Village of Germantown ...Willkommen

Fee must accompany application

☒ $1460 Paid SR Date 10/21/24

Chk # 2000216

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

KWIK TRIP, INC - JEFF OSGOOD
1626 OAK ST
LA CROSSE, WI 54602

Phone (608) 793-5547
Fax ( )
E-Mail josgood@kwiktrip.com

PROPERTY OWNER

STEVEN A. SCHELLIN
BEN VENUE PROPERTIES - GERMANTOWN

Phone (262) 391-8490
saschellin@gmail.com

2 TO WHOM SHOULD THE PERMIT BE ISSUED?

APPLICANT

3 PROPERTY ADDRESS

SE CORNER OF STH 167 AND MAPLE RD - N112W18741 Mequon Rd

TAX KEY NUMBER

#GTNV 282990

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.

CURRENTLY VACANT OFFICE BUILDING

5 DESCRIPTION OF PROPOSED OPERATION

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

WE ARE REQUESTING A CONDITIONAL USE FOR OUR CARWASH AND FOR WELLHEAD PROTECTION TEXT AMENDMENTS

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

PLEASE ATTACHED COVER LETTER CONTAINING THE ADDITIONAL REQUESTED INFO.

WE ARE PROPOSING A NEW RETAIL CONVENIENCE STORE W/ ATTACHED 2-BAY CARWASH.

RECEIVED
OCT 17 2024
OFFICE OF THE VILLAGE PLANNER
VILLAGE OF GERMANTOWN

METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

PLEASE SEE ATTACHED ALTA SURVEY

7 SUPPORTING DOCUMENTATION:

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

8 READ AND INITIAL THE FOLLOWING:

SW 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.

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

SW 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.

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

9 SIGNATURES – ALL APPLICATIONS MUST BE SIGNED BY OWNER!

Applicant — Date: 10/14/2024

Owner — Date: 10/20/2024

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 XX DATE 10/21/24 CHK # 2000215

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

Jeff Osgood
Kwik Trip, Inc.

Phone (608) 793-5547
E-Mail josgood@kwiktrip.com

PROPERTY OWNER

Steven A. Schellin
Ben Venue Properties - Germantown

Phone (262) 391-8490
E-Mail saschellin@gmail.com

2 PROPERTY ADDRESS

Southeast corner of Maple Road and Mequon Road N112W18741 Mequon Road Germantown, WI 53022

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

North	South	East	West
GKN Sinter Metals - Industrial Fire station	STH 167	B-3 Zoned	GSC, Valley Cabinet, Northwestern Mutual, Milwaukee Laser & Body, Mequon Vein - Business

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!

Jeffrey W. Osgood 07/02/2024
Applicant Date

Steven A. Schellin July 2, 2024
Owner Date

Village of
Germantown

Village of Germantown
Inspection
N112W17001 MEQUON ROAD
Germantown, WI 53022
(262)250-4700
Welcome

10/21/2024 04:12PM Inspectio
000747-0002
Payment Effective Date 10/21/2024

MISCELLANEOUS	
PLAN COMMISSION REVIEW FEES (GENPLN)	
2024 Item: GENPLN	
1 @ $3,460.0000	
PLAN COMMISSION REVIEW FEES (GENPLN)	$3,460.00
	$3,460.00
Subtotal	**$3,460.00**
Total	**$3,460.00**
CHECK	$3,460.00
Check Number2000215	
Change due	**$0.00**

Thank you for your payment

CUSTOMER COPY

Village of
Germantown

Village of Germantown
Inspection
N112W17001 MEQUON ROAD
Germantown, WI 53022
(262)250-4700
Welcome

10/21/2024 04:10PM Inspectio
000747-0001
Payment Effective Date 10/21/2024

MISCELLANEOUS	
CONDITIONAL USE PERMITS (GENCON)	
2024 Item: GENCON	
1 @ $1,460.0000	
CONDITIONAL USE PERMITS (GENCON)	$1,460.00
	$1,460.00
Subtotal	**$1,460.00**
Total	**$1,460.00**
CHECK	$1,460.00
Check Number2000216	
Change due	**$0.00**

Thank you for your payment

CUSTOMER COPY

KWIK TRIP INC.

Store Engineering

FAX 608-793-6237

1626 Oak St., P.O. Box 2107
La Crosse, WI 54602

www.kwiktrip.com

Village of Germantown
Jeff Retzlaff
N112W17001 Mequon Rd
Germantown, WI 53022

October 14th, 2024

CUP Submittal

Mr. Retzlaff,

This letter is intended to accompany our submittal for our application to the Village of Germantown for the requested Conditional Use Permit applications for our proposed project located at the SE Corner of STH 167 and Maple Rd.

Kwik Trip, Inc. is proposing the construction of a 12,167 S.F. convenience store w/ attached 2-Bay attached Carwash and a detached dumpster enclosure and both gas and diesel Fueling Canopies. I have submitted this in digital format as well as one paper copy as requested. I have included a check for $1460.00 per CUP application fee. If there is anything additional needed, please don't hesitate to reach out to me any time.

The proposed method of operation for this development will be consistent with that for our existing convenience stores within the area. The requested hours of operation will be 24 hours for all uses. The type of products that will be sold will be similar to that of our existing stores: gasoline, in line diesel, E-85, Unleaded 88, groceries, bakery and dairy, hot and cold food and beverages, tobacco products, off-sale alcohol products, lotto, convenience store merchandise, ice, and propane. The outside merchandising of products is being requested next to the store (ice and propane) and miscellaneous merchandising under the gas canopy. The proposed store is projected to have between 28-35 full and part time employees, with 2-8 on staff at any given time.

The proposed architectural plan will consist of a brick facade with asphalt shingled roof. The building and canopy fascia will tie in with franchise colors. We have also adjusted our normal architectural renderings to incorporate the requested German themed buildings. The prototype building is larger than previous years building. We have expanded the retail floor area as well as kitchen and mechanical space all on the main level with no basement. The total estimated project costs are $2,500,000.

Kwik Trip would be happy to provide any additional information or answer any questions or concerns you may have with our submission. Please feel free to call me with any questions.

Sincerely,

Jeff Osgood – Sr. Development Manager - Store Engineering - Kwik Trip, Inc.
608-793-5547 - josgood@kwiktrip.com 1626 Oak St | P.O. Box 2107 | La Crosse, WI 54602

OUR MISSION

To serve our customers and community more effectively than anyone else by treating our customers, co-workers and suppliers as we, personally, would like to be treated, and to make a difference in someone's life.

KWIK TRIP INC.

Environmental

PHONE 608-793-6283
FAX 608-781-8960
EMAIL environmental@kwiktrip.com

1626 Oak St., P.O. Box 2107
La Crosse, WI 54602

www.kwiktrip.com

Conditional Use Permit Request
Wellhead Protection
Proposed Kwik Trip #631 Relocation
N112W18741 Mequon Rd.
Germantown, WI 53022

Date: October 11, 2024

1.0 Introduction

This request is intended to accompany our submittal to the Village of Germantown for the requested conditional use permit (CUP) application for our proposed project located at N112W18741 Mequon Rd. This proposed location is within a current wellhead protection area within the Village, so a CUP is required.

1.1 Site Location and Legal Description

The subject property is located in a part of the NW ¼ of the NW ¼ of Section 28 and the NE ¼ of the NE ¼ of Section 29, Township 9 North, Range 20 East, Village of Germantown, Washington County, Wisconsin. The subject property consists of 1 parcel of land totaling approximately 4.37 acres located on the western side of the Village of Germantown. Specifically, the subject property is at N112W18741 Mequon Rd, Germantown, WI 53022. A Site Location Map is included as Figure 1.

1.2 Site Description

The subject property is located in an area of residential and commercial properties adjacent to a business park in the western portion of the Village of Germantown. The subject property consists of a two-story commercial bank property. There is a concrete parking lot connecting to public roads in two locations with the rest of the land being undeveloped green space. An Aerial Map is included as Figure 2.

1.3 Physical Setting

The subject property is located in an area of Washington County that is typified by glacial outwash sediments consisting of unsorted mixtures of clay, sand, gravel, and boulders. Beneath the sediments,

OUR MISSION

To serve our customers and community more effectively than anyone else by treating our customers, co-workers and suppliers as we, personally, would like to be treated, and to make a difference in someone's life.

sedimentary bedrock units, predominantly limestone/dolomite underlined by sandstone and shale is found in the area.

Based on a review of USGS topographical maps of the area, the vicinity surrounding the subject property is relatively flat, with rolling hills, and with low lying areas with associated wetland/rivers. The property and STH 167 rides along an elevated flute of land that slopes off to the northwest and southeast. The subject property slopes off towards the Menomonee River a 1/3 of a mile to the southeast.

Washington County is characterized by two groundwater systems: a shallow "water-table" system, within the glacial deposits, and a deeper sandstone aquifer. The general direction of shallow groundwater flow in the vicinity of the subject property was not determined in the field as part of the recent Phase I or II Environmental Site Assessments. However, the depth to ground water based on adjoining site information is approximately 10 feet below grade. Shallow groundwater flow in glacial deposits typically mimics surface water drainage. Anticipated groundwater flow direction at the subject property is likely to occur towards southeast, towards the Menomonee River.

1.4 Wellhead Protection Area

The current Kwik Trip located at W188N10963 Maple Road is right on the outskirts of the 5-year travel time for the Graef Wellhead Protection area. Village Well #3 is located approximately 4,800 feet northeast and Village Wells #5 and #7 are located approximately 1.2 miles east/northeast from the site. The proposed new Kwik Trip parcel is diagonally across HWY 167 from the current location, which is still within the same Graef Wellhead Protection area. This new location is approximately 3,800 feet from Well #3 and 1.1 miles from Wells #5 and #7. See attached Wellhead Protection Area Map (Figure 3) for reference.

2.0 Conditional Use Permit Request

As specified in the Village of Germantown Wellhead Protection ordinance, all requests for a conditional use permit shall be submitted in writing to the Germantown Village Planning and Zoning Department, and shall include all of the following:

(a) A site plan map with all building and structure footprints, driveways, sidewalks, parking lots, stormwater management structures, groundwater monitoring wells, and 2-foot ground elevation contours.
(b) A business plan and/or other documentation which describes in detail the use, activities, and structures proposed.
(c) An environmental assessment report prepared by a licensed environmental engineer which details the risk to, and potential impact of, the proposed use, activities, and structures on groundwater quality. In the event of a substitution or relocation of a pre-existing use under this section, the report shall address the ways that the substituted or relocated use will reduce the risk to groundwater compared to the pre-existing use.
(d) An operational safety plan, which details the operational procedures for material processes and containment, best management practices, stormwater runoff management, and groundwater monitoring.
(e) A contingency plan which addresses in detail the actions that will be taken should a contamination event caused by the proposed use, activities, or structures occur.

The following sections provide further details on these items.

3.0 Site Plan Map

Refer to attached civil plan sheet C100 (Site Keynote Plan) for the proposed Kwik Trip building footprint, driveways, sidewalks, parking lot area.

Plan sheet C200 (Grade Plan) details the proposed final ground elevation contours.

Plan sheet C300 (Storm Sewer Plan) details the stormwater management structures. Of note are the oil skimmer structures located prior to the on-site stormwater pond. Two of these structures are proposed since there are two outfall locations into the stormwater pond. These structures are designed to capture any surface fuel spills that enter the stormwater system. It acts as an oil-water separator and is able to contain approximately 100-200 gallons of product. Refer to attached plan sheet C501 (Site Plan Details) for a schematic of the storm sewer inlet with sump detail.

An on-site stormwater pond is also proposed for the new development. The pond not only provides suspended solids removal prior to discharge, but it also provides another location to detect and recover a large fuel spill. Having an onsite stormwater pond is more protective for the environment versus if the stormwater system is connected directly to the village mains underground where surface spills and discharges can go unnoticed.

Please note that installation of groundwater monitoring wells are not proposed during development. It is not common practice to install monitoring wells solely as a contingency when there has not been any signs of a petroleum release. Refer to later sections that further detail the petroleum system leak prevention and leak detection technologies which are state of the art, such that they diminish the potential for wellhead contamination.

4.0 Business Plan

Kwik Trip, Inc. is proposing the construction of a 11,120 square-foot convenience store with attached 1-bay carwash and an attached dumpster enclosure with fueling canopy and separate diesel fuel canopy. The proposed method of operation for this development will be consistent with that for our existing convenience stores within the area. The requested hours of operation will be 24 hours for all uses. The type of products that will be sold will be similar to that of our existing stores: gasoline, in line diesel, E-85, Unleaded 88, groceries, bakery and dairy, hot and cold food and beverages, tobacco products, off-sale alcohol products, lotto, convenience store merchandise, ice, and propane. The outside merchandising of products is being requested next to the store (ice and propane) and miscellaneous merchandising under the gas canopy. The proposed store is projected to have between 28-35 full and part time employees, with 2-8 on staff at any given time.

5.0 Environmental Assessment Report

Several improvements are planned for the new Kwik Trip fueling system to reduce the risk to groundwater compared to the pre-existing use. Kwik Trip in some areas exceeds state and federal guidelines for what is required to operate a retail gas operation with respect to monitoring fuel systems. Kwik Trip also has a documented spill response plan in place to handle any situation that may arise. Below are additional details on the primary environmental protection improvements.

5.1 Double-Wall Flexible Fuel Piping

The proposed new fuel system will utilize double-wall flexible fuel piping from the underground storage tanks to the fuel dispensers. Double-wall design allows for a means to contain a release from the primary pipe if it were to occur. If product would happen to be released from the primary pipe, it would travel through the outer secondary pipe and be contained in a liquid tight sump. Sumps are located at the submersible head on each tank and under each product dispenser. These sumps are designed to contain and alert the operator of a release. All sumps are also equipped with a liquid sensor, which alerts our coworkers and the 24/7 Kwik Trip Operation Support Center immediately of any liquid that has entered the sump. Kwik Trip has an in-house fuel service technician team who would then receive a work order to investigate the alarms and make immediate corrective action, if needed.

Current Kwik Trip fuel piping is double-wall fiberglass piping that was installed in 1995. Fiberglass piping comes in straight sections that have to be joined together by fittings to create bends or for long sections. These fittings and joints are much more susceptible to have leaks that can contribute to groundwater contamination versus the new flexible fuel piping systems. Existing joints are not located within a containment, whereas the new flexible piping would have no joints outside a containment structure. Additionally, double-wall fiberglass piping is susceptible on getting moisture or water within the annular space that can undergo freeze-thaw cycles and result in cracking. This is especially true in the Wisconsin climate.

Below is summary of advantages that new proposed flexible fuel piping has versus old fiberglass piping:

- Eliminates the need to hand-build joints in the field;
- No cutting, fitting and welding of underground fittings;
- Termination points can be contained safely inside containment sumps, no need to bury joints underground;
- Reduction in or elimination of potential leak points;
- No need to use adhesives or glue kits to connect pipe to fittings;
- Flexible piping can withstand freeze-thaw if moisture gets in annular space, and;
- Can be installed in any type of weather conditions.

5.2 Line Leak Detection

Not only will the new underground fuel lines be flexible double-wall piping, but they will also be equipped with electronic line leak detection (ELLD). This ELLD system is installed in the pipe run for each product dispensed and is designed to shut down flow to the dispenser if there is a pressure loss in the product pipe. An alert is then sent to the Kwik Trip 24-hr Operation Support team to send out a fuel technician to evaluate if there is an issue.

Current Kwik Trip fuel lines are not equipped with this type of precise leak detection.

5.3 Double-Wall Fiberglass Tanks

The proposed new underground fuel tanks work on the same premise as the double-wall piping. Tanks will be constructed as a double-wall fiberglass tank. There is a membrane between the two layers that allows for monitoring of liquid in the event it is released from the primary tank. This membrane space is called the interstitial space. Within the interstitial space is a riser pipe that allows the space to be continuously monitored with a liquid sensor. These sensors also alert our coworkers and the 24/7 Kwik Trip Operation Support Center immediately of any liquid that has entered this interstitial space. Kwik Trip has an in-house fuel service technician team who would then receive a work order to investigate the alarms and make immediate corrective action if needed. If product is found within the interstitial space, the tank will be shut down and fuel removed until a repair can be made.

Current Kwik Trip underground fuel tanks are double-wall fiberglass tanks installed in 1995. This older style fiberglass tank is not equipped with interstitial monitoring for leak detection. Rather, their means for leak detection is statistical inventory reconciliation (SIR). That leak detection method relies on comparing fuel sales to how much fuel is left in the underground tank to determine if there is unaccounted for fuel that may be due to a leak. This leak detection does not provide the immediate notification that the new proposed interstitial monitoring would provide. Leaks detected from SIR monitoring also comes after the fact and can be several days or even weeks after a leak has started.

5.4 Double-Wall Spill Buckets

The proposed new fuel system will also utilize double-wall spill buckets to further enhance spill prevention. A spill bucket is in place where the fuel delivery tanker connects to the underground fuel tank for filling. If any product is inadvertently spilled while connecting or disconnecting to the tank, it is captured by this spill bucket. These spill buckets can hold approximately 5-gallons of product. The spill bucket also has a secondary wall, or secondary containment, as another layer of protection if there is a crack in the primary spill bucket. There is a visual gauge that shows if any fuel is accumulating in this secondary containment.

Current Kwik Trip fills only have a single-wall spill bucket, which are much more susceptible to have leaks that go unnoticed.

6.0 Operational Safety Plan

Many items discussed in the above Environmental Assessment Report section are also applicable to this section on operational safety. The proposed new fuel system will have secondary containment present by utilizing double-wall flexible fuel piping, double-wall fiberglass tanks, and double-wall spill buckets. Additionally, liquid-tight containment sumps will be present beneath each fuel dispenser and where fuel piping comes out of the underground fuel tank (called the submersible turbine pump sump). All containment sumps are also equipped with a liquid sensor, which alerts our coworkers immediately of any liquid that has entered the sump.

Spill response best management practices are further outlined within the Spill Response Plan in the following Contingency Plan section.

Stormwater runoff management is previously discussed in Site Plan Map section. A highlight of that section are inclusion of an oil-skimmer structure that is capable of capturing a fuel spill prior to leaving the Kwik Trip property. Additionally, an on-site stormwater pond will be present to provide another location to detect and recover a large fuel spill.

As previously mentioned in the Site Plan Map section, installation of groundwater monitoring wells are not proposed during development. It is not common practice to install monitoring wells solely as a contingency when there has not been any signs of a petroleum release.

7.0 Contingency Plan

Kwik Trip has an established Spill Response Plan outlining how fuel spill situations are handled. The plan is included as a separate stand-alone document. Information contained in the plan describes response actions, identifies the chain of command, gives information on spill reporting requirements, and lists the companies and phone numbers of the people that can respond to a spill.

This spill response plan has proven to be effective over the years from a tanker accident down to a small spill. Kwik Trip has an internal call center (called Operation Support Center) that is staffed 24 hours a day, 365 days a year, to take calls from retail stores in the event of a spill. If a call comes in from a store, operations support staff gathers information about the spill, then they can determine the severity of the situation and contact the appropriate people or teams to respond. We have 24/7 on-call spill response vendors set up in all geographic locations that Kwik Trip has stores.

All Kwik Trip store locations are also equipped with the basic spill response material. Absorbent material packaged in 25 pound bags are kept at store level and can be ordered from our warehouse. Each store also has a 55 gallon drum for containerizing the absorbent material after the clean-up. A separate company is then contracted to pick up and properly disposed of the used absorbent material.

All Kwik Trip retail co-workers are also Class C certified, which means they have been training in basic understanding of gas equipment and operation, tank monitors and alarms, and spill response.

8.0 Conclusion

Based on information provided in this document, the proposed Kwik Trip relocation project will reduce the risk to groundwater compared to the pre-existing store location. The new location will utilize state of the art equipment to diminish the potential for wellhead contamination.

The pre-existing facility is also being relocated within the same Groundwater Protection Overlay District (Graef Wellhead Protection Area). It's being relocated approximately 1,000 feet northeast of the existing location. This new location is approximately 3,800 feet from Village of Germantown Well #3 and 1.1 miles from Wells #5 and #7, which also meets all separation distance requirements as set forth under subsection 17.40.09 of the Village of Germantown Wellhead Protection ordinance.

Prior to commencing operation, Kwik trip will obtain all applicable Federal, State, and Local approvals and permits to operate a retail fuel station/convenience store.

Once the new Kwik Trip location development is complete, the pre-existing store location will file a deed restriction against the property that prohibits future uses and/or facilities that require a conditional use permit under subsection 17.40.11 or are listed as prohibited use in subsection 17.40.11 of the Village of Germantown Wellhead Protection ordinance.

Lastly, once the new Kwik Trip is complete, the pre-existing location will have all fuel equipment removed to prevent the potential for any future groundwater contamination. This includes removal of the underground storage tanks and piping.

Please contact Kevin Nestingen at 608.793.6464 or knestingen@kwiktrip.com if you have questions or require further information on this Conditional Use Permit request.

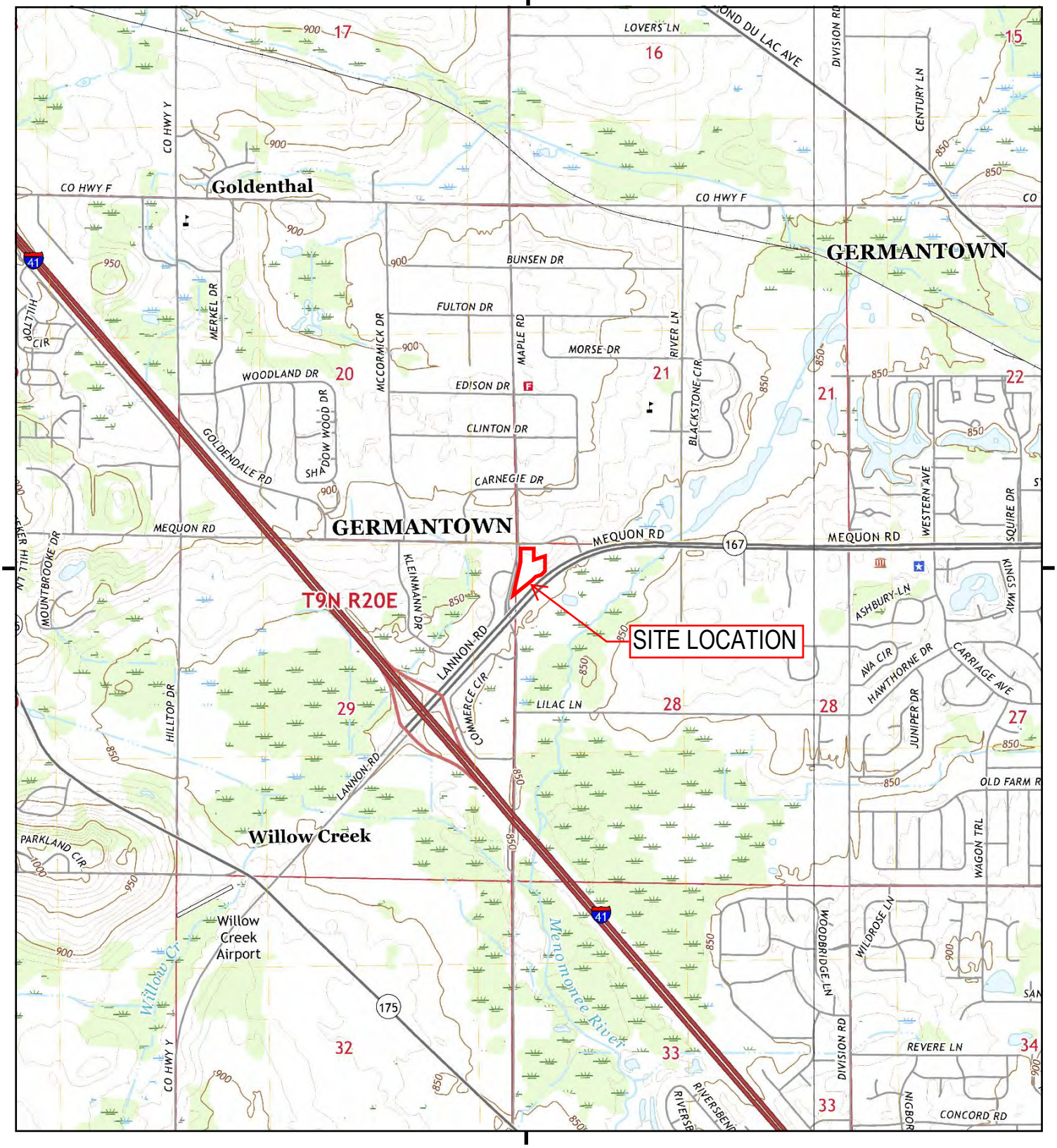
Sincerely,

KWIK TRIP, INC.

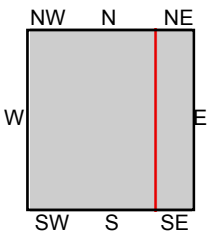
Kevin D. Nestingen, PE
Environmental Compliance Manager
Wisconsin PE License #44284-6

Attachments:
Figures
Spill Response Plan (stand-alone document)

Figures



This report includes information from the following map sheet(s).



TP, Sussex, 2022, 7.5-minute
SE, Menomonee Falls, 2022, 7.5-minute

FIGURE 1 - SITE LOCATION MAP
PROPOSED KWIK TRIP #631 RELOCATION
N112 W18741 MEQUON ROAD
GERMANTOWN, WISCONSIN

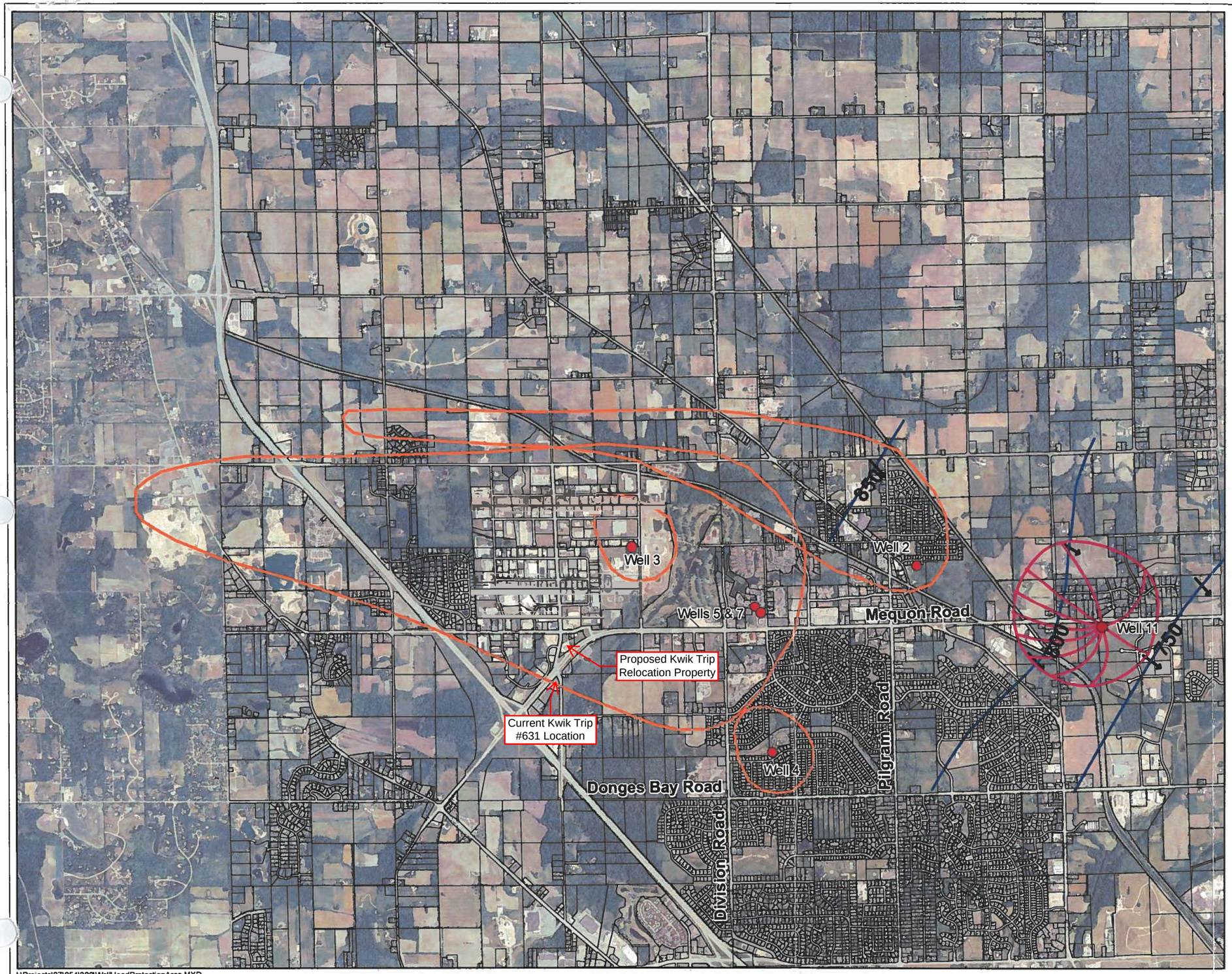
FIGURE 2 - 2020 AERIAL MAP
PROPOSED KWIK TRIP #631 RELOCATION
N112 W18741 MEQUON ROAD
GERMANTOWN, WISCONSIN

FIGURE 3

Wellhead Protection Areas for Germantown Well No. 11*

Village of Germantown
Washington County, Wisconsin

*WHPA for Well 11 delineated by Ruekert-Mielke, 2010 in Amendment No. 1 to Wellhead Protection Plan for Municipal Well Nos. 2, 3, 3, 5, & 7 delineated by Graef, 2008



Legend

- Village Well Sites
- Direction of Groundwater Flow
- 800 Potentiometric Surface Elevation of Sandstone Aquifer (Static Condition)
- Wellhead Protection Area Well 11 (Based on 5-Year TOT)
- Graef Wellhead Protection Areas Wells 2-5 & 7 (Based on 5-Year TOT)

N
W E
S

0 1,500 3,000 6,000 9,000
Feet

I:\Projects\07\054\300\WellHeadProtectionArea.MXD

KEYED NOTES

0 SF — 1. ASPHALT PAVEMENT. SEE DETAIL 1/C500.

37,161 SF — 2. 6" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #3 REBAR, 3' O.C. CONCRETE SEALER: TK-26UV. SEE DETAIL 6/C500.

61,322 SF — 3. 8" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #4 REBAR, 4' O.C. CONCRETE SEALER: TK-26UV. SEE DETAIL 6/C500.

4. NOT USED.

5. 6" CONCRETE WALK. SEE DETAIL 2/C500.

4,627 SF — CONCRETE SEALER: TK-26UV

73,095 SF
UNDISTURBED=22,357 SF — 6. LANDSCAPE AREA. SEE SHEET L1.

7. CURB TYPE CHANGE.

8. 18" CURB AND GUTTER, SEE DETAIL 9/C500.

9. 18" REJECT CURB AND GUTTER, SEE DETAIL 9/C500.

10. TRANSITION CURB & GUTTER. SEE DETAIL 4/C500.

11. STANDARD CURB & GUTTER TERMINATION. SEE DETAIL 5/C500.

12. TAPER CURB FROM FLUSH TO FULL HEIGHT OVER 6' LENGTH. SEE DETAIL 5A/C500.

13. A.D.A. ACCESSIBLE PARKING SPACE WITH LOADING ZONE. PROVIDE APPROPRIATE STRIPING AND PAVEMENT MARKINGS. SEE SHEET C204.

14. OFF-STREET PARKING STALLS
STRIPING - 4" WIDE STALL LINES, USE HIGH VISIBILITY YELLOW PAINT.
SPACES PROVIDED
(3) 8.9' x 20.0' (MIN.) GENERAL PARKING
(7) 9.1' X 20.0' (MIN.) GENERAL PARKING
(19) 9.5' X 20.0' (MIN.) GENERAL PARKING
(10) 9.7' X 20.0' (MIN.) GENERAL PARKING
(2) 8.0' x 20.0' ACCESSIBLE PARKING WITH
(1) 11.0' x 20.0' LOADING ZONE
(2) 12.9' x 20.0' ACCESSIBLE PARKING WITH
(1) 5.0' x 20.0' LOADING ZONE

15. EXTERNAL TRASH ENCLOSURE TO MATCH BUILDING. SEE ARCHITECTURAL DETAILS.

16. KWIK TRIP TRADEMARK SIGN SUBJECT TO SEPARATE REVIEW AND APPROVAL (VERIFY FINAL LOCATION WITH SIGN PERMIT). SEE DETAIL 12/C501.

17. 4" WIDE, HIGH VISIBILITY, PAVEMENT STRIPING, LANE MARKINGS AND TEXT. COLOR: HC MARKINGS- YELLOW, ALL OTHERS- YELLOW.

18. SIDEWALK RAMP (12:1 SLOPE MAX). SEE DETAIL 12/C500.

19. GAS TANK VENT STAND, SEE PIPING PLANS.

20. 30" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD INSTALLED AT EACH PARKING STALL ALONG BUILDING. SEE DETAIL 10/C500.

21. 40'-0" x 120'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. CANOPY GRAPHICS PER OWNER.

22. CONCRETE ISLANDS W/ 6" EXPOSURE WITH FUEL DISPENSERS. DISPENSER PER OWNER.

23. 36" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD SIMILAR TO DETAIL 10/C500.

24. OUTDOOR MERCHANDISING AREA.

25. UNDERGROUND FUEL STORAGE TANKS PER OWNER. PROVIDE PIPING AND VENTING PER OWNER'S SPECIFICATIONS. SEE DETAIL 1/C501.

26. HC PVC BOLLARD SLEEVE PER OWNER. VAN ACCESS SIGNAGE AT 4.8" HT. STALL PARKING AT 60" HT. SEE SHEET C204.

27. STORM STRUCTURE. SEE SHEET SP3 FOR FURTHER STORM SEWER INFORMATION.

28. LP CAGE.

29. 'FREE AIR' COMPRESSOR. PROVIDE SIGNAGE PER OWNER.

30. SITE AREA LIGHT WITH CONCRETE BASE. SEE DETAIL 11/C500.

31. PVC IRRIGATION SLEEVE UNDER PAVEMENT. VERIFY W/ IRRIGATION PLAN FOR EXACT SIZE AND LOCATION BEFORE INSTALLATION. SEE DETAIL 3/C500.

32. 24'-0" x 50'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. CANOPY GRAPHICS PER OWNER.

33. BIKE RACK.

34. VACUUM. SEE DETAIL 14/C500.

35. 18" EPOXY STOP BAR (YELLOW).

36. TRANSFORMER PAD.

37. DISCONNECT PAD.

38. NOT USED.

39. NOT USED.

40. NOT USED.

41. OUTDOOR ICE MERCHANDISING AREA.

42. PROPOSED GREASE INTERCEPTOR.

43. PICNIC AREA. SIMILAR TO DETAIL 2/C500. CONCRETE SEALER: TK-26UV

44. NOT USED.

45. PROPOSED COIN BOX. SEE DETAIL 13/C501.

46. PROPOSED REFUSE CONTAINER.

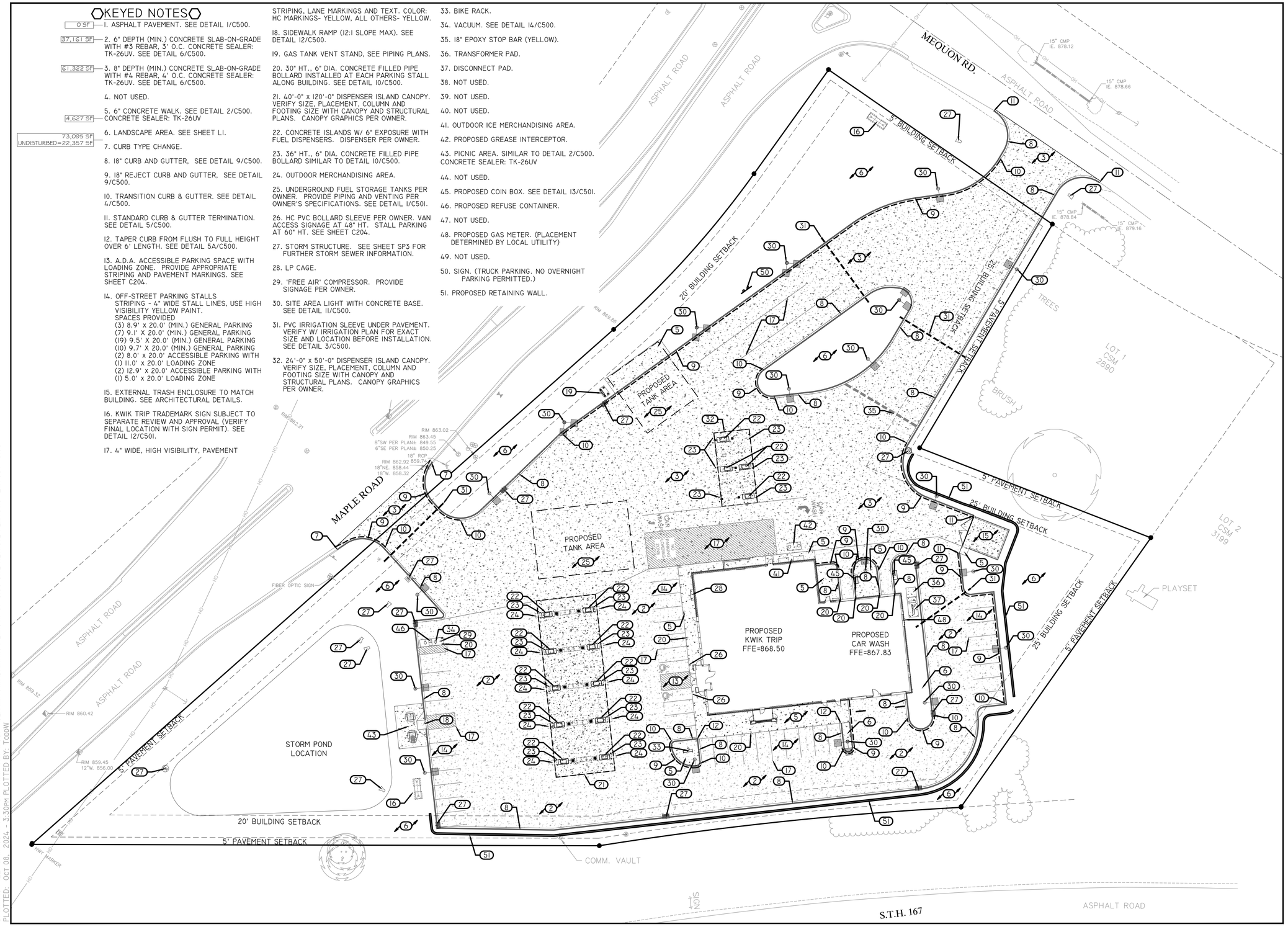
47. NOT USED.

48. PROPOSED GAS METER. (PLACEMENT DETERMINED BY LOCAL UTILITY)

49. NOT USED.

50. SIGN. (TRUCK PARKING. NO OVERNIGHT PARKING PERMITTED.)

51. PROPOSED RETAINING WALL.



DRAWING FILE: Q:\1700-1799\1757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\1757-C100-SITE KEYNOTE PLAN.DWG LAYOUT: C100
PLOTTED: OCT 08, 2024 - 3:30PM PLOTTED BY: TODDW

KWIK TRIP STORES

KWIK STAR STORES

KWIK TRIP, Inc.
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1626 OAK STREET
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SCALE
0 30 60

SITE KEYNOTE PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C100

NOTE: CONTRACTOR TO OBTAIN RIGHT-OF-WAY EXCAVATION PERMIT PRIOR TO BEGINNING SITE WORK.

CALL DIGGERS HOTLINE @ 1-800-242-8511 AT LEAST 3 WORKING DAYS PRIOR TO EXCAVATING.

CONSTRUCTION NOTE:

COORDINATE WITH OWNER FOR POSSIBLE CONSTRUCTION FENCING AND GATE LOCATIONS AND APPROPRIATE SIGNAGE INSTALLATION.

NOTES:

- REFER TO OTHER PROJECT PLANS AND INFORMATION RELATED TO THIS PROJECT PRIOR TO BEGINNING ANY GRADING WORK.

- PLAN PREPARED FROM ALTA/ACSM LAND TITLE SURVEY BY:
  R.A. SMITH, INC.
  262.781.1000

- CONTRACTOR SHALL LOCATE ALL UTILITIES WHICH MAY AFFECT THIS WORK AND NOTIFY OWNER OF ANY CONFLICTS.

- CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED ELEVATIONS PRIOR TO START OF CONSTRUCTION. VERIFY CRITICAL ELEVATIONS TO ENSURE CONFORMANCE WITH GRADING PLAN, PARTICULARLY WITH WALK AND/ OR PAVEMENTS TO REMAIN. MEET EXISTING GRADES ALONG STREETS, PROPERTY LINES AND DRIVEWAY ENTRANCES. RESTORE ALL EXISTING PAVEMENTS THAT REMAIN TO THEIR ORIGINAL, IF NOT BETTER CONDITION. NOTIFY OWNER OF ANY CONFLICTS.

- AREAS NOT PAVED AND TO BE LANDSCAPED SHALL RECEIVE MINIMUM OF 4" DEPTH COMPACTED TOPSOIL.

- CONTRACTOR SHALL COORDINATE GRADING AND INSTALLATION OF DRIVES IN R.O.W. WITH APPROPRIATE GOVERNMENT AGENCIES. OBTAIN APPROPRIATE PERMITS FOR GRADING AND DRAINAGE IN ALL R.O.W.

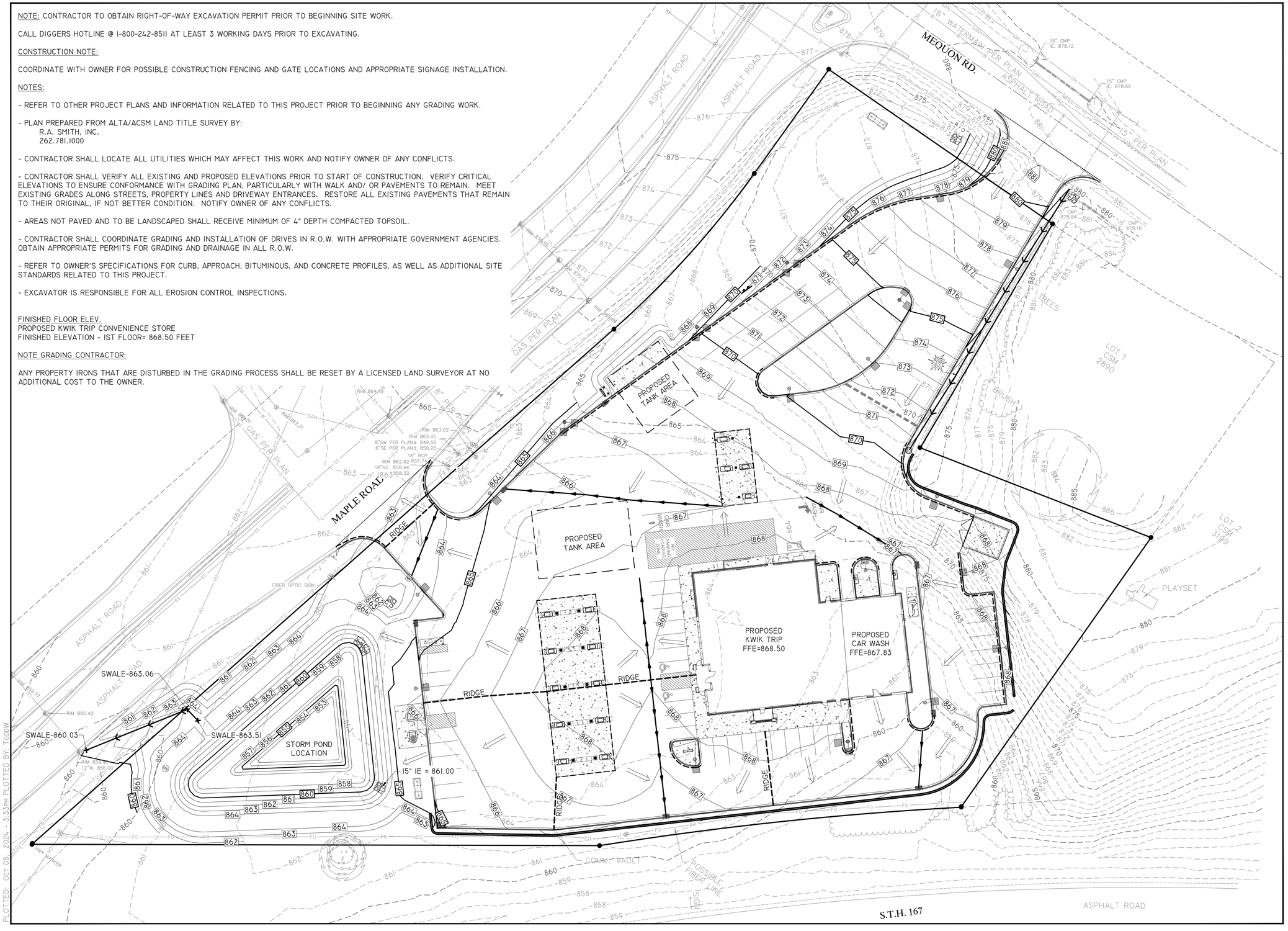
- REFER TO OWNER'S SPECIFICATIONS FOR CURB, APPROACH, BITUMINOUS, AND CONCRETE PROFILES, AS WELL AS ADDITIONAL SITE STANDARDS RELATED TO THIS PROJECT.

- EXCAVATOR IS RESPONSIBLE FOR ALL EROSION CONTROL INSPECTIONS.

FINISHED FLOOR ELEV.
PROPOSED KWIK TRIP CONVENIENCE STORE
FINISHED ELEVATION - IST FLOOR= 868.50 FEET

NOTE GRADING CONTRACTOR:

ANY PROPERTY IRONS THAT ARE DISTURBED IN THE GRADING PROCESS SHALL BE RESET BY A LICENSED LAND SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.



DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C200-GRADING PLANS.DWG LAYOUT: C200
PLOTTED: OCT 08, 2024 - 3:33PM PLOTTED BY: TODDW

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GRADING PLAN

CONVENIENCE STORE #631
STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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DATE 10/09/24 - REVIEW DOCUMENTS
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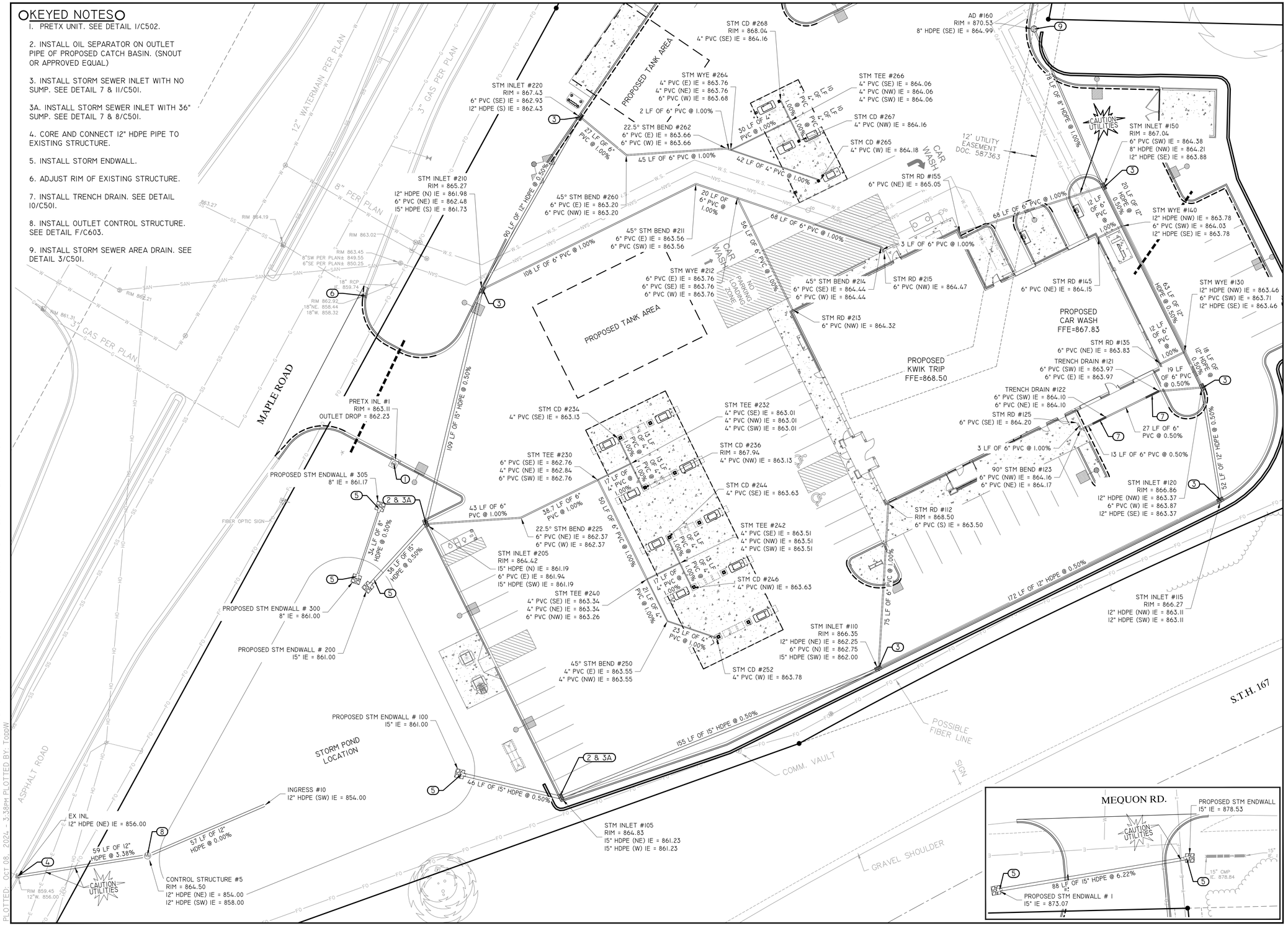
KEYED NOTES

1. PRETX UNIT. SEE DETAIL 1/C502.
2. INSTALL OIL SEPARATOR ON OUTLET PIPE OF PROPOSED CATCH BASIN. (SNOUT OR APPROVED EQUAL)
3. INSTALL STORM SEWER INLET WITH NO SUMP. SEE DETAIL 7 & 11/C501.

3A. INSTALL STORM SEWER INLET WITH 36" SUMP. SEE DETAIL 7 & 8/C501.

4. CORE AND CONNECT 12" HDPE PIPE TO EXISTING STRUCTURE.
5. INSTALL STORM ENDWALL.
6. ADJUST RIM OF EXISTING STRUCTURE.
7. INSTALL TRENCH DRAIN. SEE DETAIL 10/C501.
8. INSTALL OUTLET CONTROL STRUCTURE. SEE DETAIL F/C603.
9. INSTALL STORM SEWER AREA DRAIN. SEE DETAIL 3/C501.



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PLOTTED: Oct 08, 2024 - 3:38PM PLOTTED BY: ToddW

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STORM SEWER PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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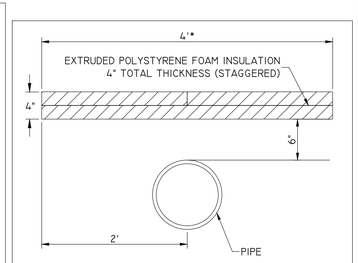
SHEET C300

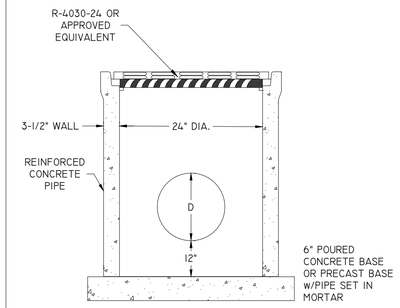
SEE PETROLEUM DETAILS

1 / C501 STORAGE TANKS COMPLEX DETAIL
NOT TO SCALE

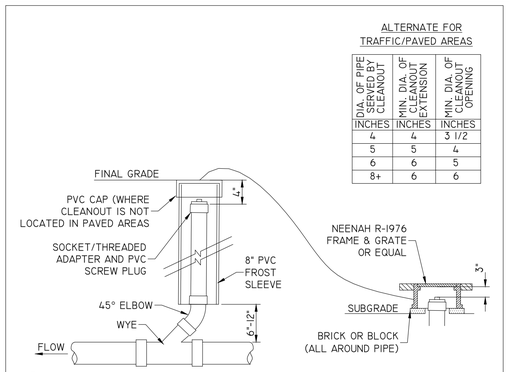


*WIDTH OF INSULATION SHALL INCREASE x FT. PER EVERY x FT. OF VERTICAL SEPARATION.

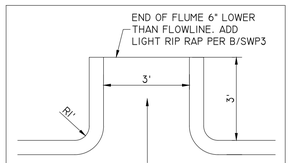
2 / C501 PIPE INSULATION DETAIL
NOT TO SCALE



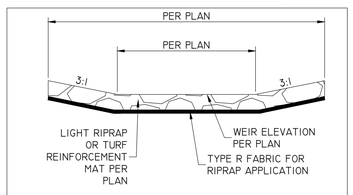
3 / C501 PRECAST REINFORCED CONC. MANHOLE DETAIL
NOT TO SCALE



4 / C501 SANITARY & STORM SEWER CLEANOUT CLEANOUT
NOT TO SCALE

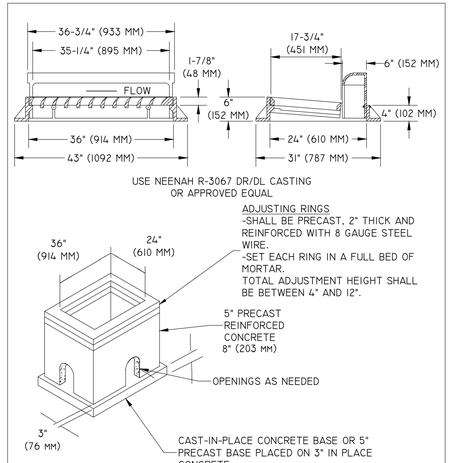


5 / C501 CONCRETE FLUME DETAIL
NOT TO SCALE

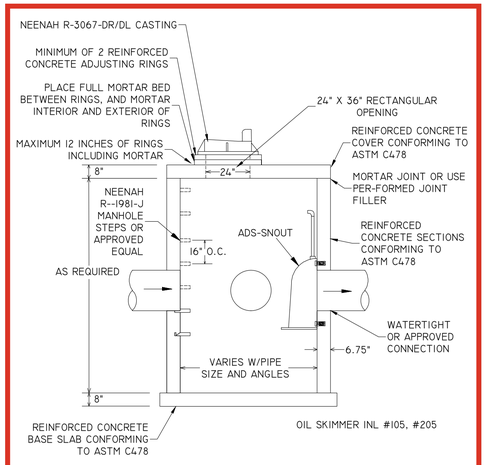


6 / C501 OVERFLOW WEIR DETAIL
NOT TO SCALE

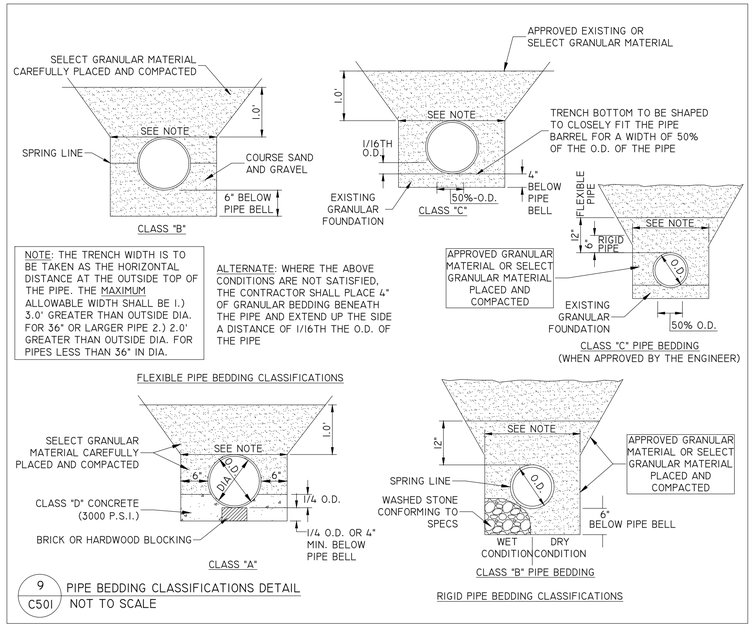
NOTE:
WEIRS TO USE PERMANENT TURF REINFORCEMENT MAT



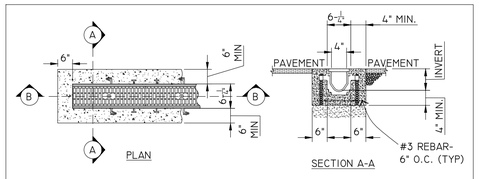
7 / C501 24"x 36" CURB INLET AND CASTING DETAIL
NOT TO SCALE



8 / C501 STORM SEWER INLET WITH SUMP DETAIL
NOT TO SCALE

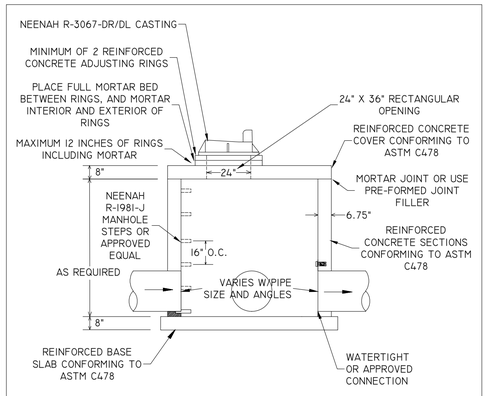


9 / C501 PIPE BEDDING CLASSIFICATIONS DETAIL
NOT TO SCALE



TRENCH SHALL BE "PERMA-TRENCH Z 886 SYSTEM - SERIES 8606N

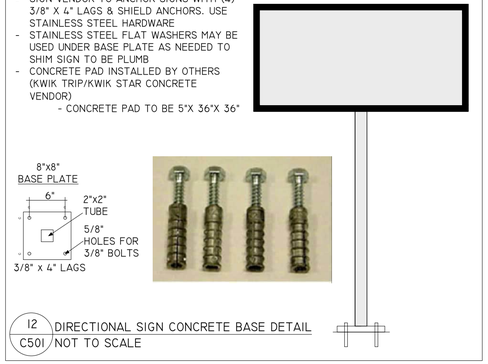
10 / C501 Z 886 TRENCH DRAIN DETAIL
NOT TO SCALE



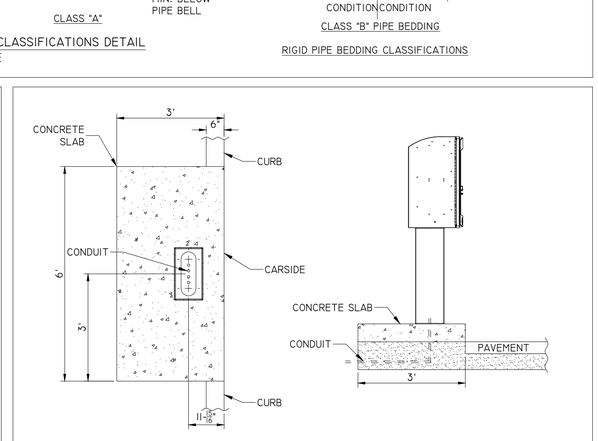
11 / C501 STORM SEWER INLET WITHOUT SUMP DETAIL
NOT TO SCALE

NOTES:
- SIGN VENDOR TO ANCHOR SIGN/S TO CONCRETE PAD
- SIGN VENDOR TO ANCHOR SIGNS WITH (4) 3/8" X 4" LAGS & SHIELD ANCHORS. USE STAINLESS STEEL HARDWARE
- STAINLESS STEEL FLAT WASHERS MAY BE USED UNDER BASE PLATE AS NEEDED TO SHIM SIGN TO BE PLUMB
- CONCRETE PAD INSTALLED BY OTHERS (KWIK TRIP/KWIK STAR CONCRETE VENDOR)
  - CONCRETE PAD TO BE 5'X 36'X 36"

SINGLE SIDED DIRECTIONAL SIGN



12 / C501 DIRECTIONAL SIGN CONCRETE BASE DETAIL
NOT TO SCALE



13 / C501 CAR WASH PAY STATION DETAIL
NOT TO SCALE

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KWIK TRIP STORES

KWIK STAR STORES

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NO SCALE

SITE PLAN DETAILS

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C501

REVIEW PLANS FOR:

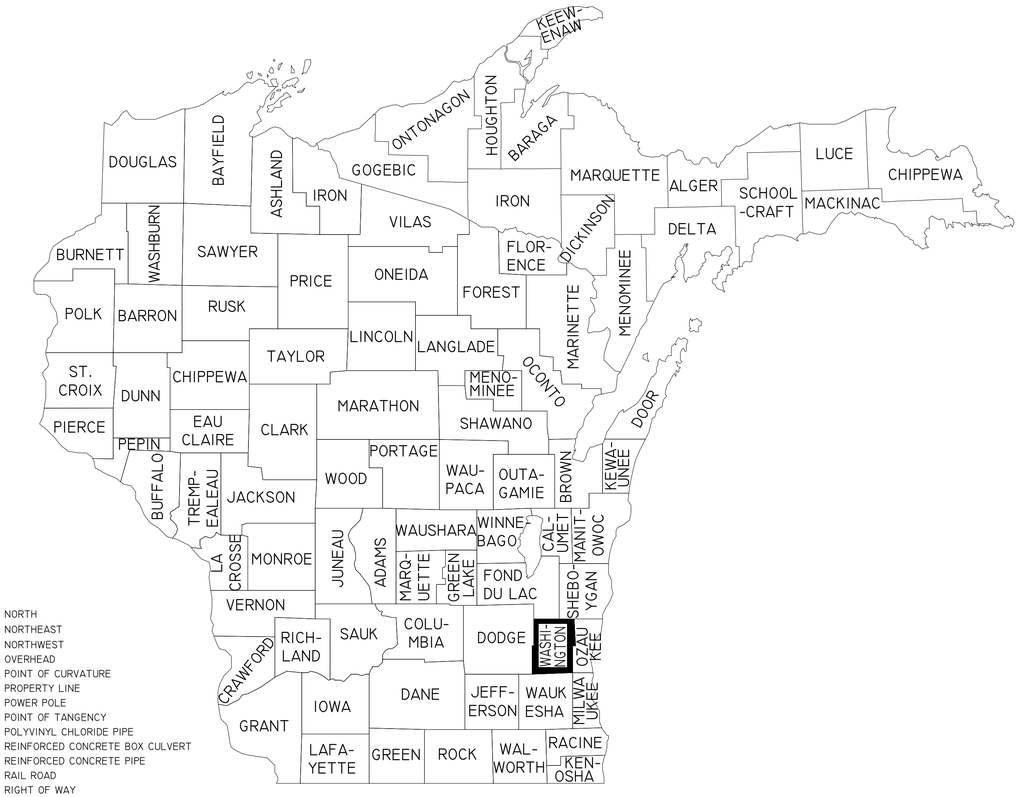
KWIK TRIP #631

VILLAGE OF GERMANTOWN,
WASHINGTON COUNTY, WISCONSIN

INDEX OF SHEETS

C001	TITLE SHEET
C010	ALTA
C020	DEMO PLAN
C100	SITE KEYNOTE PLAN
C180	SITE CIRCULATION PLAN
C181	SITE DIMENSION PLAN
C200	GRADING PLAN
C201	GRADING PLAN DETAIL - SOUTH
C201.1	GRADING PLAN DETAIL - NORTH
C202	GRADING PLAN SPOT DETAIL - SOUTH
C202.1	GRADING PLAN SPOT DETAIL - NORTH
C203	CANOPY AND TANK GRADING DETAILS
C204	ACCESSIBILITY PLAN
C300	STORM SEWER PLAN
C400	UTILITY PLAN
C401	UTILITY NOTES
C500	SITE PLAN DETAILS
C501	SITE PLAN DETAILS
C502	SITE PLAN DETAILS
C600	EROSION CONTROL PLAN
C601	EROSION CONTROL NOTES
C602	EROSION CONTROL DETAILS
C603	EROSION CONTROL DETAILS
C700	LANDSCAPE PLAN
C701	LANDSCAPE PLAN
C702	LANDSCAPE PLAN
C703	LANDSCAPE DETAILS
C800	PHOTOMETRIC LIGHTING PLAN

TOTAL SHEETS = 28



LIST OF STANDARD ABBREVIATIONS

&	AND	(N)	NORTH
AB	AUGER BORING	(NE)	NORTHEAST
ADT	AVERAGE DAILY TRAFFIC	(NW)	NORTHWEST
BC	BOTTOM OF CURB	OH	OVERHEAD
BM	BENCHMARK	PC	POINT OF CURVATURE
BOC	BACK OF CURB	P/L	PROPERTY LINE
BR	BOTTOM OF RAMP	PP	POWER POLE
BS	BOTTOM OF STEPS	PT	POINT OF TANGENCY
BW	BOTTOM OF WALL	PVC	POLYVINYL CHLORIDE PIPE
CB	CATCH BASIN	RCB	REINFORCED CONCRETE BOX CULVERT
CMAC	CORRUGATED METAL ARCH CULVERT	RCP	REINFORCED CONCRETE PIPE
CMBC	CORRUGATED METAL BOX CULVERT	RR	RAIL ROAD
CMP	CORRUGATED METAL PIPE	R/W	RIGHT OF WAY
CO	CLEANOUT	(S)	SOUTH
CONC.	CONCRETE	SAN	SANITARY SEWER
CPP	CORRUGATED PLASTIC PIPE	SB	SOIL BORING
DGB	DENSE GRADED BASE	SS	STORM SEWER
DIP	DUCTILE IRON PIPE	STM	STORM
D/S	DOWNSTREAM	(SW)	SOUTHWEST
(E)	EAST	TC	TOP OF CURB
ELEV.	ELEVATION	TBR	TO BE REMOVED
EOG	EDGE OF GRAVEL	TLE	TEMPORARY LIMITED EASEMENT
FFE	FINISHED FLOOR ELEVATION	TNH	TOP NUT FIRE HYDRANT
FG	FINISH GRADE	TP	TEST PIT
F.O.	FIBER OPTIC	TR	TOP OF RAMP
INL	INLET	TYP.	TYPICAL
HDPE	HIGH DENSITY POLYETHYLENE PIPE	TS	TOP OF STEPS
HMA	HOT MIX ASPHALT	TW	TOP OF WALL
HP	HIGH POINT	U/S	UPSTREAM
IE	INVERT ELEVATION	VAR.	VARIES
LF	LINEAL FEET	(W)	WEST
LP	LOW POINT		
MEG	MATCH EXISTING GRADE		
MH	MANHOLE		

LEGEND

- BENCHMARK
- I" IRON BAR
- EXISTING MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING STORM SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING WATER SHUTOFF
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING GAS VALVE
- EXISTING CURB INLET
- EXISTING WELL
- TEST PIT LOCATION
- SOIL BORING
- EXISTING AIR CONDITIONING UNIT
- EXISTING GAS METER
- EXISTING ELECTRIC METER
- EXISTING UTILITY PEDESTAL
- EXISTING RAILROAD TRACKS
- EXISTING TREE LINE
- EXISTING GUY POLE
- EXISTING CABLE TV
- EXISTING FIBER OPTIC CABLE
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD UTILITIES
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING PROPERTY LINE
- PROPOSED HANDICAP PARKING
- PROPOSED CURB STOP
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED FORCE MAIN
- PROPOSED SANITARY SEWER LATERAL
- PROPOSED WATER LATERAL
- PROPOSED WATER MAIN
- PROPOSED PUMP STATION
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED CURB INLET
- PROPOSED CATCH BASIN
- PROPOSED CLEANOUT
- PROPOSED DRAINAGE FLOW
- 3% PROPOSED SLOPE
- PROPOSED CURB & GUTTER
- PROPOSED REJECT CURB & GUTTER
- PROPOSED MOUNTABLE CURB & GUTTER
- 1178 EXISTING GROUND CONTOUR(INTERVAL-1 FT.)
- 1180 PROPOSED GROUND CONTOUR(INTERVAL-1 FT.)
- 1256.50 PROPOSED SPOT ELEVATION (TOP OF CURB)
- 1256.00 PROPOSED SPOT ELEVATION (BOTTOM OF CURB)
- PROPOSED SILT FENCE
- PROPOSED INLET PROTECTION
- PROPOSED RIPRAP
- PROPOSED EROSION MAT
- PROPOSED SAWCUT
- PROPOSED DRAINAGE SWALE

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TITLE SHEET

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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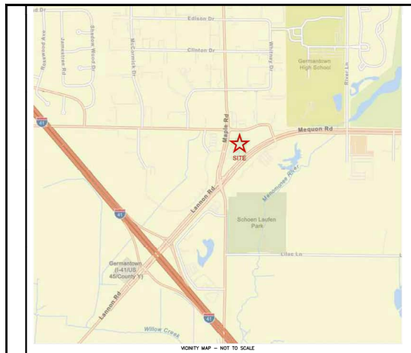
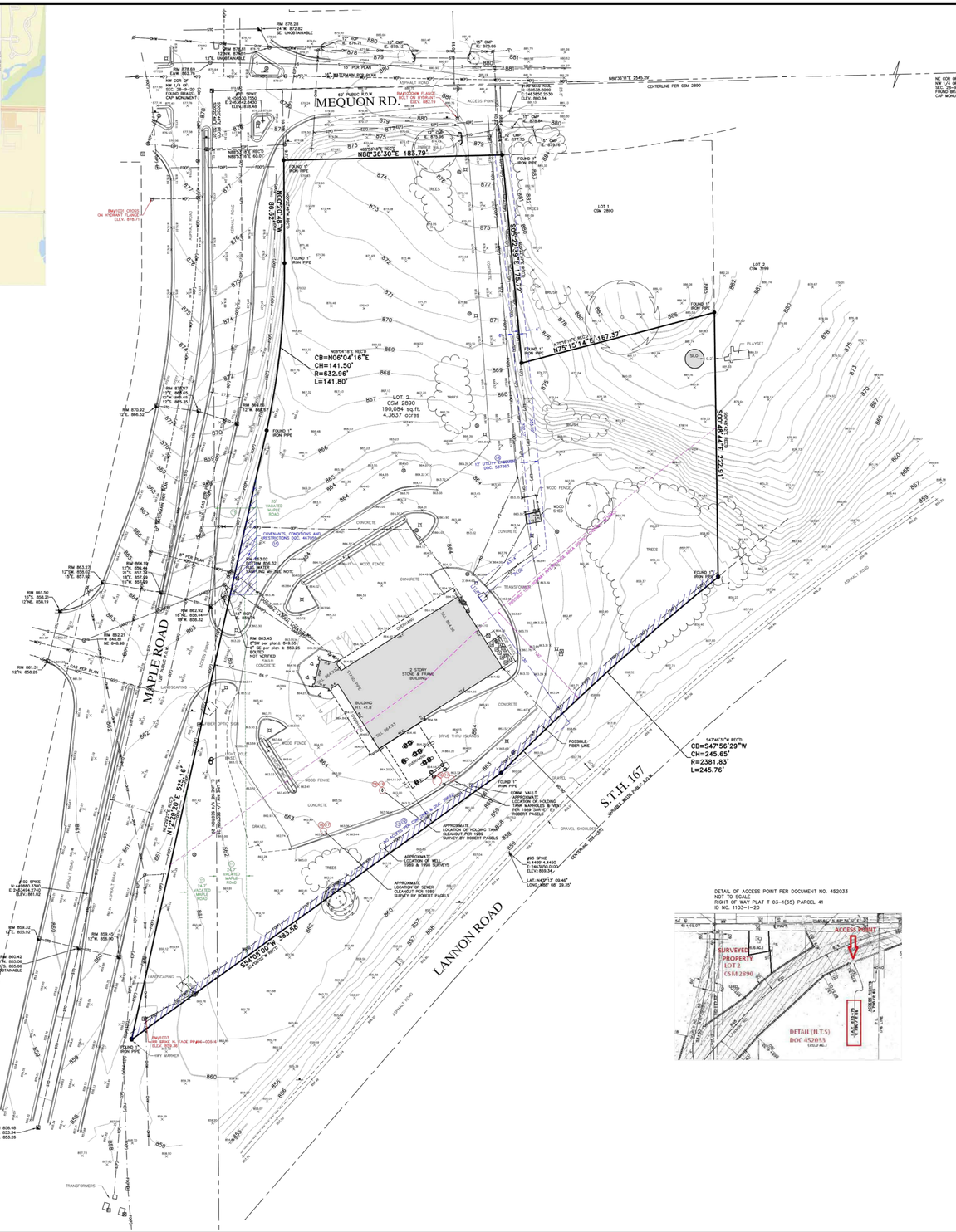
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C001

DRAWING FILE: Q:\1700-1799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C001-TITLE SHEET.DWG LAYOUT: TITLE
PLOTTED: Oct 08, 2024 - 3:28PM PLOTTED BY: ToddW

ALTA/NSPS LAND TITLE SURVEY
STORE 631 - GERMANTOWN

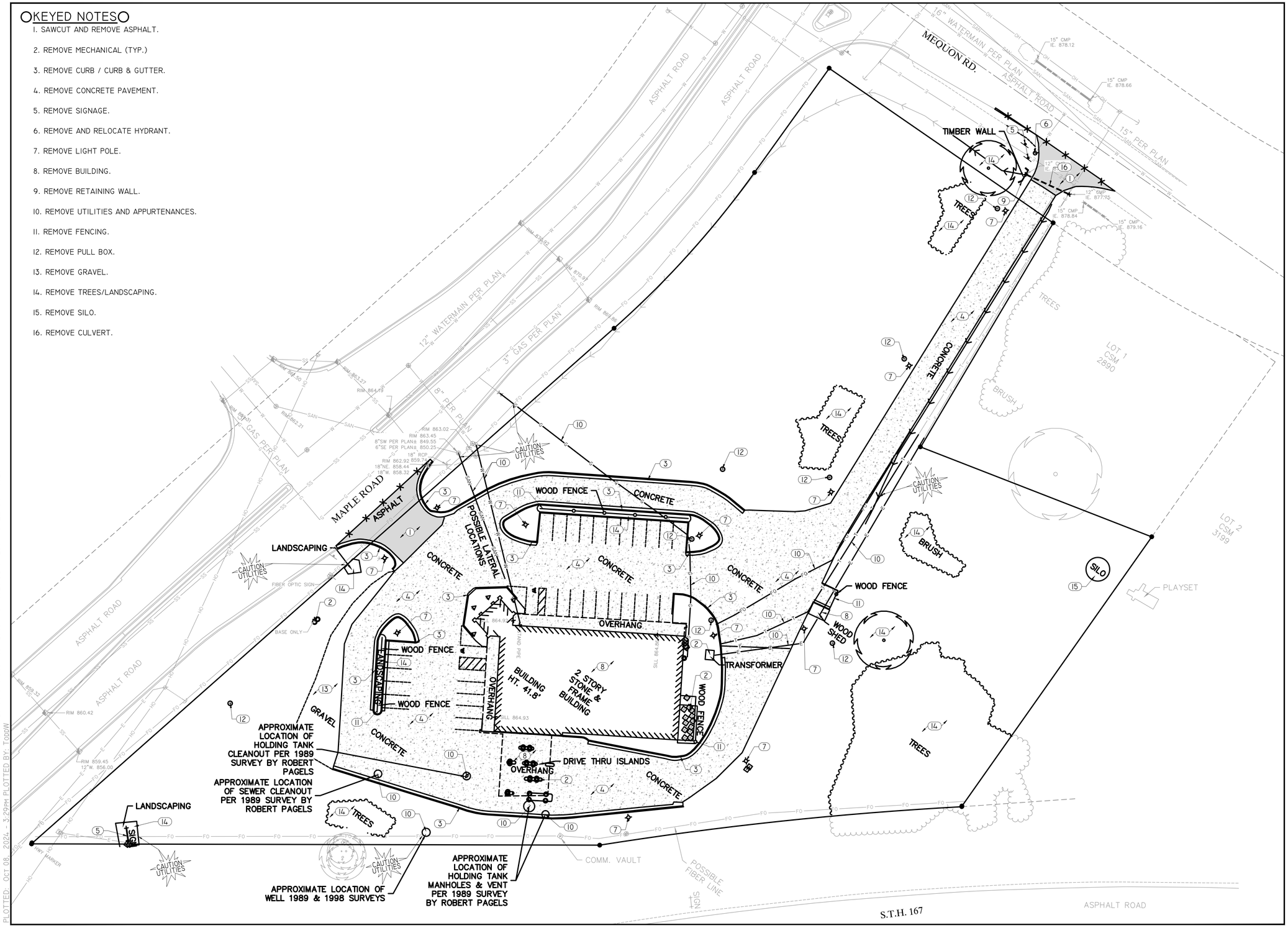


VICINITY MAP – NOT TO SCALE


MEQUON RD.
MAPLE ROAD
LANNON ROAD
S.T.H. 167
N88°30'30"E 185.79'
N88°30'30"E 365.38'
N00°29'30"W 535.64'
S54°49'00"W 365.38'
N75°15'14"E 157.37'
S00°29'30"E 223.51'
CB=N06°04'16"E
CH=141.50'
R=632.96'
L=141.80'
CB=S47°56'29"W
CH=245.65'
R=2381.83'
L=245.76'
2 STORY STONE & FRAME BUILDING
LOT 2 CSM 2890 190,084 sq.ft. 4.3637 acres
LOT 1 CSM 2890
LOT 3 CSM 1199
VACATED MAPLE ROAD
ACCESS POINT
CENTERLINE PER CSM 2890
NE COR OF NW 1/4 OF SEC. 28-9-20 FOUND BRASS CAP MONUMENT
NW COR OF NW 1/4 OF SEC. 28-9-20 FOUND BRASS CAP MONUMENT
RAILROAD CROSS ON WITNESS LINE ELEV. 878.71
LAT.:N43°12' 09.48"
LONG.:W88° 09' 29.35"
DRIVE THRU ISLANDS
POSSIBLE FIBER LINE
TRANSFORMERS
LIGHT POLE
TREES
WOOD FENCE
CHAIN LINK FENCE
CONCRETE
GRAVEL
GRAVEL SHOULDER
ASPHALT ROAD
LANDSCAPING
BUILDING HT.: 41.8'
SIGN
WOOD SHED
PLAYSET
TRAMPOLINE
CONC. MON. FOUND
IRON PIPE FOUND
SET 1" IRON PIPE
SET MAG NAIL
SET CUT CROSS
SET PK NAIL
SET CHISEL MARK
FOUND 1" IRON PIPE
FOUND 1" IRON ROD
FOUND 1" IRON PIPE
FOUND 1" IRON PIPE
FOUND 1" IRON PIPE

KEYED NOTES

1. SAWCUT AND REMOVE ASPHALT.
2. REMOVE MECHANICAL (TYP.)
3. REMOVE CURB / CURB & GUTTER.
4. REMOVE CONCRETE PAVEMENT.
5. REMOVE SIGNAGE.
6. REMOVE AND RELOCATE HYDRANT.
7. REMOVE LIGHT POLE.
8. REMOVE BUILDING.
9. REMOVE RETAINING WALL.
10. REMOVE UTILITIES AND APPURTENANCES.
11. REMOVE FENCING.
12. REMOVE PULL BOX.
13. REMOVE GRAVEL.
14. REMOVE TREES/LANDSCAPING.
15. REMOVE SILO.
16. REMOVE CULVERT.



DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING PLANS\11757-C020-DEMO PLAN.DWG LAYOUT: C020
PLOTTED: Oct 08, 2024 - 3:29PM PLOTTED BY: TODDW

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KWIK STAR STORES

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SCALE
0 30 60

DEMO PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C020

KEYED NOTES

0 SF — 1. ASPHALT PAVEMENT. SEE DETAIL 1/C500.

37,161 SF — 2. 6" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #3 REBAR, 3' O.C. CONCRETE SEALER: TK-26UV. SEE DETAIL 6/C500.

61,322 SF — 3. 8" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #4 REBAR, 4' O.C. CONCRETE SEALER: TK-26UV. SEE DETAIL 6/C500.

4. NOT USED.

5. 6" CONCRETE WALK. SEE DETAIL 2/C500.

4,627 SF — CONCRETE SEALER: TK-26UV

73,095 SF
UNDISTURBED=22,357 SF — 6. LANDSCAPE AREA. SEE SHEET L1.

7. CURB TYPE CHANGE.

8. 18" CURB AND GUTTER, SEE DETAIL 9/C500.

9. 18" REJECT CURB AND GUTTER, SEE DETAIL 9/C500.

10. TRANSITION CURB & GUTTER. SEE DETAIL 4/C500.

11. STANDARD CURB & GUTTER TERMINATION. SEE DETAIL 5/C500.

12. TAPER CURB FROM FLUSH TO FULL HEIGHT OVER 6' LENGTH. SEE DETAIL 5A/C500.

13. A.D.A. ACCESSIBLE PARKING SPACE WITH LOADING ZONE. PROVIDE APPROPRIATE STRIPING AND PAVEMENT MARKINGS. SEE SHEET C204.

14. OFF-STREET PARKING STALLS
STRIPING - 4" WIDE STALL LINES, USE HIGH VISIBILITY YELLOW PAINT.
SPACES PROVIDED
(3) 8.9' x 20.0' (MIN.) GENERAL PARKING
(7) 9.1' X 20.0' (MIN.) GENERAL PARKING
(19) 9.5' X 20.0' (MIN.) GENERAL PARKING
(10) 9.7' X 20.0' (MIN.) GENERAL PARKING
(2) 8.0' x 20.0' ACCESSIBLE PARKING WITH
(1) 11.0' x 20.0' LOADING ZONE
(2) 12.9' x 20.0' ACCESSIBLE PARKING WITH
(1) 5.0' x 20.0' LOADING ZONE

15. EXTERNAL TRASH ENCLOSURE TO MATCH BUILDING. SEE ARCHITECTURAL DETAILS.

16. KWIK TRIP TRADEMARK SIGN SUBJECT TO SEPARATE REVIEW AND APPROVAL (VERIFY FINAL LOCATION WITH SIGN PERMIT). SEE DETAIL 12/C501.

17. 4" WIDE, HIGH VISIBILITY, PAVEMENT STRIPING, LANE MARKINGS AND TEXT. COLOR: HC MARKINGS- YELLOW, ALL OTHERS- YELLOW.

18. SIDEWALK RAMP (12:1 SLOPE MAX). SEE DETAIL 12/C500.

19. GAS TANK VENT STAND, SEE PIPING PLANS.

20. 30" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD INSTALLED AT EACH PARKING STALL ALONG BUILDING. SEE DETAIL 10/C500.

21. 40'-0" x 120'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. CANOPY GRAPHICS PER OWNER.

22. CONCRETE ISLANDS W/ 6" EXPOSURE WITH FUEL DISPENSERS. DISPENSER PER OWNER.

23. 36" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD SIMILAR TO DETAIL 10/C500.

24. OUTDOOR MERCHANDISING AREA.

25. UNDERGROUND FUEL STORAGE TANKS PER OWNER. PROVIDE PIPING AND VENTING PER OWNER'S SPECIFICATIONS. SEE DETAIL 1/C501.

26. HC PVC BOLLARD SLEEVE PER OWNER. VAN ACCESS SIGNAGE AT 4.8" HT. STALL PARKING AT 60" HT. SEE SHEET C204.

27. STORM STRUCTURE. SEE SHEET SP3 FOR FURTHER STORM SEWER INFORMATION.

28. LP CAGE.

29. 'FREE AIR' COMPRESSOR. PROVIDE SIGNAGE PER OWNER.

30. SITE AREA LIGHT WITH CONCRETE BASE. SEE DETAIL 11/C500.

31. PVC IRRIGATION SLEEVE UNDER PAVEMENT. VERIFY W/ IRRIGATION PLAN FOR EXACT SIZE AND LOCATION BEFORE INSTALLATION. SEE DETAIL 3/C500.

32. 24'-0" x 50'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. CANOPY GRAPHICS PER OWNER.

33. BIKE RACK.

34. VACUUM. SEE DETAIL 14/C500.

35. 18" EPOXY STOP BAR (YELLOW).

36. TRANSFORMER PAD.

37. DISCONNECT PAD.

38. NOT USED.

39. NOT USED.

40. NOT USED.

41. OUTDOOR ICE MERCHANDISING AREA.

42. PROPOSED GREASE INTERCEPTOR.

43. PICNIC AREA. SIMILAR TO DETAIL 2/C500. CONCRETE SEALER: TK-26UV

44. NOT USED.

45. PROPOSED COIN BOX. SEE DETAIL 13/C501.

46. PROPOSED REFUSE CONTAINER.

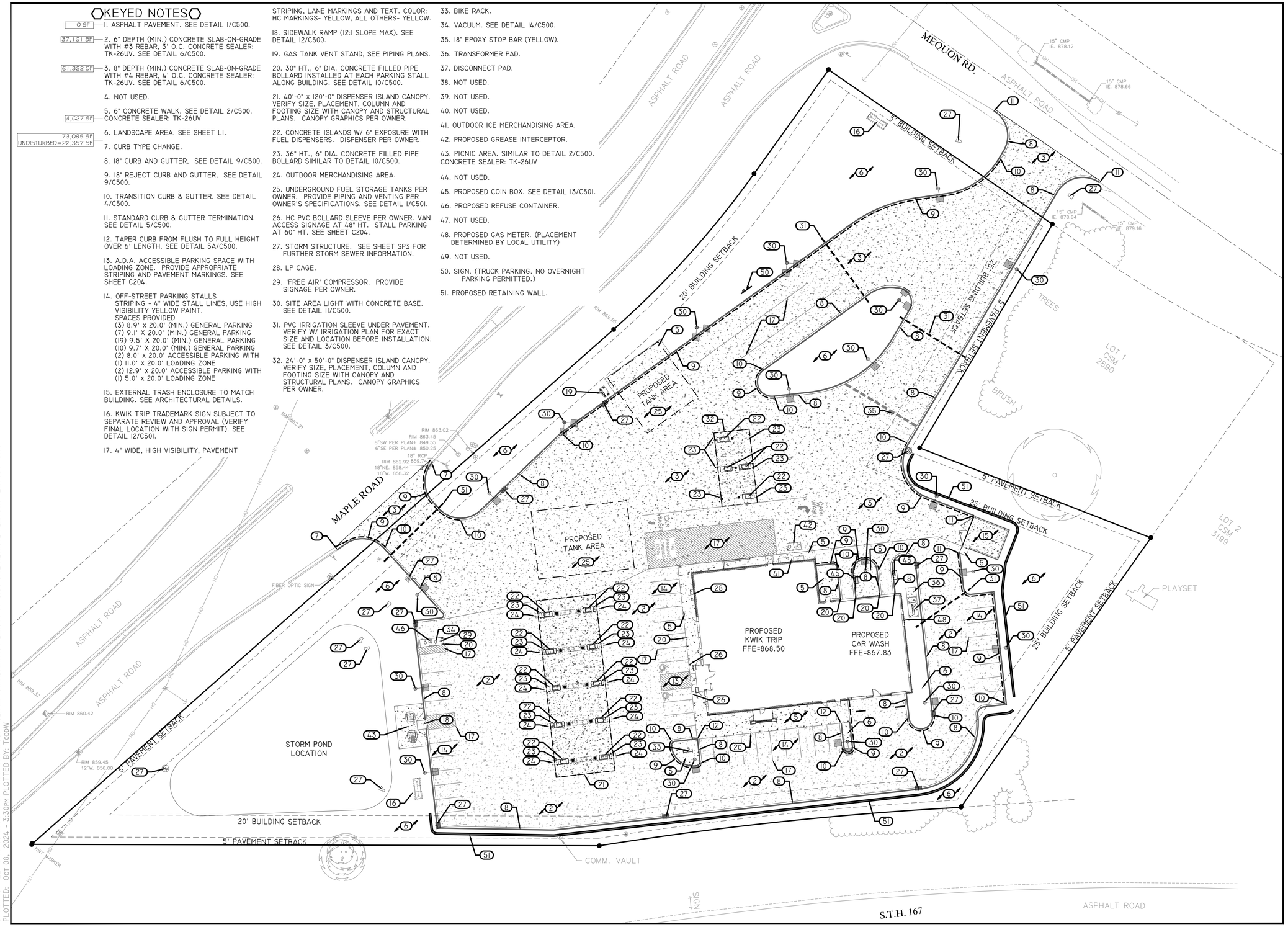
47. NOT USED.

48. PROPOSED GAS METER. (PLACEMENT DETERMINED BY LOCAL UTILITY)

49. NOT USED.

50. SIGN. (TRUCK PARKING. NO OVERNIGHT PARKING PERMITTED.)

51. PROPOSED RETAINING WALL.



DRAWING FILE: Q:\1700-1799\1757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\1757-C100-SITE KEYNOTE PLAN.DWG LAYOUT: C100
PLOTTED: OCT 08, 2024 - 3:30PM PLOTTED BY: TODDW

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KWIK STAR STORES

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SCALE
0 30 60

SITE KEYNOTE PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

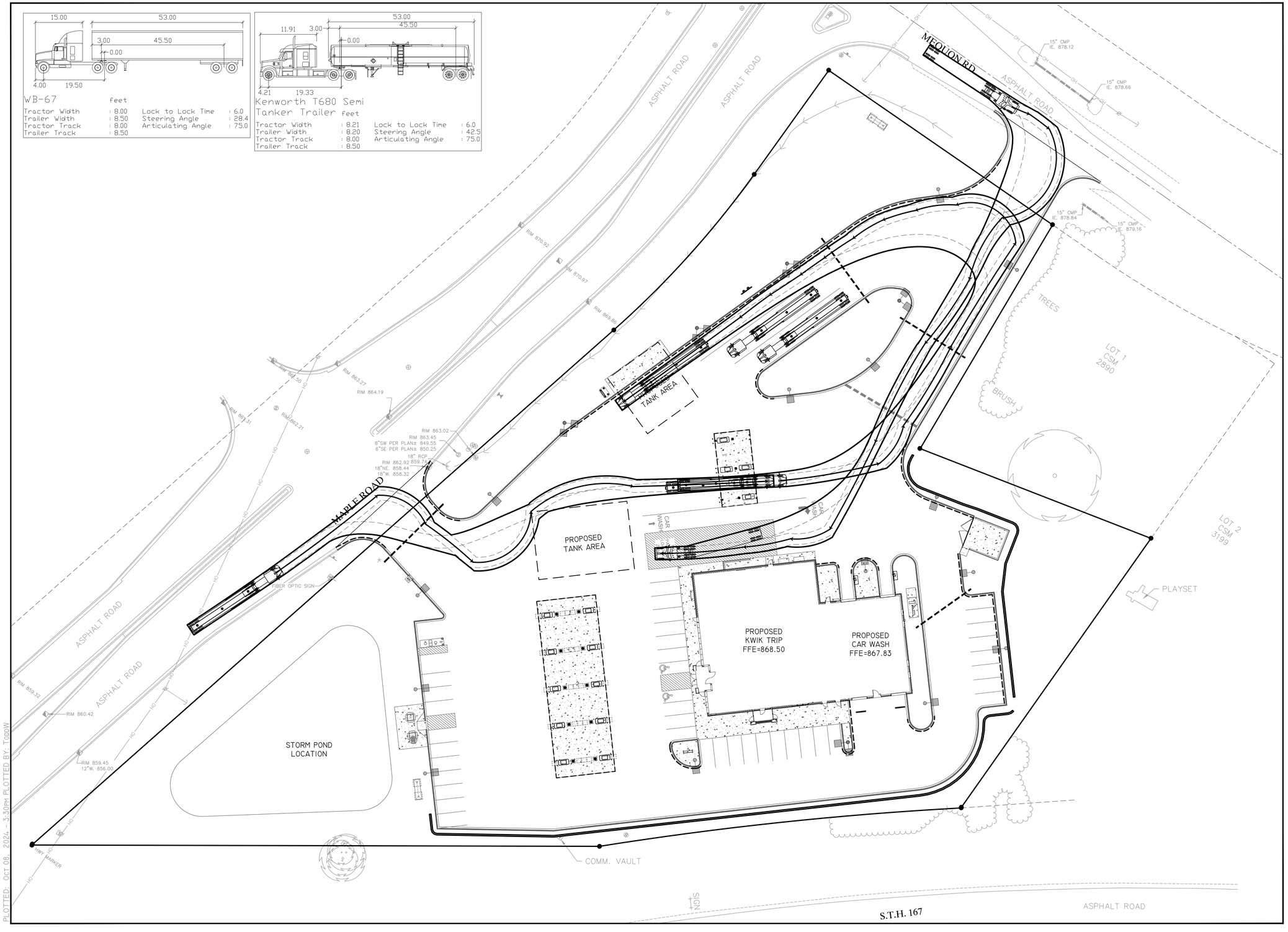
DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C100

WB-67 feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Kenworth T680 Semi
Tanker Trailer feet

Tractor Width	: 8.21	Lock to Lock Time	: 6.0
Trailer Width	: 8.20	Steering Angle	: 42.5
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		



DRAWING FILE: Q:\I1700-I1799\I1757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\I1757-C180-SITE CIRCULATION PLAN.DWG LAYOUT: C180
PLOTTED: OCT 08, 2024 - 3:30PM PLOTTED BY: TODDW

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SCALE
0 30 60

SITE CIRCULATION PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C180

LAYOUT NOTES:

1. PLAN PREPARED FROM AN ALTA/ACSM LAND TITLE SURVEY BY:
   R.A. SMITH, INC.
   262-781-1000
2. CURBS ARE DIMENSIONED TO BACK OF CURB.
3. CONVENIENCE STORE, AND ISLAND COMPLEXES ARE LOCATED FROM THE NORTHEASTERN MOST PROPERTY CORNER AND ALIGNED PARALLEL/PERPENDICULAR TO THE REFERENCE LINE LABELED N47°37'24"E, UNLESS OTHERWISE INDICATED ON THIS PLAN.
4. UNLESS SHOWN OTHERWISE ON THIS DRAWING, CONTRACTOR SHALL PROVIDE CONTROL JOINTS, CONSTRUCTION JOINTS, AND EXPANSION JOINTS IN SLAB ON GRADE, SIDEWALKS AND DRIVES. CONTROL JOINT MAXIMUM DISTANCE: WALKS- 8' O.C., ALL OTHERS- 15' O.C. SAW CUT CONTROL JOINTS MINIMUM ONE-QUARTER CONCRETE THICKNESS. EXPANSION JOINT MAXIMUM DISTANCE: WALKS- 24' O.C., ALL OTHERS- 40' O.C. DOWEL ALL EXPANSION JOINTS- MAXIMUM 24" O.C.
5. CONCRETE IN ISLAND COMPLEX SHALL BE SMOOTH FINISHED.
6. EXTERIOR CONCRETE SURFACES TO BE SEALED. CONCRETE SEALER:
   APR 15- OCT 31 USE: TK-26UV
   NOV 1- DEC 31 USE: TK-290
7. EXPANSION JOINTS SHALL BE DECK-O-FOAMED AND CAULKED WITH SLI.
8. DIAGONAL STRIPING LINES (HATCHING) IN THE " NO PARKING LOADING ZONE" AREA AND ANY OTHER AREA THAT IS HATCHED SHALL BE SPACED 5' ON CENTER.
9. LETTERING FOR ALL WORDING SUCH AS " NO PARKING LOADING ZONE" AND CARWASH SHOULD BE 12" TALL.
10. ALL DIAGONAL STRIPING SHALL BE ANGLED AS CLOSE TO DIMENSIONED ANGLE AS POSSIBLE.
11. CURBS AROUND THE RAISED FILLS SHALL BE PAINTED YELLOW.

⇄ - FOR INFORMATIONAL PURPOSES ONLY

SITE DATA:

ZONING DISTRICT:	B3
TOTAL SITE AREA - EXISTING/PROPOSED:	190,357 SF
EX. IMPERVIOUS:	61,276 SF (32%)
EX. PERVIOUS:	129,081 SF (68%)
PARKING REQUIREMENTS	
PARKING REQUIRED	SERVICE STATION = 1 STALL PER 2 EMPLOYEES +1
PARKING PROVIDED	42 STALLS
BUILDING HEIGHTS	
CONVENIENCE STORE	20.0'
CANOPY	19.5'

BUILDING SETBACKS
FRONT: 20'
REAR: 25'
SIDE: 5'

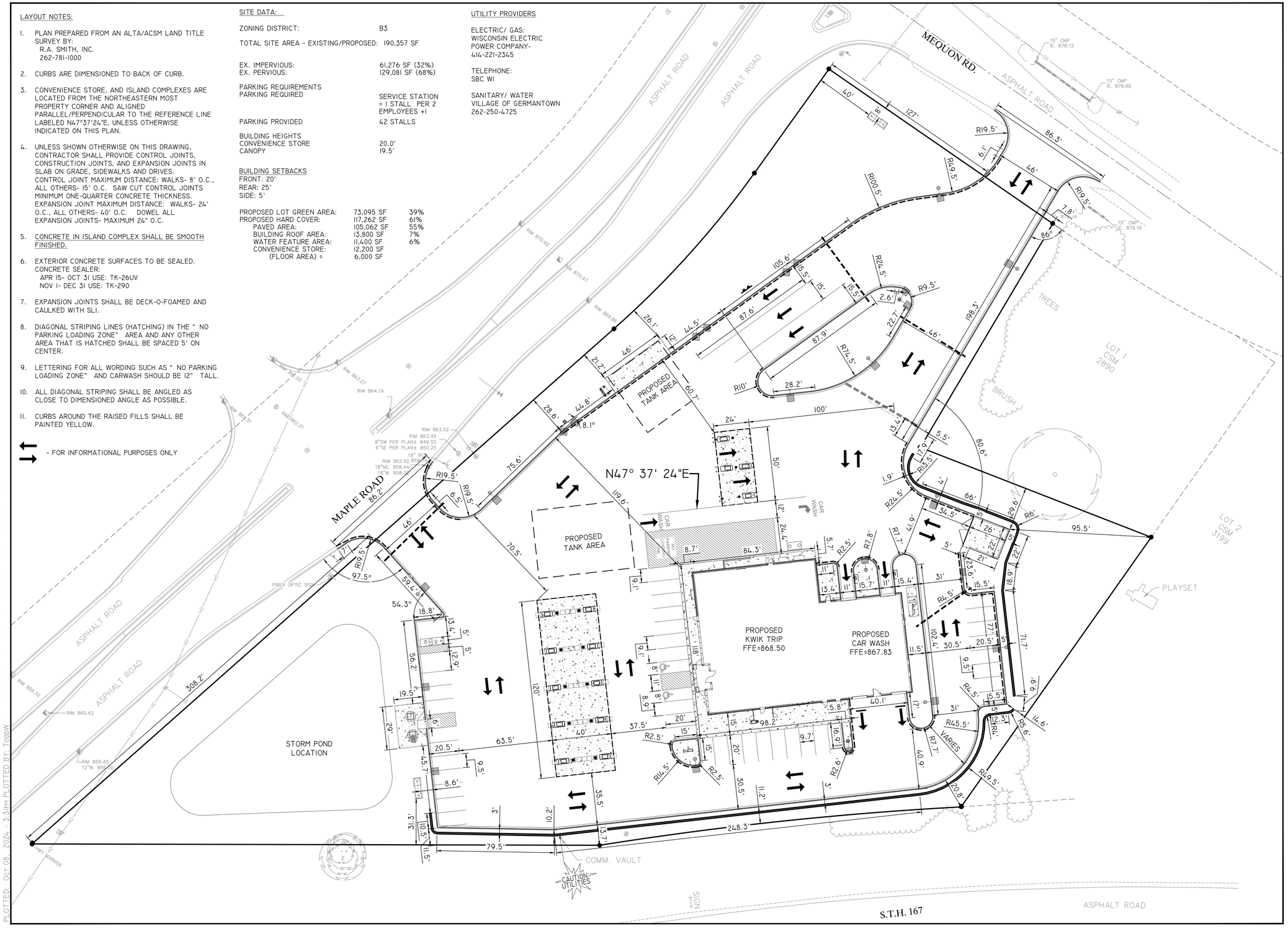
PROPOSED LOT GREEN AREA:	73,095 SF	39%
PROPOSED HARD COVER:	117,262 SF	61%
PAVED AREA:	105,062 SF	55%
BUILDING ROOF AREA:	13,800 SF	7%
WATER FEATURE AREA:	11,400 SF	6%
CONVENIENCE STORE: (FLOOR AREA) =	12,200 SF 6,000 SF	

UTILITY PROVIDERS

ELECTRIC/ GAS:
WISCONSIN ELECTRIC POWER COMPANY-
414-221-2345

TELEPHONE:
SBC WI

SANITARY/ WATER
VILLAGE OF GERMANTOWN
262-250-4725



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SCALE
0 30 60

SITE DIMENSION PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C181

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C181-SITE PLAN.DWG LAYOUT: C181
PLOTTED: Oct 08, 2024 - 3:31PM PLOTTED BY: ToddW

NOTE: CONTRACTOR TO OBTAIN RIGHT-OF-WAY EXCAVATION PERMIT PRIOR TO BEGINNING SITE WORK.

CALL DIGGERS HOTLINE @ 1-800-242-8511 AT LEAST 3 WORKING DAYS PRIOR TO EXCAVATING.

CONSTRUCTION NOTE:

COORDINATE WITH OWNER FOR POSSIBLE CONSTRUCTION FENCING AND GATE LOCATIONS AND APPROPRIATE SIGNAGE INSTALLATION.

NOTES:

- REFER TO OTHER PROJECT PLANS AND INFORMATION RELATED TO THIS PROJECT PRIOR TO BEGINNING ANY GRADING WORK.

- PLAN PREPARED FROM ALTA/ACSM LAND TITLE SURVEY BY:
  R.A. SMITH, INC.
  262.781.1000

- CONTRACTOR SHALL LOCATE ALL UTILITIES WHICH MAY AFFECT THIS WORK AND NOTIFY OWNER OF ANY CONFLICTS.

- CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED ELEVATIONS PRIOR TO START OF CONSTRUCTION. VERIFY CRITICAL ELEVATIONS TO ENSURE CONFORMANCE WITH GRADING PLAN, PARTICULARLY WITH WALK AND/ OR PAVEMENTS TO REMAIN. MEET EXISTING GRADES ALONG STREETS, PROPERTY LINES AND DRIVEWAY ENTRANCES. RESTORE ALL EXISTING PAVEMENTS THAT REMAIN TO THEIR ORIGINAL, IF NOT BETTER CONDITION. NOTIFY OWNER OF ANY CONFLICTS.

- AREAS NOT PAVED AND TO BE LANDSCAPED SHALL RECEIVE MINIMUM OF 4" DEPTH COMPACTED TOPSOIL.

- CONTRACTOR SHALL COORDINATE GRADING AND INSTALLATION OF DRIVES IN R.O.W. WITH APPROPRIATE GOVERNMENT AGENCIES. OBTAIN APPROPRIATE PERMITS FOR GRADING AND DRAINAGE IN ALL R.O.W.

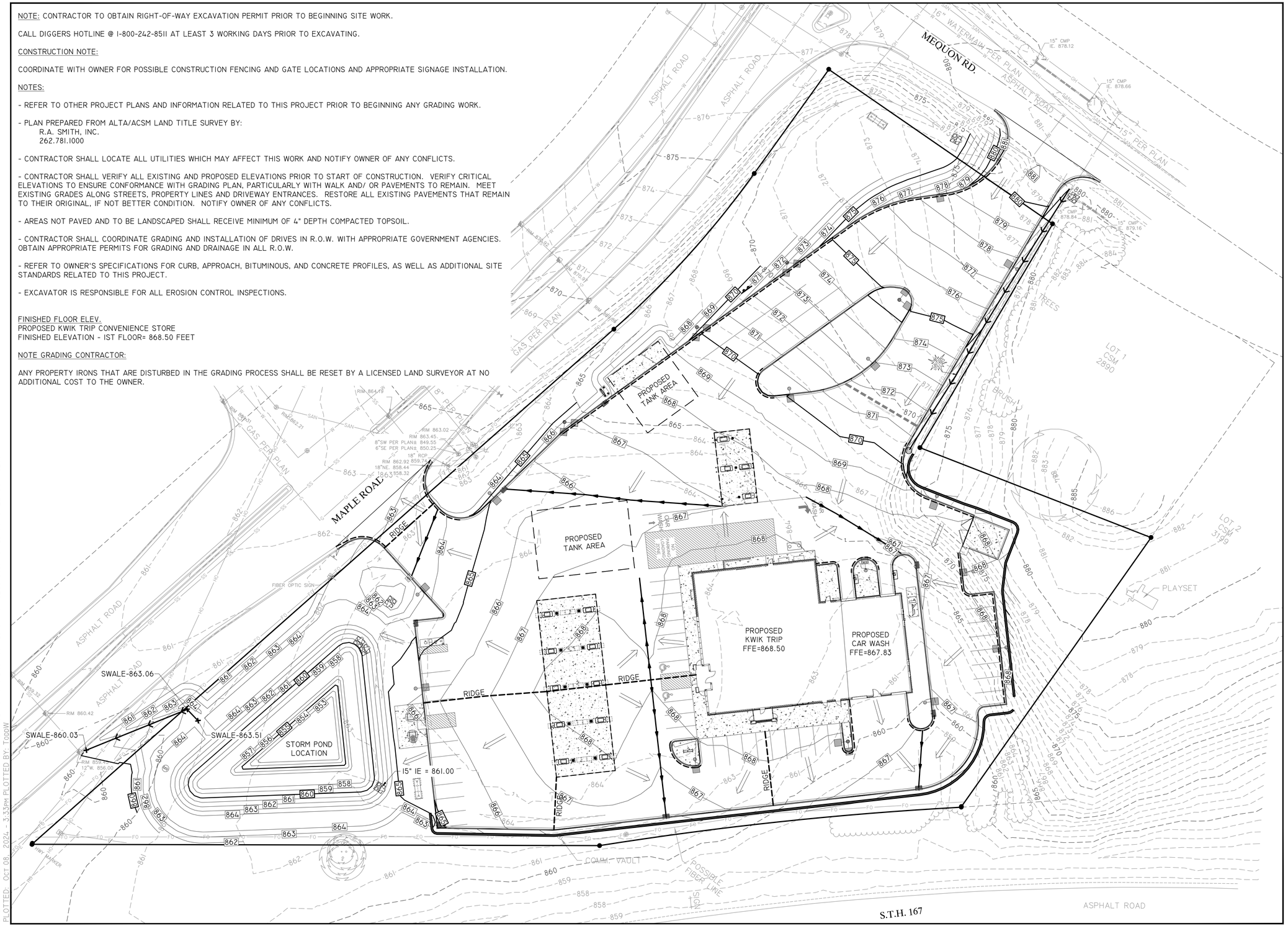
- REFER TO OWNER'S SPECIFICATIONS FOR CURB, APPROACH, BITUMINOUS, AND CONCRETE PROFILES, AS WELL AS ADDITIONAL SITE STANDARDS RELATED TO THIS PROJECT.

- EXCAVATOR IS RESPONSIBLE FOR ALL EROSION CONTROL INSPECTIONS.

FINISHED FLOOR ELEV.
PROPOSED KWIK TRIP CONVENIENCE STORE
FINISHED ELEVATION - IST FLOOR= 868.50 FEET

NOTE GRADING CONTRACTOR:

ANY PROPERTY IRONS THAT ARE DISTURBED IN THE GRADING PROCESS SHALL BE RESET BY A LICENSED LAND SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.



DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C200-GRADING PLANS.DWG LAYOUT: C200
PLOTTED: OCT 08, 2024 - 3:33PM PLOTTED BY: TODDW

KWIK TRIP STORES

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SCALE
0 30 60

GRADING PLAN

CONVENIENCE STORE #631
STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
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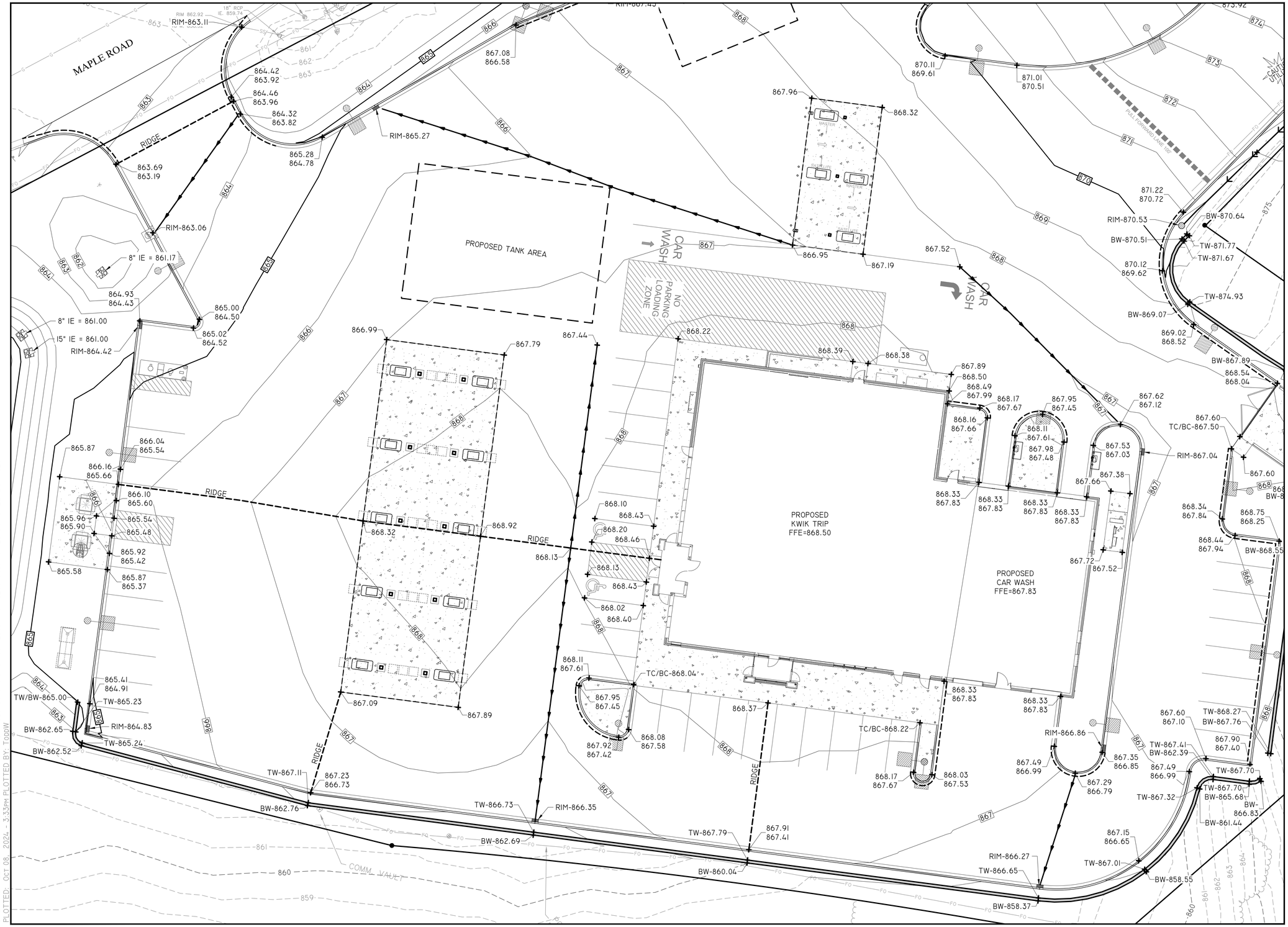
SHEET C200



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SCALE
0 15 30

GRADING PLAN DETAIL - SOUTH

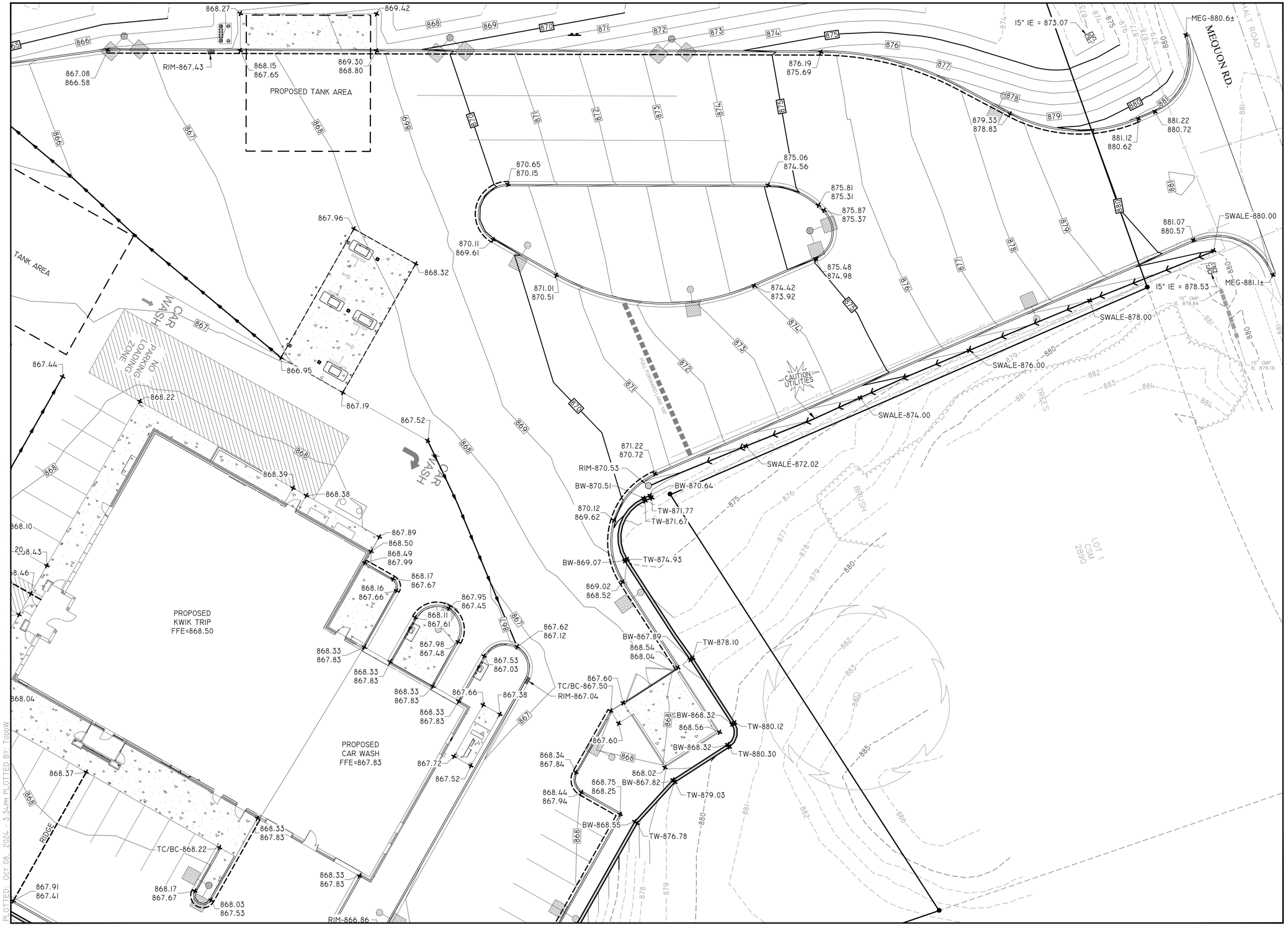
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C201

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C200-GRADING PLANS.DWG LAYOUT: C201
PLOTTED: Oct 08, 2024 - 3:33PM PLOTTED BY: ToddW



DRAWING FILE: Q:\1700-1799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C200-GRADING PLANS.DWG LAYOUT: C201.1
PLOTTED: Oct 08, 2024 - 3:34PM PLOTTED BY: ToddW

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SCALE
0 15 30

GRADING PLAN DETAIL - NORTH

CONVENIENCE STORE #631
STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C201.1

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C200-GRADING PLANS.DWG LAYOUT: C202
PLOTTED: Oct 08, 2024 - 3:34PM PLOTTED BY: ToddW

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SCALE
0 15 30

GRADING PLAN SPOT DETAIL - SOUTH

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C202

PROPOSED TANK AREA

TANK AREA

CAR WASH

NO PARKING LOADING ZONE

CAR WASH

PROPOSED KWIK TRIP FFE=868.50

PROPOSED CAR WASH FFE=867.83

RIDGE

MEQUON RD.

ASPHALT ROAD

15" IE = 873.07

15" IE = 878.53

15" CMP IE: 878.84

15" CMP IE: 879.16

FULL CONTRACTION LANE (TYP)

TREES

BRUSH

LOT 1 CSM 2690

RESERVED FOR CONCRETE JOINT LINES AND SPOT DETAIL

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C200-GRADING PLANS.DWG LAYOUT: C202.1
PLOTTED: Oct 08, 2024 - 3:35PM PLOTTED BY: ToddW

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KWIK STAR STORES

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SCALE
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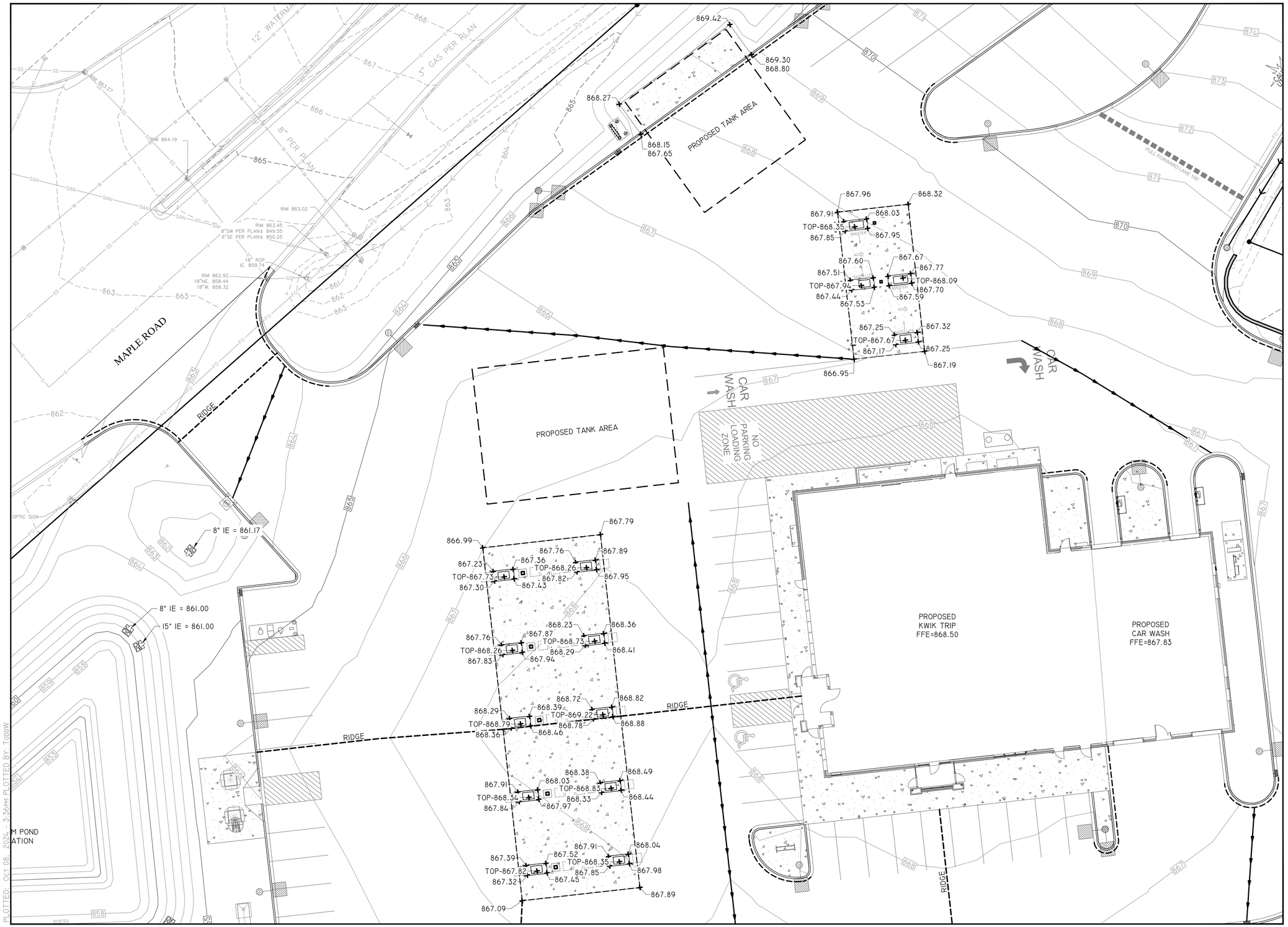
GRADING PLAN SPOT DETAIL - NORTH

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C202.1



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PLOTTED: Oct 08, 2024 - 3:36PM PLOTTED BY: TODDW

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SCALE
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CANOPY AND TANK GRADING DETAILS

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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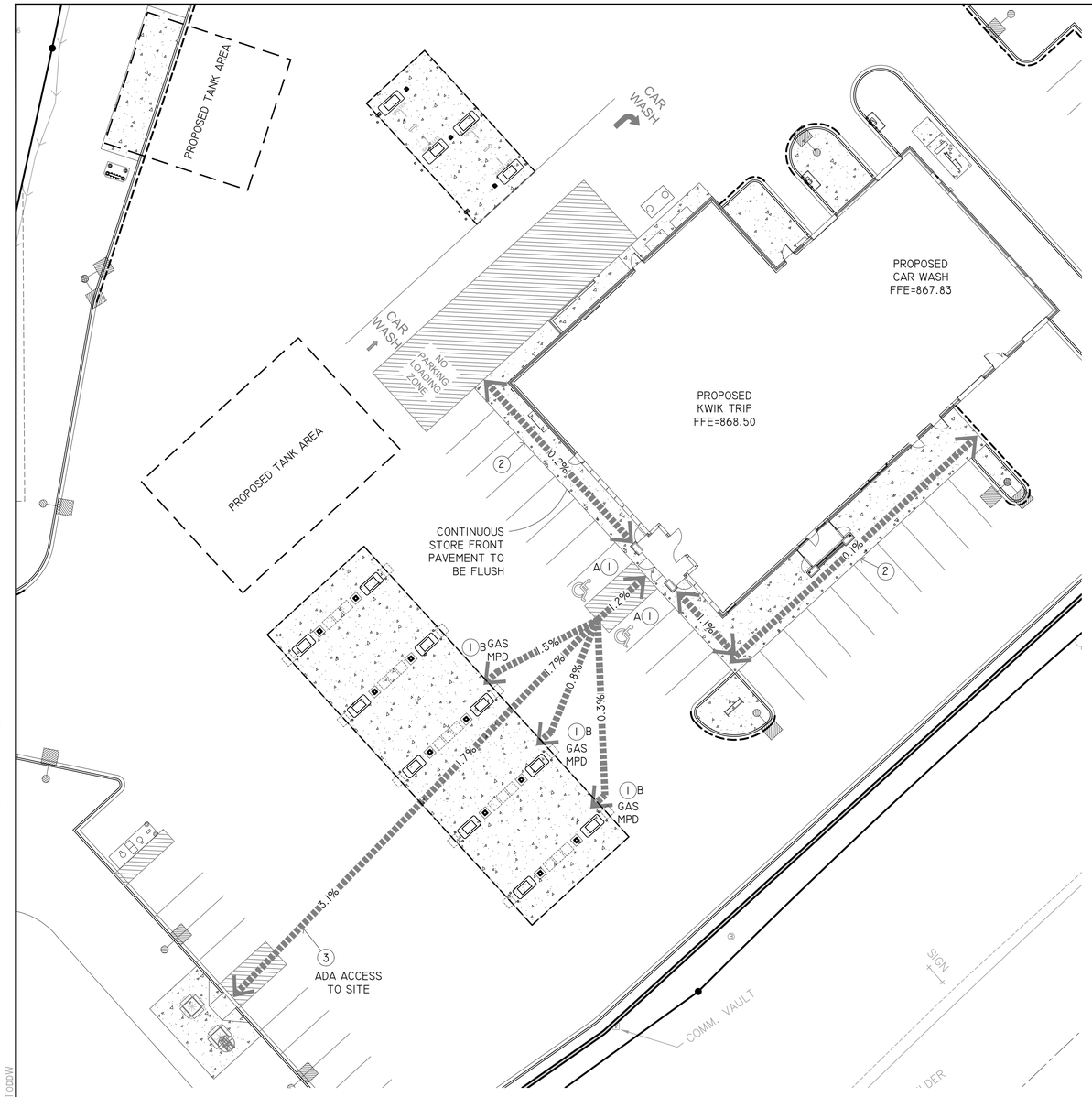
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C203



PLAN KEYNOTES

1. ACCESSIBLE STALLS
   A. STRIPING - 4" WIDE STALL LINES, USE HIGH VISIBILITY BLUE PAINT.

   SPACES PROVIDED
   (2) 8'-0"X 20'-0" ACCESSIBLE PARKING WITH
   (1) 11'-0"X 20'-0" LOADING ZONE

   B. ACCESSIBLE FUELING POINT AND DISPENSER AND VALET. VALET AND KEY PAD ON PUMP SHALL CONFORM TO ADA REACH DIMENSIONS AS SHOWN IN DETAIL. SEE NOTES FOR CONVENIENCE STORE ACCESSIBILITY.

2. PAVEMENTS FLUSH FOR ACCESSIBILITY.

3. ACCESSIBLE ROUTE TO STORE.

811 Know what's below. Call before you dig.

NOTES FOR CONVENIENCE STORE ACCESSIBILITY

AT LEAST 1 MPD (MULTI PRODUCT DISPENSER) COVERING ALL GRADES OF FUEL MUST BE ACCESSIBLE IN A 30X48" CLEAR LEVEL FLOOR AREA (CLF).

ALL PUMP CONTROLS SHALL BE < 48" (2010 STANDARD). WINDOW WASHER, PAPER TOWEL DISPENSER, LITERATURE, FIRE EXTINGUISHER, EMERGENCY FUEL STOPS, ETC. BE ACCESSIBLE 30"X48" CLF SPACE AND WITHIN A FORWARD OR SIDE APPROACH REACH RANGE.

PROVIDE ISA (INDUSTRY STANDARD ARCHITECTURE) AT EACH ACCESSIBLE FUEL POSITION ON FACE OF PUMP.

PROVIDE ISA AT EACH ACCESSIBLE FUELING POSITION VISIBLE TO APPROACHING VEHICLES.

PROVIDE A SIGN AT EACH ACCESSIBLE FUELING POSITION WITH STORE TELEPHONE NUMBER, ADVISING AVAILABLE FUELING ASSISTANCE.

ANY PAY FUNCTION- I.E. AIR/VACUUM ETC. ARE REQUIRED TO HAVE AN ACCESSIBLE ROUTE TO STORE ENTRANCE. CONTROLS SHALL BE ACCESSIBLE 30"X48" CLF SPACE AND WITHIN A FORWARD OR SIDE APPROACH REACH RANGE.

NOTES:

-REFER TO THE DOCUMENT FROM THE DEPARTMENT OF JUSTICE ON "2010 ADA STANDARDS FOR ACCESSIBLE DESIGN". CONTRACTOR SHALL REFERENCE CURRENT A.D.A. GUIDELINES AND LOCAL REGULATIONS FOR SITE ACCESSIBILITY. IN ALL CASES THE MINIMUM REQUIREMENTS SHALL BE PROVIDED ON SITE TO ENSURE COMPLIANCE TO ALL REGULATIONS.

- KWIK TRIP STANDARD ENTRANCE DOOR IS AUTOMATIC SLIDING DOOR SYSTEM DESIGNED TO COMPLY WITH ALL ACCESS CODES AND LAWS. ENTRANCE DOORS FOR ACCESSIBLE ROUTES WILL HAVE A MINIMUM CLEAR OPENING OF 32"

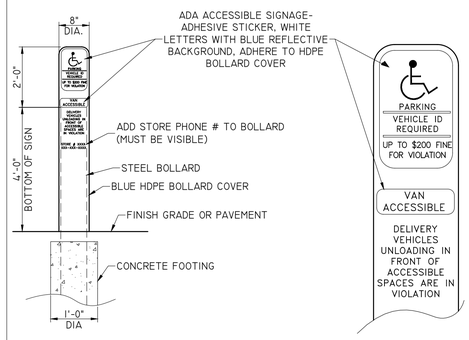
-STORE FRONTS WILL PROVIDE FLUSH PAVEMENTS ALONG ACCESSIBLE ROUTES WITH PROTECTIVE SECURITY BOLLARDS INDICATED AND SPACED BETWEEN PARKING SURFACES AND BUILDING WALK PER PLAN.

-NO OBJECTS OR DISPLAYS SHOULD PROTRUDE INTO THE MINIMUM CLEAR SPACE OF THE ACCESSIBLE ROUTES TO THE STORE ENTRANCE. THIS WILL INCLUDE SEASONAL DISPLAY VENDING AREAS AS WELL AS OTHER OUTDOOR STORAGE UNITS FOR PROPANE AND ICE, ETC.

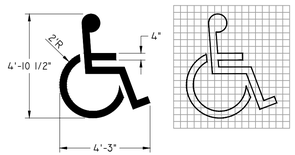
-PER A.D.A GUIDELINES- CLEAR WIDTH OF ACCESSIBLE ROUTES SHALL BE 36" AND PERMITTED TO BE REDUCED TO 32" FOR A LENGTH OF 24".

- ACCESS ISLES SERVING WHEEL CHAIR LIFTS OR CHAIR ACCESS FROM VEHICLES ARE REQUIRED TO BE NEARLY LEVEL IN ALL DIRECTIONS TO PROVIDE SAFE TRANSFER OF WHEELCHAIRS TO AND FROM VEHICLES. THE EXCEPTION WOULD BE FOR DRAINAGE. MAXIMUM SLOPE FOR THE ACCESS ISLE IS 1:48. NO CURB RAMPS SHALL BE A PART OF THE ACCESS ISLE.

-IDENTIFICATION SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY WITH THE DESIGNATION OF 1 "VAN ACCESSIBLE' IN EVERY 8 ACCESSIBLE SPACES ON SITE.



ADA BOLLARD SIGNAGE
NOT TO SCALE

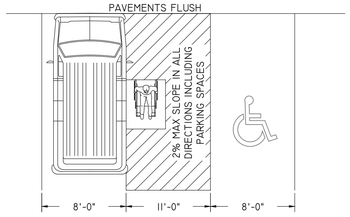


ACCESSIBILITY SYMBOL PAINTED ON PAVEMENT

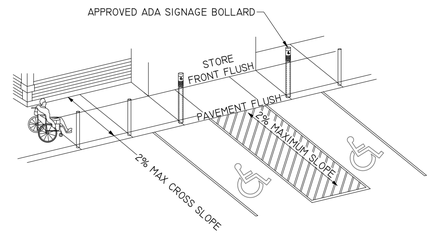
PROPORTIONING GUIDE

* TO BE YELLOW IN COLOR, UNLESS OTHERWISE SPECIFIED.

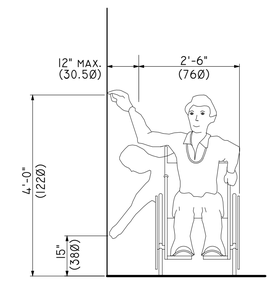
HANDICAP SYMBOL
NOT TO SCALE



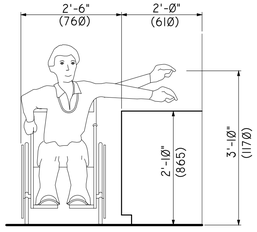
PLAN VIEW



VAN ACCESSIBLE PARKING
NOT TO SCALE



HIGH AND LOW - SIDE REACH LIMITS



MAXIMUM SIDE REACH OVER OBSTRUCTION

ACCESSIBLE REACH DIMENSIONS
NOT TO SCALE

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SCALE
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ACCESSIBILITY PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C204

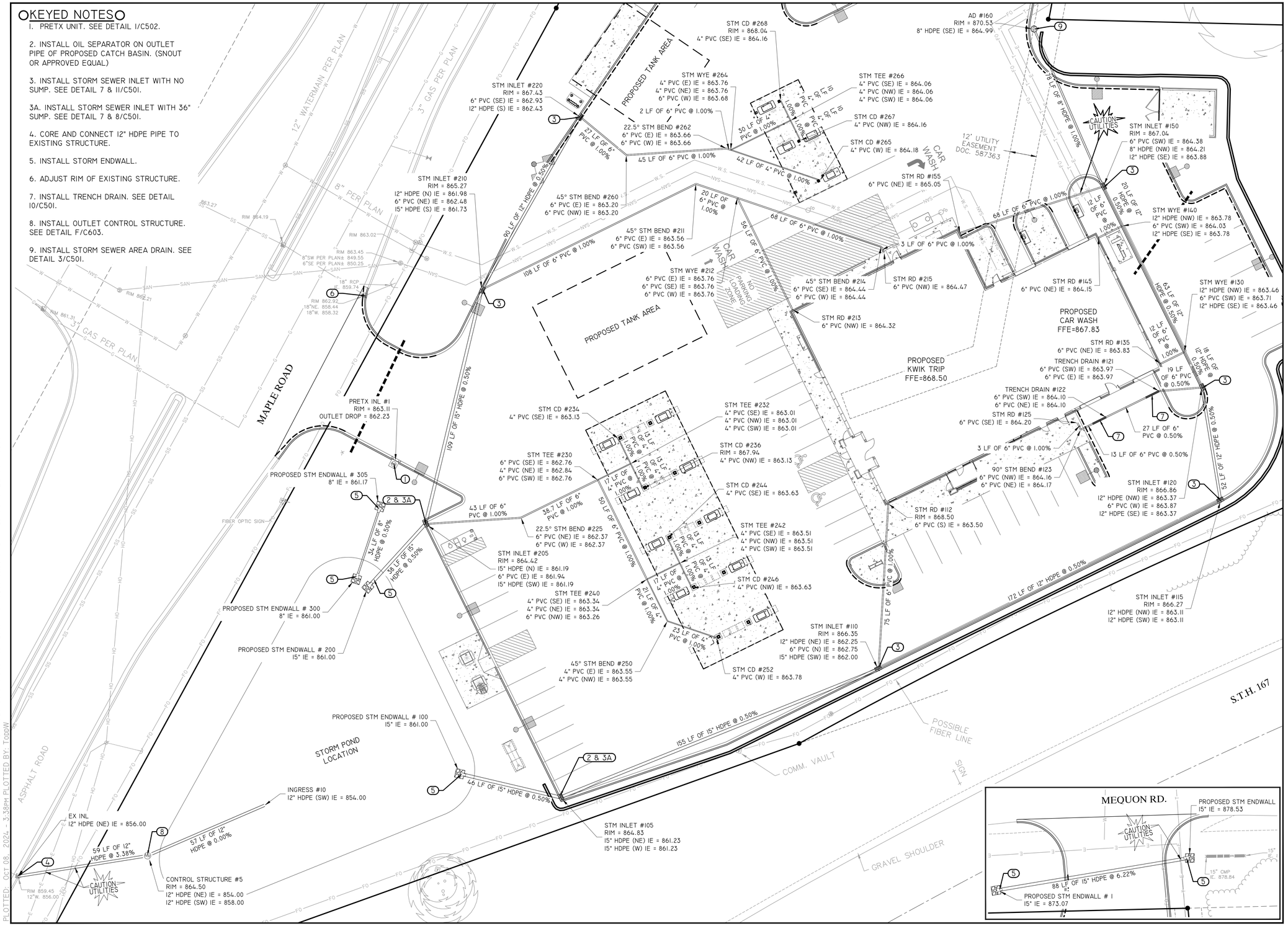
DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C204-ACCESSIBILITY PLAN.DWG LAYOUT: C204
PLOTTED: OCT 08, 2024 - 3:37PM PLOTTED BY: TODDW

KEYED NOTES

1. PRETX UNIT. SEE DETAIL 1/C502.
2. INSTALL OIL SEPARATOR ON OUTLET PIPE OF PROPOSED CATCH BASIN. (SNOUT OR APPROVED EQUAL)
3. INSTALL STORM SEWER INLET WITH NO SUMP. SEE DETAIL 7 & 11/C501.

3A. INSTALL STORM SEWER INLET WITH 36" SUMP. SEE DETAIL 7 & 8/C501.

4. CORE AND CONNECT 12" HDPE PIPE TO EXISTING STRUCTURE.
5. INSTALL STORM ENDWALL.
6. ADJUST RIM OF EXISTING STRUCTURE.
7. INSTALL TRENCH DRAIN. SEE DETAIL 10/C501.
8. INSTALL OUTLET CONTROL STRUCTURE. SEE DETAIL F/C603.
9. INSTALL STORM SEWER AREA DRAIN. SEE DETAIL 3/C501.



DRAWING FILE: Q:\1700-1799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C300-C400-UTILITY PLANS.DWG LAYOUT: C300
PLOTTED: Oct 08, 2024 - 3:38PM PLOTTED BY: ToddW

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SCALE
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STORM SEWER PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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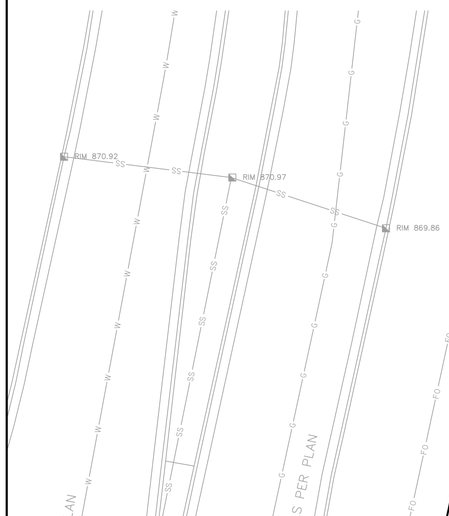
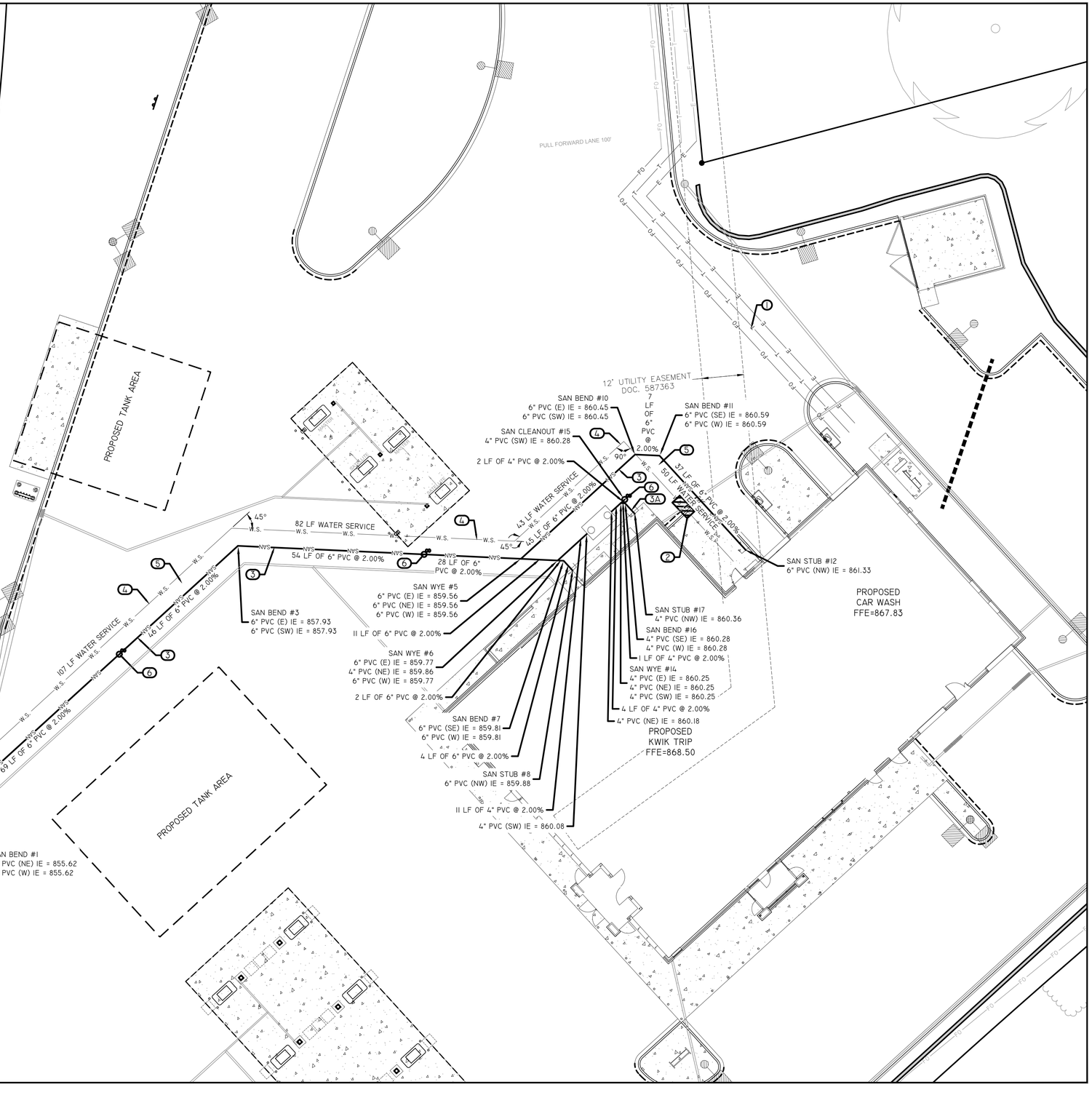
SHEET C300

KEYED NOTES

1. DRY UTILITY ROUTING SHOWN IS APPROXIMATE. COORDINATE WITH LOCAL UTILITY.
2. INSTALL INSULATION OVER WATER PIPE AT CROSSING. SEE DETAIL 2/C501.
3. INSTALL 6" SANITARY SERVICE LATERAL @ 1.00% MINIMUM.
3A. INSTALL 4" SANITARY SERVICE LATERAL @ 1.00% MINIMUM.
4. INSTALL 4" WATER SERVICE LATERAL.
5. SANITARY SEWER & WATER SERVICE TRENCH. SEE A/C401 FOR SEPARATION REQUIREMENTS.
6. INSTALL SANITARY CLEANOUT. SEE DETAIL 4/C501.
7. CONNECT TO EXISTING UTILITY. FIELD VERIFY LOCATION AND DEPTH.





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UTILITY PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
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PLOTTED: OCT 08, 2024 - 3:35PM PLOTTED BY: TODDW

GENERAL :

1. COMPLY WITH THE WORK SAFETY PRACTICES SPECIFIED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. OSHA PROHIBITS ENTRY INTO "CONFINED SPACES," SUCH AS MANHOLES AND INLETS (SEE 29 CFR SECTION 1910.146), WITHOUT UNDERTAKING CERTAIN SPECIFIC PRACTICES AND PROCEDURES. CONSTRUCTION SAFETY IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR, WHO IS ALSO SOLELY RESPONSIBLE FOR THE MEANS, METHODS, AND SEQUENCING OF THE CONSTRUCTION OPERATIONS.

2. EXISTING BOUNDARY, LOCATION, TOPOGRAPHIC, AND UTILITY INFORMATION SHOWN ON THIS PLAN IS FROM A FIELD SURVEY BY R.A. SMITH, INC. DATED JUNE 12, 2024.

3. PERFORM ALL UTILITY WORK IN ACCORDANCE WITH STATE AND CITY REQUIREMENTS.

4. CONNECT TO EXISTING SANITARY SEWER MH'S BY CORE DRILLING. CONNECT TO EXISTING STORM SEWER MH'S BY EITHER SAWCUTTING OR CORE DRILLING. USE SAWS OR DRILLS THAT PROVIDE WATER TO THE BLADE. MEET ALL CITY STANDARDS AND SPECIFICATIONS FOR THE THE CONNECTION. RECONSTRUCT INVERTS AFTER INSTALLATION. USE WATER STOP GASKETS IN ORDER TO PROVIDE WATERTIGHT SEALS WHEN PENETRATING A STRUCTURE WALL WITH A PIPE. TAKE MEASUREMENTS BEFORE BEGINNING CONSTRUCTION TO ENSURE THAT SERVICE CONNECTIONS DO NOT CUT INTO MAINTENANCE ACCESS STRUCTURE JOINTS OR PIPE BARREL JOINTS.

5. PERFORM TRENCH EXCAVATIONS FOR ALL UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF O.S.H.A. 29 CFR, PART 1926, SUBPART P, "EXCAVATIONS AND TRENCHES." (WWW.OSHA.GOV)

6. COORDINATE BUILDING UTILITY CONNECTION LOCATIONS AT 5 FT. OUT FROM THE PROPOSED BUILDING WITH THE WITH THE INTERIOR PLUMBING CONTRACTOR PRIOR TO CONSTRUCTION. VERIFY WATER AND SEWER SERVICE LOCATIONS AND ELEVATIONS WITH THE MECHANICAL ENGINEER PRIOR TO CONSTRUCTION.

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

8. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS PLAN ARE FROM RECORD INFORMATION. THE ENGINEER DOES NOT GUARANTEE THAT ALL EXISTING UTILITIES ARE SHOWN OR, IF SHOWN, EXIST IN THE LOCATIONS INDICATED ON THE PLAN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THE FINAL VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES (INCLUDING WATER AND SEWER LINES AND APPURTENANCES). NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

9. CONTACT UTILITY COMPANIES FOR LOCATIONS OF ALL PUBLIC AND PRIVATE UTILITIES WITHIN THE WORK AREA PRIOR TO BEGINNING CONSTRUCTION. CONTACT DIGGER'S HOTLINE AT (414) 259-1181 IN THE MILWAUKEE METRO AREA, OR 1-800-242-8511 ELSEWHERE IN WISCONSIN FOR EXACT LOCATIONS OF EXISTING UTILITIES AT LEAST 72 HOURS (NOT INCLUDING WEEKENDS AND HOLIDAYS) BEFORE BEGINNING ANY CONSTRUCTION. OBTAIN TICKET NUMBER AND MEET WITH REPRESENTATIVES OF THE VARIOUS UTILITIES AT THE SITE. PROVIDE THE OWNER WITH THE TICKET NUMBER INFORMATION. DIGGER'S HOTLINE IS A FREE SERVICE THAT LOCATES MUNICIPAL AND UTILITY COMPANY LINES, BUT DOES NOT LOCATE PRIVATE UTILITY LINES. USE AN INDEPENDENT LOCATOR SERVICE OR OTHER MEANS IN ORDER TO OBTAIN LOCATIONS OF PRIVATE UTILITY LINES INCLUDING, BUT NOT LIMITED TO, UNDERGROUND ELECTRIC CABLES, TELEPHONE, TV, AND LAWN SPRINKLER LINES.

10. POTHOLE TO VERIFY THE POSITIONS OF EXISTING UNDERGROUND FACILITIES AT A SUFFICIENT NUMBER OF LOCATIONS IN ORDER TO ASSURE THAT NO CONFLICT WITH THE PROPOSED WORK EXISTS AND THAT SUFFICIENT CLEARANCE IS AVAILABLE.

11. WHERE EXISTING GAS, ELECTRIC, CABLE, OR TELEPHONE UTILITIES CONFLICT WITH THE WORK, COORDINATE THE ABANDONMENT, RELOCATION, OFFSET, OR SUPPORT OF THE EXISTING UTILITIES WITH THE APPROPRIATE LOCAL UTILITY COMPANIES. COORDINATE NEW GAS METER AND GAS LINE INSTALLATION, ELECTRIC METER AND ELECTRIC SERVICE INSTALLATION, CABLE SERVICE, AND TELEPHONE SERVICE INSTALLATION WITH THE LOCAL UTILITY COMPANIES.

12. ARRANGE FOR AND SECURE SUITABLE DISPOSAL AREAS OFF-SITE. DISPOSE OF ALL EXCESS SOIL, WASTE MATERIAL, DEBRIS, AND ALL MATERIALS NOT DESIGNATED FOR SALVAGE. WASTE MATERIAL AND DEBRIS INCLUDES TREES, STUMPS, PIPE, CONCRETE, ASPHALTIC CONCRETE, CANS, OR OTHER WASTE MATERIAL FROM THE CONSTRUCTION OPERATIONS. OBTAIN THE RIGHTS TO ANY WASTE AREA FOR DISPOSAL OF UNSUITABLE OR SURPLUS MATERIAL EITHER SHOWN OR NOT SHOWN ON THE PLANS. ALL WORK IN DISPOSING OF SUCH MATERIAL SHALL BE CONSIDERED INCIDENTAL TO THE WORK. ALL DISPOSAL MUST CONFORM TO APPLICABLE SOLID WASTE DISPOSAL PERMIT REGULATIONS. OBTAIN ALL NECESSARY PERMITS AT NO COST TO THE OWNER.

13. STRAIGHT LINE SAW-CUT EXISTING BITUMINOUS OR CONCRETE SURFACING AT THE PERIMETER OF PAVEMENT REMOVAL AREAS. USE SAWS THAT PROVIDE WATER TO THE BLADE. TACK, AND MATCH ALL CONNECTIONS TO EXISTING BITUMINOUS PAVEMENT.

14. RELOCATE OVERHEAD POWER, TELEPHONE, AND CABLE LINES AS REQUIRED.

15. ALL MATERIALS REQUIRED FOR THIS WORK SHALL BE NEW MATERIAL CONFORMING TO THE REQUIREMENTS FOR CLASS, KIND, GRADE, SIZE, QUALITY, AND OTHER DETAILS SPECIFIED HEREIN OR AS SHOWN ON THE PLANS. DO NOT USE RECYCLED OR SALVAGED AGGREGATE, ASPHALTIC PAVEMENT, CRUSHED CONCRETE, OR SCRAP SHINGLES. UNLESS OTHERWISE INDICATED, THE CONTRACTOR SHALL FURNISH ALL REQUIRED MATERIALS.

16. RESTORE THE PUBLIC RIGHT-OF-WAY. REPLACE ANY CONCRETE CURB AND GUTTER, BITUMINOUS PAVEMENT, SIDEWALK, OR VEGETATIVE COVER DAMAGED BY THE CONSTRUCTION ACTIVITY. RESTORE DAMAGED TURF WITH SOD WITHIN THE PUBLIC RIGHT-OF-WAY. THE WORK AREA SHOWN IS GENERAL AND MAY NEED TO BE ADJUSTED IN THE FIELD.

17. WHEN SAWING OR DRILLING CONCRETE OR MASONRY, USE SAWS THAT PROVIDE WATER TO THE BLADE. DO NOT ALLOW THE SLURRY PRODUCED BY THIS PROCESS TO BE TRACKED OUTSIDE OF THE IMMEDIATE WORK AREA OR DISCHARGED INTO THE SEWER SYSTEM.

18. ADJUST ALL CURB STOPS, VALVE BOXES, MAINTENANCE HOLE CASTINGS, CATCH BASIN CASTINGS, CLEANOUT COVERS, AND SIMILAR ITEMS TO FINISHED GRADE.

19. INSTALL ALL PIPE WITH THE ASTM IDENTIFICATION NUMBERS ON THE TOP FOR INSPECTION. COMMENCE PIPE LAYING AT THE LOWEST POINT IN THE PROPOSED SEWER LINE. LAY THE PIPE WITH THE BELL END OR RECEIVING GROOVE END OF THE PIPE POINTING UPGRADE. WHEN CONNECTING TO AN EXISTING PIPE, UNCOVER THE EXISTING PIPE IN ORDER TO ALLOW ANY ADJUSTMENTS IN THE PROPOSED LINE AND GRADE BEFORE LAYING ANY PIPE.

20. OBTAIN AND PAY FOR ALL PERMITS, TESTS, INSPECTIONS, ETC. REQUIRED BY AGENCIES THAT HAVE JURISDICTION OVER THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR ALL BONDS, LETTERS OF CREDIT, OR CASH SURETIES RELATED TO THE WORK. EXECUTE AND INSPECT WORK IN ACCORDANCE WITH ALL LOCAL AND STATE CODES, RULES, ORDINANCES, OR REGULATIONS PERTAINING TO THE PARTICULAR TYPE OF WORK INVOLVED.

21. OBTAIN PERMITS FROM THE CITY FOR WORK IN THE PUBLIC RIGHT-OF-WAY.

22. CONSTRUCT SANITARY SEWER, WATERMAIN, AND STORM SEWER UTILITIES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, SIXTH EDITION, OR THE LATEST REVISED EDITION.

23. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THESE CODE SECTIONS AS PER 182.0715(2R) OF THE STATUTES.

24. INSTALL ALL PIPE WITH THE ASTM IDENTIFICATION NUMBERS ON THE TOP FOR INSPECTION. COMMENCE PIPE LAYING AT THE LOWEST POINT IN THE PROPOSED SEWER LINE. LAY THE PIPE WITH THE BELL END OR RECEIVING GROOVE END OF THE PIPE POINTING UPGRADE. WHEN CONNECTING TO AN EXISTING PIPE, UNCOVER THE EXISTING PIPE IN ORDER TO ALLOW ANY ADJUSTMENTS IN THE PROPOSED LINE AND GRADE BEFORE LAYING ANY PIPE. DO NOT LAY PIPES IN WATER OR WHEN THE TRENCH CONDITIONS ARE UNSUITABLE FOR SUCH WORK.

WATER DISTRIBUTION SYSTEM :

1. BRING ALL SITE UTILITIES TO 5' OUTSIDE OF THE BUILDING LINE WITH THE EXCEPTION OF THE WATER SERVICE. EXTEND WATER SERVICE INTO THE BUILDING AND UP TO THE FLANGE FOR THE WATER METER.

2. SEPARATION OF WATER AND SEWER: PROVIDE HORIZONTAL AND VERTICAL SEPARATIONS AS REQUIRED BY CODE. SEE DETAIL A/C401.

3. WATERMAIN DEPTH: MAINTAIN 7.5 FEET OF COVER OVER THE TOP OF THE WATER LINES TO THE FINISHED GRADE. VERIFY ELEVATION OF PROPOSED AND EXISTING WATER LINES AT ALL UTILITY CROSSINGS. INSTALL THE WATER LINES AT GREATER DEPTHS IN ORDER TO CLEAR STORM SEWERS, SANITARY SEWERS, OR OTHER UTILITIES AS REQUIRED. INCLUDE COSTS TO LOWER WATER LINES IN THE BASE BID.

4. DISINFECTION: DISINFECT ALL COMPLETED WATERMAINS IN ACCORDANCE WITH AWWA STANDARD C651. IF THE TABLET OR CONTINUOUS FEED METHODS ARE USED, DISINFECT USING WITH WATER THAT CONTAINS AT LEAST 50 PPM OF AVAILABLE CHLORINE. DO NOT USE THE TABLET METHOD ON SOLVENT-WELDED PLASTIC OR ON SCREWED-JOINT STEEL PIPE BECAUSE OF THE DANGER OF FIRE OR EXPLOSION FROM THE REACTION OF THE JOINT COMPOUNDS WITH THE CALCIUM HYPOCHLORITE. RETAIN THE TREATED WATER IN THE PIPELINE FOR AT LEAST 24 HOURS. MEASURE THE CHLORINE RESIDUAL AT THE END OF THE 24 HOUR PERIOD. THE FREE CHLORINE RESIDUAL MUST BE AT LEAST 10 MG/L MEASURED AT ANY POINT IN THE LINE. MEASUREMENT OF THE CHLORINE CONCENTRATION AT REGULAR INTERVALS SHALL BE IN ACCORDANCE WITH STANDARD METHODS, AWWA M-12, OR USING APPROPRIATE CHLORINE TEST KITS.

5. TESTING: PRESSURE TEST AND PERFORM BACTERIOLOGICAL TESTS ON ALL WATER LINES UNDER THE SUPERVISION OF THE CITY PUBLIC WORKS DEPARTMENT. NOTIFY THE CITY AT LEAST 24 WORKING HOURS PRIOR TO ANY TESTING. PRESSURIZE THE WATERLINE TO 1034-KPA (150-PSI) GAUGE PRESSURE (MEASURED AT THE POINT OF LOWEST ELEVATION) BY MEANS OF A PUMP CONNECTED TO THE PIPE IN A SATISFACTORY MANNER. MAINTAIN THE TEST PRESSURE FOR A MINIMUM OF 2 HOURS. DO NOT ADD WATER TO THE WATERMAIN IN ORDER TO MAINTAIN THE REQUIRED PRESSURE DURING THE WATER MAIN PRESSURE TESTING. THE TEST SECTION OF PIPE IS ACCEPTABLE WITH A PRESSURE DROP OF 14 KPA (2 PSI) OR LESS.

6. USE MUELLER H 10300 OR FORD EM 2 7057, OR APPROVED EQUAL, AT ALL CURB STOP LOCATIONS. STATIONARY ROD IS REQUIRED ON ALL CURB STOPS.

7. BUILDING WATER SERVICES: WATER SERVICE PIPE SHALL MEET THE FOLLOWING SPECIFICATIONS AND BE APPROVED BY THE LOCAL GOVERNING AGENCY. 2.5 INCH OR LESS: HDPE PER ASTM D2737 SDR 9 OR TYPE K COPPER PER ASTM B - 88. 4 INCH OR GREATER: DIP PER AWWA C151 OR PVC PER AWWA C-900.

8. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THE WISCONSIN STATUTES 182.0175(2R) AND THE WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 382.30(11)(H).

STORM DRAINAGE :

1. UNLESS OTHERWISE INDICATED, USE REINFORCED, PRECAST, CONCRETE MAINTENANCE HOLES AND CATCH BASINS CONFORMING TO ASTM C478, FURNISHED WITH WATER STOP RUBBER GASKETS AND PRECAST BASES. JOINTS FOR ALL PRECAST MAINTENANCE HOLE SECTIONS SHALL HAVE CONFINED, RUBBER "O"-RING GASKETS IN ACCORDANCE WITH ASTM C923. THE INSIDE BARREL DIAMETER SHALL NOT BE LESS THAN 48 INCHES.

2. ALL JOINTS AND CONNECTIONS TO CATCH BASINS OR MANHOLES SHALL BE WATERTIGHT OR APPROVED CONNECTION. USE RESILIENT RUBBER SEALS, WATERSTOP GASKETS, OR APPROVED EQUAL. CEMENT MORTAR JOINTS ARE NOT ALLOWED UNLESS OTHERWISE PERMITTED BY LOCAL MUNICIPALITY.

3. INSTALL CATCH BASIN CASTINGS WITH SPECIFIED TOP ELEVATION AT THE FLOWLINE OF RIM.

4. PVC PIPE: USE SOLID-CORE, SDR-35, ASTM D3034 POLYVINYL CHLORIDE (PVC) PIPE FOR DESIGNATED PVC STORM SEWER SERVICES 4 TO 15-INCHES IN DIAMETER. USE SOLID-CORE, SDR-35, ASTM F679 POLYVINYL CHLORIDE (PVC) PIPE FOR DESIGNATED PVC STORM SEWER SERVICES 18 TO 27-INCHES IN DIAMETER. JOINTS FOR ALL STORM SEWER SHALL HAVE PUSH-ON JOINTS WITH ELASTOMERIC GASKETS. USE OF SOLVENT CEMENT JOINTS IS ALLOWED FOR BUILDING SERVICES. SOLVENT CEMENT JOINTS IN PVC PIPE MUST INCLUDE USE OF A PRIMER WHICH IS OF CONTRASTING COLOR TO THE PIPE AND CEMENT. PIPE WITH SOLVENT CEMENT JOINTS SHALL BE JOINED WITH PVC CEMENT CONFORMING TO ASTM D2564. LAY ALL PVC PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321.

5. TESTING: TEST ALL PORTIONS OF STORM SEWER THAT ARE WITHIN 10 FEET OF BUILDINGS, WITHIN 10 FEET OF BURIED WATER, LINES, WITHIN 50 FEET OF WATER WELLS, OR THAT PASS THROUGH SOIL OR WATER IDENTIFIED AS BEING CONTAMINATED. TEST ALL FLEXIBLE STORM SEWER LINES FOR DEFLECTION AFTER THE SEWER LINE HAS BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND RETEST.

6. USE NEENAH R-1550A FRAME WITH 2050D GRATE ON ALL PROPOSED CATCH BASINS.

7. INSTALL DETECTABLE UNDERGROUND MARKING TAPE DIRECTLY ABOVE ALL PVC, POLYETHYLENE, AND OTHER NONCONDUCTIVE UNDERGROUND UTILITIES AT A DEPTH OF 457 MM (18 INCHES) BELOW FINISHED GRADE, UNLESS OTHERWISE INDICATED. BRING THE TAPE TO THE SURFACE AT VARIOUS LOCATIONS IN ORDER TO PROVIDE CONNECTION POINTS FOR LOCATING UNDERGROUND UTILITIES. INSTALL BLUE RHINO TRIVIEW FLEX TEST STATIONS, OR APPROVED EQUAL, WITH BLACK CAPS AT EACH SURFACE LOCATION.

8. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THESE CODE SECTIONS AS PER 182.0715(2R) OF THE STATUTES.

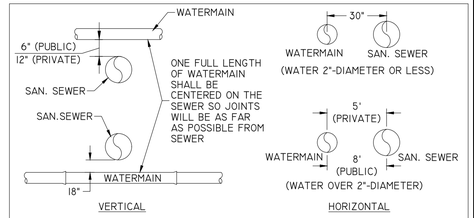
9. THE MINIMUM DEPTH OF COVER FOR BUILDING AND CANOPY ROOF DRAIN LEADERS WITHOUT INSULATION IS 5 FEET. INSULATE ROOF DRAIN LEADERS AT LOCATIONS WHERE THE DEPTH OF COVER IS LESS THAN 5 FEET. PROVIDE A MINIMUM INSULATION THICKNESS OF 2 INCHES. THE INSULATION MUST BE AT LEAST 4 FEET WIDE AND CENTERED ON THE PIPE. INSTALL THE INSULATION BOARDS 6 INCHES ABOVE THE TOPS OF THE PIPES ON MECHANICALLY COMPACTED AND LEVELED PIPE BEDDING MATERIAL. USE HIGH DENSITY, CLOSED CELL, RIGID BOARD MATERIAL EQUIVALENT TO DOW STYROFOAM HI-40 PLASTIC FOAM INSULATION.

10. CLEANOUTS: INSTALL CLEANOUTS ON ALL ROOF DRAINS IN ACCORDANCE WITH S.P.S 382.35 (3)(C)(1.). THE DISTANCE BETWEEN CLEANOUTS IN HORIZONTAL PIPING SHALL NOT EXCEED 100 FEET FOR PIPES 10-INCHES AND UNDER IN SIZE. CLEANOUTS SHALL BE OF THE SAME NOMINAL SIZE AS THE PIPES THEY SERVE OR 6-INCH DIAMETER MINIMUM FOR PIPES 6 INCHES IN DIAMETER OR GREATER. INSTALL A METER BOX FRAME AND SOLID LID (NEENAH R-1914-A, OR APPROVED EQUAL) OVER ALL CLEANOUTS.

11. INSTALL ALL PIPE WITH THE ASTM IDENTIFICATION NUMBERS ON THE TOP FOR INSPECTION. COMMENCE PIPE LAYING AT THE LOWEST POINT IN THE PROPOSED SEWER LINE. LAY THE PIPE WITH THE BELL END OR RECEIVING GROOVE END OF THE PIPE POINTING UPGRADE. WHEN CONNECTING TO AN EXISTING PIPE, UNCOVER THE EXISTING PIPE IN ORDER TO ALLOW ANY ADJUSTMENTS IN THE PROPOSED LINE AND GRADE BEFORE LAYING ANY PIPE. DO NOT LAY PIPES IN WATER OR WHEN THE TRENCH CONDITIONS ARE UNSUITABLE FOR SUCH WORK.

12. INSTALL STORM SEWER IN ACCORDANCE WITH SECTION 608 OF THE WISDOT STANDARD SPECIFICATIONS.

13. INSTALL CATCH BASINS, MANHOLES, AND INLETS IN ACCORDANCE WITH SECTION 611 OF THE WISDOT STANDARD SPECIFICATIONS.



NOTES:
1. WHEN THE ABOVE SEPARATIONS CANNOT BE MAINTAINED, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO ENCASE THE SEWER IN CONCRETE.

2. NO PRIVATE WATER MAIN OR WATER SERVICE SHALL BE INSTALLED WITHIN 6" OF A STORM SEWER. PUBLIC WATER MAIN MUST MEET THE SAME HORIZONTAL AND VERTICAL SEPARATION DISTANCES AS REQUIRED FOR SANITARY SEWER.

A / C401 SEWER / WATERMAIN SEPARATION DISTANCE
NTS

SANITARY SEWER :

1. PIPE: USE SOLID-CORE, SDR-35, ASTM D3034 (OR APPROVED EQUAL) POLYVINYL CHLORIDE (PVC) PLASTIC PIPE FOR ALL DESIGNATED PVC SANITARY SEWER SERVICES. JOINTS FOR ALL SANITARY SEWER SHALL HAVE PUSH-ON JOINTS WITH ELASTOMERIC GASKETS. USE OF SOLVENT CEMENT JOINTS IS ALLOWED FOR BUILDING SERVICES. SOLVENT CEMENT JOINTS IN PVC PIPE MUST INCLUDE USE OF A PRIMER WHICH IS OF CONTRASTING COLOR TO THE PIPE AND CEMENT. PIPE WITH SOLVENT CEMENT JOINTS SHALL BE JOINED WITH PVC CEMENT CONFORMING TO ASTM D2564. LAY ALL PVC PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321.

2. CLEANOUTS: INSTALL CLEANOUTS ON ALL SANITARY SEWER SERVICES. THE DISTANCE BETWEEN CLEANOUTS IN HORIZONTAL PIPING SHALL NOT EXCEED 100 FEET FOR PIPES 4-INCH AND OVER IN SIZE. CLEANOUTS SHALL BE OF THE SAME NOMINAL SIZE AS THE PIPES THEY SERVE OR 6-INCH DIAMETER MINIMUM FOR PIPES 6 INCHES IN DIAMETER OR GREATER. INCLUDE FROST SLEEVES AND CONCRETE FRAME AND PIPE SUPPORT. INSTALL A METER BOX FRAME AND SOLID LID (NEENAH R-1914-A, OR APPROVED EQUAL) OVER ALL CLEANOUTS.

3. TESTING: PRESSURE TEST ALL SANITARY SEWER LINES. TEST ALL FLEXIBLE SANITARY SEWER LINES FOR DEFLECTION AFTER THE SEWER LINE HAS BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND RETEST.

4. UNLESS OTHERWISE INDICATED, USE REINFORCED, PRECAST, CONCRETE MAINTENANCE HOLES CONFORMING TO ASTM C478, FURNISHED WITH PRECAST BASES. SANITARY SEWER MAINTENANCE HOLES SHALL BE SUPPLIED WITH PRE-FORMED INVERTS AND FLEXIBLE NEOPRENE SLEEVE CONNECTIONS FOR ALL LATERAL LINES 375 MM (15 INCHES) IN DIAMETER OR LESS, UNLESS OTHERWISE INDICATED. JOINTS FOR ALL PRECAST MAINTENANCE HOLE SECTIONS SHALL HAVE CONFINED, RUBBER "O"-RING GASKETS IN ACCORDANCE WITH ASTM C923. THE INSIDE BARREL DIAMETER SHALL NOT BE LESS THAN 48 INCHES.

5. INSTALL FLEXIBLE WATERTIGHT OR APPROVED CONNECTION FRAME/CHIMNEY SEALS ON ALL SANITARY SEWER MAINTENANCE HOLES. USE EITHER MANUFACTURED MAINTENANCE HOLE FRAME/CHIMNEY SEALS OR ELASTOMERIC WATERPROOFING FRAME/CHIMNEY SEALS.

6. USE NEENAH FOUNDRY CO. R-1642 CASTING WITH SELF-SEALING, SOLID, TYPE B LID, OR APPROVED EQUAL, ON ALL SANITARY SEWER MAINTENANCE HOLES. COVERS SHALL BEAR THE "SANITARY SEWER" LABEL.

7. THE MINIMUM DEPTH OF COVER FOR SANITARY SEWER WITHOUT INSULATION IS 5 FEET. INSULATE SANITARY SEWER SERVICES AT LOCATIONS WHERE THE DEPTH OF COVER IS LESS THAN 5 FEET. PROVIDE A MINIMUM INSULATION THICKNESS OF 2 INCHES. THE INSULATION MUST BE AT LEAST 4 FEET WIDE AND CENTERED ON THE PIPE. INSTALL THE INSULATION BOARDS 6 INCHES ABOVE THE TOPS OF THE PIPES ON MECHANICALLY COMPACTED AND LEVELED PIPE BEDDING MATERIAL. USE HIGH DENSITY, CLOSED CELL, RIGID BOARD MATERIAL EQUIVALENT TO DOW STYROFOAM HI-40 PLASTIC FOAM INSULATION.

8. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THE WISCONSIN STATUTES 182.0175(2R) AND THE WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 82.30(11)(H).

HDPE REQUIREMENTS :

1. INSTALL DUAL-WALL, SMOOTH INTERIOR, CORRUGATED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE AT LOCATIONS INDICATED ON THE PLAN.

2. DUAL-WALL, SMOOTH INTERIOR, CORRUGATED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M252 FOR PIPE SIZES 4-INCH TO 10-INCH DIAMETER.

3. DUAL-WALL, SMOOTH INTERIOR, CORRUGATED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2306 FOR PIPE SIZES 12-INCH TO 60-INCH DIAMETER.

4. ALL FITTINGS MUST COMPLY WITH ASTM STANDARD D3212.

5. WATER-TIGHT JOINTS MUST BE USED AT ALL CONNECTIONS INCLUDING STRUCTURES.

6. LAY ALL HDPE PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321. ALL SECTIONS OF THE CORRUGATED HDPE PIPE SHALL BE COUPLED IN ORDER TO PROVIDE WATER TIGHT JOINTS.

7. PERFORM DEFLECTION TESTS ON ALL HDPE PIPE AFTER THE SEWER LINES HAVE BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND PERFORM THE TEST AGAIN UNTIL ACCEPTABLE. SUPPLY THE MANDREL FOR DEFLECTION TESTING. IF THE DEFLECTION TEST IS TO BE RUN USING A RIGID BALL OR MANDREL, IT SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. THE BALL OR MANDREL SHALL BE CLEARLY STAMPED WITH THE DIAMETER. PERFORM THE TESTS WITHOUT MECHANICAL PULLING DEVICES.

KWIK TRIP STORES

KWIK STAR STORES

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NO SCALE

UTILITY NOTES

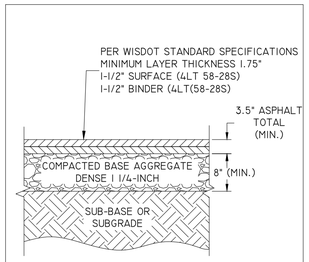
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

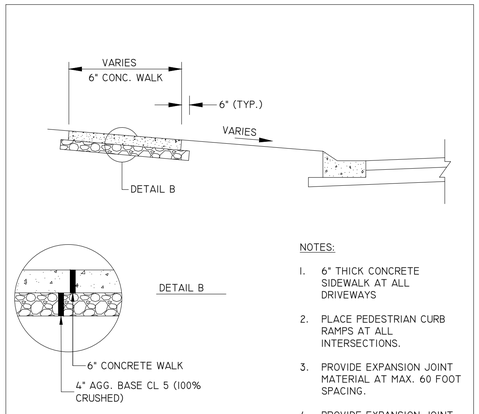
DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C401

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C300-C400-UTILITY PLANS.DWG LAYOUT: C401
PLOTTED: Oct 08, 2024 - 3:39PM PLOTTED BY: ToddW



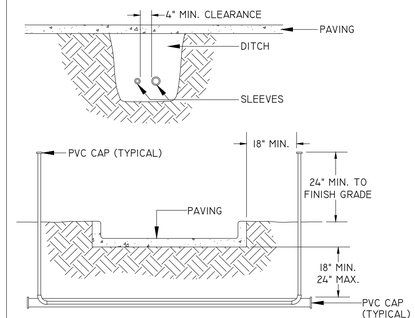
NOTE:
ASPHALT PAVEMENT SECTION SHOWN IS MINIMUM. MATCH IN KIND WITH EXISTING.

1 / C500 ASPHALT PAVEMENT DETAIL
NOT TO SCALE



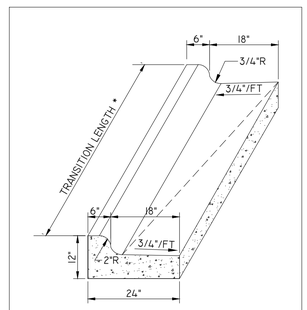
NOTES:
1. 6" THICK CONCRETE SIDEWALK AT ALL DRIVEWAYS
2. PLACE PEDESTRIAN CURB RAMPS AT ALL INTERSECTIONS.
3. PROVIDE EXPANSION JOINT MATERIAL AT MAX. 60 FOOT SPACING.
4. PROVIDE EXPANSION JOINT MATERIAL ALONG BOTH EDGES OF WALK, WHERE WALK IS CONTAINED BETWEEN FIXED OBJECTS.

2 / C500 CONCRETE WALK/ PAD DETAIL
NOT TO SCALE



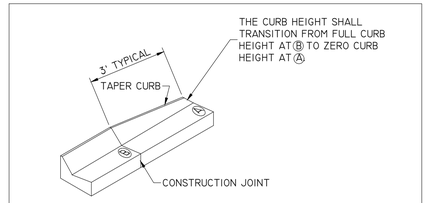
NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE SCH 40 PVC PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE.
4. MECHANICALLY TAMP BACKFILL TO 95% PROCTOR.

3 / C500 TYPICAL SLEEVING DETAIL
NOT TO SCALE

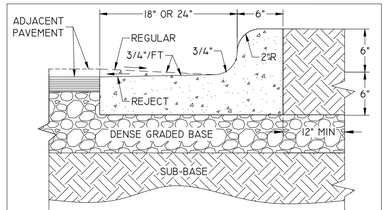


* TRANSITION LENGTH SHALL BE 12 LF ON TANGENTS GREATER THAN 18 LF, OR BETWEEN RADIUS POINTS ON TANGENTS LESS THAN 18 LF, OR BETWEEN RADIUS MID POINTS WHERE TANGENTS ARE LESS THAN 12 LF, OR ACROSS THE RADIUS/RADII WHERE TANGENTS ARE LESS THAN 2 LF.

4 / C500 TRANSITION CURB & GUTTER DETAIL
NOT TO SCALE

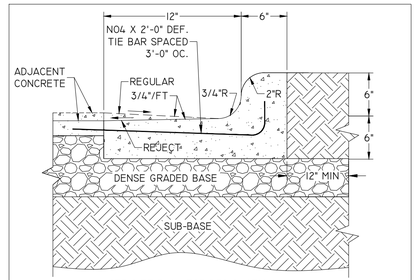


5 / C500 STD CURB & GUTTER TERMINI DETAIL
NOT TO SCALE



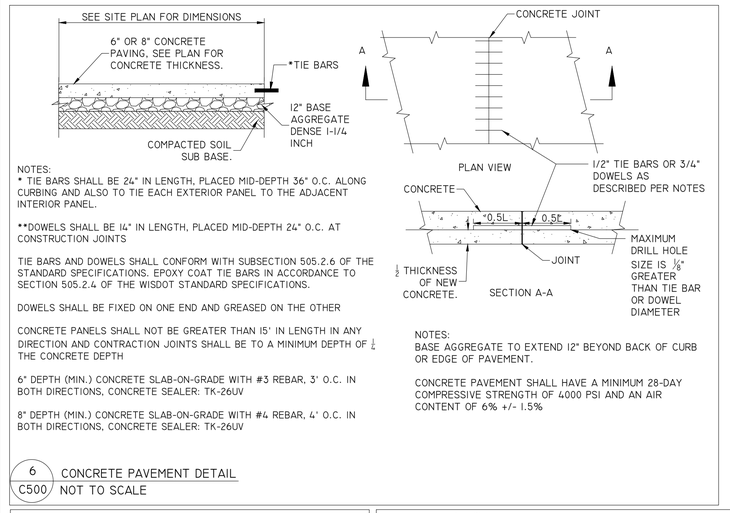
SEE SITE PLAN FOR DESIGNATION

8 / C500 24" OR 30" CURB & GUTTER DETAIL
NOT TO SCALE



SEE SITE PLAN FOR DESIGNATION

9 / C500 18" CURB & GUTTER / 18" REJECT CURB & GUTTER DETAIL
NOT TO SCALE



NOTES:
* TIE BARS SHALL BE 24" IN LENGTH, PLACED MID-DEPTH 36" O.C. ALONG CURBING AND ALSO TO TIE EACH EXTERIOR PANEL TO THE ADJACENT INTERIOR PANEL.

**DOWELS SHALL BE 14" IN LENGTH, PLACED MID-DEPTH 24" O.C. AT CONSTRUCTION JOINTS

TIE BARS AND DOWELS SHALL CONFORM WITH SUBSECTION 505.2.6 OF THE STANDARD SPECIFICATIONS. EPOXY COAT TIE BARS IN ACCORDANCE TO SECTION 505.2.4 OF THE WISDOT STANDARD SPECIFICATIONS.

DOWELS SHALL BE FIXED ON ONE END AND GREASED ON THE OTHER

CONCRETE PANELS SHALL NOT BE GREATER THAN 15' IN LENGTH IN ANY DIRECTION AND CONTRACTION JOINTS SHALL BE TO A MINIMUM DEPTH OF 1/4 THE CONCRETE DEPTH

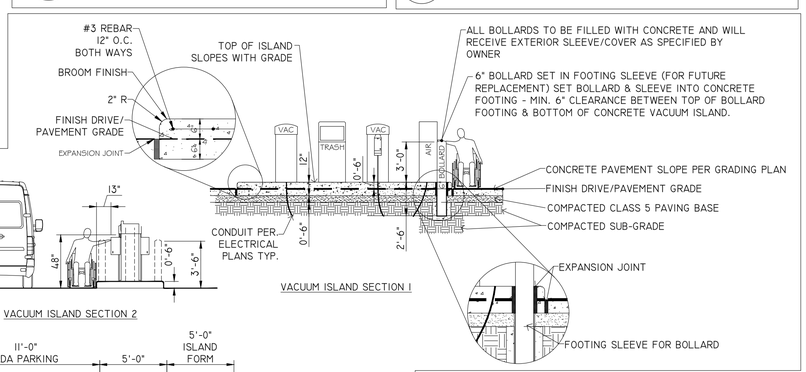
6" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #3 REBAR, 3' O.C. IN BOTH DIRECTIONS, CONCRETE SEALER: TK-26UV

8" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #4 REBAR, 4' O.C. IN BOTH DIRECTIONS, CONCRETE SEALER: TK-26UV

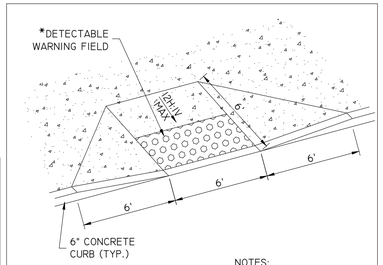
NOTES:
BASE AGGREGATE TO EXTEND 12" BEYOND BACK OF CURB OR EDGE OF PAVEMENT.

CONCRETE PAVEMENT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI AND AN AIR CONTENT OF 6% +/- 1.5%

6 / C500 CONCRETE PAVEMENT DETAIL
NOT TO SCALE

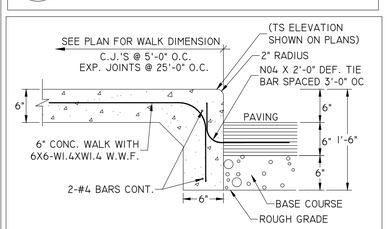


14 / C500 VACUUM ISLAND DETAILS
NOT TO SCALE

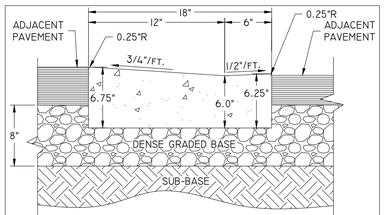


NOTES:
* DETECTABLE WARNING FIELD SHALL EXTEND FULL WIDTH ACROSS RAMP SURFACE

12 / C500 SIDEWALK RAMP DETAIL
NOT TO SCALE

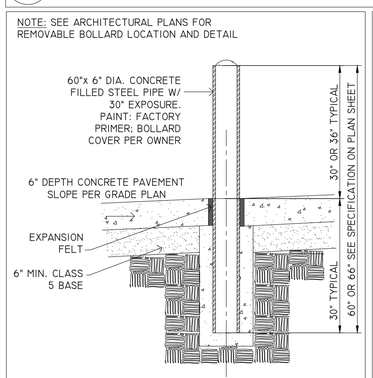


13 / C500 INTEGRAL CURB WITH SIDEWALK DETAIL
NOT TO SCALE

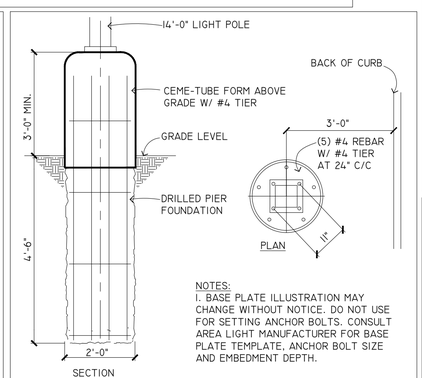


SEE SITE PLAN FOR DESIGNATION

15 / C500 18" MOUNTABLE CURB & GUTTER DETAIL
NOT TO SCALE



10 / C500 6" PIPE BOLLARD DETAIL
NOT TO SCALE



NOTES:
1. BASE PLATE ILLUSTRATION MAY CHANGE WITHOUT NOTICE. DO NOT USE FOR SETTING ANCHOR BOLTS. CONSULT AREA LIGHT MANUFACTURER FOR BASE PLATE TEMPLATE, ANCHOR BOLT SIZE AND EMBEDMENT DEPTH.

11 / C500 ROUND AREA LIGHT FOUNDATION DETAIL
NOT TO SCALE

KWIK TRIP STORES
KWIK STAR STORES

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WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784 FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

NO SCALE

SITE PLAN DETAILS

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

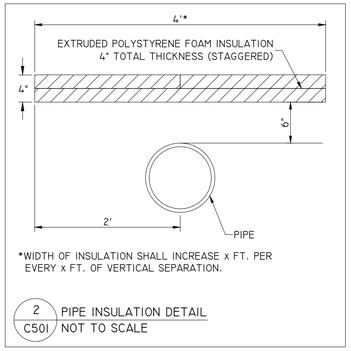
#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE NOT TO SCALE
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C500

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C500-SITE DETAILS.DWG LAYOUT: C500
PLOTTED: OCT 08, 2024 - 3:39PM PLOTTED BY: TODDW

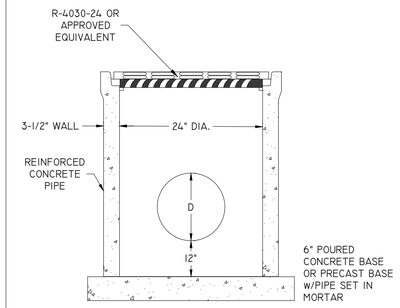
SEE PETROLEUM DETAILS

1 / C501 STORAGE TANKS COMPLEX DETAIL
NOT TO SCALE



*WIDTH OF INSULATION SHALL INCREASE x FT. PER EVERY x FT. OF VERTICAL SEPARATION.

2 / C501 PIPE INSULATION DETAIL
NOT TO SCALE



3 / C501 PRECAST REINFORCED CONC. MANHOLE DETAIL
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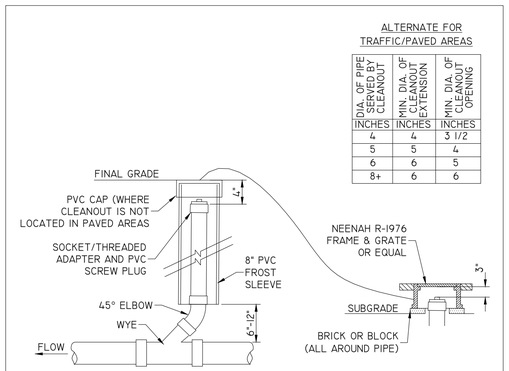
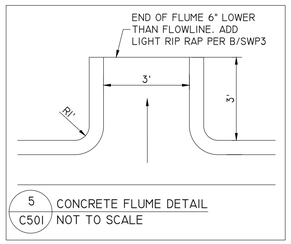
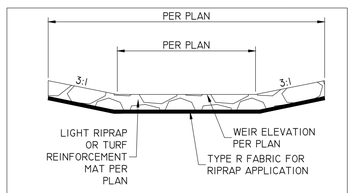


4 / C501 SANITARY & STORM SEWER CLEANOUT CLEANOUT
NOT TO SCALE

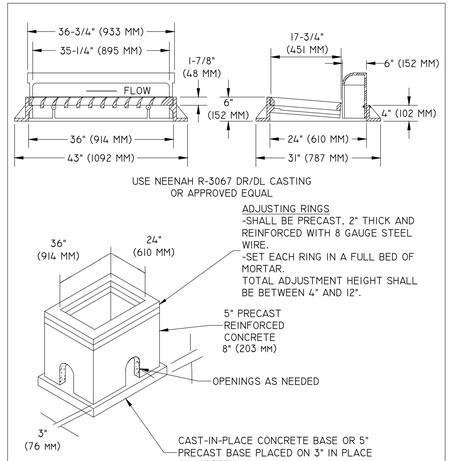


5 / C501 CONCRETE FLUME DETAIL
NOT TO SCALE

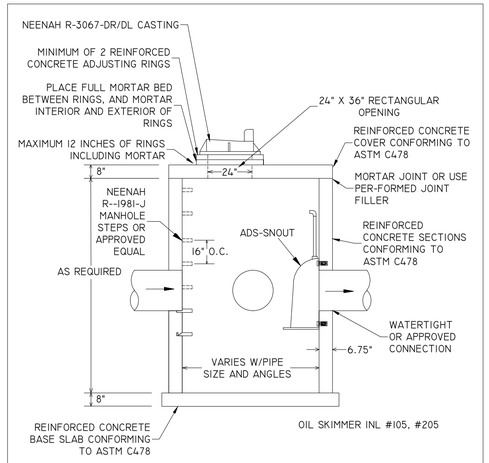


NOTE:
WEIRS TO USE PERMANENT TURF REINFORCEMENT MAT

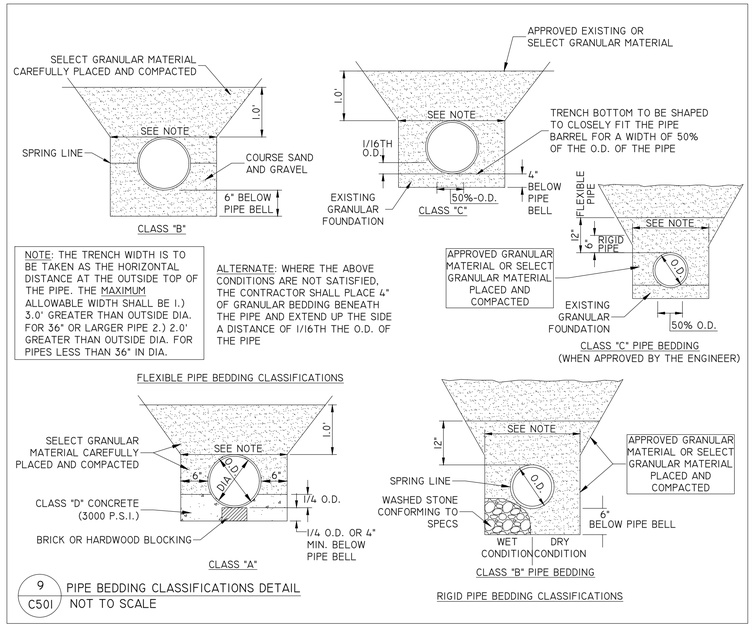
6 / C501 OVERFLOW WEIR DETAIL
NOT TO SCALE



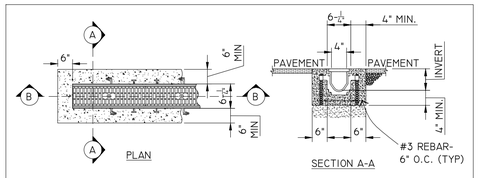
7 / C501 24"x 36" CURB INLET AND CASTING DETAIL
NOT TO SCALE



8 / C501 STORM SEWER INLET WITH SUMP DETAIL
NOT TO SCALE

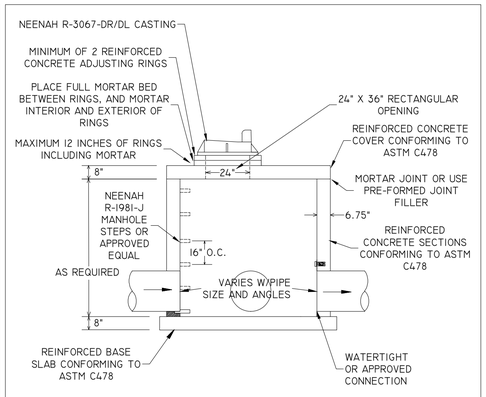


9 / C501 PIPE BEDDING CLASSIFICATIONS DETAIL
NOT TO SCALE



TRENCH SHALL BE "PERMA-TRENCH Z 886 SYSTEM - SERIES 8606N

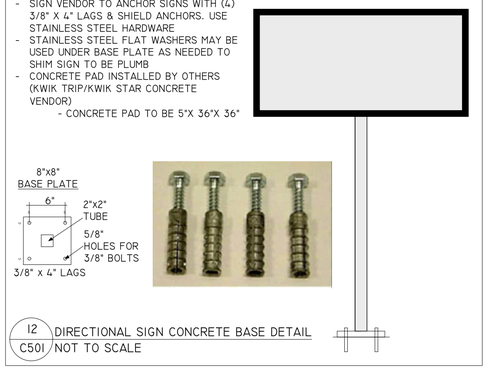
10 / C501 Z 886 TRENCH DRAIN DETAIL
NOT TO SCALE



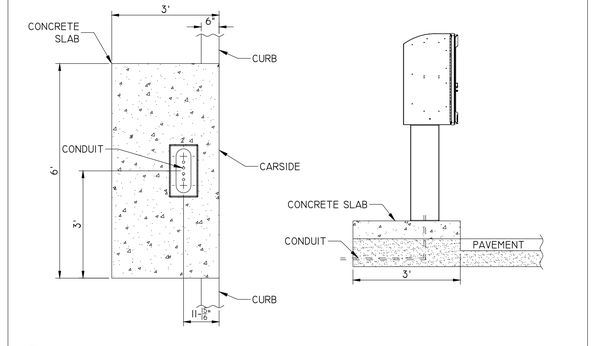
11 / C501 STORM SEWER INLET WITHOUT SUMP DETAIL
NOT TO SCALE

NOTES:
- SIGN VENDOR TO ANCHOR SIGN/S TO CONCRETE PAD
- SIGN VENDOR TO ANCHOR SIGNS WITH (4) 3/8" X 4" LAGS & SHIELD ANCHORS. USE STAINLESS STEEL HARDWARE
- STAINLESS STEEL FLAT WASHERS MAY BE USED UNDER BASE PLATE AS NEEDED TO SHIM SIGN TO BE PLUMB
- CONCRETE PAD INSTALLED BY OTHERS (KWIK TRIP/KWIK STAR CONCRETE VENDOR)
  - CONCRETE PAD TO BE 5'X 36'X 36"

SINGLE SIDED DIRECTIONAL SIGN



12 / C501 DIRECTIONAL SIGN CONCRETE BASE DETAIL
NOT TO SCALE



13 / C501 CAR WASH PAY STATION DETAIL
NOT TO SCALE

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KWIK TRIP STORES

KWIK STAR STORES

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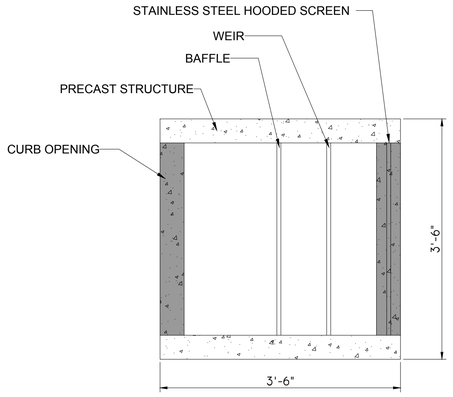
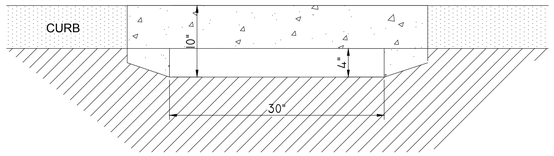
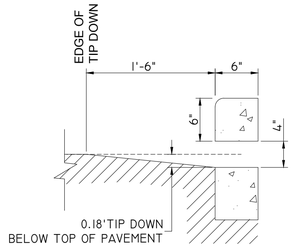


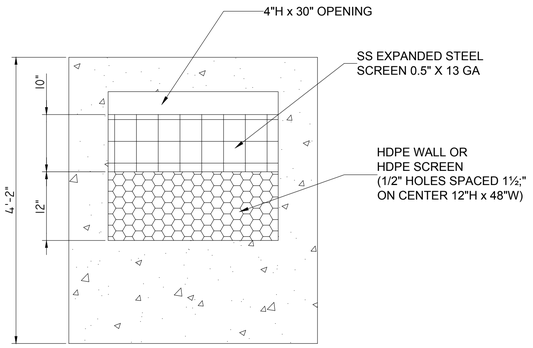
PLAN VIEW



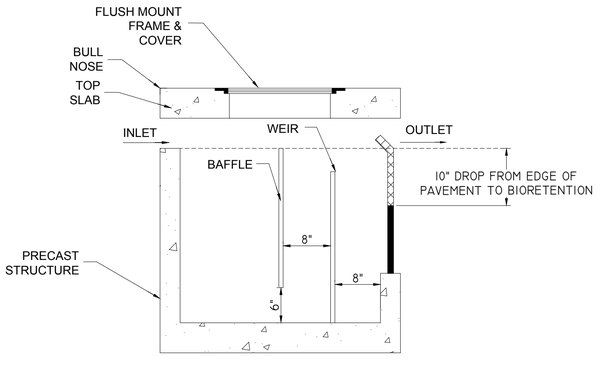
CURB FACE



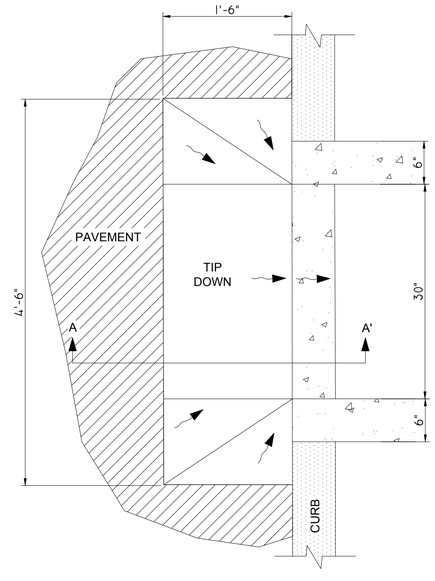
SECTION A-A



BACK VIEW



ELEVATION VIEW



PLAN

PRETX - 8" CURB REVEAL DETAIL
NOT TO SCALE

1 / C502 PRETX 30X30 UNIT DETAIL
NOT TO SCALE

PRETX SPECIFICATIONS

A. GENERAL

1. PRETX SYSTEMS ARE A PRE-FILTER AND CRITICAL MAINTENANCE DEVICE THAT EXTENDS THE OPERATING LIFE AND REDUCES THE MAINTENANCE BURDEN OF BIORETENTION SYSTEMS, RAIN GARDENS, BIOSWALES AND OTHER TYPES OF SURFACE BEST MANAGEMENT PRACTICES BY FILTERING OUT SEDIMENT, TRASH AND DEBRIS AT THE INLET.

B. PRODUCTS

1. ACCEPTABLE SYSTEM SUPPLIER:
   CONVERGENT WATER TECHNOLOGIES, INC. OR ITS
   AUTHORIZED VALUE-ADDED RESELLER
   P: (800) 711-5428; W: WWW.CONVERGENTWATER.COM

C. CONSTRUCTION AND SEQUENCING

1. EXCAVATION AND INSTALLATION
   a. ROUGH GRADE THE PRE-TX SYSTEM AREA DURING GENERAL CONSTRUCTION. EXCAVATE THE PRE-TX SYSTEM FACILITIES TO WITHIN 1 FOOT OF STRUCTURE BOTTOM .
   b. PLACE 1 FOOT BED OF COARSE STONE TO ELEVATION OF BASE OF STRUCTURE.
   c. ESTABLISH ELEVATIONS FOR ADJACENT CURBS, EDGE OF PAVEMENT AND TIP DOWN, SIDEWALK, PIPE INVERTS FOR INLETS AND OUTLETS AS INDICATED ON DRAWINGS.
2. INSTALLATION
   a. PLACE THE PRECAST SYSTEM TO NECESSARY ELEVATION.
   b. FOR PRETX-SURFACE:
      - VERIFY ELEVATIONS FOR ADJACENT CURBS.
      - VERIFY EDGE OF PAVEMENT TIP DOWN PAVEMENT GRADING FOR INLET GRATE.
      - VERIFY CURB ELEVATION IN RELATION TO PAVEMENT AND TIP DOWN.
      - VERIFY OUTLET INVERT FOR KNEE WALL IN RELATION TO FILTER MEDIA.
   C. INSTALL BAFFLES, WEIR, AND SCREENS AS INDICATED ON DRAWINGS.
   D. VERIFY MAINTENANCE ACCESS THROUGH GRATE OR COVER AND CLEARANCE FOR VACTOR.
   e. INSTALL TOP OF STRUCTURE LEVEL WITH ADJACENT CURB OR SIDEWALK AS PER MANUFACTURERS SPECIFICATIONS. ENGINEER FIELD VISIT REQUIRED PRIOR TO BACKFILLING.
6. BACKFILLING
   a. BACKFILL WITH APPROVED SOIL AND STONE TO THE DESIGN GRADE AS SPECIFIED IN THE DRAWINGS.
   b. BACKFILL WITH 12" OF NO. 57 STONE AROUND REAR, LEFT, AND RIGHT SIDES TO LEVEL WITH TOP OF HDPE SCREEN.
   c. BACKFILL WITH BIORETENTION SOIL MIX BEYOND STONE BACKFILL TO EQUAL ELEVATION OF THE TOP OF HDPE SCREEN.
   d. DO NOT BACKFILL SOIL OR STONE AGAINST STAINLESS SCREEN.
   e. DO NOT COMPACT ADJACENT FILTRATION SYSTEM SOIL WITH MECHANICAL EQUIPMENT.
   f. STABILIZE All REMAINING DISTURBED AREAS AND SIDE SLOPES WITH SEEDING, HYDROSEEDING, AND/ OR EROSION CONTROL BLANKETS AS INDICATED ON DRAWINGS.
4. CLEAN UP
   a. AFTER COMPLETION OF THE WORK, REMOVE AND PROPERLY DISPOSE ALL DEBRIS, CONSTRUCTION MATERIALS, RUBBISH, EXCESS SOIL, ETC., FROM THE PROJECT SITE. REPAIR PROMPTLY ANY IDENTIFIED DEFICIENCIES AND LEAVE THE PROJECT SITE IN A CLEAN AND SATISFACTORY CONDITION.

KWIK TRIP™ STORES

KWIK STAR™ STORES

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
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CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
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PLOTTED: OCT 08, 2024 - 3:40PM PLOTTED BY: TODDW

PROJECT DATA

PROJECT START DATE	APRIL 2025
PROJECT COMPLETION DATE	OCT 2025

SITE AREA DATA

PRE-CONSTRUCTION IMPERVIOUS AREA	61,276 SF
POST-CONSTRUCTION IMPERVIOUS AREA	117,262 SF
APPROX. AREA OF LAND DISTURBANCE	168,000 SF

SITE RUNOFF COEFFICIENT

PRE-CONSTRUCTION	NA
POST-CONSTRUCTION	90

SOIL DATA

SURFACE SOIL	PAVED
SUB-SURFACE SOIL	SILT
DEPTH OF GROUND WATER	±8 FT
DOWN-STREAM TRIBUTARY	MENOMINEE RIVER

NOTES:

(A) CONTRACTOR SHALL ABIDE BY THE WDNR CONSERVATION PRACTICE STANDARDS FOR INSTALLATION AND MAINTENANCE OF EROSION CONTROL. REFER TO C603 FOR TECHNICAL STANDARDS EMPLOYED.

(B) CONTRACTOR SHALL PROVIDE CONCRETE WASHOUT AREAS ON-SITE. SEE DETAIL E/C603.

(C) DEWATERING BAGS SHALL BE READILY AVAILABLE AND SHALL BE USED AT ALL TIMES IN THE PROCESS OF DEWATERING.

KEYED NOTES

1. TEMPORARY ROCK CONSTRUCTION ENTRANCE/EXIT. SEE DETAIL A/C602.

2. INSTALL SILT FENCE. SEE DETAIL D/C602.

3. PROVIDE INLET PROTECTION. REFER TO SWP2 FOR ACCEPTABLE PRODUCTS.

4. INSTALL LIGHT RIPRAP ON TYPE R GEOTEXTILE FABRIC. SEE DETAIL B/C602.

5. WET POND WITH TYPE A LINER TO SERVE AS SEDIMENT TRAP DURING CONSTRUCTION. SEE DETAILS A & B/C603.
   SEDIMENT TRAP DETAILS
   - TRAP BOTTOM ELEV. = 4.5' BELOW WEIR ELEV OR DEEPER
   - TRAP TOP ELEV. = 864.50 - 6-FT WIDE WEIR ELEV. = 863.50

6. CONSTRUCT EMERGENCY OVERFLOW WEIR, WITH LIGHT RIPRAP ON TYPE R GEOTEXTILE FABRIC. SEE DETAIL 6/C501.

7. INSTALL DITCH CHECKS @ MAX. OF 200-FT INTERVALS OR EVERY 2-FT OF DROP. SEE DETAIL D/C603.

SUGGESTED CONSTRUCTION SEQUENCE

04/01/25- PROVIDE CONSTRUCTION ACCESS
- INSTALL PERIMETER CONSTRUCTION ACCESS FENCING
- INSTALL SILT FENCE
- INSTALL INLET PROTECTION ON EXISTING STORM STRUCTURES
- PRE-CONSTRUCTION MEETING
- DEMO AND REMOVE EXISTING BUILDINGS
- SAWCUT AND REMOVE PAVEMENT, STRIP TOPSOIL, REMOVALS

04/08/25- ROUGH GRADING
- INSTALL DIVERSIONS AND SEDIMENT TRAP

04/22/25- CONSTRUCT BUILDING
- SITE UTILITY INSTALLATION

05/08/25- INSTALL INLET PROTECTION ON NEW STORM STRUCTURES

07/08/25- FINISH GRADING

07/15/25- CONSTRUCT BASE COURSE AND PAVEMENT

07/22/25- INSTALL LAWN/ LANDSCAPE

08/01/25- FLUSH STORM SEWER

09/15/25- REMOVE EROSION CONTROL MEASURES ONLY AFTER ALL PAVEMENTS HAVE BEEN INSTALLED AND ALL SOILS HAVE BEEN STABILIZED

INSTALL WISDOT URBAN TYPE B EROSION CONTROL BLANKET ON SIDE SLOPES OF 4:1 OR GREATER. SEE DETAIL E/C602 FOR INSTALLATION.

ESTIMATED PRELIMINARY EROSION CONTROL QUANTITIES
(ACTUAL QUANTITIES SUBJECT TO CHANGE)

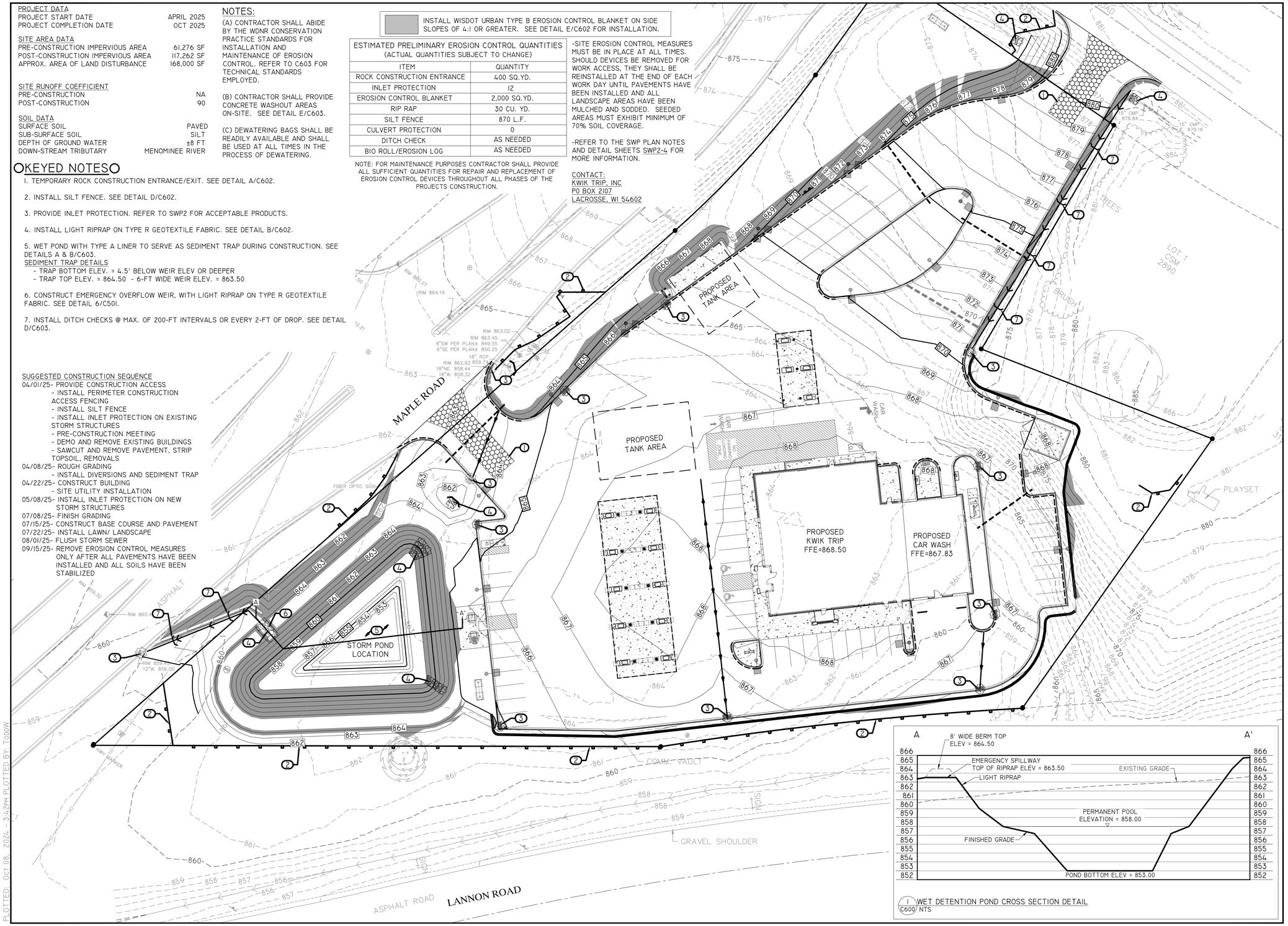
ITEM	QUANTITY
ROCK CONSTRUCTION ENTRANCE	400 SQ.YD.
INLET PROTECTION	12
EROSION CONTROL BLANKET	2,000 SQ.YD.
RIP RAP	30 CU. YD.
SILT FENCE	870 L.F.
CULVERT PROTECTION	0
DITCH CHECK	AS NEEDED
BIO ROLL/EROSION LOG	AS NEEDED

NOTE: FOR MAINTENANCE PURPOSES CONTRACTOR SHALL PROVIDE ALL SUFFICIENT QUANTITIES FOR REPAIR AND REPLACEMENT OF EROSION CONTROL DEVICES THROUGHOUT ALL PHASES OF THE PROJECTS CONSTRUCTION.

-SITE EROSION CONTROL MEASURES MUST BE IN PLACE AT ALL TIMES. SHOULD DEVICES BE REMOVED FOR WORK ACCESS, THEY SHALL BE REINSTALLED AT THE END OF EACH WORK DAY UNTIL PAVEMENTS HAVE BEEN INSTALLED AND ALL LANDSCAPE AREAS HAVE BEEN MULCHED AND SODDED. SEEDED AREAS MUST EXHIBIT MINIMUM OF 70% SOIL COVERAGE.

-REFER TO THE SWP PLAN NOTES AND DETAIL SHEETS SWP2-4 FOR MORE INFORMATION.

CONTACT:
KWIK TRIP, INC
P0 BOX 2107
LACROSSE, WI 54602



1 / C600 WET DETENTION POND CROSS SECTION DETAIL
NTS

KWIK TRIP STORES

KWIK STAR STORES

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SCALE
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EROSION CONTROL PLAN

CONVENIENCE STORE #631

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STORM WATER POLLUTION PREVENTION PLAN

POLLUTION PREVENTION PLAN
ALL CONTRACTORS / SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS FROM LEAVING THE PROJECT SITE. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLIANCE AND IMPLEMENTATION OF THE POLLUTION PREVENTION PLAN (PPP) FOR THEIR ENTIRE CONTRACT. THE RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THE PPP.

I. SITE DESCRIPTION
THIS POLLUTION PREVENTION PLAN IS FOR THE CONSTRUCTION OF THE KWIK TRIP CONVENIENCE STORE #631 PROJECT. THE PROJECT IS LOCATED IN SECTION 28, TOWNSHIP 09, RANGE 20, WASHINGTON COUNTY, WISCONSIN.

THIS PPP COVERS 4.37 ACRES WITH AN ESTIMATED 3.86 ACRES BEING DISTURBED THROUGH EXCAVATION, GRADING, AND PAVING. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 4.37 ACRES BEING DISTURBED.

THE PROJECT IS LOCATED IN AN AREA OF (HMB2 - HOCHHEIM LOAM, HMC2 - HOCHHEIM LOAM, HMD2 - HOCHHEIM LOAM, OUB2 - OZAUKEE SILT LOAM, SF - SANDY AND GRAVELLY LAND, USA - VIRGIL SILTY LOAM). THE ESTIMATED CURVE NUMBER FOR THIS PPP AFTER CONSTRUCTION IS XX.

REFER TO PLANS: KWIK TRIP CONVENIENCE STORE #631 FOR LOCATIONS OF TYPICAL SLOPES, DITCH GRADES, AND MAJOR STRUCTURAL AND NON-STRUCTURAL CONTROLS. A COPY OF THIS PLAN WILL BE ON FILE AT THE PROJECT ENGINEER'S OFFICE AND ON-SITE. RUNOFF FROM THIS WORK WILL OVERLAND FLOW THROUGH DETENTION POND, DITCHES, STORM SEWER TO MENOMINEE RIVER.

THIS PROJECT IS NOT LOCATED WITHIN A 100-YEAR FLOODPLAIN.

POTENTIAL SOURCES OF POLLUTION:
SITE SOURCES OF POLLUTION GENERATED AS A RESULT OF THIS WORK RELATE TO SILTS AND SEDIMENT WHICH MAY BE TRANSPORTED AS A RESULT OF A STORM EVENT. HOWEVER, THIS PPP PROVIDES CONVEYANCE FOR OTHER (NON-PROJECT RELATED) OPERATIONS. THESE OTHER OPERATIONS HAVE STORM WATER RUNOFF, THE REGULATION OF WHICH IS BEYOND THE CONTROL OF THIS PPP. POTENTIALLY THIS RUNOFF CAN CONTAIN POLLUTANTS RELATED TO SITE-SPECIFIC LAND USES.
EXAMPLES ARE:

RURAL AGRICULTURAL ACTIVITIES:
RUNOFF FROM AGRICULTURAL LAND USE CAN POTENTIALLY CONTAIN CHEMICALS INCLUDING HERBICIDES, PESTICIDES, FUNGICIDES, AND FERTILIZERS.

CONSTRUCTION ACTIVITIES:
RUNOFF FROM CONSTRUCTION ACTIVITIES CAN POTENTIALLY CONTAIN FUELS, OILS, AND CHEMICALS FROM SPECIFIC CONSTRUCTION RELATED ACTIVITIES.

2. CONTROLS

INLET PROTECTION DEVICES SHALL BE PLACED AROUND INTAKES. SILT FENCE SHALL BE PLACED AT LOCATIONS WHERE RUNOFF CAN MOVE OFFSITE. VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED. AS AREAS REACH THEIR FINAL GRADE, ADDITIONAL SILT FENCES, SILT BASINS, INTERCEPTING DITCHES, SOD FLUMES, LETDOWNS, BRIDGE END DRAINS, AND EARTH DIKES SHALL BE INSTALLED AS SPECIFIED IN THE PLANS AND / OR AS REQUIRED BY PROJECT ENGINEER. THIS MAY INCLUDE USING SILT FENCE AS DITCH CHECKS. TEMPORARY STABILIZING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE CONSTRUCTED. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA IMMEDIATELY, THE AREA SHALL BE STABILIZED BY TEMPORARY SEEDING OR MULCHING WITHIN 14 DAYS. OTHER STABILIZING METHODS SHALL BE USED OUTSIDE THE SEEDING PERIOD.

THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE WISCONSIN TRANSPORTATION STANDARD SPECIFICATIONS. CONTRACTOR SHALL ALSO FOLLOW ALL REQUIREMENTS OF THE WASHINGTON COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS.

AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL ITEMS SUCH AS SOD FLUMES, DITCH CHECKS, ROCK OUTLET PROTECTION, AND LETDOWN STRUCTURES AND OTHER APPROPRIATE MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS DETERMINED BY THE ENGINEER AFTER FIELD INVESTIGATION. THE CONSTRUCTION WILL BE COMPLETED WITH THE ESTABLISHMENT OF PERMANENT PERENNIAL VEGETATION OF ALL DISTURBED AREAS BY THE CONTRACTOR.

3. OTHER CONTROLS

CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTE SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENT LAWS, RULES, AND REGULATIONS, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

MUD TRACK-OUT SHALL BE CLEANED OFF THE ROADWAY NIGHTLY AND BEFORE ANY RAINFALL EVENT. WATER MAY NOT BE USED TO CLEAN THE ROADWAY.

CONTRACTOR SHALL KEEP PERMIT, INSPECTION LOGS, SITE PLAN, AND OTHER PERMIT DATA ON SITE AT ALL TIMES. MATERIAL SHALL BE PLACED IN AN EASILY ACCESSIBLE MAILBOX THAT IS CLEARLY MARKED "SWPPP".

ALL FUELS AND OILS SHALL BE CONTAINED BY A SECONDARY CONTAINMENT BERM OR WITHIN A TRAILER.

ALL SILT FENCE AND INLET PROTECTION DEVICES AS SHOWN SHALL BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION WHENEVER POSSIBLE.

A NOTICE OF DISCONTINUATION MUST BE FILED WITH THE WDNR ONCE VEGETATION HAS BEEN ESTABLISHED TO A MINIMUM COVERAGE OF 70%.

CONTRACTOR SHALL MARK ON THE INITIAL STORM WATER POLLUTION PREVENTION PLAN THE LOCATION OF STORAGE AREAS FOR FUELS AND OILS, PORTA-POTTY, DUMPSTER OR WASTE CONTAINMENT BINS, CONCRETE WAS OUT AREA, AND OTHER NECESSARY ITEMS.

ENTRANCES SHALL BE MAINTAINED TO CONTROL MUD TRACK-OUT FROM THE SITE.

THE STORMWATER POLLUTION PREVENTION PLAN SHALL BE UPDATED AS NECESSARY DURING CONSTRUCTION.

APPROVED STATE OF LOCAL PLANS:
DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

4. MAINTENANCE

THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. CLEANING OF SILT CONTROL DEVICES SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.

5. INSPECTIONS

INSPECTIONS SHALL BE MADE JOINTLY BY THE CONTRACTOR AND THE CONTRACTING AUTHORITY EVERY SEVEN CALENDAR DAYS. THE CONTRACTOR SHALL IMMEDIATELY BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES FOUND. THE FINDINGS OF THIS INSPECTION SHALL BE RECORDED IN THE PROJECT DIARY. THIS PPP MAY BE REVISED BASED ON THE FINDING OF THE INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS. ALL CORRECTIVE ACTIONS SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS OF THE INSPECTION.

6. NON-STORM DISCHARGES

THIS INCLUDES SUBSURFACE DRAINS (I.E. FIELD TILE, SUBDRAINS), SLOPE DRAINS, AND BRIDGE END DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF PATIO BLOCKS, CLASS A STONE, OR EROSION STONE.

7. SEQUENCE OF CONSTRUCTION ACTIVITIES

ALL EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO COMMENCING ANY CONSTRUCTION ON-SITE. FIRST, ALL NOTED REMOVALS SHALL BE COMPLETED. SECOND, GRADING CAN COMMENCE TO BRING SOIL TO FINAL GRADE.. NEXT, INSTALLATION OF UTILITIES AND PAVING SHALL BE COMPLETED. FINALLY, THE DISTURBED AREAS SHALL BE SEEDED, FERTILIZED, AND MULCHED AS SHOWN IN THE PLANS.

OWNER CERTIFICATION:

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

NAME (PRINTED OR TYPED): _____

TITLE: _____

SIGNATURE: _____

DATE: _____

NAME OF COMPANY, IF APPLICABLE: _____

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

TELEPHONE NUMBER: _____

ADDRESS OF THE SITE: _____

CONTRACTOR / SUBCONTRACTOR CERTIFICATION:

"I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THAT AUTHORIZES THE STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE AS PART OF THIS CERTIFICATION. FURTHER, BY MY SIGNATURE, I UNDERSTAND THAT I AM BECOMING CO-PERMITTEE, ALONG WITH THE OWNER(S) AND OTHER CONTRACTORS AND SUBCONTRACTORS SIGNING SUCH CERTIFICATIONS, TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2 FOR "STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES" AT THE IDENTIFIED SITE. AS A CO-PERMITTEE, I UNDERSTAND THAT I, AND MY COMPANY, ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE CODE OF WISCONSIN, TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE STORM WATER POLLUTION PREVENTION PLAN DEVELOPED UNDER THE NPDES PERMIT AND THE TERMS OF THE NPDES PERMIT."

NAME (PRINTED OR TYPED): _____

TITLE: _____

SIGNATURE: _____

DATE: _____

NAME OF CONTRACTING FIRM: _____

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

TELEPHONE NUMBER: _____

ADDRESS OF THE SITE: _____

CONTRACTORS/SUBCONTRACTORS WHO WILL IMPLEMENT EACH EROSION CONTROL MEASURE:

SILT FENCE: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

TOPSOIL BERM: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

STABILIZED CONSTRUCTION ENTRANCE: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

CONCRETE WASH-OUT AREA: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

DUMPSTER: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

PORT-A-POTTY: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

INLET PROTECTION DEVICE: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

KWIK TRIP STORES

KWIK STAR STORES

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LA CROSSE, WI 54602-2107
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FAX (608) 781-8960

REI
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4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
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EMAIL: MAIL@REIENGINEERING.COM

EROSION CONTROL NOTES

CONVENIENCE STORE #631

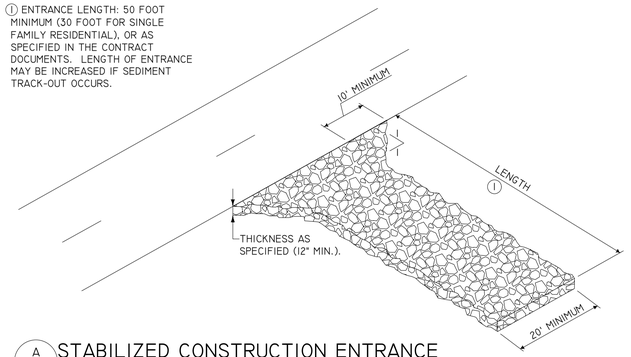
STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

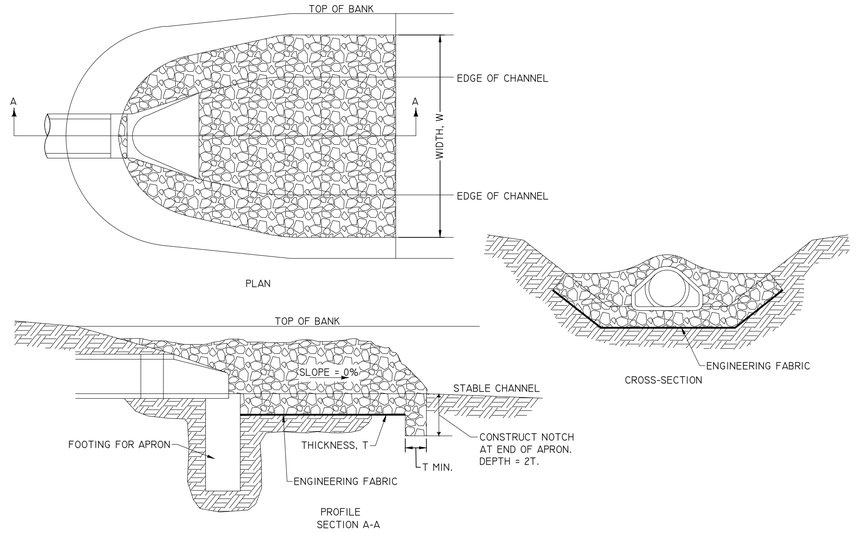
DRAWN BY NAP XXX
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C601

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C600-EROSION CONTROL PLAN.DWG LAYOUT: C601
PLOTTED: Oct 08, 2024 - 3:42PM PLOTTED BY: ToddW

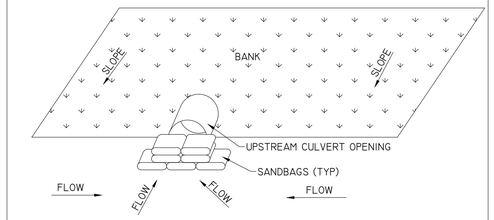
① ENTRANCE LENGTH: 50 FOOT MINIMUM (30 FOOT FOR SINGLE FAMILY RESIDENTIAL), OR AS SPECIFIED IN THE CONTRACT DOCUMENTS. LENGTH OF ENTRANCE MAY BE INCREASED IF SEDIMENT TRACK-OUT OCCURS.



A C602 STABILIZED CONSTRUCTION ENTRANCE
FOR CONSTRUCTION EGRESS POINTS
NTS

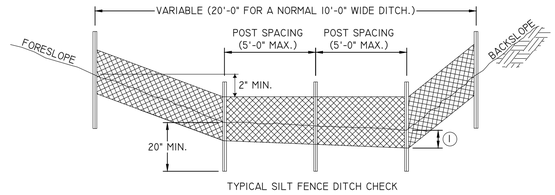


B C602 RIP RAP APRON FOR PIPE OUTLET INTO CHANNEL
NTS

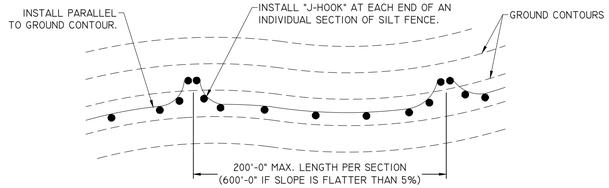


C C602 CULVERT PROTECTION
NTS

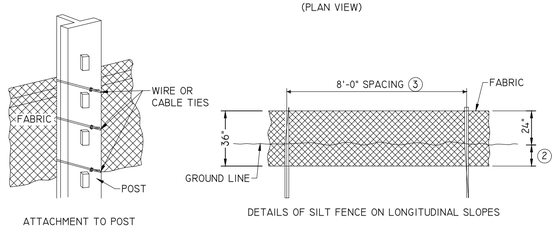
① INSERT 12 INCHES OF FABRIC A MINIMUM OF 6 INCHES DEEP (FABRIC MAY BE FOLDED BELOW THE GROUND LINE).



TYPICAL SILT FENCE DITCH CHECK

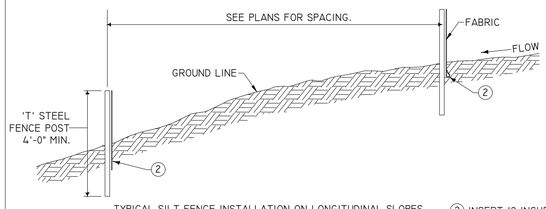


TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(PLAN VIEW)



ATTACHMENT TO POST

DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES

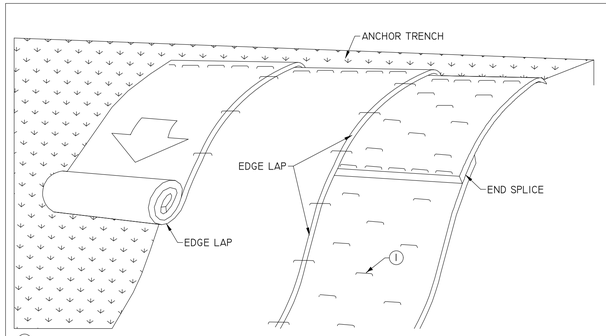


TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(PROFILE VIEW)

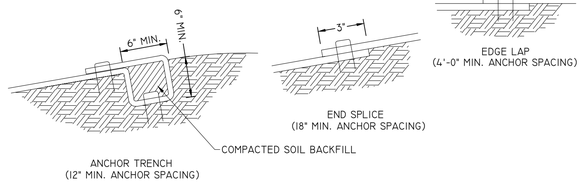
D C602 SILT FENCE
NTS

② INSERT 12 INCHES OF FABRIC A MINIMUM OF 6 INCHES DEEP (FABRIC MAY BE FOLDED BELOW THE GROUND LINE).

③ REDUCE POST SPACING TO 5'-0" AT WATER CONCENTRATION AREAS, OR AS REQUIRED TO ADEQUATELY SUPPORT FENCE.



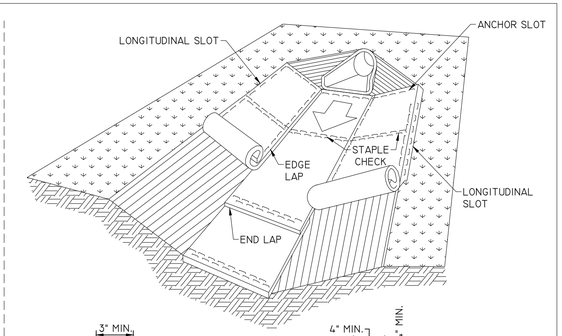
① SECURE BLANKET TO GROUND ACCORDING TO MANUFACTURER'S RECOMMENDED ANCHORING PATTERN AND MINIMUM SHOWN IN TABLE I.

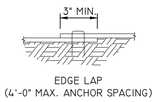


ANCHOR TRENCH
(12" MIN. ANCHOR SPACING)

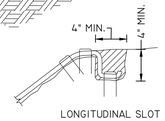
TABLE I

MAX. SLOPE	MIN. ANCHORS
≤3:1	1.5/YD²
2:1	2/YD²
1:1	2.5/YD²

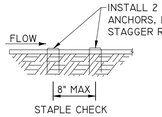




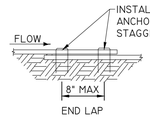
EDGE LAP
(4'-0" MAX. ANCHOR SPACING)



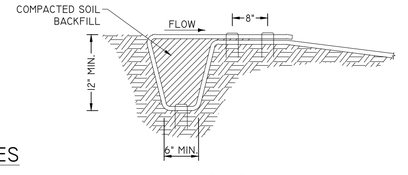
LONGITUDINAL SLOT
(3'-0" MAX. ANCHOR SPACING)



STAPLE CHECK



END LAP



ANCHOR SLOT
(1'-0" MAX. ANCHOR SPACING)

E C602 ROLLED EROSION CONTROL (RECP) INSTALLATION ON SLOPES
NTS

ALL EROSION CONTROL MEASURES TO BE INSTALLED AND MAINTAINED PER WDNR STANDARDS
HTTP://DNR.WI.GOV/ORG/WATER/WM/NPS/STORMWATER/TECHSTDS.HTM

KWIK TRIP STORES

KWIK STAR STORES

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CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING
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4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
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EMAIL: MAIL@REIENGINEERING.COM

EROSION CONTROL DETAILS

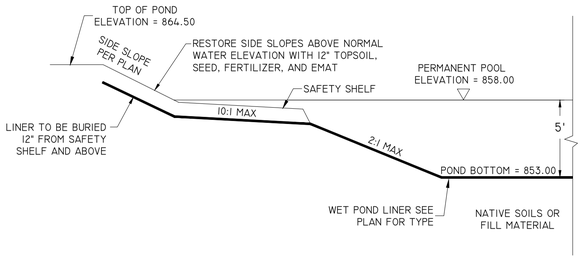
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP XXX
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C602

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C600-EROSION CONTROL PLAN.DWG LAYOUT: C602
PLOTTED: OCT 08, 2024 - 3:43PM PLOTTED BY: TODDW



GENERAL POND LINER SPECIFICATIONS

(REFER TO APPENDIX D OF WDNR TECHNICAL STANDARD 1001 FOR DETAILED SPECIFICATIONS)

*1. TYPE A LINER (ANY OF THE FOLLOWING)
- CLAY LINER: MINIMUM THICKNESS OF 2 FEET WITH AN IN-PLACE HYDRAULIC CONDUCTIVITY OF 1 X 10^{-7} CM/SEC OR LESS.
- HDPE: MINIMUM THICKNESS OF 60 MIL.
- GCL: GEOSYNTHETIC CLAY LINER PER NRCS SPECIFICATIONS OUTLINED IN APPENDIX D.

TYPE B LINER (ANY OF THE FOLLOWING)
- CLAY LINER: MINIMUM THICKNESS OF 2 FEET WITH AN IN-PLACE HYDRAULIC CONDUCTIVITY OF 1 X 10^{-6} CM/SEC OR LESS.
- HDPE: MINIMUM THICKNESS OF 40 MIL.
- PPL: MINIMUM THICKNESS OF 30 MIL.

TYPE C LINER (ANY OF THE FOLLOWING)
- SILT/CLAY LINER: MINIMUM THICKNESS OF 2 FEET
- HDPE: ANY THICKNESS
- PPL: MINIMUM THICKNESS OF 20 MIL
- PVC: MINIMUM THICKNESS OF 30 MIL
- EPDM: MINIMUM THICKNESS OF 45 MIL

NOTE:
1. SHOULD THE CONTRACTOR ENCOUNTER SEASONAL OR PERCHED GROUNDWATER DURING CONSTRUCTION OF THE POND AND IT'S LINER, CONTACT ENGINEER FOR UNDERDRAIN RECOMMENDATIONS.

2. MANUFACTURED LINERS SHALL BE PROVIDED WITH AIR-RELEASE VENTS TO PREVENT FLOATING.

3. CONTRACTOR TO PROVIDE POND LINER DOCUMENTATION TO OWNER PRIOR TO FINAL ACCEPTANCE.

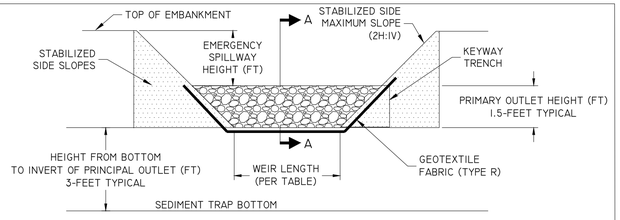
A / C603 **WET POND LINER**
NTS

NOTES:
1. SIDE SLOPES AND FACES OF EARTHEN EMBANKMENT AROUND OUTLET SHALL BE ARMORED WITH RIPRAP OR STABILIZED WITH EROSION MAT SUFFICIENT TO HANDLE FLOWS FROM THE 10-YEAR STORM.

2. STONE (SHORT DURATION): 3-6" WELL GRADED ANGULAR CLEAR STONE.

3. STONE (6+ MONTHS): COMBINATION OF LIGHT RIPRAP WITH 12"-THICK LAYER OF 1" ANGULAR CLEAR STONE.

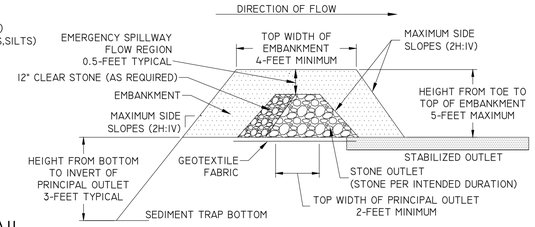
4. REFER TO WDNR TECH STD 1063 FOR ADDITIONAL INFORMATION.



CROSS-SECTION VIEW OF PRINCIPAL OUTLET

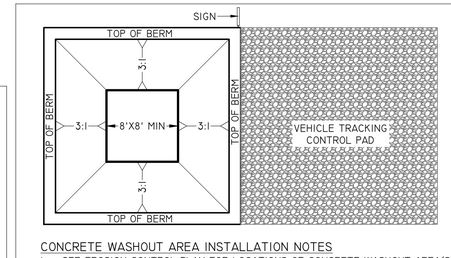
* AS = 625 X ADR (COARSE GRAINED SOILS + SANDS)
AS = 1560 X ADR (MEDIUM GRAINED SOILS + LOAMS,SILTS)
AS = 5300 X ADR (FINE GRAINED SOILS + CLAYS)

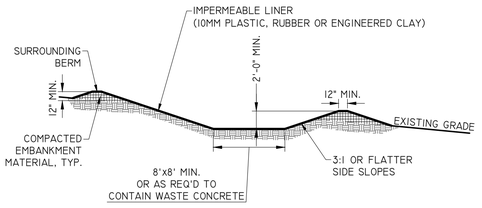
ADR (OC)	WEIR LENGTH (FT)
1	4
2	6
3	8
4	10
5	12



VIEW A-A OF PRINCIPAL OUTLET

B / C603 **SEDIMENT TRAP DETAIL**
NTS





CONCRETE WASHOUT AREA INSTALLATION NOTES

1. SEE EROSION CONTROL PLAN FOR LOCATIONS OF CONCRETE WASHOUT AREA(S). TO BE PLACED A MIN. OF 50' FROM DRAINAGEWAYS, BODIES OF WATER, AND INLETS.)
2. THE CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL PAD IS REQ'D AT THE ACCESS POINT(S).
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA(S), AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREAS TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

CONCRETE WASHOUT AREA MAINTENANCE NOTES

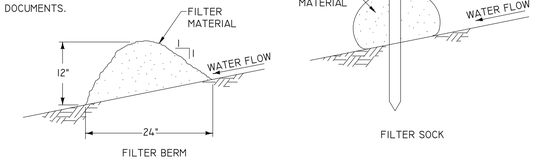
6. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE
7. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
8. WHEN CONCRETE WASHOUT AREA(S) IS REMOVED, THE DISTURBED AREA SHALL BE STABILIZED PER SITE EROSION CONTROL MEASURES.
9. INSPECT WEEKLY AND DURING AND AFTER ALL STORM EVENTS. CLEAN-OUT OR COVER WASHOUT AREA PRIOR TO PREDICTED STORM EVENTS TO PREVENT OVER-FLOW.

E / C603 **CONCRETE WASHOUT AREA**
NTS

BERM SHOWN IS TYPICAL FOR SLOPES FLATTER THAN 3:1. FOR STEEPER SLOPES, INCREASE BERM SIZE AS DIRECTED BY THE ENGINEER.

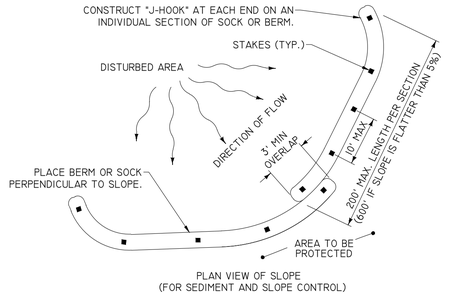
PLACE BERM IN UNCOMPACTED WINDROW PERPENDICULAR TO THE SLOPE AT LOCATIONS SPECIFIED IN THE CONTRACT DOCUMENTS.

FILTER SOCK DIAMETER AS SPECIFIED IN THE CONTRACT DOCUMENTS.

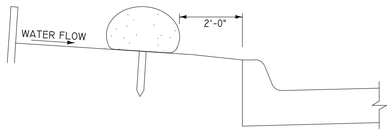


FILTER BERM

FILTER SOCK



PLAN VIEW OF SLOPE
(FOR SEDIMENT AND SLOPE CONTROL)



SECTION VIEW AT STREET
(FOR PERIMETER CONTROL ALONG STREET)

TYPICAL PLACEMENT OF BERM OR SOCK

C / C603 **FILTER BERM AND FILTER SOCK**
NTS

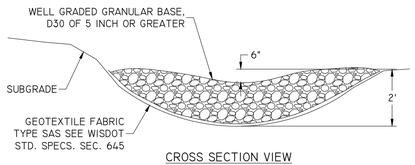
INSTALL & MAINTAIN IN ACCORDANCE WITH DNR TECHNICAL STANDARD 1062.

DITCH CHECKS TO BE REMOVED AFTER THE DITCH IS VEGETATED AND STABILIZED.

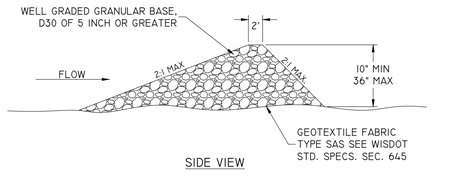
AREA UNDER THE DITCH CHECK TO BE SEEDED AFTER THE DITCH CHECK IS REMOVED.

PLACE EROSION MAT OVER THESE SEEDED AREAS.

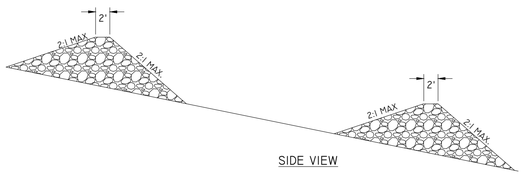
NOTE:
CONTRACTOR MAY REFER TO THE WISDOT PAL FOR OTHER APPROVED DITCH CHECKS AND THEIR INSTALLATION



CROSS SECTION VIEW

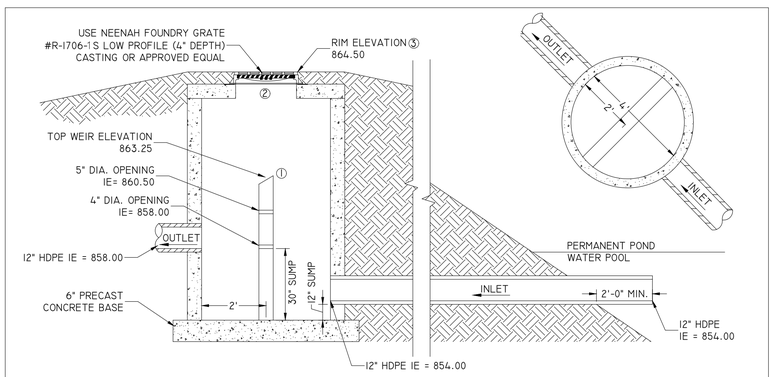


SIDE VIEW



SIDE VIEW

D / C603 **STONE DITCH CHECKS**
NTS



① 4" THICK MASONRY WALL OR ¼"STEEL PLATE. GROUT OR SEAL ALONG SIDES OF MANHOLE
② FORM OPENING IN TOP SLAB TO FIT CASTING
③ ADJUST GRADING AT THE OUTLET STRUCTURE TO COVER CASTING TO THE PROPOSED RIM ELEVATION

F / C603 **OUTLET CONTROL STRUCTURE**
NTS

KWIK TRIP STORES

KWIK STAR STORES

KWIK TRIP, Inc.
P.O. BOX 2107
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EMAIL: MAIL@REIENGINEERING.COM

EROSION CONTROL DETAILS

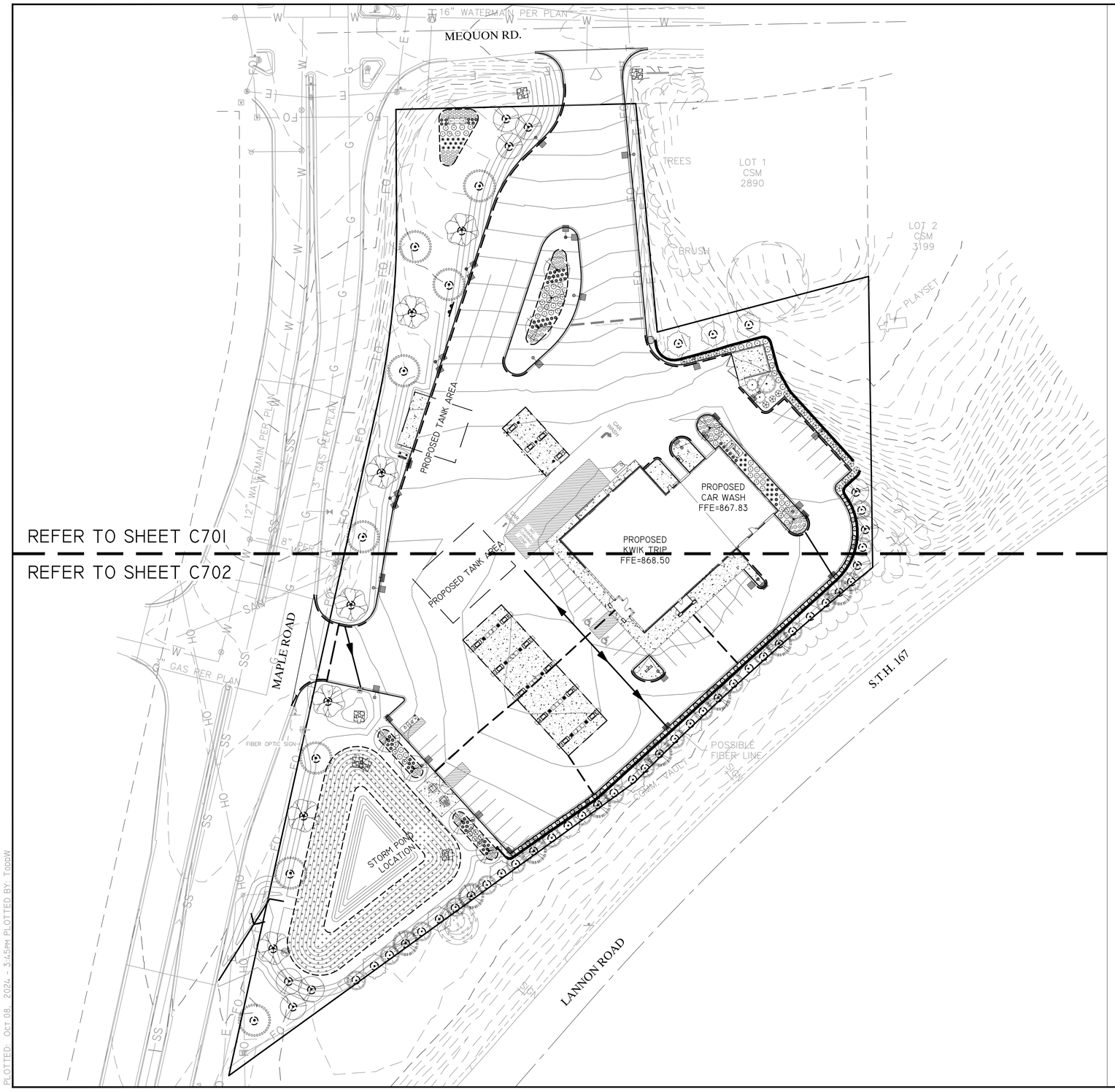
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY	NAP XXX
SCALE	GRAPHIC
PROJ. NO.	11757
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	C603

DRAWING FILE: Q:\1700-1799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C600-EROSION CONTROL PLAN.DWG LAYOUT: C603
PLOTTED: Oct 08, 2024 - 3:44PM PLOTTED BY: ToddW



REFER TO SHEET C701

REFER TO SHEET C702

GENERAL NOTES:

(A) LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR LOCATING & VERIFYING ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION, AND IS RESPONSIBLE FOR ANY DAMAGE TO THEM DURING CONSTRUCTION.

(B) CALL DIGGERS HOTLINE @ 811 OR 1-800-242-8511 AT LEAST 5 WORKING DAYS PRIOR TO DEMOLITION, EXCAVATION OR ANY CONSTRUCTION ACTIVITY.

(C) ALL PLANT MATERIAL SHALL BE GUARANTEED ONE (1) FULL YEAR UPON TOTAL COMPLETION OF PROJECT AND ACCEPTANCE BY OWNER, WITH A ONE TIME REPLACEMENT WARRANTY UPON REQUEST BY OWNER. WARRANTY EXPIRES AFTER FIRST FULL YEAR FOLLOWING PROJECT COMPLETION.

(D) LANDSCAPE CONTRACTOR SHALL VERIFY MINIMUM 6" TOPSOIL DEPTH FOR ALL AREAS TO BE SEEDED/SODDED THROUGHOUT PROJECT SITE. CONTRACTOR IS REQUIRED TO CORRECT ANY DEFICIENCIES PRIOR TO SEED/SOD. TOPSOIL SHALL BE CLEAN AND FREE OF STONES, WEEDS AND OTHER UNDESIRABLE DEBRIS.

(E) LANDSCAPE CONTRACTOR SHALL VERIFY MINIMUM 12" PLANTING SOIL DEPTH FOR ALL PROPOSED PLANTING BED AREAS THROUGHOUT THE PROJECT SITE. CONTRACTOR IS REQUIRED TO CORRECT ANY DEFICIENCIES PRIOR TO PLANT INSTALLATION. PLANTING SOIL & AREA SHALL BE CLEAN AND FREE OF STONES, WEEDS, CONCRETE WASTE AND OTHER UNDESIRABLE DEBRIS.

(F) LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR REPAIRING TOPSOIL AND SODDING ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITY, INCLUDING ALL R.O.W. AND ADJACENT PROPERTIES.

(G) CONTRACTOR SHALL CLEAN ALL PAVEMENT AREAS AFTER LANDSCAPE CONSTRUCTION ACTIVITIES ARE COMPLETE AND APPROVED BY OWNER. *THIS TO BE DONE DAILY AS DEEMED NECESSARY BY MUNICIPALITY.

PLANT SCHEDULE

SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	CONT.	QTY
DECIDUOUS TREES					
	Autumn Blaze® Freeman Maple	Acer x freemanii 'Jeffersred'	2.5" Cal.	B&B	11
	Fall Fiesta® Sugar Maple	Acer saccharum 'Bailsta'	2" Cal.	B&B	18
	Red Oak	Quercus rubra	3" Cal.	B&B	8
	Swamp White Oak	Quercus bicolor	3" Cal.	B&B	7
EVERGREEN TREES					
	Black Hills White Spruce	Picea glauca 'Densata'	6` Ht.	B&B	2
	White Pine	Pinus alba	6` Ht.	B&B	8
	White Spruce	Picea glauca	6` Ht.	B&B	20
DECIDUOUS SHRUBS					
	Tiny Wine® Ninebark	Physocarpus opulifolius 'SMPOTW'	3 gal.	Pot	62
EVERGREEN SHRUBS					
	Dark Green Anglo-Japanese Yew	Taxus x media 'Dark Green'	5 gal.	Pot	11
	Kallay Compact Pfitzer Juniper	Juniperus chinensis 'Kallays Compact'	3 gal.	Pot	25
	Mini Arcade Juniper	Juniperus sabina 'Mini Arcade'	3 gal.	Pot	58
PERENNIALS					
	Karl Foerster Feather Reed Grass	Calamagrostis x acutiflora 'Karl Foerster'	1 gal.	Pot	27
	Prairie Dropseed	Sporobolus heterolepis	1 gal.	Pot	104
	Shenandoah Switch Grass	Panicum virgatum 'Shenandoah'	1 gal.	Pot	68

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EMAIL: MAIL@REIENGINEERING.COM

N

SCALE
0 40 80

LANDSCAPE PLAN

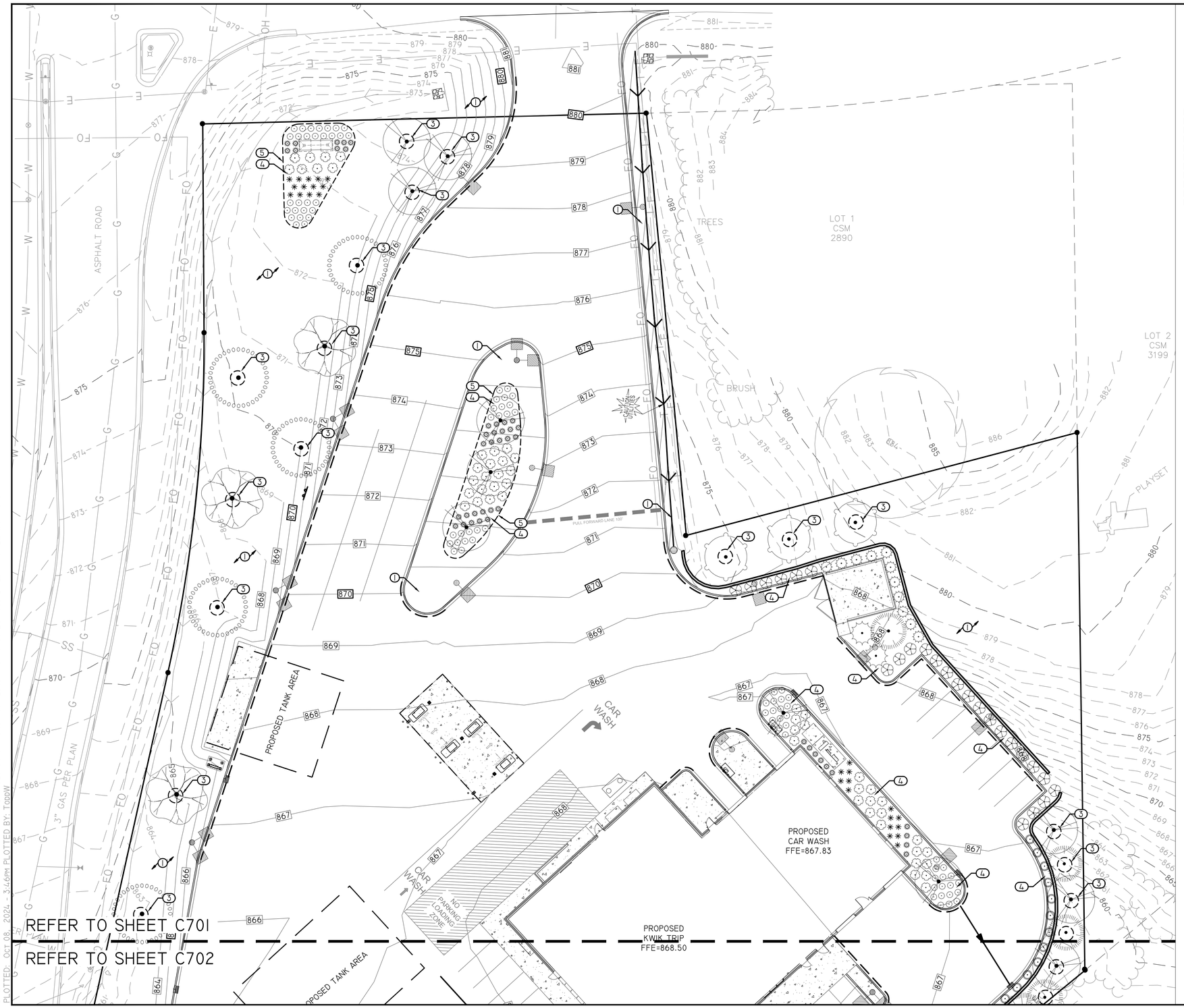
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C700

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C700-LANDSCAPE PLAN.DWG LAYOUT: C700
PLOTTED: Oct 08, 2024 - 3:45PM PLOTTED BY: ToddW



KEYED NOTES

1. SOD, *ALL AREAS NOTED ON PLAN & ALL DISTURBED AREAS DUE TO CONSTRUCTION ACTIVITY.

2. (9,900 SF TOTAL) AGRECOL, SHORTGRASS PRAIRIE FOR DRY SOILS, APPLY GLYPHOSATE HERBICIDE TO AREA WHEN MAJORITY OF WEEDS ARE 2"-3" TALL. WAIT 10 DAYS THEN FINELY TILL THE SOIL ONLY 1"-2" DOWN AND PLANT IMMEDIATELY BY HAND BROADCASTING AT A RATE OF 11 LBS/ACRE. RAKE OR DRAG AREA LIGHTLY, COVERING THE SEED WITH ABOUT ¼" TO ½" OF SOIL. ROLL AREA FIRMLY AFTER RAKING. MULCH PRAIRIE SEEDED AREAS LESS THAN 4:1 SLOPE WITH 1" OF WEED FREE STRAW MULCH. APPLY WISDOT NET-FREE CLASS 1, URBAN TYPE B EROSION MAT ON SLOPING AREAS STEEPER THAN 4:1. *REFER TO AGRECOL'S "NATIVE SEEDING INSTRUCTIONS" ON THEIR WEBSITE FOR DETAILED INSTRUCTIONS/GUIDELINES FOR SUCCESSFUL SEED ESTABLISHMENT AND MANAGEMENT. (LINK BELOW)

   HTTPS://WWW.AGRECOL.COM/NATIVE-SEEDING-INSTRUCTIONS_EP_44.HTML

3. 6' DIAMETER WOOD MULCH TREE RING, 3"-4" DEPTH, DARK BROWN COLOR, *ALL TREES PLANTED WITHIN SOD AREAS.

4. SHREDDED HARDWOOD MULCH, 3"-4" DEPTH, DARK BROWN COLOR.

5. SHOVEL CUT EDGE, 4"-6" DEPTH CLEAN CUT EDGE AROUND PLANTING BEDS & PRAIRIE SEEDING WITHIN SOD AREAS.

PLANT SCHEDULE

SYMBOL	BOTANICAL NAME
DECIDUOUS TREES	
	Acer saccharum 'Bailsta'
	Acer x freemanii 'Jeffersred'
	Quercus bicolor
	Quercus rubra
EVERGREEN TREES	
	Picea glauca
	Picea glauca 'Densata'
	Pinus alba
DECIDUOUS SHRUBS	
	Physocarpus opulifolius 'SMPOTW'
EVERGREEN SHRUBS	
	Juniperus chinensis 'Kallays Compact'
	Juniperus sabina 'Mini Arcade'
	Taxus x media 'Dark Green'
PERENNIALS	
	Calamagrostis x acutiflora 'Karl Foerster'
	Panicum virgatum 'Shenandoah'
	Sporobolus heterolepis

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N

SCALE
0 20 40

LANDSCAPE PLAN

CONVENIENCE STORE #631
STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C701

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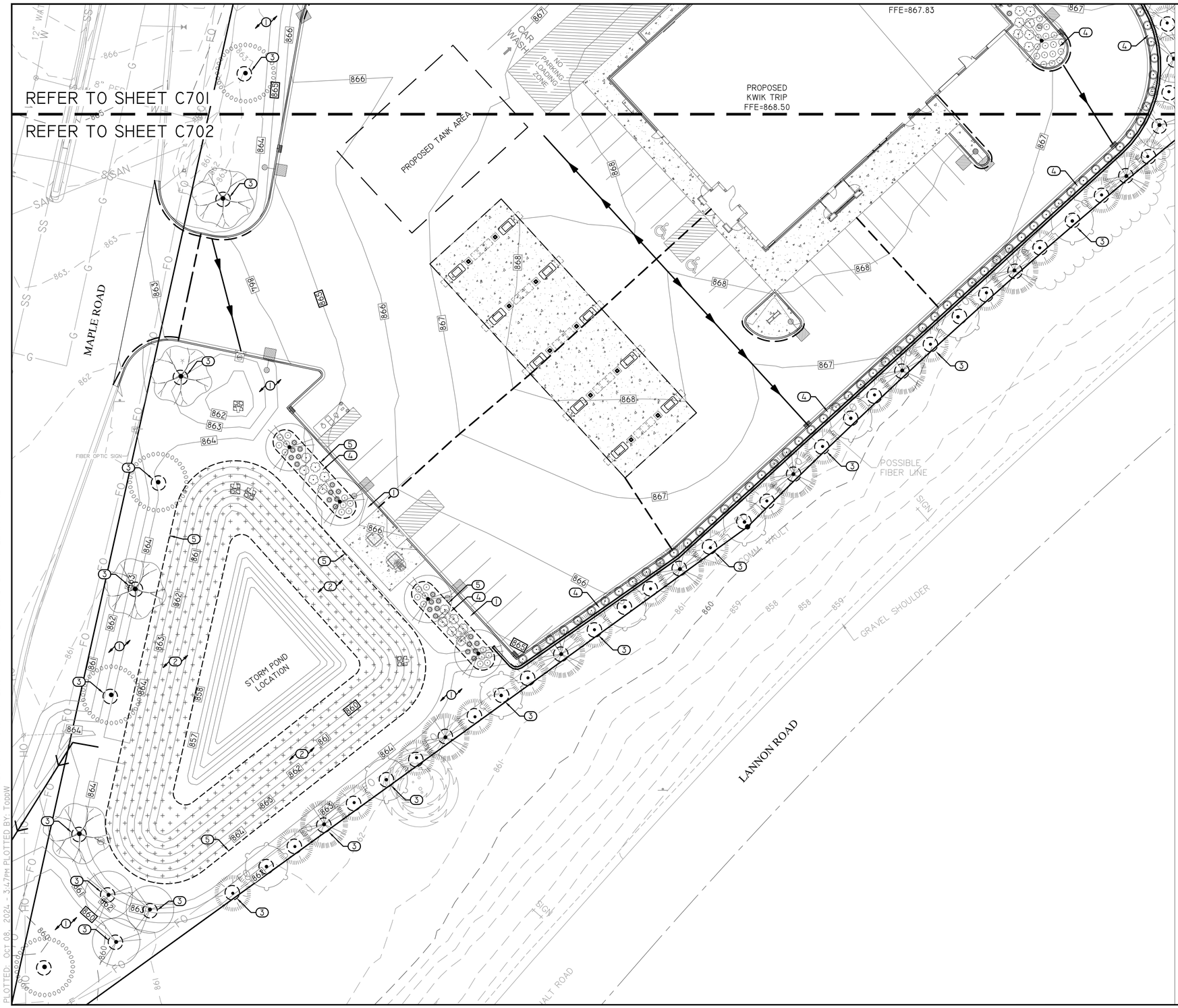
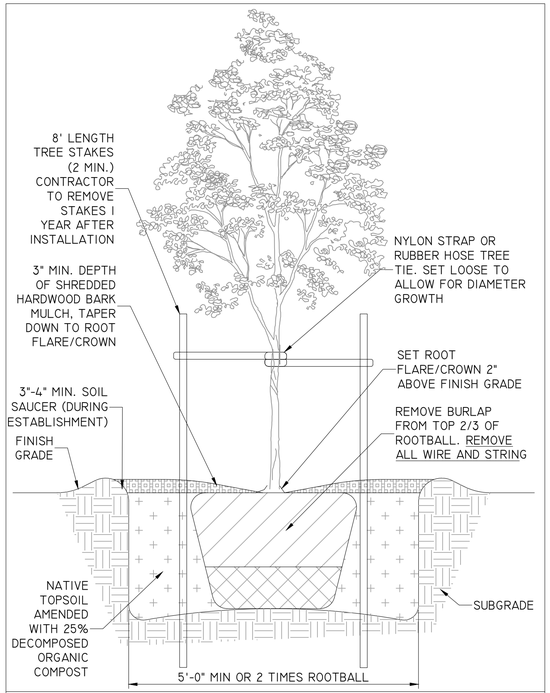
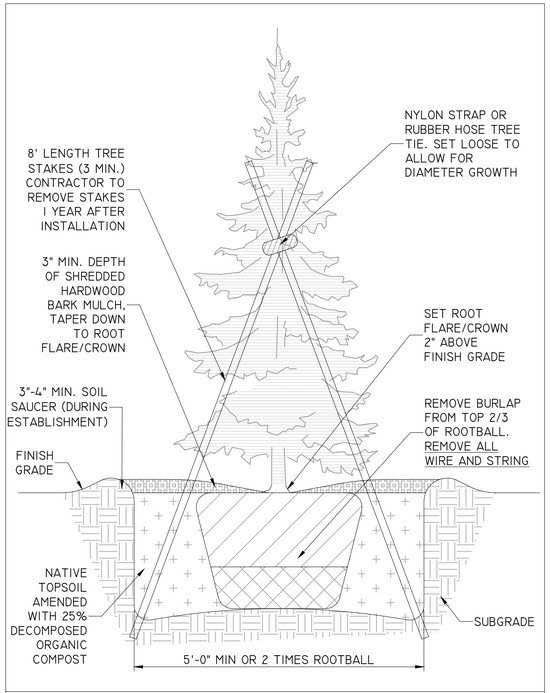
PLOTTED: OCT 08, 2024 - 3:46PM PLOTTED BY: TODDW

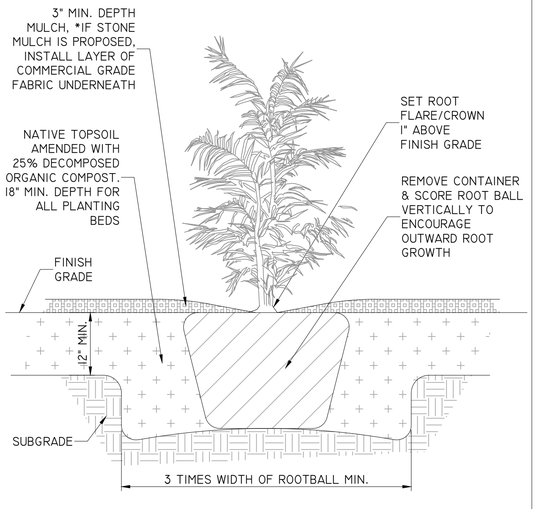

REFER TO SHEET C701
REFER TO SHEET C702
PROPOSED TANK AREA
PROPOSED
KWIK TRIP
FFE=868.50
FFE=867.83
CAR WASH
NO PARKING LOADING ZONE
MAPLE ROAD
STORM POND LOCATION
FIBER OPTIC SIGN
POSSIBLE FIBER LINE
SIGN
SIGN
SIGN



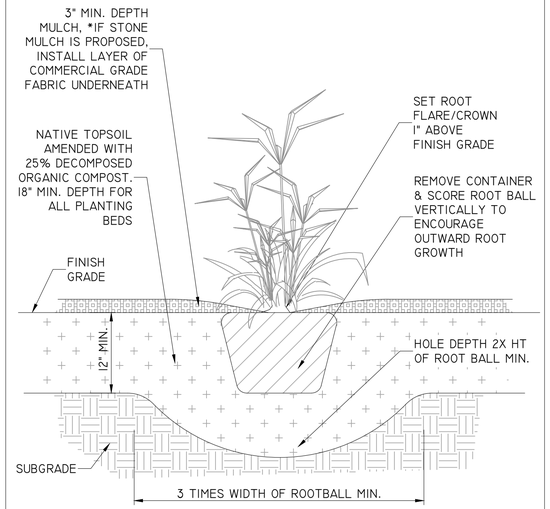
DECIDUOUS TREE - PLANTING DETAIL



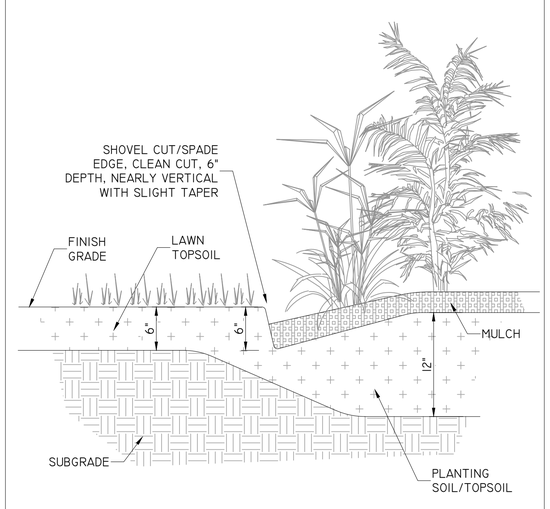
EVERGREEN TREE - PLANTING DETAIL



SHRUB - PLANTING DETAIL



PERENNIAL - PLANTING DETAIL



SHOVEL CUT EDGE - DETAIL

KWIK TRIP, Inc.
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1626 OAK STREET
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LANDSCAPE DETAILS

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

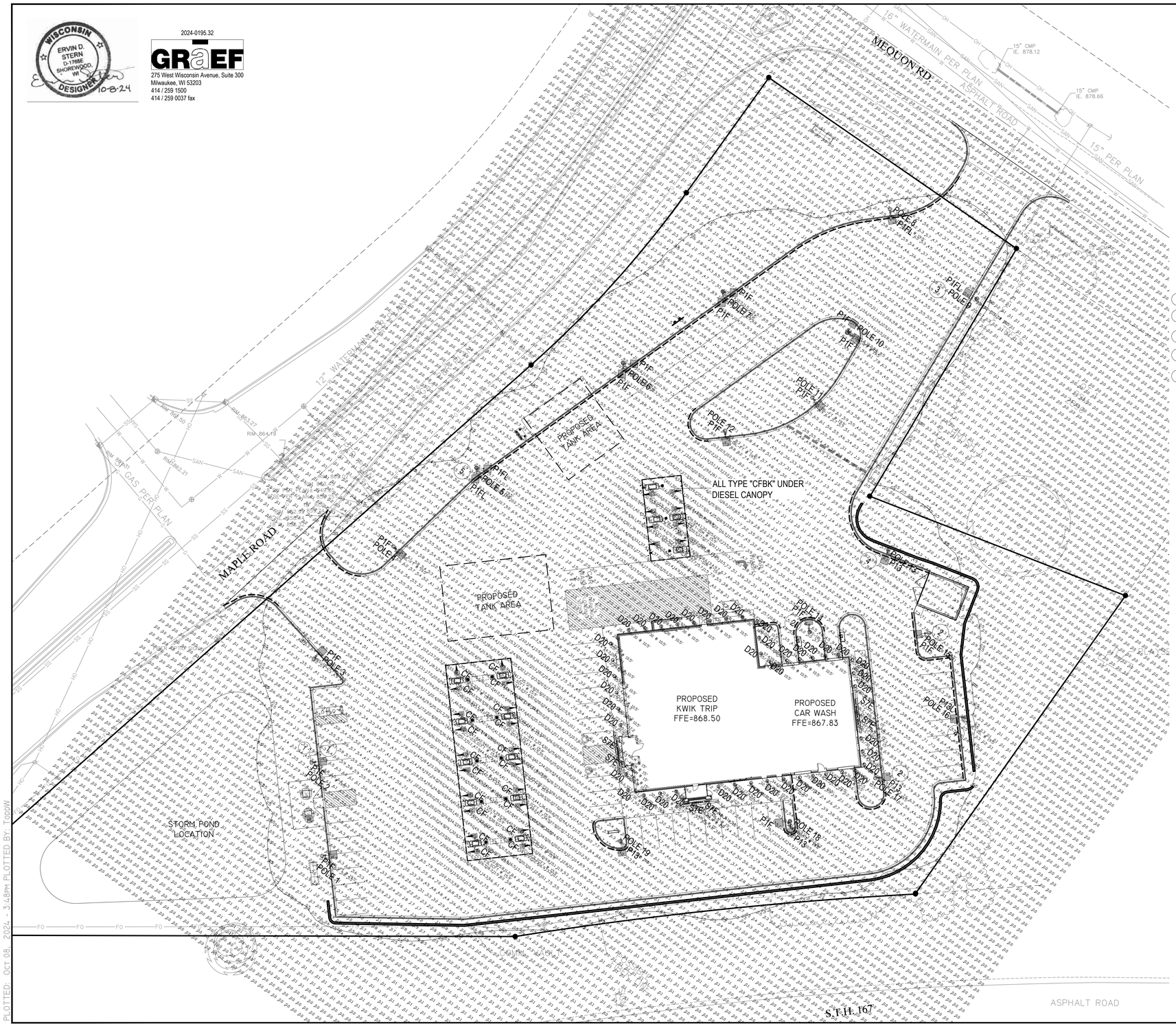
DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C703

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C700-LANDSCAPE PLAN.DWG LAYOUT: C703
PLOTTED: Oct 08, 2024 - 3:47PM PLOTTED BY: ToddW

WISCONSIN
ERVIN D. STERN
D-17668
SHOREWOOD, WI
DESIGNER
10-8-24

2024-0195.32

GRAEF
275 West Wisconsin Avenue, Suite 300
Milwaukee, WI 53203
414 / 259 1500
414 / 259 0037 fax



CALCULATION STATISTICS

OVERALL SITE:
AVERAGE: 3.2
MAXIMUM: 78.7
MINIMUM: 0.0

FIXTURE QUANTITIES

D20 - 44
S7E - 6
CF - 20
CFBK - 8
P13 - 5
P13L - 1
P1F - 14
P1FL - 4

PROVIDE (19) 16' POLES.

GENERAL NOTES:

1. FOOTCANDLE LEVELS SHOWN ON THIS PLAN ARE CALCULATED AT GRADE LEVEL.
2. ALL POLES SHALL BE INSTALLED A MINIMUM OF 3'-0" FROM BACK OF CURB TO EDGE OF POLE BASE UNLESS NOTED.
3. POLE THAT ARE LOCATED AT CORNER OF ISLAND SHALL BE A MINIMUM OF 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE. POLES THAT MUST BE INSTALLED LESS THAN 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE SHALL HAVE PROTECTIVE BOLLARDS INSTALLED AROUND THE POLE BASE. COORDINATE WITH KWIK TRIP PRIOR TO INSTALLATION.

KEYED NOTES:

1. COORDINATE LOCATION AND MOUNTING HEIGHT OF SECURITY CAMERA WITH OWNER.
2. CONTRACTOR SHALL POLE MOUNT FIXTURE 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE.
3. CONTRACTOR SHALL POLE MOUNT FIXTURE 2'-0" FROM BACK OF CURB TO EDGE OF POLE BASE TO AVOID UNDERGROUND UTILITIES.
4. CONTRACTOR SHALL POLE MOUNT FIXTURE 3'-0" FROM BACK OF CURB TO EDGE OF POLE BASE NEAR RETAINING WALL.
5. CONTRACTOR SHALL POLE MOUNT FIXTURE 5'-0" FROM BACK OF CURB TO EDGE OF POLE BASE TO AVOID UNDERGROUND UTILITIES.

FIXTURE TYPES:

D20 - RECESSED LED DOWNLIGHT
GOTHAM EVO-35/30-8AR-WD-120-TRW

S7E - LED STRIP LIGHT MOUNTED IN GABLE LITHONIA
TZL1N-L96-10000LM-FST-MVOLT

CF - LSI LIGHTING: SCV-LED-23L-SCFT-UNV-DIM-50-WHT MOUNTED UNDER GAS CANOPY MOUNT FIXTURES WITH FORWARD THROW OPTIC AIMING IN DIRECTION OF ARROW.

CFBK - LSI LIGHTING: SCV-LED-23L-SCFT-UNV-DIM-50-BLK MOUNTED UNDER DIESEL CANOPY MOUNT FIXTURES WITH FORWARD THROW OPTIC AIMING IN DIRECTION OF ARROW.

P13 - LSI LIGHTING: MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT

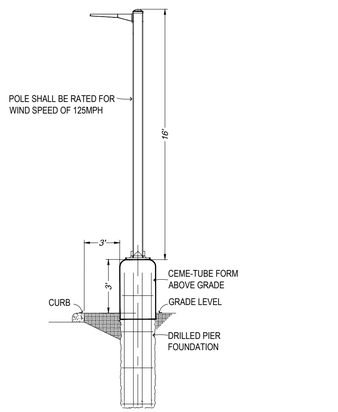
P13L - LSI LIGHTING: MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT-IL

P1F - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT

P1FL - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT-IL

FIXTURE SYMBOLS:

- LED LIGHT MOUNTED UNDER FUEL CANOPIES
- LED STRIP LIGHT MOUNTED IN GABLE
- RECESSED LED DOWNLIGHT
- POLE MOUNTED LED FIXTURE
- CAMERA



LOT LIGHT ELEVATION DETAIL

NOT TO SCALE

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N

SCALE
0 30 60

PHOTOMETRIC LIGHTING PLAN

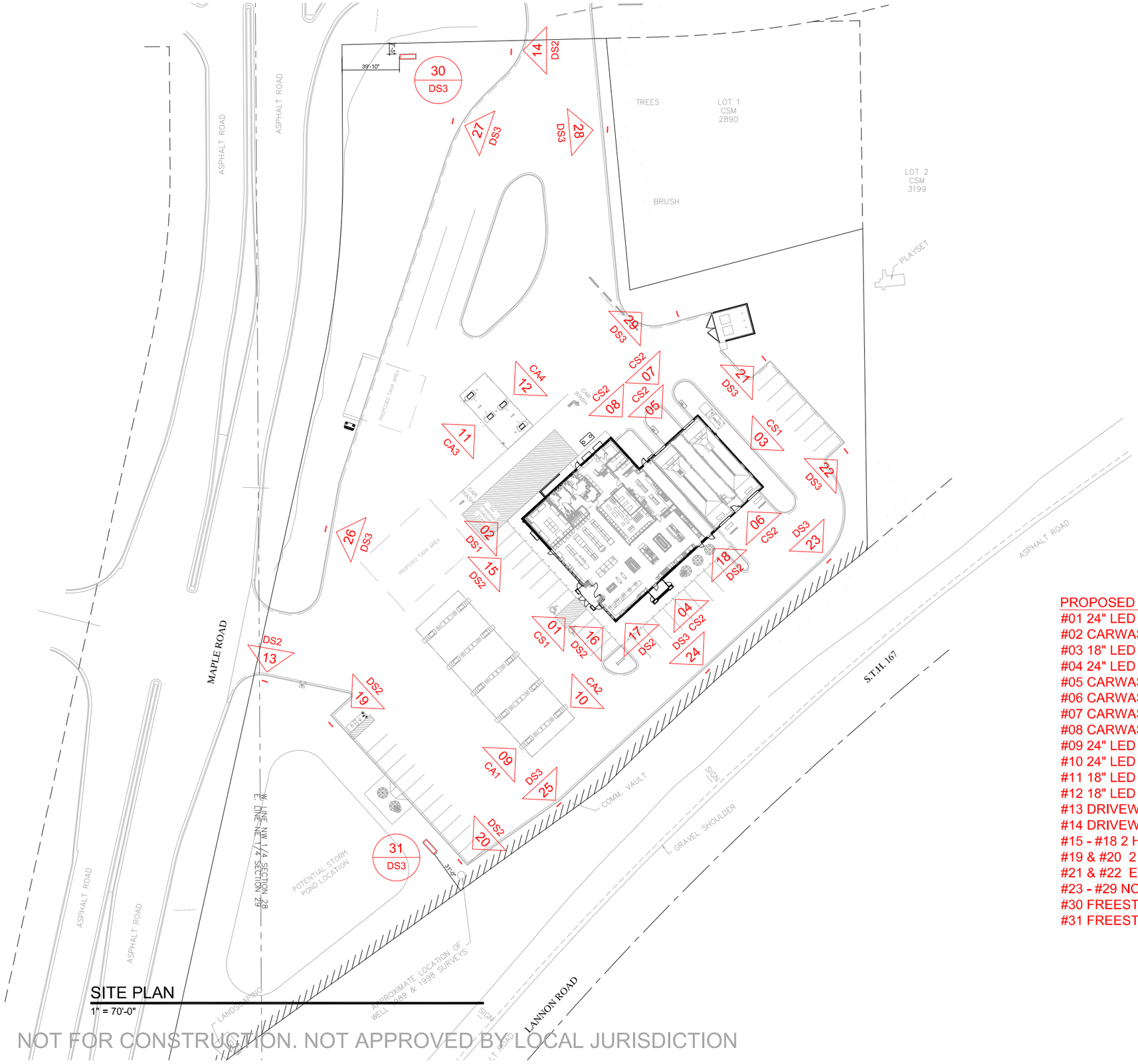
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY XXX
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C800

DRAWING FILE: Q:\I1700-I1799\I1757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\I1757-C800-PHOTOMETRIC PLAN.DWG LAYOUT: C800
PLOTTED: OCT 08, 2024 - 3:48PM PLOTTED BY: TODDW



SITE PLAN
1" = 70'-0"

NOT FOR CONSTRUCTION. NOT APPROVED BY LOCAL JURISDICTION

PROPOSED SIGNS:
#01 24" LED KWIK TRIP BUILDING LETTERS
#02 CARWASH BUILDING DIRECTIONAL SIGN
#03 18" LED KWIK TRIP & 24" CARWASH BUILDING LETTERS
#04 24" LED KWIK TRIP BUILDING LETTERS
#05 CARWASH ENTER
#06 CARWASH EXIT
#07 CARWASH INFORMATIONAL SIGN
#08 CARWASH INFORMATIONAL SIGN
#09 24" LED KWIK TRIP CANOPY LETTERS
#10 24" LED KWIK TRIP CANOPY LETTERS
#11 18" LED DIESEL ENTER CANOPY SIGN
#12 18" LED DIESEL EXIT CANOPY SIGN
#13 DRIVEWAY DIRECTIONAL
#14 DRIVEWAY DIRECTIONAL
#15 - #18 2 HOUR PARKING SIGNS
#19 & #20 2 HOUR PARKING SIGNS
#21 & #22 EMPLOYEE PARKING SIGNS
#23 - #29 NO PARKING SIGNS
#30 FREESTANDING MONUMENT SIGN
#31 FREESTANDING MONUMENT SIGN

KWIK TRIP

KWIK STAR

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FAX (608) 781-8960

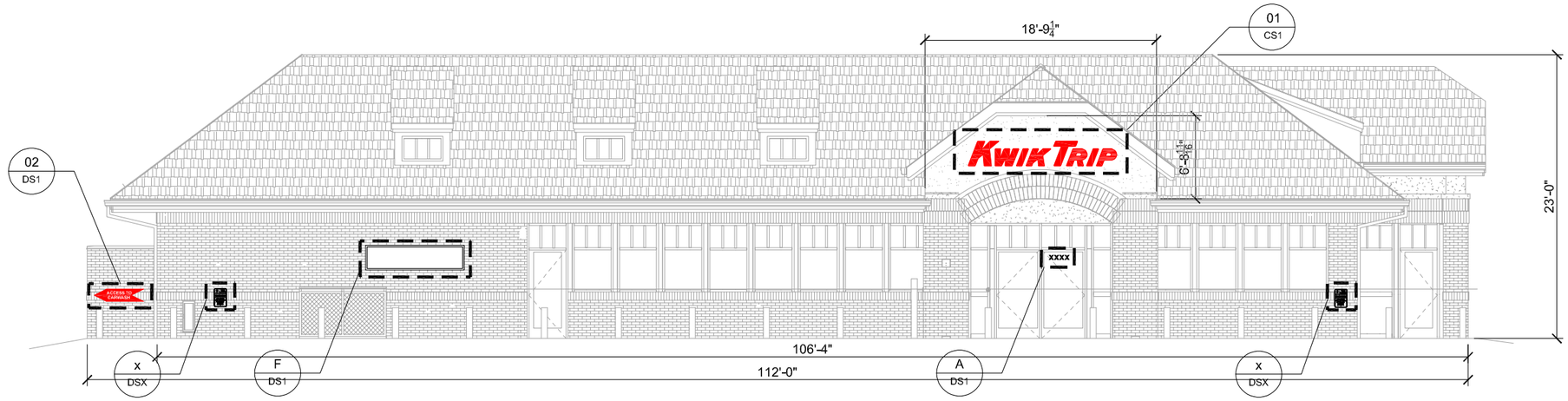
SITE PLAN

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

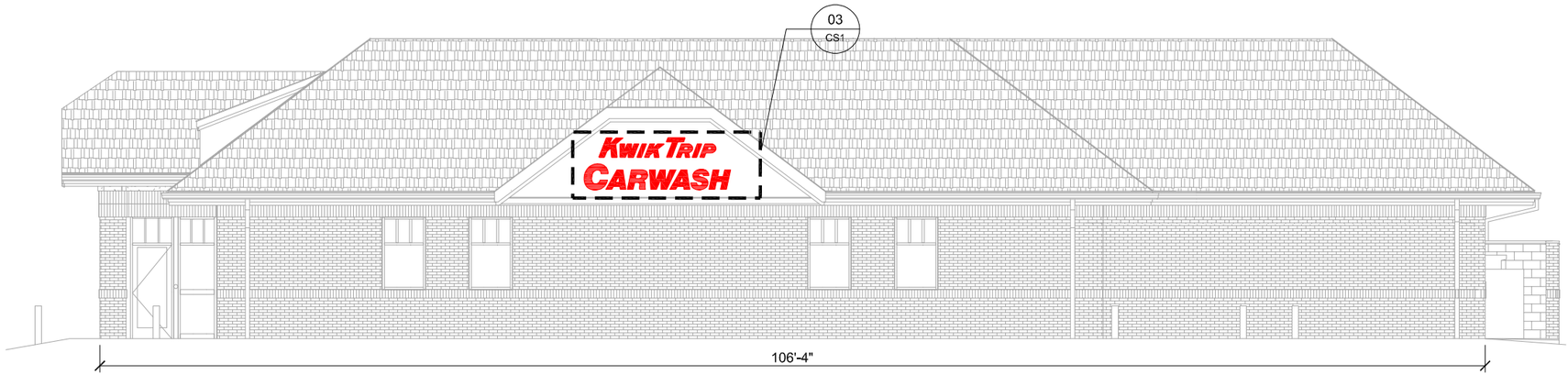
#	DATE	DESCRIPTION

DRAWN BY	X.XXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	SP1



STORE ELEVATION

SCALE: 3/32" = 1'-0"

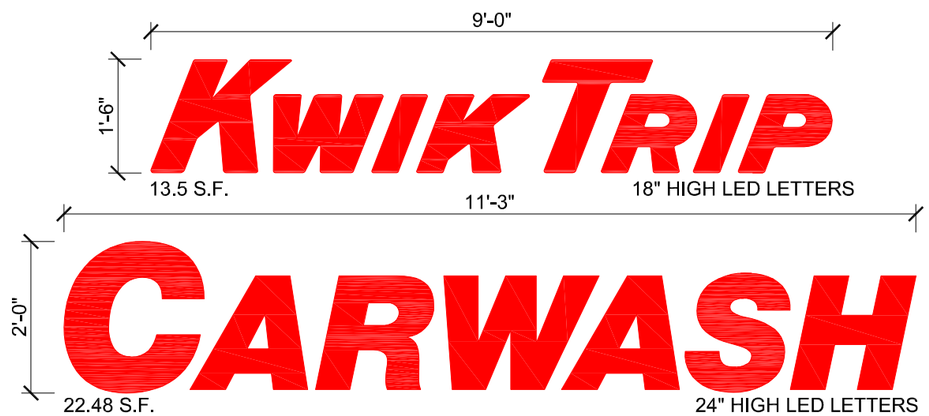


STORE ELEVATION

SCALE: 3/32" = 1'-0"

LOGO DETAIL - SIGN #01

SCALE: 1/2" = 1'-0"



LOGO DETAIL - SIGN #03

SCALE: 1/2" = 1'-0"

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FAX (608) 781-8960

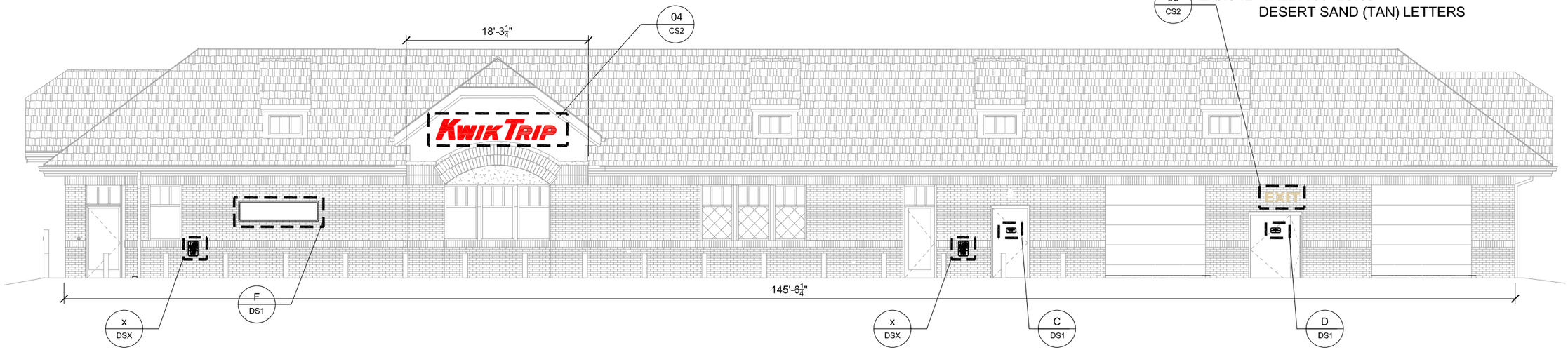
CONVENIENCE STORE SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

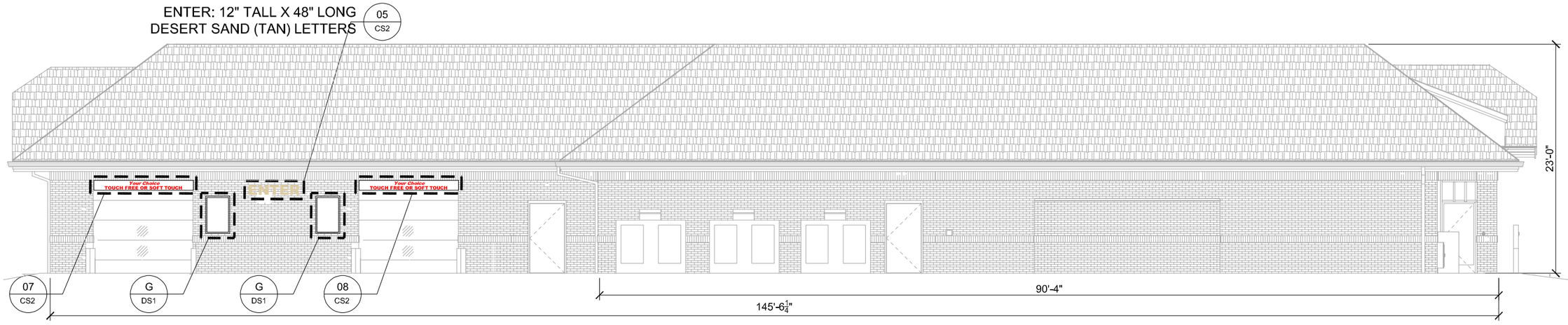
#	DATE	DESCRIPTION

DRAWN BY	X.XXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	CS1



STORE ELEVATION

SCALE: 3/32" = 1'-0"



STORE ELEVATION

SCALE: 3/32" = 1'-0"

LOGO DETAIL - SIGN #04

SCALE: 1/2" = 1'-0"

Your Choice
TOUCH FREE OR SOFT TOUCH

NON-LIT INFORMATIONAL SIGN
RED VINYL ON WHITE ALUMINUM
1'-0"H X 10'-0"W = 10.0 SQ FT

INFORMATIONAL SIGNS #07 & #08

SCALE: 1/2" = 1'-0"

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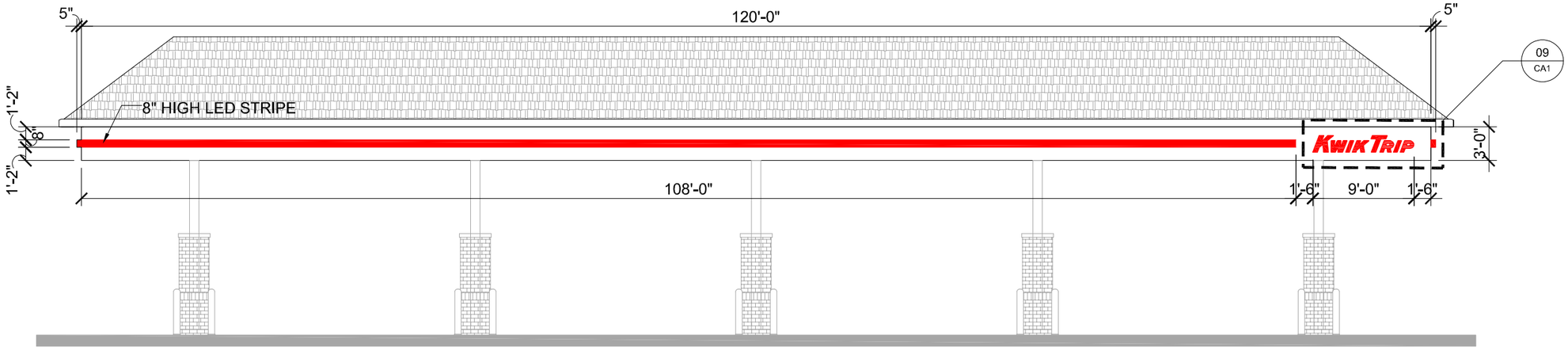
CONVENIENCE STORE SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

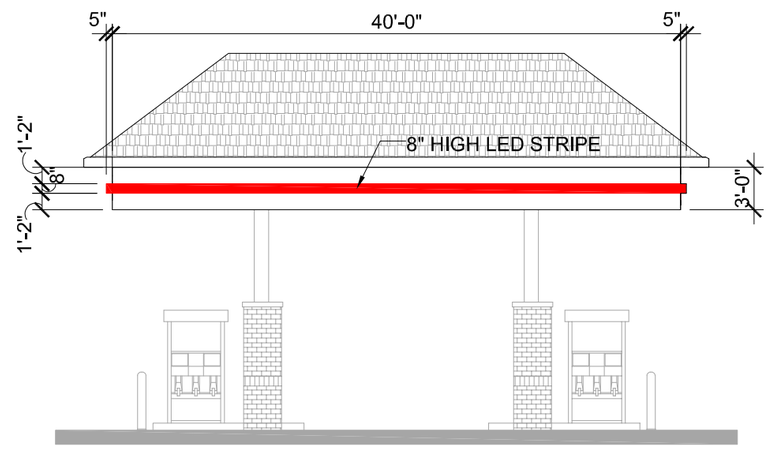
#	DATE	DESCRIPTION

DRAWN BY	XJXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	CS2



CANOPY ELEVATION

SCALE: 3/32" = 1'-0"



CANOPY ELEVATION

SCALE: 3/32" = 1'-0"

LOGO DETAIL - SIGN #08

SCALE: 1/2" = 1'-0"

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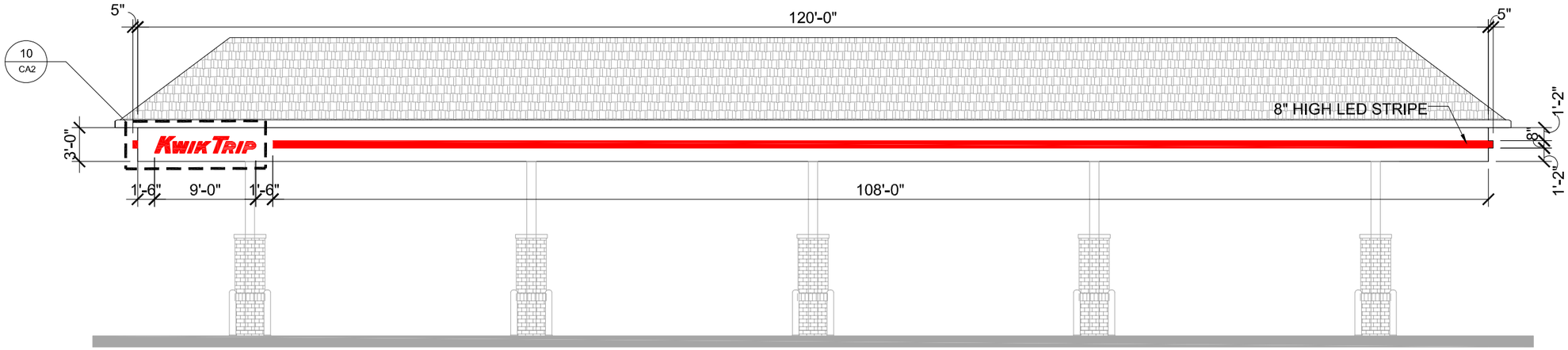
CANOPY SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

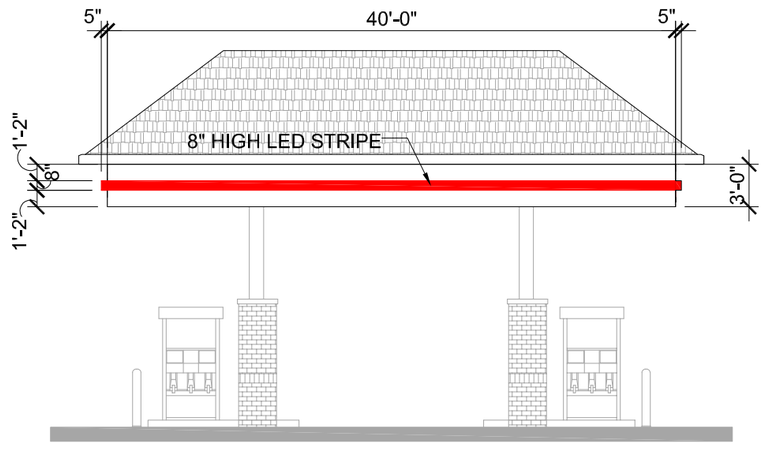
#	DATE	DESCRIPTION

DRAWN BY	XXXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	CA1



CANOPY ELEVATION

SCALE: 3/32" = 1'-0"



CANOPY ELEVATION

SCALE: 3/32" = 1'-0"

LOGO DETAIL - SIGN #09

SCALE: 1/2" = 1'-0"

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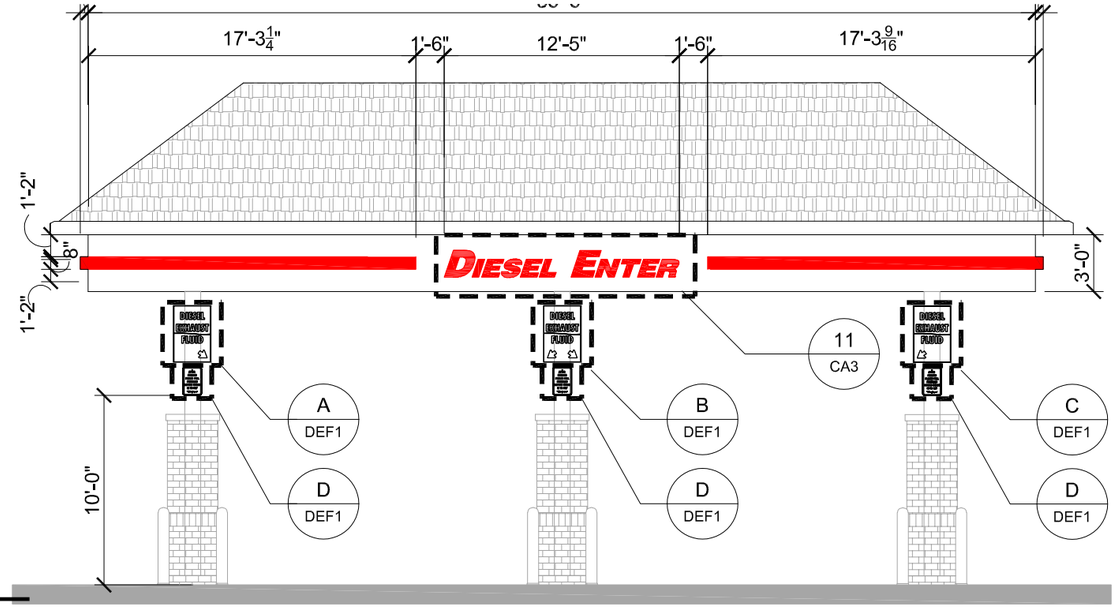
CANOPY SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

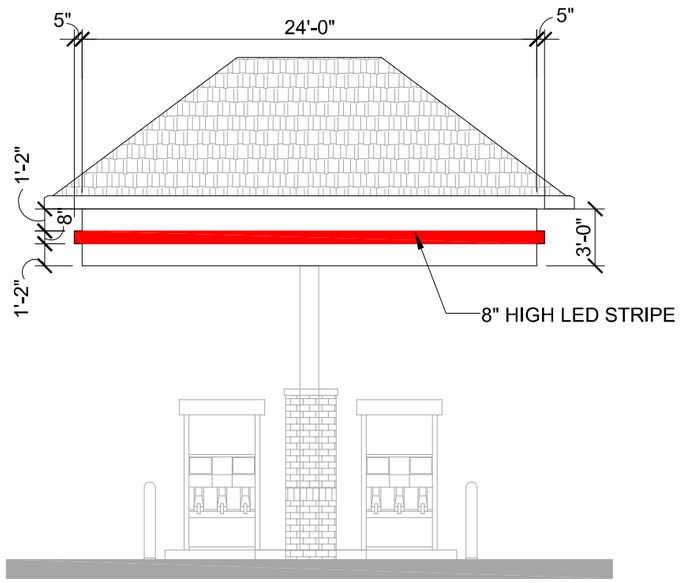
#	DATE	DESCRIPTION

DRAWN BY	XXXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	CA2



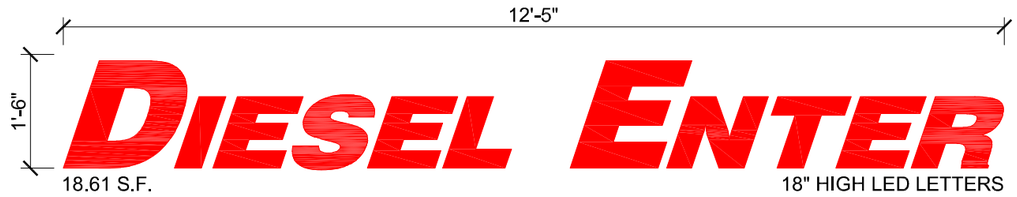
CANOPY ELEVATION

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



CANOPY ELEVATION

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



LOGO DETAIL - SIGN #10

SCALE: 1/2" = 1'-0"

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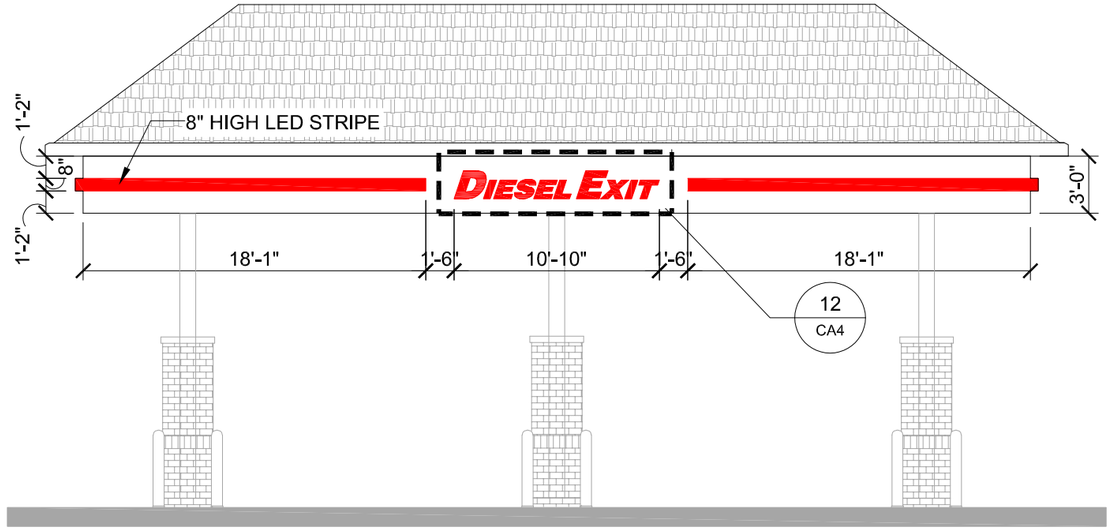
CANOPY SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

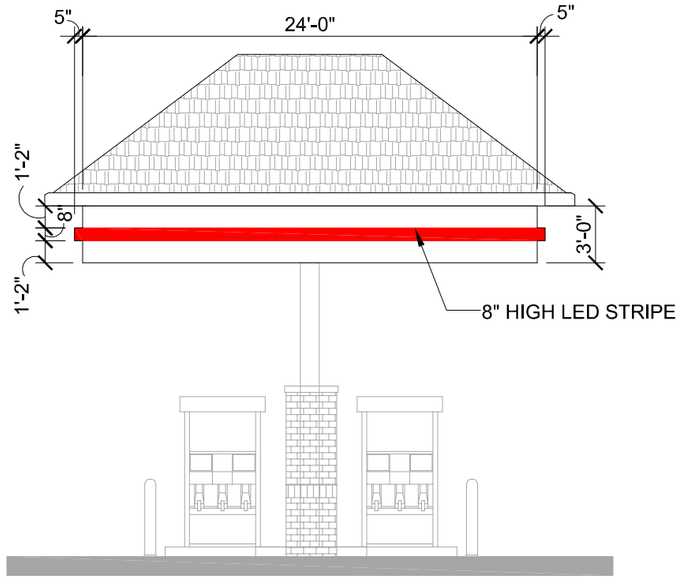
#	DATE	DESCRIPTION

DRAWN BY	X.XXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	CA3



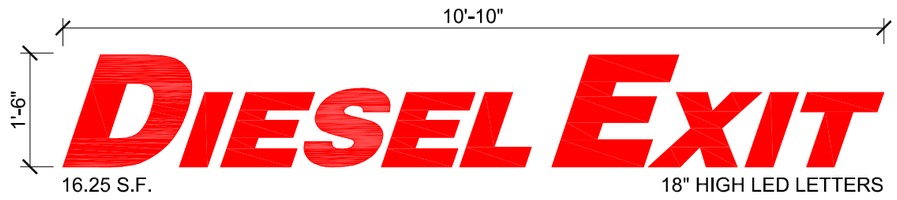
CANOPY ELEVATION

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



CANOPY ELEVATION

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



LOGO DETAIL - SIGN #11

SCALE: 1/2" = 1'-0"

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CANOPY SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

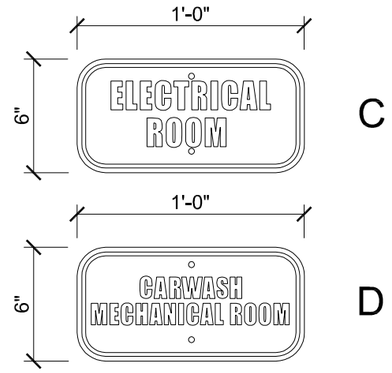
#	DATE	DESCRIPTION

DRAWN BY	X.XXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024.10-11
SHEET	CA4

5" WHITE VINYL ADDRESS LETTERS
ON GLASS DOOR AS SHOWN ABOVE
(VERIFY ACTUAL NUMBERS WITH PROJECT MANAGER)

ADDRESS SIGN A

SCALE: 3/4" = 1'-0"



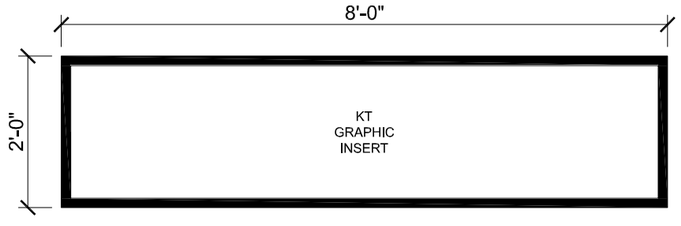
INFORMATIONAL SIGNS C & D

SCALE: 1 1/2" = 1'-0"

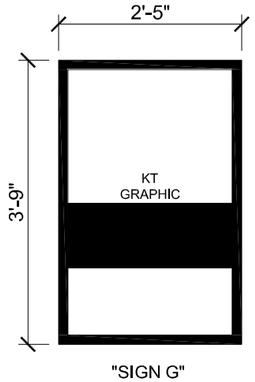
GENERAL SPECIFICATIONS

ROOM SIGNS
Qty: 3 total (different copy on each)
Size: per art
Material: white sign blank
Finish: cut vinyl

Install along with various signs for same site, crew to give to KT trim guys to install.



"SIGN F"
BLACK ALUMINUM FRAME



"SIGN G"
BLACK ALUMINUM
FRAME

INFORMATIONAL SIGNS F & G

SCALE: 1/2" = 1'-0"

NON-LIT DIRECTIONAL SIGN
WHITE VINYL ON RED ALUMINUM
1'-0"H X 4'-0"W = 4.0 SQ FT
SIGN TO BE MOUNTED 48" AFF

DIRECTIONAL SIGN #02

SCALE: 3/4" = 1'-0"

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DIRECTIONAL SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

#	DATE	DESCRIPTION

DRAWN BY	XJXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	DS1

DOUBLE SIDED DIRECTIONAL SIGN

SOUTH SIDE

NORTH SIDE

NON-LIT DIRECTIONAL SIGN
RED & BLACK VINYL ON LIGHT BEIGE ALUMINUM
1'-6"H X 3'-0"W X 4'-6"T= 4.50 SQ FT

DIRECTIONAL SIGN #13

SCALE: 3/4" = 1'-0"

DOUBLE SIDED DIRECTIONAL SIGN

EAST SIDE

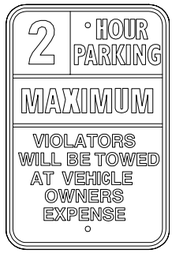
WEST SIDE

NON-LIT DIRECTIONAL SIGN
RED & BLACK VINYL ON LIGHT BEIGE ALUMINUM
1'-6"H X 3'-0"W X 4'-6"T= 4.50 SQ FT

DIRECTIONAL SIGN #14

SCALE: 3/4" = 1'-0"

SINGLE SIDED SIGN



12" X 18" ALUMINUM SIGN
QTY: 4

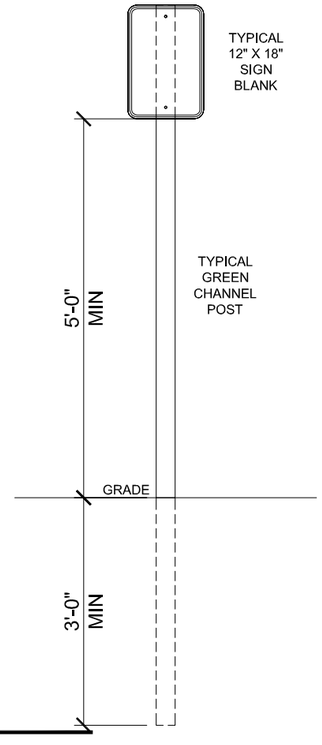
SIGNS TO BE MOUNTED ON BUILDING NO HIGHER THAN 48" AFF

PARKING SIGN #15 - #18

SCALE: 1/2" = 1'-0"

SINGLE SIDED SIGN

12" X 18" ALUMINUM SIGN
QTY: 2



PARKING SIGNS # 19 & #20

SCALE: 1/2" = 1'-0"

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DIRECTIONAL SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

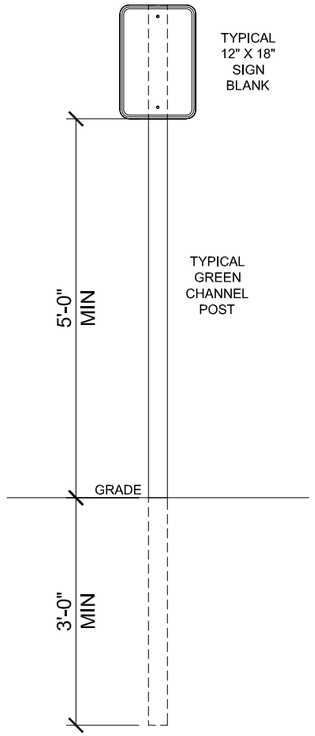
Mequon Rd & Maple Rd
Germantown, WI

#	DATE	DESCRIPTION

DRAWN BY	XXXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	DS2

SINGLE SIDED SIGN

12" X 18" ALUMINUM SIGN
QTY: 2

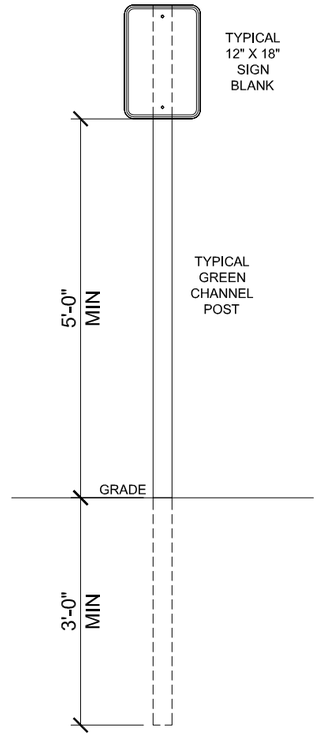


PARKING SIGNS #21 & #22

SCALE: 1/2" = 1'-0"

SINGLE SIDED SIGN

12" X 18" ALUMINUM SIGN
QTY: 7



PARKING SIGNS #23 - #29

SCALE: 1/2" = 1'-0"

#30 KWIK TRIP FREESTANDING MONUMENT SIGN

SEE ATTACHED ARTWORK

#31 KWIK TRIP FREESTANDING MONUMENT SIGN

SEE ATTACHED ARTWORK

KWIK TRIP

KWIK STAR

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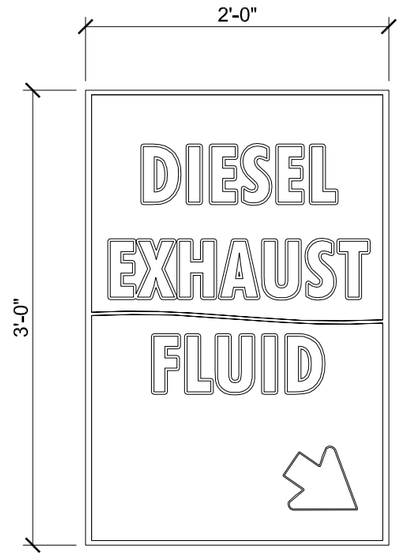
DIRECTIONAL SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

Mequon Rd & Maple Rd
Germantown, WI

#	DATE	DESCRIPTION

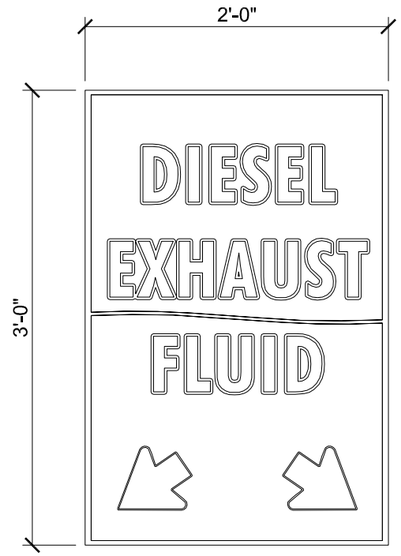
DRAWN BY	XJXXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	DS3



QTY: X

DEF SIGN A

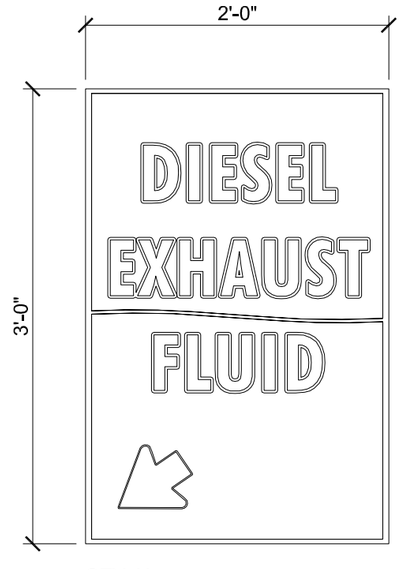
SCALE: 3/4" = 1'-0"



QTY: X

DEF SIGN B

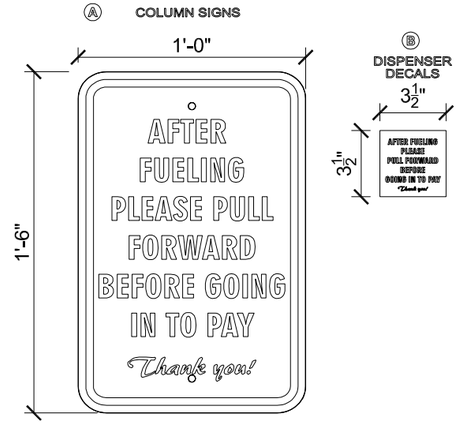
SCALE: 3/4" = 1'-0"



QTY: X

DEF SIGN C

SCALE: 3/4" = 1'-0"



PULL AHEAD SIGN D

SCALE: 1 1/2" = 1'-0"

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DEF / DSL SIGNAGE

CONVENIENCE STORE #631
W. 2BAY CW & SIDE DIESEL

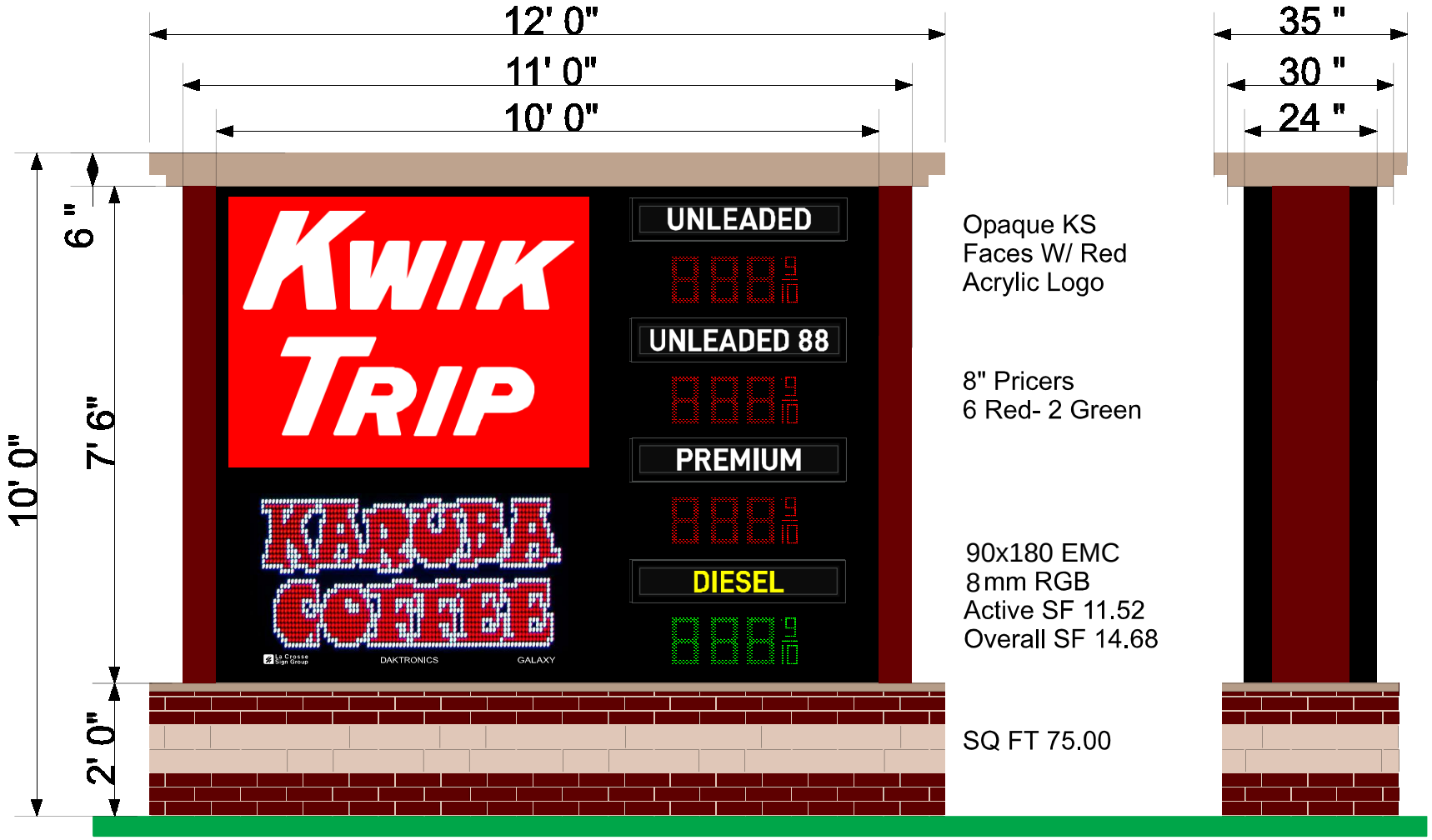
Mequon Rd & Maple Rd
Germantown, WI

#	DATE	DESCRIPTION

DRAWN BY	XXXXX
SCALE	MULTIPLE
PROJ. NO.	0001
DATE	2024 10-11
SHEET	DEF1

NEW DOUBLE FACED MONUMENT

#631 GERMANTOWN, WI



Approved by:_____ Date:_____ Landlord:_____ Date:_____

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2242 Mustang Way • Madison, WI 53718 • 608-222-5353
2502 Melby Street • Eau Claire, WI 54703 • 715-835-6189

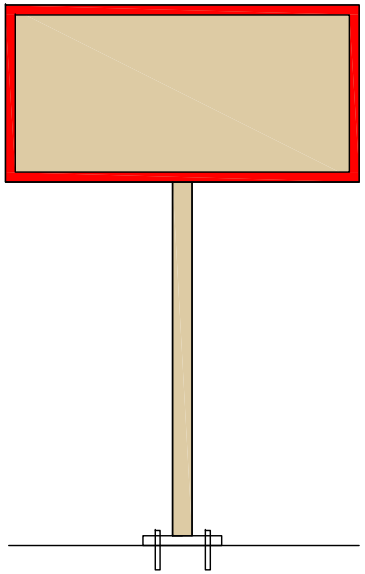
DESIGN	SALES	FILE
Drawing by: Danielle Hadley	Job Name: Kwik Trip	Revision Number:
Sign Type: Monument	Job Address:	Job File Location:
Date Created: 10/7/2018		
Last Modified: 3/28/2019	Salesperson: Cindy Bluske	
Scale: 3/8" = 1' 0"	Job Number: 102023	

COLOR KEY

*COLORS ON SKETCH ARE ONLY A REPRESENTATION. ACTUAL COLOR OF FINISHED PRODUCT MAY DIFFER.

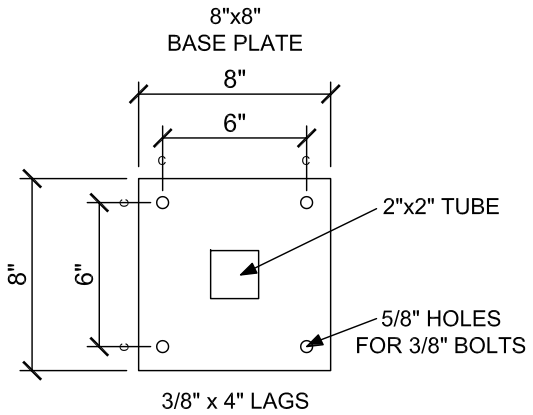
1. PPG NA 208400
2. Black S/G paint
3. NA 208080 Beige
4. #2283 Red Acrylic
5. White of Acrylic
6. Black (230-22)
7.
8.
9.
10.
11.
12.

SINGLE SIDED NON-LIT DIRECTIONAL SIGN



DIRECTIONAL SIGN EXAMPLE

SCALE: NTS



NOTES:

- Sign vendor to anchor sign/s to concrete pad
- Sign vendor to anchor signs with (4) 3/8" x 4" lags & shield anchors. Use stainless steel hardware
- Stainless steel flat washers may be used under base plate as needed to shim sign to be plumb
- Concrete Pad installed by others (Kwik Trip/Kwik Star Concrete Vendor)
  - Concrete Pad to be 5"x 36"x 36"
  - Center of footing to be installed 48" from face of curb

DIRECTIONAL SIGN BASE PLATE

SCALE: 1 1/2" = 1'-0"

KWIK TRIP / KWIK STAR		KWIK TRIP, Inc. P.O. BOX 2107 1626 OAK STREET LA CROSSE, WI 54602-2107 PH. (608) 781-8988 FAX (608) 781-8960	PROJECT: Store- All Stores Date - 08/31/2023 DESCRIPTION: All Directional signs will have a single post per the detail above	SCB #1

TRAFFIC IMPACT ANALYSIS

DATE: October 14, 2024

FOR: Jeff Osgood
Kwik Trip, Inc.

FROM: Tammi Czewski, P.E., PTOE
Traffic Analysis & Design, Inc.

SUBJECT: **Maple Road Kwik Trip Relocation Traffic Impact Analysis**
Germantown, WI

INTRODUCTION

A Kwik Trip gas station/convenience store is currently located in the southwest quadrant of the Maple Road/Lannon Road intersection in the Village of Germantown, Wisconsin (Exhibit 1). Kwik Trip, Inc. proposes to build a new, larger Kwik Trip gas station/convenience store in the northeast quadrant of the intersection, redeveloping the existing Kwik Trip site with a different commercial use. This study evaluates the traffic impacts of these development plans to study intersections along Maple Road and Mequon Road.

STUDY AREA

The study intersections are identified on Exhibit 1 and listed below:

- Maple Road & Mequon Road
- Maple Road & Kleinmann Drive/Commercial (Future Kwik Trip) Driveway
- Maple Road & Lannon Road
- Maple Road & Commerce Circle
- Mequon Road & Commercial (Future Kwik Trip) Driveway

The Maple Road/Mequon Road intersection operates with all-way stop control and the Maple Road/Lannon Road intersection operates with traffic signal control. All other study intersections operate with two-way stop control, where the stop signs are on the minor street approaches. A transportation detail illustrating the intersection lane configurations, speed limits, and approximate intersection spacing is on Exhibit 2.

Descriptions of the roadways within the study area are below.

- Lannon Road (also designated as STH 167) is a four-lane divided northeast/southwest arterial highway with a posted speed limit of 45 miles per hour (mph) within the limits of the study area. It is part of the state trunk highway network as a connecting highway under the jurisdiction of the Village of Germantown. According to WisDOT, the Year 2023 annual average daily traffic (AADT) volumes on Lannon Road were 24,300 vehicles per day (vpd) southwest of Maple Road and 18,300 vpd to the northeast. Sidewalks do not currently exist along Lannon Road within the limits of the study area.
- Maple Road is a two-lane undivided north/south roadway south of Lannon Road and a four-lane divided roadway to the north of Lannon Road with a posted speed limit of 40 mph within the limits of the study area. The Year 2023 AADT volumes along Maple Road were 8,100 vpd north of Mequon Road and 6,200 vpd south of Commerce Circle. A sidewalk exists on the west side of Maple Road between Kleinmann Drive and Lannon Road, and on the east side of Maple Road north of Mequon Road.
- Mequon Road is a two-lane undivided east/west roadway that has a 40-mph speed limit and 2023 AADT of 4,400 vpd west of Maple Road and a 30-mph speed limit and 2016 AADT of 2,800 vpd east of Maple Road.
- Kleinmann Drive and Commerce Circle are two-lane undivided roadways that connect to the west side of Maple Road and provide access for commercial developments along the roadway.

PROPOSED DEVELOPMENT

The existing Kwik Trip on Maple Road has 10 fueling positions, a convenience store, and two-bay car wash, with two access driveways to Commerce Circle. Kwik Trip will maintain ownership of this property and replace development on this site with other commercial that is not a competing land use (e.g. gas station, coffee shop, restaurant, etc.). For the purposes of this study, a bank with three drive-through lanes was estimated to replace the Kwik Trip on the existing site.

A larger, new Kwik Trip is proposed to be constructed on the now vacant 4.3-acre site previously occupied by Wisconsin Mutual Insurance (Exhibit 3). The existing insurance building will be removed and replaced with a large convenience store, 20 regular fueling positions, two diesel fueling positions, and a two-bay car wash. Access to the site remains at one location to Maple Road, directly across from Kleinmann Drive and one location to Mequon Road, just east of the Maple Road intersection. Both access driveways are unrestricted with full-access turning movements to and from the mainline roadways. This study evaluates the Maple Road access for two conditions:

- Alternative 1: Full access driveway at Maple Road
- Alternative 2: Partial access driveway (right-out only) at Maple Road

The partial access alternative assumes a physical barrier would be installed in the median on Maple Road that allows left-turns into both Kleinmann Drive and the proposed Kwik Trip driveway but restricts outbound traffic from both locations to right-out only movements.

PEAK HOUR TRAFFIC VOLUMES – NO DEVELOPMENT

Data Collection/Existing Traffic Volumes

TADI collected weekday traffic counts at the study intersections between September 23 and September 24, 2024. Traffic counts were also collected at the existing Kwik Trip driveways on Commerce Circle. Traffic counts at the Maple Road/Mequon Road intersection were collected from 6:00 a.m. to 7:00 p.m. for signal warrant studies. All other traffic counts were collected from 6:00-9:00 a.m. and from 3:00-6:00 p.m.

During the traffic count at Maple Road/Commerce Circle, field staff noted that a road closure was in place on Maple Road, south of the study area. As this road closure may have affected through traffic volumes on Maple Road, as well as turning movement patterns at the Maple Road/Lannon Road intersection, TADI obtained and compared the following additional data:

- May 2021 traffic count collected for a previous study.
- Hourly traffic volumes from the WisDOT 2023 AADT data on Maple Road and Lannon Road.
- AM peak hour verification recount at the Maple Road/Mequon Road intersection on October 11, 2024 (when the Maple Road closure was no longer in place).

Using these sets of data, it was concluded that the Maple Road closure did not significantly impact turning volumes at the Maple Road/Mequon Road intersection, as the original September count and October verification count resulted in similar traffic volumes and traffic patterns. It was also concluded that the May 2021 traffic count at the Maple Road/Lannon Road intersection had similar approach volumes on Maple Road and Lannon Road to the hourly volumes from the 2023 AADT data. Therefore, the May 2021 Maple Road/Lannon Road turning movement count replaced the September 2024 turning movement count in this study. All other turning movement counts from September 2024 were used, but through volumes on Maple Road were balanced (increased) from the May 2021 Maple Road/Lannon Road count. All traffic count data used for this study is included in Appendix A.

The combined peak hours from the turning movement counts were determined to occur from 6:45-7:45 a.m. (AM peak hour) and from 4:00-5:00 p.m. (PM peak hour). Traffic counts were compiled for these peak hours, balanced between intersections, and are shown as the Year 2024 Existing Traffic Volumes on Exhibit 4.

Forecasted Traffic Volumes

WisDOT historical AADT data available on Maple Road, Mequon Road, and Lannon Road were compiled to determine historical traffic growth trends in the study area. From the available data (2004 to 2023), traffic growth on Maple Road ranges from 0.5% (north of Mequon Road) to 2.0% (south of Commerce Circle) per year, traffic growth on Lannon Road averages at 1.0% per year, and traffic growth on Mequon Road averages at 0.% per year (traffic volumes have consistently declined over time). The historical AADT data and growth trend graph is on Exhibit 5.

These growth rates were applied to the study area roadways for a five-year period and traffic was balanced between intersections. The resulting Year 2029 Future Traffic Volumes evaluated in this study are on Exhibit 6.

PEAK HOUR TRAFFIC VOLUMES – RELOCATED KWIK TRIP DEVELOPMENT

Existing Kwik Trip Traffic Removals

Build traffic volumes evaluated in this study include the removal of the existing Kwik Trip development volumes from the roadway system, additional traffic from proposed new commercial (bank) development on the existing Kwik Trip site, and additional traffic from the larger, new Kwik Trip development north of Lannon Road.

Based on the Kwik Trip driveway counts at Commerce Circle, the existing Kwik Trip development generates 305 trips during the weekday AM peak hour and 260 trips during the weekday PM peak hour (Exhibit 7A). Gas station developments typically generate a relatively high volume of pass-by trips (trips that are already on the roadway system but divert into the site before continuing on their original route). Using WisDOT pass-by trip allowances, pass-by trips for the existing Kwik Trip site were estimated as 55% of the total site trips.

Trip distributions for the Kwik Trip site were first based on the distribution of traffic turning at the Maple Road/Commerce Circle intersection, and then on the distribution of traffic turning at the remaining study intersections. So as not to generate negative trips for any one movement (after removing the Kwik Trip trips from the study intersections), different trip distributions were developed separately for the AM and PM peak hours. The new and pass-by trip distributions estimated for the existing Kwik Trip site are shown below the trip generation table on Exhibit 7A. These trip removals were assigned to the intersections as shown on Exhibit 7B (Existing Kwik Trip New Trips) and on Exhibit 7C (Existing Kwik Trip Pass-by Trips).

Future Commercial (Bank) Traffic

At this time, no specific commercial development user has been identified for the existing Kwik Trip site in the southwest quadrant of the Maple Road/Lannon Road intersection. For this study, a bank was estimated as a potential future development use. Trips for the bank development were generated from the *ITE Trip Generation Manual, 11th Edition*. Based on ITE, a bank with three drive-through lanes generates 390 weekday daily trips, with 25 trips in the AM peak hour and 80 trips in the PM peak hour (Exhibit 8A). Using WisDOT pass-by trip allowances, pass-by trips for the bank were estimated at 35% of the total site trips.

The new and pass-by trip distributions estimated for the existing Kwik Trip development were applied to the new bank trips (Exhibit 8A). The new and pass-by bank trips were assigned to the study intersections based on these trips distributions and are shown on Exhibit 8B (Bank Development New Trips) and on Exhibit 7C (Bank Development Pass-by Trips).

Relocated Kwik Trip Traffic

Trip generation for the relocated Kwik Trip was based on WisDOT fitted curve equations applied to the 22 total fueling stations proposed for the site. The WisDOT fitted curve equations are from the October 20, 2022 trip generation guidance for Convenience Store/Gas Station Land Use. Based on WisDOT equations, a 22-fueling position gas station/convenience store with a store size greater than 6,000 square feet, and in an area with a population greater than 300,000 generates 4,640 trips during a typical weekday with 335 trips in the weekday AM peak hour and 335 trips in the weekday PM peak hour (Exhibit 9A). Compared to the existing Kwik Trip site, the larger, relocated Kwik Trip generates about 10% (30) more trips during the weekday AM peak hour and about 29% (75) more trips during the weekday PM peak hour. Using WisDOT pass-by trip allowances, pass-by trips for the relocated Kwik Trip site were estimated as 55% of the total site trips.

The new trip distributions estimated for the existing Kwik Trip development were applied to the relocated Kwik Trip trips (Exhibit 9A). Pass-by trips, however, were recalculated based on existing peak hour traffic patterns on Mequon Road and Maple Road north of Lannon Road. The higher traffic volumes on Maple Road, north of Lannon Road, the proximity to the Maple Road/Mequon Road intersection, and the secondary access via the Mequon Road/Lannon Road intersection are expected to result in different pass-by trip patterns that is generated by the existing Kwik Trip store.

The new and pass-by bank trips were assigned to the study intersections based on the estimated trip distributions and are shown Exhibit 9B (Relocated Kwik Trip New Trips – Alternative 1), Exhibit 9C (Relocated Kwik Trip Pass-by Trips – Alternative 1), Exhibit 9D (Relocated Kwik Trip New Trips – Alternative 2), and Exhibit 9E (Relocated Kwik Trip Pass-by Trips – Alternative 2).

Driveway Traffic Volumes

The existing new and pass-by Kwik Trip trips (to be removed), bank trips, and relocated Kwik Trip trips were added together to identify the total trip impact with the proposed development plans. These are identified as the Development Driveway trips. The Development Driveway Trips are on Exhibit 10 (Alternative 1) and on Exhibit 11 (Alternative 2).

Build Traffic Volumes

The Development Driveway Trips for Alternatives 1 and 2 were added to the Year 2029 Future Traffic Volumes to generate the Year 2029 Build Traffic Volumes. The Year 2029 Build Traffic Volumes are on Exhibit 12 (Alternative 1) and on Exhibit 13 (Alternative 2).

PEAK HOUR TRAFFIC OPERATIONS & QUEUES

The study intersections were analyzed using the Synchro 12 traffic analysis model (outputs based on the *Highway Capacity Manual, 7th Edition*) and the peak hour turning movement volumes estimated for each intersection. 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 purposes of this study, LOS D or better was used to define acceptable peak hour operating conditions. The LOS definitions for signalized and unsignalized intersections are included before the Year 2024 Existing analysis output in Appendix B.

The analyses were completed using the existing geometrics and traffic control, existing peak hour factors and heavy vehicles, WisDOT right-turn on red adjustment factors and WisDOT Saturation Flow Rate values (Appendix B).

Traffic Operations – Existing & Future Traffic Volumes (No Development)

The peak hour traffic operations (LOS, delays, and 95th percentile queues) with the existing transportation system are in tables on Exhibit 14 (Year 2024 Existing Traffic) and on Exhibit 15 (Year 2929 Future Traffic). The Maple Road/Mequon Road intersection operates with movements over capacity and at LOS E/F conditions during the weekday AM peak hour, and the Maple Road/Lannon Road intersection operates with a westbound left-turn movement that is at LOS E during the weekday PM peak hour. Queues for the eastbound left-turn movement at this intersection are reported as 300 feet during the weekday AM peak hour, but theoretically infinite.

Adding additional green time to the left-turn lanes at the Maple Road/Lannon Road intersection mitigates delays and queues to acceptable levels. Reversing eastbound and westbound lane configurations on Mequon Road and installing traffic signals at the Maple Road/Mequon Road intersection mitigates the LOS E and F delays. Based on a signal warrant analysis (see the Warrant Analysis section of this report), peak hour and crash warrants are currently met, justifying traffic signal installation at this intersection.

The Year 2029 Future Traffic Volumes were evaluated with the modified geometrics and traffic control. These improvements result in acceptable queues and delays (LOS D or better) with all movements under capacity during the weekday AM and PM peak hours (Exhibit 16).

The Synchro analysis files for the Year 2024 Existing Traffic Volumes are in Appendix B. The Synchro analysis files for the Year 2029 Future Traffic Volumes are in Appendix C.

Traffic Operations – Build Volumes (Relocated Kwik Trip)

The Year 2029 Build Traffic Volumes for access Alternatives 1 and 2 were modeled with the recommended modifications for the Existing and Future traffic conditions. Based on right-turn lane warrants (see the Warrant Analysis section of this report), a northbound right-turn lane was modeled on Maple Road at the relocated Kwik Trip driveway across from Kleinmann Drive. With the Existing/Future and Build modifications, all study intersections operate with all movements under capacity and with acceptable peak hour queues and delays for both Alternative 1 (Exhibit 17) and Alternative 2 (Exhibit 18). The Synchro analysis files for the Year 2029 Build Traffic Volumes are in Appendix C.

WARRANT ANALYSIS

Right-Turn Lane Warrant – Maple Road/Relocated Kwik Trip Driveway

A right-turn lane warrant analysis was completed to determine if a northbound right-turn lane should be added on Maple Road at the relocated Kwik Trip driveway across from Kleinmann Drive. The turn lane warrant is based approaching and right-turn traffic volumes and a 45-mph roadway design speed (five mph over the posted speed limit). Based on the warrant analysis, a right-turn lane is warranted and recommended to be constructed on Maple Road with buildout of the relocated Kwik Trip development.

Traffic Signal Warrant Analysis – Maple Road/Mequon Road

A traffic signal warrant analysis was completed for the Maple Road/Mequon Road intersection to determine if signals are warranted for mitigating existing and future delays and crashes. Traffic signal warrant studies are based on traffic volume and other warranting criterion from the *Manual on Uniform Traffic Control Devices* (MUTCD). Chapter 4C of the MUTCD outlines the standards for determining the need for traffic signals at a particular location.

The parameters used for the warrant analyses at the Maple Road/Mequon Road intersection are:

- Volume warrant thresholds were based on a four-leg intersection with two-lane major street approaches and one-lane minor street approaches. Due to the presence of an eastbound and westbound right-turn lane, 0% of the minor street right-turn volumes were included.
- The posted speed limit on the major street (Maple Road) is 40 mph; therefore, no reduction of volume thresholds was applied.

The intersection currently operates with all-way stop sign control, and with four-lane northbound and southbound approaches. Due to the wide multi-lane approaches, the high peak traffic volumes to and from the light industrial development to the north, and the comparatively low eastbound and westbound traffic volumes, a relatively high number of crashes occur during a 12-month period.

During the traffic counts, field staff noted that northbound and southbound traffic on Maple Road frequently did not stop at the stop signs when traveling through the intersection. Crash reports at this intersection (collected from January 2019 through September 2024) confirmed that this behavior caused right and left-angle crashes that are correctable with traffic signal control. Other causes of the angle crashes were from vehicles in adjacent lanes blocking visibility, or confusion over right-of-way (who's turn to go). Since at least five crashes of the type susceptible to correction by signal in a 12-month period have occurred, Warrant 7, Crash Experience is met.

Although traffic volumes aren't high enough to meet volume requirements for Warrants 1, 2, or 3, the major street approach experiences nearly 10 vehicle-hours of delay during the weekday AM peak hour, exceeding the delay threshold for Warrant 3, Peak Hour Volume. Note that the delay threshold for Warrant 3 typically applies to the stop-controlled, minor street approach, but is applied to the major street in this case since all approaches operate with stop control. Warrant 3 is applicable for warranting traffic signals as traffic flow through the intersection is highly impacted by the traffic surges to and from the light industrial development, which creates significant shift-work traffic patterns during the peak hours.

The hourly traffic volumes, signal warrant analysis, and crash analysis for the Maple Road/Mequon Road intersection are in Appendix E.

RECOMMENDATIONS

Based on the results of the traffic analysis, the following modifications are recommended (shown graphically on Exhibit 19). Modifications are divided into two categories: modifications required to mitigate existing/non-development issues and modifications required to accommodate the proposed development changes with the relocation of Kwik Trip to the north side of Lannon Road.

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

Existing/Future (No Development) Recommendations

- Install traffic signal control at the Maple Road/Mequon Road intersection that is coordinated during the peak hours with the adjacent traffic signal at Maple Road/Lannon Road.
- With traffic signal control at the Maple Road/Mequon Road intersection, reverse the eastbound and westbound approach lanes from a shared left-turn/through plus right-turn lane to a left-turn lane plus shared through/right-turn lane.

Build (Relocated Kwik Trip Development) Recommendations

- Allow full-access turning movements at the relocated Kwik Trip driveways to both Maple Road and Mequon Road.
- Provide a northbound right-turn lane on Maple Road at the relocated Kwik Trip driveway across from Kleinmann Drive.

CONCLUSIONS

With the above modifications, the study intersections operate under capacity, with acceptable delays and queues during the peak hours.

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N

NOT TO SCALE

EXHIBIT 1
STUDY AREA MAP

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

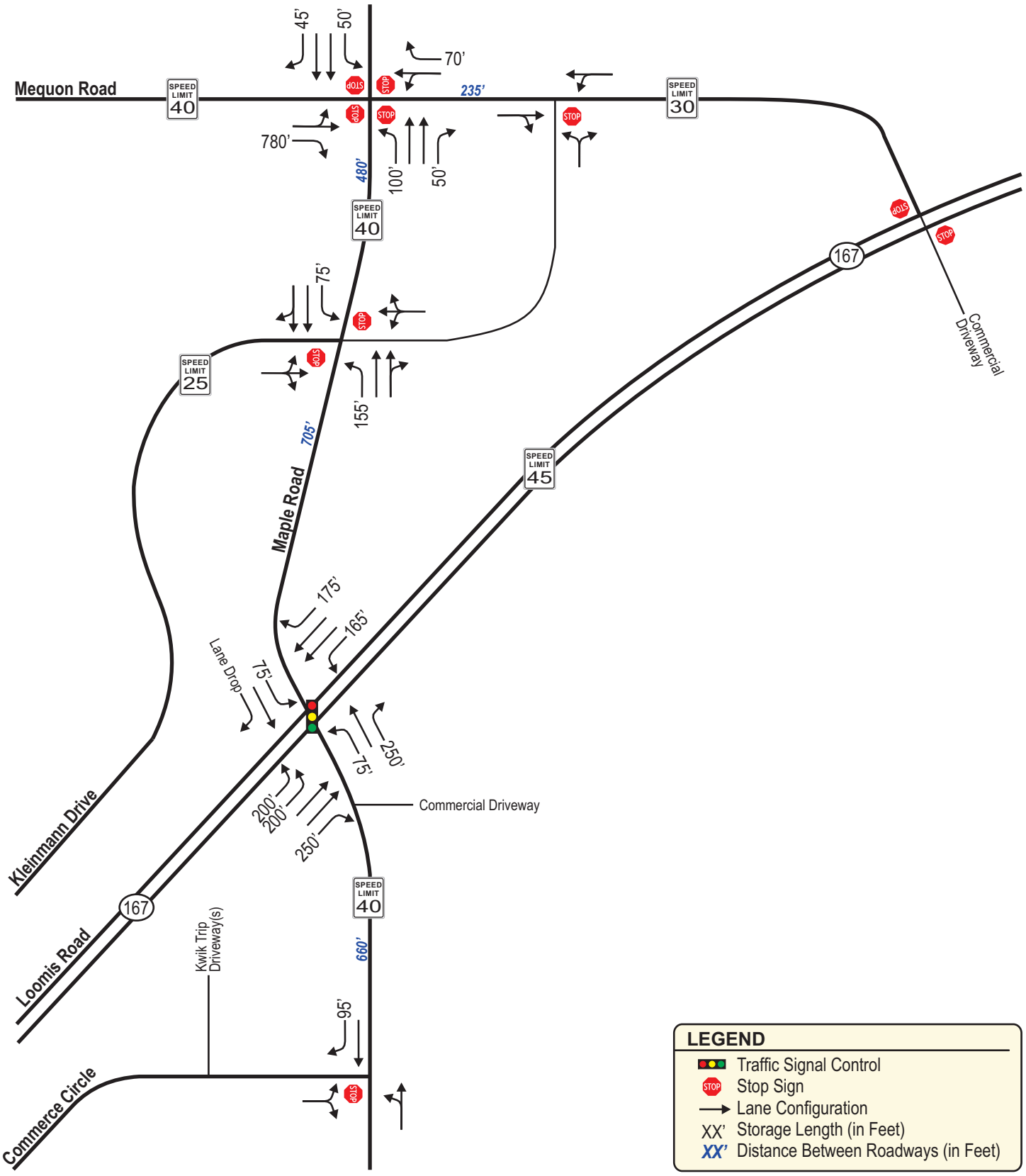

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EXHIBIT 2
EXISTING TRANSPORTATION SYSTEM

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

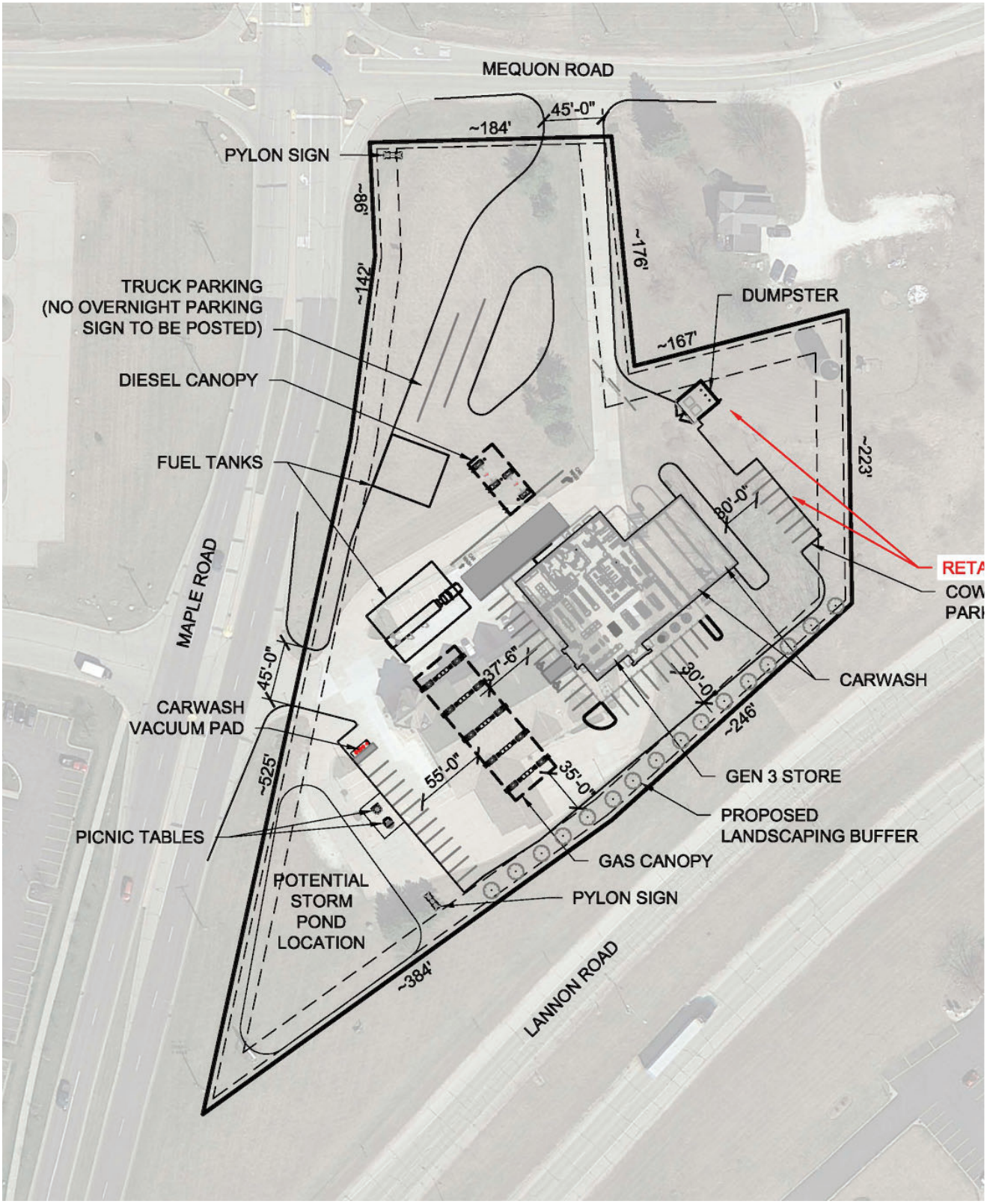

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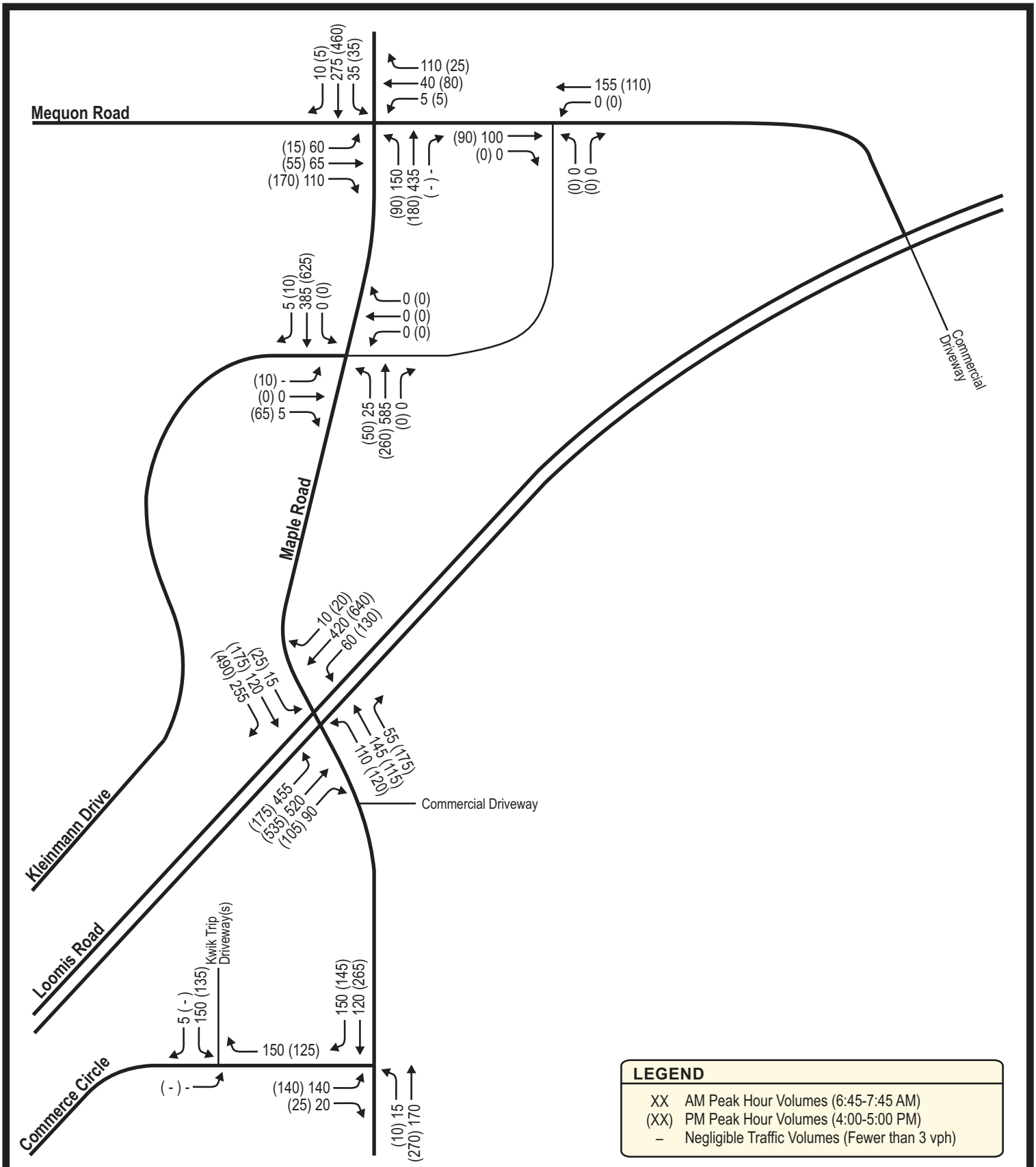
EXHIBIT 3
CONCEPTUAL SITE PLAN

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



LEGEND

XX	AM Peak Hour Volumes (6:45-7:45 AM)
(XX)	PM Peak Hour Volumes (4:00-5:00 PM)
–	Negligible Traffic Volumes (Fewer than 3 vph)

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EXHIBIT 4
YEAR 2024 EXISTING TRAFFIC VOLUMES (NO RELOCATED KWIK TRIP)

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

Historical AADT							
Year	Mequon Road (W)	Mequon Road (E)	Maple Road (N)	Maple Road (@Kleinmann)	Maple Road (S)	Lannon Road (W)	Lannon Road (E)
2000							
2001							
2002							
2003							
2004	4800	3300	8200	9500	3900	18600	
2005							
2006							
2007	4300		7500	9000	4300	19500	16400
2008							
2009							
2010	3800	2800	7000	10300	4300	16600	13400
2011							
2012							
2013	4700		9600	10200	6000	26200	18700
2014							
2015							
2016		2800	8400	10100	5200	19400	19800
2017							
2018							
2019	4400		8900	11400		21300	16700
2020							
2021							
2022							
2023	4400		8100	11300	6200	24300	18300
2024							

Trendline Growth Rate							
	Mequon Road (W)	Mequon Road (E)	Maple Road (N)	Maple Road (@Kleinmann)	Maple Road (S)	Lannon Road (W)	Lannon Road (E)
Liner Eqn.	y = -4.592x13642	y = -41.667x86717	y = 42.669x-77655	y = 114.610x-220469	y = 124.400x-245339	y = 273.050x-528843	y = 183.650x-352785
2024	4350	2380	8710	11500	6450	23810	18920
2029	4330	2170	8920	12070	7070	25180	19840
5-Yr Increase	-0.5%	-8.8%	2.4%	5.0%	9.6%	5.8%	4.9%
Growth/year	-0.09%	-1.76%	0.48%	0.99%	1.92%	1.15%	0.97%
Study %GR	**0.00%**	**0.00%**	**0.50%**	**1.00%**	**2.00%**	**1.00%**	**1.00%**

Notes:

2029 AADT volumes were calculated from linear trendline equations from historical AADT values.

Study %GR was applied to the Existing 2024 turning movement traffic counts in the Germantown Kwik Trip TIA.

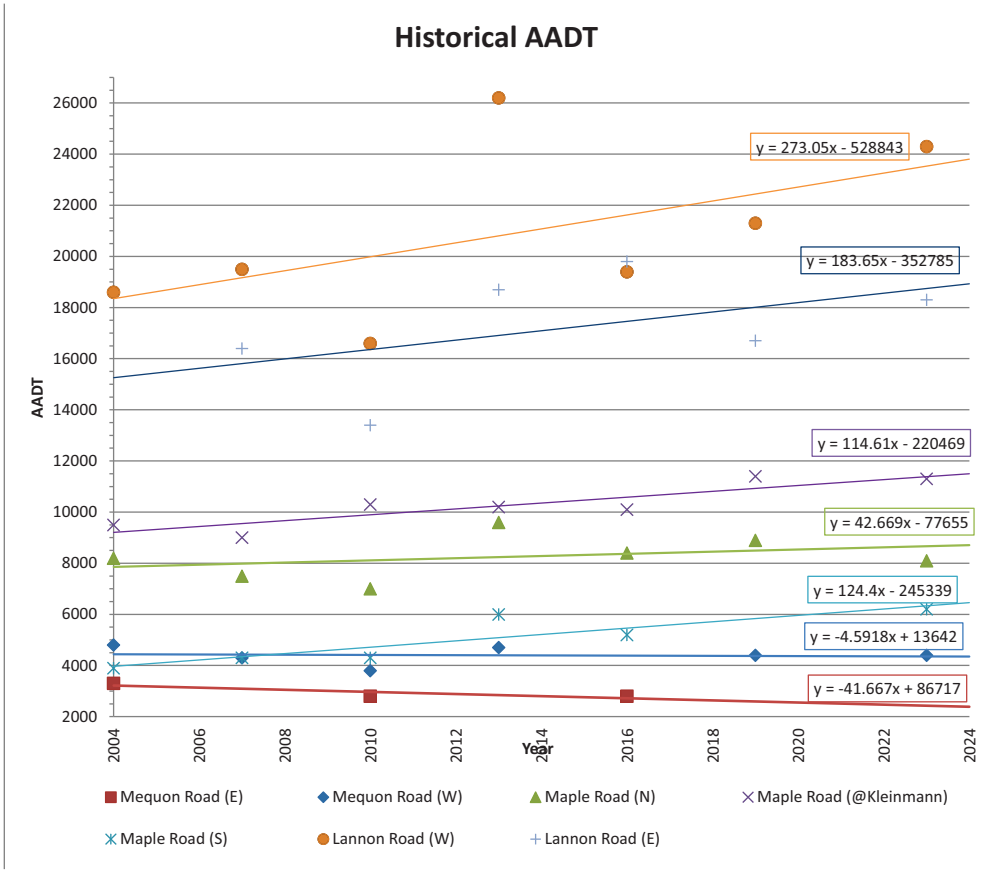

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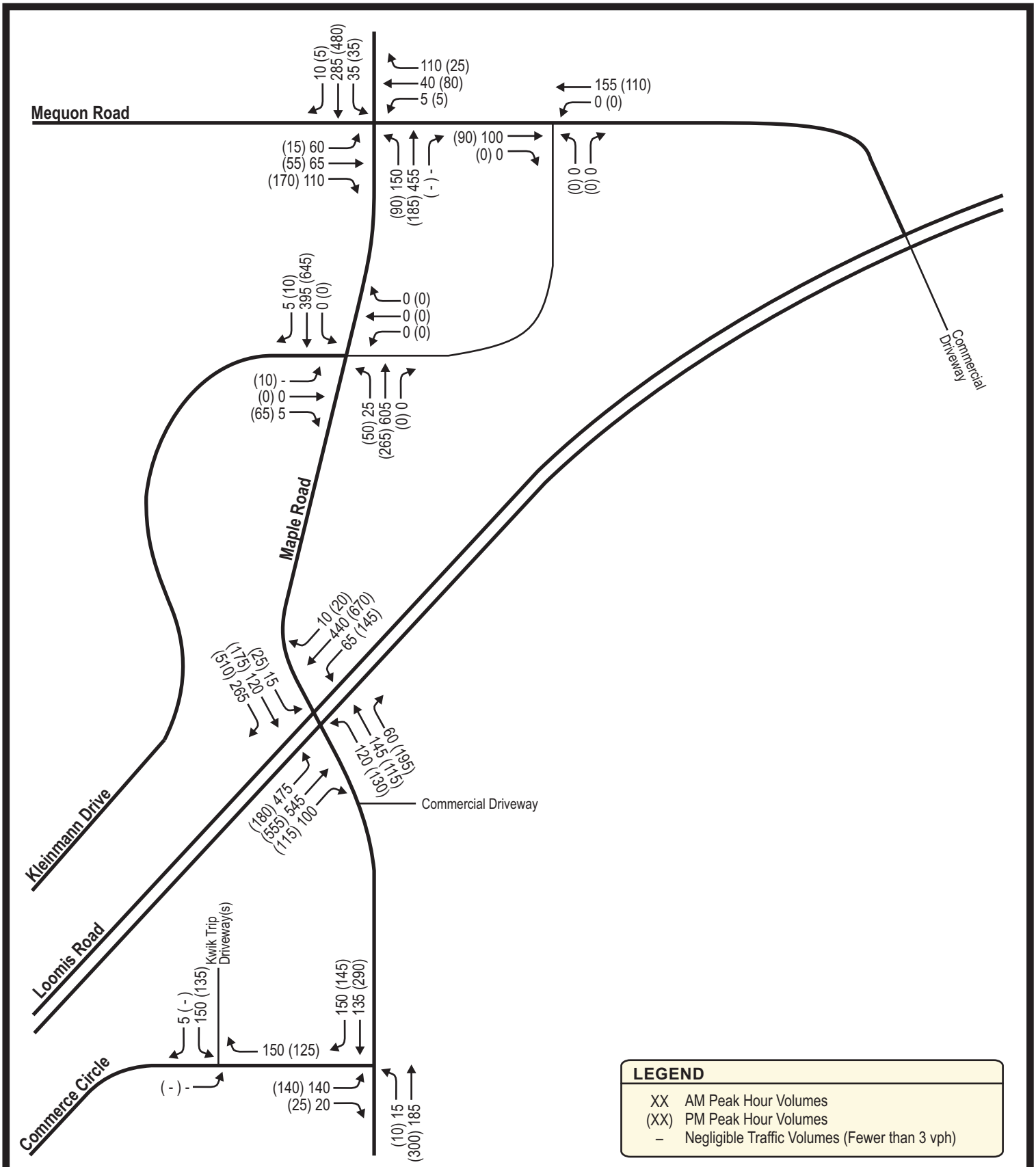
EXHIBIT 5
TRAFFIC FORECASTING

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
–	Negligible Traffic Volumes (Fewer than 3 vph)

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NOT TO SCALE

EXHIBIT 6
YEAR 2029 FUTURE TRAFFIC VOLUMES (NO RELOCATED KWIK TRIP)

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

Existing Kwik Trip - Trip Generation

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total
Existing Kwik Trip	N/A	10 Fuel Positions		150	155	305	125	135	260
Total Driveway Trips			**2,910**	**150**	**155**	**305**	**125**	**135**	**260**
Pass-by Trips[2]	*N/A*	*55%*	1,600	85	85	170	70	70	140
New Trips			1,310	65	70	135	55	65	120

TRIP DISTRIBUTION (New Trips)						
W. on Mequon Road	11% (9%)	10	10	5	5	
E. on Mequon Road	0% (0%)	0	0	0	0	
W. on Lannon Road	31% (24%)	25	25	15	15	
E. on Lannon Road	18% (33%)	5	0	20	20	
N. on Maple Road	30% (22%)	20	25	10	15	
S. on Maple Road	11% (11%)	5	5	5	10	
W. on Commerce Circle	0% (0%)	0	5	0	0	
	AM (PM)	***65***	***70***	***55***	***65***	

TRIP DISTRIBUTION (Pass-by Trips)						
EB Lannon Road	40% (35%)	35	35	25	25	
WB Lannon Road	30% (45%)	25	25	30	30	
NB on Maple Road	10% (5%)	10	10	5	5	
SB on Maple Road	20% (15%)	15	15	10	10	
	AM (PM)	***85***	***85***	***70***	***70***	

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EXHIBIT 7A
TRIP GENERATION & TRIP DISTRIBUTION
EXISTING KWIK TRIP (TO BE REMOVED)

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

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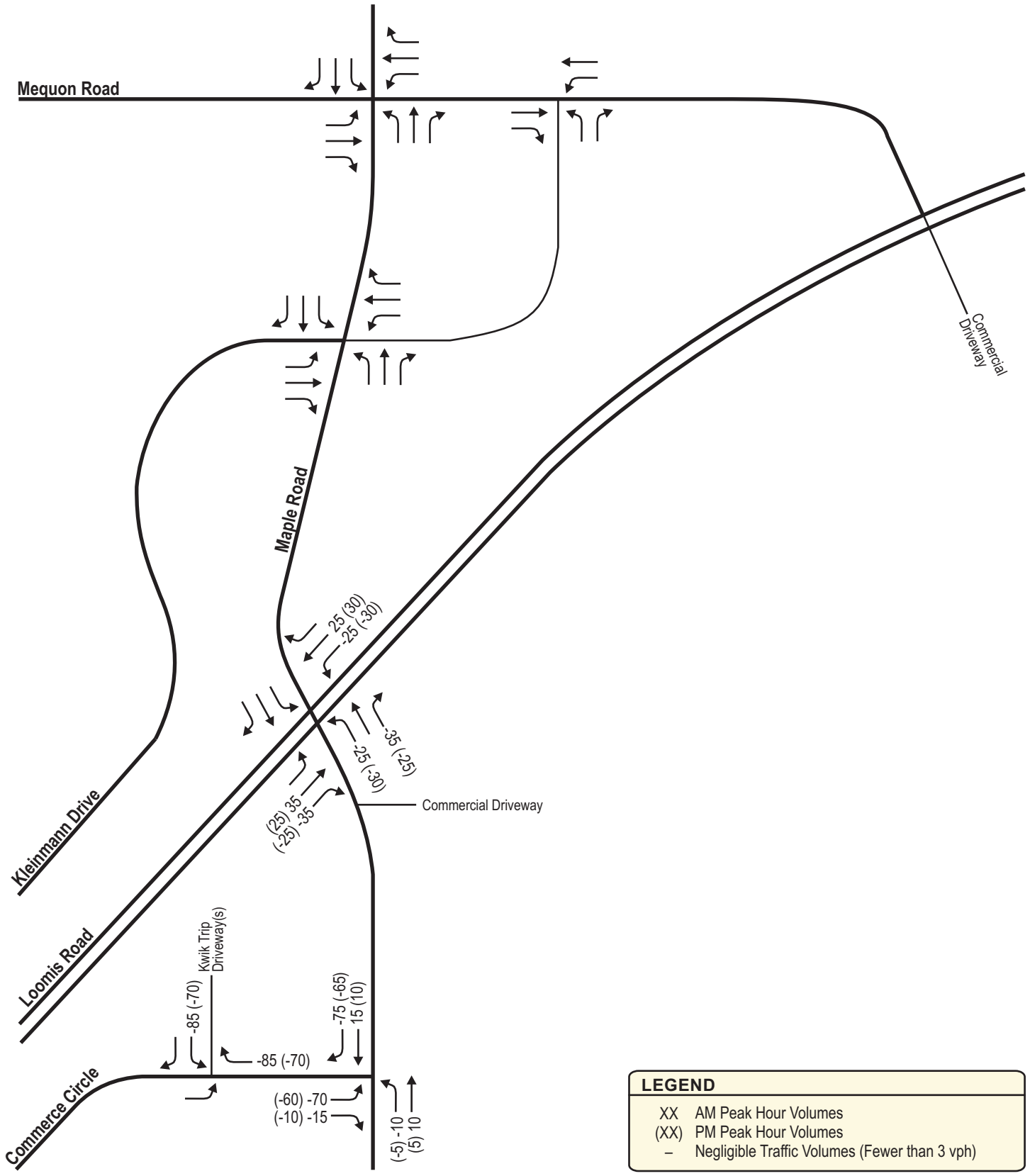
EXHIBIT 7B
EXISTING PEAK KWIK TRIP NEW TRIPS REMOVED FROM THE STUDY INTERSECTIONS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



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N

NOT TO SCALE

EXHIBIT 7C
EXISTING PEAK KWIK TRIP PASS-BY TRIPS REMOVED FROM THE STUDY INTERSECTIONS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

New Bank (Existing Kwik Trip Site) - Trip Generation[1]

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total
Drive-in Bank	912	3 Lanes	390 FCE	15 (61%)	10 (39%)	25 FCE	40 (49%)	40 (51%)	80 (27.07)
Total Driveway Trips			**390**	**15**	**10**	**25**	**40**	**40**	**80**
Pass-by Trips[2]		35%	140	5	5	10	15	15	30
New Trips			250	10	5	15	25	25	50

[1] *Trip Rates (X.XX) and/or Fitted Curve Equations (FCE) are from the ITE Trip Generation Manual, 11th Edition.*

[2] *Pass-by trip percentages are based on the maximum WisDOT values for the land use type.*

[3] *New trips distribution based on distribution calculated for the existing Kwik Trip on the same site.*

TRIP DISTRIBUTION (New Trips)[3]						
W. on Mequon Road	11% (9%)	0	0	5	5	
E. on Mequon Road	0% (0%)	0	0	0	0	
W. on Lannon Road	31% (24%)	5	5	5	5	
E. on Lannon Road	18% (33%)	0	0	5	5	
N. on Maple Road	30% (22%)	5	0	5	5	
S. on Maple Road	11% (11%)	0	0	5	5	
	AM (PM)	***10***	***5***	***25***	***25***	

TRIP DISTRIBUTION (Pass-by Trips)						
EB Lannon Road	40% (35%)	5	5	5	5	
WB Lannon Road	30% (45%)	0	0	5	5	
NB on Maple Road	10% (5%)	0	0	0	0	
SB on Maple Road	20% (15%)	0	0	5	5	
	AM (PM)	***5***	***5***	***15***	***15***	

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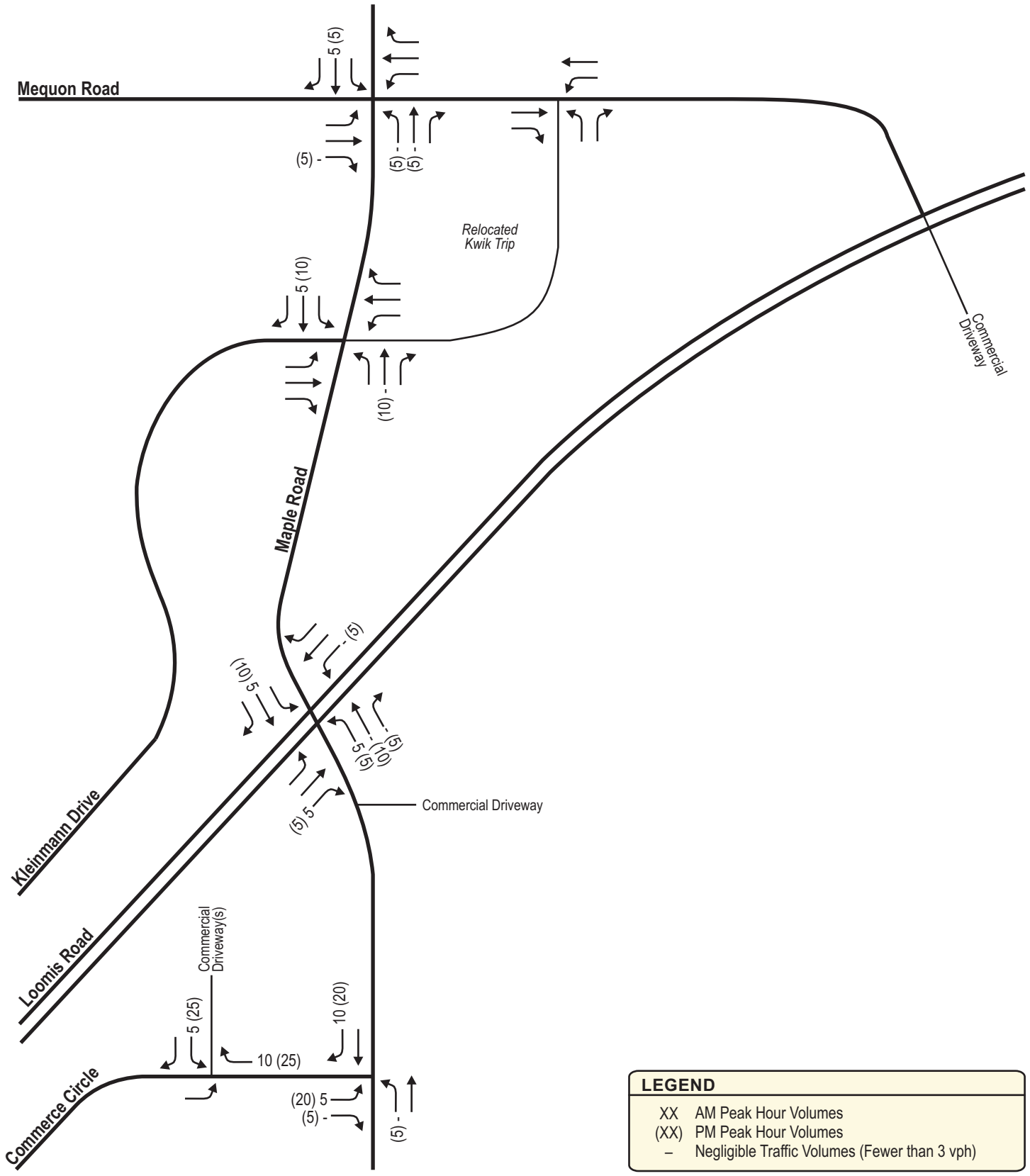
#3347 - 10/14/24

N

NOT TO SCALE

EXHIBIT 8A
TRIP GENERATION & TRIP DISTRIBUTION
BANK DEVELOPMENT

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
–	Negligible Traffic Volumes (Fewer than 3 vph)

TRAFFIC ANALYSIS & DESIGN, INC.

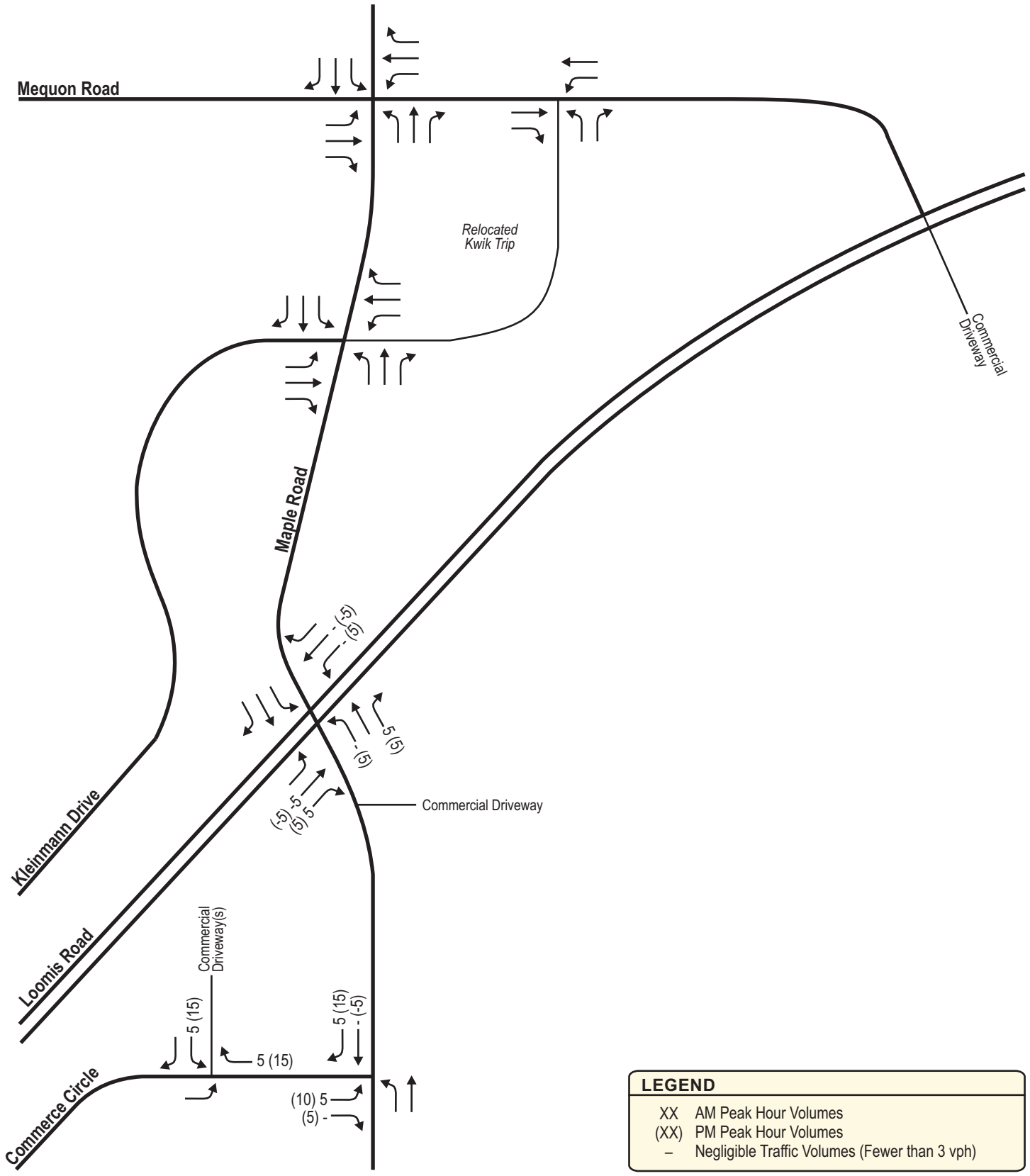
#3347 - 10/14/24

N

NOT TO SCALE

EXHIBIT 8B
BANK DEVELOPMENT NEW TRIPS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
–	Negligible Traffic Volumes (Fewer than 3 vph)

TRAFFIC ANALYSIS & DESIGN, INC.

#3347 - 10/14/24

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NOT TO SCALE

EXHIBIT 8C
BANK DEVELOPMENT PASS-BY TRIPS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

New Kwik Trip - Trip Generation Table [1]

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak In	AM Peak Out	AM Peak Total	PM Peak In	PM Peak Out	PM Peak Total
Super Convenience Market/Gas Station (Store Category 3, Pop≥300k)	WisDOT	22 Fuel Positions	4,640 FCE	170 (51%)	165 (49%)	335 FCE	170 (50%)	165 (50%)	335 FCE
Total Driveway Trips			**4,640**	**170**	**165**	**335**	**170**	**165**	**335**
Pass-by Trips[2]		55%	2,550	90	90	180	90	90	180
New Trips			7,190	80	75	155	80	75	155
Existing Kwik Trip				150	155	305	125	135	260
Trip Difference				20	10	30	45	30	75
% Change						10%			29%

[1] *Fitted Curve Equations (FCE) are from the October 20, 2022 trip generation guidance for the Convenience Store/Gas Station Land Use.*

[2] *Pass-by trip percentages are based on the maximum WisDOT values for the land use type.*

[3] *New trips distribution based on distribution calculated for the existing Kwik Trip. Pass-by trips were recalculated based on existing traffic patterns*

TRIP DISTRIBUTION (New Trips) [3]						
W. on Mequon Road	11% (9%)	10	10		5	5
W. on Lannon Road	31% (24%)	25	25		20	20
E. on Lannon & Mequon Rds	18% (33%)	15	15		25	25
N. on Maple Road	30% (22%)	25	20		20	15
S. on Maple Road	11% (11%)	5	5		10	10
	100%	***80***	***75***		***80***	***75***

TRIP DISTRIBUTION (Pass-by Trips) [3]						
NB on Maple Road	25% (10%)	20	20		10	10
SB on Maple Road	10% (25%)	10	10		20	20
EB on Lannon Road	35% (25%)	30	30		25	25
WB on Lannon Road	20% (30%)	20	20		25	25
EB Mequon Road	5% (5%)	5	5		5	5
WB Mequon Road	5% (5%)	5	5		5	5
	AM (PM)	***90***	***90***		***90***	***90***

TRAFFIC ANALYSIS & DESIGN, INC.

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EXHIBIT 9A
TRIP GENERATION & TRIP DISTRIBUTION
RELOCATED KWIK TRIP

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
–	Negligible Traffic Volumes (Fewer than 3 vph)

TRAFFIC ANALYSIS & DESIGN, INC.

#3347 - 10/14/24

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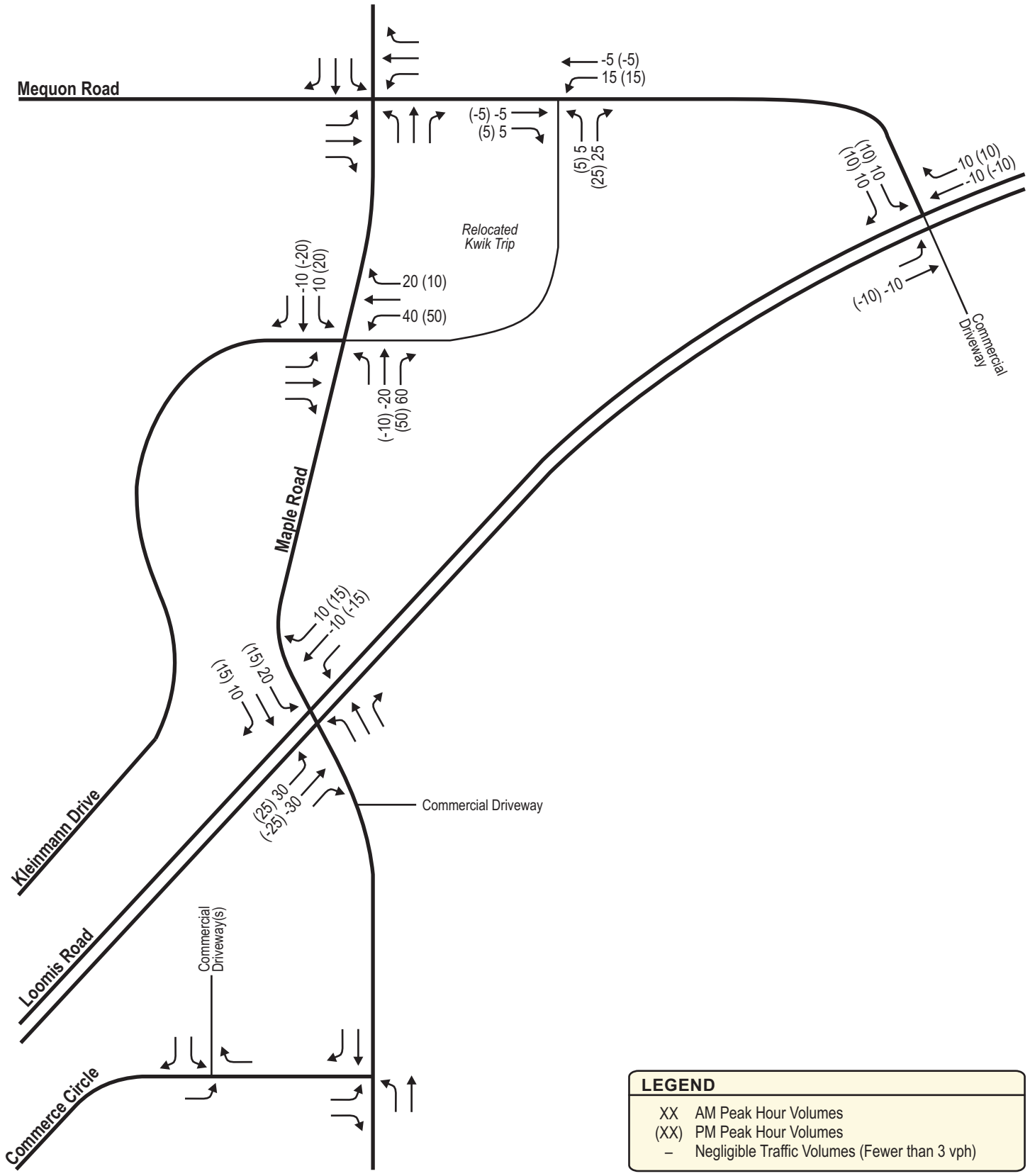
NOT TO SCALE

EXHIBIT 9B
RELOCATED KWIK TRIP DEVELOPMENT NEW TRIPS
ALTERNATIVE 1: FULL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



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#3347 - 10/14/24

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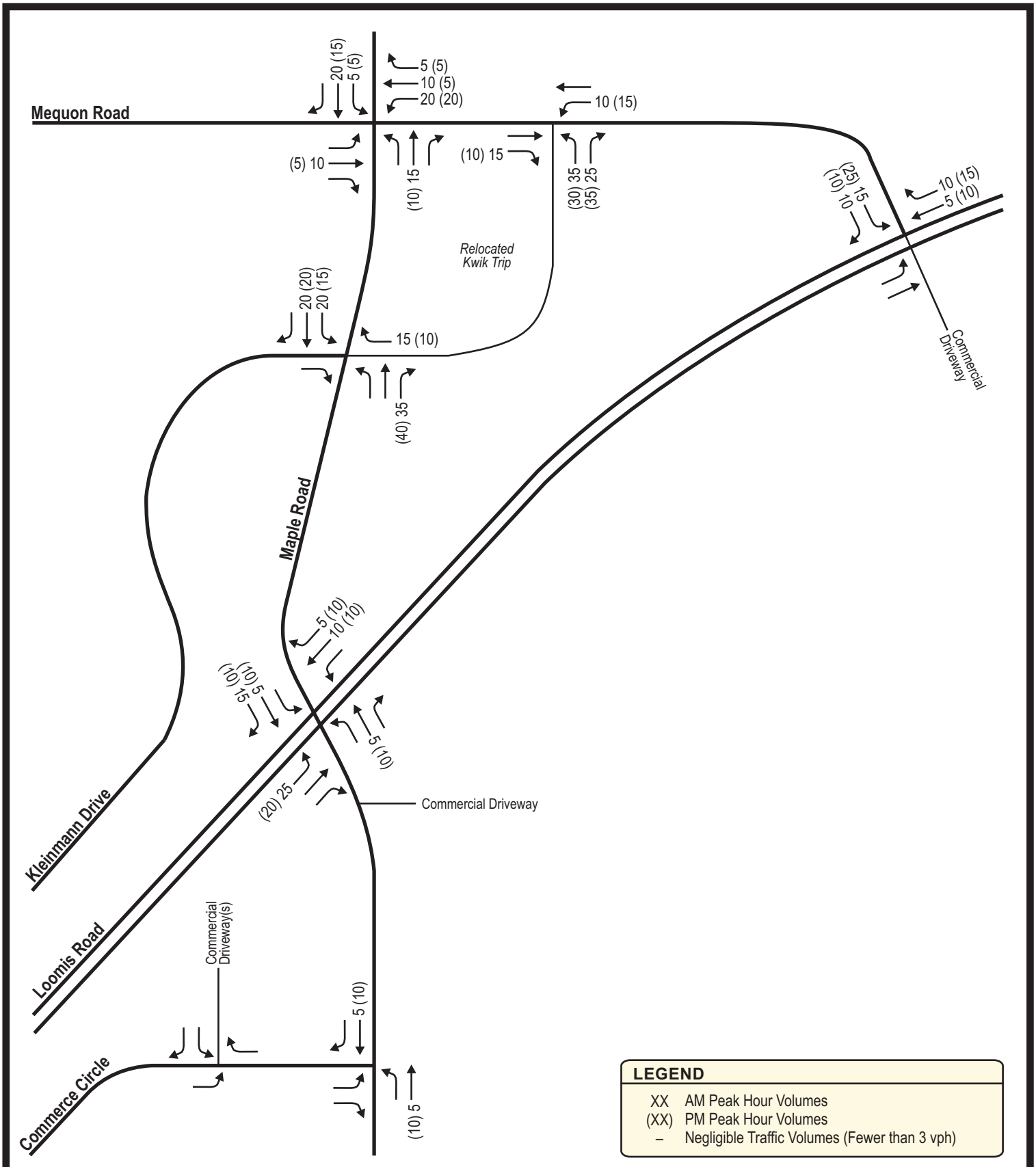
NOT TO SCALE

EXHIBIT 9C
RELOCATED KWIK TRIP DEVELOPMENT PASS-BY TRIPS
ALTERNATIVE 1: FULL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
–	Negligible Traffic Volumes (Fewer than 3 vph)

TRAFFIC ANALYSIS & DESIGN, INC.

#3347 - 10/14/24

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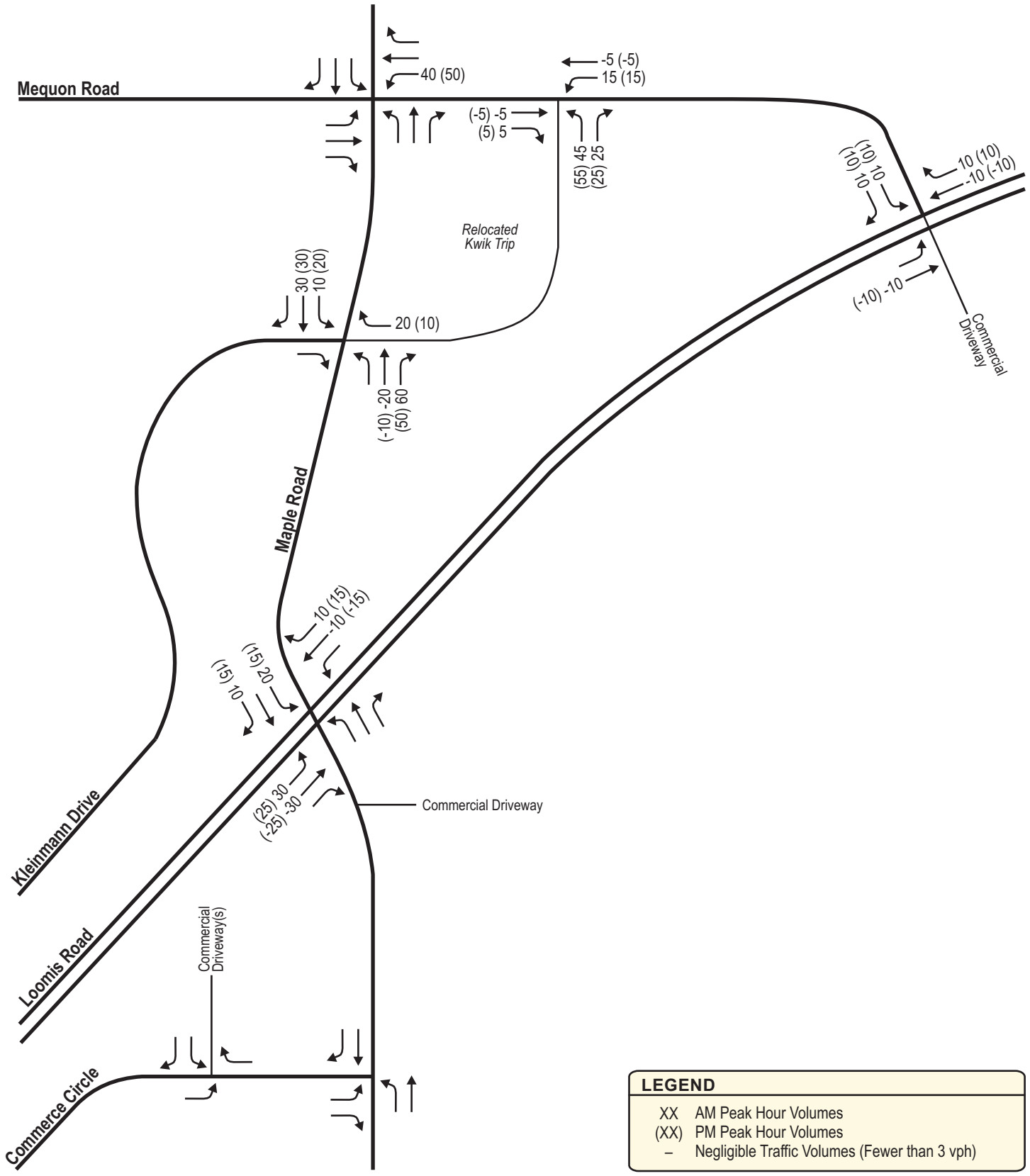
NOT TO SCALE

EXHIBIT 9D
RELOCATED KWIK TRIP DEVELOPMENT NEW TRIPS
ALTERNATIVE 2: PARTIAL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



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#3347 - 10/14/24

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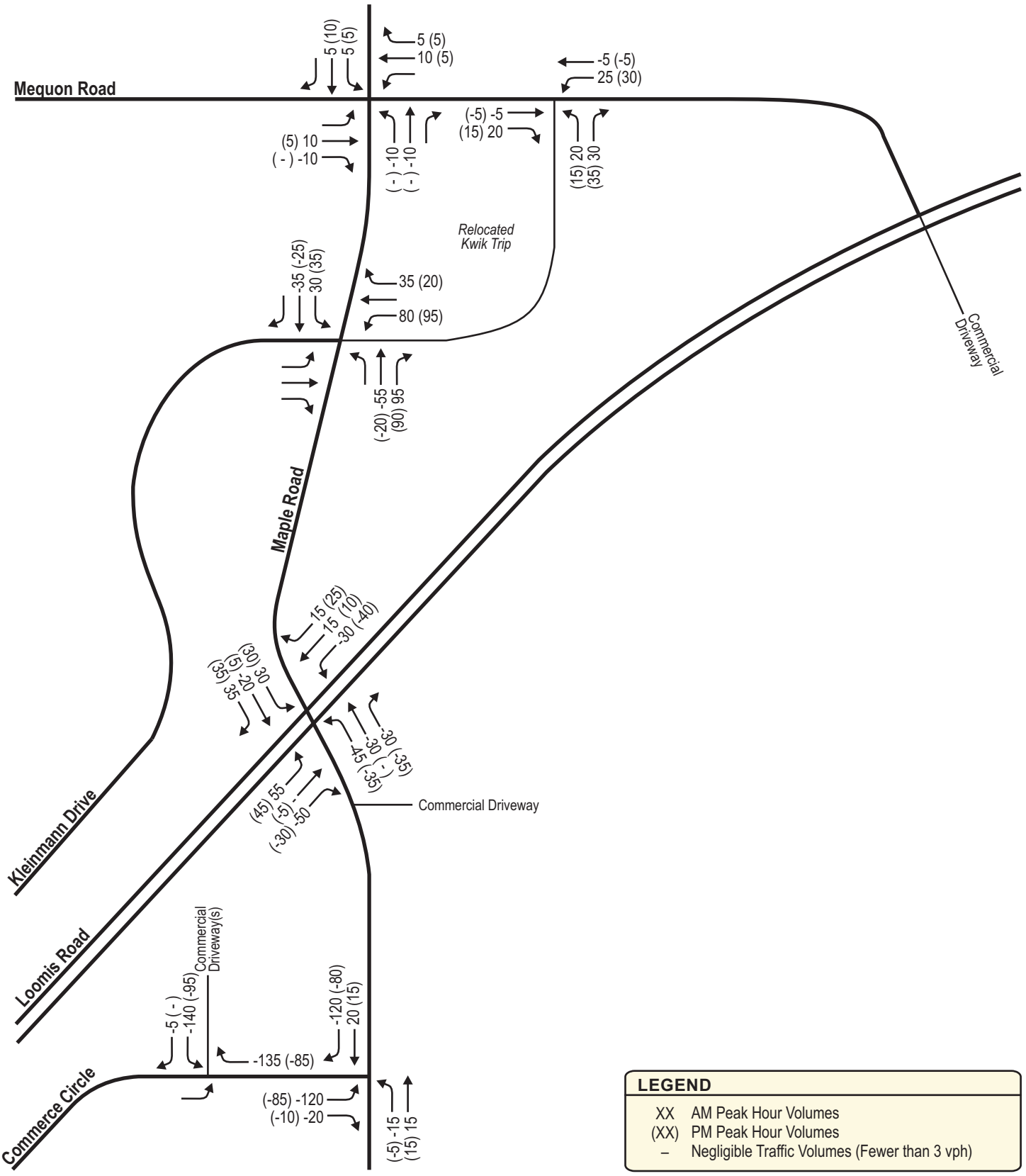
NOT TO SCALE

EXHIBIT 9E
RELOCATED KWIK TRIP DEVELOPMENT PASS-BY TRIPS
ALTERNATIVE 2: PARTIAL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



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TRAFFIC ANALYSIS & DESIGN, INC.

#3347 - 10/14/24

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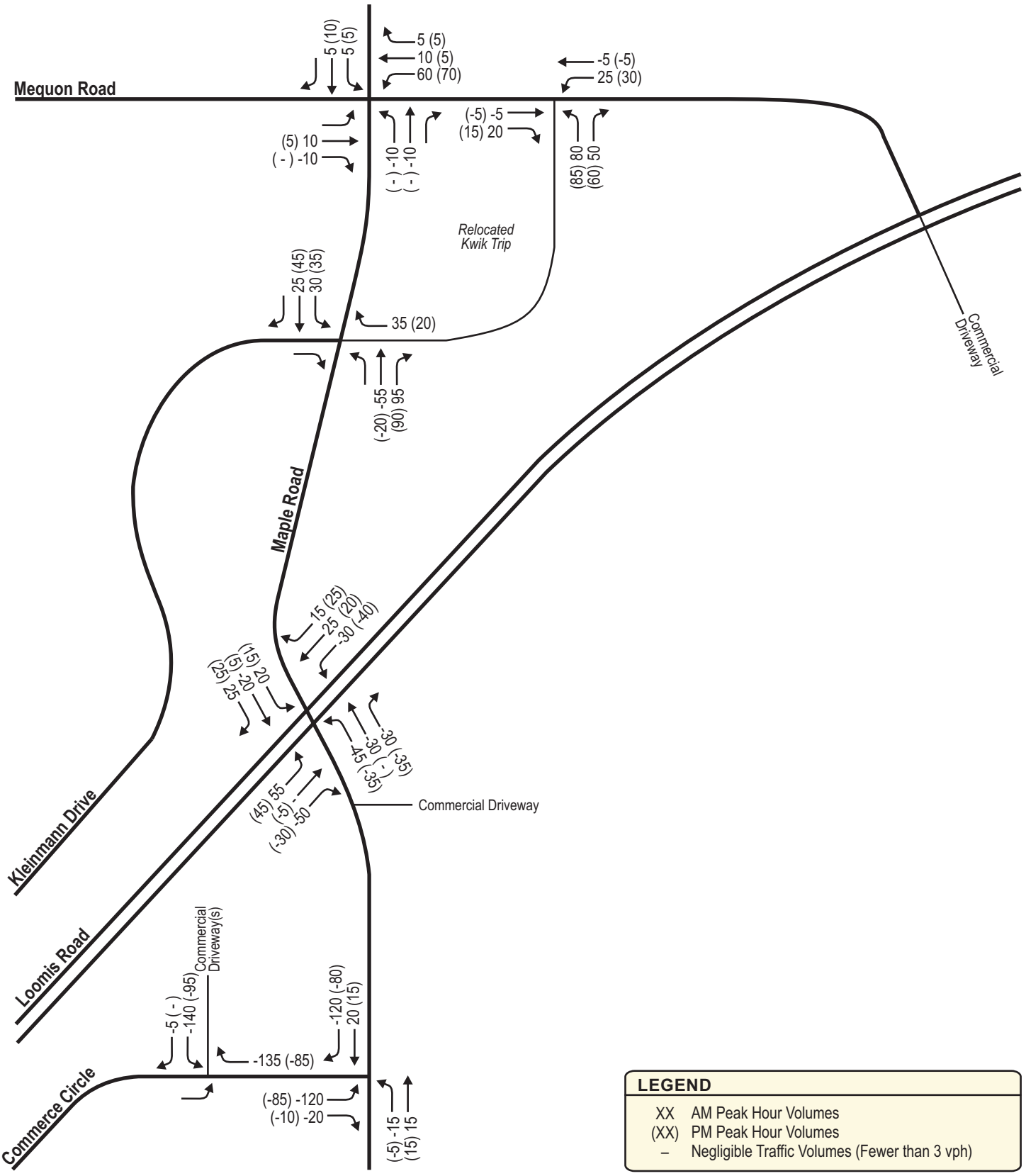
NOT TO SCALE

EXHIBIT 10
DEVELOPMENT DRIVEWAY TRIPS
(BANK - EXISTING KWIK TRIP + NEW KWIK TRIP)
ALTERNATIVE 1: FULL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
–	Negligible Traffic Volumes (Fewer than 3 vph)

TRAFFIC ANALYSIS & DESIGN, INC.

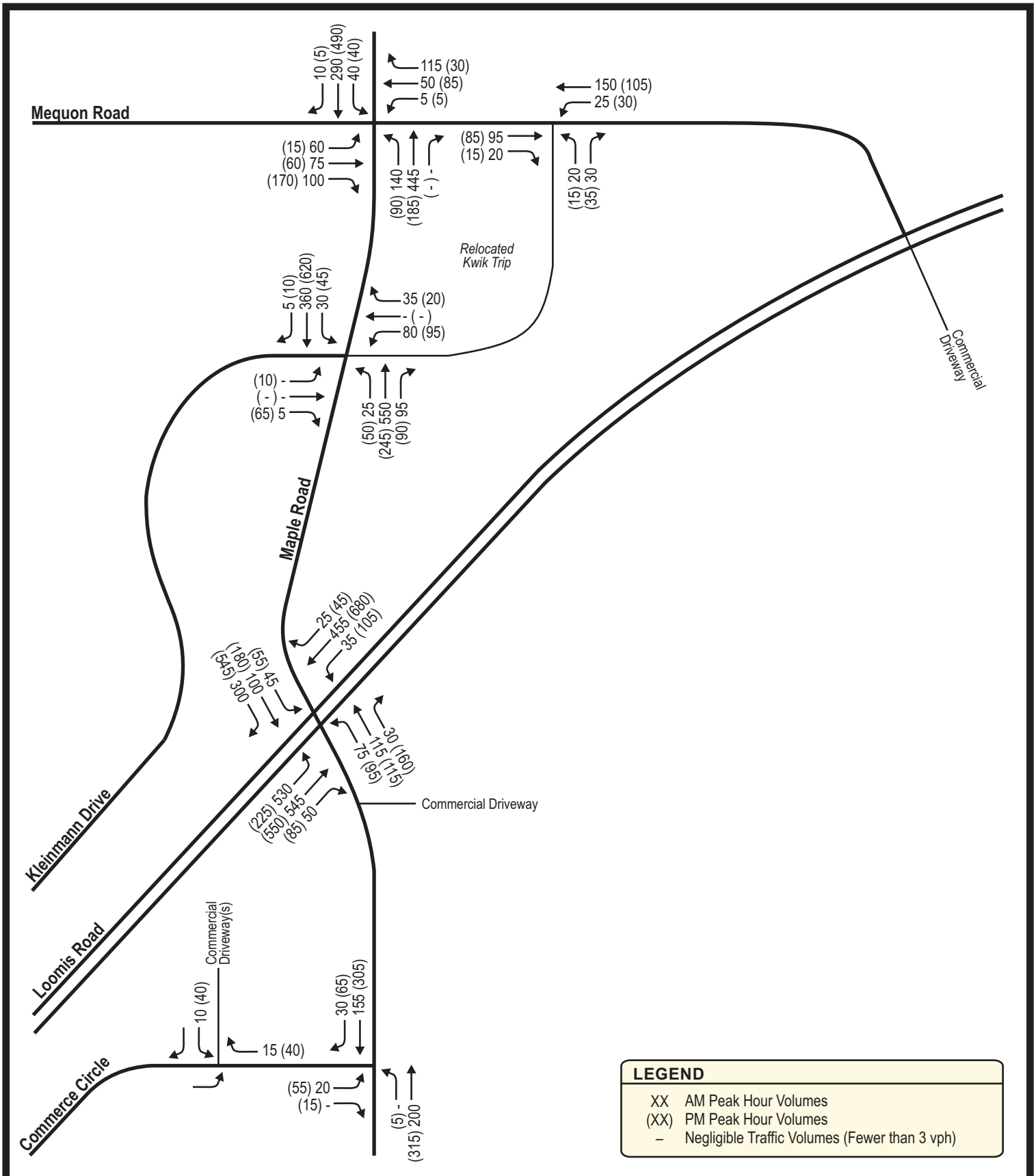
#3347 - 10/14/24

N

NOT TO SCALE

EXHIBIT 11
DEVELOPMENT DRIVEWAY TRIPS
(BANK - EXISTING KWIK TRIP + NEW KWIK TRIP)
ALTERNATIVE 2: PARTIAL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



LEGEND

XX	AM Peak Hour Volumes
(XX)	PM Peak Hour Volumes
–	Negligible Traffic Volumes (Fewer than 3 vph)

TRAFFIC ANALYSIS & DESIGN, INC.

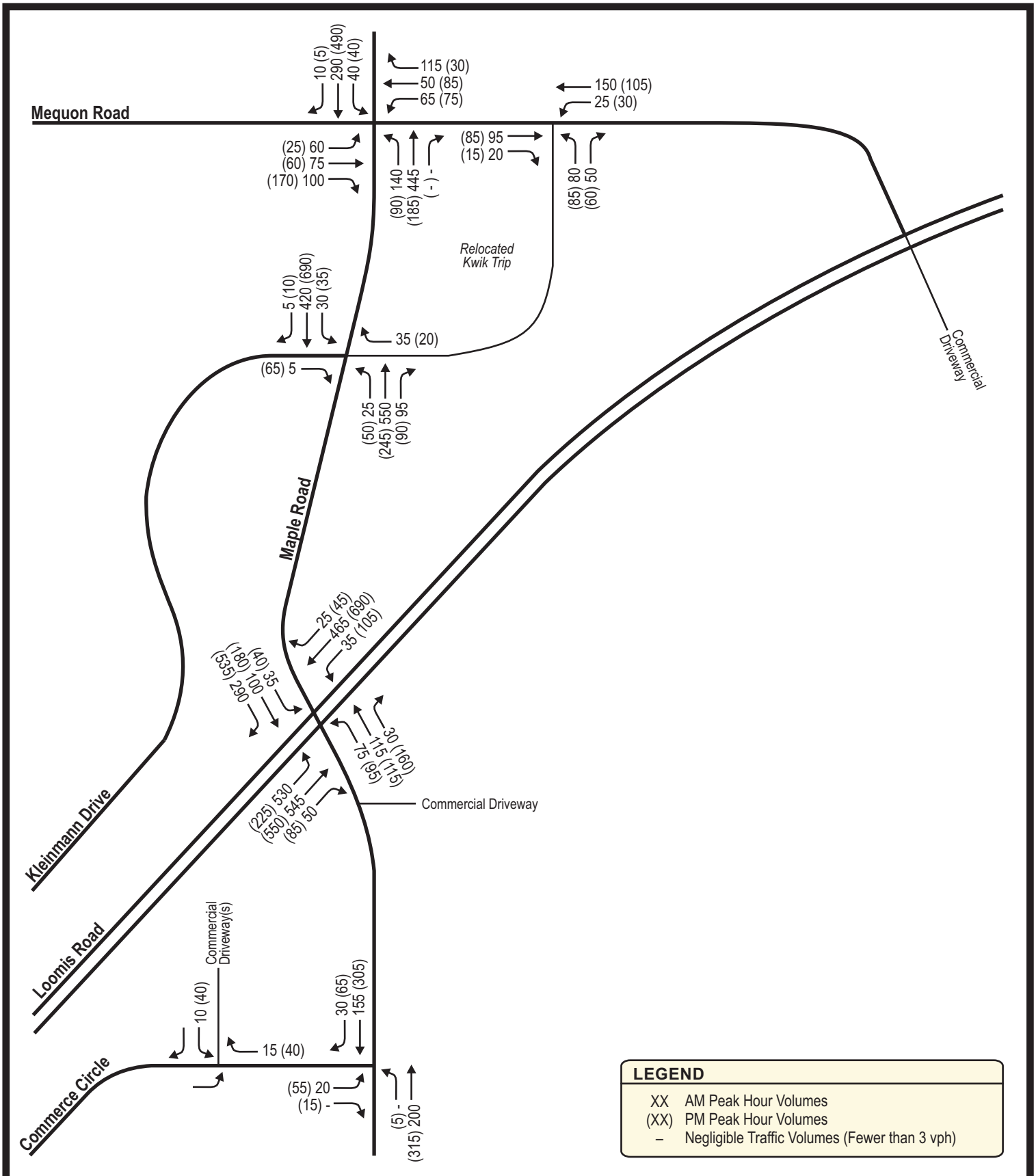
#3347 - 10/14/24

N

NOT TO SCALE

EXHIBIT 12
YEAR 2029 BUILD TRAFFIC VOLUMES
ALTERNATIVE 1: FULL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



TRAFFIC ANALYSIS & DESIGN, INC.

#3347 - 10/14/24

N

NOT TO SCALE

EXHIBIT 13
YEAR 2029 BUILD TRAFFIC VOLUMES
ALTERNATIVE 2: PARTIAL ACCESS AT MAPLE ROAD

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

Year 2024 Existing Traffic Peak Hour Operating Conditions

Existing Transportation System

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
(100) Maple Road & Mequon Road *Stop Sign Control (All-Way)*		*Lanes->*	*<1*		*1*	*<1*		*1*	*1*	*2>*		*1*	*2>*		
	AM	LOS	C		C	C		C	C	F		C	D		E
		Delay	23.6		18.6	16.0		19.9	23.8	81.7		15.0	33.5		36.1
		v/c	0.51		0.41	0.19		0.43	0.56	1.01		0.14	0.71		
		Queue	70'		50'	20'		50'	85'	325'		15'	130'		
	PM	LOS	B		C	B		B	B	B		B	D		C
		Delay	12.7		15.0	13.9		11.0	14.1	14.4		11.3	27.9		17.7
		v/c	0.19		0.41	0.24		0.07	0.25	0.32		0.09	0.73		
		Queue	20'		50'	25'		5'	25'	35'		10'	155'		
(200) Maple Road & Kleinmann Drive/Commercial Driveway *Stop Sign Control (EB/WB)*		*Lanes->*	*<1>*			*<1>*			*1*	*2>*		*1*	*2>*		
	AM	LOS	B			A			A	*		A	*		A
		Delay	12.0			0.0			8.6	*		0.0	*		0.3
		v/c	0.02			0.00			0.03	*		0.00	*		
		Queue	0'			0'			5'	*		0'	*		
	PM	LOS	B			A			A	*		A	*		A
		Delay	14.5			0.0			9.8	*		0.0	*		1.6
		v/c	0.19			0.00			0.07	*		0.00	*		
		Queue	20'			0'			5'	*		0'	*		
(300) Maple Road & Lannon Road (STH 167) *Traffic Signal Control*		*Lanes->*	*2*	*2*	*1*	*1*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
	AM	LOS	D	B	A	D	B	B	D	C	C	D	C	A	C
		Delay	43.0	11.0	9.6	45.1	17.0	14.5	39.2	33.2	30.9	36.4	32.7	0.0	26.0
		v/c	0.80	0.28	0.07	0.68	0.29	0.01	0.51	0.46	0.13	0.08	0.40	0.00	
		Queue	~285	140'	40'	70'	110'	10'	110'	135'	40'	25'	115'	0'	
	PM	LOS	C	B	B	E	C	C	D	C	C	C	C	A	C
		Delay	26.6	15.7	13.6	56.0	28.8	21.6	38.5	29.3	29.6	32.0	30.6	0.0	27.3
		v/c	0.21	0.35	0.10	0.81	0.61	0.03	0.54	0.30	0.33	0.10	0.46	0.00	
		Queue	85'	175'	55'	130'	200'	15'	125'	105'	105'	35'	155'	0'	
(400) Maple Road & Commerce Circle *Stop Sign Control (EB)*		*Lanes->*	*< >*			-			*<1*		-	-	*1*	*1*	
	AM	LOS	B			-			A		-	-	*	*	A
		Delay	13.2			-			8.0		-	-	*	*	3.6
		v/c	0.30			-			0.01		-	-	*	*	
		Queue	30'			-			0'		-	-	*	*	
	PM	LOS	C			-			A		-	-	*	*	A
		Delay	17.1			-			8.3		-	-	*	*	3.4
		v/c	0.38			-			0.01		-	-	*	*	
		Queue	45'			-			0'		-	-	*	*	

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement; (< or >) indicates a shared lane movement.

(~) indicates a queue is theoretically infinite.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

Year 2029 Future Traffic Peak Hour Operating Conditions

Existing Transportation System

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
(100) Maple Road & Mequon Road *Stop Sign Control (All-Way)*		*Lanes->*	*<1*		*1*	*<1*		*1*	*1*	*2>*		*1*	*2>*		
	AM	LOS	C		C	C		C	C	F		C	E		E
		Delay	24		19	16.2		20.3	24.1	97.9		15.2	36.6		40.9
		v/c	0.52		0.42	0.19		0.44	0.56	1.06		0.15	0.75		
		Queue	70'		50'	20'		55'	85'	370'		15'	140'		
	PM	LOS	B		C	B		B	B	B		B	D		C
		Delay	12.9		15.3	14.1		11.2	14.3	14.8		11.4	31.0		18.9
		v/c	0.19		0.42	0.24		0.07	0.26	0.33		0.09	0.77		
		Queue	20'		50'	25'		5'	25'	35'		10'	175'		
(200) Maple Road & Kleinmann Drive/Commercial Driveway *Stop Sign Control (EB/WB)*		*Lanes->*	*<1>*			*<1>*			*1*	*2>*		*1*	*2>*		
	AM	LOS	B			A			A	*		A	*		A
		Delay	12.2			0.0			8.7	*		0.0	*		0.3
		v/c	0.02			0.00			0.03	*		0.00	*		
		Queue	0'			0'			5'	*		0'	*		
	PM	LOS	B			A			A	*		A	*		A
		Delay	14.9			0.0			9.9	*		0.0	*		1.5
		v/c	0.20			0.00			0.08	*		0.00	*		
		Queue	20'			0'			5'	*		0'	*		
(300) Maple Road & Lannon Road (STH 167) *Traffic Signal Control*		*Lanes->*	*2*	*2*	*1*	*1*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
	AM	LOS	D	B	B	D	B	B	D	C	C	D	C	A	C
		Delay	50.2	11.6	10.0	45.4	17.2	14.5	38.9	32.6	30.4	35.8	32.1	0.0	27.7
		v/c	0.87	0.29	0.08	0.71	0.30	0.01	0.53	0.44	0.13	0.08	0.38	0.00	
		Queue	~300	155'	45'	75'	115'	10'	120'	130'	45'	25'	110'	0'	
	PM	LOS	C	B	B	E	C	C	D	C	C	C	C	A	C
		Delay	27.2	16.9	14.6	59.9	29.4	21.6	38.1	28.7	29.2	31.4	29.9	0.0	28.1
		v/c	0.23	0.37	0.11	0.82	0.64	0.03	0.56	0.29	0.36	0.10	0.44	0.00	
		Queue	85'	190'	65'	140'	220'	15'	130'	105'	110'	35'	150'	0'	
(400) Maple Road & Commerce Circle *Stop Sign Control (EB)*		*Lanes->*	*< >*			*-*			*<1*		*-*	*-*	*1*	*1*	
	AM	LOS	B			-			A		-	-	*	*	A
		Delay	13.7			-			8.0		-	-	*	*	3.6
		v/c	0.31			-			0.02		-	-	*	*	
		Queue	35'			-			0'		-	-	*	*	
	PM	LOS	C			-			A		-	-	*	*	A
		Delay	18.7			-			8.4		-	-	*	*	3.5
		v/c	0.41			-			0.01		-	-	*	*	
		Queue	50'			-			0'		-	-	*	*	

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement; (< or >) indicates a shared lane movement.

(~) indicates a queue is theoretically infinite.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

Year 2029 Future Traffic Peak Hour Operating Conditions

Modified Transportation System

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
(100) Maple Road & Mequon Road *Traffic Signal Control*		*Lanes->*	*1*	*1>*		*1*	*1>*		*1*	*2*	*1*	*1*	*2*	*1*	
	AM	LOS	D	C		D	C		A	A	A	A	A	A	B
		Delay	39.9	33.8		37.7	32.4		1.6	0.3	0.0	6.6	6.9	5.9	12.1
		v/c	0.42	0.67		0.04	0.58		0.33	0.29	0.00	0.09	0.19	0.01	
		Queue	60'	140'		10'	120'		15'	20'	0'	25'	60'	5'	
	PM	LOS	C	D		D	C		A	A	A	A	A	A	B
		Delay	34.3	40.4		42.0	31.9		1.1	0.1	0.0	5.2	6.1	4.9	14.3
		v/c	0.07	0.83		0.05	0.36		0.19	0.10	0.00	0.05	0.24	0.00	
		Queue	20'	185'		10'	90'		10'	10'	0'	25'	105'	5'	
(200) Maple Road & Kleinmann Drive/Commercial Driveway *Stop Sign Control (EB/WB)*		*Lanes->*	*<1>*			*<1>*			*1*	*2>*		*1*	*2>*		
	AM	LOS	A			A			A	*		A	*		A
		Delay	9.4			0.0			8.2	*		0.0	*		0.3
		v/c	0.01			0.00			0.03	*		0.00	*		
		Queue	0'			0'			5'	*		0'	*		
	PM	LOS	B			A			A	*		A	*		A
		Delay	10.6			0.0			9.0	*		0.0	*		1.2
		v/c	0.12			0.00			0.06	*		0.00	*		
		Queue	10'			0'			5'	*		0'	*		
(300) Maple Road & Lannon Road (STH 167) *Traffic Signal Control*		*Lanes->*	*2*	*2*	*1*	*1*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
	AM	LOS	C	B	B	D	C	B	D	C	C	D	D	A	C
		Delay	34.4	11.9	10.3	45.4	20.8	17.5	39.0	32.1	30.0	40.8	37.0	0.0	25.2
		v/c	0.67	0.30	0.08	0.71	0.35	0.01	0.53	0.43	0.13	0.07	0.37	0.00	
		Queue	240'	155'	45'	75'	130'	10'	120'	130'	45'	20'	85'	0'	
	PM	LOS	C	B	B	D	C	C	D	C	C	D	D	A	C
		Delay	27.9	17.6	15.2	52.3	29.4	21.6	38.1	27.9	28.5	37.0	35.7	0.0	28.3
		v/c	0.24	0.38	0.12	0.82	0.64	0.03	0.56	0.28	0.34	0.09	0.42	0.00	
		Queue	85'	190'	65'	140'	220'	15'	130'	105'	110'	25'	115'	0'	
(400) Maple Road & Commerce Circle *Stop Sign Control (EB)*		*Lanes->*	*< >*			-			*<1*		-	-	*1*	*1*	
	AM	LOS	B			-			A		-	-	*	*	A
		Delay	13.7			-			8.0		-	-	*	*	3.6
		v/c	0.31			-			0.02		-	-	*	*	
		Queue	35'			-			0'		-	-	*	*	
	PM	LOS	C			-			A		-	-	*	*	A
		Delay	18.7			-			8.4		-	-	*	*	3.5
		v/c	0.41			-			0.01		-	-	*	*	
		Queue	50'			-			0'		-	-	*	*	

(-) indicates a movement that is prohibited or does not exist; (*) indicates a freeflow movement; (< or >) indicates a shared lane movement.

Delay is reported in seconds. Queue is the maximum of the 50th & 95th percentile queue, measured in feet.

TRAFFIC ANALYSIS & DESIGN, INC.

#3347 - 10/14/24

EXHIBIT 16
2029 FUTURE TRAFFIC - WITH MODIFICATIONS
PEAK HOUR TRAFFIC CAPACITY/LOS ANALYSIS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

Year 2029 Build - Alternative 1 (Full Kwik Trip Access) Traffic Peak Hour Operating Conditions
with Year 2029 Future Traffic Recommended Modifications

Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
(100) Maple Road & Mequon Road *Traffic Signal Control*		*Lanes->*	*1*	*1>*		*1*	*1>*		*1*	*2*	*1*	*1*	*2*	*1*	
	AM	LOS	D	C		D	C		A	A	A	A	A	A	B
		Delay	39.9	32.3		36.4	31.9		1.6	0.3	0.0	7.2	7.4	6.3	12.3
		v/c	0.42	0.63		0.04	0.60		0.31	0.29	0.00	0.10	0.20	0.01	
		Queue	60'	140'		10'	135'		20'	25'	0'	25'	60'	5'	
	PM	LOS	C	D		D	C		A	A	A	A	A	A	B
		Delay	34.5	40.3		41.9	32.0		1.1	0.1	0.0	5.3	6.2	5.0	14.5
		v/c	0.07	0.84		0.05	0.39		0.19	0.10	0.00	0.06	0.25	0.00	
		Queue	20'	190'		10'	95'		15'	15'	0'	25'	110'	5'	
(200) Maple Road & Kleinmann Drive/Commercial Driveway *Stop Sign Control (EB/WB)*		*Lanes->*	*<1>*			*<1>*			*1*	*1*	*1*	*1*	*2>*		
	AM	LOS	B			C			A	*	*	A	*		A
		Delay	12.2			21.5			8.1	*	*	9.5	*		2.6
		v/c	0.02			0.41			0.03	*	*	0.05	*		
		Queue	5'			50'			5'	*	*	5'	*		
	PM	LOS	B			C			A	*	*	A	*		A
		Delay	11.2			16.7			8.9	*	*	8.1	*		2.8
		v/c	0.14			0.31			0.06	*	*	0.03	*		
		Queue	15'			35'			5'	*	*	5'	*		
(300) Maple Road & Lannon Road (STH 167) *Traffic Signal Control*		*Lanes->*	*2*	*2*	*1*	*1*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
	AM	LOS	C	A	A	D	C	C	D	D	C	D	D	A	C
		Delay	25.0	8.9	7.4	44.6	25.1	21.0	40.5	35.6	33.3	43.9	39.5	0.0	23.0
		v/c	0.50	0.27	0.04	0.52	0.42	0.03	0.42	0.46	0.09	0.26	0.41	0.00	
		Queue	215'	125'	25'	50'	135'	20'	85'	115'	30'	45'	80'	0'	
	PM	LOS	C	B	B	D	C	C	D	C	C	D	D	A	C
		Delay	26.4	14.3	12.2	45.0	29.7	22.0	39.4	30.0	30.0	39.9	37.5	0.0	27.0
		v/c	0.27	0.34	0.08	0.79	0.65	0.06	0.48	0.31	0.32	0.23	0.49	0.00	
		Queue	105'	165'	45'	110'	205'	25'	105'	110'	100'	60'	150'	0'	
(400) Maple Road & Commerce Circle *Stop Sign Control (EB)*		*Lanes->*	*< >*			*-*			*<1*		*-*	*-*	*1*	*1*	
	AM	LOS	B			-			A		-	-	*	*	A
		Delay	11.5			-			7.7		-	-	*	*	0.6
		v/c	0.04			-			0.00		-	-	*	*	
		Queue	5'			-			0'		-	-	*	*	
	PM	LOS	B			-			A		-	-	*	*	A
		Delay	14.8			-			8.2		-	-	*	*	1.4
		v/c	0.17			-			0.01		-	-	*	*	
		Queue	15'			-			0'		-	-	*	*	
(500) Mequon Road & Commercial Driveway *Stop Sign Control (NB)*		*Lanes->*	-	*1>*		*<1*		-	*< >*			-			
	AM	Volume	-	-	-	-	-	-	-	-	-	-	-	-	
		LOS	-	*		A		-	B			-			A
		Delay	-	*		7.7		-	10.5			-			2.1
		v/c	-	*		0.03		-	0.10			-			
		Queue	-	*		5'		-	10'			-			
	PM	Volume	-	-	-	-	-	-	-	-	-	-	-	-	
		LOS	-	*		A		-	A			-			A
		Delay	-	*		7.5		-	9.6			-			2.5
		v/c	-	*		0.02		-	0.07			-			
		Queue	-	*		5'		-	5'			-			

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

TRAFFIC ANALYSIS & DESIGN, INC.
#3347 - 10/14/24

EXHIBIT 17
2029 BUILD TRAFFIC - WITH MODIFICATIONS
ALTERNATIVE 1: FULL ACCESS AT MAPLE ROAD
PEAK HOUR TRAFFIC CAPACITY/LOS ANALYSIS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

Year 2029 Build - Alternative 2 (Partial Kwik Trip Access) Traffic Peak Hour Operating Conditions
with Year 2029 Future Traffic Recommended Modifications

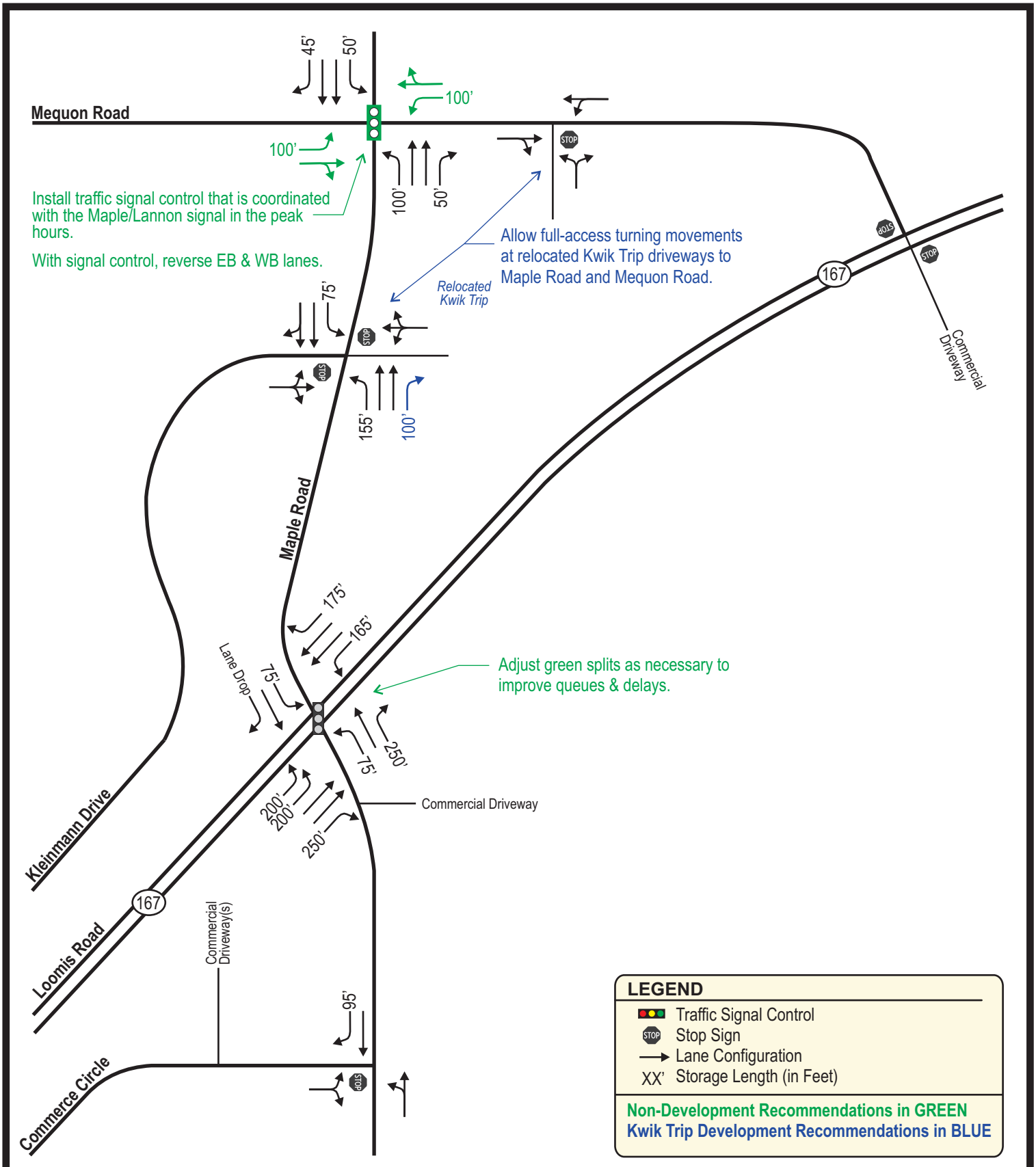
Intersection	Peak Hour	Metric	Level of Service (LOS) per Movement by Approach												I/S LOS & Delay
			Eastbound			Westbound			Northbound			Southbound			
			↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙	
(100) Maple Road & Mequon Road *Traffic Signal Control*		*Lanes->*	*1*	*1>*		*1*	*1>*		*1*	*2*	*1*	*1*	*2*	*1*	
	AM	LOS	D	C		D	C		A	A	A	A	A	A	B
		Delay	38.5	31.1		39.7	30.8		1.7	0.3	0.0	7.6	7.9	6.7	13.3
		v/c	0.39	0.60		0.44	0.58		0.32	0.29	0.00	0.11	0.20	0.01	
		Queue	60'	140'		65'	135'		20'	25'	0'	25'	60'	5'	
	PM	LOS	C	C		D	C		A	A	A	A	A	A	B
		Delay	29.9	31.3		40.3	27.2		1.6	0.1	0.0	7.4	8.6	6.9	15.0
		v/c	0.09	0.65		0.44	0.30		0.22	0.11	0.00	0.06	0.27	0.00	
		Queue	30'	190'		75'	95'		15'	15'	0'	25'	110'	5'	
(200) Maple Road & Kleinmann Drive/Commercial Driveway *Stop Sign Control (EB/WB)*		*Lanes->*	-		*1*	-		*1*	*1*	*1*	*1*	*1*	*2>*		
	AM	LOS	-		A	-		A	A	*	*	A	*		A
		Delay	-		8.7	-		9.0	8.4	*	*	9.5	*		0.7
		v/c	-		0.01	-		0.05	0.03	*	*	0.05	*		
		Queue	-		0'	-		5'	5'	*	*	5'	*		
	PM	LOS	-		A	-		A	A	*	*	A	*		A
		Delay	-		9.4	-		8.6	9.1	*	*	8.1	*		1.3
		v/c	-		0.09	-		0.02	0.06	*	*	0.03	*		
		Queue	-		10'	-		5'	5'	*	*	5'	*		
(300) Maple Road & Lannon Road (STH 167) *Traffic Signal Control*		*Lanes->*	*2*	*2*	*1*	*1*	*2*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
	AM	LOS	C	A	A	D	C	C	D	D	C	D	D	A	C
		Delay	25.0	8.9	7.4	44.6	25.2	21.0	40.5	35.6	33.3	43.4	39.5	0.0	23.0
		v/c	0.50	0.27	0.04	0.52	0.43	0.03	0.42	0.46	0.09	0.21	0.41	0.00	
		Queue	215'	125'	25'	50'	140'	20'	85'	115'	30'	35'	80'	0'	
	PM	LOS	C	B	B	D	C	C	D	C	C	D	D	A	C
		Delay	26.4	14.3	12.2	45.0	29.9	22.0	39.4	30.0	30.0	39.3	37.5	0.0	27.0
		v/c	0.27	0.34	0.08	0.79	0.66	0.06	0.48	0.31	0.32	0.17	0.49	0.00	
		Queue	105'	165'	45'	110'	210'	25'	105'	110'	100'	40'	125'	0'	
(400) Maple Road & Commerce Circle *Stop Sign Control (EB)*		*Lanes->*	*< >*			-			*<1*		-	-	*1*	*1*	
	AM	LOS	B			-			A		-	-	*	*	A
		Delay	11.5			-			7.7		-	-	*	*	0.6
		v/c	0.04			-			0.00		-	-	*	*	
		Queue	5'			-			0'		-	-	*	*	
	PM	LOS	B			-			A		-	-	*	*	A
		Delay	14.8			-			8.2		-	-	*	*	1.4
		v/c	0.17			-			0.01		-	-	*	*	
		Queue	15'			-			0'		-	-	*	*	
(500) Mequon Road & Commercial Driveway *Stop Sign Control (NB)*		*Lanes->*	-	*1>*		*<1*		-	*< >*			-			
	AM	Volume	-	-	-	-	-	-	-	-	-	-	-	-	
		LOS	-	*		A		-	B			-			A
		Delay	-	*		7.7		-	12.5			-			4.3
		v/c	-	*		0.03		-	0.28			-			
		Queue	-	*		5'		-	30'			-			
	PM	Volume	-	-	-	-	-	-	-	-	-	-	-	-	
		LOS	-	*		A		-	B			-			A
		Delay	-	*		7.5		-	11.1			-			4.8
		v/c	-	*		0.02		-	0.23			-			
		Queue	-	*		5'		-	25'			-			

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

TRAFFIC ANALYSIS & DESIGN, INC.
#3347 - 10/14/24

EXHIBIT 18
2029 BUILD TRAFFIC - WITH MODIFICATIONS
ALTERNATIVE 2: PARTIAL ACCESS AT MAPLE ROAD
PEAK HOUR TRAFFIC CAPACITY/LOS ANALYSIS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN



TADI
TRAFFIC ANALYSIS & DESIGN, INC.
#3347 - 10/14/24

N
NOT TO SCALE

EXHIBIT 19
RECOMMENDATIONS

MAPLE ROAD KWIK TRIP TIA - GERMANTOWN, WISCONSIN

APPENDIX A

TRAFFIC COUNT DATA

Intersection Traffic Volume Report

Count Basics	Version 2024.04		Page 1 of 13
Start Date:	Friday, October 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 1.25		Non-Holiday	No Special Events

Base Information, Observed (1.25) Hour and Estimated (24) Hour Volume Summaries

Major St: **Maple Road**
Minor St: **Mequon Road**
Intersection of: ***Maple Road & Mequon Road*** **IX_ID:**

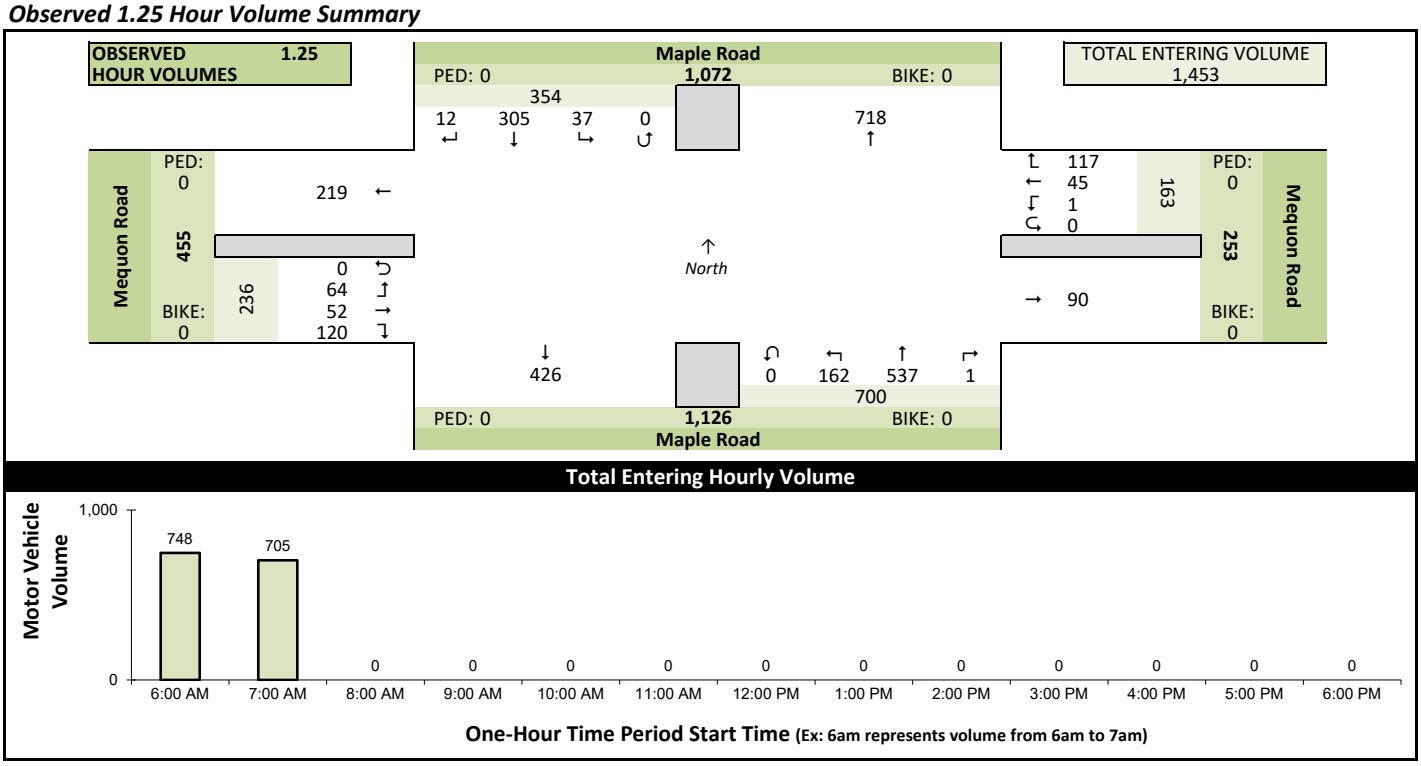
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	All-Way Stop		
Roadway Names		North Direction	↑
North Leg	Maple Road		
East Leg	Mequon Road		
South Leg	Maple Road		
West Leg	Mequon Road		
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	

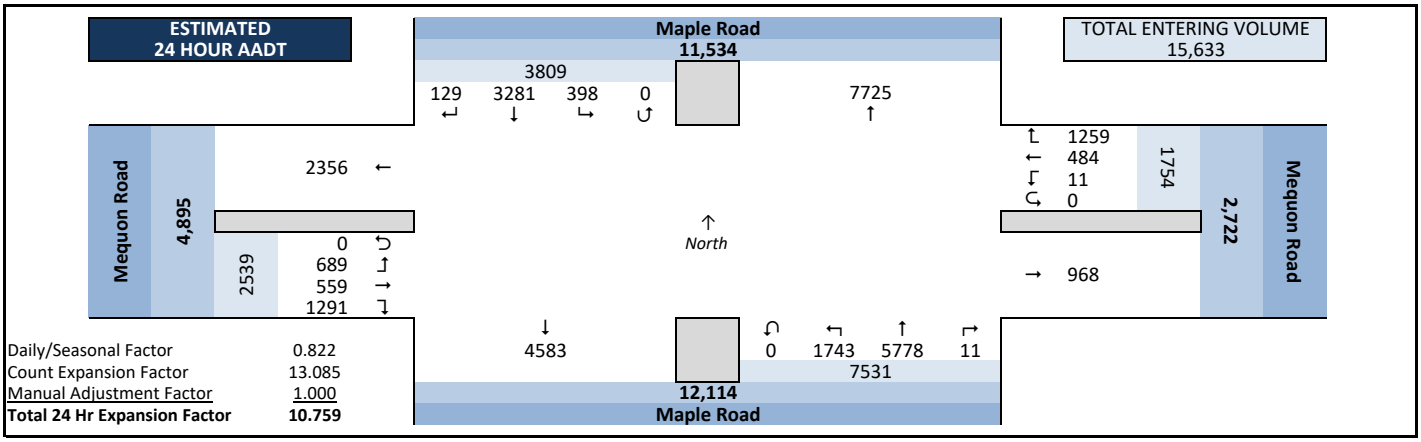
Count Information

Hrs Counted:	06:30 AM-07:45 AM				
1st Day of Count	Friday, October 11, 2024			Weather	
AM Peak Period	Friday, October 11, 2024			Clear & Dry	
Midday Peak Period	Friday, October 11, 2024			Clear & Dry	
PM Peak Period	Friday, October 11, 2024			Clear & Dry	
Calculated Peak Hours					
AM	6:30-7:30am	MD		PM	
Peak Hours Selected for Analysis					
AM	6:30-7:30am	MD		PM	4:00-5:00pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	0.822	Count Expansion Factor	13.085		
Company Name	TADI, Inc.			Manual Adj.	1.000
Observers: AM Peak Period	Amy Scheuerlein				
Observers: Midday Peak Period	None				
Observers: PM Peak Period	None				
Comments	2021 DOT Daily & Seasonal Factors				

Observed 1.25 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

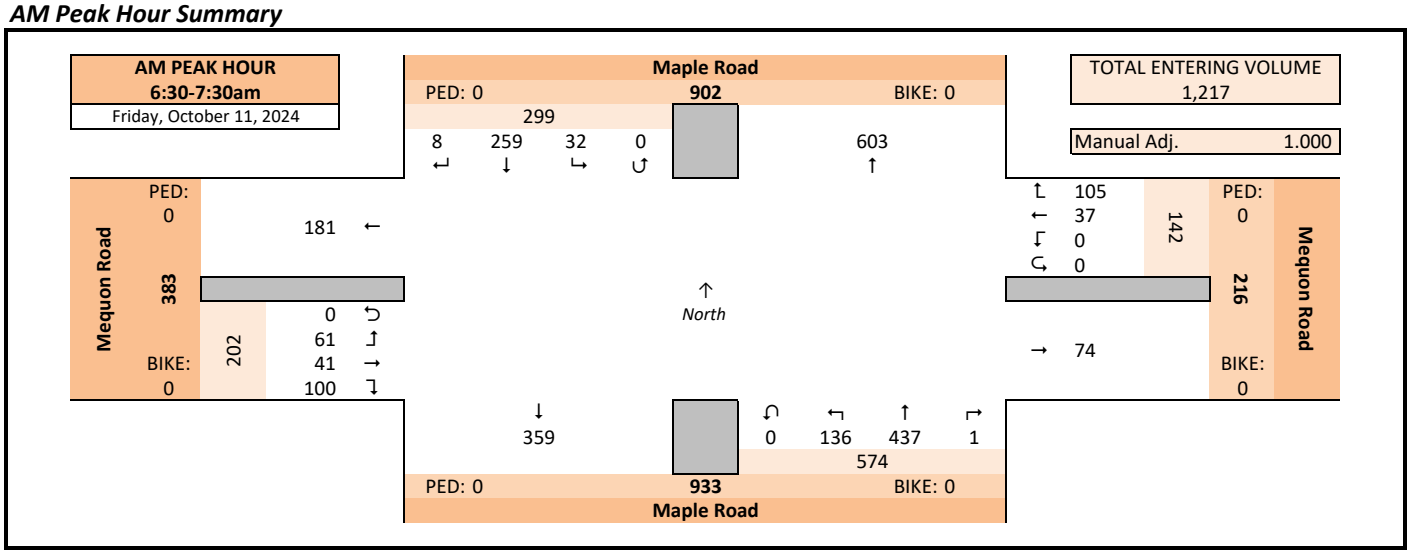
Count Basics			Page 2 of 13
Start Date:	Friday, October 11, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 1.25		Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

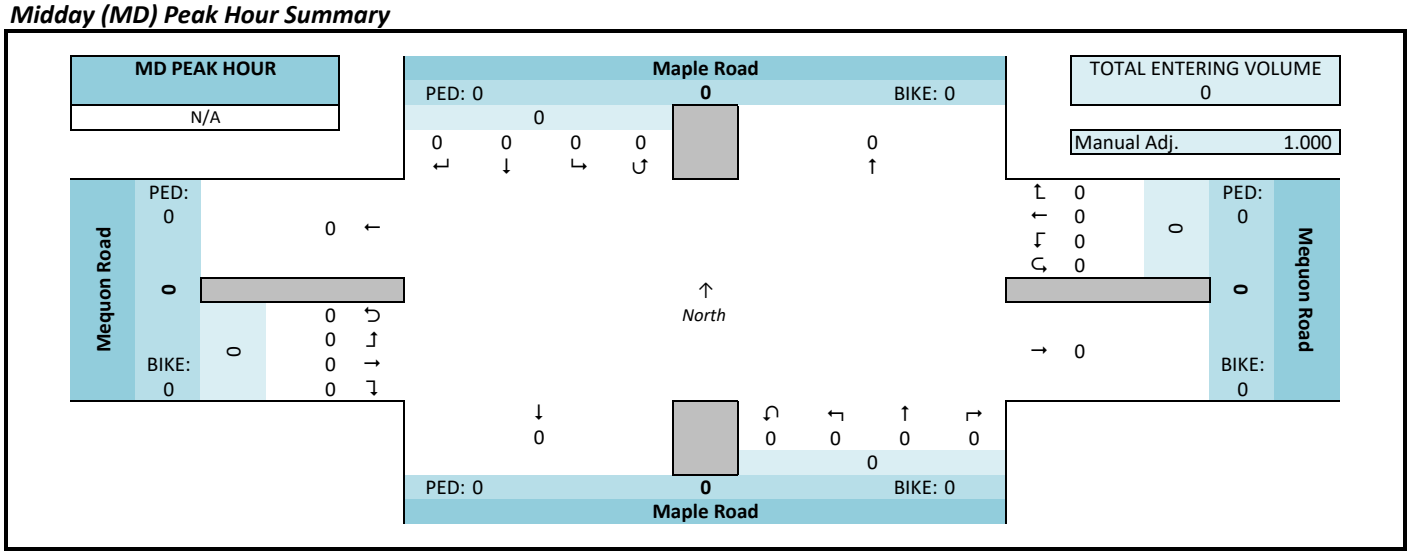
Maple Road & Mequon Road

All Motor Vehicles

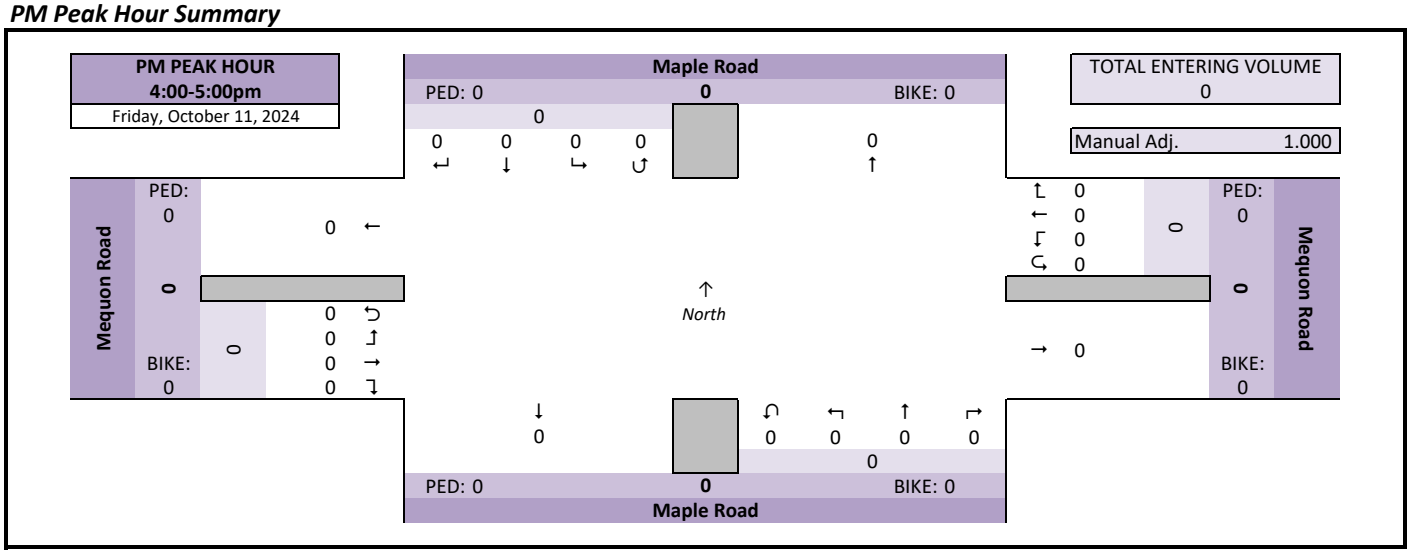
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Intersection Traffic Volume Report

Count Basics	Version 2024.04		Page 1 of 13
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Base Information, Observed (13) Hour and Estimated (24) Hour Volume Summaries

Major St: **Maple Road**
Minor St: **Mequon Road**
Intersection of: ***Maple Road & Mequon Road*** **IX_ID:**

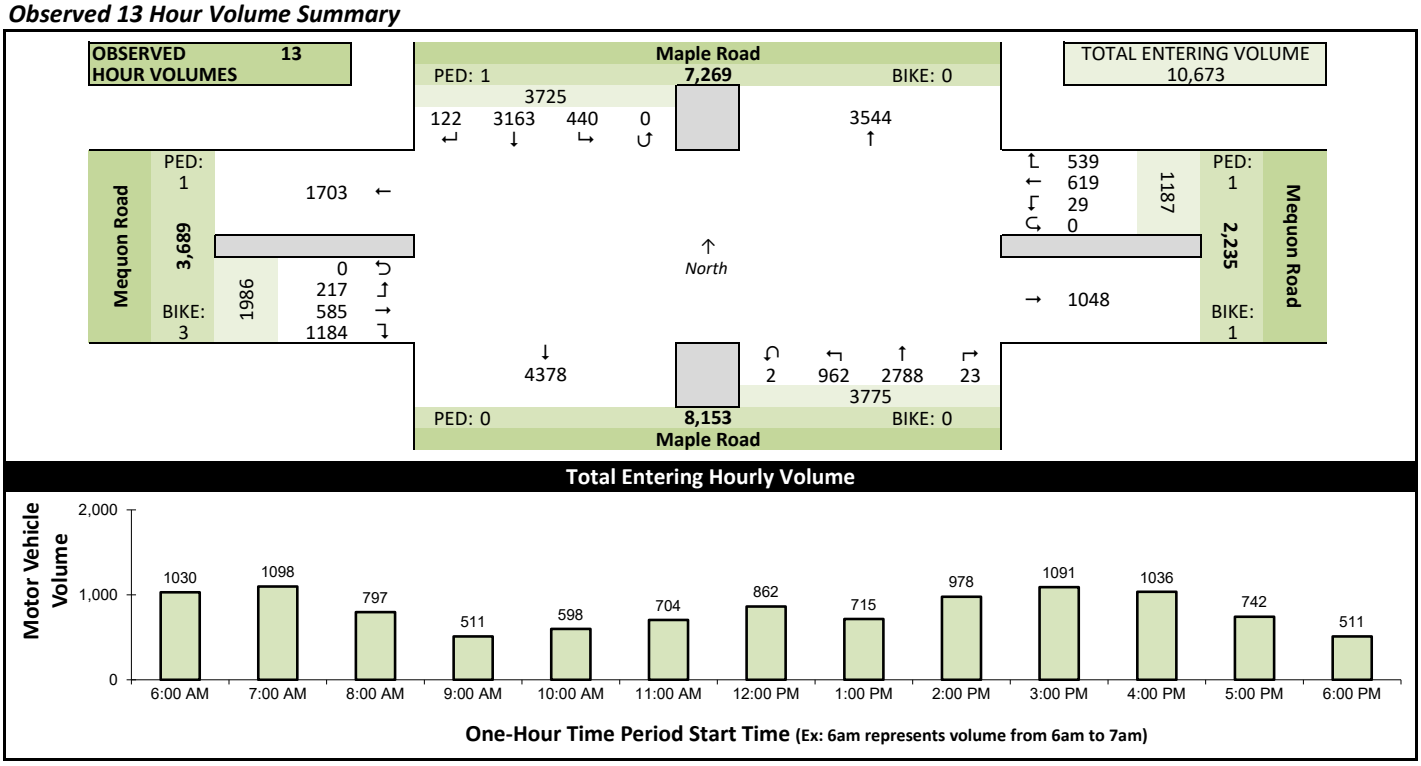
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	All-Way Stop		
Roadway Names		North Direction	↑
North Leg	Maple Road		
East Leg	Mequon Road		
South Leg	Maple Road		
West Leg	Mequon Road		
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	

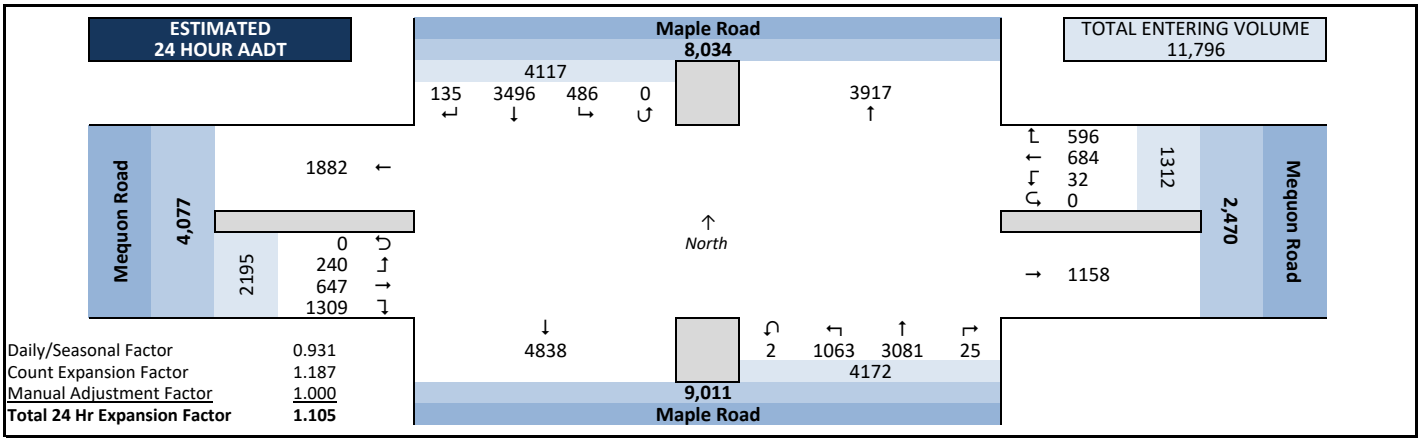
Count Information

Hrs Counted:	06:00 AM-07:00 PM				
1st Day of Count	Monday, September 23, 2024			Weather	
AM Peak Period	Tuesday, September 24, 2024			Clear & Dry	
Midday Peak Period	Tuesday, September 24, 2024			Clear & Dry	
PM Peak Period	Monday, September 23, 2024			Clear & Dry	
Calculated Peak Hours					
AM	6:30-7:30am	MD	12:00-1:00pm	PM	2:45-3:45pm
Peak Hours Selected for Analysis					
AM	6:45-7:45am	MD	12:00-1:00pm	PM	4:00-5:00pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	0.931		Count Expansion Factor		1.187
Company Name	TADI, Inc.			Manual Adj.	1.000
Observers: AM Peak Period	Wendy Picard				
Observers: Midday Peak Period	Jane Fait				
Observers: PM Peak Period	Wendy Picard				
Comments	2021 DOT Daily & Seasonal Factors				

Observed 13 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

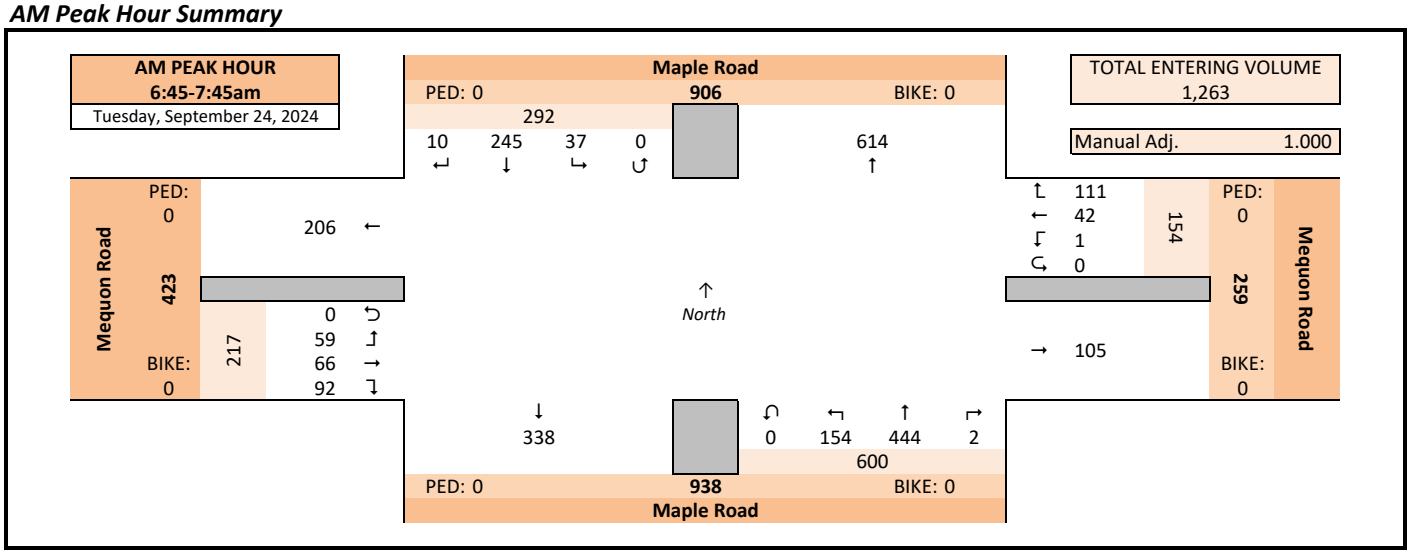
Peak Hour Volume Graphical Summary

Count Basics			*Page 2 of 13*
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

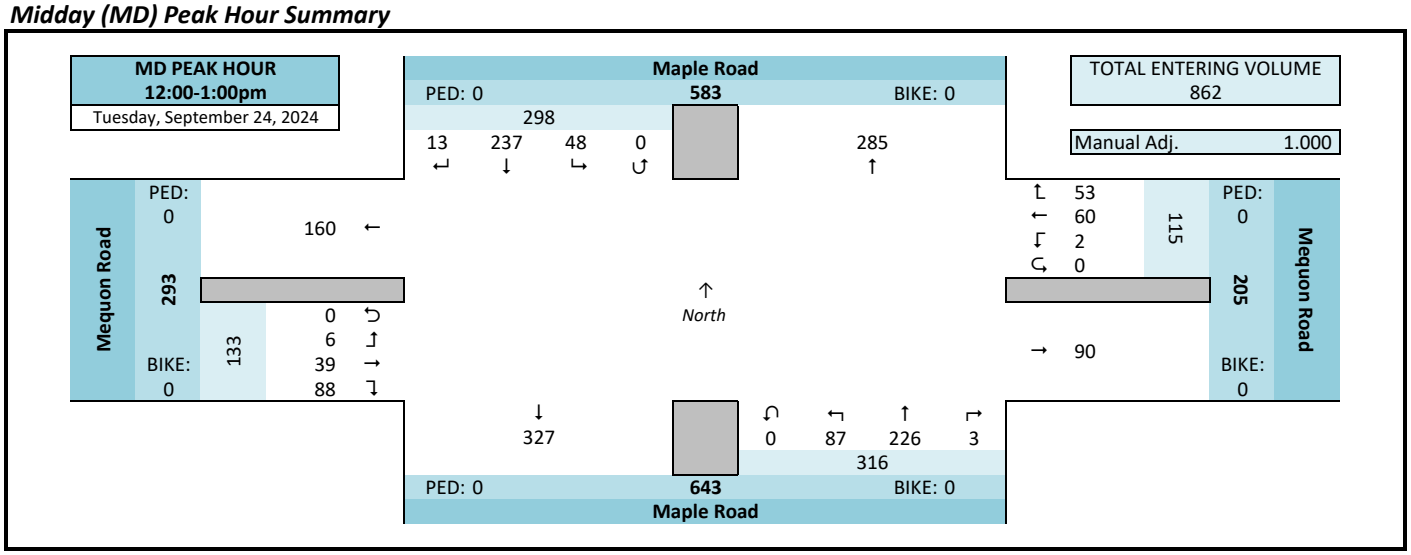
All Motor Vehicles

Maple Road & Mequon Road

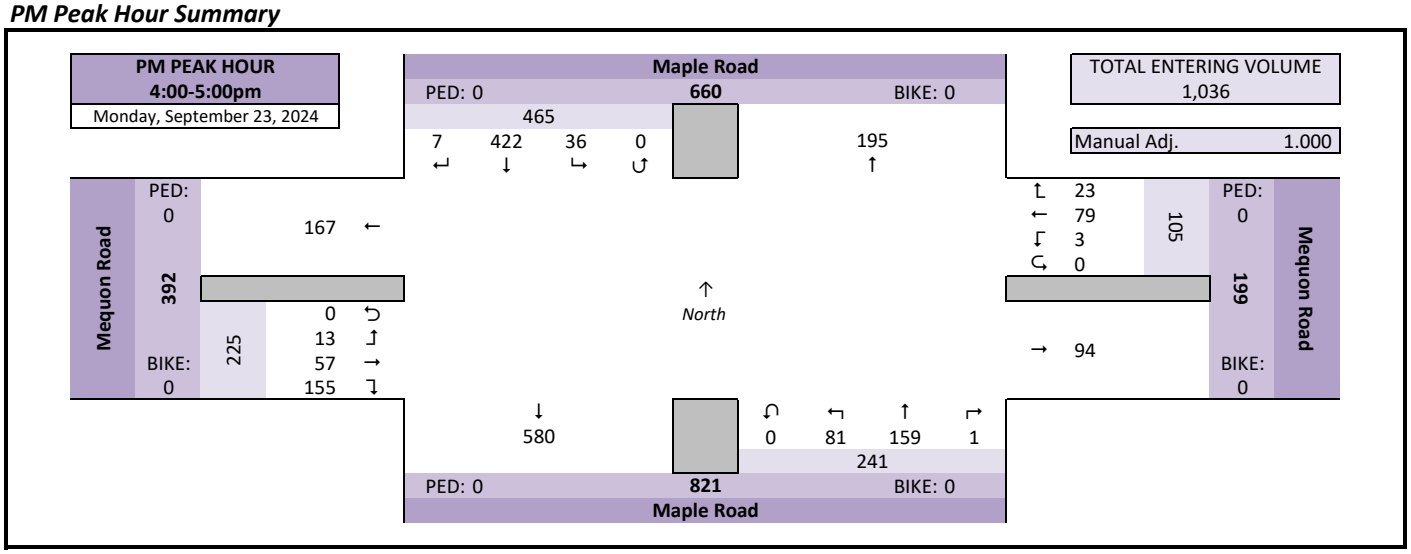
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Intersection Traffic Volume Report

Count Basics			*Page 3 of 13*
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Peak Hour Volume Summary

Maple Road & Mequon Road

All Motor Vehicles

Peak Hour Volumes, Truck Percentages, and PHFs

Tuesday, September 24, 2024		From North					From East					From South					From West					
	AM Peak Hour	Maple Road					Mequon Road					Maple Road					Mequon Road					
	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	6:45 AM	3	38	4	0	45	69	9	0	0	78	0	209	60	0	269	7	12	35	0	54	446
	7:00 AM	2	101	22	0	125	21	10	0	0	31	0	72	34	0	106	42	18	15	0	75	337
	7:15 AM	2	57	6	0	65	12	13	0	0	25	0	73	20	0	93	19	12	6	0	37	220
	7:30 AM	3	49	5	0	57	9	10	1	0	20	2	90	40	0	132	24	24	3	0	51	260
	Peak Hour Volume	10	245	37	0	292	111	42	1	0	154	2	444	154	0	600	92	66	59	0	217	1263
	Rounded Hourly Volume	10	245	35	0	290	110	40	0	0	150	0	445	155	0	600	90	65	60	0	215	1255
	% Single Unit Trucks	10.0	11.8	13.5	0.0	12.0	2.7	7.1	0.0	0.0	3.9	0.0	3.6	1.9	0.0	3.2	2.2	4.5	10.2	0.0	5.1	5.6
	% Heavy Trucks	0.0	2.4	0.0	0.0	2.1	2.7	0.0	100.0	0.0	2.6	0.0	2.0	3.9	0.0	2.5	5.4	0.0	0.0	0.0	2.3	2.4
	% Trucks (Total)	10.0	14.3	13.5	0.0	14.0	5.4	7.1	100.0	0.0	6.5	0.0	5.6	5.8	0.0	5.7	7.6	4.5	10.2	0.0	7.4	8.0
	Peak Hour Factor (PHF)	0.83	0.61	0.42	0.00	0.58	0.40	0.81	0.25	0.00	0.49	0.25	0.53	0.64	0.00	0.56	0.55	0.69	0.42	0.00	0.72	0.71

Tuesday, September 24, 2024		From North					From East					From South					From West					
	MD Peak Hour	Maple Road					Mequon Road					Maple Road					Mequon Road					
	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	5	90	17	0	112	8	8	0	0	16	0	51	16	0	67	28	16	2	0	46	241
	12:15 PM	1	50	12	0	63	22	18	0	0	40	2	66	24	0	92	25	9	2	0	36	231
	12:30 PM	2	51	9	0	62	11	12	1	0	24	0	52	25	0	77	19	6	1	0	26	189
	12:45 PM	5	46	10	0	61	12	22	1	0	35	1	57	22	0	80	16	8	1	0	25	201
	Peak Hour Volume	13	237	48	0	298	53	60	2	0	115	3	226	87	0	316	88	39	6	0	133	862
	Rounded Hourly Volume	15	235	50	0	300	55	60	0	0	115	5	225	85	0	315	90	40	5	0	135	865
	% Single Unit Trucks	23.1	9.7	6.2	0.0	9.7	5.7	10.0	0.0	0.0	7.8	0.0	8.8	6.9	0.0	8.2	3.4	2.6	33.3	0.0	4.5	8.1
	% Heavy Trucks	7.7	7.6	0.0	0.0	6.4	1.9	3.3	0.0	0.0	2.6	0.0	9.7	8.0	0.0	9.2	9.1	2.6	0.0	0.0	6.8	7.0
	% Trucks (Total)	30.8	17.3	6.2	0.0	16.1	7.5	13.3	0.0	0.0	10.4	0.0	18.6	14.9	0.0	17.4	12.5	5.1	33.3	0.0	11.3	15.1
	Peak Hour Factor (PHF)	0.65	0.66	0.71	0.00	0.67	0.60	0.68	0.50	0.00	0.72	0.37	0.86	0.87	0.00	0.86	0.79	0.61	0.75	0.00	0.72	0.89

Monday, September 23, 2024		From North					From East					From South					From West					
	PM Peak Hour	Maple Road					Mequon Road					Maple Road					Mequon Road					
	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	2	117	3	0	122	3	20	0	0	23	1	46	23	0	70	32	15	3	0	50	265
	4:15 PM	0	94	8	0	102	8	19	3	0	30	0	40	19	0	59	18	15	5	0	38	229
	4:30 PM	1	114	15	0	130	6	21	0	0	27	0	38	23	0	61	71	15	3	0	89	307
	4:45 PM	4	97	10	0	111	6	19	0	0	25	0	35	16	0	51	34	12	2	0	48	235
	Peak Hour Volume	7	422	36	0	465	23	79	3	0	105	1	159	81	0	241	155	57	13	0	225	1036
	Rounded Hourly Volume	5	420	35	0	460	25	80	5	0	110	0	160	80	0	240	155	55	15	0	225	1035
	% Single Unit Trucks	14.3	2.8	2.8	0.0	3.0	4.3	2.5	0.0	0.0	2.9	0.0	8.8	6.2	0.0	7.9	1.9	0.0	7.7	0.0	1.8	3.9
	% Heavy Trucks	0.0	1.4	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	3.1	2.5	0.0	2.9	1.9	0.0	0.0	0.0	1.3	1.5
	% Trucks (Total)	14.3	4.3	2.8	0.0	4.3	4.3	2.5	0.0	0.0	2.9	0.0	11.9	8.6	0.0	10.8	3.9	0.0	7.7	0.0	3.1	5.4
	Peak Hour Factor (PHF)	0.44	0.90	0.60	0.00	0.89	0.72	0.94	0.25	0.00	0.87	0.25	0.86	0.88	0.00	0.86	0.55	0.95	0.65	0.00	0.63	0.84

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		Maple Road			Mequon Road			Maple Road			Mequon Road			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	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
	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	4:00 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 5 of 13*
Start Date: Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13	Non-Holiday	No Special Events

15-Minute Motor Vehicle Data

Maple Road & Mequon Road

All Motor Vehicles

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) Maple Road					From East (←) Mequon Road					From South (↑) Maple Road					From West (→) Mequon Road					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	1	30	3	0	34	10	3	1	0	14	0	48	18	0	66	9	4	4	0	17	131	1030	0.58
	6:15 AM	3	34	3	0	40	10	4	0	0	14	1	78	20	0	99	13	5	2	0	20	173	1236	0.69
	6:30 AM	3	41	3	0	47	29	4	0	0	33	0	132	40	0	172	13	8	7	0	28	280	1283	0.72
	6:45 AM	3	38	4	0	45	69	9	0	0	78	0	209	60	0	269	7	12	35	0	54	446	1263	0.71
	7:00 AM	2	101	22	0	125	21	10	0	0	31	0	72	34	0	106	42	18	15	0	75	337	1098	0.81
	7:15 AM	2	57	6	0	65	12	13	0	0	25	0	73	20	0	93	19	12	6	0	37	220	1019	0.91
	7:30 AM	3	49	5	0	57	9	10	1	0	20	2	90	40	0	132	24	24	3	0	51	260	1006	0.90
	7:45 AM	0	59	7	0	66	14	8	0	0	22	2	88	29	0	119	41	29	4	0	74	281	931	0.83
	8:00 AM	5	43	6	0	54	17	8	0	0	25	1	102	21	0	124	35	18	2	0	55	258	797	0.77
	8:15 AM	3	44	1	0	48	13	13	1	0	27	0	64	25	0	89	23	10	10	0	43	207	670	0.81
	8:30 AM	3	53	4	0	60	8	8	0	0	16	0	59	8	0	67	31	9	2	0	42	185	591	0.80
	8:45 AM	3	34	4	0	41	8	9	0	0	17	0	47	13	0	60	13	9	7	0	29	147	521	0.89
	9:00 AM	1	41	3	0	45	3	8	1	0	12	2	37	16	0	55	12	5	2	0	19	131	511	0.93
	9:15 AM	2	28	3	0	33	11	6	2	0	19	1	49	5	0	55	14	6	1	0	21	128	528	0.89
	9:30 AM	0	38	8	0	46	4	4	0	0	8	1	23	16	0	40	15	6	0	0	21	115	553	0.90
	9:45 AM	1	37	10	0	48	3	6	2	0	11	0	41	13	0	54	13	10	1	0	24	137	565	0.92
Midday Peak Period	10:00 AM	2	28	7	0	37	5	12	1	0	18	0	41	16	0	57	29	5	2	0	36	148	598	0.88
	10:15 AM	2	47	9	0	58	5	10	0	0	15	0	36	12	0	48	18	11	3	0	32	153	622	0.90
	10:30 AM	0	30	4	0	34	10	9	0	0	19	0	37	15	0	52	13	7	2	0	22	127	625	0.91
	10:45 AM	3	38	5	0	46	10	8	0	0	18	1	49	14	0	64	17	19	6	0	42	170	683	0.92
	11:00 AM	2	59	13	0	74	7	6	2	0	15	0	35	13	0	48	19	13	3	0	35	172	704	0.92
	11:15 AM	0	45	5	0	50	11	12	0	0	23	1	42	7	1	51	18	10	4	0	32	156	773	0.80
	11:30 AM	3	61	11	0	75	7	12	1	0	20	0	39	14	0	53	24	10	3	0	37	185	848	0.88
	11:45 AM	1	65	17	0	83	12	7	0	0	19	0	37	13	0	50	16	21	2	0	39	191	852	0.88
	12:00 PM	5	90	17	0	112	8	8	0	0	16	0	51	16	0	67	28	16	2	0	46	241	862	0.89
	12:15 PM	1	50	12	0	63	22	18	0	0	40	2	66	24	0	92	25	9	2	0	36	231	820	0.89
	12:30 PM	2	51	9	0	62	11	12	1	0	24	0	52	25	0	77	19	6	1	0	26	189	765	0.95
	12:45 PM	5	46	10	0	61	12	22	1	0	35	1	57	22	0	80	16	8	1	0	25	201	738	0.92
	1:00 PM	2	65	9	0	76	15	19	1	0	35	0	49	12	0	61	19	7	1	0	27	199	715	0.90
	1:15 PM	3	42	9	0	54	10	11	0	0	21	0	48	20	0	68	18	11	4	0	33	176	741	0.82
	1:30 PM	5	47	6	0	58	12	8	0	0	20	2	46	14	0	62	8	11	3	0	22	162	778	0.86
	1:45 PM	2	50	6	0	58	9	14	0	0	23	0	51	15	0	66	18	10	3	0	31	178	884	0.82
PM Peak Period	2:00 PM	0	82	10	0	92	12	9	3	0	24	0	48	15	0	63	32	13	1	0	46	225	978	0.90
	2:15 PM	3	57	11	0	71	12	10	3	0	25	0	63	23	0	86	19	7	5	0	31	213	1094	0.80
	2:30 PM	2	82	13	0	97	14	15	0	0	29	0	66	29	0	95	31	10	6	0	47	268	1118	0.82
	2:45 PM	6	114	20	0	140	6	19	1	0	26	0	59	21	0	80	14	8	4	0	26	272	1149	0.84
	3:00 PM	4	137	24	0	165	3	25	1	0	29	1	71	18	0	90	44	10	3	0	57	341	1091	0.80
	3:15 PM	2	90	9	0	101	7	15	0	0	22	0	48	19	0	67	27	15	5	0	47	237	1015	0.85
	3:30 PM	1	141	14	0	156	1	14	0	0	15	0	30	12	0	42	67	14	5	0	86	299	1007	0.84
	3:45 PM	1	83	11	0	95	4	18	1	0	23	1	26	24	0	51	32	11	2	0	45	214	1015	0.83
	4:00 PM	2	117	3	0	122	3	20	0	0	23	1	46	23	0	70	32	15	3	0	50	265	1036	0.84
	4:15 PM	0	94	8	0	102	8	19	3	0	30	0	40	19	0	59	18	15	5	0	38	229	1017	0.83
	4:30 PM	1	114	15	0	130	6	21	0	0	27	0	38	23	0	61	71	15	3	0	89	307	997	0.81
	4:45 PM	4	97	10	0	111	6	19	0	0	25	0	35	16	0	51	34	12	2	0	48	235	836	0.85
	5:00 PM	2	101	9	0	112	7	16	1	0	24	0	42	16	0	58	29	17	6	0	52	246	742	0.75
	5:15 PM	1	67	8	0	76	6	24	0	0	30	1	41	14	0	56	21	20	6	0	47	209	661	0.79
	5:30 PM	4	57	6	0	67	5	9	0	0	14	0	32	11	0	43	11	11	0	0	22	146	579	0.88
	5:45 PM	7	37	6	0	50	9	22	0	0	31	0	29	8	0	37	9	6	8	0	23	141	544	0.82
	6:00 PM	5	59	8	0	72	7	10	0	0	17	1	34	8	0	43	24	8	1	0	33	165	511	0.77
	6:15 PM	3	35	11	0	49	9	6	0	0	15	1	28	11	0	40	15	7	1	0	23	127		
	6:30 PM	1	27	1	0	29	4	11	1	0	16	0	34	11	1	46	11	5	4	0	20	111		
	6:45 PM	0	31	2	0	33	3	6	0	0	9	0	30	11	0	41	14	7	4	0	25	108		
	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		122	3163	440	0	3725	539	619	29	0	1187	23	2788	962	2	3775	1184	585	217	0	1986	10673		

Peak Hour All Vehicle Volume Summary

Hourly Time Period		From North (↓) Maple Road					From East (←) Mequon Road					From South (↑) Maple Road					From West (→) Mequon Road					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	6:45 AM	10	245	37	0	292	111	42	1	0	154	2	444	154	0	600	92	66	59	0	217	1263	0.71
MD	12:00 PM	13	237	48	0	298	53	60	2	0	115	3	226	87	0	316	88	39	6	0	133	862	0.89
PM	4:00 PM	7	422	36	0	465	23	79	3	0	105	1	159	81	0	241	155	57	13	0	225	1036	0.84

Intersection Traffic Volume Report

Count Basics		*Page 9 of 13*
Start Date: Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 13	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Maple Road & Mequon Road

15-Minute Heavy Vehicle Data

	15-Minute	From North (↓)					From East (←)					From South (↑)					From West (→)						
	Time Period	Maple Road					Mequon Road					Maple Road					Mequon Road					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
AM Peak Period	6:00 AM	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	3	0	1	0	4	10	70
	6:15 AM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	3	1	0	0	4	8	83
	6:30 AM	0	11	1	0	12	1	0	0	0	1	0	2	3	0	5	2	0	0	0	2	20	93
	6:45 AM	0	10	0	0	10	2	2	0	0	4	0	11	1	0	12	1	0	5	0	6	32	101
	7:00 AM	0	7	3	0	10	1	0	0	0	1	0	6	1	0	7	2	2	1	0	5	23	101
	7:15 AM	0	11	1	0	12	1	1	0	0	2	0	1	2	0	3	1	0	0	0	1	18	109
	7:30 AM	1	7	1	0	9	2	0	1	0	3	0	7	5	0	12	3	1	0	0	4	28	123
	7:45 AM	0	14	3	0	17	0	1	0	0	1	0	6	3	0	9	2	3	0	0	5	32	117
	8:00 AM	0	11	1	0	12	4	1	0	0	5	0	6	3	0	9	2	3	0	0	5	31	106
	8:15 AM	0	13	0	0	13	1	1	0	0	2	0	5	3	0	8	7	1	1	0	9	32	108
	8:30 AM	0	6	1	0	7	4	3	0	0	7	0	4	2	0	6	2	0	0	0	2	22	103
	8:45 AM	0	8	0	0	8	0	1	0	0	1	0	7	3	0	10	2	0	0	0	2	21	106
	9:00 AM	0	10	1	0	11	0	1	1	0	2	0	10	7	0	17	3	0	0	0	3	33	120
	9:15 AM	0	9	1	0	10	3	0	0	0	3	0	10	0	0	10	4	0	0	0	4	27	120
	9:30 AM	0	6	2	0	8	2	0	0	0	2	1	7	4	0	12	2	1	0	0	3	25	127
	9:45 AM	0	6	2	0	8	1	1	1	0	3	0	16	4	0	20	4	0	0	0	4	35	130
Midday Peak Period	10:00 AM	1	6	0	0	7	3	1	0	0	4	0	16	3	0	19	3	0	0	0	3	33	135
	10:15 AM	0	13	1	0	14	2	1	0	0	3	0	8	5	0	13	4	0	0	0	4	34	135
	10:30 AM	0	9	1	0	10	1	1	0	0	2	0	11	2	0	13	3	0	0	0	3	28	131
	10:45 AM	0	15	2	0	17	1	0	0	0	1	0	12	4	0	16	2	2	2	0	6	40	132
	11:00 AM	0	9	1	0	10	3	1	2	0	6	0	11	3	0	14	2	0	1	0	3	33	118
	11:15 AM	0	12	0	0	12	0	2	0	0	2	0	11	1	0	12	3	0	1	0	4	30	115
	11:30 AM	0	10	2	0	12	0	0	0	0	0	0	13	3	0	16	1	0	0	0	1	29	113
	11:45 AM	0	12	1	0	13	3	0	0	0	3	0	4	3	0	7	3	0	0	0	3	26	121
	12:00 PM	1	12	0	0	13	1	0	0	0	1	0	10	3	0	13	3	0	0	0	3	30	130
	12:15 PM	0	8	1	0	9	0	2	0	0	2	0	8	4	0	12	3	1	1	0	5	28	130
	12:30 PM	1	11	1	0	13	2	3	0	0	5	0	10	4	0	14	3	1	1	0	5	37	131
	12:45 PM	2	10	1	0	13	1	3	0	0	4	0	14	2	0	16	2	0	0	0	2	35	127
	1:00 PM	1	10	1	0	12	1	3	0	0	4	0	9	1	0	10	3	1	0	0	4	30	131
	1:15 PM	1	11	0	0	12	0	1	0	0	1	0	9	2	0	11	2	1	2	0	5	29	130
	1:30 PM	3	10	1	0	14	1	0	0	0	1	0	8	5	0	13	2	2	1	0	5	33	129
	1:45 PM	1	13	2	0	16	1	2	0	0	3	0	10	3	0	13	5	1	1	0	7	39	120
PM Peak Period	2:00 PM	0	9	1	0	10	3	0	0	0	3	0	11	1	0	12	2	2	0	0	4	29	109
	2:15 PM	0	10	0	0	10	2	0	0	0	2	0	10	5	0	15	0	0	1	0	1	28	109
	2:30 PM	0	4	0	0	4	2	0	0	0	2	0	11	2	0	13	3	2	0	0	5	24	110
	2:45 PM	1	5	0	0	6	1	2	0	0	3	0	7	6	0	13	2	1	3	0	6	28	100
	3:00 PM	0	10	1	0	11	0	3	0	0	3	0	13	1	0	14	1	0	0	0	1	29	85
	3:15 PM	0	6	1	0	7	0	4	0	0	4	0	12	2	0	14	1	2	1	0	4	29	73
	3:30 PM	0	7	0	0	7	0	1	0	0	1	0	3	1	0	4	2	0	0	0	2	14	58
	3:45 PM	0	2	0	0	2	1	1	0	0	2	0	5	1	0	6	3	0	0	0	3	13	58
	4:00 PM	1	5	0	0	6	0	0	0	0	0	0	5	2	0	7	4	0	0	0	4	17	56
	4:15 PM	0	5	0	0	5	1	0	0	0	1	0	6	1	0	7	0	0	1	0	1	14	49
	4:30 PM	0	3	1	0	4	0	1	0	0	1	0	5	3	0	8	1	0	0	0	1	14	41
	4:45 PM	0	5	0	0	5	0	1	0	0	1	0	3	1	0	4	1	0	0	0	1	11	33
	5:00 PM	0	5	0	0	5	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	10	27
	5:15 PM	0	3	0	0	3	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	6	28
	5:30 PM	0	0	1	0	1	0	1	0	0	1	0	2	1	0	3	1	0	0	0	1	6	30
	5:45 PM	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	5	29
	6:00 PM	0	4	0	0	4	0	1	0	0	1	0	5	1	0	6	0	0	0	0	0	11	25
	6:15 PM	1	2	0	0	3	1	0	0	0	1	0	2	0	0	2	1	0	1	0	2	8	
	6:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	3	0	4	1	0	0	0	1	5	
	6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
	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		16	395	37	0	448	55	47	5	0	107	1	371	121	0	493	111	28	26	0	165	1213	

Peak Hour Heavy Vehicle Volume Summary

	Hourly	From North (↓)					From East (←)					From South (↑)					From West (→)					Total
	Time Period	Maple Road					Mequon Road					Maple Road					Mequon Road					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
AM	6:45 AM	1	35	5	0	41	6	3	1	0	10	0	25	9	0	34	7	3	6	0	16	101
MD	12:00 PM	4	41	3	0	48	4	8	0	0	12	0	42	13	0	55	11	2	2	0	15	130
PM	4:00 PM	1	18	1	0	20	1	2	0	0	3	0	19	7	0	26	6	0	1	0	7	56

Intersection Traffic Volume Report

Count Basics	Version 2024.04		Page 1 of 13
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Major St: **Maple Road**
Minor St: **Kleimmann Drive**
Intersection of: ***Maple Road & Kleimmann Drive*** **IX_ID:**

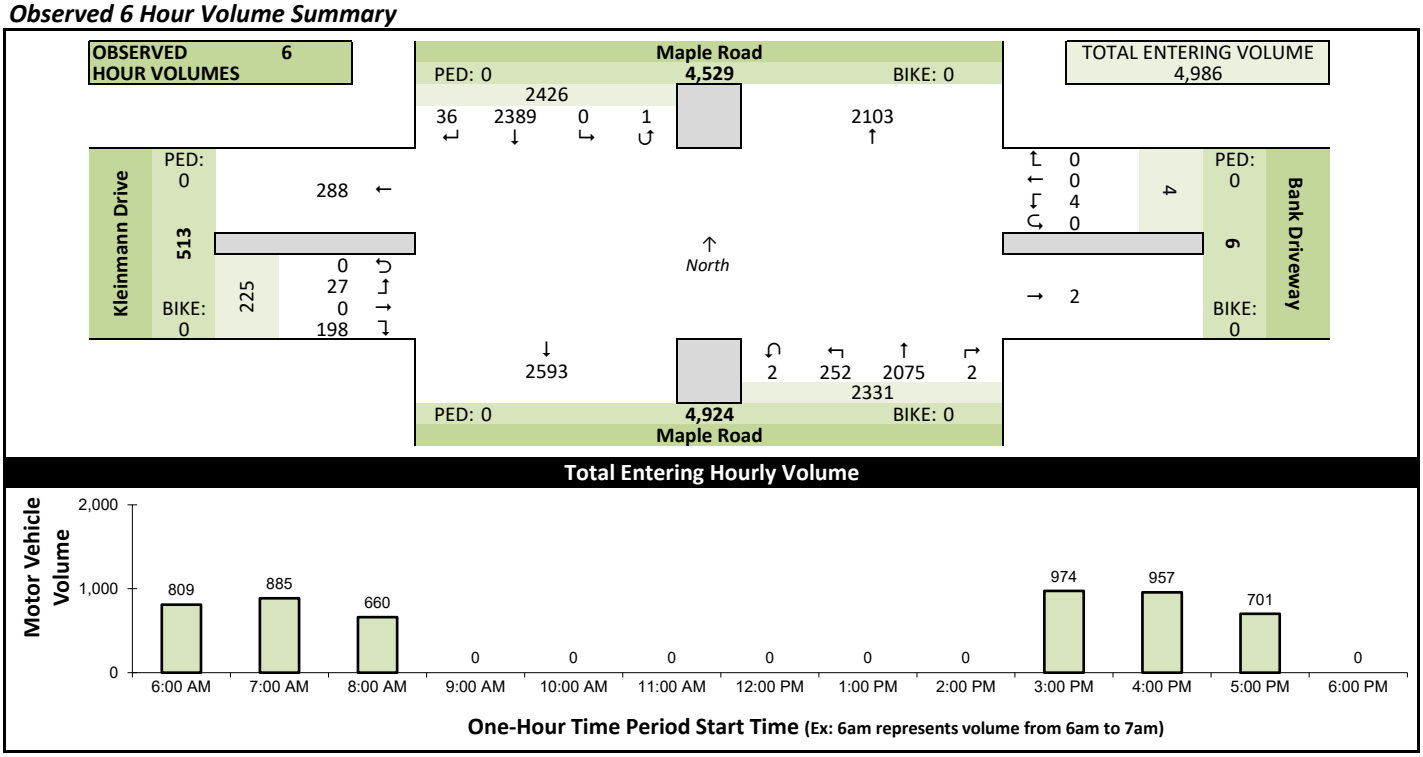
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	Partial Stop Control		
Roadway Names		North Direction	↑
North Leg	Maple Road		
East Leg	Bank Driveway		
South Leg	Maple Road		
West Leg	Kleinmann Drive		
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		

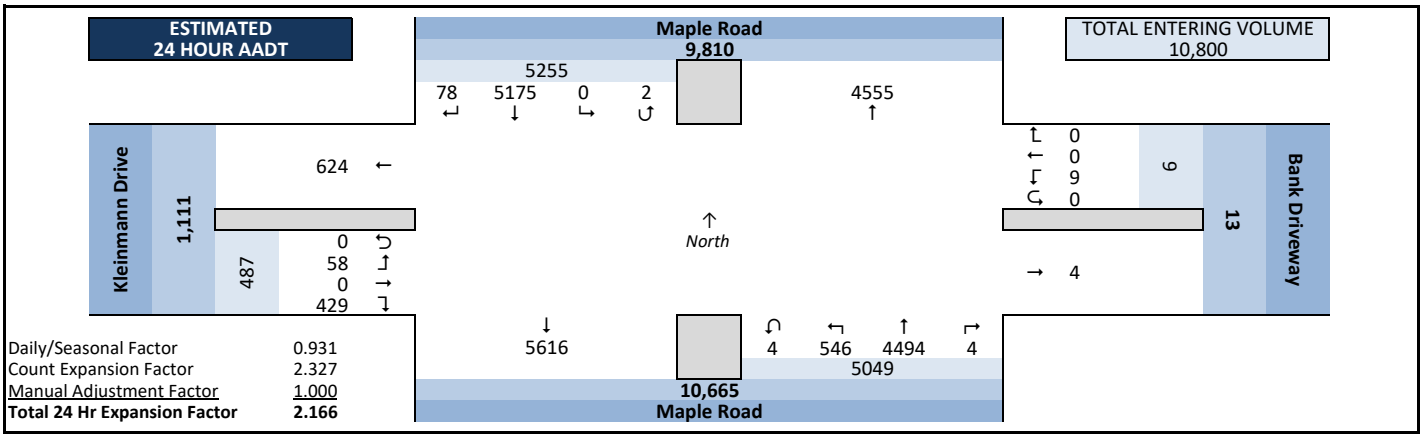
Count Information

Hrs Counted:	06:00 AM-09:00 AM and 03:00 PM-06:00 PM				
1st Day of Count	Monday, September 23, 2024			Weather	
AM Peak Period	Tuesday, September 24, 2024			Clear & Dry	
Midday Peak Period	Tuesday, September 24, 2024			Clear & Dry	
PM Peak Period	Monday, September 23, 2024			Clear & Dry	
Calculated Peak Hours					
AM	6:30-7:30am	MD		PM	3:00-4:00pm
Peak Hours Selected for Analysis					
AM	6:45-7:45am	MD		PM	4:00-5:00pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	0.931	Count Expansion Factor	2.327		
Company Name	TADI, Inc.			Manual Adj.	1.000
Observers	AM Peak Period	LuAnn Gaertner			
	Midday Peak Period	None			
	PM Peak Period	Jane Fait			
Comments	2021 DOT Daily & Seasonal Factors				

Observed 6 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

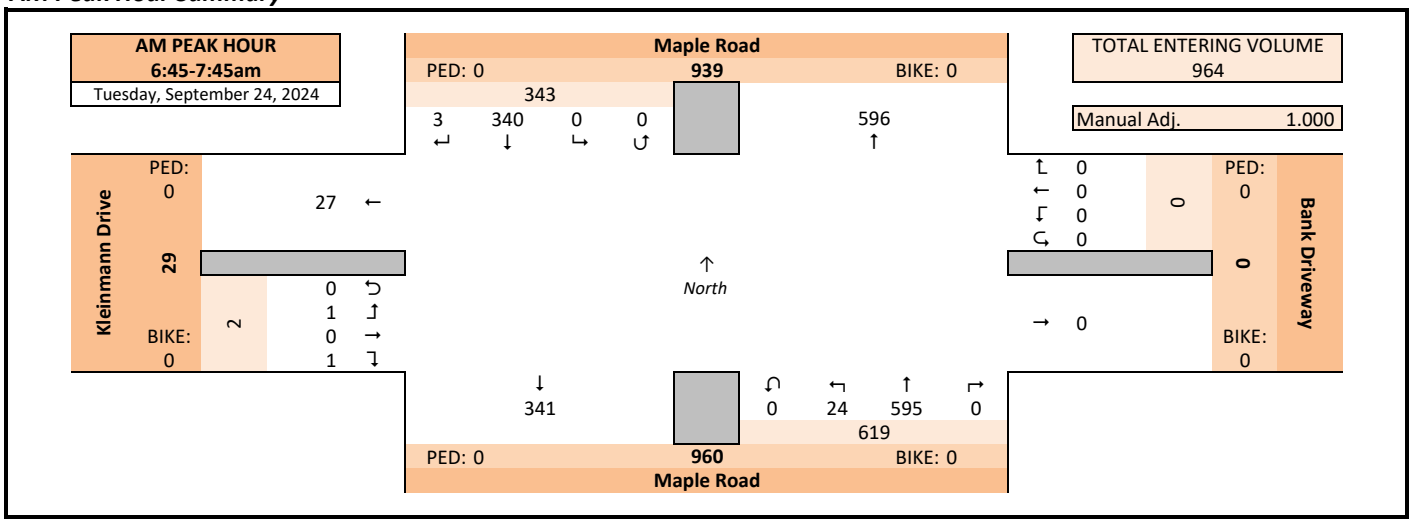
Peak Hour Volume Graphical Summary

Maple Road & Kleimmann Drive

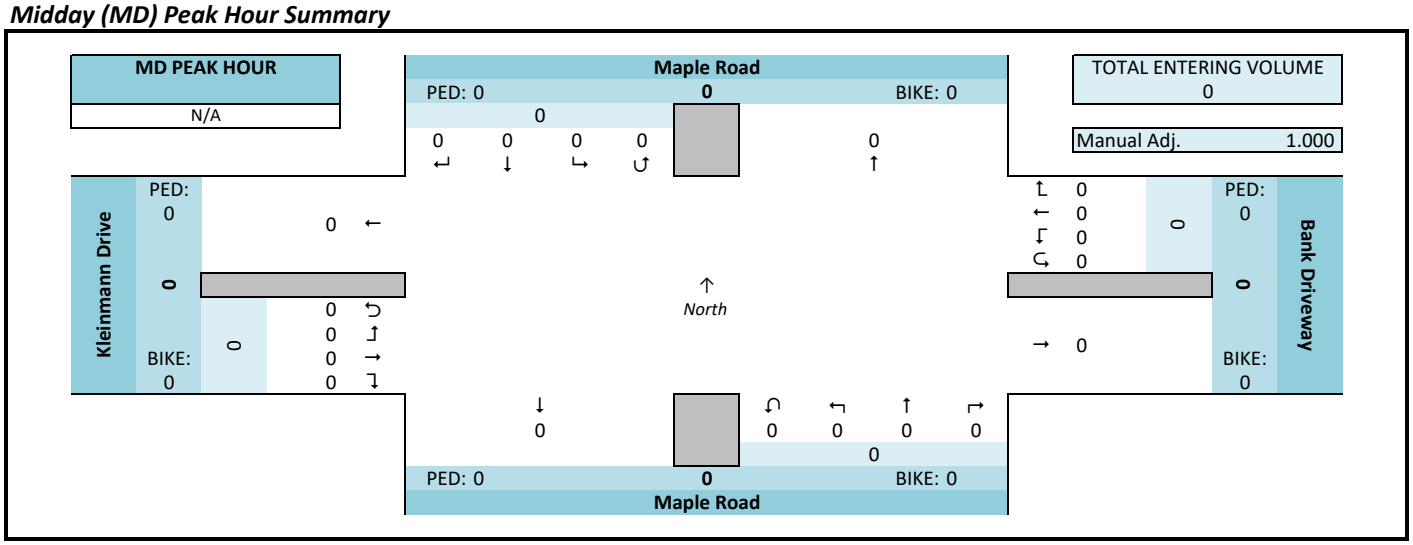
Count Basics			*Page 2 of 13*
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

All Motor Vehicles

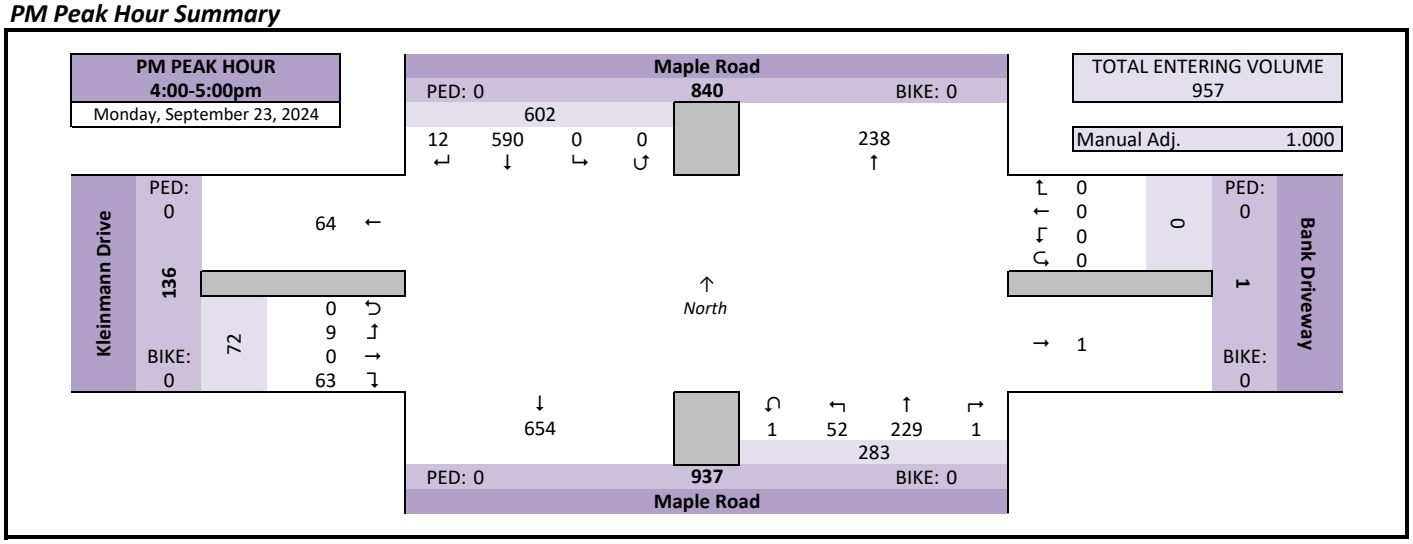
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Intersection Traffic Volume Report

Count Basics			*Page 3 of 13*
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Peak Hour Volume Summary

Maple Road & Kleimmann Drive

All Motor Vehicles

Peak Hour Volumes, Truck Percentages, and PHFs

Tuesday, September 24, 2024		From North					From East					From South					From West					
	AM Peak Hour	Maple Road					Bank Driveway					Maple Road					Kleinmann Drive					
	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	6:45 AM	0	46	0	0	46	0	0	0	0	0	0	267	3	0	270	0	0	0	0	0	316
	7:00 AM	0	142	0	0	142	0	0	0	0	0	0	104	6	0	110	0	0	0	0	0	252
	7:15 AM	2	75	0	0	77	0	0	0	0	0	0	94	7	0	101	0	0	0	0	0	178
	7:30 AM	1	77	0	0	78	0	0	0	0	0	0	130	8	0	138	1	0	1	0	2	218
	Peak Hour Volume	3	340	0	0	343	0	0	0	0	0	0	595	24	0	619	1	0	1	0	2	964
	Rounded Hourly Volume	5	340	0	0	345	0	0	0	0	0	0	595	25	0	620	0	0	0	0	0	965
	% Single Unit Trucks	33.3	7.9	0.0	0.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	2.5	4.2	0.0	2.6	0.0	0.0	0.0	0.0	0.0	4.6
	% Heavy Trucks	0.0	3.8	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	2.8
	% Trucks (Total)	33.3	11.8	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	4.2	0.0	4.8	0.0	0.0	0.0	0.0	0.0	7.4
	Peak Hour Factor (PHF)	0.37	0.60	0.00	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.75	0.00	0.57	0.25	0.00	0.25	0.00	0.25	0.76

N/A		From North					From East					From South					From West					
	MD Peak Hour	Maple Road					Bank Driveway					Maple Road					Kleinmann Drive					
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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

Monday, September 23, 2024		From North					From East					From South					From West					
	PM Peak Hour	Maple Road					Bank Driveway					Maple Road					Kleinmann Drive					
	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	4	149	0	0	153	0	0	0	0	0	0	66	24	0	90	15	0	5	0	20	263
	4:15 PM	2	112	0	0	114	0	0	0	0	0	0	57	8	1	66	15	0	1	0	16	196
	4:30 PM	5	202	0	0	207	0	0	0	0	0	0	56	4	0	60	17	0	1	0	18	285
	4:45 PM	1	127	0	0	128	0	0	0	0	0	1	50	16	0	67	16	0	2	0	18	213
	Peak Hour Volume	12	590	0	0	602	0	0	0	0	0	1	229	52	1	283	63	0	9	0	72	957
	Rounded Hourly Volume	10	590	0	0	600	0	0	0	0	0	0	230	50	0	280	65	0	10	0	75	955
	% Single Unit Trucks	0.0	2.2	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	6.6	3.8	0.0	6.0	1.6	0.0	0.0	0.0	1.4	3.2
	% Heavy Trucks	0.0	1.9	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	2.1
	% Trucks (Total)	0.0	4.1	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	3.8	0.0	9.2	1.6	0.0	0.0	0.0	1.4	5.3
	Peak Hour Factor (PHF)	0.60	0.73	0.00	0.00	0.73	0.00	0.00	0.00	0.00	0.00	0.25	0.87	0.54	0.25	0.79	0.93	0.00	0.45	0.00	0.90	0.84

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		Maple Road			Bank Driveway			Maple Road			Kleinmann Drive			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	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
	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	4:00 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 5 of 13*
Start Date: Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Motor Vehicle Data

Maple Road & Kleimmann Drive

All Motor Vehicles

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) Maple Road					From East (←) Bank Driveway					From South (↑) Maple Road					From West (→) Kleinmann Drive					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	39	0	0	39	0	0	0	0	0	0	64	2	0	66	0	0	0	0	0	105	809	0.64
	6:15 AM	0	43	0	0	43	0	0	0	0	0	0	99	3	0	102	0	0	0	0	0	145	956	0.76
	6:30 AM	0	56	0	0	56	0	0	0	0	0	0	184	3	0	187	0	0	0	0	0	243	989	0.78
	6:45 AM	0	46	0	0	46	0	0	0	0	0	0	267	3	0	270	0	0	0	0	0	316	964	0.76
	7:00 AM	0	142	0	0	142	0	0	0	0	0	0	104	6	0	110	0	0	0	0	0	252	885	0.88
	7:15 AM	2	75	0	0	77	0	0	0	0	0	0	94	7	0	101	0	0	0	0	0	178	840	0.89
	7:30 AM	1	77	0	0	78	0	0	0	0	0	0	130	8	0	138	1	0	1	0	2	218	834	0.88
	7:45 AM	1	101	0	1	103	0	0	0	0	0	0	126	7	0	133	1	0	0	0	1	237	780	0.82
	8:00 AM	2	72	0	0	74	0	0	0	0	0	0	117	15	0	132	1	0	0	0	1	207	660	0.80
	8:15 AM	1	69	0	0	70	0	0	1	0	1	0	88	11	0	99	2	0	0	0	2	172		
	8:30 AM	0	81	0	0	81	0	0	0	0	0	0	70	9	0	79	4	0	0	0	4	164		
	8:45 AM	0	46	0	0	46	0	0	0	0	0	0	54	14	0	68	3	0	0	0	3	117		
	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		
	11:15 AM	0	0	0	0	0	0	0	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	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		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0		
	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	2	189	0	0	191	0	0	0	0	0	0	88	5	0	93	6	0	3	0	9	293	974	0.83
	3:15 PM	1	117	0	0	118	0	0	0	0	0	0	72	9	0	81	8	0	0	0	8	207	944	0.90
	3:30 PM	1	206	0	0	207	0	0	1	0	1	1	43	7	0	51	2	0	0	0	2	261	933	0.89
	3:45 PM	6	109	0	0	115	0	0	1	0	1	0	51	29	0	80	15	0	2	0	17	213	957	0.84
	4:00 PM	4	149	0	0	153	0	0	0	0	0	0	66	24	0	90	15	0	5	0	20	263	957	0.84
	4:15 PM	2	112	0	0	114	0	0	0	0	0	0	57	8	1	66	15	0	1	0	16	196	937	0.82
	4:30 PM	5	202	0	0	207	0	0	0	0	0	0	56	4	0	60	17	0	1	0	18	285	933	0.82
	4:45 PM	1	127	0	0	128	0	0	0	0	0	1	50	16	0	67	16	0	2	0	18	213	792	0.81
	5:00 PM	1	132	0	0	133	0	0	0	0	0	0	62	18	0	80	28	0	2	0	30	243	701	0.72
	5:15 PM	3	86	0	0	89	0	0	1	0	1	0	52	15	0	67	31	0	4	0	35	192		
	5:30 PM	1	68	0	0	69	0	0	0	0	0	0	44	16	1	61	11	0	3	0	14	144		
	5:45 PM	2	45	0	0	47	0	0	0	0	0	0	37	13	0	50	22	0	3	0	25	122		
	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		36	2389	0	1	2426	0	0	4	0	4	2	2075	252	2	2331	198	0	27	0	225	4986		

Peak Hour All Vehicle Volume Summary

Hourly Time Period		From North (↓) Maple Road					From East (←) Bank Driveway					From South (↑) Maple Road					From West (→) Kleinmann Drive					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	6:45 AM	3	340	0	0	343	0	0	0	0	0	0	595	24	0	619	1	0	1	0	2	964	0.76
MD	12:00 PM	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	12	590	0	0	602	0	0	0	0	0	1	229	52	1	283	63	0	9	0	72	957	0.84

Intersection Traffic Volume Report

Count Basics		*Page 9 of 13*
Start Date: Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Maple Road & Kleimmann Drive

15-Minute Heavy Vehicle Data

	15-Minute Time Period	From North (↓) Maple Road					From East (←) Bank Driveway					From South (↑) Maple Road					From West (→) Kleinmann Drive					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
AM Peak Period	6:00 AM	0	8	0	0	8	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	9	55
	6:15 AM	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7	61
	6:30 AM	0	14	0	0	14	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	20	68
	6:45 AM	0	10	0	0	10	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	19	71
	7:00 AM	0	9	0	0	9	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	15	78
	7:15 AM	1	9	0	0	10	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	14	84
	7:30 AM	0	12	0	0	12	0	0	0	0	0	0	10	1	0	11	0	0	0	0	0	23	96
	7:45 AM	0	15	0	0	15	0	0	0	0	0	0	10	1	0	11	0	0	0	0	0	26	90
	8:00 AM	0	14	0	0	14	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	21	83
	8:15 AM	0	18	0	0	18	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	26	
	8:30 AM	0	9	0	0	9	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	17	
	8:45 AM	0	10	0	0	10	0	0	0	0	0	0	8	1	0	9	0	0	0	0	0	19	
	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	
	11:15 AM	0	0	0	0	0	0	0	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	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	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	
	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	11	0	0	11	0	0	0	0	0	0	13	0	0	13	0	0	1	0	1	25	69
	3:15 PM	0	6	0	0	6	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	21	60
	3:30 PM	0	8	0	0	8	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	12	50
	3:45 PM	0	5	0	0	5	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	11	51
	4:00 PM	0	9	0	0	9	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	16	51
	4:15 PM	0	5	0	0	5	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	11	44
	4:30 PM	0	4	0	0	4	0	0	0	0	0	0	8	0	0	8	1	0	0	0	1	13	38
	4:45 PM	0	6	0	0	6	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	11	29
	5:00 PM	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	9	22
	5:15 PM	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5	
	5:30 PM	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4	
	5:45 PM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	4	
	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	198	0	0	199	0	0	0	0	0	0	151	5	0	156	2	0	1	0	3	358	

Peak Hour Heavy Vehicle Volume Summary

	Hourly Time Period	From North (↓) Maple Road					From East (←) Bank Driveway					From South (↑) Maple Road					From West (→) Kleinmann Drive					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
AM	6:45 AM	1	40	0	0	41	0	0	0	0	0	0	29	1	0	30	0	0	0	0	0	71
MD	12:00 PM	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	0	24	0	0	24	0	0	0	0	0	0	24	2	0	26	1	0	0	0	1	51

Intersection Traffic Volume Report

Count Basics	Version 2013.J4.1		Page 1 of 13
Start Date:	Tuesday, May 18, 2021	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Base Information, Observed (13) Hour and Estimated (24) Hour Volume Summaries

Intersection of: Maple Road and STH 167/Lannon Road

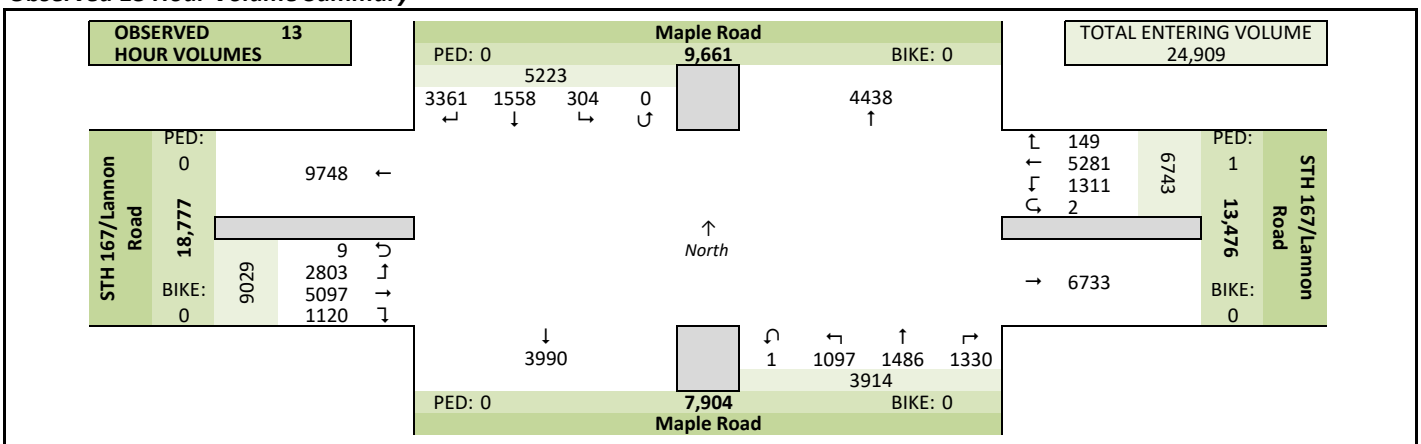
Site Information

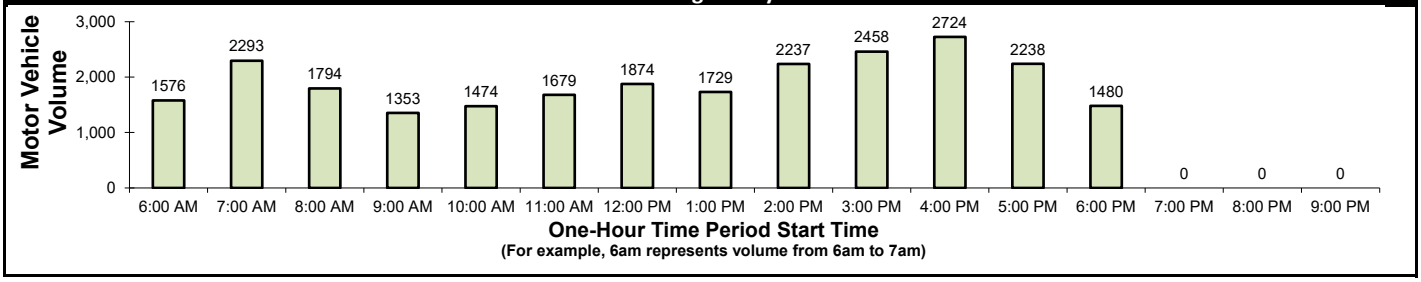
Municipality	Village of Germantown		
County	Washington	WisDOT Region	SE
Traffic Control	Traffic Signal		
Roadway Names		North Direction	↑
North Leg	Maple Road		
East Leg	STH 167/Lannon Road		
South Leg	Maple Road		
West Leg	STH 167/Lannon Road		
Special Considerations			
Schools	In Session		
Holidays	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

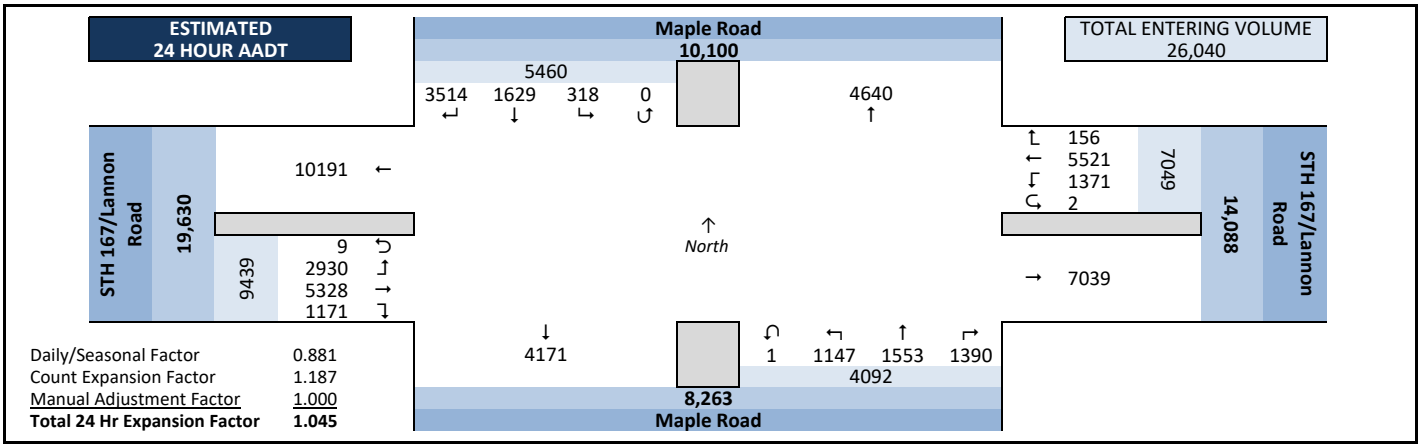
Hrs Counted:	6:00 AM-7:00 PM				
1st Day of Count	Tuesday, May 18, 2021			Weather	
AM Peak Period	Tuesday, May 18, 2021			Clear & Dry	
Midday Peak Period	Tuesday, May 18, 2021			Clear & Dry	
PM Peak Period	Tuesday, May 18, 2021			Clear & Dry	
Calculated Peak Hours					
AM	7:00-8:00am	MD	12:00-1:00pm	PM	4:00-5:00pm
Peak Hours Selected for Analysis					
AM	6:45-7:45am	MD	12:00-1:00pm	PM	4:00-5:00pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	0.881	Count Expansion Factor	1.187		
Company Name	TADI			Manual Adj.	1.000
Observers: AM Peak Period	TADI				
Midday Peak Period	TADI				
PM Peak Period	TADI				
Comments	2019 DOT Seasonal Factors				

Observed 13 Hour Volume Summary





Estimated 24 Hour AADT



Intersection Traffic Volume Report

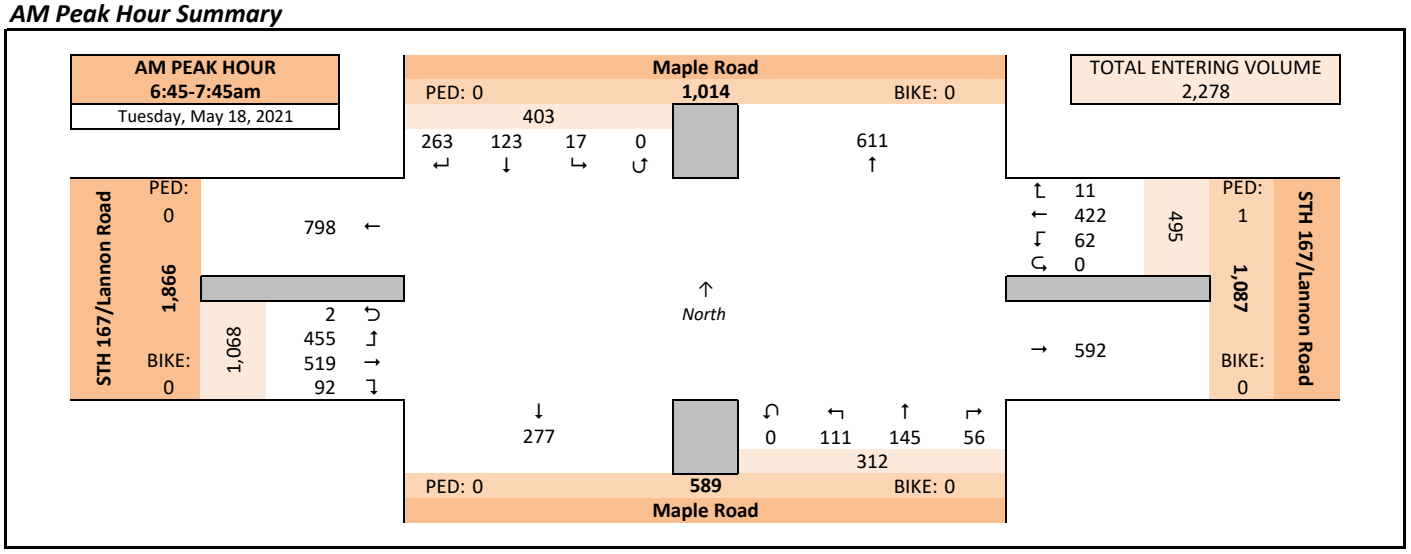
Count Basics			Page 2 of 13
Start Date:	Tuesday, May 18, 2021	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Peak Hour Volume Graphical Summary

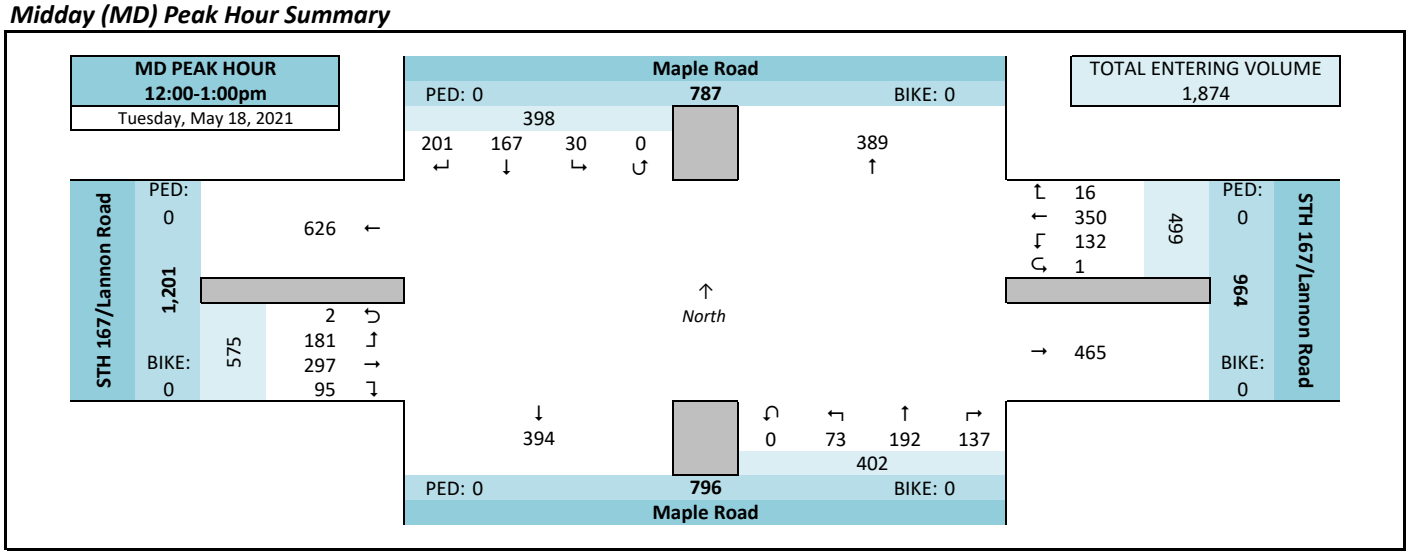
All Motor Vehicles

Maple Road and STH 167/Lannon Road

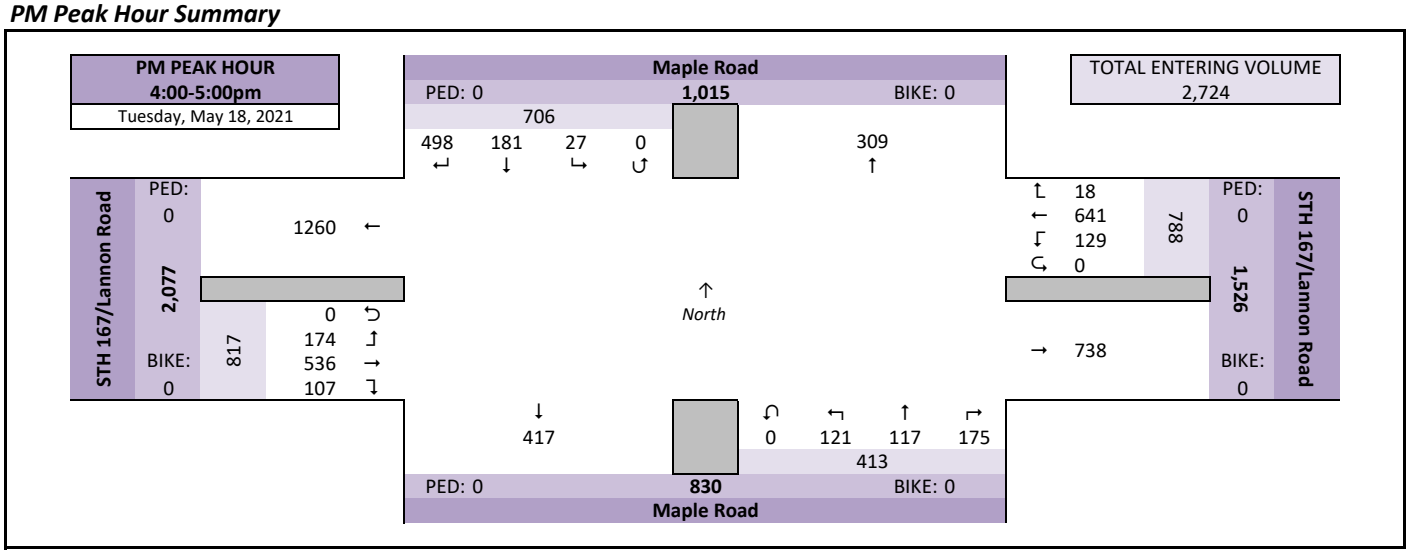
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Intersection Traffic Volume Report

Count Basics			*Page 3 of 13*
Start Date:	Tuesday, May 18, 2021	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

Peak Hour Volume Summary

Maple Road and STH 167/Lannon Road

All Motor Vehicles

Peak Hour Volumes, Truck Percentages, and PHFs

Tuesday, May 18, 2021		From North					From East					From South					From West					
	AM Peak Hour	Maple Road					STH 167/Lannon Road					Maple Road					STH 167/Lannon Road					
	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	6:45 AM	40	17	5	0	62	2	76	12	0	90	13	32	24	0	69	26	128	164	0	318	539
	7:00 AM	109	48	8	0	165	4	111	11	0	126	13	62	23	0	98	14	118	131	1	264	653
	7:15 AM	56	31	3	0	90	2	130	20	0	152	22	23	33	0	78	27	135	78	1	241	561
	7:30 AM	58	27	1	0	86	3	105	19	0	127	8	28	31	0	67	25	138	82	0	245	525
	Peak Hour Volume	263	123	17	0	403	11	422	62	0	495	56	145	111	0	312	92	519	455	2	1068	2278
	Rounded Hourly Volume	265	125	15	0	405	10	420	60	0	490	55	145	110	0	310	90	520	455	0	1065	2270
	% Single Unit Trucks	7.6	11.4	35.3	0.0	9.9	9.1	5.5	4.8	0.0	5.5	10.7	2.1	7.2	0.0	5.4	10.9	7.7	5.7	0.0	7.1	7.0
	% Heavy Trucks	7.2	0.0	5.9	0.0	5.0	18.2	1.7	0.0	0.0	1.8	0.0	0.7	0.0	0.0	0.3	0.0	4.2	3.1	0.0	3.4	2.9
	% Trucks (Total)	14.8	11.4	41.2	0.0	14.9	27.3	7.1	4.8	0.0	7.3	10.7	2.8	7.2	0.0	5.8	10.9	11.9	8.8	0.0	10.5	9.9
	Peak Hour Factor (PHF)	0.60	0.64	0.53	0.00	0.61	0.69	0.81	0.77	0.00	0.81	0.64	0.58	0.84	0.00	0.80	0.85	0.94	0.69	0.50	0.84	0.87

Tuesday, May 18, 2021		From North					From East					From South					From West					
	MD Peak Hour	Maple Road					STH 167/Lannon Road					Maple Road					STH 167/Lannon Road					
	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	72	63	12	0	147	3	94	33	0	130	33	67	22	0	122	21	74	40	0	135	534
	12:15 PM	44	41	7	0	92	6	90	34	0	130	34	46	17	0	97	25	72	47	1	145	464
	12:30 PM	48	29	4	0	81	4	71	29	1	105	34	46	13	0	93	19	74	46	0	139	418
	12:45 PM	37	34	7	0	78	3	95	36	0	134	36	33	21	0	90	30	77	48	1	156	458
	Peak Hour Volume	201	167	30	0	398	16	350	132	1	499	137	192	73	0	402	95	297	181	2	575	1874
	Rounded Hourly Volume	200	165	30	0	395	15	350	130	0	495	135	190	75	0	400	95	295	180	0	570	1860
	% Single Unit Trucks	7.0	6.0	20.0	0.0	7.5	6.2	9.4	3.0	0.0	7.6	2.9	3.1	9.6	0.0	4.2	5.3	10.8	13.3	0.0	10.6	7.8
	% Heavy Trucks	14.4	0.6	6.7	0.0	8.0	6.2	4.6	0.8	0.0	3.6	0.0	1.0	0.0	0.0	0.5	0.0	5.1	16.6	0.0	7.8	5.2
	% Trucks (Total)	21.4	6.6	26.7	0.0	15.6	12.5	14.0	3.8	0.0	11.2	2.9	4.2	9.6	0.0	4.7	5.3	15.8	29.8	0.0	18.4	13.0
	Peak Hour Factor (PHF)	0.70	0.66	0.62	0.00	0.68	0.67	0.92	0.92	0.25	0.93	0.95	0.72	0.83	0.00	0.82	0.79	0.96	0.94	0.50	0.92	0.88

Tuesday, May 18, 2021		From North					From East					From South					From West					
	PM Peak Hour	Maple Road					STH 167/Lannon Road					Maple Road					STH 167/Lannon Road					
	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	140	47	6	0	193	7	151	29	0	187	40	30	36	0	106	27	129	47	0	203	689
	4:15 PM	89	50	1	0	140	2	161	29	0	192	47	27	24	0	98	36	135	37	0	208	638
	4:30 PM	165	52	11	0	228	6	182	30	0	218	40	32	32	0	104	22	137	44	0	203	753
	4:45 PM	104	32	9	0	145	3	147	41	0	191	48	28	29	0	105	22	135	46	0	203	644
	Peak Hour Volume	498	181	27	0	706	18	641	129	0	788	175	117	121	0	413	107	536	174	0	817	2724
	Rounded Hourly Volume	500	180	25	0	705	20	640	130	0	790	175	115	120	0	410	105	535	175	0	815	2720
	% Single Unit Trucks	2.0	2.2	3.7	0.0	2.1	5.6	3.0	0.8	0.0	2.7	1.7	3.4	2.5	0.0	2.4	4.7	2.6	8.0	0.0	4.0	2.9
	% Heavy Trucks	2.4	0.6	0.0	0.0	1.8	0.0	0.8	2.3	0.0	1.0	0.0	0.0	0.8	0.0	0.2	0.0	1.7	8.0	0.0	2.8	1.7
	% Trucks (Total)	4.4	2.8	3.7	0.0	4.0	5.6	3.7	3.1	0.0	3.7	1.7	3.4	3.3	0.0	2.7	4.7	4.3	16.1	0.0	6.9	4.6
	Peak Hour Factor (PHF)	0.75	0.87	0.61	0.00	0.77	0.64	0.88	0.79	0.00	0.90	0.91	0.91	0.84	0.00	0.97	0.74	0.98	0.93	0.00	0.98	0.90

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		Maple Road			STH 167/Lannon Road			Maple Road			STH 167/Lannon Road			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	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	1	0	1	0	0	0	0	0	0	1
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	1	0	1	0	0	0	0	0	0	1
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	4:00 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 5 of 13*
Start Date: Tuesday, May 18, 2021	Weekday	Schools in Session
Total Number of Hours Counted: 13	Non-Holiday	No Special Events

15-Minute Motor Vehicle Data

All Motor Vehicles

Maple Road and STH 167/Lannon Road

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) Maple Road					From East (←) STH 167/Lannon Road					From South (↑) Maple Road					From West (→) STH 167/Lannon Road					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	36	8	0	0	44	0	43	6	0	49	7	16	12	0	35	12	53	58	0	123	251	1576	0.73
	6:15 AM	43	9	2	0	54	0	46	11	0	57	11	21	10	0	42	20	83	79	1	183	336	1978	0.76
	6:30 AM	48	15	0	0	63	1	74	16	0	91	14	32	15	0	61	30	87	118	0	235	450	2203	0.84
	6:45 AM	40	17	5	0	62	2	76	12	0	90	13	32	24	0	69	26	128	164	0	318	539	2278	0.87
	7:00 AM	109	48	8	0	165	4	111	11	0	126	13	62	23	0	98	14	118	131	1	264	653	2293	0.88
	7:15 AM	56	31	3	0	90	2	130	20	0	152	22	23	33	0	78	27	135	78	1	241	561	2135	0.95
	7:30 AM	58	27	1	0	86	3	105	19	0	127	8	28	31	0	67	25	138	82	0	245	525	2015	0.91
	7:45 AM	61	18	4	0	83	2	75	9	0	86	17	36	22	0	75	23	166	121	0	310	554	1927	0.87
	8:00 AM	46	22	5	0	73	2	83	20	0	105	20	22	13	0	55	16	144	102	0	262	495	1794	0.91
	8:15 AM	31	20	8	0	59	1	84	15	0	100	17	17	21	0	55	18	148	61	0	227	441	1625	0.92
	8:30 AM	38	25	3	0	66	1	83	21	0	105	18	15	20	0	53	21	137	55	0	213	437	1515	0.87
	8:45 AM	36	24	4	0	64	2	74	26	0	102	21	16	12	0	49	12	139	55	0	206	421	1406	0.83
	9:00 AM	40	23	2	0	65	1	72	10	0	83	10	19	14	0	43	16	71	48	0	135	326	1353	0.92
	9:15 AM	38	20	3	0	61	3	79	23	0	105	15	21	17	0	53	13	68	31	0	112	331	1383	0.94
	9:30 AM	32	28	5	0	65	0	62	28	0	90	13	23	15	0	51	15	72	35	0	122	328	1393	0.95
	9:45 AM	40	20	4	0	64	6	68	29	1	104	17	22	19	0	58	13	87	41	1	142	368	1420	0.96
Midday Peak Period	10:00 AM	47	15	11	0	73	1	80	21	0	102	27	23	15	0	65	15	69	32	0	116	356	1474	0.87
	10:15 AM	48	22	4	0	74	0	72	30	0	102	21	15	15	0	51	12	64	37	1	114	341	1535	0.91
	10:30 AM	41	24	2	0	67	0	72	26	0	98	21	18	22	0	61	14	88	27	0	129	355	1581	0.94
	10:45 AM	30	26	8	0	64	6	89	29	0	124	26	26	19	0	71	26	100	37	0	163	422	1672	0.94
	11:00 AM	51	38	4	0	93	1	95	30	0	126	39	27	18	0	84	25	60	29	0	114	417	1679	0.94
	11:15 AM	39	31	8	0	78	2	84	30	0	116	35	26	25	0	86	13	68	26	0	107	387	1796	0.84
	11:30 AM	41	45	13	0	99	3	87	27	0	117	31	35	22	0	88	21	87	34	0	142	446	1873	0.88
	11:45 AM	45	48	6	0	99	5	95	30	0	130	22	35	21	0	78	14	66	42	0	122	429	1845	0.86
	12:00 PM	72	63	12	0	147	3	94	33	0	130	33	67	22	0	122	21	74	40	0	135	534	1874	0.88
	12:15 PM	44	41	7	0	92	6	90	34	0	130	34	46	17	0	97	25	72	47	1	145	464	1795	0.97
	12:30 PM	48	29	4	0	81	4	71	29	1	105	34	46	13	0	93	19	74	46	0	139	418	1737	0.95
	12:45 PM	37	34	7	0	78	3	95	36	0	134	36	33	21	0	90	30	77	48	1	156	458	1741	0.95
	1:00 PM	60	29	10	0	99	0	92	31	0	123	29	32	31	0	92	24	87	30	0	141	455	1729	0.95
	1:15 PM	46	18	2	0	66	3	99	26	0	128	32	23	11	0	66	24	81	41	0	146	406	1783	0.88
	1:30 PM	57	23	3	0	83	3	87	28	0	118	33	33	14	0	80	19	88	34	0	141	422	1889	0.92
	1:45 PM	45	33	7	0	85	2	100	33	0	135	24	30	19	0	73	20	95	38	0	153	446	2051	0.88
PM Peak Period	2:00 PM	85	31	6	0	122	2	110	29	0	141	37	35	21	0	93	26	77	50	0	153	509	2237	0.88
	2:15 PM	56	32	4	0	92	5	107	34	0	146	31	45	20	0	96	22	93	62	1	178	512	2361	0.93
	2:30 PM	90	43	9	0	142	7	114	24	0	145	30	32	24	0	86	38	106	67	0	211	584	2410	0.95
	2:45 PM	123	38	11	0	172	4	140	29	0	173	29	21	31	0	81	28	99	79	0	206	632	2500	0.93
	3:00 PM	157	36	14	0	207	4	152	30	0	186	25	32	28	0	85	22	79	54	0	155	633	2458	0.91
	3:15 PM	101	30	6	0	137	7	131	26	0	164	25	18	31	0	74	26	114	46	0	186	561	2514	0.91
	3:30 PM	152	49	7	0	208	4	145	28	0	177	31	19	44	0	94	25	125	45	0	195	674	2591	0.94
	3:45 PM	98	31	12	0	141	4	105	36	0	145	37	31	30	0	98	32	124	50	0	206	590	2670	0.89
	4:00 PM	140	47	6	0	193	7	151	29	0	187	40	30	36	0	106	27	129	47	0	203	689	2724	0.90
	4:15 PM	89	50	1	0	140	2	161	29	0	192	47	27	24	0	98	36	135	37	0	208	638	2709	0.90
	4:30 PM	165	52	11	0	228	6	182	30	0	218	40	32	32	0	104	22	137	44	0	203	753	2651	0.88
	4:45 PM	104	32	9	0	145	3	147	41	0	191	48	28	29	0	105	22	135	46	0	203	644	2438	0.90
	5:00 PM	120	52	6	0	178	2	179	29	0	210	31	38	23	0	92	25	124	45	0	194	674	2238	0.83
	5:15 PM	83	35	8	0	126	2	125	34	0	161	30	38	27	1	96	25	128	44	0	197	580	1949	0.84
	5:30 PM	57	23	3	0	83	3	156	41	0	200	28	32	19	0	79	18	111	49	0	178	540	1764	0.82
	5:45 PM	58	22	5	0	85	3	118	24	0	145	30	20	15	0	65	22	84	43	0	149	444	1578	0.89
	6:00 PM	44	20	4	0	68	2	111	14	0	127	21	21	18	0	60	14	76	40	0	130	385	1480	0.94
	6:15 PM	47	17	5	0	69	4	117	15	0	136	27	24	6	0	57	21	74	38	0	133	395		
	6:30 PM	51	26	5	0	82	1	89	15	0	105	13	20	15	0	48	21	68	30	0	119	354		
	6:45 PM	38	18	7	0	63	5	74	25	0	104	17	23	18	0	58	25	55	40	1	121	346		
	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		3361	1558	304	0	5223	149	5281	1311	2	6743	1330	1486	1097	1	3914	1120	5097	2803	9	9029	24909		

Peak Hour All Vehicle Volume Summary

Hourly Time Period		From North (↓) Maple Road					From East (←) STH 167/Lannon Road					From South (↑) Maple Road					From West (→) STH 167/Lannon Road					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	6:45 AM	263	123	17	0	403	11	422	62	0	495	56	145	111	0	312	92	519	455	2	1068	2278	0.87
MD	12:00 PM	201	167	30	0	398	16	350	132	1	499	137	192	73	0	402	95	297	181	2	575	1874	0.88
PM	4:00 PM	498	181	27	0	706	18	641	129	0	788	175	117	121	0	413	107	536	174	0	817	2724	0.90

Intersection Traffic Volume Report

Count Basics			*Page 9 of 13*
Start Date:	Tuesday, May 18, 2021	Weekday	Schools in Session
Total Number of Hours Counted: 13		Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

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

Maple Road and STH 167/Lannon Road

15-Minute Heavy Vehicle Data

15-Minute Time Period Start Time		From North (↓) Maple Road					From East (←) STH 167/Lannon Road					From South (↑) Maple Road					From West (→) STH 167/Lannon Road					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	9	1	0	0	10	0	4	0	0	4	0	0	1	0	1	0	4	4	0	8	23	124
	6:15 AM	11	0	0	0	11	0	3	1	0	4	0	0	0	0	0	0	8	2	0	10	25	168
	6:30 AM	14	2	0	0	16	0	6	1	0	7	0	0	1	0	1	0	6	4	0	10	34	207
	6:45 AM	7	2	1	0	10	0	7	1	0	8	1	0	1	0	2	1	14	7	0	22	42	226
	7:00 AM	9	7	4	0	20	0	8	2	0	10	3	1	2	0	6	0	13	18	0	31	67	237
	7:15 AM	13	4	1	0	18	1	9	0	0	10	0	1	1	0	2	4	25	5	0	34	64	231
	7:30 AM	10	1	1	0	12	2	6	0	0	8	2	2	4	0	8	5	10	10	0	25	53	237
	7:45 AM	15	2	0	0	17	0	7	0	0	7	5	0	4	0	9	2	11	7	0	20	53	242
	8:00 AM	13	3	2	0	18	0	11	2	0	13	2	2	2	0	6	0	15	9	0	24	61	253
	8:15 AM	9	6	3	0	18	1	15	0	0	16	0	1	4	0	5	3	16	12	0	31	70	244
	8:30 AM	15	1	0	0	16	0	9	1	0	10	2	1	3	0	6	3	12	11	0	26	58	239
	8:45 AM	11	2	2	0	15	0	12	2	0	14	2	0	5	0	7	2	17	9	0	28	64	231
	9:00 AM	15	0	1	0	16	1	11	0	0	12	0	1	0	0	1	1	9	13	0	23	52	224
	9:15 AM	14	5	2	0	21	1	12	1	0	14	0	2	1	0	3	1	16	10	0	27	65	225
	9:30 AM	12	0	1	0	13	0	10	1	0	11	0	1	2	0	3	0	12	11	0	23	50	212
	9:45 AM	12	2	0	0	14	0	12	0	0	12	1	2	2	0	5	2	8	16	0	26	57	213
Midday Peak Period	10:00 AM	10	1	4	0	15	0	13	1	0	14	2	2	0	0	4	1	12	7	0	20	53	242
	10:15 AM	16	0	2	0	18	0	6	3	0	9	0	3	1	0	4	1	9	11	0	21	52	241
	10:30 AM	9	3	0	0	12	0	15	0	0	15	0	1	1	0	2	4	10	8	0	22	51	245
	10:45 AM	13	1	3	0	17	2	14	1	0	17	2	0	5	0	7	8	28	9	0	45	86	249
	11:00 AM	12	4	2	0	18	0	11	3	0	14	2	0	4	0	6	3	4	7	0	14	52	222
	11:15 AM	9	1	2	0	12	1	7	1	0	9	6	2	5	0	13	2	10	10	0	22	56	232
	11:30 AM	6	2	0	0	8	0	7	5	0	12	1	0	9	0	10	1	10	14	0	25	55	225
	11:45 AM	12	1	2	0	15	0	11	0	0	11	0	1	5	0	6	1	9	17	0	27	59	228
	12:00 PM	10	3	2	0	15	0	14	0	0	14	2	1	1	0	4	2	14	13	0	29	62	243
	12:15 PM	10	3	1	0	14	0	8	0	0	8	1	1	0	0	2	2	11	12	0	25	49	244
	12:30 PM	12	2	2	0	16	1	10	1	0	12	1	1	4	0	6	0	9	15	0	24	58	255
	12:45 PM	11	3	3	0	17	1	17	4	0	22	0	5	2	0	7	1	13	14	0	28	74	241
	1:00 PM	17	2	1	0	20	0	14	3	0	17	3	3	4	0	10	1	7	8	0	16	63	219
	1:15 PM	14	1	0	0	15	0	22	0	0	22	0	2	0	0	2	0	9	12	0	21	60	206
	1:30 PM	15	1	0	0	16	1	11	0	0	12	1	0	0	0	1	4	3	8	0	15	44	197
	1:45 PM	8	3	2	0	13	0	10	0	0	10	0	1	4	0	5	3	15	6	0	24	52	202
PM Peak Period	2:00 PM	11	2	1	0	14	0	7	2	0	9	2	2	1	0	5	1	10	11	0	22	50	202
	2:15 PM	10	1	0	0	11	0	7	3	0	10	2	1	1	0	4	0	17	9	0	26	51	189
	2:30 PM	9	2	0	0	11	0	7	3	0	10	0	2	3	0	5	1	11	11	0	23	49	182
	2:45 PM	10	0	0	0	10	0	16	0	0	16	0	2	0	0	2	1	10	13	0	24	52	180
	3:00 PM	9	0	1	0	10	0	8	0	0	8	1	2	1	0	4	0	6	9	0	15	37	169
	3:15 PM	7	2	3	0	12	2	10	1	0	13	1	1	1	0	3	0	11	5	0	16	44	159
	3:30 PM	11	0	1	0	12	0	8	1	0	9	1	0	3	0	4	3	8	11	0	22	47	153
	3:45 PM	10	1	1	0	12	0	9	1	0	10	2	0	1	0	3	0	10	6	0	16	41	129
	4:00 PM	6	0	0	0	6	1	6	1	0	8	0	1	2	0	3	0	6	4	0	10	27	124
	4:15 PM	4	2	0	0	6	0	8	2	0	10	2	2	0	0	4	3	4	11	0	18	38	128
	4:30 PM	6	1	0	0	7	0	5	0	0	5	0	0	2	0	2	0	5	4	0	9	23	102
	4:45 PM	6	2	1	0	9	0	5	1	0	6	1	1	0	0	2	2	8	9	0	19	36	94
	5:00 PM	7	1	0	0	8	0	6	1	0	7	1	0	2	0	3	3	5	5	0	13	31	75
	5:15 PM	1	0	0	0	1	0	3	1	0	4	0	0	2	0	2	0	1	4	0	5	12	59
	5:30 PM	2	0	0	0	2	0	7	1	0	8	0	0	0	0	0	1	2	2	0	5	15	61
	5:45 PM	2	0	0	0	2	0	4	1	0	5	1	0	0	0	1	3	3	3	0	9	17	53
	6:00 PM	1	0	0	0	1	0	2	0	0	2	0	0	3	0	3	2	1	6	0	9	15	44
	6:15 PM	3	0	0	0	3	0	1	1	0	2	0	2	1	0	3	0	3	3	0	6	14	
	6:30 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	3	0	5	7	
	6:45 PM	1	0	0	0	1	0	4	0	0	4	0	0	1	0	1	0	0	2	0	2	8	
	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		490	84	52	0	626	15	455	54	0	524	53	53	102	0	208	78	492	450	0	1020	2378	

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period Start Time		From North (↓) Maple Road					From East (←) STH 167/Lannon Road					From South (↑) Maple Road					From West (→) STH 167/Lannon Road					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	6:45 AM	39	14	7	0	60	3	30	3	0	36	6	4	8	0	18	10	62	40	0	112	226
MD	12:00 PM	43	11	8	0	62	2	49	5	0	56	4	8	7	0	19	5	47	54	0	106	243
PM	4:00 PM	22	5	1	0	28	1	24	4	0	29	3	4	4	0	11	5	23	28	0	56	124

Intersection Traffic Volume Report

Count Basics	Version 2024.04		Page 1 of 13
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Major St: **STH 167 - Lannon Road**
Minor St: **Maple Road**
Intersection of: ***STH 167 - Lannon Road & Maple Road*** **IX_ID:**

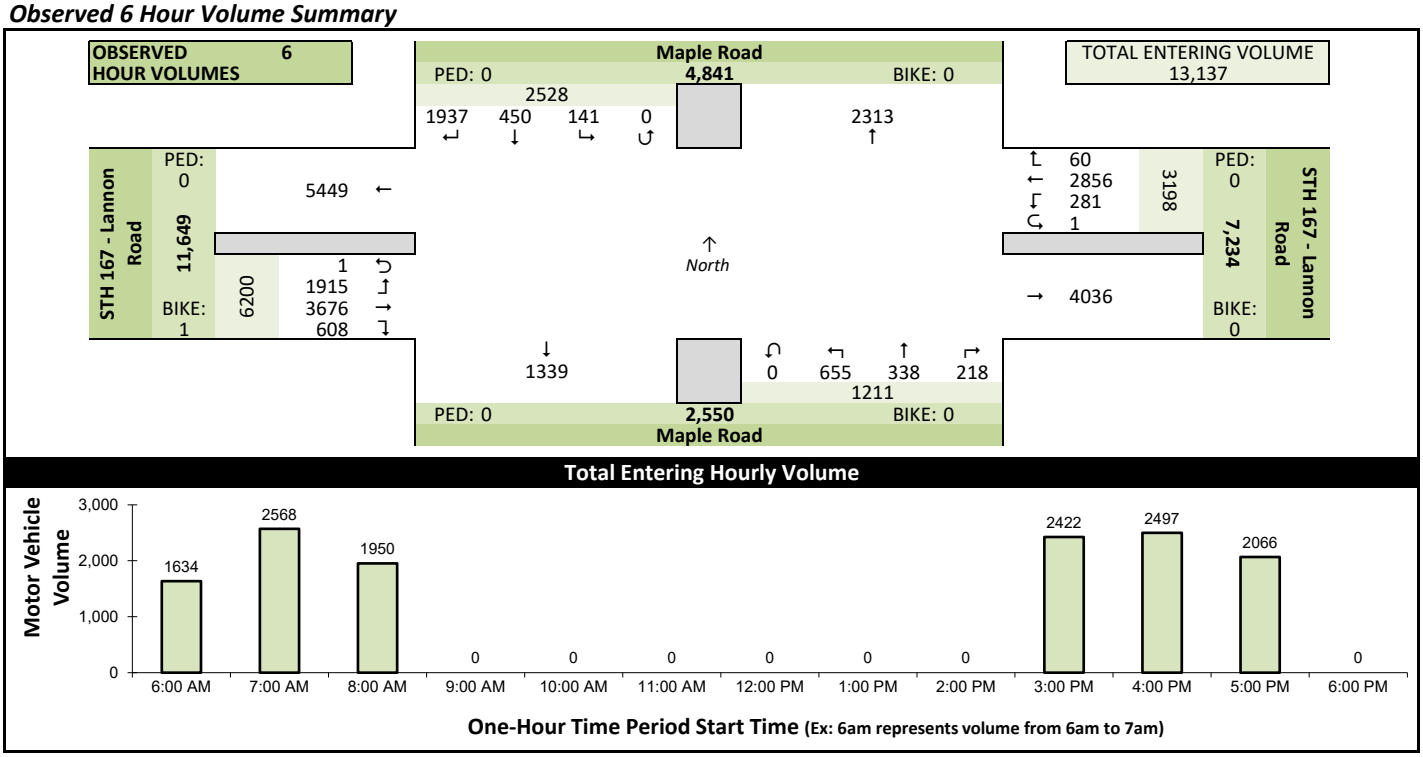
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	Traffic Signal		
Roadway Names		North Direction	↑
North Leg	Maple Road		
East Leg	STH 167 - Lannon Road		
South Leg	Maple Road		
West Leg	STH 167 - Lannon Road		
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		

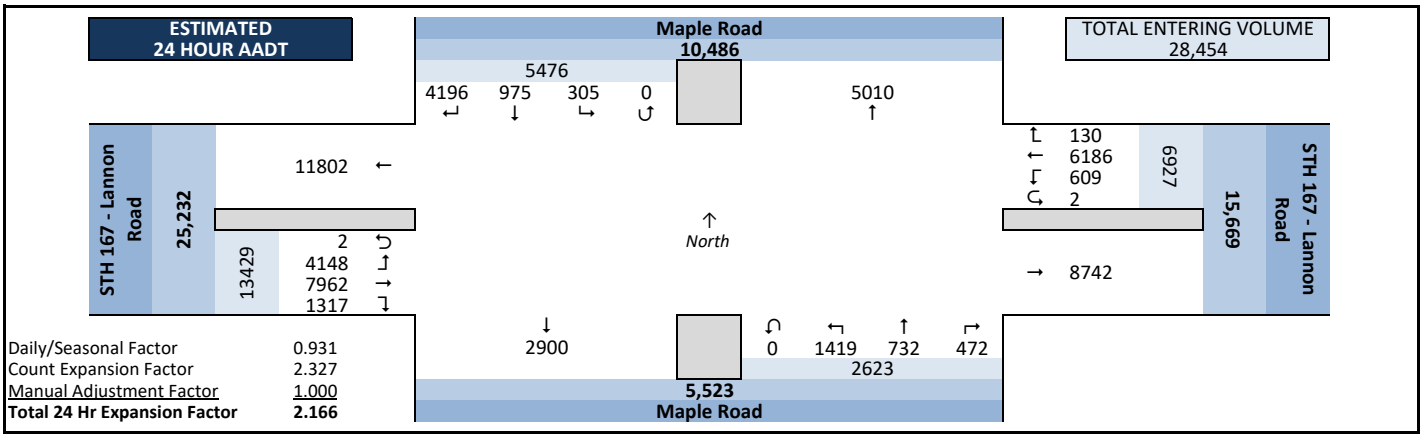
Count Information

Hrs Counted:	06:00 AM-09:00 AM and 03:00 PM-06:00 PM				
1st Day of Count	Monday, September 23, 2024			Weather	
AM Peak Period	Tuesday, September 24, 2024			Clear & Dry	
Midday Peak Period	Tuesday, September 24, 2024			Clear & Dry	
PM Peak Period	Monday, September 23, 2024			Clear & Dry	
Calculated Peak Hours					
AM	7:00-8:00am	MD		PM	4:15-5:15pm
Peak Hours Selected for Analysis					
AM	6:45-7:45am	MD		PM	4:00-5:00pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	0.931	Count Expansion Factor	2.327		
Company Name	TADI, Inc.			Manual Adj.	1.000
Observers	AM Peak Period	Amy Scheuerlein			
	Midday Peak Period	None			
	PM Peak Period	Amy Scheuerlein			
Comments	2021 DOT Daily & Seasonal Factors				

Observed 6 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

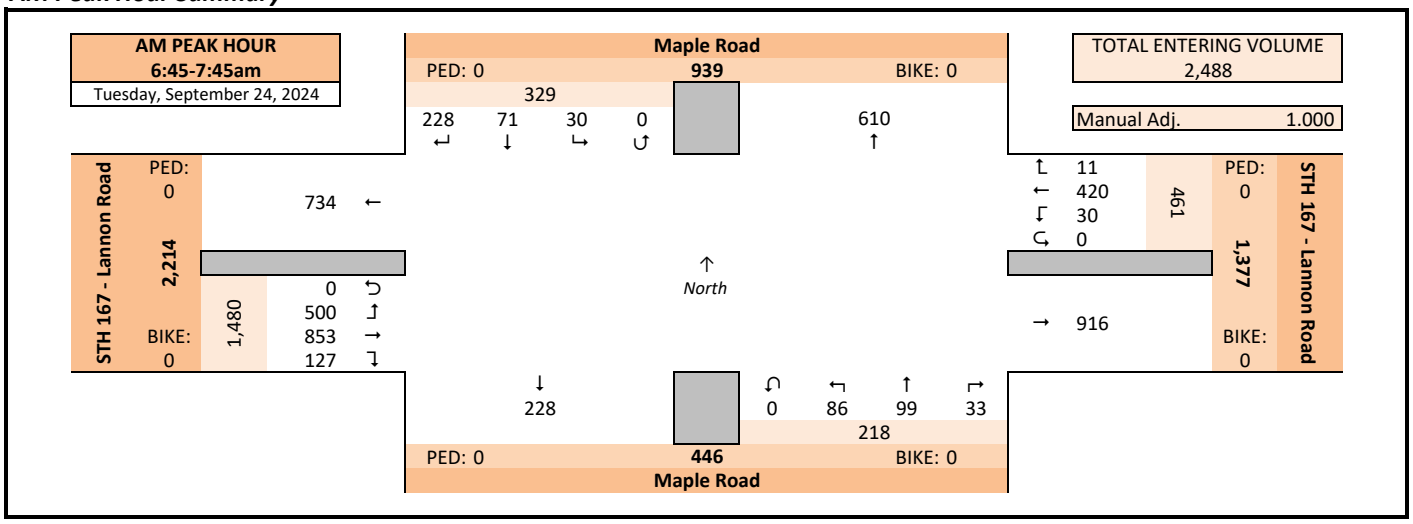
Peak Hour Volume Graphical Summary

STH 167 - Lannon Road & Maple Road

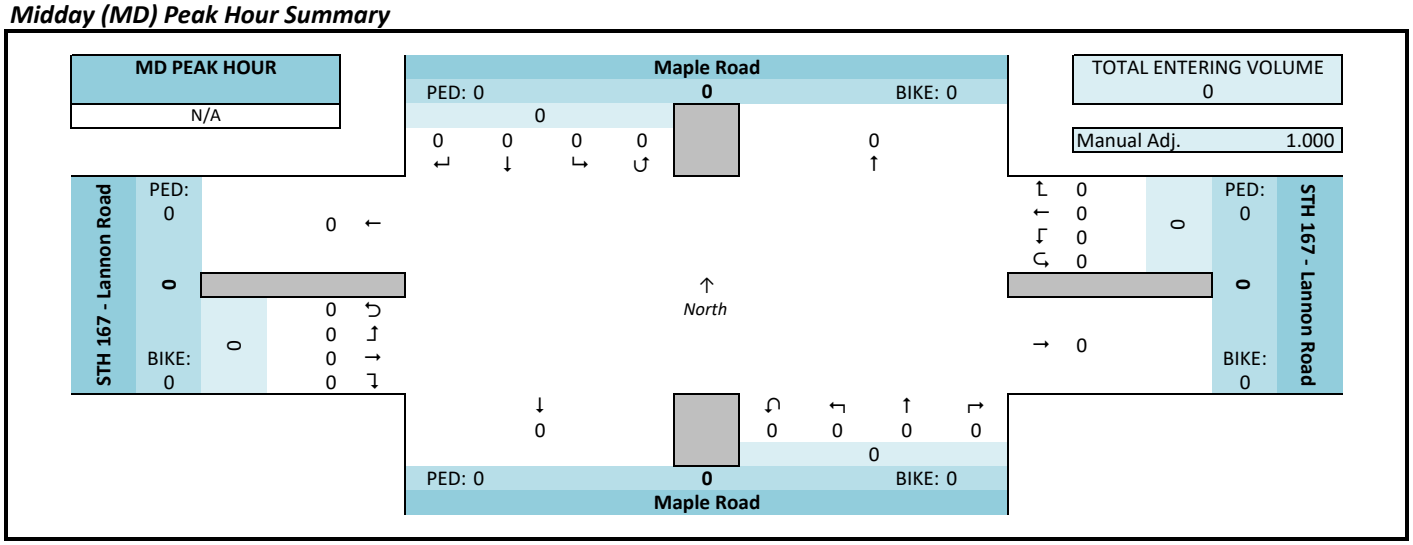
Count Basics			*Page 2 of 13*
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

All Motor Vehicles

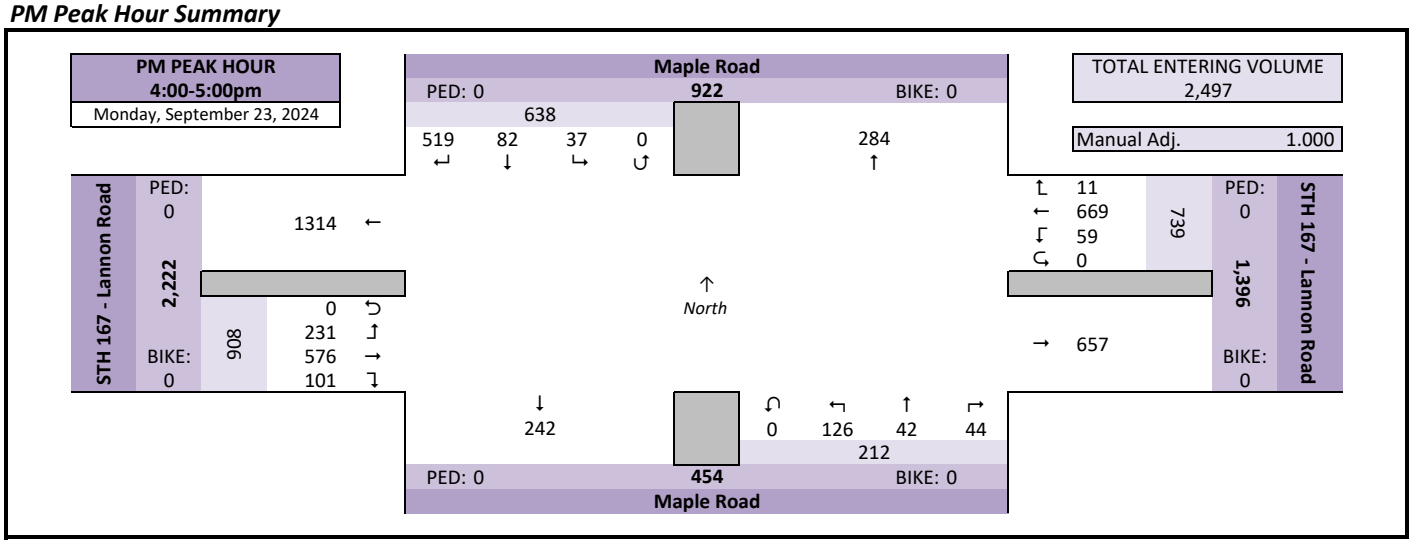
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

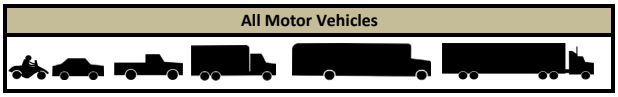


Intersection Traffic Volume Report

Count Basics			Page 3 of 13
Start Date:	Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Peak Hour Volume Summary

STH 167 - Lannon Road & Maple Road



Peak Hour Volumes, Truck Percentages, and PHFs

Tuesday, September 2024		From North					From East					From South					From West					
	AM Peak Hour	Maple Road					STH 167 - Lannon Road					Maple Road					STH 167 - Lannon Road					
	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	6:45 AM	32	9	3	0	44	3	70	4	0	77	9	56	13	0	78	16	163	212	0	391	590
	7:00 AM	97	29	8	0	134	3	119	8	0	130	10	12	18	0	40	37	211	86	0	334	638
	7:15 AM	48	16	10	0	74	3	114	11	0	128	10	13	29	0	52	35	229	86	0	350	604
	7:30 AM	51	17	9	0	77	2	117	7	0	126	4	18	26	0	48	39	250	116	0	405	656
	Peak Hour Volume	228	71	30	0	329	11	420	30	0	461	33	99	86	0	218	127	853	500	0	1480	2488
	Rounded Hourly Volume	230	70	30	0	330	10	420	30	0	460	35	100	85	0	220	125	855	500	0	1480	2490
	% Single Unit Trucks	6.6	8.5	6.7	0.0	7.0	18.2	5.5	13.3	0.0	6.3	6.1	4.0	8.1	0.0	6.0	2.4	3.6	2.0	0.0	3.0	4.4
	% Heavy Trucks	4.4	0.0	10.0	0.0	4.0	9.1	1.7	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	2.9	2.6	0.0	2.6	2.4
	% Trucks (Total)	11.0	8.5	16.7	0.0	10.9	27.3	7.1	13.3	0.0	8.0	6.1	4.0	8.1	0.0	6.0	2.4	6.6	4.6	0.0	5.5	6.8
	Peak Hour Factor (PHF)	0.59	0.61	0.75	0.00	0.61	0.92	0.88	0.68	0.00	0.89	0.82	0.44	0.74	0.00	0.70	0.81	0.85	0.59	0.00	0.91	0.95

N/A		From North					From East					From South					From West					
	MD Peak Hour	Maple Road					STH 167 - Lannon Road					Maple Road					STH 167 - Lannon Road					
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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

Monday, September 23, 2024		From North					From East					From South					From West					
	PM Peak Hour	Maple Road					STH 167 - Lannon Road					Maple Road					STH 167 - Lannon Road					
	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	136	18	5	0	159	2	158	15	0	175	11	12	35	0	58	30	136	73	0	239	631
	4:15 PM	107	14	8	0	129	4	155	15	0	174	11	9	24	0	44	18	147	58	0	223	570
	4:30 PM	176	25	10	0	211	0	189	13	0	202	12	11	33	0	56	34	128	46	0	208	677
	4:45 PM	100	25	14	0	139	5	167	16	0	188	10	10	34	0	54	19	165	54	0	238	619
	Peak Hour Volume	519	82	37	0	638	11	669	59	0	739	44	42	126	0	212	101	576	231	0	908	2497
	Rounded Hourly Volume	520	80	35	0	635	10	670	60	0	740	45	40	125	0	210	100	575	230	0	905	2490
	% Single Unit Trucks	1.9	1.2	0.0	0.0	1.7	0.0	2.7	3.4	0.0	2.7	0.0	2.4	2.4	0.0	1.9	2.0	3.1	7.8	0.0	4.2	2.9
	% Heavy Trucks	1.9	0.0	2.7	0.0	1.7	0.0	0.6	0.0	0.0	0.5	2.3	0.0	0.0	0.0	0.5	0.0	1.9	3.5	0.0	2.1	1.4
	% Trucks (Total)	3.9	1.2	2.7	0.0	3.4	0.0	3.3	3.4	0.0	3.2	2.3	2.4	2.4	0.0	2.4	2.0	5.0	11.3	0.0	6.3	4.3
	Peak Hour Factor (PHF)	0.74	0.82	0.66	0.00	0.76	0.55	0.88	0.92	0.00	0.91	0.92	0.87	0.90	0.00	0.91	0.74	0.87	0.79	0.00	0.95	0.92

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		Maple Road			STH 167 - Lannon Road			Maple Road			STH 167 - Lannon Road			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	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
	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	4:00 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 5 of 13
Start Date: Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Motor Vehicle Data

STH 167 - Lannon Road & Maple Road

All Motor Vehicles

15-Minute Motor Vehicle Data

	15-Minute Time Period Start Time	From North (↓) Maple Road					From East (←) STH 167 - Lannon Road					From South (↑) Maple Road					From West (→) STH 167 - Lannon Road					15-Min Totals	Hourly Sum	PHF
		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	38	1	1	0	40	0	53	4	0	57	4	14	12	0	30	17	44	49	0	110	237	1634	0.69
	6:15 AM	37	3	0	0	40	1	61	10	0	72	4	14	17	0	35	23	75	84	0	182	329	2035	0.80
	6:30 AM	42	14	0	0	56	0	72	4	1	77	6	28	19	0	53	11	118	163	0	292	478	2310	0.91
	6:45 AM	32	9	3	0	44	3	70	4	0	77	9	56	13	0	78	16	163	212	0	391	590	2488	0.95
	7:00 AM	97	29	8	0	134	3	119	8	0	130	10	12	18	0	40	37	211	86	0	334	638	2568	0.96
	7:15 AM	48	16	10	0	74	3	114	11	0	128	10	13	29	0	52	35	229	86	0	350	604	2537	0.95
	7:30 AM	51	17	9	0	77	2	117	7	0	126	4	18	26	0	48	39	250	116	0	405	656	2399	0.90
	7:45 AM	42	41	13	0	96	2	81	7	0	90	9	19	24	0	52	35	279	118	0	432	670	2209	0.82
	8:00 AM	41	29	3	0	73	2	92	10	0	104	14	11	24	0	49	25	238	118	0	381	607	1950	0.80
	8:15 AM	47	14	6	0	67	1	112	10	0	123	6	12	19	0	37	18	144	77	0	239	466		
	8:30 AM	70	15	5	0	90	2	84	16	0	102	7	8	32	0	47	20	135	72	0	227	466		
	8:45 AM	32	11	8	0	51	4	74	5	0	83	6	10	24	0	40	24	154	59	0	237	411		
	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		
	11:15 AM	0	0	0	0	0	0	0	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	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		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0		
	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	160	22	5	0	187	3	177	19	0	199	6	14	44	0	64	32	131	74	0	237	687	2422	0.88
	3:15 PM	89	21	7	0	117	2	136	20	0	158	14	10	39	0	63	19	141	64	0	224	562	2366	0.94
	3:30 PM	176	24	5	0	205	2	133	14	0	149	10	5	36	0	51	21	117	46	1	185	590	2374	0.94
	3:45 PM	98	22	3	0	123	7	112	18	0	137	12	8	42	0	62	30	168	63	0	261	583	2461	0.91
	4:00 PM	136	18	5	0	159	2	158	15	0	175	11	12	35	0	58	30	136	73	0	239	631	2497	0.92
	4:15 PM	107	14	8	0	129	4	155	15	0	174	11	9	24	0	44	18	147	58	0	223	570	2518	0.93
	4:30 PM	176	25	10	0	211	0	189	13	0	202	12	11	33	0	56	34	128	46	0	208	677	2495	0.92
	4:45 PM	100	25	14	0	139	5	167	16	0	188	10	10	34	0	54	19	165	54	0	238	619	2305	0.88
	5:00 PM	122	25	5	0	152	3	178	17	0	198	15	12	25	0	52	23	163	64	0	250	652	2066	0.79
	5:15 PM	85	27	5	0	117	6	147	14	0	167	11	9	27	0	47	26	140	50	0	216	547		
	5:30 PM	67	12	1	0	80	2	153	17	0	172	7	15	23	0	45	35	107	48	0	190	487		
	5:45 PM	44	16	7	0	67	1	102	7	0	110	10	8	36	0	54	21	93	35	0	149	380		
	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		1937	450	141	0	2528	60	2856	281	1	3198	218	338	655	0	1211	608	3676	1915	1	6200	13137		

Peak Hour All Vehicle Volume Summary

	Hourly Time Period Start Time	From North (↓) Maple Road					From East (←) STH 167 - Lannon Road					From South (↑) Maple Road					From West (→) STH 167 - Lannon Road					Total Hourly Volume	PHF
		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	6:45 AM	228	71	30	0	329	11	420	30	0	461	33	99	86	0	218	127	853	500	0	1480	2488	0.95
MD	12:00 PM	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	519	82	37	0	638	11	669	59	0	739	44	42	126	0	212	101	576	231	0	908	2497	0.92

Intersection Traffic Volume Report

Count Basics		*Page 9 of 13*
Start Date: Monday, September 23, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

STH 167 - Lannon Road & Maple Road

15-Minute Heavy Vehicle Data

	15-Minute	From North (↓) Maple Road					From East (←) STH 167 - Lannon Road					From South (↑) Maple Road					From West (→) STH 167 - Lannon Road					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
AM Peak Period	6:00 AM	8	0	0	0	8	0	3	0	0	3	0	1	1	0	2	1	4	0	0	5	18	117
	6:15 AM	4	0	0	0	4	0	3	1	0	4	0	0	1	0	1	0	7	1	0	8	17	136
	6:30 AM	12	2	0	0	14	0	3	1	0	4	0	0	2	0	2	0	7	7	0	14	34	150
	6:45 AM	7	2	0	0	9	1	9	0	0	10	1	2	1	0	4	1	17	7	0	25	48	168
	7:00 AM	6	0	2	0	8	1	9	0	0	10	1	0	2	0	3	1	11	4	0	16	37	174
	7:15 AM	5	1	2	0	8	0	2	2	0	4	0	0	1	0	1	1	13	4	0	18	31	189
	7:30 AM	7	3	1	0	11	1	10	2	0	13	0	2	3	0	5	0	15	8	0	23	52	222
	7:45 AM	10	5	1	0	16	1	11	1	0	13	1	0	6	0	7	0	9	9	0	18	54	206
	8:00 AM	11	0	1	0	12	1	9	2	0	12	4	0	1	0	5	3	13	7	0	23	52	202
	8:15 AM	14	1	2	0	17	0	10	2	0	12	2	1	5	0	8	3	17	7	0	27	64	
	8:30 AM	6	1	3	0	10	0	6	1	0	7	0	0	2	0	2	1	8	8	0	17	36	
	8:45 AM	9	0	1	0	10	1	13	0	0	14	0	0	1	0	1	4	12	9	0	25	50	
	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	
	11:15 AM	0	0	0	0	0	0	0	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	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	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	
	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	11	0	0	0	11	0	9	2	0	11	1	0	3	0	4	0	8	12	0	20	46	131
	3:15 PM	5	0	1	0	6	0	4	1	0	5	1	0	1	0	2	0	10	13	0	23	36	115
	3:30 PM	6	1	1	0	8	0	4	0	0	4	1	0	1	0	2	1	2	5	0	8	22	111
	3:45 PM	4	0	0	0	4	1	8	2	0	11	0	0	1	0	1	1	6	4	0	11	27	113
	4:00 PM	8	0	0	0	8	0	5	0	0	5	1	0	1	0	2	1	7	7	0	15	30	108
	4:15 PM	5	1	0	0	6	0	5	0	0	5	0	1	1	0	2	0	11	8	0	19	32	96
	4:30 PM	4	0	0	0	4	0	7	1	0	8	0	0	1	0	1	1	4	6	0	11	24	74
	4:45 PM	3	0	1	0	4	0	5	1	0	6	0	0	0	0	0	0	7	5	0	12	22	63
	5:00 PM	2	0	0	0	2	0	8	0	0	8	0	0	0	0	0	0	4	4	0	8	18	51
	5:15 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	4	2	0	7	10	
	5:30 PM	0	0	0	0	0	0	6	0	0	6	0	1	1	0	2	2	1	2	0	5	13	
	5:45 PM	2	1	0	0	3	0	3	0	0	3	0	1	1	0	2	0	1	1	0	2	10	
	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		152	18	16	0	186	7	152	19	0	178	13	9	37	0	59	22	198	140	0	360	783	

Peak Hour Heavy Vehicle Volume Summary

	Hourly	From North (↓) Maple Road					From East (←) STH 167 - Lannon Road					From South (↑) Maple Road					From West (→) STH 167 - Lannon Road					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
AM	6:45 AM	25	6	5	0	36	3	30	4	0	37	2	4	7	0	13	3	56	23	0	82	168
MD	12:00 PM	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	20	1	1	0	22	0	22	2	0	24	1	1	3	0	5	2	29	26	0	57	108

Intersection Traffic Volume Report

Count Basics	Version 2024.04		Page 1 of 13
Start Date:	Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Major St: **Maple Road**
Minor St: **Commerce Circle**
Intersection of: ***Maple Road & Commerce Circle*** **IX_ID:**

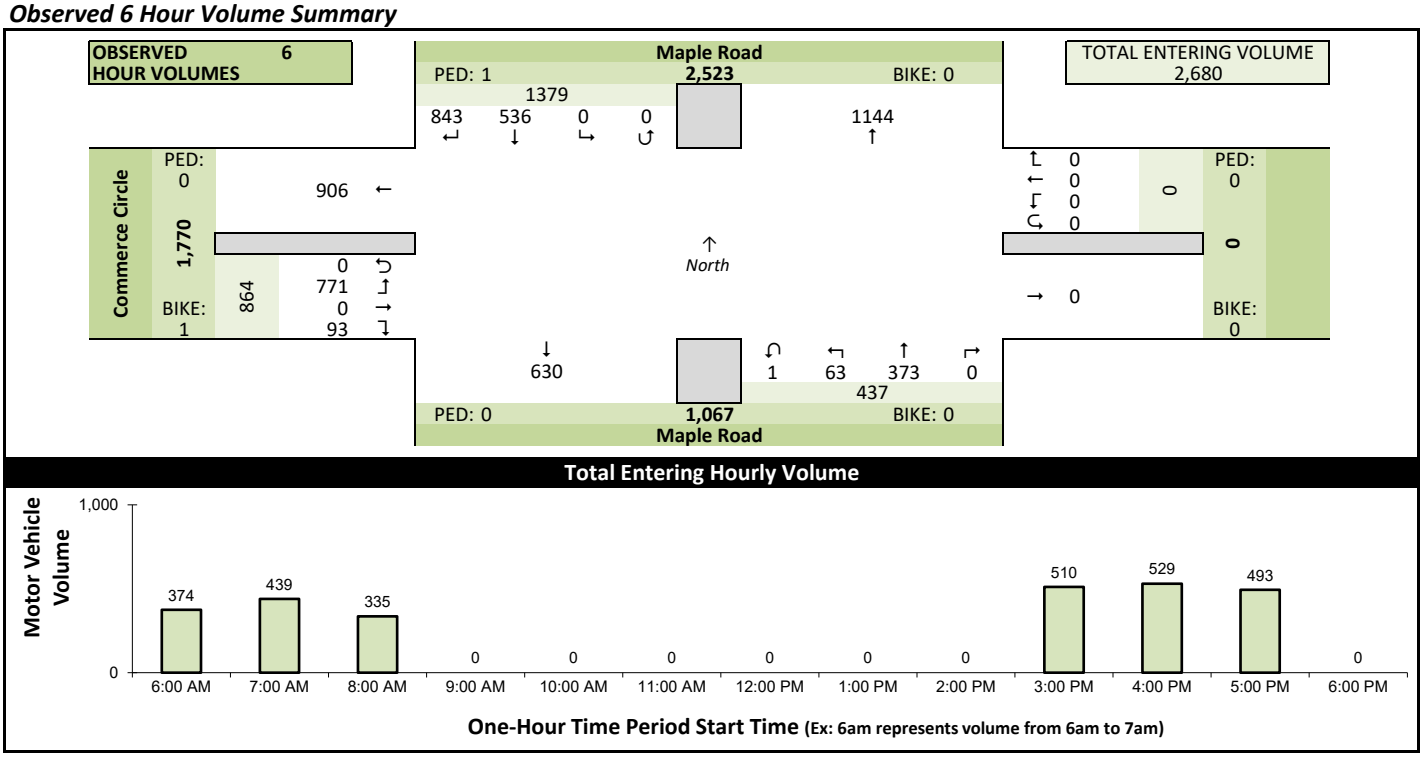
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	Partial Stop Control		
Roadway Names		North Direction	↑
North Leg	Maple Road		
East Leg			
South Leg	Maple Road		
West Leg	Commerce Circle		
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		

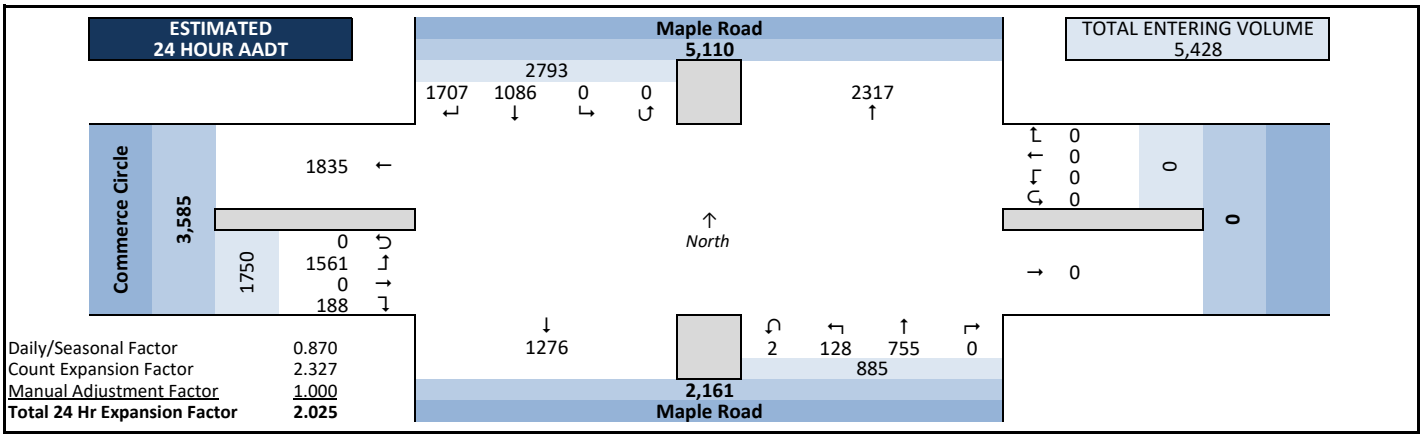
Count Information

Hrs Counted:	06:00 AM-09:00 AM and 03:00 PM-06:00 PM				
1st Day of Count	Wednesday, September 25, 2024			Weather	
AM Peak Period	Wednesday, September 25, 2024			Clear & Dry	
Midday Peak Period	Wednesday, September 25, 2024			Clear & Dry	
PM Peak Period	Wednesday, September 25, 2024			Clear & Dry	
Calculated Peak Hours					
AM	6:30-7:30am	MD		PM	3:30-4:30pm
Peak Hours Selected for Analysis					
AM	6:45-7:45am	MD		PM	4:00-5:00pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	0.870	Count Expansion Factor	2.327		
Company Name	TADI, Inc.			Manual Adj.	1.000
Observers: AM Peak Period	Luann Gaertner				
Observers: Midday Peak Period	None				
Observers: PM Peak Period	Jane Fait				
Comments	2021 DOT Daily & Seasonal Factors				

Observed 6 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

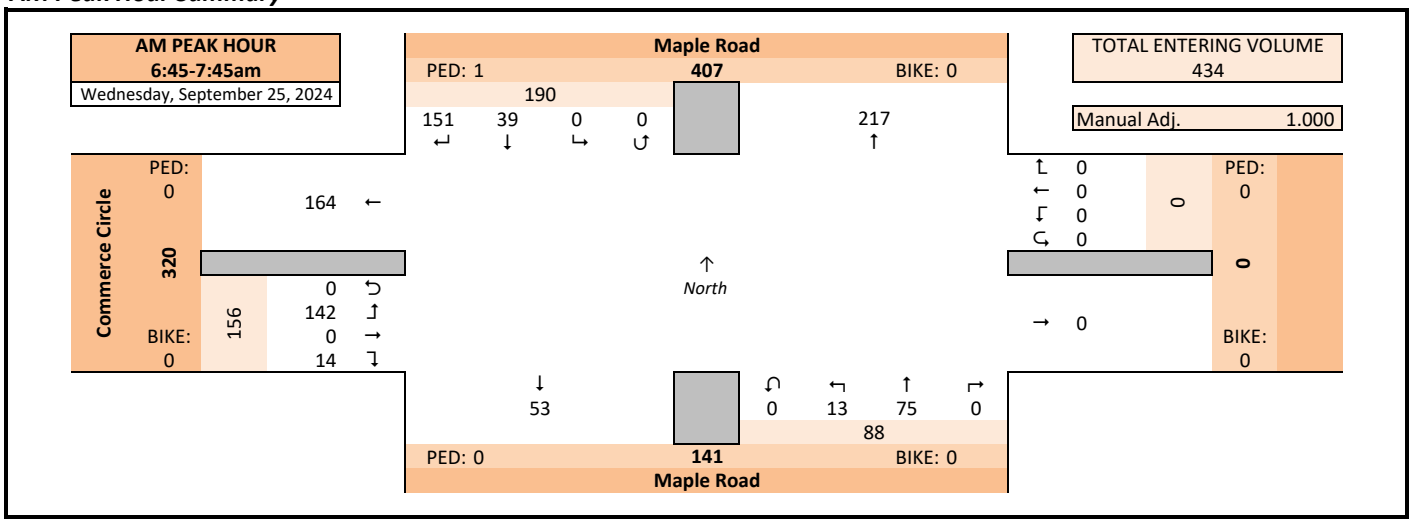
Peak Hour Volume Graphical Summary

Maple Road & Commerce Circle

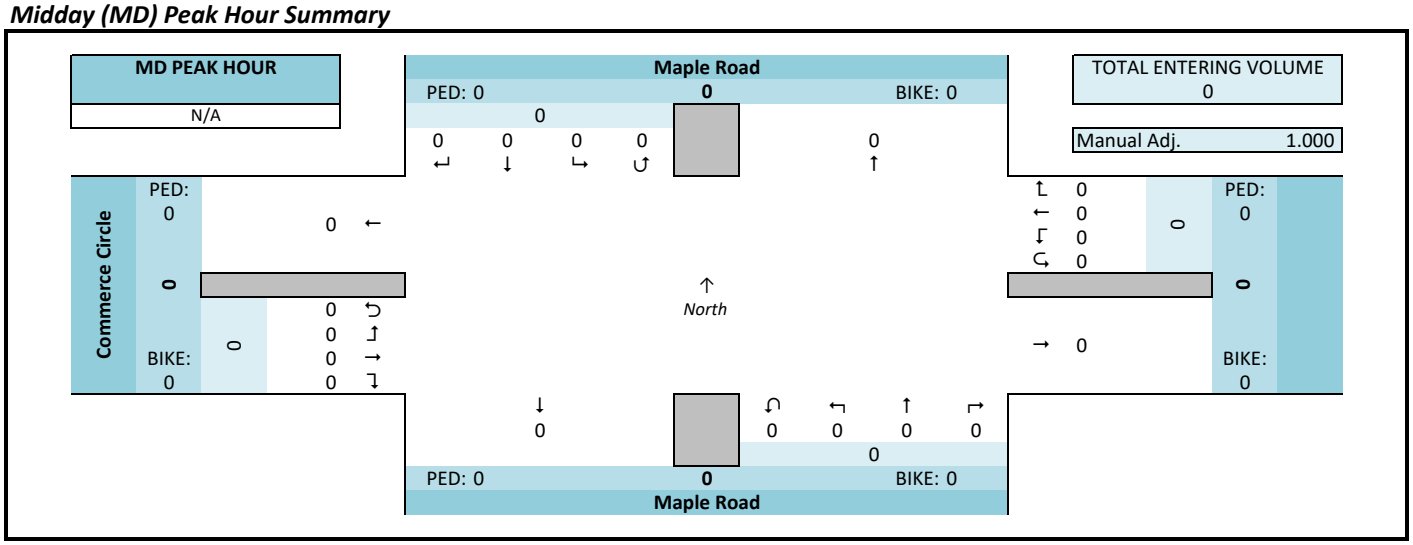
Count Basics			*Page 2 of 13*
Start Date:	Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

All Motor Vehicles

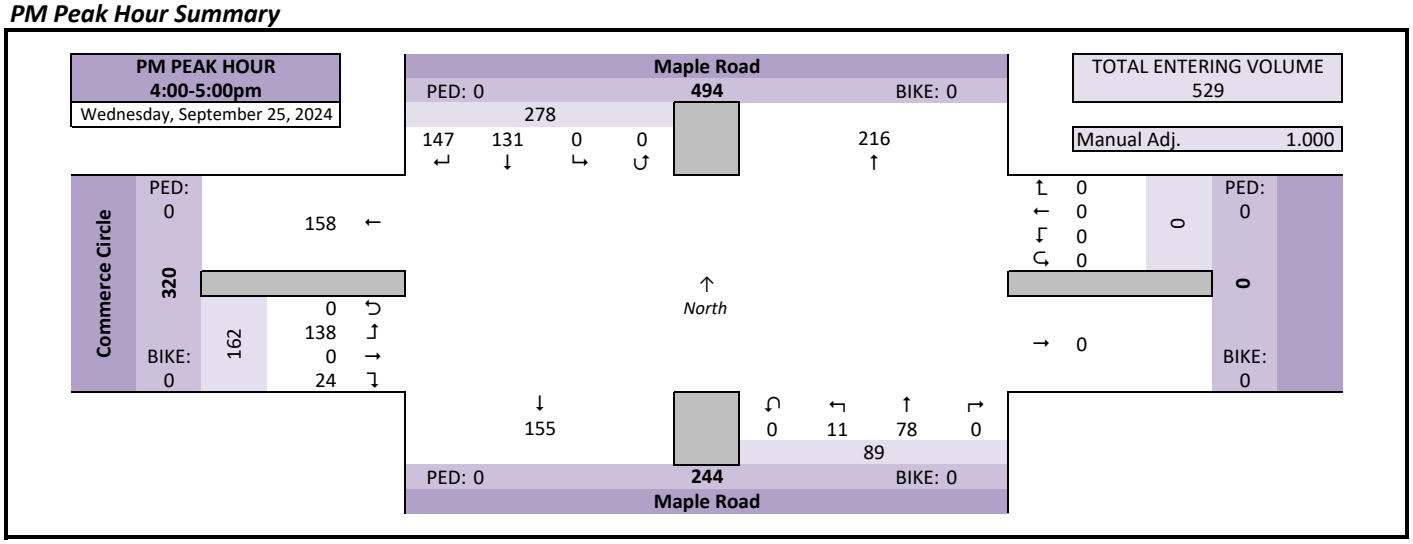
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary

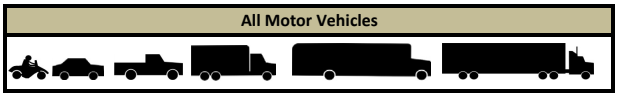


Intersection Traffic Volume Report

Count Basics			Page 3 of 13
Start Date:	Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Peak Hour Volume Summary

Maple Road & Commerce Circle



Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, September 25, 2024		From North					From East					From South					From West					
	AM Peak Hour	Maple Road										Maple Road					Commerce Circle					
	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	6:45 AM	27	5	0	0	32	0	0	0	0	0	0	37	1	0	38	4	0	27	0	31	101
	7:00 AM	38	15	0	0	53	0	0	0	0	0	0	13	3	0	16	4	0	35	0	39	108
	7:15 AM	50	13	0	0	63	0	0	0	0	0	0	10	6	0	16	4	0	41	0	45	124
	7:30 AM	36	6	0	0	42	0	0	0	0	0	0	15	3	0	18	2	0	39	0	41	101
	Peak Hour Volume	151	39	0	0	190	0	0	0	0	0	0	75	13	0	88	14	0	142	0	156	434
	Rounded Hourly Volume	150	40	0	0	190	0	0	0	0	0	0	75	15	0	90	15	0	140	0	155	435
	% Single Unit Trucks	17.9	2.6	0.0	0.0	14.7	0.0	0.0	0.0	0.0	0.0	0.0	6.7	7.7	0.0	6.8	14.3	0.0	14.8	0.0	14.7	13.1
	% Heavy Trucks	1.3	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.7
	% Trucks (Total)	19.2	2.6	0.0	0.0	15.8	0.0	0.0	0.0	0.0	0.0	0.0	8.0	7.7	0.0	8.0	14.3	0.0	14.8	0.0	14.7	13.8
	Peak Hour Factor (PHF)	0.75	0.65	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.54	0.00	0.58	0.87	0.00	0.87	0.00	0.87	0.87

N/A		From North					From East					From South					From West					
	MD Peak Hour	Maple Road										Maple Road					Commerce Circle					
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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, September 25, 2024		From North					From East					From South					From West					
	PM Peak Hour	Maple Road										Maple Road					Commerce Circle					
	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	47	38	0	0	85	0	0	0	0	0	0	23	0	0	23	5	0	33	0	38	146
	4:15 PM	38	29	0	0	67	0	0	0	0	0	0	20	0	0	20	8	0	36	0	44	131
	4:30 PM	37	33	0	0	70	0	0	0	0	0	0	19	5	0	24	6	0	40	0	46	140
	4:45 PM	25	31	0	0	56	0	0	0	0	0	0	16	6	0	22	5	0	29	0	34	112
	Peak Hour Volume	147	131	0	0	278	0	0	0	0	0	0	78	11	0	89	24	0	138	0	162	529
	Rounded Hourly Volume	145	130	0	0	275	0	0	0	0	0	0	80	10	0	90	25	0	140	0	165	530
	% Single Unit Trucks	6.1	1.5	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	3.4	0.0	0.0	3.6	0.0	3.1	3.6
	% 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	0.7	0.0	0.6	0.2
	% Trucks (Total)	6.1	1.5	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	3.4	0.0	0.0	4.3	0.0	3.7	3.8
	Peak Hour Factor (PHF)	0.78	0.86	0.00	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.46	0.00	0.93	0.75	0.00	0.86	0.00	0.88	0.91

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		Maple Road						Maple Road			Commerce Circle			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	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	1	0	1	0	0	0	0	0	0	0	0	0	1
	7:30 AM	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
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	4:00 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 5 of 13*
Start Date: Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Motor Vehicle Data

Maple Road & Commerce Circle

All Motor Vehicles

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) Maple Road					From East (←)					From South (↑) Maple Road					From West (→) Commerce Circle					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	30	2	0	0	32	0	0	0	0	0	0	4	0	0	4	1	0	24	0	25	61	374	0.79
	6:15 AM	42	2	0	0	44	0	0	0	0	0	0	5	3	0	8	0	0	41	0	41	93	421	0.88
	6:30 AM	44	9	0	0	53	0	0	0	0	0	0	13	6	0	19	6	0	41	0	47	119	452	0.91
	6:45 AM	27	5	0	0	32	0	0	0	0	0	0	37	1	0	38	4	0	27	0	31	101	434	0.88
	7:00 AM	38	15	0	0	53	0	0	0	0	0	0	13	3	0	16	4	0	35	0	39	108	439	0.89
	7:15 AM	50	13	0	0	63	0	0	0	0	0	0	10	6	0	16	4	0	41	0	45	124	407	0.82
	7:30 AM	36	6	0	0	42	0	0	0	0	0	0	15	3	0	18	2	0	39	0	41	101	370	0.87
	7:45 AM	38	20	0	0	58	0	0	0	0	0	0	13	0	0	13	4	0	31	0	35	106	343	0.81
	8:00 AM	20	13	0	0	33	0	0	0	0	0	0	11	4	1	16	7	0	20	0	27	76	335	0.85
	8:15 AM	36	17	0	0	53	0	0	0	0	0	0	9	1	0	10	2	0	22	0	24	87		
	8:30 AM	20	12	0	0	32	0	0	0	0	0	0	16	0	0	16	3	0	23	0	26	74		
	8:45 AM	44	14	0	0	58	0	0	0	0	0	0	9	2	0	11	5	0	24	0	29	98		
	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		
	11:15 AM	0	0	0	0	0	0	0	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	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		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0		
	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	36	29	0	0	65	0	0	0	0	0	0	18	4	0	22	1	0	33	0	34	121	510	0.87
	3:15 PM	36	33	0	0	69	0	0	0	0	0	0	11	2	0	13	4	0	34	0	38	120	535	0.92
	3:30 PM	34	44	0	0	78	0	0	0	0	0	0	21	6	0	27	3	0	38	0	41	146	546	0.93
	3:45 PM	35	32	0	0	67	0	0	0	0	0	0	11	4	0	15	7	0	34	0	41	123	540	0.92
	4:00 PM	47	38	0	0	85	0	0	0	0	0	0	23	0	0	23	5	0	33	0	38	146	529	0.91
	4:15 PM	38	29	0	0	67	0	0	0	0	0	0	20	0	0	20	8	0	36	0	44	131	517	0.92
	4:30 PM	37	33	0	0	70	0	0	0	0	0	0	19	5	0	24	6	0	40	0	46	140	516	0.92
	4:45 PM	25	31	0	0	56	0	0	0	0	0	0	16	6	0	22	5	0	29	0	34	112	503	0.94
	5:00 PM	33	50	0	0	83	0	0	0	0	0	0	19	1	0	20	3	0	28	0	31	134	493	0.92
	5:15 PM	37	35	0	0	72	0	0	0	0	0	0	20	3	0	23	4	0	31	0	35	130		
	5:30 PM	34	30	0	0	64	0	0	0	0	0	0	19	1	0	20	4	0	39	0	43	127		
	5:45 PM	26	24	0	0	50	0	0	0	0	0	0	21	2	0	23	1	0	28	0	29	102		
	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		843	536	0	0	1379	0	0	0	0	0	0	373	63	1	437	93	0	771	0	864	2680		

Peak Hour All Vehicle Volume Summary

Hourly Time Period		From North (↓) Maple Road					From East (←)					From South (↑) Maple Road					From West (→) Commerce Circle					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	6:45 AM	151	39	0	0	190	0	0	0	0	0	0	75	13	0	88	14	0	142	0	156	434		0.88
MD	12:00 PM	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	147	131	0	0	278	0	0	0	0	0	0	78	11	0	89	24	0	138	0	162	529		0.91

Intersection Traffic Volume Report

Count Basics		*Page 9 of 13*
Start Date: Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Maple Road & Commerce Circle

15-Minute Heavy Vehicle Data

	15-Minute Time Period	From North (↓) Maple Road					From East (←)					From South (↑) Maple Road					From West (→) Commerce Circle					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
AM Peak Period	6:00 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	22
	6:15 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	5	34
	6:30 AM	4	0	0	0	4	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	8	49
	6:45 AM	3	1	0	0	4	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	6	60
	7:00 AM	5	0	0	0	5	0	0	0	0	0	0	1	1	0	2	1	0	7	0	8	15	63
	7:15 AM	12	0	0	0	12	0	0	0	0	0	0	1	0	0	1	1	0	6	0	7	20	54
	7:30 AM	9	0	0	0	9	0	0	0	0	0	0	3	0	0	3	0	0	7	0	7	19	44
	7:45 AM	3	2	0	0	5	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3	9	33
	8:00 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	4	0	4	6	37
	8:15 AM	6	2	0	0	8	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	10	
	8:30 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	5	0	6	8	
	8:45 AM	6	2	0	0	8	0	0	0	0	0	0	1	1	0	2	0	0	3	0	3	13	
	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	
	11:15 AM	0	0	0	0	0	0	0	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	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	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	
	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	3	3	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	9	18
	3:15 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4	11
	3:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	1	0	0	0	1	4	9
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	13
	4:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	20
	4:15 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	23
	4:30 PM	4	1	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	8	25
	4:45 PM	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	4	0	4	8	21
	5:00 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	5	17
	5:15 PM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4	
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	1	0	1	4	
	5:45 PM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	4	
	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		70	19	0	0	89	0	0	0	0	0	0	23	4	0	27	4	0	57	0	61	177	

Peak Hour Heavy Vehicle Volume Summary

	Hourly Time Period	From North (↓) Maple Road					From East (←)					From South (↑) Maple Road					From West (→) Commerce Circle					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
AM	6:45 AM	29	1	0	0	30	0	0	0	0	0	0	6	1	0	7	2	0	21	0	23	60
MD	12:00 PM	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	9	2	0	0	11	0	0	0	0	0	0	3	0	0	3	0	0	6	0	6	20

Intersection Traffic Volume Report

Count Basics	Version 2024.04		Page 1 of 13
Start Date:	Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Base Information, Observed (6) Hour and Estimated (24) Hour Volume Summaries

Major St: **Commerce Circle**
Minor St: **KT DWs**
Intersection of: ***Commerce Circle & KT DWs*** **IX_ID:**

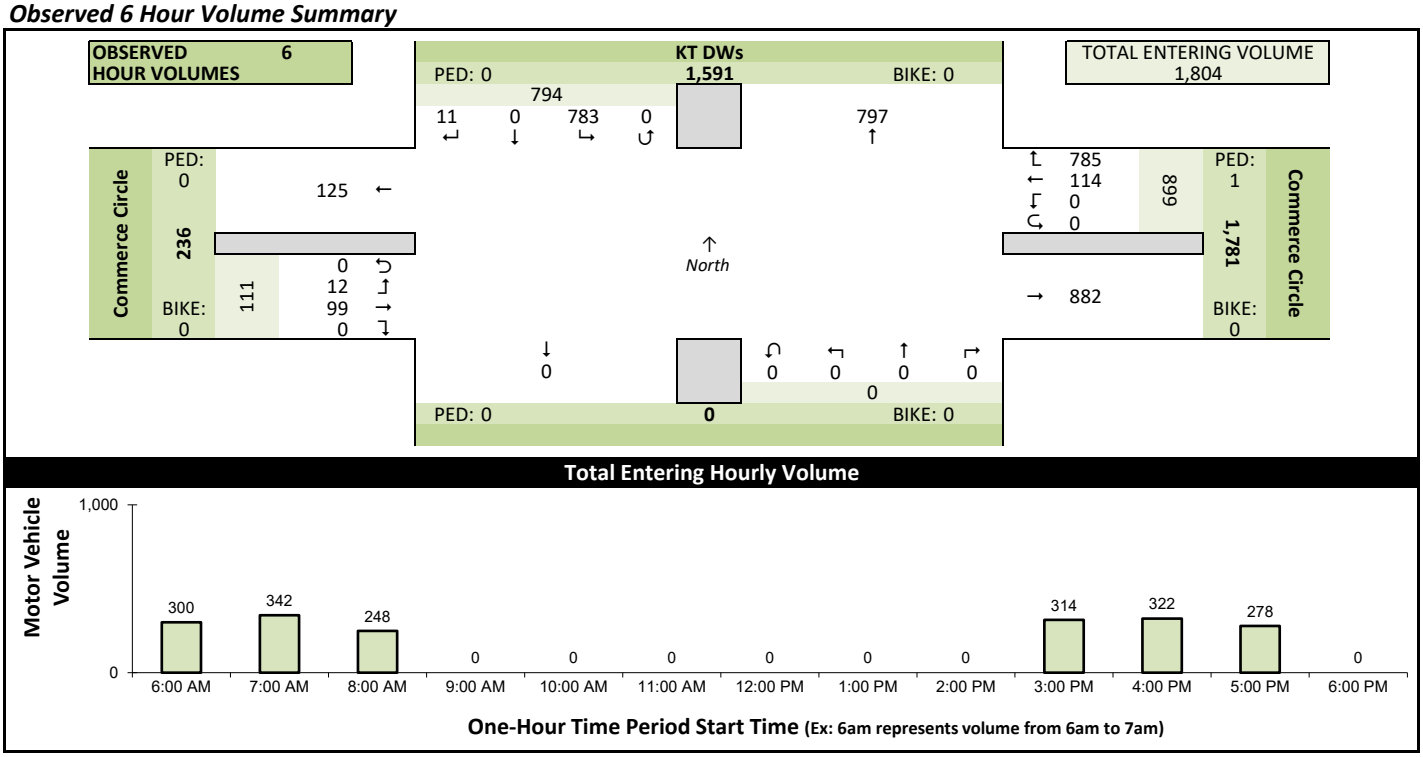
Site Information

Municipality	Village of Germantown		
County	66 - Washington	WisDOT Region	SE
Traffic Control	Uncontrolled		
Roadway Names		North Direction	↑
North Leg	KT DWs		
East Leg	Commerce Circle		
South Leg			
West Leg	Commerce Circle		
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		

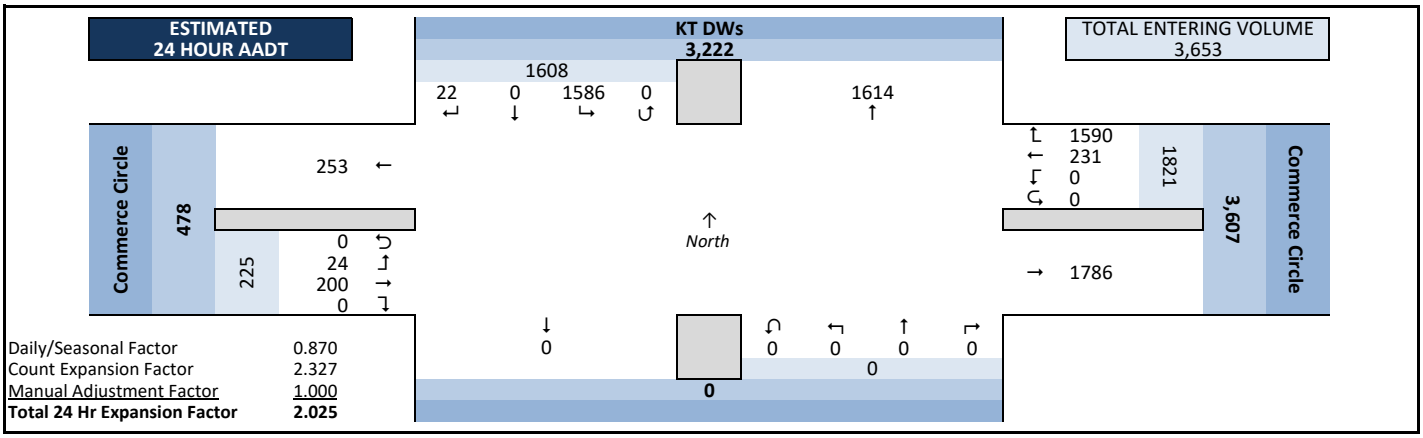
Count Information

Hrs Counted:	06:00 AM-09:00 AM and 03:00 PM-06:00 PM				
1st Day of Count	Wednesday, September 25, 2024			Weather	
AM Peak Period	Wednesday, September 25, 2024			Clear & Dry	
Midday Peak Period	Wednesday, September 25, 2024			Clear & Dry	
PM Peak Period	Wednesday, September 25, 2024			Clear & Dry	
Calculated Peak Hours					
AM	6:30-7:30am	MD		PM	3:45-4:45pm
Peak Hours Selected for Analysis					
AM	6:45-7:45am	MD		PM	4:00-5:00pm
Daily/Seasonal Adjustment Group	(2) Urban Arterials & Collectors				
Count Expansion Group	(2) Urban Arterials & Collectors				
Daily/Seasonal Adjustment Factor	0.870	Count Expansion Factor	2.327		
Company Name	TADI, Inc.			Manual Adj.	1.000
Observers: AM Peak Period	Amy Scheuerlein				
Observers: Midday Peak Period	None				
Observers: PM Peak Period	Amy Scheuerlein				
Comments	2021 DOT Daily & Seasonal Factors				

Observed 6 Hour Volume Summary



Estimated 24 Hour AADT



Intersection Traffic Volume Report

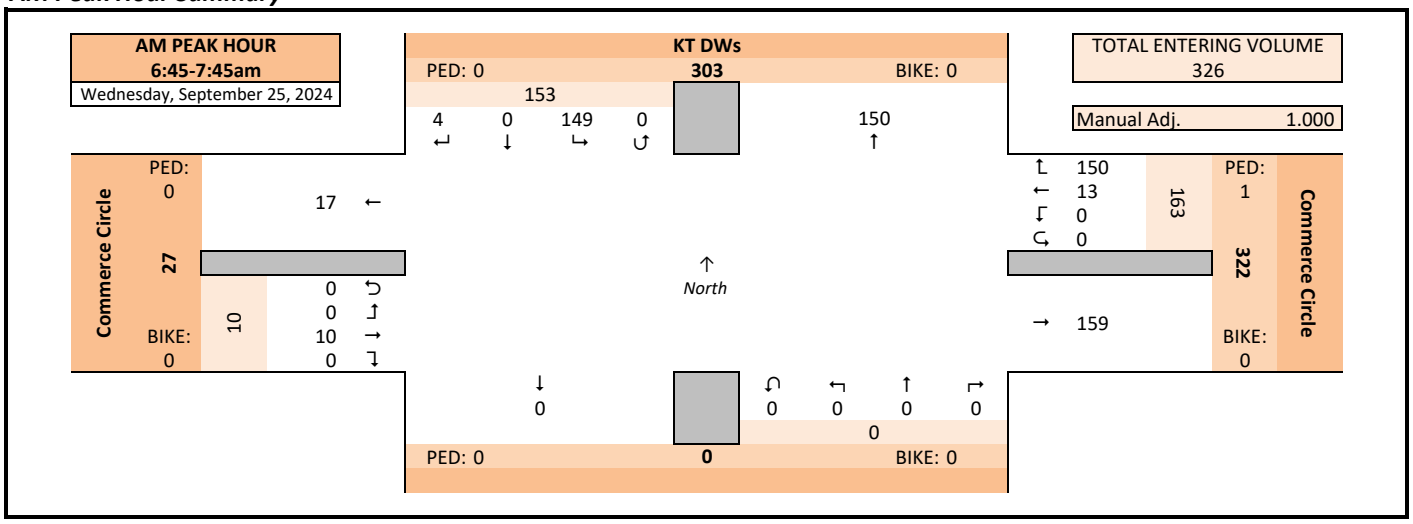
Peak Hour Volume Graphical Summary

Count Basics			*Page 2 of 13*
Start Date:	Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

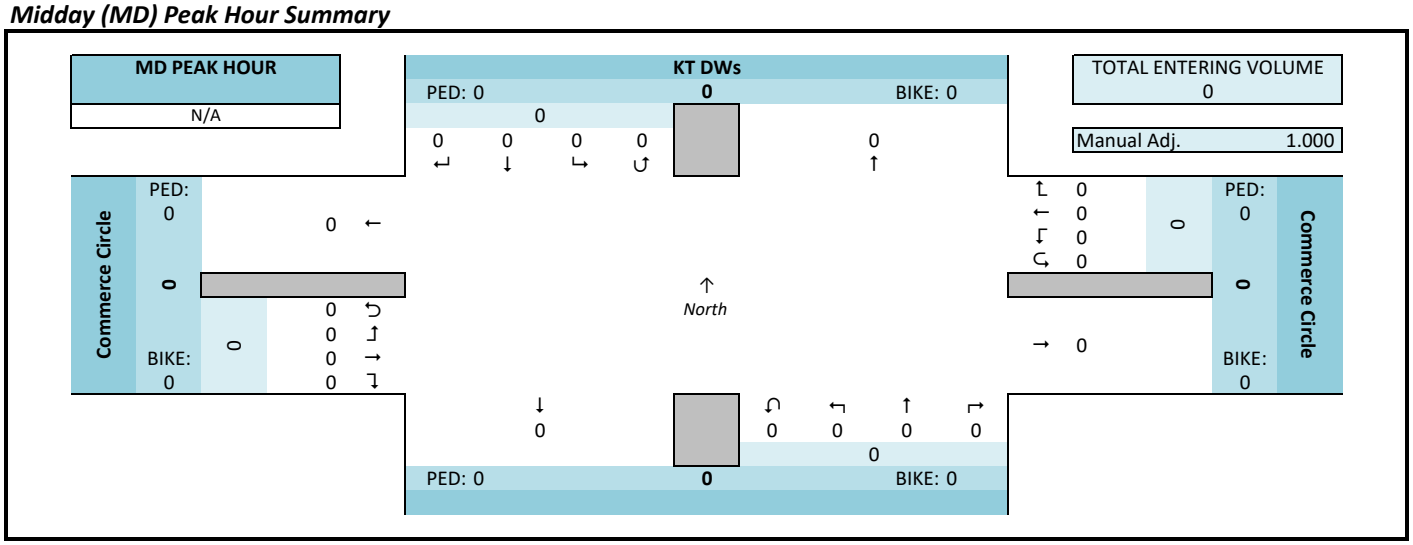
Commerce Circle & KT DWs

All Motor Vehicles

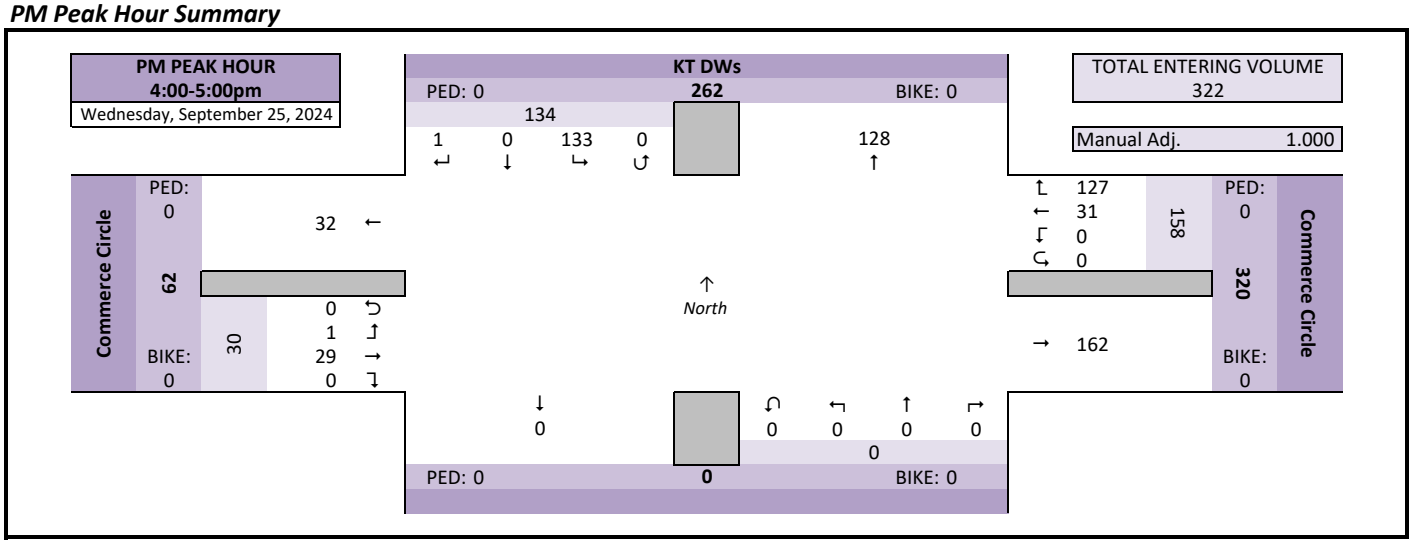
AM Peak Hour Summary



Midday (MD) Peak Hour Summary



PM Peak Hour Summary



Intersection Traffic Volume Report

Count Basics			Page 3 of 13
Start Date:	Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6		Non-Holiday	No Special Events

Peak Hour Volume Summary

Commerce Circle & KT DWs

All Motor Vehicles

Peak Hour Volumes, Truck Percentages, and PHFs

Wednesday, September 25, 2024		From North					From East					From South					From West					
	AM Peak Hour	KT DWs					Commerce Circle										Commerce Circle					
	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	6:45 AM	0	0	30	0	30	25	1	0	0	26	0	0	0	0	0	0	1	0	0	1	57
	7:00 AM	0	0	34	0	34	37	3	0	0	40	0	0	0	0	0	0	4	0	0	4	78
	7:15 AM	2	0	42	0	44	51	6	0	0	57	0	0	0	0	0	0	3	0	0	3	104
	7:30 AM	2	0	43	0	45	37	3	0	0	40	0	0	0	0	0	0	2	0	0	2	87
	Peak Hour Volume	4	0	149	0	153	150	13	0	0	163	0	0	0	0	0	0	10	0	0	10	326
	Rounded Hourly Volume	5	0	150	0	155	150	15	0	0	165	0	0	0	0	0	0	10	0	0	10	330
	% Single Unit Trucks	50.0	0.0	12.8	0.0	13.7	15.3	53.8	0.0	0.0	18.4	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	60.0	17.5
	% Heavy Trucks	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	% Trucks (Total)	50.0	0.0	12.8	0.0	13.7	15.3	61.5	0.0	0.0	19.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	60.0	17.8
	Peak Hour Factor (PHF)	0.50	0.00	0.87	0.00	0.85	0.74	0.54	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.62	0.78

N/A		From North					From East					From South					From West					
	MD Peak Hour	KT DWs					Commerce Circle										Commerce Circle					
	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	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, September 25, 2024		From North					From East					From South					From West					
	PM Peak Hour	KT DWs					Commerce Circle										Commerce Circle					
	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	33	0	33	35	10	0	0	45	0	0	0	0	0	0	5	0	0	5	83
	4:15 PM	0	0	35	0	35	31	7	0	0	38	0	0	0	0	0	0	9	0	0	9	82
	4:30 PM	1	0	36	0	37	34	6	0	0	40	0	0	0	0	0	0	11	0	0	11	88
	4:45 PM	0	0	29	0	29	27	8	0	0	35	0	0	0	0	0	0	4	1	0	5	69
	Peak Hour Volume	1	0	133	0	134	127	31	0	0	158	0	0	0	0	0	0	29	1	0	30	322
	Rounded Hourly Volume	0	0	135	0	135	125	30	0	0	155	0	0	0	0	0	0	30	0	0	30	320
	% Single Unit Trucks	100.0	0.0	1.5	0.0	2.2	3.9	12.9	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	0.0	10.0	4.7
	% Heavy Trucks	0.0	0.0	0.8	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	% Trucks (Total)	100.0	0.0	2.3	0.0	3.0	3.9	12.9	0.0	0.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	0.0	10.0	5.0
	Peak Hour Factor (PHF)	0.25	0.00	0.92	0.00	0.91	0.91	0.77	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.25	0.00	0.68	0.91

Peak Hour Pedestrian and Bicyclist Volumes

Pedestrians and Bicyclists		Crossing North Approach			Crossing East Approach			Crossing South Approach			Crossing West Approach			Total Ped & Bike Volume
		KT DWs			Commerce Circle						Commerce Circle			
	15-Minute Start Time	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	Pedestrian	Bicyclist	Total	
AM	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	1	0	1	0	0	0	0	0	0	1
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	1	0	1	0	0	0	0	0	0	1
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	4:00 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 5 of 13*
Start Date: Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Motor Vehicle Data

Commerce Circle & KT DWs

All Motor Vehicles

15-Minute Motor Vehicle Data

15-Minute Time Period		From North (↓) KT DWs					From East (←) Commerce Circle					From South (↑)					From West (→) Commerce Circle					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	26	0	26	29	0	0	0	29	0	0	0	0	0	0	0	0	0	0	55	300	0.72
	6:15 AM	0	0	41	0	41	43	0	0	0	43	0	0	0	0	0	0	0	0	0	0	84	323	0.78
	6:30 AM	0	0	50	0	50	51	2	0	0	53	0	0	0	0	0	0	1	0	0	1	104	343	0.82
	6:45 AM	0	0	30	0	30	25	1	0	0	26	0	0	0	0	0	0	1	0	0	1	57	326	0.78
	7:00 AM	0	0	34	0	34	37	3	0	0	40	0	0	0	0	0	0	4	0	0	4	78	342	0.82
	7:15 AM	2	0	42	0	44	51	6	0	0	57	0	0	0	0	0	0	3	0	0	3	104	320	0.77
	7:30 AM	2	0	43	0	45	37	3	0	0	40	0	0	0	0	0	0	2	0	0	2	87	279	0.80
	7:45 AM	1	0	34	0	35	35	2	0	0	37	0	0	0	0	0	0	1	0	0	1	73	243	0.83
	8:00 AM	0	0	29	0	29	22	3	0	0	25	0	0	0	0	0	0	1	1	0	2	56	248	0.79
	8:15 AM	0	0	27	0	27	34	1	0	0	35	0	0	0	0	0	0	0	1	0	1	63		
	8:30 AM	0	0	29	0	29	18	2	0	0	20	0	0	0	0	0	0	1	1	0	2	51		
	8:45 AM	0	0	26	0	26	39	7	0	0	46	0	0	0	0	0	0	3	3	0	6	78		
	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		
	11:15 AM	0	0	0	0	0	0	0	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	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		
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0		
	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	1	0	26	0	27	30	8	0	0	38	0	0	0	0	0	0	8	1	0	9	74	314	0.96
	3:15 PM	2	0	29	0	31	28	11	0	0	39	0	0	0	0	0	0	9	0	0	9	79	323	0.97
	3:30 PM	0	0	28	0	28	31	8	0	0	39	0	0	0	0	0	0	12	0	0	12	79	326	0.98
	3:45 PM	0	0	35	0	35	29	11	0	0	40	0	0	0	0	0	0	6	1	0	7	82	335	0.95
	4:00 PM	0	0	33	0	33	35	10	0	0	45	0	0	0	0	0	0	5	0	0	5	83	322	0.91
	4:15 PM	0	0	35	0	35	31	7	0	0	38	0	0	0	0	0	0	9	0	0	9	82	302	0.86
	4:30 PM	1	0	36	0	37	34	6	0	0	40	0	0	0	0	0	0	11	0	0	11	88	296	0.84
	4:45 PM	0	0	29	0	29	27	8	0	0	35	0	0	0	0	0	0	4	1	0	5	69	289	0.89
	5:00 PM	0	0	27	0	27	28	5	0	0	33	0	0	0	0	0	0	3	0	0	3	63	278	0.86
	5:15 PM	0	0	31	0	31	34	6	0	0	40	0	0	0	0	0	0	4	1	0	5	76		
	5:30 PM	0	0	39	0	39	31	3	0	0	34	0	0	0	0	0	0	6	2	0	8	81		
	5:45 PM	2	0	24	0	26	26	1	0	0	27	0	0	0	0	0	0	5	0	0	5	58		
	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		11	0	783	0	794	785	114	0	0	899	0	0	0	0	0	0	99	12	0	111	1804		

Peak Hour All Vehicle Volume Summary

Hourly Time Period		From North (↓) KT DWs					From East (←) Commerce Circle					From South (↑)					From West (→) Commerce Circle					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	6:45 AM	4	0	149	0	153	150	13	0	0	163	0	0	0	0	0	0	10	0	0	10	326	0.78
MD	12:00 PM	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	1	0	133	0	134	127	31	0	0	158	0	0	0	0	0	0	29	1	0	30	322	0.91

Intersection Traffic Volume Report

Count Basics		*Page 9 of 13*
Start Date: Wednesday, September 25, 2024	Weekday	Schools in Session
Total Number of Hours Counted: 6	Non-Holiday	No Special Events

15-Minute Heavy Vehicle Data

Commerce Circle & KT DWs

15-Minute Heavy Vehicle Data

15-Minute Time Period		From North (KT DWs)					From East (Commerce Circle)					From South					From West (Commerce Circle)					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
AM Peak Period	6:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	16
	6:15 AM	0	0	3	0	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	28
	6:30 AM	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	0	0	0	0	0	6	45
	6:45 AM	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	4	58
	7:00 AM	0	0	5	0	5	5	0	0	0	5	0	0	0	0	0	0	3	0	0	3	13	60
	7:15 AM	1	0	5	0	6	10	4	0	0	14	0	0	0	0	0	0	2	0	0	2	22	54
	7:30 AM	1	0	8	0	9	6	3	0	0	9	0	0	0	0	0	0	1	0	0	1	19	34
	7:45 AM	0	0	3	0	3	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	6	22
	8:00 AM	0	0	5	0	5	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7	24
	8:15 AM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	
	8:30 AM	0	0	4	0	4	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	7	
	8:45 AM	0	0	1	0	1	4	2	0	0	6	0	0	0	0	0	0	1	0	0	1	8	
	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	
	11:15 AM	0	0	0	0	0	0	0	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	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	
	12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	
	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	2	0	2	3	0	0	0	3	0	0	0	0	0	0	1	0	0	1	6	11
	3:15 PM	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	7
	3:30 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	6
	3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
	4:00 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	16
	4:15 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2	17
	4:30 PM	1	0	0	0	1	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	6	17
	4:45 PM	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	0	2	0	0	2	6	13
	5:00 PM	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	9
	5:15 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	
	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	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	
	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		4	0	48	0	52	54	17	0	0	71	0	0	0	0	0	0	13	0	0	13	136	

Peak Hour Heavy Vehicle Volume Summary

Hourly Time Period		From North (KT DWs)					From East (Commerce Circle)					From South					From West (Commerce Circle)					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
AM	6:45 AM	2	0	19	0	21	23	8	0	0	31	0	0	0	0	0	0	6	0	0	6	58
MD	12:00 PM	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	1	0	3	0	4	5	4	0	0	9	0	0	0	0	0	0	3	0	0	3	16

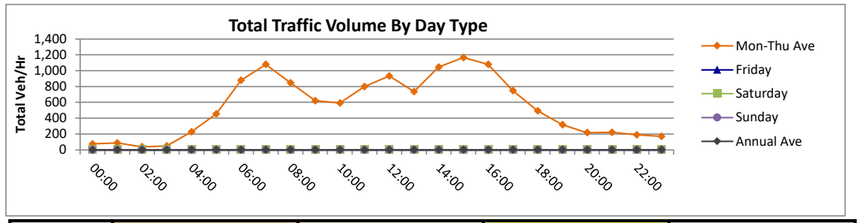
Wisconsin Department of Transportation

Hourly Traffic Volume Report **2023-Aug-07 to 2023-Aug-09**

Coverage Count

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

Location	**MAPLE RD SOUTH OF W MEQUON RD GERMANTOWN**	Segment ID	
Site #	660448	Seasonal Factor Group	2
Region	SE	Daily Factor Group	2
County	WASHINGTON	Axle Factor Group	6
Funct. Class	U Minor Arterial	Growth Factor Group	



Hour	Sun			Mon 2023-08-07			Tues 2023-08-08			Wed 2023-08-09			Thur			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			-			-	17	48	*65*	22	60	*82*			-			-			-
01:00-01:59			-			-	15	67	*82*	28	64	*92*			-			-			-
02:00-02:59			-			-	12	18	*30*	15	30	*45*			-			-			-
03:00-03:59			-			-	29	27	*56*	24	17	*41*			-			-			-
04:00-04:59			-			-	180	57	*237*	175	43	*218*			-			-			-
05:00-05:59			-			-	342	119	*461*	335	114	*449*			-			-			-
06:00-06:59			-			-	654	237	*891*	611	254	*865*			-			-			-
07:00-07:59			-			-	594	521	*1,115*	528	512	*1,040*			-			-			-
08:00-08:59			-	438	388	*826*	460	382	*842*	510	360	*870*			-			-			-
09:00-09:59			-	287	321	*608*	286	336	*622*	286	339	*625*			-			-			-
10:00-10:59			-	270	346	*616*	230	338	*568*			-			-			-			-
11:00-11:59			-	314	435	*749*	398	450	*848*			-			-			-			-
12:00-12:59			-	433	457	*890*	462	513	*975*			-			-			-			-
13:00-13:59			-	363	395	*758*	349	365	*714*			-			-			-			-
14:00-14:59			-	428	599	*1,027*	440	623	*1,063*			-			-			-			-
15:00-15:59			-	348	839	*1,187*	346	800	*1,146*			-			-			-			-
16:00-16:59			-	294	752	*1,046*	325	786	*1,111*			-			-			-			-
17:00-17:59			-	278	459	*737*	313	447	*760*			-			-			-			-
18:00-18:59			-	250	239	*489*	231	263	*494*			-			-			-			-
19:00-19:59			-	121	186	*307*	120	207	*327*			-			-			-			-
20:00-20:59			-	120	94	*214*	122	96	*218*			-			-			-			-
21:00-21:59			-	76	139	*215*	78	148	*226*			-			-			-			-
22:00-22:59			-	126	59	*185*	136	55	*191*			-			-			-			-
23:00-23:59			-	38	131	*169*	42	128	*170*			-			-			-			-
Daily Total	**-**	**-**	**-**	-	-	-	**6,181**	**7,031**	***13,212***	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	**-**	**-**	**-**	-	-	-	**654**	**521**	***1,115***	**611**	**512**	***1,040***	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	06:00	07:00	*07:00*	06:00	07:00	*07:00*	-	-	-	-	-	-	-	-	-
MD Peak	**-**	**-**	**-**	**433**	**599**	***1,027***	**462**	**623**	***1,063***	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	12:00	14:00	*14:00*	12:00	14:00	*14:00*	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	**-**	**-**	**-**	**348**	**839**	***1,187***	**346**	**800**	***1,146***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hour	-	-	-	15:00	15:00	*15:00*	15:00	15:00	*15:00*	-	-	-	-	-	-	-	-	-	-	-	-
Daily Peak	**-**	**-**	**-**	-	-	-	**654**	**800**	***1,146***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Hour	-	-	-	-	-	-	06:00	15:00	*15:00*	-	-	-	-	-	-	-	-	-	-	-	-
% of Total	-	-	-	-	-	-	10.6%	11.4%	*8.7%*	-	-	-	-	-	-	-	-	-	-	-	-
Daily Ave	**-**	**-**	**-**	-	-	-	**258**	**293**	***551***	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

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	20	54	*74*	-	-	-	-	-	-	0	0	*0*
01:00-01:59	22	66	*87*	-	-	-	-	-	-	0	0	*0*
02:00-02:59	14	24	*38*	-	-	-	-	-	-	0	0	*0*
03:00-03:59	27	22	*49*	-	-	-	-	-	-	0	0	*0*
04:00-04:59	178	50	*228*	-	-	-	-	-	-	0	0	*0*
05:00-05:59	339	117	*455*	-	-	-	-	-	-	0	0	*0*
06:00-06:59	633	246	*878*	-	-	-	-	-	-	0	0	*0*
07:00-07:59	561	517	*1,078*	-	-	-	-	-	-	0	0	*0*
08:00-08:59	469	377	*846*	-	-	-	-	-	-	0	0	*0*
09:00-09:59	286	332	*618*	-	-	-	-	-	-	0	0	*0*
10:00-10:59	250	342	*592*	-	-	-	-	-	-	0	0	*0*
11:00-11:59	356	443	*799*	-	-	-	-	-	-	0	0	*0*
12:00-12:59	448	485	*933*	-	-	-	-	-	-	0	0	*0*
13:00-13:59	356	380	*736*	-	-	-	-	-	-	0	0	*0*
14:00-14:59	434	611	*1,045*	-	-	-	-	-	-	0	0	*0*
15:00-15:59	347	820	*1,167*	-	-	-	-	-	-	0	0	*0*
16:00-16:59	310	769	*1,079*	-	-	-	-	-	-	0	0	*0*
17:00-17:59	296	453	*749*	-	-	-	-	-	-	0	0	*0*
18:00-18:59	241	251	*492*	-	-	-	-	-	-	0	0	*0*
19:00-19:59	121	197	*317*	-	-	-	-	-	-	0	0	*0*
20:00-20:59	121	95	*216*	-	-	-	-	-	-	0	0	*0*
21:00-21:59	77	144	*221*	-	-	-	-	-	-	0	0	*0*
22:00-22:59	131	57	*188*	-	-	-	-	-	-	0	0	*0*
23:00-23:59	40	130	*170*	-	-	-	-	-	-	0	0	*0*
Daily Total	**6,072**	**6,977**	***13,049***	-	-	-	-	-	-	**0**	**0**	**0**
AM Peak	**633**	**517**	***1,078***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	06:00	07:00	*07:00*	-	-	-	-	-	-	00:00	00:00	*00:00*
MD Peak	**448**	**611**	***1,045***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	12:00	14:00	*14:00*	-	-	-	-	-	-	10:00	10:00	*10:00*
PM Peak	**347**	**820**	***1,167***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	15:00	15:00	*15:00*	-	-	-	-	-	-	15:00	15:00	*15:00*
Daily Peak	**633**	**820**	***1,167***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	06:00	15:00	*15:00*	-	-	-	-	-	-	00:00	00:00	*00:00*
% of Total	10.4%	11.7%	*8.9%*	-	-	-	-	-	-	#DIV/0!	#DIV/0!	######
Daily Ave	**253**	**291**	***544***	-	-	-	-	-	-	**0**	**0**	***0***

Seasonal Fctr																					
Daily Fctr																					
Axle Factor																					
Pulse Fctr																					
Overall Fctr	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000	

AM	579	449
PM	310	769

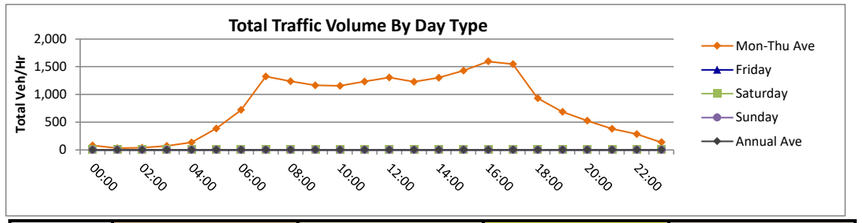
Wisconsin Department of Transportation

Hourly Traffic Volume Report **2023-Jul-24 to 2023-Jul-26**

Coverage Count

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

Location	**STH 167 EAST OF MAPLE RD GERMANTOWN**	Segment ID	3712
Site #	660449	Seasonal Factor Group	2
Region	SE	Daily Factor Group	2
County	WASHINGTON	Axle Factor Group	5
Funct. Class	U Principal Arterial - Other	Growth Factor Group	1



Hour	Sun			Mon 2023-07-24			Tues 2023-07-25			Wed 2023-07-26			Thur			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			-			-	47	30	*77*	43	34	*77*			-			-			-
01:00-01:59			-			-	12	14	*26*	20	15	*35*			-			-			-
02:00-02:59			-			-	25	6	*31*	25	18	*43*			-			-			-
03:00-03:59			-			-	45	32	*77*	30	36	*66*			-			-			-
04:00-04:59			-			-	72	61	*133*	70	66	*136*			-			-			-
05:00-05:59			-			-	210	160	*370*	235	165	*400*			-			-			-
06:00-06:59			-			-	425	298	*723*	394	321	*715*			-			-			-
07:00-07:59			-			-	774	554	*1,328*	769	552	*1,321*			-			-			-
08:00-08:59			-			-	720	518	*1,238*	743	494	*1,237*			-			-			-
09:00-09:59			-	634	581	*1,215*	578	574	*1,152*	589	536	*1,125*			-			-			-
10:00-10:59			-	570	579	*1,149*	546	612	*1,158*			-			-			-			-
11:00-11:59			-	545	676	*1,221*	586	653	*1,239*			-			-			-			-
12:00-12:59			-	653	656	*1,309*	614	682	*1,296*			-			-			-			-
13:00-13:59			-	579	631	*1,210*	593	647	*1,240*			-			-			-			-
14:00-14:59			-	638	662	*1,300*	583	720	*1,303*			-			-			-			-
15:00-15:59			-	626	780	*1,406*	664	781	*1,445*			-			-			-			-
16:00-16:59			-	717	850	*1,567*	721	901	*1,622*			-			-			-			-
17:00-17:59			-	673	831	*1,504*	691	898	*1,589*			-			-			-			-
18:00-18:59			-	439	497	*936*	433	491	*924*			-			-			-			-
19:00-19:59			-	328	335	*663*	346	362	*708*			-			-			-			-
20:00-20:59			-	277	225	*502*	278	270	*548*			-			-			-			-
21:00-21:59			-	200	144	*344*	245	169	*414*			-			-			-			-
22:00-22:59			-	170	111	*281*	172	112	*284*			-			-			-			-
23:00-23:59			-	60	52	*112*	82	77	*159*			-			-			-			-
Daily Total	-	-	-	-	-	-	**9,462**	**9,622**	***19,084***	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-	-	-	-	-	**774**	**574**	***1,328***	**769**	**552**	***1,321***	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	07:00	09:00	*07:00*	07:00	07:00	*07:00*	-	-	-	-	-	-	-	-	-
MD Peak	-	-	-	**653**	**676**	***1,309***	**614**	**720**	***1,303***	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	12:00	11:00	*12:00*	12:00	14:00	*14:00*	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	**717**	**850**	***1,567***	**721**	**901**	***1,622***	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	16:00	16:00	*16:00*	16:00	16:00	*16:00*	-	-	-	-	-	-	-	-	-	-	-	-
Daily Peak	-	-	-	-	-	-	**774**	**901**	***1,622***	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	07:00	16:00	*16:00*	-	-	-	-	-	-	-	-	-	-	-	-
% of Total	-	-	-	-	-	-	8.2%	9.4%	*8.5%*	-	-	-	-	-	-	-	-	-	-	-	-
Daily Ave	-	-	-	-	-	-	**394**	**401**	***795***	-	-	-	-	-	-	-	-	-	-	-	-

Seasonal Fctr																					
Daily Fctr																					
Axle Factor																					
Pulse Fctr																					
Overall Fctr	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		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	45	32	*77*	-	-	-	-	-	-	0	0	*0*
01:00-01:59	16	15	*31*	-	-	-	-	-	-	0	0	*0*
02:00-02:59	25	12	*37*	-	-	-	-	-	-	0	0	*0*
03:00-03:59	38	34	*72*	-	-	-	-	-	-	0	0	*0*
04:00-04:59	71	64	*135*	-	-	-	-	-	-	0	0	*0*
05:00-05:59	223	163	*385*	-	-	-	-	-	-	0	0	*0*
06:00-06:59	410	310	*719*	-	-	-	-	-	-	0	0	*0*
07:00-07:59	772	553	*1,325*	-	-	-	-	-	-	0	0	*0*
08:00-08:59	732	506	*1,238*	-	-	-	-	-	-	0	0	*0*
09:00-09:59	600	564	*1,164*	-	-	-	-	-	-	0	0	*0*
10:00-10:59	558	596	*1,154*	-	-	-	-	-	-	0	0	*0*
11:00-11:59	566	665	*1,230*	-	-	-	-	-	-	0	0	*0*
12:00-12:59	634	669	*1,303*	-	-	-	-	-	-	0	0	*0*
13:00-13:59	586	639	*1,225*	-	-	-	-	-	-	0	0	*0*
14:00-14:59	611	691	*1,302*	-	-	-	-	-	-	0	0	*0*
15:00-15:59	645	781	*1,426*	-	-	-	-	-	-	0	0	*0*
16:00-16:59	719	876	*1,595*	-	-	-	-	-	-	0	0	*0*
17:00-17:59	682	865	*1,547*	-	-	-	-	-	-	0	0	*0*
18:00-18:59	436	494	*930*	-	-	-	-	-	-	0	0	*0*
19:00-19:59	337	349	*686*	-	-	-	-	-	-	0	0	*0*
20:00-20:59	278	248	*525*	-	-	-	-	-	-	0	0	*0*
21:00-21:59	223	157	*379*	-	-	-	-	-	-	0	0	*0*
22:00-22:59	171	112	*283*	-	-	-	-	-	-	0	0	*0*
23:00-23:59	71	65	*136*	-	-	-	-	-	-	0	0	*0*
Daily Total	**9,444**	**9,453**	***18,897***	-	-	-	-	-	-	**0**	**0**	**0**
AM Peak	**772**	**564**	***1,325***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	07:00	09:00	*07:00*	-	-	-	-	-	-	00:00	00:00	*00:00*
MD Peak	**634**	**691**	***1,303***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	12:00	14:00	*12:00*	-	-	-	-	-	-	10:00	10:00	*10:00*
PM Peak	**719**	**876**	***1,595***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	16:00	16:00	*16:00*	-	-	-	-	-	-	15:00	15:00	*15:00*
Daily Peak	**772**	**876**	***1,595***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	07:00	16:00	*16:00*	-	-	-	-	-	-	00:00	00:00	*00:00*
% of Total	8.2%	9.3%	*8.4%*	-	-	-	-	-	-	#DIV/0!	#DIV/0!	######
Daily Ave	**394**	**394**	***787***	-	-	-	-	-	-	**0**	**0**	***0***

AM	681	492
PM	719	876

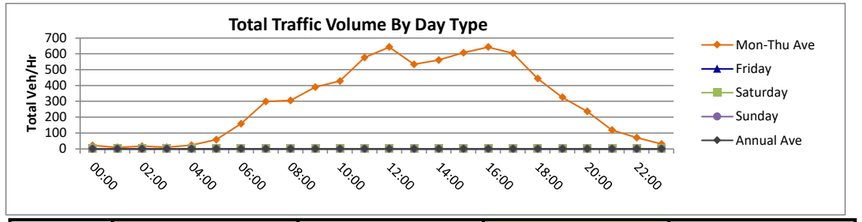
Wisconsin Department of Transportation

Hourly Traffic Volume Report **2023-Aug-14 to 2023-Aug-16**

Coverage Count

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

Location	**MAPLE RD NORTH OF STH 175 GERMANTOWN**	Segment ID	
Site #	660466	Seasonal Factor Group	2
Region	SE	Daily Factor Group	2
County	WASHINGTON	Axle Factor Group	6
Funct. Class	U Minor Arterial	Growth Factor Group	



Hour	Sun			Mon 2023-08-14		Tues 2023-08-15		Wed 2023-08-16		Thur		Fri		Sat	
	Undivided Hwy		*Total*	Undivided Hwy	*Total*	Undivided Hwy	*Total*	Undivided Hwy	*Total*	Undivided Hwy	*Total*	Undivided Hwy	*Total*	Undivided Hwy	*Total*
00:00-00:59			-		-	17	*17*	24	*24*		-		-		-
01:00-01:59			-		-	9	*9*	10	*10*		-		-		-
02:00-02:59			-		-	15	*15*	19	*19*		-		-		-
03:00-03:59			-		-	11	*11*	9	*9*		-		-		-
04:00-04:59			-		-	22	*22*	22	*22*		-		-		-
05:00-05:59			-		-	56	*56*	61	*61*		-		-		-
06:00-06:59			-		-	158	*158*	160	*160*		-		-		-
07:00-07:59			-		-	282	*282*	315	*315*		-		-		-
08:00-08:59			-	284	*284*	322	*322*	311	*311*		-		-		-
09:00-09:59			-	374	*374*	405	*405*		-		-		-		-
10:00-10:59			-	371	*371*	484	*484*		-		-		-		-
11:00-11:59			-	468	*468*	683	*683*		-		-		-		-
12:00-12:59			-	592	*592*	694	*694*		-		-		-		-
13:00-13:59			-	465	*465*	602	*602*		-		-		-		-
14:00-14:59			-	481	*481*	640	*640*		-		-		-		-
15:00-15:59			-	546	*546*	668	*668*		-		-		-		-
16:00-16:59			-	552	*552*	734	*734*		-		-		-		-
17:00-17:59			-	493	*493*	713	*713*		-		-		-		-
18:00-18:59			-	383	*383*	506	*506*		-		-		-		-
19:00-19:59			-	273	*273*	377	*377*		-		-		-		-
20:00-20:59			-	175	*175*	298	*298*		-		-		-		-
21:00-21:59			-	106	*106*	130	*130*		-		-		-		-
22:00-22:59			-	52	*52*	88	*88*		-		-		-		-
23:00-23:59			-	24	*24*	37	*37*		-		-		-		-
Daily Total	-	-	-	-	-	**7,951**	***7,951***	-	-	-	-	-	-	-	-
AM Peak	-	-	-	-	-	**405**	***405***	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	09:00	*09:00*	-	-	-	-	-	-	-	-
MD Peak	-	-	-	-	**592**	**694**	***694***	-	-	-	-	-	-	-	-
Hour	-	-	-	-	12:00	*12:00*	*12:00*	-	-	-	-	-	-	-	-
PM Peak	-	-	-	-	**552**	**734**	***734***	-	-	-	-	-	-	-	-
Hour	-	-	-	-	16:00	*16:00*	*16:00*	-	-	-	-	-	-	-	-
Daily Peak	-	-	-	-	-	**734**	***734***	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	16:00	*16:00*	-	-	-	-	-	-	-	-
% of Total	-	-	-	-	-	9.2%	*9.2%*	-	-	-	-	-	-	-	-
Daily Ave	-	-	-	-	-	**331**	***331***	-	-	-	-	-	-	-	-

Seasonal Fctr																			
Daily Fctr																			
Axle Factor																			
Pulse Fctr																			
Overall Fctr	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000	

Hour	Mon-Thurs Average		Mon-Fri Average		7 Day Average		Estimated Annual Ave	
	Undivided Hwy	*Total*	Undivided Hwy	*Total*	Undivided Hwy	*Total*	Undivided Hwy	*Total*
00:00-00:59	-	21	-	-	-	-	-	0
01:00-01:59	-	10	-	-	-	-	-	0
02:00-02:59	-	17	-	-	-	-	-	0
03:00-03:59	-	10	-	-	-	-	-	0
04:00-04:59	-	22	-	-	-	-	-	0
05:00-05:59	-	59	-	-	-	-	-	0
06:00-06:59	-	159	-	-	-	-	-	0
07:00-07:59	-	299	-	-	-	-	-	0
08:00-08:59	-	306	-	-	-	-	-	0
09:00-09:59	-	390	-	-	-	-	-	0
10:00-10:59	-	428	-	-	-	-	-	0
11:00-11:59	-	576	-	-	-	-	-	0
12:00-12:59	-	643	-	-	-	-	-	0
13:00-13:59	-	534	-	-	-	-	-	0
14:00-14:59	-	561	-	-	-	-	-	0
15:00-15:59	-	607	-	-	-	-	-	0
16:00-16:59	-	643	-	-	-	-	-	0
17:00-17:59	-	603	-	-	-	-	-	0
18:00-18:59	-	445	-	-	-	-	-	0
19:00-19:59	-	325	-	-	-	-	-	0
20:00-20:59	-	237	-	-	-	-	-	0
21:00-21:59	-	118	-	-	-	-	-	0
22:00-22:59	-	70	-	-	-	-	-	0
23:00-23:59	-	31	-	-	-	-	-	0
Daily Total	-	**7,108**	-	-	-	-	-	**0**
AM Peak	-	**390**	-	-	-	-	-	**0**
Hour	-	09:00	-	-	-	-	-	00:00
MD Peak	-	**643**	-	-	-	-	-	**0**
Hour	-	12:00	-	-	-	-	-	10:00
PM Peak	-	**643**	-	-	-	-	-	**0**
Hour	-	16:00	-	-	-	-	-	15:00
Daily Peak	-	**643**	-	-	-	-	-	**0**
Hour	-	12:00	-	-	-	-	-	00:00
% of Total	-	9.0%	-	-	-	-	-	#DIV/0!
Daily Ave	-	**296**	-	-	-	-	-	**0**

AM	264
PM	643

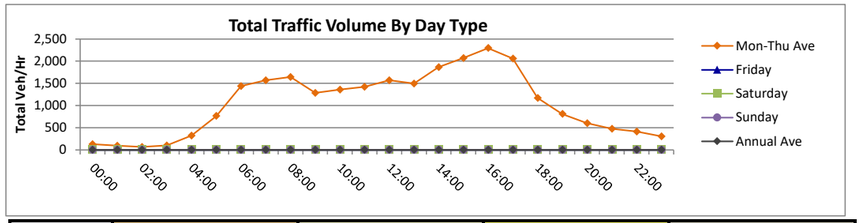
Wisconsin Department of Transportation

Hourly Traffic Volume Report **2023-Jul-24 to 2023-Jul-26**

Coverage Count

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

Location	**STH 167 BTWN USH USH 41-45 & MAPLE RD GERMANTOWN**	Segment ID	9137
Site #	660588	Seasonal Factor Group	2
Region	SE	Daily Factor Group	2
County	WASHINGTON	Axle Factor Group	5
Funct. Class	U Principal Arterial - Other	Growth Factor Group	1



Hour	Sun			Mon 2023-07-24			Tues 2023-07-25			Wed 2023-07-26			Thur			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			-			-	49	74	*123*	49	84	*133*			-			-			-
01:00-01:59			-			-	25	62	*87*	28	73	*101*			-			-			-
02:00-02:59			-			-	28	34	*62*	33	35	*68*			-			-			-
03:00-03:59			-			-	58	40	*98*	48	46	*94*			-			-			-
04:00-04:59			-			-	220	90	*310*	229	101	*330*			-			-			-
05:00-05:59			-			-	498	281	*779*	495	250	*745*			-			-			-
06:00-06:59			-			-	934	487	*1,421*	954	501	*1,455*			-			-			-
07:00-07:59			-	343	202	*545*	1,212	914	*2,126*	1,121	918	*2,039*			-			-			-
08:00-08:59			-	875	684	*1,559*	956	762	*1,718*	938	709	*1,647*			-			-			-
09:00-09:59			-	746	699	*1,445*	725	708	*1,433*	512	466	*978*			-			-			-
10:00-10:59			-	638	651	*1,289*	689	732	*1,421*			-			-			-			-
11:00-11:59			-	635	768	*1,403*	680	756	*1,436*			-			-			-			-
12:00-12:59			-	795	774	*1,569*	766	801	*1,567*			-			-			-			-
13:00-13:59			-	690	782	*1,472*	741	775	*1,516*			-			-			-			-
14:00-14:59			-	839	1,001	*1,840*	838	1,050	*1,888*			-			-			-			-
15:00-15:59			-	745	1,275	*2,020*	799	1,320	*2,119*			-			-			-			-
16:00-16:59			-	872	1,325	*2,197*	931	1,462	*2,393*			-			-			-			-
17:00-17:59			-	825	1,169	*1,994*	869	1,257	*2,126*			-			-			-			-
18:00-18:59			-	543	621	*1,164*	541	633	*1,174*			-			-			-			-
19:00-19:59			-	366	436	*802*	349	464	*813*			-			-			-			-
20:00-20:59			-	307	272	*579*	295	329	*624*			-			-			-			-
21:00-21:59			-	215	221	*436*	266	242	*508*			-			-			-			-
22:00-22:59			-	220	170	*390*	267	169	*436*			-			-			-			-
23:00-23:59			-	85	200	*285*	95	224	*319*			-			-			-			-
Daily Total	-	-	-	-	-	-	**12,831**	**13,666**	***26,497***	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-	-	-	-	-	**1,212**	**914**	***2,126***	**1,121**	**918**	***2,039***	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	07:00	07:00	*07:00*	07:00	07:00	*07:00*	-	-	-	-	-	-	-	-	-
MD Peak	-	-	-	**839**	**1,001**	***1,840***	**838**	**1,050**	***1,888***	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	14:00	14:00	*14:00*	14:00	14:00	*14:00*	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	-	-	-	**872**	**1,325**	***2,197***	**931**	**1,462**	***2,393***	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	16:00	16:00	*16:00*	16:00	16:00	*16:00*	-	-	-	-	-	-	-	-	-	-	-	-
Daily Peak	-	-	-	-	-	-	**1,212**	**1,462**	***2,393***	-	-	-	-	-	-	-	-	-	-	-	-
Hour	-	-	-	-	-	-	07:00	16:00	*16:00*	-	-	-	-	-	-	-	-	-	-	-	-
% of Total	-	-	-	-	-	-	9.4%	10.7%	*9.0%*	-	-	-	-	-	-	-	-	-	-	-	-
Daily Ave	-	-	-	-	-	-	**535**	**569**	***1,104***	-	-	-	-	-	-	-	-	-	-	-	-

Seasonal Fctr																					
Daily Fctr																					
Axle Factor																					
Pulse Fctr																					
Overall Fctr	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000		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	49	79	*128*	-	-	-	-	-	-	0	0	*0*
01:00-01:59	27	68	*94*	-	-	-	-	-	-	0	0	*0*
02:00-02:59	31	35	*65*	-	-	-	-	-	-	0	0	*0*
03:00-03:59	53	43	*96*	-	-	-	-	-	-	0	0	*0*
04:00-04:59	225	96	*320*	-	-	-	-	-	-	0	0	*0*
05:00-05:59	497	266	*762*	-	-	-	-	-	-	0	0	*0*
06:00-06:59	944	494	*1,438*	-	-	-	-	-	-	0	0	*0*
07:00-07:59	892	678	*1,570*	-	-	-	-	-	-	0	0	*0*
08:00-08:59	923	718	*1,641*	-	-	-	-	-	-	0	0	*0*
09:00-09:59	661	624	*1,285*	-	-	-	-	-	-	0	0	*0*
10:00-10:59	664	692	*1,355*	-	-	-	-	-	-	0	0	*0*
11:00-11:59	658	762	*1,420*	-	-	-	-	-	-	0	0	*0*
12:00-12:59	781	788	*1,568*	-	-	-	-	-	-	0	0	*0*
13:00-13:59	716	779	*1,494*	-	-	-	-	-	-	0	0	*0*
14:00-14:59	839	1,026	*1,864*	-	-	-	-	-	-	0	0	*0*
15:00-15:59	772	1,298	*2,070*	-	-	-	-	-	-	0	0	*0*
16:00-16:59	902	1,394	*2,295*	-	-	-	-	-	-	0	0	*0*
17:00-17:59	847	1,213	*2,060*	-	-	-	-	-	-	0	0	*0*
18:00-18:59	542	627	*1,169*	-	-	-	-	-	-	0	0	*0*
19:00-19:59	358	450	*808*	-	-	-	-	-	-	0	0	*0*
20:00-20:59	301	301	*602*	-	-	-	-	-	-	0	0	*0*
21:00-21:59	241	232	*472*	-	-	-	-	-	-	0	0	*0*
22:00-22:59	244	170	*413*	-	-	-	-	-	-	0	0	*0*
23:00-23:59	90	212	*302*	-	-	-	-	-	-	0	0	*0*
Daily Total	**12,251**	**13,039**	***25,290***	-	-	-	-	-	-	**0**	**0**	**0**
AM Peak	**944**	**718**	***1,641***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	06:00	08:00	*08:00*	-	-	-	-	-	-	00:00	00:00	*00:00*
MD Peak	**839**	**1,026**	***1,864***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	14:00	14:00	*14:00*	-	-	-	-	-	-	10:00	10:00	*10:00*
PM Peak	**902**	**1,394**	***2,295***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	16:00	16:00	*16:00*	-	-	-	-	-	-	15:00	15:00	*15:00*
Daily Peak	**944**	**1,394**	***2,295***	-	-	-	-	-	-	**0**	**0**	***0***
Hour	06:00	16:00	*16:00*	-	-	-	-	-	-	00:00	00:00	*00:00*
% of Total	7.7%	10.7%	*9.1%*	-	-	-	-	-	-	#DIV/0!	#DIV/0!	######
Daily Ave	**510**	**543**	***1,054***	-	-	-	-	-	-	**0**	**0**	***0***

AM	905	632
PM	902	1,394

APPENDIX B

SYNCHRO INTERSECTION CAPACITY ANALYSIS

Year 2024 Existing Traffic Volumes

plus

LOS Definitions

Saturation Flow Rate Calculations

Level of Service Definitions

LOS	Signalized Intersections Control Delay/Vehicle (sec/veh)	Unsignalized Intersections Avg. Control Delay (sec/veh)	Relative Delay
A	≤10	≤10	Short Delays
	Free-flow traffic operations at avearge travel speeds. Vehicles completely unimpeded in ability to maneuver. Minimal delay at signalized intersections.		
B	> 10 - 20	> 10 - 15	
	Reasonably unimpeded traffic operations at average travel speeds. Vehicle maneuverability slightly restricted. Low traffic delays.		
C	> 20 - 35	> 15 - 25	
	Stable traffic operations. Lane changes becoming more restricted. Travel speeds reduced to half of average free flow travel speeds. Longer intersection delays.		
D	> 35 - 55	> 25 - 35	Moderate Delays
	Small increases in traffic flow can cause increased delays. Delays likely attributable to increased traffic, reduced signal progression, and adverse timing.		
E	> 55 - 80	> 35 - 50	
	Significant delays. Travel speeds reduced to one-third of average free flow travel speed.		
F	> 80	> 50	Long Delays
	Extremely low speeds. Intersection congestion. Long delays. Extensive traffic queues at intersections.		

Source: Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2010

Date: October 10, 2024

BASE SATURATION FLOW RATE CALCULATIONS

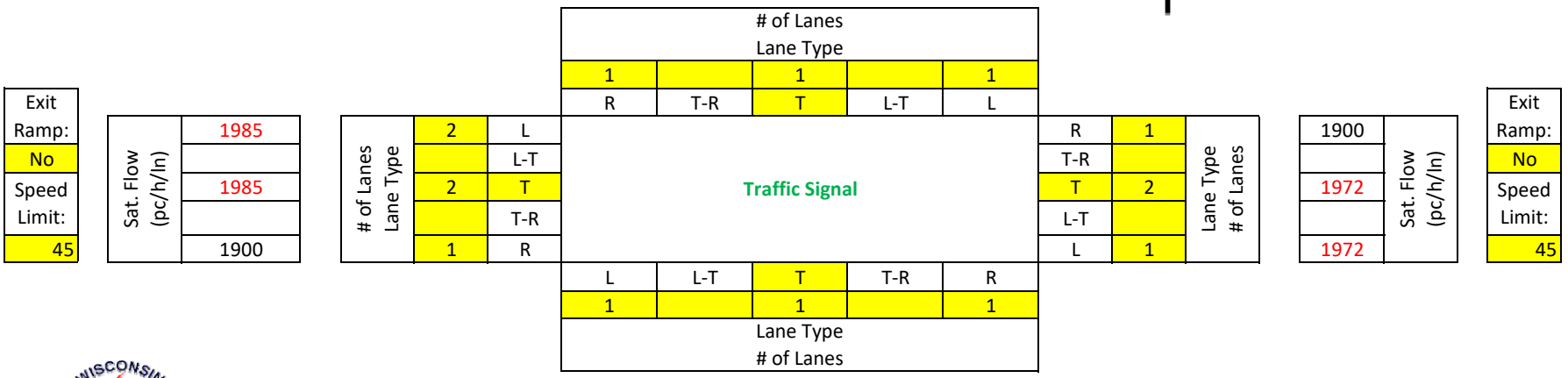
Intersection Name
Maple Road & STH 167/Lannon Road

Urbanized Area/Cluster Population
1,376,476

Exit Ramp:	No
Speed Limit:	40

Sat. Flow Rate (pc/h/ln)				
1900		1910		1910

N



Sat. Flow Rate (pc/h/ln)				
1910		1910		1900

Speed Limit:	40
Exit Ramp:	No

Bureau of Traffic Operations
Last Updated: **4/7/2022**

Date: October 10, 2024

BASE SATURATION FLOW RATE CALCULATIONS

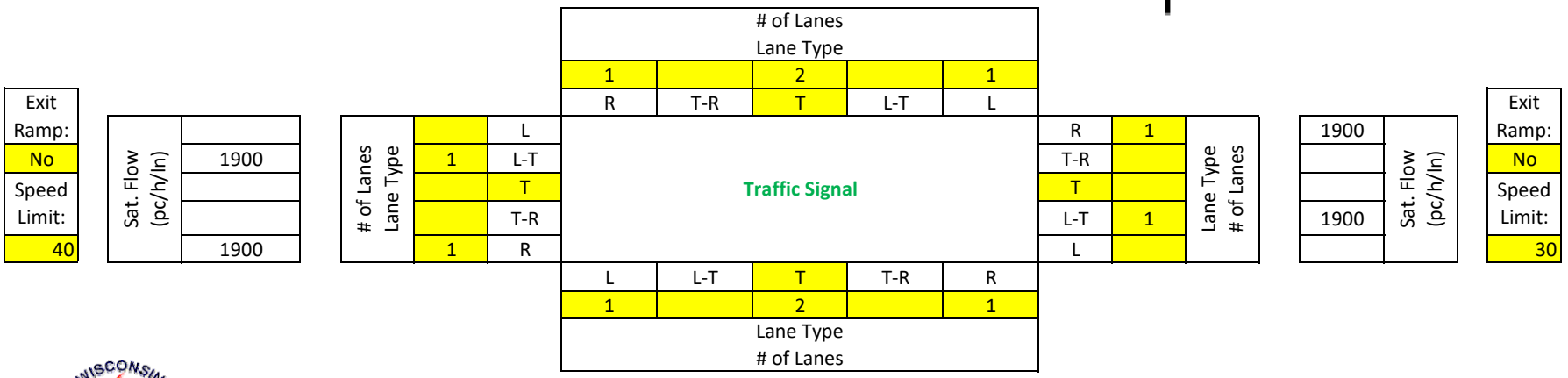
Intersection Name
Maple Road & STH 167/Mequon Road

Urbanized Area/Cluster Population
1,376,476

Exit Ramp:	No
Speed Limit:	40

Sat. Flow Rate (pc/h/ln)				
1900		1931		1931

N



Sat. Flow Rate (pc/h/ln)				
1931		1931		1900

Speed Limit:	40
Exit Ramp:	No

Bureau of Traffic Operations
Last Updated: **4/7/2022**

Intersection	
Intersection Delay, s/veh	36.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	65	110	5	40	110	150	435	1	35	275	10
Future Vol, veh/h	60	65	110	5	40	110	150	435	1	35	275	10
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	14	14	14
Mvmt Flow	85	92	155	7	56	155	211	613	1	49	387	14
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay, s/veh	21.3	18.8	51.8	26.8
HCM LOS	C	C	F	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	48%	0%	11%	0%	100%	0%	0%
Vol Thru, %	0%	100%	99%	52%	0%	89%	0%	0%	100%	90%
Vol Right, %	0%	0%	1%	0%	100%	0%	100%	0%	0%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	290	146	125	110	45	110	35	183	102
LT Vol	150	0	0	60	0	5	0	35	0	0
Through Vol	0	290	145	65	0	40	0	0	183	92
RT Vol	0	0	1	0	110	0	110	0	0	10
Lane Flow Rate	211	408	206	176	155	63	155	49	258	143
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.56	1.023	0.515	0.507	0.405	0.187	0.424	0.141	0.704	0.387
Departure Headway (Hd)	9.537	9.019	9.014	10.523	9.563	10.795	10.02	10.607	10.087	10.015
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	404	401	345	378	335	361	340	362	362
Service Time	7.267	6.749	6.744	8.223	7.263	8.495	7.72	8.307	7.787	7.715
HCM Lane V/C Ratio	0.555	1.01	0.514	0.51	0.41	0.188	0.429	0.144	0.713	0.395
HCM Control Delay, s/veh	23.8	81.7	21	23.6	18.6	16	19.9	15	33.5	18.9
HCM Lane LOS	C	F	C	C	C	C	C	B	D	C
HCM 95th-tile Q	3.3	12.9	2.8	2.7	1.9	0.7	2	0.5	5.1	1.8

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	5	0	0	0	25	585	0	0	385	5
Future Vol, veh/h	1	0	5	0	0	0	25	585	0	0	385	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	12	12	12
Mvmt Flow	1	0	7	0	0	0	33	770	0	0	507	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	961	1345	257	1089	1349	385	513	0	0	770	0	0
Stage 1	510	510	-	836	836	-	-	-	-	-	-	-
Stage 2	451	836	-	253	513	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.2	-	-	4.34	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.25	-	-	2.32	-	-
Pot Cap-1 Maneuver	214	153	749	173	152	619	1028	-	-	778	-	-
Stage 1	520	541	-	332	385	-	-	-	-	-	-	-
Stage 2	563	385	-	735	539	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	207	148	749	166	147	619	1028	-	-	778	-	-
Mov Cap-2 Maneuver	207	148	-	166	147	-	-	-	-	-	-	-
Stage 1	520	541	-	322	373	-	-	-	-	-	-	-
Stage 2	545	373	-	728	539	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.01	0	0.35	0
HCM LOS	B	A		

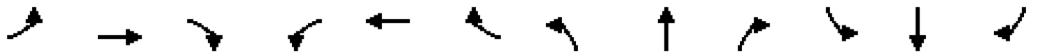
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1028	-	-	521	-	778	-	-
HCM Lane V/C Ratio	0.032	-	-	0.015	-	-	-	-
HCM Control Delay (s/veh)	8.6	-	-	12	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	479	547	59	63	442	7	116	153	36	16	126	166
v/c Ratio	1.39	0.27	0.07	0.41	0.24	0.01	0.63	0.56	0.16	0.09	0.48	0.11
Control Delay (s/veh)	225.1	11.8	12.0	46.2	12.2	11.7	50.5	42.8	32.9	31.8	40.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	225.1	11.8	12.0	46.2	12.2	11.7	50.5	42.8	32.9	31.8	40.5	0.2
Queue Length 50th (ft)	~188	80	14	35	65	2	63	83	18	8	67	0
Queue Length 95th (ft)	#285	141	41	72	108	9	111	133	42	24	113	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	345	2039	873	462	1856	800	308	456	386	287	435	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.27	0.07	0.14	0.24	0.01	0.38	0.34	0.09	0.06	0.29	0.11

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	455	520	90	60	420	10	110	145	55	15	120	255
Future Volume (veh/h)	455	520	90	60	420	10	110	145	55	15	120	255
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1847	1847	1781	1821	1821	1811	1746	1746	1737
Adj Flow Rate, veh/h	479	547	59	63	442	7	116	153	36	16	126	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	8	8	8	6	6	6	11	11	11
Cap, veh/h	598	1982	846	93	1521	654	226	332	280	200	318	
Arrive On Green	0.17	0.55	0.55	0.05	0.43	0.43	0.18	0.18	0.18	0.18	0.18	0.00
Sat Flow, veh/h	3496	3595	1535	1759	3509	1510	1231	1821	1535	1115	1746	1472
Grp Volume(v), veh/h	479	547	59	63	442	7	116	153	36	16	126	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1759	1755	1510	1231	1821	1535	1115	1746	1472
Q Serve(g_s), s	11.8	7.2	1.6	3.2	7.3	0.2	8.3	6.8	1.8	1.2	5.7	0.0
Cycle Q Clear(g_c), s	11.8	7.2	1.6	3.2	7.3	0.2	14.0	6.8	1.8	7.9	5.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	598	1982	846	93	1521	654	226	332	280	200	318	
V/C Ratio(X)	0.80	0.28	0.07	0.68	0.29	0.01	0.51	0.46	0.13	0.08	0.40	
Avail Cap(c_a), veh/h	598	1982	846	469	1521	654	314	461	389	279	442	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.8	10.7	9.4	41.9	16.5	14.5	38.6	32.8	30.8	36.4	32.4	0.0
Incr Delay (d2), s/veh	7.1	0.3	0.2	3.2	0.5	0.0	0.7	0.4	0.1	0.1	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	2.6	0.5	1.4	2.8	0.1	2.4	2.9	0.6	0.3	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	43.0	11.0	9.6	45.1	17.0	14.5	39.2	33.2	30.9	36.4	32.7	0.0
LnGrp LOS	D	B	A	D	B	B	D	C	C	D	C	
Approach Vol, veh/h		1085			512			305			142	
Approach Delay, s/veh		25.1			20.4			35.2			33.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.4	45.0		23.6	10.8	55.6		23.6				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	9.0	39.0		22.8	24.0	24.0		22.8				
Max Q Clear Time (g_c+I1), s	13.8	9.3		9.9	5.2	9.2		16.0				
Green Ext Time (p_c), s	0.0	6.2		0.3	0.1	5.9		0.4				

Intersection Summary		
HCM 7th Control Delay, s/veh		26.0
HCM 7th LOS		C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	20	15	170	120	150
Future Vol, veh/h	140	20	15	170	120	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	15	15	8	8	16	16
Mvmt Flow	161	23	17	195	138	172

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	368	138	310	0	-	0
Stage 1	138	-	-	-	-	-
Stage 2	230	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.18	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.272	-	-	-
Pot Cap-1 Maneuver	607	877	1217	-	-	-
Stage 1	858	-	-	-	-	-
Stage 2	779	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	598	877	1217	-	-	-
Mov Cap-2 Maneuver	598	-	-	-	-	-
Stage 1	844	-	-	-	-	-
Stage 2	779	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.19	0.65	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	146	-	622	-	-
HCM Lane V/C Ratio	0.014	-	0.296	-	-
HCM Control Delay (s/veh)	8	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	101	0	0	155	0	0
Future Vol, veh/h	101	0	0	155	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	142	0	0	218	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	142	0	361	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1410	-	638	905
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	818	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1410	-	638	905
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	818	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1410	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	55	170	5	80	25	90	180	1	35	460	5
Future Vol, veh/h	15	55	170	5	80	25	90	180	1	35	460	5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	11	11	11	4	4	4
Mvmt Flow	18	65	202	6	95	30	107	214	1	42	548	6
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay, s/veh	14.3	13.2	13.8	22.5
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	21%	0%	6%	0%	100%	0%	0%
Vol Thru, %	0%	100%	98%	79%	0%	94%	0%	0%	100%	97%
Vol Right, %	0%	0%	2%	0%	100%	0%	100%	0%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	120	61	70	170	85	25	35	307	158
LT Vol	90	0	0	15	0	5	0	35	0	0
Through Vol	0	120	60	55	0	80	0	0	307	153
RT Vol	0	0	1	0	170	0	25	0	0	5
Lane Flow Rate	107	143	73	83	202	101	30	42	365	188
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.253	0.317	0.161	0.187	0.409	0.238	0.064	0.09	0.737	0.379
Departure Headway (Hd)	8.488	7.976	7.965	8.097	7.283	8.478	7.739	7.777	7.267	7.244
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	422	450	450	442	494	423	461	460	497	496
Service Time	6.252	5.739	5.727	5.861	5.047	6.251	5.512	5.533	5.023	5
HCM Lane V/C Ratio	0.254	0.318	0.162	0.188	0.409	0.239	0.065	0.091	0.734	0.379
HCM Control Delay, s/veh	14.1	14.4	12.3	12.7	15	13.9	11	11.3	27.9	14.4
HCM Lane LOS	B	B	B	B	B	B	B	B	D	B
HCM 95th-tile Q	1	1.3	0.6	0.7	2	0.9	0.2	0.3	6.1	1.8

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	65	0	0	0	50	260	0	0	625	10
Future Vol, veh/h	10	0	65	0	0	0	50	260	0	0	625	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	1	1	1	0	0	0	9	9	9	4	4	4
Mvmt Flow	12	0	77	0	0	0	60	310	0	0	744	12

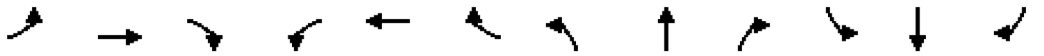
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1024	1179	378	801	1185	155	756	0	0	310	0	0
Stage 1	750	750	-	429	429	-	-	-	-	-	-	-
Stage 2	274	429	-	372	756	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.5	6.5	6.9	4.28	-	-	4.18	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.5	4	3.3	2.29	-	-	2.24	-	-
Pot Cap-1 Maneuver	191	191	623	279	191	870	806	-	-	1233	-	-
Stage 1	372	419	-	580	588	-	-	-	-	-	-	-
Stage 2	712	585	-	626	419	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	177	177	623	226	177	870	806	-	-	1233	-	-
Mov Cap-2 Maneuver	177	177	-	226	177	-	-	-	-	-	-	-
Stage 1	372	419	-	537	544	-	-	-	-	-	-	-
Stage 2	659	542	-	548	419	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.55	0	1.58	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	806	-	-	466	-	1233	-	-
HCM Lane V/C Ratio	0.074	-	-	0.192	-	-	-	-
HCM Control Delay (s/veh)	9.8	-	-	14.5	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	190	582	71	141	696	13	130	125	118	27	190	330
v/c Ratio	0.38	0.33	0.09	0.60	0.40	0.02	0.75	0.41	0.45	0.13	0.62	0.21
Control Delay (s/veh)	37.4	16.0	15.5	47.4	16.9	14.8	60.0	36.4	38.4	31.2	43.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.4	16.0	15.5	47.4	16.9	14.8	60.0	36.4	38.4	31.2	43.3	0.3
Queue Length 50th (ft)	51	99	20	77	127	4	72	65	62	13	102	0
Queue Length 95th (ft)	83	174	55	130	199	16	124	107	104	34	156	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	498	1753	751	246	1734	748	350	620	524	415	613	1568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.33	0.09	0.57	0.40	0.02	0.37	0.20	0.23	0.07	0.31	0.21

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	535	105	130	640	20	120	115	175	25	175	490
Future Volume (veh/h)	175	535	105	130	640	20	120	115	175	25	175	490
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1924	1924	1856	1880	1880	1870	1865	1865	1856
Adj Flow Rate, veh/h	190	582	71	141	696	13	130	125	118	27	190	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	3	3	3	2	2	2	3	3	3
Cap, veh/h	884	1686	720	174	1137	489	241	419	353	270	415	
Arrive On Green	0.25	0.47	0.47	0.10	0.31	0.31	0.22	0.22	0.22	0.22	0.22	0.00
Sat Flow, veh/h	3496	3595	1535	1832	3655	1572	1200	1880	1585	1134	1865	1572
Grp Volume(v), veh/h	190	582	71	141	696	13	130	125	118	27	190	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1832	1828	1572	1200	1880	1585	1134	1865	1572
Q Serve(g_s), s	3.9	9.2	2.3	6.8	14.6	0.5	9.5	5.0	5.6	1.8	7.9	0.0
Cycle Q Clear(g_c), s	3.9	9.2	2.3	6.8	14.6	0.5	17.4	5.0	5.6	6.8	7.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	884	1686	720	174	1137	489	241	419	353	270	415	
V/C Ratio(X)	0.21	0.35	0.10	0.81	0.61	0.03	0.54	0.30	0.33	0.10	0.46	
Avail Cap(c_a), veh/h	884	1686	720	204	1137	489	371	623	525	393	618	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.6	15.1	13.3	39.9	26.4	21.5	37.8	29.1	29.4	32.0	30.3	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.3	16.1	2.5	0.1	0.7	0.1	0.2	0.1	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.5	0.8	3.7	6.2	0.2	2.7	2.2	2.1	0.5	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.6	15.7	13.6	56.0	28.8	21.6	38.5	29.3	29.6	32.0	30.6	0.0
LnGrp LOS	C	B	B	E	C	C	D	C	C	C	C	
Approach Vol, veh/h		843			850			373			217	
Approach Delay, s/veh		18.0			33.2			32.6			30.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.8	34.0		27.2	14.6	48.2		27.2				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	13.0	28.0		29.8	10.0	31.0		29.8				
Max Q Clear Time (g_c+I1), s	5.9	16.6		9.9	8.8	11.2		19.4				
Green Ext Time (p_c), s	0.2	5.9		0.6	0.0	7.5		0.6				

Intersection Summary			
HCM 7th Control Delay, s/veh		27.3	
HCM 7th LOS		C	

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	25	10	270	265	145
Future Vol, veh/h	140	25	10	270	265	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	4	4	3	3	4	4
Mvmt Flow	154	27	11	297	291	159

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	610	291	451	0	-	0
Stage 1	291	-	-	-	-	-
Stage 2	319	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.13	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.227	-	-	-
Pot Cap-1 Maneuver	455	743	1105	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	733	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	449	743	1105	-	-	-
Mov Cap-2 Maneuver	449	-	-	-	-	-
Stage 1	745	-	-	-	-	-
Stage 2	733	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	17.07	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	64	-	478	-	-
HCM Lane V/C Ratio	0.01	-	0.38	-	-
HCM Control Delay (s/veh)	8.3	0	17.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	1.8	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	91	0	0	110	0	0
Future Vol, veh/h	91	0	0	110	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	2	2
Mvmt Flow	108	0	0	131	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	108	0	239	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1476	-	749	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1476	-	749	945
Mov Cap-2 Maneuver	-	-	-	-	749	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	895	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1476	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

APPENDIX C

SYNCHRO INTERSECTION CAPACITY ANALYSIS

Year 2029 Future Traffic Volumes

Intersection	
Intersection Delay, s/veh	40.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	65	110	5	40	110	150	455	1	35	285	10
Future Vol, veh/h	60	65	110	5	40	110	150	455	1	35	285	10
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles, %	7	7	7	7	7	7	6	6	6	14	14	14
Mvmt Flow	85	92	155	7	56	155	211	641	1	49	401	14
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay, s/veh	21.7	19.1	60.5	28.9
HCM LOS	C	C	F	D

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	48%	0%	11%	0%	100%	0%	0%
Vol Thru, %	0%	100%	99%	52%	0%	89%	0%	0%	100%	90%
Vol Right, %	0%	0%	1%	0%	100%	0%	100%	0%	0%	10%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	303	153	125	110	45	110	35	190	105
LT Vol	150	0	0	60	0	5	0	35	0	0
Through Vol	0	303	152	65	0	40	0	0	190	95
RT Vol	0	0	1	0	110	0	110	0	0	10
Lane Flow Rate	211	427	215	176	155	63	155	49	268	148
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.563	1.077	0.542	0.51	0.409	0.188	0.428	0.142	0.736	0.404
Departure Headway (Hd)	9.592	9.073	9.069	10.695	9.734	10.967	10.192	10.713	10.193	10.124
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	376	402	398	340	372	329	355	337	356	358
Service Time	7.348	6.829	6.824	8.395	7.434	8.667	7.892	8.413	7.893	7.824
HCM Lane V/C Ratio	0.561	1.062	0.54	0.518	0.417	0.191	0.437	0.145	0.753	0.413
HCM Control Delay, s/veh	24.1	97.9	22.1	24	19	16.2	20.3	15.2	36.6	19.5
HCM Lane LOS	C	F	C	C	C	C	C	C	E	C
HCM 95th-tile Q	3.3	14.7	3.1	2.8	1.9	0.7	2.1	0.5	5.6	1.9

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	5	0	0	0	25	605	0	0	395	5
Future Vol, veh/h	1	0	5	0	0	0	25	605	0	0	395	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	12	12	12
Mvmt Flow	1	0	7	0	0	0	33	796	0	0	520	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	987	1385	263	1122	1388	398	526	0	0	796	0	0
Stage 1	523	523	-	862	862	-	-	-	-	-	-	-
Stage 2	464	862	-	260	526	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.2	-	-	4.34	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.25	-	-	2.32	-	-
Pot Cap-1 Maneuver	205	145	741	163	144	607	1016	-	-	760	-	-
Stage 1	510	534	-	320	375	-	-	-	-	-	-	-
Stage 2	553	375	-	728	532	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	198	140	741	157	139	607	1016	-	-	760	-	-
Mov Cap-2 Maneuver	198	140	-	157	139	-	-	-	-	-	-	-
Stage 1	510	534	-	310	363	-	-	-	-	-	-	-
Stage 2	535	363	-	722	532	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.19	0	0.34	0
HCM LOS	B	A		

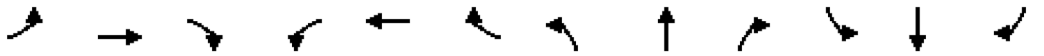
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1016	-	-	509	-	760	-	-
HCM Lane V/C Ratio	0.032	-	-	0.016	-	-	-	-
HCM Control Delay (s/veh)	8.7	-	-	12.2	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	500	574	65	68	463	7	126	153	39	16	126	173
v/c Ratio	1.45	0.29	0.08	0.43	0.25	0.01	0.65	0.53	0.16	0.09	0.46	0.12
Control Delay (s/veh)	250.0	12.5	12.7	46.5	12.7	12.1	50.9	41.0	32.3	30.9	38.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	250.0	12.5	12.7	46.5	12.7	12.1	50.9	41.0	32.3	30.9	38.9	0.2
Queue Length 50th (ft)	~201	87	16	37	70	2	69	82	20	8	66	0
Queue Length 95th (ft)	#300	153	46	76	116	10	118	131	44	24	111	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	345	2004	858	462	1830	789	308	456	386	287	435	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.45	0.29	0.08	0.15	0.25	0.01	0.41	0.34	0.10	0.06	0.29	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	475	545	100	65	440	10	120	145	60	15	120	265
Future Volume (veh/h)	475	545	100	65	440	10	120	145	60	15	120	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1847	1847	1781	1821	1821	1811	1746	1746	1737
Adj Flow Rate, veh/h	500	574	65	68	463	7	126	153	39	16	126	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	8	8	8	6	6	6	11	11	11
Cap, veh/h	572	1951	833	96	1521	654	236	345	291	208	331	
Arrive On Green	0.16	0.54	0.54	0.05	0.43	0.43	0.19	0.19	0.19	0.19	0.19	0.00
Sat Flow, veh/h	3496	3595	1535	1759	3509	1510	1231	1821	1535	1112	1746	1472
Grp Volume(v), veh/h	500	574	65	68	463	7	126	153	39	16	126	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1759	1755	1510	1231	1821	1535	1112	1746	1472
Q Serve(g_s), s	12.6	7.8	1.8	3.4	7.8	0.2	9.0	6.7	1.9	1.2	5.7	0.0
Cycle Q Clear(g_c), s	12.6	7.8	1.8	3.4	7.8	0.2	14.6	6.7	1.9	7.9	5.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	572	1951	833	96	1521	654	236	345	291	208	331	
V/C Ratio(X)	0.87	0.29	0.08	0.71	0.30	0.01	0.53	0.44	0.13	0.08	0.38	
Avail Cap(c_a), veh/h	572	1951	833	469	1521	654	314	461	389	279	442	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.7	11.2	9.8	41.8	16.6	14.5	38.2	32.3	30.3	35.7	31.9	0.0
Incr Delay (d2), s/veh	13.5	0.4	0.2	3.6	0.5	0.0	0.7	0.3	0.1	0.1	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	2.8	0.6	1.5	2.9	0.1	2.6	2.9	0.7	0.3	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.2	11.6	10.0	45.4	17.2	14.5	38.9	32.6	30.4	35.8	32.1	0.0
LnGrp LOS	D	B	B	D	B	B	D	C	C	D	C	
Approach Vol, veh/h		1139			538			318			142	
Approach Delay, s/veh		28.5			20.7			34.8			32.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.7	45.0		24.3	10.9	54.8		24.3				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	9.0	39.0		22.8	24.0	24.0		22.8				
Max Q Clear Time (g_c+I1), s	14.6	9.8		9.9	5.4	9.8		16.6				
Green Ext Time (p_c), s	0.0	6.5		0.3	0.1	6.0		0.4				

Intersection Summary		
HCM 7th Control Delay, s/veh		27.7
HCM 7th LOS		C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	20	15	185	135	150
Future Vol, veh/h	140	20	15	185	135	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	15	15	8	8	16	16
Mvmt Flow	161	23	17	213	155	172

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	402	155	328	0	-	0
Stage 1	155	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.18	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.272	-	-	-
Pot Cap-1 Maneuver	580	858	1199	-	-	-
Stage 1	842	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	570	858	1199	-	-	-
Mov Cap-2 Maneuver	570	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	765	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.73	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	135	-	595	-	-
HCM Lane V/C Ratio	0.014	-	0.309	-	-
HCM Control Delay (s/veh)	8	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	101	0	0	155	0	0
Future Vol, veh/h	101	0	0	155	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	142	0	0	218	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	142	0	361	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1410	-	638	905
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	818	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1410	-	638	905
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	818	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1410	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	55	170	5	80	25	90	185	1	35	480	5
Future Vol, veh/h	15	55	170	5	80	25	90	185	1	35	480	5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	3	3	3	3	3	3	11	11	11	4	4	4
Mvmt Flow	18	65	202	6	95	30	107	220	1	42	571	6
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay, s/veh	14.6	13.4	14.1	24.5
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	21%	0%	6%	0%	100%	0%	0%
Vol Thru, %	0%	100%	98%	79%	0%	94%	0%	0%	100%	97%
Vol Right, %	0%	0%	2%	0%	100%	0%	100%	0%	0%	3%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	123	63	70	170	85	25	35	320	165
LT Vol	90	0	0	15	0	5	0	35	0	0
Through Vol	0	123	62	55	0	80	0	0	320	160
RT Vol	0	0	1	0	170	0	25	0	0	5
Lane Flow Rate	107	147	75	83	202	101	30	42	381	196
Geometry Grp	6	6	6	6	6	6	6	6	6	6
Degree of Util (X)	0.255	0.329	0.167	0.19	0.415	0.241	0.065	0.091	0.774	0.398
Departure Headway (Hd)	8.567	8.055	8.044	8.194	7.38	8.584	7.845	7.82	7.31	7.288
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	418	445	445	437	486	417	455	458	495	493
Service Time	6.34	5.828	5.816	5.964	5.149	6.365	5.625	5.582	5.071	5.049
HCM Lane V/C Ratio	0.256	0.33	0.169	0.19	0.416	0.242	0.066	0.092	0.77	0.398
HCM Control Delay, s/veh	14.3	14.8	12.4	12.9	15.3	14.1	11.2	11.4	31	14.8
HCM Lane LOS	B	B	B	B	C	B	B	B	D	B
HCM 95th-tile Q	1	1.4	0.6	0.7	2	0.9	0.2	0.3	6.9	1.9

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	65	0	0	0	50	265	0	0	645	10
Future Vol, veh/h	10	0	65	0	0	0	50	265	0	0	645	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	1	1	1	0	0	0	9	9	9	4	4	4
Mvmt Flow	12	0	77	0	0	0	60	315	0	0	768	12

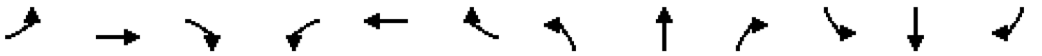
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1051	1208	390	818	1214	158	780	0	0	315	0	0
Stage 1	774	774	-	435	435	-	-	-	-	-	-	-
Stage 2	277	435	-	384	780	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.5	6.5	6.9	4.28	-	-	4.18	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.5	4	3.3	2.29	-	-	2.24	-	-
Pot Cap-1 Maneuver	183	183	612	271	183	866	789	-	-	1227	-	-
Stage 1	360	409	-	575	584	-	-	-	-	-	-	-
Stage 2	709	582	-	616	409	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	169	169	612	219	169	866	789	-	-	1227	-	-
Mov Cap-2 Maneuver	169	169	-	219	169	-	-	-	-	-	-	-
Stage 1	360	409	-	532	540	-	-	-	-	-	-	-
Stage 2	655	538	-	538	409	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	14.88	0	1.58	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	789	-	-	453	-	1227	-	-
HCM Lane V/C Ratio	0.075	-	-	0.197	-	-	-	-
HCM Control Delay (s/veh)	9.9	-	-	14.9	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.7	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	196	603	78	158	728	13	141	125	131	27	190	344
v/c Ratio	0.39	0.36	0.11	0.62	0.43	0.02	0.75	0.38	0.48	0.12	0.59	0.22
Control Delay (s/veh)	37.6	17.6	17.0	46.4	17.9	15.7	58.8	34.9	38.0	30.0	40.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.6	17.6	17.0	46.4	17.9	15.7	58.8	34.9	38.0	30.0	40.8	0.3
Queue Length 50th (ft)	52	109	24	85	137	4	78	64	68	13	101	0
Queue Length 95th (ft)	86	191	63	142	218	16	130	104	111	33	152	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	498	1676	717	264	1700	733	355	620	524	415	613	1568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.36	0.11	0.60	0.43	0.02	0.40	0.20	0.25	0.07	0.31	0.22

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	555	115	145	670	20	130	115	195	25	175	510
Future Volume (veh/h)	180	555	115	145	670	20	130	115	195	25	175	510
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1924	1924	1856	1880	1880	1870	1865	1865	1856
Adj Flow Rate, veh/h	196	603	78	158	728	13	141	125	131	27	190	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	3	3	3	2	2	2	3	3	3
Cap, veh/h	855	1622	692	192	1137	489	252	434	366	277	431	
Arrive On Green	0.24	0.45	0.45	0.10	0.31	0.31	0.23	0.23	0.23	0.23	0.23	0.00
Sat Flow, veh/h	3496	3595	1535	1832	3655	1572	1200	1880	1585	1121	1865	1572
Grp Volume(v), veh/h	196	603	78	158	728	13	141	125	131	27	190	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1832	1828	1572	1200	1880	1585	1121	1865	1572
Q Serve(g_s), s	4.0	10.0	2.6	7.6	15.4	0.5	10.3	4.9	6.2	1.8	7.9	0.0
Cycle Q Clear(g_c), s	4.0	10.0	2.6	7.6	15.4	0.5	18.1	4.9	6.2	6.8	7.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	855	1622	692	192	1137	489	252	434	366	277	431	
V/C Ratio(X)	0.23	0.37	0.11	0.82	0.64	0.03	0.56	0.29	0.36	0.10	0.44	
Avail Cap(c_a), veh/h	855	1622	692	204	1137	489	373	623	525	390	618	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.2	16.3	14.3	39.5	26.7	21.5	37.4	28.5	29.0	31.3	29.6	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.3	20.4	2.8	0.1	0.7	0.1	0.2	0.1	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.8	0.9	4.3	6.6	0.2	2.9	2.1	2.3	0.5	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.2	16.9	14.6	59.9	29.4	21.6	38.1	28.7	29.2	31.4	29.9	0.0
LnGrp LOS	C	B	B	E	C	C	D	C	C	C	C	
Approach Vol, veh/h		877			899			397			217	
Approach Delay, s/veh		19.0			34.7			32.2			30.1	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	34.0		28.0	15.4	46.6		28.0				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	13.0	28.0		29.8	10.0	31.0		29.8				
Max Q Clear Time (g_c+I1), s	6.0	17.4		9.9	9.6	12.0		20.1				
Green Ext Time (p_c), s	0.2	5.8		0.6	0.0	7.6		0.7				

Intersection Summary		
HCM 7th Control Delay, s/veh	28.1	
HCM 7th LOS	C	

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	25	10	300	290	145
Future Vol, veh/h	140	25	10	300	290	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	4	4	3	3	4	4
Mvmt Flow	154	27	11	330	319	159

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	670	319	478	0	-	0
Stage 1	319	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.13	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.227	-	-	-
Pot Cap-1 Maneuver	419	717	1079	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	414	717	1079	-	-	-
Mov Cap-2 Maneuver	414	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18.69	0.27	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	58	-	442	-	-
HCM Lane V/C Ratio	0.01	-	0.41	-	-
HCM Control Delay (s/veh)	8.4	0	18.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	91	0	0	110	0	0
Future Vol, veh/h	91	0	0	110	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	2	2
Mvmt Flow	108	0	0	131	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	108	0	239	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1476	-	749	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1476	-	749	945
Mov Cap-2 Maneuver	-	-	-	-	749	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	895	-

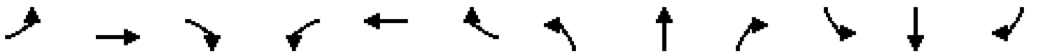
Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1476	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	85	247	7	211	211	641	1	49	401	9
v/c Ratio	0.43	0.72	0.04	0.62	0.34	0.28	0.00	0.11	0.19	0.01
Control Delay (s/veh)	36.0	43.9	25.2	39.4	3.6	1.9	2.0	8.3	7.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	36.0	43.9	25.2	39.4	3.6	1.9	2.0	8.3	7.3	7.5
Queue Length 50th (ft)	42	131	3	110	10	16	0	9	42	2
Queue Length 95th (ft)	60	141	10	122	m16	21	m0	23	60	7
Internal Link Dist (ft)		1001		145		397			293	
Turn Bay Length (ft)	100		100		100		50	50		45
Base Capacity (vph)	315	554	269	544	612	2255	993	441	2097	923
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.45	0.03	0.39	0.34	0.28	0.00	0.11	0.19	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	65	110	5	40	110	150	455	1	35	285	10
Future Volume (veh/h)	60	65	110	5	40	110	150	455	1	35	285	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1840	1840	1811	1719	1719	1693
Adj Flow Rate, veh/h	85	92	155	7	56	155	211	641	1	49	401	9
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	7	7	7	7	7	7	6	6	6	14	14	14
Cap, veh/h	204	137	231	177	96	266	644	2232	980	542	2085	916
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	1.00	1.00	1.00	0.64	0.64	0.64
Sat Flow, veh/h	1124	601	1013	1088	421	1165	960	3495	1535	724	3267	1434
Grp Volume(v), veh/h	85	0	247	7	0	211	211	641	1	49	401	9
Grp Sat Flow(s),veh/h/ln	1124	0	1614	1088	0	1586	960	1748	1535	724	1633	1434
Q Serve(g_s), s	6.6	0.0	12.6	0.5	0.0	10.7	2.4	0.0	0.0	2.4	4.6	0.2
Cycle Q Clear(g_c), s	17.2	0.0	12.6	13.1	0.0	10.7	6.9	0.0	0.0	2.4	4.6	0.2
Prop In Lane	1.00		0.63	1.00		0.73	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	0	368	177	0	362	644	2232	980	542	2085	916
V/C Ratio(X)	0.42	0.00	0.67	0.04	0.00	0.58	0.33	0.29	0.00	0.09	0.19	0.01
Avail Cap(c_a), veh/h	334	0	556	303	0	546	644	2232	980	542	2085	916
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	0.0	31.6	37.6	0.0	30.9	0.3	0.0	0.0	6.3	6.7	5.9
Incr Delay (d2), s/veh	1.4	0.0	2.1	0.1	0.0	1.5	1.4	0.3	0.0	0.3	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	4.9	0.1	0.0	4.1	0.2	0.1	0.0	0.3	1.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.9	0.0	33.8	37.7	0.0	32.4	1.6	0.3	0.0	6.6	6.9	5.9
LnGrp LOS	D		C	D		C	A	A	A	A	A	A
Approach Vol, veh/h		332			218			853			459	
Approach Delay, s/veh		35.3			32.6			0.6			6.9	
Approach LOS		D			C			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.5		26.5		63.5		26.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		47.0		31.0		47.0		31.0				
Max Q Clear Time (g_c+I1), s		8.9		19.2		6.6		15.1				
Green Ext Time (p_c), s		6.0		1.3		3.2		1.1				
Intersection Summary												
HCM 7th Control Delay, s/veh			12.1									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	5	0	0	0	25	605	0	0	395	5
Future Vol, veh/h	1	0	5	0	0	0	25	605	0	0	395	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	12	12	12
Mvmt Flow	1	0	7	0	0	0	33	796	0	0	520	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	987	1385	263	1122	1388	398	526	0	0	796	0	0
Stage 1	523	523	-	862	862	-	-	-	-	-	-	-
Stage 2	464	862	-	260	526	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.2	-	-	4.34	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.25	-	-	2.32	-	-
Pot Cap-1 Maneuver	451	222	*994	*337	221	*922	1142	-	-	925	-	-
Stage 1	645	621	-	*463	476	-	-	-	-	-	-	-
Stage 2	869	476	-	*937	619	-	-	-	-	-	-	-
Platoon blocked, %	0	0	0	0	0	0	0	-	-	0	-	-
Mov Cap-1 Maneuver	438	216	*994	*325	215	*922	1142	-	-	925	-	-
Mov Cap-2 Maneuver	438	216	-	*325	215	-	-	-	-	-	-	-
Stage 1	645	621	-	*450	462	-	-	-	-	-	-	-
Stage 2	844	462	-	*931	619	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.43	0	0.33	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1142	-	-	820	-	925	-	-
HCM Lane V/C Ratio	0.029	-	-	0.01	-	-	-	-
HCM Control Delay (s/veh)	8.2	-	-	9.4	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	500	574	65	68	463	7	126	153	39	16	126	173
v/c Ratio	0.93	0.29	0.08	0.43	0.28	0.01	0.65	0.53	0.16	0.09	0.46	0.12
Control Delay (s/veh)	64.3	12.5	12.7	46.5	15.8	15.0	50.9	41.0	32.3	23.6	30.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	64.3	12.5	12.7	46.5	15.8	15.0	50.9	41.0	32.3	23.6	30.1	0.2
Queue Length 50th (ft)	146	87	16	37	80	2	69	82	20	6	54	0
Queue Length 95th (ft)	#241	153	46	76	130	11	118	131	44	m18	84	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	536	2004	858	462	1637	706	308	456	386	287	435	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.29	0.08	0.15	0.28	0.01	0.41	0.34	0.10	0.06	0.29	0.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	475	545	100	65	440	10	120	145	60	15	120	265
Future Volume (veh/h)	475	545	100	65	440	10	120	145	60	15	120	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1847	1847	1781	1821	1821	1811	1746	1746	1737
Adj Flow Rate, veh/h	500	574	65	68	463	7	126	153	39	16	126	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	8	8	8	6	6	6	11	11	11
Cap, veh/h	746	1929	824	96	1326	570	236	356	300	215	341	
Arrive On Green	0.21	0.54	0.54	0.05	0.38	0.38	0.20	0.20	0.20	0.06	0.06	0.00
Sat Flow, veh/h	3496	3595	1535	1759	3509	1510	1231	1821	1535	1112	1746	1472
Grp Volume(v), veh/h	500	574	65	68	463	7	126	153	39	16	126	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1759	1755	1510	1231	1821	1535	1112	1746	1472
Q Serve(g_s), s	11.8	7.9	1.8	3.4	8.5	0.3	9.0	6.6	1.9	1.2	6.2	0.0
Cycle Q Clear(g_c), s	11.8	7.9	1.8	3.4	8.5	0.3	15.2	6.6	1.9	7.9	6.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	746	1929	824	96	1326	570	236	356	300	215	341	
V/C Ratio(X)	0.67	0.30	0.08	0.71	0.35	0.01	0.53	0.43	0.13	0.07	0.37	
Avail Cap(c_a), veh/h	746	1929	824	469	1326	570	307	461	389	280	442	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.5	11.5	10.1	41.8	20.1	17.5	38.3	31.8	29.9	40.8	36.8	0.0
Incr Delay (d2), s/veh	1.9	0.4	0.2	3.6	0.7	0.0	0.7	0.3	0.1	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	2.8	0.6	1.5	3.3	0.1	2.6	2.8	0.7	0.4	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.4	11.9	10.3	45.4	20.8	17.5	39.0	32.1	30.0	40.8	37.0	0.0
LnGrp LOS	C	B	B	D	C	B	D	C	C	D	D	
Approach Vol, veh/h		1139			538			318			142	
Approach Delay, s/veh		21.7			23.9			34.6			37.5	
Approach LOS		C			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.2	40.0		24.8	10.9	54.3		24.8				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	14.0	34.0		22.8	24.0	24.0		22.8				
Max Q Clear Time (g_c+I1), s	13.8	10.5		9.9	5.4	9.9		17.2				
Green Ext Time (p_c), s	0.0	5.9		0.3	0.1	6.0		0.4				

Intersection Summary		
HCM 7th Control Delay, s/veh	25.2	
HCM 7th LOS	C	

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	20	15	185	135	150
Future Vol, veh/h	140	20	15	185	135	150
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	15	15	8	8	16	16
Mvmt Flow	161	23	17	213	155	172

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	402	155	328	0	-	0
Stage 1	155	-	-	-	-	-
Stage 2	247	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.18	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.272	-	-	-
Pot Cap-1 Maneuver	580	858	1199	-	-	-
Stage 1	842	-	-	-	-	-
Stage 2	765	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	570	858	1199	-	-	-
Mov Cap-2 Maneuver	570	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	765	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.73	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	135	-	595	-	-
HCM Lane V/C Ratio	0.014	-	0.309	-	-
HCM Control Delay (s/veh)	8	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	101	0	0	155	0	0
Future Vol, veh/h	101	0	0	155	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	142	0	0	218	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	142	0	361	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1410	-	638	905
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	818	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1410	-	638	905
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	818	-

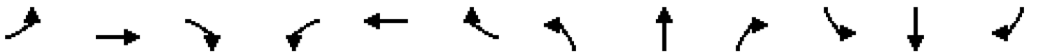
Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1410	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	267	6	125	107	220	1	42	571	4
v/c Ratio	0.06	0.73	0.04	0.31	0.22	0.10	0.00	0.06	0.25	0.00
Control Delay (s/veh)	25.0	43.5	24.2	29.6	3.2	1.6	2.0	7.9	8.0	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.0	43.5	24.2	29.6	3.2	1.6	2.0	7.9	8.0	8.0
Queue Length 50th (ft)	8	141	3	60	4	4	0	8	65	1
Queue Length 95th (ft)	21	186	11	89	10	8	m0	23	104	5
Internal Link Dist (ft)		1001		145		397			293	
Turn Bay Length (ft)	100		100		100		50	50		45
Base Capacity (vph)	485	636	296	691	484	2121	934	731	2264	997
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.42	0.02	0.18	0.22	0.10	0.00	0.06	0.25	0.00

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	55	170	5	80	25	90	185	1	35	480	5
Future Volume (veh/h)	15	55	170	5	80	25	90	185	1	35	480	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1764	1764	1737	1870	1870	1841
Adj Flow Rate, veh/h	18	65	202	6	95	30	107	220	1	42	571	4
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	3	3	3	11	11	11	4	4	4
Cap, veh/h	250	78	242	123	265	84	560	2248	987	858	2383	1046
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	1.00	1.00	1.00	0.67	0.67	0.67
Sat Flow, veh/h	1256	398	1236	1104	1352	427	790	3352	1472	1160	3553	1560
Grp Volume(v), veh/h	18	0	267	6	0	125	107	220	1	42	571	4
Grp Sat Flow(s),veh/h/ln	1256	0	1633	1104	0	1779	790	1676	1472	1160	1776	1560
Q Serve(g_s), s	1.1	0.0	14.1	0.5	0.0	5.5	1.4	0.0	0.0	1.1	5.7	0.1
Cycle Q Clear(g_c), s	6.6	0.0	14.1	14.6	0.0	5.5	7.1	0.0	0.0	1.1	5.7	0.1
Prop In Lane	1.00		0.76	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	0	320	123	0	349	560	2248	987	858	2383	1046
V/C Ratio(X)	0.07	0.00	0.83	0.05	0.00	0.36	0.19	0.10	0.00	0.05	0.24	0.00
Avail Cap(c_a), veh/h	492	0	635	336	0	692	560	2248	987	858	2383	1046
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	34.8	41.8	0.0	31.3	0.3	0.0	0.0	5.1	5.8	4.9
Incr Delay (d2), s/veh	0.1	0.0	5.7	0.2	0.0	0.6	0.8	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	5.9	0.1	0.0	2.4	0.1	0.0	0.0	0.2	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.3	0.0	40.4	42.0	0.0	31.9	1.1	0.1	0.0	5.2	6.1	4.9
LnGrp LOS	C		D	D		C	A	A	A	A	A	A
Approach Vol, veh/h		285			131			328			617	
Approach Delay, s/veh		40.1			32.4			0.4			6.0	
Approach LOS		D			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		66.4		23.6		66.4		23.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		43.0		35.0		43.0		35.0				
Max Q Clear Time (g_c+I1), s		9.1		16.1		7.7		16.6				
Green Ext Time (p_c), s		2.2		1.5		4.2		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			14.3									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	1.2

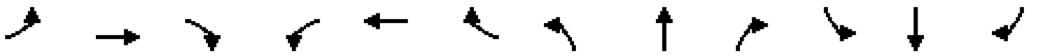
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	65	0	0	0	50	265	0	0	645	10
Future Vol, veh/h	10	0	65	0	0	0	50	265	0	0	645	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	1	1	1	0	0	0	9	9	9	4	4	4
Mvmt Flow	12	0	77	0	0	0	60	315	0	0	768	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1051	1208	390	818	1214	158	780	0	0	315	0	0
Stage 1	774	774	-	435	435	-	-	-	-	-	-	-
Stage 2	277	435	-	384	780	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.5	6.5	6.9	4.28	-	-	4.18	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.5	4	3.3	2.29	-	-	2.24	-	-
Pot Cap-1 Maneuver	329	269	*922	*530	267	1015	954	-	-	1311	-	-
Stage 1	527	525	-	*651	633	-	-	-	-	-	-	-
Stage 2	810	631	-	*872	523	-	-	-	-	-	-	-
Platoon blocked, %	0	0	0	0	0	0	0	-	-	0	-	-
Mov Cap-1 Maneuver	308	252	*922	*455	251	1015	954	-	-	1311	-	-
Mov Cap-2 Maneuver	308	252	-	*455	251	-	-	-	-	-	-	-
Stage 1	527	525	-	*611	594	-	-	-	-	-	-	-
Stage 2	760	592	-	*799	523	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	10.63	0	1.43	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	954	-	-	728	-	1311	-	-
HCM Lane V/C Ratio	0.062	-	-	0.123	-	-	-	-
HCM Control Delay (s/veh)	9	-	-	10.6	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.4	-	0	-	-

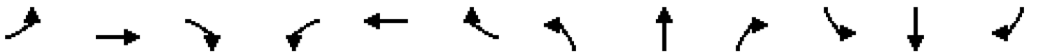
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	196	603	78	158	728	13	141	125	131	27	190	344
v/c Ratio	0.39	0.36	0.11	0.64	0.43	0.02	0.75	0.38	0.48	0.12	0.59	0.22
Control Delay (s/veh)	37.6	17.4	16.9	48.2	17.9	15.7	58.8	34.9	38.0	23.6	32.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	37.6	17.4	16.9	48.2	17.9	15.7	58.8	34.9	38.0	23.6	32.8	0.3
Queue Length 50th (ft)	52	107	23	86	137	4	78	64	68	11	80	0
Queue Length 95th (ft)	86	192	63	142	218	16	130	104	111	m25	115	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	498	1695	726	272	1700	733	355	620	524	415	613	1568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.36	0.11	0.58	0.43	0.02	0.40	0.20	0.25	0.07	0.31	0.22

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	555	115	145	670	20	130	115	195	25	175	510
Future Volume (veh/h)	180	555	115	145	670	20	130	115	195	25	175	510
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1924	1924	1856	1880	1880	1870	1865	1865	1856
Adj Flow Rate, veh/h	196	603	78	158	728	13	141	125	131	27	190	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	3	3	3	2	2	2	3	3	3
Cap, veh/h	822	1586	677	193	1137	489	252	452	381	289	448	
Arrive On Green	0.24	0.44	0.44	0.11	0.31	0.31	0.24	0.24	0.24	0.08	0.08	0.00
Sat Flow, veh/h	3496	3595	1535	1832	3655	1572	1200	1880	1585	1121	1865	1572
Grp Volume(v), veh/h	196	603	78	158	728	13	141	125	131	27	190	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1832	1828	1572	1200	1880	1585	1121	1865	1572
Q Serve(g_s), s	4.1	10.1	2.7	7.6	15.4	0.5	10.3	4.9	6.2	2.1	8.7	0.0
Cycle Q Clear(g_c), s	4.1	10.1	2.7	7.6	15.4	0.5	19.0	4.9	6.2	6.9	8.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	822	1586	677	193	1137	489	252	452	381	289	448	
V/C Ratio(X)	0.24	0.38	0.12	0.82	0.64	0.03	0.56	0.28	0.34	0.09	0.42	
Avail Cap(c_a), veh/h	822	1586	677	244	1137	489	361	623	525	390	618	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.9	16.9	14.8	39.4	26.7	21.5	37.4	27.8	28.3	37.0	35.5	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.3	12.9	2.8	0.1	0.7	0.1	0.2	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.9	0.9	3.9	6.6	0.2	2.9	2.1	2.3	0.6	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.9	17.6	15.2	52.3	29.4	21.6	38.1	27.9	28.5	37.0	35.7	0.0
LnGrp LOS	C	B	B	D	C	C	D	C	C	D	D	
Approach Vol, veh/h		877			899			397			217	
Approach Delay, s/veh		19.7			33.3			31.8			35.9	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	27.2	34.0		28.8	15.5	45.7		28.8				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	13.0	28.0		29.8	12.0	29.0		29.8				
Max Q Clear Time (g_c+I1), s	6.1	17.4		10.7	9.6	12.1		21.0				
Green Ext Time (p_c), s	0.2	5.8		0.6	0.0	7.1		0.6				

Intersection Summary		
HCM 7th Control Delay, s/veh	28.3	
HCM 7th LOS	C	

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	140	25	10	300	290	145
Future Vol, veh/h	140	25	10	300	290	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	4	4	3	3	4	4
Mvmt Flow	154	27	11	330	319	159

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	670	319	478	0	-	0
Stage 1	319	-	-	-	-	-
Stage 2	352	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.13	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.227	-	-	-
Pot Cap-1 Maneuver	419	717	1079	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	414	717	1079	-	-	-
Mov Cap-2 Maneuver	414	-	-	-	-	-
Stage 1	723	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18.69	0.27	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	58	-	442	-	-
HCM Lane V/C Ratio	0.01	-	0.41	-	-
HCM Control Delay (s/veh)	8.4	0	18.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	91	0	0	110	0	0
Future Vol, veh/h	91	0	0	110	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	2	2
Mvmt Flow	108	0	0	131	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	108	0	239	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1476	-	749	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	895	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1476	-	749	945
Mov Cap-2 Maneuver	-	-	-	-	749	-
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	895	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1476	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

APPENDIX D

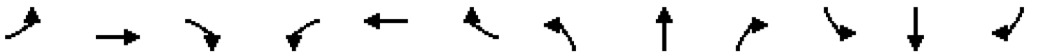
SYNCHRO INTERSECTION CAPACITY ANALYSIS

Year 2029 Build Traffic Volumes
Alternatives 1 & 2

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	85	247	7	232	197	627	1	56	408	9
v/c Ratio	0.48	0.71	0.04	0.68	0.32	0.28	0.00	0.12	0.19	0.01
Control Delay (s/veh)	38.5	43.8	25.2	42.3	3.7	2.5	3.0	8.4	7.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.5	43.8	25.2	42.3	3.7	2.5	3.0	8.4	7.3	7.5
Queue Length 50th (ft)	43	131	3	123	12	20	0	11	42	2
Queue Length 95th (ft)	61	141	10	133	21	27	m0	25	61	7
Internal Link Dist (ft)		1001		145		397			293	
Turn Bay Length (ft)	100		100		100		50	50		45
Base Capacity (vph)	297	577	277	564	608	2259	995	449	2101	925
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.43	0.03	0.41	0.32	0.28	0.00	0.12	0.19	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	75	100	5	50	115	140	445	1	40	290	10
Future Volume (veh/h)	60	75	100	5	50	115	140	445	1	40	290	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1840	1840	1811	1719	1719	1693
Adj Flow Rate, veh/h	85	106	141	7	70	162	197	627	1	56	408	9
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	7	7	7	7	7	7	6	6	6	14	14	14
Cap, veh/h	203	168	224	194	116	268	626	2189	961	539	2046	898
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	1.00	1.00	1.00	0.63	0.63	0.63
Sat Flow, veh/h	1103	699	930	1088	481	1114	954	3495	1535	733	3267	1434
Grp Volume(v), veh/h	85	0	247	7	0	232	197	627	1	56	408	9
Grp Sat Flow(s),veh/h/ln	1103	0	1629	1088	0	1596	954	1748	1535	733	1633	1434
Q Serve(g_s), s	6.7	0.0	12.2	0.5	0.0	11.6	2.4	0.0	0.0	2.8	4.8	0.2
Cycle Q Clear(g_c), s	18.3	0.0	12.2	12.7	0.0	11.6	7.2	0.0	0.0	2.8	4.8	0.2
Prop In Lane	1.00		0.57	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	0	392	194	0	384	626	2189	961	539	2046	898
V/C Ratio(X)	0.42	0.00	0.63	0.04	0.00	0.60	0.31	0.29	0.00	0.10	0.20	0.01
Avail Cap(c_a), veh/h	330	0	579	319	0	567	626	2189	961	539	2046	898
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	0.0	30.6	36.3	0.0	30.4	0.3	0.0	0.0	6.8	7.2	6.3
Incr Delay (d2), s/veh	1.4	0.0	1.7	0.1	0.0	1.5	1.3	0.3	0.0	0.4	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	4.7	0.1	0.0	4.5	0.2	0.1	0.0	0.4	1.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	39.9	0.0	32.3	36.4	0.0	31.9	1.6	0.3	0.0	7.2	7.4	6.3
LnGrp LOS	D		C	D		C	A	A	A	A	A	A
Approach Vol, veh/h		332			239			825			473	
Approach Delay, s/veh		34.2			32.0			0.6			7.4	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.4		27.6		62.4		27.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		46.0		32.0		46.0		32.0				
Max Q Clear Time (g_c+I1), s		9.2		20.3		6.8		14.7				
Green Ext Time (p_c), s		5.8		1.3		3.3		1.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			12.3									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	1	5	80	1	35	25	550	95	30	360	5
Future Vol, veh/h	1	1	5	80	1	35	25	550	95	30	360	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	100	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	12	12	12
Mvmt Flow	1	1	7	105	1	46	33	724	125	39	474	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	984	1470	240	1106	1349	362	480	0	0	849	0	0
Stage 1	556	556	-	789	789	-	-	-	-	-	-	-
Stage 2	428	914	-	316	559	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.2	-	-	4.34	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.25	-	-	2.32	-	-
Pot Cap-1 Maneuver	414	182	*994	321	225	*946	1193	-	-	847	-	-
Stage 1	614	599	-	489	499	-	-	-	-	-	-	-
Stage 2	853	430	-	872	597	-	-	-	-	-	-	-
Platoon blocked, %	0	0	0	0	0	0	0	-	-	0	-	-
Mov Cap-1 Maneuver	363	169	*994	293	209	*946	1193	-	-	847	-	-
Mov Cap-2 Maneuver	363	169	-	293	209	-	-	-	-	-	-	-
Stage 1	586	571	-	475	485	-	-	-	-	-	-	-
Stage 2	787	418	-	824	569	-	-	-	-	-	-	-

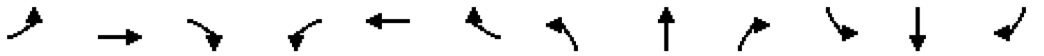
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.18	21.5	0.3	0.72
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1193	-	-	511	369	847	-	-
HCM Lane V/C Ratio	0.028	-	-	0.018	0.414	0.047	-	-
HCM Control Delay (s/veh)	8.1	-	-	12.2	21.5	9.5	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	558	574	33	37	479	16	79	121	20	47	105	196
v/c Ratio	0.77	0.25	0.03	0.28	0.31	0.02	0.50	0.52	0.10	0.31	0.48	0.13
Control Delay (s/veh)	41.5	8.9	9.1	44.1	17.1	15.3	47.0	44.5	34.6	33.4	36.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.5	8.9	9.1	44.1	17.1	15.3	47.0	44.5	34.6	33.4	36.0	0.2
Queue Length 50th (ft)	155	75	7	20	86	5	43	66	10	21	46	0
Queue Length 95th (ft)	213	127	23	50	135	18	84	115	30	43	79	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	728	2256	966	462	1548	667	314	456	386	295	435	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.25	0.03	0.08	0.31	0.02	0.25	0.27	0.05	0.16	0.24	0.13

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	530	545	50	35	455	25	75	115	30	45	100	300
Future Volume (veh/h)	530	545	50	35	455	25	75	115	30	45	100	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1847	1847	1781	1821	1821	1811	1746	1746	1737
Adj Flow Rate, veh/h	558	574	33	37	479	16	79	121	20	47	105	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	8	8	8	6	6	6	11	11	11
Cap, veh/h	1113	2159	922	71	1131	486	190	266	224	179	255	
Arrive On Green	0.32	0.60	0.60	0.04	0.32	0.32	0.15	0.15	0.15	0.05	0.05	0.00
Sat Flow, veh/h	3496	3595	1535	1759	3509	1510	1255	1821	1535	1165	1746	1472
Grp Volume(v), veh/h	558	574	33	37	479	16	79	121	20	47	105	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1759	1755	1510	1255	1821	1535	1165	1746	1472
Q Serve(g_s), s	11.7	6.8	0.8	1.9	9.6	0.7	5.5	5.5	1.0	3.6	5.3	0.0
Cycle Q Clear(g_c), s	11.7	6.8	0.8	1.9	9.6	0.7	10.8	5.5	1.0	9.0	5.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1113	2159	922	71	1131	486	190	266	224	179	255	
V/C Ratio(X)	0.50	0.27	0.04	0.52	0.42	0.03	0.42	0.46	0.09	0.26	0.41	
Avail Cap(c_a), veh/h	1113	2159	922	469	1131	486	325	461	389	304	442	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.9	8.5	7.3	42.3	23.9	20.9	40.0	35.2	33.3	43.6	39.1	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.1	2.2	1.2	0.1	0.5	0.5	0.1	0.3	0.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	2.3	0.2	0.8	3.9	0.2	1.7	2.4	0.4	1.1	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.0	8.9	7.4	44.6	25.1	21.0	40.5	35.6	33.3	43.9	39.5	0.0
LnGrp LOS	C	A	A	D	C	C	D	D	C	D	D	
Approach Vol, veh/h		1165			532			220			152	
Approach Delay, s/veh		16.5			26.3			37.2			40.8	
Approach LOS		B			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.7	35.0		20.3	9.6	60.0		20.3				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	19.0	29.0		22.8	24.0	24.0		22.8				
Max Q Clear Time (g_c+I1), s	13.7	11.6		11.0	3.9	8.8		12.8				
Green Ext Time (p_c), s	0.6	5.4		0.3	0.0	6.1		0.4				

Intersection Summary		
HCM 7th Control Delay, s/veh		23.0
HCM 7th LOS		C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	1	1	200	155	30
Future Vol, veh/h	20	1	1	200	155	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	15	15	8	8	16	16
Mvmt Flow	23	1	1	230	178	34

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	410	178	213	0	-	0
Stage 1	178	-	-	-	-	-
Stage 2	232	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.18	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.272	-	-	-
Pot Cap-1 Maneuver	573	832	1323	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	573	832	1323	-	-	-
Mov Cap-2 Maneuver	573	-	-	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11.46	0.04	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	9	-	581	-	-
HCM Lane V/C Ratio	0.001	-	0.042	-	-
HCM Control Delay (s/veh)	7.7	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	20	25	150	20	30
Future Vol, veh/h	95	20	25	150	20	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	134	28	35	211	28	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	162	0	430	148
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	282	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1387	-	582	899
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	766	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1387	-	566	899
Mov Cap-2 Maneuver	-	-	-	-	566	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	744	-

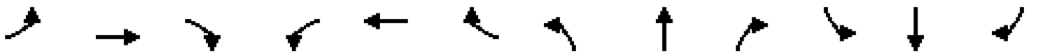
Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.09	10.48
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	728	-	-	257	-
HCM Lane V/C Ratio	0.097	-	-	0.025	-
HCM Control Delay (s/veh)	10.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	18	273	6	137	107	220	1	48	583	4
v/c Ratio	0.06	0.73	0.04	0.34	0.23	0.10	0.00	0.07	0.26	0.00
Control Delay (s/veh)	24.7	43.3	24.0	29.9	4.1	2.6	4.0	8.1	8.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.7	43.3	24.0	29.9	4.1	2.6	4.0	8.1	8.2	8.0
Queue Length 50th (ft)	8	144	3	66	6	6	0	9	67	1
Queue Length 95th (ft)	21	189	11	97	17	14	m0	26	108	5
Internal Link Dist (ft)		1001		145		397			293	
Turn Bay Length (ft)	100		100		100		50	50		45
Base Capacity (vph)	479	637	291	689	474	2111	929	727	2253	992
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.43	0.02	0.20	0.23	0.10	0.00	0.07	0.26	0.00

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	60	170	5	85	30	90	185	1	40	490	5
Future Volume (veh/h)	15	60	170	5	85	30	90	185	1	40	490	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1764	1764	1737	1870	1870	1841
Adj Flow Rate, veh/h	18	71	202	6	101	36	107	220	1	48	583	4
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	3	3	3	11	11	11	4	4	4
Cap, veh/h	244	85	242	123	260	93	551	2237	982	854	2371	1041
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	1.00	1.00	1.00	0.67	0.67	0.67
Sat Flow, veh/h	1242	426	1212	1097	1306	466	782	3352	1472	1160	3553	1560
Grp Volume(v), veh/h	18	0	273	6	0	137	107	220	1	48	583	4
Grp Sat Flow(s),veh/h/ln	1242	0	1637	1097	0	1772	782	1676	1472	1160	1776	1560
Q Serve(g_s), s	1.1	0.0	14.4	0.5	0.0	6.0	1.5	0.0	0.0	1.3	5.9	0.1
Cycle Q Clear(g_c), s	7.2	0.0	14.4	14.9	0.0	6.0	7.4	0.0	0.0	1.3	5.9	0.1
Prop In Lane	1.00		0.74	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	244	0	326	123	0	353	551	2237	982	854	2371	1041
V/C Ratio(X)	0.07	0.00	0.84	0.05	0.00	0.39	0.19	0.10	0.00	0.06	0.25	0.00
Avail Cap(c_a), veh/h	480	0	637	331	0	689	551	2237	982	854	2371	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	0.0	34.6	41.8	0.0	31.3	0.4	0.0	0.0	5.2	6.0	5.0
Incr Delay (d2), s/veh	0.1	0.0	5.6	0.2	0.0	0.7	0.8	0.1	0.0	0.1	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	6.0	0.1	0.0	2.6	0.1	0.0	0.0	0.3	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	34.5	0.0	40.3	41.9	0.0	32.0	1.1	0.1	0.0	5.3	6.2	5.0
LnGrp LOS	C		D	D		C	A	A	A	A	A	A
Approach Vol, veh/h		291			143			328			635	
Approach Delay, s/veh		39.9			32.4			0.4			6.1	
Approach LOS		D			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		66.1		23.9		66.1		23.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		43.0		35.0		43.0		35.0				
Max Q Clear Time (g_c+I1), s		9.4		16.4		7.9		16.9				
Green Ext Time (p_c), s		2.2		1.5		4.3		0.7				

Intersection Summary												
HCM 7th Control Delay, s/veh			14.5									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1	65	95	1	20	50	245	90	35	620	10
Future Vol, veh/h	10	1	65	95	1	20	50	245	90	35	620	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	155	-	100	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	1	1	1	0	0	0	9	9	9	4	4	4
Mvmt Flow	12	1	77	113	1	24	60	292	107	42	738	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1093	1345	375	864	1244	146	750	0	0	399	0	0
Stage 1	827	827	-	411	411	-	-	-	-	-	-	-
Stage 2	265	518	-	453	833	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.5	6.5	6.9	4.28	-	-	4.18	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.5	4	3.3	2.29	-	-	2.24	-	-
Pot Cap-1 Maneuver	301	214	*922	*484	255	1034	984	-	-	1216	-	-
Stage 1	484	492	-	*674	649	-	-	-	-	-	-	-
Stage 2	823	577	-	*872	490	-	-	-	-	-	-	-
Platoon blocked, %	0	0	0	0	0	0	0	-	-	0	-	-
Mov Cap-1 Maneuver	266	194	*922	*400	231	1034	984	-	-	1216	-	-
Mov Cap-2 Maneuver	266	194	-	*400	231	-	-	-	-	-	-	-
Stage 1	467	475	-	*633	610	-	-	-	-	-	-	-
Stage 2	754	542	-	*769	474	-	-	-	-	-	-	-

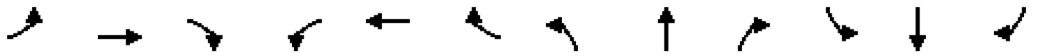
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	11.2	16.73	1.15	0.42
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	984	-	-	671	444	1216	-	-
HCM Lane V/C Ratio	0.06	-	-	0.135	0.311	0.034	-	-
HCM Control Delay (s/veh)	8.9	-	-	11.2	16.7	8.1	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.5	1.3	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	245	598	57	114	739	30	103	125	108	60	196	367
v/c Ratio	0.49	0.31	0.07	0.56	0.42	0.04	0.64	0.42	0.43	0.30	0.67	0.23
Control Delay (s/veh)	39.3	13.9	13.8	48.2	16.7	14.1	52.6	37.5	38.6	33.0	41.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.3	13.9	13.8	48.2	16.7	14.1	52.6	37.5	38.6	33.0	41.8	0.3
Queue Length 50th (ft)	67	97	15	63	136	9	56	65	56	26	87	0
Queue Length 95th (ft)	104	167	43	111	206	26	103	110	99	59	148	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	498	1932	827	237	1756	757	337	620	524	415	613	1568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.31	0.07	0.48	0.42	0.04	0.31	0.20	0.21	0.14	0.32	0.23

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	550	85	105	680	45	95	115	160	55	180	545
Future Volume (veh/h)	225	550	85	105	680	45	95	115	160	55	180	545
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1924	1924	1856	1880	1880	1870	1865	1865	1856
Adj Flow Rate, veh/h	245	598	57	114	739	30	103	125	108	60	196	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	3	3	3	2	2	2	3	3	3
Cap, veh/h	915	1776	758	145	1137	489	214	402	339	261	399	
Arrive On Green	0.26	0.49	0.49	0.08	0.31	0.31	0.21	0.21	0.21	0.07	0.07	0.00
Sat Flow, veh/h	3496	3595	1535	1832	3655	1572	1193	1880	1585	1144	1865	1572
Grp Volume(v), veh/h	245	598	57	114	739	30	103	125	108	60	196	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1832	1828	1572	1193	1880	1585	1144	1865	1572
Q Serve(g_s), s	5.0	9.1	1.8	5.5	15.7	1.2	7.5	5.0	5.2	4.6	9.1	0.0
Cycle Q Clear(g_c), s	5.0	9.1	1.8	5.5	15.7	1.2	16.7	5.0	5.2	9.6	9.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	915	1776	758	145	1137	489	214	402	339	261	399	
V/C Ratio(X)	0.27	0.34	0.08	0.79	0.65	0.06	0.48	0.31	0.32	0.23	0.49	
Avail Cap(c_a), veh/h	915	1776	758	224	1137	489	354	623	525	395	618	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	13.8	12.0	40.7	26.8	21.8	38.8	29.8	29.8	39.8	37.1	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.2	4.3	2.9	0.2	0.6	0.2	0.2	0.2	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.4	0.6	2.5	6.8	0.4	2.2	2.2	1.9	1.4	4.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.4	14.3	12.2	45.0	29.7	22.0	39.4	30.0	30.0	39.9	37.5	0.0
LnGrp LOS	C	B	B	D	C	C	D	C	C	D	D	
Approach Vol, veh/h		900			883			336			256	
Approach Delay, s/veh		17.5			31.4			32.9			38.0	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.6	34.0		26.4	13.1	50.5		26.4				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	13.0	28.0		29.8	11.0	30.0		29.8				
Max Q Clear Time (g_c+I1), s	7.0	17.7		11.6	7.5	11.1		18.7				
Green Ext Time (p_c), s	0.2	5.8		0.7	0.0	7.4		0.6				

Intersection Summary		
HCM 7th Control Delay, s/veh		27.0
HCM 7th LOS		C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	15	5	315	305	65
Future Vol, veh/h	55	15	5	315	305	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	4	4	3	3	4	4
Mvmt Flow	60	16	5	346	335	71

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	692	335	407	0	-	0
Stage 1	335	-	-	-	-	-
Stage 2	357	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.13	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.227	-	-	-
Pot Cap-1 Maneuver	407	702	1147	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	404	702	1147	-	-	-
Mov Cap-2 Maneuver	404	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	704	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.78	0.13	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	28	-	445	-	-
HCM Lane V/C Ratio	0.005	-	0.173	-	-
HCM Control Delay (s/veh)	8.2	0	14.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	85	15	30	105	15	35
Future Vol, veh/h	85	15	30	105	15	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	2	2
Mvmt Flow	101	18	36	125	18	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	119	0	307	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1463	-	686	943
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1463	-	668	943
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	815	-

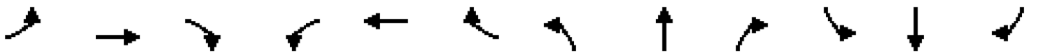
Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.67	9.62
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	839	-	-	400	-
HCM Lane V/C Ratio	0.071	-	-	0.024	-
HCM Control Delay (s/veh)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	85	247	92	232	197	627	1	56	408	9
v/c Ratio	0.48	0.71	0.55	0.68	0.32	0.28	0.00	0.12	0.19	0.01
Control Delay (s/veh)	38.5	43.8	43.0	42.3	3.7	2.5	3.0	8.4	7.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	38.5	43.8	43.0	42.3	3.7	2.5	3.0	8.4	7.3	7.5
Queue Length 50th (ft)	43	131	47	123	12	20	0	11	42	2
Queue Length 95th (ft)	61	141	65	133	21	27	m0	25	61	7
Internal Link Dist (ft)		1001		145		397			293	
Turn Bay Length (ft)	100		100		100		50	50		45
Base Capacity (vph)	297	577	277	564	608	2259	995	449	2101	925
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.43	0.33	0.41	0.32	0.28	0.00	0.12	0.19	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	75	100	65	50	115	140	445	1	40	290	10
Future Volume (veh/h)	60	75	100	65	50	115	140	445	1	40	290	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796	1796	1796	1796	1840	1840	1811	1719	1719	1693
Adj Flow Rate, veh/h	85	106	141	92	70	162	197	627	1	56	408	9
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	7	7	7	7	7	7	6	6	6	14	14	14
Cap, veh/h	218	176	234	209	121	281	614	2148	943	531	2008	882
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	1.00	1.00	1.00	0.61	0.61	0.61
Sat Flow, veh/h	1103	699	930	1088	481	1114	954	3495	1535	733	3267	1434
Grp Volume(v), veh/h	85	0	247	92	0	232	197	627	1	56	408	9
Grp Sat Flow(s),veh/h/ln	1103	0	1629	1088	0	1596	954	1748	1535	733	1633	1434
Q Serve(g_s), s	6.6	0.0	12.0	7.3	0.0	11.5	2.5	0.0	0.0	2.9	5.0	0.2
Cycle Q Clear(g_c), s	18.0	0.0	12.0	19.4	0.0	11.5	7.5	0.0	0.0	2.9	5.0	0.2
Prop In Lane	1.00		0.57	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	218	0	411	209	0	402	614	2148	943	531	2008	882
V/C Ratio(X)	0.39	0.00	0.60	0.44	0.00	0.58	0.32	0.29	0.00	0.11	0.20	0.01
Avail Cap(c_a), veh/h	332	0	579	321	0	567	614	2148	943	531	2008	882
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	29.7	38.2	0.0	29.5	0.3	0.0	0.0	7.2	7.6	6.7
Incr Delay (d2), s/veh	1.1	0.0	1.4	1.5	0.0	1.3	1.4	0.3	0.0	0.4	0.2	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	4.6	2.0	0.0	4.4	0.2	0.1	0.0	0.4	1.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	38.5	0.0	31.1	39.7	0.0	30.8	1.7	0.3	0.0	7.6	7.9	6.7
LnGrp LOS	D		C	D		C	A	A	A	A	A	A
Approach Vol, veh/h		332			324			825			473	
Approach Delay, s/veh		33.0			33.3			0.7			7.8	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		61.3		28.7		61.3		28.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		46.0		32.0		46.0		32.0				
Max Q Clear Time (g_c+I1), s		9.5		20.0		7.0		21.4				
Green Ext Time (p_c), s		5.8		1.3		3.3		1.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			13.3									
HCM 7th LOS			B									

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	0	0	35	25	550	95	30	420	5
Future Vol, veh/h	0	0	5	0	0	35	25	550	95	30	420	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	155	-	100	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	76	76	76	76	76	76	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	12	12	12
Mvmt Flow	0	0	7	0	0	46	33	724	125	39	553	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	280	-	-	362	559	0	0	849	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	4.2	-	-	4.34	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	2.25	-	-	2.32	-	-
Pot Cap-1 Maneuver	0	0	974	0	0	*946	1107	-	-	847	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			0			0	0	-	-	0	-	-
Mov Cap-1 Maneuver	-	-	974	-	-	*946	1107	-	-	847	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	8.72	9	0.31	0.62
HCM LOS	A	A		

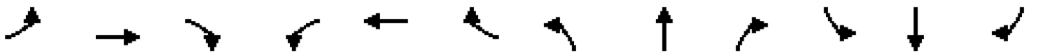
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1107	-	-	974	946	847	-	-
HCM Lane V/C Ratio	0.03	-	-	0.007	0.049	0.047	-	-
HCM Control Delay (s/veh)	8.4	-	-	8.7	9	9.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	558	574	33	37	489	16	79	121	20	37	105	189
v/c Ratio	0.77	0.25	0.03	0.28	0.32	0.02	0.50	0.52	0.10	0.25	0.48	0.13
Control Delay (s/veh)	41.5	8.9	9.1	44.1	17.1	15.3	47.0	44.5	34.6	29.1	33.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	41.5	8.9	9.1	44.1	17.1	15.3	47.0	44.5	34.6	29.1	33.5	0.2
Queue Length 50th (ft)	155	75	7	20	88	5	43	66	10	16	46	0
Queue Length 95th (ft)	213	127	23	50	138	18	84	115	30	m37	79	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	728	2256	966	462	1548	667	314	456	386	295	435	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.25	0.03	0.08	0.32	0.02	0.25	0.27	0.05	0.13	0.24	0.13

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	530	545	50	35	465	25	75	115	30	35	100	290
Future Volume (veh/h)	530	545	50	35	465	25	75	115	30	35	100	290
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1847	1847	1781	1821	1821	1811	1746	1746	1737
Adj Flow Rate, veh/h	558	574	33	37	489	16	79	121	20	37	105	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	8	8	8	6	6	6	11	11	11
Cap, veh/h	1113	2159	922	71	1131	486	190	266	224	179	255	
Arrive On Green	0.32	0.60	0.60	0.04	0.32	0.32	0.15	0.15	0.15	0.05	0.05	0.00
Sat Flow, veh/h	3496	3595	1535	1759	3509	1510	1255	1821	1535	1165	1746	1472
Grp Volume(v), veh/h	558	574	33	37	489	16	79	121	20	37	105	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1759	1755	1510	1255	1821	1535	1165	1746	1472
Q Serve(g_s), s	11.7	6.8	0.8	1.9	9.9	0.7	5.5	5.5	1.0	2.8	5.3	0.0
Cycle Q Clear(g_c), s	11.7	6.8	0.8	1.9	9.9	0.7	10.8	5.5	1.0	8.3	5.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1113	2159	922	71	1131	486	190	266	224	179	255	
V/C Ratio(X)	0.50	0.27	0.04	0.52	0.43	0.03	0.42	0.46	0.09	0.21	0.41	
Avail Cap(c_a), veh/h	1113	2159	922	469	1131	486	325	461	389	304	442	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.9	8.5	7.3	42.3	24.0	20.9	40.0	35.2	33.3	43.2	39.1	0.0
Incr Delay (d2), s/veh	0.1	0.3	0.1	2.2	1.2	0.1	0.5	0.5	0.1	0.2	0.4	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	2.3	0.2	0.8	4.0	0.2	1.7	2.4	0.4	0.8	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.0	8.9	7.4	44.6	25.2	21.0	40.5	35.6	33.3	43.4	39.5	0.0
LnGrp LOS	C	A	A	D	C	C	D	D	C	D	D	
Approach Vol, veh/h		1165			542			220			142	
Approach Delay, s/veh		16.5			26.4			37.2			40.5	
Approach LOS		B			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	34.7	35.0		20.3	9.6	60.0		20.3				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	19.0	29.0		22.8	24.0	24.0		22.8				
Max Q Clear Time (g_c+I1), s	13.7	11.9		10.3	3.9	8.8		12.8				
Green Ext Time (p_c), s	0.6	5.4		0.3	0.0	6.1		0.4				

Intersection Summary	
HCM 7th Control Delay, s/veh	23.0
HCM 7th LOS	C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	1	1	200	155	30
Future Vol, veh/h	20	1	1	200	155	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	15	15	8	8	16	16
Mvmt Flow	23	1	1	230	178	34

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	410	178	213	0	-	0
Stage 1	178	-	-	-	-	-
Stage 2	232	-	-	-	-	-
Critical Hdwy	6.55	6.35	4.18	-	-	-
Critical Hdwy Stg 1	5.55	-	-	-	-	-
Critical Hdwy Stg 2	5.55	-	-	-	-	-
Follow-up Hdwy	3.635	3.435	2.272	-	-	-
Pot Cap-1 Maneuver	573	832	1323	-	-	-
Stage 1	822	-	-	-	-	-
Stage 2	777	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	573	832	1323	-	-	-
Mov Cap-2 Maneuver	573	-	-	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11.46	0.04	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	9	-	581	-	-
HCM Lane V/C Ratio	0.001	-	0.042	-	-
HCM Control Delay (s/veh)	7.7	0	11.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	20	25	150	80	50
Future Vol, veh/h	95	20	25	150	80	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	7	7	7	7	2	2
Mvmt Flow	134	28	35	211	113	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	162	0	430	148
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	282	-
Critical Hdwy	-	-	4.17	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.263	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1387	-	582	899
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	766	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1387	-	566	899
Mov Cap-2 Maneuver	-	-	-	-	566	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	744	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.09	12.54
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	660	-	-	257	-
HCM Lane V/C Ratio	0.278	-	-	0.025	-
HCM Control Delay (s/veh)	12.5	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	273	89	137	107	220	1	48	583	4
v/c Ratio	0.11	0.73	0.52	0.34	0.23	0.10	0.00	0.07	0.26	0.00
Control Delay (s/veh)	25.7	43.3	40.3	29.9	4.3	2.8	4.0	8.1	8.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.7	43.3	40.3	29.9	4.3	2.8	4.0	8.1	8.2	8.0
Queue Length 50th (ft)	14	144	45	66	8	8	0	9	67	1
Queue Length 95th (ft)	30	189	77	97	17	14	m0	26	108	5
Internal Link Dist (ft)		1001		145		397			293	
Turn Bay Length (ft)	100		100		100		50	50		45
Base Capacity (vph)	479	637	291	689	474	2111	929	727	2253	992
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.43	0.31	0.20	0.23	0.10	0.00	0.07	0.26	0.00

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	60	170	75	85	30	90	185	1	40	490	5
Future Volume (veh/h)	25	60	170	75	85	30	90	185	1	40	490	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1764	1764	1737	1870	1870	1841
Adj Flow Rate, veh/h	30	71	202	89	101	36	107	220	1	48	583	4
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	3	3	3	3	3	3	11	11	11	4	4	4
Cap, veh/h	324	110	313	201	338	120	495	2039	895	785	2160	949
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	1.00	1.00	1.00	0.61	0.61	0.61
Sat Flow, veh/h	1242	426	1212	1097	1306	466	782	3352	1472	1160	3553	1560
Grp Volume(v), veh/h	30	0	273	89	0	137	107	220	1	48	583	4
Grp Sat Flow(s),veh/h/ln	1242	0	1637	1097	0	1772	782	1676	1472	1160	1776	1560
Q Serve(g_s), s	1.8	0.0	13.4	7.1	0.0	5.6	2.0	0.0	0.0	1.5	6.9	0.1
Cycle Q Clear(g_c), s	7.4	0.0	13.4	20.4	0.0	5.6	8.9	0.0	0.0	1.5	6.9	0.1
Prop In Lane	1.00		0.74	1.00		0.26	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	0	423	201	0	458	495	2039	895	785	2160	949
V/C Ratio(X)	0.09	0.00	0.64	0.44	0.00	0.30	0.22	0.11	0.00	0.06	0.27	0.00
Avail Cap(c_a), veh/h	486	0	637	344	0	689	495	2039	895	785	2160	949
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.8	0.0	29.7	38.8	0.0	26.8	0.6	0.0	0.0	7.2	8.3	6.9
Incr Delay (d2), s/veh	0.1	0.0	1.7	1.5	0.0	0.4	1.0	0.1	0.0	0.1	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	5.2	2.0	0.0	2.4	0.1	0.0	0.0	0.4	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.9	0.0	31.3	40.3	0.0	27.2	1.6	0.1	0.0	7.4	8.6	6.9
LnGrp LOS	C		C	D		C	A	A	A	A	A	A
Approach Vol, veh/h		303			226			328			635	
Approach Delay, s/veh		31.2			32.3			0.6			8.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	60.7	29.3	60.7	29.3
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	43.0	35.0	43.0	35.0
Max Q Clear Time (g_c+I1), s	10.9	15.4	8.9	22.4
Green Ext Time (p_c), s	2.2	1.6	4.3	0.9

Intersection Summary	
HCM 7th Control Delay, s/veh	15.0
HCM 7th LOS	B

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	0	0	65	0	0	20	50	245	90	35	690	10
Future Vol, veh/h	0	0	65	0	0	20	50	245	90	35	690	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	155	-	100	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	1	1	1	0	0	0	9	9	9	4	4	4
Mvmt Flow	0	0	77	0	0	24	60	292	107	42	821	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	417	-	-	146	833	0	0	399	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.9	4.28	-	-	4.18	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.3	2.29	-	-	2.24	-	-
Pot Cap-1 Maneuver	0	0	*899	0	0	1034	932	-	-	1216	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			0			0	0	-	-	0	-	-
Mov Cap-1 Maneuver	-	-	*899	-	-	1034	932	-	-	1216	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

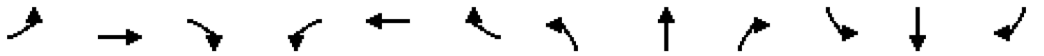
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	9.38	8.56	1.19	0.38
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	932	-	-	899	1034	1216	-	-
HCM Lane V/C Ratio	0.064	-	-	0.086	0.023	0.034	-	-
HCM Control Delay (s/veh)	9.1	-	-	9.4	8.6	8.1	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	245	598	57	114	750	30	103	125	108	43	196	361
v/c Ratio	0.49	0.31	0.07	0.56	0.43	0.04	0.64	0.42	0.43	0.22	0.67	0.23
Control Delay (s/veh)	39.3	13.9	13.8	48.2	16.7	14.1	52.6	37.5	38.6	26.2	37.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	39.3	13.9	13.8	48.2	16.7	14.1	52.6	37.5	38.6	26.2	37.7	0.3
Queue Length 50th (ft)	67	97	15	63	138	9	56	65	56	18	83	0
Queue Length 95th (ft)	104	167	43	111	210	26	103	110	99	39	123	0
Internal Link Dist (ft)		674			679			287			626	
Turn Bay Length (ft)	200		250	165		175	75		250	75		
Base Capacity (vph)	498	1932	827	237	1756	757	337	620	524	415	613	1568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.31	0.07	0.48	0.43	0.04	0.31	0.20	0.21	0.10	0.32	0.23

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	550	85	105	690	45	95	115	160	40	180	535
Future Volume (veh/h)	225	550	85	105	690	45	95	115	160	40	180	535
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1892	1892	1811	1924	1924	1856	1880	1880	1870	1865	1865	1856
Adj Flow Rate, veh/h	245	598	57	114	750	30	103	125	108	43	196	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	3	3	3	2	2	2	3	3	3
Cap, veh/h	915	1776	758	145	1137	489	214	402	339	261	399	
Arrive On Green	0.26	0.49	0.49	0.08	0.31	0.31	0.21	0.21	0.21	0.07	0.07	0.00
Sat Flow, veh/h	3496	3595	1535	1832	3655	1572	1193	1880	1585	1144	1865	1572
Grp Volume(v), veh/h	245	598	57	114	750	30	103	125	108	43	196	0
Grp Sat Flow(s),veh/h/ln	1748	1797	1535	1832	1828	1572	1193	1880	1585	1144	1865	1572
Q Serve(g_s), s	5.0	9.1	1.8	5.5	16.0	1.2	7.5	5.0	5.2	3.2	9.1	0.0
Cycle Q Clear(g_c), s	5.0	9.1	1.8	5.5	16.0	1.2	16.7	5.0	5.2	8.3	9.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	915	1776	758	145	1137	489	214	402	339	261	399	
V/C Ratio(X)	0.27	0.34	0.08	0.79	0.66	0.06	0.48	0.31	0.32	0.16	0.49	
Avail Cap(c_a), veh/h	915	1776	758	224	1137	489	354	623	525	395	618	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	13.8	12.0	40.7	26.9	21.8	38.8	29.8	29.8	39.1	37.1	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.2	4.3	3.0	0.2	0.6	0.2	0.2	0.1	0.3	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	3.4	0.6	2.5	6.9	0.4	2.2	2.2	1.9	0.9	4.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.4	14.3	12.2	45.0	29.9	22.0	39.4	30.0	30.0	39.3	37.5	0.0
LnGrp LOS	C	B	B	D	C	C	D	C	C	D	D	
Approach Vol, veh/h		900			894			336			239	
Approach Delay, s/veh		17.5			31.5			32.9			37.8	
Approach LOS		B			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	29.6	34.0		26.4	13.1	50.5		26.4				
Change Period (Y+Rc), s	6.0	6.0		7.2	6.0	6.0		7.2				
Max Green Setting (Gmax), s	13.0	28.0		29.8	11.0	30.0		29.8				
Max Q Clear Time (g_c+I1), s	7.0	18.0		11.1	7.5	11.1		18.7				
Green Ext Time (p_c), s	0.2	5.7		0.6	0.0	7.4		0.6				

Intersection Summary		
HCM 7th Control Delay, s/veh		27.0
HCM 7th LOS		C

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	55	15	5	315	305	65
Future Vol, veh/h	55	15	5	315	305	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	95
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	4	4	3	3	4	4
Mvmt Flow	60	16	5	346	335	71

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	692	335	407	0	-	0
Stage 1	335	-	-	-	-	-
Stage 2	357	-	-	-	-	-
Critical Hdwy	6.44	6.24	4.13	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.227	-	-	-
Pot Cap-1 Maneuver	407	702	1147	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	404	702	1147	-	-	-
Mov Cap-2 Maneuver	404	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	704	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	14.78	0.13	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	28	-	445	-	-
HCM Lane V/C Ratio	0.005	-	0.173	-	-
HCM Control Delay (s/veh)	8.2	0	14.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	85	15	30	105	85	60
Future Vol, veh/h	85	15	30	105	85	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	2	2
Mvmt Flow	101	18	36	125	101	71

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	119	0	307	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	4.13	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.227	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1463	-	686	943
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1463	-	668	943
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	815	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.67	11.13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	759	-	-	400	-
HCM Lane V/C Ratio	0.227	-	-	0.024	-
HCM Control Delay (s/veh)	11.1	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

APPENDIX E

WARRANT STUDIES

Right-Turn Lane Warrants
Traffic Signal Warrants
Crash Analysis

TRAFFIC SIGNAL WARRANT VOLUME CALCULATIONS: **Maple Road & Mequon Road**

By: TSC
Date: 10/10/2024

Year 2024 Existing Traffic

	↓ Maple Road				← Mequon Road				↑ Maple Road				→ Mequon Road				Intersection
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Totals
6-7am	10	143	13	0	118	20	1	0	1	467	138	0	42	29	48	0	1030
7-8am	7	266	40	0	56	41	1	0	4	323	123	0	126	83	28	0	1098
8-9am	14	174	15	0	46	38	1	0	1	272	67	0	102	46	21	0	797
9-10am	4	144	24	0	21	24	5	0	4	150	50	0	54	27	4	0	511
10-11am	7	143	25	0	30	39	1	0	1	163	57	0	77	42	13	0	598
11am-12pm	6	230	46	0	37	37	3	0	1	153	47	1	77	54	12	0	704
12-1pm	13	237	48	0	53	60	2	0	3	226	87	0	88	39	6	0	862
1-2pm	12	204	30	0	46	52	1	0	2	194	61	0	63	39	11	0	715
2-3pm	11	335	54	0	44	53	7	0	0	236	88	0	96	38	16	0	978
3-4pm	8	451	58	0	15	72	2	0	2	175	73	0	170	50	15	0	1091
4-5pm	7	422	36	0	23	79	3	0	1	159	81	0	155	57	13	0	1036
5-6pm	14	262	29	0	27	71	1	0	1	144	49	0	70	54	20	0	742
6-7pm	9	152	22	0	23	33	1	0	2	126	41	1	64	27	10	0	511
7-8pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes
Traffic Counts collected September 23, 2024.

Year 2029 Background Traffic

	↓ Maple Road				← Mequon Road				↑ Maple Road				→ Mequon Road				Intersection
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Totals
6-7am	10	143	13	0	118	20	1	0	1	467	138	0	42	29	48	0	1030
7-8am	7	266	40	0	56	41	1	0	4	323	123	0	126	83	28	0	1098
8-9am	14	174	15	0	46	38	1	0	1	272	67	0	102	46	21	0	797
9-10am	4	144	24	0	21	24	5	0	4	150	50	0	54	27	4	0	511
10-11am	7	143	25	0	30	39	1	0	1	163	57	0	77	42	13	0	598
11am-12pm	6	230	46	0	37	37	3	0	1	153	47	1	77	54	12	0	704
12-1pm	13	237	48	0	53	60	2	0	3	226	87	0	88	39	6	0	862
1-2pm	12	204	30	0	46	52	1	0	2	194	61	0	63	39	11	0	715
2-3pm	11	335	54	0	44	53	7	0	0	236	88	0	96	38	16	0	978
3-4pm	8	451	58	0	15	72	2	0	2	175	73	0	170	50	15	0	1091
4-5pm	7	422	36	0	23	79	3	0	1	159	81	0	155	57	13	0	1036
5-6pm	14	262	29	0	27	71	1	0	1	144	49	0	70	54	20	0	742
6-7pm	9	152	22	0	23	33	1	0	2	126	41	1	64	27	10	0	511
7-8pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Notes

AM Growth Rates	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
PM Growth Rates	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	

	↓ Maple Road				← Mequon Road				↑ Maple Road				→ Mequon Road				Intersection
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Totals
6-7am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-8am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8-9am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9-10am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10-11am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11am-12pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12-1pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1-2pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2-3pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3-4pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4-5pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5-6pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6-7pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7-8pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

IN %																	IN %
OUT %																	OUT %

IN	OUT
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0

AADT IN	AADT OUT	
0	0	
0%	0%	<- % Reduction, Sensitivity Test
0	0	

% AADT IN	% AADT OUT	Notes
		Trip Distribution from ITE LU #154

Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

100%

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: #100 - Maple Road & Mequon Road
County: Washington County
Village: Germantown, WI

Major Street: Maple Road
Critical Approach Speed: 40 mph
Lanes: 2 or more lanes

Minor Street: Mequon Road
Critical Approach Speed: 30 mph
Lanes: 1 lane

% Right Turns Included
From North (SB) 100%
From East (WB) 0%
From South (NB) 100%
From West (EB) 0%

In built-up area of isolated community of < 10,000 population? No
Total number of approaches at intersection? 4 or more
If it is a "T" intersection, inflate minor threshold to 150%? No
Manually set volume level?

Analysis based on PROJECTED volume data.

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM
Year 2024 Existing Traffic		6:00	AM	6:00	PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	**No**
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	**No**
Warrant 3: Peak Hour Volume	**Yes**
Warrant 4: Pedestrian Volume	**N/A**
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	**N/A**
Warrant 6: Coordinated Signal System	**N/A**
Warrant 7: Crash Experience	**Yes**
Warrant 8: Roadway Network	**N/A**
Warrant 9: Intersection Near a Grade Crossing	**N/A**

Warrant Analysis Conducted By:

Name: Tammi Czewski
Agency: TADI
Date: 10/10/2024

#100: Maple Road/Mequon Road
Year 2024 Existing Traffic Volumes

Warrant 1: Eight - Hour Vehicular Volume 100%

Warrant Evaluated? Yes **Warrant Satisfied? No** **Manually Set To:**

Condition A : Min. Veh. Volume		
Volume Level	100%	80%
Major Rd. Req	600	480
Minor Rd. Req	150	120
Number of Hours	0	0

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	900	720
Minor Rd. Req	75	60
Number of Hours	0	4

Satisfied? No

Condition C: Combination of A & B at 80%

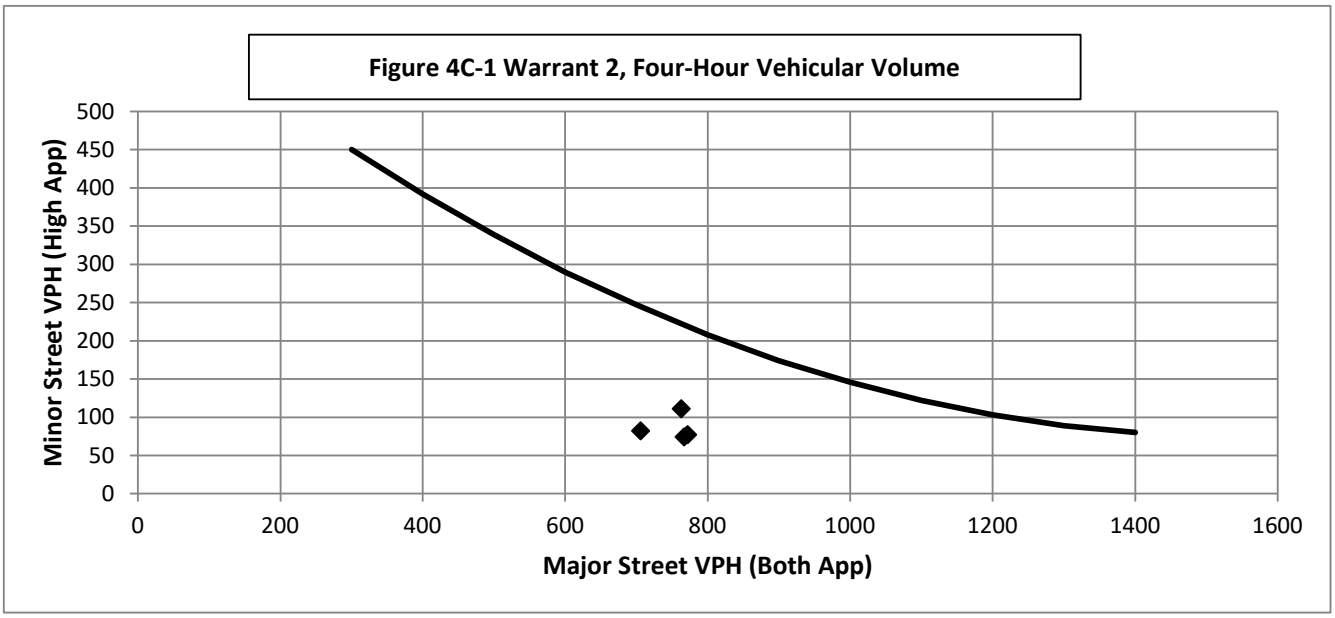
Satisfied? No

6:00 AM		Enter Start Time (Military Time) (HH:MM)			
Time Period	**From**	**To**	**Major Road: Both App. (VPH)**	**Minor Road: High App. (VPH)**	**Total**
1	6:00	7:00	772	77	849
2	7:00	8:00	763	111	874
3	8:00	9:00	543	67	610
4	9:00	10:00	376	31	407
5	10:00	11:00	396	55	451
6	11:00	12:00	484	66	550
7	12:00	13:00	614	62	676
8	13:00	14:00	503	53	556
9	14:00	15:00	724	60	784
10	15:00	16:00	767	74	841
11	16:00	17:00	706	82	788
12	17:00	18:00	499	74	573
13	18:00	19:00	353	37	390
14	19:00	20:00	0	0	0
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume 100%

Warrant Evaluated? Yes
Warrant Satisfied? No
Manually Set To:

Hour Start	7:00	6:00	15:00	16:00
Major Road Vol.	763	772	767	706
Minor Road Vol.	111	77	74	82



Warrant 3: Peak Hour Volume 100%

Warrant Evaluated? Yes **Warrant Satisfied? Yes** **Manually Set To:**

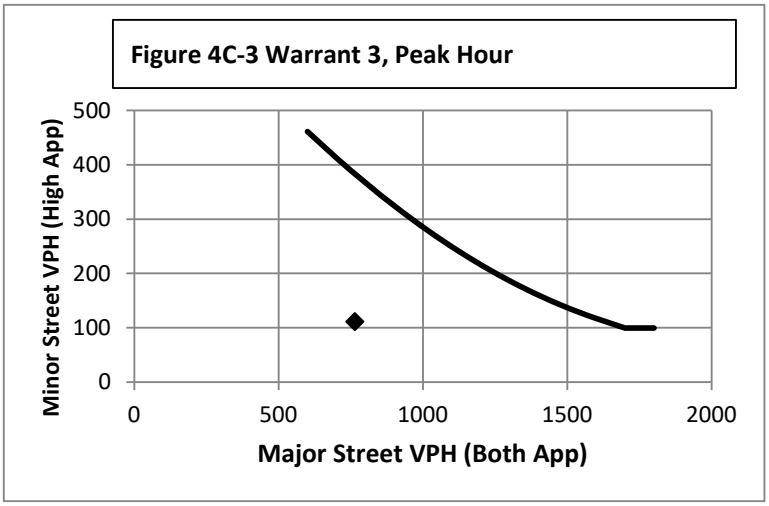
Condition justifying use of warrant:

Light industrial development creates significant peaking.
9.9 veh-hours of delay in the AM peak hour.

Criteria		Met?
Delay on Minor Approach	4	Yes
Volume on Minor Approach	100	Yes
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour?

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
7:00	763	111



Warrant 4: Pedestrian Volume 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

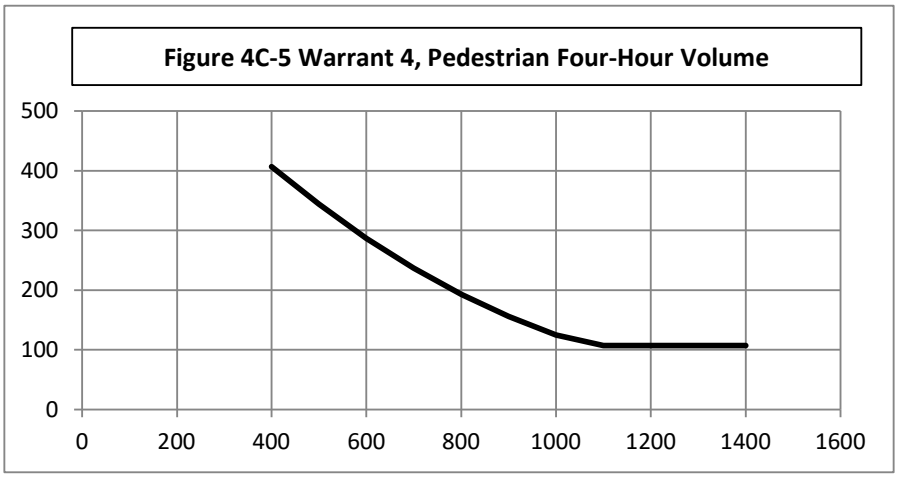
Criterion A: Four Hour

Hour (Start)	Pedestrian Volume	Major Road Vol.
		0
		0
		0
		0

Manually Set Major Rd Vol?

Avg. walk speed less than 3.5 ft/s?

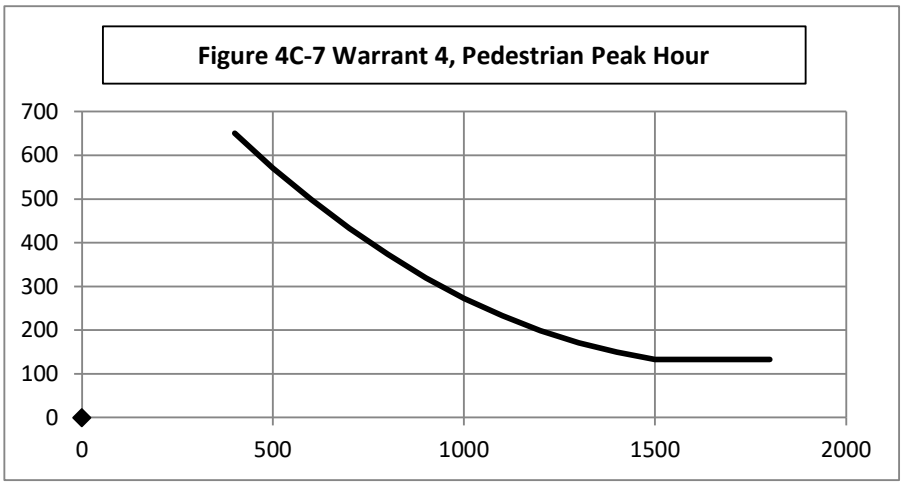
Criterion A Satisfied?



Criterion B: Peak Hour

Peak Hour	Pedestrian Vol.	Major Road Vol.
0:00	0	0

Criterion B Satisfied?



Warrant 5: School Crossing 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

Criteria		Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	

Warrant 6: Coordinated Signal System 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

Criteria		Fulfilled?
1	Signal spacing > 1000 ft	
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

Warrant 7: Crash Experience 100%

Warrant Evaluated? Yes **Warrant Satisfied? Yes** **Manually Set To:**

Criteria			Met?	Fulfilled?
1	Adequate trial of other remedial measures has failed to reduce crash frequency.			Yes
	Measures Tried:	Install AWSC		
2	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period.	# of crashes per 12 months		Yes
		5		
3	Warrant 1, Condition A (80%)		No	Yes
	Warrant 1, Condition B (80%)		No	
	Warrant 4, Criterion A (80%)		No	
	Warrant 4, Criterion B (80%)		Yes	

Warrant 8: Roadway Network 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

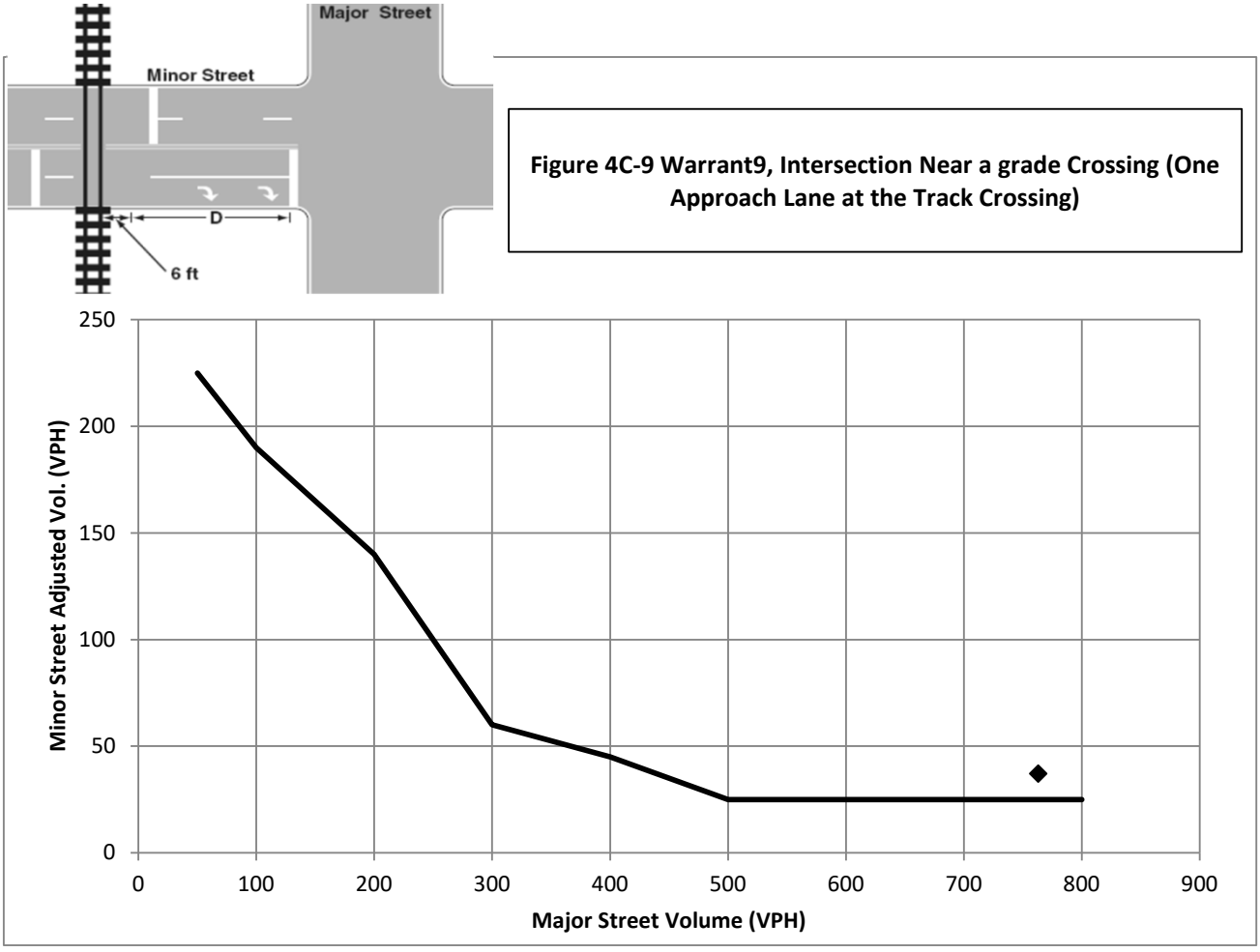
Criteria					Met?	Fulfilled?
1	Total entering volume of at least 1,000 veh/h during typical weekday peak hour			874	No	No
	Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.				No	
2	Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.)					
	Hour					
	Volume					

Characteristics of Major Routes - Select yes if all intersecting routes have characteristic			Fulfilled?
1	Part of the road or highway system that serves as the principal roadway network for through traffic flow		
2	Rural or suburban highway outside of, entering, or traversing a city		
3	Appears as a major route on an official plan		

Warrant 9: Intersection Near a Grade Crossing 100%

Warrant Evaluated? **Warrant Satisfied? N/A** **Manually Set To:**

Adjustment Factors			Manually Set Peak Hour?				
Rail Traffic per Day	% High Occupancy Buses on Minor Road	% Tractor-Trailer Trucks on Minor Road	D	Peak Hour	Major Road Vol.	Minor Road Vol.	Adjusted Minor Vol.
1	0	0% to 2.5%	660	7:00	763	111	37.185



Conclusions/Comments:

Updated: 12/6/2017

Hourly Volume Data

One Hour Time Period Start Time		From North (SB) ↓					From East (WB) ←					From South (NB) ↑					From West (EB) →					Total Vehicle 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	6:00	10	143	13	0	166	118	20	1	0	139	1	467	138	0	606	42	29	48	0	119	1030
	7:00	7	266	40	0	313	56	41	1	0	98	4	323	123	0	450	126	83	28	0	237	1098
	8:00	14	174	15	0	203	46	38	1	0	85	1	272	67	0	340	102	46	21	0	169	797
	9:00	4	144	24	0	172	21	24	5	0	50	4	150	50	0	204	54	27	4	0	85	511
MD	10:00	7	143	25	0	175	30	39	1	0	70	1	163	57	0	221	77	42	13	0	132	598
	11:00	6	230	46	0	282	37	37	3	0	77	1	153	47	1	202	77	54	12	0	143	704
	12:00	13	237	48	0	298	53	60	2	0	115	3	226	87	0	316	88	39	6	0	133	862
	13:00	12	204	30	0	246	46	52	1	0	99	2	194	61	0	257	63	39	11	0	113	715
PM	14:00	11	335	54	0	400	44	53	7	0	104	0	236	88	0	324	96	38	16	0	150	978
	15:00	8	451	58	0	517	15	72	2	0	89	2	175	73	0	250	170	50	15	0	235	1091
	16:00	7	422	36	0	465	23	79	3	0	105	1	159	81	0	241	155	57	13	0	225	1036
	17:00	14	262	29	0	305	27	71	1	0	99	1	144	49	0	194	70	54	20	0	144	742
	18:00	9	152	22	0	183	23	33	1	0	57	2	126	41	1	170	64	27	10	0	101	511
	19:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20:00																					0
	21:00																					0
Totals		122	3163	440	0	3725	539	619	29	0	1187	23	2788	962	2	3775	1184	585	217	0	1986	10673

Note: Copy volume data and paste into cells using paste special -> values

Note: U-Turns are counted as Left Turns in the Volume Totals

Please Select the Major Road: N/S

Major Road Left Turn as Minor Approach?

% Right Turns Included (Default 0%)

From North (SB)	**100%**
From East (WB)	**0%**
From South (NB)	**100%**
From West (EB)	**0%**

Major Road Volume Totals: North/South				
Right	Thru	Left	T+LT	Total
11	610	151	761	772
11	589	163	752	763
15	446	82	528	543
8	294	74	368	376
8	306	82	388	396
7	383	94	477	484
16	463	135	598	614
14	398	91	489	503
11	571	142	713	724
10	626	131	757	767
8	581	117	698	706
15	406	78	484	499
11	278	64	342	353
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
145	5951	1404	7355	7500

Minor Road Highest Volume: East/West				
Right	Thru	Left	T+LT	Total
0	29	48	77	77
0	83	28	111	111
0	46	21	67	67
0	27	4	31	31
0	42	13	55	55
0	54	12	66	66
0	60	2	62	62
0	52	1	53	53
0	53	7	60	60
0	72	2	74	74
0	79	3	82	82
0	54	20	74	74
0	27	10	37	37
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	678	171	849	849

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

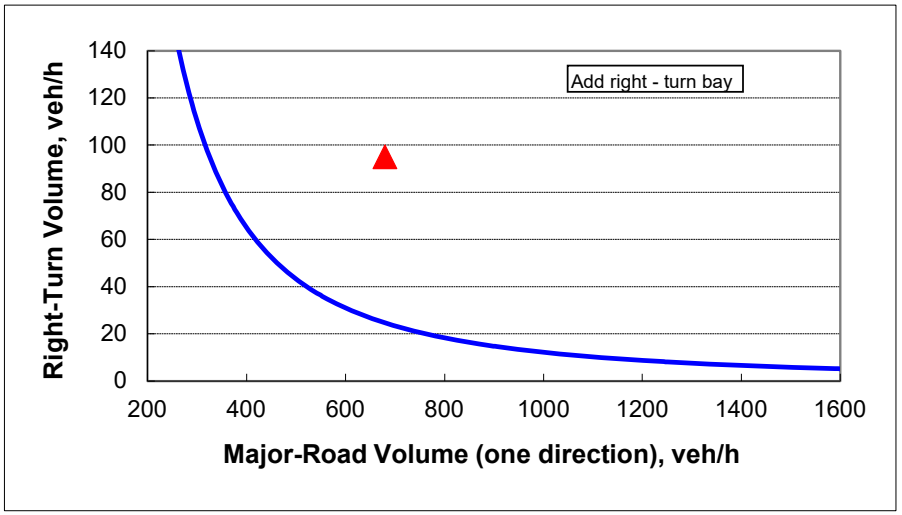
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	680
Right-turn volume, veh/h:	95

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	25
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Intersection Collision Diagram

TRAFFIC ANALYSIS & DESIGN, INC.

		Duration	
Location:	**Maple Rd & Mequon Rd**	**From:**	**1/1/2019** **5 Years**
Municipality:	**Germantown**	**To:**	**9/30/2024** **9 Months**
County:	**Washington**	**AADT:**	**13,300** MAP
Traffic Control:	**All-Way Stop**	**Area Type:**	**Urban**
		GPS Coordinates:	**43.221069, -88.142373**

TOTAL CRASHES: 24

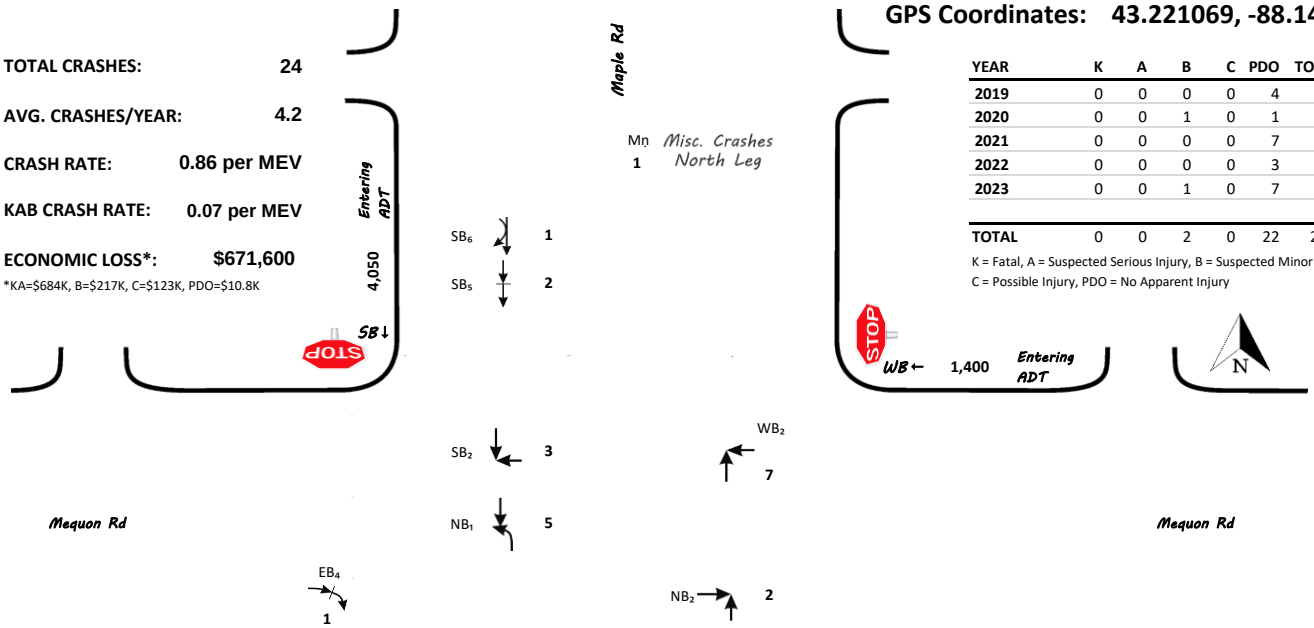
AVG. CRASHES/YEAR: 4.2

CRASH RATE: 0.86 per MEV

KAB CRASH RATE: 0.07 per MEV

ECONOMIC LOSS*: $671,600

*KA=$684K, B=$217K, C=$123K, PDO=$10.8K

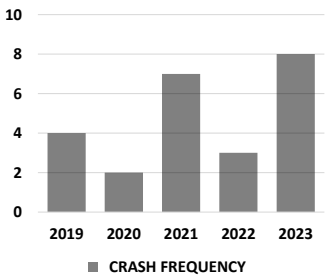


YEAR	K	A	B	C	PDO	TOT.	ECON. LOSS
2019	0	0	0	0	4	4	$ 43,200
2020	0	0	1	0	1	2	$ 227,800
2021	0	0	0	0	7	7	$ 75,600
2022	0	0	0	0	3	3	$ 32,400
2023	0	0	1	0	7	8	$ 292,600
TOTAL	0	0	2	0	22	24	$ 671,600

K = Fatal, A = Suspected Serious Injury, B = Suspected Minor Injury, C = Possible Injury, PDO = No Apparent Injury

ECON. LOSS COLOR SCALE
- > $1 M
- > $500 K
- Ped/Bike

ANNUAL CRASH TRENDS



CRASH TYPE	K	A	B	C	PDO	TOT.	ECON. LOSS
LT-ANGLE	0	0	0	0	5	5	$ 54,000
RT-ANGLE	0	0	2	0	10	12	$ 542,000
PEDESTRIAN	0	0	0	0	0	0	$ -
RT-TURN REAR-END	0	0	0	0	1	1	$ 10,800
REAR-END	0	0	0	0	2	2	$ 21,600
SIDE-SWIPE-SAME	0	0	0	0	1	1	$ 10,800
BICYCLE-RELATED	0	0	0	0	0	0	$ -
PARKED-VEHICLE	0	0	0	0	0	0	$ -
FIXED-OBJECT	0	0	0	0	2	2	$ 21,600
DRIVEWAY-RELATED	0	0	0	0	0	0	$ -
HEAD-ON	0	0	0	0	0	0	$ -
MISC. OTHER	0	0	0	0	1	1	$ 10,800
TOTAL	0	0	2	0	22	24	$ 671,600

ROAD CONDITIONS		
DRY	17	71%
WET	6	25%
SNOW	1	4%
ICE	0	0%
OTH.	0	0%
TOT.	24	

LIGHT CONDITIONS		
DAY	20	83%
DARK	4	17%
TOT.	24	

DRIVER BEHAVIOR		
ALCOHOL	0	0%
DRUGS	0	0%
SPEED	1	4%

SEASON		
SPRING	4	17%
SUMMER	5	21%
FALL	5	21%
WINTER	10	42%
TOT.	24	

FAILURE TO YIELD		
NB	3	13%
SB	4	17%
EB	1	4%
WB	1	4%
TBD	0	0%
TOT.	9	38%

DISRGRD. CONTROL		
NB	3	13%
SB	1	4%
EB	0	0%
WB	0	0%
TBD	0	0%
TOT.	4	17%

TBD = verification from crash report needed for direction

VEHICLE DAMAGE		
OTHER/UNK.	0	0%
NONE	1	2%
VERY MINOR	0	0%
MINOR	18	40%
MODERATE	18	40%
SEVERE	8	18%
VERY SEVERE	0	0%
TOTAL VEHICLES	45	

NOTES:

Injury crashes have been vetted.

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	2	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	MON	4
TUE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	TUE	4
WED	1	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	2	1	0	0	0	0	0	0	0	WED	7
THU	0	0	0	0	0	0	0	2	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	THU	6
FRI	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	FRI	1
SAT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	SAT	1
SUN	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	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.	1	0	0	0	0	0	1	5	2	0	0	0	4	0	2	1	4	1	0	1	1	0	1	0	0	TOT.	24

Crash Data

Corresponds to Collision Diagram

TRAFFIC ANALYSIS & DESIGN, INC.

Location:	**Maple Rd & Mequon Rd**	**From:**	**1/1/2019**		
Municipality:	**Germantown**	**To:**	**9/30/2024**	**Duration**	
County:	**Washington**	**AADT:**	**13,300**	**5**	**Years**
Traffic Control:	**All-Way Stop**	**Area Type:**	**Urban**	**9**	**Months**

Ref #	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
1	EB_4	C9L0F7HX3D	10/2/2023	RT-TURN REAR-END	7 AM							Looking away
2	WB_2	C9L09H5JTW	9/4/2019	RT-ANGLE	4 PM							NB ran stop
3	WB_2	C9L0F1BQC7	10/31/2019	RT-ANGLE	7 AM		WET	DAY				WBR into NBT
4	WB_2	C9L0F1BQGH	9/23/2020	RT-ANGLE	12 PM	B						NB ran stop
5	WB_2	C9L09B7DHK	2/5/2021	RT-ANGLE	7 AM		SNOW	DAY				NB failed to yield
6	WB_2	C9L0FB0078	12/20/2021	RT-ANGLE	8 AM							Unknown fault
7	WB_2	C9L0JH1TKX	7/12/2022	RT-ANGLE	8 PM			DARK				Unknown fault
8	WB_2	C9L0JJ8VN4	5/17/2023	RT-ANGLE	4 PM	B						NB thought yield
9	NB_1	C9L09H5JSV	2/20/2019	LT-ANGLE	12 PM		WET					NBL failed to yield
10	NB_1	C9L0F1BQ9M	7/18/2019	LT-ANGLE	2 PM							SB slow but no stop
11	NB_1	C9L09CGFP6	1/23/2022	LT-ANGLE	12 PM		WET					SB failed to yield
12	NB_1	C9L09JDL2V	1/10/2023	LT-ANGLE	6 AM		WET	DAY				SB did not see NB
13	NB_1	C9L09DPGP9	8/8/2023	LT-ANGLE	3 PM							SB did not see NB
14	NB_2	C9L0F7HWZ3	2/23/2021	RT-ANGLE	10 PM			DARK				NB failed to yield
15	NB_2	C9L1NSNQ8B	12/14/2023	RT-ANGLE	8 AM							EB failed to yield
16	NB_9	C9L0F1BQJX	4/15/2021	FIXED-OBJECT	12 PM							WBL-Median sign
17	NB_9	C9L09DPGP7	7/19/2023	FIXED-OBJECT	12 AM			DAY				NB median sign
18	SB_2	C9L09JDL0D	3/13/2021	RT-ANGLE	4 PM							SB did not see stop
19	SB_2	C9L0FB00CX	12/14/2022	RT-ANGLE	5 PM		WET	DARK				SB failed to yield
20	SB_2	C9L0FB00DH	1/4/2023	RT-ANGLE	2 PM							SB failed to yield
21	SB_5	C9L0F7HWXQ	12/14/2020	REAR-END	7 PM			DARK				Looking away
22	SB_5	C9L09DPGLN	9/30/2021	REAR-END	4 PM							Brake issue
23	SB_6	C9L0990C49	6/24/2021	SIDE-SWIPE-SAME	7 AM							Changing lanes
24	M_0	C9L0JH1TLP	3/13/2023	MISC. OTHER	7 AM		WET				Y	SB Spin out icy road
25												
26												
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Ref #	Label	Doc. #	Date	Crash Type	Time	Severity	Road Cond.	Light Cond.	Alc. Flag	Drug Flag	Speed Flag	Notes
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KWIK TRIP

KWIK STAR

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LA CROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

10 MPD

KWIK TRIP

KWIK STAR

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LA CROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

DIESEL

KWIK TRIP
KWIK TRIP
PREMIUM MEATS

ALTA/NSPS LAND TITLE SURVEY
STORE 631 - GERMANTOWN

Known as N112 W18741 Mequon Road and W188N1116, W188N11758 & W188 N11762 Maple Road, in the Village of Germantown, Washington County, Wisconsin.

Lot Two (2) of CERTIFIED SURVEY MAP No. 2890 recorded in the Office of the Register of Deeds for Washington County, Wisconsin on April 29, 1986, in Volume 16, Pages 129-132, as Document No. 490681, said certified survey map being a part of the Northwest 1/4 of the Northwest 1/4 of Section 28 and Northeast 1/4 of the Northeast 1/4 of Section 29, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin.

Prepared for: Kwik Trip, Inc.
Survey No. 157610-RMK

A. Basis of Bearings
Bearings are based on the North line of the Northwest 1/4 of Section 28-9-20, which bears North 88°36'30" East, Wisconsin State Plane Coordinate System, South Zone (NAD83/2011).

B. Title Commitment
This survey was prepared based on First American Title Insurance Company National Commercial Services title commitment number NCS-1212460-MAD, commitment date March 19, 2024, which lists the following easements and/or restrictions from schedule B-II:

1-3, 5, 10. Visible evidence shown, if any.

4, 6-9, 19. Not survey related.

11. Rights for entrance to, maintenance, construction, or repair of any utility structures, improvements or services which may be under the surface of the portion of the insured premises laying within vacated Maple Road, pursuant to Section 66.1005(2) (a) Wisconsin Statues.

Resolution No. 13-86, resolution regarding discontinued portion of Maple Road as set contained in Quit Claim Deed recorded May 09, 1986 in Volume 889 of Records, Page 586 as Document No. 491363. Lies within or crosses the surveyed property - its location is shown.

12. Easements, dedications, reservations, provisions, relinquishments, recitals, certificates, and any other matters as provided for or delineated on Certified Survey Map No. 2890 recorded April 29, 1986, in Volume 16, Pages 129-132, as Document No. 490681 referenced in the legal description contained herein. Reference is hereby made to said plat for particulars. Lies within or crosses the surveyed property - its location is shown.

13. Covenants, Conditions and Restrictions as set forth in document recorded on April 07, 1969 in Volume 463, Page 617 as Document No. 306921. Lies within or crosses the surveyed property - its location is shown.

14. Covenants, Conditions and Restrictions as set forth in Quit Claim Deed recorded on May 07, 1983 in Volume 790 of Records, Page 86 as Document No. 452033. Does not lie within or cross the surveyed property - its location is shown-see detail. Access point is on the South side of Lannon Road, East of Surveyed property.

15. Covenants, Conditions and Restrictions as set forth in deed recorded on May 14, 1984 in Volume 827, Page 126 as Document No. 467059. Lies within or crosses the surveyed property - its location is shown.

16. Holding Tank Agreement:
Dated: September 15, 1986
Parties: Village of Germantown, Washington County, State of Wisconsin and Ron Robbins a/k/a Ronald W. Robbins
Recorded: September 23, 1986 in Volume 910 of Records, Page 119
Instrument No.: 498849. Lies within or crosses the surveyed property - it is a blanket easement - location of tank, vent and cleanout shown per 1989 survey by Robert Pagels.

17. Holding Tank Agreement:
Dated: September 13, 1991
Parties: Village of Germantown, Washington County, State of Wisconsin and Kilbourn State Bank
Recorded: September 30, 1991 in Volume 1144, Page 552
Instrument No.: 585808. Lies within or crosses the surveyed property - it is a blanket easement - location of tank, vent and cleanout shown per 1989 survey by Robert Pagels.

18. Utility Easement to Wisconsin Electric Power Company and Wisconsin Bell, Inc., dated October 07, 1991, recorded/filed October 25, 1991 in Volume 1149, Page 649 as Document No. 587363. Lies within or crosses the surveyed property - its location is shown.

C. Flood Note
According to flood insurance rate map of the Village of Germantown, community panel number 55131C0357D, effective date of 11/20/2013, this site falls in zone X (areas determined to be outside the 0.2% annual chance floodplain).

D. Parking Spaces
There are 33 total parking spaces consisting of 31 regular and 2 handicapped parking spaces marked on this site.

E. Elevations
Elevations refer to NAVD88 Datum. Starting benchmark - Northwest 1/4 corner Section 28-9-20. Brass cap monument elevation 877.87'

F. Municipal Zoning
The zoning information listed below is taken from a Zoning Report prepared by The Village of Germantown, dated May 30, 2024.

Zoning Classification: B-3 General Business; Highway Interchange Over lay District (HIA)
Setback Requirements, not specified in letter. Listed setbacks per Zoning code provided with Letter as follows:

Principle structures

Lot Frontage at Setback	Minimum 50 ft.
Front yard	None, except that the front yard for newly constructed principal buildings shall be the average of the front yard of adjoining or neighboring properties.
Side yards	None, except as required in Sections 17.07 and 17.50
Rear yards	Minimum 25 ft.
Number of stories	Maximum 2 1/2

Accessory Building:

Front yard	Minimum 5 ft.
Side yards	Minimum 5 ft.
Rear yard	Minimum 5 ft.

Building Height:

Principal building	Maximum 45 ft.
Accessory building	Maximum 15 ft.

HIA - Highway Interchange Area District (Overlay District)

Setback	Setback from intersecting highway shall be 160' from Centerline or 100' from the right of way line (SHOWN), whichever is greater, or 50 feet from the right-of-way of a frontage road

Parking Requirements 1 space for each 200 square feet of floor area, plus 1 space for each 2 employees.
The subject parcel is located within a wellhead protection area, which may impact sign design and placement.

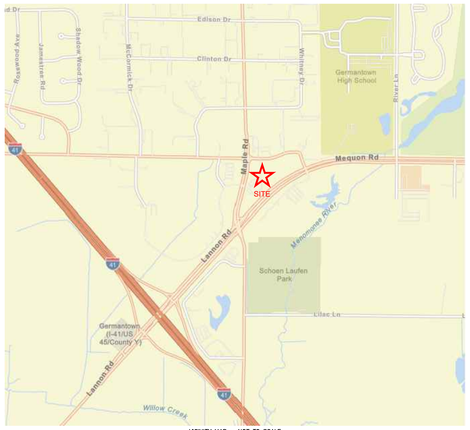
G. Notes
As to table A item 11
Surveyor's responsibility to coordinate markings shall be limited to one marking request to 811 (national "call before you dig" number) based on the property address, as provided by the client.
Note to the client, insurer, and lender - With regard to Table A, item 11, information from the sources checked within will be combined with observed evidence of utilities pursuant to Section 5.E.iv. to develop a view of the underground utilities. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. In addition, in some jurisdictions, 811 or other similar utility locate requests from surveyors may be ignored or result in an incomplete response.
As of the field date indicated below in certificate (most recent site visit/inspection), it appears some underground utilities were not marked. This affected the surveyor's assessment of the location of the utilities resulting in partial illustration and/or mapping per plan. Where additional or more detailed information is required, the client is advised that excavation may be necessary.

There are proposed changes in street right of way lines. Document 467059 (Exception 15 - blue hatch) indicates area subject to dedication upon request.

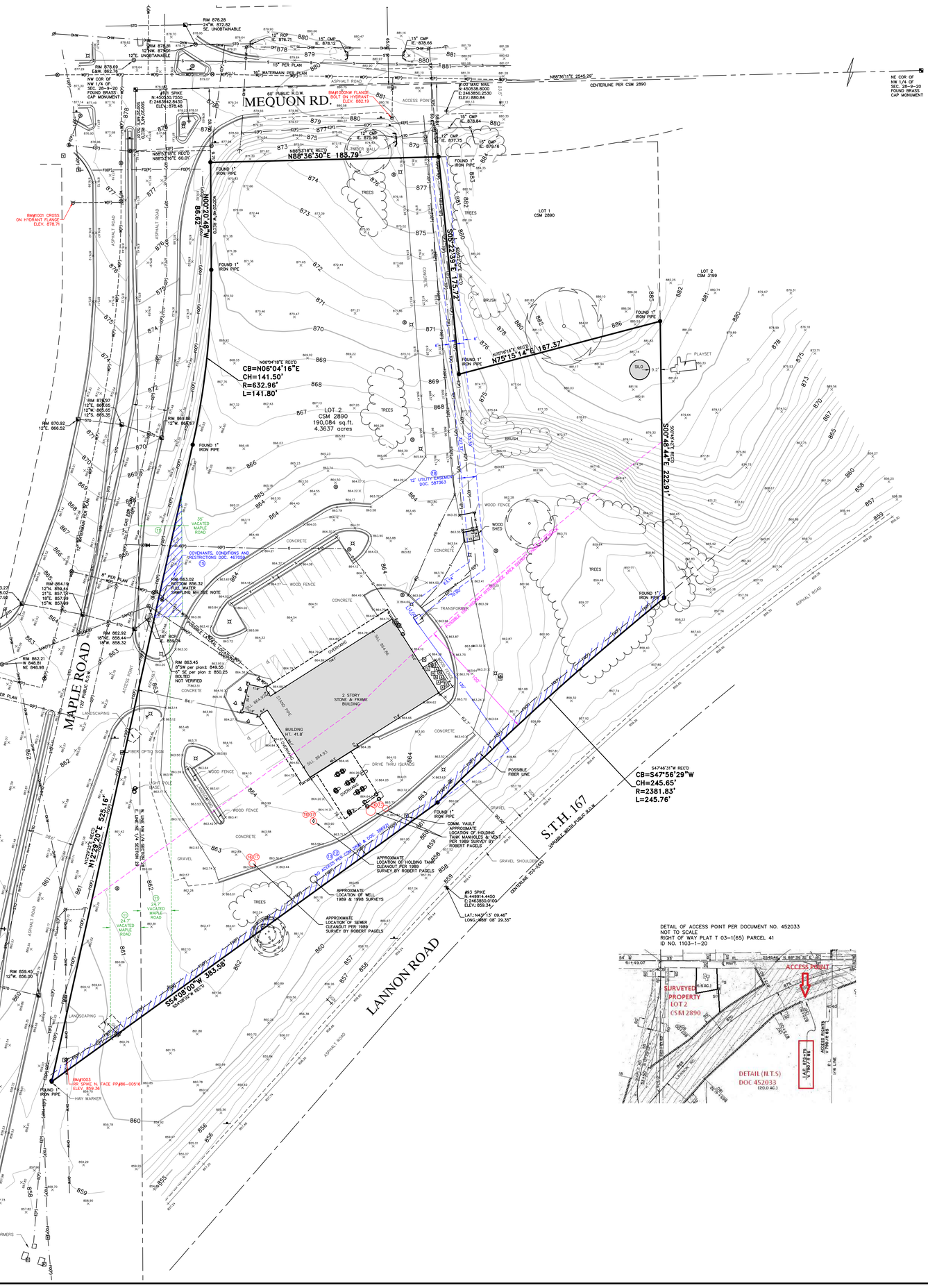
There is no visible evidence of recent street or sidewalk construction or repairs observed in the process of conducting the fieldwork.

The area computed land area of Lot 2 does not match CSM 2890, and is less than the platted Lot by 1,956 s.f. or 0.045 ac.

Sanitary manhole note - from Timothy Zimmerman at Village (tzimmerman@germantownwi.gov)
- Misc Manhole near entrance to Maple Road is a Sampling manhole. We find the manhole full of water.



VICINITY MAP – NOT TO SCALE



GRAPHIC SCALE
15 0 15 30 60
(IN FEET)

LEGEND

- BOLLARD
- SOIL BORING/MONITORING WELL
- FLAGPOLE
- MAILBOX
- SIGN
- AIR CONDITIONER
- CONTROL BOX
- TRAFFIC SIGNAL
- CABLE PEDESTAL
- POWER POLE
- GUY POLE
- GUY WIRE
- LIGHT POLE
- SPOT/YARD/PEDESTAL LIGHT
- HANDICAPPED PARKING
- PULL BOX
- ELECTRIC MANHOLE
- ELECTRIC PEDESTAL
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- UTILITY VAULT
- GAS VALVE
- GAS METER
- GAS WARNING SIGN
- STORM MANHOLE
- ROUND INLET
- SQUARE INLET
- STORM SEWER END SECTION
- SANITARY MANHOLE
- SANITARY CLEANOUT OR SEPTIC VENT
- SANITARY INTERCEPTOR MANHOLE
- MISCELLANEOUS MANHOLE
- IRRIGATION CONTROL BOX
- WATER VALVE
- HYDRANT
- WATER SERVICE CURB STOP
- WATER MANHOLE
- WELL
- WATER SURFACE
- WETLANDS FLAG
- MARSH
- CONIFEROUS TREE
- DECIDUOUS TREE
- SHRUB
- –EDGE OF TREES
- S –SANITARY SEWER
- STO–STORM SEWER
- W –WATERMAIN
- G –MARKED GAS MAIN
- E –MARKED ELECTRIC
- OHE–OVERHEAD WIRES
- B –BUREAU ELEC. SERV.
- T –MARKED TELEPHONE
- TV–MARKED CABLE TV LINE
- FO–MARKED FIBER OPTIC
- (P) –UTILITY PER PLAN
- 780 INDICATES EXISTING CONTOUR ELEVATION
- × 780.55 INDICATES EXISTING SPOT ELEVATION

DETAIL OF ACCESS POINT PER DOCUMENT NO. 452033
NOT TO SCALE
RIGHT OF WAY PLAT T 03-1(65) PARCEL 41
ID NO. 1103-1-20

DIGGERS HOTLINE TICKET NO. 20242024885 & OTHERS

THE UNDERGROUND UTILITY INFORMATION AS SHOWN HEREON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED TO.

(P) INDICATES PIPE SIZES PER RECORD PLANS. OTHER PIPE SIZES ARE ESTIMATED. NO PIPE SIZES SHOULD BE RELIED UPON WITHOUT FURTHER VERIFICATION.

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To: Kwik Trip, Inc., a Wisconsin corporation
First American Title Insurance Company National Commercial Services

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS and includes items 1, 2, 3, 4, 5, 6(a), 6(b), 7(a), 7(c), 8, 9, 11(a), 11(b), 14, 17, 18, 20(a) and 20(b) of Table A thereof. The fieldwork was completed on May 23, 2024.

Date of Plat or Map: June 12, 2024

I CERTIFY, that this survey was prepared under my supervision and is correct to the best of my professional knowledge and belief and complies with Chapter A-E 7 of the Wisconsin Administrative Code.

John P. Casucci
Professional Land Surveyor
Registration Number S-2055
john.casucci@rasmith.com

WISCONSIN JOHN P. CASUCCI S-2055 OCONOMOWOC WI LAND SURVEYOR

raSmith
CREATIVITY BEYOND ENGINEERING
16745 W. Bluemound Road
Brookfield, WI 53005-5938
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S:\5157610\DWG\57610 AS41 - dwg \ KT Store 631 Germantown

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REI

CIVIL & ENVIRONMENTAL
ENGINEERING, SURVEYING

Stormwater Management Plan

Kwik Trip Store #631
STH 167 & Maple Rd
Village of Germantown
Washington County, WI

REI # 11757

COMPREHENSIVE
SERVICES WITH
PRACTICAL
SOLUTIONS

Stormwater Management Plan For:

Kwik Trip Store #631
STH 167 & Maple Rd
Village of Germantown
Washington County, WI

REI # 11757

Prepared For:
Kwik Trip, Inc.
1813 Kramer Street
La Crosse, WI 54602

10/9/2024

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1.0 Introduction and Overview of the Proposed Project
2.0 Site Soils Evaluation
3.0 Water Quality
4.0 Peak Flow Reduction
5.0 Infiltration Performance
6.0 Protective Area Setbacks
7.0 Erosion Control Plan
8.0 Long Term Maintenance
9.0 References

LIST OF FIGURES

Construction Plans: 28 Sheets
Sheet STM-1 (Appendix 3&4): Post Development Watershed Areas

LIST OF APPENDICES

Appendix 1 NR 151 Post Construction Standards
Appendix 2 Site Soils Information
Appendix 3 Water Quality Calculations & WinSLAMM Inputs
Appendix 4 Post-Development Conditions Peak Flow Analysis
Appendix 5 Detention Pond Safe Passage Analysis
Appendix 6 USLE Map & Calculations
Appendix 7 Storm Water Management Maintenance Schedule and Procedures

Executive Summary

The proposed project consists of constructing a new Kwik Trip convenience store, vehicle fueling, parking and driving surfaces, and miscellaneous other amenities. The development will occur on a 4.36-acre property located at 607 E Pioneer Street within the City of Crandon, Forest County, Wisconsin. Land disturbance associated with the project is estimated to at 3.8 acres. The project site is a redevelopment and is subject to the post-construction stormwater requirements for a redevelopment site found within NR 151.121 - NR 151.126. The development will also require compliance defined within the *Village of Germantown Post-Stormwater Ordinance* [1] and runoff management requirements defined within the *MMSD Rules and Regulations* [2].

Stormwater Management requirements will be achieved utilizing overland flow coupled with a storm sewer conveyance system that routes stormwater runoff to a proposed wet detention pond. The wet detention pond will treat and detain the stormwater runoff prior to discharging it the public storm sewer system in Maple Road.

Although the overall site exceeds the peak flow requirements defined in the *MMSD Rules and Regulations* [2], the peak flow leaving the wet detention pond meets said requirement. The exceedance of the overall site is due to undetained perimeter area (almost entirely greenspace) having a higher peak flow than what is required for the overall site. However, the perimeter greenspace, in all likelihood, would meet the peak volume requirements stated in the *MMSD Rules and Regulations* [2]. For this reason, REI's professional opinion is that the site meets all required post-construction stormwater management performance standards. Additional detail relative to the stormwater management system design can be found within the report, appendices, stormwater figures, and plan set.

1.0 Introduction and Overview of the Proposed Project

Project Owner: Kwik Trip, Inc.

Project Location: STH 167 & Maple Road

Project City: Village of Germantown

Project County/State: Washington County, WI

Property Area: 4.36 Acres

Area of Land Disturbance: 3.8 Acres

Existing Site Description: The existing site consists of a 9,200 sq. ft. building with associated parking and driving surfaces. Runoff is generally in the southwest direction towards Maple Road.

Proposed Development: The proposed development consists of a new Kwik Trip convenience store, vehicle fueling, parking and driving surfaces, and miscellaneous other amenities. Hydrology in the proposed condition will be similar to the existing condition. Runoff of the majority of the proposed development will be conveyed to a wet detention pond in the southwest corner of the property, which will provide stormwater management for the site.

WDNR Compliance: Wisconsin Administrative Code ch. NR 151 and NR 216

Development Classification: Re-Development
(Refer to Appendix 1 for NR 151 post-construction performance standards)

Local Compliance: *Village of Germantown Post-Construction Stormwater Ordinance* [1]
MMSD Rules and Regulations [2]

Anticipated Construction Start Date: 4/1/2025

2.0 Site Soils Evaluation

Additional data regarding the site soils can be found in **Appendix 2** of this report.

Table 1A
Soils Summary per the *Web Soil Survey* [3]

Soil Type	USGS Classification	Infiltration Rate (in/hr)	Hydro Group	Water Table	Restrictive Depth
HmB2, HmC2	Loam	0.06 - 0.20	D	>80 in.	20 - 40 in.
HmD2	Loam	0.06 - 0.20	D	>80 in.	20 - 36 in.
OuB2	Silt Loam	0.06 - 0.20	C	~24 - 42 in.	22 - 40 in.
Sf	Sand	-	D	~60 - 80 in.	>80 in.
VsA	Silt Loam	0.60 - 2.00	B/D	~0 - 24 in.	>80 in.

Table 1B
Soils Summary per Onsite Exploration

Boring/Test Pit #	Stormwater Facility	Stormwater Facility Bottom Elv	Infiltration Rate (in/hr)	Water Table Elv	Bedrock Elv
9	Wet Det. Pond	853.00	0.04	856.4*	N/A

note: infiltration rate is based off of the limiting soil layer
***Per Geotech report, the water table elevation at B-9 is 8-ft below existing grade. Existing grade at the wet detention pond location is elevation 862± (existing grade per Geotech report is 864.4 is same location). Elevation shown on Table 1B is based on Geotech report.**

3.0 Water Quality

Calculation Reference: Appendix 3

Figure Reference: STM-1

Software: WinSLAMM Version 10.5

Rainfall: Green Bay, 1969 (March 29 - November 25)

State Stormwater Requirements (WDNR) 40% Total Suspended Solids (TSS) reduction of parking lots and roads in the post-development conditions as compared to no controls.

Local Stormwater Requirements (Village of Germantown) *Village of Germantown Post-Construction Stormwater Ordinance* [1] refers to current state standards for water quality requirements.

Table 2
Water Quality Device Summary

Water Quality Device	Permanent Pool Area (sf)	Storage Depth (in)	Control Structure
Wet Detention Pond	5,564	78	Manhole with weir plate having a primary 4"-dia. orifice and a secondary 5"-dia. orifice

Table 3
Total Suspended Solids (TSS) Removal Summary

Development Type	Required (% of No Control)	TSS Generated (lbs)	TSS Leaving Site (lbs)	% TSS Removed
Redevelopment	40	1,854	506.6	72.68

4.0 Peak Flow Reduction

Post-development Runoff Calculation Reference: Appendix 4

Post-development Runoff Figure Reference: STM-1

Software: HydroCAD Version 10.20-5a

Rainfall Reference: NRCS Rainfall Distributions and 24-hour Duration Rainfall Depths for each Wisconsin County[5]

Rainfall Distribution: MSE 3

State Stormwater Requirements: (WDNR) Since the project is classified as a redevelopment site it qualifies for the peak flow exemption as found within NR 151.123 (2) (b).

Local Stormwater Requirements (Village of Germantown) *Village of Germantown Post-Construction Stormwater Ordinance* [1] refers to runoff management requirements defined within the *MMSD Rules and Regulations* [2] which states that redevelopment sites having greater than one-half acre of new impervious are to have peak flow no higher than 0.15 cfs and 0.5 cfs multiplied by the area of the site for the 2-year and 100-year storm events, respectively.

Stormwater Device Summary: Refer to Table 2

Table 4
Peak Flow Summary

Development Condition	2-yr Storm Peak Flow	100-yr Storm Peak Flow
Peak Flow Runoff Requirment (Site Area = 4.364 ac.)	0.65	2.18
Post-Development w/o detention	12.54	35.17
Post-Development (Total Site)	1.35	5.92
Post-Development (From Wet Det. Pond)	*0.63*	*2.01*

note: peak flow units are in cfs

Table 5 summarizes the results of the maximum water surface elevation in each pond
Infiltration rates for each device (if applicable) were ignored for this analysis

Calculation Reference: Appendix 5

Figure Reference: STM-1 (Appendix 4)

Table 5
100-year Peak Water Elevation

Stormwater Device	100-Year Peak Elevation	Top of Pond Elevation	Overflow Elevation
Wet Det. Pond	863.49	864.50	863.50

5.0 Infiltration Performance

Since the project site is classified as a redevelopment site, it qualifies for the infiltration exemption as found within NR 151.123 (3) (b) 3. The *Village of Germantown Post-Construction Stormwater Ordinance* [1] refers to NR 151 regulation.

6.0 Protective Area Setbacks

There are no natural features located near the proposed project improvements that require special consideration for this project.

7.0 Erosion Control Plan

An erosion control plan, and associated details, were developed for the proposed construction and are included within the construction plan set. The site contractor will be responsible for implementing and maintaining the erosion control measures throughout construction until they may be removed following site stabilization.

Plan Sheet Reference: Sheets C600-603

A Soil Loss & Sediment Discharge Calculation Tool (USLE) and accompanying Figure were completed to assure WDNR erosion control compliance and is included within **Appendix 6.**

8.0 Long Term Maintenance

Inspection and routine maintenance of the proposed structural and non-structural stormwater best-management practices will be required to ensure they continue to function following completion of the construction project. A maintenance schedule has been prepared and is included within **Appendix 7**. It will be the landowner's respsonsibility to document the inspections and ensure any followup action is completed in a timely manner.

9.0 References

1) Village of Germantown Post-Construction Stormwater Ordinance. Chapter 27. Post-Construction Stormwater Management. Village of Germantown. Code of Ordinances. June 2023.

2) MMSD Rules and Regulations. Chapter 13. Surface Water and Stormwater. Subchapter III. Stormwater Runoff Management Requirements. Milwaukee Metropolitan Sewerage District. March 2023.

3) Web Soil Survey of Washington County, Wisconsin. United States Department of Agriculture. Soil Conservation Service. **http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.**

4) Site Evaluation for Stormwater Infiltration. Technical Standard 1002. Wisconsin Department of Natural Resources. Conservation Practice Standards February 2004.

5) NRCS Rainfall Distributions and 24-hour Duration Rainfall Depths for each Wisconsin County. National Engineering Handbook (NEH) Part 650. Chapter 2. Appendix 1. United States Department of Agriculture.

REVIEW PLANS FOR:

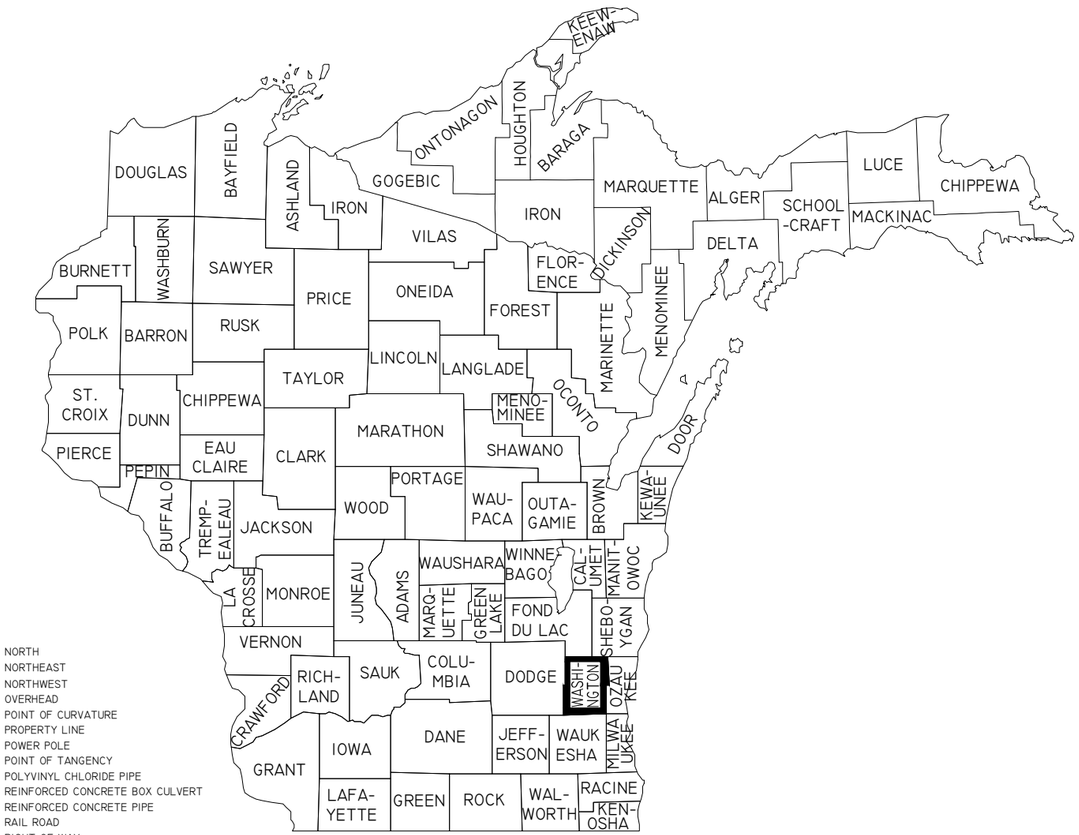
KWIK TRIP #631

VILLAGE OF GERMANTOWN,
WASHINGTON COUNTY, WISCONSIN

INDEX OF SHEETS

C001	TITLE SHEET
C010	ALTA
C020	DEMO PLAN
C100	SITE KEYNOTE PLAN
C180	SITE CIRCULATION PLAN
C181	SITE DIMENSION PLAN
C200	GRADING PLAN
C201	GRADING PLAN DETAIL - SOUTH
C201.1	GRADING PLAN DETAIL - NORTH
C202	GRADING PLAN SPOT DETAIL - SOUTH
C202.1	GRADING PLAN SPOT DETAIL - NORTH
C203	CANOPY AND TANK GRADING DETAILS
C204	ACCESSIBILITY PLAN
C300	STORM SEWER PLAN
C400	UTILITY PLAN
C401	UTILITY NOTES
C500	SITE PLAN DETAILS
C501	SITE PLAN DETAILS
C502	SITE PLAN DETAILS
C600	EROSION CONTROL PLAN
C601	EROSION CONTROL NOTES
C602	EROSION CONTROL DETAILS
C603	EROSION CONTROL DETAILS
C700	LANDSCAPE PLAN
C701	LANDSCAPE PLAN
C702	LANDSCAPE PLAN
C703	LANDSCAPE DETAILS
C800	PHOTOMETRIC LIGHTING PLAN

TOTAL SHEETS = 28



LIST OF STANDARD ABBREVIATIONS

&	AND
AB	AUGER BORING
ADT	AVERAGE DAILY TRAFFIC
BC	BOTTOM OF CURB
BM	BENCHMARK
BOC	BACK OF CURB
BR	BOTTOM OF RAMP
BS	BOTTOM OF STEPS
BW	BOTTOM OF WALL
CB	CATCH BASIN
CMAC	CORRUGATED METAL ARCH CULVERT
CMBC	CORRUGATED METAL BOX CULVERT
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC.	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
DGB	DENSE GRADED BASE
DIP	DUCTILE IRON PIPE
D/S	DOWNSTREAM
(E)	EAST
ELEV.	ELEVATION
EOG	EDGE OF GRAVEL
FFE	FINISHED FLOOR ELEVATION
FG	FINISH GRADE
F.O.	FIBER OPTIC
INL	INLET
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HMA	HOT MIX ASPHALT
HP	HIGH POINT
IE	INVERT ELEVATION
LF	LINEAL FEET
LP	LOW POINT
MEG	MATCH EXISTING GRADE
MH	MANHOLE
(N)	NORTH
(NE)	NORTHEAST
(NW)	NORTHWEST
OH	OVERHEAD
PC	POINT OF CURVATURE
P/L	PROPERTY LINE
PP	POWER POLE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
RCB	REINFORCED CONCRETE BOX CULVERT
RCP	REINFORCED CONCRETE PIPE
RR	RAIL ROAD
R/W	RIGHT OF WAY
(S)	SOUTH
SAN	SANITARY SEWER
SB	SOIL BORING
SS	STORM SEWER
STM	STORM
(SW)	SOUTHWEST
TC	TOP OF CURB
TBR	TO BE REMOVED
TLE	TEMPORARY LIMITED EASEMENT
TNH	TOP NUT FIRE HYDRANT
TP	TEST PIT
TR	TOP OF RAMP
TYP.	TYPICAL
TS	TOP OF STEPS
TW	TOP OF WALL
U/S	UPSTREAM
VAR.	VARIES
(W)	WEST

LEGEND

- BENCHMARK
- 1" IRON BAR
- EXISTING MANHOLE
- EXISTING TELEPHONE MANHOLE
- EXISTING STORM SEWER MANHOLE
- EXISTING SANITARY SEWER MANHOLE
- EXISTING HYDRANT
- EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING WATER SHUTOFF
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EXISTING GAS VALVE
- EXISTING CURB INLET
- EXISTING WELL
- TEST PIT LOCATION
- SBI SOIL BORING
- AC EXISTING AIR CONDITIONING UNIT
- GM EXISTING GAS METER
- EM EXISTING ELECTRIC METER
- EXISTING UTILITY PEDESTAL
- EXISTING RAILROAD TRACKS
- EXISTING TREE LINE
- EXISTING GUY POLE
- TV EXISTING CABLE TV
- FO EXISTING FIBER OPTIC CABLE
- G EXISTING UNDERGROUND GAS
- E EXISTING UNDERGROUND ELECTRIC
- T EXISTING UNDERGROUND TELEPHONE
- OH EXISTING OVERHEAD UTILITIES
- W EXISTING WATER MAIN
- SS EXISTING STORM SEWER
- SAN EXISTING SANITARY SEWER
- EXISTING PROPERTY LINE
- PROPOSED HANDICAP PARKING
- PROPOSED CURB STOP
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- SAN PROPOSED SANITARY SEWER
- SS PROPOSED STORM SEWER
- F.M. PROPOSED FORCE MAIN
- SAN. LAT. PROPOSED SANITARY SEWER LATERAL
- W.S. PROPOSED WATER LATERAL
- W PROPOSED WATER MAIN
- PS PROPOSED PUMP STATION
- MS PROPOSED SANITARY MANHOLE
- MR PROPOSED STORM MANHOLE
- PROPOSED CURB INLET
- PROPOSED CATCH BASIN
- PROPOSED CLEANOUT
- PROPOSED DRAINAGE FLOW
- 3% PROPOSED SLOPE
- PROPOSED CURB & GUTTER
- PROPOSED REJECT CURB & GUTTER
- PROPOSED MOUNTABLE CURB & GUTTER
- 1178 EXISTING GROUND CONTOUR(INTERVAL-1 FT.)
- 1180 PROPOSED GROUND CONTOUR(INTERVAL-1 FT.)
- 1256.50 / 1256.00 PROPOSED SPOT ELEVATION (TOP OF CURB) / PROPOSED SPOT ELEVATION (BOTTOM OF CURB)
- PROPOSED SILT FENCE
- PROPOSED INLET PROTECTION
- PROPOSED RIPRAP
- PROPOSED EROSION MAT
- PROPOSED SAWCUT
- PROPOSED DRAINAGE SWALE

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1626 OAK STREET
LA CROSSE, WI 54602-2107
PH. (608) 781-8988
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REI
CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING
REI Engineering, INC.
4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784 FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

TITLE SHEET

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C001

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C001-TITLE SHEET.DWG LAYOUT: TITLE
PLOTTED: OCT 08, 2024 - 3:23PM PLOTTED BY: NATHANP

VICINITY MAP – NOT TO SCALE

GRAPHIC SCALE
15 0 15 30 60
(IN FEET)

LEGEND

- BOLLARD
- SOIL BORING/MONITORING WELL
- FLAGPOLE
- MAILBOX
- AIR CONDITIONER
- CONTROL BOX
- TRAFFIC SIGNAL
- CABLE PEDESTAL
- POWER POLE
- GUY WIRE
- LIGHT POLE
- LIGHT POLE
- SPOT/YARD/PEDESTAL LIGHT
- HANDICAPPED PARKING
- PULL BOX
- ELECTRIC MANHOLE
- ELECTRIC PEDESTAL
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- UTILITY VAULT
- GAS VALVE
- GAS METER
- GAS WARNING SIGN
- STORM MANHOLE
- ROUND INLET
- STORM INLET
- STORM SEWER END SECTION
- SANITARY MANHOLE
- SANITARY CLEANOUT OR SEPTIC VENT
- SANITARY INTERCEPTOR MANHOLE
- MISCELLANEOUS MANHOLE
- IRRIGATION CONTROL BOX
- WATER VALVE
- HYDRANT
- WATER SERVICE CURB STOP
- WATER MANHOLE
- WELL
- WATER SURFACE
- WETLANDS FLAG
- MARSH
- CONIFEROUS TREE
- DECIDUOUS TREE
- SHRUB
- EDGE OF TREES
- S = SANITARY SEWER
- STORM SEWER
- W = WATERMAIN
- G = MARKED GAS MAIN
- E = MARKED ELECTRIC
- OHE = OVERHEAD WIRES
- B = BUREAU ELEC. SERV.
- T = MARKED TELEPHONE
- TV = MARKED CABLE TV LINE
- FO = MARKED FIBER OPTIC
- (P) = UTILITY PER PLAN
- 780' INDICATES EXISTING CONTOUR ELEVATION
- + 780.00 INDICATES EXISTING SPOT ELEVATION

DIGGERS HOTLINE TICKET NO. 20242024885 & OTHERS

THE UNDERGROUND UTILITY INFORMATION AS SHOWN HEREON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED TO.

(P) INDICATES PIPE SIZES PER RECORD PLANS. OTHER PIPE SIZES ARE ESTIMATED. NO PIPE SIZES SHOULD BE RELIED UPON WITHOUT FURTHER VERIFICATION.

R.A.SMITH, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES, LIABILITY OR COSTS RESULTING FROM CHANGES OR ALTERATIONS MADE TO THIS PLAN WITHOUT THE EXPRESSED WRITTEN CONSENT OF R.A.SMITH, INC.

ALL COPYRIGHTS TO THESE DRAWINGS ARE RESERVED. THEY MAY NOT BE COPIED, CHANGED, OR ASSIGNED TO ANY THIRD PARTY IN ANY FORM OR MANNER WITHOUT OBTAINING THE EXPRESSED WRITTEN PERMISSION OF R.A.SMITH, INC.

ALTA/NSPS LAND TITLE SURVEY
STORE 631 - GERMANTOWN

Known as N112 W18741 Mequon Road and W188N1116, W188N11758 & W188 N11762 Maple Road, in the Village of Germantown, Washington County, Wisconsin.

Lot Two (2) of CERTIFIED SURVEY MAP No. 2890 recorded in the Office of the Register of Deeds for Washington County, Wisconsin on April 29, 1986, in Volume 16, Pages 129-132, as Document No. 490661, said certified survey map being a part of the Northwest 1/4 of the Northwest 1/4 of Section 28 and Northeast 1/4 of the Northeast 1/4 of Section 29, Township 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin.

Prepared for: Kwik Trip, Inc.
Survey No. 157610-RMK

A. Basis of Bearings
Bearings are based on the North line of the Northwest 1/4 of Section 28-9-20, which bears North 88°36'30" East, Wisconsin State Plane Coordinate System, South Zone (NAD83/2011).

B. Title Commitment
This survey was prepared based on First American Title Insurance Company National Commercial Services title commitment number NCS-1212460-MAD, commitment date March 19, 2024, which lists the following easements and/or restrictions from schedule B-II:

1-3, 5, 10. Visible evidence shown, if any.

4, 6-9, 19. Not survey related.

11. Rights for entrance to, maintenance, construction, or repair of any utility structures, improvements or services which may be under the surface of the portion of the insured premises laying within vacated Maple Road, pursuant to Section 66.1005(2) (a) Wisconsin Statutes.

Resolution No. 13-96, resolution regarding discontinued portion of Maple Road as set contained in Quit Claim Deed recorded May 09, 1996 in Volume 885 of Records, Page 586 as Document No. 491363. Lies within or crosses the surveyed property - its location is shown.

12. Easements, dedications, reservations, provisions, relinquishments, recitals, certificates, and any other matters as provided for or delineated on Certified Survey Map No. 2890 recorded April 29, 1986, in Volume 16, Pages 129-132, as Document No. 490661 referenced in the legal description contained herein. Reference is hereby made to said plat for particulars. Lies within or crosses the surveyed property - its location is shown.

13. Covenants, Conditions and Restrictions as set forth in document recorded on April 07, 1969 in Volume 463, Page 617 as Document No. 306921. Lies within or crosses the surveyed property - its location is shown.

14. Covenants, Conditions and Restrictions as set forth in Quit Claim Deed recorded on May 97, 1983 in Volume 799 of Records, Page 86 as Document No. 452033. Does not lie within or cross the surveyed property - its location is shown-see details. Access point is on the South side of Lannon Road, East of Surveyed property.

15. Covenants, Conditions and Restrictions as set forth in deed recorded on May 14, 1964 in Volume 827, Page 126 as Document No. 467059. Lies within or crosses the surveyed property - its location is shown.

16. Holding Tank Agreement:
Dated: September 15, 1986
Parties: Village of Germantown, Washington County, State of Wisconsin and Ron Robbins a/k/a Ronald W. Robbins
Recorded: September 23, 1986 in Volume 910 of Records, Page 119
Instrument No. 498849. Lies within or crosses the surveyed property - it is a blanket easement - location of tank, vent and cleanout shown per 1989 survey by Robert Pagels.

17. Holding Tank Agreement:
Dated: September 13, 1991
Parties: Village of Germantown, Washington County, State of Wisconsin and Kilbourn State Bank
Recorded: September 30, 1991 in Volume 1144, Page 552
Instrument No.: 585808. Lies within or crosses the surveyed property - it is a blanket easement - location of tank, vent and cleanout shown per 1989 survey by Robert Pagels.

18. Utility Easement to Wisconsin Electric Power Company and Wisconsin Bell, Inc., dated October 07, 1991, recorded/filed October 25, 1991 in Volume 1149, Page 649 as Document No. 587363. Lies within or crosses the surveyed property - its location is shown.

C. Flood Note
According to flood insurance rate map of the Village of Germantown, community panel number 55131C0357D, effective date of 11/20/2013, this site falls in zone X (areas determined to be outside the 0.2% annual chance floodplain).

D. Parking Spaces
There are 33 total parking spaces consisting of 31 regular and 2 handicapped parking spaces marked on this site.

E. Elevations
Elevations refer to NAVD88 Datum. Starting benchmark - Northwest 1/4 corner Section 28-9-20. Brass cap monument elevation 877.87'

F. Municipal Zoning
The zoning information listed below is taken from a Zoning Report prepared by The Village of Germantown, dated May 30, 2024.

Zoning Classification: B-3 General Business; Highway Interchange Over lay District (HIA)
Setback Requirements, not specified in letter. Listed setbacks per Zoning code provided with Letter as follows:

Principle structures	
Lot Frontage at Setback	Minimum 50 ft.
Front yard	None, except that the front yard for newly constructed principal buildings shall be the average of the front yard of adjoining or neighboring properties.
Side yards	None, except as required in Sections 17.07 and 17.50
Rear yards	Minimum 25 ft.
Number of stories	Maximum 2 1/2
Accessory Building:	
Front yard	Minimum 6 ft.
Side yards	Minimum 5 ft.
Rear yard	Minimum 5 ft.
Building Height:	
Principal building	Maximum 45 ft.
Accessory building	Maximum 15 ft.

HIA - Highway Interchange Area District (Overlay District)
Setback: Setback from intersecting highway shall be 160' from Centerline or 100' from the right of way line (SHOWN), whichever is greater, or 50 feet from the right-of-way of a frontage road

Parking Requirements 1 space for each 200 square feet of floor area, plus 1 space for each 2 employees.
The subject parcel is located within a wellhead protection area, which may impact sign design and placement.

G. Notes
As to table A item 11
Surveyor's responsibility to coordinate markings shall be limited to one marking request to 811 (national "call before you dig" number) based on the property address, as provided by the client.
Note to the client, insurer, and lender - With regard to Table A, item 11, information from the sources checked within will be combined with observed evidence of utilities pursuant to Section 5.E.iv. to develop a view of the underground utilities. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. In addition, in some jurisdictions, 811 or other similar utility locate requests from surveyors may be ignored or result in an incomplete response.
As of the field date indicated below in certificate (most recent site visit/inspection), it appears some underground utilities were not marked. This affected the surveyor's assessment of the location of the utilities resulting in partial illustration and/or mapping per plan. Where additional or more detailed information is required, the client is advised that excavation may be necessary.

There are proposed changes in street right of way lines. Document 467059 (Exception 15 - blue hatch) indicates area subject to dedication upon request.

There is no visible evidence of recent street or sidewalk construction or repairs observed in the process of conducting the fieldwork.

The area computed land area of Lot 2 does not match CSM 2890, and is less than the platted Lot by 1,956 s.f. or 0.045 ac.

Sanitary manhole note - from Timothy Zimmerman at Village (tzimmerman@germantownwi.gov)
- Misc Manhole near entrance to Maple Road is a Sampling manhole. We find the manhole full of water.

To: Kwik Trip, Inc., a Wisconsin corporation
First American Title Insurance Company National Commercial Services

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS and includes Items 1, 2, 3, 4, 5, 6(a), 6(b), 7(a), 7(c), 8, 9, 11(a), 11(b), 14, 17, 18, 20(a) and 20(b) of Table A thereof. The fieldwork was completed on May 23, 2024.

Date of Plat or Map: June 12, 2024

I CERTIFY that this survey was prepared under my supervision and is correct to the best of my professional knowledge and belief and complies with Chapter A-E 7 of the Wisconsin Administrative Code.

John P. Casucci
Professional Land Surveyor
Registration Number S-2055
john.casucci@rasmith.com

WISCONSIN JOHN P. CASUCCI S-2055 SURVEYOR LAND

raSmith
10745 W. Bluemound Road
Milwaukee, WI 53226-3928
(262) 781-1000

SHEET 1 OF 1

KWIK TRIP STORES

KWIK STAR STORES

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N
SCALE
0 50 100

ALTA

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

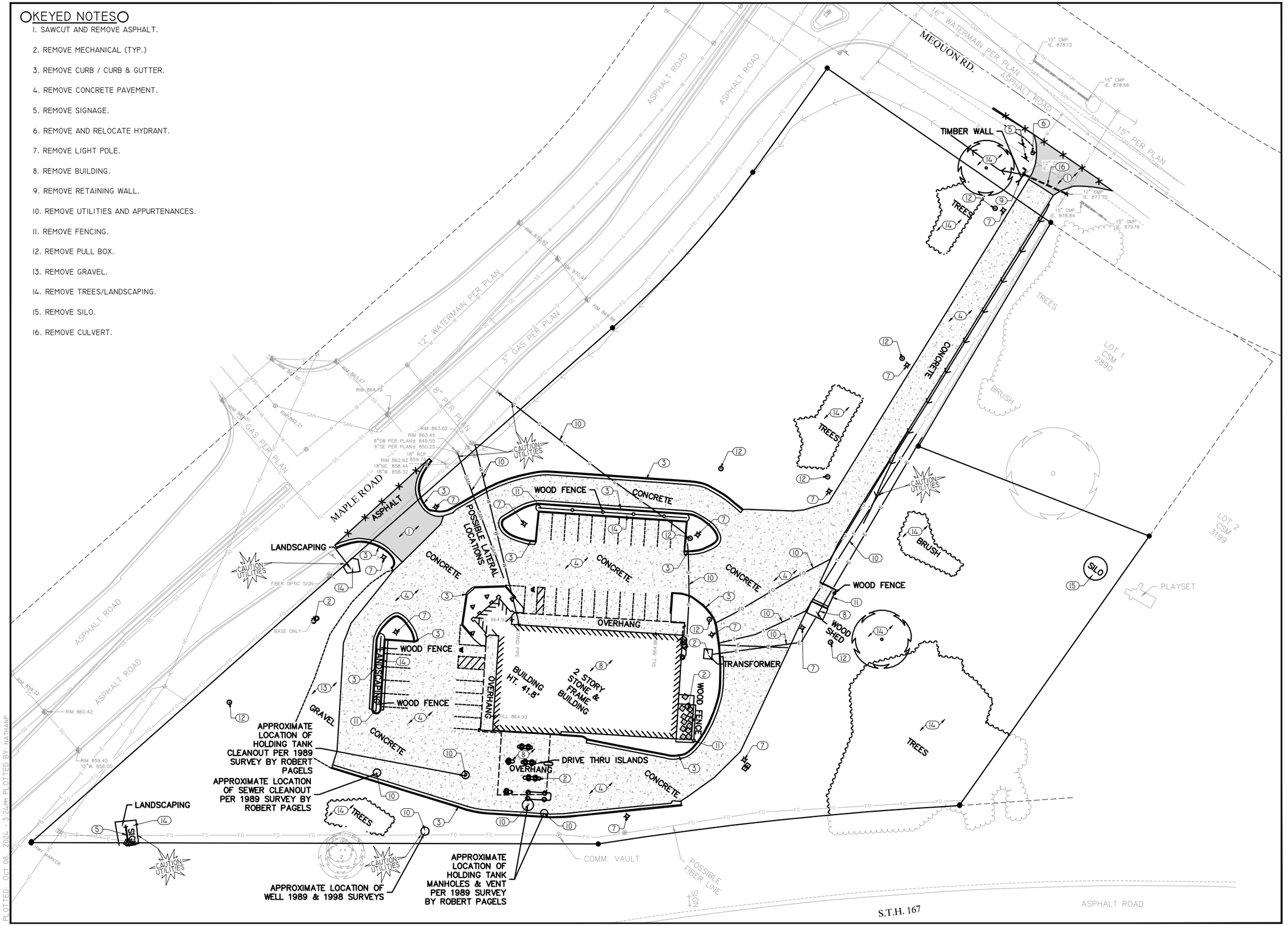
#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C010

DRAWING FILE: Q:\I\700-I\799\I1757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\I1757-C010-ALTA.DWG LAYOUT: C010
PLOTTED: OCT 08, 2024 - 3:23PM PLOTTED BY: NATHANP

KEYED NOTES

1. SAWCUT AND REMOVE ASPHALT.
2. REMOVE MECHANICAL (TYP.)
3. REMOVE CURB / CURB & GUTTER.
4. REMOVE CONCRETE PAVEMENT.
5. REMOVE SIGNAGE.
6. REMOVE AND RELOCATE HYDRANT.
7. REMOVE LIGHT POLE.
8. REMOVE BUILDING.
9. REMOVE RETAINING WALL.
10. REMOVE UTILITIES AND APPURTENANCES.
11. REMOVE FENCING.
12. REMOVE PULL BOX.
13. REMOVE GRAVEL.
14. REMOVE TREES/LANDSCAPING.
15. REMOVE SILO.
16. REMOVE CULVERT.



DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C020-DEMO PLAN.DWG LAYOUT: C020
PLOTTED: OCT 08, 2024 - 3:24PM PLOTTED BY: MATHAMP

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KWIK STAR STORES

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SCALE
0 30 60

DEMO PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY	NAP
SCALE	GRAPHIC
PROJ. NO.	11757
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	C020

KEYED NOTES

0 SF — 1. ASPHALT PAVEMENT. SEE DETAIL 1/C500.

37,161 SF — 2. 6" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #3 REBAR, 3' O.C. CONCRETE SEALER: TK-26UV. SEE DETAIL 6/C500.

61,322 SF — 3. 8" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #4 REBAR, 4' O.C. CONCRETE SEALER: TK-26UV. SEE DETAIL 6/C500.

4. NOT USED.

4,627 SF — 5. 6" CONCRETE WALK. SEE DETAIL 2/C500. CONCRETE SEALER: TK-26UV

73,095 SF
UNDISTURBED=22,357 SF — 6. LANDSCAPE AREA. SEE SHEET L1.

7. CURB TYPE CHANGE.

8. 18" CURB AND GUTTER, SEE DETAIL 9/C500.

9. 18" REJECT CURB AND GUTTER, SEE DETAIL 9/C500.

10. TRANSITION CURB & GUTTER. SEE DETAIL 4/C500.

11. STANDARD CURB & GUTTER TERMINATION. SEE DETAIL 5/C500.

12. TAPER CURB FROM FLUSH TO FULL HEIGHT OVER 6' LENGTH. SEE DETAIL 5A/C500.

13. A.D.A. ACCESSIBLE PARKING SPACE WITH LOADING ZONE. PROVIDE APPROPRIATE STRIPING AND PAVEMENT MARKINGS. SEE SHEET C204.

14. OFF-STREET PARKING STALLS
STRIPING - 4" WIDE STALL LINES, USE HIGH VISIBILITY YELLOW PAINT.
SPACES PROVIDED
(3) 8.9' x 20.0' (MIN.) GENERAL PARKING
(7) 9.1' X 20.0' (MIN.) GENERAL PARKING
(19) 9.5' X 20.0' (MIN.) GENERAL PARKING
(10) 9.7' X 20.0' (MIN.) GENERAL PARKING
(2) 8.0' x 20.0' ACCESSIBLE PARKING WITH
(1) 11.0' x 20.0' LOADING ZONE
(2) 12.9' x 20.0' ACCESSIBLE PARKING WITH
(1) 5.0' x 20.0' LOADING ZONE

15. EXTERNAL TRASH ENCLOSURE TO MATCH BUILDING. SEE ARCHITECTURAL DETAILS.

16. KWIK TRIP TRADEMARK SIGN SUBJECT TO SEPARATE REVIEW AND APPROVAL (VERIFY FINAL LOCATION WITH SIGN PERMIT). SEE DETAIL 12/C501.

17. 4" WIDE, HIGH VISIBILITY, PAVEMENT STRIPING, LANE MARKINGS AND TEXT. COLOR: HC MARKINGS- YELLOW, ALL OTHERS- YELLOW.

18. SIDEWALK RAMP (12:1 SLOPE MAX). SEE DETAIL 12/C500.

19. GAS TANK VENT STAND, SEE PIPING PLANS.

20. 30" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD INSTALLED AT EACH PARKING STALL ALONG BUILDING. SEE DETAIL 10/C500.

21. 40'-0" x 120'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. CANOPY GRAPHICS PER OWNER.

22. CONCRETE ISLANDS W/ 6" EXPOSURE WITH FUEL DISPENSERS. DISPENSER PER OWNER.

23. 36" HT., 6" DIA. CONCRETE FILLED PIPE BOLLARD SIMILAR TO DETAIL 10/C500.

24. OUTDOOR MERCHANDISING AREA.

25. UNDERGROUND FUEL STORAGE TANKS PER OWNER. PROVIDE PIPING AND VENTING PER OWNER'S SPECIFICATIONS. SEE DETAIL 1/C501.

26. HC PVC BOLLARD SLEEVE PER OWNER. VAN ACCESS SIGNAGE AT 48" HT. STALL PARKING AT 60" HT. SEE SHEET C204.

27. STORM STRUCTURE. SEE SHEET SP3 FOR FURTHER STORM SEWER INFORMATION.

28. LP CAGE.

29. 'FREE AIR' COMPRESSOR. PROVIDE SIGNAGE PER OWNER.

30. SITE AREA LIGHT WITH CONCRETE BASE. SEE DETAIL 11/C500.

31. PVC IRRIGATION SLEEVE UNDER PAVEMENT. VERIFY W/ IRRIGATION PLAN FOR EXACT SIZE AND LOCATION BEFORE INSTALLATION. SEE DETAIL 3/C500.

32. 24'-0" x 50'-0" DISPENSER ISLAND CANOPY. VERIFY SIZE, PLACEMENT, COLUMN AND FOOTING SIZE WITH CANOPY AND STRUCTURAL PLANS. CANOPY GRAPHICS PER OWNER.

33. BIKE RACK.

34. VACUUM. SEE DETAIL 14/C500.

35. 18" EPOXY STOP BAR (YELLOW).

36. TRANSFORMER PAD.

37. DISCONNECT PAD.

38. NOT USED.

39. NOT USED.

40. NOT USED.

41. OUTDOOR ICE MERCHANDISING AREA.

42. PROPOSED GREASE INTERCEPTOR.

43. PICNIC AREA. SIMILAR TO DETAIL 2/C500. CONCRETE SEALER: TK-26UV

44. NOT USED.

45. PROPOSED COIN BOX. SEE DETAIL 13/C501.

46. PROPOSED REFUSE CONTAINER.

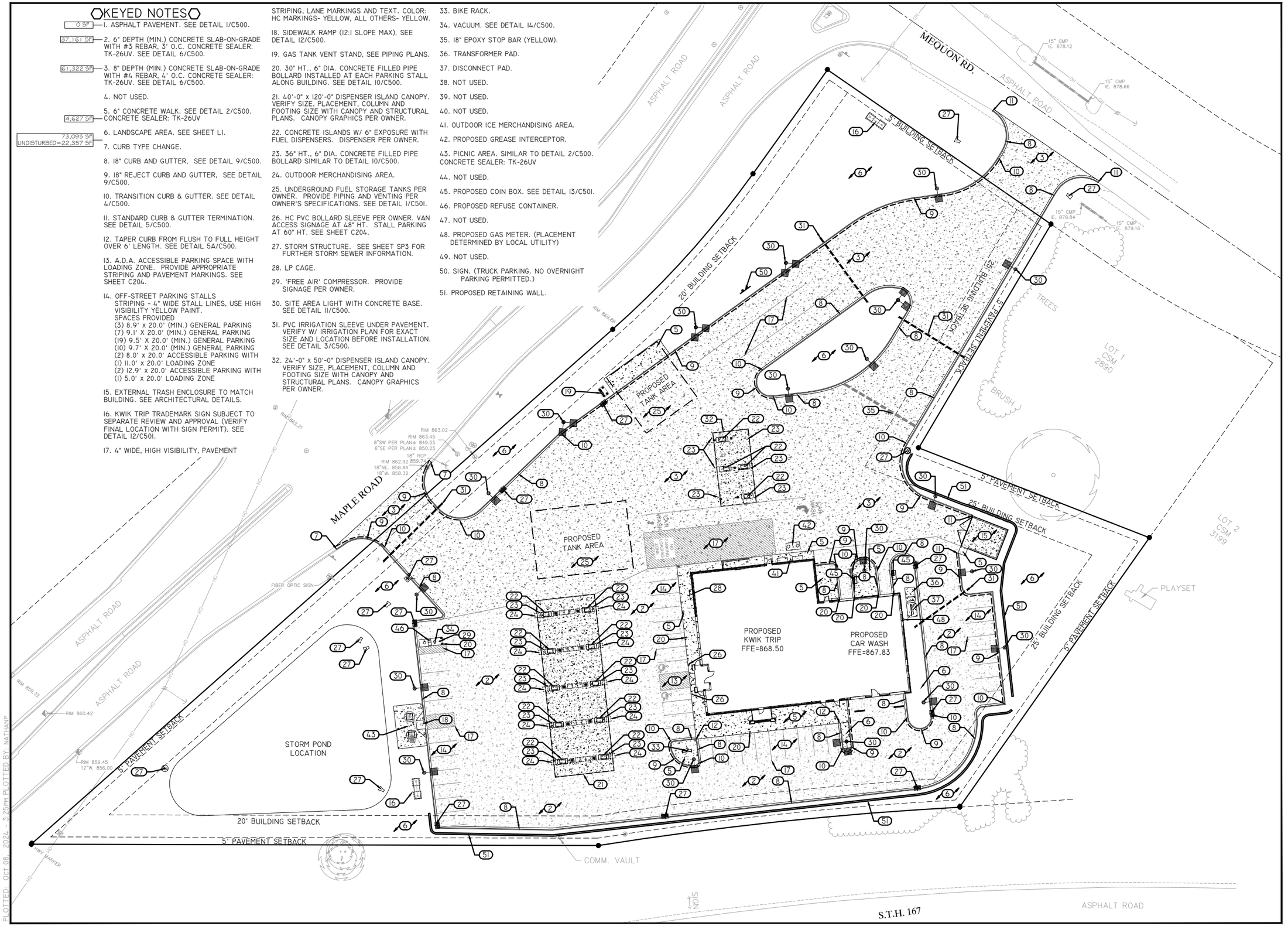
47. NOT USED.

48. PROPOSED GAS METER. (PLACEMENT DETERMINED BY LOCAL UTILITY)

49. NOT USED.

50. SIGN. (TRUCK PARKING. NO OVERNIGHT PARKING PERMITTED.)

51. PROPOSED RETAINING WALL.



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SCALE
0 30 60

SITE KEYNOTE PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C100

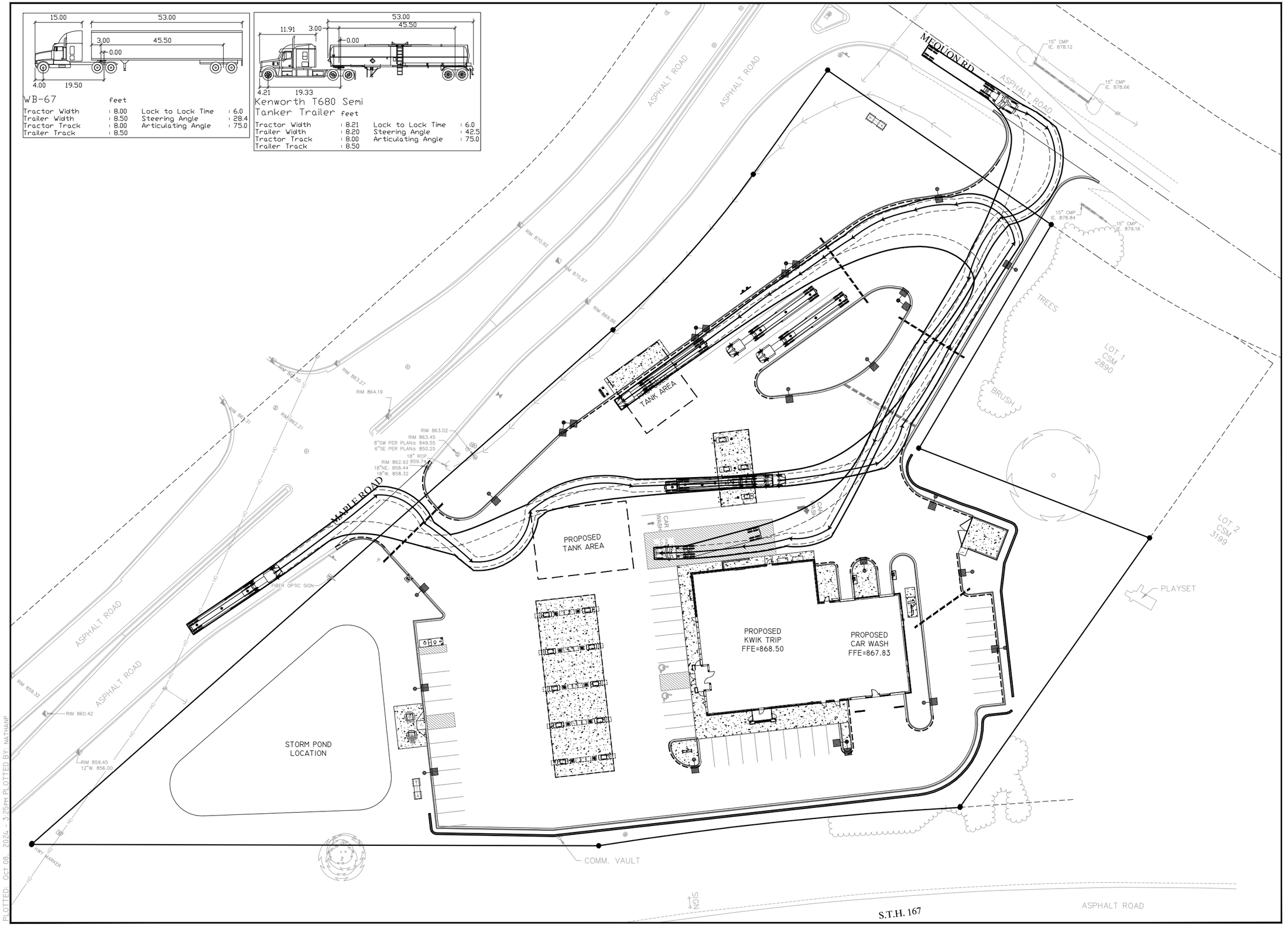
DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C100-SITE KEYNOTE PLAN.DWG LAYOUT: C100
PLOTTED: OCT 08, 2024 - 3:25PM PLOTTED BY: NATHAMP

WB-67 feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

Kenworth T680 Semi
Tanker Trailer feet

Tractor Width	: 8.21	Lock to Lock Time	: 6.0
Trailer Width	: 8.20	Steering Angle	: 42.5
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		



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SCALE
0 30 60

SITE CIRCULATION PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C180

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C180-SITE CIRCULATION PLAN.DWG LAYOUT: C180
PLOTTED: OCT 08, 2024 - 3:25PM PLOTTED BY: NATHAMP

LAYOUT NOTES:

1. PLAN PREPARED FROM AN ALTA/ACSM LAND TITLE SURVEY BY:
   R.A. SMITH, INC.
   262-781-1000
2. CURBS ARE DIMENSIONED TO BACK OF CURB.
3. CONVENIENCE STORE, AND ISLAND COMPLEXES ARE LOCATED FROM THE NORTHEASTERN MOST PROPERTY CORNER AND ALIGNED PARALLEL/PERPENDICULAR TO THE REFERENCE LINE LABELED N47°37'24"E, UNLESS OTHERWISE INDICATED ON THIS PLAN.
4. UNLESS SHOWN OTHERWISE ON THIS DRAWING, CONTRACTOR SHALL PROVIDE CONTROL JOINTS, CONSTRUCTION JOINTS, AND EXPANSION JOINTS IN SLAB ON GRADE, SIDEWALKS AND DRIVES. CONTROL JOINT MAXIMUM DISTANCE: WALKS- 8' O.C., ALL OTHERS- 15' O.C. SAW CUT CONTROL JOINTS MINIMUM ONE-QUARTER CONCRETE THICKNESS. EXPANSION JOINT MAXIMUM DISTANCE: WALKS- 24' O.C., ALL OTHERS- 40' O.C. DOWEL ALL EXPANSION JOINTS- MAXIMUM 24" O.C.
5. CONCRETE IN ISLAND COMPLEX SHALL BE SMOOTH FINISHED.
6. EXTERIOR CONCRETE SURFACES TO BE SEALED. CONCRETE SEALER:
   APR 15- OCT 31 USE: TK-26UV
   NOV 1- DEC 31 USE: TK-290
7. EXPANSION JOINTS SHALL BE DECK-O-FOAMED AND CAULKED WITH SLI.
8. DIAGONAL STRIPING LINES (HATCHING) IN THE " NO PARKING LOADING ZONE" AREA AND ANY OTHER AREA THAT IS HATCHED SHALL BE SPACED 5' ON CENTER.
9. LETTERING FOR ALL WORDING SUCH AS " NO PARKING LOADING ZONE" AND CARWASH SHOULD BE 12" TALL.
10. ALL DIAGONAL STRIPING SHALL BE ANGLED AS CLOSE TO DIMENSIONED ANGLE AS POSSIBLE.
11. CURBS AROUND THE RAISED FILLS SHALL BE PAINTED YELLOW.

⇄ - FOR INFORMATIONAL PURPOSES ONLY

SITE DATA:

ZONING DISTRICT:	B3
TOTAL SITE AREA - EXISTING/PROPOSED:	190,357 SF
EX. IMPERVIOUS:	61,276 SF (32%)
EX. PERVIOUS:	129,081 SF (68%)
PARKING REQUIREMENTS	
PARKING REQUIRED	SERVICE STATION = 1 STALL PER 2 EMPLOYEES +1
PARKING PROVIDED	42 STALLS
BUILDING HEIGHTS	
CONVENIENCE STORE	20.0'
CANOPY	19.5'

BUILDING SETBACKS
FRONT: 20'
REAR: 25'
SIDE: 5'

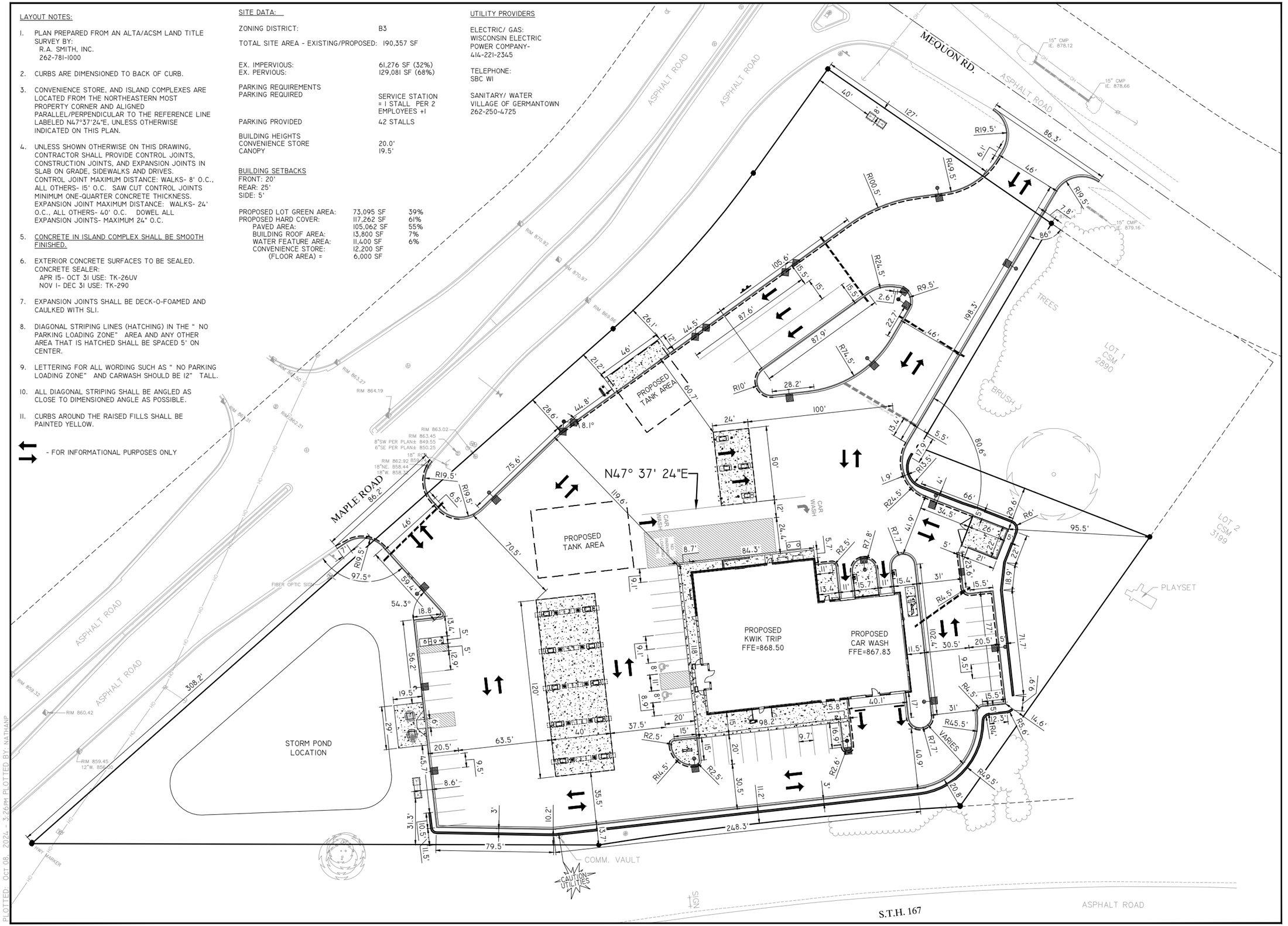
PROPOSED LOT GREEN AREA:	73,095 SF	39%
PROPOSED HARD COVER:	117,262 SF	61%
PAVED AREA:	105,062 SF	55%
BUILDING ROOF AREA:	13,800 SF	7%
WATER FEATURE AREA:	11,400 SF	6%
CONVENIENCE STORE: (FLOOR AREA) =	12,200 SF 6,000 SF	

UTILITY PROVIDERS

ELECTRIC/ GAS:
WISCONSIN ELECTRIC POWER COMPANY-
414-221-2345

TELEPHONE:
SBC WI

SANITARY/ WATER
VILLAGE OF GERMANTOWN
262-250-4725



KWIK TRIP STORES

KWIK STAR STORES

KWIK TRIP, Inc.
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LA CROSSE, WI 54602-2107
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FAX (608) 781-8960

REI
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REI Engineering, INC.
4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
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EMAIL: MAIL@REIENGINEERING.COM

SCALE
0 30 60

SITE DIMENSION PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C181

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C181-SITE PLAN.DWG LAYOUT: C181
PLOTTED: OCT 08, 2024 - 3:26PM PLOTTED BY: NATHANP

NOTE: CONTRACTOR TO OBTAIN RIGHT-OF-WAY EXCAVATION PERMIT PRIOR TO BEGINNING SITE WORK.

CALL DIGGERS HOTLINE @ 1-800-242-8511 AT LEAST 3 WORKING DAYS PRIOR TO EXCAVATING.

CONSTRUCTION NOTE:

COORDINATE WITH OWNER FOR POSSIBLE CONSTRUCTION FENCING AND GATE LOCATIONS AND APPROPRIATE SIGNAGE INSTALLATION.

NOTES:

- REFER TO OTHER PROJECT PLANS AND INFORMATION RELATED TO THIS PROJECT PRIOR TO BEGINNING ANY GRADING WORK.

- PLAN PREPARED FROM ALTA/ACSM LAND TITLE SURVEY BY:
  R.A. SMITH, INC.
  262.781.1000

- CONTRACTOR SHALL LOCATE ALL UTILITIES WHICH MAY AFFECT THIS WORK AND NOTIFY OWNER OF ANY CONFLICTS.

- CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED ELEVATIONS PRIOR TO START OF CONSTRUCTION. VERIFY CRITICAL ELEVATIONS TO ENSURE CONFORMANCE WITH GRADING PLAN, PARTICULARLY WITH WALK AND/ OR PAVEMENTS TO REMAIN. MEET EXISTING GRADES ALONG STREETS, PROPERTY LINES AND DRIVEWAY ENTRANCES. RESTORE ALL EXISTING PAVEMENTS THAT REMAIN TO THEIR ORIGINAL, IF NOT BETTER CONDITION. NOTIFY OWNER OF ANY CONFLICTS.

- AREAS NOT PAVED AND TO BE LANDSCAPED SHALL RECEIVE MINIMUM OF 4" DEPTH COMPACTED TOPSOIL.

- CONTRACTOR SHALL COORDINATE GRADING AND INSTALLATION OF DRIVES IN R.O.W. WITH APPROPRIATE GOVERNMENT AGENCIES. OBTAIN APPROPRIATE PERMITS FOR GRADING AND DRAINAGE IN ALL R.O.W.

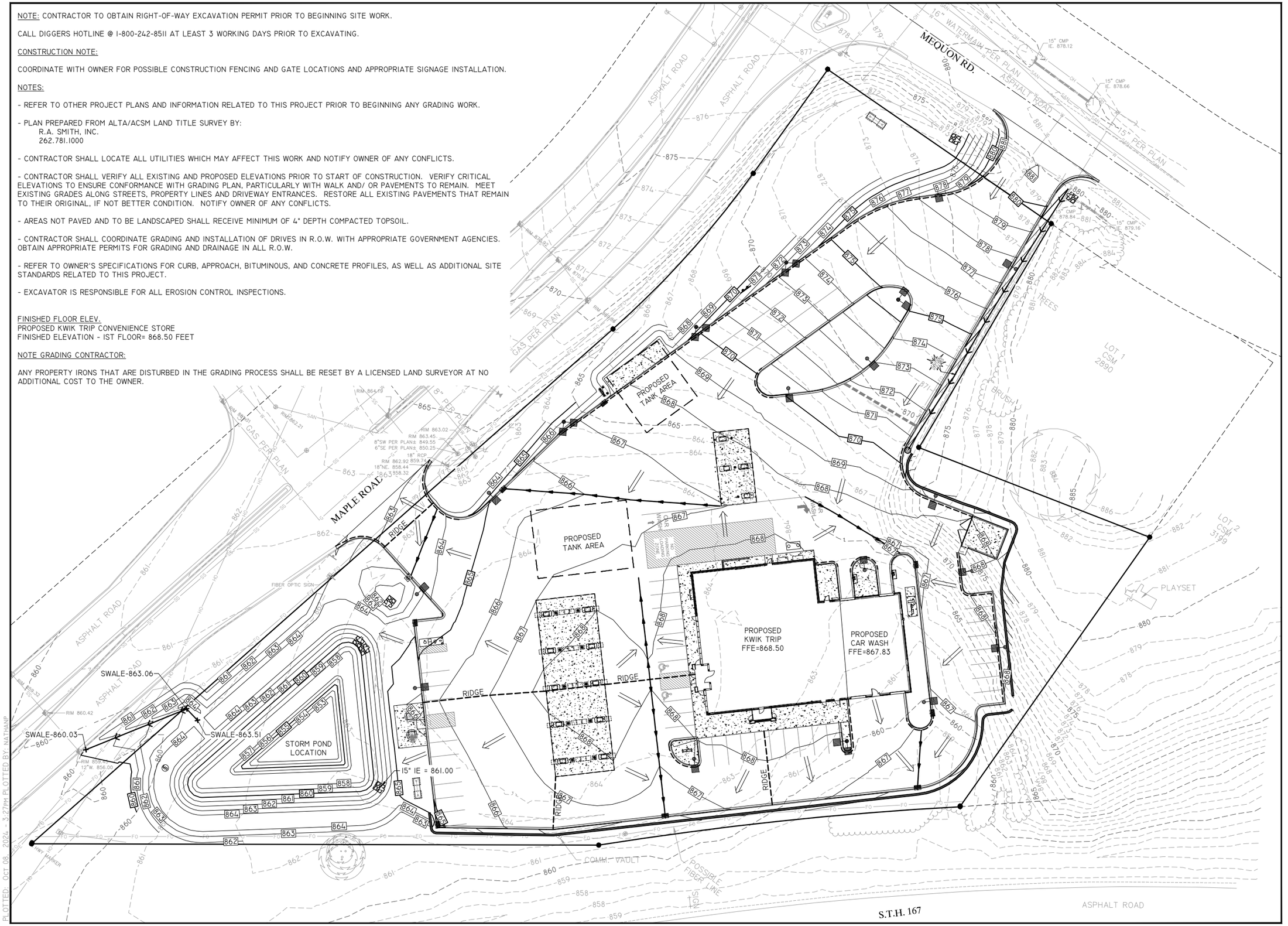
- REFER TO OWNER'S SPECIFICATIONS FOR CURB, APPROACH, BITUMINOUS, AND CONCRETE PROFILES, AS WELL AS ADDITIONAL SITE STANDARDS RELATED TO THIS PROJECT.

- EXCAVATOR IS RESPONSIBLE FOR ALL EROSION CONTROL INSPECTIONS.

FINISHED FLOOR ELEV.
PROPOSED KWIK TRIP CONVENIENCE STORE
FINISHED ELEVATION - IST FLOOR= 868.50 FEET

NOTE GRADING CONTRACTOR:

ANY PROPERTY IRONS THAT ARE DISTURBED IN THE GRADING PROCESS SHALL BE RESET BY A LICENSED LAND SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.



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SCALE
0 30 60

GRADING PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
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SHEET C200

MAPLE ROAD

RIDGE

PROPOSED TANK AREA

CAR WASH

NO PARKING LOADING ZONE

PROPOSED KWIK TRIP FFE=868.50

PROPOSED CAR WASH FFE=867.83

PULL FORWARD LANE 100'

COMM. VAULT

RIM-863.11
RIM 862.92
18" RCP IE: 859.74
864.42
863.92
864.46
863.96
864.32
863.82
863.69
863.19
RIM-863.06
8" IE = 861.17
864.93
864.43
865.00
864.50
865.02
864.52
8" IE = 861.00
15" IE = 861.00
RIM-864.42
865.87
866.04
865.54
866.16
865.66
866.10
865.60
865.96
865.90
865.54
865.48
865.92
865.42
865.58
865.87
865.37
865.41
864.91
TW/BW-865.00
TW-865.23
RIM-864.83
BW-862.65
TW-865.24
BW-862.52
RIM-865.27
865.28
864.78
867.08
866.58
867.96
868.32
866.95
867.19
867.52
866.99
867.79
867.09
867.89
867.44
868.22
868.39
868.38
867.89
868.50
868.49
867.99
868.17
867.67
868.16
867.66
867.95
867.45
868.11
867.61
867.98
867.48
867.62
867.12
867.53
867.03
867.38
867.66
RIM-867.04
867.60
TC/BC-867.50
868.33
867.83
868.33
867.83
868.33
867.83
868.33
867.83
867.72
867.52
868.34
867.84
868.75
868.25
868.44
867.94
BW-868.55
868.10
868.43
868.20
868.46
868.13
868.13
868.43
868.02
868.40
868.11
867.61
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867.95
867.45
868.08
867.58
867.92
867.42
868.37
TC/BC-868.22
868.17
867.67
868.03
867.53
868.33
867.83
868.33
867.83
RIM-866.86
867.35
866.85
867.49
866.99
867.29
866.79
867.60
867.10
TW-868.27
BW-867.76
867.90
867.40
TW-867.41
BW-862.39
867.49
866.99
TW-867.70
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BW-865.68
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TW-867.11
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BW-862.76
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870.11
869.61
871.01
870.51

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SCALE
0 15 30

GRADING PLAN DETAIL - SOUTH

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C201

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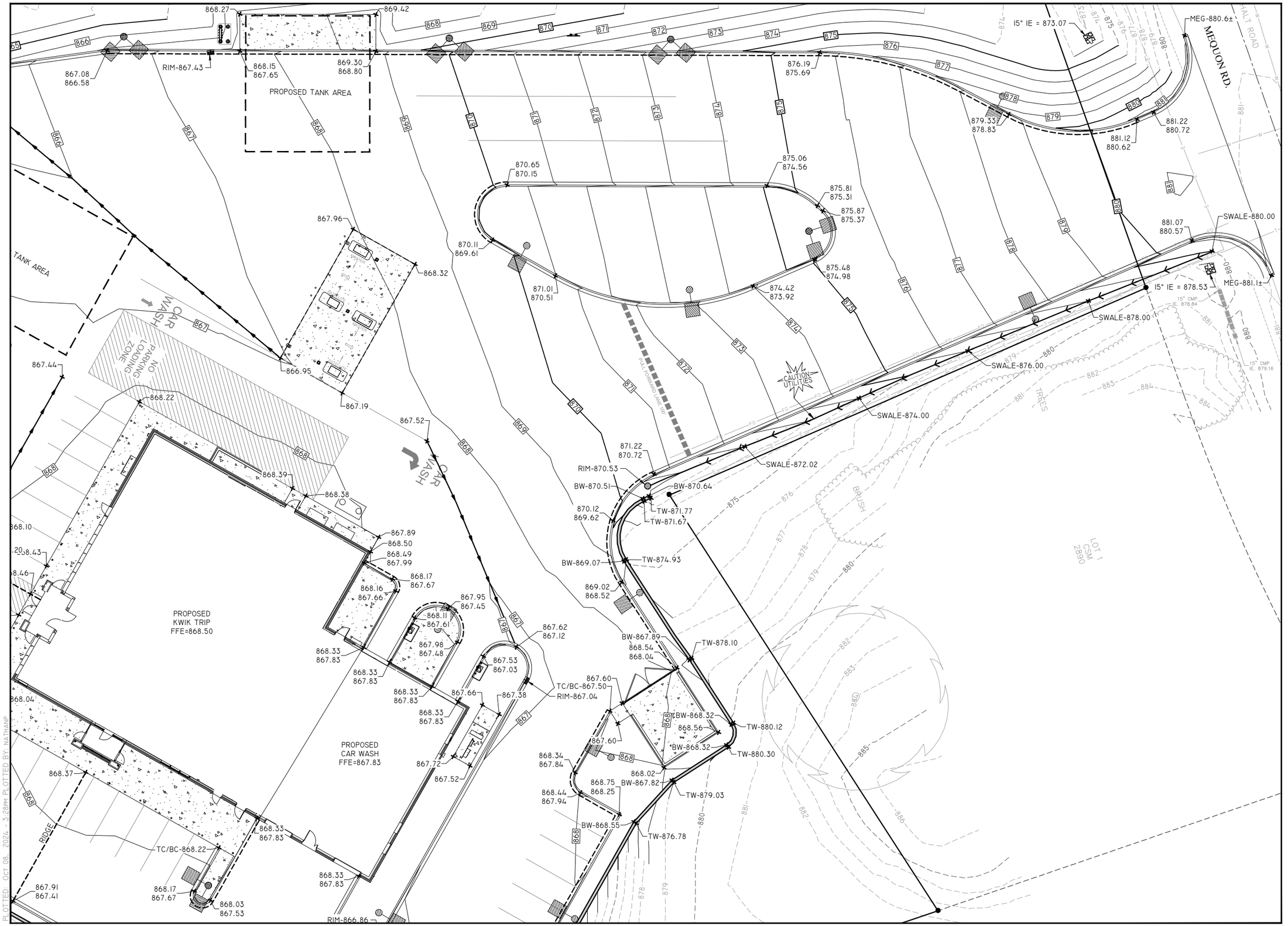

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SCALE
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GRADING PLAN DETAIL - NORTH

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C201.1

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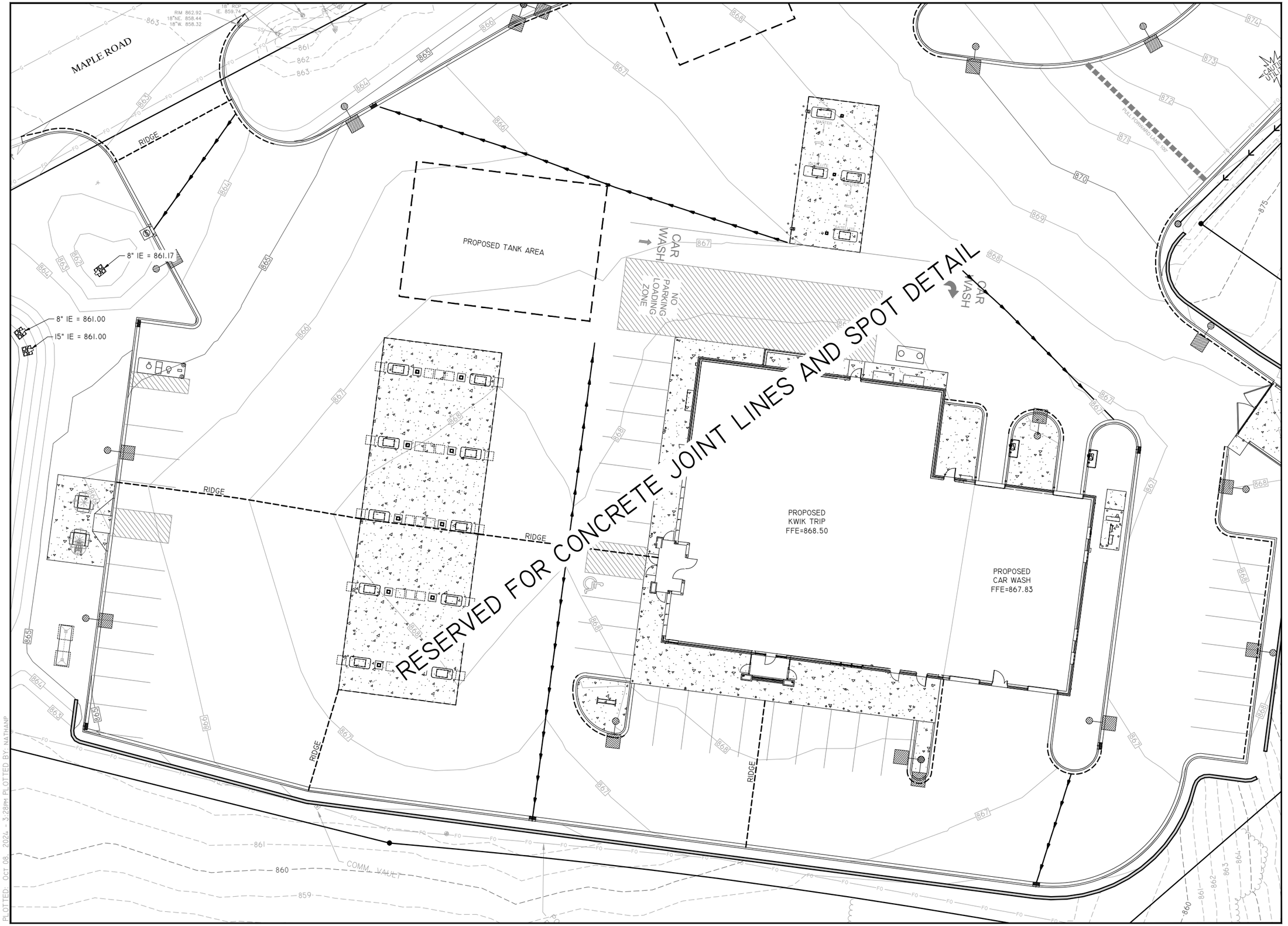

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SCALE
0 15 30

GRADING PLAN SPOT DETAIL - SOUTH

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY	NAP
SCALE	GRAPHIC
PROJ. NO.	11757
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	C202

PROPOSED TANK AREA

TANK AREA

CAR WASH

NO PARKING LOADING ZONE

CAR WASH

PROPOSED KWIK TRIP FFE=868.50

PROPOSED CAR WASH FFE=867.83

RIDGE

RESERVED FOR CONCRETE JOINT LINES AND SPOT DETAIL

TRAIL FORWARD LINE TYP.

15" IE = 873.07

15" IE = 878.53

15" CMP IE. 878.84

15" CMP IE. 879.16

MEQUON RD.

MAPLE ROAD

BRUSH

TREES

LOT 1 CSM 2690

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SCALE
0 15 30

GRADING PLAN SPOT DETAIL - NORTH

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

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PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C202.1

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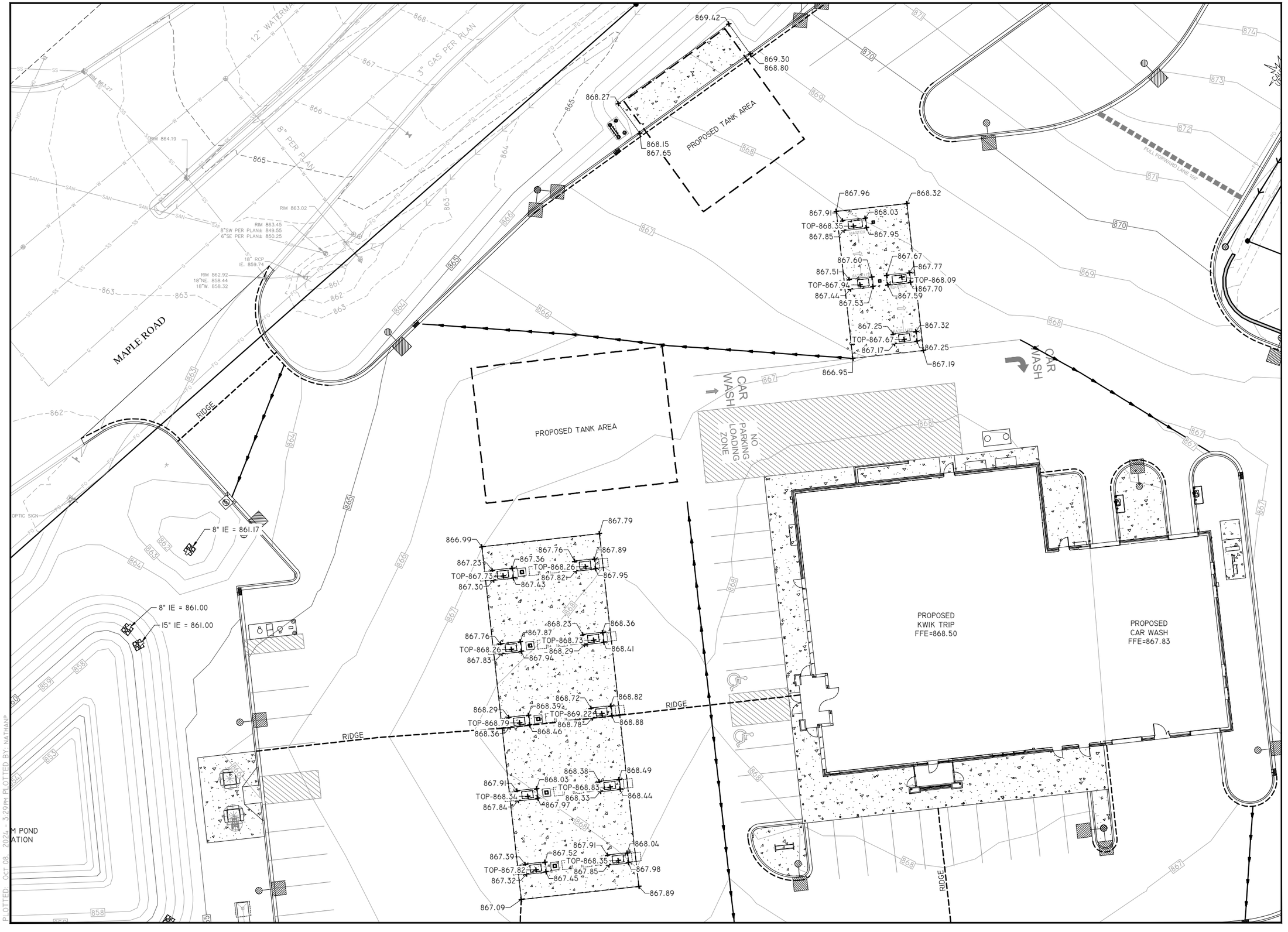

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SCALE
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CANOPY AND TANK GRADING DETAILS

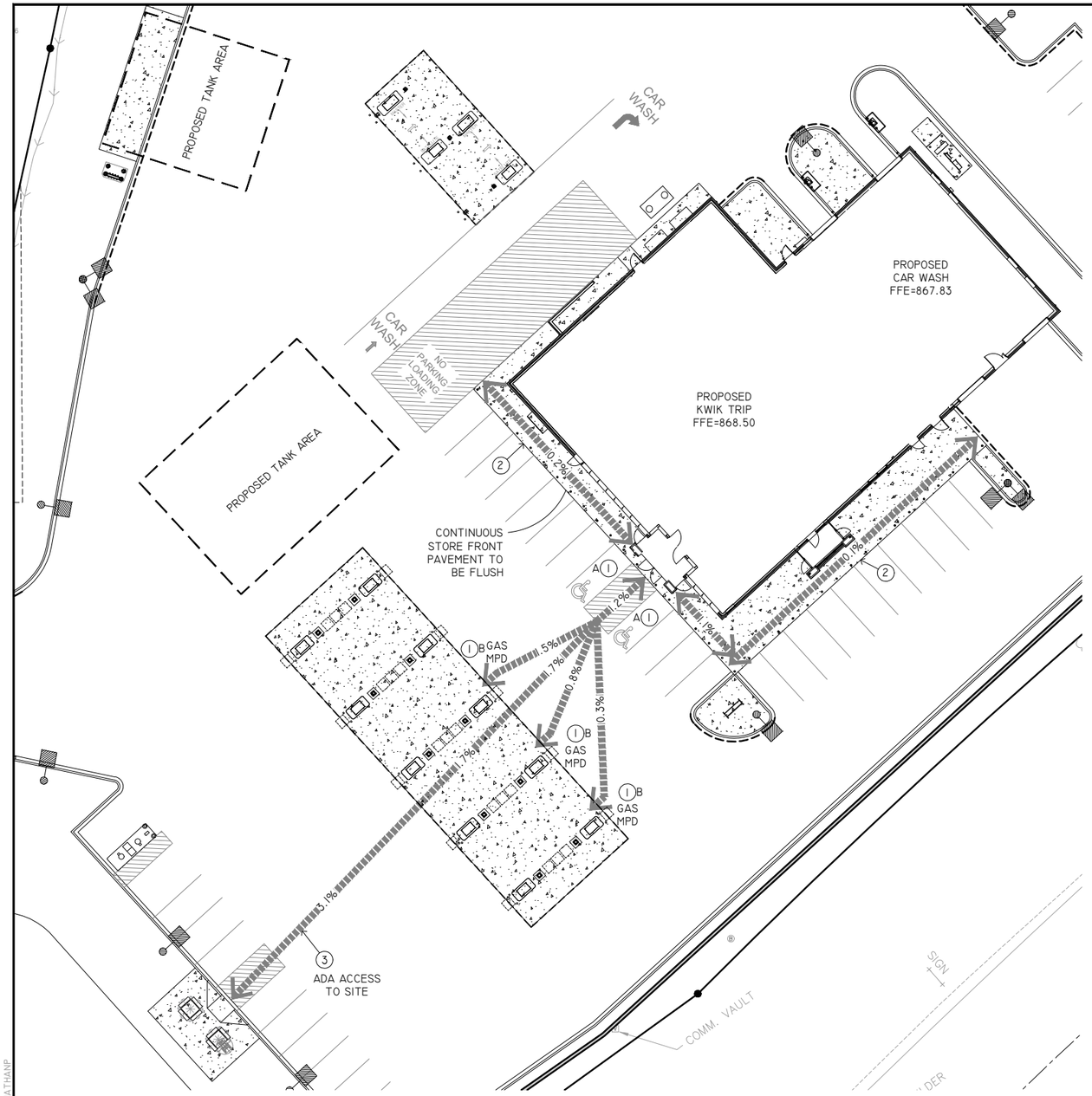
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY	NAP
SCALE	GRAPHIC
PROJ. NO.	11757
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	C203

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C200-GRADING PLANS.DWG LAYOUT: C203
PLOTTED: OCT 08, 2024 - 3:29PM PLOTTED BY: NATHANP



PLAN KEYNOTES

1. ACCESSIBLE STALLS
   A. STRIPING - 4" WIDE STALL LINES, USE HIGH VISIBILITY BLUE PAINT.

   SPACES PROVIDED
   (2) 8'-0"X 20'-0" ACCESSIBLE PARKING WITH
   (1) 11'-0"X 20'-0" LOADING ZONE

   B. ACCESSIBLE FUELING POINT AND DISPENSER AND VALET. VALET AND KEY PAD ON PUMP SHALL CONFORM TO ADA REACH DIMENSIONS AS SHOWN IN DETAIL. SEE NOTES FOR CONVENIENCE STORE ACCESSIBILITY.

2. PAVEMENTS FLUSH FOR ACCESSIBILITY.

3. ACCESSIBLE ROUTE TO STORE.

811 Know what's **below.** **Call** before you dig.

NOTES FOR CONVENIENCE STORE ACCESSIBILITY

AT LEAST 1 MPD (MULTI PRODUCT DISPENSER) COVERING ALL GRADES OF FUEL MUST BE ACCESSIBLE IN A 30X48" CLEAR LEVEL FLOOR AREA (CLF).

ALL PUMP CONTROLS SHALL BE < 48" (2010 STANDARD). WINDOW WASHER, PAPER TOWEL DISPENSER, LITERATURE, FIRE EXTINGUISHER, EMERGENCY FUEL STOPS, ETC. BE ACCESSIBLE 30"X48" CLF SPACE AND WITHIN A FORWARD OR SIDE APPROACH REACH RANGE.

PROVIDE ISA (INDUSTRY STANDARD ARCHITECTURE) AT EACH ACCESSIBLE FUEL POSITION ON FACE OF PUMP.

PROVIDE ISA AT EACH ACCESSIBLE FUELING POSITION VISIBLE TO APPROACHING VEHICLES.

PROVIDE A SIGN AT EACH ACCESSIBLE FUELING POSITION WITH STORE TELEPHONE NUMBER, ADVISING AVAILABLE FUELING ASSISTANCE.

ANY PAY FUNCTION- I.E. AIR/VACUUM ETC. ARE REQUIRED TO HAVE AN ACCESSIBLE ROUTE TO STORE ENTRANCE. CONTROLS SHALL BE ACCESSIBLE 30"X48" CLF SPACE AND WITHIN A FORWARD OR SIDE APPROACH REACH RANGE.

NOTES:

-REFER TO THE DOCUMENT FROM THE DEPARTMENT OF JUSTICE ON "2010 ADA STANDARDS FOR ACCESSIBLE DESIGN". CONTRACTOR SHALL REFERENCE CURRENT A.D.A. GUIDELINES AND LOCAL REGULATIONS FOR SITE ACCESSIBILITY. IN ALL CASES THE MINIMUM REQUIREMENTS SHALL BE PROVIDED ON SITE TO ENSURE COMPLIANCE TO ALL REGULATIONS.

- KWIK TRIP STANDARD ENTRANCE DOOR IS AUTOMATIC SLIDING DOOR SYSTEM DESIGNED TO COMPLY WITH ALL ACCESS CODES AND LAWS. ENTRANCE DOORS FOR ACCESSIBLE ROUTES WILL HAVE A MINIMUM CLEAR OPENING OF 32"

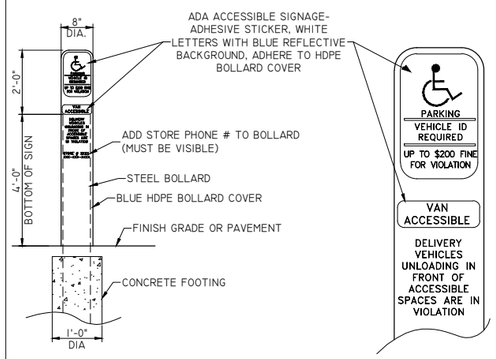
-STORE FRONTS WILL PROVIDE FLUSH PAVEMENTS ALONG ACCESSIBLE ROUTES WITH PROTECTIVE SECURITY BOLLARDS INDICATED AND SPACED BETWEEN PARKING SURFACES AND BUILDING WALK PER PLAN.

-NO OBJECTS OR DISPLAYS SHOULD PROTRUDE INTO THE MINIMUM CLEAR SPACE OF THE ACCESSIBLE ROUTES TO THE STORE ENTRANCE. THIS WILL INCLUDE SEASONAL DISPLAY VENDING AREAS AS WELL AS OTHER OUTDOOR STORAGE UNITS FOR PROPANE AND ICE, ETC.

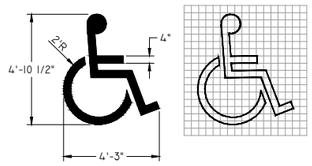
-PER A.D.A GUIDELINES- CLEAR WIDTH OF ACCESSIBLE ROUTES SHALL BE 36" AND PERMITTED TO BE REDUCED TO 32" FOR A LENGTH OF 24".

- ACCESS ISLES SERVING WHEEL CHAIR LIFTS OR CHAIR ACCESS FROM VEHICLES ARE REQUIRED TO BE NEARLY LEVEL IN ALL DIRECTIONS TO PROVIDE SAFE TRANSFER OF WHEELCHAIRS TO AND FROM VEHICLES. THE EXCEPTION WOULD BE FOR DRAINAGE. MAXIMUM SLOPE FOR THE ACCESS ISLE IS 1:48. NO CURB RAMPS SHALL BE A PART OF THE ACCESS ISLE.

-IDENTIFICATION SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY WITH THE DESIGNATION OF 1 "VAN ACCESSIBLE' IN EVERY 8 ACCESSIBLE SPACES ON SITE.



ADA BOLLARD SIGNAGE
NOT TO SCALE

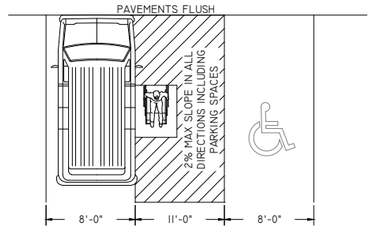


ACCESSIBILITY SYMBOL PAINTED ON PAVEMENT

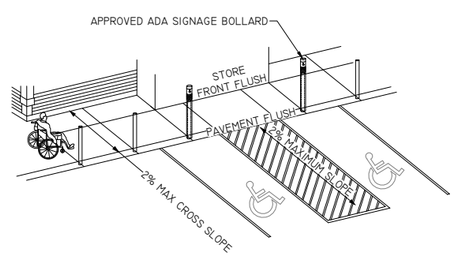
PROPORTIONING GUIDE

* TO BE YELLOW IN COLOR, UNLESS OTHERWISE SPECIFIED.

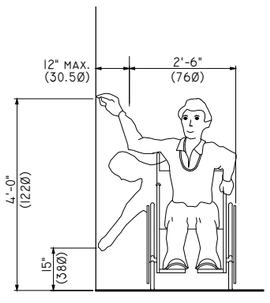
HANDICAP SYMBOL
NOT TO SCALE



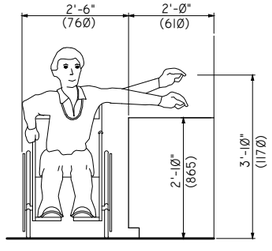
PLAN VIEW



VAN ACCESSIBLE PARKING
NOT TO SCALE



HIGH AND LOW - SIDE REACH LIMITS



MAXIMUM SIDE REACH OVER OBSTRUCTION

ACCESSIBLE REACH DIMENSIONS
NOT TO SCALE

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SCALE
0 20 40

ACCESSIBILITY PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

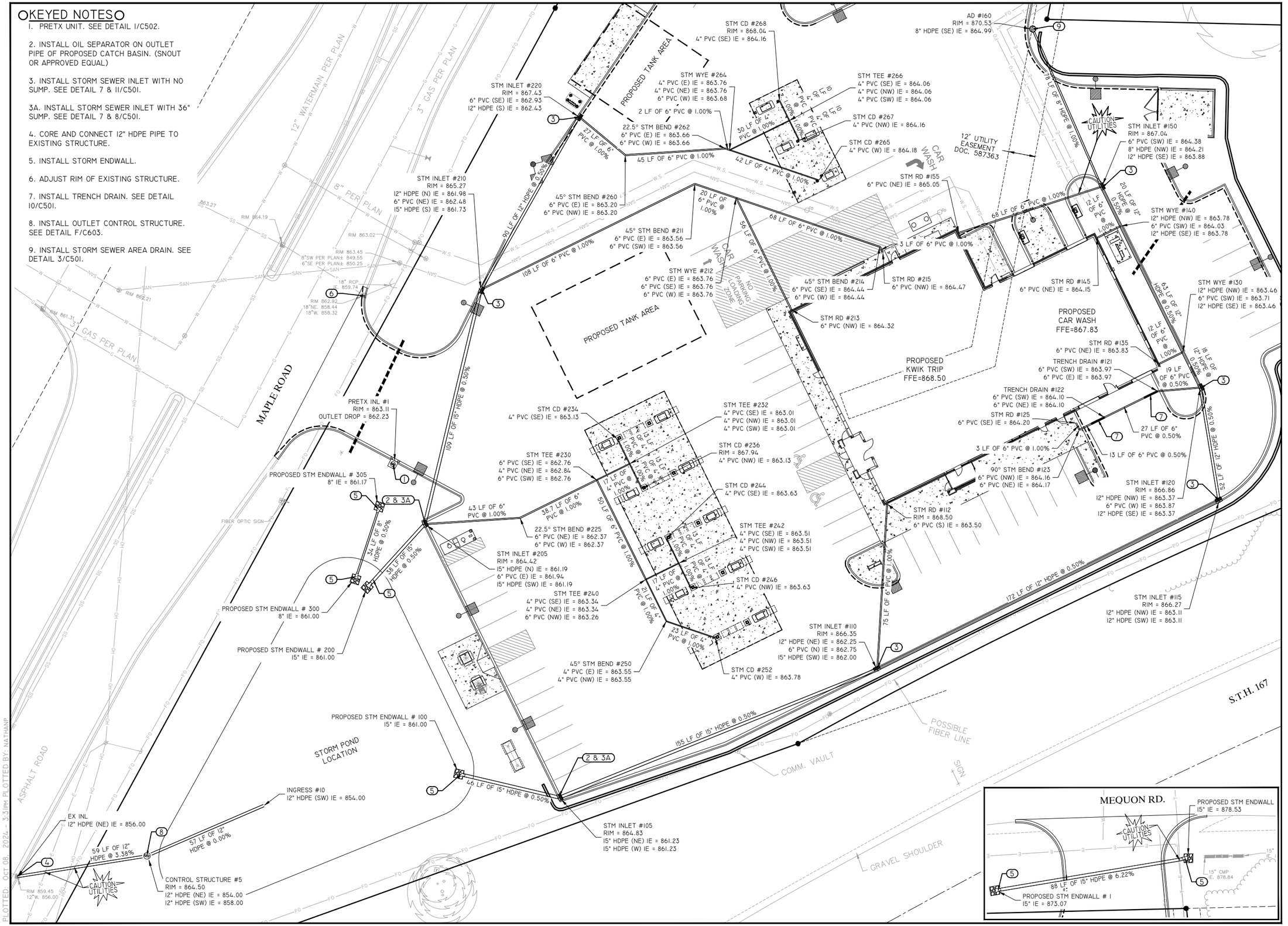
#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C204

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C204-ACCESSIBILITY PLAN.DWG LAYOUT: C204
PLOTTED: OCT 08, 2024 - 3:30PM PLOTTED BY: NATHANP

KEYED NOTES

1. PRETX UNIT. SEE DETAIL 1/C502.
2. INSTALL OIL SEPARATOR ON OUTLET PIPE OF PROPOSED CATCH BASIN. (SNOUT OR APPROVED EQUAL)
3. INSTALL STORM SEWER INLET WITH NO SUMP. SEE DETAIL 7 & 11/C501.
3A. INSTALL STORM SEWER INLET WITH 36" SUMP. SEE DETAIL 7 & 8/C501.
4. CORE AND CONNECT 12" HDPE PIPE TO EXISTING STRUCTURE.
5. INSTALL STORM ENDWALL.
6. ADJUST RIM OF EXISTING STRUCTURE.
7. INSTALL TRENCH DRAIN. SEE DETAIL 10/C501.
8. INSTALL OUTLET CONTROL STRUCTURE. SEE DETAIL F/C603.
9. INSTALL STORM SEWER AREA DRAIN. SEE DETAIL 3/C501.



KWIK TRIP STORES

KWIK STAR STORES

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SCALE
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STORM SEWER PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C300

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C300-GA00-UTILITY PLANS.DWG LAYOUT: C300
PLOTTED: OCT 08, 2024 - 3:31PM PLOTTED BY: NATHANP

KEYED NOTES

1. DRY UTILITY ROUTING SHOWN IS APPROXIMATE. COORDINATE WITH LOCAL UTILITY.
2. INSTALL INSULATION OVER WATER PIPE AT CROSSING. SEE DETAIL 2/C501.
3. INSTALL 6" SANITARY SERVICE LATERAL @ 1.00% MINIMUM.
3A. INSTALL 4" SANITARY SERVICE LATERAL @ 1.00% MINIMUM.
4. INSTALL 4" WATER SERVICE LATERAL.
5. SANITARY SEWER & WATER SERVICE TRENCH. SEE A/C401 FOR SEPARATION REQUIREMENTS.
6. INSTALL SANITARY CLEANOUT. SEE DETAIL 4/C501.
7. CONNECT TO EXISTING UTILITY. FIELD VERIFY LOCATION AND DEPTH.

RIM 870.92
RIM 870.97
RIM 869.86
12" WATERMAIN PER PLAN
3" GAS PER PLAN
8" PER PLAN
MAPLE ROAD
PROPOSED TANK AREA
PULL FORWARD LANE 100'
12' UTILITY EASEMENT DOC. 587363
SAN BEND #10
6" PVC (E) IE = 860.45
6" PVC (SW) IE = 860.45
7 LF OF 6" PVC @ 2.00%
SAN BEND #11
6" PVC (SE) IE = 860.59
6" PVC (W) IE = 860.59
SAN CLEANOUT #15
4" PVC (SW) IE = 860.28
2 LF OF 4" PVC @ 2.00%
90°
43 LF WATER SERVICE
45 LF OF 6" PVC @ 2.00%
50 LF WATER SERVICE
37 LF OF 6" PVC @ 2.00%
82 LF WATER SERVICE
45°
54 LF OF 6" PVC @ 2.00%
28 LF OF 6" PVC @ 2.00%
SAN STUB #12
6" PVC (NW) IE = 861.33
SAN WYE #5
6" PVC (E) IE = 859.56
6" PVC (NE) IE = 859.56
6" PVC (W) IE = 859.56
11 LF OF 6" PVC @ 2.00%
SAN BEND #3
6" PVC (E) IE = 857.93
6" PVC (SW) IE = 857.93
107 LF WATER SERVICE
66 LF OF 6" PVC @ 2.00%
69 LF OF 6" PVC @ 2.00%
32 LF WATER SERVICE
31 LF OF 6" PVC @ 17.34%
6" PVC (E) IE = 850.25
SAN BEND #1
6" PVC (NE) IE = 855.62
6" PVC (W) IE = 855.62
CAUTION UTILITIES
RIM 863.02
RIM 863.45
8"SW PER PLAN± 849.55
6"SE PER PLAN± 850.25
RIM 862.92
18"NE. 858.44
18"W. 858.32
18" RCP IE. 859.74
SAN WYE #6
6" PVC (E) IE = 859.77
4" PVC (NE) IE = 859.86
6" PVC (W) IE = 859.77
2 LF OF 6" PVC @ 2.00%
SAN STUB #17
4" PVC (NW) IE = 860.36
SAN BEND #16
4" PVC (SE) IE = 860.28
4" PVC (W) IE = 860.28
1 LF OF 4" PVC @ 2.00%
SAN WYE #14
4" PVC (E) IE = 860.25
4" PVC (NE) IE = 860.25
4" PVC (SW) IE = 860.25
4 LF OF 4" PVC @ 2.00%
4" PVC (NE) IE = 860.18
SAN BEND #7
6" PVC (SE) IE = 859.81
6" PVC (W) IE = 859.81
4 LF OF 6" PVC @ 2.00%
SAN STUB #8
6" PVC (NW) IE = 859.88
11 LF OF 4" PVC @ 2.00%
4" PVC (SW) IE = 860.08
PROPOSED CAR WASH FFE=867.83
PROPOSED KWIK TRIP FFE=868.50
PROPOSED TANK AREA

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N
SCALE
0 15 30

UTILITY PLAN

CONVENIENCE STORE #631
STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C400

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C300-C400-UTILITY PLANS.DWG LAYOUT: C400
PLOTTED: OCT 08, 2024 - 3:33PM PLOTTED BY: NATHANP

GENERAL :

1. COMPLY WITH THE WORK SAFETY PRACTICES SPECIFIED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. OSHA PROHIBITS ENTRY INTO "CONFINED SPACES," SUCH AS MANHOLES AND INLETS (SEE 29 CFR SECTION 1910.146), WITHOUT UNDERTAKING CERTAIN SPECIFIC PRACTICES AND PROCEDURES. CONSTRUCTION SAFETY IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR, WHO IS ALSO SOLELY RESPONSIBLE FOR THE MEANS, METHODS, AND SEQUENCING OF THE CONSTRUCTION OPERATIONS.

2. EXISTING BOUNDARY, LOCATION, TOPOGRAPHIC, AND UTILITY INFORMATION SHOWN ON THIS PLAN IS FROM A FIELD SURVEY BY R.A. SMITH, INC. DATED JUNE 12, 2024.

3. PERFORM ALL UTILITY WORK IN ACCORDANCE WITH STATE AND CITY REQUIREMENTS.

4. CONNECT TO EXISTING SANITARY SEWER MH'S BY CORE DRILLING. CONNECT TO EXISTING STORM SEWER MH'S BY EITHER SAWCUTTING OR CORE DRILLING. USE SAWS OR DRILLS THAT PROVIDE WATER TO THE BLADE. MEET ALL CITY STANDARDS AND SPECIFICATIONS FOR THE THE CONNECTION. RECONSTRUCT INVERTS AFTER INSTALLATION. USE WATER STOP GASKETS IN ORDER TO PROVIDE WATERTIGHT SEALS WHEN PENETRATING A STRUCTURE WALL WITH A PIPE. TAKE MEASUREMENTS BEFORE BEGINNING CONSTRUCTION TO ENSURE THAT SERVICE CONNECTIONS DO NOT CUT INTO MAINTENANCE ACCESS STRUCTURE JOINTS OR PIPE BARREL JOINTS.

5. PERFORM TRENCH EXCAVATIONS FOR ALL UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF O.S.H.A. 29 CFR, PART 1926, SUBPART P, "EXCAVATIONS AND TRENCHES." (WWW.OSHA.GOV)

6. COORDINATE BUILDING UTILITY CONNECTION LOCATIONS AT 5 FT. OUT FROM THE PROPOSED BUILDING WITH THE WITH THE INTERIOR PLUMBING CONTRACTOR PRIOR TO CONSTRUCTION. VERIFY WATER AND SEWER SERVICE LOCATIONS AND ELEVATIONS WITH THE MECHANICAL ENGINEER PRIOR TO CONSTRUCTION.

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

8. THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS PLAN ARE FROM RECORD INFORMATION. THE ENGINEER DOES NOT GUARANTEE THAT ALL EXISTING UTILITIES ARE SHOWN OR, IF SHOWN, EXIST IN THE LOCATIONS INDICATED ON THE PLAN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THE FINAL VERTICAL AND HORIZONTAL LOCATION OF ALL EXISTING UTILITIES (INCLUDING WATER AND SEWER LINES AND APPURTENANCES). NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

9. CONTACT UTILITY COMPANIES FOR LOCATIONS OF ALL PUBLIC AND PRIVATE UTILITIES WITHIN THE WORK AREA PRIOR TO BEGINNING CONSTRUCTION. CONTACT DIGGER'S HOTLINE AT (414) 259-1181 IN THE MILWAUKEE METRO AREA, OR 1-800-242-8511 ELSEWHERE IN WISCONSIN FOR EXACT LOCATIONS OF EXISTING UTILITIES AT LEAST 72 HOURS (NOT INCLUDING WEEKENDS AND HOLIDAYS) BEFORE BEGINNING ANY CONSTRUCTION. OBTAIN TICKET NUMBER AND MEET WITH REPRESENTATIVES OF THE VARIOUS UTILITIES AT THE SITE. PROVIDE THE OWNER WITH THE TICKET NUMBER INFORMATION. DIGGER'S HOTLINE IS A FREE SERVICE THAT LOCATES MUNICIPAL AND UTILITY COMPANY LINES, BUT DOES NOT LOCATE PRIVATE UTILITY LINES. USE AN INDEPENDENT LOCATOR SERVICE OR OTHER MEANS IN ORDER TO OBTAIN LOCATIONS OF PRIVATE UTILITY LINES INCLUDING, BUT NOT LIMITED TO, UNDERGROUND ELECTRIC CABLES, TELEPHONE, TV, AND LAWN SPRINKLER LINES.

10. POTHOLE TO VERIFY THE POSITIONS OF EXISTING UNDERGROUND FACILITIES AT A SUFFICIENT NUMBER OF LOCATIONS IN ORDER TO ASSURE THAT NO CONFLICT WITH THE PROPOSED WORK EXISTS AND THAT SUFFICIENT CLEARANCE IS AVAILABLE.

11. WHERE EXISTING GAS, ELECTRIC, CABLE, OR TELEPHONE UTILITIES CONFLICT WITH THE WORK, COORDINATE THE ABANDONMENT, RELOCATION, OFFSET, OR SUPPORT OF THE EXISTING UTILITIES WITH THE APPROPRIATE LOCAL UTILITY COMPANIES. COORDINATE NEW GAS METER AND GAS LINE INSTALLATION, ELECTRIC METER AND ELECTRIC SERVICE INSTALLATION, CABLE SERVICE, AND TELEPHONE SERVICE INSTALLATION WITH THE LOCAL UTILITY COMPANIES.

12. ARRANGE FOR AND SECURE SUITABLE DISPOSAL AREAS OFF-SITE. DISPOSE OF ALL EXCESS SOIL, WASTE MATERIAL, DEBRIS, AND ALL MATERIALS NOT DESIGNATED FOR SALVAGE. WASTE MATERIAL AND DEBRIS INCLUDES TREES, STUMPS, PIPE, CONCRETE, ASPHALTIC CONCRETE, CANS, OR OTHER WASTE MATERIAL FROM THE CONSTRUCTION OPERATIONS. OBTAIN THE RIGHTS TO ANY WASTE AREA FOR DISPOSAL OF UNSUITABLE OR SURPLUS MATERIAL EITHER SHOWN OR NOT SHOWN ON THE PLANS. ALL WORK IN DISPOSING OF SUCH MATERIAL SHALL BE CONSIDERED INCIDENTAL TO THE WORK. ALL DISPOSAL MUST CONFORM TO APPLICABLE SOLID WASTE DISPOSAL PERMIT REGULATIONS. OBTAIN ALL NECESSARY PERMITS AT NO COST TO THE OWNER.

13. STRAIGHT LINE SAW-CUT EXISTING BITUMINOUS OR CONCRETE SURFACING AT THE PERIMETER OF PAVEMENT REMOVAL AREAS. USE SAWS THAT PROVIDE WATER TO THE BLADE. TACK, AND MATCH ALL CONNECTIONS TO EXISTING BITUMINOUS PAVEMENT.

14. RELOCATE OVERHEAD POWER, TELEPHONE, AND CABLE LINES AS REQUIRED.

15. ALL MATERIALS REQUIRED FOR THIS WORK SHALL BE NEW MATERIAL CONFORMING TO THE REQUIREMENTS FOR CLASS, KIND, GRADE, SIZE, QUALITY, AND OTHER DETAILS SPECIFIED HEREIN OR AS SHOWN ON THE PLANS. DO NOT USE RECYCLED OR SALVAGED AGGREGATE, ASPHALTIC PAVEMENT, CRUSHED CONCRETE, OR SCRAP SHINGLES. UNLESS OTHERWISE INDICATED, THE CONTRACTOR SHALL FURNISH ALL REQUIRED MATERIALS.

16. RESTORE THE PUBLIC RIGHT-OF-WAY. REPLACE ANY CONCRETE CURB AND GUTTER, BITUMINOUS PAVEMENT, SIDEWALK, OR VEGETATIVE COVER DAMAGED BY THE CONSTRUCTION ACTIVITY. RESTORE DAMAGED TURF WITH SOD WITHIN THE PUBLIC RIGHT-OF-WAY. THE WORK AREA SHOWN IS GENERAL AND MAY NEED TO BE ADJUSTED IN THE FIELD.

17. WHEN SAWING OR DRILLING CONCRETE OR MASONRY, USE SAWS THAT PROVIDE WATER TO THE BLADE. DO NOT ALLOW THE SLURRY PRODUCED BY THIS PROCESS TO BE TRACKED OUTSIDE OF THE IMMEDIATE WORK AREA OR DISCHARGED INTO THE SEWER SYSTEM.

18. ADJUST ALL CURB STOPS, VALVE BOXES, MAINTENANCE HOLE CASTINGS, CATCH BASIN CASTINGS, CLEANOUT COVERS, AND SIMILAR ITEMS TO FINISHED GRADE.

19. INSTALL ALL PIPE WITH THE ASTM IDENTIFICATION NUMBERS ON THE TOP FOR INSPECTION. COMMENCE PIPE LAYING AT THE LOWEST POINT IN THE PROPOSED SEWER LINE. LAY THE PIPE WITH THE BELL END OR RECEIVING GROOVE END OF THE PIPE POINTING UPGRADE. WHEN CONNECTING TO AN EXISTING PIPE, UNCOVER THE EXISTING PIPE IN ORDER TO ALLOW ANY ADJUSTMENTS IN THE PROPOSED LINE AND GRADE BEFORE LAYING ANY PIPE.

20. OBTAIN AND PAY FOR ALL PERMITS, TESTS, INSPECTIONS, ETC. REQUIRED BY AGENCIES THAT HAVE JURISDICTION OVER THE PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR ALL BONDS, LETTERS OF CREDIT, OR CASH SURETIES RELATED TO THE WORK. EXECUTE AND INSPECT WORK IN ACCORDANCE WITH ALL LOCAL AND STATE CODES, RULES, ORDINANCES, OR REGULATIONS PERTAINING TO THE PARTICULAR TYPE OF WORK INVOLVED.

21. OBTAIN PERMITS FROM THE CITY FOR WORK IN THE PUBLIC RIGHT-OF-WAY.

22. CONSTRUCT SANITARY SEWER, WATERMAIN, AND STORM SEWER UTILITIES IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, SIXTH EDITION, OR THE LATEST REVISED EDITION.

23. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THESE CODE SECTIONS AS PER 182.0715(2R) OF THE STATUTES.

24. INSTALL ALL PIPE WITH THE ASTM IDENTIFICATION NUMBERS ON THE TOP FOR INSPECTION. COMMENCE PIPE LAYING AT THE LOWEST POINT IN THE PROPOSED SEWER LINE. LAY THE PIPE WITH THE BELL END OR RECEIVING GROOVE END OF THE PIPE POINTING UPGRADE. WHEN CONNECTING TO AN EXISTING PIPE, UNCOVER THE EXISTING PIPE IN ORDER TO ALLOW ANY ADJUSTMENTS IN THE PROPOSED LINE AND GRADE BEFORE LAYING ANY PIPE. DO NOT LAY PIPES IN WATER OR WHEN THE TRENCH CONDITIONS ARE UNSUITABLE FOR SUCH WORK.

WATER DISTRIBUTION SYSTEM :

1. BRING ALL SITE UTILITIES TO 5' OUTSIDE OF THE BUILDING LINE WITH THE EXCEPTION OF THE WATER SERVICE. EXTEND WATER SERVICE INTO THE BUILDING AND UP TO THE FLANGE FOR THE WATER METER.

2. SEPARATION OF WATER AND SEWER: PROVIDE HORIZONTAL AND VERTICAL SEPARATIONS AS REQUIRED BY CODE. SEE DETAIL A/C401.

3. WATERMAIN DEPTH: MAINTAIN 7.5 FEET OF COVER OVER THE TOP OF THE WATER LINES TO THE FINISHED GRADE. VERIFY ELEVATION OF PROPOSED AND EXISTING WATER LINES AT ALL UTILITY CROSSINGS. INSTALL THE WATER LINES AT GREATER DEPTHS IN ORDER TO CLEAR STORM SEWERS, SANITARY SEWERS, OR OTHER UTILITIES AS REQUIRED. INCLUDE COSTS TO LOWER WATER LINES IN THE BASE BID.

4. DISINFECTION: DISINFECT ALL COMPLETED WATERMAINS IN ACCORDANCE WITH AWWA STANDARD C651. IF THE TABLET OR CONTINUOUS FEED METHODS ARE USED, DISINFECT USING WITH WATER THAT CONTAINS AT LEAST 50 PPM OF AVAILABLE CHLORINE. DO NOT USE THE TABLET METHOD ON SOLVENT-WELDED PLASTIC OR ON SCREWED-JOINT STEEL PIPE BECAUSE OF THE DANGER OF FIRE OR EXPLOSION FROM THE REACTION OF THE JOINT COMPOUNDS WITH THE CALCIUM HYPOCHLORITE. RETAIN THE TREATED WATER IN THE PIPELINE FOR AT LEAST 24 HOURS. MEASURE THE CHLORINE RESIDUAL AT THE END OF THE 24 HOUR PERIOD. THE FREE CHLORINE RESIDUAL MUST BE AT LEAST 10 MG/L MEASURED AT ANY POINT IN THE LINE. MEASUREMENT OF THE CHLORINE CONCENTRATION AT REGULAR INTERVALS SHALL BE IN ACCORDANCE WITH STANDARD METHODS, AWWA M-12, OR USING APPROPRIATE CHLORINE TEST KITS.

5. TESTING: PRESSURE TEST AND PERFORM BACTERIOLOGICAL TESTS ON ALL WATER LINES UNDER THE SUPERVISION OF THE CITY PUBLIC WORKS DEPARTMENT. NOTIFY THE CITY AT LEAST 24 WORKING HOURS PRIOR TO ANY TESTING. PRESSURIZE THE WATERLINE TO 1034-KPA (150-PSI) GAUGE PRESSURE (MEASURED AT THE POINT OF LOWEST ELEVATION) BY MEANS OF A PUMP CONNECTED TO THE PIPE IN A SATISFACTORY MANNER. MAINTAIN THE TEST PRESSURE FOR A MINIMUM OF 2 HOURS. DO NOT ADD WATER TO THE WATERMAIN IN ORDER TO MAINTAIN THE REQUIRED PRESSURE DURING THE WATER MAIN PRESSURE TESTING. THE TEST SECTION OF PIPE IS ACCEPTABLE WITH A PRESSURE DROP OF 14 KPA (2 PSI) OR LESS.

6. USE MUELLER H 10300 OR FORD EM 2 7057, OR APPROVED EQUAL, AT ALL CURB STOP LOCATIONS. STATIONARY ROD IS REQUIRED ON ALL CURB STOPS.

7. BUILDING WATER SERVICES: WATER SERVICE PIPE SHALL MEET THE FOLLOWING SPECIFICATIONS AND BE APPROVED BY THE LOCAL GOVERNING AGENCY. 2.5 INCH OR LESS: HDPE PER ASTM D2737 SDR 9 OR TYPE K COPPER PER ASTM B - 88. 4 INCH OR GREATER: DIP PER AWWA C151 OR PVC PER AWWA C-900.

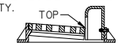
8. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THE WISCONSIN STATUTES 182.0175(2R) AND THE WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 382.30(11)(H).

STORM DRAINAGE :

1. UNLESS OTHERWISE INDICATED, USE REINFORCED, PRECAST, CONCRETE MAINTENANCE HOLES AND CATCH BASINS CONFORMING TO ASTM C478, FURNISHED WITH WATER STOP RUBBER GASKETS AND PRECAST BASES. JOINTS FOR ALL PRECAST MAINTENANCE HOLE SECTIONS SHALL HAVE CONFINED, RUBBER "O"-RING GASKETS IN ACCORDANCE WITH ASTM C923. THE INSIDE BARREL DIAMETER SHALL NOT BE LESS THAN 48 INCHES.

2. ALL JOINTS AND CONNECTIONS TO CATCH BASINS OR MANHOLES SHALL BE WATERTIGHT OR APPROVED CONNECTION. USE RESILIENT RUBBER SEALS, WATERSTOP GASKETS, OR APPROVED EQUAL. CEMENT MORTAR JOINTS ARE NOT ALLOWED UNLESS OTHERWISE PERMITTED BY LOCAL MUNICIPALITY.

3. INSTALL CATCH BASIN CASTINGS WITH SPECIFIED TOP ELEVATION AT THE FLOWLINE OF RIM.



4. PVC PIPE: USE SOLID-CORE, SDR-35, ASTM D3034 POLYVINYL CHLORIDE (PVC) PIPE FOR DESIGNATED PVC STORM SEWER SERVICES 4 TO 15-INCHES IN DIAMETER. USE SOLID-CORE, SDR-35, ASTM F679 POLYVINYL CHLORIDE (PVC) PIPE FOR DESIGNATED PVC STORM SEWER SERVICES 18 TO 27-INCHES IN DIAMETER. JOINTS FOR ALL STORM SEWER SHALL HAVE PUSH-ON JOINTS WITH ELASTOMERIC GASKETS. USE OF SOLVENT CEMENT JOINTS IS ALLOWED FOR BUILDING SERVICES. SOLVENT CEMENT JOINTS IN PVC PIPE MUST INCLUDE USE OF A PRIMER WHICH IS OF CONTRASTING COLOR TO THE PIPE AND CEMENT. PIPE WITH SOLVENT CEMENT JOINTS SHALL BE JOINED WITH PVC CEMENT CONFORMING TO ASTM D2564. LAY ALL PVC PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321.

5. TESTING: TEST ALL PORTIONS OF STORM SEWER THAT ARE WITHIN 10 FEET OF BUILDINGS, WITHIN 10 FEET OF BURIED WATER, LINES, WITHIN 50 FEET OF WATER WELLS, OR THAT PASS THROUGH SOIL OR WATER IDENTIFIED AS BEING CONTAMINATED. TEST ALL FLEXIBLE STORM SEWER LINES FOR DEFLECTION AFTER THE SEWER LINE HAS BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND RETEST.

6. USE NEENAH R-1550A FRAME WITH 2050D GRATE ON ALL PROPOSED CATCH BASINS.

7. INSTALL DETECTABLE UNDERGROUND MARKING TAPE DIRECTLY ABOVE ALL PVC, POLYETHYLENE, AND OTHER NONCONDUCTIVE UNDERGROUND UTILITIES AT A DEPTH OF 457 MM (18 INCHES) BELOW FINISHED GRADE, UNLESS OTHERWISE INDICATED. BRING THE TAPE TO THE SURFACE AT VARIOUS LOCATIONS IN ORDER TO PROVIDE CONNECTION POINTS FOR LOCATING UNDERGROUND UTILITIES. INSTALL BLUE RHINO TRIVIEW FLEX TEST STATIONS, OR APPROVED EQUAL, WITH BLACK CAPS AT EACH SURFACE LOCATION.

8. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THESE CODE SECTIONS AS PER 182.0715(2R) OF THE STATUTES.

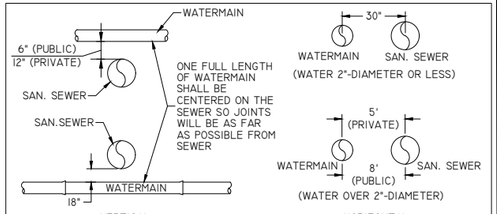
9. THE MINIMUM DEPTH OF COVER FOR BUILDING AND CANOPY ROOF DRAIN LEADERS WITHOUT INSULATION IS 5 FEET. INSULATE ROOF DRAIN LEADERS AT LOCATIONS WHERE THE DEPTH OF COVER IS LESS THAN 5 FEET. PROVIDE A MINIMUM INSULATION THICKNESS OF 2 INCHES. THE INSULATION MUST BE AT LEAST 4 FEET WIDE AND CENTERED ON THE PIPE. INSTALL THE INSULATION BOARDS 6 INCHES ABOVE THE TOPS OF THE PIPES ON MECHANICALLY COMPACTED AND LEVELED PIPE BEDDING MATERIAL. USE HIGH DENSITY, CLOSED CELL, RIGID BOARD MATERIAL EQUIVALENT TO DOW STYROFOAM HI-40 PLASTIC FOAM INSULATION.

10. CLEANOUTS: INSTALL CLEANOUTS ON ALL ROOF DRAINS IN ACCORDANCE WITH S.P.S 382.35 (3)(C)(1.). THE DISTANCE BETWEEN CLEANOUTS IN HORIZONTAL PIPING SHALL NOT EXCEED 100 FEET FOR PIPES 10-INCHES AND UNDER IN SIZE. CLEANOUTS SHALL BE OF THE SAME NOMINAL SIZE AS THE PIPES THEY SERVE OR 6-INCH DIAMETER MINIMUM FOR PIPES 6 INCHES IN DIAMETER OR GREATER. INSTALL A METER BOX FRAME AND SOLID LID (NEENAH R-1914-A, OR APPROVED EQUAL) OVER ALL CLEANOUTS.

11. INSTALL ALL PIPE WITH THE ASTM IDENTIFICATION NUMBERS ON THE TOP FOR INSPECTION. COMMENCE PIPE LAYING AT THE LOWEST POINT IN THE PROPOSED SEWER LINE. LAY THE PIPE WITH THE BELL END OR RECEIVING GROOVE END OF THE PIPE POINTING UPGRADE. WHEN CONNECTING TO AN EXISTING PIPE, UNCOVER THE EXISTING PIPE IN ORDER TO ALLOW ANY ADJUSTMENTS IN THE PROPOSED LINE AND GRADE BEFORE LAYING ANY PIPE. DO NOT LAY PIPES IN WATER OR WHEN THE TRENCH CONDITIONS ARE UNSUITABLE FOR SUCH WORK.

12. INSTALL STORM SEWER IN ACCORDANCE WITH SECTION 608 OF THE WISDOT STANDARD SPECIFICATIONS.

13. INSTALL CATCH BASINS, MANHOLES, AND INLETS IN ACCORDANCE WITH SECTION 611 OF THE WISDOT STANDARD SPECIFICATIONS.



NOTES:
1. WHEN THE ABOVE SEPARATIONS CANNOT BE MAINTAINED, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO ENCASE THE SEWER IN CONCRETE.

2. NO PRIVATE WATER MAIN OR WATER SERVICE SHALL BE INSTALLED WITHIN 6" OF A STORM SEWER. PUBLIC WATER MAIN MUST MEET THE SAME HORIZONTAL AND VERTICAL SEPARATION DISTANCES AS REQUIRED FOR SANITARY SEWER.

A / C401 SEWER / WATERMAIN SEPARATION DISTANCE
NTS

SANITARY SEWER :

1. PIPE: USE SOLID-CORE, SDR-35, ASTM D3034 (OR APPROVED EQUAL) POLYVINYL CHLORIDE (PVC) PLASTIC PIPE FOR ALL DESIGNATED PVC SANITARY SEWER SERVICES. JOINTS FOR ALL SANITARY SEWER SHALL HAVE PUSH-ON JOINTS WITH ELASTOMERIC GASKETS. USE OF SOLVENT CEMENT JOINTS IS ALLOWED FOR BUILDING SERVICES. SOLVENT CEMENT JOINTS IN PVC PIPE MUST INCLUDE USE OF A PRIMER WHICH IS OF CONTRASTING COLOR TO THE PIPE AND CEMENT. PIPE WITH SOLVENT CEMENT JOINTS SHALL BE JOINED WITH PVC CEMENT CONFORMING TO ASTM D2564. LAY ALL PVC PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321.

2. CLEANOUTS: INSTALL CLEANOUTS ON ALL SANITARY SEWER SERVICES. THE DISTANCE BETWEEN CLEANOUTS IN HORIZONTAL PIPING SHALL NOT EXCEED 100 FEET FOR PIPES 4-INCH AND OVER IN SIZE. CLEANOUTS SHALL BE OF THE SAME NOMINAL SIZE AS THE PIPES THEY SERVE OR 6-INCH DIAMETER MINIMUM FOR PIPES 6 INCHES IN DIAMETER OR GREATER. INCLUDE FROST SLEEVES AND CONCRETE FRAME AND PIPE SUPPORT. INSTALL A METER BOX FRAME AND SOLID LID (NEENAH R-1914-A, OR APPROVED EQUAL) OVER ALL CLEANOUTS.

3. TESTING: PRESSURE TEST ALL SANITARY SEWER LINES. TEST ALL FLEXIBLE SANITARY SEWER LINES FOR DEFLECTION AFTER THE SEWER LINE HAS BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND RETEST.

4. UNLESS OTHERWISE INDICATED, USE REINFORCED, PRECAST, CONCRETE MAINTENANCE HOLES CONFORMING TO ASTM C478, FURNISHED WITH PRECAST BASES. SANITARY SEWER MAINTENANCE HOLES SHALL BE SUPPLIED WITH PRE-FORMED INVERTS AND FLEXIBLE NEOPRENE SLEEVE CONNECTIONS FOR ALL LATERAL LINES 375 MM (15 INCHES) IN DIAMETER OR LESS, UNLESS OTHERWISE INDICATED. JOINTS FOR ALL PRECAST MAINTENANCE HOLE SECTIONS SHALL HAVE CONFINED, RUBBER "O"-RING GASKETS IN ACCORDANCE WITH ASTM C923. THE INSIDE BARREL DIAMETER SHALL NOT BE LESS THAN 48 INCHES.

5. INSTALL FLEXIBLE WATERTIGHT OR APPROVED CONNECTION FRAME/CHIMNEY SEALS ON ALL SANITARY SEWER MAINTENANCE HOLES. USE EITHER MANUFACTURED MAINTENANCE HOLE FRAME/CHIMNEY SEALS OR ELASTOMERIC WATERPROOFING FRAME/CHIMNEY SEALS.

6. USE NEENAH FOUNDRY CO. R-1642 CASTING WITH SELF-SEALING, SOLID, TYPE B LID, OR APPROVED EQUAL, ON ALL SANITARY SEWER MAINTENANCE HOLES. COVERS SHALL BEAR THE "SANITARY SEWER" LABEL.

7. THE MINIMUM DEPTH OF COVER FOR SANITARY SEWER WITHOUT INSULATION IS 5 FEET. INSULATE SANITARY SEWER SERVICES AT LOCATIONS WHERE THE DEPTH OF COVER IS LESS THAN 5 FEET. PROVIDE A MINIMUM INSULATION THICKNESS OF 2 INCHES. THE INSULATION MUST BE AT LEAST 4 FEET WIDE AND CENTERED ON THE PIPE. INSTALL THE INSULATION BOARDS 6 INCHES ABOVE THE TOPS OF THE PIPES ON MECHANICALLY COMPACTED AND LEVELED PIPE BEDDING MATERIAL. USE HIGH DENSITY, CLOSED CELL, RIGID BOARD MATERIAL EQUIVALENT TO DOW STYROFOAM HI-40 PLASTIC FOAM INSULATION.

8. TRACER WIRE: LOCATING REQUIREMENTS - A MEANS TO LOCATE BURIED UNDERGROUND EXTERIOR NON METALLIC SEWERS/MAINS MUST BE PROVIDED WITH TRACER WIRE OR OTHER METHODS IN ORDER TO BE LOCATED IN ACCORD WITH THE PROVISIONS OF THE WISCONSIN STATUTES 182.0175(2R) AND THE WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 82.30(11)(H).

HDPE REQUIREMENTS :

1. INSTALL DUAL-WALL, SMOOTH INTERIOR, CORRUGATED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE AT LOCATIONS INDICATED ON THE PLAN.

2. DUAL-WALL, SMOOTH INTERIOR, CORRUGATED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M252 FOR PIPE SIZES 4-INCH TO 10-INCH DIAMETER.

3. DUAL-WALL, SMOOTH INTERIOR, CORRUGATED HIGH-DENSITY POLYETHYLENE (HDPE) PIPE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2306 FOR PIPE SIZES 12-INCH TO 60-INCH DIAMETER.

4. ALL FITTINGS MUST COMPLY WITH ASTM STANDARD D3212.

5. WATER-TIGHT JOINTS MUST BE USED AT ALL CONNECTIONS INCLUDING STRUCTURES.

6. LAY ALL HDPE PIPE ON A CONTINUOUS GRANULAR BED. INSTALLATION MUST COMPLY WITH ASTM D2321. ALL SECTIONS OF THE CORRUGATED HDPE PIPE SHALL BE COUPLED IN ORDER TO PROVIDE WATER TIGHT JOINTS.

7. PERFORM DEFLECTION TESTS ON ALL HDPE PIPE AFTER THE SEWER LINES HAVE BEEN INSTALLED AND BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5%. IF THE TEST FAILS, MAKE NECESSARY REPAIRS AND PERFORM THE TEST AGAIN UNTIL ACCEPTABLE. SUPPLY THE MANDREL FOR DEFLECTION TESTING. IF THE DEFLECTION TEST IS TO BE RUN USING A RIGID BALL OR MANDREL, IT SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. THE BALL OR MANDREL SHALL BE CLEARLY STAMPED WITH THE DIAMETER. PERFORM THE TESTS WITHOUT MECHANICAL PULLING DEVICES.

KWIK TRIP STORES

KWIK STAR STORES

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4080 N. 20TH AVENUE
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NO SCALE

UTILITY NOTES

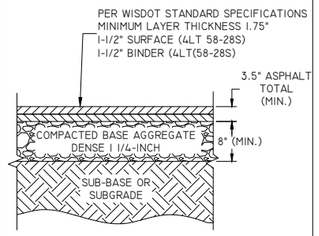
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

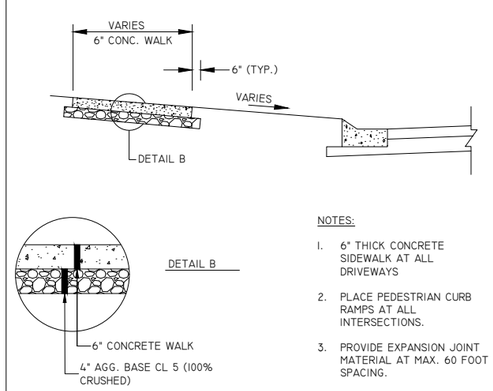
DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C401

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C300-C400-UTILITY PLANS.DWG LAYOUT: C401
PLOTTED: Oct 08, 2024 - 3:32PM PLOTTED BY: NATHANP



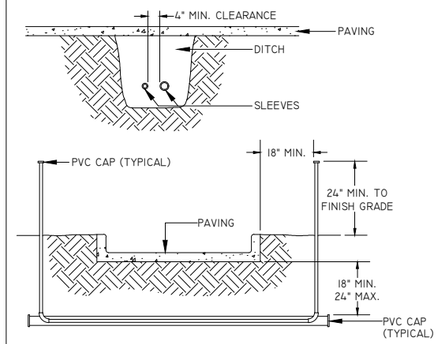
NOTE:
ASPHALT PAVEMENT SECTION SHOWN IS MINIMUM. MATCH IN KIND WITH EXISTING.

1 / C500 ASPHALT PAVEMENT DETAIL
NOT TO SCALE



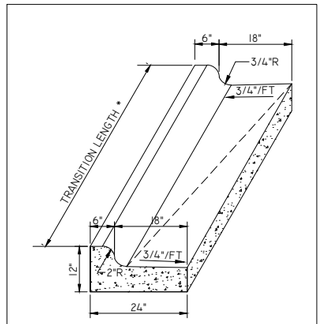
NOTES:
1. 6" THICK CONCRETE SIDEWALK AT ALL DRIVEWAYS
2. PLACE PEDESTRIAN CURB RAMPS AT ALL INTERSECTIONS.
3. PROVIDE EXPANSION JOINT MATERIAL AT MAX. 60 FOOT SPACING.
4. PROVIDE EXPANSION JOINT MATERIAL ALONG BOTH EDGES OF WALK, WHERE WALK IS CONTAINED BETWEEN FIXED OBJECTS.

2 / C500 CONCRETE WALK/ PAD DETAIL
NOT TO SCALE



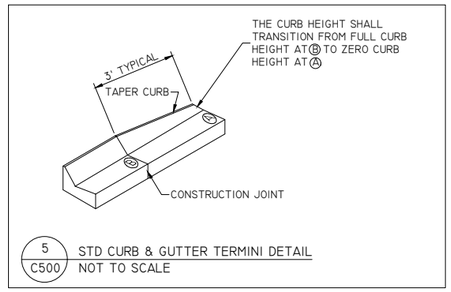
NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE SCH 40 PVC PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE.
4. MECHANICALLY TAMP BACKFILL TO 95% PROCTOR.

3 / C500 TYPICAL SLEEVING DETAIL
NOT TO SCALE

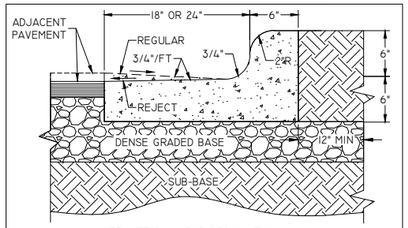


* TRANSITION LENGTH SHALL BE 12 LF ON TANGENTS GREATER THAN 18 LF, OR BETWEEN RADIUS POINTS ON TANGENTS LESS THAN 18 LF, OR BETWEEN RADIUS MID POINTS WHERE TANGENTS ARE LESS THAN 12 LF, OR ACROSS THE RADIUS/RADII WHERE TANGENTS ARE LESS THAN 2 LF.

4 / C500 TRANSITION CURB & GUTTER DETAIL
NOT TO SCALE

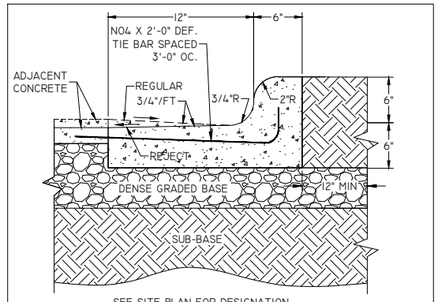


5 / C500 STD CURB & GUTTER TERMINI DETAIL
NOT TO SCALE



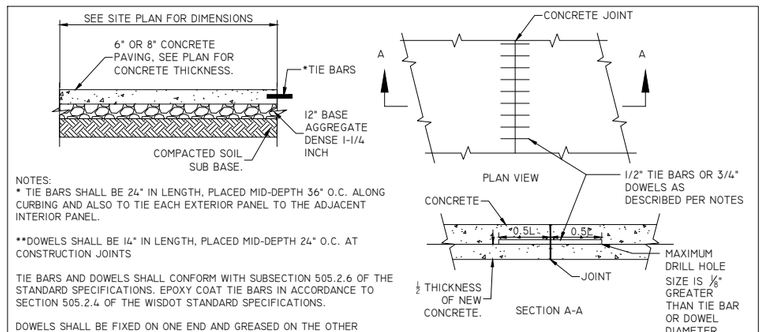
SEE SITE PLAN FOR DESIGNATION

8 / C500 24" OR 30" CURB & GUTTER DETAIL
NOT TO SCALE



SEE SITE PLAN FOR DESIGNATION

9 / C500 18" CURB & GUTTER / 18" REJECT CURB & GUTTER DETAIL
NOT TO SCALE



NOTES:
* TIE BARS SHALL BE 24" IN LENGTH, PLACED MID-DEPTH 36" O.C. ALONG CURBING AND ALSO TO TIE EACH EXTERIOR PANEL TO THE ADJACENT INTERIOR PANEL.

**DOWELS SHALL BE 14" IN LENGTH, PLACED MID-DEPTH 24" O.C. AT CONSTRUCTION JOINTS

TIE BARS AND DOWELS SHALL CONFORM WITH SUBSECTION 505.2.6 OF THE STANDARD SPECIFICATIONS. EPOXY COAT TIE BARS IN ACCORDANCE TO SECTION 505.2.4 OF THE WISDOT STANDARD SPECIFICATIONS.

DOWELS SHALL BE FIXED ON ONE END AND GREASED ON THE OTHER

CONCRETE PANELS SHALL NOT BE GREATER THAN 15' IN LENGTH IN ANY DIRECTION AND CONTRACTION JOINTS SHALL BE TO A MINIMUM DEPTH OF 1/4 THE CONCRETE DEPTH

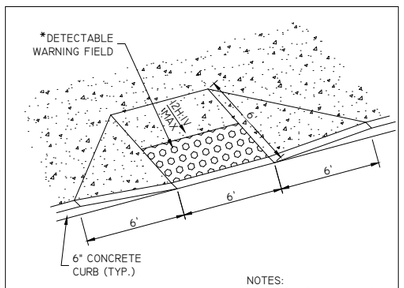
6" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #3 REBAR, 3' O.C. IN BOTH DIRECTIONS, CONCRETE SEALER: TK-26UV

8" DEPTH (MIN.) CONCRETE SLAB-ON-GRADE WITH #4 REBAR, 4' O.C. IN BOTH DIRECTIONS, CONCRETE SEALER: TK-26UV

NOTES:
BASE AGGREGATE TO EXTEND 12" BEYOND BACK OF CURB OR EDGE OF PAVEMENT.

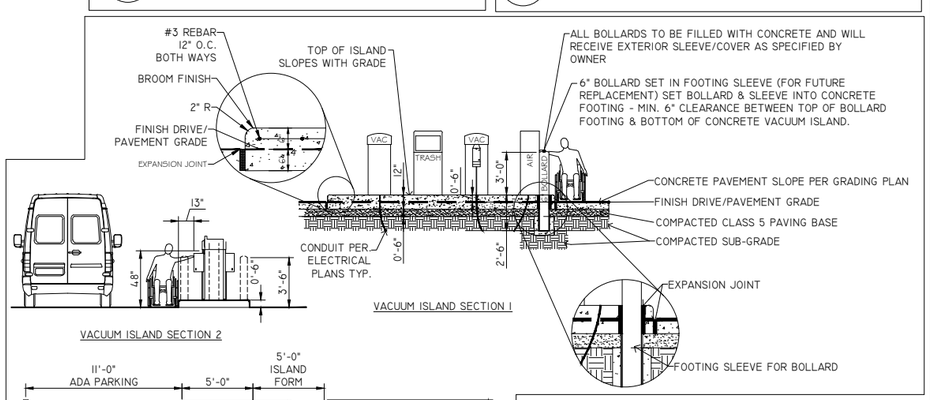
CONCRETE PAVEMENT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI AND AN AIR CONTENT OF 6% +/- 1.5%

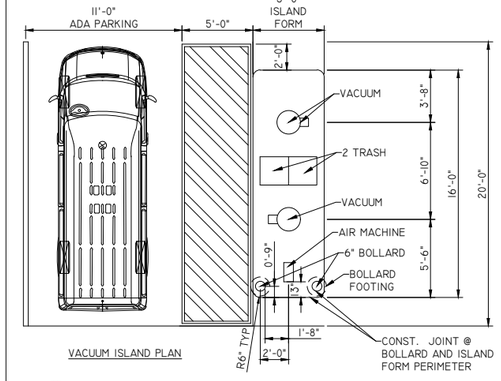
6 / C500 CONCRETE PAVEMENT DETAIL
NOT TO SCALE



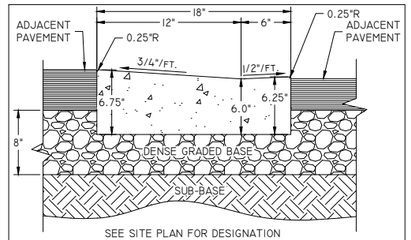
NOTES:
* DETECTABLE WARNING FIELD SHALL EXTEND FULL WIDTH ACROSS RAMP SURFACE

12 / C500 SIDEWALK RAMP DETAIL
NOT TO SCALE





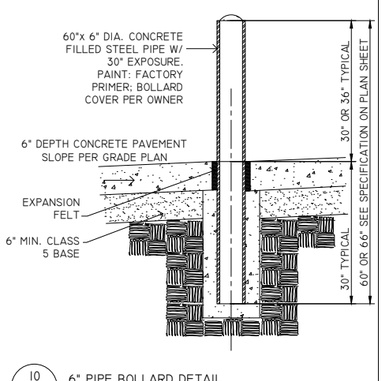
14 / C500 VACUUM ISLAND DETAILS
NOT TO SCALE



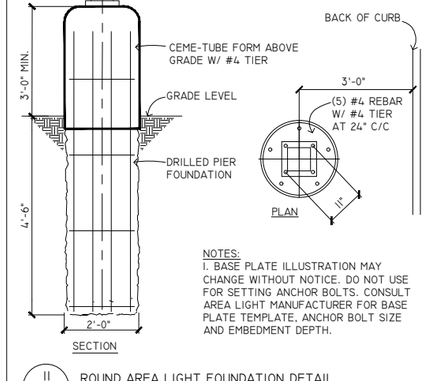
SEE SITE PLAN FOR DESIGNATION

15 / C500 18" MOUNTABLE CURB & GUTTER DETAIL
NOT TO SCALE

NOTE: SEE ARCHITECTURAL PLANS FOR REMOVABLE BOLLARD LOCATION AND DETAIL

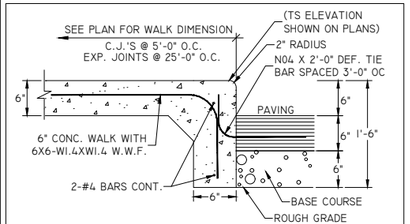


10 / C500 6" PIPE BOLLARD DETAIL
NOT TO SCALE



NOTES:
I. BASE PLATE ILLUSTRATION MAY CHANGE WITHOUT NOTICE. DO NOT USE FOR SETTING ANCHOR BOLTS. CONSULT AREA LIGHT MANUFACTURER FOR BASE PLATE TEMPLATE, ANCHOR BOLT SIZE AND EMBEDMENT DEPTH.

11 / C500 ROUND AREA LIGHT FOUNDATION DETAIL
NOT TO SCALE



13 / C500 INTEGRAL CURB WITH SIDEWALK DETAIL
NOT TO SCALE

KWIK TRIP STORES

KWIK STAR STORES

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NO SCALE

SITE PLAN DETAILS

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

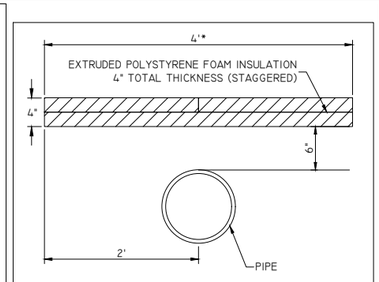
#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE NOT TO SCALE
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C500

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C500-SITE DETAILS.DWG LAYOUT: C500
PLOTTED: OCT 08, 2024 - 3:33PM PLOTTED BY: NATHANP

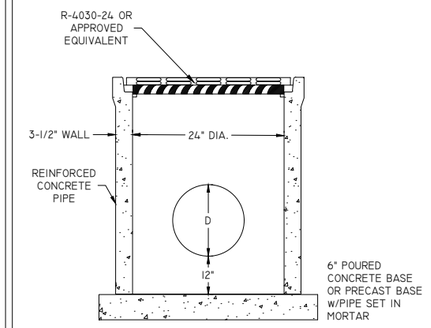
SEE PETROLEUM DETAILS

1 / C501 STORAGE TANKS COMPLEX DETAIL
NOT TO SCALE



*WIDTH OF INSULATION SHALL INCREASE x FT. PER EVERY x FT. OF VERTICAL SEPARATION.

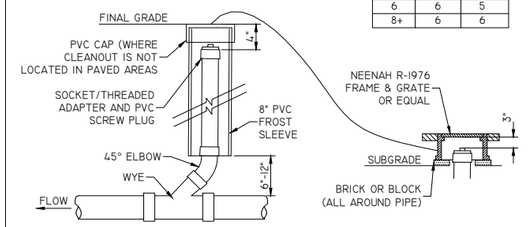
2 / C501 PIPE INSULATION DETAIL
NOT TO SCALE



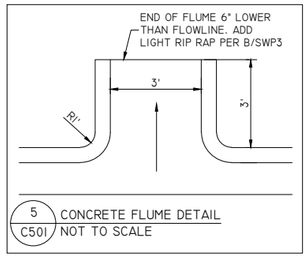
3 / C501 PRECAST REINFORCED CONC. MANHOLE DETAIL
NOT TO SCALE

ALTERNATE FOR TRAFFIC/PAVED AREAS

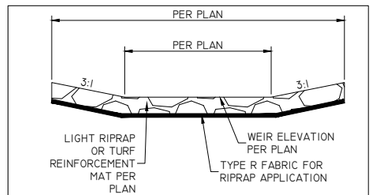
DIA. OF PIPE SERVED BY CLEANOUT	MIN. DIA. OF CLEANOUT EXTENSION	MIN. DIA. OF CLEANOUT OPENING
INCHES	INCHES	INCHES
4	4	3 1/2
5	5	4
6	6	5
8+	6	6



4 / C501 SANITARY & STORM SEWER CLEANOUT CLEANOUT
NOT TO SCALE

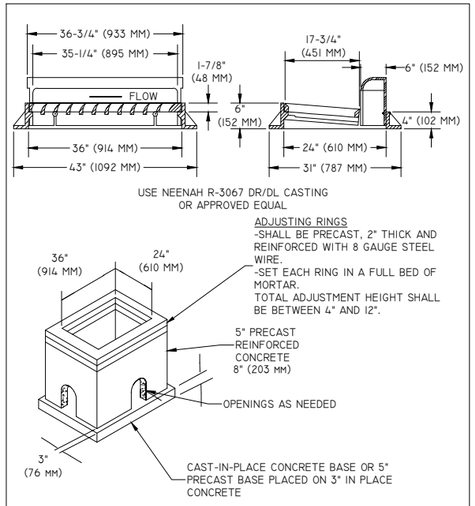


5 / C501 CONCRETE FLUME DETAIL
NOT TO SCALE

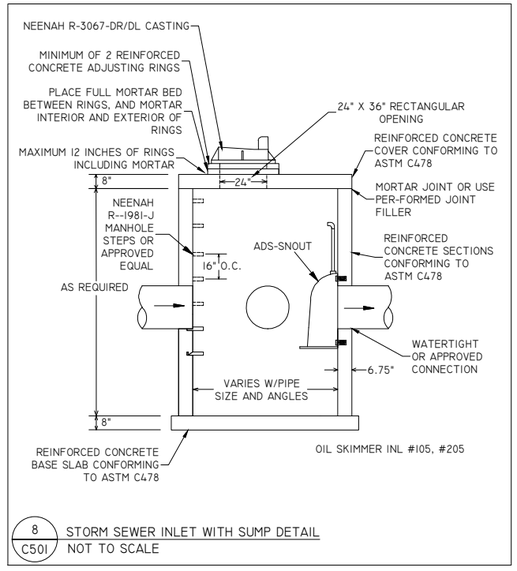


6 / C501 OVERFLOW WEIR DETAIL
NOT TO SCALE

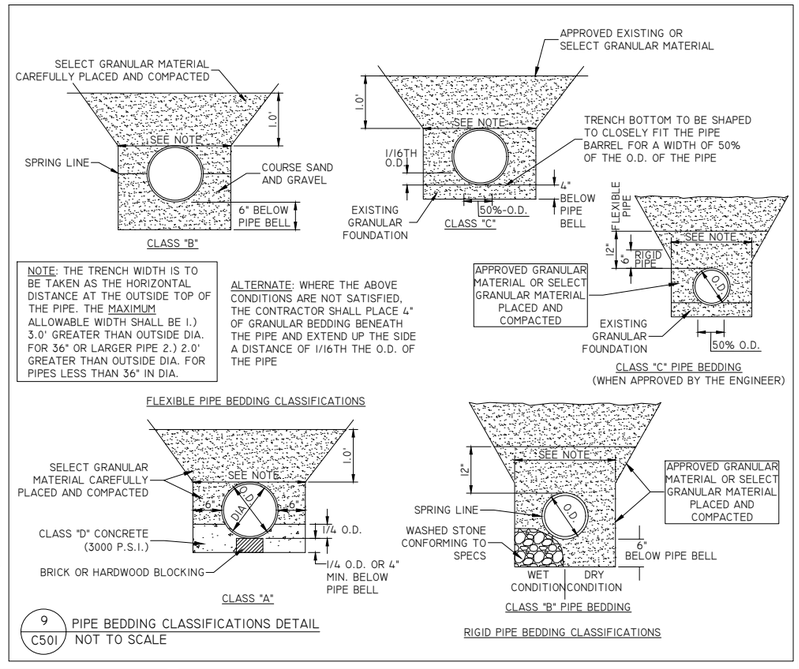
NOTE: WEIRS TO USE PERMANENT TURF REINFORCEMENT MAT



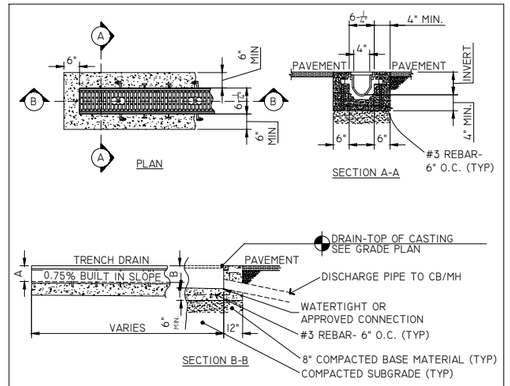
7 / C501 24"x 36" CURB INLET AND CASTING DETAIL
NOT TO SCALE



8 / C501 STORM SEWER INLET WITH SUMP DETAIL
NOT TO SCALE

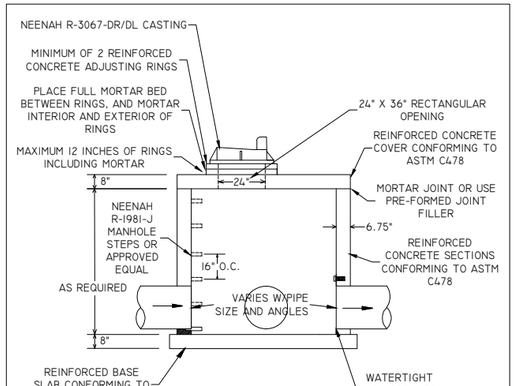


9 / C501 PIPE BEDDING CLASSIFICATIONS DETAIL
NOT TO SCALE



TRENCH SHALL BE "PERMA-TRENCH Z 886 SYSTEM - SERIES 8606N

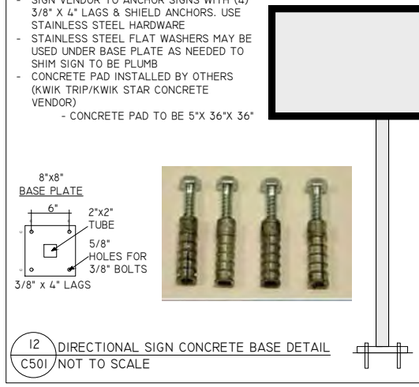
10 / C501 Z 886 TRENCH DRAIN DETAIL
NOT TO SCALE



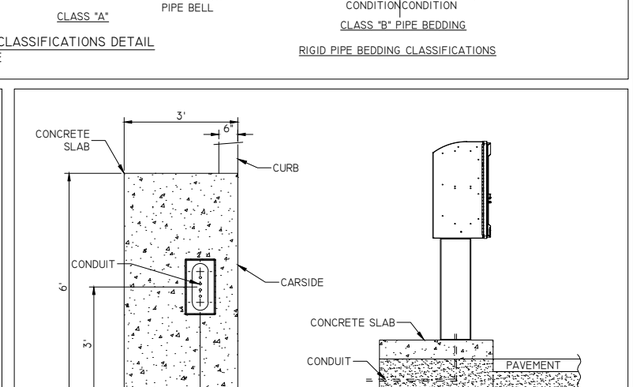
11 / C501 STORM SEWER INLET WITHOUT SUMP DETAIL
NOT TO SCALE

NOTES:
- SIGN VENDOR TO ANCHOR SIGN/S TO CONCRETE PAD
- SIGN VENDOR TO ANCHOR SIGNS WITH (4) 3/8" X 4" LAGS & SHIELD ANCHORS. USE STAINLESS STEEL HARDWARE
- STAINLESS STEEL FLAT WASHERS MAY BE USED UNDER BASE PLATE AS NEEDED TO SHIM SIGN TO BE PLUMB
- CONCRETE PAD INSTALLED BY OTHERS (KWIK TRIP/KWIK STAR CONCRETE VENDOR)
  - CONCRETE PAD TO BE 5"X 36"X 36"

SINGLE SIDED DIRECTIONAL SIGN



12 / C501 DIRECTIONAL SIGN CONCRETE BASE DETAIL
NOT TO SCALE



13 / C501 CAR WASH PAY STATION DETAIL
NOT TO SCALE

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KWIK STAR STORES

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4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784 FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

NO SCALE

SITE PLAN DETAILS

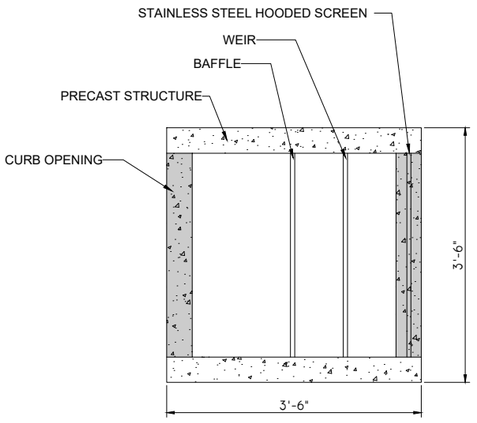
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

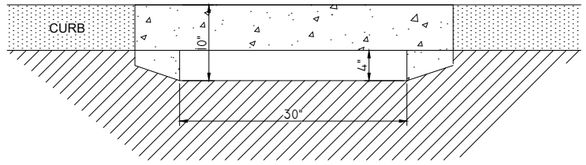
#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE NOT TO SCALE
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C501

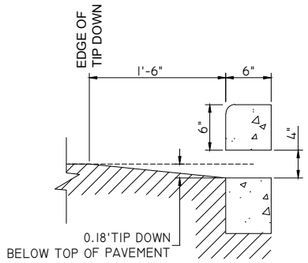
DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C500-SITE DETAILS.DWG LAYOUT: C501
PLOTTED: OCT 08, 2024 - 3:33PM PLOTTED BY: NATHANP



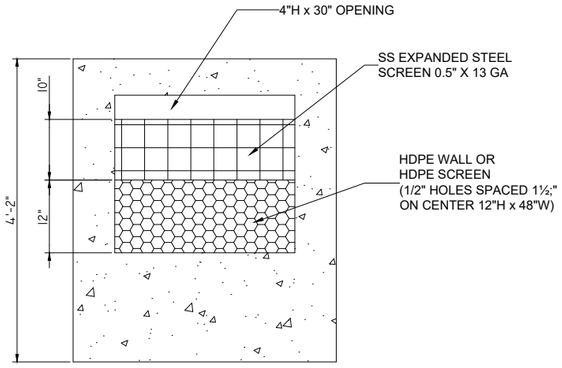
PLAN VIEW



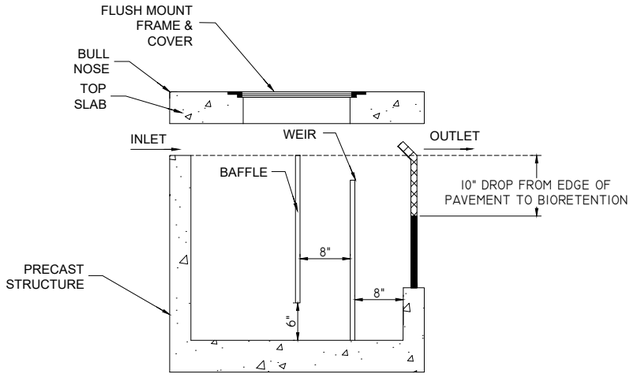
CURB FACE



SECTION A-A

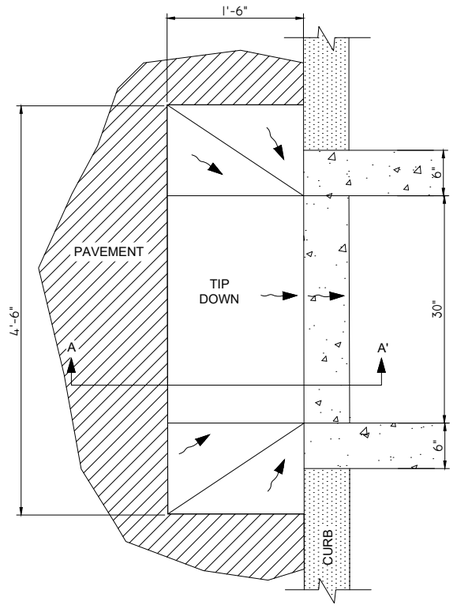


BACK VIEW



ELEVATION VIEW

I / C502 PRETX 30X30 UNIT DETAIL
NOT TO SCALE



PLAN

PRETX - 8" CURB REVEAL DETAIL
NOT TO SCALE

PRETX SPECIFICATIONS

A. GENERAL

1. PRETX SYSTEMS ARE A PRE-FILTER AND CRITICAL MAINTENANCE DEVICE THAT EXTENDS THE OPERATING LIFE AND REDUCES THE MAINTENANCE BURDEN OF BIORETENTION SYSTEMS, RAIN GARDENS, BIOSWALES AND OTHER TYPES OF SURFACE BEST MANAGEMENT PRACTICES BY FILTERING OUT SEDIMENT, TRASH AND DEBRIS AT THE INLET.

B. PRODUCTS

1. ACCEPTABLE SYSTEM SUPPLIER:
   CONVERGENT WATER TECHNOLOGIES, INC. OR ITS
   AUTHORIZED VALUE-ADDED RESELLER
   P: (800) 711-5428; W: WWW.CONVERGENTWATER.COM

C. CONSTRUCTION AND SEQUENCING

1. EXCAVATION AND INSTALLATION
   a. ROUGH GRADE THE PRE-TX SYSTEM AREA DURING GENERAL CONSTRUCTION. EXCAVATE THE PRE-TX SYSTEM FACILITIES TO WITHIN 1 FOOT OF STRUCTURE BOTTOM .
   b. PLACE 1 FOOT BED OF COARSE STONE TO ELEVATION OF BASE OF STRUCTURE.
   c. ESTABLISH ELEVATIONS FOR ADJACENT CURBS, EDGE OF PAVEMENT AND TIP DOWN, SIDEWALK, PIPE INVERTS FOR INLETS AND OUTLETS AS INDICATED ON DRAWINGS.
2. INSTALLATION
   a. PLACE THE PRECAST SYSTEM TO NECESSARY ELEVATION.
   b. FOR PRETX-SURFACE:
      - VERIFY ELEVATIONS FOR ADJACENT CURBS.
      - VERIFY EDGE OF PAVEMENT TIP DOWN PAVEMENT GRADING FOR INLET GRATE.
      - VERIFY CURB ELEVATION IN RELATION TO PAVEMENT AND TIP DOWN.
      - VERIFY OUTLET INVERT FOR KNEE WALL IN RELATION TO FILTER MEDIA.
   C. INSTALL BAFFLES, WEIR, AND SCREENS AS INDICATED ON DRAWINGS.
   D. VERIFY MAINTENANCE ACCESS THROUGH GRATE OR COVER AND CLEARANCE FOR VACTOR.
   e. INSTALL TOP OF STRUCTURE LEVEL WITH ADJACENT CURB OR SIDEWALK AS PER MANUFACTURERS SPECIFICATIONS. ENGINEER FIELD VISIT REQUIRED PRIOR TO BACKFILLING.
6. BACKFILLING
   a. BACKFILL WITH APPROVED SOIL AND STONE TO THE DESIGN GRADE AS SPECIFIED IN THE DRAWINGS.
   b. BACKFILL WITH 12" OF NO. 57 STONE AROUND REAR, LEFT, AND RIGHT SIDES TO LEVEL WITH TOP OF HDPE SCREEN.
   c. BACKFILL WITH BIORETENTION SOIL MIX BEYOND STONE BACKFILL TO EQUAL ELEVATION OF THE TOP OF HDPE SCREEN.
   d. DO NOT BACKFILL SOIL OR STONE AGAINST STAINLESS SCREEN.
   e. DO NOT COMPACT ADJACENT FILTRATION SYSTEM SOIL WITH MECHANICAL EQUIPMENT.
   f. STABILIZE All REMAINING DISTURBED AREAS AND SIDE SLOPES WITH SEEDING, HYDROSEEDING, AND/ OR EROSION CONTROL BLANKETS AS INDICATED ON DRAWINGS.
4. CLEAN UP
   a. AFTER COMPLETION OF THE WORK, REMOVE AND PROPERLY DISPOSE ALL DEBRIS, CONSTRUCTION MATERIALS, RUBBISH, EXCESS SOIL, ETC., FROM THE PROJECT SITE. REPAIR PROMPTLY ANY IDENTIFIED DEFICIENCIES AND LEAVE THE PROJECT SITE IN A CLEAN AND SATISFACTORY CONDITION.

KWIK TRIP STORES

KWIK STAR STORES

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
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FAX (608) 781-8960

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PLOTTED: Oct 08, 2024 - 3:34PM PLOTTED BY: NATHANP

PROJECT DATA	
PROJECT START DATE	APRIL 2025
PROJECT COMPLETION DATE	OCT 2025
SITE AREA DATA	
PRE-CONSTRUCTION IMPERVIOUS AREA	61,276 SF
POST-CONSTRUCTION IMPERVIOUS AREA	117,262 SF
APPROX. AREA OF LAND DISTURBANCE	168,000 SF
SITE RUNOFF COEFFICIENT	
PRE-CONSTRUCTION	NA
POST-CONSTRUCTION	90
SOIL DATA	
SURFACE SOIL	PAVED
SUB-SURFACE SOIL	SILT
DEPTH OF GROUND WATER	±8 FT
DOWN-STREAM TRIBUTARY	MENOMINEE RIVER

NOTES:

(A) CONTRACTOR SHALL ABIDE BY THE WDNR CONSERVATION PRACTICE STANDARDS FOR INSTALLATION AND MAINTENANCE OF EROSION CONTROL. REFER TO C603 FOR TECHNICAL STANDARDS EMPLOYED.

(B) CONTRACTOR SHALL PROVIDE CONCRETE WASHOUT AREAS ON-SITE. SEE DETAIL E/C603.

(C) DEWATERING BAGS SHALL BE READILY AVAILABLE AND SHALL BE USED AT ALL TIMES IN THE PROCESS OF DEWATERING.

KEYED NOTES

1. TEMPORARY ROCK CONSTRUCTION ENTRANCE/EXIT. SEE DETAIL A/C602.
2. INSTALL SILT FENCE. SEE DETAIL D/C602.
3. PROVIDE INLET PROTECTION. REFER TO SWP2 FOR ACCEPTABLE PRODUCTS.
4. INSTALL LIGHT RIPRAP ON TYPE R GEOTEXTILE FABRIC. SEE DETAIL B/C602.
5. WET POND WITH TYPE A LINER TO SERVE AS SEDIMENT TRAP DURING CONSTRUCTION. SEE DETAILS A & B/C603.
   SEDIMENT TRAP DETAILS
   - TRAP BOTTOM ELEV. = 4.5' BELOW WEIR ELEV OR DEEPER
   - TRAP TOP ELEV. = 864.50 - 6-FT WIDE WEIR ELEV. = 863.50
6. CONSTRUCT EMERGENCY OVERFLOW WEIR, WITH LIGHT RIPRAP ON TYPE R GEOTEXTILE FABRIC. SEE DETAIL 6/C501.
7. INSTALL DITCH CHECKS @ MAX. OF 200-FT INTERVALS OR EVERY 2-FT OF DROP. SEE DETAIL D/C603.

INSTALL WISDOT URBAN TYPE B EROSION CONTROL BLANKET ON SIDE SLOPES OF 4:1 OR GREATER. SEE DETAIL E/C602 FOR INSTALLATION.

ESTIMATED PRELIMINARY EROSION CONTROL QUANTITIES (ACTUAL QUANTITIES SUBJECT TO CHANGE)	
ITEM	QUANTITY
ROCK CONSTRUCTION ENTRANCE	400 SQ.YD.
INLET PROTECTION	12
EROSION CONTROL BLANKET	2,000 SQ.YD.
RIP RAP	30 CU. YD.
SILT FENCE	870 L.F.
CULVERT PROTECTION	0
DITCH CHECK	AS NEEDED
BIO ROLL/EROSION LOG	AS NEEDED

NOTE: FOR MAINTENANCE PURPOSES CONTRACTOR SHALL PROVIDE ALL SUFFICIENT QUANTITIES FOR REPAIR AND REPLACEMENT OF EROSION CONTROL DEVICES THROUGHOUT ALL PHASES OF THE PROJECTS CONSTRUCTION.

-SITE EROSION CONTROL MEASURES MUST BE IN PLACE AT ALL TIMES. SHOULD DEVICES BE REMOVED FOR WORK ACCESS, THEY SHALL BE REINSTALLED AT THE END OF EACH WORK DAY UNTIL PAVEMENTS HAVE BEEN INSTALLED AND ALL LANDSCAPE AREAS HAVE BEEN MULCHED AND SODDED. SEEDED AREAS MUST EXHIBIT MINIMUM OF 70% SOIL COVERAGE.

-REFER TO THE SWP PLAN NOTES AND DETAIL SHEETS SWP2-4 FOR MORE INFORMATION.

CONTACT:
KWIK TRIP, INC
P0 BOX 2107
LACROSSE, WI 54602

SUGGESTED CONSTRUCTION SEQUENCE

04/01/25- PROVIDE CONSTRUCTION ACCESS
- INSTALL PERIMETER CONSTRUCTION ACCESS FENCING
- INSTALL SILT FENCE
- INSTALL INLET PROTECTION ON EXISTING STORM STRUCTURES
- PRE-CONSTRUCTION MEETING
- DEMO AND REMOVE EXISTING BUILDINGS
- SAWCUT AND REMOVE PAVEMENT, STRIP TOPSOIL, REMOVALS

04/08/25- ROUGH GRADING
- INSTALL DIVERSIONS AND SEDIMENT TRAP

04/22/25- CONSTRUCT BUILDING
- SITE UTILITY INSTALLATION

05/08/25- INSTALL INLET PROTECTION ON NEW STORM STRUCTURES

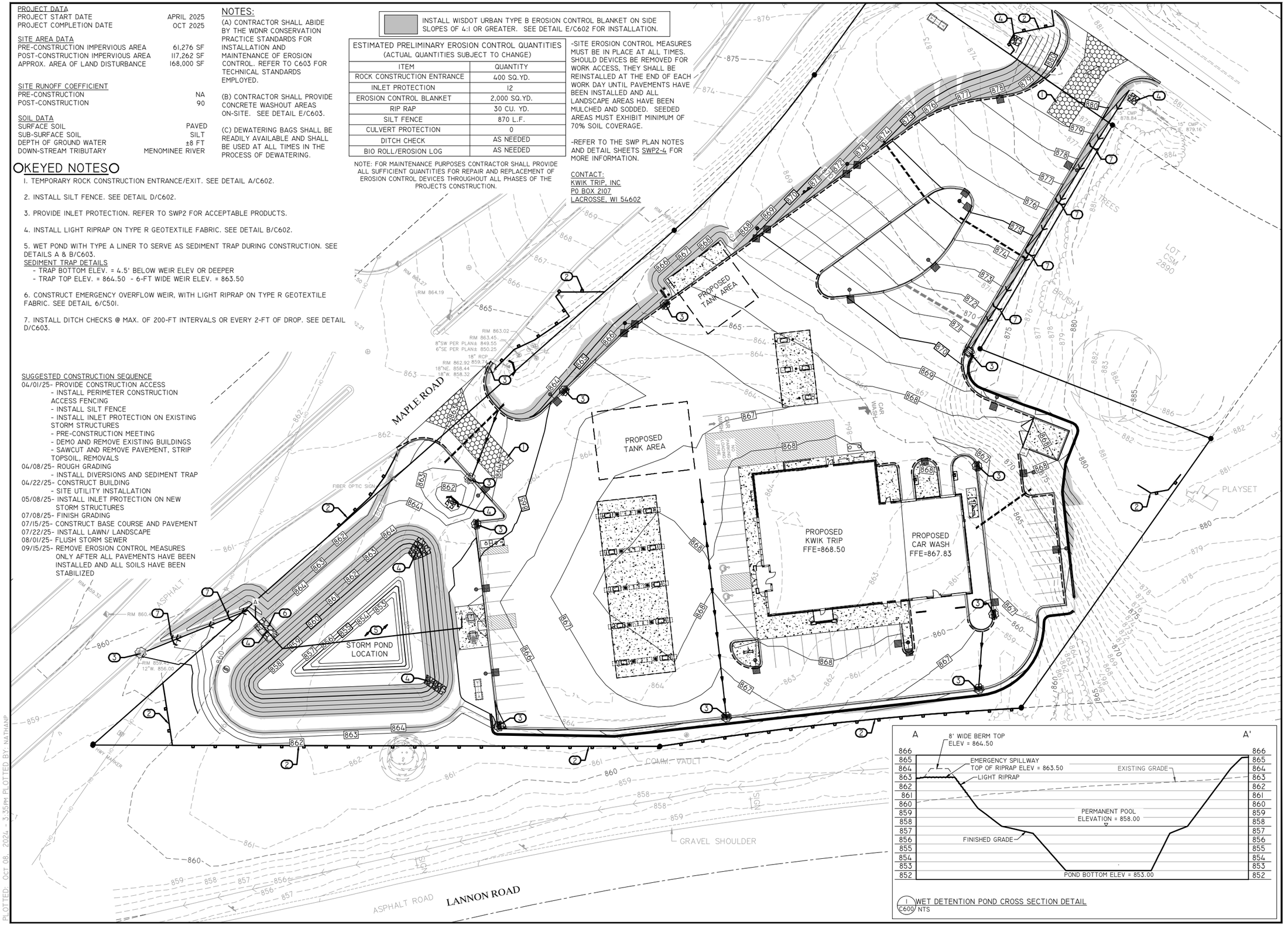
07/08/25- FINISH GRADING

07/15/25- CONSTRUCT BASE COURSE AND PAVEMENT

07/22/25- INSTALL LAWN/ LANDSCAPE

08/01/25- FLUSH STORM SEWER

09/15/25- REMOVE EROSION CONTROL MEASURES ONLY AFTER ALL PAVEMENTS HAVE BEEN INSTALLED AND ALL SOILS HAVE BEEN STABILIZED



1 C600 WET DETENTION POND CROSS SECTION DETAIL
NTS

KWIK TRIP STORES

KWIK STAR STORES

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SCALE
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EROSION CONTROL PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
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SCALE GRAPHIC
PROJ. NO. 11757
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DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C600-EROSION CONTROL PLAN.DWG LAYOUT: C600
PLOTTED: Oct 08, 2024 - 3:35PM PLOTTED BY: NATHANP

STORM WATER POLLUTION PREVENTION PLAN

POLLUTION PREVENTION PLAN
ALL CONTRACTORS / SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS FROM LEAVING THE PROJECT SITE. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLIANCE AND IMPLEMENTATION OF THE POLLUTION PREVENTION PLAN (PPP) FOR THEIR ENTIRE CONTRACT. THE RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THE PPP.

I. SITE DESCRIPTION
THIS POLLUTION PREVENTION PLAN IS FOR THE CONSTRUCTION OF THE KWIK TRIP CONVENIENCE STORE #631 PROJECT. THE PROJECT IS LOCATED IN SECTION 28, TOWNSHIP 09, RANGE 20, WASHINGTON COUNTY, WISCONSIN.

THIS PPP COVERS 4.37 ACRES WITH AN ESTIMATED 3.86 ACRES BEING DISTURBED THROUGH EXCAVATION, GRADING, AND PAVING. THE PORTION OF THE PPP COVERED BY THIS CONTRACT HAS 4.37 ACRES BEING DISTURBED.

THE PROJECT IS LOCATED IN AN AREA OF (HMB2 - HOCHHEIM LOAM, HMC2 - HOCHHEIM LOAM, HMD2 - HOCHHEIM LOAM, OUB2 - OZAUKEE SILT LOAM, SF - SANDY AND GRAVELLY LAND, USA - VIRGIL SILTY LOAM). THE ESTIMATED CURVE NUMBER FOR THIS PPP AFTER CONSTRUCTION IS XX.

REFER TO PLANS: KWIK TRIP CONVENIENCE STORE #631 FOR LOCATIONS OF TYPICAL SLOPES, DITCH GRADES, AND MAJOR STRUCTURAL AND NON-STRUCTURAL CONTROLS. A COPY OF THIS PLAN WILL BE ON FILE AT THE PROJECT ENGINEER'S OFFICE AND ON-SITE. RUNOFF FROM THIS WORK WILL OVERLAND FLOW THROUGH DETENTION POND, DITCHES, STORM SEWER TO MENOMINEE RIVER.

THIS PROJECT IS NOT LOCATED WITHIN A 100-YEAR FLOODPLAIN.

POTENTIAL SOURCES OF POLLUTION:
SITE SOURCES OF POLLUTION GENERATED AS A RESULT OF THIS WORK RELATE TO SILTS AND SEDIMENT WHICH MAY BE TRANSPORTED AS A RESULT OF A STORM EVENT. HOWEVER, THIS PPP PROVIDES CONVEYANCE FOR OTHER (NON-PROJECT RELATED) OPERATIONS. THESE OTHER OPERATIONS HAVE STORM WATER RUNOFF, THE REGULATION OF WHICH IS BEYOND THE CONTROL OF THIS PPP. POTENTIALLY THIS RUNOFF CAN CONTAIN POLLUTANTS RELATED TO SITE-SPECIFIC LAND USES.
EXAMPLES ARE:

RURAL AGRICULTURAL ACTIVITIES:
RUNOFF FROM AGRICULTURAL LAND USE CAN POTENTIALLY CONTAIN CHEMICALS INCLUDING HERBICIDES, PESTICIDES, FUNGICIDES, AND FERTILIZERS.

CONSTRUCTION ACTIVITIES:
RUNOFF FROM CONSTRUCTION ACTIVITIES CAN POTENTIALLY CONTAIN FUELS, OILS, AND CHEMICALS FROM SPECIFIC CONSTRUCTION RELATED ACTIVITIES.

2. CONTROLS

INLET PROTECTION DEVICES SHALL BE PLACED AROUND INTAKES. SILT FENCE SHALL BE PLACED AT LOCATIONS WHERE RUNOFF CAN MOVE OFFSITE. VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED. AS AREAS REACH THEIR FINAL GRADE, ADDITIONAL SILT FENCES, SILT BASINS, INTERCEPTING DITCHES, SOD FLUMES, LETDOWNS, BRIDGE END DRAINS, AND EARTH DIKES SHALL BE INSTALLED AS SPECIFIED IN THE PLANS AND / OR AS REQUIRED BY PROJECT ENGINEER. THIS MAY INCLUDE USING SILT FENCE AS DITCH CHECKS. TEMPORARY STABILIZING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE CONSTRUCTED. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA IMMEDIATELY, THE AREA SHALL BE STABILIZED BY TEMPORARY SEEDING OR MULCHING WITHIN 14 DAYS. OTHER STABILIZING METHODS SHALL BE USED OUTSIDE THE SEEDING PERIOD.

THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE WISCONSIN TRANSPORTATION STANDARD SPECIFICATIONS. CONTRACTOR SHALL ALSO FOLLOW ALL REQUIREMENTS OF THE WASHINGTON COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS.

AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL ITEMS SUCH AS SOD FLUMES, DITCH CHECKS, ROCK OUTLET PROTECTION, AND LETDOWN STRUCTURES AND OTHER APPROPRIATE MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS DETERMINED BY THE ENGINEER AFTER FIELD INVESTIGATION. THE CONSTRUCTION WILL BE COMPLETED WITH THE ESTABLISHMENT OF PERMANENT PERENNIAL VEGETATION OF ALL DISTURBED AREAS BY THE CONTRACTOR.

3. OTHER CONTROLS

CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTE SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENT LAWS, RULES, AND REGULATIONS, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.

MUD TRACK-OUT SHALL BE CLEANED OFF THE ROADWAY NIGHTLY AND BEFORE ANY RAINFALL EVENT. WATER MAY NOT BE USED TO CLEAN THE ROADWAY.

CONTRACTOR SHALL KEEP PERMIT, INSPECTION LOGS, SITE PLAN, AND OTHER PERMIT DATA ON SITE AT ALL TIMES. MATERIAL SHALL BE PLACED IN AN EASILY ACCESSIBLE MAILBOX THAT IS CLEARLY MARKED "SWPPP".

ALL FUELS AND OILS SHALL BE CONTAINED BY A SECONDARY CONTAINMENT BERM OR WITHIN A TRAILER.

ALL SILT FENCE AND INLET PROTECTION DEVICES AS SHOWN SHALL BE INSTALLED PRIOR TO COMMENCING CONSTRUCTION WHENEVER POSSIBLE.

A NOTICE OF DISCONTINUATION MUST BE FILED WITH THE WDNR ONCE VEGETATION HAS BEEN ESTABLISHED TO A MINIMUM COVERAGE OF 70%.

CONTRACTOR SHALL MARK ON THE INITIAL STORM WATER POLLUTION PREVENTION PLAN THE LOCATION OF STORAGE AREAS FOR FUELS AND OILS, PORTA-POTTY, DUMPSTER OR WASTE CONTAINMENT BINS, CONCRETE WAS OUT AREA, AND OTHER NECESSARY ITEMS.

ENTRANCES SHALL BE MAINTAINED TO CONTROL MUD TRACK-OUT FROM THE SITE.

THE STORMWATER POLLUTION PREVENTION PLAN SHALL BE UPDATED AS NECESSARY DURING CONSTRUCTION.

APPROVED STATE OF LOCAL PLANS:
DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

4. MAINTENANCE

THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. CLEANING OF SILT CONTROL DEVICES SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.

5. INSPECTIONS

INSPECTIONS SHALL BE MADE JOINTLY BY THE CONTRACTOR AND THE CONTRACTING AUTHORITY EVERY SEVEN CALENDAR DAYS. THE CONTRACTOR SHALL IMMEDIATELY BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES FOUND. THE FINDINGS OF THIS INSPECTION SHALL BE RECORDED IN THE PROJECT DIARY. THIS PPP MAY BE REVISED BASED ON THE FINDING OF THE INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS. ALL CORRECTIVE ACTIONS SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS OF THE INSPECTION.

6. NON-STORM DISCHARGES

THIS INCLUDES SUBSURFACE DRAINS (I.E. FIELD TILE, SUBDRAINS), SLOPE DRAINS, AND BRIDGE END DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF PATIO BLOCKS, CLASS A STONE, OR EROSION STONE.

7. SEQUENCE OF CONSTRUCTION ACTIVITIES

ALL EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO COMMENCING ANY CONSTRUCTION ON-SITE. FIRST, ALL NOTED REMOVALS SHALL BE COMPLETED. SECOND, GRADING CAN COMMENCE TO BRING SOIL TO FINAL GRADE.. NEXT, INSTALLATION OF UTILITIES AND PAVING SHALL BE COMPLETED. FINALLY, THE DISTURBED AREAS SHALL BE SEEDED, FERTILIZED, AND MULCHED AS SHOWN IN THE PLANS.

OWNER CERTIFICATION:

"I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS."

NAME (PRINTED OR TYPED): _____

TITLE: _____

SIGNATURE: _____

DATE: _____

NAME OF COMPANY, IF APPLICABLE: _____

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

TELEPHONE NUMBER: _____

ADDRESS OF THE SITE: _____

CONTRACTOR / SUBCONTRACTOR CERTIFICATION:

"I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT THAT AUTHORIZES THE STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE AS PART OF THIS CERTIFICATION. FURTHER, BY MY SIGNATURE, I UNDERSTAND THAT I AM BECOMING CO-PERMITTEE, ALONG WITH THE OWNER(S) AND OTHER CONTRACTORS AND SUBCONTRACTORS SIGNING SUCH CERTIFICATIONS, TO THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2 FOR "STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES" AT THE IDENTIFIED SITE. AS A CO-PERMITTEE, I UNDERSTAND THAT I, AND MY COMPANY, ARE LEGALLY REQUIRED UNDER THE CLEAN WATER ACT AND THE CODE OF WISCONSIN, TO ENSURE COMPLIANCE WITH THE TERMS AND CONDITIONS OF THE STORM WATER POLLUTION PREVENTION PLAN DEVELOPED UNDER THE NPDES PERMIT AND THE TERMS OF THE NPDES PERMIT."

NAME (PRINTED OR TYPED): _____

TITLE: _____

SIGNATURE: _____

DATE: _____

NAME OF CONTRACTING FIRM: _____

ADDRESS: _____

CITY, STATE, ZIP CODE: _____

TELEPHONE NUMBER: _____

ADDRESS OF THE SITE: _____

CONTRACTORS/SUBCONTRACTORS WHO WILL IMPLEMENT EACH EROSION CONTROL MEASURE:

SILT FENCE: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

TOPSOIL BERM: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

STABILIZED CONSTRUCTION ENTRANCE: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

CONCRETE WASH-OUT AREA: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

DUMPSTER: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

PORT-A-POTTY: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

INLET PROTECTION DEVICE: CONTRACTOR (WITH ADDRESS AND TELEPHONE NUMBER)

_____

KWIK TRIP STORES

KWIK STAR STORES

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EROSION CONTROL NOTES

CONVENIENCE STORE #631

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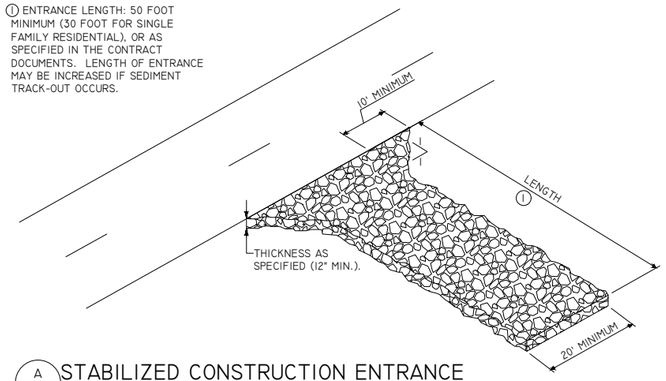
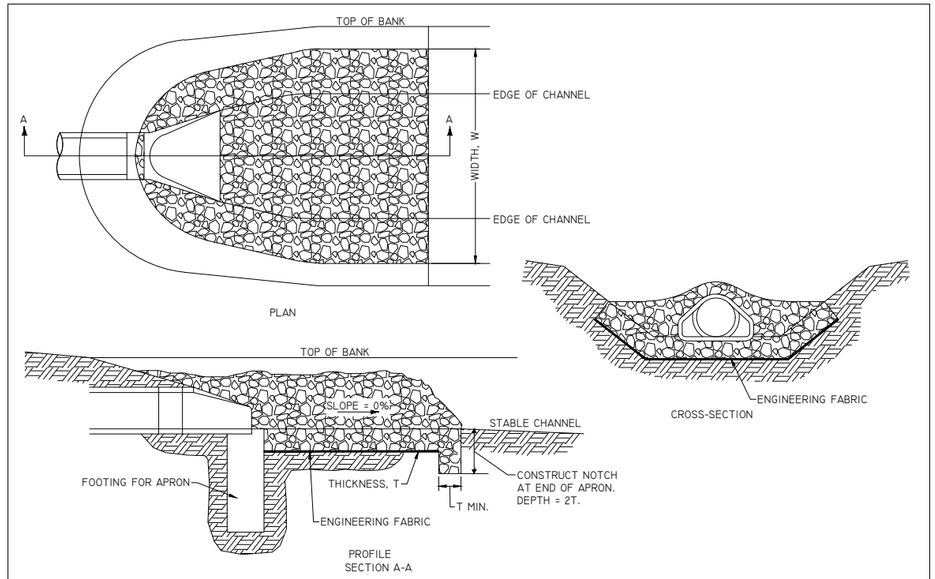
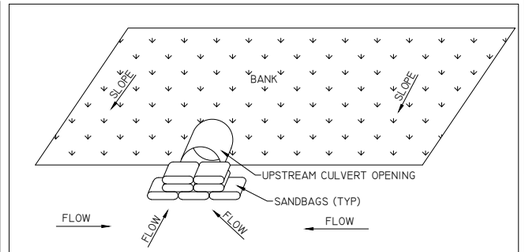


A C602 STABILIZED CONSTRUCTION ENTRANCE
FOR CONSTRUCTION EGRESS POINTS
NTS

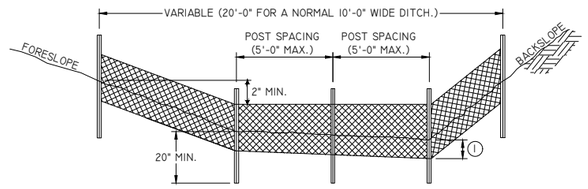


B C602 RIP RAP APRON FOR PIPE OUTLET INTO CHANNEL
NTS

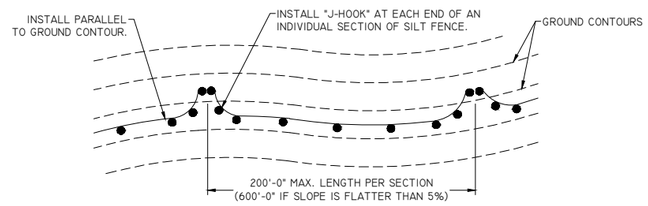


C C602 CULVERT PROTECTION
NTS

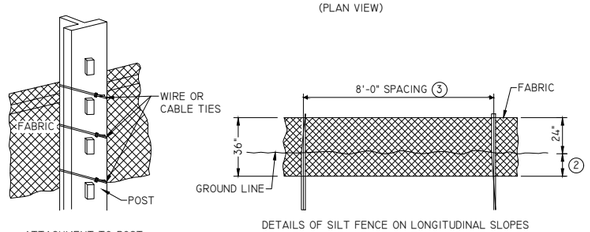
1 INSERT 12 INCHES OF FABRIC A MINIMUM OF 6 INCHES DEEP (FABRIC MAY BE FOLDED BELOW THE GROUND LINE).



TYPICAL SILT FENCE DITCH CHECK

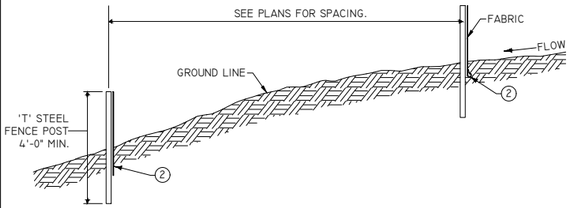


TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(PLAN VIEW)



ATTACHMENT TO POST

DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES

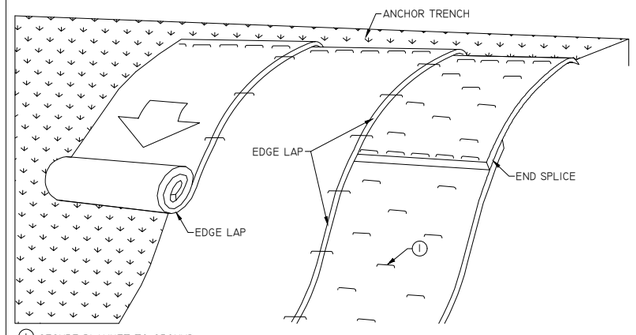


TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(PROFILE VIEW)

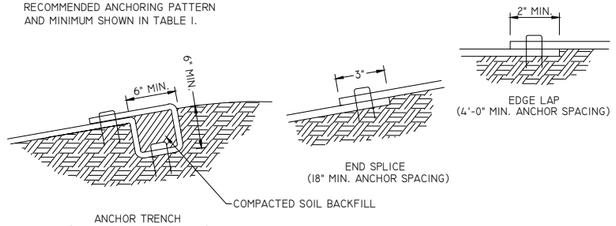
D C602 SILT FENCE
NTS

2 INSERT 12 INCHES OF FABRIC A MINIMUM OF 6 INCHES DEEP (FABRIC MAY BE FOLDED BELOW THE GROUND LINE).

3 REDUCE POST SPACING TO 5'-0" AT WATER CONCENTRATION AREAS, OR AS REQUIRED TO ADEQUATELY SUPPORT FENCE.



1 SECURE BLANKET TO GROUND ACCORDING TO MANUFACTURER'S RECOMMENDED ANCHORING PATTERN AND MINIMUM SHOWN IN TABLE I.

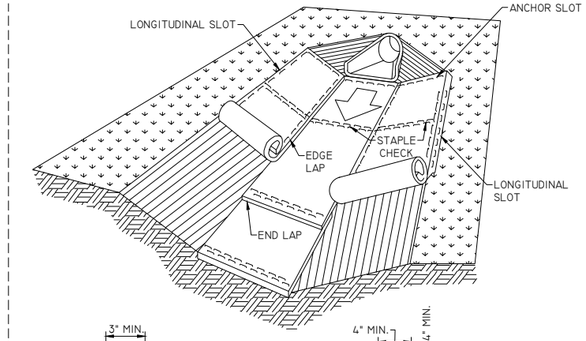


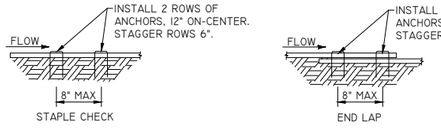
ANCHOR TRENCH (12" MIN. ANCHOR SPACING)

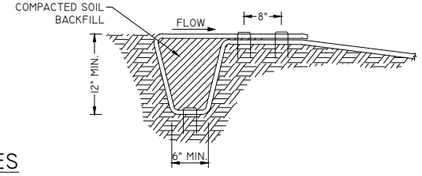
END SPLICE (18" MIN. ANCHOR SPACING)

TABLE I

MAX. SLOPE	MIN. ANCHORS
≤3:1	1.5/YD²
2:1	2/YD²
1:1	2.5/YD²







ANCHOR SLOT
(1'-0" MAX. ANCHOR SPACING)

E C602 ROLLED EROSION CONTROL (RECP) INSTALLATION ON SLOPES
NTS

ALL EROSION CONTROL MEASURES TO BE INSTALLED AND MAINTAINED PER WDNR STANDARDS
HTTP://DNR.WI.GOV/ORG/WATER/WM/NPS/STORMWATER/TECHSTDS.HTM

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
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CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING
REI Engineering, INC.
4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784 FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

EROSION CONTROL DETAILS

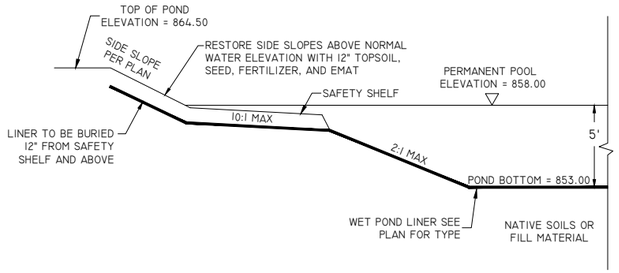
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP XXX
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C602

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C600-EROSION CONTROL PLAN.DWG LAYOUT: C602
PLOTTED: OCT 08, 2024 - 3:36PM PLOTTED BY: NATHANP



GENERAL POND LINER SPECIFICATIONS

(REFER TO APPENDIX D OF WDNR TECHNICAL STANDARD 1001 FOR DETAILED SPECIFICATIONS)

*1. TYPE A LINER (ANY OF THE FOLLOWING)
- CLAY LINER: MINIMUM THICKNESS OF 2 FEET WITH AN IN-PLACE HYDRAULIC CONDUCTIVITY OF 1 X 10^{-7} CM/SEC OR LESS.
- HDPE: MINIMUM THICKNESS OF 60 MIL.
- GCL: GEOSYNTHETIC CLAY LINER PER NRCS SPECIFICATIONS OUTLINED IN APPENDIX D.

TYPE B LINER (ANY OF THE FOLLOWING)
- CLAY LINER: MINIMUM THICKNESS OF 2 FEET WITH AN IN-PLACE HYDRAULIC CONDUCTIVITY OF 1 X 10^{-6} CM/SEC OR LESS.
- HDPE: MINIMUM THICKNESS OF 40 MIL.
- PPL: MINIMUM THICKNESS OF 30 MIL.

TYPE C LINER (ANY OF THE FOLLOWING)
- SILT/CLAY LINER: MINIMUM THICKNESS OF 2 FEET
- HDPE: ANY THICKNESS
- PPL: MINIMUM THICKNESS OF 20 MIL
- PVC: MINIMUM THICKNESS OF 30 MIL
- EPDM: MINIMUM THICKNESS OF 45 MIL

NOTE:
1. SHOULD THE CONTRACTOR ENCOUNTER SEASONAL OR PERCHED GROUNDWATER DURING CONSTRUCTION OF THE POND AND IT'S LINER, CONTACT ENGINEER FOR UNDERDRAIN RECOMMENDATIONS.

2. MANUFACTURED LINERS SHALL BE PROVIDED WITH AIR-RELEASE VENTS TO PREVENT FLOATING.

3. CONTRACTOR TO PROVIDE POND LINER DOCUMENTATION TO OWNER PRIOR TO FINAL ACCEPTANCE.

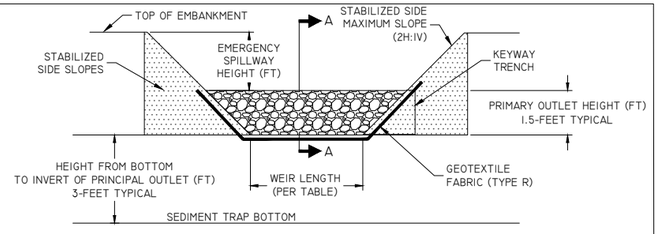
A / C603 WET POND LINER
NTS

NOTES:
1. SIDE SLOPES AND FACES OF EARTHEN EMBANKMENT AROUND OUTLET SHALL BE ARMORED WITH RIPRAP OR STABILIZED WITH EROSION MAT SUFFICIENT TO HANDLE FLOWS FROM THE 10-YEAR STORM.

2. STONE (SHORT DURATION): 3-6" WELL GRADED ANGULAR CLEAR STONE.

3. STONE (6+ MONTHS): COMBINATION OF LIGHT RIPRAP WITH 12"-THICK LAYER OF 1" ANGULAR CLEAR STONE.

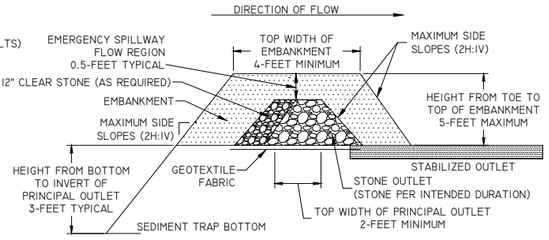
4. REFER TO WDNR TECH STD 1063 FOR ADDITIONAL INFORMATION.



CROSS-SECTION VIEW OF PRINCIPAL OUTLET

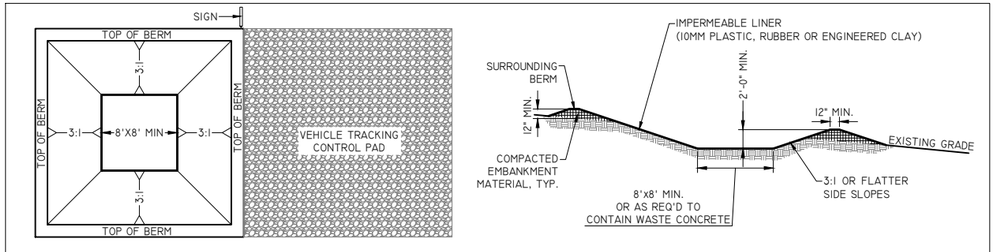
* AS = 625 X ADR (COARSE GRAINED SOILS + SANDS)
AS = 1560 X ADR (MEDIUM GRAINED SOILS + LOAMS,SILTS)
AS = 5300 X ADR (FINE GRAINED SOILS + CLAYS)

ADR (OC)	WEIR LENGTH (FT)
1	4
2	6
3	8
4	10
5	12



VIEW A-A OF PRINCIPAL OUTLET

B / C603 SEDIMENT TRAP DETAIL
NTS



CONCRETE WASHOUT AREA INSTALLATION NOTES
1. SEE EROSION CONTROL PLAN FOR LOCATIONS OF CONCRETE WASHOUT AREA(S). TO BE PLACED A MIN. OF 50' FROM DRAINAGEWAYS, BODIES OF WATER, AND INLETS.)
2. THE CONCRETE WASHOUT AREA(S) SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL PAD IS REQ'D AT THE ACCESS POINT(S).
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA(S), AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREAS TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

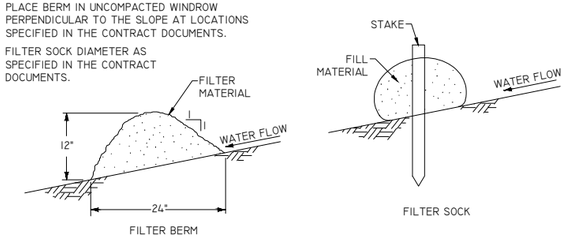
CONCRETE WASHOUT AREA MAINTENANCE NOTES
6. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE
7. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
8. WHEN CONCRETE WASHOUT AREA(S) IS REMOVED, THE DISTURBED AREA SHALL BE STABILIZED PER SITE EROSION CONTROL MEASURES.
9. INSPECT WEEKLY AND DURING AND AFTER ALL STORM EVENTS. CLEAN-OUT OR COVER WASHOUT AREA PRIOR TO PREDICTED STORM EVENTS TO PREVENT OVER-FLOW.

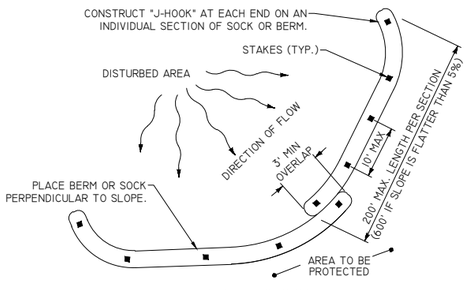
E / C603 CONCRETE WASHOUT AREA
NTS

BERM SHOWN IS TYPICAL FOR SLOPES FLATTER THAN 3:1. FOR STEEPER SLOPES, INCREASE BERM SIZE AS DIRECTED BY THE ENGINEER.

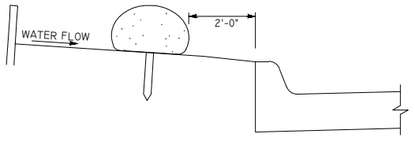
PLACE BERM IN UNCOMPACTED WINDROW PERPENDICULAR TO THE SLOPE AT LOCATIONS SPECIFIED IN THE CONTRACT DOCUMENTS.

FILTER SOCK DIAMETER AS SPECIFIED IN THE CONTRACT DOCUMENTS.





PLAN VIEW OF SLOPE
(FOR SEDIMENT AND SLOPE CONTROL)



SECTION VIEW AT STREET
(FOR PERIMETER CONTROL ALONG STREET)

TYPICAL PLACEMENT OF BERM OR SOCK

C / C603 FILTER BERM AND FILTER SOCK
NTS

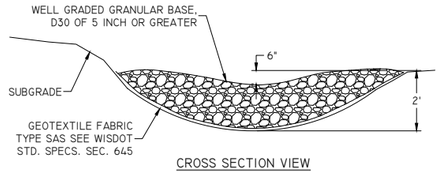
INSTALL & MAINTAIN IN ACCORDANCE WITH DNR TECHNICAL STANDARD 1062.

DITCH CHECKS TO BE REMOVED AFTER THE DITCH IS VEGETATED AND STABILIZED.

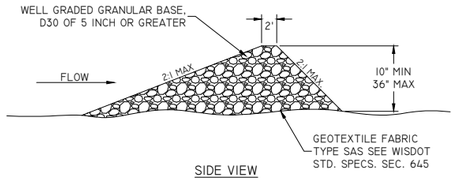
AREA UNDER THE DITCH CHECK TO BE SEEDED AFTER THE DITCH CHECK IS REMOVED.

PLACE EROSION MAT OVER THESE SEEDED AREAS.

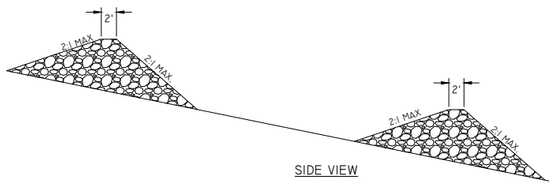
NOTE:
CONTRACTOR MAY REFER TO THE WISDOT PAL FOR OTHER APPROVED DITCH CHECKS AND THEIR INSTALLATION



CROSS SECTION VIEW

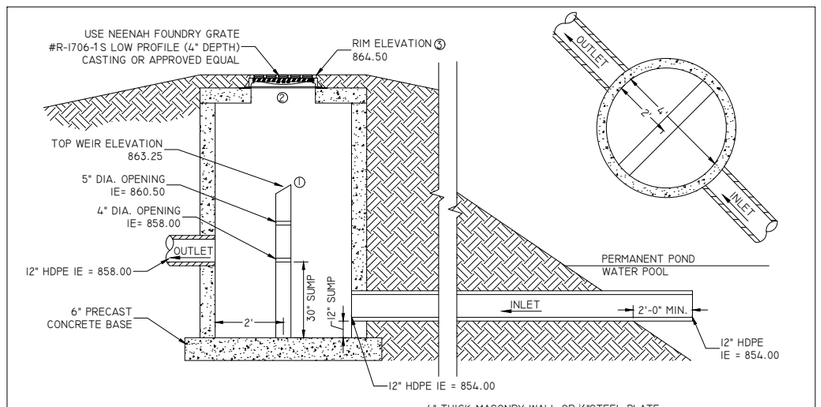


SIDE VIEW



SIDE VIEW

D / C603 STONE DITCH CHECKS
NTS



① 4" THICK MASONRY WALL OR ¼"STEEL PLATE. GROUT OR SEAL ALONG SIDES OF MANHOLE
② FORM OPENING IN TOP SLAB TO FIT CASTING
③ ADJUST GRADING AT THE OUTLET STRUCTURE TO COVER CASTING TO THE PROPOSED RIM ELEVATION

F / C603 OUTLET CONTROL STRUCTURE
NTS

KWIK TRIP STORES

KWIK STAR STORES

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LA CROSSE, WI 54602-2107
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EROSION CONTROL DETAILS

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY	NAP XXX
SCALE	GRAPHIC
PROJ. NO.	11757
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	C603

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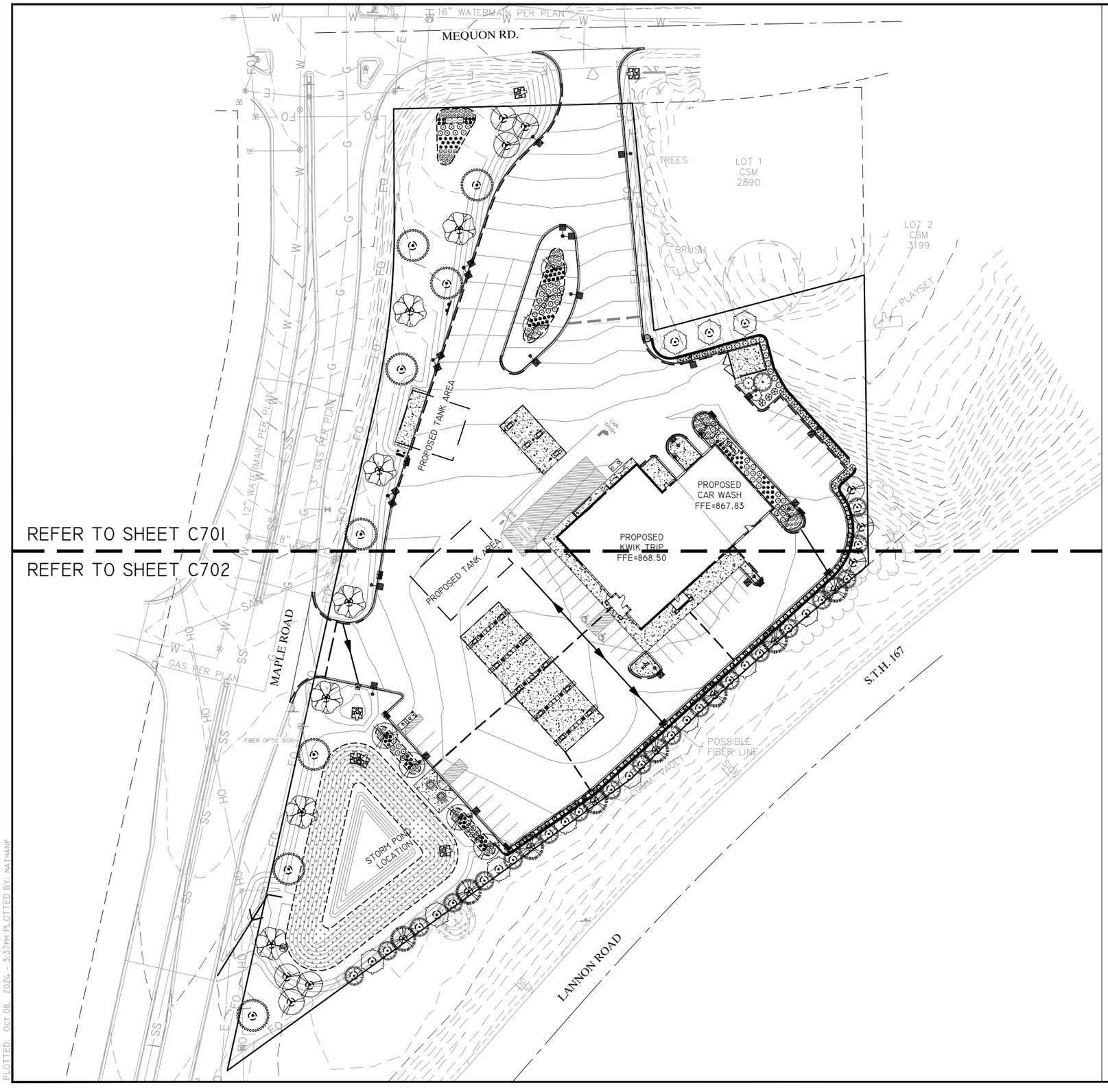
PLOTTED: OCT 08, 2024 - 3:36PM PLOTTED BY: NATHANP



GENERAL NOTES:

(A) LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR LOCATING & VERIFYING ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION, AND IS RESPONSIBLE FOR ANY DAMAGE TO THEM DURING CONSTRUCTION.

(B) CALL DIGGERS HOTLINE @ 811 OR 1-800-242-8511 AT LEAST 5 WORKING DAYS PRIOR TO DEMOLITION, EXCAVATION OR ANY CONSTRUCTION ACTIVITY.

(C) ALL PLANT MATERIAL SHALL BE GUARANTEED ONE (1) FULL YEAR UPON TOTAL COMPLETION OF PROJECT AND ACCEPTANCE BY OWNER, WITH A ONE TIME REPLACEMENT WARRANTY UPON REQUEST BY OWNER. WARRANTY EXPIRES AFTER FIRST FULL YEAR FOLLOWING PROJECT COMPLETION.

(D) LANDSCAPE CONTRACTOR SHALL VERIFY MINIMUM 6" TOPSOIL DEPTH FOR ALL AREAS TO BE SEEDED/SODDED THROUGHOUT PROJECT SITE. CONTRACTOR IS REQUIRED TO CORRECT ANY DEFICIENCIES PRIOR TO SEED/SOD. TOPSOIL SHALL BE CLEAN AND FREE OF STONES, WEEDS AND OTHER UNDESIRABLE DEBRIS.

(E) LANDSCAPE CONTRACTOR SHALL VERIFY MINIMUM 12" PLANTING SOIL DEPTH FOR ALL PROPOSED PLANTING BED AREAS THROUGHOUT THE PROJECT SITE. CONTRACTOR IS REQUIRED TO CORRECT ANY DEFICIENCIES PRIOR TO PLANT INSTALLATION. PLANTING SOIL & AREA SHALL BE CLEAN AND FREE OF STONES, WEEDS, CONCRETE WASTE AND OTHER UNDESIRABLE DEBRIS.

(F) LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR REPAIRING TOPSOIL AND SODDING ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITY, INCLUDING ALL R.O.W. AND ADJACENT PROPERTIES.

(G) CONTRACTOR SHALL CLEAN ALL PAVEMENT AREAS AFTER LANDSCAPE CONSTRUCTION ACTIVITIES ARE COMPLETE AND APPROVED BY OWNER. *THIS TO BE DONE DAILY AS DEEMED NECESSARY BY MUNICIPALITY.

PLANT SCHEDULE

SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	CONT.	QTY
DECIDUOUS TREES					
	Autumn Blaze® Freeman Maple	Acer x freemanii 'Jeffersred'	2.5" Cal.	B&B	11
	Fall Fiesta® Sugar Maple	Acer saccharum 'Bailsta'	2" Cal.	B&B	18
	Red Oak	Quercus rubra	3" Cal.	B&B	8
	Swamp White Oak	Quercus bicolor	3" Cal.	B&B	7
EVERGREEN TREES					
	Black Hills White Spruce	Picea glauca 'Densata'	6` Ht.	B&B	2
	White Pine	Pinus alba	6` Ht.	B&B	8
	White Spruce	Picea glauca	6` Ht.	B&B	20
DECIDUOUS SHRUBS					
	Tiny Wine® Ninebark	Physocarpus opulifolius 'SMPOTW'	3 gal.	Pot	62
EVERGREEN SHRUBS					
	Dark Green Anglo-Japanese Yew	Taxus x media 'Dark Green'	5 gal.	Pot	11
	Kallay Compact Pfitzer Juniper	Juniperus chinensis 'Kallays Compact'	3 gal.	Pot	25
	Mini Arcade Juniper	Juniperus sabina 'Mini Arcade'	3 gal.	Pot	58
PERENNIALS					
	Karl Foerster Feather Reed Grass	Calamagrostis x acutiflora 'Karl Foerster'	1 gal.	Pot	27
	Prairie Dropseed	Sporobolus heterolepis	1 gal.	Pot	104
	Shenandoah Switch Grass	Panicum virgatum 'Shenandoah'	1 gal.	Pot	68

KWIK TRIP STORES

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N

SCALE
0 40 80

LANDSCAPE PLAN

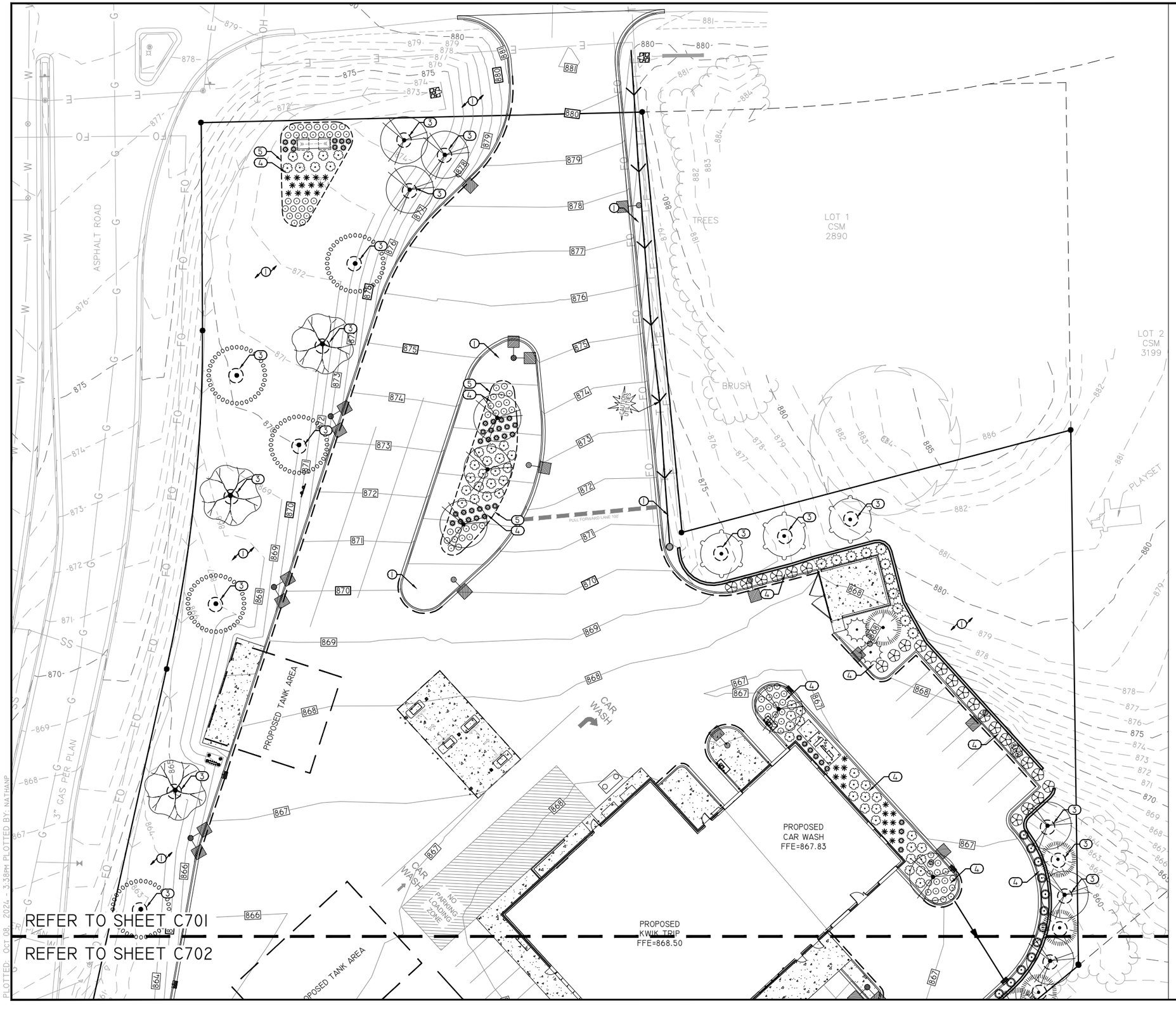
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C700

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C700-LANDSCAPE PLAN.DWG LAYOUT: C700
PLOTTED: Oct 08, 2024 - 3:37PM PLOTTED BY: NATHANP



KEYED NOTES

1. SOD, *ALL AREAS NOTED ON PLAN & ALL DISTURBED AREAS DUE TO CONSTRUCTION ACTIVITY.

2. (9,900 SF TOTAL) AGRECOL, SHORTGRASS PRAIRIE FOR DRY SOILS, APPLY GLYPHOSATE HERBICIDE TO AREA WHEN MAJORITY OF WEEDS ARE 2"-3" TALL. WAIT 10 DAYS THEN FINELY TILL THE SOIL ONLY 1"-2" DOWN AND PLANT IMMEDIATELY BY HAND BROADCASTING AT A RATE OF 11 LBS/ACRE. RAKE OR DRAG AREA LIGHTLY, COVERING THE SEED WITH ABOUT ¼" TO ½" OF SOIL. ROLL AREA FIRMLY AFTER RAKING. MULCH PRAIRIE SEEDED AREAS LESS THAN 4:1 SLOPE WITH 1" OF WEED FREE STRAW MULCH. APPLY WISDOT NET-FREE CLASS 1, URBAN TYPE B EROSION MAT ON SLOPING AREAS STEEPER THAN 4:1. *REFER TO AGRECOL'S "NATIVE SEEDING INSTRUCTIONS" ON THEIR WEBSITE FOR DETAILED INSTRUCTIONS/GUIDELINES FOR SUCCESSFUL SEED ESTABLISHMENT AND MANAGEMENT. (LINK BELOW)

   HTTPS://WWW.AGRECOL.COM/NATIVE-SEEDING-INSTRUCTIONS_EP_44.HTML

3. 6' DIAMETER WOOD MULCH TREE RING, 3"-4" DEPTH, DARK BROWN COLOR, *ALL TREES PLANTED WITHIN SOD AREAS.

4. SHREDDED HARDWOOD MULCH, 3"-4" DEPTH, DARK BROWN COLOR.

5. SHOVEL CUT EDGE, 4"-6" DEPTH CLEAN CUT EDGE AROUND PLANTING BEDS & PRAIRIE SEEDING WITHIN SOD AREAS.

PLANT SCHEDULE	
SYMBOL	BOTANICAL NAME
DECIDUOUS TREES	
	Acer saccharum 'Bailsta'
	Acer x freemanii 'Jeffersred'
	Quercus bicolor
	Quercus rubra
EVERGREEN TREES	
	Picea glauca
	Picea glauca 'Densata'
	Pinus alba
DECIDUOUS SHRUBS	
	Physocarpus opulifolius 'SMPOTW'
EVERGREEN SHRUBS	
	Juniperus chinensis 'Kallays Compact'
	Juniperus sabina 'Mini Arcade'
	Taxus x media 'Dark Green'
PERENNIALS	
	Calamagrostis x acutiflora 'Karl Foerster'
	Panicum virgatum 'Shenandoah'
	Sporobolus heterolepis

KWIK TRIP STORES

KWIK STAR STORES

KWIK TRIP, Inc.
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FAX (608) 781-8960

REI
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4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784 FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

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SCALE
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LANDSCAPE PLAN

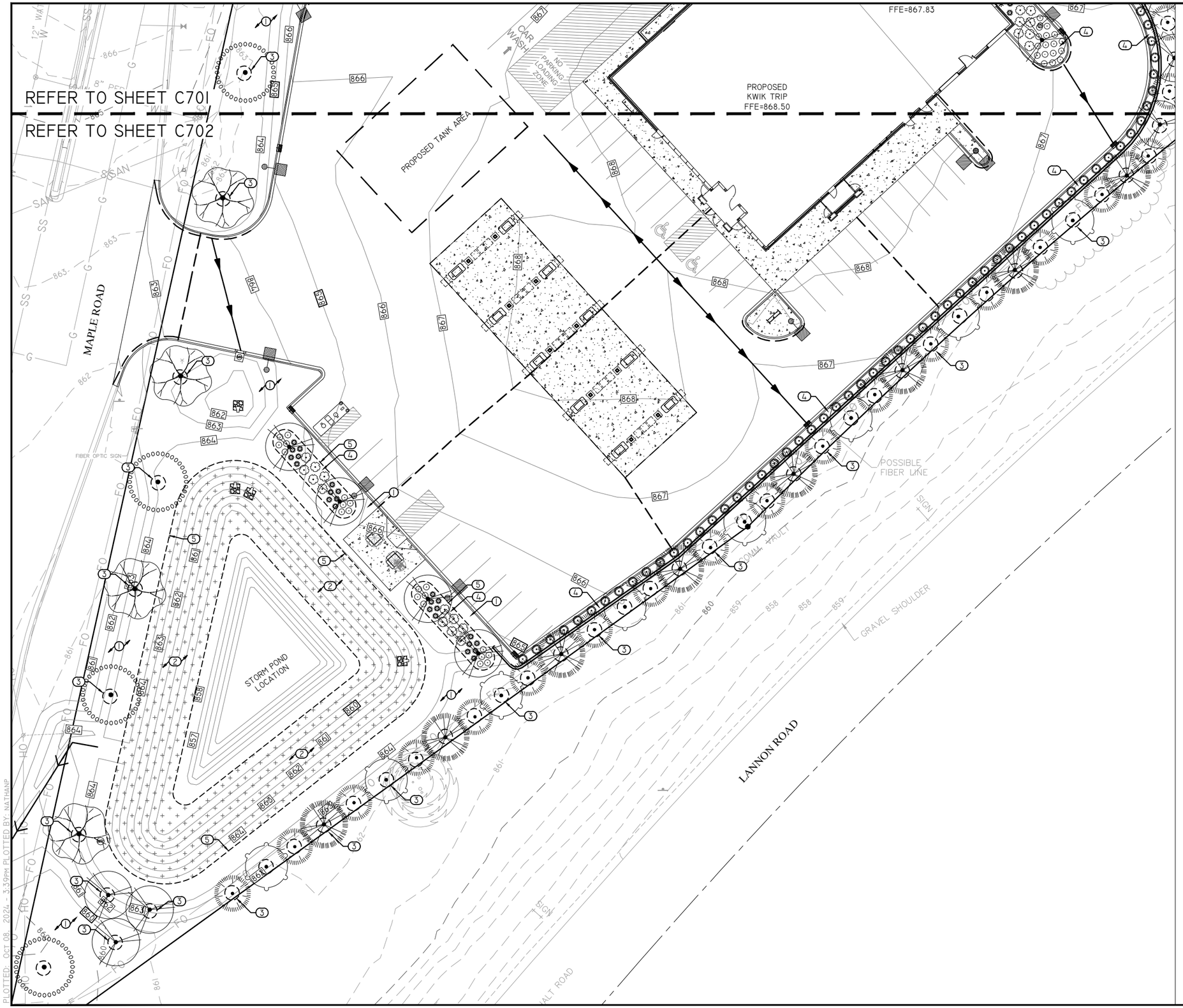
CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C701

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C700-LANDSCAPE PLAN.DWG LAYOUT: C701
PLOTTED: Oct 08, 2024 - 3:38PM PLOTTED BY: NATHAMP



KEYED NOTES

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2. (9,900 SF TOTAL) AGRECOL, SHORTGRASS PRAIRIE FOR DRY SOILS, APPLY GLYPHOSATE HERBICIDE TO AREA WHEN MAJORITY OF WEEDS ARE 2"-3" TALL. WAIT 10 DAYS THEN FINELY TILL THE SOIL ONLY 1"-2" DOWN AND PLANT IMMEDIATELY BY HAND BROADCASTING AT A RATE OF 11 LBS/ACRE. RAKE OR DRAG AREA LIGHTLY, COVERING THE SEED WITH ABOUT ¼" TO ½" OF SOIL. ROLL AREA FIRMLY AFTER RAKING. MULCH PRAIRIE SEEDED AREAS LESS THAN 4:1 SLOPE WITH 1" OF WEED FREE STRAW MULCH. APPLY WISDOT NET-FREE CLASS 1, URBAN TYPE B EROSION MAT ON SLOPING AREAS STEEPER THAN 4:1. *REFER TO AGRECOL'S "NATIVE SEEDING INSTRUCTIONS" ON THEIR WEBSITE FOR DETAILED INSTRUCTIONS/GUIDELINES FOR SUCCESSFUL SEED ESTABLISHMENT AND MANAGEMENT. (LINK BELOW)

   HTTPS://WWW.AGRECOL.COM/NATIVE-SEEDING-INSTRUCTIONS_EP_44.HTML

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PLANT SCHEDULE	
SYMBOL	BOTANICAL NAME
DECIDUOUS TREES	
	Acer saccharum 'Bailsta'
	Acer x freemanii 'Jeffersred'
	Quercus bicolor
	Quercus rubra
EVERGREEN TREES	
	Picea glauca
	Picea glauca 'Densata'
	Pinus alba
DECIDUOUS SHRUBS	
	Physocarpus opulifolius 'SMPOTW'
EVERGREEN SHRUBS	
	Juniperus chinensis 'Kallays Compact'
	Juniperus sabina 'Mini Arcade'
	Taxus x media 'Dark Green'
PERENNIALS	
	Calamagrostis x acutiflora 'Karl Foerster'
	Panicum virgatum 'Shenandoah'
	Sporobolus heterolepis

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LANDSCAPE PLAN

CONVENIENCE STORE #631
STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C702

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C700-LANDSCAPE PLAN.DWG LAYOUT: C702
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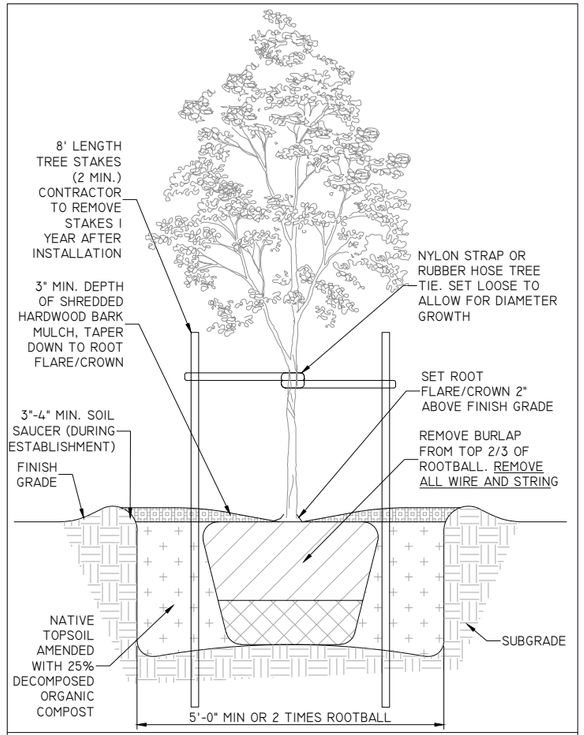
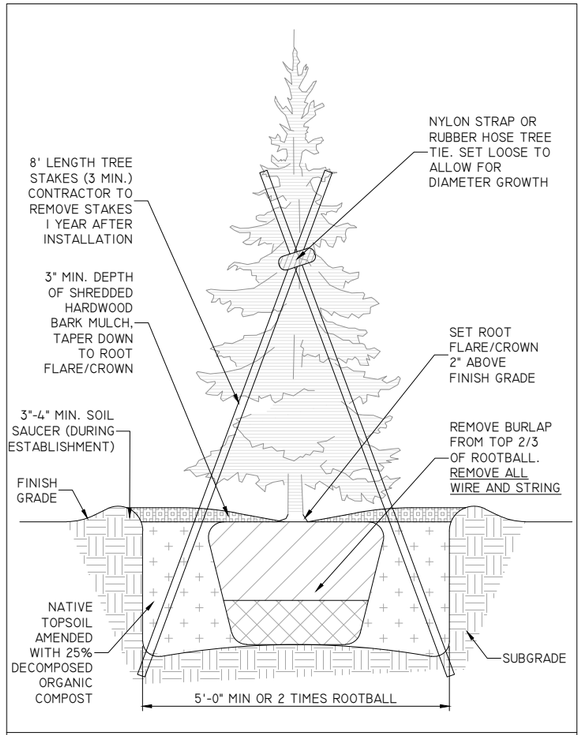
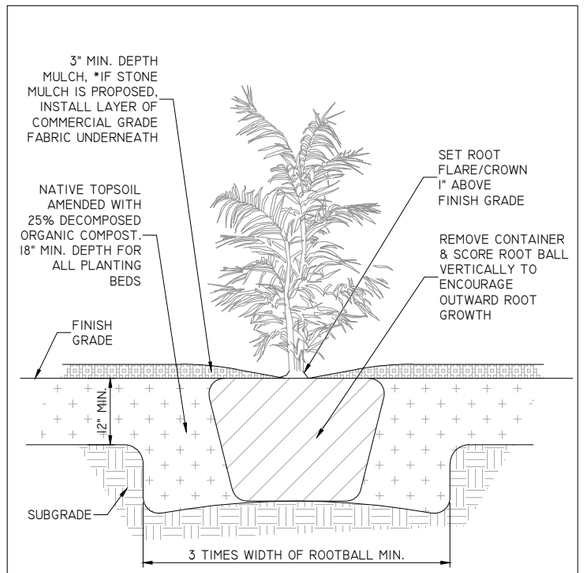


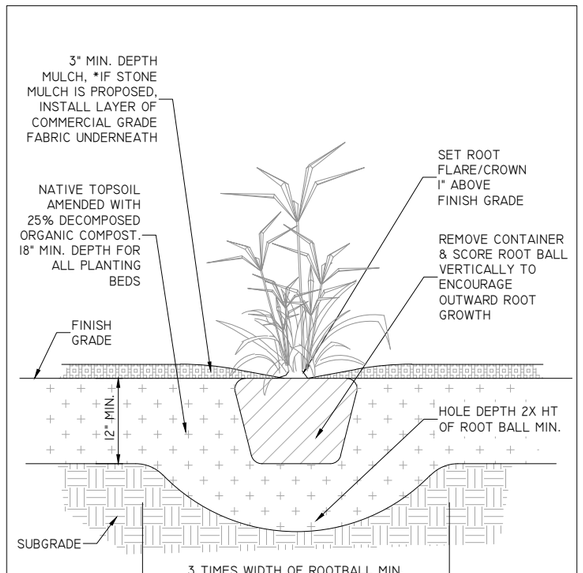
DECIDUOUS TREE - PLANTING DETAIL



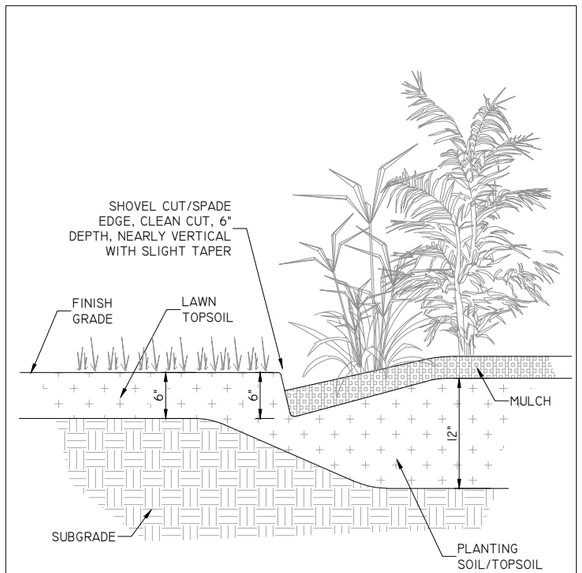
EVERGREEN TREE - PLANTING DETAIL



SHRUB - PLANTING DETAIL



PERENNIAL - PLANTING DETAIL



SHOVEL CUT EDGE - DETAIL

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LANDSCAPE DETAILS

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

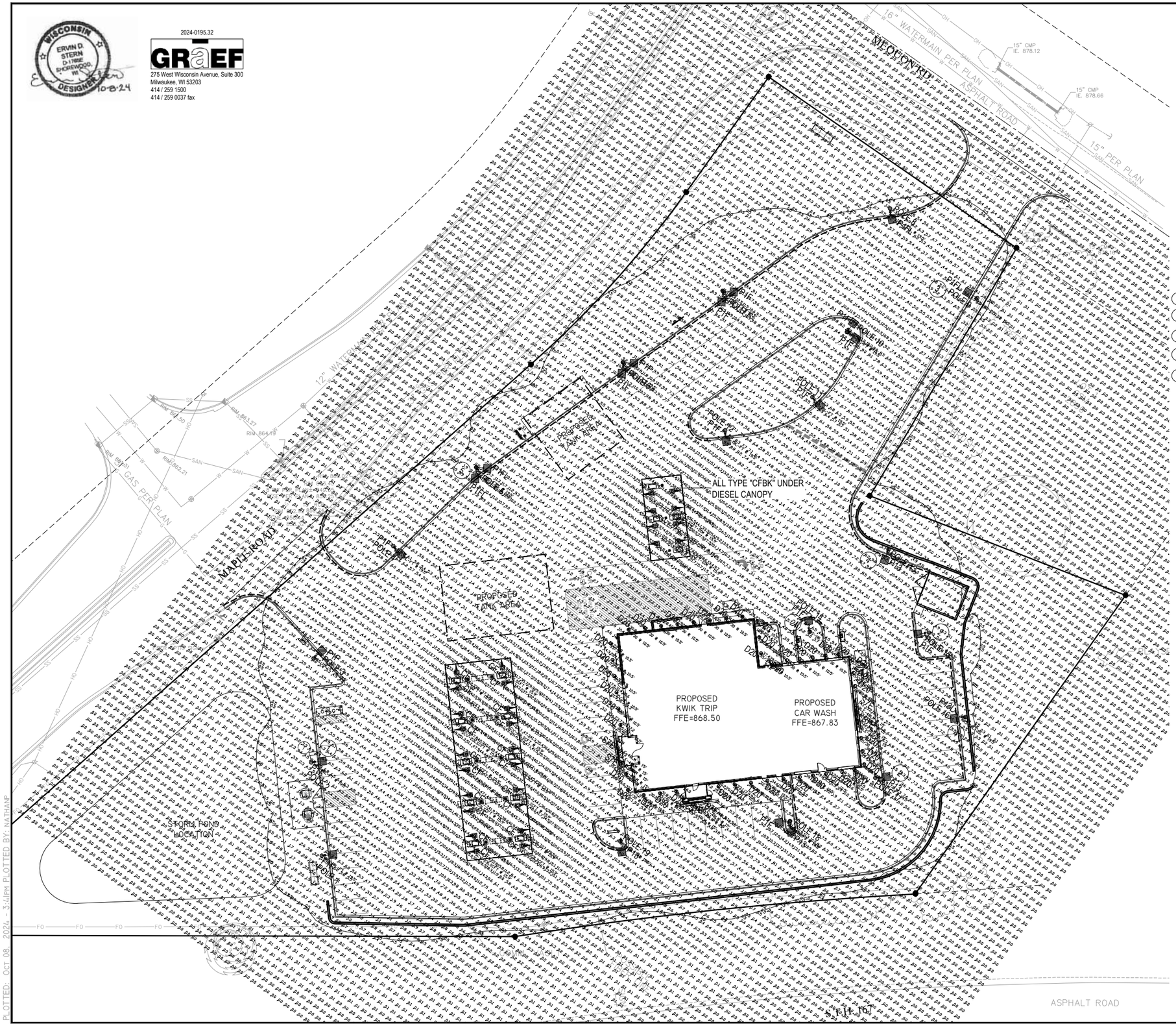
#	DATE	DESCRIPTION
1		

DRAWN BY NAP
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C703

DRAWING FILE: Q:\11700-11799\11757 - KWIK TRIP #631 - GERMANTOWN\DRAWING\PLANS\11757-C700-LANDSCAPE PLAN.DWG LAYOUT: C703
PLOTTED: OCT 08, 2024 - 3:39PM PLOTTED BY: NATHANP

2024-0195.32

GRAEF
275 West Wisconsin Avenue, Suite 300
Milwaukee, WI 53203
414 / 259 1600
414 / 259 0037 fax



CALCULATION STATISTICS

OVERALL SITE:
AVERAGE: 3.2
MAXIMUM: 78.7
MINIMUM: 0.0

FIXTURE QUANTITIES

D20	- 44
S7E	- 6
CF	- 20
CFBK	- 8
P13	- 5
P13L	- 1
P1F	- 14
P1FL	- 4

PROVIDE (19) 16' POLES.

GENERAL NOTES:

1. FOOTCANDLE LEVELS SHOWN ON THIS PLAN ARE CALCULATED AT GRADE LEVEL.
2. ALL POLES SHALL BE INSTALLED A MINIMUM OF 3'-0" FROM BACK OF CURB TO EDGE OF POLE BASE UNLESS NOTED.
3. POLE THAT ARE LOCATED AT CORNER OF ISLAND SHALL BE A MINIMUM OF 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE. POLES THAT MUST BE INSTALLED LESS THAN 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE SHALL HAVE PROTECTIVE BOLLARDS INSTALLED AROUND THE POLE BASE. COORDINATE WITH KWIK TRIP PRIOR TO INSTALLATION.

KEYED NOTES:

1. COORDINATE LOCATION AND MOUNTING HEIGHT OF SECURITY CAMERA WITH OWNER.
2. CONTRACTOR SHALL POLE MOUNT FIXTURE 6'-0" FROM BACK OF CURB TO EDGE OF POLE BASE.
3. CONTRACTOR SHALL POLE MOUNT FIXTURE 2'-0" FROM BACK OF CURB TO EDGE OF POLE BASE TO AVOID UNDERGROUND UTILITIES.
4. CONTRACTOR SHALL POLE MOUNT FIXTURE 3'-0" FROM BACK OF CURB TO EDGE OF POLE BASE NEAR RETAINING WALL.
5. CONTRACTOR SHALL POLE MOUNT FIXTURE 5'-0" FROM BACK OF CURB TO EDGE OF POLE BASE TO AVOID UNDERGROUND UTILITIES.

FIXTURE TYPES:

D20 - RECESSED LED DOWNLIGHT
GOTHAM EVO-35/30-8AR-WD-120-TRW

S7E - LED STRIP LIGHT MOUNTED IN GABLE LITHONIA
TZL1N-L96-10000LM-FST-MVOLT

CF - LSI LIGHTING: SCV-LED-23L-SCFT-UNV-DIM-50-WHT MOUNTED UNDER GAS CANOPY MOUNT FIXTURES WITH FORWARD THROW OPTIC AIMING IN DIRECTION OF ARROW.

CFBK - LSI LIGHTING: SCV-LED-23L-SCFT-UNV-DIM-50-BLK MOUNTED UNDER DIESEL CANOPY MOUNT FIXTURES WITH FORWARD THROW OPTIC AIMING IN DIRECTION OF ARROW.

P13 - LSI LIGHTING: MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT

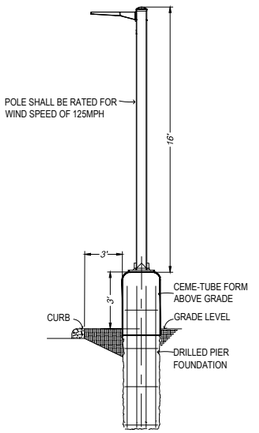
P13L - LSI LIGHTING: MRS-LED-18L-SIL-3-UNV-50-70CRI-WHT-IL

P1F - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT

P1FL - LSI LIGHTING: MRS-LED-18L-SIL-FT-UNV-50-70CRI-WHT-IL

FIXTURE SYMBOLS:

- LED LIGHT MOUNTED UNDER FUEL CANOPIES
- LED STRIP LIGHT MOUNTED IN GABLE
- RECESSED LED DOWNLIGHT
- POLE MOUNTED LED FIXTURE
- CAMERA



LOT LIGHT ELEVATION DETAIL

NOT TO SCALE

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PHOTOMETRIC LIGHTING PLAN

CONVENIENCE STORE #631

STH 167 & MAPLE ROAD
GERMANTOWN, WI

#	DATE	DESCRIPTION
1		

DRAWN BY XXX
SCALE GRAPHIC
PROJ. NO. 11757
DATE 10/09/24 - REVIEW DOCUMENTS
SHEET C800

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PLOTTED: OCT 08, 2024 - 3:40PM PLOTTED BY: NATHAMP

Appendix 1

NR 151 Post Construction Standards

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WISCONSIN DNR NR 151 STORMWATER PERFORMANCE STANDARDS APPLICABLE TO PROJECTS WITH ONE OR MORE ACRES OF DISTURBANCE (After January 1, 2011)				
DEVELOPMENT TYPE	**TOTAL SUSPENDED SOLIDS (TSS)**	**PEAK FLOW**	**INFILTRATION**	**PROTECTIVE AREA SETBACKS**
New Development Infill ≥ 5 ac Redevelopment of Sites Permitted after October 1, 2004 New Transportation Facilities	Reduce by 80% compared to no controls	Peak discharge matches pre-dev. discharge rate for 1-yr and 2-yr, 24-hr storm events	Low Impervious (up to 40% connected - eg parks, cemeteries, low density residential) – infiltrate 90% pre-development infiltration volume, w/ 1% device area cap	75 ft for outstanding resource waters and highly-susceptible wetlands
			Moderate Impervious (up to 40-80% connected - eg single- and multi-family residential, industrial, institutional, office parks) – infiltrate 75% pre-development infiltration volume w/ 2% device area cap	50 ft for lakes, perrenial and intermittent streams, and wetlands that are neither classified as highly susceptible nor less susceptible
			High Impervious (Over 80% connected - eg commercial strips, shopping centers, commercial downtown) – infiltrate 60% pre-development infiltration volume w/ 2% device area cap	10-30 feet for less susceptible wetlands based upon average wetland width
			Most New Transportation Facilities (above the local residential classification) are Exempt	10 feet for concentrated flow channels with drainage areas over 130 acres
Infill < 5 acres	Reduce by 40% compared to no controls (80% on/after October 1, 2012)	Exempt	Exempt	Exempt
Highway Reconstruction	Reduce by 40% compared to no controls	Exempt	Exempt	Exempt
Redevelopment of Sites Permitted Prior to October 1, 2004	Reduce parking areas and roads by 40% compared to no controls	Exempt	Exempt	Exempt
Post-Construction Site or Transportation Facility w/ Less than 10% Connected Impervious (assuming cumulative impervious is beneath 1 acre)	Exempt	Exempt	Exempt	Follow as if New Construction

Appendix 2

Site Soils Information

Map Scale: 1:2,630 if printed on A portrait (8.5" x 11") 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: Washington County, Wisconsin
Survey Area Data: Version 24, Sep 3, 2024

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

Date(s) aerial images were photographed: Aug 4, 2022—Sep 13, 2022

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
CeC2	Casco loam, 6 to 12 percent slopes, eroded	0.1	0.2%
GP	Gravel pit	0.7	1.9%
GrB	Grays silt loam, 2 to 6 percent slopes	1.5	3.9%
HmB2	Hochheim loam, 2 to 6 percent slopes, eroded	2.7	7.3%
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	8.0	21.4%
HmD2	Hochheim loam, 12 to 20 percent slopes, eroded	2.0	5.2%
LmA	Lamartine silt loam, 0 to 3 percent slopes	0.1	0.2%
MgA	Martinton silt loam, 1 to 3 percent slopes	2.3	6.2%
MtA	Mequon silt loam, 1 to 3 percent slopes	2.3	6.0%
Mzb	Montgomery silty clay loam	1.4	3.7%
OuB2	Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes, eroded	3.5	9.4%
Pc	Palms mucky peat, 0 to 2 percent slopes	0.1	0.2%
Sf	Sandy and gravelly land	5.9	15.8%
ThB2	Theresa silt loam, 2 to 6 percent slopes, eroded	0.3	0.8%
VsA	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	6.7	17.8%
Totals for Area of Interest		**37.6**	**100.0%**

Washington County, Wisconsin

HmB2—Hochheim loam, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t03w
Elevation: 820 to 1,330 feet
Mean annual precipitation: 29 to 36 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 135 to 175 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Hochheim, Eroded

Setting

Landform: Drumlins
Landform position (two-dimensional): Summit, shoulder
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: loam
C - 16 to 33 inches: gravelly sandy loam
Cd - 33 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 20 to 40 inches to densic material
Drainage class: Well drained
Runoff class: High
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 supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: D
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Forage suitability group: Mod AWC, adequately drained (G095BY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)
Hydric soil rating: No

Minor Components

Theresa, eroded
Percent of map unit: 10 percent
Landform: Till plains
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Hydric soil rating: No

Lamartine
Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 24, Sep 3, 2024

Washington County, Wisconsin

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): Summit, shoulder
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 supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D

Ecological site: F095XB007WI - Loamy Upland with Carbonates
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
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Hydric soil rating: No

Hochheim

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, head slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F095XB006WI - Shallow Upland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 24, Sep 3, 2024

Washington County, Wisconsin

HmD2—Hochheim loam, 12 to 20 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t72w
Elevation: 820 to 1,330 feet
Mean annual precipitation: 28 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 130 to 175 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Hochheim, Eroded

Setting

Landform: Drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): 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 6 inches: loam
Bt - 6 to 16 inches: clay loam
C - 16 to 30 inches: gravelly loam
Cd - 30 to 79 inches: gravelly loam

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: 20 to 36 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 supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D

Ecological site: F095XB007WI - Loamy Upland with Carbonates
Forage suitability group: Mod AWC, adequately drained with limitations (G095BY006WI)
Other vegetative classification: Mod AWC, adequately drained with limitations (G095BY006WI)
Hydric soil rating: No

Minor Components

Theresa

Percent of map unit: 10 percent
Landform: Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Hydric soil rating: No

Hochheim

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F095XB006WI - Shallow Upland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 24, Sep 3, 2024

Washington County, Wisconsin

OuB2—Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2sn0c
Elevation: 650 to 1,010 feet
Mean annual precipitation: 31 to 39 inches
Mean annual air temperature: 44 to 49 degrees F
Frost-free period: 125 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Ozaukee, high carbonate substratum, eroded, and similar soils: 96 percent
Minor components: 4 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ozaukee, High Carbonate Substratum, Eroded

Setting

Landform: Ground moraines, end moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Thin mantle of loess over silty and clayey till

Typical profile

Ap - 0 to 7 inches: silt loam
Bt1 - 7 to 11 inches: silty clay loam
2Bt2 - 11 to 22 inches: silty clay
2Bt3 - 22 to 27 inches: silty clay loam
2Cd - 27 to 60 inches: silty clay loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 22 to 40 inches to densic material
Drainage class: Moderately well drained
Runoff class: Medium
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: About 24 to 42 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 supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F110XY012IL - Moist Glacial Drift Upland Forest
Forage suitability group: Mod AWC, adequately drained with limitations (G095BY006WI)
Other vegetative classification: Mod AWC, adequately drained with limitations (G095BY006WI)
Hydric soil rating: No

Minor Components

Ashkum, drained

Percent of map unit: 2 percent
Landform: End moraines, ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R110XY024IL - Ponded Depressional Sedge Meadow
Hydric soil rating: Yes

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

Orthents, clayey

Percent of map unit: 1 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F095XB010WI - Loamy and Clayey Upland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 24, Sep 3, 2024

Washington County, Wisconsin

Sf—Sandy and gravelly land

Map Unit Setting

National map unit symbol: g91m
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: Not prime farmland

Map Unit Composition

Sandy and gravelly land and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sandy And Gravelly Land

Setting

Parent material: Sandy and gravelly outwash

Typical profile

C - 0 to 10 inches: sand

Properties and qualities

Slope: 0 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Depth to water table: About 60 to 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydrologic Soil Group: D
Ecological site: F095XB010WI - Loamy and Clayey Upland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 24, Sep 3, 2024

Washington County, Wisconsin

VsA—Virgil silt loam, gravelly substratum, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wsqx
Elevation: 750 to 1,150 feet
Mean annual precipitation: 31 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 171 days
Farmland classification: Prime farmland if drained

Map Unit Composition

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

Description of Virgil, Gravelly Substratum

Setting

Landform: Drainageways on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loess over calcareous, stratified sandy and gravelly outwash

Typical profile

Ap - 0 to 9 inches: silt loam
E - 9 to 13 inches: silt loam
Bt - 13 to 44 inches: silty clay loam
2BC - 44 to 49 inches: sandy loam
2C - 49 to 79 inches: stratified gravel to sand

Properties and qualities

Slope: 0 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 high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Forage suitability group: High AWC, high water table (G095BY007WI)
Other vegetative classification: High AWC, high water table (G095BY007WI)
Hydric soil rating: No

Minor Components

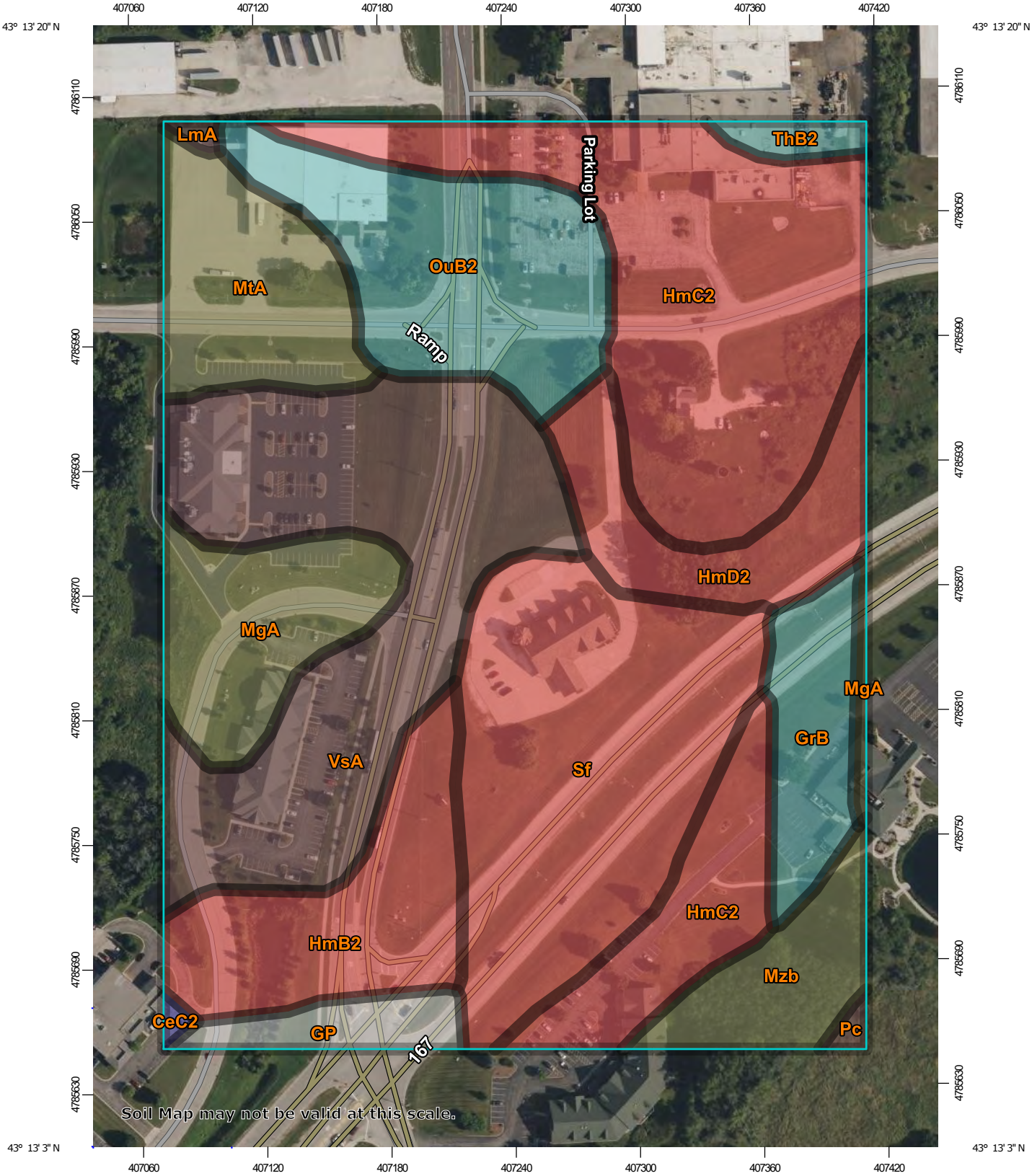
Sebewa
Percent of map unit: 4 percent
Landform: Depressions on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Concave, linear
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

Drummer, drained
Percent of map unit: 4 percent
Landform: Depressions on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Concave, linear
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

Sable
Percent of map unit: 2 percent
Landform: Depressions on outwash plains
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave
Across-slope shape: Concave, linear
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 24, Sep 3, 2024



Map Scale: 1:2,630 if printed on A portrait (8.5" x 11") 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 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 24, Sep 3, 2024

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

Date(s) aerial images were photographed: Aug 4, 2022—Sep 13, 2022

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
CeC2	Casco loam, 6 to 12 percent slopes, eroded	B	0.1	0.2%
GP	Gravel pit		0.7	1.9%
GrB	Grays silt loam, 2 to 6 percent slopes	C	1.5	3.9%
HmB2	Hochheim loam, 2 to 6 percent slopes, eroded	D	2.7	7.3%
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	D	8.0	21.4%
HmD2	Hochheim loam, 12 to 20 percent slopes, eroded	D	2.0	5.2%
LmA	Lamartine silt loam, 0 to 3 percent slopes	B/D	0.1	0.2%
MgA	Martinton silt loam, 1 to 3 percent slopes	C/D	2.3	6.2%
MtA	Mequon silt loam, 1 to 3 percent slopes	C/D	2.3	6.0%
Mzb	Montgomery silty clay loam	C/D	1.4	3.7%
OuB2	Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes, eroded	C	3.5	9.4%
Pc	Palms mucky peat, 0 to 2 percent slopes	B/D	0.1	0.2%
Sf	Sandy and gravelly land	D	5.9	15.8%
ThB2	Theresa silt loam, 2 to 6 percent slopes, eroded	C	0.3	0.8%
VsA	Virgil silt loam, gravelly substratum, 0 to 3 percent slopes	B/D	6.7	17.8%
Totals for Area of Interest			**37.6**	**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.

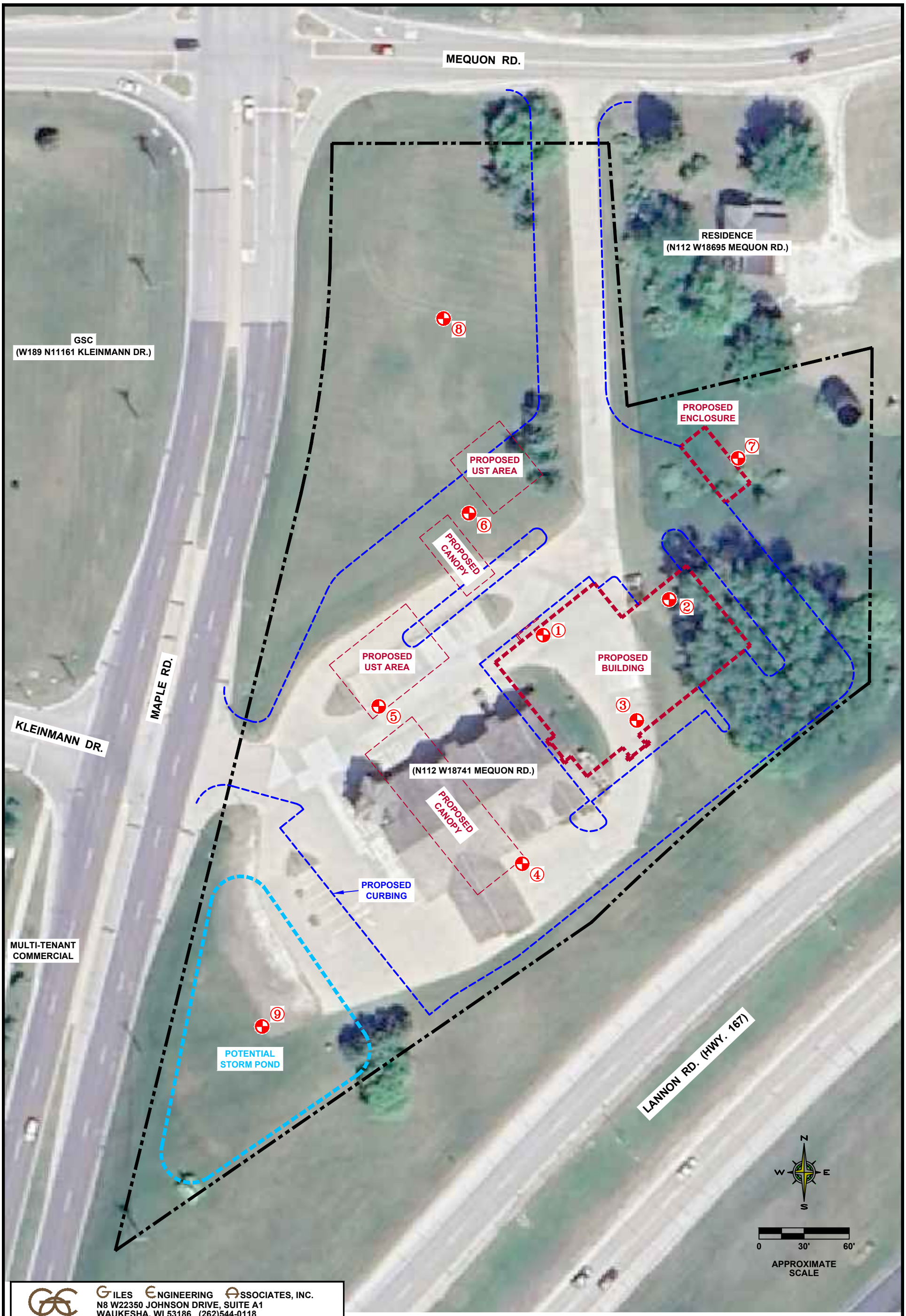
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



GILES ENGINEERING ASSOCIATES, INC.
N8 W22350 JOHNSON DRIVE, SUITE A1
WAUKESHA, WI 53186 (262)544-0118
www.gilesengr.com

FIGURE 1
TEST BORING LOCATION PLAN
PROPOSED KWIK TRIP KT631 RELOCATION
N112 W18741 MEQUON ROAD
GERMANTOWN, WISCONSIN

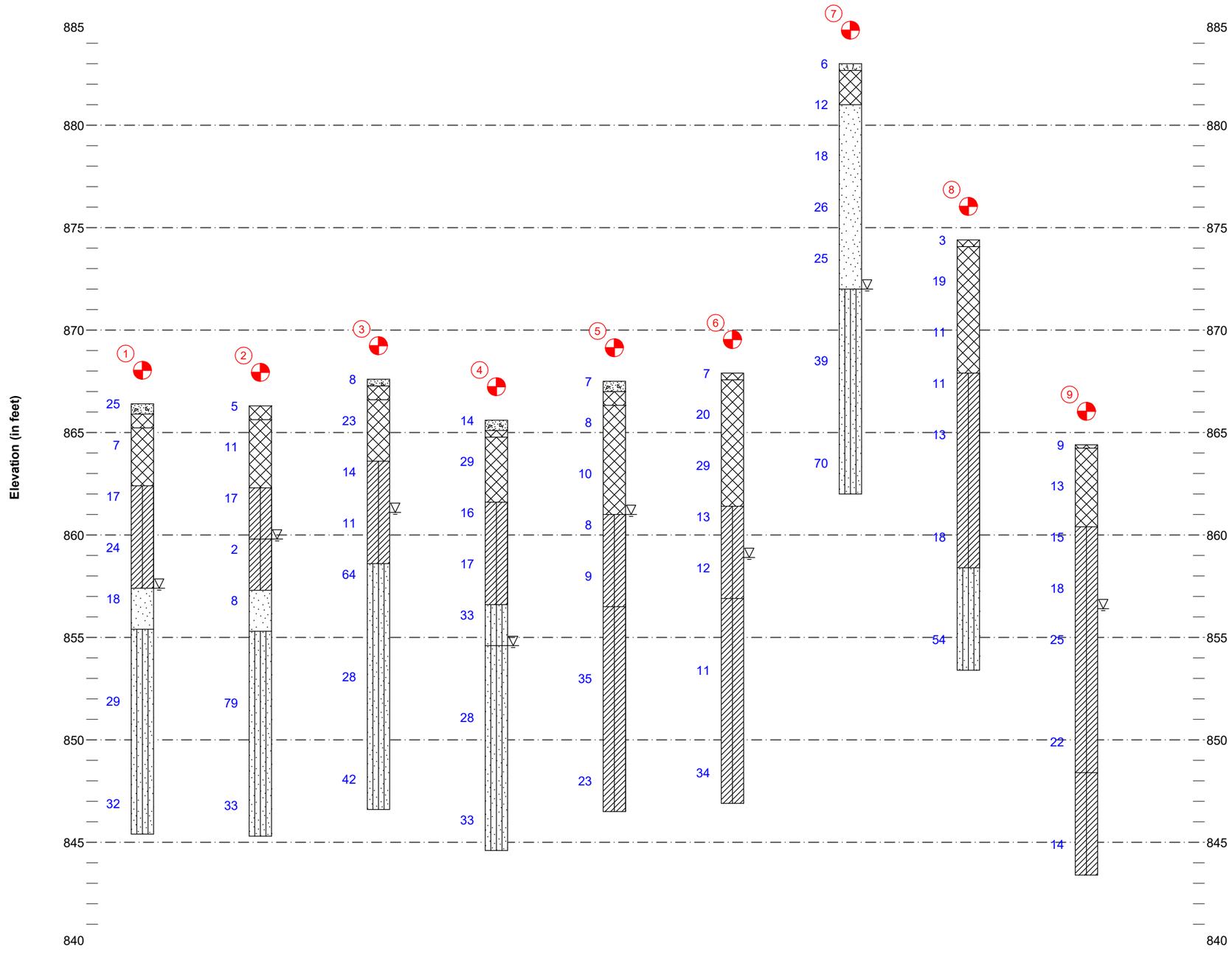
DESIGNED	DRAWN	SCALE	DATE	REVISED
GDB/AJG	JdId	approx. 1"=60'	06-13-24	--
PROJECT NO.: 1G-2405020			CAD No. 1g2405020-blp	

NOTES:
1.) TEST BORING LOCATIONS ARE APPROXIMATE AND WERE DRILLED AT THE LOCATIONS STAKED IN THE FIELD BY PIONEER ENVIRONMENTAL GROUP.
2.) PROPOSED FEATURES ARE APPROXIMATE BASED ON THE FILE (KT631 proposed BLM map.pdf), UNDATED, PROVIDED BY THE CLIENT.

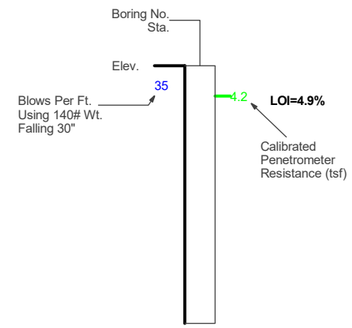
LEGEND:
① GEOTECHNICAL TEST BORING
PROPERTY LINE

FENCE DIAGRAM

SCALE: VERTICAL: 1" = 5.45'
HORIZONTAL: N.T.S.



LEGEND OF BORING



Unless otherwise specified, the blows per foot at the locations indicated are based on driving a 2" O.D.x 1. 4" I.D. split spoon sampler with a 140# hammer having a free fall of 30". The blow count is taken in undisturbed soil immediately below a cased or open hole eliminating side friction on the drive pipe.

MATERIAL SYMBOLS

- CONCRETE - Concrete
- FILL - Fill (made ground)
- CL-ML - USCS Low Plasticity Silty Clay
- SP - USCS Poorly-graded Sand
- MLS - USCS Sandy Silt
- TOPSOIL - Topsoil

FIGURE 2
Proposed Kwik Trip 631 Relocation
N112 W18741 Mequon Road
Germantown, Wisconsin
Project No. 1G-2405020

GILES ENGINEERING ASSOCIATES, INC.

GILES FENCE REPORT 11 X 17 1G2405020.GPJ GILES.GDT 6/20/24

NOTES:

BORING NO. & LOCATION: 1	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 866.4 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±6" Portland Cement Concrete										
±8" Base Course										
Fill: Brown Silty Clay, little Sand-Moist		865	1-SS	25		1.5		17	*BDL	
			2-SS	7		3.0		24	*BDL	
Brown Silty Clay, little Sand-Moist	5		3-SS	17				22	*BDL	
		860	4-SS	24				15	*BDL	
Brown fine to medium Sand, trace Silt-Wet	10		5-SS	18					*BDL	
Gray Sandy Silt-Wet		855								
	15		6-SS	29				15	*BDL	
		850								
	20		7-SS	32				16	*BDL	
Boring Terminated at about 21 feet (EL. 845.4')										

PRELIMINARY

Water Observation Data	Remarks:
Water Encountered During Drilling: 9 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405020.GPJ GILES.GDT 6/18/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 2	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 866.3 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±8" Topsoil Fill: Dark Gray Silty Clay, little Sand and Organic Matter-Moist										
Fill: Brown Silty Clay, little Sand, trace Gravel-Moist		865	1-SS	5		1.5		18	*BDL	
			2-SS	11					*BDL	
Brown Silty Clay, little Sand, trace Gravel-Moist	5		3-SS	17					*BDL	
Brown Silty Clay with Silty fine to medium Sand lenses-Wet		860	4-SS	2				15	*BDL	
Brown fine to medium Sand, trace Silt-Wet	10		5-SS	8					*BDL	
Gray Sandy Silt, trace Gravel-Wet		855								
	15		6-SS	79					*BDL	
		850								
	20		7-SS	33				16	*BDL	
Boring Terminated at about 21 feet (EL. 845.3')										

PRELIMINARY

Water Observation Data	Remarks:
Water Encountered During Drilling: 6.5 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405020.GPJ GILES.GDT 6/18/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 3	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 867.6 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±4" Portland Cement Concrete										
±8" Base Course										
Fill: Brown Silty fine to medium Sand, trace Silt and Gravel-Moist		865	1-SS	8					*BDL	
			2-SS	23					*BDL	
Brown Silty Clay, little Sand-Moist to Wet at ±6½ feet	5		3-SS	14		3.0		13	*BDL	
		860	4-SS	11				20	*BDL	
Brown Sandy Silt-Wet	10		5-SS	64					*BDL	
		855								
	15		6-SS	28					*BDL	
		850								
	20		7-SS	42					*BDL	
Boring Terminated at about 21 feet (EL. 846.6')										

Water Observation Data	Remarks:
▽ Water Encountered During Drilling: 6.5 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
▼ Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
▼ Water Level After Drilling:	
Cave Depth After Drilling:	

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

PRELIMINARY

BORING NO. & LOCATION: 4	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 865.6 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±6" Portland Cement Concrete		865	1-SS	14					*BDL	
±4" Base Course										
Fill: Brown Silty Clay, little Sand, trace Gravel-Moist			2-SS	29					*BDL	
Brown Silty Clay, little Sand-Moist	5	860	3-SS	16					*BDL	
			4-SS	17					*BDL	
Brown Sandy Silt-Moist	10	855	5-SS	33					*BDL	
Gray Sandy Silt-Wet	15	850	6-SS	28					*BDL	
	20	845	7-SS	33					*BDL	
Boring Terminated at about 21 feet (EL. 844.6')										

PRELIMINARY

Water Observation Data	Remarks:
Water Encountered During Drilling: 11 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405020.GPJ GILES.GDT 6/18/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 5	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 867.5 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±6" Portland Cement Concrete										
±8" Base Course										
Fill: Dark Brown and Brown Silty Clay, little Sand-Moist		865	1-SS	7					*BDL	
			2-SS	8		3.0		15	*BDL	
(Includes Silty fine to medium Sand lenses at ±4 feet)	5		3-SS	10		1.0		6	*BDL	
Brown Silty Clay, little Sand-Wet		860	4-SS	8		1.0		15	*BDL	
	10		5-SS	9				15	*BDL	
Gray Silty Clay, little Sand-Wet		855								
(Includes Sandy Silt lenses between ±14 feet and ±16 feet)	15		6-SS	35					*BDL	
		850								
	20		7-SS	23					*BDL	
Boring Terminated at about 21 feet (EL. 846.5')										

Water Observation Data	Remarks:
Water Encountered During Drilling: 6.5 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

PRELIMINARY

GILES LOG REPORT 1G2405020.GPJ GILES.GDT 6/18/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 6	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 867.9 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±4" Topsoil Fill: Dark Brown Silty Clay, little Sand and Organic Matter-Moist			1-SS	7					*BDL	
Fill: Brown Silty fine to medium Sand-Moist		865	2-SS	20					*BDL	
	5		3-SS	29					*BDL	
Brown Silty Clay, little Sand-Moist to Wet at ±9 feet		860	4-SS	13		2.0		10	*BDL	
	10		5-SS	12		2.0		15	*BDL	
Gray Silty Clay with Sandy Silt lenses-Wet		855								
	15		6-SS	11		1.3		10	*BDL	
		850								
	20		7-SS	34		2.3		11	*BDL	
Boring Terminated at about 21 feet (EL. 846.9')										

PRELIMINARY

Water Observation Data	Remarks:
Water Encountered During Drilling: 9 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G2405020.GPJ GILES.GDT 6/18/24

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 7	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 883 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±4" Topsoil: Dark Brown Silty Clay, little Sand and Organic Matter-Moist			1-SS	6					*BDL	
Fill: Brown Silty fine to medium Sand, trace Silt-Moist			2-SS	12					*BDL	
Brown fine to medium Sand, trace Silt-Moist		880								
	5		3-SS	18					*BDL	
			4-SS	26					*BDL	
		875								
	10		5-SS	25					*BDL	
▽										
Brown Sandy Silt-Wet										
		870								
	15		6-SS	39					*BDL	
		865								
	20		7-SS	70					*BDL	
Boring Terminated at about 21 feet (EL. 862')										

PRELIMINARY

Water Observation Data	Remarks:
▽ Water Encountered During Drilling: 11 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
▼ Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 8	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 874.4 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±4" Topsoil Fill: Dark Brown Silty Clay, little Sand and Organic Matter-Moist			1-SS	3					*BDL	
Fill: Dark Brown Silty Clay, little Sand, trace Gravel-Moist			2-SS	19					*BDL	
	5	870	3-SS	11		1.3		16	*BDL	
Brown Silty Clay, little Sand-Moist			4-SS	11		3.3		10	*BDL	
	10	865	5-SS	13	1.7	1.3		17	*BDL	
	15	860	6-SS	18		2.0		5	*BDL	
Gray Sandy Silt-Wet	20	855	7-SS	54				9	*BDL	
Boring Terminated at about 21 feet (EL. 853.4')										

PRELIMINARY

Water Observation Data	Remarks:
Water Encountered During Drilling:	*PID Results are lab screened results that may reflect differently from field screened results. *BDL = Below Detection Limit
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 9	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 864.4 feet	PROPOSED KWIK TRIP 631 RELOCATION	
COMPLETION DATE: 06/06/24	N112 W18741 MEQUON ROAD GERMANTOWN, WISCONSIN	
FIELD REP: JAMES BLAIR	PROJECT NO: 1G-2405020	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±2" Topsoil Fill: Dark Brown Silty Clay, little Sand and Organic Matter-Moist			1-SS	9					*BDL	
Fill: Brown Silty fine to medium Sand-Moist			2-SS	13					*BDL	
Brown Silty Clay, little Sand-Moist to Wet at ±8 feet	5	860	3-SS	15		1.0		11	*BDL	
	▽		4-SS	18					*BDL	
	10	855	5-SS	25		2.0		16	*BDL	
	15	850	6-SS	22				14	*BDL	
Gray Silty Clay, little Sand-Wet	20	845	7-SS	14		1.8		12	*BDL	
Boring Terminated at about 21 feet (EL. 843.4')										

PRELIMINARY

Water Observation Data	Remarks:
▽ Water Encountered During Drilling: 8 ft.	*PID Results are lab screened results that may reflect differently from field screened results.
▼ Water Level At End of Drilling:	*BDL = Below Detection Limit
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

Wisconsin Department of Safety and Professional Services
Division of Industry Services
4822 Madison Yards Way
PO Box 7302
Madison, WI 53707

Phone: 608-266-2112
Web: http://dsps.wi.gov
Email: dsps@wisconsin.gov

Program: Plumbing
Web: https://dsps.wi.gov/Pages/Programs/Plumbing

Soil and Site Evaluation – Stormwater Infiltration

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but is not limited to: vertical and horizontal reference point (BM); direction and percent of slope; scale or dimensions; north arrow; and BM referenced to nearest road.

PLEASE PRINT ALL INFORMATION

COUNTY: Washington

PARCEL ID:

PROPERTY OWNER:

PROPERTY OWNER'S MAILING ADDRESS:

CITY, STATE, ZIP CODE: PHONE:

PROPERTY LOCATION

Govt. Lot_NW ¼ NW ¼, S28, T9N,R20E

Lot #, Block #, Subd. Name or CSM #: CSM 2890

Municipality: Germantown

☐ City ☒ Village ☐ Town

Nearest Road: Maple Road

Drainage area_____ ☐sq. ft. ☐acres

Test site suitable for (check all that apply):

☐ Site not suitable ☐ Bioretention

☐ Reuse ☐ Subsurface Dispersal System

☐ Irrigation ☐ Other _____

HYDRAULIC APPLICATION TEST METHOD

☐ Morphological Evaluation

☐ Double Ring Infiltrometer

☐ Other: (specify)

_____

SOIL MOISTURE

Date of soil borings: 6/6/24

USDA-NRCS WETS VALUE:

☐ Dry = 1

☐ Normal = 2

☐ Wet = 3

1 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 866.4 ft. Elevation of Limiting Factor 857.4 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
PVMT	0-14	--	--	--	--	--	--	--	--	--
FILL	14-48	10 YR 5/4	--	SICL	1, F, SBK	M, FI	C, W	<5%	90%	0.04
B	48-108	10 YR 5/4	--	SICL	MA	M, FI	C, W	<5%	90%	0.04
C	108-132	10 YR 5/4	--	LS	1, M, GR	M, FI	G, S	<5%	20%	1.63
C	132-252	10 YR 6/1	--	SIL	1, F GR	M, FI	--	<5%	55%	0.13

Comments: Water encountered at 9 feet below ground surface.

2 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 866.3 ft. Elevation of Limiting Factor 859.8 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
FILL	0-8	10 YR 3/1	--	SICL	1, VF, SBK	M, FR	C, W	<5%	90%	0.04
FILL	8-48	10 YR 5/4	--	SICL	1, F, SBK	M, FI	C, W	10%	90%	0.04
B	48-108	10 YR 5/4	--	SICL	MA	M, FI	C, W	10%	90%	0.04
C	108-132	10 YR 5/4	--	LS	1, M, GR	M, FI	G, S	<5%	20%	1.63
C	132-252	10 YR 6/1	--	SIL	1, F GR	M, FI	--	10%	55%	0.13

Comments: Water encountered at 6½ feet below ground surface.

3 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 867.6 ft. Elevation of Limiting Factor 861.1 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
PVMT	0-12	--	--	--	--	--	--	--	--	--
FILL	12-48	10 YR 5/4	--	LS	1, M, GR	M, FI	C, W	10%	20%	1.63
B	48-108	10 YR 5/4	--	SICL	1, F, SBK	M, FI	C, W	<5%	90%	0.04
C	108-252	10 YR 6/1	--	SIL	1, F GR	M, FI	--	<5%	55%	0.13

Comments: Water encountered at 6½ feet below ground surface.

4 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 865.6 ft. Elevation of Limiting Factor 854.6 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
PVMT	0-10	--	--	--	--	--	--	--	--	--
FILL	10-48	10 YR 5/4	--	SICL	1, F, SBK	M, FI	C, W	10%	90%	0.04
B	48-108	10 YR 5/4	--	SICL	MA	M, FI	C, W	<5%	90%	0.04
C	108-132	10 YR 5/4	--	SIL	1, F GR	M, FI	--	<5%	55%	0.13
C	132-252	10 YR 6/1	--	SIL	1, F GR	M, FI	--	<5%	55%	0.13

Comments: Water encountered at 11 feet below ground surface.

5 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 867.5 ft. Elevation of Limiting Factor 861 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
PVMT	0-14	--	--	--	--	--	--	--	--	--
FILL	14-78	10 YR 5/4	--	SICL	1, F, SBK	M, FI	C, W	<5%	90%	0.04
B	78-132	10 YR 5/4	--	SICL	MA	M, FI	C, W	<5%	90%	0.04
C	132-192	10 YR 6/1	--	SIL	1, F GR	M, FI	C, W	<5%	55%	0.13
C	192-252	10 YR 6/1	--	SICL	1, F, SBK	M, FI	--	<5%	90%	0.04

Comments: Water encountered at 6½ feet below ground surface.

6 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 867.9 ft. Elevation of Limiting Factor 868.9 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
FILL	0-4	10 YR 3/3	--	SICL	1, VF, SBK	M, FR	C, W	<5%	90%	0.04
FILL	4-78	10 YR 5/4	--	SICL	1, F, SBK	M, FI	C, W	<5%	90%	0.04
B	78-132	10 YR 5/4	--	SICL	MA	M, FI	C, W	<5%	90%	0.04
C	132-252	10 YR 6/1	--	SICL	1, M, SBK	M, FI	--	<5%	90%	0.04

Comments: Water encountered at 9 feet below ground surface.

7 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 883 ft. Elevation of Limiting Factor 872 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
FILL	0-4	10 YR 3/3	--	SICL	1, VF, SBK	M, FR	C, W	<5%	90%	0.04
FILL	4-24	10 YR 5/4	--	SL	1, M, GR	M, FI	C, W	<5%	10%	0.50
C	24-132	10 YR 5/4	--	LS	1, M, GR	M, FI	C, W	<5%	20%	1.63
C	132-252	10 YR 5/4	--	SIL	1, F, GR	M, FI	--	<5%	55%	0.13

Comments: Water encountered at 11 feet below ground surface.

8 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 874.4 ft. Elevation of Limiting Factor 858.4 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
FILL	0-4	10 YR 5/4	--	SICL	1, VF, SBK	M, FR	C, W	<5%	90%	0.04
FILL	4-78	10 YR 3/3	--	SICL	1, F, SBK	M, FI	C, W	10%	90%	0.04
B	78-192	10 YR 5/4	--	SICL	MA	M, FI	C, W	<5%	90%	0.04
C	192-252	10 YR 6/1	--	SIL	1, F GR	M, FI	--	<5%	55%	0.13

Comments: Wet soil encountered at 16 feet below ground surface.

9 #OBS. ☐ Pit ☒ Boring Ground Surface Elevation 864.4 ft. Elevation of Limiting Factor 856.4 ft.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App. Rate Inches/Hr.
FILL	0-2	10 YR 3/3	--	SICL	1, VF, SBK	M, FR	C, W	<5%	90%	0.04
FILL	2-48	10 YR 5/4	--	SICL	1, M, SBK	M, FI	C, W	<5%	90%	0.04
B	48-192	10 YR 5/4	--	SICL	MA	M, FI	C, W	<5%	90%	0.04
C	192-252	10 YR 6/1	--	SICL	1, F, SBK	M, FI	--	<5%	90%	0.04

Comments: Water encountered at 8 feet below ground surface.

Overall Site Comments:

Benjamin M. Stark, P.E.		P.E. No.: 48164-6
Name (Please Print)	Signature	Credential Number
N8 W22350 Johnson Drive, Waukesha, WI	June 6, 2024	(262) 544-0118
Address	Date Evaluation Conducted	Phone Number

Appendix 3

Water Quality Calculations & WinSLAMM Inputs

POST DEVELOPMENT WATERSHED AREA

4.806 AC.
XX% IMPERVIOUS
CN= 90

SUB-AREA 1

AREA = 3.522 AC.
79% IMPERVIOUS
CN = 94
TC = 6.0 MIN.

SUB-AREA IA

AREA = 0.442 AC.
XX% IMPERVIOUS
CN = XX
TC = 6.0 MIN.

SUB-AREA 2

AREA = 0.842 AC.
1% IMPERVIOUS
CN = 72
TC = 6.0 MIN.

SUB-AREA 1

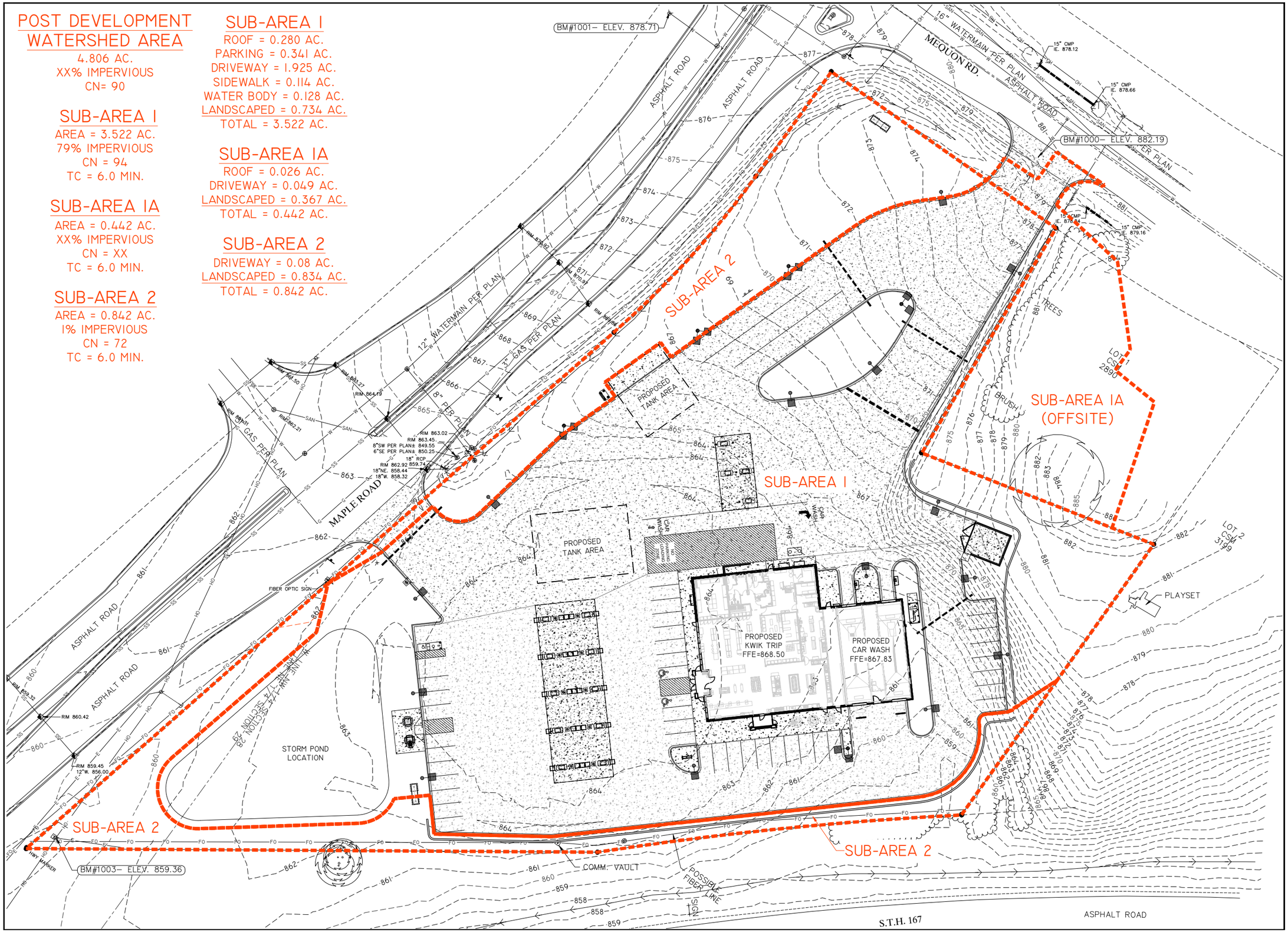
ROOF = 0.280 AC.
PARKING = 0.341 AC.
DRIVEWAY = 1.925 AC.
SIDEWALK = 0.114 AC.
WATER BODY = 0.128 AC.
LANDSCAPED = 0.734 AC.
TOTAL = 3.522 AC.

SUB-AREA IA

ROOF = 0.026 AC.
DRIVEWAY = 0.049 AC.
LANDSCAPED = 0.367 AC.
TOTAL = 0.442 AC.

SUB-AREA 2

DRIVEWAY = 0.08 AC.
LANDSCAPED = 0.834 AC.
TOTAL = 0.842 AC.



KWIK TRIP STORES
KWIK STAR STORES

WI 54602-2107
(608) 781-8988
FAX (608) 781-8960

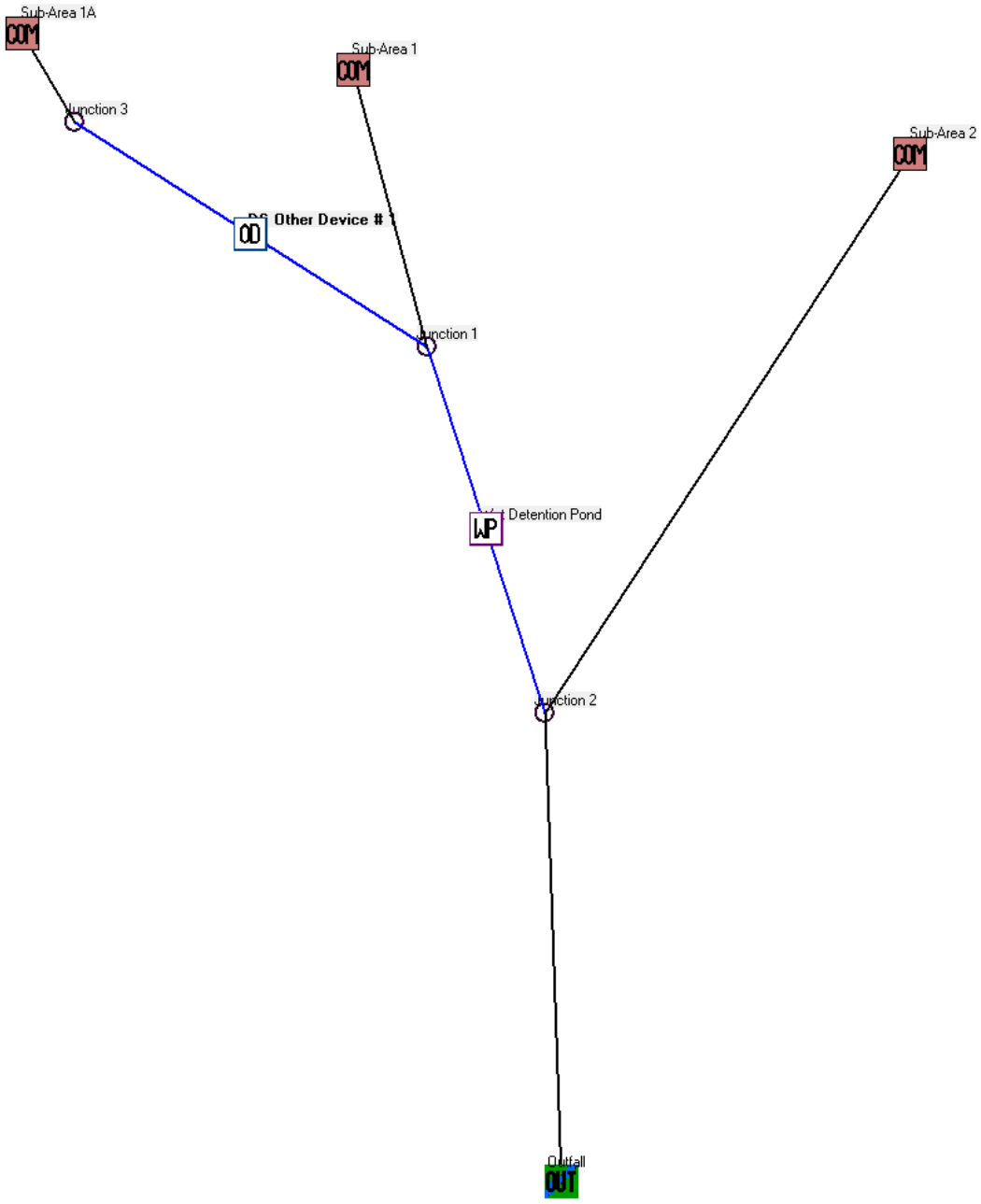
REI
CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING
REI Engineering, INC.
4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784 FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

SCALE
0 30 60

STORE #631
67 & MAPLE ROAD
RMANTOWN, WI

DRAWN BY	NAP
SCALE	GRAPHIC
PROJ. NO.	11757
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	STM-1

SITE TSS REMOVAL WINSLAMM INPUT



WET DETENTION POND INPUT

Wet Detention Control Device

Pond Number 1

Drainage System Control Practice

	Stage (ft)	Area (acres)	Cumulative Volume (ac-ft)
0	0.00	0.0000	0.0000
1	0.01	0.0284	0.000
2	1.00	0.0368	0.032
3	2.00	0.0462	0.074
4	3.00	0.0567	0.125
5	4.00	0.0677	0.188
6	4.20	0.0700	0.201
7	5.00	0.1277	0.280
8	6.00	0.1520	0.420
9	7.00	0.1775	0.585
10	8.00	0.2043	0.776
11	9.00	0.2322	0.994
12	10.00	0.2615	1.241
13	11.00	0.2922	1.518
14	11.50	0.3080	1.668
15			
16			
17			

Initial Stage Elevation (ft): 5.00

Maximum Inflow into Pond (cfs)
Enter 0 or leave blank for no limit:

Enter Two Stage Area Values in Rows 1 and 2, and Press to Interpolate

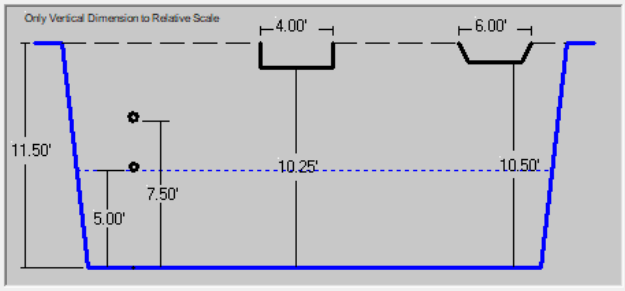
Create Pond Stage-Area Values | Refresh Schematic

Enter fraction (greater than 0) that you want to modify all pond areas by and then select 'Modify Pond Areas' button: 0.00

Modify Pond Areas

Copy Pond Data | Paste Pond Data | Recalculate Cumulative Volume

Save or Delete Pond Data to Database File | Get Pond Data From Database File



To Delete This Practice, Right Mouse Click on Icon and Select Delete

Cancel | Continue

Press 'F1' for Help

Control Practice # : 1 | CP Index # : 1

Remove **Sharp Crested Weir**

Weir Length (ft)	4.00
Height from datum to bottom of weir opening (ft)	10.25

Add **V-Notch Weir**

Weir Angle (<180 degrees)	
Height from datum to bottom of weir opening (ft)	
Number of V-Notch weirs	

Remove **Orifice Set 1**

Orifice Diameter (ft)	0.33
Invert elevation above datum (ft)	5.00
Number of orifices in set	1

Remove **Orifice Set 2**

Orifice Diameter (ft)	0.42
Invert elevation above datum (ft)	7.50
Number of orifices in set	1

Add **Orifice Set 3**

Orifice Diameter (ft)	
Invert elevation above datum (ft)	
Number of orifices in set	

Add **Stone Weeper**

Width at bottom of weeper (ft)	
Weeper side slope (_H:1V)	
Upstream side slope (_H:1V)	
Downstream side slope (_H:1V)	
Horizontal flow path length at top of weeper (ft)	
Average rock diameter (ft)	
Distance from bottom to top of weeper (ft)	
Height from datum to bottom of weeper (ft)	

Add **Vertical Stand Pipe**

Pipe diameter (ft)	
Height above datum (ft)	

Add | Add

Month	Evaporation (in/day)	Water Withdraw Rate (ac-ft/day)
Jan	0.00	0.000
Feb	0.00	0.000
Mar	0.00	0.000
Apr	0.00	0.000
May	0.00	0.000
Jun	0.00	0.000
Jul	0.00	0.000
Aug	0.00	0.000
Sep	0.00	0.000
Oct	0.00	0.000
Nov	0.00	0.000
Dec	0.00	0.000

Add | Add

Stage (ft)	Natural Seepage Rate (in/hr)	Other Outflow Rate (cfs)
0.00	0.00	0.000
0.01	0.00	0.000
1.00	0.00	0.000
2.00	0.00	0.000
3.00	0.00	0.000
4.00	0.00	0.000
4.20	0.00	0.000

Remove **Broad Crested Weir (Required)**

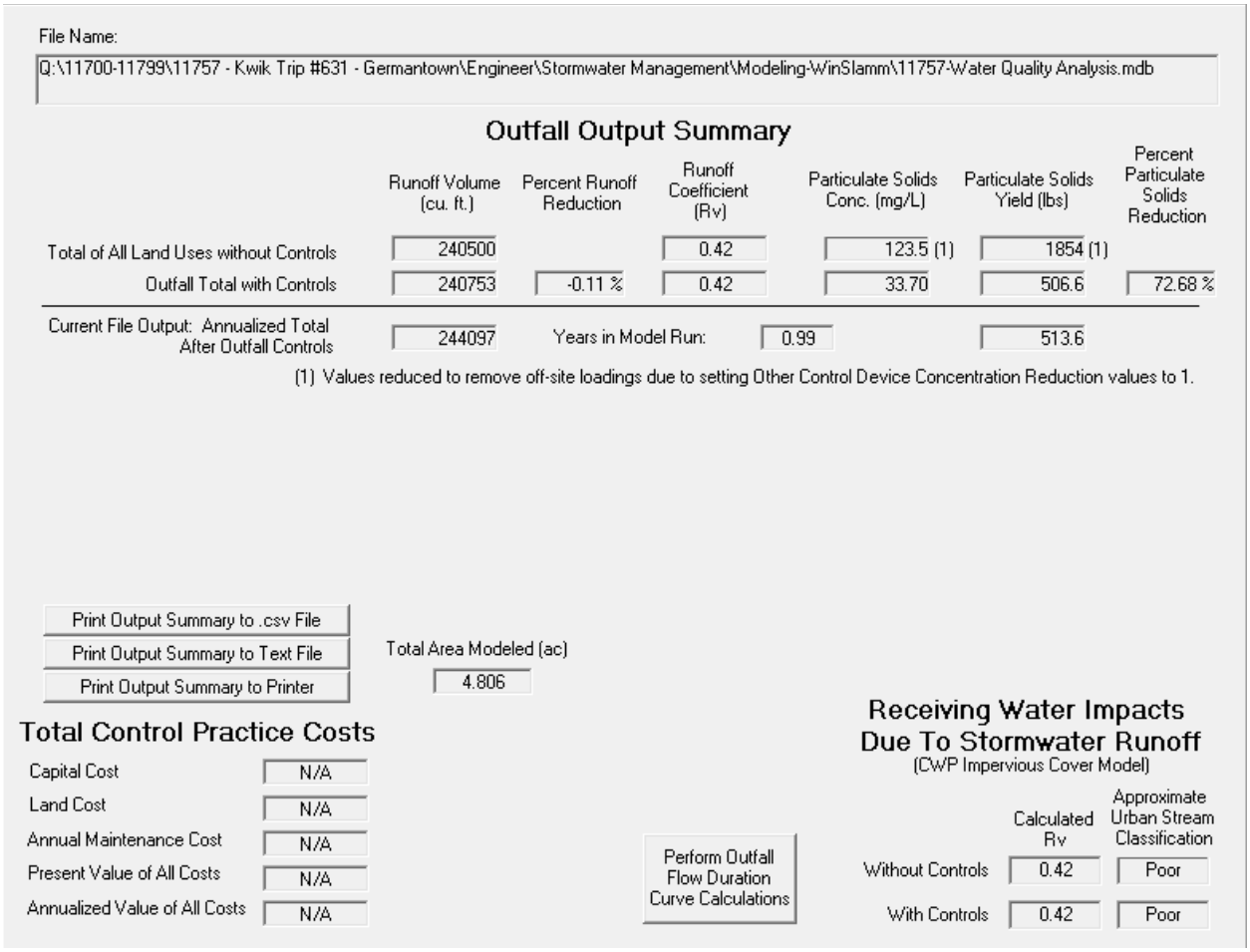
Weir crest length (ft)	6.00
Weir crest width (ft)	14.00
Height from datum to bottom of weir opening (ft)	10.50

Add **Seepage Basin**

Infiltration rate (in/hr)	
Width of device (ft)	
Length of device (ft)	
Invert elevation of seepage basin inlet above datum (ft)	

Add **Pump**

WINSLAMM OUTPUT



File Name:

Q:\11700-11799\11757 - Kwik Trip #631 - Germantown\Engineer\Stormwater Management\Modeling-WinSlamm\11757-Water Quality Analysis.mdb

Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	240500		0.42	123.5 (1)	1854 (1)	
Outfall Total with Controls	240753	-0.11 %	0.42	33.70	506.6	72.68 %
Current File Output: Annualized Total After Outfall Controls	244097	Years in Model Run:	0.99		513.6	

(1) Values reduced to remove off-site loadings due to setting Other Control Device Concentration Reduction values to 1.

Print Output Summary to .csv File
Print Output Summary to Text File
Print Output Summary to Printer

Total Area Modeled (ac): 4.806

Total Control Practice Costs

Capital Cost	N/A
Land Cost	N/A
Annual Maintenance Cost	N/A
Present Value of All Costs	N/A
Annualized Value of All Costs	N/A

Perform Outfall Flow Duration Curve Calculations

Receiving Water Impacts Due To Stormwater Runoff

(CWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.42	Poor
With Controls	0.42	Poor

ANNUAL YIELD OF TSS (NO CONTROL) = 1,854 lbs

ANNUAL YIELD OF TSS AFTER CONTROLS = 506.6 lbs

PERCENT TSS REDUCTION = 72.68%

Data file name: Q:\11700-11799\11757 - Kwik Trip #631 - Germantown\Engineer\Stormwater Management\Modeling-WinSlamm\11757-Water Quality Analysis.mdb
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/06 End of Winter Season: 03/28
Date: 10-09-2024 Time: 12:41:33
Site information:

LU# 1 - Commercial: Sub-Area 1 Total area (ac): 3.522
1 - Roofs 1: 0.280 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 0.341 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 1.925 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.114 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.020 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
46 - Large Landscaped Areas 2: 0.714 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.128 ac. PSD File: Source Area PSD File:

LU# 2 - Commercial: Sub-Area 2 Total area (ac): 0.842
25 - Driveways 1: 0.008 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.290 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
46 - Large Landscaped Areas 2: 0.159 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
47 - Large Landscaped Areas 3: 0.385 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Commercial: Sub-Area 1A Total area (ac): 0.442
1 - Roofs 1: 0.026 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.049 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.367 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Wet Detention Pond CP# 1 (DS) - Wet Detention Pond

Particle Size Distribution file name: Not needed - calculated by program

Initial stage elevation (ft): 5

Peak to Average Flow Ratio: 3.8

Maximum flow allowed into pond (cfs): No maximum value entered

Outlet Characteristics:

Outlet type: Sharp Crested Weir

1. Sharp crested weir length (ft): 4
2. Sharp crested weir height from invert: 1.25
3. Sharp crested weir invert elevation above datum (ft): 10.25

Outlet type: Orifice 1

1. Orifice diameter (ft): 0.33
2. Number of orifices: 1
3. Invert elevation above datum (ft): 5

Outlet type: Orifice 2

1. Orifice diameter (ft): 0.42
2. Number of orifices: 1
3. Invert elevation above datum (ft): 7.5

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 6
2. Weir crest width (ft): 14
3. Height from datum to bottom of weir opening: 10.5

Pond stage and surface area

Entry Number	Stage (ft)	Pond Area (acres)	Natural Seepage (in/hr)	Other Outflow (cfs)
0	0.00	0.0000	0.00	0.00
1	0.01	0.0284	0.00	0.00
2	1.00	0.0368	0.00	0.00
3	2.00	0.0462	0.00	0.00
4	3.00	0.0567	0.00	0.00
5	4.00	0.0677	0.00	0.00
6	4.20	0.0700	0.00	0.00
7	5.00	0.1277	0.00	0.00
8	6.00	0.1520	0.00	0.00
9	7.00	0.1775	0.00	0.00
10	8.00	0.2043	0.00	0.00
11	9.00	0.2322	0.00	0.00
12	10.00	0.2615	0.00	0.00
13	11.00	0.2922	0.00	0.00
14	11.50	0.3080	0.00	0.00

Control Practice 2: Other Device CP# 1 (DS) - DS Other Device # 1

Fraction of drainage area served by device (ac) = 1.00

Particulate Concentration reduction fraction = 1.00

Filterable Concentration reduction fraction = 0.00

Runoff volume reduction fraction = 0

Appendix 4

Post-Development Conditions Peak Flow Analysis

POST DEVELOPMENT WATERSHED AREA

4.806 AC.
XX% IMPERVIOUS
CN= 90

SUB-AREA 1

AREA = 3.522 AC.
79% IMPERVIOUS
CN = 94
TC = 6.0 MIN.

SUB-AREA IA

AREA = 0.442 AC.
XX% IMPERVIOUS
CN = XX
TC = 6.0 MIN.

SUB-AREA 2

AREA = 0.842 AC.
1% IMPERVIOUS
CN = 72
TC = 6.0 MIN.

SUB-AREA 1

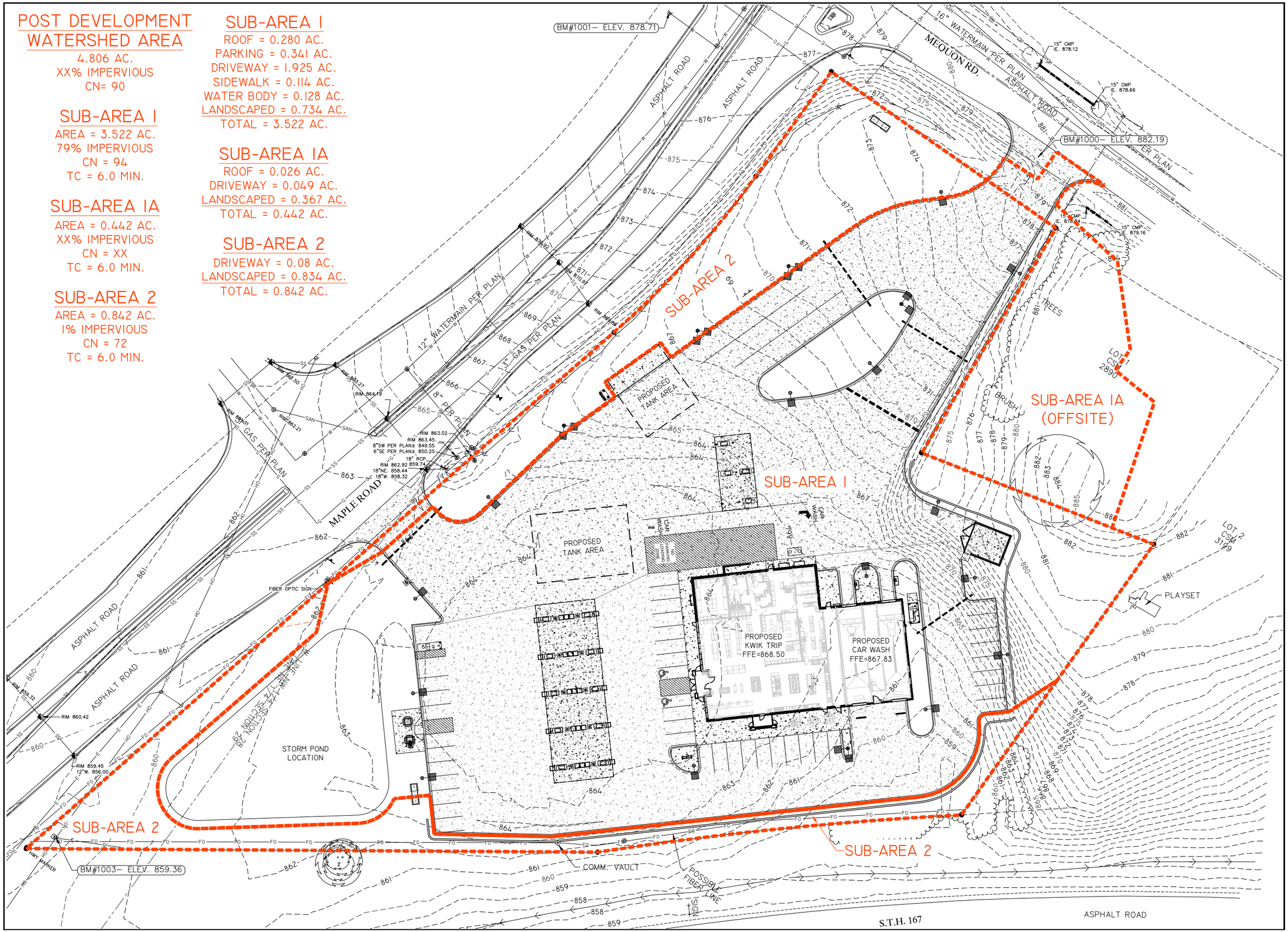
ROOF = 0.280 AC.
PARKING = 0.341 AC.
DRIVEWAY = 1.925 AC.
SIDEWALK = 0.114 AC.
WATER BODY = 0.128 AC.
LANDSCAPED = 0.734 AC.
TOTAL = 3.522 AC.

SUB-AREA IA

ROOF = 0.026 AC.
DRIVEWAY = 0.049 AC.
LANDSCAPED = 0.367 AC.
TOTAL = 0.442 AC.

SUB-AREA 2

DRIVEWAY = 0.08 AC.
LANDSCAPED = 0.834 AC.
TOTAL = 0.842 AC.



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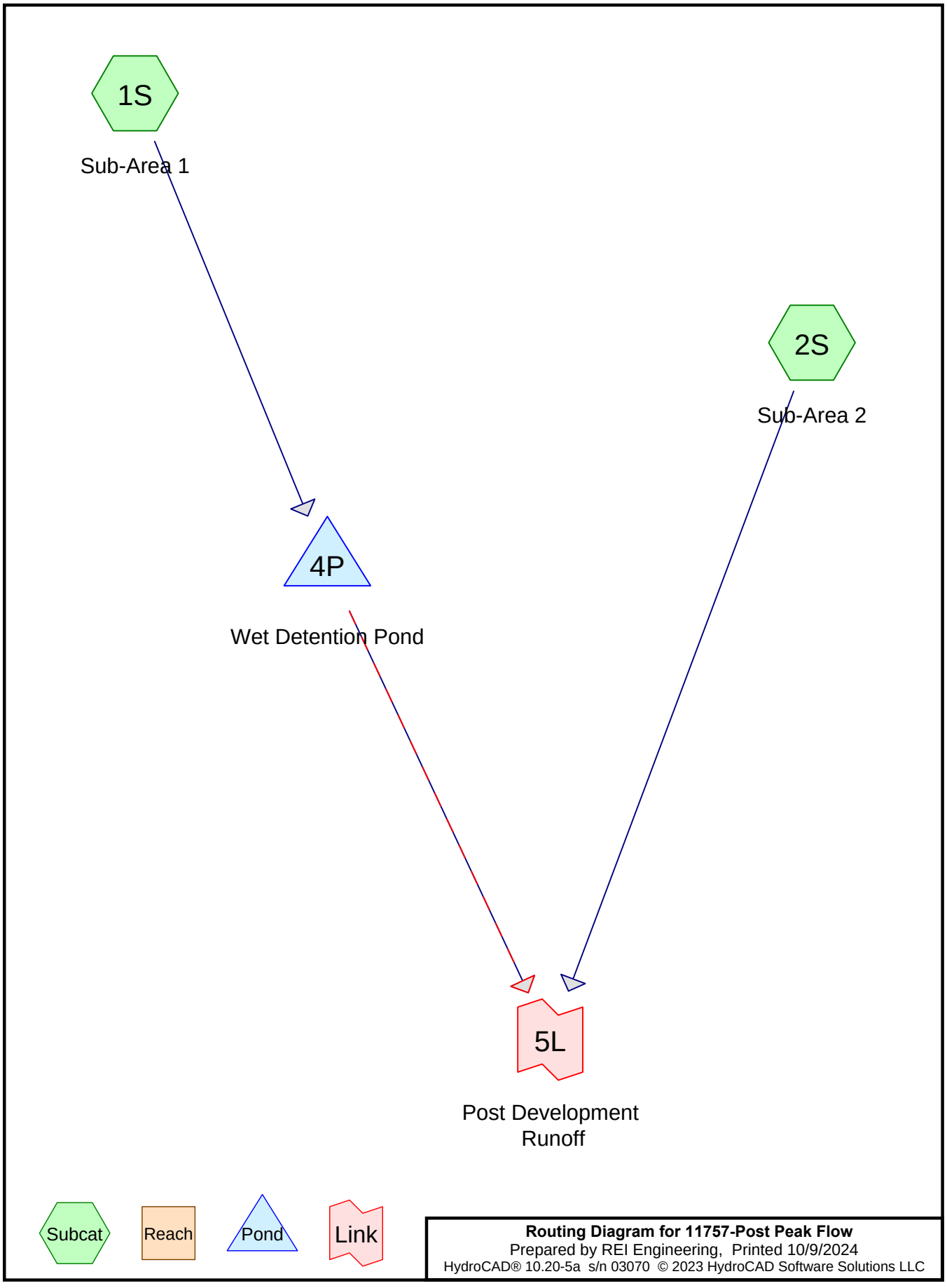
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	STM-1


1S
Sub-Area 1
2S
Sub-Area 2
4P
Wet Detention Pond
5L
Post Development
Runoff
Subcat
Reach
Pond
Link
Routing Diagram for 11757-Post Peak Flow
Prepared by REI Engineering, Printed 10/9/2024
HydroCAD® 10.20-5a s/n 03070 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	MSE 24-hr	3	Default	24.00	1	2.65	2

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Sub-Area 1 Runoff Area=3.522 ac 79.16% Impervious Runoff Depth=2.13"
Tc=6.0 min CN=WQ Runoff=11.75 cfs 0.624 af

Subcatchment 2S: Sub-Area 2 Runoff Area=0.842 ac 0.95% Impervious Runoff Depth=0.69"
Flow Length=396' Tc=10.6 min CN=WQ Runoff=0.79 cfs 0.049 af

Pond 4P: Wet Detention Pond Peak Elev=860.44' Storage=16,795 cf Inflow=11.75 cfs 0.624 af
Primary=0.63 cfs 0.622 af Secondary=0.00 cfs 0.000 af Outflow=0.63 cfs 0.622 af

Link 5L: Post Development Runoff Inflow=1.35 cfs 0.671 af
Primary=1.35 cfs 0.671 af

Total Runoff Area = 4.364 ac Runoff Volume = 0.673 af Average Runoff Depth = 1.85"
35.93% Pervious = 1.568 ac 64.07% Impervious = 2.796 ac

Summary for Subcatchment 1S: Sub-Area 1

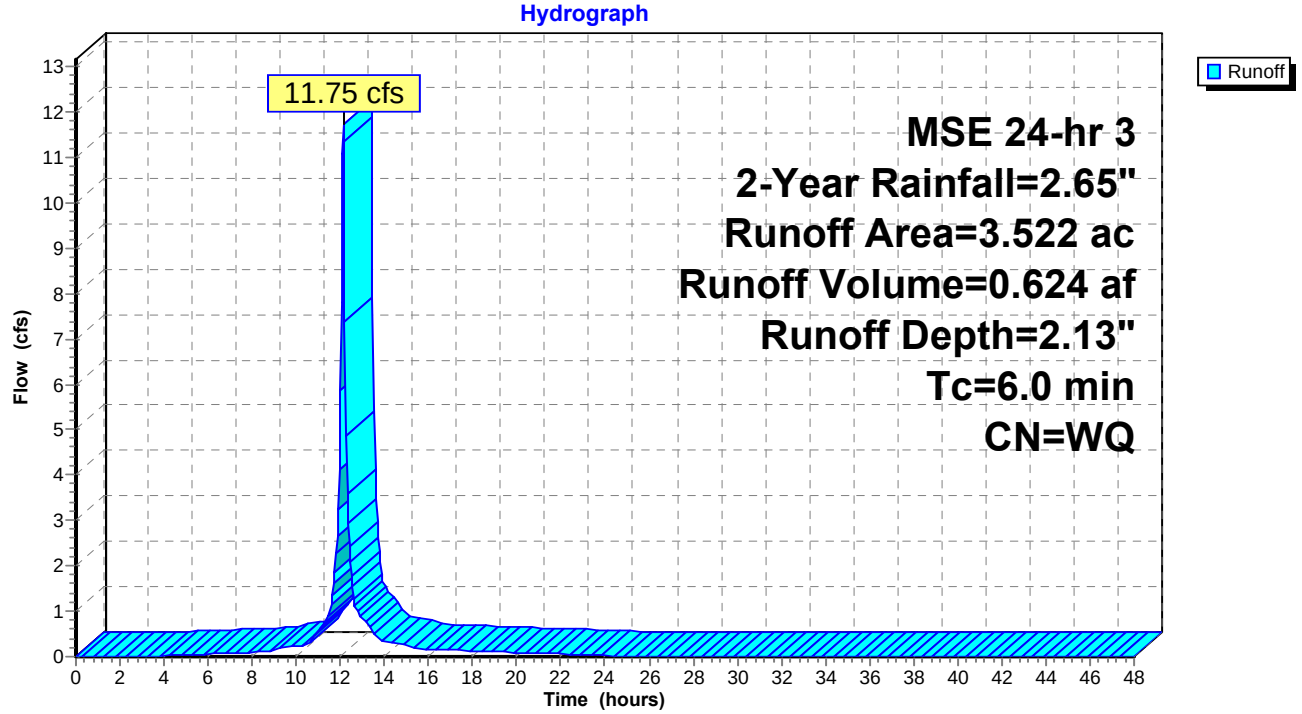
Runoff = 11.75 cfs @ 12.13 hrs, Volume= 0.624 af, Depth= 2.13"
Routed to Pond 4P : Wet Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.65"

	Area (ac)	CN	Description
*	0.280	98	Roof
*	0.341	98	Parking
*	1.925	98	Driveway
*	0.114	98	Sidewalk
	0.020	61	>75% Grass cover, Good, HSG B
	0.714	80	>75% Grass cover, Good, HSG D
*	0.128	100	Water Body
	3.522		Weighted Average
	0.734		20.84% Pervious Area
	2.788		79.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Sub-Area 1



Summary for Subcatchment 2S: Sub-Area 2

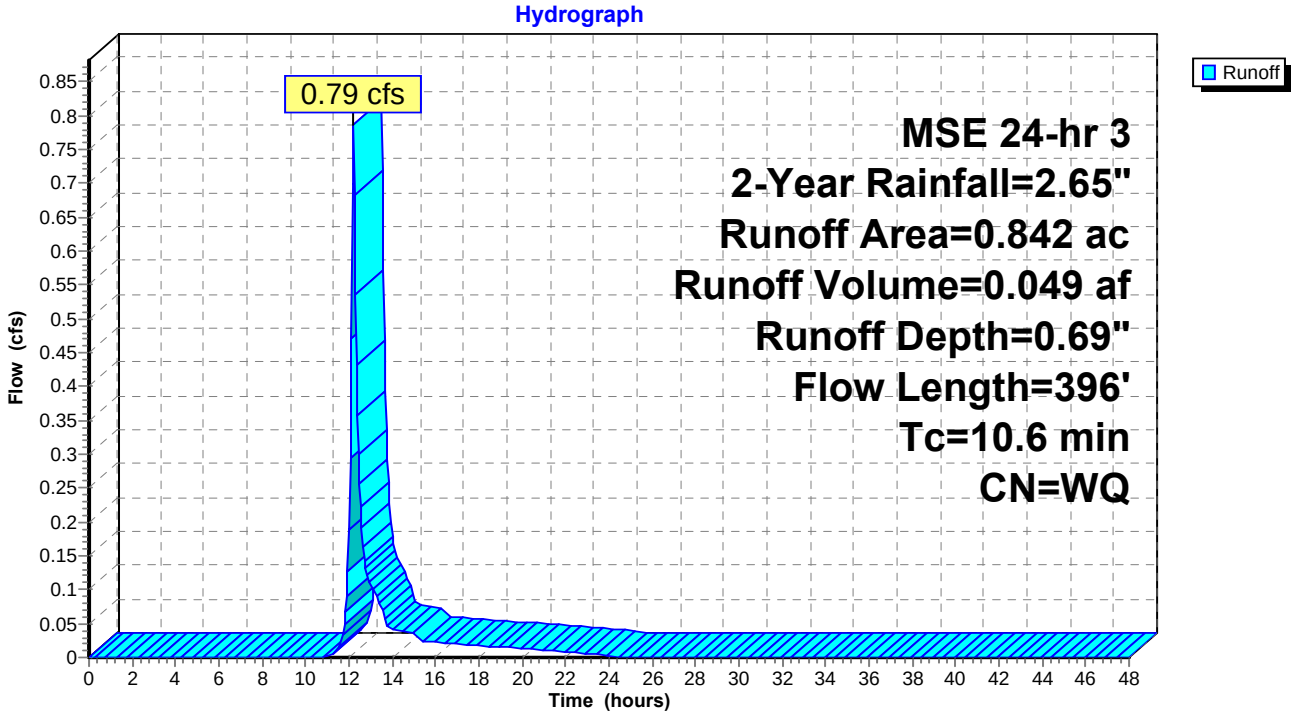
Runoff = 0.79 cfs @ 12.20 hrs, Volume= 0.049 af, Depth= 0.69"
Routed to Link 5L : Post Development Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.65"

	Area (ac)	CN	Description
*	0.008	98	Driveway
	0.290	61	>75% Grass cover, Good, HSG B
	0.159	74	>75% Grass cover, Good, HSG C
	0.385	80	>75% Grass cover, Good, HSG D
	0.842		Weighted Average
	0.834		99.05% Pervious Area
	0.008		0.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0310	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.65"
1.6	296	0.0360	3.05		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.6	396	Total			

Subcatchment 2S: Sub-Area 2



Summary for Pond 4P: Wet Detention Pond

Inflow Area = 3.522 ac, 79.16% Impervious, Inflow Depth = 2.13" for 2-Year event
Inflow = 11.75 cfs @ 12.13 hrs, Volume= 0.624 af
Outflow = 0.63 cfs @ 13.33 hrs, Volume= 0.622 af, Atten= 95%, Lag= 72.3 min
Primary = 0.63 cfs @ 13.33 hrs, Volume= 0.622 af
Routed to Link 5L : Post Development Runoff
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 5L : Post Development Runoff

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 860.44' @ 13.33 hrs Surf.Area= 8,240 sf Storage= 16,795 cf

Plug-Flow detention time= 328.0 min calculated for 0.622 af (100% of inflow)
Center-of-Mass det. time= 327.0 min (1,087.2 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1	858.00'	60,396 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

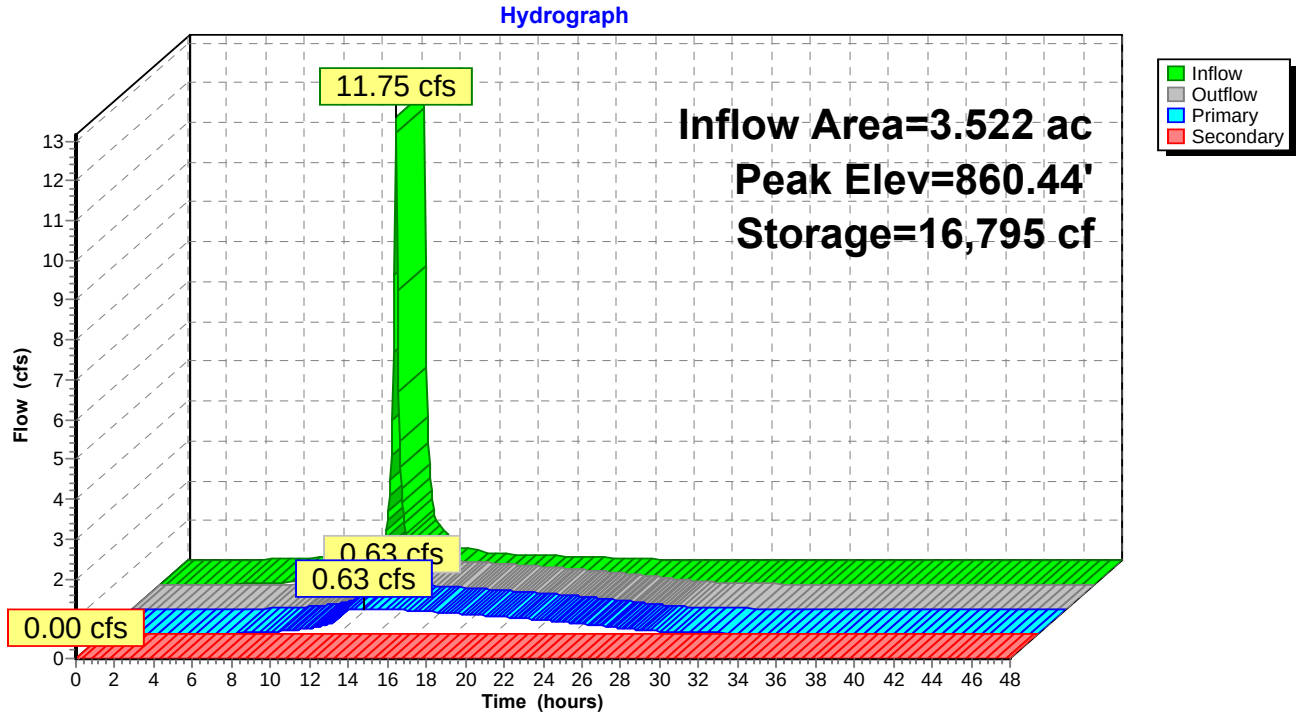
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
858.00	5,564	342.3	0	0	5,564
859.00	6,619	361.2	6,084	6,084	6,679
860.00	7,731	380.0	7,168	13,252	7,848
861.00	8,900	398.9	8,309	21,560	9,083
862.00	10,113	417.3	9,500	31,060	10,346
863.00	11,392	436.1	10,746	41,807	11,692
864.00	12,728	454.9	12,054	53,860	13,097
864.50	13,417	464.4	6,535	60,396	13,829

Device	Routing	Invert	Outlet Devices
#1	Primary	858.00'	**12.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 858.00' / 856.00' S= 0.0333 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	858.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	860.50'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	863.25'	**4.0' long x 1.25' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Secondary	863.50'	**6.0' long + 3.0 '/' SideZ x 14.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.64 2.67 2.70 2.65 2.64 2.65 2.65 2.63

Primary OutFlow Max=0.63 cfs @ 13.33 hrs HW=860.44' (Free Discharge)
└**1=Culvert** (Passes 0.63 cfs of 4.16 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.63 cfs @ 7.27 fps)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=858.00' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: Wet Detention Pond

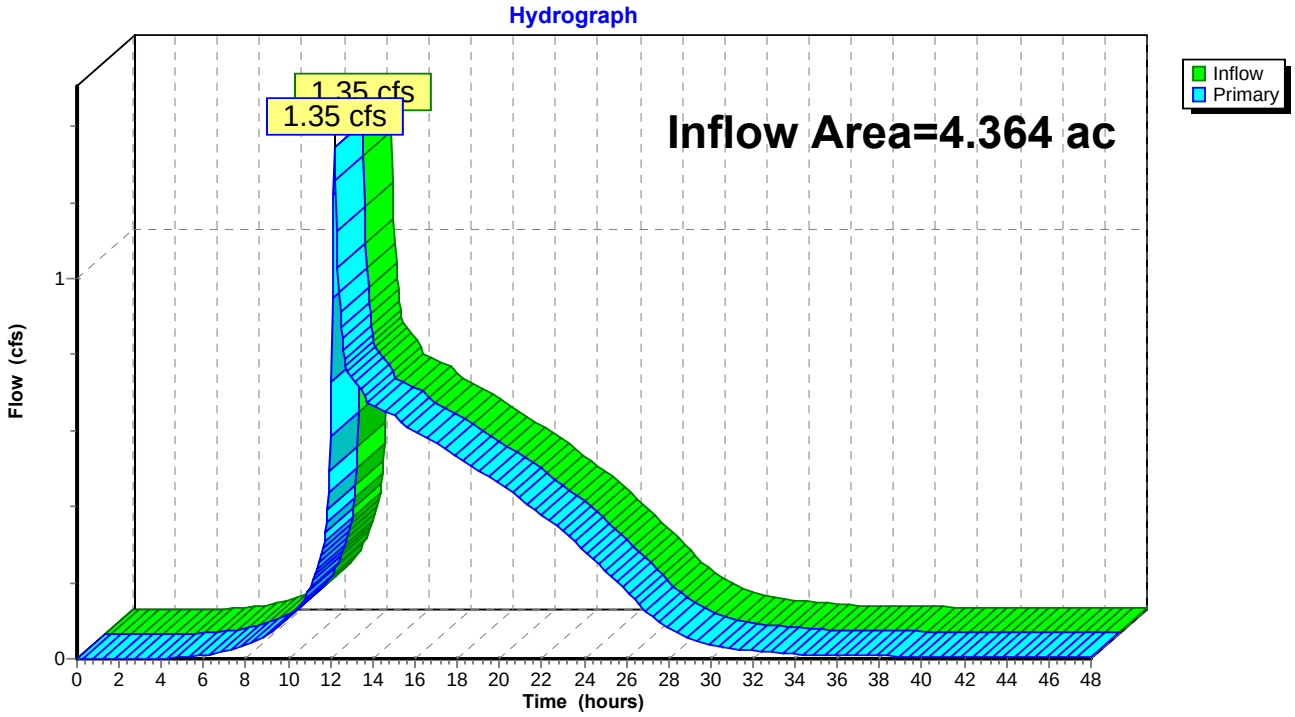


Summary for Link 5L: Post Development Runoff

Inflow Area = 4.364 ac, 64.07% Impervious, Inflow Depth > 1.84" for 2-Year event
Inflow = 1.35 cfs @ 12.20 hrs, Volume= 0.671 af
Primary = 1.35 cfs @ 12.20 hrs, Volume= 0.671 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: Post Development Runoff



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Sub-Area 1 Runoff Area=3.522 ac 79.16% Impervious Runoff Depth=5.75"
Tc=6.0 min CN=WQ Runoff=30.96 cfs 1.687 af

Subcatchment 2S: Sub-Area 2 Runoff Area=0.842 ac 0.95% Impervious Runoff Depth=3.41"
Flow Length=396' Tc=10.6 min CN=WQ Runoff=4.21 cfs 0.239 af

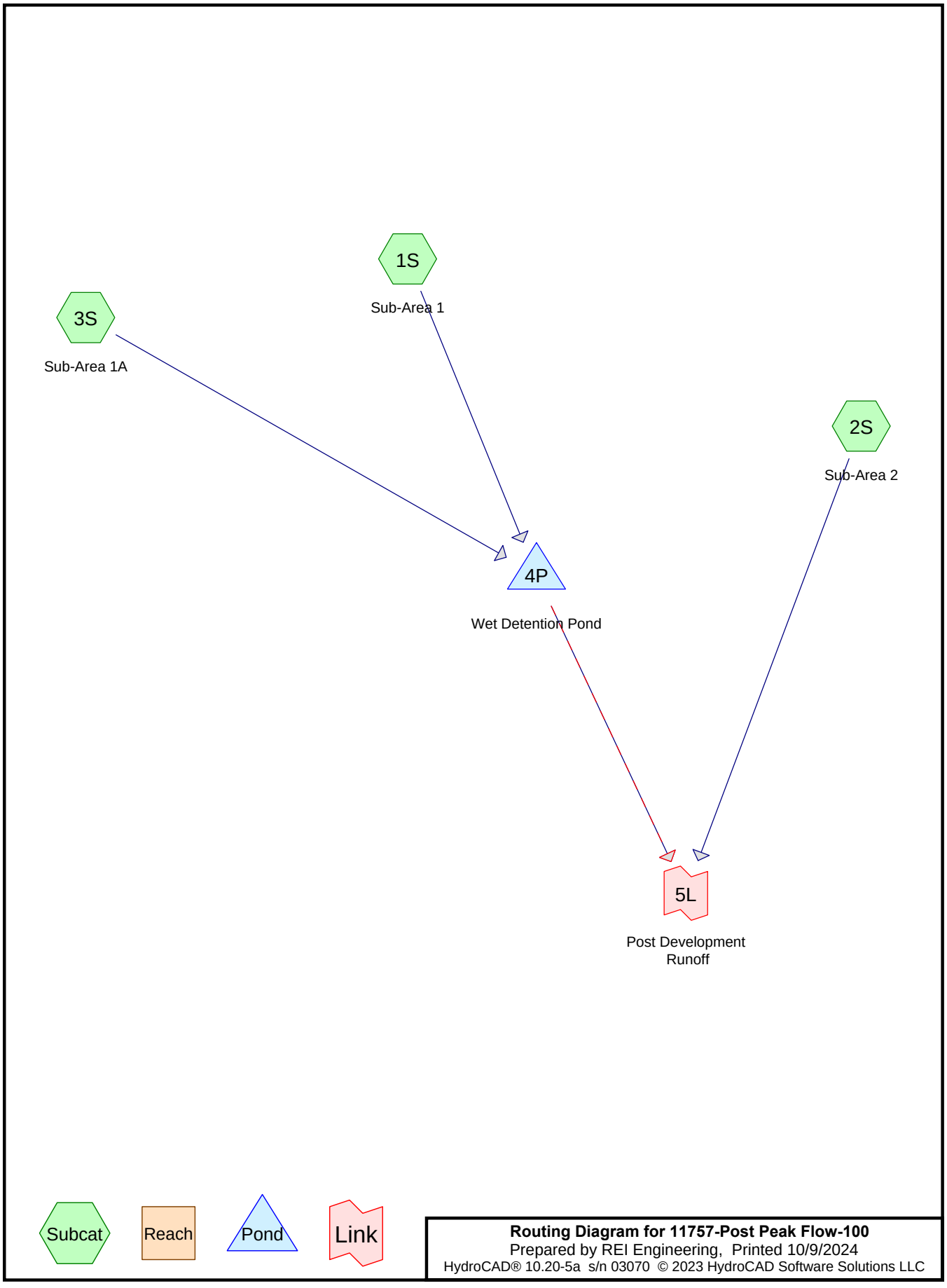
Pond 4P: Wet Detention Pond Peak Elev=863.26' Storage=44,800 cf Inflow=30.96 cfs 1.687 af
Primary=2.01 cfs 1.683 af Secondary=0.00 cfs 0.000 af Outflow=2.01 cfs 1.683 af

Link 5L: Post Development Runoff Inflow=5.92 cfs 1.923 af
Primary=5.92 cfs 1.923 af

Total Runoff Area = 4.364 ac Runoff Volume = 1.927 af Average Runoff Depth = 5.30"
35.93% Pervious = 1.568 ac 64.07% Impervious = 2.796 ac

Appendix 5

Detention Pond Safe Passage Analysis



Routing Diagram for 11757-Post Peak Flow-100
Prepared by REI Engineering, Printed 10/9/2024
HydroCAD® 10.20-5a s/n 03070 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-Year	MSE 24-hr	3	Default	24.00	1	6.41	2

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Sub-Area 1 Runoff Area=3.522 ac 79.16% Impervious Runoff Depth=5.75"
Tc=6.0 min CN=WQ Runoff=30.96 cfs 1.687 af

Subcatchment 2S: Sub-Area 2 Runoff Area=0.842 ac 0.95% Impervious Runoff Depth=3.41"
Flow Length=396' Tc=10.6 min CN=WQ Runoff=4.21 cfs 0.239 af

Subcatchment 3S: Sub-Area 1A Runoff Area=0.442 ac 16.97% Impervious Runoff Depth=4.50"
Tc=6.0 min CN=WQ Runoff=3.36 cfs 0.166 af

Pond 4P: Wet Detention Pond Peak Elev=863.49' Storage=47,517 cf Inflow=34.32 cfs 1.853 af
Primary=3.56 cfs 1.849 af Secondary=0.00 cfs 0.000 af Outflow=3.56 cfs 1.849 af

Link 5L: Post Development Runoff Inflow=6.03 cfs 2.088 af
Primary=6.03 cfs 2.088 af

Total Runoff Area = 4.806 ac Runoff Volume = 2.092 af Average Runoff Depth = 5.22"
40.26% Pervious = 1.935 ac 59.74% Impervious = 2.871 ac

Summary for Subcatchment 1S: Sub-Area 1

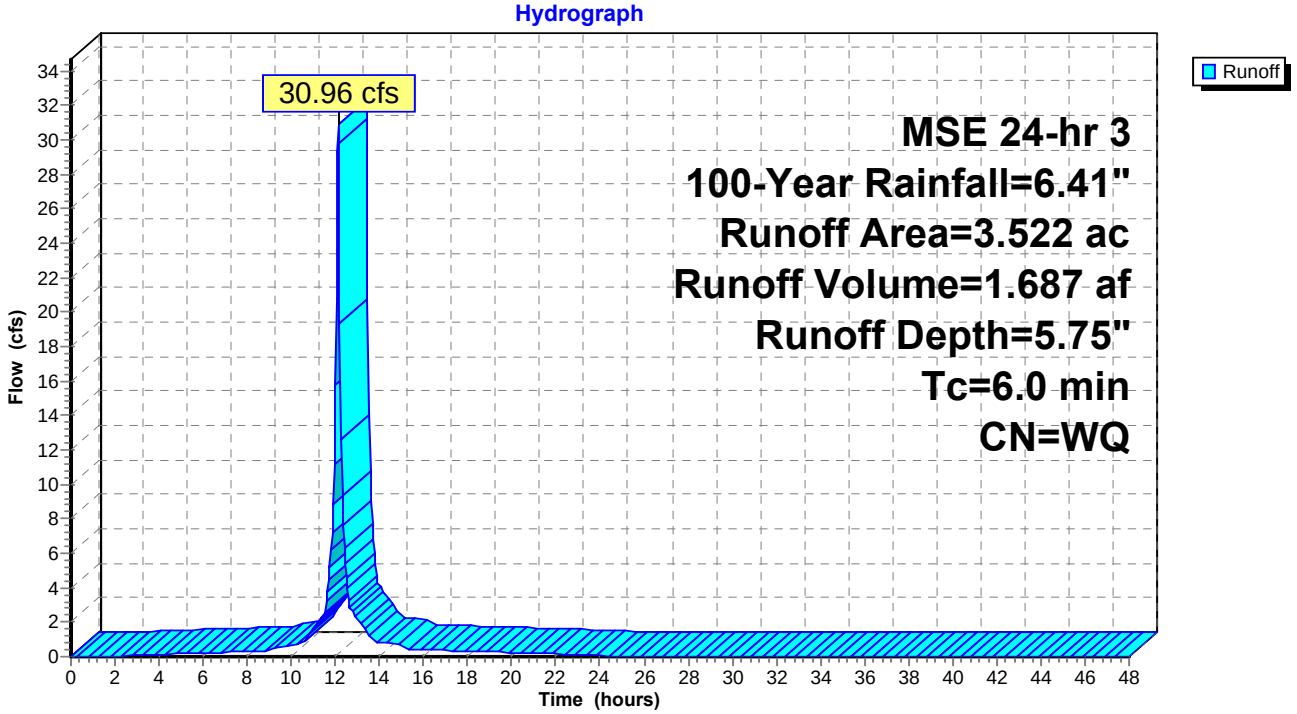
Runoff = 30.96 cfs @ 12.13 hrs, Volume= 1.687 af, Depth= 5.75"
Routed to Pond 4P : Wet Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=6.41"

	Area (ac)	CN	Description
*	0.280	98	Roof
*	0.341	98	Parking
*	1.925	98	Driveway
*	0.114	98	Sidewalk
	0.020	61	>75% Grass cover, Good, HSG B
	0.714	80	>75% Grass cover, Good, HSG D
*	0.128	100	Water Body
	3.522		Weighted Average
	0.734		20.84% Pervious Area
	2.788		79.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Sub-Area 1



Summary for Subcatchment 2S: Sub-Area 2

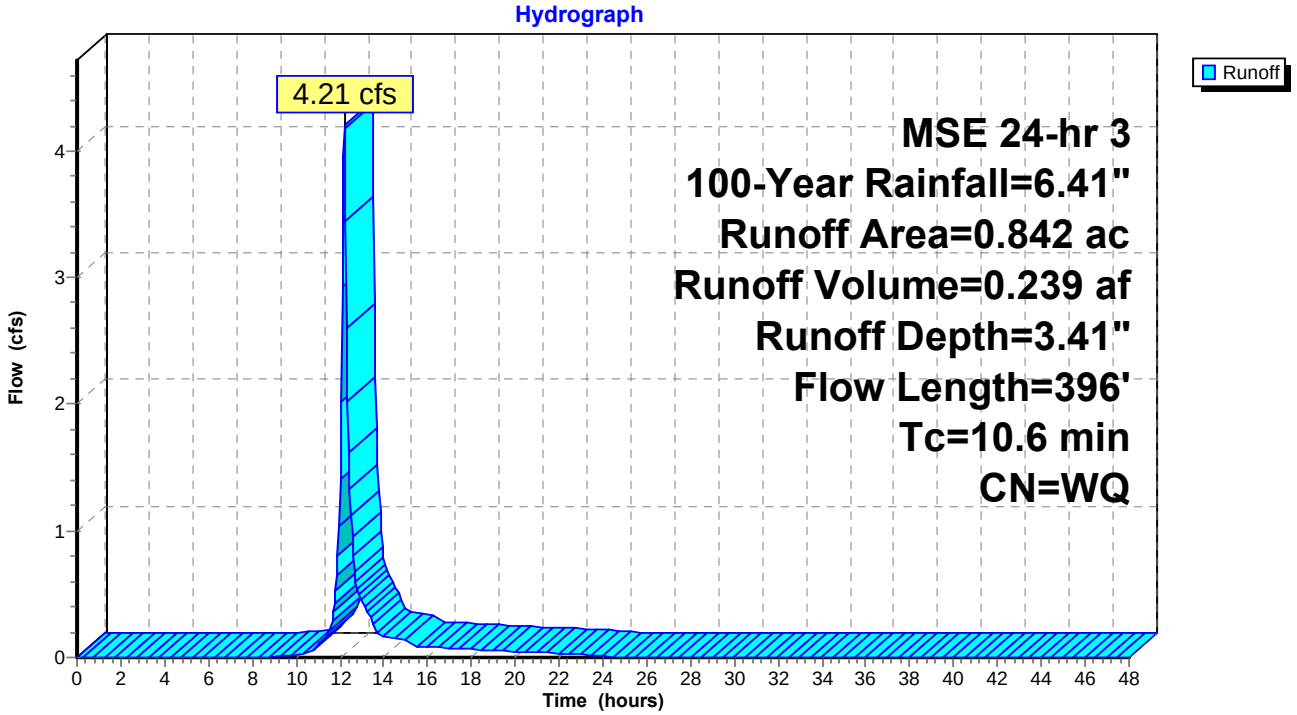
Runoff = 4.21 cfs @ 12.19 hrs, Volume= 0.239 af, Depth= 3.41"
Routed to Link 5L : Post Development Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=6.41"

	Area (ac)	CN	Description
*	0.008	98	Driveway
	0.290	61	>75% Grass cover, Good, HSG B
	0.159	74	>75% Grass cover, Good, HSG C
	0.385	80	>75% Grass cover, Good, HSG D
	0.842		Weighted Average
	0.834		99.05% Pervious Area
	0.008		0.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0310	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.65"
1.6	296	0.0360	3.05		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.6	396	Total			

Subcatchment 2S: Sub-Area 2



Summary for Subcatchment 3S: Sub-Area 1A

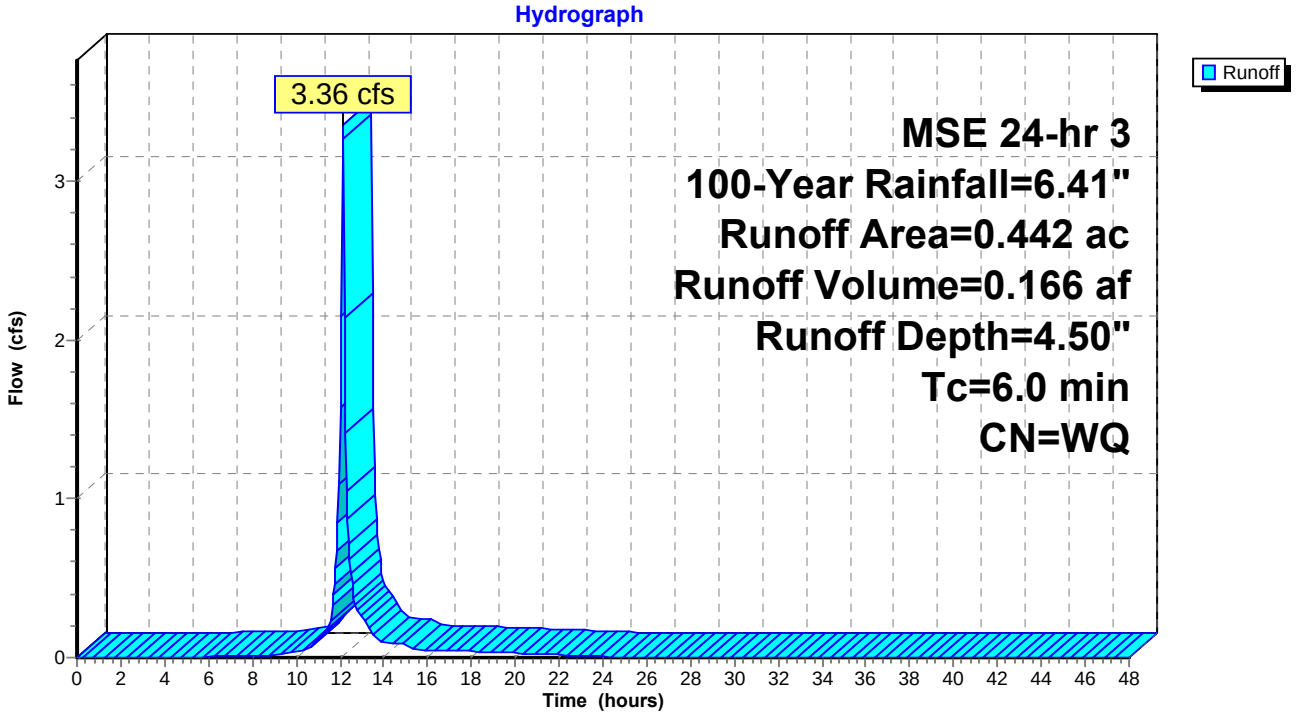
Runoff = 3.36 cfs @ 12.13 hrs, Volume= 0.166 af, Depth= 4.50"
Routed to Pond 4P : Wet Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=6.41"

	Area (ac)	CN	Description
*	0.026	98	Roof
*	0.049	98	Driveway
	0.367	80	>75% Grass cover, Good, HSG D
	0.442		Weighted Average
	0.367		83.03% Pervious Area
	0.075		16.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Sub-Area 1A



Summary for Pond 4P: Wet Detention Pond

Inflow Area = 3.964 ac, 72.23% Impervious, Inflow Depth = 5.61" for 100-Year event
Inflow = 34.32 cfs @ 12.13 hrs, Volume= 1.853 af
Outflow = 3.56 cfs @ 12.62 hrs, Volume= 1.849 af, Atten= 90%, Lag= 29.3 min
Primary = 3.56 cfs @ 12.62 hrs, Volume= 1.849 af
Routed to Link 5L : Post Development Runoff
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 5L : Post Development Runoff

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 863.49' @ 12.62 hrs Surf.Area= 12,034 sf Storage= 47,517 cf

Plug-Flow detention time= 320.8 min calculated for 1.849 af (100% of inflow)
Center-of-Mass det. time= 319.4 min (1,071.2 - 751.8)

Volume	Invert	Avail.Storage	Storage Description
#1	858.00'	60,396 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

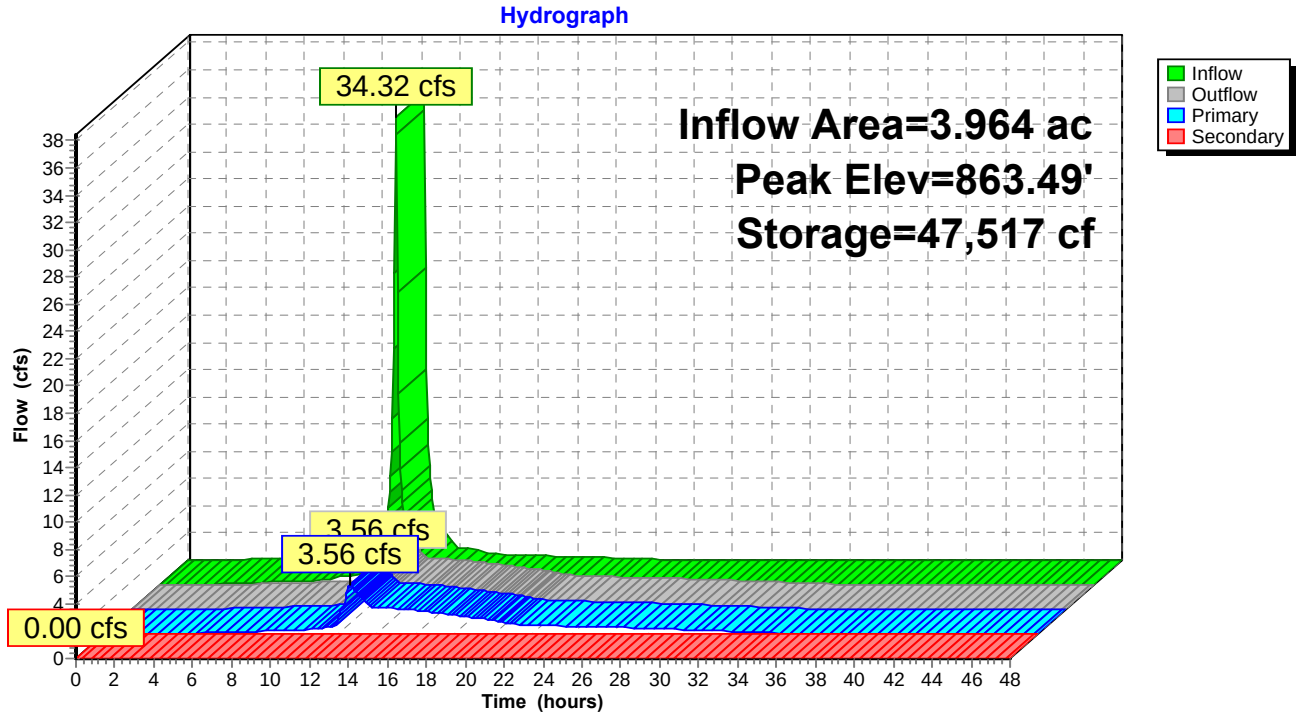
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
858.00	5,564	342.3	0	0	5,564
859.00	6,619	361.2	6,084	6,084	6,679
860.00	7,731	380.0	7,168	13,252	7,848
861.00	8,900	398.9	8,309	21,560	9,083
862.00	10,113	417.3	9,500	31,060	10,346
863.00	11,392	436.1	10,746	41,807	11,692
864.00	12,728	454.9	12,054	53,860	13,097
864.50	13,417	464.4	6,535	60,396	13,829

Device	Routing	Invert	Outlet Devices
#1	Primary	858.00'	**12.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 858.00' / 856.00' S= 0.0333 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	858.00'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	860.50'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	863.25'	**4.0' long x 1.25' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#5	Secondary	863.50'	**6.0' long + 3.0 '/' SideZ x 14.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.64 2.67 2.70 2.65 2.64 2.65 2.65 2.63

Primary OutFlow Max=3.55 cfs @ 12.62 hrs HW=863.49' (Free Discharge)
└**1=Culvert** (Passes 3.55 cfs of 6.67 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.97 cfs @ 11.11 fps)
├**3=Orifice/Grate** (Orifice Controls 1.09 cfs @ 8.03 fps)
└**4=Sharp-Crested Rectangular Weir** (Weir Controls 1.49 cfs @ 1.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=858.00' (Free Discharge)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: Wet Detention Pond

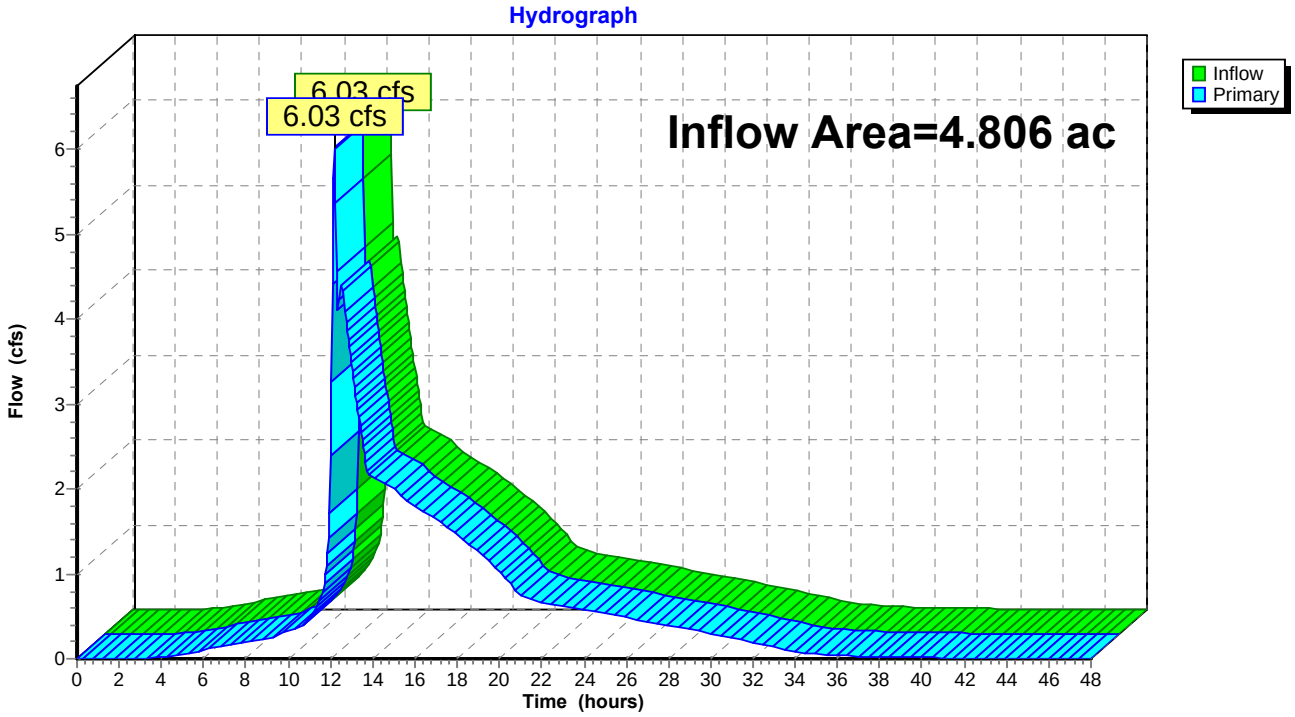


Summary for Link 5L: Post Development Runoff

Inflow Area = 4.806 ac, 59.74% Impervious, Inflow Depth > 5.21" for 100-Year event
Inflow = 6.03 cfs @ 12.19 hrs, Volume= 2.088 af
Primary = 6.03 cfs @ 12.19 hrs, Volume= 2.088 af, Atten= 0%, Lag= 0.0 min

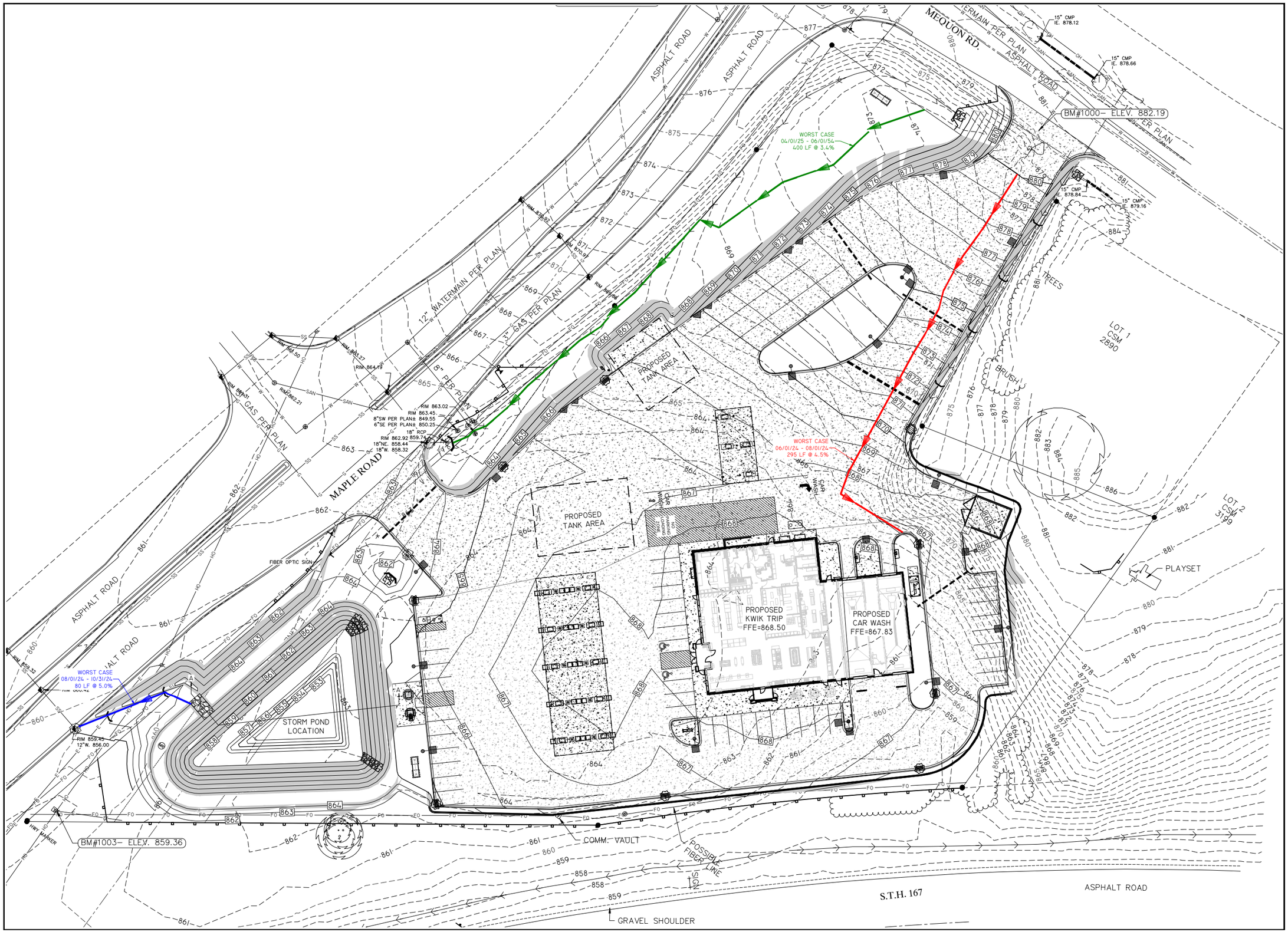
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link 5L: Post Development Runoff



Appendix 6

USLE Map & Calculations



NOTES:

(A)

KWIK TRIP STORES

KWIK STAR STORES

WI 54602-2107
(608) 781-8988
FAX (608) 781-8960

REI
CIVIL & ENVIRONMENTAL ENGINEERING, SURVEYING
REI Engineering, INC.
4080 N. 20TH AVENUE
WAUSAU, WISCONSIN 54401
PHONE: 715.675.9784 FAX: 715.675.4060
EMAIL: MAIL@REIENGINEERING.COM

SCALE
0 30 60

STORE #631
& MAPLE ROAD
ERMANTOWN, WI

DRAWN BY	NAP
SCALE	GRAPHIC
PROJ. NO.	11757
DATE	10/09/24 - REVIEW DOCUMENTS
SHEET	USLE

Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)

WISCONSIN DEPT. OF NATURAL RESOURCES

YEAR 1

Developer: Kwik Trip, Inc.

Project: Kwik Trip #631

Date: 10/09/24

County: Washington

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	04/01/25	06/01/25	16.4%	120	Sandy Loam	0.28	3.4%	400	0.59	1.00	3.2	1.043	Silt Fence	2.0
Bare Ground	06/01/25	08/01/25	43.1%	120	Sandy Loam	0.28	4.5%	295	0.81	1.00	11.7	0.956	Sediment Basin	2.2
Seed with Mulch or Er	08/01/25	10/31/25	33.4%	120	Sandy Loam	0.28	5.0%	80	0.48	0.10	0.5	0.906	Silt Fence	0.3
End	10/31/25	-----	-----	-----	-------	-----			-----	------	-----	0.000		0.0
		-----	-----	-----	-------	-----			-----	-----	-----	0.000		0.0
		-----	-----	-----	-------	-----			-----	-----	-----	0.000		0.0
										TOTAL	**15.5**		**TOTAL**	**4.6**
													% Reduction Required	**NONE**

Notes:

See Help Page for further descriptions of variables and items in drop-down boxes.
The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.
For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

4/15-6/1 Thaw-6/30	and	8/1-8/21	Turf, introduced grasses and legumes Native Grasses, forbs, and legumes

Designed By:	GSW
Date	10/8/2024

Appendix 7

Storm Water Management
Maintenance Schedule and Procedures

KWIK TRIP INC.

Store Engineering

FAX 608-793-6237

1626 Oak St., P.O. Box 2107
La Crosse, WI 54602

www.kwiktrip.com

Post Construction Long Term Maintenance Plan for
Kwik Trip # 631 Village of Germantown, Washington County, Wisconsin

System Description:

The property is located at STH 167 & Maple Road, Village of Germantown, Washington County, Wisconsin. The site consists of a series of storm water conveyances through sheet draining, piping, and a wet detention pond.

System Maintenance

Catch Basin / Manhole and Oil Skimmer

- The facility structures should be checked annually for signs of damage and cracks to top slab, walls and bottom.
- The structure's cover or grate should be fully in place.
- Metal grates shall be free of debris and vegetation.
- Grates should be checked for missing or broken members of the grate.
- Ladder should be inspected for missing rungs, wall attachments, rust, cracks or sharp edges.
- The structure bottom and pipes should be clear of vegetation and debris.
- Remove sediment when it is within 12 inches from the lowest pipe invert or 50% of sump depth.

Trench Drain

- The facility structures should be checked annually for signs of damage and cracks to top grate.
- The structure's bottom and walls to be checked for cracks.
- Metal grates shall be free of debris and vegetation.
- Grates should be checked for missing or broken members of the grate.
- The structure bottom and pipes should be clear of sediment and debris.

OUR MISSION

To serve our customers and community more effectively than anyone else by treating our customers, co-workers and suppliers as we, personally, would like to be treated, and to make a difference in someone's life.

Outflow Control Structures

- The facility structures should be checked annually for signs of damage and cracks to top slab, walls and bottom.
- The structure's cover or grate should be fully in place.
- Metal grates shall be free of debris and vegetation.
- Grates should be checked for missing or broken members of the grate.
- Ladder should be inspected for missing rungs, wall attachments, misalignment, rust, cracks or sharp edges.
- Removed debris from interior trash rack (if present).
- The connection of the interior steel plates to the structure should be inspection for cracks.
- The structure bottom and pipes should be clear of vegetation and debris.
- Remove sediment when it within 12 inches from the lowest pipe invert.

Apron and Riprap

- The facility structures should be checked annually for signs of damage to apron.
- The end of pipe, apron and surrounding riprap should be free of debris.
- Inspect for erosion around apron.
- Inspect for erosion and sediment accumulation with in the riprap.

Storm Detention Areas/Infiltration Ponds

- The facility should be checked annually for signs of erosion or bare soil along the perimeter, inlet pipe or swale, side slopes and at the inlet/outlet devices.
- Remove any dead or invasive vegetation and trees.
- Keep all areas free of debris.
- Remove sediment by hand with a flat-bottomed shovel during dry periods. Remove only the amount of sediment necessary to restore hydraulic capacity, leaving as much of the vegetation in place as possible. Reseed or unplug any damaged turf or vegetation.

**NOTE

- Some sediment may contain contaminants that requires special disposal. If there is uncertainty about what the sediment contains or it is known to contain contaminants, the Department of Natural Resources should be consulted through Kwik Trip's Environmental Department. Generally, special attention or sampling should be given to sediment accumulated in fueling areas, large parking lots, or other areas where pollutants (other than clean soil) are suspected to accumulate and be conveyed by storm runoff.
- Some sediment collected may be free of pollutants and can be used as fill material. It is vital that this material not be placed in any way that will promote or allow re-suspension in the storm runoff.

Tasks	Street Clean	Underground Storm Sewer System	Catch Basin	Apron/ Rip Rap	Wet Pond	Outflow Control Structure	Schedule
Inspection		X	X	X	X	X	Annual
Clean Streets	X						Annual
Mowing					X		0-2 times per year
System Clean Out		X				X	1 Time per 4 years

KWIK TRIP INC.

Kwik Trip Stormwater BMP Inspection

Store #: 1732 Number of BMPs: 15

Location (City, State): City of Green Bay, Brown County, WI Weather: _____

Inspection date: _____ Inspection By: _____

Inspection Results:

Maintenance Required:	YES	NO	N/A	Maintenance Required:	YES	NO	N/A
Infall Erosion	☐	☐	☐	Trench Drain	☐	☐	☐
Outfall Erosion	☐	☐	☐	Oil/Debris Separator	☐	☐	☐
Outlet Structure	☐	☐	☐	Catch Basin/Manhole	☐	☐	☐
Depth/Sediment Accumulation	☐	☐	☐	Apron	☐	☐	☐
Infiltration Pond	☐	☐	☐	Rip Rap	☐	☐	☐
Other Structure	☐	☐	☐	Other			

_____ _____

Attach pictures on last page

Communication Notes

Phone ☐ Fax ☐ Written ☐ E-Mail ☐ Personal Discussion ☐

To whom: _____

Comments: _____

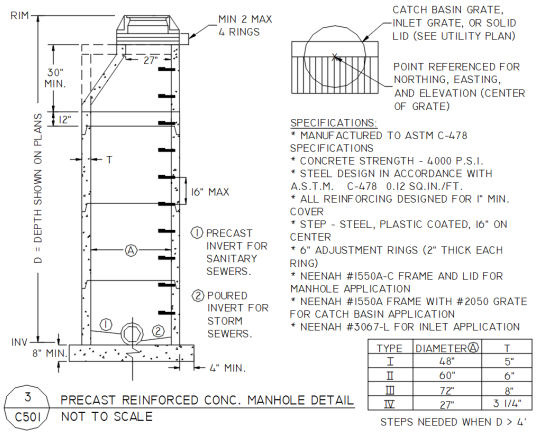
_____

_____

_____

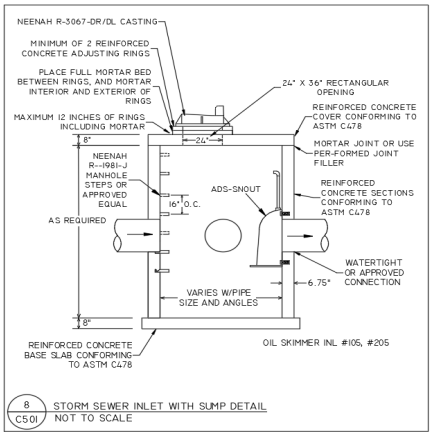
KWIK TRIP INC.

Structure **Quantity: 09**



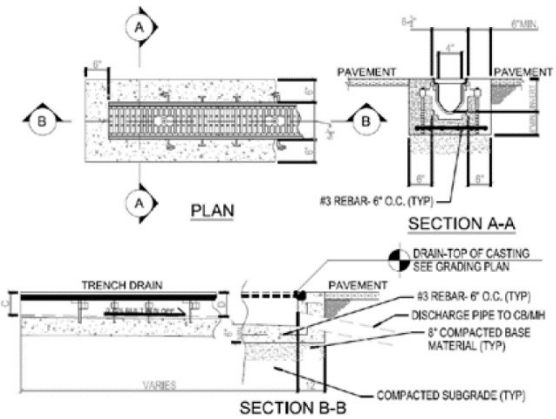
- Casting
- Adjustment rings and mortar
- Concrete cover and mortar
- Steps (if present), wall and floor
- Pipes and seals
- If sediment is present, use a rod to determine depth and if it needs to be removed

Oil Skimmer **Quantity: 02**



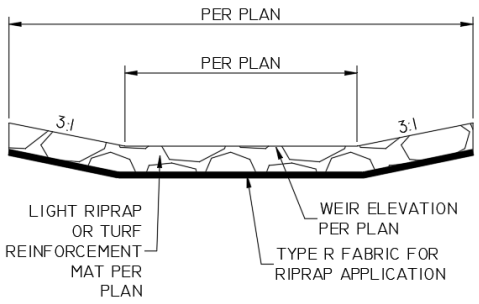
- Casting
- Adjustment rings and mortar
- Concrete cover and mortar
- Steps (if present), wall and floor
- Pipes, snout and seals
- If sediment is present, use a rod to determine depth and if it needs to be removed

Trench Drain **Quantity: 01**



- Casting
- Surrounding concrete / pavement
- Trench condition
- Pipes and seals
- Sediment depth

Outfall / Overflow — Quantity: 1

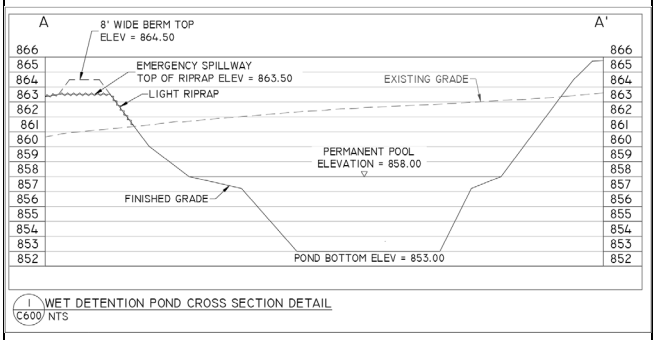


6 / SP6 OVERFLOW WEIR DETAIL
NOT TO SCALE

NOTE:
WEIRS TO USE
PERMANENT TURF
REINFORCEMENT MAT

- Sides
- Sediment depth
- Signs of erosion

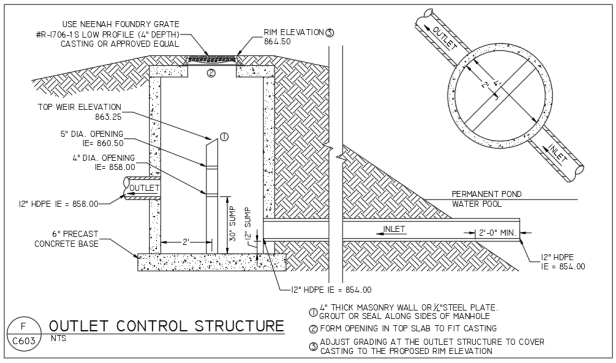
Wet Detention Pond — Quantity: 1



1 / C600 WET DETENTION POND CROSS SECTION DETAIL
NTS

- Vegetation (weeds or bare spots)
- Sediment depth / odor
- Erosion
- Emergency spill way
- Side Slopes

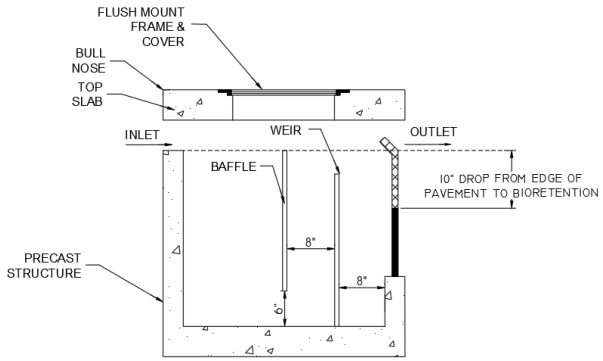
Outlet Control Structure — Quantity: 1



F / C603 OUTLET CONTROL STRUCTURE
NTS

① 4" THICK MASONRY WALL OR ½"STEEL PLATE. GROUT OR SEAL ALONG SIDES OF MANHOLE
② FORM OPENING IN TOP SLAB TO FIT CASTING
③ ADJUST GRADING AT THE OUTLET STRUCTURE TO COVER CASTING TO THE PROPOSED RIM ELEVATION

- Vegetation (weeds or bare spots)
- Sediment depth / odor
- Erosion
- Emergency spill way
- Side Slopes

PRETX 30x30 Unit **Quantity: 1**  ELEVATION VIEW	• Casting • Adjustment rings and mortar • Concrete cover and mortar • Steps (if present), wall and floor • Pipes, snout and seals • If sediment is present, use a rod to determine depth and if it needs to be removed

Photos Before Maintenance	Photos After Maintenance (if required)
Structure:	
Structure:	

Structure:	
Structure:	
Structure:	

Structure:	

Environmental Standard Operating Procedure (SOP)
Spill Response Plan

Rev. 10 (Sep. 12, 24

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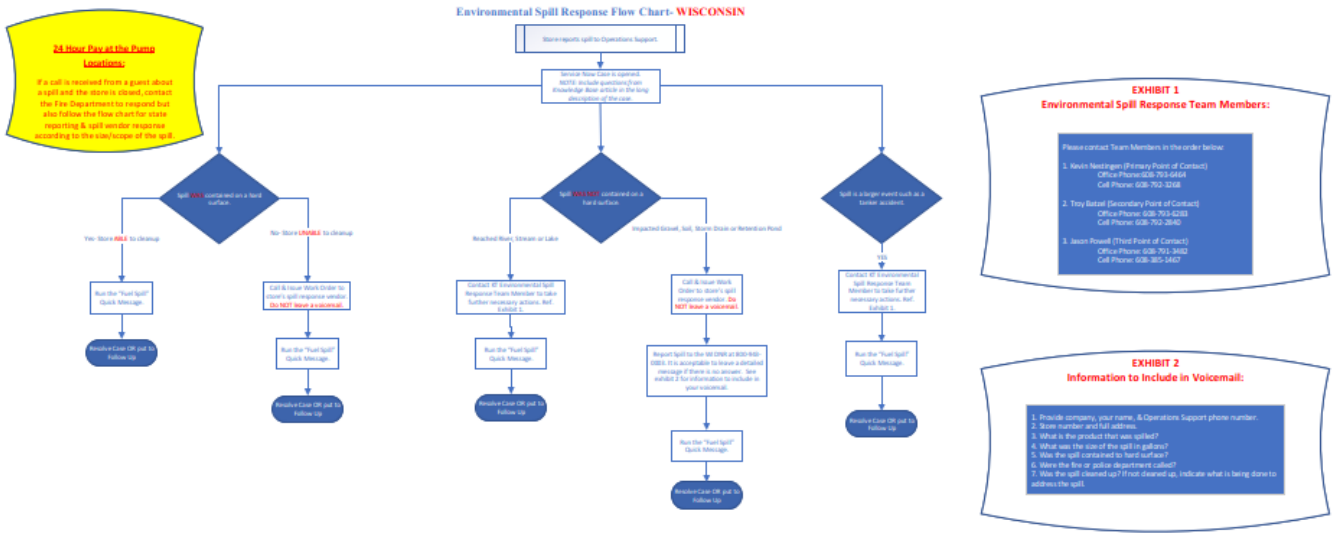
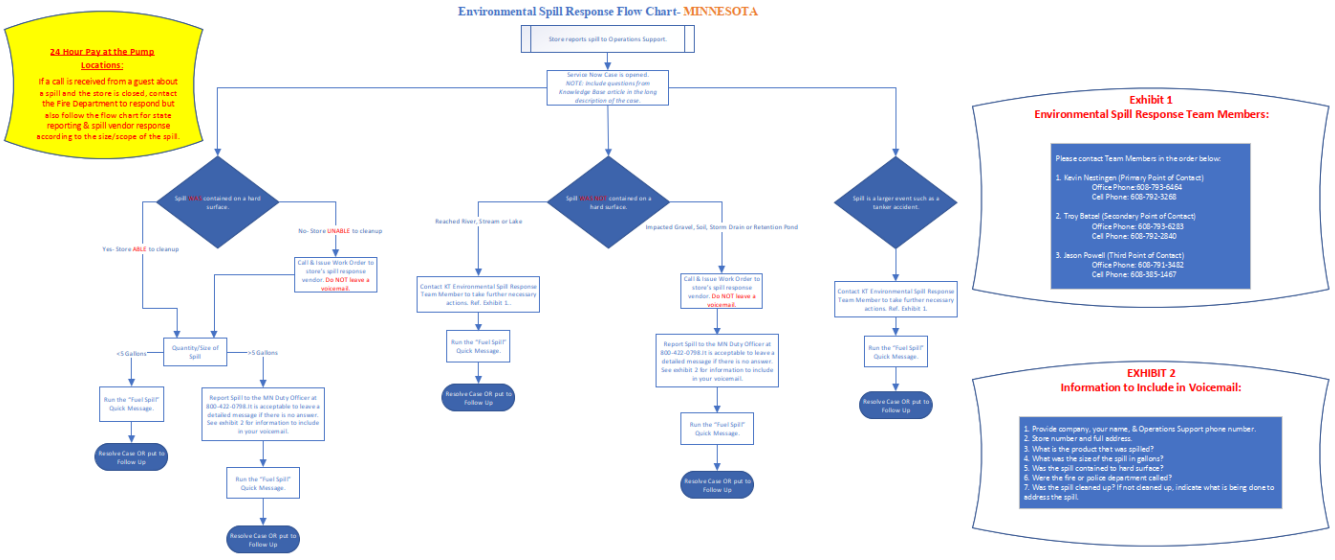
1.0 Purpose

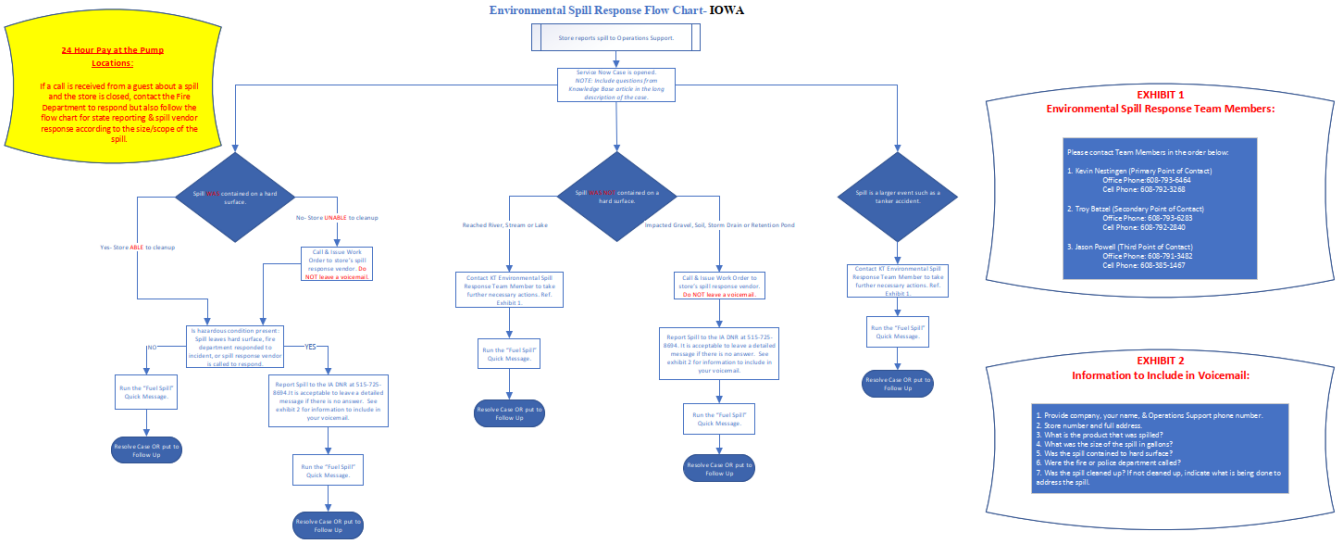
The purpose of the Spill Response Plan is to comply with Minnesota State Statutes 2002 Chapters 115E.04 and 115E.045. It also is to be utilized as a tool for Kwik Trip in having a documented procedure on how to respond to a spill situation. The information contained in this booklet describes response actions, identifies the chain of command, gives information on spill reporting requirements, and lists the companies and phone numbers of the people that can respond to a spill.

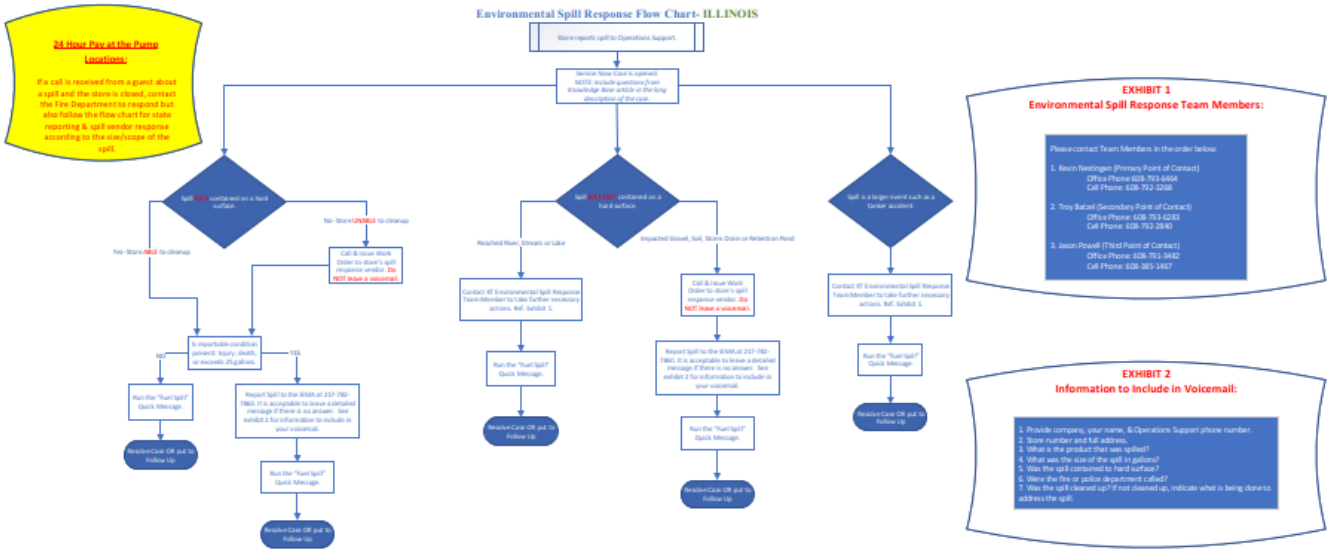
Chapter 115E of Minnesota Rules describes the requirements for what is to be included in the spill response plans. A copy of Chapter 115E.02, 115E.03, 115E.04 and 115E.045 are included in Section 10.2 in this booklet.

2.0 Spill Response Flow Chart by State






Environmental Spill Response Flow Chart- IOWA
24 Hour Pay at the Pump Locations:
If a call is received from a guest about a spill and the store is closed, contact the Fire Department to respond but also follow the flow chart for state reporting & spill vendor response according to the size/scope of the spill.
Store reports spill to Operations Support.
Service Now Case is opened. NOTE: Include questions from Knowledge Base article in the long description of the case.
Spill WAS contained on a hard surface.
Yes- Store ABLE to cleanup
No- Store UNABLE to cleanup
Call & issue Work Order to store's spill response vendor. Do NOT leave a voicemail.
Is hazardous condition present: Spill leaves hard surface, fire department responded to incident, or spill response vendor is called to respond.
NO
YES
Run the "Fuel Spill" Quick Message.
Report Spill to the IA DNR at 515-725-8684. It is acceptable to leave a detailed message if there is no answer. See exhibit 2 for information to include in your voicemail.
Run the "Fuel Spill" Quick Message.
Resolve Case OR put to Follow Up
Spill WAS NOT contained on a hard surface.
Reached River, Stream or Lake
Impacted Gravel, Soil, Storm Drain or Retention Pond
Contact KT Environmental Spill Response Team Member to take further necessary actions. Ref. Exhibit 1.
Run the "Fuel Spill" Quick Message.
Resolve Case OR put to Follow Up
Call & issue Work Order to store's spill response vendor. Do NOT leave a voicemail.
Report Spill to the IA DNR at 515-725-8684. It is acceptable to leave a detailed message if there is no answer. See exhibit 2 for information to include in your voicemail.
Run the "Fuel Spill" Quick Message.
Resolve Case OR put to Follow Up
Spill is a larger event such as a tanker accident.
Contact KT Environmental Spill Response Team Member to take further necessary actions. Ref. Exhibit 1.
Run the "Fuel Spill" Quick Message.
Resolve Case OR put to Follow Up
EXHIBIT 1
Environmental Spill Response Team Members:
Please contact Team Members in the order below:
1. Kevin Nestingen (Primary Point of Contact)
Office Phone: 608-793-6464
Cell Phone: 608-792-3268
2. Troy Batzel (Secondary Point of Contact)
Office Phone: 608-793-6283
Cell Phone: 608-792-2840
3. Jason Powell (Third Point of Contact)
Office Phone: 608-791-3482
Cell Phone: 608-385-1467
EXHIBIT 2
Information to Include in Voicemail:
1. Provide company, your name, & Operations Support phone number.
2. Store number and full address.
3. What is the product that was spilled?
4. What was the size of the spill in gallons?
5. Was the spill contained to hard surface?
6. Were the fire or police department called?
7. Was the spill cleaned up? If not cleaned up, indicate what is being done to address the spill.


Environmental Spill Response Flow Chart- ILLINOIS
24 Hour Pay at the Pump Locations:
If a call is received from a guest about a spill and the store is closed, contact the Fire Department to respond but also follow the flow chart for state reporting & spill vendor response according to the size/scope of the spill.
Store reports spill to Operations Support.
Service Now Case is opened. NOTE: Include questions from Knowledge Base article in the long description of the case.
Spill WAS contained on a hard surface.
Yes- Store ABLE to cleanup
No- Store UNABLE to cleanup
Call & issue Work Order to store's spill response vendor. Do NOT leave a voicemail.
Is reportable condition present: Injury, death, or exceeds 25 gallons.
NO
YES
Run the "Fuel Spill" Quick Message.
Report Spill to the IEMA at 217-782-7860. It is acceptable to leave a detailed message if there is no answer. See exhibit 2 for information to include in your voicemail.
Run the "Fuel Spill" Quick Message.
Resolve Case OR put to Follow Up
Spill WAS NOT contained on a hard surface.
Reached River, Stream or Lake
Impacted Gravel, Soil, Storm Drain or Retention Pond
Contact KT Environmental Spill Response Team Member to take further necessary actions. Ref. Exhibit 1.
Run the "Fuel Spill" Quick Message.
Resolve Case OR put to Follow Up
Call & issue Work Order to store's spill response vendor. Do NOT leave a voicemail.
Report Spill to the IEMA at 217-782-7860. It is acceptable to leave a detailed message if there is no answer. See exhibit 2 for information to include in your voicemail.
Run the "Fuel Spill" Quick Message.
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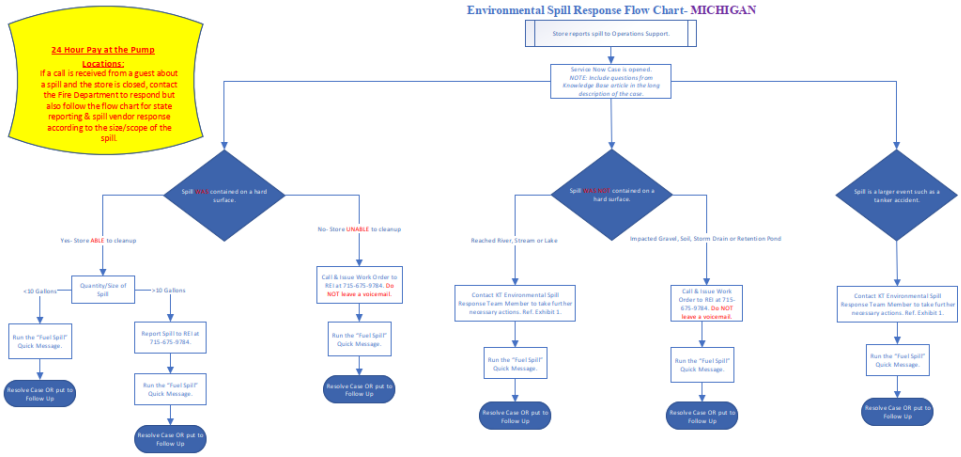
5. Was the spill contained to hard surface?
6. Were the fire or police department called?
7. Was the spill cleaned up? If not cleaned up, indicate what is being done to address the spill.

Environmental Spill Response Flow Chart- MICHIGAN



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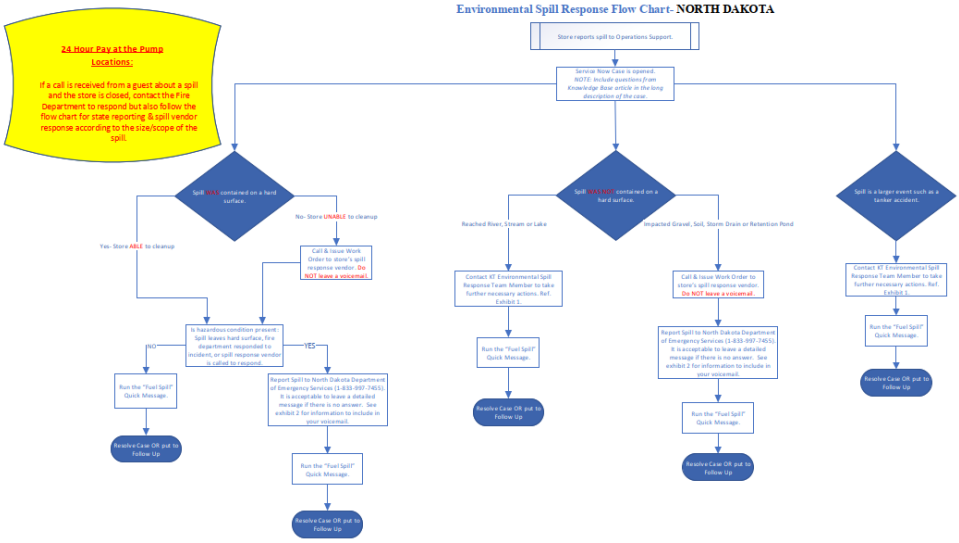
Environmental Spill Response Flow Chart- NORTH DAKOTA



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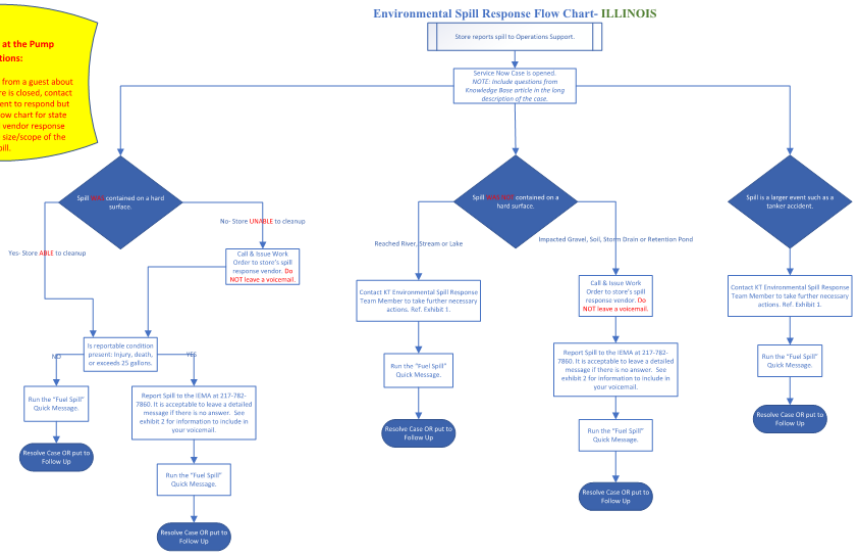
24 Hour Pay at the Pump Locations:

If a call is received from a guest about a spill and the store is closed, contact the Fire Department to respond but also follow the flow chart for state reporting & spill vendor response according to the size/scope of the spill.

Environmental Spill Response Flow Chart- ILLINOIS



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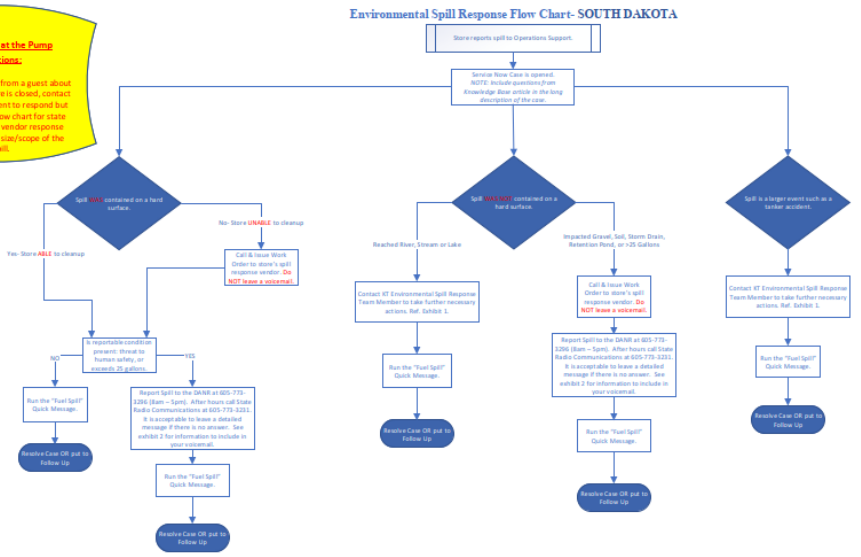
7. Was the spill cleaned up? If not cleaned up, indicate what is being done to address the spill.

24 Hour Pay at the Pump Locations:

If a call is received from a guest about a spill and the store is closed, contact the Fire Department to respond but also follow the flow chart for state reporting & spill vendor response according to the size/scope of the spill.

Environmental Spill Response Flow Chart- SOUTH DAKOTA



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6. Were the fire or police department called?
7. Was the spill cleaned up? If not cleaned up, indicate what is being done to address the spill.

3.0 Response Implementation Authority Information

This section identifies the individual or individuals within Kwik Trip that have the authority to implement a response action along with their title. Contact phone numbers are included in Section 13.5.

Primary: Kevin Nestingen
Title: Environmental Compliance Manager

Name: Troy Batzel
Title: Principal of Environmental Compliance

Name: Jason Powell
Title: Environmental Project Coordinator

Name: Bryan Novy
Title: Director or Retail Projects

Name: Erik Peterson
Title: Vice President of Store Engineering

Name: Operations Support staff
Title:

4.0 How To Respond To Discharges

4.1 Small Fuel Discharges

Small discharges that occur from our facilities or our transport trucks are addressed in a similar manner as a large discharge, the differences would be in the order in which they would contact the local authorities or Operations Support.

In the event of a small spill (gasoline, diesel, E85 or diesel exhaust fluid (DEF)), the store co-worker would assess the size or quantity of the spill and determine the required response based on their assessment. If the co-worker determines that the spill is of a small quantity and does not pose a threat to safety or the environment, they will move to clean up. The first rule is to always make sure that the situation is safe, this means they need to keep all customers clear of the spill area. They then would apply absorbent material to the spill. Once the material has been applied to the spill area they would sweep up the material and containerize it for pick up. At that point they would contact Operations Support to notify them of the spill and the material that would need to be picked up for disposal.

4.2 Large Fuel Discharges

Large discharges follow a different chain of events due to the threat to safety and the environment.

In the case of a large spill (gasoline diesel, E85), or an anticipated release to the environment, the assessment would have been made that safety or environment were compromised. The first step would be to hit the emergency shut off button, which kills power to the dispenser islands and canopy. The next step is to keep people clear of the area. If the co-worker is able to safely contain the spill they would do so at this time. The local authorities would be the first point of contact, which would be the local fire department and police department. Once the local authorities have been alerted to the discharge the next call would be to our Operations Support, which is staffed 24 hours a day. Ops Support would gather the information regarding the spill and immediately contact the Environmental Manager or the person in authority (PIN). The PIN has the responsibility to determine the appropriate response to the spill based on the information provided by store co-workers, fire department and/or police department. This would also include state and sometimes federal reporting of the spill.

There are several companies that are equipped to respond to large discharges and are listed in the Contact Information (Section 9.0). These companies have access to vacuum trucks, absorbent booms, floor dry, absorbent towels and trained personnel along with many other tools and equipment. Many times the local authorities have the capabilities to contain the spill and remove the threat to safety. In the event they are not able to contain the product, or it has been released to a sensitive area, the hazmat teams would be notified and be asked to respond.

4.3 DEF Spill Response

Spills or leaks involving DEF will follow the same basic procedure as petroleum products even though DEF is mostly water based. Spilled DEF still needs to be recovered and should be prevented from leaving a hard surface. DEF does have the potential to impact groundwater, rivers, and streams if released to the environment.

Below are minimum requirements for the initial spill response assessment:

- Take pictures of the dispenser and area of the spill
- Take pictures of the lot
- Determine what direction things may have flowed from the leak area
- Check the areas it may have flowed to such as: ponds, ditches, storm inlets, green space, etc.
- Utilize a field urea meter to assess areas it may have flowed
- Note weather conditions and what they were during the time of the spill and also at the time of your site visit
- Look for signs of crystallization that occurs from DEF drying
- Complete a short report that covers all findings from the visit, including urea field meter results
- Send to KT and the State

4.4 CNG Spill Response

The purpose of the compressed natural gas (CNG) spill response plan is to lay out the process that needs to be followed to ensure the safety of our co-workers and guests. We also want to make sure that there is a clear plan with regard to response and reporting to applicable agencies.

A leak from a CNG system will be discovered as a result of an odor (mercaptin, or rotten egg smell), fire coming from the system, or an alarm condition from the system.

If a leak is discovered (store response)

- Hit the emergency stop button
- Call Operations Support
- Keep co-workers and customers away from the area
- Do not reset Emergency stop switch until leak is stopped, repairs have been made and the system is verified tight

Operations Support Protocol

- If there is a fire, instruct the store to call 911 and to keep people clear of the area
- Instruct Fire Department to close main valve to eliminate gas coming from supply line
- If damage or injury, follow accident protocol and contact Stephanie Fox
- Notify people on the spill call list

- Do not reset Emergency stop switch until leak is stopped, repairs have been made and the system is verified tight
- If the leak is coming from the Utility provider service line call the Utility provider emergency number provided
- Instruct the store to lock out and tag the dispenser as out of order until repair is made

Store Engineering service/repair protocol

- Contact regional service or appropriate service contractor

4.5 Fuel Blending Sites (SPCC Plans)

Each Kwik Trip fuel blending/biodiesel site will have its own Spill Prevention, Control, and Countermeasure (SPCC) Plan. The purpose of the SPCC Plan is to describe measures implemented by facility management employees to prevent oil discharges from occurring, and to prepare facility management employees to respond in a safe, effective, and timely manner to mitigate the impacts of a discharge. Additionally, the SPCC Plans are used as a reference for oil storage information and testing records, as a tool to communicate practices on preventing and responding to discharges with employees, as a guide to facility inspections, and as a resource during emergency response.

The Plans will be prepared to meet the requirements of Title 40, Code of Federal Regulations, part 112 (40 CFR part 112). The United States Environmental Protection Agency (US EPA) has established regulations for oil pollution prevention in the Code of Federal Regulations, Title 40 (40 CFR), Parts 110 through 112. The regulations require that a SPCC Plan be prepared if it could reasonably be expected that a harmful quantity of oil could be discharged into navigable waters of the United States or adjoining shorelines. The SPCC regulations apply to owners or operators of facilities that meet the following three primary criteria:

- The facility must be non-transportation related and engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, using, or consuming oil and oil products.
- The facility must have an aggregate aboveground storage capacity greater than 1,320 gallons (excluding those tanks and oil filled equipment below 55 gallons in capacity, the capacity of a container that is “permanently closed”, and the capacity of a “motive power container”) or an aggregate underground storage capacity greater than 42,000 gallons (excluding those that are currently subject to all of the technical requirements of 40 CFR Part 280 or all of the technical requirements of state programs approved under 40 CFR Part 281).
- There must be reasonable expectation that, due to its location, the facility could discharge oil into or upon the navigable waters or adjoining shorelines of the United States.

The US EPA requires that a complete copy of the SPCC Plan be maintained at the facility if it is attended at least four hours per day or at the nearest office if the facility is not attended.

4.6 Indoor Air Quality Response

These pages outline the process that will be followed by Operations Support in the event of an indoor air quality issue or complaint.

Problem:
Unknown smell or odor inside the store

Questions to ask regarding odor:

- When did you first notice this smell?
- Where in the building is the smell the strongest?
- Do you smell it outside as well?
- Has anyone complained of ill effects and what are the symptoms?
    - If yes, create another call for the co-worker illness and assign it to HR Daily, this will create a call for HR to follow up with the co-worker. (If after hours/weekend, then call Jill Rettler (HR) to make her aware of the situation and determine if immediate action is needed.)
- Have we had any service vendors out recently and for what?
- What does it smell like? Natural Gas (Rotten Eggs) or Gasoline?
    - If yes, do we have a gas container in the store or does this store have natural gas service to the store (see attached list to see where we pay for natural gas)?
- Have we had any fuel deliveries recently?

----- If they feel that it is a natural gas, gasoline, or propane type smell then the Fire Department should be called out to investigate to determine if it is an explosive environment. If there is a threat of fire or explosion and the area needs to be evacuated, please refer to evacuation procedures listed on the Kwik Net HR Services/Safety Manual/Emergency Procedures.

Other known smell or odor sources could be:

- Do we have any dry drain traps in the floor in the following store areas: bathrooms, fountain pop machines, kitchen floor drains? If this area has the strongest odor have the store pour approximately a gallon of water down the drain. This will fill the trap and prevent air from coming back up through the pipe.
- Paint or open cleaning chemicals in the store, have they been closed back up? Do we need to open up the back and front door of the store to air it out?

If the smell/odor cannot be confirmed to a known source, store personnel should contact Ops Support for further direction.

Last step is to e-mail the District Leader and Zone Leader to make them aware of the situation.

5.0 Description of Training

Kwik Trip has developed a training program as part of a state and federal requirement for staff to be Class C certified, All retail co-workers complete this training. This training covers the following information:

1) Where to find emergency stop switch.
2) Who to call and when.
3) Information you need to gather in the event of a spill.
4) Equipment and materials needed in a response action.
5) How to assess a spill and how respond accordingly.

All retail co-workers are required to complete the training module which is available on the KwikNet 24/7.

All people considered to be PIN's (persons in authority) have gone through a training session with the Environmental Compliance Manager.

6.0 Communication and Incident Command

Communication and incident command are very important when trying to accomplish a successful spill response action. It is very important to have one point of contact during this type of situation to ensure a smooth response. Our point of contact is the person in authority (PIN) listed on the "Response Implementation Authority Information" section who is handling the response action. This person will be responsible for communicating with local authorities to better understand the spill situation in progress until a representative from the company can arrive on site. They will also be in contact with the necessary Federal and State agencies for reporting purposes.

The PIN will coordinate the response action based on the report from the incident commander on site. The PIN will contact the appropriate response persons and inform the incident commander of those peoples role in the response action.

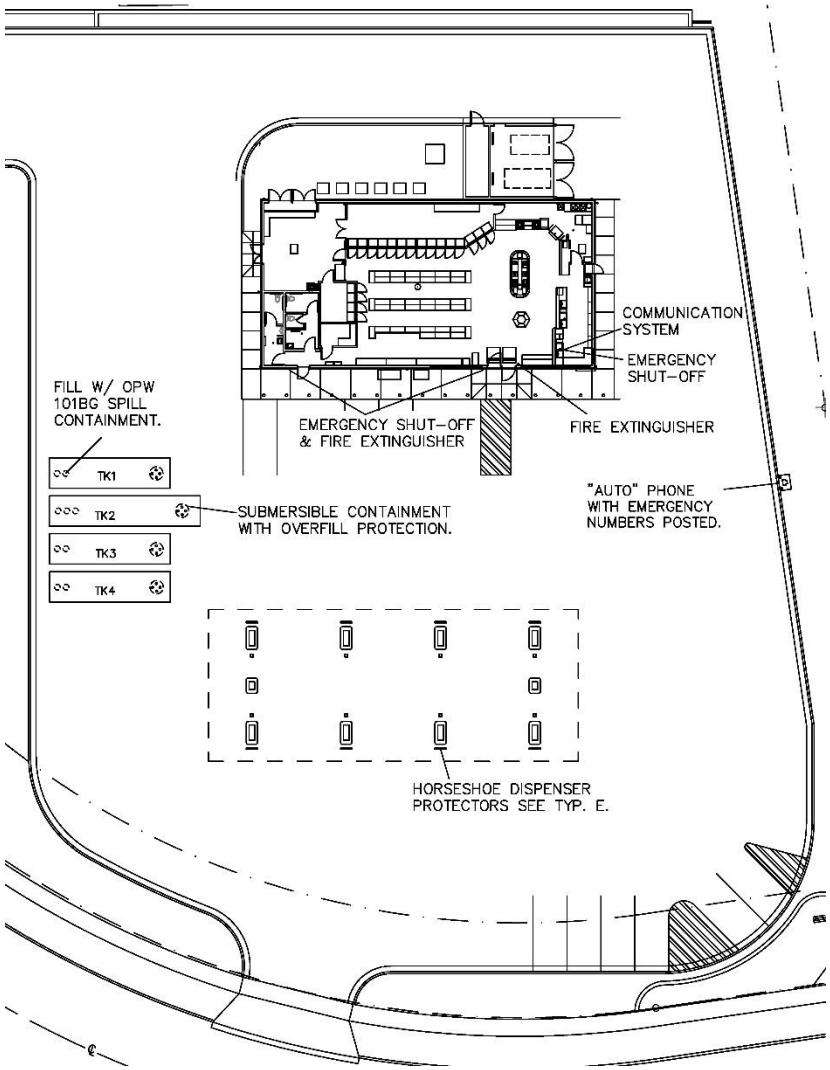
Hazmat teams responding to the incident should always have a team leader, this person would communicate with the PIN during the course of the response action.

It is the job of the PIN to be the center of communication between the local authorities, hazmat teams and State and/or Federal agencies.

In many cases, the incident command role will be a shared duty based on the experience of the on-site personnel.

7.0 Facility Description

Kwik Trip stores are all relatively similar in construction. Most locations consist of a convenience store that is approximately 7,000 - 9,000 square feet in size. They all have a gasoline operation that typically has 4-10 multi-product dispensers that are supplied by pressurized piping coming from underground storage tanks. The underground tanks that store the product range in size from 10,000 gallons capacity to 30,000 gallons. The products that are usually sold at our facilities are Unleaded, Plus and Premium gasoline, as well as diesel. In addition to selling E85, biodiesel and in some cases electric vehicle charging, Kwik Trip has CNG (Compressed Natural Gas) infrastructure throughout Minnesota, Wisconsin and Iowa. A typical site diagram is shown below.



This is a typical site layout, which shows the location of the emergency stop switch, telephone and fire extinguishers. It also depicts the layout of the gas operation and underground storage tanks.

8.0 Transport Vessel Description

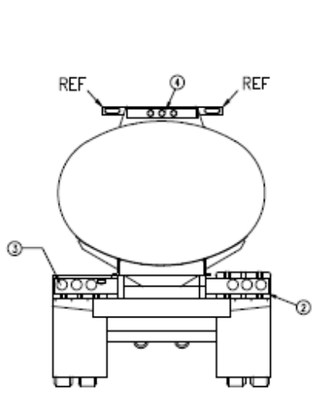
Our transports that haul product to our sites are made of aluminum and are divided into 3 compartments. The compartments have the following capacities 4,400 gallons, 2,300 gallons and 3,000 gallons. Each transport is equipped with an emergency shut off switch located at the front of the transport trailer. They also all carry spill response kits located under the belly of the transport trailer. These kits include drain mats, booms, floor dry and absorbent towels.

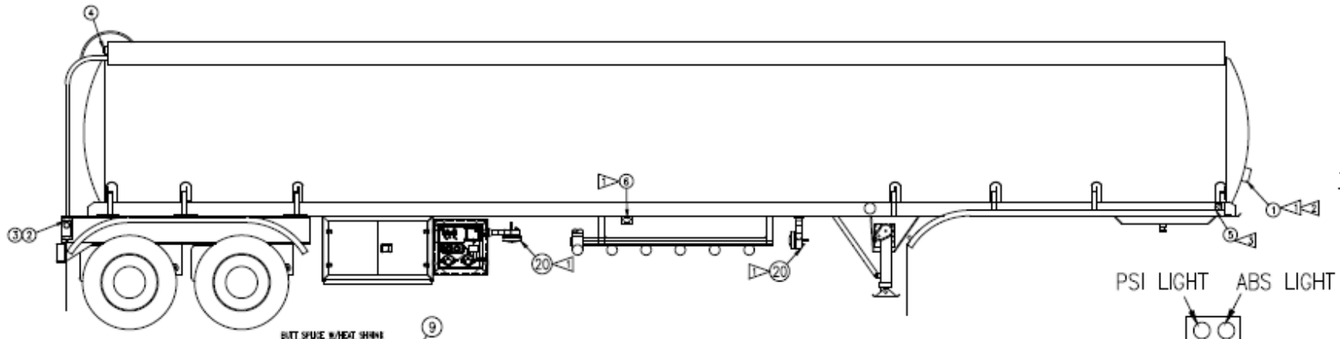
8.1 Transport Spill Kit Contents

- 1 spill kit bag
- 1 drain blocker
- 4 bags of Sphag-Sorb absorbent
- 4 Sphag-Sorb absorbent snakes
- 20-50 absorbent pads in the cabinet on truck

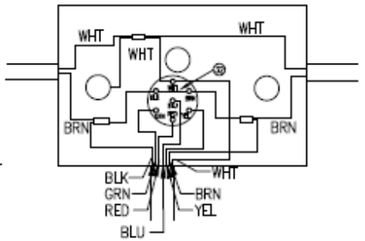
8.2 Transport Trailer Spec Sheet

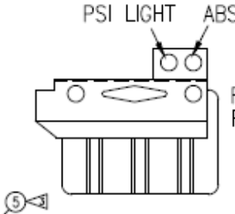
The following page shows specifications of the typical transport. Click HERE for link to a .pdf document with additional specification information.

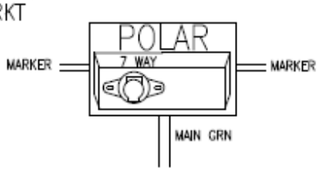


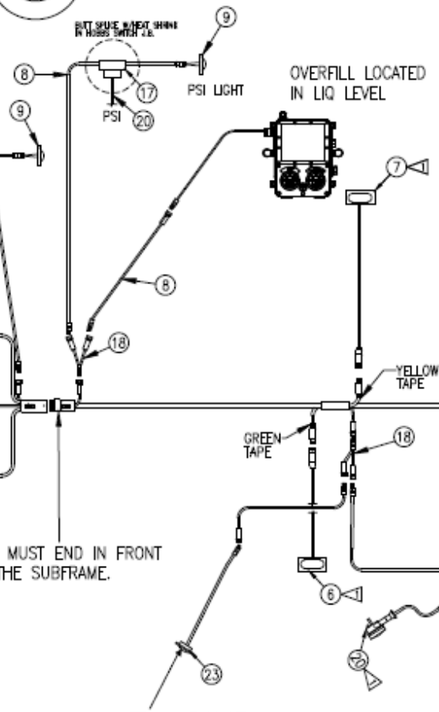


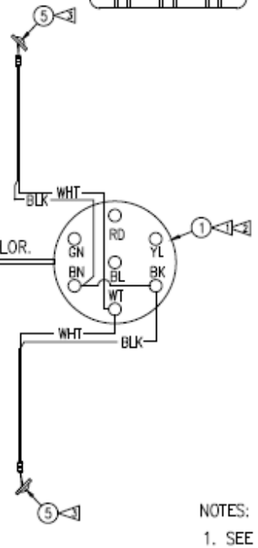
NOSE BOX
WIRING DETAIL

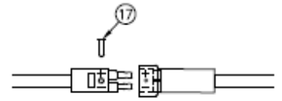












EVERY CONNECT MUST BE LOCKED WITH LOCK PIN. PUSH LOCK PIN IN AS FAR AS POSSIBLE WITH FINGERS.

ON 2 WAY PLUG, MUST LINE UP + MARKED ON BOTH PLUGS.

NOTE:RUN WIRING FOR STOP LIGHTS
TO ID LIGHT & COIL FOR COSTUMER
INSTAL WRAP 4' OF COIL ON EACH SIDE

NOTES:

1. SEE MAIN FOR LOCATION
2. INSTALL A SMALL AMOUNT OF SILICONE AROUND EACH NOSEBOX STUD UNDER THE FLAT WASHER.
3. INSTALL LIGHTS AT 45 DEG. ANGLE OUT.
4. INSTALL ABS LIGHT ON RS FNDR.
5. MOUNT HIGH STOP LIGHTS OFF OT RAIL, FLUSH WITH END DAM.

REV	DESCRIPTION	DATE / BY
A	FIXED BUBBLES FOR Y ADPTS.	3/11/15 DJ

DO NOT SCALE PRINT
TOLERANCES AS FOLLOWS
UNLESS OTHERWISE NOTED:
A. MACHINING ±1/32"
B. SHEET METAL SHEARING
THRU 10 GA. ±1/32
HEAVIER THAN 10 GA. ±1/16"
C. STRUCTURAL LENGTH ±1/8"
D. BREAK PARTS ±2"
E. PUNCHING LOCATION ±1/64"
WELD SYM. PER A.W.S. STDS.

DRAWN BY DJ
CHECKED BY
SEPIA OF _

POLAR
Tank Trailer, Inc.
4825 E Kearney
Springfield MO. 65803
Phone: 1-417-862-5526
Fax: 1-417-862-5564

THIS DRAWING IS THE PROPERTY OF POLAR TANK TRAILER, INC. & IS SUBJECT TO RETURN UPON REQUEST. IT IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTERESTS OF POLAR TANK TRAILER, INC.

TITLE: SM1334515
ELECT COMPT

SCALE: NTS | DATE: 1/29/15 | DWG. NO. B S-139791 | REV A

F421 REV 1 05/12/98

9.0 Contact Information

9.1 State Spill Reporting

WI DNR
1-800-943-0003

MN Duty Officer
1-800-422-0798

IA DNR
515-725-8694

National Response Center
1-800-424-8802

9.2 Hazmat Response Contacts

Wisconsin
Clean Harbors Southeast and South-Central Region : 1-800-645-8265
SET (Secondary): 877-437-7455
REI North and Central Region: 715-675-9784
UP Environmental NE Region (Secondary): 906-466-9900
WCEC (Secondary) Central to North Region: 1-888-923-2778
WCEC West-central Region : 1-888-923-2778
Clean Harbors West-central region: (Secondary): 1-800-645-8265

Minnesota
WCEC: 1-888-923-2778
Clean Harbors (secondary): 1-800-645-8265

Iowa
All of Iowa except SE region: Hazmat Response: 1-800-229-5252
Seneca SE region: (secondary): 1-800-369-5500

Michigan
REI: 715-675-9784
UP Environmental (secondary): 906-466-9900 (O) 906-280-8908 ©

Illinois
Clean Harbors covers east region: 1-800-645-8265
Seneca covers west region: 1-800-369-5500
SET (secondary): 877-437-7455

South Dakota
WCEC: 1-888-923-2778
Clean Harbors (Secondary): 1-800-645-8265

North Dakota
WCEC: 1-888-369-5500
Clean Harbors (Secondary): 1-800-645-8265

9.3 Emergency Spill Response Contacts

Primary Contacts

WCEC
24-hr Spill Hotline: 1-888-544-9481

SET
24-hr Hotline: 1-877-437-7455

Clean Harbors
24-hr Spill Hotline: 1-800-645-8265

REI - Ken Lassa
Office: 715-675-9784
Cell: 715-574-3430

Bay West - Jim Stockinger
24-hr Spill Hotline: 1-800-279-0456
Cell: 612-207-0561

SCS Engineers - Eric Oelkers
Office: 608-224-2830
Cell: 608-444-3934

HMR (Hazmat Response - John Towle
W: (515) 297-8664
C: (913) 333-8985

Seneca
24-hr Hotline: 1-800-369-5500

9.7 Store Engineering Phone List

Store Engineering Delivery		---	---	---
Store Engineering Service Desk		---	---	---
Store Engineering Ship Outs		---	---	---
Aaron Asp		608-604-4983	---	---
Aaron Bowen		262-282-9609	---	---
Aaron Bradle		---	608-799-6963	---
Aaron Bright		608-792-9407	---	---
Aaron Harmon		---	---	---
Aaron Sill		608-317-7109	---	---
Adam Cook		---	---	---
Adam Gibbs		262-770-0309	---	---
Adam Kleine		920-946-7755	---	---
Adam Raisanen		920-309-7280	---	---
Adam Schwartz		---	---	---
Adam Vettel		319-830-0797	---	---
Addison Skeels			920-251-4627	
AJ Loken		608-864-0618	---	---
Alex Lenzer		608-225-4416	---	---
Alex Pollex		---	608-769-7442	---
Alex Polnaszek		---	608-385-5491	---
Alex Will		608-317-6197	---	---
Ali Van Dalen		---	320-761-4908	---
Allison Christianson		---	608-385-4994	---
Alyx Bushnell		---	608-397-4103	---
Amy Wermager		---	608-518-9230	---

Anden Schieldt		--------	---------	---------
Andre Larsen		920-680-1365	-------	---------
Andrew Tauzell		712-754-2500	---------	---------
Andrew Wegner		---------	319-533-7658	---------
Andy Logue		---------	319-431-8497	---------
Andy Martell		715-586-0735	-------	---------
Andy Norton		608-633-1192	-------	---------
Barbara McIntyre		---------	608-669-3073	---------
Ben Hendrickson		---------	---------	---------
Ben Hyland		920-918-0920	---------	---------
Ben Ipsen		---------	978-257-5007	---------
Ben Krause		---------	715-207-5522	---------
Ben Patten		715-252-6259	---------	---------
Bill Eastman		608-317-6141	---------	608-489-2236
Bill Glauner		715-891-7527	-------	---------
Bill Horihan		608-317-8669	---------	---------
Bill Sanderson		608-386-0684	---------	---------
Bjorn Berg		608-606-3998	---------	---------
Bob Alf		920-295-2586	---------	---------
Bob Lynch		262-470-4085	---------	---------
Bo Collins		---------	---------	---------
Brad Chambers		507-340-2839	---------	---------
Brad Fry		608-792-7450	---------	---------
Brandon Bohnert		563-676-0936	---------	---------
Brett Attlen		---------	---------	---------
Brett Needham		608-216-1149	---------	---------
Brian Arntsen		920-585-0296	---------	---------
Brian Barter		262-909-4148	---------	---------
Brian Kruk		608-487-3005	---------	608-487-7724
Brian Nighbor		---------	715-299-3658	---------
Brittani Devine		---------	608-519-6397	---------
Brittany Erler		---------	608-792-8287	---------
Brock White		920-699-2922	---------	---------

Bruce Henslin		608-386-6423	---------	---------
Bryan Novy		608-317-0530	---------	608-786-4975
Cameron Stowe		218-760-1710	---------	---------
Carl Klemp		---------	608-385-9233	---------
Carla Lang		---------	608-769-2438	---------
Chad Feyen		608-386-0682	---------	---------
Chad Juel		---------	608-738-2492	---------
Chad Nienow		507-990-3114	---------	---------
Charlotte Gonyo		---------	608-738-7252	---------
Charles Redbird		-------	715-538-5104	------
Chase Jacobson		608-548-7425	---------	---------
Chelsey George		---------	608-386-9603	---------
Chris Fenske		920-969-8169	---------	---------
Chris Johnson		507-459-5132	---------	---------
Chris Nutini		---------	608-518-8254	---------
Christian Niemi		---------	---------	---------
Cody Flury		608-343-0899	---------	---------
Cody Miles		-----	414-533-1446	------
Corey Hoffman		319-296-8589	---------	---------
Corey Kessel		763-229-3732	---------	---------
Cory Joas		---------	---------	---------
Cory Lang		608-769-5264	---------	---------
Coty Tonne				
Dalton Treanor		---------	608-790-5308	---------
Dan Covart		608-790-0571	952-807-2987	952-707-9825
Dan Heath		608-769-3413	---------	---------
Dan Perreault		608-632-4029	---------	---------
Dan Steele		---------	608-386-3527	---------
Daniel Nusse		818-915-6226	---------	---------
Daniel Schmaltz		715-236-9998	---------	715-736-6615
Darrion Marquardt		---------	---------	---------
Dave Cedarblade		763-334-0146	---------	---------
Dave McDowell		608-518-0077	---------	--------

Dave Piggott		608-658-3397	---------	---------
Dave Powell		608-504-6009	---------	---------
David Forrest		414-595-4773	ony	---------
David Gryskiewicz		608-572-3467	---------	---------
David J Johnson		262-397-6426	---------	---------
David Kirchner		608-343-1325	---------	---------
David Link		920-210-2767	---------	---------
David Mottl		262-719-9784	---------	---------
David Thompson		---------	---------	---------
David Zweibohmer		641-229-5720	---------	---------
Derec Koch		641-224-5934	---------	---------
Derek Rieber		608-738-3459	---------	---------
Devin Boynton		507-990-8172	---------	---------
Desmond Gerdes		507-514-3792	---------	---------
Dirk Hagedorn		262-323-6148	---------	---------
Drake Evers		507-208-5608	---------	---------
Duane Bennett		---------	920-253-7226	---------
Dustin Ditzman		309-945-8158	---------	---------
Dustin Wilkening		651-706-1771	---------	---------
Dylan Noel		-----	608-397-5737	-----
Elias Johnson		-------	608-863-6407	------
Eli Ruff		507-327-7461	---------	---------
Emily Helwig		---------	507-458-0628	---------
Emma Jagodka		------	952-451-0563	-----
Emma Reber		---------	---------	---------
Eric Matthews		920-213-5916	---------	---------
Eric Presuhn		715-969-4920	---------	---------
Eric Thompson		507-438-6470	---------	---------
Eric Valentine		---------	---------	---------
Erica Lampert		---------	---------	---------
Erik Culver		608-793-6087	715-379-0665	---------
Erik Peterson		608-792-5370	---------	608-786-3199
Ethan Niles		---------	608-797-5458	---------

Evan Oeltjenbruns		507-841-4895	------	-----
Garrett Spafford		608-451-4258		
Gary Boynton		507-259-5024	---------	---------
Genevieve Mortenson		---------	---------	---------
Greg Guenther		608-790-3767	---------	---------
Heather Servais		---------	---------	--------
Holly Daines				
Isaac Eastling		715-421-0165	---------	---------
Isaac Laube		608-498-0926	---------	---------
Isaiah Schwinn		920-449-8596	---------	---------
Isaiah Graewin		-----	608-498-2909	----
Jacob Beckel		---------	507-279-4526	---------
Jacob Johnson		612-229-3144	---------	---------
Jacob Nordstrom		------	608-738-8211	-----
Jakob Hallback-Kettner		------	608-797-3084	-----
Jake Stern		---------	---------	---------
Jamal Holmes		319-464-2287	---------	---------
James Oldenburg		608-317-0346	---------	---------
Jamie Olson		---------	608-386-5878	--------
Jared Nordaas		---------	507-995-1786	---------
Jarred Koss		507-269-2772	---------	---------
Jason Martin		---------	---------	---------
Jason Mozena		712-363-7614	---------	---------
Jason Powell		---------	608-385-1467	---------
Jason Smothers			262-865-1099	
Jason Wucki		608-780-7663	----------	---------
Jay Marco		608-396-1228	---------	---------
Jean Drinkman		---------	608-387-0769	---------
Jeff Anderson		---------	218-428-3750	---------
Jeff Benvenuto		262-620-0651	---------	---------
Jeff Dahl		---------	---------	---------
Jeff Fontano		-----	651-329-5181	-----
Jeff Groth		320-333-0285	---------	---------

Jeff Kerska		---	---	
Jeff Osgood		608-792-2136	---	---
Jeremy Turben		608-606-9333	---	---
Jill Langrehr		---	608-486-4980	---
Jill McDonah		---	---	---
Jim Coblentz		608-386-2639	---	608-489-4591
Jim Freitag		507-469-0497	---	---
Jim Lopez		952-693-3062	---	---
Jim Smith		715-697-0063	---	---
Joe Bechle		608-317-2363	---	---
Joe Gauthier		920-901-9826	---	---
Joe Kappers		651-785-8949	---	---
Joe Theisen		715-271-5210	---	---
Joe Tomman		563-219-1744	---	---
Joel Krueger		---	608-385-5756	---
Joey Hafemann		262-384-1596	---	---
John Halverson		---	507-450-7115	---
John Prunty		262-501-9691	---	---
John Vandagriff		651-212-1055	---	---
John Wahl		---	608-317-5550	---
Jordan Stricker		920-542-8053	920-542-8053	-----
Jordan Skilling		319-333-9922	---	---
Jordan Wilke		940-287-4605	---	---
Jon Davis		715-220-0740		
Josh Johnson		715-392-2954	---	---
Josh Merrell		608-386-8350	---	---
Josh Meyer		319-230-1103	---	---
Justin Gilbertson		608-865-0029	---	---
Justin Lowrance		262-818-8411	---	---
Kat Watson		612-390-4669	---	---
Kayla Kyser		---	715-316-7151	---
Keith McIntyre		608-635-5809	---	---
Ken Seidel		---	---	608-779-9469

Kendon Thurk		608-792-4120	---------	---------
Kevin Boldt		---------	507-429-6102	---------
Kevin Brathall		715-222-1097	---------	---------
Kevin Harris		-----	608-790-2226	------
Kevin King		920-583-0400	---------	---------
Kevin Nestingen		---------	608-792-3268	---------
Kevin Tassoul		920-845-5070		
Kim Lovejoy		---------	---------	---------
Kim Sake		---------	---------	---------
Kollin Hemenway		920-202-0565	---------	---------
Kristen Gran			608-797-9686	------
Kristine Kish		---------	608-738-1236	---------
Kurtis Huber		---------	608-848-9040	---------
Kyle Bourget		---------	---------	---------
Kyle Drysdale		715-581-2331	---------	---------
Lacey Baum		---------	608-317-5005	---------
Larry Zielke		608-797-1520	---------	---------
Lauren Fortin		---------	---------	---------
Lauren Mueller		---------	608-881-1597	---------
Leah Berlin		608-797-1547	---------	---------
Lincoln Beery		507-216-2581	---------	---------
Logan Schlough		---------	715-308-8420	---------
Lon Anderson		715-815-0821	---------	---------
Lucas Walz		608-317-7444	---------	---------
Luke Christenson		507-273-4145	---------	---------
Lyle Antony		608-317-6140	---------	608-526-4963
Lynette Dickie-Privet		---------	507-450-6489	---------
Malia Kirchner		507-676-2601	---------	---------
Mandy Dale		---------	---------	---------
Manuel Carpenter		---------	608-498-7450	---------
Mark Ervin		715-344-7774	---------	---------
Mark Graff		-------	608-797-2335	--------
Mark Lukken		571-481-1464	---------	---------

Mark Parsneau		608-792-6121	---------	---------
Mark Reps		608-780-4051	---------	---------
Mark Thesing		608-317-6143	---------	507-895-6730
Mark Vinz		---------	608-397-5540	---------
Mary Semrow		---------	608-558-4526	---------
Marty Putz		---------	608-317-0195	---------
Mason Reed		608-633-1645	---------	---------
Matt Bartlett		608-780-7276	---------	---------
Matt Franklin		715-305-3819	---------	---------
Matt Franzini		704-677-4718	---------	---------
Matt Gran		608-780-0744	---------	---------
Matt Massie		608-385-9864	---------	---------
Matt Theisen		608-865-0944	---------	---------
Matt Thony		608-381-4836	---------	---------
Matthew Lepke		---------	---------	---------
Matthew Vetsch		5075009073	608-797-7216	---------
Max Merrell		608-799-4895	---------	---------
McKayla Haldorson		---------	608-385-5286	---------
Melissa Gabrielson				
Michael Nelson		---------	---------	
Michelle Scanlan		---------	507-429-1812	507-482-7052
Mike Clark		608-797-2200	---------	---------
Mike Ferron		715-574-5310	---------	---------
Mike Ideker		---------	---------	---------
Mike McDermott		608-778-6180	---------	---------
Mike Miles		---------	---------	---------
Mike Mellom		608-212-5962	---------	---------
Mike Rochester		---------	608-397-4142	---------
Mike Schaefer		920-960-8194	---------	---------
Mike Welsh		608-317-6145	---------	---------
Mitch Luster		------	608-412-2145	-------
Mitch Williams		608-498-3786	608-669-6322	---------
Nate Byom		---------	608-792-7780	---------

Nathan Best		---	715-379-0959	---
Nick Newman		---	608-317-9446	608-783-7623
Nick Spors		608-921-2670	---	---
Pang Vang		---	608-764-0390	---
Patrick Klopotek		608-495-1738	---	---
Pao Xiong		651-457-5622	---	---
Paul Evers		507-269-1703	---	---
Paul Stanhope		---	---	---
Paul Van Keulen		507-226-7302	---	---
Peter Bergrud		507-458-1280	---	---
Peter Seich		---	920-287-1826	---
Phillip Tennant		---	608-799-9290	---
Raider Yang		---	---	---
Randy LeBeau		701-471-5603	---	---
Rich Williams		920-993-9089	---	---
Rich Wolfert		608-797-9424	---	---
Rob Mickow		608-317-3728	763-228-1253	---
Robbie Olson		262-720-2622	---	---
Robert Dinkle		608-239-0682	---	---
Robert Preston		815-708-4471	---	---
Ron Humm		---	---	608-518-2365
Ron Kind		715-512-1373	---	---
Ron McAtee		---	319-331-9898	---
Rory Severson		608-279-5913	---	---
Ross Weber		---	612-327-3651	---
Ryan Allen		218-729-7004	---	---
Ryan Bader		---	608-385-0385	---
Ryan Keeney		---	608-397-4101	---
Ryan Philippi		320-557-8054	---	---
Ryan Roberts		608-343-3447	---	---
Ryan Thorne		---	608-385-2439	---
Sadie Mashak		---	920-222-1941	---
Sam Bratz		262-631-9116	---	---

Sam Rusch			---	---
Sarah Sweet		---	608-797-1115	---
Scott Dus		---	---	608-781-2919
Scott Murtz		---	---	---
Scott Teigen		715-556-4444	---	715-235-6626
Scott Zietlow		608-385-6938	---	---
Sierra Bahr		---	608-498-9915	---
Seth Waddell		---	608-343-0978	---
Shane Easton		---	612-619-8273	---
Shane Enos		------	319-252-7555	------
Shannon Jandt		608-385-6295	---	---
Sharon Schmelzer		---	---	---
Stacy McArdle		---	608-790-4422	---
Steve Boldt		608-790-3977	---	---
Steve Lowe		608-780-9157	---	---
Steven Linberg		715-440-1059		
Taylor Keehn		-------	608-604-8204	----
Tanner Sampson		319-240-4277	---	---
Ted Cone		608-792-2539	---	---
Terry Path		608-633-0327	---	---
Terry Roesler		608-498-0739	608-498-0739	608-779-9519
Terry Sanders		608-769-4234	---	---
Tim Farrell		507-440-3455	---	---
Tina Friedl		---	---	---
Thomas Nelson		---	---	---
Tim Woxland		608-799-3359	---	608-534-5625
TJ Alioto		262-370-4168	---	---
Todd Bornholdt		608-406-0375	---	---
Todd Crogan		---	---	----
Todd Fox		---	608-498-2106	---
Tom Bartel		920-418-4322	---	---
Tom Winters		---	563-568-1985	---
Tom Witzke		---	---	---

Tony Kissinger		920-205-1186	---------	---------
Tony Streicher		608-317-2852	---------	---------
Tony Towbridge		612-298-5186	---------	---------
Tony Xiong		651-212-1409	---------	---------
Tony Zeman		608-386-1148	---------	---------
Tracy Christopherson		---------	608-797-5709	---------
Tracey Schmidt		---------	608-397-3387	507-725-8227
Travis Hutzenbuhler		---------	----------	---------
Travis Lockington		608-498-0562	---------	---------
Travis Swarthout		507-269-3350	---------	---------
Trent Kastenschmidt		---------	---------	---------
Trevor Swarthout		507-990-1998	---------	---------
Troy Batzel		608-792-2840	---------	608-526-1132
Troy Cutsforth		563-379-1686	----------	----------
Tucker Kunkel		608-449-4857	----------	----------
Tyler Brones		952-217-6263	---------	---------
Tyler Hannah		------	608-632-0958	------
Vero Saylor		---------	---------	---------
Vicki Kruse		608-780-7142	---------	---------
Vicky Mueller		---------	608-780-9425	---------
Vince Hildestad		608-834-9390	---------	---------
Wayne Fox		---------	608-558-6864	---------
Wendy Sutton		---------	608-792-2965	---------
Yazan Mahmoud		507-589-8581	---------	---------
Zach Ferron		715-297-7300	---------	---------
Zach Stackhouse		---------	---------	---------
Zoe Katrichis		---------	---------	---------
378				
Campus Maint Shop		---------	---------	---------
Brandon Batzel		---------	608-792-4307	---------
David Woodliff		608-792-9789	---------	---------
Mike Massoth		608-792-9667	---------	---------
Mike Schultz		608-317-8276	---------	608-781-0752

Mitchell Iverson		---	715-299-9307	---
Peter Sinnett		608-604-4447	---	---
Ric Tuma		608-487-4059	---	---
Scott Berg		608-790-7452	---	608-452-3322
Scott Sill		---	608-386-2185	---
Tim Pralle		---	608-386-7914	---
Todd Stafslein		---	608-780-7218	---
Wade Resac		608-397-3940	---	---
Other Office				
Cindy Allen		---	---	---
Brad Fogarty		608-498-6542	---	---
Sandy Malay		608-769-4416	---	---
Joan Elsing		608-792-7124	---	---
Chuck Thoftne		608-792-4861	---	---
Greg Olson		608-792-3461	---	---
Contractors			---	507-498-3722
Aaron (Concrete Solutions)		608- 792-0438		
J.D. (Call Const.)		608-792-2999	---	---
Mike McGregor(CallConst.)		608-792-3204	---	---
Shawn Burkhardt(Call Const)		608-792-7865	---	---
Stafferd Call		608-792-3251	---	---
Tim Padesky		608-780-1322	---	608-783-8168
Store Engineering Delivery		---	---	783-0737 OFFICE
Store Engineering Service Desk		---	---	---
			---	---

10.0 Reporting Requirements

Don't be afraid to report spills to state agencies, the situation will not become worse for doing so but not reporting can have huge consequences.

When to Report

MN **800-422-0798**

If spill is off of an impervious surface, has made its way to soil or storm sewer or is greater than 5 gallons.

WI **800-943-0003**

If spill is off of the impervious surface, has made its way to soil or storm sewer or can adversely impact or threaten to adversely impact public health, welfare or the environment.

IA **515-281-8694**

If spill is off of the impervious surface, has made its way to soil or storm sewer or creates a hazardous condition.

MI **Email: EGLE-stdtanks@michigan.gov For further information contact EGLE-RRD or phone 800-MICHUST**

Releases of a regulated substance of any amount from underground storage tank (UST) systems (includes the emergency shutoff valve on down) subject to registration; overfill from UST fill pipe or vent onto ground;

IL **Illinois Emergency Management Agency (IEMA)/State Emergency Response Commission (SERC) at 1-800-782-7860 (within state) or (217) 782-7860 (when calling from out-ofstate)**

If a spill meets the minimum reporting limits, if someone is injured or killed, there was an evacuation, a motor vehicle was overturned on a hwy, any spill of petroleum that results in a release to the environment that is >25 gallons

SD **DANR at 605-773-3296**

The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water); The discharge causes an immediate danger to human health or

safety; The discharge exceeds 25 gallons; if you release a gaseous substance and need help converting to gallons

ND North Dakota Department of Environmental Quality (1-701-328-5210)

If a spill or discharge of liquid or solid waste which may cause pollution of waters of the state must be reported immediately

Federal

NRC 800-424-8802

When spill reaches a creek, lake, or river you must report to the NRC. Also, if a transport tanker is involved in an accident that causes a spill.

10.1 Spill Reporting Law – Federal (National Response Center)

Below is from the United States Environmental Protection Agency (US EPA) website on December 16, 2016 (https://www.epa.gov/emergency-response/when-are-you-required-report-oil-spill-and-hazardous-substance-release).

When are you required to report a spill or release?

Any person or organization responsible for a release or spill is required to notify the federal government when the amount reaches a federally-determined limit. Separate reporting requirements exist for:

- Oil spills
- Hazardous substance releases

States also may have separate reporting requirements. However, anyone who discovers a hazardous substance release or oil spill is encouraged to contact the federal government, regardless of whether they are the responsible party. All it takes is a single telephone call to the National Response Center at (800) 424-8802.

Oil Spills

EPA has established requirements to report spills to navigable waters or adjoining shorelines. EPA has determined that discharges of oil in quantities that may be harmful to public health or the environment include those that:

- Violate applicable water quality standards;
- Cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines; or
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

Any person in charge of vessels or facilities that discharge oil in such quantities is required to report the spill to the federal government. EPA provides several exemptions from the oil spill reporting requirements.

The requirement for reporting oil spills stems from the Discharge of Oil Regulation, known as the "sheen rule." Under this regulation, oil spill reporting does not depend on the specific amount of oil spilled, but on the presence of a visible sheen created by the spilled oil. Reporting an oil discharges may also be required under the Spill Prevention, Control, and Countermeasure (SPCC) Rule. For more information on reporting oil discharges, please see: Oil Discharge Reporting Requirements: How to Report to the National Response Center and EPA.

Hazardous Substances

For releases of hazardous substances, the federal government has established Superfund Reportable Quantities (RQs). If a hazardous substance is released to the environment in an amount that equals or exceeds its RQ, the release must be reported to federal authorities, unless certain reporting exemptions for hazardous substance releases also apply.

Under the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986, the federal government has designated several hundred substances as "extremely hazardous substances" based on their acute lethal toxicity. Under the law, releases of these extremely hazardous substances trigger reporting requirements to state and local authorities, as well as the federal authorities. The owner or operator of a facility that releases an extremely hazardous substance in an amount greater than its established RQ must follow requirements on how to report to the appropriate authorities (in many cases, the State Emergency Response Commission (SERC) and the Local Emergency Planning Committee (LEPC)) for the location where the incident occurs.

What information is needed when reporting a spill or release?

Reporting a hazardous substance release or oil spill takes only a few minutes. To report a release or spill, contact the federal government's centralized reporting center, the National Response Center (NRC), at 1-800-424-8802. The NRC is staffed 24 hours a day by personnel who will ask you to provide as much information about the incident as possible. Please include the following:

- Your name, location, organization, and telephone number
- Name and address of the party responsible for the incident; or name of the carrier or vessel, the railcar/truck number, or other identifying information
- Date and time of the incident
- Location of the incident
- Source and cause of the release or spill
- Types of material(s) released or spilled
- Quantity of materials released or spilled

- Medium (e.g. land, water) affected by release or spill
- Danger or threat posed by the release or spill
- Number and types of injuries or fatalities (if any)
- Weather conditions at the incident location
- Whether an evacuation has occurred
- Other agencies notified or about to be notified
- Any other information that may help emergency personnel respond to the incident

If reporting directly to the NRC is not possible, reports also can be made to the EPA Regional office or the U.S. Coast Guard Marine Safety Office in the area where the incident occurred. In general, EPA should be contacted if the incident involves a release to inland areas or inland waters. The U.S. Coast Guard should be contacted for releases to coastal waters, the Great Lakes, ports and harbors, or the Mississippi River. EPA or the U.S. Coast Guard will relay release and spill reports to the NRC promptly.

For more information, please see: Reporting Spills and Environmental Violations

10.2 Spill Reporting Law – Minnesota

Reporting of petroleum releases

Petroleum Remediation Program

Minnesota state law requires immediate reporting upon the discovery of a spill, leak, overfill, or other signs of a petroleum release to the environment. Minnesota Statute 115.061 Duty to Notify; Avoiding Water Pollution, in effect since 1969, describes requirement to notify the Minnesota Pollution Control Agency (MPCA) of spills and leaks.

What and how much has to be reported?

For petroleum products:

- Report all releases known to be greater than five gallons.
- Report any detectable past releases because a volume greater than five gallons was likely released. If contamination is encountered at a previously closed petroleum tank release sites, please refer to Assessment of petroleum contamination at closed leak sites for assistance.

Evidence of a petroleum release includes:

- Organic vapor readings above background levels
- Visual soil staining or petroleum odors
- Free product and/or petroleum sheen
- Analytical data indicating petroleum contaminants are present

Who is required to report?

Anyone who encounters a petroleum spill or release must notify the MPCA, such as:

- Property owners
- Individuals, partnerships, companies, and corporations
- Government entities
- Owners of substances being stored or transported by another company
- Contractors and/or consultants

When to report?

The Minnesota Department of Public Safety operates a 24-hour duty officer service for all state reporting requirements. Immediately report spills and releases to the Minnesota duty officer upon discovery. The duty officer records all pertinent information about the release and then makes the appropriate notifications to all necessary state and local governments.

To report a spill or leak – call the Minnesota duty officer at
651-649-5451 or 800-422-0798

Webpages and Phone Numbers	
MPCA General Line	651-296-6300 or 1-800-657-3864
MPCA Staff	http://www.pca.state.mn.us/wfhy3ec
Petrofund Webpage	http://mn.gov/commerce/topics/Petrofund/
Petrofund Phone	651-539-1515 or 1-800-638-0418
Emergency Response Webpage	http://www.pca.state.mn.us/yhiz7fd
Minnesota State Duty Officer	651-649-5451 or 1-800-422-0798

2016 Minnesota Statutes – Chapter 115E

Chapter 115E of Minnesota Rules describes the requirements for what is to be included in the spill response plans. A copy of Chapter 115E.02, 115E.03, 115E.04 and 115E.045 are included in Section 10.2 in this booklet.

115E.02 DUTY TO PREVENT DISCHARGES.

A person who owns or operates a vessel or facility transporting, storing, or otherwise handling hazardous substances or oil or who is otherwise in control of hazardous substances or oil shall take reasonable steps to prevent the discharge of those materials in a place or manner that might cause pollution of the land, waters, or air of the state or that might threaten the public's safety or health.

History: *1991 c 305 s 2*

115E.03 DUTY TO PREPARE FOR RESPONSE TO DISCHARGES.

Subdivision 1. **General preparedness.** A person who owns or operates a vessel or facility transporting, storing, or otherwise handling hazardous substances or oil or who is otherwise in control of hazardous substances or oil shall be prepared at all times to rapidly and thoroughly recover discharged hazardous substances or oil that were under that person's control and to take all other actions necessary to minimize or abate pollution of land, waters, and air of the state and to protect the public's safety and health.

Subd. 2. **Specific preparedness.** The following persons shall comply with the specific requirements of subdivisions 3 and 4 and section 115E.04:

(1) persons who own or operate a vessel that is constructed or adapted to carry, or that carried, oil or hazardous substances in bulk as cargo or cargo residue;
(2) persons who own or operate railroad car rolling stock transporting an aggregate total of more than 100,000 gallons of oil or hazardous substance as cargo in Minnesota in any calendar month;
(3) persons who own or operate facilities containing 1,000,000 gallons or more of oil or hazardous substance in tank storage at any time;
(4) persons who own or operate facilities where there is transfer of an average monthly aggregate total of more than 1,000,000 gallons of oil or hazardous substances to or from vessels, tanks, rolling stock, or pipelines, except for facilities where the primary transfer activity is the retail sales of motor fuels;
(5) persons who own or operate hazardous liquid pipeline facilities through which more than 100,000 gallons of oil or hazardous substance is transported in any calendar month; and
(6) persons required to demonstrate preparedness under section 115E.05.

Subd. 3. **Level of preparedness.** A person described in subdivision 2 shall maintain a level of preparedness that ensures that effective response can reliably be made to worst case discharges.

Subd. 4. **Demonstrating satisfactory preparedness.** A person required to maintain preparedness under subdivision 2 may demonstrate satisfactory preparedness to the commissioner of the lead agency through one or a combination of the following means:

(1) adequate response personnel and equipment in the usual employ of the person;
(2) adequate response personnel and equipment available from for-hire cleanup contractors with arrangements made for their deployment;
(3) adequate response personnel and equipment from a response cooperative or community awareness and emergency response organization meeting guidelines prepared by the lead agency with arrangements made for their deployment; or
(4) adequate response personnel and equipment of local, state, or federal public sector response organizations with arrangements made for their deployment.

Subd. 5. **Department of Transportation.** The commissioner of transportation may examine the evidence of financial responsibility required under section 1016 of the Oil Pollution Act of 1990 for a vessel and may apply the sanctions in that section.

History: *1991 c 305 s 3; 1993 c 341 art 2 s 1*

115E.04 PREVENTION AND RESPONSE PLANS.

Subdivision 1. **Plan contents.** Persons required to show specific preparedness under section 115E.03, subdivision 2, shall prepare and maintain a prevention and response plan for a worst case discharge. The plan must:

(1) describe how it is consistent with the requirements of the national or area contingency plans developed under the Oil Pollution Act of 1990;
(2) describe the measures taken to prevent discharges from occurring, including prevention of a worst case discharge, prevention of discharges of lesser magnitude, and prevention of discharges similar to those that have occurred from the vessel or facility during its history of operation;
(3) identify the individual or individuals having full authority to implement response actions, and those individuals' qualifications and titles;
(4) identify how communication and incident command relationships will be established between the individuals in command of a vessel or facility response and the following persons:
(i) individuals in the employ of the owner or operator of the vessel or facility who are responding to the discharge;
(ii) appropriate federal, state, and local officials; and
(iii) other persons providing emergency response equipment and personnel;
(5) describe the facility or vessel and identify the locations and characteristics of potential worst case discharges from the vessel or facility;
(6) identify the means under section 115E.03, subdivision 4, that will be used to satisfy the requirement to have adequate equipment and personnel to respond to a worst case discharge;
(7) contain copies of contracts, correspondence, or other documents showing that adequate personnel and equipment as described in section 115E.03, subdivision 4, will be available to respond to a worst case discharge;
(8) describe the actions that will be taken by the persons described in section 115E.03, subdivision 4, in the event of a worst case discharge; and
(9) describe the training, equipment testing, periodic drills, and unannounced drills that will be used to ensure that the persons and equipment described in section 115E.03, subdivision 4, are ready for response.

A plan submitted to the federal government under the Oil Pollution Act of 1990 or prepared under other law may be used to satisfy the requirements in clauses (1) to (9) provided that the information required by clauses (1) to (9) is included in the plan.

Subd. 2. **Timing.** (a) A person required to be prepared under section 115E.03, other than a person who owns or operates a motor vehicle, rolling stock, or a facility that stores less than 250,000 gallons of oil or a hazardous substance, shall complete the response plan required by this section by March 1, 1993, unless one of the commissioners orders the person to demonstrate preparedness at an earlier date under section 115E.05.
(b) A person who owns or operates a motor vehicle, rolling stock, or a facility that stores less than 250,000 gallons of oil or a hazardous substance shall complete the response plan required by this section by January 1, 1994.
(c) Plans required under section 115E.04 or 115E.045 must be updated every three years. Plans must be updated before three years following a significant discharge, upon significant change in vessel or facility operation or ownership, upon significant change in the national or area contingency plans under the Oil Pollution Act of 1990, or upon change in the capabilities or role of a person named in a plan who has an important response role.

Subd. 3. **Notification.** (a) The commissioner of public safety must be notified when any of the following takes place:

(1) submission of the plan to the federal government;
(2) granting of exemptions or extensions of time by the federal government for submission of the plan; or
(3) completion of the plan if submission to the federal government is not required.
(b) Notification under this subdivision must be on a form prescribed by the commissioner of public safety and must include:
(1) a description of the facility or vessel;
(2) a description of the activities involving oil or hazardous substances;
(3) a description of the types of materials being handled, including whether agricultural chemicals are involved; and
(4) other information required by the commissioner.
(c) The commissioner of public safety shall transmit a copy of the notification to the other commissioners as appropriate, depending on the types of materials involved.

Subd. 4. **Review of prevention and response plan.** (a) A person required to show specific preparedness under section 115E.03, subdivision 2, must submit a copy of the prevention and response plan to any of the commissioners who request it and to an official of a political subdivision with appropriate jurisdiction upon the official's request, or the plan and equipment and material named in the plan may be examined upon the request of an authorized agent of a commissioner or official.
(b) Upon the request of one or more of the commissioners, a person shall demonstrate the adequacy of prevention and response plans and preparedness measures by conducting announced or unannounced drills, calling persons and organizations named in a prevention and response plan and verifying roles and capabilities, locating and testing response equipment, questioning response personnel, or other means that in the judgment of the requesting commissioner demonstrate preparedness. Before requesting an unannounced drill, the requesting commissioner shall notify the other commissioners that a drill will be requested and invite them to participate in or witness the drill. If an unannounced drill is conducted to the satisfaction of the commissioners, the person conducting the drill may not be required to conduct an additional unannounced drill in the same calendar year.

Subd. 5. **Citizens advisory groups.** The commissioner of the Pollution Control Agency, the Department of Agriculture, or the Department of Public Safety may establish, or a local official may request a commissioner to establish, a citizens advisory group following a discharge of oil or a hazardous substance. The purpose of the citizens advisory group is to facilitate exchange of information and concerns related to the discharge and response between the owner or operator of the vessel or facility, the governmental responders, and the affected members of the public.

History: *1991 c 305 s 4; 1992 c 593 art 2 s 1; 1993 c 341 art 2 s 2; 1995 c 240 art 2 s 6*

115E.045 RESPONSE PLANS FOR TRUCKS AND CERTAIN TANK FACILITIES.

Subdivision 1. **Response plan for trucks.** (a) By June 1, 1994, a person who owns or operates trucks or cargo trailer rolling stock transporting an average monthly aggregate total of more than 10,000 gallons of oil or hazardous substances as bulk cargo in this state shall prepare and maintain a prevention and response plan in accordance with this subdivision. The plan must include:
(1) the name and business and nonbusiness telephone numbers of the individual or individuals having full authority to implement response action;
(2) the telephone number of the local emergency response organizations, as defined in section 299K.01, subdivision 3, if the organizations cannot be reached by calling 911;
(3) a description of the type of rolling stock and the maximum potential discharge that could occur from the equipment;
(4) the telephone number of the single answering point system established under section 115E.09;
(5) the telephone number of an individual or company with adequate personnel and equipment available to respond to a discharge, along with evidence that the individual or company and the individual responsible for preparing the plan have made arrangements for such response;
(6) a description of the training that the owner or operator's truck or cargo trailer operators have received in handling hazardous materials and the emergency response information available in the vehicle; and
(7) a description of the action that will be taken by a truck or cargo trailer owner or operator in response to a discharge.
(b) The response plan must be retained on file at the person's principal place of business.

Subd. 2. **Response plan for certain tank facilities.** (a) By June 1, 1994, a person who owns or operates a facility that stores more than 10,000 gallons but less than 1,000,000 gallons of oil or hazardous substances in aboveground tanks shall prepare and maintain a prevention and response plan in accordance with this subdivision. The abbreviated plan must include:
(1) the name and business and nonbusiness telephone numbers of the individual or individuals having full authority to implement response action;
(2) the telephone number of the local emergency response organizations, as defined in section 299K.01, subdivision 3, if the organizations cannot be reached by calling 911;
(3) a description of the facility, tank capacities, spill prevention and secondary containment measures at the facility, and the maximum potential discharge that could occur at the facility;
(4) the telephone number of the single answering point system established under section 115E.09;
(5) documentation that adequate personnel and equipment will be available to respond to a discharge, along with evidence that prearrangements for such response have been made;
(6) a description of the training employees at the facility receive in handling hazardous materials and in emergency response information; and
(7) a description of the action that will be taken by the facility owner or operator in response to a discharge.
(b) The response plan must be retained on file at the person's principal place of business.

Subd. 3. **Notice of plan completion.** A person required to prepare a response plan under this section shall notify the commissioner of public safety when the plan has been completed. Upon request, the person shall provide a copy of the plan to the commissioner of the Pollution Control Agency.

Subd. 4. **Agricultural chemicals exempt.** This section does not apply to agricultural chemicals, as defined in section 18D.01, subdivision 3, that are subject to chapter 18B or 18C.

History: *1993 c 341 art 2 s 3; 1994 c 589 s 2*

10.3 Spill Reporting Law – Wisconsin

Below is from the Wisconsin Department of Natural Resources (WDNR) website on December 16, 2016 (http://dnr.wi.gov/topic/Spills/define.html).

What is a spill?

Spill are discharges of hazardous substances that adversely impact, or threaten to adversely impact, human health, welfare or the environment and require an immediate response.

For detailed information on spill reporting requirements, see Section 292.11, Wis. Stats. [PDF exit DNR] and Chapter NR 706, Wis. Admin. Code [PDF exit DNR].

Do I have to report my spill?

Your spill **is reportable** to the DNR if:

- **there is an impact to human health;**
  Note: An evacuation is considered a threat to human health.
- **there is an impact to the environment;**
  Note: Water of the state includes a threat or spill into a sanitary sewer, storm sewer, and/or surface water.
- **there is a fire, explosion or safety hazard;**
  Note: A slippery road condition is considered a safety hazard.
- **you have not immediately cleaned up the spill;**
  Note: Has it evaporated or been cleaned up in accordance with NR700-726?
- **the spill was more than the reportable quantities listed below.***

*A hazardous substance that is "discharged" into a secondary containment structure, that is completely contained and can be recovered with no discharge to the environment, is not subject to the discharge notification requirements.

Reportable quantities

If your spill is **more** than the amounts listed below, you **must** report it to the DNR.

Petroleum compounds

- Petroleum product completely contained on an impervious surface.
- Less than 1 gallon of gasoline or light grade petroleum product onto a pervious surface or runs off an impervious surface.
- Less than 5 gallons of medium or heavy grade petroleum products onto a pervious surface or runs off an impervious surface.

Agrichemical compounds

- Less than 250 pounds dry fertilizer.
- Less than 25 gallons of a liquid fertilizer.
- Pesticides that would cover less than 1 acre of land if applied according to label instructions.

Federal reportable quantities

The federal reportable quantity for a specific substance as outlined in the CERCLA RQ column of the Sara Title 3 list of lists [exit DNR].

How to report a spill

Discharges of hazardous substances generally fall into one of two broad categories:

1. **Spills** - Spills that need an immediate response. These can include a tank truck rollover, failure of a storage tank valve or failure of a wall in a manure storage lagoon. **Call the 24-hour spill hotline at 1-800-943-0003.**
2. **Discovery of Spills Through Analysis** - Soil or groundwater contamination that is discovered via sampling. The best way to report discovery of a discharge that is identified through analysis of soil or water is to use DNR's Notification For Hazardous Substance Discharge (Non-Emergency Only) (Form 4400-225) [PDF]. This form includes information about how to fax or email the form DNR. Please include a summary of the laboratory data with the form. Don't wait for a written report describing the contamination – immediately fax or email the form, or make a phone call to a DNR regional office, immediately.

Federal reporting requirements

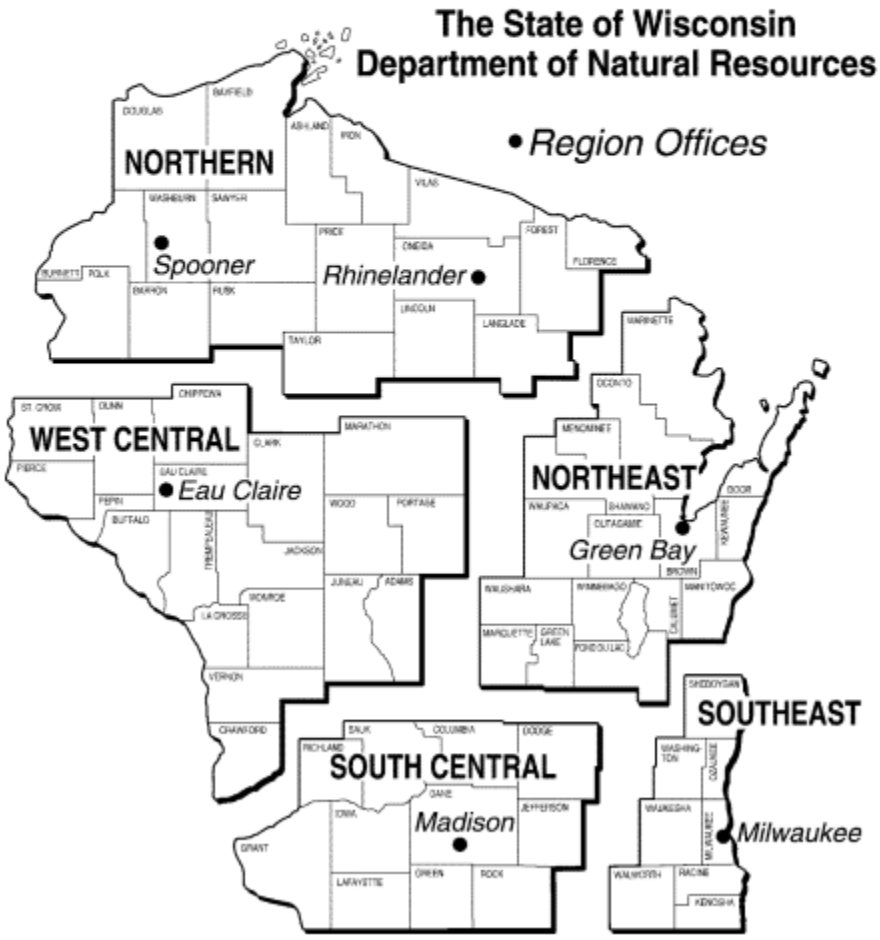
A responsible party may also have to comply with other state and/or federal reporting requirements relating to the Emergency Planning and Community Right to Know Act (EPCRA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). To report a spill, contact the The Federal Government National Response Center [exit DNR] (800-424-8802).
To determine if you have a reportable spill, please check either of these two EPA resources.

- EPA's Sara Title III Consolidated Lists of Lists [exit DNR]
- EPA's Searchable Database for the Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-to-Know Act (EPCRA) and Section 112(r) of the Clean Air Act [exit DNR]

Regional Spill Coordinators - WDNR contacts

DNR Spill Coordinator Telephone Numbers

Name	Region	Office
24 Hour Hotline	Statewide	800-943-0003
Cody Heinze	Northeast	920-883-9383
Jeff Paddock	Northern	715-828-8544
Trevor Bannister	South Central	608-347-0058
Riley Neumann	Southeast	414-750-7030
Jayson Schrank	West Central	715-410-8841



10.4 Spill Reporting Law – Iowa

Below is from the Iowa Department of Natural Resources (IDNR) Environmental Services Division Field Services & Compliance Bureau guidance document, Iowa Administrative Code Chapter 131 Notification of Hazardous Conditions, revised July 2015.

Notification of Hazardous Conditions

Summary of Key Points and Definitions

"Hazardous Condition" means any situation involving the actual, imminent or probable spillage, leakage, or release of a hazardous substance onto the land, into a water of the state or into the atmosphere which, because of quantity, strength and toxicity of the hazardous substance, its mobility in the environment and its persistence, creates an immediate or potential danger to the public health or safety or to the environment.

"Hazardous Substance" means any substance or mixture of substance that presents a danger to the public health or safety and includes, but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that, in confinement, generates pressure through decomposition, heat, or other means. The following are examples of substances which, in sufficient quantity, may be hazardous: acids; alkalis; explosives; fertilizers; heavy metals such as chromium, arsenic, mercury, lead, and cadmium; industrial chemicals; paint thinners; paints; pesticides; petroleum products; poisons; radioactive materials; sludges; and organic solvents.

"Hazardous substances" may include any hazardous waste identified or listed by the administrator of the United States Environmental Protection Agency under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976, or any toxic pollutant listed under Section 307 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous substance designated under Section 311 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous material designated by the secretary of transportation under the Hazardous Materials Transportation Act (49 CFR 172.101)

Key Points

Who is Required to Report Hazardous Conditions
Any person manufacturing, storing, handling, transporting, or disposing of a hazardous substance shall notify the department at (515) 725-8694 and the local police department or the office of the sheriff of the affected county of the occurrence of a hazardous condition as soon as possible but not later than six hours after the onset of the hazardous condition or the discovery of the hazardous condition. A sheriff or police chief who has been notified of a hazardous condition shall immediately notify the department. Reports made pursuant to this rule shall be confirmed in writing as provided in 131.2(2).

Reporting Subsequent Findings
All subsequent finding and laboratory results should be reported and submitted in writing to the department as soon as they become available.

Reminder: VERBAL REPORTS ARE REQUIRED WITHIN 6 HOURS OF INCIDENCE OCCURRENCE OR DISCOVERY.

Guidelines for Reporting Hazardous Conditions Verbal Reporting

Report the Condition if:

- The hazardous substance has the potential to leave the property by run-off, sewers, tile lines, culverts, drains, utility lines, or some other conduit, or,
- The hazardous substance has the potential to reach a water of the state – either surface water or groundwater or,
- The hazardous substance can be detected in the air at the boundaries of the facility property by the senses (sight and smell) or by monitoring equipment or,
- There is a potential threat to the public health and safety or,
- Local officials (Fire department, law enforcement, Hazmat, public health, and emergency management) respond to the incident or,
- The release exceeds a Federal Reportable Quantity (RQ).

~ If in Doubt, Report It ~

IDNR REQUIRES VERBAL REPORTS WITHIN 6 HOURS OF
INCIDENCE OCCURRENCE OR DISCOVERY

- It is recommended that all spills be cleaned up although a particular spill may not be reportable. A series of small spills over time can result in one big cleanup.
- Department rules stress the immediate or potential danger that a spill may cause.
- A written report of the Hazardous Condition is required within 30 days of the verbal notification.

In general, Iowa reporting requirements are more stringent than Federal reporting requirements. However, the **time limit** for reporting at the Federal level is more immediate.

Guidelines for Reporting Hazardous Conditions Written Report Requirements

The Iowa Department of Natural Resources Requires a written report of any Hazardous Condition. (VERBAL REPORT REQUIRED WITHIN 6 HOURS)

Written Report
The written report of such a hazardous condition shall be submitted to the department within 30 days and contain the following information:

a. The exact location of the hazardous condition.
b. The time and date of onset or discovery of the hazardous condition.
c. The name of the material, the manufacturer's name, and the volume of each material involved in the hazardous condition in addition to contaminants within the material if they by themselves could cause a hazardous condition.
d. The medium (land, water, or air) in which the hazardous condition occurred or exists.
e. The name, address, and telephone number of the party responsible for the hazardous condition.
f. The time and date of the verbal report to the department of the hazardous condition.
g. The weather conditions at the time of the hazardous condition onset of discovery.
h. The name, mailing address, and telephone number of the person reporting the hazardous condition.
i. The name and telephone of the person closest to the scene of the hazardous condition who can be contacted for further information and action.
j. Any other information, such as the circumstances leading to the hazardous condition, visible effects, and containment measures taken that may assist in the proper evaluation by the department.

The written report should include the IDNR Spill Number (assigned at the time of the verbal report) and be addressed to the duty officer responding to the spill. Reports can be sent via mail, fax, or electronic mail to the addresses listed below.

Mail	Fax	E-Mail
Iowa DNR Field Services Emergency Response 7900 Hickman Rd. Suite 200 Windsor Heights, IA 50324	515/281-7229	Emergency_Response@dnr.iowa.gov

11.0 Kwik Trip Locations

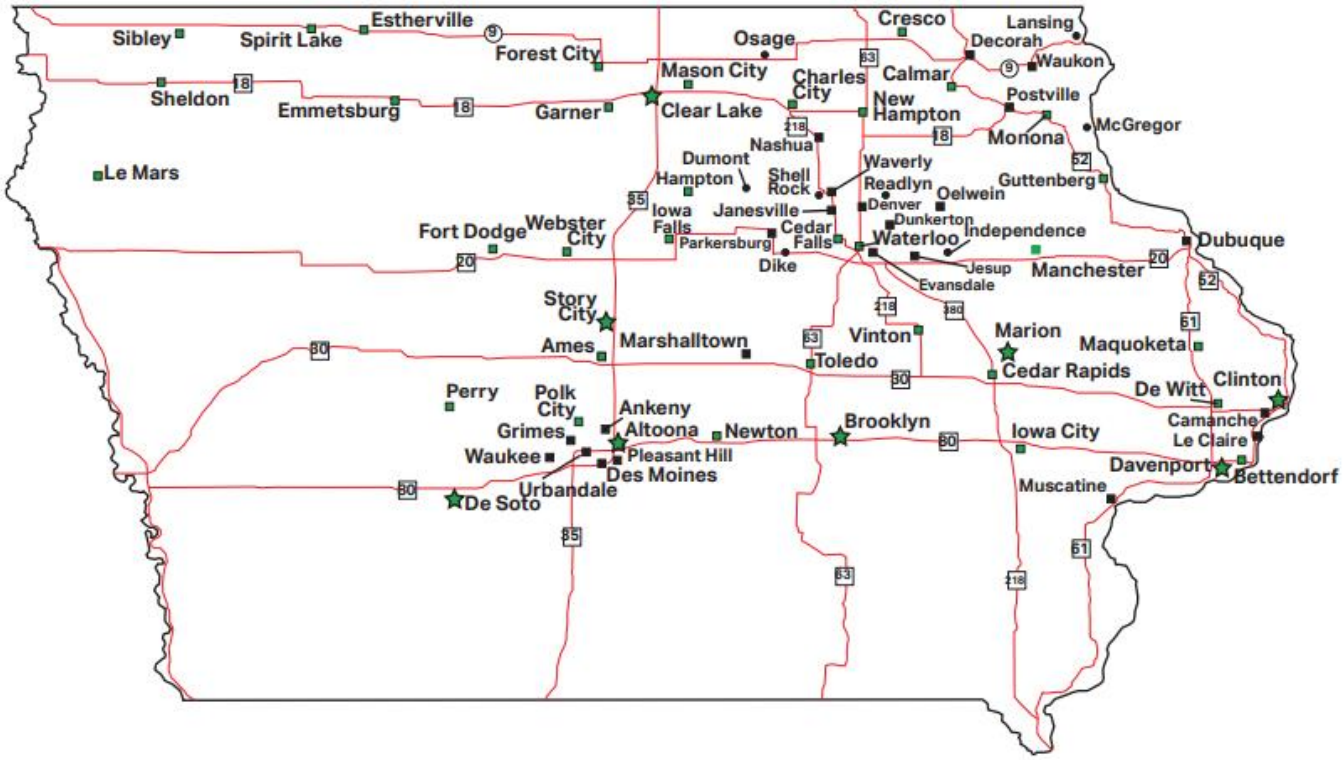
KWIK STAR

LOCATIONS

ILLINOIS

KWIK STAR

LOCATIONS
IOWA



KWIK TRIP™

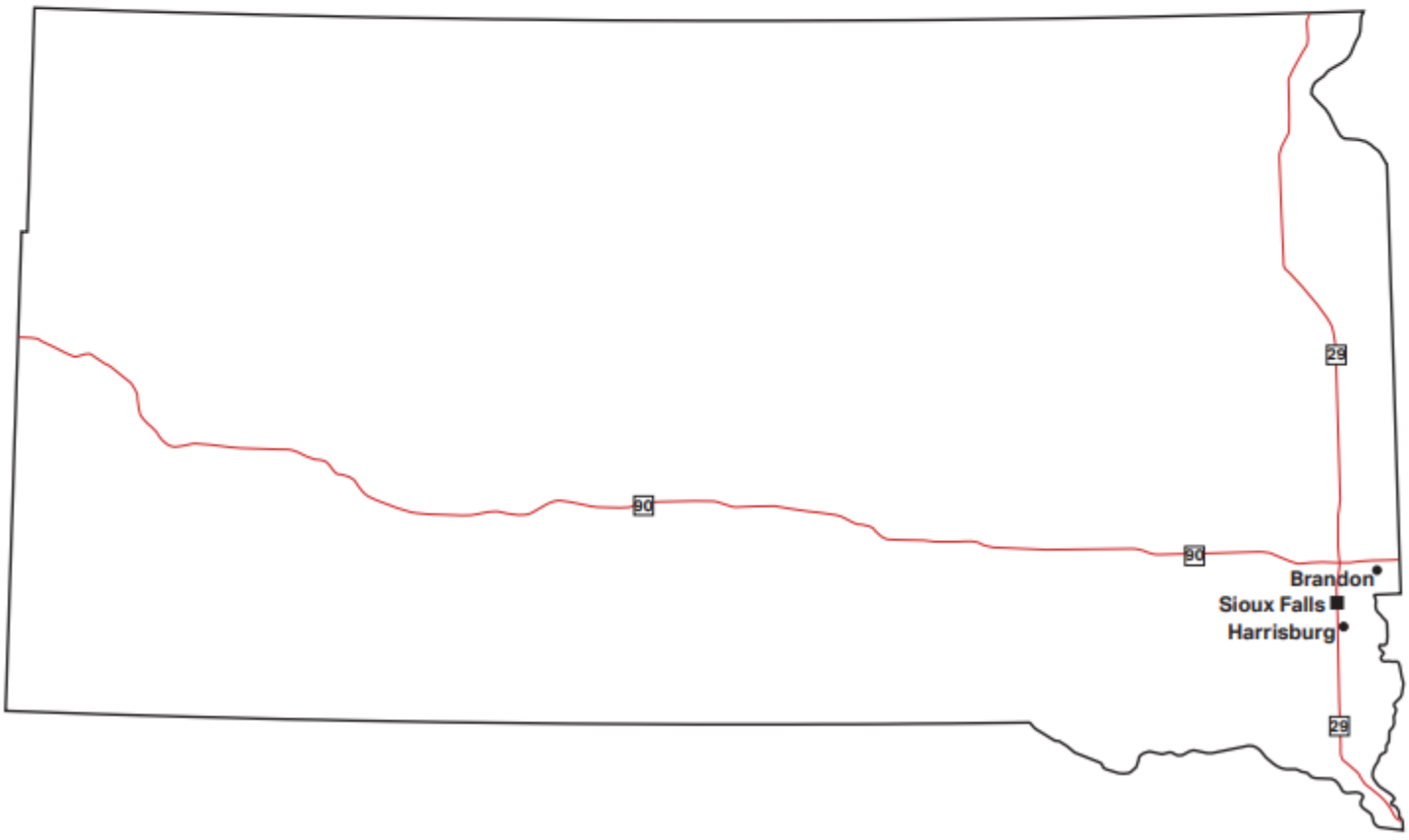
LOCATIONS MICHIGAN

KWIK TRIP
LOCATIONS
MINNESOTA
Two Harbors
Hermantown
Duluth
Cloquet
Carlton
Moose Lake
Hinckley
Mora
Milaca
Rush City
Saint Joseph
Sartell
Sauk Rapids
Cambridge
Princeton
Isanti
North Branch
Waite Park
Saint Cloud
Cold Spring
Clearwater
Big Lake
Saint Francis
Stacy
Paynesville
Monticello
Albertville
Otsego
Andover
Coon Rapids
Anoka
Forest Lake
East Bethel
Lino Lakes
Chisago City
Blaine
Hugo
Circle Pines
Willmar
Buffalo
Cokato
Rockford
Saint Michael
Maple Grove
Brooklyn Park
Vadnais Heights
Stillwater
Delano
Oakdale
Oak Park Heights
Hutchinson
St. Bonifacious
Plymouth
Lake Elmo
Chanhassen
Shakopee
Eagan
North St. Paul
Glencoe
Waconia
Savage
Woodbury
Chaska
Carver
Burnsville
Apple Valley
South St. Paul
Hastings
Norwood Young America
Prior Lake
Rosemount
Lakeville
Farmington
Red Wing
Redwood Falls
Belle Plaine
New Prague
Northfield
Elko New Market
Wabasha
Lake City
Saint Peter
Dundas
Zumbrota
Kellogg
Minnesota City
New Ulm
Faribault
North Mankato
Pine Island
Plainview
Mankato
Owatonna
Kasson
Rochester
Winona
Waseca
Eyota
Lewiston
Dodge Center
Byron
Stewartville
Saint Charles
Dakota/Nodine
Windom
Chatfield
Rushford
La Crescent
Spring Valley
Hokah
Worthington
Fairmont
Blue Earth
Albert Lea
Austin
Caledonia
Harmony
Spring Grove

KWIK STAR

LOCATIONS

SOUTH DAKOTA



KWIK TRIP™

LOCATIONS WISCONSIN

12.0 Safety Data Sheets

A complete list of Safety Data Sheets (SDSs) for products present at a Kwik Trip properties are located on the Damarco Solutions searchable website using the hyperlink HERE.

13.0 Spill Response Summary Report Requirements

The responding consultant should provide a summary report at the conclusion including the following, at a minimum:

1.0 Introduction
2.0 Hazardous Substance Discharged, Toxicity, Mobility and Volume
3.0 Duration of Discharge
4.0 Time discharge was Responded to and Properly Contained
5.0 Mitigation Efforts (including if efforts may have accelerated migration of pollution of hazardous substances)
6.0 Weather Conditions
7.0 Migration Potential of the Contamination
8.0 Nature and Scope of Immediate Response Actions
9.0 Sampling Results to Confirm Adequacy of Response
10.0 Visual and Olfactory Evidence of Contamination
11.0 Actual or Potential Environmental Impacts
12.0 Proximity of Contamination to Receptors
13.0 Present and Anticipated Future Land Use
14.0 Exposure Routes Evaluation and Summary of Remediation to the Extent Practicable
15.0 Other Relevant Information
16.0 Conclusions and Recommendations

Figures
Figure 1 – Site Vicinity Map
Figure 2 – Site Map (note: show release area)

Appendices
Appendix A – Photographs
Appendix B – Disposal Documentation
Appendix C – WTM Coordinates of Spill

Note: Report should be submitted to Kwik Trip electronically and to the appropriate state agency according to their requirements. Iowa requires a specific form be completed within 30 days of the release.

13.1 Required Reporting

Iowa

Written Report for Hazardous Conditions
The Iowa Department of Natural Resources
Requires a written report of any Hazardous Condition.

(VERBAL REPORT REQUIRED WITHIN 6 HOURS)

Written Report. The written report of a hazardous condition shall be submitted to the department within 30 days and contain the following information (Please complete as much as possible):

DNR Spill Number for hazardous condition:	

Location of hazardous condition:

Physical Address		city			
Legal Address	*Lat/Long or Twn/Rng*			zip	
Other description					

Time and Date of *onset or discovery* of hazardous condition:

Time _____ ☐ AM ☐ PM Date _____

Time and Date of *verbal report* to the department of the hazardous condition:

Time _____ ☐ AM ☐ PM Date _____

The Hazardous Condition:

Name of material/substance(s)	Manufacturer	Volume

If more space is needed add additional pages. Attach a Material Safety Data Sheet (MSDS) if possible.

The medium in which the hazardous condition occurred/existed (Check all that apply):
☐ Ground Water ☐ Surface Water ☐ Land ☐ Air

Weather Conditions during the time of the hazardous condition onset or discovery:

Temperature	Wind Direction	Wind Speed	Humidity	Precipitation

Contact Information:

	Name	Company	Mailing Address	Telephone
Person Reporting (if known)				
Party Responsible				
Site Contact				

Cause of the Incident: Write a narrative of the events leading to the incident

Initial Actions Taken: Write a narrative of the initial actions and instructions taken or required.

Written reports should include the DNR spill number and be addressed to the duty officer responding to the spill. Reports can be sent via mail, fax, or electronic mail.

Mail	Fax	Email
IDNR Emergency Response 7900 Hickman Rd Ste 200 Windsor Heights, IA 50324-4432	515/281-7229	Emergency_Response@dnr.iowa.gov

South Dakota

INCIDENT FOLLOW-UP REPORT

(Page 1 of 2)

DANR CASE FILE #: _____

RETURN COMPLETED FORM TO:

SOUTH DAKOTA DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES (DANR)
INSPECTION, COMPLIANCE, AND REMEDIATION PROGRAM
JOE FOSS BUILDING
523 EAST CAPITOL AVENUE
PIERRE SD 57501-3182

NAME/TYPE OF PRODUCT SPILLED: _____

TOTAL AMOUNT OF PRODUCT SPILLED: _____

POUNDS OF ACTIVE INGREDIENT SPILLED (fertilizer/pesticide spills): _____

AMOUNT OF PRODUCT RECOVERED: _____

WAS SURFACE WATER OR GROUND WATER IMPACTED BY THE SPILL?: _____

SPILL DATE: _____ DATE CLEANUP OCCURRED: _____

SPILL LOCATION (physical address, directions, distance to nearest intersection or landmark, etc.): _____

_____

LATITUDE/LONGITUDE: _____

LAND USE (Residential, Commercial, Agricultural, Industrial, Other – describe): _____

RESPONSIBLE PARTY: _____

MAILING ADDRESS: _____

CITY/STATE: _____ TELEPHONE NUMBER: _____

PROPERTY OWNER: _____

MAILING ADDRESS: _____

CITY/STATE: _____ TELEPHONE NUMBER: _____

CONSULTANT / CLEANUP CONTRACTOR (if applicable): _____

MAILING ADDRESS _____

CITY/STATE: _____ TELEPHONE NUMBER: _____

INSURANCE PROVIDER (if applicable): _____

NAME OF INSURED: _____

POLICY NUMBER: _____ CLAIM NUMBER: _____

MAILING ADDRESS: _____

CITY/STATE: _____ TELEPHONE NUMBER: _____

INCIDENT FOLLOW-UP REPORT (Page 2 of 2)

DANR CASE FILE #: _____

WAS SOIL EXCAVATED?: _____ DIMENSIONS OF EXCAVATION: _____

CUBIC YARDS EXCAVATED: _____

DISPOSAL SITE (Name of Facility): _____

DISPOSAL DATE: _____

If soil was disposed, attach copies of disposal receipts

FERTILIZER/PESTICIDE SPILLS ONLY **!!REQUIRES DANR PRE-APPROVAL!!**

WILL THE CONTAMINATED SOIL/MATERIAL BE LAND APPLIED?: _____

WHAT CROP IS/WILL BE GROWN ON THE LAND APPLICATION SITE?: _____

LEGAL DESCRIPTION OF THE LAND APPLICATION SITE: _____

TOTAL ACRES SOIL/MATERIAL WILL BE APPLIED TO: _____

YARDS/POUNDS/ETC. OF SOIL/MATERIAL TO BE APPLIED: _____

CONCENTRATION OF CHEMICAL IN THE SOIL/MATERIAL TO BE APPLIED?: _____

THIS SECTION FOR DANR OFFICE USE ONLY

LAND APPLICATION APPROVAL DATE: _____

APPLICATION APPROVED BY: _____

WAS SPILL CONTAINED TO IMMEDIATE AREA?: _____

DISTANCE TO AND NAME OF NEAREST SURFACE WATER (include currently dry perennial streams): _____

DISTANCE TO NEAREST WATER WELL (if applicable): _____

OWNER OF NEAREST WATER WELL (if applicable): _____

DESCRIBE RESPONSE ACTION AND ADDITIONAL WORK PLANNED: _____

FORM COMPLETED BY: _____ DATE: _____

E-MAIL ADDRESS: _____