

VILLAGE OF GERMANTOWN
N112 W17001 MEQUON ROAD, GERMANTOWN, WI 53022

MEETING:	PLAN COMMISSION
DATE AND TIME:	MONDAY, APRIL 12, 2021 6:30 p.m.
LOCATION:	Germantown Village Hall Board Room, N112 W17001 Mequon Road

NOTICE: Pursuant to the current recommendation of the Centers for Disease Control and Prevention limiting the size of public gatherings, capacity within the Board Room will be limited. Members of the body and citizens may also attend the meeting virtually through the WebEx platform, Meeting #182 356 5766 Password: aEX78AmgrB4 which can be accessed by phone at 408-418-9388 or by logging on at <https://villageofgermantown.my.webex.com/villageofgermantown.my/j.php?MTID=ma304c81423359af91f327be6ba19f308> Citizens wishing to view the meeting are encouraged to watch the live broadcast of the meeting through Channel 25 on Spectrum cable, or the livestream on the Village's website. Citizens not wishing to attend the meeting personally or virtually may submit any public comments by sending an email to comments@village.germantown.wi.us by 4 p.m. on the day of the meeting so that it can be provided to the members for their consideration.

- I. **CALL TO ORDER** This meeting has been given public notice in accordance with Wisconsin Statutes, Section 19.83 and 19.84 in such form that will apprise the general public and news media of subject matter that is intended for discussion and action.
- II. **ROLL CALL**
- III. **PUBLIC INPUT/PUBLIC APPEARANCE** Please be advised per §19.84(2) that information will be received from the public, however, no action will be taken at this time. Written Public Comments should be directed to comments@village.germantown.wi.us by 4 p.m. on Monday, April 12th so that they can be provided to the members for their consideration.
- IV. **APPROVAL OF MINUTES** March 8, 2021
- V. **NEW BUSINESS**
 - A. Jason Boehlke, Property Owner – N120 W13537 Freistadt Road. Proposed text amendment to Sections 17.15(2) and 17.14(4) of the Village of Germantown Municipal Code (Zoning Code) to add "Construction Services", "Contractor Shops", "Garden Supplies" and "Horticultural Services" as conditional uses that would be allowed in the Rs-2: Single-Family Residential Zoning District. **[PUBLIC HEARING & ACTION]**
 - B. Sundance, Inc., Agent for Marshall & Diane Peebles, Property Owners - N96 W18058 County Line Road. Application to Rezone 4.91-acres from B-1: Neighborhood Business to the B-5: Highway Business Zoning District; a Conditional Use Permit (CUP) to allow development within a 25' wetland & 75' navigable waterway setback; and a Site Plan application for a 1,786 sqft Taco Bell Restaurant w/ drive-through facilities. **[PUBLIC HEARING & ACTION]**
 - C. Village of Germantown Department of Public Works – Presentation & Request for Feedback on Replacement Street Lights for Mequon Road. **[DISCUSSION]**
 - D. MSI General, Agent for MCPRE1 LLC, Property Owner of Turn-Key Solutions - N117 W19345 Fulton Drive. Site Plan application for a 10,000 sqft industrial building and parking lot addition. **[ACTION]**

Village of Germantown Plan Commission
Meeting Agenda
April 12, 2021
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- E. Signarama, Agent for Meridian Germantown LLC, Property Owner of Walmart - W190 N9855 Appleton Avenue. Sign Review Application for Subway Restaurant. **[ACTION]**

VI. **ANNOUNCEMENTS**

VII. **ADJOURNMENT**

UPON REASONABLE NOTICE, efforts will be made to accommodate the needs of disabled individuals through appropriate aids and services. For additional information or to request this service please contact the Village Clerk at (262)250-4740 at least 2 days prior to the meeting. Notice is given that a majority of the Village Board may attend this meeting to gather information about an item over which they have decision making responsibility. This may constitute a meeting of the Village Board per State ex rel. Badke v. Greendale Village Board, even though the Village Board will not take formal action at this meeting.

PLAN COMMISSION MINUTES

March 8, 2021

CALL TO ORDER: Chairman Wolter called the meeting to order at 6:40 pm.

ROLL CALL: Chairman Dean Wolter, Trustee Rep David Baum, Commissioners Tony Laszewski, Bill Shadid, Matt Kimmler, Bob Williams and Peter Nilles were in attendance. Also present were Community Development Director Jeff Retzlaff and Planning Assistant Lori Johnson.

PUBLIC INPUT:

None

APPROVAL OF MINUTES:

MOTION Baum second Shadid to Approve the Minutes from 2-22-21.

MOTION carried unanimously.

Proposed Boundary Amendment and Project Plan for Tax Incremental District No. 7 designating the proposed amended boundaries and approving a project plan amendment

Resolution No. 2021-01. Phil Cosson, Ehlers, summarized the proposal. The purpose of the amendment is to add approximately 170.9 acres of land to the overall TID#7 boundary and Amend the categories, locations and project costs to be made within TID#7.

Public Hearing opened at 6:52 pm.

Public Hearing closed at 6:55 pm.

MOTION Baum second Shadid to Approve the proposed boundary amendment and project plan for Tax Incremental District No. 7 as presented.

Discussion followed. Mike Faber, Capstone Quadrangle, stated the environmental cleanup is relatively minor. Commissioner Kimmler questioned if it is normal to include residential land in a TID. Mr. Cosson explained the boundaries need to be contiguous to include other parcels. He said for a residential owner, their tax rate and valuation will be no different and will be paid to all the taxing bodies. If the value goes up the increase would go to the tax increment district. Commissioner Kimmler asked if the developer will set aside land for a recreation trail. Mr. Cosson stated that is not proposed as part of this plan and not a TID cost. Chairman Wolter asked if it could be. Administrator Kreklow explained as we do design for Holy Hill Road there are plans for sidewalks or trails along Holy Hill Road, but they are a part of TID 8. Mr. Cosson said they are working with a developer who has indicated that this development will not occur without the infrastructure being extended on the property which will allow for the lot to be sold and the development to occur at a level will make the rent marketable for end users.

Chairman Wolter asked that based on the outline, the original TID 7 would have closed in 2037 and with this proposed development and increment will now close 6 years earlier in 2031. He asked if based on the early close date if this is as strong or stronger than TID 8. Mr. Cosson said based on speculation he'd say this is comparable given what's occurred already in TID 8, and how quickly it developed it is way ahead of schedule with what is being proposed would rival that. Chairman Wolter added this does not change any of the agreements with Speaker. He said he supports the plan because it will help support TID 7 and make it in a stronger place, help to close it early and support the development being proposed out there. It's also giving us a supportive plan for TIF 7 in regard to Speaker's current position with their developers agreement.

MOTION carried 5-1 (Laszewski, Kimmler).

Automation Solutions - N116 W18627 Morse Drive. Venture Construction, agent for SRN Properties, property owner, is seeking approval of site development and building plans for a 6,200 sqft expansion to the existing 4,200 sqft fabrication and assembly facility located in the Germantown Industrial Park. Planner Retzlaff summarized the proposal.

MOTION Baum second Shadid to Approve the site development and building plans for a 6,200 sqft expansion to the Automation Solutions fabrication and assembly facility located on a 1-acre parcel at N116 W18627 Morse Drive in the Germantown Industrial Park subject to the following (10) conditions:

- 1. This approval is subject to all the conditions and requirements set forth herein and adopted by the Plan Commission. Approval is granted for the following plans unless superseded by subsequent plan sheets approved by the Village Planner or Engineer pursuant to revisions required herein and/or by the Plan Commission:***
 - a. Architectural plan set dated January 4, 2021***
 - b. Engineering plan set dated December 28, 2021***
 - c. Landscaping plan set dated January 4, 2021***
 - d. Exterior Lighting plan set dated January 4, 2021***
- 2. All landscaping, grading, paving, storm water management, utility and other improvements shown on the approved site plans shall be installed as approved prior to issuance of an occupancy permit for the building addition unless a cash bond or letter of credit in an amount equal to 120 percent of the estimated installation and material costs reviewed and approved by the Village is submitted to the Village as necessary to ensure that installation of the proposed features and improvements will be completed within one (1) year after issuance of the occupancy permit.***
- 3. All plan corrections and storm water drainage calculations required by the Public Works Director in the February 1, 2021 review memo shall be addressed and reflected in revised plans and/or supplemental information reviewed and approved by the Village Engineer prior to issuance of a building permit or as may be mutually agreed to with the Public Works Director (excluding "early start" site clearing and footing/foundation work approved by the Village and/or WI DSPS).***
- 4. Although the size of the Automation Solutions expansion in terms of additional impervious area does not exceed the Village and MMSD threshold for requiring storm water management facilities for the site, the Village Code allows the Village Engineer to require a storm water management analysis, plan and possibly facilities for any development project with an increase in impervious area that may have an adverse impact on the Village's existing drainage facilities (in this case the Blackstone Creek regional basin). Consequently, the Village Engineer and Public Works Director are recommending that the owner choose one of two (2) alternatives with respect to storm water management impacts from this project:***
 - a. Provide the necessary storm water calculations (including surveying and modeling of the Blackstone Creek basin drainage basin) that indicate the Blackstone Creek regional basin can handle the additional storm water flow expected as a result of the proposed building and parking lot expansion; or***
 - b. Provide the necessary storm water calculations and resulting on-site stormwater management facilities necessary to reduce (or at least not increase) peak flows from the site with the proposed building and parking lot expansion. Since there is already a bio-retention basin proposed, a storm water management analysis and report indicating that the proposed bio-retention basin will reduce (or not increase) peak flows at or below the current condition.***

The owner should coordinate with the Village Engineer regarding which alternative action will be pursued. If it is determined that the Blackstone Creek basin is not capable of handling the additional storm water flows from this site as a result of the proposed expansion, or, that the proposed bio-retention basin does not reduce the anticipated flows at or below the current condition, additional on-site storm water improvements shall be required. Given the limited area on the site to expand the proposed bio-retention basin or other larger storm water facility, this issue needs to be resolved prior to issuance of a building permit or erosion control permit for the proposed expansion.

- 5. Right-of-way permits are required for any/all construction conducted in the Morse Driver right-of-way. Contact the Public Works Department/Village Engineer for details.***
- 6. The Village Public Works Department/Village Engineer shall be contacted for inspection purposes prior to construction of the private storm water lateral connection to the Village storm sewer system.***
- 7. The Wastewater Utility is requiring the following:***
 - a. The sample manhole shall be reconstructed to current code requirements with a new frame & lid, seal and chimney constructed to Village specifications and utility permit from the Engineering Department. The owner shall coordinate construction of the sampling manhole with the Wastewater Superintendent to ensure compliance prior to issuance of an occupancy permit for the new addition.***
 - b. Floor drains (if any) in the new addition shall not connect to the sanitary sewer system.***
 - c. The owner/operator shall file a new Notice of Intent (NOI) with MMSD and the Village given the increased number of employees expected as a result of the building addition. Contact the Wastewater Superintendent for further information.***
- 8. The Water Utility is requiring the following:***
 - a. The 15' sanitary sewer & water main easement area shall be clearly marked and protected during all construction activities to ensure no construction equipment or materials encroach into/over the easement area.***
- 9. All exterior doors (except primary entrance) shall be clearly marked with reflective 5" or larger letters/numbers to aid emergency personnel access as required by the Police Department.***
- 10. A revised landscaping plan indicating the species, size and location of plants to be removed shall be prepared and submitted to the Village Forester for review and approval prior to issuance of an occupancy permit.***
- 11. State agency (DSPS) approved plans and a \$20,000 occupancy bond are required by Inspection Services at the time of building permit application. The Village of Germantown is an authorized delegated agent of DSPS to provide all commercial plan review and inspection services through SAFEBuilt of WI and the Village of Germantown.***

Discussion followed on storm water retention and if there is enough capacity to hold any possible additional runoff. Planner Retzlaff said the regional basin is at near capacity, but the Village Engineer does not have adequate information to conclude definitively if that is the case and is looking for additional information provided by this development to help with this assessment. He said the Village should know what our basins can hold and ensure that we have the capacity to handle this addition and others like it. Chairman Wolter doesn't want to put any unnecessary additional costs on the developer or improperly engineered costs to anyone who wants to expand there. Planner Retzlaff

said the Village Engineer with the Public Works department has indicated they can do a thorough analysis of the entire stormwater area to come to an infinitive conclusion or this developer and others in line that are facing the same dilemma show that what they are proposing can handle the peak runoff on site that the current capacity is not exceeded. His understanding is that the consulting engineer has recommended to public works that they move forward with a thorough assessment of this regional basin that serves this area.

Dave Dahlke, Venture Construction, spoke with CJ Engineering who indicated the developer will do the survey and figure out what needs to be done or option b prove that they will not exceed any additional runoff for the addition. Planner Retzlaff said one of the conditions of approval is provided as a safeguard.

MOTION carried unanimously.

Germantown 2050 Comprehensive Plan Update Discussion. Planner Retzlaff explained tonight's discussion will provide further detail on the Community Meeting to be held on March 22nd. Craig Huebner, Graef, explained the virtual meeting would be approximately one hour long and have interactive questions to provide feedback and direct people to the new Social Pinpoint webpage. The main emphasis will be focused on future land use and what those future land use updates are including restructuring to neighborhoods, districts and corridors. Danya Littlefield, Graef, reviewed the Social Pinpoint webpage.

Discussion followed. Planner Retzlaff said this is a new concept and dramatically different than the old plan. Chairman Wolter asked that the table with acceptable uses be included as part of the presentation. He asked if we will be tracking people as they respond. Mr. Huebner said there is the ability to put in multiple comments and an option for anyone to include an email or name, but it is not a requirement. Chairman Wolter said he likes the ability to provide feedback and hopes the people of Germantown take advantage of it and provide their insight so they feel they are a part of the land use plan.

ANNOUNCEMENTS: Chairman Wolter announced Associate Planner Zandt delivered her baby and congratulated the family.

ADJOURNMENT: There being no further business, the meeting was adjourned at 7:53 pm.

Respectfully submitted,

Lori Johnson
Planning Assistant

ZONING CODE TEXT AMENDMENTS

4/12/21 Plan Commission Meeting

Jason Boehlke

Village Planner Report

Germantown, Wisconsin

Summary

Jason Boehlke, property owner, is requesting approval of an amendment to Section 17.15(2) and 17.15(4) of the Zoning Code to add “Construction Services”, “Contractor Shops”, Garden Supplies” and “Horticultural Services” as conditional uses in the Rs-2: Single-Family Residential District.

PROPOSAL

As set forth in the “explanation and justification” attachment to his application, Boehlke is proposing to add “Construction Services”, “Contractor Shops”, Garden Supplies” and “Horticultural Services” as conditional uses to the Rs-2: Single-Family residential District because:

1. there are parcels in the Rs-2 District that once were zoned and used for agricultural purposes that contain accessory buildings such as barns, pole barns, metal buildings and other structures previously used for farming and other rural businesses; and
2. that such properties are attractive to businesses that operate from and/or use the existing buildings and structures for equipment storage or other new business purposes.

Boehlke discusses his own situation where he owns a 4.0-acre property in an Rs-2 District on Freistadt Road just east of Country Aire Drive (N120 W13537 Freistadt Road) and the specific operational characteristics of the landscaping business he has operated from this property since 2008. Boehlke describes how his 4-acre parcel came to be as a result of the previous owner rezoning, subdividing and selling a 40-acre parcel to MMSD (Milwaukee Metropolitan Sewerage District) for purposes of preserving and protecting approximately 36 acres of wetland under MMSD’s “Greenseams Program”; and putting the remnant 4-acre parcel with the farmhouse and buildings into the Rs-2 District.

Boehlke further describes how he applied for but was unable to obtain a conditional use permit (or even submit an application) for his landscaping operation because the Rs-2 district does not permit this type of use nor does it qualify as a “home occupation” under the Zoning Code.

Boehlke goes on to argue that, given the historical use of his property, the number and type of accessory buildings, and a rural location surrounded by agriculturally zoned properties, his property is best suited for a small business use like his landscaping operation. Boehlke further argues that because his own landscaping business operates much like a “horticultural services” use that is allowed in an A-1 or A-2: Agricultural District, the Rs-2 District that his property is located in should therefore be changed to allow his business (rather than force him to relocate).

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Boehlke proposes that the Rs-2 District be changed to:

1. Add “Construction Services”, “Contractor Shops”, Garden Supplies” and “Horticultural Services” as conditional uses to the Rs-2: Single-Family residential District under Section 17.15(2); and
2. Create a new section 17.15(4) that would only permit these new conditional uses in an Rs-2 District if:
 - a. The property is comprised of 4.0 acres or more; and
 - b. The property is surrounded on all sides by property zoned A-1: Agricultural or A-2: Agricultural

Boehlke explains that these additional criteria would ensure that the use of parcels meeting these criteria for any of the (4) new conditional uses “...would not negatively impact or impair the surrounding property uses”. Boehlke goes on to discuss how there are only two parcels in the Village that meet these criteria and, as a result, the “... Village’s interests would be protected while allowing limited uses that are consistent with available uses on surrounding properties”.

STAFF COMMENTS

Background

In the fall of 2020, Boehlke was issued a Code Violation Notice for operating his landscaping, pavement & snow removal business in violation of the Rs-2: Residential District regulations, and, a Stop Work Order for importing fill to & grading his 4-acre property without an erosion control permit.

In the course of discussing what actions Boehlke could take to legally operate the landscaping business from the property, Village Staff discussed the following alternatives:

1. Acquire additional land from an abutting owner to increase the parcel size to a minimum of 10 acres, apply to rezone the property into the A-2: General Agricultural District and apply for a conditional use permit to allow a “horticultural service” operation;
2. Apply for a conditional use permit to allow the operation as a “major” home occupation; or
3. Apply for and propose to revise the Rs-2: Single-Family District regulations to allow the operation of a landscaping, paving & snow plowing business

Boehlke applied for a conditional use permit as a “major” home occupation. The application was rejected by the Zoning Administrator because the business did not meet the basic definitions of a “home occupation” under section 17.61 of the Zoning Code. As detailed in a February 8, 2021 letter from the Zoning Administrator, the operator of the business (Boehlke) does not live on the property and the number of current employees (12-15) exceeds the maximum number allowed for a “major” home occupation in an Rs-2 District (2).

Boehlke indicated that he approached the abutting landowner, MMSD, about possibly acquiring additional land to add to his 4-acre property, but has been unsuccessful to date.

Zoning Code Purpose & Comprehensive Plan Compatibility

One of the primary purposes of a Zoning Code is to implement the broader land use and development-related goals, policies and objectives set forth in a community's comprehensive plan through more specific allowances and restrictions. Like most Zoning codes, the Village's Zoning code divides the Village into various districts or zones, such as residential, commercial, and industrial, that are separate from each other but typically contain uniform types of development and land uses.

Typically, Zoning Codes contain multiple zones for the same general type of land use, e.g. residential, industrial, and business for example, but with specific restrictions and allowances that distinguish one residential zone from another. For example, the Village has an Rs-1 District that allows residential land uses on parcels with a minimum size of 5 acres; an Rs-2 District that allows residential uses on parcels with a minimum size of 2 acres; and an Rs-3 District that allows residential uses on parcels with a minimum size of 1 acre; and so on. While there is some "overlap" and similarity of land uses allowed across a certain category of zones, i.e. residential for example, the structure of the Village's Zoning Code (like most) is to not allow significantly different land uses with the same category of zones. For example, although residential land uses are allowed in all seven of the Village's residential districts at different densities and lot sizes, most commercial and industrial uses are not allowed at all in any of the residential districts. Similarly, commercial districts allow different retail and other business uses in different commercial zones and in different areas of the Village, but generally do not allow residential uses.

The Village's current 2020 Comprehensive Plan and Land Use map classifies all land in the Village into generalized land use categories that describe the general type or category of land use the Village would prefer those areas to be used for, including "Commercial", "Rural Residential", "Industrial/Office", "Agricultural/Conservation Residential", and so. In turn, the Zoning Code contains even more specific districts or zones with specific restrictions, allowances and limitations to guide the development and land use within those generalized areas shown on the 2020 Land Use Plan map.

With respect to the area within which the Boehlke property is located, the 2020 Land Use Plan map classifies the area south of Freistadt Road, east of Country Aire Drive and west of Wasaukee Road as "Rural Residential".

As stated in the 2020 Comprehensive plan, "Rural Residential" land uses are typically single-family homes with accessory structures found in rural areas with large homes, several accessory structures and lots approximately one acre or larger in size. "Rural Residential" areas are generally found adjacent to or scattered within the "Agricultural/Conservation Residential" areas of the Village that are planned for a residential density of one dwelling unit per acre with a minimum 1-acre lot size.

In the case of the "Rural Residential" area bounded by Country Aire Drive, Freistadt Road and Wasaukee Road, this area is intended to be a transitional area between the agricultural areas and higher density sewerred areas within the Sewer Service Area to the south.

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In fact, portions of this area have begun to develop in the last 3-5 years with higher density residential uses consistent with the intent of the 2020 Plan. Harvest Hills, Woodland Ponds and Woodland Ponds Estates are developing residential subdivisions with 1-acre lots and on-site sanitary systems and private wells. These residential neighborhoods are located only ¼ to ½ mile away from and east of the Boehlke property.

Similarly, the Wrenwood residential subdivision has started developing just west of Country Aire and south of Freistadt Road. Wrenwood south is nearly built out with Wrenwood North about to begin construction in later 2021. What is important to note with respect to the Wrenwood developments is that, along with and as a direct result from this development, public water and sanitary sewer have been and will continue to be extended into this area and, as result, be capable of extending even further to serve the land on both the west and east side of Country Aire Drive south of Freistadt Road, including the 40-acre of land abutting the Boehlke property to the west.

The point is that the area currently designated on the Village's 2020 Land Use Plan map that surrounds the Boehlke property both to the west and to the east are developing according to the Village's plan and are moving away from being rural, agricultural properties in A-1 and A-2 Zoning Districts. What's zoned A-1 and A-2 today is, in fact, planned to be rezoned and developed into higher density/smaller lot residential zoning districts that would generally be incompatible with the sort of contracting businesses Boehlke argues are suitable for his and the surrounding property. Boehlke's argument that this area is best suited for contracting businesses like his landscaping business is, in fact, contrary to and inconsistent with the Village's future land use plans for this area as designated under the current 2020 Land Use Plan and 2050 Plan currently being developed.

Public vs. Private Interest

As stated previously, a community's Zoning Code is generally intended to implement the overall public interest as established through the various land use and development goals, objectives and policies in the comprehensive plan. With that in mind, changes to a Zoning Code, whether they be district or zone changes made to the official zoning district map, or changes to the specific allowances and restrictions set forth in the text of the code should be made for the purpose of improving or enhancing the overall public interest as opposed to the interest of just one property owner.

While the Village has not had many Zoning Code text amendments, all of those that have been recommended by Staff or initiated by private individuals have arguably changed the Code in a manner that would improve the interests of many if not all property owners affected by the change or in the particular zoning district or code section that was amended.

For example, the most recent code amendment initiated by a private property owner and eventually carried forward by the Village attorney and staff changed (i.e. relaxed) the non-conforming structure provisions and rear & side yard setback restrictions for properties abutting outlots or common open spaces. The changes proposed and eventually adopted by the Village Board benefited at least 25-30 individual properties

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known to be restricted by the previous restrictions within the Esquire Estates neighborhood with an understanding that many more properties in the Village could also benefit from the code amendment.

Many of you have probably heard the term “spot zoning” and recall the negative connotation associated with it (i.e. spot zoning = illegal zoning). Well, amending a zoning code, and more specifically rezoning a particular property into a different zoning district that would allow the use of that property that is significantly different than the use(s) allowed on the properties surrounding it is not necessarily illegal if the zoning change is consistent with the intended purpose as set forth in the community’s comprehensive plan. For example, an area in a community where all the parcels are currently zoned and used for low-density residential purposes may have one parcel in the middle of that area rezoned into a district that allows a commercial use if the comprehensive land use plan designates that area for future commercial use. While such a zoning change might create the only commercially zoned parcel in the area, this type of “spot re-zoning” would be consistent with the land use plan and not necessarily illegal.

With that said, and with the differences of legal vs. illegal “spot zoning” in mind, it is generally a good idea (if not sound legal ground) for a zoning code amendment, whether it is a district rezoning for a parcel on a zoning map or a zoning code text amendment, to be consistent with the community’s comprehensive planning, and, to be made on the basis of considerations affecting the whole community (or a large portion of it) and not solely for the benefit of one or even just a few property owners who are requesting the code amendment.

With respect to the Boehlke code amendment proposal, it is clear (if not Boehlke’s argument) that the only property and property owner who stands to benefit from the amendment is Boehlke himself. This proposed amendment is not intended to benefit the overall community or even a portion of it. The amendment is intended to bail Boehlke out of an unfortunate set of circumstances and pending Village enforcement action to uphold the Zoning Code in a manner consistent with the Village’s comprehensive plan.

(NOTE: the only other parcel that Boehlke cites in his justification that might benefit from the proposed amendment (a 4.5-acre parcel owned by John Perry and currently developed for residential use) is situated diagonally across from other parcels currently zoned Rs-2 and NOT A-1 or A-2. Therefore, depending on how strict one interprets the proposed criteria that the property be 4 acres in size or more and that “the property is surrounded on all sides by property zoned A-1: Agricultural or A-2: Agricultural”, one could argue that the Perry parcel does not meet the proposed criteria; leaving only the Boehlke property).

VILLAGE STAFF RECOMMENDATION

DENY the proposed text amendment to amend Sections 17.15(2) and 17.15(4) of the Zoning Code to add “Construction Services”, “Contractor Shops”, Garden Supplies” and “Horticultural Services” as conditional uses in the Rs-2: Single-Family Residential District.

Village of

Germantown

Willkommen

Fee Must Accompany Application

☒ \$1115

Paid

3-10-21

☐ \$200

PC Consultation Only

Paid

Date Received by Village:

ZONING CODE TEXT AMENDMENT APPLICATION

Please read and complete this application carefully. All applications must be signed and dated. Attach additional sheets and/or include supplemental information in support of your application.

AGENT: (if different from Applicant)

APPLICANT:

Jason R. Boehlke

Address:

Address:

N120 W13537 Freistadt Road

Germantown, WI

Phone:

Phone:

414-305-6773

FAX:

FAX:

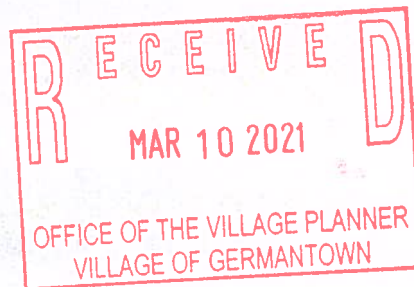
E-Mail:

E-Mail:

Jason@jrboehlke.com

Zoning Code(s) to be Amended: (Check all that apply)

- ☒ **General Zoning Code (Chapter 18)** - Chapter 17
- ☐ **Floodplain Zoning Code (Chapter 23)**
- ☐ **Shoreland-Wetland Zoning Code (Chapter 24)**



Section(s) to be Amended:

Zoning Code Sections 17.15(2) to be amended and creation of 17.15(4).

Proposed Text Amendment(s): (list text amendments using **STRIKEOUT** and **UNDERLINE** format)

Refer to or Attach Additional Pages as Necessary

Section 17.15(2) Conditional Uses, shall be modified to add the following:
(k) Construction Services, Contractor Shops
(l) Garden Supplies, Horticultural Services

Section 17.15(4) shall be added as follows:
(4) The Conditional Uses permitted under Section 17.15(2)(k) Construction Services, Contractor Shops, and (l) Garden Supplies, Horticultural Services shall be permitted only where the property meets the following conditions: (a) the property is comprised of 4.0 acres or more; and (b) the property is surrounded on all sides by property zoned A-1 Agricultural District or A-2 Agricultural District.

Detailed Explanation and Justification for Proposed Amendment(s):

Refer to or Attach Additional Pages as Necessary

See attached.

APPLICATION SUBMITTAL REQUIREMENTS (to be submitted at time of application):

- All Amendment Applications:
1. Complete Application Form (Affidavit of Understanding and signatures required)
2. Application Fee
3. Detailed explanation of and justification for proposed amendment(s)
4. Detailed explanation of if and how the proposed amendment(s) will affect other sections of the Zoning or other Municipal Code provisions
5. Specific amendment language proposed that is presented in a strike-out (text to be deleted) and underline (text to be added) format.
6. Electronic/Digital file containing in all information required under #3, #4 and #5 above. Acceptable formats include word processor, e.g. Microsoft Word (.doc or .docx) or plain text (.txt). File can be submitted via email attachment or flash drive.

AFFIDAVIT OF UNDERSTANDING

Please read and indicate that you understand and agree to the following (initials in box):

- Initials: JRB. I understand that Village Staff, the Plan Commission and/or the Village Board may request additional information to properly evaluate this application and failure to provide such information may be sufficient justification to deny this application;
Initials: JRB. I understand that, regardless of the justification and/or information provided in support of my application, the Village is not obligated to approve my application nor amend the Zoning Code as requested;

ALL APPLICATIONS MUST BE SIGNED BY THE AGENT & APPLICANT

Agent Date
Applicant Date
Agent Date
Applicant Date

Zoning Code Text Amendment Application – Attachment

Applicant: Jason R. Boehlke

Explanation of and justification for proposed amendments.

The current the Rs-2 Zoning District is a residential district intended to provide for single-family residential development in predominantly rural areas not served by municipal sewer and water facilities.

Within the Rs-2 Zoning District are parcels that were previously zoned agricultural as A-1 or A-2 Districts. These parcels often contain accessory farm buildings, including barns, pole barns, metal buildings, and other structures from historical use as farms or other rural businesses. The properties often attract horticultural and other businesses operating out of shops for equipment storage and other uses that complement their business, while performing work off site, such as landscaping, plumbing, and other small contractors.

I own one such property located at N120 W13537 Freistadt Road, Germantown, WI ("Property") which is a 4.0 acre parcel zoned Rs-2. I bought this Property in 2008. A plat of survey showing the Property and proposed use is enclosed with this Application. My Property has a farm house, a large barn, and two metal pole barns that existed prior to my purchase. Prior to purchasing the Property, I contacted the Zoning Administrator and Planning office to inquire whether anything was needed to run my landscaping business out of the property. I was told by staff that I did not need any additional approvals.

Since 2008 I have been operating a landscaping business out of the Property, which offers landscaping, snow plowing, and pavement maintenance services. No customers come to the Property and all work is performed off site at the customer's property. There are no signs on the Property for the business. There are limited deliveries of landscape materials that are delivered to the Property. All materials are stored at the rear of the Property adjacent to one of the pole buildings and are not visible from the roadway. All equipment is stored inside or behind the barn and pole barn buildings. Employees arrive in the morning to load the trucks/equipment, and then leave the Property to perform work offsite. At the end of the day employees drop the trucks and equipment back on the Property. My company employs between 12-15 employees, which except for two office staff, perform all work and services off site.

My property is surrounded on all sides by property zoned A-1 or A-2, which are over 35 acres in size. The Property is a rural parcel and not near any residential subdivision.

My Property was previously zoned agricultural, but was subdivided in approximately 2006 to allow for a sale of approximately 36 acres to MMSD, which is part of the Greenseams program and undeveloped wetland or natural grasses. As a result, the remaining parcel does not meet the 10 acre minimum requirement for A-1 or A-2 Districts, and it rezoned to Rs-2. The prior owner of the Property used the accessory building to run a contracting business.

I recently applied for a Conditional Use Permit through the Village, but the Village Zoning Administrator denied the application prior to review by the Plan Commission and hearing by the Village Board. The Zoning Administrator's basis for denial was interpretation of the Zoning Code that the proposed use does not qualify for a home occupation given its size and characteristics, and the Rs-2 district does not permit any Conditional Uses that would permit my continuation of using the Property for my business.

Given the historical use, pre-existing buildings and characteristics, and rural nature of the Property being surrounded by A-1 and A-2 Agricultural zoned properties, the use of the Property is best suited for small business, such as a contracting business where the property is primarily used for storage of trucks and equipment for use in performing work off site. Such a use provides little impacts that would differ from those allowed or expected through agricultural uses under neighboring zoning of A-1 and A-2, and in particular horticultural services Conditional Uses. Given the similarity of use as the neighboring A-1 and A-2 properties, allowing a horticultural or contracting business to operate out of the property, while permitting the Village



Board to place conditions on such uses to avoid detrimental impacts to surrounding properties, would be a benefit to the Village.

The current Rs-2 zoning prevents the best use of the Property, without providing a meaningful benefit to either the surrounding properties or the community. Accordingly, rather than displacing a successful business that employs Village residents, a revision to the zoning code to permit use of the Property for horticultural and contracting services in a very narrow set of circumstances would be a benefit to all stakeholders.

Accordingly, I am requesting that the Rs-2 section of the Zoning Code, 17.52(2), be revised to permit horticultural and contracting services business as Conditional Uses, provided that a new section 17.52(4) be created to limit such Conditional Uses to those that are surrounded by A-1 and A-2 properties and at least 4.0 acres in size. This would provide a very narrow set of circumstances under which such use would be permitted, thereby providing adequate assurance that the uses of such Rs-2 parcels would not negatively impact or impair the surrounding property uses.

In review of the Germantown Zoning map, only two properties would meet this criteria - my Property at N120 W13537 Freistadt Road and the property located at N124 W14106 Lovers Lane. See enclosed Map identifying the properties.

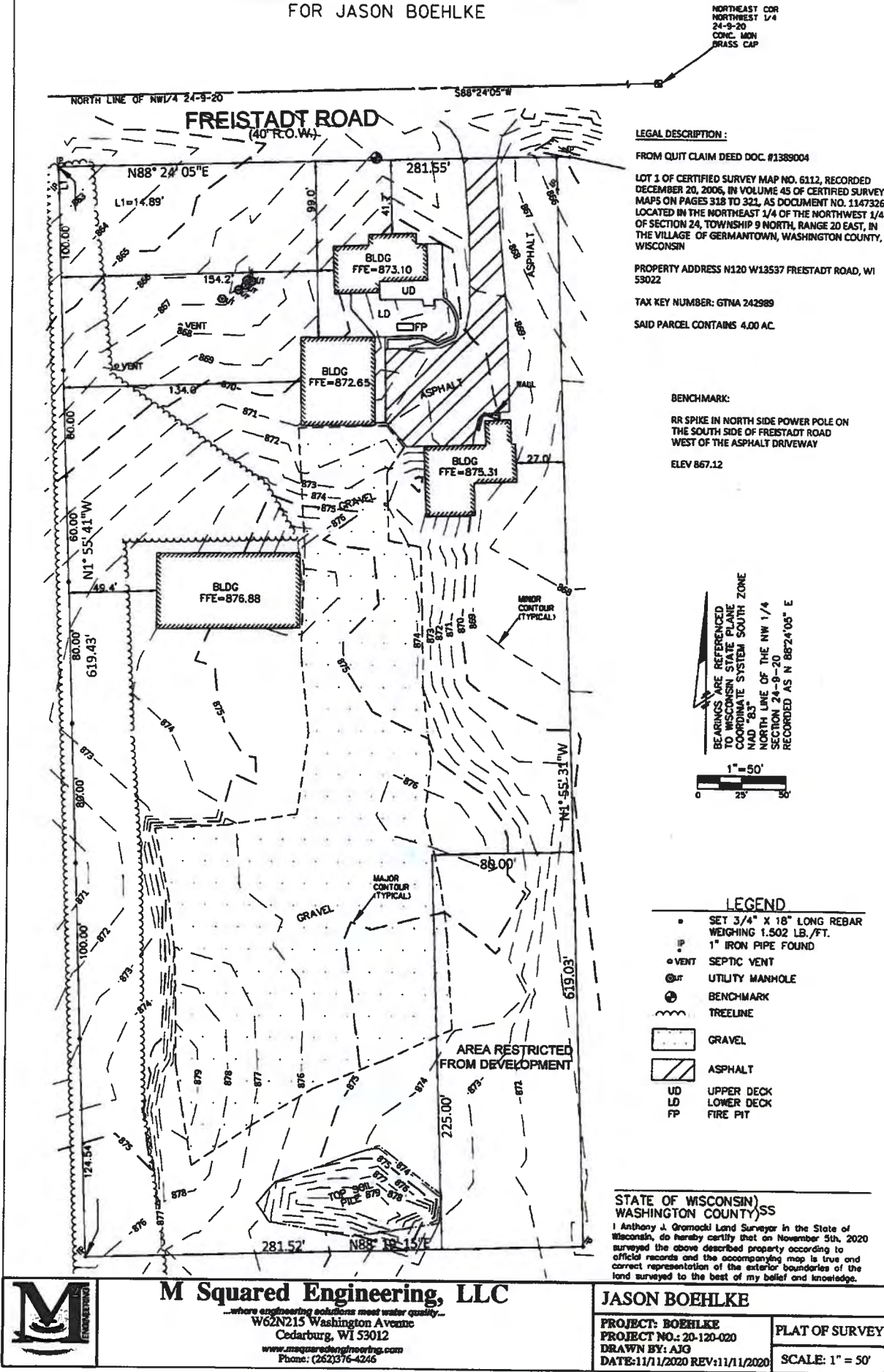
With the very limited expansion of the Zoning Code to allow this narrow set of circumstances, the Village's interests would be protected, while allowing for limited uses that are consistent with available uses on surrounding properties.

Affect on Other Sections of the Zoning or other Municipal Code provisions.

The changes will have no affect on other sections of the Zoning or other Municipal Code.

PLAT OF SURVEY
FOR JASON BOEHLKE

SHEET 1 OF 2

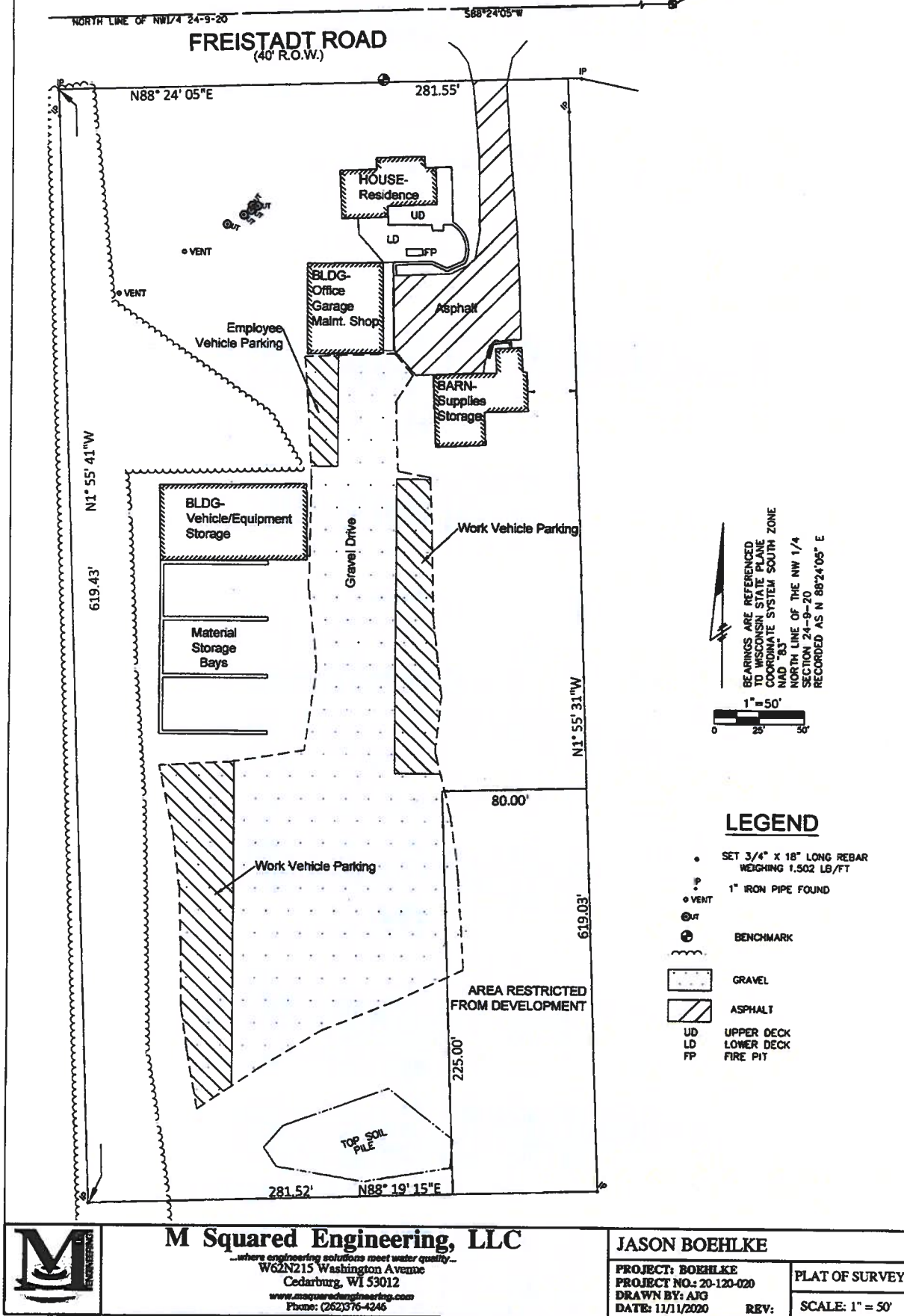


BUSINESS ACTIVITY EXHIBIT

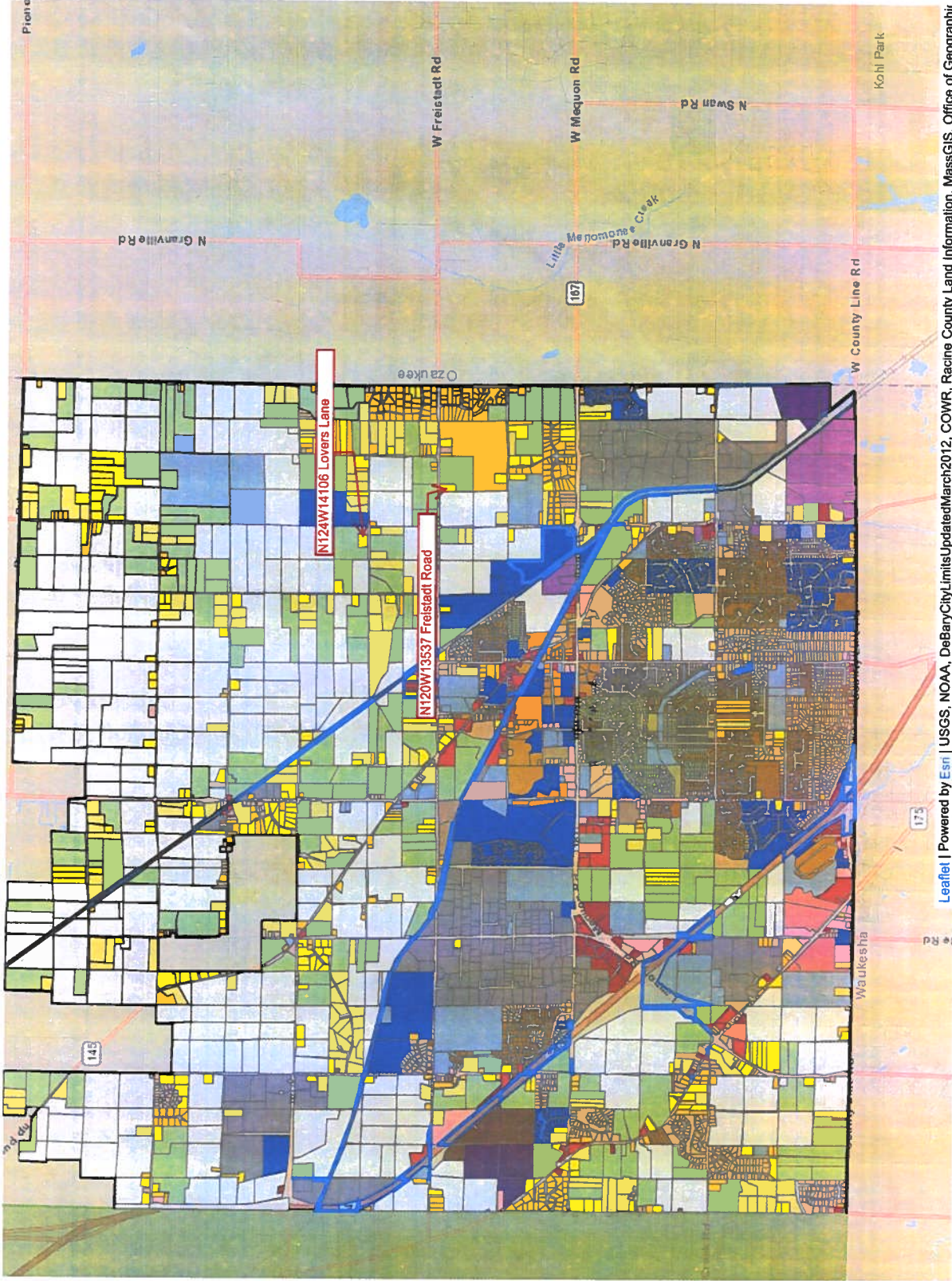
FOR JASON BOEHLKE

SHEET 2 OF 2

NORTHEAST COR
NORTHWEST 1/4
24-9-20
CONC. MON
BRASS CAP



Zoning Code | Interactive Map





Village of

Germantown

Willkommen

COPY

Fee must accompany a pplication

\$ \$1460 Paid \$ Date 1-6-21

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

Jason Boehlke
Agent for JR Boehlke,
Inc.

Phone (414) 305-6773

Fax (262) 404-1361

E-Mail jason@jrboehlke.com

PROPERTY OWNER

Jason R. Boehlke
N120 W13537 Freistadt Rd.
Germantown, WI 53022

Phone (414) 305-6773

2 TO WHOM SHOULD THE PERMIT BE ISSUED?

Jason R. Boehlke & J.R. Boehlke, Inc.

3 PROPERTY ADDRESS

N120 W13537 Freistadt Rd. Germantown, WI 53022
Tax Key GTNA 242989

TAX KEY NUMBER

GTNA 242989

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.

Landscape and Snow removal business. General hours of operation are primarily between 7am and 7pm, during Normal work days. (continued on back)

5 DESCRIPTION OF PROPOSED OPERATION

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

Landscape & Snow Removal Business

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

Continuation of existing operation.

Additional information is attached.

4. (continued from front)

When snow events are anticipated, trucks are loaded during the day/evening, so that drivers are able to pick up trucks and leave without noise. We have approximately 12-15 employees, most of which are on site only to pick up equipment and leave to perform work off-site, with 1-2 employees working at the office on-site.

6

METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

See attached survey

7

SUPPORTING DOCUMENTATION:☒ Site Plan and elevations for new construction (can be conceptual)☒ Photos of existing use and/or proposed use operating elsewhere☐☐

8

READ AND INITIAL THE FOLLOWING:

JRB

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.

JRB

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

JRB

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.

JRB

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

 1-5-2021
 Date


 Owner

 1-5-2021
 Date

Additional information:

I purchased the property in 2008. The property is an old farm with a house, an older full size barn, and two metal pole buildings. I purchased the property from Suzie and Clifford Ernst, who subdivided the property and sold a portion to MMSD. Suzie's family previously farmed the property and then later, Clifford operated a construction contracting business from the property.

At the time I purchased the property I was running a landscape and snow removal business, and wanted to operate the business out of the property. I contacted the Germantown Village Planning Commission office and asked whether I needed anything in order to operate my business from the property. I was told by the staff person that I did not, and so I purchased the property and continued my business.

I have continued to use the property for landscape and snow removal business since I purchased in 2008. My business performs landscaping and snow removal services, and related work for customers off site. No customers come to the property and all mailing is through a PO Box for the business. There are no signs on the property for the business. There are limited delivery of landscape materials that are delivered to the property. All materials are stored at the rear of the property adjacent to one of the pole buildings, and are not visible from the road.

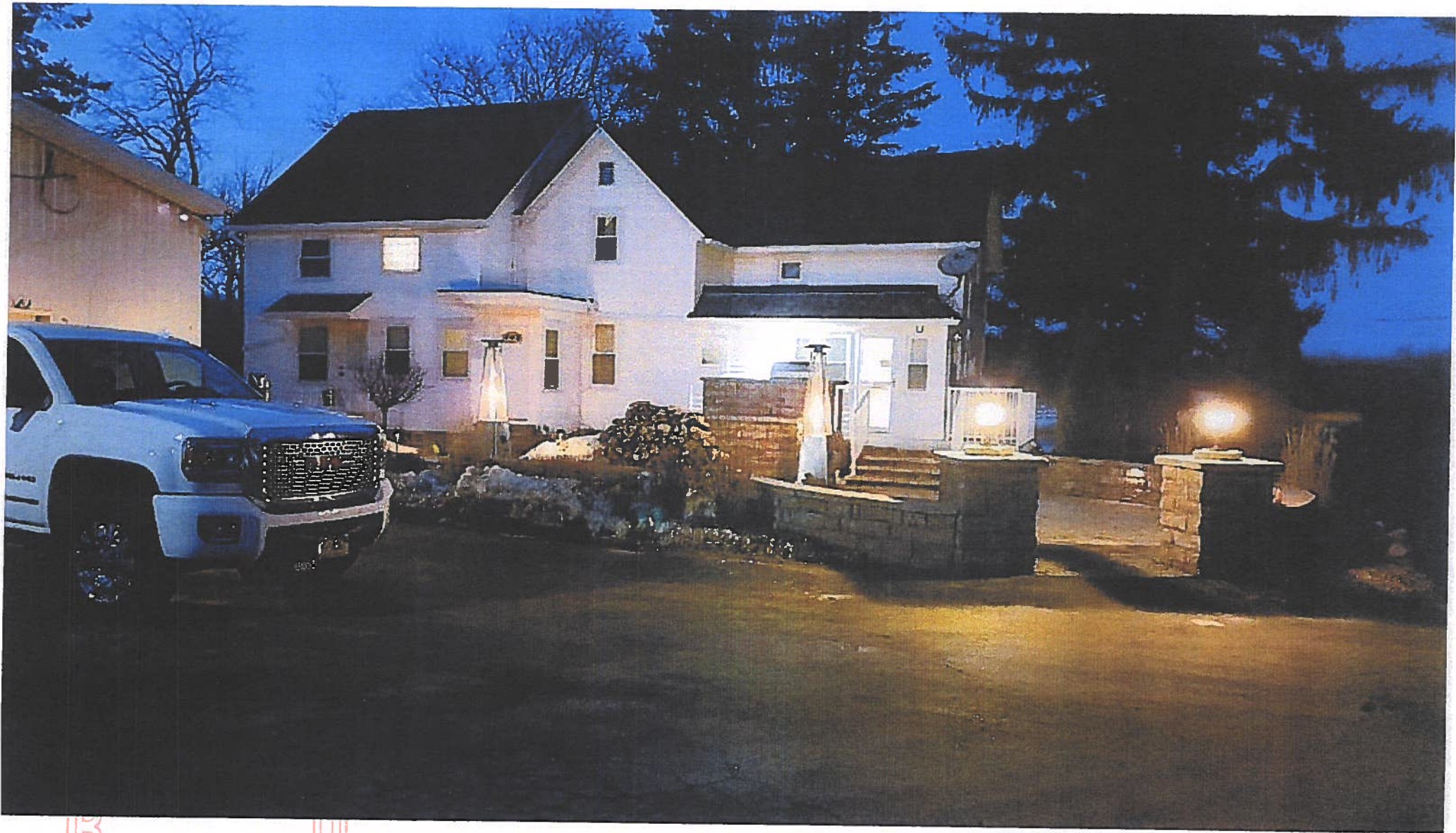
All equipment is stored inside, or behind the barn and buildings and is not visible from Freistadt Road. Generally, employees arrive in the morning load the trucks/equipment, and then leave the property to perform work offsite, and at the end of the day drop the trucks and equipment back on the property.

MMSD owns the property to the south and east of my property, and there are no buildings on that property. To the west is an agricultural zoned property that is owned by Tracey and Bruce Bernarde. Their property is farmed and there is a house on the property. There is a tree line separating our properties and my trucks and equipment are not visible from their property during spring, summer and fall unless someone is standing on the property line.

I am aware that my neighbor has complained about concerns related to grading that was done on the rear area of the property. That part of the property had bumpy topsoil and some grass. My intention was to smooth out irregularities and provide a stable base. I was unaware of the requirement of a grading permit, and after notice from the village I applied for a grading permit. Prior to this incident, I had not heard any complaints from the neighbor, and was told by him that he did not have a problem with the operation of my business with the most recent text being on August 16, 2020.

There has not been any significant change in the nature of my business or the use of the property in the last 12 years that I have operated from property. The property is rural, and surrounded by agricultural or open lands. The property was historically used for farming and operating a business, and the original buildings on the property are consistent with the operation of a small business.

I appreciate the consideration of the conditional use application and would be happy to address any concerns or conditions to limit the impacts of continued operations.

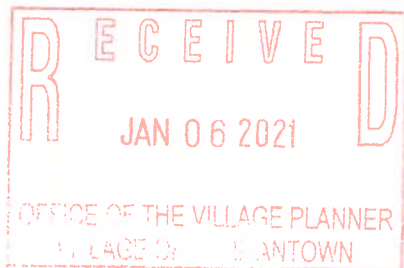
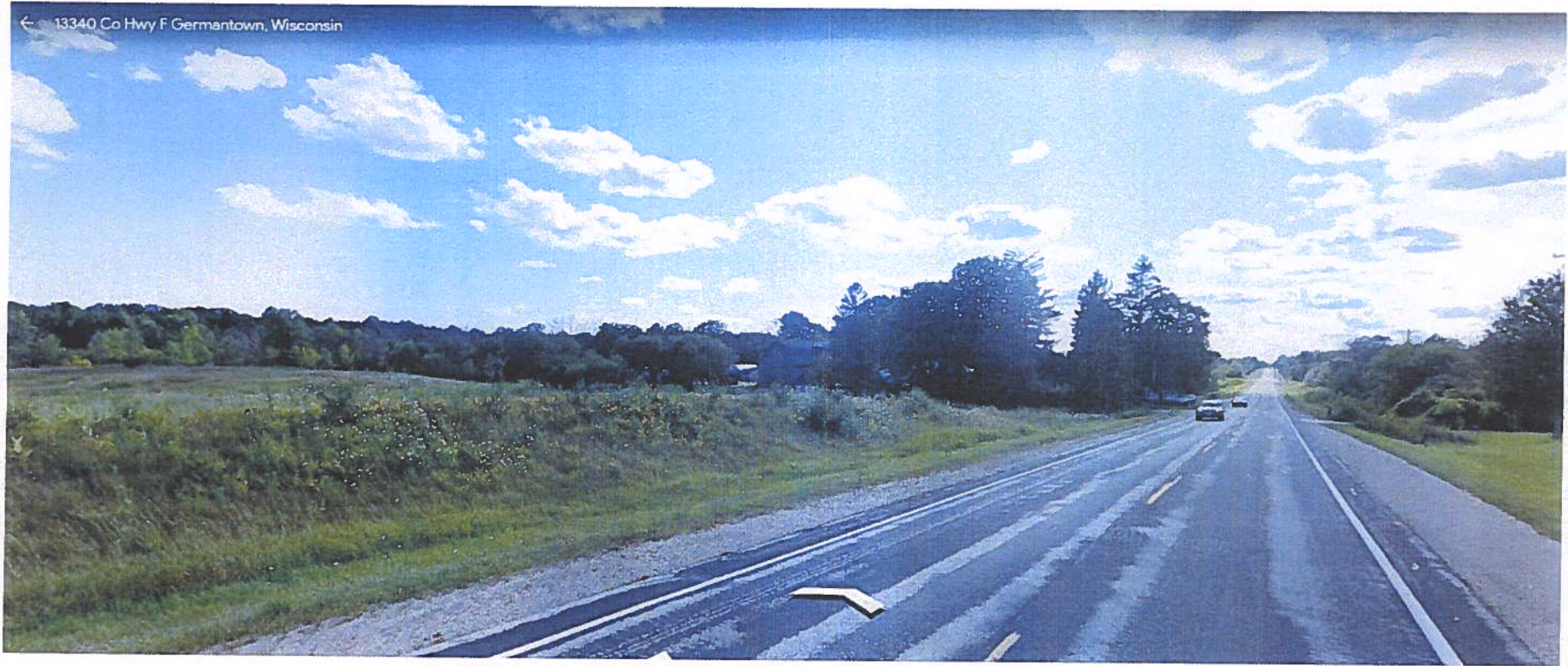


JAN 06 2021

OFFICE OF THE VILLAGE PLANNER
VILLAGE OF WEST MANTOWN



← 13340 Co Hwy F Germantown, Wisconsin





← 13596 Co Hwy F Germantown, Wisconsin



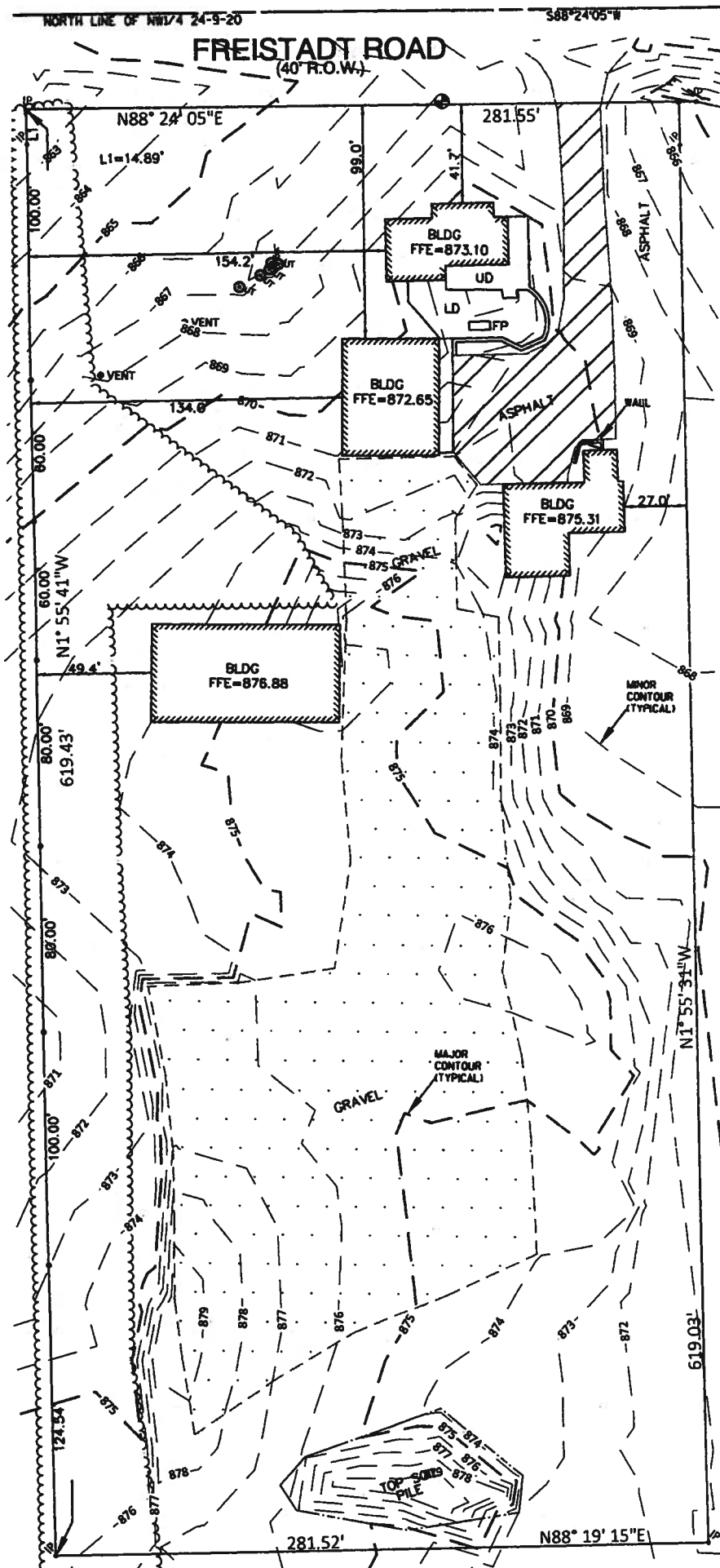
RECEIVED
JAN 06 2021

PLAT OF SURVEY

FOR JASON BOEHLKE

OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

NORTHWEST CORNER
24-9-20
CONC. MON
BRASS CAP



LEGAL DESCRIPTION:

FROM QUIT CLAIM DEED DOC. #1389004

LOT 1 OF CERTIFIED SURVEY MAP NO. 6112, RECORDED DECEMBER 20, 2006, IN VOLUME 45 OF CERTIFIED SURVEY MAPS ON PAGES 318 TO 321, AS DOCUMENT NO. 1147326, LOCATED IN THE NORTHEAST 1/4 OF THE NORTHWEST 1/4 OF SECTION 24, TOWNSHIP 9 NORTH, RANGE 20 EAST, IN THE VILLAGE OF GERMANTOWN, WASHINGTON COUNTY, WISCONSIN

PROPERTY ADDRESS N120 W13537 FREISTADT ROAD, WI 53022

TAX KEY NUMBER: GTNA 242989

SAID PARCEL CONTAINS 4.00 AC.

BENCHMARK:

RR SPIKE IN NORTH SIDE POWER POLE ON THE SOUTH SIDE OF FREISTADT ROAD WEST OF THE ASPHALT DRIVEWAY

ELEV 867.12

BEARINGS ARE REFERENCED TO WISCONSIN STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD "83" NORTH LINE OF THE NW 1/4 SECTION 24-9-20 RECORDED AS N 88°24'05" E

1" = 50'
0 25 50

LEGEND

- SET 3/4" X 18" LONG REBAR WEIGHING 1.502 LB./FT.
- IP 1" IRON PIPE FOUND
- VENT SEPTIC VENT
- UTILITY MANHOLE
- BENCHMARK
- TREELINE
- GRAVEL
- ASPHALT
- UD UPPER DECK
- LD LOWER DECK
- FP FIRE PIT

STATE OF WISCONSIN
WASHINGTON COUNTY

I, Anthony J. Gramacki, Land Surveyor in the State of Wisconsin, do hereby certify that on November 5th, 2020 surveyed the above described property according to official records and the accompanying map is true and correct representation of the exterior boundaries of the land surveyed to the best of my belief and knowledge.

JASON BOEHLKE

PROJECT: BOEHLKE
PROJECT NO.: 20-120-020
DRAWN BY: AJG
DATE: 11/11/2020

PLAT OF SURVEY

SCALE: 1" = 50'



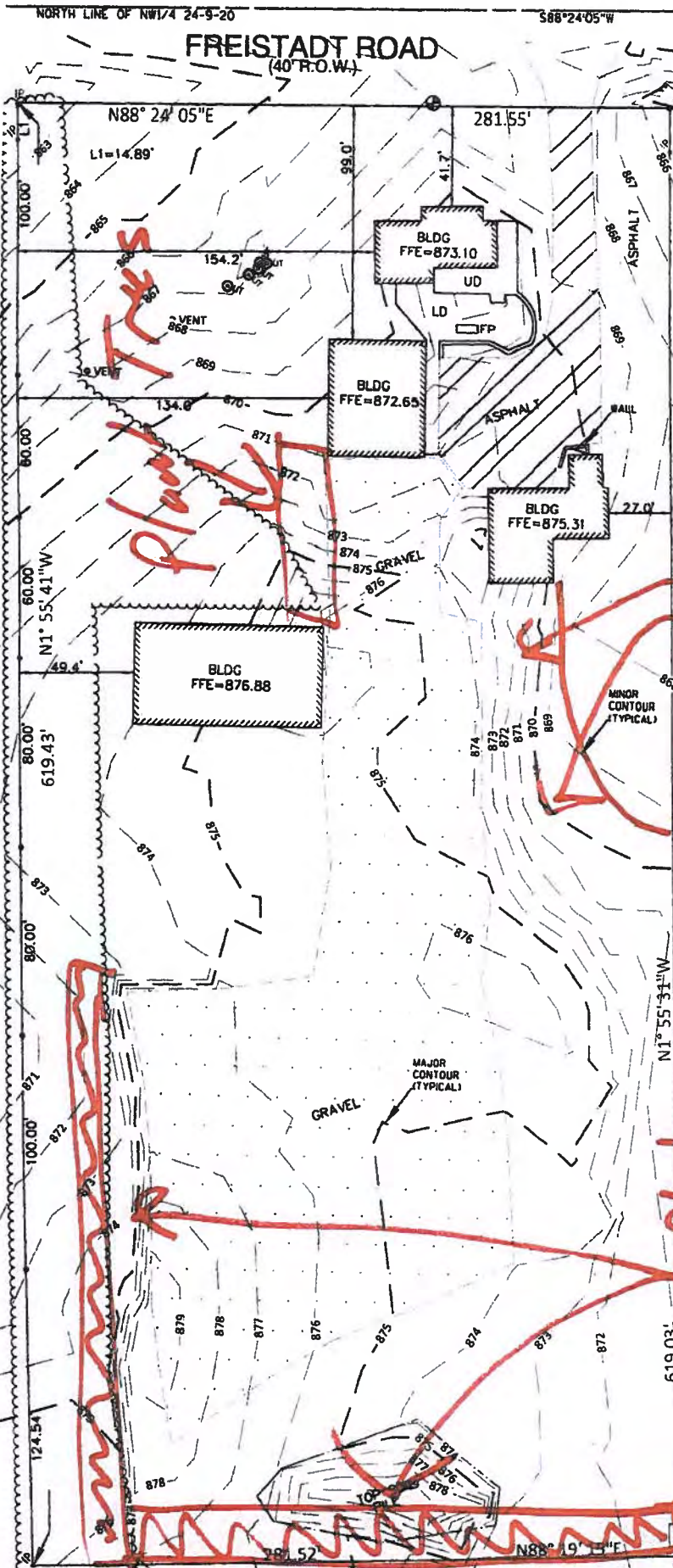
M Squared Engineering, LLC

...where engineering solutions meet water quality...
W62N215 Washington Avenue
Cedarburg, WI 53012
www.msquaredengineering.com
Phone: (262)376-4246

PLAT OF SURVEY

FOR JASON BOEHLKE

NORTHEAST COR
NORTHWEST 1/4
24-9-20
CONC. MON.
BRASS CAP



LEGAL DESCRIPTION:

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PROPERTY ADDRESS N120 W13537 FREISTADT ROAD, WI 53022

TAX KEY NUMBER: GTNA 242989

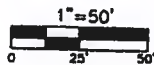
SAID PARCEL CONTAINS 4.00 AC.

BENCHMARK:

RR SPIKE IN NORTH SIDE POWER POLE ON THE SOUTH SIDE OF FREISTADT ROAD WEST OF THE ASPHALT DRIVEWAY

ELEV 867.12

BEARINGS ARE REFERENCED TO WISCONSIN STATE PLANE NAD 83 NORTH LINE OF THE NW 1/4 SECTION 24-9-20 RECORDED AS N 88°24'05" E



LEGEND

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- 1" IRON PIPE FOUND
- SEPTIC VENT
- UTILITY MANHOLE
- BENCHMARK
- TREELINE
- GRAVEL
- ASPHALT
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- LD LOWER DECK
- FP FIRE PIT

STATE OF WISCONSIN)
WASHINGTON COUNTY)SS

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JASON BOEHLKE

PROJECT: BOEHLKE
PROJECT NO.: 20-120-020
DRAWN BY: AJG
DATE: 11/11/2020

PLAT OF SURVEY
SCALE: 1" = 50'



M Squared Engineering, LLC

...where engineering solutions meet water quality...
W62N215 Washington Avenue
Cedarburg, WI 53012
www.msquaredengineering.com
Phone: (262)376-4246



Village of

Germantown
Willkommen

Community Development Department

Jeffrey W. Retzlaff, AICP, Director

Village Planner & Zoning Administrator

N112 W17001 Mequon Road P.O. Box 337

Germantown, WI 53022-0337

Telephone: (262) 250-4735

FAX: (262) 253-8255

Website: www.village.germantown.wi.us

E-mail: jretzlaff@village.germantown.wi.us

January 11, 2021

Jason Boehlke
J.R. Boehlke Inc.
N120 W13537 Freistadt Road

RE: Conditional Use Permit Application; N120 W13537 Freistadt Road
Landscaping and Snow Removal Business

Mr. Boehlke:

Village Staff has reviewed your conditional use permit (CUP) application submitted on January 6, 2021, and supporting materials for the landscaping and snow removal business currently being operated from the above cited property. Below are Staff's comments and outstanding items that you need to address. Please provide the requested information, corrections and/or revisions as soon as possible. As you know, there is an outstanding Code Violation Notice #2020-08-01 regarding the landscaping and snow removal business operating from this property without a permit and in violation of various sections of the Zoning Code. Your responses to the following items will enable staff to determine if your property and business is eligible for a CUP and, if so, when the application will be scheduled for review and consideration by the Plan Commission and Village Board. It is imperative, however, that you continue to cooperate with the Village regarding this CUP application process and in a timely manner. Doing so will enable us to defer enforcement action of that Code Violation Notice until a decision is made regarding the CUP.

Planning & Zoning

1. As discussed with you at the time the Code Violation Notice was issued, the current zoning of the 4-acre property is Rs-2: Single-Family Residential, and as a consequence, the only Zoning Code provision that would enable a business to operate from the property is the Village's Home Occupation provisions under Section 17.61 (copy attached). Further, given the nature of the business, the number of accessory buildings, the locations on the property where business activities occur, and the number of employees, the business cannot meet the definition of a "minor" home occupation. Therefore, if allowed as any type of home occupation, it would have to be found to qualify as a "major" home occupation and obtain a conditional use permit as such from the Village.
2. In my opinion as Zoning Administrator for the Village charged with interpreting and administering the Village's Zoning Code, I do not believe you/your business meets the requirements under the following sections of the Code. Please explain in detail how you feel you/your business complies with each of the following:
 - a. 17.61(2)(a) definition of "Home Occupation"

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
January 11, 2021

Page 2 of 4

- b. 17.61(4)(c) requiring the business owner/operator to reside in/on the residential property from which the home occupation is conducted (see also Comment #7 below).
 - c. 17.61(4)(d) requiring all activities associated with the business to not generate traffic, waste, noise, vibration, dust, etc. from the property beyond what is typical for a residential property in the zoning district and neighborhood within which it is located
 - d. 17.61(4)(f) requiring the dwelling, accessory structures and overall property to remain residential in character and appearance... and that there be no improvements that make the property appear or function similar to a commercial operation
 - e. 17.61(4)(h) requiring truck deliveries of supplies or products associated with a home occupation to be limited to the type of vehicles and pick-up/delivery hours that are typical and customary for residential dwellings and uses located in the zoning district within which the home occupation is located
 - f. 17.61(5)(b)1. requiring "major" home occupations to have all activities conducted within the dwelling or in an enclosed accessory building
 - g. 17.61(5)(b)2. Requiring a "major" home occupation to have any areas outside of the dwelling where materials, goods or equipment is kept to be an enclosed accessory building, or, be completely screened from view from public streets and adjacent property
 - h. 17.61(5)(b)3. Requiring "major" home occupations conducted in a Rs-2 Zoning District to have no more than two (2) non-resident employees
3. The plat of survey provided is insufficient in terms of presenting information about the where business activities are located and conducted on the property. Please revise the plat of survey or have an actual, detailed site plan prepared by a professional that clearly shows where on the property equipment, supplies, materials, etc. are kept; what activities are conducted in each of the buildings on the property; where business trucks, equipment, and employee vehicles are kept. Further, the Certified Survey Map (CSM) that created the 4-acre parcel contains a restriction that prohibits development in an area 80' x 225' in the southeast corner of the parcel. That needs to be shown on any site plan and any erosion control plan.
4. Your application indicates that the business provides landscaping and snow removal services. However, your website indicates that you provide the following services:
- a. Asphalt Crack Filling
 - b. Asphalt Maintenance
 - c. Asphalt New Construction & Patching
 - d. Asphalt Sealcoating
 - e. Stormwater Management

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
January 11, 2021

Page 3 of 4

- f. Concrete New Construction
- g. Concrete Repair, Removal & Replacement
- h. Landscaping Fertilization & Maintenance
- i. Hardscape Construction
- j. Mosquito Control
- k. Mulch Installation
- l. Snow Removal

Please confirm if your business does/does not provide each of these or any other services not listed above and describe in detail when each of these services are provide, what and how much equipment and employees are involved in providing each of these services; what percentage of your overall business each of these services comprises, the general periods of time and daily hours of operation when these services are provided.

5. Your comments regarding a previous contracting business being operated by the former owner, Clifford Ernst, are not supported by the Village's land use property files. However, since the previous owner of the property presumably operated said business prior to the Village approving a land division and rezoning that created the 4-acre parcel that you now own, the previous owner may have operated without any permits or approvals either because the property was 38-acres in size and zoned agricultural at that time and under a different set of zoning district regulations.

In 2006, when the rezoning and land division of the Ernst property was approved and the 34-acr parcel sold to MMSD, Village staff commented to the Plan Commission and Village Board that there was a concern with the large number of existing buildings (4 at that time as shown on CSM #6112) on a small 4-acre parcel. In fact, in an October 2, 2006 letter to the agent handling the rezoning and land division applications for the Ernst's and MMSD, staff indicated that the number of buildings left on the 4-acre parcel created a non-conforming situation for the property and that "...the use of such buildings for many agricultural and non-agricultural uses... may no longer be possible with the change in zoning and parcel size". From that day forward, my staff and I would have brought to anyone's attention who might have asked that the use of that property for ANY business purpose would likely not be allowed other than for a home occupation. The notion that you contacted the Planning Commission office (presumably you mean what was the Planning & Zoning Department back then) and were told you did not need to do anything to operate your business is simply not plausible.

6. The issue of you needing an erosion control permit as described in detail in the Stop Work Order issued along with Code Violation Notice #2020-08-01 has not been

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business

January 11, 2021

Page 4 of 4

resolved. The Village Engineer has indicated to me that this permit application will be handled separately from the CUP application. If he has not yet contacted you regarding the outstanding items needed to process the erosion control permit application, please contact Larry Ratayczak, Public Works Director/Village Engineer, to discuss your application.

7. On August 24, 2020, the day that the Code Violation Notice was issued for illegally operation the landscaping business without a permit (for which you are now applying), Village staff was made aware that the farmhouse on the property was actively being marketed as a rental home. However, on that same day you told me that you lived in the farmhouse but could not show me around inside (your offer) because you did not have a key. A day or so later that week the rental listings were removed and, presumably, the house no longer available for rent. Do you live in the farmhouse on the Freistadt Road property, or do you live in the residential dwelling at 3812 Sparrow Hawk Trail, Colgate WI, that is listed as your home address on the property tax statement issued by Washington County for the Freistadt Road property? (for each tax year such statements exist from 2009 through 2020).

Public Works/Village Engineer

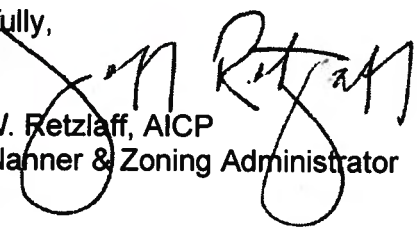
8. See Comment #6 above regarding the outstanding erosion control permit application.

Fire Department & Police Department

9. No comment.

Your responses to these items will enable staff to determine if your property and business is eligible for a CUP and, if so, when the application will be scheduled for review and consideration by the Plan Commission and Village Board. It is imperative, however, that you continue to cooperate with the Village regarding this CUP application process and in a timely manner. Doing so will enable us to defer enforcement action of that Code Violation Notice until a decision is made regarding the CUP.

Respectfully,


Jeffrey W. Retzlaff, AICP
Village Planner & Zoning Administrator

January 18, 2021

Jeffrey W. Retzlaff, AICP, Director
Village Planner & Zoning Administrator
Community Development Dept.
N112W17001 Mequon Road
PO Box 337
Germantown, WI 53022-0337

RE: Conditional Use Permit Application; N120 W13537 Freistadt Road
Landscaping and Snow Removal Business

Mr. Retzlaff:

Below please find responses to the questions and comments raised in your January 11, 2021 letter regarding the Conditional use permit, following the numbering of your letter. As identified in response to item 1 below, I believe my use is similar to other permitted conditional uses for the Rs-2 property and that provides a basis to allow for a CUP, in addition to just allowing for a major home occupation.

The application procedures for the Conditional Use Permit (which include major home occupations per 17.61(7)(d)) is subject to the Village Board discretion per 17.42 after review by the plan commission and after a public hearing with the Village Board. The Conditional Use Permit process allows for conditional uses and related structures if in accordance with the purpose and intent of the Zoning Code. Since I have been operating on the property without issue for the past 12 years, and the neighboring properties are either unoccupied or agricultural, I do not believe my use of the property for my business outside of the intent of the Zoning Code and it does not create any hazardous, harmful, or offensive adverse impact on the community.

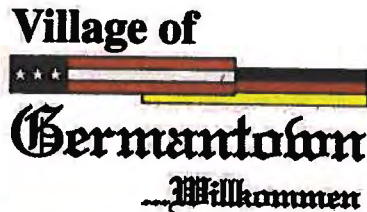
If you should need any additional information, please let me know.

1. The Zoning Code provisions include a number of conditional uses, in addition to the major home occupation that was identified, and which would be similar to what I have used the property for the past 12 years. The closest use would be the allowance for 17.15(2)(d), (e) and (h) which allow for transit and carpooling parking areas, golf courses with country club facilities, and archery/driving ranges. Like the transit parking areas, my use is primarily for parking of equipment for work to be performed off site, and the impacts are primarily coming and going from the property. Like golf courses and driving ranges, I have similar lawn and landscaping equipment, and materials such as mulch and topsoil stored on site. While these types of uses also allow for retail type sales or patrons visiting the business, my use is primarily storing equipment to be used offsite.
2. Home Occupation
 - a. The home occupation allows for business or trade to be conducted on a reoccurring basis from a residential dwelling or accessory building. My business operates from the pre-existing accessory buildings located on the property. I have owned the property since 2008 and have run the business from the property since that time. I do not

believe the residential character has changed, since there has not been a concern raised over those 12 years about my use of the property. The appearance has not changed, and I have made improvements to the overall appearance of the residence on the property.

- b. 17.61(4)(c) – I do occupy this property.
 - c. 17.61(4)(d) – The use of the property does not generate any more significant traffic, noise, dust, or other disturbance than what would be permitted for the conditional uses identified for golf courses/country clubs/driving ranges or transit/carpooling facilities. Those sites are of a transient type nature where patrons are coming and going from the property throughout business hours. My use primarily is for equipment loading in the morning and return at the end of the workday. The property has only one neighbor (to west), which is screened through trees and the buildings on the property. None of the equipment is stored in the front of the property and is shielded from view from the roadways. The driveway allows for ingress and egress without disturbance to the neighbor or other properties. The neighboring property is zoned agricultural, and is farmed, which creates dust and noise from those operations, generally more than the type of activities for my use.
 - d. 17.61(4)(f) – When I bought the property all of the structures were already built. I have not added on to any of the buildings or changed the look or appearance of the property. I have only upgraded the appearance of the farm house, by painting and re-roofing the house, and adding additional landscaping around the house. The only other alteration of the property was adding storage bins for materials, which are behind the accessory building on the west side of the property and shielded from the roadway and from the neighbors via trees. There has been no other change to the property to change the character or appearance.
 - e. 17.61(4)(h) – Similar to the uses allowed for golf courses/country clubs/driving ranges or transit/carpooling facilities, the only significant deliveries that are made to the property consisting of mulch, topsoil, road salt, and other similar landscaping materials. These deliveries are limited to approximately three times per month on average and are during regular daytime hours. These would be the same types of materials that would be delivered to a golf course or driving range. All other deliveries are via standard mail, or USPS/FedEx deliveries.
 - f. 17.61(5)(b)1. –The activities on the site primarily consist of office use. The other workers are loading equipment and then leaving the property to perform all work at off site location. Any maintenance or repair of equipment is performed in the pre-existing accessory buildings on the site.
 - g. 17.61(5)(b)(2) – All equipment not stored in the accessory buildings is stored behind the accessory buildings and with the trees/plants on the property, is screened from the roadway and neighboring property. The storage bin for materials is likewise screened. If there is a concern about additional screening to ensure during winter months once leaves have fallen, I would be happy to add additional evergreens to further screen any equipment that may be seen from a neighbor or the roadway. I have included pictures with the application that show what can be seen from the roadway.
 - h. 17.61(5)(b)3. – This section relates to those employees “working upon the premises” which other than myself, the only persons that work on the premises are two office employees. The other employees retrieve equipment and work off site.
3. I have emailed Anthony Gromacki to assist with this.

4. My business does perform the additional services below. Generally these services are performed during normal business hour 7am-7pm
 - a. Asphalt Crack Filling - 1% of business
 - b. Asphalt Maintenance – Included in other categories
 - c. Asphalt New Construction & Patching - - 10% of business
 - d. Asphalt Sealcoating - - 12% of business
 - e. Stormwater Management - - 0% of business
 - f. Concrete New Construction - - 15% of business
 - g. Concrete Repair, Removal, and Replacement - - 4% of business
 - h. Landscaping Fertilization & Maintenance - 10% of business
 - i. Hardscape construction - - 8% of business
 - j. Mosquito Control - - .5% of business
 - k. Mulch Installation - 7% of business
 - l. Snow Removal - - 15% of business – This is seasonal work performed during winter/snow months. Approximately 8 pieces of equipment and 12 employees perform this work.
5. It appears that the property was subject to nonconforming structures and nonconforming uses that predated the zoning ordinance change. I did not receive the October 2, 2006 letter you referenced, but it appears to suggest that while some uses for agricultural or nonagricultural use may be restricted with the zoning change, that there were other uses. Mr. Ernst did use the property for a contracting business. When I contacted the Village to inquire, I was told that I did not need additional permits to operate from the pre-existing structures on the property. Since I was told there was no required permit, I did not inquire further.
6. I have not been contacted by the Village Engineering regarding the grading permit. I have emailed Larry Ratayczak.
7. I do occupy this property.
8. I have not been contacted by the Village Engineering regarding the grading permit. I have emailed Larry Ratayczak.



Community Development Department

Jeffrey W. Retzlaff, AICP, Director

Village Planner & Zoning Administrator

N112 W17001 Mequon Road P.O. Box 337

Germantown, WI 53022-0337

Telephone: (262) 250-4735

FAX: (262) 253-8255

Website: www.village.germantown.wi.us

E-mail: jretzlaff@village.germantown.wi.us

February 8, 2021

J.R. Boehlke Inc.
N120 W13537 Freistadt Road
Germantown, WI 53022

Jason Boehlke
3812 Sparrow Hawk Trail
Colgate, WI 53017

COPY

RE: Conditional Use Permit Application; N120 W13537 Freistadt Road
2nd Review & Determination of Compliance with the Zoning Code

Mr. Boehlke:

I have reviewed your responses to the questions and issues raised by staff in the 1st review of your conditional use permit (CUP) application dated January 18. Below are my follow-up comments to your responses, and my determination I have made with respect to your CUP application. Another purpose for this letter is that it shall serve as the notice required under 17.52(4) of the Village Zoning Code that you have thirty (30) days after receipt of this letter to file an appeal of my determination to the Board of Zoning Appeals if you choose to do so. A further explanation of this process is provided below.

General Comments

Before I get to my responses to your specific comments provided in your January 18 letter, I would like to address the apparent premise underlying most of your responses in that letter. That premise appears to be that all you need to do in order to be "eligible" to apply for a conditional use permit is to compare your current business use of the property to other non-residential uses that may be allowed in the same Rs-2 Zoning District, and then, declare that the uses are the same or similar in one characteristic or another. This is a false premise.

The Village's Zoning Code falls into the category of traditional "district" based zoning codes that specify what land uses can be allowed into specific zoning districts vs. a "performance" based zoning code that determines what land uses are acceptable and what district they can go into based on a comparative analysis of the operational or performance characteristics of similar land uses. With that said, in the Village's Zoning Code and only in rare situations when or where a particular land use is not already classified into a particular zoning district, does a comparative analysis of operational characteristics play a role in determining whether that "unclassified" use can be allowed in a particular zoning district or not. This is not the case in your situation.

By your own admission in your January 18 response letter, you do not only provide landscaping and snow removal services. As shown in your breakdown of the types of services your business provides, you indicate that 50% of your business is conducting asphalt, concrete and hardscape construction & maintenance services, another 17.5% of

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
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the business conducting landscape fertilization, maintenance & mulch services, and another 15% of the business conducting snow removal services. Although there is another 17.5% of the business unaccounted for in your breakdown, it is fair to say that your business is both a pavement construction contracting business and a horticultural services business. Both of these types of businesses are classified uses specifically allowed in other zoning districts. For example: construction contracting services are allowed in the B-3: General Business District with a CUP, and horticultural services are allowed in the A-2: Agricultural District with a CUP.

For the sake of this discussion, let us assume that the additional 17.5% of your business involves services related to landscaping so that an equal amount or 50% of your business involves construction contracting services and the other 50% involves landscaping services. In that case, I would consider your business to be eligible to operate with a CUP in either the B-3: General Business (under construction contracting services) or the A-2: Agricultural District (under horticultural services). Regardless, your business would not be eligible to operate in the Rs-2: Single-Family District... or any other residential district... as a permitted or conditional use because construction contracting services and horticultural services are NOT land uses that are specified as being allowed in the Rs-2 District.

Which brings the discussion back to the question of whether or not your construction and landscaping business may be eligible to operate in an Rs-2 District as a "home-based" business allowed under 17.15(1)(b).

My initial reaction when I delivered the code violation notice to you last year and we discussed your business operation was that the only provision in the Zoning Code that could allow any business to operate from your property is the "home occupation" provisions under Section 17.61... and then only as a "major" home occupation given the apparent size and number of employees. Now, having had the opportunity to observe the business operation and review your CUP application and the supplemental information you provided in your January 18 response letter; I do not reach the same conclusion.

Based on my observations and the information you have provided, it is clear to me that you and your business operation do NOT meet the basic definition of a "home occupation" and do NOT meet other minimum requirements set out in 17.61 that are needed to be met in order to qualify as either a "minor" or "major" home occupation, including but not limited to the following:

1. The business is not being operated from the dwelling and the accessory buildings; it is only being operated from the accessory buildings and other areas on the property. The dwelling is vacant and, at the time the code violation was issued, the dwelling was being marketed as a rental unit.

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
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2. According to property tax records you do not reside in the dwelling on the property located at N120 W13537 Freistadt Road from which the business is operating. While you state that you occupy the property, that is not the same as "the owner/proprietor of a home occupation shall reside in the dwelling from which the home occupation is being conducted".
3. The number of nonresident employees working on the premises (you indicate 12-15) far exceeds the maximum number allowed (2) for a "major" home occupation in an Rs-2 Zoning District.

Determination

For these reasons, i.e., not meeting the definition of a "home occupation" and not meeting many of the general and specific requirements that need to be met in order to qualify as a "major" home occupation under Section 17.61 of the Zoning Code, I have determined that your CUP application cannot be accepted or processed any further. Also, as reflected by my specific comments set forth below, I have also determined that the CUP application remains incomplete.

With that said, I must point out that you are able to seek an administrative review of my decision by appealing to the Board of Zoning Appeals (BOZA) pursuant to Section 17.52(4) of the Zoning Code as repeated below:

APPEALS. Appeals of any administrative determination of the Zoning Administrator, the Building Inspector or the Plan Commission concerning the literal enforcement of this chapter and chapters 14 and 18 of this Code may be made by any person aggrieved or by any officer, department or board of the Village. Such appeals shall be filed with the Secretary within 30 days after receiving actual or constructive notice of the administrative decision or order or the granting of a permit by the Zoning Administrator, Building Inspector or Plan Commission. Such appeals and applications shall include the following: (a) name and address of the applicant; (b) what administrative determination is being appealed and the basis for the appeal.

To file an appeal, you will need to contact the Village Clerk for an appeal packet that contains the form and instructions on what to do, where to file, etc. Keep in mind that you have 30 days (total days not just business days) from the date you receive this letter and notice to file your appeal with the Village Clerk.

In the event you do not file an appeal of my determination within thirty (30) days, the original code violation notice (#2020-8-01) will be enforced and a municipal citation issued for said violation(s) after the 30-day appeal period explained above has expired.

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business

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Notwithstanding the general comments and conclusions made above, my specific comments in response to your January 18 letter are set forth below. If you file an appeal to the BOZA, and the BOZA rules to overturn my determination to NOT accept or process your application, you will have to complete your application in order for it to be reviewed and considered by the Plan Commission and Village Board (unless the BOZA also rules that your application is already complete).

With that in mind, you should consider the comments below and revise or supplement your application accordingly to make it complete. Please provide the requested information, corrections and/or revisions to Planning & Zoning as soon as possible. All additional information and documents provided will be made part of your file and available for review by the BOZA, Plan Commission and Village Board (when necessary).

Specific Comments (your statements are repeated in italics for context)

1. *The Zoning Code provisions include a number of conditional uses, in addition to the major home occupation that was identified, and which would be similar to what I have used the property for the past 12 years. The closest use would be the allowance for 17.15(2)(d), (e) and (h) which allow for transit and carpooling parking areas, golf courses with country club facilities, and archery/driving ranges. Like the transit parking areas, my use is primarily for parking of equipment for work to be performed off site, and the impacts are primarily coming and going from the property. Like golf courses and driving ranges, I have similar lawn and landscaping equipment, and materials such as mulch and topsoil stored on site. While these types of uses also allow for retail type sales or patrons visiting the business, my use is primarily storing equipment to be used offsite.*

STAFF COMMENT/RESPONSE:

See response under "General Comments" section above. Your premise that all you need to do in order to be "eligible" to apply for a conditional use permit is to compare your current business use of the property to other non-residential uses that may be allowed in the same Rs-2 Zoning District and then declare they are the same or similar in one characteristic or another is a false premise.

2. *Home Occupation*

- a. *The home occupation allows for business or trade to be conducted on a reoccurring basis from a residential dwelling or accessory building. My business operates from the pre-existing accessory buildings located on the property. I have owned the property since 2008 and have run the business from the property since that time. I do not believe the residential character has changed, since there has not been a concern raised over those 12 years*

about my use of the property. The appearance has not changed, and I have made improvements to the overall appearance of the residence on the property.

STAFF COMMENT/RESPONSE:

It is true that the appearance of the property is less like a typical residential property in an Rs-2 Zoning District because the property started out as a 60+ acre farm property with more existing accessory buildings than what is allowed in the Rs-2 District. As a result, all of the farm buildings were allowed to be kept on the 4-acre property that was split off from the larger farm property and are legally non-conforming. Nevertheless, the appearance has changed as your business has expanded, including the expansion of the large gravel parking and storage area in the rear of the property. Concrete barrier walls have been assembled to make "bins" for the storage of landscaping products used for the business.

b. 17.61(4)(c) – I do occupy this property.

STAFF COMMENT/RESPONSE:

See response under "General Comments" section above. According to property tax records you do not reside in the dwelling on the property located at N120 W13537 Freistadt Road from which the business is operating. While you state that you "occupy the property", that is not the same as residing (current tense) in the dwelling on the property (in this context "residing" is interpreted to mean "to live permanently and continuously"). If you lived in the house when the code violation notice was issued, and currently live there permanently and continuously, you are going to have to provide some evidence that proves that you did/do live there and not at your declared residence at 3812 Sparrow Hawk Trail, Colgate, WI.

c. 17.61(4)(d) – The use of the property does not generate any more significant traffic, noise, dust, or other disturbance than what would be permitted for the conditional uses identified for golf courses/country clubs/driving ranges or transit/carpooling facilities. Those sites are of a transient type nature where patrons are coming and going from the property throughout business hours. My use primarily is for equipment loading in the morning and return at the end of the workday. The property has only one neighbor (to west), which is screened through trees and the buildings on the property. None of the equipment is stored in the front of the property and is shielded from view from the roadways. The driveway allows for ingress and egress without disturbance to the neighbor or other properties. The neighboring property is zoned

Jason Boehlke

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agricultural, and is farmed, which creates dust and noise from those operations, generally more than the type of activities for my use.

STAFF COMMENT/RESPONSE:

Comparing the amount of traffic, noise, dust and other disturbances from your current business operation to that which could be generated from other non-residential and agricultural land uses is NOT the criteria or standard under 17.61(4)(d). The correct standard is:

"Activities associated with a home occupation shall not generate any traffic, parking, solid or liquid waste, water consumption, noise, vibrations, smoke, dust, odor, heat, glare, disturbance or interference with the provision of electrical, television or other utility services, or create any safety hazards exceeding those which are typically and customarily produced by and/or associated with a residential dwelling and residential uses in the zoning district and surrounding neighborhood within which the subject property and home occupation is located."

There is no golf course, country club, driving range, or transit carpooling facility in your neighborhood; only residential dwellings or farms that likely do not generate anywhere as much traffic, noise, dust, etc. as your business.

-
- d. 17.61(4)(f) – When I bought the property all of the structures were already built. I have not added on to any of the buildings or changed the look or appearance of the property. I have only upgraded the appearance of the farm house, by painting and re-roofing the house, and adding additional landscaping around the house. The only other alteration of the property was adding storage bins for materials, which are behind the accessory building on the west side of the property and shielded from the roadway and from the neighbors via trees. There has been no other change to the property to change the character or appearance.

STAFF COMMENT/RESPONSE:

As stated above, it is true that the appearance of the property is less like a typical residential property in an Rs-2 Zoning District because the property started out that way when you acquired it and, other than the expansion of the large gravel parking area, installation of the concrete storage bins and the accumulation of trucks and equipment parked on the property (some of which appears to be inoperable junk), nothing has been done to make the property look any less residential.

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
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- e. 17.61(4)(h) – Similar to the uses allowed for golf courses/country clubs/driving ranges or transit/carpooling facilities, the only significant deliveries that are made to the property consisting of mulch, topsoil, road salt, and other similar landscaping materials. These deliveries are limited to approximately three times per month on average and are during regular daytime hours. These would be the same types of materials that would be delivered to a golf course or driving range. All other deliveries are via standard mail, or USPS/FedEx deliveries.

STAFF COMMENT/RESPONSE:

Comparing the number of deliveries to your business operation to that which could be generated to other non-residential land uses is NOT the criteria or standard under 17.61(4)(h). The correct standard is:

"Truck deliveries or pick-up of supplies or products associated with a home occupation shall be limited to the type of vehicles and pick-up/delivery hours that are typical and customary for residential dwellings and uses located in the zoning district within which the home occupation is located."

There is no golf course, country club, driving range, or transit carpooling facility in your neighborhood; only residential dwellings or farms that likely do not generate anywhere as many truck deliveries of supplies as your business.

-
- f. 17.61(5)(b)1. –The activities on the site primarily consist of office use. The other workers are loading equipment and then leaving the property to perform all work at off-site location. Any maintenance or repair of equipment is performed in the pre-existing accessory buildings on the site.

STAFF COMMENT/RESPONSE:

It has been reported by Fire Department staff and other Village staff who have visited the property that landscaping debris, e.g. brush, tree stumps & logs, has been brought in bulk to the property for "disposal", i.e. either to be burned or stored on the property. The standard under 17.61(5)(b)1. is:

"Activities associated with a home occupation shall be conducted entirely within the residential dwelling and/or in an enclosed accessory building or structure."

Burning brush and tree limbs imported to the property as part of the business operation for burning does not meet the standard (nor is it allowed under the Village's burning regulations).

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
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- g. 17.61(5)(b)(2) – All equipment not stored in the accessory buildings is stored behind the accessory buildings and with the trees/plants on the property, is screened from the roadway and neighboring property. The storage bin for materials is likewise screened. If there is a concern about additional screening to ensure during winter months once leaves have fallen, I would be happy to add additional evergreens to further screen any equipment that may be seen from a neighbor or the roadway. I have included pictures with the application that show what can be seen from the roadway.

STAFF COMMENT/RESPONSE:

In the event that your business is allowed to continue to operate from this property, you will likely be required to install addition screening through berming, landscaping or both as you have proposed pursuant to a detailed landscaping and grading plan reviewed and approved by the Village.

-
- h. 17.61(5)(b)3. – This section relates to those employees “working upon the premises” which other than myself, the only persons that work on the premises are two office employees. The other employees retrieve equipment and work off site.

STAFF COMMENT/RESPONSE:

The intent of the limitation on the number of non-resident employees working on the premises is to effectively, if not indirectly, limit the size and intensity of a business operating as a home-based occupation. It is presumed that, as a business grows in terms of customers, sales or services, the number of employees will increase, too. The Village’s home-occupation are intended to allow home occupations that are “accessory and subordinate to the primary residential use of the property” and are “conducted in a manner that is compatible with the residential premise and district within such residential premise is located”. Saying that all but 2 of your 15 employees work elsewhere after coming to the property to pick up their work trucks, equipment, and supplies and, therefore, do not work on the property is a “distinction without a difference”. Your business has grown to a point that it is NOT an accessory use that is subordinate to the primary residential use. In fact, there is no residential use of the property since you do not reside in the house on the property.

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

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3. I have emailed Anthony Gromacki to assist with this.

STAFF COMMENT/RESPONSE:

Please have Gromacki contact me if there are question about what needs to be shown on the plat of survey or site plan. As indicated to you, that plan needs to accurately present scaled information about the where business activities are located and conducted on the property. The plan should be prepared by a professional that clearly shows where on the property equipment, supplies, materials, etc. are kept; what activities are conducted in each of the buildings on the property; where business trucks, equipment, and employee vehicles are kept. Also, the legally recorded Certified Survey Map (CSM) that created the 4-acre parcel contains a restriction that prohibits development in an area 80' x 225' in the southeast corner of the parcel. That needs to be show on any site plan and any erosion control plan.

-
4. My business does perform the additional services below. Generally these services are performed during normal business hour 7am-7pm
- a. Asphalt Crack Filling - 1% of business
 - b. Asphalt Maintenance – Included in other categories
 - c. Asphalt New Construction & Patching - - 10% of business
 - d. Asphalt Sealcoating - - 12% of business
 - e. Stormwater Management - - 0% of business
 - f. Concrete New Construction - - 15% of business
 - g. Concrete Repair, Removal, and Replacement - - 4% of business
 - h. Landscaping Fertilization & Maintenance - 10% of business
 - i. Hardscape construction - - 8% of business
 - j. Mosquito Control - - .5% of business
 - k. Mulch Installation - 7% of business
 - l. Snow Removal - - 15% of business – This is seasonal work performed during winter/snow months. Approximately 8 pieces of equipment and 12 employees perform this work.

STAFF COMMENT/RESPONSE:

So noted. This information will be included in your application. However, please be advised that there is another 17.5% of business activities not listed and unaccounted for in your "percentage-of-business" breakdown above. Can we assume that the remaining 17.5% is equally distributed to the other business activities listed, or are there other business activities not included in the list that should be? This should be corrected.

Jason Boehlke

J.R. Boehlke Inc. N120 W13537 Freistadt Road

RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
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5. It appears that the property was subject to nonconforming structures and nonconforming uses that predated the zoning ordinance change. I did not receive the October 2, 2006 letter you referenced, but it appears to suggest that while some uses for agricultural or nonagricultural use may be restricted with the zoning change, that there were other uses. Mr. Ernst did use the property for a contracting business. When I contacted the Village to inquire, I was told that I did not need additional permits to operate from the pre-existing structures on the property. Since I was told there was no required permit, I did not inquire further.

STAFF COMMENT/RESPONSE:

Yes, as indicated above, the land division that created your 4-acre parcel resulted in a non-conforming situation in terms of the number and total area of accessory buildings allowed on a property in an Rs-2 District. While I would not expect that you would have been given a copy of the October 2, 2006 staff letter or the staff report given to the Village Plan Commission and Board that outlined the inherent problems of creating a non-conforming situation in this case, you are ultimately responsible for doing whatever due diligence may be needed to determine what you can/cannot use your property for and what permits and approvals may be required.

While you indicate you contacted the Village and were told you "did not need additional permits to operate from the pre-existing structures on the property", you do not indicate when that contact was made, to whom at the Village you spoke to, what you told whomever it was you spoke to what your intention was with respect to the use of the accessory buildings and property, etc.

As I mentioned previously, my staff and I were concerned about the non-conforming status of these buildings from the time the land was divided. So much so that I wrote the October 2, 2006 letter to the real estate agent handling the rezoning and land division for the previous owner indicating that the number of buildings left on the 4-acre parcel created a non-conforming situation for the property and that "...the use of such buildings for many agricultural and non-agricultural uses...may no longer be possible with the change in zoning and parcel size".

From that day forward, my staff and I would have brought to anyone's attention who might have asked that the use of that property for ANY business purpose would likely not be allowed, AND, that any such use would likely require a permit or approval of some type. The notion that you contacted the Village and were told you did not need a permit is simply not plausible.

Jason Boehlke
J.R. Boehlke Inc. N120 W13537 Freistadt Road
RE: Conditional Use Permit Application for Landscaping and Snow Removal Business
January 11, 2021
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6. I have not been contacted by the Village Engineering regarding the grading permit. I have emailed Larry Ratayczak.

STAFF COMMENT/RESPONSE:

You need to have your engineer/surveyor contact the Village Engineer regarding the erosion control permit application. It is your responsibility to see that your application is complete and the permit issue in order to avoid further enforcement of the code violation notice and stop work order issued because of the illegal filling & grading already conducted on the property.

7. I do occupy this property.

STAFF COMMENT/RESPONSE:

See response under "General Comments" section above. According to property tax records you do not reside in the dwelling on the property located at N120 W13537 Freistadt Road from which the business is operating. While you state that you "occupy the property", that is not the same as residing (current tense) in the dwelling on the property (in this context "residing" is interpreted to mean "to live permanently and continuously"). If you lived in the house when the code violation notice was issued, and, currently live there permanently and continuously, you are going to have to provide some evidence that proves that you did/do live there and not at your declared residence at 3812 Sparrow Hawk Trail, Colgate, WI.

8. I have not been contacted by the Village Engineering regarding the grading permit. I have emailed Larry Ratayczak.

STAFF COMMENT/RESPONSE:

You need to have your engineer/surveyor contact the Village Engineer regarding the erosion control permit application. It is your responsibility to see that your application is complete and the permit issue in order to avoid further enforcement of the code violation notice and stop work order issued because of the illegal filling & grading already conducted on the property.

It is imperative that you continue to cooperate with the Village regarding this matter in a timely manner. Thank you for your cooperation and quick response to date.

Respectfully,


Jeffrey W. Retzlaff, AICP
Village Planner & Zoning Administrator

Copies:
Brian Sajdak, Village Attorney
Deanna Braunschweig, Village Clerk



Village of
★★★
Germantown
Willkommen

Planning Department

Jeffrey W. Retzlaff, AICP
Village Planner & Zoning Administrator
N112 W17001 Mequon Road P.O. Box 337
Germantown, WI 53022-0337
(262) 250-4735 *direct line*
(262) 253-8255 *fax*

October 2, 2006

Janis Zimmermann
Milwaukee Metro Sewerage District
260 W. Seeboth Street
Milwaukee, WI 53204

copy

RE: 38.7-Ac Ernst Property; N120 W13537 Freistadt Road
CSM and Rezoning Applications

Ms. Zimmermann:

Village staff has reviewed the MMSD/Ernst survey map and rezoning applications for the above cite property. We have identified the following items/issues that will need to be addressed prior to scheduling your application for consideration by the Plan Commission. Please provide the requested information, corrections, revisions, etc. and/or document how the issue(s) discussed will be addressed in support of your application.

Once submitted, Village staff will conduct a follow-up review of the additional information provided and determine if/when your application will be scheduled on the next available Plan Commission agenda. The next available Plan Commission agenda is November 13 with an October 16 deadline for submitting a complete application.

The various site and/or building plan items/issues that need to be addressed include:

1. Additional right-of-way for Freistadt Road totaling 60 feet south of the centerline is required to comply with the Village's ultimate right-of-way requirements.
2. All wetlands, stream and shoreland areas need to be delineated, mapped and shown on the CSM. Wetland, stream and shoreland setbacks will also need to be shown.
3. The well and septic system locations on proposed Lot 1 need to be shown on the CSM.
4. The lot length-to-width ratio for proposed Lot 1 is slightly greater than the recommended 2:1 ratio. Given the need for additional right-of-way, and, the possible location of wetlands at the southeast corner of proposed Lot 1 may justify not meeting the recommended ratio. Is it the owners desire to keep as much or all of the wetlands on proposed Lot 2?
5. The number and area of the existing barn and multiple sheds is a concern for the relatively small Lot 1. The maximum detached accessory storage building allowance is 1,400 SF for a parcel in the RS-2 District. While the size/dimensions for the 4 detached buildings is not shown, it appears that the 4 buildings have approximately 8,000 SF of total area; well in

excess of the 1,400 SF maximum allowed. As a result, we would be creating a legal non-conforming situation with respect to the detached accessory buildings. While not necessarily a problem today, future additions to and/or the replacement of any of the buildings would not be allowed. The owners need to be advised that the use of such buildings for many ag and non-ag uses alike may no longer be possible with the change in zoning and parcel size.

Please submit twenty-six (26) copies of the additional information to the Planning Department. Complete information, plan revisions, etc. addressing the issues listed above will help avoid further delay in the review and processing of your application.

Please contact me if you have any questions or concerns at (262) 250-4735 or by e-mail at jretzlaff@village.germantown.wi.us.

Respectfully,



Jeffrey W. Retzlaff, AICP
Village Planner & Zoning Administrator

xc: Susan Ernst, Property Owner
File

REZONING & CONDITIONAL USE PERMIT (CUP) APPLICATIONS & SITE PLAN REVIEW

4/12/21 Plan Commission Meeting

Taco Bell Restaurant / Sundance Inc.

Village Planner Report

Germantown, Wisconsin

Summary

Sundance Inc., agent for Marshall Peebles, property owner has submitted rezoning and Conditional Use Permit (CUP) applications and site development and building plans for redevelopment of the existing multi-tenant retail building located at N96 W18058 County Line Road with a new Taco Bell restaurant (relocating from the current site ¼ mile east on County Line Road).

Property Location: N96 W18058 County Line Road

Applicant/

Property Owners:

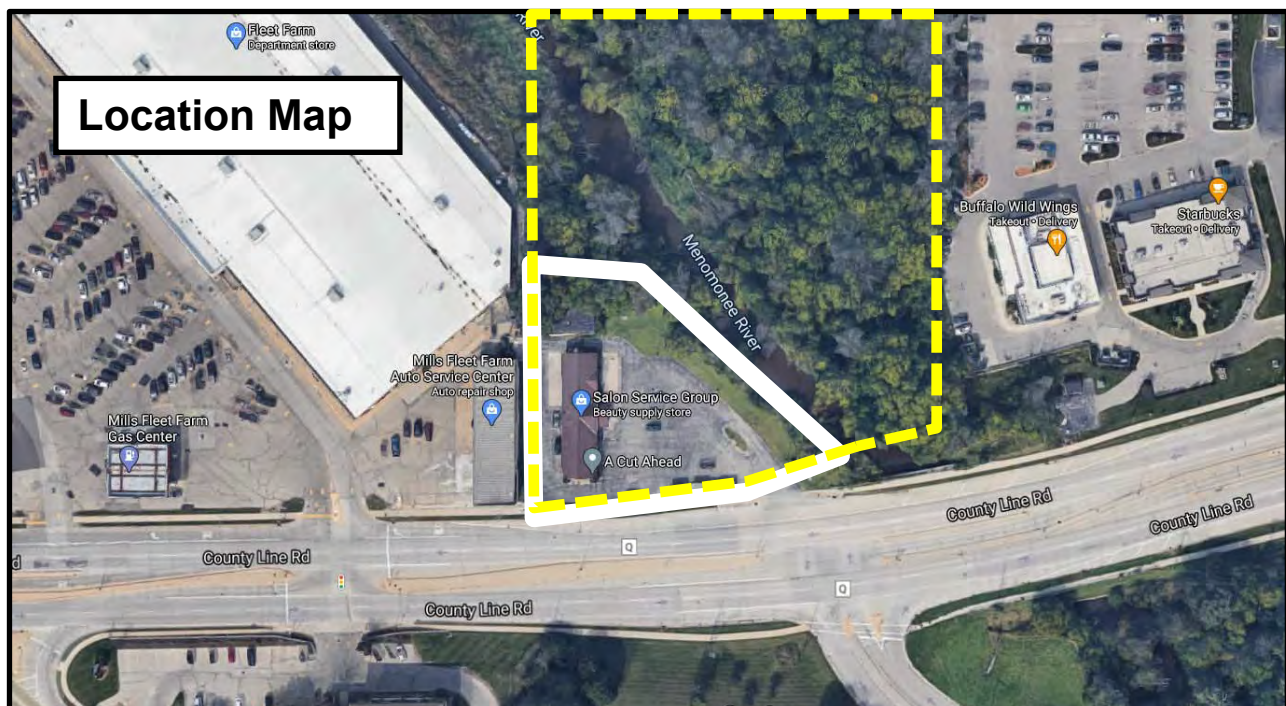
Tim Krause
Sundance Inc.
7915 Kensington Ct
Brighton, MI

Marshall Peebles
P.O. Box 105
Butler, WI

Current Zoning: B-1: Neighborhood Business

Proposed Zoning: B-5: Highway Business

Adjacent Land Uses		Zoning
North	Open Space (former golf course)	I
South	Commercial (Meno Falls)	N/A
East	Commercial (Buffalo Wild Wings)	B-5/PDD
West	Commercial (Fleet Farm)	B-3



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Proposal

Sundance Inc., agent for Marshall Peebles, property owner has submitted rezoning and Conditional Use Permit (CUP) applications and site development and building plans for redevelopment of the existing multi-tenant retail building located at N96 W18058 County Line Road with a new “quick serve” Taco Bell sit-down and drive-through restaurant (which will be relocating from the current location ¼-mile east of this parcel on County Line Road).

Rezoning Application

The subject parcel is 4.91 acres straddling both sides of the Menomonee River. However, only about 1.1 acres lies west of the river with .83 acres proposed to be disturbed by the redevelopment. The entire parcel is currently zoned B-1: Neighborhood Business and contains a 3,925 sqft multi-tenant retail center and a 1,200 sqft detached accessory storage building. Because the proposed Taco Bell restaurant caters to both local and highway-oriented traffic and requires a drive-through facility, the owner is proposing to rezone the property from the B-1 District to the B-5: Highway Business District.

Conditional Use Permit (CUP)

The parcel abuts the Menomonee River and contains both wetlands and floodplain along the west side of the river (see civil sheets C1.0 to C1.3). Re-development activities are affected by both the 25’ wetland and 75’ navigable waterway setback boundaries. While no actual development is proposed (nor allowed) in any part of the wetland or floodplain, development disturbance will encroach into the 75’ navigable waterway setback area, and, into the 25’ wetland setback area. All of the disturbed area will be subject to minimal filling and/or grading with portions of the paved parking lot, drive-through lane, and dumpster pad & enclosure proposed within the 75’ waterway setback.

Under the Village’s Shoreland-Wetland Code, development may be permitted within a 75’ waterway setback provided that additional buffering and/or other compensation for the affected area is provided on the property. The ratio of compensation required is based on a 1:1 ratio for any “horizontal” development (grading with <3’ of elevation change) or a 2:1 ratio for “vertical” development (any structural improvements or grading with >3’ of elevation change).

As presented in the Applicant’s Stormwater, Erosion Control & Wetland Setback Mitigation Narrative (SEE Appendix D dated February 22, 2021), approximately 690 sqft of 25’ wetland setback will be disturbed and 12,710 sqft of navigable waterway setback for a total of 13,400, sqft of disturbed area. As compensation for the disturbance, the developer proposes to install a 2,150 sqft vegetated filter between the parking lot and river, and, remove 12,900 sqft of invasive species from the wetland area on the north side of the re-developed area (see Exhibit A).

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Site Development & Building Plans

Detailed site development and building plans have been prepared for the proposed 1,786 sqft building and site redevelopment. As detailed in the plans, the following improvements are proposed:

Site Improvements

- Sawcut, remove and replace all existing asphalt parking and drives; demo and remove both buildings, existing utilities, light poles and signs;
- Install new curbing, asphalt driveway, drive-through lanes and parking area w/ 22 parking stalls; install new exterior light poles & fixtures;
- Install new sanitary sewer and water laterals from County Line Road to the new 1,786 sqft. building;
- Install on-site storm sewer and swales draining to vegetated filter strip along west side of the river (east side of property);
- Install new landscaped areas along the south property line and plantings around the north & south side of the building, driveway entrance, dumpster enclosure;
- The one (1) existing driveway will be re-constructed in the same location; the existing monument sign will be replaced in the same location at the driveway entrance

Building Improvements

- 1,786 sqft single-story building w/ flat roof w/ parapet walls to hide roof-mounted mechanicals and served by a single drive-through service lane and outdoor dining patio w/ railing;
- Brick veneer in multiple earth-tone colors comprise the majority of the exterior finishes with pre-finished rust wall panels on the corner tower feature; brightly colored art panels are proposed to be installed on the east (entrance) and west (drive-through) elevations;
- aluminum storefront window systems throughout

Storm Water Management. Total impervious area will be reduced by 3,034 sqft to 24,874 sqft or 68.5% of the .83-acre disturbed area on the site (12% of the entire 4.91 ac parcel). The proposed site development will match the existing drainage patterns by draining toward the Menomonee River via sheet drainage and storm sewer.

Because less than 1-acre of disturbance is proposed and the total impervious area is being reduced, the re-development is exempt from MMSD Chapter 13 post-construction surface3 water & storm water run-off requirements. However, as indicated in the Applicant's Stormwater, Erosion Control & Wetland Setback Mitigation Narrative (revision dated February 22, 2021) "...*Best Management Practices (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.*"

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Landscaping & Buffering. Landscaping is proposed in select areas around the site along the south property line abutting County Line Road, integrated into and around the parking lot, and around the dumpster enclosure. Plantings include deciduous trees, ornamental trees, evergreen trees, deciduous shrubs and turf grass. Street trees along County Line Road are also proposed (see Sheet C1.4). An existing retaining wall and split-rail fence will be retained abutting County Line Road.

Lighting. Exterior lighting of the site and building includes:

- (2) 36W LED wall pack and sconce building-mounted on the west (drive-through) and east (entrance) elevations;
- (4) 182W 48 LED 400k (warm white) cut-off style, pole-mounted fixtures mounted on a 22' pole and 3' base (25' total height) in the parking and drive-through

Signage. Details for any proposed wall and monument signs will be provided as part of a separate and future sign permit application. *NOTE: The Applicant proposes to install brightly colored, decorative art panels on the east and west elevations w/ minimal down lighting. Provided these panels are not used for advertising, they can be considered part of the exterior finishes (vs. additional signage).*

Staff Comments

Community Development: Planning & Zoning

The proposed rezoning of the entire property to B-5: Highway Business is consistent with the "Commercial" classification of the parcel on the 2020 Land Use Plan map. However, Staff has raised a number of concerns with the proposed re-development (see attached November 25 and January 19 review memos) that may suggest that rezoning this particular to the B-5 District may not be suitable for this particular property.

Staff concerns fall into the following categories:

- Traffic Impacts
- Site Distance
- Traffic Circulation

NOTE: This segment of County Line Road falls under the jurisdiction of Washington County. The Washington County Highway Commissioner expressed similar concerns and required a detailed traffic impact analysis (TIA) for the proposed Taco Bell re-development proposal. The TIA has now been completed and reviewed by Washington County and Village staff. The TIA, staff review comments and responses from the developer and their traffic consultant, Traffic Analysis & Design, Inc. (TADI) are included in the packet.

Traffic Impacts

As indicated in the TIA, the proposed Taco Bell is expected to generate a significantly larger amount of traffic than the existing multi-tenant building. Existing traffic from the multi-tenant retail center is approximately 20 trips (10 in/10 out) during a typical weekday peak-hour (4:30-5:30pm). Assuming 10% of the total trips per day are

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generated in a typical weekday peak-hour, the total number of trips is estimated to be 200 trips per day.

The Taco Bell is expected to generate 90 trips (45 in/45 out) during a typical weekday mid-day peak-hour (12 noon to 1:00pm) and 840 total trips per day (420 in/420 out) on a typical weekday. The TIA assumes that only 50% of total trips are “new” trips and the other 50% are trips coming from traffic already “passing by” on County Line Road. Based on these assumptions, traffic generated from re-development of the site with a new Taco Bell restaurant is expected to increase traffic 125% in the peak-hour and 110% over the course of a typical weekday.

The TIA measures the impact of new Taco Bell traffic on the “level of service” of the adjacent road system in terms of additional delay created at the driveway intersection with County Line Road (which also has Shady Lane entering from the south). This intersection is a “full-movement” intersection with separate left-turn lanes and no signal control; only stop sign control on the Shady Lane approach (south) and the Taco Bell driveway approach (north). The County Line Road approaches to the intersection (east and west) are uncontrolled.

One of the primary assumptions in the TIA is that all traffic generated from Taco Bell will travel to/from the site via County Line Road; no traffic is assumed to enter from or leave to Shady Lane (to the south). According to the TIA, existing traffic conditions in 2020 are acceptable with only the Shady Lane (northbound) left-turn operating at a Level of Service (LOS) “D”; the delay experienced by drivers at all of the other intersection approaches is operating at an LOS “C” or better (see Exhibit 3-3).

NOTE: The Village of Germantown nor Washington County has not officially adopted a minimum acceptable “Level of Service”. Nonetheless, standard traffic analysis practice for TIA’s conducted in the WisDOT southeast region is to accept LOS “D” as the minimum acceptable LOS, where LOS “E” and LOS “F” are deemed unacceptable.

The TIA analyzed “future” traffic conditions with additional traffic generated from Taco Bell in the year 2021 only; based on the assumption that the restaurant would be operational in 2021. The TIA concludes that traffic conditions in 2021 will be acceptable at the County Line Road intersection with only the Shady Lane (south) approach continuing to operating at LOS “D” (see Exhibit 5-1).

However, it should be pointed out that, in a supplemental “sensitivity analysis” prepared by TADI at the request of Village staff, based on an assumption that SOME traffic will travel to/from Shady Lane to the south (5 trips in the peak-hour was assumed), the LOS for the Shady Lane approach decreased from LOS “D” to LOS “E” in the same year 2021 (see TADI’s February 22, 2021 “Taco Bell Sensitivity Analysis” memo). Ironically, this same “sensitivity analysis” that reveals different results in the first year with one small change in the directional distribution of traffic to the site, goes on to project traffic conditions 56 years into the future using the same background traffic assumption used in the initial TIA that traffic along County Line Road will not increase more than .5% (.005) per year. As useless as a traffic analysis might be projecting traffic conditions 56

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years into the future, this would likely explain why this same Shady Lane approach doesn't fall below LOS "F" until 2043 (23 years into the future) and no other approach at this intersection doesn't fall below LOS "D" until the year 2059 (38 years in the future!).

Staff's opinion is that it is unreasonable to assume that no traffic traveling to/from the new Taco Bell will come from/go to the south on Shady Lane. The supplemental sensitivity analysis shows that, assuming even a small amount of traffic will travel to/from the south, will reduce the LOS on at least one approach (Shady Lane) at this intersection below an acceptable level.

The historical crash statistics for this intersection cited in the TIA indicate that there have been nine (9) property damage-only crashes in the last 5 years (a crash rate of .17 of crashes per million vehicles vs. the average rate of .88 per million vehicles. One factor cited in the TIA that may have contributed to these crashes is *"...motorists poorly judging gaps in traffic or accepting smaller gaps than necessary to safely cross"*.

Unfortunately, the more typical approach to improving LOS conditions or reducing vehicle crashes at an uncontrolled intersection like this (i.e. signalization), is not a viable option in this situation. Both TADI and Washington County agree that this intersection is too close to the signalized intersection at the Fleet Farm driveway only 400 feet to the west. Consequently, the options are somewhat limited to improve the intersection LOS by either modifying the number of lanes or, more likely, restricting specific turning movements for traffic entering the intersection (e.g. no northbound left-turns from Shady Lane, no eastbound left-turns into Taco Bell from County Line Road, etc).

In the course of discussing this issue with TADI and the developer, the Washington County Highway Commissioner, Scott Schmidt, indicated that the costs incurred to make any intersection modifications deemed necessary by Washington County to improve the intersection LOS, reduce vehicle crashes or make other safety enhancements (e.g. raised medians to restrict turning movements) that can be attributable to Taco Bell traffic will have to be the responsibility of Taco Bell. The developer has agreed in concept to this requirement and has expressed their willingness to enter into an agreement with Washington County and the Village (if necessary).

Sight Distance

The TIA (Section V and Exhibits 5-2a, 5-2b & 5-2c) goes through a rather elaborate process of analyzing intersection sight distance from and stopping distance to the Taco Bell driveway looking east along County Line Road. Anyone who has visited this property knows that trying to make a left turn onto County Line Road (or trying to go straight across to Shady Lane) is a difficult maneuver even under the best conditions. Contributing factors include:

- limited sight distance to see oncoming traffic because of the curve in the road;
- the railing on the north side of the bridge over the Menomonee River that blocks the view looking down County Line Road;

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- the trees and other vegetation that grows north of the bridge that also blocks the view;
- the volume of traffic, travel speed and resulting inadequate “gaps” in the westbound traffic stream available to pull out into safely; and
- left-turning vehicles in the intersection median waiting to turn from County Line Road onto Shady Lane to get to Kohl's, Target or beyond.

The TIA details what the “minimum” required AND “desirable” sight and stopping distances that are required to be met when looking down the road from the Taco Bell driveway (sight distance) and when approaching the driveway from the west (stopping distance). As noted therein, the distances are different for passenger vehicles such as sedan-type cars, SUV's and pick-up trucks (referred to as “PV”) and larger single-unit trucks such as UPS & FedEx trucks and utility trucks (referred to as “SV”).

In Chapter VI the TIA indicates that the following “minimum” and “desirable” sight distances are needed at the Taco Bell driveway (see Exhibits 1-3, 5-2a, 5-2b, and 5-2c and Appendix A):

VEHICLE TYPE	Minimum	Desirable
PV (cars, SUV's, pick-up trucks)	415 feet	500 feet
SU (UPS, FedEx, Utility trucks)	540 feet	630 feet

It's important to note the following:

1. the TIA indicates that just the “minimum” sight distances can be met, but NOT the desirable distances; and
2. these distances assume that a 14.5' setback distance from the travel lane to the eye of the driver is provided, but in this situation the eye-to-travel lane setback is only 8 feet.

Further, and more importantly, the TIA indicates that the sight distances listed above can only be met if all the following improvements are made (again see Exhibits 1-3, 5-2a, 5-2b, and 5-2c):

1. Remove trees and other vegetation growing into and around the fence/guardrail on the north side of the bridge over the Menomonee River;
2. Move the west end of fence/guardrail on the north side of the bridge further north;
3. Re-construct and shift the existing curb line on both sides of the Taco Bell driveway and west of the bridge a distance of 5 to 6 feet to the south (to provide the 8 feet eye-to-travel lane distance without drivers having to inch out into the outer travel lane just to see down the road)

The Washington County Highway Commissioner has agreed in concept with these improvements provided that the property owner is solely responsible for the costs associated with preparing the detailed construction plans and making these improvements (as well as maintaining the vegetation on what is arguably the property owners land on both sides of the river north of the bridge).

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Traffic Circulation

In addition to the TIA, the developer has provided turning movement diagrams (see Sheet “TT”) that shows the outer limits of how a particular sized truck would track within the site assuming it needed to come onto the property. Turning movement diagrams are provided for a “Fire Truck”, a “Delivery Truck” and a “Garbage Truck”.

The diagrams generally indicate that the fire and garbage trucks could navigate within and through the site in a single, forward-moving path, but just barely and assuming that there are few if any other vehicles parked in the stalls within the site. The delivery truck diagram tells a different story. Similarly, the delivery truck diagram indicates that it could navigate within the site in a single, forward-moving path, but not without traveling over the dumpster pad, through or over the main bank of parking stalls, jumping a raised median planting area (albeit the curb is planned to be a mountable curb in anticipation of delivery trucks driving over it), and likely rubbing up against the inside of the retaining wall along the south property line. The diagram also assumes that there are NO vehicles in the main parking stalls and that the delivery truck enters the site from the east and leaves the site heading back to the east.

Although the developer indicates that all deliveries will be made “after hours” when, presumably no other cars are in the affected parking stalls, both Village and County staff are concerned that such a small, restrictive site layout combined with the likelihood of deliveries during business hours (despite Taco Bell’s best intended “after hours only” delivery policy) will result in some delivery trucks simply parking in the outermost auxiliary lane on County Line Road with packages hand-trucked into the building via the sidewalk that is proposed in the front of the store from the existing sidewalk on County Line Road into the site. Although the outer auxiliary lane is currently marked as “no parking” and intended for use as a right-turn only lane and not for through traffic, Washington County projects that someday all three lanes on County Line Road in this location will need to be used for through traffic with “no parking” allowed under any circumstances. Unfortunately, the .83-acre “buildable” site area west of the river has physical site limitations that impact the type and size of what buildings and facilities can be developed on this property while also accommodating and/or providing adequate space for safe access and on-site circulation needed for patrons, deliveries, garbage and other services, emergency vehicles.

Staff supports the CUP and proposed setback compensation plan set forth in the Applicant’s Stormwater, Erosion Control & Wetland Setback Mitigation Narrative (SEE Appendix D dated February 22, 2021). Although the proposed development does encroach into the setback areas, the amount of said encroachment is less than that of the pre-existing development. Compensation in the form of a 2,150 sqft vegetated filter strip between the parking lot and river and removal of invasive species from a 12,900 sqft portion of the wetland area north of the development area is adequate.

However, success of the filter strip plantings and removal of invasive species can only be determined if monitoring of the actions taken. Consequently, the owner should be required to prepare and submit an annual monitoring report to the Village documenting all management activities, the success of the management activities and any corrective

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actions needed to ensure success of the mitigation plan for a minimum of three (3) years after initial implementation.

Building Architecture & Materials

As presented in the building elevations, the proposed building is a basic rectangular box constructed with brick veneer in two shades of light and dark gray (see Sheet A4.3 and renderings). Two tower-like elements are proposed at the southwest and northeast corners of the building and are comprised on metal panels with a rustic weathered appearance. Artwork panels are proposed on the west and east elevations; presumably to break up the monotony of the flat walls and gray color scheme.

The architecture is plain and uninspiring. Moreover, apart from the tower features, articulation is proposed only in the orientation of the face brick and subtle changes in color. The difference in the light and dark gray color scheme appears more dramatic on paper than it does/will in reality. Another Taco Bell re-development project using the same building design and materials was recently completed on STH 33 in West Bend (west of USH 45). Photos of this location will be presented at the April 12 PC meeting and will give members a rare comparison of what is shown in the plans and relatively unrealistic renderings to what a similar building looks like.

The developer describes the proposed building as being consistent with "... Taco Bell's current approach to cost effective design and construction" and that any further articulation recommended by staff would deviate from this approach. Staff recommends that something more be done to improve the appearance to be less plain and monotonous with additional articulation of the materials (and not just subtle color change or artwork hung on the exterior walls.

Conclusions

For the reasons discussed above, Planning & Zoning Staff does NOT support the proposed Taco Bell re-development proposal at this location. The existing B-1: Neighborhood Zoning District allows retail and services businesses, including sit-down service only. The restriction prohibiting restaurant drive-thru service has the intended affect of not permitting land uses with relatively greater traffic generation like fast-food restaurants. Because of the relatively small property size, limitations created by the wetlands, floodplain and navigable river, and the inadequate sight distance resulting from the driveway location and juxtaposition of the property relative to the river, bridge, intersection, etc., the B-1: Neighborhood Business District may be the most appropriate district for whatever the highest and best use of this property should be given these specific property characteristics and limitations.

Community Development: Inspection Services

Inspection Services has indicated that the submission of state-approved plans will be required prior to issuing a building permit along with the required \$20,000 occupancy bond. A demolition permit is also required.

Public Works/ Village Engineer/Village Surveyor

The Village Engineer and Public Works Department staff have identified some minor

technical issues and plan requirements in a January 6, 2021 memo from Public Works Director (copy attached). All items listed shall be addressed prior to issuance of a building permit and commencing any new construction activities on the site (excluding demolition activities).

Water Utility/Wastewater Utility

The Water Utility has recommended that the following corrections be made to the utility plans prior to issuance of a building permit:

1. Note under Section 33-10-00(m) be revised to change the contact from “Kevin Korth” to “Jacob Tully”;
2. A Tracer Box be added and located on the north side of the building and shown on Sheet C1.3.

Fire & Police Departments

No comment received.

Village Forester/Streets & Highway Department

The Village Forester is recommending the following:

1. The Landscape Planting Schedule be revised to indicate a total of (8) “Jack Flowering Pear” as proposed in the diagram;
2. An alternative and more salt-tolerant plant should be considered as a replacement for the “Tauton Yew” plants (20 total) proposed along the pavement edges of the site.

VILLAGE STAFF RECOMMENDATION

DENY the REZONING application submitted by Sundance Inc., agent for Marshall Peebles, property owner, proposing to rezone the subject property from the B-1: Neighborhood Business District to the B-5: Highway Business District.

DENY the CONDITIONAL USE PERMIT (CUP) application submitted by Sundance Inc., agent for Marshall Peebles, property owner, requesting permission to re-develop the subject property and develop up to 13,400 sqft of area located within a 25’ wetland and 75’ navigable waterway setback area.

DENY the SITE DEVELOPMENT & BUILDING PLAN application submitted by Sundance Inc., agent for Marshall Peebles, property owner, requesting approval to re-develop .83 acres of the subject property with a 1,786 sqft Taco Bell “quick serve” restaurant and drive-thru facility located at N96 W18058 County Line Road.

However, if the Plan Commission takes action to **APPROVE** the Taco Bell re-development proposal for this property, Staff recommends that the following recommendations and conditions be included as part of the Plan Commission's recommendation to the Village Board for the Rezoning and Conditional Use Permit applications, and, as specific conditions of approval for the Site Development and Building Plans:

APPROVE the proposed REZONING application submitted by Sundance Inc., agent for Marshall Peebles, property owner, to rezone the 4.9-acre subject property from the B-1: Neighborhood Business District to the B-5: Highway Business District.

APPROVE the CONDITIONAL USE PERMIT (CUP) application submitted by Sundance Inc., agent for Marshall Peebles, property owner, requesting permission to re-develop the subject property and develop up to 13,400 sqft of area located within a 25' wetland and 75' navigable waterway setback area subject to the following one (1) condition:

1. With regard to the proposed setback compensation plan set forth in the Applicant's Stormwater, Erosion Control & Wetland Setback Mitigation Narrative (Appendix D dated February 22, 2021), the property owner shall prepare and submit an annual monitoring report to the Village Community Development Department documenting all implementation activities and outcomes of the compensation plan to ensure success of the plan for a minimum of three (3) years after initial implementation.

APPROVE the SITE DEVELOPMENT & BUILDING PLAN application submitted by Sundance Inc., agent for Marshall Peebles, property owner, requesting approval to re-develop .83 acres of the subject property with a 1,786 sqft Taco Bell "quick serve" restaurant and drive-thru facility located at N96 W18058 County Line Road subject to the following twelve (12) conditions:

1. Site Plan approval is subject to all the conditions and requirements set forth herein and adopted by the Plan Commission. Site Plan approval is subject to both the Rezoning and Conditional Use Permit applications being approved by the Village Board. Site Plan approval is granted for the following plans and plan revisions submitted by the Applicant unless a plan is superseded by subsequent plan sheets required by the Village Planner or Village Engineer pursuant to any revisions required by the conditions contained herein and/or by action of the Plan Commission:
 - a. Architectural plan set dated December 18, 2020
 - b. Civil Engineering plan dated February 22, 2021
 - c. Landscaping plan dated February 22, 2021
 - d. Exterior Lighting plan dated February 22, 2021

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- e. Storm Water, Erosion Control & Wetland Setback Mitigation Plan dated February 22, 2021 (including Ex. A)
2. All landscaping, grading, paving, storm water management, utility and other improvements shown on the approved site plans shall be installed as approved prior to issuance of an occupancy permit for the building addition unless a cash bond or letter of credit in an amount equal to 120 percent of the estimated installation and material costs reviewed and approved by the Village is submitted to the Village as necessary to ensure that installation of the proposed features and improvements will be completed within one (1) year after issuance of the occupancy permit.
 3. All exterior doors (except primary entrance) shall be clearly marked with reflective 5" or larger letters/numbers to aid emergency personnel access as required by the Police Department.
 4. State agency (DSPS) approved plans and a \$20,000 occupancy bond are required by Inspection Services at the time of building permit application. The Village of Germantown is an authorized delegated agent of DSPS to provide all commercial plan review and inspection services through SAFEBuilt of WI and the Village of Germantown.
 5. The Water Utility is requiring that the following corrections be made to the utility plans prior to issuance of a building permit:
 - a. Note under Section 33-10-00(m) be revised to change the contact from "Kevin Korth" to "Jacob Tully";
 - b. A Tracer Box be added and located on the north side of the building and shown on Sheet C1.3.
 6. All technical issues and plan requirements listed in the January 6, 2021 memo from Public Works Director Larry Ratayczak shall be addressed in a revised civil engineering construction plan set signed & sealed by an engineer and approved by the Village Engineer/Public Works Department prior to issuance of a building permit and prior to commencing any new construction activities on the site (excluding demolition activities).
 7. The Village Forester is requiring the following to be reflected in a revised Landscaping Plan submitted for review and approval prior to issuance of a building permit:
 - a. the Landscape Planting Schedule shall be corrected to indicate a total of (8) "Jack Flowering Pear" as proposed in the landscaping plan diagram;
 - b. An alternative and more salt-tolerant plant species shall be installed as a replacement for the "Tauton Yew" plants proposed along the pavement edges of the site.

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8. All temporary and permanent exterior signs require separate review and approval of a Sign Permit by the Plan Commission (permanent signs) or Planning & Zoning Staff (temporary signs). Contact Lori Johnson, Planning & Zoning Services to coordinate all Sign Permit applications.
 9. The proposed building architecture and materials shall be revised to include additional features and articulation to improve or enhance the character and appearance of the building to be less plain and monotonous. Said improvements or enhancements might include, but not be limited to additional articulation of the brick materials beyond the subtle color change and exterior artwork currently proposed. Revised building elevations and color renderings shall be submitted to the Plan Commission for review and approval prior to issuance of a building permit.
 10. The property owner and Taco Bell operator shall ensure that all trucks and other deliveries will be conducted when the restaurant is not open (i.e. "after hours") and can and will be conducted within the property so that no trucks or other vehicles park on or stage from County Line Road.
 11. The property owner and Taco Bell operator shall enter into an agreement or memorandum of understanding (MOU) with the Washington County Highway Commission that the off-site improvements recommended in the Taco Bell Development Traffic Impact Analysis (TIA) dated December 22, 2020, and generally described below shall be designed, approved and constructed/installed to the specifications and satisfaction of the Washington County Highway Commission prior to issuance of an occupancy permit by the Village of Germantown:
 - a. Remove trees and other vegetation growing into and around the fence/guardrail on the north side of the bridge over the Menomonee River that are in the sight line looking east from the Taco Bell driveway and maintain as needed;
 - b. Move and/or re-construct the west end of fence/guardrail on the north side of the bridge to a point further north to remove it from the sight line looking east from the Taco Bell driveway;
 - c. Re-construct and shift the existing curb line on the north side of County Line Road adjacent to the subject property a distance of 5 to 6 feet to the south (to provide at least an 8 feet eye-to-travel lane distance for existing vehicles waiting at the Taco Bell driveway so drivers do not have to move into the outer travel lane when looking east from the Taco Bell driveway);
 - d. Relocate the existing stop sign to the south side of the crosswalk at the Shady Lane approach at the /County Line Road intersection.
 12. Prior to issuance of a certificate of occupancy the property owner and Taco Bell operator shall enter into an agreement or memorandum of understanding (MOU) with the Washington County Highway Commission and the Village of Germantown that addresses the potential need for temporary and permanent

#

road and/or safety improvements within the County Line Road right-of-way or subject property to ensure safe and efficient traffic conditions and circulation adjacent to the subject property and at the driveway intersection. Said improvements may include, but not be limited to closing or modifying the design and function of the median opening at the property driveway/Shady Lane intersection. Said agreement shall ensure that all costs associated with determining the need for, engineering and design, and construction/installation of any improvements or safety enhancements shall be the responsibility of the property owner or Taco Bell operator and not Washington County or the Village of Germantown. Said agreement shall stipulate that Washington County shall determine what physical road improvements and/or safety enhancements are required and when said improvements shall be made.



Community Development Department

Jeffrey W. Retzlaff, AICP, Director

Village Planner & Zoning Administrator

N112 W17001 Mequon Road P.O. Box 337

Germantown, WI 53022-0337

Telephone: (262) 250-4735

Website: www.village.germantown.wi.us

FAX: (262) 253-8255

E-mail: jretzlaff@village.germantown.wi.us

January 15, 2021

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

RE: Taco Bell Proposal for N96 W19058 County Line Road;
Rezoning/CUP/Site Plan Application Staff Review Comments-2nd Review

Mr. Krause:

Village Staff has reviewed the revised plan set and supporting materials submitted for the proposed Taco Bell re-development proposal and in response to Village Staff's initial set of review comments. Below are follow-up comments and outstanding items/issues that need to be addressed. Please provide the requested information, corrections and/or revisions as soon as possible.

Community Development Department

1. The following questions and concerns regarding the TIA prepared by TADI need to be addressed:
 - a. The only non-site traffic being analyzed is current background traffic in year 2021. Why isn't there an assessment with future year background traffic increases that provides some sort of "sensitivity analysis" of what traffic will be with the new development in the near term (say 5 years out to 2026) and the changing traffic pattern at the driveway given the large percentage pass-by trips Taco Bell is projected to attract?
 - b. The TIA indicates that 2018 background traffic was adjusted to 2020 based on a 10% increase; why no assumed increase from 2020 to 2021? If 10% from 2018 to 2020 is reasonable, why not 5% more for 2021?
 - c. Confirm that the current traffic count at the property driveway is only 10 trips (5 in & 5 out) during both the midday peak-hour and PM peak-hour and no traffic on a Saturday mid-day peak-hour as shown in Ex 3-2a & 3-2b?
 - d. In Ex 3-3, does the queue value for the NB LT movement listed as "45" mean that vehicles are backing up 45 feet (or 2-3 car lengths) at the NB approach? Is that all it takes at this intersection, 2-3 cars waiting on either the SB or NB approach, to create an LOS "D" condition?
 - e. Explain what the TIA analysis shows in terms of queuing at the SB approach (i.e. the property driveway) waiting to enter County Line Road to turn either left to go EB or turn right to go WB. How many vehicles are expected to queue at this approach? How many more vehicles would it take to move the LOS from "D" to "F"?

- f. It is unrealistic to expect that NO traffic will travel to the new Taco Bell from the south. Why not model the condition that includes NB and SB TH “through” trips into the intersection? What would happen if a few trips did enter the site from the south? What impact on intersection LOS would that have?
- g. What analysis, if any, was done of the queuing forming at and behind the drive-through window and what impact those vehicles might have on the vehicles queuing at the driveway waiting to exit the property?
- h. What is your (TADI’s) assessment of the proposed site layout with respect to the arrangement of the parking stalls, drive isles, drive-through lanes, exit lanes, truck turning movements?
- i. Why are the east-looking sight line requirements for an SUV (540 feet) different from those of a lower profile passenger vehicle (415 feet) as indicated in Ex 5-2a & 5-2b? Intuitively the reverse would be true given the better visibility provided by an SUV. Is it because of the bridge railing getting in the way?
- j. In Ex 5-2a the top image indicates that the minimum required “ISD” sight distance looking east of 415 feet for passenger vehicles is NOT met because only 215 feet can be achieved. Similarly, the bottom image indicates that the minimum required “ISD” distance of 415 feet is NOT met even after moving the vehicle 5 feet into the outer travel lane of County Line Road... which is consistent with the “Recommended Modifications” shown on page 2 and Ex 1-3. So, are you suggesting that even though the recommended curb modification to County Line Road does NOT provide the minimum recommended ISD sight distance for passenger vehicles, sight conditions are at least improved? And that should be sufficient?
- k. Ex 5-2b shows the minimum required “ISD” sight distance looking east for SUV’s is 540 feet and that distance is met, but only by requiring the driver to look “behind” (left of) the bridge railing between it and the trees that extend across the driver’s view from the river. Respond to the following:
 - i. Is it reasonable and acceptable to require drivers to do these sorts of visual gymnastics in order to determine that a sight distance requirement is achievable?
 - ii. Using this photo image, it appears that a vehicle may be visible at the 540’ distance if the driver looks behind the railing and the trees are cut down, trimmed, or during “leaf-off” seasons of the year. But it also appears that the observed vehicle would likely be hidden by the railing as it travels toward the driver. Doesn’t this nullify the conclusion that the 540’ ISD sight distance is met? It seems unreasonable to conclude that the 540’ distance is simply met because a driver can see an approaching vehicle at a 540 feet distance, but then can’t see the same vehicle as it travels behind the railing and then re-emerges at a distance of only 215 feet (an estimate using the image in 5-2a).

- iii. One of the “recommended modifications” is to remove the trees and other vegetation along the bridge. Given that there are trees on both sides of the river and not necessarily easily accessible, who do you envision will do this sort of regular landscaping-type maintenance? Washington County? Taco Bell?
 - iv. Another “recommended modification” is to “correct” by moving a portion of the west end of the bridge railing or fence (as referred to in Ex 1-3) “... such that the westernmost point is adjusted north”. But the “line of sight” shown in Ex 1-3 with the orange dashed line is incorrectly positioned south of the fence when compared to the line of sight shown in Ex 5-2b... which shows the object at a distance of 540 feet visible from north (behind) the fence. If the westernmost end of the fence/railing were moved to the north, it would likely obstruct the line of sight even more.
- l. Ex 5-2c shows the minimum required “ISD” sight distance looking west as 305 feet, but the blaze orange object appears to be already out into the drive lanes of County Line Road. Shouldn’t the object be visible at the driveway?
 - m. A general comment about the sight distance analysis and graphics, the fact that the “objects” used to show when a sight distance requirement can/cannot be met need to be shown in blaze orange, circled and with a zoom-in window tells a lot about the sight distance conditions along County Line Road in this vicinity and more particularly to/from this property.
 - n. Village staff remains concerned with the proposed access. Although already existing, the single driveway serves a small multi-tenant building with uses that generate little traffic by comparison to the proposed fast-food restaurant. This is supported by the TIA. Staff continues to recommend that you explore a 2nd access driveway on County Line (subject to Washington County review and approval). Specifically, one that involves an enter-only driveway (ideally the existing) and a separate exit-only driveway further west on the site. The TIA supports the fact that site vision looking to the west from exiting traffic is poor... even if barely meeting the site distance requirements AFTER modifying the curb location on County Line Road (or requiring SUV drivers to look behind the bridge railing).
- 2. The revised Landscaping along the street yard abutting County Line Road is very much improved. However, given the plan to retain the 18” retaining wall, all of the proposed landscaping except for the street trees along the south edge will be hidden from view and provide no visual enhancement to the site from public way. What can you do to address this?
 - 3. The wetland disturbance mitigation plan and information does not include the amount of area impacted within the 75’ navigable waterway setback. This is a significant oversight and needs to be addressed. The notion that this requirement would be completely ignored because the re-developed site will impact the 75’ setback to

approximately the same extent as the previous development is disconcerting. While there was some discussion at the pre-application meeting about this fact, Staff did not instruct the applicant to ignore these requirements altogether nor provide some sort of exemption, stated or implied. The wetland mitigation proposal is weak to begin with, but it is a start given the site constraints... but the 25' wetland setback is the least impacted setback areas of the two that apply. If the developable portion of the site is too small to accommodate the proposed development under current site development requirements, then maybe this is not a suitable site. Let us know if we need to discuss alternative strategies to address the 25' wetland and 75' navigable waterway setback regulations and requirements.

4. The parking lot setback near the driveway entrance narrows to 6.6 feet where a minimum of eight (8) feet is required. It appears to have been widened, but there is no specific call out to show that it meets the minimum.
5. The issue of vehicles queuing at/behind the drive-through window during lunch time and other peak traffic generation periods for the restaurant remains a concern. Designating the northernmost four (4) parking stalls for "employees only" is only a bandage for the problem. Further, the narrative explanation that the new facility will have less queuing at the drive-through window because the new facility will be more efficient due to better technology and improved workspace is not any more convincing than if you said the new store will have new employees that are more motivated and capable of working faster. Can you look at alternatives for relocating the dumpster enclosure or other parking and/or building reconfigurations that will move drive-through traffic to the perimeter of the parking lot and not impacting circulation within it?
6. The addition of a second tower element improves the appearance, but overall, the architecture and materials remain plain and uninspiring. Can you add some degree of physical articulation along the east and west elevations and not just color changes of the same material?
7. Will the murals on the east and west elevations be changed out on a regular basis or if the color/images fade? Is there a regular program or can the Village have some say in when the murals should be changed for something new?

Public Works/Village Engineer

8. Please refer to the 2nd review memo from the Director of Public Works dated January 6, 2021 for additional comments the various plans. These corrections will appear in the staff report as recommended conditions of approval but can be made to the final set of engineer-stamped plans.

Fire Department & Police Department

9. No comment.

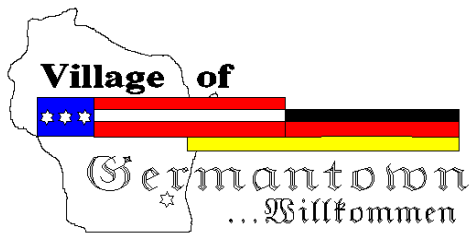
Tim Krause, Sundance Inc.
Taco Bell Proposal for N96 W19058 County Line Road
Staff Review Comments
January 15, 2021
Page 5 of 5

When submitting revised plans or additional information, please submit (1) digital plan set and three (3) full-size, hard-copy plan sets set to the Community Development Department. Complete responses and/or information, plan revisions, etc. to the items/issues listed above will help avoid delay in the review and processing of your application.

Respectfully,

Jeffrey W. Retzlaff, AICP
Village Planner & Zoning Administrator





Engineering Department Memorandum

To : Jeffrey W. Retzlaff, AICP, Planning Director/Zoning Administrator
From : Lawrence Ratayczak, P.E., Director of Public Works
Date : January 6, 2021
Re : Sundance – Taco Bell

Items Reviewed:

1. Civil Plan Set Dated: 12-29-20

General Comments:

1. Please respond to each item below. **A written response addressing each item shall be included in your submittal.**
2. The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.
3. *The project will require DSPS plumbing system review and approval. Please provide a copy of the DSPS approval prior to engineering approval*
4. As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).
5. A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.
6. *Contact Ryan Ehlerding, 262-250-4723 for a utility permit.*
7. As a guide to the review response: Items in *italics* are resolved or acknowledged, items in regular font are to be addressed yet, items in **Bold** are additional feedback to remaining original comment.

Water Utility Comments

1. *Include submittals for all materials used in the water lateral installation. Prior approval by the utility required.*
2. *Poly wrap all brass, tapping saddle and curb stop.*
3. *Chip stone for bed and cover over water main. Slurry back fill in the ROW.*
4. *Include schematic of Tracer wire per village spec.*
5. *Inspection of the water lateral and live tested will be required prior to back fill.*
6. *Show on plan and abandon the existing (2) water laterals onsite. (2) day notice for shutting down the distribution main for the removal of the corps and repair sleeving main. Shutting down the distribution will not be on a Monday or Friday.*
7. *Provide GPS points for the tap, curb stop and up to the bend as it goes into the building.*

8. *Provide the GPS coordinates to Kevin Korth of Ruekert & Mielke (262-542-5733) Cost to populate the Villages GIS dash board layers will be borne by this project.*
9. Sheet Number C0.2 under Division 33 Utilities there needs to be a letter added "L" to call out for submittal of materials for review and approval by the Engineering/Village Utilities.
10. Sheet Number C0.2 under Division 33 Utilities there needs to be a letter added "M" to call out the GPS coordinates need to be taken for any utilities tying into the village systems. The survey points need to be captured in NAD83 with each GPS point classified by a written description in the excel upload file and sent to our GIS provider Ruekert and Mielke. For the water service, GPS the tap, the lead and the curb stop. Also GPS the tracer wire box on the outside of the building.
11. Letter I of the Division 33 Utilities, Tracer wire will be 14 gauge not 10-14 gauge
12. Add a note to the plans requiring the contractor to schedule a preconstruction meeting with the Water Utility prior to starting construction.

Wastewater Utility Comments.

1. Existing sampling manhole may be reused with the following modifications. Install 2' barrel section below the cone and reconstruct the chimney to current Village standards. **Add current Village sampling manhole detail to the plans to show the requirements for chimney reconstruction.**

C1.1 Civil Site Plan

- 1 *Provide an accessible route to the public sidewalk.*
2. *Driveway to the site provides for difficult ingress and egress with minimal throat length and stacking distance. Any other alternatives to improve this condition?*
3. Improvements proposed in the ROW shall be reviewed and approved by Washington County. Provide a copy of the County approval.

C1.2 Grading and Erosion Control Plan

- 1 *Show construction entrance location*
2. *Provide erosion control notes. Sequence, inspection requirements, stabilization timeframes, late season stabilization requirements, etc.*
3. *Silt fence does not work well for erosion control at pipe outlets. Provide alternate erosion control method at the storm sewer outfall. Show silt fence in a "U" shape to contain sediment.*



Community Development Department

Jeffrey W. Retzlaff, AICP, Director

Village Planner & Zoning Administrator

N112 W17001 Mequon Road P.O. Box 337

Germantown, WI 53022-0337

Telephone: (262) 250-4735

Website: www.village.germantown.wi.us

FAX: (262) 253-8255

E-mail: jretzlaff@village.germantown.wi.us

November 25, 2020

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

RE: Taco Bell Proposal for N96 W19058 County Line Road;
Rezoning/CUP/Site Plan Application Staff Review Comments

Mr. Krause:

Village Staff has reviewed the applications, plan set and supporting materials submitted for the proposed Taco Bell re-development proposal for the above cited property. Below are the outstanding items/issues that need to be addressed. Please provide the requested information, corrections and/or revisions as soon as possible.

Community Development Department

1. I understand that a traffic impact analysis has been required by the Washington County Highway Commissioner given his/their jurisdiction over County Line Road. Please provide a copy of that analysis to the Village when completed. What is the status of that TIA?
2. Village staff is concerned with the proposed access. Although already existing, the single driveway serves a small multi-tenant building with uses that generate little traffic by comparison to the proposed fast-food restaurant. Staff will withhold further critical analysis until we are able to review the TIA, but based on experience and familiarity with the site, staff is recommending at this point that you explore another access alternative. Specifically, one that involves an enter-only driveway (ideally the existing) and a separate exit-only driveway further west on the site. The site vision looking to the west from exiting traffic is poor; the "neutral" area between travel lanes on County Line Road is subject to vehicles trying to turn left to/from four separate movements and is likely to be occupied by left-turning vehicles from the mainline County Line Road turn lanes. Delays affecting exiting vehicles from the Taco Bell site combined with minimal on-site stacking area will create a traffic hazard during peak traffic generation periods for the restaurant.
3. The applications are signed by "future owner" and need to be signed by the actual owner at the time the applications are submitted for review (unless proof of recent/pending change in ownership is provided).
4. It appears from the survey and legal description that there's a separate 17' wide strip of land that is not owner by the current owner nor part of the actual property. Please explain what's going on with this and what the correct area of ownership includes.
5. Landscaping along the street yard abutting County Line Road is very inadequate. Staff will be recommending additional landscaping to include trees & shrubs similar to

that which was recently required for the Burger King site to the east. If the area within which landscaping is currently proposed is too small/narrow for more landscaping, then the parking lot needs to be shifted to the north to make additional space available. In addition to the amount of parking lot landscaping, a separate street tree requirement needs to be met. One deciduous tree a minimum of 2.5" caliper is required for every 50 feet of street frontage; a minimum of six (6) trees are required with approx. 280 feet of frontage. Minimum planting height for evergreens is 6 feet (not 42"-48"), 2.5" caliper for deciduous trees and 5-gal container size for shrubs.

6. The wetland disturbance mitigation plan and information does not include the amount of area impacted within the 75' navigable waterway setback. This is a significant oversight and needs to be addressed.
7. Was the floodplain boundary location shown on the site plan field verified and surveyed or just superimposed from the floodplain maps over the plan?
8. What earthwork is required/proposed within the floodplain boundary?
9. Demolition permits are required for removal of the two existing buildings prior to any work. Contact SAFEBuilt staff in the Village Inspection Services for permit requirements and information.
10. Please call out the proposed setback from the west property line to the new asphalt pavement for the drive-through lanes; it appears to only be 1.5 feet where a minimum of eight (8) feet is required. The minimum 8 feet is intended to provide a buffer area with landscaping. In this case, the pavement is right up against a concrete wall with no landscaping proposed, much less even possible.
11. Also call out the setback distance from the west property line to the drive-through canopy; a minimum of 25 feet is required.
12. The parking lot setback near the driveway entrance narrows to 6.6 feet where a minimum of eight (8) feet is required. That needs to be widened.
13. What will be done with the existing concrete wall along the south property line to which to split-rail fence is located next to/on top of? Will that remain? Will the new proposed landscaping shown along the south property line closest to the building be hidden behind this wall?
14. At the existing Taco Bell store down the road, it is typical for a queue of 12-15 vehicles form at/behind the drive-through window during lunch time and other peak traffic generation periods for the restaurant. This generally not a problem for anyone other than those waiting in line given how the drive-through lanes are separated from the parking stalls and length. However, it appears that a 12-15 vehicle queue at the proposed store will impact 4-5 parking stalls... either by boxing parked cars in or prohibiting cars to park. How can this be remedied?
15. The elevation views appear to show a recessed area on the roof behind parapet walls where all roof-top mechanicals are located. Please confirm that all RTU's will be located below the roof line and not visible from the public way or parking lot?

16. The architecture is very plain and variation of materials limited. Can you add some degree of articulation along the east elevation right (north) of the main entrance? Repeat or add another the tower feature possibly in some way?
17. What is the purpose of the murals on the east and west side elevations? Will these be used for advertising at some point in the future?

Public Works/Village Engineer

18. Please refer to the separate review memo provided by the Director of Public Works dated October 20, 2020 for additional comments regarding engineering, erosion control, storm water, public utilities, access, etc.

Fire Department & Police Department

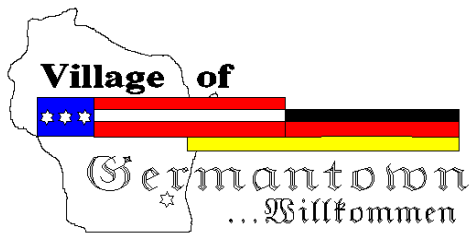
19. No comment.

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Respectfully,

Jeffrey W. Retzlaff, AICP
Village Planner & Zoning Administrator





Engineering Department Memorandum

To : Jeffrey W. Retzlaff, AICP, Planning Director/Zoning Administrator
From : Lawrence Ratayczak, P.E., Director of Public Works
Date : October 20, 2020
Re : Sundance – Taco Bell

Items Reviewed:

1. Civil Plan Set C0.1 – C2.1

Dated: 10-05-20

General Comments:

1. Please respond to each item below. **A written response addressing each item shall be included in your submittal.**
2. The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.
3. The project will require DSPS plumbing system review and approval. Please provide a copy of the DSPS approval prior to engineering approval
4. As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).
5. A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.
6. Contact Ryan Ehlerding, 262-250-4723 for a utility permit.
7. As a guide to the review response: Items in *italics* are resolved or acknowledged, items in regular font are to be addressed yet, items in **Bold** are additional feedback to remaining original comment.

Water Utility Comments

1. Include submittals for all materials used in the water lateral installation. Prior approval by the utility required.
2. Poly wrap all brass, tapping saddle and curb stop.
3. Chip stone for bed and cover over water main. Slurry back fill in the ROW.
4. Include schematic of Tracer wire per village spec.
5. Inspection of the water lateral and live tested will be required prior to back fill.
6. Show on plan and abandon the existing (2) water laterals onsite. (2) day notice for shutting down the distribution main for the removal of the corps and repair sleeving main. Shutting down the distribution will not be on a Monday or Friday.
7. Provide GPS points for the tap, curb stop and up to the bend as it goes into the building.

8. Provide the GPS coordinates to Kevin Korth of Ruekert & Mielke (262-542-5733) Cost to populate the Villages GIS dash board layers will be borne by this project.

Wastewater Utility Comments.

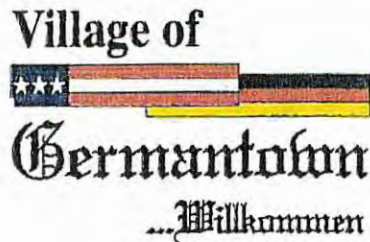
1. Existing sampling manhole may be reused with the following modifications. Install 2' barrel section below the cone and reconstruct the chimney to current Village standards.

C1.1 Civil Site Plan

- 1 Provide an accessible route to the public sidewalk.
2. Driveway to the site provides for difficult ingress and egress with minimal throat length and stacking distance. Any other alternatives to improve this condition?

C1.2 Grading and Erosion Control Plan

- 1 Show construction entrance location
2. Provide erosion control notes. Sequence, inspection requirements, stabilization timeframes, late season stabilization requirements, etc.
3. Silt fence does not work well for erosion control at pipe outlets. Provide alternate erosion control method at the storm sewer outfall. Show silt fence in a "U" shape to contain sediment.



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 - Black River Bells, LLC
 7915 Kensington Ct
 Brighton, MI 48116
 Phone (248) 446-0100
 E-Mail clint.lyders@teamlyders.com

2 PROPERTY ADDRESS

N96W19058 County Line Rd

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

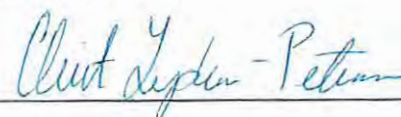
North	South	East	West
Menomonee River/Vacant NW - Fleet Farm - Commerical	Tri-City National Bank, Kohls - Commercial	Menomonee River/Vacant	Fleet Farm - Commercial

4 READ AND INITIAL THE FOLLOWING:

- ☒ I am aware of the Village of Germantown ordinance requiring fire sprinklers in most new construction.
- ☒ I understand that all new development is subject to Impact and/or Connection Fees that must be paid before building permits will be issued.
- ☒ 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!


 Applicant
 10/2/2020
 Date


 Owner - Future
 10/2/2020
 Date

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 10-5-20

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
Diane & Marshall Peebles
P.O. Box 105
Butler, WI 53007
 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 Menomonee River/Vacant NW - Fleet Farm - Commerical	South Tri-City National Bank, Kohls - Commercial	East Menomonee River/Vacant	West Fleet Farm - Commercial
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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!

[Signature] 10/2/2020
 Applicant Date

Christy Lupton - Petitioner 10/2/2020
 Owner - Future Date
Diane Peebles 12/1/2020



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 - Black River Bells, LLC

7915 Kensington Ct

Brighton, MI 48116

Phone (248) 446-0100

2 TO WHOM SHOULD THE PERMIT BE ISSUED?

Sundance, Inc.

3 PROPERTY ADDRESS

N96W19058 County Line Rd

TAX KEY NUMBER

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:

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

8 READ AND INITIAL THE FOLLOWING:

- ☒ 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.
- ☒ I will notify the Village if any aspects of the conditional use changes. I understand that failure to do so may result in the revocation of the CUP.
- ☒ 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.
- ☒ 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

10/24/2020
Date

 10/21/2020
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

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

EXISTING SITE INFORMATION

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

ARCHITECTURAL PLANS

- ☒ Existing building location
- ☒ Existing building elevations/materials
- ☒ Proposed use (use list from Section 17.45)
- ☒ Statement of design intent (narrative)
- ☒ Proposed floor plans (dimension)
- ☒ Square footage (total and individual rooms/stores)
- ☒ Proposed elevations (dimension)
- ☒ Proposed building height

- ☒ Proposed materials and colors (material sample board required for new construction)
- ☒ Proposed signage (elevations, color, square footage, height, construction material, lighting)
- ☒ Details of any special features

PROPOSED SITE PLAN

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

LIGHTING PLAN

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

LANDSCAPING PLAN

- ☒ Major improvements for context (building, drives, walks)
- ☒ Proposed outdoor amenities (benches, paths, etc.)
- ☒ Existing vegetation
 - Species
 - Size
 - Approximate canopy in plan
- ☒ Vegetation to be destroyed
 - List and show location
- ☒ Proposed method of saving existing vegetation during construction
- ☒ Proposed landscape features (berms, fountains)
- ☒ Existing/proposed lighting
- ☒ Irrigation/watering systems (locate outlets)
- ☒ Plant lists or schedules
 - Keyed to plan
 - Number of each species
 - Size when planted (caliper)
- ☒ 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

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@teamlayers.com

PROPERTY OWNER

Marshall Peebles

PO Box: ~~555~~ 105

Butler, WI 53007

Phone (762) 790 - 1358

E-Mail Peeblescarwash@aol.com

2

PROPERTY ADDRESS OR GENERAL LOCATION

TAX KEY NUMBER

N96W19058 County Line Rd	GTNV_333999
--------------------------	-------------

3

REZONING REQUEST

FROM B-1	TO 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:**

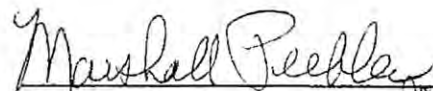
- ☒ Plat of Survey (1:100) - Rezone Exhibit
- ☒ Site Plan and elevations for new construction (can be conceptual)

7**READ AND INITIAL THE FOLLOWING:**

- ☒ 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.
- ☒ 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 be sufficient cause to deny the petition.
- ☒ 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
- ☒ 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!**

 02/15/2020
Applicant Date

 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:

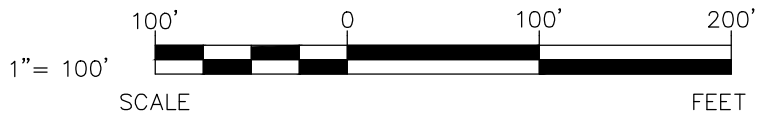
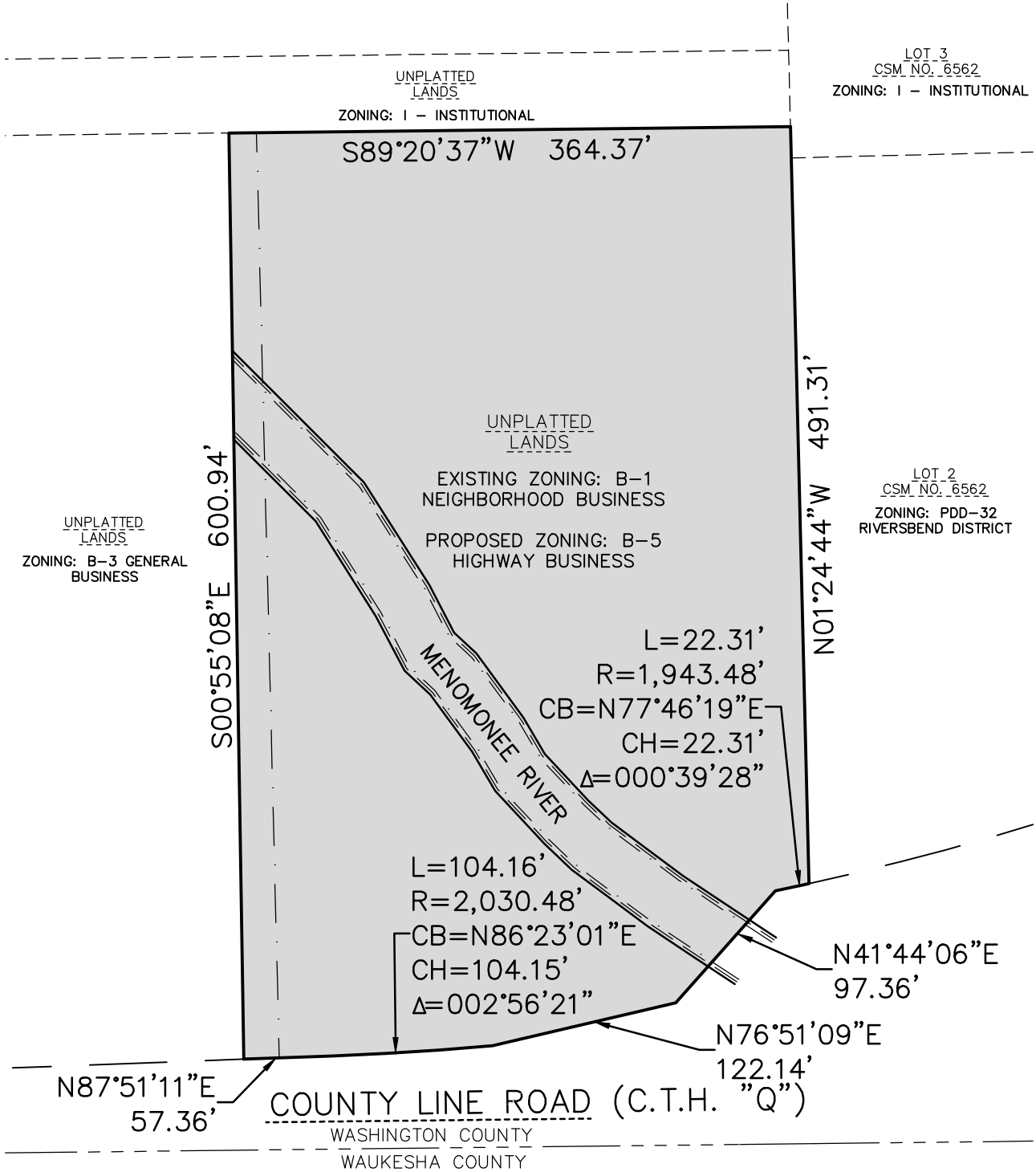
All that part of the Southwest 1/4 of Section 33, in Township 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin, bounded and described as follows:

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





EXCEL
ARCHITECTS • ENGINEERS • SURVEYORS
Always a Better Plan

100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

JOB NO. 2005200

February 22, 2021

Jeffrey W. Retzlaff
AICP, Planning Director/Zoning Administrator
Community Development Center
N112W17001 Mequon Road PO Box 337
Germantown, WI 53022

Re: Taco Bell Proposal for N96 W19058 County Line Road;
Rezoning/CUP/Site Plan Application Staff Review Comments-2ND Review

Dear Mr. Retzlaff,

This letter is in response to the comments received on January 25, 2021 regarding the proposed Taco Bell development located at N96 W18058 County Line Road in the Village of Germantown.

Community Development Department

- 1) The following questions and concerns regarding the TIA prepared by TADI need to be addressed:
 - a. The only non-site traffic being analyzed is current background traffic in year 2021. Why isn't there an assessment with future year background traffic increases that provides some sort of "sensitivity analysis" of what traffic will be with the new development in the near term (say 5 years out to 2026) and the changing traffic pattern at the driveway given the large percentage pass-by trips Taco Bell is projected to attract?
TADI Response: An analysis of the construction year is typically done when a development is expected to generate 100+ trips in a peak hour. An analysis of construction year plus a future year is typically done when a development is expected to generate 500+ trips in a peak hour. Because the Taco Bell is expected to generate 100+ trips but less than 500 trips (90 trips weekday lunch hour, 60 trips weekday evening peak hour, 100 trips Saturday lunch hour), a future year analysis was not performed. Per your request, a sensitivity analysis will be forwarded via technical memorandum.
 - b. The TIA indicates that 2018 background traffic was adjusted to 2020 based on a 10% increase; why no assumed increase from 2020 to 2021? If 10% from 2018 to 2020 is reasonable, why not 5% more for 2021?
TADI Response: This comment relates to the adjustment of traffic from pandemic traffic volumes to non-pandemic traffic volumes (TIA Chapter III Part B). That is, the increases referenced in the TIA are not growth rates but are adjustments to account for the pandemic. Based on discussions with WisDOT, the straight-line annual growth rate along CTH Q, east of STH 175, is less than 0.5% (0.005) per year.
 - c. Confirm that the current traffic count at the property driveway is only 10 trips (5 in & 5 out) during both the midday peak-hour and PM peak-hour and no traffic on a Saturday mid-day peak-hour as shown in Ex 3-2a & 3-2b?

TADI Response: As shown in TIA Exhibit 3-2B, the current volumes at the property driveway were 20 trips (10 in/10 out) during the weekday lunch hour, 20 trips (5 in/15 out) during the weekday evening peak hour, and 10 trips (5 in/5 out) during the Saturday midday peak hour. These volumes are correct. Note that, as is common practice, all volumes are rounded to the nearest 5 vph. Any volumes shown with a “—” in the TIA were analyzed with at least one vph in the traffic models.

- d. In Ex 3-3, does the queue value for the NB LT movement listed as “45” mean that vehicles are backing up 45 feet (or 2-3 car lengths) at the NB approach? Is that all it takes at this intersection, 2-3 cars waiting on either the SB or NB approach, to create an LOS “D” condition?

TADI Response: Per the footnotes in TIA Exhibit 3-3, the traffic queues shown are in feet. A queue of 45-feet represents a 95th percentile queue of two vehicles (statistically, there is a 5% chance of this queue being exceeded). Note that both the reported LOS values and the reported queues are a function of traffic delay (the delay values are described in Chapter III, Part C, C1) and are not a function of each other (the approach queues does not affect LOS, and LOS doesn’t affect approach queues).

- e. Explain what the TIA analysis shows in terms of queuing at the SB approach (i.e. the property driveway) waiting to enter County Line Road to turn either left to go EB or turn right to go WB. How many vehicles are expected to queue at this approach? How many more vehicles would it take to move the LOS from “D” to “F”?

TADI Response: Per TIA Exhibit 5-1, the southbound 95th percentile queue from Taco Bell is expected to be 20-feet, or one vehicle. This lane accommodates all movements, so this queue is the total of all movements. The reported LOS for this movement is C. Additionally, the northbound through/left-turn movement from Shady Lane is reported as maintaining LOS D with a queue of 50-feet, or two vehicles. Per your request, a sensitivity analysis will be forwarded via technical memorandum to address questions related to how much more traffic would cause a degradation in LOS from D to F.

- f. It is unrealistic to expect that NO traffic will travel to the new Taco Bell from the south. Why not model the condition that includes NB and SB TH “through” trips into the intersection? What would happen if a few trips did enter the site from the south? What impact on intersection LOS would that have?

TADI Response: Though our volume exhibits show no cross traffic to/from Taco Bell from/to Shady Lane (Exhibit 4-4), the traffic analysis does include at least one trip crossing in either direction during each of the peak hours. It is the traffic on County Line Road that is primarily affecting the LOS of movements at the intersection. Per your request, a sensitivity analysis will be forwarded via technical memorandum to cross traffic.

- g. What analysis, if any, was done of the queuing forming at and behind the drive-through window and what impact those vehicles might have on the vehicles queuing at the driveway waiting to exit the property?

TADI Response: No queuing analysis was done of the queue forming at and behind the drive-through window. Based on the trip generation, an available stacking space for 9-vehicles from the window to the end of the drive thru lane, and an additional distance behind that queue to the driveway of 180-feet, we do not anticipate traffic from the drive-through to impact queuing at the driveway for those waiting to exit the property.

- h. What is your (TADI's) assessment of the proposed site layout with respect to the arrangement of the parking stalls, drive isles, drive-through lanes, exit lanes, truck turning movements (found on Sheet TT)?

TADI Response: Based on the trip generation, and because deliveries will be restricted by times of day outside the peak use of the restaurant, we find the site layout to be acceptable for traffic operations.

- i. Why are the east-looking sight line requirements for an SUV (540 feet) different from those of a lower profile passenger vehicle (415 feet) as indicated in Ex 5-2a & 5-2b? Intuitively the reverse would be true given the better visibility provided by an SUV. Is it because of the bridge railing getting in the way?

TADI Response: Per TIA Chapter V, Part D, D1, the two design vehicles are passenger vehicles ("P-vehicles") and single-unit trucks ("SU vehicle"). Examples of P-vehicles include passenger cars, vans, sport utility vehicles, and pick-up trucks. Examples of SU-vehicles include utility trucks and UPS-style trucks. An SU-vehicle typically takes a longer time to get up to speed due to its load, but the driver's eye is also higher off the road allowing it to see over obstructions like the bridge railing towards oncoming traffic. As discussed over the phone, Exhibits 5-2a and 5-2b are attached to this response and now include notes to help describe the types of vehicles shown in each exhibit. No other changes were made to these exhibits.

- j. In Ex 5-2a the top image indicates that the minimum required "ISD" sight distance looking east of 415 feet for passenger vehicles is NOT met because only 215 feet can be achieved. Similarly, the bottom image indicates that the minimum required "ISD" distance of 415 feet is NOT met even after moving the vehicle 5 feet into the outer travel lane of County Line Road... which is inconsistent with the "Recommended Modifications" shown on page 2 and Ex 1-3. So, are you suggesting that even though the recommended curb modification to County Line Road does NOT provide the minimum recommended ISD sight distance for passenger vehicles, sight conditions are at least improved? And that should be sufficient?

TADI Response: This condition is addressed in TIA Chapter V, Part D, D2. In short, the desired distance from the edge of the traveled way to a driver's eye is 14.5-feet. At this distance, a P-vehicle motorist can only see 215-feet street to the east on CTH Q. Per AASHTO, nearly all of the U.S. passenger car population is built such that a motorist's eye is 8-feet or less from the front of the car. That is, moving the bridge railing north and adjusting the curb line along CTH Q is expected to provide a distance equal to or greater than 8-feet, thus improving lines of sight such that a motorist does not need to move the front of their vehicle into the travel way to see the 415-foot distance.

- k. Ex 5-2b shows the minimum required "ISD" sight distance looking east for SUV's is 540 feet and that distance is met, but only by requiring the driver to look "behind" (left of) the bridge railing between it and the trees that extend across the driver's view from the river. Respond to the following:

- i. Is it reasonable and acceptable to require drivers to do these sorts of visual gymnastics in order to determine that a sight distance requirement is achievable?

TADI Response: No visual gymnastics are necessary. What TIA Exhibit 5-2b shows is the position of an SU-vehicle (UPS-type truck) at the desired eye

motorist eye height of 7.6-feet above the driveway pavement and 14.5-feet behind the traveled way. As addressed in TIA Chapter V, Part D, D2, ISD is adequate for an SU-vehicle.

- ii. Using this photo image, it appears that a vehicle may be visible at the 540' distance if the driver looks behind the railing and the trees are cut down, trimmed, or during "leaf-off" seasons of the year. But it also appears that the observed vehicle would likely be hidden by the railing as it travels toward the driver. Doesn't this nullify the conclusion that the 540' ISD sight distance is met? It seems unreasonable to conclude that the 540' distance is simply met because a driver can see an approaching vehicle at a 540 feet distance, but then can't see the same vehicle as it travels behind the railing and then re-emerges at a distance of only 215 feet (an estimate using the image in 5-2a).

TADI Response: No, this information does not nullify the results. As indicated in TIA Chapter V, Part D, D1, and in the response to comment 1(i) above, P-vehicles and SU-vehicles have different requirements per AASHTO.

- iii. One of the "recommended modifications" is to remove the trees and other vegetation along the bridge. Given that there are trees on both sides of the river and not necessarily easily accessible, who do you envision will do this sort of regular landscaping-type maintenance? Washington County? Taco Bell?

TADI Response: It is our understanding that the vegetation and trimming of trees will be a responsibility of Taco Bell.

- iv. Another "recommended modification" is to "correct" by moving a portion of the west end of the bridge railing or fence (as referred to in Ex 1-3) "... such that the westernmost point is adjusted north". But the "line of sight" shown in Ex 1-3 with the orange dashed line is incorrectly positioned south of the fence when compared to the line of sight shown in Ex 5-2b... which shows the object at a distance of 540 feet visible from north (behind) the fence. If the westernmost end of the fence/railing were moved to the north, it would likely obstruct the line of sight even more.

TADI Response: The relocation of the bridge railing and the line of sight shown in Exhibit 1-3 address the ISD deficiency for P-vehicles. Recall that, due to the layout of CTH Q (higher grade to the east), the height of the railing, and the required 7.6-foot eye height for an SU-vehicle, an SU-vehicle will have the ability to see over the railing towards oncoming traffic to that longer 540-foot distance without an eclipsing effect from the railing.

- I. Ex 5-2c shows the minimum required "ISD" sight distance looking west as 305 feet, but the blaze orange object appears to be already out into the drive lanes of County Line Road. Shouldn't the object be visible at the driveway?

TADI Response: TIA Exhibit 5-2c shows stopping sight distance (SSD), which is the distance at which a motorist traveling at 5 mph over the posted speed limit can perceive and identify an object in the road, take action to apply the brake, and come to a complete stop without striking the object. That is why the object is shown at the edge of the road in TIA Exhibit 5-2c – it illustrates that the driver on CTH Q can see

the object on the road and, thus, has adequate time to come to a complete stop if necessary.

- m. Ex 5-2c shows the minimum required “ISD” sight distance looking west as 305 feet, but the blaze orange object appears to be already out into the drive lanes of County Line Road. Shouldn’t the object be visible at the driveway?

TADI Response: The reason the objects are shown in blaze orange, circled, and then also shown with a zoom-in window has nothing to do with sight distance conditions and everything to do with scaling of the photograph and drawing the reader’s attention to what they need to be seeing.

- n. Village staff remains concerned with the proposed access. Although already existing, the single driveway serves a small multi-tenant building with uses that generate little traffic by comparison to the proposed fast-food restaurant. This is supported by the TIA. Staff continues to recommend that you explore a 2nd access driveway on County Line (subject to Washington County review and approval). Specifically, one that involves an enter-only driveway (ideally the existing) and a separate exit-only driveway further west on the site. The TIA supports the fact that site vision looking to the west from exiting traffic is poor... even if barely meeting the sight distance requirements AFTER modifying the curb location on County Line Road (or requiring SUV drivers to look behind the bridge railing).

TADI Response: Example memorandum of understanding (MOU) language was obtained from WisDOT and emailed to you on February 11th. The information was obtained and forwarded at your request in case you wish to tie intersection safety or operations to future access restrictions, if necessary. Additionally, and at the request of the County and the Village, conceptual layouts for the median are attached to this response letter in the case that the County or Village wish to consider access restrictions in the future. These example concepts include attached Exhibit A) restricting the median to left-in/right-in/right-out for both Taco Bell and Shady Lane, attached Exhibit B) restricting the median to right-in/right-out for Taco Bell and left-in/right-in/left-out/right-out for Shady Lane, and attached Exhibit C) restricting the median to left-in/right-in/left-out/right-out for Taco Bell and right-in/right-out only for Shady Lane. If any of these concepts are implemented, impacted movements can travel downstream and perform legal U-turns at existing traffic signals. Impacted motorists to/from Shady Lane have the additional choice to revise their route by using Premier Lane or Rivercrest Drive to complete their movements. Note that TADI does not recommend a signal at this location due to the proximity of the traffic signal at Fleet Farm to the west and at the shopping center to the east.

- 2) The layout of the site is extremely poor in terms of site circulation for delivery and service trucks. There should always be adequate space on-site for all truck operations and not just when you assume that all service trucks will arrive to do their business after-hours when no other vehicles or customers are in the parking lot. Adequate space means that all truck operations should be able to be performed entirely on-site and not off the public street system. There should also be separation of delivery traffic from general customer traffic to the greatest extent possible. This site is proposed to be entirely re-developed and as such should be designed with these site design elements in mind. The truck turning exhibit clearly shows that delivery trucks will NOT be able to navigate on-site without jumping curbs and clipping cars... and only if the truck can start from middle travel lane and end heading eastbound. Consequently, one of the problems that is very likely to occur is that both the inexperienced delivery driver not familiar with this site and the experienced

driver who is familiar with this site but arrives during business hours is going to park their truck in the outermost “auxillary” lane on County Line Road, turn on the flashers and hand-truck the product and supplies into the store by way of the new curb ramp and sidewalk “shortcut” being added to the site (see Sheet C1.1). While this may be possible to do today since the painting of this auxillary lane is such that drivers are not supposed to use it as a drive lane (and only for left-turns into Fleet Farm at the signalized intersection), Washington County is anticipating increases in traffic over time such that it may need to be converted to a full drive lane.

Excel Response: Taco Bell management has confirmed that deliveries will be occurring during off-hours. This is why the truck turn exhibit shows the delivery vehicle utilizing the entire parking lot area. In addition, the curb that the truck is shown driving over is 18” mountable curb that is specifically designed for truck traffic to drive over.

- 3) The revised Landscaping along the street yard abutting County Line Road is very much improved. However, given the plan to retain the 18” retaining wall, all of the proposed landscaping except for the street trees along the south edge will be hidden from view and provide no visual enhancement to the site from public way. What can you do to address this?

Excel Response: Shrub plantings have been revised such that they are shifted north and further away from the retaining wall/fence so that they are more visible from the public way. Also, 6 additional ornamental trees have been provided along the south end of the site to provide better visual enhancement along the frontage of County Line Road.

- 4) The wetland disturbance mitigation plan and information does not include the amount of area impacted within the 75’ navigable waterway setback. This is a significant oversight and needs to be addressed. The notion that this requirement would be completely ignored because the re-developed site will impact the 75’ setback to approximately the same extent as the previous development is disconcerting. While there was some discussion at the pre-application meeting about this fact, Staff did not instruct the applicant to ignore these requirements altogether nor provide some sort of exemption, stated or implied. The wetland mitigation proposal is weak to begin with, but it is a start given the site constraints... but the 25’ wetland setback is the least impacted setback areas of the two that apply. If the developable portion of the site is too small to accommodate the proposed development under current site development requirements, then maybe this is not a suitable site. Let us know if we need to discuss alternative strategies to address the 25’ wetland and 75’ navigable waterway setback regulations and requirements.

Excel Response: The wetland disturbance mitigation plan has been updated to include compensation for the area of disturbance within the 75’ navigable waterway setback. In addition to the vegetated filter strip, invasive species management involving common buckthorn removal is proposed in the wooded area located north of the proposed development and west of the Menomonee River. The wetland mitigation plan exhibit has been updated along with the SWM narrative. This information will be incorporated into the construction documents on the landscape plan (C1.4) and detailed in the plan specifications (C0.2).

- 5) The parking lot setback near the driveway entrance narrows to 6.6 feet where a minimum of eight (8) feet is required. It appears to have been widened, but there is no specific call out to show that it meets the minimum.

Excel Response: The drive aisle in this location was previously reduced from 26’ wide to 24’ wide with the radius adjusted to meet the minimum 8’ setback. A dimension is provided on the site plan from the back of curb to the property line showing that this

meets the minimum (8.07').

- 6) The issue of vehicles queuing at/behind the drive-through window during lunch time and other peak traffic generation periods for the restaurant remains a concern. Designating the northernmost four (4) parking stalls for “employees only” is only a bandage for the problem. Further, the narrative explanation that the new facility will have less queuing at the drive-through window because the new facility will be more efficient due to better technology and improved workspace is not any more convincing than if you said the new store will have new employees that are more motivated and capable of working faster. Can you look at alternatives for relocating the dumpster enclosure or other parking and/or building reconfigurations that will move drive-through traffic to the perimeter of the parking lot and not impacting circulation within it?

Excel Response: Taco Bell management has confirmed that this proposed solution of designating the northernmost 4 stalls as “employee only” is a viable solution due to the fact that shift changes will not occur during the peak hour when additional que spaces would be needed. Taco Bell is comfortable with the proposed layout.

- 7) The addition of a second tower element improves the appearance, but overall, the architecture and materials remain plain and uninspiring. Can you add some degree of physical articulation along the east and west elevations and not just color changes of the same material?

Excel Response: The building architecture conforms to Taco Bell’s current approach to cost effective design and construction. In response to preliminary review comments about the plainness of the building design, the concession was made to add a second tower element as suggested by the Village of Germantown planning staff. Any further articulation of the building facades, however, will deviate from the cost effectiveness of the design established by Taco Bell. Regarding exterior materials, the prototype building is intended to be clad in fiber cement siding. In consideration for location and climate, the decision was made to construct the proposed Germantown Taco Bell in brick veneer to provide a more durable and longer lasting building. With that said, the project is respectfully submitted as currently designed.

- 8) Will the murals on the east and west elevations be changed out on a regular basis or if the color/images fade? Is there a regular program or can the Village have some say in when the murals should be changed for something new?

Excel Response: The murals are a component of the building design and are intended to remain until such time the building undergoes renovation. With respect to color/image fading, the murals are comprised of two sheets of pre-painted aluminum bonded to a solid polyethylene core. The images are printed using UV digital inks with a clear UV laminate to protect against fading. The panels are then installed using rust free stainless steel or galvanized hardware.

Public Works/Village Engineer

- 9) Please refer to the 2nd review memo from the Director of Public Works dated January 6, 2021 for additional comments the various plans. These corrections will appear in the staff report as recommended conditions of approval but can be made to the final set of engineer-stamped plans.

Excel Response: Understood.

Engineering Department Memorandum:

General Comments

- 1) The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.

Excel Response: Understood.

- 2) As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).

Excel Response: Understood.

- 3) A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.

Excel Response: Understood. Final "Issued For Construction" stamped plans will be provided upon local approval.

Water Utility Comments

- 1) Sheet Number C0.2 under Division 33 Utilities there needs to be a letter added "L" to call out for submittal of materials for review and approval by the Engineering/Village Utilities.

Excel Response: Plan specifications updated requiring shop drawing submittals for review and approval by design engineer and Village Engineering/Utility Department.

- 2) Sheet Number C0.2 under Division 33 Utilities there needs to be a letter added "M" to call out the GPS coordinates need to be taken for any utilities tying into the village systems. The survey points need to be captured in NAD83 with each GPS point classified by a written description in the excel upload file and sent to our GIS provider Ruekert and Mielke. For the water service, GPS the tap, the lead and the curb stop. Also GPS the tracer wire box on the outside of the building.

Excel Response: Plan specifications updated with above information. Note on C1.3 also updated as needed.

- 3) Letter I of the Division 33 Utilities, Tracer wire will be 14 gauge not 10-14 gauge.

Excel Response: Plan specifications updated to indicate use of 14 gauge tracer wire.

- 4) Add a note to the plans requiring the contractor to schedule a preconstruction meeting with the Water Utility prior to starting construction.

Excel Response: Note added to both the plan specifications and sheet C1.3

Wastewater Utility Comments

- 1) Existing sampling manhole may be reused with the following modifications. Install 2' barrel section below the cone and reconstruct the chimney to current Village standards. **Add current Village sampling manhole detail to the plans to show the requirements for chimney reconstruction.**

Excel Response: Village of Germantown standard sampling manhole detail added to sheet C1.3.

C1.1 Civil Site Plan

- 1) Improvements proposed in the ROW shall be reviewed and approved by Washington County. Provide a copy of the County approval.

Excel Response: Understood. A copy of approval letter/permit will be provided upon receipt.

Please accept for review and approval. Please let us know if you have any comments, questions, or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Daye".

Jason Daye, P.E.
Excel Engineering, Inc.





EXHIBIT B
EXAMPLE RESTRICTION CONCEPT A
*(Right-In/Right-Out Taco Bell,
Left-In/Right-In/Left-Out/Right-Out Shady Lane)*

GERMANTOWN, WISCONSIN



Passenger Vehicle (cars, sports utility vehicles, pick-up trucks, etc.)



Single-Unit Truck (utility trucks, UPS trucks, etc.)



Date: February 22, 2021

Technical Memorandum

To: Jeffrey W. Retzlaff, AICP, Director
Village of Germantown, WI

From: Michael May, P.E. PTOE

cc List: Scott Schmidt, Director of Public Works
Washington County

Subject: Taco Bell Sensitivity Analysis
CTH Q & Shady Lane

PART A – INTRODUCTION

A traffic impact analysis (TIA) dated December 22, 2020, was submitted to the Village of Germantown and Washington County for a 1,786-sf Taco Bell proposed to be located along the north side of CTH Q at Shady Lane.

At the request of the Village and County, a sensitivity analysis was performed to determine approximately when (what year) the northbound left-turn/through movements from Shady Lane may be expected to deteriorate to LOS E or LOS F, as well as to determine approximately when the southbound left-turn/through/right-turn movements from the proposed Taco Bell may be expected to deteriorate to LOS E or LOS F.

This technical memorandum summarizes the methods and results of the sensitivity analysis.

PART B – SENSITIVITY ANALYSIS

D1. Methodology

As identified in the TIA, the Saturday midday peak hour is the critical peak hour for the CTH Q & Shady Lane/Taco Bell Driveway intersection. Therefore, the Saturday peak hour was used in the sensitivity analysis.

Based on discussions with WisDOT, the straight-line annual growth rate along CTH Q is expected to be less than 0.5% (0.005). An email from WisDOT documenting this growth rate was forwarded to the Village and County by TADI on February 11th.

At the suggestion of the Village in a comments letter dated January 19th, TADI increased the cross traffic between Shady Lane and Taco Bell. A volume of 5 vehicles per hour (vph) both in and out of Taco Bell was utilized. A reduction in other movements to/from Taco Bell was not taken so-as to represent a higher volume scenario.

All other movements at the intersection were then incrementally increased using a straight-line annual growth rate of 0.5% (0.005). The increase was applied using the formula $F = P(1 + in)$,

TADI

where “P” is the Year 2021 build traffic volume shown in the TIA, “i” is the annual growth rate of 0.005, “n” is the number of years into the future, and “F” is the resulting traffic volume. The value “n” was increased until the northbound or southbound approaches changed to LOS E (representing the capacity of a movement) or LOS F (representing demand exceeding capacity). When a change to LOS E or LOS F occurred, the value of “n” was document.

D2. Results

The following are the results based on the methodology previously outlined.

- Year 2021 – The northbound left-turn/through movement passes the LOS D/E threshold (operates at LOS E). This operation is due to the additional cross traffic assumed between Shady Lane and Taco Bell. It is important to note that the average vehicle delay associated with this operation is reported as 35.0-seconds, which represents the LOS D/E threshold (LOS D is defined as 25.0 to 34.9 seconds, LOS E is defined as 35.0 to 50.0 seconds). Additionally, this represents operations for the highest peak 15 minutes of the highest peak hour of the week. Making modifications to address this operation is not necessary. The northbound queue is expected to be approximately 3 vehicles and the southbound queue is expected to be approximately 1 vehicle at this point in time.
- Year 2043 – The northbound left-turn/through movement passes the LOS E/F threshold (operates at LOS F). This operation accounts for an approximate 11% increase to the Year 2021 traffic volumes at the intersection. The northbound queue is expected to be approximately 4 vehicles and the southbound queue is expected to be approximately 2 vehicles at this point in time.
- Year 2059 – The southbound left-turn/through/right-turn movement passes the LOS D/E threshold (operates at LOS E). This operation accounts for an approximate 19% increase to the Year 2021 traffic volumes at the intersection. The northbound queue is expected to be approximately 5 vehicles and the southbound queue is expected to be approximately 2 vehicles at this point in time.
- Year 2077 – The southbound left-turn/through/right-turn movement passes the LOS E/F threshold (operates at LOS F). This operation accounts for an approximate 28% increase to the Year 2021 traffic volumes at the intersection. The northbound queue is expected to be approximately 7 vehicles and the southbound queue is expected to be approximately 3 vehicles at this point in time.

Note the LOS operations and traffic queues are based on estimated delays and are not a function of each other. That is, LOS does not affect approach queues and approach queues do not affect LOS.

D3. Other Considerations

Recall that the results include additional cross traffic between Shady Lane and Taco Bell, as well as assume a straight-line annual growth rate of 0.5% for all movements at the intersection. It is important to note that traffic may increase at a higher or lower rate, or may even decrease over time. Additionally, traffic may increase or decrease at different rates for individual movements, and motorists may find other routes more desirable as delays increase (e.g., motorists may

reroute from Shady Lane to Premier Lane or Rivercrest Drive). The results documented in this memorandum are approximations.

Other variables that may impact operations include traffic signal timings along CTH Q. The latest traffic signal timings aid operations at CTH Q & Shady Lane/Taco Bell Driveway by metering traffic and creating gaps in the traffic stream. It is recommended to maintain the traffic signal system to continue aiding not only traffic flow along CTH Q, but operations at stop-controlled intersections along the corridor too.

Lastly, based on the results of this analysis, other movements at the CTH Q & Shady Lane/Taco Bell Driveway intersection are expected to continue to operate desirably at LOS D or better conditions.

PART C – CLOSING

Should any questions or comments arise regarding the results of the sensitivity analysis, please feel free to contact Michael May, P.E. PTOE at 414-807-1912 or mmay@tadi-us.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

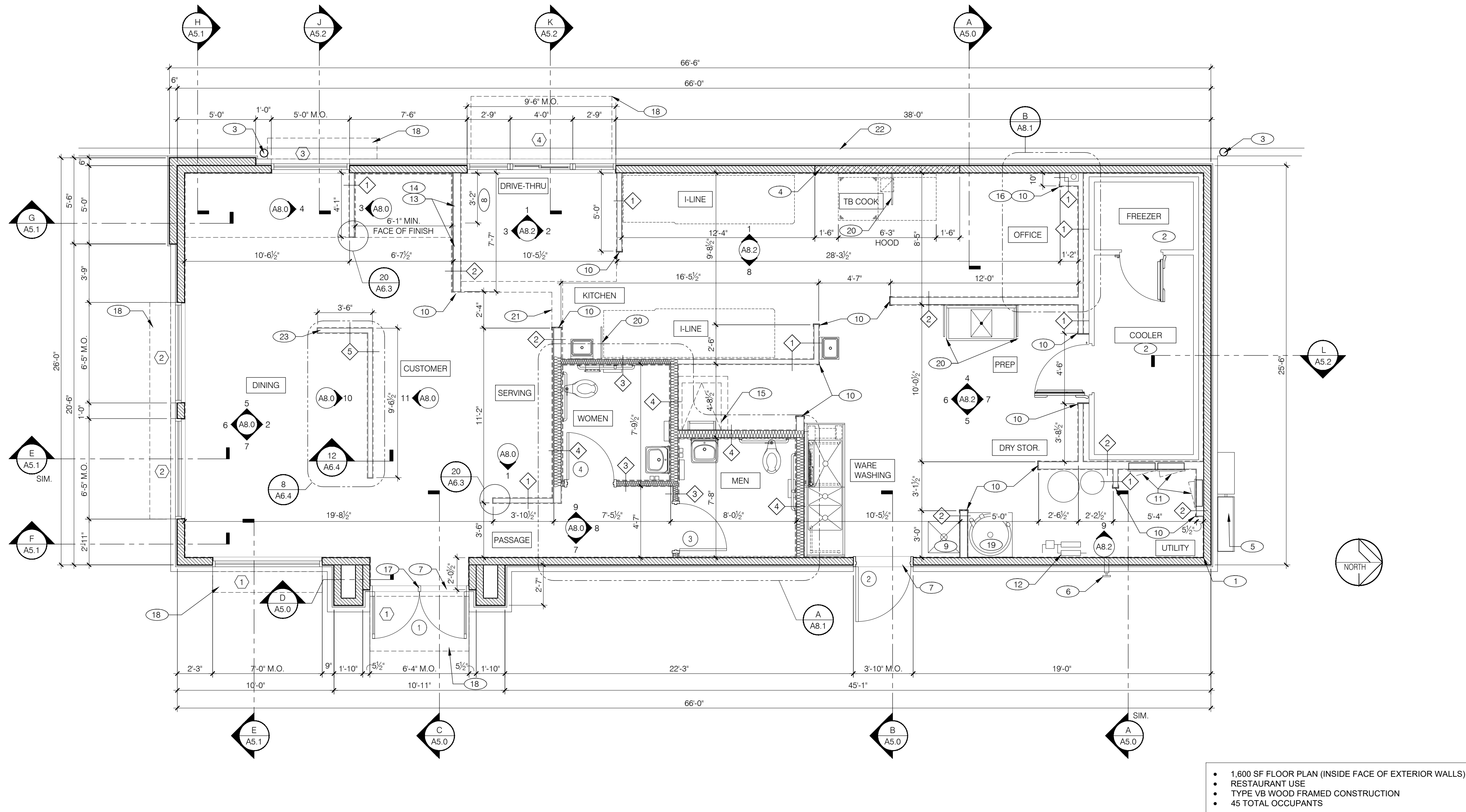
REVISIONS

JOB NUMBER

2005200

SHEET NUMBER

A1.0



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

- 3 2X4 WOOD STUDS
- 4 2X6 WOOD STUDS

- 5 2X4 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.

INTERIOR SOUND-RATED WALL:

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

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.

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

- STARTING POINT. ALL SUB-TRADES SHALL USE THIS POINT AS A BEGINNING LAY-OUT (INSIDE FACE OF EXTERIOR WALL STUDS).
- NO FRP BEHIND WALK-IN COOLER/FREEZER.
- PIPE BOLLARD. SEE CIVIL DRAWINGS.
- METAL STUD HOOD WALL. SEE WALL LEGEND.
- ELECTRICAL MAIN SWITCH BOARD. SEE ELECTRICAL DRAWINGS.
- CO2 FILL BOX LOCATION.
- METAL THRESHOLD.
- KEEP CLEAR SPACE FOR UTILITIES & SYRUP LINES INSTALLED IN FINISH AREA.
- MOP SINK.
- 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.
- ELECTRICAL PANELS RECESSED IN 2x6 WALL.
- WATER METER AND VALVING - SEE PLUMBING DRAWINGS.
- SYRUP LINE CHASE (ABOVE). SEE DETAIL 15/A6.3 AND 16/A6.3.
- 14"x14" HORIZONTAL OPENING FOR SYRUP TUBES. COORDINATE WALL PENETRATION WITH COUNTER INSTALLER. SEE DETAIL 13/A6.3.

- ROOF LADDER AND HATCH. SEE DETAILS 16/A6.0, 18/A6.0, AND B/A8.3.
- DO NOT INSULATE.
- REMOVABLE MULLION FROM INSIDE ONLY.
- LINE OF CANOPY ABOVE.
- WATER HEATER PLATFORM - SEE DETAIL 3/A6.4.
- SPLASH GUARD. SEE DETAIL 5/A6.3.
- MENU BOARD BULKHEAD - SEE DETAILS 2/A6.4 AND 4/A6.4.
- CONCRETE CURB, SEE CIVIL DRAWINGS.
- LOW WALL BY G.C. SEE DETAIL 8/A6.4.

KEY NOTES

XX

B

WALL LEGEND

E

PROJECT INFORMATION

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

PROFESSIONAL SEAL

SHEET DATES

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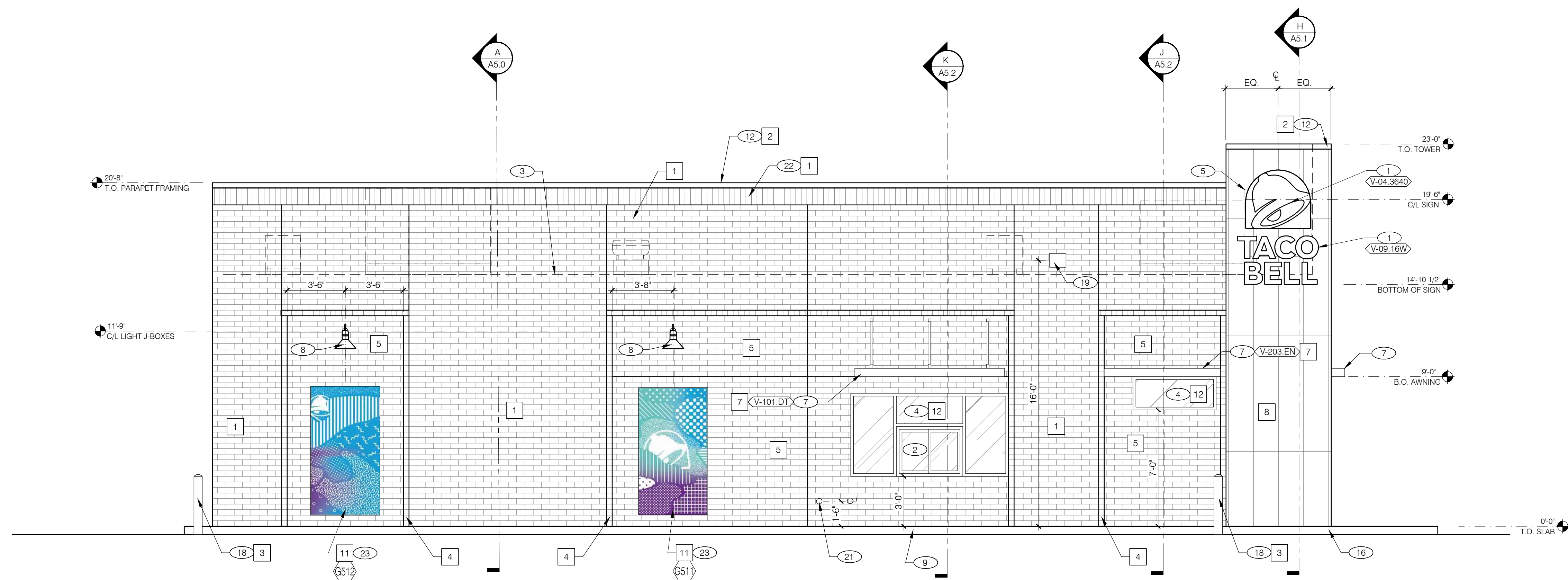
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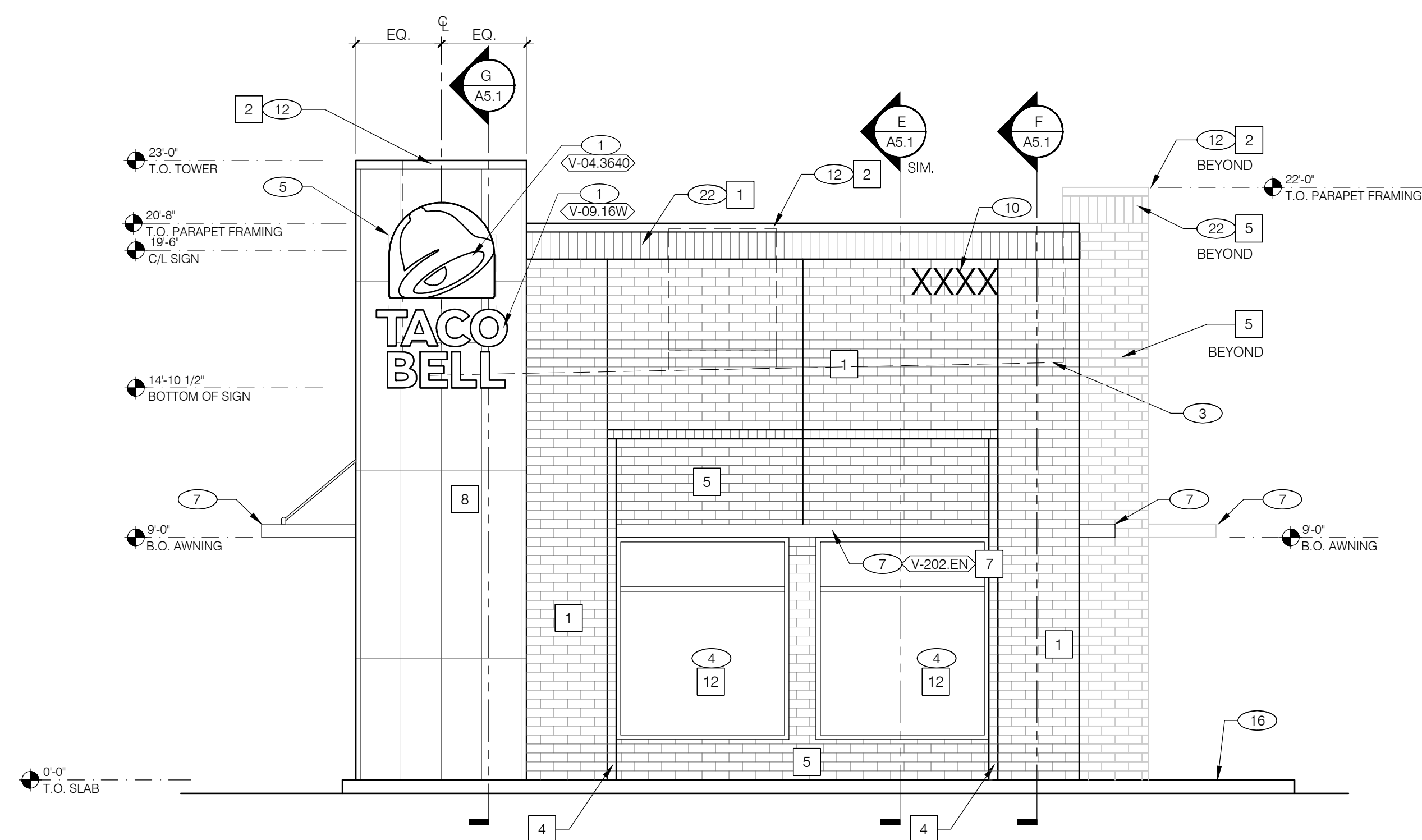
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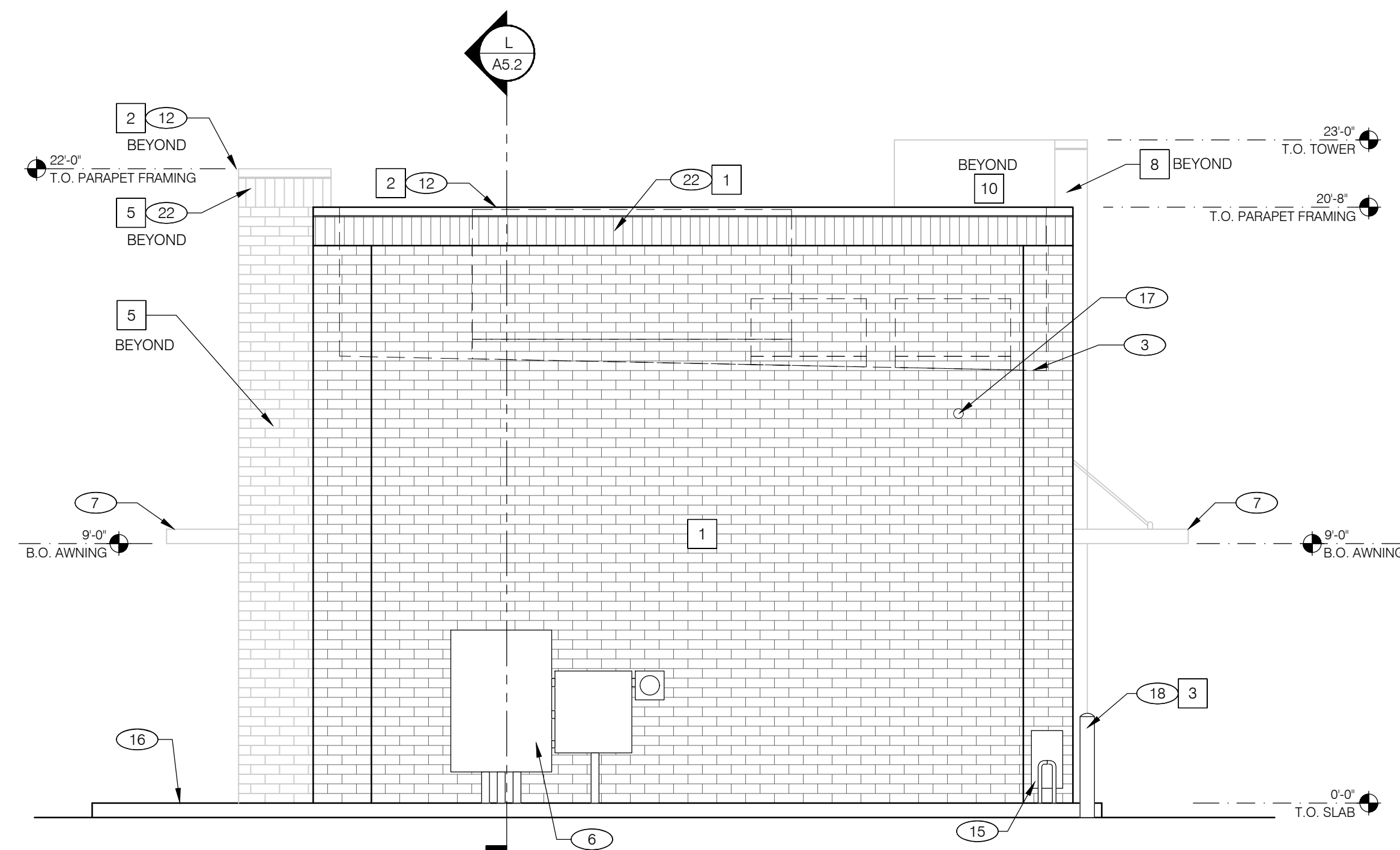
A4.1



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



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



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

PROJECT INFORMATION

NEW BUILDING FOR:
SUNDANCE - TACO BELL
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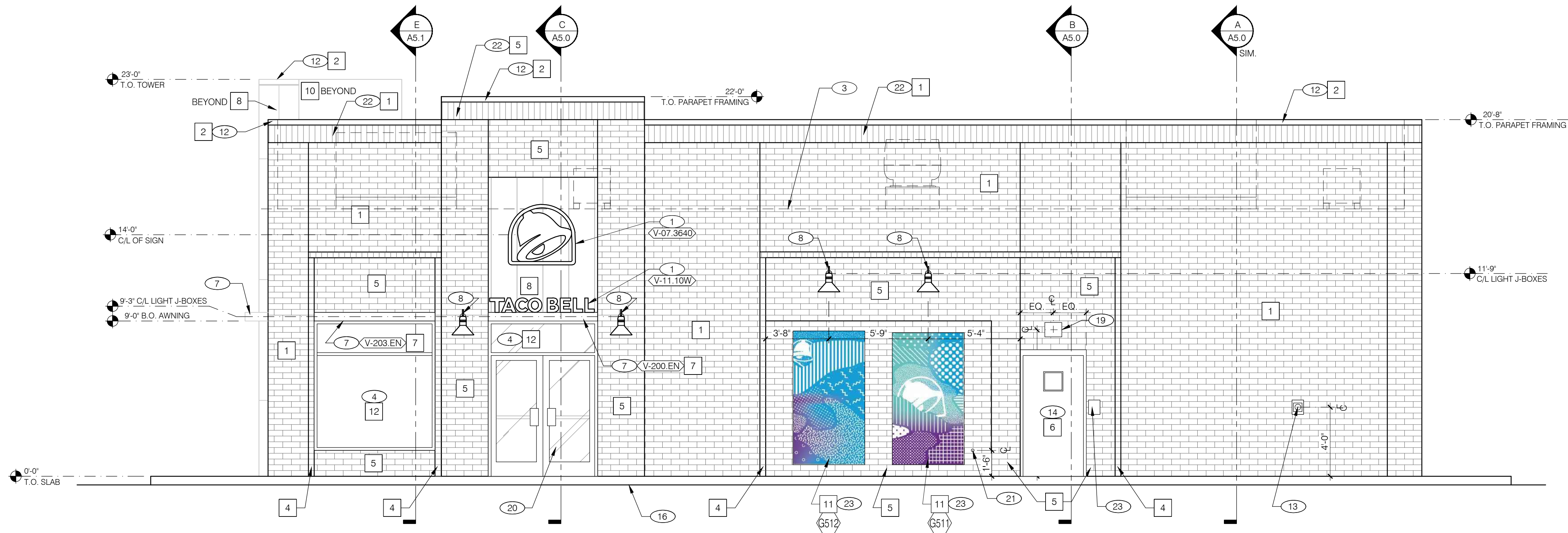
REVISIONS

JOB NUMBER

2005200

SHEET NUMBER

A4.0



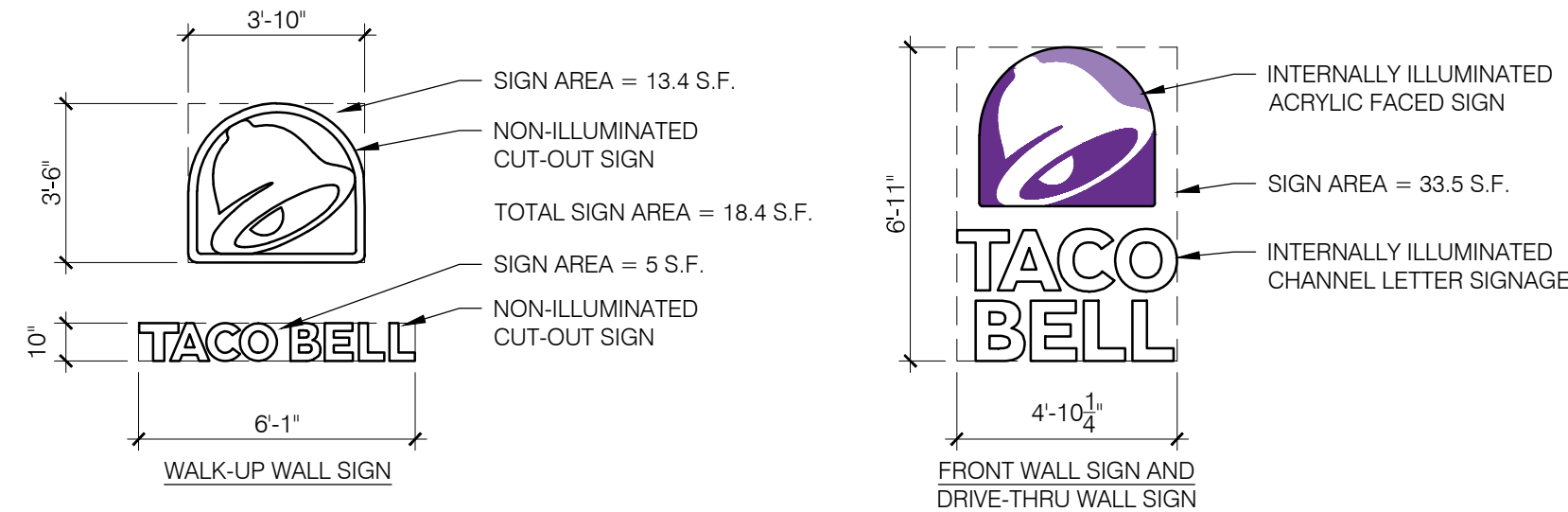
WALK UP ELEVATION

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.



WALL SIGNAGE REGULATIONS

E

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.

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-09.1640	2	16" LARGE CHANNEL LETTERS	YES
V-07.3640	1	3'-6" x 4'-0" LARGE SWINGING BELL, FLAT CUT-OUT, WALL MTD.	YES
V-11.10W	1	TB 10' LETTER, WHITE FLAT CUT-OUT, LINEAR, AWNING MTD.	YES
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

GENERAL NOTES

C

SIGN AND AWNING SCHEDULE

B

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

- BUILDING SIGN, BY VENDOR. SEE ELECTRICAL PLANS FOR POWER REQUIREMENTS.
- DRIVE THRU WINDOW. SEE SHEET A1.0 AND A1.1.
- DASHED LINE INDICATES ROOF BEYOND.
- STOREFRONT, TYPICAL.
- ACCESS LOUVERS IN BACK OF PARAPET. SEE DETAIL 7/A6.0.
- SWITCH GEAR, PAINT TO MATCH WALL. WALL SHALL BE FINISHED PRIOR TO INSTALLATION OF SWITCHGEAR.
- AWNING.
- WALL LANTERN.
- D/T LANE SURFACE IS 6\"

- WALL PACK LIGHT FIXTURE.
- STOREFRONT DOOR. REFER TO DOOR SCHEDULE SHEET A1.1.
- HOSE BIBB LOCATION. REFER TO PLUMBING DRAWINGS AND DETAIL 10/A6.2.
- BRICK SOLDIER COURSE - ALL SOLDIER COURSES SHALL CORBEL OUT 1/2\"

KEY NOTES

D

PROJECT INFORMATION

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

PROFESSIONAL SEAL

PRELIMINARY DATES

SEPT. 21, 2020
OCT. 5, 2020
DEC. 18, 2020

NOT FOR CONSTRUCTION

JOB NUMBER

2005200

SHEET NUMBER

A4.3





TACO
BELL

TACO
BELL









TACO
BELL



TACO BELL

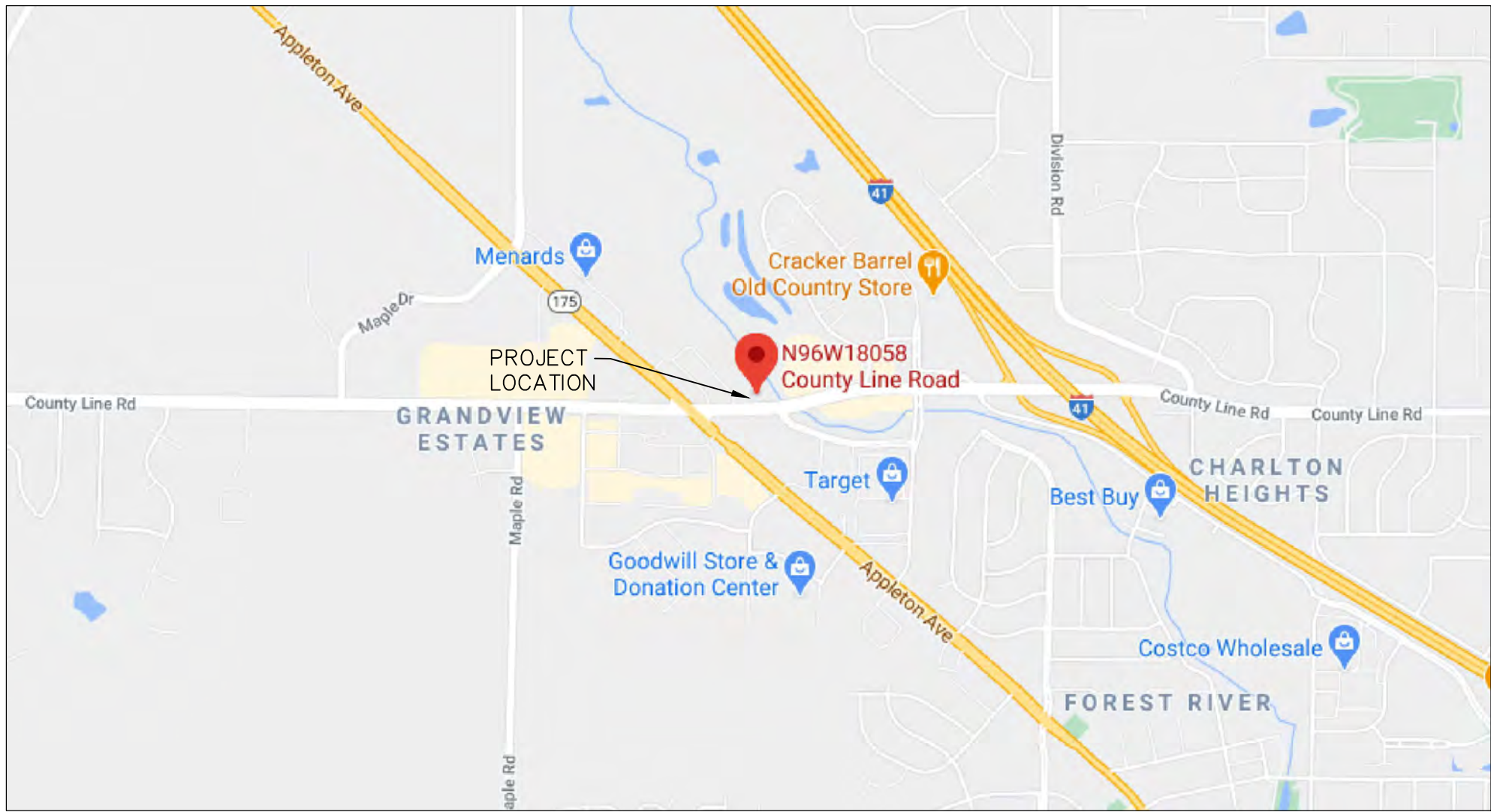


PROPOSED NEW BUILDING FOR:
SUNDANCE - TACO BELL
GERMANTOWN, WISCONSIN
LEGEND

	PROPOSED SPOT ELEVATIONS (FLOW LINE OF CURB UNLESS OTHERWISE SPECIFIED)		EXISTING CONIFEROUS TREE
	EXISTING GRADE SPOT ELEVATIONS		EXISTING SHRUB
	PROPOSED SPOT ELEVATIONS (REFERENCE R-WALL DETAIL)		EXISTING STUMP
	BG-FINISHED SURFACE GRADE AT BACK OF WALL FG-FINISHED SURFACE GRADE AT FRONT OF WALL		SOIL BORING
	PROPOSED SPOT ELEVATIONS (TOP OF CURB, BOTTOM OF CURB)		EXISTING WELL
			PROPOSED WELL
	PROPOSED SPOT ELEVATIONS (TOP OF WALK, BOTTOM OF WALK)		EXISTING LIGHT POLE
			EXISTING SIGN
	EXISTING WATER VALVE IN BOX		CENTER LINE
	PROPOSED WATER VALVE IN BOX		EXISTING HANDICAP PARKING STALL
	EXISTING WATER VALVE IN MANHOLE		PROPOSED HANDICAP PARKING STALL
	EXISTING WATER SERVICE VALVE		EXISTING GAS VALVE
	EXISTING TELEPHONE MANHOLE		
	EXISTING STORM CATCH BASIN		EXISTING WOODED AREA
	PROPOSED STORM CATCH BASIN - ST CB		EXISTING HEDGE
	PROPOSED STORM FIELD INLET - ST FI		EXISTING CHAINLINK FENCE
	EXISTING SQUARE CATCH BASIN		EXISTING WOOD FENCE
	EXISTING STORM CURB INLET		EXISTING BARBED WIRE FENCE
	PROPOSED STORM CURB INLET - ST CI		PROPOSED PROPERTY LINE
	EXISTING UTILITY POLE		EXISTING GUARD RAIL
	EXISTING UTILITY POLE WITH GUY WIRE		EXISTING STORM SEWER AND MANHOLE
	EXISTING STREET LIGHT		PROPOSED STORM SEWER AND MANHOLE - ST MH
	EXISTING TELEPHONE PEDESTAL		EXISTING SANITARY SEWER AND MANHOLE
	EXISTING ELECTRIC PEDESTAL		PROPOSED SANITARY SEWER AND MANHOLE - SAN MH
	EXISTING ELECTRIC BOX		EXISTING WATER LINE AND HYDRANT
	EXISTING CABLE TV PEDESTAL		PROPOSED WATER LINE AND HYDRANT
	PROPOSED DRAINAGE FLOW		EXISTING OVERHEAD UTILITY LINE
	1-1/4" REBAR SET WEIGHING 4.30 LB/FT.		EXISTING UNDERGROUND FIBER OPTIC LINE
	3/4" REBAR SET WEIGHING 1.50 LB/FT.		EXISTING UNDERGROUND ELECTRIC CABLE
	1-1/4" REBAR FOUND		EXISTING UNDERGROUND TELEPHONE CABLE
	3/4" REBAR FOUND		EXISTING UNDERGROUND GAS LINE
	2" IRON PIPE FOUND		PROPOSED CURB AND GUTTER
	1" IRON PIPE FOUND		EXISTING CURB AND GUTTER
	EXISTING FLOOD LIGHT		GRADING/SEEDING LIMITS
	SECTION CORNER		RIGHT-OF-WAY LINE
	PROPOSED APRON END SECTION		INTERIOR PROPERTY LINE
	EXISTING MARSH AREA		RAILROAD TRACKS
	EXISTING DECIDUOUS TREE WITH TRUNK DIAMETER		EXISTING GROUND CONTOUR
	EROSION MATTING		PROPOSED GROUND CONTOUR
	PROPOSED INLET PROTECTION		

CIVIL SHEET INDEX

SHEET	SHEET TITLE
C0.1	CIVIL COVER SHEET
C0.2	CIVIL SPECIFICATION SHEET
C1.0	EXISTING SITE AND DEMOLITION PLAN
C1.1	SITE PLAN
C1.2	GRADING AND EROSION CONTROL PLAN
C1.3	UTILITY PLAN
C1.4	LANDSCAPE AND RESTORATION PLAN
C1.5	RAILING RELOCATION PLAN
C2.0	DETAILS
C2.1	DETAILS
C2.2	DETAILS
C2.3	DETAILS
PXP	SITE PHOTOMETRIC PLAN



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 STABILIZED.
	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.

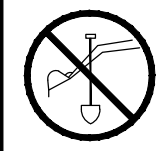
****CONTRACTOR TO FOLLOW THE EROSION CONTROL SPECIFICATIONS FOR CONSTRUCTION EROSION CONTROL INSPECTION AND MAINTENANCE.****

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

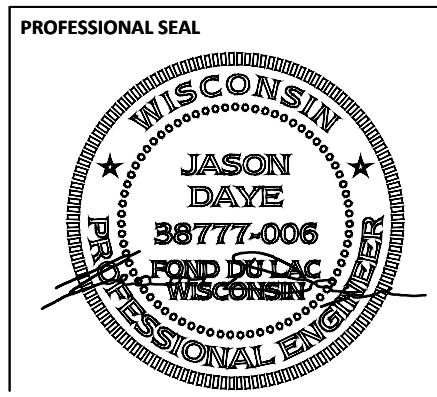
CIVIL

EXCEL ENGINEERING
100 CAMELOT DRIVE
FOND DU LAC, WISCONSIN 54935
CONTACT:
JASON DAYE
P: (920) 926-9800
F: (920) 926-9801
jason.d@excelengineer.com



PROJECT INFORMATION

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



PRELIMINARY DATES

OCT. 5, 2020
DEC. 29, 2020
FEB. 22, 2021

NOT FOR CONSTRUCTION

JOB NUMBER

2005200

SHEET NUMBER

C0.1

EXCEL

ARCHITECTS • ENGINEERS • SURVEYORS

Always a Better Plan

100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

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 SHALL BE IN STRICT ACCORDANCE WITH DEMOLITION TO TAKE PLACE ON SITE. CONTRACTOR TO FIELD SURVEY, IDENTIFY, AND MARK ALL UTILITIES 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.

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 IMMEDIATELY BY PHONE AND IN WRITING OF ANY DAMAGE TO UTILITIES.

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 EXCAVATION SHALL BE FULLY BACKFILLED WITH THE SAME SOIL IN THE DIGGING AREA, UNDER PAVED AREAS, AND AT SITE FILL AREAS SHALL BE REMOVED. PROOF ROLL SUBGRADE BEFORE PLACING FILL WITH HEAVY PNEUMATIC-TIRED EQUIPMENT, SUCH AS A FULLY-LOADED TANDEM AXLE DUMP TRUCK, TO IDENTIFY SOFT SPOCKETS 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 PROJECT SITE AND NOT REUSED FOR ANY OTHER PURPOSE.

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 COMPACTION TO SPECIFIED DRY DENSITY.

E. FILL BACK OF THE EXCAVATION SHALL BE REMOVED TO NOT MORE THAN 8" IN LOSS DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4" IN LOSS 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

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 THESE METHODS TO MEET DUST CONTROL REQUIREMENTS. 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. WASHING AREAS SHALL BE COVERED 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 10 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 1 YEAR OF WORKING DAYS OF COMPLETION OF THE SEASON OF CONSTRUCTION. GENERAL CONFORMANCE WITH TECHNICAL STANDARDS 1058 AND 1059 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 1058.
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 STORAGE AND EROSION CONTROL STANDARDS.

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.

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 SURFACE COURSE AREAS SHALL BE PAVED TO WITHIN 0.01" 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 COVER ALL EXPOSED AREAS WITH 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.

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 ACT 338-08 & ACT 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:

- a. **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 PWS.
- a. **DUMPSSTER PAD/APRON CONCRETE** - 8" OF CONCRETE OVER 6" OF AGGREGATE BASE.
 1. DUMPSSTER PAD SHALL BE STEEL REINFORCED WITH THE FOLLOWING AND PLACED AT A DEPTH OF 2/3" DOWN FROM THE SURFACE OF THE SLAB:
 - 1) THE BARS AT ALL CONTRACTION JOINTS OF THE CONCRETE. TIE BARS SHALL BE #4 REBAR 30" LONG PLACED AT 30" O.C.
 - b. DUMPSSTER PAD CONTRACTION 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 4" 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.
4. **HEAVY DUTY CONCRETE (COUNTY LINE ROAD)** - 7" OF CONCRETE OVER 6" OF 3/4" CRUSHED AGGREGATE. CONTRACTION JOINTS SHALL BE SAWCUT 1.5" IN DEPTH AND BE SPACED A MAXIMUM OF 15' ON CENTER.

- DESIGN MIXES SHALL BE IN ACCORDANCE WITH ASTM C94
- F. 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.
- G. ALL EXTERIOR CONCRETE SHALL BE AIR ENTRAINMENT WITH 4% TO 7% AIR CONTENT. NO OTHER ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF EXCEL ENGINEERING, INC. CALCIUM CHLORIDE SHALL NOT BE USED.
- H. MAXIMUM AGGREGATE SIZE FOR ALL EXTERIOR CONCRETE SHALL BE 0.75 INCHES.
- I. VERIFY EQUIPMENT CONCRETE PAD SIZES WITH RESPECTIVE CONTRACTORS. PADS SHALL HAVE FIBERLESS 300 FIBERS AT A RATE OF 15 LBS/CU. YD. OR 6 X 6-W1.4 X 1/4 IN 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.
- J. ALL CONCRETE FLAT WORK SURFACES AND CONCRETE CURB FLOWLINES SHALL BE CONSTRUCTED TO WITHIN .005" OF DESIGN ELEVATION AND FLOWLINE GRADUES ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE DESIGN ELEVATION.
- K. 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. CONCRETE CURB SHALL BE PLACED WITHIN 1 HOUR OF CURB PLACEMENT. CONCRETE SHALL 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.
- L. 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 SURFACE AND NOT LESS THAN 2" WHERE CONCRETE IS DEPOSITED AGAINST AN EXISTING CURB OR WALL. 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 AC 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 A185. WELDED WIRE FABRIC SHALL BE PLACED 2" FROM TOP OF SLAB, UNLESS INDICATED OTHERWISE.
- M. 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. EAST 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, FLEXURE, AND TENSILE TESTS TO ASTM C109. TEST TWO SPECIMENS AT 7 DAYS AND TWO SPECIMENS AT 28 DAYS. PERFORM SLUMP TESTING ADDITIONAL TO ASTM C143. 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.
- N. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COOL OR HOT TEMPERATURES. IN HOT, DRY, AND WINDY WEATHER, APPLY AN EVAPORATION-CONTROL COMPOUND ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS AFTER SCREEDING AND BULL FLOATING, BUT BEFORE POWER FLOATING AND TROWELLING.
- O. LIMIT MAXIMUM WATER-CEMENTITIOUS RATIO OF CONCRETE EXPOSED TO FREEZING, THAWING AND DEICING SALTS TO 0.45.
- P. 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 PRODUCER, LOCATION OF EACH TEST, LOCATION OF EACH TEST, DATE OF EACH TEST, TYPE OF TEST, DESIRED 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.

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, MOODY, 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 GENIE 5150) OR EQUIVALENT ON ALL SLOPES THAT ARE 4:1 AND GREATER.
- D. SODDED LAWNS: SOD SHOULD CONSISTING OF THE FOLLOWING GRASS SPECIES - 65% KENTUCKY BLUEGRASS, 20% PERENNIAL ryegrass, 15% FINE FESCUE. PROVIDE VARIABLE SOD OF UNIFORM DENSITY, COLOR, AND TEXTURE. SODS 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 AND SIDE JOINTS. DO NOT STRETCH OR OVERLAP. STAGGER SOD STRIPS TO FORMER JOINTS IN ADJACENT COURSES. TAMP AND ROLL THOROUGHLY TO ENSURE CONTACT WITH TOPSOIL. ANCHOR SOD ON SLOPES EXCEEDING 6:1 SLOPE. PROVIDE SLOW RELEASE FERTILIZER TO BE APPLIED 2 WEEKS AFTER SOD LAYING. WATER SODS TO MAINTAIN MOISTURE. WATER SODS 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, VARIABLE LAWN SHOULD BE ESTABLISHED. THE LAWN SHOULD BE FREE OF WEEDS, OPEN JOINTS, BARE AREAS, AND SURFACE IRREGULARITIES. REESTABLISH LAWNS THAT DO NOT COME UP WITHIN 90 DAYS OF INSTALLATION. EQUIVALENT TO THE SODDING CONTRACTOR SHALL BE THE CONTRACTOR FOR RIP RAP.
- RIP RAP: ALL RIP RAP ASSOCIATED WITH STORMWATER MANAGEMENT AND/OR 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 64.05 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 TRUNK PRUNING. PROVIDE SODDED, MULCH, SHADY, FULLY BLENDED, AND HEALTHY LOOKING SOIL. 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 SPECIES TYPE, SIZE, AND LOCATION.

- H. **TREE AND SHRUB INSTALLATION:** EXCAVATE CIRCULAR PITS WITH SIDES SLOPED INWARD. TRIM BASE AROUND CENTER AREA RISED 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 ROOT BALL JUST 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 PLANTING.
- J. **DECORATIVE MULCH:** PROVIDE 3" MINIMUM THICK BLANK MULCH 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.
- L. **COMMON BUCKTHORN MAINTENANCE:** AREA: A QUERIED LANDSCAPE CONTRACTOR WITH KNOWLEDGE OF LOCAL BUCKTHORN SPECIES SHALL BE ENGAGED TO PERFORM THE REMOVAL OF COMMON BUCKTHORN FROM THE AREA DENOTED ON SHEET C1.4. ALL VISIBLE BUCKTHORN SHALL BE CLEARED/REMOVED FROM THIS AREA (WITHIN REASON) AND DISPOSED OF OFFSITE. BUCKTHORN SHALL BE REMOVED BY MEANS OF CUTTING THE PLANT AT THE GROUND SURFACE. APPLY HERBICIDE TO THE CUT SUMM IMMEDIATELY AFTER CUTTING. FOR PLANTS THAT ARE LESS THAN 3/8" IN DIAMETER, A HERBICIDE MAY BE APPLIED DIRECTLY TO THE PLANT IN LIEU OF CUTTING. FOR PLANTS GREATER THAN 3/8" IN DIAMETER, HERBICIDE SHALL BE TRICHLOROPICOLINATE-BASED (GARLICK, A, ELEMENTS, ETC.) AND APPLIED TO THE CUT SURFACE. HERBICIDE SHALL BE APPLIED PER INSTRUCTIONS FOUND ON THE PRODUCT LABEL. THIS WORK SHALL BE COMPLETED BY LATE SUMMER/EARLY FALL AT THE LATEST. DISTURBANCE FROM EQUIPMENT USE SHALL BE MINIMIZED TO THE EXTENT PRACTICAL.

A. CONTRACTOR TO VERIFY FIELD 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. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES.

B. ALL PROPOSED SANITARY PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A. ALLOWABLE PIPE MATERIAL SCHEDULE ON C.O.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 C.O.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. ALL MANHOLES SHALL BE NEARLY 15'-50" AROUND A 1550-A EQUAL REM. 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 WEY FITTING IN LINE WITH THE SANITARY SERVICE WITH THE CLEANOUT LEG OF THE COMBINATION WEY FACING STRAIGHT UP. THE CLEANOUT SHALL CONSIST OF A 4" OR 6" OR 8" OR SMALLER, 6" FOR 6" OR LARGER PIPE/ VERTICAL PVC PIPE WITH A 1/2" FLANGE AND A 1/2" FLANGE CLEAR OF THE SURFACE GRADE. THE CLEANOUT SHALL BE 12" ABOVE THE TOP 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 1/2" FLANGE CLEAR OF THE SURFACE GRADE. THE CLEANOUT SHALL BE 12" ABOVE 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 C.O.2 OF THE PROPOSED PLANSET. 7" MINIMUM COVER SHALL BE PROVIDED OVER ALL WATER PIPING UNLESS OTHERWISE SPECIFIED.
- F. ALL PLUMBING SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A:
ALLOWABLE PIPE MATERIAL SCHEDULE ON C.O.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 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 SHALL NOT BE UNDER ANY BUILDING FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN WATER SERVICE LEADS WITHIN THE FOUNDATION PERMITTED 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 (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 FEET TO 20 FEET AND AT ALL BENDS. TRACER WIRE SHALL HAVE ACCESS POINTS AT LEAST EVERY 300 FEET. REFERENCE VILLAGE OF GERMANTOWN DEVELOPMENT HANDBOOK SECTION 2.1.11.
- 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.
- L. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL UTILITY MATERIALS. FOR REVIEW AND APPROVAL BY THE DESIGN ENGINEER AND VILLAGE OF GERMANTOWN ENGINEERING/UTILITY DEPARTMENT.
- M. THE DESIGN ENGINEER SHALL PROVIDE NECESSARY INFORMATION FOR ADEQUATE CONNECTION TO THE VILLAGE SYSTEM. THE SURVEY POINTS MUST BE CAPTURED IN NAD83 WITH EACH GPS POINT CLASSIFIED BY A WRITTEN DESCRIPTION IN THE EXCEL UPLOAD FILE. GPS COORDINATES SHALL BE PROVIDED TO KEVIN KORTH OF RUEKERT & MIELKE (262-542-5733). FOR THE WATER SERVICE, GPS POINTS SHALL BE PROVIDED FOR THE TAP, THE LEAD, AND THE CURB STOP. GPS POINTS SHALL ALSO BE PROVIDED FOR THE TRACER WIRE BOX ON THE OUTSIDE OF THE BUILDING. IF CONTRACTOR CANNOT PROVIDE THIS SERVICE, CONTACT EXCEL ENGINEERING AT 608-781-0100. THE VILLAGE WILL PROVIDE THE TRACER WIRE SERVICE. COSTS INCURRED FOR THIS AS-BUILT SURVEY WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.
- N. CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE WATER UTILITY DEPARTMENT PRIOR TO COMMENCING WORK FOR NEW WATER SERVICE.

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 F2464 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

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

PROFESSIONAL SEAL

PRELIMINARY DATES	
OCT. 5, 2020	NOTICE
DEC. 29, 2020	
FEB. 22, 2021	

NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER

C0.2

PROJECT INFORMATION

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SUNDANCE - TACO BELL
N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

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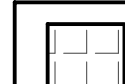
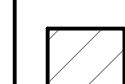
SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN
SPECIFICATIONS AND REQUIREMENTS

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.

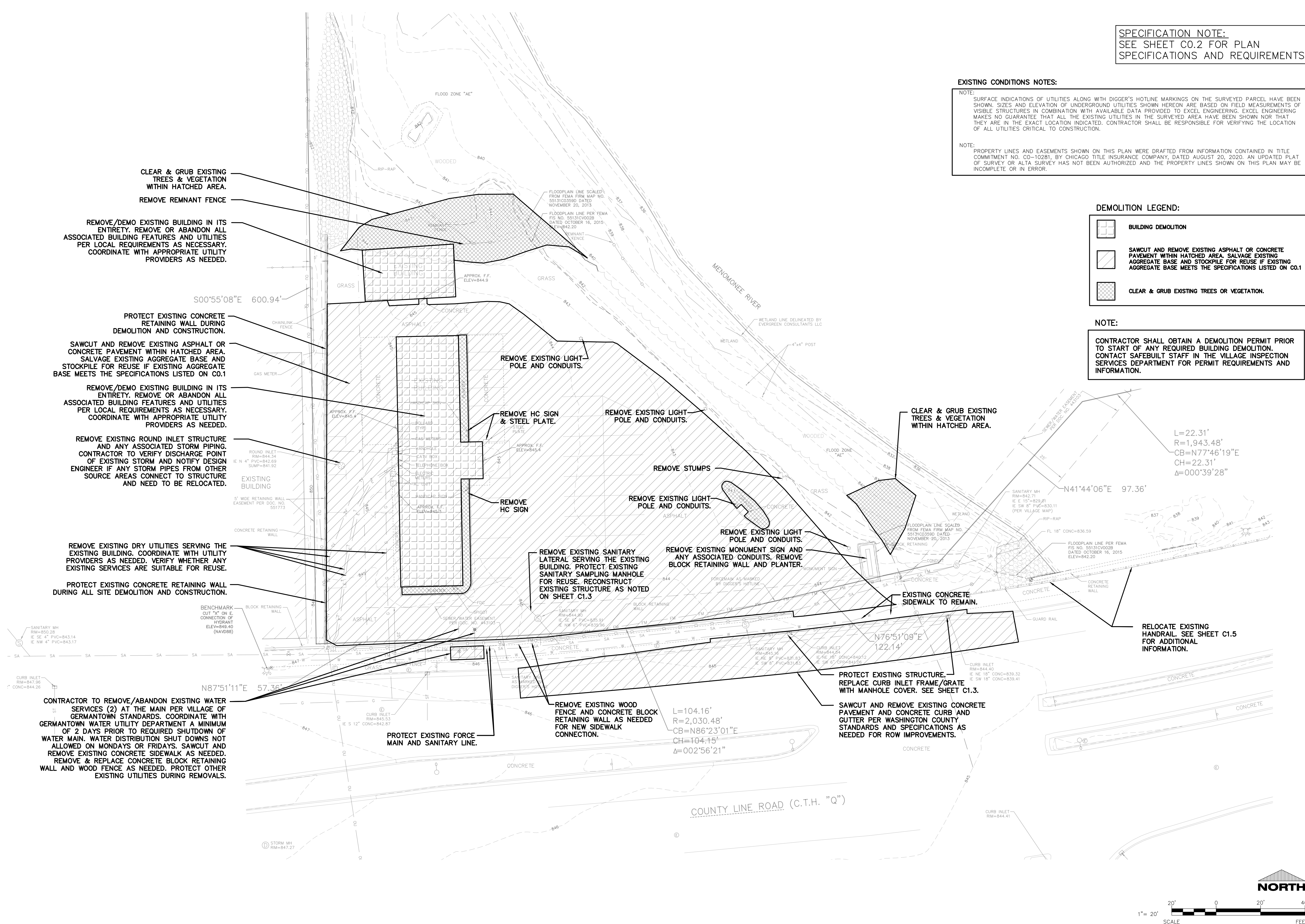
NOTE:
PROPERTY LINES AND EASEMENTS SHOWN ON THIS PLAN WERE DRAFTED FROM INFORMATION CONTAINED IN TITLE COMMITMENT NO. CO-10281, BY CHICAGO TITLE INSURANCE COMPANY, DATED AUGUST 20, 2020. AN UPDATED PLAT OF SURVEY OR ALTA SURVEY HAS NOT BEEN AUTHORIZED AND THE PROPERTY LINES SHOWN ON THIS PLAN MAY BE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

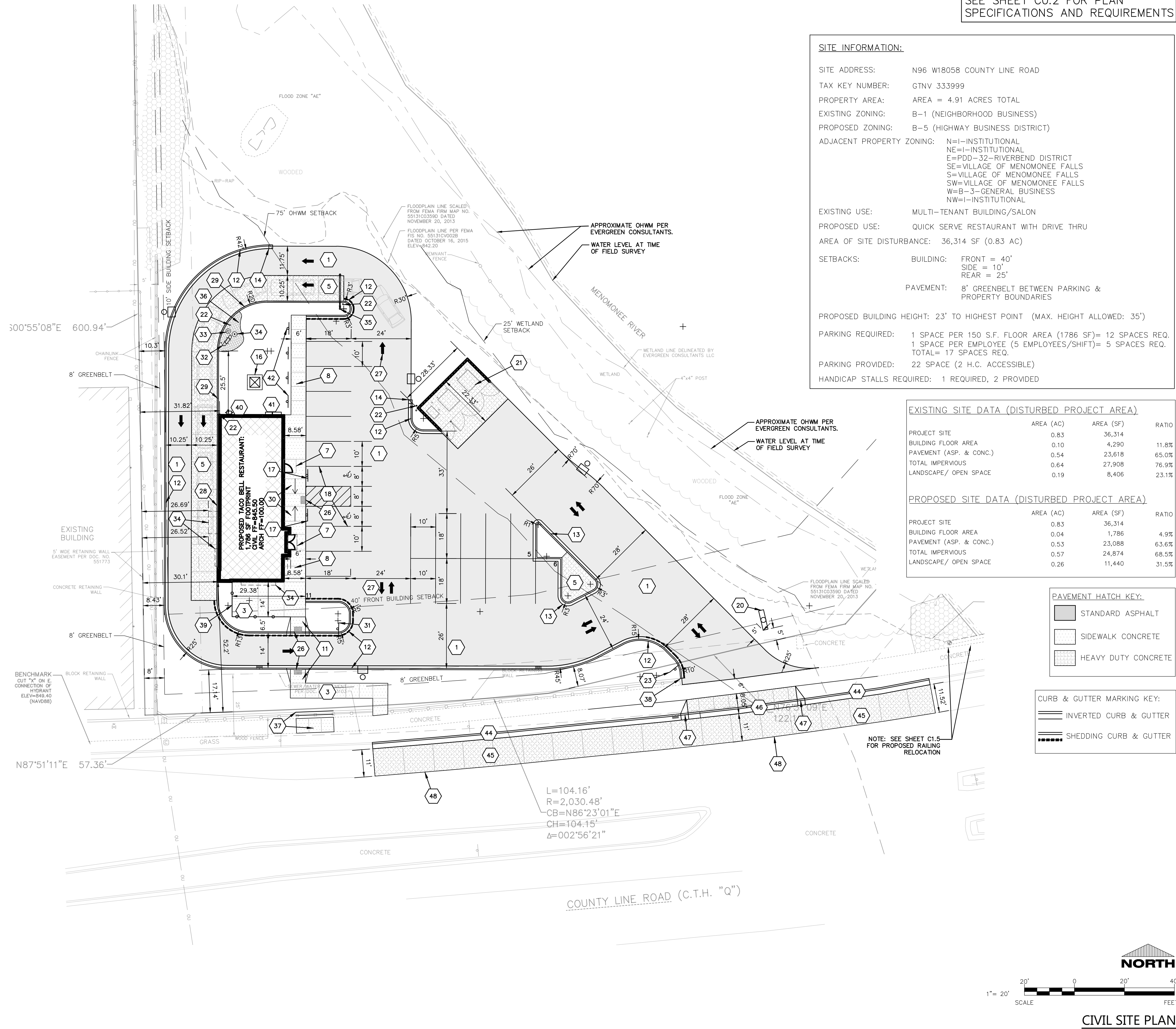
NOTE:

CONTRACTOR SHALL OBTAIN A DEMOLITION PERMIT PRIOR TO START OF ANY REQUIRED BUILDING DEMOLITION. CONTACT SAFEBUILT STAFF IN THE VILLAGE INSPECTION SERVICES DEPARTMENT FOR PERMIT REQUIREMENTS AND INFORMATION.



CIVIL EXISTING SITE AND DEMOLITION PLAN

SITE PLAN KEYNOTES	
1	STANDARD ASPHALT SECTION (TYP.)
3	CONCRETE SIDEWALK/CONCRETE PATIO (TYP.)
5	HEAVY DUTY/DRIVE THRU 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
42	EMPLOYEE PARKING ONLY SIGN (4 TYP)
44	30" CONCRETE CURB AND GUTTER PER WASHINGTON COUNTY STANDARDS AND SPECIFICATIONS. MATCH EXISTING.
45	REPLACE CONCRETE PAVEMENT PER WASHINGTON COUNTY STANDARDS AND SPECIFICATIONS AS NEEDED. (7" CONC. OVER 6" OF 3/4" AGG. BASE)
46	DRIVEWAY ENTRANCE PER COUNTY/VILLAGE REQUIREMENTS. PROVIDE DRIVEWAY CURB AND GUTTER TO MATCH EXISTING.
47	3' APRON FLARE/CURB TAPER PER LOCAL REQUIREMENTS.
48	PROVIDE AUXILIARY LANE PAVEMENT MARKINGS TO MATCH EXISTING (TYP.)



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PROFESSIONAL SEAL

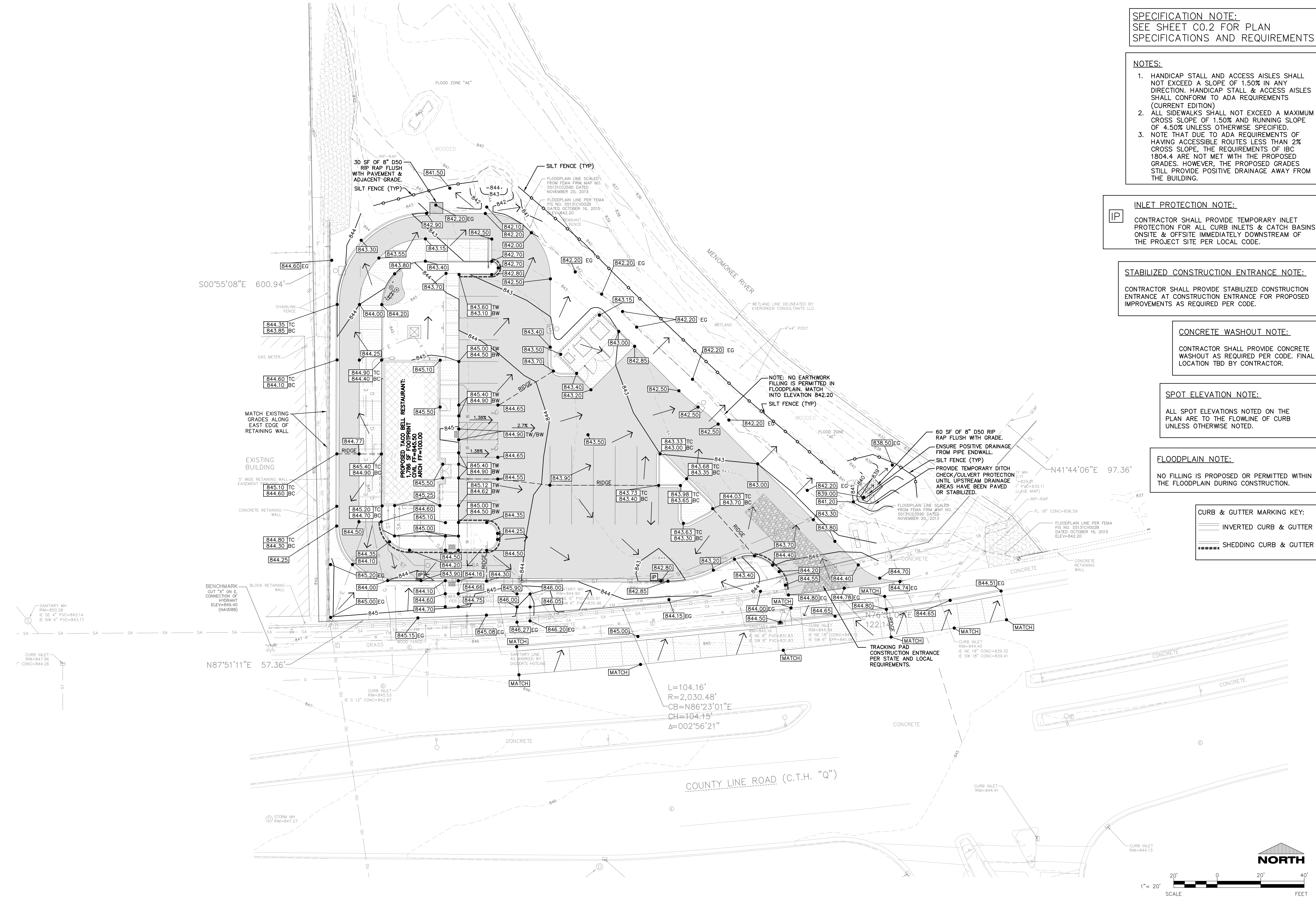
PRELIMINARY DATES
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NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C1.1

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

- NOTES:**
- HANDICAP STALL AND ACCESS AISLES SHALL NOT EXCEED A SLOPE OF 1.50% IN ANY DIRECTION. HANDICAP STALL & ACCESS AISLES SHALL CONFORM TO ADA REQUIREMENTS (CURRENT EDITION).
 - ALL SIDEWALKS SHALL NOT EXCEED A MAXIMUM CROSS SLOPE OF 1.50% AND RUNNING SLOPE OF 4.50% UNLESS OTHERWISE SPECIFIED.
 - NOTE THAT DUE TO ADA REQUIREMENTS OF HAVING ACCESSIBLE ROUTES LESS THAN 2% CROSS SLOPE, THE REQUIREMENTS OF IBC 1804.4 ARE NOT MET WITH THE PROPOSED GRADES. HOWEVER, THE PROPOSED GRADES STILL PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.

INLET PROTECTION NOTE:

CONTRACTOR SHALL PROVIDE TEMPORARY INLET PROTECTION FOR ALL CURB INLETS & CATCH BASINS ONSITE & OFFSITE IMMEDIATELY DOWNSTREAM OF THE PROJECT SITE PER LOCAL CODE.

STABILIZED CONSTRUCTION ENTRANCE NOTE:

CONTRACTOR SHALL PROVIDE STABILIZED CONSTRUCTION ENTRANCE AT CONSTRUCTION ENTRANCE FOR PROPOSED IMPROVEMENTS AS REQUIRED PER CODE.

CONCRETE WASHOUT NOTE:

CONTRACTOR SHALL PROVIDE CONCRETE WASHOUT AS REQUIRED PER CODE. FINAL LOCATION TBD BY CONTRACTOR.

SPOT ELEVATION NOTE:

ALL SPOT ELEVATIONS NOTED ON THE PLAN ARE TO THE FLOWLINE OF CURB UNLESS OTHERWISE NOTED.

FLOODPLAIN NOTE:

NO FILLING IS PROPOSED OR PERMITTED WITHIN THE FLOODPLAIN DURING CONSTRUCTION.

CURB & GUTTER MARKING KEY:

- INVERTED CURB & GUTTER
- SHEDDING CURB & GUTTER

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PROJECT INFORMATION

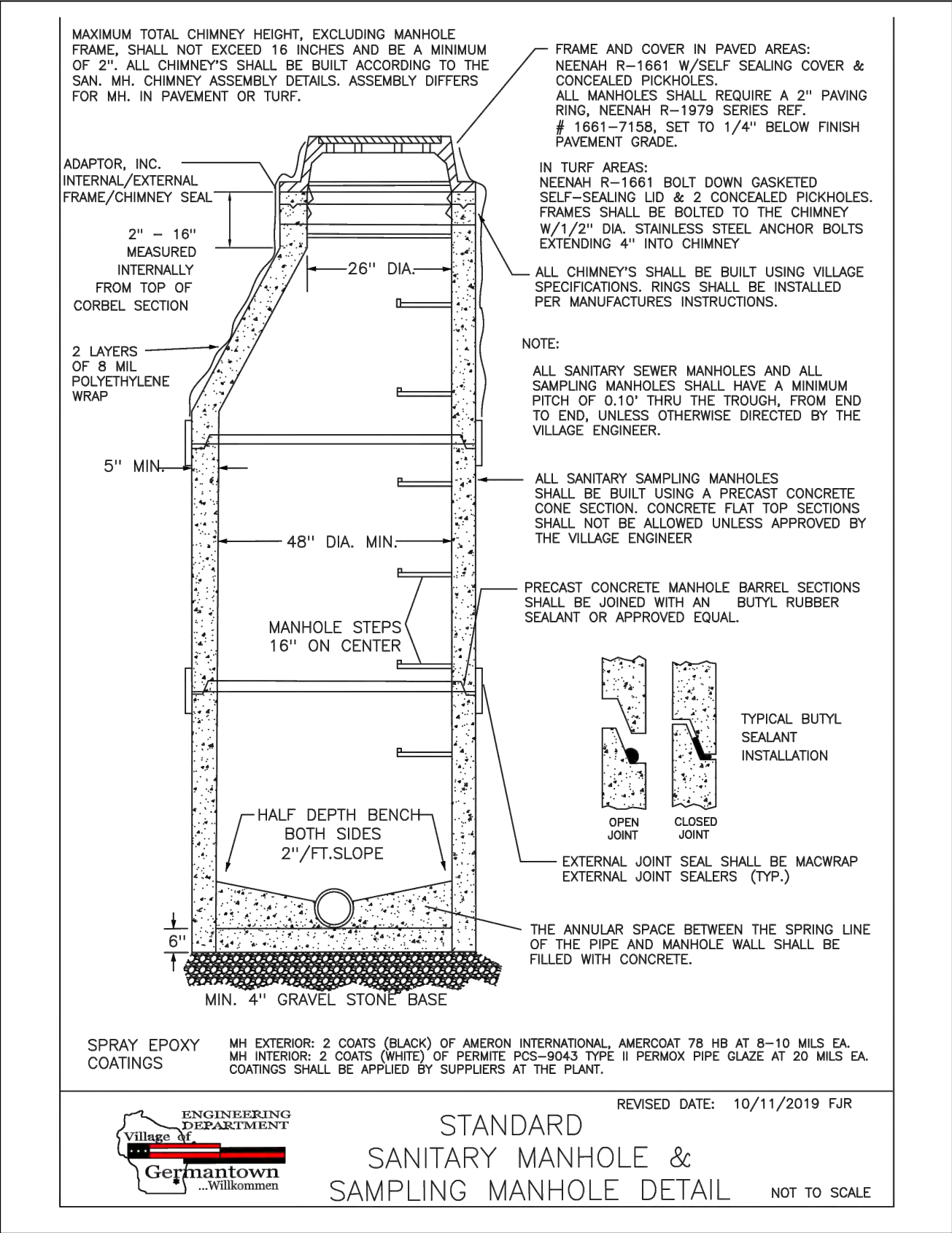
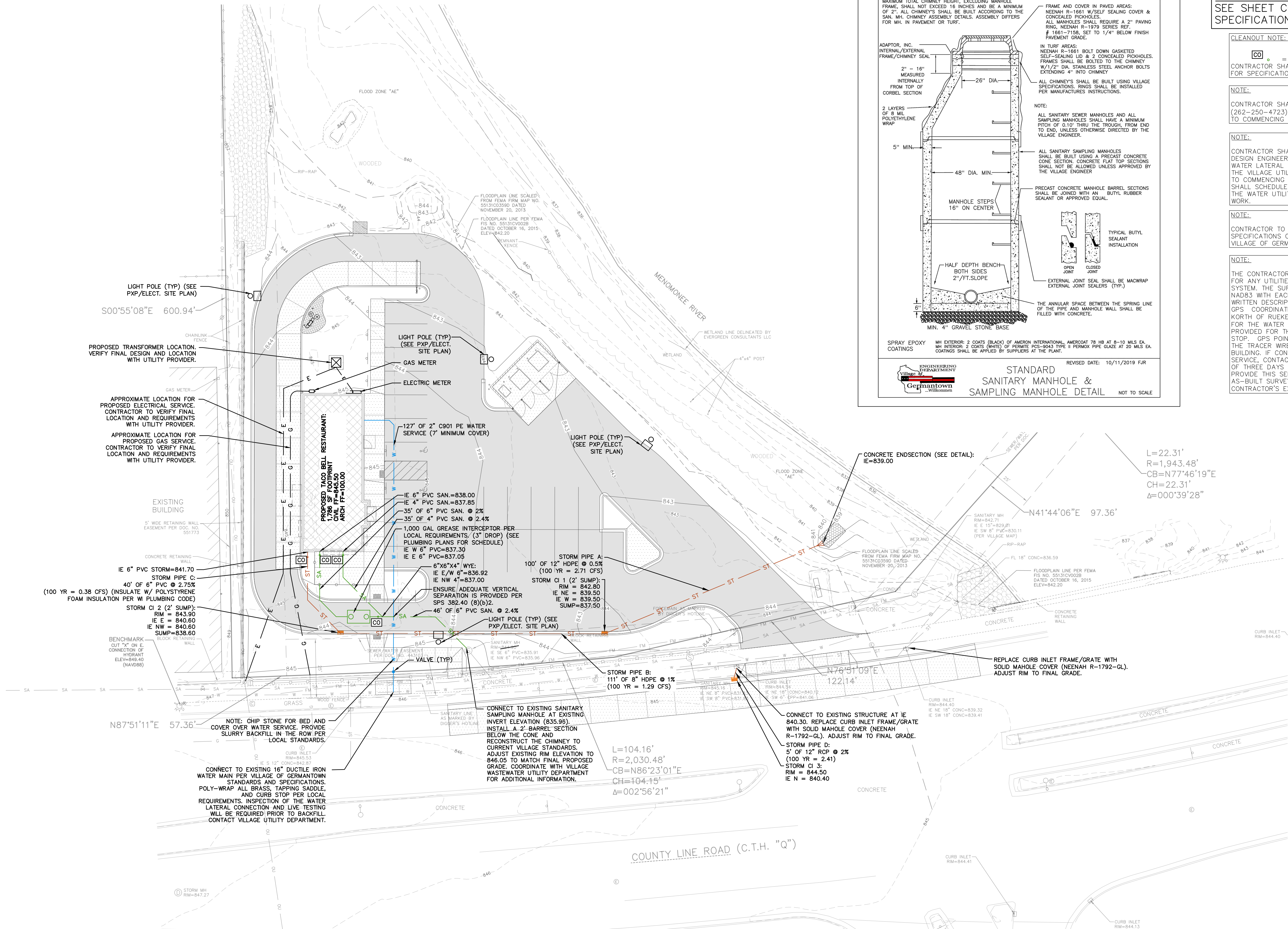
NEW BUILDING FOR:
SUNDANCE - TACO BELL
N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

PRELIMINARY DATES	
OCT. 5, 2020	
DEC. 29, 2020	
FEB. 22, 2021	

JOB NUMBER
2005200

SHEET NUMBER
C1.2



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

CLEANOUT NOTE:
[Symbol] = DENOTES LOCATIONS WHERE CONTRACTOR SHALL INSTALL CLEANOUTS; SEE C0.1 FOR SPECIFICATION.

NOTE:
CONTRACTOR SHALL CONTACT RYAN EHLERDING (262-250-4723) TO PULL A UTILITY PERMIT PRIOR TO COMMENCING ANY SITE UTILITY WORK.

NOTE:
CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE DESIGN ENGINEER FOR ALL MATERIAL USED IN THE WATER LATERAL INSTALLATION. PRIOR APPROVAL BY THE VILLAGE UTILITY DEPARTMENT IS REQUIRED PRIOR TO COMMENCING WORK. ADDITIONALLY, CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE WATER UTILITY DEPARTMENT PRIOR TO START OF WORK.

NOTE:
CONTRACTOR TO INSTALL TRACER WIRE PER SPECIFICATIONS ON C0.2 AND SECTION 2.1.11 OF THE VILLAGE OF GERMANTOWN DEVELOPMENT HANDBOOK.

NOTE:
THE CONTRACTOR SHALL PROVIDE GPS COORDINATES FOR ANY UTILITIES CONNECTING TO THE VILLAGE SYSTEM. THE SURVEY POINTS MUST BE CAPTURED IN NAD83 WITH EACH GPS POINT CLASSIFIED BY A WRITTEN DESCRIPTION IN THE EXCEL UPLOAD FILE. GPS COORDINATES SHALL BE PROVIDED TO KEVIN KORTH OF RUEKERT & MIELKE (262-542-5733). FOR THE WATER SERVICE, GPS POINTS SHALL BE PROVIDED FOR THE TAP, THE LEAD, AND THE CURB STOP. GPS POINTS SHALL ALSO BE PROVIDED FOR THE TRACER WIRE BOX ON THE OUTSIDE OF THE BUILDING. IF CONTRACTOR CANNOT PROVIDE THIS SERVICE, CONTACT EXCEL ENGINEERING AT A MINIMUM OF THREE DAYS PRIOR TO COMMENCING THE WORK TO PROVIDE THIS SERVICE. COSTS INCURRED FOR THIS AS-BUILT SURVEY WORK SHALL BE AT THE CONTRACTOR'S EXPENSE.

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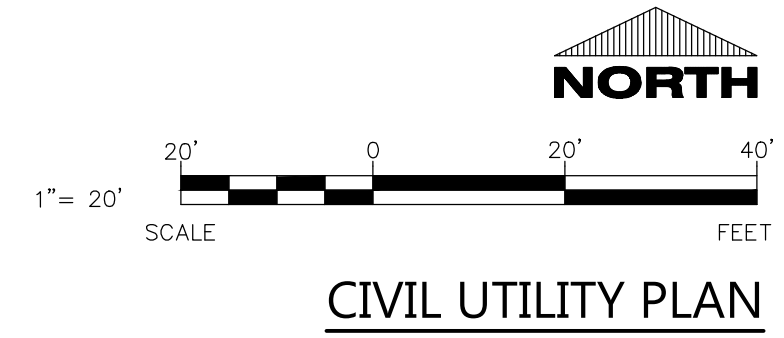
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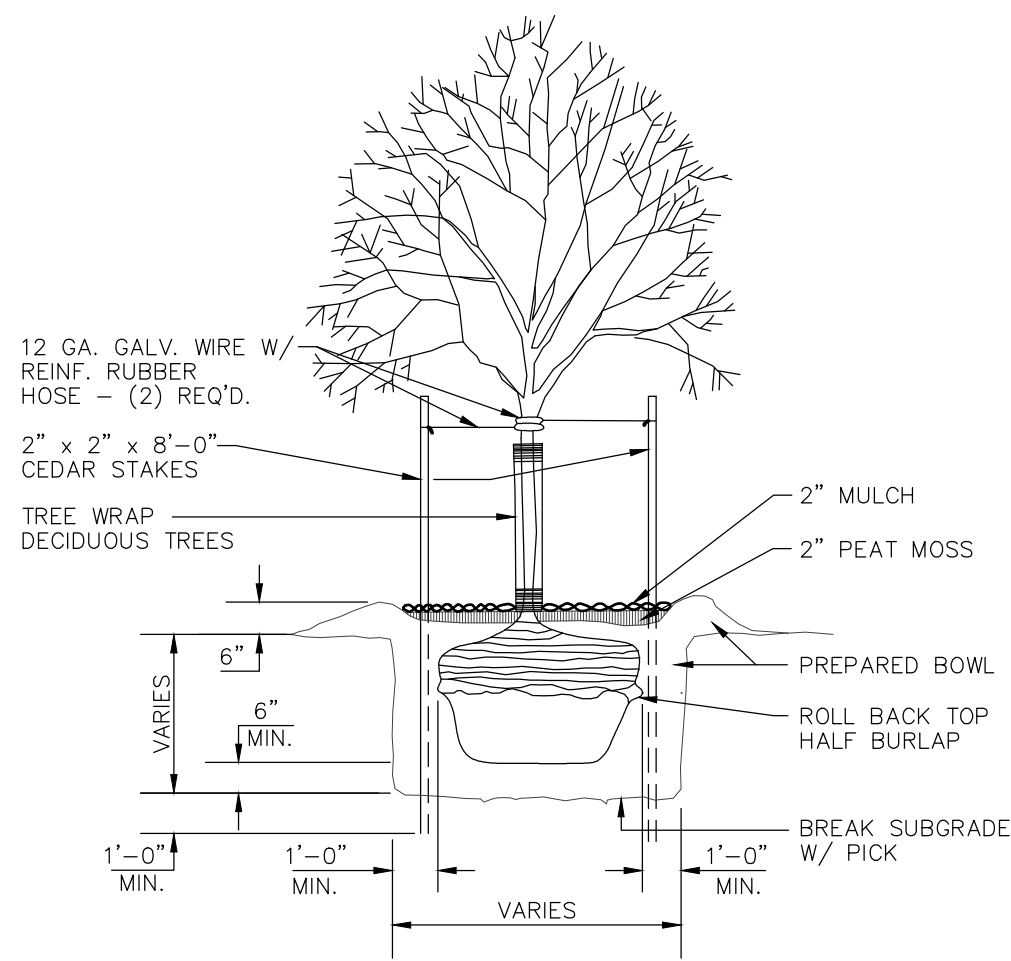
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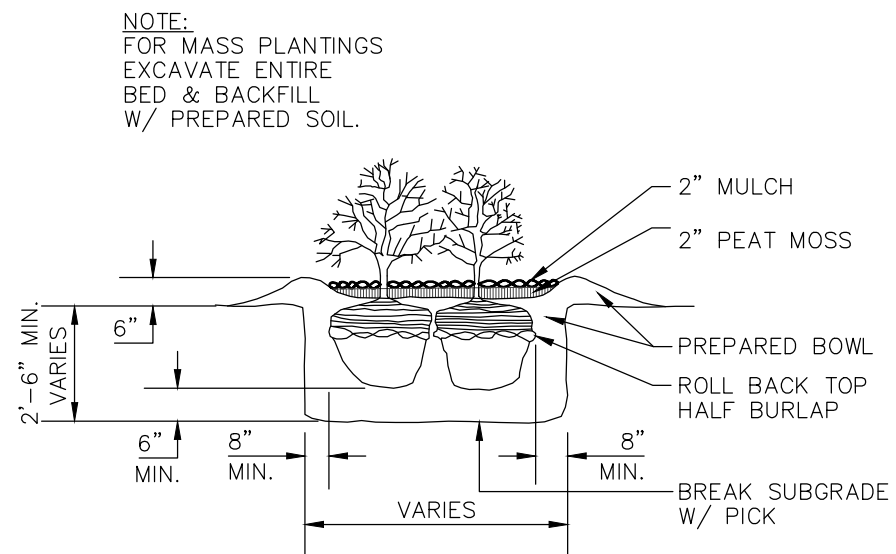
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C1.3

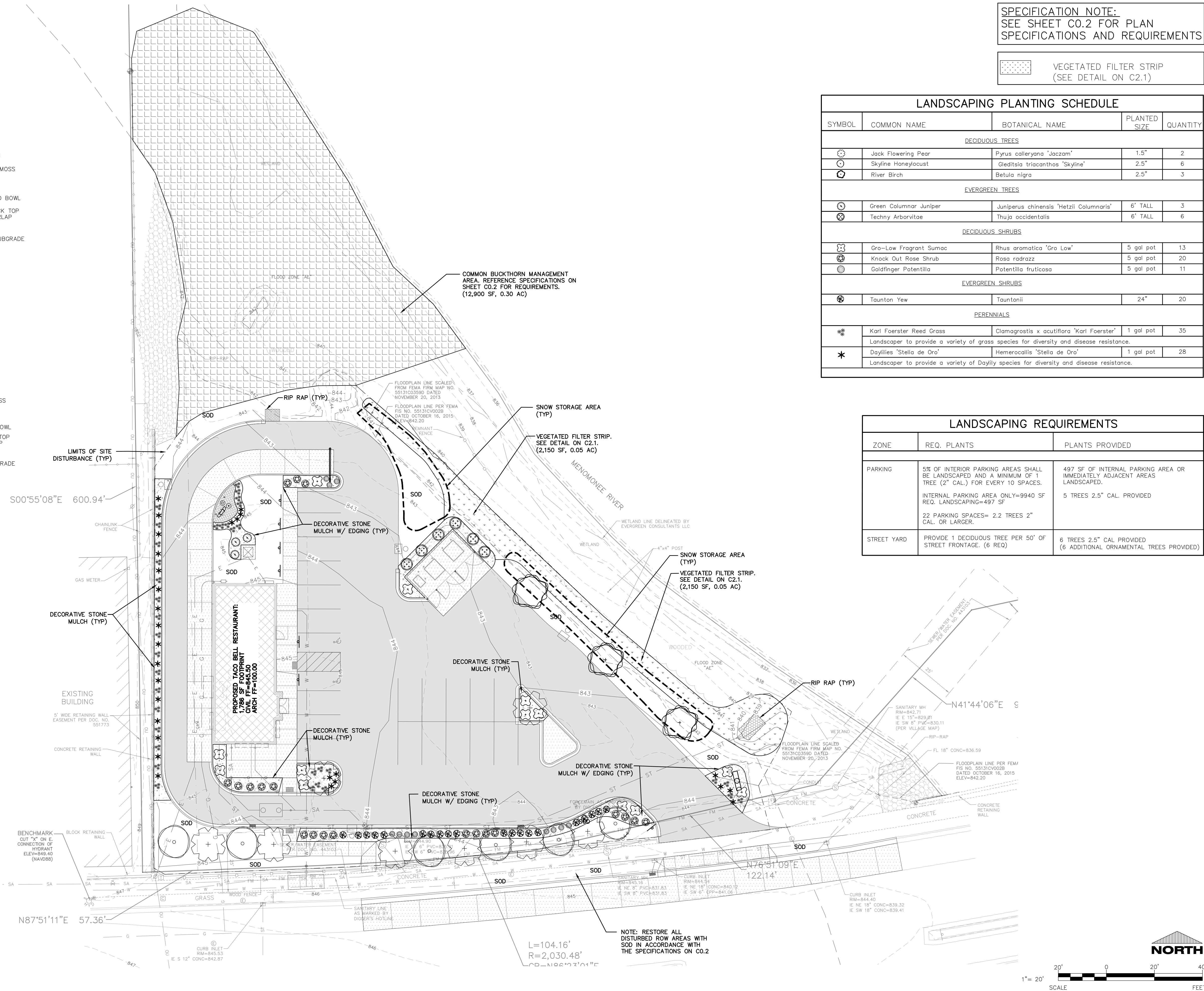




TREE PLANTING DETAIL
NO SCALE



SHRUB PLANTING DETAIL
NO SCALE



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

VEGETATED FILTER STRIP
(SEE DETAIL ON C2.1)

PROJECT INFORMATION

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SHEET NUMBER

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SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN
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PRELIMINARY DATES

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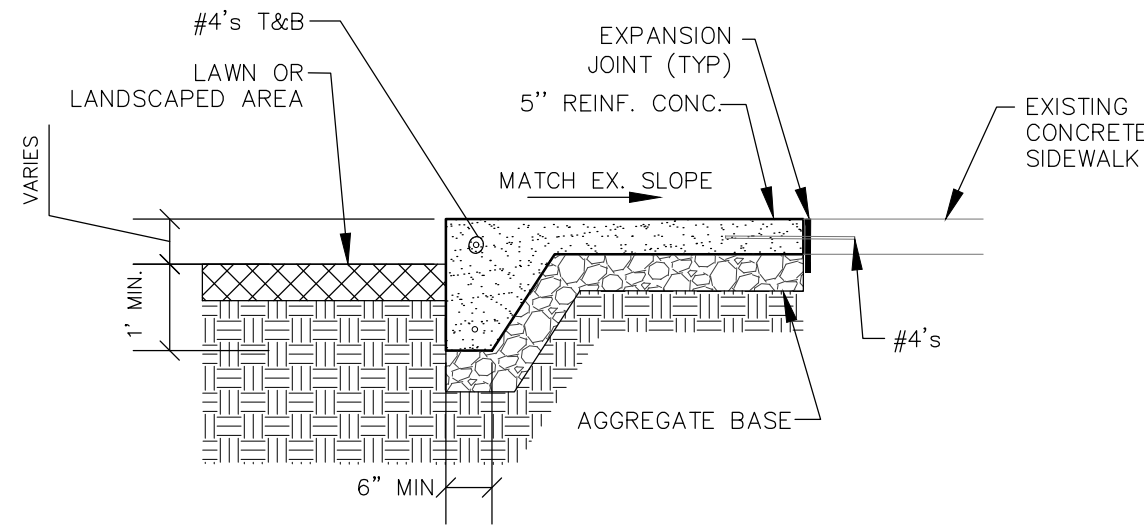
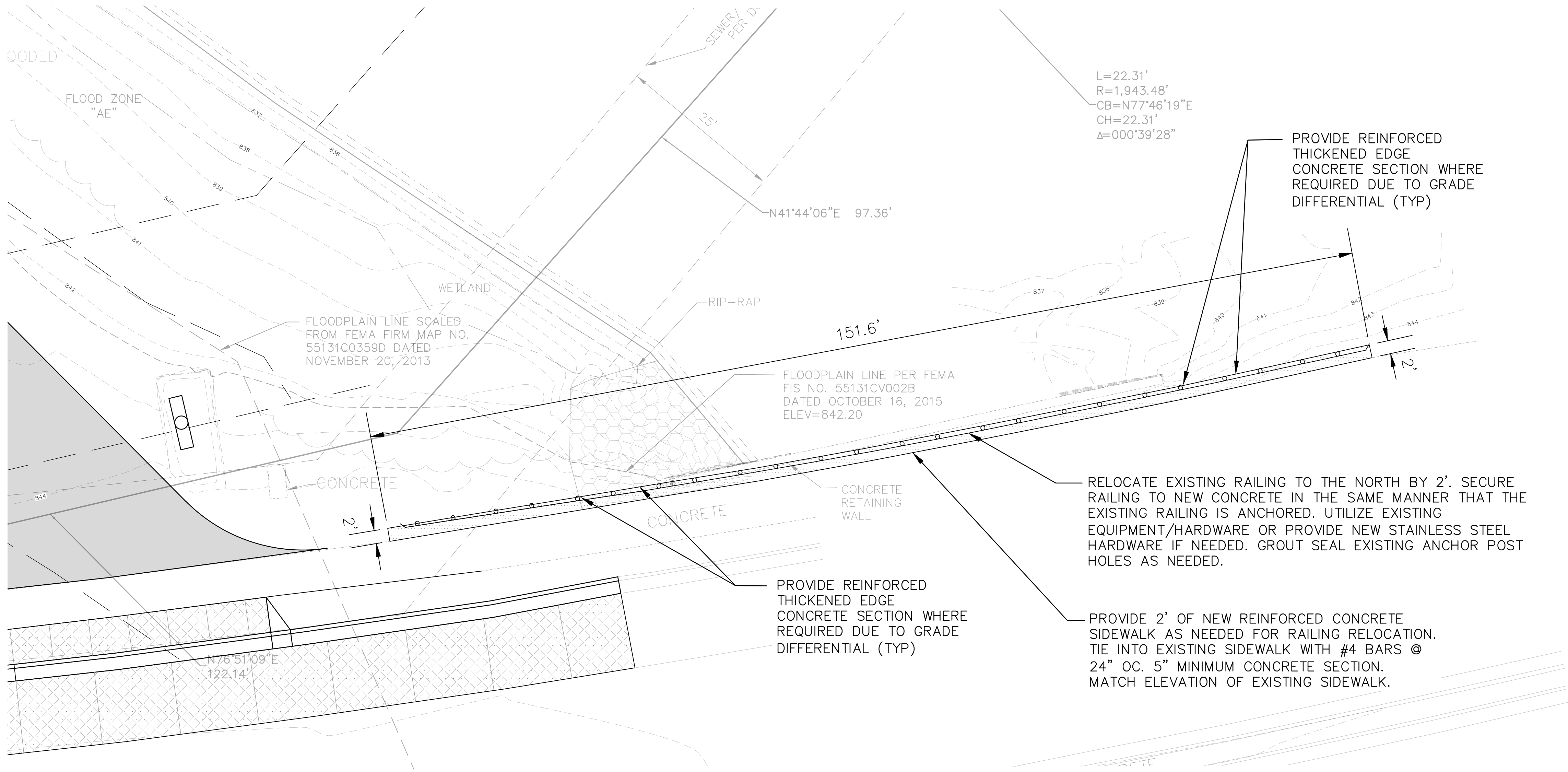
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JOB NUMBER

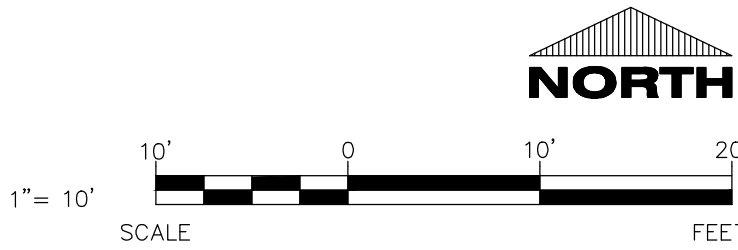
2005200

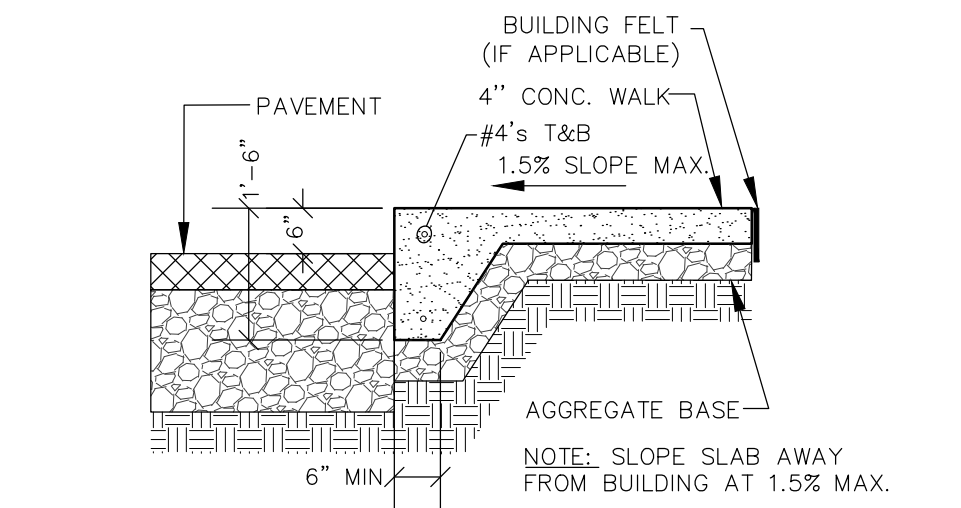
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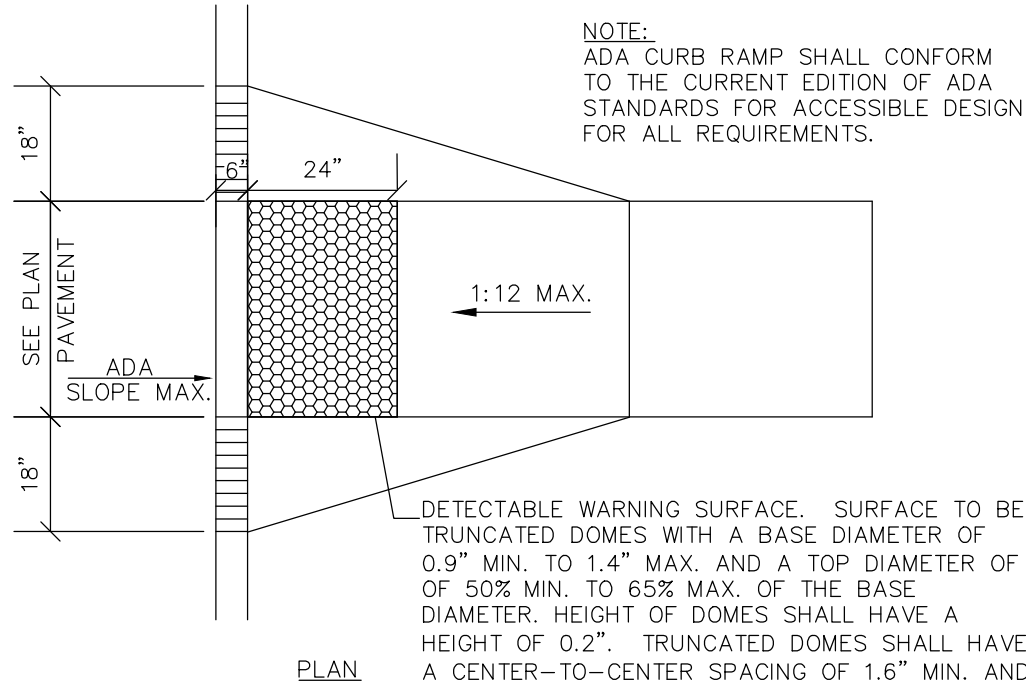
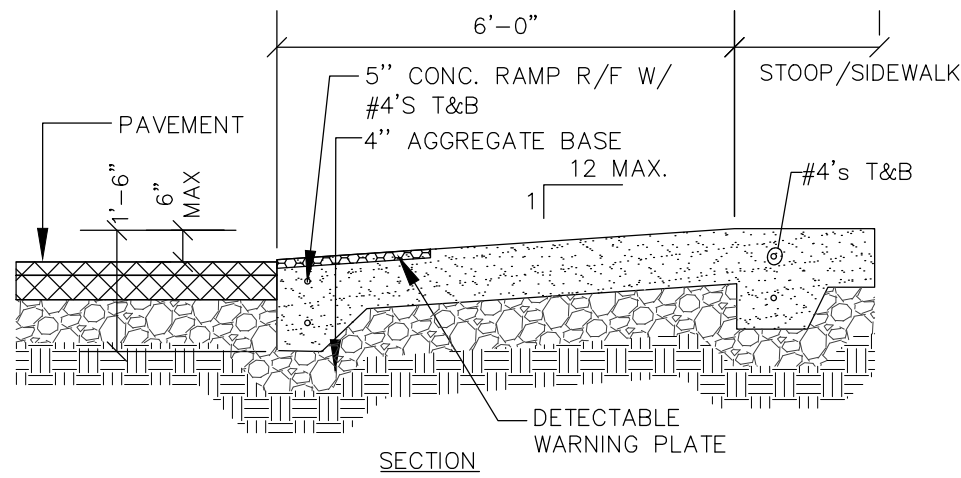


THICKENED EDGE CONCRETE DETAIL
NO SCALE

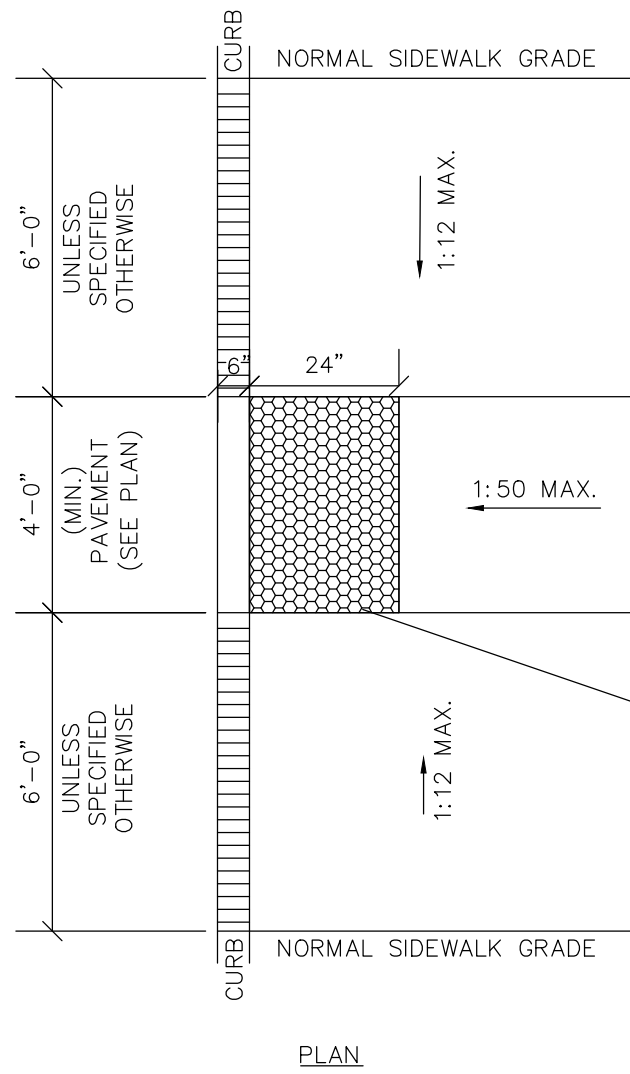




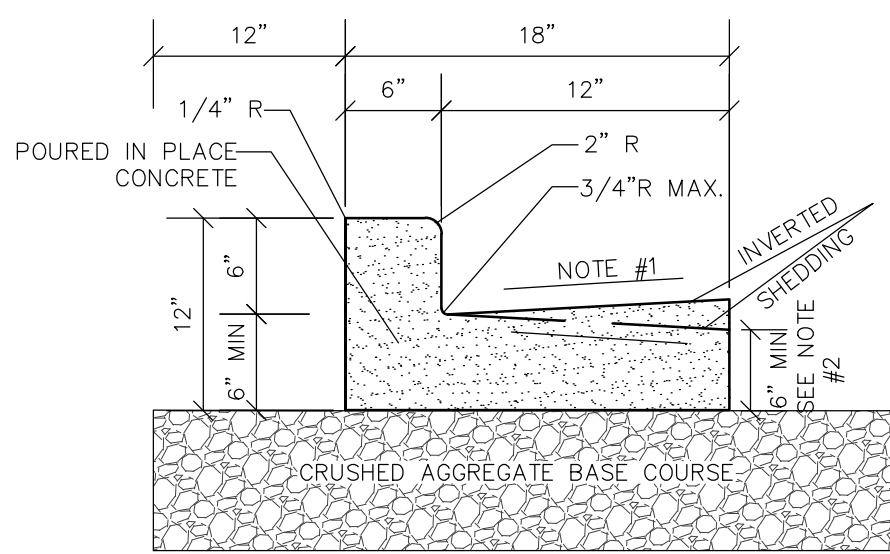
RAISED WALK DETAIL
NO SCALE



CURB RAMP DETAIL
NO SCALE

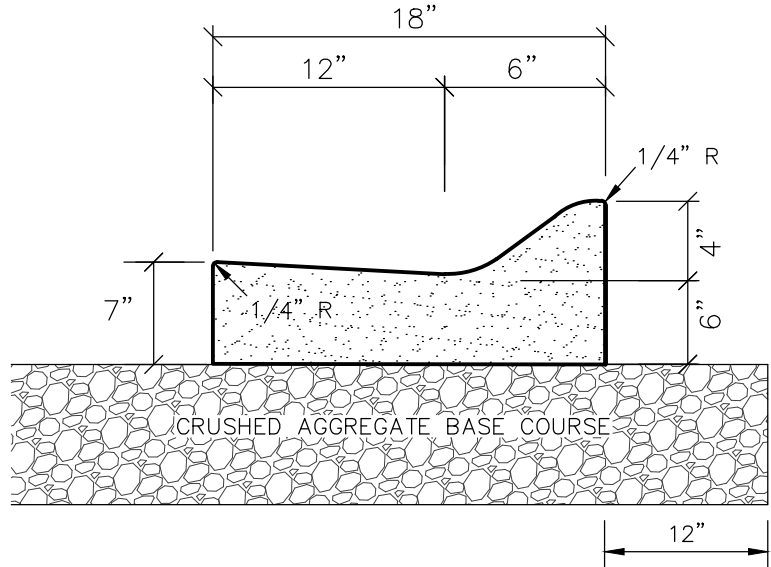


ADA SIDEWALK RAMP DETAIL
NO SCALE

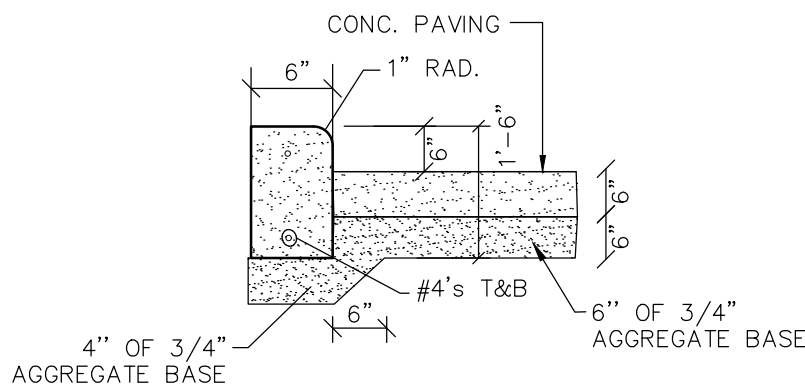


- NOTE:
- USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
 - THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MIN. GUTTER THICKNESS IS MAINTAINED.
 - SEE SITE PLAN & GRADING PLAN FOR INVERTED & SHEDDING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

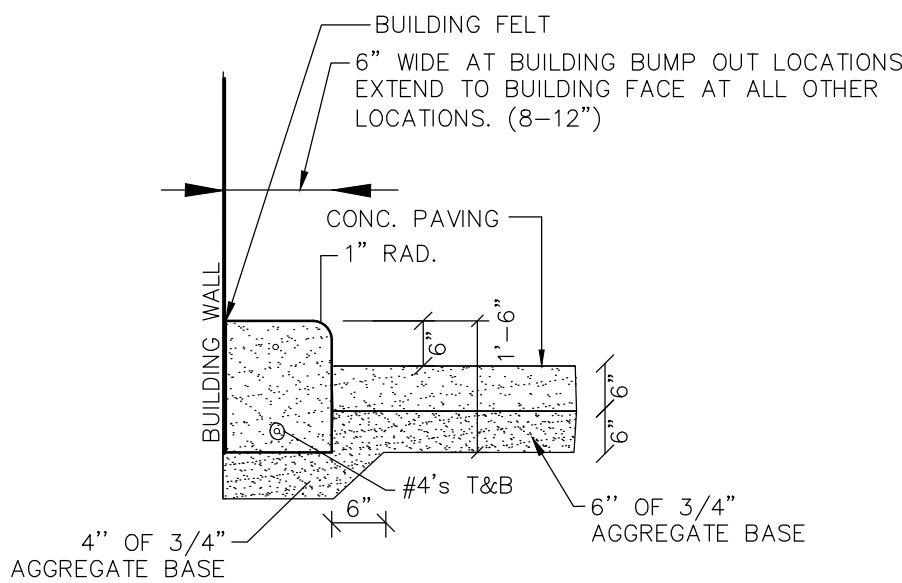
18" CONCRETE CURB & GUTTER DETAIL
NO SCALE



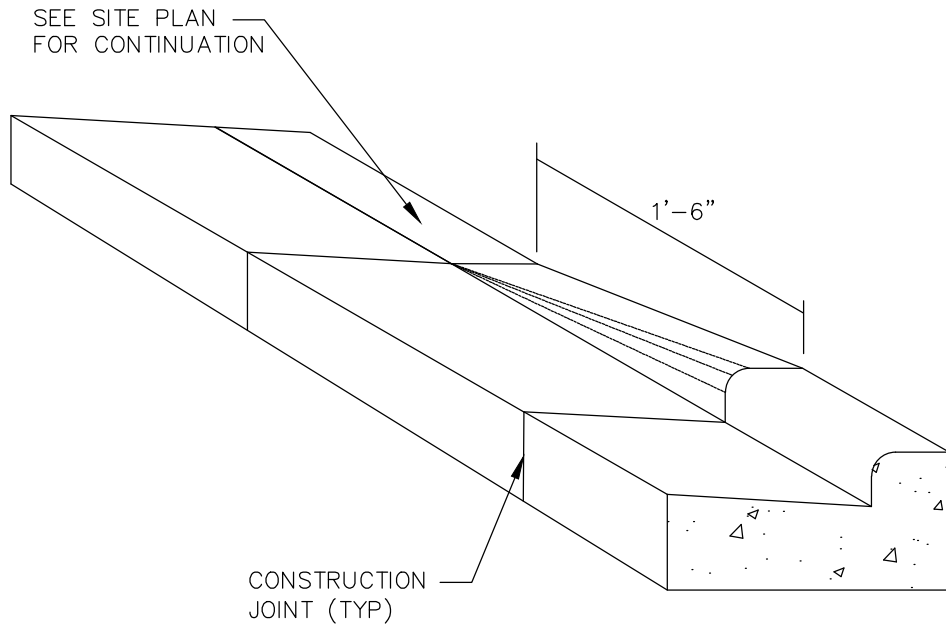
18" MOUNTABLE CURB & GUTTER DETAIL
NO SCALE



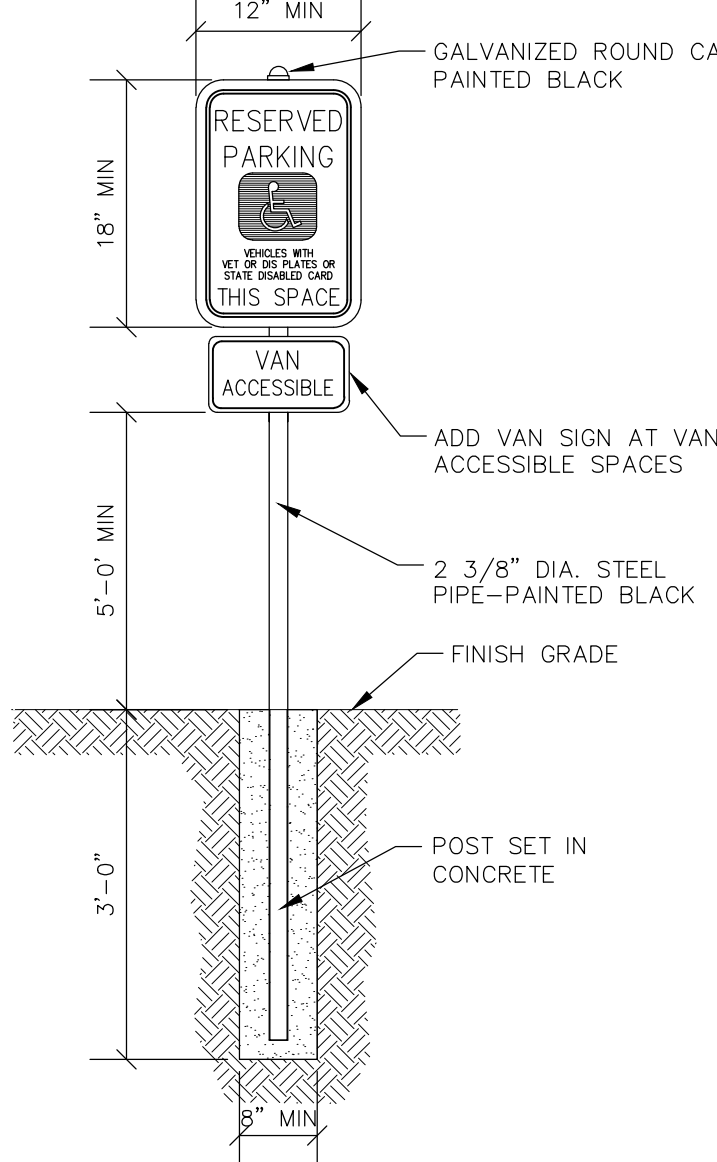
DRIVE-THRU 6" VERTICAL CURB DETAIL
NO SCALE



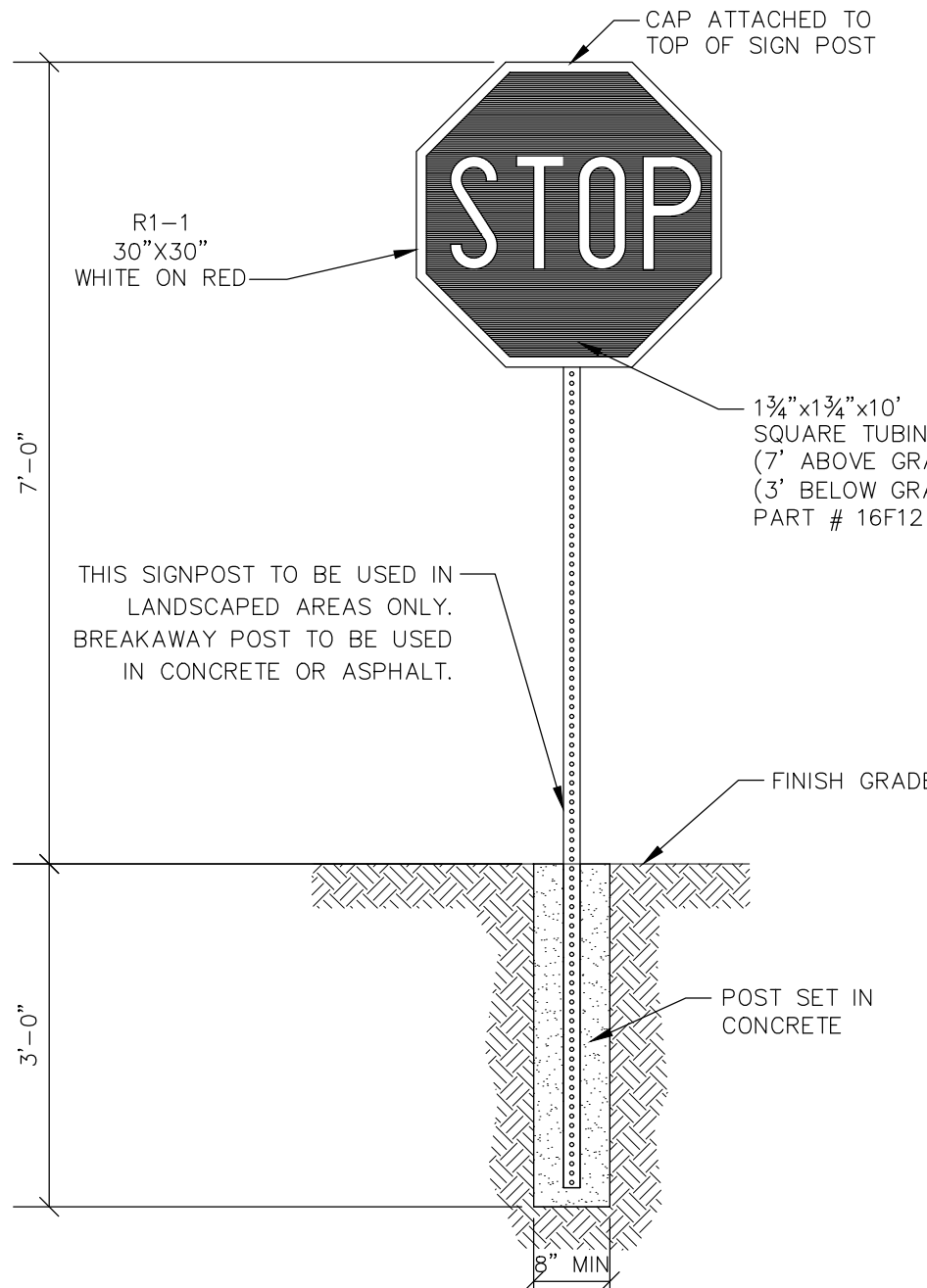
DRIVE-THRU BUILDING VERTICAL CURB DETAIL
NO SCALE



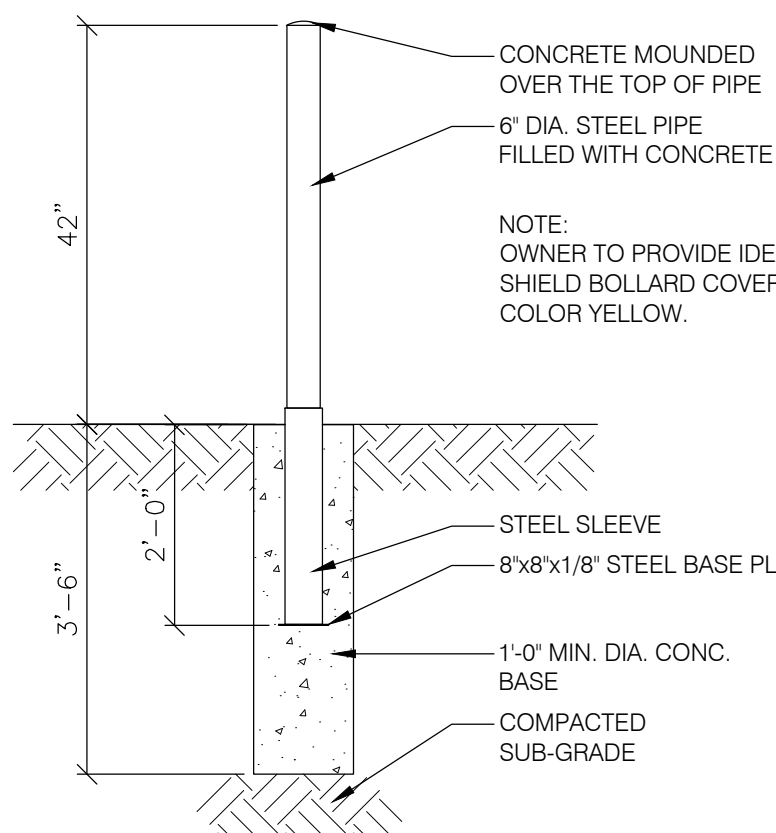
CURB TAPER DETAIL
NO SCALE



HANDICAP SIGNAGE WITH CONCRETE BASE DETAIL
NO SCALE



STOP SIGN WITH CONCRETE BASE DETAIL
NO SCALE



BOLLARD DETAIL
NO SCALE

SPECIFICATION NOTE:
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PROFESSIONAL SEAL

PRELIMINARY DATES

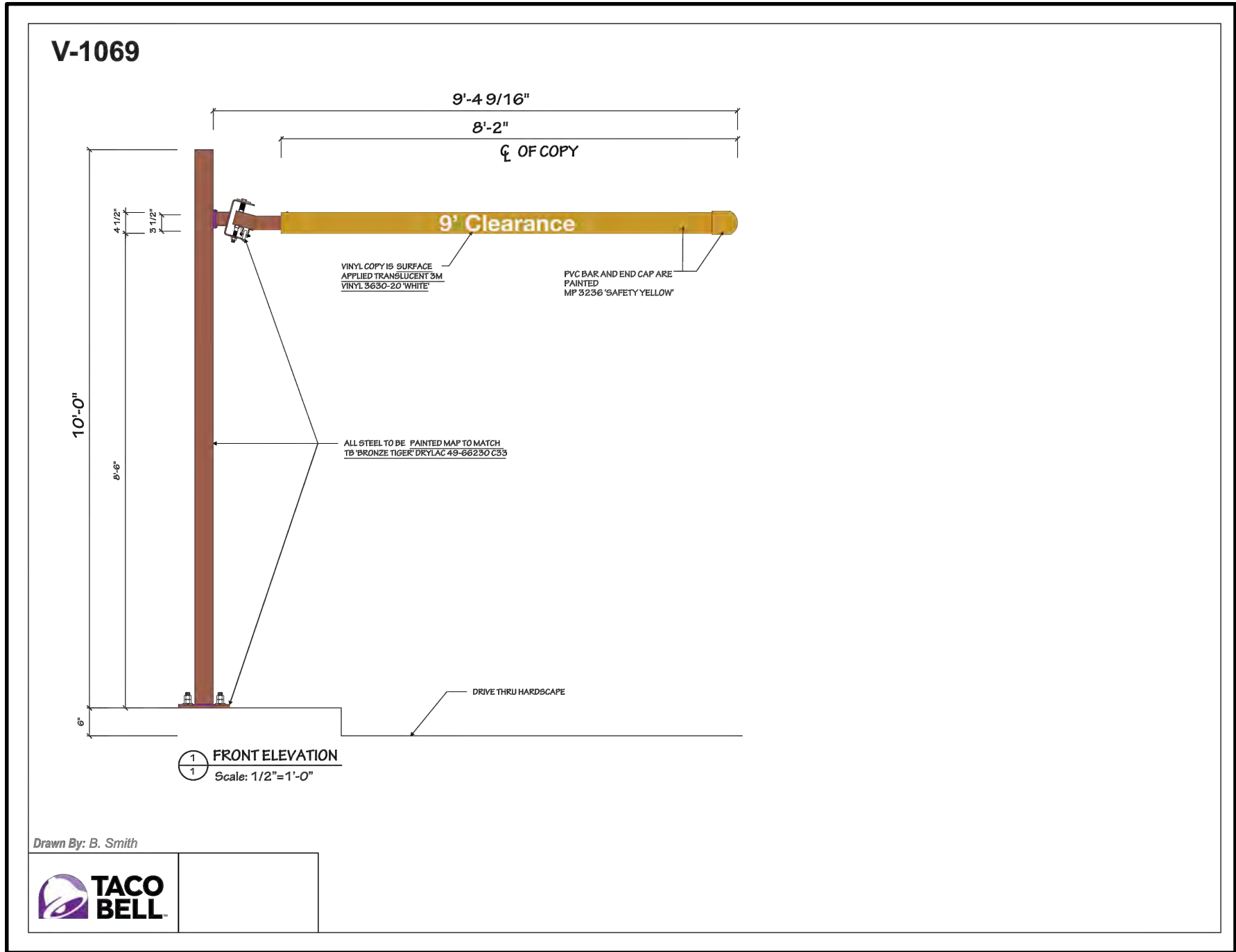
OCT. 5, 2020
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2005200

SHEET NUMBER

C2.0

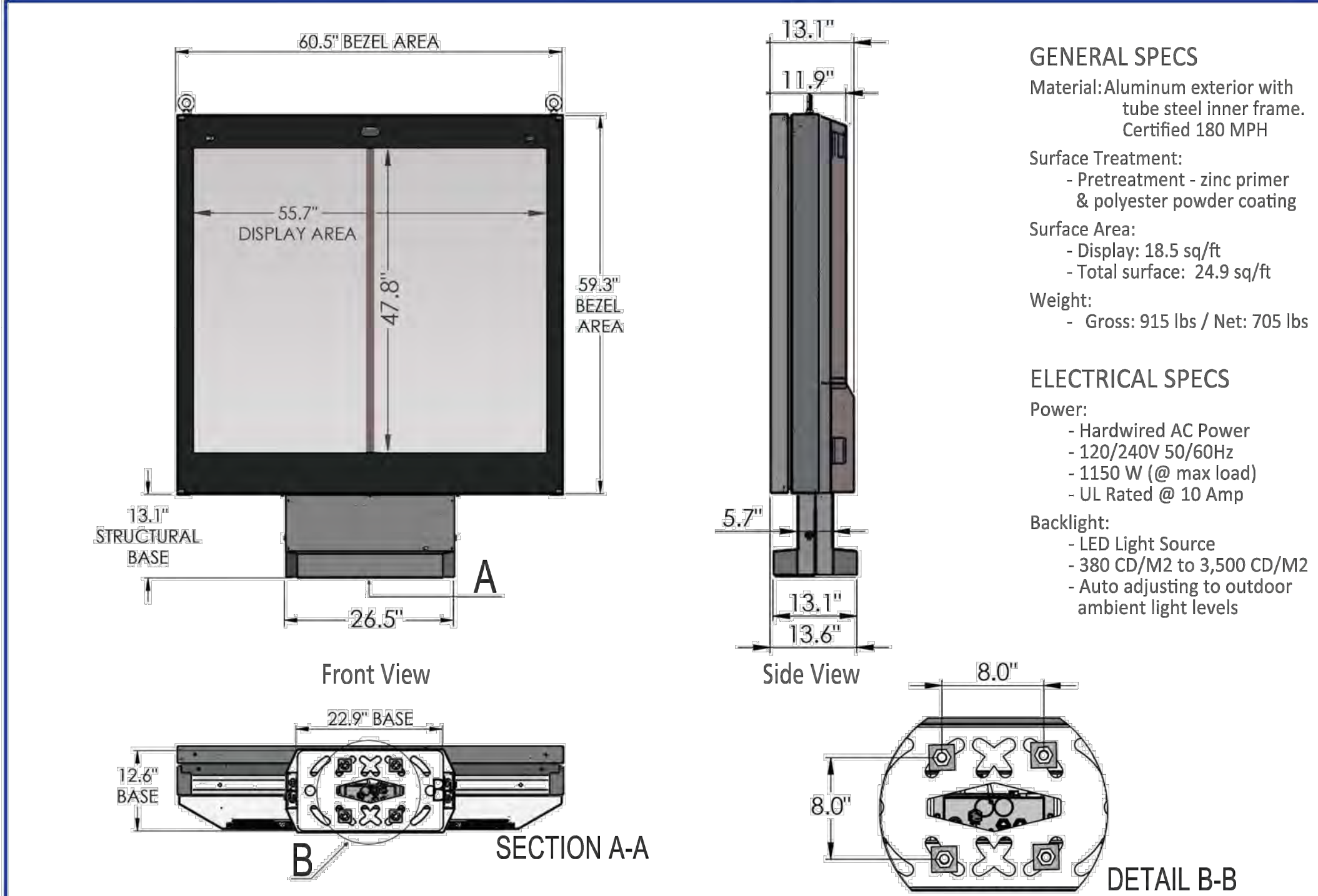
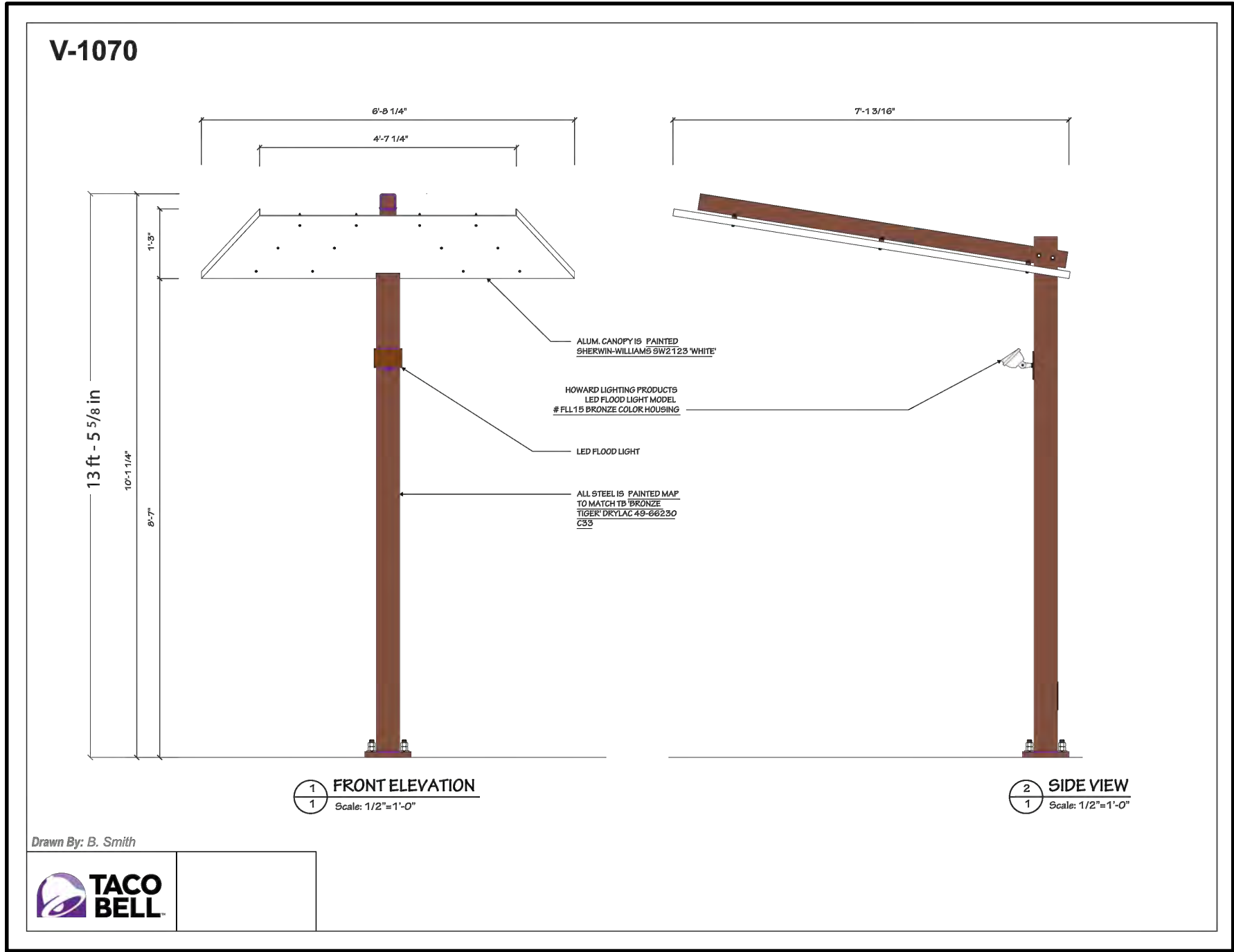


TACO BELL: NEW RAILING SYSTEM



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



Product Model #: STR-D12-120
Project #:
Date: 2019-12-03



STRATACACHE
40 N. Main Street
Dayton, Ohio 45423
1-800-244-8915

Drawing #: STR-D12 v1.1
Date: 2019-12-03
Author: B. Pupo

Drawing and dimensions are for graphic purposes only. For more information please reference Stratacache engineering drawings - Copyright Stratacache 2019 - Unauthorized use prohibited.

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SHEET NUMBER

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CIVIL DETAILS

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NEW BUILDING FOR:
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PRELIMINARY DATES

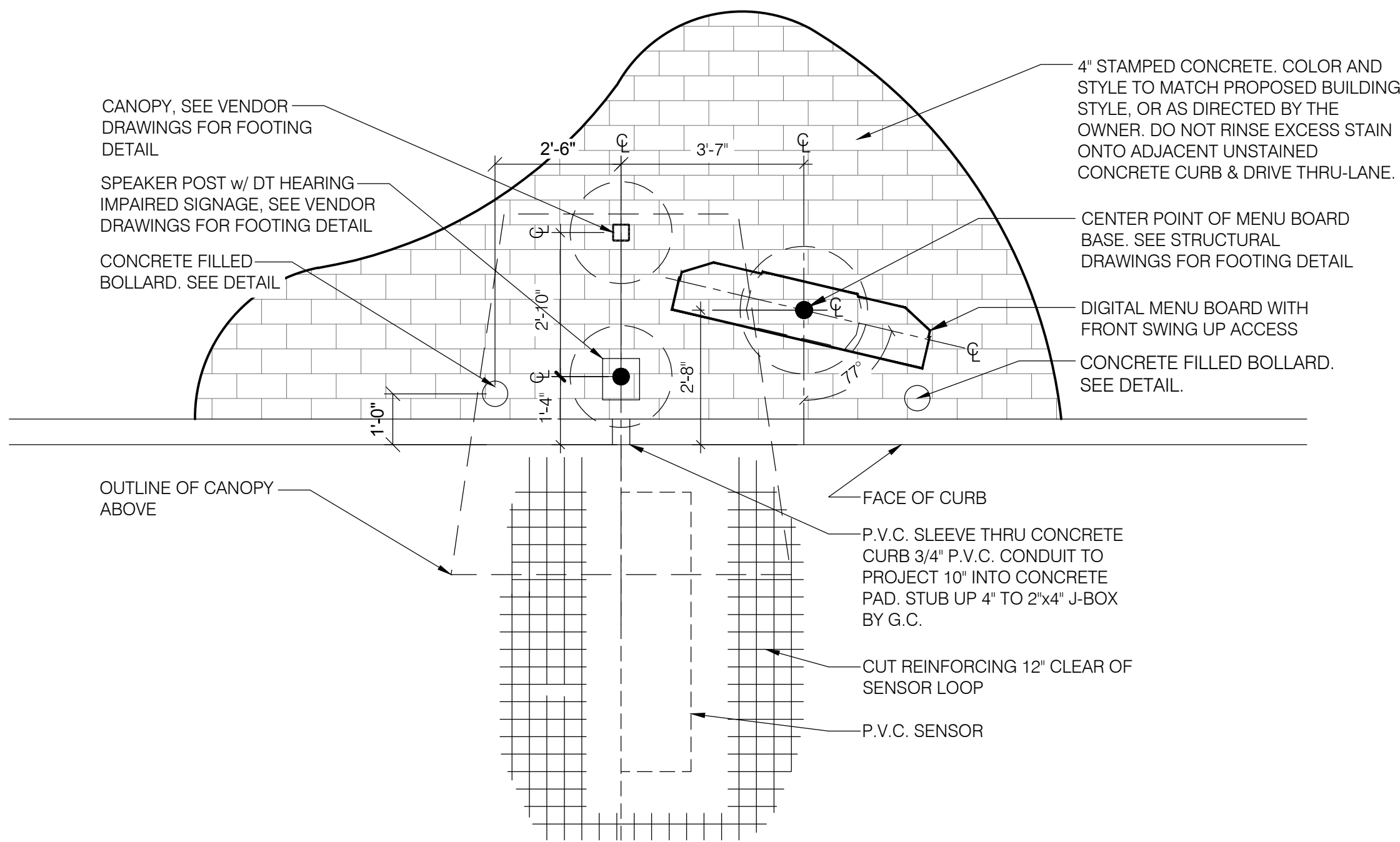
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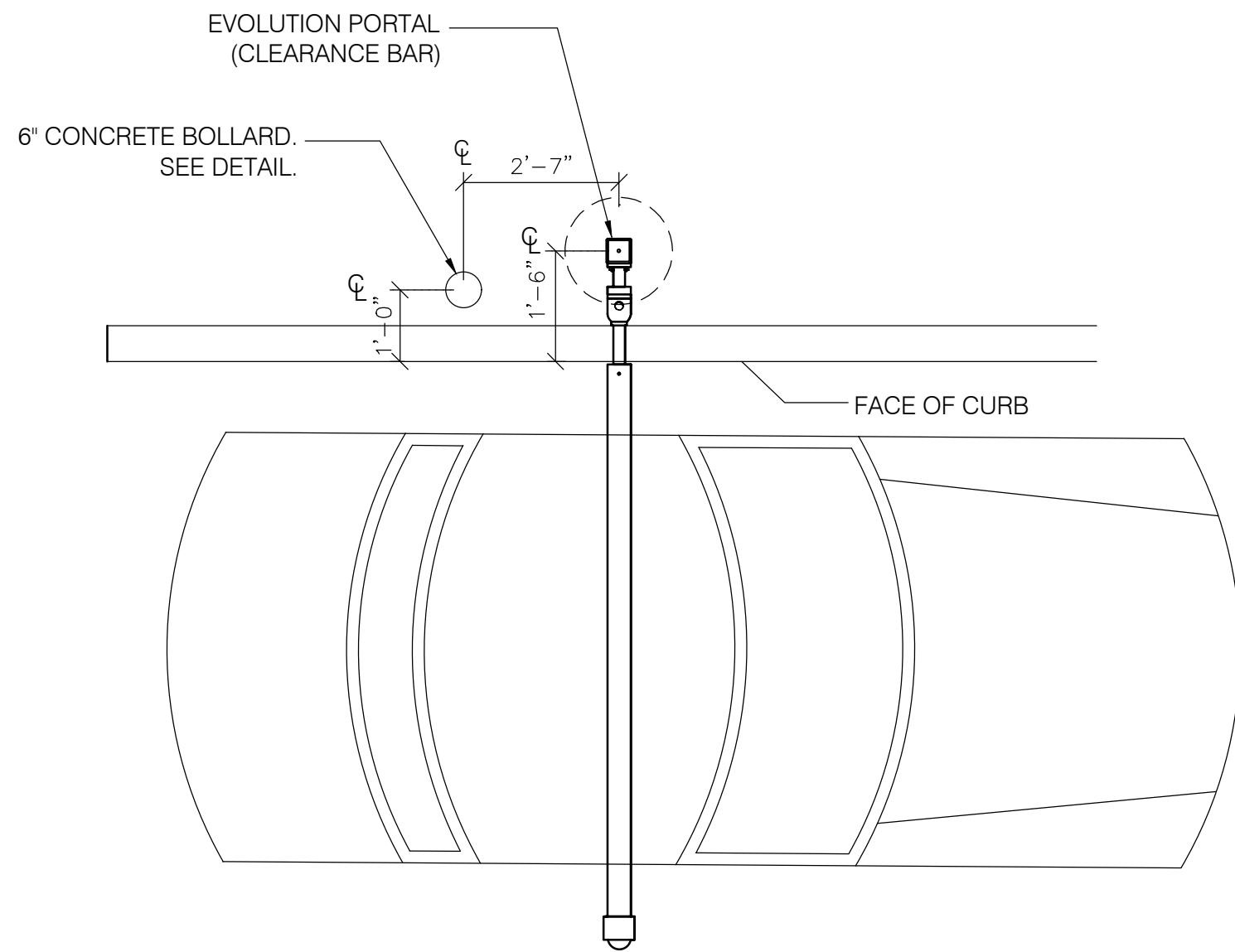
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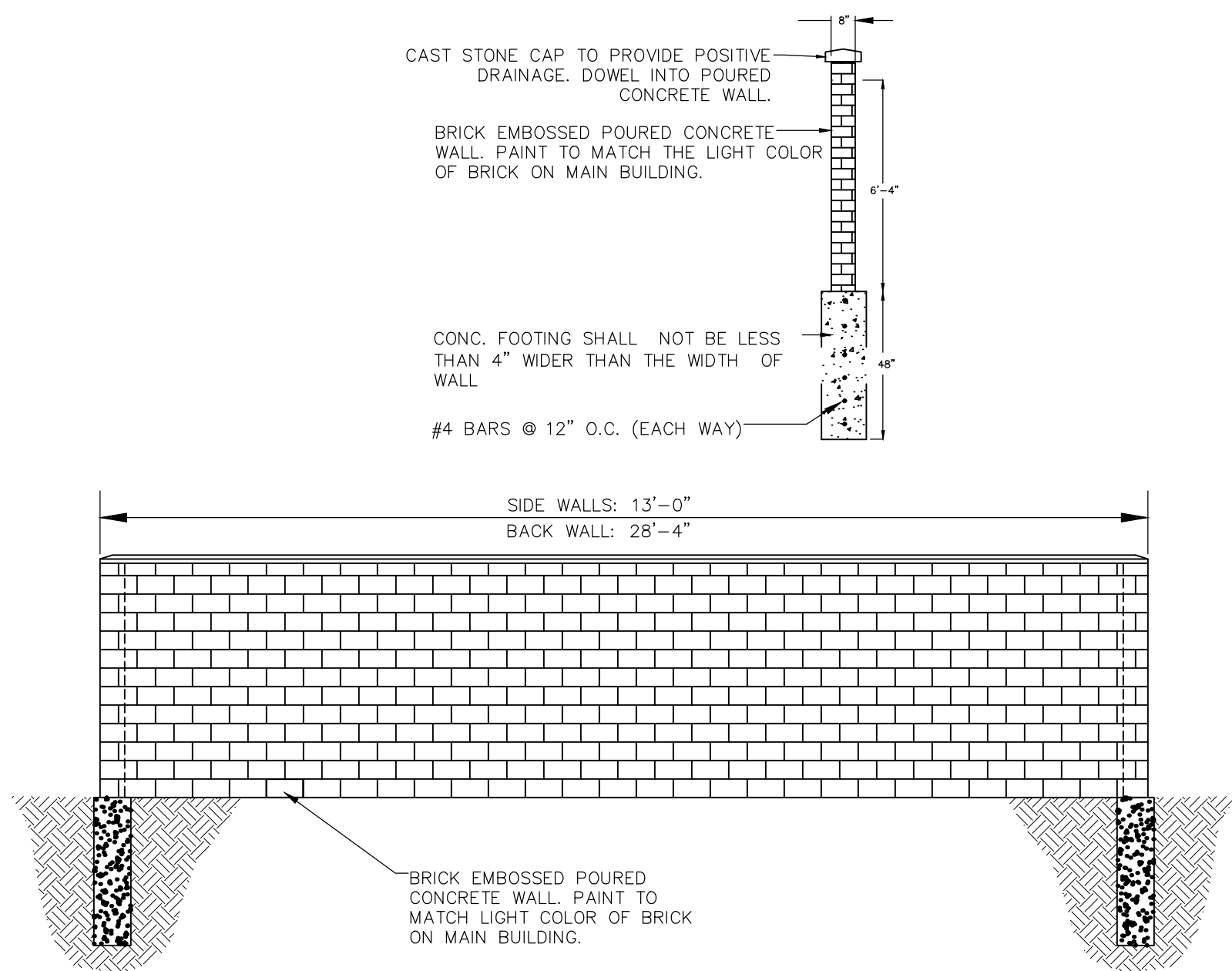
MENU BOARD DETAIL

NO SCALE



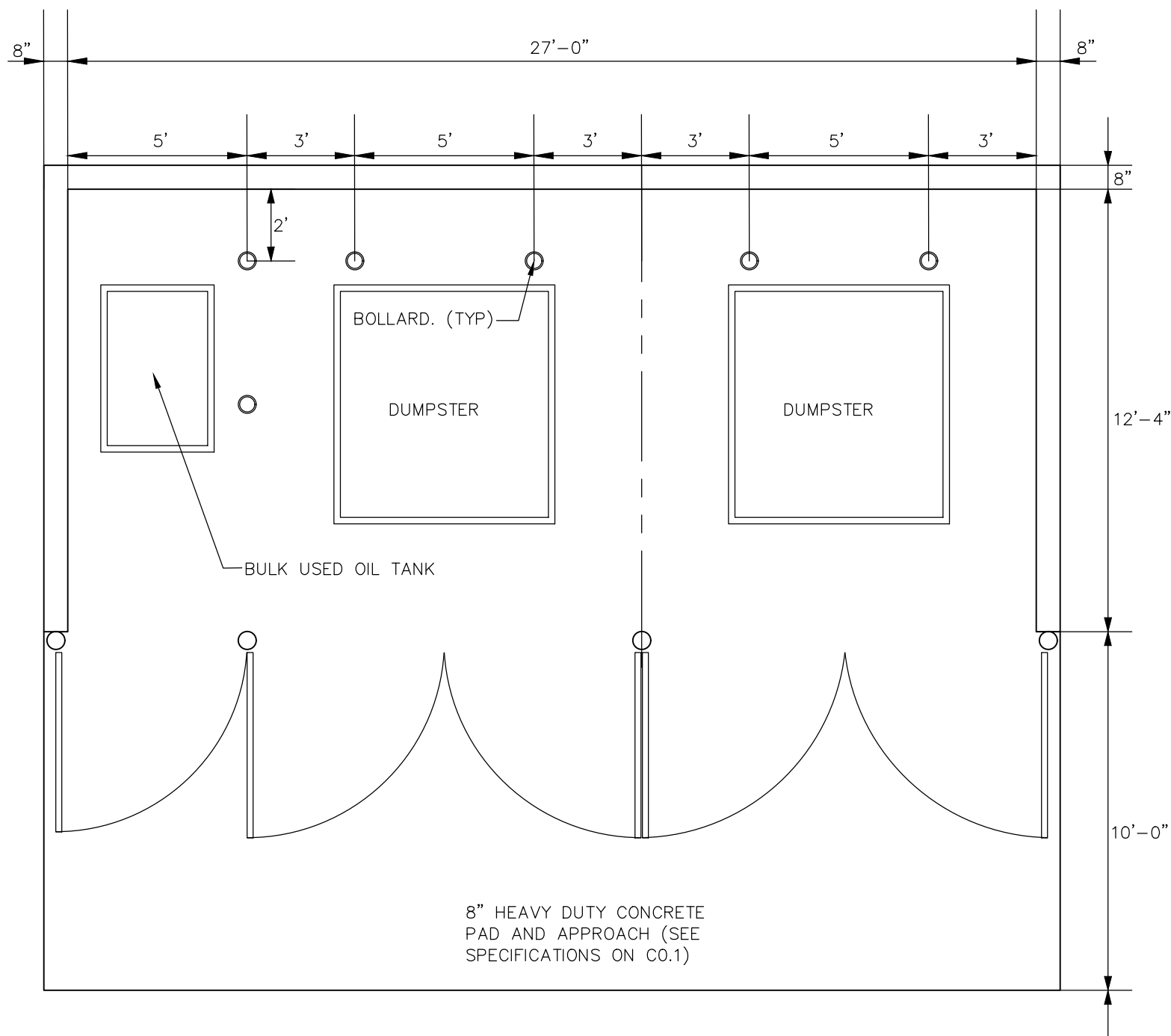
EVOLUTION PORTAL (CLEARANCE BAR) DETAIL

NO SCALE



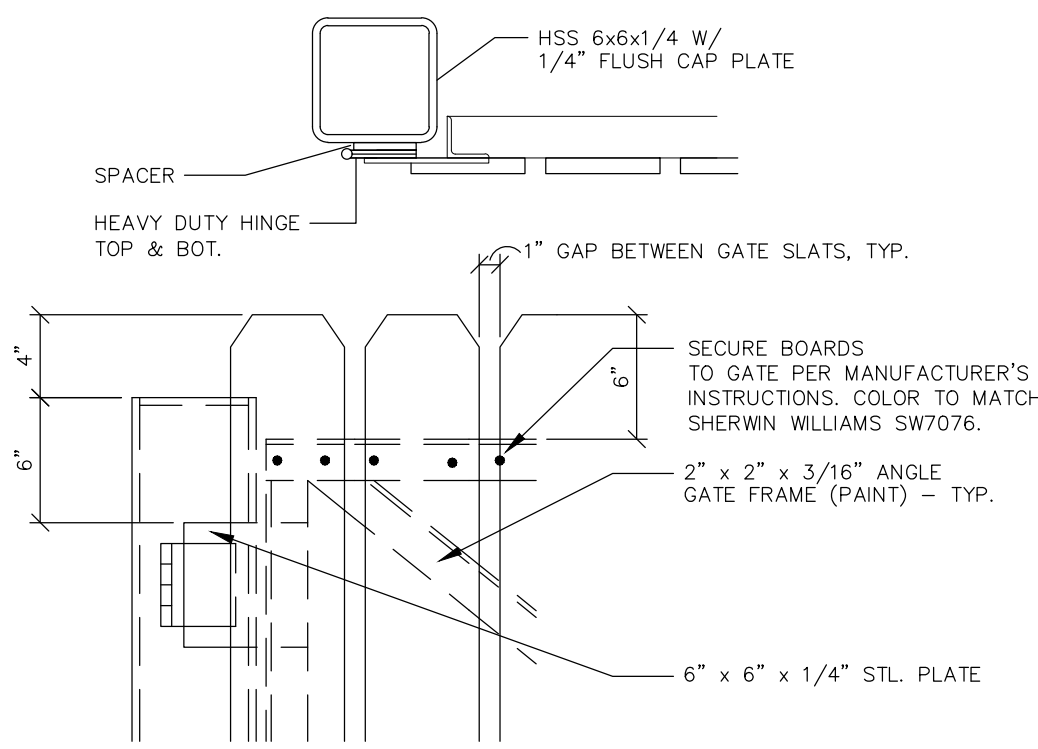
DUMPSTER SCREENING DETAIL

NO SCALE



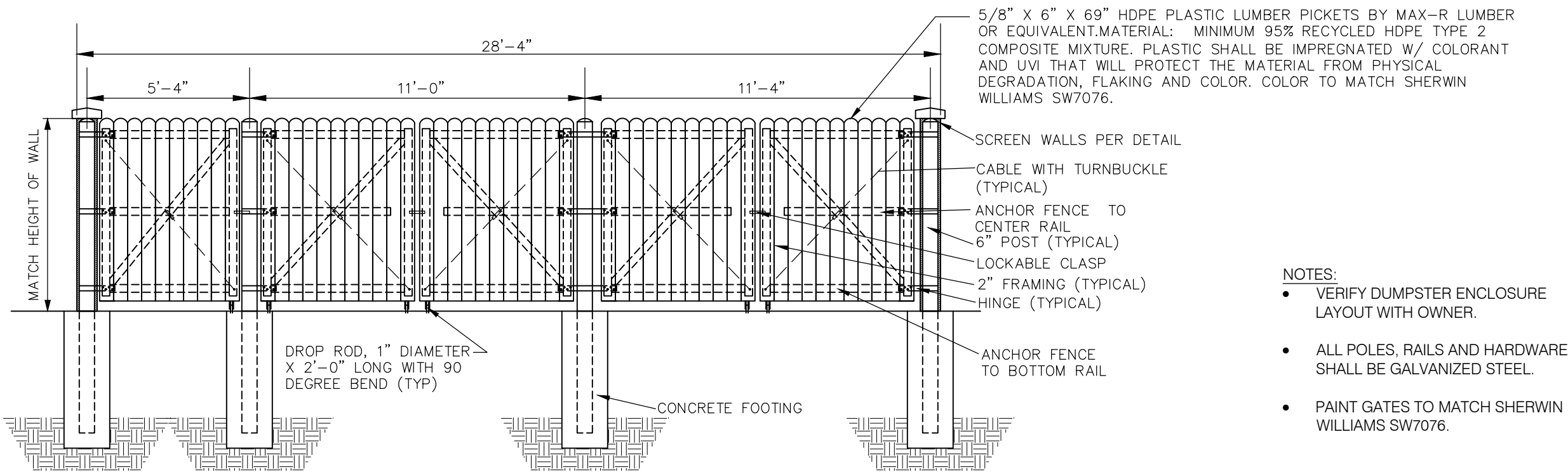
DUMPSTER GATE

NO SCALE



GATE DETAIL

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.



Lumark	
	Type
	Date



TECHNICAL DATA

• Little, Van Loonien Limited
• 68 Rated
• °C Maximum Ambient Temperature
• Central Supply Wiring 90°C Minimum
• 5A or 60A, Type B Compliant
• 175 (1 Min) Diameter



December 18, 2015 9:59 AM

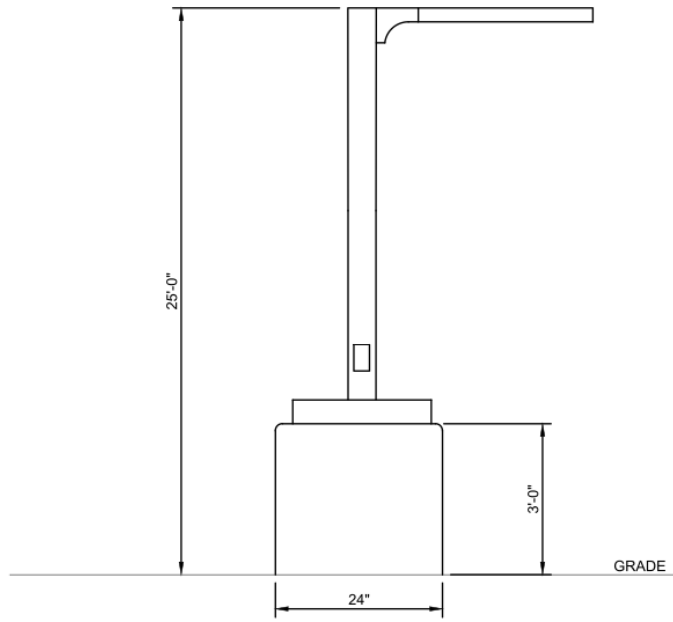
VOLTAGE CHART

MF-Multi-Tap	110, 200, 240, 277V (Wired 277V)
TT-Tripole Tap	110, 277, 347V (Wired 347V)
ED-Electronic LED Driver	120-277V (Universal - 55-60W)

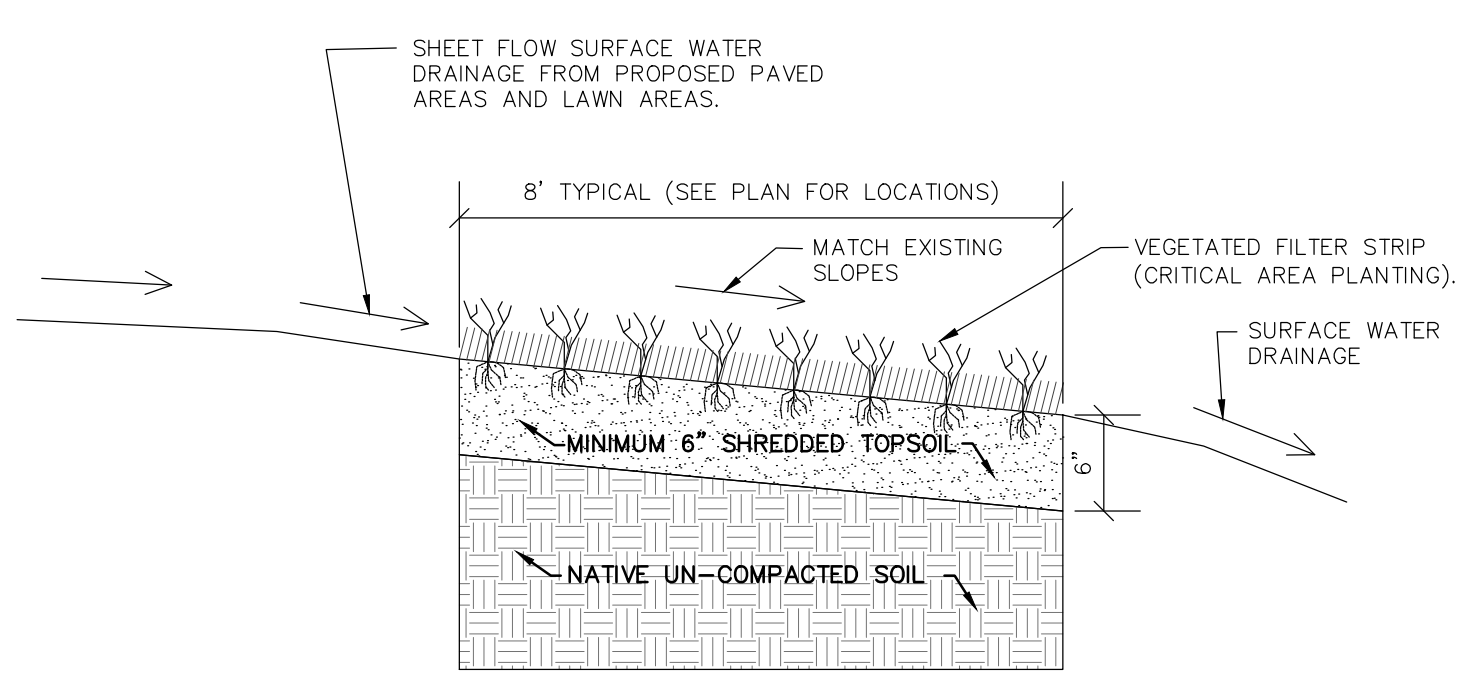
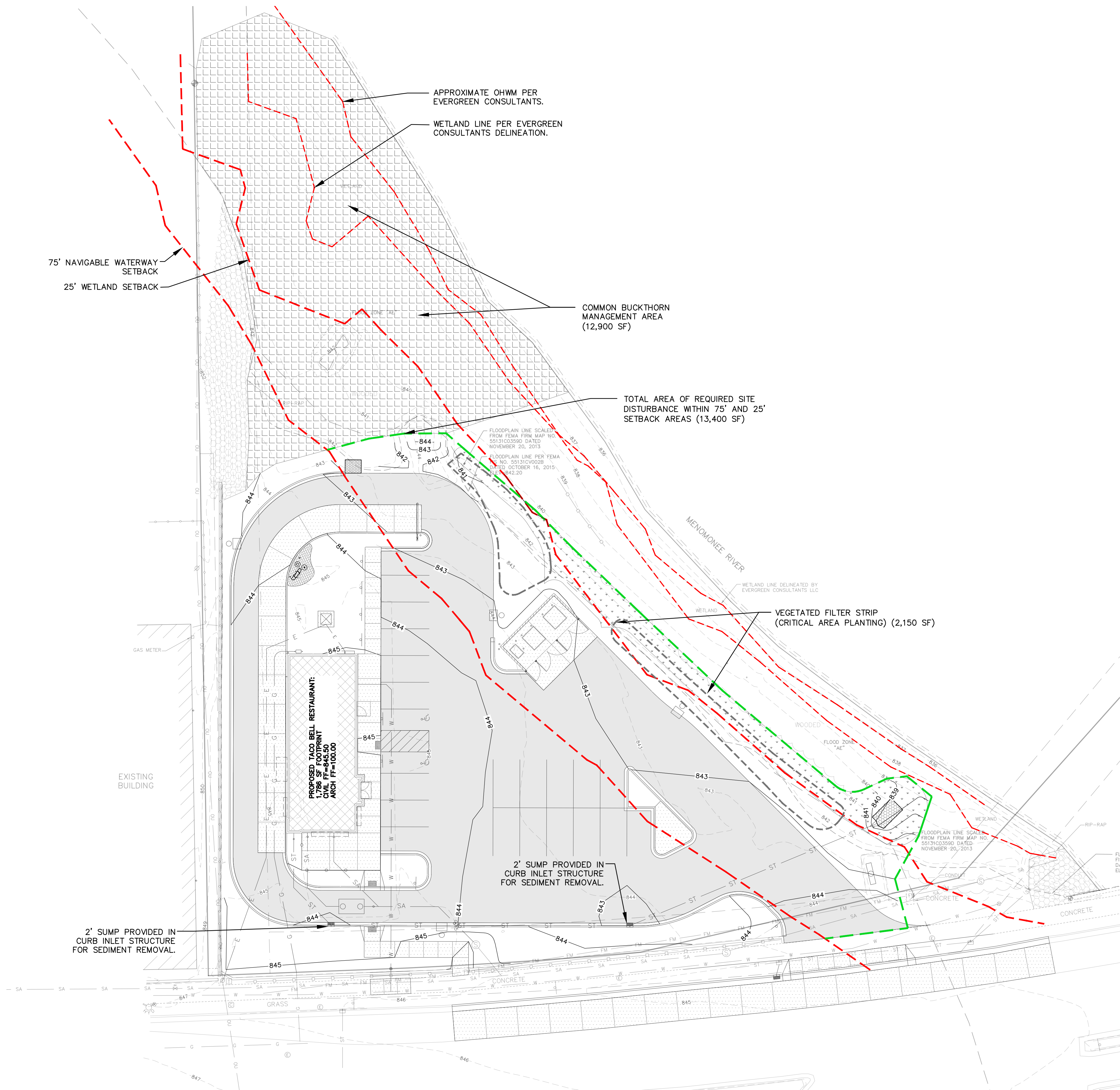
COOPER
Lighting Solutions
New York, NY, USA 10090
212-245-1800
www.cooperlighting.com

Lighting solutions for
commercial, industrial and
residential sectors.

TIC 1481863
December 18, 2018 9:00 AM



Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	0.6 fc	10.0 fc	0.0 fc	N/A	N/A
Parking/Drive	X	2.3 fc	6.8 fc	0.5 fc	13.6:1	4.6:1



- 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

VILLAGE OF GERMANTOWN MITIGATION REQUIREMENTS:
1:1 DISTURBANCE TO MITIGATION AREA RATIO REQUIRED FOR ANY NECESSARY DISTURBANCE WITHIN THE NAVIGABLE WATERWAY AND WETLAND SETBACK AREA.
REQUIRED SITE DISTURBANCE WITHIN SETBACK AREAS: 13,400 SF

MITIGATION SUMMARY	
MITIGATION TECHNIQUE	AREA (SF)
COMMON BUCKTHORN MANAGMENT	12,900
VEGETATED FILTER STRIP	2,150
REDUCTION OF IMPERVIOUS AREA PRE-POST DEV.	3,034
TOTAL	18,084
DISTURBANCE TO MITIGATION RATIO= 13,400 : 18,084 = 1 : 1.35	

LEGEND	
	COMMON BUCKTHORN MANAGEMENT AREA
	VEGETATED FILTER STRIP
	SETBACK AREA
	SITE DISTURBANCE WITHIN SETBACK AREA

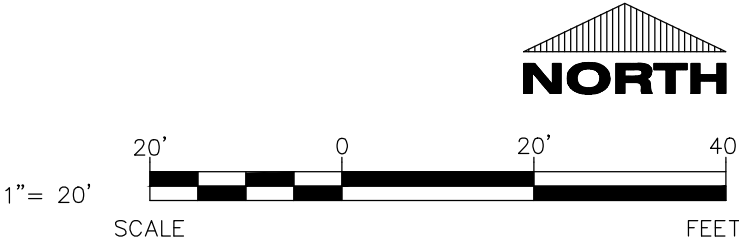


EXHIBIT A: WETLAND SETBACK/NAVIGABLE WATERWAY SETBACK MITIGATION PLAN

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PROFESSIONAL SEAL

PRELIMINARY DATES

FEB. 22, 2021

JOB NUMBER

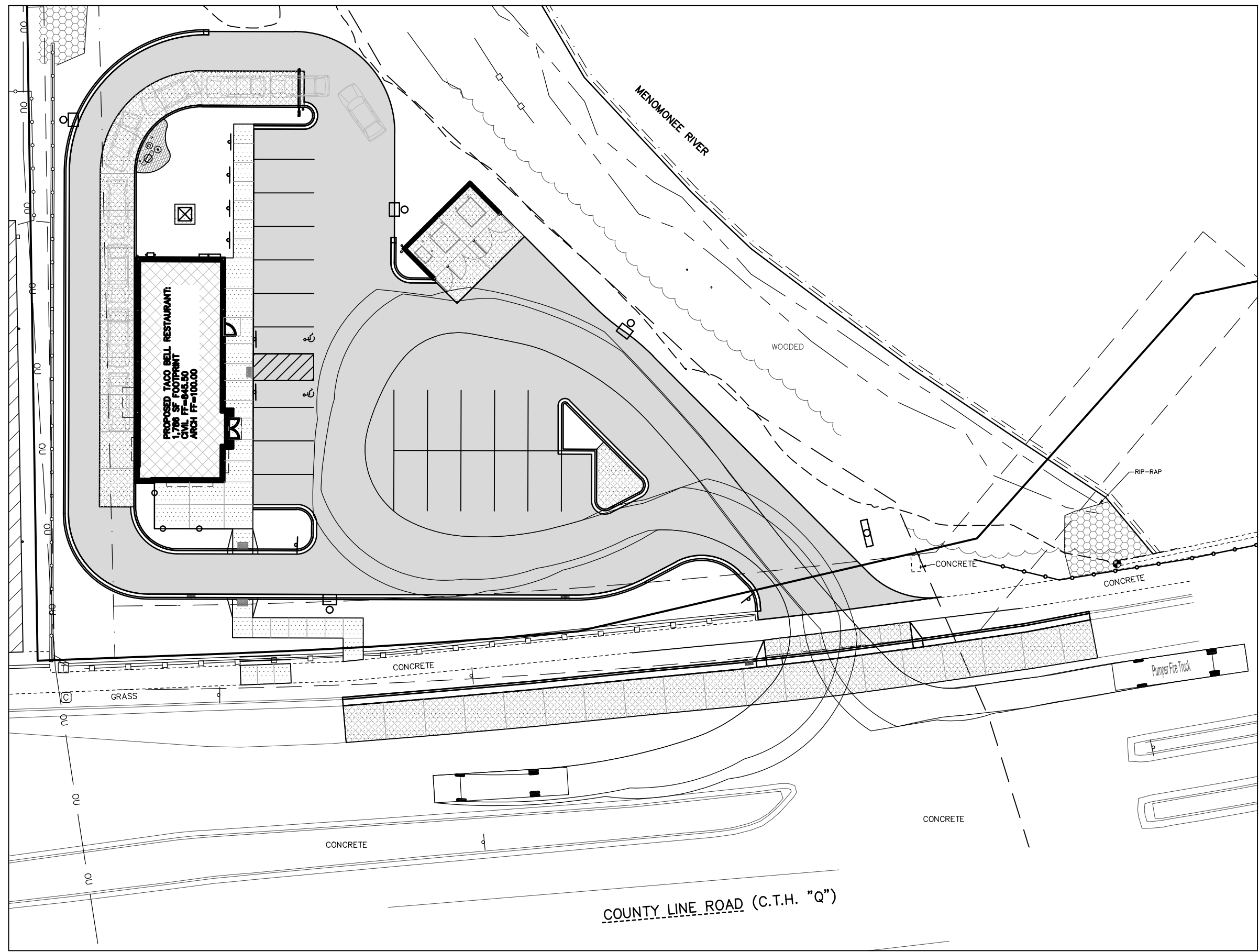
2005200

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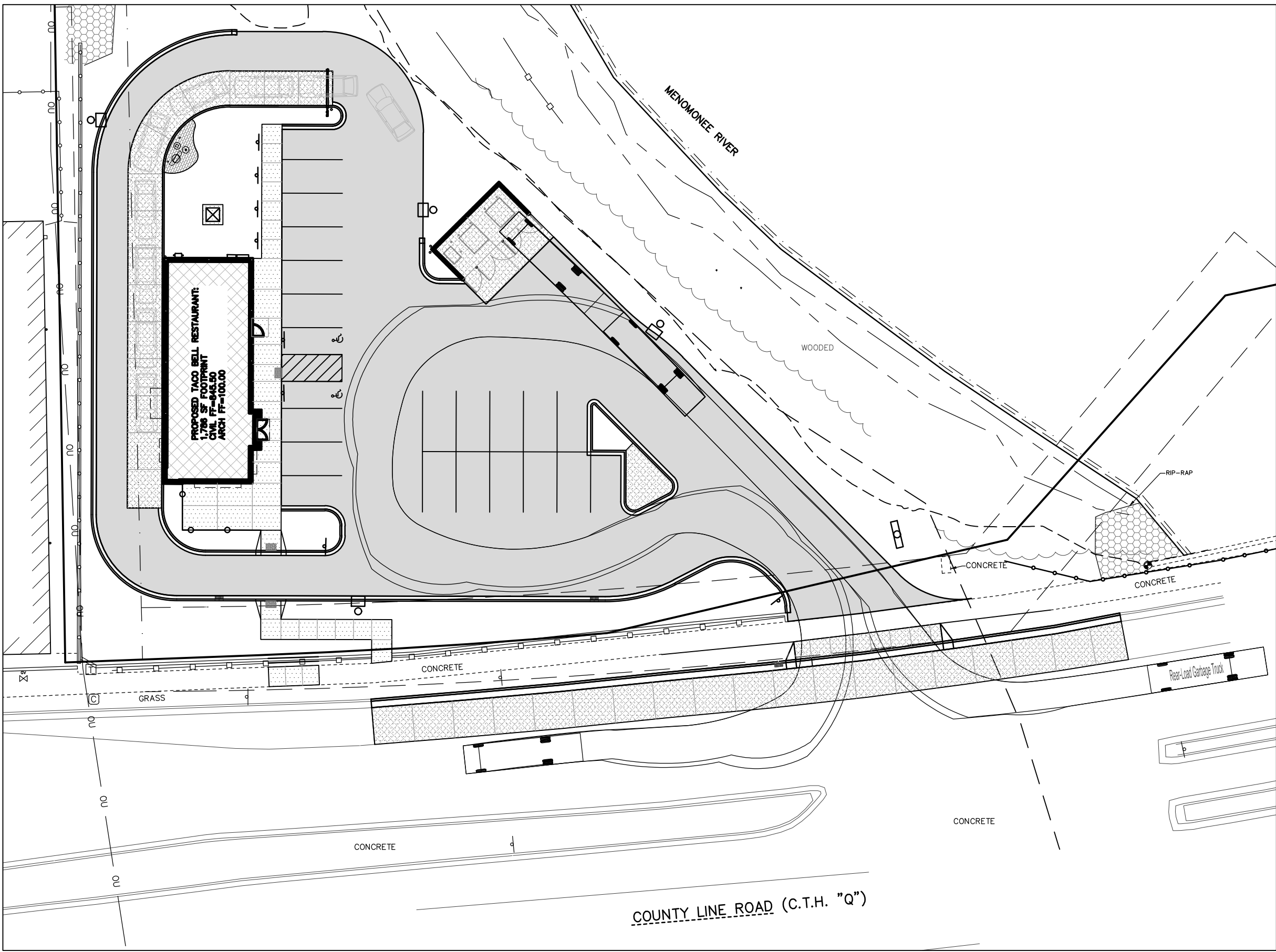
EX. A

NOT FOR CONSTRUCTION

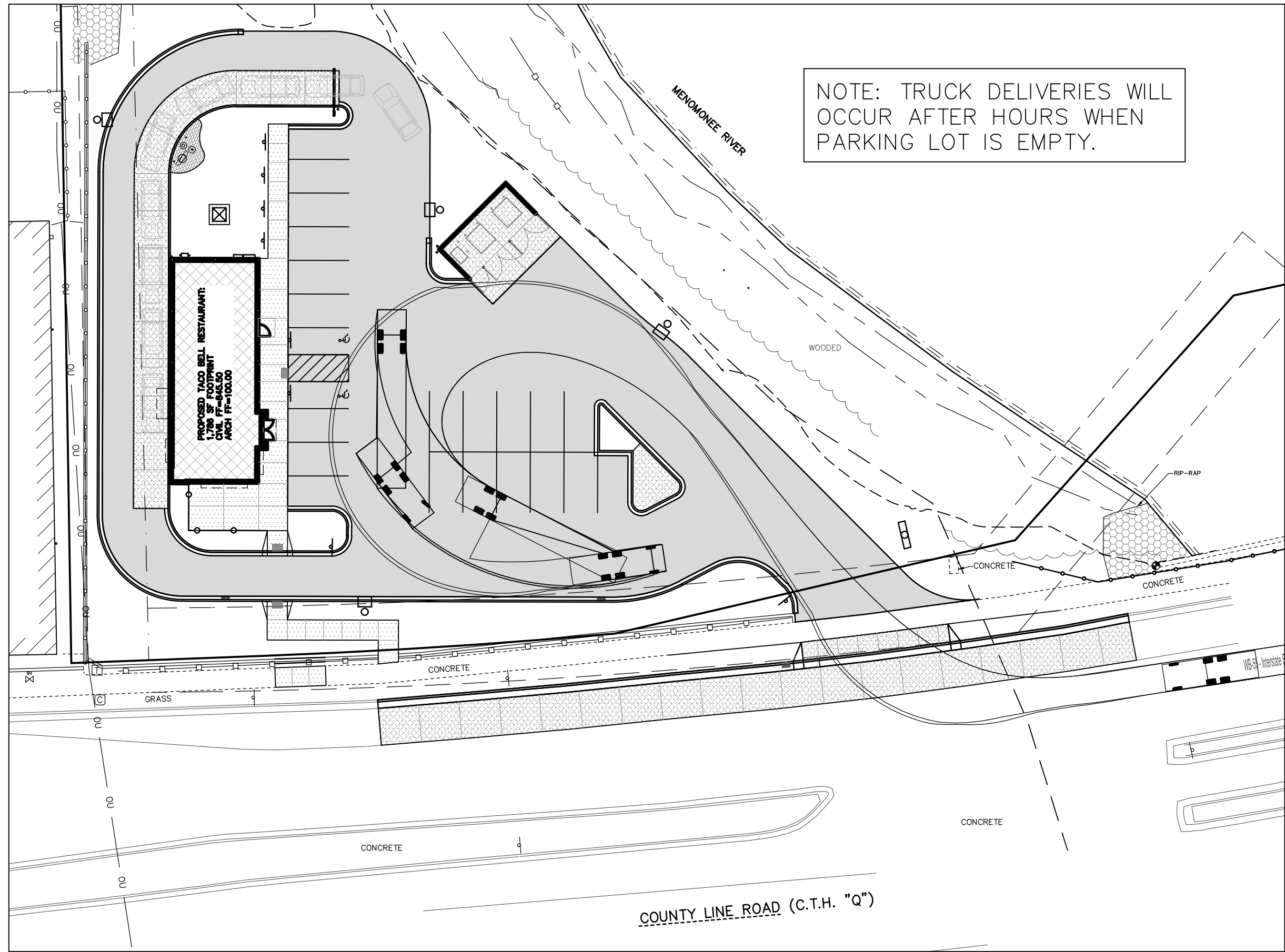
2020 © EXCEL ENGINEERING, INC.



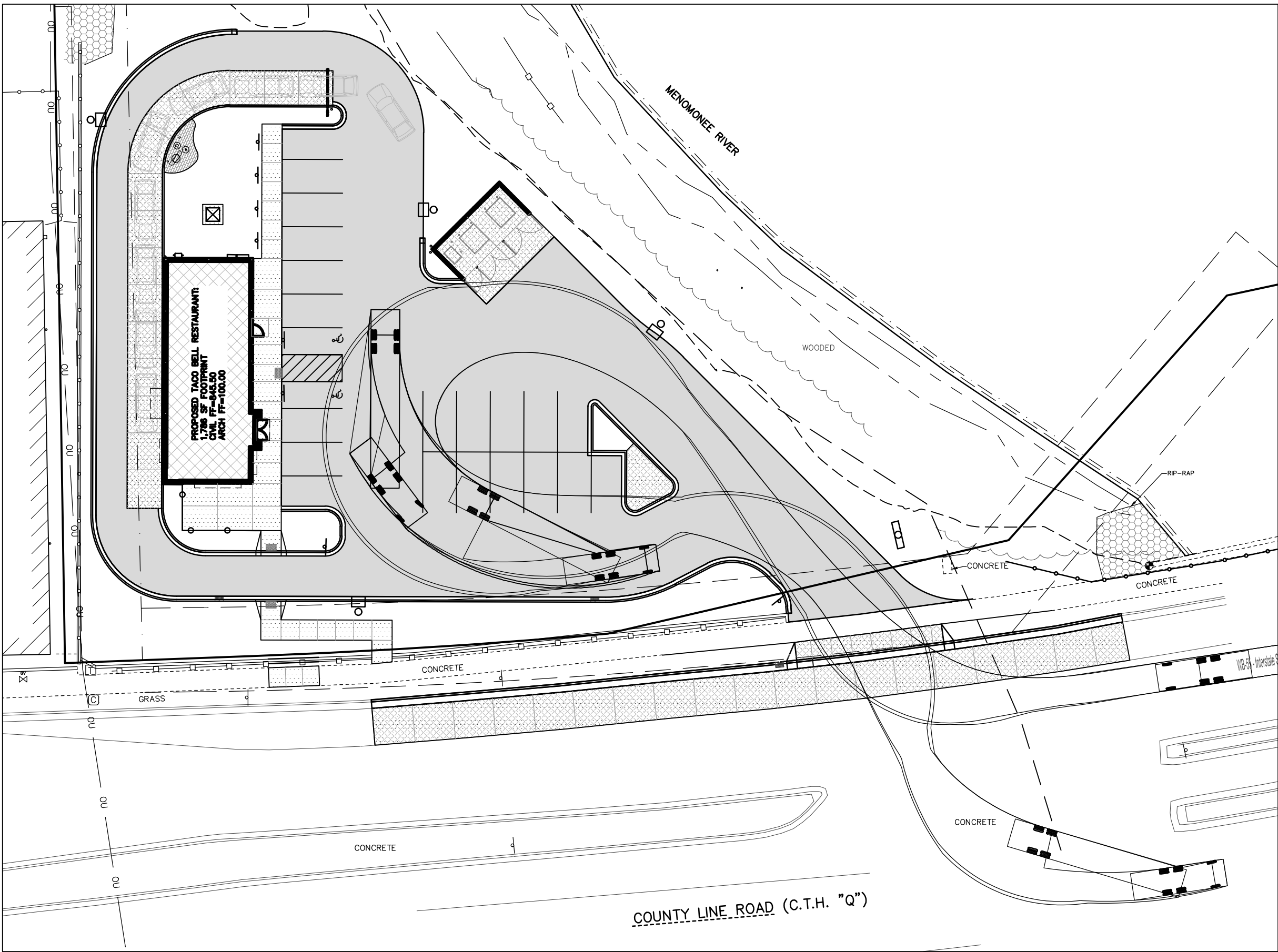
Fire Truck



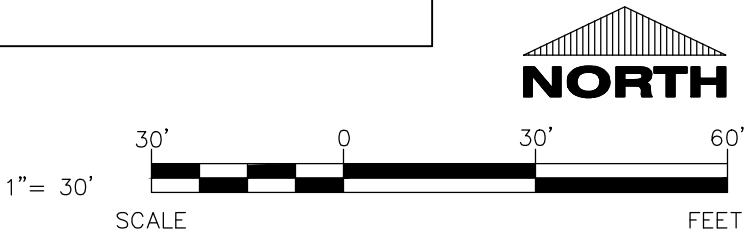
Garbage Truck



Delivery Truck (IN)



Delivery Truck (OUT)



Truck Turn Exhibit



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NOT FOR CONSTRUCTION

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SHEET NUMBER





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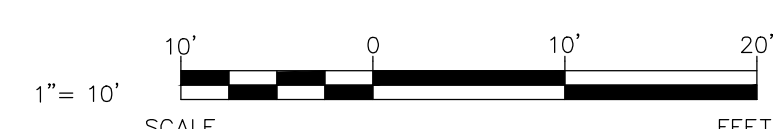
NOT FOR CONSTRUCTION

JOB NUMBER

2005200

SHEET NUMBER

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COUNTY STORM SEWER EXHIBIT

Site Photos

Existing building to be demolished.









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



100 Camelot Drive

Fond du Lac, Wisconsin 54935



2918 Van Hoof Road • Green Bay, WI 54313

Phone: 920.615.0019 • Website: www.evergreenwis.com

Field Work Certification:

Ben J LaCount, PLS, Planner, Wetland Scientist

Wisconsin DNR Professional Assured Wetland Delineator

Lead Wetland Delineator

(920) 265-4105 ben@evergreenwis.com

Shyann P Banker, Environmental Specialist

(920) 915-2629 shyann@evergreenwis.com

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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.

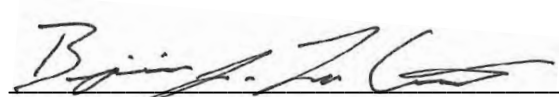
The project area is shown on the Wetland Delineation Map as the Site Boundary, hereafter described as the "Site". The Wetland Delineation Map is in Appendix A. Evergreen was directed to delineate the project area for future planning purposes. The property had been a farmstead until redeveloped in 1990.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

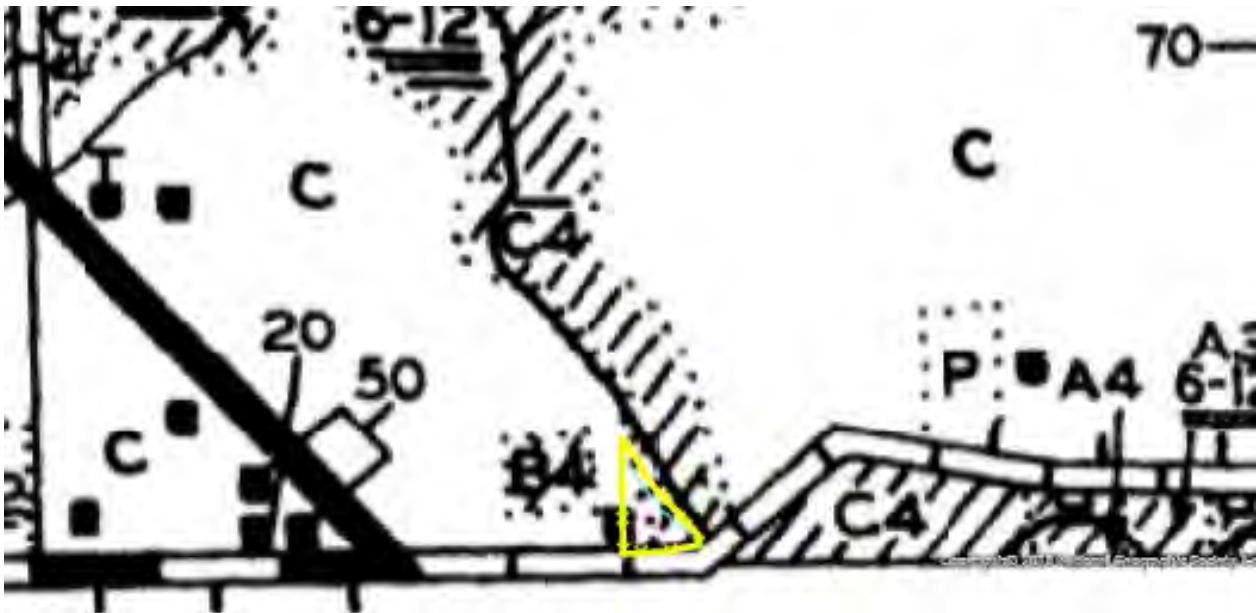
3.0 SITE CHARACTERISTICS

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.



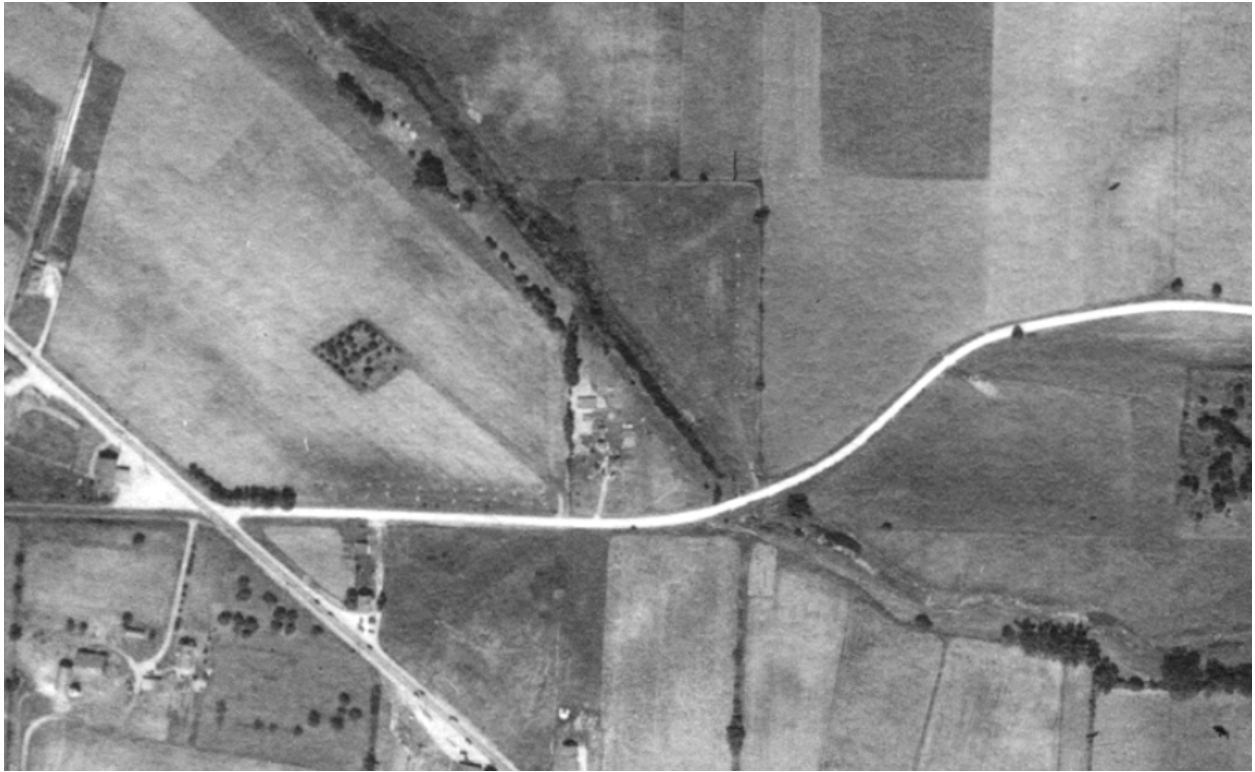
Original Survey



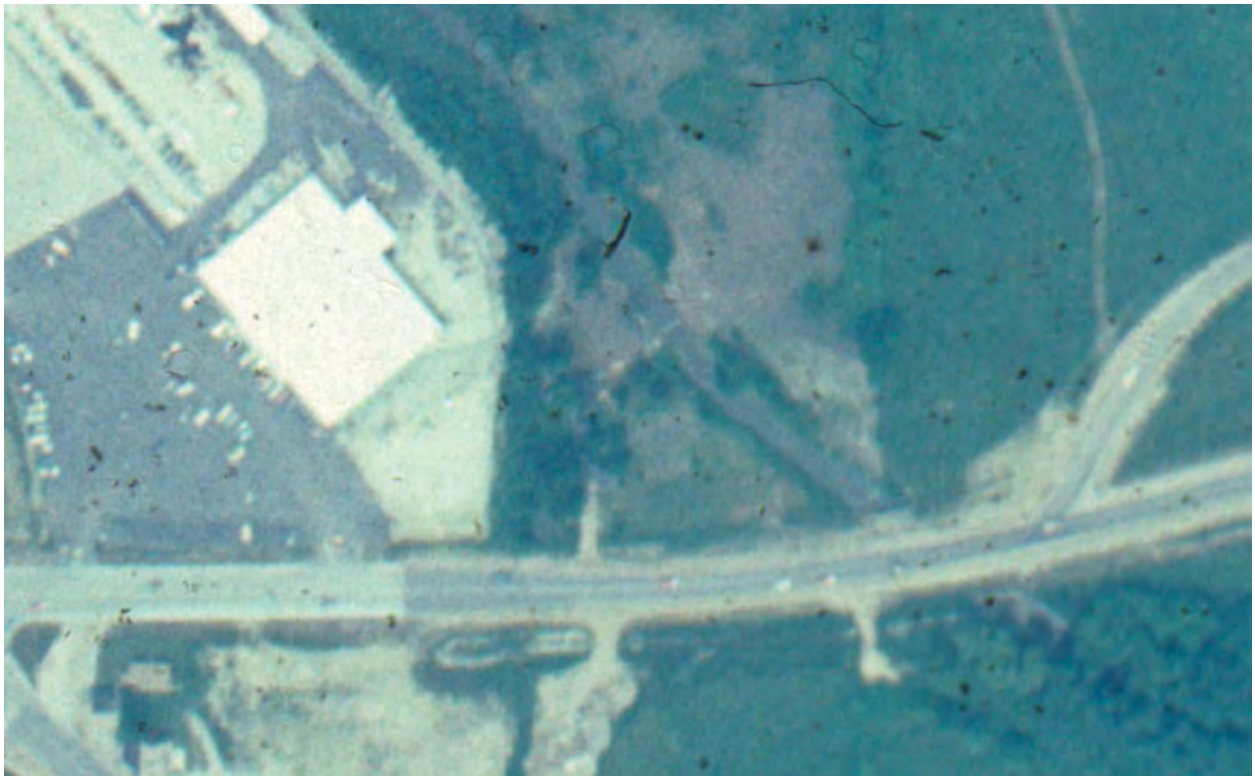
Bordner Survey

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.



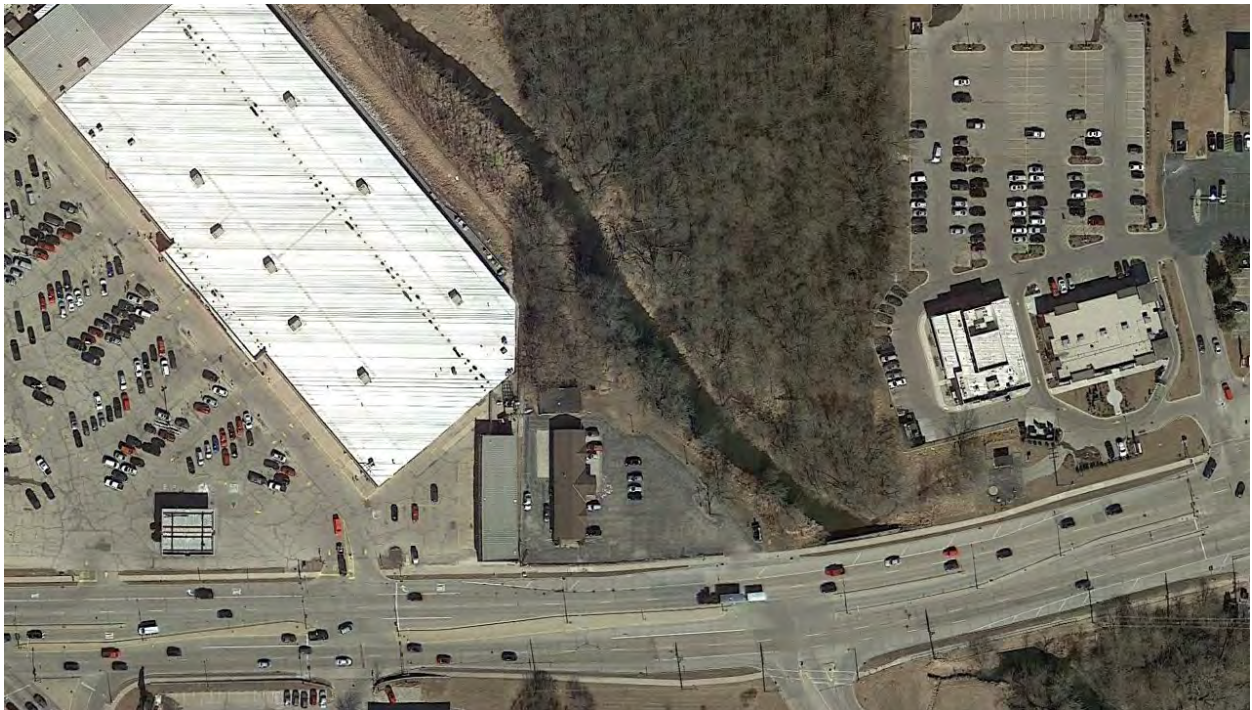
1937- Historic aerial photograph shows the site having a farm on the west and clear cropland on the east.



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



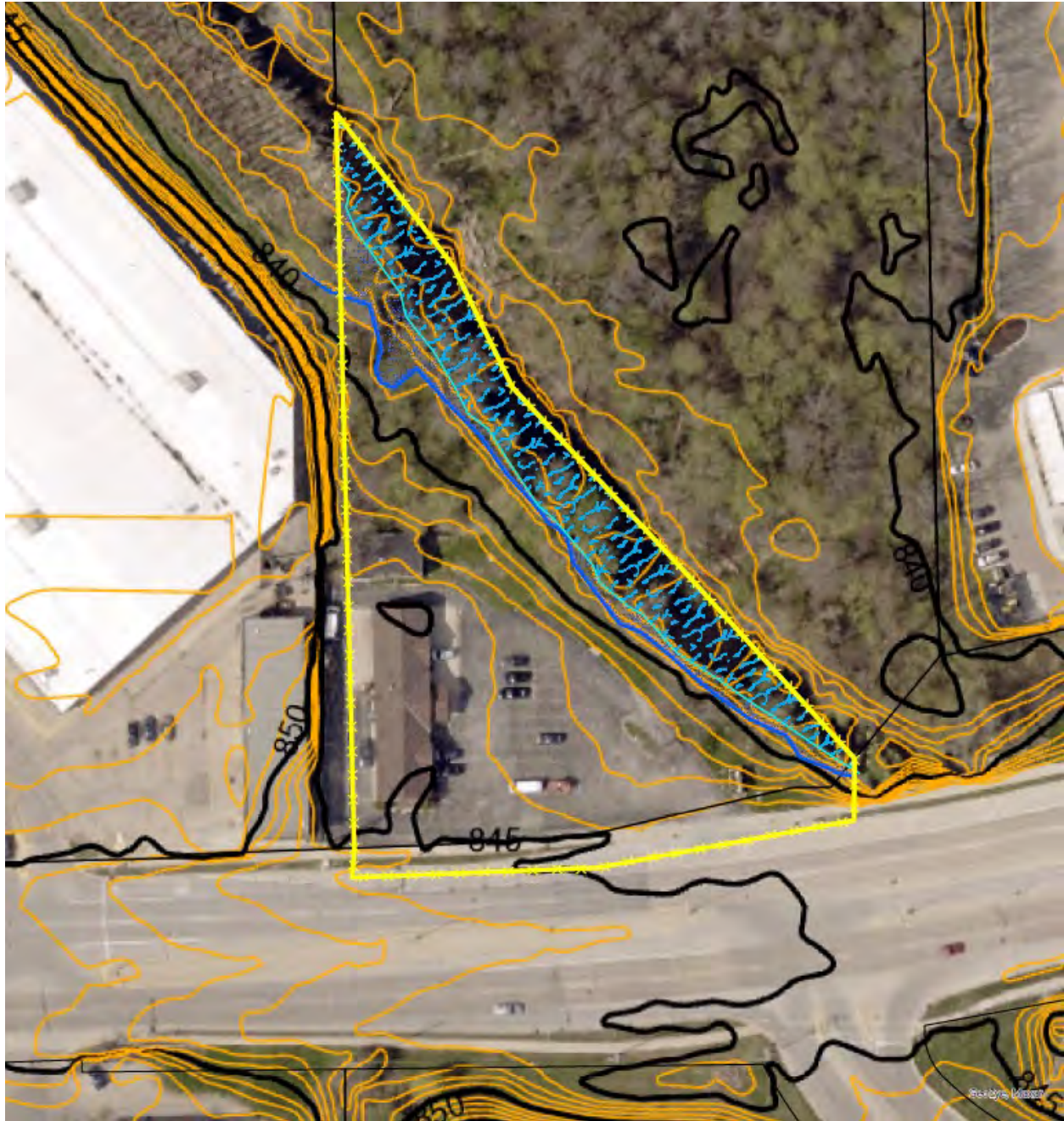
1990- Historic aerial photograph shows the site redeveloped and a parking lot added.



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.

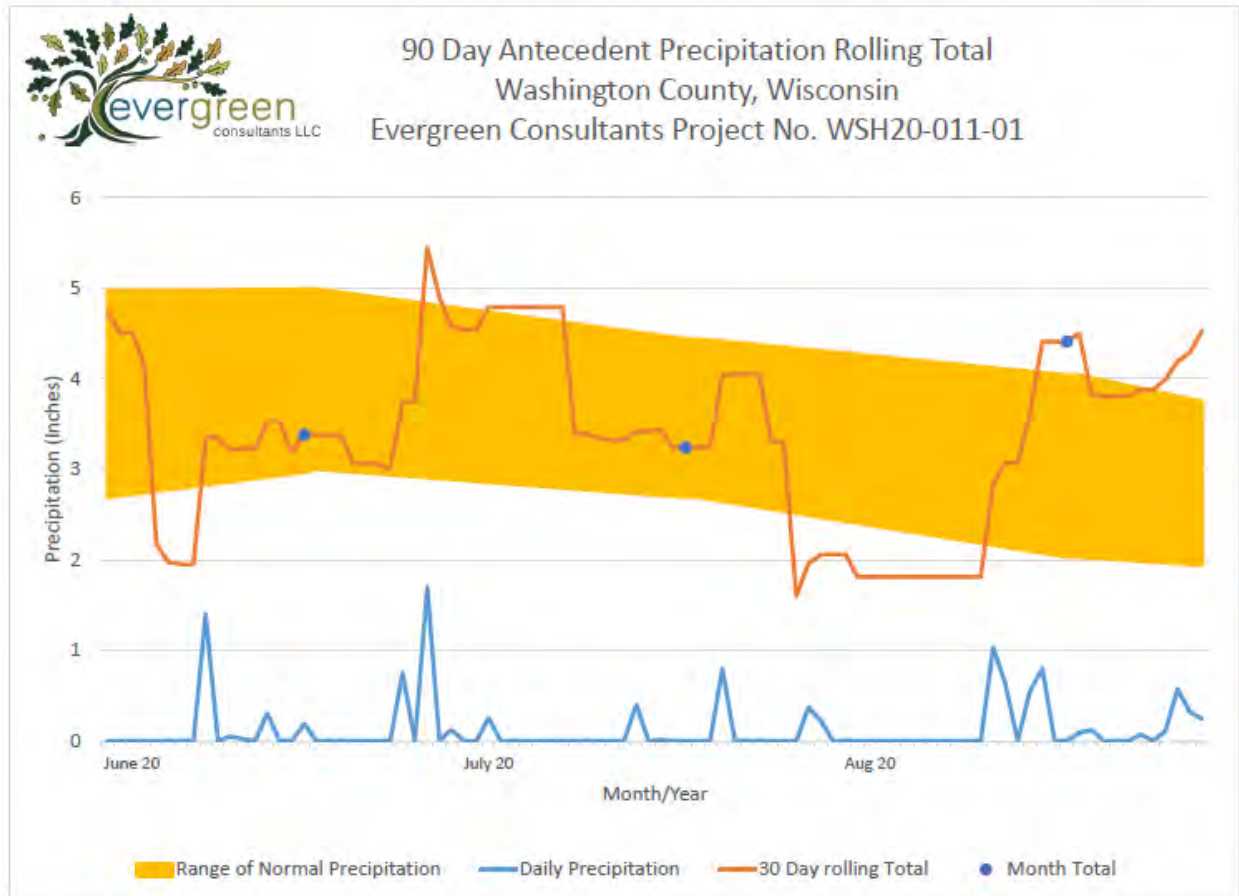


Chart 1. 90 Day Antecedent precipitation Rolling Total Summary between June-September 2020 in Washington County, Wisconsin

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	4.98	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
*compared to photo/observation date								Sum	12

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

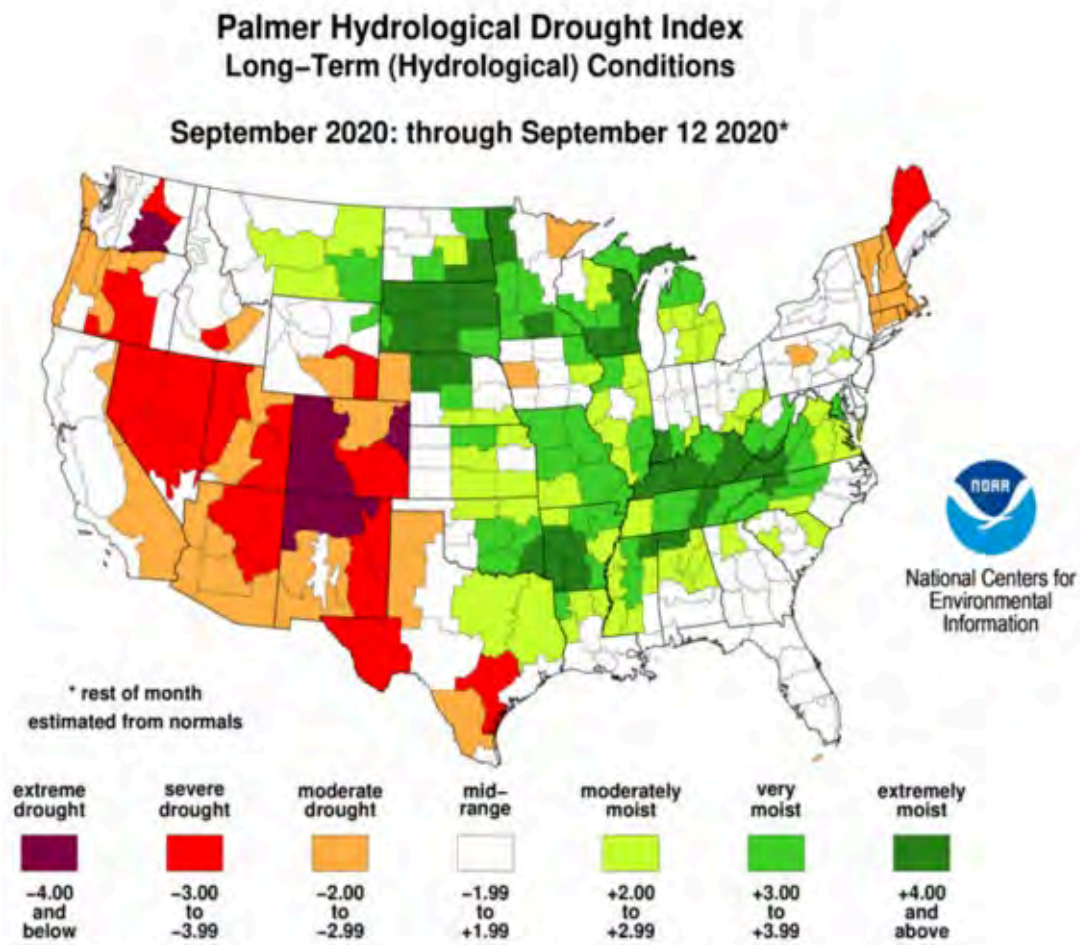
Condition value:
Dry =1
Normal =2
Wet =3

Conclusions:	prior period has been normal
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Table 1. Precipitation Summary between June and August 2020 in Washington County, Wisconsin

Precipitation values are measured in inches.

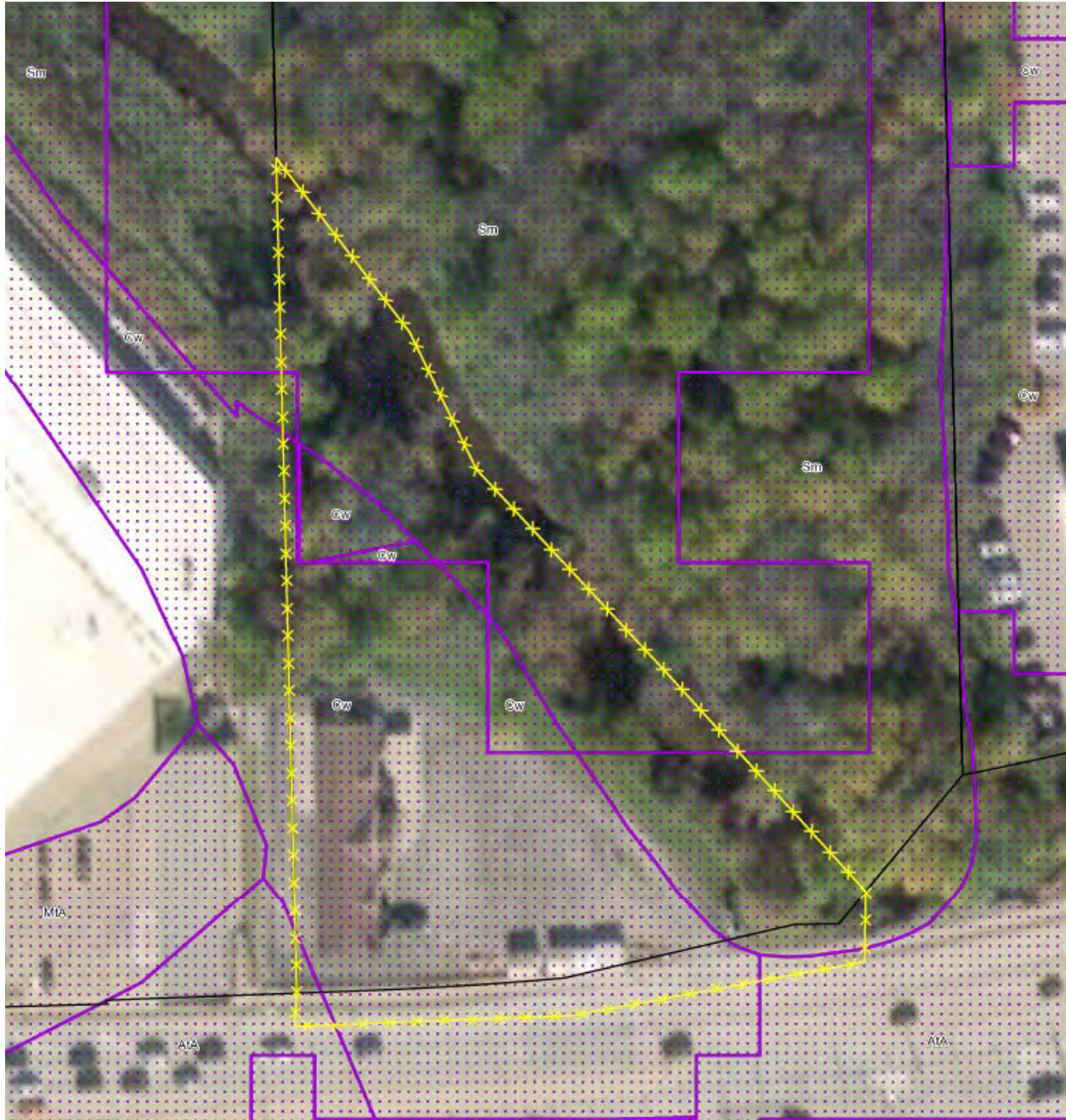
Sources: National Oceanic & Atmospheric Administration, Midwest Regional Climate Center



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
- Kopitzke, 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
- Tekiela, 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

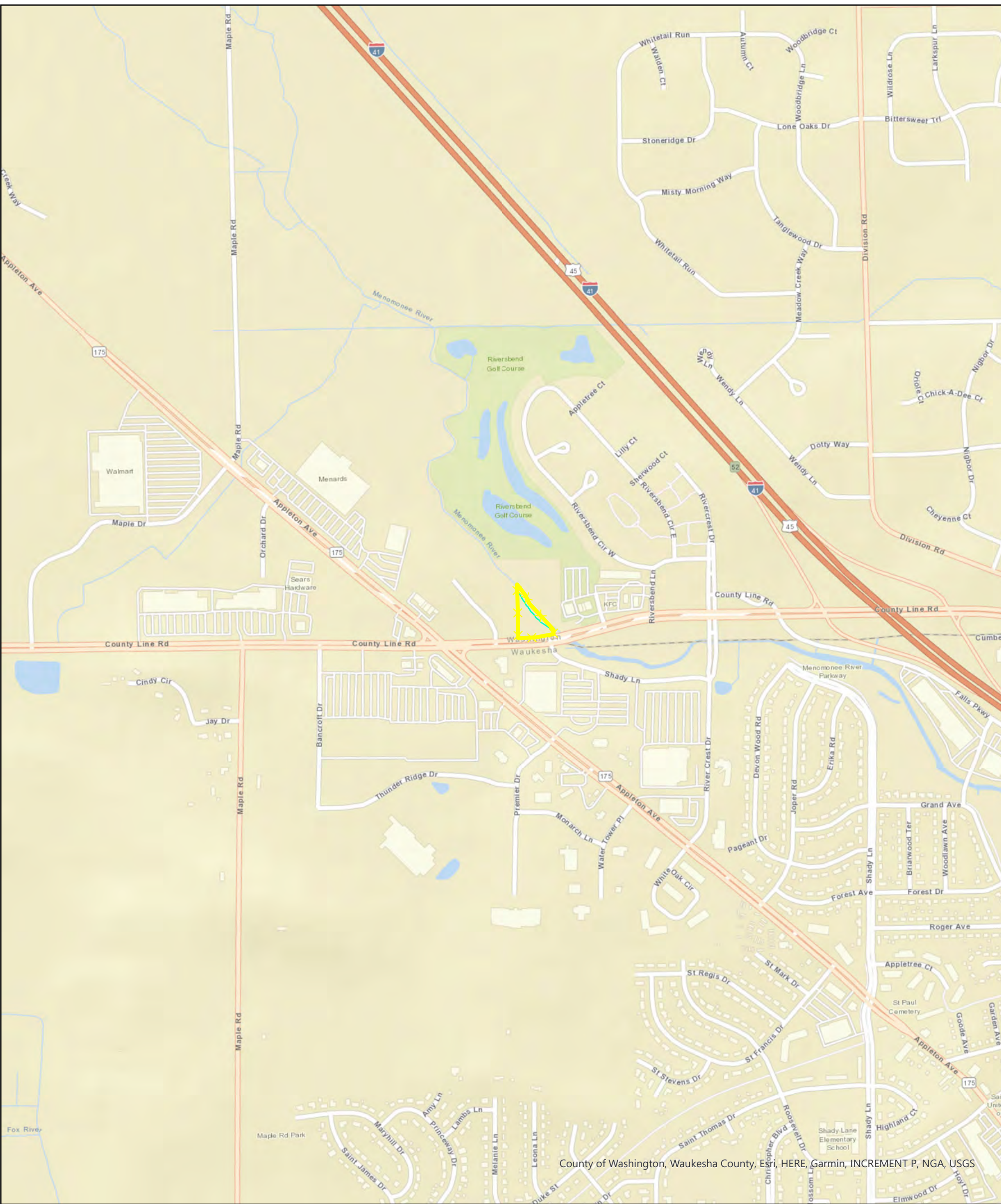
Wetland Training Institute, Inc., *2013 Pocket Guide to Hydric Soil Field Indicators*, Wetland Training Institute, Inc., Glenwood, NM, 2013

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

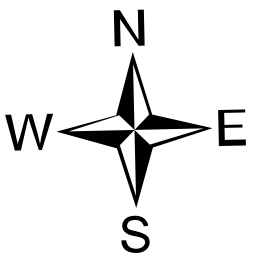
Appendix A:

Site Maps



County of Washington, Waukesha County, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

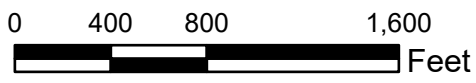
County Line Road
Site Location Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI



Legend

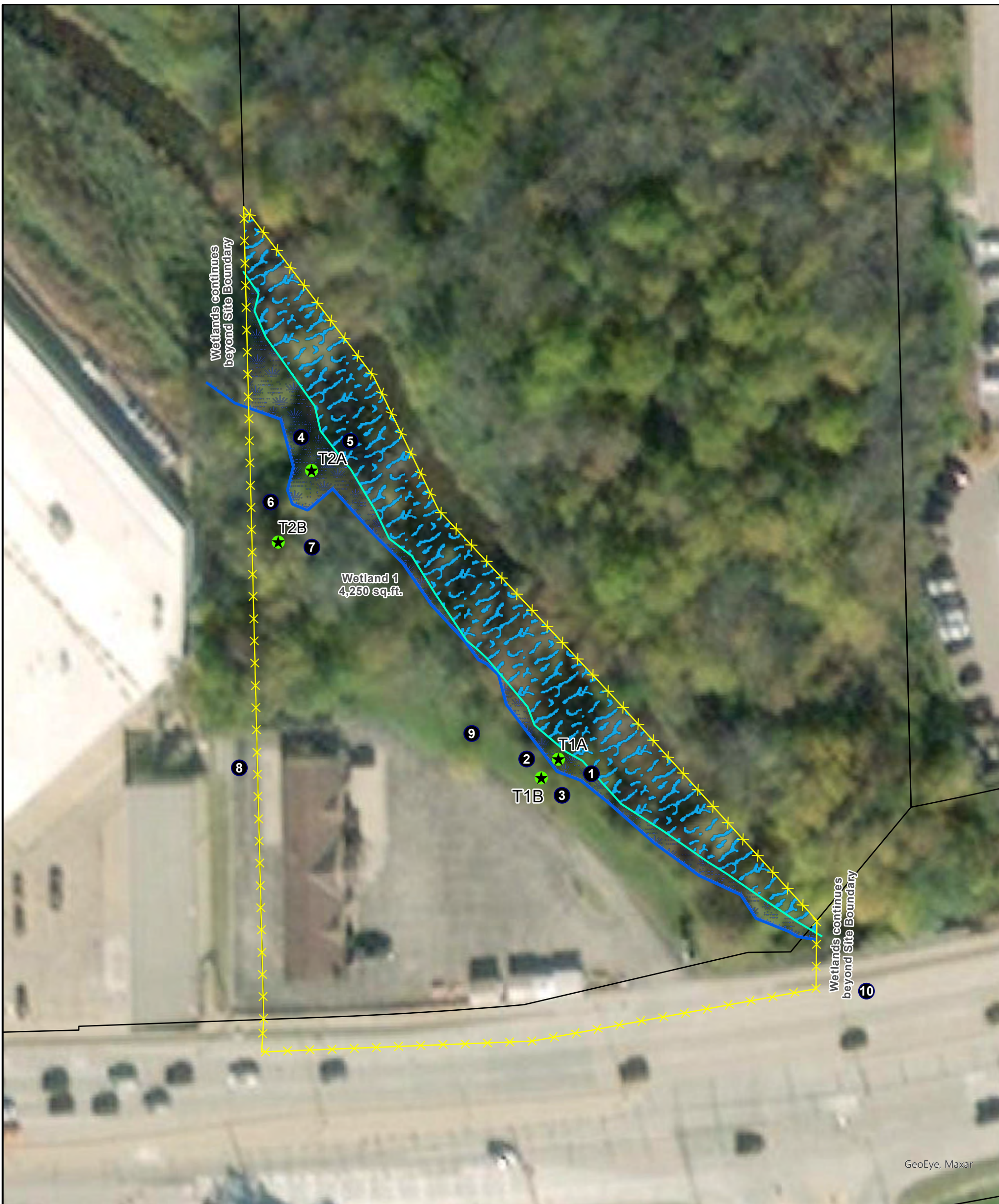
 Site Boundary

Project: WSH20-011-01



evergreen
consultants LLC

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



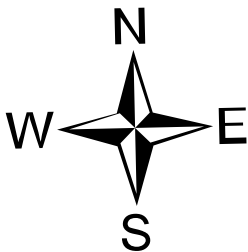
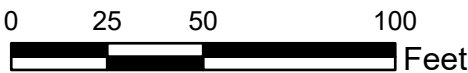
Legend

- 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

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Legend

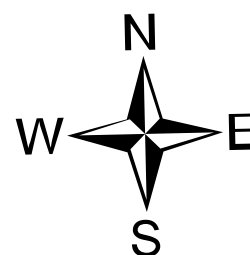
- Site Boundary
- Wetland Line
- Wetland
- Approximate OHWM
- Open Water/ River
- WDNR Protective Area
- Parcels

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

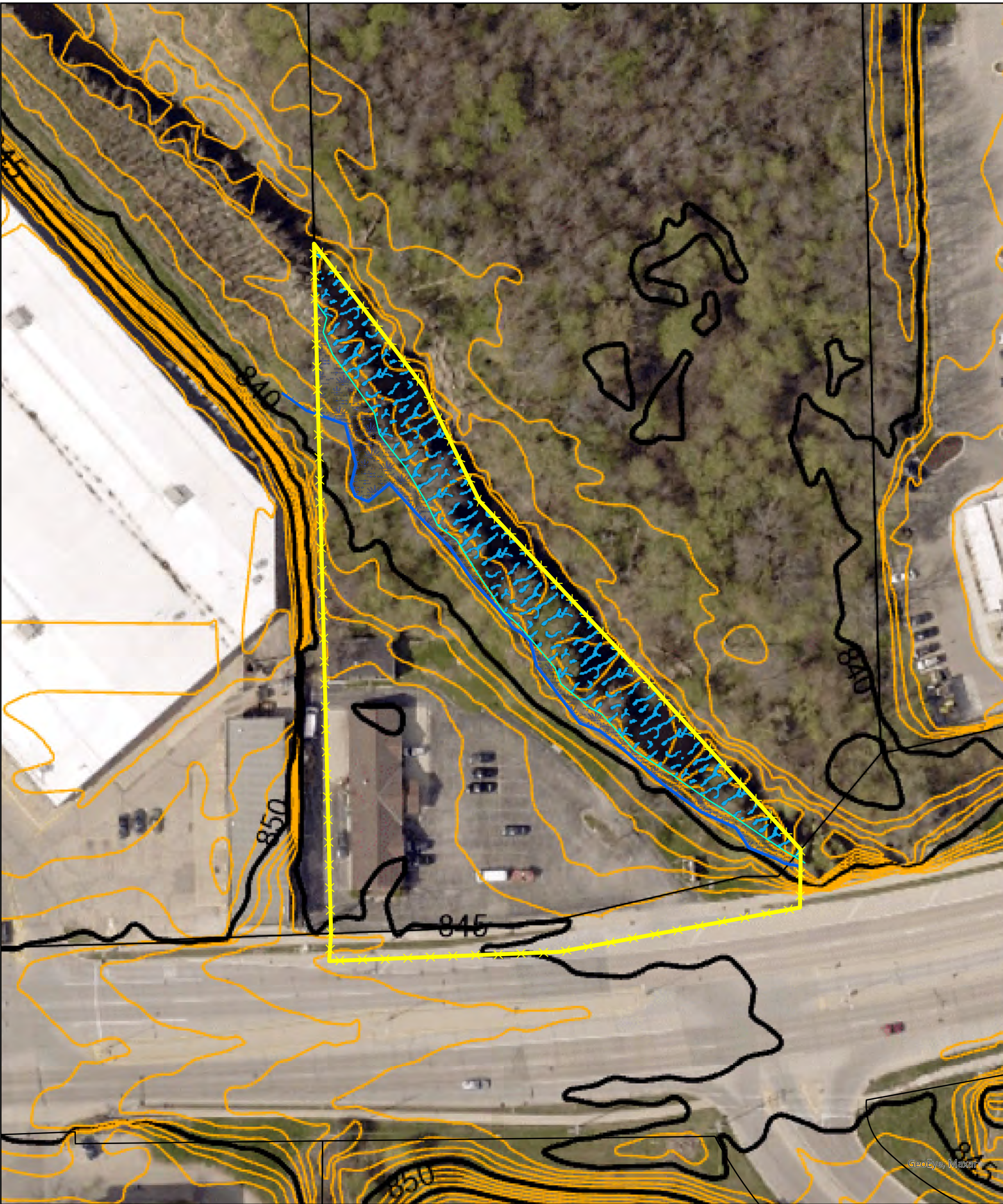
Project: WSH20-011-01

0 25 50 100
Feet

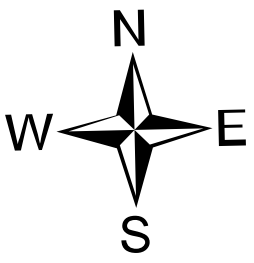


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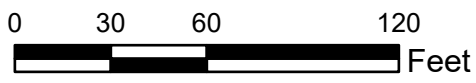


County Line Road
Topographic Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

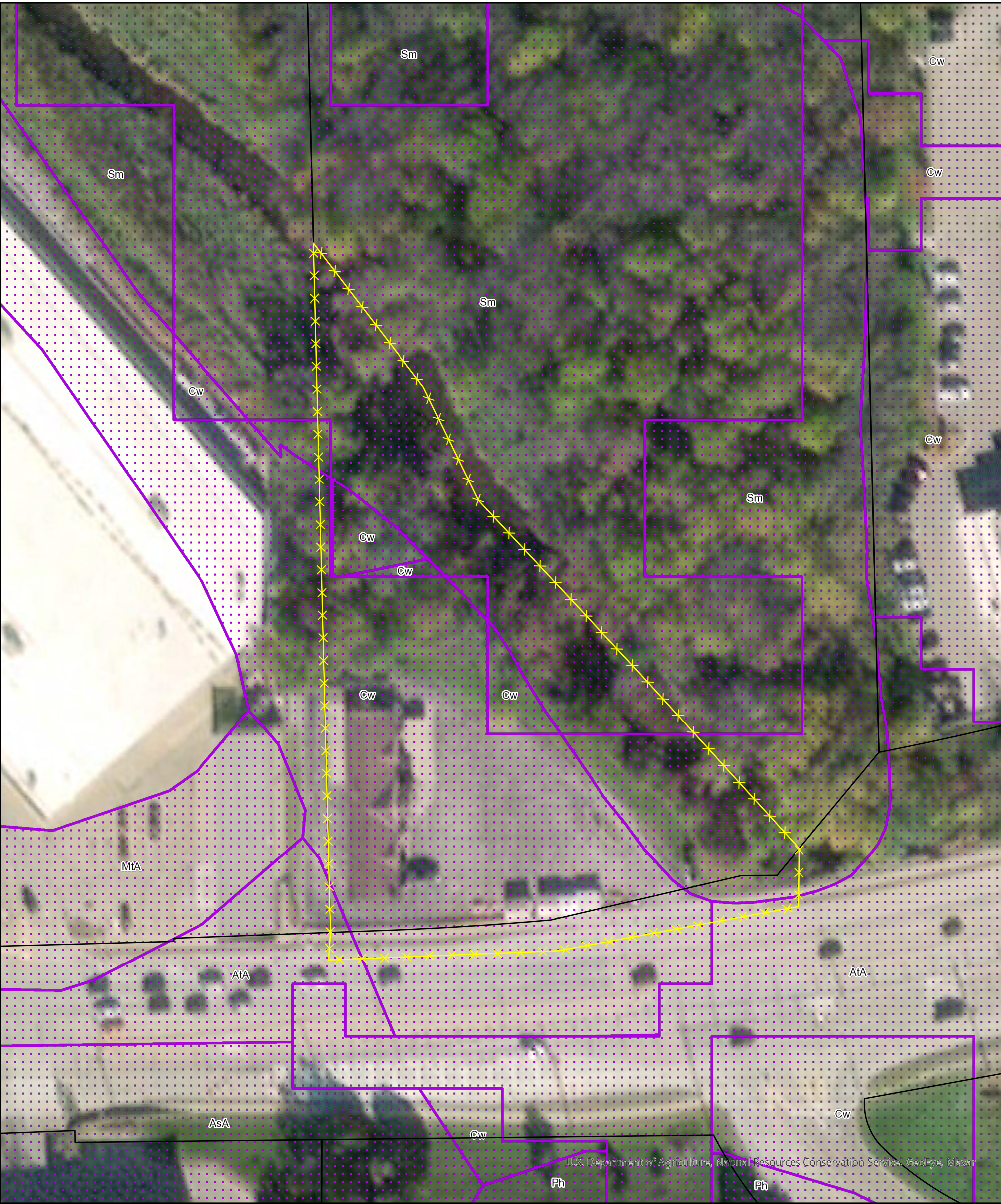


Legend

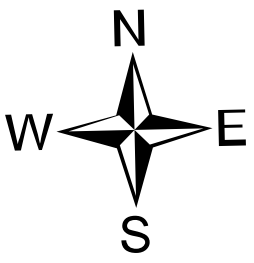
- Site Boundary
- Wetland Line
- Wetland
- Open Water/ River
- Approximate OHWM
- Parcels



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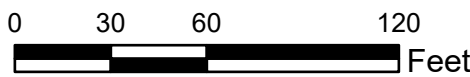
County Line Road
Surface Water Data Viewer Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI



Legend

- Site Boundary
- Parcels
- Wetland Indicators
 - USDA Wetspots
 - Maximum Extent Wetland Indicators

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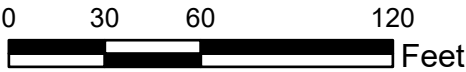
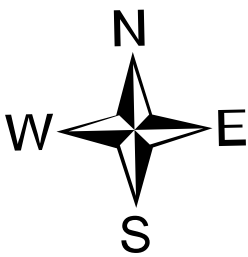
U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov,
GeoEye, Maxar

Legend

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

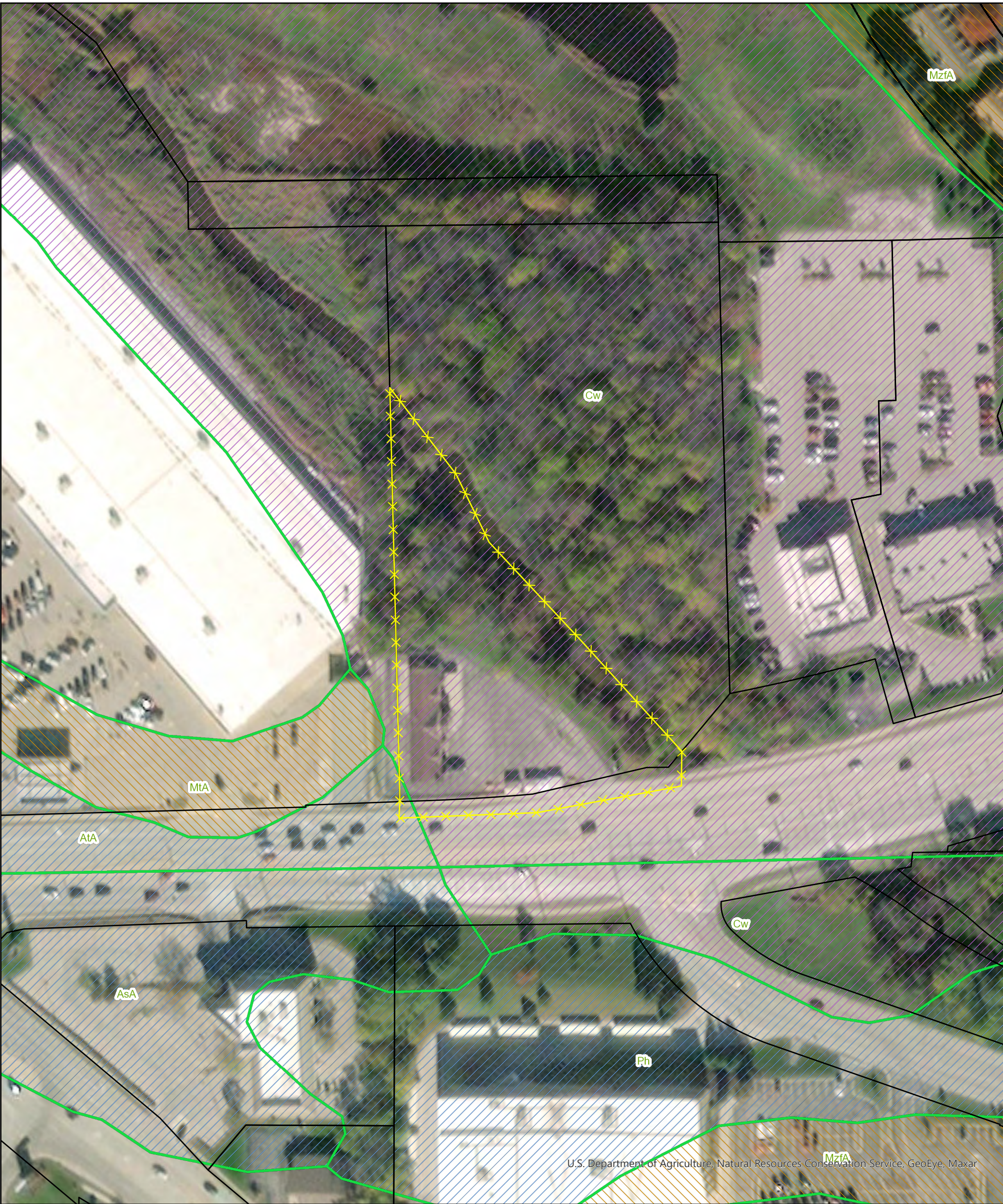
County Line Road
National Wetland Inventory Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01



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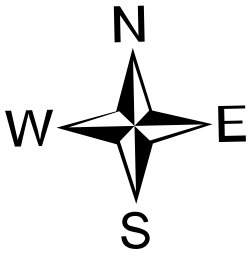
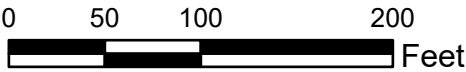
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U.S. Department of Agriculture, Natural Resources Conservation Service, GeoEye, Maxar

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



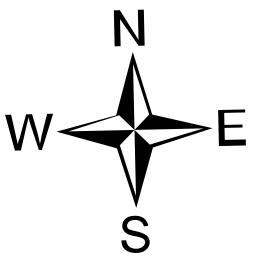
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GeoEye, Maxar

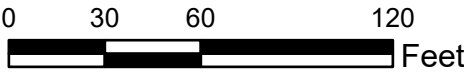
County Line Road
NRCS Soils Map Units
N96W18058 County Line Road
Village of Germantown
Washington County, WI



Legend

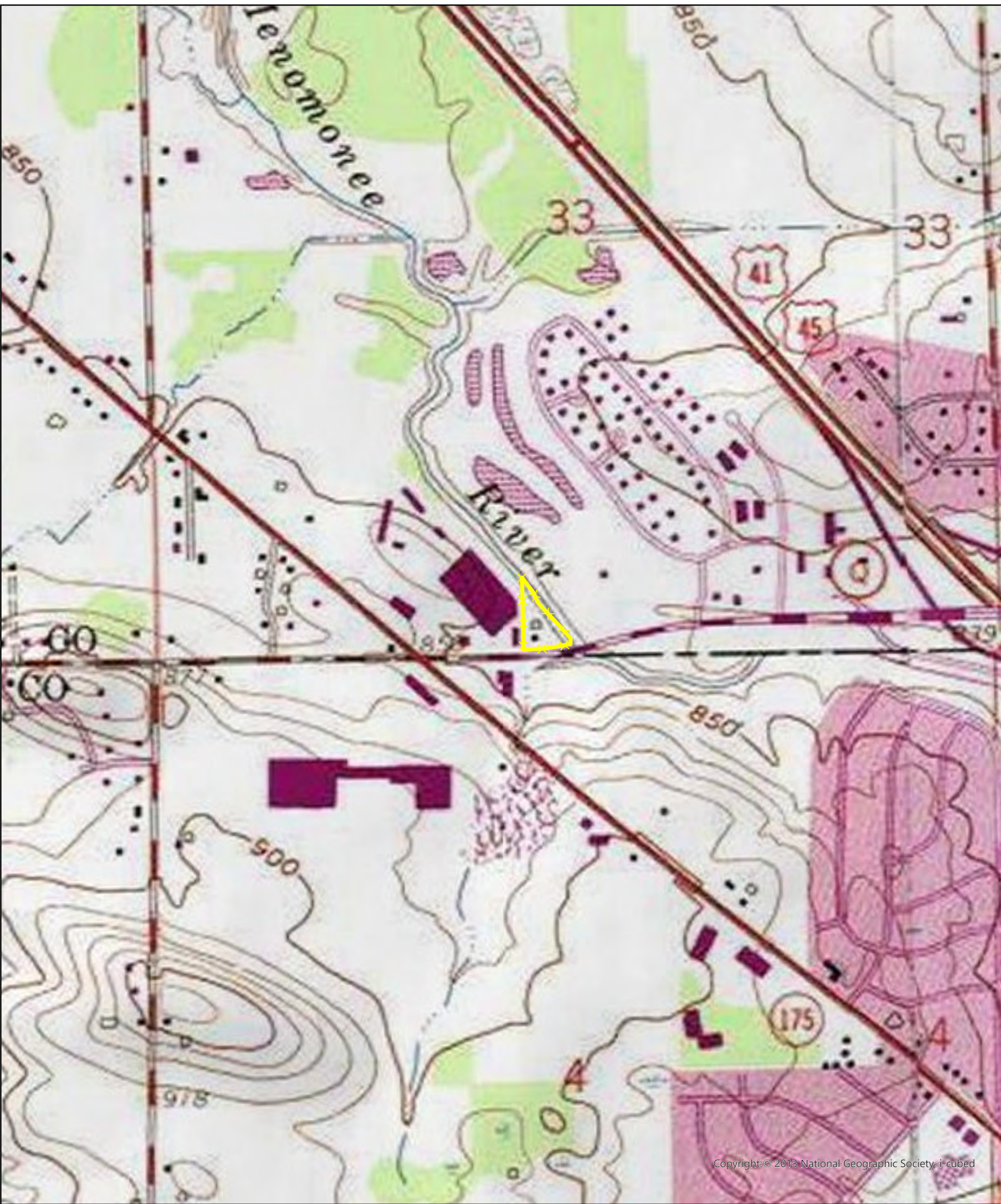
- Site Boundary
- Parcels
- USA Soils Map Units

Project: WSH20-011-01

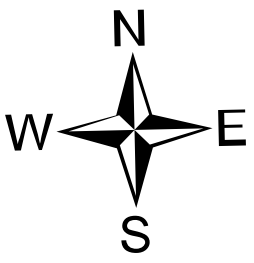


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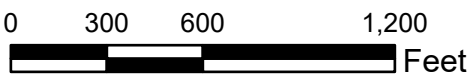
County Line Road
Quadrangle Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI



Legend

 Site Boundary

Project: WSH20-011-01



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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.



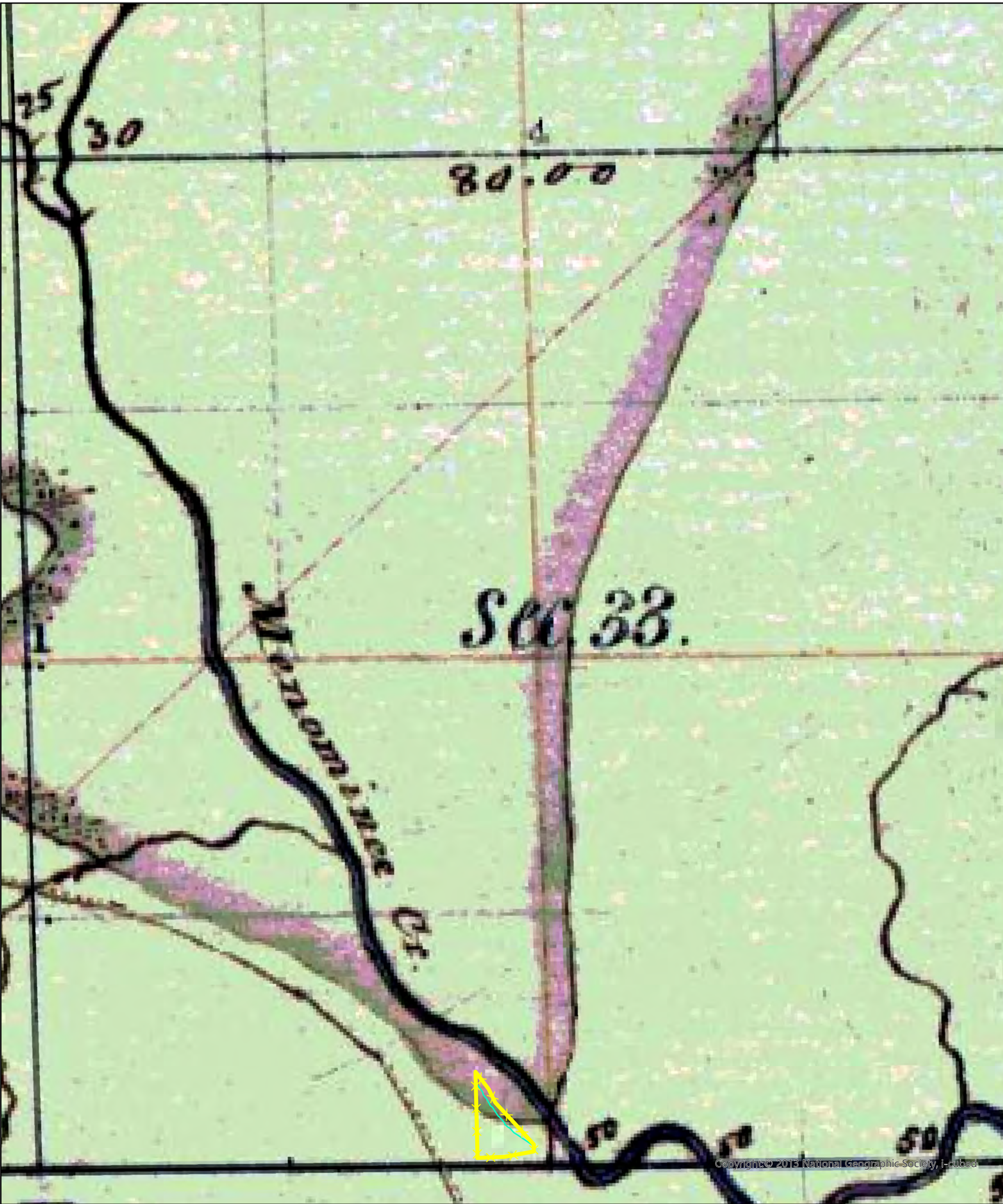
9- Standing near the northeast corner of the parking lot.



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

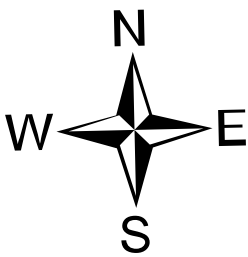
Appendix C:

Original Survey, Notes, and Bordner Map

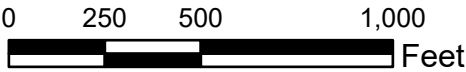


County Line Road
Original Survey
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01



Legend
Site Boundary



Range No. 20 E, 4th Meridian. 46

West South Side Section 33

1.00 Menominee River to c S.E.

3.70 Elm 14 in Diameter

4.00 Menominee River to c E. N.E.

26.00 Do " 500 E. S.E.

33.00 Do " 500 E. N.E.

39.50 Do " 500 S.E.

40.00 Set quarter Section Post

Elm 8 S 39 E 12

Do 10 N 82 1/2 W 25

44.95 Sugar 10 in Diameter

48.00 Trail c N.W.

80.00 Set Post Corner Sections 32 & 33

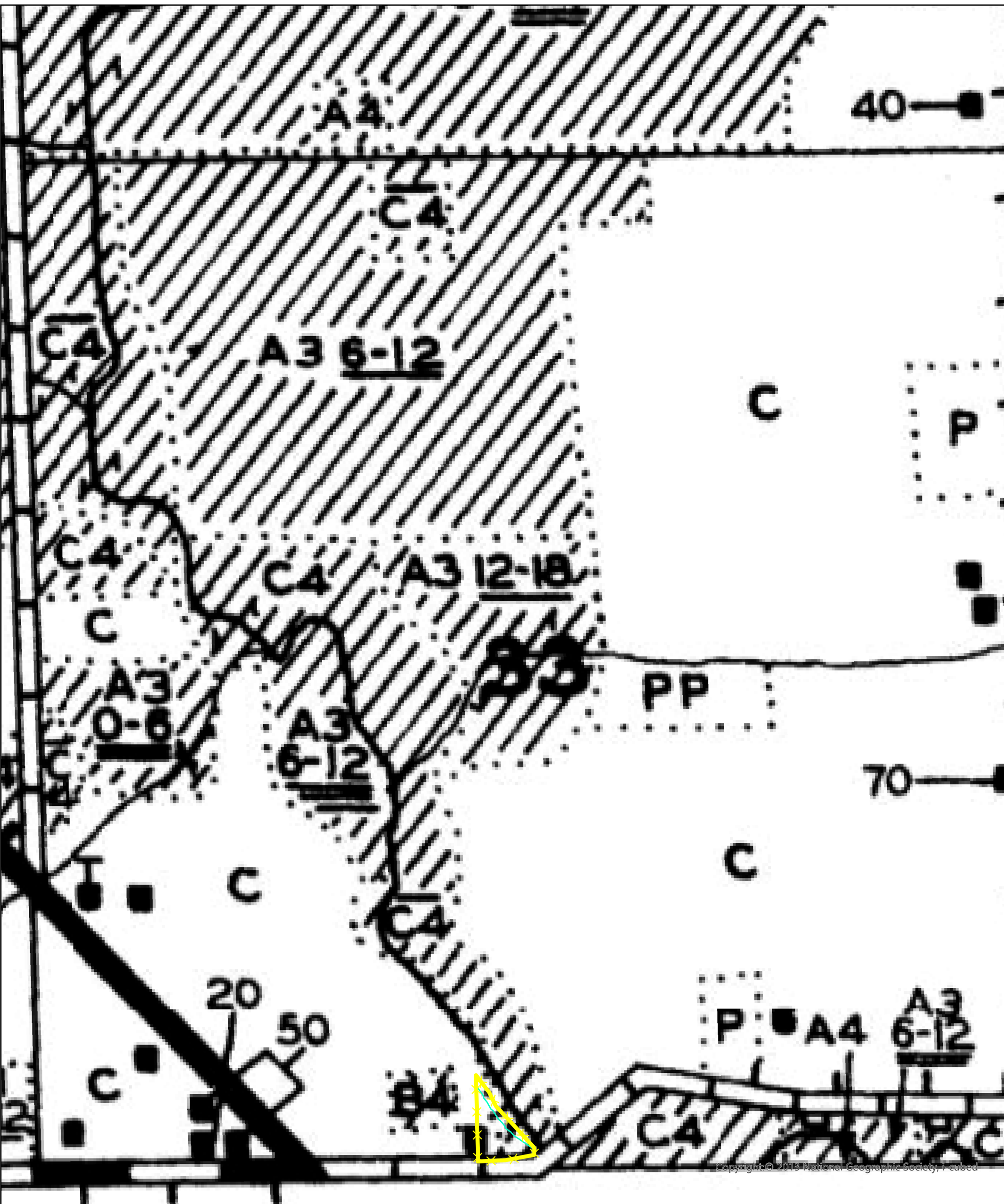
Beech 11 N 55 E 42

White Ash 8 N 36 W 12

Land rolling first & second
rate - White and Black Oak

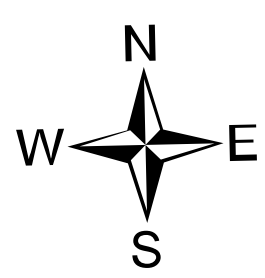
Sycamore Sugar Beech Ironwood

Ash Elm and White Walnut - Pick
ed up Ash and Maple.



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



Legend
Site Boundary

Project: WSH20-011-01



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UPLAND FOREST
NUMERALS 1-2

LOWLAND FOREST
ALL NUMERALS 3

NON-TILLABLE
A-PP-CPP-SP-E-A4-C4-E4-A

INFERIOR FOREST
POORLY STOCKED WOODLAND
B-CI-D3-D5

OPEN SWAMP
ALL NUMERALS 4

TILLABLE LAND
C-CS-P

ALL SWAMP LAND
NUMERALS 3-4

FOREST PLANTING RECOMMENDED

LAND COVER

ROADS

IMPROVEMENTS

MISCELLANEOUS SYMBOLS

WOODED AREAS

DENSITY OF STAND

DIAMETER CLASSES

INDICATES NO. OF HOUSES IN A GROUP

INDICATES THE NUMBER OF FEET

BUILDING IS LOCATED FROM CENTER OF ROAD

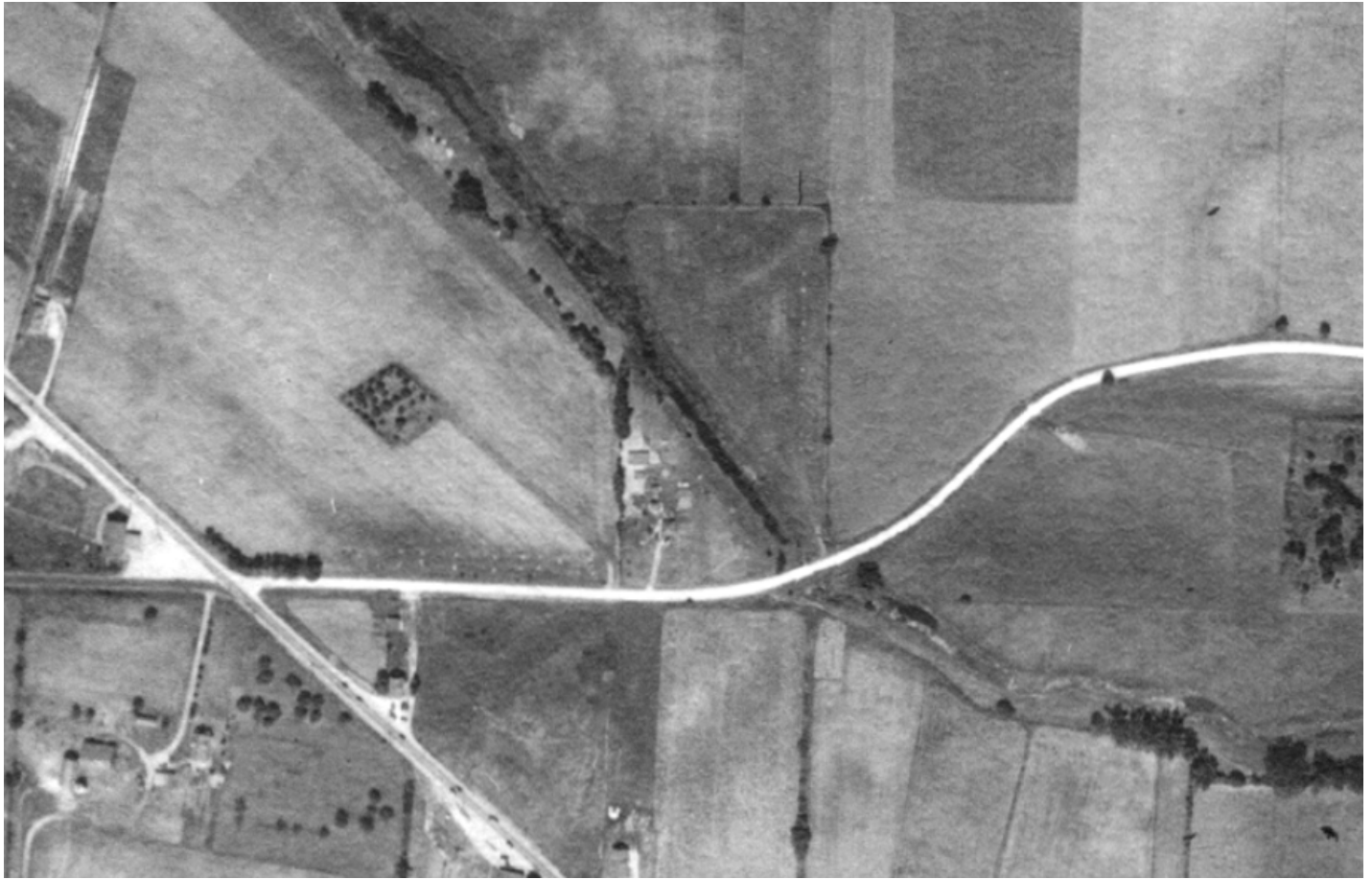
WISCONSIN LAND ECONOMIC INVENTORY DIVISION—411 W. WING - STATE CAPITOL—MADISON WISCONSIN

Appendix D:

Historic Aerial Photographs



Site Boundary



1937 Aerial Photo



1941 Aerial Photo



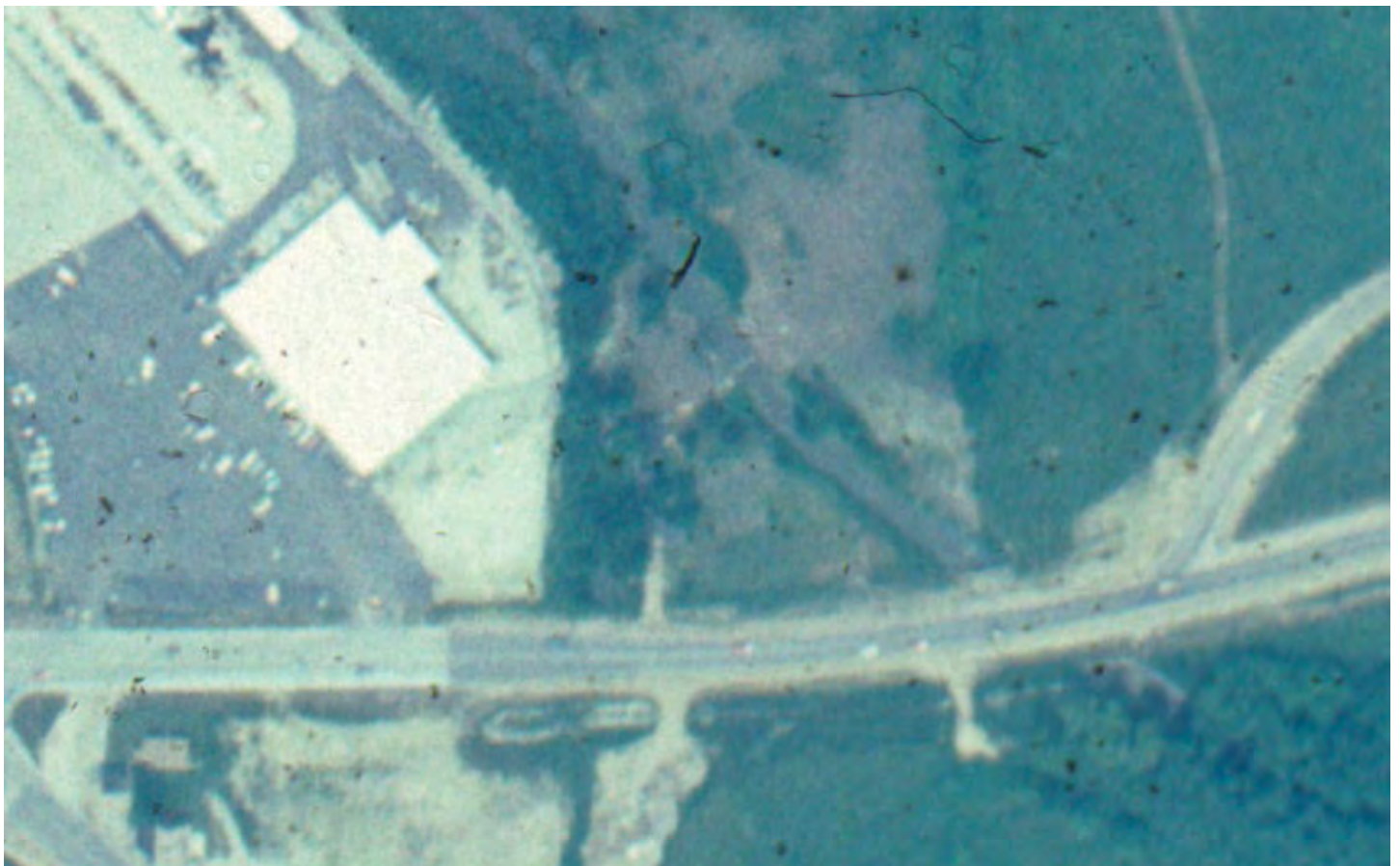
1950 Aerial Photo



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



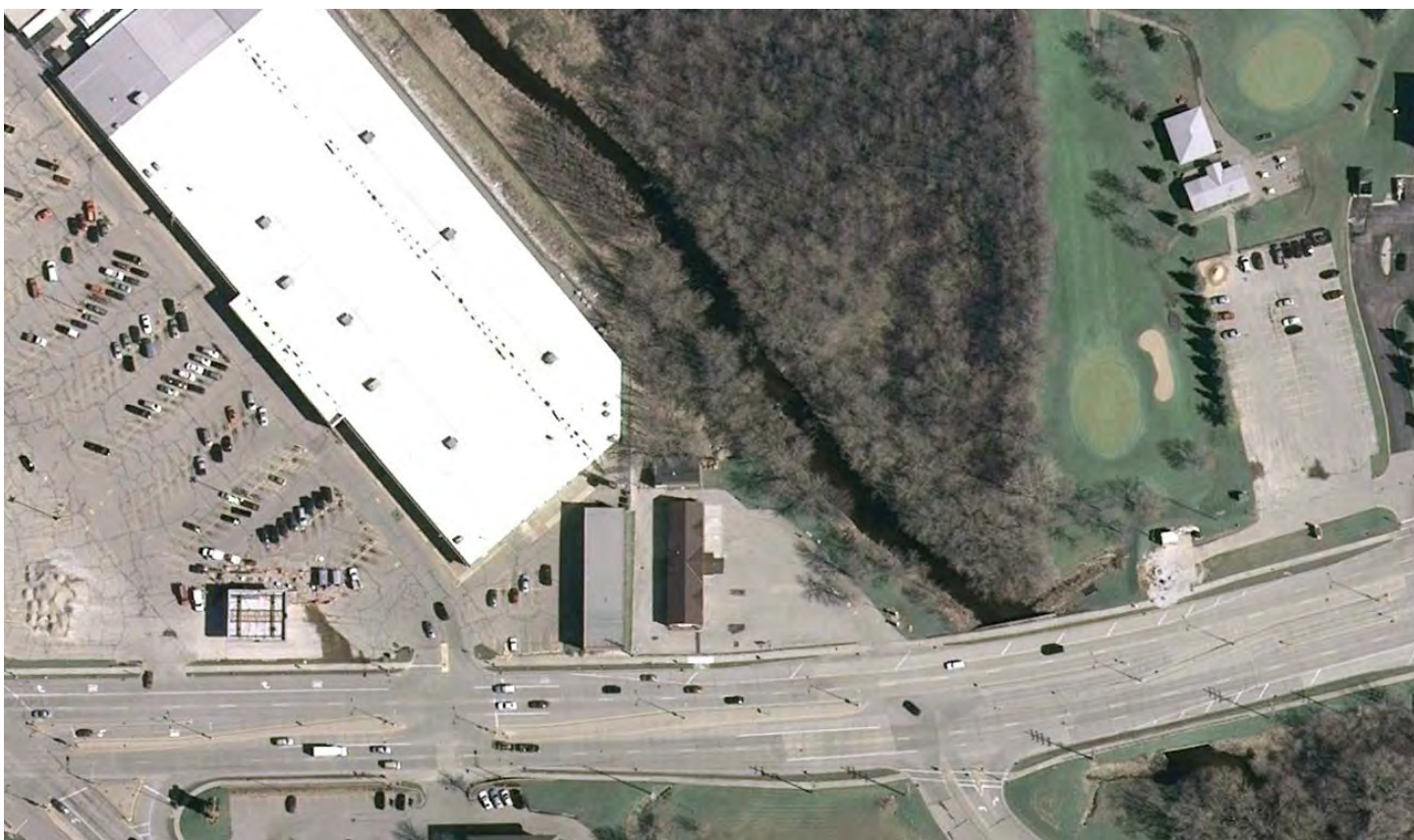
2002 Aerial Photo



2005 Aerial Photo



2006 Aerial Photo



2007 Aerial Photo



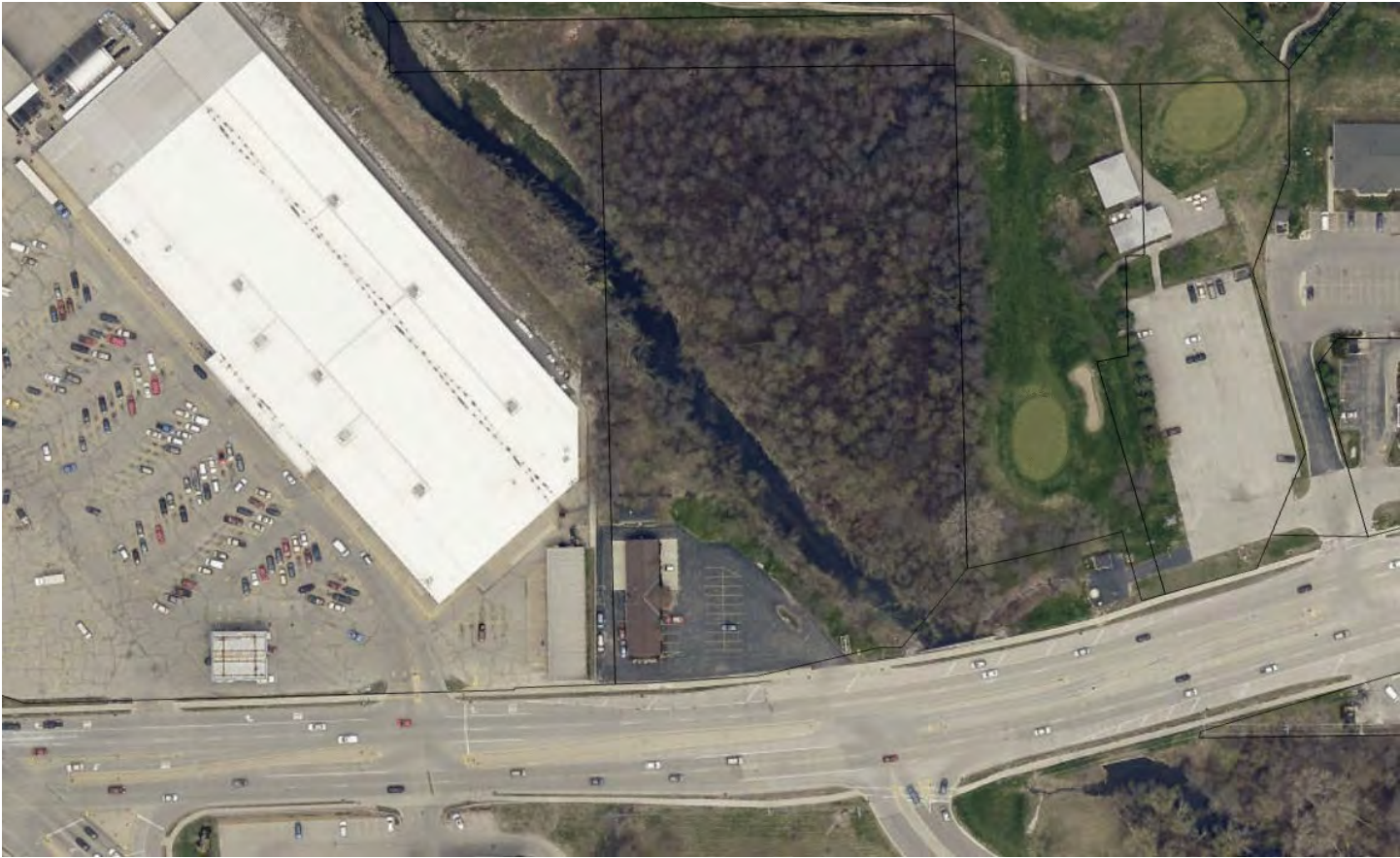
2008 Aerial Photo



2010 Aerial Photo



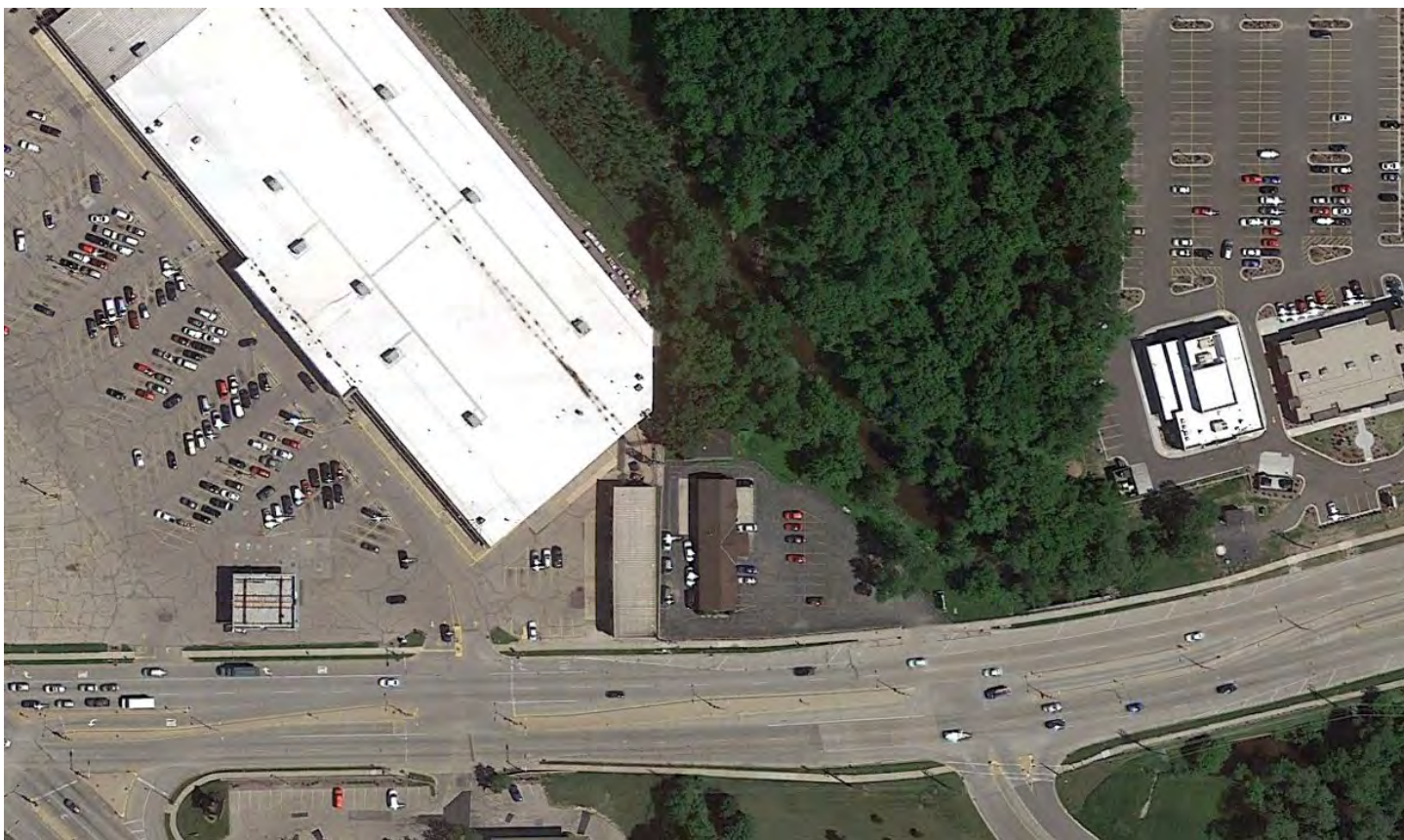
2011 Aerial Photo



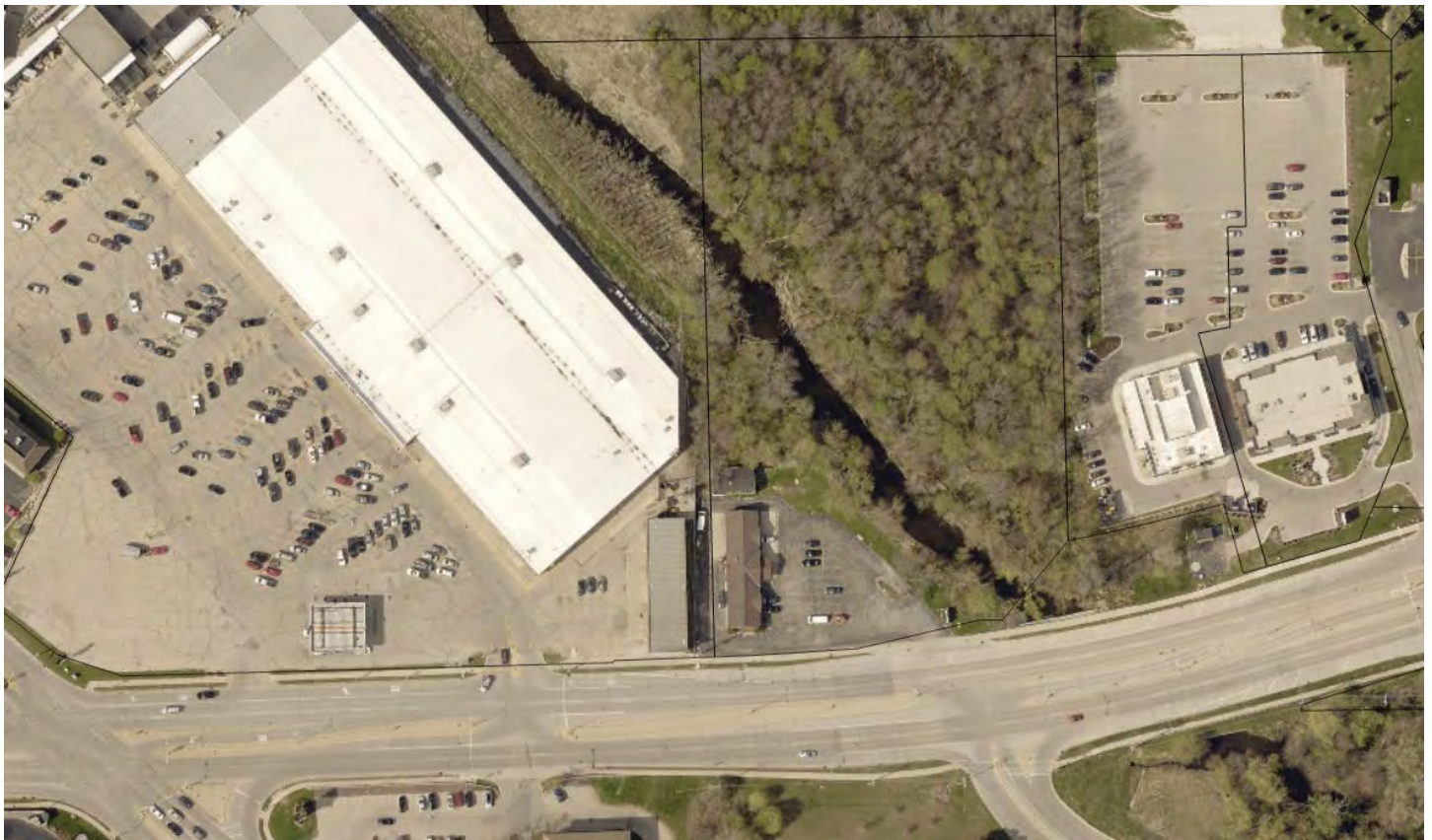
2013 Aerial Photo



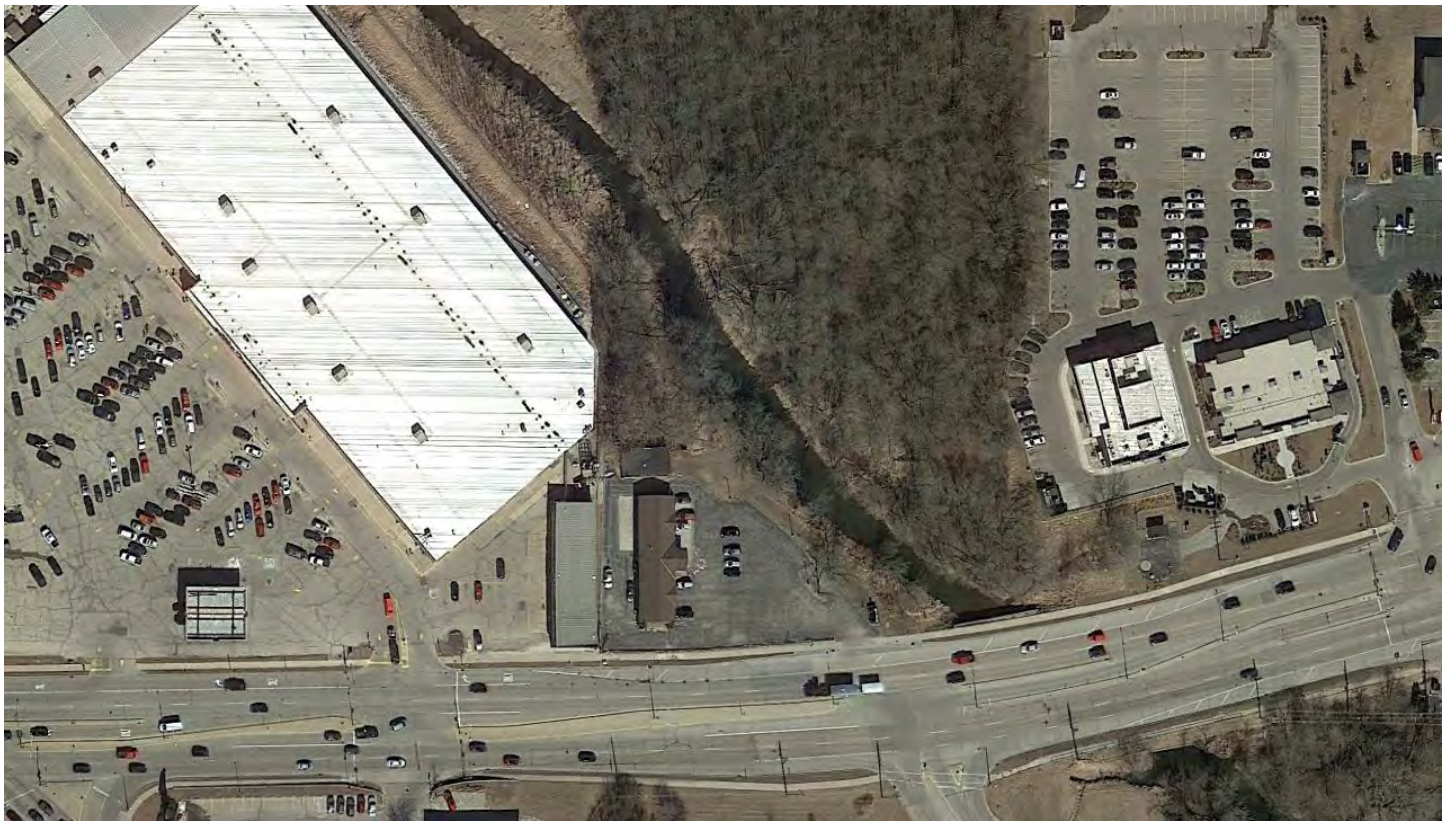
2014 Aerial Photo



2015 Aerial Photo



2017 Aerial Photo



2018 Aerial Photo

Appendix E:

NRCS County Soil Survey Report



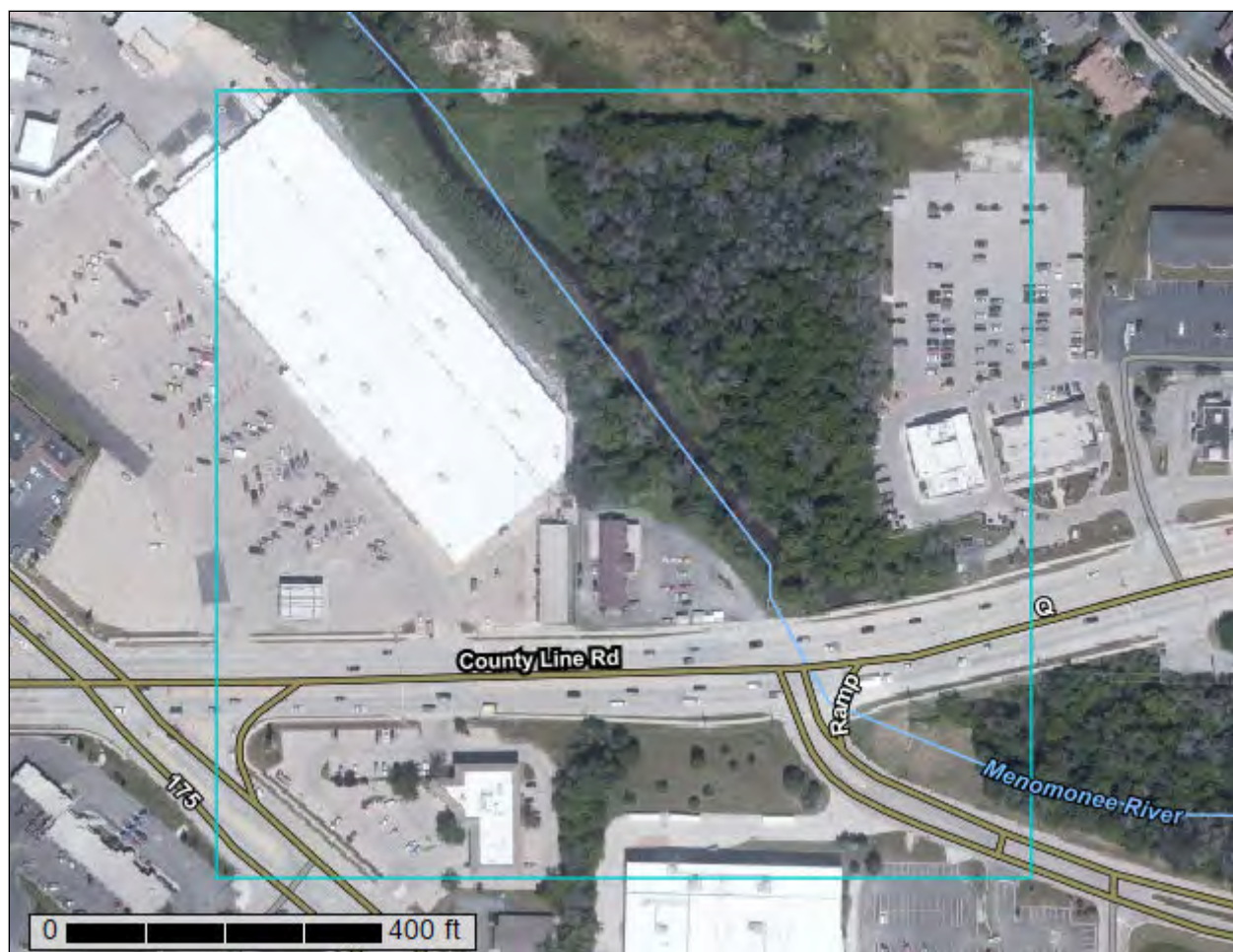
United States
Department of
Agriculture

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



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.

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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

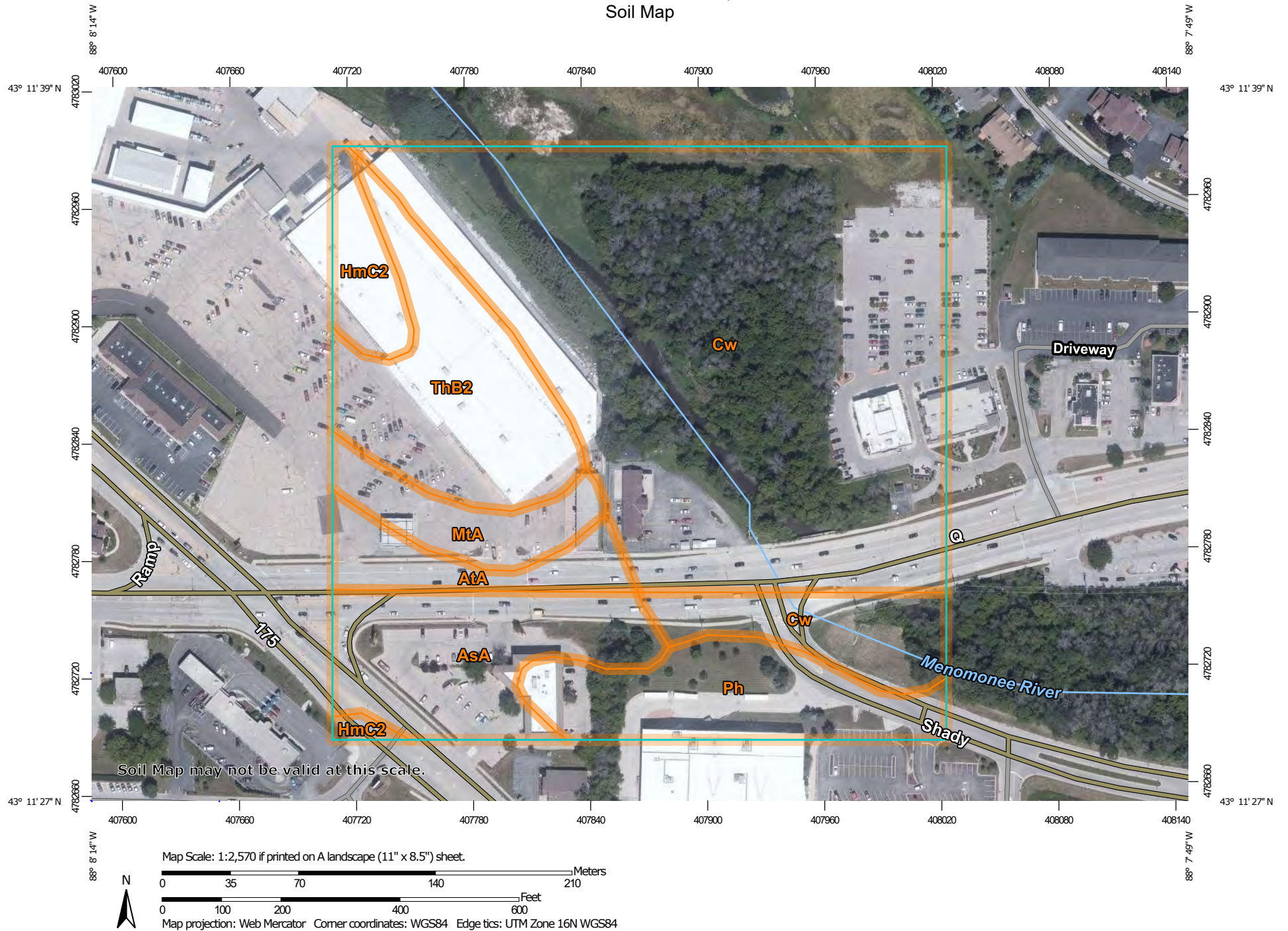
Custom Soil Resource Report

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.

Custom Soil Resource Report Soil Map



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

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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

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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)

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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

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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

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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)

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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

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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.

Custom Soil Resource Report

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

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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:

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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

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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:

Custom Soil Resource Report

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

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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

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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 Endoaqualls
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=stelpdb1043084>

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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

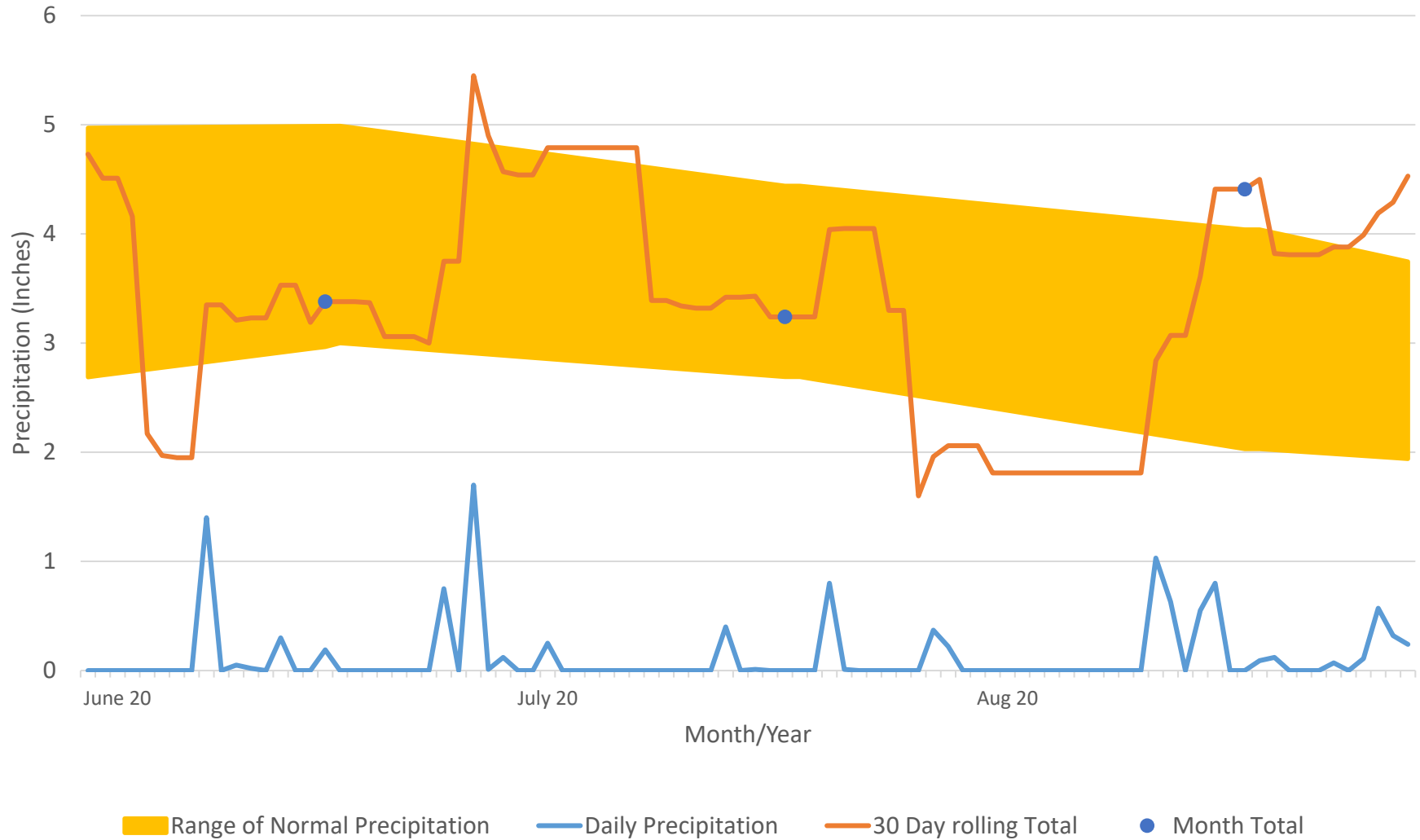
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

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 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
*compared to photo/observation date							Sum	12

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 ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? 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)		Secondary Indicators (minimum of 2 required)	
☐ 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)	☐ 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. <i>Acer saccharinum</i>	10	☐	FACW
2. <i>Acer negundo</i>	25	☒	FAC
3. <i>Fraxinus pennsylvanica</i>	25	☒	FACW
4. _____	0	☐	_____
5. _____	0	☐	_____
6. _____	0	☐	_____
7. _____	0	☐	_____
60 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Acer negundo</i>	5	☐	FAC
2. <i>Salix interior</i>	20	☒	FACW
3. <i>Cornus alba</i>	10	☒	FACW
4. _____	0	☐	_____
5. _____	0	☐	_____
6. _____	0	☐	_____
7. _____	0	☐	_____
35 = Total Cover			
Herb Stratum (Plot size: 5 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Phalaris arundinacea</i>	15	☒	FACW
2. <i>Laportea canadensis</i>	35	☒	FACW
3. <i>Persicaria pensylvanica</i>	5	☐	FACW
4. <i>Arctium minus</i>	2	☐	FACU
5. <i>Taraxacum officinale</i>	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)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Vitis riparia</i>	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 <u>0</u>	x 1 = <u>0</u>
FACW species <u>120</u>	x 2 = <u>240</u>
FAC species <u>40</u>	x 3 = <u>120</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>165</u> (A)	<u>380</u> (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

[illegible]

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 ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? 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)		Secondary Indicators (minimum of 2 required)	
☐ 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)	☐ 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	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Morus alba</u>	15	☒	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
2. <u>Acer negundo</u>	20	☒	FAC	
3. _____	0	☐	_____	
4. _____	0	☐	_____	
5. _____	0	☐	_____	
6. _____	0	☐	_____	
7. _____	0	☐	_____	
Sapling/Shrub Stratum (Plot size: <u>Linear 15'x80'</u>)			35 = Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>85</u> x 3 = <u>255</u> FACU species <u>85</u> x 4 = <u>340</u> UPL species <u>15</u> x 5 = <u>75</u> Column Totals: <u>205</u> (A) <u>710</u> (B) Prevalence Index = B/A = <u>3.463</u>
1. <u>Acer negundo</u>	5	☐	FAC	
2. <u>Rhamnus cathartica</u>	50	☒	FAC	
3. _____	0	☐	_____	
4. _____	0	☐	_____	
5. _____	0	☐	_____	
6. _____	0	☐	_____	
Herb Stratum (Plot size: <u>5 ft radius</u>)			55 = Total Cover	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.
1. <u>Daucus carota</u>	15	☐	UPL	
2. <u>Phalaris arundinacea</u>	20	☒	FACW	
3. <u>Elymus repens</u>	20	☒	FACU	
4. <u>Poa pratensis</u>	25	☒	FACU	
5. <u>Glechoma hederacea</u>	25	☒	FACU	
6. _____	0	☐	_____	
7. _____	0	☐	_____	
8. _____	0	☐	_____	
9. _____	0	☐	_____	
10. _____	0	☐	_____	
11. _____	0	☐	_____	
12. _____	0	☐	_____	
Woody Vine Stratum (Plot size: <u>Linear 15'x100'</u>)			105 = Total Cover	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.
1. <u>Vitis riparia</u>	10	☒	FAC	
2. _____	0	☐	_____	
3. _____	0	☐	_____	
4. _____	0	☐	_____	
			10 = Total Cover	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.)

[illegible]

¹Type: 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)

³Indicators 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 ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	Is the Sampled Area within a Wetland? 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)		Secondary Indicators (minimum of 2 required)	
☐ 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)	☐ 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. <i>Acer negundo</i>	15	☒	FAC	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	0	☐		
3. _____	0	☐		
4. _____	0	☐		
5. _____	0	☐		
6. _____	0	☐		
7. _____	0	☐		
Sapling/Shrub Stratum (Plot size: Linear 10'x80')		15 = Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>90</u> x 2 = <u>180</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>150</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>2.400</u>
1. <i>Acer negundo</i>	5	☒	FAC	
2. <i>Rhamnus cathartica</i>	15	☒	FAC	
3. _____	0	☐		
4. _____	0	☐		
5. _____	0	☐		
6. _____	0	☐		
Herb Stratum (Plot size: 5 ft radius)		20 = Total Cover		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.
1. <i>Phalaris arundinacea</i>	50	☒	FACW	
2. <i>Laportea canadensis</i>	30	☒	FACW	
3. <i>Persicaria pensylvanica</i>	10	☐	FACW	
4. <i>Rhamnus cathartica</i>	15	☐	FAC	
5. _____	0	☐		
6. _____	0	☐		
7. _____	0	☐		
8. _____	0	☐		
9. _____	0	☐		
10. _____	0	☐		
11. _____	0	☐		
Woody Vine Stratum (Plot size: Linear 10'x100')		105 = Total Cover		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.
1. <i>Vitis riparia</i>	10	☒	FAC	
2. _____	0	☐		
3. _____	0	☐		
4. _____	0	☐		
		10 = Total Cover		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

[illegible]

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 ☐ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	Is the Sampled Area within a Wetland? 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)		Secondary Indicators (minimum of 2 required)	
☐ 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)	☐ 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): _____			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

Sampling Point: T2B

Tree Stratum		(Plot size: 30 ft radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	<i>Acer negundo</i>	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)		Absolute % Cover	Dominant Species?	Indicator Status
1.	<i>Rhamnus cathartica</i>	25		☒	FAC	
2.		0		☐		
3.		0		☐		
4.		0		☐		
5.		0		☐		
6.		0		☐		
7.		0		☐		
		25	= Total Cover			
Herb Stratum		(Plot size: 5 ft radius)		Absolute % Cover	Dominant Species?	Indicator Status
1.	<i>Rhamnus cathartica</i>	5		☒	FAC	
2.	<i>Glechoma hederacea</i>	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)		Absolute % Cover	Dominant Species?	Indicator Status
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

[illegible]

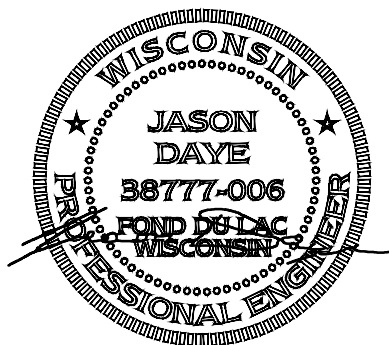
**STORM WATER, EROSION CONTROL, & WETLAND SETBACK
MITIGATION NARRATIVE**

FOR:

**NEW TACO BELL-SUNDANCE, INC
VILLAGE OF GERMANTOWN, WI**

October 5, 2020

REVISED: February 22, 2021



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

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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 3,034 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/Navigable Waterway 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 that compensates for disturbance within these setbacks at a 1:1 ratio. The

majority of the existing site currently 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. A total of 13,400 sf of disturbance is required within these setback areas. Therefore, a minimum mitigation area of 13,400 sf is required to meet the requirements set forth by the Village of Germantown.

One mitigation technique will involve construction of a vegetated filter strip 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).

A second mitigation technique will involve invasive species management in the form of Common Buckthorn removal from the wooded area located north of the proposed development. Specific requirements for this Common Buckthorn management will be provided in the plan specifications listed on sheet C0.2 of the construction plan set. This will allow for native grasses and forest species to regenerate in the area and provide better biodiversity for the wetland areas adjacent to the Menomonee River.

In addition to the two mitigation techniques mentioned above, the development will be reducing total impervious coverage on the subject property by about 3,034 sf. Therefore, this will help to reduce total stormwater runoff for the subject property. As a result, soil erosion will be reduced and therefore the wetland areas down-gradient from the site will be improved. Lastly, 2' sumps will be provided in all onsite storm structures to help settle out particulates before the stormwater leaves the site.

In total, approximately 18,084 sf of mitigation area is proposed when considering the vegetated filter strip area, Common Buckthorn management area, and overall reduction of impervious area on site. This results in a disturbance to mitigation ratio of 1:1.35, therefore exceeding the 1:1 requirements set forth by the Village of Germantown. 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.

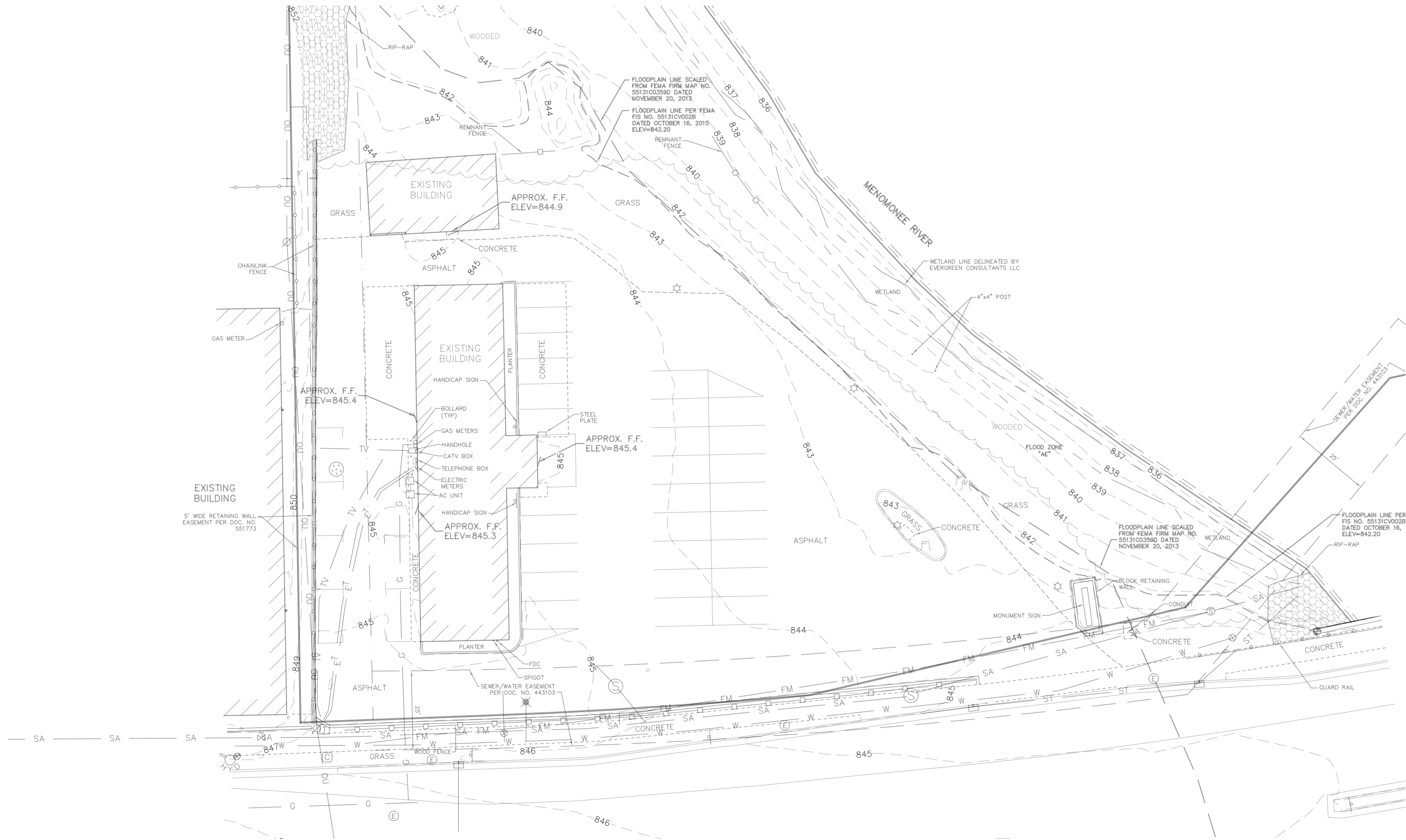
Erosion Control:

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

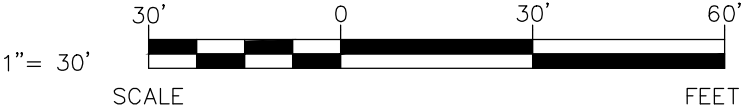
notes are all listed on sheets C0.1 and C0.2 of the construction plan set. Additional notes and locations of erosion control BMPs can be found on C1.2 of the construction plan set.

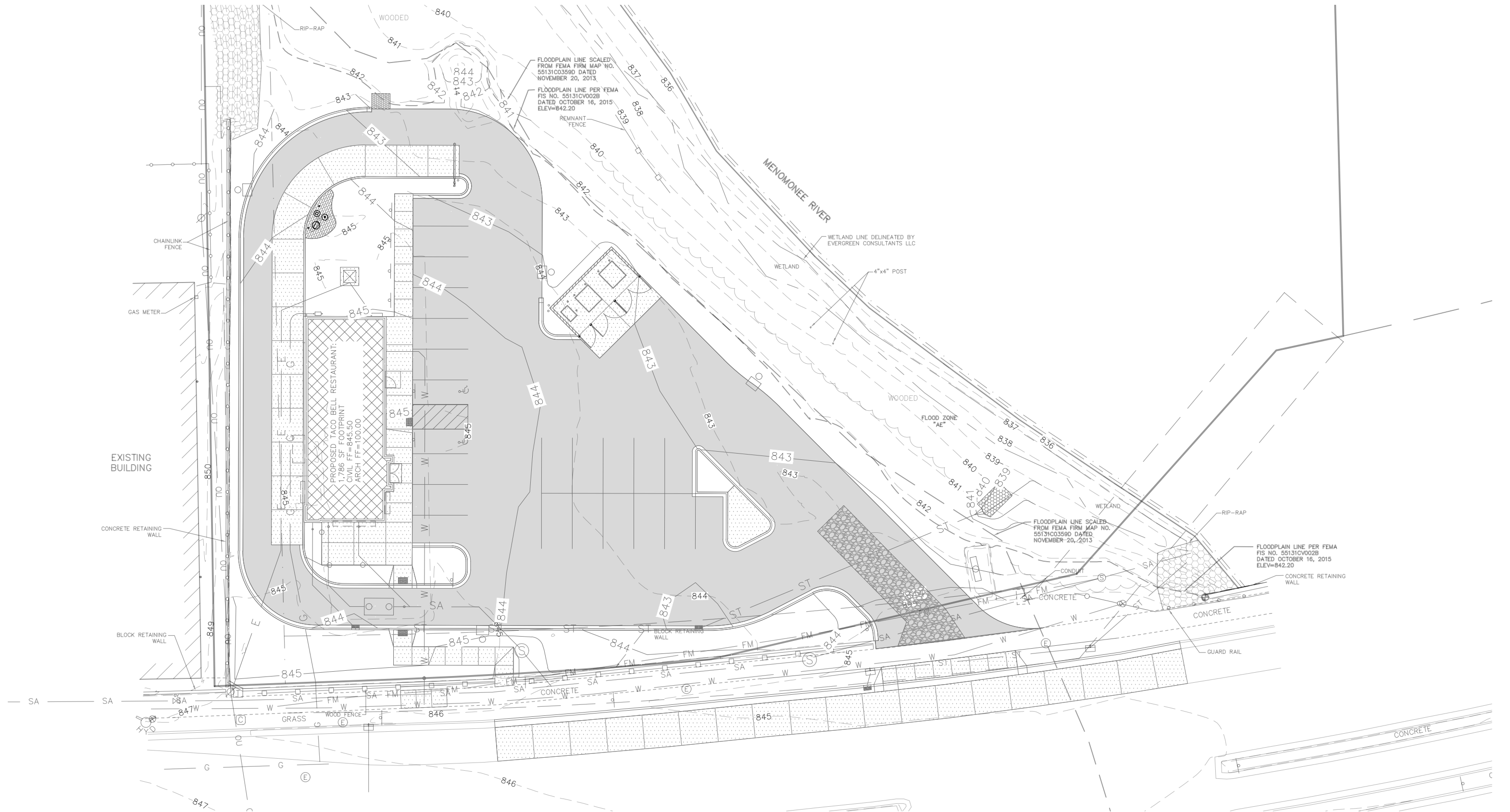
Appendix A

Existing and Proposed Site Conditions:

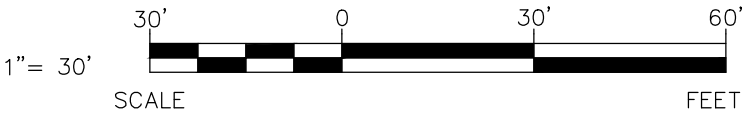


EXISTING SITE MAP





PROPOSED SITE MAP



Appendix B

Post Construction Operation & Maintenance:

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:

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
4	SCS Runoff	1.408	2	726	2,975	-----	-----	-----	PIPE BASIN D
TR-55 Pipe Calcs.gpw					Return Period: 10 Year			Friday, 02 / 12 / 2021	

Hydrograph Report

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

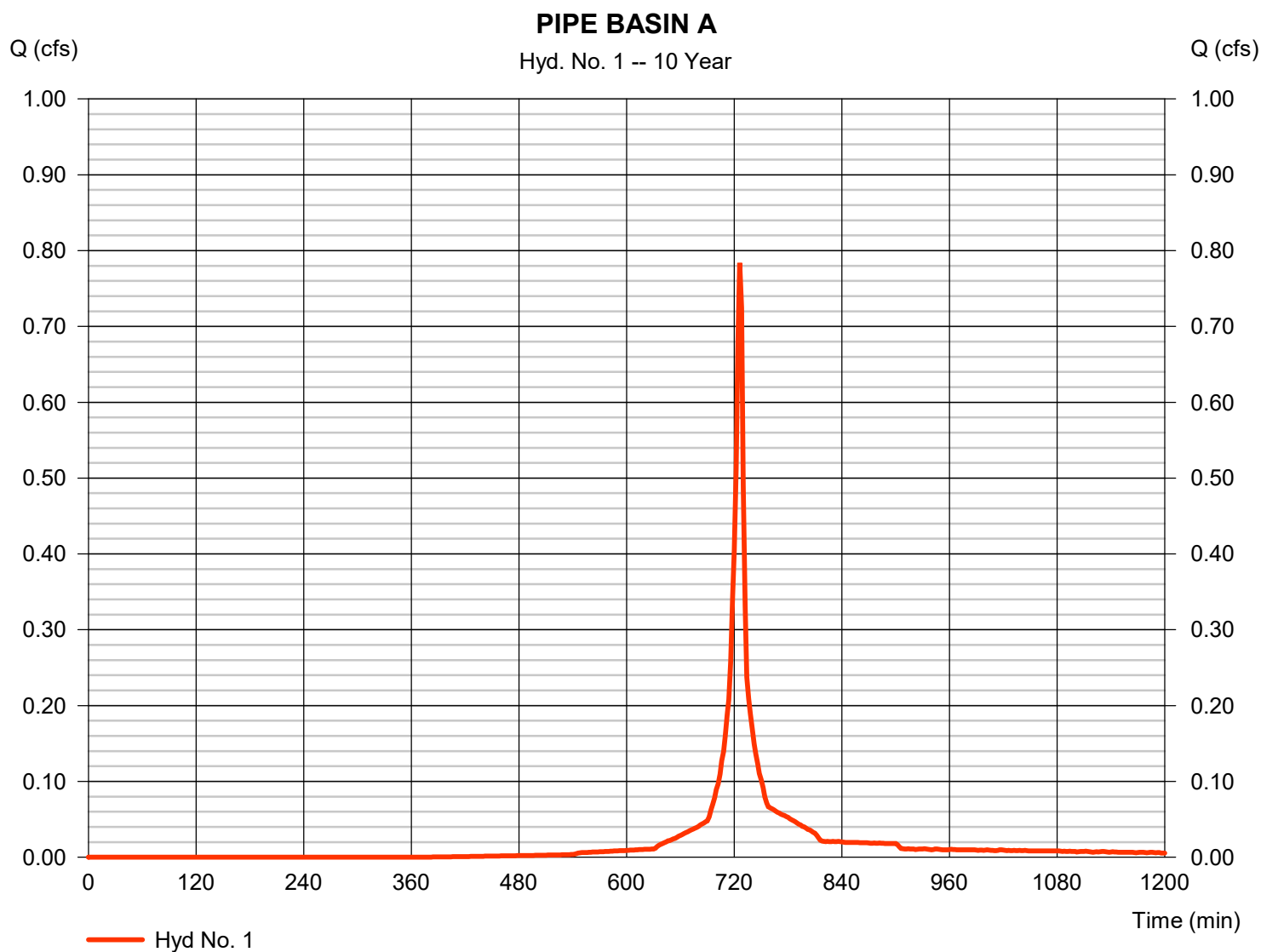
Friday, 02 / 12 / 2021

Hyd. No. 1

PIPE BASIN A

Hydrograph type	= SCS Runoff	Peak discharge	= 0.784 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
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		

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



Hydrograph Report

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

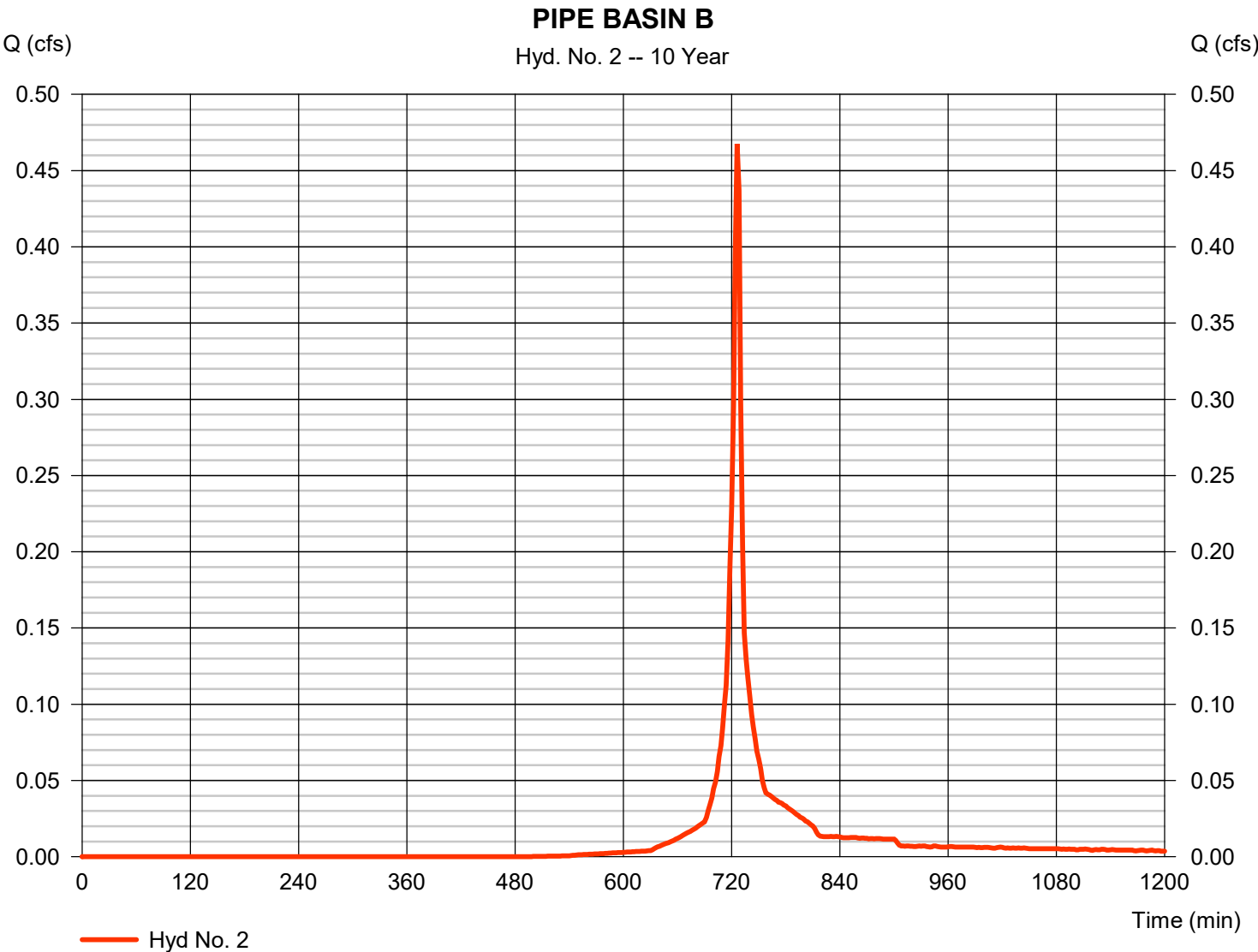
Friday, 02 / 12 / 2021

Hyd. No. 2

PIPE BASIN B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.468 cfs
Storm frequency	=	10 yrs	Time to peak	=	726 min
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.dwt			

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



Hydrograph Report

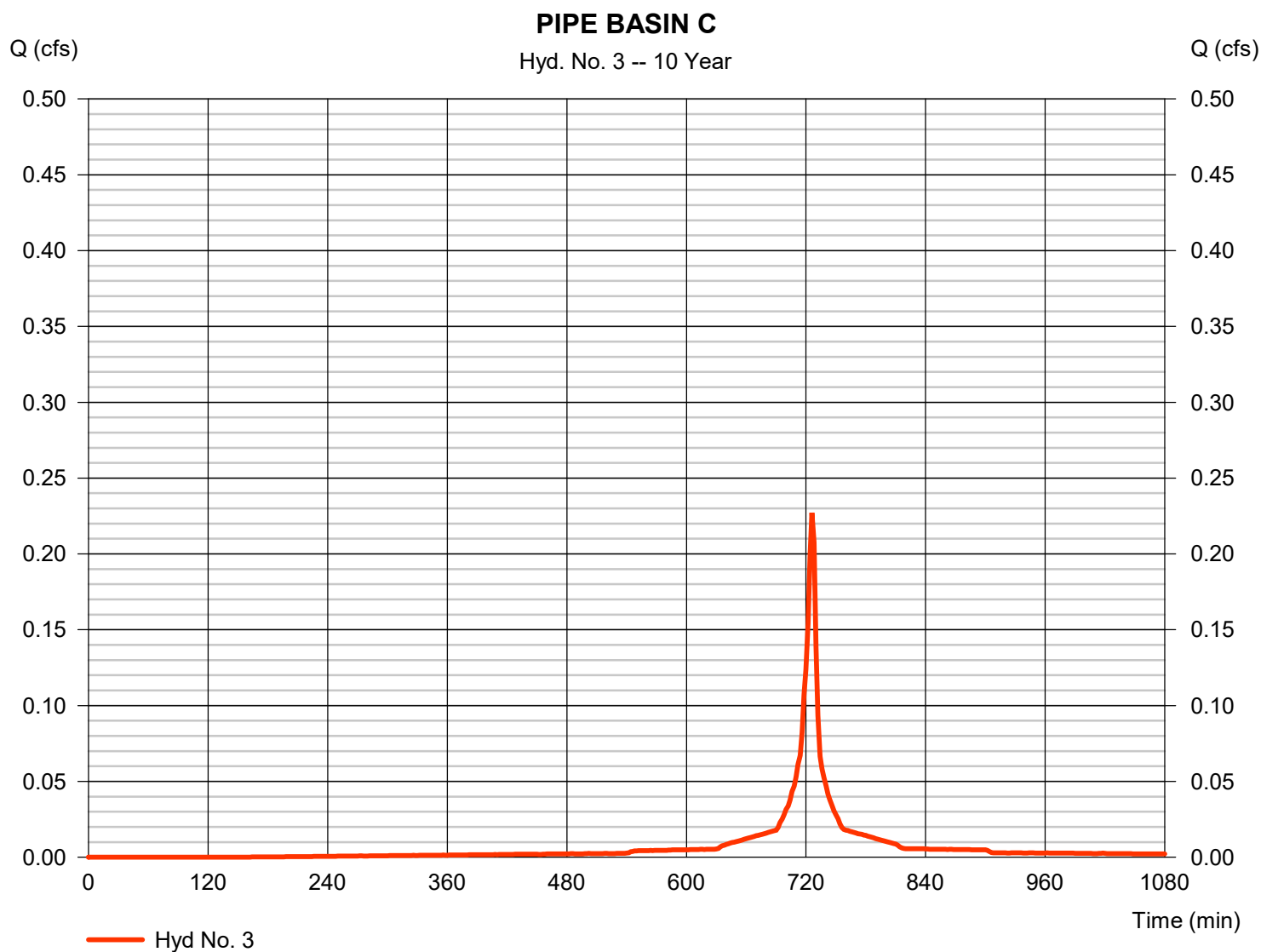
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Friday, 02 / 12 / 2021

Hyd. No. 3

PIPE BASIN C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.227 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
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		



Hydrograph Report

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

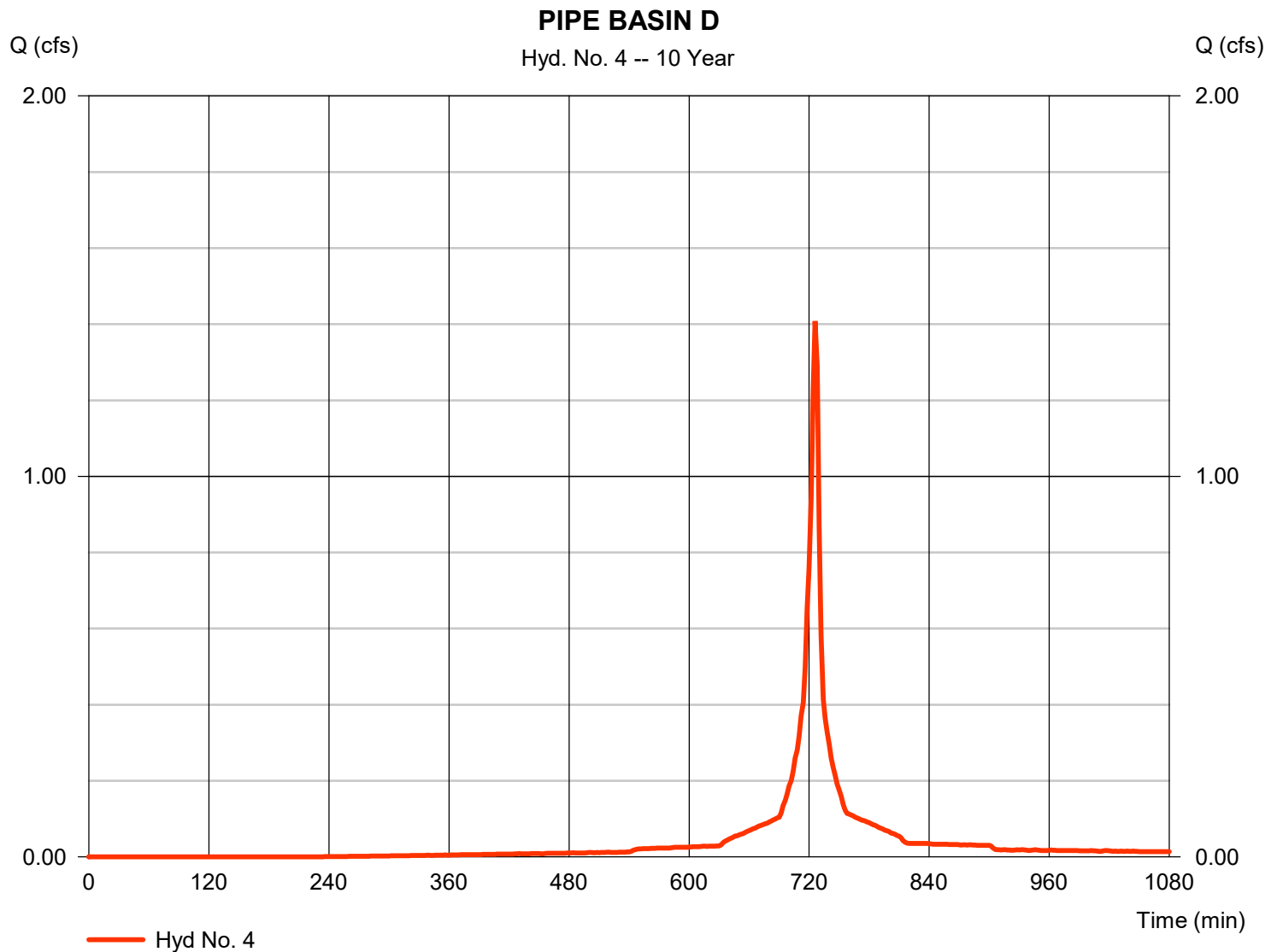
Friday, 02 / 12 / 2021

Hyd. No. 4

PIPE BASIN D

Hydrograph type	= SCS Runoff	Peak discharge	= 1.408 cfs
Storm frequency	= 10 yrs	Time to peak	= 726 min
Time interval	= 2 min	Hyd. volume	= 2,975 cuft
Drainage area	= 0.260 ac	Curve number	= 96*
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		

* Composite (Area/CN) = $[(0.241 \times 98) + (0.019 \times 74)] / 0.260$



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
4	SCS Runoff	2.408	2	726	5,252	-----	-----	-----	PIPE BASIN D
TR-55 Pipe Calcs.gpw					Return Period: 100 Year			Friday, 02 / 12 / 2021	

Hydrograph Report

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

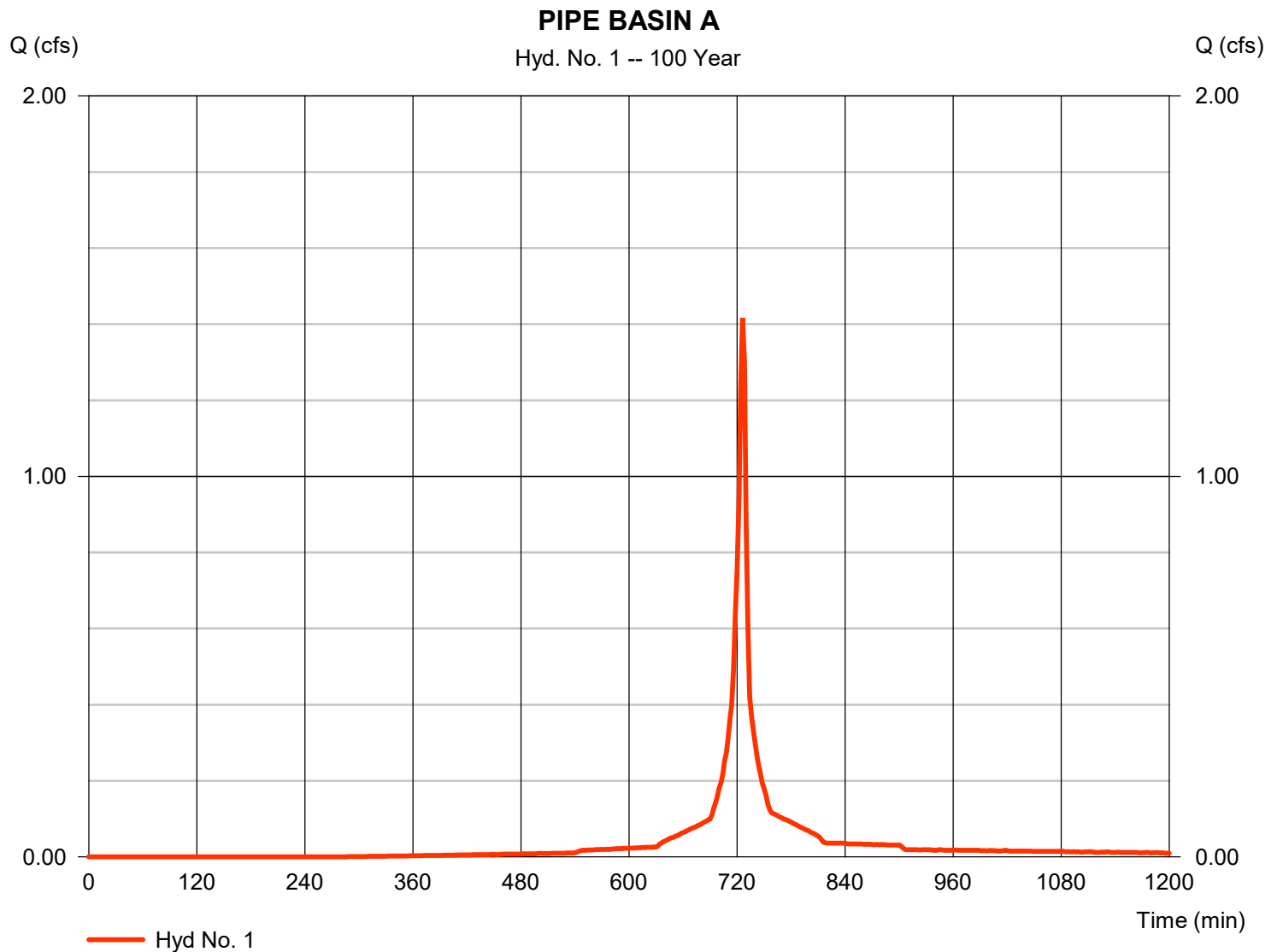
Friday, 02 / 12 / 2021

Hyd. No. 1

PIPE BASIN A

Hydrograph type	= SCS Runoff	Peak discharge	= 1.417 cfs
Storm frequency	= 100 yrs	Time to peak	= 726 min
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		

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



Hydrograph Report

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

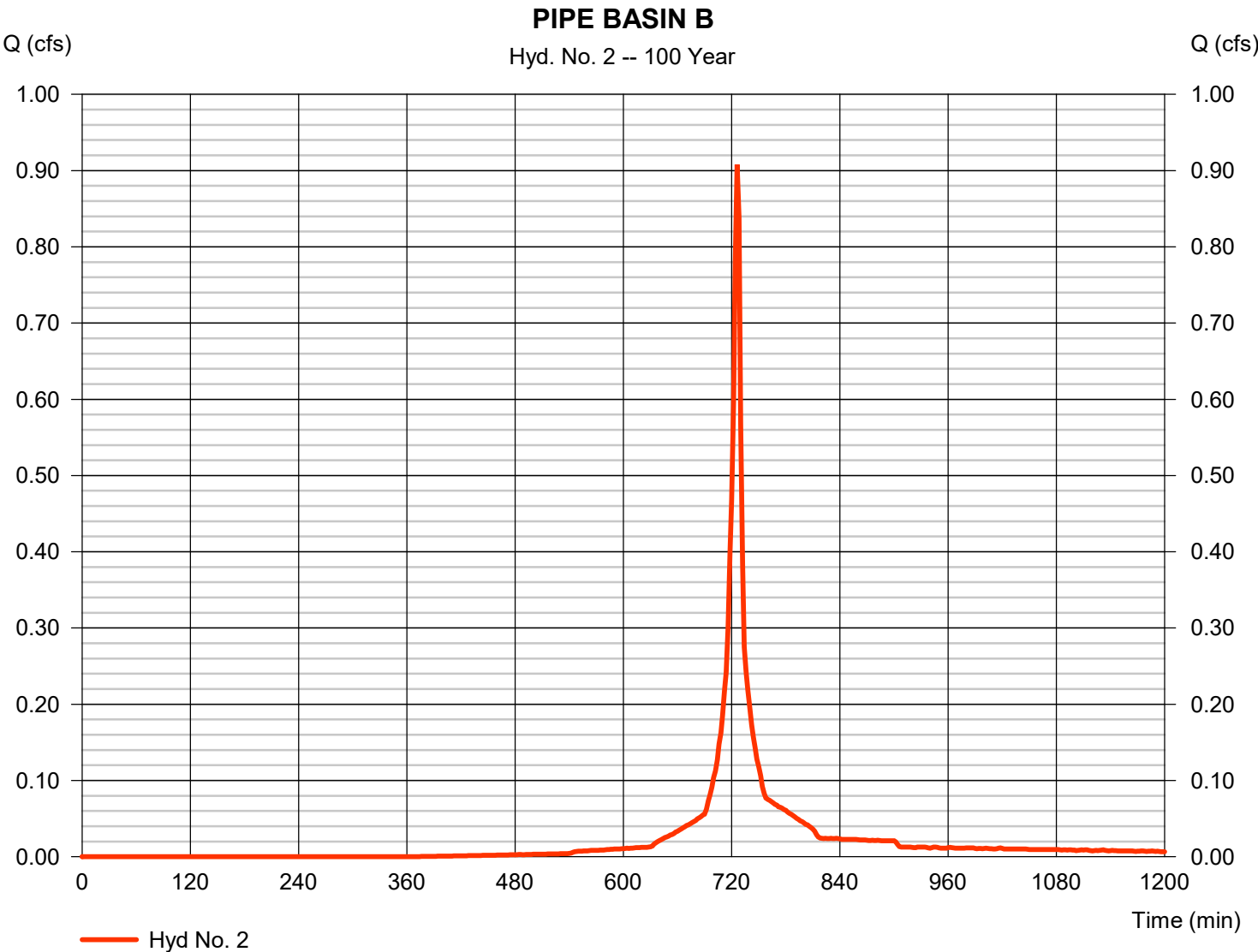
Friday, 02 / 12 / 2021

Hyd. No. 2

PIPE BASIN B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.908 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
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.dwt			

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



Hydrograph Report

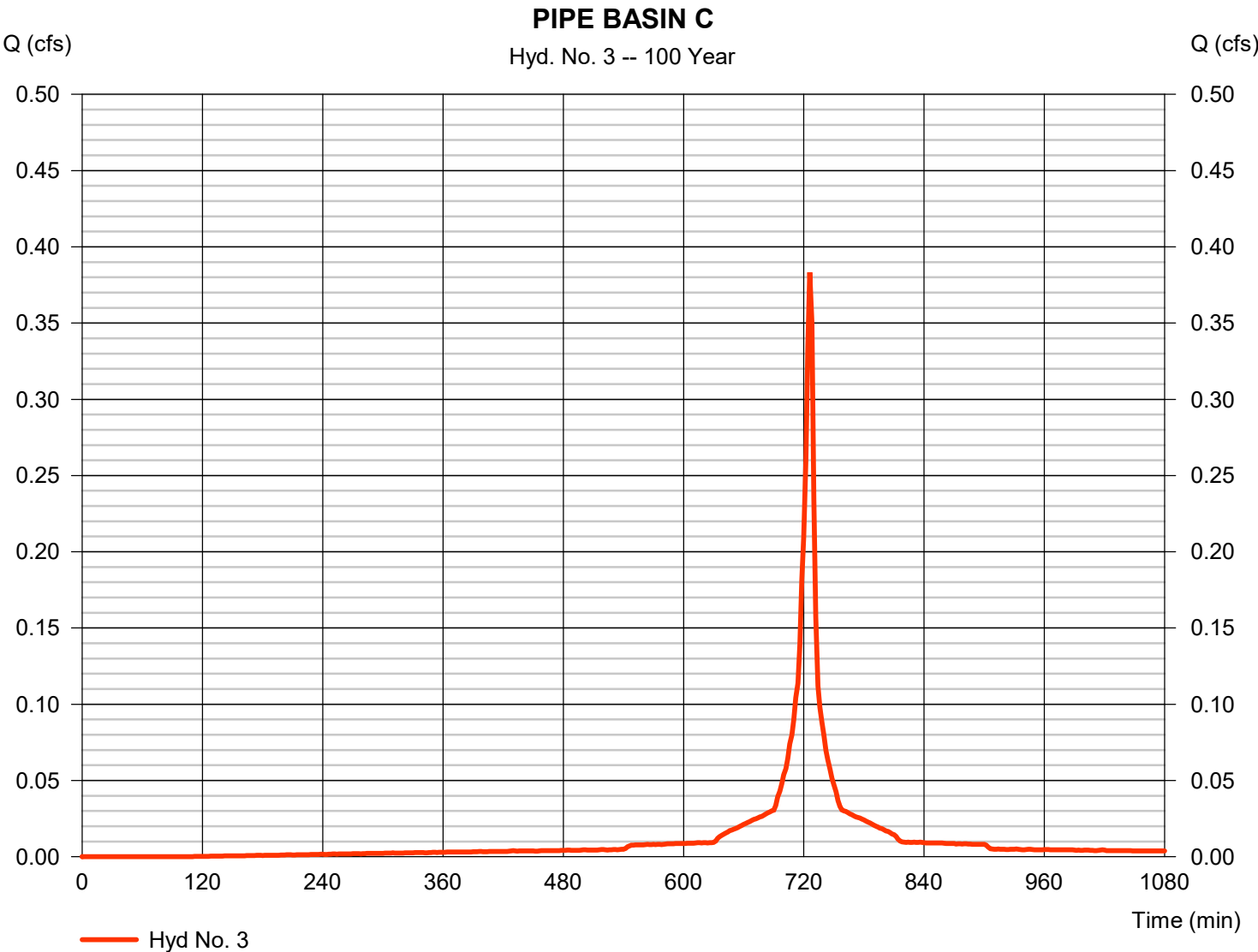
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® 2019 by Autodesk, Inc. v2019.2

Friday, 02 / 12 / 2021

Hyd. No. 3

PIPE BASIN C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.383 cfs
Storm frequency	= 100 yrs	Time to peak	= 726 min
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		



Hydrograph Report

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

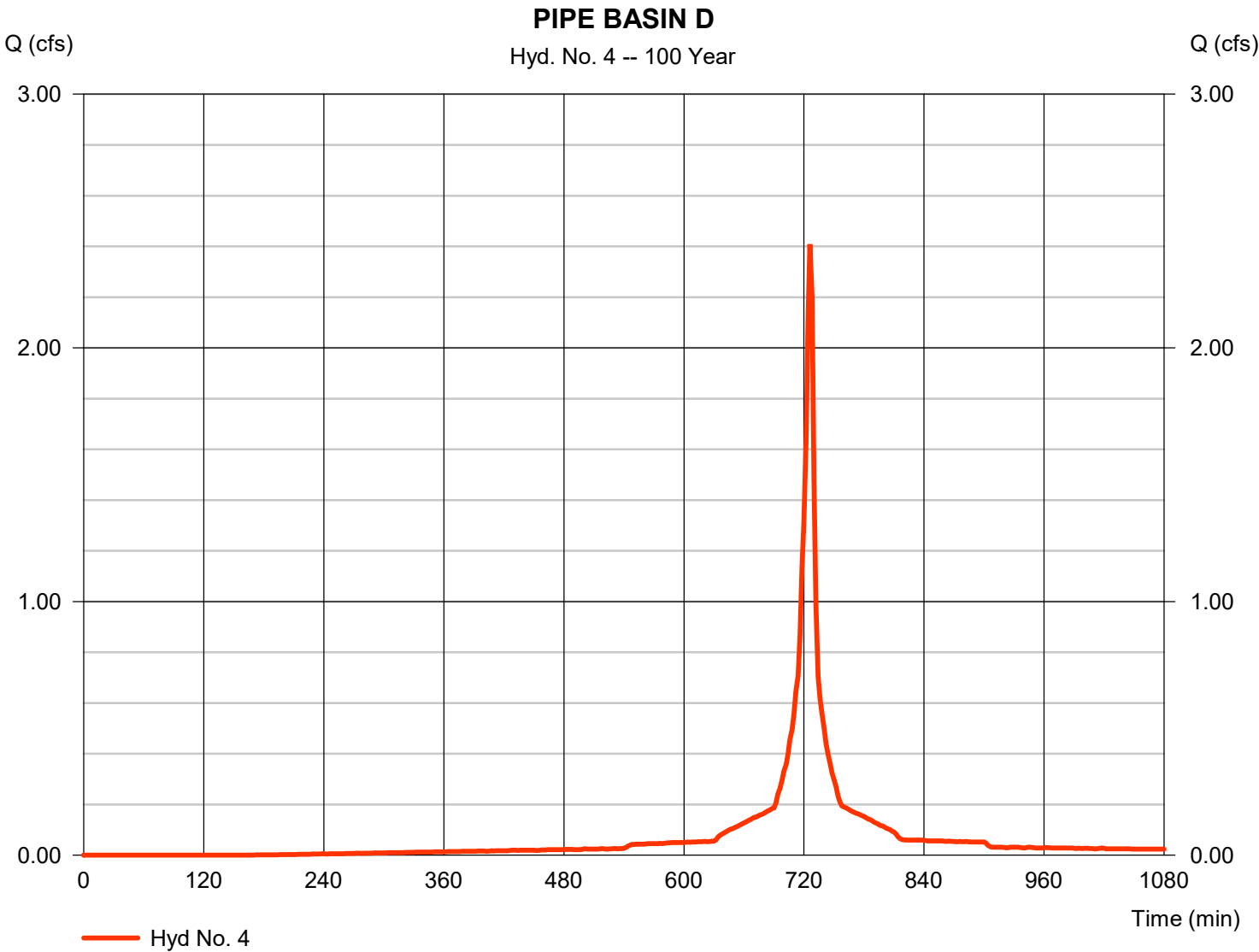
Friday, 02 / 12 / 2021

Hyd. No. 4

PIPE BASIN D

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.408 cfs
Storm frequency	=	100 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	5,252 cuft
Drainage area	=	0.260 ac	Curve number	=	96*
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.dwt			

* Composite (Area/CN) = [(0.241 x 98) + (0.019 x 74)] / 0.260



Hydraflow Rainfall Report

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

Friday, 02 / 12 / 2021

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

$$\text{Intensity} = B / (T_c + D)^E$$

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

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
D	1	0.0200	0.012	D	2.41	1082	5.47	2456

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.)

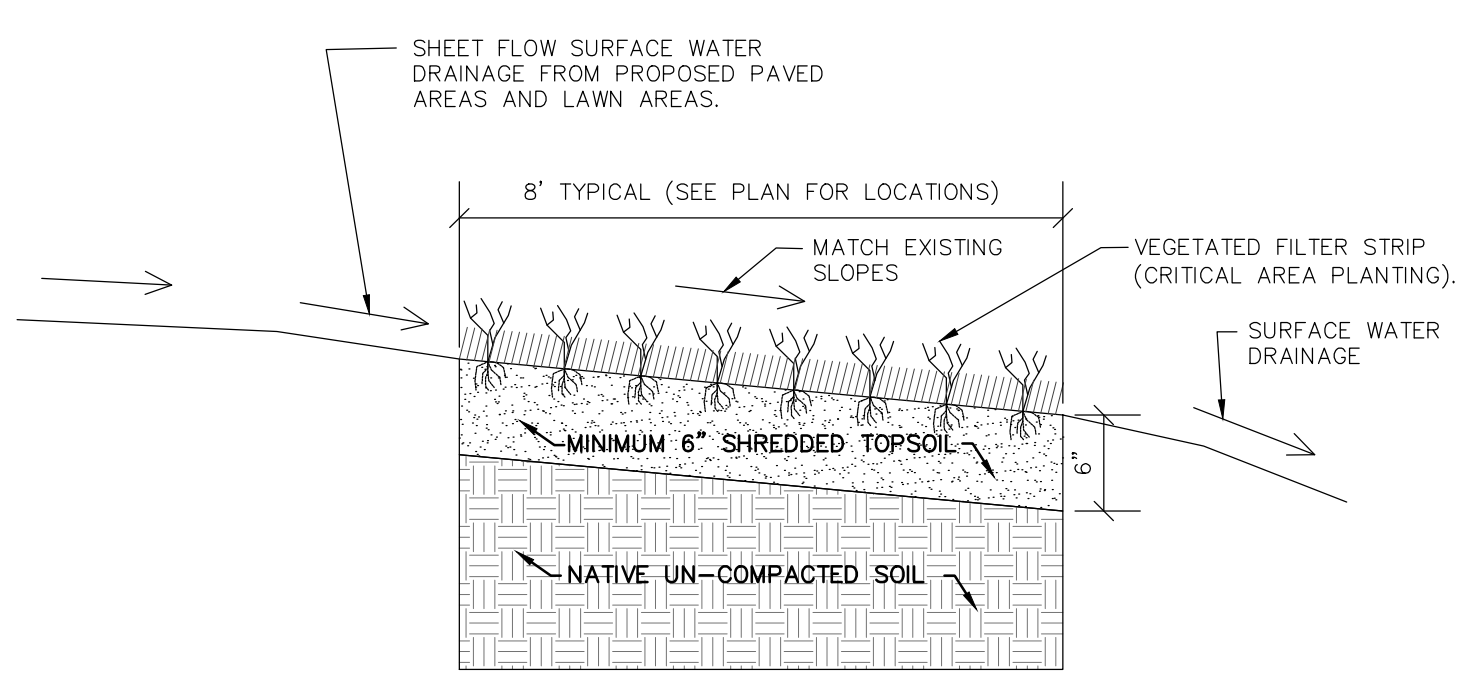
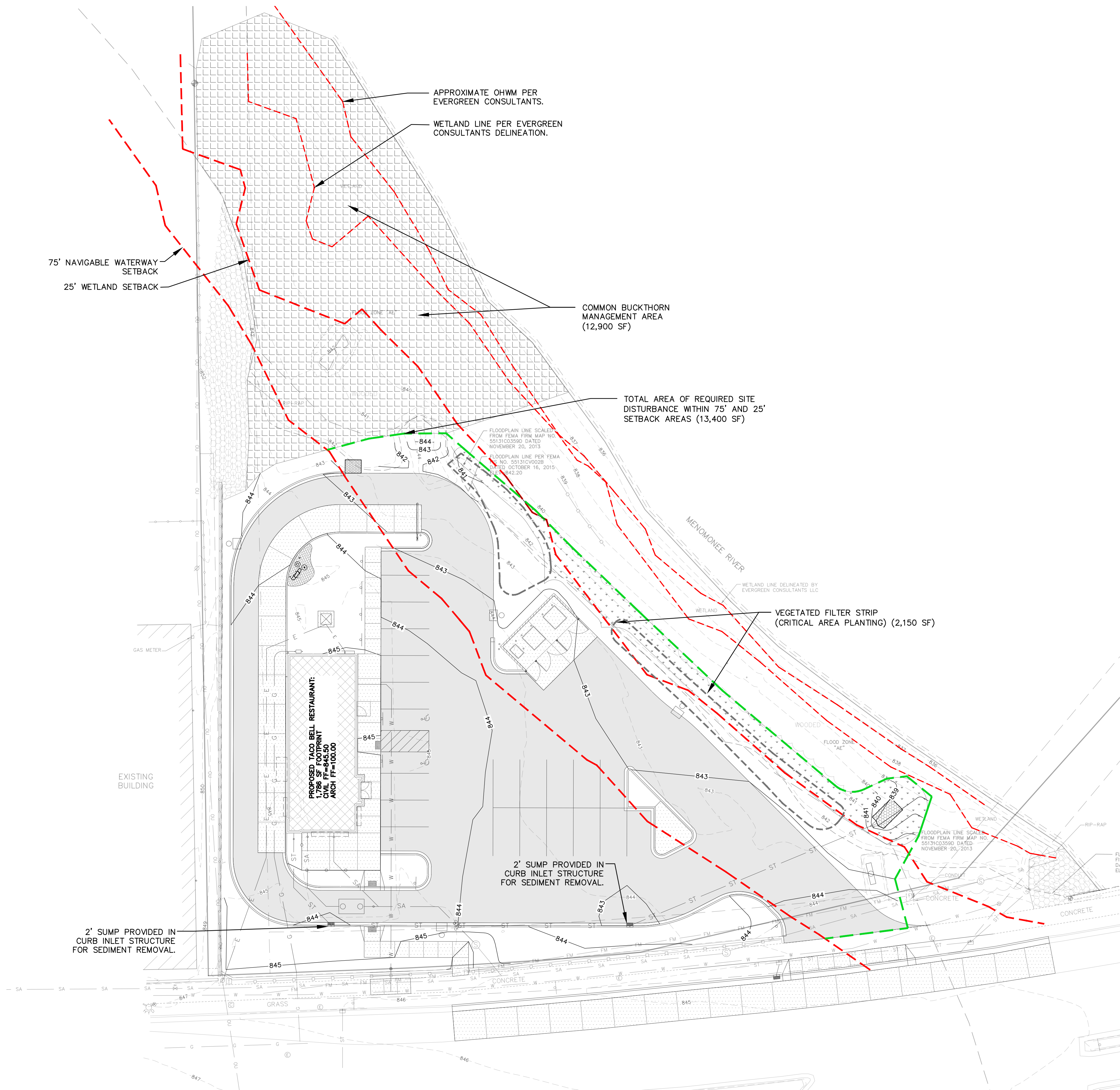
Typical Manning's n

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

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	<i>Schedonorus arundinaceus</i>	5	26
Timothy	<i>Phleum pratense</i>	3	85
Perennial Ryegrass	<i>Lolium perenne</i>	3	16
Red Clover	<i>Trifolium pratense</i>	3	19
Smooth Bromegrass	<i>Bromus inermis</i>	6	19
Kentucky Bluegrass	<i>Poa pratensis</i>	2	100

VEGETATED FILTER STRIP DETAIL
NO SCALE

VILLAGE OF GERMANTOWN MITIGATION REQUIREMENTS:
1:1 DISTURBANCE TO MITIGATION AREA RATIO REQUIRED FOR ANY NECESSARY DISTURBANCE WITHIN THE NAVIGABLE WATERWAY AND WETLAND SETBACK AREA.
REQUIRED SITE DISTURBANCE WITHIN SETBACK AREAS: 13,400 SF

MITIGATION SUMMARY	
MITIGATION TECHNIQUE	AREA (SF)
COMMON BUCKTHORN MANAGMENT	12,900
VEGETATED FILTER STRIP	2,150
REDUCTION OF IMPERVIOUS AREA PRE-POST DEV.	3,034
TOTAL	18,084
DISTURBANCE TO MITIGATION RATIO= 13,400 : 18,084 = 1 : 1.35	

LEGEND

- COMMON BUCKTHORN MANAGEMENT AREA
- VEGETATED FILTER STRIP
- SETBACK AREA
- SITE DISTURBANCE WITHIN SETBACK AREA

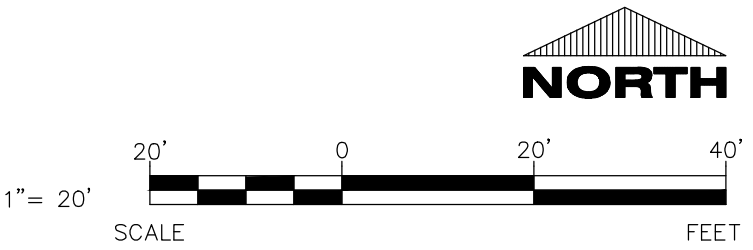


EXHIBIT A: WETLAND SETBACK/NAVIGABLE WATERWAY SETBACK MITIGATION PLAN

ARCHITECTS • ENGINEERS • SURVEYORS

Always a Better Plan

100 Camelot Drive
Fond Du Lac, WI 54935
Phone: (920) 926-9800
www.EXCELENGINEER.com

PROJECT INFORMATION

NEW BUILDING FOR:

SUNDANCE - TACO BELL

N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

PRELIMINARY DATES

FEB. 22, 2021

JOB NUMBER

2005200

SHEET NUMBER

EX. A

2020 © EXCEL ENGINEERING, INC.

NOT FOR CONSTRUCTION

Appendix E

Soil Maps:

Hydrologic Soil Group—Washington County, Wisconsin



Soil Map may not be valid at this scale.

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

0 5 10 20 30 Meters

0 25 50 100 150 Feet

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



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/30/2020
Page 1 of 4

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.

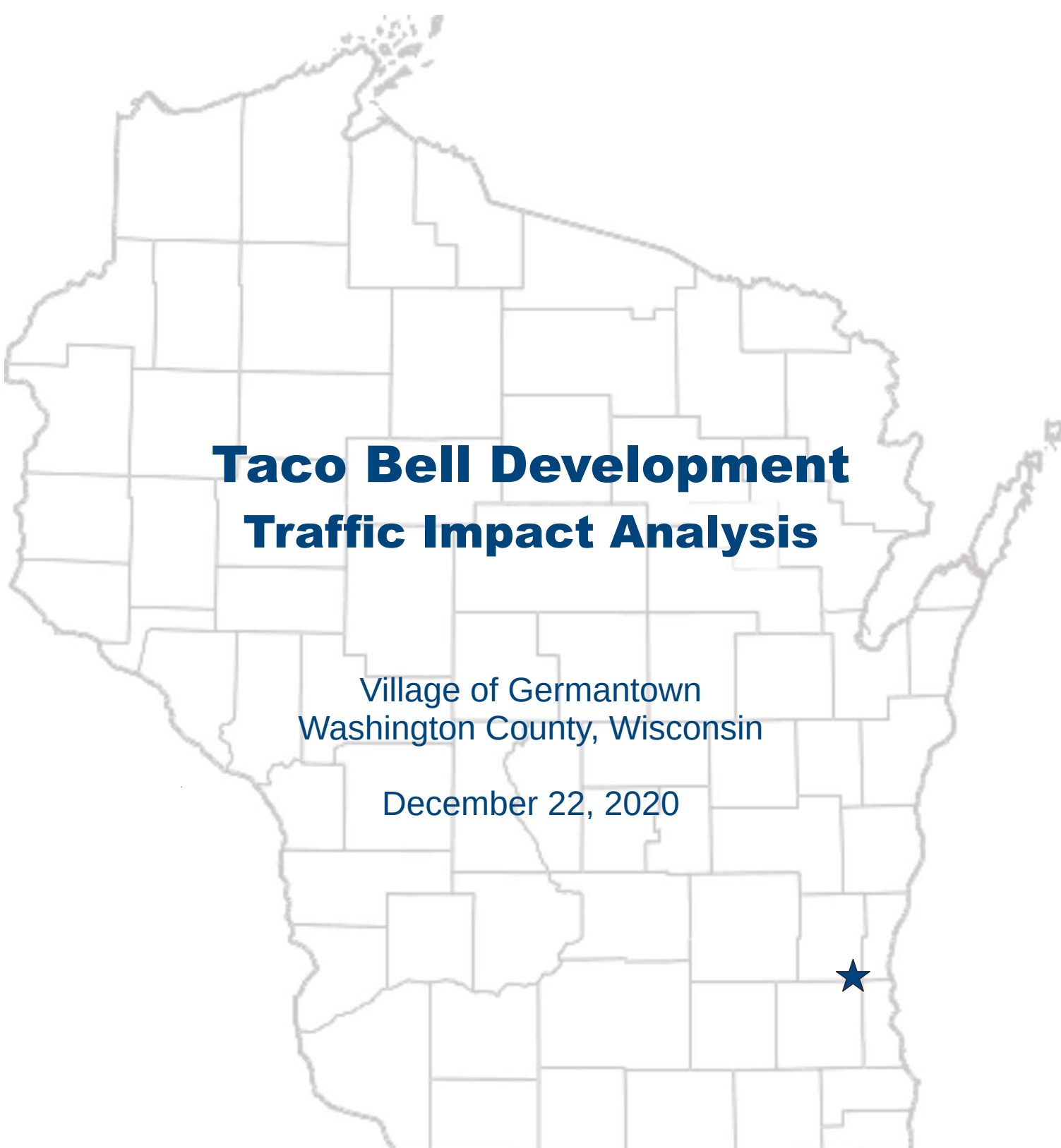
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Taco Bell Development Traffic Impact Analysis

Village of Germantown
Washington County, Wisconsin

December 22, 2020



TRAFFIC IMPACT ANALYSIS FOR:

TACO BELL DEVELOPMENT
VILLAGE OF GERMANTOWN, WASHINGTON COUNTY, WISCONSIN

DATE SUBMITTED: December 22, 2020

PREPARED FOR:

Excel Engineering
100 Camelot Drive
Fond du Lac, WI 54935
Phone: (920) 926-9800
Contact Person: Jason Daye, P.E.

PREPARED BY:

TADI
P.O. Box 128
Cedarburg, WI 53012
Phone: (800) 605-3091
Contact Person: Michael May, P.E., PTOE

(WisDOT TIA Certification # SE05-804-030)



"I certify that this Traffic Impact Analysis has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering."



Michael May, P.E., PTOE
Wisconsin Registration #37622-006
TADI

**Taco Bell Development
Traffic Impact Analysis
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Appendix ATraffic

Existing Turning Movement Traffic Counts

WisDOT AADT Hourly Traffic Counts

ISD Calculations

Appendix BYear 2020 Existing Traffic – Peak Hour Analysis Outputs

Appendix CYear 2021 Build Traffic, With Taco Bell – Peak Hour Analysis Outputs

CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY

PART A – PURPOSE OF REPORT AND STUDY OBJECTIVES

The Taco Bell Development is proposed to be located northwest of the County Line Road & Shady Lane intersection in the Village of Germantown, Washington County, Wisconsin.

This traffic impact analysis (“TIA”) was being prepared by TADI to understand the site and transportation impacts of the proposed development. This report documents the procedures, findings, and conclusions of the analysis. The analysis identifies recommended modifications based on existing roadway conditions, existing traffic volumes, and additional traffic expected to be generated by the Taco Bell Development.

PART B – EXECUTIVE SUMMARY

The executive summary includes a description of the study area, description of the development and conclusions based on the findings of the TIA.

B1. Study Area

The Taco Bell Development is proposed to be located northwest of County Line Road & Shady Lane as shown in [Exhibit 1-1](#). A conceptual site plan is shown in [Exhibit 1-2](#). The proposed development will replace an existing shopping center. County Line Road is located along the south border of the development, the Menomonee River is located along the northeast border of the development, and Mills Fleet Farm is located along the west border of the development.

The study area includes the County Line Road intersection with Shady Lane, which operates with stop control on the Shady Lane northbound and Development Driveway southbound approaches.

B2. On-Site Development Description

The Taco Bell Development is proposed to be a 1,786 square foot (sf) fast-food restaurant with drive-through. For the purpose of this TIA, the Taco Bell Development was assumed to be fully constructed and operational in Year 2021.

B3. Off-Site Development Description

No off-site development plans were identified within the study area.

B4. Site Generated Traffic

To address potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by proposed development. Traffic volumes expected to be generated are based on the size and type of the proposed uses and on trip rates as published in the *ITE Trip Generation Manual, Tenth Edition*.

The Taco Bell Development is expected to generate 840 total driveway trips (420 in/420 out) during a typical weekday, 90 total driveway trips (45 in/45 out) during the weekday midday peak hour, 60 total driveway trips (30 in/30 out) during the weekday evening peak hour, and 100 total driveway trips (50 in/50 out) during the Saturday midday. Note that approximately 50% of these driveway trips are expected to be pass-by trips, or trips that occur when vehicles already on County Line Road stop at the Taco Bell before continuing on their intended route (e.g., an eastbound motorist on County Line Road today stops at Taco Bell then continues eastbound on County Line Road). The remaining 50% of trips are expected to be new trips to the study intersection.

B5. Proposed Access

The existing Development Driveway, located opposite Shady Lane, will service the Taco Bell Development.

Cross-access to Fleet Farm, located immediately west of the development site, is not possible due to the location of a structure on the Fleet Farm site that extends from County Line Road to the main Fleet Farm building.

B6. Recommended Modifications

Recommended modifications are for jurisdictional consideration and are not legally binding. Washington County and the Village of Germantown reserve the right to determine alternative solutions.

The Menomonee River passes under County Line Road immediately east of Shady Lane/Development Driveway. A fence exists along the north edge of the bridge and, along with vegetation, blocks the line of sight for passenger vehicle motorists wishing to turn or cross from the Development Driveway onto County Line Road. The following modifications, shown in [Exhibit 1-3](#), are recommended to improve lines of sight.

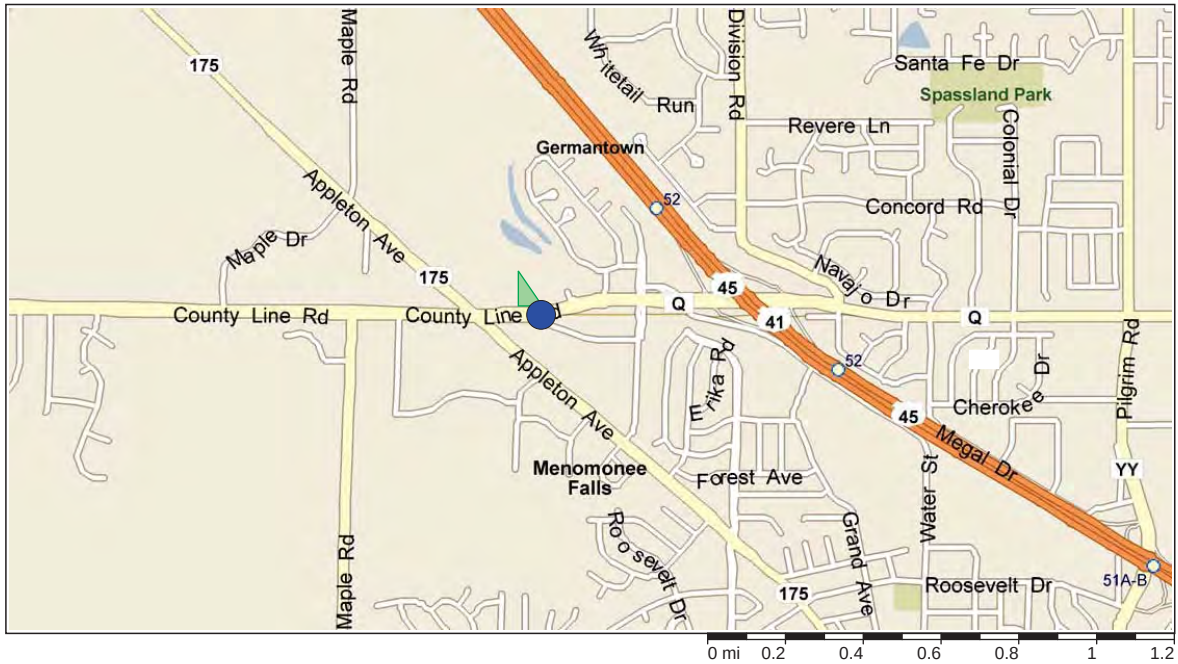
- Remove vegetation growing within the bridge's fence west of the Menomonee River centerline and correct the west end of the fence such that the westernmost point is adjusted north.
- The curb of the north side of County Line Road currently shifts approximately 5- to 6-feet north on the approach and departure sides of the Development Driveway. Shift the curb line at the driveway south to track County Line Road such that the auxiliary lane width in front of the driveway is consistent with the auxiliary lane width east of the intersection. This modification will allow motorists to safely position themselves approximately 5- to 6-feet closer to the roadway and, by doing so, improve lines of sight past the bridge fence to see oncoming westbound traffic on County Line Road.
- The median-side stop sign on the Shady Lane approach to County Line Road is located on the wrong side of the crosswalk. Relocate the stop sign to the south side of the crosswalk (i.e. stop before the crosswalk).

The results of the analysis show that, with the latest traffic signal timings in place along County Line Road to the east and west of Shady Lane/Development Driveway, gaps in the eastbound and westbound traffic streams are expected to be sufficient to accommodate LOS D or better operations for all movements at County Line Road & Shady Lane/Development Driveway intersection with Taco Bell.

B7. Conclusion

All movements to/from the Taco Bell Development are expected to operate safely and efficiently with the assumptions outlined in this TIA and the identified recommended modifications if properly designed and implemented.

Germantown, Wisconsin



LEGEND

- Study Intersection
- ▲ Development Site

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Remove Vegetation Within Fence Along Bridge, & Adjust Fence At South End

Shift Curb Line South, Maintaining Consistent Auxiliary Lane Width, To Improve Lines of Sight

Relocate Stop Sign To South Side of Crosswalk

CHAPTER II – PROPOSED DEVELOPMENT

PART A – ON-SITE DEVELOPMENT

A1. Development Description and Site Location

The Taco Bell Development is proposed to be located northwest of County Line Road & Shady Lane as shown in [Exhibit 1-1](#). A conceptual site plan is shown in [Exhibit 1-2](#). The proposed development will replace an existing shopping center. County Line Road is located along the south border of the development, the Menomonee River is located along the northeast border of the development, and Mills Fleet Farm is located along the west border of the development.

A2. Land Use and Intensity

The Village of Germantown identifies the proposed development site for commercial development. The Taco Bell Development is a proposed to be a 1,786 square foot (sf) fast-food restaurant with drive-through.

A3. Site Plan

The existing Development Driveway, located opposite Shady Lane, will service the Taco Bell Development.

Cross-access to Fleet Farm, located immediately west of the development site, is not possible due to the location of a structure on the Fleet Farm site that extends from County Line Road to the main Fleet Farm building.

A4. Development Phasing and Timing

For the purpose of this TIA, the Taco Bell Development was assumed to be fully constructed and operational in Year 2021.

PART B – STUDY AREA

B1. Influence Area

The primary influence area for this traffic study includes the Village of Germantown and Village of Menomonee Falls. IH 41, located east of the site, is also expected to influence travel to/from the Taco Bell Development.

B2. Area of Significant Traffic Impact

The study area includes the County Line Road intersection with Shady Lane, which operates with stop control on the Shady Lane northbound and Development Driveway southbound approaches.

PART C – OFF-SITE DEVELOPMENT

No off-site development plans were identified within the study area.

PART D – SITE ACCESSIBILITY

D1. Study Area Roadways

County Line Road, also designated as CTH Q, is a four-lane divided east/west arterial highway with a posted speed limit of 35 mph within the study area. According to WisDOT, the annual average daily traffic (AADT) volumes on County Line Road were approximately 22,200 vehicles per day (vpd) east of Appleton Avenue/STH 175 (Year 2018) and 31,800 vpd east of Rivercrest Drive (Year 2019).

Shady Lane is a four-lane undivided east/west local road with a posted speed limit of 25 mph. The roadway curves north to intersect County Line Road from the south. To the east, Shady Lane intersects Rivercrest Drive from the west. No AADT volume was recorded.

D2. Pedestrian & Bicycle Accommodations

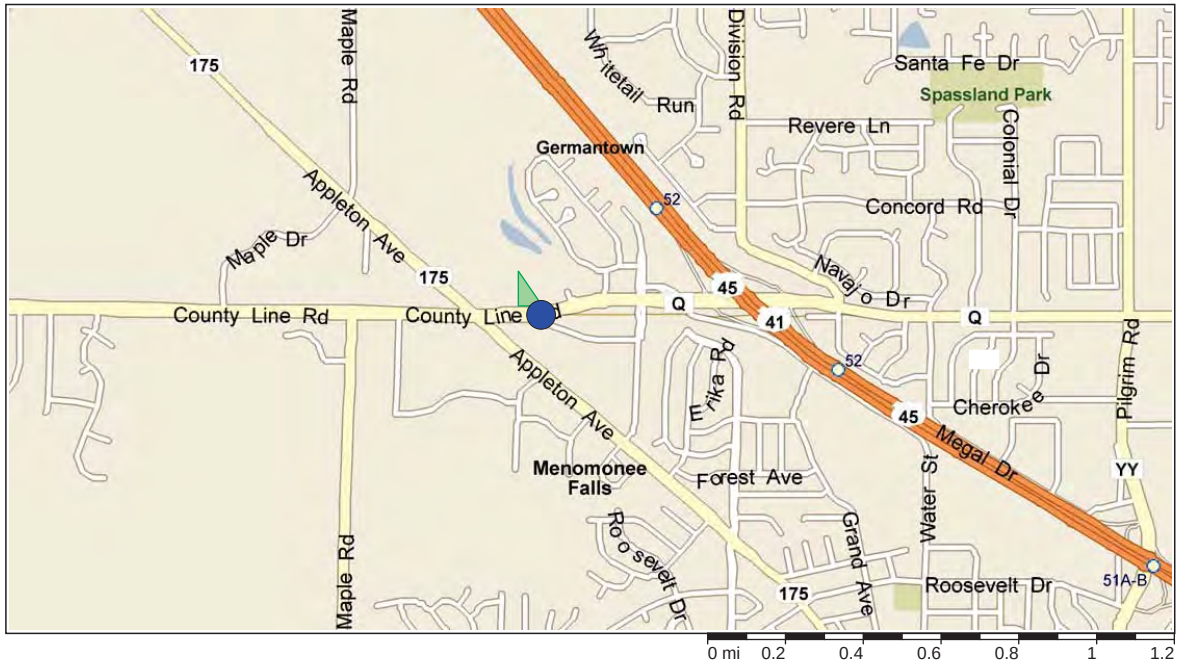
Sidewalk exists along both sides of County Line Road within the study area. The sidewalk on the south side terminates approximately 420-feet east of Shady Lane.

No other pedestrian or bicycle accommodates were identified.

D3. Transit Accommodations

Regularly-scheduled transit does not operate within the study area.

Germantown, Wisconsin



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CHAPTER III – ANALYSIS OF EXISTING CONDITIONS

PART A – PHYSICAL CHARACTERISTICS

A transportation detail illustrating existing intersection lane configurations, speed limits, and approximate intersection spacing is shown in [Exhibit 3-1](#).

PART B – TRAFFIC VOLUMES

Turning movement traffic counts were collected by TADI in early-December of 2020. The following table outlines the dates of the traffic counts.

Turning Movement Count Dates

Intersection	Weekday	Saturday
County Line Road & Shady Lane	Wed 12-2-2020	Sat 12-5-2020

The weekday midday, weekday evening, and Saturday midday peak hours were identified as 12:00 to 1:00pm, 4:30 to 5:30pm, and 12:00 to 1:00pm, respectively. The traffic counts used to determine peak hour factors and truck percentages have been included in the [Appendix A](#). The Year 2020 unadjusted existing traffic volumes are shown in [Exhibit 3-2a](#).

The Year 2020 counts were collected during COVID-19 pandemic. The following steps were made to adjust existing traffic volumes to reflect non-COVID conditions.

- WisDOT AADT hourly volumes were collected on County Line Road between Appleton Avenue and the Fleet Farm/Bank Driveways in June of 2018. Additionally, weekday midday and weekday evening peak hour volumes for County Line Road & Fleet Farm/Bank Driveways were identified in a TIA prepared in the area in Year 2014. TADI used the WisDOT counts, added and subtracted turn movements to/from the Fleet Farm/Bank Driveways, and used the result to estimate the volume of weekday midday and weekday evening peak hour traffic on County Line Road west of Shady Lane.
- The estimated volume of weekday midday and weekday evening peak hour traffic on County Line Road, west of Shady Lane, was used to adjust the eastbound through, eastbound right-turn, northbound left-turn, and westbound through volumes at County Line Road & Shady Lane.
- The adjustments to weekday turning movement volumes identified in the previous step show that weekday volumes increased by approximately 10%. All remaining weekday movements at the intersection, except for movements to/from the Development Driveway, were increased by 10%.
- The Saturday turning movement volumes were collected during the holiday shopping season. As a result, the effects of the pandemic on travel patterns are not expected to be as severe as they would be for the weekday counts. Therefore, the Saturday midday volumes were increased by 8% rather than 10% like the weekday volumes. This assumed increase is robust but was used to ensure the sufficiency of intersection operations.

The resulting Year 2020 adjusted existing traffic volumes are shown in [Exhibit 3-2b](#).

PART C – CAPACITY LEVEL OF SERVICE

C1. Level of Service Definitions

The study area intersections were analyzed based on the procedures set forth in the *Highway Capacity Manual, 6th Edition* (HCM). Intersection operation is defined by “Level of Service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an

intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, and as is standard for use in the WisDOT Southeast Region, LOS D or better was used to define desirable peak hour operating conditions. Descriptions of the various levels of service are as follows:

LOS A is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At unsignalized intersections, average delays are less than 10 seconds.

LOS B represents stable operation. At unsignalized intersections, average delays are 10 to 15 seconds.

LOS C still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At unsignalized intersections, average delays are 15 to 25 seconds.

LOS D represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At unsignalized intersections, average delays are 25 to 35 seconds.

LOS E represents the capacity of the intersection. At unsignalized intersections, average delays are 35 to 50 seconds.

LOS F represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal.

The analysis was performed using the Synchro traffic analysis software (version 11.0.168.0) in accordance with WisDOT modeling procedures.

C2. Year 2020 Existing Traffic Operations – “No Modifications”

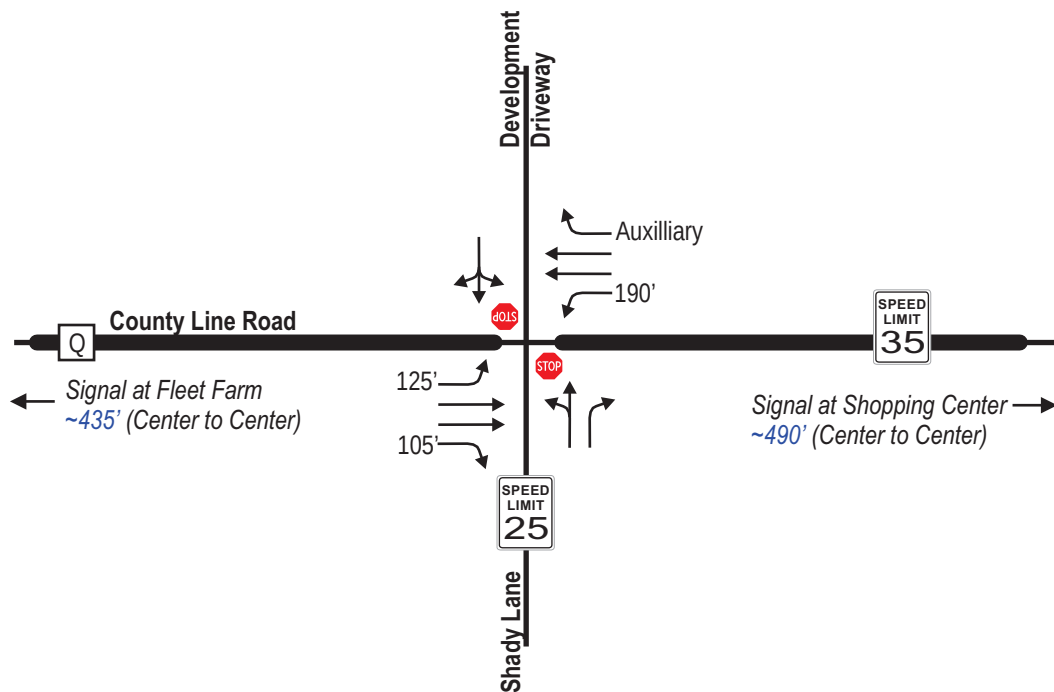
At the request of Washington County, the traffic analysis model was prepared to include traffic signal timings to the west (Fleet Farm/Bank Driveways) and to the east (BW3 Driveway). The purpose of including the signal timings was to reflect how the platooning of traffic eastbound/westbound on County Line Road impacts gaps in the eastbound and westbound traffic streams and, thus, operations at County Line Road. The timings used in the analysis were in prepared by WisDOT in draft form and provided by the Village of Germantown.

[Exhibit 3-3](#) shows the Year 2020 existing traffic peak hour operating conditions and expected maximum queues at County Line Road & Shady Lane/Development Driveway. The Year 2020 existing traffic analysis was performed using the existing transportation detail ([Exhibit 3-1](#)) and the Year 2020 adjusted existing traffic volumes ([Exhibit 3-2b](#)).

As shown, all movements at the study area intersections currently operate desirably at LOS D or better conditions.

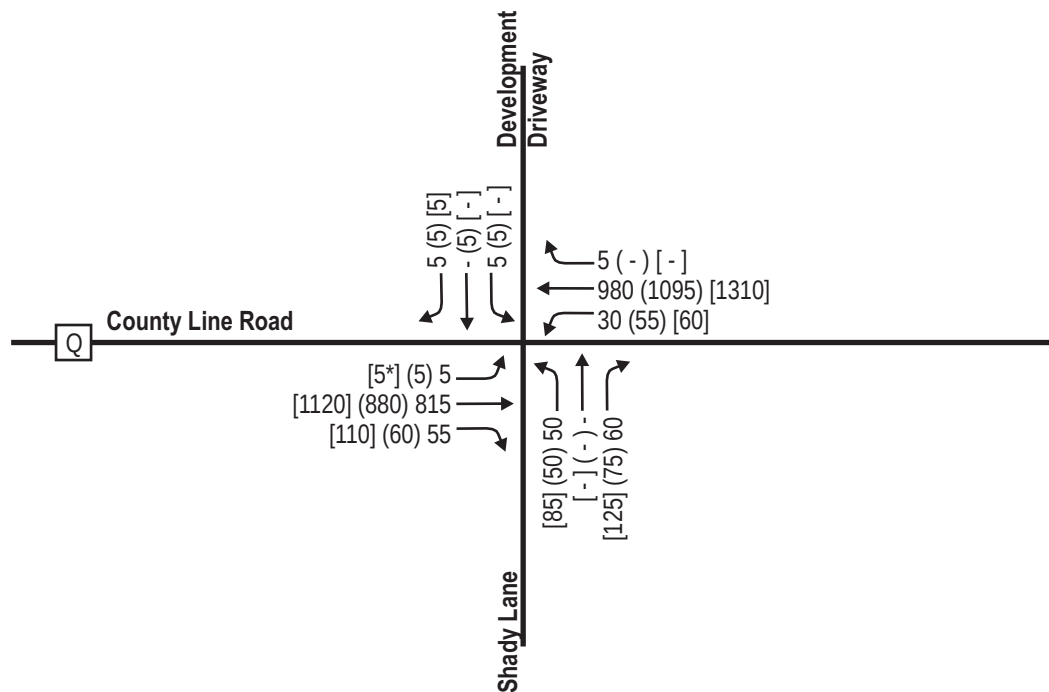
LEGEND

-  Stop Sign
-  Existing Lane Configuration
- XX'** Lane Storage (in Feet)
- XX'** Distance Between Roadways (in Feet)



LEGEND

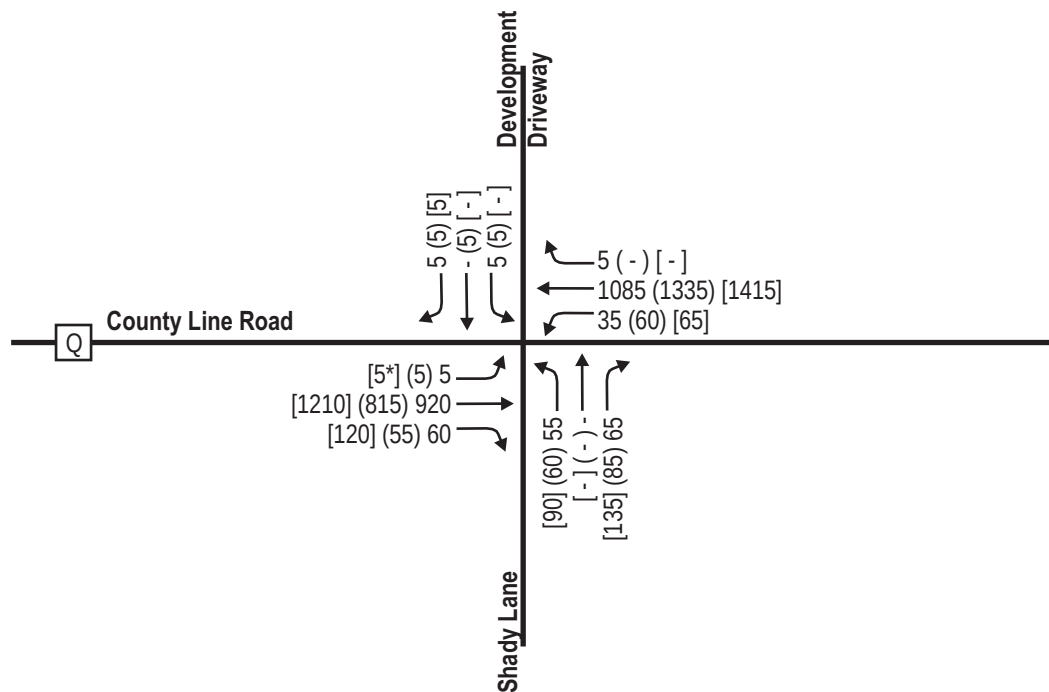
- XX Weekday Midday Peak Hour Volumes (12:00-1:00 PM)
- (XX) Weekday PM Peak Hour Volumes (4:30-5:30 PM)
- [XX] Saturday Midday Peak Hour Volumes (12:00-1:00 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



*5 vph shown as eastbound-to-northbound left-turns are U-turn vehicles (Saturday Midday Peak Hour).
U-turns at two-way stop controlled intersections are modeled as left-turns.

LEGEND

- XX Weekday Midday Peak Hour Volumes (12:00-1:00 PM)
- (XX) Weekday PM Peak Hour Volumes (4:30-5:30 PM)
- [XX] Saturday Midday Peak Hour Volumes (12:00-1:00 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



*5 vph shown as eastbound-to-northbound left-turns are U-turn vehicles (Saturday Midday Peak Hour).
 U-turns at two-way stop controlled intersections are modeled as left-turns.

Year 2020 Existing Traffic Operations & Queues
With Existing Geometrics

Intersection	Peak Hour	Metric	Level of Service per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
County Line Road & Shady Lane/Development Drwy (Two-Way Stop)	MID	LOS	A	*	*	A	*	*	C	B		C		
		Queue	20	*	*	20	*	*	20	20		20		
	PM	LOS	A	*	*	A	*	*	C	B		C		
		Queue	20	*	*	20	*	*	20	20		20		
	SAT	LOS	B	*	*	B	*	*	D	B		C		
		Queue	20	*	*	20	*	*	45	20		20		

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Queue is maximum of the 50th & 95th percentile queue, measured in feet.

CHAPTER IV – FORECASTED TRAFFIC

PART A – SITE TRAFFIC FORECASTING

To address potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by proposed development. Traffic volumes expected to be generated are based on the size and type of the proposed uses and on trip rates as published in the *ITE Trip Generation Manual, Tenth Edition*.

A1. Trip Generation

[Exhibit 4-1](#) shows the trip generation table for the Taco Bell Development. As shown, the Taco Bell Development is expected to generate 420 new trips (210 in/210 out) during a typical weekday, 40 new trips (20 in/20 out) during the weekday midday peak hour, 30 new trips (15 in/15 out) during the weekday evening peak hour, and 50 new trips (25 in/25 out) during the Saturday midday.

The Taco Bell Development is also expected to draw pass-by trips, or trips that occur when vehicles already on County Line Road stop at the Taco Bell before continuing on their intended route (e.g., an eastbound motorist on County Line Road today stops at Taco Bell then continues eastbound on County Line Road). The development is expected to generate 420 pass-by trips (210 in/210 out) during a typical weekday, 50 pass-by trips (25 in/25 out) during the weekday midday peak hour, 30 pass-by trips (15 in/15 out) during the weekday evening peak hour, and 50 pass-by trips (25 in/25 out) during the Saturday midday.

When added together, the Taco Bell Development is expected to generate 840 total driveway trips (420 in/420 out) during a typical weekday, 90 total driveway trips (45 in/45 out) during the weekday midday peak hour, 60 total driveway trips (30 in/30 out) during the weekday evening peak hour, and 100 total driveway trips (50 in/50 out) during the Saturday midday.

A2. Mode Split

Pedestrians and bicyclists may use their respective modes to access the identified development and to travel between development areas. However, these modes are expected to make up a negligible portion of the overall trips to/from the study area. For the purpose of this TIA, all trips to/from the proposed development areas were assumed to occur via motorized vehicle.

A3. Determination of Linked and Pass-By Trip Traffic

Linked trips occur when motorists visit more than one user within a site without entering the study area. By nature of the proposed development having only one user, linked trips will not occur.

Approximately 50% of the Taco Bell Development driveway trips are expected to be pass-by trips. Pass-by trips occur when a motorist already on the highway network stops at the development prior to continuing on their intended route (e.g., an eastbound motorist on County Line Road decides to stop at Taco Bell and then continues eastbound on County Line Road). The development is expected to generate 420 pass-by trips (210 in/210 out) during a typical weekday, 50 pass-by trips (25 in/25 out) during the weekday midday peak hour, 30 pass-by trips (15 in/15 out) during the weekday evening peak hour, and 50 pass-by trips (25 in/25 out) during the Saturday midday.

A4. Trip Distribution

The trip distribution for development traffic was estimated using existing traffic patterns and the location of IH 41 to the east of the development site. The trip distribution is shown with the trip generation table in [Exhibit 4-1](#) and is summarized below.

- 55% to/from the east on County Line Road
- 45% to/from the west on County Line Road

A5. Trip Assignment

The development new trips were assigned to the study area based on the trip distribution previously identified. Pass-by trips were assigned based on existing traffic flows on County Line Road. The driveway trips were determined by summing the development's new and pass-by trips. The following is a list of exhibits where the trip assignments can be found.

- [Exhibit 4-2a](#) – Taco Bell New Trips
- [Exhibit 4-2b](#) – Taco Bell Pass-By Trips
- [Exhibit 4-2c](#) – Taco Bell Driveway Trips

Existing traffic to the planned Taco Bell Development site will no longer occur when the site is redeveloped. [Exhibit 4-3](#) shows the removal of existing site trips.

PART B – BUILD TRAFFIC

The Year 2021 build traffic volumes, shown in [Exhibit 4-4](#), were determined by summing the Year 2020 adjusted existing traffic volumes ([Exhibit 3-2b](#)), Taco Bell driveway trips ([Exhibit 4-2c](#)), and removal of existing site trips ([Exhibit 4-3](#)).

Taco Bell Trip Generation Table

Land Use	ITE Code	Proposed Size	Weekday Daily	Wkday MID Peak			Wkday PM Peak			SAT Peak		
				In	Out	Total	In	Out	Total	In	Out	Total
Fast-Food Restaurant with Drive-Through	934	1.8 x 1,000 SF	840 (470.95)	45 (51%)	45 (49%)	90 (51.36)	30 (52%)	30 (48%)	60 (32.67)	50 (51%)	50 (49%)	100 (54.86)
Total Driveway Trips			840	45	45	90	30	30	60	50	50	100
<i>Minus Pass-by Trips</i>			<i>420</i>	<i>25</i>	<i>25</i>	<i>50</i>	<i>15</i>	<i>15</i>	<i>30</i>	<i>25</i>	<i>25</i>	<i>50</i>
Total New Trips			420	20	20	40	15	15	30	25	25	50

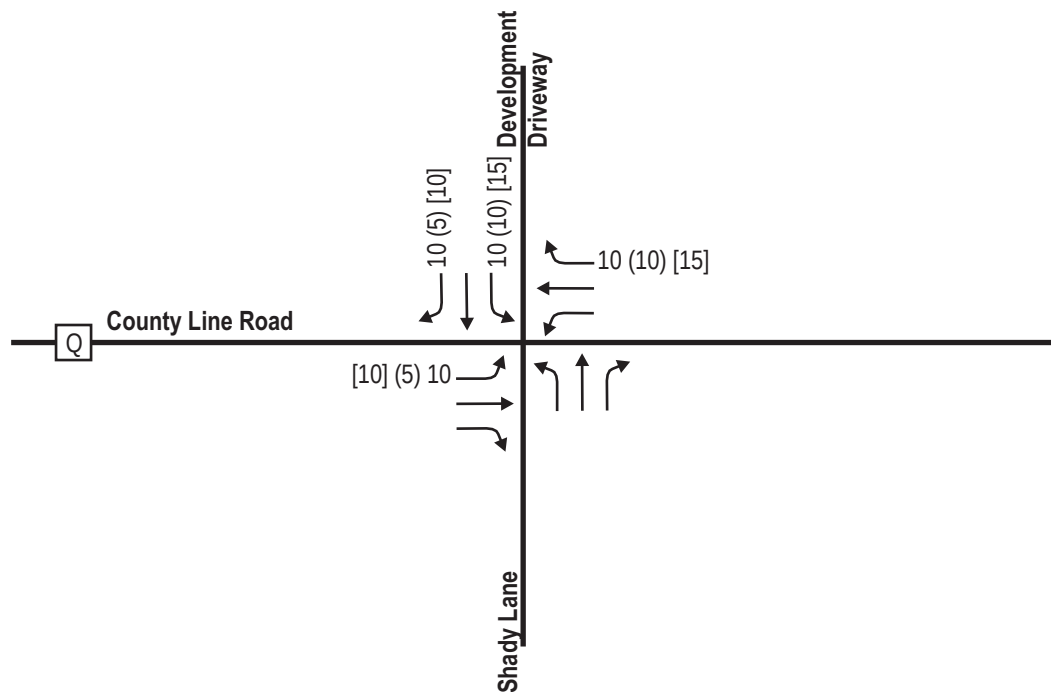
The Weekday Midday Peak trip generation estimates equal the PM Peak of Generator. Per ITE, PM Peak of Generator is 12:00 to 1:00pm.

TRIP DISTRIBUTION

East on County Line Road	55%	230	10	10	10	10	15	15
West on County Line Road	45%	190	10	10	5	5	10	10
	100%	420	20	20	15	15	25	25

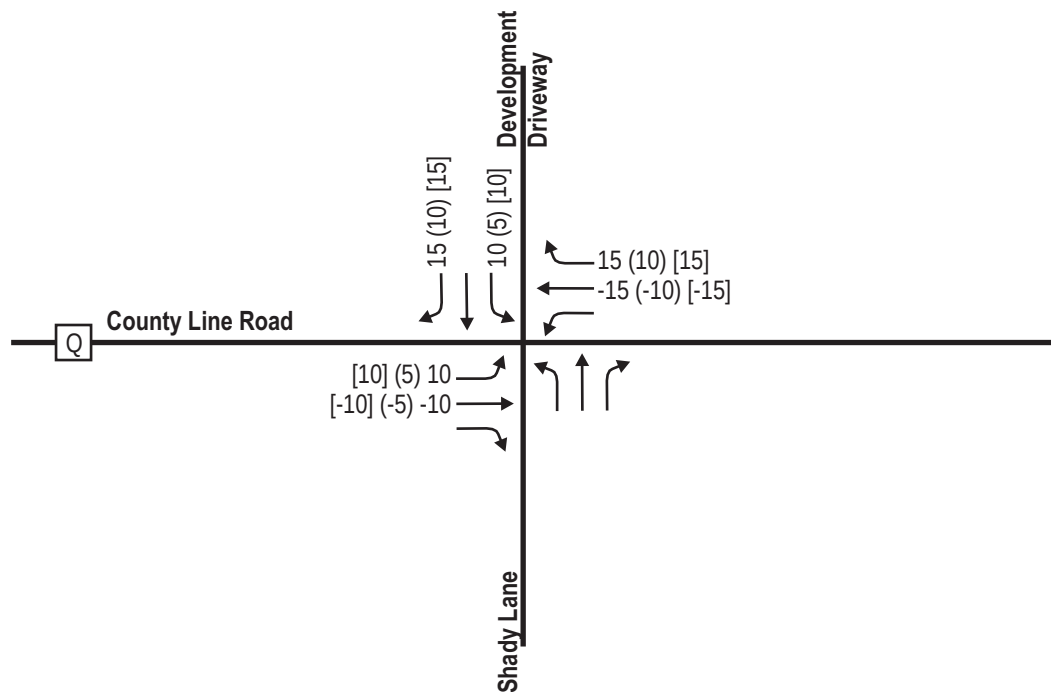
LEGEND

- XX Weekday Midday Peak Hour Volumes (12:00-1:00 PM)
- (XX) Weekday PM Peak Hour Volumes (4:30-5:30 PM)
- [XX] Saturday Midday Peak Hour Volumes (12:00-1:00 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



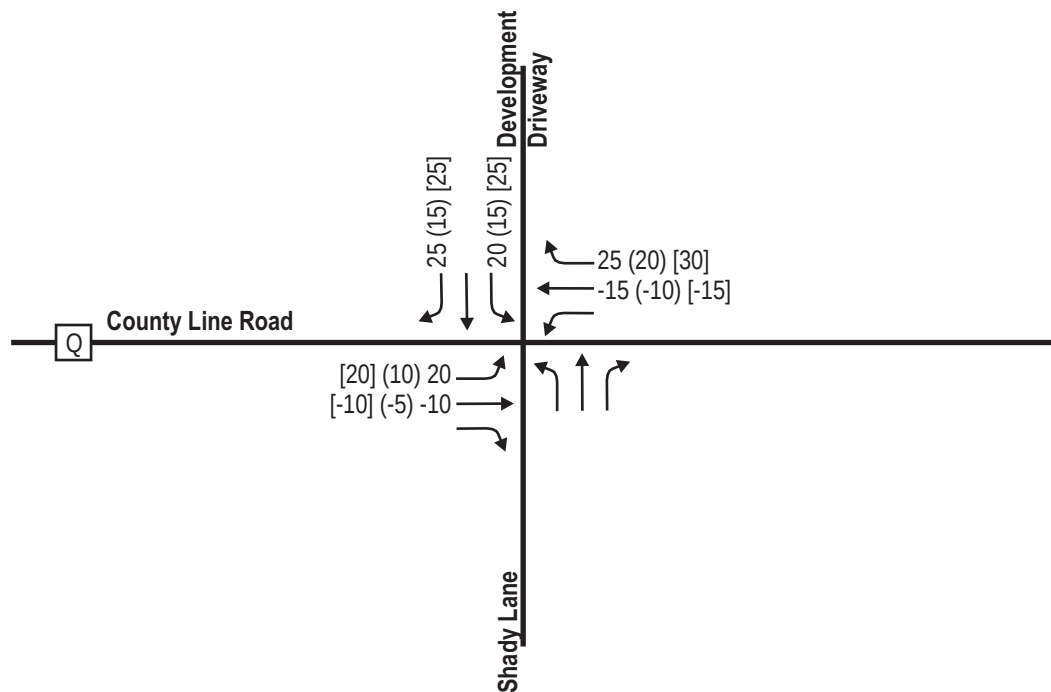
LEGEND

- XX Weekday Midday Peak Hour Volumes (12:00-1:00 PM)
- (XX) Weekday PM Peak Hour Volumes (4:30-5:30 PM)
- [XX] Saturday Midday Peak Hour Volumes (12:00-1:00 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



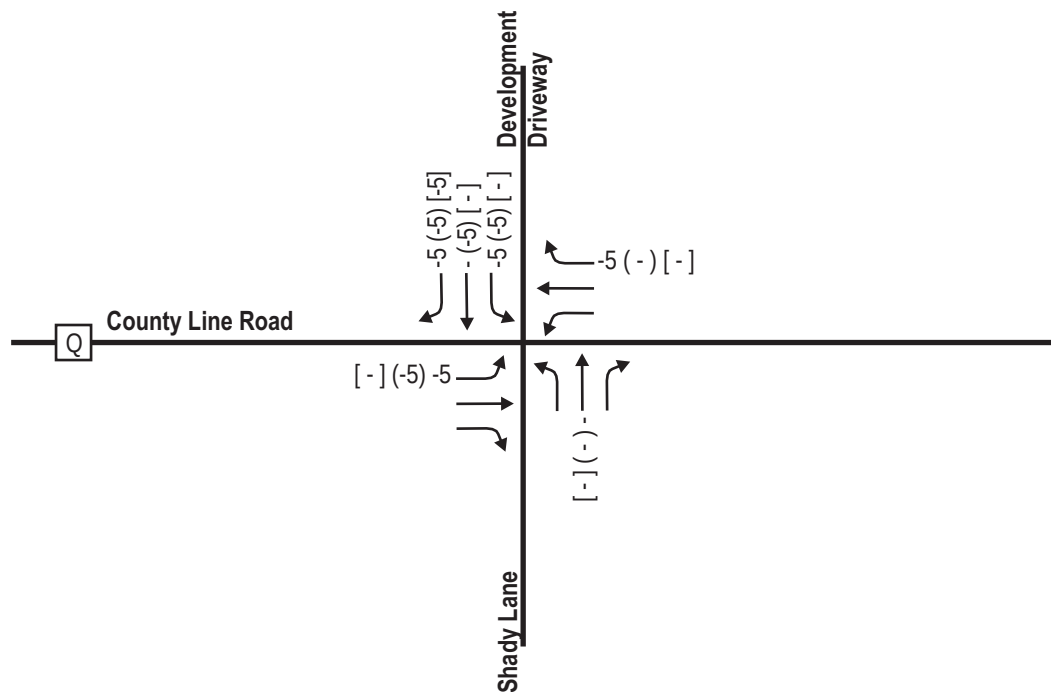
LEGEND

- XX Weekday Midday Peak Hour Volumes (12:00-1:00 PM)
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- [XX] Saturday Midday Peak Hour Volumes (12:00-1:00 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



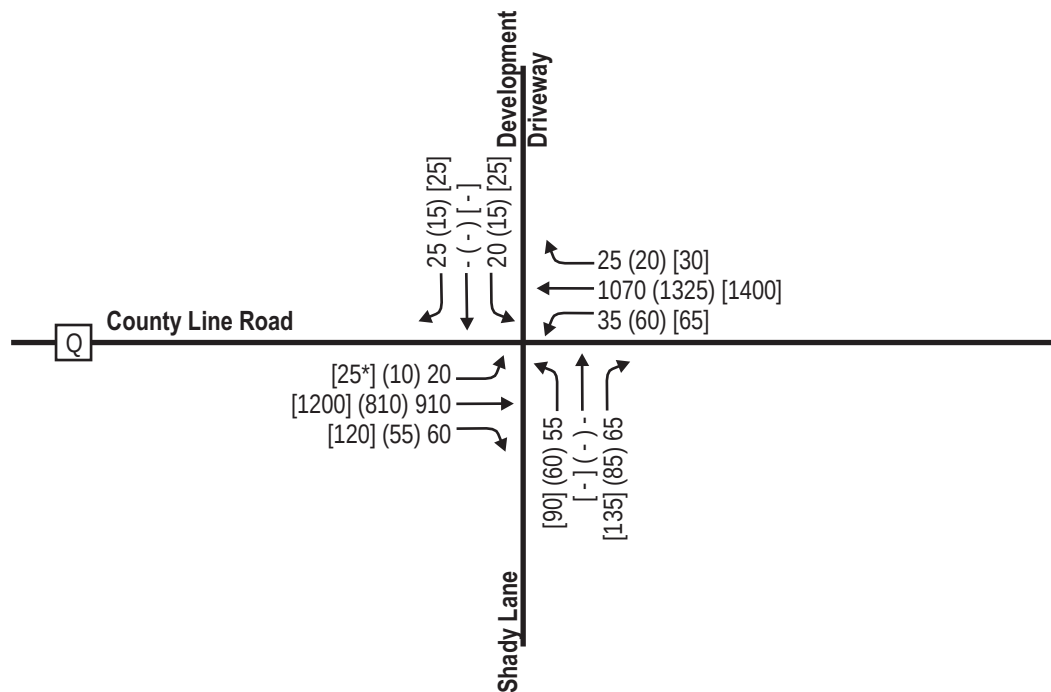
LEGEND

- XX Weekday Midday Peak Hour Volumes (12:00-1:00 PM)
- (XX) Weekday PM Peak Hour Volumes (4:30-5:30 PM)
- [XX] Saturday Midday Peak Hour Volumes (12:00-1:00 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



LEGEND

- XX Weekday Midday Peak Hour Volumes (12:00-1:00 PM)
- (XX) Weekday PM Peak Hour Volumes (4:30-5:30 PM)
- [XX] Saturday Midday Peak Hour Volumes (12:00-1:00 PM)
- Negligible Traffic Volumes (Fewer than 3 vph)



*5 vph shown as eastbound-to-northbound left-turns are U-turn vehicles (Saturday Midday Peak Hour).
U-turns at two-way stop controlled intersections are modeled as left-turns.

CHAPTER V – TRAFFIC AND MODIFICATION ANALYSIS

PART A – SITE ACCESS

The existing Development Driveway, located opposite Shady Lane, will service the Taco Bell Development.

Cross-access to Fleet Farm, located immediately west of the development site, is not possible due to the location of a structure on the Fleet Farm site that extends from County Line Road to the main Fleet Farm building.

PART B – CAPACITY LEVEL OF SERVICE ANALYSIS

The analysis for Year 2021 build traffic volumes was performed using the existing transportation detail shown in [Exhibit 3-1](#) and the Year 2021 build traffic volumes shown in [Exhibit 4-4](#). The Year 2021 build traffic operations with Taco bell are shown in [Exhibit 5-1](#).

The results of the analysis show that, with the latest traffic signal timings in place along County Line Road to the east and west of Shady Lane/Development Driveway, gaps in the eastbound and westbound traffic streams are expected to be sufficient to accommodate LOS D or better operations at the County Line Road & Shady Lane/Development Driveway intersection with completion of the Taco Bell.

PART C – QUEUEING ANALYSIS

To estimate storage length requirements for turn bays at the study area intersections with modifications, a queuing analysis has been conducted. The 50th percentile and 95th percentile probable queue lengths were used in conjunction with WisDOT Facilities Development Manual (FDM) 11-25-5 to determine the recommended turn bay storage at study area intersections and to ensure turn lanes are sufficient. The expected maximum queue lengths are shown in tabular format with the LOS tables in [Exhibit 3-3](#) and [Exhibit 5-1](#).

PART D – SPEED CONSIDERATIONS/SIGHT DISTANCE

The party responsible for designing the intersections will be responsible for cross-checking, verifying, and designing for all applicable sight distances. The following sight intersection sight distance (ISD) and stopping sight distance (SSD) calculations and results are based on site observations and recommended modifications.

D1. Methodology

Intersections should be designed for ISD and SSD in accordance with the American Association of State Highway Transportation Officials (AASHTO) *A Policy on Geometric Design of Highways and Streets* (GDHS).

- ISD is the distance at which a motorist departing from a stopped position should have an unobstructed view of approaching vehicles so-as to safely cross or merge with traffic. All points between that distance and the departing motorist should be unobstructed.
- SSD is the distance at which a motorist on a roadway can perceive and react to an obstruction on the road and come to complete stop. All points from that distance to complete stop should be unobstructed.

Due to the nature of the proposed development, passenger (P) vehicles and single unit truck (SU) vehicles are the design vehicles for which ISD must be met. Additionally, per AASHTO, P-vehicles are the design vehicles for which SSD must be met (it is assumed in the AASHTO methodology that an SU-vehicle motorist sits higher than a P-vehicle motorist and can perceive

an obstruction earlier, and can therefore react sooner to make up for longer stopping distances, than a P-vehicle motorist).

In evaluating ISD, the departing motorist's eye is assumed to be located 14.5-feet from the edge of the intersecting road. The eye of departing motorist is assumed to be located at a height of 3.5-feet off the roadway if sitting in a P-vehicle and 7.6-feet if sitting in a SU-vehicle. The object that is to be seen upstream of the intersection by a departing motorist is assumed to be 3.5-feet off the surface of the roadway regardless of vehicle type.

In evaluating SSD, the motorist's eye is assumed to be located at a height of 3.5-feet off the roadway. The object that is to be seen in the roadway is assumed to be 2.0-feet off the surface of the roadway.

D2. Development Driveway ISD & SSD Evaluation

The Menomonee River passes under County Line Road immediately east of Shady Lane/Development Driveway. A fence exists along the north edge of the bridge and, along with vegetation, blocks the line of sight for P-vehicle motorists wishing to turn right or cross from the Development Driveway onto County Line Road. Washington County requested that an ISD evaluation occur for motorists exiting the Development Driveway and looking to their left towards westbound oncoming traffic. An SSD evaluation was also performed for westbound motorists approaching the Development Driveway from the east.

The ISD evaluation was performed using a design speed of 5 mph above the posted speed limit of 35 mph, or 40 mph. Based on the assumptions previously outlined, motorists wishing to turn left, right, or cross from the Development Driveway require a minimum ISD to their left (facing westbound traffic) of 415-feet (P-vehicle) and 540-feet (SU-vehicle). See [Appendix A](#) for calculations.

As shown in [Exhibit 5-2a](#), ISD *is not met* for P-vehicle motorists looking left (facing westbound traffic). The issue is the location of the bridge fence that blocks the line of sight at the eye setback of 14.5-feet. If the eye were moved to 5.0-feet from the edge of the road, the 415-foot distance would be met but the front of the vehicle would be in the auxiliary lane. ISD is met for SU-vehicle motorists as shown in [Exhibit 5-2b](#).

Modifications to improve lines of sight are outlined in Chapter VI and include removing vegetation and moving the curb line at the driveway south in a manner to safely improve the motorist's position in seeing around the fence. Though the desired distance of 14.5-feet from the traveled way to the motorist's eye is not expected to be met, a minimum of 8-feet or more is expected to be provided with the curb line moved south. Per AASHTO, "Measurements of passenger vehicles indicate that the distance from the front of the vehicle to the driver's eye for the current U.S. passenger car population is nearly always 2.2 m [8 ft] or less."

The SSD for a design speed of 50-mph is 305-feet. As shown in [Exhibit 5-2c](#), SSD is expected to be met on the westbound approach to the driveway.

PART E – CRASH SUMMARY

TADI obtained crash data for County Line Road & Shady Lane/Development Driveway. The data included all reportable crashes from January 1, 2015 through December 31, 2019 – a five-year (60 month) period. An intersection collision diagram is shown in [Exhibit 5-3](#). The following is a summary of the crash data.

- Nine reportable crashes occurred within the 60-month period, or an average of 1.8 crashes per year. The calculated crash rate is approximately 0.17 crashes per million entering vehicles (MEV), which is well below the average crash rate of 0.88 crashes per

MEV for minor-street stop controlled urban intersections as reported in *Intersection Crash Summary Statistics for Wisconsin* (Knapp, Keith K and John Campbell, 2002).

- Five of the nine crashes involved a motorist northbound from Shady Lane being struck by an eastbound motorist (two crashes) or westbound motorist (three crashes). One of the nine crashes involved a motorist southbound from the Development Driveway being struck by a westbound motorist. Two of the nine crashes were westbound sideswipe crashes. The last of the nine crashes occurred east of the intersection and was a rear-end crash.
- All nine crashes were reported as being PDO (property damage only) crashes. That is, no injuries or suspected injuries were reported.
- Six of the nine crashes occurred between the hours of 11:00am and 2:00pm (four on weekdays, two on weekends).

As mentioned, the intersection crash rate is low. Possible factors contributing to these past crashes include motorists poorly judging gaps in traffic or accepting smaller gaps than necessary to safely cross. Traffic back-ups from the Fleet Farm/Bank Driveways traffic signal may also be a contributing factor, especially during the midday rush hours. The recent retiming of County Line Road is expected to better manage traffic back-ups at the Fleet Farm/Bank Driveways. Additionally, as reflected in the traffic analysis, the recent retiming is expected to create safe gap opportunities to accommodate traffic from the Shady Lane and Development Driveway approaches at LOS D or better operations.

Year 2021 Build Traffic Operations & Queues (With Taco Bell)
With Existing Geometrics

Intersection	Peak Hour	Metric	Level of Service per Movement by Approach											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
County Line Road & Shady Lane/Development Drwy (Two-Way Stop)	MID	LOS	A	*	*	A	*	*	C	B		C		
		Queue	20	*	*	20	*	*	20	20		20		
	PM	LOS	A	*	*	A	*	*	C	B		C		
		Queue	20	*	*	20	*	*	20	20		20		
	SAT	LOS	B	*	*	B	*	*	D	B		C		
		Queue	20	*	*	20	*	*	50	20		20		

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement.
Queue is maximum of the 50th & 95th percentile queue, measured in feet.







Intersection Collision Diagram



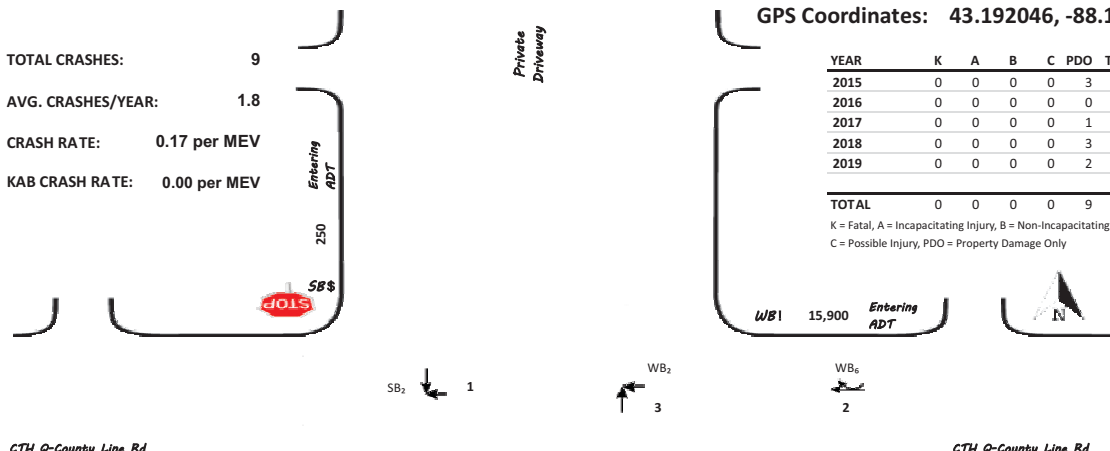
Location: CTH Q/County Line Road & Shady Lane
Municipality: Germantown/Menomonee Falls
County: Washington/Waukesha
Traffic Control: Minor Street Stop

From: 1/1/2015 5 Years
To: 12/31/2019 0 Months
AADT: 28,750
Area Type: Urban
GPS Coordinates: 43.192046, -88.133086

TOTAL CRASHES: 9
AVG. CRASHES/YEAR: 1.8
CRASH RATE: 0.17 per MEV
KAB CRASH RATE: 0.00 per MEV

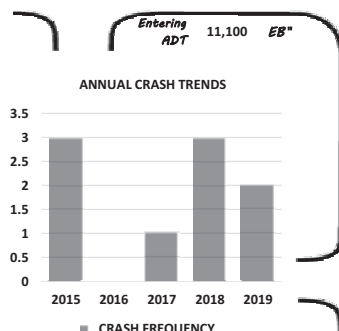
YEAR	K	A	B	C	PDO	TOT.
2015	0	0	0	0	3	3
2016	0	0	0	0	0	0
2017	0	0	0	0	1	1
2018	0	0	0	0	3	3
2019	0	0	0	0	2	2

TOTAL 0 0 0 0 9 9
K = Fatal, A = Incapacitating Injury, B = Non-Incapacitating Injury, C = Possible Injury, PDO = Property Damage Only



CTH Q-County Line Rd

CTH Q-County Line Rd



ROAD CONDITIONS		
DRY	8	89%
WET	1	11%
SNOW	0	0%
ICE	0	0%
OTH.	0	0%
TOT.	9	

LIGHT CONDITIONS		
DAY	9	100%
DARK	0	0%
TOT.	9	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	0	0%

SEASON		
SPRING	2	22%
SUMMER	1	11%
FALL	4	44%
WINTER	2	22%
TOT.	9	

FAILURE TO YIELD		
NB	5	56%
SB	0	0%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	5	56%

DISRGRD. CONTROL		
NB	0	0%
SB	1	11%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	1	11%

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	2	12%
VERY MINOR	0	0%
MINOR	12	71%
MODERATE	3	18%
SEVERE	0	0%
VERY SEVERE	0	0%
TOTAL VEHICLES	17	

DAY/TIME TRENDS

	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	UNK		TOT
MON	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	MON	1
TUE	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	TUE	2
WED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WED	0
THU	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	THU	1
FRI	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	FRI	3
SAT	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	SAT	1
SUN	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	SUN	1
	12AM	1AM	2AM	3AM	4AM	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	6PM	7PM	8PM	9PM	10PM	11PM	UNK		TOT
TOT.	0	0	0	0	0	0	0	0	1	0	0	1	3	2	0	1	0	1	0	0	0	0	0	0	0	TOT.	9

CHAPTER VI – RECOMMENDATIONS AND CONCLUSION

PART A – RECOMMENDED MODIFICATIONS

Recommended modifications are for jurisdictional consideration and are not legally binding. Washington County and the Village of Germantown reserve the right to determine alternative solutions.

The Menomonee River passes under County Line Road immediately east of Shady Lane/Development Driveway. A fence exists along the north edge of the bridge and, along with vegetation, blocks the line of sight for passenger vehicle motorists wishing to turn or cross from the Development Driveway onto County Line Road. The following modifications, shown in [Exhibit 1-3](#), are recommended to improve lines of sight.

- Remove vegetation growing within the bridge’s fence west of the Menomonee River centerline and correct the west end of the fence such that the westernmost point is adjusted north.
- The curb of the north side of County Line Road currently shifts approximately 5- to 6-feet north on the approach and departure sides of the Development Driveway. Shift the curb line at the driveway south to track County Line Road such that the auxiliary lane width in front of the driveway is consistent with the auxiliary lane width east of the intersection. This modification will allow motorists to safely position themselves approximately 5- to 6-feet closer to the roadway and, by doing so, improve lines of sight past the bridge fence to see oncoming westbound traffic on County Line Road.
- The median-side stop sign on the Shady Lane approach to County Line Road is located on the wrong side of the crosswalk. Relocate the stop sign to the south side of the crosswalk (i.e., stop before the crosswalk).

The results of the analysis show that, with the latest traffic signal timings in place along County Line Road to the east and west of Shady Lane/Development Driveway, gaps in the eastbound and westbound traffic streams are expected to be sufficient to accommodate LOS D or better operations for all movements at the County Line Road & Shady Lane/Development Driveway intersection with Taco Bell.

PART B – CONCLUSION

All movements to/from the Taco Bell Development are expected to operate safely and efficiently with the assumptions outlined in this TIA and the identified recommended modifications if properly designed and implemented.

APPENDIX A

TRAFFIC

APPENDIX A

Existing Turning Movement Traffic Counts

Intersection Traffic Volume Report

Count Basics		Version 2013.14.1	Page 1 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted:	4	Non-Holiday	No Special Events

Base Information, Observed (4) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **Shady Lane and CTH Q**

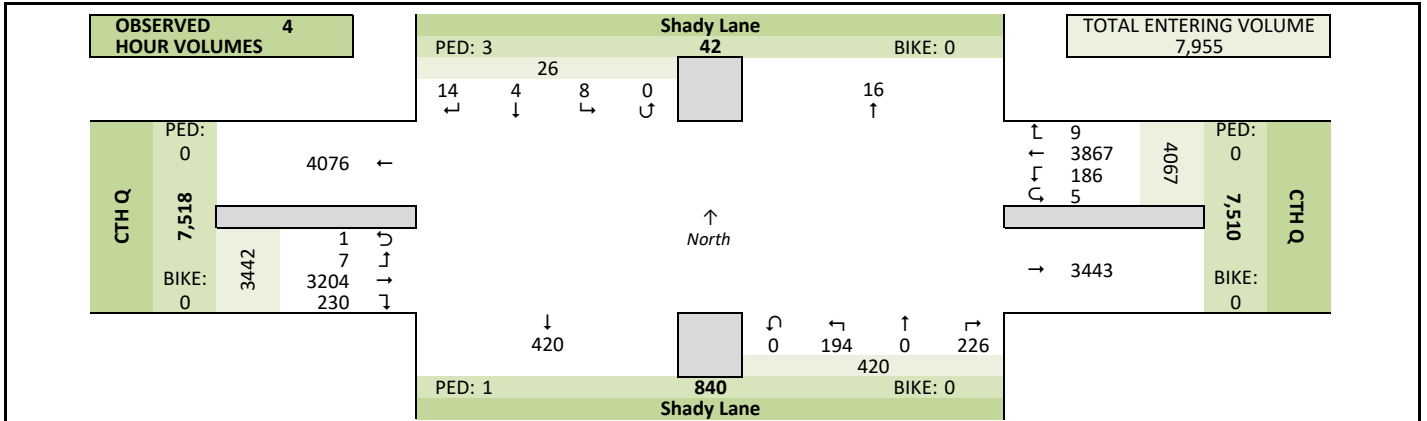
Site Information

Municipality	Village of Germantown		
County	Washington	WisDOT Region	SE
Traffic Control	Partial Stop Control		
Roadway Names	North Direction	↑	
North Leg	Shady Lane		
East Leg	CTH Q		
South Leg	Shady Lane		
West Leg	CTH Q		
Special Considerations			
Schools	In Session		
Holidays	None		
Special Events	None		
Special Pedestrians Observed			
	Pre-school children	None	
	Elementry school age children	None	
	Visually impaired (white cane/helper dog)	None	
	Elderly/disabled (except wheelchairs)	None	
	Wheelchairs/electric scooters	None	
	Other (describe)	None	None

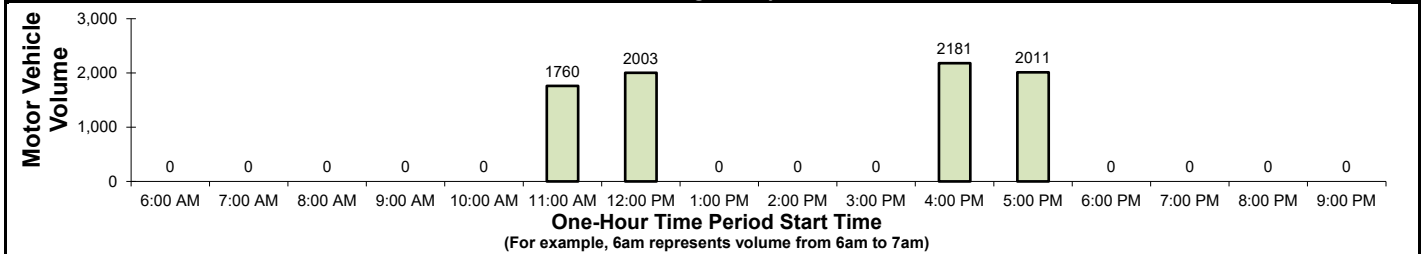
Count Information

Hrs Counted:		11:00 AM-1:00 PM and 4:00 PM-6:00 PM			
1st Day of Count		Wednesday, December 2, 2020		Weather	
AM Peak Period		Wednesday, December 2, 2020		Clear & Dry	
Midday Peak Period		Thursday, December 3, 2020		Clear & Dry	
PM Peak Period		Wednesday, December 2, 2020		Clear & Dry	
Calculated Peak Hours					
	AM	MD	12:00-1:00pm	PM	4:30-5:30pm
Peak Hours Selected for Analysis					
	AM	MD	12:00-1:00pm	PM	4:30-5:30pm
Daily/Seasonal Adjustment Group			(2) Urban Arterials & Collectors		
Count Expansion Group			(2) Urban Arterials & Collectors		
Daily/Seasonal Adjustment Factor			1.025	Count Expansion Factor	#N/A
Company Name			TADI, Inc		Manual Adj. 1.000
Observers	AM Peak Period		None		
	Midday Peak Period		Amy Scheuerlein		
	PM Peak Period		Amy Scheuerlein		
Comments	2019 DOT Seasonal Factors				

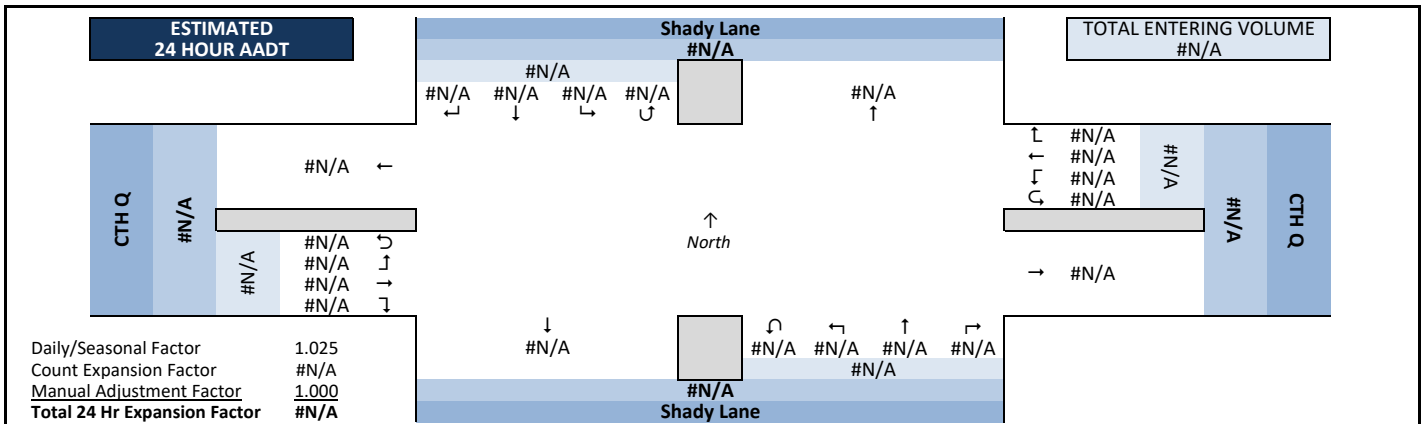
Observed 4 Hour Volume Summary



Total Entering Hourly Volume

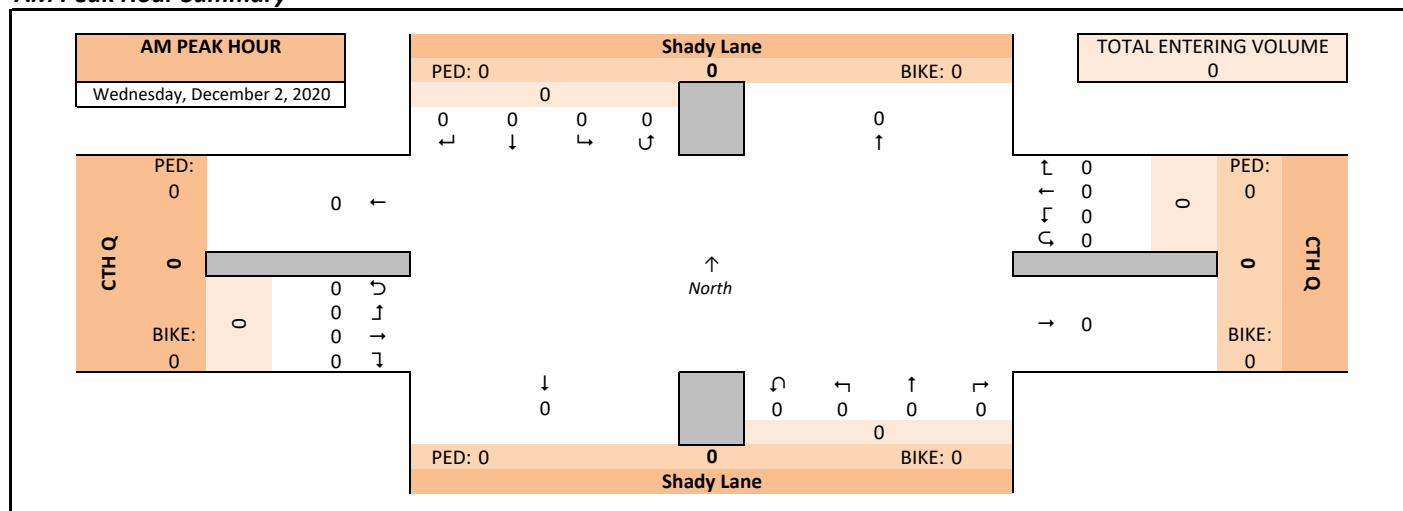


Estimated 24 Hour AADT



Peak Hour Volume Graphical Summary

AM Peak Hour Summary



MD PEAK HOUR
12:00-1:00pm
 Wednesday, December 2, 2020

Shady Lane

PED: 0 15 BIKE: 0

8

4 1 3 0 7

↓ ↓ ↓ ↓ ↑

↑ North

86 0 49 0 61

110

Shady Lane

PED: 0 196 BIKE: 0

TOTAL ENTERING VOLUME
 2,003

CTH Q

PED: 0

1,903

BIKE: 0

1031 ↑

872

0 2 813 57

↓ ↓ ↓ ↓

CTH Q

PED: 0

1,892

BIKE: 0

1013

5 978 28 2

↑ ↓ ↓ ↓

→ 879

**PM PEAK HOUR
4:30-5:30pm**
Wednesday, December 2, 2020

Shady Lane

PED: 1 12 BIKE: 0

9

4 2 3 0 3

← ↓ ↵ ↻

CTH Q

PED: 0 1148 ↑

2,092

944

0 2 881 61

↵ ↵ ↵ ↵

BIKE: 0

TOTAL ENTERING VOLUME
2,225

1 1095 1150 PED: 0

52

2

2,109

959

BIKE: 0

CTH Q

115 0 49 0 73

122

PED: 0 237 BIKE: 0

Shady Lane

↑
North

Count Basics		Page 3 of 13	
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted: 4		Non-Holiday	No Special Events

All Motor Vehicles

Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, December 2, 2020		↓				←				↑				→								
		From North				From East				From South				From West								
AM Peak Hour	AM Peak Hour	Shady Lane				CTH Q				Shady Lane				CTH Q								
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Wednesday, December 2, 2020		↓ From North					← From East					↑ From South					→ From West					
Midday (MD) Peak Hour	MD Peak Hour	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	12:00 PM	2	0	0	0	2	0	242	4	0	246	16	0	13	0	29	11	201	0	0	212	489
	12:15 PM	1	0	0	0	1	2	265	11	2	280	12	0	9	0	21	19	216	2	0	237	539
	12:30 PM	1	1	1	0	3	1	227	5	0	233	15	0	19	0	34	15	183	0	0	198	468
	12:45 PM	0	0	2	0	2	2	244	8	0	254	18	0	8	0	26	12	213	0	0	225	507
	Peak Hour Volume	4	1	3	0	8	5	978	28	2	1013	61	0	49	0	110	57	813	2	0	872	2003
	Rounded Hourly Volume	5	0	5	0	10	5	980	30	0	1015	60	0	50	0	110	55	815	0	0	870	2005
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.1	2.3
% Heavy Trucks	25.0	0.0	0.0	0.0	12.5	0.0	0.9	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.6	0.7	
% Trucks (Total)	25.0	0.0	0.0	0.0	12.5	0.0	3.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	3.7	3.1	
Peak Hour Factor (PHF)	0.50	0.25	0.37	0.00	0.67	0.62	0.92	0.64	0.25	0.90	0.85	0.00	0.64	0.00	0.81	0.75	0.94	0.25	0.00	0.92	0.93	

Wednesday, December 2, 2020		↓ From North					← From East					↑ From South					→ From West					
PM Peak Hour	PM Peak Hour	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	4:30 PM	2	2	0	0	4	0	274	17	0	291	13	0	13	0	26	21	228	1	0	250	571
	4:45 PM	1	0	1	0	2	1	273	13	1	288	23	0	10	0	33	12	213	0	0	225	548
	5:00 PM	1	0	2	0	3	0	279	9	0	288	27	0	10	0	37	13	222	0	0	235	563
	5:15 PM	0	0	0	0	0	0	269	13	1	283	10	0	16	0	26	15	218	1	0	234	543
	Peak Hour Volume	4	2	3	0	9	1	1095	52	2	1150	73	0	49	0	122	61	881	2	0	944	2225
	Rounded Hourly Volume	5	0	5	0	10	0	1095	50	0	1145	75	0	50	0	125	60	880	0	0	940	2220
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.6	1.2	0.0	0.0	1.3	1.3
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.6	1.2	0.0	0.0	1.3	1.3	
Peak Hour Factor (PHF)	0.50	0.25	0.37	0.00	0.56	0.25	0.98	0.76	0.50	0.99	0.68	0.00	0.77	0.00	0.82	0.73	0.97	0.50	0.00	0.94	0.97	

[illegible]

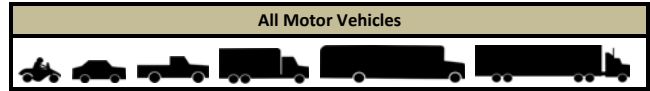
Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Shady Lane and CTH Q

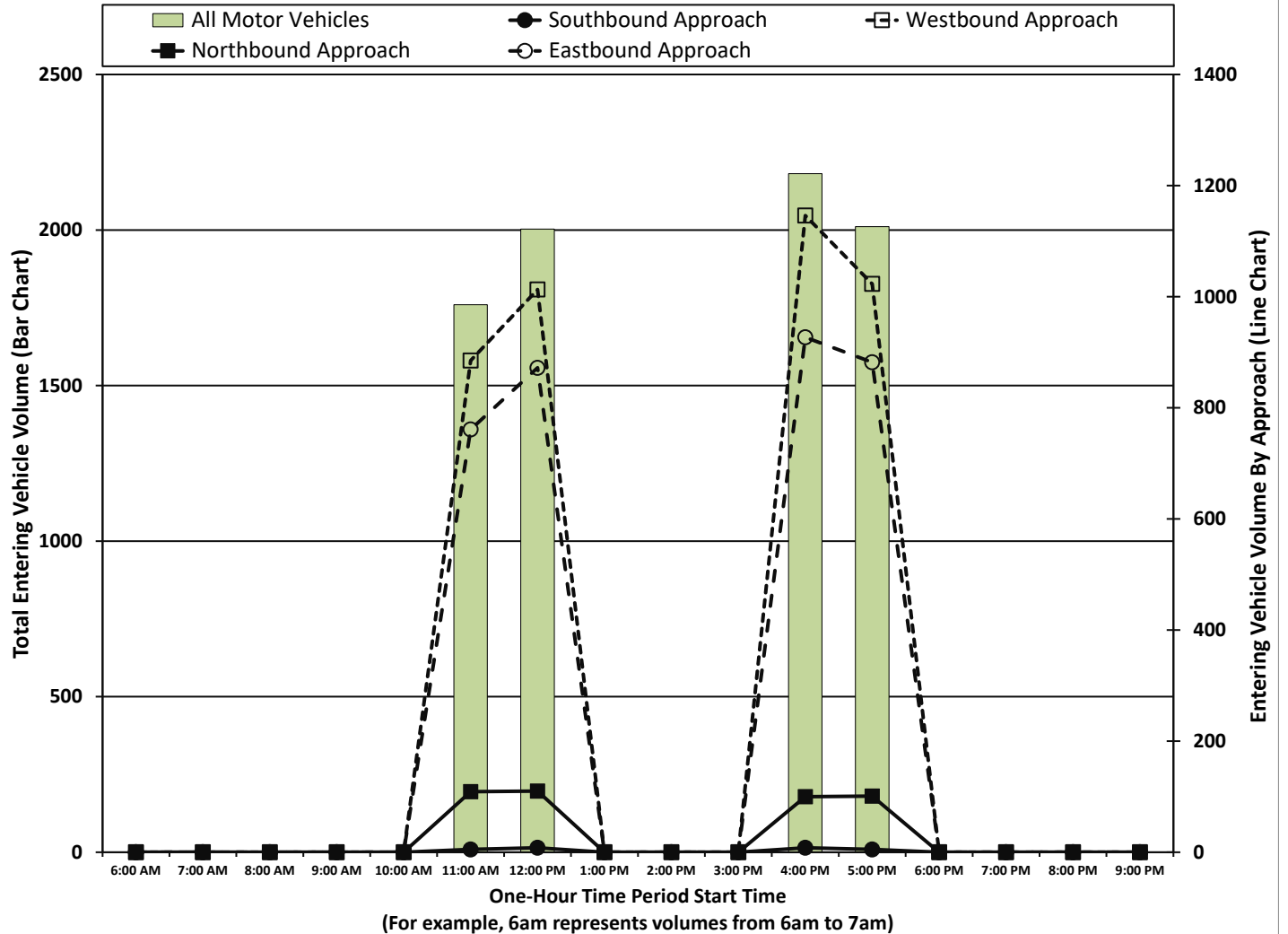
One-Hour Motor Vehicle Data

Count Basics			Page 4 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted:	4	Non-Holiday	No Special Events



One-Hour Time Period	Start Time	From North Shady Lane					From East CTH Q					From South Shady Lane					From West CTH Q					Total Vehicle Volume	Directional Volume Totals	
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
																							E/W	N/S
AM	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	4	0	1	0	5	2	831	51	1	885	49	0	60	0	109	62	697	2	0	761	1760	1646	114
	12:00 PM	4	1	3	0	8	5	978	28	2	1013	61	0	49	0	110	57	813	2	0	872	2003	1885	118
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	4	2	2	0	8	2	1079	64	1	1146	58	0	42	0	100	56	868	2	1	927	2181	2073	108
	5:00 PM	2	1	2	0	5	0	979	43	1	1023	58	0	43	0	101	55	826	1	0	882	2011	1905	106
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		14	4	8	0	26	9	3867	186	5	4067	226	0	194	0	420	230	3204	7	1	3442	7955	7509	446

Graphical Summary of Hourly Volumes



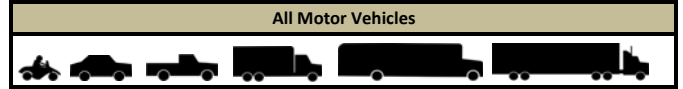
Intersection Traffic Volume Report

15-Minute Motor Vehicle Data

Shady Lane and CTH Q

15-Minute Motor Vehicle Data

Count Basics			Page 5 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted:	4	Non-Holiday	No Special Events



15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum	PHF	
	Shady Lane					CTH Q					Shady Lane					CTH Q								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total				
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	11:00 AM	1	0	0	0	1	0	178	13	0	191	11	0	13	0	24	15	154	1	0	170	386	1760	0.89
	11:15 AM	2	0	0	0	2	0	218	12	0	230	13	0	17	0	30	14	193	1	0	208	470	1863	0.94
	11:30 AM	1	0	1	0	2	2	191	11	1	205	9	0	13	0	22	14	165	0	0	179	408	1932	0.90
	11:45 AM	0	0	0	0	0	0	244	15	0	259	16	0	17	0	33	19	185	0	0	204	496	1992	0.92
	12:00 PM	2	0	0	0	2	0	242	4	0	246	16	0	13	0	29	11	201	0	0	212	489	2003	0.93
	12:15 PM	1	0	0	0	1	2	265	11	2	280	12	0	9	0	21	19	216	2	0	237	539		
	12:30 PM	1	1	1	0	3	1	227	5	0	233	15	0	19	0	34	15	183	0	0	198	468		
	12:45 PM	0	0	2	0	2	2	244	8	0	254	18	0	8	0	26	12	213	0	0	225	507		
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	4:00 PM	0	0	1	0	1	1	267	15	0	283	10	0	9	0	19	13	207	0	0	220	523	2181	0.95
	4:15 PM	1	0	0	0	1	0	265	19	0	284	12	0	10	0	22	10	220	1	1	232	539	2221	0.97
	4:30 PM	2	2	0	0	4	0	274	17	0	291	13	0	13	0	26	21	228	1	0	250	571	2225	0.97
	4:45 PM	1	0	1	0	2	1	273	13	1	288	23	0	10	0	33	12	213	0	0	225	548	2143	0.95
	5:00 PM	1	0	2	0	3	0	279	9	0	288	27	0	10	0	37	13	222	0	0	235	563	2011	0.89
	5:15 PM	0	0	0	0	0	0	269	13	1	283	10	0	16	0	26	15	218	1	0	234	543		
	5:30 PM	1	1	0	0	2	0	240	11	0	251	8	0	5	0	13	13	210	0	0	223	489		
	5:45 PM	0	0	0	0	0	0	191	10	0	201	13	0	12	0	25	14	176	0	0	190	416		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Totals		14	4	8	0	26	9	3867	186	5	4067	226	0	194	0	420	230	3204	7	1	3442	7955		

Peak Hour All Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume	PHF
	Shady Lane					CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 8:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD 12:00 PM	4	1	3	0	8	5	978	28	2	1013	61	0	49	0	110	57	813	2	0	872	2003	0.93
PM 4:30 PM	4	2	3	0	9	1	1095	52	2	1150	73	0	49	0	122	61	881	2	0	944	2225	0.97

15-Minute Automobile Data

Count Basics			Page 6 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted:	4	Non-Holiday	No Special Events

Shady Lane and CTH Q

Automobiles (Cars, Light Trucks, & Motorcycles)

15-Minute Automobile Data

		←					↑					→										
15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum
	Shady Lane					CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	1	0	0	0	1	0	172	13	0	185	11	0	13	0	24	14	145	1	0	160	370
	11:15 AM	2	0	0	0	2	0	210	11	0	221	13	0	17	0	30	13	185	1	0	199	452
	11:30 AM	1	0	1	0	2	1	184	11	1	197	9	0	13	0	22	14	159	0	0	173	394
	11:45 AM	0	0	0	0	0	0	235	15	0	250	15	0	17	0	32	19	175	0	0	194	476
	12:00 PM	1	0	0	0	1	0	233	4	0	237	16	0	13	0	29	11	192	0	0	203	470
	12:15 PM	1	0	0	0	1	2	259	11	2	274	12	0	9	0	21	19	210	2	0	231	527
	12:30 PM	1	1	1	0	3	1	221	5	0	227	15	0	19	0	34	15	176	0	0	191	455
	12:45 PM	0	0	2	0	2	2	236	8	0	246	18	0	8	0	26	12	203	0	0	215	489
PM Peak Period	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 PM	0	0	1	0	1	1	261	15	0	277	10	0	9	0	19	13	200	0	0	213	510
	4:15 PM	1	0	0	0	1	0	263	19	0	282	12	0	10	0	22	10	212	1	1	224	529
	4:30 PM	2	2	0	0	4	0	270	17	0	287	13	0	13	0	26	20	223	1	0	244	561
	4:45 PM	1	0	1	0	2	1	268	13	1	283	23	0	10	0	33	12	211	0	0	223	541
	5:00 PM	1	0	2	0	3	0	276	9	0	285	27	0	10	0	37	13	221	0	0	234	559
	5:15 PM	0	0	0	0	0	0	264	13	1	278	10	0	16	0	26	15	215	1	0	231	535
	5:30 PM	1	1	0	0	2	0	236	11	0	247	8	0	5	0	13	13	208	0	0	221	483
	5:45 PM	0	0	0	0	0	0	191	10	0	201	13	0	12	0	25	14	173	0	0	187	413
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	13	4	8	0	25	8	3779	185	5	3977	225	0	194	0	419	227	3108	7	1	3343	7764	

Peak Hour Automobile Volume Summary

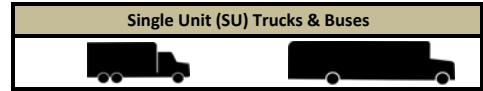
Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume
	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 12:00 PM	3	1	3	0	7	5	949	28	2	984	61	0	49	0	110	57	781	2	0	840	1941
PM 4:30 PM	4	2	3	0	9	1	1078	52	2	1133	73	0	49	0	122	60	870	2	0	932	2196

Intersection Traffic Volume Report

15-Minute Single Unit (SU) Truck & Bus Data

Shady Lane and CTH Q

Count Basics			Page 7 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted:	4	Non-Holiday	No Special Events



15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period Start Time	From North						From East					From South					From West					15-Min Totals	Hourly Sum
	Shady Lane						CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	7	0	0	8	13	52	
	11:15 AM	0	0	0	0	0	5	0	0	5	0	0	0	0	0	1	7	0	0	8	13	53	
	11:30 AM	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	11	47	
	11:45 AM	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	6	0	0	6	15	47	
	12:00 PM	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	8	0	0	8	14	47	
	12:15 PM	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7		
	12:30 PM	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	6	0	0	6	11		
	12:45 PM	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	9	0	0	9	15		
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 PM	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	7	0	0	7	13	39	
	4:15 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	8	0	0	8	9	30	
	4:30 PM	0	0	0	0	0	4	0	0	4	0	0	0	0	0	1	5	0	0	6	10	29	
	4:45 PM	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	7	23	
	5:00 PM	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4	19	
	5:15 PM	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8		
	5:30 PM	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4		
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3		
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		0	0	0	0	0	0	72	0	0	72	0	0	0	0	0	3	82	0	0	85	157	

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume	
	Shady Lane					CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD 12:00 PM	0	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	27	0	0	27	47
PM 4:30 PM	0	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	1	11	0	0	12	29

Intersection Traffic Volume Report

15-Minute Semi-Truck Data

Count Basics			Page 8 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted: 4		Non-Holiday	No Special Events

Shady Lane and CTH Q



15-Minute Semi-Truck Data

15-Minute Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					15-Min Totals	Hourly Sum
	Shady Lane				Total	CTH Q				Total	Shady Lane				Total	CTH Q				Total		
	Right	Thru	Left	U-Tn		Right	Thru	Left	U-Tn		Right	Thru	Left	U-Tn		Right	Thru	Left	U-Tn			
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	0	0	2	3	16
	11:15 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	1	0	1	5	18	
	11:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	1	0	1	3	18	
	11:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	4	0	4	5	17	
	12:00 PM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	1	0	1	5	15	
	12:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	2	0	2	5		
	12:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2	2	
	12:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	0	1	3		
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2		
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals	1	0	0	0	1	1	16	1	0	18	1	0	0	0	1	0	14	0	0	14	34	

Peak Hour Semi-Truck Volume Summary

Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 12:00 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	4	0	0	4
PM 4:30 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

Count Basics				Page 9 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session	
Total Number of Hours Counted:	4	Non-Holiday	No Special Events	

15-Minute Heavy Vehicle Data

Shady Lane and CTH Q



15-Minute Heavy Vehicle Data

15-Minute Time Period Start Time	From North						From East						From South						From West						15-Min Totals	Hourly Sum
	Shady Lane						CTH Q						Shady Lane						CTH Q							
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total						
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	11:00 AM	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	1	9	0	0	10	16	68			
	11:15 AM	0	0	0	0	0	0	8	1	9	0	0	0	0	0	0	1	8	0	0	9	18	71			
	11:30 AM	0	0	0	0	0	1	7	0	8	0	0	0	0	0	0	0	6	0	0	6	14	65			
	11:45 AM	0	0	0	0	0	0	9	0	9	1	0	0	0	1	0	10	0	0	10	20	64				
	12:00 PM	1	0	0	0	1	0	9	0	9	0	0	0	0	0	0	9	0	0	0	9	19	62			
	12:15 PM	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	6	0	0	0	6	12				
	12:30 PM	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	7	0	0	0	7	13				
	12:45 PM	0	0	0	0	0	0	8	0	8	0	0	0	0	0	0	10	0	0	0	10	18				
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	4:00 PM	0	0	0	0	0	0	6	0	6	0	0	0	0	0	0	0	7	0	0	7	13	40			
	4:15 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	8	0	0	8	10	31			
	4:30 PM	0	0	0	0	0	0	4	0	4	0	0	0	0	0	1	5	0	0	6	10	29				
	4:45 PM	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	2	0	0	2	7	25				
	5:00 PM	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	1	0	0	1	4	21				
	5:15 PM	0	0	0	0	0	0	5	0	5	0	0	0	0	0	0	3	0	0	3	8					
	5:30 PM	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	2	0	0	2	6					
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3					
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Totals		1	0	0	0	1	1	88	1	0	90	1	0	0	0	1	3	96	0	0	99	191				

Peak Hour Heavy Vehicle Volume Summary

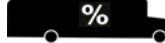
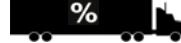
Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
AM 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD 12:00 PM	1	0	0	0	1	0	29	0	0	29	0	0	0	0	0	0	32	0	0	32	62
PM 4:30 PM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	1	11	0	0	12	29

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Percentages

Shady Lane and CTH Q

Count Basics			Page 10 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted:	4	Non-Holiday	No Special Events

%	Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)		
			

15-Minute Heavy Vehicle Percentages

15-Minute Time Period Start Time	From North					From East					From South					From West					Total Heavy Vehicle Percent	Hourly Heavy Vehicle Percent
	Shady Lane					CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Midday Peak Period	10:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	6.7	5.8	0.0	0.0	5.9	4.1
	11:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	3.7	8.3	0.0	3.9	0.0	0.0	0.0	0.0	0.0	7.1	4.1	0.0	0.0	4.3	3.8
	11:30 AM	0.0	0.0	0.0	0.0	0.0	50.0	3.7	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.4	3.4
	11:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	3.5	6.2	0.0	0.0	0.0	3.0	0.0	5.4	0.0	0.0	4.9	4.0
	12:00 PM	50.0	0.0	0.0	0.0	50.0	0.0	3.7	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.2	3.9
	12:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	2.5	2.2
	12:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	3.5	2.8
	12:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0	4.4	3.6
	1:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM Peak Period	2:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	3.2	2.5
	4:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	3.4	1.9
	4:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	4.8	2.2	0.0	0.0	2.4	1.8
	4:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9	1.3
	5:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.7
	5:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.3	1.5
	5:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.9	1.2
	5:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.6	0.7
	6:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:15 PM	0.0	0.0	0.0																			

Intersection Traffic Volume Report

Count Basics			Page 11 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted:	4	Non-Holiday	No Special Events

15-Minute Pedestrian and Bicyclist Data

Shady Lane and CTH Q



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time		Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
		North Approach			East Approach			South Approach			West Approach				
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 PM	2	0	2	0	0	1	0	1	0	0	0	3	4	4
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1
	4:30 PM	1	0	1	0	0	0	0	0	0	0	0	1	1	1
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		3	0	3	0	0	0	1	0	1	0	0	0	4	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

Intersection Traffic Volume Report

Count Basics		Version 2013.14.1	Page 1 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted:	2	Non-Holiday	No Special Events

Base Information, Observed (2) Hour and Estimated (24) Hour Volume Summaries

Intersection of: **Shady Lane and CTH Q**

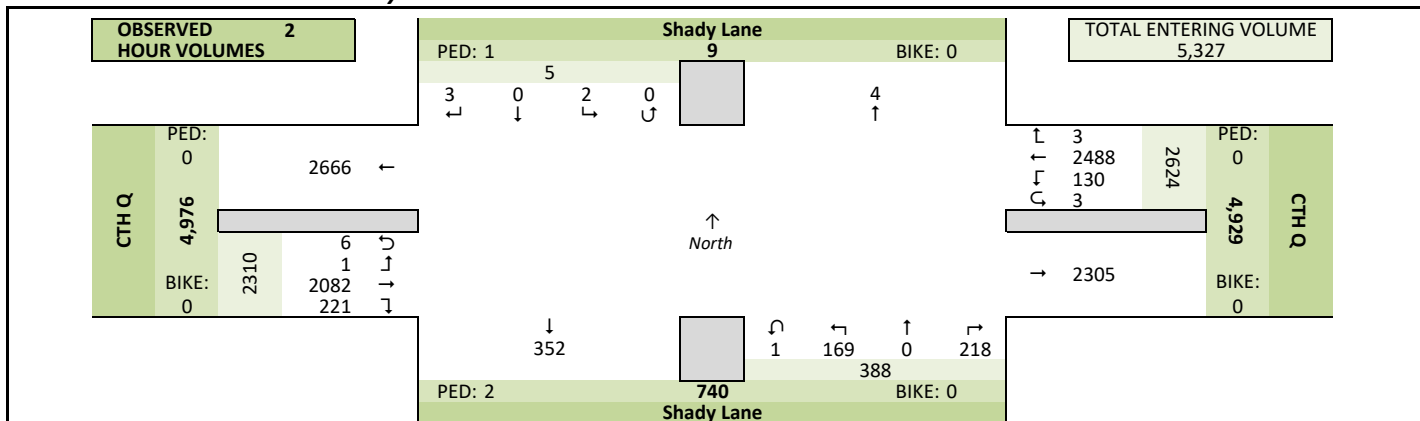
Site Information

Municipality	Village of Germantown		
County	Washington	WisDOT Region	SE
Traffic Control	Partial Stop Control		
Roadway Names	North Direction	↑	
North Leg	Shady Lane		
East Leg	CTH Q		
South Leg	Shady Lane		
West Leg	CTH Q		
Special Considerations			
Schools	In Session		
Holidays	None		
Special Events	None		
Special Pedestrians Observed			
	Pre-school children	None	
	Elementry school age children	None	
	Visually impaired (white cane/helper dog)	None	
	Elderly/disabled (except wheelchairs)	None	
	Wheelchairs/electric scooters	None	
	Other (describe))	None	

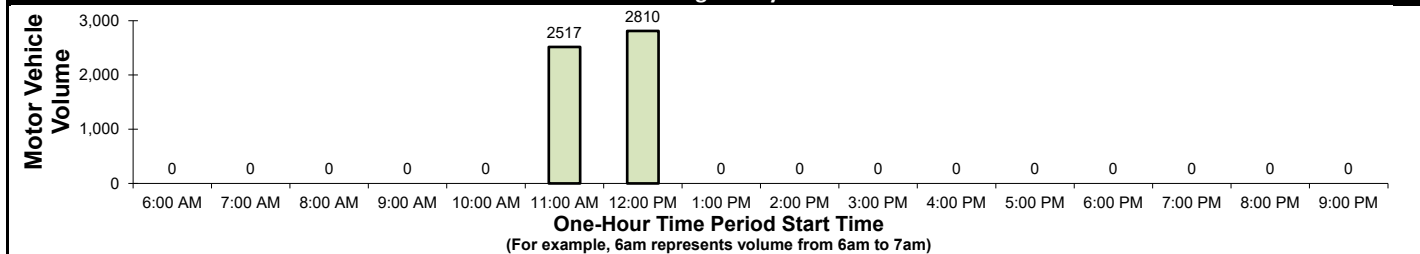
Count Information

Hrs Counted:		11:00 AM-1:00 PM	
1st Day of Count		Saturday, December 5, 2020	Weather
AM Peak Period		Saturday, December 5, 2020	Clear & Dry
Midday Peak Period		Saturday, December 5, 2020	Clear & Dry
PM Peak Period		Saturday, December 5, 2020	Clear & Dry
Calculated Peak Hours			
	AM	MD	12:00-1:00pm
Peak Hours Selected for Analysis			
	AM	MD	12:00-1:00pm
Daily/Seasonal Adjustment Group		(2) Urban Arterials & Collectors	
Count Expansion Group		(2) Urban Arterials & Collectors	
Daily/Seasonal Adjustment Factor		1.215	Count Expansion Factor
Company Name		TADI, Inc	Manual Adj.
Observers	AM Peak Period	None	
	Midday Peak Period	Jeff Schleif	
	PM Peak Period	None	
Comments	2019 DOT Seasonal Factors		

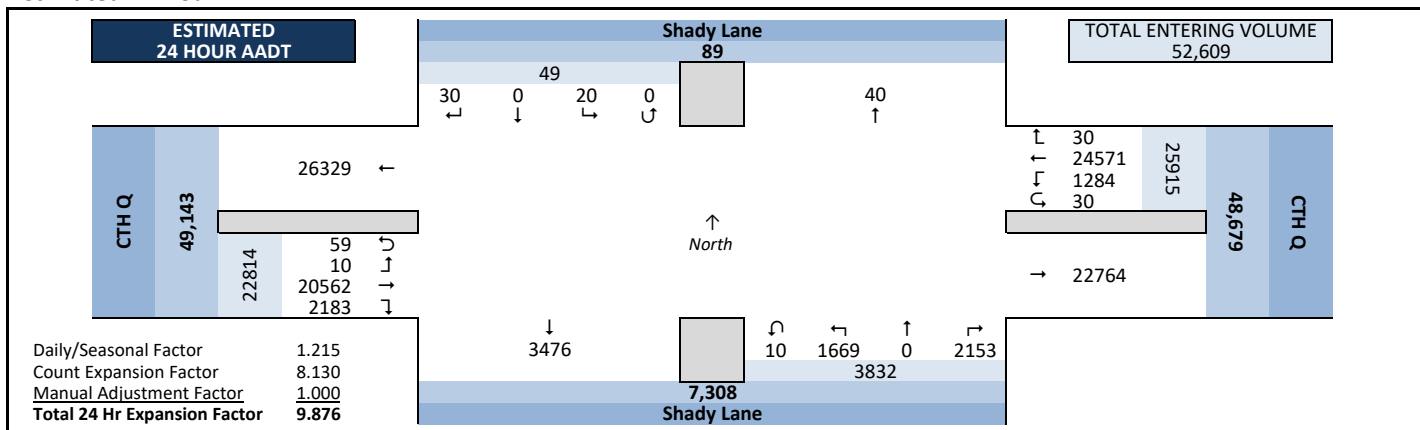
Observed 2 Hour Volume Summary



Total Entering Hourly Volume



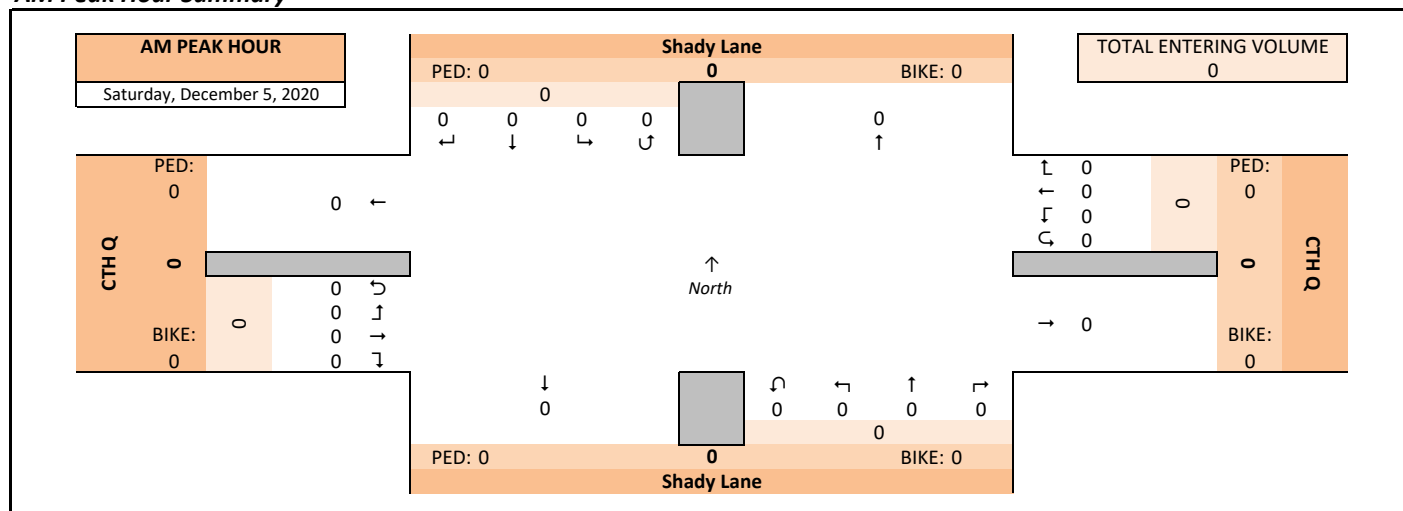
Estimated 24 Hour AADT



Peak Hour Volume Graphical Summary

Shady Lane and CTH Q

AM Peak Hour Summary



MD PEAK HOUR
12:00-1:00pm
 Saturday, December 5, 2020

Shady Lane

PED: 0 4 BIKE: 0

2 0 0 0 2

↓ ↓ ↓ ↓ ↑

1398 1370 1242

CTH Q

PED: 0 2,628 1230 3 1 1118 108

BIKE: 0

168 1 84 0 123

208

PED: 2 376 BIKE: 0

Shady Lane

TOTAL ENTERING VOLUME
 2,810

1309 59 1

CTH Q

PED: 0 2,612 BIKE: 0

North

[illegible]

Intersection Traffic Volume Report

Count Basics			Page 3 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted:	2	Non-Holiday	No Special Events

Peak Hour Volume Summary

Shady Lane and CTH Q



Peak Hour Volumes, Truck Percentages, and PHFs

Saturday, December 5, 2020		From North					From East					From South					From West					Totals
AM Peak Hour	AM Peak Hour	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rounded Hourly Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Peak Hour Factor (PHF)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Saturday, December 5, 2020		↓ From North					← From East					↑ From South					→ From West					
Midday (MD) Peak Hour	MD Peak Hour	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Start Time	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Totals
	12:00 PM	0	0	0	0	0	0	296	19	1	316	36	0	16	0	52	32	285	0	0	317	685
	12:15 PM	0	0	0	0	0	0	345	11	0	356	31	0	18	1	50	28	300	0	0	328	734
	12:30 PM	0	0	0	0	0	1	306	13	0	320	27	0	25	0	52	27	259	0	2	288	660
	12:45 PM	2	0	0	0	2	0	362	16	0	378	29	0	25	0	54	21	274	1	1	297	731
	Peak Hour Volume	2	0	0	0	2	1	1309	59	1	1370	123	0	84	1	208	108	1118	1	3	1230	2810
	Rounded Hourly Volume	0	0	0	0	0	0	1310	60	0	1370	125	0	85	0	210	110	1120	0	5	1235	2815
	% Single Unit Trucks	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.1	0.9
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
% Trucks (Total)	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.1	1.0	
Peak Hour Factor (PHF)	0.25	0.00	0.00	0.00	0.25	0.25	0.90	0.78	0.25	0.91	0.85	0.00	0.84	0.25	0.96	0.84	0.93	0.25	0.37	0.94	0.96	

[illegible]

Peak Hour Pedestrian and Bicyclist Volumes

[illegible]

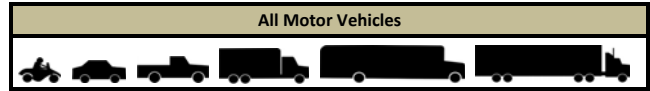
Intersection Traffic Volume Report

Hourly Volume Summary - Motor Vehicle Data

Shady Lane and CTH Q

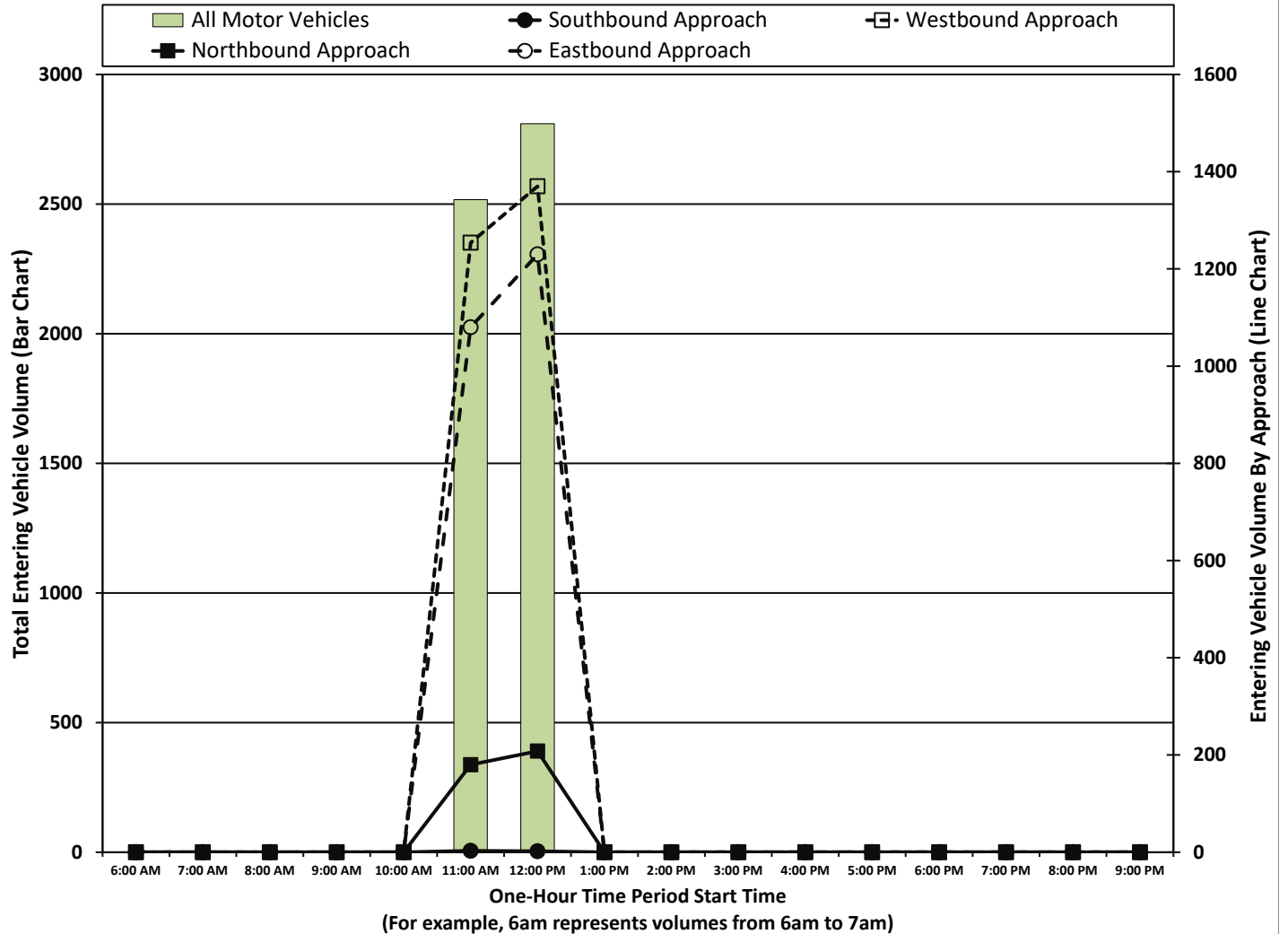
One-Hour Motor Vehicle Data

Count Basics			Page 4 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted:	2	Non-Holiday	No Special Events



One-Hour Time Period	Start Time	From North Shady Lane					From East CTH Q					From South Shady Lane					From West CTH Q					Total Vehicle Volume	Directional Volume Totals	
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total			
																							E/W	N/S
AM	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	1	0	2	0	3	2	1179	71	2	1254	95	0	85	0	180	113	964	0	3	1080	2517	2334	183
	12:00 PM	2	0	0	0	2	1	1309	59	1	1370	123	0	84	1	208	108	1118	1	3	1230	2810	2600	210
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals		3	0	2	0	5	3	2488	130	3	2624	218	0	169	1	388	221	2082	1	6	2310	5327	4934	393

Graphical Summary of Hourly Volumes

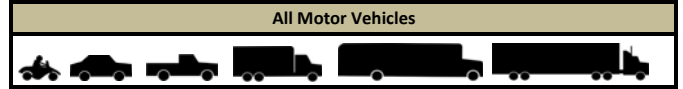


Intersection Traffic Volume Report

Count Basics			Page 5 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted:	2	Non-Holiday	No Special Events

15-Minute Motor Vehicle Data

Shady Lane and CTH Q



15-Minute Motor Vehicle Data

15-Minute Time Period Start Time	From North							From East							From South							From West							15-Min Totals	Hourly Sum	PHF
	Shady Lane							CTH Q							Shady Lane							CTH Q									
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total											
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	11:00 AM	0	0	1	0	1	1	274	18	0	293	16	0	21	0	37	33	231	0	1	265	596	2517	0.92							
	11:15 AM	0	0	1	0	1	0	275	16	1	292	19	0	23	0	42	25	221	0	1	247	582	2606	0.95							
	11:30 AM	1	0	0	0	1	0	300	21	0	321	30	0	21	0	51	24	255	0	0	279	652	2758	0.94							
	11:45 AM	0	0	0	0	0	1	330	16	1	348	30	0	20	0	50	31	257	0	1	289	687	2766	0.94							
	12:00 PM	0	0	0	0	0	0	296	19	1	316	36	0	16	0	52	32	285	0	0	317	685	2810	0.96							
	12:15 PM	0	0	0	0	0	0	345	11	0	356	31	0	18	1	50	28	300	0	0	328	734									
	12:30 PM	0	0	0	0	0	1	306	13	0	320	27	0	25	0	52	27	259	0	2	288	660									
	12:45 PM	2	0	0	0	2	0	362	16	0	378	29	0	25	0	54	21	274	1	1	297	731									
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
Totals		3	0	2	0	5	3	2488	130	3	2624	218	0	169	1	388	221	2082	1	6	2310	5327									

Peak Hour All Vehicle Volume Summary

Hourly Time Period Start Time	From North					From East					From South					From West					Total Hourly Volume	PHF
	Shady Lane					CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.96
MD 12:00 PM	2	0	0	0	2	1	1309	59	1	1370	123	0	84	1	208	108	1118	1	3	1230	2810	
PM 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Intersection Traffic Volume Report

Count Basics			Page 6 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted:	2	Non-Holiday	No Special Events

15-Minute Automobile Data

Shady Lane and CTH Q



15-Minute Automobile Data

15-Minute Time Period Start Time	From North							From East							From South							From West							15-Min Totals	Hourly Sum
	Shady Lane							CTH Q							Shady Lane							CTH Q								
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total										
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	11:00 AM	0	0	1	0	1	1	267	18	0	286	16	0	21	0	37	33	229	0	1	263	587		2489						
	11:15 AM	0	0	1	0	1	0	271	16	1	288	19	0	23	0	42	25	219	0	1	245	576		2580						
	11:30 AM	1	0	0	0	1	0	297	20	0	317	30	0	21	0	51	24	252	0	0	276	645		2730						
	11:45 AM	0	0	0	0	0	1	325	16	1	343	30	0	20	0	50	31	256	0	1	288	681		2738						
	12:00 PM	0	0	0	0	0	0	292	19	1	312	36	0	16	0	52	32	282	0	0	314	678		2783						
	12:15 PM	0	0	0	0	0	0	340	11	0	351	31	0	18	1	50	28	297	0	0	325	726								
	12:30 PM	0	0	0	0	0	1	303	13	0	317	27	0	25	0	52	27	255	0	2	284	653								
	12:45 PM	2	0	0	0	2	0	361	16	0	377	29	0	25	0	54	21	270	1	1	293	726								
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
Totals	3	0	2	0	5	3	2456	129	3	2591	218	0	169	1	388	221	2060	1	6	2288	5272									

Peak Hour Automobile Volume Summary

Hourly Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Hourly Volume
	Shady Lane					CTH Q					Shady Lane					CTH Q					
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	
	AM 8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
MD 12:00 PM	2	0	0	0	2	1	1296	59	1	1357	123	0	84	1	208	108	1104	1	3	1216	2783
PM 4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Intersection Traffic Volume Report

15-Minute Single Unit (SU) Truck & Bus Data

Count Basics			Page 7 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted: 2		Non-Holiday	No Special Events

Shady Lane and CTH Q

Single Unit (SU) Trucks & Buses

15-Minute Single Unit (SU) Truck & Bus Data

15-Minute Time Period Start Time		↓ From North					← From East					↑ From South					→ From West					15-Min Totals	Hourly Sum
		Shady Lane					CTH Q					Shady Lane					CTH Q						
		Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	2	0	0	0	2	9
	11:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	0	1	5
	11:30 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	3	0	0	0	3	7
	11:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	0	1	6
	12:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	0	3	7
	12:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	0	3	8
	12:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	0	4	7
	12:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	0	3	4
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals		0	0	0	0	0	0	32	1	0	33	0	0	0	0	0	0	20	0	0	20	53	

Peak Hour Single Unit (SU) Truck & Buses Volume Summary

[illegible]

Intersection Traffic Volume Report

15-Minute Semi-Truck Data

Count Basics			Page 8 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted: 2		Non-Holiday	No Special Events

Shady Lane and CTH Q



15-Minute Semi-Truck Data

[illegible]

Peak Hour Semi-Truck Volume Summary

[illegible]

Intersection Traffic Volume Report

15-Minute Heavy Vehicle Data

Shady Lane and CTH Q

15-Minute Heavy Vehicle Data

Count Basics			Page 9 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted: 2		Non-Holiday	No Special Events



15-Minute Time Period Start Time	From North					From East					From South					From West					15-Min Totals	Hourly Sum
	Shady Lane					CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:00 AM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	2	0	0	2	9
	11:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
	11:30 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	3	0	0	3	7
	11:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6
	12:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
	12:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
	12:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
	12:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Totals	0	0	0	0	0	0	32	1	0	33	0	0	0	0	0	0	22	0	0	22	55	

Peak Hour Heavy Vehicle Volume Summary

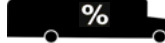
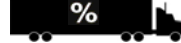
Hourly Time Period Start Time	From North						From East						From South						From West						Total Hourly Volume
	Shady Lane						CTH Q						Shady Lane						CTH Q						
	Right	Thru	Left	U-Tn	Total		Right	Thru	Left	U-Tn	Total		Right	Thru	Left	U-Tn	Total		Right	Thru	Left	U-Tn	Total		
AM 8:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0
MD 12:00 PM	0	0	0	0	0		0	13	0	0	13		0	0	0	0	0		0	14	0	0	0		14
PM 4:00 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0

Intersection Traffic Volume Report

Count Basics			Page 10 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted:	2	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Percentages

Shady Lane and CTH Q

%	Heavy Vehicles (Single-Unit Trucks, Buses & Semi-Trucks)		
			

15-Minute Heavy Vehicle Percentages

15-Minute Time Period Start Time	↓ From North					← From East					↑ From South					→ From West					Total Heavy Vehicle Percent	Hourly Heavy Vehicle Percent
	Shady Lane					CTH Q					Shady Lane					CTH Q						
	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total	Right	Thru	Left	U-Tn	Total		
AM Peak Period	6:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	7:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	8:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Midday Peak Period	10:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11:00 AM	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.8	1.5
	11:15 AM	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.8	1.0
	11:30 AM	0.0	0.0	0.0	0.0	0.0	0.0	1.0	4.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.1	1.1
	11:45 AM	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.3	0.9
	12:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.9	1.0
	12:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.9	1.1
	12:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.4	1.1
	12:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.3	0.7
	1:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PM Peak Period	2:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	3:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	6:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:15 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:30 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8:45 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Intersection Traffic Volume Report

Count Basics			Page 11 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted:	2	Non-Holiday	No Special Events

15-Minute Pedestrian and Bicyclist Data

Shady Lane and CTH Q



15-Minute Pedestrian and Bicyclist Data

15-Minute Time Period Start Time		Crossing 			Crossing 			Crossing 			Crossing 			15-Min Totals	Hourly Sum
		North Approach			East Approach			South Approach			West Approach				
		Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total		
AM Peak Period	6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
Midday Peak Period	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	11:30 AM	1	0	1	0	0	0	0	0	0	0	0	0	1	2
	11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	12:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	2
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:30 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
PM Peak Period	2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
	7:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
8:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
9:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
Totals		1	0	1	0	0	0	2	0	2	0	0	0	3	

Special Pedestrians

Pedestrian Type	None	1 or 2	A Few	Several	Many	Unknown
Pre-school Children	x					
Elementary School Age Children	x					
Visually Impaired (white cane/helper dog)	x					
Elderly/Disabled (except wheelchairs)	x					
Wheelchairs/Electric Scooters	x					
Other (None)	x					

APPENDIX A

WisDOT AADT Hourly Traffic Counts

Wisconsin Department of Transportation

Hourly Traffic Volume Report

2018-Jun-05 to 2018-Jun-07

Coverage Count

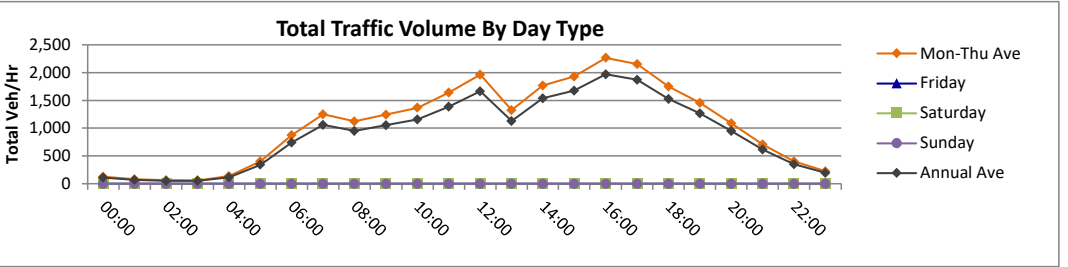
49 Hour Count - Averages and Graphs Do Not Include All Days

Location	CTH Q EAST OF STH 175 APPLETON AVE MENOMONEE FALLS							Segment ID	
Site #	671156							Seasonal Factor Group	2
Region	SE							Daily Factor Group	2
County	WAUKESHA							Axle Factor Group	5
Funct. Class	U Principal Arterial - Other							Growth Factor Group	

Hour	Sun			Mon			Tues 2018-06-05			Wed 2018-06-06			Thur 2018-06-07			Fri			Sat		
	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total
00:00-00:59			-			-			-	103	58	161	48	49	97			-			-
01:00-01:59			-			-			-	44	45	89	38	37	75			-			-
02:00-02:59			-			-			-	38	36	74	30	24	54			-			-
03:00-03:59			-			-			-	36	20	56	43	25	68			-			-
04:00-04:59			-			-			-	82	46	128	74	72	146			-			-
05:00-05:59			-			-			-	268	123	391	292	126	418			-			-
06:00-06:59			-			-			-	564	307	871	586	291	877			-			-
07:00-07:59			-			-			-	819	469	1,288	783	429	1,212			-			-
08:00-08:59			-			-			-	622	482	1,104	601	541	1,142			-			-
09:00-09:59			-			-			-	570	630	1,200	646	643	1,289			-			-
10:00-10:59			-			-			-	695	707	1,402	635	699	1,334			-			-
11:00-11:59			-			-			-	774	811	1,585	789	906	1,695			-			-
12:00-12:59			-			-			-	939	965	1,904	978	1,051	2,029			-			-
13:00-13:59			-			-	214	253	467	812	945	1,757	801	949	1,750			-			-
14:00-14:59			-			-	810	992	1,802	776	962	1,738			-			-			-
15:00-15:59			-			-	865	1,147	2,012	763	1,079	1,842			-			-			-
16:00-16:59			-			-	985	1,373	2,358	890	1,287	2,177			-			-			-
17:00-17:59			-			-	867	1,290	2,157	891	1,257	2,148			-			-			-
18:00-18:59			-			-	862	982	1,844	797	866	1,663			-			-			-
19:00-19:59			-			-	732	798	1,530	636	746	1,382			-			-			-
20:00-20:59			-			-	576	576	1,152	527	502	1,029			-			-			-
21:00-21:59			-			-	379	358	737	366	314	680			-			-			-
22:00-22:59			-			-	253	216	469	176	164	340			-			-			-
23:00-23:59			-			-	121	118	239	117	93	210			-			-			-
Daily Total	-	-	-	-	-	-	-	-	-	12,305	12,914	25,219	-	-	-	-	-	-	-	-	-

AM Peak	-	-	-	-	-	-	-	-	-	819	630	1,288	783	643	1,289	-	-	-	-	-	-
Hour	-	-	-	-	-	-	-	-	-	07:00	09:00	07:00	07:00	09:00	09:00	-	-	-	-	-	-
MD Peak	-	-	-	-	-	-	-	-	-	939	965	1,904	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	-	-	-	12:00	12:00	12:00	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	-	-	-	985	1,373	2,358	891	1,287	2,177	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	16:00	16:00	16:00	17:00	16:00	16:00	-	-	-	-	-	-	-	-	-
Daily Peak	-	-	-	-	-	-	-	-	-	939	1,287	2,177	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	-	-	-	12:00	16:00	16:00	-	-	-	-	-	-	-	-	-
% of Total	-	-	-	-	-	-	-	-	-	7.6%	10.0%	8.6%	-	-	-	-	-	-	-	-	-
Daily Ave	-	-	-	-	-	-	-	-	-	513	538	1,051	-	-	-	-	-	-	-	-	-

Seasonal Fctr							0.921	0.921		0.921	0.921		0.921	0.921						
Daily Fctr							0.957	0.957		0.929	0.929		0.912	0.912						
Axle Factor							0.500	0.500		0.500	0.500		0.500	0.500						
Pulse Fctr							2.000	2.000		2.000	2.000		2.000	2.000						
Overall Fctr	0.000	0.000		0.000	0.000		0.881	0.881		0.856	0.856		0.840	0.840		0.000	0.000		0.000	0.000



Hour	Mon-Thurs Average			Mon-Fri Average			7 Day Average			Estimated Annual Ave		
	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total	Pos Dir	Neg Dir	Total
00:00-00:59	76	54	129	-	-	-	-	-	-	64	45	110
01:00-01:59	41	41	82	-	-	-	-	-	-	35	35	70
02:00-02:59	34	30	64	-	-	-	-	-	-	29	25	54
03:00-03:59	40	23	62	-	-	-	-	-	-	33	19	53
04:00-04:59	78	59	137	-	-	-	-	-	-	66	50	116
05:00-05:59	280	125	405	-	-	-	-	-	-	237	106	343
06:00-06:59	575	299	874	-	-	-	-	-	-	487	254	741
07:00-07:59	801	449	1,250	-	-	-	-	-	-	679	381	1,060
08:00-08:59	612	512	1,123	-	-	-	-	-	-	518	433	952
09:00-09:59	608	637	1,245	-	-	-	-	-	-	515	540	1,055
10:00-10:59	665	703	1,368	-	-	-	-	-	-	564	596	1,160
11:00-11:59	782	859	1,640	-	-	-	-	-	-	662	727	1,390
12:00-12:59	959	1,008	1,967	-	-	-	-	-	-	812	854	1,667
13:00-13:59	609	716	1,325	-	-	-	-	-	-	519	610	1,128
14:00-14:59	793	977	1,770	-	-	-	-	-	-	689	849	1,538
15:00-15:59	814	1,113	1,927	-	-	-	-	-	-	708	967	1,675
16:00-16:59	938	1,330	2,268	-	-	-	-	-	-	815	1,156	1,970
17:00-17:59	879	1,274	2,153	-	-	-	-	-	-	763	1,106	1,870
18:00-18:59	830	924	1,754	-	-	-	-	-	-	721	803	1,524
19:00-19:59	684	772	1,456	-	-	-	-	-	-	595	671	1,265
20:00-20:59	552	539	1,091	-	-	-	-	-	-	479	469	948
21:00-21:59	373	336	709	-	-	-	-	-	-	324	292	616
22:00-22:59	215	190	405	-	-	-	-	-	-	187	165	352
23:00-23:59	119	106	225	-	-	-	-	-	-	103	92	195
Daily Total	12,352	13,072	25,424	-	-	-	-	-	-	10,606	11,244	21,850

AM Peak	801	637	1,250	-	-	-	-	-	-	679	540	1,060
Hour	07:00	09:00	07:00	-	-	-	-	-	-	07:00	09:00	07:00
MD Peak	959	1,008	1,967	-	-	-	-	-	-	812	854	1,667
Hour	12:00	12:00	12:00	-	-	-	-	-	-	12:00	12:00	12:00
PM Peak	938	1,330	2,268	-	-	-	-	-	-	815	1,156	1,970
Hour	16:00	16:00	16:00	-	-	-	-	-	-	16:00	16:00	16:00
Daily Peak	959	1,330	2,268	-	-	-	-	-	-	815	1,156	1,970
Hour	12:00	16:00	16:00	-	-	-	-	-	-	16:00	16:00	16:00
% of Total	7.8%	10.2%	8.9%	-	-	-	-	-	-	7.7%	10.3%	9.0%
Daily Ave	515	545	1,059	-	-	-	-	-	-	442	469	910

APPENDIX A

ISD Calculations

ISD CALCULATIONS

Performed by: **MPMay** Date: **12/10/2020**
 Location: **County Line Road & Shady Lane/Drivewayl**
Germantown, WI

Mainline Name: **County Line Road**
 Sidestreet Name: **Driveway (FROM NORTH)**

Left/Thru Out Allowed (1=yes, 0=no): **1**
 T-Intersection (1=yes, 0=no): **0**
 Design Speed from Left: **40 mph** 58.67 fps
 Design Speed from Right: **40 mph** 58.67 fps
 Median Width: **28 feet** 2.33 equivalent lanes
 Near Side Right: **1 lane or taper**
 Near Side Thru: **2 lane(s)**
 Far Side Thru: **2 lane(s)**
 Far Side Right: **1 lane or taper**

Design Vehicles:

P	SU	WB
X	X	

 (place an "X")

CASE B1: Left Turn from Minor Street or Median (driver looking right)

	MINIMUM ISD			DESIRABLE ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	7.5	9.5	11.5	10.0	12.0	13.0
Additional Time Gap, sec:	0.0	3.1	3.1	0.0	3.1	3.1
Total Time Gap, sec:	7.5	12.6	14.6	10.0	15.1	16.1
Case B1 ISD, feet:	440.0	739.2	856.5	586.7	885.9	944.5
Rounded Case B1 ISD, feet:	445	740	860	590	890	945

CASE B2: Right Turn from Minor Street (driver looking left)

	MINIMUM ISD			DESIRABLE ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.5	8.5	10.5	8.0	10.0	12.0
Additional Time Gap, sec:	0.5	0.7	0.7	0.5	0.7	0.7
Total Time Gap, sec:	7.0	9.2	11.2	8.5	10.7	12.7
Case B2 ISD, feet:	410.7	539.7	657.1	498.7	627.7	745.1
Rounded Case B2 ISD, feet:	415	540	660	500	630	750

CASE B3: Crossing from Minor Street (driver looking left)

	MINIMUM ISD			DESIRABLE ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.5	8.5	10.5	7.0	10.0	13.0
Additional Time Gap, sec:	0.5	0.7	0.7	0.5	0.7	0.7
Total Time Gap, sec:	7.0	9.2	11.2	7.5	10.7	13.7
Case B3 ISD, feet:	410.7	539.7	657.1	440.0	627.7	803.7
Rounded Case B3 ISD, feet:	415	540	660	445	630	805

CASE B3: Crossing from Minor Street or Median (driver looking right)

	MINIMUM ISD			DESIRABLE ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	6.5	8.5	10.5	7.0	10.0	13.0
Additional Time Gap, sec:	0.5	4.5	4.5	0.5	4.5	4.5
Total Time Gap, sec:	7.0	13.0	15.0	7.5	14.5	17.5
Case B3 ISD, feet:	410.7	762.7	880.0	440.0	850.7	1026.7
Rounded Case B3 ISD, feet:	415	765	885	445	855	1030

CASE F: Left from Major to Minor (driver looking to left of access)

	MINIMUM ISD			DESIRABLE ISD		
	P	SU	WB	P	SU	WB
Base Time Gap, sec:	5.5	6.5	7.5	8.0	8.0	8.0
Additional Time Gap, sec:	1.0	1.4	1.4	1.0	1.4	1.4
Total Time Gap, sec:	6.5	7.9	8.9	9.0	9.4	9.4
Case F ISD, feet:	381.3	463.5	522.1	528.0	551.5	551.5
Rounded Case F ISD, feet:	385	465	525	530	555	555

CONTROLLING DISTANCES:

	MINIMUM ISD			DESIRABLE ISD		
	P	SU	WB	P	SU	WB
To Left of Access:	415	540	660	500	630	805
To Right of Access:	445	765	885	590	890	1030
Left-Turn from Mainline:	385	465	525	530	555	555

NOTES: A median width of 25' or more necessary for two-stage of 19' P-Vehicle
 A median width of 36' or more necessary for two-stage of 30' SU-Vehicle
 A median width of 71' or more necessary for two-stage of 65' WB-Vehicle

ISD CALCULATIONS

Performed by: MPMay Date: 12/10/2020
 Location: County Line Road & Shady Lane/Driveway
Germantown, WI

SPECIAL INSTRUCTIONS:

Development Driveway is on the north side of County Lane at Shady Lane (North to bottom of page)

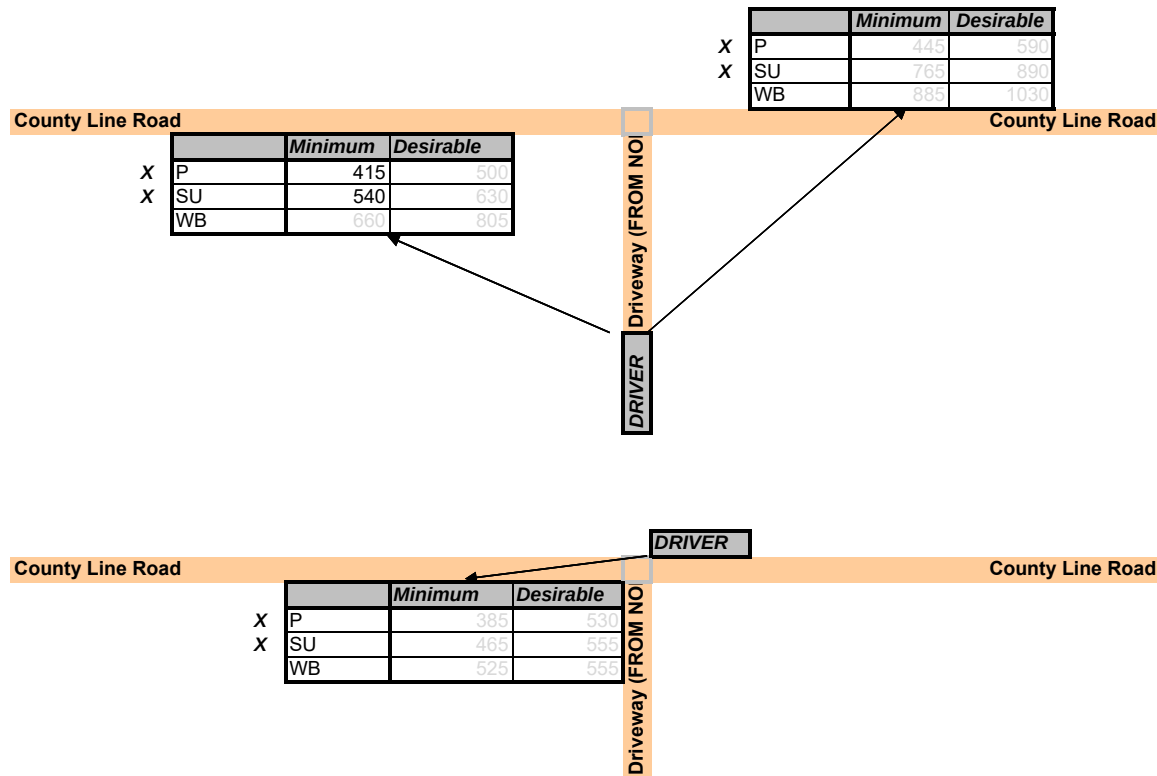
P-veh eye: 3.5-ft; SU/WB-veh eye = 7.6-ft; Object = 3.5-ft

Check *minimum* distances.

If minimum distance not met, record where distance is met by holding eye location constant.

Also, if not met, take photo to minimum distance and indicate how close eye must be to south edge of sidewalk.

Lastly, please check the SSD of westbound traffic approaching the Development Driveway (305-feet)



APPENDIX B

YEAR 2020 EXISTING TRAFFIC PEAK HOUR ANALYSIS OUTPUTS

Lanes, Volumes, Timings

150: Shady Lane/Development Drwy & County Line Road

12/10/2020

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔	↔	↔	↔↔	↔		↔	↔		↔↔	
Traffic Volume (vph)	5	920	60	35	1085	5	55	1	65	5	1	5
Future Volume (vph)	5	920	60	35	1085	5	55	1	65	5	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	125		105	190		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor				0.850			0.850			0.850		
Frt Protected	0.950			0.950				0.953			0.978	
Satd. Flow (prot)	1736	3471	1553	1752	3505	1568	0	1793	1599	0	1544	0
Frt Permitted	0.950			0.950				0.953			0.978	
Satd. Flow (perm)	1736	3471	1553	1752	3505	1568	0	1793	1599	0	1544	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		448			498			191			162	
Travel Time (s)		8.7			9.7			5.2			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	1%	1%	1%	13%	13%	13%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%			0%			0%			0%		
Adj. Flow (vph)	5	989	65	38	1167	5	59	1	70	5	1	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	989	65	38	1167	5	0	60	70	0	11	0
Sign Control	Free			Free			Stop			Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

TADI

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Synchro 11 Report

HCM 6th TWSC

150: Shady Lane/Development Drwy & County Line Road

12/10/2020

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔	↔	↔	↔↔	↔		↔	↔		↔↔	
Traffic Vol, veh/h	5	920	60	35	1085	5	55	1	65	5	1	5
Future Vol, veh/h	5	920	60	35	1085	5	55	1	65	5	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	125	-	105	190	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	3	3	3	1	1	1	13	13	13
Mvmt Flow	5	989	65	38	1167	5	59	1	70	5	1	5

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1172	0	0	1054	0	0	1659	2247	495	1748	2307	584
Stage 1	-	-	-	-	-	-	999	999	-	1243	1243	-
Stage 2	-	-	-	-	-	-	660	1248	-	505	1064	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.52	6.52	6.92	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.76	5.76	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.51	4.01	3.31	3.63	4.13	3.43
Pot Cap-1 Maneuver	*973	-	-	982	-	-	*65	42	*735	*49	33	*635
Stage 1	-	-	-	-	-	-	*655	582	-	*523	476	-
Stage 2	-	-	-	-	-	-	*621	489	-	*670	511	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	*973	-	-	982	-	-	*62	40	*735	*43	32	*635
Mov Cap-2 Maneuver	-	-	-	-	-	-	*309	253	-	*267	226	-
Stage 1	-	-	-	-	-	-	*651	579	-	*520	457	-
Stage 2	-	-	-	-	-	-	*590	469	-	*602	508	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0		0.3		14.6		15.5
HCM LOS					B		C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	735	*973	-	-	982	-	-	355
HCM Lane V/C Ratio	0.196	0.095	0.006	-	-	0.038	-	-	0.033
HCM Control Delay (s)	19.5	10.4	8.7	-	-	8.8	-	-	15.5
HCM Lane LOS	C	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.3	0	-	-	0.1	-	-	0.1

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

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Synchro 11 Report

Lanes, Volumes, Timings

150: Shady Lane/Development Drwy & County Line Road

12/10/2020

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔	↔	↔	↔↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	5	815	55	60	1335	1	60	1	85	5	5	5
Future Volume (vph)	5	815	55	60	1335	1	60	1	85	5	5	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	125		105	190		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.850			0.850			0.850			0.955		
Flt Protected	0.950			0.950				0.953			0.984	
Satd. Flow (prot)	1787	3574	1599	1770	3539	1583	0	1793	1599	0	1768	0
Flt Permitted	0.950			0.950				0.953			0.984	
Satd. Flow (perm)	1787	3574	1599	1770	3539	1583	0	1793	1599	0	1768	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		448			498			191			162	
Travel Time (s)		8.7			9.7			5.2			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%			0%			0%			0%		
Adj. Flow (vph)	5	840	57	62	1376	1	62	1	88	5	5	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	840	57	62	1376	1	0	63	88	0	15	0
Sign Control	Free			Free			Stop			Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

TADI

Z:\Shared\W\12610 - Taco Bell Germantown\Analysis\1. 2020 Exist - Upstream Signals\Wkday PM Peak.syn

Synchro 11 Report

HCM 6th TWSC

150: Shady Lane/Development Drwy & County Line Road

12/10/2020

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔	↔	↔	↔↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	5	815	55	60	1335	1	60	1	85	5	5	5
Future Vol, veh/h	5	815	55	60	1335	1	60	1	85	5	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	125	-	105	190	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	2	2	2	1	1	1	1	1	1
Mvmt Flow	5	840	57	62	1376	1	62	1	88	5	5	5

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1377	0	0	897	0	0	1665	2351	420	1931	2407	688
Stage 1	-	-	-	-	-	-	850	850	-	1500	1500	-
Stage 2	-	-	-	-	-	-	815	1501	-	431	907	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	*809	-	-	*1112	-	-	*188	*164	*745	*188	*164	*540
Stage 1	-	-	-	-	-	-	*703	*616	-	*509	*446	-
Stage 2	-	-	-	-	-	-	*509	*446	-	*703	*616	-
Platoon blocked, %	1	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	*809	-	-	*1112	-	-	*175	*154	*745	*157	*154	*540
Mov Cap-2 Maneuver	-	-	-	-	-	-	*330	*293	-	*313	*286	-
Stage 1	-	-	-	-	-	-	*699	*612	-	*506	*421	-
Stage 2	-	-	-	-	-	-	*470	*421	-	*615	*612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	13.8	15.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	329	745	*809	-	-	*1112	-	-	351
HCM Lane V/C Ratio	0.191	0.118	0.006	-	-	0.056	-	-	0.044
HCM Control Delay (s)	18.5	10.5	9.5	-	-	8.4	-	-	15.7
HCM Lane LOS	C	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.4	0	-	-	0.2	-	-	0.1

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

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Synchro 11 Report

Lanes, Volumes, Timings

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩	↗	↘	↩	↗	↘	↩	↗	↘	↩	↗	↘
Traffic Volume (vph)	5	1210	120	65	1415	1	90	1	135	1	1	5
Future Volume (vph)	5	1210	120	65	1415	1	90	1	135	1	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	125		105	190		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850			0.850			0.904
Flt Protected	0.950			0.950				0.953				0.993
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	0	1793	1599	0	1689	0
Flt Permitted	0.950			0.950				0.953				0.993
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	0	1793	1599	0	1689	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		448			498			191			162	
Travel Time (s)		8.7			9.7			5.2			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	5	1260	125	68	1474	1	94	1	141	1	1	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	1260	125	68	1474	1	0	95	141	0	7	0
Sign Control	Free			Free			Stop			Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

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Synchro 11 Report

HCM 6th TWSC

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↩	↗	↘	↩	↗	↘	↩	↗	↘	↩	↗	↘
Traffic Vol, veh/h	5	1210	120	65	1415	1	90	1	135	1	1	5
Future Vol, veh/h	5	1210	120	65	1415	1	90	1	135	1	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	125	-	105	190	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	5	1260	125	68	1474	1	94	1	141	1	1	5
Major/Minor												
Major1	Major2	Minor1	Minor2									
Conflicting Flow All	1475	0	0	1385	0	0	2144	2881	630	2251	3005	737
Stage 1	-	-	-	-	-	-	1270	1270	-	1610	1610	-
Stage 2	-	-	-	-	-	-	874	1611	-	641	1395	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	*777	-	-	800	-	-	*28	*16	*623	*23	13	*518
Stage 1	-	-	-	-	-	-	*588	*515	-	*436	393	-
Stage 2	-	-	-	-	-	-	*488	*393	-	*588	422	-
Platoon blocked, %	1	-	-	1	-	-	-	-	1	-	-	1
Mov Cap-1 Maneuver	*777	-	-	800	-	-	*26	*15	*623	*17	12	*518
Mov Cap-2 Maneuver	-	-	-	-	-	-	*239	*198	-	*193	168	-
Stage 1	-	-	-	-	-	-	*584	*512	-	*434	360	-
Stage 2	-	-	-	-	-	-	*441	*360	-	*451	419	-
Approach												
EB	WB	NB	SB									
HCM Control Delay, s	0	0.4	19.5	15.9								
HCM LOS			C	C								
Minor Lane/Major Mvmt												
NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	238	623	*777	-	-	800	-	-	337			
HCM Lane V/C Ratio	0.398	0.226	0.007	-	-	0.085	-	-	0.022			
HCM Control Delay (s)	29.8	12.5	9.7	-	-	9.9	-	-	15.9			
HCM Lane LOS	D	B	A	-	-	A	-	-	C			
HCM 95th %tile Q(veh)	1.8	0.9	0	-	-	0.3	-	-	0.1			
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

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Synchro 11 Report

APPENDIX C

YEAR 2021 BUILD TRAFFIC WITH TACO BELL PEAK HOUR ANALYSIS OUTPUTS

Lanes, Volumes, Timings

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔	↔	↔	↔↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	20	910	60	35	1070	25	55	1	65	20	1	25
Future Volume (vph)	20	910	60	35	1070	25	55	1	65	20	1	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	125		105	190		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850			0.850			0.850		0.927	
Flt Protected	0.950			0.950				0.953			0.978	
Satd. Flow (prot)	1736	3471	1553	1752	3505	1568	0	1793	1599	0	1524	0
Flt Permitted	0.950			0.950				0.953			0.978	
Satd. Flow (perm)	1736	3471	1553	1752	3505	1568	0	1793	1599	0	1524	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		448			498			191			162	
Travel Time (s)		8.7			9.7			5.2			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	1%	1%	1%	13%	13%	13%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	22	978	65	38	1151	27	59	1	70	22	1	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	978	65	38	1151	27	0	60	70	0	50	0
Sign Control	Free			Free			Stop			Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

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Synchro 11 Report

HCM 6th TWSC

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔	↔	↔	↔↔	↔		↔	↔		↔	↔
Traffic Vol, veh/h	20	910	60	35	1070	25	55	1	65	20	1	25
Future Vol, veh/h	20	910	60	35	1070	25	55	1	65	20	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	125	-	105	190	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	4	4	3	3	3	1	1	1	13	13	13
Mvmt Flow	22	978	65	38	1151	27	59	1	70	22	1	27

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1178	0	0	1043	0	0	1674	2276	489	1761	2314	576
Stage 1	-	-	-	-	-	-	1022	1022	-	1227	1227	-
Stage 2	-	-	-	-	-	-	652	1254	-	534	1087	-
Critical Hdwy	4.18	-	-	4.16	-	-	7.52	6.52	6.92	7.76	6.76	7.16
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.76	5.76	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.76	5.76	-
Follow-up Hdwy	2.24	-	-	2.23	-	-	3.51	4.01	3.31	3.63	4.13	3.43
Pot Cap-1 Maneuver	*973	-	-	996	-	-	*63	40	*735	*48	32	*635
Stage 1	-	-	-	-	-	-	*626	563	-	*542	489	-
Stage 2	-	-	-	-	-	-	*621	484	-	*670	492	-
Platoon blocked, %	1	-	-	1	-	-			1			1
Mov Cap-1 Maneuver	*973	-	-	996	-	-	*~ 57	38	*735	*41	30	*635
Mov Cap-2 Maneuver	-	-	-	-	-	-	*290	241	-	*266	222	-
Stage 1	-	-	-	-	-	-	*611	550	-	*530	471	-
Stage 2	-	-	-	-	-	-	*570	465	-	*592	481	-

Approach	EB		WB		NB		SB
HCM Control Delay, s	0.2		0.3		15.2		15.7
HCM LOS					C		C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	289	735	*973	-	-	996	-	-	386
HCM Lane V/C Ratio	0.208	0.095	0.022	-	-	0.038	-	-	0.128
HCM Control Delay (s)	20.7	10.4	8.8	-	-	8.8	-	-	15.7
HCM Lane LOS	C	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.8	0.3	0.1	-	-	0.1	-	-	0.4

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

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Synchro 11 Report

Lanes, Volumes, Timings

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↕	↔	↕↕	↕	↔	↕	↕	↔	↕↕	↕
Traffic Volume (vph)	10	810	55	60	1325	20	60	1	85	15	1	15
Future Volume (vph)	10	810	55	60	1325	20	60	1	85	15	1	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%			0%			0%			0%		
Storage Length (ft)	125		105	190		0	0		0	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt	0.850			0.850			0.850			0.935		
Flt Protected	0.950			0.950				0.953			0.976	
Satd. Flow (prot)	1787	3574	1599	1770	3539	1583	0	1793	1599	0	1717	0
Flt Permitted	0.950			0.950				0.953			0.976	
Satd. Flow (perm)	1787	3574	1599	1770	3539	1583	0	1793	1599	0	1717	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		448			498			191			162	
Travel Time (s)		8.7			9.7			5.2			4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%			0%			0%			0%		
Adj. Flow (vph)	10	835	57	62	1366	21	62	1	88	15	1	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	835	57	62	1366	21	0	63	88	0	31	0
Sign Control	Free			Free			Stop			Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

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Synchro 11 Report

HCM 6th TWSC

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↕	↕	↔	↕↕	↕	↔	↕	↕	↔	↕↕	↕
Traffic Vol, veh/h	10	810	55	60	1325	20	60	1	85	15	1	15
Future Vol, veh/h	10	810	55	60	1325	20	60	1	85	15	1	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	125	-	105	190	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	2	2	2	1	1	1	1	1	1
Mvmt Flow	10	835	57	62	1366	21	62	1	88	15	1	15

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	1387	0	0	892	0	0	1663	2366	418	1928	2402	683
Stage 1	-	-	-	-	-	-	855	855	-	1490	1490	-
Stage 2	-	-	-	-	-	-	808	1511	-	438	912	-
Critical Hdwy	4.12	-	-	4.14	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.22	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	*809	-	-	*1112	-	-	*188	*164	*745	*188	*164	*540
Stage 1	-	-	-	-	-	-	*703	*616	-	*509	*446	-
Stage 2	-	-	-	-	-	-	*509	*445	-	*703	*616	-
Platoon blocked, %	1	-	-	1	-	-	1	1	1	1	1	1
Mov Cap-1 Maneuver	*809	-	-	*1112	-	-	*172	*153	*745	*157	*153	*540
Mov Cap-2 Maneuver	-	-	-	-	-	-	*325	*290	-	*311	*285	-
Stage 1	-	-	-	-	-	-	*694	*608	-	*503	*421	-
Stage 2	-	-	-	-	-	-	*466	*420	-	*611	*608	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.4	14	15.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	324	745	*809	-	-	*1112	-	-	390
HCM Lane V/C Ratio	0.194	0.118	0.013	-	-	0.056	-	-	0.082
HCM Control Delay (s)	18.8	10.5	9.5	-	-	8.4	-	-	15.1
HCM Lane LOS	C	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.4	0	-	-	0.2	-	-	0.3

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

TADI

Z:\Shared\W\12610 - Taco Bell Germantown\Analysis\2. 2021 Build - Upstream Signals\Wkday PM Peak.syn

Synchro 11 Report

Lanes, Volumes, Timings

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	25	1200	120	65	1400	30	90	1	135	25	1	25
Future Volume (vph)	25	1200	120	65	1400	30	90	1	135	25	1	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	0%				0%				0%			
Storage Length (ft)	125			105	190			0	0			0
Storage Lanes	1			1	1			1	0			0
Taper Length (ft)	75			75				75			75	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt			0.850				0.850				0.934	
Flt Protected	0.950			0.950				0.953				0.976
Satd. Flow (prot)	1787	3574	1599	1787	3574	1599	0	1793	1599	0	1715	0
Flt Permitted	0.950			0.950				0.953				0.976
Satd. Flow (perm)	1787	3574	1599	1787	3574	1599	0	1793	1599	0	1715	0
Link Speed (mph)	35				35				25		25	
Link Distance (ft)	448				498				191		162	
Travel Time (s)	8.7				9.7				5.2		4.4	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)	0%				0%				0%		0%	
Adj. Flow (vph)	26	1250	125	68	1458	31	94	1	141	26	1	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	1250	125	68	1458	31	0	95	141	0	53	0
Sign Control	Free			Free			Stop			Stop		
Intersection Summary												
Area Type:	Other											
Control Type:	Unsignalized											

HCM 6th TWSC

150: Shady Lane/Development Drwy & County Line Road

12/22/2020

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	1200	120	65	1400	30	90	1	135	25	1	25
Future Vol, veh/h	25	1200	120	65	1400	30	90	1	135	25	1	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	125	-	105	190	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	26	1250	125	68	1458	31	94	1	141	26	1	26
Major/Minor	Major1	Major2			Minor1			Minor2				
Conflicting Flow All	1489	0	0	1375	0	0	2168	2927	625	2272	3021	729
Stage 1	-	-	-	-	-	-	1302	1302	-	1594	1594	-
Stage 2	-	-	-	-	-	-	866	1625	-	678	1427	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	*777	-	-	812	-	-	*27	15	*623	*22	13	*518
Stage 1	-	-	-	-	-	-	*558	495	-	*456	407	-
Stage 2	-	-	-	-	-	-	*488	382	-	*588	399	-
Platoon blocked, %	1	-	-	1	-	-	-	-	1	-	-	1
Mov Cap-1 Maneuver	*777	-	-	812	-	-	*23	13	*623	*15	12	*518
Mov Cap-2 Maneuver	-	-	-	-	-	-	*219	182	-	*191	162	-
Stage 1	-	-	-	-	-	-	*539	479	-	*441	373	-
Stage 2	-	-	-	-	-	-	*424	350	-	*439	386	-
Approach	EB	WB			NB			SB				
HCM Control Delay, s	0.2	0.4			20.9			21.2				
HCM LOS				C			C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1			
Capacity (veh/h)	219	623	*777	-	-	812	-	-	275			
HCM Lane V/C Ratio	0.433	0.226	0.034	-	-	0.083	-	-	0.193			
HCM Control Delay (s)	33.4	12.5	9.8	-	-	9.8	-	-	21.2			
HCM Lane LOS	D	B	A	-	-	A	-	-	C			
HCM 95th %tile Q(veh)	2	0.9	0.1	-	-	0.3	-	-	0.7			
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

**BUSINESS OF THE PLAN COMMISSION
GERMANTOWN, WI**

MEETING DATE: Monday April 12th, 2021

AGENDA ITEM: New Business

ITEM TITLE: Department of Public Works review of Mequon Road
Street Lighting

SUBMITTED BY: Scott Anderson, Interim Highway Superintendent

SUMMARY EXPLANATION:

Funds were added to the 2021 Highway Department budget in the amount of \$400,000.00 to address a lighting issue discussed at the Public Works committee meeting back in July of 2020. W.E. Energies currently owns and maintains the existing and failing lighting system along Mequon Road between Division East to Pilgrim. Since that time, the Mequon Road corridor lighting project has been discussed with the Public Works Committee on several occasions. The committee and board ultimately decided that it was in the village's best interest to construct a new lighting system in the corridor.

In February, the Public Works Committee approved staff's recommendation to contract with Traffic Engineering Services to design a new lighting system that would be owned by the village and maintained by village staff. At this point in the process, we are looking for input from the Plan Commission on the style and color selection of the of the new materials to be used during the project. Staff has selected two fixture styles and two colors. One fixture and color selection is very similar in nature to the existing lighting used in the corridor. The other selection would bring a new and possibly improved look to the area. Below staff has made a recommendation on both a fixture style and color selection, however staff is open to input from the commission as both selections will do an adequate job lighting Mequon Road. With your packet are some images to aid in your selection. There will also be paint chips for review at the meeting.

ATTACHMENT: ORDINANCE _____ RESOLUTION _____ OTHER x

RECOMMENDATION:

Staff recommends using a Pendent style fixture shown as option #1 or option #3. Staff additionally recommends using black textured paint as part of the project.

COMMITTEE ACTION:

Proper parliamentary procedure to deny a request is to have a motion made in the affirmative and by voting NAY would deny the request if a majority vote.

Acuity Brands

Holophane

ESL2 Pendant - Esplanade® Teardrop Large Roadway LED Pendant

Outdoor LED pendant lighting for streets, parking lots, campuses, commercial developments, plazas, historic districts, village squares, residential areas, parks, walkways, boulevards, and roadways. The Esplanade® Tear Drop LED (Large) expands Holophane's leadership within the market for period-styled luminaires serving urban applications with higher mounting heights. The offering spans a wide range of lumen packages to replace 100-400 watt HPS while keeping with a traditional teardrop day-form. Built on breakthrough LEDs and precision-engineered glass optics, the Esplanade Tear Drop LED provides exceptional illumination for roadway applications while saving energy, and reducing maintenance cost. Also, retrofit kits are available (LTDRLE) for most existing Holophane HID Tear Drop luminaires.



Specifications		Environmental Listing	
Brand	Acuity Brands	Regulatory Listing	ESL2 Teardrop
Light Source	LED	Voltage Rating	120V, 277V, 480V
Lumen Output	1000 LM, 1500 LM, 2000 LM, 2500 LM, 3000 LM, 3500 LM, 4000 LM, 4500 LM, 5000 LM, 5500 LM, 6000 LM, 6500 LM, 7000 LM, 7500 LM, 8000 LM, 8500 LM, 9000 LM, 9500 LM, 10000 LM, 10500 LM, 11000 LM, 11500 LM, 12000 LM, 12500 LM, 13000 LM, 13500 LM, 14000 LM, 14500 LM, 15000 LM, 15500 LM, 16000 LM, 16500 LM, 17000 LM, 17500 LM, 18000 LM, 18500 LM, 19000 LM, 19500 LM, 20000 LM, 20500 LM, 21000 LM, 21500 LM, 22000 LM, 22500 LM, 23000 LM, 23500 LM, 24000 LM, 24500 LM, 25000 LM, 25500 LM, 26000 LM, 26500 LM, 27000 LM, 27500 LM, 28000 LM, 28500 LM, 29000 LM, 29500 LM, 30000 LM, 30500 LM, 31000 LM, 31500 LM, 32000 LM, 32500 LM, 33000 LM, 33500 LM, 34000 LM, 34500 LM, 35000 LM, 35500 LM, 36000 LM, 36500 LM, 37000 LM, 37500 LM, 38000 LM, 38500 LM, 39000 LM, 39500 LM, 40000 LM, 40500 LM, 41000 LM, 41500 LM, 42000 LM, 42500 LM, 43000 LM, 43500 LM, 44000 LM, 44500 LM, 45000 LM, 45500 LM, 46000 LM, 46500 LM, 47000 LM, 47500 LM, 48000 LM, 48500 LM, 49000 LM, 49500 LM, 50000 LM, 50500 LM, 51000 LM, 51500 LM, 52000 LM, 52500 LM, 53000 LM, 53500 LM, 54000 LM, 54500 LM, 55000 LM, 55500 LM, 56000 LM, 56500 LM, 57000 LM, 57500 LM, 58000 LM, 58500 LM, 59000 LM, 59500 LM, 60000 LM, 60500 LM, 61000 LM, 61500 LM, 62000 LM, 62500 LM, 63000 LM, 63500 LM, 64000 LM, 64500 LM, 65000 LM, 65500 LM, 66000 LM, 66500 LM, 67000 LM, 67500 LM, 68000 LM, 68500 LM, 69000 LM, 69500 LM, 70000 LM, 70500 LM, 71000 LM, 71500 LM, 72000 LM, 72500 LM, 73000 LM, 73500 LM, 74000 LM, 74500 LM, 75000 LM, 75500 LM, 76000 LM, 76500 LM, 77000 LM, 77500 LM, 78000 LM, 78500 LM, 79000 LM, 79500 LM, 80000 LM, 80500 LM, 81000 LM, 81500 LM, 82000 LM, 82500 LM, 83000 LM, 83500 LM, 84000 LM, 84500 LM, 85000 LM, 85500 LM, 86000 LM, 86500 LM, 87000 LM, 87500 LM, 88000 LM, 88500 LM, 89000 LM, 89500 LM, 90000 LM, 90500 LM, 91000 LM, 91500 LM, 92000 LM, 92500 LM, 93000 LM, 93500 LM, 94000 LM, 94500 LM, 95000 LM, 95500 LM, 96000 LM, 96500 LM, 97000 LM, 97500 LM, 98000 LM, 98500 LM, 99000 LM, 99500 LM, 100000 LM	Mounting Type	Recessed
CCT	2700 K, 3000 K, 3500 K, 4000 K, 4500 K, 5000 K, 5500 K, 6000 K, 6500 K, 7000 K, 7500 K, 8000 K, 8500 K, 9000 K, 9500 K, 10000 K	Primary Material	Aluminum
CRI	90	Series	ESL2 Teardrop
Environment	Indoor/Outdoor	Product Type	Pendant
Dimming Protocol Compatibility	0-10V, DALI	Architectural Style	Traditional
Compliance Listing	UL, ENEC, CE, RoHS, REACH		

Acuity Brands

Holophane

GBLF3 Pendant

GlasWerks® LED Bern®- Luminescent Pendant Series

Glaswerks® LED is a family of outdoor LED pendants utilizing multiple shapes that incorporate traditional, transitional, and contemporary stylings combined with visually comfortable zero-uplight optics to help preserve the night skies. The third generation GlasWerks Bern® replaces 50-150 watt HID products with an appealing and timeless profile, while adding state-of-the-art LED lighting and controls technology. Robust cast aluminum construction, durable finish and 20kV/10kA surge protection option are just a few of the ways the GlasWerks LED Bern is engineered for an expected 20-year system life. Also, utility-friendly toolless access, prewired terminal block and optional quick-mount fitters are just a few more ways that the new GlasWerks LED can save you time and money on installation and operational costs.



Sternberg Lighting

Libertyville

1914LED

The 1914LED Libertyville series luminaire is a decorative down light fixture consisting of decorative aluminum die castings. The 1914LED now comes with new optics and heat sink technology that far exceed our competition. Sternberg's SoftVue Lens technology optimizes surface brightness to reduce disability and discomfort glare by 50%.

The fixture measures 17" diameter by 35" tall with acrylic or glass teardrop globe; 17" diameter x 21-1/2" tall without lens or 17" diameter x 23-3/4" tall with sag lens. The luminaire shall be UL listed in U.S. and Canada.



Sternberg Lighting

Summit

1912

The 1912 Summit series is a medium scale decorative downlight. The unit is offered with a wide variety of lens and shade options. The Luminaire shall be UL listed in US and Canada.

Dimensions:

1912-FG –18-1/2" wide by 19" tall

1912-SG –18-1/2" wide by 20-3/4" tall

1912-FG-RLM27 –27" wide by 20-3/4" tall

1912-A5 –18-1/2" wide by 29-1/8" tall



*Smaller
1914 better performance*

Sternberg Lighting
Omega LED

Large Scale 1531 LED

The 1531LED Omega series is a large scale, decorative down light fixture with a spun aluminum bell styled dome. The dome features a flared edge (F) style. The luminaire has a hinged door for tool-less driver and LED access.





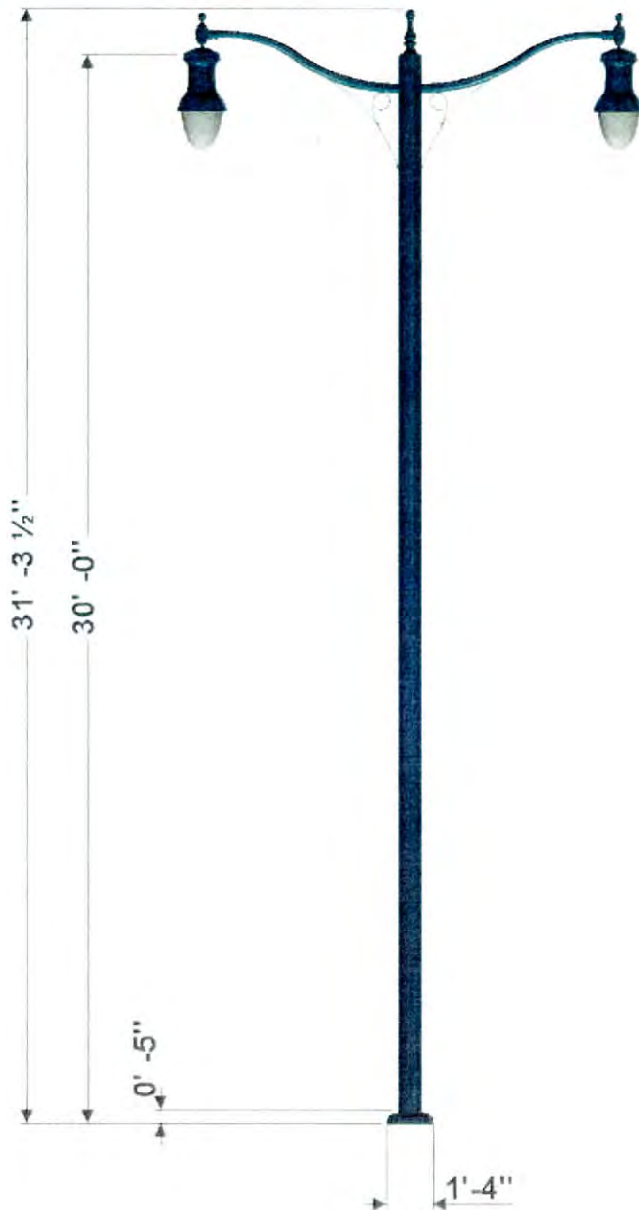
SternbergLighting

ESTABLISHED 1923 / EMPLOYEE OWNED

555 Lawrence Avenue | Roselle, IL 60172 | p 847.588.3400 | www.sternberglighting.com

CONCEPTUAL ASSEMBLY DRAWING. SUBJECT TO ENGINEERING VERIFICATION BY THE FACTORY

Catalog Number: 2A-1914LED-4L30T3-MDL12-G-HS-HB / CAS6 / 3130ARRSS / RPB / VG



Job Name:

Customer Signature:

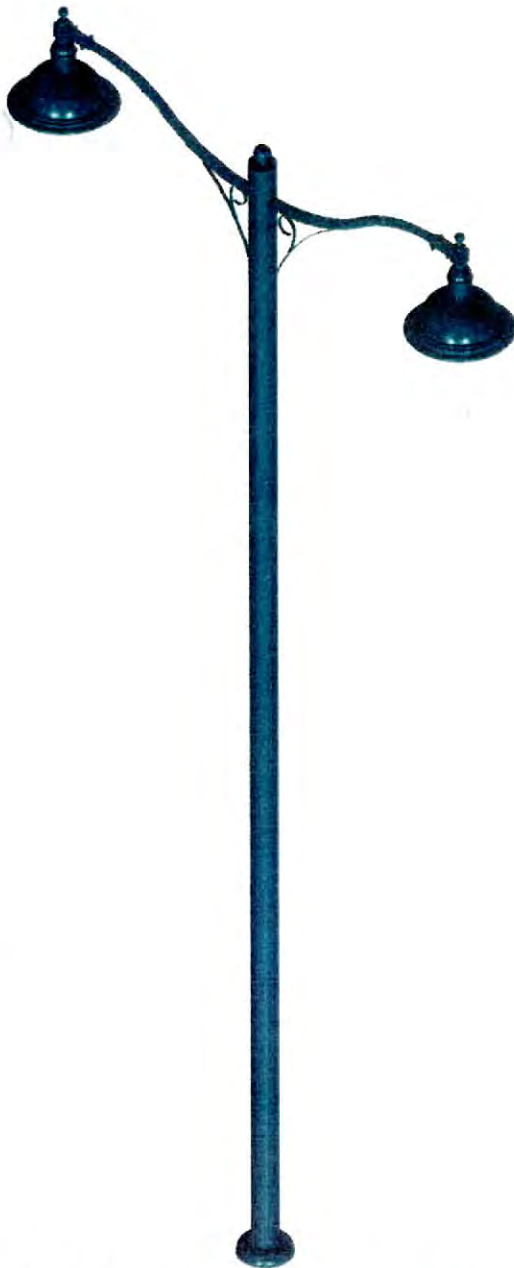
Drawing #38376

Job Location:

Date:

2021/04/05

2 of 2



SternbergLighting

ESTABLISHED 1923 / EMPLOYEE OWNED

555 Lawrence Avenue | Roselle, IL 60172 | p 847.588.3400 | www.sternberglighting.com

CONCEPTUAL ASSEMBLY DRAWING SUBJECT TO ENGINEERING VERIFICATION BY THE FACTORY

NUMBER OF ARMS: 2A-

Number of Arms: Two Arms at 180 degrees (2A)

ARM ROADWAY FIXTURE: 1531LED

The 1531LED Omega is a large scale, decorative downlight fixture with a spun aluminum bell styled dome. The dome is available with two types of shades: round edge or flare edge styles. The luminaire measures 31" outside diameter and 21-1/2" overall height. The luminaire has a hinged door for tool-less driver and LED access. The luminaire is UL listed in US and Canada.

Shade Style & Round (R)

Mounting:

LIGHT SOURCE: -40L30T3-MDL016-FSG

Array: 40 LEDs, 178W for MD_016 (40L)

Color Temp: 3000K (30)

Distribution: Type 3 (T3)

Driver: Multi-Volt Dimmable Low-Range Driver - 120-277V, 160mA (MDL016)

Lens: Frosted Sag Glass (FSG)

ROADWAY OPTIONS: -HSCB

Hangstraight: Clamp Style HS Ball Finial (HSCB)

ARM: CAS6

POLE: /3130ARSS/RSB5/

The Rockford is a clam shell style cast 16" diameter cast aluminum pole base. Throat Size 8".

Model: 3101SS Roadway (/31)

Height: 30 Ft (30)

Pole Shaft Aluminum (A)

Material: Round Smooth Straight (RSS)

Shaft Type: 5" Ball Finial (RSB5)

Finial:

FINISH: VG

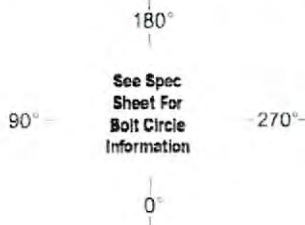
Assembly shall be powder coated to Verde Green finish. Prior to coating, the assembly shall be chemically cleaned and etched in a 5-stage washing system which includes alkaline cleaning, rinsing, phosphoric etching, reverse osmosis water rinsing, and non-chrome sealing to ensure corrosion resistance.

Arms and Accessory

CAS6

Orientation

0, 180



See Specification Sheet

Access Door Orientation:

0°

Street Side Orientation:

180°

Job Name

Customer Signature

Drawing #38380

Job Location

Date:

2021/04/06

1 of 2

Catalog Number: 2A-1531LED-R-40L30T3-MDL016-FSG-HSCB / CAS6 / 3130ARSS / RSB5 / VG



SternbergLighting

ESTABLISHED 1923 / EMPLOYEE OWNED

555 Lawrence Avenue | Roselle, IL 60172 | p 847.588.3400 | www.sternberglighting.com

CONCEPTUAL ASSEMBLY DRAWING, SUBJECT TO ENGINEERING VERIFICATION BY THE FACTORY

Catalog Number: 2-1531LED-R-40L30T3-MDL016-FSG-HSCB / FFA6 / 3130ARRSS / VG



Job Name:

Customer Signature:

Drawing #38382

Job Location:

Date:

2021/04/06

2 of 2

SITE PLAN APPLICATION

4/12/21 Plan Commission Meeting

Turn-Key Solutions / MSI General

Village Planner Report

Germantown, Wisconsin

Summary

MSI General, agent for MCPRE1 LLC, property owner and Turn-Key Solutions, is seeking approval of site development and building plans for a 10,000 sqft addition to the existing 20,050 sqft building located on the 2.02-acre parcel at N117 W19345 Fulton Drive in the Germantown Industrial Park.

Property Location: N117 W19345 Fulton Drive (Germantown Industrial Park)

Applicant/

Property Owner:

Jeremy Flint
MSI General
3350 South River Road
West Bend, WI 53095

Thomas Kintis
MCPRE1 LLC
N19 W24133 Riverwood Drive
Waukesha, WI 53188

Current Zoning: M-1: Limited Industrial

Adjacent Land Uses		Zoning
North	Industrial	M-1
South	Industrial	M-1
East	Industrial	M-1
West	Industrial	M-1

Location Map



Proposal

MSI General, agent for MCPRE1 LLC, property owner and Turn-Key Solutions (TKS), is seeking approval of site development and building plans for a 10,000 sqft addition to the existing 20,050 sqft building located on the 2.02-acre parcel at N117 W19345 Fulton Drive in the Germantown Industrial Park. The proposed addition and site improvements include the following:

- 10,000 sqft building addition
 - o 8,080 sqft production area
 - o 1,930 sqft conference room, breakroom & bathrooms
 - o Painted split-faced CMU exterior walls with painted smooth-faced block accent to match the existing building materials
 - o Aluminum-framed anodized windows & door system
 - o Concrete pad on the south side of the addition for access to one (1) overhead door and three (3) access doors
 - o New metal canopy on existing main entrance
- New water, sanitary & gas utilities
- 1,500 sqft on-site storm water treatment basin (rain garden)
- 10 additional parking spaces
- 2 roof-mounted HVAC units are proposed (set back from roof edge min. 27')

Access & Parking. The property will continue to be served by three (3) existing driveways onto McCormick Drive (2) and Fulton Drive (1). Ten (10) additional parking stalls will be added to the north side parking area bringing the total number of stalls to 50 (vs. the recommended 61 stalls).

Storm Water Management. The proposed addition and parking expansion will add 14,530 sqft of impervious area to the existing 43,840 sqft for a total of 58,370 sqft (66%) leaving 34% of open space on the site (a minimum 20% required). This site is served with storm sewer and the regional stormwater basin located to the south of the subject property. In addition, because the additional impervious area is >5,000 sqft but under ½ acre, MMSD green infrastructure requirements will be met with the addition of a 1,500 sqft “rain garden” to treat the additional run-off.

Landscaping. In addition to the sedge and other wetland-tolerant grasses proposed for the rain garden, additional planting areas are proposed along the north side and at the southwest corner of the proposed addition. These planting include: two (2) deciduous street trees, (5) evergreen trees, and a variety of deciduous shrubs, perennials and ornamental grasses. The site contains existing deciduous trees along the north property line which will also help to screen the new addition to the building.

Lighting. Exterior lighting to be added to the building and site includes:

- (1) 130W 2-LED 4000K 17,000 lumen “neutral white” cut-off type LED fixtures wall-mounted on the building at a height of 19’ on the south exterior walls (Sheet C104);
- (2) 130W 2-LED 4000K 17,000 lumen “neutral white” cut-off type LED fixtures

#

- pole-mounted in the north parking area at a height of 23' (Sheet C104); and
- (7) 18W LED 4000K 2,135 lumen "neutral white" wall packs mounted at a height of 12' along the south, west and north building elevations (Sheet C1-4)

Signage. No new signage is proposed at this time. Any future proposed signage must meet the requirements of Chapter 17.46 of the Village Zoning Code.

Staff Comments

Community Development Department: Planning & Zoning

The additional (10) parking stalls will increase the total number of stalls to 50 stalls for the site. The Zoning Code recommends approximately 61 parking stalls for a 30,450 sqft building (1 stall per 500 square feet). TKS indicates that the current operation has 30 employees in one daytime work shift and the additional spaces are in anticipation of additional future employees. Parking spaces are required to be a minimum of 180 square feet in size (vs. the 162 sqft stalls proposed). The site plan should be updated to show that the proposed parking spaces meet this minimum size requirement (10' x 18').

There are two dumpster "stations" installed on the south side of the property. One was installed pursuant to an approved Site Plan dated 7-28-2008 when a previous 10,000 sqft building and driveway addition was approved by the Plan Commission. However, since 2017, an additional pavement area was added for purposes of storing 2-3 additional construction-type dumpsters. This area was added without Village approval. That area needs to be enclosed and landscaped. A separate plan showing the type of enclosure and landscaping shall be prepared and submitted to the Zoning Administrator for review and approval. The enclosure and landscaping shall be installed concurrent with construction of the building addition and completed prior to issuance of an occupancy permit.

Also, the same Site Plan approved in July 2008 included a landscape plan that indicated a variety of plantings along the west elevation of the building that were never installed. The landscaping plan shall be revised to include the items previously approved but not installed (i.e. and not existing today) for purposes of being installed as part of this building expansion.

Community Development Department: Building Inspection

Inspection Services has indicated that the submission of state-approved plans will be required prior to issuing a building permit along with the required \$20,000 occupancy bond.

Water Utility

As noted in the February 23 memo, there is a concern regarding the existing water service shut off valve or "curb stop". The Utility is recommending that the owner coordinate with the Utility to verify functionality or replace as needed. This requirement is being recommended as a condition of approval.

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Fire & Police Departments

All exterior doors (except primary entrance) shall be clearly marked with reflective 5" or larger letters/numbers to aid emergency personnel access.

Village Engineer/Public Works Department

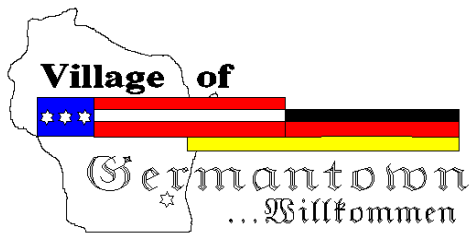
The Village's engineering consultant and Public Works Director has identified several minor plan revisions and technical corrections as set forth in an April 9, 2021 final review memo from the Director of Public Works (copy attached). These plan corrections will need to be addressed in a revised civil construction plan set or in other supplemental information submitted for review and approval by the Village Engineer/Public Works Department prior to issuance of a building permit.

VILLAGE STAFF RECOMMENDATION

APPROVE the site development & building plans for a 10,000 sqft addition to the existing 20,050 sqft building located at N117 W19345 Fulton Drive in the Germantown Industrial Park subject to the following conditions:

1. This approval is subject to all the conditions and requirements set forth herein and adopted by the Plan Commission. Approval is granted for the following plans unless superseded by subsequent plan sheets approved by the Village Planner or Engineer pursuant to revisions required herein and/or by the Plan Commission:
 - a. Architectural plan set dated January 15, 2021 & March 10, 2021 revisions
 - b. Civil Engineering plan dated January 15, 2021 & March 26, 2021 revisions
 - c. Landscaping plan dated January 15, 2021
 - d. Exterior Lighting plan dated January 15, 2021
 - e. Storm Water Management Plan revision dated March 26, 2021
2. All landscaping, grading, paving, storm water management, utility and other improvements shown on the approved site plans shall be installed as approved prior to issuance of an occupancy permit for the building addition unless a cash bond or letter of credit in an amount equal to 120 percent of the estimated installation and material costs reviewed and approved by the Village is submitted to the Village as necessary to ensure that installation of the proposed features and improvements will be completed within one (1) year after issuance of the occupancy permit.
3. All plan revision, technical corrections and storm water management comments discussed by the Public Works Director in the April 9, 2021 review memo shall be addressed and reflected in revised plans and/or supplemental information reviewed and approved by the Village Engineer prior to issuance of a building permit (excluding "early start" site clearing and footing/foundation work approved by the Village and/or WI DSPS).

4. Right-of-way permits are required for any/all construction conducted in the McCormick or Fulton Drive right-of-way. Contact the Public Works Department/Village Engineer for details.
5. The Water Utility is requiring the following:
 - a. The owner shall contact and coordinate with the Village's Water Utility a few weeks prior to installing water laterals to the buildings (262-253-8254). If the curb stops are determined to not function, then a cost estimate for the materials and work necessary to replace the curb stops is required prior to full replacement. Once the estimate is received by the Water Utility, approval will be granted to proceed. If the curb stops need to be replaced, the work shall be done prior to occupancy. The Water Utility will provide all curb stop materials only. Turn-Key Solutions will provide all the necessary labor and equipment to dig and replace the curb stops in the street and or turf. If Turnkey Solutions is going to have an asphalt paving company onsite, the curb stops if located in asphalt will be paved and cost born by Turnkey Solutions.
6. All exterior doors (except primary entrance) shall be clearly marked with reflective 5" or larger letters/numbers to aid emergency personnel access as required by the Police Department.
7. State agency (DSPS) approved plans and a \$20,000 occupancy bond are required by Inspection Services at the time of building permit application. The Village of Germantown is an authorized delegated agent of DSPS to provide all commercial plan review and inspection services through SAFEBuilt of WI and the Village of Germantown.
8. Parking spaces are required to be a minimum of 180 square feet in size (vs. the 162 sqft stalls proposed). The site plan shall be updated to show that the proposed parking spaces meet this minimum size requirement (10' x 18').
9. The landscaping plan shall be revised to include the items previously approved in the July 2008 Site Plan but not installed (i.e. and not existing today). Said plantings shall be installed as part of this building expansion. Said plan shall be submitted to the Village Planner/Zoning Administrator for review and approval prior to issuance of an occupancy permit.
10. The dumpster pad constructed since 2017 is required to be enclosed and screened from view. A revised or separate site and building elevation plan showing the type of dumpster enclosure and landscaping shall be prepared and submitted to the Zoning Administrator for review and approval. The enclosure and landscaping shall be installed concurrent with construction of the building addition and completed prior to issuance of an occupancy permit.



Engineering Department Memorandum

To : Jeffrey W. Retzlaff, AICP, Planning Director/Zoning Administrator
From : Lawrence Ratayczak, P.E., Director of Public Works
Date : April 9, 2021
Re : Turn-Key Solutions

Items Reviewed:

1. Civil Plan Set Dated: 03-26-21
2. Stormwater Management Report Dated: 03-26-21

General Comments:

1. Please respond to each item below. **A written response addressing each item shall be included in your submittal.**
2. The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.
3. The project will require DSPS plumbing and infiltration system review and approval. Please provide a copy of the DSPS approval prior to engineering approval
4. As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).
5. A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.
6. As a guide to the review response: Items in *italics* are resolved or acknowledged, items in regular font are to be addressed yet, items in **Bold** are additional feedback to remaining original comment.

Water Utility Comments:

1. *The water shut off to the building is in question and may not work to provide the needed water shut down for the interior pipe work. Add verbiage "contact and coordinate with the water utility (water office #262-253-8254) a few weeks prior to the relocating of the interior water lateral. If the shut off does not function we request that the onsite plumbing contractor replace the valve, materials will be provided by the water utility. Cost for the work will need prior approval so a quote will be required before moving forward".*

C101 Site Plan

1. Parking spaces are noted as 9' x 18'. Village code requires 180 SF min.

2. Provide dimensions between the building addition and property line.
3. Revised site plan was not included in the plan set provided. Please include a revised site plan with the next submittal.

C102 Grading and Erosion Control Plan

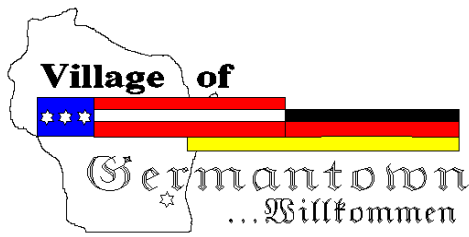
1. *Is curb being added to the south parking lot? Grading plan appears to show curb, but site plan doesn't*
2. *Provide a construction sequence*
3. *Provide typical erosion control notes. Inspection requirements, stabilization timeframes, late season stabilization, etc.*

C500 Construction Details

1. *Add elevations to rain garden detail.*
2. *Provide information on the sequencing of the basin construction and how the basin area will be protected during construction.*
3. *Revise bioretention basin to match WDNR technical standards. Including stone storage layer and underdrain.*

Stormwater Management Comments:

1. *As previously discussed, this project is tributary to a regional basin that has no additional capacity. Please provide a stormwater management plan showing this project will not increase peak flows from the pre-developed condition and will provide 40% tss removal.*
2. *Revise the design criteria section of the report to provide background on why stormwater management is being designed for this site and what requirements are being met.*
3. *Runoff from this site is tributary to the regional stormwater basin. Revise the existing conditions section to indicate this.*
4. *Provide information on the rainfall and distribution used.*
5. *Areas for existing and proposed conditions do not match. Revise areas to match.*
6. *Revise existing condition Tc time to accurately reflect actual Tc time. Show Tc path on the existing exhibit.*
7. *Provide additional information on how the storage volume for the roof drains was determined.*
8. *SLAMM calcs are using 3.6in/hr as the infiltration rate. Provide information showing the existing soils support this infiltration rate.*
9. *Undetained pavement areas do not appear to meet the definition of disconnected. Revise to connected.*
10. *Include boring logs for the other soil borings.*



Engineering Department Memorandum

To : Jeffrey W. Retzlaff, AICP, Planning Director/Zoning Administrator
From : Lawrence Ratayczak, P.E., Director of Public Works
Date : February 23, 2021
Re : Turn-Key Solutions

Items Reviewed:

1. Civil Plan Set Dated: 01-04-21
2. Stormwater Management Report Dated: 01-28-21

General Comments:

1. Please respond to each item below. **A written response addressing each item shall be included in your submittal.**
2. The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.
3. The project will require DSPS plumbing and infiltration system review and approval. Please provide a copy of the DSPS approval prior to engineering approval
4. As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).
5. A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.
6. As a guide to the review response: Items in *italics* are resolved or acknowledged, items in regular font are to be addressed yet, items in **Bold** are additional feedback to remaining original comment.

Water Utility Comments:

1. The water shut off to the building is in question and may not work to provide the needed water shut down for the interior pipe work. Add verbiage "contact and coordinate with the water utility (water office #262-253-8254) a few weeks prior to the relocating of the interior water lateral. If the shut off does not function we request that the onsite plumbing contractor replace the valve, materials will be provided by the water utility. Cost for the work will need prior approval so a quote will be required before moving forward".

C101 Site Plan

1. Parking spaces are noted as 9' x 18'. Village code requires 180 SF min.

2. Provide dimensions between the building addition and property line.

C102 Grading and Erosion Control Plan

1. Is curb being added to the south parking lot? Grading plan appears to show curb, but site plan doesn't
2. Provide a construction sequence
3. Provide typical erosion control notes. Inspection requirements, stabilization timeframes, late season stabilization, etc.

C500 Construction Details

1. Add elevations to rain garden detail.
2. Provide information on the sequencing of the basin construction and how the basin area will be protected during construction.

Stormwater Management Comments:

1. As previously discussed, this project is tributary to a regional basin that has no additional capacity. Please provide a stormwater management plan showing this project will not increase peak flows from the pre-developed condition and will provide 40% tss removal.



To: Lawrence Ratayczak, P.E., Director of Public Works
Jeffrey W. Retzlaff, AICP, Planning Director/Zoning Administrator

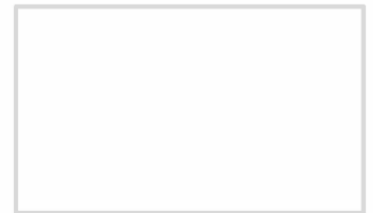
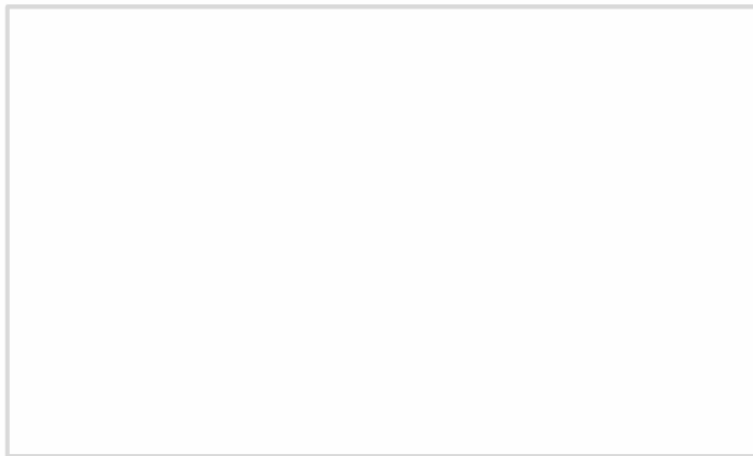
From: Aaron E. Koch, P.E., Senior Project Manager | Principal

Date: March 26, 2021

Subject: Turn-Key Solutions Comment Response

Dear Mr. Ratayczak and Mr. Retzlaff,

Please see the attached responses to the St. Paul Apartments Comment response letter dated 2/23/2021. We have gone through and made all necessary edits per the comments we received. Please see the revised plans attached for your review.



Items Reviewed:

1. Civil Plan Set Dated: 01-04-21
2. Stormwater Management Report Dated: 01-28-21

General Comments:

1. Please respond to each item below. A written response addressing each item shall be included in your submittal.
2. The submitted plans have been reviewed for general conformance with State and Village design guidelines. Additional comments could arise as a result of the plan completion and modifications. The items listed below will need to be fully resolved before the Engineering Dept. can recommend a formal approval of the plans and permit for construction.
3. The project will require DSPS plumbing and infiltration system review and approval. Please provide a copy of the DSPS approval prior to engineering approval
DSPS application in process, approval will be provided once received.
4. As-builts prepared to Village standards shall be prepared and provided to the Village post-construction (for all applicable items).
As-builts will be provided once able.
5. A professional engineer's original seal is to be affixed, signed and dated on the final set of construction plans.
The plans have been stamped with the Professional Engineers seal.
6. As a guide to the review response: Items in italics are resolved or acknowledged, items in regular font are to be addressed yet, items in Bold are additional feedback to remaining original comment.

Water Utility Comments:

1. The water shut off to the building is in question and may not work to provide the needed water shut down for the interior pipe work. Add verbiage "contact and coordinate with the water utility (water office #262-253-8254) a few weeks prior to the relocating of the interior water lateral. If the shut off does not function we request that the onsite plumbing contractor replace the valve, materials will be provided by the water utility. Cost for the work will need prior approval so a quote will be required before moving forward".
This note has been added to the plan.
- 2.

C101 Site Plan

1. Parking spaces are noted as 9' x 18'. Village code requires 180 SF min.

The stalls have been made 20' long to have a minimum 180 sf.

C102 Grading and Erosion Control Plan

February 23, 21

1. Is curb being added to the south parking lot? Grading plan appears to show curb, but site plan doesn't
This is an existing parking lot, there is not being curb added. Curb is being modified where the concrete pad is being added between the building expansion and existing parking lot.

2. Provide a construction sequence
There has been a construction sequence added to the plans.

3. Provide typical erosion control notes. Inspection requirements, stabilization timeframes, late season stabilization, etc.
The typical erosion control notes have been added to the plan.

C500 Construction Details

1. Add elevations to rain garden detail.
Elevations have been added to the rain garden detail.
2. Provide information on the sequencing of the basin construction and how the basin area will be protected during construction.
Information on the sequencing of the basin has been added to the construction details sheet.

Stormwater Management Comments:

1. As previously discussed, this project is tributary to a regional basin that has no additional capacity. Please provide a stormwater management plan showing this project will not increase peak flows from the pre-developed condition and will provide 40% tss removal.
The SWMP has been revised, there is 40% TSS removal and there is not an increase in peak flows from the pre-developed condition.

Jeremy Flint

From: Jeremy Flint
Sent: Tuesday, April 6, 2021 1:24 PM
To: Jeff Retzlaff
Cc: Lori Wittkopp; Jeremy Flint; Lori Johnson
Subject: RE: Turnkey Solutions - Plan Commission 04/12/2021
Attachments: 03 C-101 SITE PLAN_04.06.2021.pdf; 17 A-103 ROOF PLAN_04.06.2021.pdf; 19 A-301 BUILDING SECTIONS_04.06.2021.pdf; 26 A-900 PERSPECTIVES_04.06.2021.pdf

Jeff,
I apologize for the oversight from our architect for not providing the roof plan.
We do have (2) RTUs to be mounted on the proposed building addition.

Both units have been set to the middle of the roof on the proposed addition specifically to hide them from view and to eliminate the need for screening.
(27' from edge of roof on Fulton Dr. & 40' from edge of roof on McCormick Dr.)

A Roof Plan, Section & Renderings are attached illustrating that the RTUs will not be visible from the road.

Also, please note that our response to the Engineering Comments were completed and returned Lori Johnson on March 19th.

Please note that we will deliver hard copies and a digital set for our responses to your comments and Engineering's.
Let me know if you have any additional questions or if there is anything else that you would like me to provide.
Thank you,

Jeremy Flint
Project Executive

262-563-5323 | **direct**

262-389-5198 | **cell**



W215 East Wisconsin Ave. | Nashotah, WI 53058
262.367.3661 | www.msigeneral.com

Mailing Address: P.O. Box 7 | Oconomowoc, WI 53066



From: Jeff Retzlaff <jretzlaff@village.germantown.wi.us>
Sent: Monday, April 5, 2021 7:22 PM
To: Jeremy Flint <jeremy@msigeneral.com>
Subject: RE: Turnkey Solutions - Plan Commission 04/12/2021

EXTERNAL SENDER

Jeremy:

The Turnkey Solutions Site Plan is scheduled for PC review/approval on April 12. The staff report and recommendation will be sent out via email on Friday, April 9.

We did receive a set of comments from the Engineer (copy included) that will be included/reflected in the staff report and recommended conditions of approval.

Feel free to contact the Village's engineering consultant, Brad Seubert, Harwood Engineering, to discuss these comments.

The only other item that staff had is a question about any roof-mounted HVAC units. There isn't a roof plan in the packet and no other descriptive information that states whether there is or isn't RTU's proposed for the addition. Since the conference/office space is on the north side of the addition, the concern is that RTU's would be located close to the edge of the roof and, therefore, visible from Fulton Drive. Can you respond to this question now? There will be a standard condition in the staff report addressing RTU screening in case there are RTU's that require screening.

Thanks.

*Jeffrey W. Retzlaff, AICP
Director, Community Development Department
Village Planner/Zoning Administrator
jretzlaff@village.germantown.wi.us
1-262-250-4735*

From: Jeremy Flint <jeremy@msigeneral.com>
Sent: Tuesday, March 16, 2021 9:46 AM
To: Jeff Retzlaff <jretzlaff@village.germantown.wi.us>; Emily Zandt <ezandt@village.germantown.wi.us>
Cc: Jeremy Flint <jeremy@msigeneral.com>
Subject: Turnkey Solutions - Plan Commission 04/12/2021

Jeff or Emily,

I just wanted to touch base with you regarding a project that we submitted back in February for Plan Commission.

The project is a 10,000 SF addition to Turn-Key Solutions, located at N117W19345 Fulton Dr, Germantown, WI 53022.

I wanted to check in with you to confirm:

- there wasn't anything else you needed from us?
- when we should anticipate any comments from staff review?
- confirm that the Plan Commission meeting was still scheduled for 6:30pm on Monday April 12th (in-person) ?

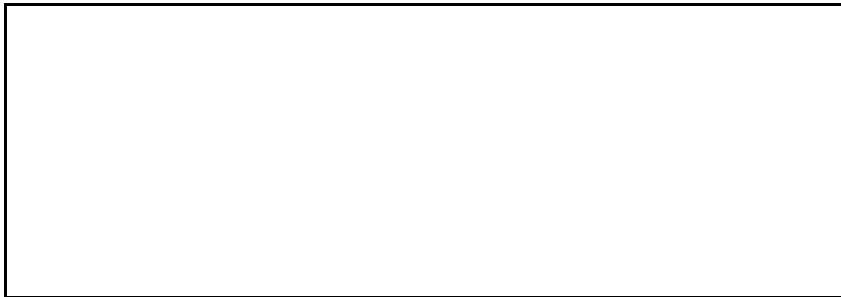
Thank you for your time.

Sincerely,

Jeremy Flint
Project Executive

262-563-5323 | **direct**

262-389-5198 | **cell**



W215 East Wisconsin Ave. | Nashotah, WI 53058
262.367.3661 | www.msigeneral.com

Mailing Address: P.O. Box 7 | Oconomowoc, WI 53066



**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

Jeremy J Flint

MSI General

W215 East Wisconsin Ave.

Nashotah, WI 53058

Phone (262) 389-5198

E-Mail Jeremy@msigeneral.com**PROPERTY OWNER**

Thomas Kintis

MCPRE1 LLC

N19W24133 Riverwood Drive Suite 305

Waukesha, WI 53188

Phone (414) 940-7334

E-Mail TKintis@cgkib.com**2 PROPERTY ADDRESS**

Turn-Key Solutions
N117 W19345 Fulton Dr.
Germantown, WI 53022

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

North North American Composites (Industrial)	South Owner: G-TOWN VENTURES LLC (Industrial)	East Furey Filter & Pump (Industrial)	West ILLING (Warehouse)
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4 READ AND INITIAL THE FOLLOWING:

- ☒ I am aware of the Village of Germantown ordinance requiring fire sprinklers in most new construction.
- ☒ I understand that all new development is subject to Impact and/or Connection Fees that must be paid before building permits will be issued.
- ☒ 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!

 1/29/2021
Applicant Date

 1/29/21
Owner Date



Design Build
Since 1957

January 29, 2021

RE: Turn-Key Solutions – Building Addition

Turn-Key Solutions is planning a 10,000 S.F. addition to their existing facility located at N117 W19345 Fulton Drive in Germantown, WI. The planned addition will allow Turn-Key Solutions to increase their production capabilities while maintaining 100% of their operations at their current Village of Germantown location.

Turn-Key Solutions designs, engineers and manufactures custom industrial tooling, robotic automation solutions and assembly systems for the manufacturing industry. They currently employ a total of 30-people and operate one (1) daytime work shift.

The proposed project scope of work will include:

- 10,000 S.F. building addition
 - Exterior building material sizes, types & colors to “match” existing building.
 - Existing “blue” stripes on building to be painted “red” on the new addition and on the existing building.
- (10) Additional parking stalls are proposed in order to allow for any future growth in total number of employees.
 - (40)-existing + (10)-new = (50) Total proposed Parking Stalls
- Reconfigured Main Building Entrance.
 - New Metal Canopy at building entrance.
- Proposed Utility Work:
 - 10,000 S.F. addition to be located over existing, Water & Gas utility lines.
 - Proposed new connection to existing Water Utility.
 - Proposed new connection to existing Sanitary Utility.
 - Proposed new connection to existing Gas Utility.

We are excited to present this project to the staff at the Village of Germantown and we look forward to working with your teams during the review and approval process.

MSI General

Corporation

P.O. Box 7

Oconomowoc

Wisconsin

53066

262.367.3661

Fax 262.367.7390

www.msigeneral.com

Sincerely,

MSI GENERAL CORPORATION

Jeremy Flint
Project Executive



ENGINEERS

12953





ENGINEERS

CONTRACTORS



P12953





ENGINEERS

ARCHITECTS



NORTH

APPROXIMATE SOIL BORING LOCATION

P12953



ENGINEERS

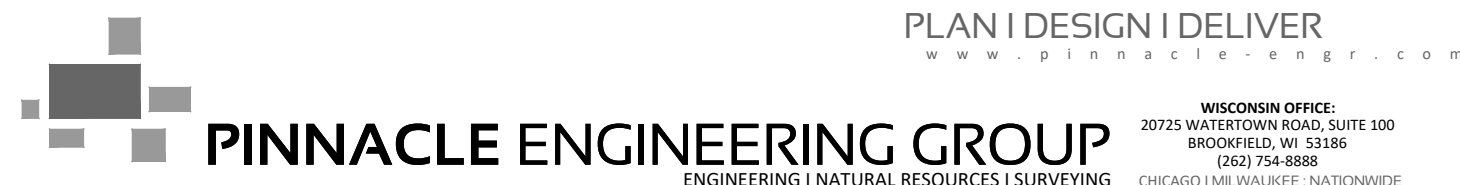
CONTRACTORS



ARCHITECTS

C-102
PROJECT NUMB
P12953

P12953





MSI General Corporation
W215 E. Wisconsin Ave.
Nashotah, WI 53058
Phone: 262-367-3661
Fax: 262-367-7390

WWW.MSIGENERAL.COM
SINGLE SOURCE RESPONSIBILITY™

SUE DATES:	
Proposal:	01/15/2022
Advert:	12/16/2022
Contract:	02/11/2022
Ann Commission:	04/12/2022
Final Submittal / Permit:	03/03/2022
Build:	--/--/--

VISIONS:



PROJECT NAME
Turn-Key Solutions Addition

STREET ADDRESS
117 W19346 Fulton Dr.

TY/ STATE / ZIP
ermantown, WI, 53022

ALL WORK TO BE COMPLETED AS SHOWN, AND IN ACCORDANCE WITH THE LATEST EDITION OF THE CSI GENERAL MASTER SPECIFICATION

ARCHITECT: BFW ENGINEER: AGR REVIEWED BY: BJZ

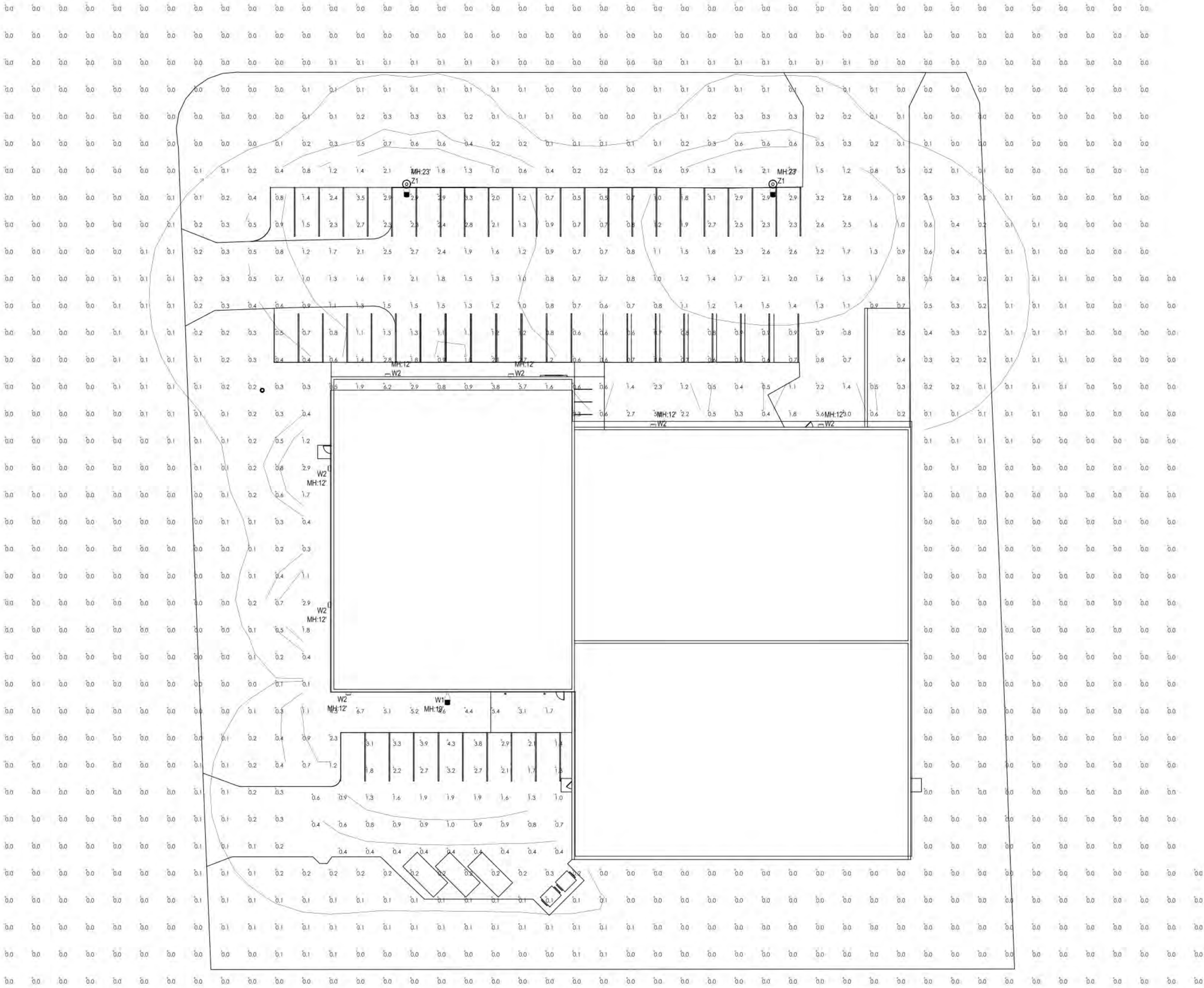
SITE PHOTOMETRIC PLAN

SHEET NUMBER:

C-105

PROJECT NUMBER: P1295

4513



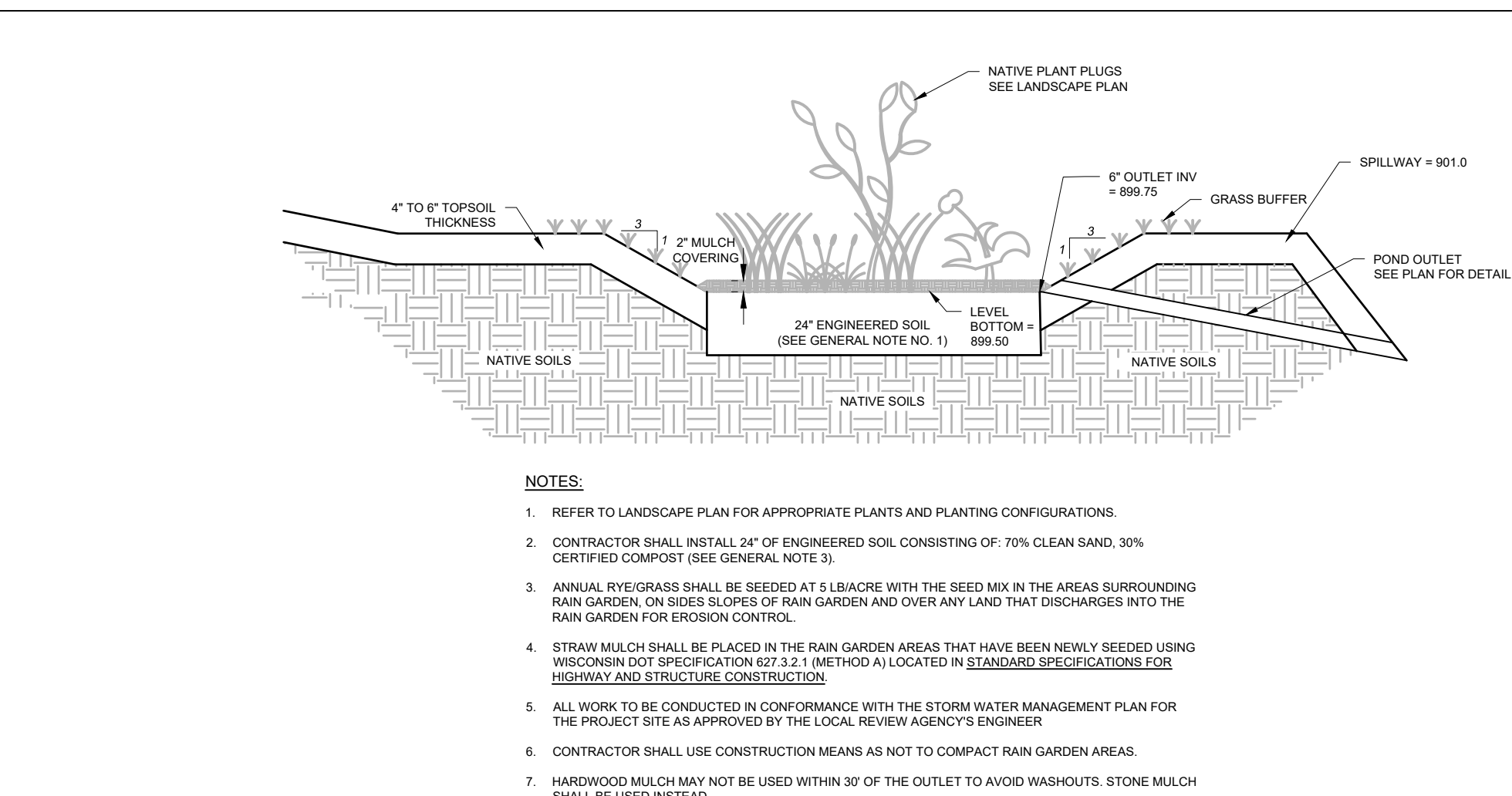
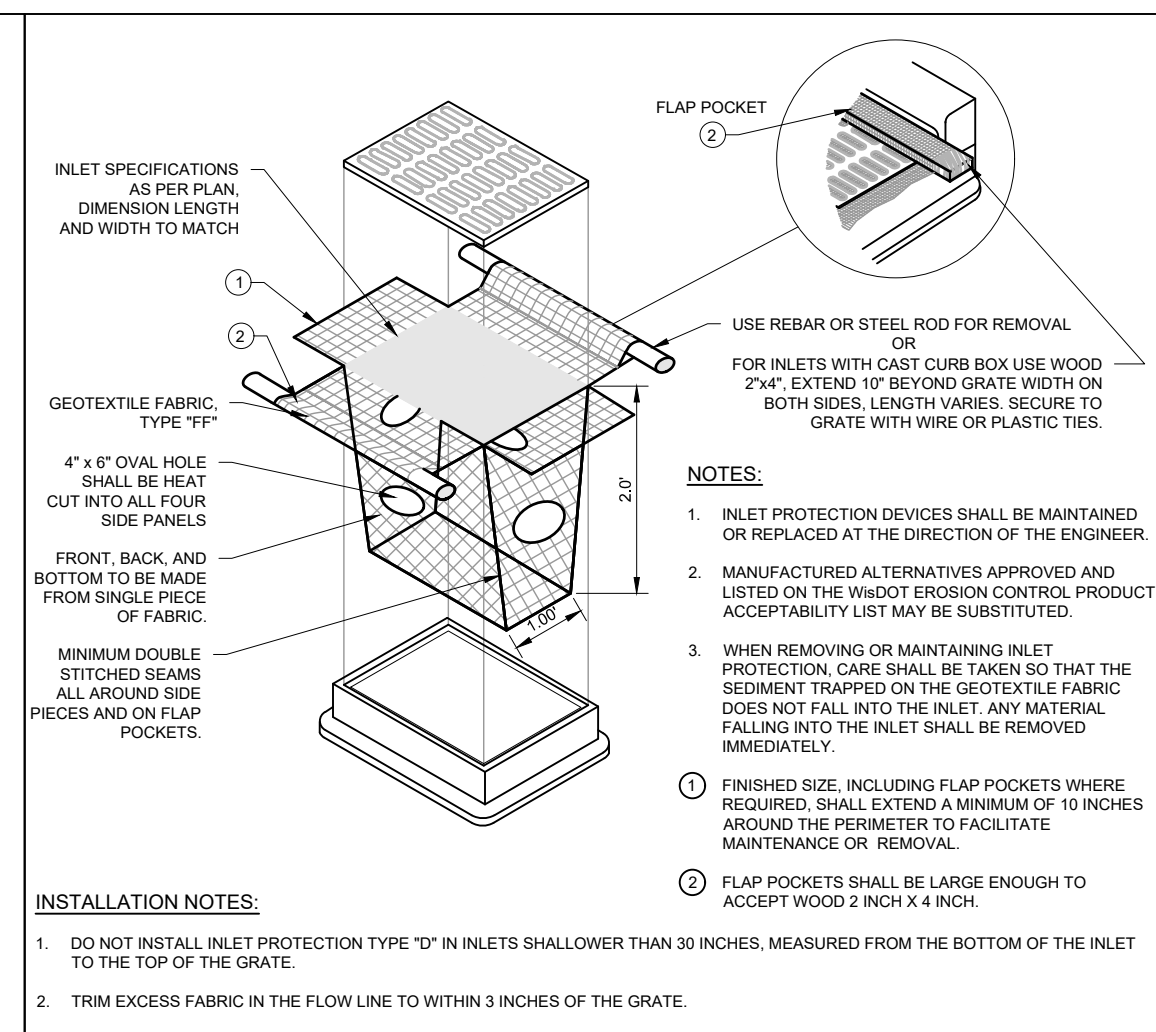
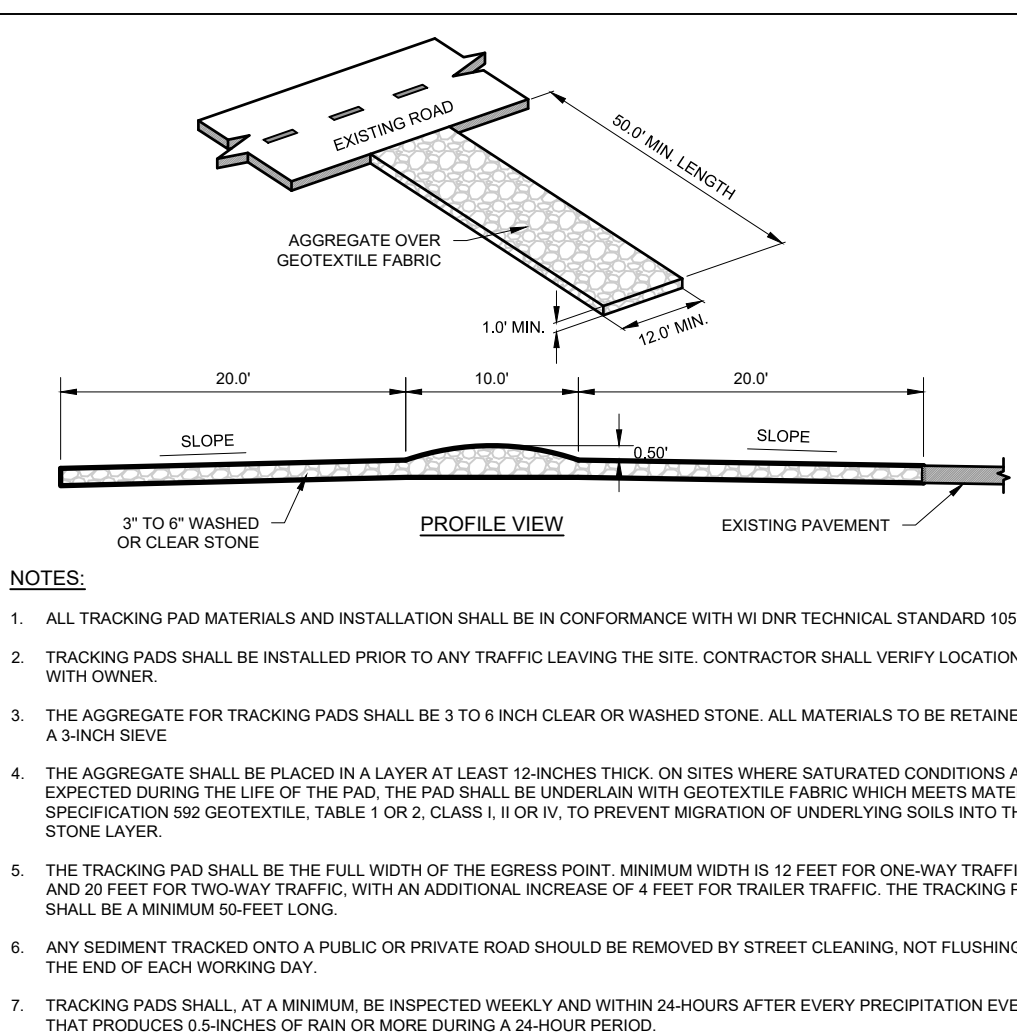
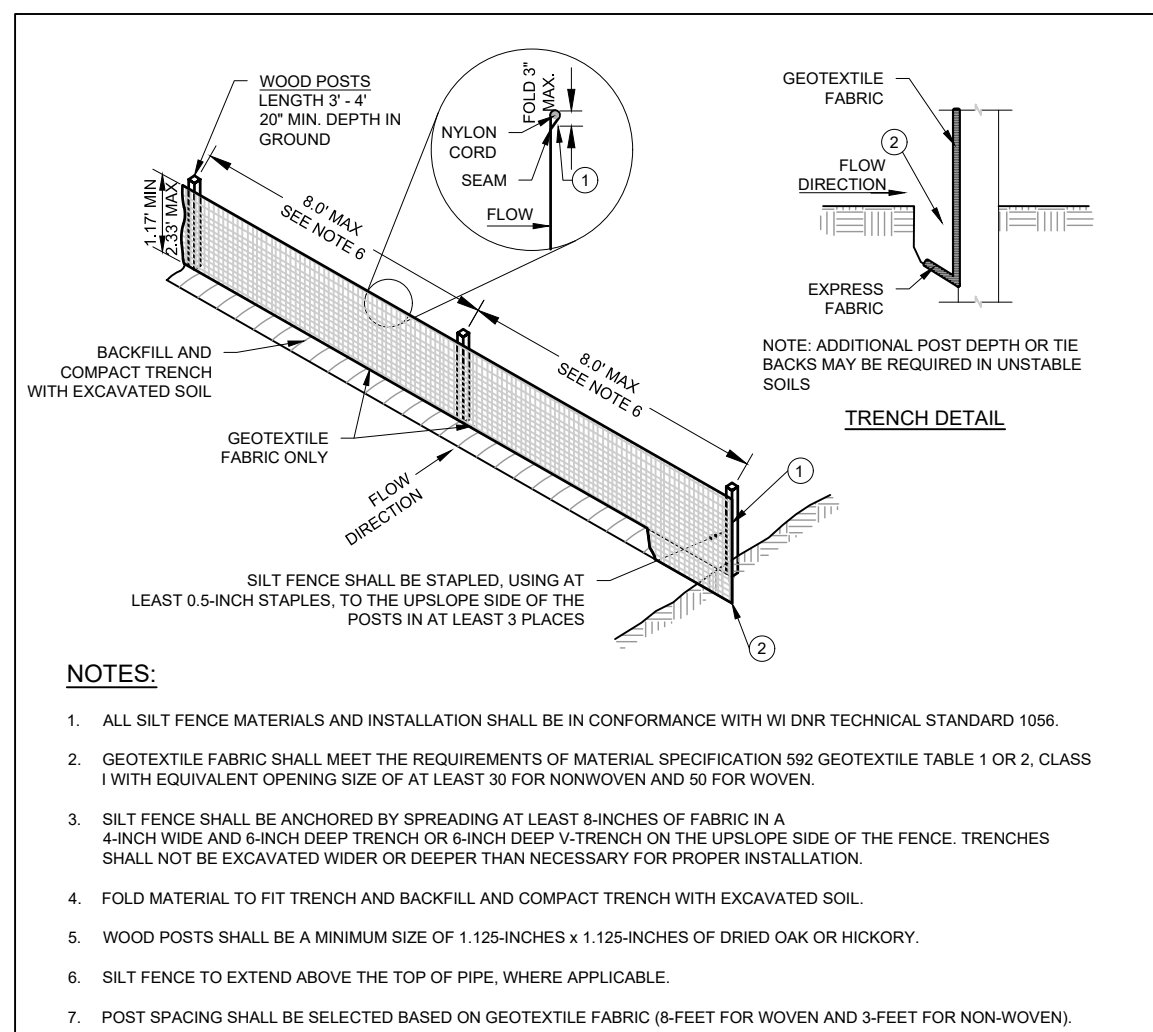
Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
BACK LOT	Illuminance	Fc	1.51	4.3	0.4	3.78	10.75
LARGE LOT	Illuminance	Fc	1.39	3.5	0.4	3.48	8.75
JTE	Illuminance	Fc	0.18	6.7	0.0	N/A	N/A

Luminaire Schedule							
Symbol	Qty	Label	Description	Arrangement	Lum. Lumens	Lum. Watts	LLF
	2	Z1	PRV-C40-D-UNV-T4-82	3H/1G/LE	17087	131	0.900
	1	W1	PRV-C40-D-UNV-T4-82	3H/1G/LE	17087	131	0.900
	7	W2	XTOR28	3H/1G/LE	2135	18.2	0.900



SITE PHOTOMETRICS

SCALE: 1/16" = 1'-0"



GENERAL SPECIFICATIONS FOR CONSTRUCTION ACTIVITIES

1. THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO THE WISCONSIN D & T STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION, THE STANDARD SPECIFICATIONS FOR SEWER & WATER IN WISCONSIN, AND WISCONSIN ADMINISTRATIVE CODE, SPE 390, 382-383, AND THE LOCAL ORDINANCES AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR THE CONSTRUCTION OF THE WORK. THE CONTRACTOR SHALL CONDUCT HIS WORK ACCORDING TO THE REQUIREMENTS OF THE PERMITS.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE MUNICIPALITY FORTY- EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.
4. THE MUNICIPALITY SHALL HAVE THE RIGHT TO INSPECT, APPROVE, AND REJECT THE CONSTRUCTION OF THE PUBLIC PORTIONS OF THE WORK. THE OWNER SHALL HAVE THE RIGHT TO INSPECT, APPROVE, AND REJECT THE CONSTRUCTION OF ALL PRIVATE PORTIONS OF THE WORK.
5. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, THE ENGINEER, AND THE MUNICIPALITY, THEIR AGENTS, ETC. FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION, AND TESTING OF THE WORK ON THIS PROJECT.
6. SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL UTILITY INFORMATION SHOWN ON THE PLANS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CALL DIGGER'S HOTLINE AT 1-800-242-8511 TO NOTIFY THE UTILITIES OF HIS INTENTIONS, AND TO REQUEST FIELD STAKING OF EXISTING UTILITIES.
8. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION OR ANY OTHER LAND DISTURBING ACTIVITY. FOLLOW THE SEQUENCE OF CONSTRUCTION ON THE EROSION CONTROL PLAN FOR MORE DETAILS.
9. INSPECTIONS SHALL BE MADE WEEKLY OR AFTER EVERY RAINFALL OF 0.5" OR MORE. REPAIRS SHALL BE MADE IMMEDIATELY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EROSION CONTROL FACILITIES ONCE THE THREAT OF EROSION HAS PASSED WITH THE APPROVAL OF THE GOVERNING AGENCY.
10. ANY ADJACENT PROPERTIES OR ROAD RIGHT-OF-WAYS WHICH ARE DAMAGED DURING CONSTRUCTION MUST BE RESTORED BY THE CONTRACTOR.
11. TRASH AND DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE ON THIS SITE AND THE SITE SHALL BE CLEAN UPON COMPLETION OF WORK.
12. THE OWNER SHALL HAVE THE RIGHT TO HAVE ALL MATERIALS USED IN CONSTRUCTION TESTED FOR COMPLIANCE WITH THESE SPECIFICATIONS.

SPECIFICATIONS FOR GRADING & EROSION CONTROL

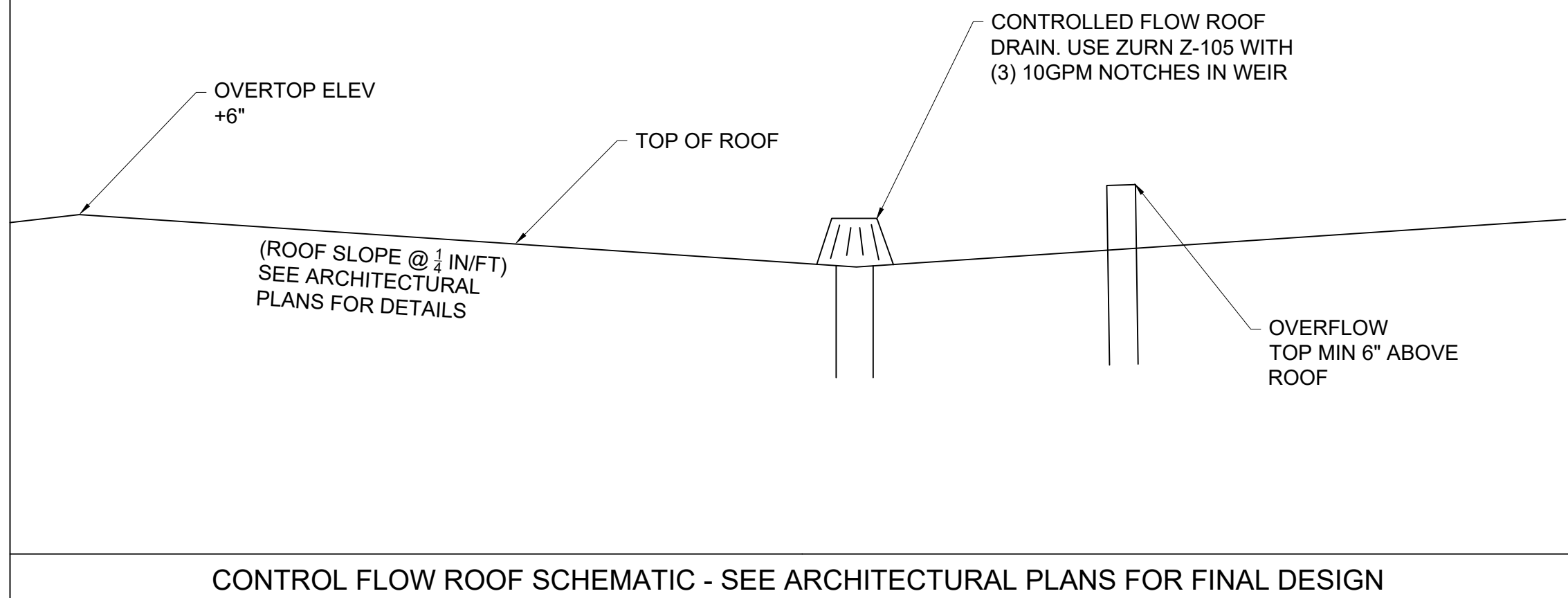
- THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPUTATIONS OF ALL GRADING AND FOR ACTUAL LANDS BALANCE, INCLUDING UTILITY TRENCH SPOIL. THE CONTRACTOR SHALL IMPORT OR EXPORT MATERIAL AS NECESSARY TO COMPLETE THE PROJECT. CONTRACTOR SHALL NOTIFY OWNER OF THE NEED TO IMPORT OR Haul OFF-SITE. ON-SITE LOCATIONS SUITABLE FOR BORROW OR Haul WILL BE PRESENT. COORDINATE WITH OWNER.
7. THE CONTRACTOR SHALL MAINTAIN A RECORD OF ALL MATERIALS AVAILABLE FROM ANY SOURCE.
8. SITE SHALL BE CLEARED TO THE LIMITS SHOWN ON THE PLANS. REMOVE VEGETATION FROM THE SITE. BURNING IS NOT PERMITTED. PROTECT TREES AND OTHER FEATURES OF THE LANDSCAPE WITH FENCING. STOCKPILES SHALL NOT BE LOCATED CLOSER THAN 25' TO A DRAINAGE STRUCTURE OR FEATURE AND SHALL BE SURROUNDED WITH SILT FENCE.
9. THE GEOTECHNICAL ENGINEER IS RESPONSIBLE FOR VERIFYING COMPACTION AND FILL PLACEMENT IN THE FIELD. THE GEOTECHNICAL ENGINEER MAY SUPERCEDE THESE SPECIFICATIONS IF THERE IS GOOD CAUSE TO DO SO. AN EXPLANATION MUST BE SUBMITTED TO THE ENGINEER IN WRITING.
10. IF NO GEOTECHNICAL RECOMMENDATION IS AVAILABLE, THEN THE FOLLOWING SPECIFICATIONS SHALL APPLY. ALL FILL SHALL BE CONSIDERED STRUCTURAL FILL AND SHALL BE PLACED IN ACCORDANCE WITH THE FOLLOWING. THE COMPACTED FILL SUBGRADE SHALL CONSIST OF AND SHALL BE UNDERLAIN BY SUITABLE BEARING MATERIALS, FREE OF ALL ORGANIC, FROZEN OR OTHER DESTRUCTIVE MATERIAL AND INSPECTED AND APPROVED BY THE RESIDENTIAL GEOTECHNICAL ENGINEER.
11. THE FILL SHALL BE THE BEST AVAILABLE MATERIAL THAT MEETS THE REQUIREMENTS SET FORTH BY THE ENGINEER. THE FILL SHALL BE TESTED AND APPROVED USING THE DIRECT SHEAR METHOD. THE COMPACTED FILL MATERIALS SHALL BE FREE OF ANY DETRIMENTAL, ORGANIC OR FROZEN MATTER AND SHALL HAVE A MAXIMUM LIQUID LIMIT (ASTM-D-423) AND PLASTICITY INDEX (ASTM-D-424) IF 30 AND 10 RESPECTIVELY, UNLESS SPECIFICALLY TESTED AND FOUND TO HAVE LOW EXPANSIVE PROPERTIES AND APPROVED BY AN EXPERIENCED SOILS ENGINEER. THE TOP 12" (VERY 12") INCHES OF COMPACTED FILL SHOULD HAVE A MAXIMUM THREE (3") INCH PARTICLE DIAMETER AND SHALL BE FREE OF ALL MATERIALS LARGER THAN 6".
12. THE FILL SHALL BE PLACED IN LAYERS NOT THICKER THAN 12" AND EACH LAYER SHALL BE COMPACTED TO THE REQUIRED DENSITY OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (ASTM-D-068) AND SUPERVISION OF AN EXPERIENCED SOILS ENGINEER PUT TO PLACEMENT. IF THE FILL IS TO PROVIDE NON-FROST SUSCEPTIBLE CHARACTERISTICS, IT MUST BE CLASSIFIED AS A CLEAN GW, SW OR SP PER UNITED SOIL CLASSIFICATION SYSTEM (ASTM-D-2487). THE SUBGRADE AND GRANULAR FILL SHALL BE COMPACTED TO THE REQUIRED DENSITY OF THE MAXIMUM DRY DENSITY OF THE STANDARD PROCTOR (ASTM-D-068) WITH THE EXCEPTION TO THE TOP 12" INCHES OF PAVEMENT SUBGRADE WHICH SHALL A MINIMUM IN-SITU DENSITY OF 100 PERCENT OF THE MAXIMUM DRY DENSITY, OR 5 PERCENT HIGHER THAN UNDERLYING FILL MATERIALS. THE MOISTURE CONTENT OF COHESIVE SOILS SHALL NOT VARY BY MORE THAN -1% TO +3 PERCENT AND GRANULAR SOILS 50 PERCENT OF OPTIMUM WHEN PLACED AND COMPACTED OR RECOMPACTED, UNLESS SPECIFICALLY APPROVED BY THE SOILS ENGINEER.
13. COMPACTORS, BULLDOZERS OR SIMILAR TRACKED VEHICLES ARE TYPICALLY NOT SUITABLE FOR COMPACTION MATERIAL THAT IS TOO WET TO PERMIT PROPER COMPACTION AND WILL BE SPREAD ON THE FILL AND PERMITTED TO DRY. DISCING, ROLLING OR MULTIPASS DRAGGING MAY BE USED TO REDUCE THE MOISTURE CONTENT TO THE FACTORY VALUE, AFTER WHICH IT SHALL BE COMPACTED. THE FINISHED SUBGRADE AREAS OF THE SITE SHALL BE COMPACTED TO 100 PERCENT OF THE STANDARD PROCTOR (ASTM-D-068) MAXIMUM DENSITY.
14. NO FILL SHALL BE PLACED ON A WET OR SOFT SUBGRADE. THE SUBGRADE SHALL BE PROOF-ROLLED AND INSPECTED BY THE GEOTECHNICAL ENGINEER BEFORE ANY MATERIAL IS PLACED.
15. SUBGRADE TOLERANCES ARE +/-1' FOR LANDSCAPE AREAS AND +/-2' FOR ALL PAVEMENT AND BUILDING AREAS.
16. TOPSOIL SHALL BE FREE OF DETRIMENTAL MATERIALS, ROOTS, OLD VEGETATION, ROCKS OVER 6" DIAMETER AND SHALL NOT BE EXCESSIVELY CLAYEY IN NATURE. NO CLUMPS LARGER THAN 4" ARE ACCEPTABLE. TOPSOIL MAY BE AMENDED AS LONG AS IT DOES NOT POST TO LOOSE WHEN TESTED.
17. THE CONTRACTOR SHALL MAINTAIN SITE DRAINAGE THROUGHOUT CONSTRUCTION. THIS MAY INCLUDE THE EXCAVATION OF TEMPORARY DITCHES OR PUMPING TO ALLEViate WATER PONDING. ANY DRAINAGING SHALL NOT GO DIRECTLY TO STREAMS, CREEKS, WETLANDS OR OTHER ENVIRONMENTALLY SENSITIVE AREAS WITHOUT BEING TREATED FIRST. A DIRT BAG OR OTHER DRAINAGE TREATMENT DEVICE MAY BE USED TO CAPTURE SEDIMENT FROM THE PUMPED WATER.
18. THE CONTRACTOR SHALL OBTAIN AND MAINTAIN EROSION CONTROL MEASURES THROUGHOUT THE PROJECT PER THE REQUIREMENT OF THE MUNICIPALITY OR OTHER APPROPRIATE GOVERNMENT AGENCIES. IN THE EVENT THIS OCCURS, ROADWAYS SHALL BE POWER SWEEP IMMEDIATELY AND ALL SEDIMENT REMOVED FROM DOWNSTREAM FACILITIES.

SPECIFICATIONS FOR PRIVATE UTILITIES

1. BEFORE PROCEEDING WITH ANY UTILITY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE EACH EXISTING LATERAL OR POINT OF CONNECTION AND VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES. IF ANY EXISTING UTILITIES ARE NOT AS SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR POSSIBLE REDesign.
2. ALL CONNECTIONS TO EXISTING PIPES AND MANHOLES SHALL BE COURED CONNECTIONS. CONNECTIONS TO WATERMAIN SHALL BE WET TAPPED WITH A STAINLESS STEEL TAPPING SLEEVE.
3. PROPOSED SANITARY SEWER AND INTERNALLY CONNECTED STORM SEWER SHOWN ON THIS PLAN SHALL TERMINATE AT A POINT FIVE (5) FEET FROM THE EXTERIOR BUILDING WALL. THE EXACT LOCATION OF ALL DOWN SPOUTS CONNECTIONS SHALL BE PER THE ARCHITECTURAL PLANS.
4. CONTRACTOR SHALL NOT SHUT OFF WATER OR PLUG SANITARY SEWER IN MUNICIPAL LINES WITHOUT PRIOR APPROVAL.
5. MATERIALS FOR STORM SEWER SHALL BE AS FOLLOWS: STORM SEWER PIPE 48" OR LESS SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) CORRUGATED PIPE WITH AN INTEGRALLY FORMED SMOOTH WATERWAY SUCH AS ASD N-12. FOR PIPE 60" AND OVER, STORM SEWER SHALL BE CAST IRON (C.I.) PIPE, CLASS II OR HIGHER, MAY BE USED. TRENCH SECTIONS SHALL BE CLASS "B" PER PVC AND HDPE AND CLASS "C" FOR CONCRETE (PER STANDARD SPECIFICATIONS). MANHOLES, INLETS AND CATCH BASINS SHALL BE PRE CAST REINFORCED CONCRETE. ASTM C-478. CASTINGS SHALL BE HEAVY DUTY CAST IRON. AREA DRAINS SHALL BE PER DETAIL ON PLAN OR EQUIVALENT AND SHALL BE A MINIMUM OF 24" IN DIAMETER. CONNECTIONS TO EXISTING PIPES SHALL BE MADE WITH INSERT WYE OR EQUIVALENT. LAST (3) THREE JOINTS SHALL BE RESTRAINED WITH RODS.
6. MATERIALS FOR SANITARY SEWER SHALL BE AS FOLLOWS: SANITARY SEWER PIPE, ASTM D-3034, SDR-35 WITH RUBBER GASKETED JOINTS, CONFORMING TO ASTM C-5212. TRENCH SECTIONS SHALL BE CLASS "B" BEDDING (PER STANDARD SPECIFICATIONS). MANHOLES SHALL BE PRECAST REINFORCED CONCRETE. ASTM C-478 OR EQUIVALENT. A MINIMUM OF 1" OF COVER IS REQUIRED FOR ALL SANITARY SEWERS.
7. MATERIALS FOR WATER SERVICES AND PRIVATE HYDRAULIC SHALL BE AS FOLLOWS: WATER SERVICES SHALL BE PVC, HDPE, OR AS SO ALLOWED BY MUNICIPAL CODE. PVC SHALL BE AWWA-C900. DI SHALL BE AWWA-C151, CLASS 52 (OR AS REQUIRED BY LOCAL CODE). TRENCH SECTIONS SHALL BE CLASS "B" BEDDING (PER STANDARD SPECIFICATIONS). CRUSHED STONE CHIPS SHALL BE USED FOR BEDDING MATERIAL. CONNECTION SHALL BE MADE WITH A WET TAP. CORPORATE STOP VALVE AND BACKFLOW PREVENTER SHALL BE 12" IN DIAMETER. VALVES SHALL BE CAST IRON, RESILIENT SEATED GATE VALVES COMPLYING WITH AWWA C508 WITH A THREE PIECE CAST IRON VALVE BOX. INSTALL THRUST BLOCKS AT ALL BENDS AND TIES. DISINFECT ALL NEW LINES AND OBTAIN SAVE WATER SAMPLE PRIOR TO USE.
8. EXTREME CAUTION MUST BE FOLLOWED REGARDING THE COMPACTON OF ALL UTILITY TRENCHES. MECHANICALLY COMPACTED GRANULAR BACKFILL IS REQUIRED UNDER A WITHIN 5 FEET OF ALL PAVEMENT INCLUDING SIDEWALKS. FLOODING OF TRENCHES IS PROHIBITED.
9. TRACER WIRE (NO. 8 SINGLE STRAND COPPER) AND WARNING TAPE SHALL BE INSTALLED ON ALL UTILITIES IN ACCORDANCE WITH THE LOCAL AND STATE CODES. TRACER WIRE SHALL TERMINATE IN A VALVE/ TERMINAL BOX AT EACH END.
10. MANHOLE TESTING ON SANITARY LINES AND PRESSURE TESTING ON WATERMAIN MAY BE REQUIRED BY THE OWNER OR MUNICIPALITY.
11. UPON COMPLETION OF FINAL PAVING OPERATIONS, THE UTILITY CONTRACTOR SHALL ADJUST ALL MANHOLE AND INLET RIMS AND VALVE BOXES TO FINISHED GRADE.

SPECIFICATIONS FOR PAVING

1. AGGREGATES USED IN THE CRUSHED STONE BASE SHALL CONFORM TO THE GRADATION REQUIREMENTS SECTIONS 301.2 AND 305.2 OF THE STANDARD SPECIFICATIONS. THICKNESS SHALL BE PER THE DETAIL ON THE PLANS. BASE SHALL BE 1 1/2" MINIMUM DIAMETER LIMESTONE TRAP BANG AGGREGATE BASE COURSE UNLESS NOTED OTHERWISE. SUBSTITUTION AND/OR RECYCLED MATERIALS MAY BE ALLOWED WITH APPROVAL FROM THE OWNER.
2. SUBMIT A PROTECTIVE AND EROSION CONTROL PLAN TO THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF STONE BASE. EXCAVATE UNSUITABLE AREAS AND REPLACE WITH BREAKER RUN STONE AND RECOMPACT. REFER TO THE GEOTECHNICAL REPORT FOR ADDITIONAL SPECIFICATIONS.
3. EXISTING PAVEMENT SHALL BE SAWCUT IN NEAT STRAIGHT LINES TO FULL DEPTH AT ANY POINT WHERE EXISTING PAVEMENT IS REMOVED. CURB AND WALK SHALL BE REMOVED TO THE NEAREST JOINT. REMOVED PAVEMENT SHALL BE REPLACED WITH CRUSHED STONE BASE AND AGGREGATE TO MATCH EXISTING PAVEMENT.
4. ASPHALT FOR PARKING AREAS AND THE PRIVATE ROAD SHALL BE PER THE DETAILS MATERIALS AND PLACEMENT SHALL CONFORM TO THE DOT STANDARD SPECIFICATIONS, SECTION 450 AND 456.1 TO 456.3 IS REQUIRED UNLESS NOTED OTHERWISE. A COMMERCIAL GRADE MAY BE SUBSTITUTED ONLY WITH APPROVAL FROM THE OWNER.
5. JOINTING SHALL BE PER SECTION 415.3 OF THE STANDARD SPECIFICATIONS. GRADE A, ASTM C-94, 9.6A MIX, WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI. JOINTING SHALL BE PER SECTION 415.3.7, 602.3.2.5, AND 601.3-4.5, OF THE STANDARD SPECIFICATIONS. CONSTRUCTION JOINTS SHALL BE SPACED NOT FURTHER THAN 10' FOR PAVEMENT, 10' FOR SIDEWALKS (ON THE WIDTH OF THE WALK), AND 15' FOR CURB. JOINTS SHALL BE SPACED 50' OR MORE, BUT NOT FURTHER THAN 50' FOR PAVEMENT, 300' FOR CURB, AND 10' FOR WALKS. CONCRETE SHALL BE FINISHED PER SECTION 415.3.6 WITH A MEDIUM BRUSH TEXTURE. A CURING MEMBRANE IN CONFORMANCE WITH SECTION 415.3.12 IS REQUIRED.



GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. ALL CONSTRUCTION SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT. THE PERMIT FOR CONSTRUCTION SITE LAND DISTURBANCE ACTIVITIES, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL TECHNICAL STANDARDS AND PROVISIONS IN EFFECT AT THE TIME OF CONSTRUCTION. THESE STANDARDS AND STANDARDS SHALL BE REFERRED TO AS BEST MANAGEMENT PRACTICES (BMPs). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN A COPY OF, AND UNDERSTAND, THE BMP'S PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
2. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIRED TO PREVENT EROSION. EROSION CONTROL DIRECTED BY OWNER/ENGINEER OR GOVERNING AGENCIES SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
3. MODIFICATIONS TO THE APPROVED SWEEP PLAN IN ORDER TO MEET LOCAL, STATE AND FEDERAL REGULATIONS OR MODIFICATIONS CONFORM TO BMP'S. ALL MODIFICATIONS MUST BE APPROVED BY THE GOVERNING AGENCY PRIOR TO DEVIATION OF THE APPROVED PLAN.
4. INSTALL PERIMETER EROSION CONTROL MEASURES (SUCH AS CONSTRUCTION ENTRANCES, SILT FENCE AND EXISTING INLET PROTECTION) IMMEDIATELY AFTER THE START OF CONSTRUCTION OR DISTURBANCE OF EXISTING SURFACE COVER, AS SHOWN ON PLAN IN ORDER TO PROTECT ADJACENT PROPERTIES/STORM SEWER SYSTEMS FROM EROSION AND LANDSLIDES.
5. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT ALL LOCATIONS OF VEHICLE INGRESS/EGRESS POINTS. CONTRACTOR IS RESPONSIBLE TO COORDINATE LOCATIONS WITH THE PROPER AGENCIES, PROVIDING NECESSARY FEES AND OBTAINING THE NECESSARY APPROVALS OR PERMITS. ADJACENT CONSTRUCTION ENTRANCES OTHER THAN AS SHOWN ON THE PLANS SHALL BE APPROVED BY THE APPLICABLE GOVERNING AGENCIES PRIOR TO INSTALLATION.
6. PAVED SURFACES ADJACENT TO CONSTRUCTION ENTRANCES SHALL BE SWEEPED AND/OR SCRAPED TO REMOVE ACCUMULATED SOIL, DIRT AND DEBRIS IMMEDIATELY AND AS REQUESTED BY THE GOVERNING AGENCIES.
7. ALL EXISTING STORM SEWER FACILITIES THAT WILL COLLECT RUNOFF FROM DISTURBED AREAS SHALL BE PROTECTED TO PREVENT ANY UNDESIRABLE POLLUTION. ALL EXISTING STORM SEWER FACILITIES PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL EXISTING STORM SEWER FACILITIES. ALL EXISTING STORM SEWER FACILITIES SHALL BE IMMEDIATELY FITTED AT ALL INLETS, STRUCTURES, PIPES, AND SWALES SHALL BE KEPT CLEAN AND FREE OF OBSTRUCTIONS.
8. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, WATER MAIN, ETC.) OUTSIDE OF THE PERIMETER CONTROLS SHALL INCORPORATE THE FOLLOWING:
 - a. PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
 - b. BACKFILL, COMPACT AND COVER THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
 - c. DISCHARGE TRENCH WATER INTO A SEDIMENTATION BASIN OR FILTERING TANK IN ACCORDANCE WITH BMP'S PRIOR TO RELEASE INTO SURFACE WATER.
9. AT A MINIMUM, SEDIMENT BASINS ARE NECESSARY PRIOR TO ANY DRAINAGE DRAINAGE SHALL BE CONSTRUCTED AND OPERATIONS BEFORE BEGINNING OF SIGNIFICANT MASS GRADING OPERATIONS TO PREVENT EROSION AND SEDIMENTATION.
10. ALL UPSTREAMS/CRENS AND WETLANDS SHALL BE PROTECTED WITH SILT FENCE TO PREVENT ANY DIRECT DISCHARGE FROM DISTURBED SOILS.
11. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION CONTROL MEASURES DURING CONSTRUCTION. THE OWNER WILL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION CONTROL MEASURES AFTER THE CONTRACTOR HAS COMPLETED THE PROJECT.
12. TOPSOIL STOCKPILES SHALL HAVE A BERM OR TRENCH AROUND THE CIRCUMFERENCE AND PERIMETER SILT FENCE TO CONTROL SILT. IF THE STOCKPILES ARE NOT COVERED WITH TOPSOIL, THE STOCKPILES MUST BE COVERED WITHIN 7 (SEVEN) DAYS. TEMPORARY SEEDING AND STABILIZATION IS REQUIRED.
13. EROSION CONTROL MEASURES TEMPORARILY REMOVED FOR UNAVOIDABLE CONSTRUCTION ACTIVITIES SHALL BE IN WORKING ORDER IMMEDIATELY AFTER THE CONSTRUCTION ACTIVITY IS COMPLETED OR PRIOR TO THE COMPLETION OF EACH WORK DAY, WHICH EVER OCCURS FIRST.
14. MAINTAIN SOIL EROSION CONTROL DEVICES THROUGHOUT THE DURATION OF CONSTRUCTION. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN THIRTY (30) DAYS AFTER FINAL COMPLETION OF CONSTRUCTION. ALL TEMPORARY EROSION CONTROL MEASURES ARE NO LONGER NEEDED, DISTURBANCES ASSOCIATED WITH EROSION CONTROL REMOVAL SHALL BE IMMEDIATELY REPAIRED.
15. PUMPS MAY BE USED AS BYPASS DEVICES. IN NO CASE SHALL PUMPED WATER BE DIRECTED OUTSIDE THE PROJECT LIMITS. PUMP DISCHARGE SHALL BE DIVERTED INTO AN APPROVED FILTER BAG OR APPROVED FILTER.
16. GRADING EFFORTS SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED TO PROTECT THE CONSTRUCTION SITE FROM EROSION OF TEMPORARY OR PERMANENT MEASURES. ALL DISTURBED AREAS THAT WILL NOT BE WORKED FOR A PERIOD OF FOURTEEN (14) DAYS AFTER COMPLETION OF THE NECESSARY SEEDING AND STABILIZATION OF EROSION CONTROL SHALL BE IN ACCORDANCE WITH TECHNICAL STANDARDS.
17. ALL DISTURBED SLOPES EXCEEDING 4:1, SHALL BE STABILIZED WITH A COMBINATION OF GEOTEXTILE GREEN SYSTEM, EROSION MATTING (OR APPROVED EQUIVALENT) AND ALL CHANNELS SHALL BE STABILIZED WITH NORTH-BOUNDING EROSION MATTING. EROSION MATTING SHALL BE INSTALLED ON AN APPROVED POLYMER SOIL STABILIZATION TREATMENT OR A COMBINATION THEREOF, AS REQUIRED. EROSION MATTING AND/OR GEOTEXTILE GREEN SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
18. DURING PERIODS OF EXTENDED DRY WEATHER, THE CONTRACTOR SHALL KEEP A WATER TANK ON SITE FOR THE PURPOSE OF WATERING EROSION MATTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING WIND EROSION OF EROSION MATTING AND GEOTEXTILE GREEN SYSTEM.
19. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE VISUALLY INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE ADJACENT WATERWAY.
20. QUALIFIED PERSONNEL (PROVIDED BY THE GENERAL/PRIME CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED AND COVERED WITHIN SEVEN (7) DAYS OF THE END OF THE 0.5-INCH, OR MORE, PRECIPITATION EVENTS WITH A MINIMUM OF ONE (1) INSPECTION PER MONTH. THE CONTRACTOR SHALL REPORT THE ABSENCE OF A QUALIFYING RAIN OR SNOWFALL EVENT REPORTED SHALL BE IN ACCORDANCE WITH THE GENERAL PERMIT CONDITIONS. THE CONTRACTOR SHALL REPORT ANY REPAIRS OR ITEMS REVEALED DURING INSPECTIONS REPAIRED/REPAIRED.
21. SEE ADDITIONAL DETAILS AND NOTES ON SITE STABILIZATION AND CONSTRUCTION DETAILS.



MSI General Corporation
W215 E. Wisconsin Ave.
Nashotah, WI 53058
Phone: 262-367-3661
Fax: 262-367-7390

WWW.MSIGENERAL.COM
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ISSUE DATES:

Proposal: 01/15/2021

Bid:	12/16/2021
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Contract: 02/11/2021

Plan Commission: 04/12/2021

State Submittal / Permit: 03/03/202

As-Built:

REVISIONS:

1 | 3/26/2021 CITY COMMENTS



PROJECT NAME
Turn-Key Solutions Addition

STREET ADDRESS
N117 W19346 Fulton Dr.

CITY/ STATE / ZIP
Germantown, WI, 53022

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ARCHITECT: BFW ENGINEER: PEG REVIEWED BY: PEG

SHEET TITLE:
DETAILS

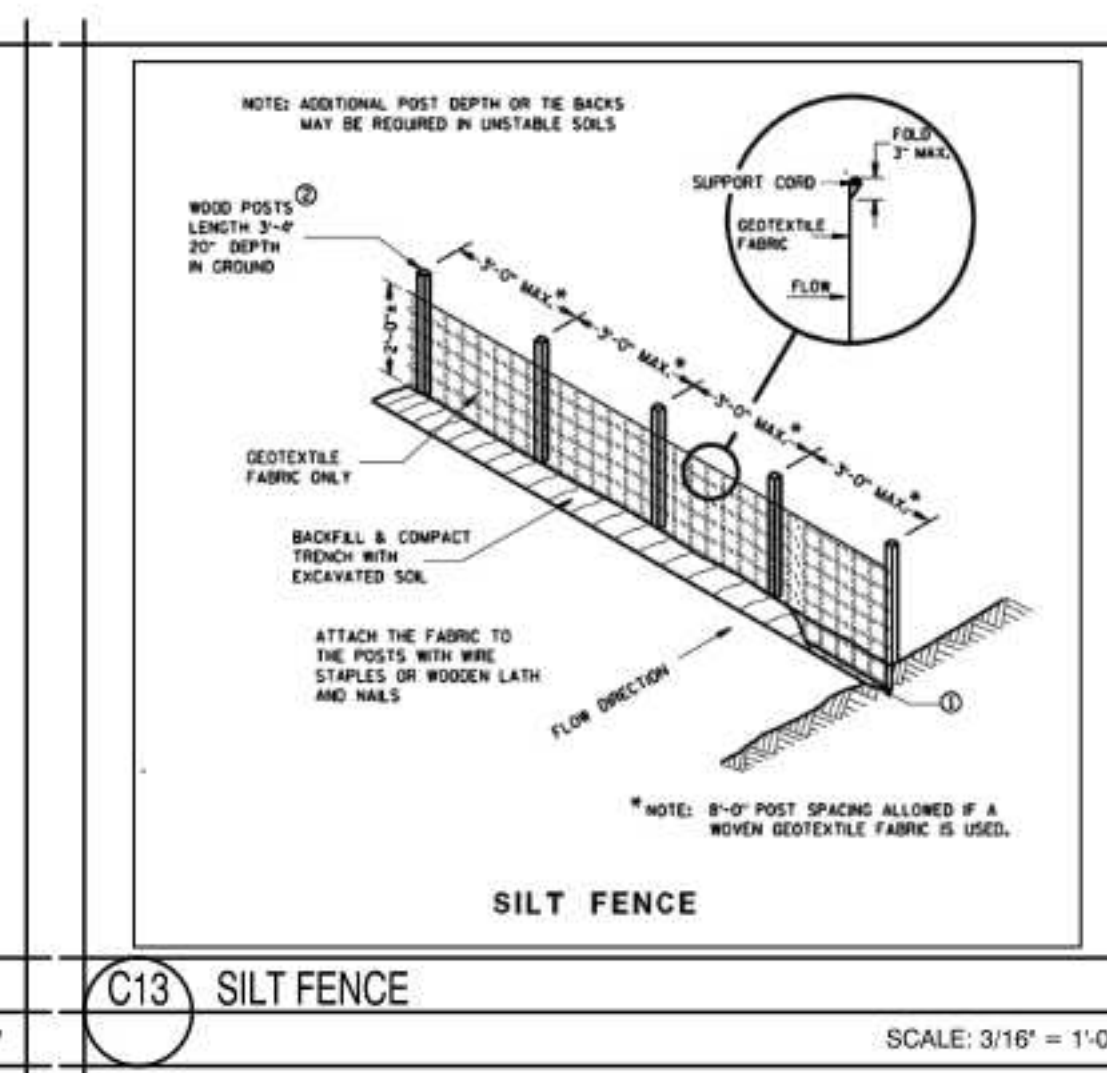
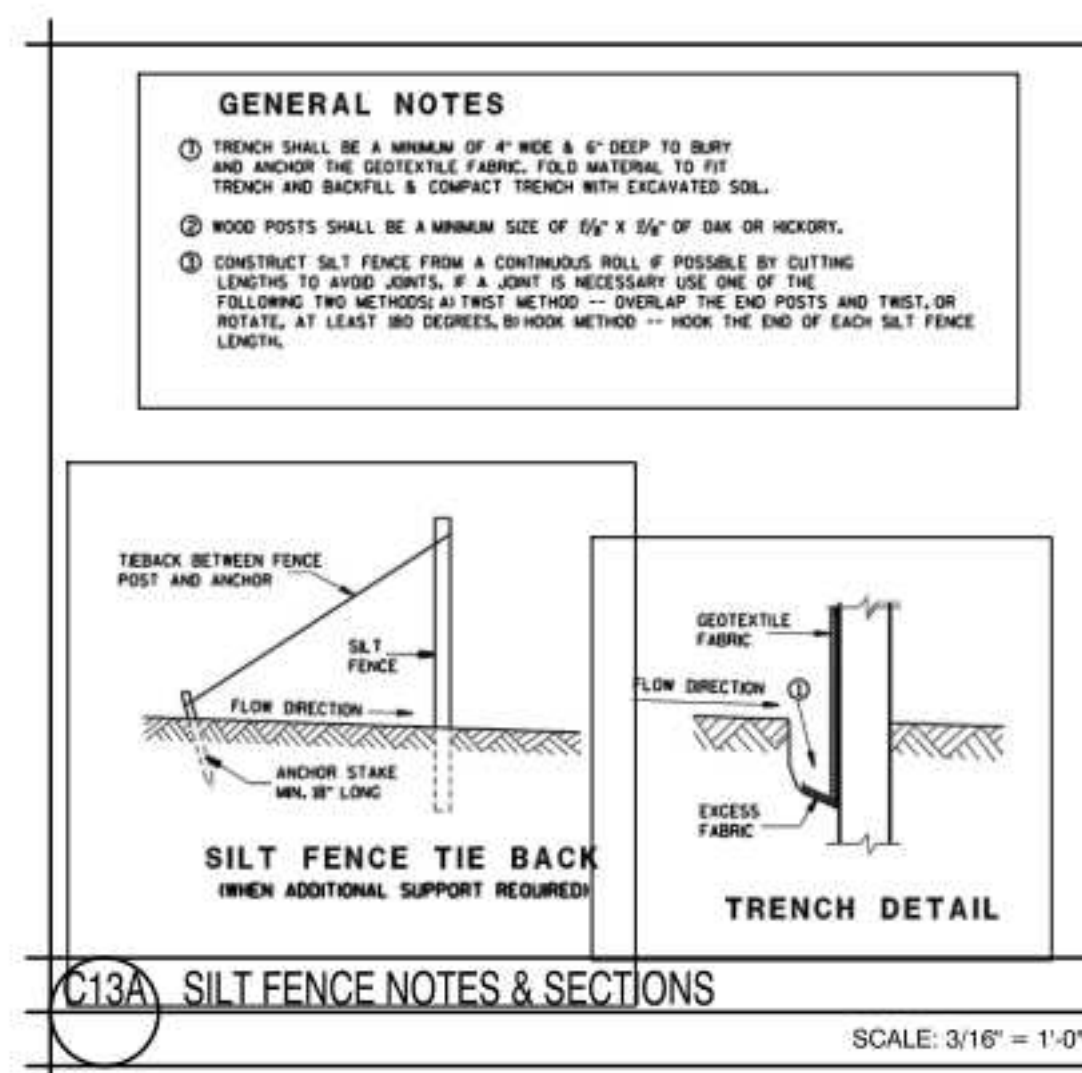
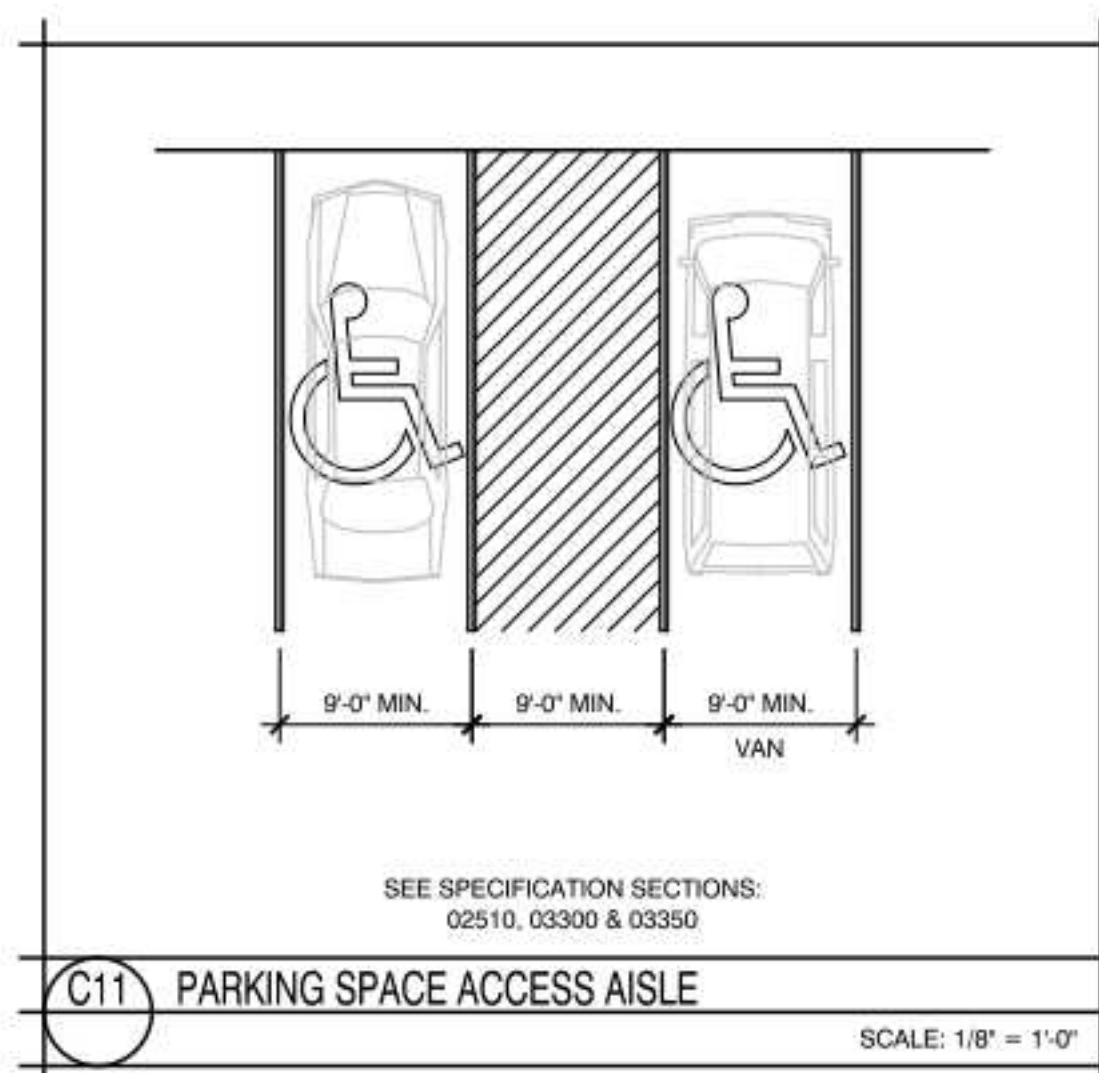
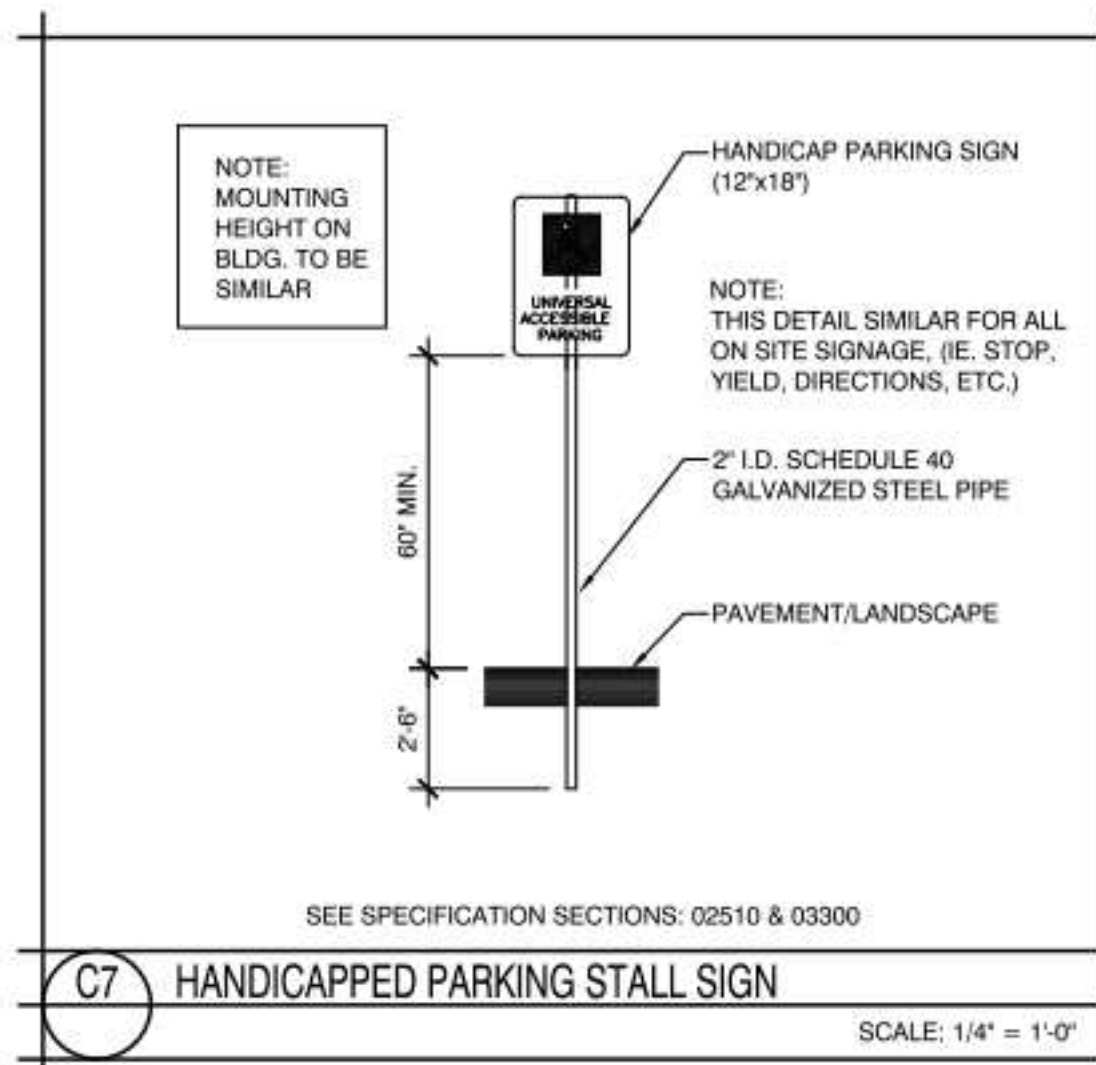
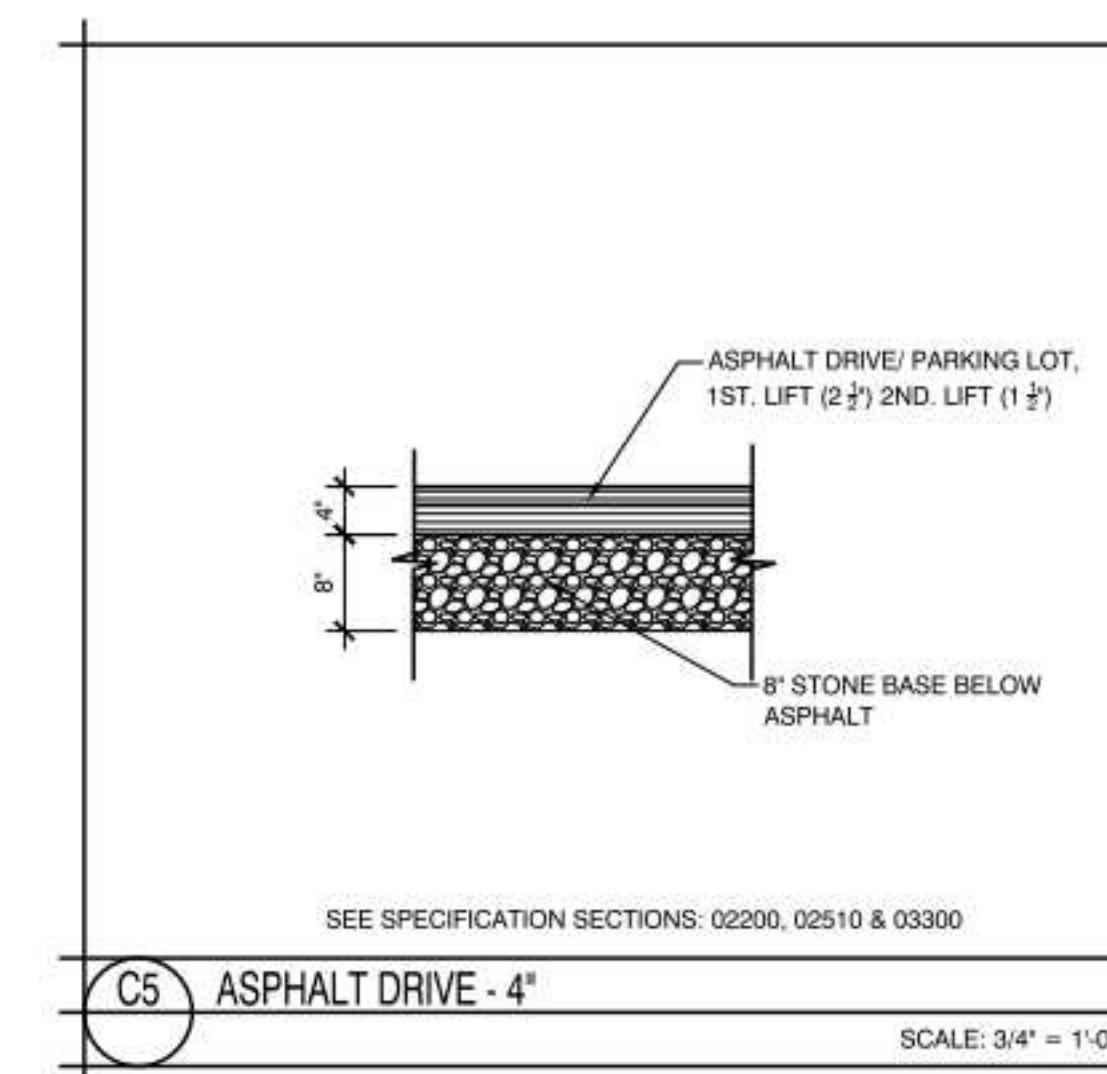
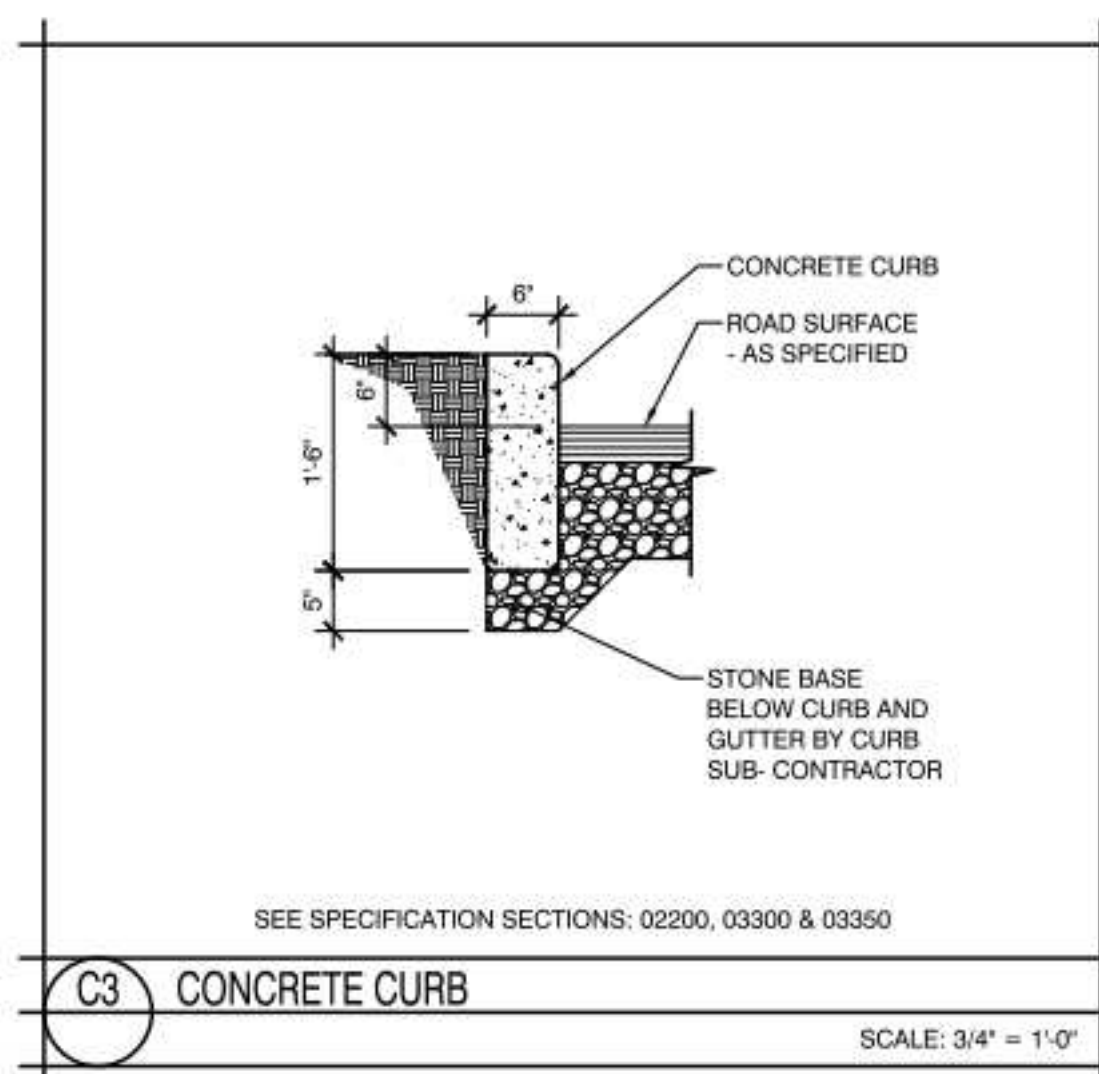
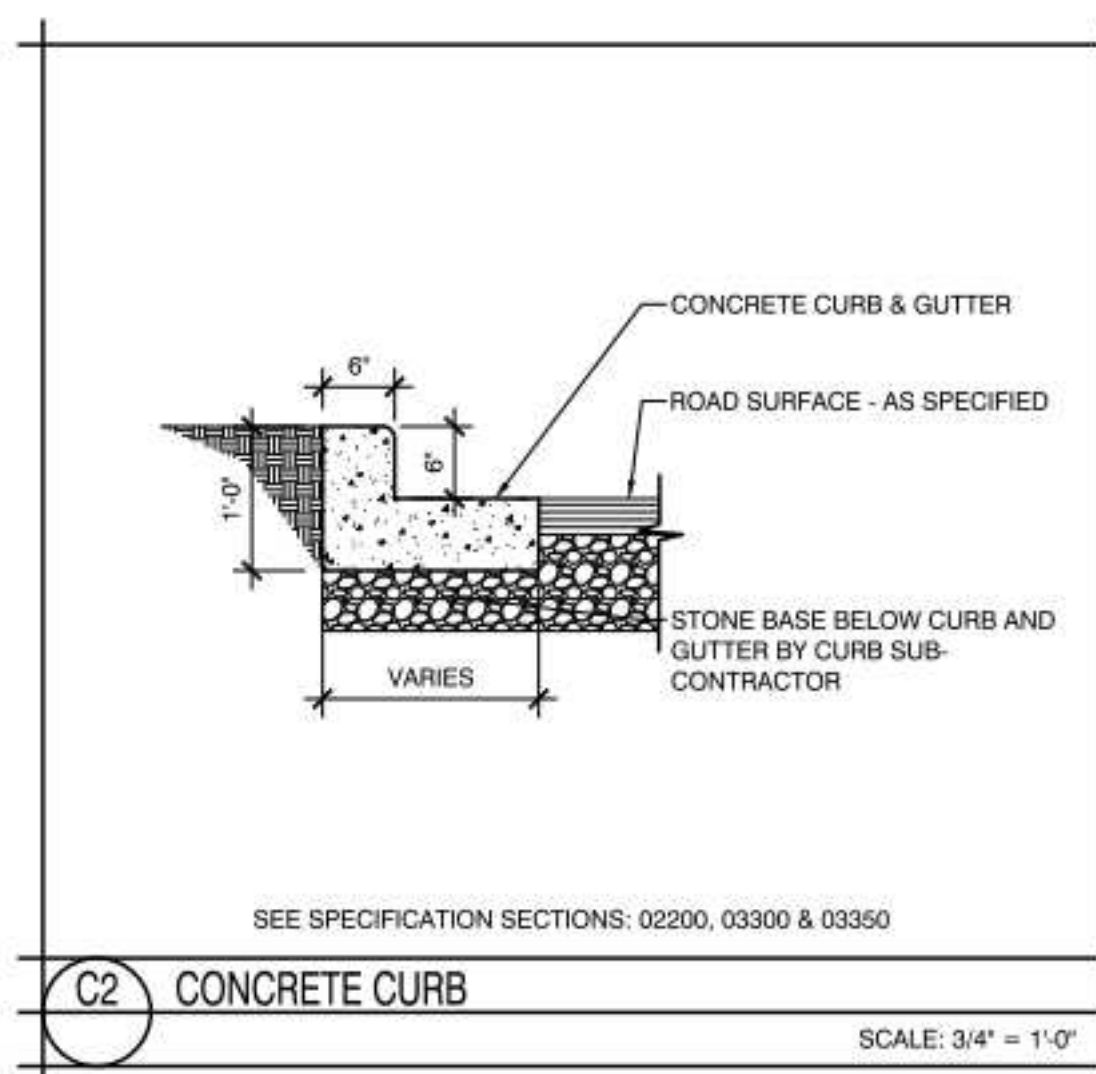
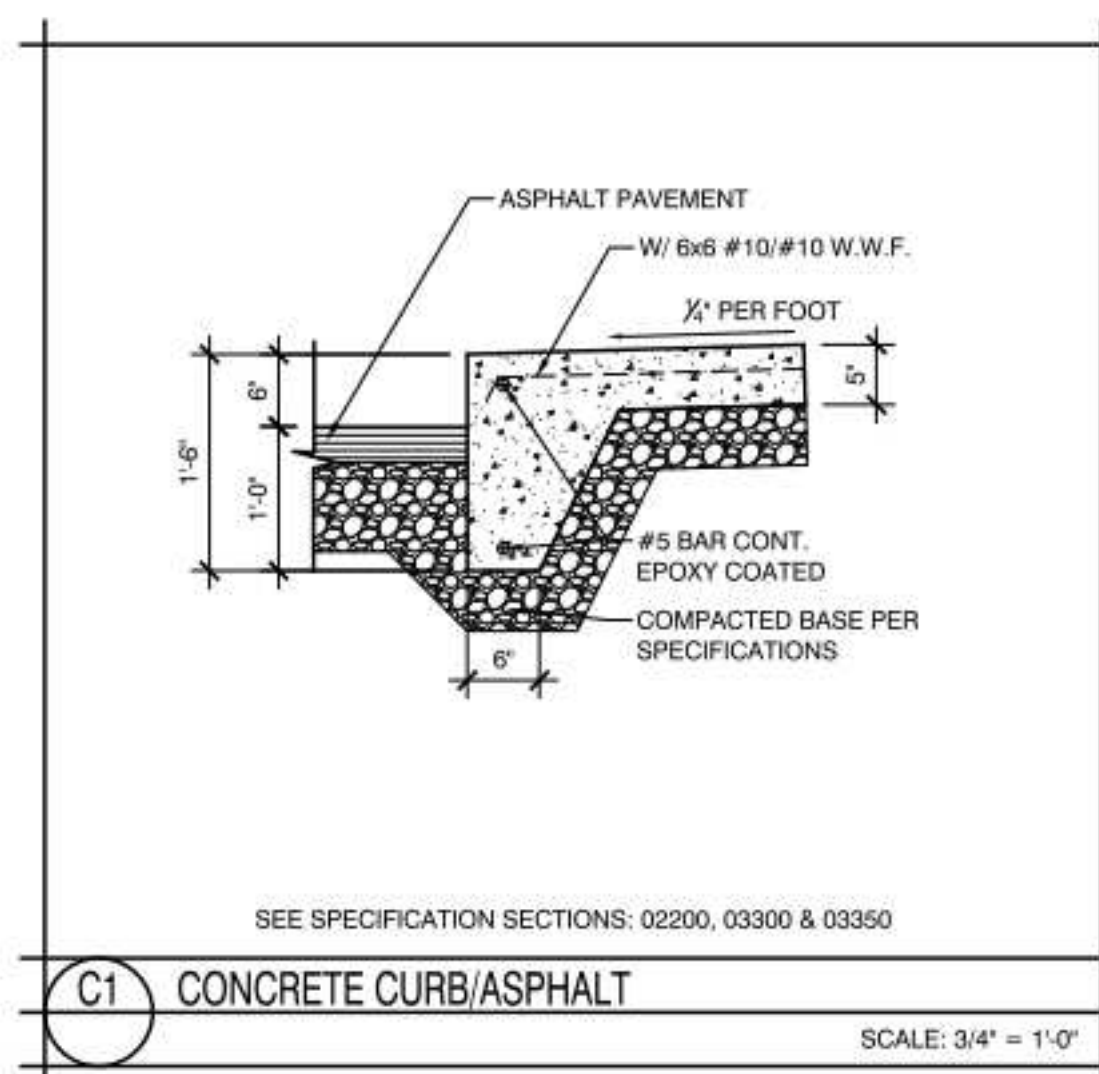
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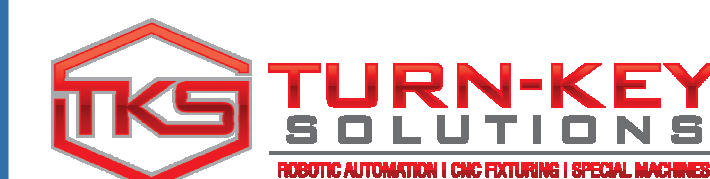




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Phone: 262-367-3661
Fax: 262-367-7390

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REVISIONS:	

[illegible]

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Germantown, WI, 53022

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ARCHITECT: BFW ENGINEER: AGR REVIEWED BY: BJZ

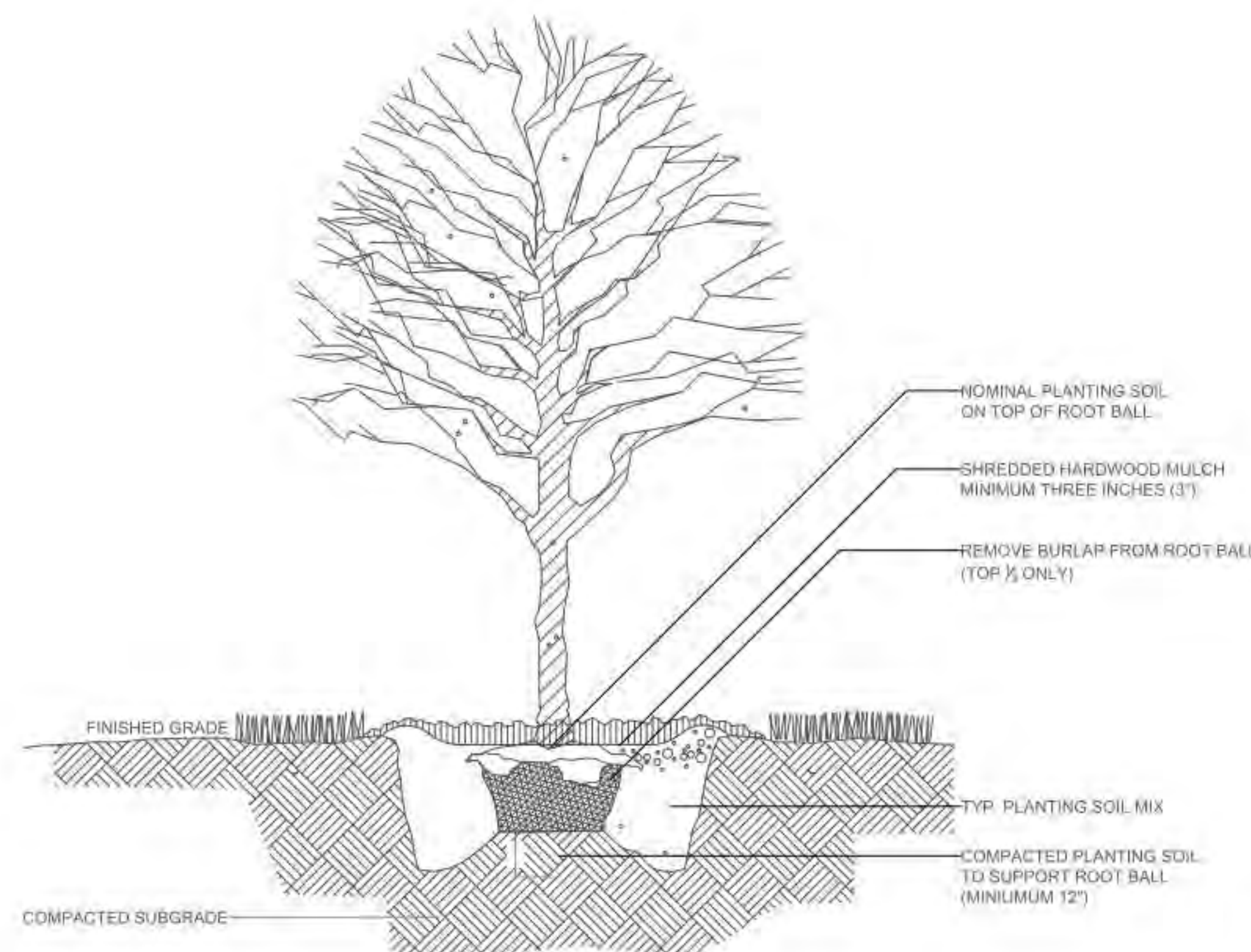
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DETAILS

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ENGINEERS



ARCHITECTS

P12953

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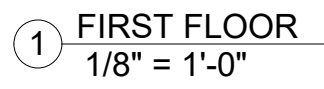


ENGINEERS

CONTRACTORS

ARCHITECTS

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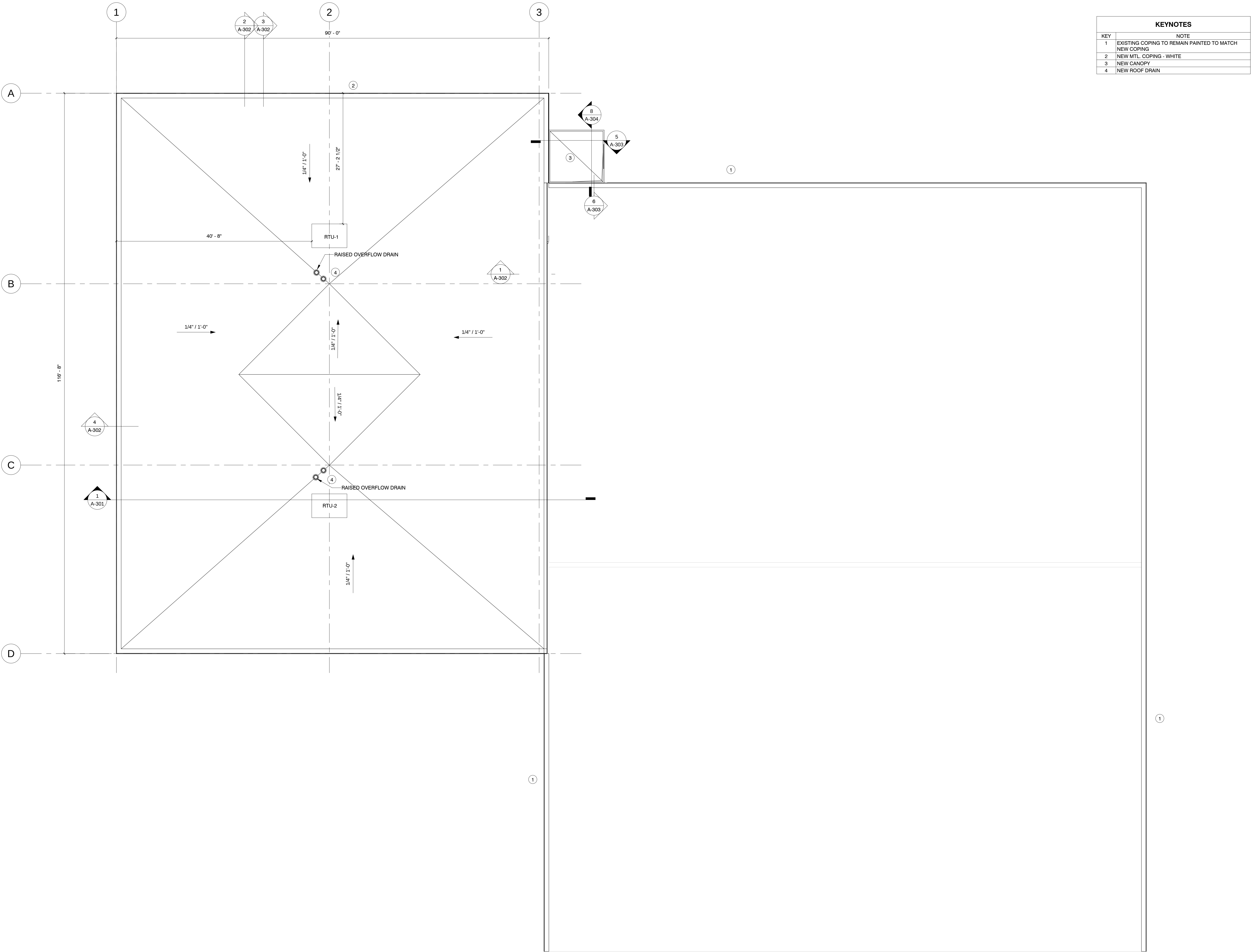


ENGINEERS

ARCHITECTS



ARCHI



KEYNOTES	
KEY	NOTE
1	EXISTING COPING TO REMAIN PAINTED TO MATCH NEW COPING
2	NEW MTL. COPING - WHITE
3	NEW CANOPY
4	NEW ROOF DRAIN

1 ROOF PLAN
1/8" = 1'-0"



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1 CANOPY REVISIONS	03/10/2021



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Germantown, WI, 53022

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ARCHITECT:	ENGINEER:	REVIEWED BY:
BFW	AGR	BJZ

SHEET TITLE:
ROOF PLAN

SHEET NUMBER:

A-103

PROJECT NUMBER:

4513

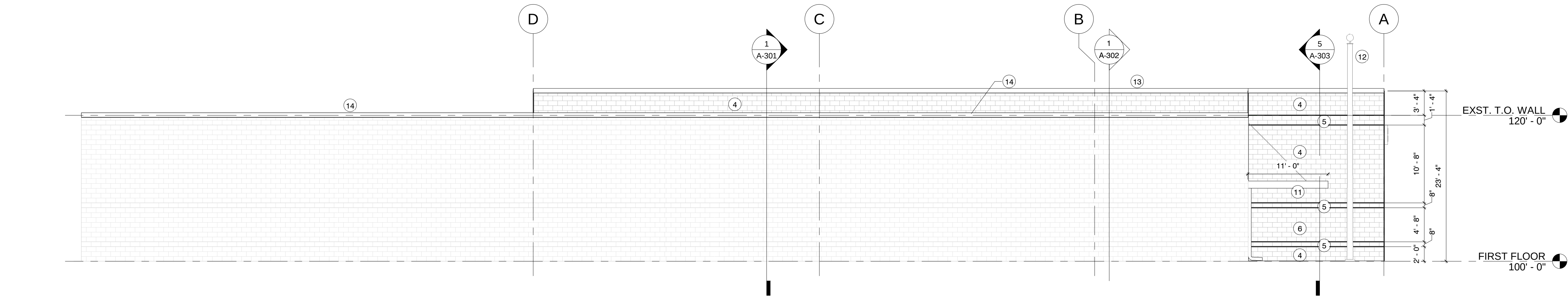
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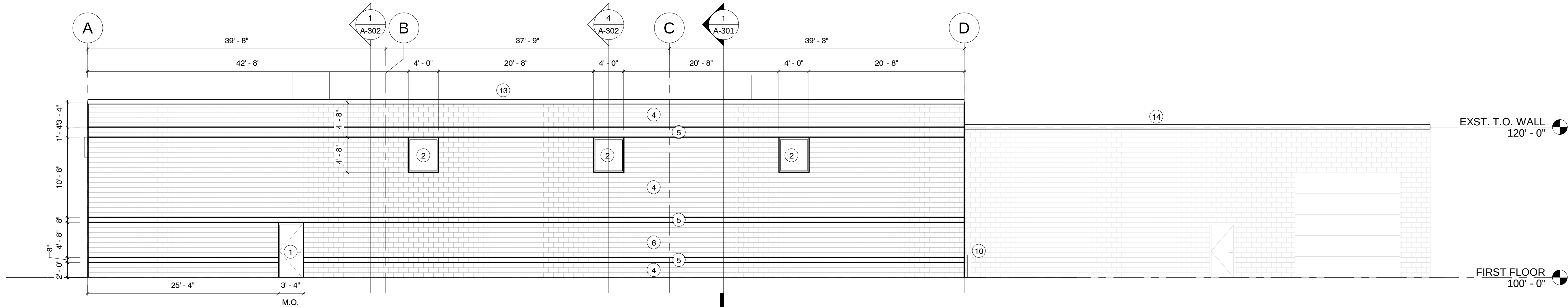
ENGINEERS

CONTRACTORS

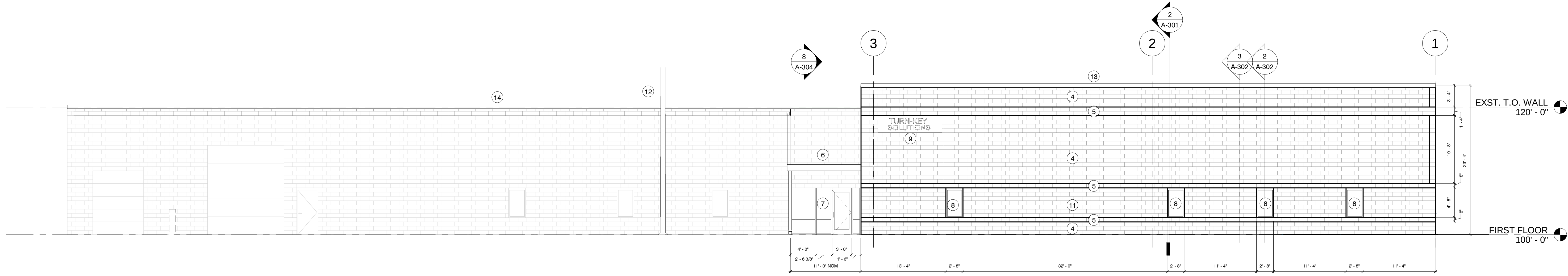
ARCHITECTS



1 East
1/8" = 1'-0"



2 West
1/8" = 1'-0"



3 North
1/8" = 1'-0"



4 South
1/8" = 1'-0"

KEYNOTES - ELEVATIONS	
KEY	NOTE
1	HM DOOR - SEE DOOR SCHEDULE
2	ALUM. FRAMED INSULATED WINDOW
3	OVERHEAD DOOR - SEE DOOR SCHEDULE
4	PAINTED SPLIT FACE CMU - WHITE
5	PAINTED SMOOTH FACE CMU - RED
6	PAINTED SPLIT FACE CMU - GRAY
7	ANDZ ALUM. STOREFRONT SYSTEM
8	ALUM. FRAMED INSULATED WINDOW TO MATCH EXISTING
9	COMPANY SIGN
10	6" DIA. BOLLARD PAINTED SAFETY YELLOW
11	CANOPY WITH TIE RODS
12	RELOCATED FLAGPOLE
13	BRAKE MTL ROOF COPING - WHITE
14	EXISTING COPING TO REMAIN TO BE PAINTED TO MATCH NEW COPING

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As-Built:	--/--/----
REVISIONS:	
1	CANOPY REVISIONS 03/10/2021



PROJECT NAME
Turn-Key Solutions Addition

STREET ADDRESS
N117 W19346 Fulton Dr.

CITY/ STATE / ZIP
Germantown, WI, 53022

ALL WORK TO BE COMPLETED AS SHOWN, AND IN ACCORDANCE WITH THE LATEST EDITION OF THE MSI GENERAL MASTER SPECIFICATION

ARCHITECT: BFW ENGINEER: AGR REVIEWED BY: BJZ

SHEET TITLE:
EXTERIOR
ELEVATIONS

SHEET NUMBER:

A-200

PROJECT NUMBER:

4513

P12953





ENGINEERS

ARCHITECTS



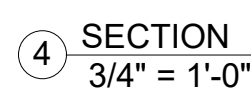
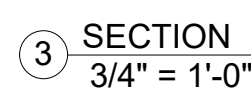
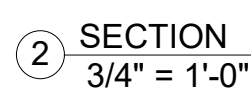
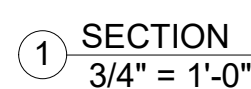
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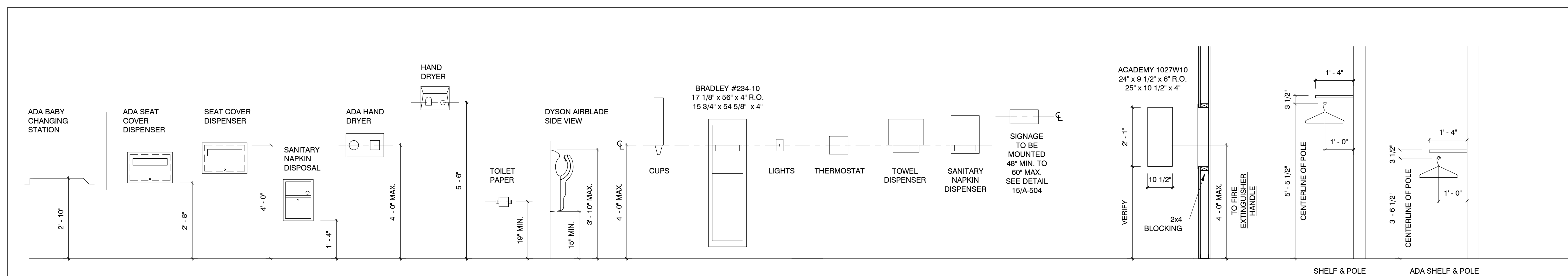
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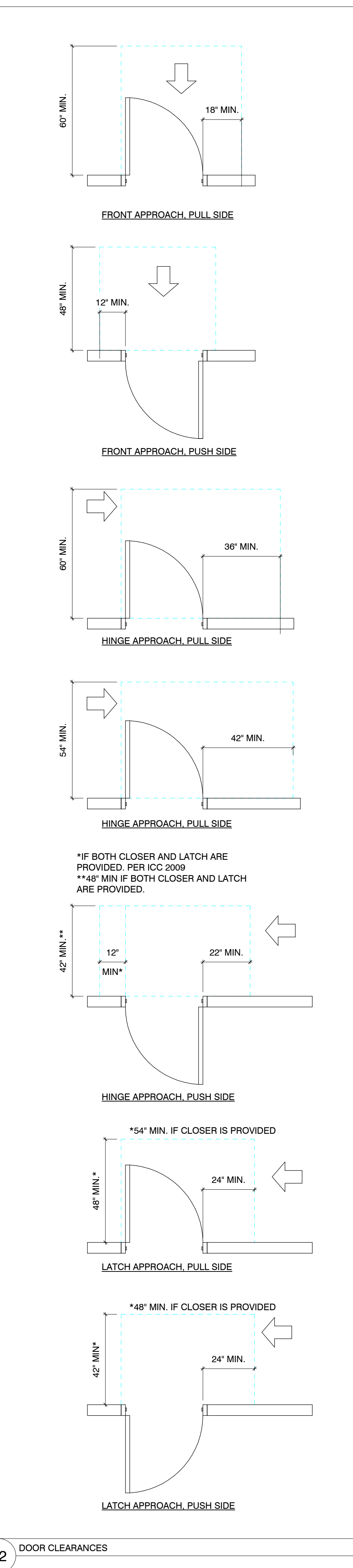
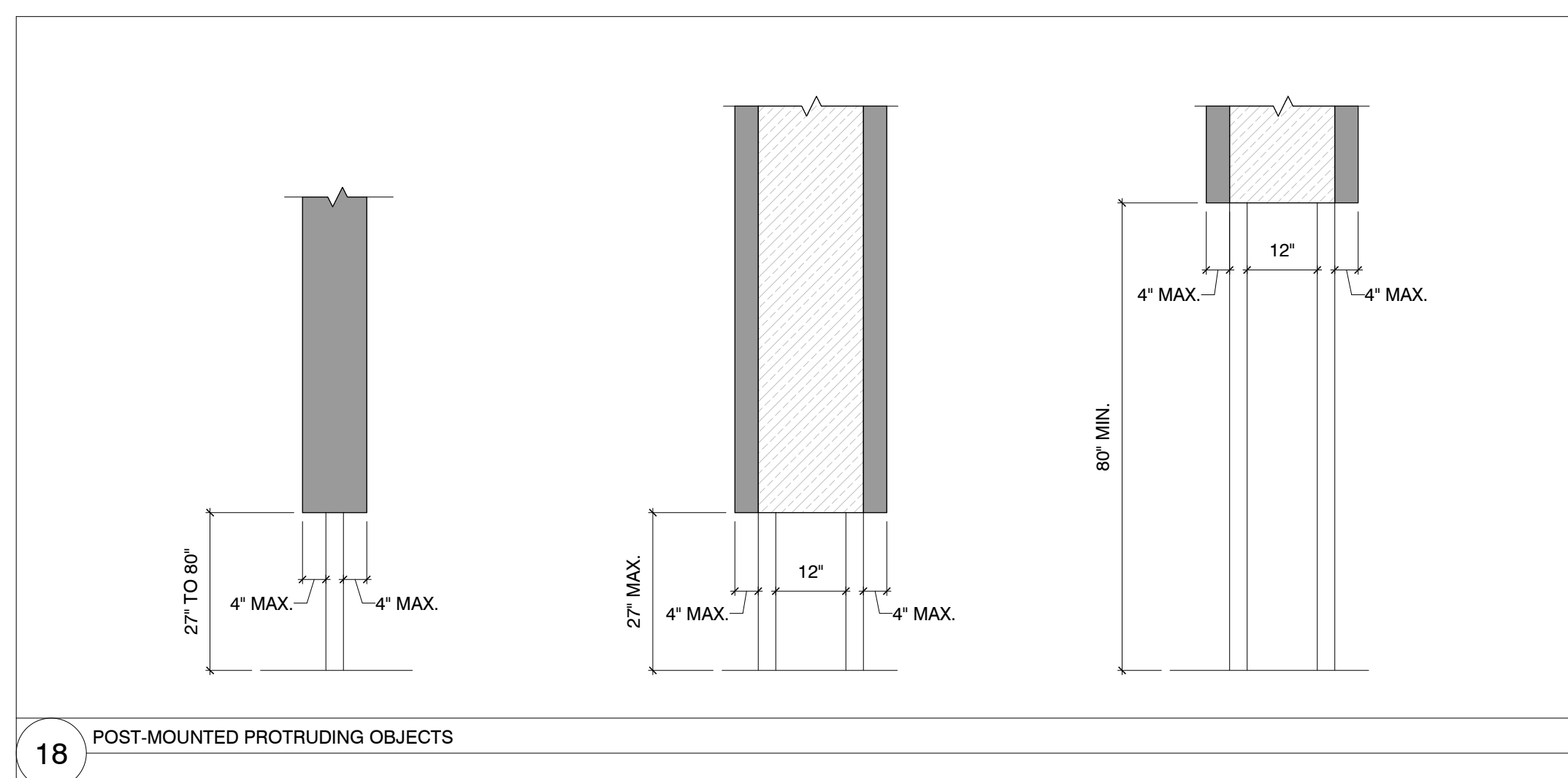
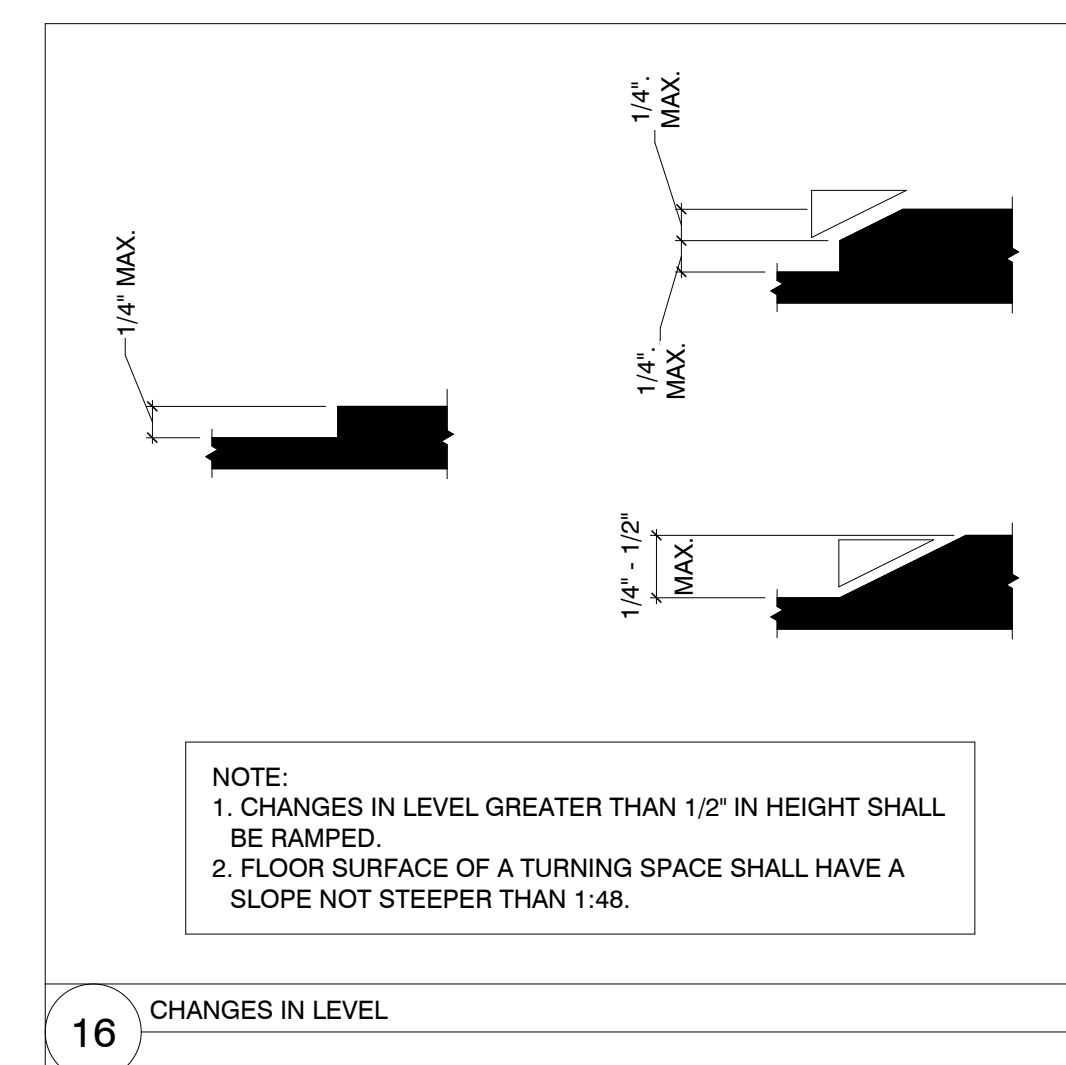
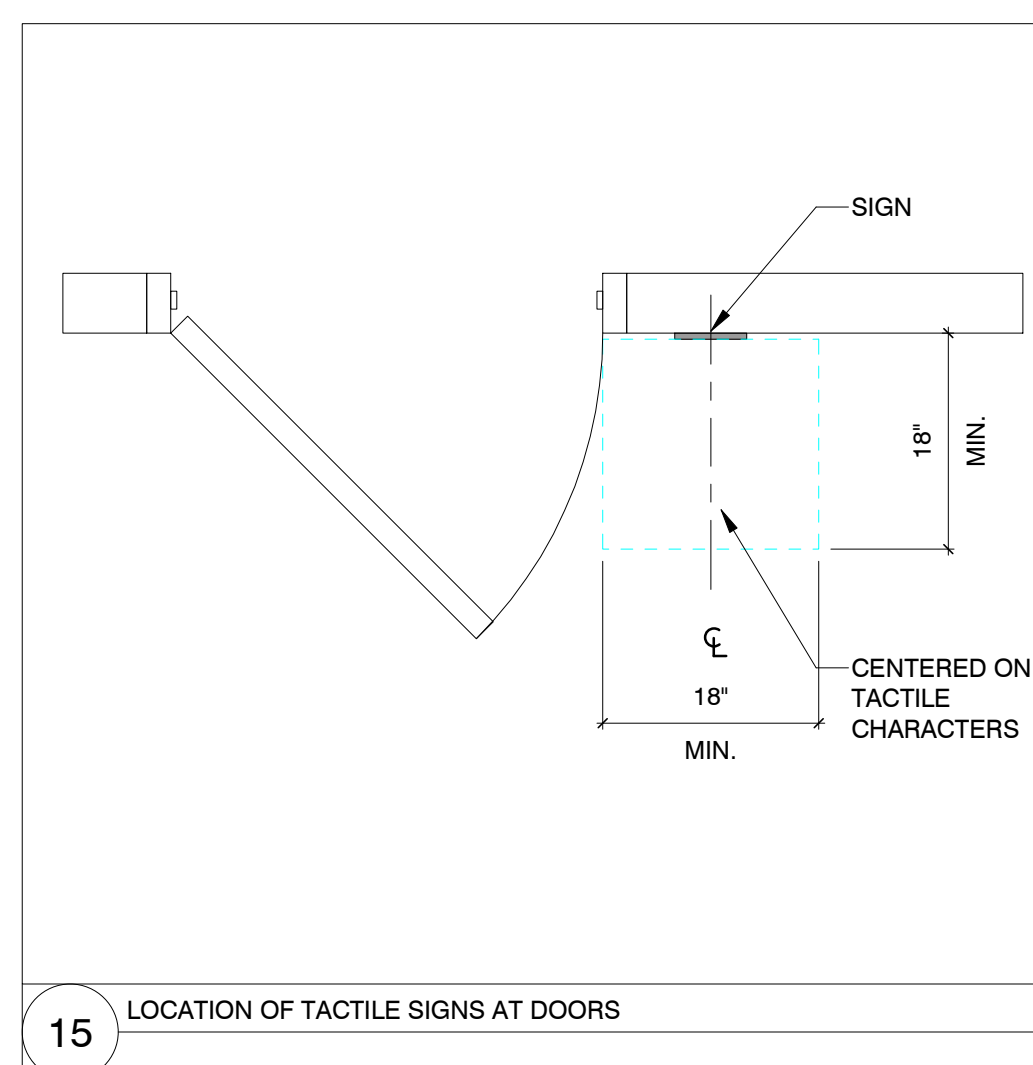
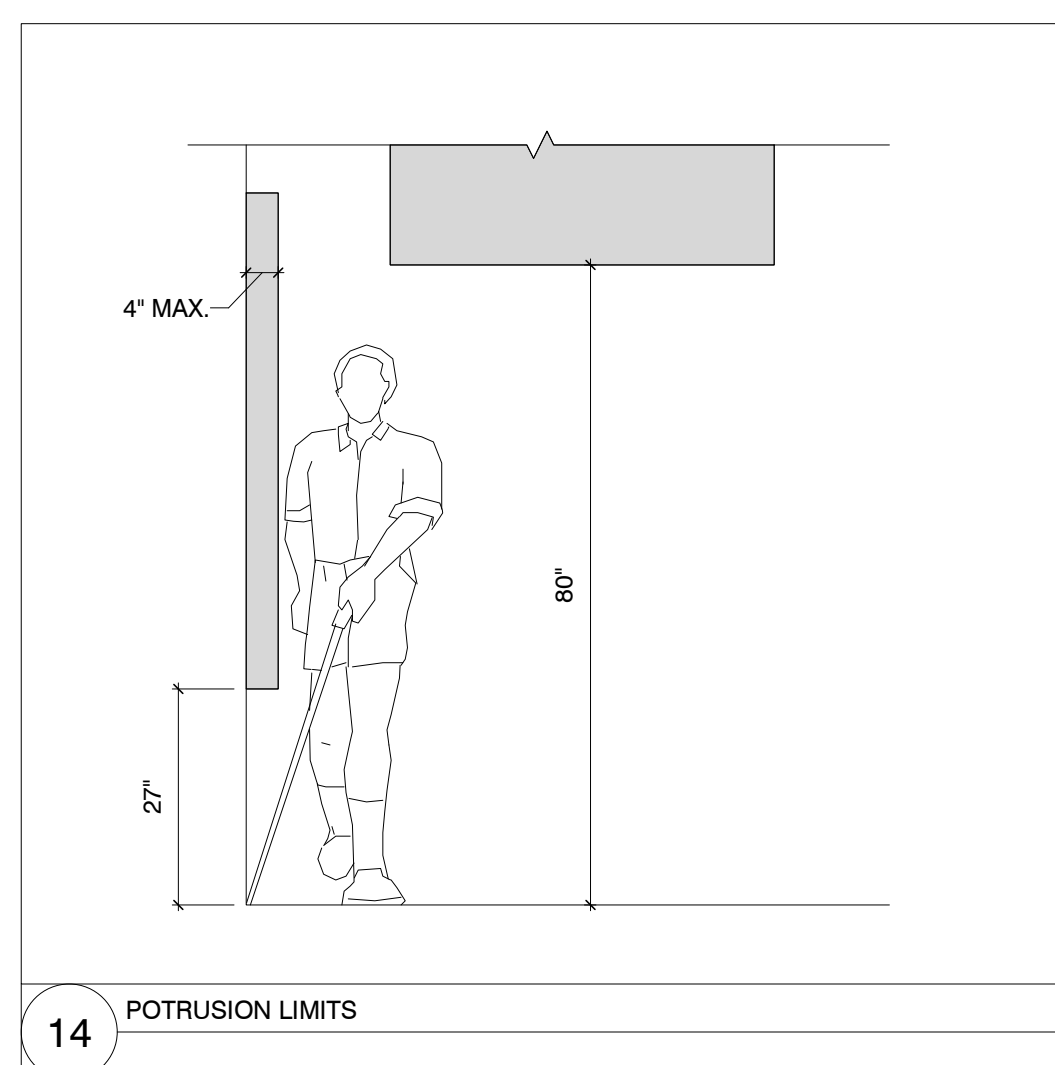
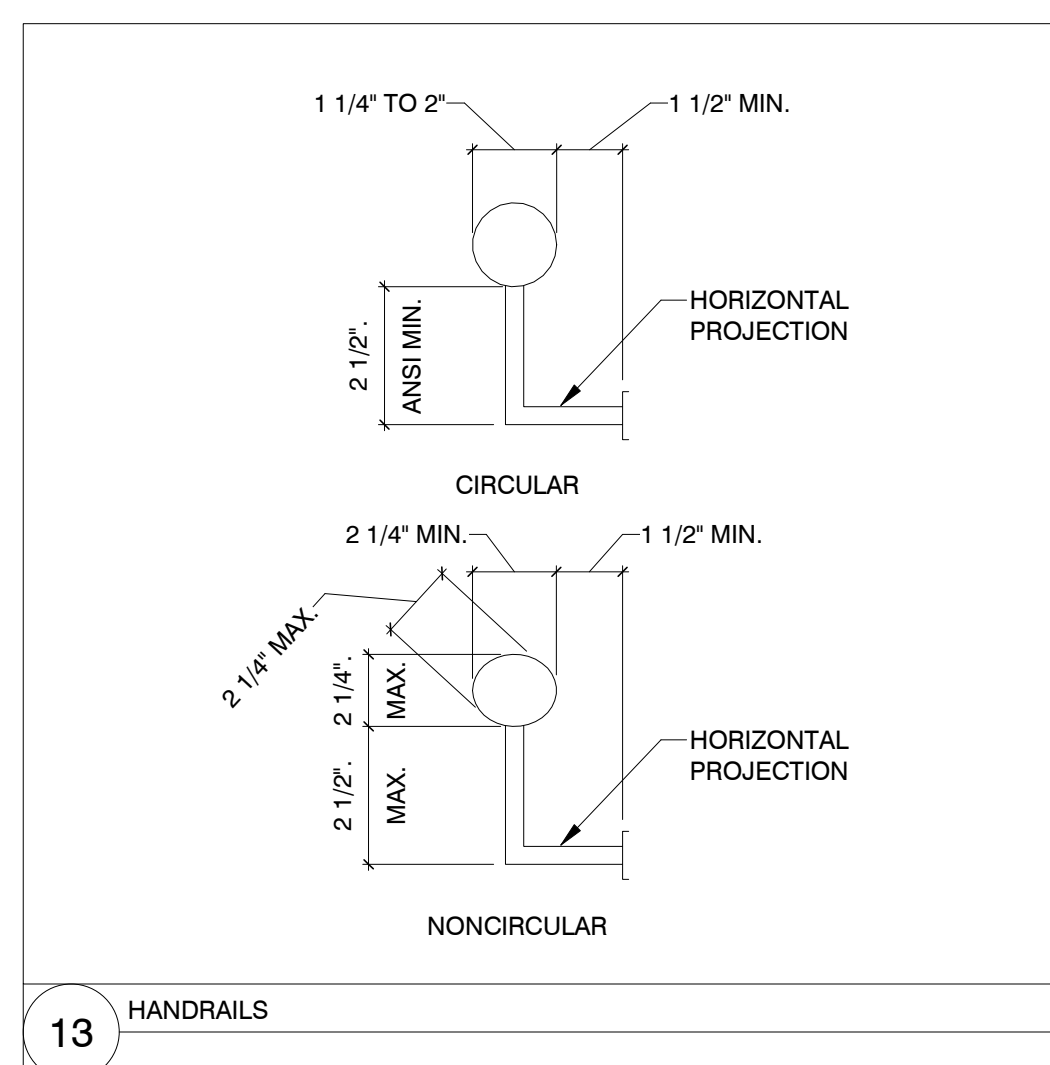
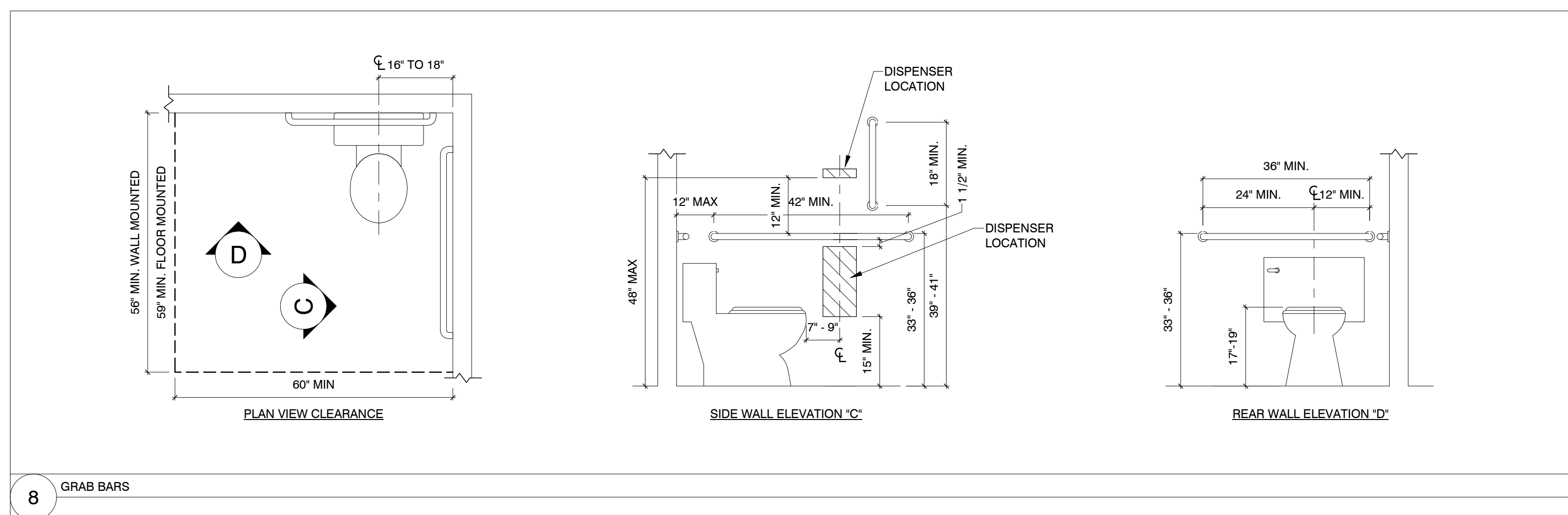
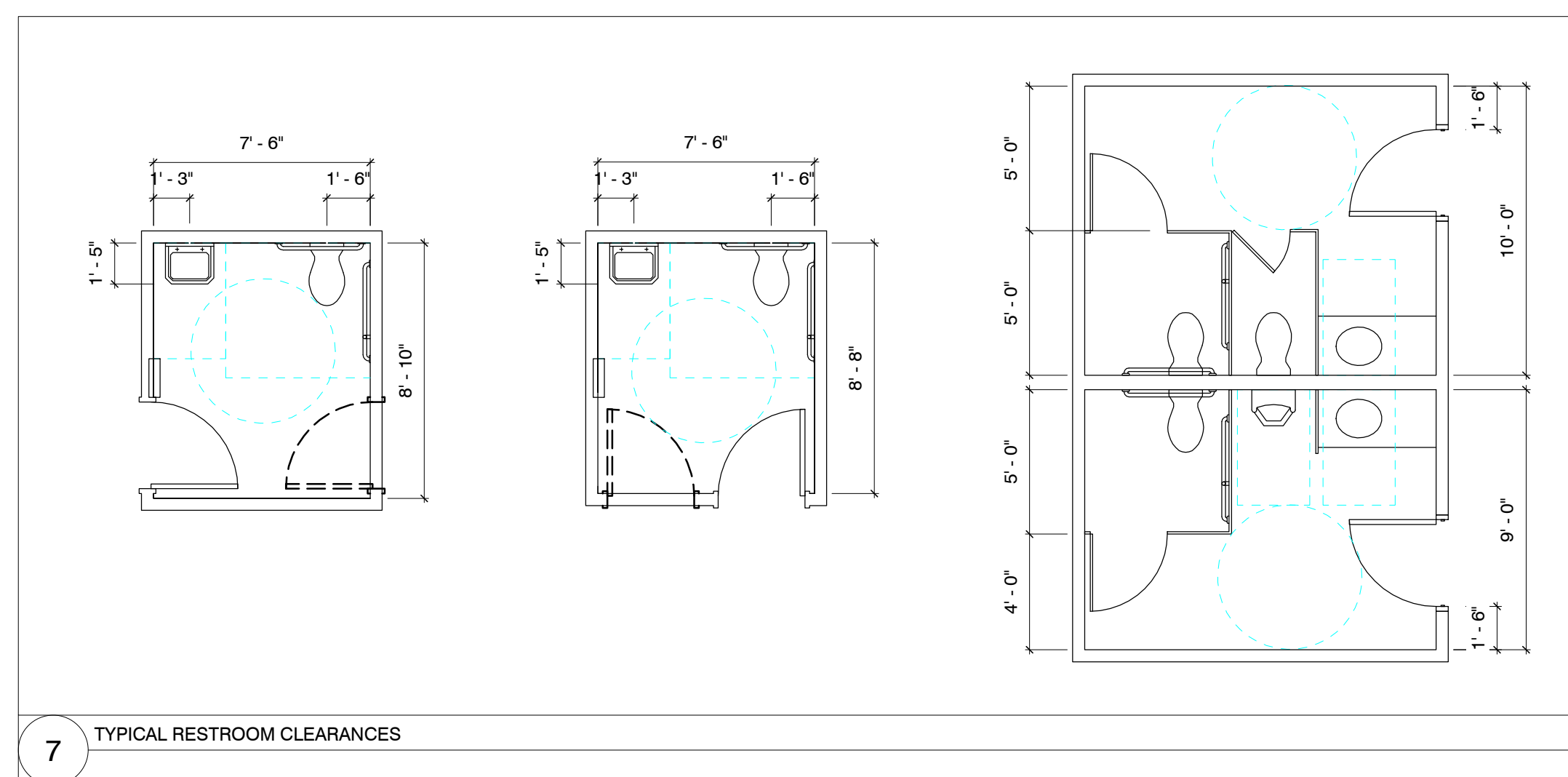
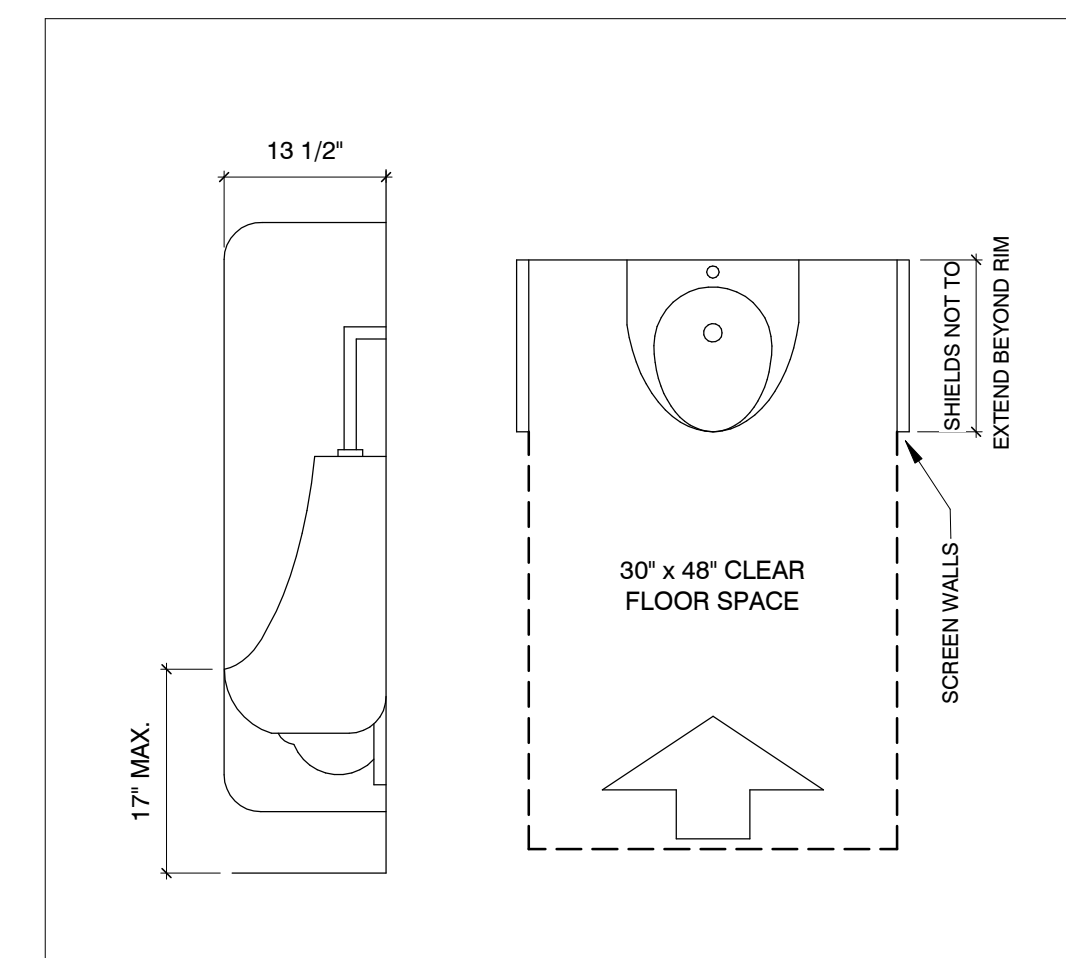
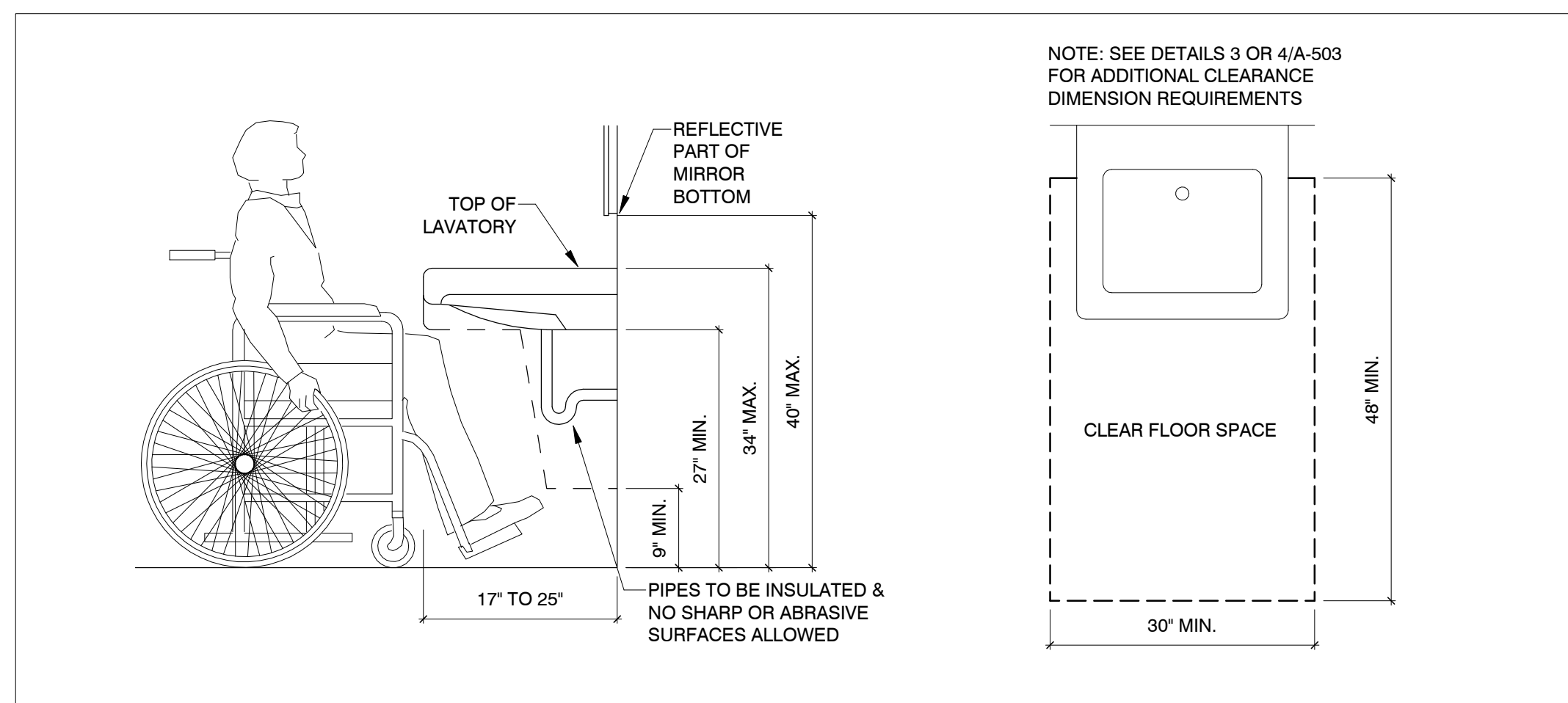
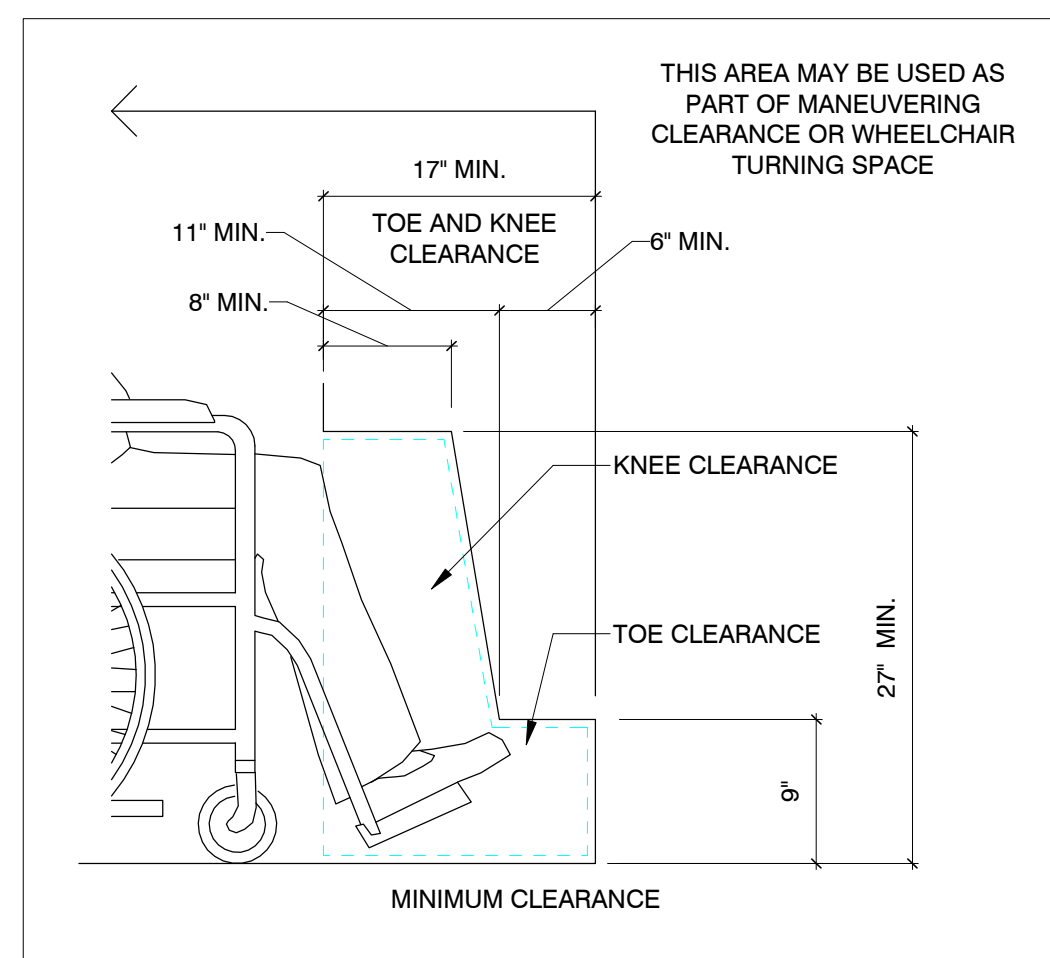
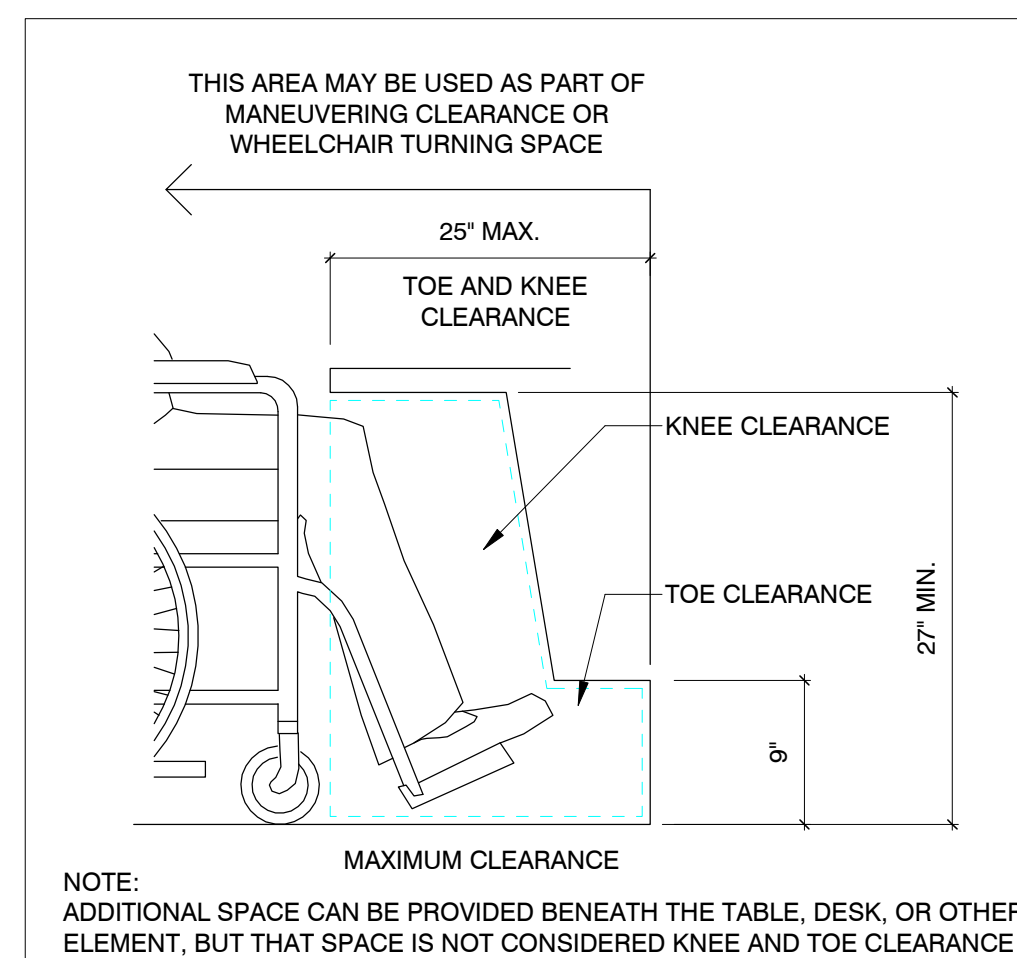
P12953

SEE SPECIFICATION SECTIONS: 07600, 07900, 08410 & 08800

D17 WINDOW SILL END DAM
SCALE: 1 1/2" = 1' - 0"



CLEAR FLOOR SPACE REQUIREMENTS



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As-Built:	--/--/--
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[illegible]

PROJECT NAME
Turn-Key Solutions Addition

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CITY/ STATE / ZIP
Germantown, WI, 53022

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ARCHITECT: BFW ENGINEER: AGR REVIEWED BY: BJZ

SHEET TITLE:
ADA DETAILS

SHEET NUMBER:

A-503

PROJECT NUMBER

P1295



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As-Built:	--/--/----

REVISIONS:



PROJECT NAME
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SHEET TITLE:
PERSPECTIVES

SHEET NUMBER:
A-900

PROJECT NUMBER: P12953
4513



①

ENGINEERS

Q

CONTRACTORS



ARCHITECTS

PROJECT NUMBER: P12953

2953



NOTE: THICK DIRECTION FOR ROOM FINDER SCHEDULE IDENTIFICATION

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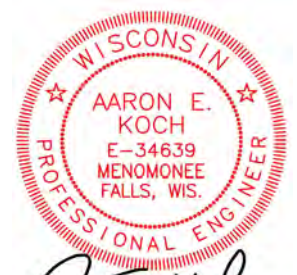
STORMWATER MANAGEMENT PLAN

Turn-Key Solutions Addition

Germantown, Wisconsin

PEG Project Number: 2308.00-WI

January 28, 2021
Revised March 26, 2021



A handwritten signature in black ink, appearing to read "A. E. Koch", written over the bottom portion of the professional seal.

3-26-2021



PINNACLE ENGINEERING GROUP

20725 Watertown Road | Suite 100 | Brookfield, WI 53186

www.pinnacle-engr.com

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EXISTING CONDITIONS	2
PROPOSED DEVELOPMENT CONDITIONS	2
ANALYSIS & RESULTS	3
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- Vicinity Map
- Site Soils Map

APPENDIX 2 – PRE-DEVELOPMENT CONDITIONS (RATE ATTENUATION)

- Hydrology Exhibit – Existing Conditions
- Hydrographs

APPENDIX 3 – POST-DEVELOPMENT CONDITIONS (RATE ATTENUATION)

- Hydrology Exhibit – Proposed Conditions
- Hydrographs

APPENDIX 4 – POST-DEVELOPMENT CONDITIONS (WATER QUALITY)

- WinSLAMM Modeling Input Data & Output Computations

APPENDIX 5 – SOIL BORINGS

Questions and comments can be directed to:

Aaron E. Koch, P.E.
Sr. Project Manager | Principal
Phone: 262.754.8888 | Fax: 262.754.8850
aekoch@pinnacle-engr.com

 **PINNACLE ENGINEERING GROUP**
20725 Watertown Road | Suite 100
Brookfield, WI 53186
www.pinnacle-engr.com

INTRODUCTION

The proposed project consists of a small building and parking addition. The Village of Germantown and MMSD have jurisdiction over the stormwater on this site. PEG has prepared a plan to meet the requirements of the agencies.

DESIGN CRITERIA

The project will include a building addition that will result in approximately 10,500 square feet of new impervious surface and a parking addition which will result in approximately 2,480 square feet. The total added impervious will be approximately 12,980 square feet. The total disturbed area will be approximately 17,000 square feet. Based on these parameters, the following goals will apply:

MMSDChapter 13

This is considered a redevelopment but the disturbed area is less than 2 acres, and therefore redevelopment criteria do not apply. The site will also result in less than 0.5 acres of net new impervious surface so peak flow attenuation is not required. The project will create more than 5,000 square feet of new impervious surface and thus Green Infrastructure rules will apply.

Wisconsin Department of Natural Resources:.....NR 216 & NR 151

Since the site will disturb less than one acre of land, NR 216/151 does not apply.

Village of GermantownChapter 27

Defers to the same criteria as MMSD and DNR.

EXISTING CONDITIONS

The site is currently developed with a building and parking lot. Drainage from the area of interest flows to the east into the storm sewer in McCormick Drive. All runoff is ultimately tributary to the Menomonee River.

POST-DEVELOPMENT CONDITIONS

It is proposed to add a building addition over an existing greenspace. A bioretention basin will be constructed along the west property boundary to capture the roof and parking area. The bioretention basin will be sized in accordance with MMSD GI rules and with DNR technical standards. Controlled flow roof drains will also be used to reduce peak flows.

ANALYSIS & RESULTS

Under the GI rules, 0.5 inches of rain over the new surface must be treated. MMSD guidelines state that bioretention basins get credit for treating 7.8 gallons per square foot of bottom area.

$$\text{Gallons Requiring Treatment} = 12,980 \text{ sf} * 0.5 \text{ in} * (1 \text{ ft}/12 \text{ in}) * (7.48 \text{ gallons}/1 \text{ cf})$$

$$\text{Gallons Requiring Treatment} = 4,045 \text{ gallons}$$

$$\text{Surface Area Required} = 4,045 \text{ gallons} / 7.8 \text{ gallons}$$

$$\text{Surface Area Required} = 518 \text{ sf}$$

$$\text{Surface Area Provided} = 650 \text{ sf}$$

A summary of the bioretention basin under specific storm events is provided in the appendix.

SUMMARY OF RESULTS

Existing Conditions

The existing site consists of the new building addition and the new parking. The grading around the perimeter has been included as it will be disturbed during construction.

Existing Runoff Summary

Area	Area	CN	Tc	2-year Peak Flows	10-year Peak Flows	100-year Peak Flows
Existing site	0.37	74	6.0	0.5	1.0	2.4

Proposed Conditions

The proposed redevelopment area is modeled compared to the existing area. To control flows for the site a bioretention basin and controlled flow roof drains will be used, and there is a reduction in peak flows due to the controlled flow roof and bioretention basin. The controlled flow roof drains will be a Zurn Z-105 fixture, this fixture incorporates multiple weirs which have a flow of 10 gpm per inch of head per weir. The design incorporates 3 weirs per fixture with a total of 2 fixtures. The ponding areas and outlets are given for each roof area and multiplier of 2 is used in the model to approximate each area. In addition, the weirs will overflow at an elevation of just under 4". A horizontal orifice is added to the model to account for this. The maximum ponding depth during the 100-year event is 6" which is the maximum typically allowed before additional structural design must be addressed. In this case, the 100-year depth is right at the 6" maximum. The bioretention basin is sized per MMSD green infrastructure, and will discharge to an existing storm sewer through a 6" pipe. The drainage area is illustrated in the appendix.

Proposed Runoff Summary

Area	Area	CN	Tc	2-year Peak Flows	10-year Peak Flows	100-year Peak Flows
Controlled Flow Roof	0.24	98	6.0*	0.9	1.3	2.2
Controlled Flow		---	---	0.5	0.6	0.9
Proposed to Bioretention	0.10	72	6.0*	0.2	0.4	0.8
Bioretention Basin		---	---	0.4	0.6	0.9
Undetained New Pavement	0.01	98	6.0*	0.1	0.2	0.3
Proposed Site Discharge	0.35	---	---	0.5	0.6	0.9

*A Tc of 6.0 min is used, minimum per TR-55.

Roof Data

Pond	Assumed Roof Elev.	Peak W.S. Elev. 2-year	Peak W.S. Elev. 10-year	Peak W.S. Elev. 100-year
Controlled Flow Roof	1,000.0	1,000.3	1,000.4	1,000.5

Bioretention Basin Data

Pond	Bottom Elev.	Peak W.S. Elev. 2-year	Peak W.S. Elev. 10-year	Peak W.S. Elev. 100-year	Spillway Elev.
Bioretention Basin	899.5	900.3	900.5	901	901.0

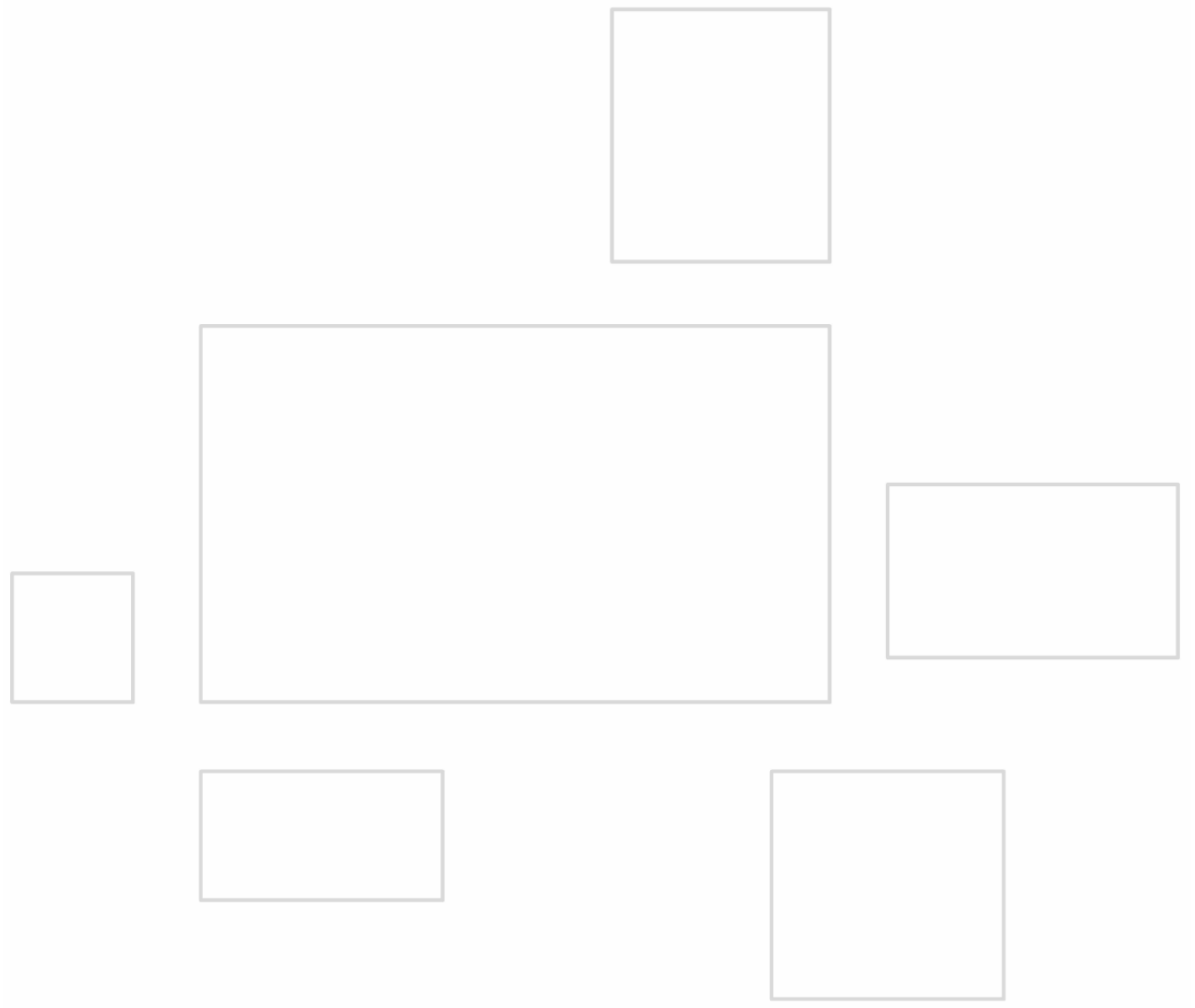
Runoff Water Quality

The proposed redevelopment will generate 58.7 pounds of sediment and after treatment 10.3 pounds will remain. The percent reduction is 82%, this is well over the required 40% due to the bioretention device. The bioretention device will remove 94% of TSS which provides more removal than what is required. There will be a small area of undetained new pavement that was accounted for in the model. Existing pavement within the redevelopment was routed through the other device, as treatment for this area is not required. The proposed bioretention will provide sediment removal for the redeveloped site.

CONCLUSION

This project is subject to Village of Germantown and MMSD regulations. The additional impervious surface will be treated via a bio-infiltration basin to meet Green Infrastructure rules.

APPENDIX 1 MAPS

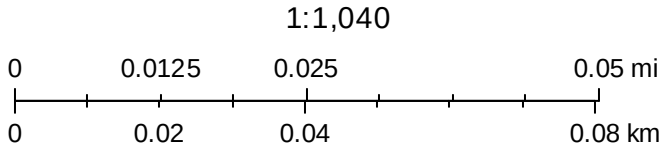


Washington County, Wisconsin



1/12/2021, 8:28:05 PM

- | | | |
|----------------------------|-------------------|----------------|
| Current Parcel | Meander Line | Municipality |
| RoadCenterline TWN,CVS,PVT | PLSS Monument | Retired Parcel |
| Township Road | PLSS Boundary | Right-of-Way |
| City/Village Street | Text Leader Lines | |
| Private Street | Plat | |
| Landhook | Lot | |



Washington County



Surface Water Data Viewer Map



Legend

- Wetland Identifications and Confirmations
 - Dammed pond
 - Excavated pond
 - Filled excavated pond
 - Filled/drained wetland
 - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
 - Wetland
 - Upland
- Filled Areas
- Index to EN_Image_Basemap_Leaf_Off

Notes

0.1 0 0.03 0.1 Miles

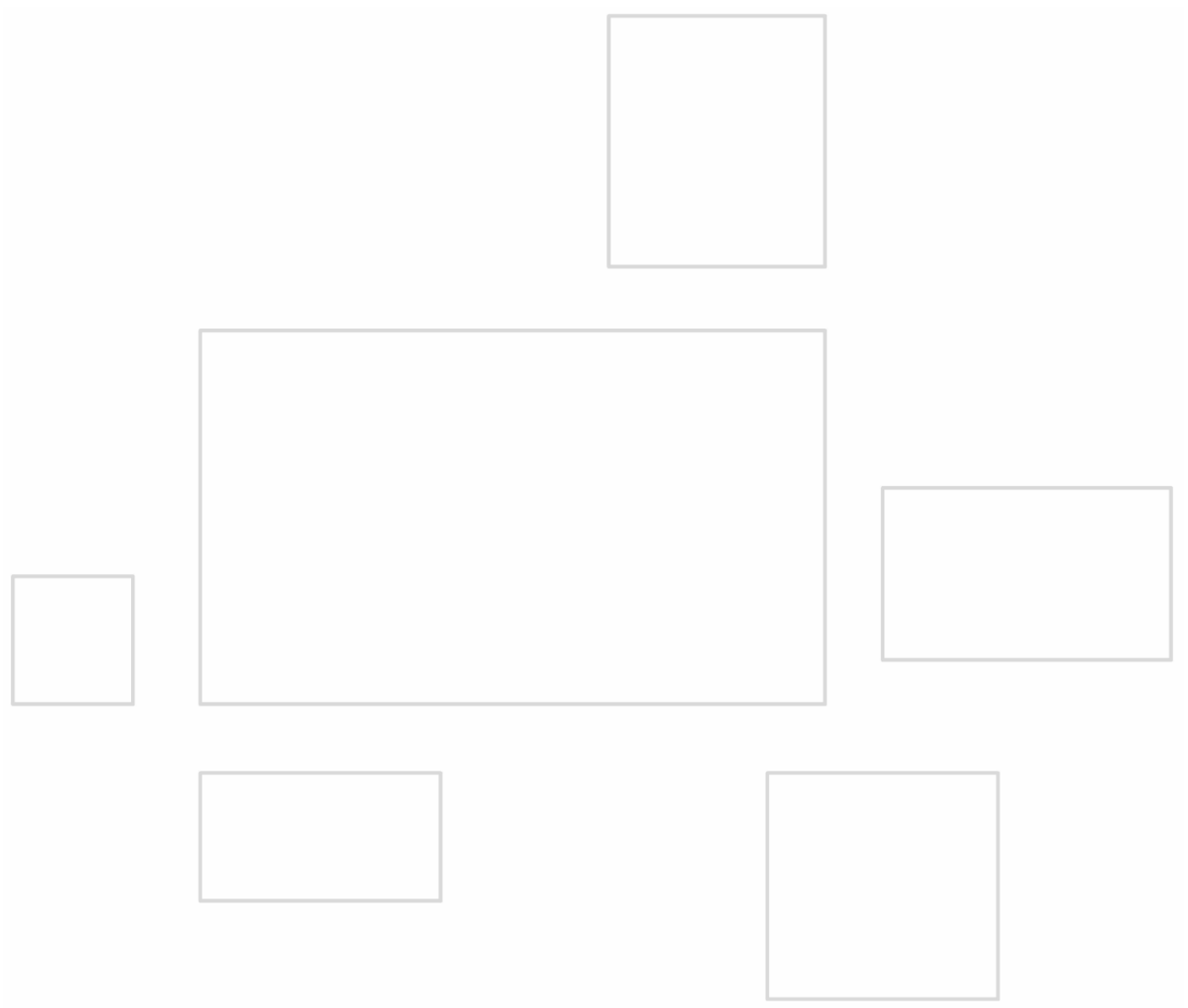
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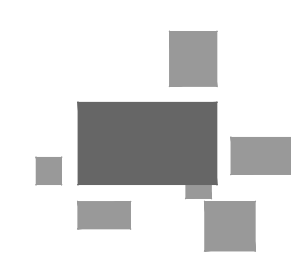
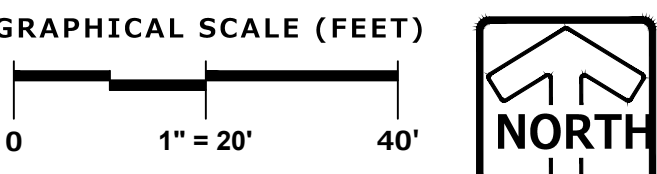
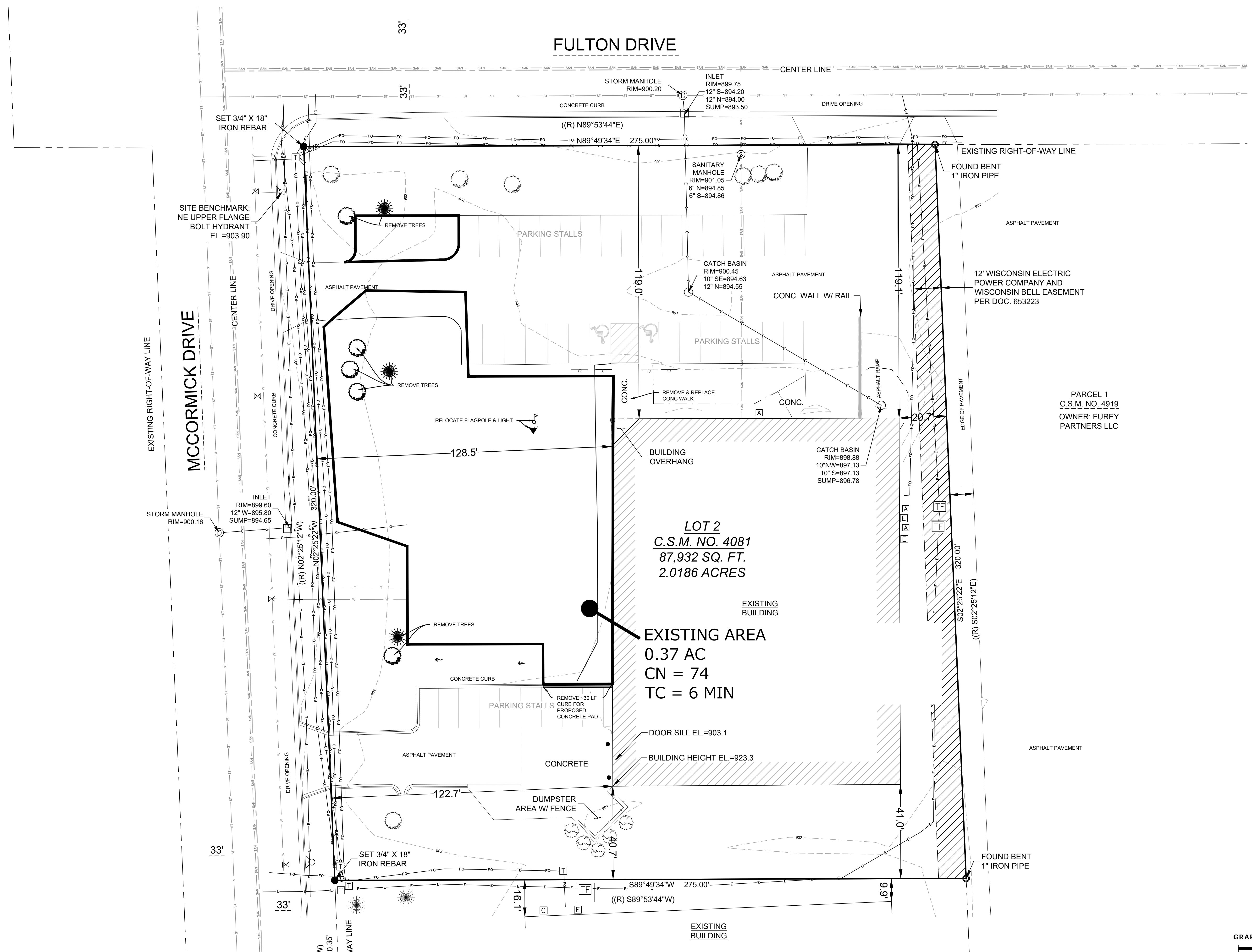
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APPENDIX 2

PRE DEVELOPMENT CONDITIONS





EXISTING HYDROLOGY

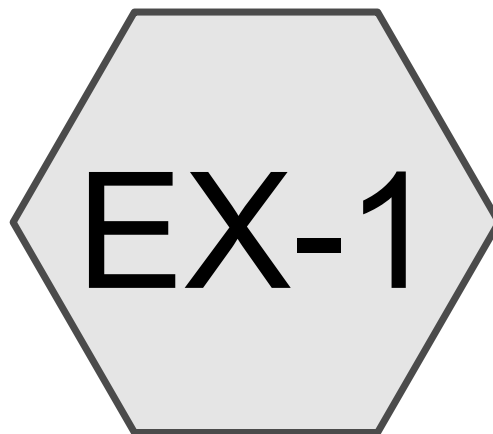
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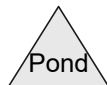
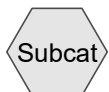
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EXISTING AREA



Routing Diagram for Rain Garden HLJ

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Rain Garden HLJ

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MSE 24-hr 3 2-Yr Rainfall=2.65"

Printed 3/26/2021

Page 2

Summary for Subcatchment EX-1: EXISTING AREA

Runoff = 0.45 cfs @ 12.14 hrs, Volume= 0.020 af, Depth> 0.65"

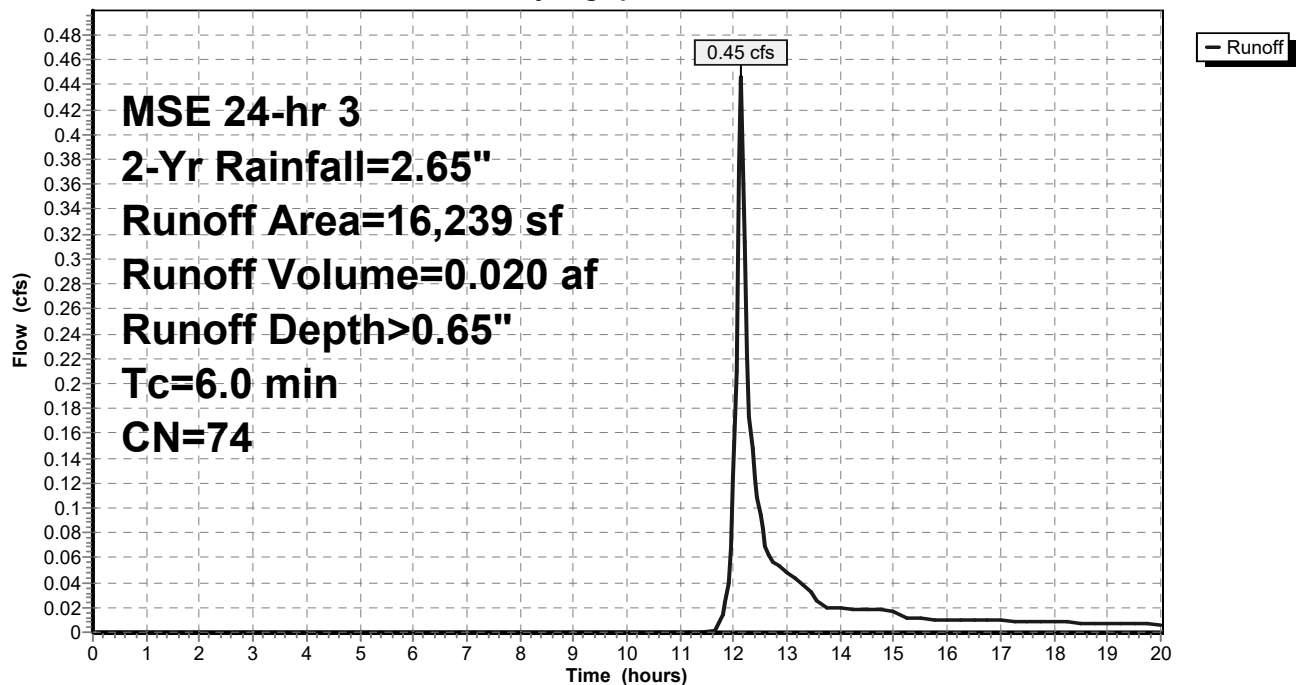
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MSE 24-hr 3 2-Yr Rainfall=2.65"

Area (sf)	CN	Description
16,239	74	>75% Grass cover, Good, HSG C
16,239		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Assumed Min

Subcatchment EX-1: EXISTING AREA

Hydrograph



Rain Garden HLJ

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MSE 24-hr 3 10-Yr Rainfall=3.82"

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Page 3

Summary for Subcatchment EX-1: EXISTING AREA

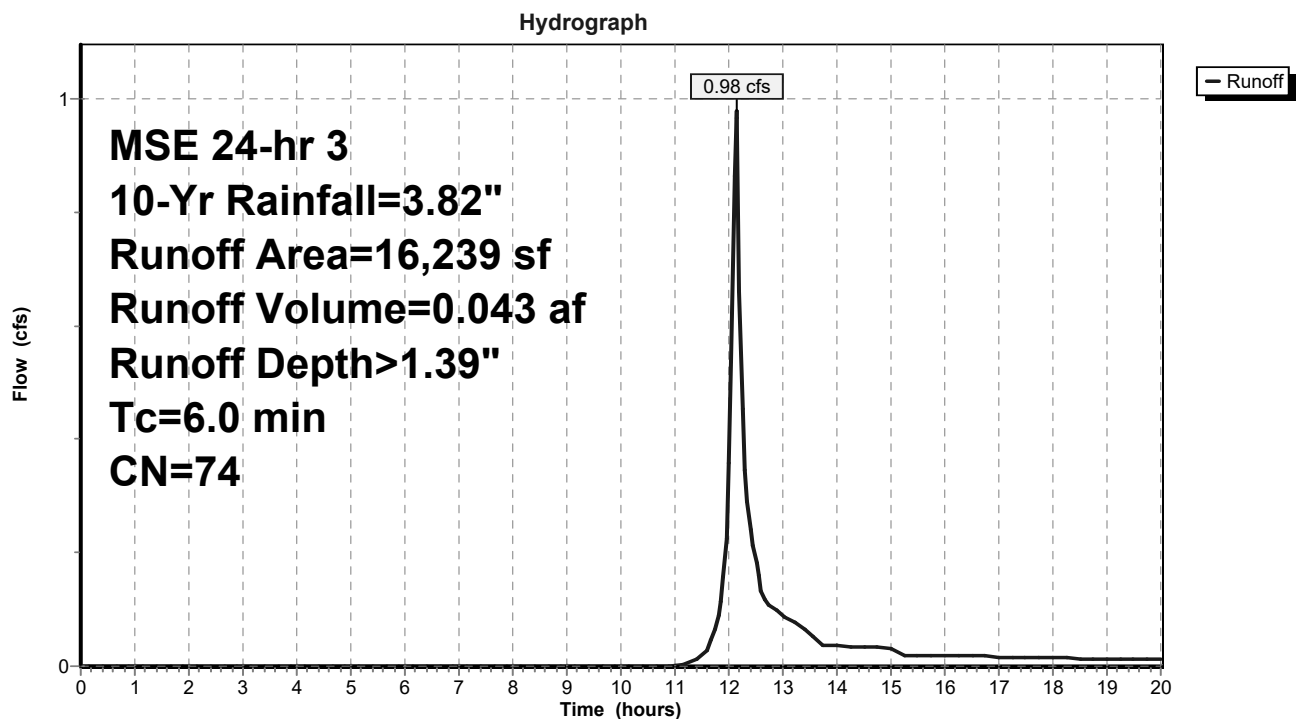
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Yr Rainfall=3.82"

Area (sf)	CN	Description
16,239	74	>75% Grass cover, Good, HSG C
16,239		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Assumed Min

Subcatchment EX-1: EXISTING AREA



Rain Garden HLJ

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MSE 24-hr 3 100-yr Rainfall=6.41"

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Page 4

Summary for Subcatchment EX-1: EXISTING AREA

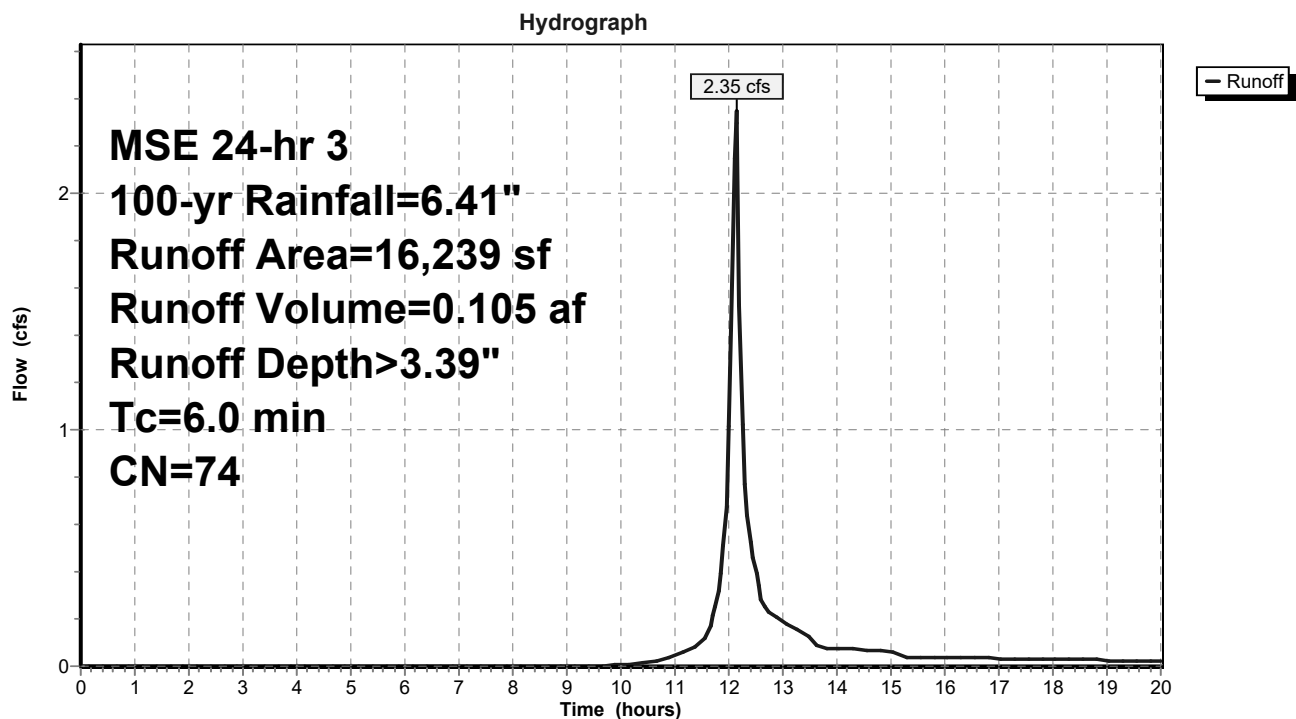
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.41"

Area (sf)	CN	Description
16,239	74	>75% Grass cover, Good, HSG C
16,239		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Assumed Min

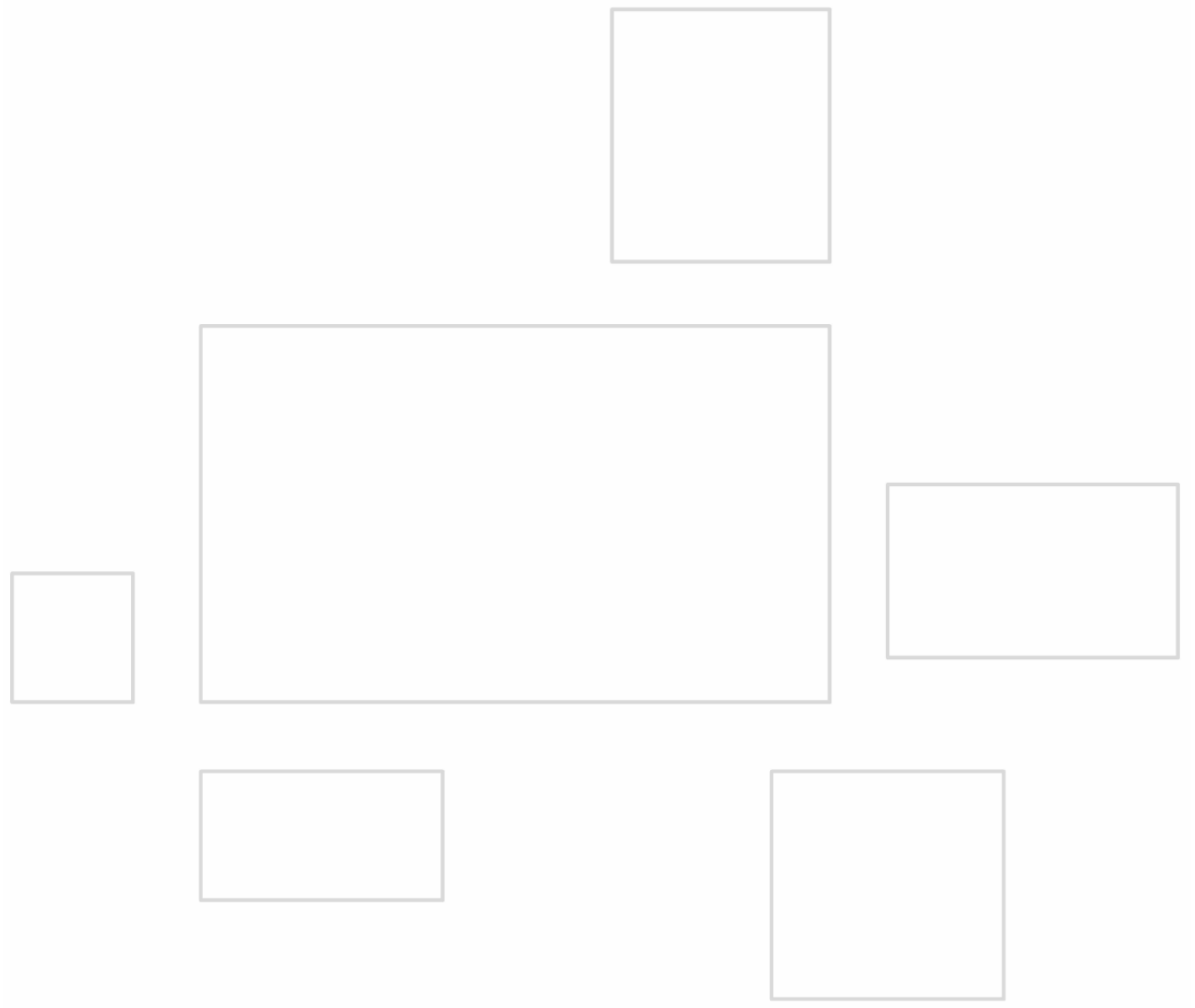
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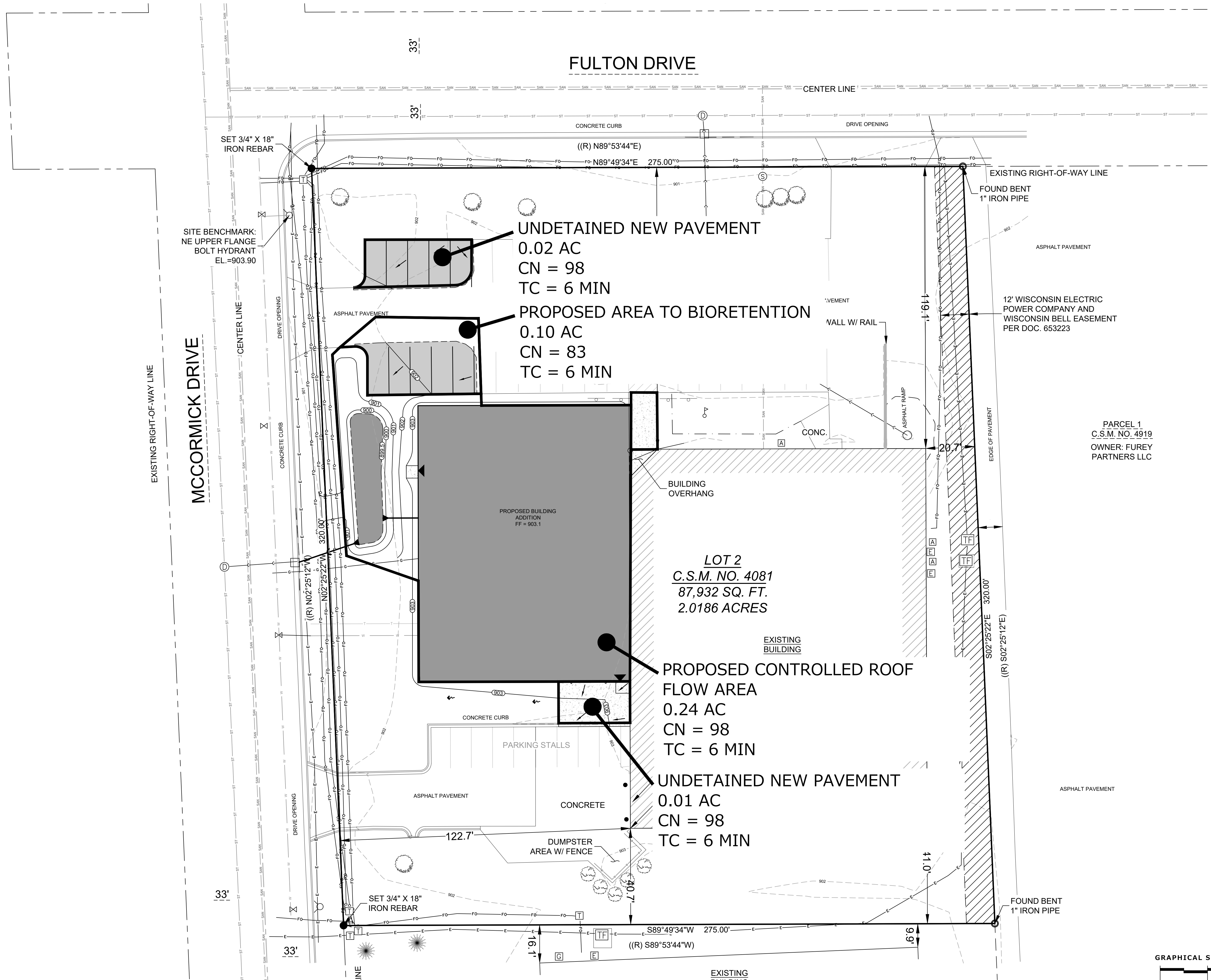


APPENDIX 3

POST DEVELOPMENT CONDITIONS

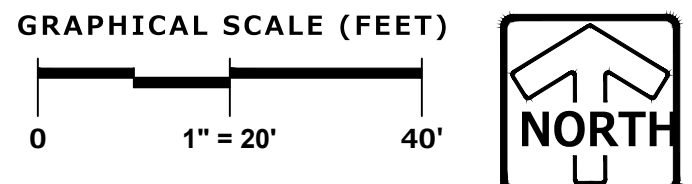
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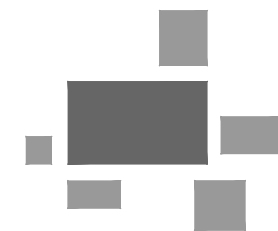


PARCEL 1
C.S.M. NO. 4919
OWNER: FUREY
PARTNERS LLC

LOT 2
C.S.M. NO. 4081
87,932 SQ. FT.
2.0186 ACRES



PROPOSED HYDROLOGY



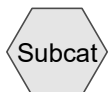
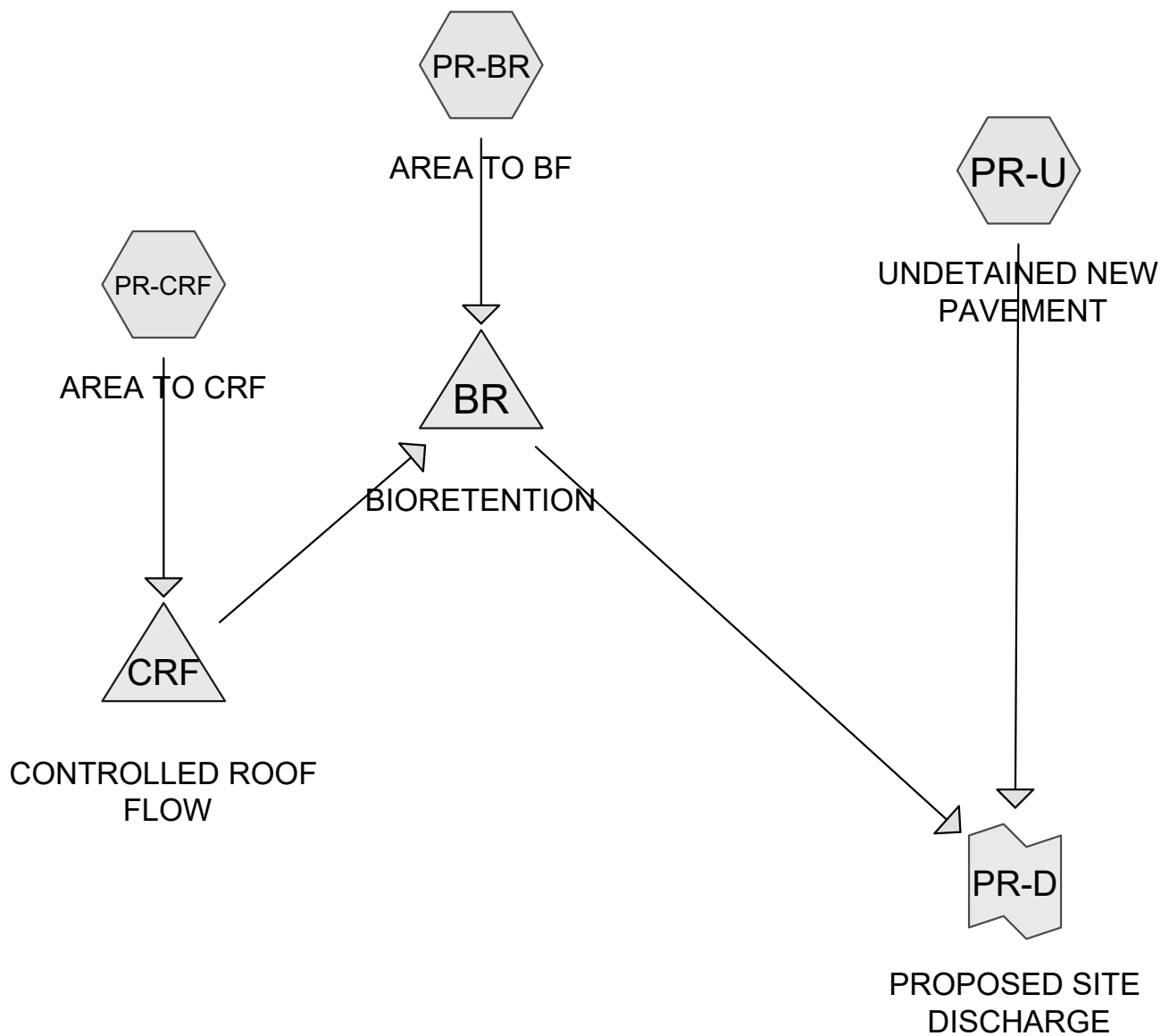
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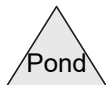
03/26/21



Subcat



Reach



Pond



Link

Routing Diagram for Rain Garden HLJ

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Rain Garden HLJ

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MSE 24-hr 3 100-yr Rainfall=6.41"

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-BR: AREA TO BF Runoff Area=4,379 sf 36.42% Impervious Runoff Depth>4.31"
Tc=6.0 min CN=83 Runoff=0.78 cfs 0.036 af

Subcatchment PR-CRF: AREA TO CRF Runoff Area=10,454 sf 100.00% Impervious Runoff Depth>6.00"
Tc=6.0 min CN=98 Runoff=2.21 cfs 0.120 af

Subcatchment PR-U: UNDETAINED NEW Runoff Area=1,406 sf 100.00% Impervious Runoff Depth>6.00"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.016 af

Pond BR: BIORETENTION Peak Elev=901.03' Storage=1,579 cf Inflow=1.59 cfs 0.156 af
Outflow=0.89 cfs 0.150 af

Pond CRF: CONTROLLED ROOF FLOW Peak Elev=1,000.49' Storage=1,190 cf Inflow=2.21 cfs 0.120 af
Outflow=0.88 cfs 0.120 af

Link PR-D: PROPOSED SITE DISCHARGE Inflow=0.93 cfs 0.166 af
Primary=0.93 cfs 0.166 af

Total Runoff Area = 0.373 ac Runoff Volume = 0.172 af Average Runoff Depth = 5.54"
17.14% Pervious = 0.064 ac 82.86% Impervious = 0.309 ac

Rain Garden HLJ

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MSE 24-hr 3 100-yr Rainfall=6.41"

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Summary for Subcatchment PR-BR: AREA TO BF

Runoff = 0.78 cfs @ 12.13 hrs, Volume= 0.036 af, Depth> 4.31"

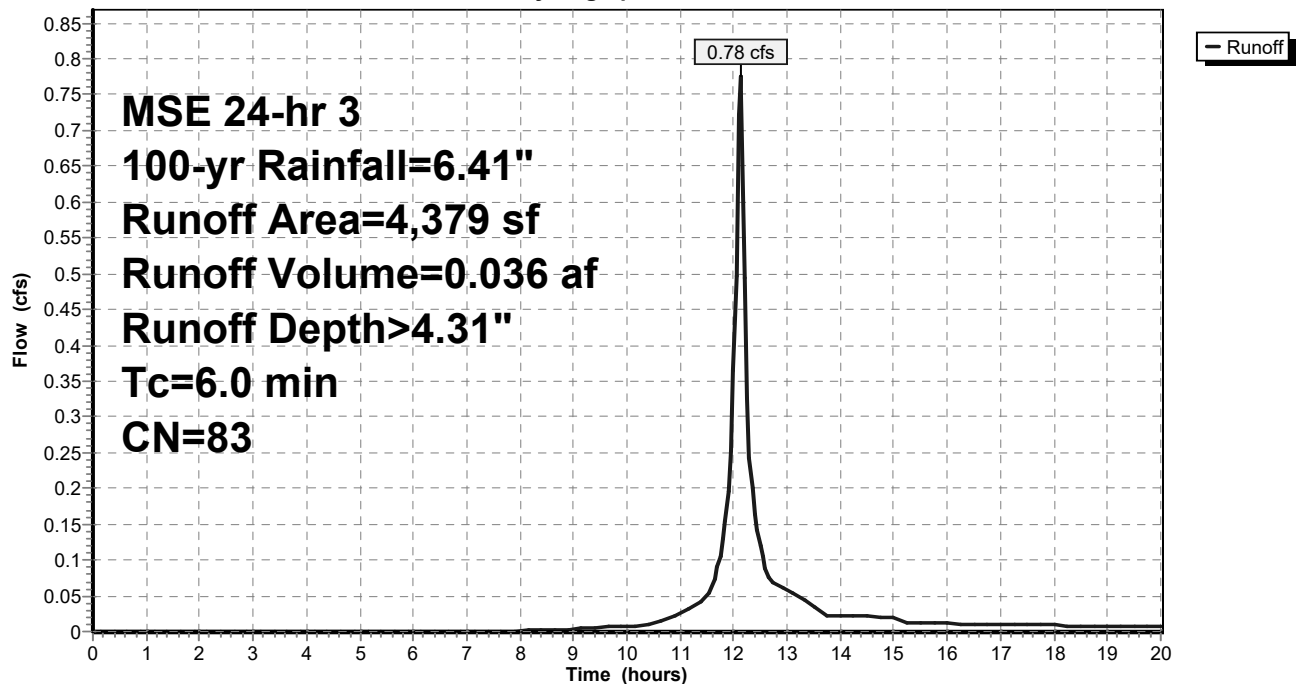
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.41"

Area (sf)	CN	Description
2,784	74	>75% Grass cover, Good, HSG C
* 1,595	98	Pavement
4,379	83	Weighted Average
2,784		63.58% Pervious Area
1,595		36.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Assumed Min

Subcatchment PR-BR: AREA TO BF

Hydrograph



Rain Garden HLJ

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MSE 24-hr 3 100-yr Rainfall=6.41"

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Summary for Subcatchment PR-CRF: AREA TO CRF

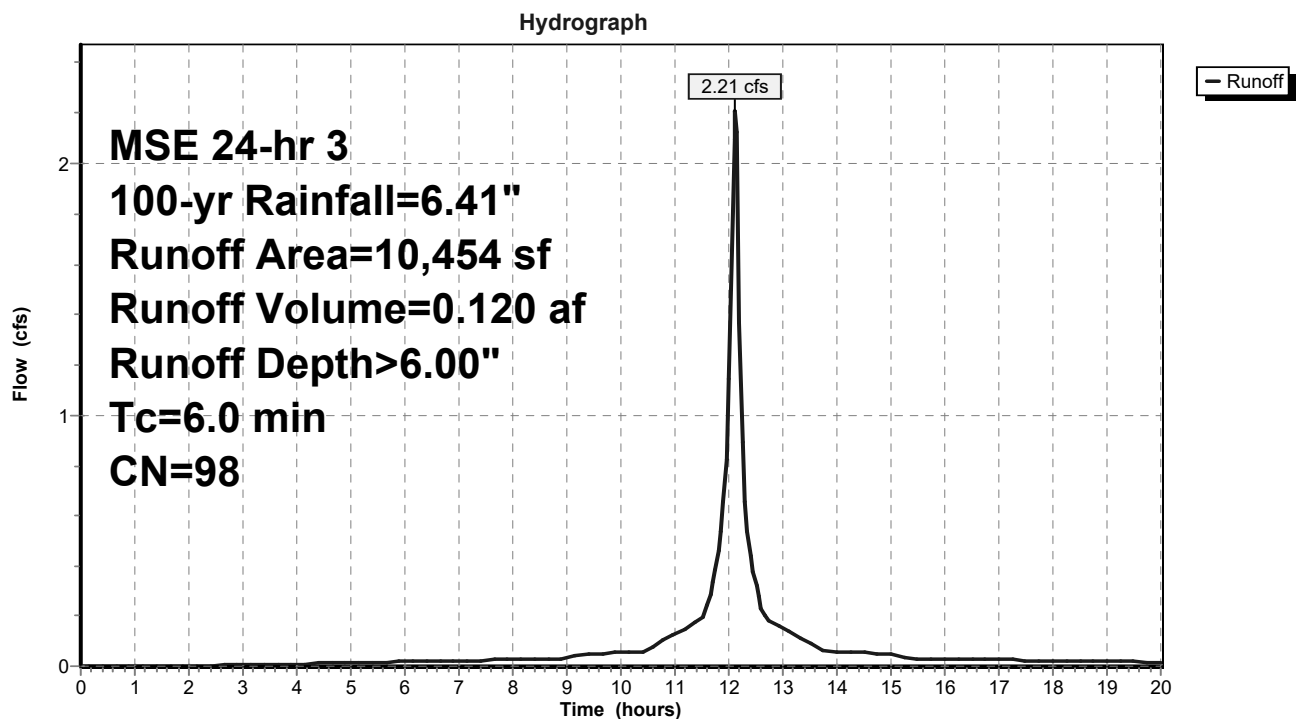
Runoff = 2.21 cfs @ 12.13 hrs, Volume= 0.120 af, Depth> 6.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.41"

	Area (sf)	CN	Description
*	10,454	98	Roof
	10,454		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Assumed Min

Subcatchment PR-CRF: AREA TO CRF



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MSE 24-hr 3 100-yr Rainfall=6.41"

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Summary for Subcatchment PR-U: UNDETAINED NEW PAVEMENT

Runoff = 0.30 cfs @ 12.13 hrs, Volume= 0.016 af, Depth> 6.00"

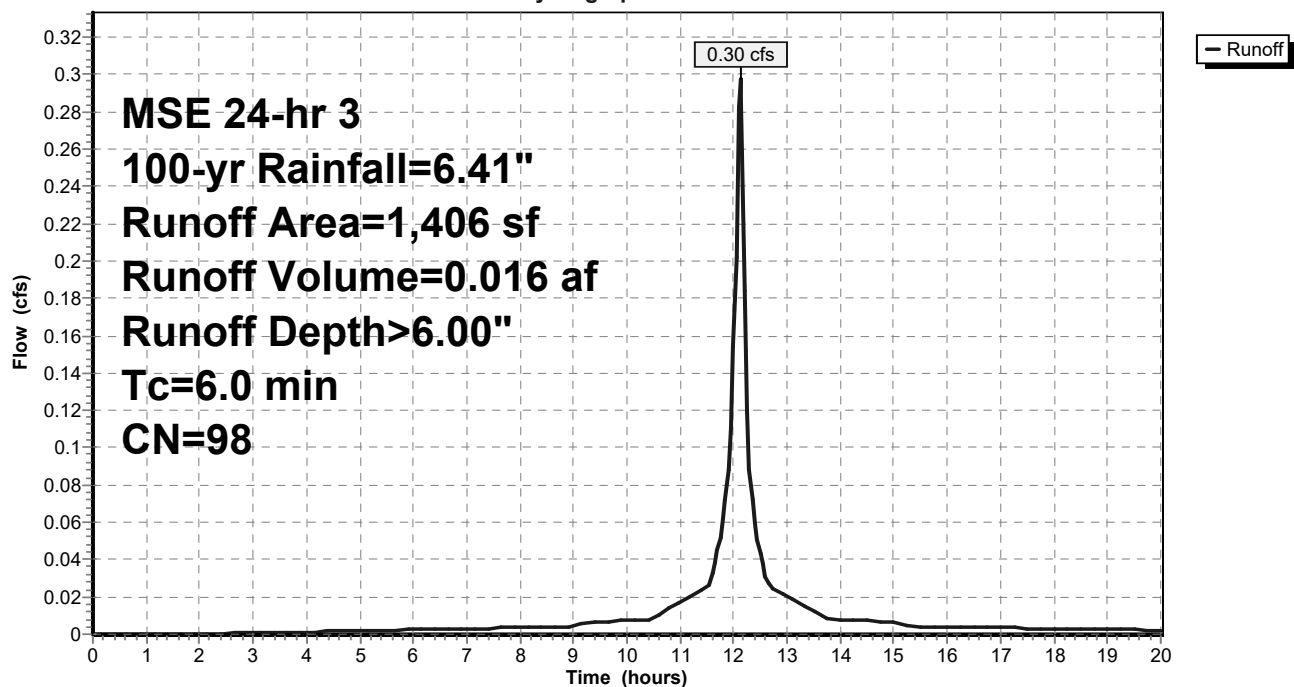
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.41"

	Area (sf)	CN	Description
*	1,406	98	Pavement
	1,406		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, MIN PER TR-55

Subcatchment PR-U: UNDETAINED NEW PAVEMENT

Hydrograph



Rain Garden HLJ

MSE 24-hr 3 100-yr Rainfall=6.41"

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Summary for Pond BR: BIORETENTION

Inflow Area = 0.341 ac, 81.23% Impervious, Inflow Depth > 5.50" for 100-yr event
 Inflow = 1.59 cfs @ 12.15 hrs, Volume= 0.156 af
 Outflow = 0.89 cfs @ 12.53 hrs, Volume= 0.150 af, Atten= 44%, Lag= 22.9 min
 Primary = 0.89 cfs @ 12.53 hrs, Volume= 0.150 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 901.03' @ 12.53 hrs Surf.Area= 1,519 sf Storage= 1,579 cf

Plug-Flow detention time= 48.9 min calculated for 0.150 af (96% of inflow)
 Center-of-Mass det. time= 35.0 min (778.8 - 743.8)

Volume	Invert	Avail.Storage	Storage Description
#1	899.50'	2,896 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
899.50	650	0	0
900.00	845	374	374
901.00	1,482	1,164	1,537
901.70	2,400	1,359	2,896

Device	Routing	Invert	Outlet Devices
#1	Primary	899.75'	6.0" Round Culvert X 0.80 L= 26.4' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 899.75' / 896.07' S= 0.1394 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf
#2	Primary	901.00'	10.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.88 cfs @ 12.53 hrs HW=901.03' (Free Discharge)

1=Culvert (Inlet Controls 0.77 cfs @ 3.90 fps)

2=Broad-Crested Rectangular Weir (Weir Controls 0.11 cfs @ 0.41 fps)

Rain Garden HLJ

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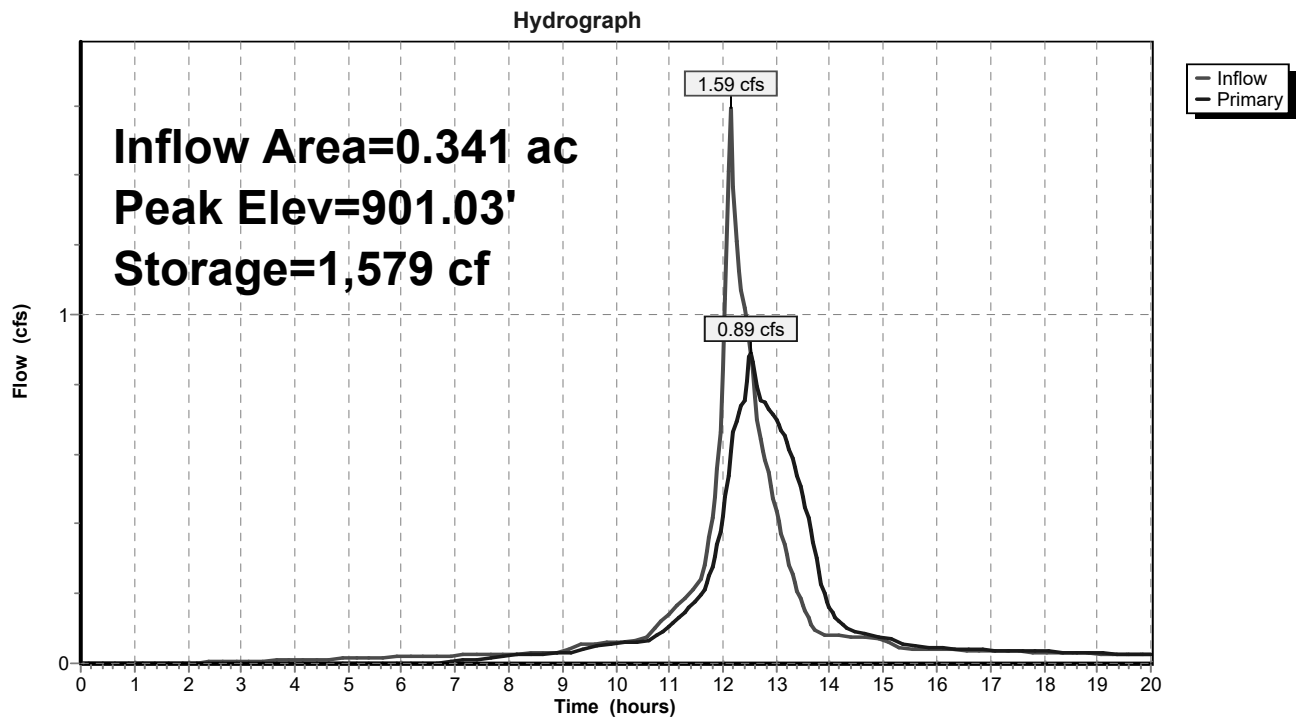
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MSE 24-hr 3 100-yr Rainfall=6.41"

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Pond BR: BIORETENTION



Rain Garden HLJ

MSE 24-hr 3 100-yr Rainfall=6.41"

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Summary for Pond CRF: CONTROLLED ROOF FLOW

Inflow Area = 0.240 ac, 100.00% Impervious, Inflow Depth > 6.00" for 100-yr event
 Inflow = 2.21 cfs @ 12.13 hrs, Volume= 0.120 af
 Outflow = 0.88 cfs @ 12.26 hrs, Volume= 0.120 af, Atten= 60%, Lag= 8.0 min
 Primary = 0.88 cfs @ 12.26 hrs, Volume= 0.120 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,000.49' @ 12.26 hrs Surf.Area= 4,878 sf Storage= 1,190 cf

Plug-Flow detention time= 10.5 min calculated for 0.120 af (100% of inflow)
 Center-of-Mass det. time= 10.4 min (736.6 - 726.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,000.00'	1,250 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 2

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,000.00	0	0	0
1,000.50	2,500	625	625

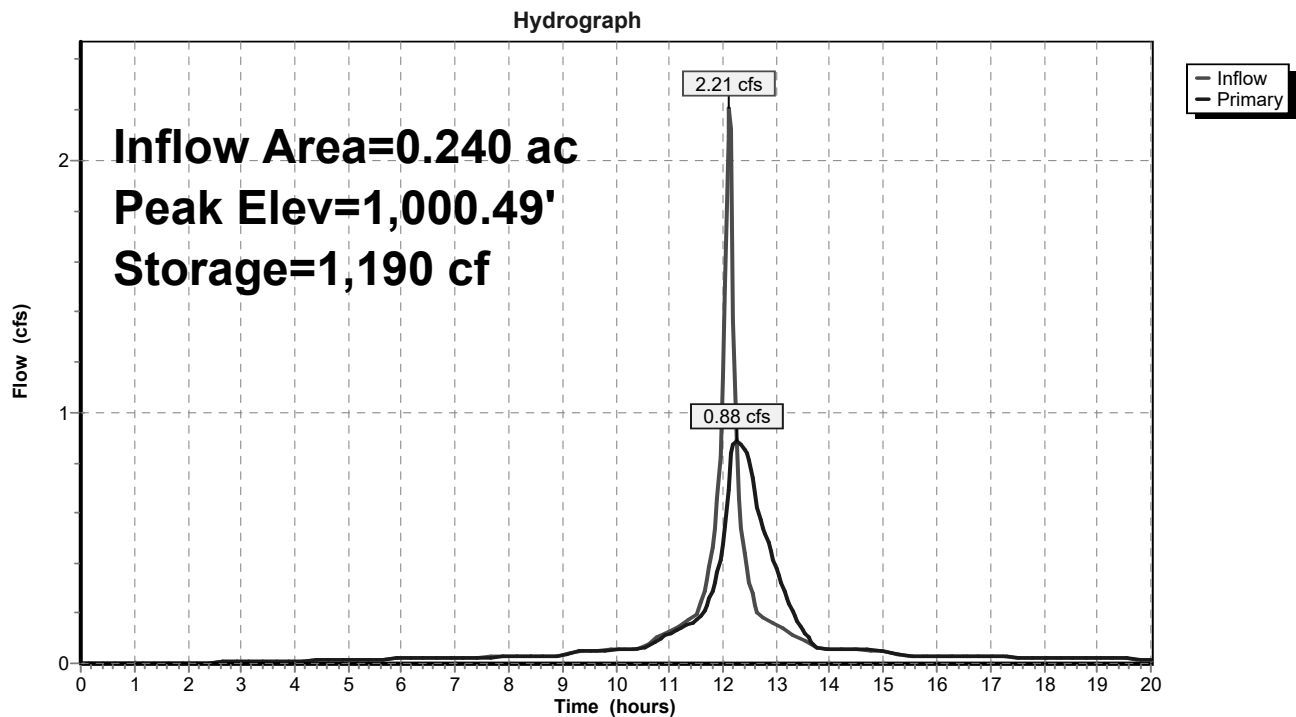
Device	Routing	Invert	Outlet Devices
#1	Primary	1,000.00'	3 - 10 GPM NOTCH/FIXTURE X 2.00 Head (feet) 0.00 0.30 Disch. (cfs) 0.000 0.260
#2	Primary	1,000.30'	4.0" Horiz. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.88 cfs @ 12.26 hrs HW=1,000.49' (Free Discharge)

1=3 - 10 GPM NOTCH/FIXTURE (Custom Controls 0.52 cfs)

2=Orifice/Grate (Orifice Controls 0.36 cfs @ 2.08 fps)

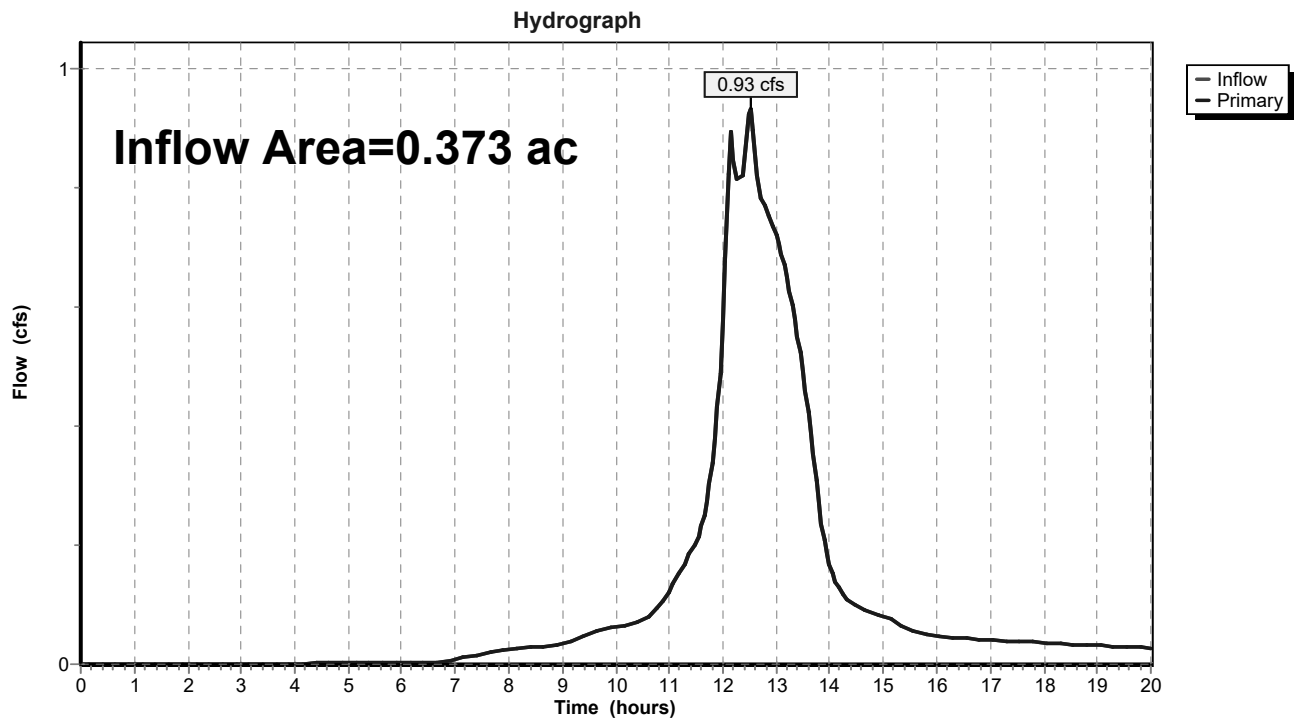
Pond CRF: CONTROLLED ROOF FLOW



Summary for Link PR-D: PROPOSED SITE DISCHARGE

Inflow Area = 0.373 ac, 82.86% Impervious, Inflow Depth > 5.36" for 100-yr event
Inflow = 0.93 cfs @ 12.52 hrs, Volume= 0.166 af
Primary = 0.93 cfs @ 12.52 hrs, Volume= 0.166 af, Atten= 0%, Lag= 0.0 min

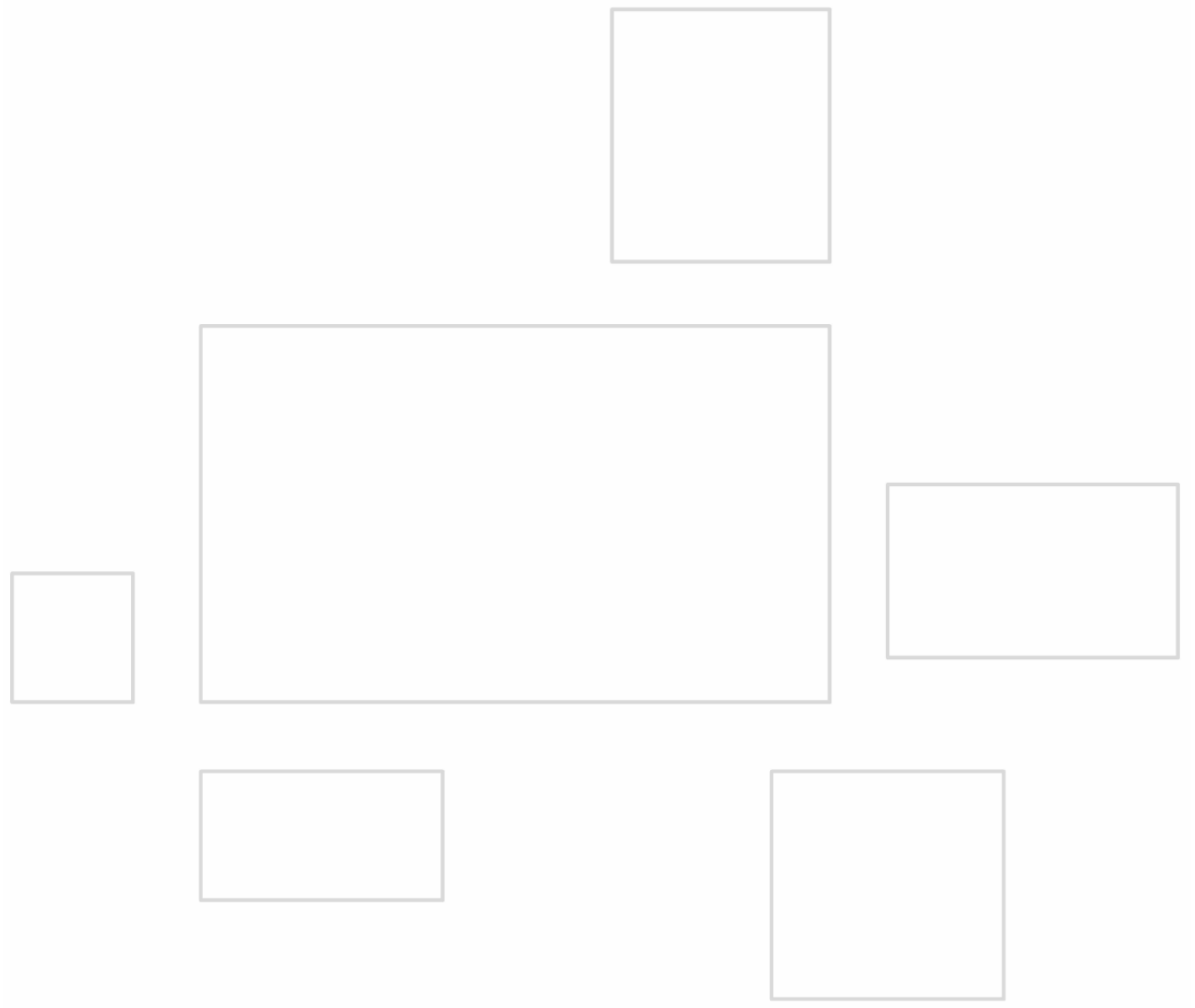
Primary outflow = Inflow, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

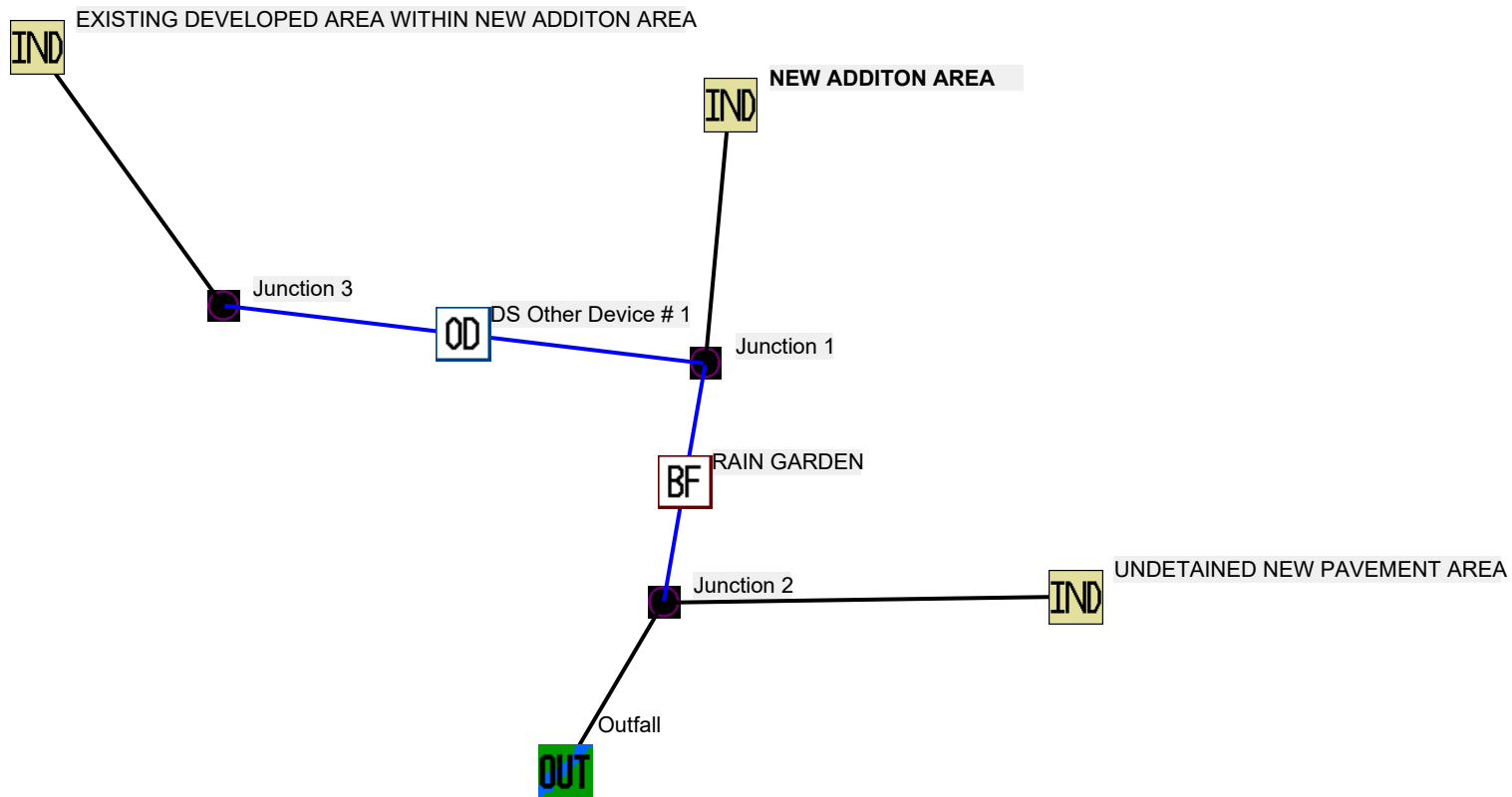
Link PR-D: PROPOSED SITE DISCHARGE

APPENDIX 4

POST DEVELOPMENT CONDITIONS

WATER QUALITY





Data file name: Z:\Projects\2020\2308.00-WI\DESIGN\SWMP\SLAMM\3-24-21 TURNKEY SOLUTIONS.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WI Milwaukee 69.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppd
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/06 End of Winter Season: 03/28
Date: 03-26-2021 Time: 09:48:04
Site information:

LU# 1 - Industrial: NEW ADDITON AREA Total area (ac): 0.330

1 - Roofs 1: 0.240 ac. Flat Connected PSD File: C:\WinSLAMM Files\NURP.cpz

13 - Roofs: 0.020 ac. Disconnected Normal Clayey Medium/High Density No Alleys PSD File: C:\WinSLAMM Files\NURP.cpz

51 - Small Landscaped Areas 1: 0.070 ac. Normal Clayey Medium/High Density No Alleys PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Industrial: EXISTING DEVELOPED AREA WITHIN NEW ADDITON AREA Total area (ac): 0.010

13 - Paved Parking 1: 0.010 ac. Disconnected Normal Clayey Medium/High Density No Alleys PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Industrial: UNDETAINED NEW PAVEMENT AREA Total area (ac): 0.030

13 - Paved Parking 1: 0.030 ac. Disconnected Normal Clayey Medium/High Density No Alleys PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - RAIN GARDEN

1. Top area (square feet) = 1482
2. Bottom area (square feet) = 650
3. Depth (ft): 3.5
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 3.6
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.3
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

User-Defined Soil Type 1.000

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 10
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 3.3

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 0.5
2. Pipe invert elevation above datum (ft): 2.25
3. Number of surface pipe outlets: 1

Control Practice 2: Other Device CP# 1 (DS) - DS Other Device # 1

Fraction of drainage area served by device (ac) = 1.00

Particulate Concentration reduction fraction = 1.00

Filterable Concentration reduction fraction = 0.00

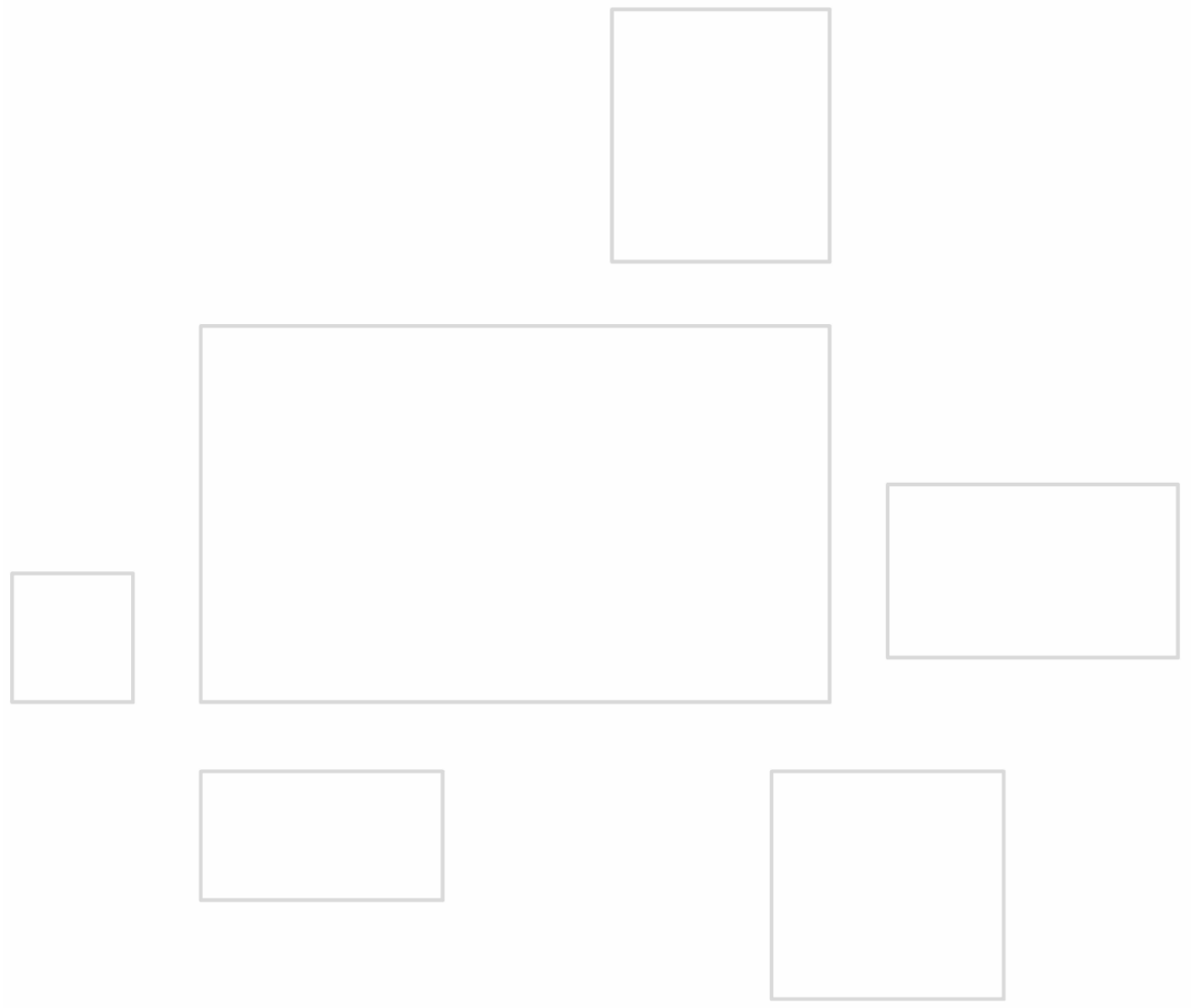
Runoff volume reduction fraction = 0

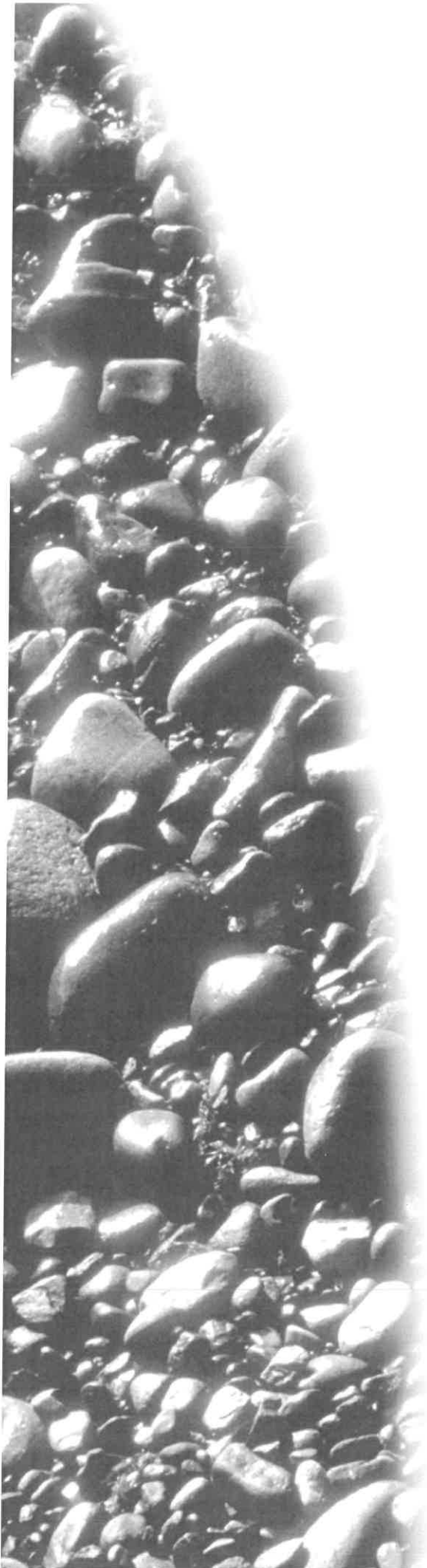
Data file name: Z:\Projects\2020\2308.00-WI\DESIGN\SWMP\SLAMM\3-24-21 TURNKEY SOLUTIONS.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WI Milwaukee 69.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/06 End of Winter Season: 03/28
Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69
Date of run: 03-26-2021 Time of run: 09:49:14
Total Area Modeled (acres): 0.370
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	21012	-	44.76	58.71	-
Outfall Total with Controls:	1605	92.36%	102.8	10.30	82.46%
Annualized Total After Outfall Controls:	1627			10.44	

APPENDIX 5

EXCERPT FROM GEOTECHNICAL REPORT





Geotechnical Engineering Exploration and Analysis

**Proposed Turn-Key Solutions Addition
N117 W19345 Fulton Drive
Germantown, Wisconsin**

Prepared for:

**MSI General Corporation
Nashotah, Wisconsin**

**February 16, 2021
Project No. 1G-2101018**



GILES
ENGINEERING ASSOCIATES, INC.

GEOTECHNICAL ENGINEERING EXPLORATION AND ANALYSIS

PROPOSED TURN-KEY SOLUTIONS ADDITION
N117 W19345 FULTON DRIVE
GERMANTOWN, WISCONSIN
PROJECT NO. 1G-2101018

1.0 SCOPE OF SERVICES

This report provides the results of the *Geotechnical Engineering Exploration and Analysis* that Giles Engineering Associates, Inc. ("Giles") conducted for the proposed addition project. The *Geotechnical Engineering Exploration and Analysis* included a geotechnical subsurface exploration program, geotechnical laboratory services, and geotechnical engineering. The scope of each service area was narrow and limited, as directed by our client and based on our understanding and assumptions about the proposed project. Service areas are briefly described later. Environmental consulting services were beyond our authorized scope for this project.

Geotechnical-related recommendations are provided in this report for design and construction of the foundations and at-grade floor for the proposed building addition. Also, pavement recommendations are provided for new parking areas. Site preparation recommendations are given, but are only preliminary because the means and methods of site preparation will depend on factors that were unknown when this report was prepared. These factors include, but are not limited to, the weather before and during construction, subsurface conditions that are exposed during construction, and final details of the proposed project.

2.0 SITE DESCRIPTION

The addition will be constructed along the west side of the existing Turn-Key Solutions building, located at N117 W19345 Fulton Drive in Germantown, Wisconsin. The addition area is shown on the *Test Boring Location Plan*, enclosed as Figure 1 in Appendix A. When the test borings (described below) were performed, the addition area was grass-covered and included some landscape areas. Also, parking and drive areas were north and south of the addition area. The addition area was relatively flat and level. Ground elevations at the test borings varied between $\pm$ El. 98.7 and $\pm$ El. 99.7; these elevations are based on Giles' adopted benchmark, shown on the *Test Boring Location Plan*.

3.0 PROJECT DESCRIPTION

Proposed Addition

It is understood that the proposed addition will be a single-story masonry structure that will not have a basement or below-grade spaces. The southeast area of the addition will include an overhead door and concrete pad. It is assumed that bearing walls and columns will support the addition. Maximum foundation loads were not provided, but are assumed to be 5,000 pounds per lineal foot (plf) from bearing walls and 100,000 pounds per column. The floor of the addition is planned to be a concrete slab-on-grade. The maximum floor load was not provided and was, therefore, assumed to be 100 pounds per square foot (psf).



GILES ENGINEERING ASSOCIATES, INC.

It is understood that the floor of the addition will match the floor of the existing building. Therefore, Giles adopted the existing floor as the project benchmark and arbitrarily assumed that the existing floor is at El. 100. It is, therefore, assumed that the floor of the addition will also be at El. 100. Because the ground elevations at the addition-area test borings varied between $\pm$ El. 99.2 and $\pm$ El. 99.7, only minor grade changes are expected in the addition area.

Structural details of the existing building are unknown. This report is, therefore, based on Giles' assumption that the existing building (in the addition area) does not have a basement or other below-grade spaces. This report also assumes that the existing building is supported by a spread-footing foundation (founded at the required frost depth) and has a ground-bearing floor slab.

New Pavement

It is understood that asphalt-concrete pavement is planned for the new parking areas. Because Giles was not provided with traffic information, the pavement recommendations provided herein are based on arbitrarily assumed traffic conditions. Also, this report assumes that less than about one foot of grade-change will be needed in proposed pavement areas.

4.0 GEOTECHNICAL SUBSURFACE EXPLORATION PROGRAM

To explore subsurface conditions, five geotechnical test borings were conducted at the site, using a mechanical drill-rig. Test Borings 1, 2, and 3 were in the proposed addition area and were $\pm$ 21 feet deep. Test Boring 4 was also in the addition area, but was terminated at $\pm$ 19½ feet due to auger refusal; auger refusal appears to have been due to limestone bedrock. Test Boring 5 was in the proposed pavement area and was $\pm$ 11 feet deep. The test boring locations were positioned at the site based on measurement from the existing building and by approximating right angles. Approximate locations of the test borings are shown on the *Test Boring Location Plan*.

Samples were collected from each test boring, at certain depths, using the Standard Penetration Test (SPT), conducted with the drill rig. A brief description of the SPT is given in Appendix B, along with descriptions of other field procedures. Immediately after sampling, select portions of the SPT samples were placed in containers that were labeled at the site for identification. A Standard Penetration Resistance value (N-value) was determined from each SPT. N-values are reported on the *Test Boring Logs* (in Appendix A), which are records of the test borings. N-values are used to estimate the in-place density of granular soil, such as the granular soil that was encountered at the test borings, as described below. However, it is important to note that at least some of the measured N-values are likely not representative of in-place density because gravel, cobbles, or boulders were encountered during testing.



The boreholes were backfilled upon completion; however, backfill material will likely settle or heave, creating a hazard that can injure people and animals. Borehole areas should, therefore, be carefully and routinely monitored by the property owner or by others; settlement and heave of backfill materials should be repaired immediately. Giles will not monitor or repair boreholes.

Ground elevations at the test borings are referenced to Giles' adopted benchmark (floor of the existing building at the southwest overhead door), which is shown on the *Test Boring Location Plan*. The test boring elevations are noted on the *Test Boring Logs* and are considered accurate within about one foot.

5.0 GEOTECHNICAL LABORATORY SERVICES

Samples that were retained from the test borings were transported to Giles' geotechnical laboratory, where they were classified using the descriptive terms and particle-size criteria shown on the *General Notes* in Appendix D, and by using the Unified Soil Classification System (ASTM D 2488) as a general guide. Classifications are shown on the *Test Boring Logs*, along with horizontal lines that show estimated depths of material change. Field-related information pertaining to the test borings is also shown on the *Test Boring Logs*. For simplicity and abbreviation, terms and symbols are used on the *Test Boring Logs*; the terms and symbols are defined on the *General Notes*.

Calibrated penetrometer resistance and moisture content tests were performed on select soil samples to evaluate their general engineering properties. Test results are on the *Test Boring Logs*. Because SPT samples were used, which are categorized as being disturbed samples, results of the calibrated penetrometer testing are considered to be approximate. Laboratory procedures are briefly described in Appendix C.

6.0 MATERIAL CONDITIONS

Because material sampling at the test borings was discontinuous, it was necessary to estimate conditions between sample intervals. Estimated conditions at the test borings are briefly discussed in this section and are described in more detail on the *Test Boring Logs*. The conclusions and recommendations in this report are based only on the estimated conditions.

6.1. Surface Materials

Topsoil that was about 6 inches thick was at the surface of the test borings, except at Test Boring 1 where possible fill was at the surface, as discussed below.

6.2. Possible Fill

Material classified as possible fill was at the surface of Test Boring 1 and was encountered to about 2 feet below-ground. The possible fill material generally consisted of silty fine sand. Based on an SPT N-value, the possible fill had a loose relative density.



6.3. Native Soil

Native soil was below the materials described above and extended to the termination depth at each test boring. In general, native soil consisted of silty sand with variable amounts of gravel. However, sandy silt was between ± 2 and $\pm 6\frac{1}{2}$ feet below-ground at Test Borings 2, 3, and 4. Also, silty clay was deeper than about 13 feet at Test Borings 1 and 2 (the silty clay at Test Boring 2 was present to the ± 21 -foot termination depth). The cohesive soil (silty clay) had a hard comparative consistency, based on laboratory testing. SPT N-values within the granular soil (silty sand and sandy silt) typically correlate to relative densities between loose and very dense, but most of the measured N-values are likely not representative of in-place density because gravel, cobbles, or boulders were encountered during testing. Site soil appears to include many cobbles and boulders

6.4. Limestone Bedrock

Test Boring 4 was in the proposed addition area and was terminated due to auger refusal at $\pm 19\frac{1}{2}$ feet below-ground. Auger refusal appears to have been due to limestone bedrock.

7.0 GROUNDWATER CONDITIONS

It is estimated that the water table was below the maximum exploration depths at the test boring locations, when the test borings were conducted. However, the site might be subject to shallower perched-groundwater conditions, where groundwater collects on sandy silt, silty clay, and bedrock. Groundwater conditions will fluctuate seasonally and depending on precipitation, surface water runoff, and other factors.

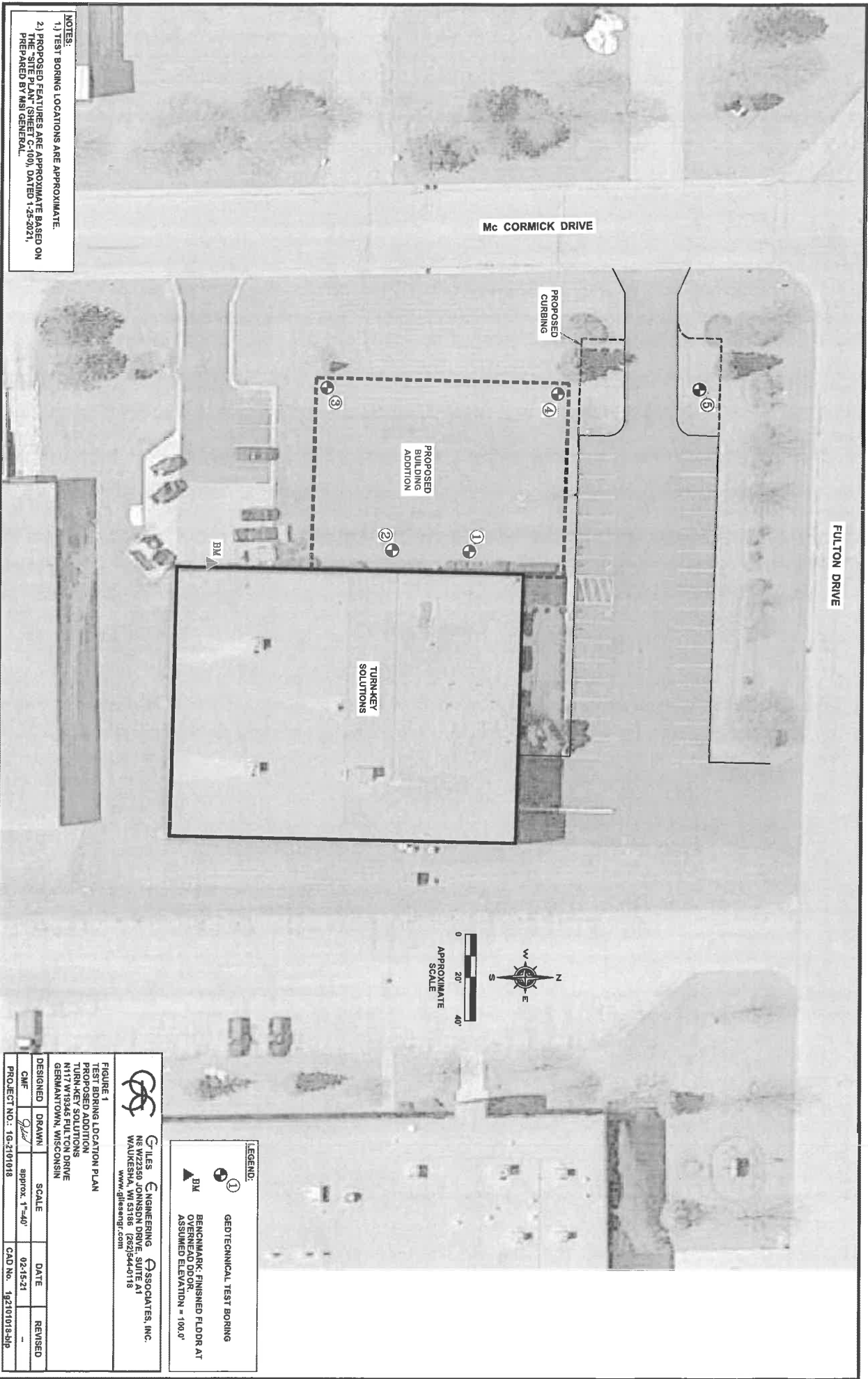
It is important to note that the groundwater conditions discussed above are only based on the colors and moisture conditions of the retained soil samples and the lack of groundwater within the test borings. The water table might be higher than estimated. A more precise estimate of the groundwater conditions could be determined by installing and monitoring observation wells at the site. Although not considered necessary based on the assumed grades, Giles can install and observe observation wells, if requested.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1. Seismic Design Considerations

A soil Site Class C is recommended for seismic design. By definition, Site Class is based on the average properties of subsurface materials to 100 feet below-ground. Because 100-foot test borings were not requested or authorized for the project, it was necessary to estimate the Site Class based on the test borings, presumed area geology, and the International Building Code.





BORING NO. & LOCATION: 3	TEST BORING LOG	 GILES ENGINEERING ASSOCIATES, INC.	
SURFACE ELEVATION: 99.5 feet			PROPOSED ADDITION N117 W19345 FULTON DRIVE GERMANTOWN, WISCONSIN PROJECT NO: 1G-2101018
COMPLETION DATE: 02/04/21			
FIELD REP: CHARLES RENS			

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q _e (tsf)	Q _p (tsf)	Q _s (tsf)	W (%)	PID	NOTES
±6" Topsoil										
Light Brown Silty fine Sand, little Gravel-Moist			1-SS	60						±24" Frost
Light Brown Sandy Silt, little Gravel-Very Moist			2-SS	15				9		
	5	95	3-SS	9				10		
Light Brown Silty fine Sand, little to some Gravel (Includes Cobbles and Boulders)-Moist			4-SS	73						
	10	90	5-SS	50				10		
	15	85	6-SS	80				8		
Gray Silty fine to coarse Sand, some Gravel (Includes Cobbles and Boulders)-Moist										
	20	80	7-SS	50/6"						

Boring Terminated at about 21 feet (EL. 78.5')

Water Observation Data		Remarks:
	Water Encountered During Drilling:	
	Water Level At End of Drilling:	
	Cave Depth At End of Drilling: 5 ft.	
	Water Level After Drilling:	
	Cave Depth After Drilling:	

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.



Turnkey Solutions

Submittal Package for:
Lighting

Date Submitted: 1-29-21

Electrical Contractor: Steiner Electric, Inc.
2323 Sylvan Way
West Bend, WI 53095
Phone: 262-334-5517
Fax: 262-334-7947
www.steiner-electric.com

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Transmittal

Mlazgar Associates
 Mlazgar Associates
 Mlazgar - -
 Phone: (262) 785-0144
From: Arthur Chavez

Project TURNKEY SOLUTIONS -
Quote# WISC-RLMA21-103023
Location GERMANTOWN WI
 Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- | | | |
|-----------------------------------|---|--------|
| ☐ Drawings | ☐ Specifications | Other: |
| ☐ Prints | ☐ Information | |
| ☐ Plans | ☐ Submittals | |

THESE ARE TRANSMITTED FOR:

- | | | |
|--|---|---------------------------------|
| ☐ Prior Approval | ☐ Resubmittal for Approval | ☐ Record |
| ☐ Approval | ☐ Corrections | Bids due on: |
| ☐ Approval as Submitted | ☐ Your Use | Other: |
| ☐ Approval as Noted | ☐ Review and Comment | |

Qty	Type	MFG	Part
INTERIOR/EGRESS			
17	H1	METALUX LINEAR HB, 24K LUMEN, 120-277V, 4000K	LHB-24-UNV-L840-CD-U
3	H2	METUXRETAI LINEAR HB, 24K LUMEN, 120-277V, 4000K	LHB-24-UNV-L840-CD-EL14W-REM-U
14	A	METALUX 2X4 FPANEL 4700L, 40K, 0-10V	24FP4740C
4	B	METALUX 2X2 FPANEL 3200L, 40K, 0-10V	22FP3240C
1	X1	SURE-LITES LED EMERGENCY LIGHT, 25 FT COVERAGE	SEL25
2	X2	SURE-LITES ALL PRO DOUBLE HEAD WET LIST REMOTE	APWR2
2	X3	SURE-LITES ALL PRO COMBO WITH RED EXIT	APC7R
2	X4	SURE-LITES EXIT, RED, NI-CAD, SELF-POWERED	APCH7R
EXTERIOR			
2	Z1	LUMOUTDOOR	PFPRV-1-C40-T4-20
1	W1	LUMOUTDOOR	PRV-C40-D-UNV-T4-WM-BZ
7	W2	LUMOUTDOOR CBN BZ, 18W, 4000K, 120-277V	XTOR2B-W



Date: Jan 29, 2021

Job Name: TURNKEY SOLUTIONS -
INTERIOR/EGRESS

Bid Date: Jan 13, 2021

Submittal Date: Jan 26, 2021

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

LHB-24-UNV-L840-CD-U

Notes:

Type:**H1**

WISC-RLMA21-103023

Project		Catalog #		Type	
Prepared by		Notes		Date	

**Metalux****LHB****LED Linear High Bay Lensed****Typical Applications**

• Industrial • Manufacturing • Gymnasium* • Warehouse

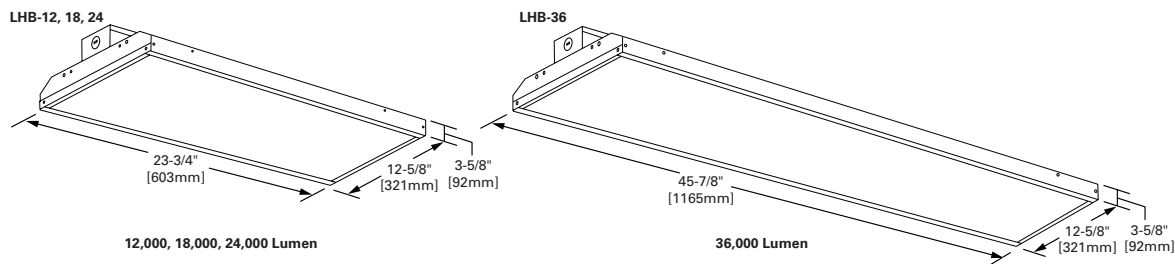
*Rigid mount not for use in gymnasiums.

**Interactive Menu**

- Order Information [page 2](#)
- Photometric Data [page 3](#)
- Product Warranty

Product Certification**Product Features****Top Product Features**

- 13 inch width in 2ft and 4ft lengths
- Standard diffused lens provides added protection and glare control
- High performance efficacy up to 143 lm/W
- Efficient 1-for-1 replacement of linear fluorescent and HID fixtures
- Lumen packages – 12,000, 18,000, 24,000 and 36,000

Dimensional and Mounting Details

Metalux

LHB

Order Information

SAMPLE ORDER NUMBER: **LHB-18-UNV-L840-CD-U** Includes V Hangers and (2) 18" pieces of chain for rapid installation

Series	LED Lumen Output	Lensing	Voltage	CCT	Driver Type	Options	Packaging
Series ⁽³⁾	LED Lumen Output	Lensing ⁽²⁾	Voltage	CCT	Driver Type	Options	Packaging
LHB=LED High Bay	12=12,000 Lumens 18=18,000 Lumens 24=24,000 Lumens 36=36,000 Lumens	[Blank]=with Diffused Lens	UNV=Universal Voltage 120-277V	L840=4000K L850=5000K	CD=0-10V Dimming Driver	EL7W-REM=EM pack, remote installation, 7W EL14W-REM=EM pack, remote installation, 14W MS=Motion Sensor (360° or 180°) OEPF010VMV=Occupancy Sensor with Integrated Photocell C6=6' cord, 18/3, white C12=12' cord, 18/3, white PC6/277=6' white cord, 18/3, with 277V, 15A NEMA twist-lock plug PC12/277=12' white cord, 18/3, with 277V, 15A NEMA twist-lock plug	U=Unit Pack
Notes (3) DesignLights Consortium® Qualified and classified for DLC Premium, refer to www.designlights.org for details.		Notes (2) For non-lensed option, follow the lens removal directions in the installation instructions.				Notes For expedited delivery of LHB with options, choose the Rapid Response program. Click hot link for details.	

Accessories

Accessories (order separately) ⁽¹⁾
LHB-WG23=Wire Guard Kit for 12,000, 18,000 and 24,000 lumen units LHB-WG45=Wire Guard Kit for 36,000 lumen units LHB-SMK=Surface Mount Kit LHB-PMK=Pendant Mount Kit EBPLED7W=7 Watt emergency ballast pack - field installed EBPLED14W=14 Watt emergency ballast pack - field installed OEF-P-2MHO-MV-SL=Motion sensor, 360 degrees, 120-277V, side mount - field installed LHB-Y-TOGGLE-3M=Y-toggle aircraft cables (2), 9 feet 10 inches length
Notes (1) Rigid mount not recommended for use in gymnasiums.

Product Specifications

Construction

- Full body construction with center driver housing for added durability and thermal control

Electrical

- Long-life LED system coupled with electrical driver to deliver optimal performance
- LED's available in 4000K and 5000K with a CRI ≥ 80
- Electronic drivers are available for 120-277V applications
- Standard 0-10V dimming

Finish

- Standard white polyester powder coat finish painted after fabrication for increased durability and rust inhibition

Optics

- Diffused lens provides added protection and glare control

Mounting

- The LHB series is ideally suited for suspension mounting with wire hook and chain set included

Compliance

- Luminaires are cULus listed for damp locations -20°C - 40°C ambient environments with 0-10V drivers
- cULus listed
- LED modules comply with IESNA LM-79 and LM-80 standards
- DesignLights Consortium® Qualified and classified for DLC Premium, refer to www.designlights.org for details

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

LHB-24-UNV-L840-CD-U

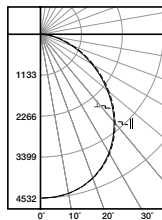
Notes:

Type:**H1**

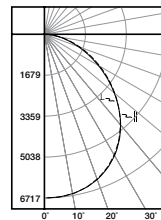
WISC-RLMA21-103023

Metalux**LHB****Photometric Data**

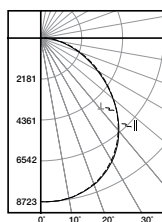
View IES files

**LHB-12-UNV-L850**

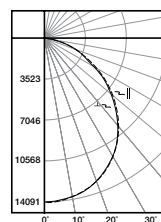
Electronic Driver
Linear LED 5000K
Spacing criterion: (II) 1.23 x mounting height,
(L) 1.23 x mounting height
Lumens: 11493
Input Watts: 87.7W
Efficacy: 131.1 lm/W
Test Report: LHB-12-UNV-L850. IES

**LHB-18-UNV-L850**

Electronic Driver
Linear LED 5000K
Spacing criterion: (II) 1.23 x mounting height,
(L) 1.24 x mounting height
Lumens: 17130
Input Watts: 131.8W
Efficacy: 130.0 lm/W
Test Report: LHB-18-UNV-L850. IES

**LHB-24-UNV-L850**

Electronic Driver
Linear LED 5000K
Spacing criterion: (II) 1.23 x mounting height,
(L) 1.23 x mounting height
Lumens: 22050
Input Watts: 172.5W
Efficacy: 127.8 lm/W
Test Report: LHB-24-UNV-L850. IES

**LHB-36-UNV-L850**

Electronic Driver
Linear LED 5000K
Spacing criterion: (II) 1.24 x mounting height,
(L) 1.23 x mounting height
Lumens: 34196
Input Watts: 267W
Efficacy: 128 lm/W
Test Report: LHB-36-UNV-L850. IES

Energy and Performance Data

Catalog Number	Lensed		Watts	Non-Lensed	
	Delivered Lumens	Efficacy (lm/W)		Delivered Lumens	Efficacy (lm/W)
LHB-12-UNV-L840-CD-U	11,455	131	87	12,249	141
LHB-12-UNV-L850-CD-U	11,493	131	87	12,465	143
LHB-18-UNV-L840-CD-U	17,075	130	132	18,500	140
LHB-18-UNV-L850-CD-U	17,129	130	132	18,663	141
LHB-24-UNV-L840-CD-U	22,012	128	172	24,578	143
LHB-24-UNV-L850-CD-U	22,050	128	172	24,735	144
LHB-36-UNV-L840-CD-U	33,831	128	267	37,924	142
LHB-36-UNV-L850-CD-U	34,196	128	267	38,188	143

Lumen Maintenance

Ambient Temperature	TM-21 Lumen Maintenance (60,000 hours)	Theoretical L70 (Hours)
25°C	> 85%	> 122,000

Ambient Ratings

Lumen Package	Ambient Rating
LHB-12	40°C
LHB-18	40°C
LHB-24	40°C
LHB-36	40°C

Input Watts

Lumens	Watts
12 (12,000 lumens)	87W
18 (18,000 lumens)	132W
24 (24,000 lumens)	175W
36 (36,000 lumens)	267W

Shipping Data

Catalog No.	Wt.
LHB-12	10 lbs.
LHB-18	11 lbs.
LHB-24	11 lbs.
LHB-36	18 lbs.

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

LHB-24-UNV-L840-CD-EL14W-REM-
U

Notes:

Type:**H2**

WISC-RLMA21-103023

Project		Catalog #		Type	
Prepared by		Notes		Date	

**Metalux****LHB****LED Linear High Bay Lensed****Typical Applications**

• Industrial • Manufacturing • Gymnasium* • Warehouse

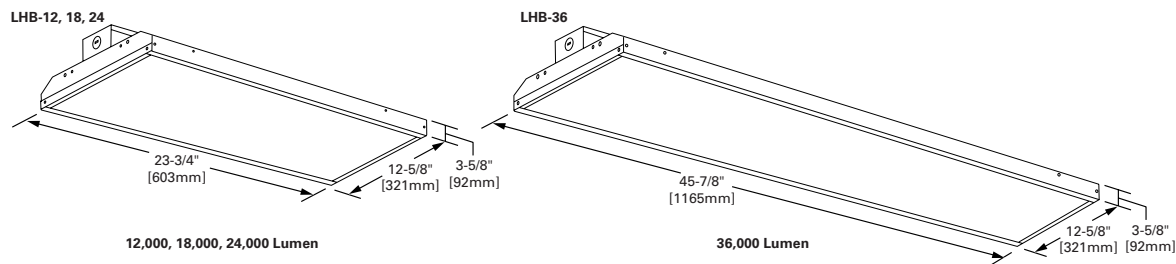
*Rigid mount not for use in gymnasiums.

**Interactive Menu**

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- Product Warranty

Product Certification**Product Features****Top Product Features**

- 13 inch width in 2ft and 4ft lengths
- Standard diffused lens provides added protection and glare control
- High performance efficacy up to 143 lm/W
- Efficient 1-for-1 replacement of linear fluorescent and HID fixtures
- Lumen packages – 12,000, 18,000, 24,000 and 36,000

Dimensional and Mounting Details

Metalux

LHB

Order Information

SAMPLE ORDER NUMBER: **LHB-18-UNV-L840-CD-U** Includes V Hangers and (2) 18" pieces of chain for rapid installation

Series	LED Lumen Output	Lensing	Voltage	CCT	Driver Type	Options	Packaging
Series ⁽³⁾	LED Lumen Output	Lensing ⁽²⁾	Voltage	CCT	Driver Type	Options	Packaging
LHB=LED High Bay	12=12,000 Lumens 18=18,000 Lumens 24=24,000 Lumens 36=36,000 Lumens	[Blank]=with Diffused Lens	UNV=Universal Voltage 120-277V	L840=4000K L850=5000K	CD=0-10V Dimming Driver	EL7W-REM=EM pack, remote installation, 7W EL14W-REM=EM pack, remote installation, 14W MS=Motion Sensor (360° or 180°) OEFP010VMV=Occupancy Sensor with Integrated Photocell C6=6' cord, 18/3, white C12=12' cord, 18/3, white PC6/277=6' white cord, 18/3, with 277V, 15A NEMA twist-lock plug PC12/277=12' white cord, 18/3, with 277V, 15A NEMA twist-lock plug	U=Unit Pack
Notes		Notes				Notes	
(3) DesignLights Consortium® Qualified and classified for DLC Premium, refer to www.designlights.org for details.		(2) For non-lensed option, follow the lens removal directions in the installation instructions.				For expedited delivery of LHB with options, choose the Rapid Response program. Click hot link for details.	

Accessories

Accessories (order separately) ⁽¹⁾
LHB-WG23=Wire Guard Kit for 12,000, 18,000 and 24,000 lumen units LHB-WG45=Wire Guard Kit for 36,000 lumen units LHB-SMK=Surface Mount Kit LHB-PMK=Pendant Mount Kit EBPLED7W=7 Watt emergency ballast pack - field installed EBPLED14W=14 Watt emergency ballast pack - field installed OEF-P-2MHO-MV-SL=Motion sensor, 360 degrees, 120-277V, side mount - field installed LHB-Y-TOGGLE-3M=Y-toggle aircraft cables (2), 9 feet 10 inches length
Notes
(1) Rigid mount not recommended for use in gymnasiums.

Product Specifications

Construction

- Full body construction with center driver housing for added durability and thermal control

Electrical

- Long-life LED system coupled with electrical driver to deliver optimal performance
- LED's available in 4000K and 5000K with a CRI ≥ 80
- Electronic drivers are available for 120-277V applications
- Standard 0-10V dimming

Finish

- Standard white polyester powder coat finish painted after fabrication for increased durability and rust inhibition

Optics

- Diffused lens provides added protection and glare control

Mounting

- The LHB series is ideally suited for suspension mounting with wire hook and chain set included

Compliance

- Luminaires are cULus listed for damp locations -20°C - 40°C ambient environments with 0-10V drivers
- cULus listed
- LED modules comply with IESNA LM-79 and LM-80 standards
- DesignLights Consortium® Qualified and classified for DLC Premium, refer to www.designlights.org for details

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

LHB-24-UNV-L840-CD-EL14W-REM-
U

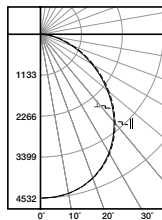
Notes:

Type:**H2**

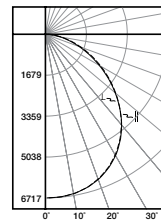
WISC-RLMA21-103023

Metalux**LHB****Photometric Data**

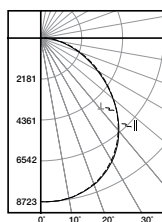
View IES files

**LHB-12-UNV-L850**

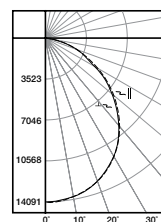
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Linear LED 5000K
Spacing criterion: (II) 1.23 x mounting height,
(I) 1.23 x mounting height
Lumens: 11493
Input Watts: 87.7W
Efficacy: 131.1 lm/W
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Efficacy: 130.0 lm/W
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**LHB-24-UNV-L850**

Electronic Driver
Linear LED 5000K
Spacing criterion: (II) 1.23 x mounting height,
(I) 1.23 x mounting height
Lumens: 22050
Input Watts: 172.5W
Efficacy: 127.8 lm/W
Test Report: LHB-24-UNV-L850. IES

**LHB-36-UNV-L850**

Electronic Driver
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Spacing criterion: (II) 1.24 x mounting height,
(I) 1.23 x mounting height
Lumens: 34196
Input Watts: 267W
Efficacy: 128 lm/W
Test Report: LHB-36-UNV-L850. IES

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24 (24,000 lumens)	175W
36 (36,000 lumens)	267W

Shipping Data

Catalog No.	Wt.
LHB-12	10 lbs.
LHB-18	11 lbs.
LHB-24	11 lbs.
LHB-36	18 lbs.

Project		Catalog #		Type	
Prepared by		Notes		Date	



Metalux

24FP LED

2' x 4' General LED Panel
 Recessed in Insulated Ceilings or
 Surface Mount

Typical Applications

- Commercial Office Spaces • Schools • Healthcare
- Retail Merchandising Areas

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- Product Warranty

Product Certification



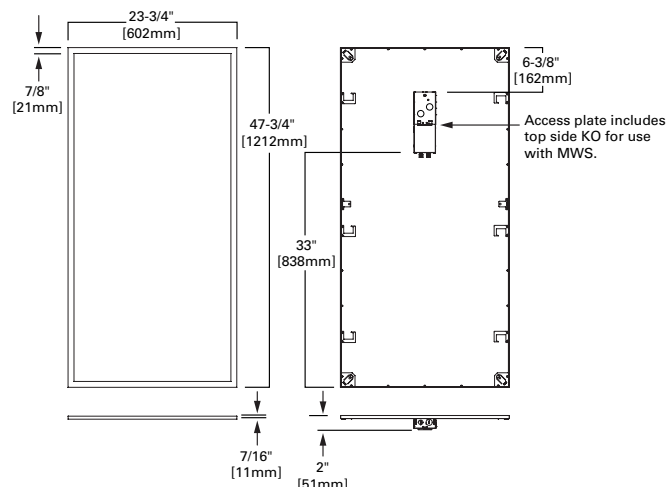
Product Features



Top Product Features

- Ultra thin less than 2" height fits shallow plenums with room to spare
- Models from less than 20W and High Lumen models up to 7000 lumens
- HE models at 135 lumens per watt deliver up to 60% energy savings
- Stock CCT in 80 CRI @ 3000K, 3500K, 4000K, 5000K and 90 CRI 3000K
- Easy to install - wire and wire nuts included

Dimensional and Mounting Details



**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

24FP4740C

Notes:

Type:**A**

WISC-RLMA21-103023

Metalux**24FP LED****Ordering Information/Performance****Standard Options**

Standard Options							Input Current (A)	
Catalog	UPC	CCT	CRI (Min)	Delivered Nominal Lumens	Watts	Efficacy (lm/W)	120V	277V
24FP4735C	080083833641	3500K	80	4591	41.4	111	.35	.15
24FP4740C	080083833665	4000K	80	4556	41.4	110		
24FP4750C	080083833689	5000K	80	4433	41.4	107		
24FP6435C	080083833702	3500K	80	6091	60.3	101	.50	.22
24FP6440C	080083833726	4000K	80	6506	62.2	105	.52	
24FP6450C	080083833740	5000K	80	6164	61.5	100	.51	
24FP3830C9 ⁽¹⁾	080083833825	3000K	90	3886	40.3	96	.36	.15
24FP5830C9 ⁽¹⁾	080083833849	3000K	90	5282	58.2	91	.51	.22
24FP3835HE	080083858927	3500K	80	3849	28.5	135	.24	.1
24FP3840HE	080083858941	4000K	80	3780	28.9	131	.25	.11
24FP3130C	080083858866	3000K	80	3328	28.6	116	.24	
24FP3135C	080083858880	3500K	80	3553	29.3	121	.25	
24FP3140C	080083858903	4000K	80	3608	29.4	123		

Notes: (1) May have extended lead times.

347V Options

Catalog	UPC	CCT	CRI (Min)	Delivered Nominal Lumens	Watts	Efficacy (lm/W)	Input Current (A)	
							347V	
24FP4735C-347V	80083885503	3500K	80	4712	40.2	117	.119	
24FP4740C-347V	80083876747	4000K	80	4685	40.2	117		
24FP4750C-347V	80083885589	5000K	80	4659	40.2	116		
24FP6435C-347V	80083885527	3500K	80	6402	58.0	110	.171	
24FP6440C-347V	80083876969	4000K	80	6838	58.0	118		
24FP6450C-347V	80083885602	5000K	80	6479	58.0	112		

Options/Ordering InformationATW-SW4=Chicago Rated and IP5X ingress protection ⁽³⁾

Example catalog number=ATW-SW4-24FP4740C

EL14W=EBPLED14W battery installed ⁽²⁾EL7W=EBPLED7W battery installed ⁽²⁾

Example catalog number=24FP4740C-EL14W

A3/8-4/18GDIM=6' 3/8" flex with dimming leads installed

Example catalog number=24FP4740C-A3/8-4/18GDIM

Notes: (2) Indicator/test switch to be installed separately. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lmm/W x 7=700 lumens). (3) May not be used with EL7W, EL14W or Flex options.

Load Data (Stock Product)

Thd	13%
Power Factor	0.96
Weight	18.5 lbs
Low Temp. Start	-20°C

Shipping Data

Fixture Size	Wt.	Pallet Size	Units per Pallet
2' x 4'	42 lbs.	53' x 30'	22

Accessories/Ordering Information**Surface Mount Kit ⁽³⁾**

Catalog	UPC
FPSURF24	080083802746

Notes: (3) May not be used with EL7W or EL14W options.

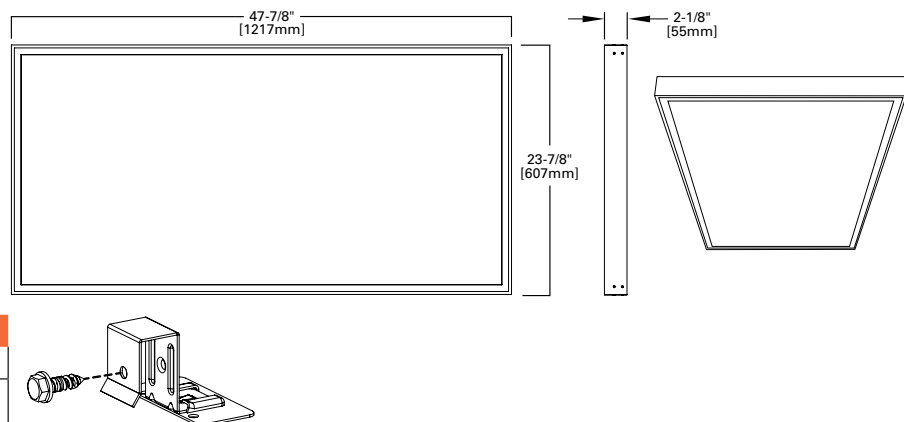
Drywall Frame Kit

Catalog	UPC
DF-24W-U	662401232970

Ceiling Retention

Catalog	UPC
FPEQ	080083802685

Required by some local codes. Order one set for each fixture (Four clips per kit)



**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

24FP4740C

Notes:

Type:**A**

WISC-RLMA21-103023

Metalux**24FP LED****Product Specifications****Construction**

- Narrow aluminum bezel is tightly held to code gauge steel back plate
- Seamless corners to maximize the light emitting surface with a refined finish

Mounting

- Integral grid locking clips and separate suspension clips provided for installation flexibility when additional retention is required
- Junction box constructed of code gauge galvanized steel with and easy access hinged door
- Multiple Trade size KO provided and JBox is suitable for up to 12AWG wiring
- Stock luminaire is less than 2" for use in shallow plenum or low ceiling spaces
- Surface mounting kits available
- ATW-SW4 option is available for CCEA compliance and provides full IP5X rating
- Factory installed flexible cable with dimming leads options available

Controls

- Standard UNV 120 - 277V driver with 0-10V dimming to 10% standard
- Optional 347V driver with 0-10V dimming driver
- Compatible with field installed wireless controls available for either Wavelinx or Enlighted

Electrical

- Standard and High Efficacy models available
- LED's available in 3000K, 3500K, 4000K, and 5000K with a minimum of 80 CRI
- 90 CRI available with 3000K
- Projected lumen maintenance based on TM21 testing standards is L73 > 60,000 hours
- Emergency battery pack options available in 7w and 14w options
- Battery pack options available as factory installed or field installed for remote mounting

Optical Shielding

- Acrylic light guide with specialized features to optimize light extraction
- White frost lens with smooth pattern for uniform illumination
- Scratch and impact resistant

Compliance

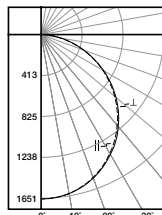
- Indoor luminaires are cULus listed for 25C ambient environments
- IC rated for direct insulation contact
- RoHS compliant
- Damp location listed
- IESNA LM-79 and LM-80 standards compliant
- DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.
- Can be used for State of California Title 24 high efficacy luminaire

Warranty

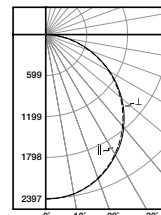
- Five year warranty.

Photometric Data

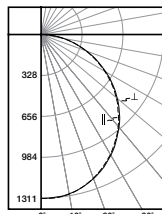
View IES files

**24FP4735C**

Electronic Driver
Linear LED 3500K
Spacing criterion: (II) 1.24 x mounting height,
(⊥) 1.25 x mounting height
Lumens: 4591
Input Watts: 41.4W
Efficacy: 111 LPW
Test Report: 24FP4735C.IES

**24FP6440C**

Electronic Driver
Linear LED 4000K
Spacing criterion: (II) 1.24 x mounting height,
(⊥) 1.25 x mounting height
Lumens: 6506
Input Watts: 62.2W
Efficacy: 105 LPW
Test Report: 24FP6440C.IES

**24FP3840HE**

Electronic Driver
Linear LED 4000K
Spacing criterion: (II) 1.25 x mounting height,
(⊥) 1.26 x mounting height
Lumens: 3780
Input Watts: 28.9W
Efficacy: 130.8 LPW
Test Report: 24FP3840HE.IES

Control Systems

- WaveLinx Wireless
- WaveLinx Wired
- WaveLinx Lite
- DLVP
- VividTune



Connected Systems
[CLICK HERE](#)

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

22FP3240C

Notes:

Type:**B**

WISC-RLMA21-103023

Project		Catalog #		Type	
Prepared by		Notes		Date	



Metalux

22FP LED

2' x 2' General LED Panel
Recessed in Insulated Ceilings or
Suspended/Surface Mount

Typical Applications

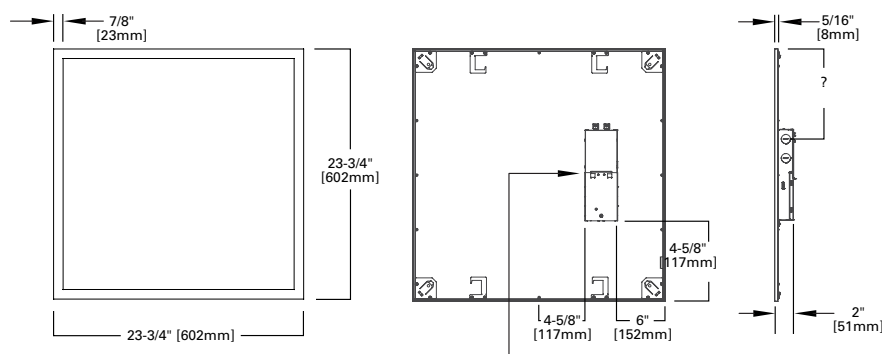
- Commercial Office Spaces • Schools • Healthcare
- Retail Merchandising Areas

**Interactive Menu**

- Order Information [page 2](#)
- Photometric Data [page 3](#)
- Control Systems [page 3](#)
- Product Warranty

Product Certification**Product Features****Top Product Features**

- Ultra thin less than 2" height fits shallow plenums with room to spare
- Models from less than 20W and High Lumen models up to 7000 lumens
- HE models at 136 lumens per watt deliver up to 60% energy savings
- Stock CCT in 80 CRI @ 3000K, 3500K, 4000K, 5000K and 90 CRI 3000K
- Easy to install - wire and wire nuts included

Dimensional and Mounting Details

Access plate with top side KO is available upon request.
Please contact factory if needed for use with MWS or otherwise.

Metalux

22FP LED

Ordering Information/Performance

Standard Options

Catalog	UPC	CCT	CRI (Min)	Delivered Nominal Lumens	Watts	Efficacy (lm/W)	Input Current (A)	
							120V	277V
22FP4235C	080083833580	3500K	80	4330	38.3	112	.32	.14
22FP4240C	080083833603	4000K	80	4465	38.3	117		
22FP4250C	080083833627	5000K	80	4572	41.4	120	.35	.15
22FP3235C	080083833528	3500K	80	3307	29.2	115	.24	.11
22FP3240C	080083833542	4000K	80	3333	29.2	114		
22FP3250C	080083833566	5000K	80	3331	30.0	111	.25	
22FP3830C9 (1)	080083833801	3000K	90	3654	39.1	93	.34	.15
22FP2830C9 (1)	080083833788	3000K	90	2734	29.5	93	.26	.11
22FP2535HE	080083824090	3500K	80	2610	20.1	130	.17	.07
22FP2540HE	080083824113	4000K	80	2551	19.6	130		
22FP2130C	080083823994	3000K	80	2318	20.7	112	.18	.08
22FP2135C	080083824014	3500K	80	2205	20.7	107		
22FP2140C	080083824038	4000K	80	2494	20.7	121		

Notes : (1) May have extended lead times.

347V Options

Catalog	UPC	CCT	CRI (Min)	Delivered Nominal Lumens	Watts	Efficacy (lm/W)	Input Current (A)
22FP4235C-347V	80083885480	3500K	80	4330	37.3	116	.111
22FP4240C-347V	80083876723	4000K	80	4465	37.3	120	
22FP4250C-347V	80083885565	5000K	80	4572	37.3	123	

Options/Ordering Information

ATW-SW4 =Chicago Rated and IP5X ingress protection ⁽²⁾ Example catalog number =ATW-SW4-22FP3240C
EL14W =EBPLED14W battery installed ⁽²⁾ EL7W =EBPLED7W battery installed ⁽²⁾ Example catalog number =22FP3240C-EL14W
A3/8-4/18GDIM =6' 3/8" flex with dimming leads installed Example catalog number =22FP3240C-A3/8-4/18GDIM
Notes : (2) Indicator/test switch to be installed separately. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). (3) May not be used with EL7W, EL14W or Flex options.

Load Data (Stock Product)

Thd	14%
Power Factor	0.96
Weight	9.4 lbs
Low Temp. Start	-20°C

Shipping Data

Fixture Size	Wt.	Pallet Size	Units per Pallet
2' x 2'	12 lbs.	53" x 30"	44

Accessories/Ordering Information

Surface Mount Kit ⁽³⁾

Catalog	UPC
FPSURF22	080083802722

Notes : (3) May not be used with EL7W or EL14W options.

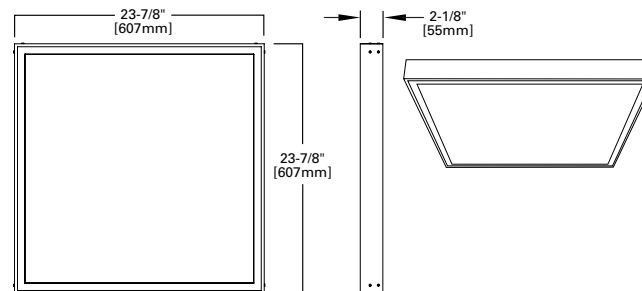
Drywall Frame Kit

Catalog	UPC
DF-22W-U	662401232963

Ceiling Retention

Catalog	UPC
FPEQ	080083802685

Required by some local codes. Order one set for each fixture (Four clips per kit)



Suspension Kit

Catalog	UPC
FPSUS2	080083802784

Mounting height from ceiling
Min.=7-1/4" [184mm]
Max.=27" [286mm]



**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

22FP3240C

Notes:

Type:**B**

WISC-RLMA21-103023

Metalux**22FP LED****Product Specifications****Construction**

- Narrow aluminum bezel is tightly held to code gauge steel back plate
- Seamless corners to maximize the light emitting surface with a refined finish

Mounting

- Integral grid locking clips and separate suspension clips provided for installation flexibility when additional retention is required
- Junction box constructed of code gauge galvanized steel with and easy access hinged door
- Multiple Trade size KO provided and JBox is suitable for up to 12AWG wiring
- Stock luminaire is less than 2" for use in shallow plenum or low ceiling spaces
- Surface or suspension mounting kits available
- ATW-SW4 option is available for CCEA compliance and provides full IP5X rating
- Factory installed flexible cable with dimming leads options available

Controls

- Standard UNV 120 - 277V driver with 0-10V dimming to 10% standard
- Compatible with field installed wireless controls available for either Wavelinx or Enlighted

Electrical

- Standard and High Efficacy models available
- LED's available in 3000K, 3500K, 4000K, and 5000K with a minimum of 80 CRI
- 90 CRI available with 3000K
- Projected lumen maintenance based on TM21 testing standards is L73 > 60,000 hours
- Emergency battery pack options available in 7w and 14w options
- Battery pack options available as factory installed or field installed for remote mounting

Optical Shielding

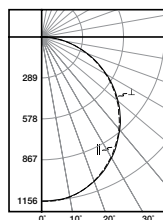
- Acrylic light guide with specialized features to optimize light extraction
- White frost lens with smooth pattern for uniform illumination
- Scratch and impact resistant

Compliance

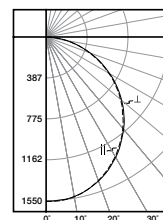
- Indoor luminaires are cULus listed for 25C ambient environments
- IC rated for direct insulation contact
- RoHS compliant
- Damp location listed
- IESNA LM-79 and LM-80 standards compliant
- DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.
- Can be used for State of California Title 24 high efficacy luminaire

Warranty

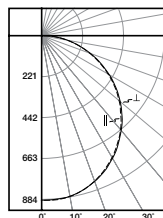
- Five year warranty.

Photometric Data
[View IES files](#)
**22FP3240C**

Electronic Driver
Linear LED 4000K
Spacing criterion: (II) 1.25 x mounting height,
(⊥) 1.26 x mounting height
Lumens: 3333
Input Watts: 29.2W
Efficacy: 114.1 LPW
Test Report: 22FP3240C.IES

**22FP4240C**

Electronic Driver
Linear LED 4000K
Spacing criterion: (II) 1.25 x mounting height,
(⊥) 1.26 x mounting height
Lumens: 4465
Input Watts: 38.3W
Efficacy: 116.6 LPW
Test Report: 22FP4240C.IES

**22FP2540HE**

Electronic Driver
Linear LED 4000K
Spacing criterion: (II) 1.25 x mounting height,
(⊥) 1.26 x mounting height
Lumens: 2551
Input Watts: 19.6W
Efficacy: 130.2 LPW
Test Report: 22FP2540HE.IES

Control Systems

- WaveLinx
- DLVP
- Enlighted
- iLumin Plus
- VividTune



Connected Systems
[CLICK HERE](#)

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

SEL25

Notes:

Type:**X1**

WISC-RLMA21-103023

Sure-Lites**DESCRIPTION**

The Sure-Lites emergency series (SEL) is a UL 924 code compliant LED solution that provides from 25 feet to 60 feet of emergency egress coverage for a minimum of 90 minutes during a power outage. Key features include a polycarbonate housing, long life LED source, a no maintenance nickel cadmium battery, proprietary adjustable accuLED optics, and a labor savings self-diagnostic option that automatically performs required NFPA testing. Remote capable options providing from 4 watts to 10 watts are available which can power the SRP/SRM/SRPA remotes providing maximum design flexibility for both indoor and outdoor applications. The Patented external battery disconnect and easy hang features reduce installation time and cost.

SPECIFICATION FEATURES**ELECTRICAL**

- Dual Voltage Input 120/277 VAC, 60Hz
- External Battery Disconnect
- Brownout circuit
- Low-voltage disconnect
- Overload / Short Circuit protection
- 4.8V Battery back-up
- Self-diagnostic option
- Laser test capability (self-diagnostic option)

HOUSING CONSTRUCTION

- Components injection molded, color stable, high impact polycarbonate
- White or black textured finish
- Black only available with self-diagnostic
- EZ Hang feature facilitates fast installation
- Suitable for ceiling, pendant or wall mount applications
- Universal J-box mounting pattern
- Keyhole mounting slots
- Aesthetically designed with thin profile
- Heads available in circular or square shape for SEL25 and SEL50

BATTERY

- Sealed Nickel Cadmium
- Full Recharge Time, 24 hours (max.)
- 0° to 40 °C (32 °F to 104 °F)

WARRANTY

- Five-year warranty
- Prorated five-year battery warranty

CODE COMPLIANCE

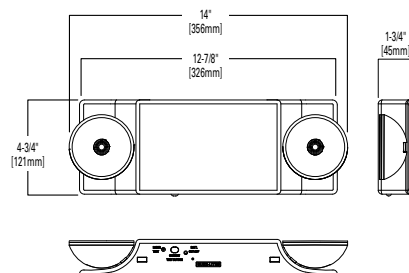
- UL924 Listed
- Damp Location
- Life Safety NFPA 101
- NEC/OSHA
- Most State & Local Codes
- California Energy Code

HOW TO SPECIFY

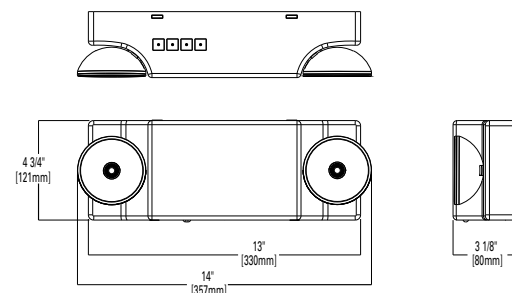
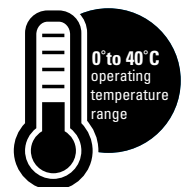
Sure-lites LED emergency light with nickel cadmium battery, external battery disconnect, and adjustable optics.

DIMENSIONS

SEL25/SEL25SD/SEL50/SEL50SD



SEL25R10/SEL50R7/SEL60R4

**SEL25/SEL50/SEL60****SEL Emergency Light****LED Emergency Light****Adjustable Optic****Self-Diagnostics****SEL****Remote Capacity****T20** Certified to California Title 20 Appliance Database**LUMEN OUTPUT**

Model	Lumens / Head
SEL25	109
SEL50	219
SEL60	309

Submitted by Mlazgar Associates	Job Name: TURNKEY SOLUTIONS - Contractor: Steiner Electric (West Bend) D/A: Meghan Behn (Waukesha)	Catalog Number: SEL25 Notes:	Type: X1 WISC-RLMA21-103023
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Sure-Lites

SEL25
SEL50
SEL60

CATALOG LOGIC FOR NON-REMOTE CAPABLE VERSIONS

SAMPLE NUMBER: SEL25, SEL50

Series	Coverage	Battery	Color	Self-Diagnostic	Head Shape	Full Catalog Options
SEL = LED Emergency Light	25 = 25 feet 50 = 50 feet	___ = NiCad	___ = White	___ = No Self-Diagnostic SD = Self-Diagnostic	___ = Circular SQ = Square	SEL25, SEL25SQ, SEL25SD, SEL25SDSQ, SEL50, SEL50SQ, SEL50SD, SEL50SDSQ
Series	Coverage	Battery	Color	Self-Diagnostic		
SEL = LED Emergency Light	25 = 25 feet	___ = NiCad	BK = Black	SD = Self-Diagnostic (standard)	___ = Circular SQ = Square	SEL25BKSD, SEL25BKSDSQ
SEL = LED Emergency Light	50 = 50 feet	___ = NiCad	BK = Black	SD = Self-Diagnostic (standard)	___ = Circular	SEL50BKSD

CATALOG LOGIC FOR REMOTE CAPABLE VERSIONS

SAMPLE NUMBER: SEL25R10, SEL50R7, SEL60R4

Series	Spacing	Battery	Remote Capacity	Color	Self-Diagnostic	Full Catalog Options
SEL = LED Emergency Light	25 = 25 feet	___ = NiCad	R10 = 10 watts	___ = White BK = Black	SD = Self-Diagnostic (standard)	SEL25R10SD SEL25R10BKSD
SEL = LED Emergency Light	50 = 50 feet	___ = NiCad	R7 = 7 watts	___ = White BK = Black	SD = Self-Diagnostic (standard)	SEL50R7SD SEL50R7BKSD
SEL = LED Emergency Light	60 = 60 feet	___ = NiCad	R4 = 4 watts	___ = White	___ = No SD SD = Self-Diagnostic	SEL60R4 SEL60R4SD
SEL = LED Emergency Light	60 = 60 feet	___ = NiCad	R4 = 4 watts	BK = Black	SD = Self-Diagnostic (standard)	SEL60R4BKSD

Emergency Egress Coverage; fixture spacing

Catalog Number	Output Lumens	0.1fc minimum		1fc minimum	
		7.5 foot height	20 foot height	7.5 foot height	20 foot height
SEL25	108	25 feet	12 feet	14 feet	12 feet
SEL50	218	50 feet	30 feet	21 feet	20 feet
SEL60	309	60 feet	52 feet	24 feet	30 feet

ELECTRICAL CHARACTERISTICS DURING CHARGING MODE

SEL25 / SEL50 / SEL60

Model	120 volt			277 volt		
	Power (W)	Current (A)	PF	Power (W)	Current (A)	PF
SEL25	0.6	0.07	0.06	0.64	0.07	0.03
SEL25SD	0.6	0.07	0.07	0.67	0.07	
SEL50	1.0	0.15	0.05	1.02	0.14	
SEL50SD	1.2	0.15	0.06	1.19	0.14	
SEL60R4	1.7	0.25	0.06	1.62	0.21	
SEL60R4SD	2	0.3	0.07	1.8	0.2	
SEL25R10SD	2	0.3	0.07	1.8	0.2	
SEL50R7SD	2	0.3	0.07	1.8	0.2	

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

SEL25

Notes:

Type:**X1**

WISC-RLMA21-103023

Sure-Lites

SEL25
SEL50
SEL60

REMOTE SYSTEM DESIGN GUIDELINES**SEL25 / SEL50 / SEL60**

SEL Series Remote								
		Single Head Remotes				Double Head Remotes		
		SRPA	SRP13/SRM13	SRP25/SRM25	SRP30/SRM30	SRP25D/SRM25D	SRP50D/SRM50D	SRP60D/SRM60D
Watts Consumed		3.5	1.25	2.5	4.1	2.5	5	8.2
Catalog Number	Remote Watts Available	# of SRPA Remotes Fixture Will Power	# of SRP/SRM13 Remotes Fixture Will Power	# of SRP/SRM25 Remotes Fixture Will Power	# of SRP/SRM30 Remotes Fixture Will Power	# of SRP25D/SRM25D Remotes Fixture Will Power	# of SRP50D/SRM50D Remotes Fixture Will Power	# of SRP60D/SRM60D Remotes Fixture Will Power
SEL60R4	4	1	3	1	NA	1	NA	NA
SEL60R4SD	4	1	3	1	NA	1	NA	NA
SEL60R4BKSD	4	1	3	1	NA	1	NA	NA
SEL60R4BK	4	1	3	1	NA	1	NA	NA
SEL25R10	10	2	8	4	2	4	2	1
SEL25R10BK	10	2	8	4	2	4	2	1
SEL50R7SD	7	2	5	2	1	2	1	NA
SEL50R7BKSD	7	2	5	2	1	2	1	NA
SEL50R7	7	2	5	2	1	2	1	NA
SEL50R7BK	7	2	5	2	1	2	1	NA
SEL25R10SD	10	2	8	4	2	4	2	1
SEL25R10BKSD	10	2	8	4	2	4	2	1



SRP



SRPD



SRM



SRMD



SRPA WHITE



SRPA BLACK



SRPA BRONZE



SRPA SILVER

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

SEL25

Notes:

Type:**X1**

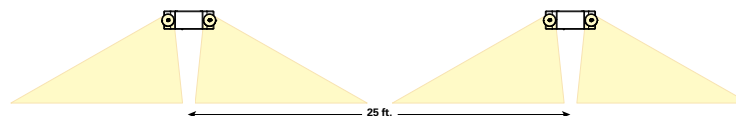
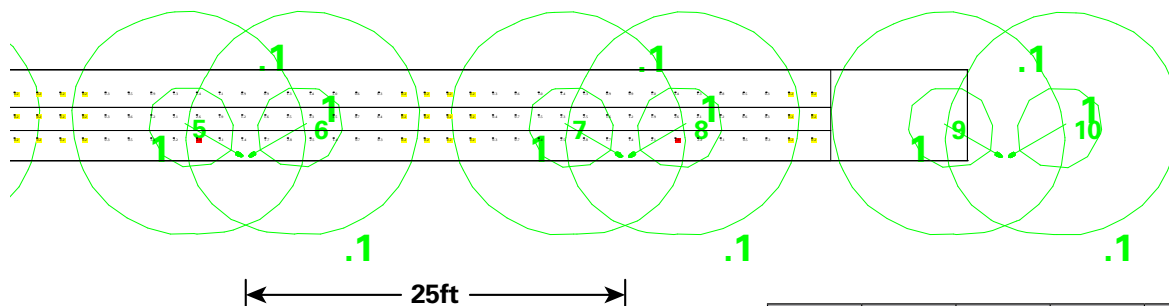
WISC-RLMA21-103023

Sure-Lites

SEL25
SEL50
SEL60

REMOTE SYSTEM DESIGN GUIDELINES

LEM Series Remote Wattage Consumption					
Single Head Remotes			Double Head Remotes		
Catalog Number	LEM1	LEMWR1	LEM2	LEMWR2	
Watts Consumed	1.4	1.4	2.8	2.8	
LEM Series Remote Capacity					
Catalog Number	Remote Watts Available	# of LEMR1 Remotes Fixture Will Power	# of LEMWR1 Remotes Fixture Will Power	# of LEMR2 Remotes Fixture Will Power	# of LEMWR2 Remotes Fixture Will Power
SEL25R10SD	10	7	7	3	3
SEL25R10BKSD	10	7	7	3	3
SEL50R7SD	7	5	5	2	2
SEL50R7BKSD	7	5	5	2	2
SEL60R4	4	2	2	1	1
SEL60R4SD	4	2	2	1	1
SEL60R4BKSD	4	2	2	1	1

PHOTOMETRY**SEL25**

X	Y	Z	Orient	Tilt
-0.5	0.25	7.5	125	27
0.5	0.25	7.5	55	27
16.5	0.211	7.5	125	27
17.5	0.212	7.5	55	27
33.5	0.172	7.5	125	27
34.5	0.173	7.5	55	27
50.5	0.132	7.5	125	27
51.5	0.135	7.5	55	27
67.5	0.093	7.5	125	27
68.5	0.096	7.5	55	27
84.5	0.054	7.5	125	27
85.5	0.058	7.5	55	27
101.5	0.015	7.5	125	27
102.5	0.019	7.5	55	27

***The "Rule of Thumb" spacing guidelines are designed to achieve 1 foot-candle average and 0.1 foot-candle minimum with a 40:1 maximum/minimum ratio. The corridor used is 100 feet long, 9 foot ceiling with a 6 foot wide walkway and 3 foot path of egress. The reflectances are 80% ceiling, 50% walls and 20% floors. The fixture mounting height is 7.5 feet. Cooper Lighting Solutions assumes no responsibility for local requirements or specific project variables. This is a guideline to be used as a design aid, not as guarantee of any code compliance.

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

SEL25

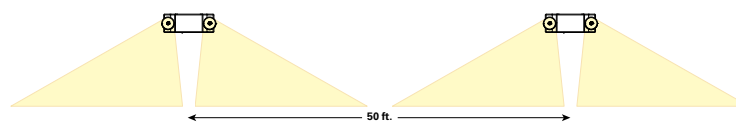
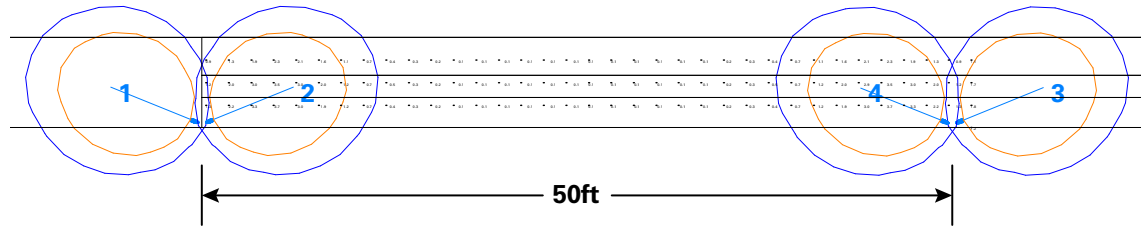
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Type:**X1**

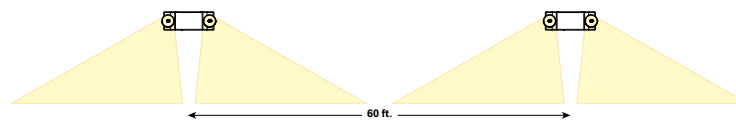
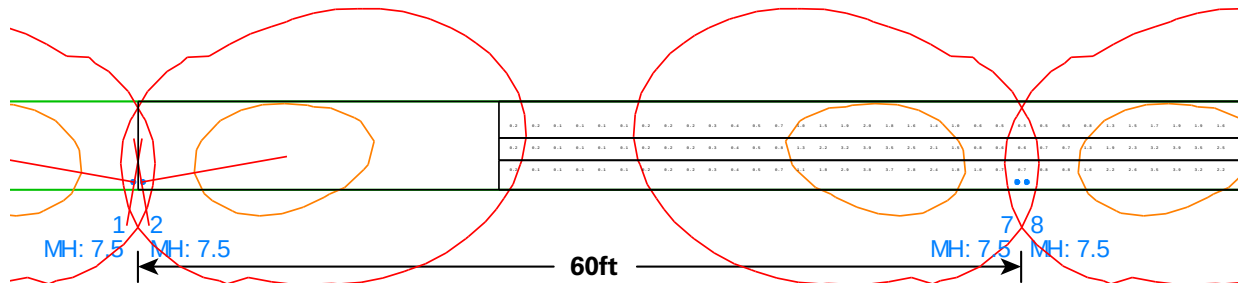
WISC-RLMA21-103023

Sure-Lites

SEL25
SEL50
SEL60

PHOTOMETRY**SEL50**

X	Y	Z	Orient	Tilt
24.25	0.33	7.5	158	40
24.75	0.33	7.5	22	40
74.75	0.3	7.5	22	40
74.25	0.292	7.5	158	40

SEL60

X	Y	Z	Orient	Tilt
-0.25	0.5	7.5	170	57
0.25	0.5	7.5	10	57
120.25	0.5	7.5	10	57
119.75	0.5	7.5	170	57
59.75	0.5	7.5	170	57
60.25	0.5	7.5	10	57
180.25	0.5	7.5	10	57
179.75	0.5	7.5	170	57

***The "Rule of Thumb" spacing guidelines are designed to achieve 1 foot-candle average and 0.1 foot-candle minimum with a 40:1 maximum/minimum ratio. The corridor used is 100 feet long, 9 foot ceiling with a 6 foot wide walkway and 3 foot path of egress. The reflectances are 80% ceiling, 50% walls and 20% floors. The fixture mounting height is 7.5 feet. Cooper Lighting Solutions assumes no responsibility for local requirements or specific project variables. This is a guideline to be used as a design aid, not as guarantee of any code compliance.

Submitted by Mlazgar Associates	Job Name: TURNKEY SOLUTIONS - Contractor: Steiner Electric (West Bend) D/A: Meghan Behn (Waukesha)	Catalog Number: SEL25 Notes:	Type: X1 WISC-RLMA21-103023
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Sure-Lites

SEL25
SEL50
SEL60

TECHNICAL DATA

Mechanical Housing

All components are injection molded with a color stable, high impact thermoplastic resin. The surface is textured to improve aesthetic appearance. The housing construction is designed with snap-fit components and reinforcement ribs to provide maximum strength at minimum installation effort. The mounting hole pattern is universal to junction box requirements and is suitable for both wall and ceiling mount applications.

EZ Key – External Power Disconnect

Prevents the battery from cycling during the construction phase and ensures battery is not drained from power cycling.

EZ Hang – Mounting Feature

The hands-free EZ Hang feature allows the installer to hang the emergency light face from the back plate in order to easily and efficiently make the power connections.

Self-Diagnostics

The self-diagnostic software will automatically perform all tests required by UL924, and NFPA101 and will systematically calibrate itself in the field; thus reducing installation labor and eliminating manual calibration errors. The system indicates the status of the emergency light at all times using the LED indicator. A 90 minute battery power (emergency mode) simulation test will occur once every 12 months. A 30 second battery power simulation test will occur every 30 days.

The Solid-State microprocessor based system has the ability to accurately detect and warn of system failures, plus it incorporates all of the standard electronic features that sets Sure-Lites apart from its competition.

Low-Voltage Disconnect

The low-voltage circuitry disconnects the lighting load to protect the battery after run times in excess of the 90 minute UL limit. The disconnect remains in effect until normal utility power is restored preventing deep battery discharge.

Brownout Circuit

The brownout circuit on the SEL emergency light monitors the flow of AC current to the unit and activates the emergency light heads when a predetermined reduction of AC power occurs.

Warranty

SEL units are backed by a five-year warranty on the fixtures.



EZ Key



EZ Hang

SELF-DIAGNOSTIC TESTING OPERATIONS

The Sure-Lites Self-Diagnostics is continuously monitoring your emergency fixture, and will signal any failure through the 3 color indicator LED.

Initial Operation:

When the unit is first powered up it will go into a 24 hour fast charge and the indicator LED will pulse green. Once the unit has fully charged it will perform a self calibration. After self calibration, the LED will change to steady green indicating the unit is fully charged and float charging the battery to maintain readiness.

Automatic Testing:

The unit will perform a battery capacity, lamp/LED, and charge circuit test every 30 days for 30 seconds. During this time, the indicator LED will change to a steady yellow. It will perform a full battery capacity (90 minute) test once per year. During this time, the indicator LED will change to a blinking yellow.

Manual Testing:

- 10 Second "Installation" test – Press and release the test button once during fast charge (blinking green) to initiate a 10 second quick test. The sign will switch to emergency mode for 10 seconds allowing the installer to verify proper installation of the unit, and the LED indicator will turn solid yellow.
- 30 Second Test - Press and release the test button once during float charge (steady green). The indicator LED will turn steady yellow to indicate the unit is performing a 30 second test of the batteries and lamps/LEDs.
- 90 Minute Test - Press and release the test button a second time during a 30 second test (steady yellow) to change to a 90 minute test. During this test, the LED indicator will change to blinking yellow, and the circuit will perform a full battery capacity, charge circuit, and LED test.
- Canceling Test – Press and release the test button during the 90 minute test (flashing yellow) to return the fixture to its original state (fast charge or float charge)

Laser Test:

The SEL SD products are equipped with a Laser Test function that allows the unit to be manually tested without the need to physically press the test button. Shining a laser pointer in the hole marked "LASERTEST" on the bottom of the unit has the same effect as a press and release of the test button.

Clearing Failure Codes:

- A battery failure (LED two blink red) can be cleared by replacing the battery. Disconnecting the battery and AC power, or performing a full 90 minute discharge will reset the error code, however, it will return if the battery is faulty
- Charge Circuit (LED three blink red) and lamp/LED failure (LED four blink red) will clear when the unit successfully passes a manual or automatic 30 second test.

Submitted by Mlazgar Associates	Job Name: TURNKEY SOLUTIONS - Contractor: Steiner Electric (West Bend) D/A: Meghan Behn (Waukesha)	Catalog Number: SEL25 Notes:	Type: X1 WISC-RLMA21-103023
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Sure-Lites

SEL25
SEL50
SEL60

SELF-DIAGNOSTIC TESTING OPERATIONS

Indicators:

- LED Off - No power to unit, emergency mode.
- LED Steady Green - Unit is fully charged and is float charging the battery to maintain readiness.
- LED Green Pulse - Unit is in a 24 hour fast charge of the battery.
- LED Two Blink Red - Battery has failed a capacity test, or the battery is disconnected. See "Clearing Failure Codes" above.
- LED Three Blink Red - Battery charge circuit has failed. See "Clearing Failure Codes" above.
- LED Four Blink Red - Lamps have burned out, or on an EXIT/Combo, 50% or more of the LEDs have failed. See "Clearing Failure Codes" above.
- LED Steady Yellow - 30 second test or 10 second quick test (Fast Charge only).
- LED Blinking Yellow - 90 minute test.

Maintenance:

None required. Replace the batteries as needed according to ambient conditions. However, we recommend that the equipment be tested regularly in accordance with local codes.

SURE-LITES

SELF

DIAGNOSTICS



○ OFF - EMERGENCY MODE / POWER OFF ● STEADY BLINK GREEN - FAST CHARGE ● STEADY GREEN - FULL / FLOAT CHARGE ● STEADY YELLOW - QUICK TEST	● STEADY BLINK YELLOW - 90 MINUTE TEST ● 2 BLINK RED - BATTERY FAILURE ● 3 BLINK RED - CHARGE CIRCUIT FAILURE ● 4 BLINK RED - LAMP / LED FAILURE
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**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

APWR2

Notes:

Type:**X2**

WISC-RLMA21-103023

Project		Catalog #		Type	
Prepared by		Notes		Date	



Sure-Lites

APWR Series

Remote Heads LED Emergency Heads
Wet Location Listed

Typical Applications

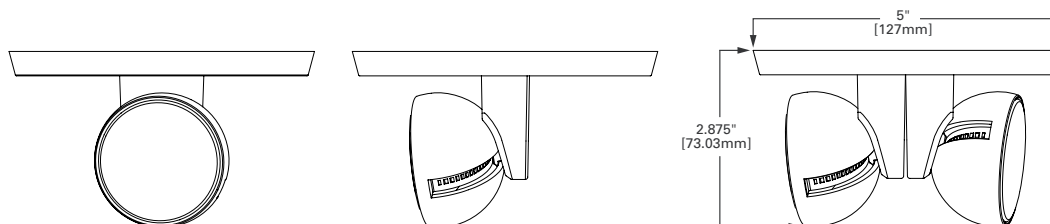
Office • Education • Healthcare • Hospitality
• Retail • Industrial • Manufacturing

Interactive Menu

- Order Information page 2
- Photometric Data page 2
- Control Solutions page 2
- Connected Systems page 2
- Product Warranty

Product Certification**Product Features****Top Product Features**

- 3.6V, .78W DC long lasting LED heads
- Lamp heads adjust 80° from vertical with 358° rotation
- Universal mounting plate
- Flame-resistant and impact-resistant
- Injection-molded thermoplastic material

Dimensional Details

additional product diagrams

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

APWR2

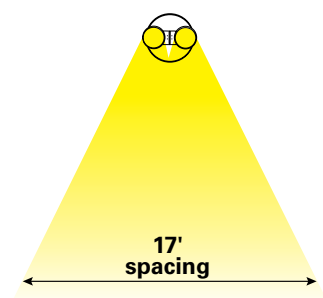
Notes:

Type:**X2**

WISC-RLMA21-103023

Sure-Lites**APWR Series****APWR2BK**SAMPLE ORDER NUMBER: **APWR2BK****Order Information**

Series	Remote Heads	Housing Color	Catalog Numbers
APWR	1=one LED head 2= two LED heads	=White BK=Black	APWR1, APWR2, APWR1BK, APWR2BK

APWR Spacing**Product Specifications****Electrical**

- 3.6V DC Input Voltage

Lampholder/Mounting Plate Construction

- Flame resistant and impact resistant, injection molded thermoplastic
- Lamp heads adjust 80° from vertical with 358° rotation
- Universal mounting plate
- Available in white or black

Code Compliance

- UL 924 Listed
- Wet Location Listed (APWR)
- - (-30 C) to 50 C; (-22 F) to 122 F
- California Energy Code compliant

Head/Lamp Data

- Long Life LED Emergency Heads
- Fully adjustable
- High impact thermoplastic
- Matches housing finish
- 3.6V, .78W DC Long Lasting LED Heads

Warranty

- Five-year warranty

DESCRIPTION

The LED APC series is UL924 code compliant solution for indoor exit and emergency requirements that will operate for a minimum of 90 minutes during a power outage. The LED emergency heads are adjustable, can be side or top mounted and will provide 17 feet of emergency egress coverage. The nickel cadmium battery requires no maintenance. The exit features an LED source available for red or green letters, is field configurable for single or double face and has field configurable chevrons. The polycarbonate housing is universal mount (ceiling, wall or end) and available in a white or black finish. The high powered remote capable versions (H series) will power two additional 3.6 volt emergency heads from the APWR series to generate a total of 34 feet of emergency egress coverage.

SPECIFICATION FEATURES

Electrical

- Dual Voltage Input 120/277VAC, 60Hz
- Line-latching
- Solid-State Voltage Limited Charger
- Solid-State Switching
- Brownout Protection
- Low Voltage Disconnect
- Overload/Short Circuit Protection
- Test Switch / Power Indicator Light
- High Power Combo available capable of running two additional LED remote heads
- 3.6V, .78W DC long Lasting LED Heads

Housing Construction

- All components are injection molded, color stable, high impact polycarbonate material
- Textured finish available in white or black
- Components are of snap-fit construction to facilitate under 5-minute installation
- Reinforcing ribs throughout

to provide maximum strength

- Molded-in wireways facilitate internal wire routing and connections
- All components including battery and electronics are located inside the exit housing
- Snap-out or snap-in chevron directional indicators have full 3/4" stroke
- Universal exits can be field configured as single face or double face
- Snap-fit canopy with captive mounting screws included with all exits
- Exit can be ceiling, wall, or end mounted
- Universal J-box mounting pattern
- Operating temperature range 10 °C to 40 °C

Battery

- Sealed nickel cadmium
- Maintenance free, long life
- Full recharge time: 24 hrs (max.)

Code Compliance

- UL 924 Listed
- UL Damp Location Listed
- Life Safety NFPA 101
- NEC/OSHA
- Most State and Local Codes
- California Energy Code compliant

Lamp Data

- AC LED: Long life LED lamps provide uniform diffused illumination
- DC: LED DC lamps (Brighter in emergency mode)
- Heads DC: 3.6V, .78W Long Life LED Heads Light Output Equivalent to 5.4W Incandescent

Warranty

- Five-year warranty
- Seven-year prorated battery warranty

Sure-Lites

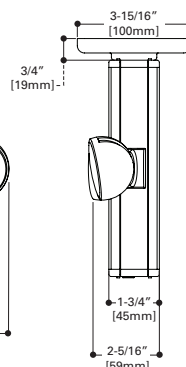
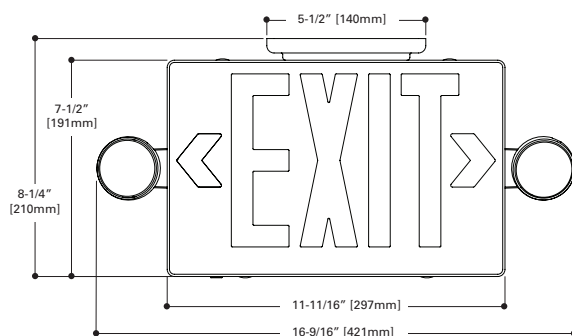
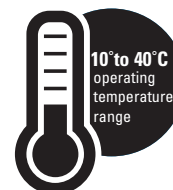
Catalog #	Type
Project	
Comments	Date
Prepared by	



APC/APCH SERIES

POLYCARBONATE EXIT
AC ONLY SELF POWERED
EMERGENCY
LED LAMPS
EXIT LIGHTING

T20 Certified to California Title 20 Appliance Database



ORDERING INFORMATION

SAMPLE NUMBER: APXH7R2

Series	Remote Heads Powered	Battery	Face Options	Letter Colors	Housing Color	Catalog numbers
APC	_ = no remote heads	7 = nickel cadmium battery	_ = Universal	R = Red G = Green	_ = White BK = Black	APC7R, APC7R8BK, APC7G, APC7GBK
	H = two 3.6V LED heads	7 = nickel cadmium battery	_ = Universal	R = Red G = Green	_ = White BK = Black	APCH7R, APCH7R8BK, APCH7G, APCH7GBK



ENERGY DATA

Maximum power consumption under all charge conditions:

Sealed Nickel Cadmium Battery LED Exits - Red	Energy Data AC Only LED Exits - Red
Input Power: 120V = 1.31W 277V = 1.68W	Input Power: 120V = 2.34W 277V = 1.62W
Input Current (Max.): 120V = .09A 277V = .09A	Input Current (Max.): 120V = .14A 277V = .10A
Power Factor: 120V = >.12 277V = >.07	Power Factor: 120V = >.14 277V = >.06

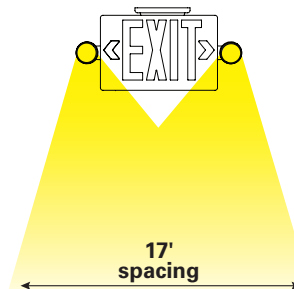
LED Exits - Green	LED Exits - Green
Input Power: 120V = 1.55W 277V = 1.45W	Input Power: 120V = 2.8W 277V = 2.1W
Input Current (Max.): 120V = .09A 277V = .09A	Input Current (Max.): 120V = .10A 277V = .10A
Power Factor: 120V = >.14 277V = >.06	Power Factor: 120V = >.20 277V = >.07

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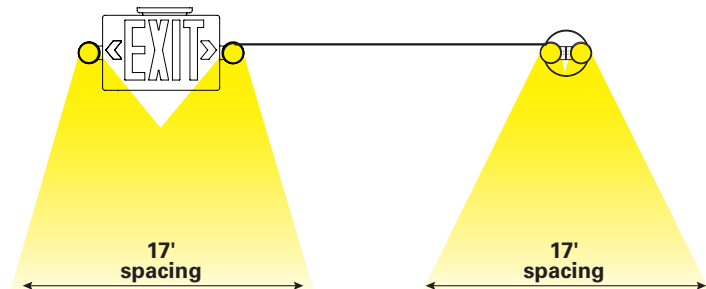
Submitted by Mlazgar Associates	Job Name: TURNKEY SOLUTIONS - Contractor: Steiner Electric (West Bend) D/A: Meghan Behn (Waukesha)	Catalog Number: APC7R Notes:	Type: X3 WISC-RLMA21-103023
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APC / APCH SERIES EXITS WITH REMOTE CAPACITY

APC SPACING



APC SPACING WITH REMOTE



TECHNICAL DATA

Lamps

The AP Series Exits with Heads use energy efficient, long life LED's to provide uniform diffuse illumination of the exit face. The low operating costs and zero maintenance requirement makes LED lamps the wisest choice for exit signs today. Emergency exit illumination is provided by LED lamps and the heads employ 3.6V, .78W DC Long Lasting LED Heads.

Housing Construction

Rugged, durable, injection molded thermoplastic materials are used throughout the AP Series Exits with Heads. All structural components are designed with reinforcing ribs to add additional rigidity and to maximize structural integrity. These materials are impact and scratch resistant, and they have been UV stabilized to resist discoloration due to age and ultraviolet radiation. All components are designed to be of snap-fit construction - no mechanical fasteners - to facilitate installation in under 5-minutes. Any components required for installation (wirenuts, wire leads, universal metal J-box bracket, etc.) are all included with each exit. The universal design of the AP Series Exits with Heads enables universal exits to be configured as single face or double face in the field. The AP Series Exits with Heads can be wall, ceiling, or end mounted; a rugged, snapfit, low profile canopy with captive screws is included with every exit for ceiling and end mounting applications. Housing available in white or black color

Lens

Lenses for the AP Series Exits with Heads are made from durable impact resistant thermoplastic. All exit faces are designed with full 3/4" stroke snap-out or snap-in chevron directional indicators to insure maximum visibility and compliance with the latest codes.

Line-Latched

All Pro's line-latched electronic circuitry makes installation easy and economical. A labor efficient AC activated load switch prevents the lamps from turning on during installation to a non-energized AC circuit. Line-latching eliminates the need for a contractor's return to a job site to connect the batteries when the building's main power is turned on.

Solid-State Charger

Supplied with a 120/277 VAC, voltage regulated solid-state charger. Immediately upon restoration of AC current after a power failure, the charger provides a high charge rate. The charge circuit reacts to the condition of the battery and regulates the charging process in order to maintain peak battery capacity and maximize battery life. Solid-state construction recharges the battery following a power failure in accordance with UL 924.

Brownout Circuit

The brownout circuit on All Pro's exits monitors the flow of AC current to the exit and activates the emergency lighting system when a predetermined reduction of AC power occurs. This dip in voltage will cause most ballasted fixtures to extinguish causing loss of normal lighting even though a total power failure has not occurred.

Solid-State Transfer

The AP Series Exits with Heads incorporates solid-state switching which eliminates corroded and pitted contacts or mechanical failures associated with relays. The switching circuit is designed to detect a loss of AC voltage and automatically energizes the lamps using DC power. Upon restoration of AC power, the DC power will be disconnected and the charger will automatically recharge the battery.

Low Voltage Disconnect

When the battery's terminal voltage falls, the low voltage circuitry disconnects the lighting load. The disconnect remains in effect until normal utility power is restored, preventing deep battery discharge.

Test Switch/Power Indicator Light

A test switch located on the bottom of the exit permits the activation of the emergency circuit for a complete operational systems check. The Power Indicator Light provides visual assurance that the AC power is on.

Overload and Short Circuit Protection

The solid-state overload monitoring device in the DC circuit disconnects the lamp load from the battery should excessive wattage demands be made and automatically resets when the overload or short circuit is removed. This overload current protective feature eliminates the need for fuses or circuit breakers for the DC load.

Sealed Nickel Cadmium Battery

All Pro Emergency sealed nickel cadmium batteries are maintenance-free with a life expectancy of 10 years. The sealed rechargeable nickel cadmium battery offers high discharge rates and stable performance over a wide range of temperatures. The specially designed resealable vent automatically controls cell pressure, assuring safety and reliability. This battery is best suited for harsh ambient temperatures because the electrolyte is not active in the electrochemical process.

Warranty

All-Pro products are backed by a five-year warranty.

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

APCH7R

Notes:

Type:**X4**

WISC-RLMA21-103023

DESCRIPTION

The LED APC series is UL924 code compliant solution for indoor exit and emergency requirements that will operate for a minimum of 90 minutes during a power outage. The LED emergency heads are adjustable, can be side or top mounted and will provide 17 feet of emergency egress coverage. The nickel cadmium battery requires no maintenance. The exit features an LED source available for red or green letters, is field configurable for single or double face and has field configurable chevrons. The polycarbonate housing is universal mount (ceiling, wall or end) and available in a white or black finish. The high powered remote capable versions (H series) will power two additional 3.6 volt emergency heads from the APWR series to generate a total of 34 feet of emergency egress coverage.

SPECIFICATION FEATURES**Electrical**

- Dual Voltage Input 120/277VAC, 60Hz
- Line-latching
- Solid-State Voltage Limited Charger
- Solid-State Switching
- Brownout Protection
- Low Voltage Disconnect
- Overload/Short Circuit Protection
- Test Switch / Power Indicator Light
- High Power Combo available capable of running two additional LED remote heads
- 3.6V, .78W DC long Lasting LED Heads

Housing Construction

- All components are injection molded, color stable, high impact polycarbonate material
- Textured finish available in white or black
- Components are of snap-fit construction to facilitate under 5-minute installation
- Reinforcing ribs throughout

- to provide maximum strength
- Molded-in wireways facilitate internal wire routing and connections
- All components including battery and electronics are located inside the exit housing
- Snap-out or snap-in chevron directional indicators have full 3/4" stroke
- Universal exits can be field configured as single face or double face
- Snap-fit canopy with captive mounting screws included with all exits
- Exit can be ceiling, wall, or end mounted
- Universal J-box mounting pattern
- Operating temperature range 10 °C to 40 °C

Battery

- Sealed nickel cadmium
- Maintenance free, long life
- Full recharge time: 24 hrs (max.)

Code Compliance

- UL 924 Listed
- UL Damp Location Listed
- Life Safety NFPA 101
- NEC/OSHA
- Most State and Local Codes
- California Energy Code compliant

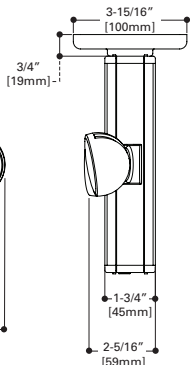
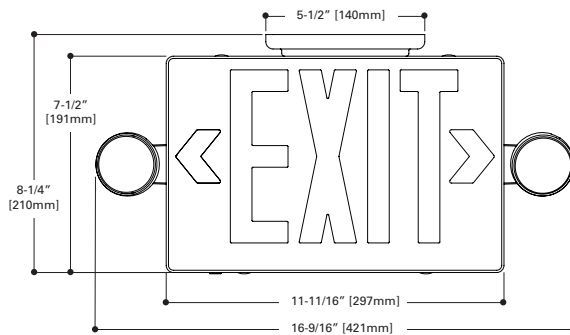
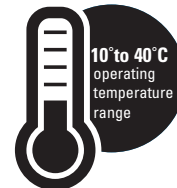
Lamp Data

- AC LED: Long life LED lamps provide uniform diffused illumination
- DC: LED DC lamps (Brighter in emergency mode)
- Heads DC: 3.6V, .78W Long Life LED Heads Light Output Equivalent to 5.4W Incandescent

Warranty

- Five-year warranty
- Seven-year prorated battery warranty

T20 Certified to California Title 20 Appliance Database

**ORDERING INFORMATION**

SAMPLE NUMBER: APXH7R2

Series	Remote Heads Powered	Battery	Face Options	Letter Colors	Housing Color	Catalog numbers
APC	_ = no remote heads	7 = nickel cadmium battery	_ = Universal	R = Red G = Green	_ = White BK = Black	APC7R, APC7RBK, APC7G, APC7GBK
	H = two 3.6V LED heads	7 = nickel cadmium battery	_ = Universal	R = Red G = Green	_ = White BK = Black	APCH7R, APCH7RBK, APCH7G, APCH7GBK

**Sure-Lites**

Catalog #	Type
Project	
Comments	Date
Prepared by	

**APC/APCH SERIES**

POLYCARBONATE EXIT
AC ONLY SELF POWERED

EMERGENCY

LED LAMPS

EXIT LIGHTING

ENERGY DATA

Maximum power consumption under all charge conditions:

Sealed Nickel Cadmium Battery LED Exits - Red

Input Power:
120V = 1.31W
277V = 1.68W
Input Current (Max.):
120V = .09A
277V = .09A
Power Factor:
120V = >.12
277V = >.07

Energy Data AC Only LED Exits - Red

Input Power:
120V = 2.34W
277V = 1.62W
Input Current (Max.):
120V = .14A
277V = .10A
Power Factor:
120V = >.14
277V = >.06

LED Exits - Green

Input Power:
120V = 1.55W
277V = 1.45W
Input Current (Max.):
120V = .09A
277V = .09A
Power Factor:
120V = >.14
277V = >.06

LED Exits - Green

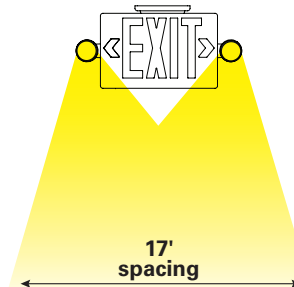
Input Power:
120V = 2.8W
277V = 2.1W
Input Current (Max.):
120V = .10A
277V = .10A
Power Factor:
120V = >.20
277V = >.07

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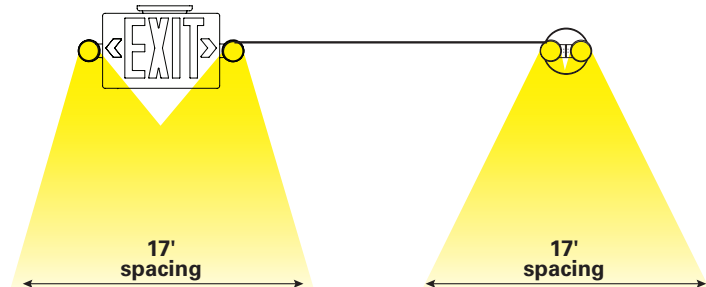
Submitted by Mlazgar Associates 	Job Name: TURNKEY SOLUTIONS - Contractor: Steiner Electric (West Bend) D/A: Meghan Behn (Waukesha)	Catalog Number: APCH7R Notes:	Type: X4 WISC-RLMA21-103023
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APC / APCH SERIES EXITS WITH REMOTE CAPACITY

APC SPACING



APC SPACING WITH REMOTE



TECHNICAL DATA

Lamps

The AP Series Exits with Heads use energy efficient, long life LED's to provide uniform diffuse illumination of the exit face. The low operating costs and zero maintenance requirement makes LED lamps the wisest choice for exit signs today. Emergency exit illumination is provided by LED lamps and the heads employ 3.6V, .78W DC Long Lasting LED Heads.

Housing Construction

Rugged, durable, injection molded thermoplastic materials are used throughout the AP Series Exits with Heads. All structural components are designed with reinforcing ribs to add additional rigidity and to maximize structural integrity. These materials are impact and scratch resistant, and they have been UV stabilized to resist discoloration due to age and ultraviolet radiation. All components are designed to be of snap-fit construction - no mechanical fasteners - to facilitate installation in under 5-minutes. Any components required for installation (wirenuts, wire leads, universal metal J-box bracket, etc.) are all included with each exit. The universal design of the AP Series Exits with Heads enables universal exits to be configured as single face or double face in the field. The AP Series Exits with Heads can be wall, ceiling, or end mounted; a rugged, snapfit, low profile canopy with captive screws is included with every exit for ceiling and end mounting applications. Housing available in white or black color

Lens

Lenses for the AP Series Exits with Heads are made from durable impact resistant thermoplastic. All exit faces are designed with full 3/4" stroke snap-out or snap-in chevron directional indicators to insure maximum visibility and compliance with the latest codes.

Line-Latched

All Pro's line-latched electronic circuitry makes installation easy and economical. A labor efficient AC activated load switch prevents the lamps from turning on during installation to a non-energized AC circuit. Line-latching eliminates the need for a contractor's return to a job site to connect the batteries when the building's main power is turned on.

Solid-State Charger

Supplied with a 120/277 VAC, voltage regulated solid-state charger. Immediately upon restoration of AC current after a power failure, the charger provides a high charge rate. The charge circuit reacts to the condition of the battery and regulates the charging process in order to maintain peak battery capacity and maximize battery life. Solid-state construction recharges the battery following a power failure in accordance with UL 924.

Brownout Circuit

The brownout circuit on All Pro's exits monitors the flow of AC current to the exit and activates the emergency lighting system when a predetermined reduction of AC power occurs. This dip in voltage will cause most ballasted fixtures to extinguish causing loss of normal lighting even though a total power failure has not occurred.

Solid-State Transfer

The AP Series Exits with Heads incorporates solid-state switching which eliminates corroded and pitted contacts or mechanical failures associated with relays. The switching circuit is designed to detect a loss of AC voltage and automatically energizes the lamps using DC power. Upon restoration of AC power, the DC power will be disconnected and the charger will automatically recharge the battery.

Low Voltage Disconnect

When the battery's terminal voltage falls, the low voltage circuitry disconnects the lighting load. The disconnect remains in effect until normal utility power is restored, preventing deep battery discharge.

Test Switch/Power Indicator Light

A test switch located on the bottom of the exit permits the activation of the emergency circuit for a complete operational systems check. The Power Indicator Light provides visual assurance that the AC power is on.

Overload and Short Circuit Protection

The solid-state overload monitoring device in the DC circuit disconnects the lamp load from the battery should excessive wattage demands be made and automatically resets when the overload or short circuit is removed. This overload current protective feature eliminates the need for fuses or circuit breakers for the DC load.

Sealed Nickel Cadmium Battery

All Pro Emergency sealed nickel cadmium batteries are maintenance-free with a life expectancy of 10 years. The sealed rechargeable nickel cadmium battery offers high discharge rates and stable performance over a wide range of temperatures. The specially designed resealable vent automatically controls cell pressure, assuring safety and reliability. This battery is best suited for harsh ambient temperatures because the electrolyte is not active in the electrochemical process.

Warranty

All-Pro products are backed by a five-year warranty.



Date: Jan 29, 2021

Job Name: TURNKEY SOLUTIONS -
EXTERIOR

Bid Date: Jan 13, 2021

Submittal Date: Jan 26, 2021

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

PFPRV-1-C40-T4-20

Notes:**Type:****Z1**

WISC-RLMA21-103023

Lumark**DESCRIPTION**

The Prevail™ LED pole and fixture combination makes selection and installation of poles and fixtures simple. Included is the die-cast Prevail area, site and roadway luminaire with standard mounting arm, square straight steel pole, anchor bolts, base cover, template and hardware. Stock configurations are available in single and dual fixture combinations. The Prevail luminaire delivers a new level of versatility and value in patent pending, architectural design that delivers energy savings greater than 85% and replaces 150-450W metal halide fixtures. The Prevail fixture and pole combo is ideal for general area/site lighting applications.

SPECIFICATION FEATURES**Construction**

Construction is comprised of a heavy-duty, single-piece die-cast aluminum housing in dark bronze polyester powder paint. The die-cast aluminum door is tethered to provide easy access to the driver if replacement is required. The optics is mounted on a versatile, aluminum plate that dissipates heat from the LEDs resulting in longer life of the fixture. The fixture is IP66 and 3G vibration rated (ANSI C136.31).

Optics

Available in Type III and IV distributions with lumen packages ranging from 7,000 to 20,000 nominal lumens. Light engine configurations consist of 1 or 2 high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L91/50,000 hours at 25°C) per IESNA TM-21. For the ultimate level of spill light control, an optional house side shield accessory can be field or factory installed.

Electrical

Available in 120-277V 50/60Hz. 10kV/10kA surge protection standard. 0-10V dimming driver is standard with leads external to the fixture to accommodate controls capability such as dimming and occupancy. Suitable for ambient temperatures from -40°C to 40°C.

Mounting

The versatile, patent pending, standard mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the standard mounting arm enables wiring of the fixture without having to access the driver compartment. A knock-out on the standard mounting arm enables round pole mounting.

Pole

Shaft is one-piece construction ASTM A500 grade "B" steel, shot blasted and finished in dark bronze polyester powder coat. Anchor base is fabricated from ASTM grade steel. ASTM A366 steel full base cover is provided to enclose base plate and anchor bolts. Anchor bolts are per ASTM A576 with two nuts, two flat washers, and one lock washer. Hardware and threaded portion of bolt are hot dip galvanized. 3" hook for 3/4" bolt. 4" hook for 1" bolt.

Finish

Housing and cast parts finished in five-stage super TGIC polyester bronze powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear.

Warranty

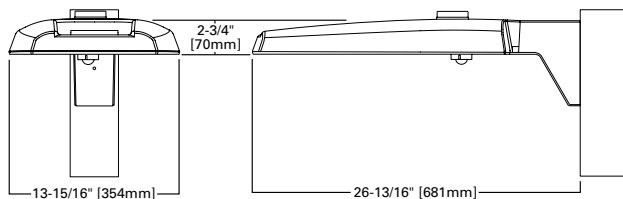
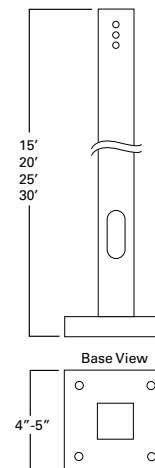
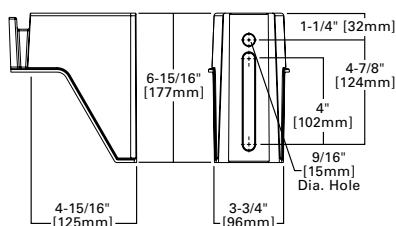
Five-year warranty.



PFPRV PREVAIL POLE AND FIXTURE COMBO

LED

POLE AND FIXTURE COMBO

DIMENSIONS**POLE MOUNT ARM****CERTIFICATION DATA**

UL and cUL Wet Location Listed
IP66-Rated
3G Vibration Rated
ISO 9001

ENERGY DATA

Electronic LED Driver
0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 and 60Hz,
347V/60Hz, 480V/60Hz
-40°C Minimum Temperature Rating
+40°C Ambient Temperature Rating

EPA

Effective Projected Area (Sq. Ft.): 0.75
(1 fixture)

SHIPPING DATA

Approximate Net Weight:
20lbs. [9.09 kgs.] (1 fixture)



TD500029EN
October 15, 2019 11:09 AM

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PFPRV PREVAIL POLE AND FIXTURE COMBO

CONTROL OPTIONS

0-10V (D)

This fixture is offered standard with 0-10V dimming wire leads for use with a lighting control panel or other control method.

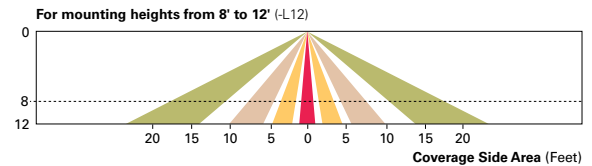
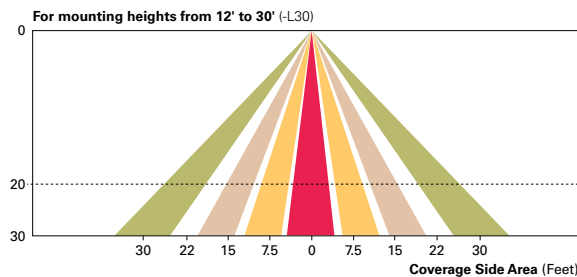
Photocontrol (PER and PER7)

Photocontrol receptacles provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

Dimming Occupancy Sensor (MSP/DIM-LXX)

These sensors are factory installed in the luminaire housing. When a sensor for dimming operation (/DIM) is selected, the luminaire will dim down to approximately 50 percent power after five minutes of no activity detected. When activity is detected, the luminaire returns to full light output.

These occupancy sensors include an integral photocell that can be activated or inactivated with the programming remote / configuration tool for "dusk-to-dawn" control or "daylight harvesting". Note: For MSP sensors, the factory preset is ON (Enabled). The programming remote / tool is a wireless tool that can be utilized to change the dimming level, time delay, sensitivity and other parameters. A variety of sensor lenses are available to optimized the coverage pattern for mounting heights from 8'-30'.



POWER AND LUMENS

Light Engine		C15	C25	C40	C60
Nominal Power (Watts)		57W	87W	143W	163W
Input Current @ 120V (A)		0.43	0.80	1.09	1.32
Input Current @ 277V (A)		0.19	0.35	0.48	0.57
Type III	Lumens	7,111	13,183	17,144	20,050
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4
Type IV	Lumens	7,088	13,140	17,087	19,984
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
25°C	> 91.30%	> 194,000
40°C	> 87.59%	> 134,000

LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99

ORDERING INFORMATION

Sample Number: PFPRV-1-C25-T3-15-N/AB

Series ^{1,2}	Number of Fixtures	Light Engine	Distribution	Pole Height	Maximum Wind Zone (MPH)	Options (Add as Suffix)	Accessories (Order Separately)
PFPRV=Prevail Pole and Fixture Combo	1=1 2=2 3=3 4=4	C15=(1 LED) 7,100 Nominal Lumens C25=(2 LED) 13,100 Nominal Lumens C40=(2 LED) 17,100 Nominal Lumens C60=(2 LED) 20,000 Nominal Lumens	T3=Type III T4=Type IV	15=15' 20=20' 25=25' 30=30'	Blank=80 9=90 0=100	N/AB=No Anchor Bolts (Used when ordered separately) HSS=House Side Shield ³ MSP/DIM-L12=Integrated Sensor for Dimming Operation, 8' - 12' Mounting Height MSP/DIM-L30=Integrated Sensor for Dimming Operation, 12' - 30' Mounting Height PER=NEMA 3PIN Twistlock Photocontrol Receptacle ⁴ PER7=NEMA 7PIN Twistlock Photocontrol Receptacle ⁴	HS/VERD=House Side Shield ³

NOTES: 1 4000K CCT, standard bronze, 120-277V, 0-10V dimming. 2 Standard mount arm included with fixture. Supplied with straight steel shaft, anchor bolts, template, base cover and hardware. 3 HSS not available with C60 lumen package. Ordered as an option, it will come factory-installed. Ordered as a field-installable accessory, must order quantity one per optic/LED. 4 Not available with MSP options.

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:
PFPRV-1-C40-T4-20

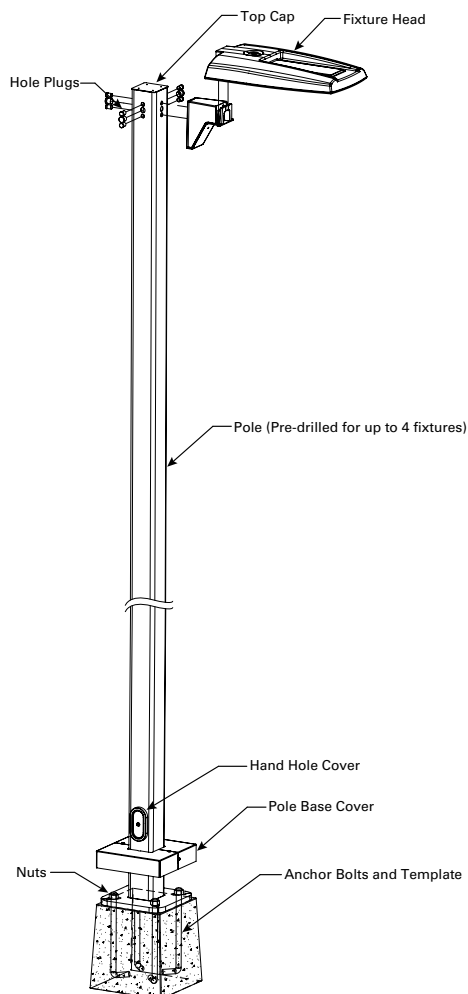
Notes:

Type:**Z1**

WISC-RLMA21-103023

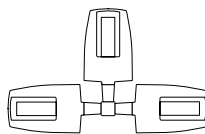
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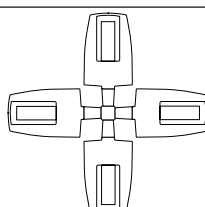
PFPRV PREVAIL POLE AND FIXTURE COMBO

PREVAIL POLE AND FIXTURE COMBO**INCLUDED POLE REFERENCE TABLES**

1 Fixture (EPA= 0.75)		Wind Zone (MPH)		
	Pole Height (Feet)	80	90	100
	15	SSS4A15SFM4 ¹		
	20	SSS4A20SFM4 ¹		
	25	SSS4A25SFM4 ¹		SSS5A25SFM4 ²
	30	SSS5A30SFM4 ²		SSS5M30SFM4 ²

2 Fixtures (EPA= 1.50)		Wind Zone (MPH)		
	Pole Height (Feet)	80	90	100
	15	SSS4A15SFM4 ¹		
	20	SSS4A20SFM4 ¹		
	25	SSS4A25SFM4 ¹		SSS5A25SFM4 ²
	30	SSS5A30SFM4 ²		SSS5M30SFM4 ²

3 Fixtures (EPA= 2.25)		Wind Zone (MPH)		
	Pole Height (Feet)	80	90	100
	15	SSS4A15SFM4 ¹		
	20	SSS4A20SFM4 ¹		
	25	SSS4A25SFM4 ¹		SSS5A25SFM4 ²
	30	SSS5A30SFM4 ²		SSS5M30SFM4 ²

4 Fixtures (EPA= 3.00)		Wind Zone (MPH)		
	Pole Height (Feet)	80	90	100
	15	SSS4A15SFM4 ¹		
	20	SSS4A20SFM4 ¹		
	25	SSS4A25SFM4 ¹		SSS5A25SFM4 ²
	30	SSS5A30SFM4 ²		SSS5M30SFM4 ²

NOTES:

1. Uses hardware kit POLSSHDWC4FCHHP.
2. Uses hardware kit POLSSHDWC5FCHHP.

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

PRV-C40-D-UNV-T4-WM-BZ

Notes:

Type:**W1**

WISC-RLMA21-103023

Project		Catalog #		Type	
Prepared by		Notes		Date	

**Lumark****PRV / PRV-XL Prevail LED****Area / Site Luminaire****Typical Applications**

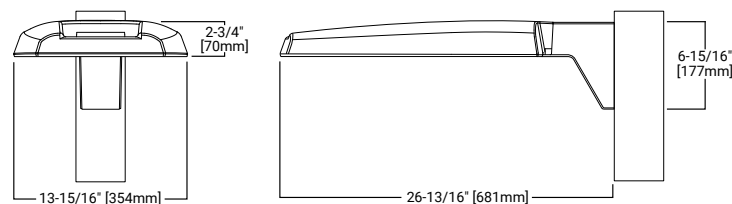
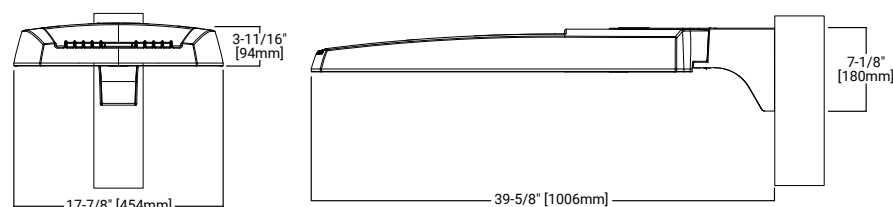
Outdoor • Parking Lots • Walkways • Roadways • Building Areas

**Interactive Menu**

- Ordering Information [page 2](#)
- Mounting Details [page 3](#)
- Optical Configurations [page 3](#)
- Product Specifications [page 3](#)
- Energy and Performance Data [page 4](#)
- Control Options [page 5](#)

Product Certifications**Product Features****Quick Facts**

- Lumen packages range from 7,100 - 48,600 lumens (50W - 350W)
- Replaces 70W up to 1,000W HID equivalents
- Efficacies up to 148 lumens per watt
- Energy and maintenance savings up to 85% versus HID solutions
- Standard universal quick mount arm with universal drill pattern

Dimensional Details**Prevail****Prevail XL**

Submitted by Mlazgar Associates	Job Name: TURNKEY SOLUTIONS - Contractor: Steiner Electric (West Bend) D/A: Meghan Behn (Waukesha)	Catalog Number: PRV-C40-D-UNV-T4-WM-BZ Notes:	Type: W1 WISC-RLMA21-103023
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Lumark PRV / PRV-XL Prevail

Ordering Information

SAMPLE NUMBER: **PRV-XL-C75-D-UNV-T4-SA-BZ**

Product Family ^{1,2}	Light Engine ³	Driver	Voltage	Distribution	Mounting (Included)	Color
PRV=Prevail	C15 =(1 LED) 7,100 Nominal Lumens C25 =(2 LEDs) 13,100 Nominal Lumens C40 =(2 LEDs) 17,100 Nominal Lumens C60 =(2 LEDs) 20,000 Nominal Lumens	D=Dimming (0-10V)	UNV=Universal (120-277V) 347 =347V 480 =480V ⁴	T2 =Type II T3 =Type III T4 =Type IV T5 =Type V	SA =Standard Versatile Arm MA =Mast Arm WM =Wall Mount Arm	AP =Grey BZ =Bronze BK =Black DP =Dark Platinum GM =Graphite Metallic WH =White CC =Coastal Construction
PRV-XL=Prevail XL	C75 =(4 LED) 26,100 Nominal Lumens C100 =(4 LED) 31,000 Nominal Lumens C125 =(4 LED) 36,000 Nominal Lumens C150 =(6 LED) 41,100 Nominal Lumens C175 =(6 LED) 48,600 Nominal Lumens					

Options (Add as Suffix)	Accessories (Order Separately) ¹⁸
7030 =70 CRI / 3000K CCT ⁵ 7050 =70 CRI / 5000K CCT ⁵ HSS =House Side Shield ⁶ L90 =Optics Rotated 90° Left R90 =Optics Rotated 90° Right 10K =10kV UL 1449 Fused Surge Protective Device 20MSP =20kV MOV Surge Protective Device 20K =20kV UL 1449 Fused Surge Protective Device HA =50°C High Ambient Temperature ⁷ PER =NEMA 3-PIN Twistlock Photocontrol Receptacle PER7 =NEMA 7-PIN Twistlock Photocontrol Receptacle MSP/DIM-L12 =Integrated Sensor for Dimming Operation, 8' - 12' Mounting Height ^{8,9} MSP/DIM-L30 =Integrated Sensor for Dimming Operation, 12' - 30' Mounting Height ^{8,9} MSP-L12 =Integrated Sensor ON/OFF Operation, 8' - 12' Mounting Height ^{8,9} MSP-L30 =Integrated Sensor ON/OFF Dimming Operation, 12' - 30' Mounting Height ^{8,9} MS/DIM-L20 =Motion Sensor for Dimming Operation, 9' - 20' Mounting Height ^{8,10} MS/DIM-L40W =Motion Sensor for Dimming Operation, 21' - 40' Mounting Height ^{8,10} MS-L20 =Motion Sensor for ON/OFF Operation, 9' - 20' Mounting Height ^{8,10} MS-L40W =Motion Sensor for ON/OFF Operation, 21' - 40' Mounting Height ^{8,10} ZD =DALI-enabled 4-PIN Twistlock Receptacle ^{9,11,12} ZW =Wavelinx-enabled 4-PIN Twistlock Receptacle ^{9,11,12} SWPD4XX =Wavelinx Wireless Sensor, 7' - 15' Mounting Height ^{9,11,12,13,14} SWPD5XX =Wavelinx Wireless Sensor, 15' - 40' Mounting Height ^{9,11,12,13,14} LWR-LW =Enlightened Wireless Sensor, Wide Lens for 8' - 16' Mounting Height ^{9,15} LWR-LN =Enlightened Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height ^{9,15} (See Table Below) =LumenSafe Integrated Network Security Camera ^{16,17}	PRVWM-XX =Wall Mount Kit ⁸ PRVMA-XX =Mast Arm Mounting Kit ⁸ PRVSA-XX =Standard Arm Mounting Kit ⁸ PRVXLSA-XX =Standard Arm Mounting Kit (for Prevail XL) ¹⁶ PRVXLMA-XX =Mast Arm Mounting Kit (for Prevail XL) ¹⁶ MA1010-XX =Single Tenon Adapter for 3-1/2" O.D. Tenon MA1011-XX =2@180° Tenon Adapter for 3-1/2" O.D. Tenon MA1017-XX =Single Tenon Adapter for 2-3/8" O.D. Tenon MA1018-XX =2@180° Tenon Adapter for 2-3/8" O.D. Tenon HS/VERD =House Side Shield ^{6,19} VGS-F/B =Vertical Glare Shield, Front/Back ¹⁹ VGS-SIDE =Vertical Glare Shield, Side ¹⁹ OA/RA1013 =Photocontrol Shorting Cap OA/RA1014 =NEMA Photocontrol - 120V OA/RA1016 =NEMA Photocontrol - Multi-Tap 105-285V OA/RA1201 =NEMA Photocontrol - 347V OA/RA1027 =NEMA Photocontrol - 480V ISHH-01 =Integrated Sensor Programming Remote ²⁰ FSIR-100 =Wireless Configuration Tool for Occupancy Sensor ²¹ SWPD4-XX =WaveLinX Wireless Sensor, 7' - 15' Mounting Height ^{12,13,14} SWPD5-XX =WaveLinX Wireless Sensor, 15' - 40' Mounting Height ^{12,13,14} WOLC-7P-10A =WaveLinX Outdoor Control Module (7-PIN) ²²

NOTES:

- DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
- Customer is responsible for engineering analysis to confirm pole and fixture compatibility for applications. Refer to installation instructions and pole white paper WP513001EN for additional support information.
- Standard 4000K CCT and 70CRI.
- Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
- Use dedicated IES files on product website for non-standard CCTs.
- Option will come factory-installed. House Side Shield not suitable with T5 distribution or C60 lumen package.
- Not available with C60 lumen package.
- Only available in PRV configurations C15, C25, C40 or C60.
- Controls system is not available with photocontrol receptacle (PER or PER7) or other controls systems (MS, MSP, ZW, ZD or LWR).
- Utilizes the Wattstopper sensor FSP-211.
- Sensor passive infrared (PIR) may be overly sensitive when operating below -20°C (-4°F).
- For the device to be field-configurable, requires WAC Gateway components WAC-PoE and WPOE-120 in appropriate quantities. Only compatible with WaveLinX system and software and requires system components to be installed for operation. See website for more WaveLinX application information.
- Replace XX with sensor color (WH, BZ, or BK).
- Requires 4-PIN twistlock receptacle (ZD or ZW) option.
- Enlightened wireless sensors are factory installed and require network components LWP-EM-1, LWP-GW-1, and LWP-PoE8 in appropriate quantities. See website for application information.
- Only available in PRV-XL configurations C75, C100, C125, C150, or C175.
- Not available with 347V, 480V, or HA options. Consult LumenSafe system product pages for additional details and compatibility information.
- Replace XX with paint color.
- Must order one per optic/LED when ordering as a field-installable accessory (1, 2, 4, or 6).
- This tool enables adjustment to Integrated Sensor (MSP) parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
- This tool enables adjustment to Motion Sensor (MS) parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
- Requires 7-PIN NEMA twistlock photocontrol receptacle (PER7) option. The WOLC-7 cannot be used in conjunction with other controls systems (MS, MSP, ZW, ZD or LWR). Operates on 120-347V input voltages.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

Product Family	Camera Type	Data Backhaul
L=LumenSafe Technology 	D=Dome Camera	C =Cellular, Customer Installed SIM Card A =Cellular, Factory Installed AT&T SIM Card V =Cellular, Factory Installed Verizon SIM Card S =Cellular, Factory Installed Sprint SIM Card E =Ethernet Networking

Stock Ordering Information

Product Family ¹	Light Engine	Voltage	Distribution	Options (Add as Suffix)
PRVS=Prevail	C15 =(1 LED) 7,100 Nominal Lumens C25 =(2 LEDs) 13,100 Nominal Lumens C40 =(2 LEDs) 17,100 Nominal Lumens C60 =(2 LEDs) 20,000 Nominal Lumens	UNV=Universal (120-277V) 347 =347V ²	T3 =Type III T4 =Type IV	MSP/DIM-L30 =Integrated Sensor for Dimming Operation, Maximum 30' Mounting Height ²
PRVS-XL=Prevail XL	C75 =(4 LED) 26,100 Nominal Lumens C100 =(4 LED) 31,000 Nominal Lumens C125 =(4 LED) 36,000 Nominal Lumens C150 =(6 LED) 41,100 Nominal Lumens C175 =(6 LED) 48,600 Nominal Lumens			

NOTES:

- All stock configurations are standard 4000K/70CRI, bronze finish, and include the standard versatile mounting arm.
- Only available in PRVS configurations C15, C25, C40 or C60.

**Job Name:**

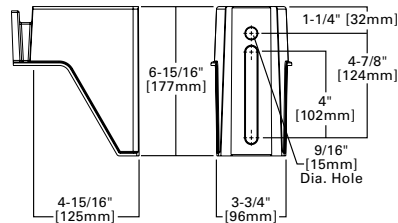
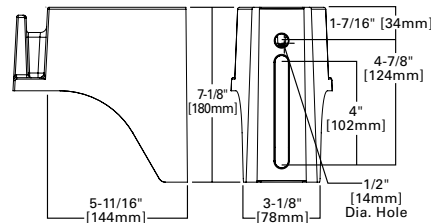
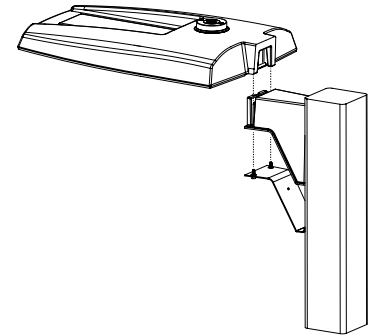
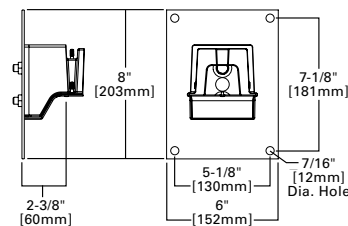
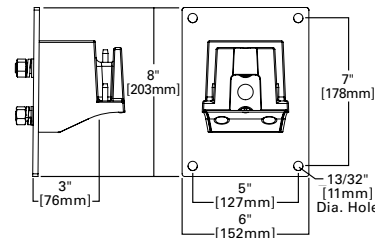
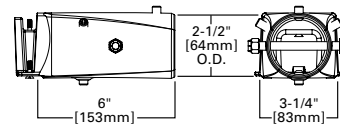
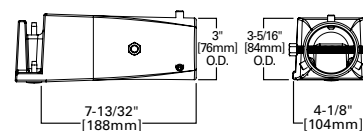
TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

PRV-C40-D-UNV-T4-WM-BZ

Notes:**Type:****W1**

WISC-RLMA21-103023

Lumark**PRV / PRV-XL Prevail****Mounting Details****Pole Mount Arm (PRV)****Pole Mount Arm (PRV-XL)****Versatile Mount System****Wall Mount (PRV)****Wall Mount (PRV-XL)****Mast Arm Mount (PRV)****Mast Arm Mount (PRV-XL)****Mounting Configurations and EPAs**

NOTE: For 2 PRV's mounted at 90°, requires minimum 3" square or 4" round pole for fixture clearance. For 2 PRV-XL's mounted at 90°, requires minimum 4" square or round pole for fixture clearance. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for applications.

Wall Mount

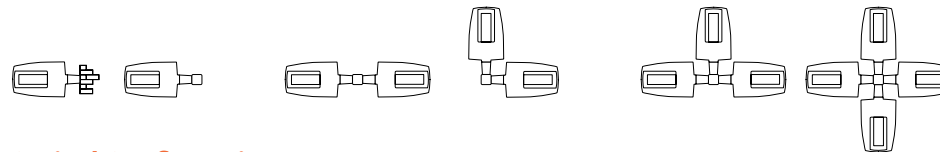
Arm Mount Single
EPA 0.92 (PRV)
EPA 1.12 (PRV-XL)

Arm Mount 2 @ 180°
EPA 1.35 (PRV)
EPA 2.25 (PRV-XL)

Arm Mount 2 @ 90°
EPA 1.42 (PRV)
EPA 2.13 (PRV-XL)

Arm Mount 3 @ 90°
EPA 1.63 (PRV)
EPA 2.52 (PRV-XL)

Arm Mount 4 @ 90°
EPA 1.63 (PRV)
EPA 2.52 (PRV-XL)

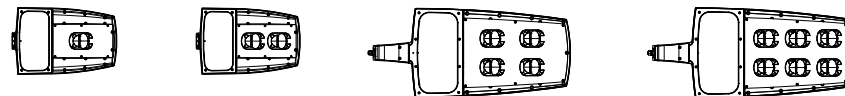
**Optical Configurations**

PRV-C15
(7,100 Nominal Lumens)

PRV-C25/C40/C60
(13,100/17,100/20,000
Nominal Lumens)

PRV-XL-C75/C100/C125
(26,100/31,000/36,300 Nominal Lumens)

PRV-XL-C150/C175
(41,100/48,600 Nominal Lumens)

**Product Specifications****Construction**

- Single-piece die-cast aluminum housing
- Tethered die-cast aluminum door

Optics

- Dark Sky Approved (3000K CCT and warmer only)
- Precision molded polycarbonate optics

Electrical

- 40°C minimum operating temperature
- 40°C maximum operating temperature
- >.9 power factor
- <20% total harmonic distortion

- Class 1 electronic drivers have expected life of 100,000 hours with <1% failure rate
- 0-10V dimming driver is standard with leads external to the fixture

Mounting

- Versatile, patented, standard mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8"
- A knock-out on the standard mounting arm enables round pole mounting
- Prevail: 3G vibration rated
- Prevail XL Mast Arm: 3G vibration rated
- Prevail XL Standard Arm: 1.5G vibration rated

Finish

- Five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness

Shipping Data

- Prevail: 20 lbs. (9.09 kgs.)
- Prevail XL: 45 lbs. (20.41 kgs.)

Lumark

PRV / PRV-XL Prevail

Energy and Performance Data

Power and Lumens (PRV)

[View PRV IES files](#)

Light Engine		C15	C25	C40	C60
Power (Watts)		52	96	131	153
Input Current @ 120V (A)		0.43	0.80	1.09	1.32
Input Current @ 277V (A)		0.19	0.35	0.48	0.57
Input Current @ 347V (A)		0.17	0.30	0.41	0.48
Input Current @ 480V (A)		0.12	0.22	0.30	0.35
Distribution					
Type II	4000K Lumens	7,123	13,205	17,172	20,083
	BUG Rating	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3
	3000K Lumens	6,994	12,965	16,860	19,718
Type III	4000K Lumens	7,111	13,183	17,144	20,050
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4
	3000K Lumens	6,982	12,944	16,832	19,686
Type IV	4000K Lumens	7,088	13,140	17,087	19,984
	BUG Rating	B1-U0-G3	B2-U0-G4	B2-U0-G4	B3-U0-G5
	3000K Lumens	6,959	12,901	16,777	19,621
Type V	4000K Lumens	7,576	14,045	18,264	21,360
	BUG Rating	B3-U0-G3	B4-U0-G3	B4-U0-G4	B5-U0-G4
	3000K Lumens	7,438	13,790	17,932	20,972

Lumen Maintenance

Configuration	TM-21 Lumen Maintenance (50,000 Hours)	Theoretical L70 (Hours)
Up to PRV-C60 at 25°C	91.30%	194,000
Up to PRV-C60 at 40°C	87.59%	134,000
Up to PRV-XL-C175 at 25°C	91.40%	204,000
Up to PRV-XL-C175 at 40°C	89.41%	158,000

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
10°C	1.02
15°C	1.01
25°C	1.00
40°C	0.99

Power and Lumens (PRV-XL)

[View PRV-XL IES files](#)

Light Engine		C75	C100	C125	C150	C175
Power (Watts)		176	217	264	285	346
Input Current @ 120V (A)		1.50	1.84	2.21	2.38	2.92
Input Current @ 277V (A)		0.66	0.82	0.97	1.04	1.25
Input Current @ 347V (A)		0.54	0.66	0.79	0.84	1.02
Input Current @ 480V (A)		0.40	0.48	0.57	0.62	0.74
Distribution						
Type II	4000K Lumens	26,263	31,231	36,503	41,349	48,876
	BUG Rating	B3-U0-G3	B3-U0-G4	B4-U0-G4	B4-U0-G4	B4-U0-G5
	3000K Lumens	25,786	30,664	35,840	40,598	47,989
Type III	4000K Lumens	26,120	31,061	36,304	41,124	48,610
	BUG Rating	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
	3000K Lumens	25,646	30,497	35,645	40,377	47,727
Type IV	4000K Lumens	26,098	31,035	36,274	41,089	48,569
	BUG Rating	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5
	3000K Lumens	25,624	30,471	35,615	40,343	47,687
Type V	4000K Lumens	28,129	33,450	39,097	44,287	52,349
	BUG Rating	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
	3000K Lumens	27,618	32,843	38,387	43,483	51,398

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

PRV-C40-D-UNV-T4-WM-BZ

Notes:**Type:****W1**

WISC-RLMA21-103023

Lumark**PRV / PRV-XL Prevail****Control Options**

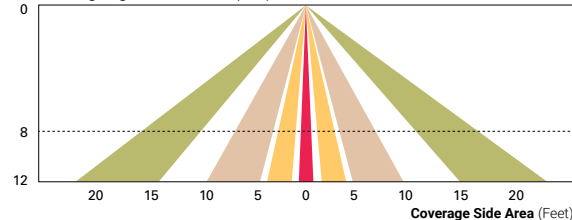
0-10V (D) The dimming option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

Photocontrol (PER and PER7) Photocontrol receptacles provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

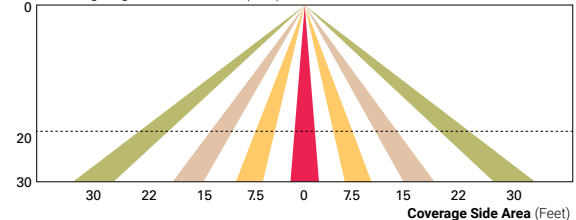
Dimming Occupancy Sensor (MSP and MS) These sensors are factory installed in the luminaire housing. When a sensor for dimming operation (/DIM) option is selected, the luminaire will dim down to approximately 50 percent power after five minutes of no activity detected. When activity is detected, the luminaire returns to full light output. When a sensor for ON/OFF operation is selected, the luminaire will turn off after five minutes of no activity.

These occupancy sensors include an integral photocell that can be activated or inactivated with the programming remote / configuration tool for "dusk-to-dawn" control or "daylight harvesting". **Note:** For MSP sensors, the factory preset is ON (Enabled), and for MS sensors, the factory preset is OFF (Disabled). The programming remote / tool is a wireless tool that can be utilized to change the dimming level, time delay, sensitivity and other parameters. A variety of sensor lenses are available to optimize the coverage pattern for mounting heights from 8'-40'.

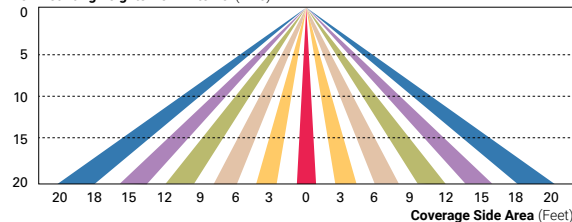
For mounting heights from 8' to 12' (-L12)



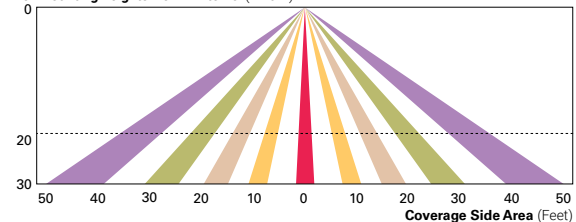
For mounting heights from 12' to 30' (-L30)



For mounting heights from 9' to 20' (-L20)



For mounting heights from 21' to 40' (-L40W)

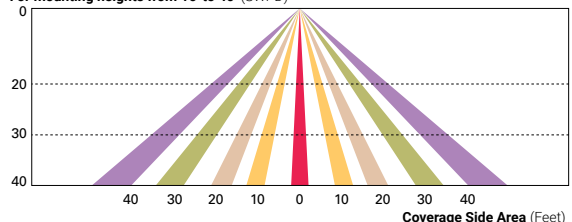


WaveLinx Wireless Control and Monitoring System Available in 7-PIN or 4-PIN configurations, the WaveLinx Outdoor control platform operates on a wireless mesh network based on IEEE 802.15.4 standards enabling wireless control of outdoor lighting. Use the WaveLinx Mobile application for set-up and configuration. At least one Wireless Area Controller (WAC) is required for full functionality and remote communication (including adjustment of any factory pre-sets).

WaveLinx Outdoor Control Module (WOLC-7P-10A) A photocontrol that enables astronomic or time-based schedules to provide ON, OFF and dimming control of fixtures utilizing a 7-PIN receptacle. The out-of-box functionality is ON at dusk and OFF at dawn.

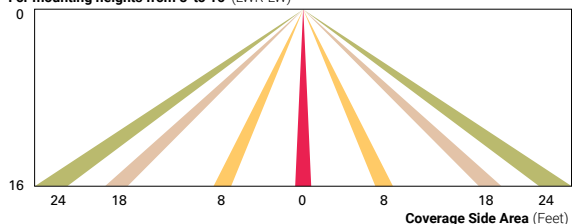
WaveLinx Wireless Sensor (SWPD4 and SWPD5) These outdoor sensors offer passive infrared (PIR) occupancy and a photocell for closed loop daylight sensing. These sensors can be factory installed or field-installed via simple, tool-less integration into luminaires equipped with the Zhaga Book 18 compliant 4-PIN receptacle (ZD or ZW). These sensors are factory preset to dim down to approximately 50 percent power after 15 minutes of no activity detected. These occupancy sensors include an integral photocell for "dusk-to-dawn" control or daylight harvesting that is factory-enabled. A variety of sensor lenses are available to optimize the coverage pattern for mounting heights from 7'-40'.

For mounting heights from 16' to 40' (SWPD)

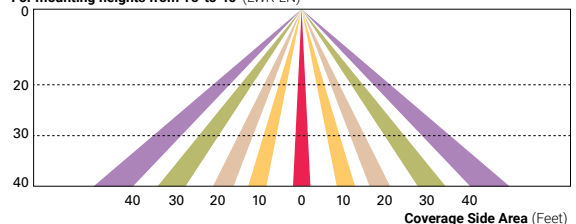


Enlighted Wireless Control and Monitoring System (LWR-LW and LWR-LN) The Enlighted System is a connected lighting solution that combines LED luminaires with an integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes and collects valuable data about building performance and use. Software applications turn the granular data into information through energy dashboards and specialized apps that make it simple and help optimize the use of other resources beyond lighting.

For mounting heights from 8' to 16' (LWR-LW)



For mounting heights from 16' to 40' (LWR-LN)



LumenSafe (LD) The LumenSafe integrated network camera is a streamlined, outdoor-ready camera that provides high definition video surveillance. This IP camera solution is optimally designed to integrate into virtually any video management system or security software platform of choice. No additional wiring is needed beyond providing line power to the luminaire. LumenSafe features factory-installed power and networking gear in a variety of networking options allowing security integrators to design the optimal solution for active surveillance.

**Job Name:**

TURNKEY SOLUTIONS -
Contractor: Steiner Electric (West Bend)
D/A: Meghan Behn (Waukesha)

Catalog Number:

XTOR2B-W

Notes:**Type:****W2**

WISC-RLMA21-103023

Lumark**DESCRIPTION**

The patented Lumark Crosstour™ LED Wall Pack Series of luminaires provides an architectural style with super bright, energy efficient LEDs. The low-profile, rugged die-cast aluminum construction, universal back box, stainless steel hardware along with a sealed and gasketed optical compartment make the Crosstour impervious to contaminants. The Crosstour wall luminaire is ideal for wall/surface, inverted mount for façade/canopy illumination, post/bollard, site lighting, floodlight and low level pathway illumination including stairs. Typical applications include building entrances, multi-use facilities, apartment buildings, institutions, schools, stairways and loading docks test.

SPECIFICATION FEATURES**Construction**

Slim, low-profile LED design with rugged one-piece, die-cast aluminum hinged removable door and back box. Matching housing styles incorporate both a small and medium design. The small housing is available in 12W, 18W and 26W. The medium housing is available in the 38W model. Patented secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes three half-inch, NPT threaded conduit entry points. The universal back box supports both the small and medium forms and mounts to standard 3-1/2" to 4" round and octagonal, 4" square, single gang and masonry junction boxes. Key hole gasket allows for adaptation to junction box or wall. External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Minimum 5" wide pole for site lighting application. Not recommended for car wash applications.

Optical

Silicone sealed optical LED chamber incorporates a custom engineered mirrored anodized reflector providing high-efficiency illumination. Optical assembly includes impact-resistant tempered glass and meets IESNA requirements for full cutoff compliance. Available in seven lumen packages; 5000K, 4000K and 3000K CCT.

Electrical

LED driver is mounted to the die-cast housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 12W, 18W, 26W and 38W series operate in -40°C to 40°C [-40°F to 104°F]. High ambient 50°C models available. Crosstour luminaires maintain greater than 89% of initial light output after 72,000 hours of operation. Three half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized

electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz or 347V 60Hz models.

Finish

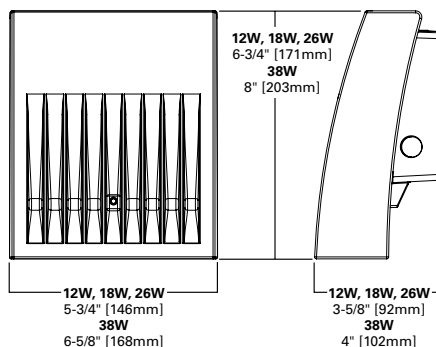
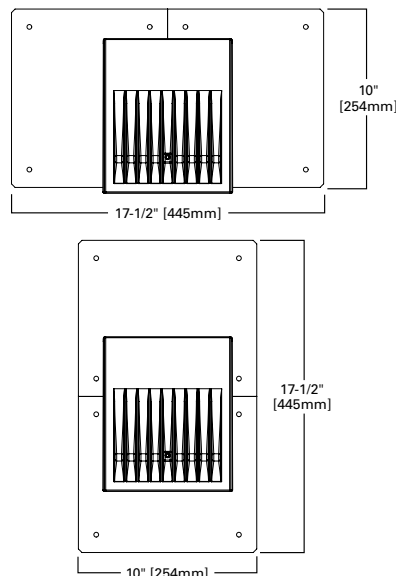
Crosstour is protected with a Super durable TGIC carbon bronze or summit white polyester powder coat paint. Super durable TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

Warranty

Five-year warranty.

**XTOR CROSSTOUR LED**

APPLICATIONS:
WALL / SURFACE
POST / BOLLARD
LOW LEVEL
FLOODLIGHT
INVERTED
SITE LIGHTING

DIMENSIONS**ESCUTCHEON PLATES****CERTIFICATION DATA**

Dark Sky Approved (Fixed mount, Full cutoff, and 3000K CCT only)
UL/cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS Compliant
ADA Compliant
NOM Compliant Models
IP66 Ingressed Protection Rated
Title 24 Compliant
DesignLights Consortium® Qualified*

TECHNICAL DATA

40°C Maximum Ambient Temperature
External Supply Wiring 90°C Minimum

EPA

Effective Projected Area (Sq. Ft.):
XTOR1B, XTOR2B, XTOR3B=0.34
XTOR4B=0.45

SHIPPING DATA:

Approximate Net Weight:
3.7 – 5.25 lbs. [1.7 – 2.4 kgs.]

page 2

XTOR CROSSTOUR LED

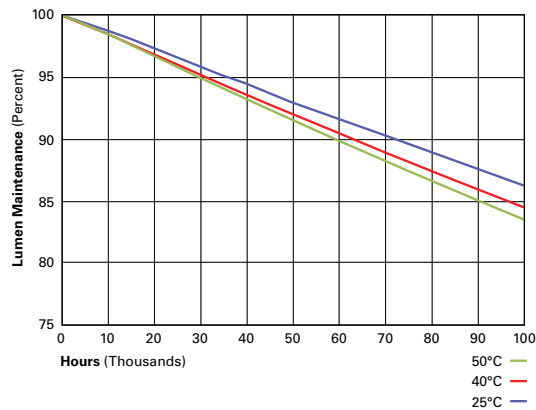
POWER AND LUMENS BY FIXTURE MODEL

LED Information	XTOR1B	XTOR1B-W	XTOR1B-Y	XTOR2B	XTOR2B-W	XTOR2B-Y	XTOR3B	XTOR3B-W	XTOR3B-Y	XTOR4B	XTOR4B-W	XTOR4B-Y
Delivered Lumens (Wall Mount)	1,418	1,396	1,327	2,135	2,103	1,997	2,751	2,710	2,575	4,269	4,205	3,995
Delivered Lumens (With Flood Accessory Kit) ¹	1,005	990	940	1,495	1,472	1,399	2,099	2,068	1,965	3,168	3,121	2,965
B.U.G. Rating ²	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B1-U0-G0	B2-U0-G0	B2-U0-G0	B2-U0-G0
CCT (Kelvin)	5,000	4,000	3,000	5,000	4,000	3,000	5,000	4,000	3,000	5,000	4,000	3,000
CRI (Color Rendering Index)	70	70	70	70	70	70	70	70	70	70	70	70
Power Consumption (Watts)	12W	12W	12W	18W	18W	18W	26W	26W	26W	38W	38W	38W

NOTES: 1 Includes shield and visor. 2 B.U.G. Rating does not apply to floodlighting.

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (72,000 Hours)	Theoretical L70 (Hours)
XTOR1B Model		
25°C	> 90%	255,000
40°C	> 89%	234,000
50°C	> 88%	215,000
XTOR2B Model		
25°C	> 89%	240,000
40°C	> 88%	212,000
50°C	> 87%	196,000
XTOR3B Model		
25°C	> 89%	240,000
40°C	> 88%	212,000
50°C	> 87%	196,000
XTOR4B Model		
25°C	> 89%	222,000
40°C	> 87%	198,000
50°C	> 87%	184,000



CURRENT DRAW

Voltage	Model Series			
	XTOR1B	XTOR2B	XTOR3B	XTOR4B
120V	0.103A	0.15A	0.22A	0.34A
208V	0.060A	0.09A	0.13A	0.17A
240V	0.053A	0.08A	0.11A	0.17A
277V	0.048A	0.07A	0.10A	0.15A
347V	0.039A	0.06A	0.082A	0.12A

Submitted by Mlazgar Associates	Job Name: TURNKEY SOLUTIONS - Contractor: Steiner Electric (West Bend) D/A: Meghan Behn (Waukesha)	Catalog Number: XTOR2B-W Notes:	Type: W2 WISC-RLMA21-103023
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XTOR CROSSTOUR LED

ORDERING INFORMATION

Sample Number: XTOR2B-W-WT-PC1

Series ¹	LED Kelvin Color	Housing Color	Options (Add as Suffix)	Accessories (Order Separately)
XTOR1B=Small Door, 12W XTOR2B=Small Door, 18W XTOR3B=Small Door, 26W XTOR4B=Medium Door, 38W	[Blank]=Bright White (Standard), 5000K W=Neutral White, 4000K Y=Warm White, 3000K	[Blank]=Carbon Bronze (Standard) WT=Summit White BK=Black BZ=Bronze AP=Grey GM=Graphite Metallic DP=Dark Platinum	PC1=Photocontrol 120V ² PC2=Photocontrol 208-277V ^{2,3} 347V=347V ⁴ HA=50°C High Ambient ⁴	WG/XTOR=Wire Guard ⁵ XTORFLD-KNC=Knuckle Floodlight Kit ⁶ XTORFLD-TRN=Trunnion Floodlight Kit ⁶ XTORFLD-KNC-WT=Knuckle Floodlight Kit, Summit White ⁶ XTORFLD-TRN-WT=Trunnion Floodlight Kit, Summit White ⁶ EWP/XTOR=Escutcheon Wall Plate, Carbon Bronze EWP/XTOR-WT=Escutcheon Wall Plate, Summit White

NOTES:

- DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.
- Photocontrols are factory installed.
- Order PC2 for 347V models.
- Thru-branch wiring not available with HA option or with 347V. XTOR3B not available with HA and 347V or 120V combination.
- Wire guard for wall/surface mount. Not for use with floodlight kit accessory.
- Floodlight kit accessory supplied with knuckle (KNC) or trunnion (TRN) base, small and large top visors and small and large impact shields.

STOCK ORDERING INFORMATION

12W Series	18W Series	26W Series	38W Series
XTOR1B=12W, 5000K, Carbon Bronze	XTOR2B=18W, 5000K, Carbon Bronze	XTOR3B=26W, 5000K, Carbon Bronze	XTOR4B=38W, 5000K, Carbon Bronze
XTOR1B-WT=12W, 5000K, Summit White	XTOR2B-W=18W, 4000K, Carbon Bronze	XTOR3B-W=26W, 4000K, Carbon Bronze	XTOR4B-W=38W, 4000K, Carbon Bronze
XTOR1B-PC1=12W, 5000K, 120V PC, Carbon Bronze	XTOR2B-WT=18W, 5000K, Summit White	XTOR3B-WT=26W, 5000K, Summit White	XTOR4B-WT=38W, 5000K, Summit White
XTOR1B-W=12W, 4000K, Carbon Bronze	XTOR2B-PC1=18W, 5000K, 120V PC, Carbon Bronze	XTOR3B-PC1=26W, 5000K, 120V PC, Carbon Bronze	XTOR4B-PC1=38W, 5000K, 120V PC, Carbon Bronze
	XTOR2B-W-PC1=18W, 4000K, 120V PC, Carbon Bronze	XTOR3B-W-PC1=26W, 4000K, 120V PC, Carbon Bronze	XTOR4B-W-PC1=38W, 4000K, 120V PC, Carbon Bronze
	XTOR2B-347V=18W, 5000K, Carbon Bronze, 347V	XTOR3B-347V=26W, 5000K, Carbon Bronze, 347V	XTOR4B-347V=38W, 5000K, Carbon Bronze, 347V
	XTOR2B-WT-PC1=18W, 5000K, 120V PC, Summit White	XTOR3B-PC2=26W, 5000K, 208-277V PC, Carbon Bronze	



Cooper Lighting Solutions
 1121 Highway 74 South
 Peachtree City, GA 30269
 P: 770-486-4800
www.cooperlighting.com

Specifications and dimensions subject to change without notice.

TD514013EN
 March 12, 2020 9:33 AM

SIGN PERMIT REVIEW

4/12/21 Plan Commission Meeting

Walmart / Signarama

Village Staff Report

Germantown, Wisconsin

Summary

Signarama, agent for Meridian Germantown LLC, property owner and Walmart, is requesting sign approval for an additional wall-mounted tenant sign for the Walmart property located at W190 N9855 Appleton Avenue.

Property Location: W190 N9855 Appleton Avenue

Applicant/

Property Owners:

Signarama
W15787 Meno Ave
Menomonee Falls, WI

Meridian Germantown LLC
1301 SE 10th St
Bentonville, AK 72716

Current Zoning: B-2: Community Business

Adjacent Land Uses		Zoning
North	Residential	Rs-1
South	Commercial	B-1
East	Commercial	B-1
West	Institutional (WE Energies)	I

Location Map



Proposal/Background

Signarama, agent for Meridian Germantown LLC, property owner and Walmart, is requesting sign approval for an additional wall-mounted tenant sign for the Walmart property located at W190 N9855 Appleton Avenue.

In 2004, the Village approved CUP #4-04 for the Walmart “Supercenter” with a condition that all signage comply with the applicable sign regulations in the Zoning Code, including a maximum wall sign area allowance of 300 sqft. Soon thereafter, the Plan Commission approved wall signage totaling 645 sqft. Of that amount, only the 229 sqft “WALMART SUPERCENTER” on the front elevation was considered wall signage with the remaining 416 sqft. considered directional signage. The monument sign was also approved separately.

Since that time, there have been three separate proposals to add or revise wall-mounted signage on the Wal-Mart building. In 2006, a similar Subway tenant sign was proposed in the same location but was denied by the Plan Commission because the maximum amount of allowable wall sign area (300 sqft) had been met (and that such a small tenant sign would not be visible from Appleton Avenue). In 2011, an overall color scheme change was proposed for the building along with two (2) additional 20 sqft tenant sign placeholders on the west (front) elevation. Those two tenant sign placeholders, intended for tenants like the Subway, the eyeglasses store, and other specialty “tenants” located at the front of the store, were denied for the same reasons.

In 2018, as part of an overall update to current corporate requirements, the Walmart signage was modified with an overall reduction in sign area from 645 to 558 sqft and the existing monument sign was refaced with a new logo. These modifications were approved through a Zoning Permit approval (face replacements do not require PC approval). As a result, the following signage exists on the east (front) elevation:

- A 298 sqft internally illuminated “WALMART” and asterisk-like “spark” logo;
- A 95 sqft “HOME & PHARMACY” sign;
- A 41 sqft “GROCERY” sign;
- A 58 sqft “LAWN & GARDEN” sign;
- A 66 SQFT “pickup” sign;
- Different “Pharmacy Drive-Thru”, “Exit” and “Enter” signs on the side/north elevation;

While the total amount of signage was reduced, even if you only count the 298 sqft primary “WALMART” and “spark” logo sign as wall signage and the rest as directional signage, the total amount of meets the maximum 300 sqft allowance.

Staff Comments

The existing signs meet all current Zoning Code requirements if we continue to assume that the 298 sqft primary “WALMART” and “spark” logo sign are the only wall signs and the other signs are directional signage.

With respect to the proposed “SUBWAY” sign, one could argue that it, too, serves as directional signage since it is located on the north side of the front elevation closer to where the Subway shop is located inside the store. In that case, the PC could approve the Subway sign as a directional sign.

However, as a department store, the general expectation is that there are a variety of goods and services available inside that should not/do not necessarily need to be called out on the front elevation of the building. Moreover, as pointed out with previous proposals, the size and location of the Subway sign, and the size and location of the building are such that the sign would hardly be visible from Appleton Avenue and not likely serve any purpose other than to direct patrons to the northernmost entrance if they are going to Walmart to get a Subway sandwich and need to save a few steps in doing so.

In 2006, a similar proposal to install a “SUBWAY” tenant sign on the front elevation was denied due to the facts that: (1) tenant signs were not approved as part of the original sign plan package; (2) the existing wall signage already met or exceeded the maximum 300 sqft wall sign allowance (depending on what was considered wall vs. directional); and (3) a precedent would be set for other existing or future tenants who might want their own wall signs.

Village Staff Recommendation

DENY the proposed wall-mounted Subway sign for the Walmart property located at W190 N9855 Appleton Avenue.

If the Plan Commission chooses to **APPROVE** the proposed Subway sign, Staff recommends the following conditions:

1. If electrical equipment/components need to be replaced, electrical permits shall be obtained from Inspection Services prior to installation.



Fee must accompany application

\$275 Sign Review Fee

\$ 75 Sign Face Replacement

Paid L Date 2/24/21

SIGN REVIEW APPLICATION

Pursuant to Section 17.46 of the Municipal Code

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

1 APPLICANT OR AGENT

Signarama Menomonee Falls
N84W15787 Meno. Ave #1
Meno: FIS, WI 53051
Phone (262) 251-4300
Fax ()
E-Mail Redd@Signswithimpact.com

PROPERTY OWNER

Meridian Germantown LLC
c/o Wal-Mart Property
1301 SE 10th St MS0655
Bentonville, AR 72716-0655
Phone (479) 273-4089

2 PROPERTY ADDRESS OR GENERAL LOCATION

W190 N9855 Appleton Ave - Germantown

3 SIGN INFORMATION

Sign Dimensions 2 height x 10 width Single Multi Tenant (circle one)
Number of Sides 1 WALL SIGN Building Frontage SF 7300
Total Square Footage of Sign (include all sides) 20
Total height of the Sign 16'
Is the Sign to be illuminated ✓ yes no
Type of Sign Construction Materials Aluminum Construction w/ Plexiglas Faces
Distance to Closest Property Line > 100

Are there any existing signs on the property Yes - Wal-Mart
If yes, what is the total Square Footage of existing signs Approx 160 sq ft

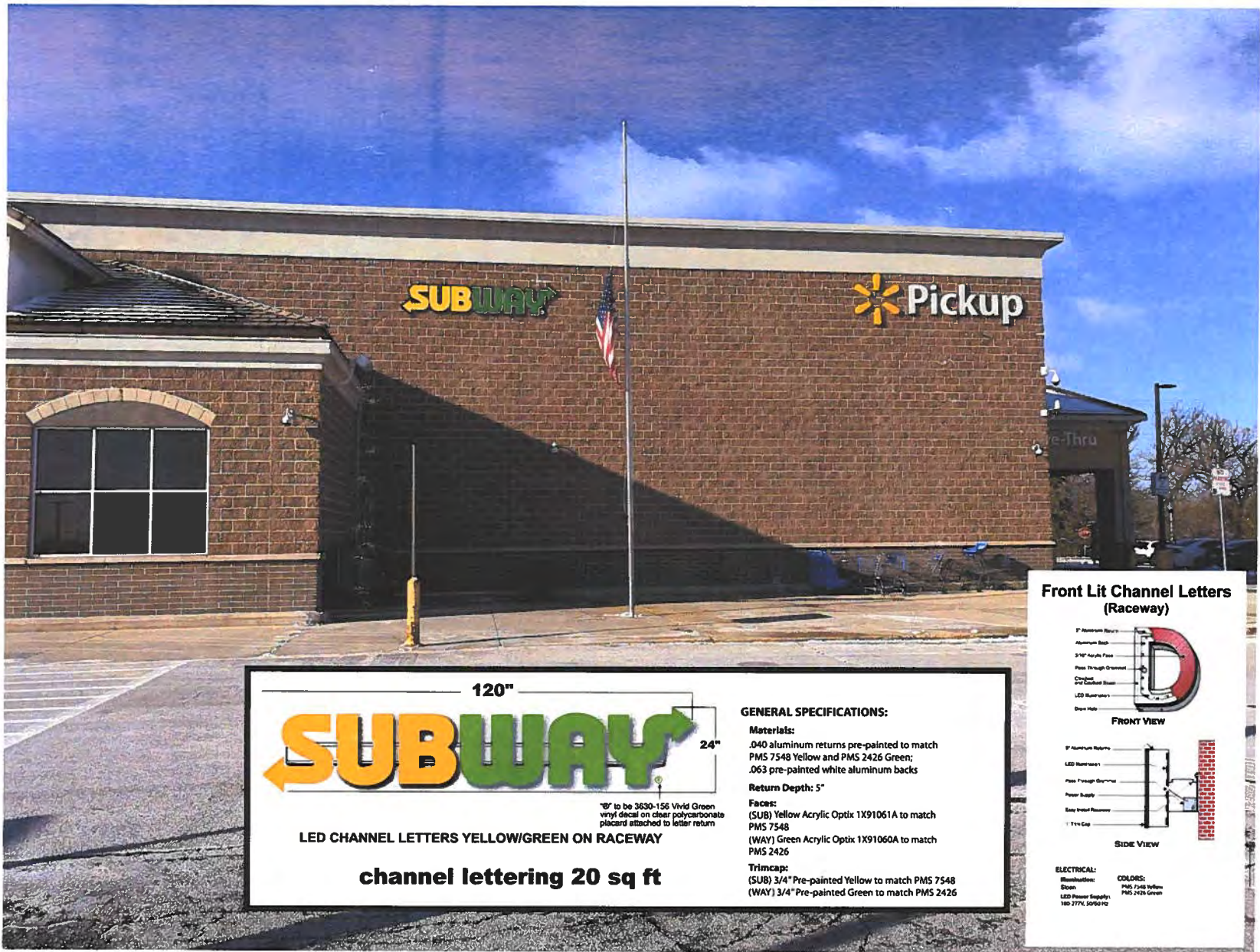
What are the intentions for the existing signs: Take down Remain ✓

4 SIGNATURES -- ALL APPLICATIONS MUST BE SIGNED BY OWNER!

[Signature]
Applicant

12/8/2020
Date

L.B. Patel 12/8/2020
Owner Date



LED CHANNEL LETTERS YELLOW/GREEN ON RACEWAY

channel lettering 20 sq ft

GENERAL SPECIFICATIONS:

Materials:

.040 aluminum returns pre-painted to match
PMS 7548 Yellow and PMS 2426 Green;
.063 pre-painted white aluminum backs

Return Depth: 5"

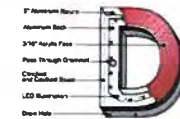
Faces:

(SUB) Yellow Acrylic Optix 1X91061A to match
PMS 7548
(WAY) Green Acrylic Optix 1X91060A to match
PMS 2426

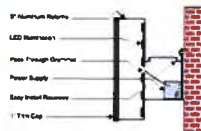
Trimcap:

(SUB) 3/4" Pre-painted Yellow to match PMS 7548
(WAY) 3/4" Pre-painted Green to match PMS 2426

Front Lit Channel Letters (Raceway)



FRONT VIEW



SIDE VIEW

ELECTRICAL:

Backshell:
Shim:
LED Power Supply:
180 277V, 50/60 Hz

COLORS:
PMS 7548 Yellow
PMS 2426 Green



**Menomonee Falls
Signarama**

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Approved by: E-mail:

Z:\Subway - Germantown

File: IMG_6916.fs

Rodd@SignsWithImpact.com

Date: 12/17/2020

N84W15787 Menomonee Ave, Ste 1., Menomonee Falls, WI 53051 (262) **251-4300**



current onsite
signage for Walmart



Menomonee Falls
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