRENT EDITION).
5. DUST CONTROL MEASURES SHALL BE PROVIDED TO REDUCE OR PREVENT THE SURFACE AND AIR TRANSPORT OF DUST DURING CONSTRUCTION. CONTROL MEASURES INCLUDE APPLYING MULCH AND ESTABLISHING VEGETATION, WATER SPRAYING, SURFACE ROUGHENING, APPLYING POLYMERS, SPRAY-ON TACKIFIERS, CHLORIDES, AND BARRIERS. SOME SITES MAY REQUIRE AN APPROACH THAT UTILIZES A COMBINATION OF MEASURES FOR DUST CONTROL. FOLLOW PROCEDURES FOUND IN WISCONSIN DNR TECHNICAL STANDARD 1068 (CURRENT EDITION).
6. THE USE, STORAGE, AND DISPOSAL OF CHEMICALS, CEMENT, AND OTHER COMPOUNDS AND MATERIALS USED ON SITE SHALL BE MANAGED DURING THE CONSTRUCTION PERIOD TO PREVENT THEIR TRANSPORT BY RUNOFF INTO WATERS OF THE STATE.
7. CONTRACTOR SHALL PROVIDE AN OPEN AGGREGATE CONCRETE TRUCK WASHOUT AREA ON SITE. CONTRACTOR TO ENSURE THAT CONCRETE WASHOUT SHALL BE CONTAINED TO THIS DESIGNATED AREA AND NOT BE ALLOWED TO RUN INTO STORM INLETS OR INTO THE OVERLAND STORMWATER DRAINAGE SYSTEM. WASHOUT AREA SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION.
8. TEMPORARY SITE RESTORATION SHALL TAKE PLACE IN DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE OR ON WHICH LAND DISTURBING ACTIVITIES WILL NOT BE PERFORMED FOR A PERIOD GREATER THAN 14 DAYS AND REQUIRES VEGETATIVE COVER FOR LESS THAN ONE YEAR. THIS TEMPORARY SITE RESTORATION REQUIREMENT ALSO APPLIES TO SOIL STOCKPILES THAT EXIST FOR MORE THAN 7 DAYS. PERMANENT RESTORATION APPLIES TO AREAS WHERE PERENNIAL VEGETATIVE COVER IS NEEDED TO PERMANENTLY STABILIZE AREAS OF EXPOSED SOIL. PERMANENT STABILIZATION SHALL OCCUR WITHIN 3 WORKING DAYS OF FINAL GRADING. TOPSOIL, SEED, AND MULCH SHALL BE IN GENERAL CONFORMANCE WITH TECHNICAL STANDARDS 1058 AND 1059 AND SHALL MEET THE SPECIFICATIONS FOUND IN THE LANDSCAPING AND SITE STABILIZATION SECTION OF THIS CONSTRUCTION DOCUMENT. ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR FINAL STABILIZATION MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
9. IF SITE DEWATERING IS REQUIRED FOR PROPOSED CONSTRUCTION ACTIVITIES, ALL SEDIMENT LADEN WATER GENERATED DURING THE DEWATERING PROCESS SHALL BE TREATED TO REMOVE SEDIMENT PRIOR TO DISCHARGING OFF-SITE OR TO WATERS OF THE STATE. FOLLOW ALL PROCEDURES FOUND IN TECHNICAL STANDARD 1061.
10. ALL OFF-SITE SEDIMENT DEPOSITS OCCURRING AS A RESULT OF CONSTRUCTION WORK OR A STORM EVENT SHALL BE CLEANED UP BY THE END OF EACH WORKING DAY. DUST CONTROL REQUIREMENTS SHALL BE FOLLOWED PER WI DNR TECHNICAL STANDARD 1068 (CURRENT EDITION). FLUSHING SHALL NOT BE ALLOWED.

C. ALL EROSION CONTROL DEVICES SHALL AT A MINIMUM BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD. MAINTENANCE SHALL BE PERFORMED PER WISCONSIN ADMINISTRATIVE CODE (W.A.C.) NR 151 STORMWATER MANAGEMENT TECHNICAL STANDARD REQUIREMENTS.
D. EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL THE AREA(S) SERVED HAVE ESTABLISHED VEGETATIVE COVER.
E. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL LOCAL EROSION CONTROL PERMITS.

DIVISION 32 EXTERIOR IMPROVEMENTS

32 10 00 AGGREGATE BASE & ASPHALT PAVEMENT

A. CONTRACTOR TO PROVIDE COMPACTED AGGREGATE BASE AND HOT MIX ASPHALT PAVEMENT WHERE INDICATED ON THE PLANS. ALL AGGREGATE PROVIDED MUST COMPLY WITH SECTION 305 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION. PROVIDE HOT MIX ASPHALT MIXTURE TYPES PER SECTION 460 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION. CONTRACTOR SHALL OBTAIN AND REVIEW SOILS REPORT FOR RECOMMENDATIONS FOR GEO-GRID / GEOTEXTILE BELOW CRUSHED AGGREGATE (IF APPLICABLE). CONTRACTOR TO PROVIDE AGGREGATE BASE AND HOT MIX ASPHALT PAVEMENT TYPES AND DEPTHS AS INDICATED BELOW:

STANDARD ASPHALT PAVING SECTION
1-1/2" SURFACE COURSE (5 LT 58-28S)
(WISDOT 455.2.5 TACK COAT (STAGED PAVING)
2-1/2" BINDER COURSE (3 LT 58-28S)
12" OF 1-1/4" CRUSHED AGGREGATE

B. CONTRACTOR TO COMPACT THE AGGREGATE BASE, ASPHALT BINDER COURSE, AND ASPHALT SURFACE COURSE TO AN AVERAGE DENSITY PER WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION. ALL ASPHALT PAVEMENT AREAS SHALL BE PAVED TO WITHIN 0.10' OF DESIGN SURFACE GRADES WITH POSITIVE DRAINAGE BEING MAINTAINED IN ACCORDANCE WITH DESIGN PLANS. A MINIMUM OF 1% SLOPE SHALL BE MAINTAINED IN ALL ASPHALT PAVEMENT AREA.
C. HOT MIX ASPHALT CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF GEOTECHNICAL REPORT OR CONSTRUCTION DOCUMENTS.
D. CONTRACTOR TO PROVIDE 4" WIDE YELLOW PAINTED STRIPING FOR PARKING STALLS, TRAFFIC LANES, AND NO PARKING AREAS. YELLOW PAINT MARKINGS SHALL ALSO BE PROVIDED FOR H.C. ACCESSIBLE SYMBOLS, TRAFFIC ARROWS, AND TRAFFIC MESSAGES.

32 20 00 CONCRETE AND AGGREGATE BASE

A. CONTRACTOR TO PROVIDE CRUSHED AGGREGATE BASE AND CONCRETE WHERE INDICATED ON THE PLANS.
B. ALL AGGREGATE PROVIDED MUST COMPLY WITH SECTION 305 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION. ALL AGGREGATE PLACED MUST BE COMPACTED TO AN AVERAGE DENSITY PER WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
C. DESIGN AND CONSTRUCTION OF ALL CAST-IN-PLACE EXTERIOR CONCRETE FLAT WORK SHALL CONFORM TO ACI 330R-08 & ACI 318-08.
D. EXTERIOR CONCRETE FLAT WORK CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF THE GEOTECHNICAL REPORT OR THIS SPECIFICATION. CONCRETE FLAT WORK CONSTRUCTION IS AS FOLLOWS:

1. SIDEWALK/PATIO CONCRETE - 4" OF CONCRETE OVER 4" OF 3/4" CRUSHED AGGREGATE BASE. CONTRACTION JOINTS SHALL CONSIST OF 1/8" WIDE BY 1" DEEP TOOLED JOINT WHERE INDICATED ON THE PLANS.
2. DUMPSTER PAD/APRON CONCRETE - 8" OF CONCRETE OVER 6" OF AGGREGATE BASE.
   a. CONCRETE SHALL BE STEEL REINFORCED WITH THE FOLLOWING AND PLACED AT A DEPTH OF 2/3 DOWN FROM THE SURFACE OF THE SLAB:
      1). TIE BARS AT ALL CONTRACTION JOINTS OF THE CONCRETE. TIE BARS SHALL BE #4 REBAR 30" LONG PLACED AT 30" O.C.
   b. DUMPSTER PAD CONCRETE JOINTING SHALL BE AS FOLLOWS:
      1). CONTRACTION SAWCUT JOINT - CONTRACTOR SHALL PROVIDE A SAWCUT JOINT AT MAXIMUM SPACING OF 15' ON CENTER. SAWCUT SHALL BE 2" IN DEPTH.
      2). TYPICAL POUR CONTROL JOINT - POUR CONTROL JOINT SHALL BE PROVIDED WITH 1-1/4" DIAMETER BY 20" LONG SMOOTH DOWEL PLACED AT 12" O.C. ONE HALF OF THE DOWEL SHALL BE GREASED. GREENSTREAK 9" SPEED DOWEL TUBES SHALL BE USED.
3. HEAVY DUTY/DRIVE-THRU CONCRETE - 6" OF CONCRETE OVER 6" OF 3/4" CRUSHED AGGREGATE. CONCRETE SHALL BE REINFORCED WITH #3 REBARS ON CHAIRS AT 3' O.C. REBAR SHALL BE PLACED AT A DEPTH OF 2/3 DOWN FROM THE TOP OF THE SLAB. CONTRACTION JOINTS SHALL BE SAWCUT 1.5" IN DEPTH AND BE SPACED A MAXIMUM OF 15' ON CENTER.

E. DESIGN MIXES SHALL BE IN ACCORDANCE WITH ASTM C94

1. STRENGTH TO BE MINIMUM OF 4,500 PSI AT 28 DAYS FOR EXTERIOR CONCRETE.
2. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45.
3. SLUMP SHALL NOT EXCEED 4" FOR EXTERIOR CONCRETE FLAT WORK
4. SLUMP SHALL BE 2.5" OR LESS FOR SLIP-FORMED CURB AND GUTTER
5. SLUMP SHALL BE BETWEEN 1.5" TO 3" FOR NON SLIP-FORMED CURB AND GUTTER.
6. ALL EXTERIOR CONCRETE SHALL BE AIR ENTRAINED WITH 4% TO 7% AIR CONTENT. NO OTHER ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF EXCEL ENGINEERING, INC. CALCIUM CHLORIDE SHALL NOT BE USED.
7. MAXIMUM AGGREGATE SIZE FOR ALL EXTERIOR CONCRETE SHALL BE 0.75 INCHES.

F. VERIFY EQUIPMENT CONCRETE PAD SIZES WITH RESPECTIVE CONTRACTORS. PADS SHALL HAVE FIBERMESH 300 FIBERS AT A RATE OF 1.5 LBS/CU. YD. OR 6 X 6-W1.4 X W1.4 WELDED WIRE MESH WITH MINIMUM 1 INCH COVER. EQUIPMENT PADS SHALL BE 3.5 INCHES THICK WITH 1 INCH CHAMFER UNLESS SPECIFIED OTHERWISE. COORDINATE ADDITIONAL PAD REQUIREMENTS WITH RESPECTIVE CONTRACTOR.

G. ALL CONCRETE FLAT WORK SURFACES AND CONCRETE CURB FLOWLINES SHALL BE CONSTRUCTED TO WITHIN 0.05' OF DESIGN SURFACE AND FLOWLINE GRADES ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE DESIGN PLANS.

H. CONCRETE FLAT WORK SHALL HAVE CONSTRUCTION JOINTS OR SAW CUT JOINTS PLACED AS INDICATED ON THE PLANS OR PER THIS SPECIFICATION. SAWCUTS SHALL BE DONE AS SOON AS POSSIBLE, BUT NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED. CONCRETE CURB AND GUTTER JOINTING SHALL BE PLACED EVERY 10' OR CLOSER (6' MIN.). IF CONCRETE PAVEMENT IS ADJACENT TO CONCRETE CURB, JOINTING IN THE PAVEMENT AND CURB SHALL ALIGN. ALL EXTERIOR CONCRETE SHALL HAVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE. A UNIFORM COAT OF A HIGH SOLIDS CURING COMPOUND MEETING ASTM C309 SHOULD BE APPLIED TO ALL EXPOSED CONCRETE SURFACES. ALL CONCRETE IS TO BE CURED FOR 7 DAYS. EXTERIOR CONCRETE SHALL BE SEPARATED FROM BUILDINGS WITH CONTINUOUS 0.5 INCH FIBER EXPANSION JOINT AND/OR 0.25 INCH FIBER EXPANSION JOINT AT DECORATIVE MASONRY UNITS.

I. ALL REINFORCING BARS SHALL BE ASTM A615 GRADE 60. THICKNESS OF CONCRETE COVER OVER REINFORCEMENT SHALL BE NOT LESS THAN 3" WHERE CONCRETE IS DEPOSITED AGAINST THE GROUND WITHOUT THE USE OF FORMS AND NOT LESS THAN 1.5" IN ALL OTHER LOCATIONS. ALL REINFORCING SHALL BE LAPPED 36 DIAMETERS FOR UP TO #6 BARS, 60 DIAMETERS FOR #7 TO #10 BARS OR AS NOTED ON THE DRAWINGS AND EXTENDED AROUND CORNERS WITH CORNER BARS. PLACING AND DETAILING OF STEEL REINFORCING AND REINFORCING SUPPORTS SHALL BE IN ACCORDANCE WITH CRSI AND ACI MANUAL AND STANDARD PRACTICES. THE REINFORCEMENT SHALL NOT BE PAINTED AND MUST BE FREE OF GREASE/OIL, DIRT OR DEEP RUST WHEN PLACED IN THE WORK. ALL WELDED WIRE FABRIC SHALL MEET THE REQUIREMENTS OF ASTM A 185. WELDED WIRE FABRIC SHALL BE PLACED 2" FROM TOP OF SLAB, UNLESS INDICATED OTHERWISE.

J. CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO SAMPLE MATERIALS, PERFORM TESTS, AND SUBMIT TEST REPORTS DURING CONCRETE PLACEMENT. TESTS WILL BE PERFORMED ACCORDING TO ACI 301. CAST AND LABORATORY CURE ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIX EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD., PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. OR FRACTION THEREOF. PERFORM COMPRESSIVE-STRENGTH TESTS ACCORDING TO ASTM C 39. TEST TWO SPECIMENS AT 7 DAYS AND TWO SPECIMENS AT 28 DAYS. PERFORM SLUMP TESTING ACCORDING TO ASTM C 143. PROVIDE ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.

K. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. IN HOT, DRY, AND WINDY WEATHER, APPLY AN EVAPORATION-CONTROL COMPOUND ACCORDING TO MANUFACTURER'S INSTRUCTIONS AFTER SCREEDING AND BULL FLOATING, BUT BEFORE POWER FLOATING AND TROWELLING.

L. LIMIT MAXIMUM WATER-CEMENTIOUS RATIO OF CONCRETE EXPOSED TO FREEZING, THAWING AND DEICING SALTS TO 0.45.

M. TEST RESULTS WILL BE REPORTED IN WRITING TO THE DESIGN ENGINEER, READY-MIX PRODUCER, AND CONTRACTOR WITHIN 24 HOURS AFTER TESTS. REPORTS OF COMPRESSIVE STRENGTH TESTS SHALL CONTAIN THE PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING SERVICE, CONCRETE TYPE AND CLASS, LOCATION OF CONCRETE BATCH IN STRUCTURE, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIX PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7-DAY TESTS AND 28-DAY TESTS.

32 30 00 LANDSCAPING AND SITE STABILIZATION

A. TOPSOIL: CONTRACTOR TO PROVIDE A MINIMUM OF 6" OF TOPSOIL FOR ALL DISTURBED OPEN AREAS. REUSE SURFACE SOIL STOCKPILED ON SITE AND SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN QUANTITIES ARE INSUFFICIENT. EXCAVATOR SHALL BE RESPONSIBLE FOR ROUGH PLACEMENT OF TOPSOIL TO WITHIN 1" OF FINAL GRADE PRIOR TO LANDSCAPER FINAL GRADING. LANDSCAPER TO PROVIDE PULVERIZING AND FINAL GRADING OF TOPSOIL. PROVIDE SOIL ANALYSIS BY A QUALIFIED SOIL TESTING LABORATORY AS REQUIRED TO VERIFY THE SUITABILITY OF SOIL TO BE USED AS TOPSOIL AND TO DETERMINE THE NECESSARY SOIL AMENDMENTS. TEST SOIL FOR PRESENCE OF ATRAZINE AND INFORM EXCEL ENGINEERING, INC. IF PRESENT PRIOR TO BIDDING PROJECT. TOPSOIL SHALL HAVE A PH RANGE OF 5.5 TO 8, CONTAIN A MINIMUM OF 5 PERCENT ORGANIC MATERIAL CONTENT, AND SHALL BE FREE OF STONES 1 INCH OR LARGER IN DIAMETER. ALL MATERIALS HARMFUL TO PLANT GROWTH SHALL ALSO BE REMOVED.

B. TOPSOIL INSTALLATION: LOOSEN SUBGRADE TO A MINIMUM DEPTH OF 6 INCHES AND REMOVE STONES LARGER THAN 1" IN DIAMETER. ALSO REMOVE ANY STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATTER AND DISPOSE OF THEM OFF THE PROPERTY. SPREAD TOPSOIL TO A DEPTH OF 6" BUT NOT LESS THAN WHAT IS REQUIRED TO MEET FINISHED GRADES AFTER LIGHT ROLLING AND NATURAL SETTLEMENT. DO NOT SPREAD TOPSOIL IF SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET. GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. GRADE TO WITHIN 0.05 FEET OF FINISHED GRADE ELEVATION.

C. EROSION MATTING:

1. CONTRACTOR TO PROVIDE EROSION CONTROL MATTING (NORTH AMERICAN GREEN S150) OR EQUIVALENT ON ALL SLOPES THAT ARE 4:1 AND GREATER.

D. SODDED LAWNS: PROVIDE SOD CONSISTING OF THE FOLLOWING GRASS SPECIES - 65% KENTUCKY BLUEGRASS, 20% PERENNIAL RYEGRASS, 15% FINE FESCUE. PROVIDE VIABLE SOD OF UNIFORM DENSITY, COLOR, AND TEXTURE. SOD SHOULD BE STRONGLY ROOTED AND CAPABLE OF VIGOROUS GROWTH AND DEVELOPMENT WHEN PLANTED. LAY SOD WITHIN 24 HOURS OF HARVESTING. DO NOT LAY SOD IF DORMANT OR IF GROUND IS FROZEN OR MUDDY. LAY SOD WITH TIGHTLY FITTED BUTT END AND SIDE JOINTS. DO NOT STRETCH OR OVERLAP. STAGGER SOD STRIPS TO OFFSET JOINTS IN ADJACENT COURSES. TAMP AND ROLL LIGHTLY TO ENSURE CONTACT WITH TOPSOIL. ANCHOR SOD ON SLOPES EXCEEDING 6:1 SLOPE. PROVIDE SLOW RELEASE FERTILIZER AS RECOMMENDED BY SOD SUPPLIER FOR PROPER LAWN ESTABLISHMENT. SATURATE WITH FINE WATER SPRAY WITHIN 2 HOURS OF PLANTING.

E. SODDED LAWN MAINTENANCE: CONTRACTOR TO PROVIDE MAINTENANCE FOR ALL SODDED AREAS FOR A PERIOD OF 90 DAYS FROM THE DATE OF INSTALLATION. AT THE END OF THE MAINTENANCE PERIOD, A HEALTHY, WELL-ROOTED, EVEN-COLORED, VIABLE LAWN SHOULD BE ESTABLISHED. THE LAWN SHOULD BE FREE OF WEEDS, OPEN JOINTS, BARE AREAS, AND SURFACE IRREGULARITIES. REESTABLISH LAWNS THAT DO NOT COMPLY WITH THESE REQUIREMENTS AND CONTINUE MAINTENANCE UNTIL LAWNS ARE SATISFACTORY.

F. RIP RAP: ALL RIP RAP ASSOCIATED WITH STORMWATER MANAGEMENT AND STORMWATER CONVEYANCE, AS DELINEATED ON THE PLANS, SHALL BE CONSTRUCTED WITH THE TOP OF RIP RAP MATCHING THE PROPOSED ADJACENT GRADE ELEVATIONS. PLACEMENT OF RIP RAP ABOVE THE PROPOSED ADJACENT GRADE ELEVATIONS IS NOT ACCEPTABLE. ALL RIP RAP SHALL BE PLACED ON TYPE HR FILTER FABRIC PER SECTION 645 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURAL CONSTRUCTION.

G. TREES AND SHRUBS: FURNISH NURSERY-GROWN TREES AND SHRUBS WITH HEALTHY ROOT SYSTEMS DEVELOPED BY TRANSPLANTING OR ROOT PRUNING. PROVIDE WELL-SHAPED, FULLY BRANCHED, AND HEALTHY LOOKING STOCK. STOCK SHOULD ALSO BE FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. SEE THE LANDSCAPE PLAN FOR SPECIFIC SPECIE TYPE, SIZE, AND LOCATION.

H. TREE AND SHRUB INSTALLATION: EXCAVATE CIRCULAR PITS WITH SIDES SLOPED INWARD. TRIM BASE LEAVING CENTER AREA RAISED SLIGHTLY TO SUPPORT ROOT BALL. EXCAVATE PIT APPROXIMATELY THREE TIMES AS WIDE AS THE ROOT BALL DIAMETER. SET TREES AND SHRUBS PLUMB AND IN CENTER OF PIT WITH TOP OF BALL 1" ABOVE ADJACENT FINISHED GRADES. PLACE PLANTING SOIL MIX AROUND ROOT BALL IN LAYERS AND TAMP TO SETTLE MIX. WATER ALL PLANTS THOROUGHLY. PROVIDE TEMPORARY STAKING FOR TREES AS REQUIRED.

I. TREE AND SHRUB MAINTENANCE/WARRANTY: CONTRACTOR TO PROVIDE MAINTENANCE OF ALL LANDSCAPING FOR A PERIOD OF 90 DAYS FROM THE DATE OF INSTALLATION. MAINTENANCE TO INCLUDE REGULAR WATERING AS REQUIRED FOR SUCCESSFUL PLANT ESTABLISHMENT. CONTRACTOR TO PROVIDE 1 YEAR WARRANTY ON ALL TREES, SHRUBS, AND PERENNIALS.

J. DECORATIVE MULCH: PROVIDE 3" MINIMUM THICK BLANKET OF 0.75" MINIMUM TO 1.5" MAXIMUM CRUSHED DECORATIVE STONE AT ALL PLANTING AREAS INDICATED ON THE LANDSCAPE PLAN. INSTALL OVER NON-WOVEN WEED BARRIER FABRIC. COLOR/STYLE BY OWNER.

K. PLASTIC EDGING: INSTALL VALLEY VIEW INDUSTRIES BLACK DIAMOND LAWN EDGING TO SEPARATE ALL PLANTING BEDS FROM LAWN AREAS. EDGING TO BE 5.5" TALL WITH METAL STAKES INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

DIVISION 33 UTILITIES

33 10 00 SITE UTILITIES

A. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES ON SITE. CONTRACTOR TO VERIFY PIPE LOCATIONS, SIZES, AND DEPTHS AT POINT OF PROPOSED CONNECTIONS AND VERIFY PROPOSED UTILITY ROUTES ARE CLEAR (PER CODE) OF ALL EXISTING UTILITIES AND OTHER OBSTRUCTIONS PRIOR TO CONSTRUCTION. COSTS INCURRED FOR FAILURE TO DO SO SHALL BE THE CONTRACTORS RESPONSIBILITY.

B. ALL PROPOSED SANITARY PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET. ALL PROPOSED SANITARY PIPE BELOW PROPOSED & FUTURE BUILDINGS SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET.

C. SANITARY AND MANHOLES SHALL BE 48" PRECAST AND CONFORM TO THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN-CURRENT EDITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SANITARY MANHOLE FRAME AND GRATE TO BE NEENAH R-1550-A OR EQUAL. RIM ELEVATION TO BE SET AT FINISHED GRADE IN DEVELOPED AREAS AND 12" ABOVE FINISHED GRADE IN UNDEVELOPED AREAS EXCEPT AS OTHERWISE DIRECTED BY THE ENGINEER.

D. CLEANOUTS SHALL BE PROVIDED FOR THE SANITARY/STORM SERVICE AT LOCATIONS INDICATED ON THE UTILITY PLAN. THE CLEANOUT SHALL CONSIST OF A COMBINATION WYE FITTING IN LINE WITH THE SANITARY SERVICE WITH THE CLEANOUT LEG OF THE COMBINATION WYE FACING STRAIGHT UP. THE CLEANOUT SHALL CONSIST OF A 4" OR 6" (4" FOR 5" OR SMALLER, 6" FOR 6" OR LARGER PIPING) VERTICAL PVC PIPE WITH A WATERTIGHT REMOVABLE CLEANOUT PLUG. AN 8" PVC FROST SLEEVE SHALL BE PROVIDED. THE BOTTOM OF THE FROST SLEEVE SHALL TERMINATE 12" ABOVE THE TOP OF THE SANITARY LATERAL OR AT LEAST 6" BELOW THE PREDICTED FROST DEPTH, WHICHEVER IS SHALLOWER. THE CLEANOUT SHALL EXTEND JUST ABOVE THE SURFACE GRADE IN LAWN OR LANDSCAPE AREAS WITH THE FROST SLEEVE TERMINATING AT THE GRADE SURFACE. THE CLEANOUT SHALL EXTEND TO 4 INCHES BELOW SURFACE GRADE IN PAVED SURFACES WITH A ZURN (Z-1474-N) HEAVY DUTY CLEANOUT HOUSING PLACED OVER THE TOP OF THE CLEANOUT FLUSH WITH THE SURFACE GRADE. IN PAVED SURFACES, THE FROST SLEEVE SHALL TERMINATE IN A CONCRETE PAD AT LEAST 6" THICK AND EXTENDING AT LEAST 9" FROM THE SLEEVE ON ALL SIDES, SLOPING AWAY FROM THE SLEEVE. THE CLEANOUT HOUSING SHALL BE CONSTRUCTED PER MANUFACTURERS REQUIREMENTS.

E. ALL PROPOSED WATER PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET. 7' MINIMUM COVER SHALL BE PROVIDED OVER ALL WATER PIPING UNLESS OTHERWISE SPECIFIED.

F. ALL PROPOSED HDPE STORM PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET. . SEE UTILITY PLANS FOR ALL STORM PIPE MATERIAL TYPES TO BE USED. PIPE SHALL BE PLACED MIN. 8' HORIZONTALLY FROM FOUNDATION WALLS.

G. SANITARY, STORM, AND WATER UTILITY PIPE INVERTS SHALL BE CONSTRUCTED WITHIN 0.10' OF DESIGN INVERT ELEVATIONS ASSUMING PIPE SLOPE AND SEPARATION IS MAINTAINED PER THE UTILITY DESIGN PLANS AND STATE REQUIREMENTS.

H. SITE UTILITY CONTRACTOR SHALL RUN SANITARY SERVICE TO A POINT WHICH IS A MINIMUM OF 5' FROM THE EXTERIOR WALL OF THE FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN STORM SEWER FOR INTERNALLY DRAINED BUILDINGS TO A POINT WHICH IS A MINIMUM OF 5' FROM THE EXTERIOR WALL OF THE FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN DOWNSPOUT LEADS TO BUILDING FOUNDATION AND UP 6" ABOVE SURFACE GRADE FOR CONNECTION TO DOWNSPOUT. ALL DOWNSPOUT LOCATIONS SHOULD BE VERIFIED WITH ARCHITECTURAL PLANS AND DOWNSPOUT CONTRACTOR/GC PRIOR TO INSTALLATION OF DOWNSPOUT LEADS. DOWNSPOUT LEADS SHALL NOT UNDERMINE BUILDING FOUNDATIONS. SITE UTILITY CONTRACTOR SHALL RUN WATER SERVICE TO A POINT WITHIN THE FOUNDATION SPECIFIED BY THE PLUMBING PLANS. CONTRACTOR TO CUT AND CAP WATER SERVICE 12" ABOVE FINISHED FLOOR ELEVATION.

I. ALL UTILITIES SHALL BE INSTALLED WITH PLASTIC COATED TRACER WIRE (10 TO 14 GAUGE SOLID COPPER, OR COPPER COATED STEEL WIRE). PLASTIC WIRE MAY BE TAPED TO PLASTIC WATER OR SEWER PIPE. IF ATTACHED, THE TRACER WIRE SHALL BE SECURED EVERY 6 TO 20 FEET AND AT ALL BENDS. TRACER WIRE SHALL HAVE ACCESS POINTS AT LEAST EVERY 300 FEET.

J. ALL UTILITIES SHALL BE INSTALLED PER STATE, LOCAL, AND INDUSTRY STANDARDS. WATER, SANITARY, AND STORM SEWER SHALL BE INSTALLED PER "STANDARD SPECIFICATION FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN". THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR OBTAINING STATE PLUMBING REVIEW APPROVAL. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER PERMITS REQUIRED TO INSTALL WATER, SANITARY AND STORM SEWER.

K. SEE PLANS FOR ALL OTHER UTILITY SPECIFICATIONS AND DETAILS.

Table A: Allowable Pipe Material Schedule

Utility	Material	Pipe Code	Fitting Code	Joint Code
Water Lateral	C901 PE (250 PSI SDR 9)	AWWA C901	ASTM D2609, ASTM D2683, ASTM D3261	Heat fusion: ASTM D2657
Sanitary Sewer	SDR 35 PVC	ASTM D1785, ASTM D2665, ASTM D3034, ASTM F891	ASTM F1336	Push On: ASTM D3212 for Tightness Elastomeric Gasket: ASTM F477
Storm Sewer	HDPE	ASTM F2648	ASTM F2306 Saddle Gasket	Joint: ASTM F2648 Bell & Spigot Elastomeric Seal: ASTM F477
Storm Sewer	SDR 35 PVC	ASTM D1785, ASTM D2665, ASTM D3034, ASTM F891	ASTM F1336	Push On: ASTM D3212 for Tightness Elastomeric Seal: ASTM F477

CIVIL SPECIFICATION SHEET

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PROJECT INFORMATION

NEW BUILDING FOR:
SUNDANCE - TACO BELL
N96W18058 COUNTY LINE ROAD ● GERMANTOWN, WI 53022

PROFESSIONAL SEAL

PRELIMINARY DATES
OCT. 5, 2020

NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C0.2

SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

EXISTING CONDITIONS NOTES:

NOTE:
SURFACE INDICATIONS OF UTILITIES ALONG WITH DIGGER'S HOTLINE MARKINGS ON THE SURVEYED PARCEL HAVE BEEN SHOWN. SIZES AND ELEVATION OF UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON FIELD MEASUREMENTS OF VISIBLE STRUCTURES IN COMBINATION WITH AVAILABLE DATA PROVIDED TO EXCEL ENGINEERING. EXCEL ENGINEERING MAKES NO GUARANTEE THAT ALL THE EXISTING UTILITIES IN THE SURVEYED AREA HAVE BEEN SHOWN NOR THAT THEY ARE IN THE EXACT LOCATION INDICATED. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES CRITICAL TO CONSTRUCTION.

NOTE:
PROPERTY LINES AND EASEMENTS SHOWN ON THIS PLAN WERE DRAFTED FROM INFORMATION CONTAINED IN TITLE COMMITMENT NO. CO-10281, BY CHICAGO TITLE INSURANCE COMPANY, DATED AUGUST 20, 2020. AN UPDATED PLAT OF SURVEY OR ALTA SURVEY HAS NOT BEEN AUTHORIZED AND THE PROPERTY LINES SHOWN ON THIS PLAN MAY BE INCOMPLETE OR IN ERROR.

DEMOLITION LEGEND:

- BUILDING DEMOLITION
- SAWCUT AND REMOVE EXISTING ASPHALT OR CONCRETE PAVEMENT WITHIN HATCHED AREA. SALVAGE EXISTING AGGREGATE BASE AND STOCKPILE FOR REUSE IF EXISTING AGGREGATE BASE MEETS THE SPECIFICATIONS LISTED ON C0.1
- CLEAR & GRUB EXISTING TREES OR VEGETATION.

CLEAR & GRUB EXISTING TREES & VEGETATION WITHIN HATCHED AREA.

REMOVE REMNANT FENCE

REMOVE/DEMO EXISTING BUILDING IN ITS ENTIRETY. REMOVE OR ABANDON ALL ASSOCIATED BUILDING FEATURES AND UTILITIES PER LOCAL REQUIREMENTS AS NECESSARY. COORDINATE WITH APPROPRIATE UTILITY PROVIDERS AS NEEDED.

PROTECT EXISTING CONCRETE RETAINING WALL DURING DEMOLITION AND CONSTRUCTION.

SAWCUT AND REMOVE EXISTING ASPHALT OR CONCRETE PAVEMENT WITHIN HATCHED AREA. SALVAGE EXISTING AGGREGATE BASE AND STOCKPILE FOR REUSE IF EXISTING AGGREGATE BASE MEETS THE SPECIFICATIONS LISTED ON C0.1

REMOVE/DEMO EXISTING BUILDING IN ITS ENTIRETY. REMOVE OR ABANDON ALL ASSOCIATED BUILDING FEATURES AND UTILITIES PER LOCAL REQUIREMENTS AS NECESSARY. COORDINATE WITH APPROPRIATE UTILITY PROVIDERS AS NEEDED.

REMOVE EXISTING ROUND INLET STRUCTURE AND ANY ASSOCIATED STORM PIPING. CONTRACTOR TO VERIFY DISCHARGE POINT OF EXISTING STORM AND NOTIFY DESIGN ENGINEER IF ANY STORM PIPES FROM OTHER SOURCE AREAS CONNECT TO STRUCTURE AND NEED TO BE RELOCATED.

REMOVE EXISTING DRY UTILITIES SERVING THE EXISTING BUILDING. COORDINATE WITH UTILITY PROVIDERS AS NEEDED. VERIFY WHETHER ANY EXISTING SERVICES ARE SUITABLE FOR REUSE.

PROTECT EXISTING CONCRETE RETAINING WALL DURING DEMOLITION AND CONSTRUCTION.

CONTRACTOR TO REMOVE/ABANDON EXISTING WATER SERVICES (2) AT THE MAIN PER VILLAGE OF GERMANTOWN STANDARDS. COORDINATE WITH GERMANTOWN WATER UTILITY DEPARTMENT PRIOR TO REQUIRED SHUTDOWN OF WATER MAIN. SAWCUT AND REMOVE EXISTING CONCRETE SIDEWALK AS NEEDED. REMOVE & REPLACE CONCRETE BLOCK RETAINING WALL AND WOOD FENCE AS NEEDED. PROTECT OTHER EXISTING UTILITIES DURING REMOVALS.

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE HC SIGN & STEEL PLATE.

REMOVE HC SIGN

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE STUMPS

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE EXISTING MONUMENT SIGN AND ANY ASSOCIATED CONDUITS. REMOVE BLOCK RETAINING WALL AND PLANTER.

REMOVE EXISTING SANITARY LATERAL SERVING THE EXISTING BUILDING. PROTECT EXISTING SANITARY SAMPLING MANHOLE FOR REUSE.

PROTECT EXISTING WOOD FENCE AND CONCRETE BLOCK RETAINING WALL.

PROTECT EXISTING FORCE MAIN AND SANITARY LINE.

PROTECT EXISTING CONCRETE DRIVE APPROACH AND SIDEWALK.

CLEAR & GRUB EXISTING TREES & VEGETATION WITHIN HATCHED AREA.

S00°55'08"E 600.94'

N87°51'11"E 57.36'

N76°51'09"E 122.14'

N41°44'06"E 97.36'

L=104.16'
R=2,030.48'
CB=N86°23'01"E
CH=104.15'
Δ=002°56'21"

L=22.31'
R=1,943.48'
CB=N77°46'19"E
CH=22.31'
Δ=000°39'28"

COUNTY LINE ROAD (C.T.H. "Q")

MENOMONEE RIVER

NORTH

1"= 20' SCALE 20' 0 20' 40' FEET

CIVIL EXISTING SITE AND DEMOLITION PLAN

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PROJECT INFORMATION

NEW BUILDING FOR:
SUNDANCE - TACO BELL
N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

PRELIMINARY DATES
OCT. 5, 2020

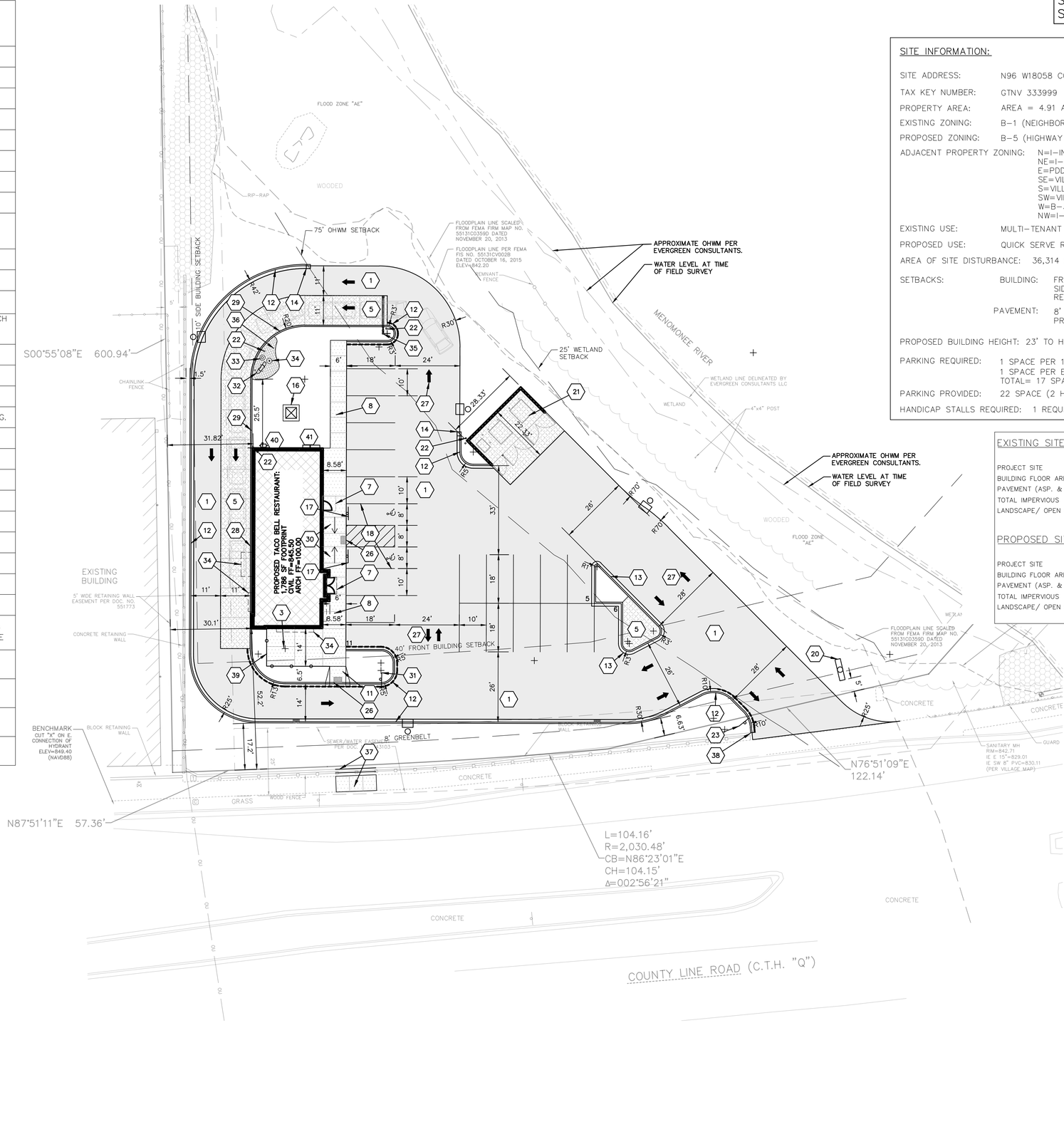
NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C1.0

SITE PLAN KEYNOTES

1	STANDARD ASPHALT SECTION (TYP.)
3	CONCRETE SIDEWALK/CONCRETE PATIO (TYP.)
5	HEAVY DUTY CONCRETE (TYP)
7	CONCRETE STOOP (TYP.) SEE ARCH. PLANS FOR DETAILS.
8	RAISED WALK (TYP.)
11	CURB RAMP (TYP.)
12	18" CURB & GUTTER (TYP.)
13	18" MOUNTABLE CURB & GUTTER (TYP.)
14	CURB TAPER (TYP.)
16	CONCRETE TRANSFORMER PAD BY UTILITY SUPPLIER (CONTRACTOR TO VERIFY FINAL LOCATION & DESIGN PRIOR TO CONSTRUCTION)
17	HANDICAP SIGN (TYP.)
18	HANDICAP STALL & STRIPING PER STATE CODES.
20	PROPOSED POLE SIGN LOCATION (DETAILS, FINAL LOCATION, & APPROVAL BY SIGN VENDOR)
21	DUMPSTER ENCLOSURE W/ 8" CONCRETE PAD & APRON. (SEE ARCH PLANS FOR ENCLOSURE DETAILS) (REFERENCE SHEET C1.2 FOR GRADES AND EXPOSED FOUNDATION)
22	6" CONCRETE BOLLARDS (SEE DETAIL C2.0) (9 TOTAL INCLUDING DUMPSTER ENCLOSURE)
23	STOP SIGN (TYP.)
26	DETECTABLE WARNING PLATE
27	TRAFFIC FLOW ARROWS. COLOR TO MATCH PARKING STALL STRIPING.
28	DRIVE-THRU BUILDING VERTICAL CURB (SEE DETAIL ON C2.0)
29	DRIVE-THRU 6" VERTICAL CURB (SEE DETAIL ON C2.0)
30	ADA SIDEWALK RAMP (SEE DETAIL ON C2.0)
31	DO NOT ENTER SIGN (TYP.)
32	MENU BOARD
33	SPEAKER POST
34	CANOPY (TYP.)
35	CLEARANCE BAR
36	4" CONCRETE, STAMPED & STAINED (SEE DETAIL ON C2.3)
37	REPLACE CONCRETE SIDEWALK, DECORATIVE WOOD FENCE, AND CONCRETE BLOCK RETAINING WALL TO MATCH EXISTING AS NEEDED FOR EXISTING WATER LINE ABANDONMENT AND NEW WATER SERVICE INSTALLATION.
38	TERMINATE CURB HEAD INTO EXISTING BLOCK RETAINING WALL
39	PATIO RAILING SYSTEM. SEE SHEET C2.2 FOR EXAMPLE.
40	GAS METER
41	ELECTRIC METER



SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

SITE INFORMATION:

SITE ADDRESS:	N96 W18058 COUNTY LINE ROAD
TAX KEY NUMBER:	GTNV 333999
PROPERTY AREA:	AREA = 4.91 ACRES TOTAL
EXISTING ZONING:	B-1 (NEIGHBORHOOD BUSINESS)
PROPOSED ZONING:	B-5 (HIGHWAY BUSINESS DISTRICT)
ADJACENT PROPERTY ZONING:	N=I-INSTITUTIONAL NE=I-INSTITUTIONAL E=PDD-32-RIVERBEND DISTRICT SE=VILLAGE OF MENOMONEE FALLS S=VILLAGE OF MENOMONEE FALLS SW=VILLAGE OF MENOMONEE FALLS W=B-3-GENERAL BUSINESS NW=I-INSTITUTIONAL
EXISTING USE:	MULTI-TENANT BUILDING/SALON
PROPOSED USE:	QUICK SERVE RESTAURANT WITH DRIVE THRU
AREA OF SITE DISTURBANCE:	36,314 SF (0.83 AC)
SETBACKS: BUILDING:	FRONT = 40' SIDE = 10' REAR = 25'
PAVEMENT:	8' GREENBELT BETWEEN PARKING & PROPERTY BOUNDARIES

EXISTING SITE DATA (DISTURBED PROJECT AREA)

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	0.83	36,314	
BUILDING FLOOR AREA	0.10	4,290	11.8%
PAVEMENT (ASP. & CONC.)	0.54	23,618	65.0%
TOTAL IMPERVIOUS	0.64	27,908	76.9%
LANDSCAPE/ OPEN SPACE	0.19	8,406	23.1%

PROPOSED SITE DATA (DISTURBED PROJECT AREA)

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	0.83	36,314	
BUILDING FLOOR AREA	0.04	1,786	4.9%
PAVEMENT (ASP. & CONC.)	0.53	23,119	63.7%
TOTAL IMPERVIOUS	0.57	24,905	68.6%
LANDSCAPE/ OPEN SPACE	0.26	11,409	31.4%

PAVEMENT HATCH KEY:
- STANDARD ASPHALT
- SIDEWALK CONCRETE
- HEAVY DUTY CONCRETE

CURB & GUTTER MARKING KEY:
- INVERTED CURB & GUTTER
- SHEDDING CURB & GUTTER

NORTH

1"= 20' SCALE — 20' 0 20' 40' FEET

CIVIL SITE PLAN

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PROJECT INFORMATION

NEW BUILDING FOR:
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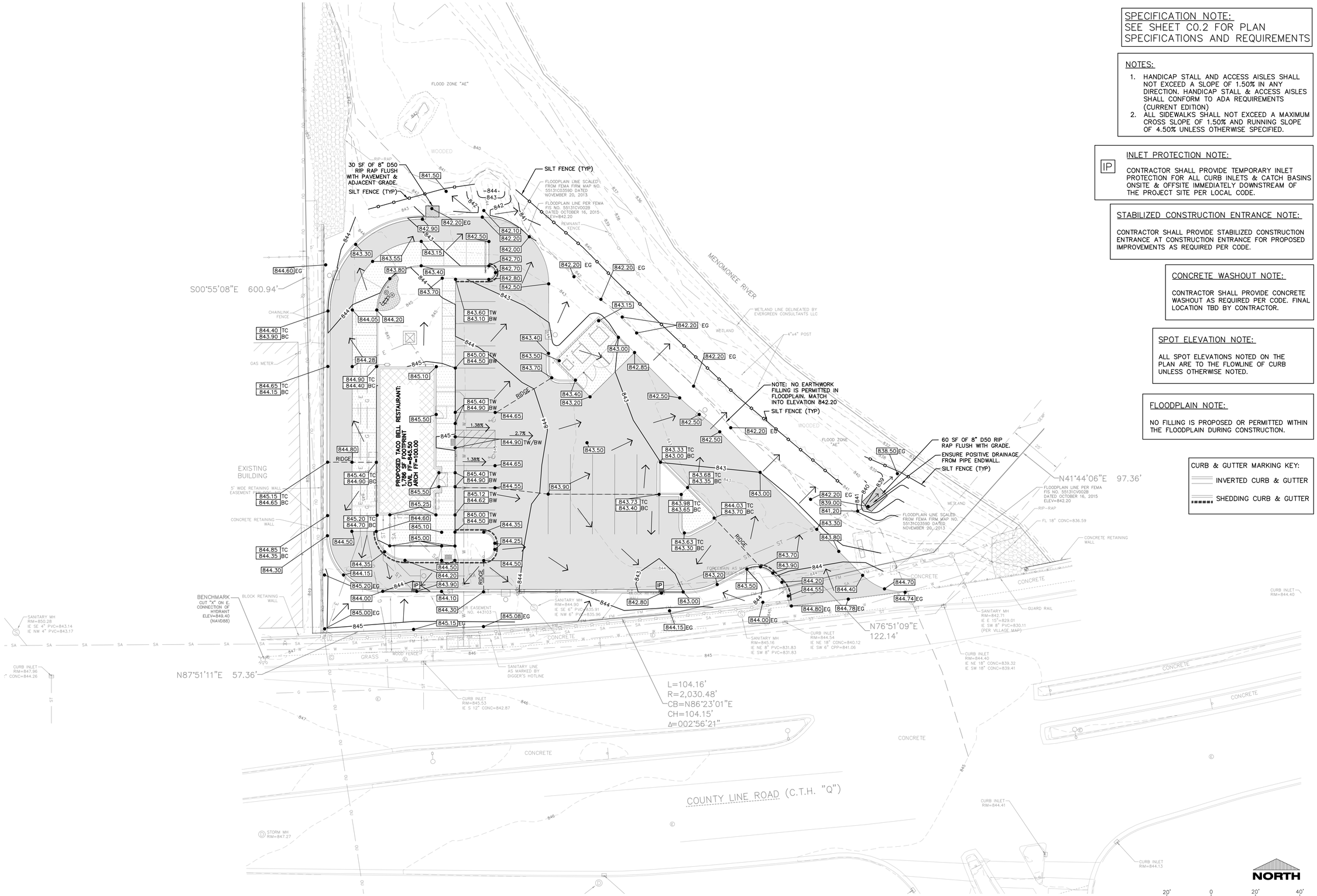
PROFESSIONAL SEAL

PRELIMINARY DATES
SEPT. 23, 2020
OCT. 5, 2020

NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C1.1



CIVIL GRADING AND EROSION CONTROL PLAN

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JOB NUMBER

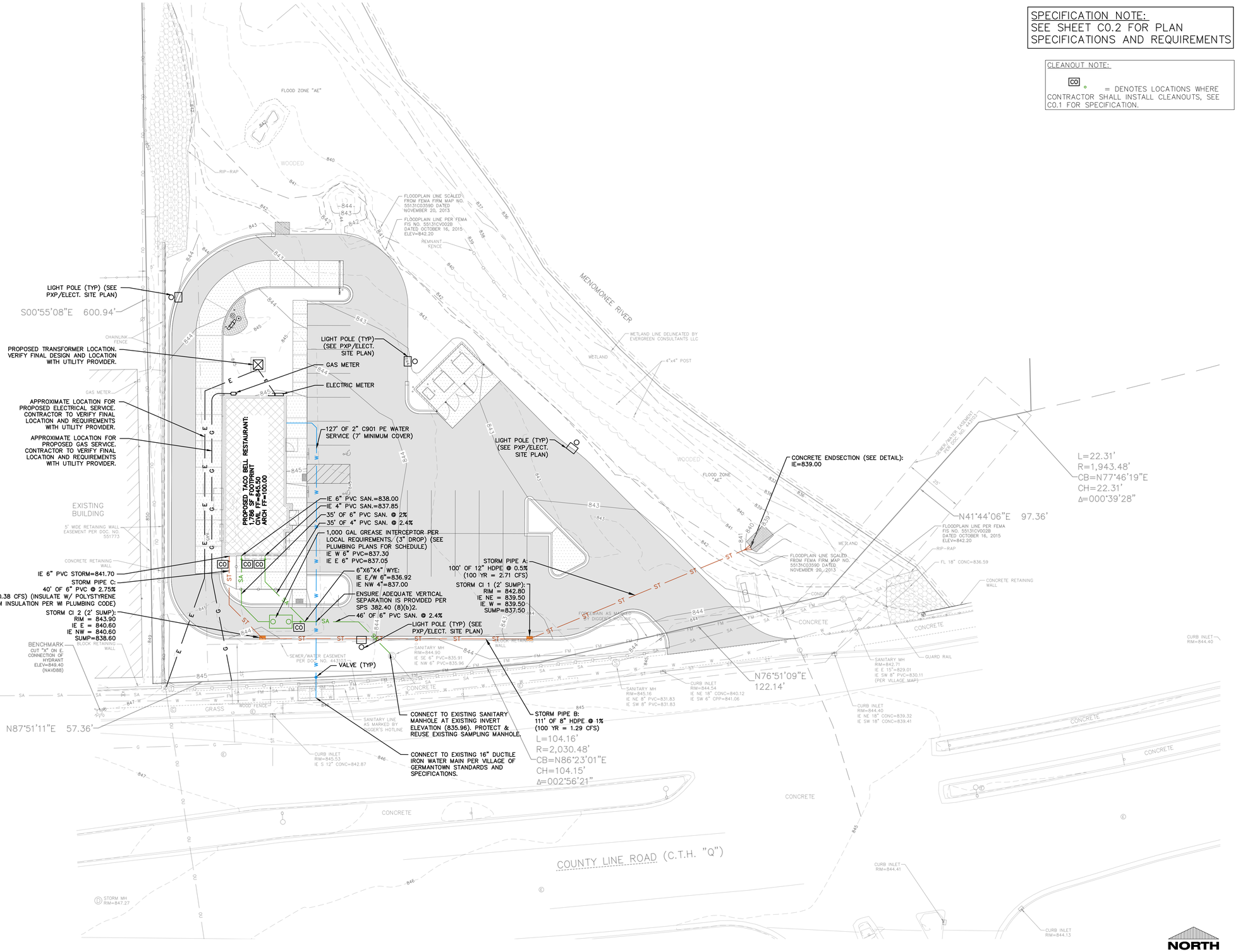
2005200

SHEET NUMBER

C1.2

SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

CLEANOUT NOTE:
CO = DENOTES LOCATIONS WHERE CONTRACTOR SHALL INSTALL CLEANOUTS, SEE C0.1 FOR SPECIFICATION.



CIVIL UTILITY PLAN

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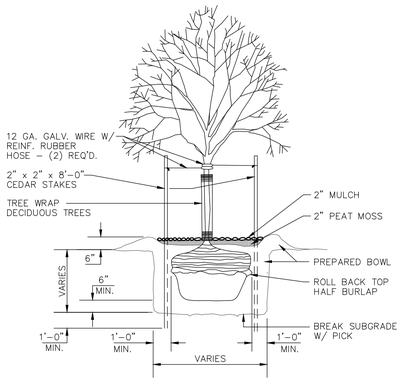
2005200

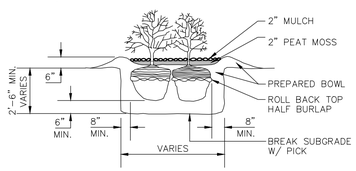
SHEET NUMBER
C1.3



TREE PLANTING DETAIL

NO SCALE

NOTE:
FOR MASS PLANTINGS EXCAVATE ENTIRE BED & BACKFILL W/ PREPARED SOIL.



SHRUB PLANTING DETAIL

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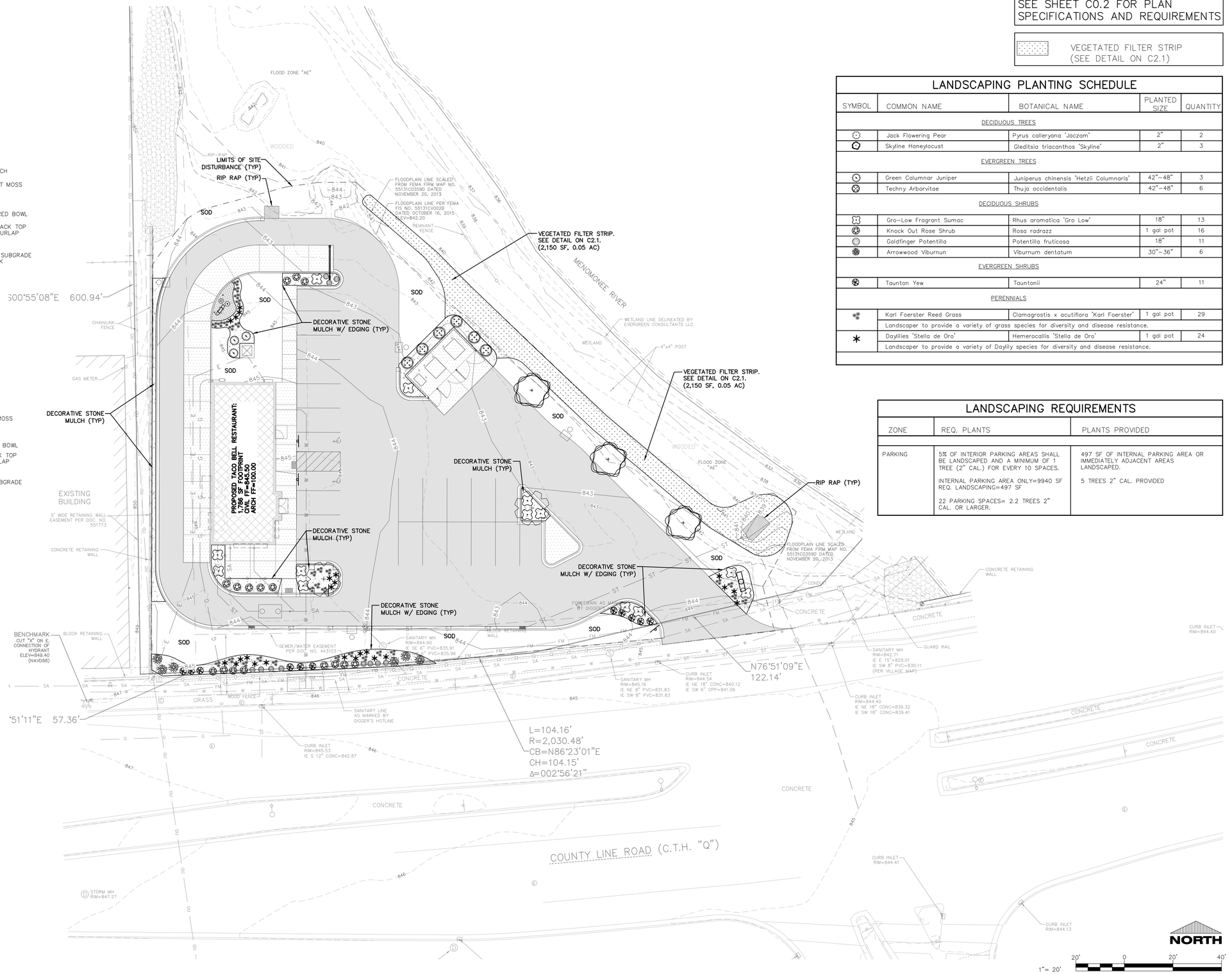

CIVIL LANDSCAPE AND RESTORATION PLAN

SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

VEGETATED FILTER STRIP (SEE DETAIL ON C2.1)

LANDSCAPING PLANTING SCHEDULE

SYMBOL	COMMON NAME	BOTANICAL NAME	PLANTED SIZE	QUANTITY
	DECIDUOUS TREES			
	Jack Flowering Pear	Pyrus calleryana 'Jaczam'	2"	2
	Skyline Honeylocust	Gleditsia triacanthos 'Skyline'	2"	3
	EVERGREEN TREES			
	Green Columnar Juniper	Juniperus chinensis 'Hetzii Columnaris'	42"-48"	3
	Techny Arborvitae	Thuja occidentalis	42"-48"	6
	DECIDUOUS SHRUBS			
	Gro-Low Fragrant Sumac	Rhus aromatica 'Gro Low'	18"	13
	Knock Out Rose Shrub	Rosa radrazz	1 gal pot	16
	Goldfinger Potentilla	Potentilla fruticosa	18"	11
	Arrowwood Viburnun	Viburnum dentatum	30"-36"	6
	EVERGREEN SHRUBS			
	Taunton Yew	Tauntonii	24"	11
	PERENNIALS			
	Karl Foerster Reed Grass	Clamagrostis x acutiflora 'Karl Foerster'	1 gal pot	29
	Landscaper to provide a variety of grass species for diversity and disease resistance.			
	Daylilies 'Stella de Oro'	Hemerocallis 'Stella de Oro'	1 gal pot	24
	Landscaper to provide a variety of Daylily species for diversity and disease resistance.			

LANDSCAPING REQUIREMENTS

ZONE	REQ. PLANTS	PLANTS PROVIDED
PARKING	5% OF INTERIOR PARKING AREAS SHALL BE LANDSCAPED AND A MINIMUM OF 1 TREE (2" CAL.) FOR EVERY 10 SPACES. INTERNAL PARKING AREA ONLY=9940 SF REQ. LANDSCAPING=497 SF 22 PARKING SPACES= 2.2 TREES 2" CAL. OR LARGER.	497 SF OF INTERNAL PARKING AREA OR IMMEDIATELY ADJACENT AREAS LANDSCAPED. 5 TREES 2" CAL. PROVIDED

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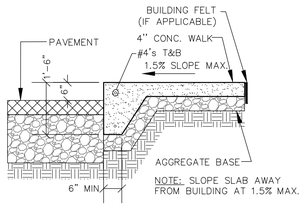
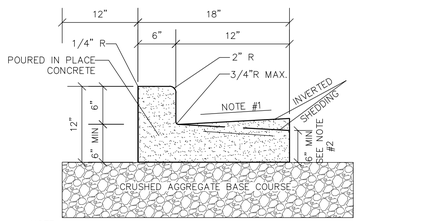
C1.4



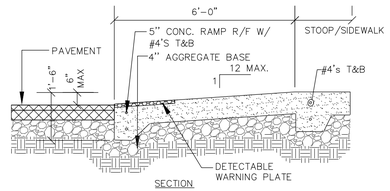
RAISED WALK DETAIL
NO SCALE



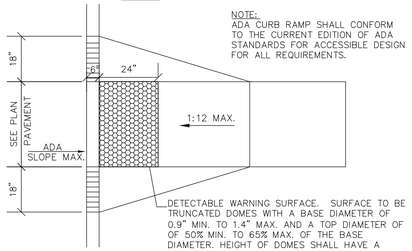
NOTE:

1. USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
2. THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MIN. GUTTER THICKNESS IS MAINTAINED.
3. SEE SITE PLAN & GRADING PLAN FOR INVERTED & SHEDDING CURB LOCATIONS

18" CONCRETE CURB & GUTTER DETAIL
NO SCALE



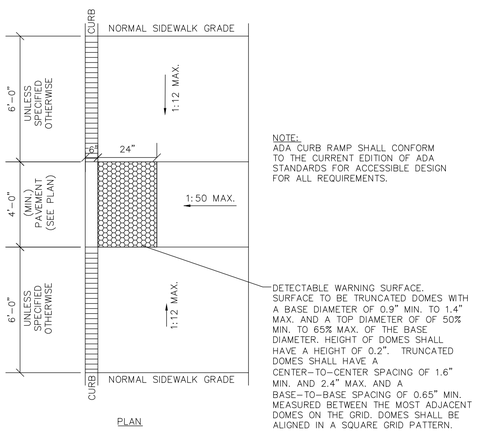
SECTION



NOTE:
ADA CURB RAMP SHALL CONFORM TO THE CURRENT EDITION OF ADA STANDARDS FOR ACCESSIBLE DESIGN FOR ALL REQUIREMENTS.

PLAN

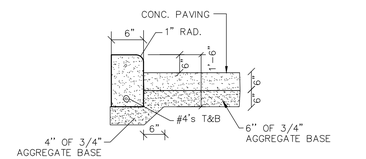
CURB RAMP DETAIL
NO SCALE



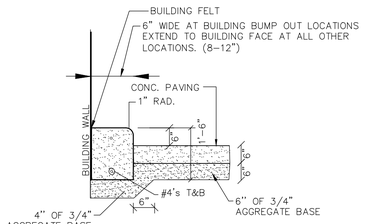
NOTE:
ADA CURB RAMP SHALL CONFORM TO THE CURRENT EDITION OF ADA STANDARDS FOR ACCESSIBLE DESIGN FOR ALL REQUIREMENTS.

PLAN

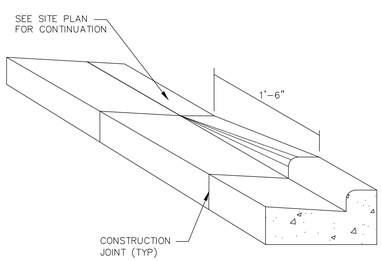
ADA SIDEWALK RAMP DETAIL
NO SCALE



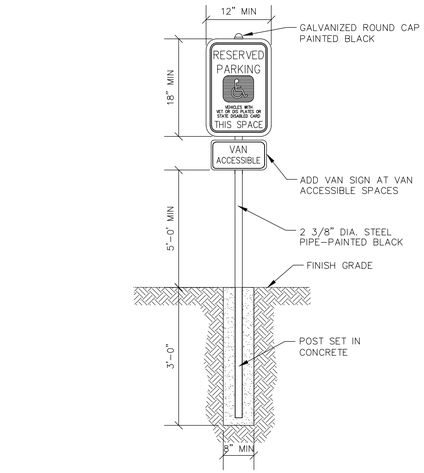
DRIVE-THRU 6" VERTICAL CURB DETAIL
NO SCALE



DRIVE-THRU BUILDING VERTICAL CURB DETAIL
NO SCALE

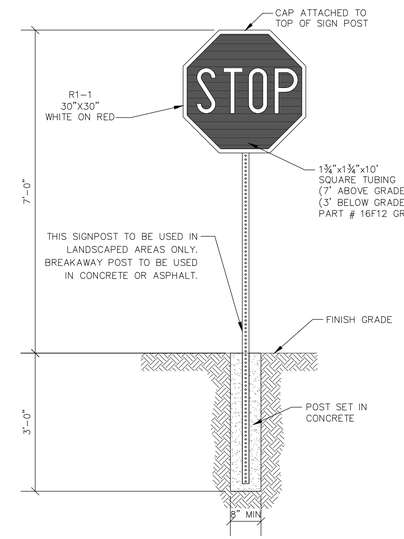


CURB TAPER DETAIL
NO SCALE

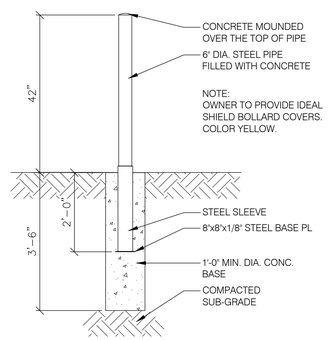


SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

HANDICAP SIGNAGE WITH CONCRETE BASE DETAIL
NO SCALE



STOP SIGN WITH CONCRETE BASE DETAIL
NO SCALE



BOLLARD DETAIL
NO SCALE

CIVIL DETAILS

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N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

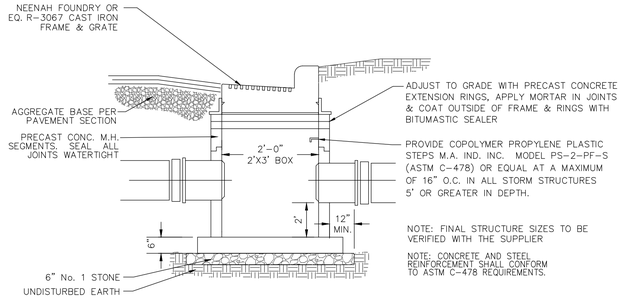
PROFESSIONAL SEAL

PRELIMINARY DATES
OCT. 5, 2020

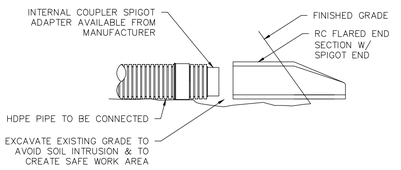
NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C2.0

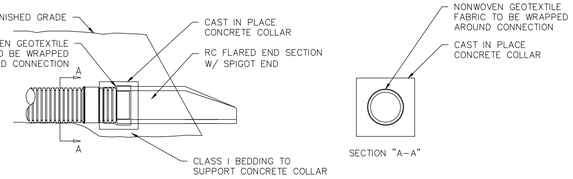


STORM CURB INLET W/ SUMP DETAIL
NO SCALE

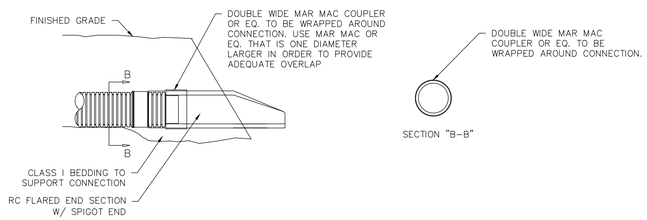


NOTES:
1. CONNECTION AND PIPE TO BE BACKFILLED PER ASTM D2321.
2. HDPE PIPE SYSTEMS CAN BE CONNECTED TO RC FLARED END SECTIONS USING THIS METHOD. CHANGE OF MATERIAL IN A PIPE RUN IS NOT ALLOWED. MATERIAL CHANGES ARE ONLY ALLOWED ONLY AT MANHOLES OR INLET STRUCTURES.
3. HDPE FLARED END SECTIONS ARE NOT ALLOWED.
4. NONWOVEN GEOTEXTILE FABRIC SHALL MEET LOCAL AND STATE REQUIREMENTS.
5. THE INTERNAL COUPLER SPIGOT ADAPTER IS AVAILABLE FROM THE HDPE PIPE MANUFACTURER
6. USE EITHER METHOD ONE OR METHOD TWO.

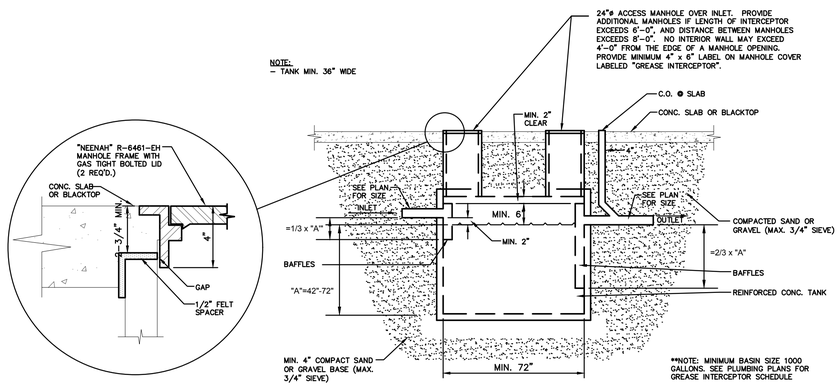
METHOD ONE



METHOD TWO

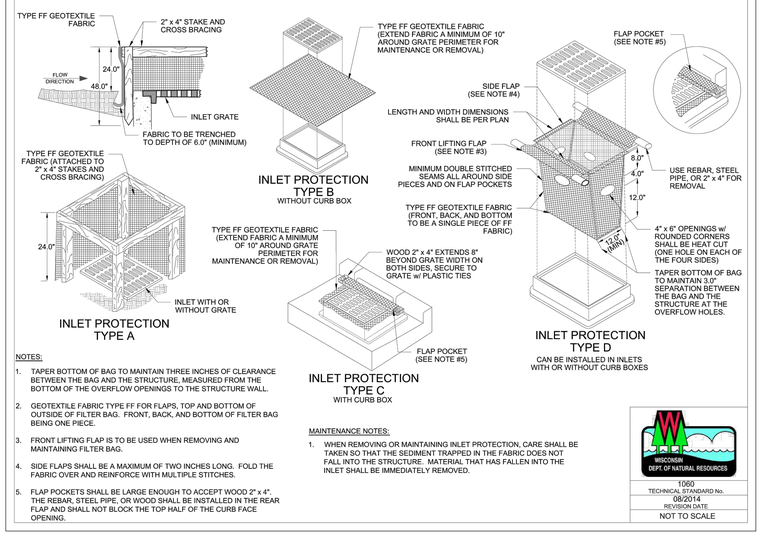


CONNECTION DETAIL FOR HDPE PIPE TO RC FLARED END SECTION SPIGOT END
NO SCALE



EXTERIOR GREASE INTERCEPTOR
NO SCALE

FIGURE 1. INLET PROTECTION TYPES A, B, C AND D

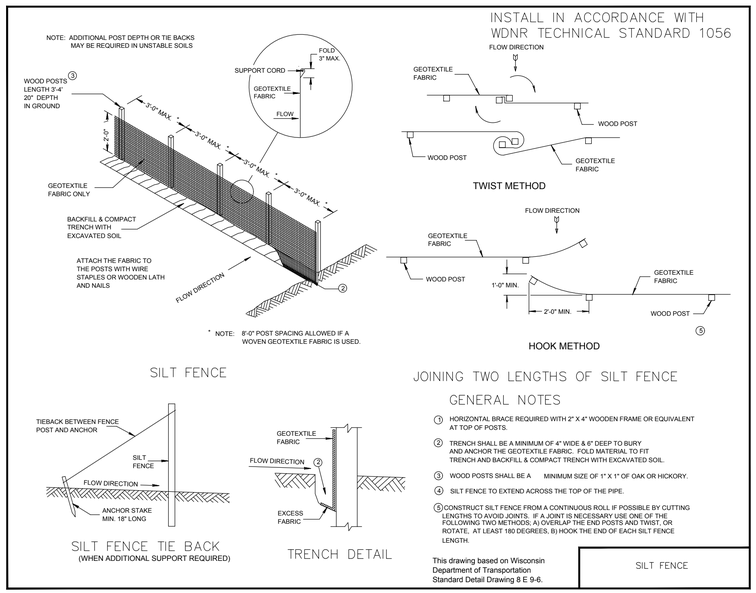


NOTES:
1. TAPER BOTTOM OF BAG TO MAINTAIN THREE INCHES OF CLEARANCE BETWEEN THE BAG AND THE STRUCTURE, MEASURED FROM THE BOTTOM OF THE OVERFLOW OPENINGS TO THE STRUCTURE WALL.
2. GEOTEXTILE FABRIC TYPE FF FOR FLAPS, TOP AND BOTTOM OF OUTSIDE OF FILTER BAG. FRONT, BACK, AND BOTTOM OF FILTER BAG BEING ONE PIECE.
3. FRONT LIFTING FLAP IS TO BE USED WHEN REMOVING AND MAINTAINING FILTER BAG.
4. SIDE FLAPS SHALL BE A MAXIMUM OF TWO INCHES LONG. FOLD THE FABRIC OVER AND REINFORCE WITH MULTIPLE STITCHES.
5. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2" x 4". THE REBAR, STEEL PIPE, OR WOOD SHALL BE INSTALLED IN THE REAR FLAP AND SHALL NOT BLOCK THE TOP HALF OF THE CURB FACE OPENING.

MAINTENANCE NOTES:
1. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED IN THE FABRIC DOES NOT FALL INTO THE STRUCTURE. MATERIAL THAT HAS FALLEN INTO THE INLET SHALL BE IMMEDIATELY REMOVED.

WISCONSIN DEPT. OF NATURAL RESOURCES
1060 TECHNICAL STANDARD No.
08/2014 REVISION DATE
NOT TO SCALE

INLET PROTECTION DETAIL
NO SCALE



GENERAL NOTES
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1" X 1" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

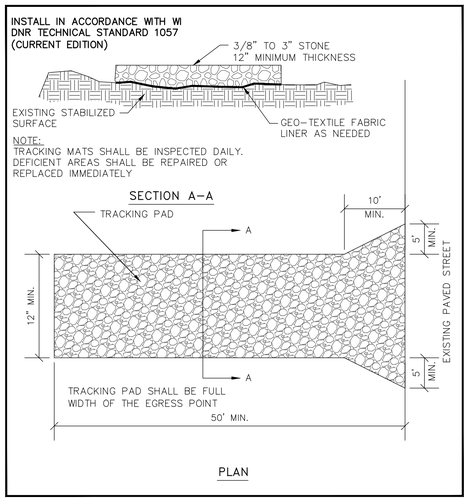
This drawing based on Wisconsin Department of Transportation Standard Detail Drawing 8 E 9-6.

SILT FENCE

SILT FENCE – INSTALLATION DETAIL
NO SCALE

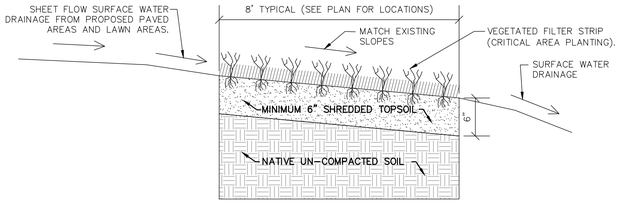
SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

INSTALL IN ACCORDANCE WITH WI DNR TECHNICAL STANDARD 1057 (CURRENT EDITION)



NOTE:
TRACKING MATS SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

TRACKPAD DETAILS
NO SCALE



NOTES:
- PREPARE THE SEEDBED BY CLEARING AND GRUBBING THE PROPOSED PLANTING AREA OF UNWANTED MATERIALS. CULTIVATE AREA AS NEEDED AND GRADE THE PROPOSED PLANTING AREA TO CREATE A SMOOTH, UNIFORM SURFACE IN ACCORDANCE WITH THE PROPOSED GRADING PLAN OR MATCH EXISTING GRADES. SITE PREPARATION SHALL BE ADEQUATE TO ASSURE WEED SUPPRESSION AND TO PROMOTE PROPER GERMINATION AND GROWTH OF THE PLANTED SPECIES.
- PROVIDE A MINIMUM OF 6" OF SHREDDED TOPSOIL FOR ALL VEGETATED FILTER STRIP LOCATIONS. TOPSOIL SHALL BE FREE OF ANY STONES, STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATERIAL. DO NOT SPREAD TOPSOIL IF SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET. CULTIPACK OR LIGHTLY ROLL SEEDBED PRIOR TO SEEDING.
- THE SOIL SHALL BE FERTILIZED BASED UPON SOIL TEST RESULTS. IF A SOIL TEST IS NOT COMPLETED, A GENERAL RECOMMENDATION OF 150 POUNDS PER ACRE OF 20-10-10 FERTILIZER AND A MINIMUM OF 2 TONS PER ACRE OF 80-89 LIME MAY BE USED.
- BROADCAST SEED THE VEGETATED FILTER STRIP WITH THE SEED MIXTURE LISTED IN THE TABLE BELOW AT THE APPROPRIATE SEEDING RATES. CONSULT WITH SEED SUPPLIER FOR FINAL MIXTURE. SEED MIXTURES MUST BE OF HIGH QUALITY. UNTESTED GRASS/FORB SEEDS SHALL NOT BE USED. ROLL THE PLANTING AREA AFTER BROADCAST SEEDING IS COMPLETE.
- THE PLANTED AREAS SHALL BE MULCHED AFTER SEEDING TO ENSURE PROPER ESTABLISHMENT AND TO MINIMIZE EROSION. MULCH MATERIALS MAY CONSIST OF NATURAL OR ARTIFICIAL MATERIALS AND SHALL BE ANCHORED TO THE SOIL TO PREVENT SLIPPAGE.
- REGULARLY WATER THE PLANTED AREA UNTIL THE VEGETATED FILTER STRIP IS FULLY ESTABLISHED.
- THE VEGETATED FILTER STRIP SHALL BE CONSTRUCTED IN GENERAL CONFORMANCE WITH WI NRCS CONSERVATION PRACTICE STANDARD FOR CRITICAL AREA PLANTING (CODE 342). REFERENCE CRITICAL AREA PLANTING PRACTICE STANDARD AND WISCONSIN AGRONOMY TECHNICAL NOTES 6 FOR ADDITIONAL SUPPORTING INFORMATION.

Seeding Mixture Suitable for Critical Area Planting (Wet Mesic Site)

COMMON NAME	BOTANICAL NAME	Pure Live Seed (PLS) (lbs/ac)	Pure Live Seed (PLS) (seeds/sq ft)
Tall Fescue	Schedonorus arundinaceus	5	26
Timothy	Phleum pratense	3	85
Perennial Ryegrass	Lolium perenne	3	16
Red Clover	Trifolium pratense	3	19
Smooth Bromegrass	Bromus inermis	6	19
Kentucky Bluegrass	Poa pratensis	2	100

VEGETATED FILTER STRIP DETAIL
NO SCALE

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PROFESSIONAL SEAL

PRELIMINARY DATES
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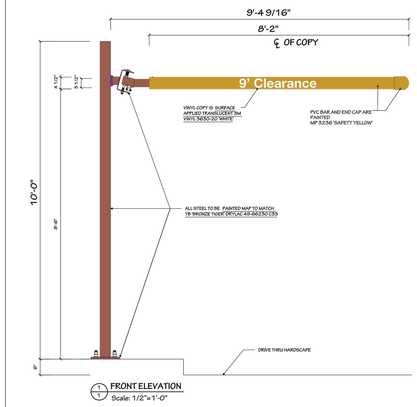
NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C2.1

SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

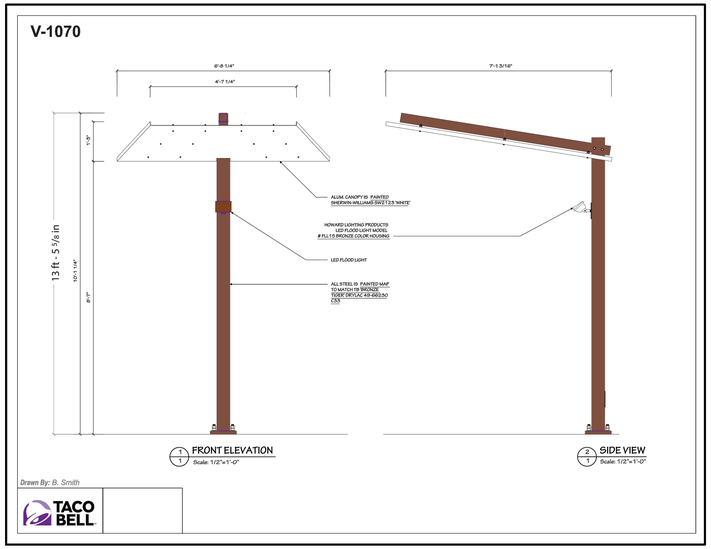
V-1069



Drawn By: B. Smith

TACO BELL

V-1070



Drawn By: B. Smith

TACO BELL

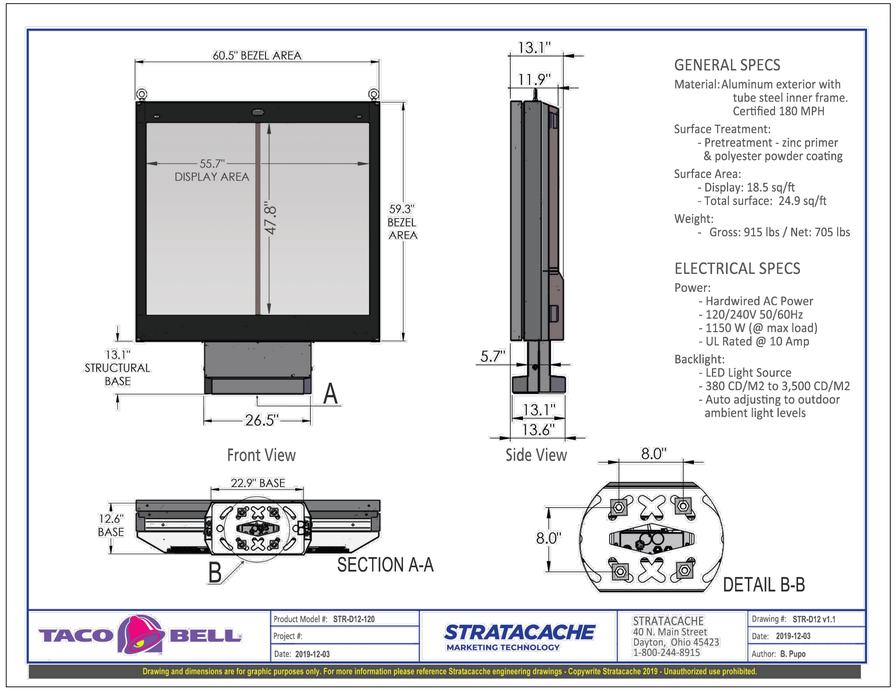
OWNER SUPPLIED RAILING

TACO BELL: NEW RAILING SYSTEM

TACO BELL
Breakfast

TYPICAL SIGNAGE EXAMPLE
(FINAL DESIGN/PERMITTING BY SIGN VENDOR.)

NOTES:
1. SIGN SUPPLIER/FABRICATOR SHALL PROVIDE FOUNDATION DESIGN AND ENGINEERING.
2. MAXIMUM AREA ALLOWED=80 SQ FT PER SIDE
3. MAXIMUM HEIGHT= 10 FEET



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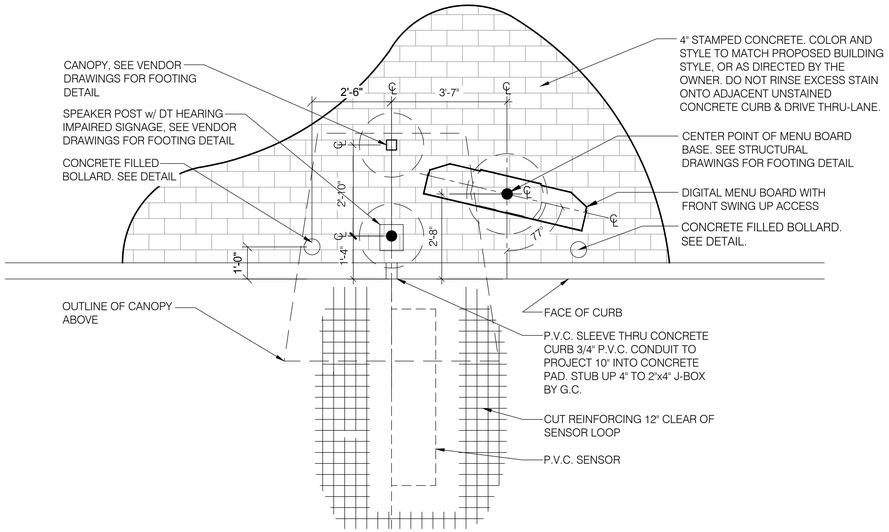
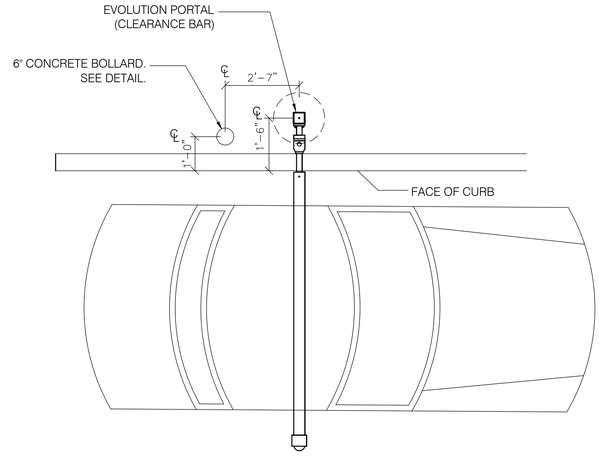
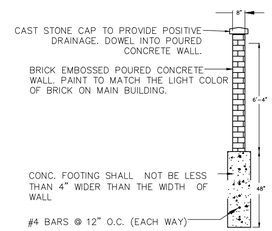
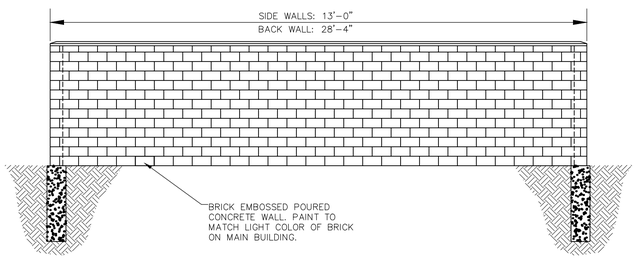


MENU BOARD DETAIL
NO SCALE

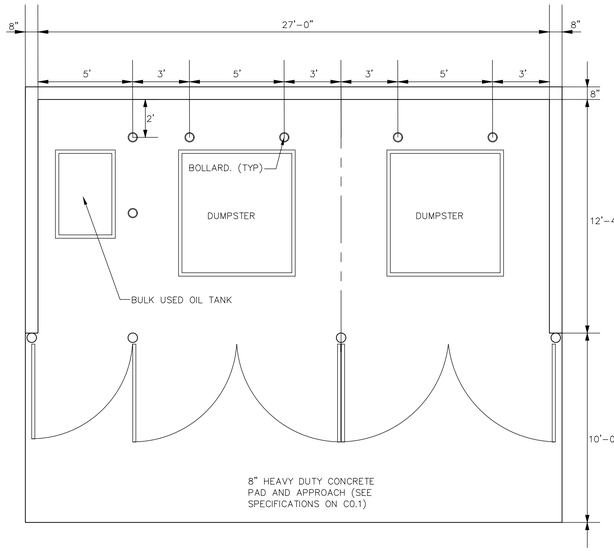


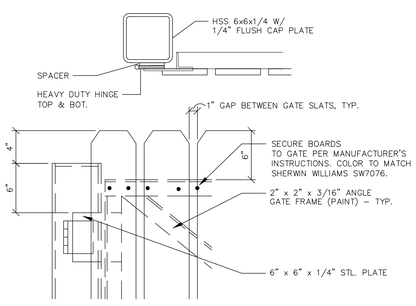
EVOLUTION PORTAL (CLEARANCE BAR) DETAIL
NO SCALE



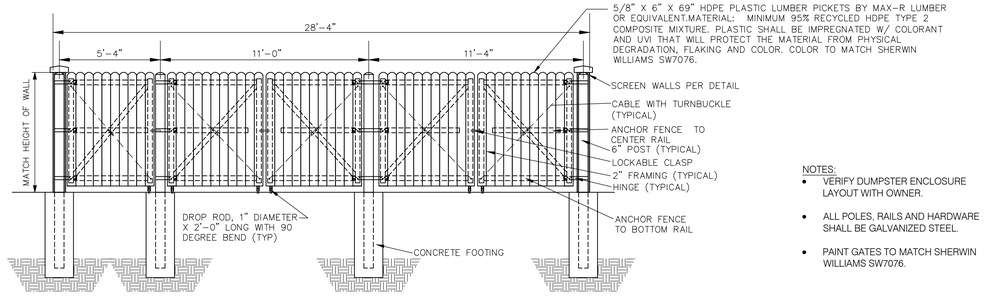


DUMPSTER SCREENING DETAIL
NO SCALE





GATE DETAIL
NO SCALE



DUMPSTER GATE
NO SCALE

NOTES:
- VERIFY DUMPSTER ENCLOSURE LAYOUT WITH OWNER.
- ALL POLES, RAILS AND HARDWARE SHALL BE GALVANIZED STEEL.
- PAINT GATES TO MATCH SHERWIN WILLIAMS SW7076.

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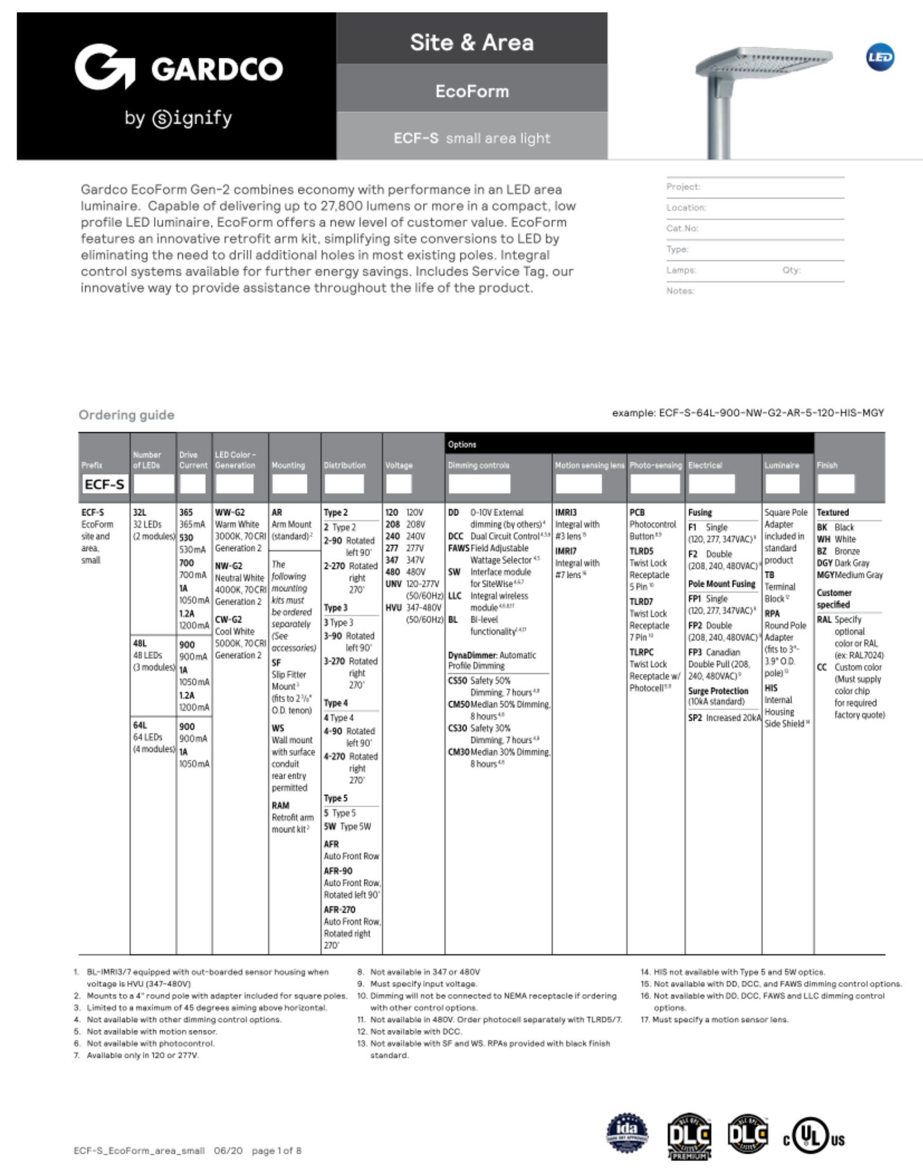
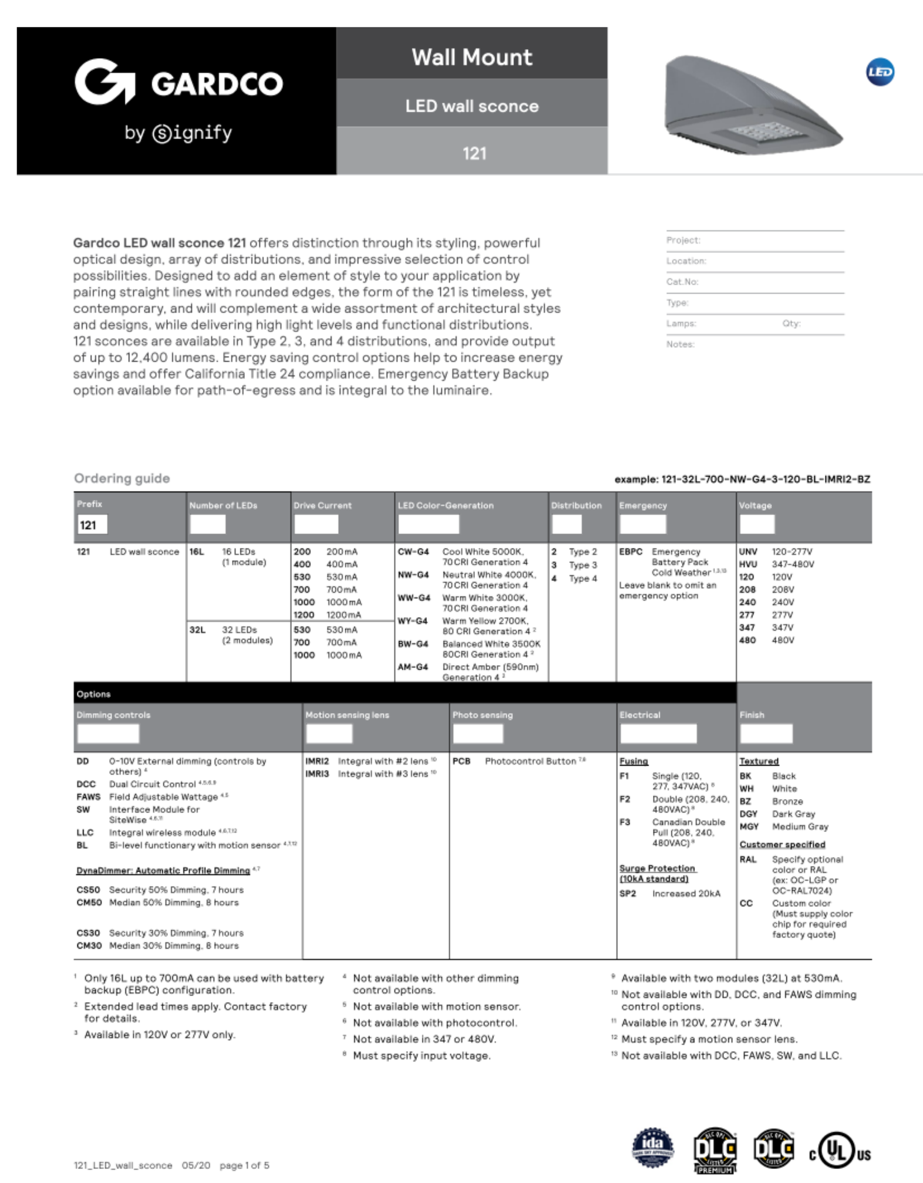
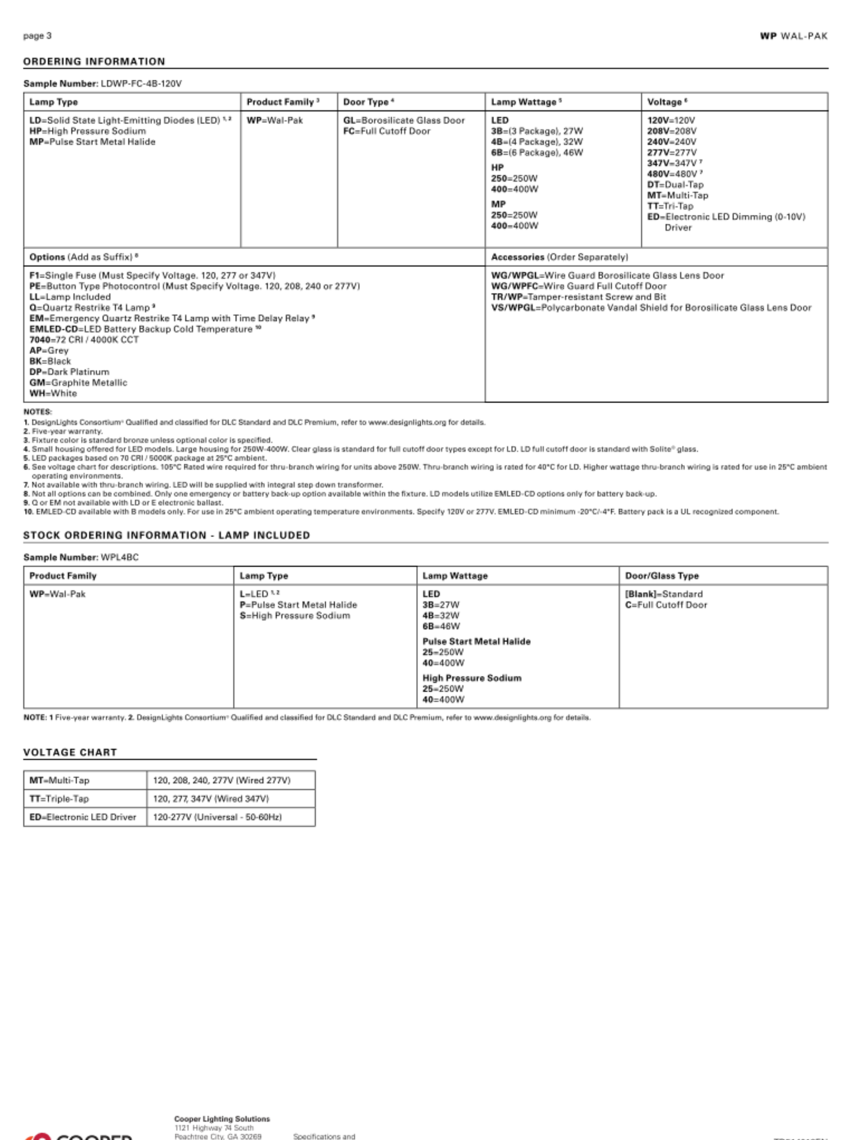
C2.3

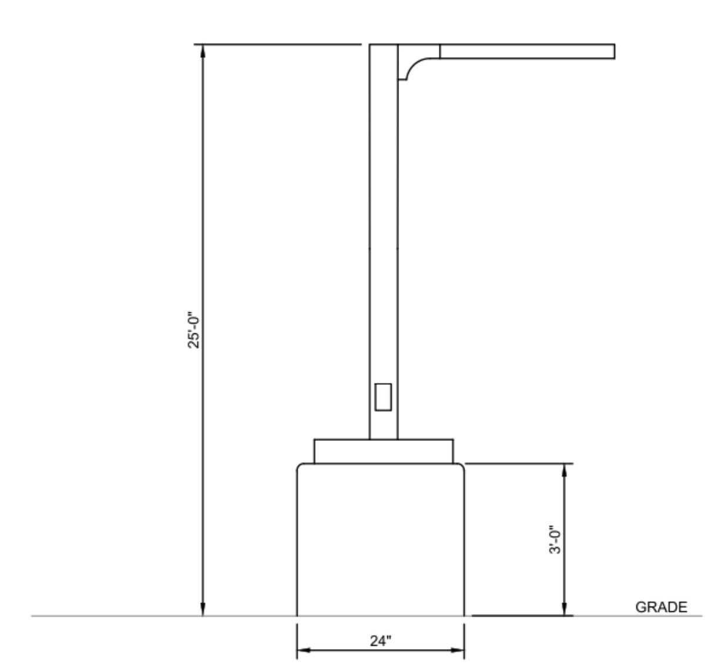






Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	Lumen Multiplier	LLF	Wattage	Efficiency
	L13H	2	Gardco	ECF-S-48L-1.2A-NW-G2-3-HIS	EcoForm Area LED ECF - Small, 48 LED's, 4000K CCT, TYPE 3-HIS OPTIC, House-side Internal Shielding	(3) LEDGINE SLD LIGHT ARRAY(S) DRIVEN AT 1200mA	1	17650	1	0.9	182.71	100%
	L14H	1	Gardco	ECF-S-48L-1.2A-NW-G2-4-HIS	EcoForm Area LED ECF - Small, 48 LED's, 4000K CCT, TYPE 4-HIS OPTIC, House-side Internal Shielding	(3) LEDGINE SLD LIGHT ARRAY(S) DRIVEN AT 1200mA	1	18176	1	0.9	182.71	100%
	L12H	1	Gardco	ECF-S-48L-1.2A-NW-G2-2-HIS	EcoForm Area LED ECF - Small, 48 LED's, 4000K CCT, TYPE 2-HIS OPTIC, House-side Internal Shielding	(3) LEDGINE SLD LIGHT ARRAY(S) DRIVEN AT 1200mA	1	17343	1	0.9	182.71	100%
	WP2	1	SIGNIFY GARDCO	121-16L-700-NW-G4-2	121 LED Sconce	(1) LEDgine DRIVEN AT 700 mA	1	4545	1	0.9	38.4	100%
	WP1	1	COOPER LIGHTING SOLUTIONS - LUMARK (FORMERLY EATON)	LDWP-FC-3B-ED-7040	LUMARK WALPAK CUTOFF 2LED 4000K	(2) 4000K COB LEDS	1	1884	1	0.9	27.2	100%



LIGHT POLE DETAIL

NO SCALE

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	0.6 fc	6.8 fc	0.0 fc	N/A	N/A
Parking/Drive	✱	2.3 fc	6.8 fc	0.6 fc	11.3:1	3.8:1

NORTH

1" = 20'

SCALE 20' 0 20' 40' FEET

CIVIL SITE PHOTOMETRIC PLAN

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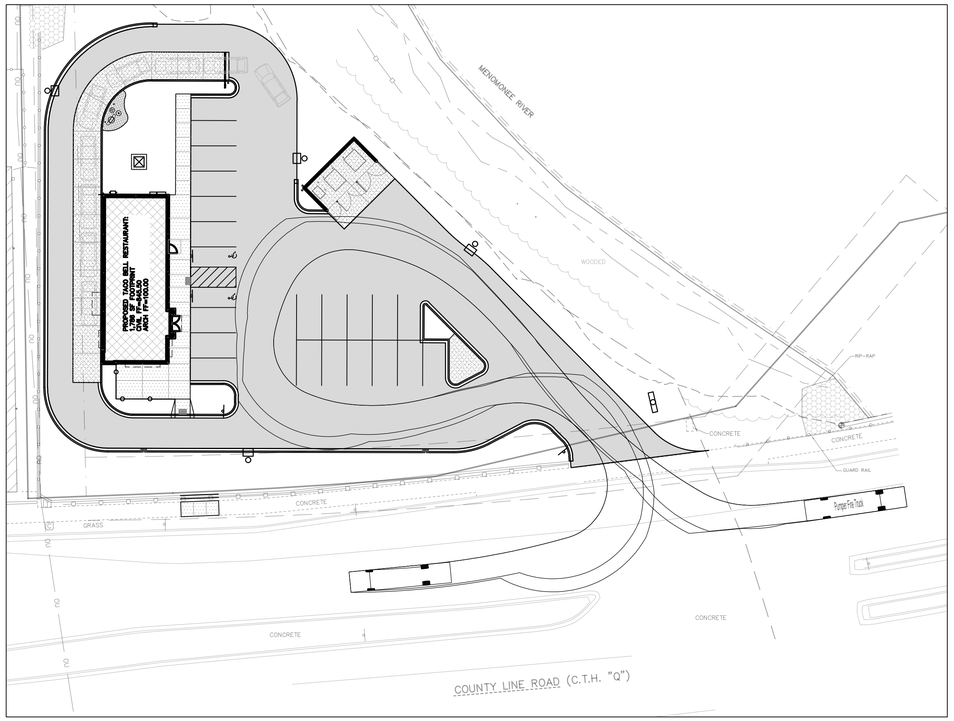
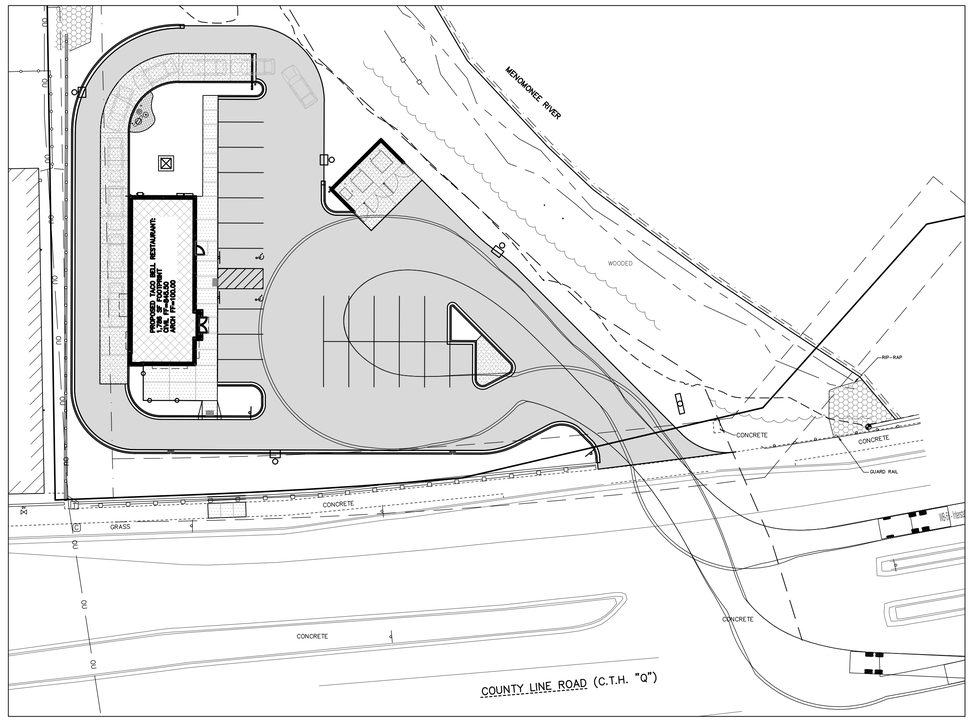
PXP

Site Photos

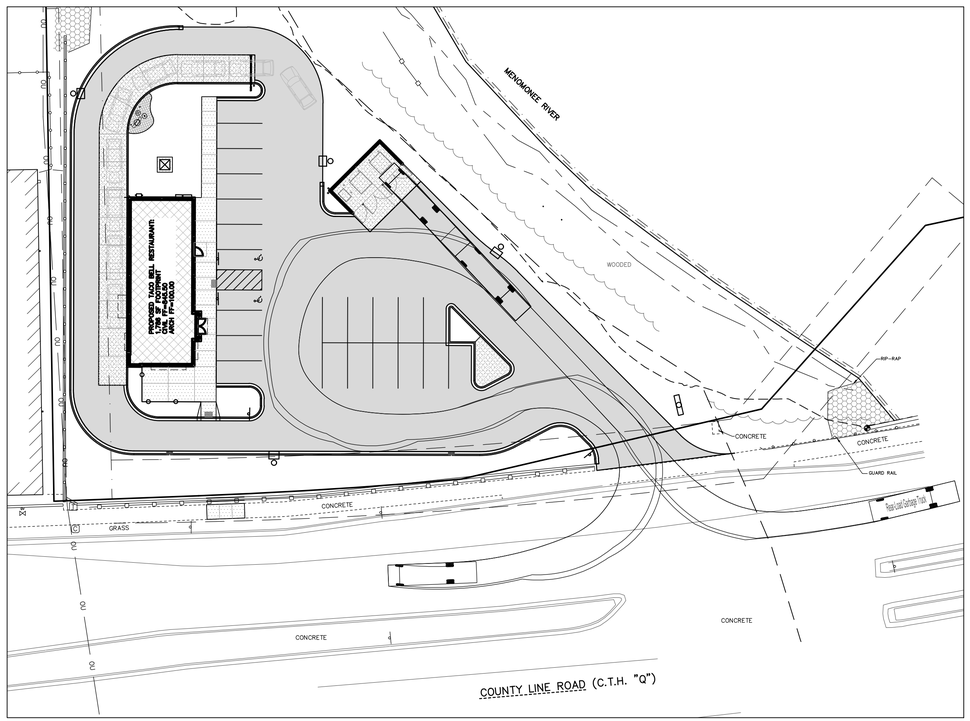
Existing building to be demolished.



Fire Truck



Delivery Truck



Garbage Truck

NORTH

1" = 30'

30' 0 30' 60'

SCALE FEET

Truck Turn Exhibit

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TT

evergreen consultants LLC
2918 Van Hoof Road • Green Bay, WI 54313
Phone: 920.615.0019 • Website: www.evergreenwis.com

County Line Road Site

Professionally Assured Wetland Delineation Report

Project Number: WSH20-011-01
Property Address: N96W18058 County Line Road, Village of Germantown, Washington County, Wisconsin
Parcel ID: 333999

September 11, 2020

Report Request by

EXCEL ENGINEERING
Always a better plan
100 Camelot Drive
Fond du Lac, Wisconsin 54935

evergreen consultants LLC
2918 Van Hoof Road • Green Bay, WI 54313
Phone: 920.615.0019 • Website: www.evergreenwis.com

Field Work Certification:

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Wisconsin DNR Professional Assured Wetland Delineator
Lead Wetland Delineator
(920) 265-4105 *ben@evergreenwis.com*

Shyann P Banker, Environmental Specialist
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Table of Contents

Executive Summary

Evergreen Consultants LLC (Evergreen) was retained by Excel Engineering Inc., to perform a professionally assured wetland delineation. The delineation/project area is part of Washington County Tax Parcel 333999, located in part of the Southwest ¼ of the Southwest ¼ of Section 33 of Township 09 North, Range 20 East, located at N96W18058 County Line Road, Village of Germantown, Washington County, Wisconsin.

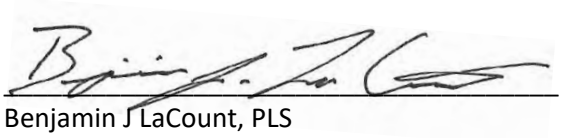
The project area is shown on the Wetland Delineation Map as the Site Boundary, hereafter described as the "Site". The Wetland Delineation Map is in Appendix A. Evergreen was directed to delineate the project area for future planning purposes. The property had been a farmstead until redeveloped in 1990. The Menomonee River is adjacent to the Site.

The wetland delineation was certified complete on September 11, 2020 by Benjamin J La Count, PLS, Wisconsin DNR Professionally Assured Wetland Delineator, with assistance from Shyann P Banker, Environmental Specialist. Mr. La Count was the Lead Wetland Delineator for the project.

One wetland area was identified during fieldwork:

- Wetland 1 is a wooded stream terrace adjacent to the Menomonee River and is 4,250 square feet within the Site Boundary.

Benjamin J LaCount is a WDNR Professionally Assured Wetland Delineator and WDNR concurrence is granted for five years.



Benjamin J LaCount, PLS
WI Professionally Assured Wetland Delineator
Lead Wetland Delineator

Shyann P Banker
Environmental Specialist

1.0 INTRODUCTION

1.1 Purpose

Evergreen was retained by Excel Engineering Inc. to perform a professionally assured wetland delineation.

One wetland area was identified during fieldwork:

- Wetland 1 is a wooded stream terrace adjacent to the Menomonee River and is 4,250 square feet within the Site Boundary.

1.2 Personnel

The wetland delineation was certified complete on September 11, 2020 by Benjamin J La Count, PLS, Wisconsin DNR Professionally Assured Wetland Delineator, with assistance from Shyann P Banker, Environmental Specialist. Mr. La Count was the Lead Wetland Delineator for the project.

Mr. LaCount is a Professional Land Surveyor and WDNR Professionally Assured Wetland Delineator and has over eleven years of experience conducting wetland delineations. Mr. LaCount has completed the Basic and Advanced Wetland Delineation Training, Basic Plant Identification for Wetlands and Grasses/Sedges/Rushes courses sponsored by UW-La Crosse Continuing Education/Extension. Mr. LaCount has also completed the Advanced Hydric Soils and Problematic Wetland Delineation courses conducted by the Wetland Training Institute and the Advanced Wetland Plant ID: Grasses/Sedges/Rushes and Aerial Photo Review courses conducted by the USACE and the University of Minnesota Wetland Delineator Certification Program.

Mrs. Shyann Banker, Environmental Specialist has four years of experience conducting wetland delineations. Mrs. Banker has completed the Basic and Advanced Wetland Delineation Training and Basic Plant Identification for Wetlands courses sponsored by UW-La Crosse Continuing Education/Extension.

2.0 METHODOLOGY

Wetland boundaries were determined based on the comprehensive wetland delineation method as defined in the *Corps of Engineers Wetlands Delineation Manual* (USACE, Waterways Experiment Station, Wetlands Research Program Technical Report Y-87-1) and the *Regional Supplement to the 1987 Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regions* (NC/NE Regional Supplement) (USACE ERDC, 2012).

Soil data, aerial photographs and topographic information available on Washington County's GIS website were reviewed prior to the site visit to determine areas for investigation and included: areas shown as having hydric inclusionary soils as shown on the NRCS National Cooperative Soil Survey and the WDNR Surface Water Data Viewer. Vegetation, soils and hydrology were investigated during the Site visits to determine the location of wetland boundaries.

2.1 Resources

The following resources were used:

Site topography:	USGS Quadrangle Maps
	Washington County 2015 LIDAR Topography
Soils:	Natural Resource Conservation Service (NRCS) Web Soil Survey (NRCS 2020).
Land Use:	Historic and recent aerial photographs
Wetlands:	Wisconsin Wetland Inventory (viewed via the Surface Water Data Viewer)
	National Wetland Inventory (NWI)

2.2 Equipment Used

The following equipment was used:

Six-foot stick tape
Soil auger, trenching shovel
Munsell soil color charts
Leica Zeno GG04 GPS

2.3. Vegetation

Vegetation was documented on the NC/NE Regional Supplement data forms. Percent cover of each species for the herbaceous stratum (5-foot radius plot), shrub/sapling stratum (15-foot radius plot) and tree and woody vine stratum (30-foot radius plot) were estimated. Rectangular sample plots were used when plant communities would overlap using circular sample plots or when a community was narrower than the radius. Wetland indicator status was taken from the Lichvar, R.W. 2016, *The National Wetland Plant List, State of Wisconsin 2016 Wetland Plant List*. Dominant species were determined by applying the 50/20 rule. The Dominance Test Worksheet and Prevalence Index Worksheet were completed. Hydrophytic Vegetation Indicators were applied, and a decision was made regarding the dominance of hydrophytic vegetation.

2.4. Soils

Soil test pits were excavated with a trenching shovel and a soil probe to a depth of at least 24" at each sampling point. The presence and percentage of mottling, matrix color, and texture was documented on the NC/NE Regional Supplement data forms for each layer. The Munsell Soil Color Charts were used to determine the hue, value and chroma of observed moist soils. After the profile was documented it was determined if a hydric soil indicator was met at that sample point.

2.5. Hydrology

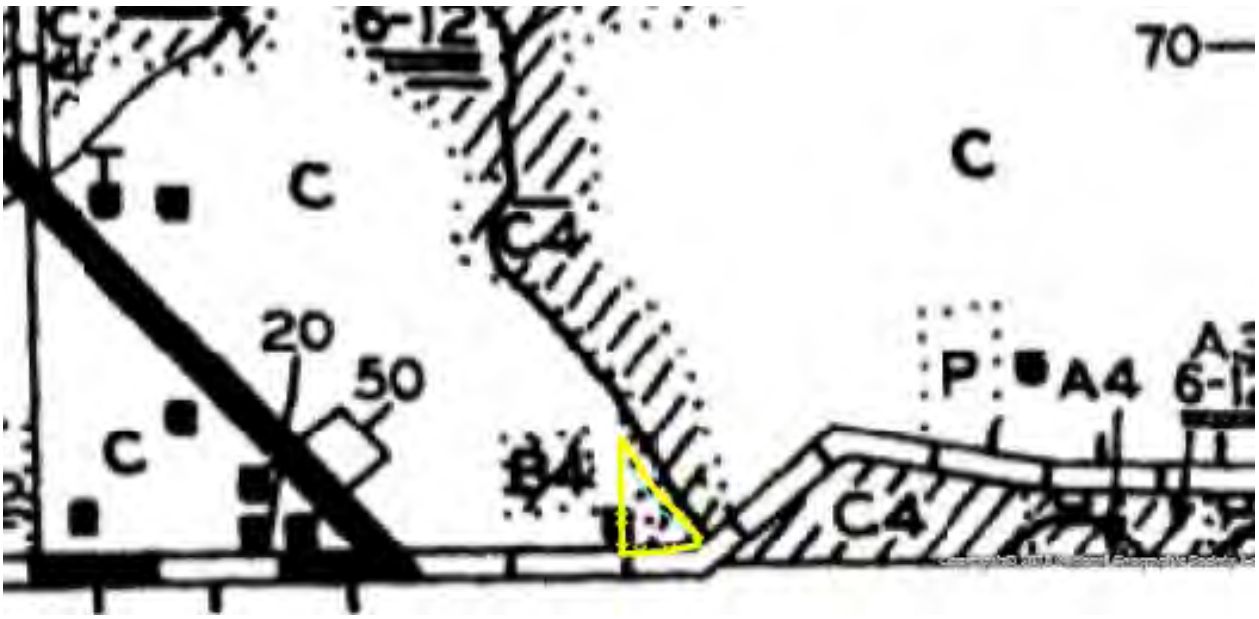
Before an on-site investigation, FSA aerial slides and aerial photographs were reviewed for the presence of surface water or saturated soil conditions. Each sample point was investigated for saturated soil conditions, water table and surface water and if present they were measured and recorded on the NC/NE Regional Supplement data form. The area was also investigated for Primary and Secondary Hydrologic Indicators as listed on the NC/NE Regional Supplement data form.

3.0 SITE CHARACTERISTICS

3.1 Land Use

The Original Survey shows the Site adjacent to the south section line. The Original Survey Notes describe the vegetation in this area as elm, sugar maple, beech, white ash, and white walnut.

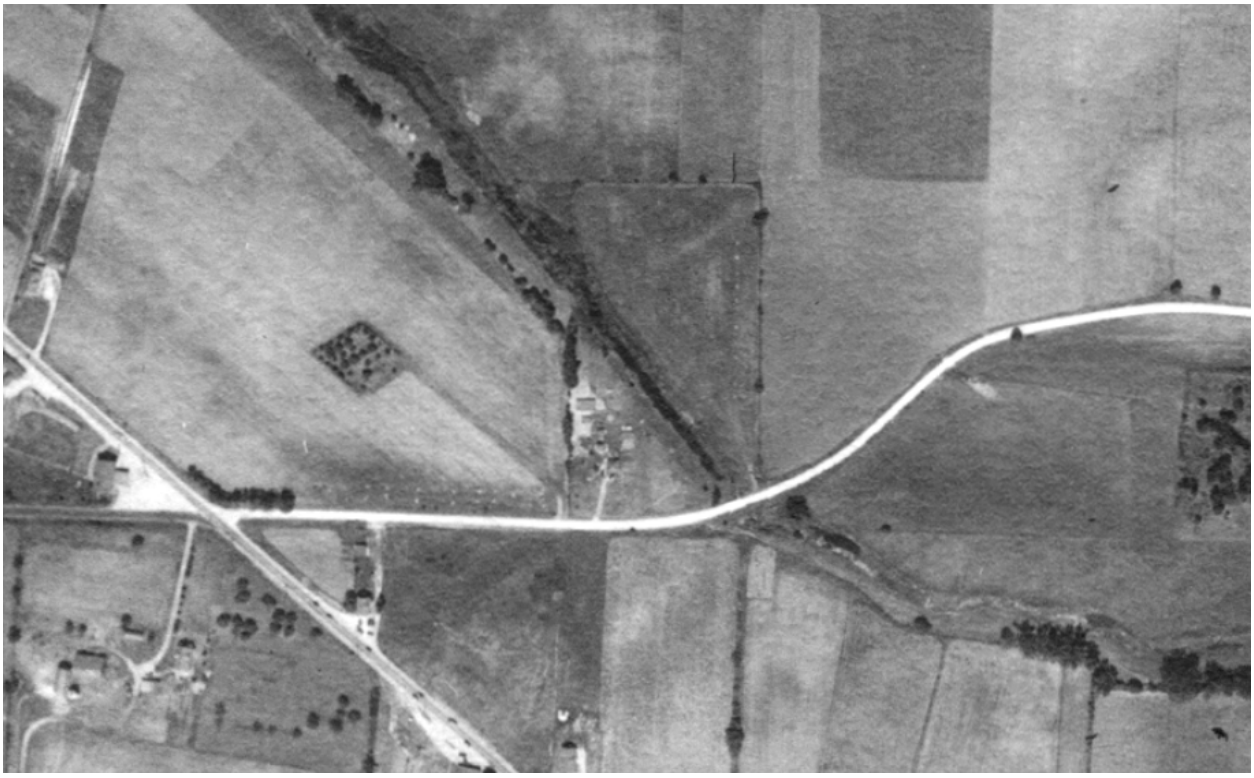
Original Survey



Bordner Survey

The Bordner Survey shows the Site as cleared cropland and sedge marsh with the Menomonee River adjacent to the east and a road adjacent to the south. The Original Survey, Survey Notes and Bordner Survey are in Appendix C.

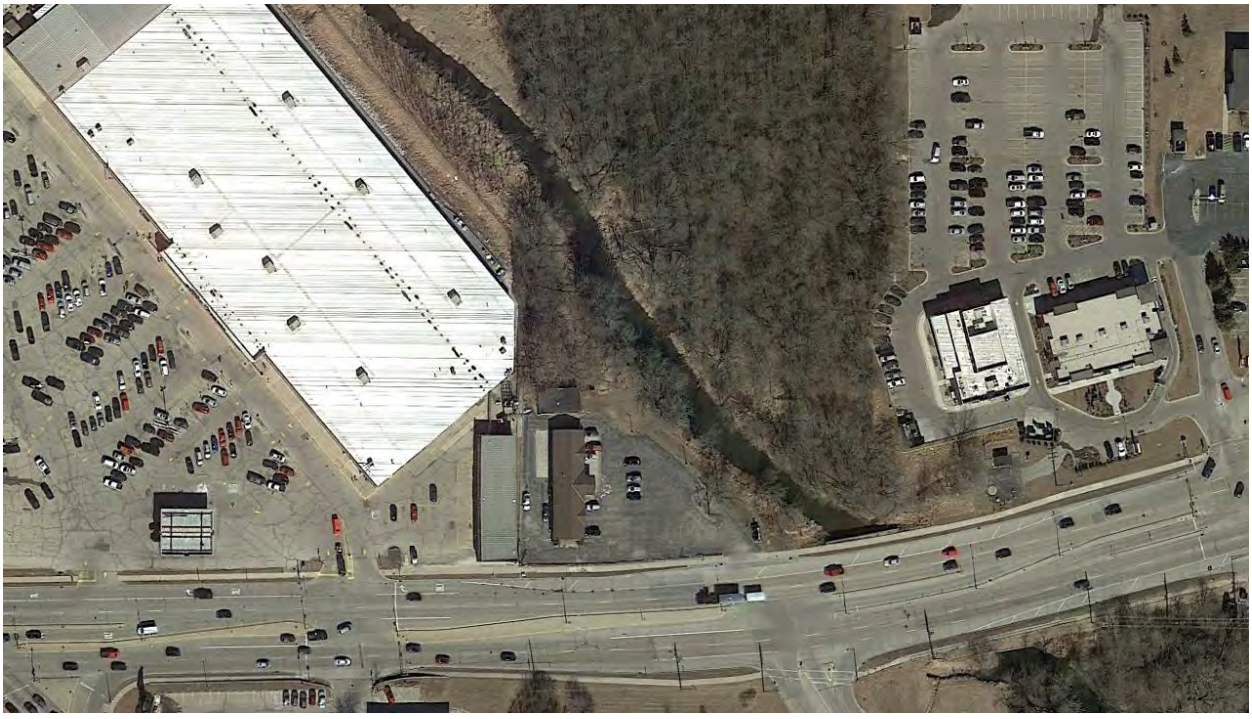
Aerial photographs from 1937, 1941, 1950, 1963, 1970, 1979-2002, 2005-2008, 2010-2011, 2013-2015, 2017, and 2018 were reviewed.



1937- Historic aerial photograph shows the site having a farm on the west and clear cropland on the east.

1979- Historical aerial photograph shows a road adjacent to the south, business development to the west and a new road to the south.

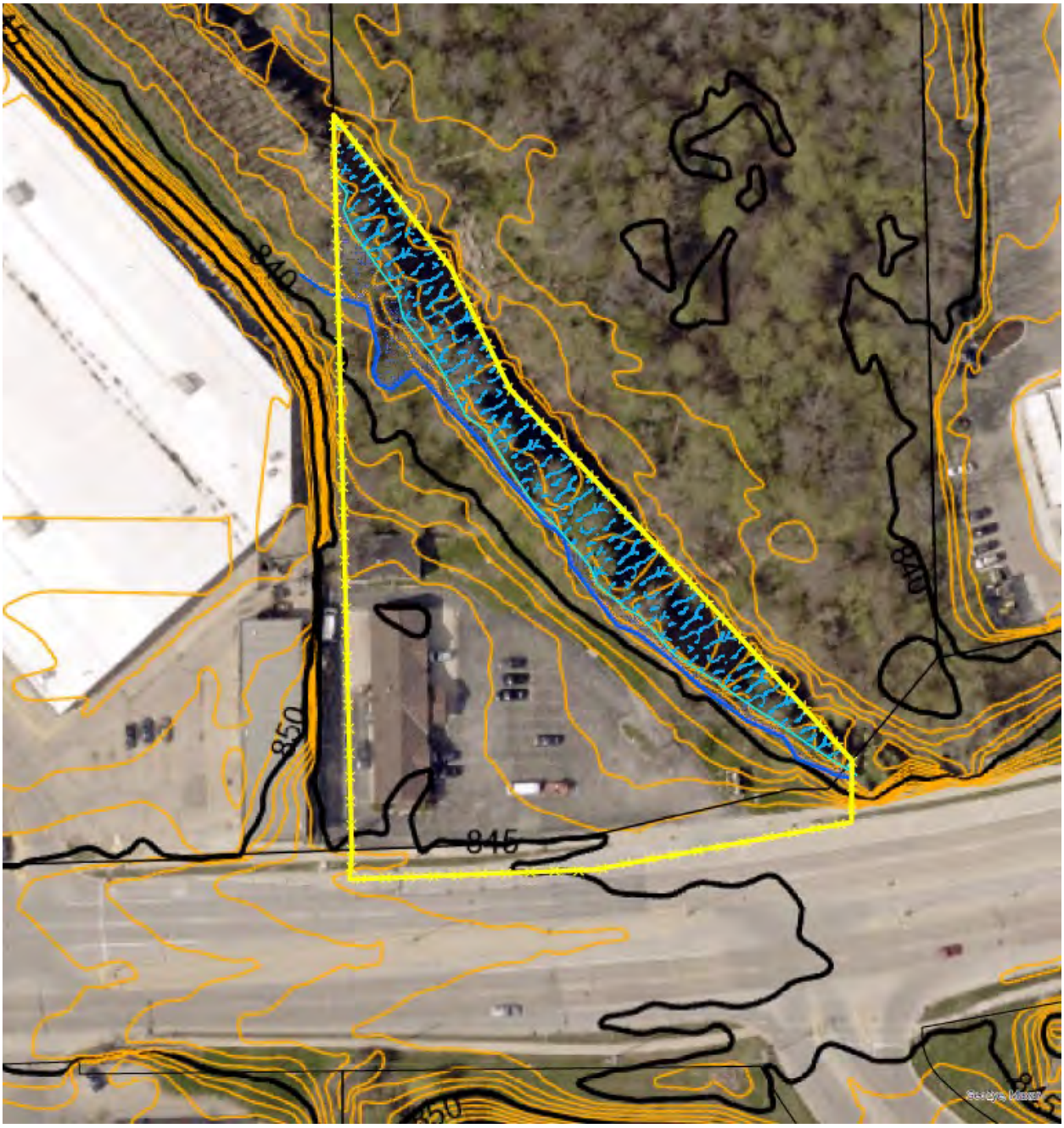
1990- Historic aerial photograph shows the site redeveloped and a parking lot added.



2018- The site shows two buildings with a parking lot.

3.2 Topography

The topography at the Site ranges from an elevation of 846 feet down to 836 feet. The topography of the Site slopes down towards the north half of the Site, draining to the Menomonee River. The Topographic Map is in Appendix A.



Topographic Map

3.3 *Precipitation*

Precipitation information was reviewed from the Hartford 2 W, Washington County, WI Station. A 90 Day Antecedent Precipitation Rolling Total from mid-June through mid-September 2020 is shown below. Precipitation from the middle of June was in the normal range for a few days and then dropped below normal for a few more days and then remained in the normal range until mid-August, with a few day spike above normal in mid-July. Precipitation was in the below normal range from mid-August until the end of August and then slowly rose to above normal precipitation range at the end of August, beginning of September prior to the Site visit. Raw precipitation data is in Appendix F. The antecedent precipitation for approximately 90 days prior to the Site visit in September was normal.

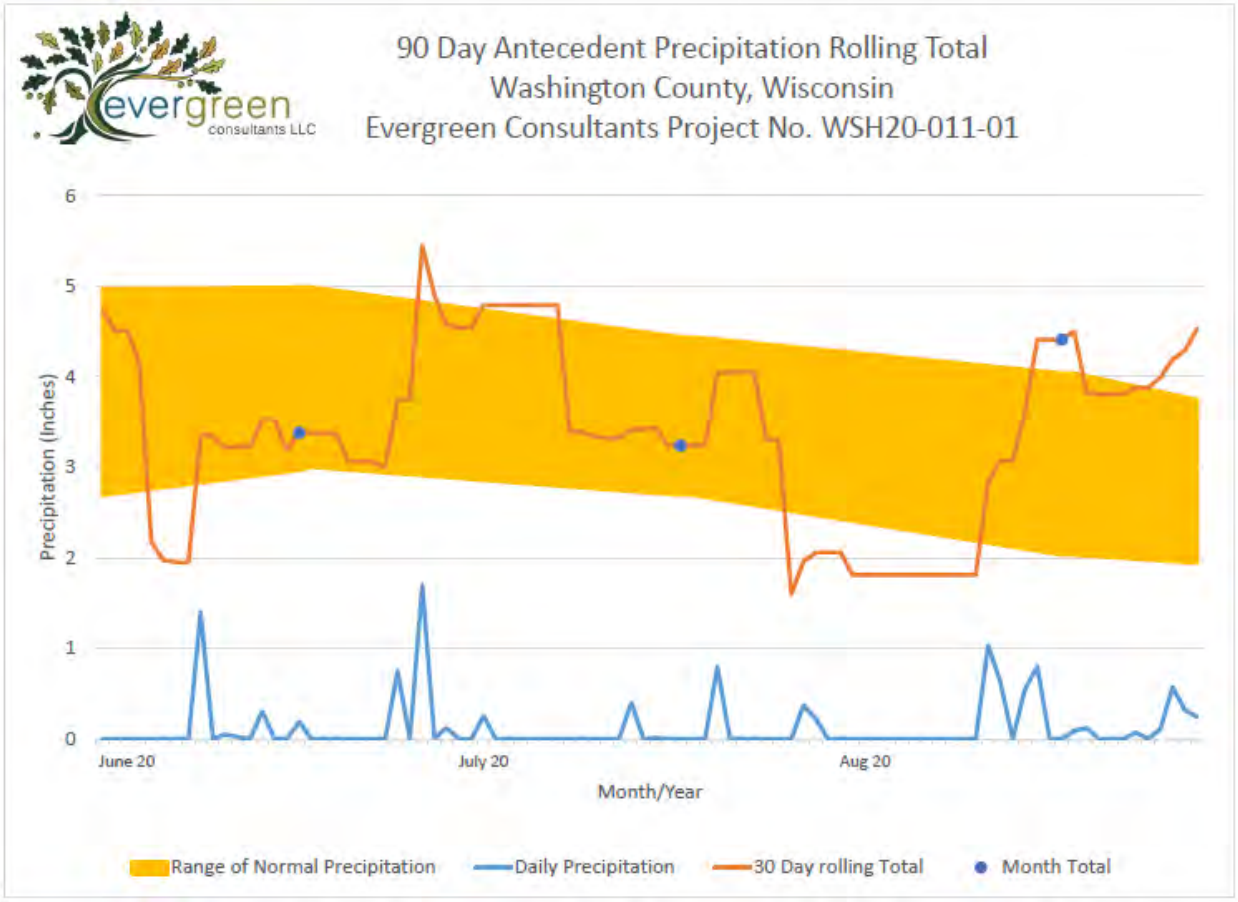


Chart 1. 90 Day Antecedent precipitation Rolling Total Summary between June-September 2020 in Washington County, Wisconsin

NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	9/16/2020	**Landowner/Project**	WSH20-011-01
Weather Station	Hartford 2 W, WI	**State**	Wisconsin
County	Washington County	**Growing Season**	yes
Photo/obs Date	9/11/2020	**Soil Name**	Cw- Colwood silt loam

shaded cells are locked or calculated

Long-term rainfall statistics (from WETS table or State Climatology Office)

	Month	30% chance <	30% chance >	Precip	Condition Dry, Wet, Normal	Condition Value	Month Weight Value	Product of Previous 2 Columns
1st Prior Month*	June	2.48	4.96	4.10	N	2	3	6
2nd Prior Month*	July	3.00	4.99	4.29	N	2	2	4
3rd Prior Month*	August	2.69	4.44	3.78	N	2	1	2
							Sum	**12**

*compared to photo/observation date

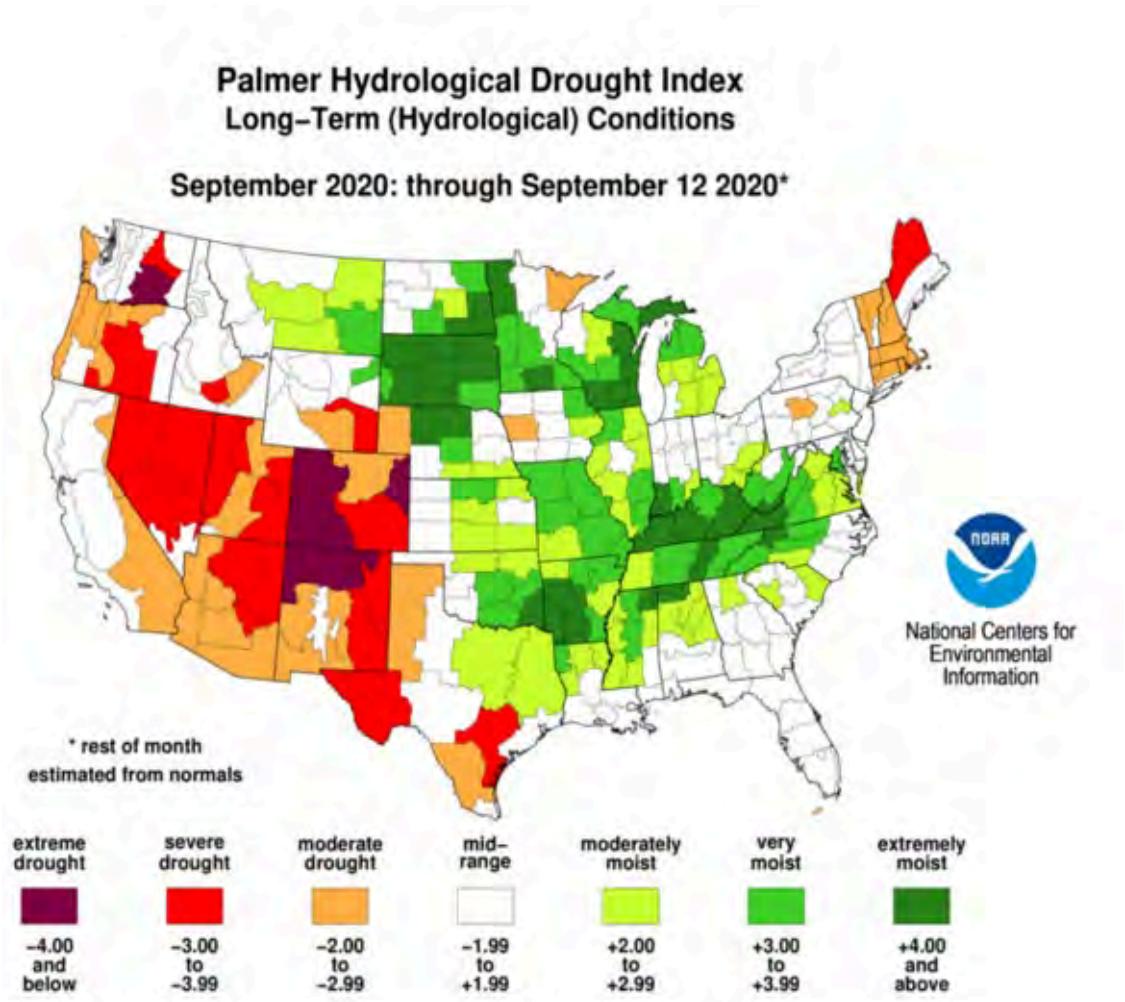
Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: **prior period has been normal**

Table 1. Precipitation Summary between June and August 2020 in Washington County, Wisconsin

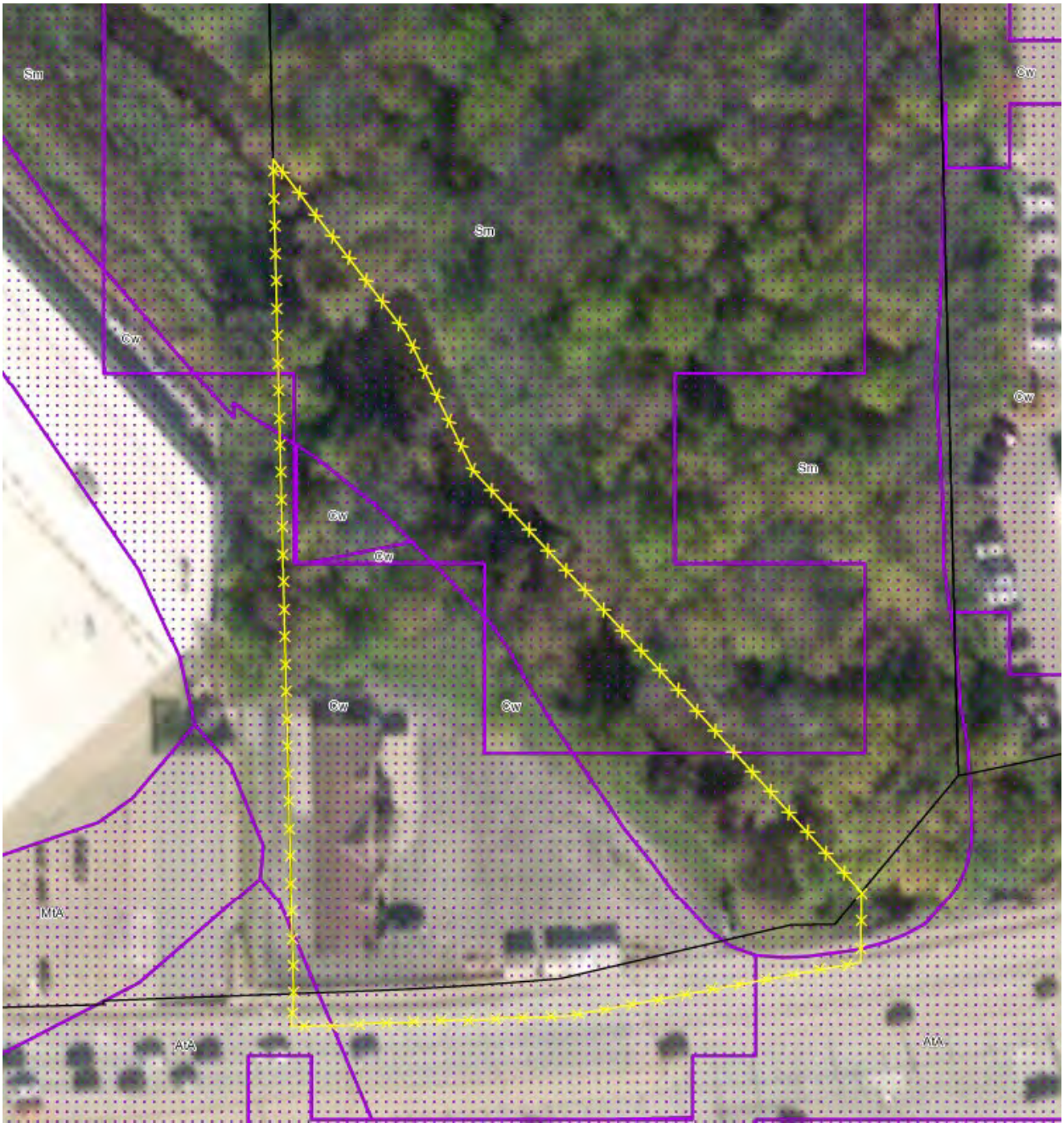
Precipitation values are measured in inches.
Sources: National Oceanic & Atmospheric Administration, Midwest Regional Climate Center



Sources: National Oceanic & Atmospheric Administration, Palmer Hydrological Drought Index
The index shows that area as extremely moist.

3.4 Wetland Mapping

The Wisconsin Wetland Inventory (WWI), viewed via the Surface Water Data Viewer, and the National Wetland Inventory (NWI) were reviewed. The Surface Water Data Viewer shows the Site having hydric soil indicators throughout the entire site.



Surface Water Data Viewer

National Wetland Inventory Map

The National Wetland Inventory Map shows an freshwater forested/shrub wetland along the northeast portion of the site. The surface Water Data Viewer and National Wetland Inventory Maps are in Appendix A.

3.5 Mapped Soils

The NRCS Web Soil Survey of Washington County, Wisconsin, indicate the presence of the following soil types:

Report—Hydric Soils

Hydric Soils–Washington County, Wisconsin				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
AtA—Ashkum silty clay loam, 0 to 2 percent slopes				
	Ashkum, drained	92	End moraines, ground moraines	2
	Peotone, drained	5	Depressions on ground moraines	2
Cw—Colwood silt loam, 0 to 2 percent slopes				
	Colwood	85	Lakebeds (relict)	2, 3
	Pella	8	Drainageways	2, 3
	Palms	7	Depressions	1, 3
MtA—Mequon silt loam, 1 to 3 percent slopes				
	Ashkum	10	Depressions	2, 3

Report—Taxonomic Classification of the Soils

[An asterisk by the soil name indicates a taxadjunct to the series]

Taxonomic Classification of the Soils–Milwaukee and Waukesha Counties, Wisconsin	
Soil name	**Family or higher taxonomic classification**
Ashkum	Fine, mixed, superactive, mesic Typic Endoaquolls
Colwood	Fine-loamy, mixed, active, mesic Typic Endoaquolls
Hochheim	Fine-loamy, mixed, active, mesic Typic Argiudolls
Pella	Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Taxonomic Classification of the Soils–Washington County, Wisconsin	
Soil name	**Family or higher taxonomic classification**
Ashkum	Fine, mixed, superactive, mesic Typic Endoaquolls
Colwood	Fine-loamy, mixed, active, mesic Typic Endoaquolls
Hochheim	Fine-loamy, mixed, active, mesic Typic Argiudolls
Mequon	Fine, mixed, superactive, mesic Udollic Endoaqualfs
Theresa	Fine-loamy, mixed, superactive, mesic Typic Hapludalfs

Note: NRCS County Soil Survey Report is in Appendix E.

4.0 FIELD INVESTIGATIONS

One wetland area was identified during fieldwork:

- Wetland 1 is a wooded stream terrace adjacent to the Menomonee River and is 4,250 square feet within the Site Boundary.

Determination Forms are in Appendix G.

Wetland 1: Wetland 1 (4,250 sq. ft. within the Site Boundary) is a wooded stream terrace adjacent to the Menomonee River and extends beyond the Site boundary to the north, east, and west.

Wetland 1 would be considered **T3/S3/E2Kw** (forested, broad-leaved deciduous/ scrub-shrub, broad-leaved deciduous/ emergent-wet meadow, narrow-leaved persistent with wet soil, palustrine, floodplain complex). The wetland boundary for Wetland 1 is located along a topography break within a stream terrace. The stream terrace is adjacent to the Menomonee River and is approximately 3 to 4 feet lower than the adjacent upland and 1.5 feet higher than the current water level of the river. The wetland meets wetland criteria for hydrophytic vegetation, hydric soil, and wetland hydrology.

The primary hydrology indicator observed in Wetland 1 includes drift deposits (B3). The secondary hydrology indicators observed in Wetland 1 include geomorphic position (D2) and a positive FAC-neutral test (D5). The stream terrace/wetland 1 floods during high water periods.

Photo taken standing near T1A facing east along the Menomonee River.

Photo taken near T2A facing north towards the Menomonee River.

The dominant hydrophytic vegetation observed:

- *Phalaris arundinacea* (reed canary grass, FACW)
- *Acer negundo* (boxelder maple, FAC)
- *Vitis riparia* (riverbank grape, FAC)
- *Rhamnus cathartica* (common buckthorn, FAC)
- *Fraxinus pennsylvanica* (green ash, FACW)
- *Salix interior* (sandbar willow, FACW)
- *Cornus alba* (red osier dogwood, FACW)
- *Laportea canadensis* (Canadian wood nettle, FACW)

The soil in Wetland 1 meets hydric soil indicators depleted below dark surface (A11) and redox dark surface (F6). Depleted below dark surface (A11) was observed by the soils having a depleted layer, starting at least twelve inches from the dark soil surface and being at least six inches thick. The soils observed presented redox dark surface (F6), with a dark surface with prominent or distinct redoximorphic features within a layer at least four inches thick.

Upland: Upland within the Site is hillslope, sloping down to the stream terrace. Within the southwest corner of the Site is a building and associated parking lot. Most of the Site was filled/graded during development. The area near T2B had a lot of brick, rock, and glass visible on the surface.

Upland hillslope, sloping north to the stream terrace. Brick, rock, and glass on the surface. Area was likely filled during the development of the building and parking lot on the Site.

West property line facing south.

Mowed lawn adjacent to the stream terrace.

4.1 Hydrology Assessments with Aerial Photographs

Aerial photographs from 1937, 1941, 1950, 1963, 1970, 1979-2002, 2005-2008, 2010-2011, 2013-2015, 2017, and 2018 were reviewed. The 1937 aerial photograph shows the Site having a farm on the southwest corner of the Site having a farm within clear cropland in the east, with the Menomonee River to the north. The 1980 aerial photograph has visible fill piles in the southeast corner of the Site.

4.2 Rare Species and Natural Communities

No species or communities of concern were observed during site activities.

4.3 Mapping

The wetland boundaries were flagged with pink flags. Benjamin La Count, a Professional Land Surveyor, surveyed the wetland boundary. The surveyed wetland boundaries are shown on the Wetland Delineation Map located in Appendix A, Site Maps.

5.0 CONCLUSIONS

Investigation of the area determined that wetlands exist as shown on the attached figures and Wetland Delineation Map. The wetlands identified for this report may be subject to federal regulation under the jurisdiction of the U.S. Army Corps of Engineers, state regulation under the jurisdiction of Wisconsin DNR, and local jurisdiction under Washington County, and the Village of Germantown.

One wetland area was identified during fieldwork:

- Wetland 1 is a wooded stream terrace adjacent to the Menomonee River and is 4,250 square feet within the Site Boundary.

6.0 DISCLAIMER

If wetlands are proposed to be impacted a Section 404 Letter of Permission Authorization will need to be obtained from USACE and according to Section 281.36, Wisconsin Statutes and NR 299 and NR 103, Wisconsin Administrative Code a permit from the WDNR would be necessary.

Benjamin J LaCount is a WDNR Professionally Assured Wetland Delineator and WDNR concurrence is granted for five years.

7.0 REFERENCES

Black, Merel R., and Judziewicz, Emmet J., *Wildflowers of Wisconsin and the Great Lakes Region, A Comprehensive Field Guide,* University of Wisconsin Press, Madison, WI, 2009

Board of Commissioners of Public Lands, *Wisconsin Public Land Survey Records: Original Field Notes and Plat Maps*, Madison, Wisconsin, 2020

Chadde, Steve W., *Wetland Plants of Wisconsin, Second Edition,* Steve Chadde, United States, 2013

Cochrane, Theodore S., Elliot, Kandis, and Lipke, Claudia S., *Prairie Plants of the University of Wisconsin-Madison Arboretum,* University of Wisconsin Press, Madison, WI, 2006

Curtis, Linda, *Woodland Carex of the Upper Midwest*, Curtis to the Third Productions, Lake Villa, IL, 2014

Czarapata, Elizabeth J., *Invasive Plants of the Upper Midwest, an Illustrated Guide to Their Identification and Control,* University of Wisconsin Press, Madison, WI, 2005

Eggers, Steve D., and Reed, Donald M., U.S. Army Corps of Engineers, St. Paul District, *Wetland Plants and Plant Communities of Minnesota & Wisconsin*, 1997

Fassett, Norman C., *A Manual of Aquatic Plants*, University of Wisconsin Press, Madison, WI, 1940

Gleason, Henry A., Ph.D., and Cronquist, Arthur, Ph.D., *Manual of Vascular Plants of Northeastern* Google Earth Aerial Photographs and FSA Slides

Hipp, Andrew, *Field Guide to Wisconsin Sedges,* University of Wisconsin Press, Madison, WI, 2008

Holmgren, Noel H., *Illustrated Companion to Gleason and Cronquist's Manual, Illustrations of the Vascular Plants of Northeastern United States and Adjacent Canada,* The New York Botanical Garden, 1998

Judziewicz, Emmet J., Freckmann, Robert W., Clark, Lynn G., and Black, Merel R., *Field Guide to Wisconsin Grasses,* University of Wisconsin Press, Madison, WI, 2014

Knobel, Edward, *Field Guide to the Grasses, Sedges, and Rushes of the United States,* Dover Publications, Inc., Mineola, NY, 1977

Kopiztke, David A., and Sweeney, Dr. James M., *Threatened and Endangered Species in Forests of Wisconsin, A Guide to Assist with Forestry Activities,* International Paper Co, 2000

Lichvar, R.W. 2016. *The National Wetland Plant List*. ERDC/CRREL TR-12-11. Hanover, NH: U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory

Tekiela, Stan, *Wildflowers of Wisconsin, Field Guide,* Adventure Publications, Inc., Cambridge, MN, 2000

Tekila, Stan, *Trees of Wisconsin, Field Guide,* Adventure Publications, Inc., Cambridge, MN, 2002
U.S. Army Corps of Engineers (USACOE), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, 2012

U.S. Fish and Wildlife Service, National Wetlands Inventory, 2020

United States and Adjacent Canada, Second Edition New York Botanical Garden, NY, 1991

United States Department of Agriculture Soil Conservation Service, *Soil Survey of Washington County, Wisconsin,* 1974

University of Wisconsin Digital Collections Center, *Wisconsin Land Economic Inventory Maps (Bordner Survey)*, Madison, WI, 2020

University of Wisconsin, *Wisconsin Historic Aerial Image Finder,* 2020

USACE, Environmental Laboratory, *Wetlands Delineation Manual, Technical Report Y-87-1*, U.S. Army Engineer Waterways Experiment Station, 1987

USACE, Minnesota Board of Water & Soil Resources, *Guidance for Offsite Hydrology/Wetland Determinations, 2016.*

USDA, FSA, Service Center, *FSA Slides for years 1981 through 2002*. Washington County, WI

USDA, Natural Resources Conservation Service (NRCS), *Field Indicators of Hydric Soils in the United States, Guide for delineating Hydric Soils*, Version 5.01, 2003

USDA, NRCS, *Web Soil Survey,* 2020

Uva, Richard H., Neal, Joseph C., and DiTomaso, Joseph M., *Weeds of the Northeast,* Cornell University Press, Ithaca, NY, 1997

Vascular Plants of Northeastern United States and Adjacent Canada, The New York Botanical Garden, 1998

Voss, Edward G., *Michigan Flora*, Cranbrook Institute of Science, Bloomfield Hills, MI, 1972

Washington County, GIS, *aerial photographs*, *topography*, Washington County, WI

WDNR, Wisconsin Wetland Inventory Classification Guide, PUBL-W2-W2023, 1992

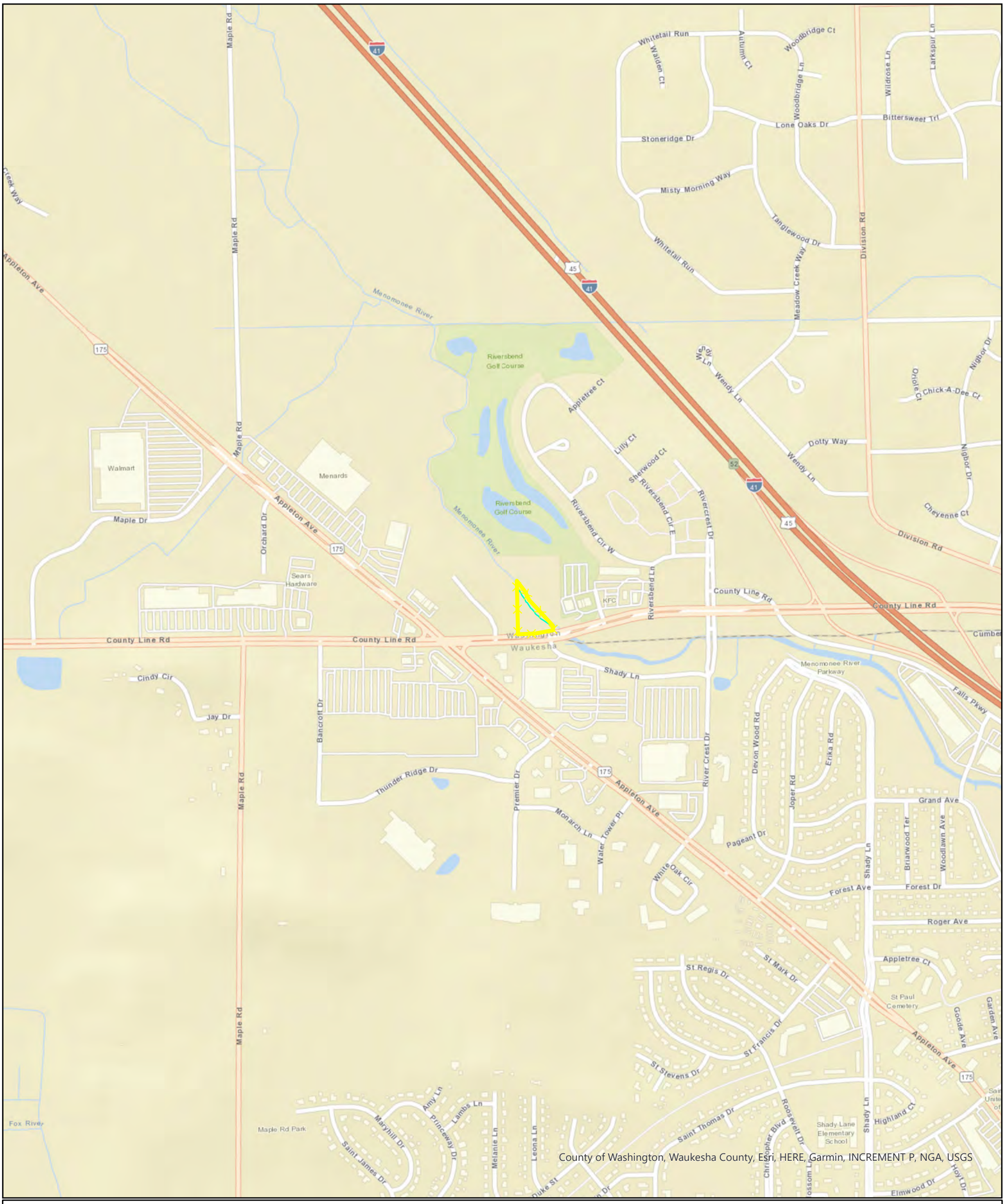
Wetland Training Institute, Inc., *2013 Pocket Guide to Hydric Soil Field Indicators,* Wetland Training Institute, Inc., Glenwood, NM, 2013

Wisconsin Department of Administration, *Basic Guide to Wisconsin's Wetlands and Their Boundaries*, 1995

Wisconsin Department of Natural Resources (WDNR), *Surface Water Data Viewer*, 2020

Appendix A:

Site Maps



County Line Road
Site Location Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

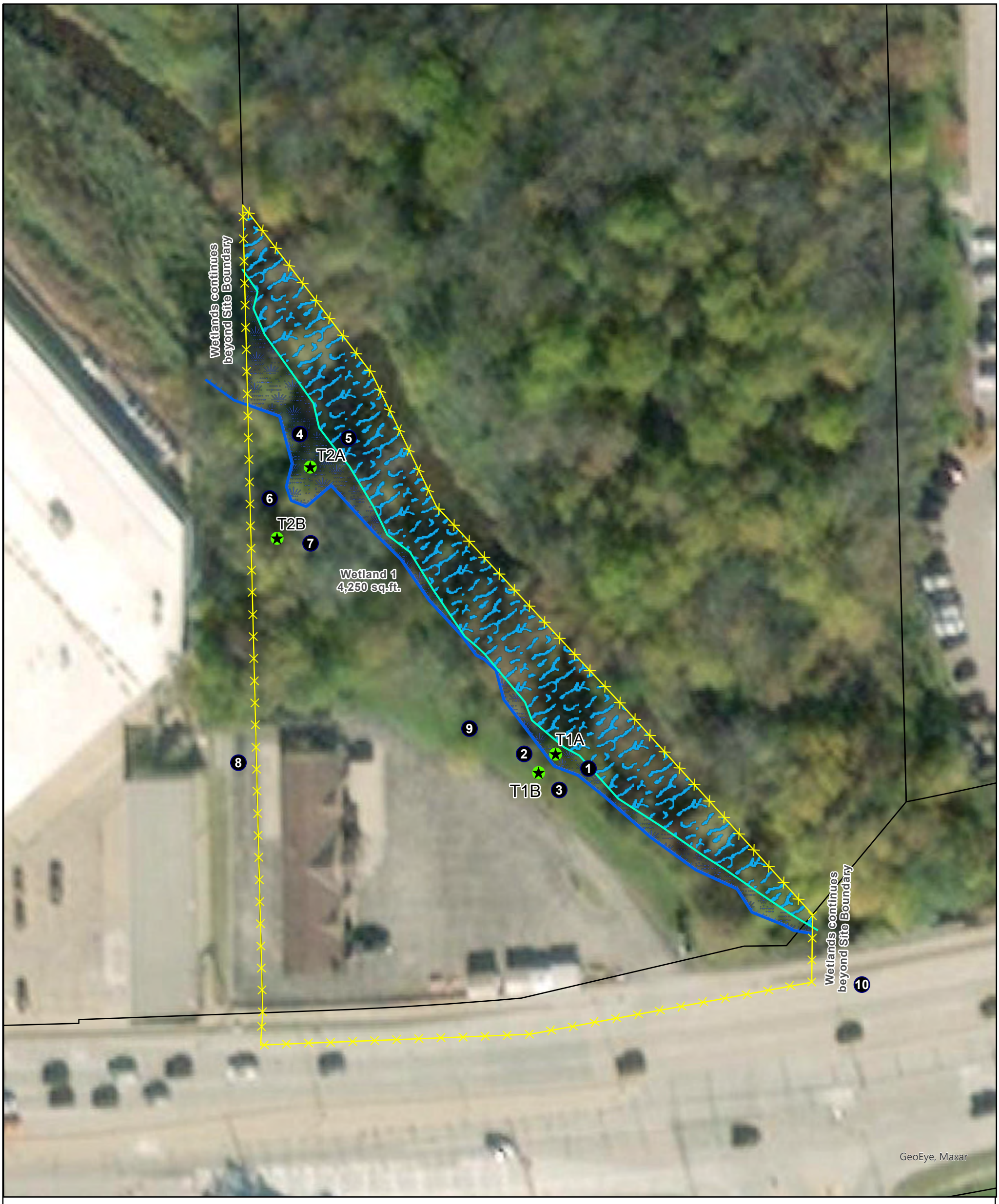
Legend

Site Boundary

N
W E
S

0 400 800 1,600
Feet

evergreen consultants LLC
2918 Van Hoof Road • Green Bay, WI 54313
Phone: 920.615.0019 • Website: www.evergreenwis.com



Legend

- Site Boundary
- Sample Point
- Picture Location
- Wetland Line
- Wetland
- Approximate OHWM
- Open Water/River
- Parcels

Wetland Delineation was conducted by Benjamin LaCount, PLS, Wetland Scientist, WDNR Professionally Assured Wetland Delineator with assistance from Shyann Banker, Environmental Specialist.

County Line Road
Wetland Delineation Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

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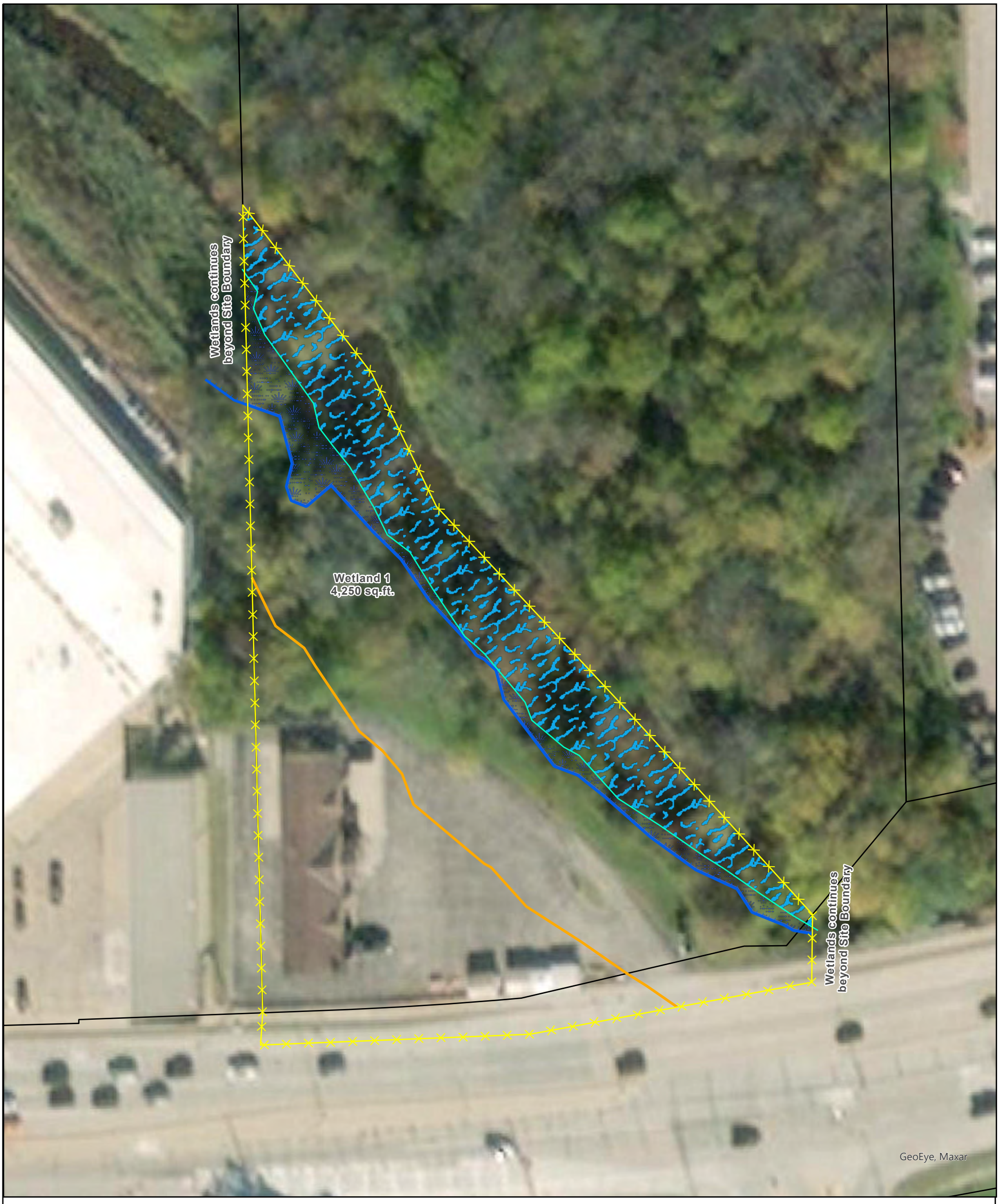
evergreen consultants LLC
2918 Van Hoof Road • Green Bay, WI 54313
Phone: 920.615.0019 • Website: www.evergreenwis.com



Legend

- Site Boundary
- Wetland Line
- Wetland
- Approximate OHWM
- Open Water/ River
- WDNR Protective Area
- Parcels

County Line Road
Wetland Delineation Map
WDNR Protective Areas
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

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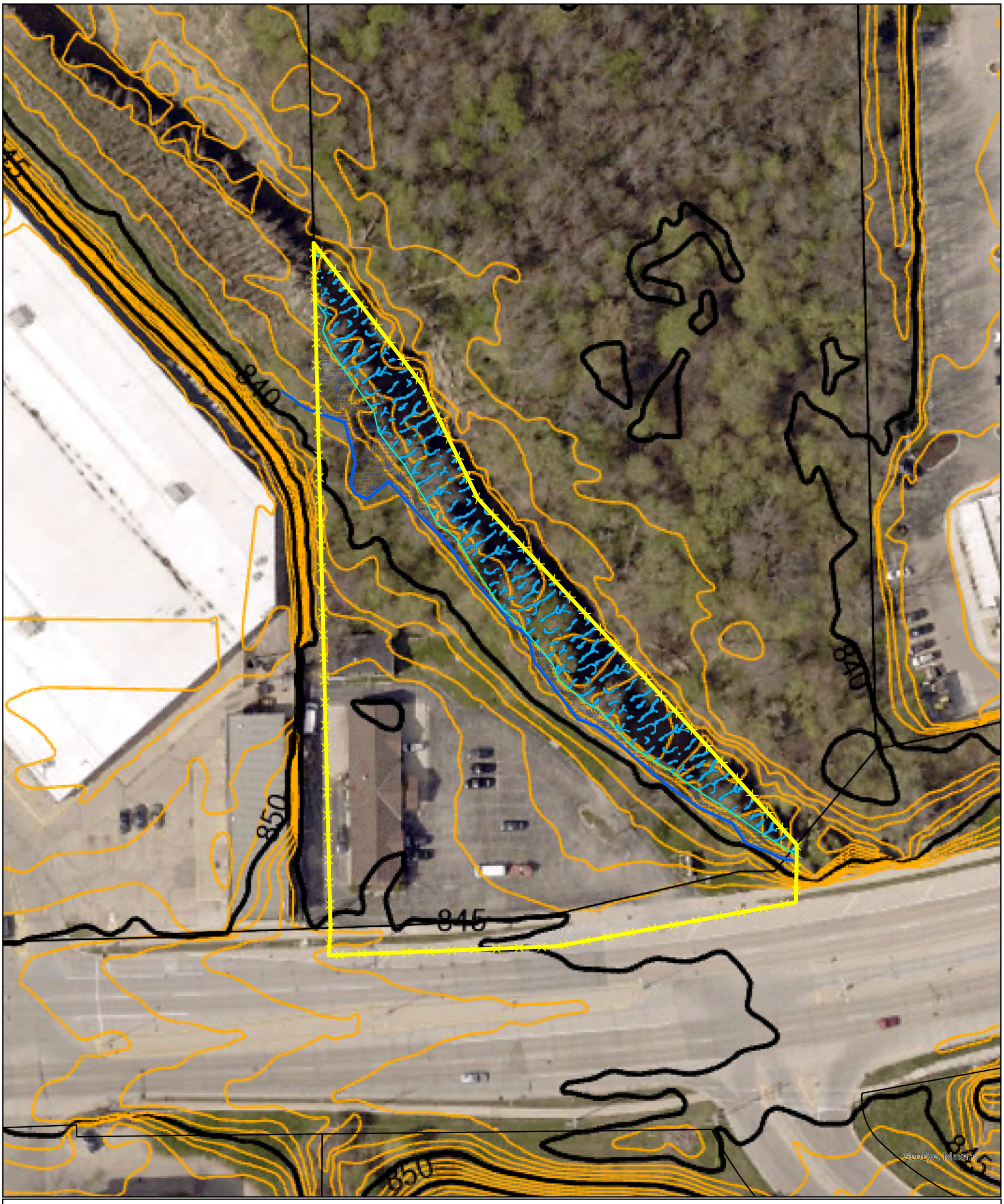

County Line Road
Topographic Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

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Legend

- Site Boundary
- Wetland Line
- Wetland
- Open Water/ River
- Approximate OHWM
- Parcels

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County Line Road
Surface Water Data Viewer Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

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Legend

- Site Boundary
- Parcels

Wetland Indicators

- USDA Wetspots
- Maximum Extent Wetland Indicators

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County Line Road
National Wetland Inventory Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

Legend

- Site Boundary
- Parcels
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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MzfA
U.S. Department of Agriculture, Natural Resources Conservation Service, GeoEye, Maxar

County Line Road
NRCS Hydric Rating Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

Legend

- Site Boundary
- Parcels
- Hydric
- Predominantly Hydric
- Partially Hydric
- Predominantly Non-Hydric

N
W E
S

0 50 100 200
Feet

evergreen consultants LLC
2918 Van Hoof Road • Green Bay, WI 54313
Phone: 920.615.0019 • Website: www.evergreenwis.com

Colwood silt loam, 0 to 2 percent slopes

Theresa silt loam, 2 to 6 percent slopes, eroded

Mequon silt loam, 1 to 3 percent slopes

Ashkum silty clay loam, 0 to 2 percent slopes

Ashkum silty clay loam, 0 to 2 percent slopes

Colwood silt loam, 0 to 2 percent slopes

Pella silt loam, 0 to 2 percent slopes

GeoEye, Maxar

County Line Road
NRCS Soils Map Units
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

Legend

- Site Boundary
- Parcels
- USA Soils Map Units

N
W E
S

0 30 60 120
Feet

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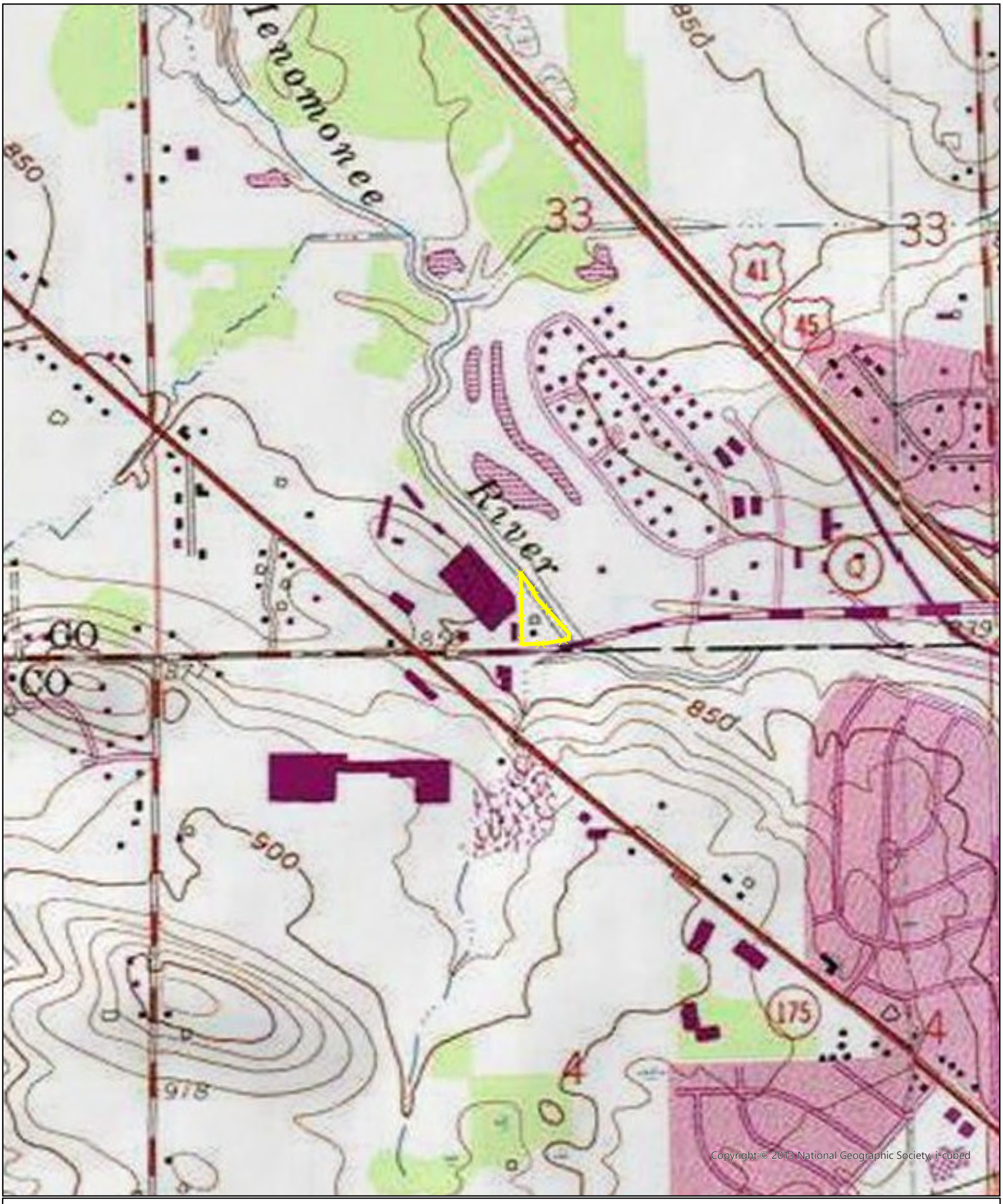
Phone: 920.615.0019 • Website: www.evergreenwis.com



County Line Road
Quadrangle Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

Legend

Site Boundary

N
W
E
S

0 300 600 1,200 Feet

evergreen consultants LLC
2918 Van Hoof Road • Green Bay, WI 54313
Phone: 920.615.0019 • Website: www.evergreenwis.com

Appendix B:

Site Pictures

1- Standing near T1A.

2- Standing near T1B.

3- Standing near T1B.

4- Standing near T2A.

5- Standing near T2A.

6- Standing near T2B.

7- Standing near T2B.

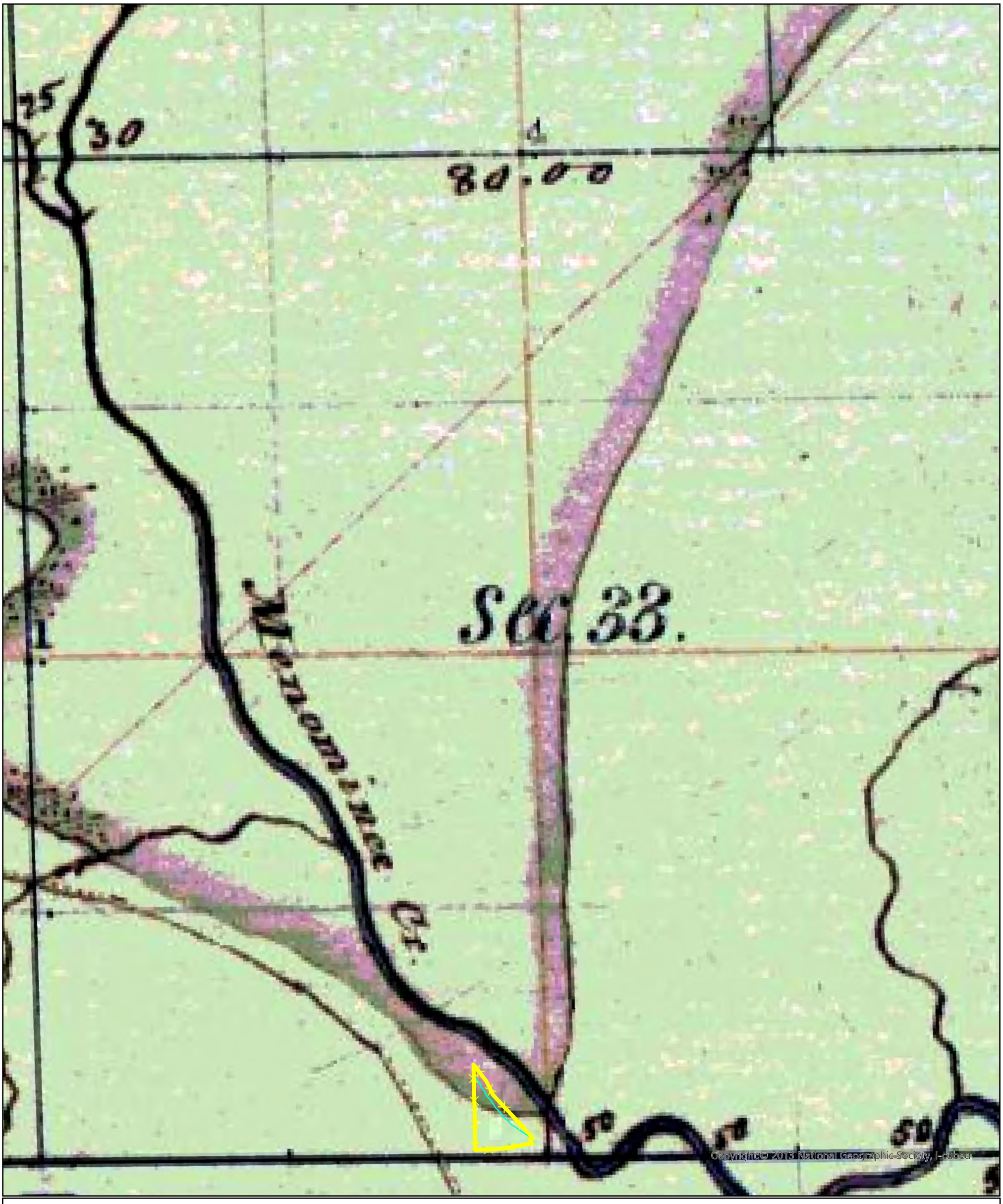
8- Standing near the northwest corner of the building.

9- Standing near the northeast corner of the parking lot.

10- Standing near the southeast corner of the Site Boundary.

Appendix C:

Original Survey, Notes, and Bordner Map



County Line Road
Original Survey
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

Legend

Site Boundary

N
W E
S

0 250 500 1,000
Feet

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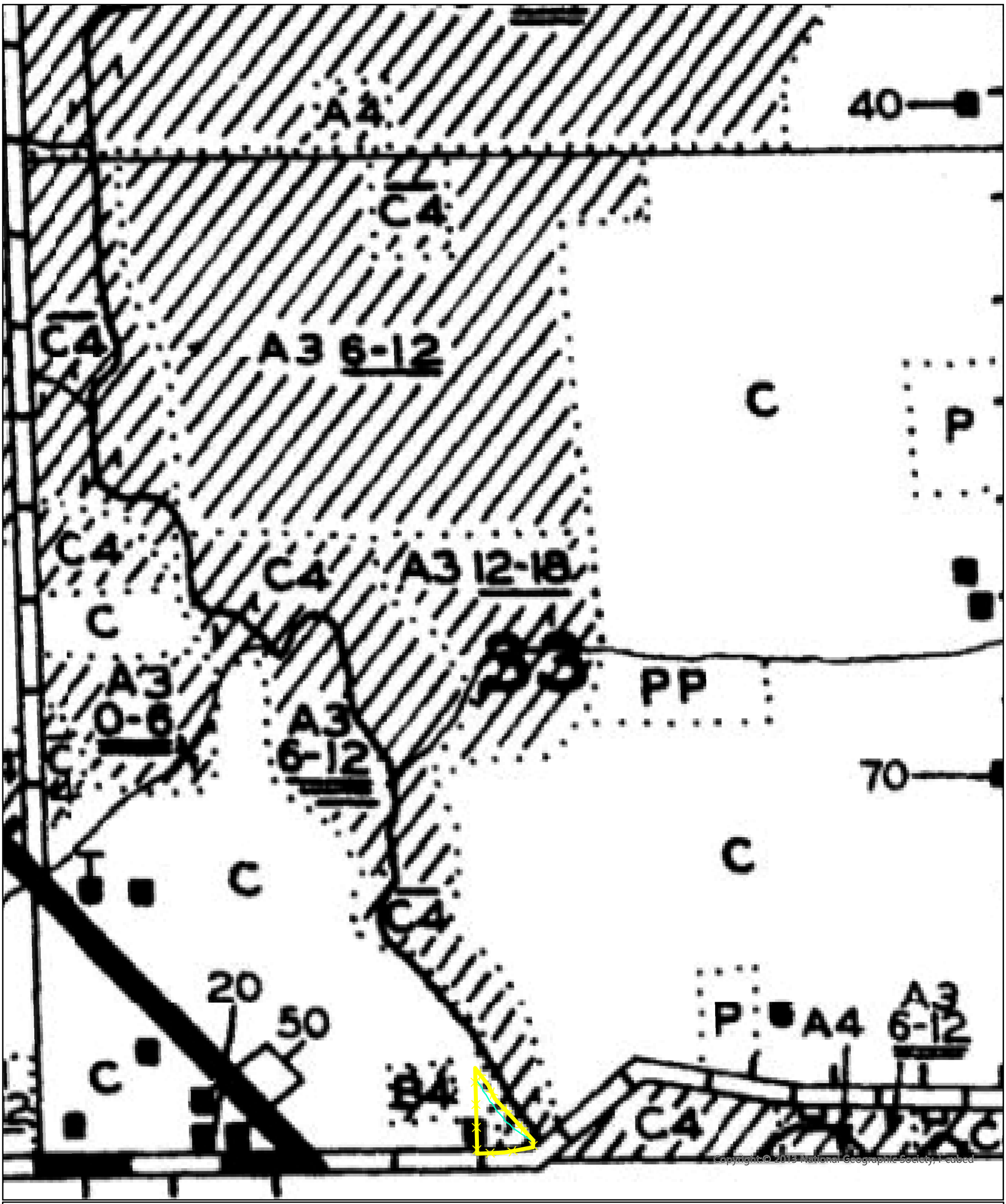
Phone: 920.615.0019 • Website: www.evergreenwis.com

Range No. 20 E, 4th Meridian.

West	South Side Section 33
1.00	Menominee River 50 c S.S.E.
3.50	Elm 14 in Diameter
4.00	Menominee River 8 c E. N.E.
26.00	Do " 50 c E. S.E.
33.00	Do " 50 c. E. N.E.
39.50	Do " 50 c S.E.
40.00	Set quarter Section Post
	Elm 8 S 39 E 12
	Do 10 N 82½ W 25
114.95	Sugar 10 in Diameter
48.00	Trail c N.N.W.
80.00	Set Post Corner Sections 32 & 33
	Beech 11 N 55 E 42
	White Ash 8 N 36 W 12
	Land rolling first & Second rate — White and Black Oak Lynn Sugar Beech Iron wood Ash Elm and White Walnut — Prickly Ash and Hazle.

Original Survey Notes



County Line Road
Bordner Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

Legend

Site Boundary

N
W E
S

0 250 500 1,000 Feet

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Phone: 920.615.0019 • Website: www.evergreenwis.com

LEGEND

UPLAND FOREST
NUMERALS 1-2

LOWLAND FOREST
ALL NUMERALS 3

NON-TILLABLE
A-PP-CPP-SP-E-A4-C4-E4-▲

INFERIOR FOREST
POORLY STOCKED WOODLAND
B1 - C1 - D5 - D5

FOREST PLANTING RECOMMENDED

OPEN SWAMP
ALL NUMERALS 4

TILLABLE LAND
C-CS-P

ALL SWAMP LAND
NUMERALS 3-4

N

LAND COVER

·····	COVER BOUNDARY	C	CLEARED CROP LAND	D3	BALSAM
A	ABANDONED	C1	POPPLE WITH WHITE BIRCH	D4	LEATHER LEAF
A1	UPLAND HARDWOODS	C1	INFERIOR C1	D5	RECENT BURN
A2	HEMLOCK WITH HARDWOOD	C2	NORWAY PINE	D5	DEAD TIMBER
A3	SWAMP HARDWOODS	C3	TAMARACK	E1	PIN CHERRY
A4	TAGALDER, WILLOW, DOGWOOD ETC.	C4	GRASS MARSH	E4	WEEDY PEAT
		C4	SEDGE MARSH	F4	CRANBERRY MARSH
B	BIRCH	C5	CULTIVATED STUMP LAND	FP	FOREST PLANTATION
B1	HARDWOOD WITH CONIFERS	CPP	POOR LAND PREVIOUSLY CROPPED	O	OPEN
B1	INFERIOR B1	D	SCRUB OAK	P	PASTURE
B2	WHITE PINE	D1	OAK-HICKORY	PP	PERMANENT PASTURE
B3	WHITE CEDAR	D2	JACK PINE	RC	RED CEDAR
B4	CAT TAIL MARSH	D3	BLACK SPRUCE	SP	STUMP PASTURE
				TG	TRUCK GARDEN

ROADS

14 FEDERAL HIGHWAY 9 STATE HIGHWAY A COUNTY HIGHWAY

- HARD SURFACED ROAD
- IMPROVED GRAVEL ROAD
- UNIMPROVED GRAVEL ROAD
- IMPROVED DIRT ROAD
- UNIMPROVED DIRT ROAD
- TRAIL
- DRIVABLE FIRE LANE
- NON-DRIVABLE FIRE LANE
- TELEPHONE LINE
- POWER LINE
- RAILROAD
- ABANDONED RAILROAD

IMPROVEMENTS

- OCCUPIED HOUSE
- D VACANT HOUSE
- SUMMER HOME
- OCCUPIED SCHOOL
- VACANT SCHOOL
- CHURCH
- TOWN HALL
- CHEESE FACTORY
- CREAMERY
- FILLING STATION OR GARAGE
- STORE
- TAVERN
- HOTEL
- SAW MILL
- GRIST MILL
- FARM BLDG LESS THAN 100 FT. FROM CENTER OF ROAD
- LOGGING CAMP
- 6 INDICATES NO. OF HOUSES IN A GROUP
- 50 INDICATES THE NUMBER OF FEET BUILDING IS LOCATED FROM CENTER OF ROAD

MISCELLANEOUS SYMBOLS

Q	QUARRY	C	CEMETERY	GC	GOLF COURSE
G	GRAVEL PIT	N	NURSERY	BD	BEAVER DAM
S	SPRING	E	EROSION	PD	PUBLIC DUMP
F	FUR FARM	▲	FIRE TOWER	Y	ORCHARD
····→	DRAINAGE DITCH	~	INTERMITTENT STREAM	⊕	CIVIL TOWN BOUNDARY

WOODED AREAS

DENSITY OF STAND

IS INDICATED BY THE LINE OR LINES BELOW THE DIAMETER

- D1 6-12 ONE LINE = GOOD STAND
- D1 6-12 TWO LINES = MEDIUM STAND
- D1 6-12 THREE LINES = POOR STAND
- D1 6-12 FOUR LINES = SCATTERED

DIAMETER CLASSES

NUMERALS 0-3, 3-6 ETC. PLACED AFTER A TIMBER SYMBOL (D1 6-12) INDICATES IN INCHES THE AVERAGE DIAMETER OF THE TREES BREAST HIGH (4½ FT.) WITHIN A GIVEN COVER AREA

ONE MILE

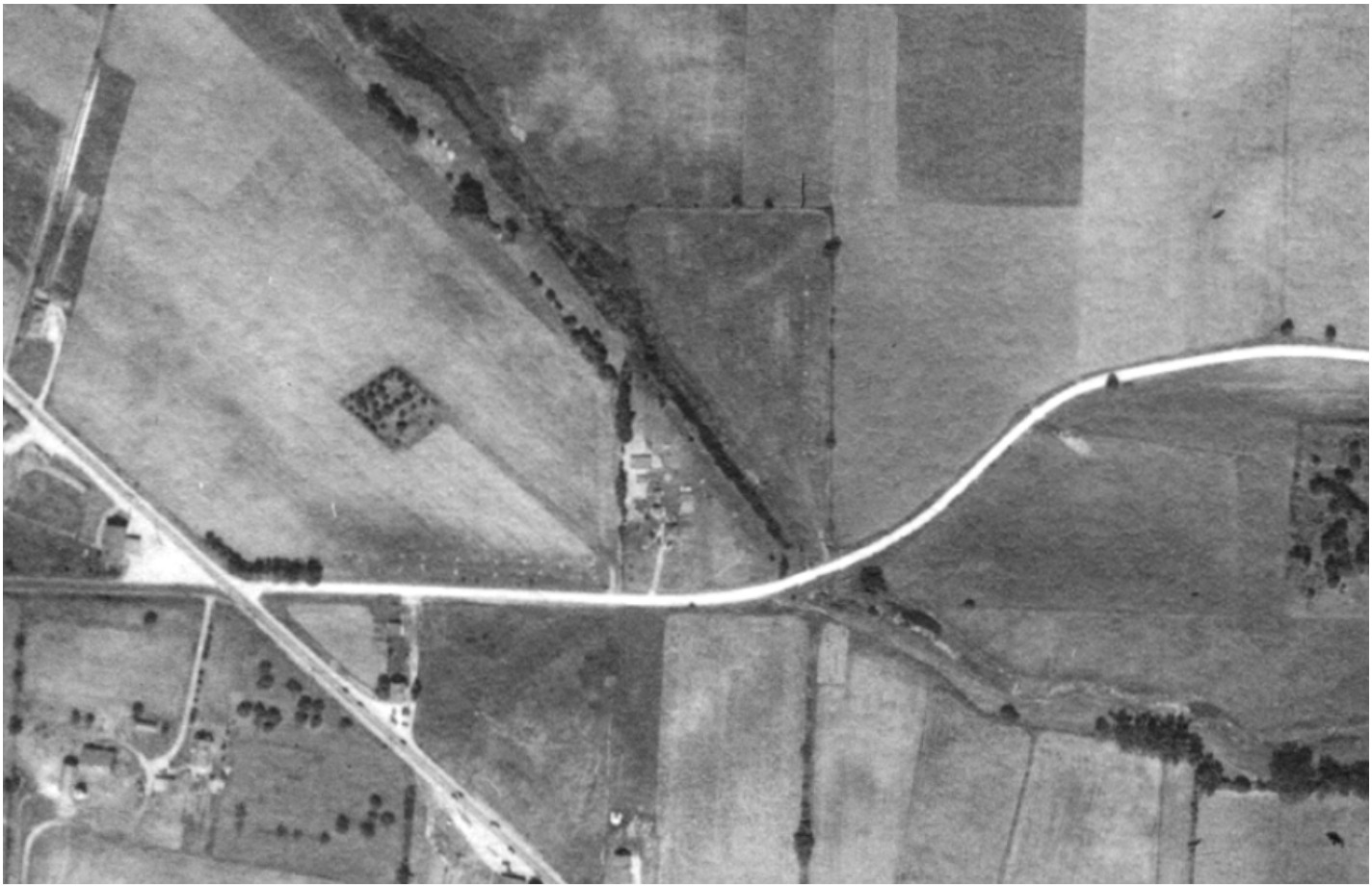
WISCONSIN STATE PLANNING BOARD — W.P.A. COOPERATING

WISCONSIN LAND ECONOMIC INVENTORY DIVISION — 411 W. WING - STATE CAPITOL — MADISON WISCONSIN

Appendix D:

Historic Aerial Photographs

Site Boundary



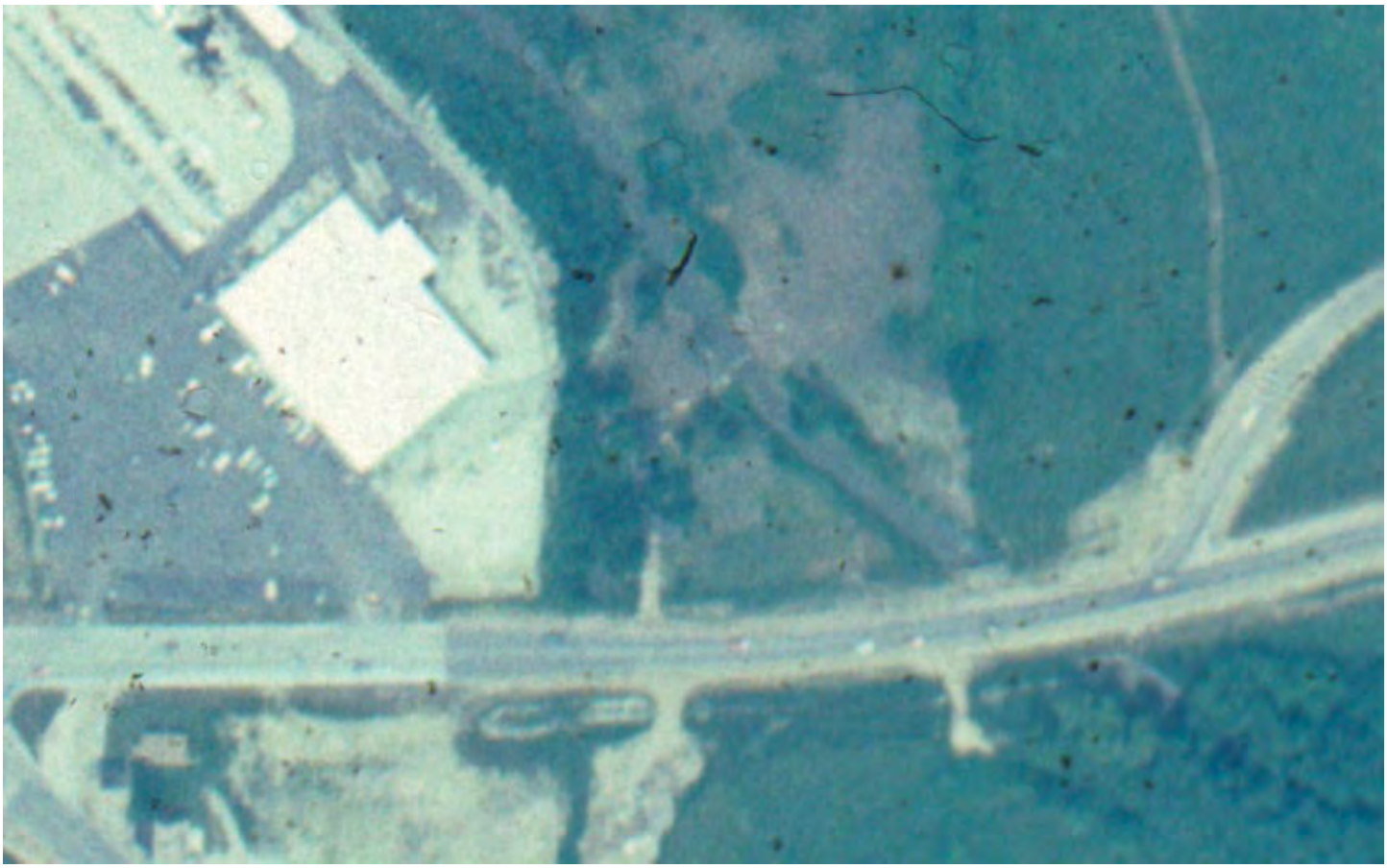
1937 Aerial Photo

1941 Aerial Photo

1950 Aerial Photo

1963 Aerial Photo

1970 Aerial Photo



1979 Aerial Photo

1980 Aerial Photo

1981 Aerial Photo

1982 Aerial Photo

1983 Aerial Photo

1984 Aerial Photo

1985 Aerial Photo

1986 Aerial Photo

1987 Aerial Photo

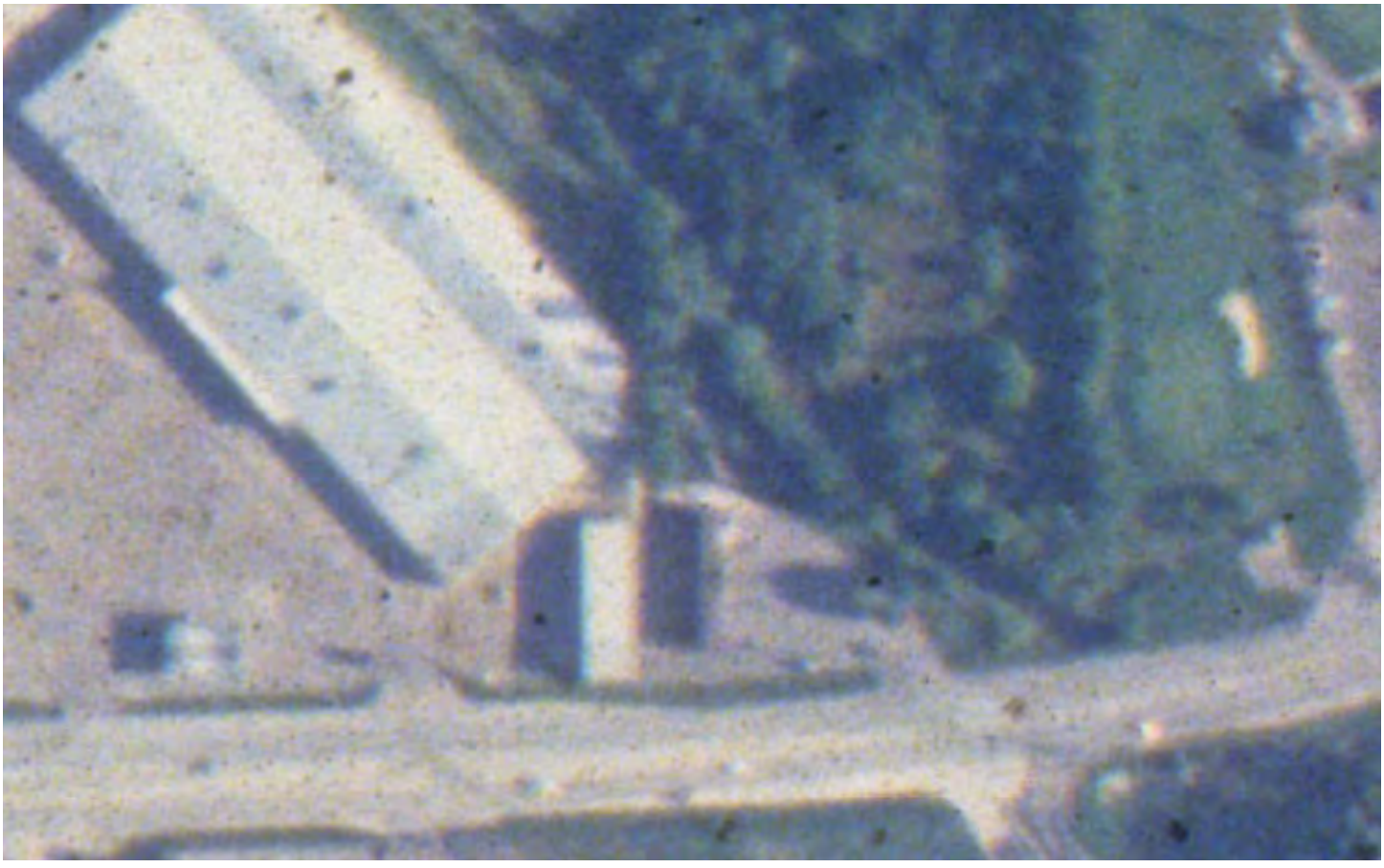
1988 Aerial Photo

1989 Aerial Photo

1990 Aerial Photo

1991 Aerial Photo

1992 Aerial Photo



1993 Aerial Photo

1994 Aerial Photo

1995 Aerial Photo

1996 Aerial Photo

1997 Aerial Photo

1998 Aerial Photo

1999 Aerial Photo

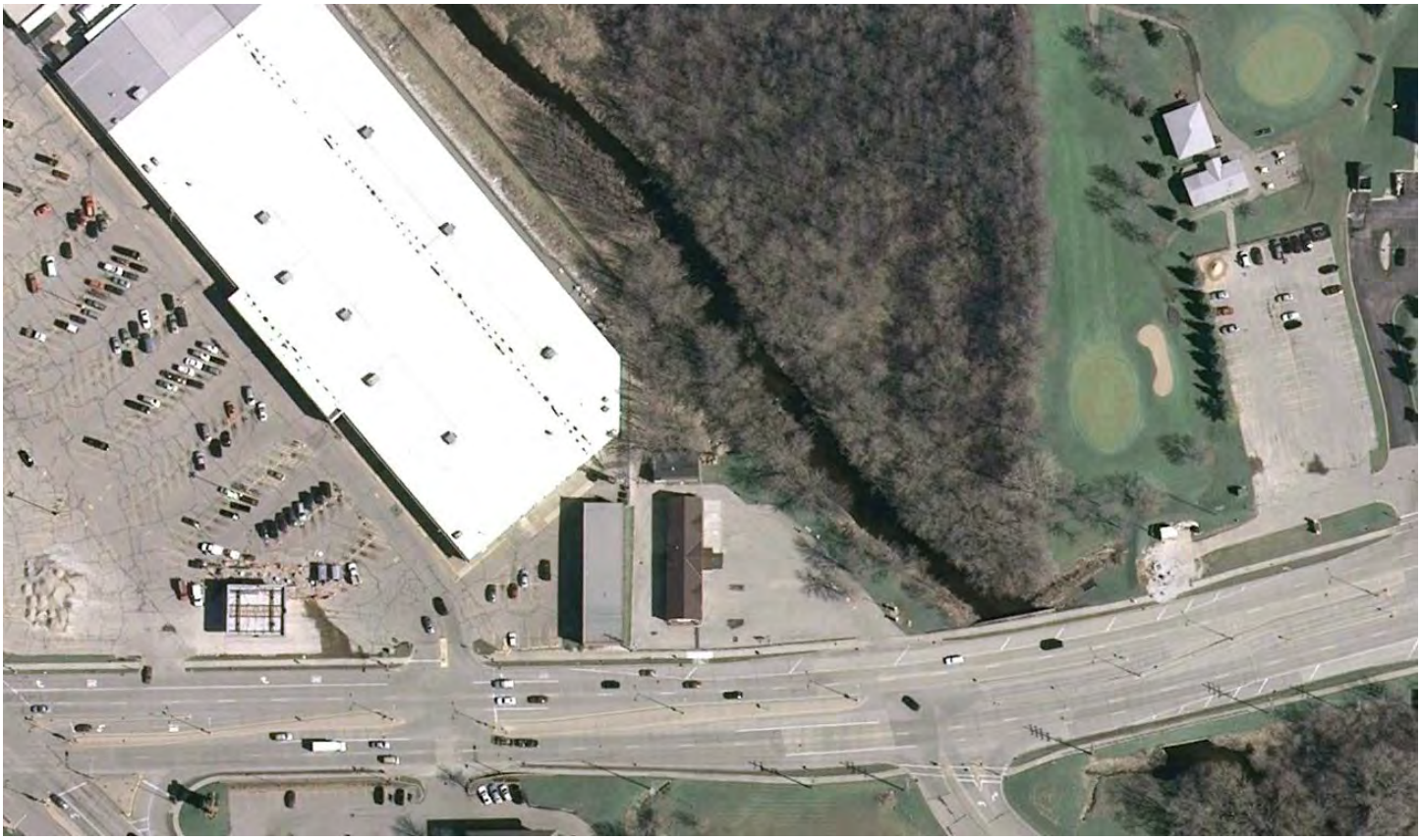
2000 Aerial Photo

2001 Aerial Photo

2002 Aerial Photo

2005 Aerial Photo

2006 Aerial Photo

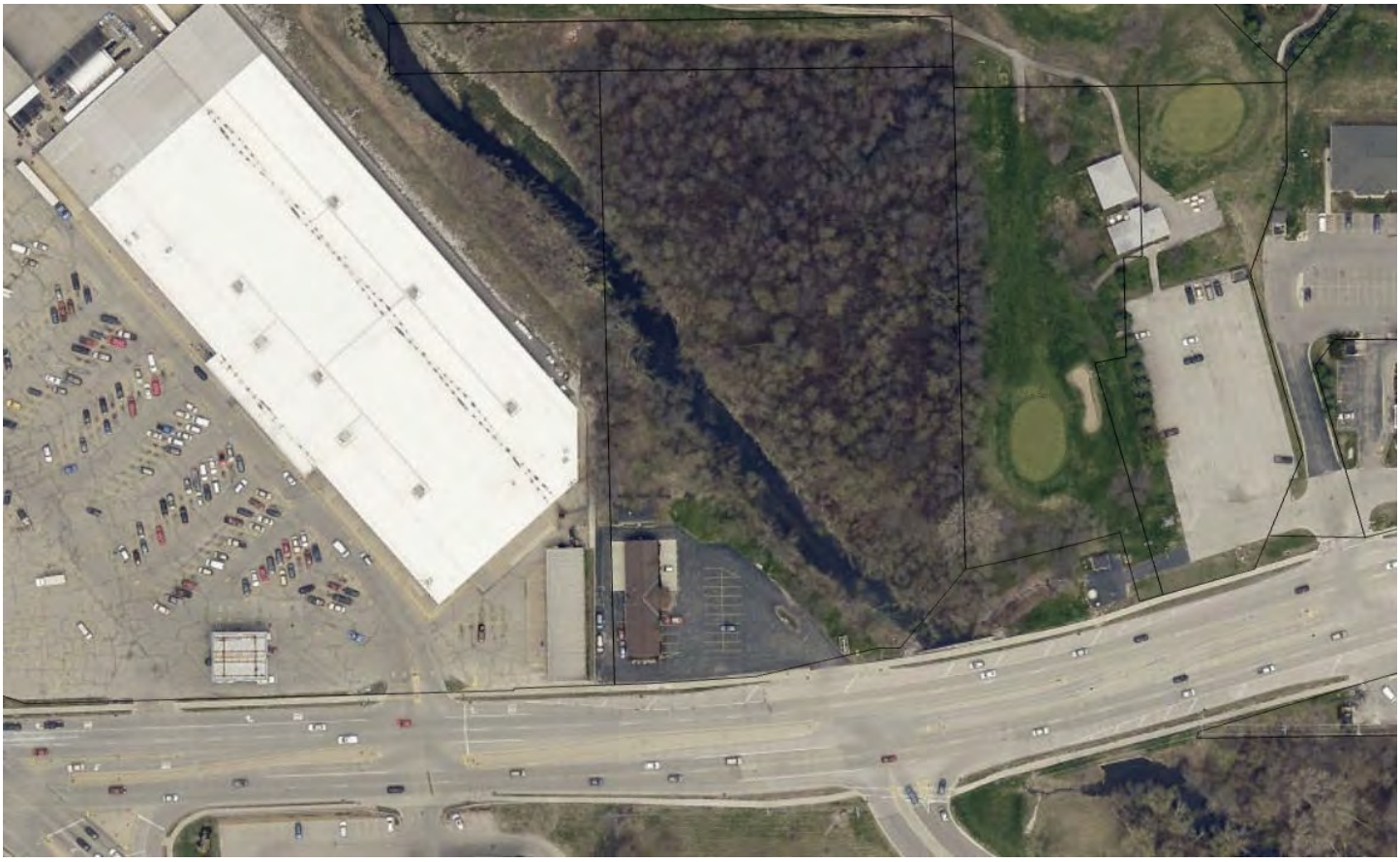


2007 Aerial Photo

2008 Aerial Photo

2010 Aerial Photo

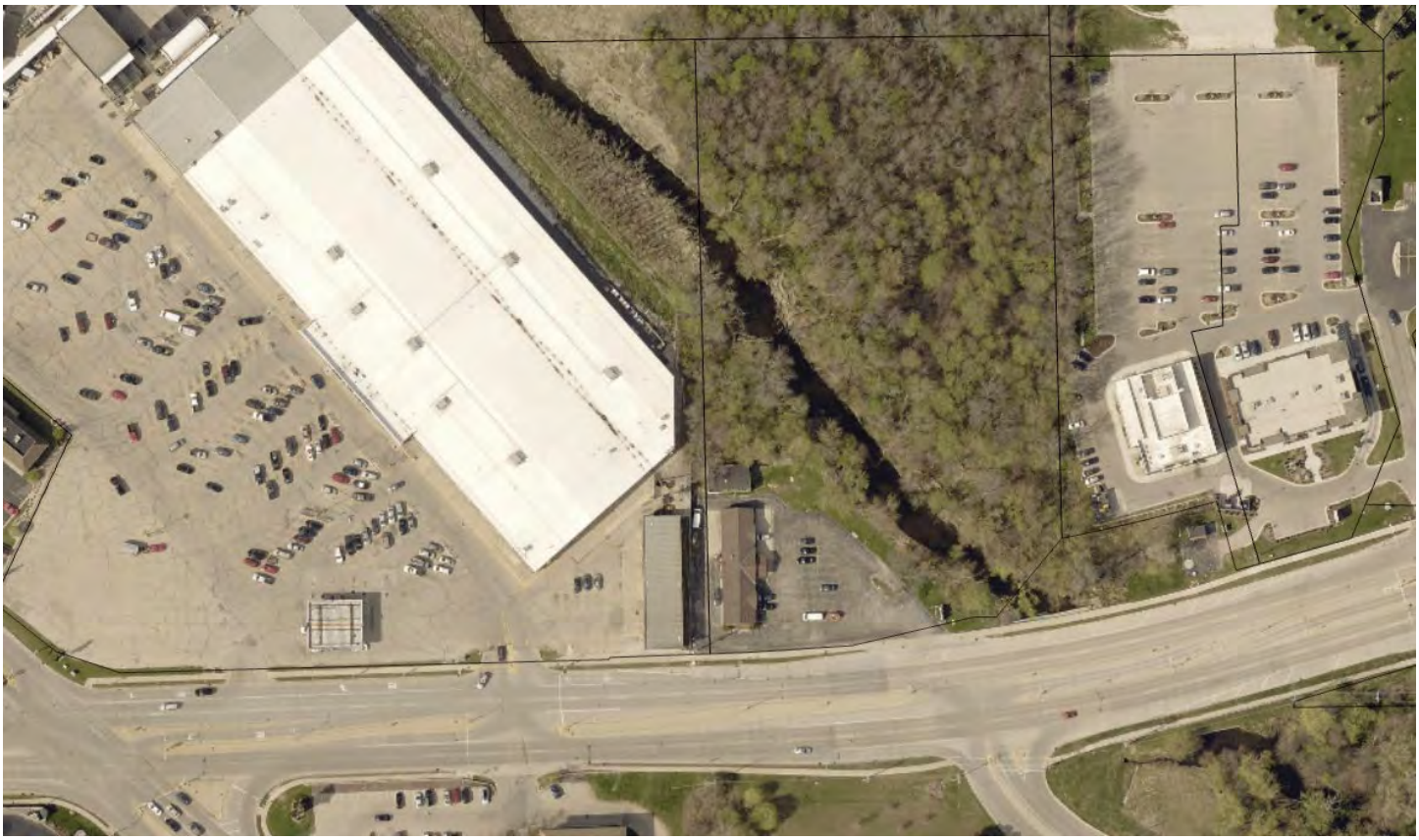
2011 Aerial Photo



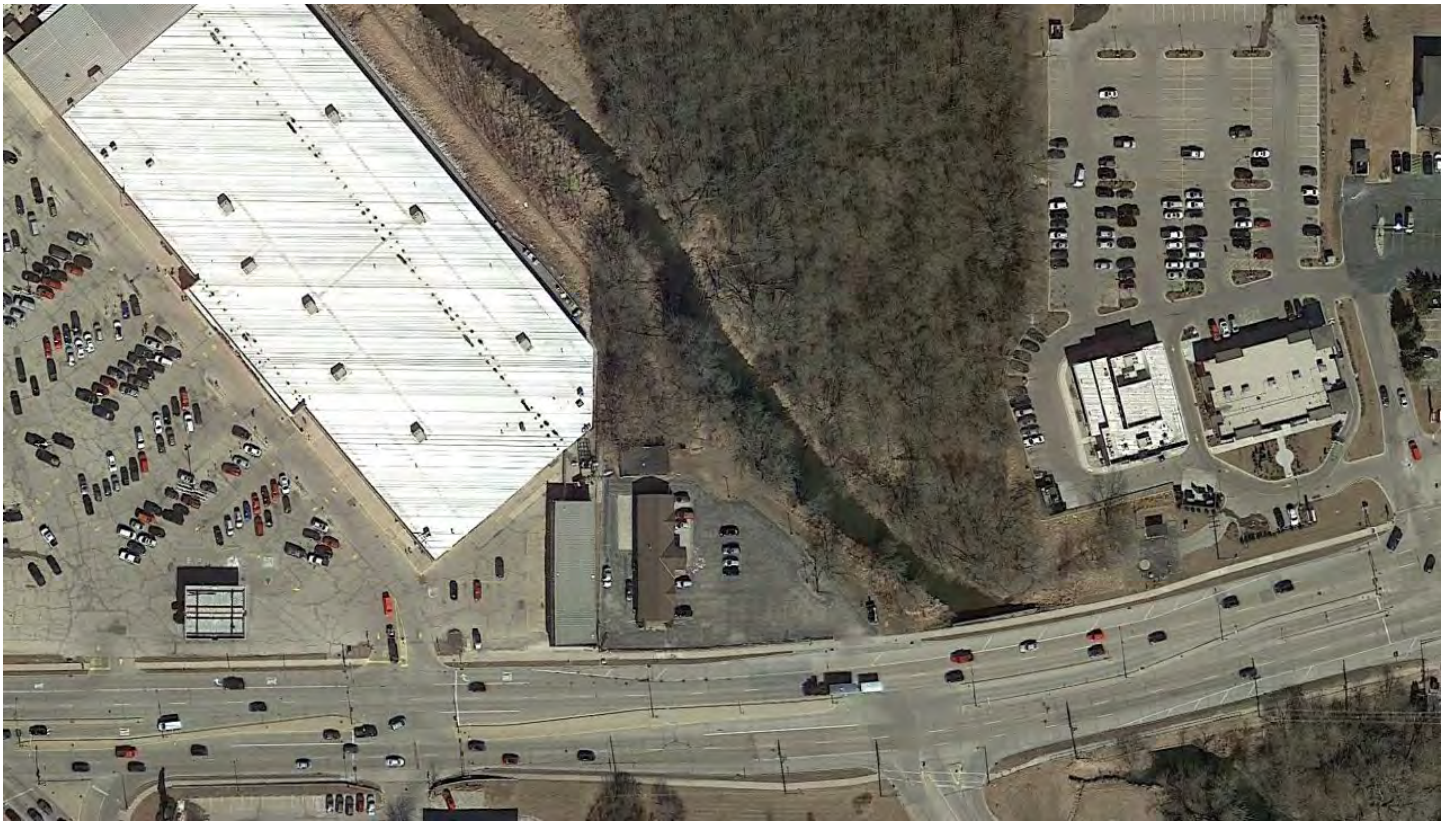
2013 Aerial Photo

2014 Aerial Photo

2015 Aerial Photo



2017 Aerial Photo



2018 Aerial Photo

Appendix E:

NRCS County Soil Survey Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Milwaukee and Waukesha Counties, Wisconsin, and Washington County, Wisconsin

September 10, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


88° 8' 14" W
88° 7' 49" W
43° 11' 39" N
43° 11' 27" N
407600
407660
407720
407780
407840
407900
407960
408020
408080
408140
4783020
4782960
4782900
4782840
4782780
4782720
4782660
HmC2
ThB2
Cw
Driveway
MtA
AtA
Ramp
175
AsA
Ph
Menomonee River
Shady
Soil Map may not be valid at this scale.
Map Scale: 1:2,570 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0
35
70
140
210
Feet
0
100
200
400
600
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N 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 1:15,800.

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: Milwaukee and Waukesha Counties, Wisconsin
Survey Area Data: Version 16, Jun 8, 2020

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 20, Jun 8, 2020

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

MAP LEGEND

MAP INFORMATION

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 1, 2019—Oct 12, 2019

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
AsA	Ashkum silty clay loam, 0 to 2 percent slopes	2.4	10.2%
Cw	Colwood silt loam, 0 to 2 percent slopes	1.3	5.4%
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0.1	0.4%
Ph	Pella silt loam, 0 to 2 percent slopes	2.1	8.9%
Subtotals for Soil Survey Area		**5.9**	**25.0%**
Totals for Area of Interest		**23.7**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AtA	Ashkum silty clay loam, 0 to 2 percent slopes	0.9	3.9%
Cw	Colwood silt loam, 0 to 2 percent slopes	12.4	52.2%
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0.7	3.0%
MtA	Mequon silt loam, 1 to 3 percent slopes	1.0	4.3%
ThB2	Theresa silt loam, 2 to 6 percent slopes, eroded	2.8	11.6%
Subtotals for Soil Survey Area		**17.8**	**75.0%**
Totals for Area of Interest		**23.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Milwaukee and Waukesha Counties, Wisconsin

AsA—Ashkum silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ssrw
Elevation: 520 to 930 feet
Mean annual precipitation: 33 to 41 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 160 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Ashkum, drained, and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ashkum, Drained

Setting

Landform: Ground moraines, end moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey colluvium over till

Typical profile

Ap - 0 to 12 inches: silty clay loam
Bg1 - 12 to 29 inches: silty clay
2Bg2 - 29 to 54 inches: silty clay loam
2Cg - 54 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Minor Components

Peotone, drained

Percent of map unit: 5 percent
Landform: Depressions on ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Orthents, clayey

Percent of map unit: 2 percent
Landform: Lake plains, ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Urban land

Percent of map unit: 1 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Cw—Colwood silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tjx2
Elevation: 570 to 1,020 feet
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 194 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Colwood and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colwood

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Interfluve
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy glaciolacustrine deposits over stratified silt and fine sand glaciolacustrine deposits

Typical profile

Ap - 0 to 10 inches: silt loam
Bg - 10 to 24 inches: sandy clay loam
2Cg - 24 to 79 inches: stratified very fine sand to silt

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: Yes

Minor Components

Pella

Percent of map unit: 8 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Palms

Percent of map unit: 7 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

HmC2—Hochheim loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t03r
Elevation: 900 to 1,340 feet
Mean annual precipitation: 31 to 33 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 135 to 175 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hochheim, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hochheim, Eroded

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 7 inches: loam
Bt - 7 to 16 inches: clay loam
C - 16 to 33 inches: gravelly sandy loam
Cd - 33 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Forage suitability group: Mod AWC, adequately drained (G095BY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)

Hydric soil rating: No

Minor Components

Theresa

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Hochheim

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Ph—Pella silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t044
Elevation: 590 to 1,100 feet
Mean annual precipitation: 29 to 37 inches
Mean annual air temperature: 43 to 55 degrees F
Frost-free period: 124 to 178 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Pella and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pella

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty glaciofluvial deposits over calcareous lacustrine deposits and/or calcareous loamy till

Typical profile

Ap - 0 to 11 inches: silt loam
Bg - 11 to 38 inches: silty clay loam

2Cg - 38 to 79 inches: stratified loamy sand to silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Very high (about 12.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: Yes

Minor Components

Kendall

Percent of map unit: 7 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Lamartine

Percent of map unit: 6 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Palms, muck

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Washington County, Wisconsin

AtA—Ashkum silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2ssrw
Elevation: 520 to 930 feet
Mean annual precipitation: 33 to 41 inches
Mean annual air temperature: 46 to 54 degrees F
Frost-free period: 160 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Ashkum, drained, and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ashkum, Drained

Setting

Landform: End moraines, ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey colluvium over till

Typical profile

Ap - 0 to 12 inches: silty clay loam
Bg1 - 12 to 29 inches: silty clay
2Bg2 - 29 to 54 inches: silty clay loam
2Cg - 54 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Minor Components

Peotone, drained

Percent of map unit: 5 percent
Landform: Depressions on ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

Orthents, clayey

Percent of map unit: 2 percent
Landform: Lake plains, ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Urban land

Percent of map unit: 1 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Cw—Colwood silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tjx2
Elevation: 570 to 1,020 feet
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 194 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Colwood and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colwood

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Interfluve
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy glaciolacustrine deposits over stratified silt and fine sand glaciolacustrine deposits

Typical profile

Ap - 0 to 10 inches: silt loam
Bg - 10 to 24 inches: sandy clay loam
2Cg - 24 to 79 inches: stratified very fine sand to silt

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: Yes

Minor Components

Pella

Percent of map unit: 8 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Palms

Percent of map unit: 7 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

HmC2—Hochheim loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t03r
Elevation: 900 to 1,340 feet
Mean annual precipitation: 31 to 33 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 135 to 175 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hochheim, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hochheim, Eroded

Setting

Landform: Drumlins
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 7 inches: loam
Bt - 7 to 16 inches: clay loam
C - 16 to 33 inches: gravelly sandy loam
Cd - 33 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Forage suitability group: Mod AWC, adequately drained (G095BY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)

Hydric soil rating: No

Minor Components

Hochheim

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Theresa

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

MtA—Mequon silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: g90z
Elevation: 790 to 1,250 feet
Mean annual precipitation: 32 to 35 inches
Mean annual air temperature: 37 to 55 degrees F
Frost-free period: 145 to 165 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Mequon and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mequon

Setting

Landform: Drainageways
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess over silty and clayey till

Typical profile

Ap - 0 to 7 inches: silt loam
Btg - 7 to 11 inches: silt loam
2Bt - 11 to 26 inches: silty clay loam
2C - 26 to 60 inches: silty clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 40 percent
Available water capacity: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: No

Minor Components

Ashkum

Percent of map unit: 10 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

ThB2—Theresa silt loam, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2szd7
Elevation: 660 to 1,290 feet
Mean annual precipitation: 31 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 150 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Theresa, eroded, and similar soils: 83 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Theresa, Eroded

Setting

Landform: Drumlins
Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
BE - 8 to 11 inches: silt loam
Bt1 - 11 to 16 inches: silty clay loam
2Bt2 - 16 to 35 inches: gravelly clay loam
2Cd - 35 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Hochheim, eroded

Percent of map unit: 14 percent
Landform: Drumlins
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Lamartine

Percent of map unit: 3 percent
Landform: Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Land Classifications

This folder contains a collection of tabular reports that present a variety of soil groupings. The reports (tables) include all selected map units and components for each map unit. Land classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit (WI)

This Hydric Soil Category rating indicates the components of map units that meet the criteria for hydric soils. Map units are composed of one or more major soil components or soil types that generally make up 20 percent or more of the map unit and are listed in the map unit name, and they may also have one or more minor contrasting soil components that generally make up less than 20 percent of the map unit. Each major and minor map unit component that meets the hydric criteria is rated **hydric.** The map unit class ratings based on the hydric components present are: WI Hydric, WI Predominantly Hydric, WI Partially Hydric, WI Predominantly Nonhydric, and WI Nonhydric. The report also shows the total representative percentage of each map unit that the hydric components comprise.

"WI Hydric" means that all major and minor components listed for a given map unit are rated as being hydric. *"WI Predominantly Hydric"* means that all major components listed for a given map unit are rated as hydric, and at least one contrasting minor component is not rated hydric.*"WI Partially Hydric"* means that at least one major component listed for a given map unit is rated as hydric, and at

least one other major component is not rated hydric. *"WI Predominantly Nonhydric"* means that no major component listed for a given map unit is rated as hydric, and at least one contrasting minor component is rated hydric. *"WI Nonhydric"* means no major or minor components for the map unit are rated hydric. The assumption is that the map unit is nonhydric even if none of the components within the map unit have been rated.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

If soils are wet enough for a long enough period of time to be considered hydric, they typically exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Vasilas, Hurt, and Noble, 2010).

The NTCHS has developed criteria to identify those soil properties unique to hydric soils (Federal Register, 2012). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria use selected soil properties that are described in “Field Indicators of Hydric Soils in the United States” (Vasilas, Hurt, and Noble, 2010), "Soil Taxonomy" (Soil Survey Staff, 1999), "Keys to Soil Taxonomy" (Soil Survey Staff, 2010), and the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

The criteria for hydric soils are represented by codes, for example, 2 or 3. Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. February, 28, 2012. Hydric soils of the United States.
Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
Vasilas, L.M., G.W. Hurt, and C.V. Noble, editors. Version 7.0, 2010. Field indicators of hydric soils in the United States.

Report—Hydric Rating by Map Unit (WI)

Hydric Rating by Map Unit (WI)–Milwaukee and Waukesha Counties, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
AsA	Ashkum silty clay loam, 0 to 2 percent slopes	97	WI Predominantly Hydric	Ground moraines

Hydric Rating by Map Unit (WI)–Washington County, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
AtA	Ashkum silty clay loam, 0 to 2 percent slopes	97	WI Predominantly Hydric	Ground moraines

Hydric Rating by Map Unit (WI)–Milwaukee and Waukesha Counties, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
Cw	Colwood silt loam, 0 to 2 percent slopes	100	WI Hydric	Depressions

Hydric Rating by Map Unit (WI)–Washington County, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
Cw	Colwood silt loam, 0 to 2 percent slopes	100	WI Hydric	Drainageways

Hydric Rating by Map Unit (WI)–Milwaukee and Waukesha Counties, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
Cw	Colwood silt loam, 0 to 2 percent slopes	100	WI Hydric	Drainageways

Hydric Rating by Map Unit (WI)–Washington County, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
Cw	Colwood silt loam, 0 to 2 percent slopes	100	WI Hydric	—
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0	WI Nonhydric	—

Hydric Rating by Map Unit (WI)–Milwaukee and Waukesha Counties, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0	WI Nonhydric	—

Hydric Rating by Map Unit (WI)–Washington County, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0	WI Nonhydric	—

Hydric Rating by Map Unit (WI)–Milwaukee and Waukesha Counties, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0	WI Nonhydric	—

Hydric Rating by Map Unit (WI)–Washington County, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
MtA	Mequon silt loam, 1 to 3 percent slopes	10	WI Predominantly Nonhydric	Depressions

Hydric Rating by Map Unit (WI)–Milwaukee and Waukesha Counties, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
Ph	Pella silt loam, 0 to 2 percent slopes	87	WI Predominantly Hydric	Depressions

Hydric Rating by Map Unit (WI)–Washington County, Wisconsin				
Map Unit Symbol	**Map Unit Name**	**Hydric Percent of Map Unit**	**Hydric Category**	**Landform Hydric Minor Components**
ThB2	Theresa silt loam, 2 to 6 percent slopes, eroded	0	WI Nonhydric	—

Hydric Soil List - All Components

This table lists the map unit components and their hydric status in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
   A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
   B. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
   A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
   B. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
   A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
   B. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. Doc. 2012-4733 Filed 2-28-12. February, 28, 2012. Hydric soils of the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Vasilas, L.M., G.W. Hurt, and C.V. Noble, editors. Version 7.0, 2010. Field indicators of hydric soils in the United States.

Report—Hydric Soil List - All Components

Hydric Soil List - All Components–WI602-Milwaukee and Waukesha Counties, Wisconsin					
Map symbol and map unit name	**Component/Local Phase**	**Comp. pct.**	**Landform**	**Hydric status**	**Hydric criteria met (code)**
AsA: Ashkum silty clay loam, 0 to 2 percent slopes	Ashkum-Drained	85-100	Ground moraines,end moraines	Yes	2
	Peotone-Drained	0-9	Depressions on ground moraines	Yes	2
	Orthents, clayey	0-3	Lake plains,ground moraines	No	—
	Urban land	0-3	Ground moraines	No	—
Cw: Colwood silt loam, 0 to 2 percent slopes	Colwood	80-90	Lakebeds (relict)	Yes	2,3
	Pella	5-10	Drainageways	Yes	2,3
	Palms	5-10	Depressions	Yes	1,3
HmC2: Hochheim loam, 6 to 12 percent slopes, eroded	Hochheim-Eroded	85-92	Drumlins	No	—
	Theresa	4-8	Drumlins	No	—
	Hochheim	4-7	Drumlins	No	—
Ph: Pella silt loam, 0 to 2 percent slopes	Pella	80-91	Drainageways	Yes	2,3
	Kendall	5-9	Drainageways	No	—
	Lamartine	4-8	Drainageways	No	—
	Palms-Muck	1-3	Depressions	Yes	1,3

Hydric Soil List - All Components–WI131-Washington County, Wisconsin					
Map symbol and map unit name	**Component/Local Phase**	**Comp. pct.**	**Landform**	**Hydric status**	**Hydric criteria met (code)**
AtA: Ashkum silty clay loam, 0 to 2 percent slopes	Ashkum-Drained	85-100	End moraines,ground moraines	Yes	2
	Peotone-Drained	0-9	Depressions on ground moraines	Yes	2
	Orthents, clayey	0-3	Lake plains,ground moraines	No	—
	Urban land	0-3	Ground moraines	No	—
Cw: Colwood silt loam, 0 to 2 percent slopes	Colwood	80-90	Lakebeds (relict)	Yes	2,3
	Pella	5-10	Drainageways	Yes	2,3
	Palms	5-10	Depressions	Yes	1,3
HmC2: Hochheim loam, 6 to 12 percent slopes, eroded	Hochheim-Eroded	85-92	Drumlins	No	—
	Hochheim	4-7	Drumlins	No	—
	Theresa	4-8	Drumlins	No	—
MtA: Mequon silt loam, 1 to 3 percent slopes	Mequon	90	Drainageways	No	—
	Ashkum	10	Depressions	Yes	2,3
ThB2: Theresa silt loam, 2 to 6 percent slopes, eroded	Theresa-Eroded	80-90	Drumlins	No	—
	Hochheim-Eroded	9-15	Drumlins	No	—
	Lamartine	1-5	Drumlins	No	—

Hydric Soils

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric

soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
3. Soils that are frequently ponded for long or very long duration during the growing season.
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;
4. Map unit components that are frequently flooded for long duration or very long duration during the growing season that:
    A. Based on the range of characteristics for the soil series, will at least in part meet one or more Field Indicators of Hydric Soils in the United States, or
    B. Show evidence that the soil meets the definition of a hydric soil;

Hydric Condition: Food Security Act information regarding the ability to grow a commodity crop without removing woody vegetation or manipulating hydrology.

References:

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
Federal Register. September 18, 2002. Hydric soils of the United States.
Federal Register. July 13, 1994. Changes in hydric soils of the United States.
Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
National Research Council. 1995. Wetlands: Characteristics and boundaries.
Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.
Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.
Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

Report—Hydric Soils

Hydric Soils–Milwaukee and Waukesha Counties, Wisconsin				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
AsA—Ashkum silty clay loam, 0 to 2 percent slopes				
	Ashkum, drained	92	Ground moraines, end moraines	2
	Peotone, drained	5	Depressions on ground moraines	2
Cw—Colwood silt loam, 0 to 2 percent slopes				
	Colwood	85	Lakebeds (relict)	2, 3
	Pella	8	Drainageways	2, 3
	Palms	7	Depressions	1, 3
Ph—Pella silt loam, 0 to 2 percent slopes				
	Pella	85	Drainageways	2, 3
	Palms, muck	2	Depressions	1, 3

Hydric Soils–Washington County, Wisconsin				
Map symbol and map unit name	**Component**	**Percent of map unit**	**Landform**	**Hydric criteria**
AtA—Ashkum silty clay loam, 0 to 2 percent slopes				
	Ashkum, drained	92	End moraines, ground moraines	2
	Peotone, drained	5	Depressions on ground moraines	2
Cw—Colwood silt loam, 0 to 2 percent slopes				
	Colwood	85	Lakebeds (relict)	2, 3
	Pella	8	Drainageways	2, 3
	Palms	7	Depressions	1, 3
MtA—Mequon silt loam, 1 to 3 percent slopes				
	Ashkum	10	Depressions	2, 3

Taxonomic Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. This table shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Alfisols.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalfs (*Ud*, meaning humid, plus *alfs*, from Alfisols).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalfs*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding

the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, active, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

References:
Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.
Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. (The soils in a given survey area may have been classified according to earlier editions of this publication.)

Report—Taxonomic Classification of the Soils

[An asterisk by the soil name indicates a taxadjunct to the series]

Taxonomic Classification of the Soils–Milwaukee and Waukesha Counties, Wisconsin	
Soil name	**Family or higher taxonomic classification**
Ashkum	Fine, mixed, superactive, mesic Typic Endoaquolls
Colwood	Fine-loamy, mixed, active, mesic Typic Endoaquolls
Hochheim	Fine-loamy, mixed, active, mesic Typic Argiudolls
Pella	Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Taxonomic Classification of the Soils–Washington County, Wisconsin	
Soil name	**Family or higher taxonomic classification**
Ashkum	Fine, mixed, superactive, mesic Typic Endoaquolls
Colwood	Fine-loamy, mixed, active, mesic Typic Endoaquolls
Hochheim	Fine-loamy, mixed, active, mesic Typic Argiudolls
Mequon	Fine, mixed, superactive, mesic Udollic Endoaqualfs
Theresa	Fine-loamy, mixed, superactive, mesic Typic Hapludalfs

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

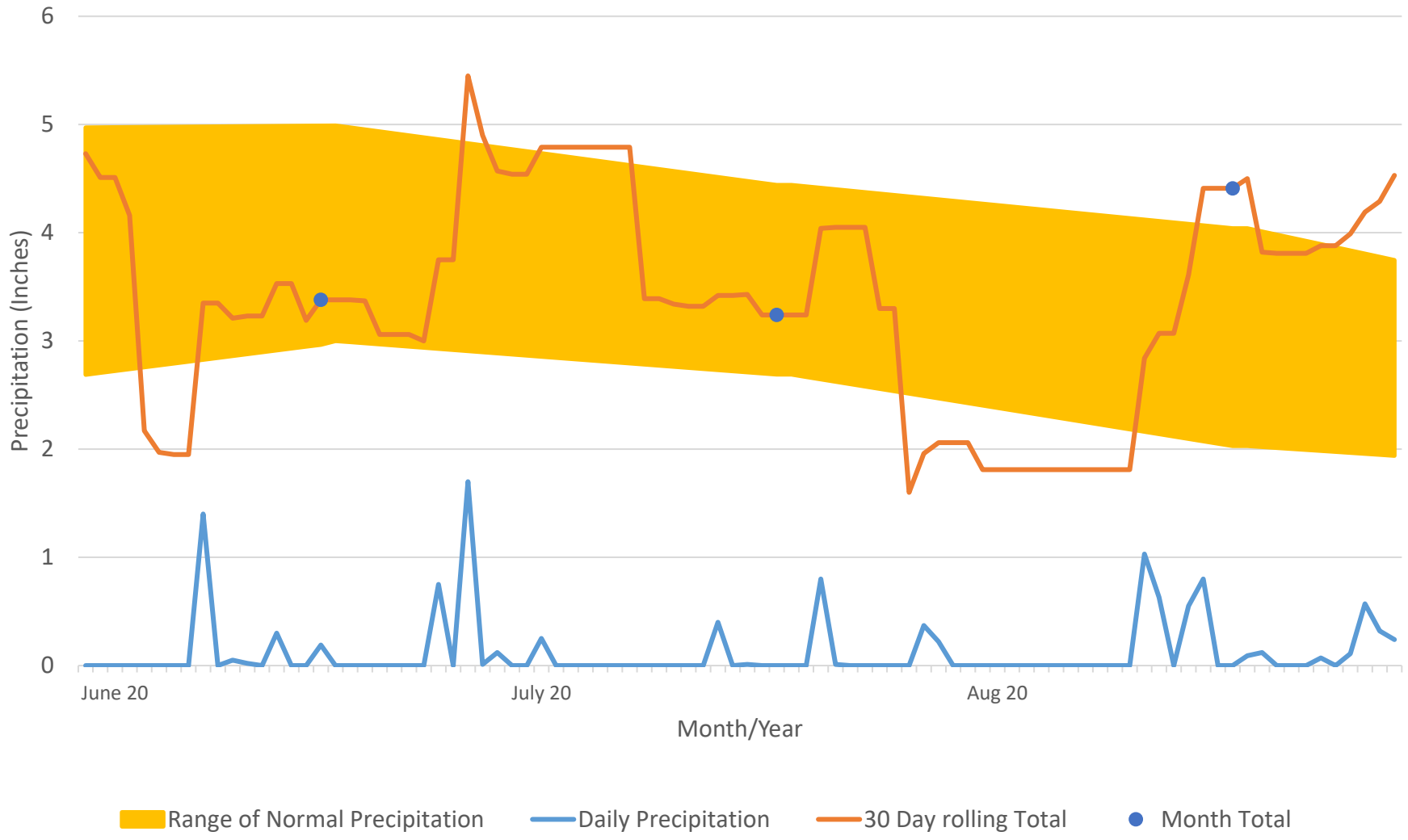
United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix F:

Precipitation Information

90 Day Antecedent Precipitation Rolling Total
Washington County, Wisconsin
Evergreen Consultants Project No. WSH20-011-01



NRCS method - Rainfall Documentation Worksheet Hydrology Tools for Wetland Determination
NRCS Engineering Field Handbook Chapter 19

Date	9/16/2020	**Landowner/Project**	WSH20-011-01
Weather Station	Hartford 2 W, WI	**State**	Wisconsin
County	Washington County	**Growing Season**	yes
Photo/obs Date	9/11/2020	**Soil Name**	Cw- Colwood silt loam

shaded cells are locked or calculated

Long-term rainfall statistics (from WETS table or State Climatology Office)

	Month	30% chance <	30% chance >	Precip	Condition **D**ry, **W**et, **N**ormal	Condition Value	Month Weight Value	Product of Previous 2 Columns
1st Prior Month*	June	2.48	4.96	4.10	N	2	3	6
2nd Prior Month*	July	3.00	4.99	4.29	N	2	2	4
3rd Prior Month*	August	2.69	4.44	3.78	N	2	1	2
							Sum	**12**

*compared to photo/observation date

Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

Condition value:
Dry =1
Normal =2
Wet =3

Conclusions: **prior period has been normal**

WETS Station: HARTFORD 2 W, WI			
Requested years: 1981 - 2010			
Month	Avg Precip	30% chance precip less than	30% chance precip more than
Jan	1.42	0.77	1.72
Feb	1.18	0.53	1.43
Mar	1.69	0.97	2.03
Apr	3.06	2.08	3.62
May	3.36	2.4	4.09
Jun	4.1	2.48	4.96
Jul	4.29	3	4.99
Aug	3.78	2.69	4.44
Sep	3.32	2.03	4.04
Oct	2.83	1.76	3.16
Nov	2.27	1.22	2.68
Dec	1.59	1	1.98

STATION	NAME	DATE	PRCP
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/13/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/14/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/15/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/16/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/17/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/18/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/19/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/20/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/21/2020	1.4
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/22/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/24/2020	0.05
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/25/2020	0.02
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/26/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/27/2020	0.3
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/28/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/29/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	6/30/2020	0.19
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/1/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/2/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/3/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/4/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/5/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/6/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/7/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/8/2020	0.75
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/9/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/10/2020	1.7
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/11/2020	0.01
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/12/2020	0.12
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/13/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/14/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/15/2020	0.25
US1WIWS0031	HARTFORD 2.9 ENE, WI US	7/16/2020	0
US1WIWS0032	HARTFORD 2.9 ENE, WI US	7/17/2020	0
US1WIWS0033	HARTFORD 2.9 ENE, WI US	7/18/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/19/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/20/2020	0

US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/21/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/22/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/23/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/24/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/25/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/26/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/27/2020	0.4
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/28/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/29/2020	0.01
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/30/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	7/31/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/1/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/2/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/3/2020	0.8
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/4/2020	0.01
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/5/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/6/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/7/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/8/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/9/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/10/2020	0.37
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/11/2020	0.22
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/12/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/13/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/14/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/15/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/16/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/17/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/18/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/19/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/20/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/21/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/22/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/23/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/24/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/25/2020	1.03

US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/26/2020	0.63
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/27/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/28/2020	0.55
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/29/2020	0.8
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/30/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	8/31/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/1/2020	0.09
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/2/2020	0.12
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/3/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/4/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/5/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/6/2020	0.07
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/7/2020	0
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/8/2020	0.11
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/9/2020	0.57
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/10/2020	0.32
US1WIWS0030	HARTFORD 2.9 ENE, WI US	9/11/2020	0.24

Appendix G:

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: WSH20-011-01 County Line Road **City/County:** Germantown/ Washington County **Sampling Date:** 11-Sep-20

Applicant/Owner: Excel Engineering **State:** WI **Sampling Point:** T1A

Investigator(s): Benjamin L LaCount **Section, Township, Range:** S. 33 T. 09N R. 20E

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** convex **Slope:** 1.0 % / 0.6 °

Subregion (LRR or MLRA): LRR K **Lat.:** 43.192548 **Long.:** -88.133437 **Datum:** NAD83

Soil Map Unit Name: Cw- Colwood silt loam, 0 to 2 percent slopes **NWI classification:** PF01C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes (●) No ( )

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●) No ( )	**Is the Sampled Area within a Wetland?**	Yes (●) No ( )
Hydric Soil Present?	Yes (●) No ( )		
Wetland Hydrology Present?	Yes (●) No ( )		

Remarks: (Explain alternative procedures here or in a separate report.)

This area is a terrace to a stream. Approximately 3 to 4 feet lower than the adjacent upland and 1.5 ft higher than current water level of adjacent stream.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( ) No (●)	Depth (inches):	
Water Table Present?	Yes (●) No ( )	Depth (inches):	26
Saturation Present? (includes capillary fringe)	Yes (●) No ( )	Depth (inches):	24

Wetland Hydrology Present? Yes (●) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

This area most likely floods during high water periods.

VEGETATION - Use scientific names of plants

Sampling Point: T1A

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	10	☐	FACW
2. *Acer negundo*	25	☑	FAC
3. *Fraxinus pennsylvanica*	25	☑	FACW
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1. *Acer negundo*	5	☐	FAC
2. *Salix interior*	20	☑	FACW
3. *Cornus alba*	10	☑	FACW
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	35	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	15	☑	FACW
2. *Laportea canadensis*	35	☑	FACW
3. *Persicaria pensylvanica*	5	☐	FACW
4. *Arctium minus*	2	☐	FACU
5. *Taraxacum officinale*	3	☐	FACU
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
12.	0	☐	
	60	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft radius)			
1. *Vitis riparia*	10	☑	FAC
2.	0	☐	
3.	0	☐	
4.	0	☐	
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	120	x 2 =	240
FAC species	40	x 3 =	120
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	165 (A)		380 (B)

Prevalence Index = B/A = 2.303

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: T1A

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-6	10YR	3/2	100						Silt Loam	
6-20	10YR	3/2	90	5YR	4/6	10	C	M	Silt Loam	
20-26	10YR	4/1	95	5YR	4/6	5	C	M	Very Fine Sandy Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: WSH20-011-01 County Line Road **City/County:** Germantown/ Washington County **Sampling Date:** 11-Sep-20

Applicant/Owner: Excel Engineering **State:** WI **Sampling Point:** T1B

Investigator(s): Benjamin L LaCount **Section, Township, Range: S.** 33 **T.** 09N **R.** 20E

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 5.0 % / 2.9 °

Subregion (LRR or MLRA): LRR K **Lat.:** 43.192522 **Long.:** -88.133472 **Datum:** NAD83

Soil Map Unit Name: Cw- Colwood silt loam, 0 to 2 percent slopes **NWI classification:** PF01C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?**	Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉		
Wetland Hydrology Present?	Yes ○ No ◉		

Remarks: (Explain alternative procedures here or in a separate report.)

This area slopes down to the stream terrace. Some rocks and concrete are visible in places on the steep side slope down to terrace. This area most likely filled when it was developed.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○ No ◉	Depth (inches):	**Wetland Hydrology Present?** Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area drains east to the stream.

VEGETATION - Use scientific names of plants

Sampling Point: T1B

Tree Stratum (Plot size: Linear 15'x100')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Morus alba*	15	☑	FACU
2. *Acer negundo*	20	☑	FAC
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	35	= Total Cover	
Sapling/Shrub Stratum (Plot size: Linear 15'x80')			
1. *Acer negundo*	5	☐	FAC
2. *Rhamnus cathartica*	50	☑	FAC
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	55	= Total Cover	
Herb Stratum (Plot size: 5 ft radius)			
1. *Daucus carota*	15	☐	UPL
2. *Phalaris arundinacea*	20	☑	FACW
3. *Elymus repens*	20	☑	FACU
4. *Poa pratensis*	25	☑	FACU
5. *Glechoma hederacea*	25	☑	FACU
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
12.	0	☐	
	105	= Total Cover	
Woody Vine Stratum (Plot size: Linear 15'x100')			
1. *Vitis riparia*	10	☑	FAC
2.	0	☐	
3.	0	☐	
4.	0	☐	
	10	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	85	x 3 =	255
FACU species	85	x 4 =	340
UPL species	15	x 5 =	75
Column Totals:	205 (A)		710 (B)

Prevalence Index = B/A = 3.463

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: T1B

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-18	10YR	3/3	100						Silt Loam	
18-24	10YR	3/3	98	5YR	4/6	2	C	M	Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

This area was most likely filled.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: WSH20-011-01 County Line Road **City/County:** Germantown/ Washington County **Sampling Date:** 11-Sep-20

Applicant/Owner: Excel Engineering **State:** WI **Sampling Point:** T2A

Investigator(s): Benjamin L LaCount **Section, Township, Range: S.** 33 **T.** 09N **R.** 20E

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** concave **Slope:** 2.0 % / 1.1 °

Subregion (LRR or MLRA): LRR K **Lat.:** 43.192977 **Long.:** -88.133915 **Datum:** NAD83

Soil Map Unit Name: Cw- Colwood silt loam, 0 to 2 percent slopes **NWI classification:** PF01C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes (●) No ( )

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●) No ( )	**Is the Sampled Area within a Wetland?**	Yes (●) No ( )
Hydric Soil Present?	Yes (●) No ( )		
Wetland Hydrology Present?	Yes (●) No ( )		

Remarks: (Explain alternative procedures here or in a separate report.)

This area is a terrace to an adjacent stream. Approx two feet higher than the adjacent stream.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( ) No (●)	Depth (inches):	
Water Table Present?	Yes ( ) No (●)	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ( ) No (●)	Depth (inches):	

Wetland Hydrology Present? Yes (●) No ( )

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Flood water reaches this area during high water times.

VEGETATION - Use scientific names of plants

Sampling Point: T2A

Tree Stratum (Plot size: Linear 10'x100')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	15	☑	FAC
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	15	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: Linear 10'x80')			
1. *Acer negundo*	5	☑	FAC
2. *Rhamnus cathartica*	15	☑	FAC
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	20	**= Total Cover**	

Herb Stratum (Plot size: 5 ft radius)			
1. *Phalaris arundinacea*	50	☑	FACW
2. *Laportea canadensis*	30	☑	FACW
3. *Persicaria pensylvanica*	10	☐	FACW
4. *Rhamnus cathartica*	15	☐	FAC
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
12.	0	☐	
	105	**= Total Cover**	

Woody Vine Stratum (Plot size: Linear 10'x100')			
1. *Vitis riparia*	10	☑	FAC
2.	0	☐	
3.	0	☐	
4.	0	☐	
	10	**= Total Cover**	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	90	x 2 =	180	
FAC species	60	x 3 =	180	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	150	(A)	360	(B)

Prevalence Index = B/A = 2.400

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: T2A

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type [1]	Loc²	Texture	Remarks
0-8	10YR	3/2	100						Silt Loam	
8-12	10YR	3/2	95	5YR	4/6	5	C	M	Silt Loam	
12-18	10YR	4/2	95	5YR	4/6	5	C	M	Silt Loam	
18-24	10YR	5/3	100						Loamy Sand	with large rocks

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: WSH20-011-01 County Line Road **City/County:** Germantown/ Washington County **Sampling Date:** 11-Sep-20

Applicant/Owner: Excel Engineering **State:** WI **Sampling Point:** T2B

Investigator(s): Benjamin L LaCount **Section, Township, Range: S.** 33 **T.** 09N **R.** 20E

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** convex **Slope:** 5.0 % / 2.9 °

Subregion (LRR or MLRA): LRR K **Lat.:** 43.192874 **Long.:** -88.133985 **Datum:** NAD83

Soil Map Unit Name: Cw- Colwood silt loam, 0 to 2 percent slopes **NWI classification:** PF01C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?**	Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉		
Wetland Hydrology Present?	Yes ○ No ◉		

Remarks: (Explain alternative procedures here or in a separate report.)

This area is a hillslope with a lot of brick, rock, and glass on the surface.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ○ No ◉	Depth (inches):	**Wetland Hydrology Present?** Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: T2B

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	30	☑	FAC
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	30	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15 ft radius)			
1. *Rhamnus cathartica*	25	☑	FAC
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
	25	= Total Cover	

Herb Stratum (Plot size: 5 ft radius)			
1. *Rhamnus cathartica*	5	☑	FAC
2. *Glechoma hederacea*	10	☑	FACU
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
12.	0	☐	
	15	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft radius)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	60	x 3 =	180	
FACU species	10	x 4 =	40	
UPL species	0	x 5 =	0	
Column Totals:	70	(A)	220	(B)

Prevalence Index = B/A = 3.143

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

This area is almost completely shaded out by Rhamnus cathartica.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: T2B

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type [1]	Loc²	Texture	Remarks
0-4	10YR	3/2	100					Silt Loam	
4-									Large rock

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Refusal met at four inches due to large rocks. This area has been filled with large rocks, brick, and concrete. Tried to dig a pit in several locations. Piles of gravel and rock are visible throughout this area. Trees growing on fill likely placed 40+ years ago.

STORM WATER, EROSION CONTROL, & WETLAND SETBACK MITIGATION NARRATIVE
FOR:

NEW TACO BELL-SUNDANCE, INC

VILLAGE OF GERMANTOWN, WI

October 5, 2020

Prepared By:
Jason Daye, P.E.
Excel Engineering Inc.
100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800

Table of Contents

Project Overview

The proposed new Taco Bell development is located at N96W18058 County Line Road in the Village of Germantown, Wisconsin. The total site acreage is 4.91 acres, however, the proposed project will take place only on a small portion of the site that fronts County Line Road. The existing site currently consists of an existing multi-tenant building along with associated asphalt parking. The proposed project involves complete demolition/removal of the existing building and asphalt pavement onsite for construction of a new 1,786 square foot Taco Bell restaurant and associated site improvements. The site improvements will include 22 new paved parking stalls, a new concrete drive thru lane, internal sidewalk networks, and a waste enclosure. Reference Appendix A for a representation of the of the existing and proposed site conditions. The project will result in approximately 0.83 acres of site disturbance.

Currently, the existing development site sheet drains east/northeast towards the Menomonee River which bisects the property. The proposed site development will match the existing drainage patterns by draining toward the Menomonee River via sheet drainage and storm sewer. This site will not be subject to post construction stormwater management requirements as explained in the below section of this report. However, BMPs will be implemented to address the wetland setback mitigation requirements as described in later sections of this report.

Post Construction Stormwater Management Summary:

Wisconsin DNR: The proposed site development will result in 0.83 acres of site disturbance and is therefore exempt from meeting the requirements of NR 151.12. In addition, the site is considered a redevelopment site and total impervious land cover will be reduced following completion of the project.

Village of Germantown/MMSD: The proposed site development is exempt from meeting the requirements of MMSD Chapter 13 due to the site reducing overall impervious land cover and disturbing less than 2 acres of land during construction/redevelopment. The proposed development site will reduce total impervious land cover by 3,003 square feet and will result in 0.83 acres of site disturbance.

As described above, the proposed site development will not be subject to post-construction stormwater management requirements. However, BMPs will be implemented to the maximum extent practical to improve the quality of the stormwater runoff prior to it entering the Menomonee River. The curb inlet structures onsite will be equipped with two-foot sumps below the outlet elevations to help settle solids out of the stormwater prior to discharge. In addition, a vegetated filter strip will be provided down gradient of the development such that pollutants can be filtered out of the stormwater prior to entering the Menomonee River.

Wetland Setback/OHWM Setback Mitigation Plan:

Per Village of Germantown requirements, no development is allowed within 75' of the OHWM of any navigable waterway or within 25' of a delineated wetland area without an approved mitigation plan. The majority of the existing site lies within the 75' OHWM setback and in close

proximity to the 25' wetland setback. The proposed development will be primarily within the footprint of the existing development on site. Minor site disturbance and grading is proposed within the 25' wetland setback, although no pavement or other impervious surfaces are proposed within the setback. To mitigate this, a vegetated filter strip is proposed down-gradient from the development to filter pollutants out of the stormwater runoff prior to it entering the wetland areas and the Menomonee River. The vegetated filter strip will consist of a seed mixture that favors a wet mesic soil site and will be constructed in accordance with the NRCS conservation practice standard for critical area plantings (code 342). In total, 690 square feet of disturbance within the wetland setback area is anticipated. The proposed vegetated buffer strip will consist of 2,150 square feet, therefore exceeding the 1:1 mitigation requirement. Reference Appendix D for a representation of the proposed mitigation plan.

Pipe Capacity:

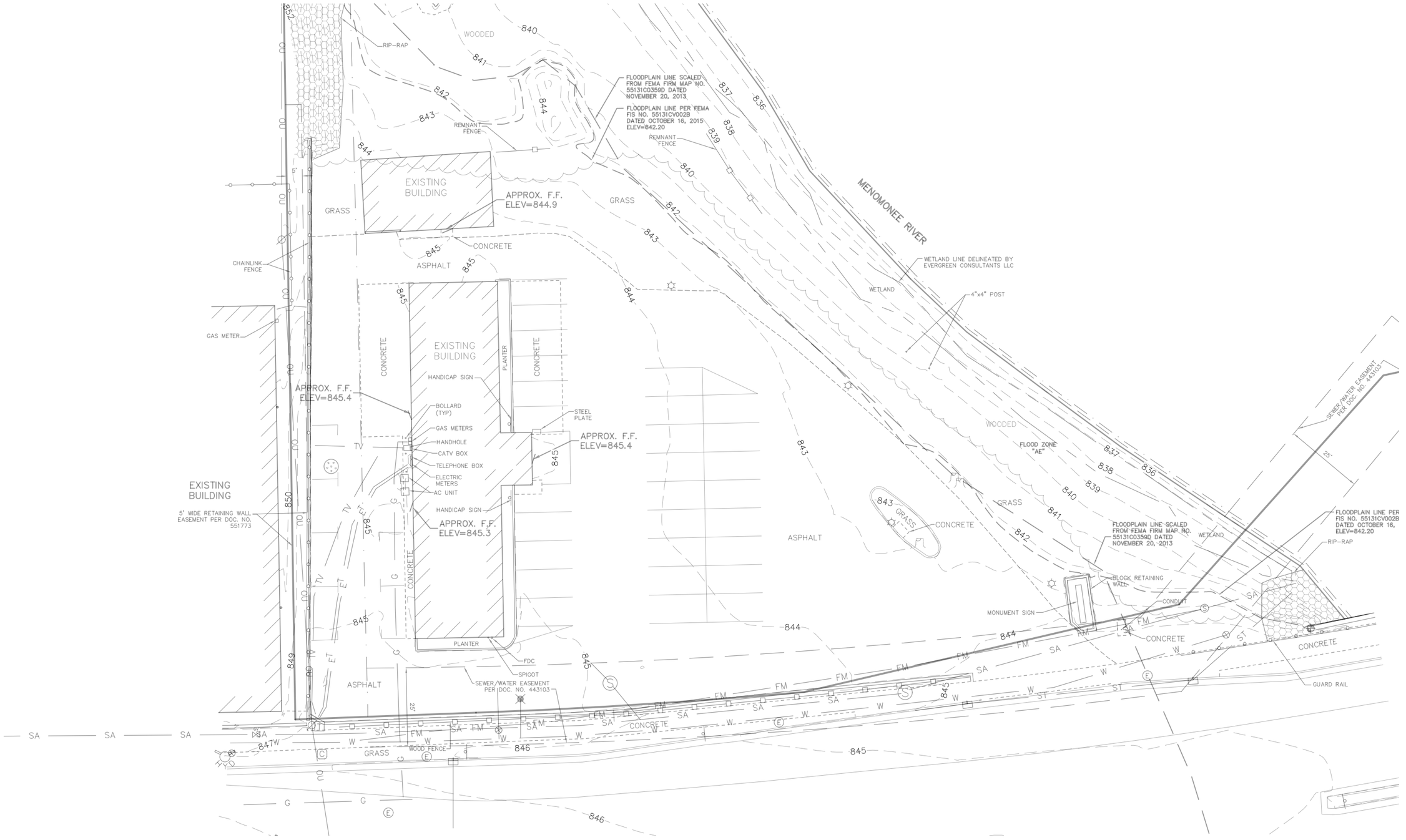
All onsite storm sewer has been designed to safely convey the 100- year storm event based on TR- 55 methods. Proposed storm sewer capacity was verified by utilizing a Manning's equation calculation spreadsheet for full flowing pipes. In addition, overland flow routes are provided onsite for any event exceeding the 100-year event such that the maximum possible ponding on site is 7 inches. Reference Appendix C for supporting calculations.

Erosion Control:

The proposed site erosion control plan was designed to meet the requirements of NR151.105 (construction site performance standard for non-permitted sites). The erosion control specifications, construction sequence, site stabilization notes, seeding notes, and dewatering notes are all listed on sheets C0.1 and C0.2 of the construction plan set. Additional notes and locations of erosion control BMPs can be found on C1.2 of the construction plan set.

Appendix A
Existing and Proposed Site Conditions:

100 Camelot Drive • Fond du Lac, WI 54935
920.926.9800 • www.excelengineer.com



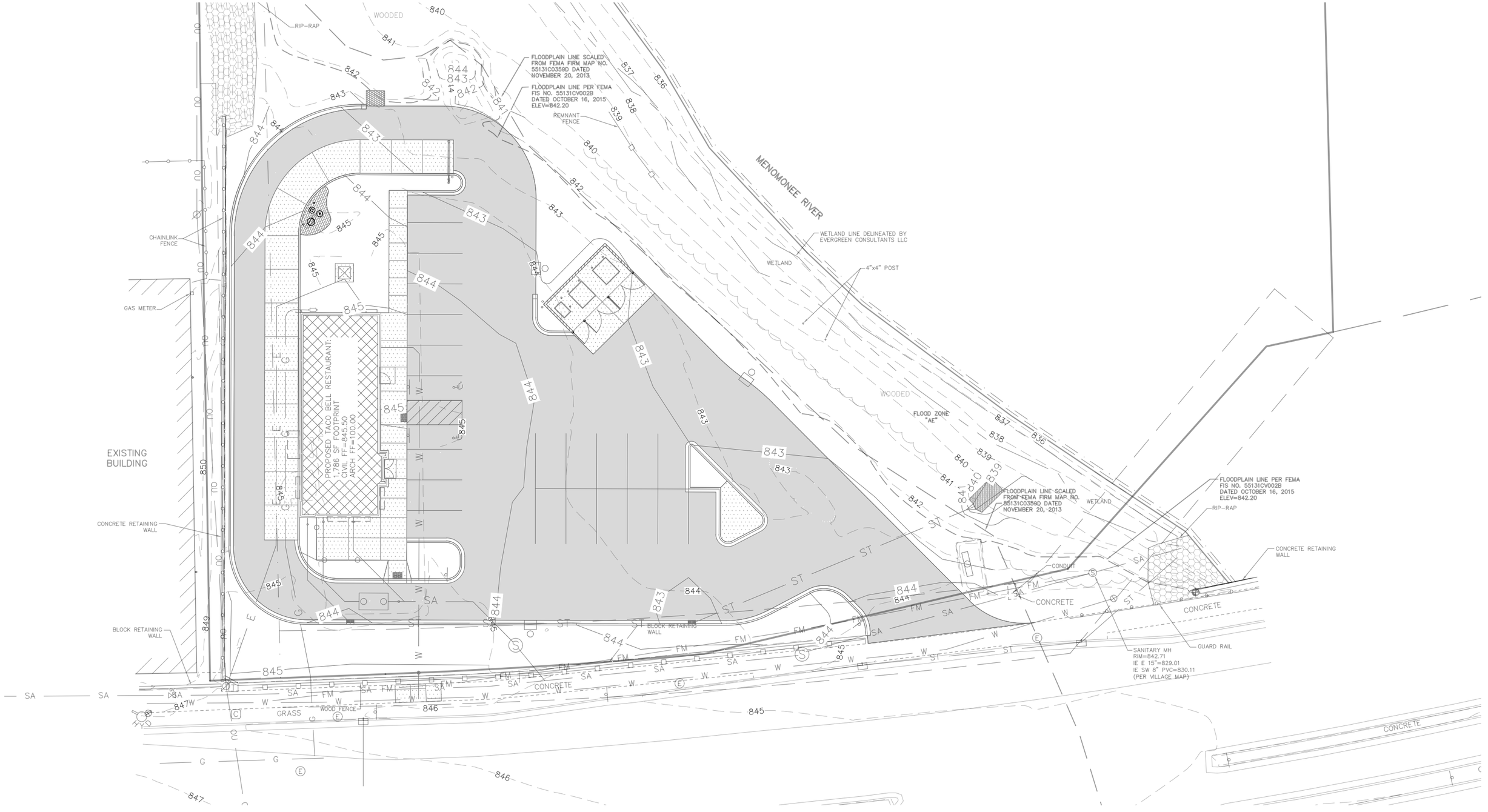
EXISTING SITE MAP

NORTH

1"= 30'

30' 0 30' 60'

SCALE FEET



PROPOSED SITE MAP

NORTH

1"= 30'

SCALE

30' 0 30' 60'

FEET

Appendix B
Post Construction Operation & Maintenance:

100 Camelot Drive • Fond du Lac, WI 54935
920.926.9800 • www.excelengineer.com

POST CONSTRUCTION OPERATION AND MAINTENANCE PLAN

The owner of the property affected shall inspect and maintain the following stormwater management systems frequently, especially after heavy rainfalls, but at least on an annual basis unless otherwise specified.

STORMWATER FACILITY	**TYPE OF ACTION**
1. Lawn and Landscaped Areas	All lawn areas shall be kept clear of any materials that block the flow of stormwater. Rills and small gullies shall immediately be filled and seeded or have sod placed in them. The lawn shall be kept mowed, tree seedlings shall be removed, and litter shall be removed from landscaped areas.
2. Catch Basin Grates/Curb Inlet Grates/Pipe Endwalls	The openings to these structures must be kept clear of debris and any other items causing potential blockage of stormwater.
3. Catch Basin/Curb Inlet Sumps	Sumps shall visually be inspected every 3 months. Siltation shall be removed and disposed of offsite when the sump depth is within 3" of the outlet pipe invert elevation. The removal of siltation should occur a minimum of once per year.
4. Vegetated Filter Strip	Signs of erosion shall be repaired, reinforced, and revegetated immediately to the original plan requirements. Weed control during initial vegetation establishment is critical to ensure proper growth. Mowing or herbicide application may be used to control weeds before they go to seed. Once the permanent vegetation is established, control noxious and brushy weeds from encroaching into the vegetated areas by mowing at least once per year. Visually inspect the vegetated filter strip on a regular basis and repair any erosion and control weeded areas as needed.
5. Record of Maintenance	The operation and maintenance plan shall remain onsite and be available for inspection when requested by WDNR or Village of Germantown. When requested, the owner shall make available for inspection all maintenance records to the department or agent for the life of the system.

Appendix C
Pipe Capacity Calculations:

100 Camelot Drive • Fond du Lac, WI 54935
920.926.9800 • www.excelengineer.com

PIPE BASIN	TOTAL (SF)	TOTAL (AC)	BLDG (SF)	BLDG (AC)	PAVEMENT (SF)	PAVEMENT (AC)	OPEN (SF)	OPEN (AC)
A	7,205	0.165	0	0.000	5,245	0.120	1,960	0.045
B	4,945	0.114	0	0.000	2,387	0.055	2,558	0.059
C	1,786	0.041	1,786	0.041	0	0.000	0.000	0.000

Excel Engineering Project No. 2005200 Project Name Taco Bell-Germantown

Pipe Data				Pipe Capacity (100-yr)				
Pipe ID	Diameter (FT)	Slope (FT/FT)	Manning's n	Basin ID	Total Flow (cfs)	Total Flow (gpm)	Full Flow Capacity (cfs)	Full Flow Capacity (gpm)
A	1	0.0050	0.012	A,B,C	2.71	1215	2.74	1228
B	0.667	0.0100	0.012	B,C	1.29	579	1.31	590
C	0.5	0.0275	0.012	C	0.38	172	1.01	454

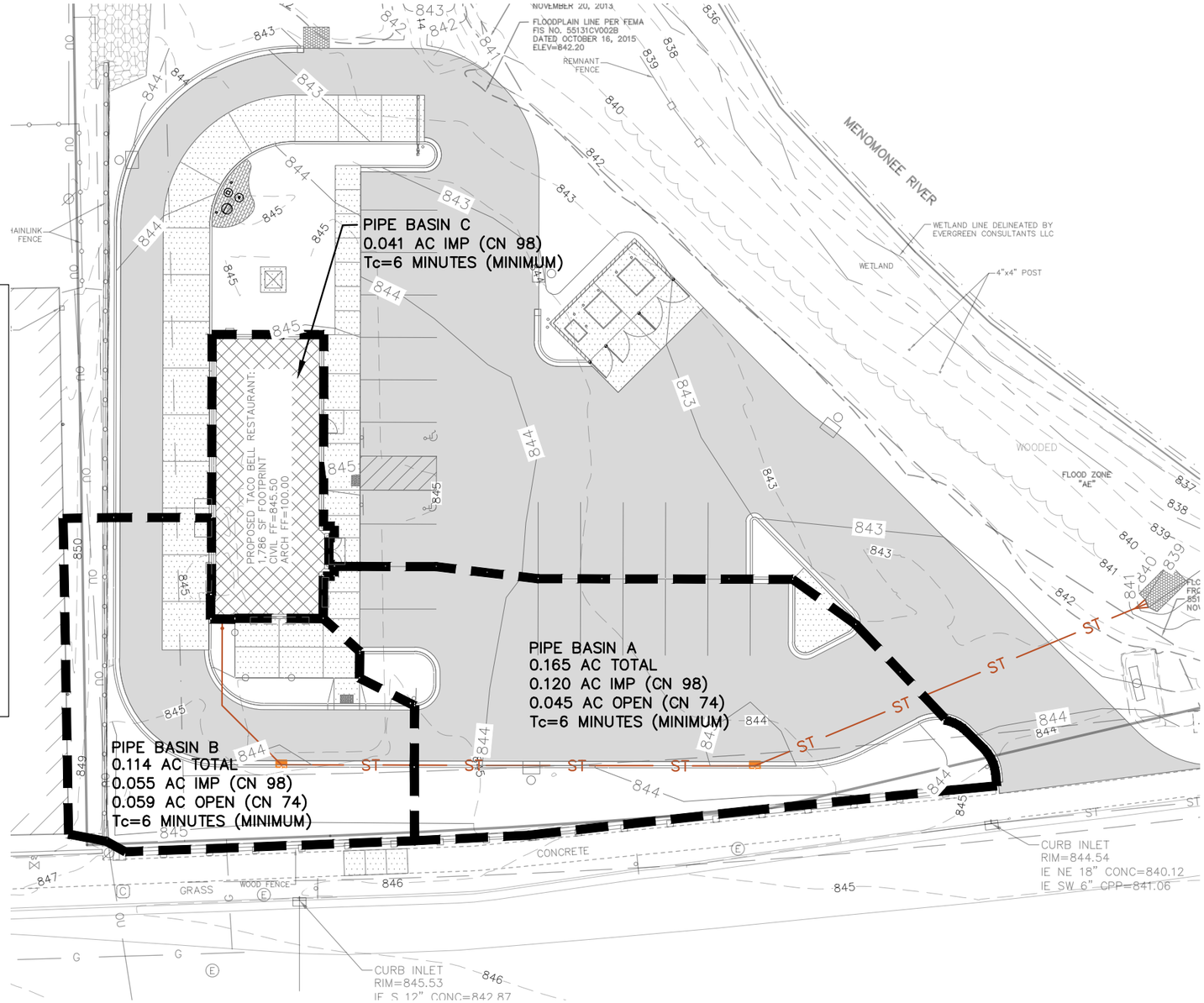
Full Flow Capacity based off Manning's Equation $Q = \frac{1.49}{n} R^{2/3} S^{1/2} a$

Where: Q = Full Flow Capacity of Pipe (cfs)
n = manning's roughness coefficient
R = hydraulic radius (ft) (D/4)
s = hydraulic gradient, slope (ft/ft)
a = flow area (sq. ft.)

Typical Manning's n

HDPE	0.012
PVC	0.012
Concrete	0.013
CMP	0.024

*Total Flow calculated via TR-55 hydrologic calculations. Reference Storm Pipe Basin Map & TR-55 Calculations



STORM SEWER BASIN MAP

NORTH

1"= 30'

30' 0 30' 60'

SCALE FEET

Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	-------	-------	-------	0.784	-------	-------	1.417	PIPE BASIN A
2	SCS Runoff	------	-------	-------	-------	-------	0.468	-------	-------	0.908	PIPE BASIN B
3	SCS Runoff	------	-------	-------	-------	-------	0.227	-------	-------	0.383	PIPE BASIN C

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	0.784	2	726	1,549	------	------	------	PIPE BASIN A
2	SCS Runoff	0.468	2	726	892	------	------	------	PIPE BASIN B
3	SCS Runoff	0.227	2	726	500	------	------	------	PIPE BASIN C

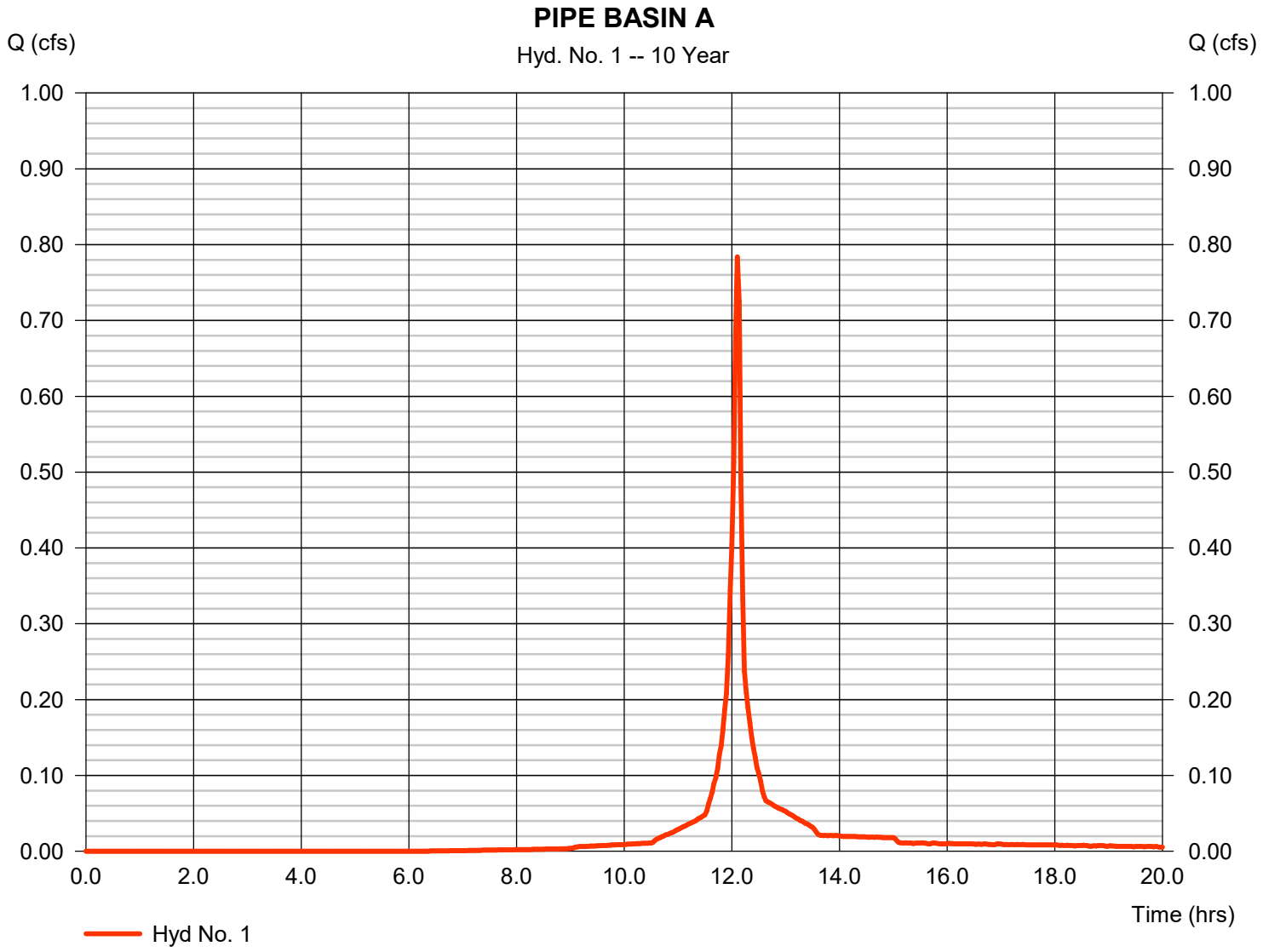
Hydrograph Report

Hyd. No. 1

PIPE BASIN A

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.784 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	1,549 cuft
Drainage area	=	0.160 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.82 in	Distribution	=	Custom
Storm duration	=	F:\Standards\400 Civil\Stormwater Templates\MSE Distribution\MSE3 Distribution	Shape factor	=	484

* Composite (Area/CN) = [(0.120 x 98) + (0.045 x 74)] / 0.160



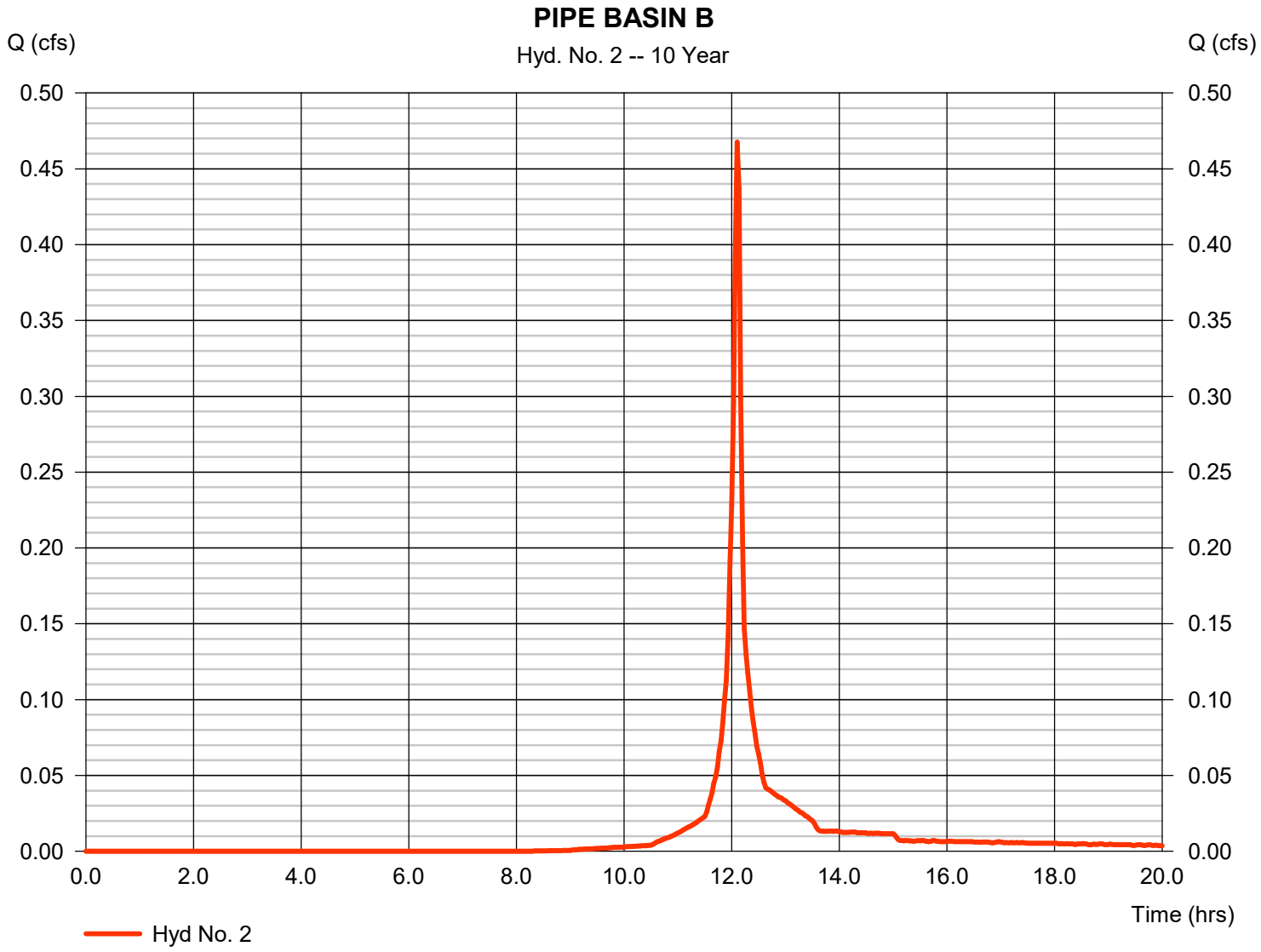
Hydrograph Report

Hyd. No. 2

PIPE BASIN B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.468 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	892 cuft
Drainage area	=	0.110 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.82 in	Distribution	=	Custom
Storm duration	=	F:\Standards\400 Civil\Stormwater Templates\MSE Distribution\MSE3 Distribution	Shape factor	=	484

* Composite (Area/CN) = [(0.055 x 98) + (0.059 x 74)] / 0.110

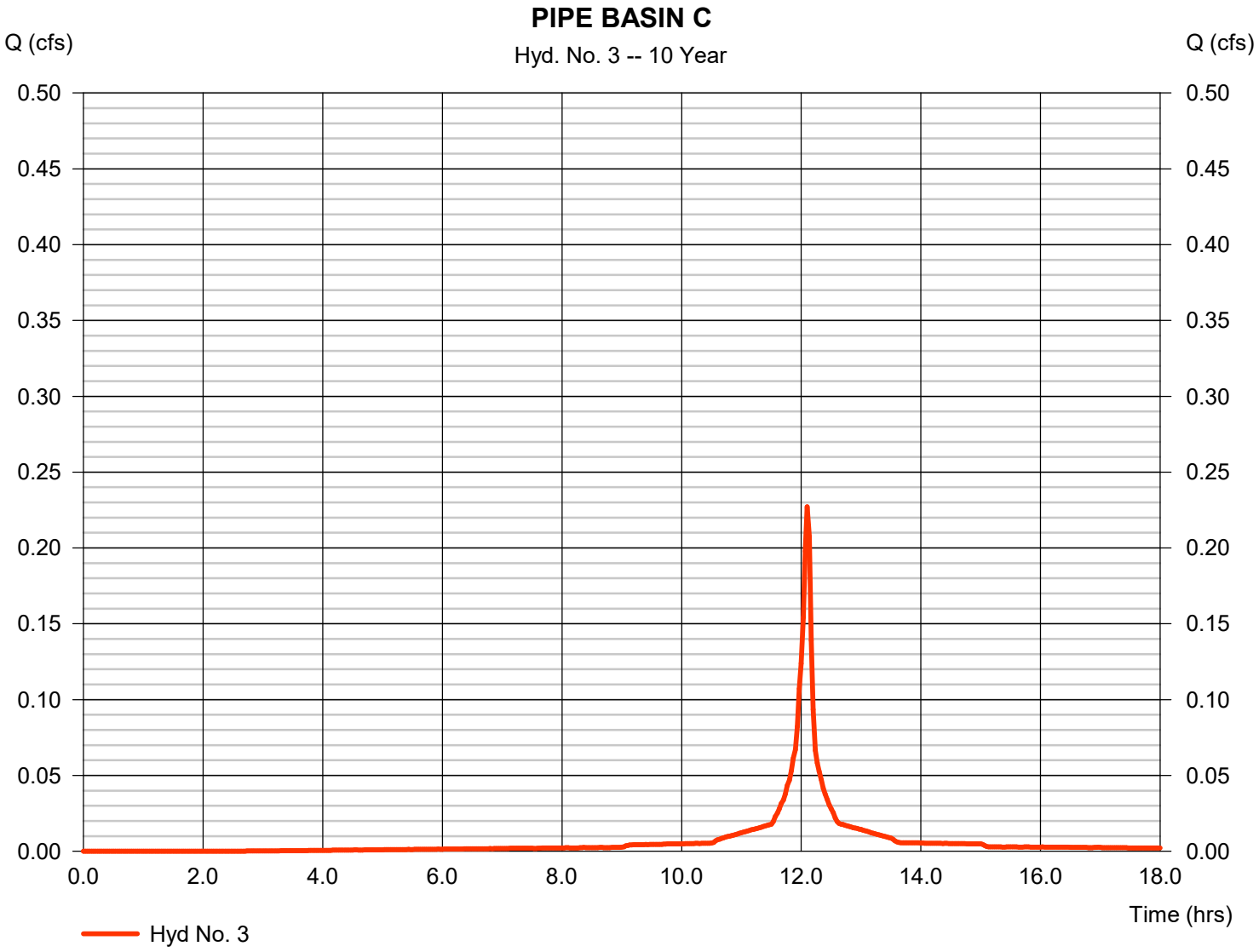


Hydrograph Report

Hyd. No. 3

PIPE BASIN C

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.227 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	500 cuft
Drainage area	=	0.041 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	3.82 in	Distribution	=	Custom
Storm duration	=	F:\Standards\400 Civil\Stormwater Templates\MSE Distribution\MSE3 Distribution	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	1.417	2	726	2,918	------	------	------	PIPE BASIN A
2	SCS Runoff	0.908	2	726	1,797	------	------	------	PIPE BASIN B
3	SCS Runoff	0.383	2	726	861	------	------	------	PIPE BASIN C

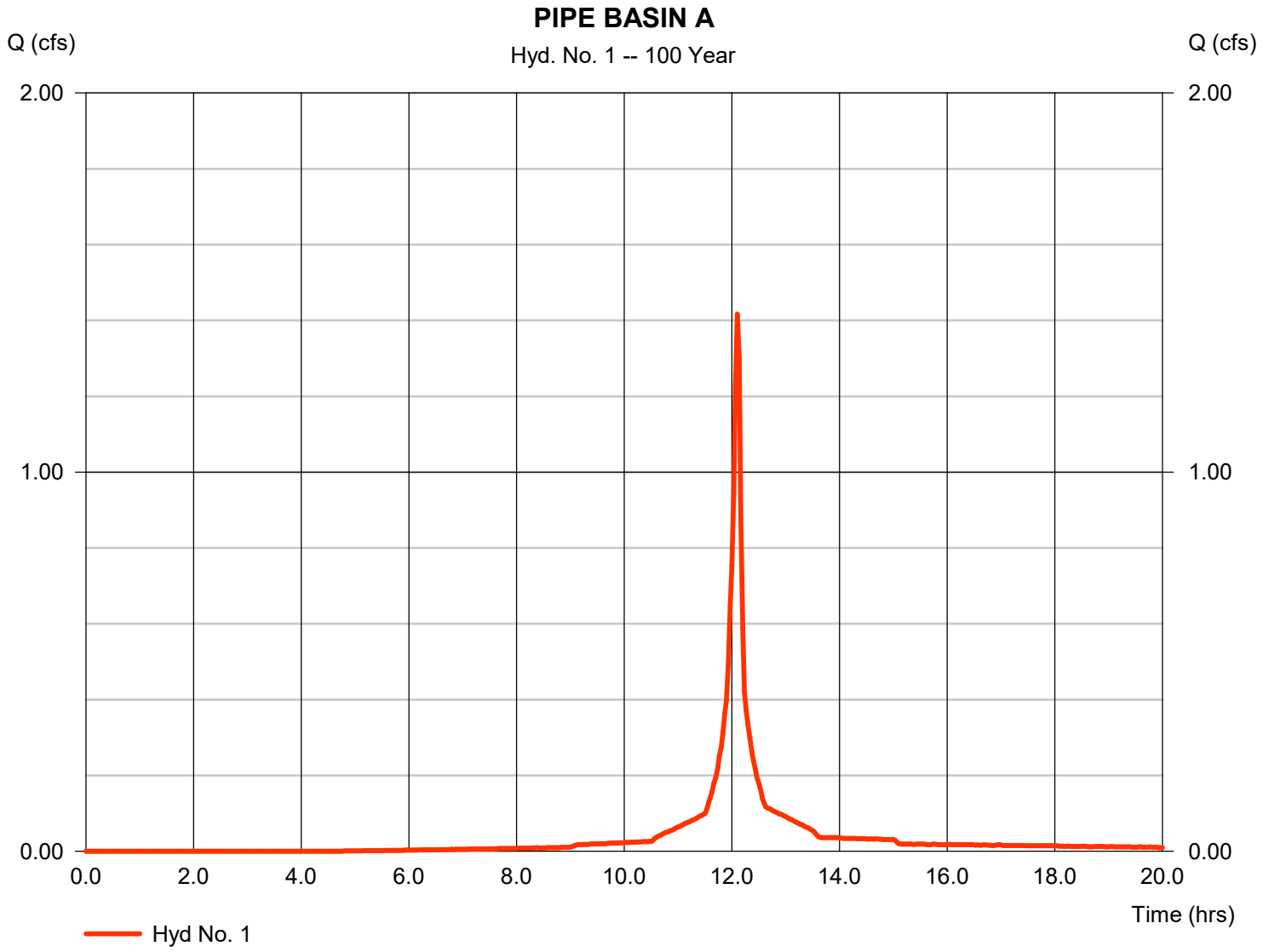
Hydrograph Report

Hyd. No. 1

PIPE BASIN A

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.417 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	2,918 cuft
Drainage area	=	0.160 ac	Curve number	=	91*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.41 in	Distribution	=	Custom
Storm duration	=	F:\Standards\400 Civil\Stormwater Templates\MSE Distribution\MSE3 Distribution	Shape factor	=	484

* Composite (Area/CN) = [(0.120 x 98) + (0.045 x 74)] / 0.160



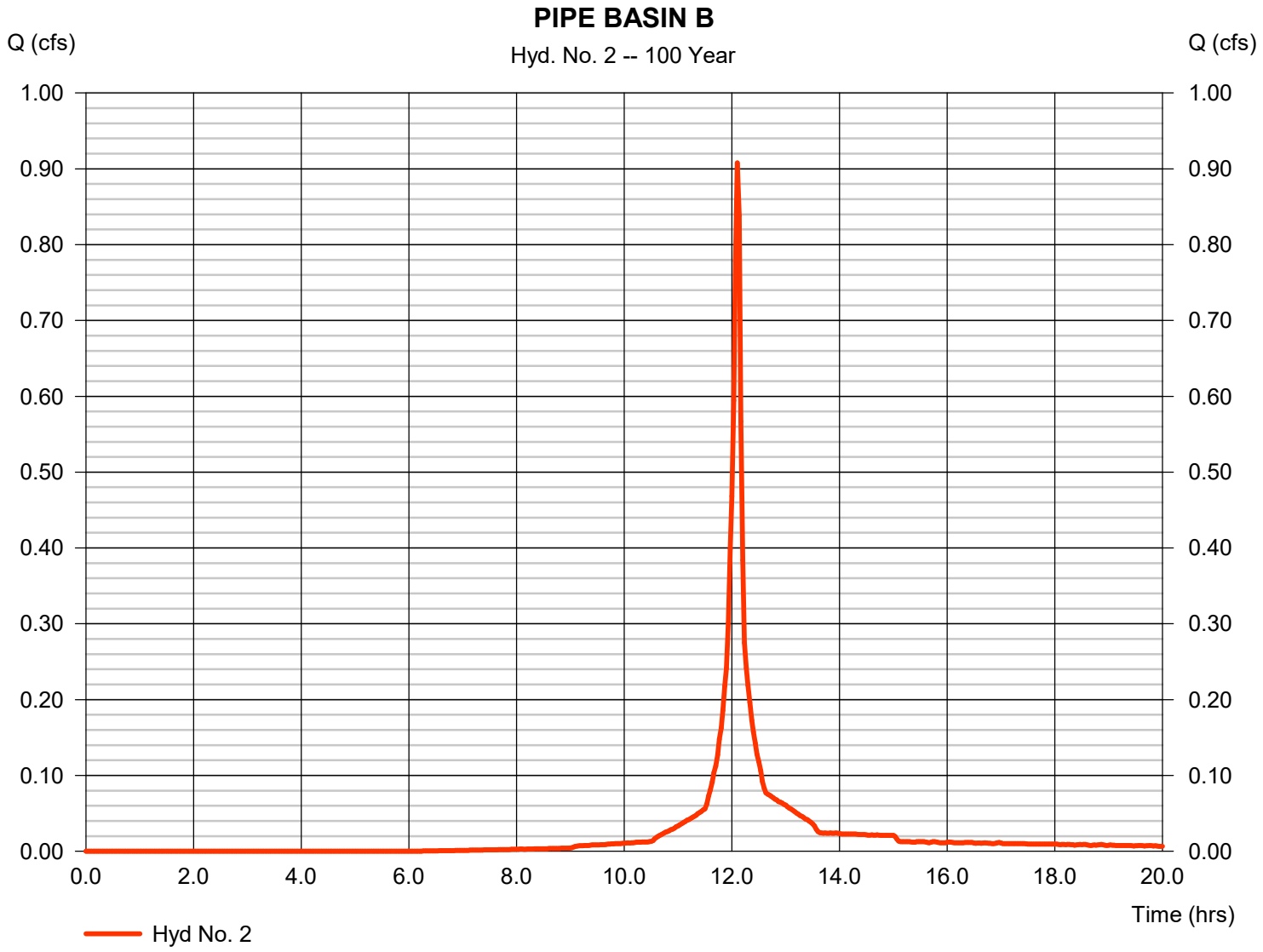
Hydrograph Report

Hyd. No. 2

PIPE BASIN B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.908 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	1,797 cuft
Drainage area	=	0.110 ac	Curve number	=	86*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.41 in	Distribution	=	Custom
Storm duration	=	F:\Standards\400 Civil\Stormwater Templates\MSE Distribution\MSE3 Distribution	Shape factor	=	484

* Composite (Area/CN) = [(0.055 x 98) + (0.059 x 74)] / 0.110

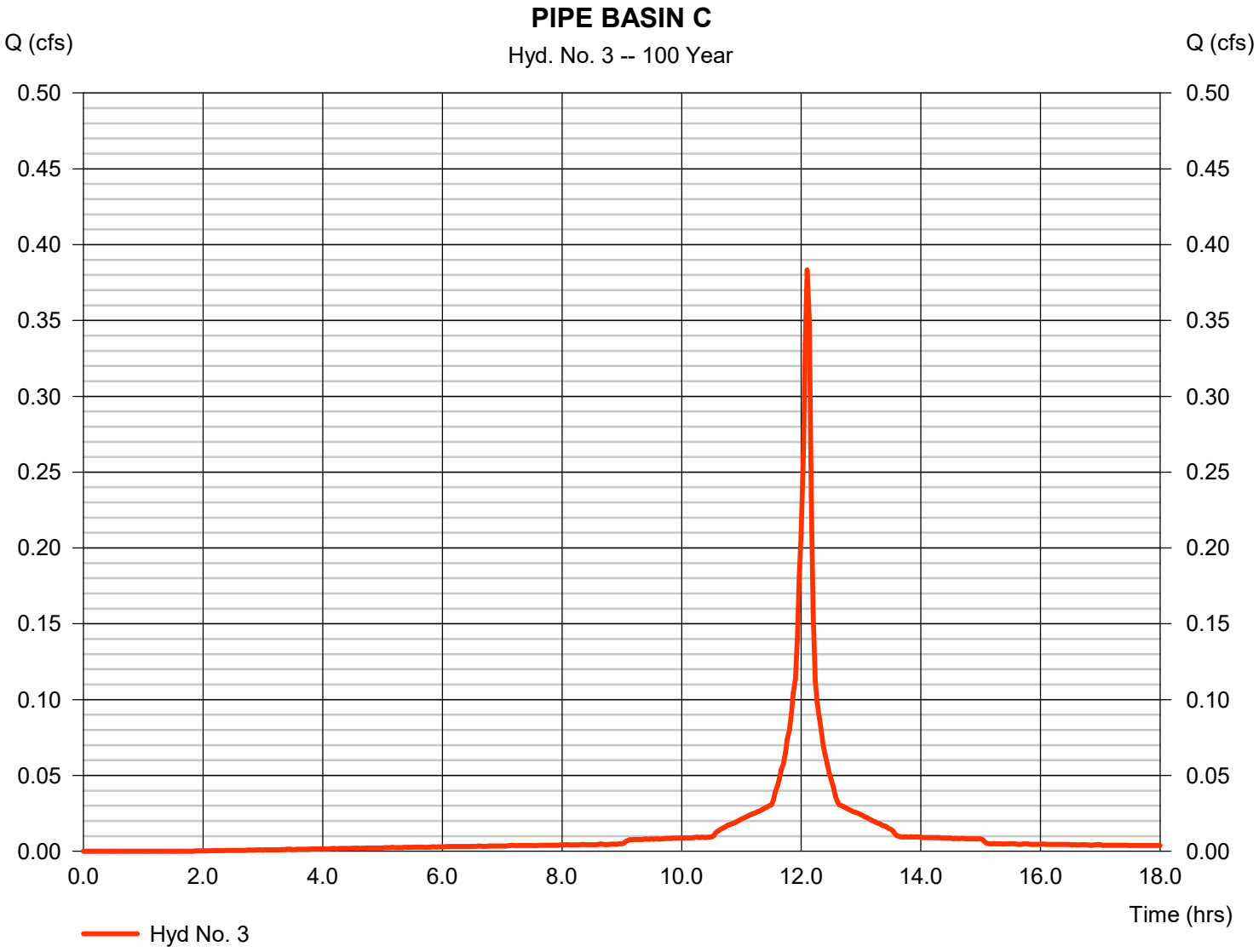


Hydrograph Report

Hyd. No. 3

PIPE BASIN C

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.383 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.10 hrs
Time interval	=	2 min	Hyd. volume	=	861 cuft
Drainage area	=	0.041 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	6.00 min
Total precip.	=	6.41 in	Distribution	=	Custom
Storm duration	=	F:\Standards\400 Civil\Stormwater Templates\MSE Distribution\MSE3 Distribution	Shape factor	=	484



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	0.0000	0.0000	0.0000	--------
3	0.0000	0.0000	0.0000	--------
5	0.0000	0.0000	0.0000	--------
10	0.0000	0.0000	0.0000	--------
25	0.0000	0.0000	0.0000	--------
50	0.0000	0.0000	0.0000	--------
100	292.6913	22.1000	1.0035	--------

File name: IL SECT. 1 RAINFALL_100 YR.IDF

Intensity = B / (Tc + D)^E

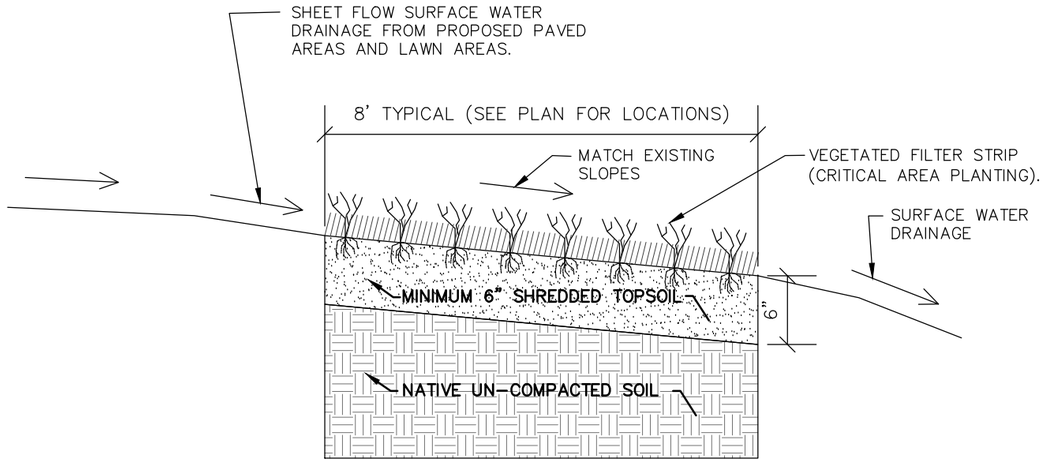
Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	10.68	9.01	7.79	6.86	6.13	5.54	5.05	4.65	4.30	4.00	3.74	3.51

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	3.82	0.00	0.00	6.41

Appendix D
Wetland Setback Mitigation Exhibit:



NOTES:

- PREPARE THE SEEDBED BY CLEARING AND GRUBBING THE PROPOSED PLANTING AREA OF UNWANTED MATERIALS. CULTIVATE AREA AS NEEDED AND GRADE THE PROPOSED PLANTING AREA TO CREATE A SMOOTH, UNIFORM SURFACE IN ACCORDANCE WITH THE PROPOSED GRADING PLAN OR TO MATCH EXISTING GRADES. SITE PREPARATION SHALL BE ADEQUATE TO ASSURE WEED SUPPRESSION AND TO PROMOTE PROPER GERMINATION AND GROWTH OF THE PLANTED SPECIES.
- PROVIDE A MINIMUM OF 6" OF SHREDDED TOPSOIL FOR ALL VEGETATED FILTER STRIP LOCATIONS. TOPSOIL SHALL BE FREE OF ANY STONES, STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATERIAL. DO NOT SPREAD TOPSOIL IF SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET. CULTIPACK OR ROLL SEEDBED PRIOR TO SEEDING.
- THE SOIL SHALL BE FERTILIZED BASED UPON SOIL TEST RESULTS. IF A SOIL TEST IS NOT COMPLETED, A GENERAL RECOMMENDATION OF 150 POUNDS PER ACRE OF 20-10-10 FERTILIZER AND A MINIMUM OF 2 TONS PER ACRE OF 80-89 LIME MAY BE USED.
- BROADCAST SEED THE VEGETATED FILTER STRIP WITH THE SEED MIXTURE LISTED IN THE TABLE BELOW AT THE APPROPRIATE SEEDING RATES. CONSULT WITH SEED SUPPLIER FOR FINAL MIXTURE. SEED MIXTURES MUST BE OF HIGH QUALITY. UNTESTED GRASS/FORB SEEDS SHALL NOT BE USED. ROLL THE PLANTING AREA AFTER BROADCAST SEEDING IS COMPLETE.
- THE PLANTED AREAS SHALL BE MULCHED AFTER SEEDING TO ENSURE PROPER ESTABLISHMENT AND TO MINIMIZE EROSION. MULCH MATERIALS MAY CONSIST OF NATURAL OR ARTIFICIAL MATERIALS AND SHALL BE ANCHORED TO THE SOIL TO PREVENT SLIPPAGE.
- REGULARLY WATER THE PLANTED AREA UNTIL THE VEGETATED FILTER STRIP IS FULLY ESTABLISHED.
- THE VEGETATED FILTER STRIP SHALL BE CONSTRUCTED IN GENERAL CONFORMANCE WITH WI NRCS CONSERVATION PRACTICE STANDARD FOR CRITICAL AREA PLANTING (CODE 342). REFERENCE CRITICAL AREA PLANTING PRACTICE STANDARD AND WISCONSIN AGRONOMY TECHNICAL NOTES 6 FOR ADDITIONAL SUPPORTING INFORMATION.

Seeding Mixture Suitable for Critical Area Planting (Wet Mesic Site)

COMMON NAME	BOTANICAL NAME	Pure Live Seed (PLS) (lbs/ac)	Pure Live Seed (PLS) (seeds/sq ft)
Tall Fescue	Schedonorus arundinaceus	5	26
Timothy	Phleum pratense	3	85
Perennial Ryegrass	Lolium perenne	3	16
Red Clover	Trifolium pratense	3	19
Smooth Bromegrass	Bromus inermis	6	19
Kentucky Bluegrass	Poa pratensis	2	100

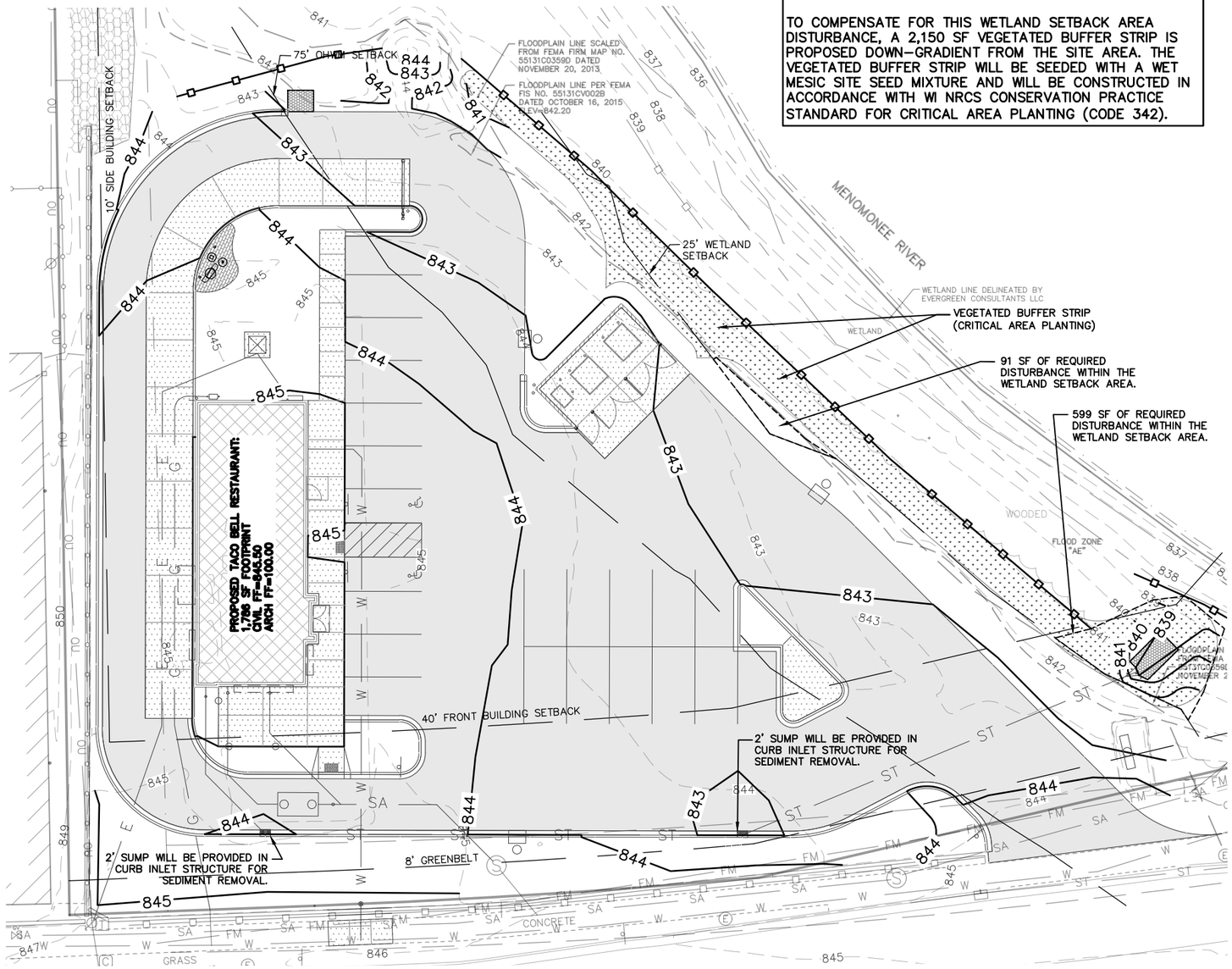
VEGETATED FILTER STRIP DETAIL

NO SCALE

WETLAND SETBACK MITIGATION REQUIREMENTS:

IN TOTAL, 690 SF OF DISTURBANCE IS REQUIRED FOR SITE IMPROVEMENTS WITHIN THE 25' WETLAND SETBACK AREA.

TO COMPENSATE FOR THIS WETLAND SETBACK AREA DISTURBANCE, A 2,150 SF VEGETATED BUFFER STRIP IS PROPOSED DOWN-GRADIENT FROM THE SITE AREA. THE VEGETATED BUFFER STRIP WILL BE SEEDED WITH A WET MESIC SITE SEED MIXTURE AND WILL BE CONSTRUCTED IN ACCORDANCE WITH WI NRCS CONSERVATION PRACTICE STANDARD FOR CRITICAL AREA PLANTING (CODE 342).



NORTH

1"= 30'

SCALE

30' 0 30' 60'

FEET

PROPOSED WETLAND SETBACK MITIGATION PLAN

Appendix E
Soil Maps:

Map Scale: 1:538 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 1:15,800.

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: Washington County, Wisconsin
Survey Area Data: Version 20, Jun 8, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 1, 2019—Oct 12, 2019

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AtA	Ashkum silty clay loam, 0 to 2 percent slopes	C/D	0.0	3.4%
Cw	Colwood silt loam, 0 to 2 percent slopes	C/D	0.9	96.5%
MtA	Mequon silt loam, 1 to 3 percent slopes	C/D	0.0	0.2%
Totals for Area of Interest			**0.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher