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

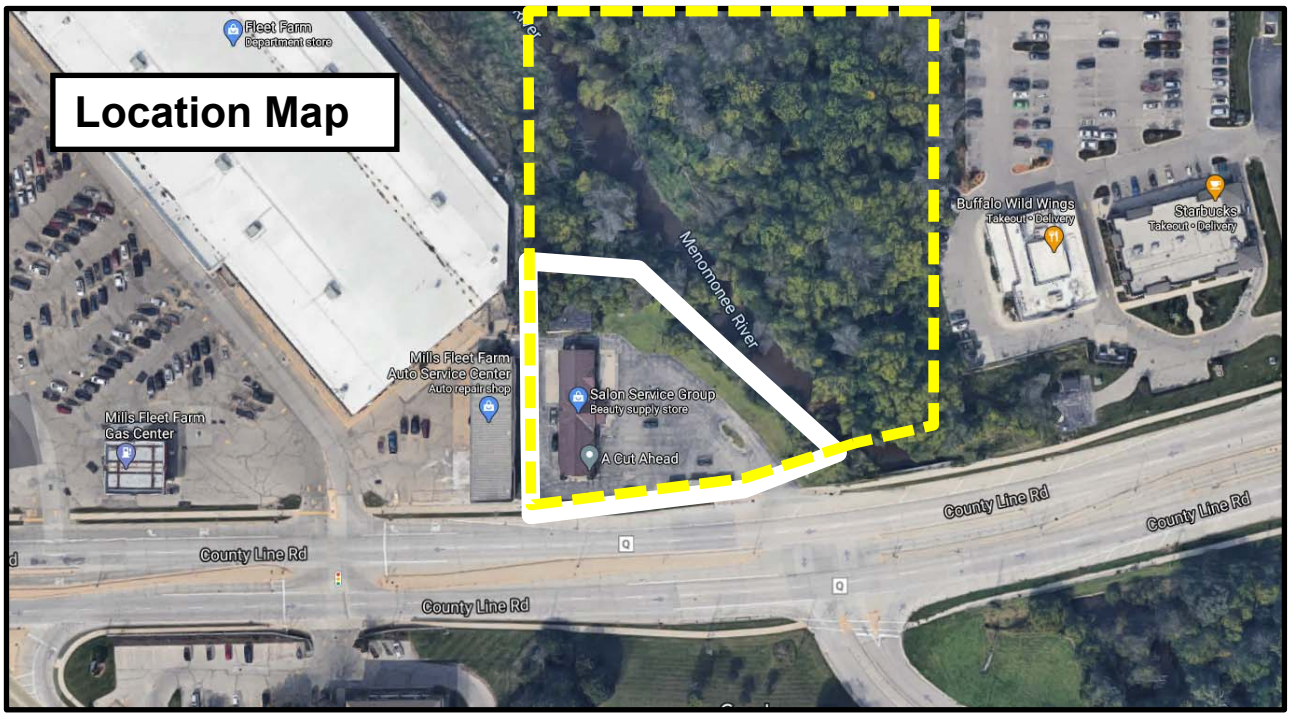
Applicant/ Property Owners:

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



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).

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."*

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 scone 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

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

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).

<u>Sight</u> <u>Distance</u>
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;

- 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).

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

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 CONDTIONAL 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 CONDTIONAL 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

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.

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 Cunty 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.

Village of Germantown
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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 d 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.

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 metho at the storm sewer outfall. Show silt fence in a "U" shape to contain sediment.*

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 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.

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 : 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.

Village of Germantown ...Willkommen

Fee must accompany application

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

PAID_____ DATE_____

SITE PLAN REVIEW APPLICATION

Pursuant to Section 17.43 of the Municipal Code

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

1 APPLICANT OR AGENT

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

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

PROPERTY OWNER

Future property owner - 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:

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

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

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

5 SIGNATURES – ALL APPLICATION MUST BE SIGNED BY OWNER!

10/2/2020
Applicant Date

Clint Lyders-Peters 10/2/2020
Owner - Future 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 [illegible] 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	South	East	West
Menomonee River/Vacant NW - Fleet Farm - Commerical	Tri-City National Bank, Kohls - Commercial	Menomonee River/Vacant	Fleet Farm - Commercial

4 **READ AND INITIAL THE FOLLOWING:**

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

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

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

5 **SIGNATURES** – ALL APPLICATION MUST BE SIGNED BY OWNER!

[signature] 10/2/2020
Applicant Date

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

Diane Peebles 12/1/2020

Village of Germantown ...Willkommen

Fee must accompany application

☐ **$1460** Paid _____ Date_____

CONDITIONAL USE PERMIT APPLICATION

Pursuant to Section 17.42 of the Municipal Code

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

1 APPLICANT OR AGENT

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

PROPERTY OWNER

Future property owner - 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 / TAX KEY NUMBER

PROPERTY ADDRESS	TAX KEY NUMBER
N96W19058 County Line Rd	GTNV_333999

4 DESCRIPTION OF EXISTING OPERATION

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

See project narrative

5 DESCRIPTION OF PROPOSED OPERATION

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

See project narrative

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

See project narrative

6 METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

See attached legal description

7 SUPPORTING DOCUMENTATION:

- ☒ 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:

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

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

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

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

9 SIGNATURES – ALL APPLICATIONS MUST BE SIGNED BY OWNER!

[signature]	10/2/2020	Clint Lyden-Peters	10/2/2020
Applicant	Date	Owner - Future	Date

SITE PLAN REVIEW CHECKLIST

Pursuant to Section 17.43 of the Municipal Code

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

GENERAL INFORMATION

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

EXISTING SITE INFORMATION

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

ARCHITECTURAL PLANS

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

PROPOSED SITE PLAN

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

LIGHTING PLAN

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

LANDSCAPING PLAN

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

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

MODEL SUBMITTAL INCLUDES THE FOLLOWING PLANS:

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

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

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

Village of Germantown
Willkommen

FEES MUST BE PAID AT TIME OF APPLICATION

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

Date Paid: _____ Received by: _____

REZONING & PDD APPLICATION

Pursuant to Section 17.51 of the Municipal Code

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

1

APPLICANT OR AGENT

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

PROPERTY OWNER

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

2

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

3

REZONING REQUEST

FROM	TO
B-1	B-5

4

METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

See attached

5 PURPOSE OF REZONING REQUEST

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

See attached narrative

6 SUPPORTING DOCUMENTATION:

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

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

7 READ AND INITIAL THE FOLLOWING:

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

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

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

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

8 SIGNATURES – ALL APPLICATIONS MUST BE SIGNED BY OWNER!

Oct 15 2020

Applicant Date

Marshall Peebles 10/2/2020

Owner Date

October 5, 2020

Project Narrative

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

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

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

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

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

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

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

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

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

LEGAL DESCRIPTION

PARCEL A:

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

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

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

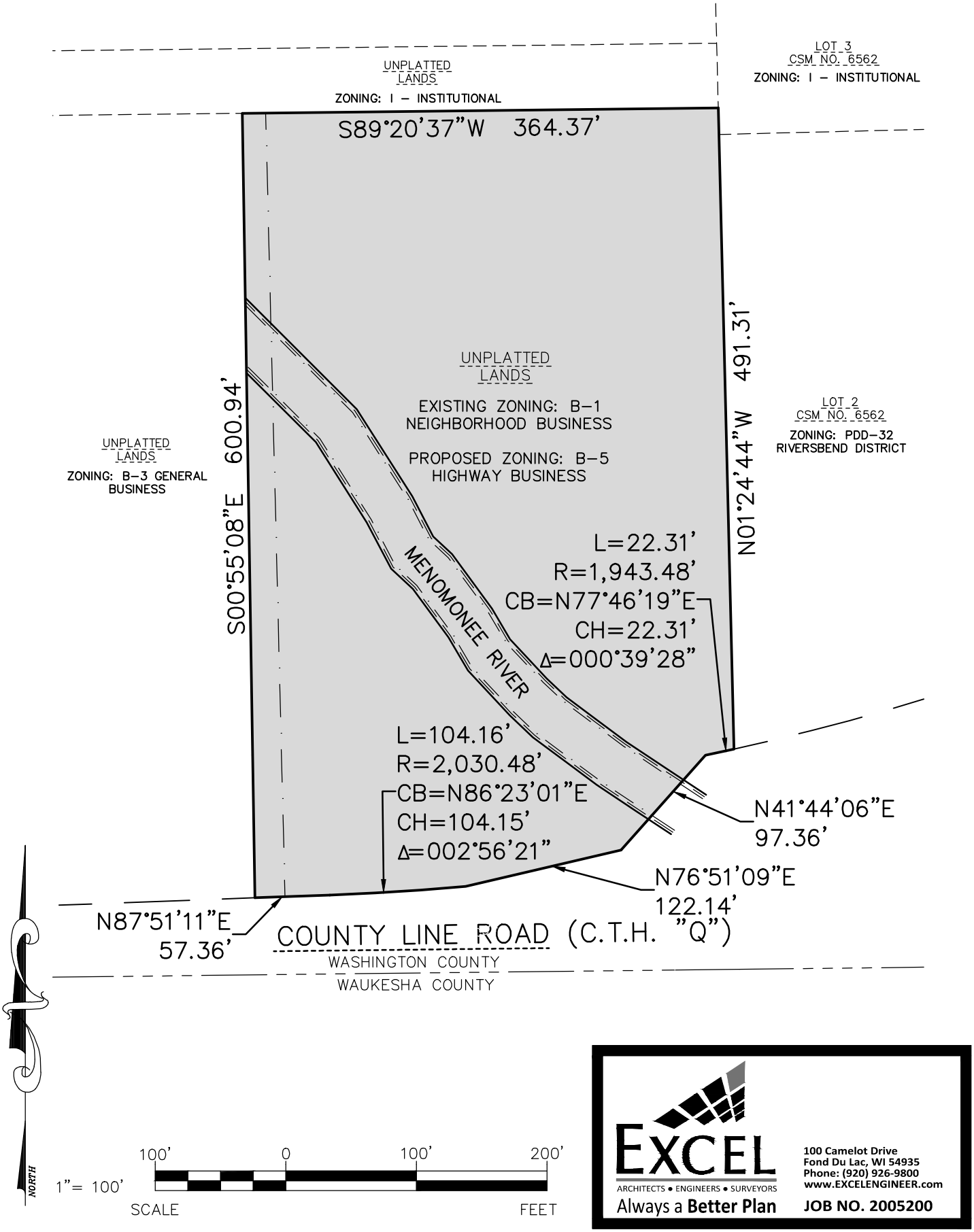
PARCEL B:

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

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

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

ZONING EXHIBIT



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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 queueing at the driveway for those waiting to exit the property.

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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 isconsistent 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 acrossthe 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

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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-feet 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.

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?
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

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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 site 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

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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

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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:

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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

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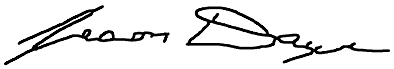
1) Improvements proposed in the ROW shall be reviewed and approved by Washington County. Provide a copy of the County approval.
   Excel Response: Understood. A copy of approval letter/permit will be provided upon receipt.

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

Sincerely,



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

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2610; 2/16/20

N
NOT TO SCALE

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

GERMANTOWN, WISCONSIN

TRAFFIC ANALYSIS & DESIGN, INC.

2610; 2/16/20

N

NOT TO SCALE

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

GERMANTOWN, WISCONSIN

TRAFFIC ANALYSIS & DESIGN, INC.

2610; 2/16/20

N

NOT TO SCALE

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

GERMANTOWN, WISCONSIN

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

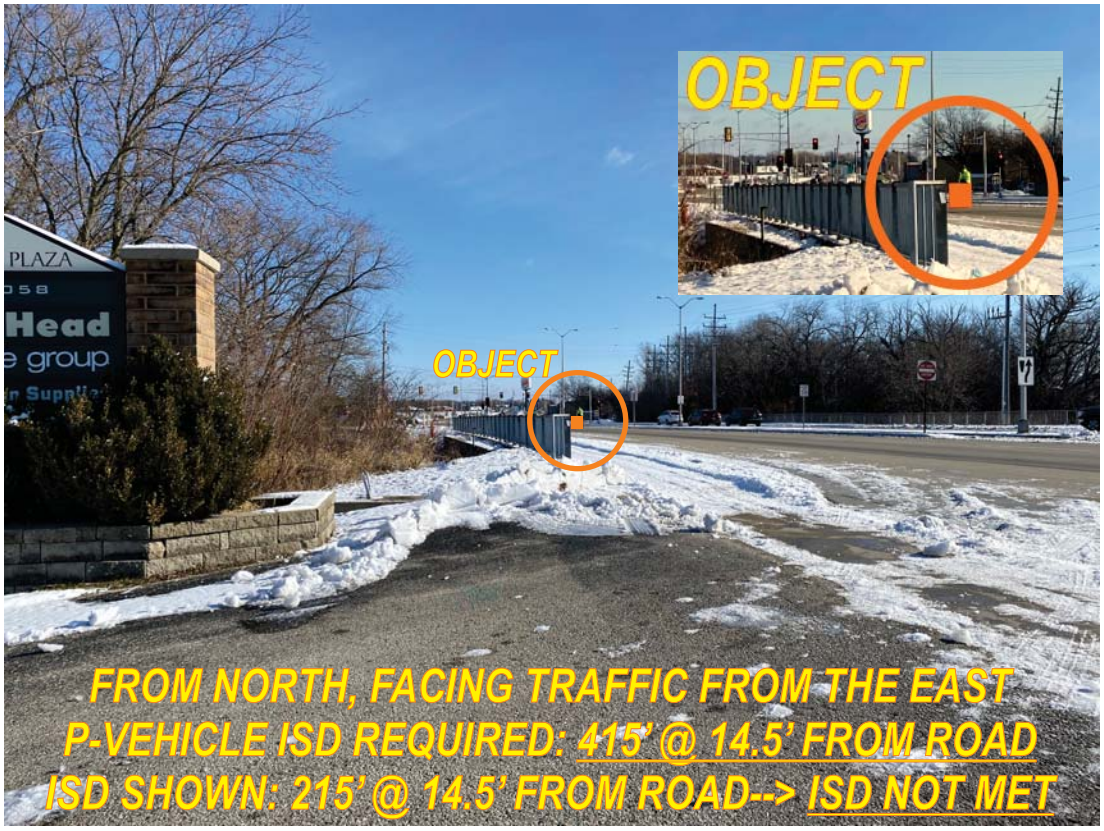

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EXHIBIT 5-2A
COUNTY LINE ROAD & SHADY LANE ISD PHOTOS
P-VEHICLE: FACING EAST FROM SB APPROACH

GERMANTOWN, WISCONSIN

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

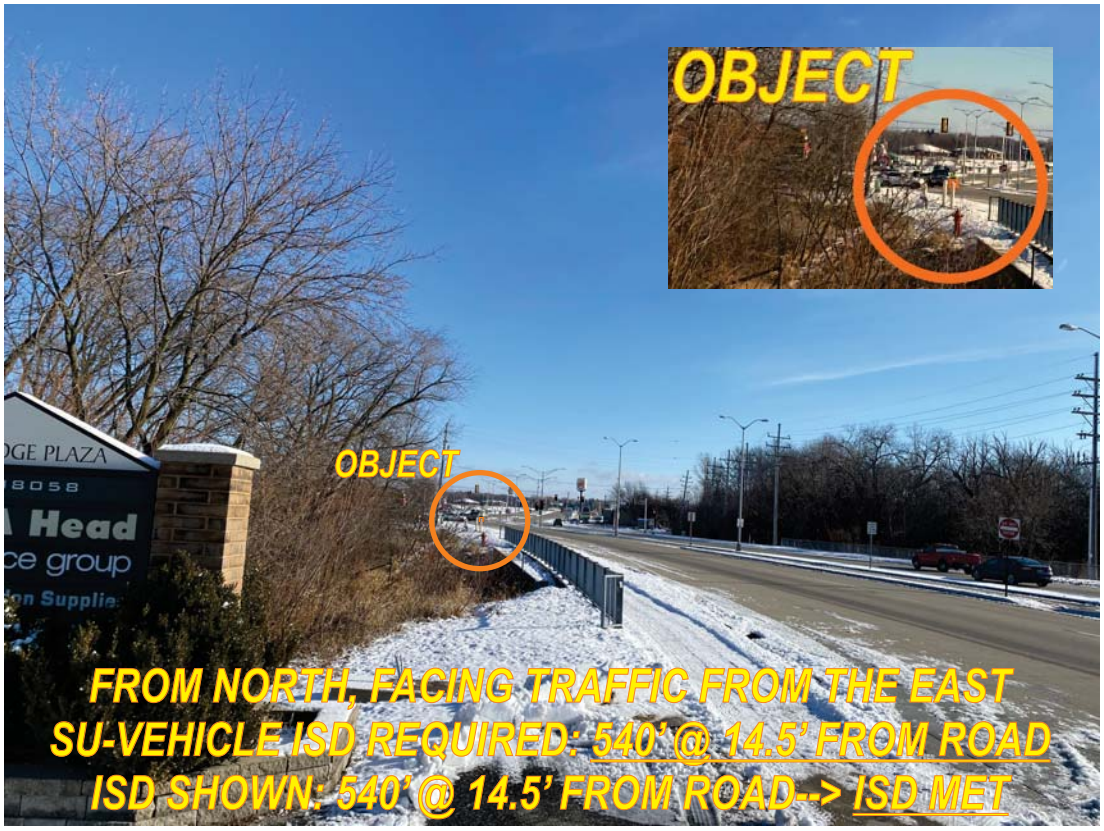

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EXHIBIT 5-2B
COUNTY LINE ROAD & SHADY LANE ISD PHOTOS
SU-VEHICLE: FACING EAST FROM SB APPROACH

GERMANTOWN, WISCONSIN

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),

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

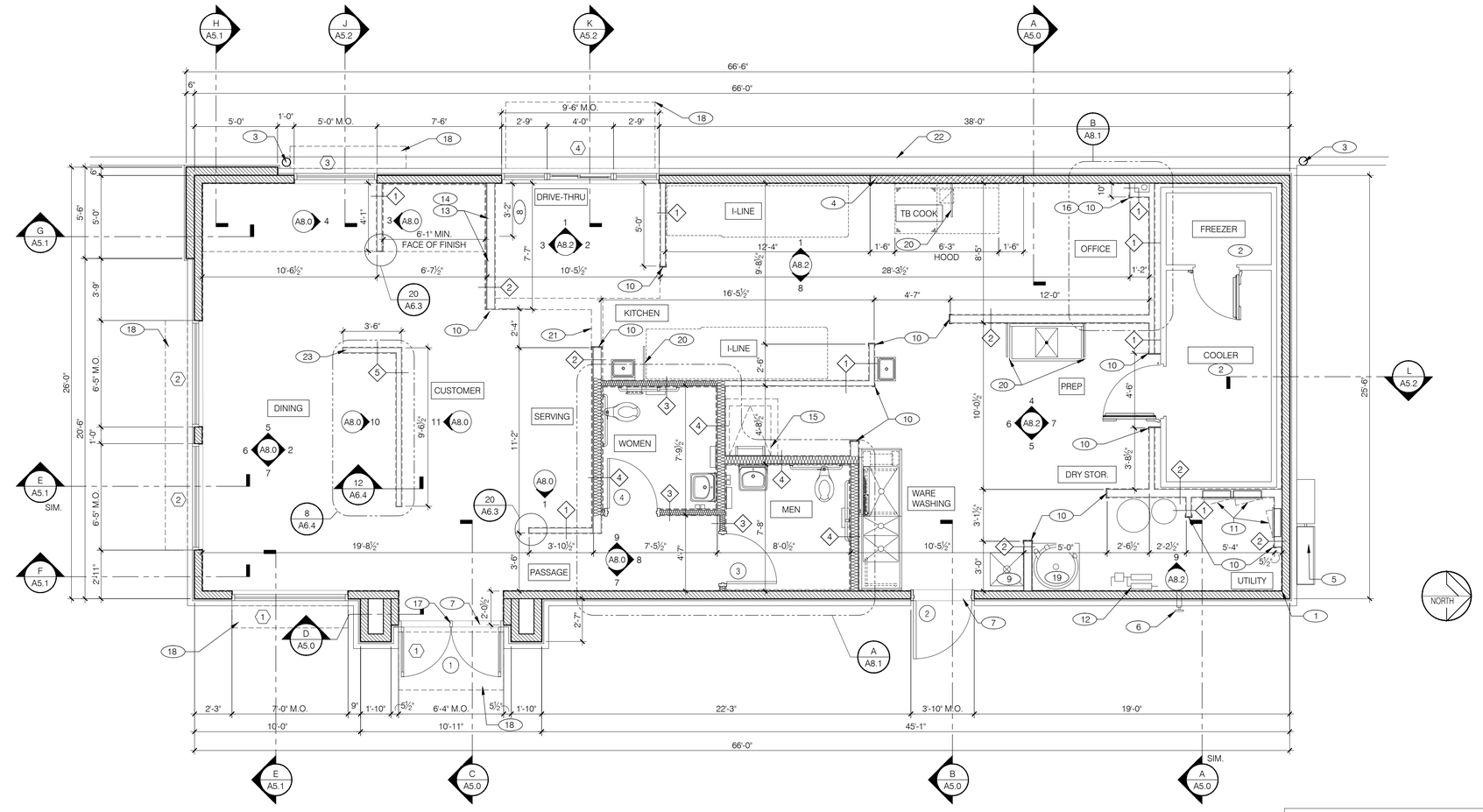
reroute from Shady Lane to Premier Lane or Rivercrest Drive). The results documented in this memorandum are approximations.

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.



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

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

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

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

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

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

1 2X4 WOOD STUDS
2 2X6 WOOD STUDS

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

3 2X4 WOOD STUDS
4 2X6 WOOD STUDS

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

5 2X4 WOOD STUDS

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

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

WALL LEGEND E

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

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

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

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

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

FLOOR PLAN NOTES D

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

KEY NOTES XX B

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PROJECT INFORMATION

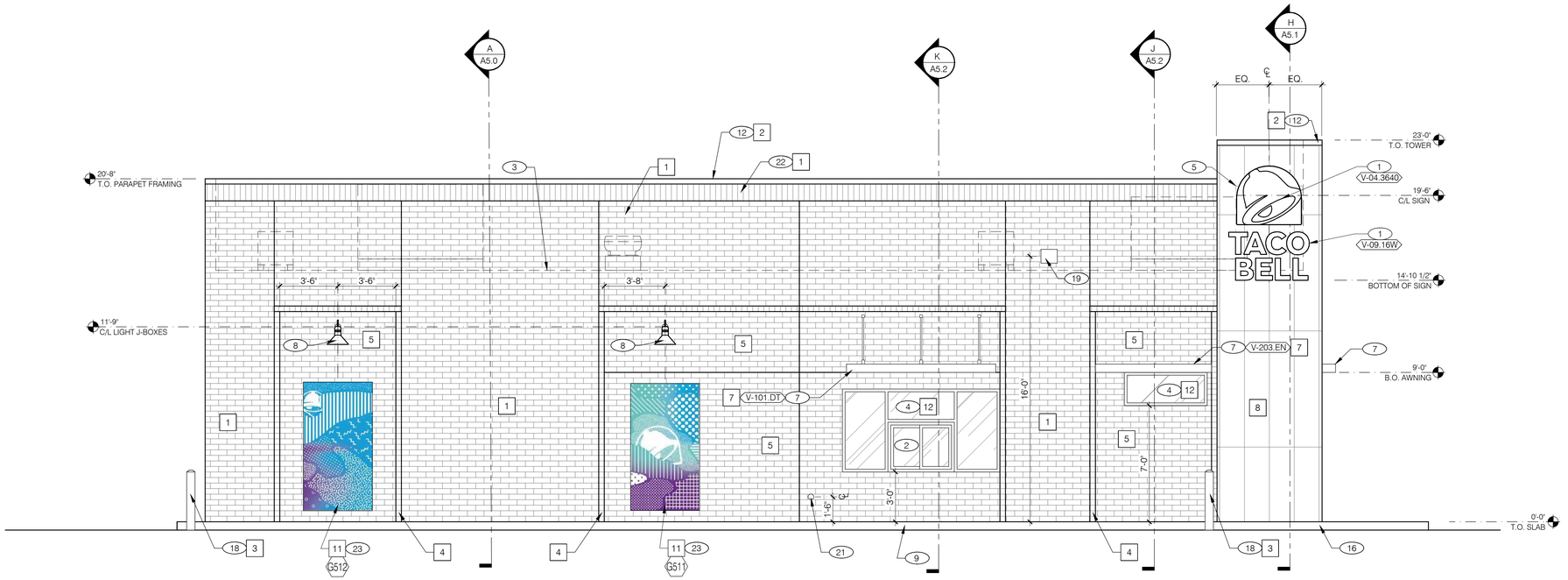
NEW BUILDING FOR:
SUNDANCE - TACO BELL
N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

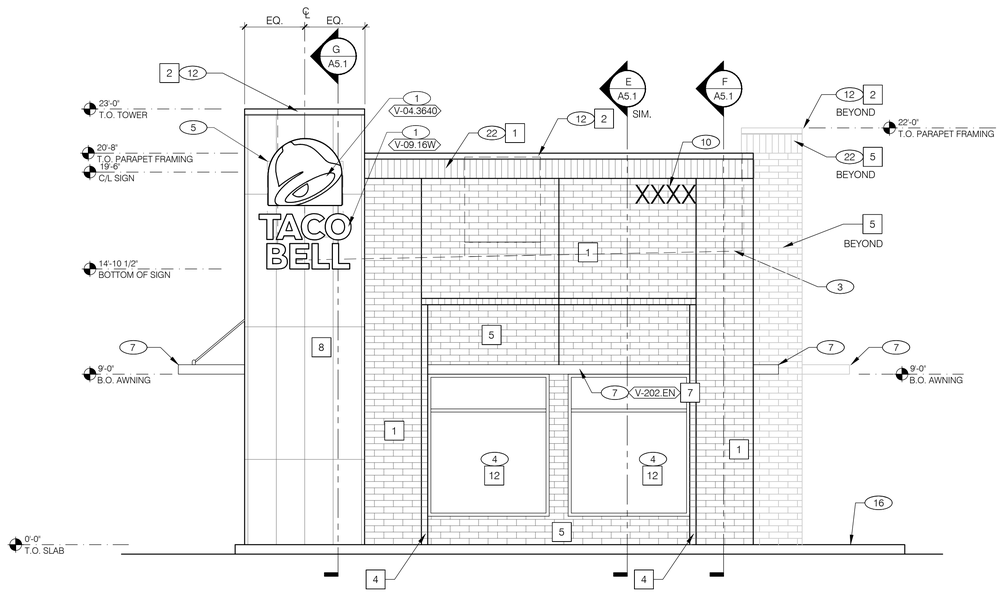
SHEET DATES
ISSUE DATE OCT. 5, 2020
REVISIONS

JOB NUMBER
2005200

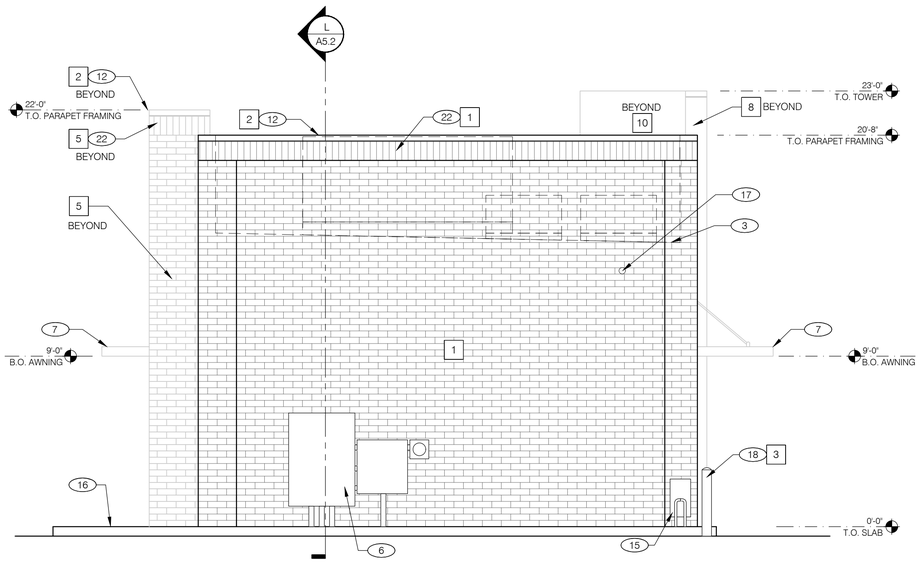
SHEET NUMBER
A1.0



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



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



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

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PROJECT INFORMATION

NEW BUILDING FOR:

SUNDANCE - TACO BELL

N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

SHEET DATES

ISSUE DATE OCT. 5, 2020

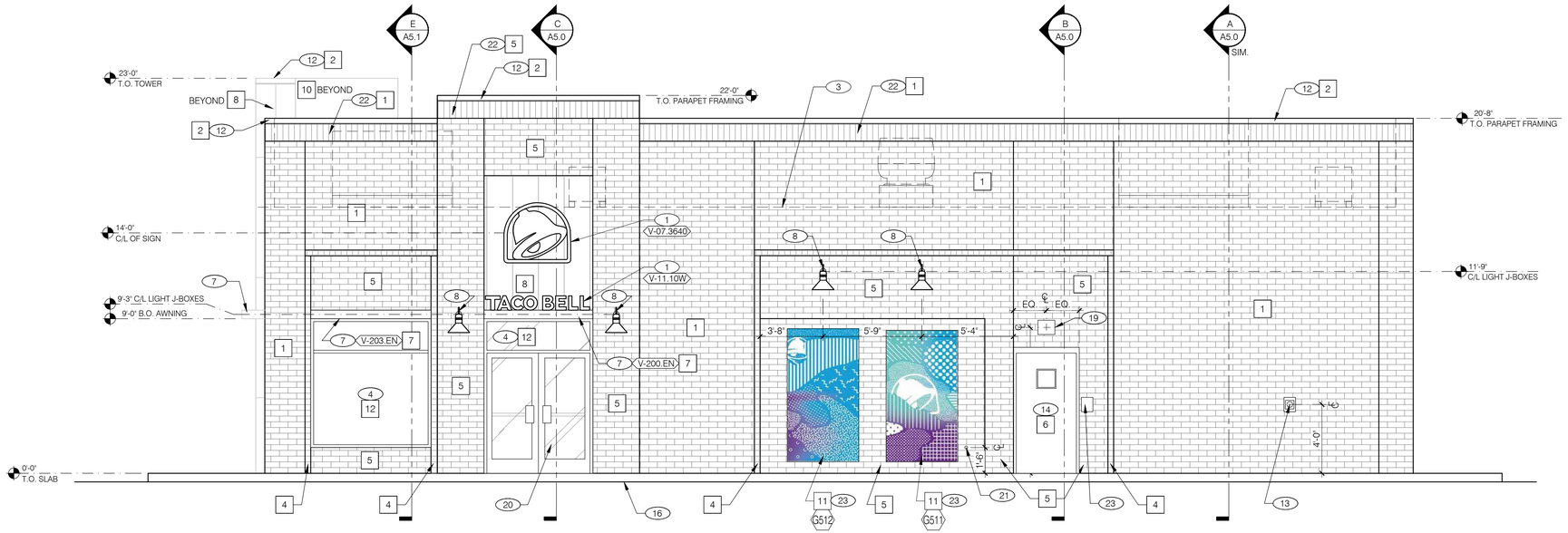
REVISIONS

JOB NUMBER

2005200

SHEET NUMBER

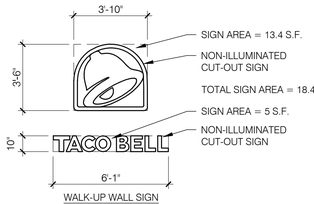
A4.1



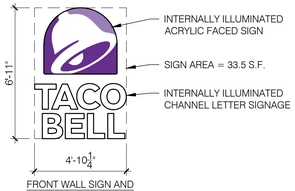
WALK UP ELEVATION 1/4"=1'-0" **A**

BUILDING SIGNAGE REGULATIONS:

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



WALK-UP WALL SIGN



FRONT WALL SIGN AND
DRIVE-THRU WALL SIGN

WALL SIGNAGE REGULATIONS **E**

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

EXTERIOR FINISH SCHEDULE **F**

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

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

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

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

GENERAL NOTES **C**

NOTE: SIGNAGE SUBMITTED UNDER SEPARATE PERMIT

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

SIGN AND AWNING SCHEDULE **B**

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

KEY NOTES **D**

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Fond Du Lac, WI 54935
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PROJECT INFORMATION

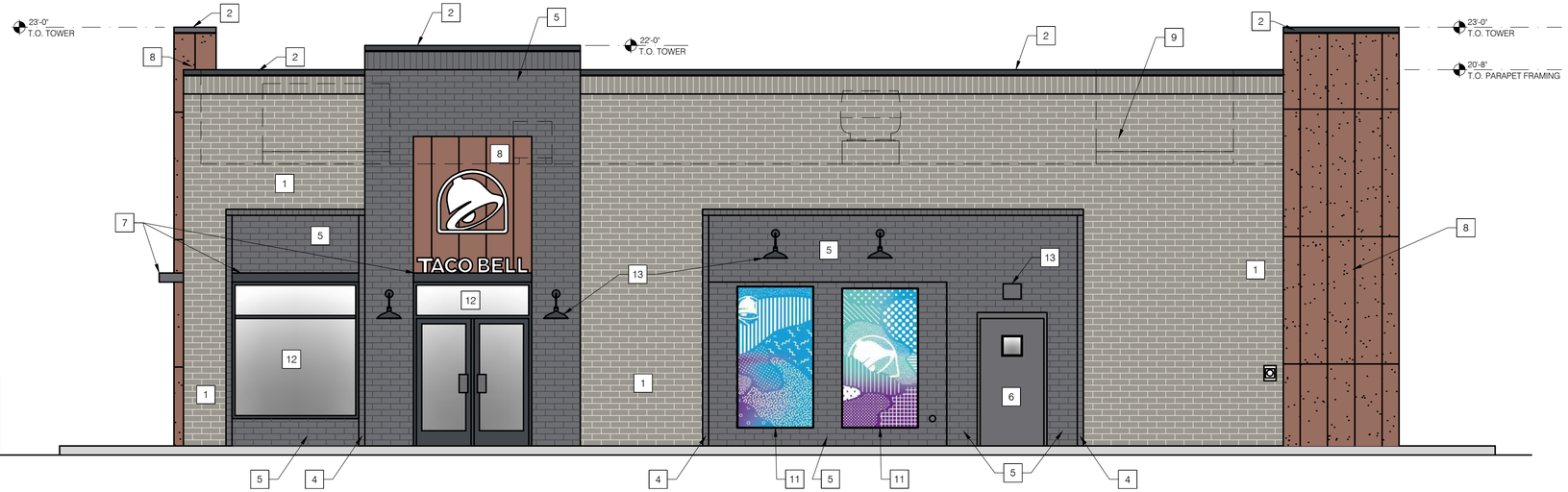
NEW BUILDING FOR:
SUNDANCE - TACO BELL
N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

SHEET DATES
ISSUE DATE OCT. 5, 2020
REVISIONS

JOB NUMBER
2005200

SHEET NUMBER
A4.0



WALK-UP ELEVATION

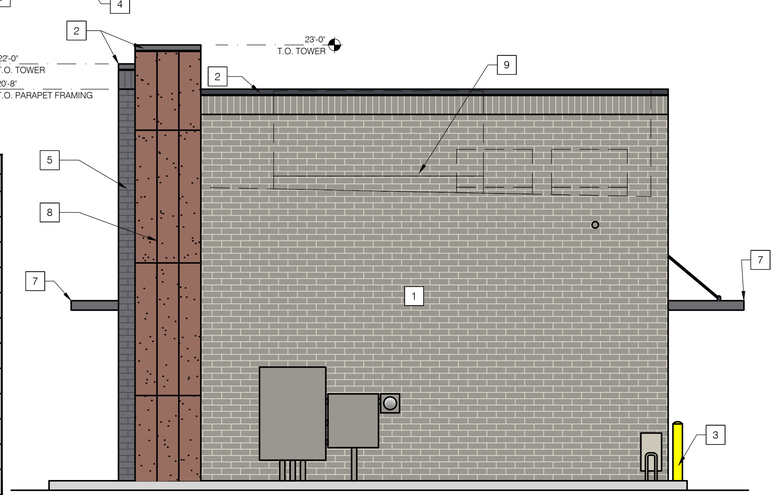
1/4" = 1'-0"

FRONT ELEVATION

1/4" = 1'-0"

EXTERIOR FINISH SCHEDULE

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	AGI	BLACK PAINT FINISH	
8	PRE-FINISHED T-GROOVE METAL PANEL	WESTERN STATES	WEATHERED RUSTIC	
9	ROOFTOP EQUIPMENT BEYOND	-	-	-
10	NOT USED	-	-	
11	ARTWORK PANELS			
12	GLASS WINDOW IN ANOD. ALUM. FRAMES		CLEAR LOW-E GLASS DARK BRONZE ANOD. ALUM. FRAMES	
13	LIGHT FIXTURE			REFER TO ELECTRICAL DRAWINGS



REAR ELEVATION

1/4" = 1'-0"

DRIVE-THRU ELEVATION

1/4" = 1'-0"

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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


TACO
BELL


TACO BELL


TACO BELL
TACO BELL

PROPOSED NEW BUILDING FOR:

SUNDANCE - TACO BELL

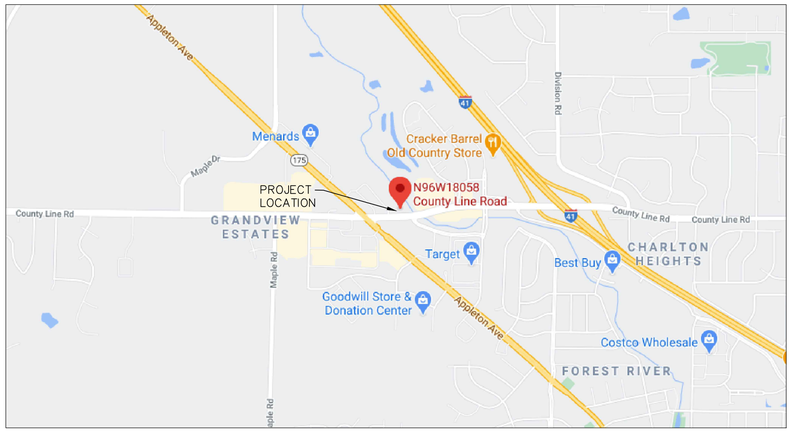
GERMANTOWN, WISCONSIN

LEGEND

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

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

CIVIL SHEET INDEX



PROJECT LOCATION MAP

CONSTRUCTION SEQUENCE

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

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

CONSTRUCTION STAKING SERVICES

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

GENERAL PROJECT NOTES

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

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

CALL DIGGERS HOTLINE
1–800–242–8511

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

CONTACTS

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

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

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PROJECT INFORMATION

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

PROFESSIONAL SEAL

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

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

NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C0.1

PLAN SPECIFICATIONS (BASED ON CSI FORMAT)

DIVISION 31 EARTH WORK

31 10 00 SITE CLEARING (DEMOLITION)

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

31 20 00 EARTH MOVING

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

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

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

31 30 00 EROSION CONTROL

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

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

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

DIVISION 32 EXTERIOR IMPROVEMENTS

32 10 00 AGGREGATE BASE & ASPHALT PAVEMENT

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

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

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

32 20 00 CONCRETE AND AGGREGATE BASE

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

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

E. DESIGN MIXES SHALL BE IN ACCORDANCE WITH ASTM C94
1. STRENGTH TO BE MINIMUM OF 4,500 PSI AT 28 DAYS FOR EXTERIOR CONCRETE.
2. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45.
3. SLUMP SHALL NOT EXCEED 4" FOR EXTERIOR CONCRETE FLAT WORK
4. SLUMP SHALL BE 2.5" OR LESS FOR SLIP-FORMED CURB AND GUTTER
5. SLUMP SHALL BE BETWEEN 1.5" TO 3" FOR NON SLIP-FORMED CURB AND GUTTER.
6. ALL EXTERIOR CONCRETE SHALL BE AIR ENTRAINED WITH 4% TO 7% AIR CONTENT. NO OTHER ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF EXCEL ENGINEERING, INC. CALCIUM CHLORIDE SHALL NOT BE USED.
7. MAXIMUM AGGREGATE SIZE FOR ALL EXTERIOR CONCRETE SHALL BE 0.75 INCHES.

F. VERIFY EQUIPMENT CONCRETE PAD SIZES WITH RESPECTIVE CONTRACTORS. PADS SHALL HAVE FIBERMESH 300 FIBERS AT A RATE OF 1.5 LBS/CU. YD. OR 6 X 6-W1.4 X W1.4 WELDED WIRE MESH WITH MINIMUM 1 INCH COVER. EQUIPMENT PADS SHALL BE 3.5 INCHES THICK WITH 1 INCH CHAMFER UNLESS SPECIFIED OTHERWISE. COORDINATE ADDITIONAL PAD REQUIREMENTS WITH RESPECTIVE CONTRACTOR.
G. ALL CONCRETE FLAT WORK SURFACES AND CONCRETE CURB FLOWLINES SHALL BE CONSTRUCTED TO WITHIN 0.05' OF DESIGN SURFACE AND FLOWLINE GRADES ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE DESIGN PLANS.
H. CONCRETE FLAT WORK SHALL HAVE CONSTRUCTION JOINTS OR SAW CUT JOINTS PLACED AS INDICATED ON THE PLANS OR PER THIS SPECIFICATION. SAWCUTS SHALL BE DONE AS SOON AS POSSIBLE, BUT NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED. CONCRETE CURB AND GUTTER JOINTING SHALL BE PLACED EVERY 10' OR CLOSER (6' MIN.). IF CONCRETE PAVEMENT IS ADJACENT TO CONCRETE CURB, JOINTING IN THE PAVEMENT AND CURB SHALL ALIGN. ALL EXTERIOR CONCRETE SHALL HAVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE. A UNIFORM COAT OF A HIGH SOLIDS CURING COMPOUND MEETING ASTM C309 SHOULD BE APPLIED TO ALL EXPOSED CONCRETE SURFACES. ALL CONCRETE IS TO BE CURED FOR 7 DAYS. EXTERIOR CONCRETE SHALL BE SEPARATED FROM BUILDINGS WITH CONTINUOUS 0.5 INCH FIBER EXPANSION JOINT AND/OR 0.25 INCH FIBER EXPANSION JOINT AT DECORATIVE MASONRY UNITS.
I. ALL REINFORCING BARS SHALL BE ASTM A615 GRADE 60. THICKNESS OF CONCRETE COVER OVER REINFORCEMENT SHALL BE NOT LESS THAN 3" WHERE CONCRETE IS DEPOSITED AGAINST THE GROUND WITHOUT THE USE OF FORMS AND NOT LESS THAN 1.5" IN ALL OTHER LOCATIONS. ALL REINFORCING SHALL BE LAPPED 36 DIAMETERS FOR UP TO #6 BARS, 60 DIAMETERS FOR #7 TO #10 BARS OR AS NOTED ON THE DRAWINGS AND EXTENDED AROUND CORNERS WITH CORNER BARS. PLACING AND DETAILING OF STEEL REINFORCING AND REINFORCING SUPPORTS SHALL BE IN ACCORDANCE WITH CRSI AND ACI MANUAL AND STANDARD PRACTICES. THE REINFORCEMENT SHALL NOT BE PAINTED AND MUST BE FREE OF GREASE/OIL, DIRT OR DEEP RUST WHEN PLACED IN THE WORK. ALL WELDED WIRE FABRIC SHALL MEET THE REQUIREMENTS OF ASTM A 185. WELDED WIRE FABRIC SHALL BE PLACED 2" FROM TOP OF SLAB, UNLESS INDICATED OTHERWISE.
J. CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO SAMPLE MATERIALS, PERFORM TESTS, AND SUBMIT TEST REPORTS DURING CONCRETE PLACEMENT. TESTS WILL BE PERFORMED ACCORDING TO ACI 301. CAST AND LABORATORY CURE ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIX EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD., PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. OR FRACTION THEREOF. PERFORM COMPRESSIVE-STRENGTH TESTS ACCORDING TO ASTM C 39. TEST TWO SPECIMENS AT 7 DAYS AND TWO SPECIMENS AT 28 DAYS. PERFORM SLUMP TESTING ACCORDING TO ASTM C 143. PROVIDE ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
K. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. IN HOT, DRY, AND WINDY WEATHER, APPLY AN EVAPORATION-CONTROL COMPOUND ACCORDING TO MANUFACTURER'S INSTRUCTIONS AFTER SCREEDING AND BULL FLOATING, BUT BEFORE POWER FLOATING AND TROWELLING.
L. LIMIT MAXIMUM WATER-CEMENTIOUS RATIO OF CONCRETE EXPOSED TO FREEZING, THAWING AND DEICING SALTS TO 0.45.
M. TEST RESULTS WILL BE REPORTED IN WRITING TO THE DESIGN ENGINEER, READY-MIX PRODUCER, AND CONTRACTOR WITHIN 24 HOURS AFTER TESTS. REPORTS OF COMPRESSIVE STRENGTH TESTS SHALL CONTAIN THE PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING SERVICE, CONCRETE TYPE AND CLASS, LOCATION OF CONCRETE BATCH IN STRUCTURE, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIX PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7-DAY TESTS AND 28-DAY TESTS.

32 30 00 LANDSCAPING AND SITE STABILIZATION

A. TOPSOIL: CONTRACTOR TO PROVIDE A MINIMUM OF 6" OF TOPSOIL FOR ALL DISTURBED OPEN AREAS. REUSE SURFACE SOIL STOCKPILED ON SITE AND SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN QUANTITIES ARE INSUFFICIENT. EXCAVATOR SHALL BE RESPONSIBLE FOR ROUGH PLACEMENT OF TOPSOIL TO WITHIN 1" OF FINAL GRADE PRIOR TO LANDSCAPER FINAL GRADING. LANDSCAPER TO PROVIDE PULVERIZING AND FINAL GRADING OF TOPSOIL. PROVIDE SOIL ANALYSIS BY A QUALIFIED SOIL TESTING LABORATORY AS REQUIRED TO VERIFY THE SUITABILITY OF SOIL TO BE USED AS TOPSOIL AND TO DETERMINE THE NECESSARY SOIL AMENDMENTS. TEST SOIL FOR PRESENCE OF ATRAZINE AND INFORM EXCEL ENGINEERING, INC. IF PRESENT PRIOR TO BIDDING PROJECT. TOPSOIL SHALL HAVE A PH RANGE OF 5.5 TO 8, CONTAIN A MINIMUM OF 5 PERCENT ORGANIC MATERIAL CONTENT, AND SHALL BE FREE OF STONES 1 INCH OR LARGER IN DIAMETER. ALL MATERIALS HARMFUL TO PLANT GROWTH SHALL ALSO BE REMOVED.
B. TOPSOIL INSTALLATION: LOOSEN SUBGRADE TO A MINIMUM DEPTH OF 6 INCHES AND REMOVE STONES LARGER THAN 1" IN DIAMETER. ALSO REMOVE ANY STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATTER AND DISPOSE OF THEM OFF THE PROPERTY. SPREAD TOPSOIL TO A DEPTH OF 6" BUT NOT LESS THAN WHAT IS REQUIRED TO MEET FINISHED GRADES AFTER LIGHT ROLLING AND NATURAL SETTLEMENT. DO NOT SPREAD TOPSOIL IF SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET. GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. GRADE TO WITHIN 0.05 FEET OF FINISHED GRADE ELEVATION.
C. EROSION MATTING:
1. CONTRACTOR TO PROVIDE EROSION CONTROL MATTING (NORTH AMERICAN GREEN S150) OR EQUIVALENT ON ALL SLOPES THAT ARE 4:1 AND GREATER.

D. SODDED LAWNS: PROVIDE SOD CONSISTING OF THE FOLLOWING GRASS SPECIES - 65% KENTUCKY BLUEGRASS, 20% PERENNIAL RYEGRASS, 15% FINE FESCUE. PROVIDE VIABLE SOD OF UNIFORM DENSITY, COLOR, AND TEXTURE. SOD SHOULD BE STRONGLY ROOTED AND CAPABLE OF VIGOROUS GROWTH AND DEVELOPMENT WHEN PLANTED. LAY SOD WITHIN 24 HOURS OF HARVESTING. DO NOT LAY SOD IF DORMANT OR IF GROUND IS FROZEN OR MUDDY. LAY SOD WITH TIGHTLY FITTED BUTT END AND SIDE JOINTS. DO NOT STRETCH OR OVERLAP. STAGGER SOD STRIPS TO OFFSET JOINTS IN ADJACENT COURSES. TAMP AND ROLL LIGHTLY TO ENSURE CONTACT WITH TOPSOIL. ANCHOR SOD ON SLOPES EXCEEDING 6:1 SLOPE. PROVIDE SLOW RELEASE FERTILIZER AS RECOMMENDED BY SOD SUPPLIER FOR PROPER LAWN ESTABLISHMENT. SATURATE WITH FINE WATER SPRAY WITHIN 2 HOURS OF PLANTING.
E. SODDED LAWN MAINTENANCE: CONTRACTOR TO PROVIDE MAINTENANCE FOR ALL SODDED AREAS FOR A PERIOD OF 90 DAYS FROM THE DATE OF INSTALLATION. AT THE END OF THE MAINTENANCE PERIOD, A HEALTHY, WELL-ROOTED, EVEN-COLORED, VIABLE LAWN SHOULD BE ESTABLISHED. THE LAWN SHOULD BE FREE OF WEEDS, OPEN JOINTS, BARE AREAS, AND SURFACE IRREGULARITIES. REESTABLISH LAWNS THAT DO NOT COMPLY WITH THESE REQUIREMENTS AND CONTINUE MAINTENANCE UNTIL LAWNS ARE SATISFACTORY.
F. RIP RAP: ALL RIP RAP ASSOCIATED WITH STORMWATER MANAGEMENT AND STORMWATER CONVEYANCE, AS DELINEATED ON THE PLANS, SHALL BE CONSTRUCTED WITH THE TOP OF RIP RAP MATCHING THE PROPOSED ADJACENT GRADE ELEVATIONS. PLACEMENT OF RIP RAP ABOVE THE PROPOSED ADJACENT GRADE ELEVATIONS IS NOT ACCEPTABLE. ALL RIP RAP SHALL BE PLACED ON TYPE HR FILTER FABRIC PER SECTION 645 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURAL CONSTRUCTION.
G. TREES AND SHRUBS: FURNISH NURSERY-GROWN TREES AND SHRUBS WITH HEALTHY ROOT SYSTEMS DEVELOPED BY TRANSPLANTING OR ROOT PRUNING. PROVIDE WELL-SHAPED, FULLY BRANCHED, AND HEALTHY LOOKING STOCK. STOCK SHOULD ALSO BE FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. SEE THE LANDSCAPE PLAN FOR SPECIFIC SPECIE TYPE, SIZE, AND LOCATION.
H. TREE AND SHRUB INSTALLATION: EXCAVATE CIRCULAR PITS WITH SIDES SLOPED INWARD. TRIM BASE LEAVING CENTER AREA RAISED SLIGHTLY TO SUPPORT ROOT BALL. EXCAVATE PIT APPROXIMATELY THREE TIMES AS WIDE AS THE ROOT BALL DIAMETER. SET TREES AND SHRUBS PLUMB AND IN CENTER OF PIT WITH TOP OF BALL 1" ABOVE ADJACENT FINISHED GRADES. PLACE PLANTING SOIL MIX AROUND ROOT BALL IN LAYERS AND TAMP TO SETTLE MIX. WATER ALL PLANTS THOROUGHLY. PROVIDE TEMPORARY STAKING FOR TREES AS REQUIRED.
I. TREE AND SHRUB MAINTENANCE/WARRANTY: CONTRACTOR TO PROVIDE MAINTENANCE OF ALL LANDSCAPING FOR A PERIOD OF 90 DAYS FROM THE DATE OF INSTALLATION. MAINTENANCE TO INCLUDE REGULAR WATERING AS REQUIRED FOR SUCCESSFUL PLANT ESTABLISHMENT. CONTRACTOR TO PROVIDE 1 YEAR WARRANTY ON ALL TREES, SHRUBS, AND PERENNIALS.
J. DECORATIVE MULCH: PROVIDE 3" MINIMUM THICK BLANKET OF 0.75" MINIMUM TO 1.5" MAXIMUM CRUSHED DECORATIVE STONE AT ALL PLANTING AREAS INDICATED ON THE LANDSCAPE PLAN. INSTALL OVER NON-WOVEN WEED BARRIER FABRIC. COLOR/STYLE BY OWNER.
K. PLASTIC EDGING: INSTALL VALLEY VIEW INDUSTRIES BLACK DIAMOND LAWN EDGING TO SEPARATE ALL PLANTING BEDS FROM LAWN AREAS. EDGING TO BE 5.5" TALL WITH METAL STAKES INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
L. COMMON BUCKTHORN MANAGEMENT AREA: A QUALIFIED LANDSCAPE CONTRACTOR WITH KNOWLEDGE OF FOREST SPECIES IDENTIFICATION 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 SUMP 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 OR PULLING THE PLANT FROM THE GROUND. HERBICIDES USED SHALL BE TRICLOPYR BASED (GARLON 3A, ELEMENT 3A, ETC) AND LABELED FOR AQUATIC USED. HERBICIDES 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.

DIVISION 33 UTILITIES

33 10 00 SITE UTILITIES

A. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES ON SITE. CONTRACTOR TO VERIFY PIPE LOCATIONS, SIZES, AND DEPTHS AT POINT OF PROPOSED CONNECTIONS AND VERIFY PROPOSED UTILITY ROUTES ARE CLEAR (PER CODE) OF ALL EXISTING UTILITIES AND OTHER OBSTRUCTIONS PRIOR TO CONSTRUCTION. COSTS INCURRED FOR FAILURE TO DO SO SHALL BE THE CONTRACTORS RESPONSIBILITY.
B. ALL PROPOSED SANITARY PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET. ALL PROPOSED SANITARY PIPE BELOW PROPOSED & FUTURE BUILDINGS SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET.
C. SANITARY AND MANHOLES SHALL BE 48" PRECAST AND CONFORM TO THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN-CURRENT EDITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER. SANITARY MANHOLE FRAME AND GRATE TO BE NEENAH R-1550-A OR EQUAL. RIM ELEVATION TO BE SET AT FINISHED GRADE IN DEVELOPED AREAS AND 12" ABOVE FINISHED GRADE IN UNDEVELOPED AREAS EXCEPT AS OTHERWISE DIRECTED BY THE ENGINEER.
D. CLEANOUTS SHALL BE PROVIDED FOR THE SANITARY/STORM SERVICE AT LOCATIONS INDICATED ON THE UTILITY PLAN. THE CLEANOUT SHALL CONSIST OF A COMBINATION WYE FITTING IN LINE WITH THE SANITARY SERVICE WITH THE CLEANOUT LEG OF THE COMBINATION WYE FACING STRAIGHT UP. THE CLEANOUT SHALL CONSIST OF A 4" OR 6" (4" FOR 5" OR SMALLER, 6" FOR 6" OR LARGER PIPING) VERTICAL PVC PIPE WITH A WATERTIGHT REMOVABLE CLEANOUT PLUG. AN 8" PVC FROST SLEEVE SHALL BE PROVIDED. THE BOTTOM OF THE FROST SLEEVE SHALL TERMINATE 12" ABOVE THE TOP OF THE SANITARY LATERAL OR AT LEAST 6" BELOW THE PREDICTED FROST DEPTH, WHICHEVER IS SHALLOWER. THE CLEANOUT SHALL EXTEND JUST ABOVE THE SURFACE GRADE IN LAWN OR LANDSCAPE AREAS WITH THE FROST SLEEVE TERMINATING AT THE GRADE SURFACE. THE CLEANOUT SHALL EXTEND TO 4 INCHES BELOW SURFACE GRADE IN PAVED SURFACES WITH A ZURN (Z-1474-N) HEAVY DUTY CLEANOUT HOUSING PLACED OVER THE TOP OF THE CLEANOUT FLUSH WITH THE SURFACE GRADE. IN PAVED SURFACES, THE FROST SLEEVE SHALL TERMINATE IN A CONCRETE PAD AT LEAST 6" THICK AND EXTENDING AT LEAST 9" FROM THE SLEEVE ON ALL SIDES, SLOPING AWAY FROM THE SLEEVE. THE CLEANOUT HOUSING SHALL BE CONSTRUCTED PER MANUFACTURERS REQUIREMENTS.
E. ALL PROPOSED WATER PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET. 7' MINIMUM COVER SHALL BE PROVIDED OVER ALL WATER PIPING UNLESS OTHERWISE SPECIFIED.
F. ALL PROPOSED HDPE STORM PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE ON C0.2 OF THE PROPOSED PLANSET. . SEE UTILITY PLANS FOR ALL STORM PIPE MATERIAL TYPES TO BE USED. PIPE SHALL BE PLACED MIN. 8' HORIZONTALLY FROM FOUNDATION WALLS.
G. SANITARY, STORM, AND WATER UTILITY PIPE INVERTS SHALL BE CONSTRUCTED WITHIN 0.10' OF DESIGN INVERT ELEVATIONS ASSUMING PIPE SLOPE AND SEPARATION IS MAINTAINED PER THE UTILITY DESIGN PLANS AND STATE REQUIREMENTS.
H. SITE UTILITY CONTRACTOR SHALL RUN SANITARY SERVICE TO A POINT WHICH IS A MINIMUM OF 5' FROM THE EXTERIOR WALL OF THE FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN STORM SEWER FOR INTERNALLY DRAINED BUILDINGS TO A POINT WHICH IS A MINIMUM OF 5' FROM THE EXTERIOR WALL OF THE FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN DOWNSPOUT LEADS TO BUILDING FOUNDATION AND UP 6" ABOVE SURFACE GRADE FOR CONNECTION TO DOWNSPOUT. ALL DOWNSPOUT LOCATIONS SHOULD BE VERIFIED WITH ARCHITECTURAL PLANS AND DOWNSPOUT CONTRACTOR/GC PRIOR TO INSTALLATION OF DOWNSPOUT LEADS. DOWNSPOUT LEADS SHALL NOT UNDERMINE BUILDING FOUNDATIONS. SITE UTILITY CONTRACTOR SHALL RUN WATER SERVICE TO A POINT WITHIN THE FOUNDATION SPECIFIED BY THE PLUMBING PLANS. CONTRACTOR TO CUT AND CAP WATER SERVICE 12" ABOVE FINISHED FLOOR ELEVATION.
I. ALL UTILITIES SHALL BE INSTALLED WITH PLASTIC COATED TRACER WIRE (14 GAUGE SOLID COPPER, OR COPPER COATED STEEL WIRE). PLASTIC WIRE MAY BE TAPED TO PLASTIC WATER OR SEWER PIPE. IF ATTACHED, THE TRACER WIRE SHALL BE SECURED EVERY 6 TO 20 FEET AND AT ALL BENDS. TRACER WIRE SHALL HAVE ACCESS POINTS AT LEAST EVERY 300 FEET. REFERENCE VILLAGE OF GERMANTOWN DEVELOPMENT HANDBOOK SECTION 2.1.11 FOR ADDITIONAL TRACER WIRE REQUIREMENTS.
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 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.
N. CONTRACTOR SHALL SCHEDULE A PRECONSTRUCTION MEETING WITH THE WATER UTILITY DEPARTMENT PRIOR TO COMMENCING WORK FOR NEW WATER SERVICE.

Table A: Allowable Pipe Material Schedule

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

CIVIL SPECIFICATION SHEET

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PROJECT INFORMATION

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

PROFESSIONAL SEAL

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

NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C0.2

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

EXISTING CONDITIONS NOTES:

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

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

DEMOLITION LEGEND:

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

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.

CLEAR & GRUB EXISTING TREES & VEGETATION WITHIN HATCHED AREA.

REMOVE REMNANT FENCE

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

PROTECT EXISTING CONCRETE RETAINING WALL DURING DEMOLITION AND CONSTRUCTION.

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

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

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

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

PROTECT EXISTING CONCRETE RETAINING WALL DURING ALL SITE DEMOLITION AND CONSTRUCTION.

CONTRACTOR TO REMOVE/ABANDON EXISTING WATER SERVICES (2) AT THE MAIN PER VILLAGE OF GERMANTOWN STANDARDS. COORDINATE WITH GERMANTOWN WATER UTILITY DEPARTMENT A MINIMUM OF 2 DAYS PRIOR TO REQUIRED SHUTDOWN OF WATER MAIN. WATER DISTRIBUTION SHUT DOWNS NOT ALLOWED ON MONDAYS OR FRIDAYS. SAWCUT AND REMOVE EXISTING CONCRETE SIDEWALK AS NEEDED. REMOVE & REPLACE CONCRETE BLOCK RETAINING WALL AND WOOD FENCE AS NEEDED. PROTECT OTHER EXISTING UTILITIES DURING REMOVALS.

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE HC SIGN & STEEL PLATE.

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE STUMPS

REMOVE HC SIGN

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE EXISTING LIGHT POLE AND CONDUITS.

REMOVE EXISTING SANITARY LATERAL SERVING THE EXISTING BUILDING. PROTECT EXISTING SANITARY SAMPLING MANHOLE FOR REUSE. RECONSTRUCT EXISTING STRUCTURE AS NOTED ON SHEET C1.3

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

EXISTING CONCRETE SIDEWALK TO REMAIN.

RELOCATE EXISTING HANDRAIL. SEE SHEET C1.5 FOR ADDITIONAL INFORMATION.

PROTECT EXISTING STRUCTURE. REPLACE CURB INLET FRAME/GRATE WITH MANHOLE COVER. SEE SHEET C1.3.

SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT AND CONCRETE CURB AND GUTTER PER WASHINGTON COUNTY STANDARDS AND SPECIFICATIONS AS NEEDED FOR ROW IMPROVEMENTS.

REMOVE EXISTING WOOD FENCE AND CONCRETE BLOCK RETAINING WALL AS NEEDED FOR NEW SIDEWALK CONNECTION.

PROTECT EXISTING FORCE MAIN AND SANITARY LINE.

S00°55'08"E 600.94'

N87°51'11"E 57.36'

N41°44'06"E 97.36'

N76°51'09"E 122.14'

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

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

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

NORTH

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

CIVIL EXISTING SITE AND DEMOLITION PLAN

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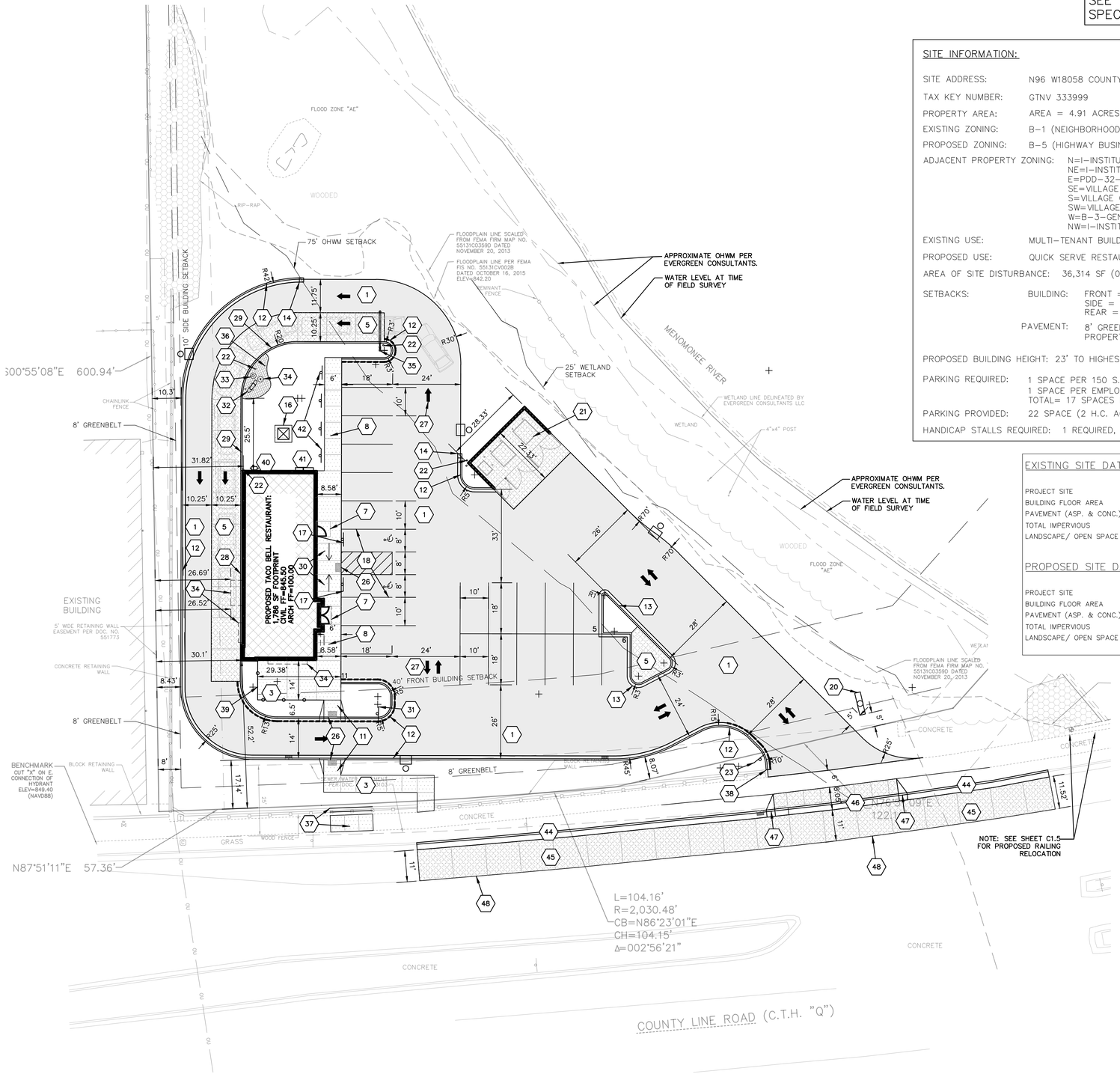
2005200

SHEET NUMBER
C1.0

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.)



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

SITE INFORMATION:

SITE ADDRESS:	N96 W18058 COUNTY LINE ROAD
TAX KEY NUMBER:	GTNV 333999
PROPERTY AREA:	AREA = 4.91 ACRES TOTAL
EXISTING ZONING:	B-1 (NEIGHBORHOOD BUSINESS)
PROPOSED ZONING:	B-5 (HIGHWAY BUSINESS DISTRICT)
ADJACENT PROPERTY ZONING:	N=I-INSTITUTIONAL NE=I-INSTITUTIONAL E=PDD-32-RIVERBEND DISTRICT SE=VILLAGE OF MENOMONEE FALLS S=VILLAGE OF MENOMONEE FALLS SW=VILLAGE OF MENOMONEE FALLS W=B-3-GENERAL BUSINESS NW=I-INSTITUTIONAL
EXISTING USE:	MULTI-TENANT BUILDING/SALON
PROPOSED USE:	QUICK SERVE RESTAURANT WITH DRIVE THRU
AREA OF SITE DISTURBANCE:	36,314 SF (0.83 AC)
SETBACKS: BUILDING:	FRONT = 40' SIDE = 10' REAR = 25'
PAVEMENT:	8' GREENBELT BETWEEN PARKING & PROPERTY BOUNDARIES
PROPOSED BUILDING HEIGHT:	23' TO HIGHEST POINT (MAX. HEIGHT ALLOWED: 35')
PARKING REQUIRED:	1 SPACE PER 150 S.F. FLOOR AREA (1786 SF)= 12 SPACES REQ. 1 SPACE PER EMPLOYEE (5 EMPLOYEES/SHIFT)= 5 SPACES REQ. TOTAL= 17 SPACES REQ.
PARKING PROVIDED:	22 SPACE (2 H.C. ACCESSIBLE)
HANDICAP STALLS REQUIRED:	1 REQUIRED, 2 PROVIDED

EXISTING SITE DATA (DISTURBED PROJECT AREA)

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

PROPOSED SITE DATA (DISTURBED PROJECT AREA)

	AREA (AC)	AREA (SF)	RATIO
PROJECT SITE	0.83	36,314	
BUILDING FLOOR AREA	0.04	1,786	4.9%
PAVEMENT (ASP. & CONC.)	0.53	23,088	63.6%
TOTAL IMPERVIOUS	0.57	24,874	68.5%
LANDSCAPE/ OPEN SPACE	0.26	11,440	31.5%

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

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

NORTH

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

CIVIL SITE PLAN

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PROJECT INFORMATION

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PROFESSIONAL SEAL

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

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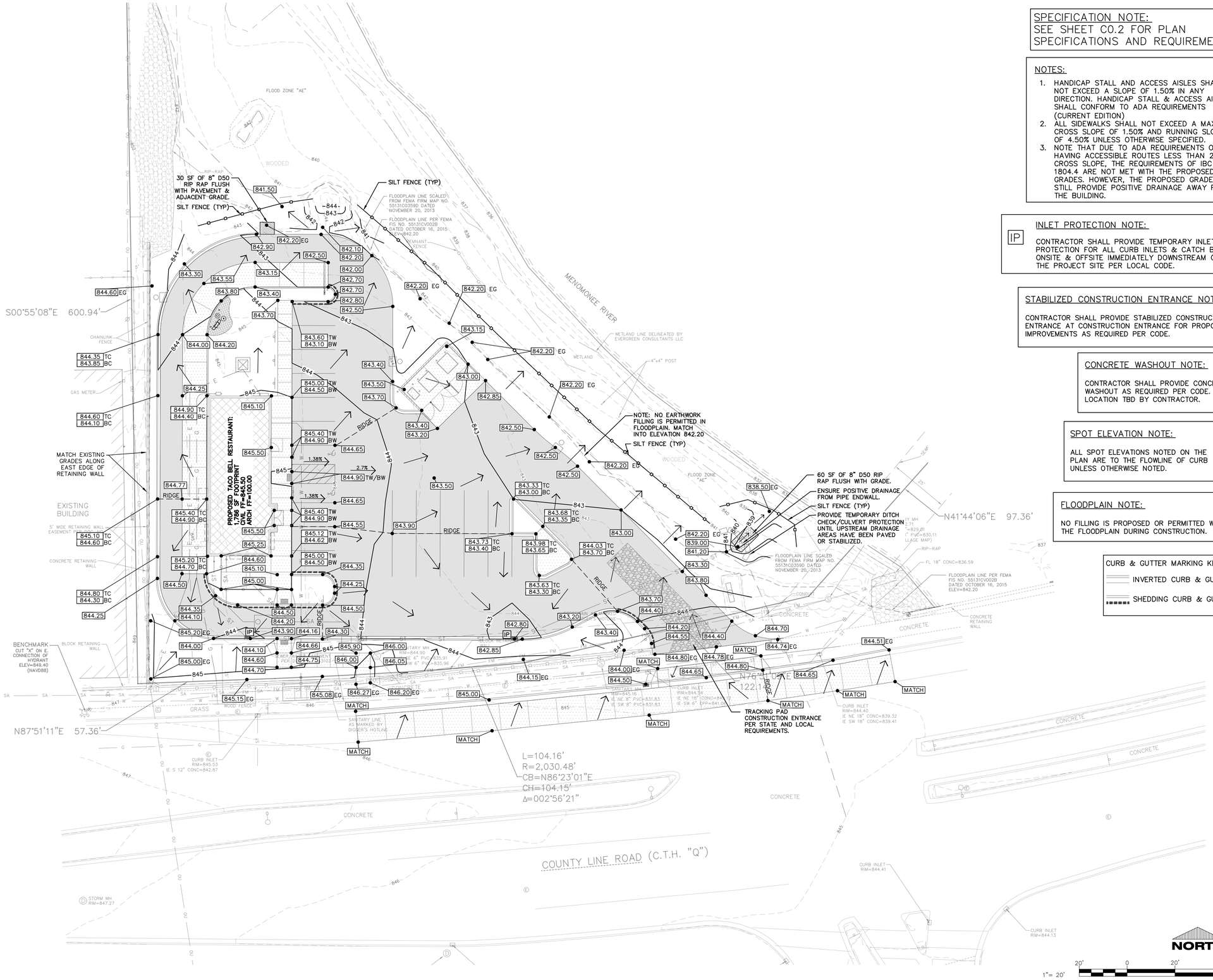
2005200

SHEET NUMBER
C1.1



CIVIL GRADING AND EROSION CONTROL PLAN

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

NOTES:

1. 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)
2. ALL SIDEWALKS SHALL NOT EXCEED A MAXIMUM CROSS SLOPE OF 1.50% AND RUNNING SLOPE OF 4.50% UNLESS OTHERWISE SPECIFIED.
3. 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:
IP
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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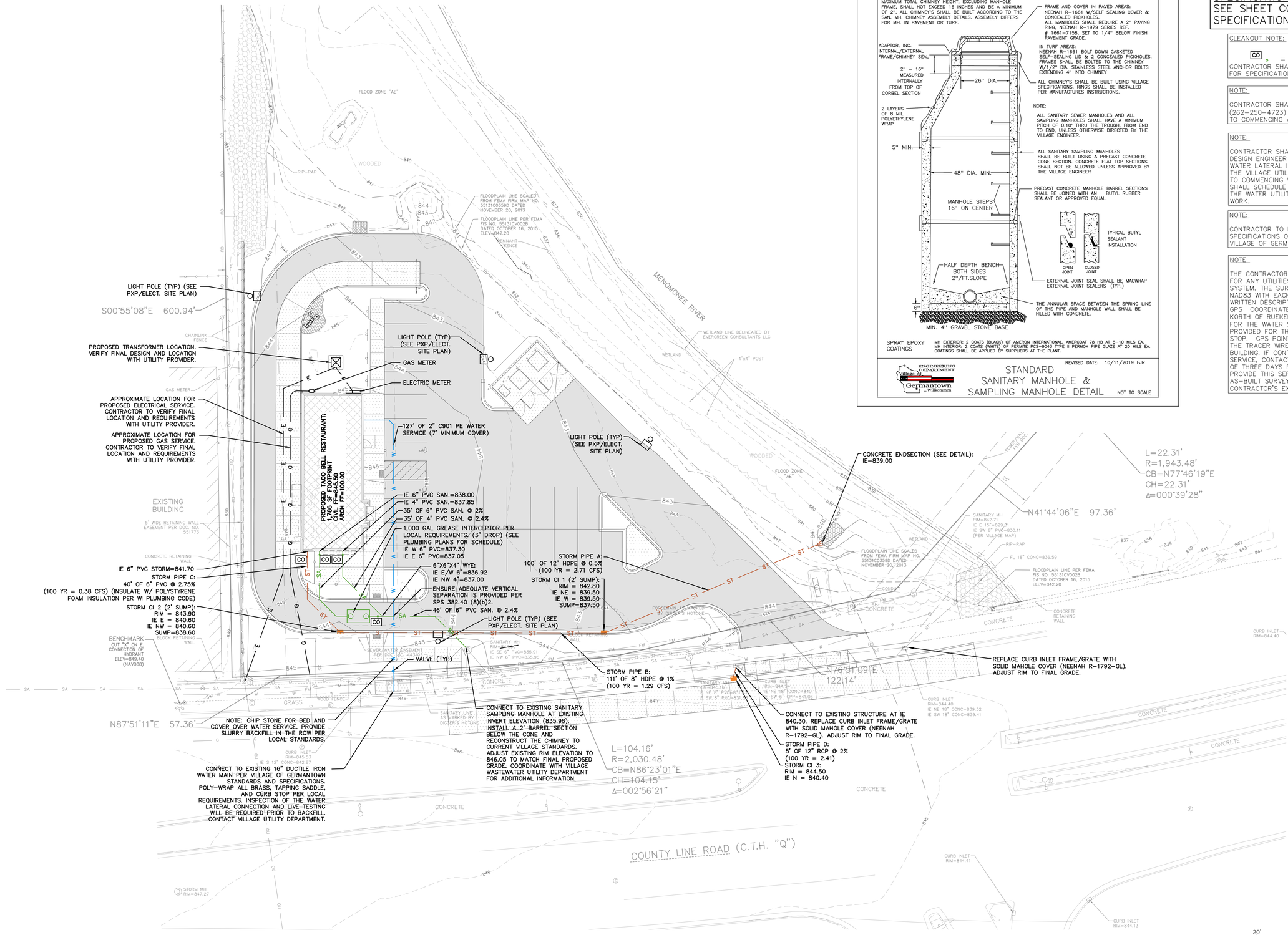

MAXIMUM TOTAL CHIMNEY HEIGHT, EXCLUDING MANHOLE FRAME, SHALL NOT EXCEED 16 INCHES AND BE A MINIMUM OF 2". ALL CHIMNEY'S SHALL BE BUILT ACCORDING TO THE SAN. MH. CHIMNEY ASSEMBLY DETAILS. ASSEMBLY DIFFERS FOR MH. IN PAVEMENT OR TURF.

ADAPTOR, INC. INTERNAL/EXTERNAL FRAME/CHIMNEY SEAL

2" – 16" MEASURED INTERNALLY FROM TOP OF CORBEL SECTION

2 LAYERS OF 8 MIL POLYETHYLENE WRAP

5" MIN.

48" DIA. MIN.

MANHOLE STEPS 16" ON CENTER

6"

MIN. 4" GRAVEL STONE BASE

HALF DEPTH BENCH BOTH SIDES 2"/FT.SLOPE

26" DIA.

FRAME AND COVER IN PAVED AREAS: NEENAH R-1661 W/SELF SEALING COVER & CONCEALED PICKHOLES. ALL MANHOLES SHALL REQUIRE A 2" PAVING RING, NEENAH R-1979 SERIES REF. # 1661-7158, SET TO 1/4" BELOW FINISH PAVEMENT GRADE.

IN TURF AREAS: NEENAH R-1661 BOLT DOWN GASKETED SELF-SEALING LID & 2 CONCEALED PICKHOLES. FRAMES SHALL BE BOLTED TO THE CHIMNEY W/1/2" DIA. STAINLESS STEEL ANCHOR BOLTS EXTENDING 4" INTO CHIMNEY

ALL CHIMNEY'S SHALL BE BUILT USING VILLAGE SPECIFICATIONS. RINGS SHALL BE INSTALLED PER MANUFACTURES INSTRUCTIONS.

NOTE: ALL SANITARY SEWER MANHOLES AND ALL SAMPLING MANHOLES SHALL HAVE A MINIMUM PITCH OF 0.10' THRU THE TROUGH, FROM END TO END, UNLESS OTHERWISE DIRECTED BY THE VILLAGE ENGINEER.

ALL SANITARY SAMPLING MANHOLES SHALL BE BUILT USING A PRECAST CONCRETE CONE SECTION. CONCRETE FLAT TOP SECTIONS SHALL NOT BE ALLOWED UNLESS APPROVED BY THE VILLAGE ENGINEER

PRECAST CONCRETE MANHOLE BARREL SECTIONS SHALL BE JOINED WITH AN BUTYL RUBBER SEALANT OR APPROVED EQUAL.

OPEN JOINT

CLOSED JOINT

TYPICAL BUTYL SEALANT INSTALLATION

EXTERNAL JOINT SEAL SHALL BE MACWRAP EXTERNAL JOINT SEALERS (TYP.)

THE ANNULAR SPACE BETWEEN THE SPRING LINE OF THE PIPE AND MANHOLE WALL SHALL BE FILLED WITH CONCRETE.

SPRAY EPOXY COATINGS

MH EXTERIOR: 2 COATS (BLACK) OF AMERON INTERNATIONAL, AMERCOAT 78 HB AT 8-10 MILS EA.
MH INTERIOR: 2 COATS (WHITE) OF PERMITE PCS-9041 TYPE II PERMOX PIPE GLAZE AT 20 MILS EA.
COATINGS SHALL BE APPLIED BY SUPPLIERS AT THE PLANT.

REVISED DATE: 10/11/2019 FJR

ENGINEERING DEPARTMENT Village of Germantown ...Willkommen

STANDARD SANITARY MANHOLE & SAMPLING MANHOLE DETAIL NOT TO SCALE

SPECIFICATION NOTE:

SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

CLEANOUT NOTE:

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

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.

NORTH

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

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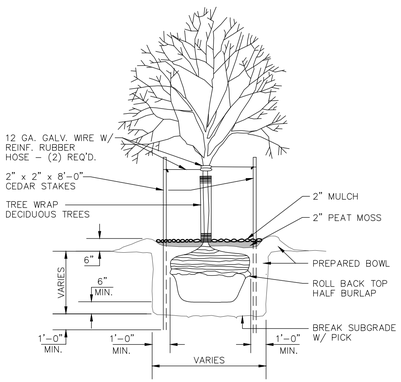
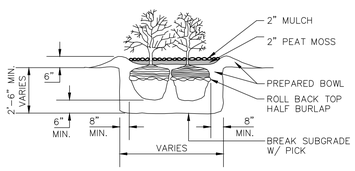


TREE PLANTING DETAIL

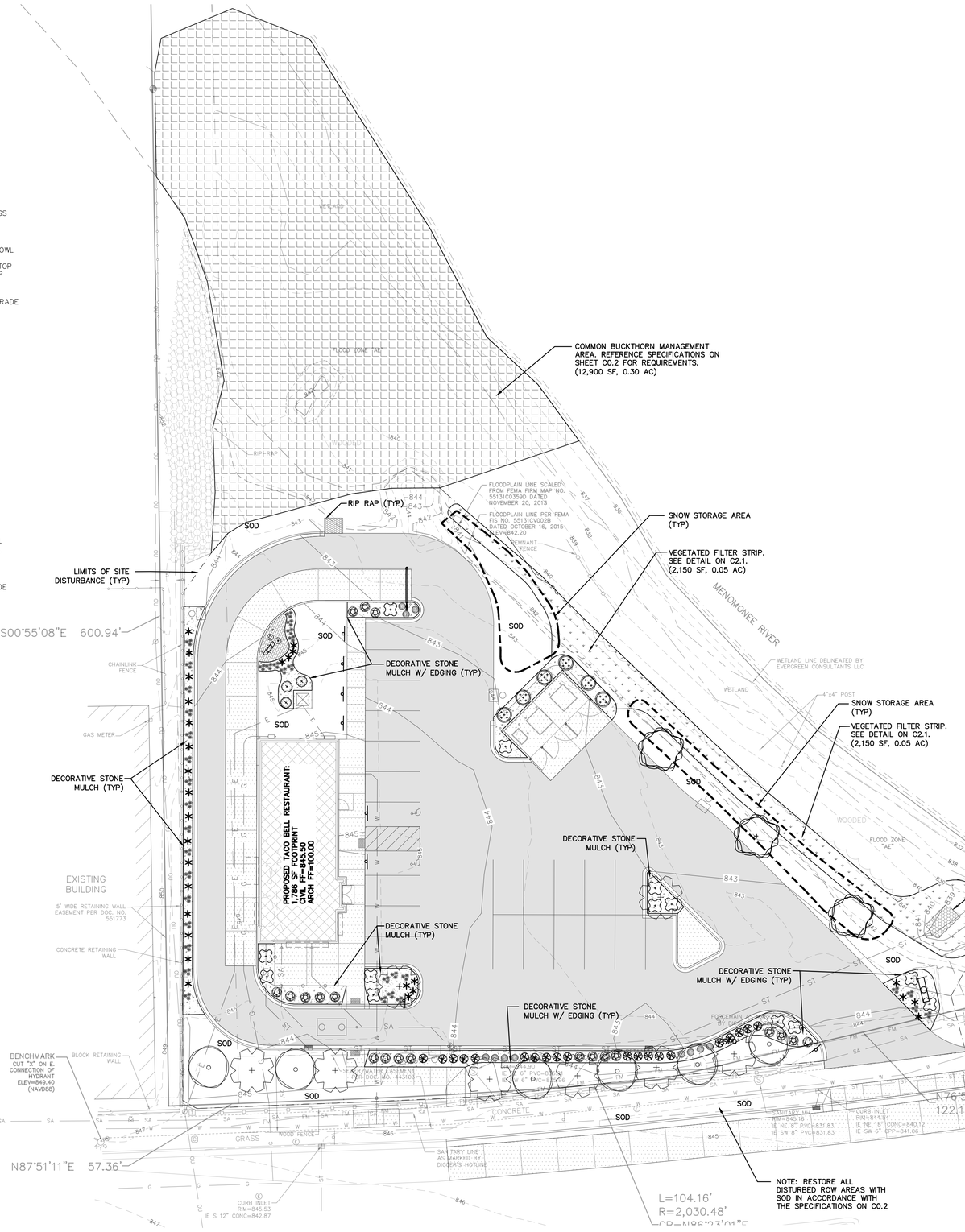
NO SCALE

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



SHRUB PLANTING DETAIL

NO SCALE



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

VEGETATED FILTER STRIP (SEE DETAIL ON C2.1)

LANDSCAPING PLANTING SCHEDULE

SYMBOL	COMMON NAME	BOTANICAL NAME	PLANTED SIZE	QUANTITY
	DECIDUOUS TREES			
	Jack Flowering Pear	Pyrus calleryana 'Jaczam'	1.5"	2
	Skyline Honeylocust	Gleditsia triacanthos 'Skyline'	2.5"	6
	River Birch	Betula nigra	2.5"	3
	EVERGREEN TREES			
	Green Columnar Juniper	Juniperus chinensis 'Hetzii Columnaris'	6' TALL	3
	Techny Arborvitae	Thuja occidentalis	6' TALL	6
	DECIDUOUS SHRUBS			
	Gro-Low Fragrant Sumac	Rhus aromatica 'Gro Low'	5 gal pot	13
	Knock Out Rose Shrub	Rosa radrazz	5 gal pot	20
	Goldfinger Potentilla	Potentilla fruticosa	5 gal pot	11
	EVERGREEN SHRUBS			
	Taunton Yew	Tauntonii	24"	20
	PERENNIALS			
	Karl Foerster Reed Grass	Clamagrostis x acutiflora 'Karl Foerster'	1 gal pot	35
	Landscaper to provide a variety of grass species for diversity and disease resistance.			
*	Daylilies 'Stella de Oro'	Hemerocallis 'Stella de Oro'	1 gal pot	28
	Landscaper to provide a variety of Daylily species for diversity and disease resistance.			

LANDSCAPING REQUIREMENTS

ZONE	REQ. PLANTS	PLANTS PROVIDED
PARKING	5% OF INTERIOR PARKING AREAS SHALL BE LANDSCAPED AND A MINIMUM OF 1 TREE (2" CAL.) FOR EVERY 10 SPACES. INTERNAL PARKING AREA ONLY=9940 SF REQ. LANDSCAPING=497 SF 22 PARKING SPACES= 2.2 TREES 2" CAL. OR LARGER.	497 SF OF INTERNAL PARKING AREA OR IMMEDIATELY ADJACENT AREAS LANDSCAPED. 5 TREES 2.5" CAL. PROVIDED
STREET YARD	PROVIDE 1 DECIDUOUS TREE PER 50' OF STREET FRONTAGE. (6 REQ)	6 TREES 2.5" CAL PROVIDED (6 ADDITIONAL ORNAMENTAL TREES PROVIDED)

NORTH

1"= 20' SCALE — 20' 0 20' 40' FEET

CIVIL LANDSCAPE AND RESTORATION PLAN

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PROJECT INFORMATION

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

PROFESSIONAL SEAL

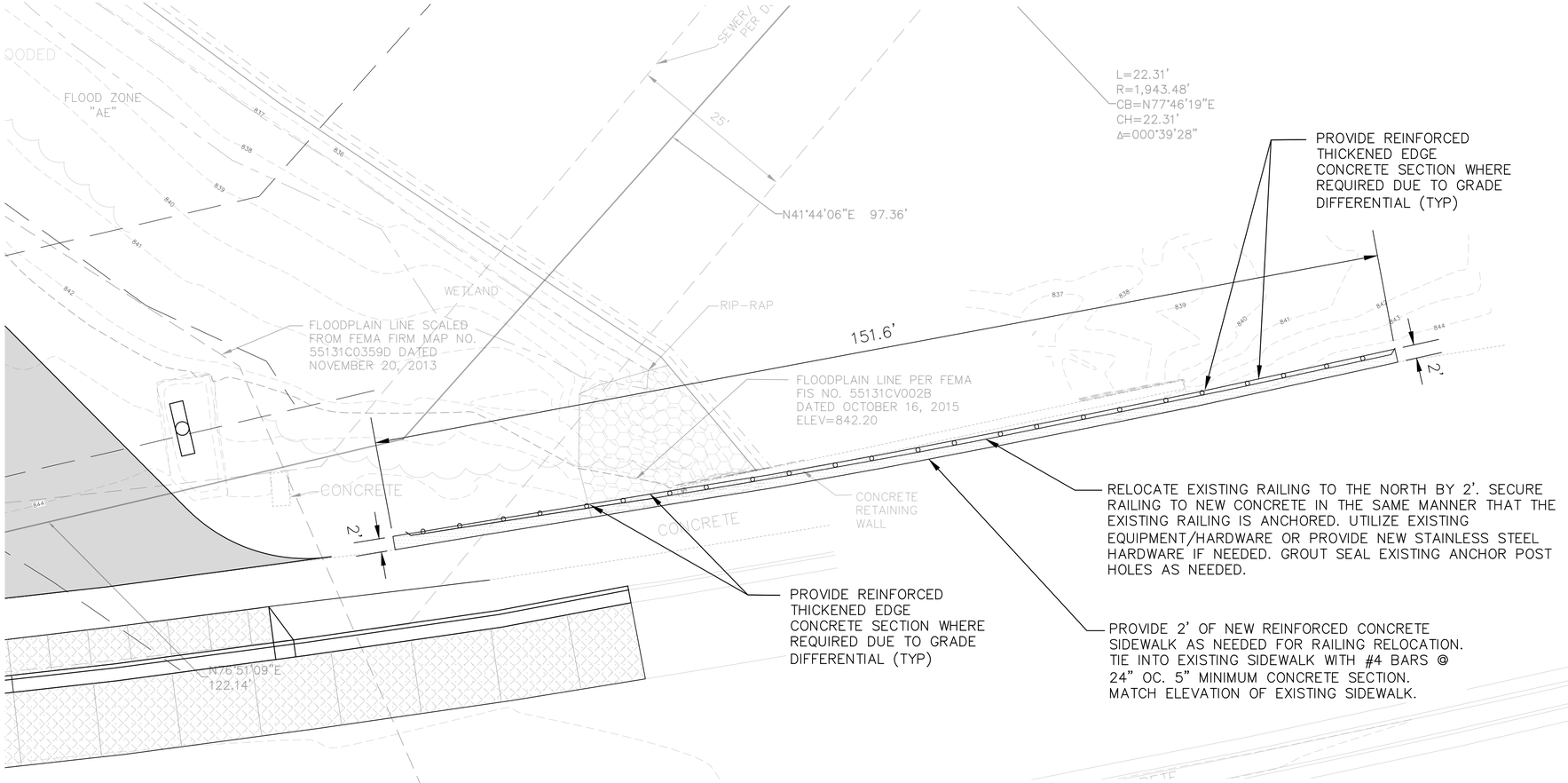
PRELIMINARY DATES
OCT. 5, 2020
DEC. 29, 2020
FEB. 22, 2021

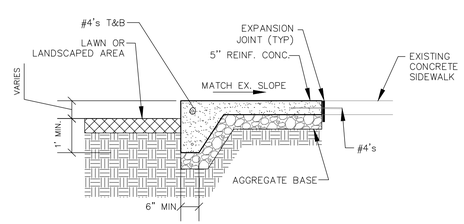
NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
C1.4

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





THICKENED EDGE CONCRETE DETAIL
NO SCALE

NORTH

1"= 10' SCALE 10' 0 10' 20' FEET

RAILING RELOCATION PLAN

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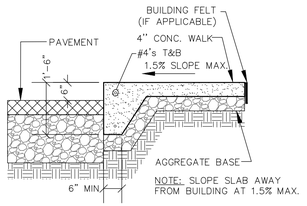
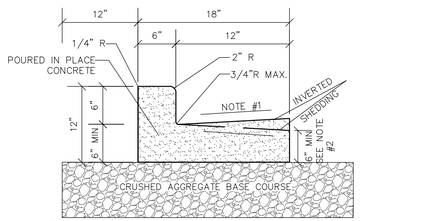
JOB NUMBER
2005200

SHEET NUMBER
C1.5



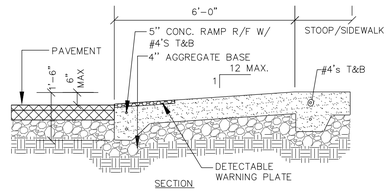
RAISED WALK DETAIL
NO SCALE

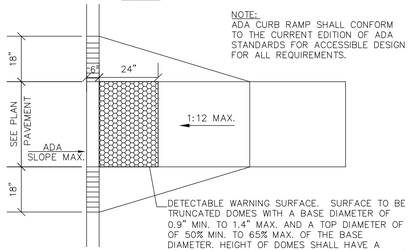


NOTE:

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

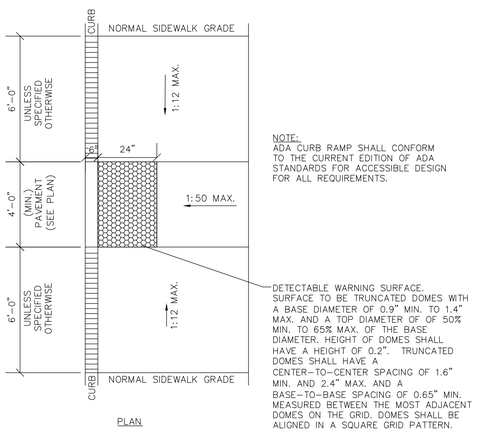
18" CONCRETE CURB & GUTTER DETAIL
NO SCALE





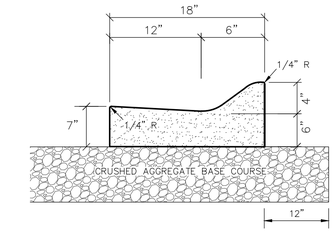
NOTE:
ADA CURB RAMP SHALL CONFORM TO THE CURRENT EDITION OF ADA STANDARDS FOR ACCESSIBLE DESIGN FOR ALL REQUIREMENTS.

CURB RAMP DETAIL
NO SCALE

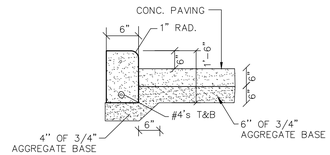


NOTE:
ADA CURB RAMP SHALL CONFORM TO THE CURRENT EDITION OF ADA STANDARDS FOR ACCESSIBLE DESIGN FOR ALL REQUIREMENTS.

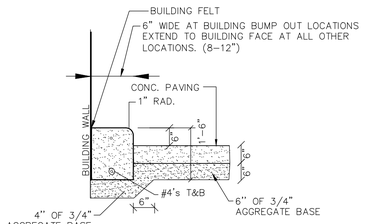
ADA SIDEWALK RAMP DETAIL
NO SCALE



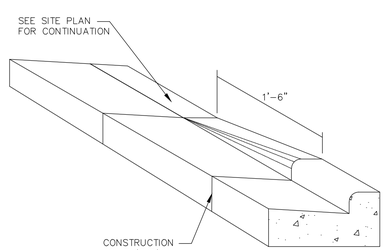
18" MOUNTABLE CURB & GUTTER DETAIL
NO SCALE



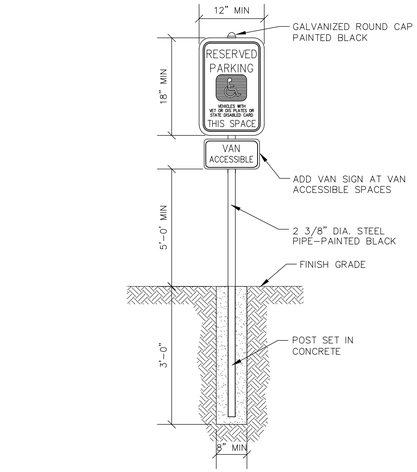
DRIVE-THRU 6" VERTICAL CURB DETAIL
NO SCALE



DRIVE-THRU BUILDING VERTICAL CURB DETAIL
NO SCALE

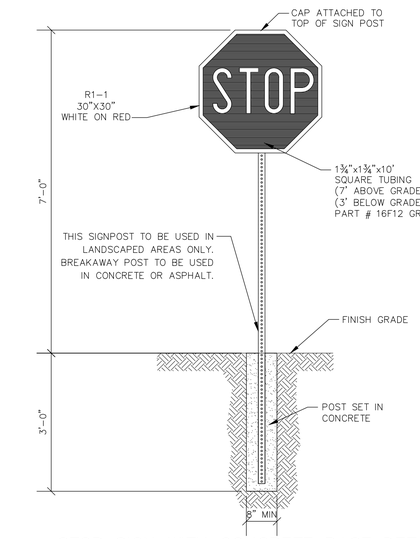


CURB TAPER DETAIL
NO SCALE

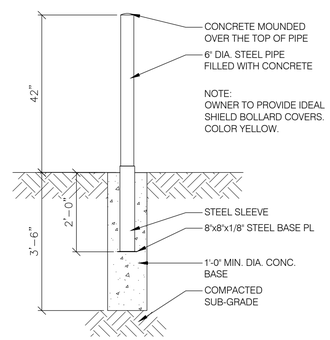


SPECIFICATION NOTE:
SEE SHEET C0.2 FOR PLAN SPECIFICATIONS AND REQUIREMENTS

HANDICAP SIGNAGE WITH CONCRETE BASE DETAIL
NO SCALE



STOP SIGN WITH CONCRETE BASE DETAIL
NO SCALE



BOLLARD DETAIL
NO SCALE

CIVIL DETAILS

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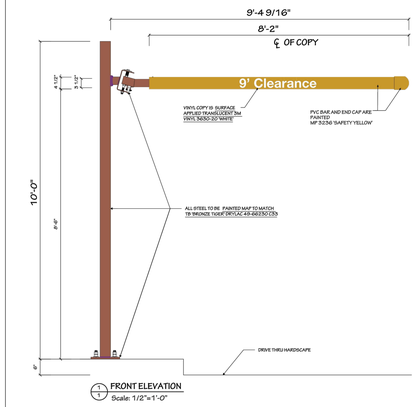
SHEET NUMBER
C2.0

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

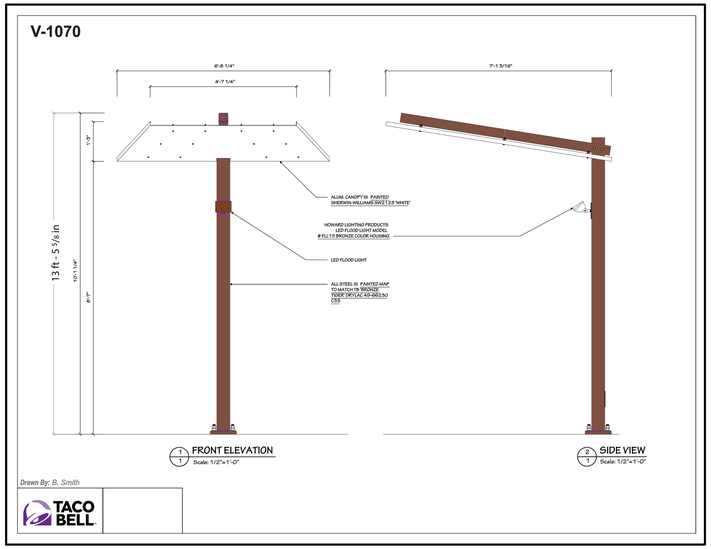
V-1069



Drawn By: B. Smith

TACO BELL

V-1070



Drawn By: B. Smith

TACO BELL

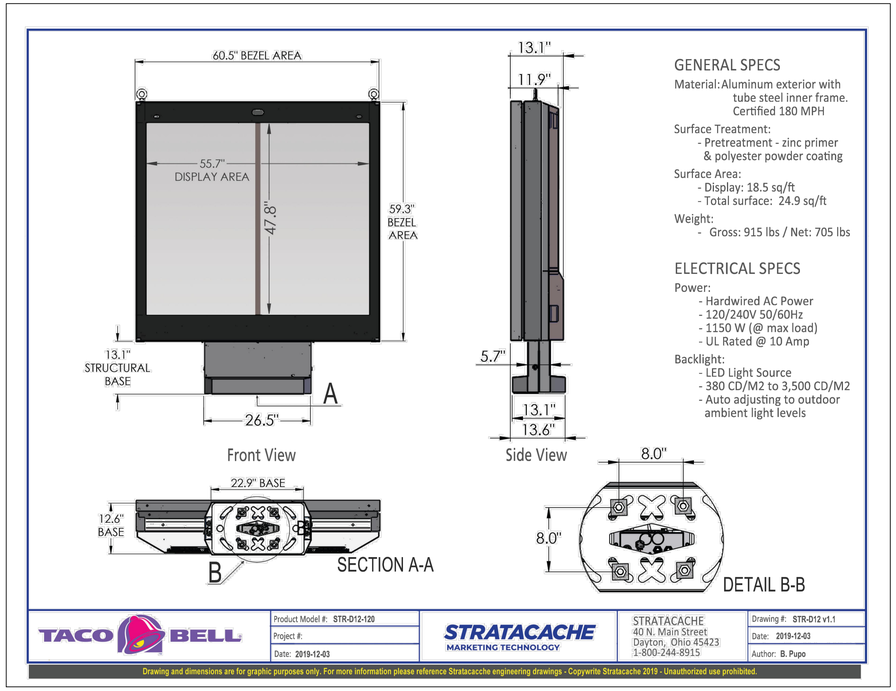
OWNER SUPPLIED RAILING

TACO BELL: NEW RAILING SYSTEM

TACO BELL
Breakfast

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

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



TACO BELL	Product Model #: STR-D12-120 Project #: Date: 2019-12-03	STRATACACHE MARKETING TECHNOLOGY	STRATACACHE 40 N. Main Street Dayton, Ohio 45423 1-800-244-8915	Drawing #: STR-D12 v1.1 Date: 2019-12-03 Author: B. Pupo

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C2.2

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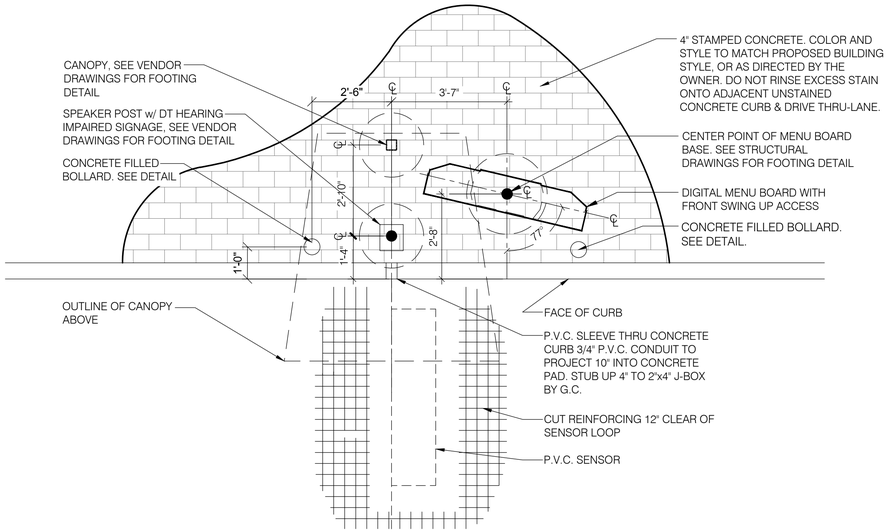
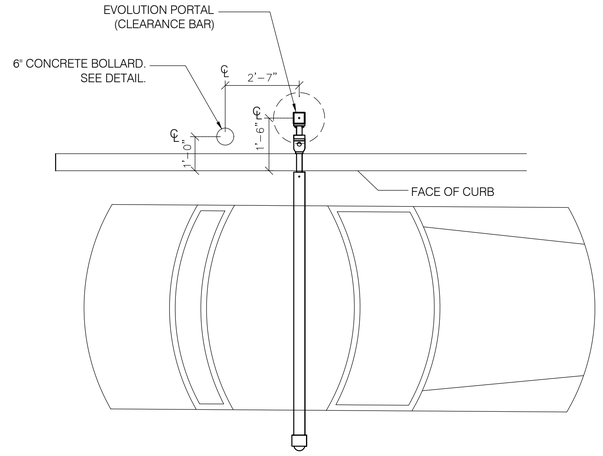
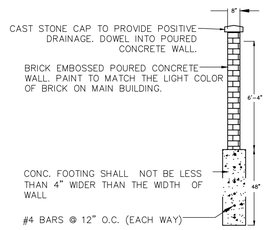
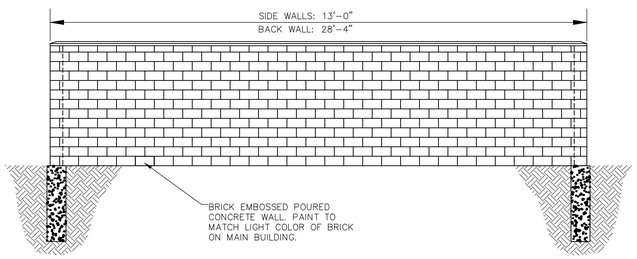


MENU BOARD DETAIL
NO SCALE

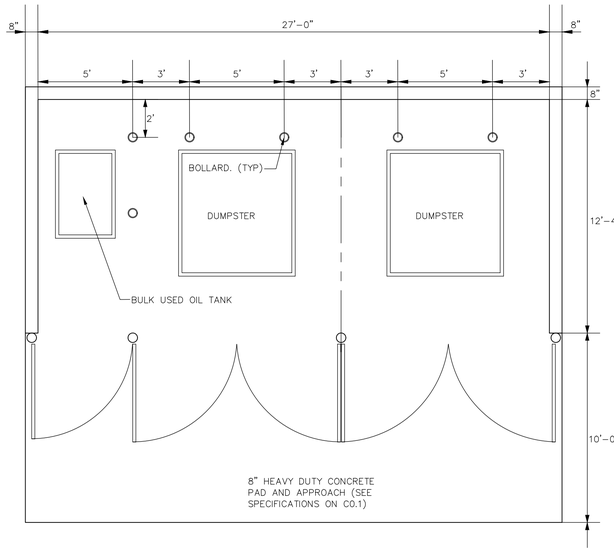


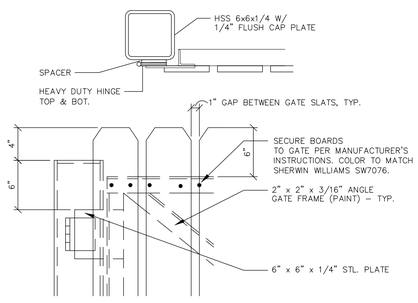
EVOLUTION PORTAL (CLEARANCE BAR) DETAIL
NO SCALE



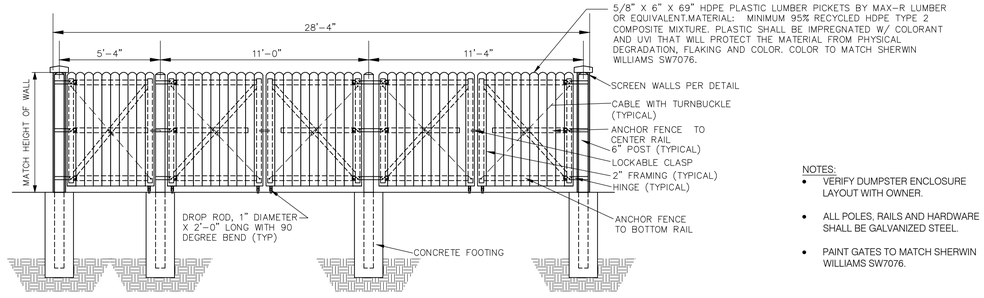


DUMPSTER SCREENING DETAIL
NO SCALE





GATE DETAIL
NO SCALE



DUMPSTER GATE
NO SCALE

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

CIVIL DETAILS

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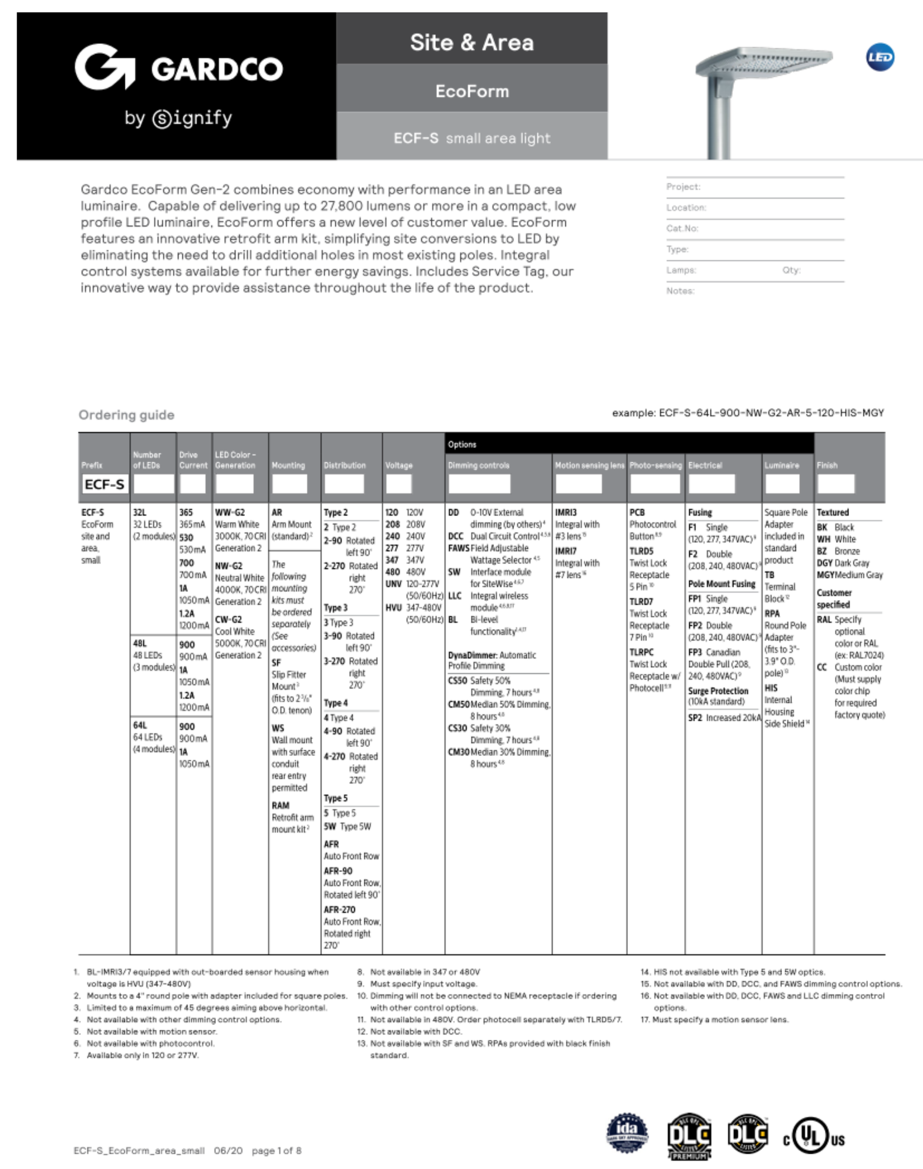
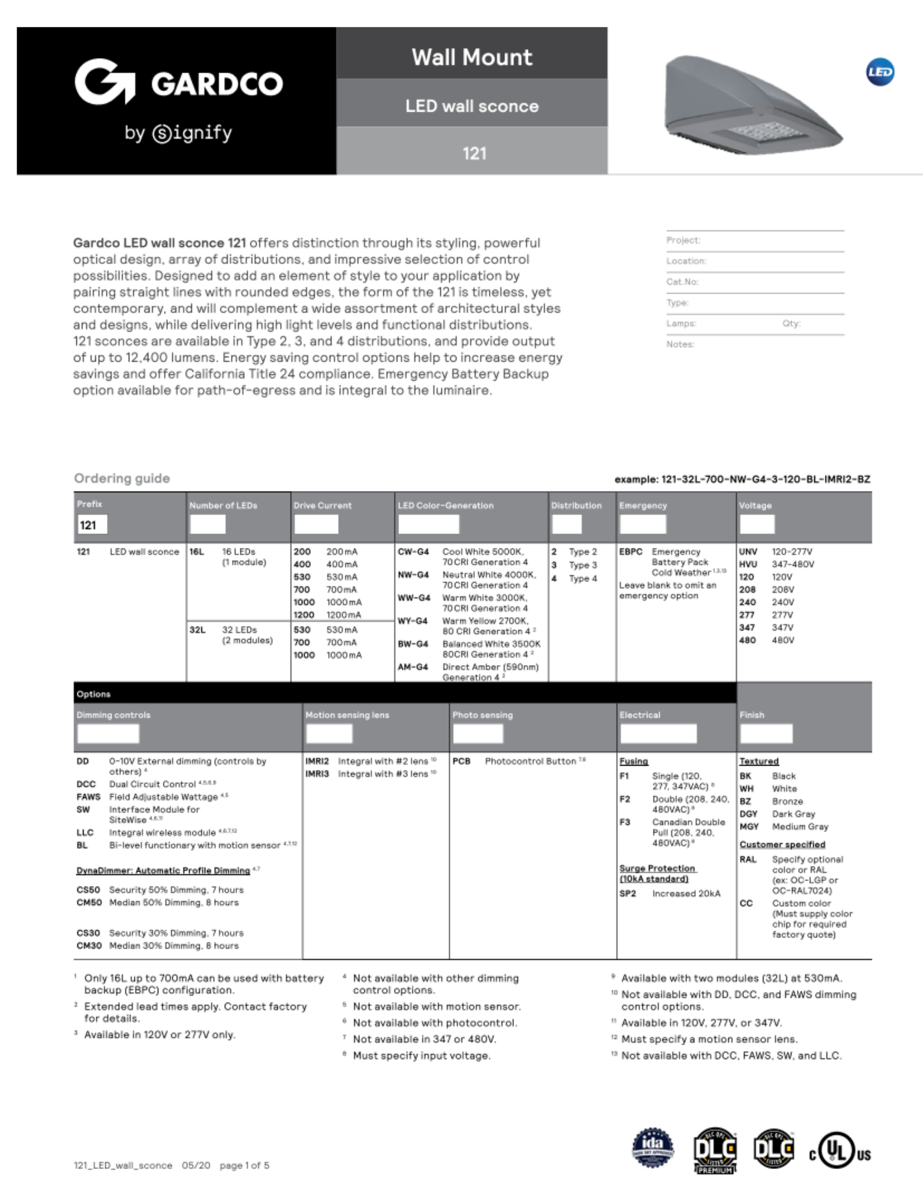
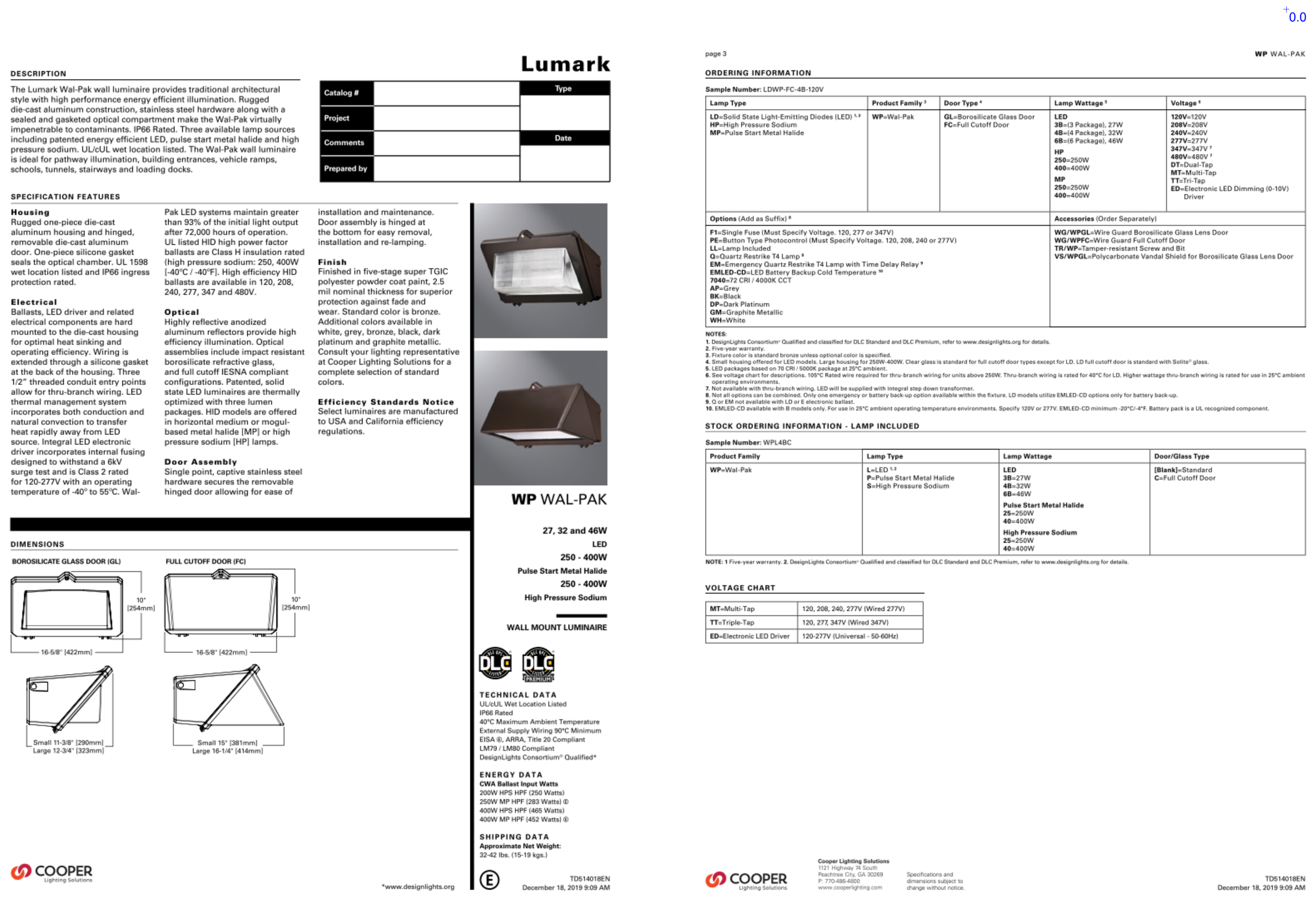
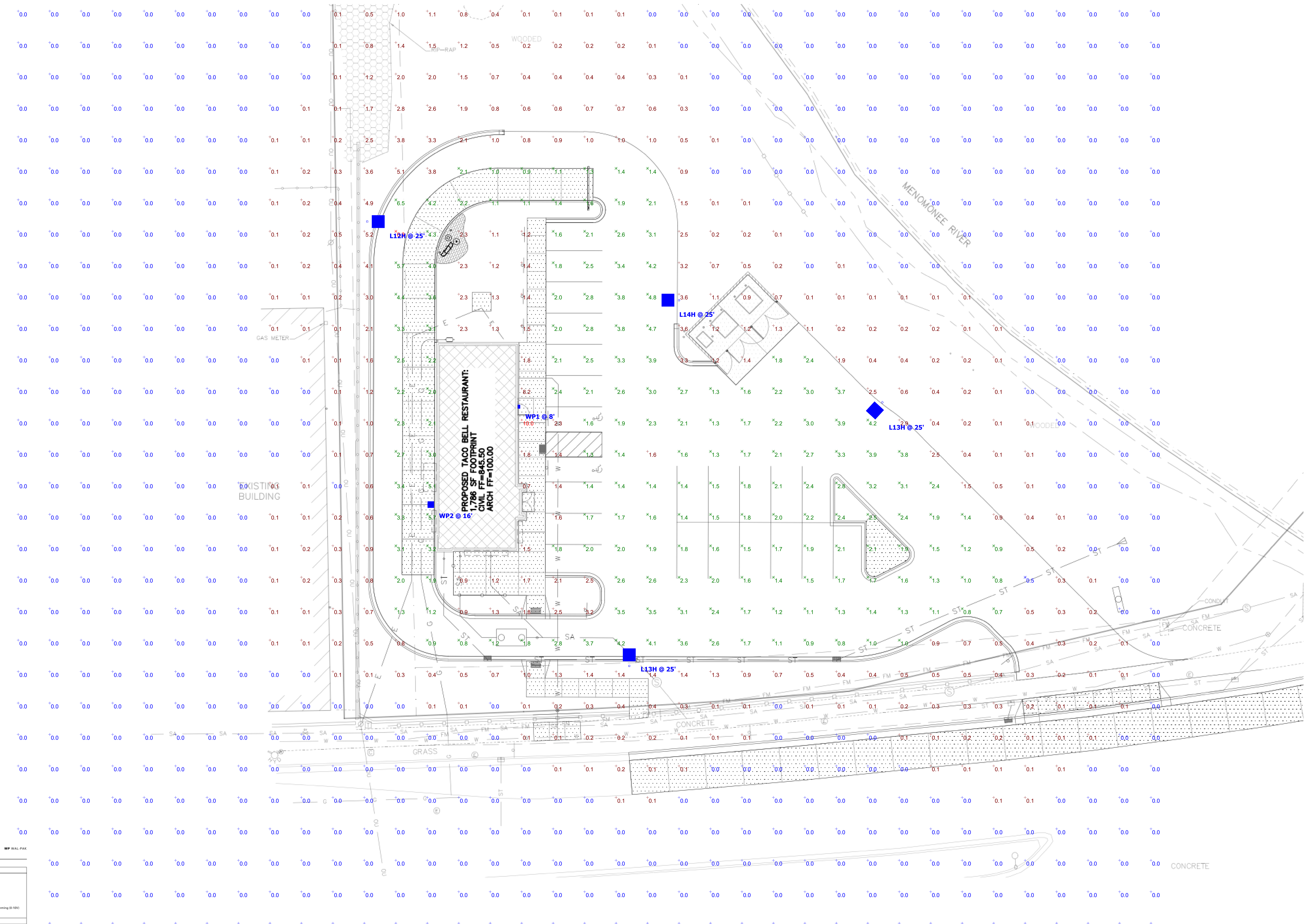
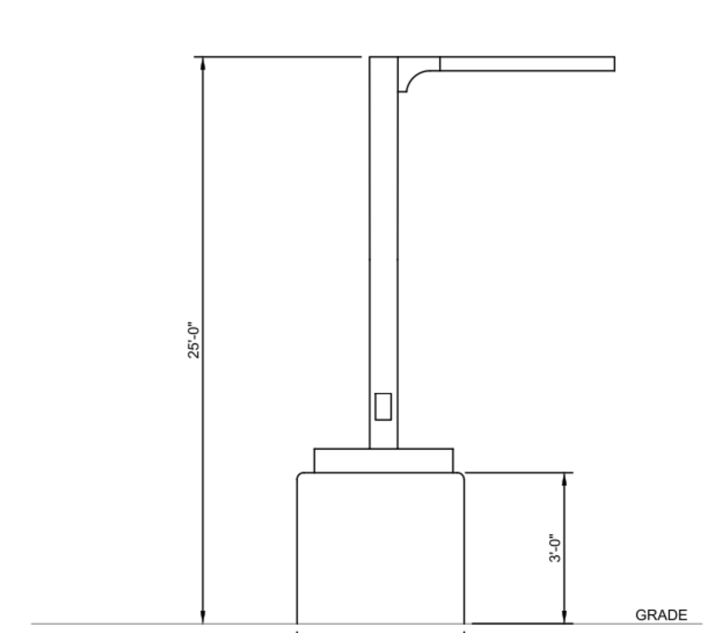
C2.3











LIGHT POLE DETAIL
NO SCALE

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

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	✳	2.3 fc	6.8 fc	0.5 fc	13.6:1	4.6:1

NORTH

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

CIVIL SITE PHOTOMETRIC PLAN

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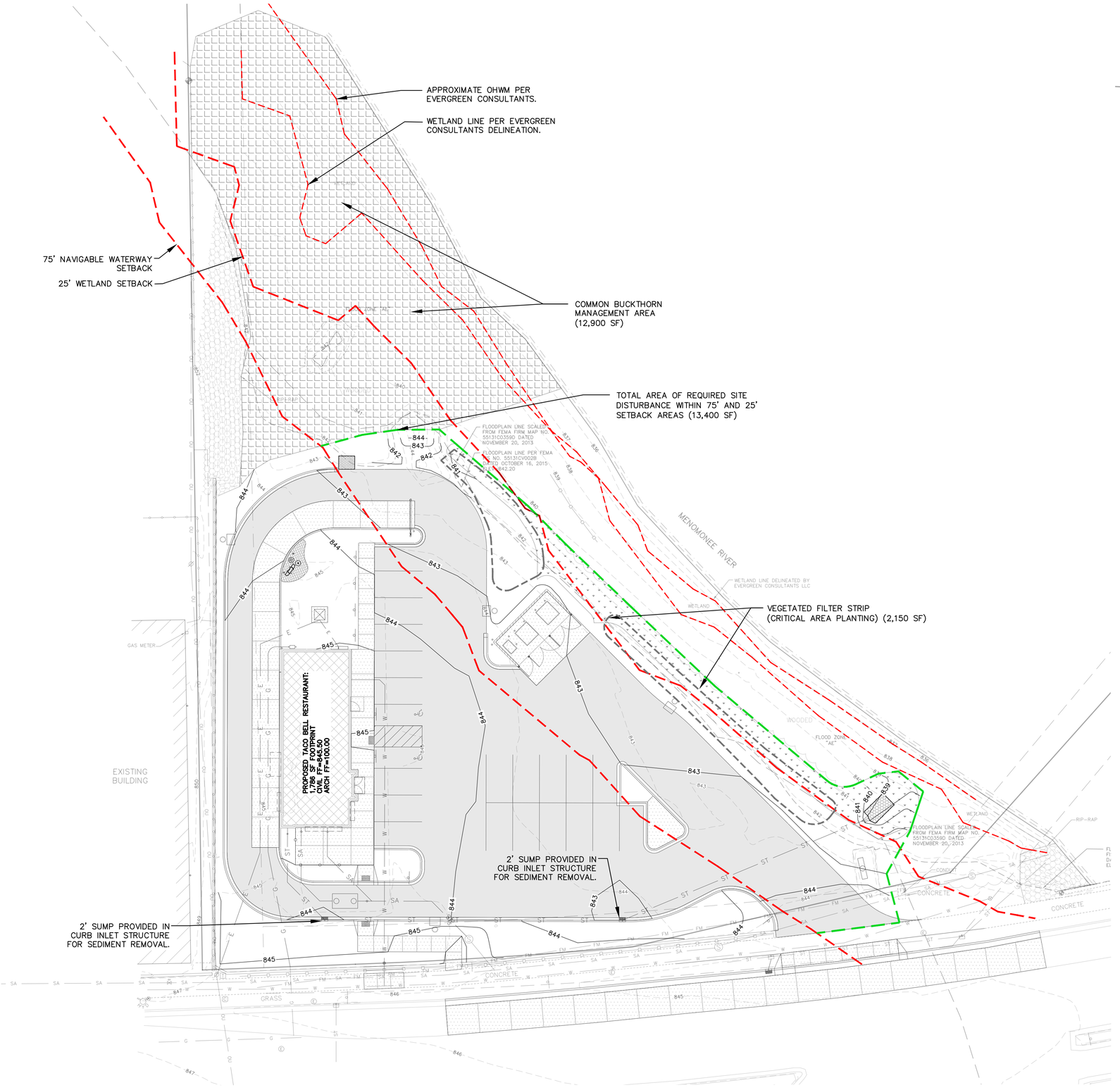
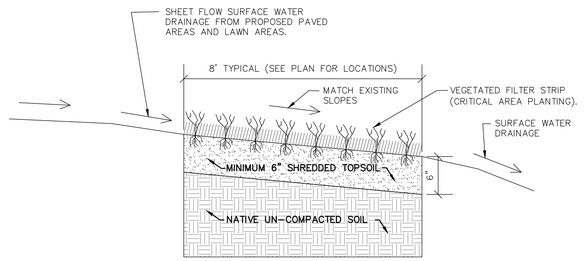
PXP





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

NORTH

1"= 20' SCALE — 20' 0 20' 40' FEET

EXHIBIT A: WETLAND SETBACK/NAVIGABLE WATERWAY SETBACK MITIGATION PLAN

EXCEL
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

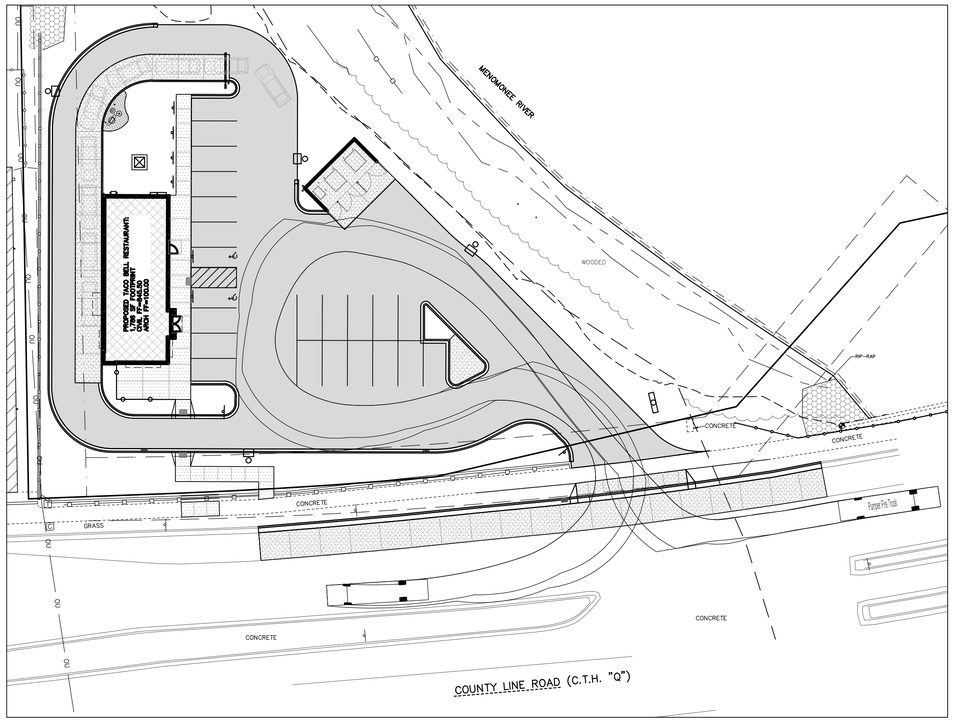
PROFESSIONAL SEAL

PRELIMINARY DATES
FEB. 22, 2021

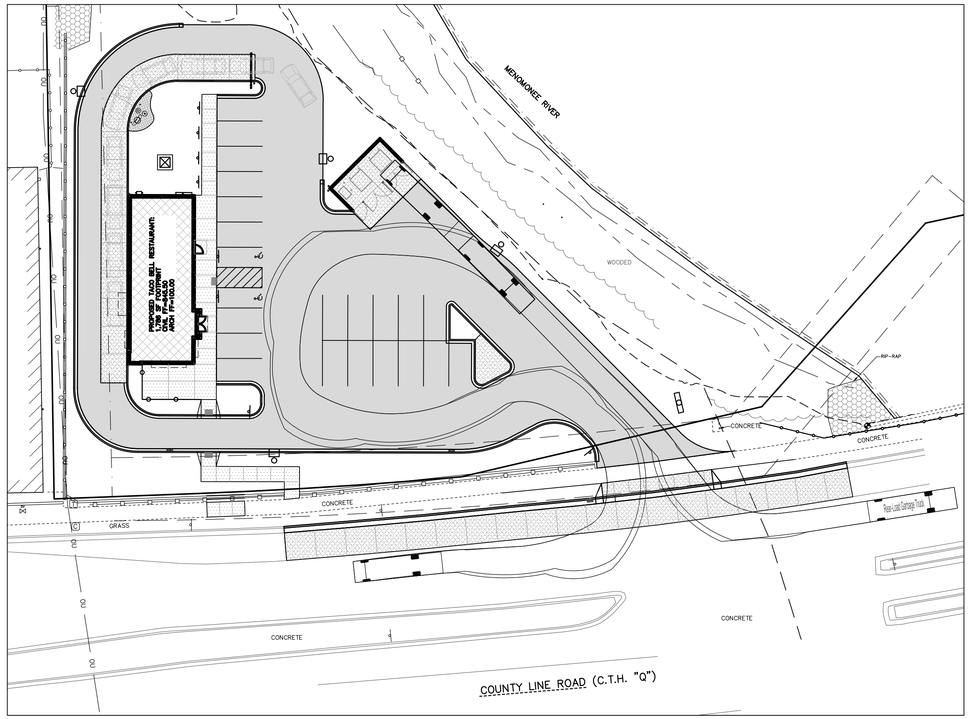
NOT FOR CONSTRUCTION

JOB NUMBER
2005200

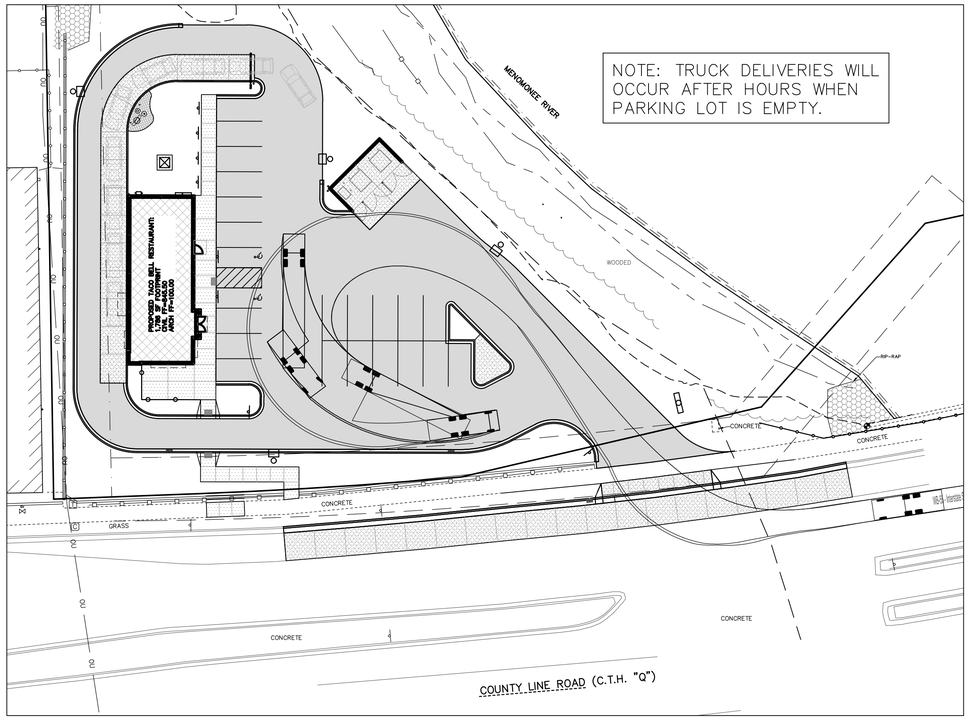
SHEET NUMBER
EX. A



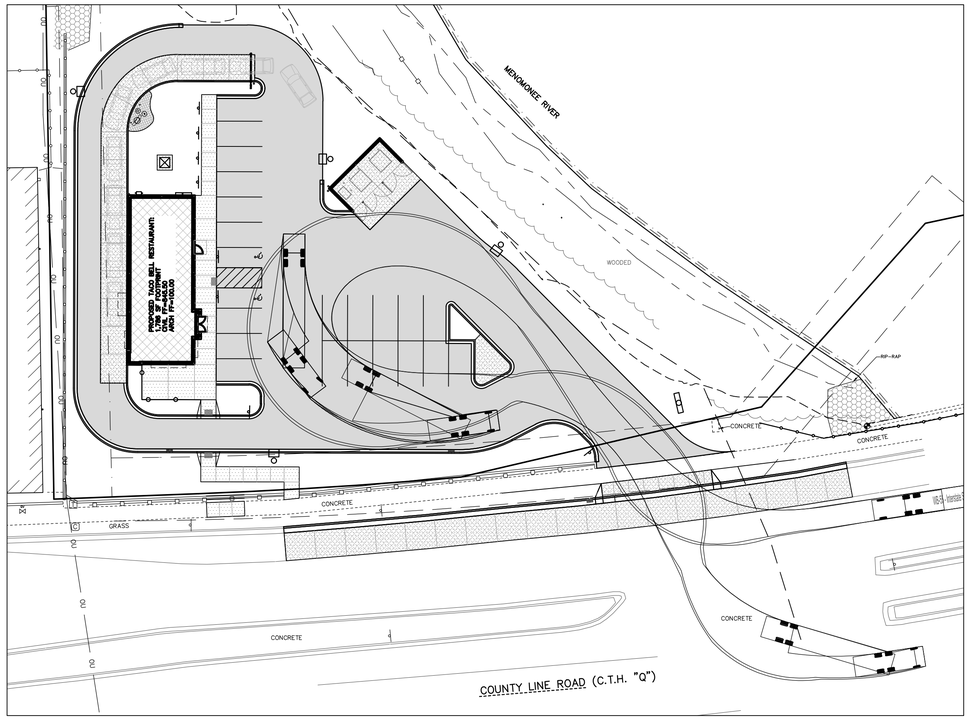
Fire Truck



Garbage Truck



Delivery Truck (IN)



Delivery Truck (OUT)

NORTH

1"= 30' SCALE

30' 0 30' 60' FEET

Truck Turn Exhibit

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PROJECT INFORMATION

NEW BUILDING FOR:

SUNDANCE - TACO BELL

N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

PRELIMINARY DATES

DEC. 23, 2020
FEB. 22, 2021

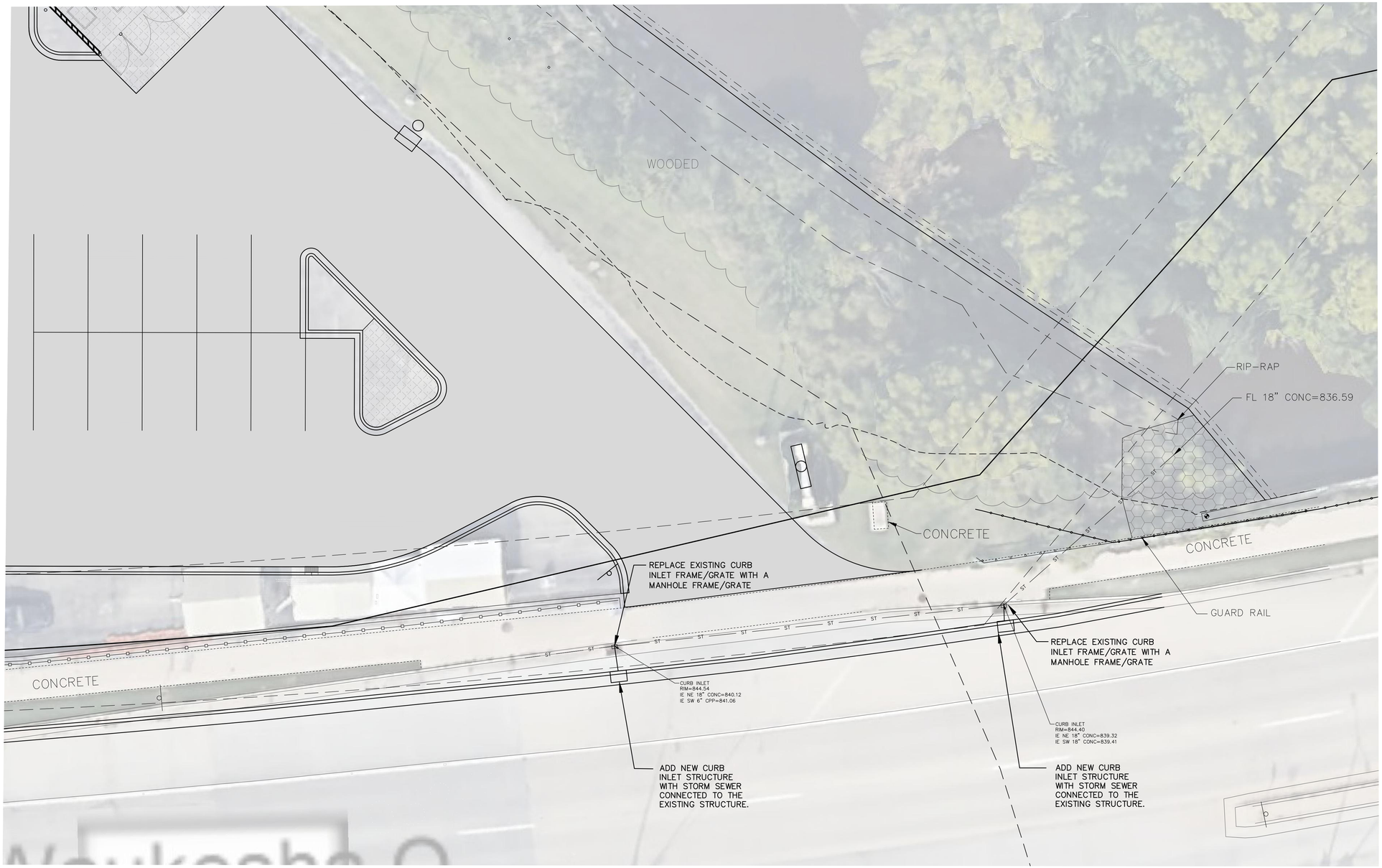
NOT FOR CONSTRUCTION

JOB NUMBER

2005200

SHEET NUMBER

TT



NORTH

1"= 10'

10' 0 10' 20'

SCALE FEET

COUNTY STORM SEWER EXHIBIT

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PROJECT INFORMATION

NEW BUILDING FOR:

SUNDANCE - TACO BELL

N96W18058 COUNTY LINE ROAD • GERMANTOWN, WI 53022

PROFESSIONAL SEAL

PRELIMINARY DATES

DEC. 23, 2020

NOT FOR CONSTRUCTION

JOB NUMBER

2005200

SHEET NUMBER

STM

Site Photos

Existing building to be demolished.

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

County Line Road Site

Professionally Assured Wetland Delineation Report

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

September 11, 2020

Report Request by

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

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

Field Work Certification:

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*

Table of Contents

Executive Summary

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

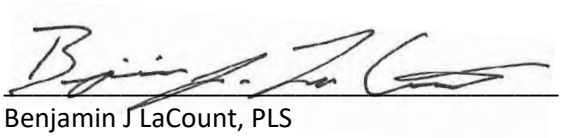
The project area is shown on the Wetland Delineation Map as the Site Boundary, hereafter described as the "Site". The Wetland Delineation Map is in Appendix A. Evergreen was directed to delineate the project area for future planning purposes. The property had been a farmstead until redeveloped in 1990.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

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

One wetland area was identified during fieldwork:

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

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



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

Shyann P Banker
Environmental Specialist

1.0 INTRODUCTION

1.1 Purpose

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

One wetland area was identified during fieldwork:

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

1.2 Personnel

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

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

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

2.0 METHODOLOGY

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

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

2.1 Resources

The following resources were used:

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

2.2 Equipment Used

The following equipment was used:

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

2.3. Vegetation

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

2.4. Soils

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

2.5. Hydrology

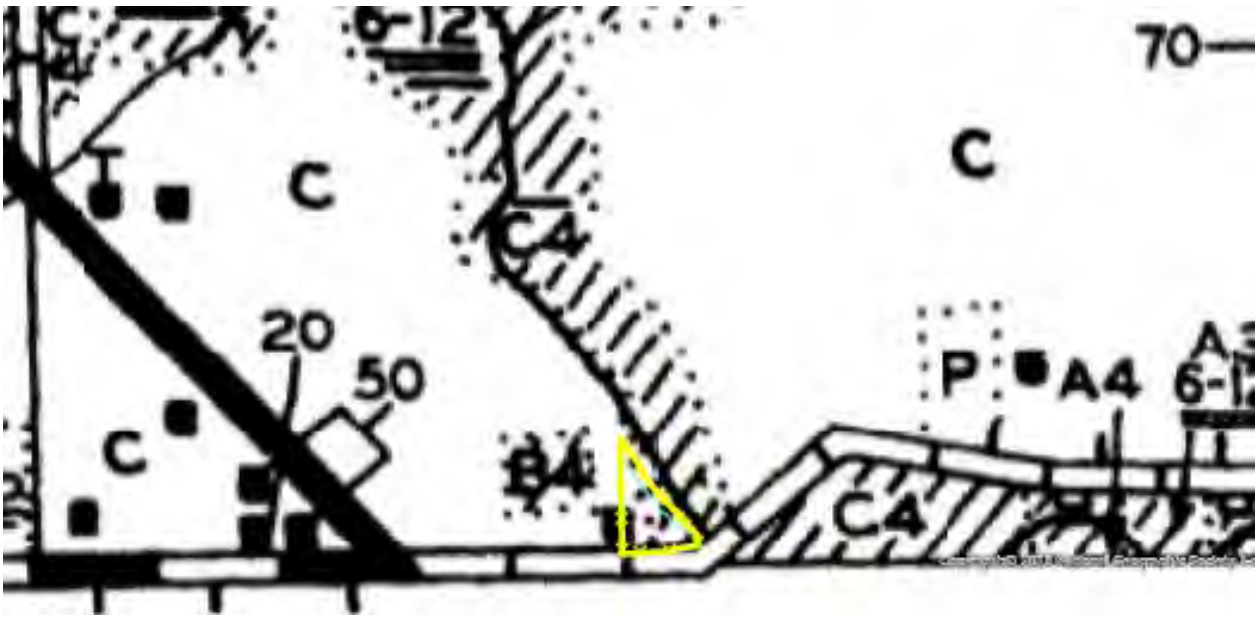
Before an on-site investigation, FSA aerial slides and aerial photographs were reviewed for the presence of surface water or saturated soil conditions. Each sample point was investigated for saturated soil conditions, water table and surface water and if present they were measured and recorded on the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

3.0 SITE CHARACTERISTICS

3.1 Land Use

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

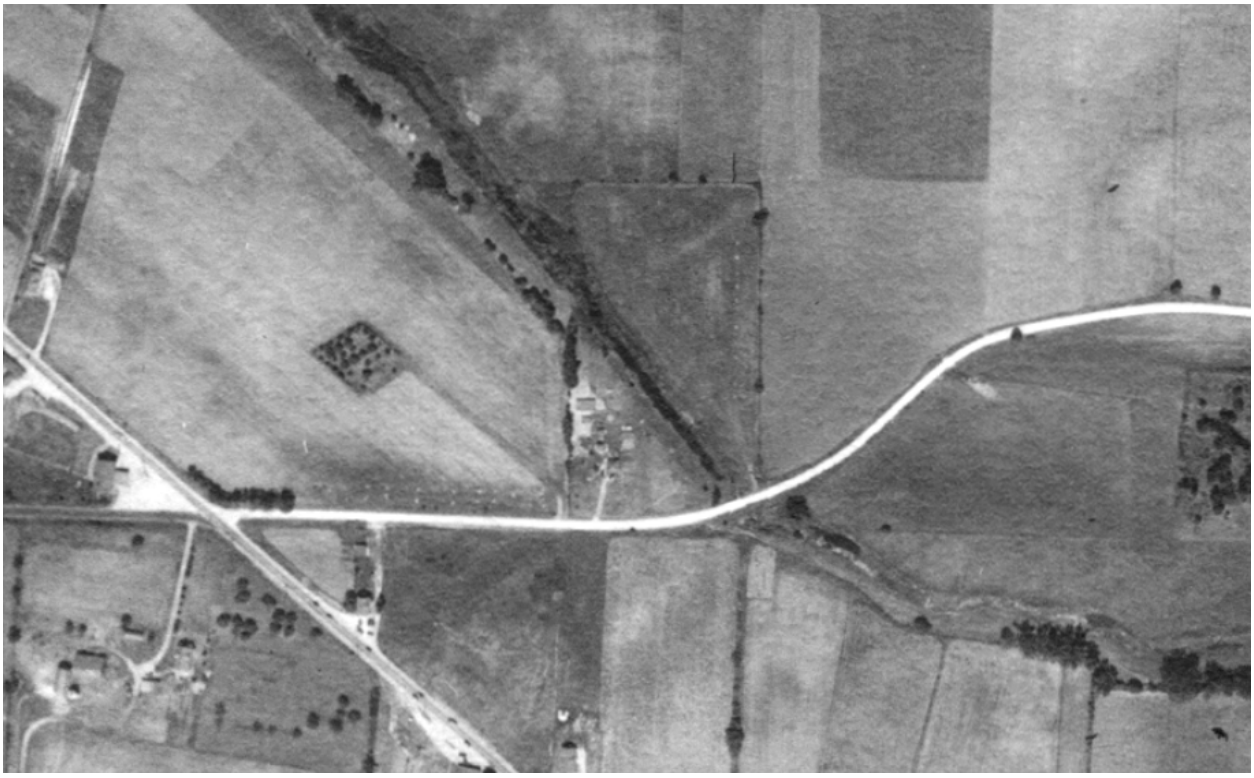
Original Survey



Bordner Survey

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

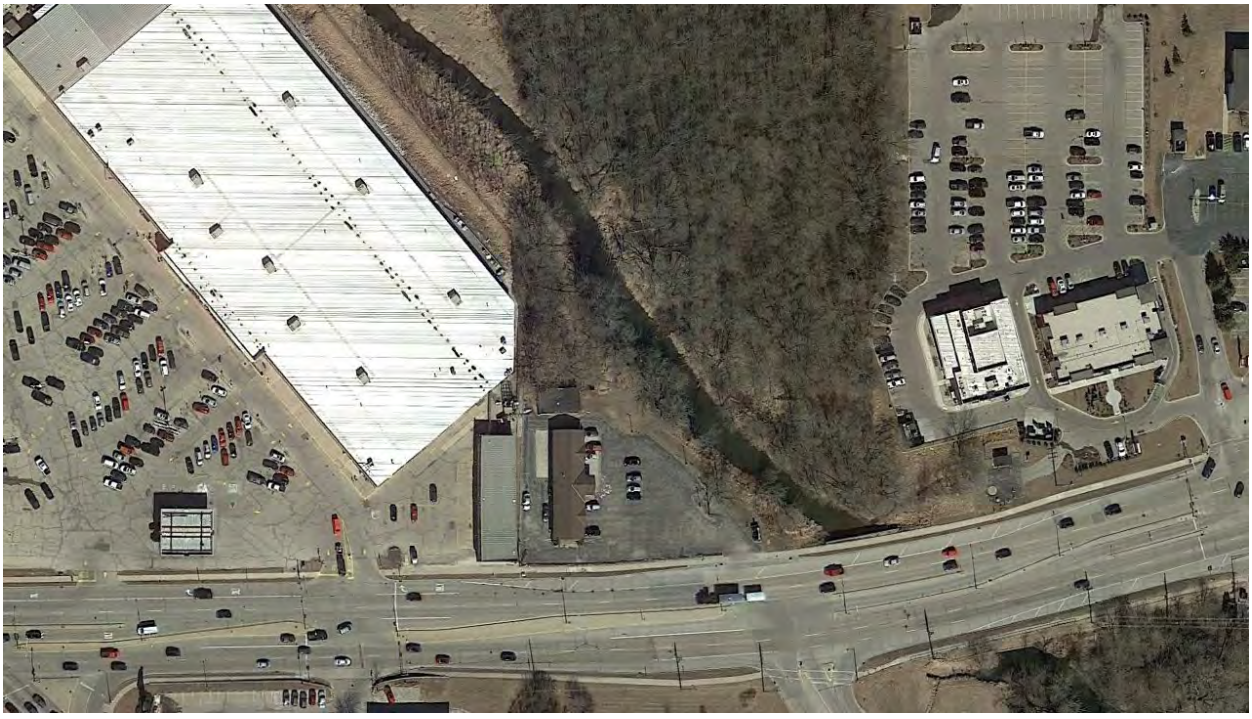
Aerial photographs from 1937, 1941, 1950, 1963, 1970, 1979-2002, 2005-2008, 2010-2011, 2013-2015, 2017, and 2018 were reviewed.



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

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

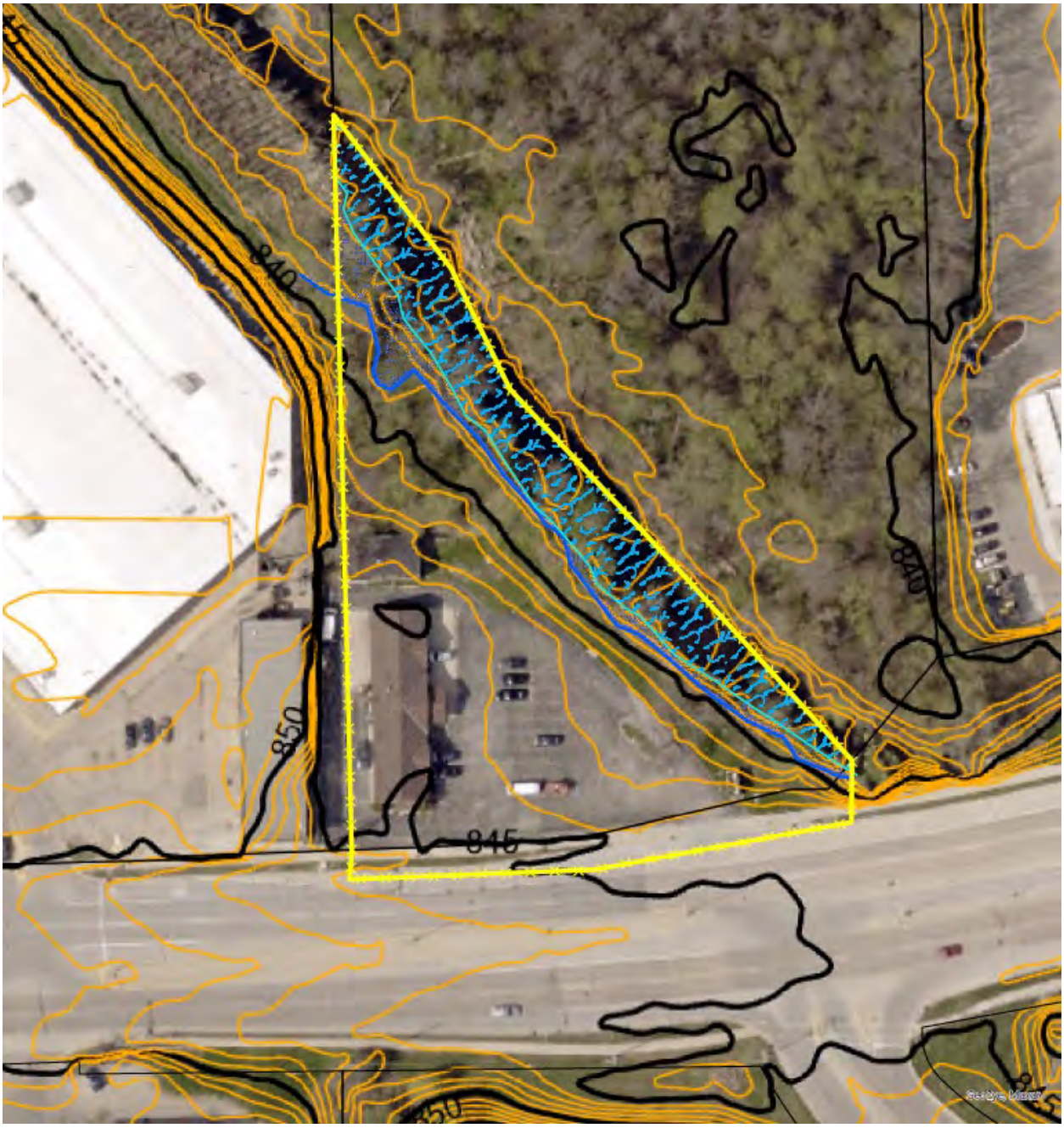
1990- Historic aerial photograph shows the site redeveloped and a parking lot added.



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

3.2 Topography

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



Topographic Map

3.3 *Precipitation*

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

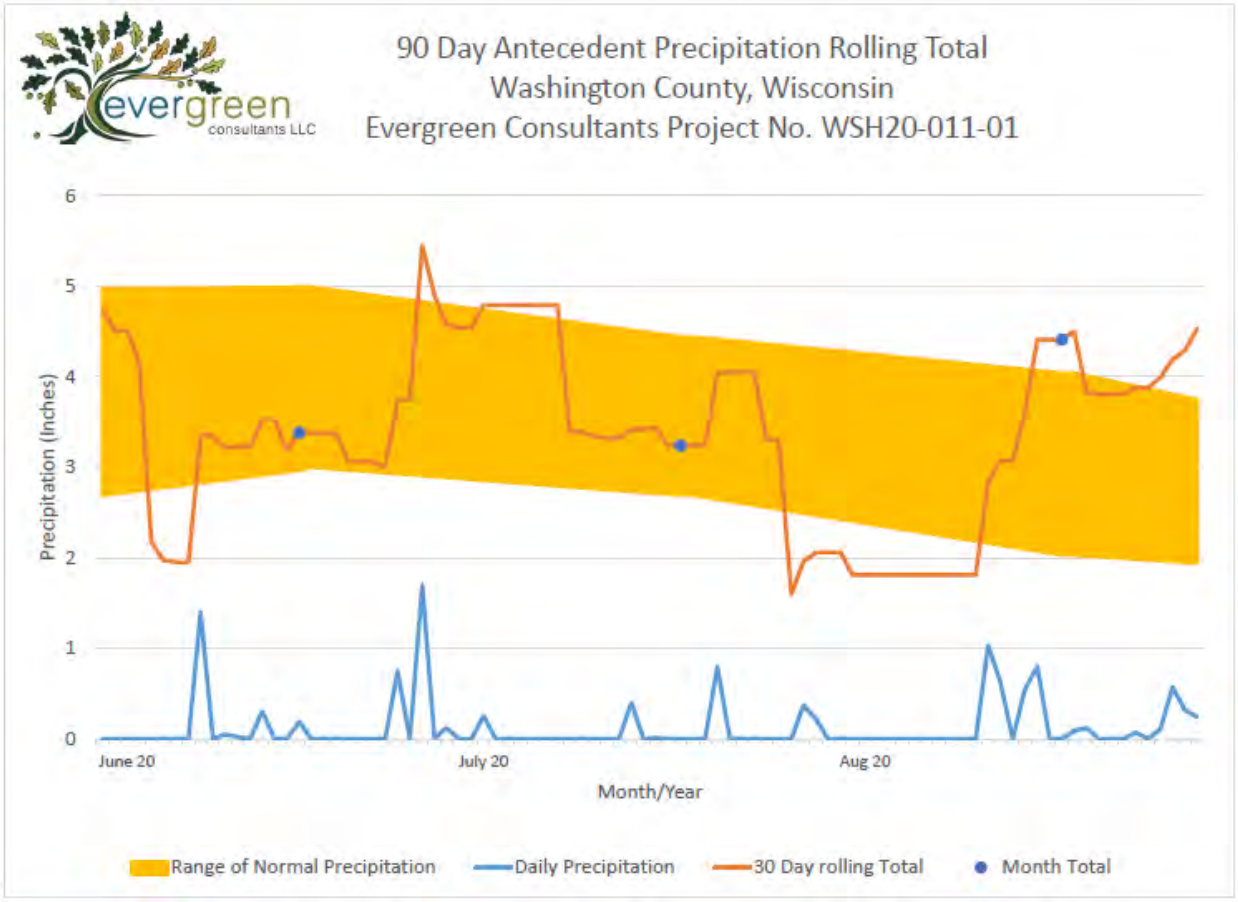


Chart 1. 90 Day Antecedent precipitation Rolling Total Summary between June-September 2020 in Washington County, Wisconsin

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

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

shaded cells are locked or calculated

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

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

*compared to photo/observation date

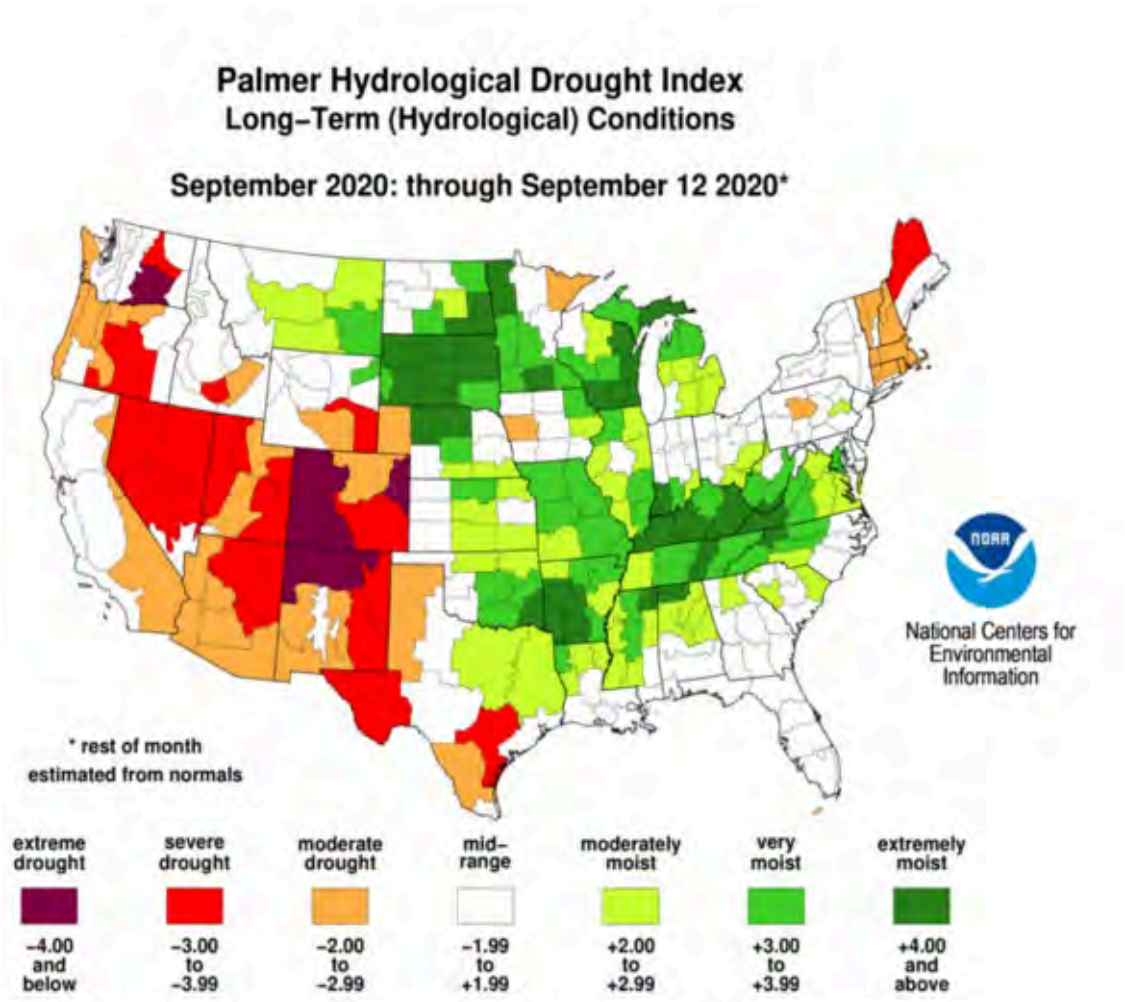
Note: If sum is	
6 - 9	prior period has been drier than normal
10 - 14	prior period has been normal
15 - 18	prior period has been wetter than normal

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

Conclusions: **prior period has been normal**

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

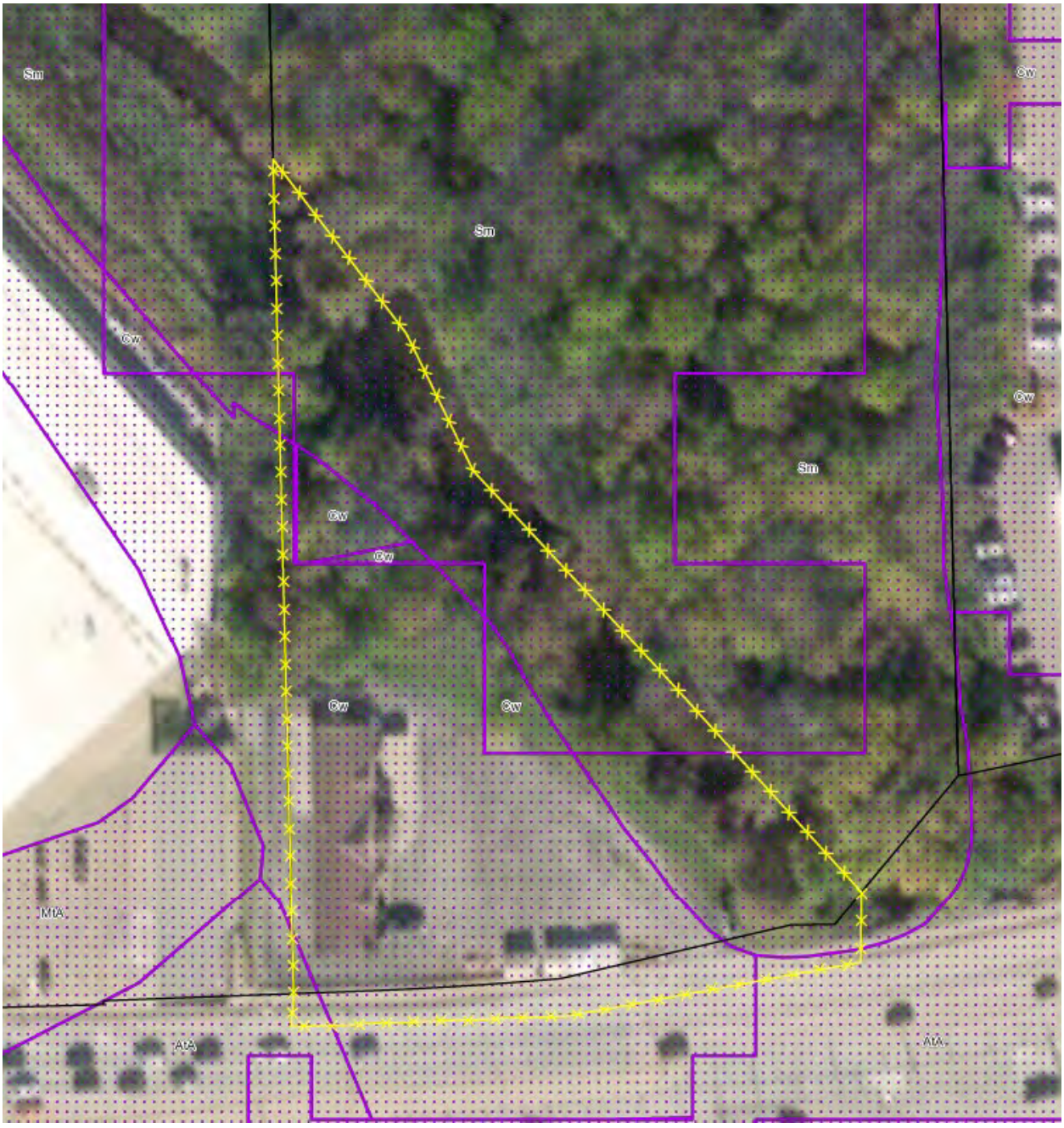
Precipitation values are measured in inches.
Sources: National Oceanic & Atmospheric Administration, Midwest Regional Climate Center



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

3.4 Wetland Mapping

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



Surface Water Data Viewer

National Wetland Inventory Map

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

3.5 Mapped Soils

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

Report—Hydric Soils

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

Report—Taxonomic Classification of the Soils

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

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

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

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

4.0 FIELD INVESTIGATIONS

One wetland area was identified during fieldwork:

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

Determination Forms are in Appendix G.

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

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

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

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

Photo taken near T2A facing north towards the Menomonee River.

The dominant hydrophytic vegetation observed:

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

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

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

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

West property line facing south.

Mowed lawn adjacent to the stream terrace.

4.1 Hydrology Assessments with Aerial Photographs

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

4.2 Rare Species and Natural Communities

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

4.3 Mapping

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

5.0 CONCLUSIONS

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

One wetland area was identified during fieldwork:

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

6.0 DISCLAIMER

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

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

7.0 REFERENCES

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

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

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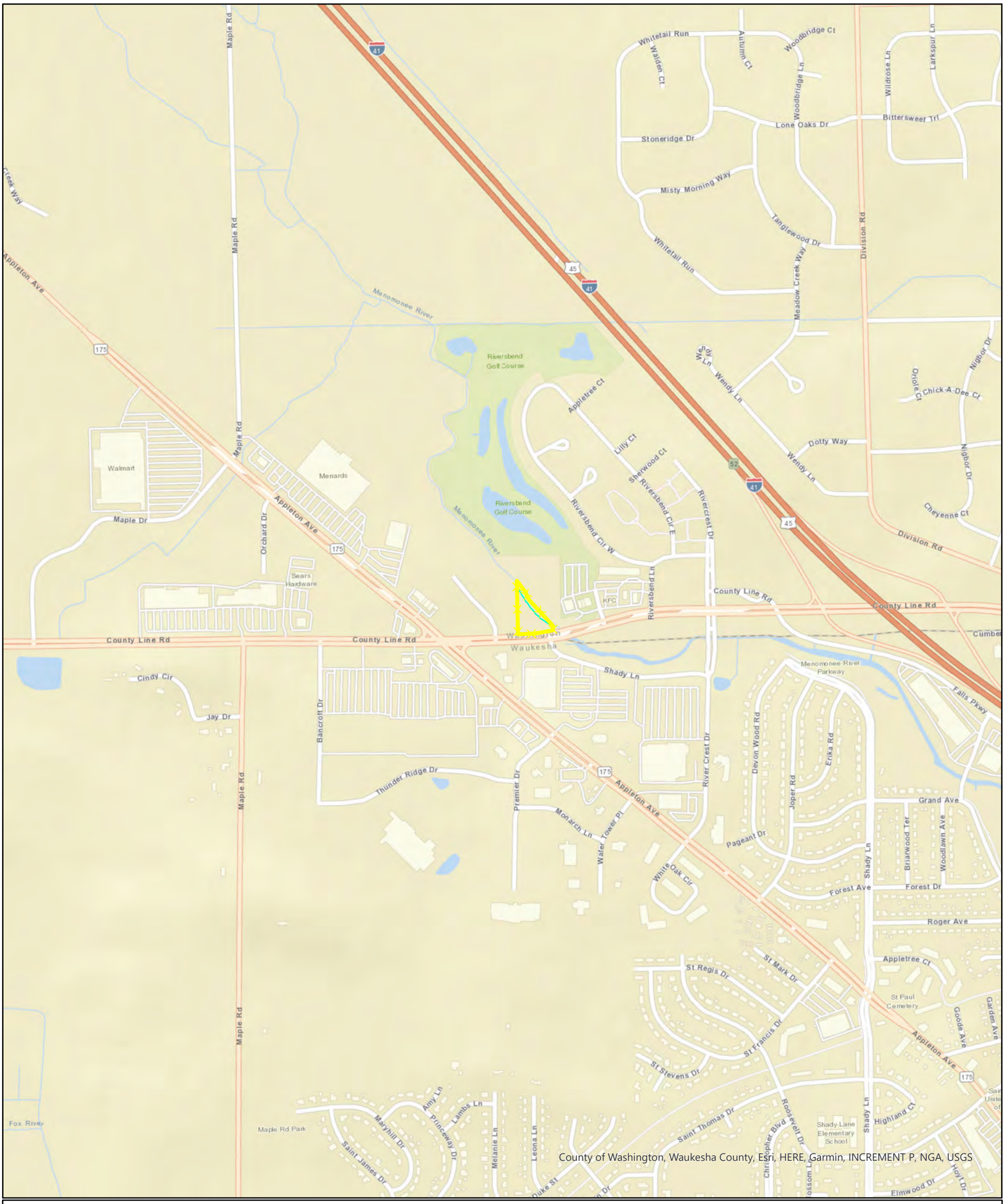
Appendix A:

Site Maps



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

Project: WSH20-011-01

Legend

Site Boundary

N
W E
S

0 400 800 1,600
Feet

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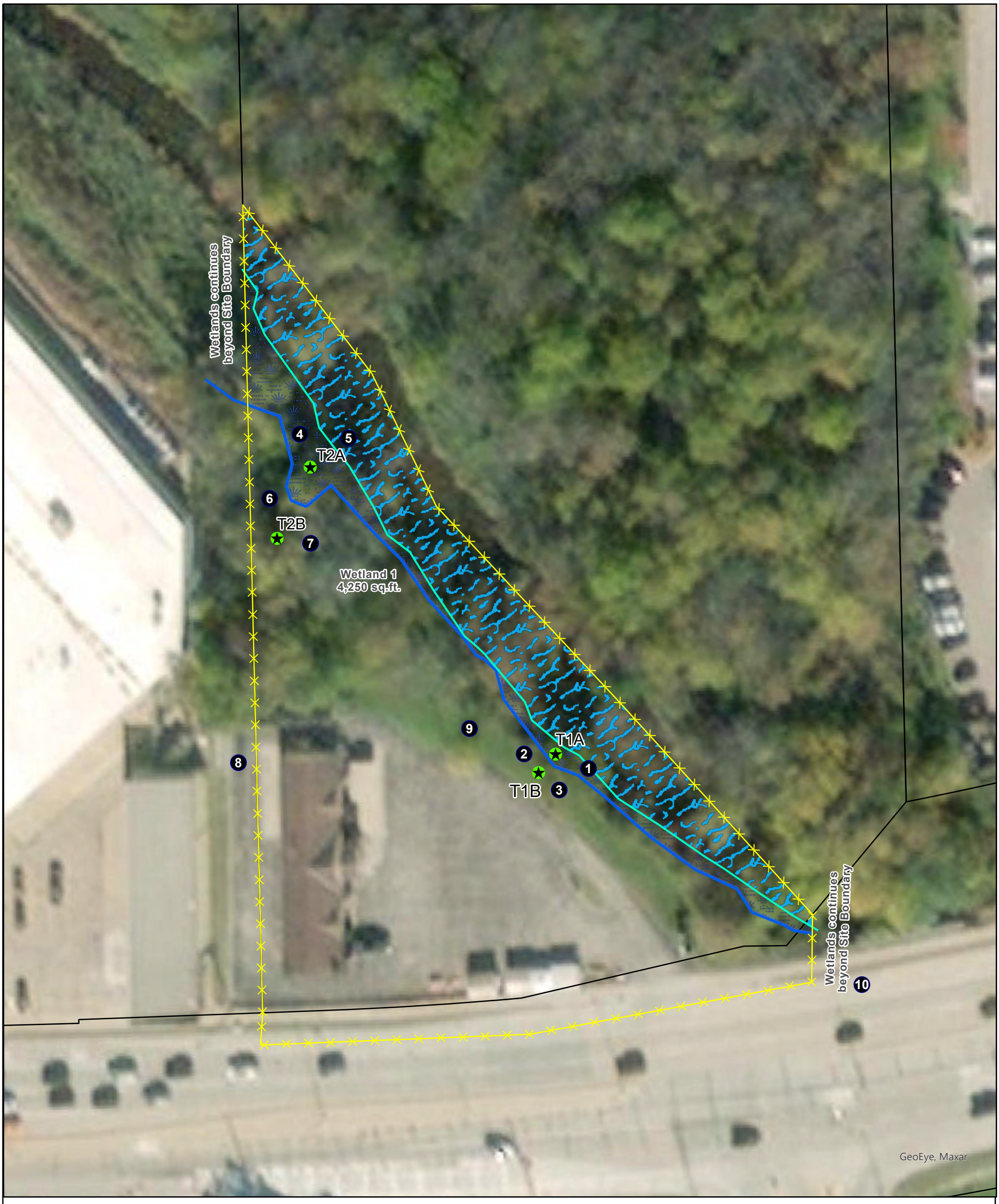

Legend

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

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

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

Project: WSH20-011-01

N
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0 25 50 100 Feet

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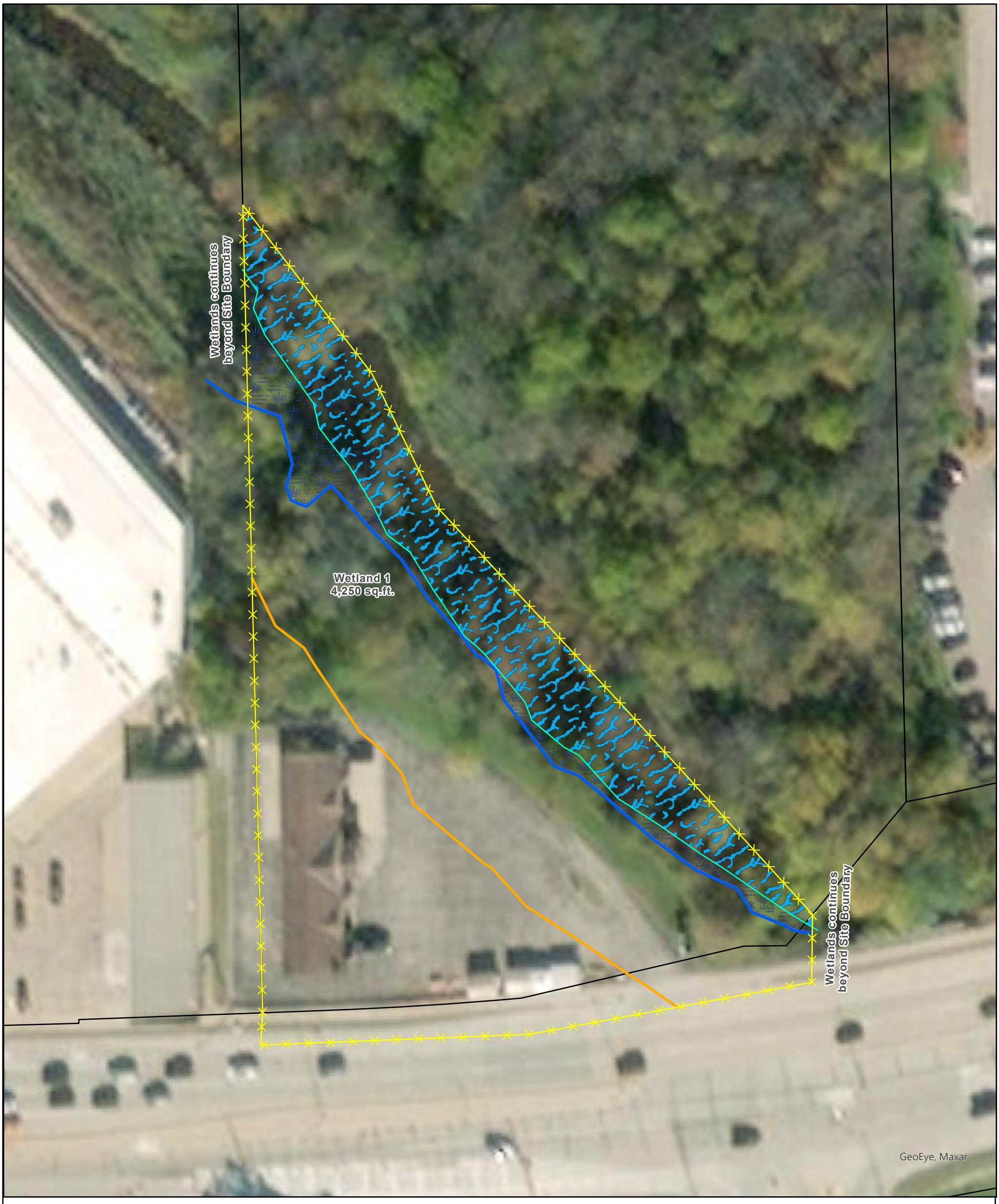

Legend

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

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

Project: WSH20-011-01

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

0 25 50 100
Feet

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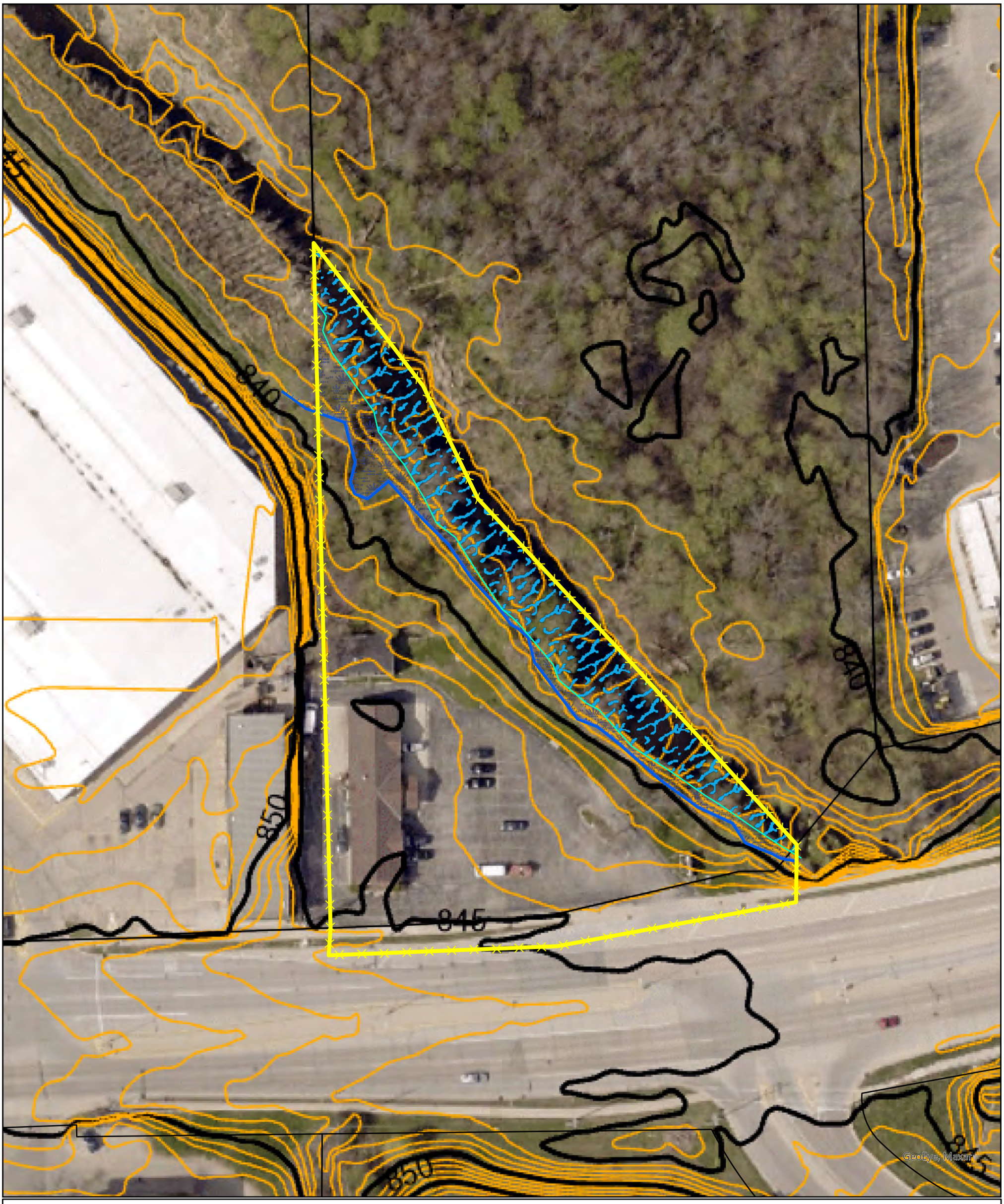

County Line Road
Topographic Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

N
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Legend

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

0 30 60 120
Feet

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

Project: WSH20-011-01

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Legend

- Site Boundary
- Parcels

Wetland Indicators

- USDA Wetspots
- Maximum Extent Wetland Indicators

0 30 60 120
Feet

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

Project: WSH20-011-01

Legend

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

N
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0 30 60 120
Feet

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MzfA
Cw
MtA
AtA
AsA
Cw
Ph
MzfA
U.S. Department of Agriculture, Natural Resources Conservation Service, GeoEye, Maxar

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

Project: WSH20-011-01

Legend

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

N
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0 50 100 200
Feet

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Colwood silt loam, 0 to 2 percent slopes

Theresa silt loam, 2 to 6 percent slopes, eroded

Mequon silt loam, 1 to 3 percent slopes

Ashkum silty clay loam, 0 to 2 percent slopes

Ashkum silty clay loam, 0 to 2 percent slopes

Colwood silt loam, 0 to 2 percent slopes

Pella silt loam, 0 to 2 percent slopes

GeoEye, Maxar

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

Project: WSH20-011-01

Legend

- Site Boundary
- Parcels
- USA Soils Map Units

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Feet

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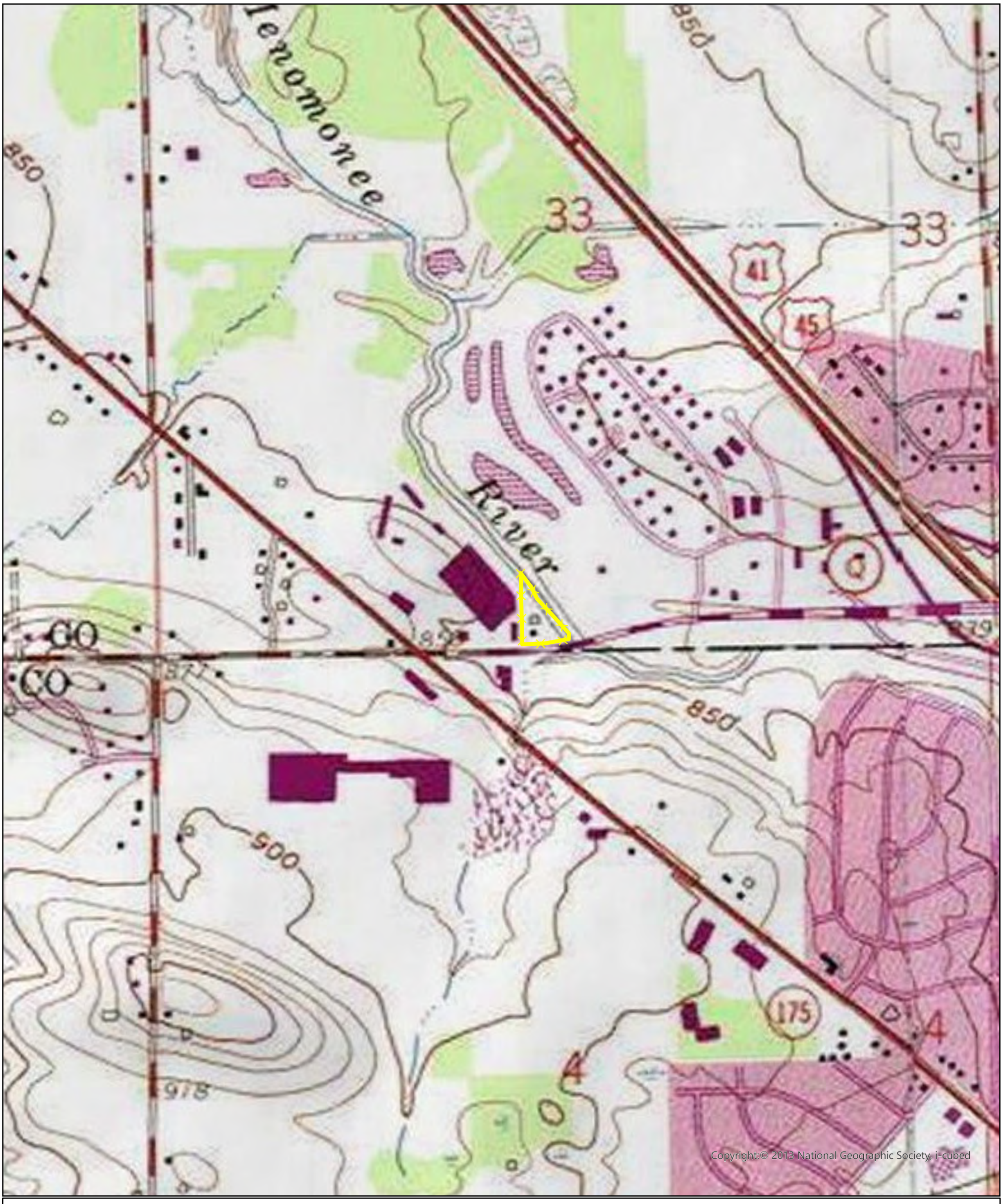

County Line Road
Quadrangle Map
N96W18058 County Line Road
Village of Germantown
Washington County, WI

Project: WSH20-011-01

Legend

Site Boundary

N
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E
S

0 300 600 1,200 Feet

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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.

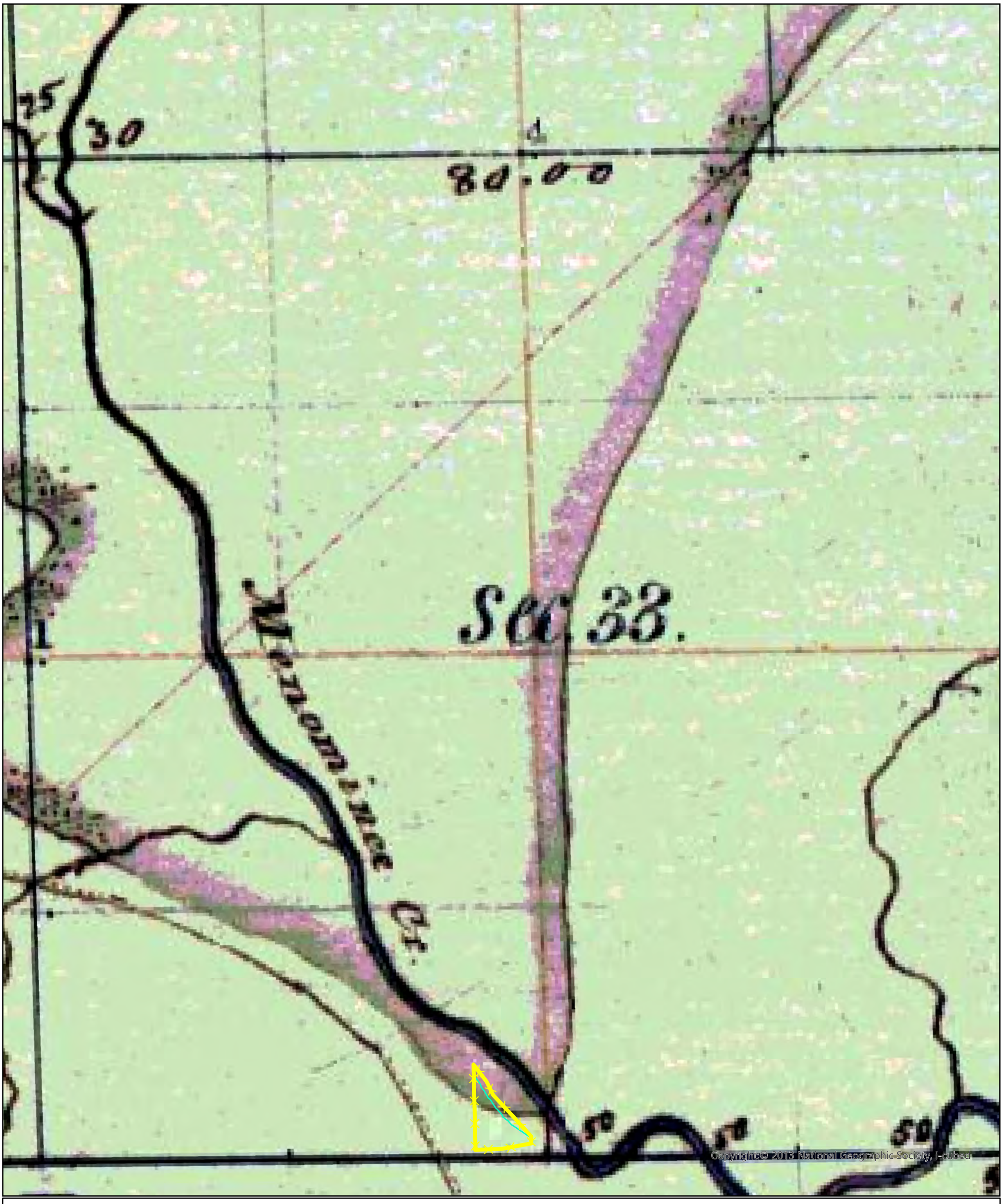
8- Standing near the northwest corner of the building.

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

N
W E
S

0 250 500 1,000
Feet

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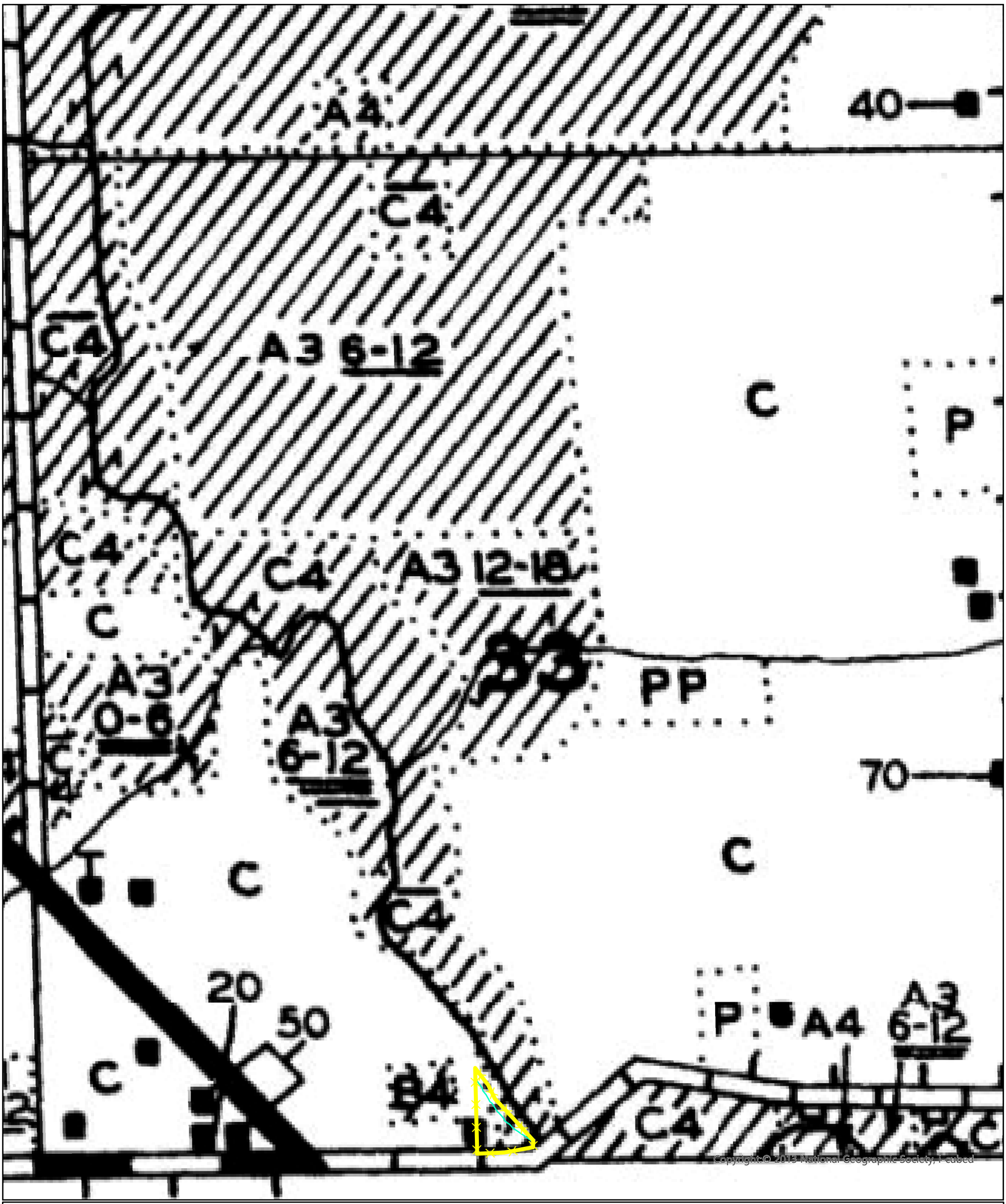
Range No. 20 E, 4th Meridian.

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

Original Survey Notes



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

Project: WSH20-011-01

Legend

Site Boundary

N
W E
S

0 250 500 1,000 Feet

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LEGEND

UPLAND FOREST
NUMERALS 1-2

LOWLAND FOREST
ALL NUMERALS 3

NON-TILLABLE
A-PP-CPP-SP-E-A4-C4-E4-▲

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

FOREST PLANTING RECOMMENDED

OPEN SWAMP
ALL NUMERALS 4

TILLABLE LAND
C-CS-P

ALL SWAMP LAND
NUMERALS 3-4

N

LAND COVER

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

ROADS

14 FEDERAL HIGHWAY 9 STATE HIGHWAY A COUNTY HIGHWAY

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

IMPROVEMENTS

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

MISCELLANEOUS SYMBOLS

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

WOODED AREAS

DENSITY OF STAND

IS INDICATED BY THE LINE OR LINES BELOW THE DIAMETER

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

DIAMETER CLASSES

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

ONE MILE

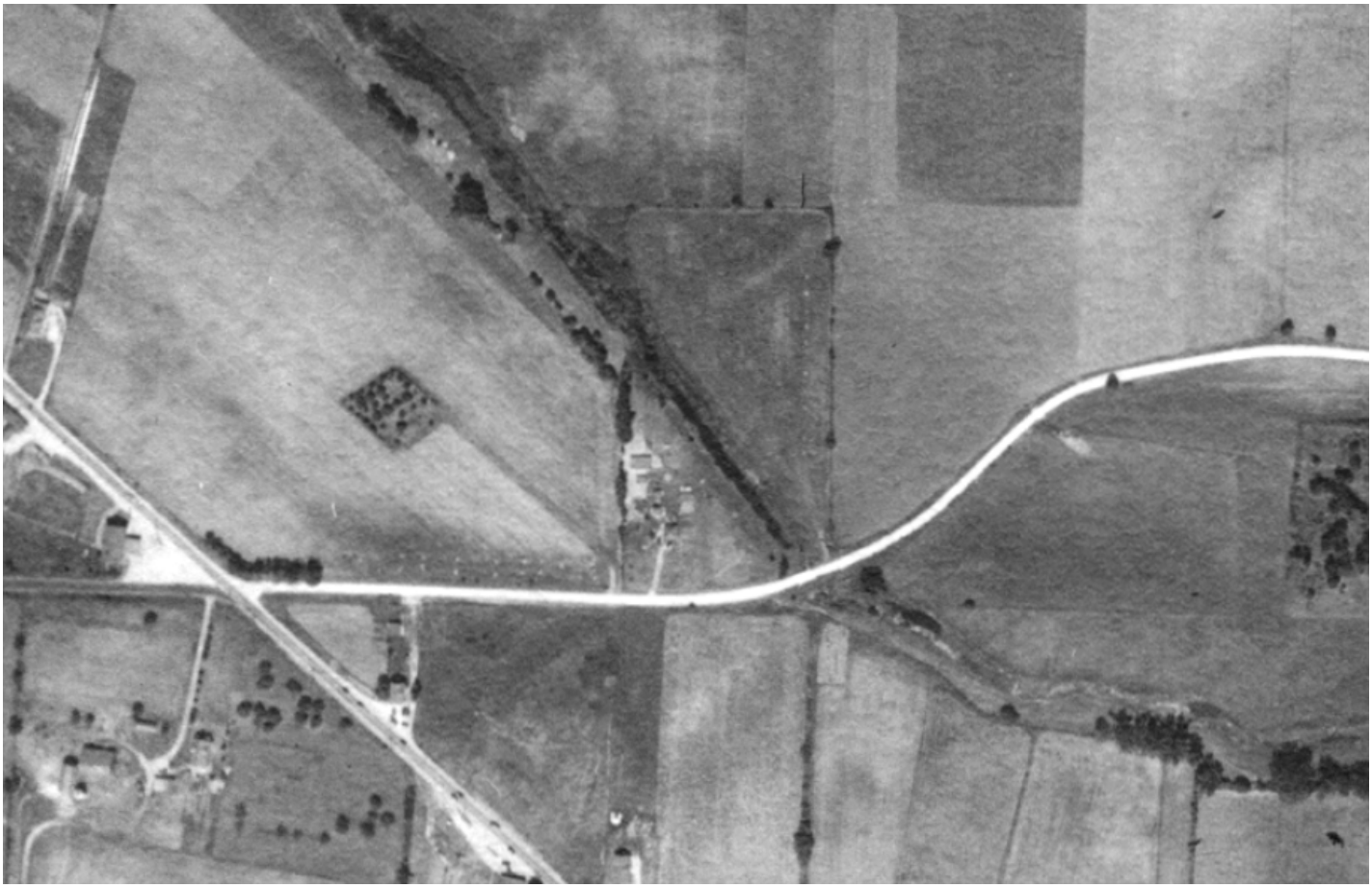
WISCONSIN STATE PLANNING BOARD — W.P.A. COOPERATING

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

Appendix D:

Historic Aerial Photographs

Site Boundary



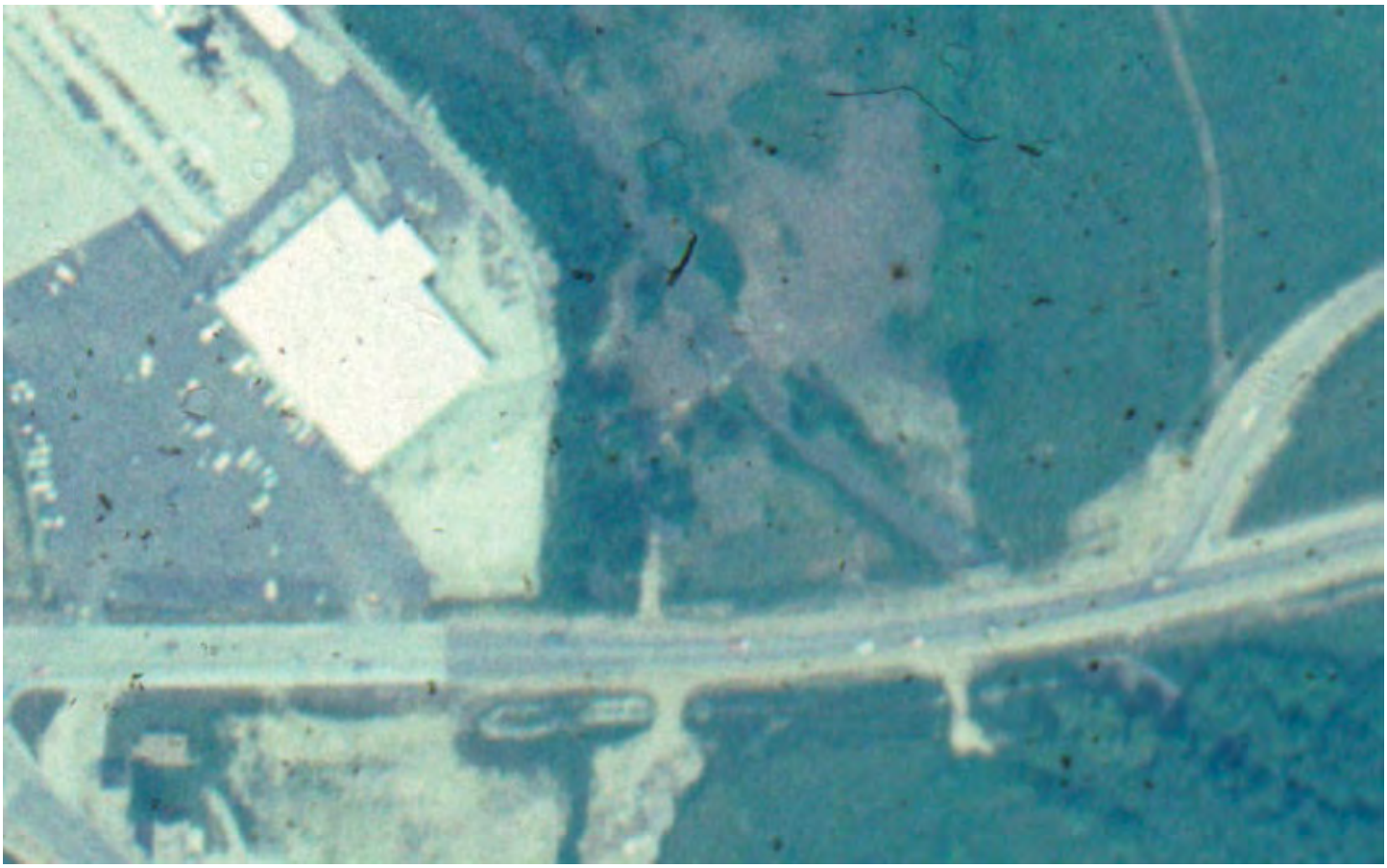
1937 Aerial Photo

1941 Aerial Photo

1950 Aerial Photo

1963 Aerial Photo

1970 Aerial Photo



1979 Aerial Photo

1980 Aerial Photo

1981 Aerial Photo

1982 Aerial Photo

1983 Aerial Photo

1984 Aerial Photo

1985 Aerial Photo

1986 Aerial Photo

1987 Aerial Photo

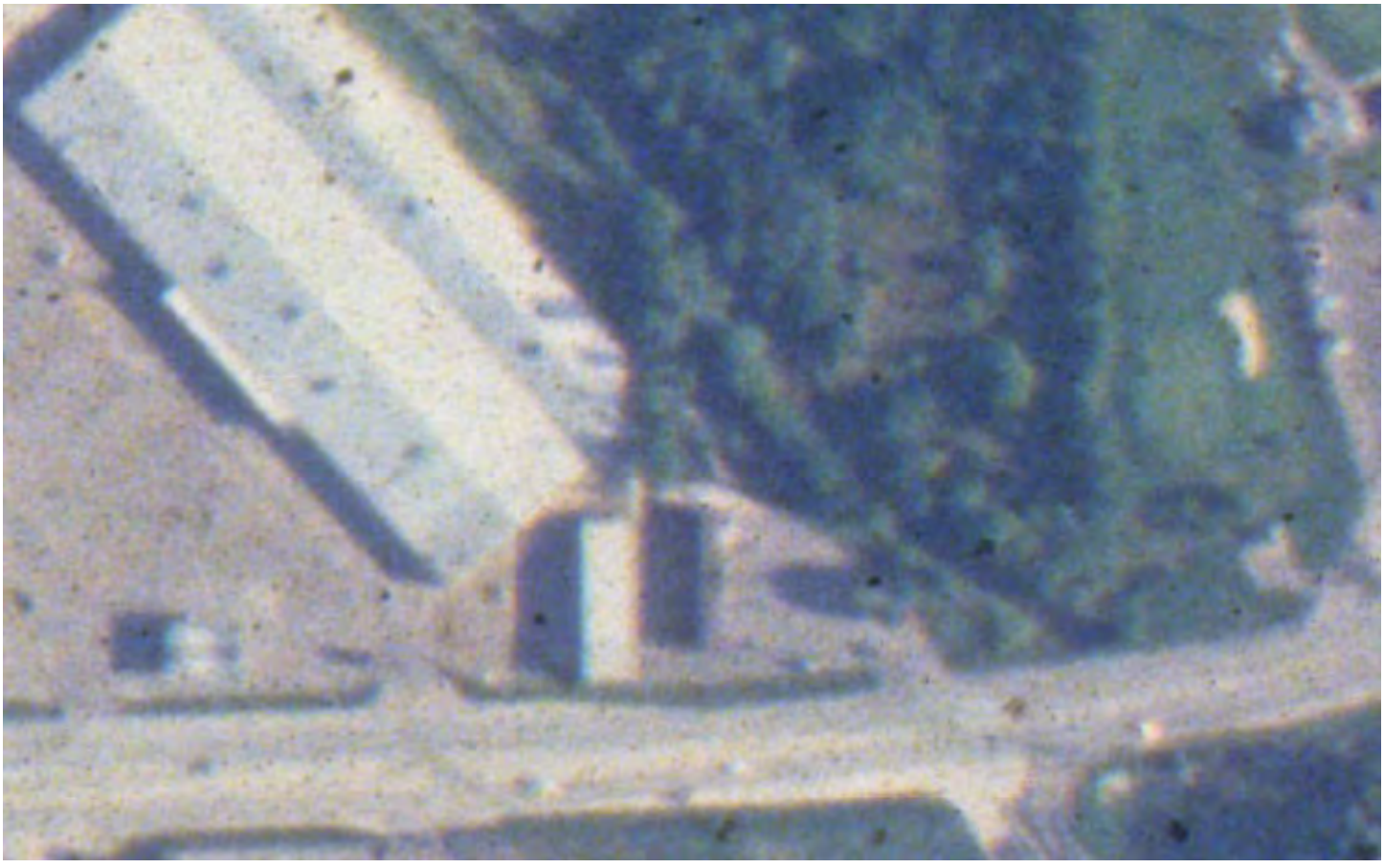
1988 Aerial Photo

1989 Aerial Photo

1990 Aerial Photo

1991 Aerial Photo

1992 Aerial Photo



1993 Aerial Photo

1994 Aerial Photo

1995 Aerial Photo

1996 Aerial Photo

1997 Aerial Photo

1998 Aerial Photo

1999 Aerial Photo

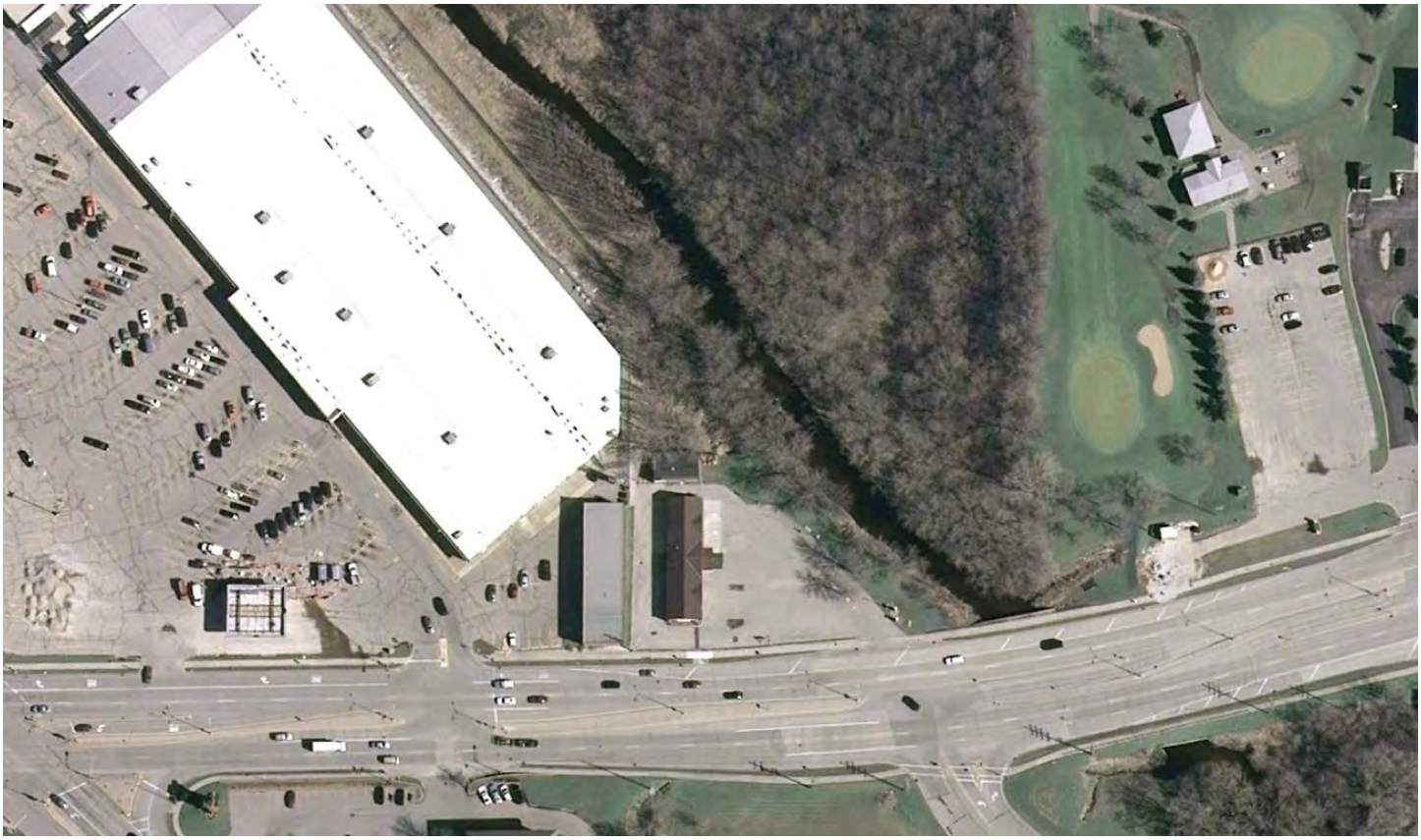
2000 Aerial Photo

2001 Aerial Photo

2002 Aerial Photo

2005 Aerial Photo

2006 Aerial Photo

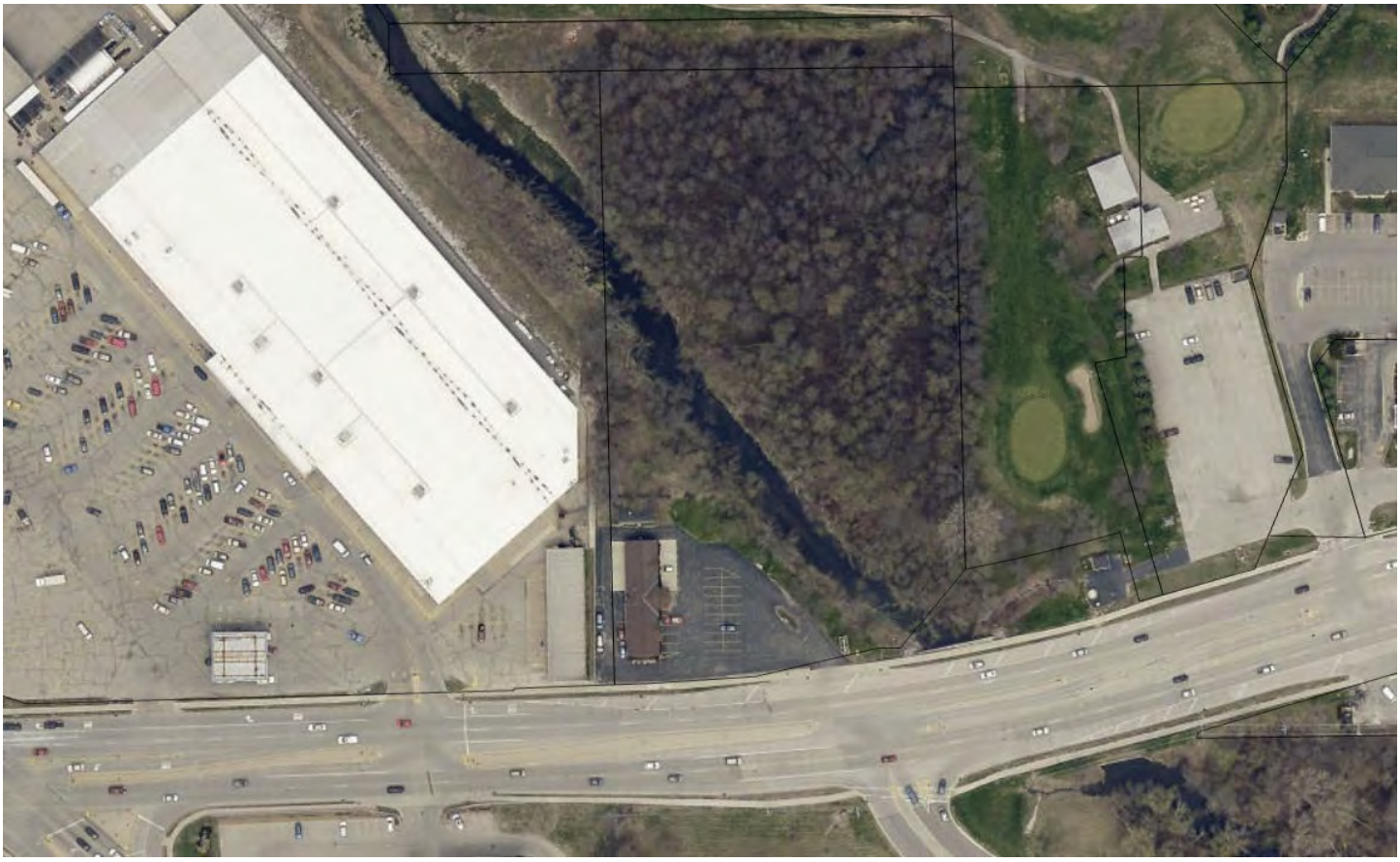


2007 Aerial Photo

2008 Aerial Photo

2010 Aerial Photo

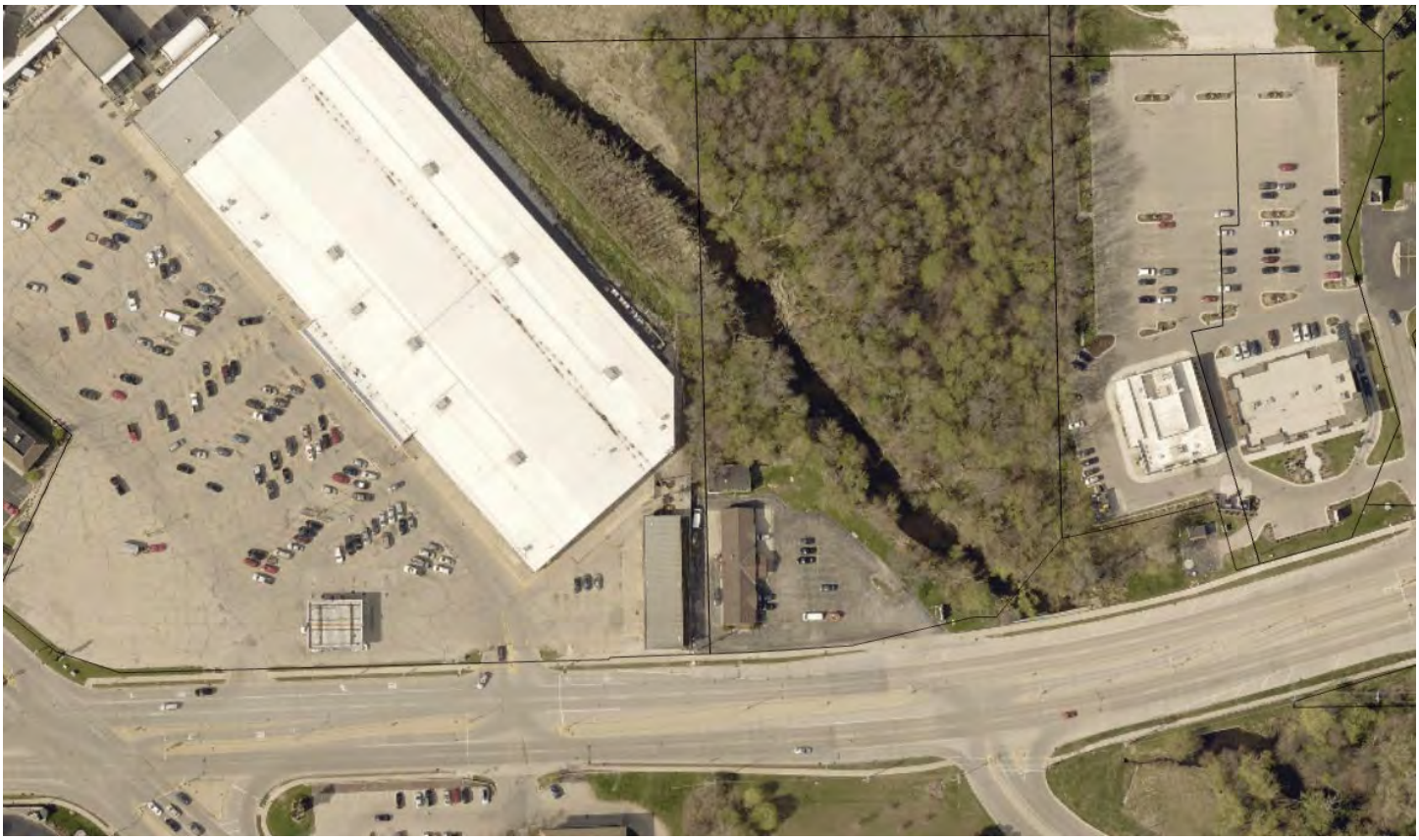
2011 Aerial Photo



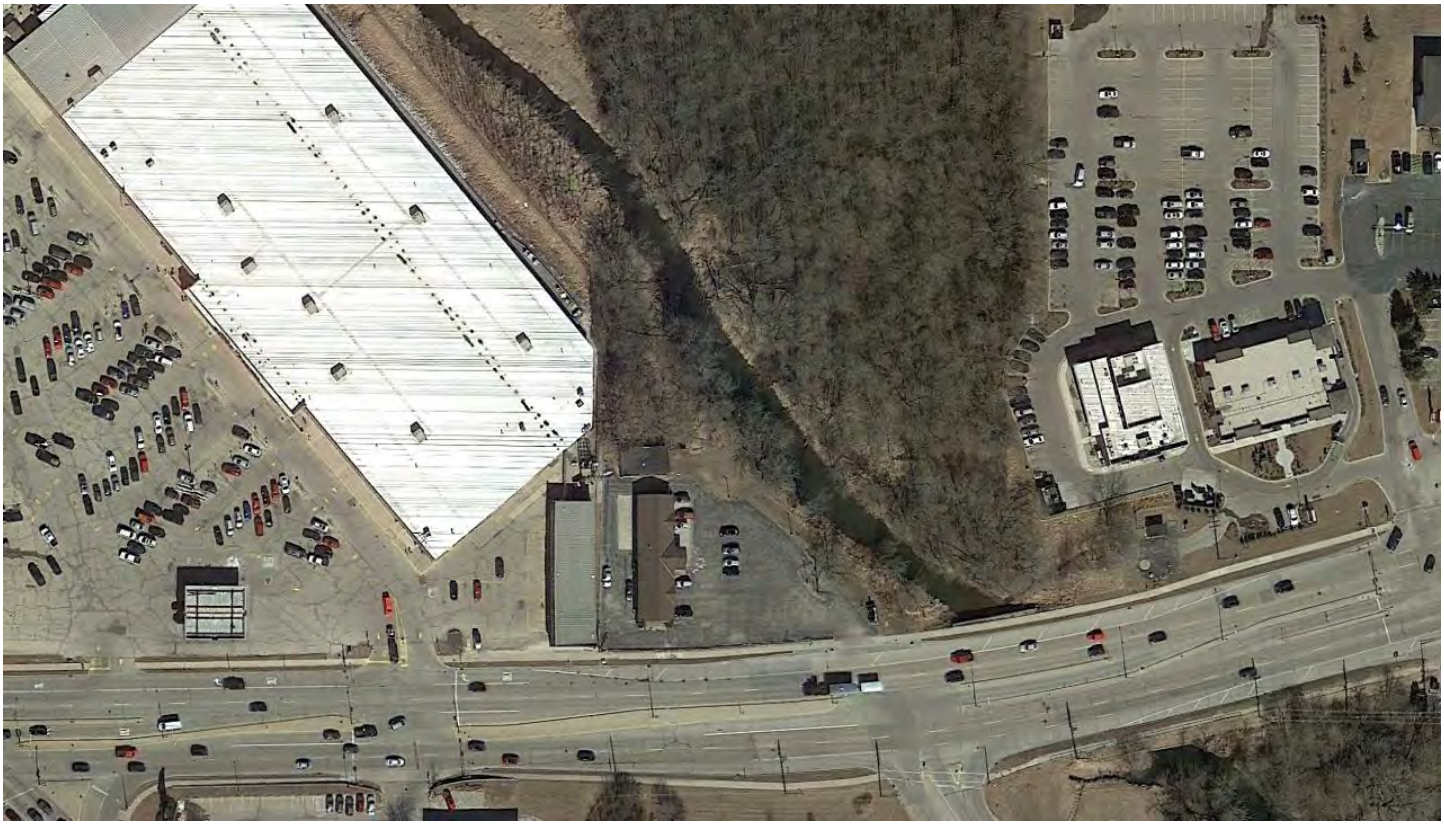
2013 Aerial Photo

2014 Aerial Photo

2015 Aerial Photo



2017 Aerial Photo



2018 Aerial Photo

Appendix E:

NRCS County Soil Survey Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

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

September 10, 2020

Preface

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

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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


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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

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

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

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

MAP LEGEND

MAP INFORMATION

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

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

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

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

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

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

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

Milwaukee and Waukesha Counties, Wisconsin

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

Map Unit Setting

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

Map Unit Composition

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

Description of Ashkum, Drained

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Peotone, drained

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

Orthents, clayey

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

Urban land

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

Cw—Colwood silt loam, 0 to 2 percent slopes

Map Unit Setting

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

Map Unit Composition

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

Description of Colwood

Setting

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

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Pella

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

Palms

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Hochheim, Eroded

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Hydric soil rating: No

Minor Components

Theresa

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

Hochheim

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

Ph—Pella silt loam, 0 to 2 percent slopes

Map Unit Setting

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

Map Unit Composition

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

Description of Pella

Setting

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

Typical profile

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

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Kendall

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

Lamartine

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

Palms, muck

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

Washington County, Wisconsin

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

Map Unit Setting

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

Map Unit Composition

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

Description of Ashkum, Drained

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Peotone, drained

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

Orthents, clayey

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

Urban land

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

Cw—Colwood silt loam, 0 to 2 percent slopes

Map Unit Setting

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

Map Unit Composition

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

Description of Colwood

Setting

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

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Pella

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

Palms

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Hochheim, Eroded

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Hydric soil rating: No

Minor Components

Hochheim

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

Theresa

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

MtA—Mequon silt loam, 1 to 3 percent slopes

Map Unit Setting

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

Map Unit Composition

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

Description of Mequon

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Ashkum

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Theresa, Eroded

Setting

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

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Hochheim, eroded

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

Lamartine

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

Soil Information for All Uses

Soil Reports

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

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

Land Classifications

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

Hydric Rating by Map Unit (WI)

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

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

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

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

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

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

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

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

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

References:

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

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

Report—Hydric Rating by Map Unit (WI)

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

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

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

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

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

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

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

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

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

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

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

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

Hydric Soil List - All Components

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

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

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

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

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

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

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

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

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

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

References:

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

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

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

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

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

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

Report—Hydric Soil List - All Components

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

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

Hydric Soils

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

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

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

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

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

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

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

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

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

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

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

References:

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
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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.
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Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

Report—Hydric Soils

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

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

Taxonomic Classification of the Soils

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

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

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

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

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

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

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

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

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

Report—Taxonomic Classification of the Soils

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

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

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

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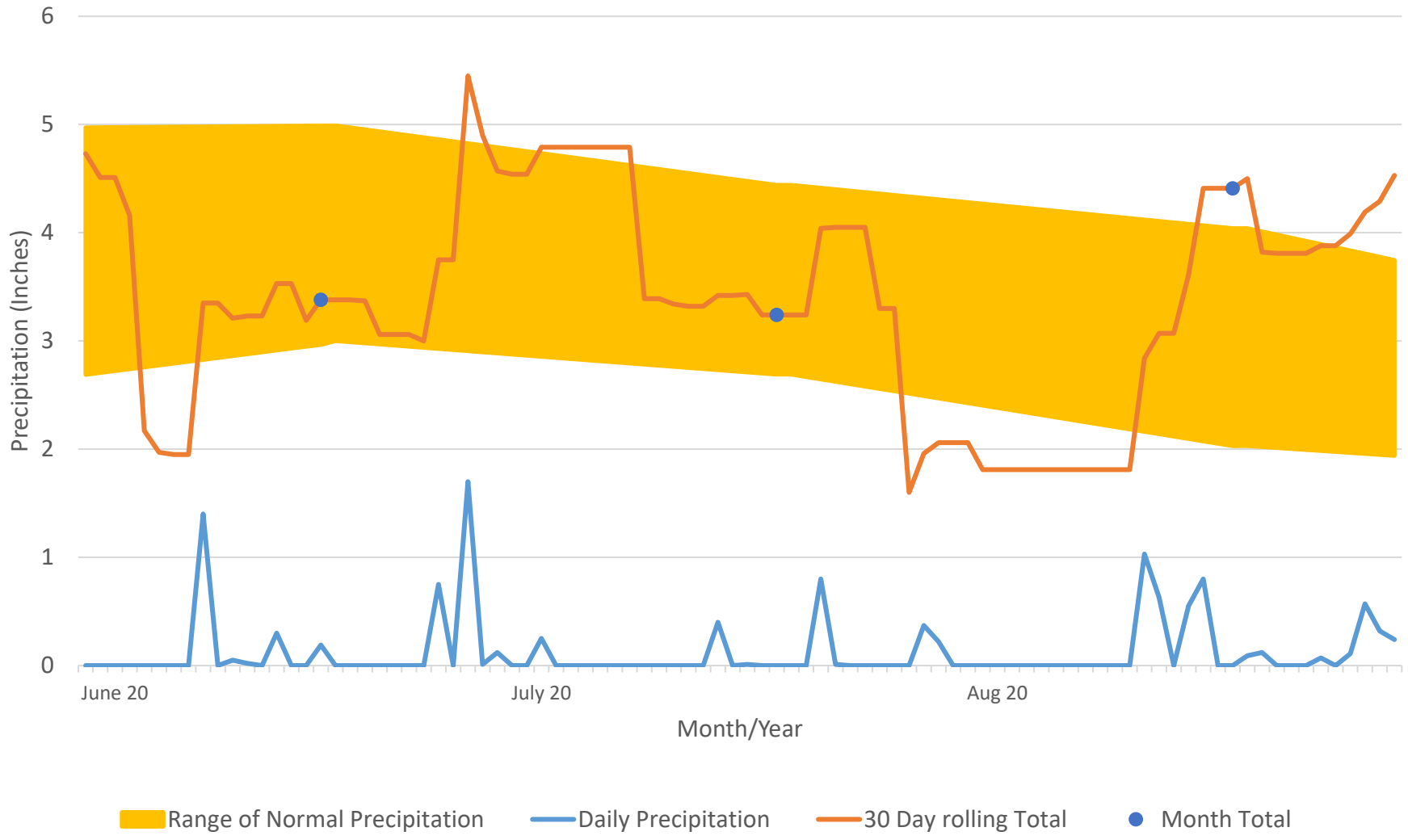
Appendix F:

Precipitation Information

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



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

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

shaded cells are locked or calculated

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

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

*compared to photo/observation date

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

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

Conclusions: **prior period has been normal**

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

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

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

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

Appendix G:

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

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

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

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

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

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

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

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

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

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

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

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

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

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

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

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

Field Observations:

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

Wetland Hydrology Present? Yes (●) No ( )

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

Remarks:

This area most likely floods during high water periods.

VEGETATION - Use scientific names of plants

Sampling Point: T1A

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 2.303

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

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

Soil

Sampling Point: T1A

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

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

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils : [3]

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

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

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

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

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

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

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

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

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

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

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

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

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

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

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

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

Field Observations:

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

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

Remarks:

Area drains east to the stream.

VEGETATION - Use scientific names of plants

Sampling Point: T1B

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 3.463

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ○ No ◉

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

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

Soil

Sampling Point: T1B

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

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

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils : [3]

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

This area was most likely filled.

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

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

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

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

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

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

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

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

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

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

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

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

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

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

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

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

Field Observations:

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

Wetland Hydrology Present? Yes (●) No ( )

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

Remarks:

Flood water reaches this area during high water times.

VEGETATION - Use scientific names of plants

Sampling Point: T2A

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

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

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

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 2.400

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

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

Soil

Sampling Point: T2A

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

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

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils : [3]

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

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

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

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

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

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

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

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

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

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

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

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

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

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

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

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

Field Observations:

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

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

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: T2B

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

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

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

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

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 3.143

Hydrophytic Vegetation Indicators:

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

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

Definitions of Vegetation Strata:

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

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

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

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

Hydrophytic Vegetation Present? Yes ◉ No ○

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

This area is almost completely shaded out by Rhamnus cathartica.

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

Soil

Sampling Point: T2B

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

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

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils : [3]

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

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

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

STORM WATER, EROSION CONTROL, & WETLAND SETBACK MITIGATION NARRATIVE
FOR:
NEW TACO BELL-SUNDANCE, INC
VILLAGE OF GERMANTOWN, WI

October 5, 2020
REVISED: February 22, 2021

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

Table of Contents

Project Overview

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

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

Post Construction Stormwater Management Summary:

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

Village of Germantown/MMSD: The proposed site development is exempt from meeting the requirements of MMSD Chapter 13 due to the site reducing overall impervious land cover and disturbing less than 2 acres of land during construction/redevelopment. The proposed development site will reduce total impervious land cover by 3,034 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:

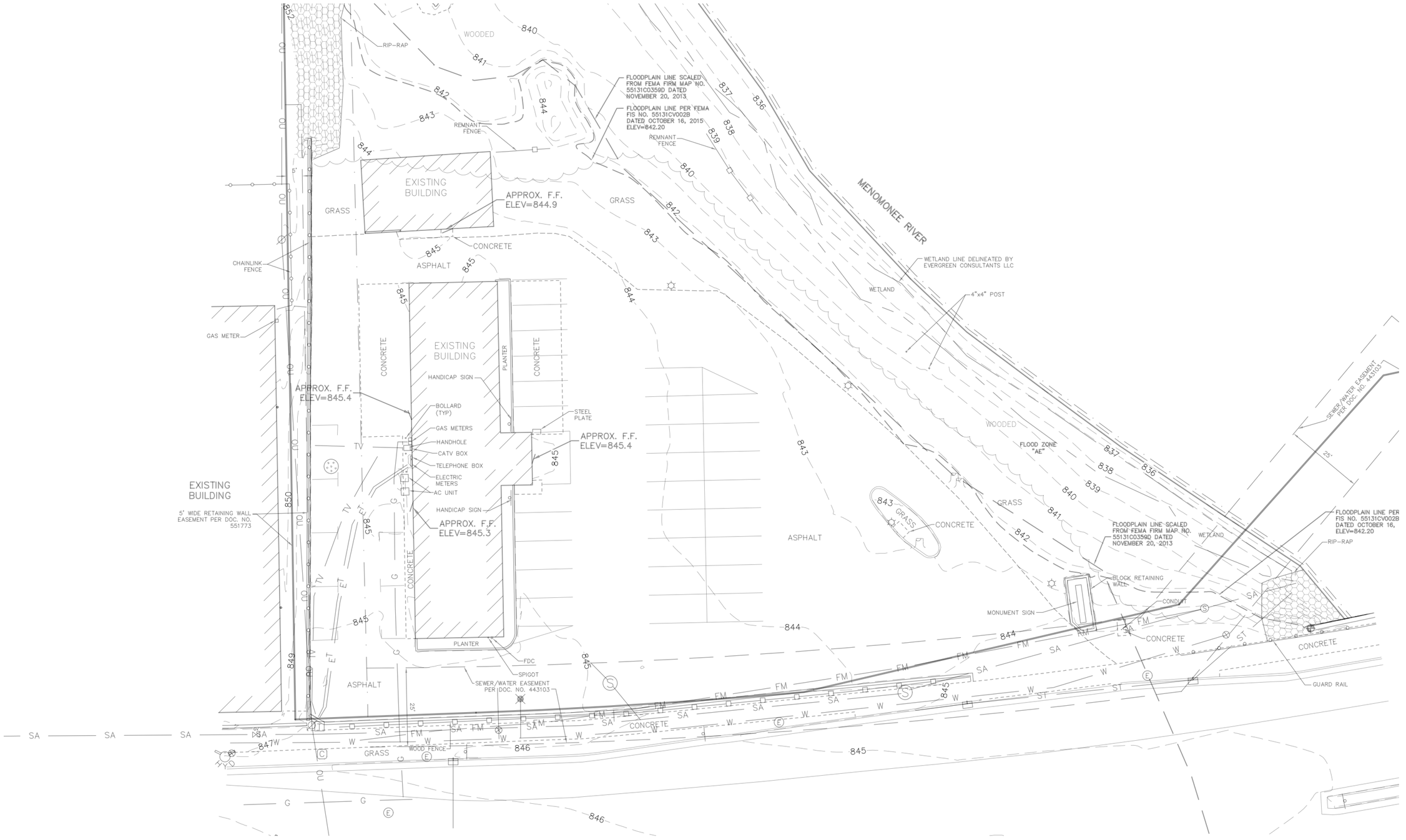
All onsite storm sewer has been designed to safely convey the 100- year storm event based on TR- 55 methods. Proposed storm sewer capacity was verified by utilizing a Manning's equation calculation spreadsheet for full flowing pipes. In addition, overland flow routes are provided onsite for any event 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:



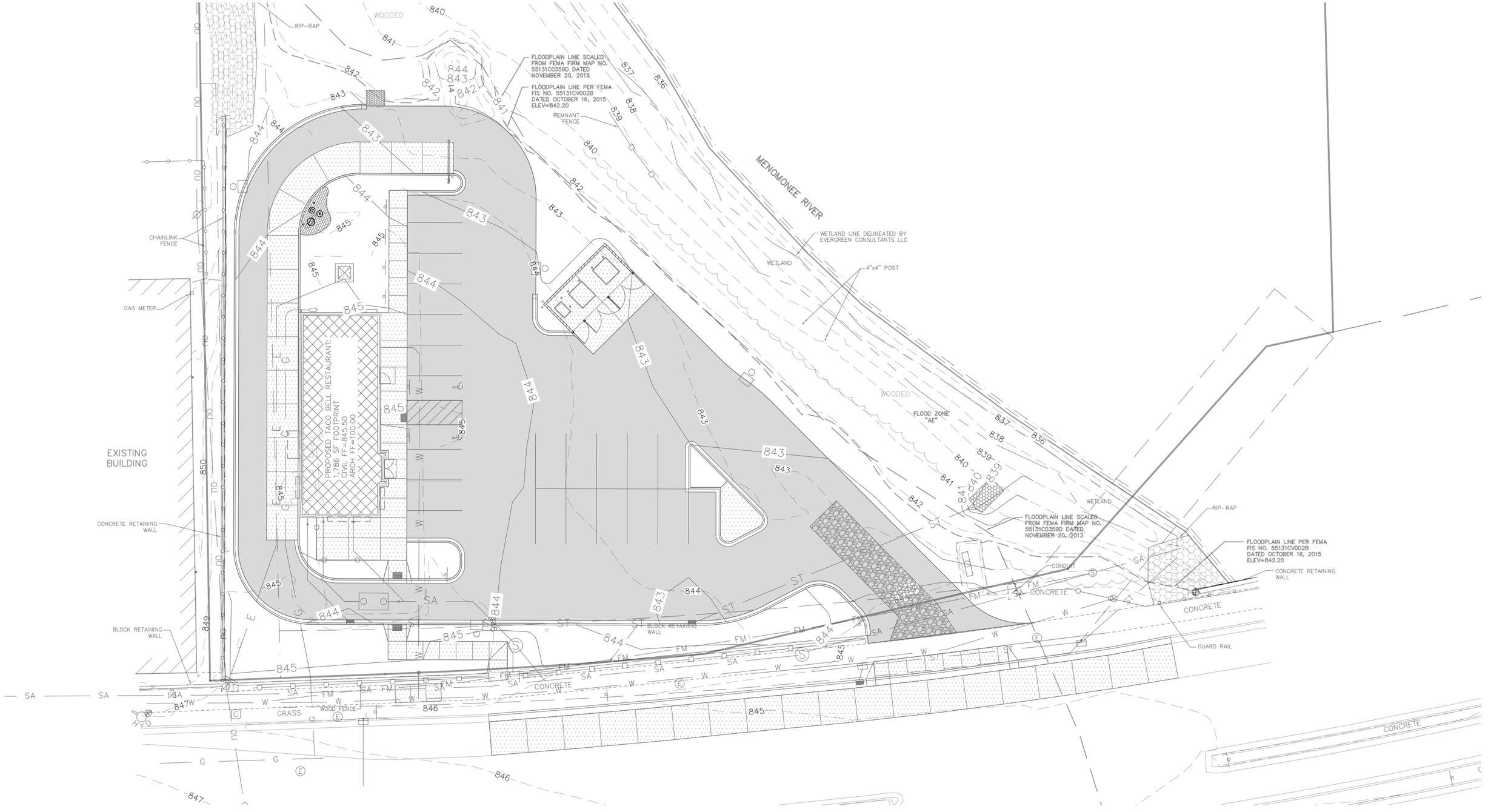
EXISTING SITE MAP

NORTH

1"= 30'

30' 0 30' 60'

SCALE FEET



PROPOSED SITE MAP

NORTH

1"= 30'

SCALE

30' 0 30' 60'

FEET

Appendix B
Post Construction Operation & Maintenance:

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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:

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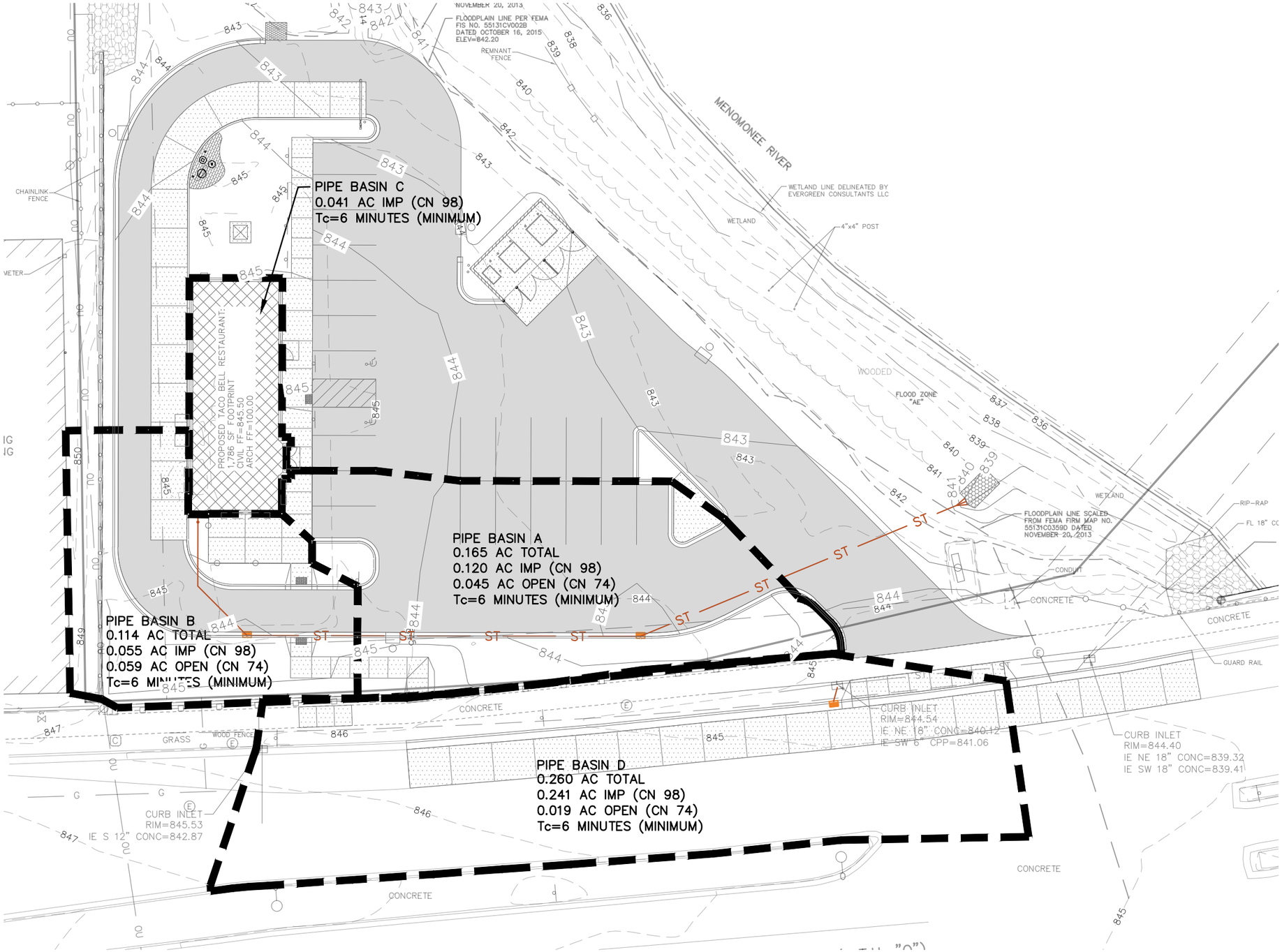


STORM SEWER BASIN MAP

NORTH

1"= 30'

30' 0 30' 60'

SCALE FEET

Hydrograph Return Period Recap

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

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	-------	-------	-------	0.784	-------	-------	1.417	PIPE BASIN A
2	SCS Runoff	------	-------	-------	-------	-------	0.468	-------	-------	0.908	PIPE BASIN B
3	SCS Runoff	------	-------	-------	-------	-------	0.227	-------	-------	0.383	PIPE BASIN C
4	SCS Runoff	------	-------	-------	-------	-------	1.408	-------	-------	2.408	PIPE BASIN D

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

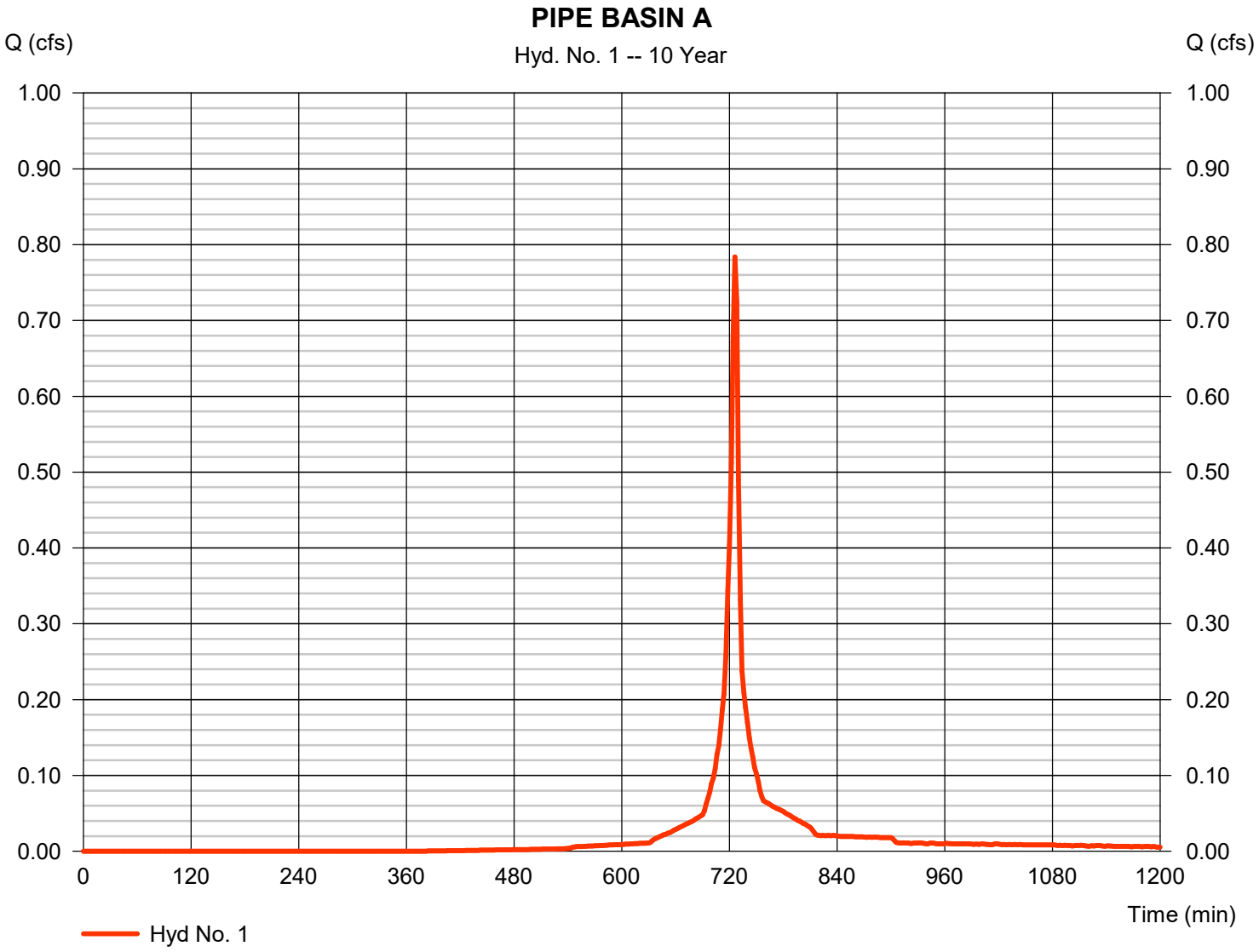
Hydrograph Report

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	Shape factor	=	484

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



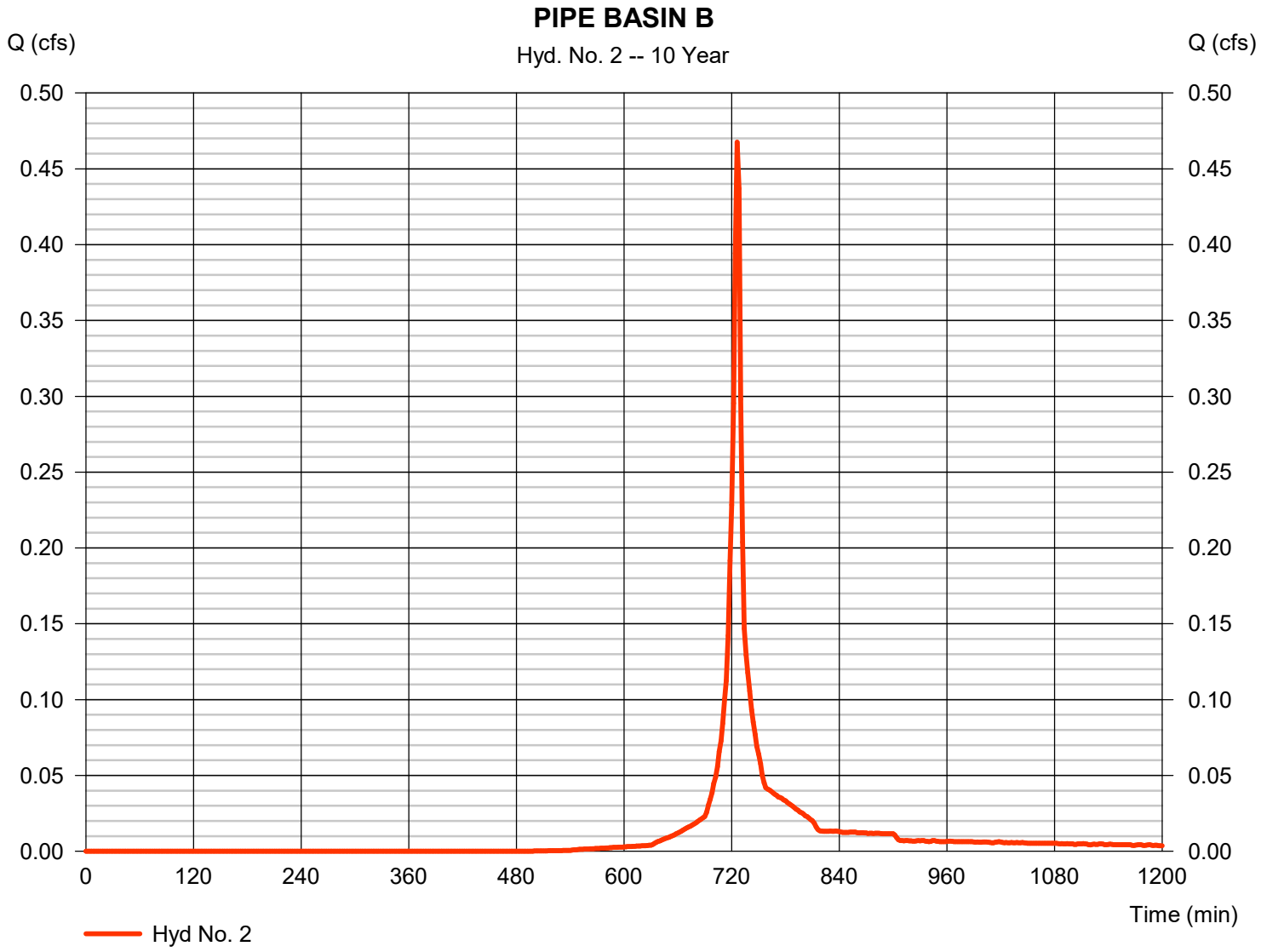
Hydrograph Report

Hyd. No. 2

PIPE BASIN B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.468 cfs
Storm frequency	=	10 yrs	Time to peak	=	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	Shape factor	=	484

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

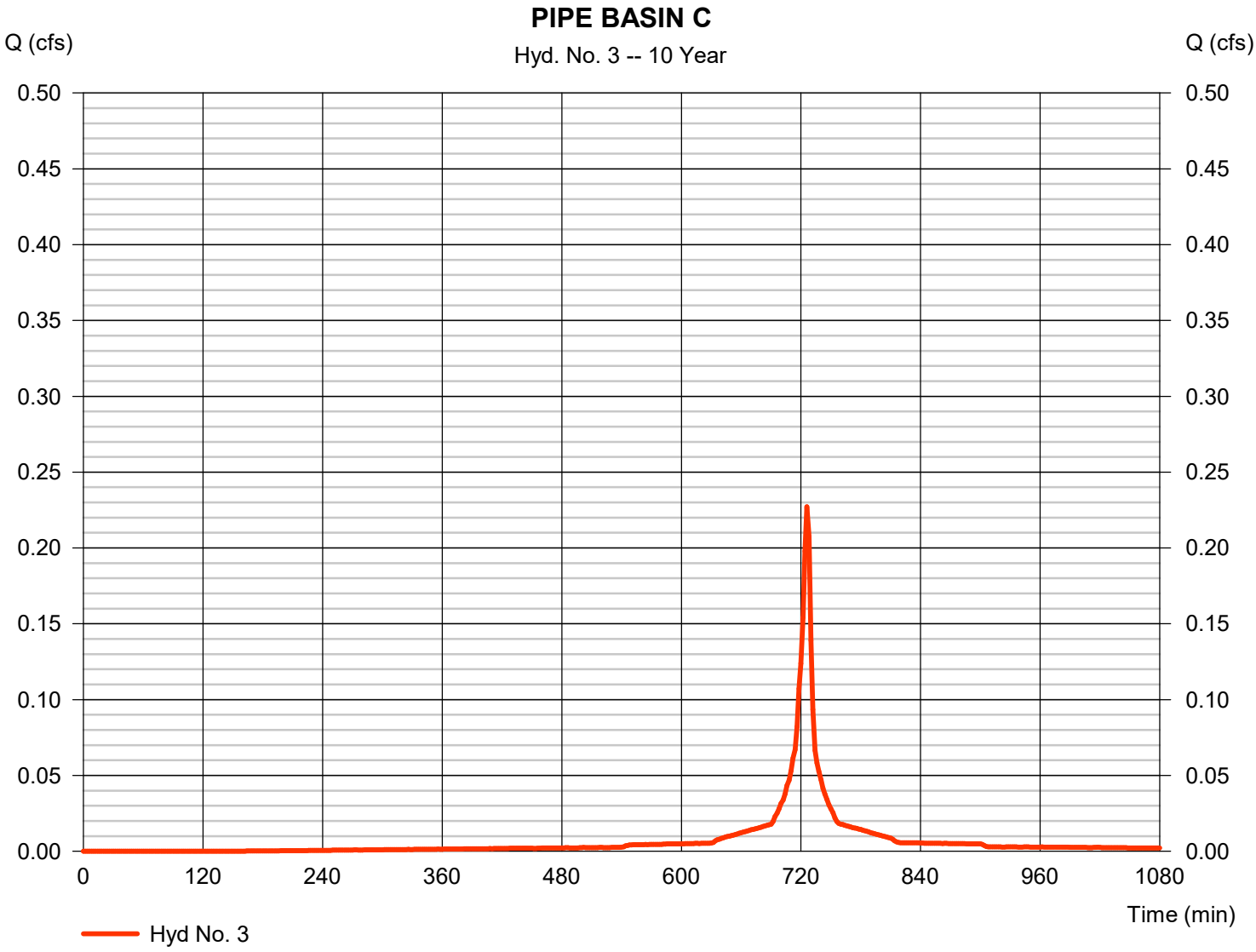


Hydrograph Report

Hyd. No. 3

PIPE BASIN C

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.227 cfs
Storm frequency	=	10 yrs	Time to peak	=	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	Shape factor	=	484



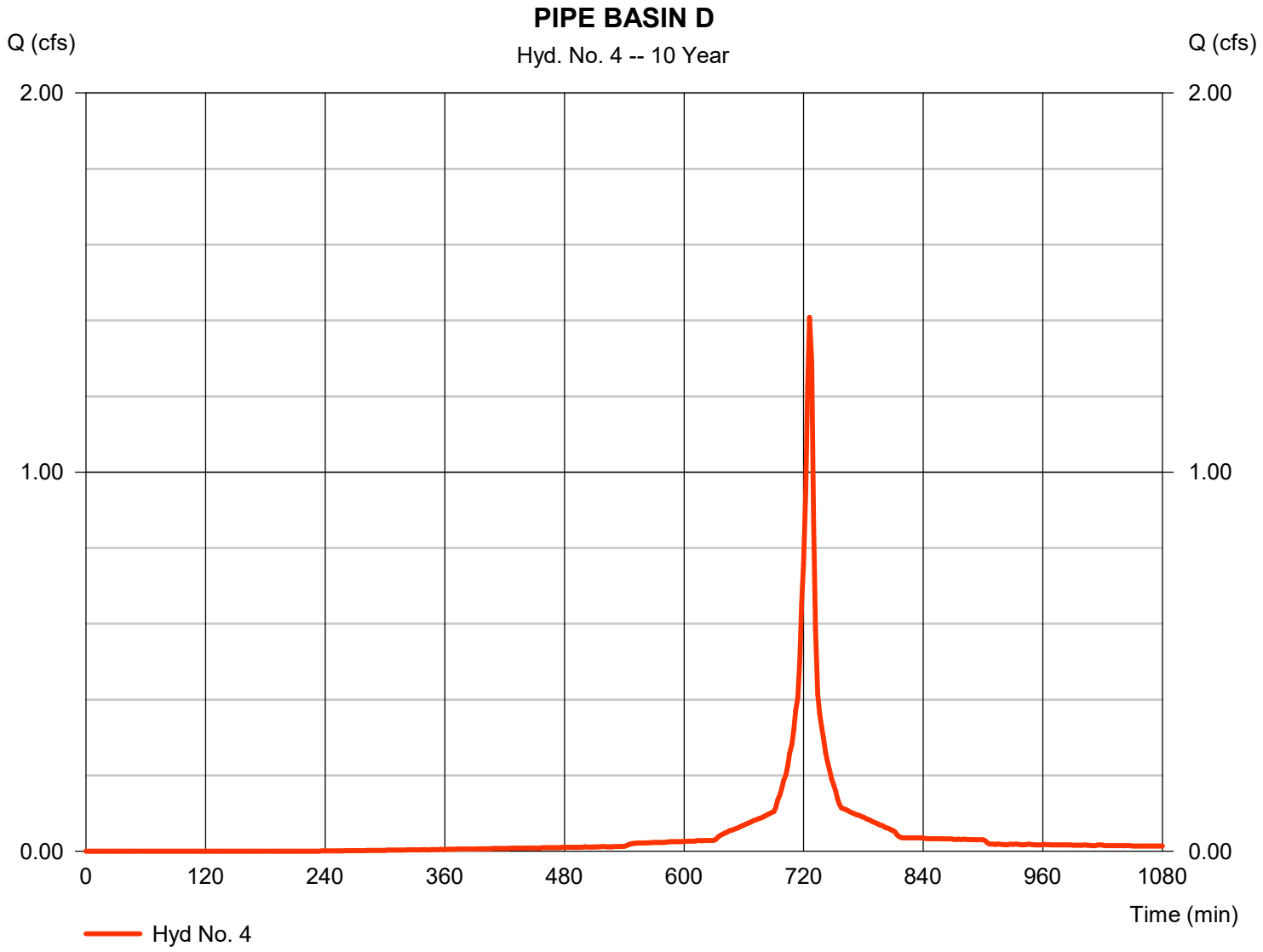
Hydrograph Report

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	Shape factor	=	484

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

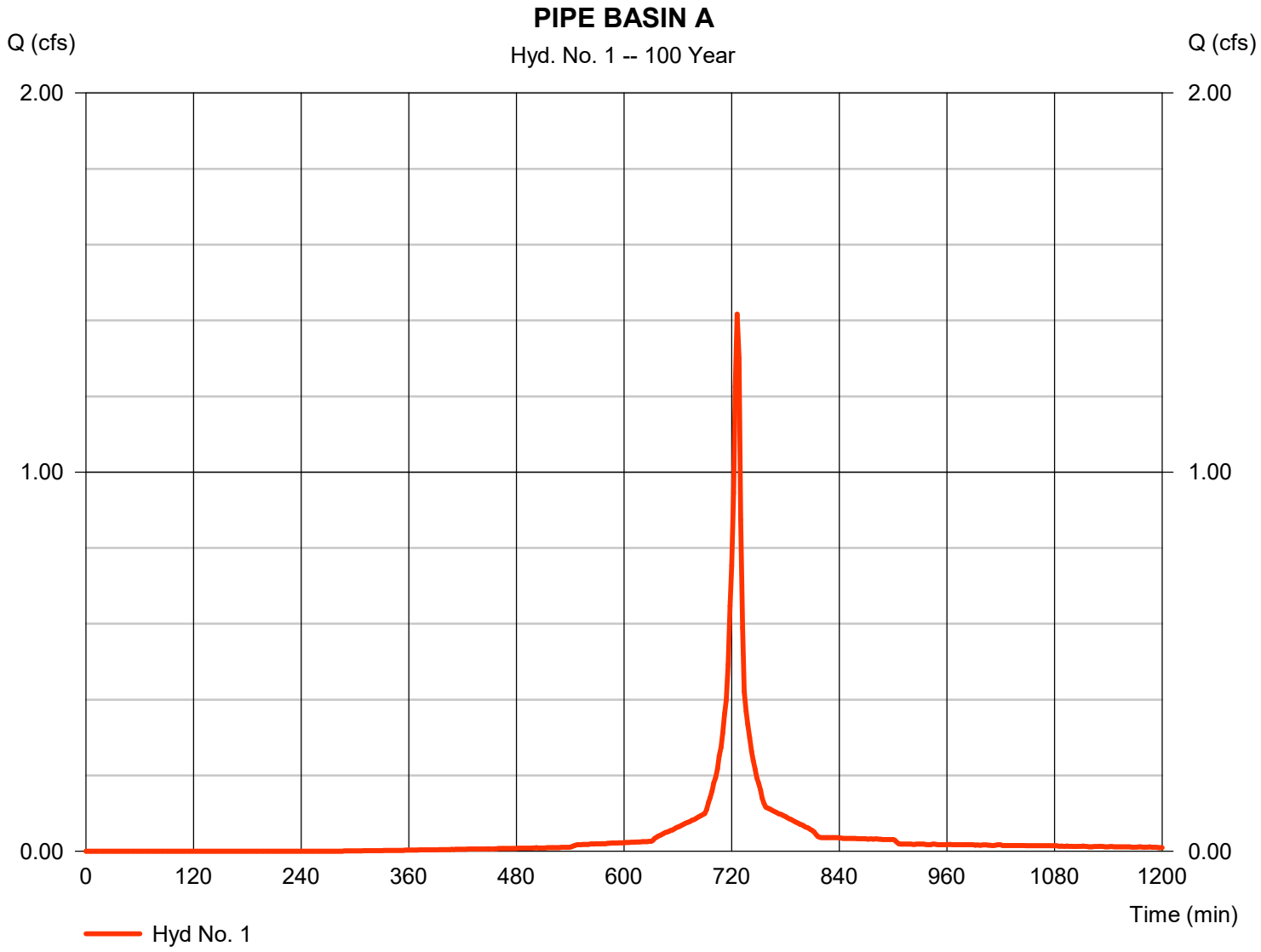
Hydrograph Report

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	Shape factor	=	484

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



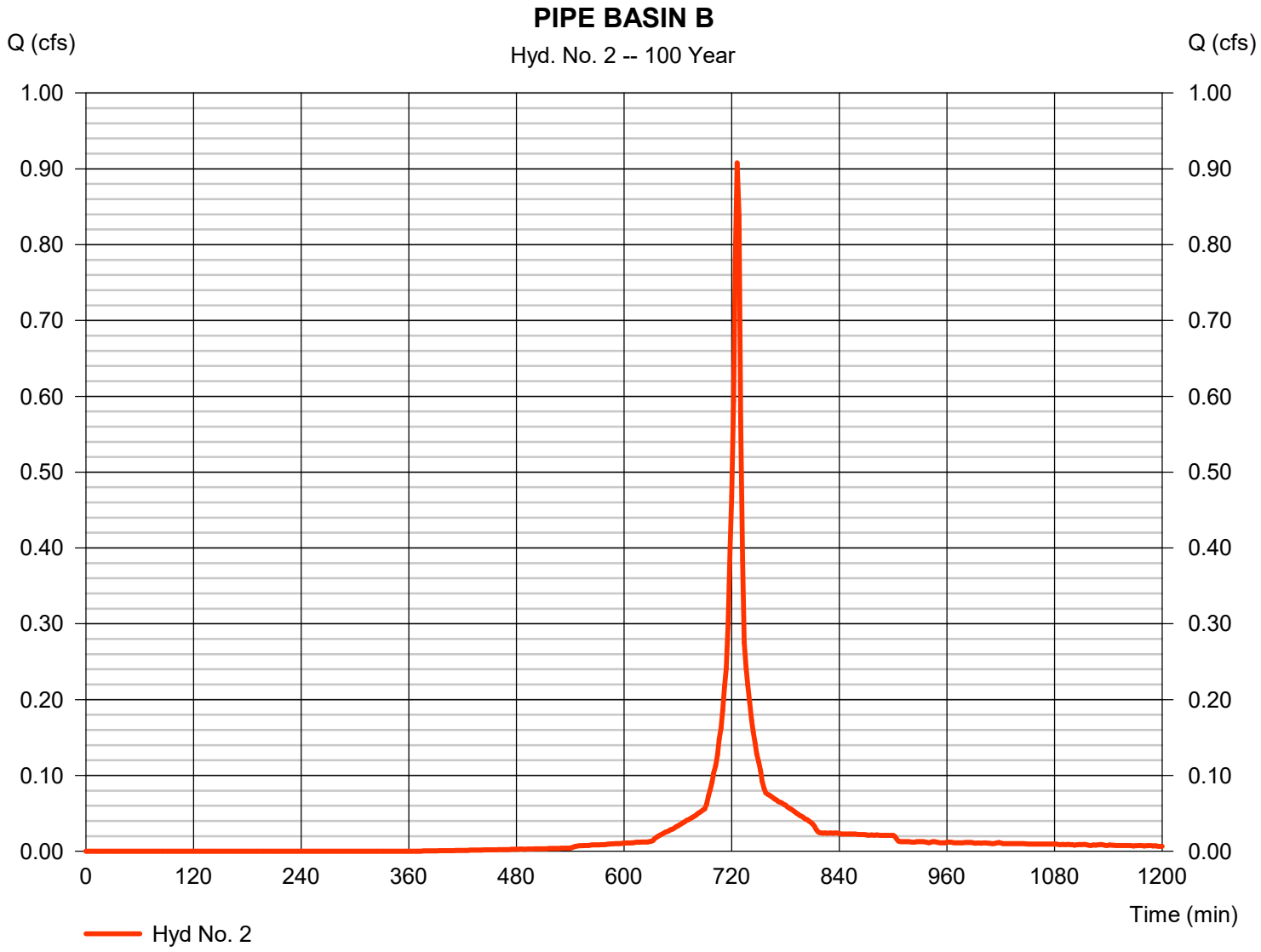
Hydrograph Report

Hyd. No. 2

PIPE BASIN B

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.908 cfs
Storm frequency	=	100 yrs	Time to peak	=	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	Shape factor	=	484

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

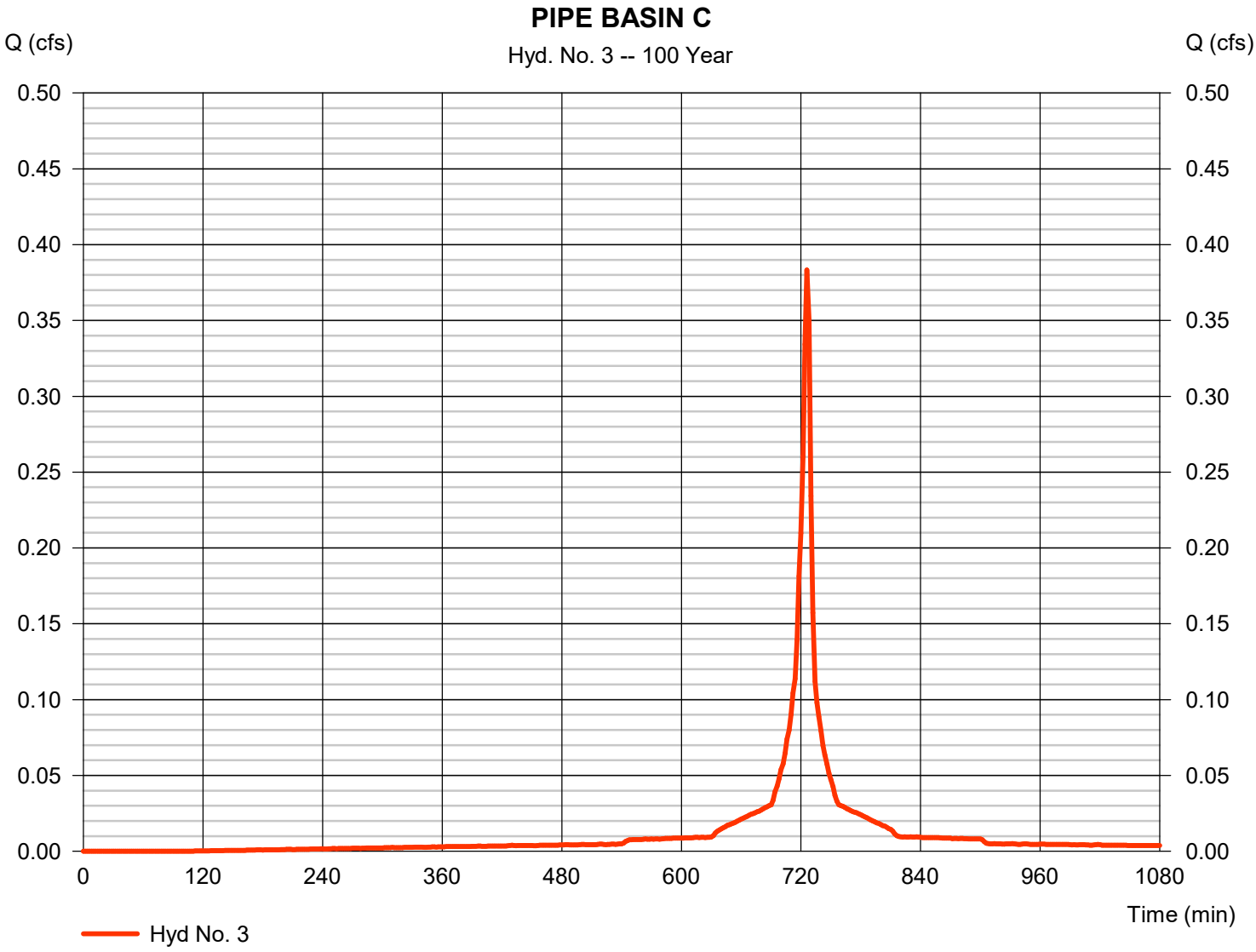


Hydrograph Report

Hyd. No. 3

PIPE BASIN C

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.383 cfs
Storm frequency	=	100 yrs	Time to peak	=	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	Shape factor	=	484



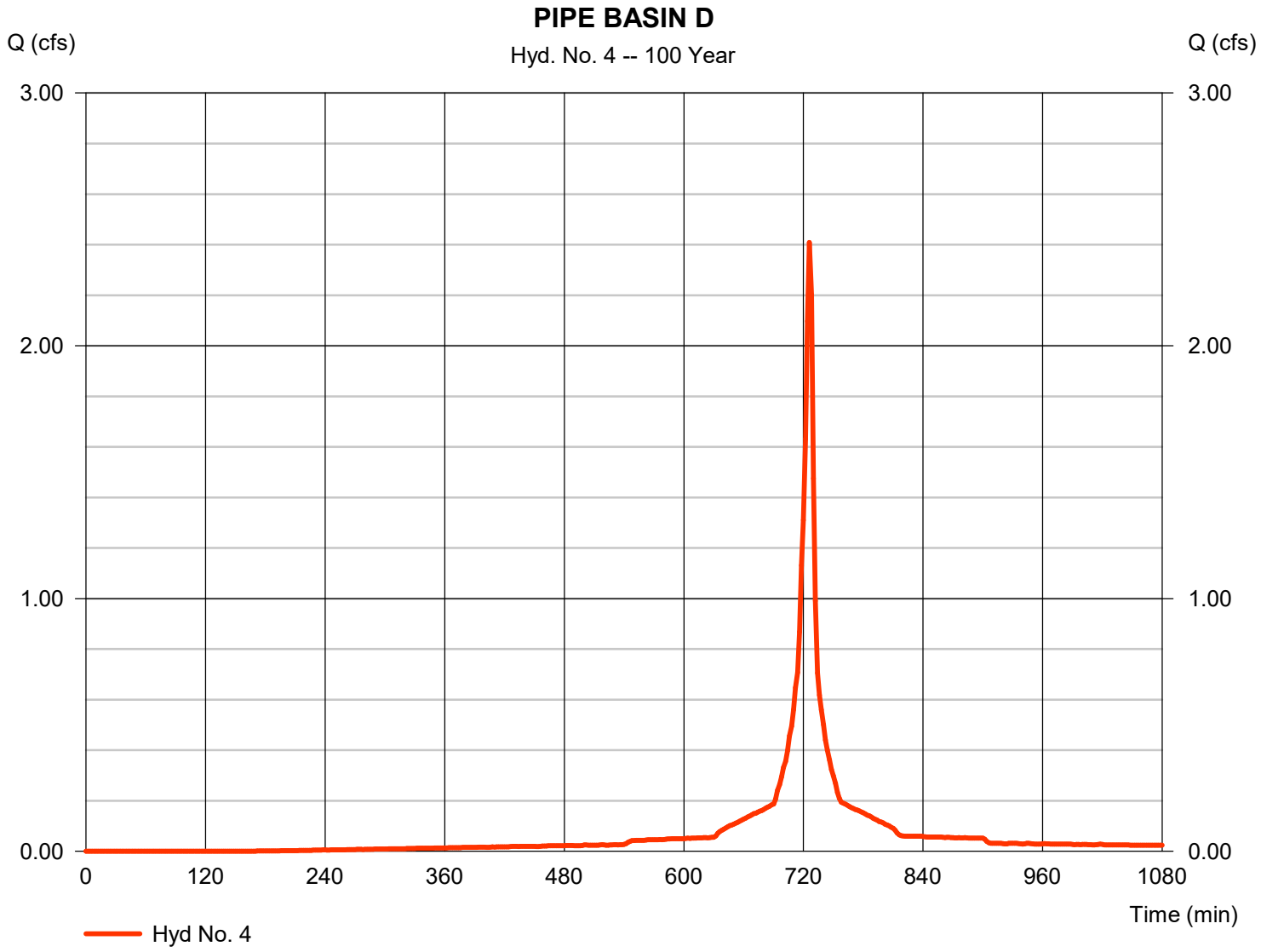
Hydrograph Report

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	Shape factor	=	484

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



Hydraflow Rainfall Report

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

File name: IL SECT. 1 RAINFALL_100 YR.IDF

Intensity = B / (Tc + D)^E

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

Tc = time in minutes. Values may exceed 60.

Precip. file name: Sample.pcp

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

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 $Q = \frac{1.49}{n} R^{2/3} S^{1/2} a$

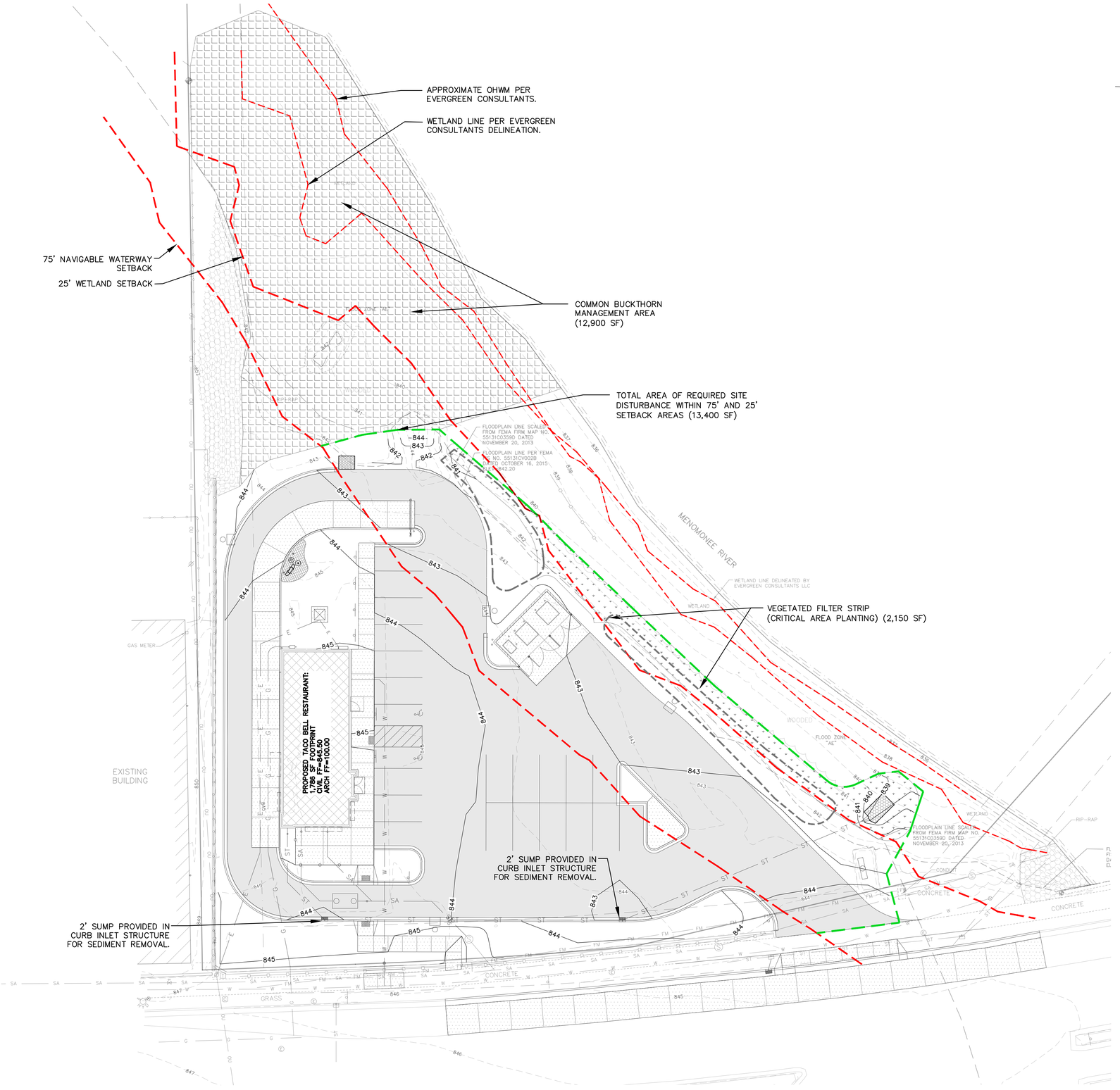
Where: Q = Full Flow Capacity of Pipe (cfs)
n = manning's roughness coefficient
R = hydraulic radius (ft) (D/4)
s = hydraulic gradient, slope (ft/ft)
a = flow area (sq. ft.)

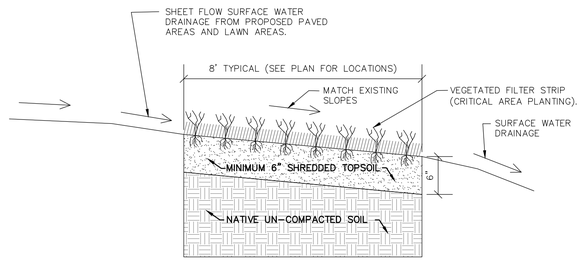
Typical Manning's n

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	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

NORTH

1"= 20' SCALE — 20' 0 20' 40' FEET

EXHIBIT A: WETLAND SETBACK/NAVIGABLE WATERWAY SETBACK MITIGATION PLAN

EXCEL
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

NOT FOR CONSTRUCTION

JOB NUMBER
2005200

SHEET NUMBER
EX. A

Appendix E
Soil Maps:

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

N

Meters
0 5 10 20 30

Feet
0 25 50 100 150

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

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

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

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

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

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

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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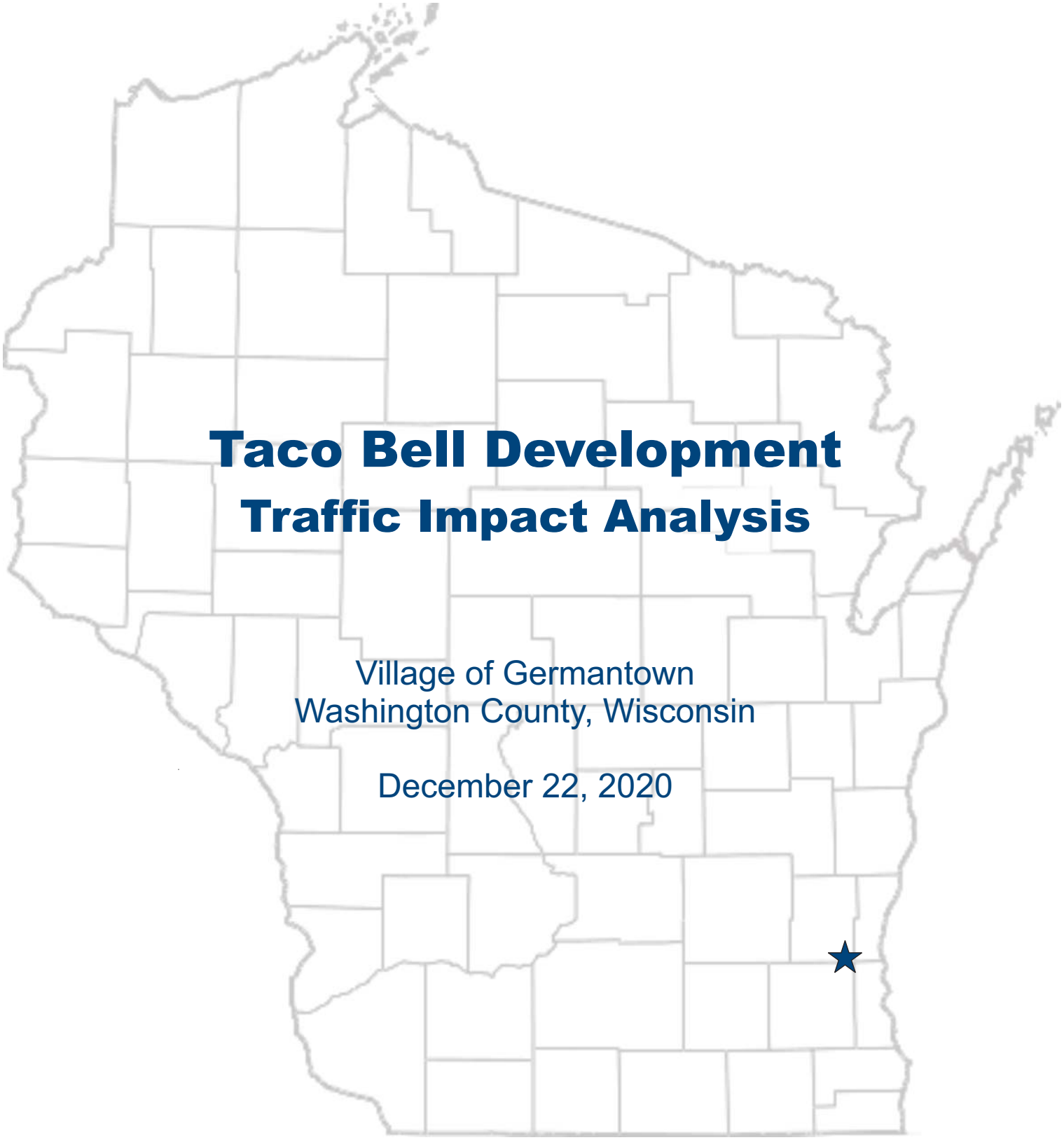
P.O. Box 128
Cedarburg, WI 53012
800.605.3091
www.tadi-us.com



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
Table of Contents

LIST OF EXHIBITS

LIST OF APPENDICES

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 a 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.

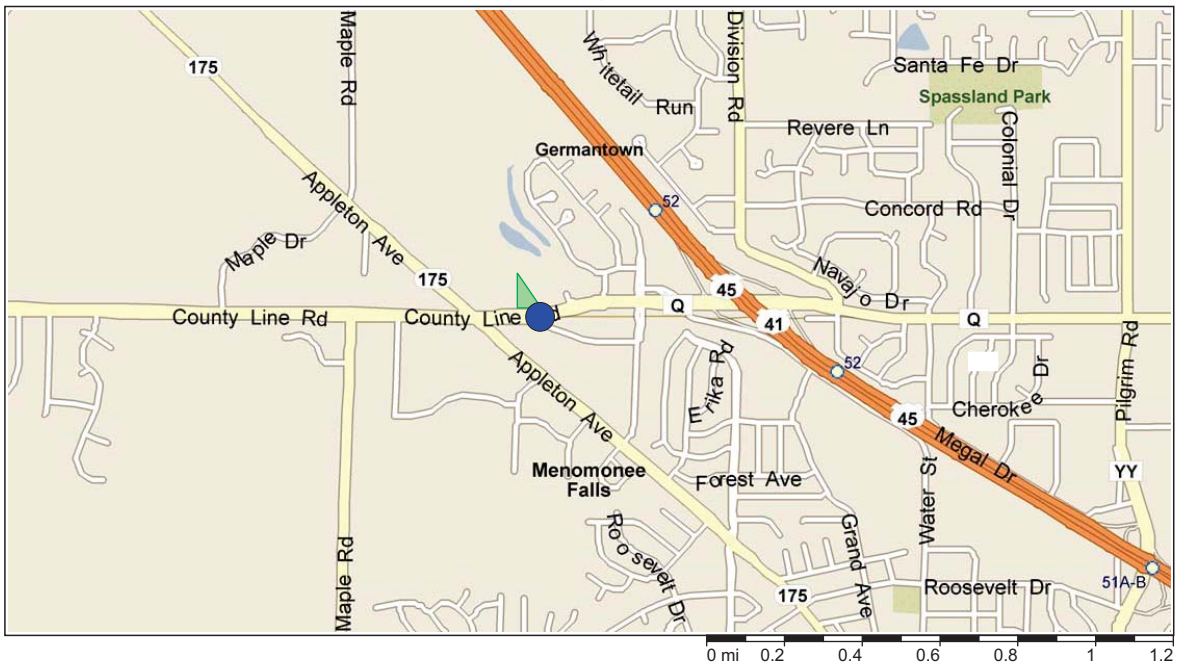
- Remove vegetation growing within the bridge's fence west of the Menomonee River centerline and correct the west end of the fence such that the westernmost point is adjusted north.
- The curb of the north side of County Line Road currently shifts approximately 5- to 6-feet north on the approach and 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 safety 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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2610; 12/22/20

N

NOT TO SCALE

EXHIBIT 1-1
SITE LOCATION MAP

GERMANTOWN, WISCONSIN

TRAFFIC ANALYSIS & DESIGN, INC.

2610; 12/22/20

N

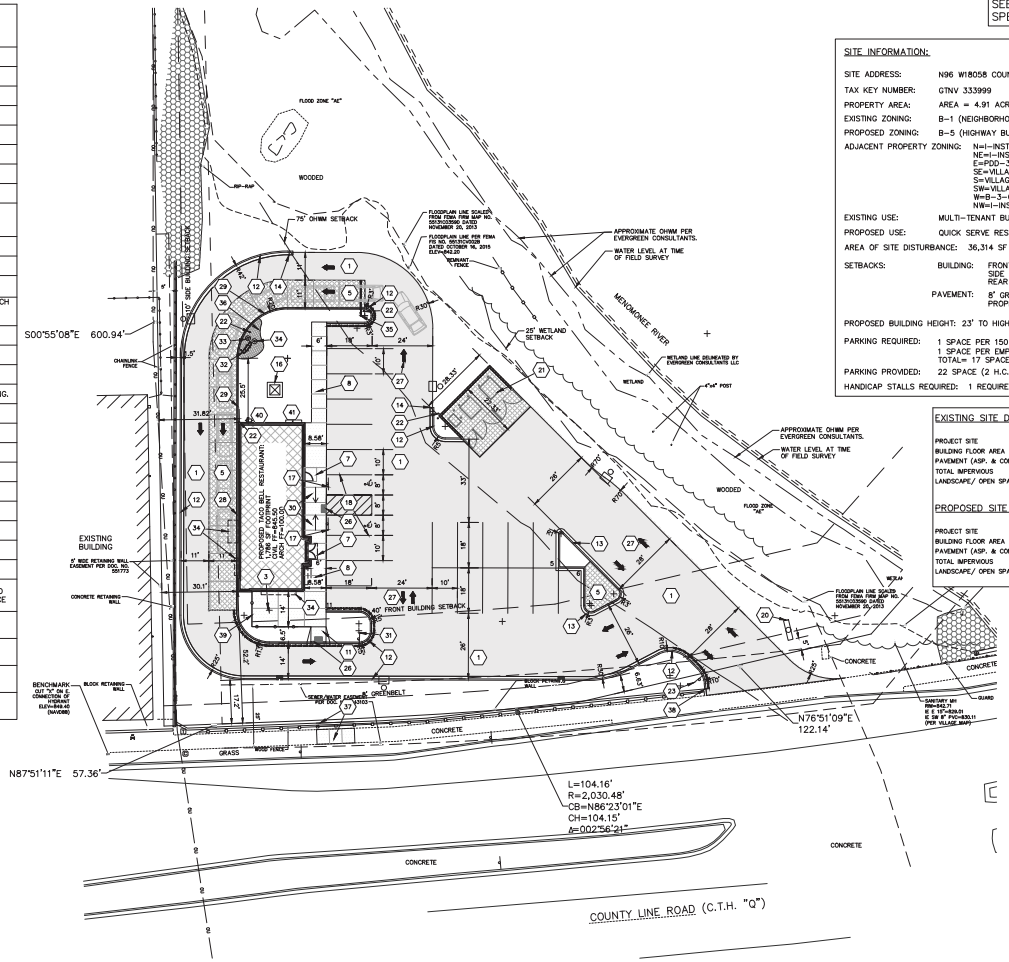
NOT TO SCALE

EXHIBIT 1-2
CONCEPTUAL SITE PLAN

GERMANTOWN, WISCONSIN

SITE PLAN KEYNOTES

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



NORTH

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

CIVIL SITE PLAN

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

SITE INFORMATION:

SITE ADDRESS:	N96 W18058 COUNTY LINE ROAD
TAX KEY NUMBER:	GTNV 333999
PROPERTY AREA:	AREA = 4.91 ACRES TOTAL
EXISTING ZONING:	B-1 (NEIGHBORHOOD BUSINESS)
PROPOSED ZONING:	B-5 (HIGHWAY BUSINESS DISTRICT)
ADJACENT PROPERTY ZONING:	N=I-INSTITUTIONAL NE=I-INSTITUTIONAL E=PDD-32-RIVERBEND DISTRICT SE=VILLAGE OF MENOMONEE FALLS S=VILLAGE OF MENOMONEE FALLS SW=VILLAGE OF MENOMONEE FALLS W=B-3-GENERAL BUSINESS NW=I-INSTITUTIONAL
EXISTING USE:	MULTI-TENANT BUILDING/SALON
PROPOSED USE:	QUICK SERVE RESTAURANT WITH DRIVE THRU
AREA OF SITE DISTURBANCE:	36,314 SF (0.83 AC)
SETBACKS: BUILDING:	FRONT = 40' SIDE = 10' REAR = 25'
PAVEMENT:	8' GREENBELT BETWEEN PARKING & PROPERTY BOUNDARIES
PROPOSED BUILDING HEIGHT:	23' TO HIGHEST POINT (MAX. HEIGHT ALLOWED: 35')
PARKING REQUIRED:	1 SPACE PER 150 S.F. FLOOR AREA (1786 SF)= 12 SPACES REQ. 1 SPACE PER EMPLOYEE (5 EMPLOYEES/SHIFT)= 5 SPACES REQ. TOTAL= 17 SPACES REQ.
PARKING PROVIDED:	22 SPACE (2 H.C. ACCESSIBLE)
HANDICAP STALLS REQUIRED:	1 REQUIRED, 2 PROVIDED

EXISTING SITE DATA (DISTURBED PROJECT AREA)

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

PROPOSED SITE DATA (DISTURBED PROJECT AREA)

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

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

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

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PROJECT INFORMATION

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

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE: OCT. 5, 2020
REVISIONS

JOB NUMBER
2005200

SHEET NUMBER
C1.1

Relocate Stop Sign To South Side of Crosswalk

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

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TRAFFIC ANALYSIS & DESIGN, INC.
2610; 12/22/20

N
NOT TO SCALE

EXHIBIT 1-3
RECOMMENDED MODIFICATIONS

GERMANTOWN, WISCONSIN

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 Lane Road from the south. To the east, Shady Lane intersects Rivercrest Drive from the west. No AADT volume was recorded.

D2. Pedestrian & Bicycle Accommodations

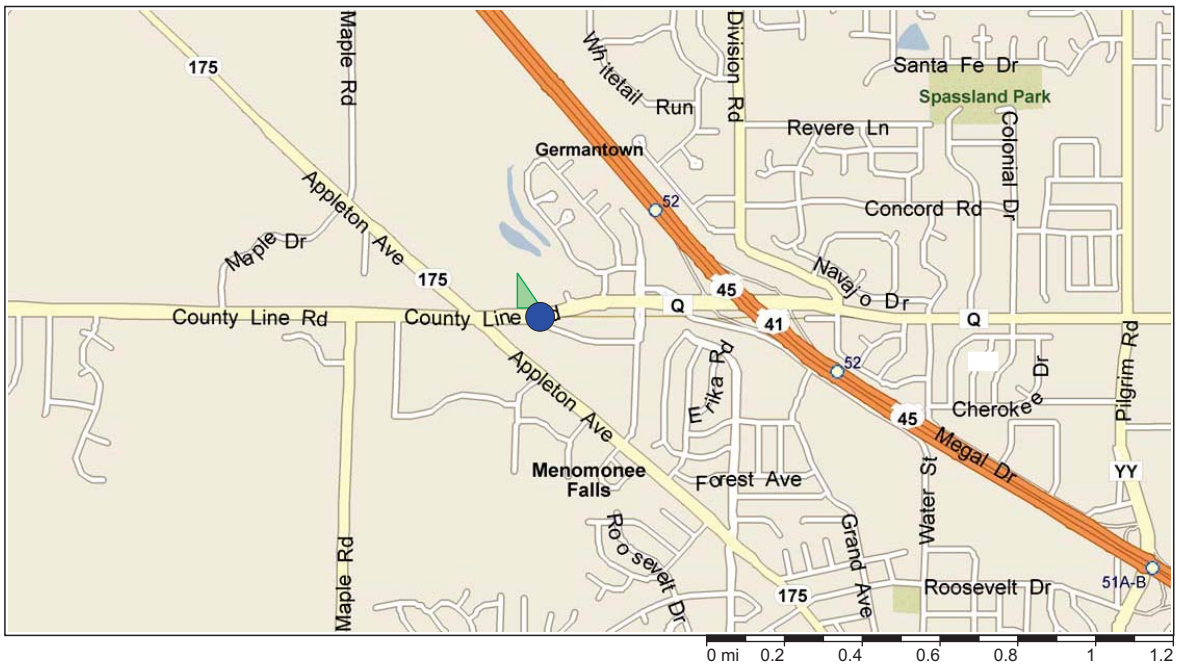
Sidewalk exists along both sides of County Line Road within the study area. The sidewalk on the south side terminates approximately 420-feet east of Shady Lane.

No other pedestrian or bicycle accommodates were identified.

D3. Transit Accommodations

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

Germantown, Wisconsin



LEGEND

- Study Intersection
- Development Site

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N

NOT TO SCALE

EXHIBIT 2-1
SITE LOCATION MAP

GERMANTOWN, WISCONSIN

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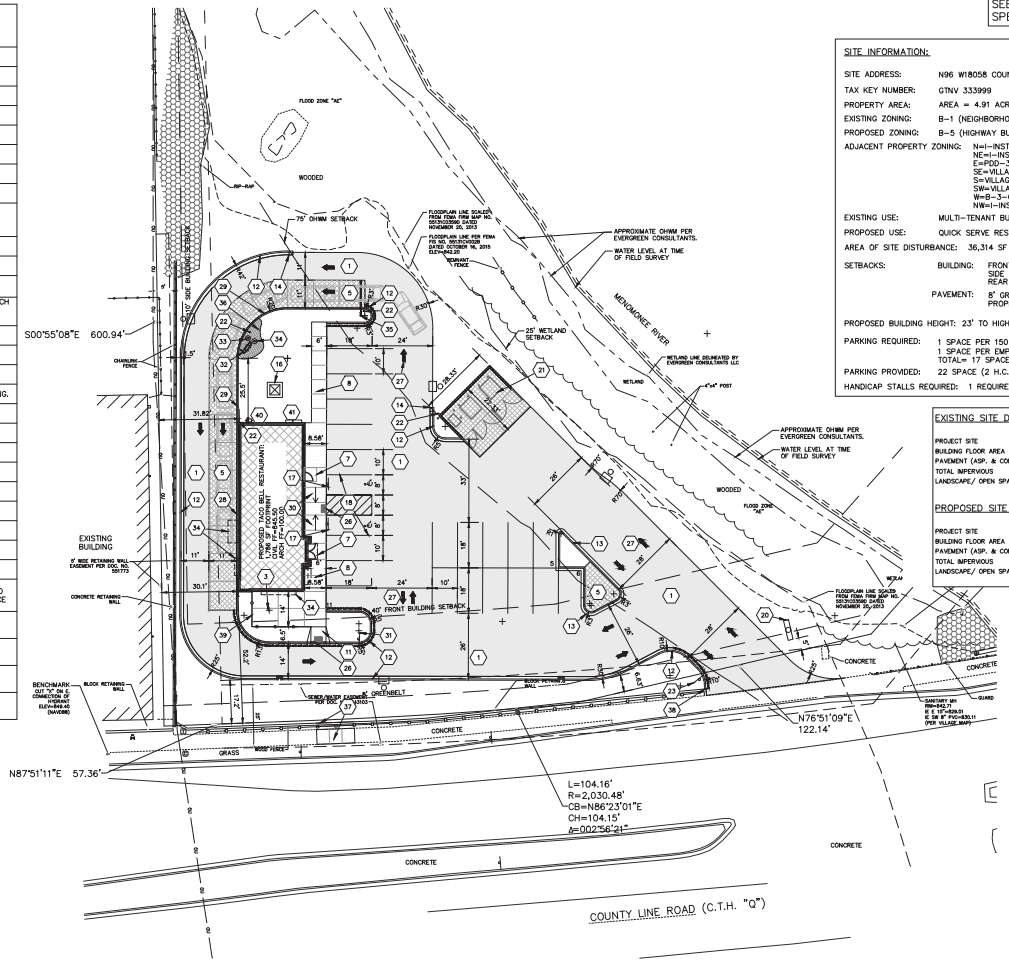
EXHIBIT 2-2
CONCEPTUAL SITE PLAN

GERMANTOWN, WISCONSIN

SITE PLAN KEYNOTES

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



CIVIL SITE PLAN

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

SITE INFORMATION:

SITE ADDRESS:	N96 W18058 COUNTY LINE ROAD
TAX KEY NUMBER:	GTNV 333999
PROPERTY AREA:	AREA = 4.91 ACRES TOTAL
EXISTING ZONING:	B-1 (NEIGHBORHOOD BUSINESS)
PROPOSED ZONING:	B-5 (HIGHWAY BUSINESS DISTRICT)
ADJACENT PROPERTY ZONING:	N=I-INSTITUTIONAL NE=I-INSTITUTIONAL E=PDD-32-RIVERBEND DISTRICT SE=VILLAGE OF MENOMONEE FALLS S=VILLAGE OF MENOMONEE FALLS SW=VILLAGE OF MENOMONEE FALLS W=B-3-GENERAL BUSINESS NW=I-INSTITUTIONAL
EXISTING USE:	MULTI-TENANT BUILDING/SALON
PROPOSED USE:	QUICK SERVE RESTAURANT WITH DRIVE THRU
AREA OF SITE DISTURBANCE:	36,314 SF (0.83 AC)
SETBACKS:	BUILDING: FRONT = 40' SIDE = 10' REAR = 25' PAVEMENT: 8' GREENBELT BETWEEN PARKING & PROPERTY BOUNDARIES
PROPOSED BUILDING HEIGHT:	23' TO HIGHEST POINT (MAX. HEIGHT ALLOWED: 35')
PARKING REQUIRED:	1 SPACE PER 150 S.F. FLOOR AREA (1786 SF)= 12 SPACES REQ. 1 SPACE PER EMPLOYEE (5 EMPLOYEES/SHIFT)= 5 SPACES REQ. TOTAL= 17 SPACES REQ.
PARKING PROVIDED:	22 SPACE (2 H.C. ACCESSIBLE)
HANDICAP STALLS REQUIRED:	1 REQUIRED, 2 PROVIDED

EXISTING SITE DATA (DISTURBED PROJECT AREA)

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

PROPOSED SITE DATA (DISTURBED PROJECT AREA)

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

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PROJECT INFORMATION

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

PROFESSIONAL SEAL

SHEET DATES
SHEET ISSUE: OCT. 5, 2020
REVISIONS

JOB NUMBER
2005200

SHEET NUMBER
C1.1

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

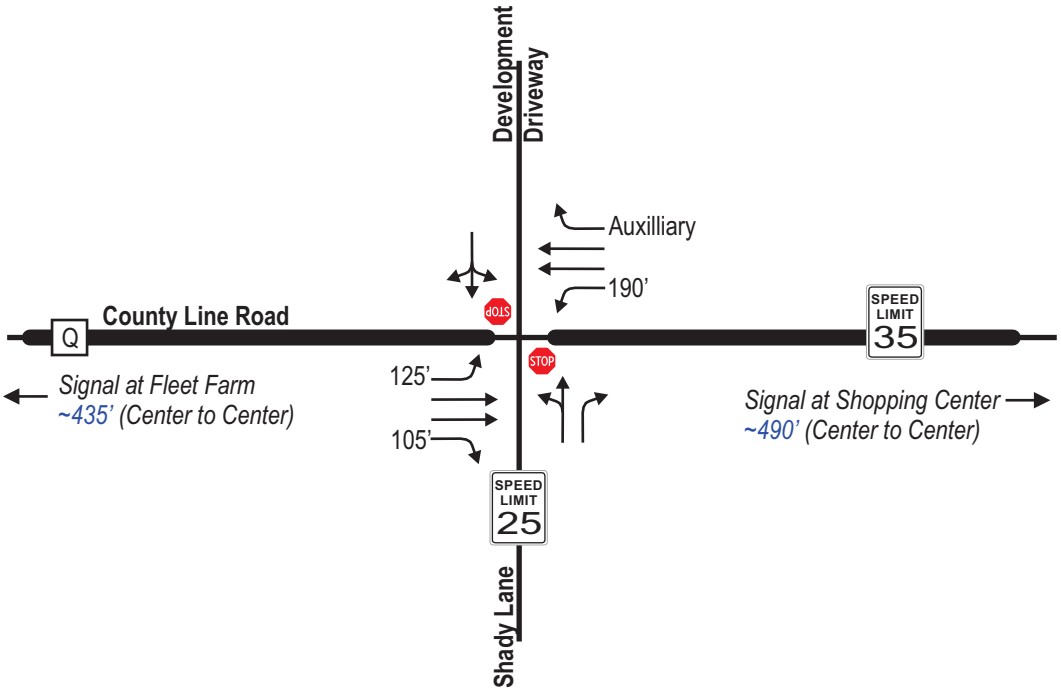

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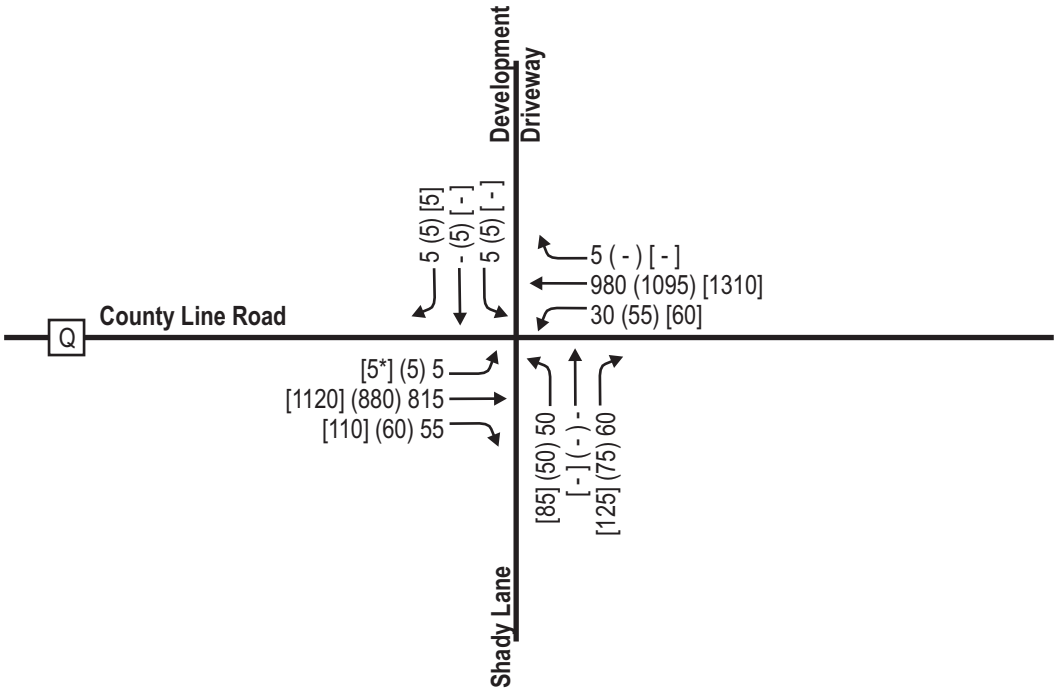
EXHIBIT 3-1
EXISTING TRANSPORTATION DETAIL

GERMANTOWN, WISCONSIN

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.

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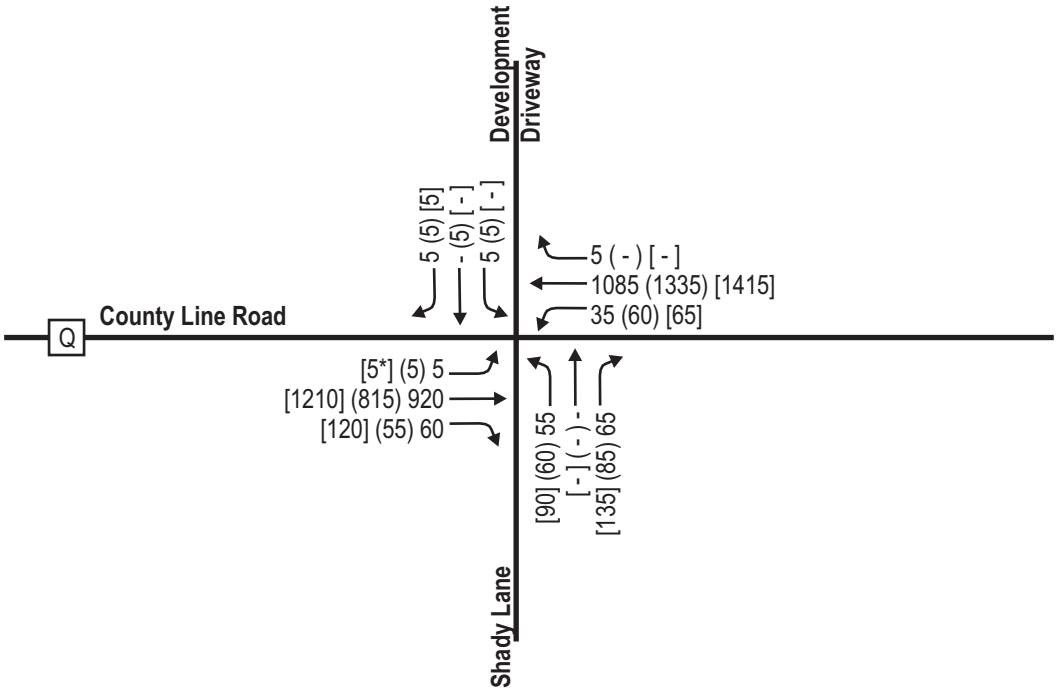
EXHIBIT 3-2A
YEAR 2020 EXISTING TRAFFIC VOLUMES
UNADJUSTED

GERMANTOWN, WISCONSIN

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.

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EXHIBIT 3-2B
YEAR 2020 EXISTING TRAFFIC VOLUMES
ADJUSTED

GERMANTOWN, WISCONSIN

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 In	Wkday MID Peak Out	Wkday MID Peak Total	Wkday PM Peak In	Wkday PM Peak Out	Wkday PM Peak Total	SAT Peak In	SAT Peak Out	SAT Peak 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**
Minus Pass-by Trips		*50%*	*420*	*25*	*25*	*50*	*15*	*15*	*30*	*25*	*25*	*50*
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***	

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EXHIBIT 4-1
TRIP GENERATION & DISTRIBUTION TABLES

GERMANTOWN, WISCONSIN

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)

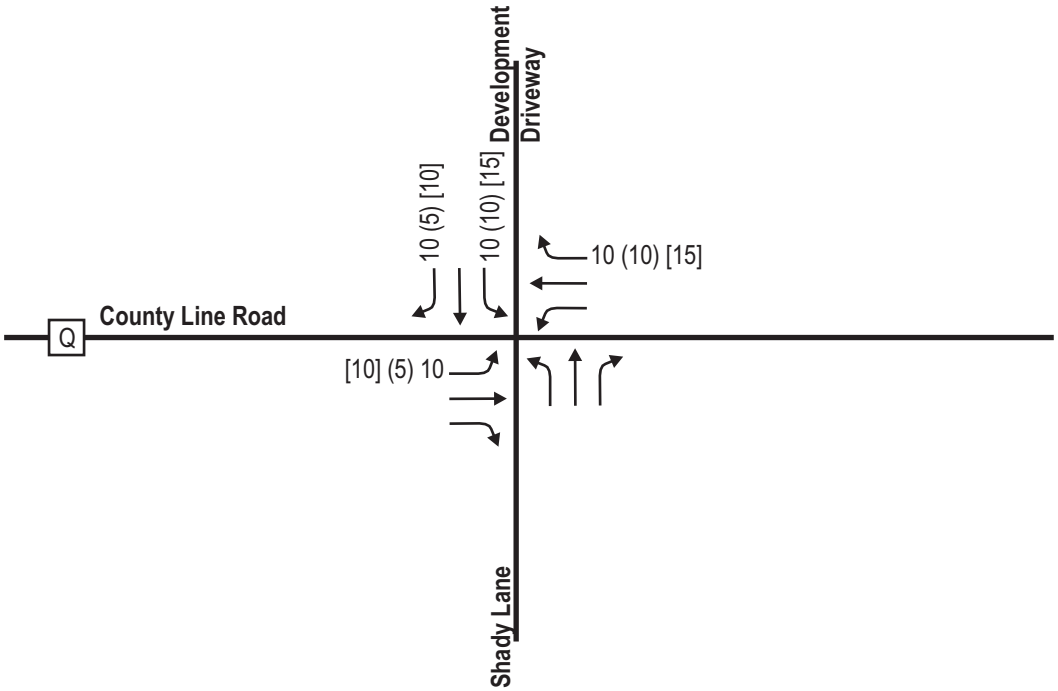

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EXHIBIT 4-2A
TACO BELL NEW TRIPS

GERMANTOWN, WISCONSIN

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)

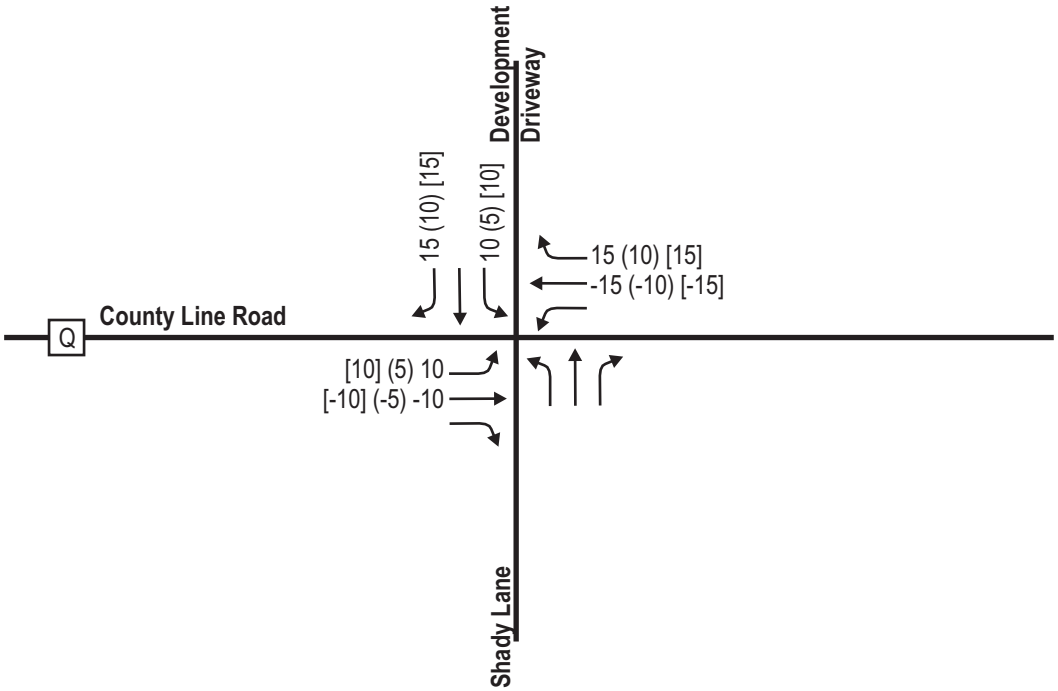

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EXHIBIT 4-2B
TACO BELL PASS-BY TRIPS

GERMANTOWN, WISCONSIN

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)

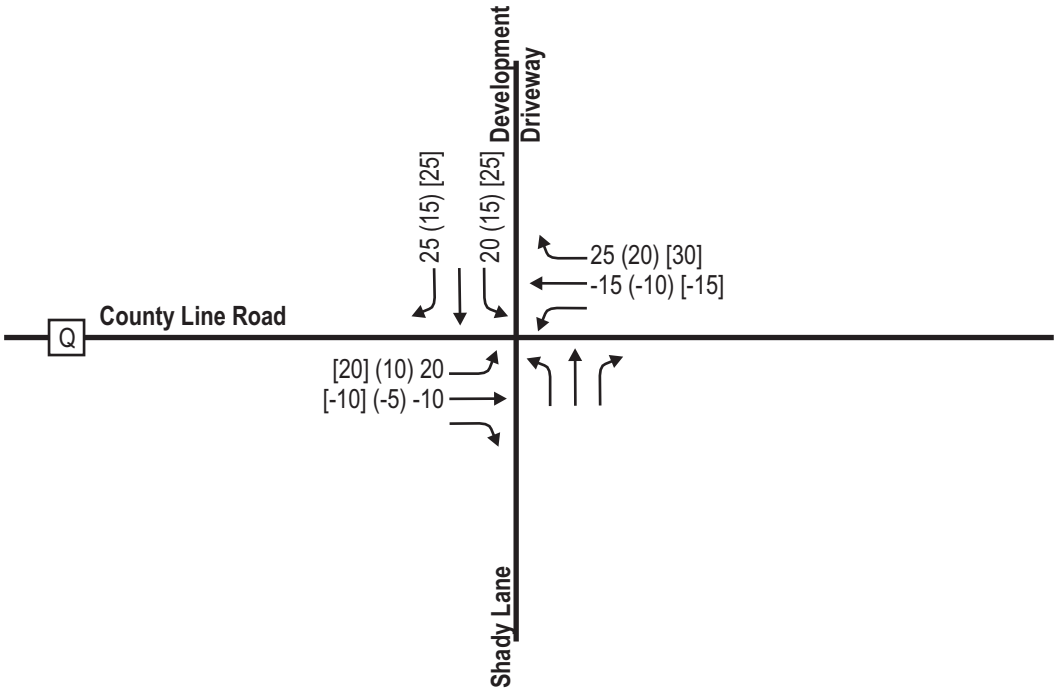

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EXHIBIT 4-2C
TACO BELL DRIVEWAY TRIPS

GERMANTOWN, WISCONSIN

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)

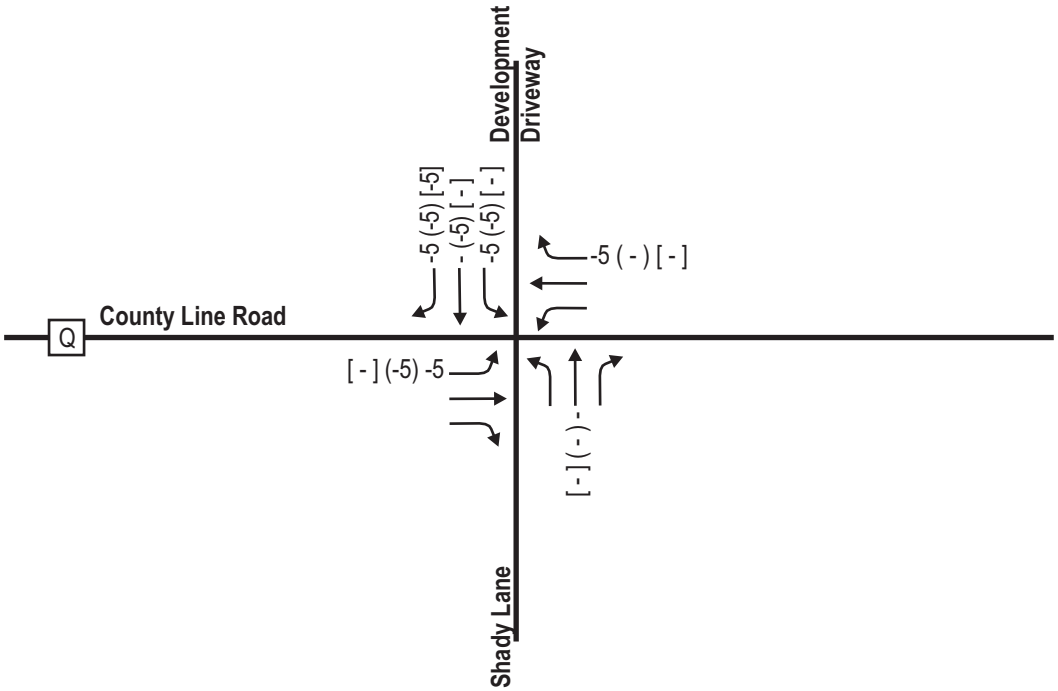

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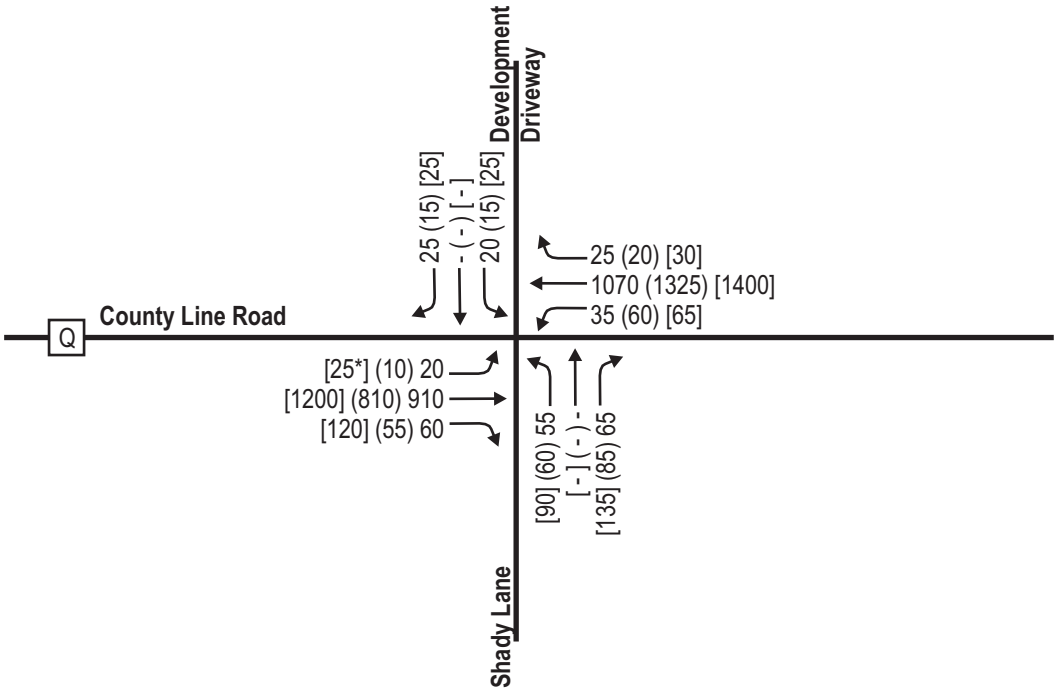
EXHIBIT 4-3
REMOVAL OF EXISTING SITE TRIPS

GERMANTOWN, WISCONSIN

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.

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N
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EXHIBIT 4-4
YEAR 2021 BUILD TRAFFIC VOLUMES

GERMANTOWN, WISCONSIN

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 stuck 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.

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EXHIBIT 5-1

YEAR 2021 BUILD TRAFFIC OPERATIONS & QUEUES

(WITH TACO BELL)

GERMANTOWN, WISCONSIN

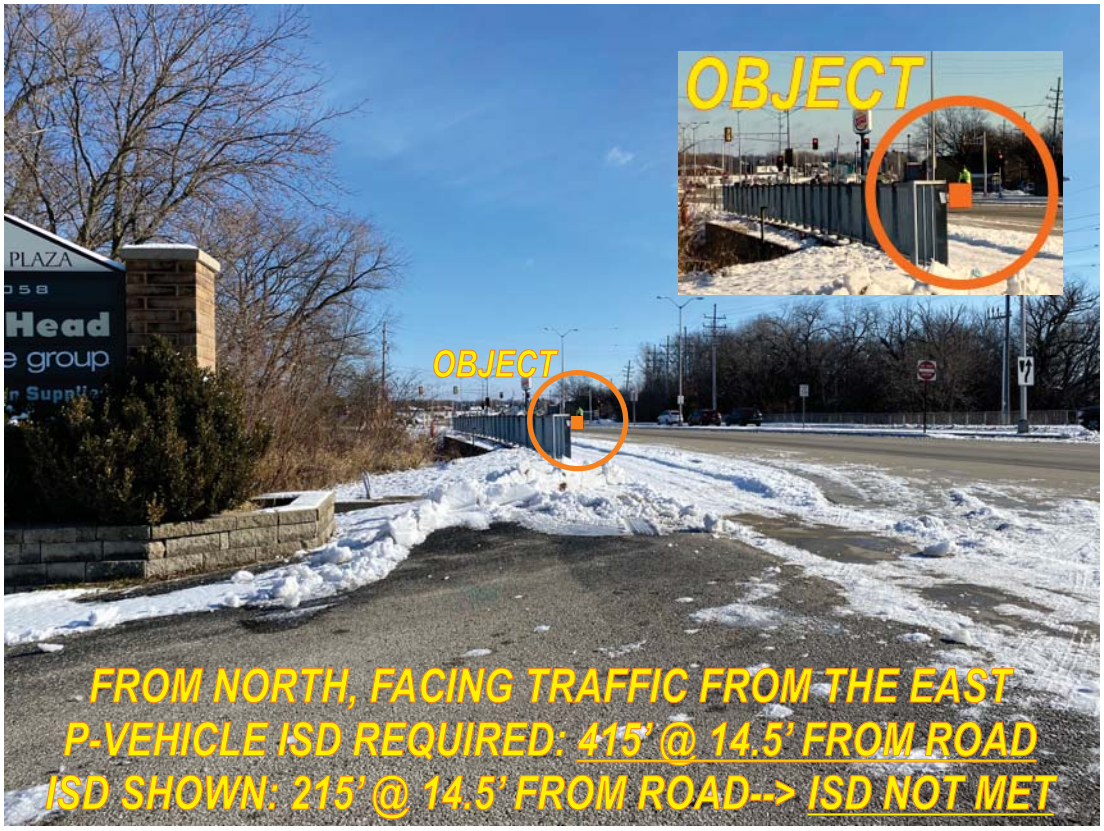

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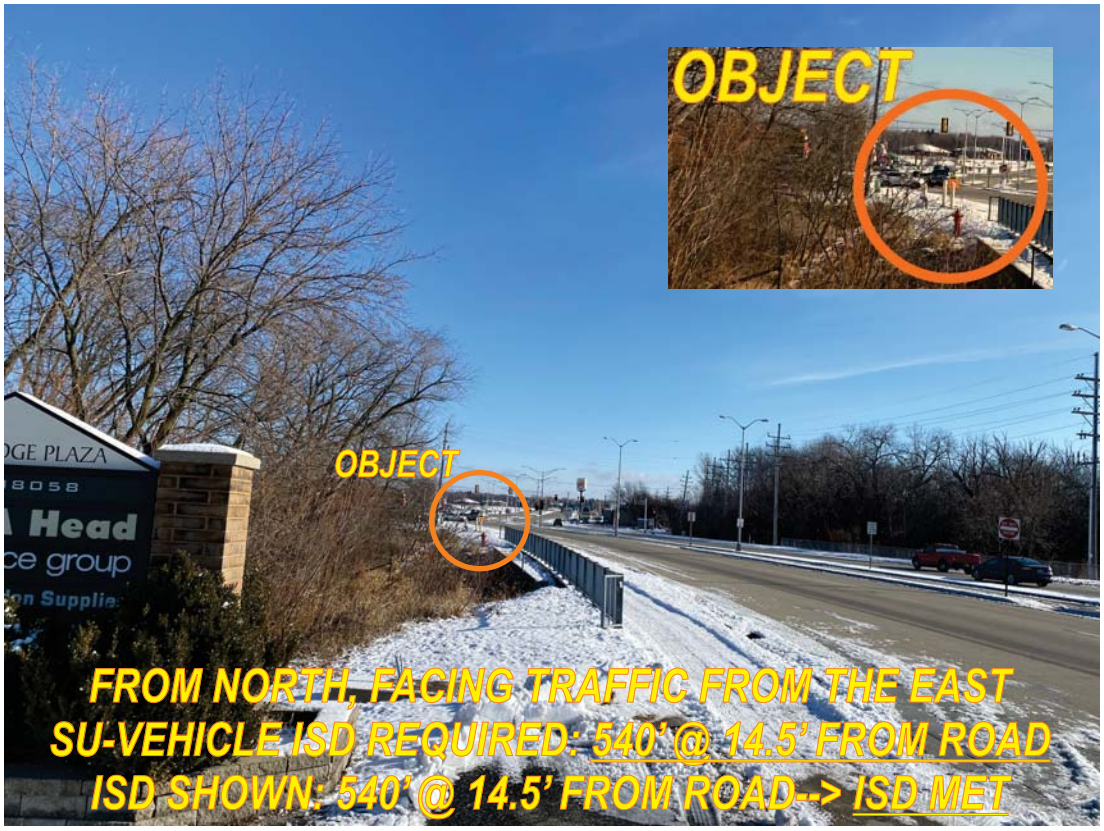
EXHIBIT 5-2A
COUNTY LINE ROAD & SHADY LANE ISD PHOTOS
P-VEHICLE: FACING EAST FROM SB APPROACH

GERMANTOWN, WISCONSIN



TADI
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EXHIBIT 5-2B
COUNTY LINE ROAD & SHADY LANE ISD PHOTOS
SU-VEHICLE: FACING EAST FROM SB APPROACH

GERMANTOWN, WISCONSIN

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EXHIBIT 5-2C
COUNTY LINE ROAD & SHADY LANE SSD PHOTO
FACING WEST FROM WB APPROACH

GERMANTOWN, WISCONSIN

Intersection Collision Diagram

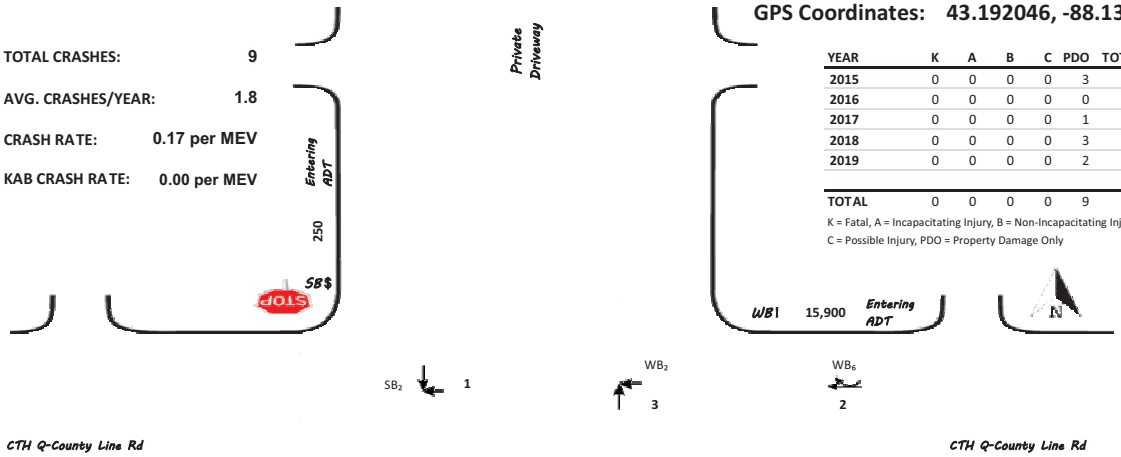
Location:	CTH Q/County Line Road & Shady Lane	**From:**	1/1/2015 **Duration** 5 Years
Municipality:	Germantown/Menomonee Falls	**To:**	12/31/2019 0 Months
County:	Washington/Waukesha	**AADT:**	28,750
Traffic Control:	Minor Street Stop	**Area Type:**	Urban
		GPS Coordinates:	43.192046, -88.133086

MAP

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



CRASH TYPE	K	A	B	C	PDO	TOT.
LT-ANGLE	0	0	0	0	0	0
RT-ANGLE	0	0	0	0	6	6
PEDESTRIAN	0	0	0	0	0	0
RT-TURN REAR-END	0	0	0	0	0	0
REAR-END	0	0	0	0	0	0
SIDE-SWIPE-SAME	0	0	0	0	2	2
BICYCLE-RELATED	0	0	0	0	0	0
PARKED-VEHICLE	0	0	0	0	0	0
FIXED-OBJECT	0	0	0	0	0	0
DRIVEWAY-RELATED	0	0	0	0	0	0
HEAD-ON	0	0	0	0	0	0
MISC. OTHER	0	0	0	0	1	1
TOTAL	0	0	0	0	9	9

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%

TBD = verification from crash report needed for direction

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	

NOTES:

DAY/TIME TRENDS

	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	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
	12 AM	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	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

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EXHIBIT 5-3
INTERSECTION COLLISION DIAGRAM

GERMANTOWN, WISCONSIN

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 safety 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.J4.1		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

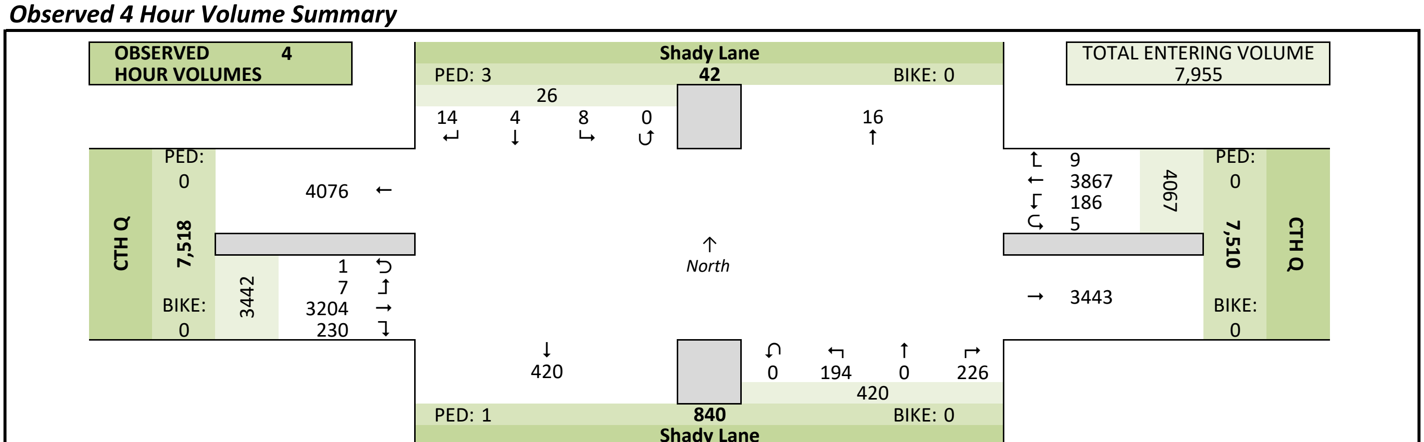
Site Information

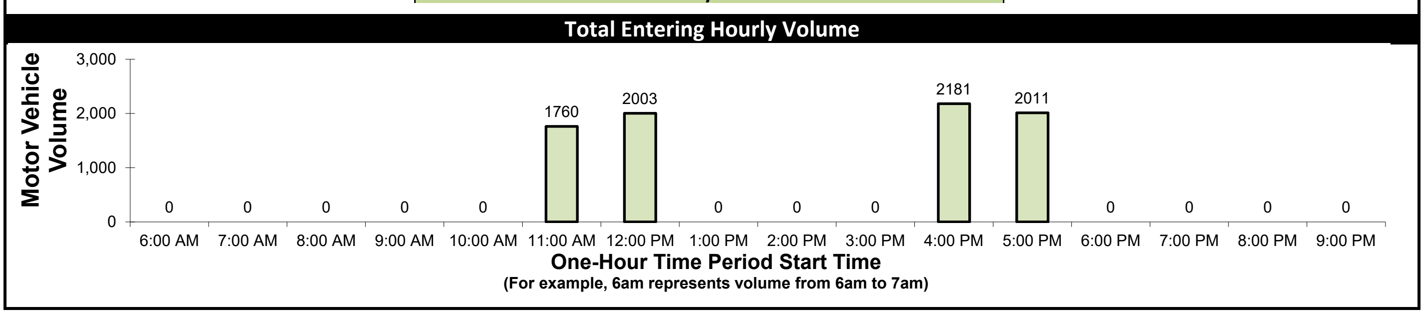
Municipality	Village of Germantown		
County	Washington	WisDOT Region	SE
Traffic Control	Partial Stop Control		
Roadway Names		North Direction	↑
North Leg	Shady Lane		
East Leg	CTH Q		
South Leg	Shady Lane		
West Leg	CTH Q		
Special Considerations			
Schools	In Session		
Holidays	None		
Special Events	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

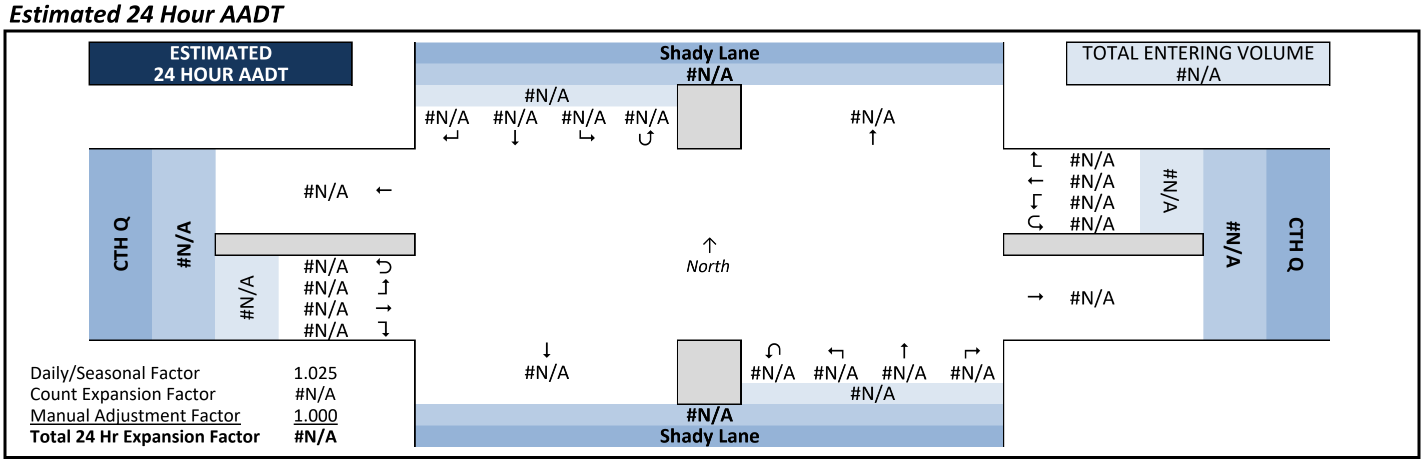
Hrs Counted:	11:00 AM-1:00 PM and 4:00 PM-6:00 PM				
1st Day of Count	Wednesday, December 2, 2020		Weather		
AM Peak Period	Wednesday, December 2, 2020		Clear & Dry		
Midday Peak Period	Thursday, December 3, 2020		Clear & Dry		
PM Peak Period	Wednesday, December 2, 2020		Clear & Dry		
Calculated Peak 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





Estimated 24 Hour AADT



Intersection Traffic Volume Report

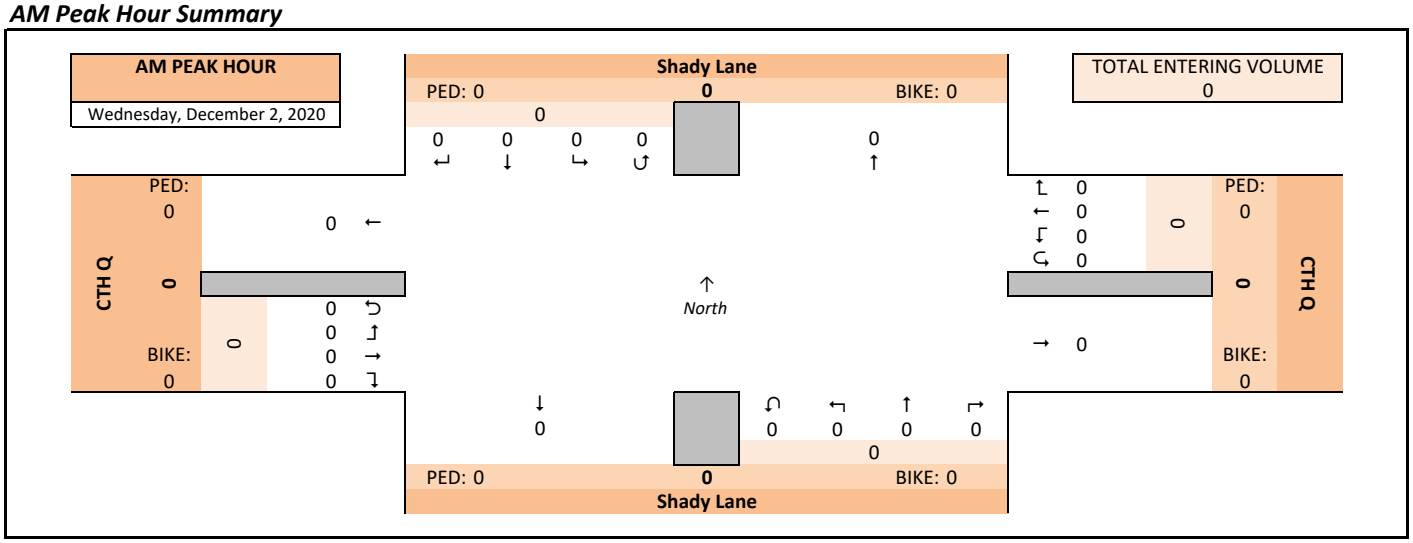
Count Basics			Page 2 of 13
Start Date:	Wednesday, December 2, 2020	Weekday	Schools in Session
Total Number of Hours Counted: 4		Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

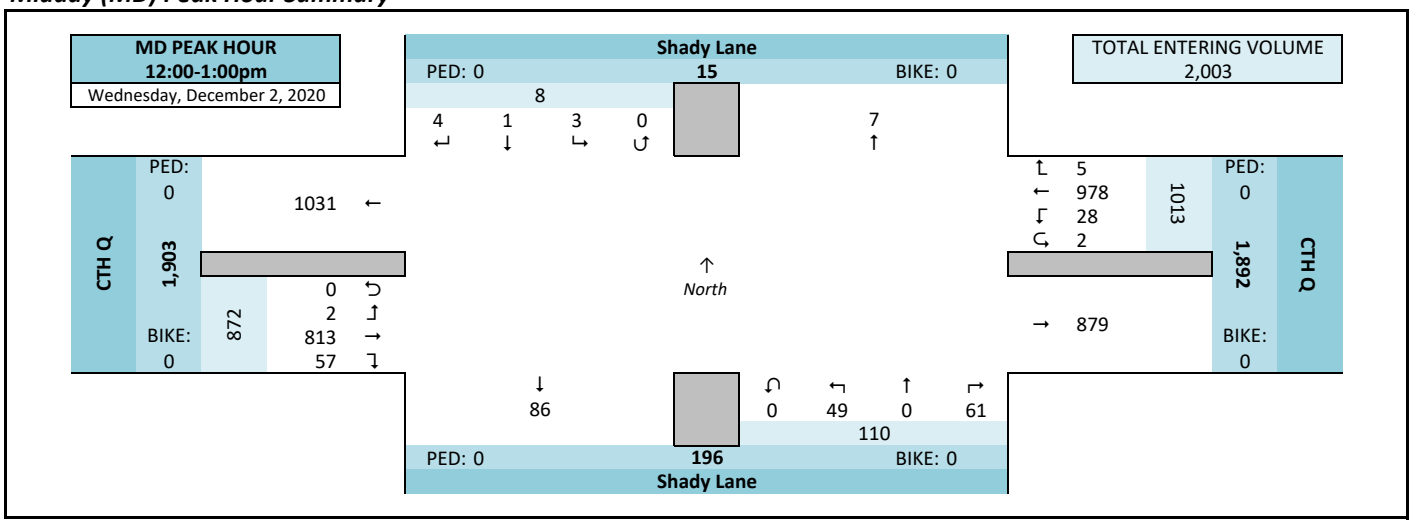
All Motor Vehicles

Shady Lane and CTH Q

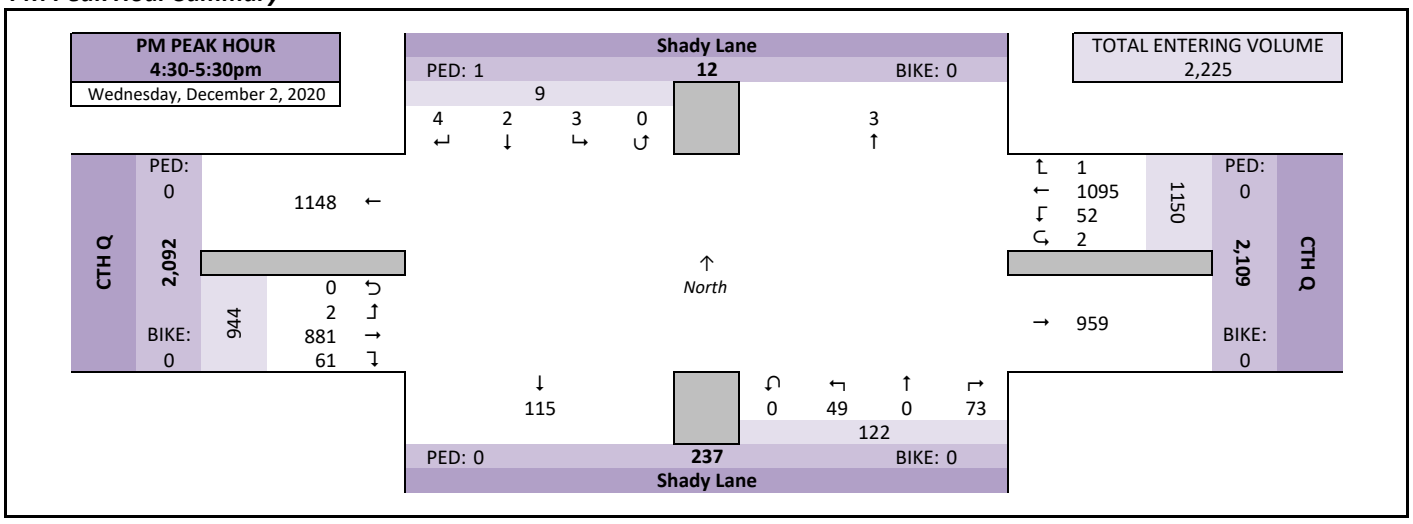
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Intersection Traffic Volume Report

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

Peak Hour Volume Summary

Shady Lane and CTH Q

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	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
AM Peak Hour	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					
	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
Midday (MD) Peak Hour	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	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
PM Peak Hour	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	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
	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

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike
		Shady Lane			CTH Q			Shady Lane			CTH Q			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Volume
AM	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
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	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
	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
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:30 PM	1	0	1	0	0	0	0	0	0	0	0	0	1
	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
	Total	1	0	1	0	0	0	0	0	0	0	0	0	1

Intersection Traffic Volume Report

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

Hourly Volume Summary - Motor Vehicle Data

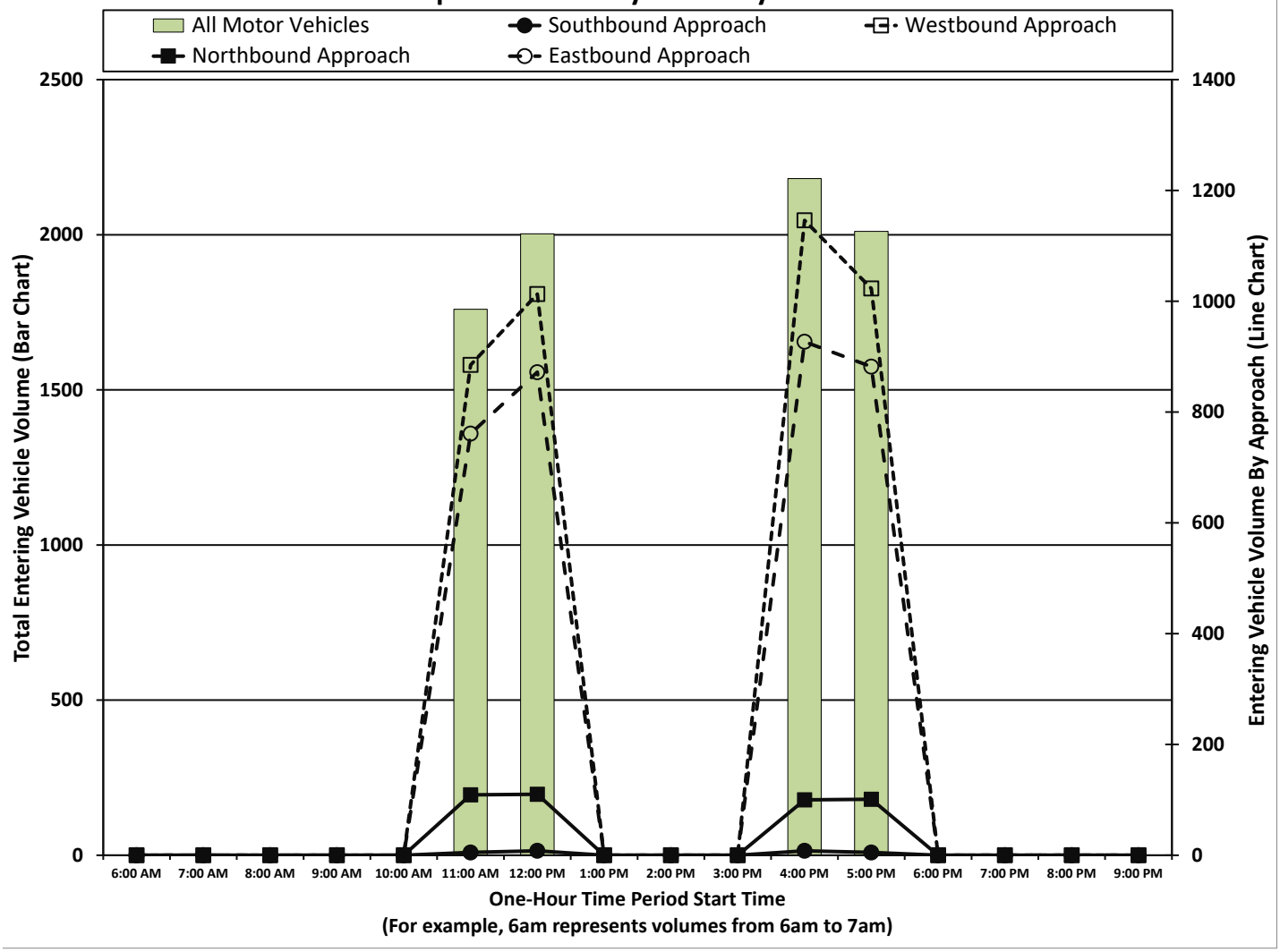
All Motor Vehicles

Shady Lane and CTH Q

One-Hour Motor Vehicle Data

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 E/W	Directional Volume Totals N/S
		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	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
AM	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
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	0
AM	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
MD	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
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	1885	118
MD	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
PM	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
PM	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
PM	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
PM	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
PM	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
PM	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
PM	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

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 Motor Vehicle Data

All Motor Vehicles

Shady Lane and CTH Q

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min	Hourly	
	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	Sum	PHF
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		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly	
	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	Volume	PHF
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	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

Intersection Traffic Volume Report

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

15-Minute Automobile Data

Automobiles (Cars, Light Trucks, & Motorcycles)

Shady Lane and CTH Q

15-Minute Automobile Data

15-Minute Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
		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	172	13	0	185	11	0	13	0	24	14	145	1	0	160	370	1692
	11:15 AM	2	0	0	0	2	0	210	11	0	221	13	0	17	0	30	13	185	1	0	199	452	1792
	11:30 AM	1	0	1	0	2	1	184	11	1	197	9	0	13	0	22	14	159	0	0	173	394	1867
	11:45 AM	0	0	0	0	0	0	235	15	0	250	15	0	17	0	32	19	175	0	0	194	476	1928
	12:00 PM	1	0	0	0	1	0	233	4	0	237	16	0	13	0	29	11	192	0	0	203	470	1941
	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	
	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	261	15	0	277	10	0	9	0	19	13	200	0	0	213	510	2141
	4:15 PM	1	0	0	0	1	0	263	19	0	282	12	0	10	0	22	10	212	1	1	224	529	2190
	4:30 PM	2	2	0	0	4	0	270	17	0	287	13	0	13	0	26	20	223	1	0	244	561	2196
	4:45 PM	1	0	1	0	2	1	268	13	1	283	23	0	10	0	33	12	211	0	0	223	541	2118
	5:00 PM	1	0	2	0	3	0	276	9	0	285	27	0	10	0	37	13	221	0	0	234	559	1990
	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	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		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 (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
		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

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

Single Unit (SU) Trucks & Buses

Shady Lane and CTH Q

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

15-Minute Time Period	Start Time	From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
		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	5	0	0	5	0	0	0	0	0	1	7	0	0	8	13	52
	11:15 AM	0	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	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	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	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	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7	
	12:30 PM	0	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	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	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	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	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	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	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	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8	
	5:30 PM	0	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	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 (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
		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	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	17	0	0	17	0	0	0	0	0	1	11	0	0	12	29

Intersection Traffic Volume Report

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

15-Minute Semi-Truck Data

Semi-Trucks

Shady Lane and CTH Q

15-Minute Semi-Truck Data

15-Minute Time Period		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
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		
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	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	0	1	0	0	1	5	18
	11:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3	18
	11:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	4	0	0	4	5	17
	12:00 PM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5	15
	12:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5	
	12:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	
	12:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	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	1
	4:15 PM	0	0	0	0	0	0	1	0	0	1	0	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	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	2
	5:00 PM	0	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	0	
	5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	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	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		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		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
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	
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	4	0	0	4	10
PM	4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1

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

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

Shady Lane and CTH Q

15-Minute Heavy Vehicle Data

15-Minute Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
		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	6	0	0	6	0	0	0	0	0	1	9	0	0	10	16	68
	11:15 AM	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	1	8	0	0	9	18	71
	11:30 AM	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	0	6	0	0	6	14	65
	11:45 AM	0	0	0	0	0	0	9	0	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	0	9	0	0	0	0	0	0	9	0	0	9	19	62
	12:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	12	
	12:30 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	7	0	0	7	13	
	12:45 PM	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	10	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	
	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	6	0	0	6	0	0	0	0	0	0	7	0	0	7	13	40
	4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	8	0	0	8	10	31
	4:30 PM	0	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	0	5	0	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	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	0	5	0	0	0	0	0	0	3	0	0	3	8	
	5:30 PM	0	0	0	0	0	0	4	0	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	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		1	0	0	0	1	1	88	1	0	90	1	0	0	0	1	3	96	0	0	99	191	

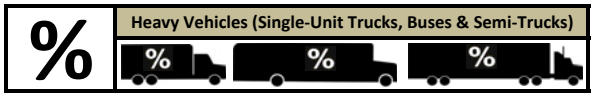
Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
		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

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

15-Minute Heavy Vehicle Percentages



Shady Lane and CTH Q

15-Minute Heavy Vehicle Percentages

	15-Minute Time Period Start Time	From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Heavy Vehicle Percent	Hourly Heavy Vehicle Percent
		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	3.9
	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	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	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	3.2
	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	3.1
	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	1.8
	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	1.4
	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	1.3
	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	1.2
	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	1.0
	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	0.0	0.0	0.0	0.0	0.0	0.0	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Totals		7.1	0.0	0.0	0.0	3.8	11.1	2.3	0.5	0.0	2.2	0.4	0.0	0.0	0.0	0.2	1.3	3.0	0.0	0.0	2.9	2.4	

Peak Hour Heavy Vehicle Percentages Summary

	Hourly Time Period Start Time	From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Hourly Heavy Vehicle Percent
		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MD	12:00 PM	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
PM	4:30 PM	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

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

Pedestrians and Bicyclists

Shady Lane and CTH Q

15-Minute Pedestrian and Bicyclist Data

	15-Minute	Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach				
	Time Period	Shady Lane			CTH Q			Shady Lane			CTH Q			15-Min	Hourly
	Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Totals	Sum
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	
	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	0	1	0	1	0	0	0	3	4
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	4:30 PM	1	0	1	0	0	0	0	0	0	0	0	0	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	
	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					
Elementry 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.J4.1		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

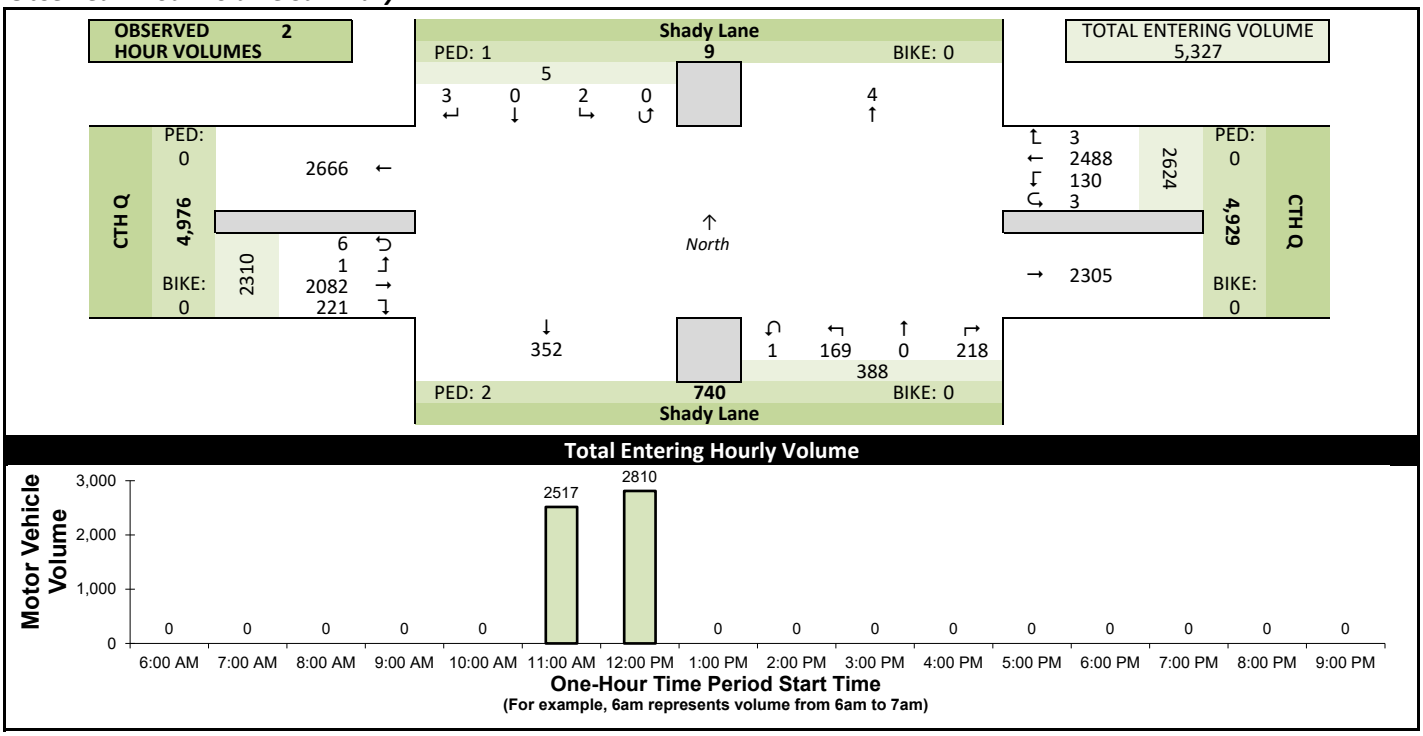
Site Information

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		

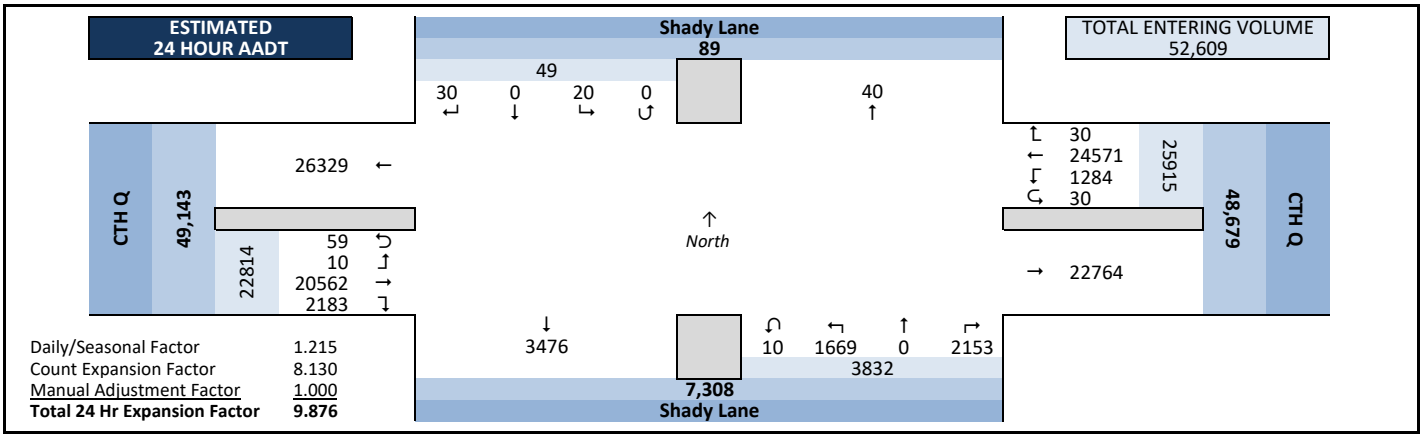
Count Information

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	PM	
Peak Hours Selected for Analysis					
AM		MD	12:00-1:00pm	PM	
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	1.215	Count Expansion Factor	8.130		
Company Name	TADI, Inc			Manual Adj.	1.000
Observers	AM Peak Period	None			
	Midday Peak Period	Jeff Schleif			
	PM Peak Period	None			
Comments	2019 DOT Seasonal Factors				

Observed 2 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

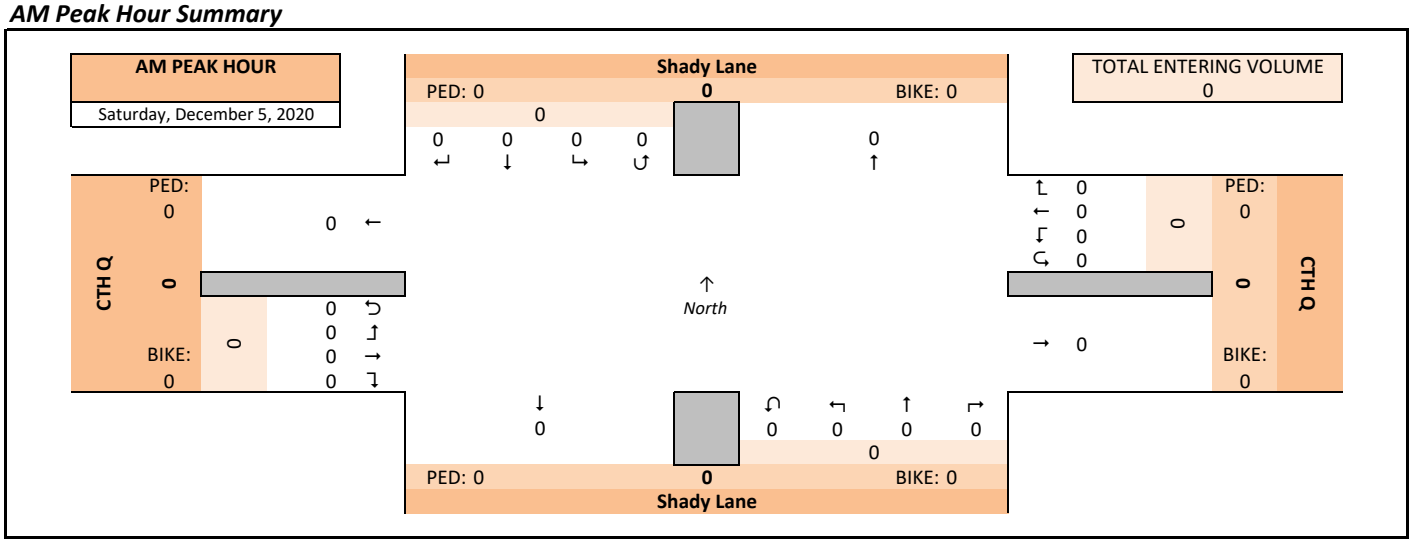
Count Basics			Page 2 of 13
Start Date:	Saturday, December 5, 2020	Weekend	Schools in Session
Total Number of Hours Counted: 2		Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

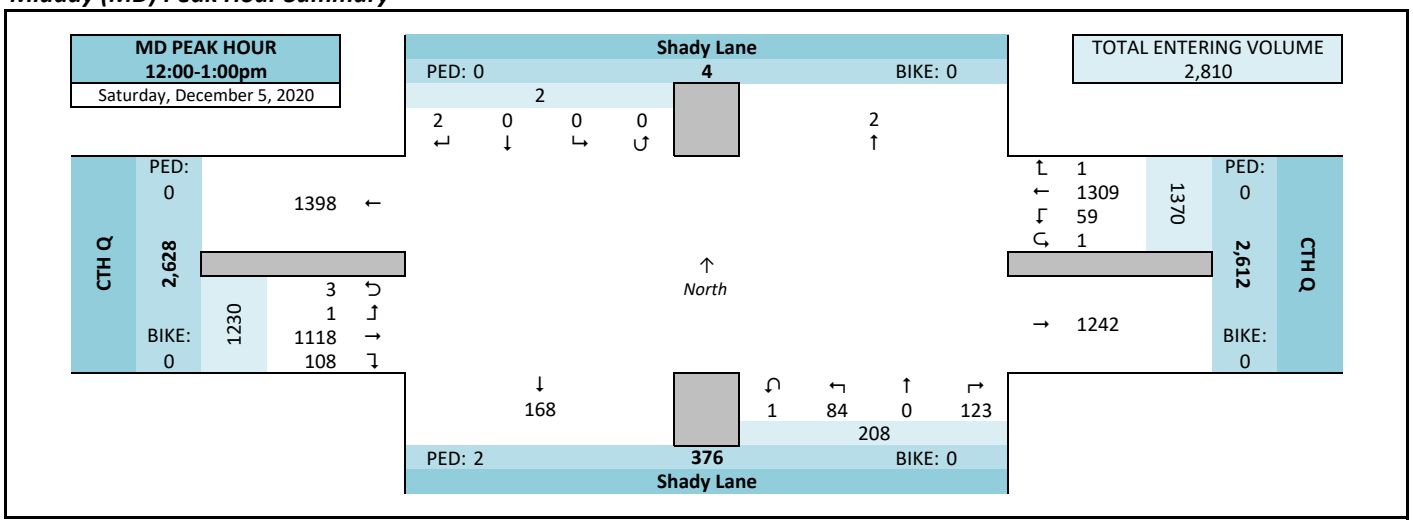
All Motor Vehicles

Shady Lane and CTH Q

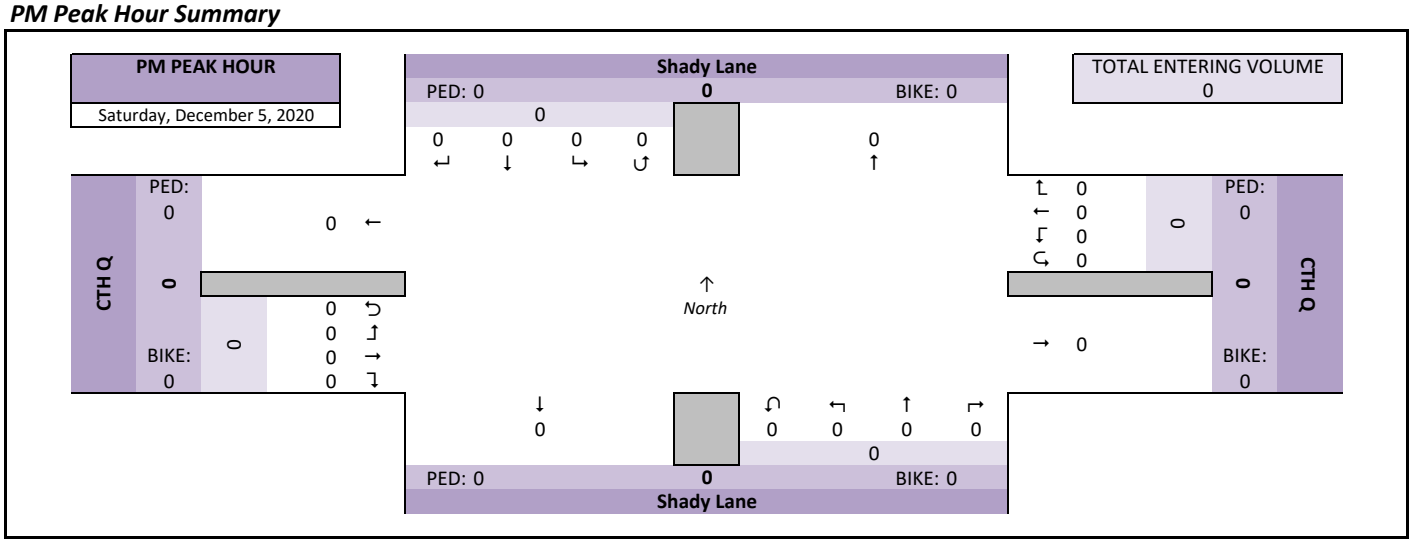
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



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

All Motor Vehicles

Peak Hour Volumes, Truck Percentages, and PHFs

Saturday, December 5, 2020		From North					From East					From South					From West					
	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
AM Peak Hour	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					
	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
Midday (MD) Peak Hour	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

Saturday, December 5, 2020		From North					From East					From South					From West					
	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
PM Peak Hour	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
	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

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike
		Shady Lane			CTH Q			Shady Lane			CTH Q			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Volume
AM	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
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0
MD	12:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1
	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
	Total	0	0	0	0	0	0	2	0	2	0	0	0	2
PM	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
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Traffic Volume Report

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

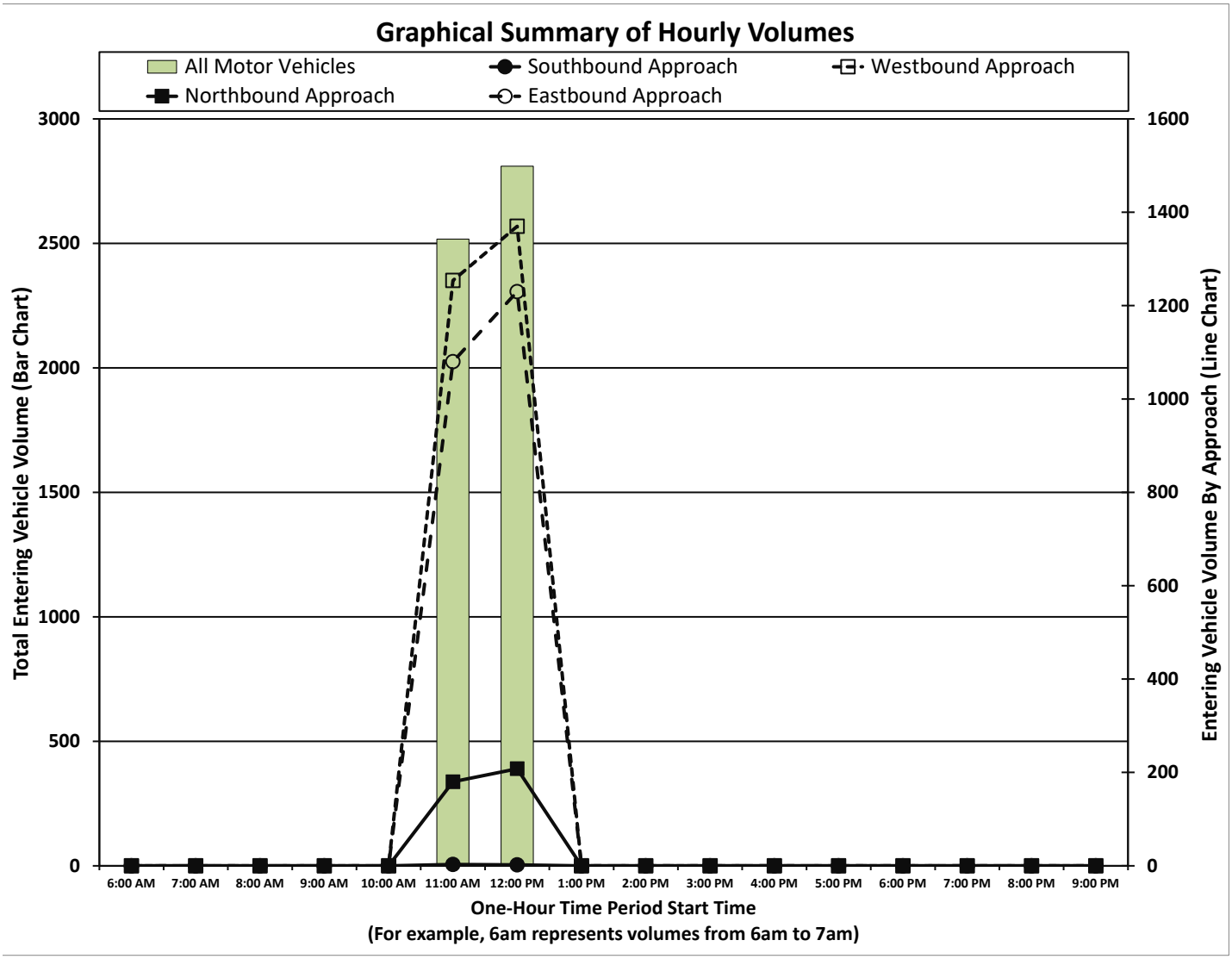
Hourly Volume Summary - Motor Vehicle Data

All Motor Vehicles

Shady Lane and CTH Q

One-Hour Motor Vehicle Data

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 E/W	Directional Volume Totals N/S
		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	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



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

All Motor Vehicles

Shady Lane and CTH Q

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min	Hourly	
	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	Sum	PHF
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	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		
	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		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		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly	
	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	Volume	PHF
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	2	0	0	0	2	1	1309	59	1	1370	123	0	84	1	208	108	1118	1	3	1230	2810	0.96
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

Automobiles (Cars, Light Trucks, & Motorcycles)

Shady Lane and CTH Q

15-Minute Automobile Data

15-Minute Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
		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	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	
	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		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 (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
		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	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	0

Intersection Traffic Volume Report

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

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

Single Unit (SU) Trucks & Buses

Shady Lane and CTH Q

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

	15-Minute Time Period Start Time	From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
		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	27
	11:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5	25
	11:30 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	3	0	0	3	7	28
	11:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6	28
	12:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7	26
	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	3	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	
	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	20	0	0	20	53	

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

	Hourly Time Period Start Time	From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
		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	13	0	0	13	26
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 8 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 Semi-Truck Data

Semi-Trucks

Shady Lane and CTH Q

15-Minute Semi-Truck Data

15-Minute Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
		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	0	0	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	0	0	0	1	0	0	1	1	1
	11:30 AM	0	0	0	0	0	0	0	0	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	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	0	0	0	0	0	0	0	1
	12:15 PM	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
	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	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	

Peak Hour Semi-Truck Volume Summary

Hourly Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
		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	0	0	0	0	0	0	0	0	0	1	0	0	1	1
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 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 Heavy Vehicle Data

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

Shady Lane and CTH Q

15-Minute Heavy Vehicle Data

15-Minute Time Period	Start Time	From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					15-Min Totals	Hourly Sum
		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	28
	11:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6	26
	11:30 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	3	0	0	3	7	28
	11:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	6	28
	12:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7	27
	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	

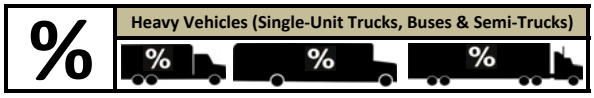
Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period	Start Time	From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Hourly Volume
		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	14	27
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

15-Minute Heavy Vehicle Percentages

15-Minute Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Total Heavy Vehicle Percent	Hourly Heavy Vehicle Percent
		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	1.1
	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	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	1.0
	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	1.0
	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	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	
	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	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	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	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	0.0	0.0	0.0	1.3	0.8	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.0	1.0	

Peak Hour Heavy Vehicle Percentages Summary

Hourly Time Period Start Time		From North (↓) Shady Lane					From East (←) CTH Q					From South (↑) Shady Lane					From West (→) CTH Q					Hourly Heavy Vehicle Percent
		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	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	0.0	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
PM	4:00 PM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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

Pedestrians and Bicyclists

Shady Lane and CTH Q

15-Minute Pedestrian and Bicyclist Data

	15-Minute Time Period	Crossing North Approach (Shady Lane)			Crossing East Approach (CTH Q)			Crossing South Approach (Shady Lane)			Crossing West Approach (CTH Q)			15-Min	Hourly
	Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Totals	Sum
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					
Elementry 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

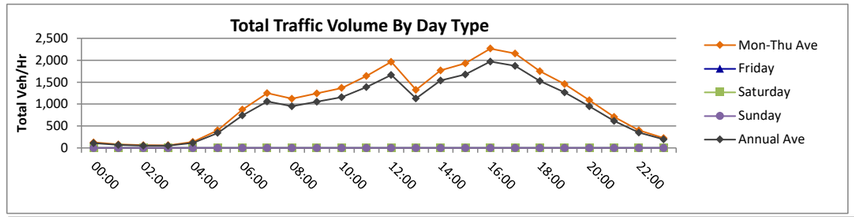
Wisconsin Department of Transportation

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	

	P	SU	WB	
Design Vehicles:	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

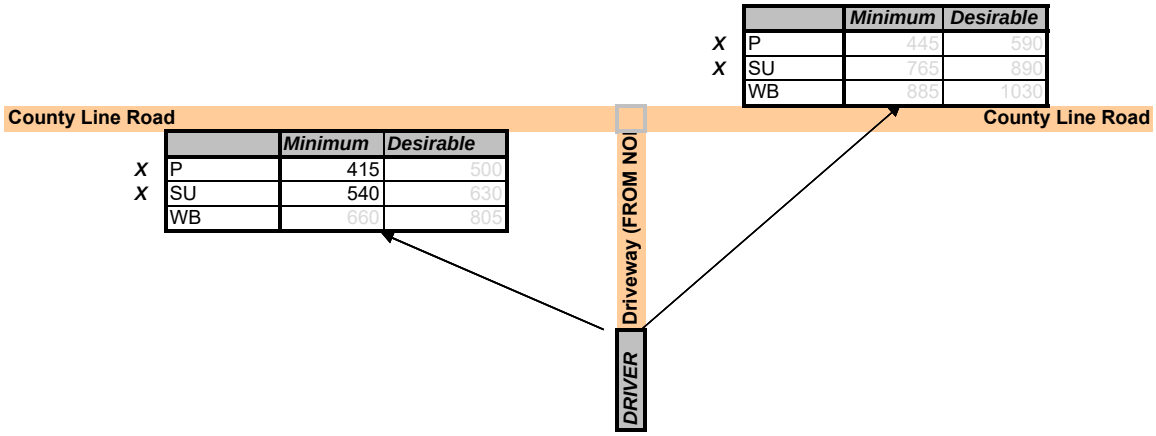
NOTES: A median width of 25' or more necessary for two-stage of 19' P-Vehicle
A median width of 36' or more necessary for two-stage of 30' SU-Vehicle
A median width of 71' or more necessary for two-stage of 65' WB-Vehicle

ISD CALCULATIONS

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

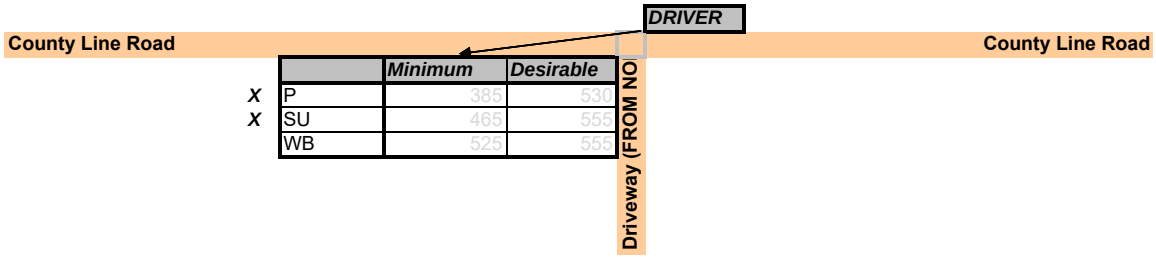
SPECIAL INSTRUCTIONS:

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)



		Minimum	Desirable
X	P	445	590
X	SU	765	890
	WB	885	1030

		Minimum	Desirable
X	P	415	500
X	SU	540	630
	WB	660	805



		Minimum	Desirable
X	P	385	530
X	SU	465	555
	WB	525	555

Template Update: 9-20-2020

APPENDIX B

YEAR 2020 EXISTING TRAFFIC PEAK HOUR ANALYSIS OUTPUTS

Lanes, Volumes, Timings
150: Shady Lane/Development Drwy & County Line Road

12/10/2020

Lane Group	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												
Frt			0.850			0.850			0.850		0.939	
Flt Protected	0.950			0.950				0.953			0.978	
Satd. Flow (prot)	1736	3471	1553	1752	3505	1568	0	1793	1599	0	1544	0
Flt 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	

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
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Lanes, Volumes, Timings
150: Shady Lane/Development Drwy & County Line Road

12/10/2020

Lane Group	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	

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

TADI
Synchro 11 Report
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Lane Group	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	

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

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

Lane Group	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	

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

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)	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	

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

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%			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		0.934	
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