Village of Germantown, WI

SITE PLAN REVIEW SUBMITTAL PACKET

For

Waste Management
Truck Maintenance Facility

N96W13840 County Line Road
Germantown, WI 53022

February 28th, 2020

Prepared For:

WASTE MANAGEMENT

Prepared By:

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS

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Project Contacts and Site Information

PROJECT OWNER:

Waste Management of Wisconsin, Inc.
W132 N10487 Grant Dr.
Germantown, WI 53022

Contact: Donald Smith, PE
Phone: (262) 250-8700
Email: dasmith@wm.com

OWNER REPRESENTATIVE/ ENGINEER:

175 Ray Ave. NE
New Philadelphia, OH 44663

Project Manager: Nick Berner, PE
Phone: (330) 364-1631
Email: nberner@div-eng.com

SITE INFORMATION:

Parcels Disturbed	GNTV_363996	GNTV_363986
Acreage	8.15 ac.	35.63 ac.
Current Zoning	M-2	M-2

ADJACENT PARCEL ZONING:

GNTV_363995*	RS-1 & B-2
GNTV_363990	RS-1
GNTV_363994	B-5
GNTV_363988	A-2
GNTV_363985	M-2
GNTV_362985	A-1
GNTV_363999*	M-2
GNTV_363997*	M-2

Note: (*) Indicates parcels owned by Waste Management of WI, Inc.

FEMA INFORMATION:

Community Number	550472
Panel #	0379
Suffix	D
Date of FIRM	11/20/2013
FIRM Zone	A
Base Flood Elevation	769 FT.

Village of Germantown ...Willkommen

Fee must accompany application

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

PAID_____ DATE_____

SITE PLAN REVIEW APPLICATION

Pursuant to Section 17.43 of the Municipal Code

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

1 APPLICANT OR AGENT

Diversified Engineering Inc.
Nick Berner, P.E.

175 Ray Ave. NE
New Philadelphia, OH 44663

Phone (330) 364-1631
E-Mail nberner@div-eng.com

PROPERTY OWNER

Waste Management of Wisconsin Inc.
Donald Smith, P.E.

W132 N10487 Grant Dr.
Germantown, WI 53022

Phone (262) 250-8700
E-Mail dasmith@wm.com

2 PROPERTY ADDRESS

N96 W13840 County Line Rd. Germantown, WI 53022

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

North	South	East	West
See Attached - ADJACENT PARCEL ZONING			

4 READ AND INITIAL THE FOLLOWING:

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

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

DAS 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!

2/28/20
Applicant Date
Nick Berner

DOUGLAS SMITH 2/28/20
Owner Date

SITE PLAN REVIEW CHECKLIST

Pursuant to Section 17.43 of the Municipal Code

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

GENERAL INFORMATION

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

EXISTING SITE INFORMATION

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

ARCHITECTURAL PLANS

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

PROPOSED SITE PLAN

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

LIGHTING PLAN

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

LANDSCAPING PLAN

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

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

MODEL SUBMITTAL INCLUDES THE FOLLOWING PLANS:

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

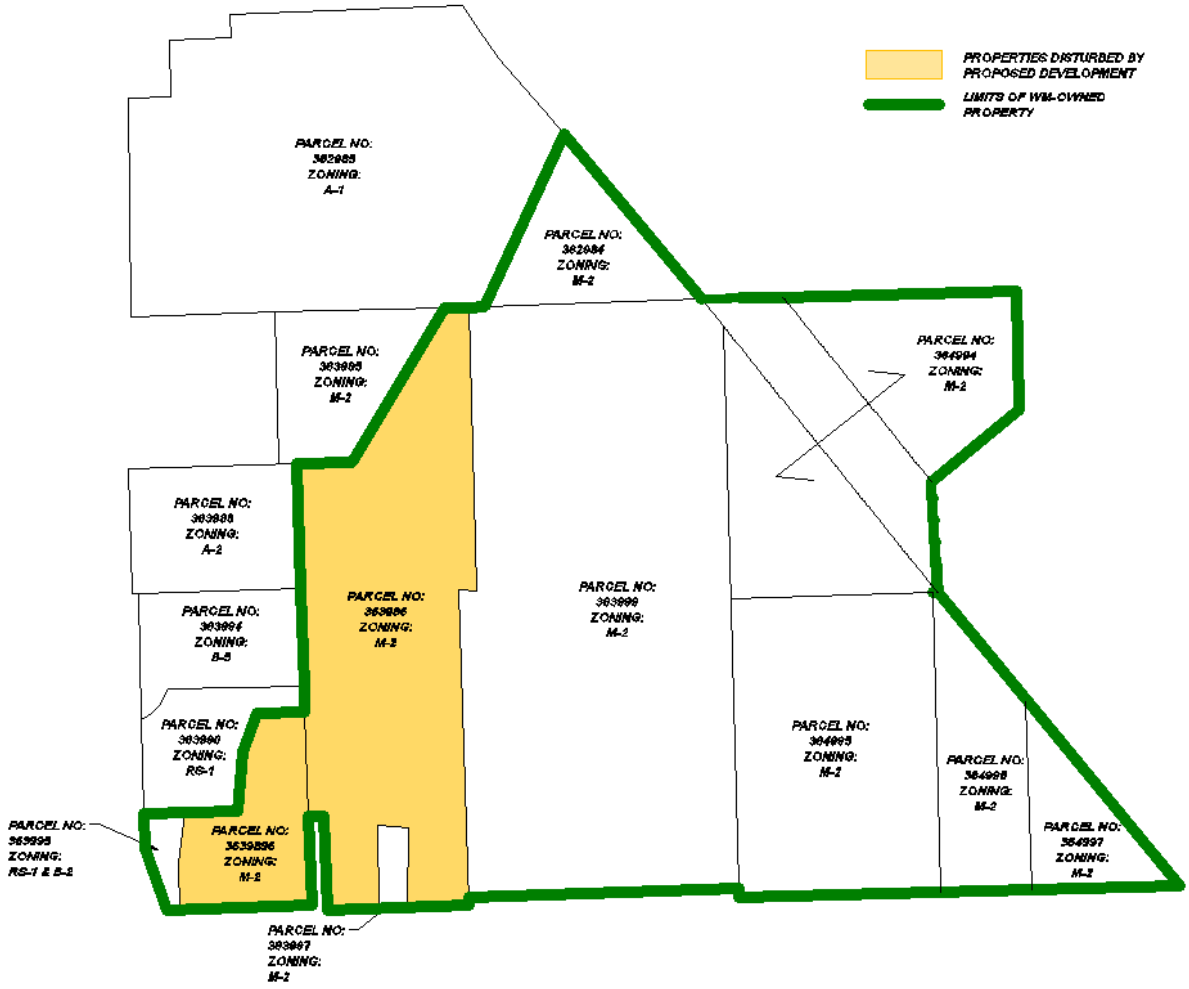
In addition to the items on this list, Village Staff and/or the Plan Commission may require additional drawings and data to be submitted for approval.

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

ADJACENT PARCEL ZONING:

GNTV_363995*	RS-1 & B-2
GNTV_363990	RS-1
GNTV_363994	B-5
GNTV_363988	A-2
GNTV_363985	M-2
GNTV_362985	A-1
GNTV_363999*	M-2
GNTV_363997*	M-2

Note: (*) Indicates parcels owned by Waste Management of WI, Inc.



Village of Germantown ...Willkommen

Fee must accompany application

☐ **$1460** Paid _____ Date_____

CONDITIONAL USE PERMIT APPLICATION

Pursuant to Section 17.42 of the Municipal Code

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

1 APPLICANT OR AGENT

Diversified Engineering Inc.
Nick Berner, P.E.

175 Ray Ave. NE
New Philadelphia, OH 44663

Phone (330)364-1631
Fax (330)364-4031
E-Mail nberner@div-eng.com

PROPERTY OWNER

Waste Management of Wisconsin Inc.
Donald Smith, P.E.

W132 N10487 Grant Dr.
Germantown, WI 53022

Phone (262)250-8700
dasmith@wm.com

2 TO WHOM SHOULD THE PERMIT BE ISSUED?

Waste Management of Wisconsin, Inc.

3 PROPERTY ADDRESS / TAX KEY NUMBER

PROPERTY ADDRESS	TAX KEY NUMBER
N96 W13840 County Line Rd. Germantown, WI 53022	363996 & 363986

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.

Tax Key 363996: Currently occupied by WM Port-o-let division garage, office and storage area (approximately 8.15 ac.).

Tax Key 363986: Currently occupied by WM Orchard Ridge Gas to Electric Power Plant , Industrial Pretreatment Plant and WM Healthcare Solutions building (approximately 35.63 ac.)

5 DESCRIPTION OF PROPOSED OPERATION

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

Germantown, WI Municipal Code, Chapter 17.34 - M-2 General Industrial District, Section 3

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

Conditional use permit requested for development of parcels 363996 and 363986. Proposed development includes the construction of a Waste Management Truck Maintenance Facility (240'x100') and office space (60'x96'). Hours of operation are anticipated to be 3:30am- midnight, M-F and 5am-noon, Saturday. The facility is anticipated to serve 100 employees during first shift/day shift, and approximately 10 during second shift.

6 METES AND BOUNDS LEGAL DESCRIPTION OF PROPERTY – REQUIRED

Attach pages as necessary

Tax key 363996: Lot 2- CSM4247 V28 P30 PT of SW V1013 P676 SEC 36-9-20 8.15 ac.

Tax key 363986: PT NW SW V747 P264 PT SOLD SEC 36-9-20

See attached CSM 4247 and Deed and exclusion for 363986

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:

DAS 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.

DAS 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.

DAS 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.

DAS 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!

2/28/20

Applicant — Date

Nick Berner

D WA Smith 2/28/20

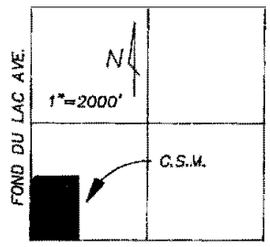
Owner — Date

Donald A. Smith

658232

CERTIFIED SURVEY MAP NO. _____

BEING A REDIVISION OF C.S.M. NO. 3402, C.S.M. NO. 455 AND UNPLATTED LANDS, ALL IN THE SW 1/4 OF THE SW 1/4 OF SECTION 36, TOWN 9 NORTH, RANGE 20 EAST, IN THE VILLAGE OF GERMANTOWN, WASHINGTON COUNTY, WISCONSIN.



SW 1/4 SEC. 36--9--20

LOCATION MAP

LEGEND

O--DENOTES 1"X24" IRON PIPE WEIGHING 1.13 LBS. PER LINEAL FOOT SET

*--DENOTES BEARING ALSO REC. AT 0° 00' 11" ROTATED CLOCKWISE

ALL BEARINGS REFERENCED TO GRID NORTH OF THE WISCONSIN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE

INT. ANGLES

① 89°59'55"	⑤ 114°48'55"	⑨ 188°07'10"
② 89°20'49"	⑥ 196°36'05"	⑩ 124°35'41"
③ 90°39'16"	⑦ 177°04'31"	⑪ 90°38'13"
④ 269°20'44"	⑧ 188°47'38"	⑫ 90°00'58"
		⑬ 270°00'05"

C.S.M. NO. 3028

N 88°33'58" E * 585.74'

10'

C/L 20' ACCESS EASEMENT

N 33°09'39" E * 88.31'

N 41°16'49" E * 27.58'

N 50°04'27" E 26.01'

N 47°08'58" E * 23.91'

N 63°45'03" E * 18.47'

112.00'

S 88°33'58" W 206.86' 206.91'(R)

S 21°31'55" W 181.50'

UNPLATTED LANDS

60.00'

404.94'

624.84'

FOND DU LAC AVE. (S.T.H. "145")

W. LINE OF SW. 1/4 SEC. 36-9-20 (ALSO REC. AS N 1°25'51" W)

N 1°26'02" W

LOT 1
255,428. sq. ft. ±
5.86 acres ±

OLD I.P. 1.46 E.

255.59'

S 5°04'51" W

963.38'

841.38'

100 YEAR FLOOD LIMITS

WISCONSIN JAMES W. HENSEL S-1892 GREENDALE, WI LAND SURVEYOR

JAN. 7, 1994

S 87°54'42" W 404.23'

174.14'

230.09'

222.39'

S 6°33'17" W

LOT 3
64,344. sq. ft. ±
1.47 acres ±

LOT 2
356,089. sq. ft. ±
8.15 acres ±

25'

25'

N 0°04'15" W DRAINAGE EASEMENT

S 2°04'15" E (ALSO REC. AS S 2°05'44" E AND S 2°05'07" E)

UNPLATTED LANDS

60.00'

423.92'

204.00'

S 2°05'18" E

N 87°54'42" E 60.00'

(ALSO REC. AS N 1°25'51" W) N 1°26'02" W 264.02'

S 2°05'18" E 50.00'

60.00'

145.56'

118.75'

574.77'

10.00'

60.00'

574.75'

S 87°54'47" W

(ALSO REC. AS S 87°54'53" W)

S. LINE OF SW. 1/4 SEC. 36-9-20

N 87°54'47" E 781.00'

(ALSO REC. AS N 87°54'53" E)

FEE EXEMPT (S.T.H.)

50.00' N 2°04'15" W (ALSO REC. AS N 2°05'07" W)

SW. COR. SW. 1/4 SEC. 36-9-20

(ALSO REC. AS S 87°54'53" W)

S 87°54'47" W 206.25'

COUNTY LINE RD.

SHADED AREA DEDICATED FOR PUBLIC ROAD PURPOSES, INCLUDES PREVIOUSLY DEDICATED LANDS

0 150 225 300 450

SCALE 1"=150'

NORTH SHORE ENG. INC.
11431 N. PORT WASHINGTON RD
MEQUON WI. 53092

THIS INSTRUMENT DRAFTED BY JAMES W. HENSEL

SHEET 1 OF 3 SHEETS

Map No. 4247 Vol. 28 Page 30

CERTIFIED SURVEY MAP NO. _____

Being a redivision of C.S.M. No. 3402, C.S.M. No. 455 and unplatted lands, all in the S.W. 1/4 of the S.W. 1/4 of Section 36, Town 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin.

658232

SURVEYOR'S CERTIFICATE

I, James W. Hensel, Registered Land Surveyor, do hereby certify:

THAT I have surveyed, divided and mapped the following parcel of land:

C.S.M. No. 3402, C.S.M. No. 455 and unplatted lands, all in the S.W. 1/4 of the S.W. 1/4 of Section 36, Town 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin.

Commencing at the S.W. corner of said 1/4 Section; thence N1°26'02"W (also recorded as N1°25'51"W) along the West line of said 1/4 Section, 264.02 feet; thence N87°54'42"E, 60.00 feet to a point in the East right-of-way line of Fond du Lac Ave. (S.T.H. "145") said point also being the southwest corner of Outlot 2 of C.S.M. No. 3402; thence N1°26'02"W (also recorded as N1°25'51"W), along said East line and the West line of Outlot 2 and Lot 1 of C.S.M. No. 3402, 624.84 feet to the northwesterly corner of Lot 1 of C.S.M. No. 3402; thence N63°45'03"E (also recorded as N63°45'14"E), along the northerly line of Lot 1 of C.S.M. No. 3402, 18.47 feet; thence N47°08'58"E (also recorded as N47°09'09"E), along said northerly line, 23.91 feet; thence N50°04'27"E (also recorded as N50°04'38"E), along said northerly line, 26.01 feet; thence N41°16'49"E (also recorded as N41°17'00"E), along said northerly line, 27.58 feet; thence N33°09'39"E (also recorded as N33°09'50"E), along said northerly line, 88.31 feet to the northwest corner of Lot 1 of C.S.M. No. 3402; thence N88°33'58"E (also recorded as N88°34'09"E), along the north line of Lot 1 of C.S.M. No. 3402, 585.74 feet to the northeast corner of Lot 1 of C.S.M. No. 3402; thence S2°04'15"E (also recorded as S2°05'44"E and S2°05'07"E), along the east lines of Lot 1 and Outlot 1 of C.S.M. No. 3402, and the east line of the parcel recorded as C.S.M. No. 455, 963.38 feet to the southeast corner of the parcel recorded as C.S.M. No. 455, said point lying in the North right-of-way line of County Line Road (C.T.H. "Q"); thence S87°54'47"W (also recorded as S87°54'53"W), along said North line, 574.75 feet to the southwest corner of the aforementioned parcel; thence S2°05'18"E, 50.00 feet to a point in the South line of said 1/4 Section; thence S87°54'47"W (also recorded as S87°54'53"W), along said South line, 206.25 feet to the point of commencement. Said lands containing 16.18 acres of land more or less. Excepting the South 10.00 feet and the Southwest 60.00 feet dedicated for public road purposes.

THAT I have made such survey, land division and plat at the direction of Waste Management of Wisconsin, Inc., OWNER of said lands.

THAT such map is a correct representation of all the exterior boundaries of the land surveyed and the land division thereof made.

THAT I have complied with the provisions of Chapter 236.34 of the Wisconsin statutes and the requirements of the Village of Germantown.

James W Hensel JAN. 7, 1994

James W. Hensel L.S., 1892

This instrument drafted by James W. Hensel

WISCONSIN
JAMES W. HENSEL
S-1892
GREENDALE, WI
LAND SURVEYOR

Map No. 4247 Vol. 28 Page 31

658232

CERTIFIED SURVEY MAP NO. _____

Being a redivision of C.S.M. No. 3402, C.S.M. No. 455 and unplatted lands, all in the S.W. 1/4 of the S.W. 1/4 of Section 36, Town 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin.

OWNER'S CERTIFICATE

WASTE MANAGEMENT OF WISCONSIN, INC. as OWNER, hereby certifies that it caused the land described on this certified survey map to be surveyed, mapped and dedicated as represented on the certified survey map in accordance with the ordinances of the Village of Germantown.

WITNESS THE HAND AND SEAL OF SAID CORPORATION AND ITS OFFICER THIS 10th DAY OF January, 1994.

In the Presence of:

WASTE MANAGEMENT OF WISCONSIN, INC.

Robert Borkenhagen, General Manager

STATE OF WISCONSIN)
WASHINGTON COUNTY)ss

PERSONALLY came before me this 10th day of January, 1994, the above named Robert Borkenhagen, General Manager, to me known to be the person who executed the foregoing instrument and acknowledged the same.

Notary Public

My Commission expires 9/7/97

VILLAGE OF GERMANTOWN PLAN COMMISSION APPROVAL

Approved by the Village of Germantown Plan Commission, this 10th day of January, 1994.

Chairman

Secretary

JAN 21 9 00 AM '94
REGISTER OF DEEDS
OF WASHINGTON COUNTY, WI

RECORDED

Map No. 4247 Vol. 28 Page 32

VILLAGE OF GERMANTOWN BOARD APPROVAL

APPROVED by the Village of Germantown board and highway dedication accepted on this 17th day of January, 1994.

Village President

Clerk

This instrument drafted by James W. Hensel

JAMES W. HENSEL
S-1892
GREENDALE, WI
WISCONSIN
LAND SURVEYOR

JAN. 7, 1994

DOCUMENT NO

434539

VOL. REC. 747 PAGE 264

STATE BAR OF WISCONSIN FORM 1
WARRANTY DEED

FEB 19 9 26 AM '81

This Deed, made between Gordian Liermann by Emma Maas Liermann, his Attorney-In-Fact and Emma Maas Liermann, his wife

Grantor

and Waste Management of Wisconsin, Inc., a Wisconsin Corporation

Grantee,

Witnesseth, That the said Grantor, for a valuable consideration

conveys to Grantee the following described real estate in Washington County, State of Wisconsin:

Mr. Douglas D. Smiljanic
Attorney At Law
N88 W17015 Main St.
Menomonee Falls, WI 53051

All that part of the Southwest ¼ of Section 36, Township 9 North, Range 20 East, Village of Germantown, Washington County, Wisconsin, bounded and described as follows:

Tax Key No.

COMMENCING at the West ¼ corner of the said Section 36; thence N88° 13' 49.7" E. along the North Line of the said SW ¼ of Section 36, 684.747 feet to the point of beginning of this description; thence continuing along the said North Line, 845.663 feet; thence S 01° 45' 50.53" E, 1241.501 feet; thence S 87° 54' 15.49" W, 79.981 feet; thence S 01° 45' 50.53" E, 1400.00 feet to a point on the South Line of the said SW¼ of Section 36; thence S87° 54' 15.77" W, along the said South Line, 263.23 feet; thence N 2° 05' 44.2" W, 363.00 feet; thence S 87° 54' 15.77" W and parallel to the said South Line, 120.00 feet; thence S 2° 05' 44.2" E, 363.00 feet to a point on the said South Line; thence S 87° 54' 15.77" W, along the said South Line, 235.20 feet; thence N 2° 05' 44.2" W along a public Road right of way, 445.890 feet; thence S 87° 54' 15.77" W, and parallel to the said South Line 66.00 feet; thence N 2° 05' 44.23" W 1540.00 feet; thence S 88° 13' 49.66" W, 79.49 feet; thence N 01° 26' 25.02" W, 660.00 feet to the point of beginning of this description and containing 43.667 acres.

TRANSFER
$131.00
Fee

This is (is) (is not) homestead property.

Together with all and singular the hereditaments and appurtenances thereunto belonging.

And Gordian Liermann and Emma Maas Liermann, his wife

warrants that the title is good, indefeasible in fee simple and free and clear of encumbrances except municipal and zoning ordinances and recorded easements for public utilities located adjacent to side and rear lot lines; recorded building and use restrictions and covenants; and general taxes for the year of 1980 and 1981.

and will warrant and defend the same.

Dated this 11th day of February, 1981

Douglas D. Smiljanic (SEAL)
Douglas D. Smiljanic

Gordian Liermann by Emma Maas Liermann, his Attorney-in-Fact (SEAL)

(SEAL)

Emma Maas Liermann (SEAL)

AUTHENTICATION

Signatures authenticated this day of , 19

TITLE: MEMBER STATE BAR OF WISCONSIN
(If not, authorized by § 706.06, Wis. Stats.)

THIS INSTRUMENT WAS DRAFTED BY
Douglas D. Smiljanic
Attorney At Law

(Signatures may be authenticated or acknowledged. Both are not necessary.)

ACKNOWLEDGMENT

STATE OF WISCONSIN)
) ss
Waukesha County)

Personally came before me, this 11th day of February, 1981, the above named Gordian Liermann by Emma Maas Liermann, his Attorney-In-Fact and Emma Maas Liermann, his wife

to me known to be the persons who executed the foregoing instrument and acknowledged the same.

Douglas D. Smiljanic
Douglas D. Smiljanic
Notary Public Waukesha County, Wis.
My Commission is permanent. (If not, state expiration date , 19 .)

*Names of persons signing in any capacity should be typed or printed below their signatures.

WARRANTY DEED — STATE BAR OF WISCONSIN FORM No. 1 — 1977 — Wisconsin Legal Blank Co., Inc. Milwaukee, Wis. (Job 33880)

State Bar of Wisconsin Form 1-2003
WARRANTY DEED

Document Number | Document Name

DOC# 1185031

Recorded
Mar. 06, 2008 AT 01:20PM
SHARON A MARTIN, REGISTER OF DEEDS
WASHINGTON COUNTY, WISCONSIN

Fee Amount: $13.00
Transfer Fee: $207.30

Recording Area 13-2

Name and Return Address
Davis & Kuelthau, SC
111 E. Kilbourn, Suite 1400
Milwaukee WI 53202

THIS DEED, made between **Waste Management of Wisconsin, Inc., a Wisconsin Corporation**

("Grantor," whether one or more), and **FC Milwaukee Nationals, Inc., a Wisconsin Corporation**

("Grantee," whether one or more).

Grantor for a valuable consideration, conveys to Grantee the following described real estate, together with the rents, profits, fixtures and other appurtenant interests, in **Washington** County, State of Wisconsin ("Property") (if more space is needed, please attach addendum):
SEE ATTACHED LEGAL

Part of GTNV 363-993
Parcel Identification Number (PIN)

This **is not** homestead property.
(is) (is not)

SUBJECT TO THE FOLLOWING DEED RESTRICTION:
"The Property conveyed herein shall not be used for any purpose related to the waste industry including, but not limited to, the hauling, processing, transferring, storage, recycling or disposal of solid waste (including demolition waste) or hazardous waste. These restrictions are perpetual and declared to be covenants running with the land and shall be fully binding upon all persons or entities acquiring title to the land whether by descent, devise, purchase or otherwise."

Grantor warrants that the title to the Property is good, indefeasible, in fee simple and free and clear of encumbrances except: **Municipal and zoning ordinances, recorded easements for public utilities serving the property, recorded building and use restrictions and covenants, and taxes levied in the year of closing.**

$ TRANSFER 207.30 FEE

Dated February 28, 2008.

_____ (SEAL)
*_____

_____ (SEAL)
*_____

Waste Management of Wisconsin, Inc.
_____ (SEAL)
***By:** BRENDAN SHEEHAN

_____ (SEAL)
***Title: Authorized Representative**

AUTHENTICATION

Signature(s) _____

authenticated on _____.

_____
*_____
TITLE: MEMBER STATE BAR OF WISCONSIN
(If not, authorized by Wis. Stat. § 706.06)

THIS INSTRUMENT DRAFTED BY:
David E. Stewart
State Bar No. 1013409

ACKNOWLEDGMENT

STATE OF **ILLINOIS**)
) ss.
Will COUNTY)

Personally came before me on January 28, **2008**,
the above-named BRENDAN SHEEHAN, Authorized Representative, Waste Management of Wisconsin, Inc.
to me known to be the person(s) who executed the foregoing instrument and acknowledged the same.

_____
Notary Public, State of **Illinois**
My commission (is permanent) (expires: January 24, 2010)

(Signatures may be authenticated or acknowledged. Both are not necessary.)
NOTE: THIS IS A STANDARD FORM. ANY MODIFICATION TO THIS FORM SHOULD BE CLEARLY IDENTIFIED.

LEGAL DESCRIIPTION

That a part of the Northwest ¼ and the Northeast ¼ of the Southwest ¼ of Section 36, Town 9 North, Range 20 East, in the Village of Germantown, Washington County, Wisconsin, bounded and described as follows:

Commencing at the Northwest corner of the Southwest ¼ of said Section; thence N88° 14' 45" E along the South line of the Northwest ¼ of said Section 684.75 feet to the point of beginning; thence continuing N88° 14' 45"E 720.75 feet to a meander line; thence S32° 13' 41" W along a meander line 795.93 feet to the end of a meander line; thence S88° 14' 45"W 279.66 feet; thence N01° 25' 30"W 660.00 feet to the point of beginning. Including all the land lying between the meander line and the property lines extended to the center line of a creek to the East. Containing 7.58 acres of land to the meander line and 7.93 acres +/- to the center line of a creek.

Existing Site Photos

Address sign at WM Port-o-let entrance. (July 2018)

Abandoned underground storage tank. (Dec. 2018)

Existing Site Photos

Port-o-let maintenance garage, currently abandoned. (Dec. 2018)

Port-o-let facility maintenance garage. Used for painting and welding only.

Existing Site Photos

Existing asphalt lot.

Interior of WM Port-o-let maintenance building. (July 2018)

Existing Site Photos

Interior of WM Port-o-let maintenance building. (July 2018)

Various containers and vehicle storage on back lot. (July 2018)

Existing Site Photos

Various containers being stored on back lot. (July 2018)

Various containers and vehicles being stored on back lot. (July 2018)

Existing Site Photos

View of development area facing northeast. Currently vacant. (July 2018)

View of development area facing north. (July 2018)

Existing Site Photos

Existing burn-off flare and maintenance building. (July 2018)

Existing gravel roadway to flare and maintenance building. (July 2018)

Existing Site Photos

Existing leachate management facility. (July 2018)

Leachate management facility. (July 2018)

Existing Site Photos

Existing retention pond. (Dec. 2018)

Existing retention pond. (Dec. 2018)

Existing Site Photos

View of existing conditions facing northwest. (Dec. 2018)

View of Port-o-let facility from the northeast. (Dec. 2018)

Existing Site Photos

View facing east from proposed development area. (Dec. 2018)

Storage of containers at Port-o-let facility. (Dec. 2018)

Existing Site Photos

Existing lot at Port-o-let facility. (Dec. 2018)

Port-o-let facility entrance. (Dec. 2018)

Existing Site Photos

Container storage on existing dirt lot to north of medical waste facility. (Dec. 2018)

Existing asphalt drive. View facing southwest. (Dec. 2018)

Proposed Site Photos

Exterior elevation.

Exterior elevation.

Proposed Site Photos

Proposed truck maintenance garage.

Proposed launch area.

Proposed Site Photos

CNG fueling area.

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS

February 28, 2020

Design Narrative

Project: Waste Management – Germantown Truck Maintenance Facility

The Germantown Truck Maintenance Facility will be a 29,760 square foot pre-engineered metal building located at parcel 363986 & 3639896. The facility will serve as a new CNG compliant facility for existing operations and staffing at the Waste Management Menomonee Falls Facility.

The building will be divided into two structures of differing eaves and use groups with a dividing masonry unit fire wall. The western portion of the facility will be a single-story 5,760 square foot office, 15' eave, consisting of 6 office spaces and 4 cubicles, serving a maximum daily staff of 11. The office space also incorporates locker rooms and launch areas to serve 120-130 drivers/technicians.

The eastern portion of the building will serve as a 24,000 square foot, 28' eave, CNG compliant maintenance facility. The space is designed to operate 14 maintenance bays and a pull through wash bay split by a parts/tools and vital equipment storage space. The building will be equipped with necessary monitoring systems, automated alarms and air change units per CNG code compliance.

The structure has been designed to match the surrounding campus of various industrial buildings owned and operated by Waste Management. Most notably in design materials, color pallet and façade. Additional design considerations have been incorporated with intent of improving site safety and appearance as well as minimize operational noise.

The building has been set approximately 500 feet north from County Line Rd, to allow the existing dilapidated structure and staging area to be removed and replaced. The proposed design incorporates additional green space, landscaped berms and tree lined employee parking area in the place of the existing structure and storage areas. The landscaping berm has been set back from County Line Rd approximately 80-90 feet to allow for additional visibility for on-coming maintenance vehicle traffic.

Maintenance vehicle parking has been located at the north end of the parcel with a dedicated drive to the northeast connecting to the existing drive along the eastern edge of the property. The parking area has been designed to incorporate back in spaces to reduce noise during morning vehicle launches, by ensuring vehicles first move is forward. The dedicated drive to the northeast allows for vehicles to access County Line Rd at an existing pronounced intersection that features added sight distance.

Though this site has been previously approved, there have been some minor design changes to both the site and the building footprint. We have reduced the footprint of the office from 9,750 sf to 5,760 sf (-3,990 sf), reduced the footprint of the shop from 25,000 sf to 24,000 sf (-1,000 sf), increased the truck parking area from 100 to 130 (+30 spaces), and changed the parking area from 159/7hc to 160/5hc (+1/-2hc spaces). The main cause of the reduction was the relocation of 30 office/sales personnel to the existing Germantown building off Grant Rd. In addition to the reduced building, the truck parking was adjusted per the conditional use permit to enforce truck back-up operations to the east.

Sincerely,

Nicholas J. Berner, P.E.
Project Manager

175 Ray Ave. N.E. New Philadelphia, OH 44663 - Phone: 330-364-1631 - Fax: 330-364-4031 - Email: dei@div-eng.com

Appendix A

Storm Water Management Report

Truck Maintenance Facility – Storm Water Management Report for
Waste Management of Wisconsin, Inc. in Germantown, WI

STORM WATER MANAGEMENT PLAN REPORT: GERMANTOWN TRUCK MAINTENANCE FACILITY

REVISED 2/25/2020

Abstract

The following report documents the analysis performed to assess the suitability of the proposed hydraulic control mechanisms at Waste Managements' Germantown Hauling Facility.

Prepared by:

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS

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1.0 Narrative Description

1.1 Site Location

The proposed development is located in Germantown Village in Washington County, Wisconsin. The project location is directly northwest of the intersection between County Line Rd & Fond Du Lac Ave. The approximate site coordinates are: Latitude: 43.193202° & Longitude: -88.080141°. The site is located in the Menomonee River Watershed.

1.2 Description of Existing and Proposed Conditions

The existing site is located along the north side of County Line Rd in Washington County, Wisconsin. The existing site is a combination of developed / undeveloped areas. The developed areas are currently occupied by Waste Management's Port-o-let division's garage, office, and storage area. The undeveloped area consists of meadowland and wooded areas. There is currently a detention pond located on the north end of the site that is utilized by NE neighboring parcel, upgrading and continued usage of this pond is included in the site development.

The proposed development is for the construction of a Waste Management truck maintenance facility (240' x 100') and office space (60' x 96') along with concrete parking areas for employees and operations vehicles. The existing detention pond on the north edge of the property is to be upgraded and maintained, along with the construction of an additional stormwater detention pond along the western side of the parcel. The existing impervious area located to the south of the site, owned and operated by WM-Port-O-Let division, is to be removed and replaced with a site access drive and green area.

1.3 Methods used for analysis

Stormwater calculations are performed using rainfall data from NOAA Atlas 14. The subsequent sections follow through each step of the design procedure, from peak flow determination, hydrograph development, and detention pond design. Methods outlined in TR-55 were utilized to determine curve numbers, time of concentration, and peak flow rates. Methods outlined in TR-20 were utilized to develop inflow hydrographs for the pre-development and post-developed conditions. Carlson Software's Hydrology Module was utilized to perform calculations and to complete flood routing.

Inlets, storm sewers, and ditches were all modeled using Carlson's Hydrology module. The inlet capacity & storm sewer calculations were evaluated per Wisconsin DOT's facilities development manual (Chapter 13 – Drainage, Section 25 – Storm Sewer Design) & Section 4.0 of The Village of Germantown's Design, Drafting, and Construction Standards & Specifications. The ditches were evaluated using specifications outlined under WDNR conservative practice standard - 1053. The 100YR 24HR storm event was modeled to determine depth of flows and shear requirements needed for the ECRM. Calculations and assumptions for inlets, storm sewers, and ditches can be found in sub-sequent sections 2.5 - 2.7.

The proposed wet ponds were designed using criteria specified in WDNR's technical standard specification 1001 & Section 7.0 of The Village of Germantown's Design, Drafting, and Construction

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Standards & Specifications. Water quality analysis was designed using 80% total suspended solids removal for new development. Runoff reduction requirements were evaluated using the volumetric design procedure and performance standards set forth by the Milwaukee Metropolitan Sewer District. The volumetric design procedure analyzes the existing and future flow conditions for both the 1% (100 year) and 50% (2 year) storm event. "The volumetric design procedure ensures the total volume of runoff from the proposed site is limited to the total volume of runoff discharging from the existing site during a prescribed critical time period" (Milwaukee Metropolitan Sewer District, Ch. 13).

2.0 Hydrology Calculations:

2.1 Drainage Area

The drainage area for the proposed development totals 25.4 acres and can be split into 3 separate sub-basin areas. The sub-basins are labelled I – III, and can be seen on the Civil Construction Plans. The land use for each sub-basin area is broken down during the curve number calculations for both the existing & developed site. Impervious areas are being added and removed across the site, the increase (or decrease) in impervious areas for each sub-basin are presented below. The drainage areas contain off-site areas that currently drain to the site.

Site Impervious Area		
Sub-Basin	Existing Acreage	Developed Acreage
I	4.77	4.68
II	1.12	3.34
III	5.02	6.17

*BMP for Sub-Basin I is reduction in impervious area.

2.2 Curve Number & Runoff

Rainfall data from NOAA Atlas 14 are utilized throughout the stormwater analysis. Data for the project location are presented below.

NOAA 14 Rainfall Amounts	
Recurrence Interval	Rainfall Amount (in.)
1 year, 24 Hour	2.35
2 year, 24 Hour	2.66

NOAA 14 Rainfall Amounts	
Recurrence Interval	Rainfall Amount (in.)
10 year, 24 Hour	3.79
100 year, 24 Hour	6.30

The proposed development can be broken up into 3 separate sub-basins. The sub-basins can be seen on sheet C1.12 of the Civil Site Construction Plans. The southernmost sub-basin, consists of the demolition & removal of the existing asphalt and building space currently occupied by WM's Port-O-Let division. Due to the reduction in impervious area through this sub-basin and the limited flat space available; construction of a storm water pond was not feasible. The BMP practice implemented in Sub-Basin I is

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the reduction of impervious area and the re-routing of storm water through grass channels. This will result in a lower curve number and higher time of concentration, which reduces peak flow rates and runoff volume. The breakdown of existing and proposed site conditions, curve numbers, and runoff associated with each sub-basin is summarized below. Curve numbers and runoff were determined using Carlson's Hydrology Software, which utilizes the SCS curve number method outlined in TR-55.

Existing Conditions					
Sub-Basin	Land Use	Soil Type	Area (Acres)	CN	% Area
I	Impervious	C	4.77	98	45.34
	Meadow	C	5.75	71.0	54.66
	TOTALS		10.52	83.2	100
II	Impervious	C	1.12	98	23.98
	Woods (Fair)	C	1.01	73	21.63
	Meadow	C	2.54	71	54.39
	TOTALS		4.67	77.9	100.00
III	Pond	C	0.16	100	1.57
	Impervious	C	5.02	98	49.36
	Woods (Fair)	C	0.55	73	5.41
	Meadow	C	4.44	71	43.66
	TOTALS		10.17	84.9	100.00

Developed Conditions					
Sub-Basin	Land Use	Soil Type	Area (Acres)	CN	% Area
1	Herbaceous Mixture	C	0.05	81	0.48
	Impervious	C	4.68	98	44.49
	Meadow	C	5.79	71	55.04
	TOTALS		10.52	83.1	100
2	Herbaceous Mixture	C	0.05	81	1.07
	Impervious	C	3.34	98	71.52
	Pond	C	0.58	100	12.42
	Meadow	C	0.70	71	14.99
	TOTALS		4.67	94.0	100.00
3	Pond	C	0.50	100	4.92
	Impervious	C	6.17	98	60.67
	Meadow	C	3.5	71	34.41
	TOTALS		10.17	88.8	100.00

The site curve number is used to determine runoff volume for each design storm using procedures outlined in TR-55. Equation 2-3 & 2-4 from TR-55 are used to calculate the runoff volume.

$$Q = \frac{(P - 0.2S)^2}{(P + 0.8S)}$$

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Where:

Q = runoff (inches)

P = rainfall (inches)

S = potential maximum retention (S = (1000/CN) – 10)

Sub-Basin I		
Storm Event	Pre-Development Runoff Volume (ac-ft)	Post-Development Runoff Volume (ac-ft)
1YR	0.84	0.83
2YR	1.04	1.04
10YR	1.86	1.85
100YR	3.85	3.84

Sub-Basin II		
Storm Event	Developed Runoff Volume (inches)	Developed Runoff Volume (ac-ft)
1YR	1.73	0.67
2YR	2.02	0.79
10YR	3.12	1.21
100YR	5.60	2.18

Sub-Basin III		
Storm Event	Runoff Volume (inches)	Developed Runoff Volume (ac-ft)
1YR	1.31	1.11
2YR	1.58	1.34
10YR	2.61	2.21
100YR	5.01	4.24

2.3 Time of Concentration

The time of concentration for pre & post development conditions for each sub-basin were determined using methods outlined in TR-55. Time of concentration worksheets for sub-basins II & sub-basin III can be seen in Appendix B. The longest flow path was determined using aerial photography and site topographic information. Sheet flow was designated a maximum length of 100 LF, after this flow length sheet flow is assumed to become shallow concentrated flow. Where channels exist, or are proposed, open channel flow calculations are used to determine time of concentration.

Time of concentrations for storm sewer and ditch analysis was determined using Carlson Software's Hydrology Module, which utilizes the watershed lag method outlined (SCS) in Chapter 15 (Part 630) of the National Engineering Handbook. The required input parameters are: curve number, length of flow (ft), average land slope (%). The flow length is defined as "the longest path along which water flows from the watershed divide to the outlet." The average land slope was determined using Carlson Software's slope analysis tool. This tool examines a surface created by survey points & contours, and calculates the average surface slope for a given area. Each sub-basin's land slope percent was calculated independently. The time of concentration for pre & post development are shown below.

Time of Concentration		
Sub-Basin	Existing Time of Concentration (hours)	Proposed Conditions Time of Concentration (hours)
I	0.19	0.236
II	0.13	0.059
III	0.155	0.17

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2.4 Peak Flows

The peak flows for the required design storms were then calculated and developed using Carlson Software's Hydrology Module. The software applies the SCS method outlined in TR-55. The peak flows for the design storm events (pre & post development) are shown below.

Sub-Basin (I)		
Storm Event	Pre-Development Peak Flow (CFS)	Post Development Peak Flow (CFS)
1YR	12.25	11.17
2YR	15.46	14.13
10YR	28.30	26.00
100YR	58.82	54.18

West Pond (Sub-Basin II)		
Storm Event	Pre-Development Peak Flow (CFS)	Post Development Peak Flow (CFS)
1YR	4.54	10.85
2YR	5.89	12.53
10YR	11.28	18.60
100YR	24.36	31.86

North Pond (Sub-Basin III)		
Storm Event	Pre-Development Peak Flow (CFS)	Post Development Peak Flow (CFS)
1YR	14.58	17.53
2YR	17.93	21.01
10YR	30.78	33.87
100YR	59.68	62.38

2.5 Storm Sewer Calculations

Storm Sewer will be installed across the site to convey stormwater to the downstream BMP's for water quality and runoff reduction. There are two series of catch basins to be installed on the site. The first series of catch basins resides in sub-catchment II, and drains to the Western Storm Water Pond. The second series of catch basins resides in sub-catchment III, and drains to the Northern Storm Water Pond.

- Storm Sewer System I, which resides in sub-basin II, consists of catch basins 01 – 03. The basins are interconnected and will flow into the storm water detention BMP located along the western side of the site.
- Storm System II, which resides in sub-basin III, consists of catch basins 04 – 06. The basins are interconnected and will outlet into storm water detention BMP located at the northern end of the site.

The system was modeled using Carlson Hydrology's sewer network feature to ensure inlets and piping were sized appropriately. All storm sewer piping is ADS N-12 pipe. The table below provides a breakdown of the storm sewer network analysis. Per Chapter 13 of the MMSD Technical Guidance Document the 10% probability storm event (10YR) was used as the design storm. For Germantown, the NOAA 14 Atlas 14 rainfall event is 3.79".

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STORM SEWER HYDRAULICS									
Upstream Node	Downstream Node	Sewer System	Rainfall Event	Pipe Material	Manning's n	Diameter (in)	Pipe Length (ft)	Slope (%)	Pipe Velocity (fps)
CB-1	CB-2	I	10YR	ADS N-12	0.012	12.00	118.00	1.50	5.22
CB-2	CB-3	I	10YR	ADS N-12	0.012	18.00	139.00	2.07	4.16
CB-3	OUTFALL I	I	10YR	ADS N-12	0.012	18.00	82.00	10.53	13.71
CB-4	CB-5	II	10YR	ADS N-12	0.012	12.00	75.00	0.50	3.23
CB-5	CB-6	II	10YR	ADS N-12	0.012	12.00	110.00	0.50	3.61
CB-6	OUTFALL II	II	10YR	ADS N-12	0.012	12.00	115.00	1.60	6.91

Due to the steep slope, and high velocities of the pipes out falling into the stormwater detention ponds. Rip-Rap Outlet protection will be installed to prevent erosion and scouring.

2.6 Inlet Capacity Calculations

Inlet capacities were calculated using Neenah Enterprises Inc.'s weir & orifice calculator tool. The selected grate for each 2'x2' catch basin is the Neenah R-3405. The design flow to each inlet and the depth of flow were obtained via Carlson Hydrology's Sewer Network design. The results are presented below.

Structure ID	Grate	Perimeter (feet)	Free Open Area (sq ft)	Drainage Area (acres)	Design Flow to Inlet (cfs)	Flow Depth (ft)	Weir Flow Capacity (cfs)
CB-01	R-3405	7.9	1.5	0.68	1.59	0.22	2.76
CB-02	R-3405	7.9	1.5	0.14	0.33	0.09	0.7
CB-03	R-3405	7.9	1.5	0.13	0.31	0.09	0.7
CB-04	R-3405	7.9	1.5	0.48	1.83	0.24	3.12
CB-05	R-3405	7.9	1.5	0.19	0.7	0.13	1.27
CB-06	R-3405	7.9	1.5	0.40	1.16	0.18	2.04
*Weir Flow Assumed for depths of flow from 0.0' to 0.4' [Q = 3.33*L(H)^(3/2)]							

2.7 Ditch Sizing & Erosion Control Matting Requirements

The proposed development includes stormwater channels that will be used to convey stormwater to downstream BMP's. There are three main channels that surround the impervious area on the site that were evaluated. The ditches are labelled on sheet C1.12 of the Civil Site Construction Plans. Per Germantown design standards, the 100YR 24HR design storm was used to evaluate the capacity and matting requirements for the channels. The procedures outlined in Section 13-30 of Wisconsin's Facility Design Manual were used to evaluate the stormwater channels.

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First, the peak flow to each channel was determined using the 100YR 24HR design storm event. The channel slope and channel shape were also selected, with no channel grades to be less than 1%. The channels are all 2' flat bottom channels with 3H:1V side slopes, and a minimum depth of 2'. Germantown's design standards recommend North American Green DS150 or equal for moderate flow rates. The manning's 'n' associated with this liner ranges from 0.021 – 0.055 depending on depth of flow. The NAG DS150 channel has an un-vegetated permissible velocity of 6 ft/sec, and an un-vegetated permissible shear stress of 1.75 psf. Carlson Hydrology's module was used to calculate the flow depth and flow velocity. After determining the flow depth and flow velocities, the shear stress can be calculated using Equation 3 from section 10.5.2 of WDOT's Storm Sewer Design Manual (shown below).

$$\tau_d = \gamma d S_0$$

Where:

τ_d = shear stress in channel $(\frac{lb}{ft^2})$

γ = unit weight of water $(62.4 \frac{lb}{ft^3})$

d = depth of flow for design storm (ft)

S_0 = slope of channel bed $(\frac{ft}{ft})$

The results for each channel can be found below in the table below.

Ditch ID	100YR 24HR Peak Flow (cfs)	mannings 'n'	Average Slope (%)	Flow Depth (ft)	Velocity (fps)	Shear Stress (lb/ft^2)
I	20.55	0.038	2.81	0.94	4.52	1.65
I	16.01	0.038	3.42	0.80	4.55	1.71
II	16.55	0.038	1.42	0.99	3.31	0.88

Comparing the calculated results to the permissible velocities and shear stresses for NAG DS-150 erosion control blanket, it can be seen the results are within tolerance.

2.8 Culvert Analysis

The site proposes eight culverts to convey stormwater to the treatment BMP's designated in the area. The culverts were designed and analyzed to ensure they could safely handle stormwater from the not only the on-site tributary area, but any off-site drainage as well. Culverts C1 & C4 handle water from off-site tributaries, these culverts have been designed to safely bypass runoff from the off-site tributary area. All culverts were analyzed using the 10YR 24HR storm event for peak flows. The culvert capacities were determined using manning's equation. All culverts are to be ADS N-12 Storm Pipe, manning's 'n' value of 0.012 was assigned. The culverts will outfall into either a NAG DS150 lined channels or rip-rap protection

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into one of the site storm water detention ponds. A summary for all proposed culverts is presented below. Culvert 'C2' was removed from the site plan.

Culvert Summary Table								
	Drainage area (acres)	TOC (minutes)	CN	Pipe Ø (inches)	Slope	Manning's 'n'	Capacity*	10YR 24HR Peak Flow (CFS)
C1	5.12	27.9	77.5	18	1.86%	0.012	15.51	7.16
~~C2**~~	~~0.34~~	~~6.5~~	~~71~~	~~12~~	~~1.25%~~	~~0.012~~	~~4.31~~	~~0.63~~
C3	0.81	3.4	89.0	18	1.00%	0.012	11.37	3.32
C4	4.75	18.1	74.5	18	1.20%	0.012	12.46	7.06
C5	5.32	2.4	96.5	18	4.25%	0.012	23.45	9.88
C6	0.28	1.8	91.6	12	3.27%	0.012	6.98	1.26
C7	1.04	3.5	84.0	18	0.50%	0.012	8.04	3.57
C8	2.25	12.3	82.5	12	3.13%	0.012	6.83	5.74
*capacity calculated using mannings equation								
**C2 removed from site plan								

3.0 Stormwater Management BMP's

The proposed site development is broken down into three separate "sub-basins", labelled sub-basin I – sub-basin III on the Civil Construction Site Plans. Each sub-basin utilizes stormwater BMP's discussed in WDNR's "Stormwater Post-Construction Technical Standards" to address water quality and water quantity requirements. Sub-Basin I utilizes impervious area reduction and grass swales as stormwater BMP's. Sub-Basin's II & III utilize wet ponds as the stormwater BMP. The following sections discuss in detail the design of each BMP feature.

3.1 Sub-Basin I – Stormwater BMP's

Sub-Basin I is located on the southern edge of the site near the existing Waste Management Port-O-Let building. The drainage area for Sub-Basin I is separated into two areas. The off-site tributary area and on-site tributary area. The off-site tributary area is to be bypassed through the development through a series of culverts and channels. The culverts and channels were analyzed in previous sections to ensure they could safely pass the off-site tributary area through the development.

The on-site tributary area for drainage area I consists of the access road, the employee parking lot, and surrounding areas. The on-site drainage area consists of 2.01 acres, with 1.20 acres of that being impervious area. The BMP utilized in drainage area I consists of reduction in impervious area and grass channels. The plan proposes demolition of the existing WM Port-O-Let building and the surrounding impervious areas, resulting in a decrease in impervious area. The decrease in impervious area leads to a lower curve number than the pre-development condition, which leads to a reduction in peak flow and runoff.

The proposed impervious areas are to be directed through grass channels, which are designed to achieve water quality goals and provide stable conveyance of higher flows. The grass channels will provide a longer time of concentration across the site, which leads to a reduction in peak flow and runoff. The grass channels are to be lined with NAG DS150, a short-term double net erosion control blanket, to allow adequate vegetation to be established without erosion following construction.

The grass channels were designed using "The Wisconsin Storm Water Manual." The soil properties were first evaluated to ensure they were conducive for grass channel design. The site consists of mainly silty loam with a Type 'C' Rating, which is a suitable soil for this design. The shape of the channels are designed to be trapezoidal. The channels are designed to be 2' flat bottom with 3H:1V side slopes and on average 2' deep. The total swale length, from the edge of the employee parking area to the rip-rap outlet, is approximately 265', which satisfies the minimum swale length of 200'. The grass channel is designed to slope at approximately 1%, which is within the preferred slope range of 1% - 4%.

Along with runoff reduction, the grass channels were also designed to provide water quality improvement. The accepted design criteria for water quality improvements are the 1.5" rain event and the 2YR 24HR event for peak shaving. The grass channels were designed to have a velocity of 1.5 ft/sec for the water quality event. The capacity of the channels were evaluated using the 2YR 24HR storm event.

DRAINAGE AREA I BMP: GRASS CHANNEL						
Design Storm	On-Site Drainage Area (Acres)	Curve Number	Time of Concentration (Minutes)	Peak Flow (CFS)	Velocity (FPS)	Flow Depth (FT)
WQ Event (1.5")	2.01	87.1	4.93	1.65	1.50	0.35
2YR-24HR Storm				4.55	1.99	0.60

3.2 Stormwater Pond Design

Sub-Basin II & Sub-Basin III, denoted on the Civil Construction Site Plans, utilize wet ponds as a stormwater management BMP. The wet ponds were designed using WDNR Technical Specification 1001 and Village of Germantown's stormwater regulations. The wet ponds are designed to achieve required water quality improvements and water quantity attenuation. The following sections walk through the design of each pond.

3.2A Water Quality Design

The site proposes two storm water ponds to satisfy water quality and runoff reduction requirements for sub basin II & sub basin III. The storm water ponds were designed using WDNR's Technical Standard 1001.

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The water quality standard for new development in the Village of Germantown requires removal of 80% of total suspended solids. The wet ponds are designed to provide the necessary permanent pool surface area to allow for particle settling. The surface area is calculated using equation 1(a) from Technical Standard 1001 (see below).

$$S_a = 1.2 * (\frac{q_o}{v_s})$$

Where:

S_a = permanent pool surface area, measured at lowest outlet of detention pond (sq. ft)

q_o = post construction peak outflow during the 1YR 24HR design storm

v_s = particle settling velocity ($1.91*10^{-5}$ ft/sec for 80% TSS removal).

1.2 EPA recommended safety factor.

Based on the site footprint constraints and depth requirements (minimum 2' for sediment storage & minimum 3' for permanent pool depth), the surface area for each permanent pool was designed first. The surfaces areas were then plugged into eq 1(a) from Technical Standard 1001 to determine the maximum allowable 1YR 24HR post construction peak flow rate. Results are presented below.

Pond Sub-Basin	Permanent Pool Surface Area (ft^2)	Particle Settling Velocity (80% Removal) (ft/sec)	Maximum Allowable Flow Rate Leaving Pond (1YR-24HR) (cfs)
II	19,977	1.91E-05	0.32
III	19,026	1.91E-05	0.30

The allowable flow rates are then utilized to approximate the water quality orifice sizes. The orifices are sized using similar procedures to those outlined in WDNR's Technical Standard 1064 for Sedimentation Basins. Below are the steps used to approximate the orifice size.

The previously allowable outflow rate (q_o) was computed using eq. 1(a) from technical standard 1001.

The developed inflow rate (q_{in}) and the runoff volume were calculated using procedures outlined in TR-55. (See Section 2.4).

q_o was then compared to q_{in} to come up with a ratio. This ratio is then used in Appendix B of Tech. Standard 1001 (see below), the ratio of storage volume to runoff volume is then determined. This ratio is used to estimate the required storage volume to attenuate the peak flow to the allowable rate.

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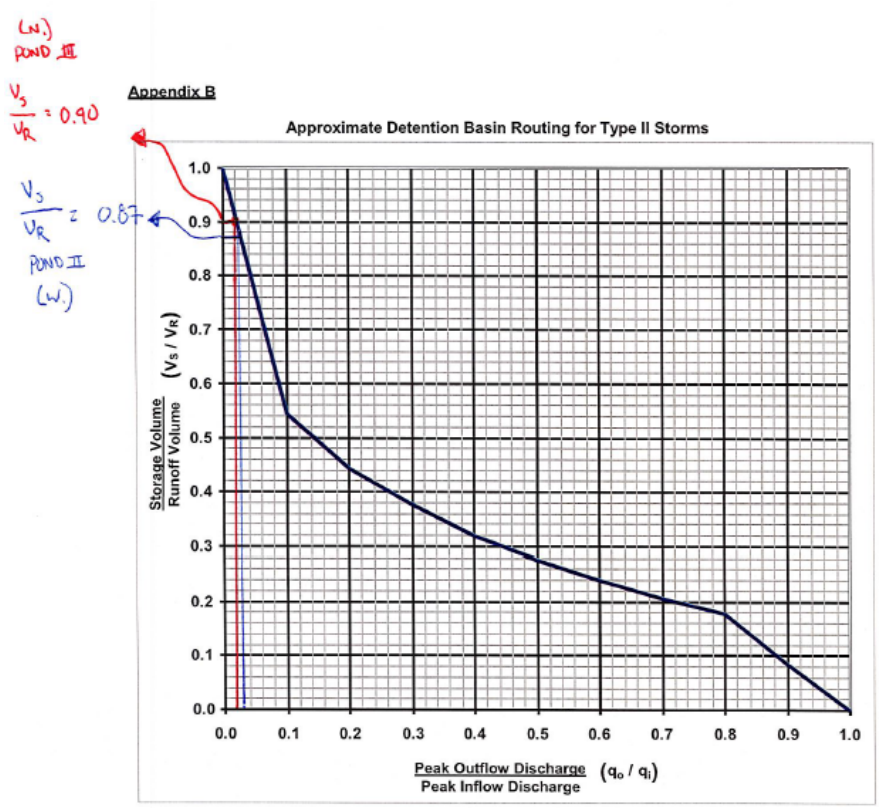

The estimated required storage volume is then compared to the permanent pool surface area to calculate the maximum head on the orifice.

The maximum head value is then plugged into the orifice equation to determine the approximate orifice area, which is then used to approximate the diameter.

$$q_{out} = 0.6 * A * (2 * 32.2 * H)^{1/2}$$

Pond Sub-Basin	1YR 24HR Developed Outflow Rate (qout) (cfs)	1YR 24HR Developed Inflow Rate (qin) (cfs)	Runoff Volume (Vr) (ac-ft)	qout/qin	Vs/Vr*	Vs (ac-ft)	Maximum Head (H) (ft)	Orifice Diameter (inches)
II	0.32	10.77	0.67	0.03	0.87	0.57	1.25	2.74
III	0.30	16.60	1.05	0.02	0.9	0.96	2.33	3.3

*from Appendix B (WDNR 1001)

Based on the results, the orifice diameter's for both ponds were designed to be 3". The 1YR-24HR storm event was then routed through the proposed pond and outlet structure to ensure the flow rate is at or

below the maximum allowable flow rate. The results for flood routing procedures are discussed in more detail in Section 3.7.

3.2B Runoff Reduction Requirements

The Village of Germantown lists two methods to satisfy runoff reduction requirements: the first method provides a maximum runoff release rate (cfs/acre) that can be discharged from the site for the 2YR and 100YR storm events. The alternative approach is the volumetric method, which states the plan must limit post-development runoff to the existing condition runoff volume during a critical time period for both the 2YR and 100YR storm events. The volumetric method was utilized for this analysis. To compare the pre & post development runoff volumes, runoff hydrographs were developed for the following storm events:

- 1 Year Storm Event (for water quality)
  - Pre-development Hydrograph.
  - Post-development Hydrograph
  - Post-development with volumetric detention hydrograph
- 2 Year Storm Event
  - Pre-development Hydrograph.
  - Post-development Hydrograph
  - Post-development with volumetric detention hydrograph
- 10 Year Storm Event (for backflow analysis)
  - Pre-development Hydrograph.
  - Post-development Hydrograph
  - Post-development with volumetric detention hydrograph
- 100 Year Storm Event
  - Pre-development Hydrograph
  - Post-development Hydrograph
  - Post-development with volumetric detention hydrograph

To complete the design storm routing the following information is needed: Inflow Hydrographs, Pond Stage-Storage, Pond Outlet Stage-Discharge, Water Elevation when routing begins (permanent pool elevation). The following sections detail the development of each of these phases.

3.2C Hydrograph Development

The inflow hydrographs for pre & post development were generated using Carlson Software's Hydrology Module, which utilizes the SCS method and follows the procedures outlined in TR-20. This method requires the following input parameters: drainage area, curve number, time of concentration, and rainfall depth. The post-development hydrograph will then be routed through the storm water ponds and then compared to the pre-development hydrograph to ensure the necessary runoff reduction is achieved.

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3.2D Stormwater Pond Elevation – Storage

The stormwater ponds were designed using criteria outlined in WDNR's Technical Standard 1001. The pond geometry was maximized to fit the available site foot print, while including the required fore-bays at each inflow point and the required 10' safety bench. The pond depth was designed to include the following features: 2' sediment storage, minimum 3' of permanent pool depth, emergency spillway at least 6" above the 100YR storm elevation, and a minimum 1 vertical foot of freeboard above the 100YR storm elevation. The stage storage curves for each pond are presented below.

West Pond (II)	
Water Elev	Storage AcreFt
767.0	0.00
768.0	0.08
769.0	0.21
770.0	0.37
771.0	0.59
772.0	0.86
773.0	1.24
774.0	1.72
775.0	2.26
776.0	2.85
777.0	3.51

North Pond (III)	
Water Elev	Storage Acre-Ft
776.00	0.07
777.00	0.23
778.00	0.42
779.00	0.66
780.00	0.96
781.00	1.30
782.00	1.75
783.00	2.28
784.00	2.88
785.00	3.56
786.00	4.36

3.2E Outlet Structure: Elevation - Discharge

Both ponds were designed to include a multi-stage riser structure. The structure itself is to be a 3'x3' concrete riser. The riser's will utilize a water quality orifice (3"). The orifice is to be inverted to prevent clogging. The water quality orifice is designed to handle to the 1YR 24HR storm event. The top of the riser will have a grate on top of it to prevent clogging but to also allow for flow from lower probability storm events, while reducing peak flow rates to existing conditions or below. The western pond outlets through an 18" ADS N-12 pipe. The northern pond outlets through a 24" ADS N-12 pipe. Each pond will also include a trapezoidal weir, to be utilized as an emergency overflow, in the event that the principle outlet structure clogs or is not able to function properly. The emergency spillway is set 6" below the top of berm elevation and is a minimum of 6" above the 100YR water elevation. The emergency spillway is situated so any flow will not be a nuisance to neighboring properties and so the resulting overflow remains on the intended water path. The emergency spillway is also to be lined with high performance turf reinforcement matting. Stage discharge tables for each riser structure are shown below. Details for each outlet structure are shown in the civil site construction plans.

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West Pond- Elevation Discharge Curve (Sub-Basin II)		
Water Elev	Stage	Discharge (CFS)
773.0	0.00	0.00
773.5	0.50	0.14
774.0	1.00	0.22
774.5	1.00	0.91
775.0	1.50	12.70
775.5	2.00	14.07
776.0	2.50	15.24
776.5	3.00	16.34
777.0	3.50	17.37

North Pond -Elevation Discharge Curve (Sub-Basin III)		
Water Elev	Stage	Discharge (CFS)
781.0	0.00	0
781.5	0.50	0.14
782.0	1.00	0.22
782.5	1.50	0.28
783.0	2.00	0.33
783.5	2.50	5.67
784.0	3.00	26.36
784.5	3.50	31.05
785.0	4.00	33.26
785.5	4.50	35.34
786.0	5.00	37.29

3.2F Pond Liner

Appendix D of WDNR Technical Specification 1001 provides a flow chart for determining the need of a liner for wet detention ponds. Using the flow chart, it was determined to a “Type A” liner would be required to protect groundwater for each stormwater pond. Each pond is designed to be lined with a Geosynthetic Clay Liner (GCL). The liner details are provided in the Civil Construction Plans.

3.2G Critical Duration Analysis

“The volumetric design procedure determines the maximum rate of runoff that can be released from a development based on the development characteristics and the timing of the overall watershed, or the critical time period. The critical time period begins at the time of maximum rainfall intensity and ends at the time of peak flow at a critical downstream location” (Milwaukee Metropolitan Sewer District, Ch. 13). The critical time period for major watercourses within the districts planning area were provided in Table 2-6 of Milwaukee Metropolitan Sewer District’s Stormwater Guidance Manual, and can be seen below.

Table 2-6 Critical Time Periods for Major Watercourses within the District's Planning Area			
Basin	Critical Duration (hrs)	Basin	Critical Duration (hrs)
Fish Creek	1.5	Menomonee River	9.5
Fox River	12	Milwaukee River	12
Kinnickinnic River	1.75	Oak Creek	15
Lake Michigan Direct Drainage	1.5	Oak Creek (2)	6
Lincoln Creek	12	Root River	7.75
(1) Includes Brown Deer Park Creek, Indian Creek, South Branch Creek, and Beaver Creek			
(2) Upstream of Puetz Road in the City of Oak Creek			

This development is located in the Menomonee River Watershed, therefore a critical time period of 9.5 Hours was used in the evaluation of the detention facility. The volumetric method was completed by evaluating the runoff volume for each hydrograph using the critical time period of 11:00 – 20:30

3.2H Pond Routing

Pond routing was performed using Carlson Software's Hydrology Module. The software utilizes the storage-indication method, discussed in Section 4 of the National Engineering Handbook. Pond routing was performed for the 1YR, 2YR, 10YR, and 100YR storm events. The 1YR storm event was routed to ensure the post-construction peak flow rate is below the maximum allowable peak flow rates calculated in Section 3.1. The 2YR storm event was routed to ensure compliance with the volumetric runoff method. The 10YR storm event was routed to ensure no backward flow occurs. The 100YR storm event was routing to ensure compliance with the volumetric runoff method. The hydrographs for each storm event are presented below. The pre-development hydrograph's are displayed in green. The post-development hydrographs (no routing) are displayed in red dashed lines. The post-development hydrograph's (with routing) are displayed in blue.

After routing each storm through the stormwater BMP's, the result were evaluated to ensure all design standards were met. The following results were observed:

- The water quality requirements for the site are satisfied. All post-development flow rates following storm water routing were below the allowable limits determined in section 3.1.
- The runoff reduction requirements for the site are satisfied using the volumetric method. The 2YR and 100YR hydrographs were evaluated and the runoff volume for post development was limited to or below the pre-development conditions.
- No backward flow shall occur during the 10YR or more frequent storm events. The outlet structures for each pond have the capacity to safely pass the design storm events and moderate water levels in the pond without back flow occurring.

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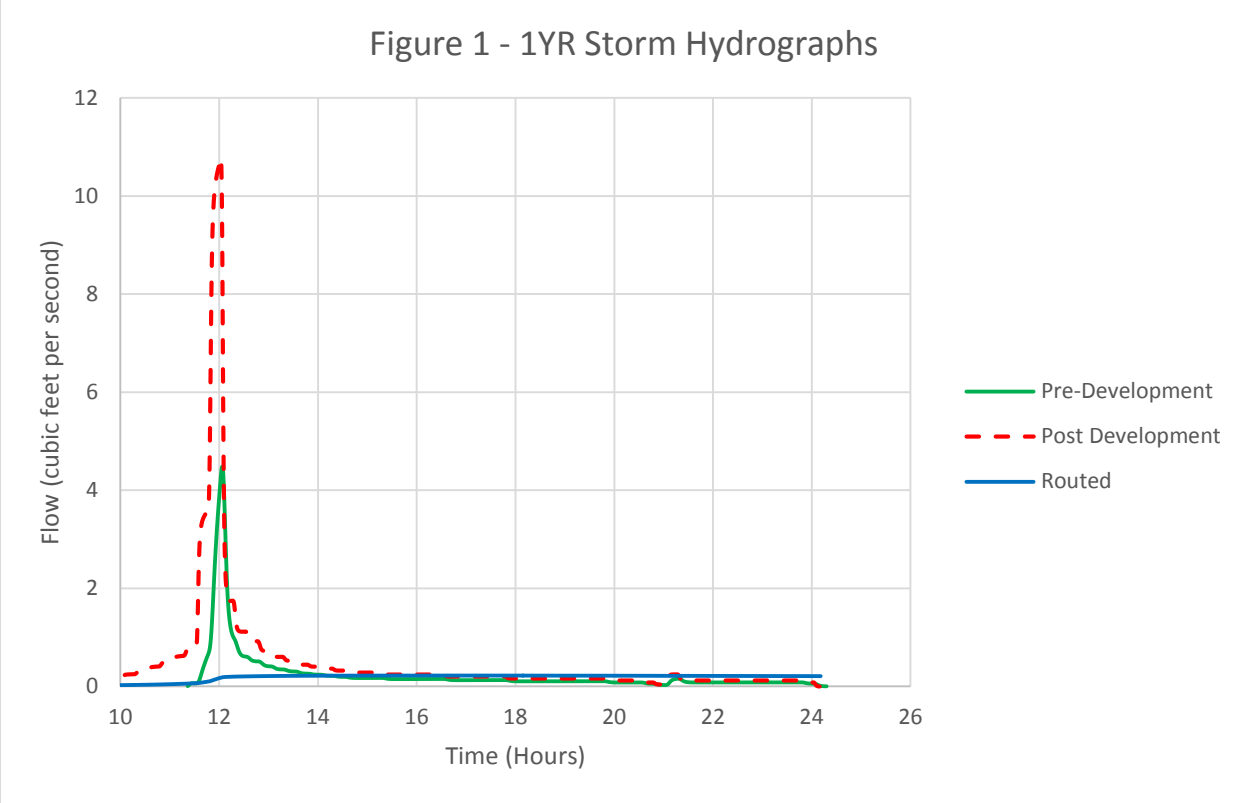
Sub-Basin II – 1YR Hydrographs



Sub-Basin II 1YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	4.54	cfs
Developed Peak Flow Rate	10.85	cfs
Routed Peak Flow Rate	0.22	cfs
Max Pond Water Elevation	774	ft-msl
Existing Volumetric Runoff	0.24	ac-ft
Routed Volumetric Runoff	0.16	ac-ft
Critical Time Duration	9.5	hrs

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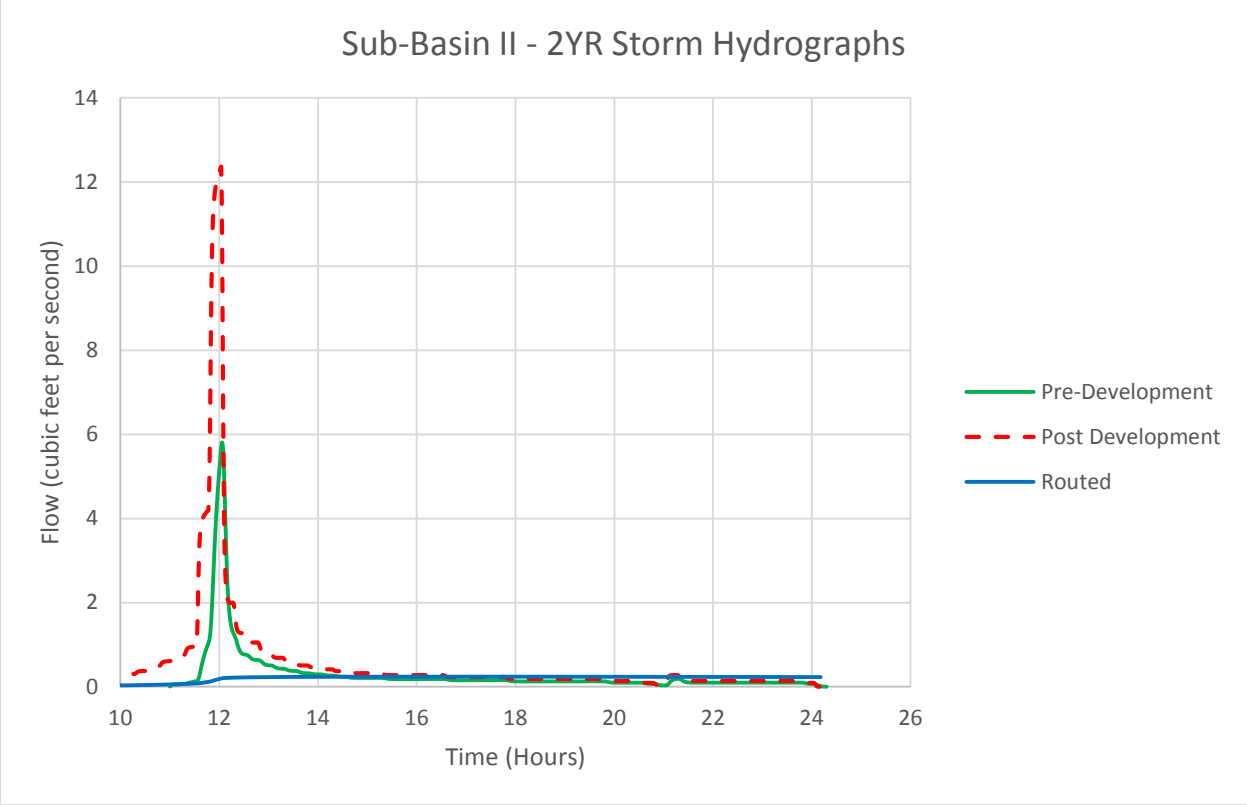
Sub-Basin II – 2YR Hydrographs



Sub-Basin II 2YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	5.89	cfs
Developed Peak Flow Rate	12.53	cfs
Routed Peak Flow Rate	0.24	cfs
Max Pond Water Elevation	774.17	ft-msl
Existing Volumetric Runoff	0.32	ac-ft
Routed Volumetric Runoff	0.17	ac-ft
Critical Time Duration	9.5	hrs

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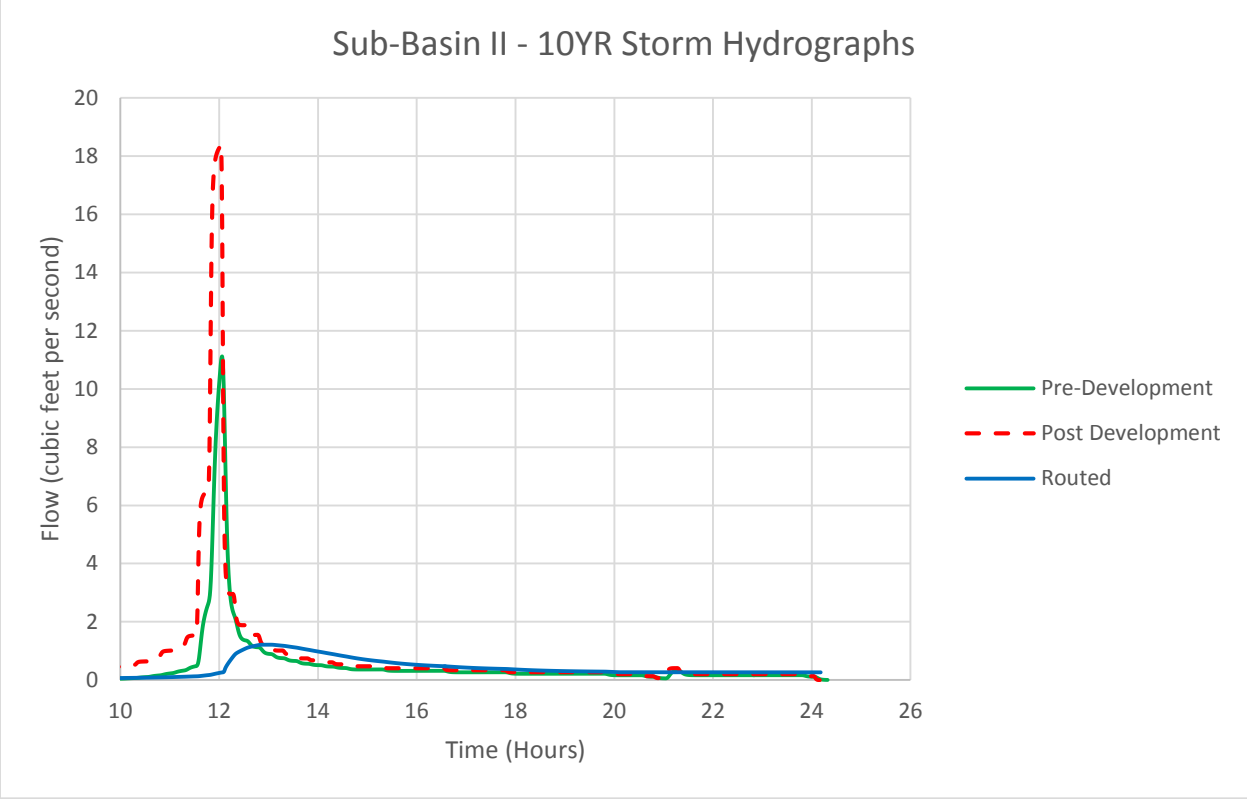
Sub-Basin II – 10YR Hydrographs



Sub-Basin II 10YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	11.28	cfs
Developed Peak Flow Rate	18.60	cfs
Routed Peak Flow Rate	1.22	cfs
Max Pond Water Elevation	774.55	ft-msl
Existing Volumetric Runoff	0.61	ac-ft
Routed Volumetric Runoff	0.44	ac-ft
Critical Time Duration	9.5	hrs

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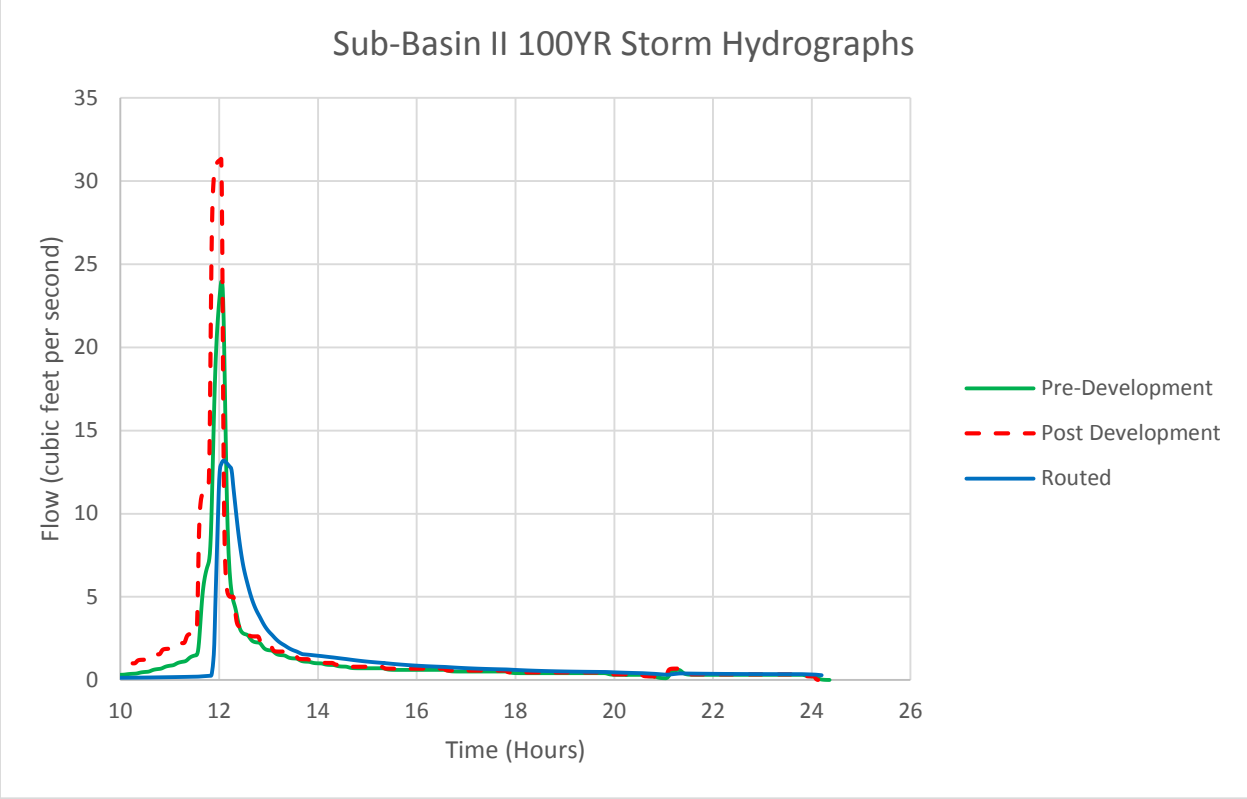
Sub-Basin II – 100YR Hydrographs



Sub-Basin II 100YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	24.36	cfs
Developed Peak Flow Rate	31.86	cfs
Routed Peak Flow Rate	13.22	cfs
Max Pond Water Elevation	775.17	ft-msl
Existing Volumetric Runoff	1.32	ac-ft
Routed Volumetric Runoff	1.31	ac-ft
Critical Time Duration	9.5	hrs

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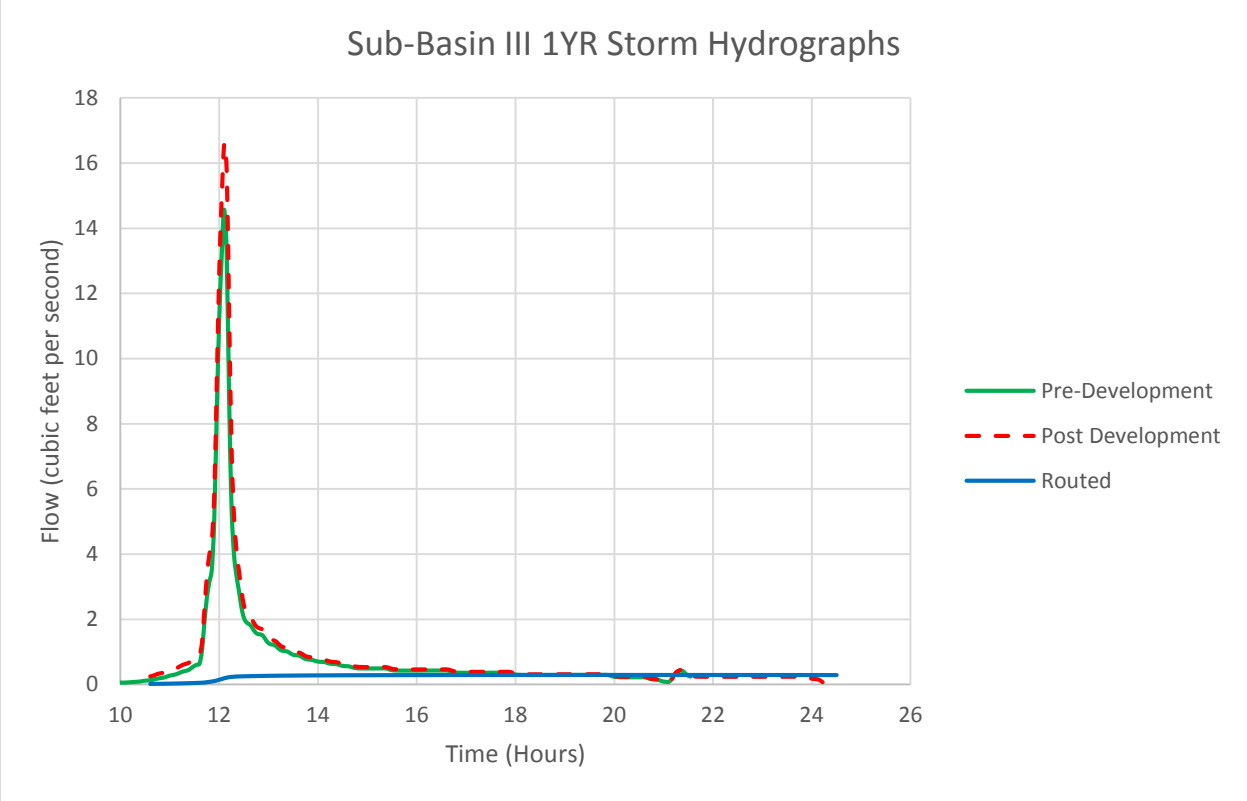
Sub-Basin III – 1YR Hydrographs



Sub-Basin III 1YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	14.58	cfs
Developed Peak Flow Rate	17.53	cfs
Routed Peak Flow Rate	0.30	cfs
Max Pond Water Elevation	782.73	ft-msl
Existing Volumetric Runoff	0.81	ac-ft
Routed Volumetric Runoff	0.21	ac-ft
Critical Time Duration	9.5	hrs

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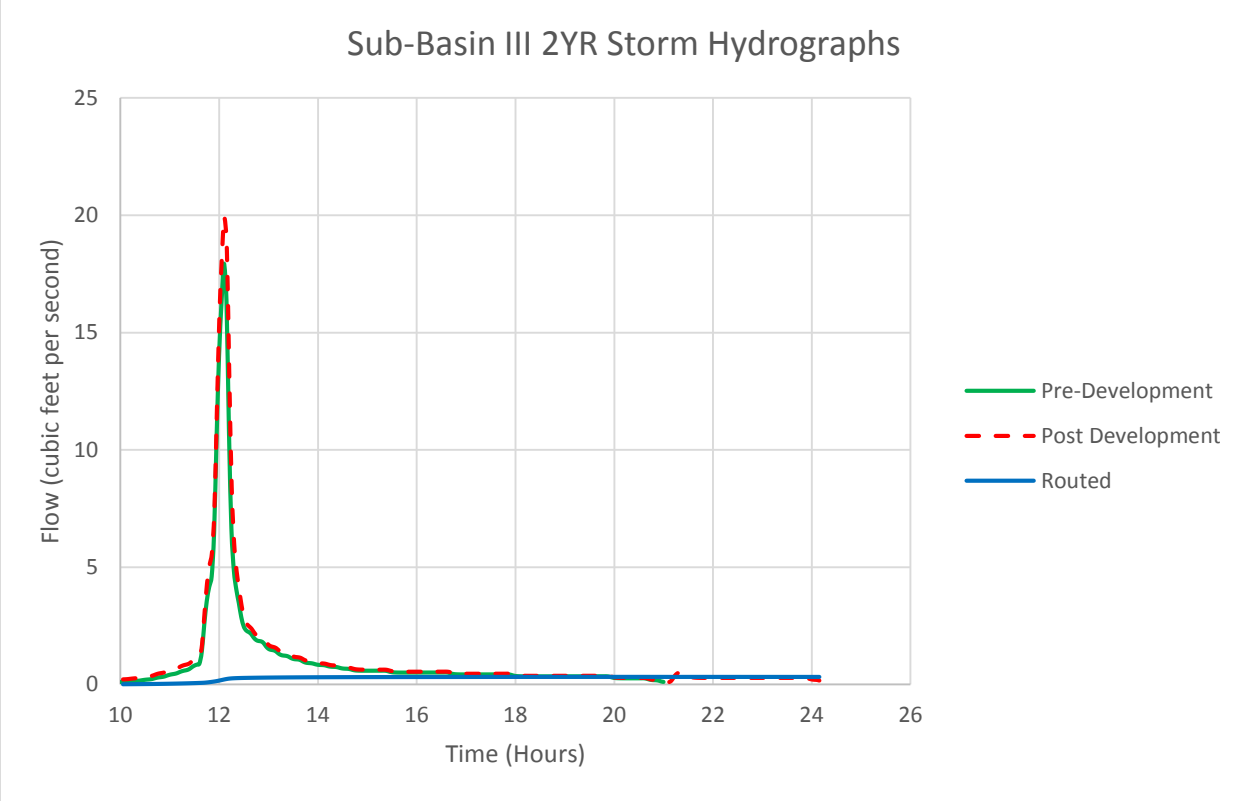
Sub-Basin III – 2YR Hydrographs



Sub-Basin III 2YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	17.93	cfs
Developed Peak Flow Rate	21.01	cfs
Routed Peak Flow Rate	0.33	cfs
Max Pond Water Elevation	783.08	ft-msl
Existing Volumetric Runoff	1.00	ac-ft
Routed Volumetric Runoff	0.23	ac-ft
Critical Time Duration	9.5	hrs

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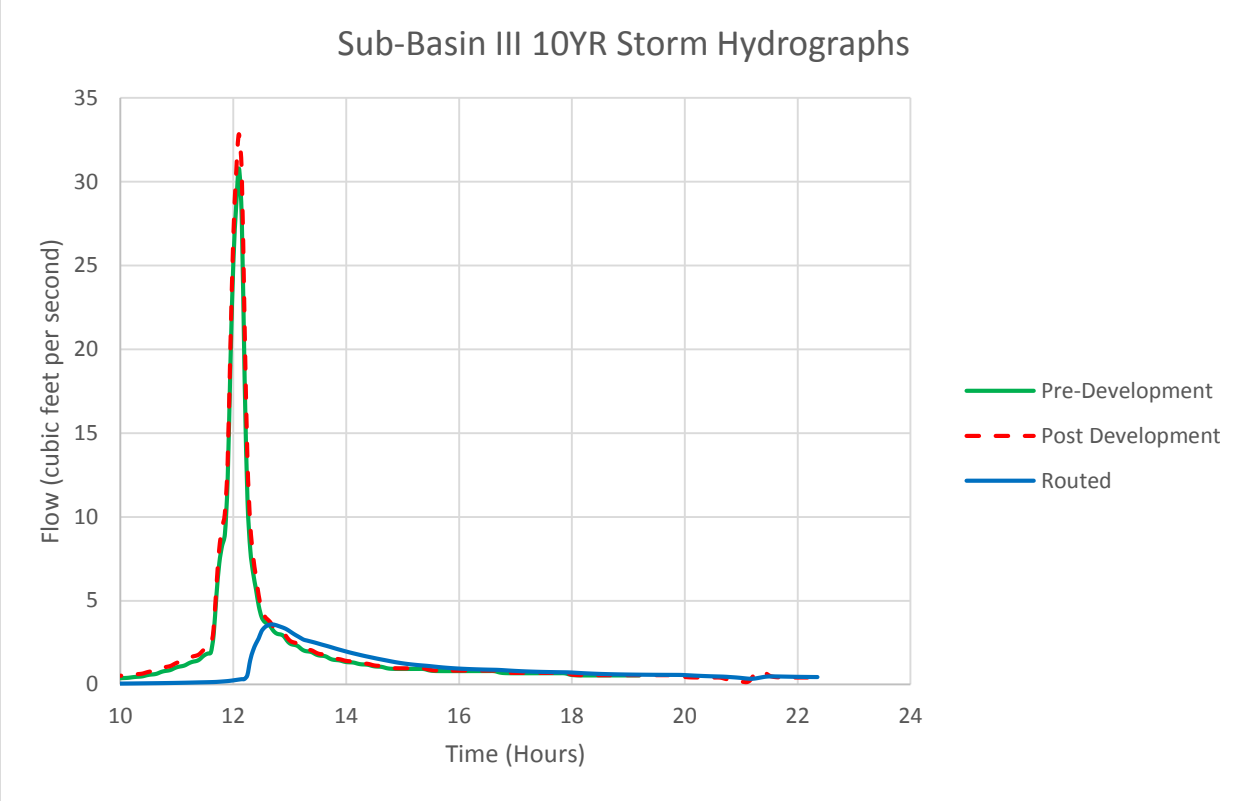
Sub-Basin III – 10YR Hydrographs



Sub-Basin III 10YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	30.78	cfs
Developed Peak Flow Rate	33.87	cfs
Routed Peak Flow Rate	4.79	cfs
Max Pond Water Elevation	783.47	ft-msl
Existing Volumetric Runoff	1.70	ac-ft
Routed Volumetric Runoff	0.97	ac-ft
Critical Time Duration	9.5	hrs

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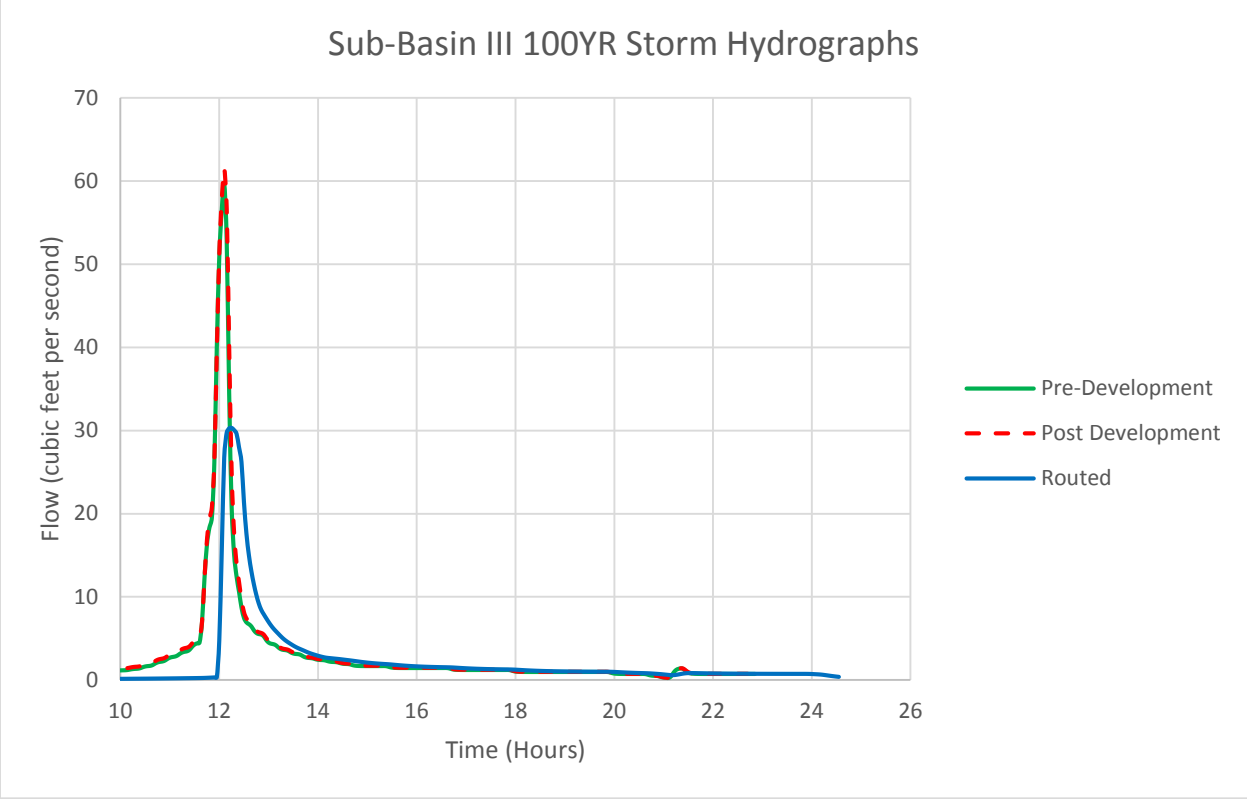
Sub-Basin III – 100YR Hydrographs



Sub-Basin III 100YR Storm Results		
Description	Quantity	Units
Existing Peak Flow Rate	59.68	cfs
Developed Peak Flow Rate	62.38	cfs
Routed Peak Flow Rate	30.69	cfs
Max Pond Water Elevation	784.42	ft-msl
Existing Volumetric Runoff	3.32	ac-ft
Routed Volumetric Runoff	2.86	ac-ft
Critical Time Duration	9.5	hrs

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EMAIL: div@div-eng.com

4.0 Professional Engineer's Certification

I hereby certify that this hydraulic report was completed in accordance with all applicable statutes and rules under the Wisconsin Administrative Code and The Village of Germantown Design Standards.

Nicholas J Berner
Name

46838
License No.

Signature

2/26/2020
Date

Stamp

175 RAY AVE NE
NEW PHILADELPHIA, OH 44663

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS

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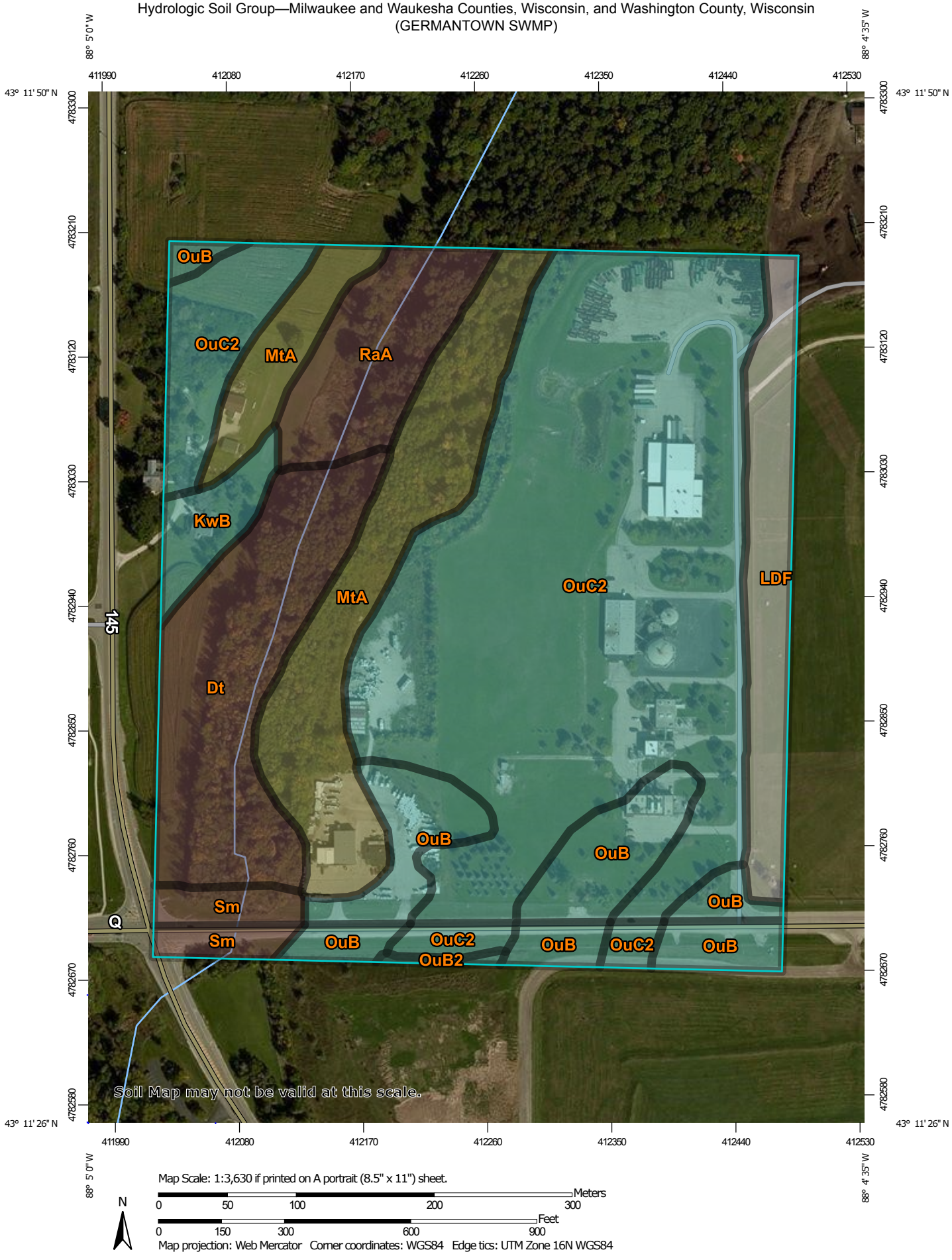
Appendix A – Site Soils Information

Appendix A - Site Soils Information

Hydrologic Soil Group—Milwaukee and Waukesha Counties, Wisconsin, and Washington County, Wisconsin
(GERMANTOWN SWMP)



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: Milwaukee and Waukesha Counties, Wisconsin
Survey Area Data: Version 14, Sep 12, 2018

Soil Survey Area: Washington County, Wisconsin
Survey Area Data: Version 18, Sep 12, 2018

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

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

Date(s) aerial images were photographed: Sep 7, 2014—Sep 22, 2014

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
OuB	Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes	C	1.8	3.1%
OuB2	Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes, eroded	C	0.1	0.2%
OuC2	Ozaukee silt loam, high carbonate substratum, 6 to 12 percent slopes, eroded	C	0.8	1.4%
Sm	Sebewa silt loam, 0 to 2 percent slopes	B/D	0.6	1.0%
Subtotals for Soil Survey Area			**3.3**	**5.7%**
Totals for Area of Interest			**58.5**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Dt	Drummer silt loam, gravelly substratum	B/D	6.8	11.5%
KwB	Knowles silt loam, 1 to 6 percent slopes	C	1.2	2.1%
LDF	Landfill		3.6	6.1%
MtA	Mequon silt loam, 1 to 3 percent slopes	C/D	8.2	14.1%
OuB	Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes	C	4.4	7.4%
OuC2	Ozaukee silt loam, high carbonate substratum, 6 to 12 percent slopes, eroded	C	26.8	45.8%
RaA	Radford silt loam, 0 to 3 percent slopes	B/D	3.4	5.9%
Sm	Sebewa silt loam, 0 to 2 percent slopes	B/D	0.8	1.3%
Subtotals for Soil Survey Area			**55.2**	**94.3%**
Totals for Area of Interest			**58.5**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Appendix B – Time of Concentration Worksheets

APPENDIX B

TR-55: Time of Concentration Worksheet

ID Sub-Basin I Pre Development

	Segment ID	A	B	C				
Sheet Flow:								
1. Surface Description (TR-55 Table 3-1):		Short Grass	-	-				
2. Manning's Roughness Coef., n (TR-55 Table 3-1):		0.1	-	-				
3. Flow Length, L (L< 100 ft.):		100	-	-				
4. One-year, 24-hour rainfall, P_2 :		2.35	-	-				
5. Land slope, s (ft/ft):		0.0432	-	-				
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	Compute T_t :	0.101	+ 0.000	+ 0.000	=	0.101	hr	
Shallow Concentrated Flow:								
7. Surface Description (Paved/Unpaved):		Unpaved	Paved	-				
8. Flow Length, L (ft):		760.35	298.01	-				
9. Watercourse Slope (ft/ft):		0.0409	0.0244	-				
10. Average Velocity, V (TR-55 Figure 3-1):		3.3	3.3	-				
11. $T_t = \frac{L}{3600V}$	Compute T_t :	0.064	+ 0.025	+ 0.000	=	0.089	hr	
Channel Flow:								
12. Peak Discharge to Channel (cfs):		0	-	-				
13. Velocity (ft/s):		0	-	-				
14. Flow Length, L (ft):		0	-	-				
15. $T_t = \frac{L}{3600V}$	Compute T_t :	0.000	+ 0.000	+ 0.000	=	0.000	hr	

16. Watershed total time of concentration …… 0.190 hr
11.420 min

APPENDIX B

TR-55: Time of Concentration Worksheet

ID Sub-Basin I Post Development

	Segment ID	**A**	**B**	**C**		
Sheet Flow:						
1. Surface Description (TR-55 Table 3-1):		Short Grass	-	-		
2. Manning's Roughness Coef., n (TR-55 Table 3-1):		0.1	-	-		
3. Flow Length, L (L< 100 ft.):		100	-	-		
4. One-year, 24-hour rainfall, P_2 :		2.35	-	-		
5. Land slope, s (ft/ft):		0.0432	-	-		
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	Compute T_t :	0.101 +	0.000 +	0.000 =	0.101	hr
Shallow Concentrated Flow:						
7. Surface Description (Paved/Unpaved):		Unpaved	-	-		
8. Flow Length, L (ft):		704.63	-	-		
9. Watercourse Slope (ft/ft):		0.0409	-	-		
10. Average Velocity, V (TR-55 Figure 3-1):		3.3	-	-		
11. $T_t = \frac{L}{3600V}$	Compute T_t :	0.059 +	0.000 +	0.000 =	0.059	hr
Channel Flow:						
12. Peak Discharge to Channel (cfs):		2.47	4.02	4.02		
13. Velocity (ft/s):		5.33	9.92	0.51		
14. Flow Length, L (ft):		188	53	117.3		
15. $T_t = \frac{L}{3600V}$	Compute T_t :	0.010 +	0.001 +	0.064 =	0.075	hr
16. Watershed total time of concentration ……					0.236	hr
					14.144	min

APPENDIX B

TR-55: Time of Concentration Worksheet

ID Pond II Pre Development

	Segment ID	A	B	C		
Sheet Flow:						
1. Surface Description (TR-55 Table 3-1):		Short Grass	-	-		
2. Manning's Roughness Coef., n (TR-55 Table 3-1):		0.1	-	-		
3. Flow Length, L (L< 100 ft.):		100	-	-		
4. One-year, 24-hour rainfall, P_2 :		2.35	-	-		
5. Land slope, s (ft/ft):		0.049	-	-		
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	Compute T_t :	0.096 +	0.000 +	0.000 =	0.096	hr
Shallow Concentrated Flow:						
7. Surface Description (Paved/Unpaved):		Unpaved	-	-		
8. Flow Length, L (ft):		428	-	-		
9. Watercourse Slope (ft/ft):		0.046	-	-		
10. Average Velocity, V (TR-55 Figure 3-1):		3.5	-	-		
11. $T_t = \frac{L}{3600V}$	Compute T_t :	0.034 +	0.000 +	0.000 =	0.034	hr
Channel Flow:						
12. Peak Discharge to Channel (cfs) (See Page 02):		0	-	-		
13. Velocity (ft/s) (See Page 03):		0	-	-		
14. Flow Length, L (ft):		0	-	-		
15. $T_t = \frac{L}{3600V}$	Compute T_t :	0.000 +	0.000 +	0.000 =	0.000	hr
16. Watershed total time of concentration ……					0.130	hr
					7.814	min

APPENDIX B

TR-55: Time of Concentration Worksheet

ID Pond II Post Development

	Segment ID	A	B	C				
Sheet Flow:								
1. Surface Description (TR-55 Table 3-1):		Smooth (conc)	-	-				
2. Manning's Roughness Coef., n (TR-55 Table 3-1):		0.012	-	-				
3. Flow Length, L (L< 100 ft.):		100	-	-				
4. One-year, 24-hour rainfall, P_2 :		2.35	-	-				
5. Land slope, s (ft/ft):		0.049	-	-				
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	Compute T_t :	0.018	+ 0.000	+ 0.000	=	0.018	hr	
Shallow Concentrated Flow:								
7. Surface Description (Paved/Unpaved):		Paved	-	-				
8. Flow Length, L (ft):		330	-	-				
9. Watercourse Slope (ft/ft):		0.049	-	-				
10. Average Velocity, V (TR-55 Figure 3-1):		4.5	-	-				
11. $T_t = \frac{L}{3600V}$	Compute T_t :	0.020	+ 0.000	+ 0.000	=	0.020	hr	
Channel Flow:								
12. Peak Discharge to Channel (cfs) (See following pages):		8.5	-	-				
13. Velocity (ft/s) (See following pages):		3.53	-	-				
14. Flow Length, L (ft):		271	-	-				
15. $T_t = \frac{L}{3600V}$	Compute T_t :	0.021	+ 0.000	+ 0.000	=	0.021	hr	

16. Watershed total time of concentration …… 0.059 hr
3.561 min

APPENDIX B

TR-55: Time of Concentration Worksheet

Graphical Peak Discharge Tues Feb 04 2020

Project: Germantown Hauling Facility By: ARC Date: 02/04/20

Location: Germantown, WI Checked: Date:

Present

1. Data:

   Drainage area:.....A = 2.5800Acres

   Runoff Curve Number:.....CN = 95

   Time of Concentration:.....Tc = 0.037

   Storm Type:..... = II

   Pond and swamp areas spread
   throughout watershed..... = 0

2. Frequency.....yr = 2

3. Rainfall,P(24-hour).....in = 2.65

4. Initial abstraction, Ia..... = 0.1053

5. Compute Ia/P..... = 0.0397

6. Unit peak discharge, qu.....csm/in = 1000.00

7. Runoff,Q.....in = 2.1086

8. Pond & swap adjustment factor,...Fp = 1.00

9. Peak Discharge,qp.....cfs = 8.500

APPENDIX B

TR-55: Time of Concentration Worksheet

Channel Design (Non-Erodible) Tues Feb 04 2020

Channel Type: Triangular, Equal Side Slopes
Dimensions: Left Side Slope 4.00:1
Right Side Slope 4.00:1

Wetted Perimeter: 3.45
Area of Wetted Cross Section: 1.19

Channel Slope: 3.86
Manning's n of Channel: 0.041 (assumed NAG C350)

Discharge: 8.5 cfs
Depth of Flow: 0.56 feet
Velocity: 3.53 fps

Channel Lining: Class II - Type B
Freeboard: 0.50 feet

APPENDIX B

TR-55: Time of Concentration Worksheet

ID Pond III Pre Development

	Segment ID	A	B	C		
Sheet Flow:						
1. Surface Description (TR-55 Table 3-1):		Short Grass	-	-		
2. Manning's Roughness Coef., n (TR-55 Table 3-1):		0.1	-	-		
3. Flow Length, L (L< 100 ft.):		100	-	-		
4. One-year, 24-hour rainfall, P_2 :		2.35	-	-		
5. Land slope, s (ft/ft):		0.044	-	-		
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	Compute T_t :	0.101 +	0.000 +	0.000 =	0.101	hr
Shallow Concentrated Flow:						
7. Surface Description (Paved/Unpaved):		Unpaved	-	-		
8. Flow Length, L (ft):		682	-	-		
9. Watercourse Slope (ft/ft):		0.046	-	-		
10. Average Velocity, V (TR-55 Figure 3-1):		3.5	-	-		
11. $T_t = \frac{L}{3600V}$	Compute T_t :	0.054 +	0.000 +	0.000 =	0.054	hr
Channel Flow:						
12. Peak Discharge to Channel (cfs) (See Page 02):		0	-	-		
13. Velocity (ft/s) (See Page 03):		0	-	-		
14. Flow Length, L (ft):		0	-	-		
15. $T_t = \frac{L}{3600V}$	Compute T_t :	0.000 +	0.000 +	0.000 =	0.000	hr
16. Watershed total time of concentration ……					0.155	hr
					9.278	min

APPENDIX B

TR-55: Time of Concentration Worksheet

ID Pond III Post Development

	Segment ID	A	B	C		
Sheet Flow:						
1. Surface Description (TR-55 Table 3-1):		Short Grass	-	-		
2. Manning's Roughness Coef., n (TR-55 Table 3-1):		0.1	-	-		
3. Flow Length, L (L< 100 ft.):		100	-	-		
4. One-year, 24-hour rainfall, P_2 :		2.35	-	-		
5. Land slope, s (ft/ft):		0.044	-	-		
6. $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$	Compute T_t :	0.101	+ 0.000	+ 0.000	=	0.101 hr
Shallow Concentrated Flow:						
7. Surface Description (Paved/Unpaved):		Paved	-	-		
8. Flow Length, L (ft):		550	-	-		
9. Watercourse Slope (ft/ft):		0.0516	-	-		
10. Average Velocity, V (TR-55 Figure 3-1):		5.5	-	-		
11. $T_t = \frac{L}{3600V}$	Compute T_t :	0.028	+ 0.000	+ 0.000	=	0.028 hr
Channel Flow:						
12. Peak Discharge to Channel (cfs) (See Page 02):		7.495	-	-		
13. Velocity (ft/s) (See Page 03):		2.2	-	-		
14. Flow Length, L (ft):		350	-	-		
15. $T_t = \frac{L}{3600V}$	Compute T_t :	0.044	+ 0.000	+ 0.000	=	0.044 hr

16. Watershed total time of concentration …… 0.17 hr
10.348 min

APPENDIX B

TR-55: Time of Concentration Worksheet

Graphical Peak Discharge Tues Feb 4 2020

Project: Germantown Hauling Facility By: ARC Date: 02/02/20

Location: Germantown, WI Checked: Date:

Present

1. Data:

   Drainage area:.....A = 4.7900Acres

   Runoff Curve Number:.....CN = 88

   Time of Concentration:.....Tc = 11.35 minutes

   Storm Type:..... = II

   Pond and swamp areas spread
   throughout watershed..... = 0

2. Frequency.....yr = 1

3. Rainfall,P(24-hour).....in = 2.35

4. Initial abstraction, Ia..... = 0.2779

5. Compute Ia/P..... = 0.1183

6. Unit peak discharge, qu.....csm/in = 807.333

7. Runoff,Q.....in = 1.2403

8. Pond & swap adjustment factor,...Fp = 1.00

9. Peak Discharge,qp.....cfs = 7.495

APPENDIX B

TR-55: Time of Concentration Worksheet

Channel Design (Non-Erodible) Tues Feb 4 2020

Channel Type: Triangular, Equal Side Slopes
Dimensions: Left Side Slope 4.00:1
Right Side Slope 4.00:1

Wetted Perimeter: 7.82
Area of Wetted Cross Section: 3.40

Channel Slope: 1.12
Manning's n of Channel: 0.041 (assumed NAG C350)

Discharge: 7.495 cfs
Depth of Flow: 0.71 feet
Velocity: 2.20 fps

Channel Lining: Class II - Type B
Freeboard: 0.50 feet

Appendix B

Light Fixture Cut-Sheets

Truck Maintenance Facility – Light Fixture Cut-Sheets for Waste Management of Wisconsin, Inc. in Germantown, WI

Catalog # : SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-ALSC-BRZ	Project : FIXTURES SA, SB, & SB(2)
Prepared By :	Date :

Slice Medium - SLM
Outdoor LED Area Light

The Slice's sleek design makes it perfectly-suited for Commercial & Industrial applications, while its cost-effective die-cast aluminum housing makes its acquisition cost very competitive. The Slice offers high performance silicone optics, die cast aluminum housing, 42,000+ lumens and is available with integral Airlink Synapse controls.

Features & Specifications

Optical System

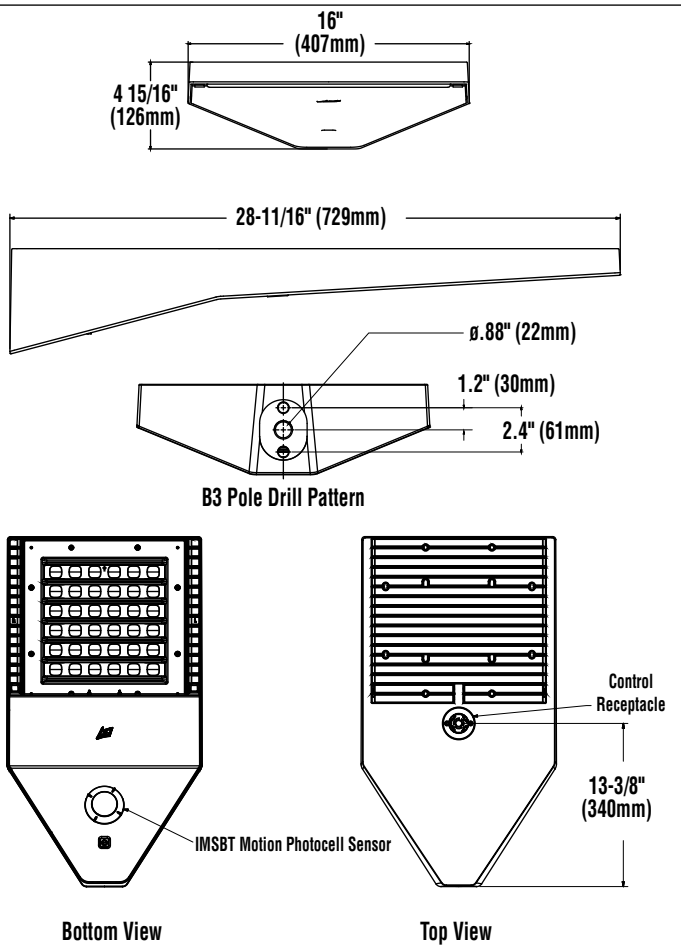
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, 5W, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, 3000K, and 2700K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 3)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40ºC.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Dimmable · Wireless Controls · Bluetooth · IP66 · ARRA Funding Compliant · cULus Listed · Manufactured in the USA · RoHS Compliant · Title 24 Compliant · ida Dark Sky Approved · DLC Listed · DLC Premium

Product Dimensions



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Slice Medium - SLM
Outdoor LED Area Light

Features & Specifications (Cont.)

Construction
- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square poles.
- Luminaire is proudly manufactured in the U.S. of U.S. and imported parts.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Controls
Wireless Controls System

To make this fixture AirLink ready, simply order one of the following options:

a. The integrated Wireless Lighting Controller: ALSC or ALSCH (see ordering guide) as the controls option, or

b. Integrated Wireless Controller option (above) with integrated motion sensor: ALSCS (ordering guide for mounting heights) or

c. The 7-Pin Photoelectric Control Receptacle: CR7P as the controls option; and either the 5-Pin or 7-Pin Twist Lock Controller: ALSC UNV TL5 or ALSC UNV TL7 as an accessory

To see how the components of AirLink system work together, reference the diagram in the controls section of this spec sheet. For more information on our AirLink products, visit our website: www.lsi-airlink.com/airlink-synapse/

Stand-Alone Controls

a. Integral Passive Infrared Bluetooth™ Motion/Photocell Sensor (IMSBT)
- Switches luminaire light levels based on motion and daylight (see the controls section for more details)
- Fixtures operate independently and can be commissioned via iOS or Android configuration app

b. 7-pin ANSI C136.41-2013 photocontrol receptacle (CR7P)
- Available for twist lock photocontrols or wireless control modules

Installation
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 1)

Warranty
- LSI LED Fixtures carry a 5-year warranty.

Listings
- Listed to UL 1598 and UL 8750.
- RoHS Compliant.
- American Recovery and Reinvestment Act Funding Compliant.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applications

Performance

ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	68.2	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	93.1	0.8A	0.4A	0.4A	0.3A	0.3A	0.2A
18L	148.5	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	188.8	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	248.6	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317.8	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	393.4	3.3A	1.9A	1.6A	1.4A	1.1A	0.8A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

RECOMMENDED LUMEN MAINTENANCE[1](24-42L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-40 C	100%	100%	97%	94%	92%

RECOMMENDED LUMEN MAINTENANCE[1](9-18L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-50 C	100%	96%	91%	87%	83%

1- Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2- In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3- In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5958	80	B2-U0-G1	74
	2 IL	3735	50	B0-U0-G1	
	3	6196	83	B1-U0-G1	
	3 IL	4205	56	B0-U0-G1	
	5W	5528	74	B3-U0-G1	
	FT	5922	79	B1-U0-G2	
	FT IL	3712	50	B0-U0-G1	
	FTA	5997	80	B2-U0-G2	
	FTA IL	4254	57	B0-U0-G1	
12L	2	7559	73	B2-U0-G2	103
	2 IL	4738	46	B0-U0-G1	
	3	7860	76	B2-U0-G2	
	3 IL	5335	52	B0-U0-G1	
	5W	7013	68	B3-U0-G2	
	FT	7513	73	B2-U0-G2	
	FT IL	4709	46	B0-U0-G2	
	FTA	7608	74	B2-U0-G2	
	FTA IL	5397	52	B0-U0-G1	

*LED Chips are frequently updated therefore values are nominal

LUMINAIRE EPA CHART - SLM

Tilt Degree		0°	30°	45°
	Single	0.5	2.1	2.6
	D180°	1.1	2.1	2.6
	D90°	0.9	2.5	3.1

Tilt Degree		0°	30°	45°
	T90°	1.2	2.9	3.6
	TN120°	1.3	4.4	5.4
	Q90°	1.2	2.9	3.6

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Slice Medium - SLM
Outdoor LED Area Light

DELIVERED LUMENS*

Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5185	76	B0-U0-G1	5326	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	5W	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7266	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	5W	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12775	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13055	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9325	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G2	12920	86	B1-U0-G2	14155	95	B1-U0-G2	14739	99	B1-U0-G2	
	5W	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G1	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G2	14243	76	B1-U0-G2	15231	81	B1-U0-G2	15550	83	B1-U0-G2	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15828	85	B1-U0-G3	17209	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	5W	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15226	81	B1-U0-G2	16555	89	B1-U0-G2	17703	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	26581	108	B4-U0-G3	28900	117	B4-U0-G3	30905	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27675	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	5W	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B4-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G4	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	5W	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G3	36058	114	B4-U0-G4	38559	122	B4-U0-G4	39366	124	B4-U0-G3	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B1-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G4	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	5W	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26825	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LED Chips are frequently updated therefore values are nominal

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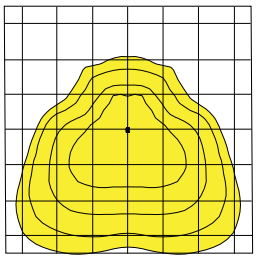
Performance (Cont.)

All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Slice (SLM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



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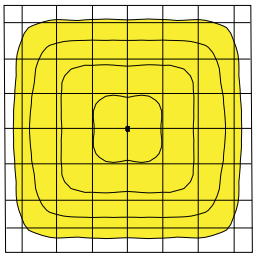

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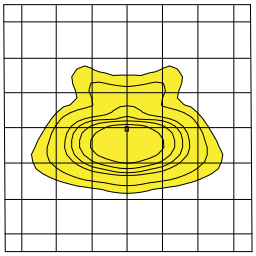

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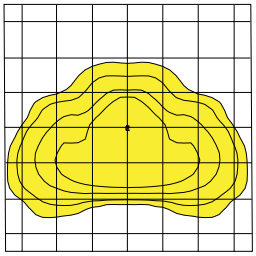
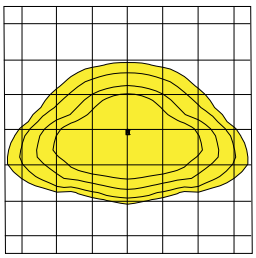


Type 3



Type 2

Ordering Guide

TYPICAL ORDER EXAMPLE: **SLM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package*	Light Output	Distribution	Orientation[1]	Voltage	Driver
SLM Slice Medium	**LED**	**9L** - 9,000 lms **12L** - 12,000 lms **18L** - 18,000 lms **24L** - 24,000 lms **30L** - 30,000 lms **36L** - 36,000 lms **42L** - 42,000 lms *Consult factory for programmable wattages and lumen packages	**SIL** - Silicone	**2** - Type 2 **3** - Type 3 **5W** - Type 5 Wide **FT** - Forward Throw **FTA** - Forward Throw Automotive	**(blank)** - standard **L**- Optics rotated left 90 **R** - Optics rotated right 90	**UNV** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**DIM** - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT **40** - 4,000 CCT **30** - 3,000 CCT[2] **27** - 2,700 CCT[2] **AMB** - Phosphor Converted Amber[2,3]	**70CRI** - 70 CRI	**(Blank)** - None **Wireless Controls System** **ALSC** - AirLink Synapse Control System [4] **ALSCH** - AirLink Synapse Control System Host / Satellite [4,5] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor [4] **ALSCHS01** - AirLink Synapse Control System Host / Satellite with 8-12' Motion Sensor [4,5] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor [4] **ALSCHS02** - AirLink Synapse Control System Host / Satellite with 12-20' Motion Sensor [4,5] **ALSCS04** - AirLink Synapse Control System with 20-40' Motion Sensor [4] **ALSCHS04** - AirLink Synapse Control System Host / Satellite with 20-40' Motion Sensor [4,5] **Stand-Alone Controls** **EXT** - 0-10V Dimming leads extended to housing exterior **CR7P** - 7 Pin Control Receptacle ANSI C136.41 [7] **IMSBT1-** Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [4, 6] **IMSBT2-** Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height [4, 6] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**(Blank)** - None **IL** - Integral Louver HSS[1]

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Accessory Ordering Information[8]

Description	Order Number	Description	Order Number
PC120 Photocell for use with CR7P option (120V)[9]	122514	DFK480 Double Fusing (480V)	DFK480
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V)[9]	122515	DFK347 Double Fusing (347V)	DFK347
PC347 Photocell for use with CR7P option (347V)[9]	159516	X5RPP - Round Pole Adapter for 5" Poles[10]	379968CLR
PC480 Photocell for use with CR7P option (480V)[9]	1225180	IL - Integral Louver HSS	684812
ALSC UNV TL5 - Airlink 5Pin Twist Lock Controller[4,9]	661409	Universal Mounting Bracket (UMB)[10]	684616CLR
ALSC UNV TL7 - Airlink 7Pin Twist Lock Controller[4,9]	661410	Adjustable Slip Fitter (ASF)[10]	688138CLR
PMOS24 - 24V Pole-Mount Occupancy Sensor (ALSC/H Compatible)[10]	663284CLR	Pole Quick Mount Bracket - Square Pole[10]	687073CLR
X3RPP - Round Pole Adapter for 3" Round Tapered Poles[10]	408273CLR	Pole Quick Mount Bracket - 4-5" Round Pole[10]	689903CLR
X4RPP - Round Pole Adapter for 4" Poles[10]	379967CLR	15° Tilt Pole Quick Mount Bracket - Square Pole[10]	688003CLR
FK120 Single Fusing (120V)	FK120	15° Tilt Pole Quick Mount Bracket - 4-5" Round Pole[10]	689905CLR
FK277 Single Fusing (277V)	FK277	BKS XBO WM CLR Wall Mount Bracket[10]	382132CLR
DFK208, 240 Double Fusing (208V, 240V)	DFK240		

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
7 - Control device must be ordered separately. 7 pin standard. See Accessory Ordering Information.
8 - Accessories are shipped separately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish. See Finish options.

Accessories/Options

Integral Louver (IL)

Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

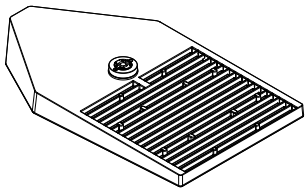
Luminaire Shown with Integral Louver (IL)

Luminaire Shown with IMSBT Option

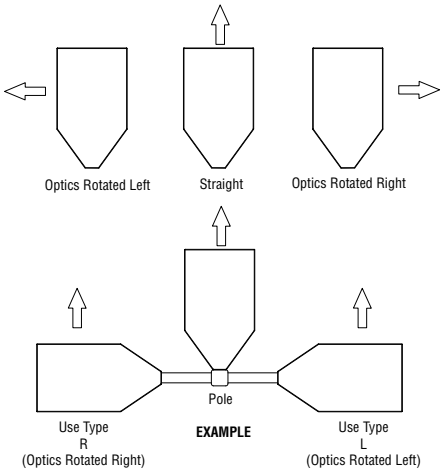
7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Fixture Shown with CR7P



Optics Rotation



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Slice Medium - SLM
Outdoor LED Area Light

Stand-alone Controls: Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30 degrees C to 70 degrees C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Operation Modes

Dusk to Dawn operation via integral photocell switches lights on and off based on the ambient light levels. In this mode the lights remain on all night even with no motion in the area.

Dimming operation turns the lights on to the selected high level when motion is detected and the ambient light level is below the hold off set point. Once the sensor stops detecting motion and the time delay elapses, the lights will go to the low level. If no motion is detected during the cut off time delay period the lights will completely turn off or stay on at the low level depending on settings.

Configurations

- Initial setup and later adjustments made via iOS and Android App.
- Sensor settings are stored and maintained in the event of a power failure.

Motion Level - fully adjustable from 0-100% with default at 100%. Motion Level is defined as when the sensor detects motion the dimming control output goes to the selected high light level.

Dim Level - fully adjustable from off, 0-100% with default at 50%. Dim level is defined as when the sensor stops detecting motion and the time delay expires the dimming control output goes down to the selected low light level.

Time Delay 1 - adjustable from 1 sec to 1 hour and 45 minutes with default 5 minutes. Time delay is defined as the time period that must elapse after the last time the sensor detects motion for the lights to go to low light level.

Time Delay 2 - the time period that must elapse after the lights go to low light level and the sensor detects no motion for the lights to turn off. This feature may be enabled or disabled. If disabled there is no cut off and the lights stay in the low light level. Adjustable from 1 sec to 8 hours and 59 minutes with default set at 10 minutes.

Sensor sensitivity – the response of the PIR detector to motion within the sensor's coverage area. Adjustable from low, medium, high. Default setting is low.

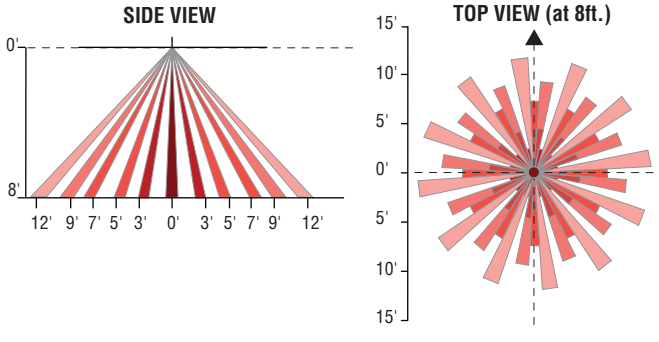
Ambient Light – when the light level exceeds this setting the lights will turn off even if motion is detected. When the light level goes below the setting the lights will turn on even if no motion is detected. A switch will allow you to enable or disable this feature. ON <30 LUX, OFF >100 LUX.

Sensor Configuration App

- Range up to 65 ft. outdoor line of sight
- iOS11 or later
- Android 6.0 or later
- Password protected.
- Sensor profiles used for setting up parameters one time and then applying the profile to different sensors requiring the same settings.

IMSBT Coverage Diagrams

IMSBT1



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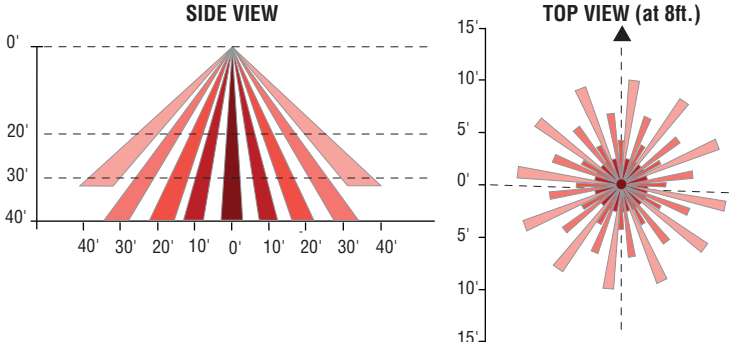

Configuration App

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Slice Medium - SLM
Outdoor LED Area Light

AirLink™ enabled by Synapse®

The AirLink enabled by Synapse Wireless Lighting Control System is the perfect solution for commercial, industrial and municipal applications, such as: auto dealerships, parking lots, garages, shopping complexes and warehouses.

AirLink utilizes robust wireless communication via 2.4 GHz Self-Healing Mesh Network which not only increases reliability and accuracy of system, but also eliminates single point of failure.

The flexibility of the system make it perfect for new construction and retrofit projects. The user-friendly AirLink web application is accessible through any device with an internet connection and allows for complete customization of the system's features.

Some capabilities of the system include: occupancy/vacancy sensing, daylight harvesting, scheduling, high-end trim, dimming, zone control, BMS integration and energy monitoring.

The AirLink System

Wireless controls & sensors

Wireless & Override Switches

Occupancy/Vacancy & Daylight Sensors

AirLink-integrated Fixtures

AirLink-compatible Fixtures

Circuit & Zone Controllers

Centralized control & integration

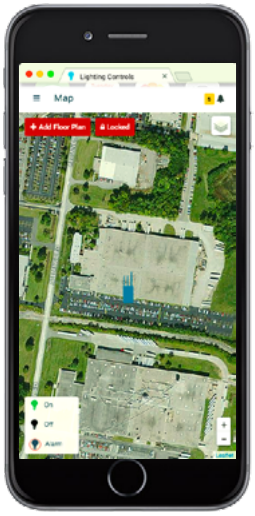
Site Manager Controller

Gateway Module

BACnet®

WiFi, Cellular or Ethernet Connection

Simple-to-use software



AirLink Site Manger: Lighting control web app

Contact LSI Controls

Sales
controls.sales@lsi-industries.com

Support
controls.support@lsi-industries.com
1 (800) 436-7800 (support, option 8)

More information
For more information on AirLink, visit our website at **www.lsi-airlink.com**

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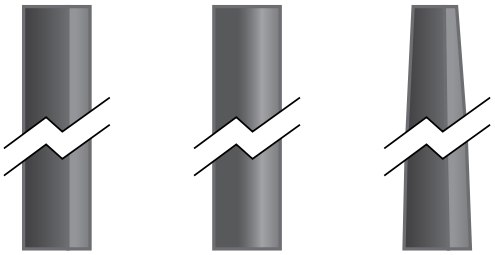
Poles and Brackets

LSI offers a full line of poles and mounting accessories to complete your lighting assembly. Aluminum and steel in both square and round shafts. In addition, LSI offers round tapered, fluted and hinge based poles. Designed and engineered for durability and protected with our oven baked DuraGrip Protection System. Also available with our DuraGrip+ Protection system for unmatched corrosion resistance and an extended warranty. American made in our Ohio facility with industry leading lead times.



Square Pole
14'-39'

Round Pole
10'-30'

Tapered Pole
20'-39'

BKA UMB CLR

The 3G rated UMB allows for seamless integration of LSI luminaires onto existing/ retrofit or new construction poles. The UMB was designed for square or round (tapered or straight) poles with two mounting hole spacings between 3.5" – 5".

BKA ASF CLR

The adjustable Slip Fitter is a 3G rated rugged die cast aluminum adapter to mount LSI luminaires onto a onto a 2" iron pipe , 2 3/8 OD tenon. The Adjustable Slip Fitter can be rotated 180° allowing for tilting LSI luminaires up to 45° and 90° when using a vertical tenon.

BKS PQMH CLR

The Pole Quick Mount Bracket allows for lightning fast installation of LSI luminaires onto existing and new construction poles with LSI's B3 or B5 standard pole bolt patterns.

BKS PQM15 CLR

The Pole Quick Mount Bracket allows for preset 15° uptilt of LSI luminaires for greater throw of light and increased vertical illumination as well as fast installation onto poles with LSI's 3" or 5" bolt pattern.

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Catalog # : XWM-2-LED-4L-50-UE-BRZ-ALSC	Project : FIXTURE SC
Prepared By :	Date :

Mirada Wall Sconce - XWM
Outdoor LED Wall Sconce

The XWM's sleek design makes it perfectly-suited for architectural & commercial applications, while its cost-effective die-cast aluminum housing makes its acquisition cost very competitive. The XWM offers high performance silicone optics, 4 standard CCTs, 5 lumen packages, and is available with integral Airlink™ Wireless Controls.

Features & Specifications

Optical System

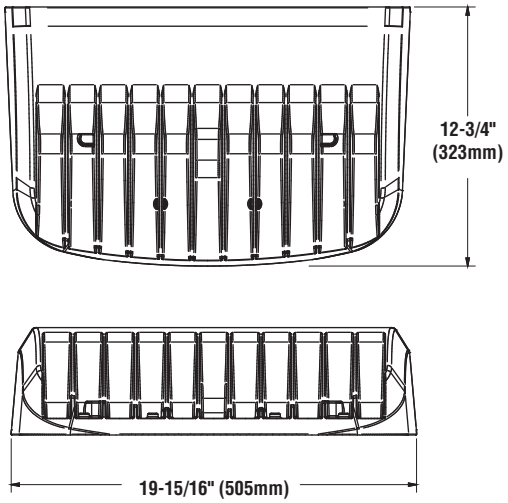
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP65 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, and Forward Throw (FT).
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, 3000K, and 2700K color temperatures per ANSI C78.377.
- Minimum CRI of 70.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 2)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F).
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed via hinged door.
- Optional 120v-277v integral emergency battery pack is available. The 90-minute batteries provide constant power to the LED system, ensuring code compliance. A test switch/indicator button is installed on the housing for ease of maintenance. Operating temperature for standard battery back-up: -0°C to +50°C (-32°F to +122°F), Cold Weather battery backup: -20°C to +50°C (-4°F to +122°F).

WIRELESS CONTROLS · IP65 · RoHS COMPLIANT · ARRA Funding Compliant · c UL us LISTED · MANUFACTURED IN THE USA · TITLE 24 COMPLIANT · ida DARK SKY APPROVED · DLC QPL LISTED · DLC QPL LISTED PREMIUM

Product Dimensions



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Features & Specifications (Cont.)

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Hinged die-cast aluminum wiring access door located underneath.
- Galvanized-steel universal wall mount bracket comes standard with hinging mechanism to easily access the junction box wire connections without removing the luminaire.
- Optional pole-mounting bracket (XPMA) permits mounting to standard poles. 3G rated per ANSI C136.31 for high vibration applications when pole-mounted with XPMA.
- Luminaire is proudly manufactured in the U.S. of U.S. and imported parts.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Controls

Wireless Controls System

To make this fixture AirLink ready, simply order one of the following options:

a. The integrated Wireless Lighting Controller: ALSC or ALSCH (see ordering guide) as the controls option, or

b. Integrated Wireless Controller option (above) with integrated motion sensor: ALSCS (ordering guide for mounting heights)

To see how the components of AirLink system work together, reference the diagram in the controls section of this specsheet. For more information on our AirLink products, visit our website: www.lsi-airlink.com/airlink-synapse/

Stand-Alone Controls

a. Integral Passive Infrared Bluetooth™ Motion/Photocell Sensor (IMSBT)
- Switches luminaire light levels based on motion and daylight (see the controls section for more details)
- Fixtures operate independently and can be commissioned via iOS or Android configuration app

b. 7-pin ANSI C136.41-2013 photocontrol receptacle (CR7P)
- Available for twist lock photocontrols or wireless control modules

Installation

- Universal wall mounting plate easily mounts directly to 4" octagonal or square junction box.
- 2 fasteners secure the hinged door underneath the housing and provide quick & easy access to the electrical compartment for installing/servicing.
- Included terminal block accepts up to 12 ga wire.

Warranty

- LSI LED Fixtures carry a 5-year warranty.
- 1 Year warranty on optional Battery Back Up. Test regularly in accordance with local codes.

Listings

- Listed to UL 1598 and UL 8750.
- RoHS Compliant.
- American Recovery and Reinvestment Act Funding Compliant.
- IDA compliant; with 3000K or lower color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP65 rated luminaire. IP65 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applications when pole mounted using optional XPMA bracket

Performance

ELECTRICAL DATA*

Lumen Package	Watts	120V	208V	240V	277V	347V	480V
03L	22.6	0.19	0.11	0.09	0.08	0.07	0.05
04L	29.5	0.25	0.14	0.12	0.11	0.09	0.06
06L	44.7	0.37	0.21	0.19	0.16	0.13	0.09
08L	62.0	0.52	0.30	0.26	0.22	0.18	0.13
12L	102.2	0.85	0.49	0.43	0.37	0.29	0.21

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%.

RECOMMENDED LUMEN MAINTENANCE (3L-6L)[1]

Ambient Temperature C	Initial [2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	98%	95%	93%	90%
10 C	100%	98%	95%	93%	90%
20 C	100%	98%	95%	93%	90%
25 C	100%	98%	95%	93%	90%
30 C	100%	98%	95%	93%	90%
40 C	100%	98%	95%	93%	90%
50 C	100%	98%	96%	94%	91%

RECOMMENDED LUMEN MAINTENANCE (8L-12L)[1]

Ambient Temperature C	Initial [2]	25K hrs.[2]	50K hrs.[3]	75K hrs.[3]	100K hrs.[3]
0 C	100%	97%	94%	90%	87%
10 C	100%	97%	94%	90%	87%
20 C	100%	97%	94%	90%	87%
25 C	100%	97%	93%	90%	86%
30 C	100%	97%	93%	90%	85%
40 C	100%	97%	93%	88%	84%
50 C	100%	96%	91%	87%	83%

1 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2 - In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3 - Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing times the IESNA LM-80-08 total test duration for the device under testing

Specifications and dimensions subject to change without notice.

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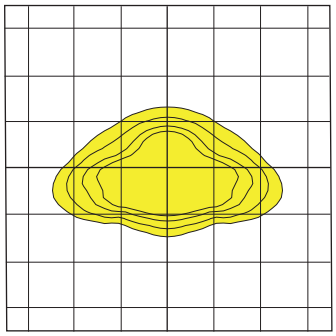
Performance (Cont.)

DELIVERED LUMENS*															
Lumen Package	Distribution	CRI	2700K			3000K			4000K			5000K			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
03L	2	70	2703	120	B1-U0-G1	2822	125	B1-U0-G1	3088	137	B1-U0-G1	3088	137	B1-U0-G1	22.6
	3	70	2752	122	B1-U0-G1	2873	127	B1-U0-G1	3144	139	B1-U0-G1	3144	139	B1-U0-G1	
	FT	70	2718	120	B1-U0-G1	2838	126	B1-U0-G1	3105	137	B1-U0-G1	3105	137	B1-U0-G1	
04L	2	70	3546	120	B1-U0-G1	3702	125	B1-U0-G1	4051	137	B1-U0-G1	4051	137	B1-U0-G1	29.5
	3	70	3610	122	B1-U0-G1	3769	128	B1-U0-G1	4124	140	B1-U0-G1	4124	140	B1-U0-G1	
	FT	70	3565	121	B1-U0-G1	3722	126	B1-U0-G1	4073	138	B1-U0-G1	4073	138	B1-U0-G1	
06L	2	70	5274	118	B2-U0-G1	5506	123	B2-U0-G2	6025	135	B2-U0-G2	6025	135	B2-U0-G2	44.7
	3	70	5369	120	B1-U0-G1	5606	125	B1-U0-G1	6134	137	B1-U0-G2	6134	137	B1-U0-G2	
	FT	70	5303	119	B1-U0-G2	5536	124	B1-U0-G2	6058	136	B1-U0-G2	6058	136	B1-U0-G2	
08L	2	70	6996	113	B2-U0-G2	7304	118	B2-U0-G2	7993	129	B2-U0-G2	7993	129	B2-U0-G2	62.0
	3	70	7123	115	B1-U0-G2	7437	120	B1-U0-G2	8138	131	B2-U0-G2	8138	131	B2-U0-G2	
	FT	70	7035	113	B1-U0-G2	7345	118	B2-U0-G2	8037	130	B2-U0-G2	8037	130	B2-U0-G2	
12L	2	70	10516	103	B2-U0-G2	10979	107	B3-U0-G3	12014	118	B3-U0-G3	12014	118	B3-U0-G3	102.2
	3	70	10707	105	B2-U0-G2	11178	109	B2-U0-G2	12232	120	B2-U0-G2	12232	120	B2-U0-G2	
	FT	70	10574	103	B2-U0-G3	11040	108	B2-U0-G3	12080	118	B2-U0-G3	12080	118	B2-U0-G3	

*LED Chips are frequently updated therefore values are nominal.

Photometrics

All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Mirada Wall Sconce (XWM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



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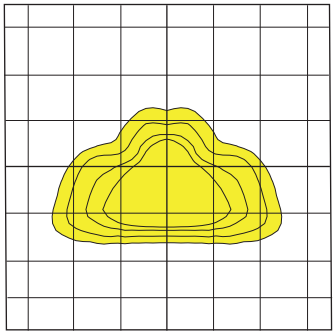

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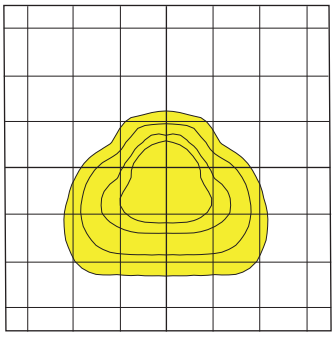

FT

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Mirada Wall Sconce - XWM
Outdoor LED Wall Sconce

Ordering Guide

TYPICAL ORDER EXAMPLE: **XWM 2 LED 03L 27 UE BRZ ALSC**

Luminaire Prefix	Distribution	LED Technology	Lumen Package*	Color Temp	Voltage	Finish	Controls (Choose One)	Options
XWM - Mirada Wall Sconce	**2** - Type 2 **3** - Type 3 **FT** - Type 4 Forward Throw	**LED**	**3L** - 3,000 lms **4L** - 4,000 lms **6L** - 6,000 lms **8L** - 8,000 lms **12L** - 12,000 lms *Consult factory for programmable wattages and lumen packages	**27** - 2700K[1] **30** - 3000K **40** - 4000K **50** - 5000K	**UE** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**Wireless Controls** **ALSC** - Airlink Synapse Control System[2] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor[2] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor [2] **Standalone Controls** **DIM** - 0-10v Dimming (from external signal) **IMSBT1-** Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [2, 4] **IMSBT2-** Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height [2, 4] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V **Lutron Limelight Controls** **LLC** – LimeLight Integral Wireless Radio Control by Lutron[7] **LLCS1** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 8-15' mt height[7] **LLCS2** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 16-30' mt height[7] **LLCS3** – Limelight Integral Wireless Radio Control and PIR Motion/Daylight Sensor by Lutron 31-40' mt height[7]	**BB** - Battery Back-up **CWBB** - Cold Weather Battery Backup **XPMA** - Pole Mounting Bracket

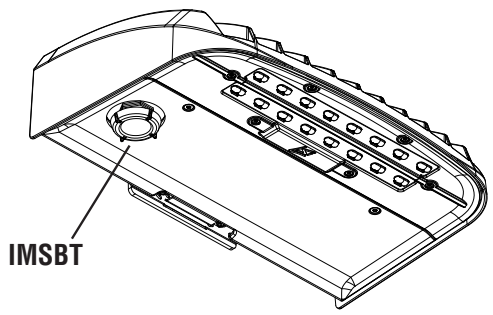
Accessory Ordering Information

Description	Order Number	Description	Order Number
XWM SW BLK - Surface Wiring Box (Available in black only)	356915BLK	DFK208 - Double Fusing	DFK208[6]
FK120 - Single Fusing	FK120[6]	DFK240 - Double Fusing	DFK240[6]
FK277 - Single Fusing	FK277[6]	DFK480 - Double Fusing	DFK480[6]
FK347 - Single Fusing	FK347[6]		

FOOTNOTES:

1 - Consult Factory for availability
2 - Not available in HV
3 - Consult Factory for Site Layout
4 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
5 - Not available in UE
6 - Fusing must be located in hand hole of pole or in the junction box.
7 - Not available with HV.

Luminaire Shown with IMSBT



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Mirada Wall Sconce - XWM
Outdoor LED Wall Sconce

Stand-alone Controls: Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30 degrees C to 70 degrees C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Operation Modes

Dusk to Dawn operation via integral photocell switches lights on and off based on the ambient light levels. In this mode the lights remain on all night even with no motion in the area.

Dimming operation turns the lights on to the selected high level when motion is detected and the ambient light level is below the hold off set point. Once the sensor stops detecting motion and the time delay elapses, the lights will go to the low level. If no motion is detected during the cut off time delay period the lights will completely turn off or stay on at the low level depending on settings.

Configurations

- Initial setup and later adjustments made via iOS and Android App.
- Sensor settings are stored and maintained in the event of a power failure.

Motion Level - fully adjustable from 0-100% with default at 100%. Motion Level is defined as when the sensor detects motion the dimming control output goes to the selected high light level.

Dim Level - fully adjustable from off, 0-100% with default at 50%. Dim level is defined as when the sensor stops detecting motion and the time delay expires the dimming control output goes down to the selected low light level.

Time Delay 1 - adjustable from 1 sec to 1 hour and 45 minutes with default 5 minutes. Time delay is defined as the time period that must elapse after the last time the sensor detects motion for the lights to go to low light level.

Time Delay 2 - the time period that must elapse after the lights go to low light level and the sensor detects no motion for the lights to turn off. This feature may be enabled or disabled. If disabled there is no cut off and the lights stay in the low light level. Adjustable from 1 sec to 8 hours and 59 minutes with default set at 10 minutes.

Sensor sensitivity – the response of the PIR detector to motion within the sensor's coverage area. Adjustable from low, medium, high. Default setting is low.

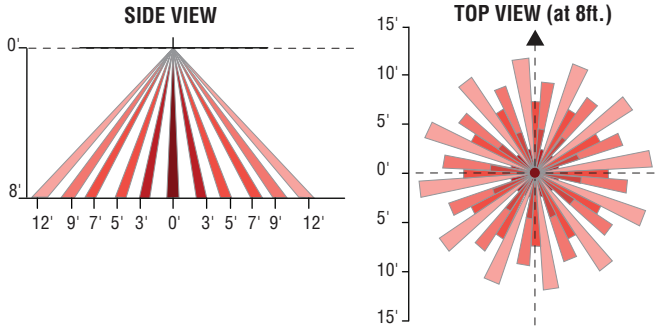
Ambient Light – when the light level exceeds this setting the lights will turn off even if motion is detected. When the light level goes below the setting the lights will turn on even if no motion is detected. A switch will allow you to enable or disable this feature. ON <30 LUX, OFF >100 LUX.

Sensor Configuration App

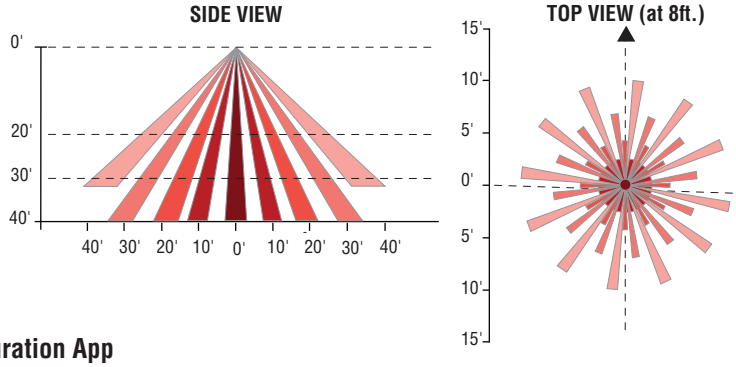
- Range up to 65 ft. outdoor line of sight
- iOS11 or later
- Android 6.0 or later
- Password protected.
- Sensor profiles used for setting up parameters one time and then applying the profile to different sensors requiring the same settings.

IMSBT Coverage Diagrams

IMSBT1



IMSBT2



Configuration App

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Mirada Wall Sconce - XWM
Outdoor LED Wall Sconce

AirLink™ enabled by Synapse®

The AirLink enabled by Synapse Wireless Lighting Control System is the perfect solution for commercial, industrial and municipal applications, such as: auto dealerships, parking lots, garages, shopping complexes and warehouses.

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The AirLink System

Wireless controls & sensors

Wireless & Override Switches

Occupancy/Vacancy & Daylight Sensors

AirLink-integrated Fixtures

AirLink-compatible Fixtures

Circuit & Zone Controllers

Centralized control & integration

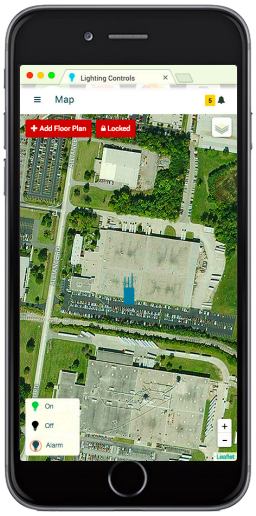
Site Manager Controller

Gateway Module

ASHRAE BACnet®

WiFi, Cellular or Ethernet Connection

Simple-to-use software



AirLink Site Manger: Lighting control web app

Contact LSI Controls

Sales
controls.sales@lsi-industries.com

Support
controls.support@lsi-industries.com
1 (800) 436-7800 (support, option 8)

More information
For more information on AirLink, visit our website at **www.lsi-airlink.com**

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Catalog # : EXN-D-EGLED-5L-T5W-UNV-DIM-50-70CRI-ALSC-BRZ	Project : FIXTURE SD
Prepared By :	Date :

Excursion - EXN
LED Parking Garage Luminaire

Shown with Uplight option

The EXN parking garage luminaire featuring edge-lit technology compliments any architectural setting and delivers energy efficient, uniform downlight for safety. This sleek fixture provides visual comfort with minimal glare and is ideal for parking garage, canopy and low bay applications. It is competitively priced, and easy to install.

Features & Specifications

Optical System

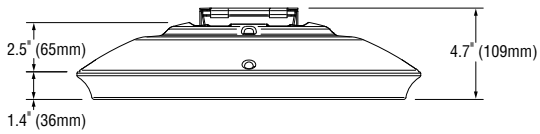
- Utilizes edge-lit technology providing best-in-class uniformity and excellent visual comfort with minimal glare.
- Optically clear acrylic light guide with tailored refractive distribution.
- Best in class high brightness LED's provide uniform light guide luminance with no dead spots.
- Choice of two high performance distributions: Type 5 Wide and Type 5 Narrow (a concentrated distribution for atrium and exit/egress applications).
- Uplight option adds 5% to the overall light output.
- Available in 5000K, 4000K and 3000K color temperatures per ANSI C78.377.
- Minimum CRI of 70.

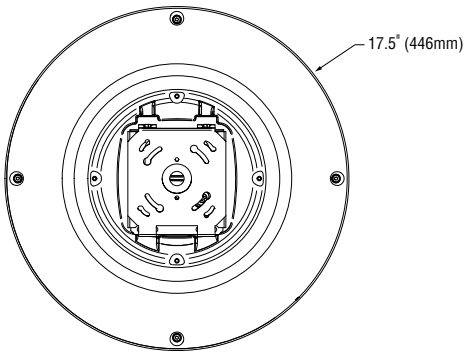
Electrical

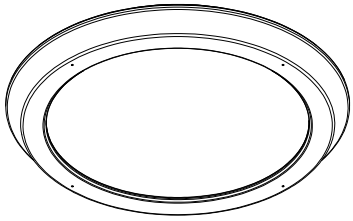
- High-performance driver features over-voltage, under voltage, short-circuit and over temperature protection.
- 0-10 volt dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz. Optional High Voltage 347/480Vac Input available.
- L70 Calculated Life: > 100k Hours (See Lumen Maintenance Chart)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F)
- Power factor: >.90
- Input power stays constant over life.
- High-efficacy LEDs with integrated circuit board mount directly to the housing to maximize heat dissipation and promote long life.
- Driver components are fully encased in potting material for moisture resistance. Driver complies with FCC standards.
- Field replaceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- Optional 120v-277v integral 9 watt emergency battery pack is available to meet critical life safety lighting requirements. The 90-minute batteries provide constant power to the LED system, ensuring code compliance. The fixture delivers 1500 lumens during emergency mode. A test switch/ indicator button is installed on the housing for ease of maintenance. Battery Backup not available on 10L and 11L lumen packages.

Dimmable · RoHS COMPLIANT · ARRA Funding Compliant · TITLE 24 COMPLIANT · ETL Intertek · MANUFACTURED IN THE USA · DLC LISTED · DLC PREMIUM · c UL us LISTED

Product Dimensions







★ Manufactured in USA by an American workforce of American and foreign parts using state-of-the-art equipment at our award-winning manufacturing facility in Ohio. Meets Buy American requirements within the ARRA.

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Features & Specifications (Cont.)

Construction

- Precision die-cast aluminum housing and lens frame for durability and consistency.
- Architecturally pleasing with no visible electronics, hardware, or seams from ground level.
- Hinged 16ga galvanized mounting bracket provided for ease of installation and maintenance.
- Wet location protects integral components from harsh environments.
- Luminaire is proudly manufactured in the U.S. of U.S. and Foreign parts.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- 3G rated for ANSI C136.31 high vibration applications (Direct Mount only).
- Shipping weight: 13.5 lbs in carton.

Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 6 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 5 for more details)

Installation

- Standard mounting is a rigid 3/4" pendant mount or direct surface mount to a 4" (102mm) octagon box (box by others).
- Accessory Wall Mount Arm available for interior wall surfaces or covered damp locations.

Warranty

- LSI LED Fixtures carry a 5-year warranty.
- 1 Year warranty on optional Battery Back Up. Test regularly in accordance with local codes.

Listings

- ETL listed to UL 1598 and UL 8750 US / CAN
- RoHS Compliant.
- State of California Title 24
- Suitable for wet Locations.
- 3G rated for ANSI C136.31 high vibration applications (Direct Mount only).
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Performance

DELIVERED LUMENS*

		3000K		4000K		5000K		
Lumen Level	Optic	Delivered Lumens	Efficacy	Delivered Lumens	Efficacy	Delivered Lumens	Efficacy	Avg. Watts
3L	T5W	2940	131	3140	140	3140	140	22
	T5N	3000	134	3200	143	3200	143	
5L	T5W	4960	134	5240	142	5240	142	37
	T5N	5010	135	5340	144	5340	144	
6L	T5W	5880	132	6260	141	6260	141	44
	T5N	5990	135	6380	144	6380	144	
8L	T5W	7730	129	8230	137	8230	137	60
	T5N	7880	131	8390	140	8390	140	
10L	T5W	9450	124	10010	132	10010	132	76
	T5N	9580	126	10200	134	10200	134	
11L	T5W	10630	122	11130	128	11130	128	87
	T5N	10650	122	11340	130	11340	130	

*Lumen and watt values are nominal.
NOTE: Uplight adds 5% to the overall light output.

ELECTRICAL DATA*

Lumen Level	Watts	120V	208V	240V	277V	347V	480V
3L	T5W/T5N	0.19	0.11	0.09	0.08	0.06	0.05
	T5WU/T5NU	0.20	0.11	0.10	0.09	0.07	0.05
5L	T5W/T5N	0.31	0.18	0.15	0.13	0.11	0.08
	T5WU/T5NU	0.33	0.19	0.16	0.14	0.11	0.08
6L	T5W/T5N	0.37	0.21	0.19	0.16	0.13	0.09
	T5WU/T5NU	0.39	0.23	0.20	0.17	0.14	0.10
8L	T5W/T5N	0.50	0.29	0.25	0.22	0.17	0.13
	T5WU/T5NU	0.53	0.31	0.27	0.23	0.18	0.13
10L	T5W/T5N	0.63	0.37	0.32	0.27	0.22	0.16
	T5WU/T5NU	0.67	0.39	0.34	0.29	0.23	0.17
11L	T5W/T5N	0.73	0.42	0.36	0.31	0.25	0.18
	T5WU/T5NU	0.77	0.44	0.38	0.33	0.27	0.19

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%.

RECOMMENDED LUMEN MAINTENANCE[1]

Ambient Temperature	0 hrs.[1]	25K hrs.[1]	50K hrs.[1]	75K hrs.[1]	100K hrs.[1]
0 C	100%	93%	86%	80%	74%
10 C	100%	93%	86%	80%	74%
20 C	100%	93%	86%	80%	74%
25 C	100%	94%	88%	83%	78%
30 C	100%	94%	88%	82%	77%
40 C	100%	93%	87%	80%	75%

1 - In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED'S).

Specifications and dimensions subject to change without notice.

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Excursion - EXN
LED Parking Garage Luminaire

Ordering Guide

TYPICAL ORDER EXAMPLE: **EXN D EGLED 8L T5W UNV DIM 40 70CRI ALSCS MSV**

Family	Mounting	LED Technology	Lumen Package*	Distribution	Voltage	Dimming	Color Temperature
EXN - Excursion Parking Garage Luminaire	**D** - Direct Mount **P** - Pendant Mount 5ft Cord **PL** - Pendant Mount, 7ft Cord[1]	**EGLED** - Edge-Lit LED	**3L** - 3000 lms **5L** - 5000 lms **6L** - 6000 lms **8L** - 8000 lms **10L** - 10000 lms **11L** - 11000 lms	**T5W** - Type V Wide **T5N** - Type V Narrow[2] **Uplight** **T5WU** - Type V Wide Uplight (5% up)[3] **T5NU** - Type V Narrow Uplight (5% up)[2,3]	**UNV** - Universal Electronic (120V-277V) **HV** - High Voltage (347V- 480V)	**DIM** - Dim to 10% (0-10V)	**50** - 5000K **40** - 4000K **30** - 3000K**

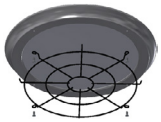
*Consult factory for programmable wattages and lumen packages. **Consult factory for lead time

Color Rendering	Controls	EM	Finish	Packaging
70CRI - 70 Color Rendering Index	**Blank** - No Controls **ALSC** - Airlink Synapse Wireless Digital Controller[4] **ALSCS1** - Airlink Synapse Wireless Digital Controller with Sensor (mounting 8 to 12 feet)[2,4] **ALSCS2** - Airlink Synapse Wireless Digital Controller with Sensor (mounting 12 to 20 feet)[2,4] **IMSBT1** - Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [4,5] **IMSBT2** - Integral Bluetooth™ Motion and Photocell Sensor max 25-40' mounting height [4,5]	**Blank** - No Option **BB** - Battery Backup[6] **CWBB** - Cold Weather Battery Backup[6]	**BLK** - Black **WHT** - White **MSV** - Metallic Silver **BRZ** - Bronze	**Blank** - Single Pack **JP** - Job Pack (2 luminaires)

Footnotes:

1 - 7ft cord required when ordering stem ST 60 3.
2 - T5N/T5NU distribution combined with IMSBT controls are considered SPECIAL ORDERS; subject to longer lead-times and minimum order quantities.
3 - Bird Guard and Uplight can not be used together.
4 - Not available with HV.
5 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
6 - Battery Backup and Cold Weather Battery Backup available in UNV only; not available with external dimming or 10L and 11L. BB rated 50°C to 10°C. CWBB rated 50°C to -20°C.

Accessory Ordering Information (Field Installed)

Description	Order Number	Image
Tamper Resistant Hardware Kit	685007	N/A
Bird Guard * Standard finishes available in white (WHT), black (BLK), metallic silver (MSV) and bronze (BRZ); other custom finishes available may require longer lead-times	695882CLR	
Wire Guard BLK only	695591	
House Side Shield BLK only	695593	
Wall Mount Arm Formed 16 gauge steel bracket designed to attach precisely to the Excursion housing and easily mount to a wall . Finished with LSI's DuraGrip polyester powder coat finishing process. Mount to 4 inch J-Box (by others) on interior wall surfaces or covered damp locations. Not designed for exterior locations exposed to direct contact with water. Weight 17.5 lbs. *Standard finishes available in white (WHT), black (BLK), metallic silver (MSV) and bronze (BRZ); other custom finishes available but may require longer lead-times *Wall mount arm is not compatible with Bird Guard or Uplight Distribution.	724323CLR	

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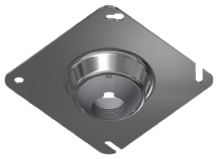
Pendant Accessories (Field Installed)

TYPICAL ORDER EXAMPLE: **BC600 3 BLK**

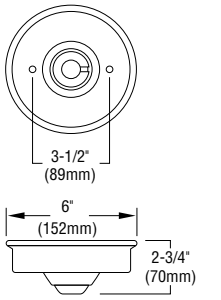
Description	Order Number	Image
3/4"(19mm) Top Decorative Box Cover Aligner	BC600 3	
3/4"(19mm) Top Round Box Cover Aligner	BC585	
3/4"(19mm) Top Square Box Cover Aligner	BC585SQ	

Stem Accessories (Field Installed)

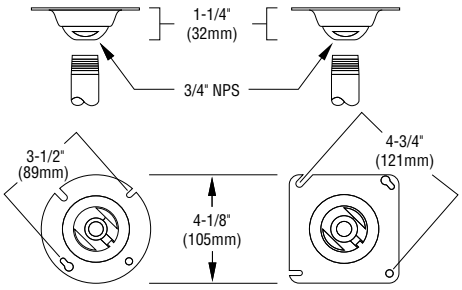
TYPICAL ORDER EXAMPLE: **ST6 3 BLK**

Description	Order Number	Image
3/4" x 6" (19mmx152mm) Aluminum Stem	ST 6 3	
3/4" x 12" (19mmx .4m) Aluminum Stem	ST 12 3	
3/4" x 18" (19mmx .5m) Aluminum Stem	ST 18 3	
3/4" x 24" (19mmx .6m) Aluminum Stem	ST 24 3	
3/4" x 36" (19mmx .9m) Aluminum Stem	ST 36 3	
3/4" x 48" (19mmx 1.2m) Aluminum Stem	ST 48 3	
3/4" x 60" (19mmx 1.5m) Aluminum Stem (Must order PL - Pendant Mount, 7ft Cord)	ST 60 3	
3/4" (19mm) Aluminum Stem Coupler	COP 3	

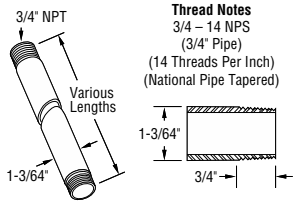
* Standard canopy finishes available in white (WHT), black (BLK) and bronze (BRZ); other custom finishes available may require longer lead-times.



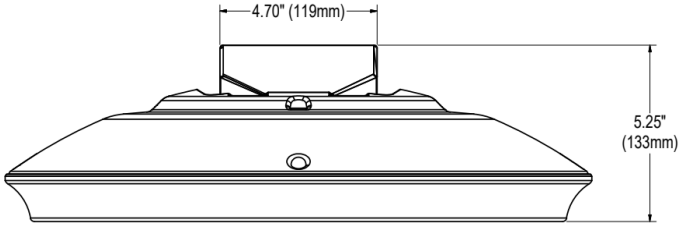
BC600 3 GWT Decorative Aligner



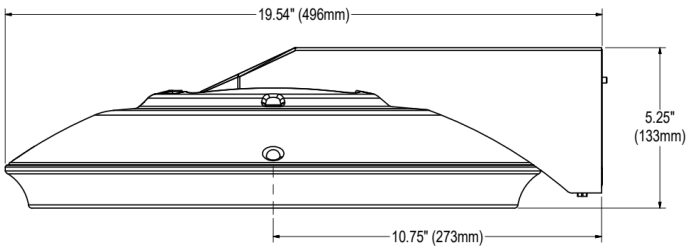
BC585 Round Aligner **BC585SQ Square Aligner**



Aluminum Stem



724323CLR Wall Mount Arm



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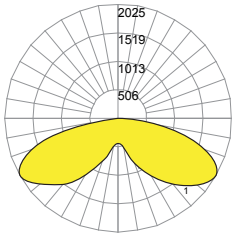
Excursion - EXN
LED Parking Garage Luminaire

Photometry

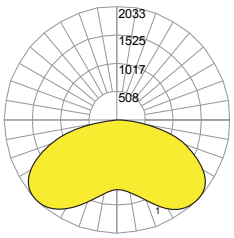
Luminaire photometry has been conducted by an accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

See http://www.lsi-industries.com/products/led-lighting-solutions.aspx for detailed photometric data.



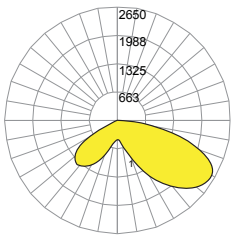
Type V Wide

#1 - Vertical Plane Through Horizontal Angles (90 - 270)



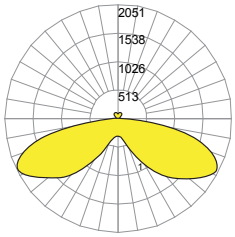
Type V Narrow

#1 - Vertical Plane Through Horizontal Angles (90 - 270)



House Side Shield (T5W)

#1 – Vertical Plane Through Horizontal Angles (0 – 180)



Type V Wide Uplight

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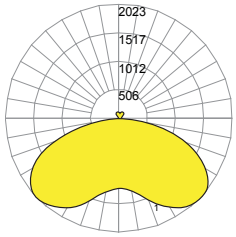
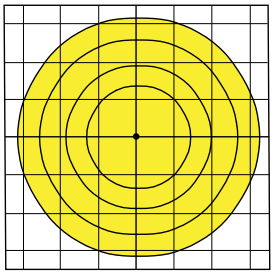
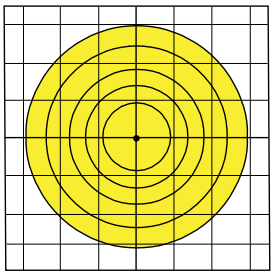


Type V Narrow Uplight

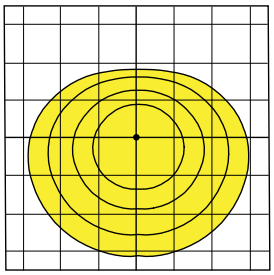
#1 - Vertical Plane Through Horizontal Angles (90 - 270)



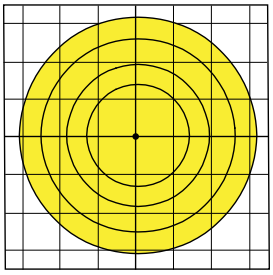
Type V Wide



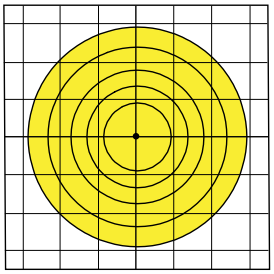
Type V Narrow



House Side Shield (T5W)



Type V Wide Uplight



Type V Narrow Uplight

Controls

Wireless Lighting Controller

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system.

The wireless integrated controller is compatible with this fixture.

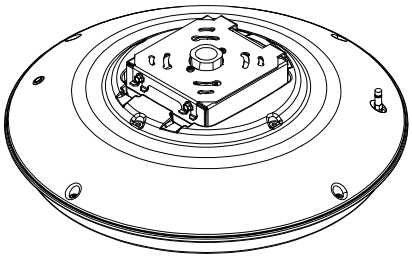
Features

- 2% Utility Grade Power Monitoring
- Up to 80% Savings through smart dimming
- Seamlessly integrates into the outdoor AirLink wireless lighting control solution & Self-healing Mesh Networking
- Secure, over-the-air upgrades to support future enhancements
- RF Range for Excursion is 50ft.
- Lights default to on for safety

Specifications

Regulatory Approvals

- FCC, IC, CE certified
- cULus Listed
- California Title 24 compliant



AirLink™ enabled by Synapse®

Contact LSI Controls

Sales
controls.sales@lsi-industries.com

Support
controls.support@lsi-industries.com
1 (800) 436-7800 (support, option 8)

More information
For more information on AirLink, visit our website at **www.lsi-airlink.com/airlink**

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Excursion - EXN
LED Parking Garage Luminaire

Stand-alone Controls: Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations. Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Operation Modes

Dusk to Dawn operation via integral photocell switches lights on and off based on the ambient light levels. In this mode the lights remain on all night even with no motion in the area.

Dimming operation turns the lights on to the selected high level when motion is detected and the ambient light level is below the hold off set point. Once the sensor stops detecting motion and the time delay elapses, the lights will go to the low level. If no motion is detected during the cut off time delay period the lights will completely turn off or stay on at the low level depending on settings.

Configurations

- Initial setup and later adjustments made via iOS and Android App.
- Sensor settings are stored and maintained in the event of a power failure.

Motion Level - fully adjustable from 0-100% with default at 100%. Motion Level is defined as when the sensor detects motion the dimming control output goes to the selected high light level.

Dim Level - fully adjustable from off, 0-100% with default at 50%. Dim level is defined as when the sensor stops detecting motion and the time delay expires the dimming control output goes down to the selected low light level.

Time Delay 1 - adjustable from 1 sec to 1 hour and 45 minutes with default 5 minutes. Time delay is defined as the time period that must elapse after the last time the sensor detects motion for the lights to go to low light level.

Time Delay 2 - the time period that must elapse after the lights go to low light level and the sensor detects no motion for the lights to turn off. This feature may be enabled or disabled. If disabled there is no cut off and the lights stay in the low light level. Adjustable from 1 sec to 8 hours and 59 minutes with default set at 10 minutes.

Sensor sensitivity – the response of the PIR detector to motion within the sensor's coverage area. Adjustable from low, medium, high. Default setting is low.

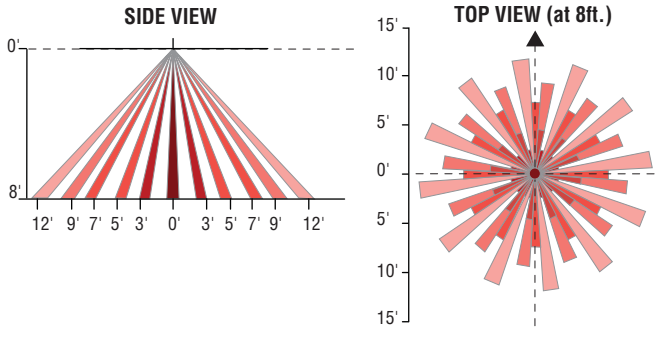
Ambient Light – when the light level exceeds this setting the lights will turn off even if motion is detected. When the light level goes below the setting the lights will turn on even if no motion is detected. A switch will allow you to enable or disable this feature. ON <30 LUX, OFF >100 LUX.

Sensor Configuration App

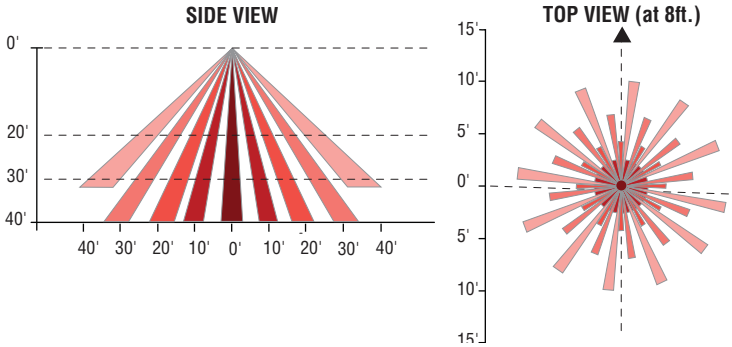
- Range up to 65 ft. outdoor line of sight
- iOS11 or later
- Android 6.0 or later
- Password protected.
- Sensor profiles used for setting up parameters one time and then applying the profile to different sensors requiring the same settings.

IMSBT Coverage Diagrams

IMSBT1



IMSBT2



Configuration App

Specifications and dimensions subject to change without notice.

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Catalog # : SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-BRZ	Project : FIXTURE SE
Prepared By :	Date :

Slice Medium - SLM
Outdoor LED Area Light

The Slice's sleek design makes it perfectly-suited for Commercial & Industrial applications, while its cost-effective die-cast aluminum housing makes its acquisition cost very competitive. The Slice offers high performance silicone optics, die cast aluminum housing, 42,000+ lumens and is available with integral Airlink Synapse controls.

Features & Specifications

Optical System

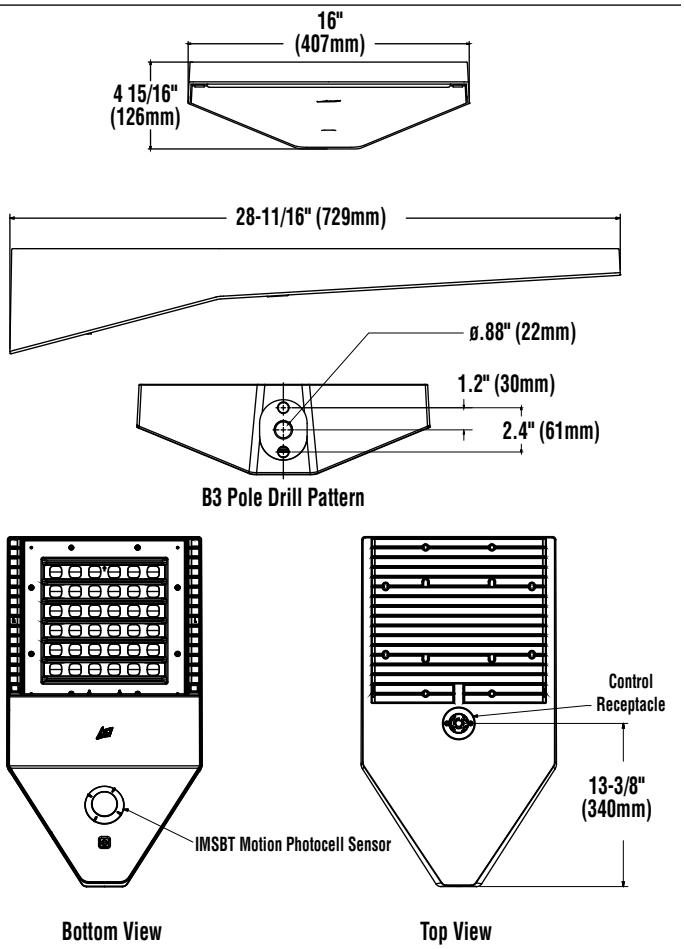
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, 5W, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, 3000K, and 2700K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 3)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40ºC.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Dimmable · Wireless Controls · Bluetooth · IP66 · ARRA Funding Compliant · cULus Listed · Manufactured in the USA · RoHS Compliant · Title 24 Compliant · IDA Dark Sky Approved · DLC Listed · DLC Premium

Product Dimensions



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Slice Medium - SLM
Outdoor LED Area Light

Features & Specifications (Cont.)

Construction
- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square poles.
- Luminaire is proudly manufactured in the U.S. of U.S. and imported parts.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Controls
Wireless Controls System

To make this fixture AirLink ready, simply order one of the following options:

a. The integrated Wireless Lighting Controller: ALSC or ALSCH (see ordering guide) as the controls option, or

b. Integrated Wireless Controller option (above) with integrated motion sensor: ALSCS (ordering guide for mounting heights) or

c. The 7-Pin Photoelectric Control Receptacle: CR7P as the controls option; and either the 5-Pin or 7-Pin Twist Lock Controller: ALSC UNV TL5 or ALSC UNV TL7 as an accessory

To see how the components of AirLink system work together, reference the diagram in the controls section of this spec sheet. For more information on our AirLink products, visit our website: www.lsi-airlink.com/airlink-synapse/

Stand-Alone Controls

a. Integral Passive Infrared Bluetooth™ Motion/Photocell Sensor (IMSBT)
- Switches luminaire light levels based on motion and daylight (see the controls section for more details)
- Fixtures operate independently and can be commissioned via iOS or Android configuration app

b. 7-pin ANSI C136.41-2013 photocontrol receptacle (CR7P)
- Available for twist lock photocontrols or wireless control modules

Installation
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 1)

Warranty
- LSI LED Fixtures carry a 5-year warranty.

Listings
- Listed to UL 1598 and UL 8750.
- RoHS Compliant.
- American Recovery and Reinvestment Act Funding Compliant.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applications

Performance

ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	68.2	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	93.1	0.8A	0.4A	0.4A	0.3A	0.3A	0.2A
18L	148.5	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	188.8	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	248.6	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317.8	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	393.4	3.3A	1.9A	1.6A	1.4A	1.1A	0.8A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

RECOMMENDED LUMEN MAINTENANCE[1](24-42L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-40 C	100%	100%	97%	94%	92%

RECOMMENDED LUMEN MAINTENANCE[1](9-18L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-50 C	100%	96%	91%	87%	83%

1- Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2- In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3- In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5958	80	B2-U0-G1	74
	2 IL	3735	50	B0-U0-G1	
	3	6196	83	B1-U0-G1	
	3 IL	4205	56	B0-U0-G1	
	5W	5528	74	B3-U0-G1	
	FT	5922	79	B1-U0-G2	
	FT IL	3712	50	B0-U0-G1	
	FTA	5997	80	B2-U0-G2	
	FTA IL	4254	57	B0-U0-G1	
12L	2	7559	73	B2-U0-G2	103
	2 IL	4738	46	B0-U0-G1	
	3	7860	76	B2-U0-G2	
	3 IL	5335	52	B0-U0-G1	
	5W	7013	68	B3-U0-G2	
	FT	7513	73	B2-U0-G2	
	FT IL	4709	46	B0-U0-G2	
	FTA	7608	74	B2-U0-G2	
	FTA IL	5397	52	B0-U0-G1	

*LED Chips are frequently updated therefore values are nominal

LUMINAIRE EPA CHART - SLM

Tilt Degree		0°	30°	45°
	Single	0.5	2.1	2.6
	D180°	1.1	2.1	2.6
	D90°	0.9	2.5	3.1

Tilt Degree		0°	30°	45°
	T90°	1.2	2.9	3.6
	TN120°	1.3	4.4	5.4
	Q90°	1.2	2.9	3.6

Specifications and dimensions subject to change without notice.

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Slice Medium - SLM
Outdoor LED Area Light

DELIVERED LUMENS*

Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5185	76	B0-U0-G1	5326	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	5W	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7266	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	5W	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12775	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13055	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9325	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G2	12920	86	B1-U0-G2	14155	95	B1-U0-G2	14739	99	B1-U0-G2	
	5W	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G1	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G2	14243	76	B1-U0-G2	15231	81	B1-U0-G2	15550	83	B1-U0-G2	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15828	85	B1-U0-G3	17209	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	5W	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15226	81	B1-U0-G2	16555	89	B1-U0-G2	17703	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	26581	108	B4-U0-G3	28900	117	B4-U0-G3	30905	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27675	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	5W	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B4-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G4	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	5W	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G3	36058	114	B4-U0-G4	38559	122	B4-U0-G4	39366	124	B4-U0-G3	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B1-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G4	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	5W	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26825	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LED Chips are frequently updated therefore values are nominal

Specifications and dimensions subject to change without notice.

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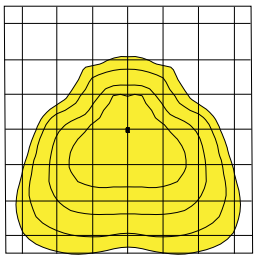
Performance (Cont.)

All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Slice (SLM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



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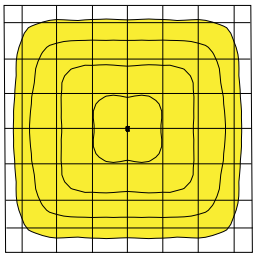

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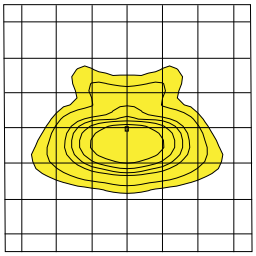

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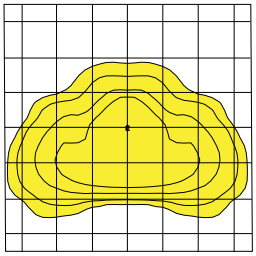
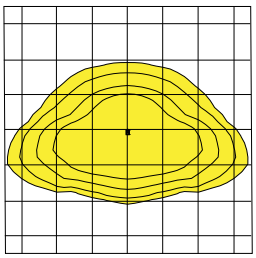


Type 3



Type 2

Ordering Guide

TYPICAL ORDER EXAMPLE: **SLM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package*	Light Output	Distribution	Orientation[1]	Voltage	Driver
SLM Slice Medium	**LED**	**9L** - 9,000 lms **12L** - 12,000 lms **18L** - 18,000 lms **24L** - 24,000 lms **30L** - 30,000 lms **36L** - 36,000 lms **42L** - 42,000 lms *Consult factory for programmable wattages and lumen packages	**SIL** - Silicone	**2** - Type 2 **3** - Type 3 **5W** - Type 5 Wide **FT** - Forward Throw **FTA** - Forward Throw Automotive	**(blank)** - standard **L**- Optics rotated left 90 **R** - Optics rotated right 90	**UNV** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**DIM** - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT **40** - 4,000 CCT **30** - 3,000 CCT[2] **27** - 2,700 CCT[2] **AMB** - Phosphor Converted Amber[2,3]	**70CRI** - 70 CRI	**(Blank)** - None **Wireless Controls System** **ALSC** - AirLink Synapse Control System [4] **ALSCH** - AirLink Synapse Control System Host / Satellite [4,5] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor [4] **ALSCHS01** - AirLink Synapse Control System Host / Satellite with 8-12' Motion Sensor [4,5] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor [4] **ALSCHS02** - AirLink Synapse Control System Host / Satellite with 12-20' Motion Sensor [4,5] **ALSCS04** - AirLink Synapse Control System with 20-40' Motion Sensor [4] **ALSCHS04** - AirLink Synapse Control System Host / Satellite with 20-40' Motion Sensor [4,5] **Stand-Alone Controls** **EXT** - 0-10V Dimming leads extended to housing exterior **CR7P** - 7 Pin Control Receptacle ANSI C136.41 [7] **IMSBT1-** Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [4, 6] **IMSBT2-** Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height [4, 6] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**(Blank)** - None **IL** - Integral Louver HSS[1]

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Accessory Ordering Information[8]

Description	Order Number	Description	Order Number
PC120 Photocell for use with CR7P option (120V)[9]	122514	DFK480 Double Fusing (480V)	DFK480
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V)[9]	122515	DFK347 Double Fusing (347V)	DFK347
PC347 Photocell for use with CR7P option (347V)[9]	159516	X5RPP - Round Pole Adapter for 5" Poles[10]	379968CLR
PC480 Photocell for use with CR7P option (480V)[9]	1225180	IL - Integral Louver HSS	684812
ALSC UNV TL5 - Airlink 5Pin Twist Lock Controller[4,9]	661409	Universal Mounting Bracket (UMB)[10]	684616CLR
ALSC UNV TL7 - Airlink 7Pin Twist Lock Controller[4,9]	661410	Adjustable Slip Fitter (ASF)[10]	688138CLR
PMOS24 - 24V Pole-Mount Occupancy Sensor (ALSC/H Compatible)[10]	663284CLR	Pole Quick Mount Bracket - Square Pole[10]	687073CLR
X3RPP - Round Pole Adapter for 3" Round Tapered Poles[10]	408273CLR	Pole Quick Mount Bracket - 4-5" Round Pole[10]	689903CLR
X4RPP - Round Pole Adapter for 4" Poles[10]	379967CLR	15° Tilt Pole Quick Mount Bracket - Square Pole[10]	688003CLR
FK120 Single Fusing (120V)	FK120	15° Tilt Pole Quick Mount Bracket - 4-5" Round Pole[10]	689905CLR
FK277 Single Fusing (277V)	FK277	BKS XBO WM CLR Wall Mount Bracket[10]	382132CLR
DFK208, 240 Double Fusing (208V, 240V)	DFK240		

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
7 - Control device must be ordered separately. 7 pin standard. See Accessory Ordering Information.
8 - Accessories are shipped separately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish. See Finish options.

Accessories/Options

Integral Louver (IL)

Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

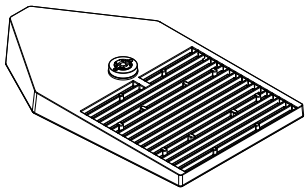
Luminaire Shown with Integral Louver (IL)

Luminaire Shown with IMSBT Option

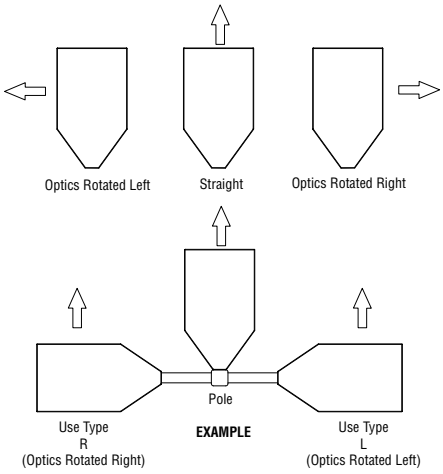
7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Fixture Shown with CR7P



Optics Rotation



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Slice Medium - SLM
Outdoor LED Area Light

Stand-alone Controls: Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30 degrees C to 70 degrees C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Operation Modes

Dusk to Dawn operation via integral photocell switches lights on and off based on the ambient light levels. In this mode the lights remain on all night even with no motion in the area.

Dimming operation turns the lights on to the selected high level when motion is detected and the ambient light level is below the hold off set point. Once the sensor stops detecting motion and the time delay elapses, the lights will go to the low level. If no motion is detected during the cut off time delay period the lights will completely turn off or stay on at the low level depending on settings.

Configurations

- Initial setup and later adjustments made via iOS and Android App.
- Sensor settings are stored and maintained in the event of a power failure.

Motion Level - fully adjustable from 0-100% with default at 100%. Motion Level is defined as when the sensor detects motion the dimming control output goes to the selected high light level.

Dim Level - fully adjustable from off, 0-100% with default at 50%. Dim level is defined as when the sensor stops detecting motion and the time delay expires the dimming control output goes down to the selected low light level.

Time Delay 1 - adjustable from 1 sec to 1 hour and 45 minutes with default 5 minutes. Time delay is defined as the time period that must elapse after the last time the sensor detects motion for the lights to go to low light level.

Time Delay 2 - the time period that must elapse after the lights go to low light level and the sensor detects no motion for the lights to turn off. This feature may be enabled or disabled. If disabled there is no cut off and the lights stay in the low light level. Adjustable from 1 sec to 8 hours and 59 minutes with default set at 10 minutes.

Sensor sensitivity – the response of the PIR detector to motion within the sensor's coverage area. Adjustable from low, medium, high. Default setting is low.

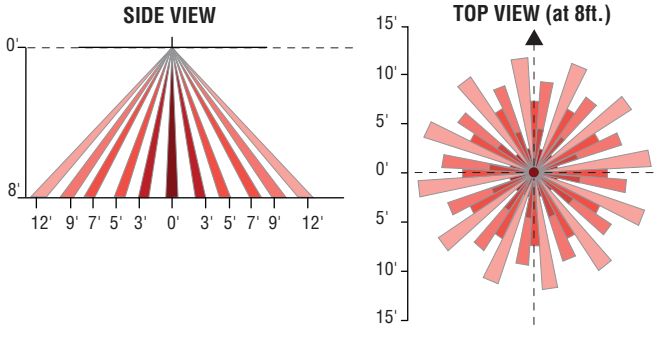
Ambient Light – when the light level exceeds this setting the lights will turn off even if motion is detected. When the light level goes below the setting the lights will turn on even if no motion is detected. A switch will allow you to enable or disable this feature. ON <30 LUX, OFF >100 LUX.

Sensor Configuration App

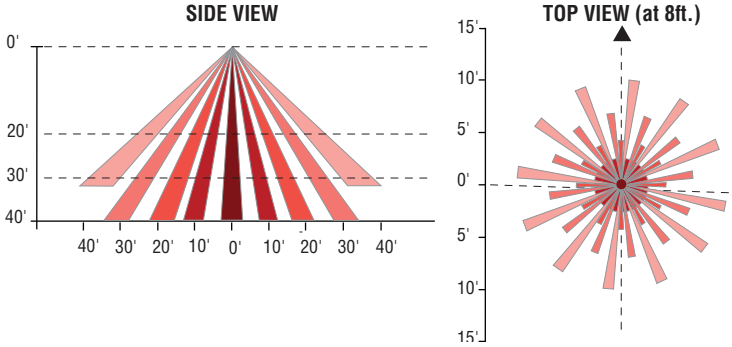
- Range up to 65 ft. outdoor line of sight
- iOS11 or later
- Android 6.0 or later
- Password protected.
- Sensor profiles used for setting up parameters one time and then applying the profile to different sensors requiring the same settings.

IMSBT Coverage Diagrams

IMSBT1



IMSBT2



Configuration App

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Slice Medium - SLM
Outdoor LED Area Light

AirLink™ enabled by Synapse®

The AirLink enabled by Synapse Wireless Lighting Control System is the perfect solution for commercial, industrial and municipal applications, such as: auto dealerships, parking lots, garages, shopping complexes and warehouses.

AirLink utilizes robust wireless communication via 2.4 GHz Self-Healing Mesh Network which not only increases reliability and accuracy of system, but also eliminates single point of failure.

The flexibility of the system make it perfect for new construction and retrofit projects. The user-friendly AirLink web application is accessible through any device with an internet connection and allows for complete customization of the system's features.

Some capabilities of the system include: occupancy/vacancy sensing, daylight harvesting, scheduling, high-end trim, dimming, zone control, BMS integration and energy monitoring.

The AirLink System

Wireless controls & sensors

Wireless & Override Switches

Occupancy/Vacancy & Daylight Sensors

AirLink-integrated Fixtures

AirLink-compatible Fixtures

Circuit & Zone Controllers

Centralized control & integration

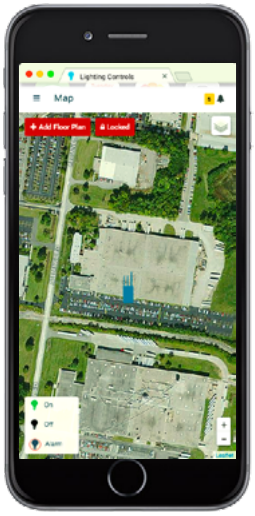
Site Manager Controller

Gateway Module

BACnet®

WiFi, Cellular or Ethernet Connection

Simple-to-use software



AirLink Site Manger: Lighting control web app

Contact LSI Controls

Sales
controls.sales@lsi-industries.com

Support
controls.support@lsi-industries.com
1 (800) 436-7800 (support, option 8)

More information
For more information on AirLink, visit our website at **www.lsi-airlink.com**

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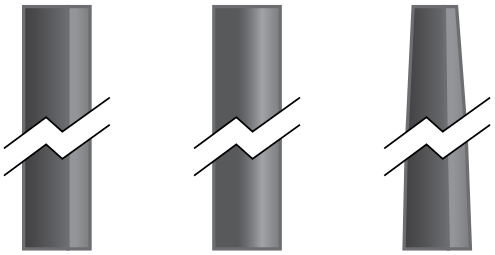
Poles and Brackets

LSI offers a full line of poles and mounting accessories to complete your lighting assembly. Aluminum and steel in both square and round shafts. In addition, LSI offers round tapered, fluted and hinge based poles. Designed and engineered for durability and protected with our oven baked DuraGrip Protection System. Also available with our DuraGrip+ Protection system for unmatched corrosion resistance and an extended warranty. American made in our Ohio facility with industry leading lead times.



Square Pole
14'-39'

Round Pole
10'-30'

Tapered Pole
20'-39'

BKA UMB CLR

The 3G rated UMB allows for seamless integration of LSI luminaires onto existing/ retrofit or new construction poles. The UMB was designed for square or round (tapered or straight) poles with two mounting hole spacings between 3.5" – 5".

BKA ASF CLR

The adjustable Slip Fitter is a 3G rated rugged die cast aluminum adapter to mount LSI luminaires onto a onto a 2" iron pipe , 2 3/8 OD tenon. The Adjustable Slip Fitter can be rotated 180° allowing for tilting LSI luminaires up to 45° and 90° when using a vertical tenon.

BKS PQMH CLR

The Pole Quick Mount Bracket allows for lightning fast installation of LSI luminaires onto existing and new construction poles with LSI's B3 or B5 standard pole bolt patterns.

BKS PQM15 CLR

The Pole Quick Mount Bracket allows for preset 15° uptilt of LSI luminaires for greater throw of light and increased vertical illumination as well as fast installation onto poles with LSI's 3" or 5" bolt pattern.

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Catalog # : SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-BLK	Project : FIXTURE SF
Prepared By :	Date :

Slice Medium - SLM
Outdoor LED Area Light

The Slice's sleek design makes it perfectly-suited for Commercial & Industrial applications, while its cost-effective die-cast aluminum housing makes its acquisition cost very competitive. The Slice offers high performance silicone optics, die cast aluminum housing, 42,000+ lumens and is available with integral Airlink Synapse controls.

Features & Specifications

Optical System

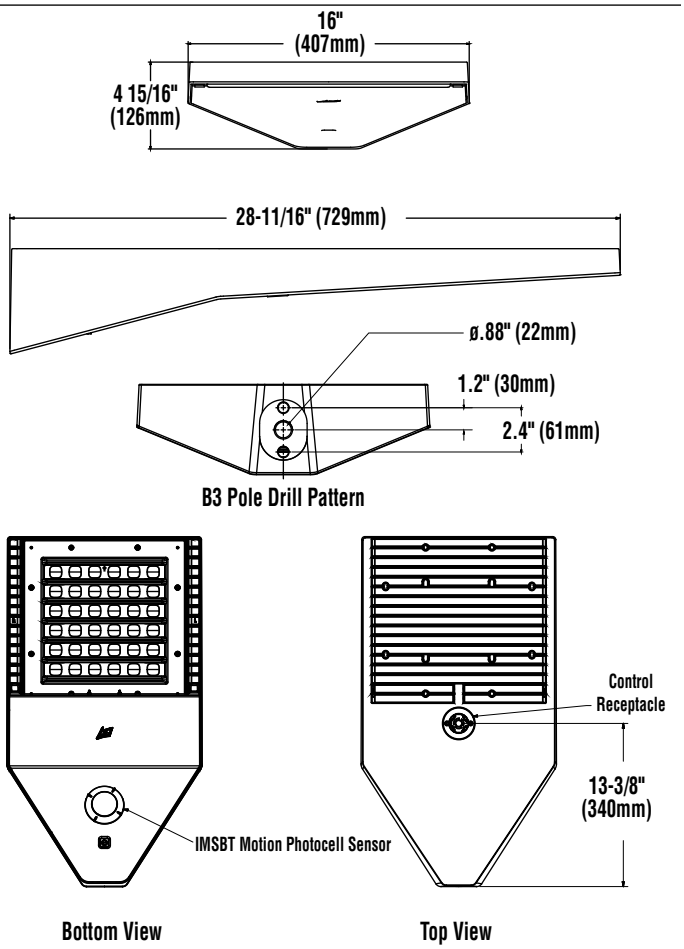
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, 5W, FT and FTA.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, 3000K, and 2700K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral Louver (IL) option available for improved back-light control without sacrificing street side performance. See page 5 for more details.

Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 3)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L lumen package rated to +40ºC.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Dimmable · Wireless Controls · Bluetooth · IP66 · ARRA Funding Compliant · cULus Listed · Manufactured in the USA · RoHS Compliant · Title 24 Compliant · IDA Dark Sky Approved · DLC Listed · DLC Premium

Product Dimensions



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Slice Medium - SLM
Outdoor LED Area Light

Features & Specifications (Cont.)

Construction
- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square poles.
- Luminaire is proudly manufactured in the U.S. of U.S. and imported parts.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 30 lbs in carton.

Controls
Wireless Controls System

To make this fixture AirLink ready, simply order one of the following options:

a. The integrated Wireless Lighting Controller: ALSC or ALSCH (see ordering guide) as the controls option, or

b. Integrated Wireless Controller option (above) with integrated motion sensor: ALSCS (ordering guide for mounting heights) or

c. The 7-Pin Photoelectric Control Receptacle: CR7P as the controls option; and either the 5-Pin or 7-Pin Twist Lock Controller: ALSC UNV TL5 or ALSC UNV TL7 as an accessory

To see how the components of AirLink system work together, reference the diagram in the controls section of this spec sheet. For more information on our AirLink products, visit our website: www.lsi-airlink.com/airlink-synapse/

Stand-Alone Controls

a. Integral Passive Infrared Bluetooth™ Motion/Photocell Sensor (IMSBT)
- Switches luminaire light levels based on motion and daylight (see the controls section for more details)
- Fixtures operate independently and can be commissioned via iOS or Android configuration app

b. 7-pin ANSI C136.41-2013 photocontrol receptacle (CR7P)
- Available for twist lock photocontrols or wireless control modules

Installation
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 1)

Warranty
- LSI LED Fixtures carry a 5-year warranty.

Listings
- Listed to UL 1598 and UL 8750.
- RoHS Compliant.
- American Recovery and Reinvestment Act Funding Compliant.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598. IP66 rated optical chamber.
- 3G rated for ANSI C136.31 high vibration applications

Performance

ELECTRICAL DATA (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	68.2	0.6A	0.3A	0.3A	0.2A	0.2A	0.1A
12L	93.1	0.8A	0.4A	0.4A	0.3A	0.3A	0.2A
18L	148.5	1.2A	0.7A	0.6A	0.5A	0.4A	0.3A
24L	188.8	1.6A	0.9A	0.8A	0.7A	0.5A	0.4A
30L	248.6	2.1A	1.2A	1.0A	0.9A	0.7A	0.5A
36L	317.8	2.6A	1.5A	1.3A	1.1A	0.9A	0.7A
42L	393.4	3.3A	1.9A	1.6A	1.4A	1.1A	0.8A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

Lumens	Watts	120V	208V	240V	277V	347V	480V
9L	74.3	0.6A	0.4A	0.3A	0.3A	0.2A	0.2A
12L	102.9	0.9A	0.5A	0.4A	0.4A	0.3A	0.2A

*Electrical data at 25C (77F). Actual wattage may differ by +/-10%

RECOMMENDED LUMEN MAINTENANCE[1](24-42L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-40 C	100%	100%	97%	94%	92%

RECOMMENDED LUMEN MAINTENANCE[1](9-18L)

Ambient	Initial[2]	25 hr[2]	50 hr[2]	75 hr[3]	100 hr[3]
0-50 C	100%	96%	91%	87%	83%

1- Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.
2- In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.
3- In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing

DELIVERED LUMENS*

Lumen Package	Distribution	Phosphor Converted Amber (Peak 610nm)			Wattage
		Delivered Lumens	Efficacy	BUG Rating	
9L	2	5958	80	B2-U0-G1	74
	2 IL	3735	50	B0-U0-G1	
	3	6196	83	B1-U0-G1	
	3 IL	4205	56	B0-U0-G1	
	5W	5528	74	B3-U0-G1	
	FT	5922	79	B1-U0-G2	
	FT IL	3712	50	B0-U0-G1	
	FTA	5997	80	B2-U0-G2	
	FTA IL	4254	57	B0-U0-G1	
12L	2	7559	73	B2-U0-G2	103
	2 IL	4738	46	B0-U0-G1	
	3	7860	76	B2-U0-G2	
	3 IL	5335	52	B0-U0-G1	
	5W	7013	68	B3-U0-G2	
	FT	7513	73	B2-U0-G2	
	FT IL	4709	46	B0-U0-G2	
	FTA	7608	74	B2-U0-G2	
	FTA IL	5397	52	B0-U0-G1	

*LED Chips are frequently updated therefore values are nominal

LUMINAIRE EPA CHART - SLM

Tilt Degree		0°	30°	45°
	Single	0.5	2.1	2.6
	D180°	1.1	2.1	2.6
	D90°	0.9	2.5	3.1

Tilt Degree		0°	30°	45°
	T90°	1.2	2.9	3.6
	TN120°	1.3	4.4	5.4
	Q90°	1.2	2.9	3.6

Specifications and dimensions subject to change without notice.

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Slice Medium - SLM
Outdoor LED Area Light

DELIVERED LUMENS*

Lumen Package	Distribution	CRI	2700K CCT			3000K CCT			4000K CCT			5000K CCT			Wattage
			Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	
9L	2	70	8349	122	B2-U0-G2	8576	125	B2-U0-G2	9396	137	B2-U0-G2	9784	143	B2-U0-G2	69
	2 IL	70	5185	76	B0-U0-G1	5326	78	B0-U0-G1	5835	85	B0-U0-G1	6076	89	B0-U0-G1	
	3	70	8571	125	B1-U0-G2	8804	129	B1-U0-G2	9646	141	B2-U0-G2	10044	147	B2-U0-G2	
	3 IL	70	6283	92	B0-U0-G2	6454	94	B0-U0-G2	7071	103	B0-U0-G2	7363	107	B0-U0-G2	
	5W	70	8158	119	B3-U0-G2	8380	122	B3-U0-G2	9181	134	B3-U0-G2	9560	140	B4-U0-G2	
	FT	70	8337	122	B2-U0-G2	8563	125	B2-U0-G2	9382	137	B2-U0-G2	9769	143	B2-U0-G2	
	FT IL	70	5393	79	B0-U0-G2	5540	81	B0-U0-G2	6069	89	B0-U0-G2	6320	92	B0-U0-G2	
	FTA	70	8459	123	B2-U0-G2	8689	127	B2-U0-G2	9520	139	B2-U0-G2	9913	145	B2-U0-G2	
	FTA IL	70	6200	91	B1-U0-G1	6369	93	B1-U0-G1	6978	102	B1-U0-G1	7266	106	B1-U0-G1	
12L	2	70	11157	119	B2-U0-G2	11461	122	B2-U0-G2	12556	134	B3-U0-G2	13075	139	B3-U0-G2	94
	2 IL	70	6929	74	B1-U0-G1	7117	76	B1-U0-G2	7798	83	B1-U0-G2	8119	86	B1-U0-G2	
	3	70	11454	122	B2-U0-G2	11766	125	B2-U0-G2	12890	137	B2-U0-G2	13423	143	B2-U0-G2	
	3 IL	70	8396	89	B0-U0-G2	8625	92	B0-U0-G2	9449	101	B0-U0-G2	9839	105	B0-U0-G2	
	5W	70	10902	116	B4-U0-G2	11199	119	B4-U0-G2	12269	131	B4-U0-G2	12775	136	B4-U0-G2	
	FT	70	11141	119	B2-U0-G2	11444	122	B2-U0-G2	12538	133	B2-U0-G3	13055	139	B2-U0-G3	
	FT IL	70	7207	77	B0-U0-G2	7403	79	B0-U0-G2	8110	86	B0-U0-G2	8445	90	B0-U0-G2	
	FTA	70	11304	120	B2-U0-G2	11612	124	B2-U0-G2	12722	135	B2-U0-G2	13247	141	B2-U0-G2	
	FTA IL	70	8286	88	B1-U0-G1	8511	91	B1-U0-G1	9325	99	B1-U0-G1	9710	103	B1-U0-G1	
18L	2	70	16714	112	B3-U0-G3	17168	115	B3-U0-G3	18809	126	B3-U0-G3	19586	131	B3-U0-G3	150
	2 IL	70	10379	69	B1-U0-G2	10662	71	B1-U0-G2	11681	78	B1-U0-G2	12163	81	B1-U0-G2	
	3	70	17158	115	B2-U0-G3	17625	118	B2-U0-G3	19310	129	B3-U0-G3	20107	134	B3-U0-G3	
	3 IL	70	12578	84	B1-U0-G2	12920	86	B1-U0-G2	14155	95	B1-U0-G2	14739	99	B1-U0-G2	
	5W	70	16331	109	B4-U0-G2	16776	112	B4-U0-G2	18379	123	B4-U0-G2	19138	128	B5-U0-G3	
	FT	70	16689	112	B3-U0-G3	17143	115	B3-U0-G3	18781	126	B3-U0-G4	19557	131	B3-U0-G4	
	FT IL	70	10795	72	B1-U0-G2	11089	74	B1-U0-G2	12149	81	B1-U0-G3	12651	85	B1-U0-G3	
	FTA	70	16934	113	B3-U0-G3	17395	116	B3-U0-G3	19058	127	B3-U0-G3	19844	133	B3-U0-G3	
	FTA IL	70	12412	83	B1-U0-G1	12750	85	B1-U0-G2	13969	93	B1-U0-G2	14546	97	B1-U0-G2	
24L	2	70	20880	112	B3-U0-G3	22701	121	B4-U0-G3	24276	130	B4-U0-G3	24784	133	B4-U0-G3	187
	2 IL	70	13100	70	B1-U0-G2	14243	76	B1-U0-G2	15231	81	B1-U0-G2	15550	83	B1-U0-G2	
	3	70	21739	116	B3-U0-G3	23636	126	B3-U0-G4	25275	135	B3-U0-G4	25804	138	B3-U0-G4	
	3 IL	70	15828	85	B1-U0-G3	17209	92	B1-U0-G3	18403	98	B1-U0-G4	18788	100	B1-U0-G4	
	5W	70	20632	110	B5-U0-G3	22432	120	B5-U0-G3	23988	128	B5-U0-G3	24490	131	B5-U0-G3	
	FT	70	21611	116	B3-U0-G4	23496	126	B3-U0-G4	25126	134	B3-U0-G4	25652	137	B3-U0-G4	
	FT IL	70	13692	73	B1-U0-G3	14886	80	B1-U0-G3	15919	85	B1-U0-G3	16252	87	B1-U0-G3	
	FTA	70	21496	115	B3-U0-G3	23371	125	B3-U0-G3	24992	134	B3-U0-G3	25515	136	B3-U0-G3	
	FTA IL	70	15226	81	B1-U0-G2	16555	89	B1-U0-G2	17703	95	B2-U0-G2	18073	97	B2-U0-G2	
30L	2	70	26581	108	B4-U0-G3	28900	117	B4-U0-G3	30905	125	B4-U0-G3	31551	128	B4-U0-G3	247
	2 IL	70	16677	68	B1-U0-G2	18132	73	B1-U0-G2	19390	79	B1-U0-G2	19796	80	B1-U0-G2	
	3	70	27675	112	B3-U0-G4	30089	122	B3-U0-G4	32176	130	B3-U0-G4	32850	133	B3-U0-G4	
	3 IL	70	20150	82	B1-U0-G4	21908	89	B1-U0-G4	23428	95	B1-U0-G4	23918	97	B1-U0-G4	
	5W	70	26266	106	B5-U0-G3	28557	116	B5-U0-G3	30538	124	B5-U0-G4	31177	126	B5-U0-G4	
	FT	70	27512	111	B3-U0-G4	29912	121	B3-U0-G4	31987	130	B3-U0-G4	32656	132	B3-U0-G5	
	FT IL	70	17430	71	B1-U0-G3	18951	77	B1-U0-G4	20266	82	B1-U0-G4	20690	84	B1-U0-G4	
	FTA	70	27365	111	B3-U0-G3	29752	120	B4-U0-G3	31816	129	B4-U0-G3	32482	132	B4-U0-G3	
	FTA IL	70	19384	78	B2-U0-G2	21075	85	B2-U0-G2	22537	91	B2-U0-G2	23008	93	B2-U0-G2	
36L	2	70	32214	102	B4-U0-G3	35025	111	B4-U0-G3	37454	118	B4-U0-G3	38238	121	B4-U0-G4	317
	2 IL	70	20212	64	B1-U0-G2	21975	69	B1-U0-G3	23499	74	B2-U0-G3	23991	76	B2-U0-G3	
	3	70	33540	106	B3-U0-G4	36466	115	B3-U0-G5	38996	123	B3-U0-G5	39812	126	B3-U0-G5	
	3 IL	70	24421	77	B1-U0-G4	26551	84	B1-U0-G4	28393	90	B1-U0-G4	28987	92	B1-U0-G5	
	5W	70	31832	101	B5-U0-G4	34609	109	B5-U0-G4	37010	117	B5-U0-G4	37785	119	B5-U0-G4	
	FT	70	33342	105	B3-U0-G5	36251	114	B3-U0-G5	38766	122	B4-U0-G5	39577	125	B4-U0-G5	
	FT IL	70	21125	67	B1-U0-G4	22968	73	B1-U0-G4	24561	78	B1-U0-G4	25075	79	B1-U0-G4	
	FTA	70	33164	105	B4-U0-G3	36058	114	B4-U0-G4	38559	122	B4-U0-G4	39366	124	B4-U0-G3	
	FTA IL	70	23492	74	B2-U0-G2	25541	81	B2-U0-G2	27313	86	B2-U0-G2	27885	88	B2-U0-G2	
42L	2	70	36785	94	B4-U0-G3	39994	103	B5-U0-G4	42768	110	B5-U0-G4	43663	112	B5-U0-G4	390
	2 IL	70	23079	59	B1-U0-G3	25093	64	B2-U0-G3	26833	69	B2-U0-G3	27395	70	B2-U0-G3	
	3	70	38299	98	B3-U0-G5	41640	107	B4-U0-G5	44528	114	B4-U0-G5	45460	117	B4-U0-G5	
	3 IL	70	27886	72	B1-U0-G4	30319	78	B1-U0-G5	32422	83	B1-U0-G5	33100	85	B1-U0-G5	
	5W	70	36349	93	B5-U0-G4	39520	101	B5-U0-G4	42261	108	B5-U0-G4	43145	111	B5-U0-G4	
	FT	70	38073	98	B4-U0-G5	41395	106	B4-U0-G5	44266	114	B4-U0-G5	45192	116	B4-U0-G5	
	FT IL	70	24122	62	B1-U0-G4	26226	67	B1-U0-G4	28045	72	B1-U0-G4	28632	73	B1-U0-G4	
	FTA	70	37870	97	B4-U0-G4	41174	106	B4-U0-G4	44030	113	B4-U0-G4	44951	115	B4-U0-G4	
	FTA IL	70	26825	69	B2-U0-G2	29165	75	B2-U0-G2	31188	80	B2-U0-G2	31841	82	B2-U0-G2	

*LED Chips are frequently updated therefore values are nominal

Specifications and dimensions subject to change without notice.

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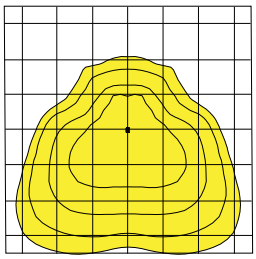
Performance (Cont.)

All published luminaire photometric testing performed to IESNA LM-79 standards. ISO footcandle plots below demonstrate the Slice (SLM) light patterns only. Not for total fixture output. For complete specifications and IES files, see website.



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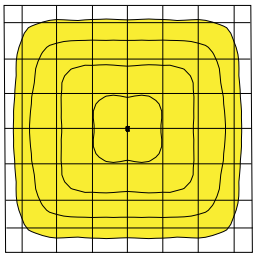

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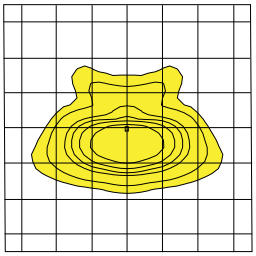

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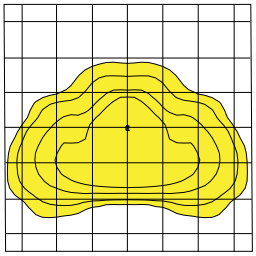
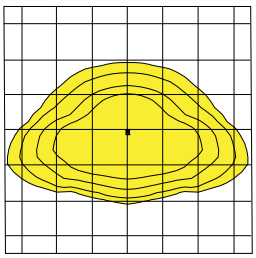


Type 3



Type 2

Ordering Guide

TYPICAL ORDER EXAMPLE: **SLM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL**

Luminaire Prefix	Light Source	Lumen Package*	Light Output	Distribution	Orientation[1]	Voltage	Driver
SLM Slice Medium	**LED**	**9L** - 9,000 lms **12L** - 12,000 lms **18L** - 18,000 lms **24L** - 24,000 lms **30L** - 30,000 lms **36L** - 36,000 lms **42L** - 42,000 lms *Consult factory for programmable wattages and lumen packages	**SIL** - Silicone	**2** - Type 2 **3** - Type 3 **5W** - Type 5 Wide **FT** - Forward Throw **FTA** - Forward Throw Automotive	**(blank)** - standard **L**- Optics rotated left 90 **R** - Optics rotated right 90	**UNV** - Universal Voltage (120-277V) **HV** - High Voltage (347-480V)	**DIM** - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Controls (Choose One)	Finish	Options
50 - 5,000 CCT **40** - 4,000 CCT **30** - 3,000 CCT[2] **27** - 2,700 CCT[2] **AMB** - Phosphor Converted Amber[2,3]	**70CRI** - 70 CRI	**(Blank)** - None **Wireless Controls System** **ALSC** - AirLink Synapse Control System [4] **ALSCH** - AirLink Synapse Control System Host / Satellite [4,5] **ALSCS01** - AirLink Synapse Control System with 8-12' Motion Sensor [4] **ALSCHS01** - AirLink Synapse Control System Host / Satellite with 8-12' Motion Sensor [4,5] **ALSCS02** - AirLink Synapse Control System with 12-20' Motion Sensor [4] **ALSCHS02** - AirLink Synapse Control System Host / Satellite with 12-20' Motion Sensor [4,5] **ALSCS04** - AirLink Synapse Control System with 20-40' Motion Sensor [4] **ALSCHS04** - AirLink Synapse Control System Host / Satellite with 20-40' Motion Sensor [4,5] **Stand-Alone Controls** **EXT** - 0-10V Dimming leads extended to housing exterior **CR7P** - 7 Pin Control Receptacle ANSI C136.41 [7] **IMSBT1-** Integral Bluetooth™ Motion and Photocell Sensor max 8-24' mounting height [4, 6] **IMSBT2-** Integral Bluetooth Motion and Photocell Sensor max 25-40' mounting height [4, 6] **Button Type Photocells** **PCI120** - 120V **PCI208-277** - 208 -277V **PCI347** - 347V	**BRZ** - Bronze **BLK** - Black **GPT** - Graphite **MSV** - Metallic Silver **WHT** - White **PLP** - Platinum Plus **SVG** - Satin Verde Green	**(Blank)** - None **IL** - Integral Louver HSS[1]

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Accessory Ordering Information[8]

Description	Order Number	Description	Order Number
PC120 Photocell for use with CR7P option (120V)[9]	122514	DFK480 Double Fusing (480V)	DFK480
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V)[9]	122515	DFK347 Double Fusing (347V)	DFK347
PC347 Photocell for use with CR7P option (347V)[9]	159516	X5RPP - Round Pole Adapter for 5" Poles[10]	379968CLR
PC480 Photocell for use with CR7P option (480V)[9]	1225180	IL - Integral Louver HSS	684812
ALSC UNV TL5 - Airlink 5Pin Twist Lock Controller[4,9]	661409	Universal Mounting Bracket (UMB)[10]	684616CLR
ALSC UNV TL7 - Airlink 7Pin Twist Lock Controller[4,9]	661410	Adjustable Slip Fitter (ASF)[10]	688138CLR
PMOS24 - 24V Pole-Mount Occupancy Sensor (ALSC/H Compatible)[10]	663284CLR	Pole Quick Mount Bracket - Square Pole[10]	687073CLR
X3RPP - Round Pole Adapter for 3" Round Tapered Poles[10]	408273CLR	Pole Quick Mount Bracket - 4-5" Round Pole[10]	689903CLR
X4RPP - Round Pole Adapter for 4" Poles[10]	379967CLR	15° Tilt Pole Quick Mount Bracket - Square Pole[10]	688003CLR
FK120 Single Fusing (120V)	FK120	15° Tilt Pole Quick Mount Bracket - 4-5" Round Pole[10]	689905CLR
FK277 Single Fusing (277V)	FK277	BKS XBO WM CLR Wall Mount Bracket[10]	382132CLR
DFK208, 240 Double Fusing (208V, 240V)	DFK240		

FOOTNOTES:
1 - Not available on "Type 5W" distribution.
2 - Consult Factory for availability.
3 - Only available in 9L and 12L Lumen Packages
4 - Not available in HV.
5 - Consult Factory for Site Layout
6 - IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
7 - Control device must be ordered separately. 7 pin standard. See Accessory Ordering Information.
8 - Accessories are shipped separately and field installed.
9 - Factory installed CR7P option required. See Options.
10 - "CLR" denotes finish. See Finish options.

Accessories/Options

Integral Louver (IL)

Accessory Integral Louver available for improved back-light control without sacrificing street side performance. LSI's Integral Louver (IL) option delivers backlight control that significantly reduces light spill behind the pole for applications with pole locations close to adjacent properties. The integrated louvers' design maximizes forward-reflected light while - reducing glare, maintaining the optical distribution selected, and most importantly, eliminating light trespass. The Integral louver rotates with the optical distribution.

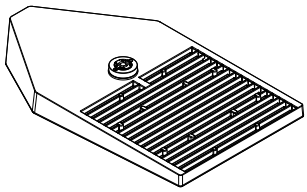
Luminaire Shown with Integral Louver (IL)

Luminaire Shown with IMSBT Option

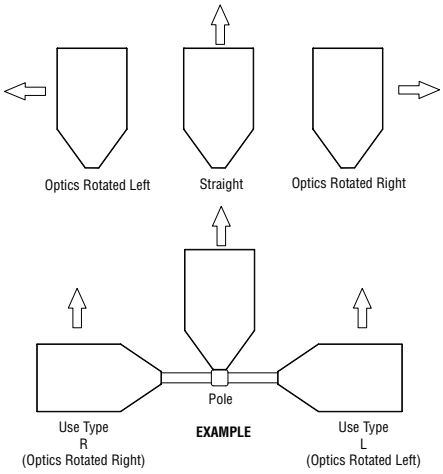
7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Fixture Shown with CR7P



Optics Rotation



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Slice Medium - SLM
Outdoor LED Area Light

Stand-alone Controls: Integral Bluetooth™ Motion and Photocell Sensor (IMSBT)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is rated for cold and wet locations (-30 degrees C to 70 degrees C). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Operation Modes

Dusk to Dawn operation via integral photocell switches lights on and off based on the ambient light levels. In this mode the lights remain on all night even with no motion in the area.

Dimming operation turns the lights on to the selected high level when motion is detected and the ambient light level is below the hold off set point. Once the sensor stops detecting motion and the time delay elapses, the lights will go to the low level. If no motion is detected during the cut off time delay period the lights will completely turn off or stay on at the low level depending on settings.

Configurations

- Initial setup and later adjustments made via iOS and Android App.
- Sensor settings are stored and maintained in the event of a power failure.

Motion Level - fully adjustable from 0-100% with default at 100%. Motion Level is defined as when the sensor detects motion the dimming control output goes to the selected high light level.

Dim Level - fully adjustable from off, 0-100% with default at 50%. Dim level is defined as when the sensor stops detecting motion and the time delay expires the dimming control output goes down to the selected low light level.

Time Delay 1 - adjustable from 1 sec to 1 hour and 45 minutes with default 5 minutes. Time delay is defined as the time period that must elapse after the last time the sensor detects motion for the lights to go to low light level.

Time Delay 2 - the time period that must elapse after the lights go to low light level and the sensor detects no motion for the lights to turn off. This feature may be enabled or disabled. If disabled there is no cut off and the lights stay in the low light level. Adjustable from 1 sec to 8 hours and 59 minutes with default set at 10 minutes.

Sensor sensitivity – the response of the PIR detector to motion within the sensor's coverage area. Adjustable from low, medium, high. Default setting is low.

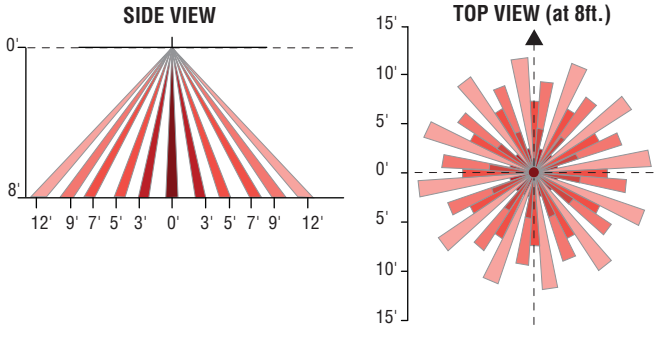
Ambient Light – when the light level exceeds this setting the lights will turn off even if motion is detected. When the light level goes below the setting the lights will turn on even if no motion is detected. A switch will allow you to enable or disable this feature. ON <30 LUX, OFF >100 LUX.

Sensor Configuration App

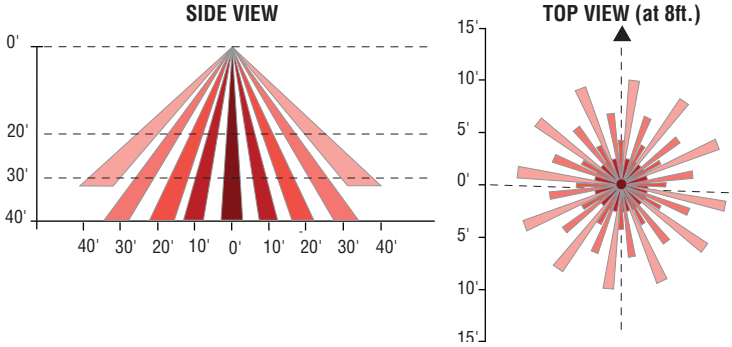
- Range up to 65 ft. outdoor line of sight
- iOS11 or later
- Android 6.0 or later
- Password protected.
- Sensor profiles used for setting up parameters one time and then applying the profile to different sensors requiring the same settings.

IMSBT Coverage Diagrams

IMSBT1



IMSBT2



Configuration App

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Slice Medium - SLM
Outdoor LED Area Light

AirLink™ enabled by Synapse®

The AirLink enabled by Synapse Wireless Lighting Control System is the perfect solution for commercial, industrial and municipal applications, such as: auto dealerships, parking lots, garages, shopping complexes and warehouses.

AirLink utilizes robust wireless communication via 2.4 GHz Self-Healing Mesh Network which not only increases reliability and accuracy of system, but also eliminates single point of failure.

The flexibility of the system make it perfect for new construction and retrofit projects. The user-friendly AirLink web application is accessible through any device with an internet connection and allows for complete customization of the system's features.

Some capabilities of the system include: occupancy/vacancy sensing, daylight harvesting, scheduling, high-end trim, dimming, zone control, BMS integration and energy monitoring.

The AirLink System

Wireless controls & sensors

Wireless & Override Switches

Occupancy/Vacancy & Daylight Sensors

AirLink-integrated Fixtures

AirLink-compatible Fixtures

Circuit & Zone Controllers

Centralized control & integration

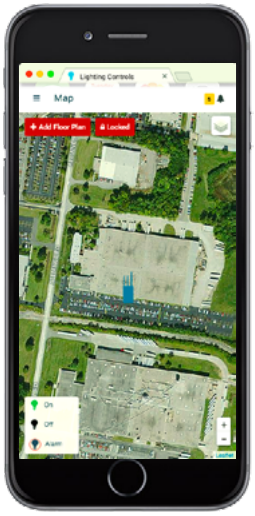
Site Manager Controller

Gateway Module

BACnet®

WiFi, Cellular or Ethernet Connection

Simple-to-use software



AirLink Site Manger: Lighting control web app

Contact LSI Controls

Sales
controls.sales@lsi-industries.com

Support
controls.support@lsi-industries.com
1 (800) 436-7800 (support, option 8)

More information
For more information on AirLink, visit our website at **www.lsi-airlink.com**

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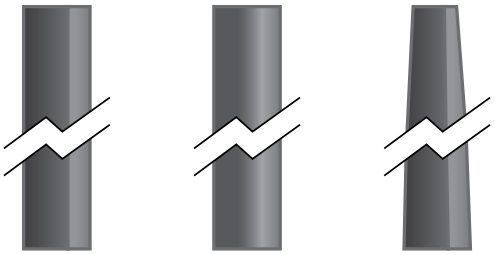
Poles and Brackets

LSI offers a full line of poles and mounting accessories to complete your lighting assembly. Aluminum and steel in both square and round shafts. In addition, LSI offers round tapered, fluted and hinge based poles. Designed and engineered for durability and protected with our oven baked DuraGrip Protection System. Also available with our DuraGrip+ Protection system for unmatched corrosion resistance and an extended warranty. American made in our Ohio facility with industry leading lead times.



Square Pole
14'-39'

Round Pole
10'-30'

Tapered Pole
20'-39'

BKA UMB CLR

The 3G rated UMB allows for seamless integration of LSI luminaires onto existing/ retrofit or new construction poles. The UMB was designed for square or round (tapered or straight) poles with two mounting hole spacings between 3.5" – 5".

BKA ASF CLR

The adjustable Slip Fitter is a 3G rated rugged die cast aluminum adapter to mount LSI luminaires onto a onto a 2" iron pipe , 2 3/8 OD tenon. The Adjustable Slip Fitter can be rotated 180° allowing for tilting LSI luminaires up to 45° and 90° when using a vertical tenon.

BKS PQMH CLR

The Pole Quick Mount Bracket allows for lightning fast installation of LSI luminaires onto existing and new construction poles with LSI's B3 or B5 standard pole bolt patterns.

BKS PQM15 CLR

The Pole Quick Mount Bracket allows for preset 15° uptilt of LSI luminaires for greater throw of light and increased vertical illumination as well as fast installation onto poles with LSI's 3" or 5" bolt pattern.

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LED CANOPY LIGHT - LEGACY™ (CRUS)

AC distribution utilizes a reflector which alters the look from a standard S distribution

DOE LIGHTING FACTS

Department of Energy has verified representative product test data and results in accordance with its Lighting Facts Program. Visit www.lightingfacts.com for specific catalog strings.

US & Int'l. patents pending.

HOUSING - Low profile, durable die-cast, aluminum construction, providing a reliable weather-tight seal.

LEDS - Features an array of select, mid-power, high brightness, high efficiency LED chips; 5000K color temperature, 70 CRI (nominal).

DRIVE CURRENT - Choice of Very Low Wattage (VLW), Low Wattage (LW), Super Saver (SS), High Output (HO) or Very High Output (VHO).

OPTICS / DISTRIBUTION - Choice of Symmetrical or Asymmetrical, which directs light through a clear tempered glass lens, to provide a uniform distribution of light to vertical and horizontal surfaces.

OPTICAL UNIT - Features an ultra-slim 7/8" profile die-cast housing, with a flat glass lens. Unit is water-resistant, sealed to an IP67 rating. Integral designed heat sink does not trap dirt and grime, ensuring cool running performance over the life of the fixture.

PRESSURE STABILIZING VENT - Luminaire assembly incorporates a pressure stabilizing vent breather to prevent seal fatigue and failure.

HAZARDOUS LOCATION - Designed for lighter than air fuel applications. Product is suitable for Class 1 Division 2 only when properly installed per LSI installation instructions (consult factory).

DRIVER - State-of-the-art driver technology superior energy efficiency and optimum light output. Driver components are fully encased in potting for moisture resistance. Complies with IEC and FCC standards. 0-10 V dimming supplied standard with all drive currents.

DRIVER HOUSING - Die-cast aluminum, wet location rated driver/electrical enclosure is elevated above canopy deck to prevent water entry, provide easy "knock-out" connection of primary wiring and contributes to attaining the lowest operating temperatures available. Seals to optical housing via one-piece molded silicone gasket.

OPERATING TEMPERATURE - -40°C to 50°C (-40°F to +122°F)

ELECTRICAL - Universal voltage power supply, 120-277 VAC, 50/60 HZ input. Drivers feature two-stage surge protection (including separate surge protection built into electronic driver) meets IEEE C62.41.2-2002, Scenario 1, Location Category C.

FINISH - Standard color is white and is finished with LSI's DuraGrip® polyester powder coat process. DuraGrip withstands extreme weather changes without cracking or peeling.

INSTALLATION - One person installation. No additional sealant required. Installs in a 12" or 16" deck pan. Deck penetration consists of a 4" hole, simplifying installation and water sealing. Unit is designed to quickly retrofit into existing Scottsdale (4") hole as well as openings for Encore and Encore Top Access and to reconnect wiring for the SC/ECTA without having to relocate the conduit. Retro panels are available for existing Encores (see back page) as well as kits for recessed and 2x2 installations (see separate spec sheets). Support brackets are provided standard, to prevent sagging of deck.

SHIPPING WEIGHT - 27 pounds (single pack), 48 pounds (double pack).

EXPECTED LIFE - Minimum 60,000 to 100,000 hours depending upon the ambient temperature of the installation location. See LSI web site for specific guidance.

WARRANTY - Limited 5-year warranty.

LISTING - UL and ETL listed to UL 1598, UL 8750 and other U.S. and International safety standards. Suitable for wet locations.

PHOTOMETRICS - Please visit our web site at **www.lsi-industries.com** for detailed photometric data.

Consult Factory

Class 1, Division 2 – Available on LW and SS

T5 Temperature Classification – The surface temperature of this product will not rise above 100˚C., within a 40˚C ambient.

Gas Groups A,B,C, and D – Group A: Acetylene / Group B: Hydrogen / Group C: Propane and Ethylene / Group D: Benzene, Butane, Methane & Propane.

This product, or selected versions of this product, meet the standards listed below. Please consult factory for your specific requirements.

RoHS COMPLIANT · Intertek wet location · IP67 · c UL us LISTED · DLC OPEN LISTED

Project Name _____ Fixture Type FIXTURE SG

Catalog # CRUS-SC-LED-LW-50-UE-WHT

07/22/19

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LED CANOPY LIGHT - LEGACY™ (CRUS)

LUMINAIRE ORDERING INFORMATION

TYPICAL ORDER EXAMPLE: **CRUS SC LED HO 50 UE WHT**

Prefix	Distribution[1]	Light Source	Drive Current	Color Temperature	Input Voltage	Finish	Options
CRUS	SC - Standard Symmetric AC - Asymmetric	LED	VLW - Very Low Watt LW - Low Watt SS - Super Saver HO - High Output VHO - Very High Output	50 - 5000K	UE - Universal Voltage (120-277V) 347 - 480V	WHT - White BRZ - Bronze BLK - Black	HL - Hazardous location available on LW and SS

FOOTNOTES:
1- AC distribution utilizes a reflector which alters the look from a standard S distribution.

ACCESSORY ORDERING INFORMATION

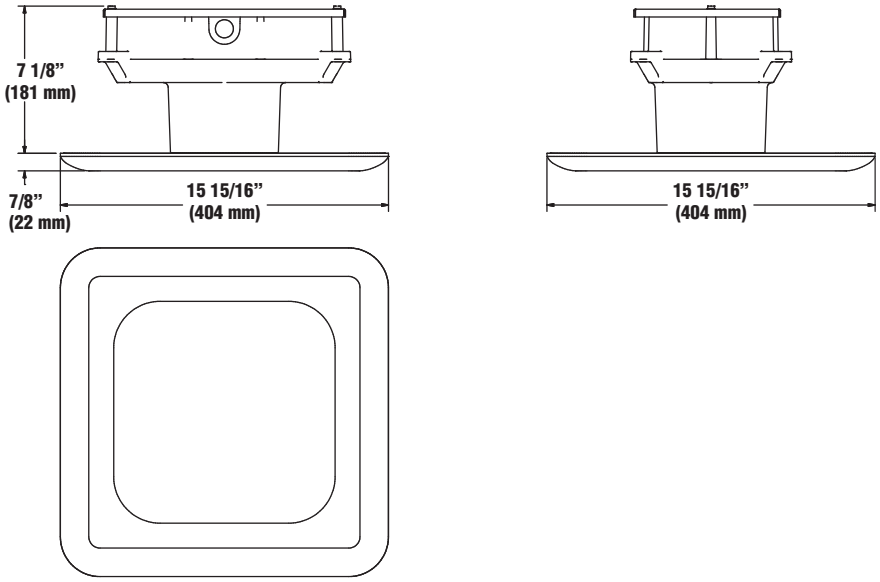
(Accessories are field installed)

Description	Order Number
Retrofit Panels - EC / ECTA / SCF to CRU, for 16" Deck Panel	525946
Retrofit Panels - ECTA / SCF to CRU, for 12" Deck Panel	530281
Retrofit 2x2 Cover Panel Blank (no holes)	357282
Retrofit RIC Cover Panel Blank (no holes)	354702

Description	Order Number
Kit - Hole Plugs and Silicone (enough for 25 retrofits)[1]	1320540

1- Consists of (25) 7/8" hole plugs and (1) 10.3 oz tube of RTV

DIMENSIONS



LIGHT OUTPUT - CRUS

		Lumens		Watts	LPW	
		SC	AC	SC/AC	SC	AC
Cool White	VLW - Very Low Watt	9055	7632	61	148	125
	LW - Low Watt	10525	8884	74	142	120
	SS - Super Saver	13674	11595	98	140	118
	HO - High Output	18633	15145	132	141	115
	VHO - Very High Output	22418	17262	159	141	109

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Appendix C

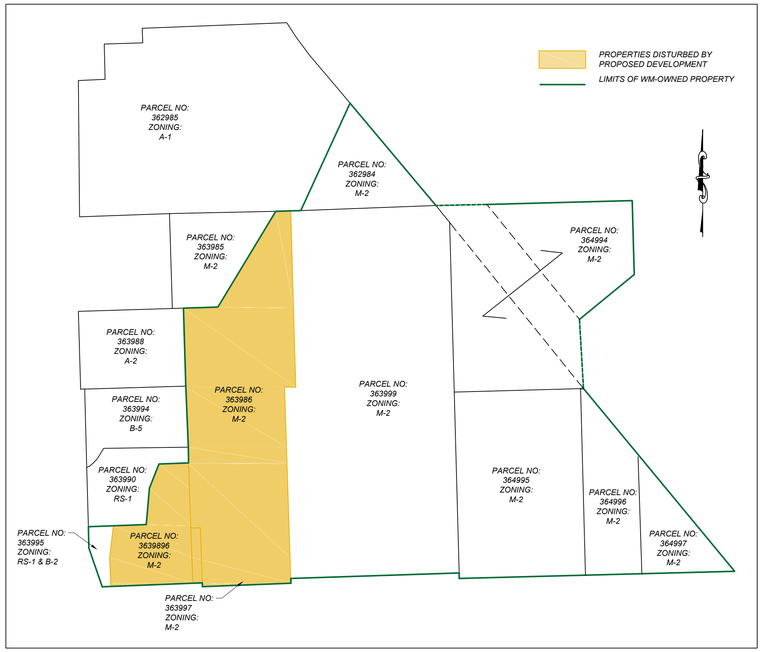
Plan Sheets

Truck Maintenance Facility – Plan Sheets for Waste Management of Wisconsin, Inc. in Germantown, WI

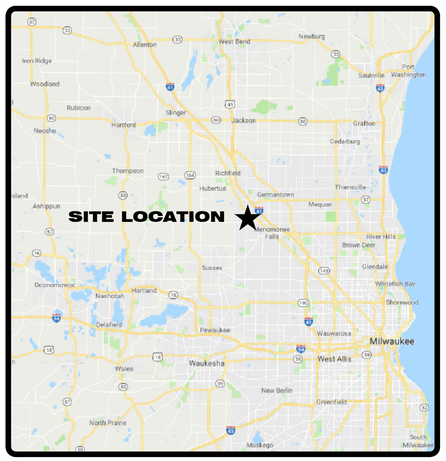
PLANS FOR:

WASTE MANAGEMENT TRUCK MAINTENANCE FACILITY

N96 W13840 COUNTY LINE RD.
GERMANTOWN, WI 53022



ADJACENT PROPERTY ZONING MAP:
SCALE: 1" = 500'



LOCATION MAP
GERMANTOWN

SITE MAP
SCALE: 1" = 200'

ISSUED FOR PERMIT 02/28/2020

DRAWING INDEX:

GENERAL		**CIVIL (cont.)**	
G1.0	COVER	C2.5	STORM SEWER NOTES & TYPICAL DETAILS
		C3.0	STORM WATER MANAGEMENT DRAINAGE MAP
CIVIL		C3.1	STORM WATER MANAGEMENT PLAN
C1.0	SYMBOLS LEGEND & GENERAL NOTES	C3.2	SWM NOTES & TYPICAL DETAILS
C1.1	EXISTING CONDITIONS PLAN		
C1.2	SITE DEMOLITION PLAN	**LANDSCAPING**	
C1.3	SITE IMPROVEMENT PLAN	L1.0	SITE LANDSCAPING PLAN
C1.4	ENLARGED SITE IMPROVEMENT PLAN	L2.0	LANDSCAPING DETAILS
C1.5	SITE GRADING PLAN		
C1.6	ENLARGED SITE GRADING PLAN	**EXHIBITS**	
C1.7	SITE UTILITY PLAN	X1.0	SITE PHOTOMETRIC PLAN
C1.8	SITE SANITARY PLAN AND PROFILE	X1.1	SITE FENCING EXHIBIT
C1.9	SITE WATER PLAN AND PROFILE	X1.2	SITE SNOW REMOVAL EXHIBIT
C1.10	HARD SURFACE KEY PLAN BASE BID	X1.3	SITE ZONING MAP
C1.11	HARD SURFACE KEY PLAN ALT BID	X2.0	EROSION CONTROL PLAN - PHASE I
C1.12	SITE STORM SEWER OVERALL PLAN	X2.1	EROSION CONTROL PLAN - PHASE II
C1.13	STORM SEWER PLAN & PROFILE	X2.2	EROSION CONTROL PLAN - PHASE III
C1.14	STORM SEWER PLAN & PROFILE	X2.3	EROSION CONTROL PLAN - PHASE IV
C1.15	WEST WET POND PLAN	X2.4	EROSION CONTROL PLAN - PHASE V
C1.16	NORTH WET POND PLAN		
C1.17	WET POND DETAILS	**ARCITECTUAL**	
C2.0	GENERAL DETAILS	A1.0	EXTERIOR ELEVATIONS
C2.1	GENERAL DETAILS	A1.1	OVERALL FLOOR PLANS
C2.2	SANITARY NOTES & TYPICAL DETAILS	A1.2	ENLARGED FLOOR PLAN (MAINTENANCE BAYS)
C2.3	WATERLINE NOTES & TYPICAL DETAILS	A1.3	ENLARGED FLOOR PLAN (OFFICE)
C2.4	WATERLINE NOTES & TYPICAL DETAILS	A1.4	CNG TRUSS STRUCTURE TYPICAL DETAIL

PROJECT CONTACTS:

CIVIL ENGINEER:

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS

DIVERSIFIED ENGINEERING INC.
NICK BERNER, P.E.
175 RAY AVE NE
NEW PHILADELPHIA, OH 44663
PHONE: (330) 364-1631
EMAIL: nberner@div-eng.com

OWNER:

WM WASTE MANAGEMENT

WASTE MANAGEMENT OF WISCONSIN, INC.
DONALD SMITH, P.E.
W132 N10487 GRANT DR.
GERMANTOWN, WI 53022
PHONE: (262) 250-8700
EMAIL: dasmith@wm.com

SITE INFORMATION:

PARCEL NO 1:		**PARCEL NO. 2:**		**FEMA:**	
TAX KEY	GTNV_363996	TAX KEY	GTNV_363986	COMMUNITY NUMBER:	550472
ZONING	M2	ZONING	M2	PANEL #:	0379
TOTAL ACREAGE	8.15 AC.	TOTAL ACREAGE	35.63 AC.	SUFFIX:	D
				DATE OF FIRM:	11/20/2013
				FIRM ZONE:	A
				BFE:	769 FT.

BENCHMARKS:

WASHINGTON COUNTY BENCH MARK NO.	102
DATUM:	NATIONAL GEODETIC VERTICAL DATUM OF 1929
ELEVATION:	766.809
DETAILED DESCRIPTION:	BENCHMARK 102 IS A CHISELED SQUARE SET IN THE TOP OF THE EASTERLY 60-INCH-DIAMETER CONCRETE CULVERT PIPE

LEGAL DESCRIPTION:

PARCEL NO. 1: (363996)
LOT 2 - CSM4247 V28 P30 PT OF SW SW V1013 P676 SEC 36-9-20 8.15 AC.

PARCEL NO. 2: (363986)
PT NW SW V747 P264 EXC PT SOLD SEC 36-9-20

ISSUE DATE 02/28/2020 | SCALE NA | CTR INT. --
SURVEYED BY COM | CHECKED BY MHS
DRAWN BY CRK/LDB/SW | APPROVED BY MJB

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663
Phone: (330) 364-1631
Fax: (330) 364-1633
e-mail: dei@dei-eng.com
Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: COVER SHEET

SHEET NO: G1.0

JOB NO: ENG-1465

E:\Data Files\ENGINEERING\Civil\WM Maintenance Fcls, WI (Existing Facility)\Submissions Plans Rpts\Plans\Sht 00_WM Maintenance Sht Plan Plans Rpt Submittal.dwg, 2/28/2020 8:31 AM

ABBREVIATIONS

R/W	- Right-of-Way
P/L	- Adjoiner Property Line
℄	- Centerline
P.O.B.	- Place/Point of Beginning
P.O.C.	- Place/Point of Commencement
Rad	- Radius
Arc	- Arc Length
Δ	- Delta Angle
ChL	- Chord Length
ChB	- Chord Bearing
Calc.	- Calculated
Msd.	- Measured
Dd.	- Deed
(Record)	- Actual
N.R.D.	- No Recorded Distance
F.F.E.	- Finished Floor Elevation
CMP	- Corrugated Metal Pipe
DI	- Ductile Iron
HDPE	- High Density Polyethylene
PVC	- Polyvinyl Chloride
RCP	- Reinforced Concrete Pipe
VCP	- Vitrified Clay Pipe

LINEWORK

- Guardrail
- Fence (As Noted)
- Wood Fence (As Noted)
- Steel Fence (As Noted)
- Sanitary Sewer
- Storm Sewer
- Water Line
- Underground Gas Pipeline
- Underground Electric
- Underground Lighting
- Underground Telephone
- Underground Cable T.V.
- Underground Fiberoptics
- Overhead Utilities
- Gravel Area
- Concrete Area
- No Parking Area
- Building Area
- 1' Elevation Contour
- 5' Elevation Contour

STANDARD/ROADWAY

- Iron Pin Set
- Drill Hole or Railroad Spike Set
- Iron Pin Found
- Iron Pipe Found
- Monument Found as Noted
- Stone Monument Found
- Monument Box
- Sign
- Air Condition Unit
- Monitoring Well
- Bollard Post
- Parking Meter
- Air Pump
- Bollard Light / Ground Light
- Grease Trap
- Ground Light
- Mail Box
- Basketball Hoop
- Gate Entry Key Pad
- Flag Pole
- Interstate Highway
- United States Highway
- State Highway
- County Highway

UTILITIES

- Manhole
- Storm Manhole
- Curb Inlet Basin w/ Grate
- Catch Basin
- Storm Vault
- Cleanout
- Sanitary Manhole
- Sanitary Vault
- Water Stand Pipe
- Fire Hydrant
- Post Indicator Valve
- Water Valve
- Water Meter
- Water Manhole
- Water Backflow Preventer
- Water Vault
- Water Curb Box
- Gas Meter
- Gas Valve
- Gas Curb Box
- Fiberoptic Manhole
- Cable T.V. Pedestal
- Electric Meter
- Electric Transformer
- Electric Manhole
- Electric Vault
- Telephone Pedestal
- Telephone Manhole
- Telephone Booth
- Telephone Vault
- Traffic Vault
- Signal Pull Box
- Power Pole
- Traffic Pole
- Telephone Pole
- Flag Pole
- Light Pole
- Guy Wire
- Utility Vault
- Underground Utility Marker
- Vacuum
- Unknown Valve

ALTA/MISC

- Encroachment
- Easement Circle
- Easement Alt. 1
- Easement Alt. 1
- Label 1
- Label 2
- Regular Parking Count / Handicap Parking Count
- Handicap Space

GENERAL PLAN NOTES:

1. All necessary preventative measures will be taken to keep damage from occurring to adjacent structures such as utilities, tree, poles, structures, and private property during the progress of this work. Any and all damages that occur due to construction activities shall be repaired or replaced by the contractor at no expense to the owner.
2. All material excavated or used in the laying of the pipe will be located and stockpiled in a way not to endanger the public, the personnel on the job, or block natural drainage patterns.
3. DEWATERING:
   Contractor is responsible for any and all necessary dewatering activities for any excavation.
4. ROOF DRAIN NOTE:
   Roof drains, foundation drains, and other clean water connections to sanitary sewer system are strictly prohibited.
5. NOTIFICATION:
   Any time utilities are involved, other than city water and sewer, notify One Call prior to excavation.
6. EROSION CONTROL:
   Contractor to allow no silt or erosion to enter existing/proposed storm sewer system or water courses during construction phase. Contractor shall use erosion control measures such as inlet filters and ditch check dams in accordance with D.O.T. Specifications.
7. All grass areas to be disturbed shall have topsoil removed and stockpiled prior to excavation. Upon completion of construction, a 6" minimum of topsoil shall be replaced, then seeded and mulched (in accordance with D.O.T. Specifications). All disturbed areas are to be graded to have positive drainage.
8. Underground utilities were plotted from records and field observations and actual locations may deviate from the plans. Contractor shall be responsible for verifying location of all underground utilities within the project area.
9. Contractor shall exercise caution within and adjacent to his work areas so as not to damage existing facilities. Any facilities that are damaged due to the contractors operations shall be repaired or replaced by the contractor to original or better condition at no expense to the owner.
11. TRACKING OF MUD UPON PUBLIC WAYS
    It shall be the duty of the contractor to supervise the handling of all traffic entering and leaving the work area to prevent mud or debris of any nature from being tracked onto the sidewalks and streets of the city.
12. MATERIAL DISPOSAL
    The contractor shall not dump any waste materials on the Owner's property without the written permission of the Owner, or another property without the written permission of the owner or lessor thereof. When such permission is granted, dumping shall be subject to regulations prescribed by the Engineer.
13. PROTECTION OF TREES
    All trees within the construction area not specified for removal are to be protected by the contractor. Care shall be taken to ensure the the roots are not cut. The contractor shall be responsible for replacing any damaged trees of the same size and kind as damaged. Damaged tree branches shall be properly trimmed immediately after damage.
14. CONCRETE PROTECTIONS
    The contractor shall protect the finish of all freshly placed concrete from vandalism until the concrete has taken its initial set. The contractor shall be responsible for any damage to the concrete finish caused by vandals due to his or her failure to protect the concrete.
15. UNDERGROUND STORAGE TANKS
    All existing underground tanks must be removed or closed by a certified tank system remover-cleaner. The certified remover will clean out and remove the tank, properly dispose of the removed waste material and tank, and complete the paperwork required by the DATCP Bureau of Weights and Measures. In the event any petroleum leakage or spillage is observed during the UST removal process, contractor shall notify the engineer/owner immediately. In the event the spill observed is in need of an urgent response, certified remover shall notify local fire department and the Department of Natural Resources (DNR).

MAINTENANCE OF TRAFFIC:

1. Contractor shall submit a maintenance of traffic plan to Waste Management, Maintenance Supervisor and Diversified Engineering for review and approval 15 days prior to start of work.
2. Contractors maintenance of traffic plan shall be in accordance with D.O.T. Specifications.
3. The contractor shall furnish and maintain all necessary safeguards such as barricades, satisfactory barriers, lighting, flaggers, and such other traffic control devices as provided in D.O.T. Specifications.
4. All construction traffic control signs used for the project shall conform to the current "Manual of Uniform Traffic Control Devices" and shall be provided, erected, and maintained by the contractor.

CALL BEFORE YOU DIG !
WISCONSIN LAW REQUIRES EXCAVATORS TO NOTIFY THE PROTECTION SERVICE AT LEAST THREE (3) BUSINESS DAYS BUT NOT MORE THAN TEN (10) CALENDAR DAYS PRIOR TO EXCAVATION

Wisconsin One Call Notification Center
www.diggershotline.com
811 or 1-800-242-8511

ISSUE DATE 02/28/2020 | SCALE N.T.S. | CTR INT. -
SURVEYED BY | CHECKED BY | KJB
DRAWN BY COM | APPROVED BY | MJS
DSW

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

Diversified Engineering Inc.
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175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663
Phone: (330) 364-6631
Fax: (330) 364-6651
e-mail: dei@dei-eng.com
Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: SYMBOLS LEGEND & GENERAL NOTES

SHEET NO: **C1.0**

JOB NO: ENG-1465

J:\Jobs\Jobs (Active)\ENG\ENG-1465 WM Investment Grp - WI (Boring Facility)\Construction Docs\Site Plans, Re-Submittal (Dec '20)_WM Comments Mr Site Plans Revised.dwg, 12/9/2020 8:31 AM

EXISTING CONDITIONS PLAN

Scale: 1" = 100'

NORTH

Scale: 1 in. = 100 ft.

0' 100' 200' 300'

Graphic Scale

LEGEND:

- *Wetland Boundary, per CSM performed by CQM, Inc.*
- *Wetland Boundary 25' Offset, per CSM performed by CQM, Inc.*
- *Nor-X-Way Centerline, per CSM performed by CQM, Inc.*
- *Nor-X-Way 75' offset, per CSM performed by CQM, Inc.*
- *FEMA Flood Zone AE - Map Number 55131C0379D, per CSM performed by CQM, Inc.*

GENERAL NOTES:

A. *All existing utilities are shown herein as reference only and are based on record of the various utility companies and a field survey. Contractor is responsible for determining the exact locations of all utilities prior to any construction activities.*

B. *All existing conditions, topography, utilities, and property information are taken from a survey of land situated in the Village of Germantown, State of Wisconsin, by surveyors: Construction Quality Management, Inc., 2679 Continental Drive, Green Bay, WI. 54311. ph: (920) 465-3911, fx: (920) 465-3913.*

C. *All existing wetland information per wetland delineation by Thompson & Associates Wetland Services (June, 2019) and field locations verified by Construction Quality Management, Inc.*

ISSUE DATE	02/26/2020
SCALE	1" = 100'
SURVEYED BY	CQM
DRAWN BY	DSW
CHECKED BY	
APPROVED BY	
CTR INT.	2"
	KJB
	MJB

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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Web: www.dei-eng.com

PROJECT: WASTE MANAGEMENT

TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: EXISTING CONDITIONS PLAN

SHEET NO: C1.1

JOB NO: ENG-1465

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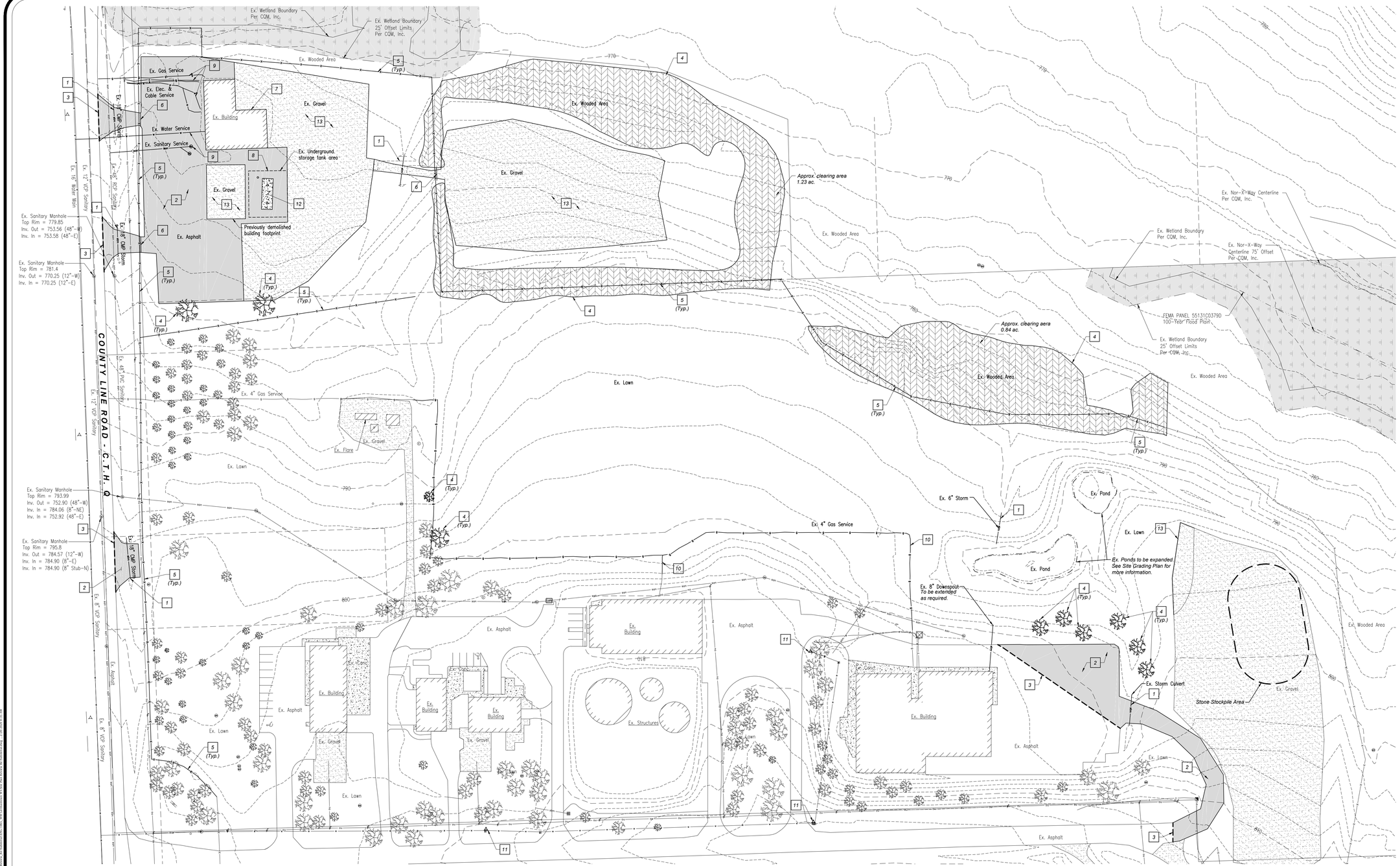

LEGEND:

- Existing Asphalt to be Removed
- Existing Wooded area to be cleared
- Proposed Full-depth Saw Cut Line
- Existing Concrete to be Removed
- Wetland Boundary 25' Offset, per CSM performed by CQM, Inc.

SITE DEMOLITION PLAN

Scale: 1" = 60'

KEYED NOTES:

1.) *Remove storm water pipe. Demolition debris shall be hauled off-site.*

2.) *Remove asphalt pavement section and base material. Demolition debris shall be hauled off-site.*

3.) *Full depth asphalt saw cut line.*

4.) *Clear, grub and completely remove stump(s). Demolition debris shall be hauled off-site.*

5.) *Remove fence and appurtenances. Demolition debris shall be hauled off-site.*

6.) *Remove gate and appurtenances. Coordinate any electrical disconnection with Electrical Contractor. Demolition debris shall be hauled off-site.*

7.) *Remove building. Coordinate any utility disconnection with associated trade. Demolition debris shall be hauled off-site.*

8.) *Remove underground storage tanks. See note "H" on this sheet for backfill requirements. Coordinate any utility disconnection with associated trade. Demolition debris shall be hauled off-site.*

9.) *Existing building utility services to be abandoned per utility service provider requirements. Demolition debris shall be hauled off-site.*

10.) *Relocate 4" gas service. See "SITE IMPROVEMENT PLAN" for further information.*

11.) *Existing Hydrant Assembly to be replaced. See "SITE UTILITY PLAN" for further information.*

12.) *Remove concrete pavement section and base material. Demolition debris shall be hauled off-site.*

13.) *Remove stone pavement section. Stone to be stockpiled in the northern gravel yard. Contractor to confirm exact stockpile area with owner.*

GENERAL NOTES:

A. *At start of project and prior to demolition of existing conditions, contractor shall be in contact with adjacent property owners, city representative, and site representative to coordinate demolition timing.*

B. *Contractor to remove and dispose of all debris and other materials resulting from demolition and construction operations, disposal will be in accordance with all local, state, and federal regulations governing such operations.*

C. *Contractor shall take all precautions necessary to avoid damage to adjacent properties during construction phases of this project. Contractor will be solely responsible for damage to neighboring properties occurring as a result of construction activities.*

D. *All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to demolition activities.*

E. *Contractor shall provide traffic control in accordance with the state manual on uniform traffic control devices. See sheet C1.0 "Maintenance of Traffic" for further detail and notes.*

F. *Prior to starting demolition, it is the responsibility of the contractor to obtain all permits, tap fees, bond fees, and inspection fees required by local and state governmental agencies.*

G. *All landfill fees shall be paid by the Contractor.*

H. *Utilities shall be removed and the trenches backfilled with approved backfill material. Backfill material shall be placed in maximum eight inch lifts and compacted in accordance with the geotechnical report or to a minimum of 95% of the maximum dry density as determined by ASTM D-1557 modified proctor method +/- 3% optimum moisture content.*

I. *Contractor shall not burn debris or use explosives.*

J. *Contractor shall be responsible for all phasing of demolition when the demolition may impact traffic, access, or utilities to neighbors or facilities to remain and other surrounding infrastructure or facilities.*

K. *Conduct demolition operations to ensure minimal interference with roads, sidewalks, and any other adjacent occupied facilities.*

L. *Do not close or obstruct roads, sidewalks, or any other occupied facilities without permission from the local authority having jurisdiction and/or property owners.*

M. *The contractor shall be responsible for ensuring the construction site and surrounding areas are free of accumulated debris.*

N. *All existing underground tanks must be removed or closed by a certified tank system remover-cleaner. The certified remover will clean out and remove the tank, properly dispose of the removed waste material and tank, and complete the paperwork required by the DATCP Bureau of Weights and Measures. In the event any petroleum leakage or spillage is observed during the UST removal process, contractor shall notify the engineer/owner immediately. In the event the spill observed is in need of an urgent response, certified remover shall notify local fire department and the Department of Natural Resources (DNR).*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020 SCALE 1" = 60' CTR INT. 2"
SURVEYED BY CQM CHECKED BY KJB
DRAWN BY DSW APPROVED BY MJB

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CONSULTING ENGINEERS & SURVEYORS
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Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *SITE DEMOLITION PLAN*

SHEET NO: **C1.2**

JOB NO: *ENG-1465*

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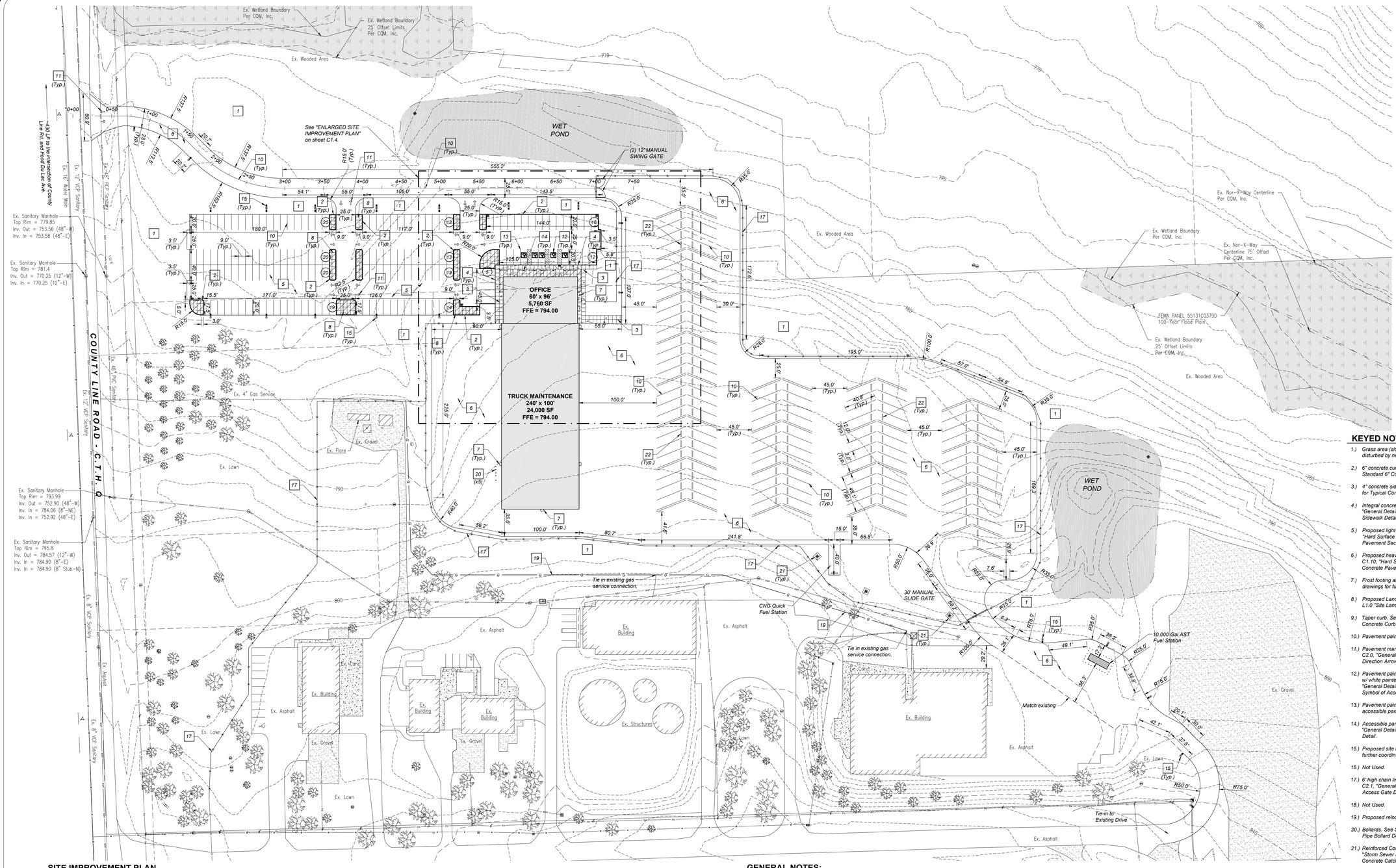
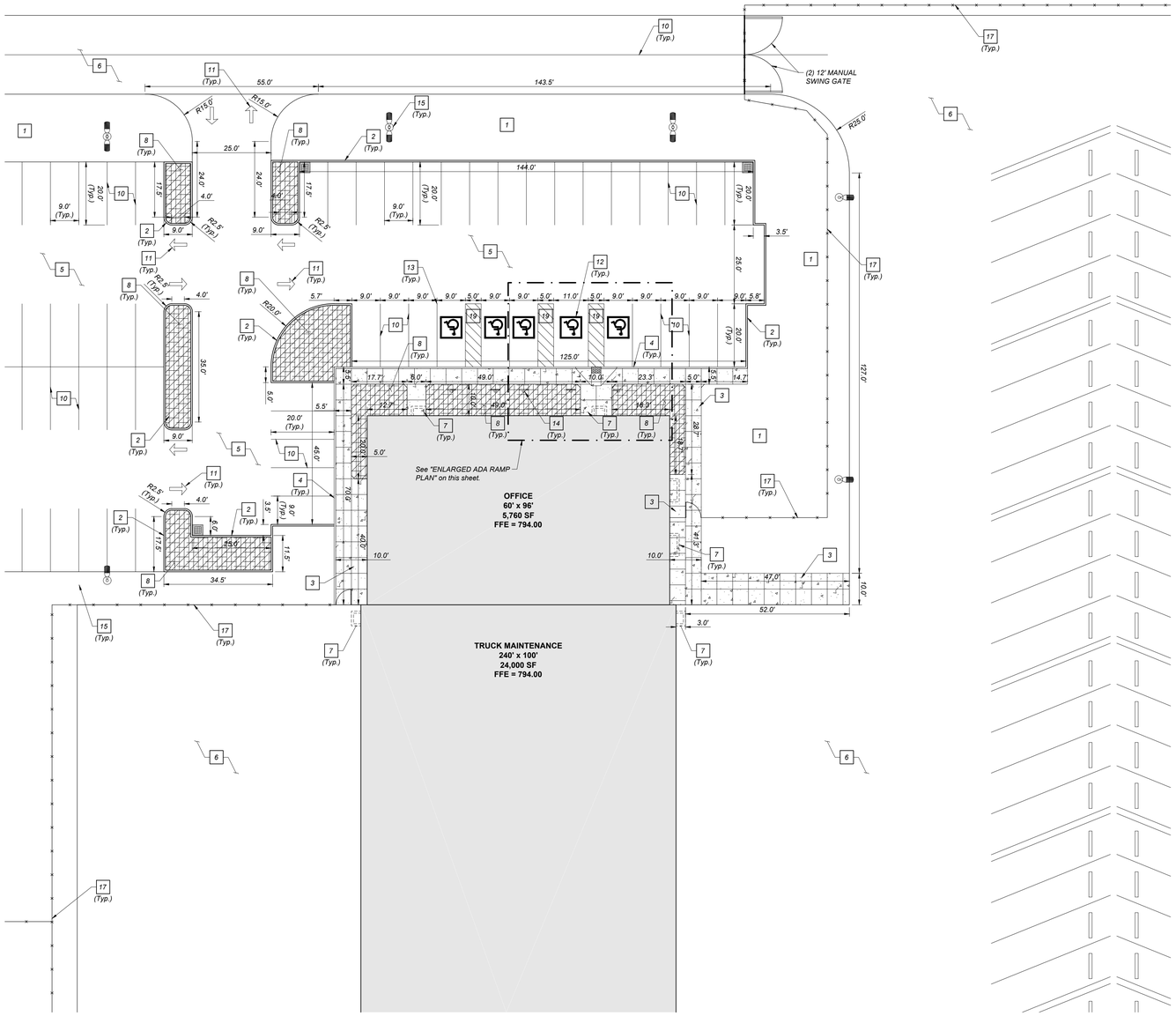
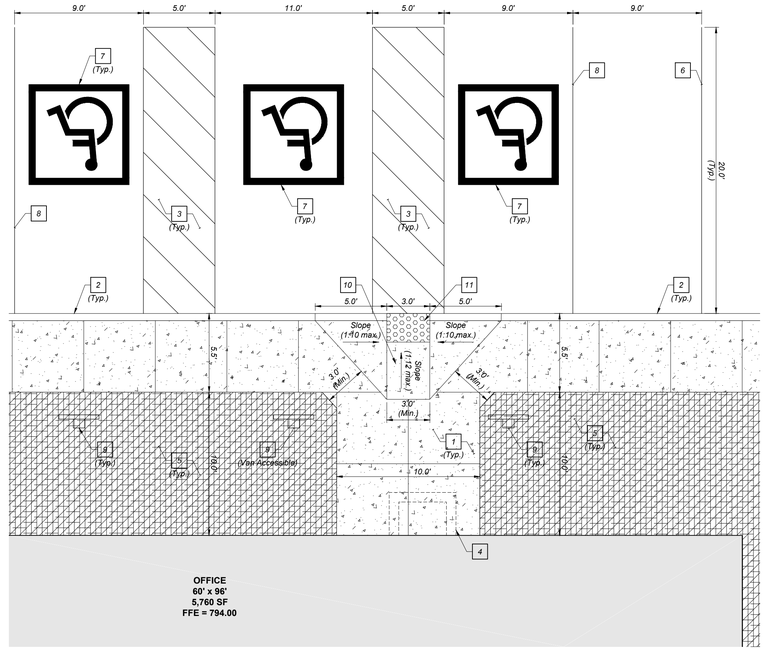

NORTH
Scale: 1 in. = 60 ft.
0' 60' 120' 180'
Graphic Scale
See "ENLARGED SITE IMPROVEMENT PLAN" on sheet C1.4.
WET POND
(2) 12' MANUAL SWING GATE
OFFICE
60' x 96'
5,760 SF
FFE = 794.00
TRUCK MAINTENANCE
240' x 100'
24,000 SF
FFE = 794.00
30' MANUAL SLIDE GATE
CNG Quick Fuel Station
10,000 Gal AST Fuel Station
Tie in existing gas service connection.
Tie-in to Existing Drive
Match existing
COUNTY LINE ROAD - C.T.H. Q
Ex. Wetland Boundary Per COM, Inc.
Ex. Wetland Boundary 25' Offset Limits Per COM, Inc.
Ex. Wooded Area
Ex. Nor-X-Way Centerline Per COM, Inc.
Ex. Nor-X-Way Centerline 75' Offset Per COM, Inc.
FEMA PANEL 55131C0379D 100-Year Flood Plain
Ex. Sanitary Manhole Top Rim = 779.85 Inv. Out = 753.56 (48"-W) Inv. In = 753.58 (48"-E)
Ex. Sanitary Manhole Top Rim = 781.4 Inv. Out = 770.25 (12"-W) Inv. In = 770.25 (12"-E)
Ex. Sanitary Manhole Top Rim = 793.99 Inv. Out = 752.90 (48"-W) Inv. In = 784.06 (8"-NE) Inv. In = 752.92 (48"-E)
Ex. Sanitary Manhole Top Rim = 795.8 Inv. Out = 784.57 (12"-W) Inv. In = 784.90 (8"-E) Inv. In = 784.90 (8" Stub-N)
Ex. 48" PVC Sanitary
Ex. 12" VCP Sanitary
Ex. 8" VCP Sanitary
Ex. 4" Gas Service
Ex. Gravel
Ex. Flare
Ex. Lawn
Ex. Asphalt
Ex. Building
Ex. Concrete
Ex. Structures
Ex. Gravel
Ex. Lawn
Ex. Asphalt
Ex. Lawn
Ex. Asphalt



ENLARGED SITE IMPROVEMENT PLAN

Scale: 1" = 20'



ENLARGED ADA RAMP PLAN

Scale: 1" = 5'

KEYED NOTES: ☐ (ENLARGED SITE IMPROVEMENT PLAN)

1.) *Grass area (slope to drain). Re-seed existing lawn where disturbed by new construction and construction activities.*

2.) *6" concrete curb, See Sheet C2.0, "General Details", for Standard 6" Concrete Curb Detail.*

3.) *4" concrete sidewalk. See Sheet C2.0, "General Details", for Typical Concrete Sidewalk Section.*

4.) *Integral concrete curb and walk, See Sheet C2.0, "General Details", for Typical Integral Concrete Curb and Sidewalk Detail.*

5.) *Proposed light-duty asphalt pavement. See Sheet C1.10, "Hard Surface Key Plan", for Typical Light-duty Asphalt Pavement Section.*

6.) *Proposed heavy-duty concrete pavement. See Sheet C1.10, "Hard Surface Key Plan", for Typical Heavy-duty Concrete Pavement Section.*

7.) *Frost footing at man doors by G.C. See Structural drawings for further coordination.*

8.) *Proposed Landscaping: (Shown for reference). See Sheet L1.0 "Site Landscaping Plan".*

9.) *Taper curb. See sheet C2.0, "General Details", for Concrete Curb Taper Detail.*

10.) *Pavement painting: 4" wide yellow striping.*

11.) *Pavement marking: Yellow directional arrow. See Sheet C2.0, "General Details", for Pavement Marking Typical Direction Arrow.*

12.) *Pavement painting: "Universal Symbol", blue painted field w/ white painted wheelchair and border. See Sheet C2.0, "General Details", for Pavement Marking International Symbol of Accessibility For Parking Stalls.*

13.) *Pavement painting: 4" wide blue paint striping at accessible parking space.*

14.) *Accessible parking sign (post-mounted). See Sheet C2.0 "General Details" for Typical Accessible Parking Sign Detail.*

15.) *Proposed site lighting: By E.C. See site electrical plan for further coordination.*

16.) *Not Used.*

17.) *6' high chain link security fence / access gate. See sheet C2.1, "General Details", for Typical Chain Link Fence & Access Gate Detail.*

18.) *Not Used.*

19.) *Accessible parking design to meet all governing codes. Quantity as required by I.A.C. & A.D.A. - accessible parking spaces and their access aisles shall be 1:20 running-slope and 1:48 cross-slope. Accessible route delineation shall be 4" wide blue outline w/ 4" blue cross hatch.*

KEYED NOTES: ☐ (ENLARGED ADA RAMP PLAN)

1.) *4" concrete sidewalk. See Sheet C2.0, "General Details", for Typical Concrete Sidewalk Section.*

2.) *Integral concrete curb and walk, See Sheet C2.0, "General Details", for Typical Integral Concrete Curb and Sidewalk Detail.*

3.) *Accessible parking design to meet all governing codes. Quantity as required by I.A.C. & A.D.A. - accessible parking spaces and their access aisles shall be 1:20 running-slope and 1:48 cross-slope. Accessible route delineation shall be 4" wide blue outline w/ 4" blue cross hatching.*

4.) *Frost footing at man doors by G.C. See Structural drawings for further coordination.*

5.) *Proposed Landscaping: (Shown for reference). See Sheet L1.0 "Site Landscaping Plan".*

6.) *Pavement painting: 4" wide yellow striping.*

7.) *Pavement painting: "Universal Symbol", blue painted field w/ white painted wheelchair and border. See Sheet C2.0, "General Details", for Pavement Marking International Symbol of Accessibility For Parking Stalls.*

8.) *Pavement painting: 4" wide blue paint striping at accessible parking space.*

9.) *Accessible parking sign (post-mounted). See Sheet C2.0 "General Details" for Typical Accessible Parking Sign Detail.*

10.) *Curb ramp widetectable warning mat.*

11.) *Detectable warning mat: (1) 2'x3' tile, cast-in-place w/truncated domes complying with ADA guidelines, brick red. Equal to Detectable Warning Systems - "EZ Set Tile".*

GENERAL NOTES:

A. *Provide smooth transition from newly paved areas to existing paved area as necessary. The existing edge of pavement shall be free of all loose debris at all areas where proposed pavement meets existing pavement. The edge of existing asphalt pavement shall be properly sealed with a tack coat material in all areas where new asphalt pavement is indicated to join existing.*

B. *Contractor is responsible for locating and verifying all existing underground utilities prior to construction, and is responsible for any damage to them during construction.*

C. *All dimensions to face of curb or edge of concrete unless otherwise noted.*

D. *All pavement markings depicting parking spaces, accessible parking spaces, access aisles and no parking signage shall be applied with mechanical equipment and templates at the locations and lengths shown on the plans (two coats all locations). Paint shall be yellow in color (unless otherwise specified) and shall meet all applicable requirements of state department of highway specifications, unless otherwise specified.*

E. *Contractor shall be solely responsible for and take all precautions necessary to avoid damage to adjacent properties during the construction phases of this project.*

F. *All construction methods and materials must conform to current standards and specifications of the federal, state, county, city or local requirements, whichever has jurisdiction.*

G. *All excavated and/or disturbed areas are to be seeded with a locally adaptive turf seed mix after finish grading unless otherwise noted. All newly seeded areas shall have a minimum of 6" of topsoil. Hold soil down 1" from pavement elevation. Contractor to supply straw mulch where grass seed has been planted.*

H. *All radii indicated on plans shall be constructed as circular.*

I. *Resurface or reconstruct at least to original conditions all areas where traffic by contractors, subcontractors or suppliers have damaged existing pavement, lawns or other improvements during construction, after construction work is complete.*

J. *The contractor shall verify all dimensions and elevations in the field prior to the start of construction. The contractor shall be responsible for all field dimensions and elevations during the entire construction schedule. If any discrepancies are found in these plans from actual field dimensions, the contractor shall contact the engineer immediately.*

NORTH

Scale: 1 in. = 20 ft.

0' 20' 40' 60'

Graphic Scale

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/28/2020 SCALE AS NOTED CTR INT. –
SURVEYED BY COM CHECKED BY KJB
DRAWN BY DSM APPROVED BY MJB

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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: ENLARGED SITE IMPROVEMENT PLAN

SHEET NO: C1.4

JOB NO: ENG-1465

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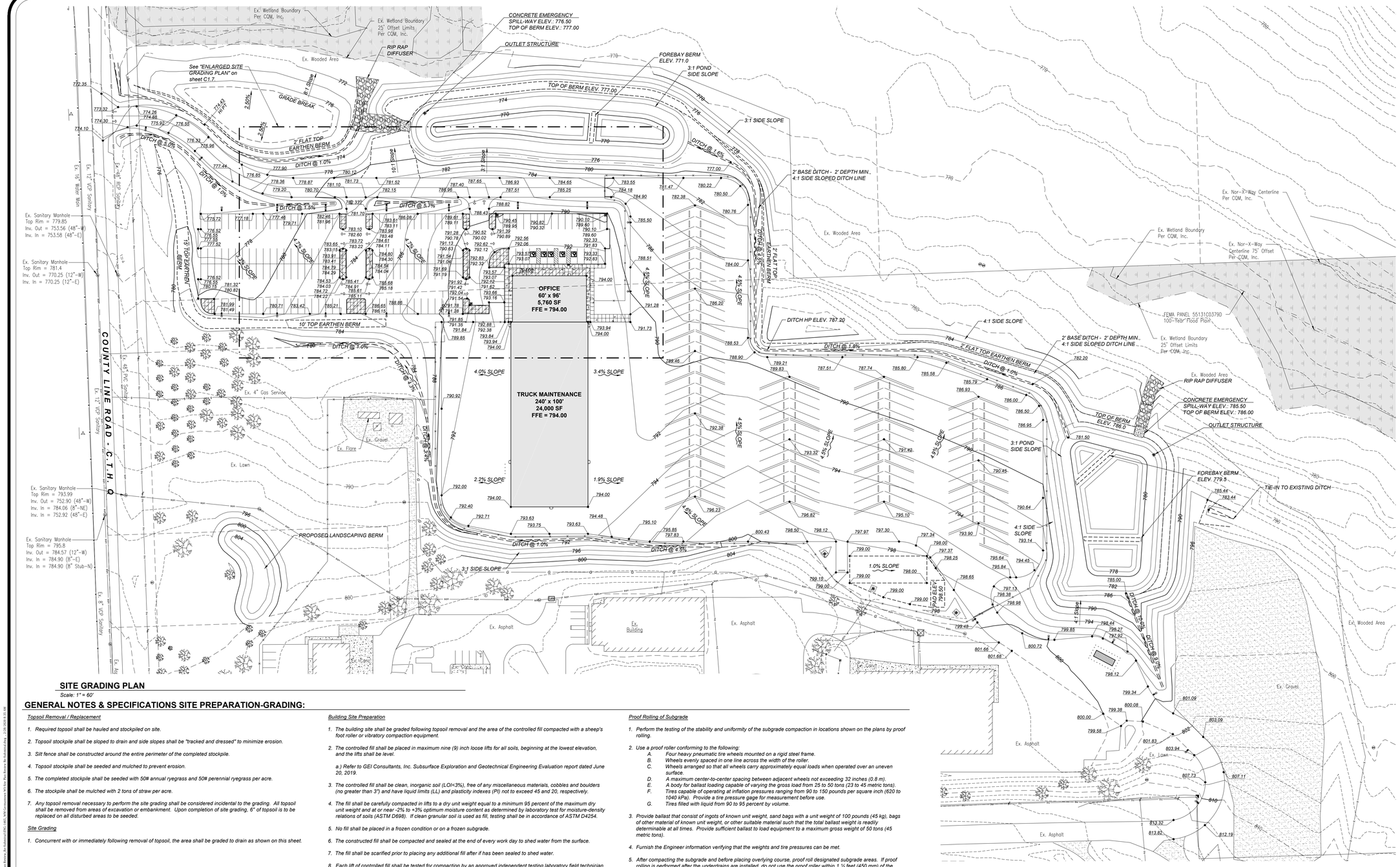

SITE GRADING PLAN

Scale: 1" = 60'

GENERAL NOTES & SPECIFICATIONS SITE PREPARATION-GRADING:

Topsoil Removal / Replacement

1. *Required topsoil shall be hauled and stockpiled on site.*
2. *Topsoil stockpile shall be sloped to drain and side slopes shall be "tracked and dressed" to minimize erosion.*
3. *Silt fence shall be constructed around the entire perimeter of the completed stockpile.*
4. *Topsoil stockpile shall be seeded and mulched to prevent erosion.*
5. *The completed stockpile shall be seeded with 50# annual ryegrass and 50# perennial ryegrass per acre.*
6. *The stockpile shall be mulched with 2 tons of straw per acre.*
7. *Any topsoil removal necessary to perform the site grading shall be considered incidental to the grading. All topsoil shall be removed from areas of excavation or embankment. Upon completion of site grading, 6" of topsoil is to be replaced on all disturbed areas to be seeded.*

Site Grading

1. *Concurrent with or immediately following removal of topsoil, the area shall be graded to drain as shown on this sheet.*

Building Site Preparation

1. *The building site shall be graded following topsoil removal and the area of the controlled fill compacted with a sheep's foot roller or vibratory compaction equipment.*
2. *The controlled fill shall be placed in maximum nine (9) inch loose lifts for all soils, beginning at the lowest elevation, and the lifts shall be level.*

   a.) Refer to GEI Consultants, Inc. Subsurface Exploration and Geotechnical Engineering Evaluation report dated June 20, 2019.
3. *The controlled fill shall be clean, inorganic soil (LOI<3%), free of any miscellaneous materials, cobbles and boulders (no greater than 3") and have liquid limits (LL) and plasticity indexes (PI) not to exceed 45 and 20, respectively.*
4. *The fill shall be carefully compacted in lifts to a dry unit weight equal to a minimum 95 percent of the maximum dry unit weight and at or near -2% to +3% optimum moisture content as determined by laboratory test for moisture-density relations of soils (ASTM D698). If clean granular soil is used as fill, testing shall be in accordance of ASTM D4254.*
5. *No fill shall be placed in a frozen condition or on a frozen subgrade.*
6. *The constructed fill shall be compacted and sealed at the end of every work day to shed water from the surface.*
7. *The fill shall be scarified prior to placing any additional fill after if has been sealed to shed water.*
8. *Each lift of controlled fill shall be tested for compaction by an approved independent testing laboratory field technician. Tests shall be made in such locations and in such quantity as the construction manager and the testing laboratory deem necessary. A minimum of six (6) tests per lift at random locations shall be made.*
9. *The controlled fill shall constructed to final line and grade as shown on the plans. Sloped areas shall be compacted with an equal number of compaction passes as the level area.*
10. *Any material brought on site and subsequently deemed unsuitable for incorporation into the controlled fill shall be removed from the site at the contractors expense.*

Subgrade Preparation

1. *The entire site shall be proof rolled prior to placement of any fill material under the supervision of the Engineer. Material deemed to be unsuitable is at the discretion of the Engineer. Proof rolling shall be as prescribed in the Proof Rolling of Subgrade section below. Once subgrade elevation of the fill is achieved, the subgrade shall be proof rolled prior to any sub-base placement as prescribed in the Proof Rolling of Subgrade section below. Deformation of the subgrade is at the discretion of the Engineer.*
2. *If the Engineer deems an area of the subgrade as unsuitable, that area shall be overexcavated until suitable material is achieved as determined by the Engineer. Overexcavation depth shall not exceed 2 feet.*
3. *Overexcavated area shall be backfilled with DOT approved, crushed limestone aggregate. Aggregate shall be placed in lifts not to exceed 8". Each lift shall be compacted with a vibratory compactor.*
4. *Backfilled areas shall be proof rolled following the guidelines listed in the Proof Rolling of Subgrade section below.*

Proof Rolling of Subgrade

1. *Perform the testing of the stability and uniformity of the subgrade compaction in locations shown on the plans by proof rolling.*
2. *Use a proof roller conforming to the following:*
   - *A. Four heavy pneumatic tire wheels mounted on a rigid steel frame.*
   - *B. Wheels evenly spaced in one line across the width of the roller.*
   - *C. Wheels arranged so that all wheels carry approximately equal loads when operated over an uneven surface.*
   - *D. A maximum center-to-center spacing between adjacent wheels not exceeding 32 inches (0.8 m).*
   - *E. A body for ballast loading capable of varying the gross load from 25 to 50 tons (23 to 45 metric tons).*
   - *F. Tires capable of operating at inflation pressures ranging from 90 to 150 pounds per square inch (620 to 1040 kPa). Provide a tire pressure gage for measurement before use.*
   - *G. Tires filled with liquid from 90 to 95 percent by volume.*
3. *Provide ballast that consist of ingots of known unit weight, sand bags with a unit weight of 100 pounds (45 kg), bags of other material of known unit weight, or other suitable material such that the total ballast weight is readily determinable at all times. Provide sufficient ballast to load equipment to a maximum gross weight of 50 tons (45 metric tons).*
4. *Furnish the Engineer information verifying that the weights and tire pressures can be met.*
5. *After compacting the subgrade and before placing overlying course, proof roll designated subgrade areas. If proof rolling is performed after the understrains are installed, do not use the proof roller within 1 ½ feet (450 mm) of the underdrains.*
6. *Ensure that the subgrade moisture content at the time of proof rolling is within 2 percent of the moisture used for acceptance.*
7. *Adjust the load and tire inflation pressure according to the following:*
   - *A. For soils classified as A-3, A-4, A-6, or A-7-6, use a 35-ton (32 metric tons) roller with a tire pressure of 120 pounds per square inch (820 kPa).*
   - *B. For granular soils, and soil, rock, and granular mixtures, use a 50-ton (46 metric tons) roller with a tire pressure of 150 pounds per square inch (1030 kPa).*
   - *C. Measure the tire pressure in the presence of the Engineer.*
8. *Operate equipment at a speed between 2 ½ and 5 miles per hour (4 and 8 km/hr). Adjust the speed to allow the Engineer to measure the deflections, ruts, or elasticity.*
9. *Make only one trip of the proof roller over any area. Offset trips to completely cover the subgrade area. Operate the proof roller in a pattern to readily allow recording of the number of coverages.*
10. *Where proof rolling indicates areas of soft subgrade or areas of non-uniform subgrade stability, the Engineer will investigate for the source of the problem. The Engineer will check the subgrade materials, density, and moisture content. The Contractor is responsible for all problems found in the materials constructed under the Contract Documents. Correct all deficiencies found.*
11. *Correct the subgrade to a uniform and satisfactory stability according to the current version of the Construction Inspection Manual of Procedures.*
12. *After proof rolling, check the subgrade for conformance to the plans, and correct all surface irregularities. Shape the subgrade within the tolerances.*

ISSUE DATE	02/26/2020	SCALE	1" = 60'	CTR INT.	2'
SURVEYED BY	COM	CHECKED BY	KJB		
DRAWN BY	ESW	APPROVED BY	MJB		

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *SITE GRADING PLAN*

SHEET NO: **C1.5**

JOB NO: ENG-1465

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NORTH

Scale: 1 in. = 20 ft.

0' 20' 40' 60'

Graphic Scale

2' FLAT TOP EARTHEN BERM

DITCH @ 1.0%

10' Slope

FOREBAY BERM ELEV. 771.0

DITCH @ 1.0%

DITCH @ 1.5%

DITCH @ 5.7%

4.7% SLOPE

4.7% SLOPE

3.3% SLOPE

15' TOP EARTHEN BERM

3.1% SLOPE

3.4% SLOPE

4.5% SLOPE

10' TOP EARTHEN BERM

DITCH @ 1.0%

OFFICE
60' x 96'
5,760 SF
FFE = 794.00

TRUCK MAINTENANCE
240' x 100'
24,000 SF
FFE = 794.00

ENLARGED SITE GRADING PLAN

Scale: 1" = 20'

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 07/28/2020 | SCALE 1" = 20' | CTR INT. 2'

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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: ENLARGED SITE GRADING PLAN

SHEET NO: C1.6

JOB NO: ENG-1465

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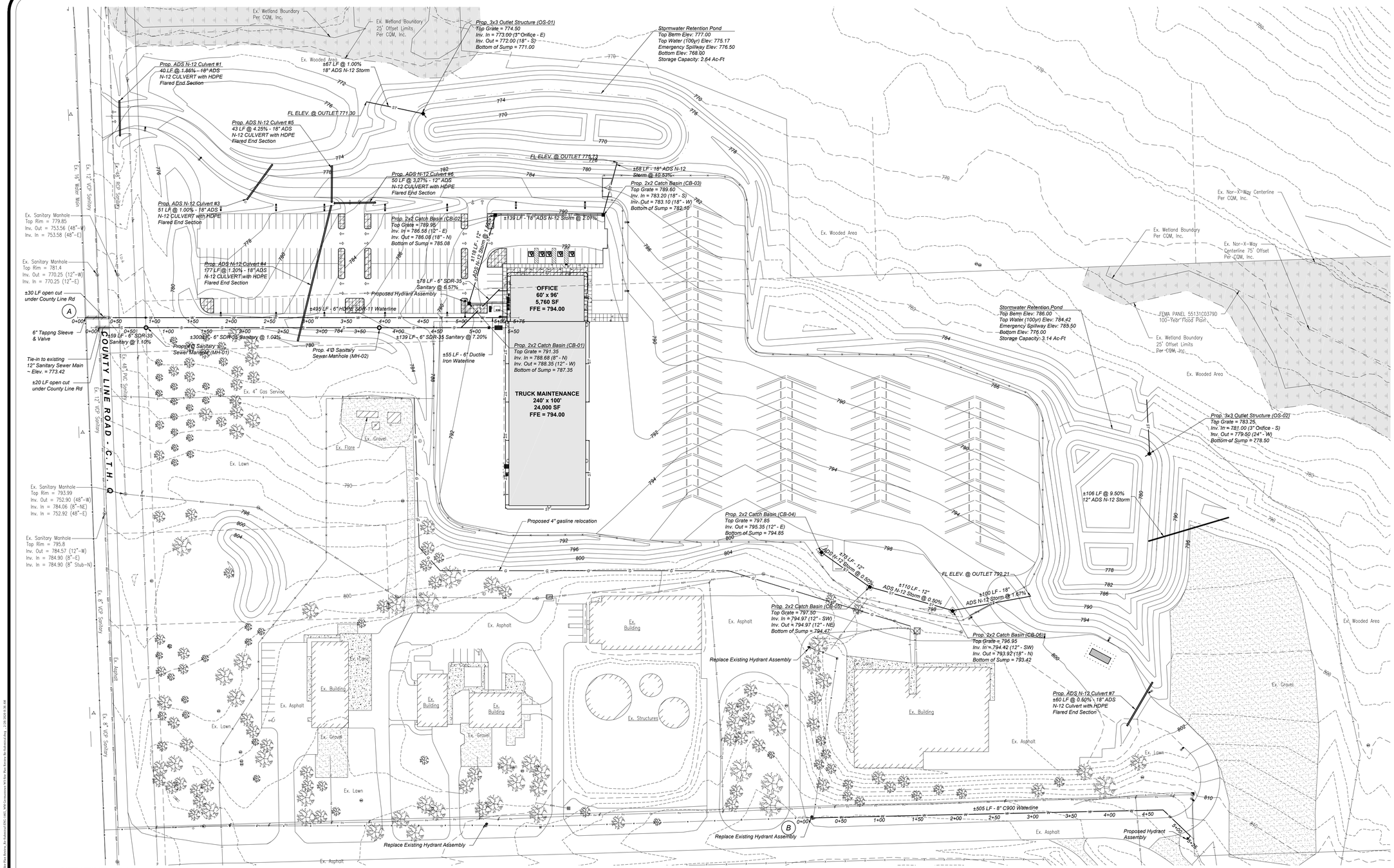

SITE UTILITY PLAN

Scale: 1" = 60'

GENERAL NOTES:

A. *All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to any construction activities.*

B. *The contractor shall field verify the elevations and pipe material of existing piping prior to ordering any pre-cast structure.*

C. *The contractor shall refer to architectural plans for exact location and size of downspouts.*

D. *The Site Contractor shall coordinate locations of utilities provided by other trades not shown on this plan.*

ISSUE DATE	02/26/2020	SCALE	1" = 60'	CTR INT:	2"
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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *SITE UTILITY PLAN*

SHEET NO: **C1.7**

JOB NO: ENG-1465

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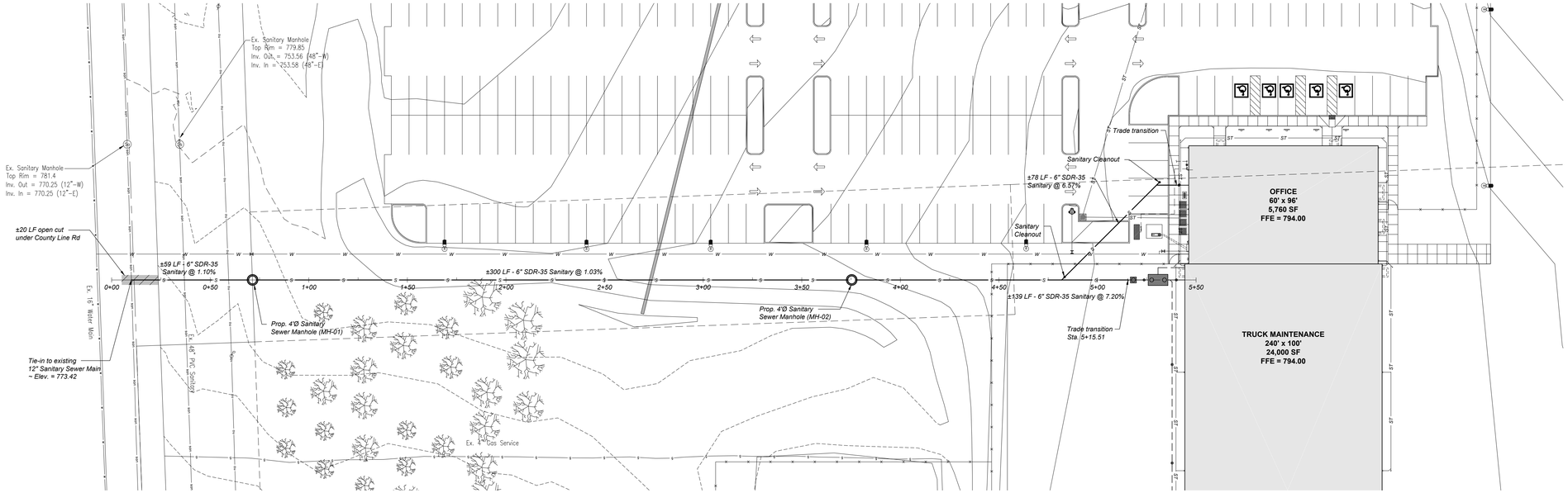
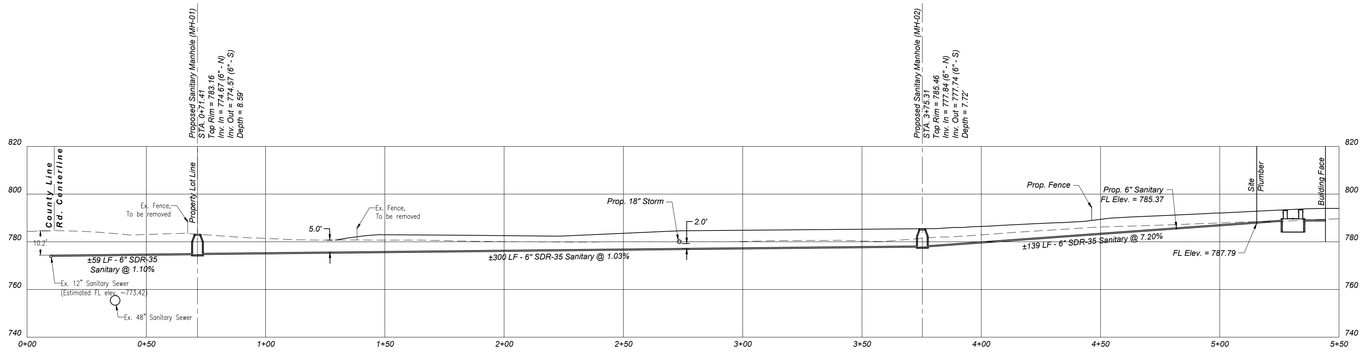


SITE SANITARY PLAN

Scale: 1" = 30'



SANITARY SEWER PROFILE "A"

Scale: 1" = 30' H & V

NORTH

Scale: 1 in . = 30 ft.

0' 30' 60' 90'

Graphic Scale

GENERAL NOTES:

A. *All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to any construction activities.*

B. *The contractor shall field verify the elevations and pipe material of existing piping prior to ordering any pre-cast structure.*

C. *The contractor shall refer to architectural plans for exact location and size of downspouts.*

D. *The Site Contractor shall coordinate locations of utilities provided by other trades not shown on this plan.*

E. *Inlet and outlet elevations are to the interior flow line of pipe and does not account for pipe wall thickness.*

F. *Manhole depth is determined by subtracting the lowest flow line elevation and does not account for pipe wall thickness of manhole floor thickness.*

MENOMONEE FALLS NOTES:

A. *Backfill for all trenches shall be 1 ¼" crushed limestone TB (Section 305.2.2.1 of the WisDOT Std. Specifications for Highway and Structure Construction) unless other wise noted in the profile or in the project specification.*

ISSUE DATE 02/28/2020 | SCALE 1" = 30' | CTR INT. 2'
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Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *SITE SANITARY PLAN AND PROFILE*

SHEET NO: **C1.8**

JOB NO: ENG-1465

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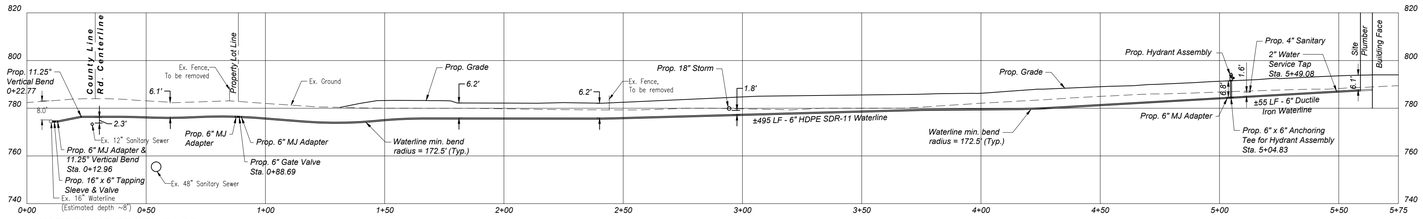
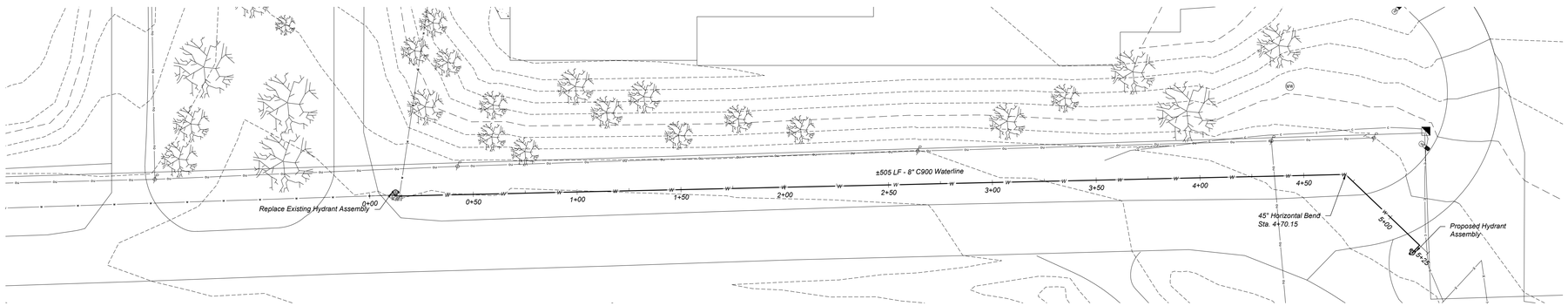
SITE WATER PLAN "A"

Scale: 1" = 30'



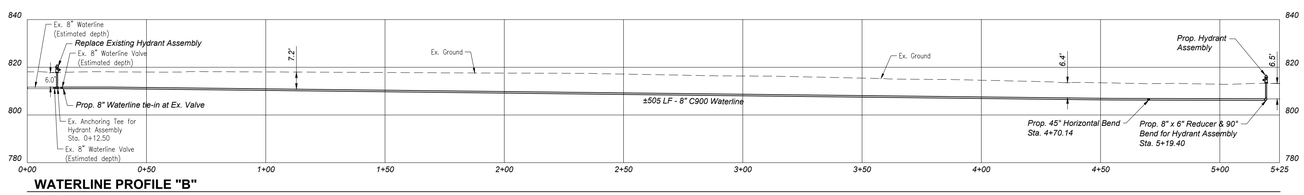
WATERLINE PROFILE "A"

Scale: 1" = 30' H & V



SITE WATER PLAN "B"

Scale: 1" = 30'



WATERLINE PROFILE "B"

Scale: 1" = 30' H & V

NORTH

Scale: 1 in . = 30 ft.

0' 30' 60' 90'

Graphic Scale

GENERAL NOTES:

A. *All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to any construction activities.*

B. *The contractor shall field verify the elevations and pipe material of existing piping prior to ordering any pre-cast structure.*

C. *The contractor shall refer to architectural plans for exact location and size of downspouts.*

D. *The Site Contractor shall coordinate locations of utilities provided by other trades not shown on this plan.*

MENOMONEE FALLS NOTES:

A. *Backfill for all trenches shall be 1 ½" crushed limestone TB (Section 305.2.2.1 of the WisDOT Std. Specifications for Highway and Structure Construction) unless other wise noted in the profile or in the project specification.*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020 | SCALE 1" = 30' | CTR INT. 2"
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Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *SITE WATER PLAN AND PROFILE*

SHEET NO: **C1.9**

JOB NO: ENG-1465

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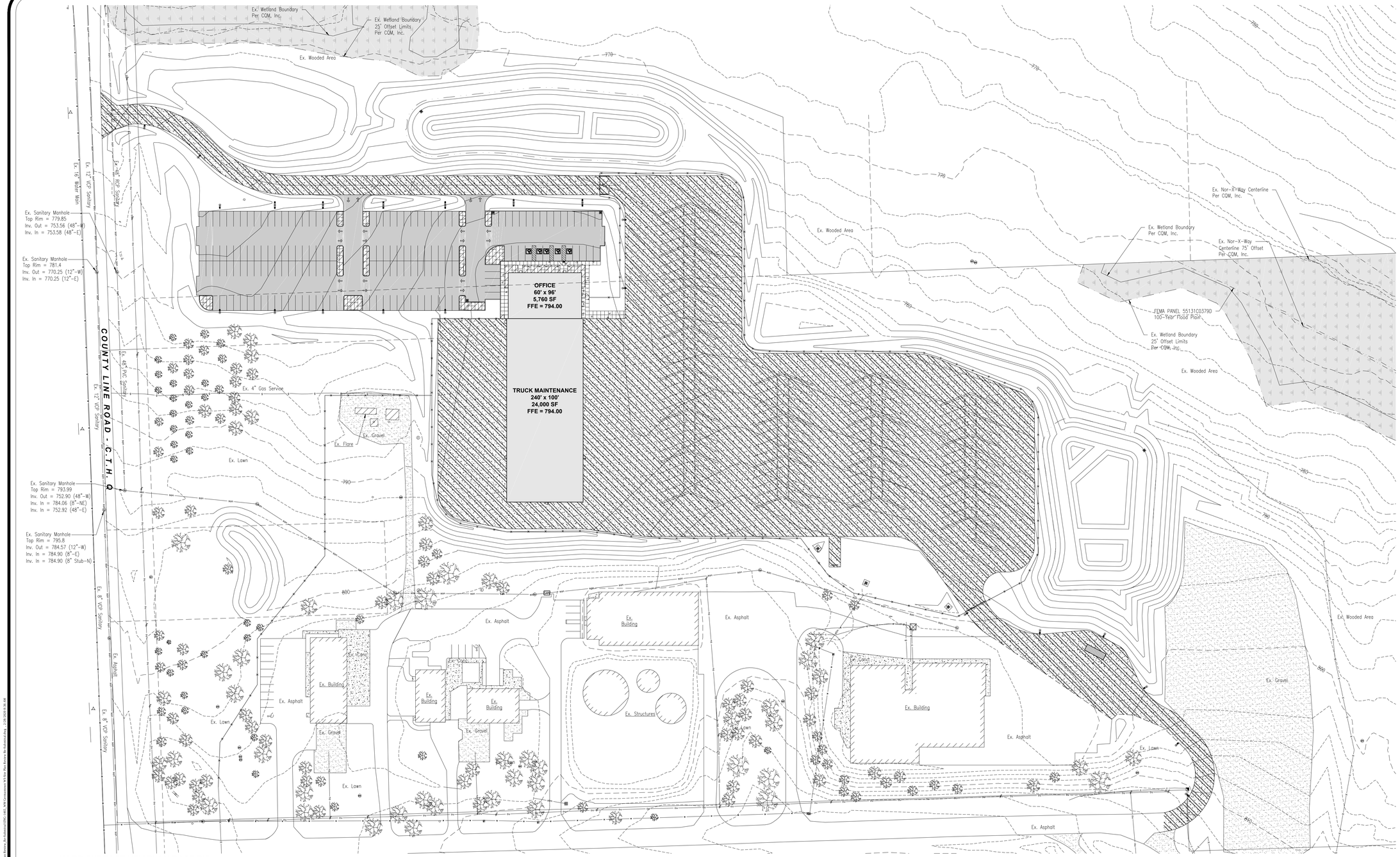


HARD SURFACE KEY PLAN BASE BID

Scale: 1" = 60'

NORTH

Scale: 1 in. = 60 ft.

0' 60' 120' 180'

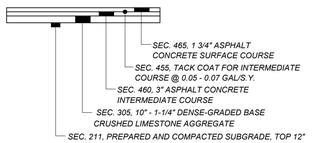
Graphic Scale

LEGEND:

- *Proposed light-duty asphalt pavement, light-duty concrete pavement, see detail on this sheet*
- *Proposed heavy-duty concrete pavement, heavy-duty asphalt pavement, see detail on this sheet*

SITE SURFACING AREAS:

- *Heavy-Duty Surfacing* - 248,718 SF
- *Light-Duty Surfacing* - 57,500 SF



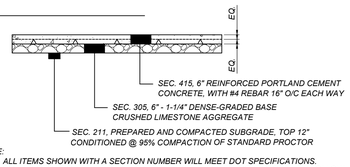
NOTE:

1. *ALL ITEMS SHOWN WITH A SECTION NUMBER WILL MEET DOT SPECIFICATIONS.*

TYPICAL LIGHT-DUTY ASPHALT SECTION (BASE BID)

DETAIL 1 / C1.10

SCALE: NOT TO SCALE



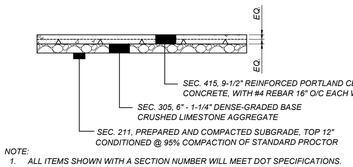
NOTE:

1. *ALL ITEMS SHOWN WITH A SECTION NUMBER WILL MEET DOT SPECIFICATIONS.*
2. *CONTRACTOR TO USE DOWEL BASKETS BETWEEN POURS. CONTRACTOR TO FOLLOW DOT JOINT STANDARDS FOUND ON SHEET C2.1 OR THE LATEST DOT STANDARD.*
3. *MAXIMUM SPACING BETWEEN CONTRACTION/CONTROL JOINTS SHALL BE 20' O.C.*

TYPICAL LIGHT-DUTY PORTLAND CEMENT CONCRETE SECTION (ALT. BID)

DETAIL 2 / C1.10

SCALE: NOT TO SCALE



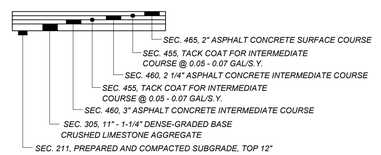
NOTE:

1. *ALL ITEMS SHOWN WITH A SECTION NUMBER WILL MEET DOT SPECIFICATIONS.*
2. *CONTRACTOR TO USE DOWEL BASKETS BETWEEN POURS. CONTRACTOR TO FOLLOW DOT JOINT STANDARDS FOUND ON SHEET C2.1 OR THE LATEST DOT STANDARD.*
3. *MAXIMUM SPACING BETWEEN CONTRACTION/CONTROL JOINTS SHALL BE 20' O.C.*

TYPICAL HEAVY-DUTY PORTLAND CEMENT CONCRETE SECTION (BASE BID)

DETAIL 3 / C1.10

SCALE: NOT TO SCALE



NOTE:

1. *ALL ITEMS SHOWN WITH A SECTION NUMBER WILL MEET DOT SPECIFICATIONS.*

TYPICAL HEAVY-DUTY ASPHALT SECTION (ALT. BID)

DETAIL 4 / C1.10

SCALE: NOT TO SCALE

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020
SURVEYED BY COM
DRAWN BY ESW
SCALE 1" = 60'
CHECKED BY KJB
APPROVED BY MJB
CTR INT: 2"

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663
Phone: (330) 364-1631
Fax: (330) 343-4153
e-mail: dei@dei-eng.com
Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY GERMANTOWN, WI

SHEET TITLE: HARD SURFACE KEY PLAN BASE BID

SHEET NO: **C1.10**

JOB NO: ENG-1465

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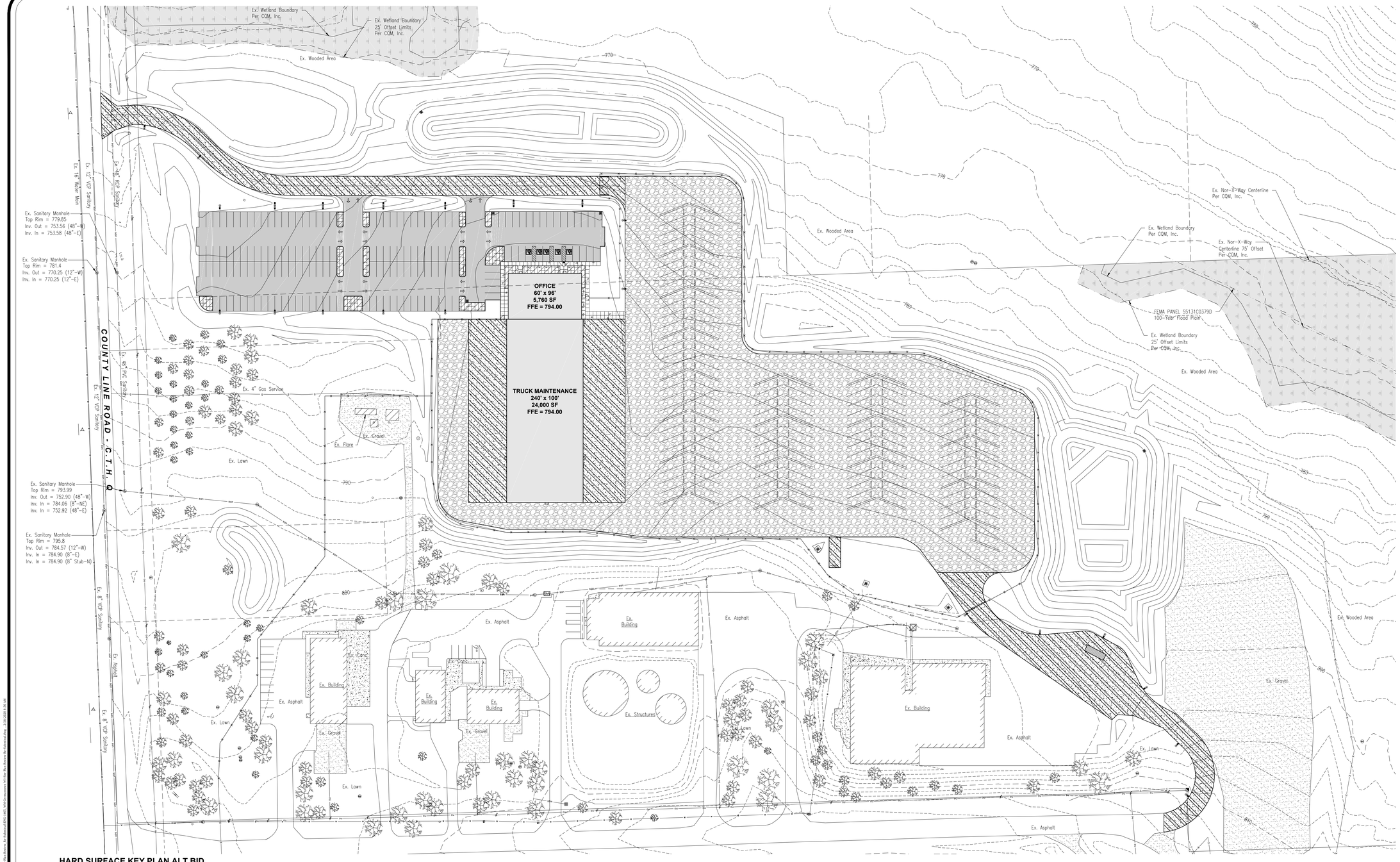


HARD SURFACE KEY PLAN ALT BID

Scale: 1" = 60'

NORTH

Scale: 1 in. = 60 ft.

0' 60' 120' 180'

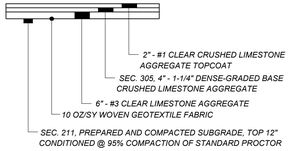
Graphic Scale

LEGEND:

- *Proposed light-duty asphalt pavement, light-duty concrete pavement, see detail on this sheet C1.13*
- *Proposed heavy-duty concrete pavement, heavy-duty asphalt pavement, see detail on sheet C1.13*
- *Proposed heavy-duty aggregate pavement, see detail on this sheet*

SITE SURFACING AREAS:

- *Heavy-Duty Hard Surface Alt.* - *65,270 SF*
- *Light-Duty Hard Surface Alt.* - *57,500 SF*
- *Heavy-Duty Aggregate* - *183,448 SF*



NOTE:

1. *ALL ITEMS SHOWN WITH A SECTION NUMBER WILL MEET DOT SPECIFICATIONS.*

TYPICAL HEAVY-DUTY AGGREGATE PAVEMENT SECTION (ALT. BID)

DETAIL 1 / C1.11

SCALE: NOT TO SCALE

ISSUE DATE	02/26/2020
SURVEYED BY	COM
DRAWN BY	DSW
REV	DATE

SCALE	1" = 60'
CHECKED BY	
APPROVED BY	
CTR INT:	2"
	K/B
	MJB

DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663
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Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

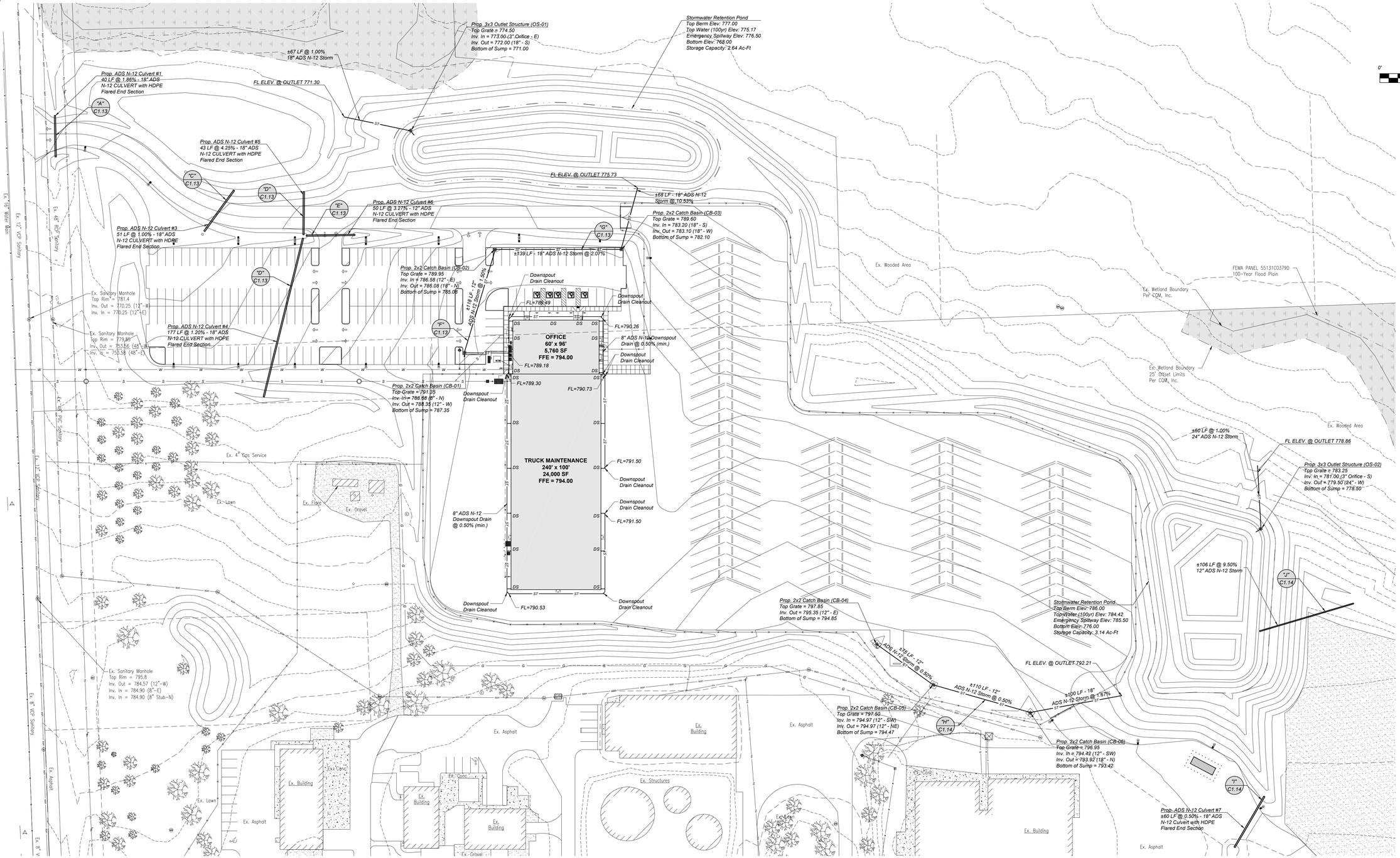
SHEET TITLE: *HARD SURFACE KEY PLAN ALT BID*

SHEET NO:

C1.11

JOB NO: *ENG-1465*

Z:\Jobs\New Files\ENG\ENG-Dsn\1465 WM Germantown\Civil_WI Working Folder\Construction Plans\Key Sheets_Rev Submittal\ENG-1465_WM Germantown KEY Sht Hard Surface Alt.dwg, 2/26/2020 8:36 AM



STORM SEWER OVERALL PLAN

Scale: 1" = 50'

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE: 02/26/2020
SURVEYED BY: COM
DRAWN BY: DSW
SCALE: 1" = 50'
CHECKED BY: KJB
APPROVED BY: MJB
CTR INT: 2"

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
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Fax: (330) 364-1634
e-mail: dei@dei-eng.com
Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *STORM SEWER OVERALL PLAN*

SHEET NO: **C1.12**

JOB NO: ENG-1465

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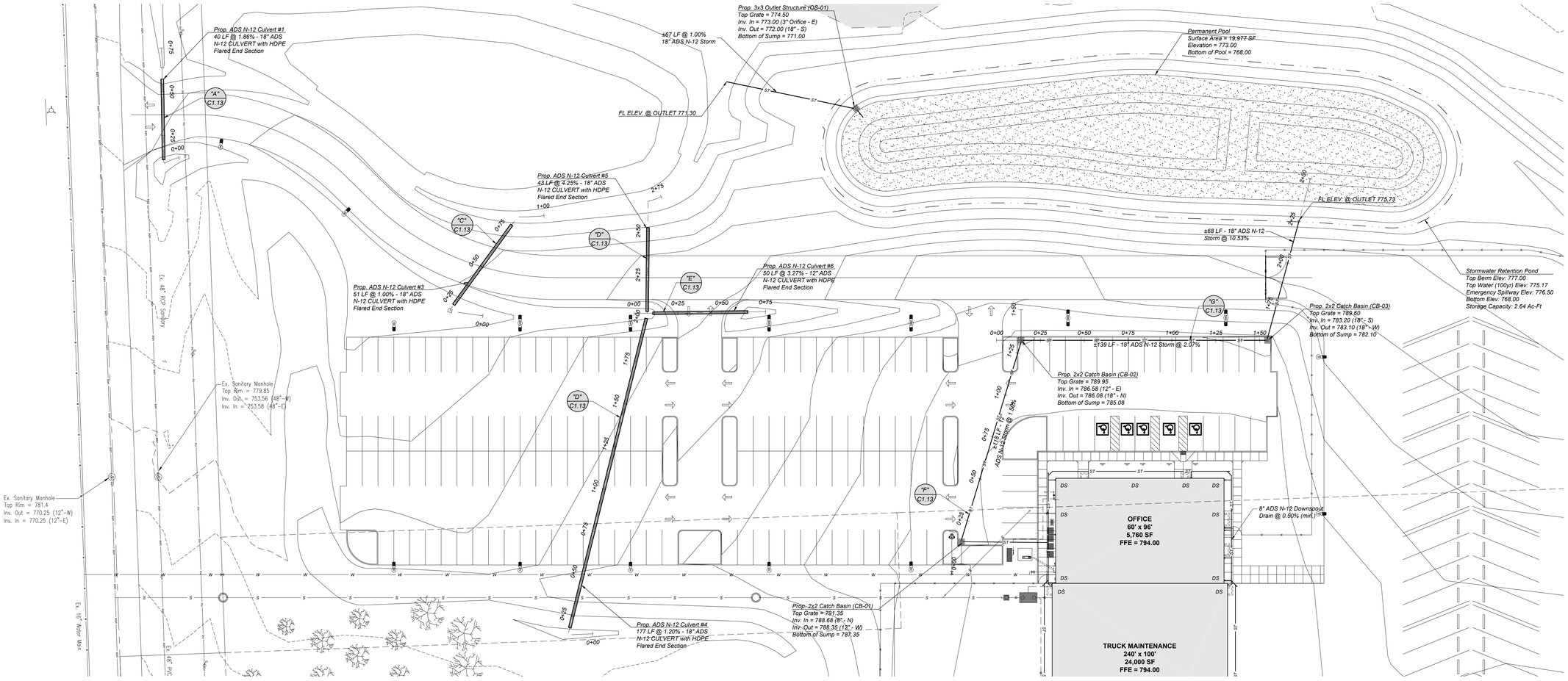
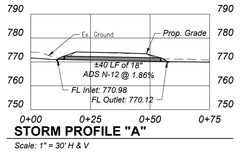


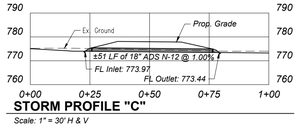
ENLARGED STORM SEWER PLAN

Scale: 1" = 30'



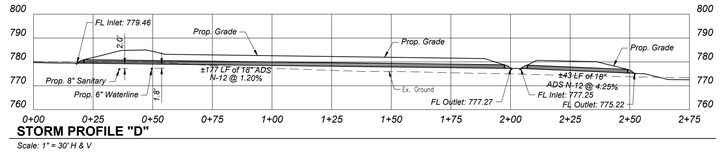
STORM PROFILE "A"

Scale: 1" = 30' H & V



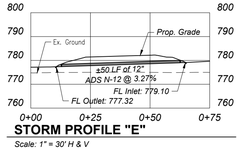
STORM PROFILE "C"

Scale: 1" = 30' H & V



STORM PROFILE "D"

Scale: 1" = 30' H & V



STORM PROFILE "E"

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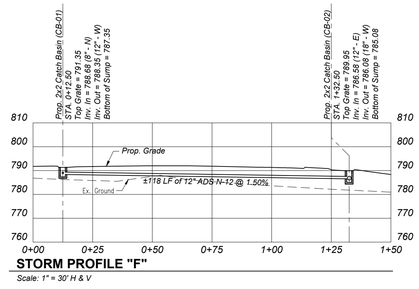

STORM PROFILE "F"

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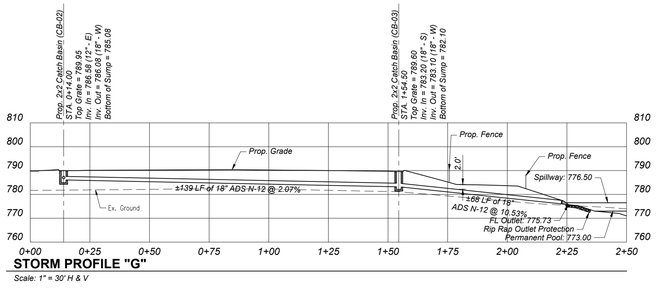

STORM PROFILE "G"

Scale: 1" = 30' H & V

NORTH

Scale: 1 in. = 30 ft.

0' 30' 60' 90'

Graphic Scale

GENERAL NOTES:

A. *All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to any construction activities.*

B. *The contractor shall field verify the elevations and pipe material of existing piping prior to ordering any pre-cast structure.*

C. *The contractor shall refer to architectural plans for exact location and size of downspouts.*

D. *The Site Contractor shall coordinate locations of utilities provided by other trades not shown on this plan.*

E. *Inlet and outlet elevations are to the interior flow line of pipe and does not account for pipe wall thickness.*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020 | SCALE 1" = 30' | CTR INT. 2"
SURVEYED BY | CHECKED BY COM | KJB
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Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH. 44663
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Fax: (330) 364-1833
e-mail: dei@dei-eng.com
Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *STORM SEWER PLAN AND PROFILE*

SHEET NO: **C1.13**

JOB NO: ENG-1465

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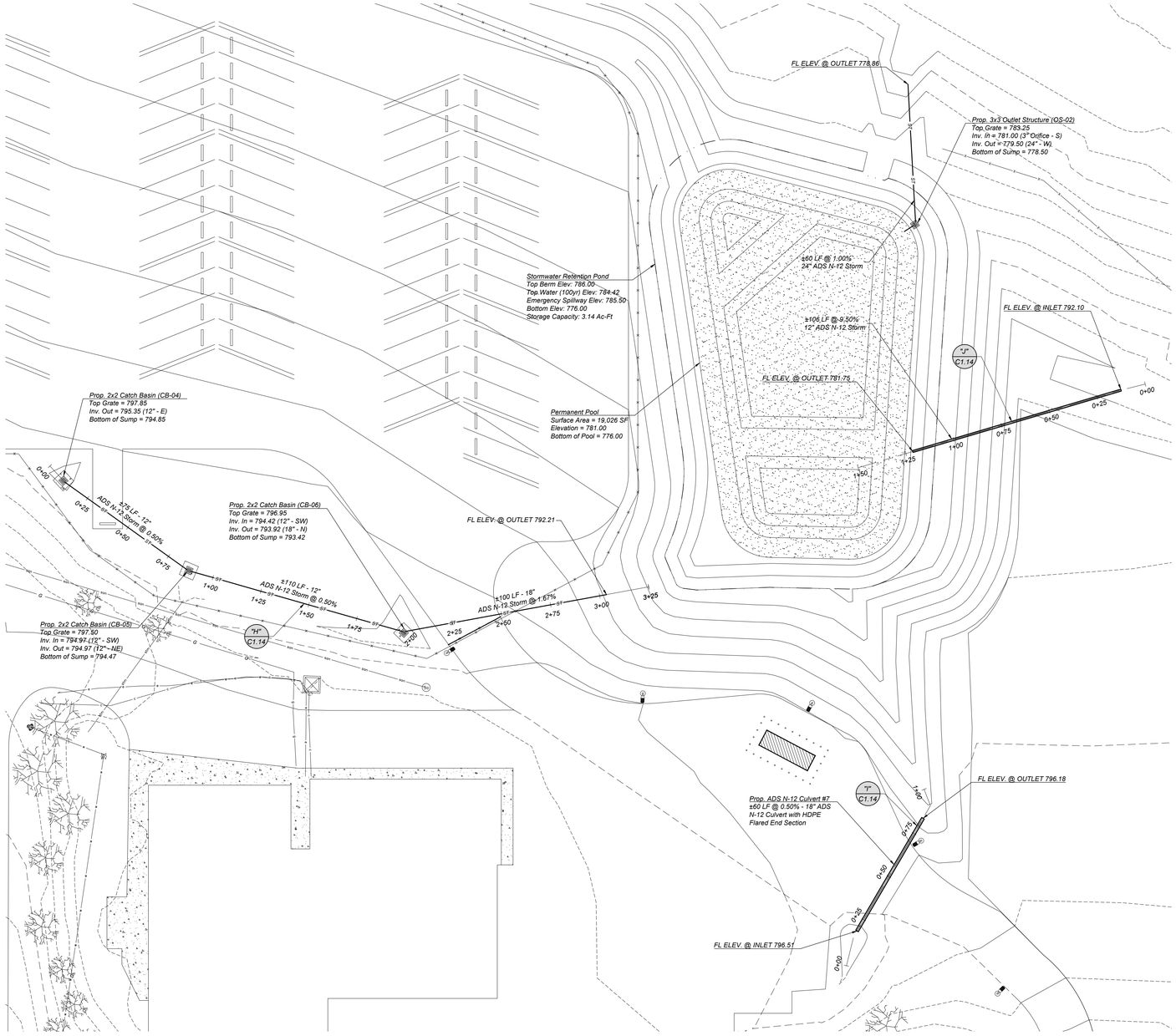
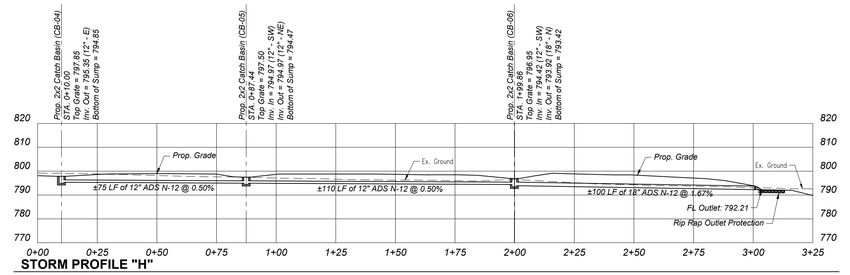


ENLARGED STORM SEWER PLAN

Scale: 1" = 30'



STORM PROFILE "H"

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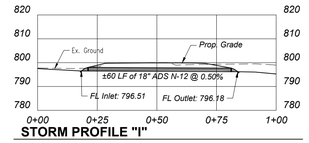

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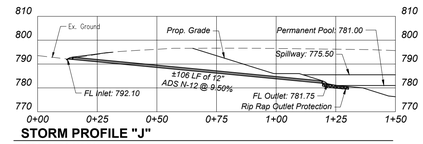

STORM PROFILE "J"

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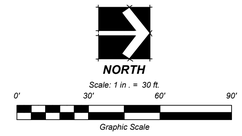

GENERAL NOTES:

A. All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to any construction activities.

B. The contractor shall field verify the elevations and pipe material of existing piping prior to ordering any pre-cast structure.

C. The contractor shall refer to architectural plans for exact location and size of downspouts.

D. The Site Contractor shall coordinate locations of utilities provided by other trades not shown on this plan.

E. Inlet and outlet elevations are to the interior flow line of pipe and does not account for pipe wall thickness.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE: 02/26/2020
SURVEYED BY: COM
DRAWN BY: ESW
SCALE: 1" = 30'
CHECKED BY: KJB
APPROVED BY: MJB
CTR INT: 2"

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663
Phone: (330) 364-6531
Fax: (330) 343-6531
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Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: STORM SEWER
PLAN AND PROFILE

SHEET NO: C1.14

JOB NO: ENG-1465

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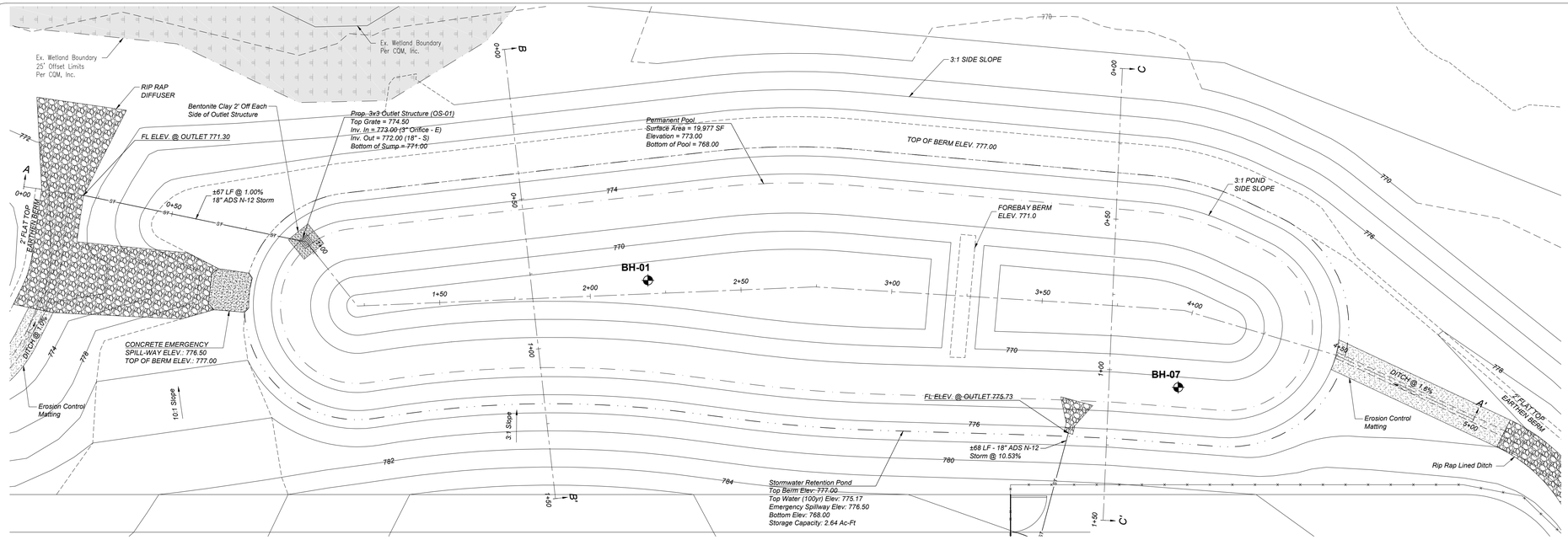
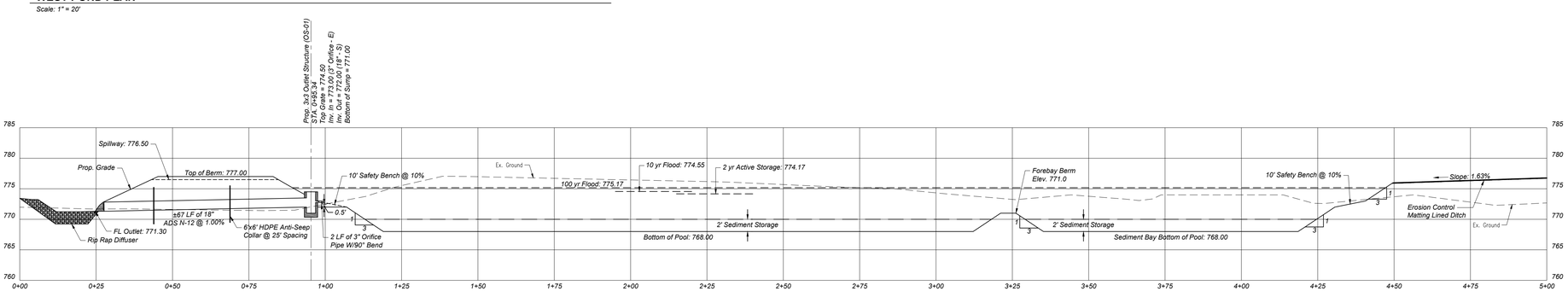


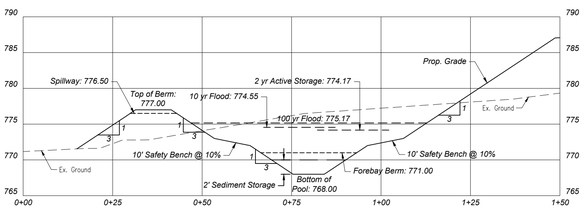
WEST POND PLAN

Scale: 1" = 20'



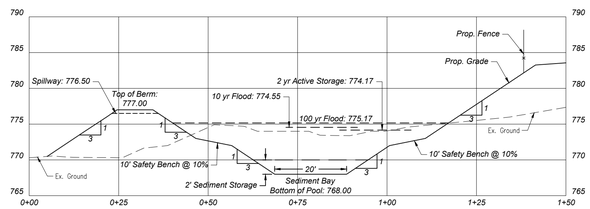
WEST POND SECTION A-A'

Scale: 1" = 20' H & 1" = 10' V



WEST POND SECTION B-B'

Scale: 1" = 20' H & 1" = 10' V



WEST POND SECTION C-C'

Scale: 1" = 20' H & 1" = 10' V

GENERAL NOTES:

A. *All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to any construction activities.*

B. *The contractor shall field verify the elevations and pipe material of existing piping prior to ordering any pre-cast structure.*

C. *The contractor shall refer to architectural plans for exact location and size of downspouts.*

D. *The Site Contractor shall coordinate locations of utilities provided by other trades not shown on this plan.*

E. *Inlet and outlet elevations are to the interior flow line of pipe and does not account for pipe wall thickness.*

NORTH

Scale: 1 in. = 20 ft.

0' 20' 40' 60'

Graphic Scale

ISSUE DATE 02/26/2020 | SCALE 1" = 20' | CTR INT. 2'
SURVEYED BY | CQM | CHECKED BY | KJB
DRAWN BY | DSW | APPROVED BY | MJB

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Diversified Engineering Inc.
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Web: www.dei-eng.com

WASTE MANAGEMENT

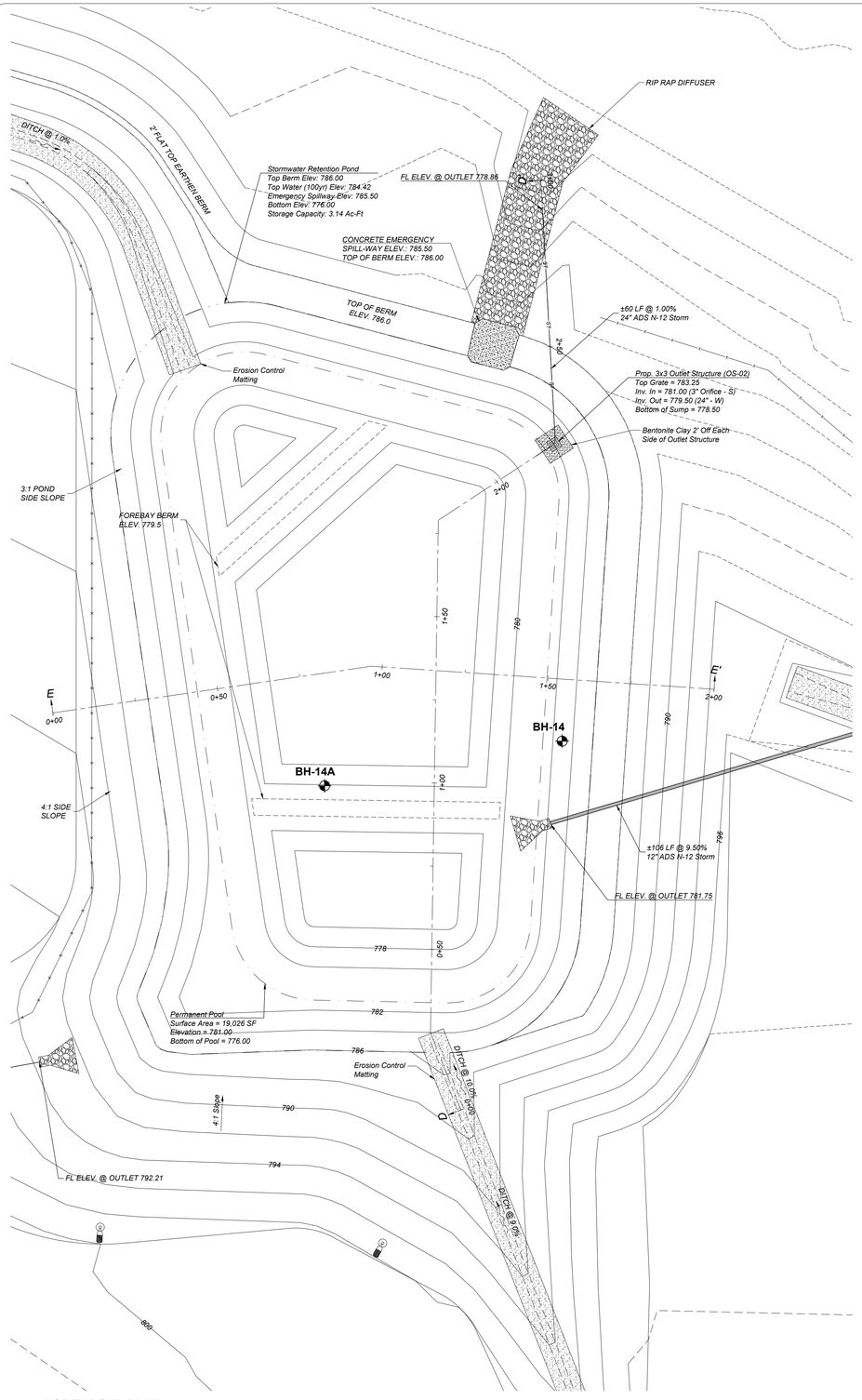
PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: WEST WET POND PLAN

SHEET NO: C1.15

JOB NO: ENG-1465

Z:\Jobs\Dsn\Dsn ENGINEERING\ENG-1465 WM Maintenance Facility, WI (Electric)\Construction Plans\Dsn Plans\Dsn_Plan Submittal\ENG-1465_WM Maintenance Fac Dsn Plans_Plan Submittal.dwg, 2/26/2020 8:36 AM



NORTH POND PLAN

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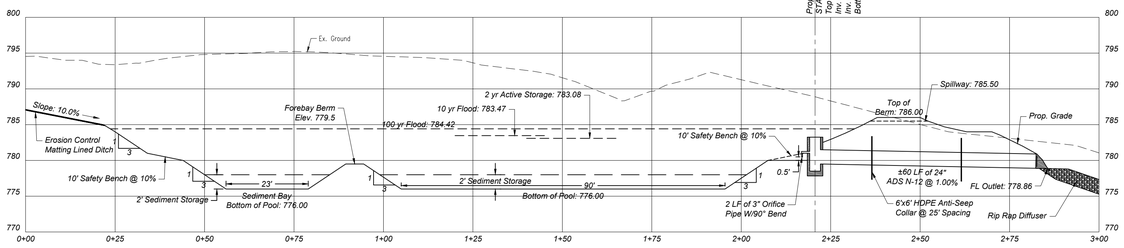
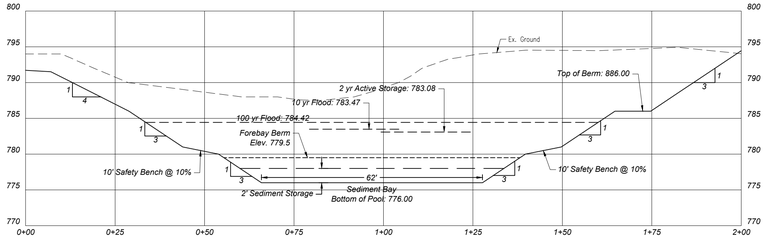


NORTH POND SECTION D-D'

Scale: 1" = 20' H & 1" = 10' V



NORTH POND SECTION E-E'

Scale: 1" = 20' H & 1" = 10' V

NORTH

Scale: 1 in . = 20 ft.

0' 20' 40' 60'

Graphic Scale

GENERAL NOTES:

A. *All existing utilities are shown herein as reference only and are based on record of the various utility companies. Contractor is responsible for determining the exact locations and depths of all utilities prior to any construction activities.*

B. *The contractor shall field verify the elevations and pipe material of existing piping prior to ordering any pre-cast structure.*

C. *The contractor shall refer to architectural plans for exact location and size of downspouts.*

D. *The Site Contractor shall coordinate locations of utilities provided by other trades not shown on this plan.*

E. *Inlet and outlet elevations are to the interior flow line of pipe and does not account for pipe wall thickness.*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/28/2020 | SCALE 1" = 20' | CTR INT. 2"
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Diversified Engineering Inc.
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e-mail: dei@dei-eng.com
Web: www.dei-eng.com

WASTE MANAGEMENT

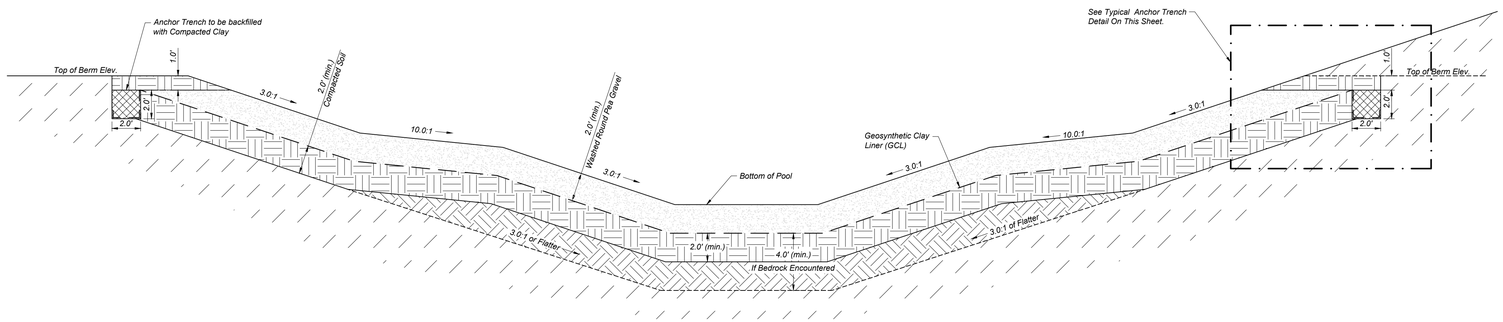
PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *NORTH WET POND PLAN*

SHEET NO: **C1.16**

JOB NO: ENG-1465

Z:\Dei-Files\Projects\ENGINEERING\Civil\Jobs\WM Maintenance Fac_WI\Working Folder\Construction Plans\Wet Ponds_Basins_&_Outlets\Civil_WM Maintenance Fac Wet Ponds_&_Outlets.dwg - 2/28/2020 5:37 PM



TYPICAL POND LINER

DETAIL SCALE: NOT TO SCALE — 1 / C1.17

POND LINER SPECIFICATIONS

WASTE STORAGE FACILITY

(No.)

Code 313

313–12

Table 4 - *Geosynthetic Clay Liner (GCL)* Criteria for Impoundments

1a. Soils (Directly Below Liner) [Note 1]		
% Fines	≥ 20%	≥ 20%
Plasticity Index (PI)	≥ 7	—
Thickness (from bottom and sides)	≥ 2 ft.	≥ 3 ft.
Compaction of placed material	WI Spec 203 [Note 2]	WI Spec 203 [Note 2]
1b. Liner Cover Material Thickness		
Bottom	≥ 1 ft.	≥ 1 ft.
Side Slopes	≥ 2 ft.	≥ 2 ft.
Compaction of Placed Materials	WI Spec 203 [Note 2]	WI Spec 203 [Note 2]
2. Separation Distances		
Well Distance [Note 3]	≥ 250 ft.	≥ 250 ft.
Sinkholes	≥ 400 ft.	≥ 400 ft.
Subsurface Saturation (V.A.9)	≥ 4 ft.	≥ 5 ft.
Bedrock	≥ 4 ft.	≥ 5 ft.
3. Impoundment		
Inside Slope [Note 4]	3:1 or flatter	
4. Other		
Liner Protection	Agitation and Pumping Locations	Minimum dimension of 20 ft. wide x 30 ft. long x 4 in. thick concrete pad or sump in bottom and 20 ft. wide ramp or a 16 ft. wide ramp with 18 in. high curb to top of facility. GCL continues under the concrete pad or sump. Poured in place concrete slabs shall meet requirements of Section V.B.1.
	- Scraping and Other Mechanical Means of Removing Solids and Sand	Sand bedding may be used in conjunction with a geosynthetic clay liner, but the design must include a method to remove sand from the waste stream before the waste is stored in the liner or the liner must be protected to allow mechanical removal of the sand. Poured in place concrete slabs shall meet requirements of Section V.B.1.
GCL Material [Note 5]	Non-woven needle punched.	

[Note 1] The liner is in intimate contact with the soil, and the two work together to reduce seepage losses. The PI shall be determined in accordance with ASTM D4318 and the percent fines in accordance with ASTM D1140.

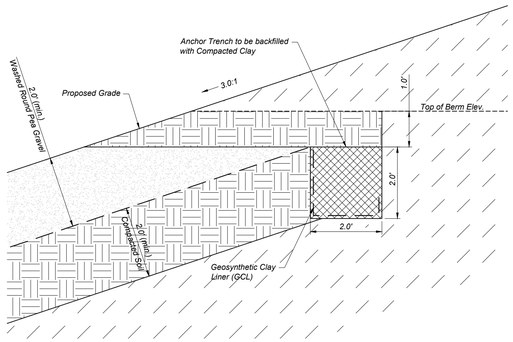
[Note 2] WI FOTG Construction Specification 203, Geosynthetic Clay Liner.

[Note 3] Community water system wells may require larger separation distances (see NR 811).

[Note 4] The GCL and soil cover shall be stable at the designed side slope.

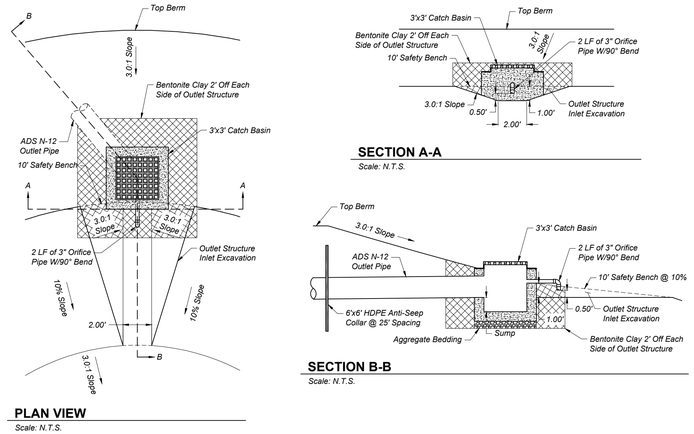
[Note 5] The liner shall be installed according to manufacturer's specifications and WI FOTG Construction Specification 203, Geosynthetic Clay Liner.

NRCS, WI
1/14



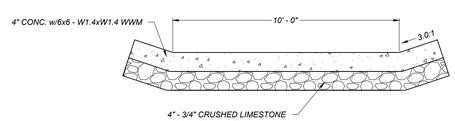
TYPICAL ANCHOR TRENCH

DETAIL SCALE: NOT TO SCALE — 2 / C1.17



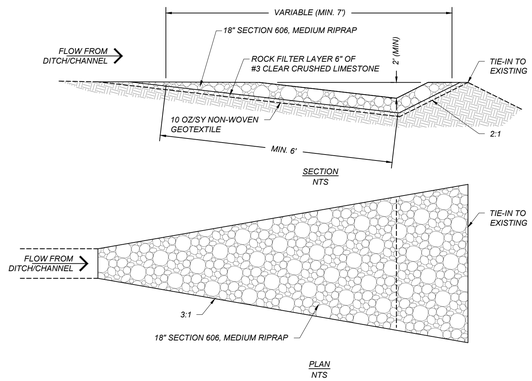
TYPICAL OUTLET STRUCTURE

DETAIL SCALE: NOT TO SCALE — 3 / C1.17



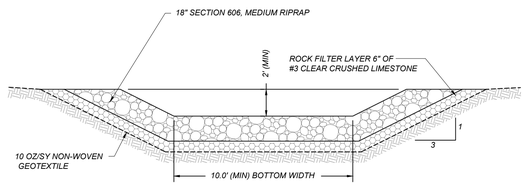
TYPICAL CONCRETE SPILLWAY SECTION

DETAIL SCALE: NOT TO SCALE — 4 / C1.17



RIP RAP STONE DIFFUSER

DETAIL SCALE: NOT TO SCALE — 5 / C1.17



TYPICAL 10' BASE RIP RAP CHANNEL

DETAIL SCALE: NOT TO SCALE — 6 / C1.17

ISSUE DATE	02/28/2020	SCALE	N.T.S.	CTR INT.	-
SURVEYED BY	COM	CHECKED BY	KJB		
DRAWN BY	ESW	APPROVED BY	MJB		

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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Web: www.dei-eng.com

WASTE MANAGEMENT

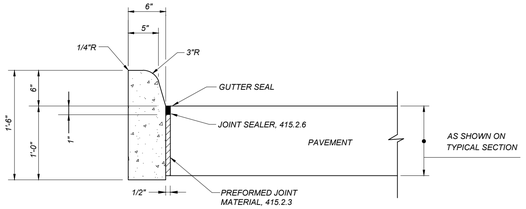
PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *WET POND DETAILS*

SHEET NO: **C1.17**

JOB NO: ENG-1465

© Apex Drive Base (NORTHERN) Corp. and NW Wisconsin Ltds., WI (Existing Facility) Commercial Base Site Plans, By Architect (DSC.dwt, Tab1) created by Mike Ryan Date: By Architect (Dsc.dwt, ... 2/28/2020 8:31 AM

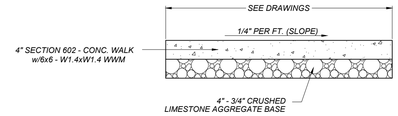


DESIGNER NOTE: EXPANSION JOINT MATERIAL AND JOINT SEALER IS NOT REQUIRED FOR THAT PORTION OF THE CURB WHICH IS ADJACENT TO A FLEXIBLE TYPE PAVEMENT.

STANDARD 6" CONCRETE CURB DETAIL

DETAIL 1 / C2.0

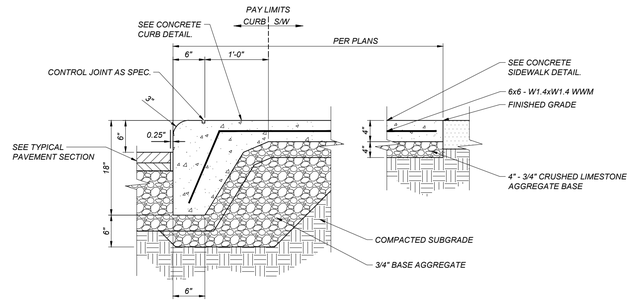
SCALE: NOT TO SCALE



TYPICAL CONCRETE SIDEWALK SECTION

DETAIL 2 / C2.0

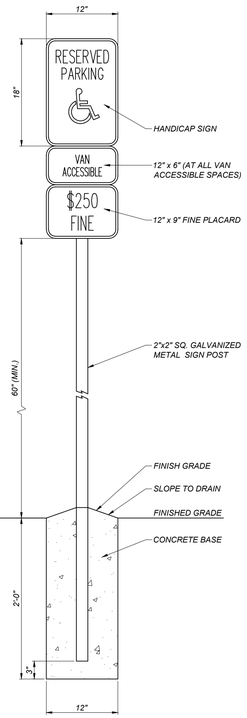
SCALE: NOT TO SCALE



TYPICAL INTEGRAL CONCRETE CURB AND SIDEWALK DETAIL

DETAIL 3 / C2.0

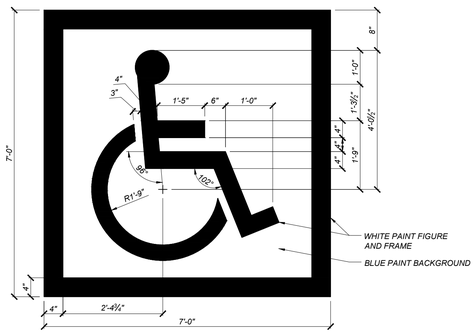
SCALE: NOT TO SCALE



TYPICAL ACCESSIBLE PARKING SIGN DETAIL

DETAIL 4 / C2.0

SCALE: NOT TO SCALE

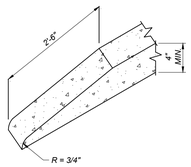


NOTES:
1.) SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL.
2.) BOTTOM OF SYMBOL FRAME TO BE LOCATED 6" FROM ACCESS DRIVE. INTO PARKING SPACE.
3.) SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND.
4.) USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) (2) COATS.

PAVEMENT MARKING INTERNATIONAL SYMBOL OF ACCESSIBILITY FOR PARKING STALLS

DETAIL 5 / C2.0

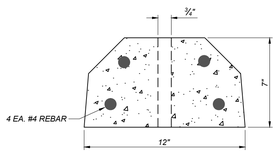
SCALE: NOT TO SCALE



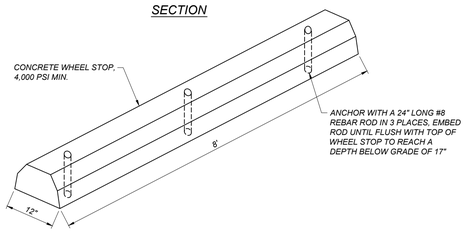
CONCRETE CURB TAPER DETAIL

DETAIL 6 / C2.0

SCALE: NOT TO SCALE



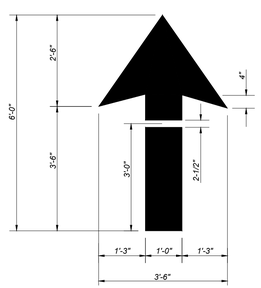
SECTION



TYPICAL CONCRETE TRUCK WHEEL STOP

DETAIL 7 / C2.0

SCALE: NOT TO SCALE



PAVEMENT MARKING TYPICAL DIRECTIONAL ARROW

DETAIL 8 / C2.0

SCALE: NOT TO SCALE

ISSUE DATE	02/26/2020	SCALE	N.T.S.	CTR INT.	-
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DRAWN BY		ESW	APPROVED BY	MJB	

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
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175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663

WASTE MANAGEMENT

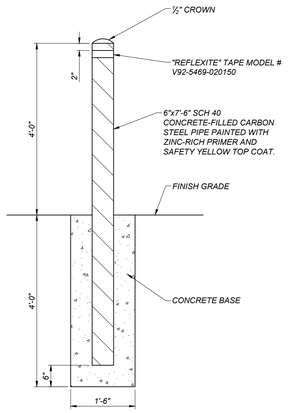
PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: GENERAL DETAILS

SHEET NO: C2.0

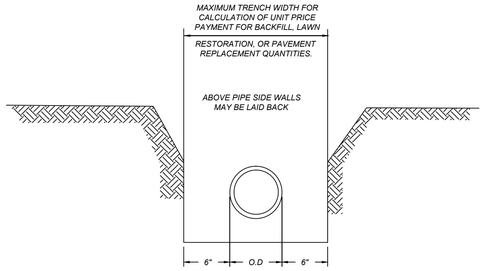
JOB NO: ENG-1465

C:\Civil\Revit Files\ENGINEERING\ENG-1465 WM Germantown Exits - WI\Working Folders\Construction Plans\Site Plans\Site Plans_R2x_Construct.DWG, WM Construction W Site Plans R2x Submittal.dwg, 2/26/2020 8:17:31 AM



TYPICAL PIPE BOLLARD

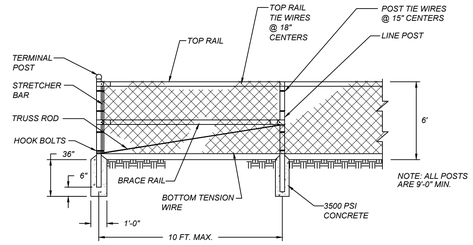
DETAIL 1 / C2.1
SCALE: NOT TO SCALE



NOTES:
1. INCLUDE ANY COST ASSOCIATED WITH RESTORATION, REPAIR, AND REPLACEMENT, OUTSIDE THE ALLOWABLE TRENCH WIDTH IN THE COST OF WORK WITHIN THE ALLOWABLE TRENCH WIDTH.
2. THE WIDTH OF THE ACTUAL TRENCH BELOW THE ELEVATION OF THE TOP OF THE PIPE IS LIMITED TO WIDTHS ALLOWED BY THE APPLICABLE ASTM STANDARD FOR THE TYPE OF PIPE BEING USED.

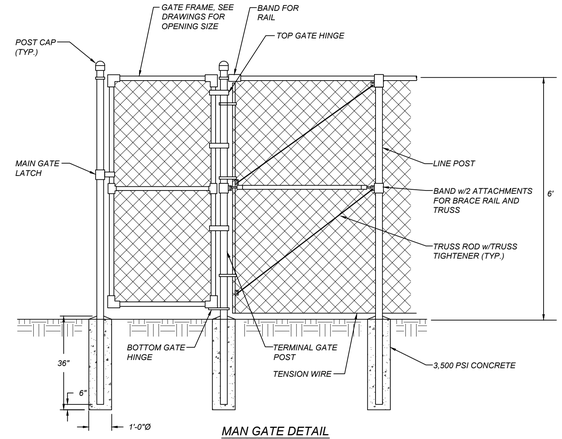
SINGLE PIPE TYPICAL TRENCH

DETAIL 2 / C2.1
SCALE: NOT TO SCALE

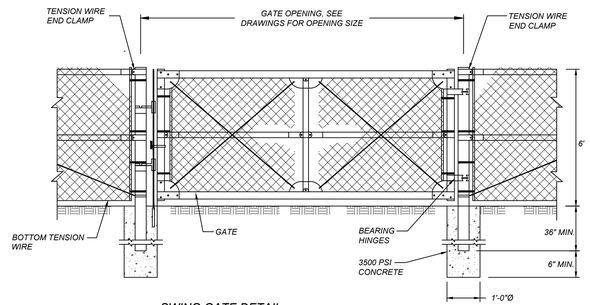


FENCE DETAILS
NOT TO SCALE

CONSTRUCTION NOTES:
1. MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS.
2. ALL POSTS SHALL BE INSTALLED VERTICALLY. WHERE POSTS ARE INSTALLED ON AN INCLINED SURFACE, THE ANGLE OF THE POST SHALL BE ADJUSTED SO THAT THE POST WILL BE VERTICAL.
3. THE FENCING SHALL BE #11 GAGE FENCE FABRIC, STANDARD 2-INCH CHAIN LINK DIAMOND MESH. MAXIMUM CLEAR SPACING AT BOTTOM IS 2".
4. CONTRACTOR TO CONFIRM ALL SAFETY SPECIFICATIONS PRIOR TO FABRICATION / INSTALLATION OF FENCE, GATES AND APPURTENANCES.



MAN GATE DETAIL
NOT TO SCALE



SWING GATE DETAIL
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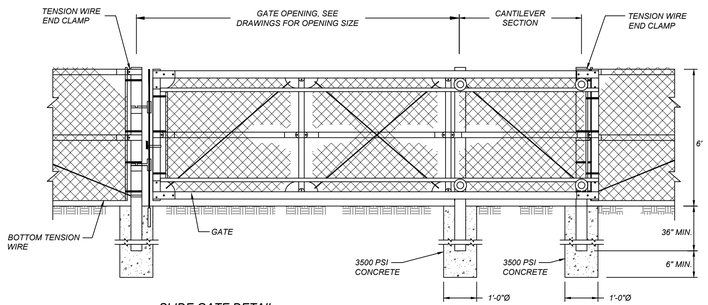
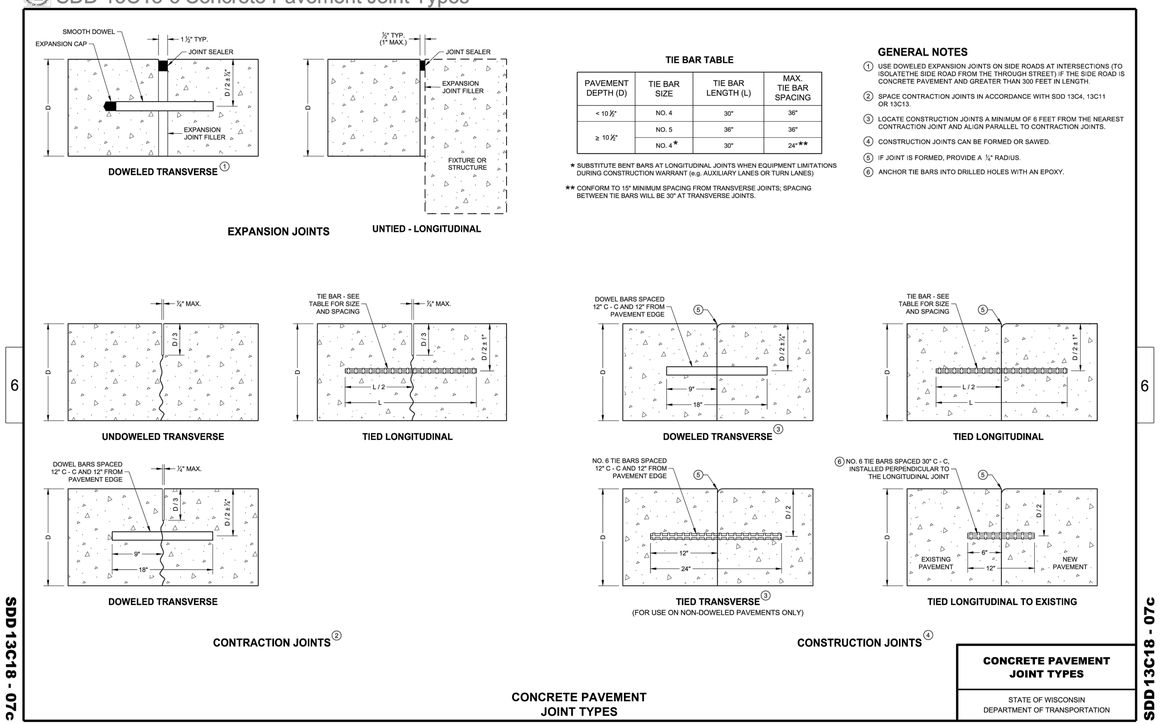


SLIDE GATE DETAIL
NOT TO SCALE

TYPICAL CHAIN LINK FENCE & ACCESS GATE

DETAIL 3 / C2.1
SCALE: NOT TO SCALE

SDD 13C18-c Concrete Pavement Joint Types



DETAIL 4 / C2.1
SCALE: NOT TO SCALE

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DRAWN BY COM | APPROVED BY | MJB
REV | DATE | DESCRIPTION | DWN BY | DES BY | CHK BY | APP BY

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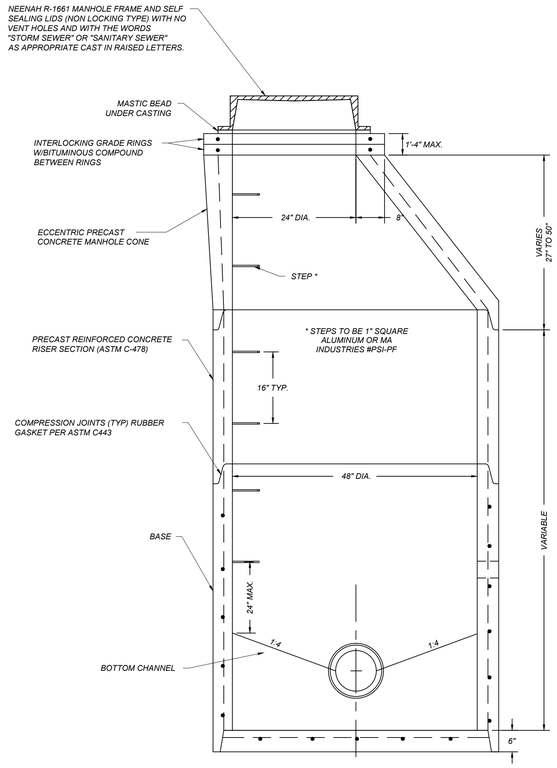
e-mail: dei@dei-eng.com
Web: www.dei-eng.com

PROJECT: **WASTE MANAGEMENT**
TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: *GENERAL DETAILS*

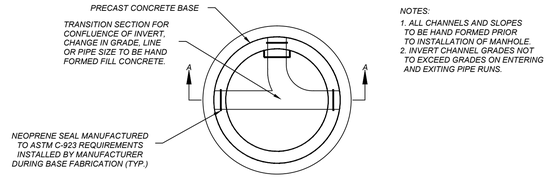
SHEET NO: **C2.1**

JOB NO: ENG-1465



PRECAST CONCRETE MANHOLE

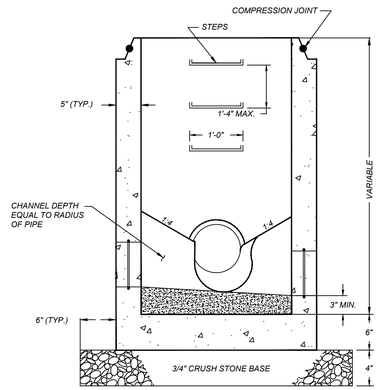
DETAIL 1 / C2.2 — SCALE: NOT TO SCALE



NOTES:
1. ALL CHANNELS AND SLOPES TO BE HAND FORMED PRIOR TO INSTALLATION OF MANHOLE.
2. INVERT CHANNEL GRADES NOT TO EXCEED GRADES ON ENTERING AND EXITING PIPE RUNS.

PLAN

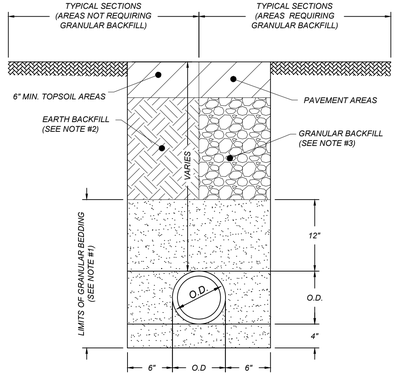
NOT TO SCALE



SECTION A-A

PRECAST MONOLITHIC CONCRETE MANHOLE BASE

DETAIL 2 / C2.2 — SCALE: NOT TO SCALE



NOTES:
1. AGGREGATE FOR BEDDING IS ¾" CRUSHED STONE CHIPS.
2. EARTH BACKFILL SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN TWO INCHES ACROSS THEIR GREATEST DIMENSION, TOPSOIL, VEGETATION, DEBRIS, RUBBISH, OR FROZEN MATERIAL, COMPACTED TO 95% OF ITS MAXIMUM DRY WEIGHT.
3. GRANULAR BACKFILL TO BE USED UNDER AND WITHIN 1.5:1 OF PAVEMENT EDGE OR PAVED BERM, AND SHALL BE COMPACTED 1-1/4" DENSE-GRADE AGGREGATE BASE.

PIPE BEDDING / BACKFILL DETAIL FOR ALL FLEXIBLE SEWER PIPE

DETAIL 3 / C2.2 — SCALE: NOT TO SCALE

SANITARY SEWER SPECIFICATIONS

GENERAL

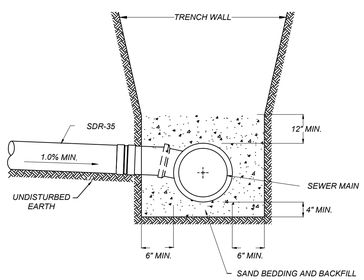
1. NEW SANITARY SEWER LINE SHALL NOT BE USED FOR CONTROLLING GROUND WATER. IF GROUND WATER IS ENCOUNTERED, CONTRACTOR WILL PROVIDE AND OPERATE APPROPRIATE PUMPING EQUIPMENT ADEQUATE TO MAINTAIN WORKING CONDITIONS, SO THAT LAYING AND JOINTING PIPE SECTIONS IS COMPLETED IN A DRY ENVIRONMENT. WATER DISCHARGED FROM PUMPS WILL BE DONE IN A WAY NOT TO CAUSE PROPERTY DAMAGE.
2. SANITARY SEWERS LOCATED WITHIN THE LIMITS OF OR WITHIN A 1.5:1 SLOPE OF EXISTING AND/OR PROPOSED ROADWAYS, PARKING AREAS, BUILDINGS, SIDEWALKS, AND/OR DRIVES SHALL HAVE GRANULAR BACKFILL. ALL OTHER SANITARY SEWERS MAY HAVE NON-GRANULAR BACKFILL.

SANITARY SEWER PIPE

1. SANITARY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) GRAVITY SEWER PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-3034, SDR 35 WITH GASKET (ELASTOMETRIC SEALS) JOINTS. PIPE JOINTS SHALL MEET ASTM D-3212-92 FOR DRAIN AND SEWER PIPE USING FLEXIBLE ELASTOMETRIC SEALS AND THE SEALS SHALL MEET ASTM F-477 FOR ELASTOMETRIC SEALS.
2. ALL MAIN SEWER LINES SHALL BE NOMINAL 8" DIAMETER.
3. SANITARY SEWER PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
4. PIPE SHALL BE LAID STRAIGHT AND TRUE TO GRADE ALIGNMENT
5. PIPE DEFLECTION SHALL NOT EXCEED 5% HORIZONTAL.
6. A MANDRELL TEST SHALL BE PERFORMED ON ALL NEW SEWER LINES INSTALLED IN ACCORDANCE WITH ASTM D-2321.
7. A LOW PRESSURE AIR TEST SHALL BE PERFORMED ON ALL NEW SANITARY SEWER LINES INSTALLED IN ACCORDANCE WITH ASTM F1417-98
8. ALL SANITARY SEWERS OR MANHOLES SHALL BE PLACED WITH AT LEAST 10 FEET HORIZONTAL SEPARATION (OUT-TO-OUT CLEAR) FROM WATER LINES. WHENEVER A WATER LINE AND SEWER MUST CROSS, AN 18 INCH MINIMUM VERTICAL SEPARATION (OUT-TO-OUT CLEAR) SHALL BE MAINTAINED BETWEEN WATER AND SEWER.

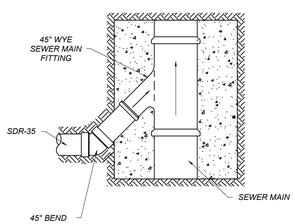
MANHOLES

1. MANHOLES SHALL BE CONSTRUCTED OF PRECAST CONCRETE WITH CAST IRON FRAMES AND COVERS AT THE LOCATIONS AS SHOWN ON THE PLANS.
2. TOPS OF MANHOLES SHALL BE CONSTRUCTED TO THE GRADES SPECIFIED IN THE PLANS. PRECAST REINFORCED CONCRETE GRADE RINGS MAY BE USED TO MAKE MINOR ADJUSTMENTS IN GRADE TO ENABLE THE FRAME AND COVER TO BE SET AT THE SPECIFIED GRADE. THE PRECAST GRADE RINGS SHALL BE INSTALLED USING BITUMINOUS COMPOUND BETWEEN JOINTS TO INSURE A WATER TIGHT FIT. MANHOLES SHALL BE SET ON A CONTINUOUS MASTIC BEAD TO INSURE A WATERTIGHT FIT.
3. PRECAST CONCRETE MANHOLES SHALL BE REINFORCED AND MEET ASTM C-478. MANHOLE RISER SECTIONS SHALL HAVE O-RING JOINTS CONFORMING TO ASTM C-443.
4. MANHOLE BASE SECTIONS SHALL HAVE PRE-FORMED OPENINGS FOR PIPE(S) WITH NEOPRENE SEALS, MANUFACTURED TO ASTM C-923 SPECIFICATIONS, INSTALLED DURING BASE FABRICATION.
5. FLOW CHANNELS IN THE MANHOLE BASE(S) SHALL BE PREFORMED AND ALIGNED AS SHOWN ON THE PLANS.
6. MANHOLES SHALL BE PROPERLY ALIGNED, SET TRUE TO GRADE AND SHALL BE PLUMB.
7. MANHOLE FRAMES AND COVERS SHALL BE NEENAH R-1661 MANHOLE FRAME AND SELF SEALING LIDS (NON LOCKING TYPE) WITH NO VENT HOLES AND WITH THE WORDS "SANITARY SEWER" IN RAISED LETTERS CAST THEREON.
8. MANHOLES SHALL BE HYDROSTATICALLY TESTED FOR LEAKAGE OR BY VACUUM TEST PRIOR TO BACKFILL IN ACCORDANCE WITH ASTM C1244.



SECTION

NOT TO SCALE

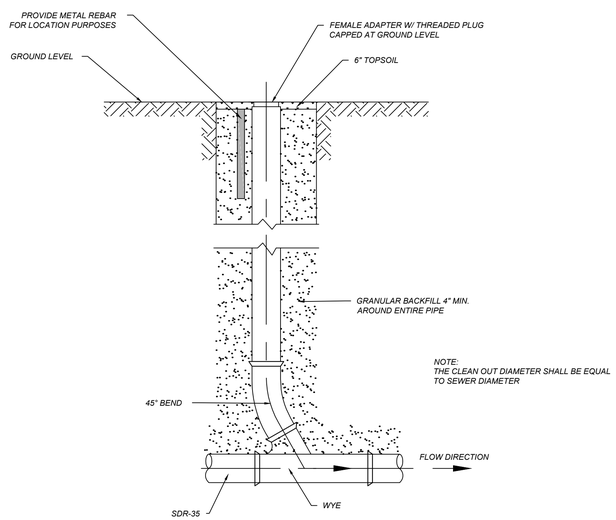


PLAN

NOT TO SCALE

TYPICAL SANITARY SEWER LATERAL

DETAIL 4 / C2.2 — SCALE: NOT TO SCALE



TYPICAL CLEAN OUT

DETAIL 5 / C2.2 — SCALE: NOT TO SCALE

ISSUE DATE 02/28/2020 — SCALE N.T.S. — CTR INT. -
SURVEYED BY COM — CHECKED BY — KJB
DRAWN BY ESW — APPROVED BY — MJB

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

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WASTE MANAGEMENT

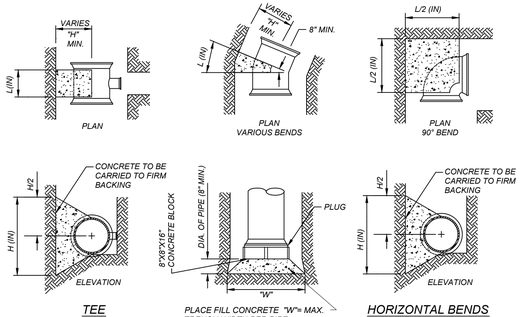
PROJECT: TRUCK MAINTENANCE FACILITY GERMANTOWN, WI

SHEET TITLE: SANITARY NOTES & TYPICAL DETAILS

SHEET NO: C2.2

JOB NO: ENG-1465

C:\Acrs Docs (Doc)\DEI\DEI (Doc) 1465 WM Maintenance Facility\Drawing Files\Construction Plans\Sht Files\Sanitary Notes & Typical Details.dwg, 1465 Construction Sht Files Plot By Emma Bell (Software), 2/28/2020 8:37 AM



TEE

HORIZONTAL BENDS

PLACE FILL CONCRETE "W"= MAX. TRENCH WIDTH PER PIPE BEDDING / BACKFILL DETAIL FOR ALL WATER PIPE SYMMETRICAL ABOUT C/L OF PIPE.HEIGHT = 2 X DIA. OF PIPE.

END OF LINE

L & H DIMENSIONS ARE IN INCHES

RUN \ BRANCH	2"		3"		4"		6"		8"		10"		12"	
	L	H	L	H	L	H	L	H	L	H	L	H	L	H
2"	6	5												
3"	6	5	8	6										
4"	6	5	8	6	12	7								
6"	6	6	8	6	10	8	15	12						
8"	6	8	6	8	10	8	15	12	18	18				
10"	6	10	6	10	8	10	15	12	18	18	22	22		
12"	6	12	6	12	7	12	15	12	18	18	22	22	24	29
14"	6	14	6	14	6	14	13	14	18	18	22	22	26	27

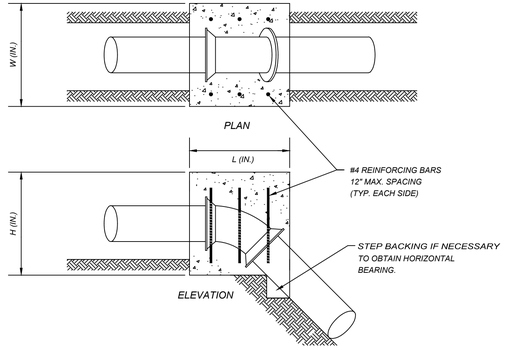
NOTE: USE FILL CONCRETE. DESIGN BASED ON A WORKING PRESSURE OF 125 PSI AND A SOIL BEARING OF 3000 LB./SQ. FT.

SIZE OF PIPE	DEGREE OF BEND 11 1/4°		22 1/2°		45°		90°	
	L	H	L	H	L	H	L	H
2"	4	3	4	4	5	4	10	5
3"	4	3	5	4	7	5	16	6
4"	5	4	7	5	10	6	20	8
6"	6	6	10	7	17	8	30	12
8"	8	8	14	9	19	13	36	18
10"	10	10	17	11	22	17	44	22
12"	12	12	19	15	24	22	48	29
14"	14	14	20	19	25	29	52	36
16"	16	16	20	24	27	35	58	42
18"	18	18	22	28	28	42	62	50
20"	20	20	25	30	32	46	68	56
24"	23	24	29	37	36	58	80	68

THRUST BLOCKING DETAIL HORIZONTAL BENDS

DETAIL 1 / C2.3

SCALE: NOT TO SCALE



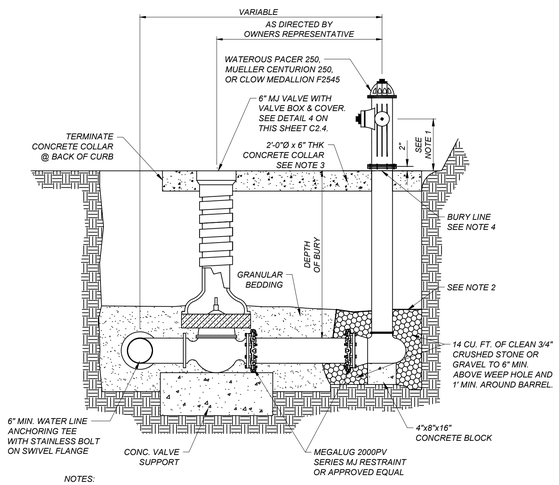
NOTE:
1. BLOCKING TO BE CENTERED ON BEND HORIZONTALLY.
2. ALL CONCRETE TO BE FILL CONCRETE.
3. L & W & H DIMENSIONS ARE IN INCHES.
4. BLOCKING DESIGN BASED ON A WORKING PRESSURE OF 125 PSI AND A SOIL BEARING OF 3000 LB./SQ. FT.

SIZE OF PIPE	DEGREE OF BEND 11 1/4°			22 1/2°			45°			90°		
	L	W	H	L	W	H	L	W	H	L	W	H
3"	12	18	15	13	24	15	18	30	16	25	30	20
4"	13	24	16	16	30	16	25	30	20	27	40	24
6"	15	36	18	27	36	18	30	44	24	36	45	36
8"	20	40	20	28	48	22	34	50	34	43	58	42
10"	24	44	22	32	54	27	40	55	40	51	64	50
12"	32	48	24	36	60	30	46	60	46	60	66	59
14"	34	54	26	40	60	38	54	60	53	66	73	66
16"	35	60	30	42	66	42	59	66	58	72	80	72
18"	36	66	32	48	66	46	66	66	65	75	94	74
20"	38	70	36	54	66	50	68	76	68	78	106	78
24"	42	72	44	60	72	60	78	84	77	90	114	90

THRUST BLOCKING DETAIL VERTICAL BENDS

DETAIL 2 / C2.3

SCALE: NOT TO SCALE

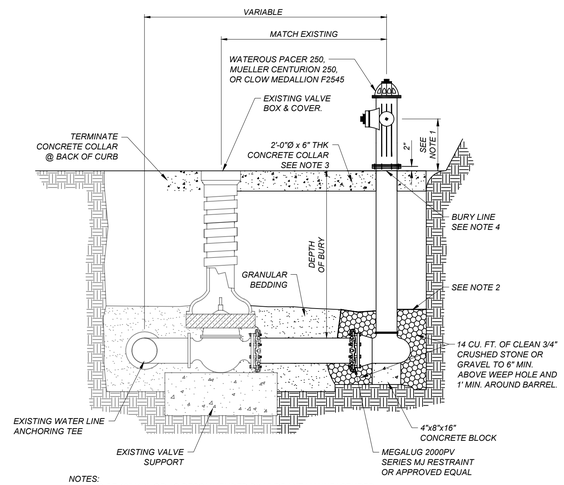


NOTES:
1. TO BE 12" MIN. OR AS RECOMMENDED BY HYDRANT MANUFACTURER.
2. COVER STONE WITH 8-MIL POLYETHYLENE BEFORE BACKFILLING.
3. CONCRETE COLLAR SHALL BE FLUSH WITH GROUND IN RURAL AREAS AND 8" BELOW FINISH GRADE IN RESIDENTIAL AREAS.
4. SET BURY LINE ON HYDRANT ASSEMBLY AT THE TOP CONCRETE COLLAR.

FIRE HYDRANT ASSYMBLY WITH VALVE AND VALVE BOX

DETAIL 3 / C2.3

SCALE: NOT TO SCALE



NOTES:
1. TO BE 12" MIN. OR AS RECOMMENDED BY HYDRANT MANUFACTURER.
2. COVER STONE WITH 8-MIL POLYETHYLENE BEFORE BACKFILLING.
3. CONCRETE COLLAR SHALL BE FLUSH WITH GROUND IN RURAL AREAS AND 8" BELOW FINISH GRADE IN RESIDENTIAL AREAS.
4. SET BURY LINE ON HYDRANT ASSEMBLY AT THE TOP CONCRETE COLLAR.

FIRE HYDRANT REPLACEMENT

DETAIL 3 / C2.3

SCALE: NOT TO SCALE

REQUIREMENTS FOR WATER SERVICE OR FIRELINE INSTALLATION
Village of Menomonee Falls Water Utility

FIELD REQUIREMENTS
- A twenty-four (24) hour notice is required for inspection of all fittings, valves, and water main prior to installation.
- Water main or lateral installation may not begin until footings of building are installed.
- When installing a fireline only, a licensed sprinkler fitter is required to be on site.
- All valves to be operated by Water Utility personnel only.

TAPPING
- Forty-eight (48) hour notice is required prior to a tap. Contact the Water Utility at 262-532-4800 by 8:00 a.m. on day of tap to confirm tap due to possible cancellation, and so valving and throttling of watermains can be done in a timely manner as to avoid any damage to the utility facilities.
- The Water Utility requires a new tapping bit.
- Tapping saddles of four inch (4") thru twenty inch (20") will require testing before tapping by filling test plug with water and pressurized with air to eighty (80) PSI.
- All taps require tapping saddles. (See Material Specification List #9).

NOTE: Contractor to notify Water Utility for inspection before backfilling of all taps.

UNDERGROUND REQUIREMENTS
- All material must be inspected before backfilling. Failure to do so will require you to dig up for inspection.
- All water main and/or laterals must be installed at minimum six feet (6') bury depth.
- Plastic wrap on all fittings and valve boxes required.
- Firelines entering through a wall must be rodded back to the last twenty foot (20') bell clamp or wall clamp required. (See Material Specification List #5).
- Risers must be ductile iron only.
- No extensions on risers below grade.
- Concrete buttress required behind all bends.
- Megalugs and rods are required on spool piece.
- Ten (10) gauge solid tracer wire required from point of connection to inside.

PRESSURE TESTING
- Twenty-four (24) hour prior notification for a pressure test.
- A fireline test must be pumped up to test pressure by 12:45 p.m. the day of test.
- All mains four inch (4") thru twenty inch (20") require a 200 PSI pressure test for two (2) hours.
- No leakage test allowed.
- Only hydrostatic tests will be accepted.
- Only liquid filled gauge rated for over 200 PSI will be accepted. Gauge must be on tested portion separate from pump.

NOTE: Water Utility personnel must be present to witness test.

FILLING OF WATER MAINS
- Call the Water Utility office at (262) 532-4800 to arrange for all valving.
- Water for filling, testing and flushing will be supplied only with permission of the Water Utility.

FLUSHING
- Contact Water Utility to set up appointment time for flush. Water Utility will then coordinate with Fire Department.
- All water mains four (4") inch thru twenty (20") inch are required to have a line flush to remove debris from line per NFPA 24.
- No hook-up to the riser until a witnessed flush is completed and a safe sample has been returned.
- It is the contractor's responsibility for a water sample to be taken at time of flushing.
- Fire Department personnel must be present with Water Utility personnel during flushing.
- NFPA form 9-2.1 to be filled out and submitted at this time.

Hose Size requirements for flushing.

Water Main Size	Hose Size Required
4" thru 6"	3 inch
8"	4 inch
10" thru 12"	6 inch

Per NFPA Table 9-1.1

- MJ cap required to be bolted on riser flange after each flush.
- An individual holding a valid underground restricted, master plumber or sprinkler fitter license must be on site.
- All testing and flushing must be completed within a three (3) month period of original application.

SAMPLING
- Safe water sample required and in writing prior to meter issuance and water turn on.
- Results from a certified state laboratory must be faxed ((262) 532-4809) within three (3) days of taking sample.

CHECK VALVES
- Copy of the Wisconsin cross Connection Control Device Performance test sheet showing approved test results submitted to the Water Utility prior to meter issuance.
- All double check valve units require leak detector meter.

FIRE HYDRANTS
- All hydrants must be installed per Menomonee Falls Water Utility specification.
- All private hydrants are required to be yellow in color.
- For a building requiring one hydrant, the hydrant may be installed directly off of fireline. No metering required. (Contact Water Utility for details).
- For a building requiring two or more hydrants metering is required. (Contact Water Utility for details).

METER PIT
- A meter pit is required at the lot line where laterals exceed three hundred (300) feet to building.

WATERLINE SPECIFICATIONS

1. WATER LINE SHALL BE AWWA C-900 POLYVINYL CHLORIDE PIPE (DR-18 235 PSI AND DR-14 305 PSI FOR FIRELINES), NSF APPROVED RUBBER GASKETED BELL-JOINT PIPE (ASTM F477, ASTM D3139). PIPE SIZE SHALL BE AS SPECIFIED ON THE PLANS
2. DEPTH OF BURY - 72 INCHES MINIMUM COVER
3. ALL GATE VALVES SHALL CONFORM TO AWWA C-500 SPECIFICATIONS AND SHALL BE AS MANUFACTURED BY MUELLER CO. MODEL A-2360 MJ x MJ. VALVES SHALL HAVE IRON BODIES AND BRONZE MOUNTED WITH BRONZE NON-RISING STEMS, BRONZE BUSHINGS, BRONZE RINGS, BRONZE GUIDES, STAINLESS STEEL TRIM, AND OPEN TO THE LEFT. THEY SHALL BE OF RESILIENT SEAT WEDGE GATE TYPE WITH A RELIABLE MECHANISM TO INSURE THEIR PERFECT PERFORMANCE.
4. VALVE BOXES SHALL BE TYLER "DD" OR EAST JORDAN "DD" THREE PIECE WITH ADAPTERS (VALVE BOX ADAPTERS BY ADAPTER INC.) AND SHALL BE 5-1/4" NOMINAL BARREL DIAMETER, CAST IRON THREE PIECE ADJUSTABLE RISER WITH COVER MARKED "WATER" AND SHALL BE PLACED ½" BELOW FINISH GRADE OF ASPHALT.
5. VALVE BOXES SHALL BE ADJUSTABLE , FOLLOWING INSTALLATION, A MINIMUM OF SIX (6) INCHES VERTICALLY IN EITHER DIRECTION.
6. ALL FITTINGS SHALL BE DUCTILE CAST IRON WITH A WALL THICKNESS EQUAL OR GREATER THAN THE REQUIREMENTS OF AWWA C-153 FOR DUCTILE CAST IRON FITTINGS. ALL FITTING JOINTS SHALL BE MECHANICAL. THE FOLLOWING SHALL BE USA MADE ONLY: ALL FITTINGS SHALL BE TYLER/UNION FOUNDRY OR CLOW; ALL BOLTS AND NUTS SHALL BE CORE BLUE; AND ANCHOR TEES FOR HYDRANTS WITH BOLT ON SWIVEL FLANGE.
7. ALL FIRE HYDRANTS SHALL BE WATEROUS PACER 250, MUELLER CENTURION 250, OR CLOW MEDALLION F2545.
8. RESTRAINTS SHALL BE USED ON ALL DUCTILE IRON FITTINGS. RESTRAIN ALL T-SECTIONS, HORIZONTAL BENDS, VERTICAL BENDS, AND REDUCERS BY MEGALUG SERIES 2000PV RESTRAINTS OR FORD UNI-FLANGE.
9. RESTRAIN ALL JOINTS WITHIN SPECIFIED JOINTS WITH FORD 1390 HUB RESTRAINT OR MEGALUG SERIES 1600 RESTRAINT
   - 3 JOINTS FROM BENDS
   - 5 JOINTS FROM DEAD ENDS
10. FOLLOWING COMPLETE INSTALLATION AND TESTING OF LINES, VALVES, AND APPURTENANCES AND BEFORE PLACING IN OPERATION, THE SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA STANDARD C-651.
11. STAMP OR ETCH A "W" INTO TOP OF CURB OVER SERVICE LINE LOCATION.
12. A TEN FOOT MIN. HORIZONTAL SEPARATION (OUT-TO-OUT, CLEAT) SHALL BE MAINTAINED BETWEEN THE WATERLINE AND SANITARY SEWER.
13. AN 18-INCH MIN. VERTICAL SEPARATION (OUT-TO-OUT, CLEAR) SHALL BE MAINTAINED BETWEEN THE WATERLINE AND SANITARY SEWER.
14. A TEN FOOT MIN. HORIZONTAL SEPARATION (OUT-TO-OUT, CLEAR) SHALL BE MAINTAINED BETWEEN THE WATERLINE AND STORM SEWER.
15. AN 18-INCH MIN. VERTICAL SEPARATION (OUT-TO-OUT, CLEAR) SHALL BE MAINTAINED BETWEEN THE WATERLINE AND STORM SEWER
16. WHEN IT IS IMPOSSIBLE TO OBTAIN THE MIN. SPECIFIED HORIZONTAL SEPARATION DISTANCE THE WATER MAIN MUST BE LAID IN A SEPARATE TRENCH ON ONE SIDE OF THE SEWER AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 18" ABOVE THE TOP OF THE GRAVITY SEWER.
17. ALL SEWER LATERALS WITH LESS THAN 2' OF VERTICAL SEPARATION SHALL BE SLEEVED.
18. WHERE PLANS CALL FOR A NEW SERVICE CONNECTION, CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING LOCATION OF EXISTING SERVICE LINE. LOCATIONS SHOWN ON PLANS ARE APPROXIMATE.
19. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020 | SCALE | CTR INT. -
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WASTE MANAGEMENT

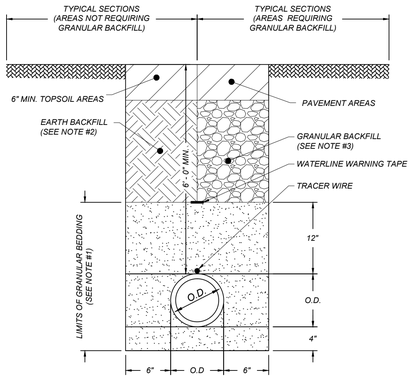
PROJECT: TRUCK MAINTENANCE FACILITY GERMANTOWN, WI

SHEET TITLE: WATERLINE NOTES & TYPICAL DETAILS

SHEET NO: C2.3

JOB NO: ENG-1465

Z:\Jobs\Civil Data\PROPERTIES\Civil Jobs\WM Maintenance Facility - WI\Working Folder\Construction Plans\Site Plans\C2.3 Site Plan Details.dwg, 2/26/2020 2:37 PM



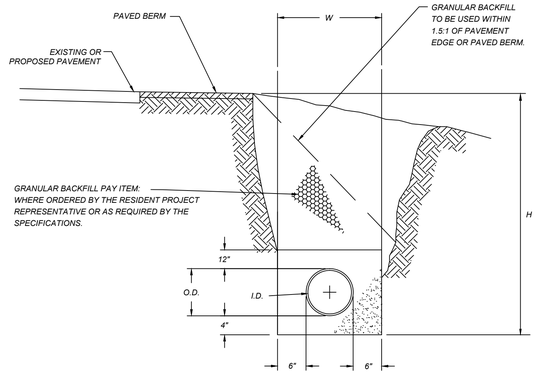
NOTES:

1. AGGREGATE FOR BEDDING IS ¾" CRUSHED STONE CHIPS.
2. EARTH BACKFILL SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN TWO INCHES ACROSS THEIR GREATEST DIMENSION, TOPSOIL, VEGETATION, DEBRIS, RUBBISH, OR FROZEN MATERIAL, COMPACTED TO 95% OF ITS MAXIMUM DRY WEIGHT.
3. GRANULAR BACKFILL TO BE USED UNDER AND WITHIN 1.5:1 OF PAVEMENT EDGE OR PAVED BERM, AND SHALL BE COMPACTED 1-1/4" DENSE-GRADE AGGREGATE BASE.

PIPE BEDDING / BACKFILL DETAIL FOR ALL WATER PIPE

DETAIL 1 / C2.4

SCALE: NOT TO SCALE



LIMITS OF PAYMENT:

PAYMENT SECTION IS 'W' x 'H'

THE TOP LIMIT OF 'H' IS THE BOTTOM OF PAVEMENT, BOTTOM OF BERM AGGREGATE BASE, TOP OF TRENCH, OR REQUIRED ELEVATION (WHERE THE TRENCH IS ONLY PARTIALLY BACKFILLED WITH GRANULAR BACKFILL).

THE BOTTOM LIMIT OF 'H' IS THE TOP OF THE GRANULAR BEDDING MATERIAL ACCORDING TO PIPE BEDDING / BACKFILL DETAIL FOR ALL FLEXIBLE SEWER, WATER PIPE, OR STORM SEWER PIPE AS APPROPRIATE.

NOTES:

DUCTILE IRON WATER PIPE SHALL HAVE A MINIMUM OF 12" OF GRANULAR BEDDING ABOVE AND 4" BELOW THE INSTALLED WATER PIPE.

USE STONE FOUNDATION WHEN THE NATURAL FOUNDATION PROVES UNSUITABLE AS DETERMINED BY THE RESIDENT PROJECT REPRESENTATIVE AND IN ACCORDANCE WITH THE SPECIFICATIONS.

GRANULAR BACKFILL DETAIL FOR TRENCH

DETAIL 2 / C2.4

SCALE: NOT TO SCALE

MATERIAL SPECIFICATION LIST
Village of Menomonee Falls Water Utilies

1. PIPE
- PVC-DR-18
- PVC-DR-14 for Firelines
- DUCTILE CLASS 55, POLY WRAPPED
- HDPE SDR11-PIPS
- TRACER WIRE (#10 SOLID)

2. FITTINGS (USA MADE ONLY)
- TYLER/UNION FOUNDRY or CLOW
- CORE BLUE NUTS & BOLTS ONLY
- ANCHOR TEES FOR HYDRANTS/WITH STAINLESS BOLT ON SWIVEL FLANGE

3. GATE VALVES 4" TO 8"
- WATEROUS # 2500 SERIES -DUCTILE OR CAST IRON, S.S. TRIM, OPEN LEFT
- MUELLER # 2360 SERIES-DUCTILE/CAST IRON, STAINLESS TRIM, RW, OPEN LEFT
- CLOW #C509OI-HEAVY DUCTILE STAINLESS TRIM, RW, OPEN LEFT

BUTTERFLY VALVES 10" TO 24"
- CLOW - KENNEDY - M & H STYLE 4500 WITH ALL STAINLESS HARDWARE, OPEN LEFT

4. VALVE BOXES
- TYLER "DD" THREE PIECE, WITH ADAPTERS (VALVE BOX ADAPTER/BY ADAPTER INC).
- EAST JORDAN "DD" THREE PIECE, WITH ADAPTERS (VALVE BOX ADAPTER/BY ADAPTER INC.)

5. M.J. RESTRAINTS	BELL JOINT RESTRAINTS	FRICTION CLAMPS
• EBAA IRON MEGA LUGS	FORD- 1390 HUB RESTRAINER	MAX WEISS
• FORD UNI-FLANGE	EBBA- 1600 SERIES HUB RESTRAINTS	FRICTION CLAMPS

6. HYDRANTS
- WATEROUS PACER 250
- MUELLER CENTURION 250
- CLOW MEDALLION F2545
- HYDRANT EXTENSIONS MUST BE OEM ONLY

NOTE: ALL HYDRANTS MUST BE GREASE LUBRICATION
NOTE: ALL HYDRANTS MUST HAVE FACTORY INSTALLED VANDAL SHIELD
NOTE: MUELLER OR CLOW HYDRANTS MUST BE USED ON MAIN ROADS DESIGNATED BY WATER SUPERINTENDENT

7. SERVICES - MINIMUM OF 1-1/4" REQUIRED FOR NEW CONSTRUCTION (FULL PORT ONLY)
- ALL WATERWORKS BRASS AS OF 2014 MUST BE NSF/ANSI 61
- ALL BRASS MUST HAVE TRACER WIRE NUT (T.W.)
- FORD FULL PORT CORP STOP # FB1000 SERIES
- FORD FULL PORT CURB STOP # B44 SERIES
- MUELLER CURB STOP #300 SERIES
- MUELLER CORPORATION STOP # B25 SERIES
- POLY TUBING 200 PSI RATED, SS INSERTS REQUIRED
- AY McDonald FULL PORT CORP STOP #74701BQ SERIES
- AY McDonald FULL PORT CURB STOP #76104Q SERIES

8. STAINLESS STEEL TAPPING SADDLES FOR SERVICE (1" THROUGH 2") (NO REDUCING BUSHING ALLOWED)
- FORD FS202 - SINGLE STRAP
- SMITH BLAIR # 317 SERIES
- ROMAC # 202N SERIES

9. TAPPING SLEEVES (4" THROUGH 20")
- FORD # FTSSM J. OUTLET
- ROMAC#RSST SS MJ OUTLET
- SMITH BLAIR - # 665 WITH M.J. OUTLET

NOTE: ALL STAINLESS HARDWARE REQUIRED

10. LOCKING BY PASS VALVES
- ORD # B11-666-W (1-1/2") # B11-777W (2")
- MUELLER # B200200 (1-1/2" THROUGH 2")

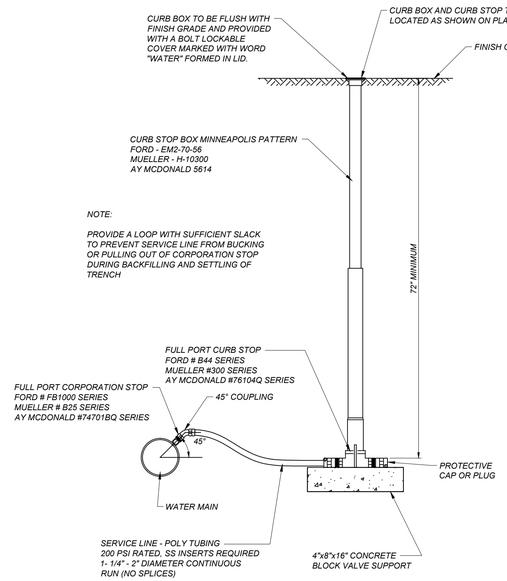
11. CURB STOP BOXES Minneapolis Pattern
- FORD - EM2-70-56
- MUELLER - H-10300
- AY McDonald 5614

12. TRACER WIRE KIT (VAIT)
- BRACKET -HTWB - 7000
- PROCTECTION - LPPV - C007
- TWIST LOCK WIRE CONNECTORS
- #10 SOLID WIRE

13. CASING SPACERS
- POWER SEAL-MODEL 4810
- CASCADE - TYPE CCS

14. METER PITS
- FORD # PMBHH-688-36-72 WITH MC-36-MD-TT COVER 6' BURY DEPTH

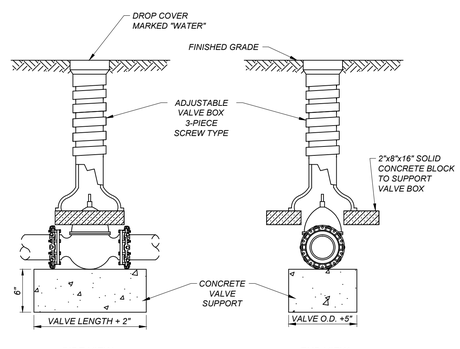
15. FIRELINE DOUBLE CHECK VALVE
- Watts 706 DCDA



TYPICAL SERVICE LINE AND SERVICE STOP SETTING

DETAIL 3 / C2.4

SCALE: NOT TO SCALE



TYPICAL VALVE AND VALVE BOX SETTING

DETAIL 4 / C2.4

SCALE: NOT TO SCALE

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ISSUE DATE 02/28/2020 SCALE N.T.S. CTR INT. 1
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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: WATERLINE NOTES & TYPICAL DETAILS

SHEET NO: C2.4

JOB NO: ENG-1465

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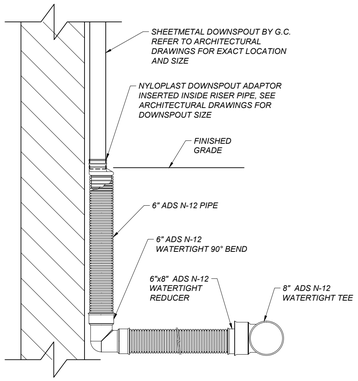
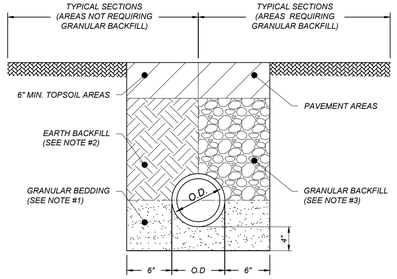


DOWNSPOUT ADAPTOR DETAIL

DETAIL 1 / C2.5
SCALE: NOT TO SCALE



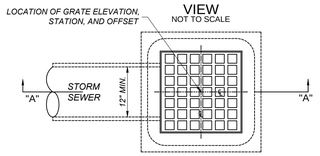
NOTES:
1. AGGREGATE FOR BEDDING IS ¾" CRUSHED STONE CHIPS.
2. EARTH BACKFILL SHALL BE NATURAL SOIL FREE FROM STONES LARGER THAN TWO INCHES ACROSS THEIR GREATEST DIMENSION, TOPSOIL, VEGETATION, DEBRIS, RUBBISH, OR FROZEN MATERIAL, COMPACTED TO 95% OF ITS MAXIMUM DRY WEIGHT.
3. GRANULAR BACKFILL TO BE USED UNDER AND WITHIN 1.5:1 OF PAVEMENT EDGE OR PAVED BERM, AND SHALL BE COMPACTED 1-1/4" DENSE-GRADE AGGREGATE BASE.

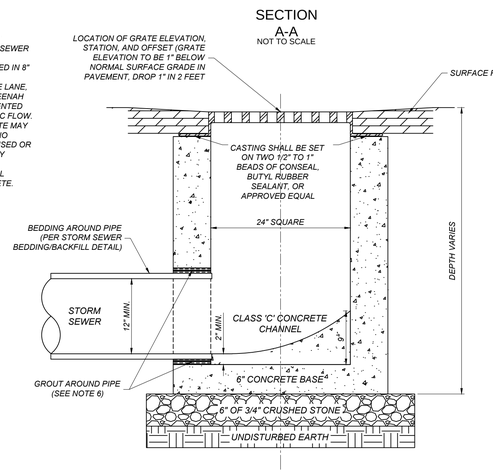
PIPE BEDDING / BACKFILL DETAIL FOR ALL STORM SEWER PIPE

DETAIL 2 / C2.5
SCALE: NOT TO SCALE

NOTES:
1. PRECAST CONCRETE CATCH BASINS ARE ALLOWED AS NOTED HERIN.
2. ALL CONCRETE SHALL CONFORM TO DOT SECTION 501 CLASS C (4000 psi).
3. A CONCRETE CHANNEL SHALL BE POURED INTO THE BOTTOM OF THE CATCH BASIN USING CLASS 'C' CONCRETE. THE CHANNEL SHALL TAPER FROM 9" THICKNESS TO 2" MIN. THICKNESS AT THE LOWEST SEWER INVERT AND SHALL BE FINISHED WITH A SMOOTH SURFACE.
4. THE EXCAVATED AREA AROUND THE CATCH BASIN SHALL BE BACKFILLED WITH DOT 608.2 COMPACTED IN 8" LIFTS. NO FOUNDRY SAND OR SLAG PERMITTED.
5. WHERE CATCH BASIN WILL BE LOCATED WITHIN CROSSWALK, AT ADA RAMP, OR IN DESIGNATED BIKE LANE, CASTING SHALL BE EAST JORDAN IRON WORKS (EJIW) 5250 INLET WITH V-5622080 ADA GRATE OR NEENAH R-3405-A INLET WITH TYPE 'L' GRATE, OR APPROVED EQUAL. AS APPLICABLE, GRATE SHALL BE ORIENTED SUCH THAT THE LONG OPENINGS ARE PERPENDICULAR TO NORMAL DIRECTION OF BICYCLE TRAFFIC FLOW. IN OTHER LOCATIONS, CASTING SHALL BE EJIW 5250 OR NEENAH R-3405 INLET AND STANDARD GRATE MAY BE USED. IN ALL LOCATIONS, GRATE MUST INCLUDE "ECO-SENSITIVE" MARKINGS SUCH AS: "DUMP NO WASTE; DRAINS TO STREAM" AND AN AQUATIC LIFE LOGO. THE LETTERING AND LOGO SHALL BE RAISED OR RECESSED AND INTEGRAL WITH THE CASTING. ALTERNATE NOTATION OR LOGO IS SUBJECT TO CITY APPROVAL.
6. ALL OPENINGS AND KNOCKOUTS FOR INLET AND OUTLET PIPINGS SHALL BE FASHIONED NEATLY. ALL ANGULAR SPACE SHALL BE FILLED WITH CEMENT GROUT, BRICK AND MORTAR, OR CLASS 'C' CONCRETE.

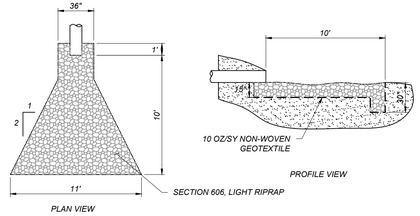
PRECAST CONCRETE CATCH BASINS ARE ACCEPTABLE AND SHALL BE CONSTRUCTED PER THIS DRAWING AND THE FOLLOWING SPECIFICATIONS:
1. THE PRECAST UNIT SHALL CONFORM TO DOT SECTION 611.2.
2. PRECAST WALLS AND BOTTOM SHALL HAVE A MINIMUM THICKNESS OF 6".
3. STACKED PRECAST SECTIONS MUST HAVE A TONGUE/GROOVE JOINT AND A BUTYL SEALANT.





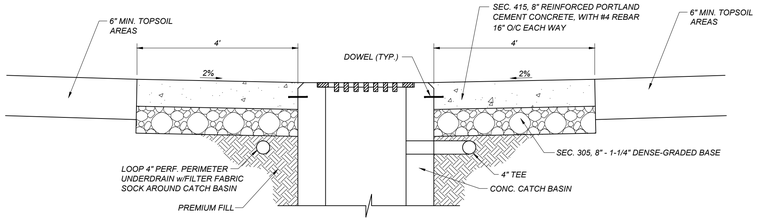
2x2 CATCH BASIN

DETAIL 3 / C2.5
SCALE: NOT TO SCALE



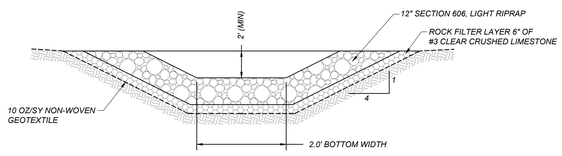
RIPRAP STONE OUTLET PROTECTION

DETAIL 4 / C2.5
SCALE: NOT TO SCALE



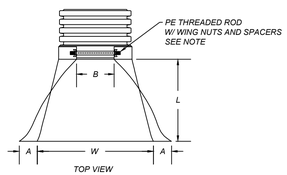
TYPICAL CATCH BASIN CONCRETE APRON

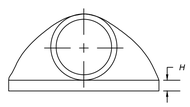
DETAIL 5 / C2.5
SCALE: NOT TO SCALE

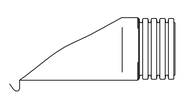


TYPICAL 2' BASE RIP RAP CHANNEL

DETAIL 6 / C2.5
SCALE: NOT TO SCALE







FLARED END SECTIONS

PART #	PIPE SIZE	A	B(MAX)	H	L	W
1015NP	10 in (250 mm)	3.8 in (95 mm)	10.0 in (254 mm)	6.5 in (165 mm)	28.0 in (711 mm)	34.5 in (876 mm)
1215NP	12 & 15 in (300 & 375 mm)	6.5 in (165 mm)	10.0 in (254 mm)	6.5 in (165 mm)	25.0 in (635 mm)	29.0 in (737 mm)
1810NP	18 in (450 mm)	7.5 in (191 mm)	15.0 in (381 mm)	6.5 in (165 mm)	32.0 in (813 mm)	35.0 in (889 mm)
2410NP	24 in (600 mm)	7.5 in (191 mm)	18.0 in (457 mm)	6.5 in (165 mm)	36.0 in (914 mm)	45.0 in (1143 mm)
3015NP	30 in (750 mm)	7.5 in (191 mm)	12.0 in (305 mm)	8.6 in (218 mm)	58.0 in (1473 mm)	63.0 in (1600 mm)
3615NP	36 in (900 mm)	7.5 in (191 mm)	25.0 in (635 mm)	8.6 in (218 mm)	58.0 in (1473 mm)	63.0 in (1600 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

ADS ADVANCED DRAINAGE SYSTEMS, INC.	DRAWING #:	6070	
	DRAWN BY:	JCB	01.17.07
	APPROVED BY:	JCB	06.28.07
	REVISIONS:	TJR	6/7/2016

TYPICAL CULVERT FLARED END SECTION

DETAIL 7 / C2.5
SCALE: NOT TO SCALE

STORM SEWER SPECIFICATIONS

1. ALL PROPOSED STORM SEWERS SHALL MEET THE REQUIREMENTS OF DOT SECTION 608 FOR CLASS III-A STORM SEWERS. STORM SEWERS LOCATED WITHIN THE LIMITS OF OR WITHIN A 1.5:1 SLOPE OF EXISTING AND/OR PROPOSED ROADWAYS, PARKING AREAS, BUILDINGS, SIDEWALKS, AND/OR DRIVES SHALL HAVE GRANULAR BACKFILL. ALL OTHER STORM SEWERS MAY HAVE NON-GRANULAR BACKFILL.
2. THE CONTRACTOR SHALL SUBMIT THE WRITTEN INSTALLATION PLAN 15 DAYS BEFORE ANY CONDUIT OR DRAINAGE STRUCTURE WORK BEGINS.
3. ALL PROPOSED STORM SEWER MANHOLES SHALL BE PER DETAILS 1&2, SHEET C2.2.
4. ALL CATCH BASINS SHALL BE 2'X2' PRE-CAST BASINS WITH EJ/CDC 5250 FRAME AND M3 GRATE

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020 | SCALE N.T.S. | CTR INT. -
SURVEYED BY COM | CHECKED BY KJB
DRAWN BY ESW | APPROVED BY MJB

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
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NEW PHILADELPHIA, OH 44663
Phone: (330) 364-4531
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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY GERMANTOWN, WI

SHEET TITLE: STORM SEWER NOTES & TYPICAL DETAILS

SHEET NO: C2.5

JOB NO: ENG-1465

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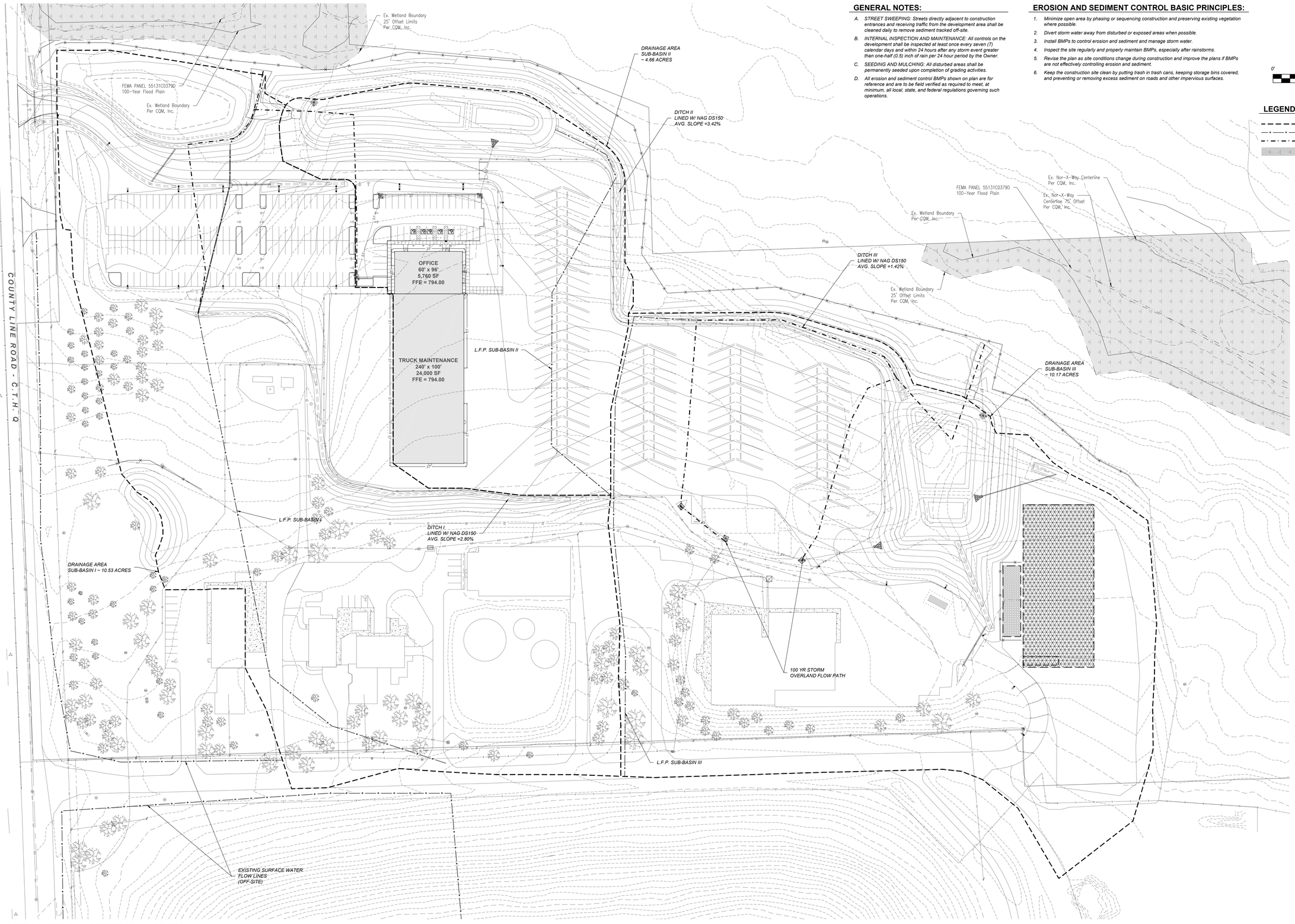

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

C. *SEEDING AND MULCHING: All disturbed areas shall be permanently seeded upon completion of grading activities.*

D. *All erosion and sediment control BMPs shown on plan are for reference and are to be field verified as required to meet, at minimum, all local, state, and federal regulations governing such operations.*

EROSION AND SEDIMENT CONTROL BASIC PRINCIPLES:

1. *Minimize open area by phasing or sequencing construction and preserving existing vegetation where possible.*
2. *Divert storm water away from disturbed or exposed areas when possible.*
3. *Install BMPs to control erosion and sediment and manage storm water.*
4. *Inspect the site regularly and properly maintain BMPs, especially after rainstorms.*
5. *Revise the plan as site conditions change during construction and improve the plans if BMPs are not effectively controlling erosion and sediment.*
6. *Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and preventing or removing excess sediment on roads and other impervious surfaces.*

NORTH

Scale: 1 in. = 60 ft.

0' 60' 120' 180'

Graphic Scale

LEGEND:

- *Drainage Area*
- *Longest Flow Path*
- *Overland Flow Path*
- *Wetland Boundary 25' Offset, per CSM performed by CQM, Inc.*

STORM WATER MANAGEMENT DRAINAGE MAP

Scale: 1" = 60'

ISSUE DATE	02/28/2020
SURVEYED BY	CQM
DRAWN BY	DSW
SCALE	1" = 60'
CHECKED BY	KJB
APPROVED BY	MJB

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

CTR INT: 2"

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Phone: (330) 364-6331
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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *STORM WATER MANAGEMENT DRAINAGE MAP*

SHEET NO: **C3.0**

JOB NO: ENG-1465

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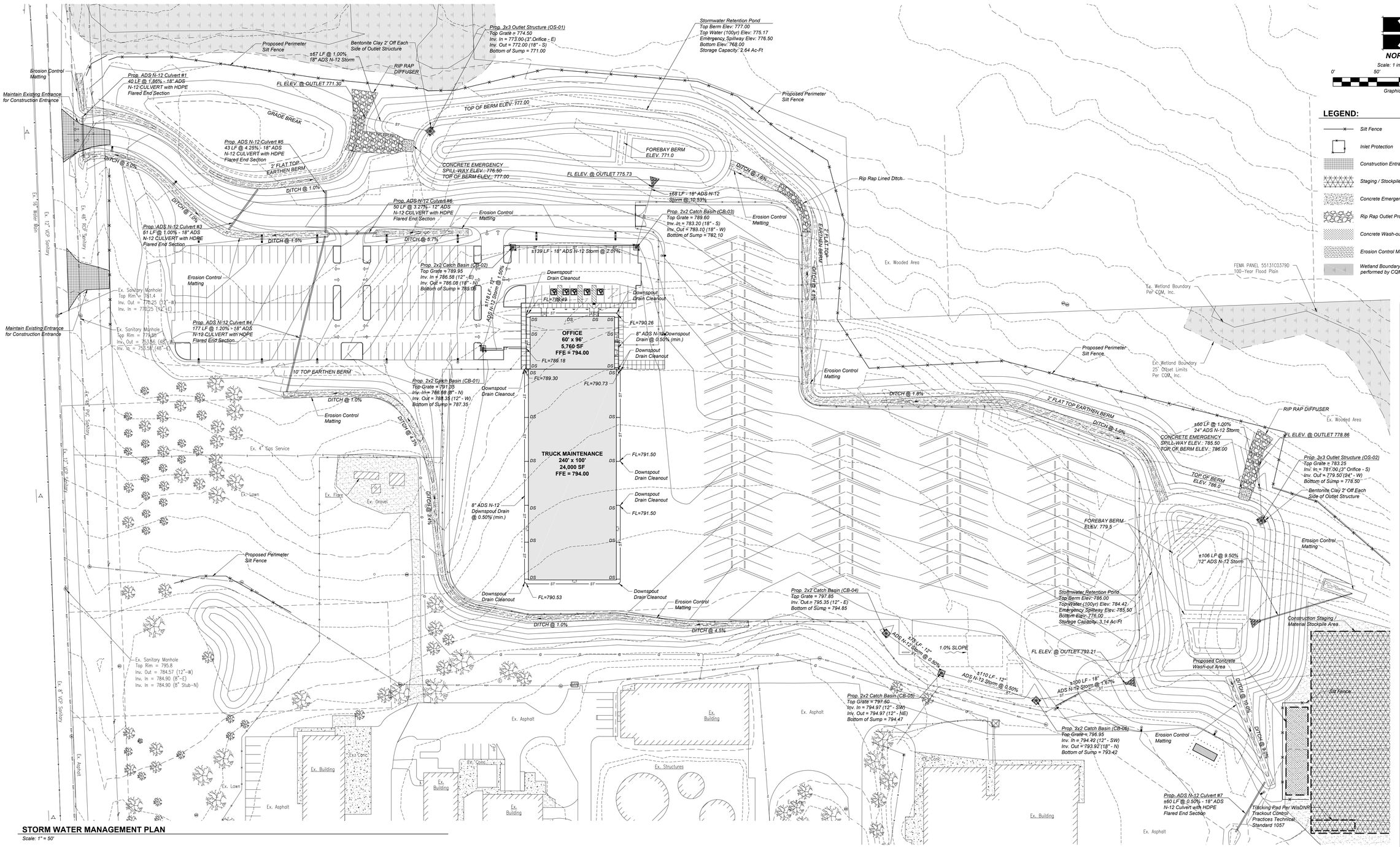

STORM WATER MANAGEMENT PLAN

Scale: 1" = 50'

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

C. *SEEDING AND MULCHING: All disturbed areas shall be permanently seeded upon completion of grading activities.*

D. *All erosion and sediment control BMPs shown on plan are for reference and are to be field verified as required to meet, at minimum, all local, state, and federal regulations governing such operations.*

EROSION AND SEDIMENT CONTROL BASIC PRINCIPLES:

1. *Minimize open area by phasing or sequencing construction and preserving existing vegetation where possible.*
2. *Divert storm water away from disturbed or exposed areas when possible.*
3. *Install BMPs to control erosion and sediment and manage storm water.*
4. *Inspect the site regularly and properly maintain BMPs, especially after rainstorms.*
5. *Revise the plan as site conditions change during construction and improve the plans if BMPs are not effectively controlling erosion and sediment.*
6. *Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and preventing or removing excess sediment on roads and other impervious surfaces.*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020 SCALE 1" = 50' CTR INT. 2"
SURVEYED BY CQM CHECKED BY KJB
DRAWN BY DSW APPROVED BY MJB

Diversified Engineering Inc.
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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *STORM WATER MANAGEMENT PLAN*

SHEET NO: **C3.1**

JOB NO: ENG-1465

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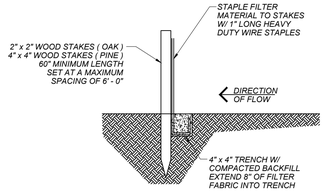


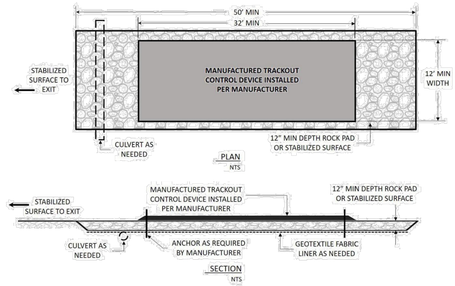
SILT FENCING SHALL BE EXTRA STRENGTH SYNTHETIC FILTER FABRIC HAVING A MINIMUM FLOW RATE OF 0.3 GAL/S.F./MIN. AND SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MIN. OF 6-MONTHS OF EXPECTED USEABLE LIFE AT A TEMPERATURE RANGE OF 0 DEG. F. TO 120 DEG. F.

HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16" ABOVE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34" ABOVE GROUND ELEVATION.

SILT FENCE

DETAIL 1 / C3.2

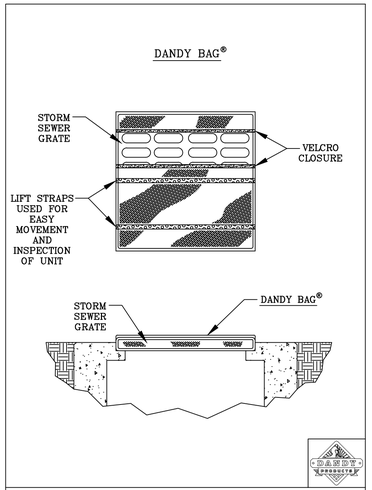
SCALE: NOT TO SCALE



WISCONSIN DNR STANDARD TRACKOUT CONTROL PRACTICES 1057

DETAIL 2 / C3.2

SCALE: NOT TO SCALE



DETAIL OF INLET SEDIMENT CONTROL DEVICE

PROJECT:		DR. BY:
CITY/STATE:	DATE:	DR. NO:

DANDY BAG INLET PROTECTION

DETAIL 3 / C3.2

SCALE: NOT TO SCALE

STORM WATER MANAGEMENT NOTES:

GENERAL:

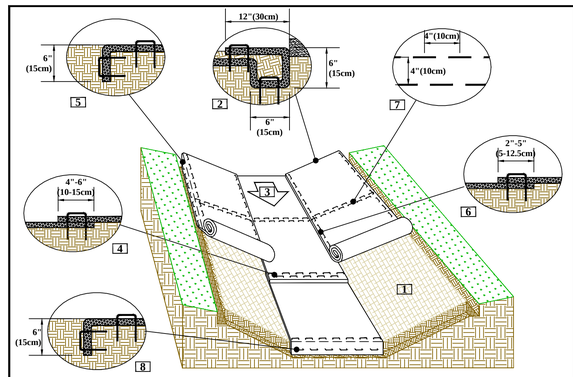
1. *CONSTRUCTION MUST COMPLY WITH ALL LOCAL EROSION AND SEDIMENT CONTROL.*
2. *CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SEDIMENT CONTROL PLAN IS IMPLEMENTED AND INSPECTED DURING THE CONSTRUCTION PHASE IN ACCORDANCE WITH THE ALL LOCAL, STATE, AND FEDERAL REGULATION GOVERNING SUCH OPERATIONS.*
3. *FAILURE TO IMPLEMENT THESE METHODS AND PRACTICES DESCRIBED CAN RESULT IN PENALTIES.*
4. *A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE CONSTRUCTION DRAWINGS FOR THE PROSPECT ARE REQUIRED TO REMAIN AT ALL TIMES ON THE CONSTRUCTION SITE.*
5. *THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL SEDIMENTATION CONTROL PRACTICES THAT MAY OCCUR DURING THE CONSTRUCTION ACTIVITY. IT WILL BE THE ENGINEERS DISCRETION FOR ADDITIONAL SEDIMENTATION CONTROL AND THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT ALL SEDIMENTATION CONTROL PRACTICES.*
6. *WHEREVER PRACTICAL, IT IS RECOMMENDED THAT THE FINAL SITE GRADING BE ACCOMPLISHED AS SOON AS POSSIBLE. IMMEDIATELY AFTER THE FINAL GRADING IS COMPLETED, THE AREA SHALL BE PERMANENTLY SEEDED AND MULCHED.*
7. *PROVIDE INLET PROTECTION FOR ALL EXISTING CATCH BASINS DURING CONSTRUCTION. THERE MAY BE EXISTING CATCH BASINS NOT SHOWN ON THESE PLANS.*
10. *DISTURBED AREAS WHICH WILL REMAIN UNWORKED FOR A PERIOD OF 21 DAYS OR GREATER SHALL BE STABILIZED WITH SEEDING AND MULCHING OR OTHER APPROVED EQUAL.*

REGULATIONS:

11. *NO SOLID OR LIQUID WASTE SHOULD BE DISCHARGED INTO STORM WATER RUNOFF.*
12. *OFF-SITE TRACKING OF SEDIMENTS SHALL BE MINIMIZED.*
13. *MUST SHOW COMPLIANCE WITH LOCAL WASTE DISPOSAL, SANITARY AND HEALTH REGULATIONS.*

MAINTENANCE AND INSPECTION:

14. *PERMANENT RECORDS OF MAINTENANCE AND INSPECTION MUST BE MAINTAINED A MINIMUM OF ONCE EVERY 7 DAYS AND AFTER STORM EVENTS GREATER THAN 0.5 INCH IN A 24 HOUR PERIOD.*
15. *NAME OF INSPECTOR, MAJOR OBSERVATIONS, DATE OF RECORDS MUST BE MAINTAINED FOR 3 YEARS AFTER NOTICE OF INTENT.*



CRITICAL POINTS

A. Overlaps and Seams
B. Projected Water Line
C. Channel Bottom/Side Slope Vertices

Drawing Not To Scale

NOTES:

*Horizontal staple spacing should be altered if necessary to allow staples to secure the critical points along the channel surface.

**In loose soil conditions, the use of staple or stake lengths greater than 6"(15cm) may be necessary to properly secure the RECP's.

CHANNEL INSTALLATION DETAIL

1. Prepare soil before installing rolled erosion control products (RECPs), including any necessary application of lime, fertilizer, and seed.
2. Begin at the top of the channel by anchoring the RECPs in a 6"(15cm) deep X 6"(15cm) wide trench with approximately 12"(30cm) of RECPs extended beyond the up-slope portion of the trench. Use ShoreMax mat at the channel/culvert outlet as supplemental scour protection as needed. Anchor the RECPs with a row of staples/stakes approximately 12"(30cm) apart in the bottom of the trench. Backfill and compact the trench after stapling. Apply seed to the compacted soil and fold the remaining 12"(30cm) portion of RECPs back over the seed and compacted soil. Secure RECPs over compacted soil with a row of staples/stakes spaced approximately 12" apart across the width of the RECPs.
3. Roll center RECPs in direction of water flow in bottom of channel. RECPs will unroll with appropriate side against the soil surface. All RECPs must be securely fastened to soil surface by placing staples/stakes in appropriate locations as shown in the staple pattern guide.
4. Place consecutive RECPs end-over-end (Shingle style) with a 4"-6" overlap. Use a double row of staples staggered 4" apart and 4" on center to secure RECPs.
5. Full length edge of RECPs at top of side slopes must be anchored with a row of staples/stakes approximately 12"(30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.
6. Adjacent RECPs must be overlapped approximately 2"-5" (5-12.5cm) (Depending on RECPs type) and stapled.
7. In high flow channel applications a staple check slot is recommended at 30 to 40 foot (9 -12m) intervals. Use a double row of staples staggered 4"(10cm) apart and 4"(10cm) on center over entire width of the channel.
8. The terminal end of the RECPs must be anchored with a row of staples/stakes approximately 12" (30cm) apart in a 6"(15cm) deep X 6"(15cm) wide trench. Backfill and compact the trench after stapling.

NORTH AMERICAN GREEN
5401 St. Wendel - Cynthiana Rd. Poseyville, IN 47633
PH: 800-722-2040 www.nagreen.com

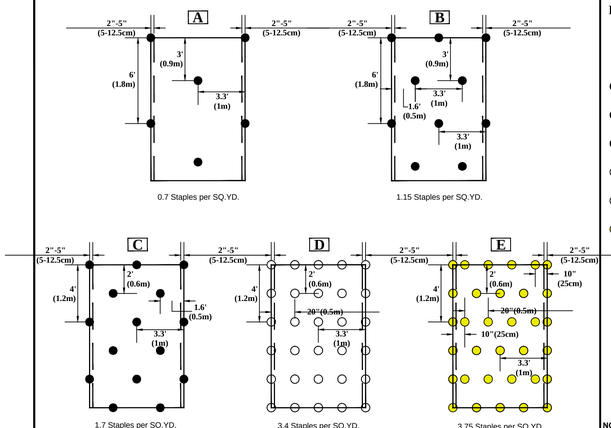
Disclaimer:
The information presented herein is general design information only. For specific applications, consult an independent professional for further design guidance.

Drawn on: 5-4-17

EROSION CONTROL MATTING CHANNEL INSTALLATION & STAPLE PATTERN

DETAIL 4 / C3.2

SCALE: NOT TO SCALE



STAPLE PATTERN GUIDE

- 4:1 Slopes (A)
- 3:1 Slopes (B)
- 2:1 Slopes (C)
- 1:1 & Steeper Slopes (D)
- Medium/High Flow Channel (D)
- High Flow Channel And Shoreline (E)

NOTES:

* Use ECMDS® for more accurate staple pattern selection.

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Drawn on: 5-4-17

Drawing Not To Scale

EROSION CONTROL MATTING CHANNEL INSTALLATION & STAPLE PATTERN

DETAIL 4 / C3.2

SCALE: NOT TO SCALE

ROLLMAX™
ROLLED EROSION CONTROL

Specification Sheet – EroNet™ DS150™ Erosion Control Blanket

DESCRIPTION

The ultra short-term double net erosion control blanket shall be a machine-produced mat of 100% agricultural straw with a functional longevity of up to 2 months. (NOTE: functional longevity may vary depending upon climatic conditions, soil, geographical location, and elevation). The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with a polypropylene netting having an approximate 0.50 x 0.50 (1.27 x 1.27 cm) mesh with photodegradable accelerators to provide breakdown of the netting within approximately 60 days, depending upon geographical location and elevation. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread. The blanket shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

The DS150 shall meet Type 1.D specification requirements established by the Erosion Control Technology Council (ECTC) and Federal Highway Administration's (FHWA) FP-03 Section 713.17

Material Content		
Matrix	100% Straw Fiber	0.5 lbs/sq yd (0.27 kg/sm)
Netting	Top and bottom nets, lightweight photodegradable with photo accelerators	1.5 lb/1000 sq ft (0.73 g/sm)
Thread	Degradable	

Standard Roll Sizes			
Width	6.67 (2.03 m)	8.0 ft (2.4 m)	16 ft (4.87 m)
Length	108 ft (32.92 m)	112 ft (34.14 m)	112 ft (34.14 m)
Weight ± 10%	40 lbs (18.14 kg)	50 lbs (22.68 kg)	100 lbs (45.36 kg)
Area	80 sq yd (66.9 sm)	100 sq yd (83.61 sm)	200 sq yd (167.22 sm)

Index Property	Test Method	Typical
Thickness	ASTM D6525	0.35 in. (8.89 mm)
Resiliency	ECTC Guidelines	80.5%
Water Absorbency	ASTM D1117	423%
Mass/Unit Area	ASTM 6475	9.25 oz/sy (314.5 g/sm)
Swell	ECTC Guidelines	15%
Smolder Resistance	ECTC Guidelines	Yes
Stiffness	ASTM D1388	6.06 oz-in
Light Penetration	ASTM D6567	5.6%
Tensile Strength - MD	ASTM D6818	201.6 lbs/ft (2.99 kN/m)
Elongation - MD	ASTM D6818	28.9%
Tensile Strength - TD	ASTM D6818	72.0 lbs/ft (1.07 kN/m)
Elongation - TD	ASTM D6818	27.7%
Biomass Improvement	ASTM 7322	283%

Design Permissible Shear Stress	
Unvegetated Shear Stress	1.75 psf (84 Pa)
Unvegetated Velocity	6.00 fps (1.83 m/s)

Slope Design Data: C Factors			
	Slope Gradients (S)		
Slope Length (L)	≤ 3:1	3:1 – 2:1	≥ 2:1
≤ 20 ft (6 m)	0.004	0.106	N/A
20-50 ft	0.062	0.118	N/A
≥ 50 ft (15.2 m)	0.12	0.180	N/A

Roughness Coefficients – Unveg.	
Flow Depth	Manning's n
≤ 0.50 ft (0.15 m)	0.055
0.50 – 2.0 ft	0.055-0.021
≥ 2.0 ft (0.60 m)	0.021

NORTH AMERICAN GREEN
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800-772-2040

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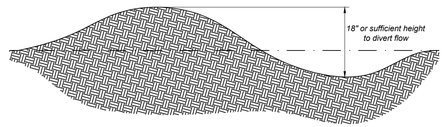
EC_RMX_MPDS_DS150_5.13

EROSION CONTROL MATTING CHANNEL SPECIFICATION SHEET

DETAIL 5 / C3.2

SCALE: NOT TO SCALE



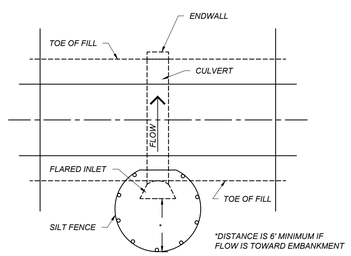
Diversion Dike Notes:

1. The minimum water bar dimensions shall be:
   Top width of berm/dike - 2 feet minimum.
   Height/depth - 18 inches unless otherwise noted on plans
   Side Slopes - Sufficiently flat to accommodate the expected traffic.
2. The field location shall be adjusted as needed to provide a stabilized safe outlet.
3. The diverted runoff shall be directed onto an undisturbed vegetative area.
4. Diversions/dikes shall be compacted by traversing with equipment during construction.
5. The water bars shall be angled slightly downslope across the centerline of the travel lane.
6. Seed and Straw disturbance area around installed diversion immediately following installation.
7. Sediment accumulations reaching ½ the height of the diversion shall be placed and stabilized in topsoil stockpiles.

TYPICAL DIVERSION DIKE

DETAIL 6 / C3.2

SCALE: NOT TO SCALE



CULVERT INLET PROTECTION

DETAIL 7 / C3.2

SCALE: NOT TO SCALE

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020 | SCALE N.T.S. | CTR INT. -
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WASTE MANAGEMENT

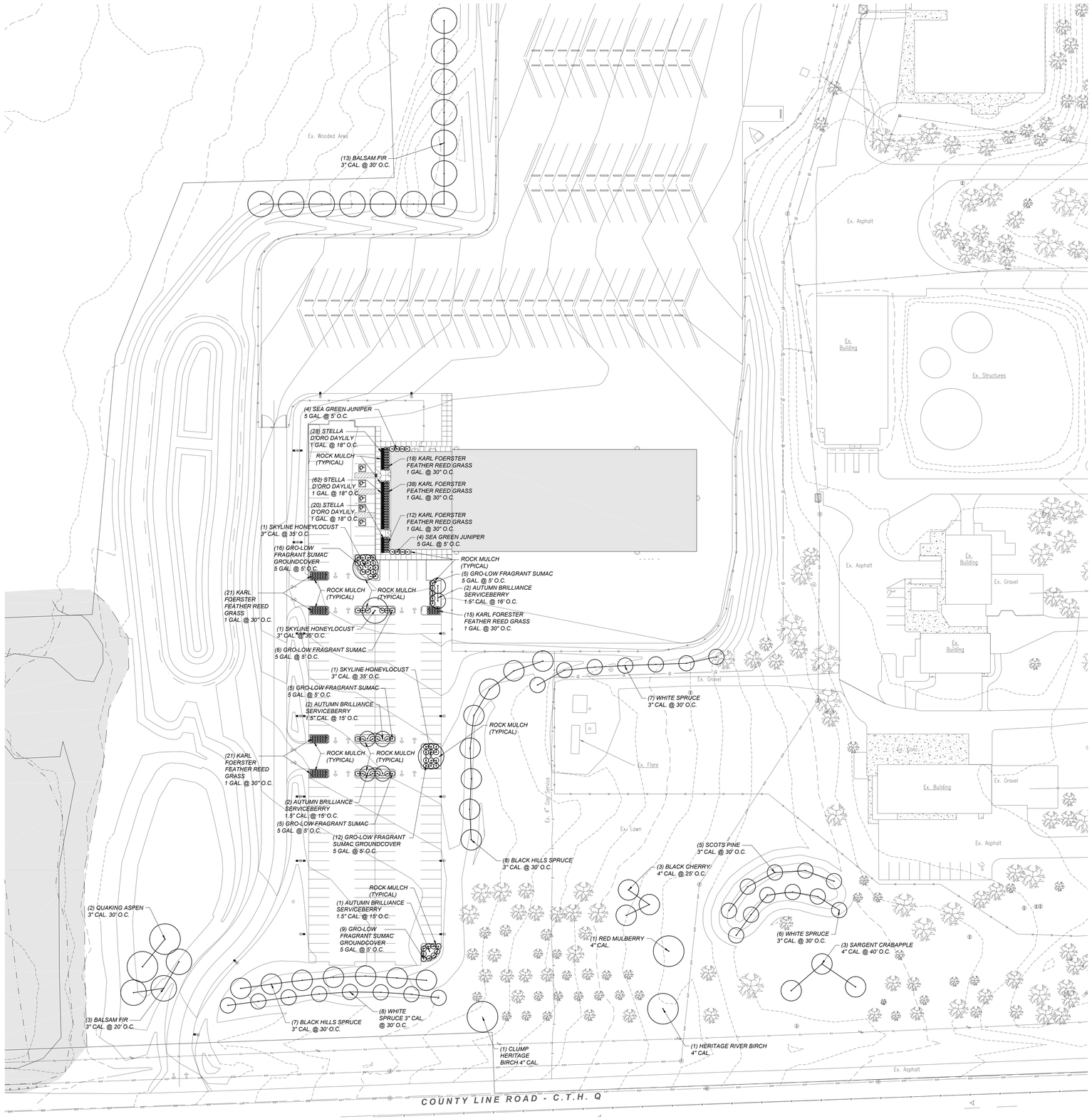
PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *SWM NOTES & TYPICAL DETAILS*

SHEET NO: **C3.2**

JOB NO: ENG-1465

C:\Work\Jobs\Jobs\ENG\1465\DWG\1465 ANC NA Wastewater Fclty - 1B Planning Facility\Construction Docs\Site Plan Review_Re-Submittal\1465 - Civil_NAG Construction Set Site Plan Review_Re-Submittal.dwg - 2/26/2020 8:37 AM



SITE LANDSCAPING PLAN

Scale: 1" = 50'

NORTH

Scale: 1 in. = 50 ft.

0' 50' 100' 150'

Graphic Scale

GENERAL NOTES:

1. *Verify all conditions and dimensions shown on the plans at the site prior to commencement of work. Notify landscape architect of an discrepancies. Contractor shall notify utility companies and verify the exact location of utility easements and all utilities in the field prior to commencement of excavation or construction activities.*
2. *All work shall conform to the Village of Germantown and S.U.D.A.S. standards unless noted otherwise.*
3. *Underground utilities shown are for information only, locations have not been verified. Contractor shall contact Wisconsin One-Call and verify location of existing underground utilities before commencing any excavation to avoid damage. The contractor shall be responsible for repair of an damage caused by construction activities. Exercise extreme care in excavating and working around existing site features and utilities. Verify location and condition of all utilities. Field adjust plant locations so as to avoid conflicts with utilities.*
4. *Verify plant counts. If quantities in planting schedule vary from landscape plan graphic, graphic shall prevail.*
5. *Locate plant material by measuring off of the drawing to the nearest 6" and stake where trees will be located. The Landscape Architect will review prior to planting.*
6. *Align and equally space in all directions tree, shrub and perennials designated per these drawing and typical details.*
7. *Backfill soil (planting soil) for tree pits shall consist of a mixture of two parts top soil and one part compost. Remove soil excavated from tree planting area and dispose of off site.*
8. *Remove existing topsoil and stockpile on site; topsoil to be incorporated into soils at a later date.*
9. *Finish grade of planter areas shall be 3 inches below adjacent curb or structure to allow for 3" of mulch depth.*
10. *All landscape beds shall be edged with DURAEDGE 5"x$\frac{1}{8}$" steel lawn edging as manufacturing by the J.D. Russell Company (800-888-9709) or approved equal. Edging shall be hot rolled steel with an electrostatically applied powder coat surface paint, black in color.*
11. *New trees shall meet the minimum standards of ANSI Z60.1, Latest Edition. Plants shall be freshly dug or well-established in container as applicable; not root-bound in the container. Trees with broken or unidentifiable leader, broken or mushroomed balls, lopsided growth, or weak open structure (in the opinion of the landscape architect) will not be acceptable.*
12. *The contractor shall submit at least one nursery photograph of each type of tree species for approval by the landscape architect prior to shipping and installation. Most species are matched so the specimens must have consistent branching heights and habits within species. The landscape architect will use the submitted photographs as a standard of comparison for each tree species installed on site.*
13. *Wood mulch for tree rings and where indicated on the plan shall be 3" deep, composed of cedar or cypress wood of uniform color and long, fibrous nature (2-4 inches in length). Do not use walnut. Do not use chips. Apply pre-emergence herbicide over the top of all wood mulch. Mulch rings around new trees shall be minimum 6' in diameter. Thoroughly water mulched areas, rake to a smooth finished surface.*
14. *Planting beds next to the building and parking lot islands shall be 3" deep washed river rock mulch over weed barrier fabric. Fabric shall be a woven polypropylene, 3.5 to 4.0 ounce products. Apply pre-emergence herbicide over the top of all rock mulch.*
15. *All plants shall be maintained and watered by the contractor through substantial completion.*
16. *No trees, bushes, or vegetation existing on site to remain.*

	QTY	COMMON NAME	BOTANICAL NAME	CAL (IN.)	CONT
TREES					
	5	SCOTS PINE	PINUS SYLVESTRIS	3"	B&B
	22	WHITE SPRUCE	PICEA GLAUCA	3"	B&B
	3	SARGENT CRABAPPLE	MALUS SARGENTII	4"	B&B
	2	HERITAGE RIVE BIRCH (CLUMP)	BETULA NIGRA 'CULLY'	4"	B&B
	1	RED MULBERRY	MORUS RUBRA	4"	B&B
	3	BLACK CHEERY	PRUNUS SEROTINA	4"	B&B
	16	BLACK HILLS SPRUCE	PICEA GLAUCA VAR. DENS	3"	B&B
	16	BALSAM FIR	ABIES BALSAMEA	3"	B&B
	2	QUAKING ASPEN	POPULUS TREMULOIDES	3"	B&B
	2	THORNLESS HONEYLOCUST "SKYLINE"	GLEDITSIA TRIACANTHOS VAR. INERMIS	3"	B&B
	6	AUTUMN BRILLIANCE SERVICEBERRY	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	1.5"	B&B
SHRUBS					
	37	GRO-LOW FRAGRANT SUMAC	RHUS AROMATICA 'GRO-LOW'		5 GAL.
	8	SEA GREEN JUNIPER	PUNIPERUS X PFITZERIANA 'SEA GREEN'		5 GAL.
PERENNIALS					
	162	KARL FOERSTER FEATHER REED GRASS	CALAMAGROSTIS X ACULTIFLORA 'KARL FOERSTER'		1 GAL.
	110	STELLA D'ORO DAYLILY	HEMEROCALLIS 'STELLA DE ORO'		1 GAL.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/28/2020
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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *SITE LANDSCAPING PLAN*

SHEET NO: **L1.0**

JOB NO: ENG-1465

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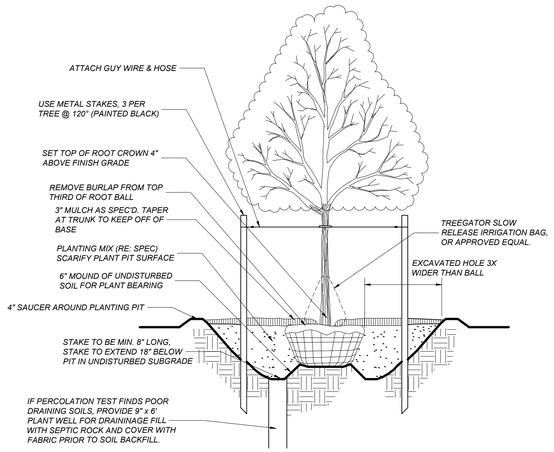

TYPICAL TREE PLANTING DETAIL

DETAIL 1 / L2.0

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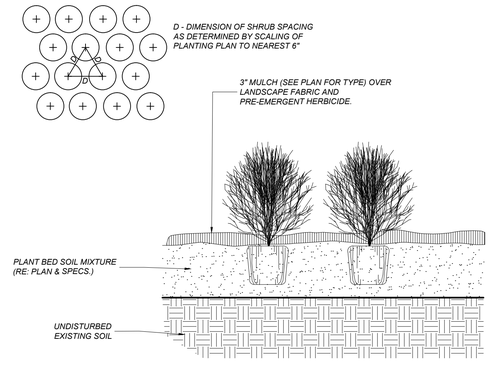

TYPICAL PERENNIAL PLANTING DETAIL

DETAIL 2 / L2.0

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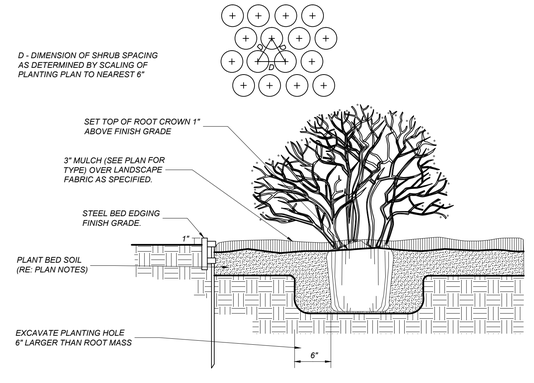

TYPICAL SHRUB PLANTING DETAIL

DETAIL 3 / L2.0

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ISSUE DATE 02/28/2020 SCALE N.T.S. CTR INT. --
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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: LANDSCAPEING DETAILS

SHEET NO: L2.0

JOB NO: ENG-1465

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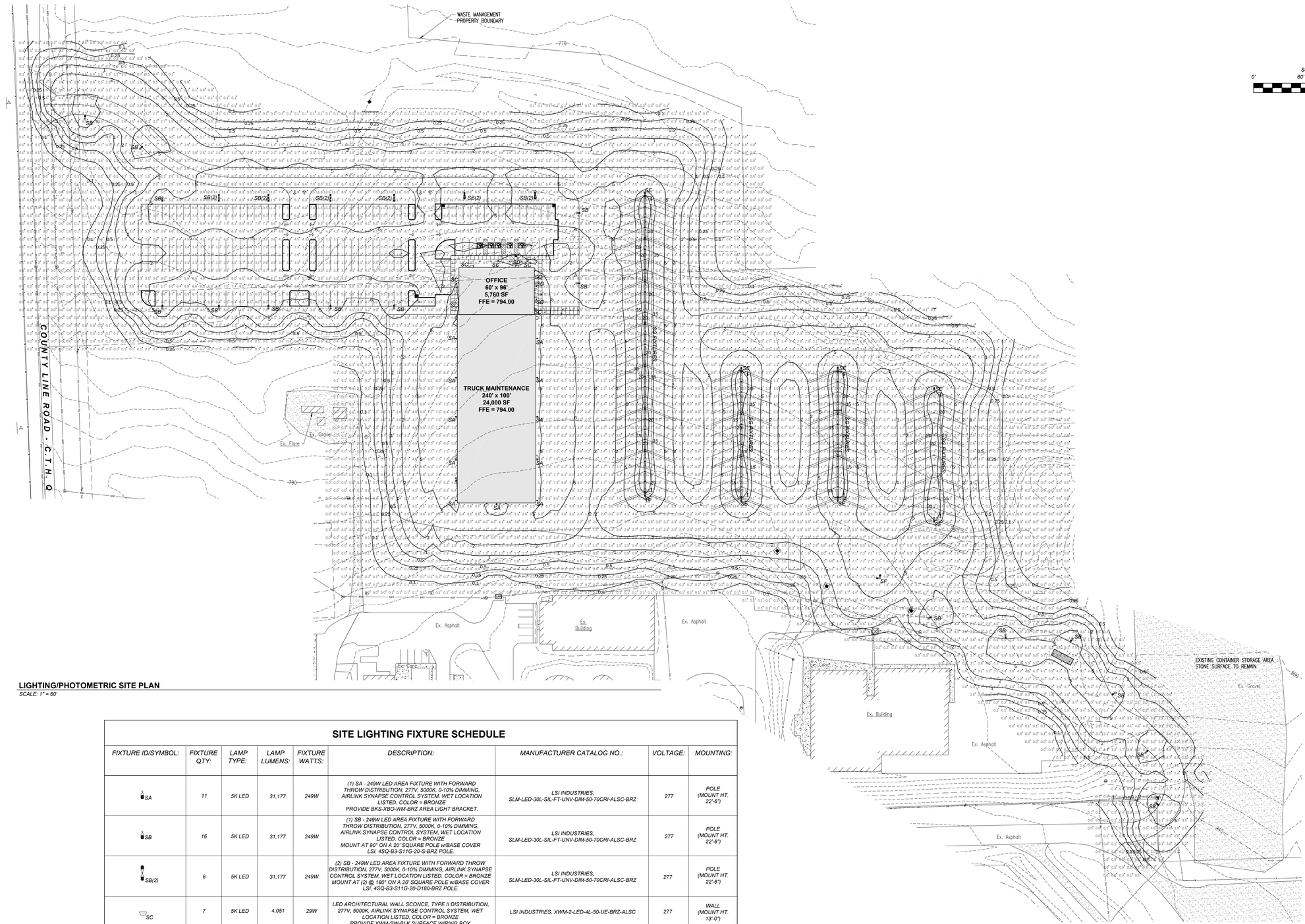

NORTH

Scale: 1 in. = 60 ft.

0' 60' 120' 180'

Graphic Scale

LIGHTING/PHOTOMETRIC SITE PLAN

SCALE: 1" = 60'

SITE LIGHTING FIXTURE SCHEDULE

FIXTURE ID/SYMBOL:	FIXTURE QTY:	LAMP TYPE:	LAMP LUMENS:	FIXTURE WATTS:	DESCRIPTION:	MANUFACTURER CATALOG NO.:	VOLTAGE:	MOUNTING:
SA	11	5K LED	31,177	249W	(1) SA - 249W LED AREA FIXTURE WITH FORWARD THROW DISTRIBUTION, 277V, 5000K, 0-10% DIMMING, AIRLINK SYNAPSE CONTROL SYSTEM, WET LOCATION LISTED. COLOR = BRONZE PROVIDE BKS-XBO-WM-BRZ AREA LIGHT BRACKET.	LSI INDUSTRIES, SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-ALSC-BRZ	277	POLE (MOUNT HT. 22'-6")
SB	16	5K LED	31,177	249W	(1) SB - 249W LED AREA FIXTURE WITH FORWARD THROW DISTRIBUTION, 277V, 5000K, 0-10% DIMMING, AIRLINK SYNAPSE CONTROL SYSTEM, WET LOCATION LISTED. COLOR = BRONZE MOUNT AT 90° ON A 20' SQUARE POLE w/BASE COVER LSI, 4SQ-B3-S11G-20-5-BRZ POLE.	LSI INDUSTRIES, SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-ALSC-BRZ	277	POLE (MOUNT HT. 22'-6")
SB(2)	6	5K LED	31,177	249W	(2) SB - 249W LED AREA FIXTURE WITH FORWARD THROW DISTRIBUTION, 277V, 5000K, 0-10% DIMMING, AIRLINK SYNAPSE CONTROL SYSTEM, WET LOCATION LISTED. COLOR = BRONZE MOUNT AT (2) @ 180° ON A 20' SQUARE POLE w/BASE COVER LSI, 4SQ-B3-S11G-20-D180-BRZ POLE.	LSI INDUSTRIES, SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-ALSC-BRZ	277	POLE (MOUNT HT. 22'-6")
SC	7	5K LED	4,051	29W	LED ARCHITECTURAL WALL SCONCE, TYPE II DISTRIBUTION, 277V, 5000K, AIRLINK SYNAPSE CONTROL SYSTEM, WET LOCATION LISTED. COLOR = BRONZE PROVIDE XWM-SW-BLK SURFACE WIRING BOX.	LSI INDUSTRIES, XWM-2-LED-4L-50-UE-BRZ-ALSC	277	WALL (MOUNT HT. 13'-0")
SD	3	5K LED	5,240	37W	ROUND LED LUMINAIRE, 5000K LED, EDGE LIT, TYPE V WIDE DISTRIBUTION, 277V, DIM TO 10% DRIVER, AIRLINK SYNAPSE WIRELESS DIGITAL CONTROLLER. COLOR = BRONZE	LSI INDUSTRIES, EXN-D-EGLED-5L-T5W-UNV-DIM-50-70CRI-ALSC-BRZ	277	SURFACE (MOUNT HT. 8'-6")
SE	8	5K LED	31,177	249W	(1) SE - 249W LED AREA FIXTURE WITH FORWARD THROW DISTRIBUTION, 277V, 5000K, 0-10% DIMMING, WET LOCATION LISTED. COLOR = BRONZE	LSI INDUSTRIES, SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-BRZ	277	POLE (MOUNT HT. 22'-6")
SF	1	5K LED	32,700	249W	(2) @ 90°, LED AREA LUMINAIRE, LSI SLM SERIES, WITH FT (FORWARD THROW) DISTRIBUTION, 277V, WET LISTED, COLOR=BRONZE. MOUNT AT 90° ON 20' ROUND TAPERED ALUMINUM POLE RTPB5-A156-20-D90-BLK.	LSI, SLM-LED-30L-SIL-FT-UNV-DIM-50-70CRI-BLK	277	POLE (MOUNT HT. 22'-6")
SG	68	5K LED	10,500	74W	LED SURFACE MOUNT, STANDARD SYMMETRIC DISTRIBUTION, 277V, 5000K, WET LOCATION LISTED, COLOR = WHITE	LSI, CRUS-SC-LED-LW-50-UE-WHT	277	SURFACE MOUNT ON TRUSS (±19'-0")

ISSUE DATE 02/28/2020 | SCALE 1" = 60' | CTR INT. 2"

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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *PROPOSED LIGHTING/PHOTOMETRIC SITE PLAN*

SHEET NO: **X1.0**

JOB NO: ENG-1465

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NORTH

Scale: 1 in. = 50 ft.

0' 50' 100' 150'

Graphic Scale

LEGEND:

- Proposed Fence Removal
- Proposed Chain Link Fence

REMOVE EXISTING FENCE LINE

PROPOSED SITE SECURITY FENCE SEE DETAIL 3, SHEET C2.1

Ex. Sanitary Manhole
Top Rim = 781.4
Inv. Out = 770.25 (12"-W)
Inv. In = 770.25 (12"-E)

Ex. Sanitary Manhole
Top Rim = 779.85
Inv. Out = 753.56 (48"-W)
Inv. In = 753.58 (48"-E)

OFFICE
60' x 96'
5,760 SF
FFE = 794.00

TRUCK MAINTENANCE
240' x 100'
24,000 SF
FFE = 794.00

Ex. Sanitary Manhole
Top Rim = 795.8
Inv. Out = 784.57 (12"-W)
Inv. In = 784.90 (8"-E)
Inv. In = 784.90 (8" Stub-N)

TIE-IN TO EXISTING FENCE LINE

Ex. Wooded Area

FEMA PANEL 55131C0379D
100-Year Flood Plain

Ex. Wetland Boundary
Per CQM, Inc.

Ex. Wetland Boundary
25' Offset Limits
Per CQM, Inc.

Ex. 16" Main
Ex. 12" WP Sanitary
Ex. 48" RCP Sanitary
Ex. 4" Gas Service
Ex. Flare
Ex. Gravel
Ex. Lawn
Ex. 8" VCP Sanitary
Ex. Asphalt
Ex. Building
Ex. Conc.
Ex. Structures

SITE FENCING PLAN

Scale: 1" = 50'

ISSUE DATE	02/26/2020
SURVEYED BY	CQM
DRAWN BY	ESW
SCALE	1" = 50'
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APPROVED BY	KJB / MJB

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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: SITE FENCING EXHIBIT

SHEET NO: X1.1

JOB NO: ENG-1465

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NORTH

Scale: 1 in. = 50 ft.

0' 50' 100' 150'

Graphic Scale

OFFICE
60' x 96'
5,760 SF
FFE = 794.00

TRUCK MAINTENANCE
240' x 100'
24,000 SF
FFE = 794.00

PROPOSED SNOW DROP LOCATION

AVOID SNOW DROP IN DRAINAGE AREA

Ex. Wooded Area

FEMA PANEL 55131C0379D
100-Year Flood Plain

Ex. Wetland Boundary
Per CDM, Inc.

Ex. Wetland Boundary
25' Offset Limits
Per CDM, Inc.

Ex. Sanitary Manhole
Top Rim = 781.4
Inv. Out = 770.25 (12"-W)
Inv. In = 770.25 (12"-E)

Ex. Sanitary Manhole
Top Rim = 779.86
Inv. Out = 753.56 (48"-S)
Inv. In = 753.56 (48"-E)

Ex. Sanitary Manhole
Top Rim = 795.6
Inv. Out = 784.57 (12"-W)
Inv. In = 784.90 (8"-E)
Inv. In = 784.90 (8" Stub-N)

Ex. 18" RCP Storm Sewer
Ex. 12" DIP Sanitary
Ex. 48" RCP Sanitary
Ex. 8" VCP Sanitary
Ex. 4" Gas Service
Ex. Fence
Ex. Gravel
Ex. Lawn
Ex. Asphalt
Ex. Building
Ex. Structures
Ex. Concr.

SNOW REMOVAL PLAN

Scale: 1" = 50'

ISSUE DATE	02/28/2020
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SCALE	1" = 50'
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APPROVED BY	KJB
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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: SITE SNOW REMOVAL EXHIBIT

SHEET NO: X1.2

JOB NO: ENG-1465

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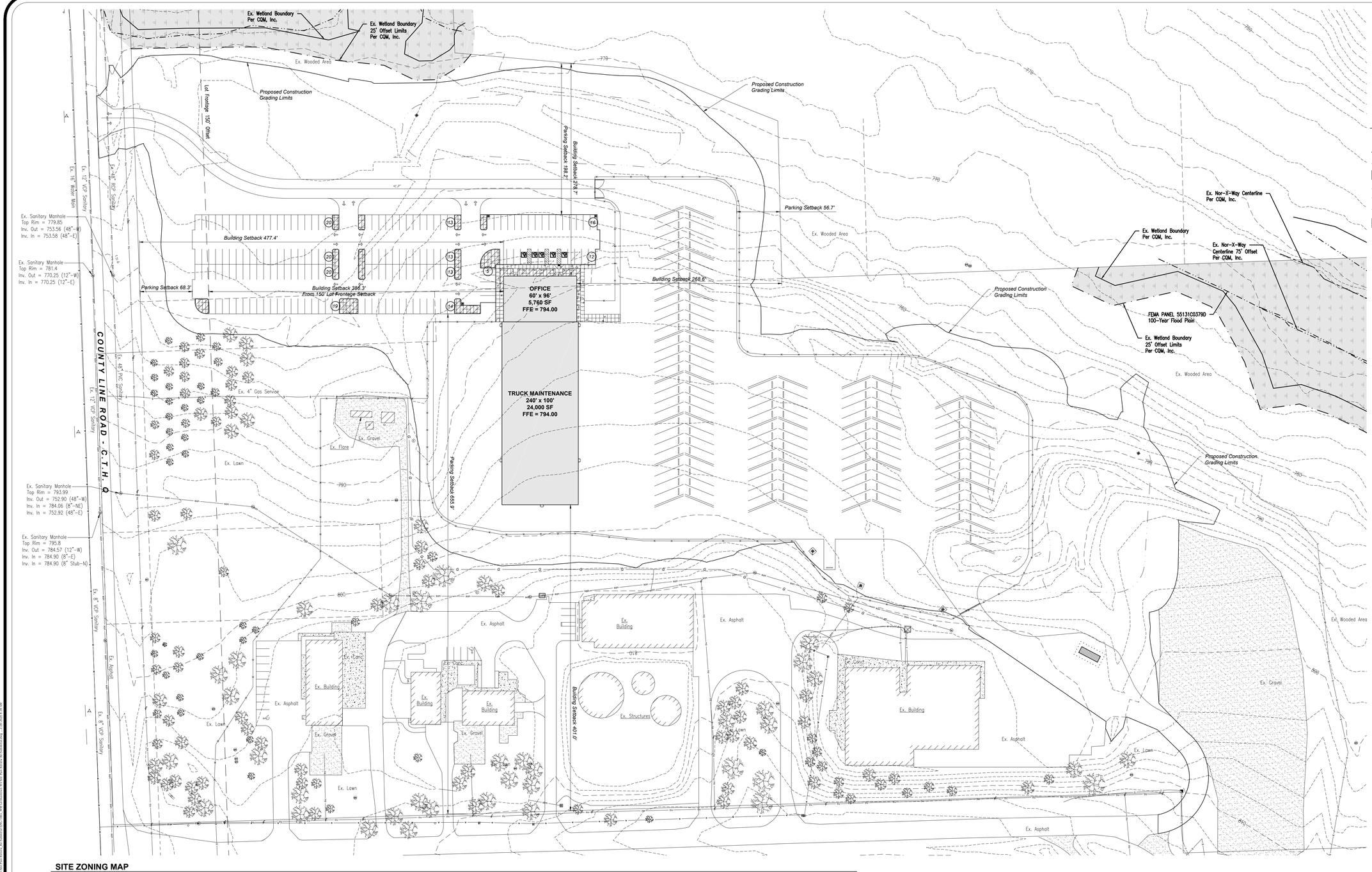

NORTH

Scale: 1 in. = 60 ft.

0' 60' 120' 180'

Graphic Scale

LEGEND:

- (8) Proposed Parking Space Count Indicator
- Proposed Construction Grading Limits
- Wetland Boundary, per CSM performed by CQM, Inc.
- Wetland Boundary 25' Offset, per CSM performed by CQM, Inc.
- Nor-X-Way Centerline, per CSM performed by CQM, Inc.
- Nor-X-Way 75' offset, per CSM performed by CQM, Inc.
- FEMA Flood Zone AE - Map Number 55131C0379D, per CSM performed by CQM, Inc.
- Proposed Landscaping Area, See Site Landscaping Plan for further coordination

BOUNDARY NOTE: Lots to be combined. Public hearing for discontinuing the 66' public right of way is scheduled for Monday, March 16, 2020, at 7p.m.

SITE ZONING MAP

Scale: 1" = 60'

LOT COVERAGE NOTES:

Lot square footage total:	1,994,793 S.F.
Impervious surface percentage:	26.0%
Green space percentage:	74.0%
Percent permitted (over/under):	under 48.0%

**NOTE: Proposed Coverage includes existing development on the parcel where applicable.*

PARKING BREAKDOWN

Total Parking Spaces (Public) = 160
Total Parking Spaces (Handicap) = 5
Typical Parking Space Dimension: 9' x 20' (Unless otherwise noted)

SETBACK NOTES:

Required Front yard Setback:	30'
Required Side yard Setback:	25'
Required Rear yard Setback:	25'
Required Lot Frontage Setback:	150'

PARKING CALCULATIONS:

- Professional Office Space:
  - Office Area: 5,760 S.F.
  - Office Employees: 132 Persons

Required parking one space per 200 S.F. + 1/2 space per employee
- 5,760 S.F. / 200 S.F. = 29 Spaces
- 132 Persons / 2 = 66 Spaces

- Total Required Office Spaces = 95 Spaces

- Auto Repair Space:
  - Auto Repair Area: 24,000 S.F.
  - Auto Repair Employees: 12 Persons

Required parking one space per 250 S.F. + 1 space per employee
- 24,000 S.F. / 250 S.F. = 96 Spaces
- 12 Persons = 12 Spaces

- Total Required Auto Repair Spaces = 108 Spaces

Required Spaces:
Total required spaces = 203 Spaces per code

Provided Spaces:
160 Standard Spaces
5 Accessible Spaces
165 Total Spaces Provided

NOTE: Total anticipated employee count is 154 persons.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/28/2020 SCALE 1" = 60' CTR INT. 2"
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DRAWN BY DSW APPROVED BY MJB

Diversified Engineering Inc.
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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: SITE ZONING MAP

SHEET NO: X1.3

JOB NO: ENG-1465

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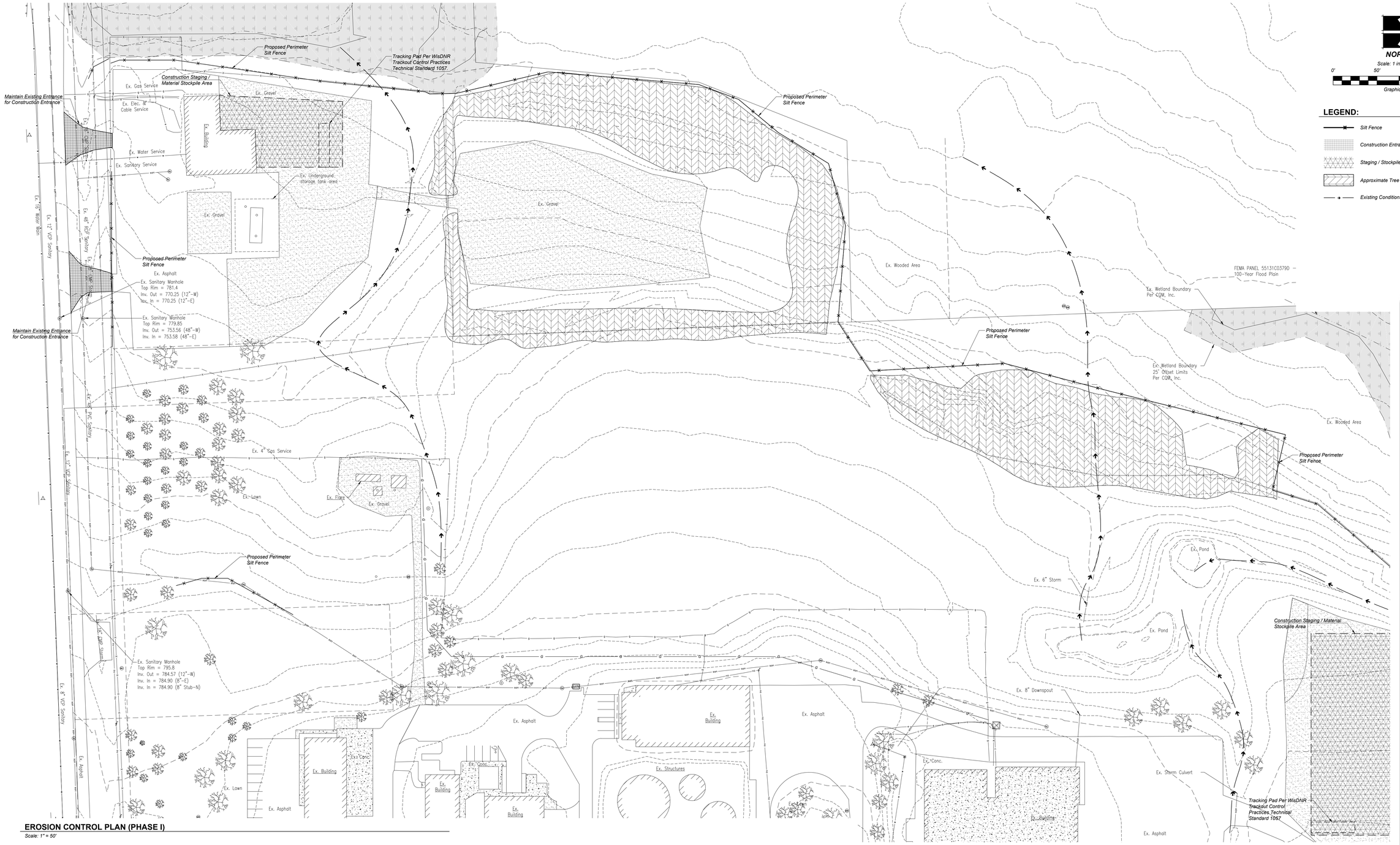

EROSION CONTROL PLAN (PHASE I)

Scale: 1" = 50'

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

C. *SEEDING AND MULCHING: All disturbed areas shall be permanently seeded upon completion of grading activities.*

D. *All erosion and sediment control BMPs shown on plan are for reference and are to be field verified as required to meet, at minimum, all local, state, and federal regulations governing such operations.*

EROSION AND SEDIMENT CONTROL BASIC PRINCIPLES:

1. *Minimize open area by phasing or sequencing construction and preserving existing vegetation where possible.*
2. *Divert storm water away from disturbed or exposed areas when possible.*
3. *Install BMPs to control erosion and sediment and manage storm water.*
4. *Inspect the site regularly and properly maintain BMPs, especially after rainstorms.*
5. *Revise the plan as site conditions change during construction and improve the plans if BMPs are not effectively controlling erosion and sediment.*
6. *Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and preventing or removing excess sediment on roads and other impervious surfaces.*

CONSTRUCTION SEQUENCING NOTES (PHASE I):

1. *Utilize / maintain existing site entrances as construction entrances.*
2. *Establish construction staging areas / tracking pads.*
3. *Install perimeter silt fence.*
4. *Clearing and grubbing.*
5. *Minor demolition, fences, gates, etc.*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE: 02/26/2020 | SCALE: 1" = 50' | CTR INT.: 2"
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Diversified Engineering Inc.
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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *EROSION CONTROL PLAN (PHASE I)*

SHEET NO: **X2.0**

JOB NO: ENG-1465

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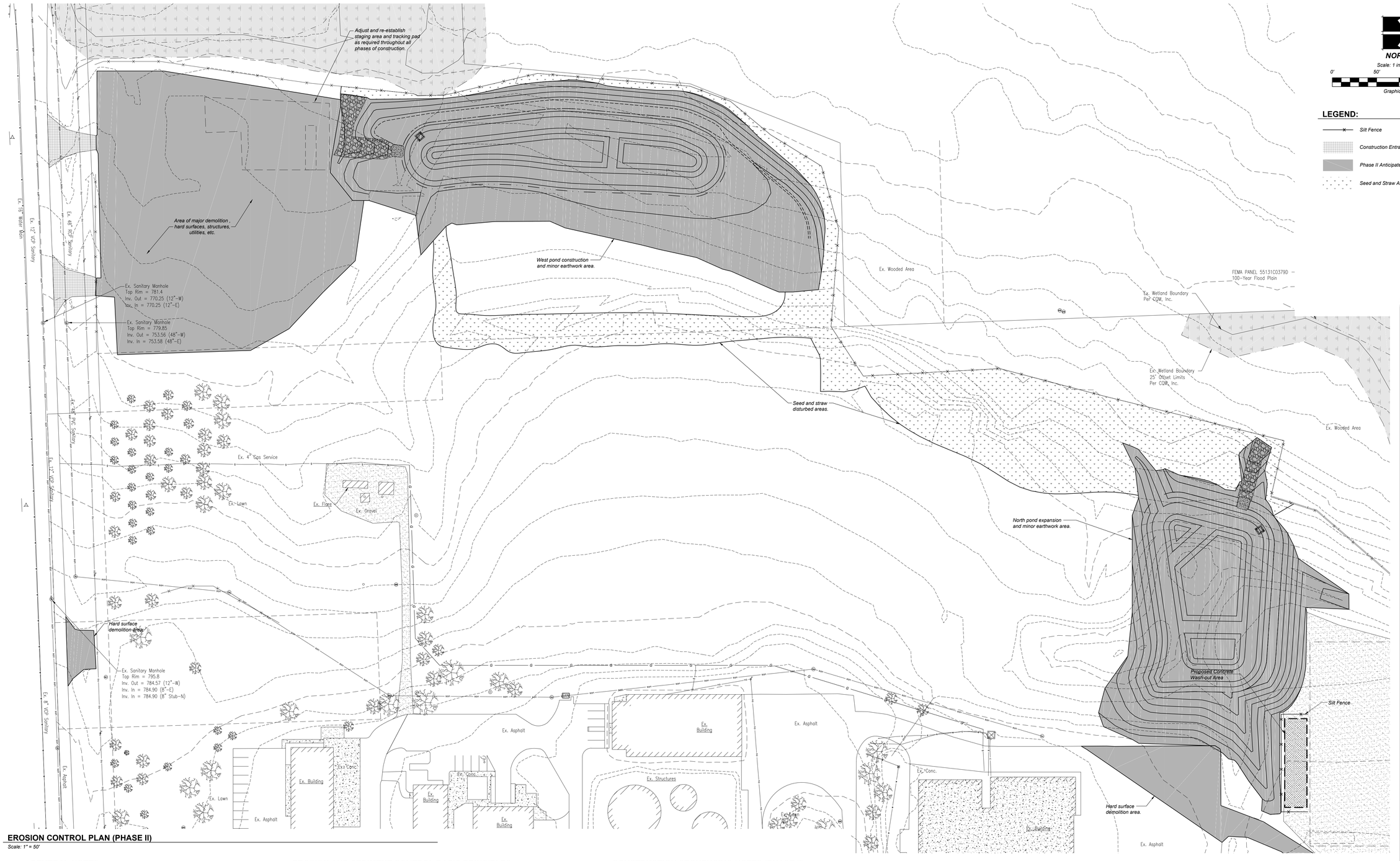

EROSION CONTROL PLAN (PHASE II)

Scale: 1" = 50'

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

C. *SEEDING AND MULCHING: All disturbed areas shall be permanently seeded upon completion of grading activities.*

D. *All erosion and sediment control BMPs shown on plan are for reference and are to be field verified as required to meet, at minimum, all local, state, and federal regulations governing such operations.*

EROSION AND SEDIMENT CONTROL BASIC PRINCIPLES:

1. *Minimize open area by phasing or sequencing construction and preserving existing vegetation where possible.*
2. *Divert storm water away from disturbed or exposed areas when possible.*
3. *Install BMPs to control erosion and sediment and manage storm water.*
4. *Inspect the site regularly and properly maintain BMPs, especially after rainstorms.*
5. *Revise the plan as site conditions change during construction and improve the plans if BMPs are not effectively controlling erosion and sediment.*
6. *Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and preventing or removing excess sediment on roads and other impervious surfaces.*

CONSTRUCTION SEQUENCING NOTES (PHASE II):

1. *West retention pond construction and north retention pond expansion.*
2. *Major demolition, hard surfaces, structures, utilities, etc.*
3. *Minor earthwork.*
4. *Seed and straw disturbed areas.*

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE 02/26/2020
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SCALE 1" = 50'
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APPROVED BY
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2"

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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *EROSION CONTROL PLAN (PHASE II)*

SHEET NO: **X2.1**

JOB NO: ENG-1465

Z:\Jobs\Jobs\ENGINEERING\Dwg\Civil\X2.1 Erosion Control Plan (Phase II).dwg, 2/26/2020 8:42:36 AM

NORTH

Scale: 1 in. = 50 ft.

0' 50' 100' 150'

Graphic Scale

LEGEND:

- Silt Fence
- Construction Entrance
- Phase III Anticipated Active Work Area
- Seed and Straw Areas

Seed and straw disturbed areas.

Ex. Wooded Area

FEMA PANEL 55131C0379D – 100-Year Flood Plain

Ex. Wetland Boundary Per CDM, Inc.

Ex. Wetland Boundary 25' Offset Limits Per CDM, Inc.

Completed ditch erosion control lined.

Topsoil stockpile area

Northwest corner major earthwork area.

Ex. 16" Water Main

Ex. 12" VCP Sanitary

Ex. 48" RCP Sanitary

Ex. 18" RCP Sanitary

Ex. 12" VCP Sanitary

Ex. Sanitary Manhole
Top Rim = 781.4
Inv. Out = 770.25 (12"-W)
Inv. In = 770.25 (12"-E)

Ex. Sanitary Manhole
Top Rim = 779.85
Inv. Out = 753.56 (48"-W)
Inv. In = 753.56 (48"-E)

Ex. 4" Gas Service

Ex. Lawn

Ex. Flare

Ex. Gravel

Ex. Sanitary Manhole
Top Rim = 795.8
Inv. Out = 784.57 (12"-W)
Inv. In = 784.90 (8"-E)
Inv. In = 784.90 (8" Stub-N)

Ex. 8" VCP Sanitary

Ex. Ashalt

Ex. Lawn

Ex. Building

Ex. Conc.

Ex. Asphalt

Ex. Building

Ex. Conc.

Ex. Building

Ex. Asphalt

Ex. Structures

Ex. Asphalt

Ex. Conc.

Ex. Building

Ex. Asphalt

Completed ditch erosion control lined.

Seed and straw disturbed areas.

EROSION CONTROL PLAN (PHASE III)

Scale: 1" = 50'

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

C. *SEEDING AND MULCHING: All disturbed areas shall be permanently seeded upon completion of grading activities.*

D. *All erosion and sediment control BMPs shown on plan are for reference and are to be field verified as required to meet, at minimum, all local, state, and federal regulations governing such operations.*

EROSION AND SEDIMENT CONTROL BASIC PRINCIPLES:

1. *Minimize open area by phasing or sequencing construction and preserving existing vegetation where possible.*
2. *Divert storm water away from disturbed or exposed areas when possible.*
3. *Install BMPs to control erosion and sediment and manage storm water.*
4. *Inspect the site regularly and properly maintain BMPs, especially after rainstorms.*
5. *Revise the plan as site conditions change during construction and improve the plans if BMPs are not effectively controlling erosion and sediment.*
6. *Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and preventing or removing excess sediment on roads and other impervious surfaces.*

CONSTRUCTION SEQUENCING NOTES (PHASE III):

1. *Field located and construct temporary erosion control BMPs, as required.*
2. *Begin topsoil stripping and stockpiling.*
3. *Begin major earthwork on the northwest portion of the site.*
4. *Seed and straw disturbed areas.*

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ISSUE DATE 02/28/2020
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CTR INT: KJB MJB
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WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY GERMANTOWN, WI

SHEET TITLE: EROSION CONTROL PLAN (PHASE III)

SHEET NO: X2.2

JOB NO: ENG-1465

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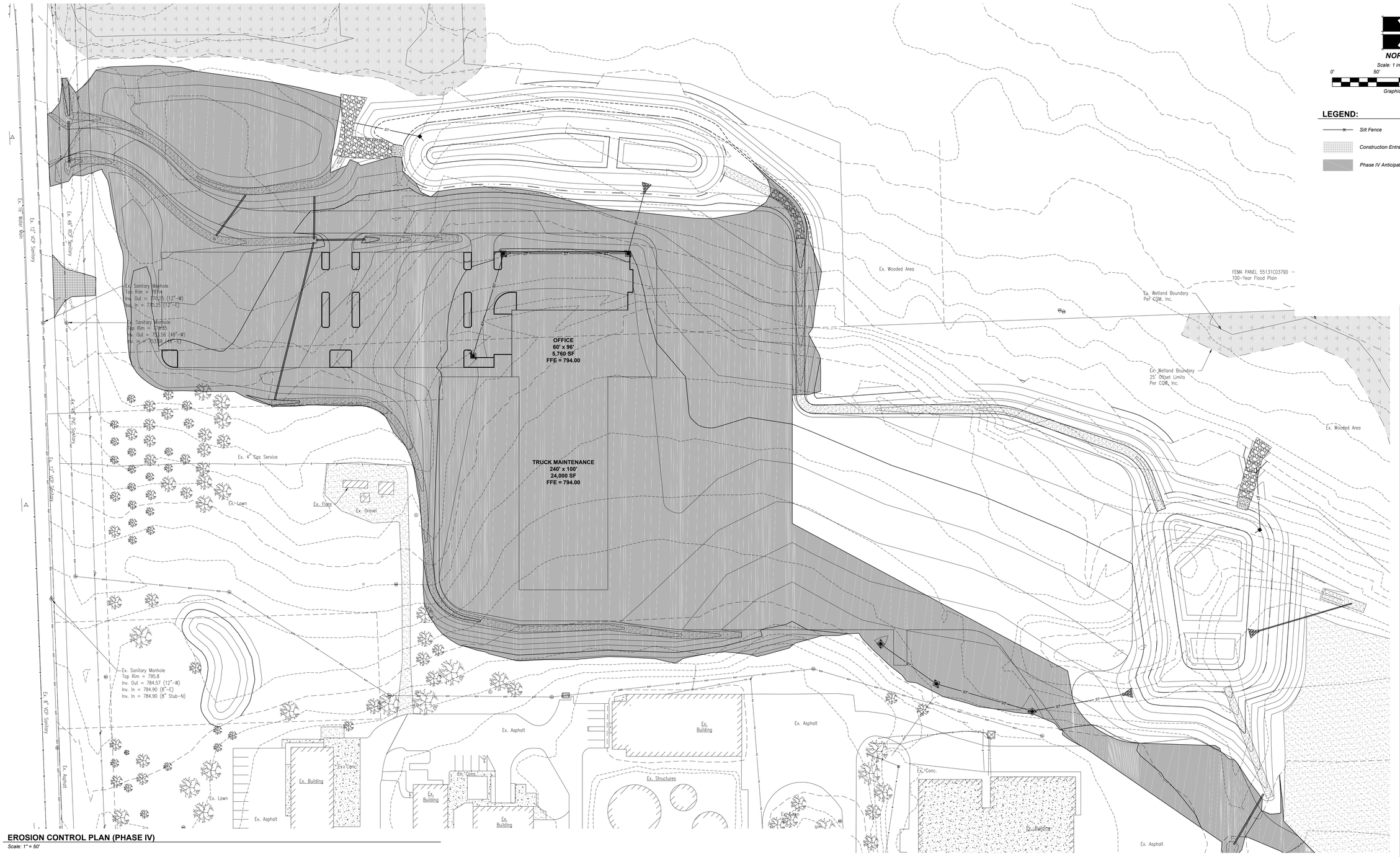

EROSION CONTROL PLAN (PHASE IV)

Scale: 1" = 50'

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

C. *SEEDING AND MULCHING: All disturbed areas shall be permanently seeded upon completion of grading activities.*

D. *All erosion and sediment control BMPs shown on plan are for reference and are to be field verified as required to meet, at minimum, all local, state, and federal regulations governing such operations.*

EROSION AND SEDIMENT CONTROL BASIC PRINCIPLES:

1. *Minimize open area by phasing or sequencing construction and preserving existing vegetation where possible.*
2. *Divert storm water away from disturbed or exposed areas when possible.*
3. *Install BMPs to control erosion and sediment and manage storm water.*
4. *Inspect the site regularly and properly maintain BMPs, especially after rainstorms.*
5. *Revise the plan as site conditions change during construction and improve the plans if BMPs are not effectively controlling erosion and sediment.*
6. *Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and preventing or removing excess sediment on roads and other impervious surfaces.*

CONSTRUCTION SEQUENCING NOTES (PHASE IV):

1. *Complete remaining ditches / berms and install storm water structures.*
2. *Grade building pad.*
3. *Re-spread topsoil on completed slopes and seed and straw.*

ISSUE DATE	02/26/2020
SURVEYED BY	CDM
DRAWN BY	DSM
SCALE	1" = 50'
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2"

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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *EROSION CONTROL PLAN (PHASE IV)*

SHEET NO: **X2.3**

JOB NO: ENG-1465

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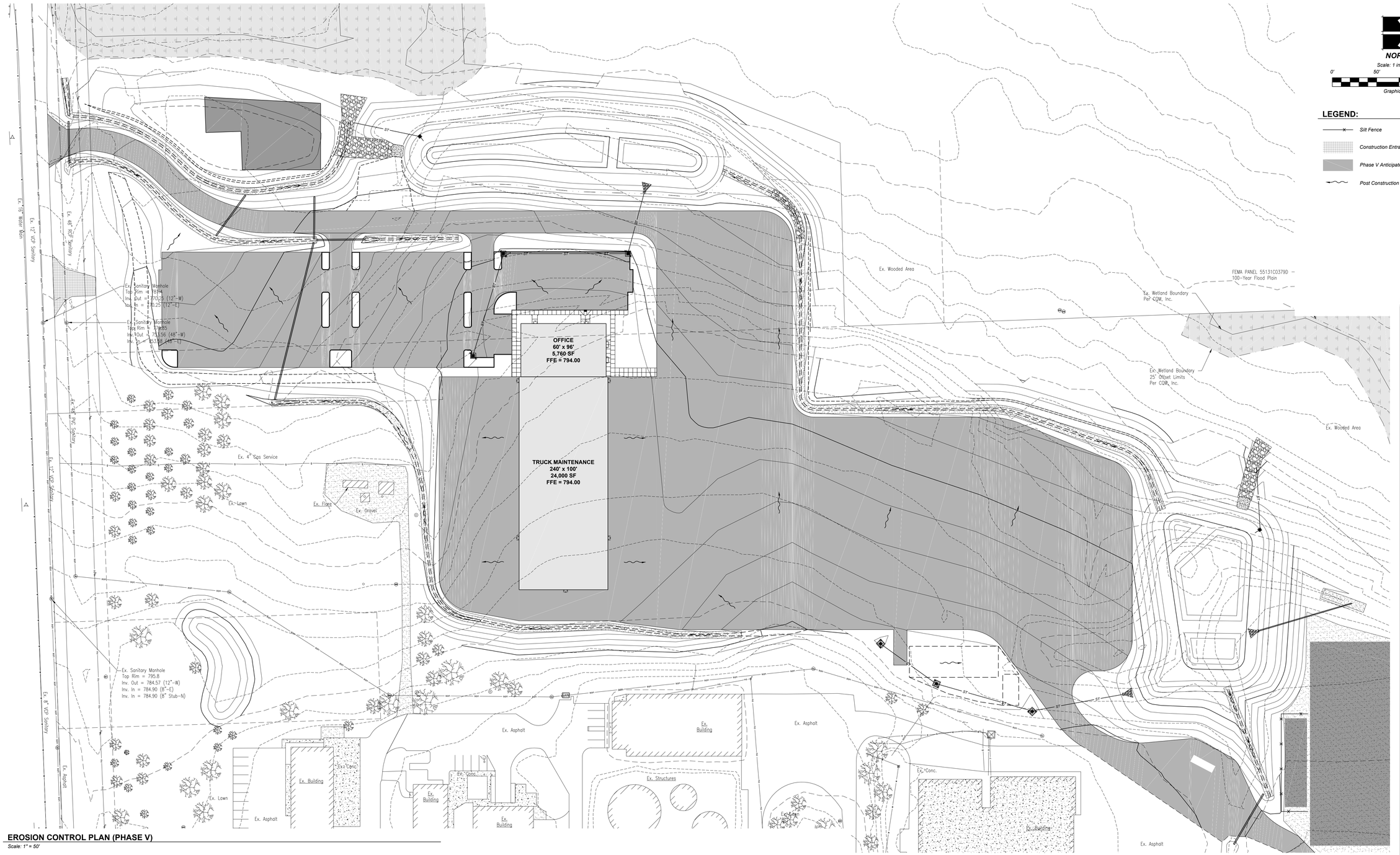

EROSION CONTROL PLAN (PHASE V)

Scale: 1" = 50'

GENERAL NOTES:

A. *STREET SWEEPING: Streets directly adjacent to construction entrances and receiving traffic from the development area shall be cleaned daily to remove sediment tracked off-site.*

B. *INTERNAL INSPECTION AND MAINTENANCE: All controls on the development shall be inspected at least once every seven (7) calendar days and within 24 hours after any storm event greater than one-half (0.5) inch of rain per 24 hour period by the Owner.*

C. *SEEDING AND MULCHING: All disturbed areas shall be permanently seeded upon completion of grading activities.*

D. *All erosion and sediment control BMPs shown on plan are for reference and are to be field verified as required to meet, at minimum, all local, state, and federal regulations governing such operations.*

EROSION AND SEDIMENT CONTROL BASIC PRINCIPLES:

1. *Minimize open area by phasing or sequencing construction and preserving existing vegetation where possible.*
2. *Divert storm water away from disturbed or exposed areas when possible.*
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4. *Inspect the site regularly and properly maintain BMPs, especially after rainstorms.*
5. *Revise the plan as site conditions change during construction and improve the plans if BMPs are not effectively controlling erosion and sediment.*
6. *Keep the construction site clean by putting trash in trash cans, keeping storage bins covered, and preventing or removing excess sediment on roads and other impervious surfaces.*

CONSTRUCTION SEQUENCING NOTES (PHASE V):

1. *Building Construction.*
2. *Final grading and hard surfacing.*
3. *Complete topsoil re-spread on remaining slopes and seed and straw.*
4. *Reclaim staging areas and east construction entrance.*

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ISSUE DATE 02/26/2020 | SCALE 1" = 50' | CTR INT. 2"
SURVEYED BY CDM | CHECKED BY KJB
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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *EROSION CONTROL PLAN (PHASE V)*

SHEET NO: **X2.4**

JOB NO: ENG-1465

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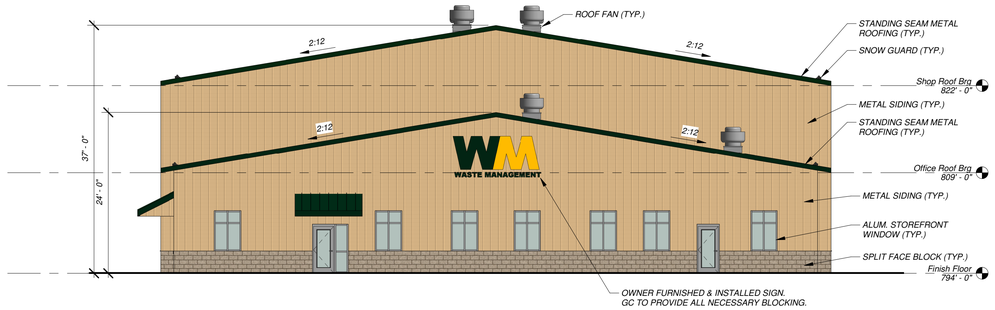
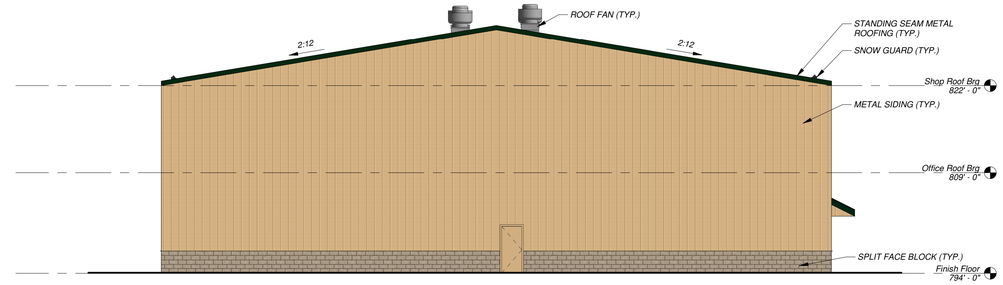
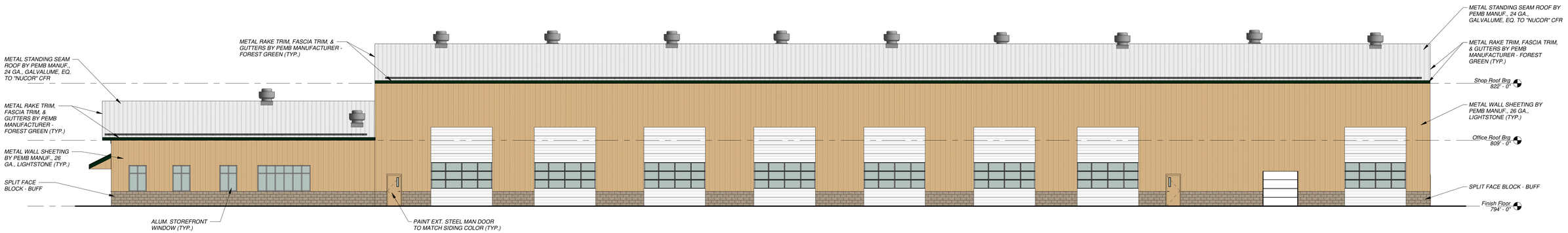


1 *East Exterior Elevation*
3/32" = 1'-0"



2 *West Exterior Elevation*
3/32" = 1'-0"



3 *North Exterior Elevation*
3/32" = 1'-0"

4 *South Exterior Elevation*
3/32" = 1'-0"

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ISSUE DATE 02/26/20 SCALE 3/32" = 1'-0" CTR INT.
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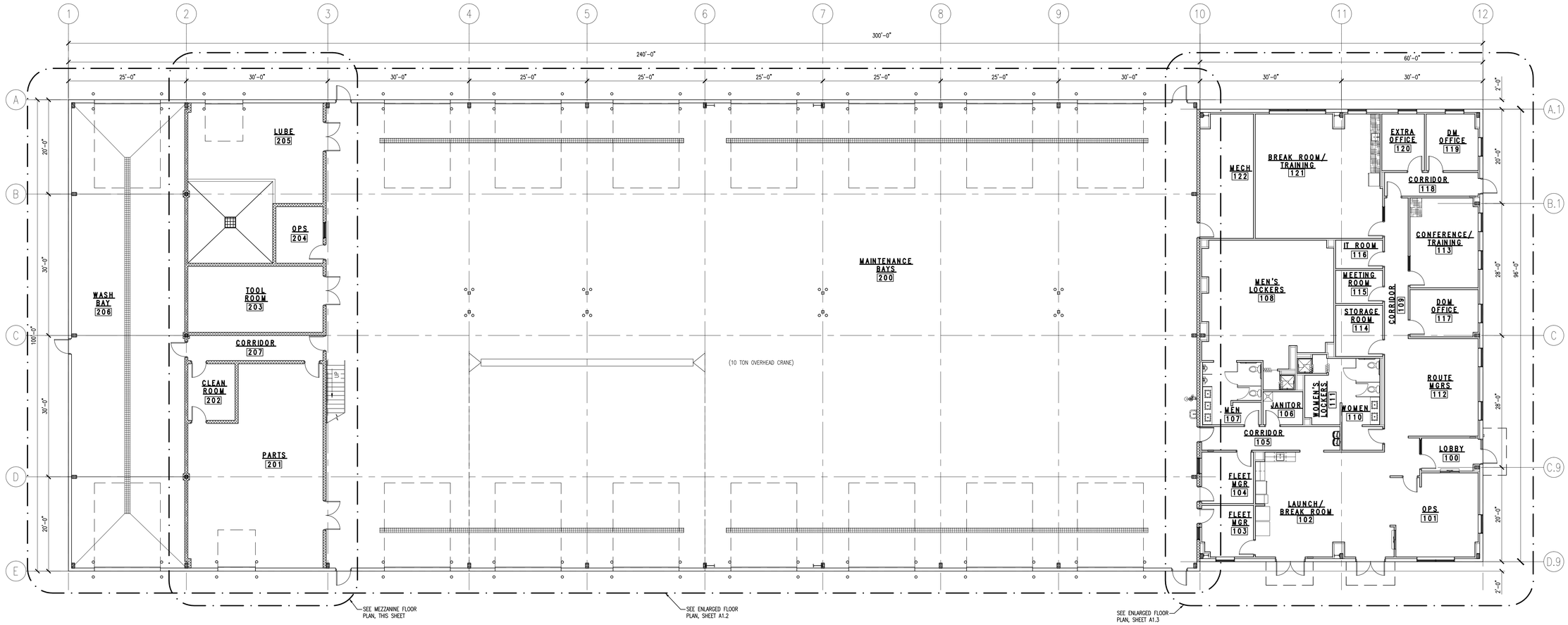
WASTE MANAGEMENT

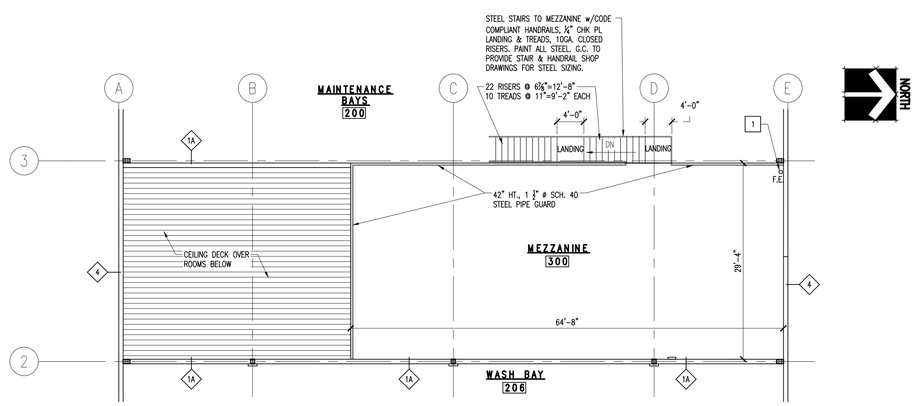
PROJECT: TRUCK MAINTENANCE FACILITY GERMANTOWN, WI

SHEET TITLE: EXTERIOR ELEVATIONS

SHEET NO: A1.0



1 OVERALL FLOOR PLAN
SCALE: 3/32" = 1'-0"



2 MEZZANINE FLOOR PLAN
SCALE: 3/32" = 1'-0"

GENERAL NOTES:

1.) ALL WORK MUST BE IN STRICT COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE (IBC) – 2015.

2.) ICC A117.1 – 2009 ACCESSIBLE AND USABLE, BUILDING AND FACILITIES.

3.) EXIT DOORS SHALL MEET IBC 1010.1.9 & 1010.1.10.

4.) THE BUILDING WILL BE EQUIPPED WITH AN AUTOMATIC FIRE SUPPRESSION SYSTEM THROUGHOUT.

5.) DIMENSIONS ARE FROM FACE OF FINISHED WALL OR CMU TO FACE OF FINISHED WALL OR CMU (UNLESS OTHERWISE NOTED).

CODED NOTES:

1.) SURFACE-MOUNTED FIRE EXTINGUISHER – "COSMIC" 20# ABC FIRE EXTINGUISHER w/WALL BRACKET.

SQUARE FOOTAGE BY ROOM (NET)

ROOM NO.	ROOM ID.	SQ. FOOTAGE	ROOM NO.	ROOM ID.	SQ. FOOTAGE
100	LOBBY	84	116	IT ROOM	60
101	OPS	317	117	DOM OFFICE	144
102	LAUNCH/BREAK ROOM	626	118	COORIDOR	99
103	FLEET MGR	117	119	DM OFFICE	130
104	FLEET MGR	120	120	EXTRA OFFICE	108
105	CORRIDOR	147	121	BREAK ROOM/TRAINING	695
106	JANITOR	59	122	MECH	292
107	MEN	165	200	MAINTENANCE BAYS	18,220
108	MEN'S LOCKERS	711	201	PARTS	1,107
109	CORRIDOR	308	202	CLEAN ROOM	120
110	WOMEN	158	203	TOOL ROOM	401
111	WOMEN'S LOCKERS	109	204	OPS	120
112	ROUTE MGRS	307	205	LUBE	840
113	CONFERENCE/TRAINING	275	206	WASH BAY	2,368
114	STORAGE ROOM	108	300	MEZZANINE	1,897
115	MEETING ROOM	70			

SQUARE FOOTAGE TABULATION

OVERALL SQUARE FOOTAGE (GROSS)

OFFICE/ADMINISTRATION	= 5,760 SF
MAINTENANCE SHOP/WASH BAY	= 24,000 SF
MEZZANINE	= 1,897 SF
CANOPY & AWNINGS	= 150 SF
TOTAL	= 31,765 SF

NORTH

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

ISSUE DATE: 02/28/2020
SURVEYED BY: CQM
DRAWN BY:
SCALE: 3/32" = 1'-0"
CHECKED BY:
APPROVED BY:
CTR INT.
NJB
NJB

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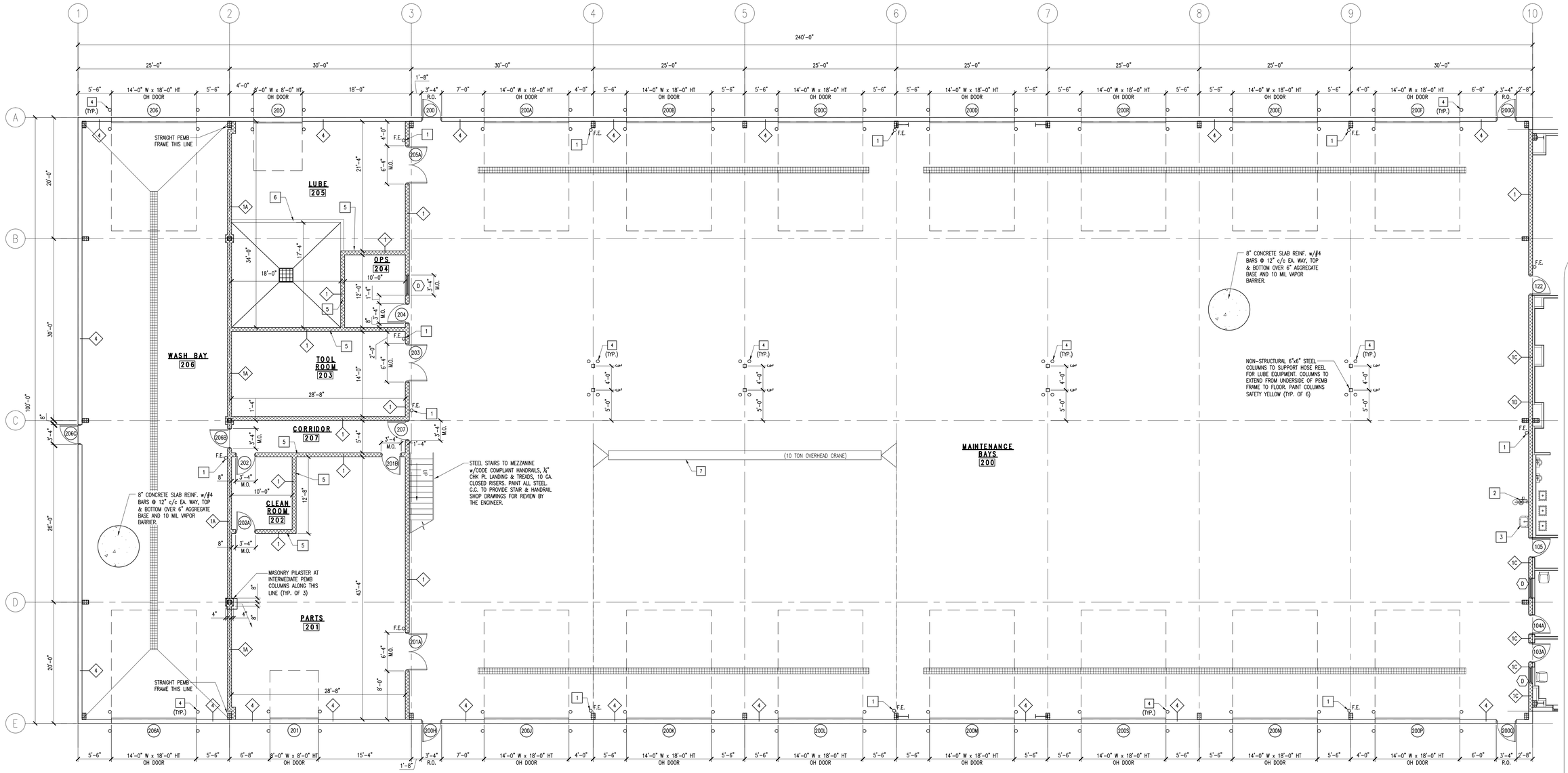
PROJECT:
WASTE MANAGEMENT
TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE:
OVERALL FLOOR PLAN

SHEET NO:
A1.1

JOB NO:
ENG-1465



1 ENLARGED FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1.) ALL WORK MUST BE IN STRICT COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE (IBC) – 2015.

2.) ICC A117.1 – 2009 ACCESSIBLE AND USABLE, BUILDING AND FACILITIES.

3.) EXIT DOORS SHALL MEET IBC 1010.1.9 & 1010.1.10.

4.) THE BUILDING WILL BE EQUIPPED WITH AN AUTOMATIC FIRE SUPPRESSION SYSTEM THROUGHOUT.

5.) DIMENSIONS ARE FROM FACE OF FINISHED WALL OR CMU TO FACE OF FINISHED WALL OR CMU (UNLESS OTHERWISE NOTED).

6.) BULLNOSE ALL CMU CORNERS WHEN EXPOSED.

CODED NOTES: ☐

1.) SURFACE-MOUNTED FIRE EXTINGUISHER – "COSMIC" 20# ABC FIRE EXTINGUISHER w/WALL BRACKET.

2.) WALL MOUNTED EMERGENCY SHOWER w/EYE/FACE WASH STATION, SEE PLUMBING DRAWINGS.

3.) WALL MOUNTED SERVICE SINK, SEE PLUMBING DRAWINGS.

4.) 6" DIA. STEEL PIPE BOLLARD FILLED WITH CONCRETE, PAINTED YELLOW (TYP.), SEE DETAIL 3 ON SHEET A4.0.

5.) MASONRY WALL TIGHT TO MEZZANINE/CEILING DECK ABOVE.

6.) 6" HT. CONCRETE CURB FOR LUBE STORAGE CONTAINMENT.

7.) OVERHEAD 10 TON CRANE TO BE PROVIDED BY THE OWNER. THE G.C. SHALL COORDINATE INSTALLATION OF EQUIPMENT NEAR THE CRANE WITH THE OWNER AND/OR OWNER'S REPRESENTATIVE. THE G.C. SHALL PROVIDE COORDINATION DRAWINGS FOR EQUIPMENT BEING INSTALLED NEAR THE CRANE FOR REVIEW BY THE ENGINEER.

WALL TYPES LEGEND:

(SEE FINISH SCHEDULE FOR FINISHES)

* DIMENSIONS ARE FROM FACE OF FINISHED WALL OR CMU TO FACE OF FINISHED WALL OR CMU (UNLESS OTHERWISE NOTED).

1 — 8" CMU PAINTED

1A — 8" CMU PAINTED UP TO 13'-4" AFF. PEMB METAL GIRTS w/METAL LINER PANEL ABV. MASONRY TO CEILING.

1C — 8" CMU PAINTED AND 3⅝" METAL STUDS @ 16" O.C. w/⅝" GYP. BOARD.

1D — 8" CMU PAINTED AND 3⅝" METAL STUDS @ 16" O.C. w/⅝" M.R. GYP. BOARD.

4 — PEMB METAL GRITS w/8" SPLIT FACE CMU UP TO 3'-4" AFF (FOAMED-IN-PLACE INSULATION IN EMPTY CORES), METAL EXTERIOR SIDING AND INTERIOR METAL LINER PANEL.

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY
ISSUE DATE	02/28/2020	SCALE	1/8" = 1'-0"	CTR INT.		
SURVEYED BY		COM		KJB		
DRAWN BY		CHECKED BY		MJB		
		APPROVED BY				

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663
Phone: (330) 364-4331
FAX: (330) 364-4332
e-mail: dei@dei-eng.com
Web: www.dei-eng.com

WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: ENLARGED FLOOR PLAN (MAINTENANCE BAYS)

SHEET NO: A1.2

JOB NO: ENG-1465

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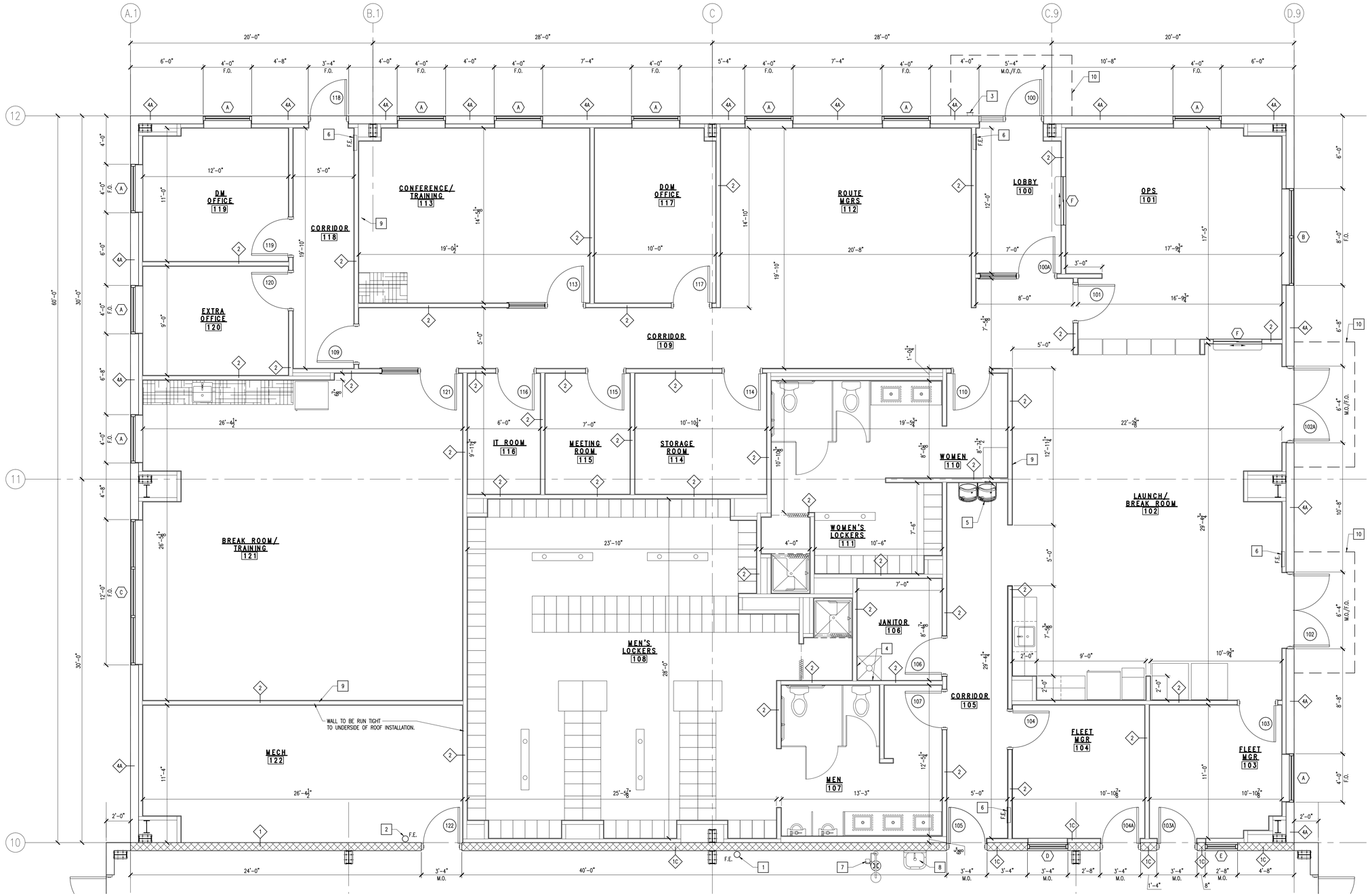

1 ENLARGED FLOOR PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1.) ALL WORK MUST BE IN STRICT COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE (IBC) – 2015.

2.) ICC A117.1 – 2009 ACCESSIBLE AND USABLE, BUILDING AND FACILITIES.

3.) EXIT DOORS SHALL MEET IBC 1010.1.9 & 1010.1.10.

4.) THE BUILDING WILL BE EQUIPPED WITH AN AUTOMATIC FIRE SUPPRESSION SYSTEM THROUGHOUT.

5.) DIMENSIONS ARE FROM FACE OF FINISHED WALL OR CMU TO FACE OF FINISHED WALL OR CMU (UNLESS OTHERWISE NOTED).

6.) BULLNOSE ALL CMU CORNERS WHEN EXPOSED.

7.) FRAMING AROUND PEMB FRAMES SHALL BE FIELD VERIFIED AND ADJUSTED AS NECESSARY.

CODED NOTES:

1.) SURFACE-MOUNTED FIRE EXTINGUISHER – "COSMIC" 20# ABC FIRE EXTINGUISHER w/WALL BRACKET.

2.) SURFACE-MOUNTED FIRE EXTINGUISHER – "COSMIC" 10# ABC FIRE EXTINGUISHER w/WALL BRACKET.

3.) "KNOX-BOX" 3200 SERIES, SURFACE MOUNTED, HINGED DOOR.

4.) FRP PANELS AT MOP BASIN. 48" HT x 12" BEYOND EDGE OF MOP BASIN.

5.) BI-LEVEL, BARRIER FREE, ADA COMPLIANT WATER COOLER, WALL MOUNTED BY PLUMBING CONTRACTOR.

6.) RECESSED FIRE EXTINGUISHER – "J.L. IND." PANORAMA 3015-Q-48 FLAT TRIM, IDENTITY H-WHITE AND RED SCORED BREAKOUT PANEL WITH LOCK MECHANISM AND "COSMIC" 10# ABC FIRE EXTINGUISHER.

7.) WALL MOUNTED EMERGENCY SHOWER w/EYE/FACE WASH STATION, SEE PLUMBING DRAWINGS.

8.) WALL MOUNTED SERVICE SINK, SEE PLUMBING DRAWINGS.

9.) PROVIDE BLOCKING FOR TV MONITOR – COORDINATE MONITOR SIZE W/OWNER.

10.) CANOPY LINE ABOVE.

WALL TYPES LEGEND:

(SEE FINISH SCHEDULE FOR FINISHES)

* DIMENSIONS ARE FROM FACE OF FINISHED WALL OR CMU TO FACE OF FINISHED WALL OR CMU (UNLESS OTHERWISE NOTED).

1 — 8" CMU PAINTED

1C — 8" CMU PAINTED AND 3⅝" METAL STUDS @ 16" O.C. w/⅝" GYP. BOARD.

2 — 3⅝" METAL STUDS @ 16" O.C. w/3½" SOUNDS BATTS AND ⅝" GYP. BOARD ON EACH SIDE. ⅝" M.R. GYP. BOARD WILL OCCUR IN ALL SHOWER COMPARTMENTS.

4A — PEMB METAL GRITS w/8" SPLIT FACE CMU UP TO 3'-4" AFF (FOAMED-IN-PLACE INSULATION IN EMPTY CORES), METAL EXTERIOR SIDING AND 3⅝" METAL STUD @ 16" O.C. w/⅝" GYP. BOARD ON INSIDE (SEE FINISH SCHEDULE).

ISSUE DATE 02/28/2020 | SCALE 1/4" = 1'-0" | CTR INT.
SURVEYED BY | COM | CHECKED BY | KJB
DRAWN BY | | APPROVED BY | MJB

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

Diversified Engineering Inc.
CONSULTING ENGINEERS & SURVEYORS
175 RAY AVENUE, N.E.
NEW PHILADELPHIA, OH 44663
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e-mail: dei@dei-eng.com
Web: www.dei-eng.com

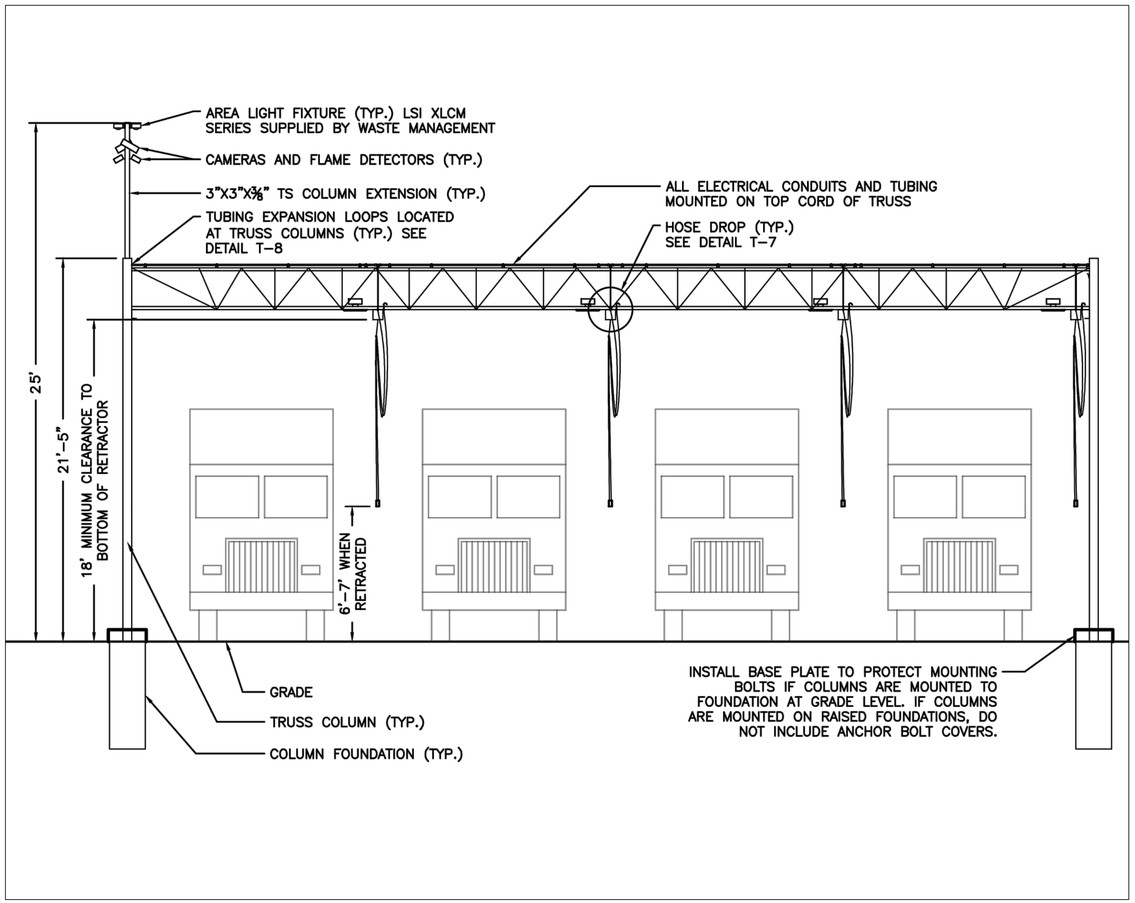
WASTE MANAGEMENT

PROJECT: TRUCK MAINTENANCE FACILITY
GERMANTOWN, WI

SHEET TITLE: ENLARGED FLOOR PLAN (OFFICE)

SHEET NO: A1.3

JOB NO: ENG-1465



TYPICAL CNG TRUSS

DETAIL 1 / A1.2

SCALE: NOT TO SCALE

ISSUE DATE 02/28/2020 SCALE NO SCALE CTR INT: --
SURVEYED BY COM CHECKED BY BWS/KJB
DRAWN BY CRM/LDB APPROVED BY MJB

REV	DATE	DESCRIPTION	DWN BY	DES BY	CHK BY	APP BY

Diversified Engineering Inc.
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WASTE MANAGEMENT

PROJECT: *TRUCK MAINTENANCE FACILITY GERMANTOWN, WI*

SHEET TITLE: *CNG TRUSS STRUCTURE TYPICAL DETAIL*

SHEET NO: **A1.4**

JOB NO: ENG-1465

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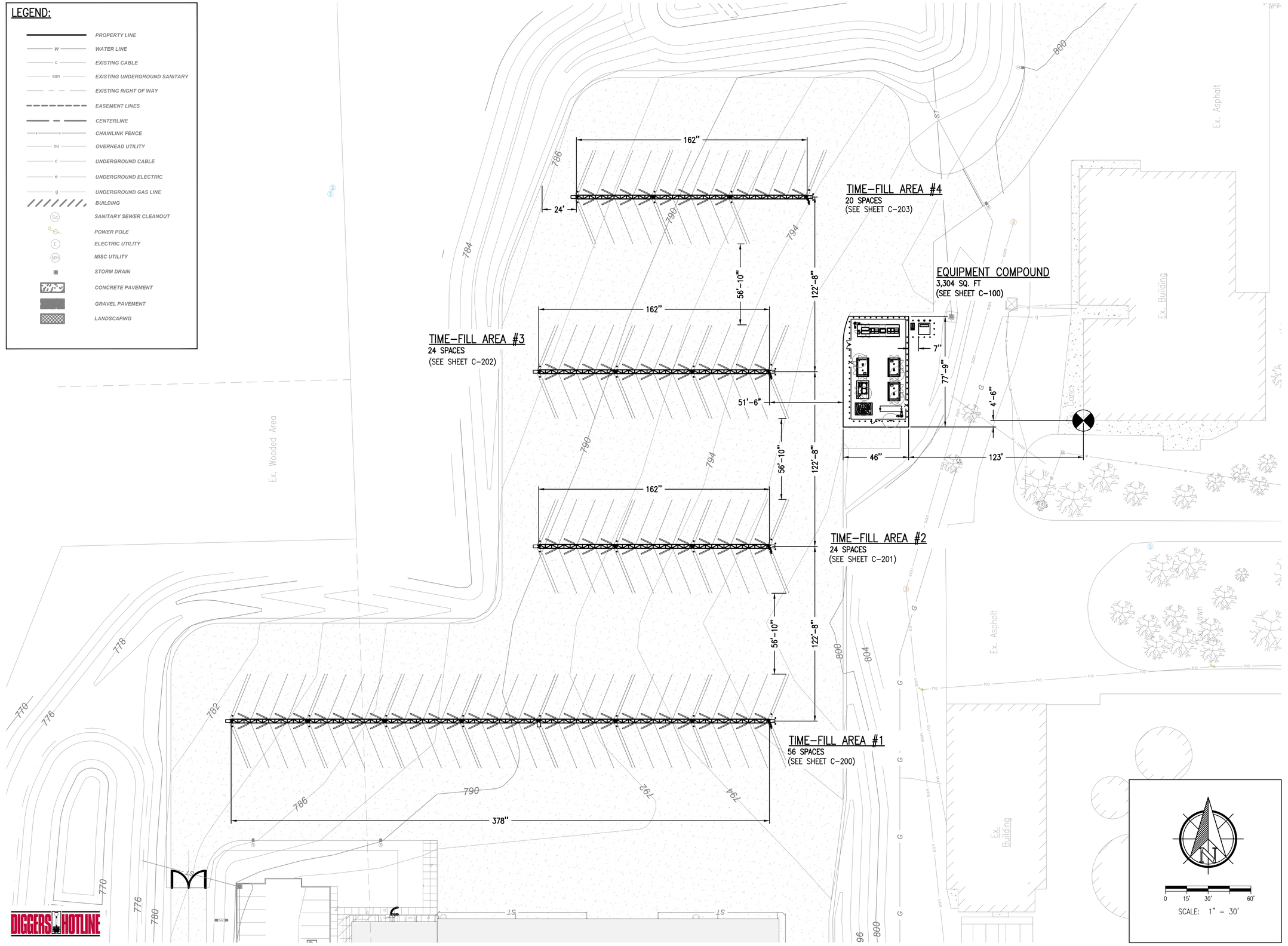
LEGEND:

- PROPERTY LINE
- W — WATER LINE
- c — EXISTING CABLE
- san — EXISTING UNDERGROUND SANITARY
- EXISTING RIGHT OF WAY
- EASEMENT LINES
- CENTERLINE
- CHAINLINK FENCE
- ou — OVERHEAD UTILITY
- c — UNDERGROUND CABLE
- e — UNDERGROUND ELECTRIC
- g — UNDERGROUND GAS LINE
- BUILDING
- Sa — SANITARY SEWER CLEANOUT
- POWER POLE
- E — ELECTRIC UTILITY
- MH — MISC UTILITY
- STORM DRAIN
- CONCRETE PAVEMENT
- GRAVEL PAVEMENT
- LANDSCAPING



DIGGERS HOTLINE

OWNER
WASTE MANAGEMENT
N96W13600 COUNTY LINE RD
GERMANTOWN, WI 53022
MATHEW MCGURN
906-235-9560

GENERAL CONTRACTOR:
TRUSTAR ENERGY
JEFF LUCERO (CA LIC # 942661)
10225 PHILADELPHIA CT.
RANCHO CUCAMONGA, CA. 91730
(909) 793-3700

TruStar Energy

WASTE MANAGEMENT

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GERMANTOWN, WI 53022
CNG FUEL FACILITY

Katahdin Environmental
3553 CAMINO MIRA COSTA, SUITE E
SAN CLEMENTE, CA 92672

REVISIONS			
No.	DATE	BY	REMARK

GENERAL – SITE PLAN

DRAWN: SBR
CHECKED: SRR
DATE: 17/04/2020
SCALE: AS SHOWN
JOB NO: 20003

G–200

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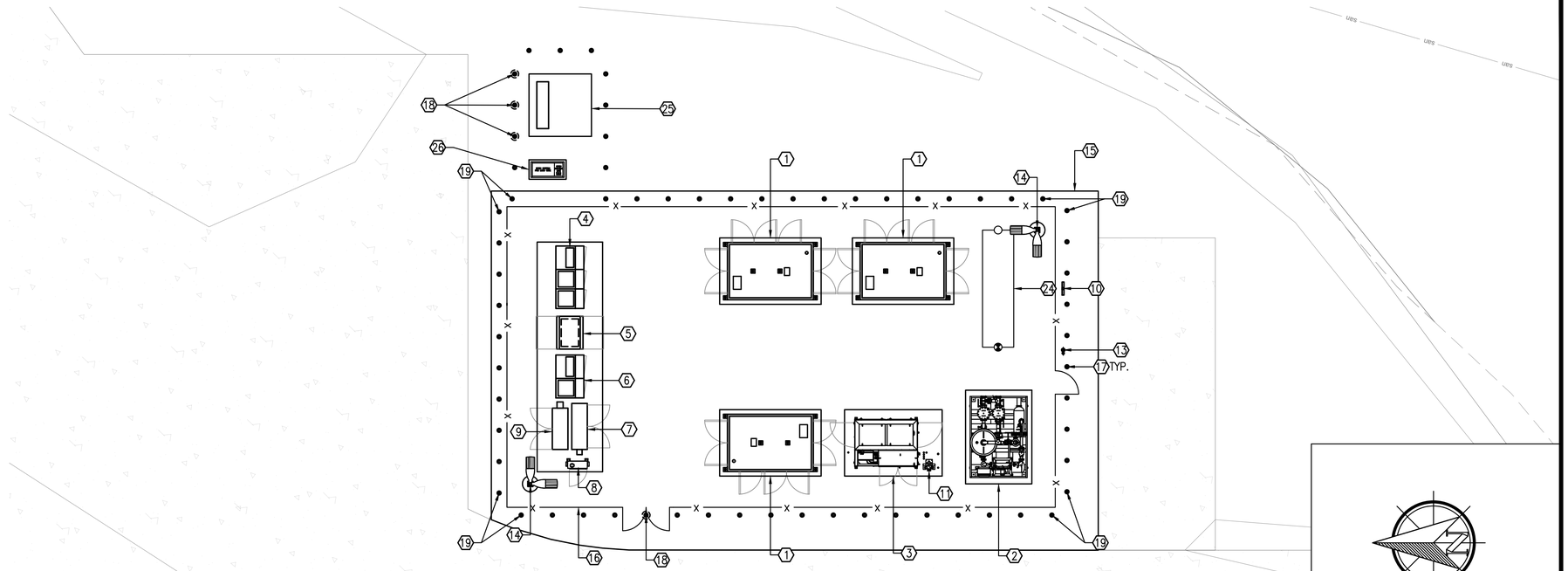
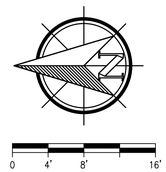


EQUIPMENT COMPOUND – PLAN VIEW

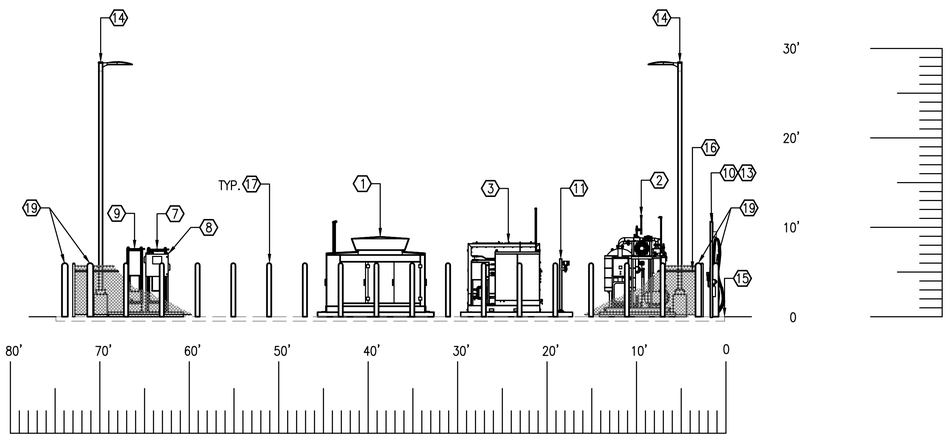


SCALE: 1" = 8'

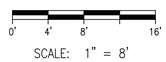
EQUIPMENT LIST:

1. ANGI NG300 COMPRESSOR (QTY. 3)
2. CNG DRYER GD-036-S-M-460-150-4
3. TRUSTAR DE-FUELING SYSTEM
4. SERVICE ENTRANCE RATED SWITCHBOARD – 1600 AMP
5. 300 KVA XMFR
6. SWITCHBOARD 800 AMP
7. TRIPLE MOTOR STARTER PANEL – 1200A
8. TRUSTAR COMMUNICATIONS PANEL
9. WASTE MANAGEMENT COMM. PANEL
10. DE-FUELING/DIRECT FILL POST
11. FLOW METER
12. FILTER STAND (WM SPEC)
13. EMERGENCY SHUT-DOWN SWITCH W/ FIRE EXTINGUISHER
14. 29' DUAL HEAD LED LIGHT *
15. 4" HOUSEKEEPING PAD
16. 6' CHAIN LINK FENCE
17. 6" FIXED BOLLARD
18. 6" REMOVEABLE BOLLARD
19. 8" FIXED BOLLARD
20. TIME-FILL TRUSS*
21. CAISSON FOR TRUSS*
22. TRUSS COLUMN EXTENSION W/ LIGHT & FLAME DETECTOR*
23. WHEEL STOP*
24. UTILITY GAS METER SET ASSEMBLY
25. UTILITY TRANSFORMER
26. CT CABINET & METER

* SEE SHEET C-200 THRU 204



EQUIPMENT COMPOUND – WEST ELEVATION



SCALE: 1" = 8'

DIGGERS HOTLINE

OWNER
WASTE MANAGEMENT
N96W13600 COUNTY LINE RD
GERMANTOWN, WI 53022
MATHEW MCGURN
906-235-9560

GENERAL CONTRACTOR:
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TruStar Energy

WASTE MANAGEMENT

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CNG FUEL FACILITY

Katahdin Environmental
3553 CAMINO MIRA COSTA, SUITE E
SAN CLEMENTE, CA 92672

REVISIONS			
No.	DATE	BY	REMARK

CIVIL – EQUIPMENT AREA

DRAWN:	SBR
CHECKED:	SRR
DATE:	14/04/2020
SCALE:	AS SHOWN
JOB NO:	20003

C-100

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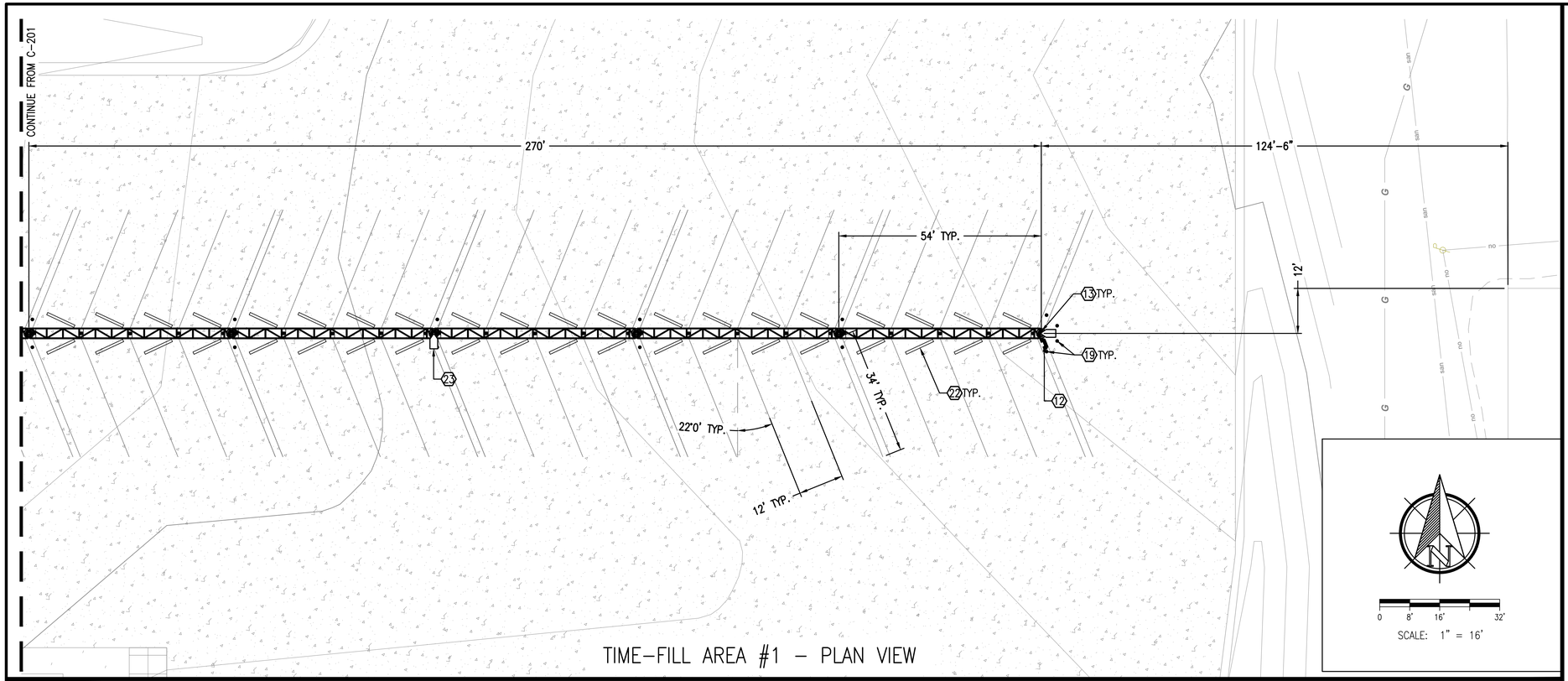


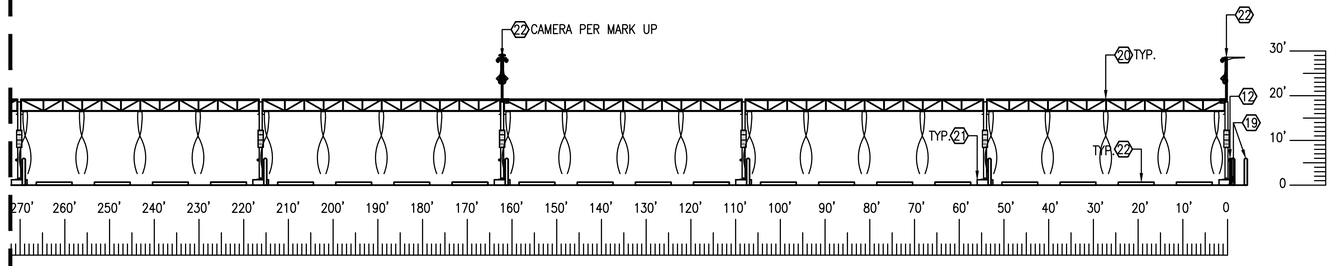
TIME-FILL AREA #1 - PLAN VIEW

SCALE: 1" = 16'

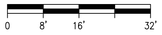
EQUIPMENT LIST:

1. ANGI NG300 COMPRESSOR (QTY. 3)*
2. CNG DRYER GD-036-S-M-460-150-4*
3. TRUSTAR DE-FUELING SYSTEM*
4. SERVICE ENTRANCE RATED SWITCHBOARD - 1600 AMP*
5. 300 KVA XMFR*
6. SWITCHBOARD 800 AMP*
7. TRIPLE MOTOR STARTER PANEL - 1200A*
8. TRUSTAR COMMUNICATIONS PANEL*
9. WASTE MANAGEMENT COMM. PANEL*
10. DE-FUELING/DIRECT FILL POST*
11. FLOW METER*
12. FILTER STAND (WM SPEC)
13. EMERGENCY SHUT-DOWN SWITCH W/ FIRE EXTINGUISHER
14. 29' DUAL HEAD LED LIGHT*
15. 4" HOUSEKEEPING PAD*
16. 6' CHAIN LINK FENCE*
17. 6" FIXED BOLLARD*
18. 6" REMOVEABLE BOLLARD*
19. 8" FIXED BOLLARD
20. TIME-FILL TRUSS
21. CAISSON FOR TRUSS
22. TRUSS COLUMN EXTENSION W/ LIGHT FLAME DETECTOR & CAMERA
23. WHEEL STOP
24. UTILITY GAS METER SET ASSEMBLY*
25. UTILITY TRANSFORMER*
26. CT CABINET & METER*

* SEE SHEET C-100



TIME-FILL AREA - SOUTH ELEVATION



SCALE: 1" = 16'

DIGGERS HOTLINE

OWNER
WASTE MANAGEMENT
N96W13600 COUNTY LINE RD
GERMANTOWN, WI 53022
MATHEW MCGURN
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GENERAL CONTRACTOR:
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TruStar Energy

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GERMANTOWN, WI 53022

CNG FUEL FACILITY

Katahdin Environmental
3553 CAMINO MIRA COSTA, SUITE E
SAN CLEMENTE, CA 92672

REVISIONS			
No.	DATE	BY	REMARK

CIVIL - TIME-FILL AREA

DRAWN: SBR
CHECKED: SRR
DATE: 14/04/2020
SCALE: AS SHOWN
JOB NO: 20003

C-200

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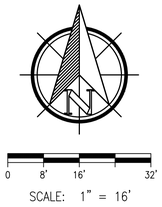
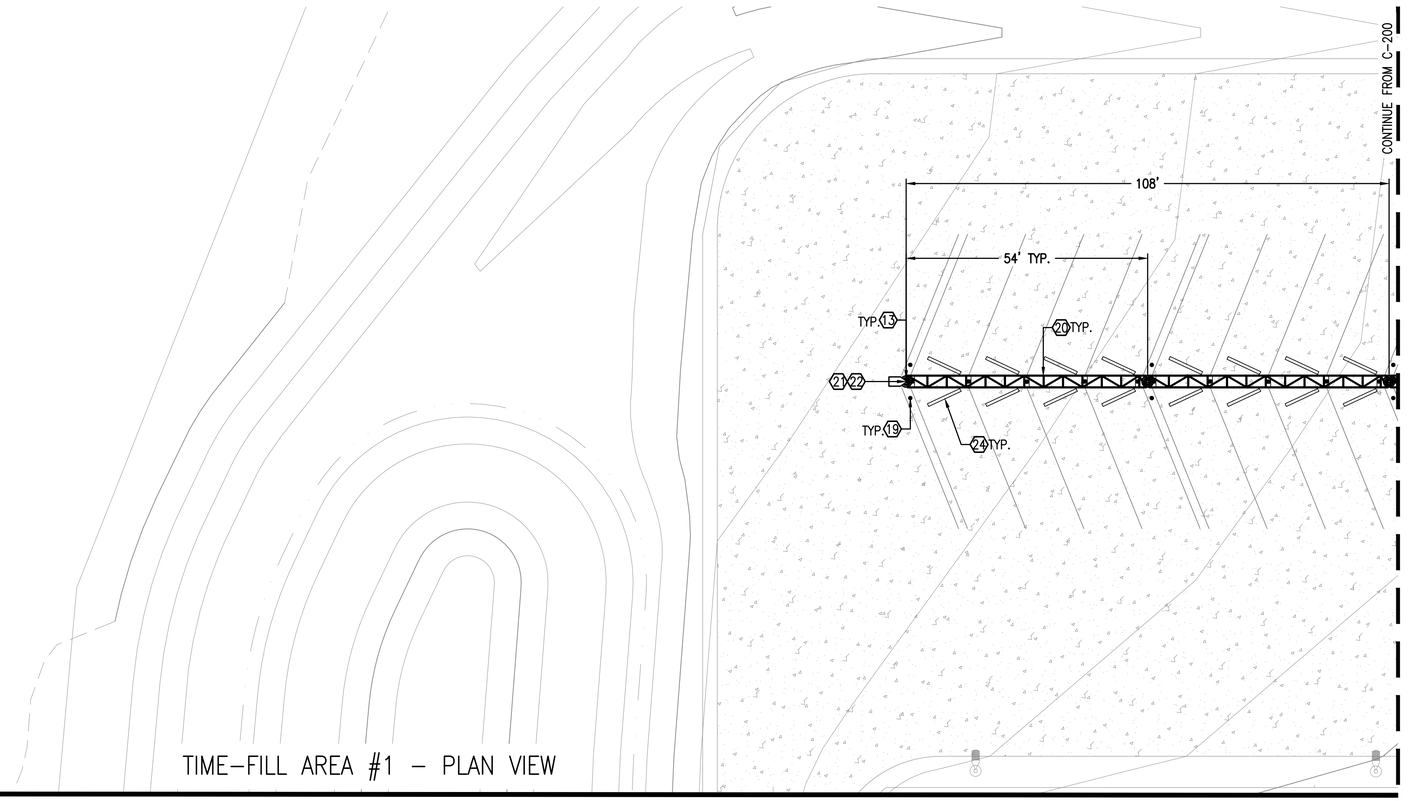
EQUIPMENT LIST:

1. ANGI NG300 COMPRESSOR (QTY. 3)*
2. CNG DRYER GD-036-S-M-460-150-4*
3. TRUSTAR DE-FUELING SYSTEM*
4. SERVICE ENTRANCE RATED SWITCHBOARD - 1600 AMP*
5. 300 KVA XMFR*
6. SWITCHBOARD 800 AMP*
7. TRIPLE MOTOR STARTER PANEL - 1200A*
8. TRUSTAR COMMUNICATIONS PANEL*
9. WASTE MANAGEMENT COMM. PANEL*
10. DE-FUELING/DIRECT FILL POST*
11. FLOW METER*
12. FILTER STAND (WM SPEC)*
13. EMERGENCY SHUT-DOWN SWITCH W/ FIRE EXTINGUISHER
14. 29' DUAL HEAD LED LIGHT*
15. 4" HOUSEKEEPING PAD*
16. 6' CHAIN LINK FENCE*
17. 6" FIXED BOLLARD*
18. 6" REMOVEABLE BOLLARD*
19. 8" FIXED BOLLARD
20. TIME-FILL TRUSS
21. CAISSON FOR TRUSS
22. TRUSS COLUMN EXTENSION W/ LIGHT FLAME DETECTOR & CAMERA
23. WHEEL STOP
24. UTILITY GAS METER SET ASSEMBLY*
25. UTILITY TRANSFORMER*
26. CT CABINET & METER*

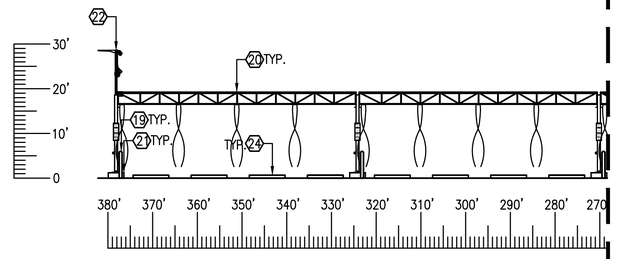
* SEE SHEET C-100

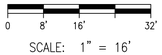


SCALE: 1" = 16'



TIME-FILL AREA #1 - PLAN VIEW





SCALE: 1" = 16'

TIME-FILL AREA #2 - SOUTH ELEVATION

DIGGERS HOTLINE

OWNER
WASTE MANAGEMENT
N96W13600 COUNTY LINE RD
GERMANTOWN, WI 53022
MATHEW MCGURN
906-235-9560

GENERAL CONTRACTOR:
TRUSTAR ENERGY
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10225 PHILADELPHIA CT.
RANCHO CUCAMONGA, CA. 91730
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TruStar Energy

WASTE MANAGEMENT

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GERMANTOWN, WI 53022

CNG FUEL FACILITY

Katahdin Environmental
3553 CAMINO MIRA COSTA, SUITE E
SAN CLEMENTE, CA 92672

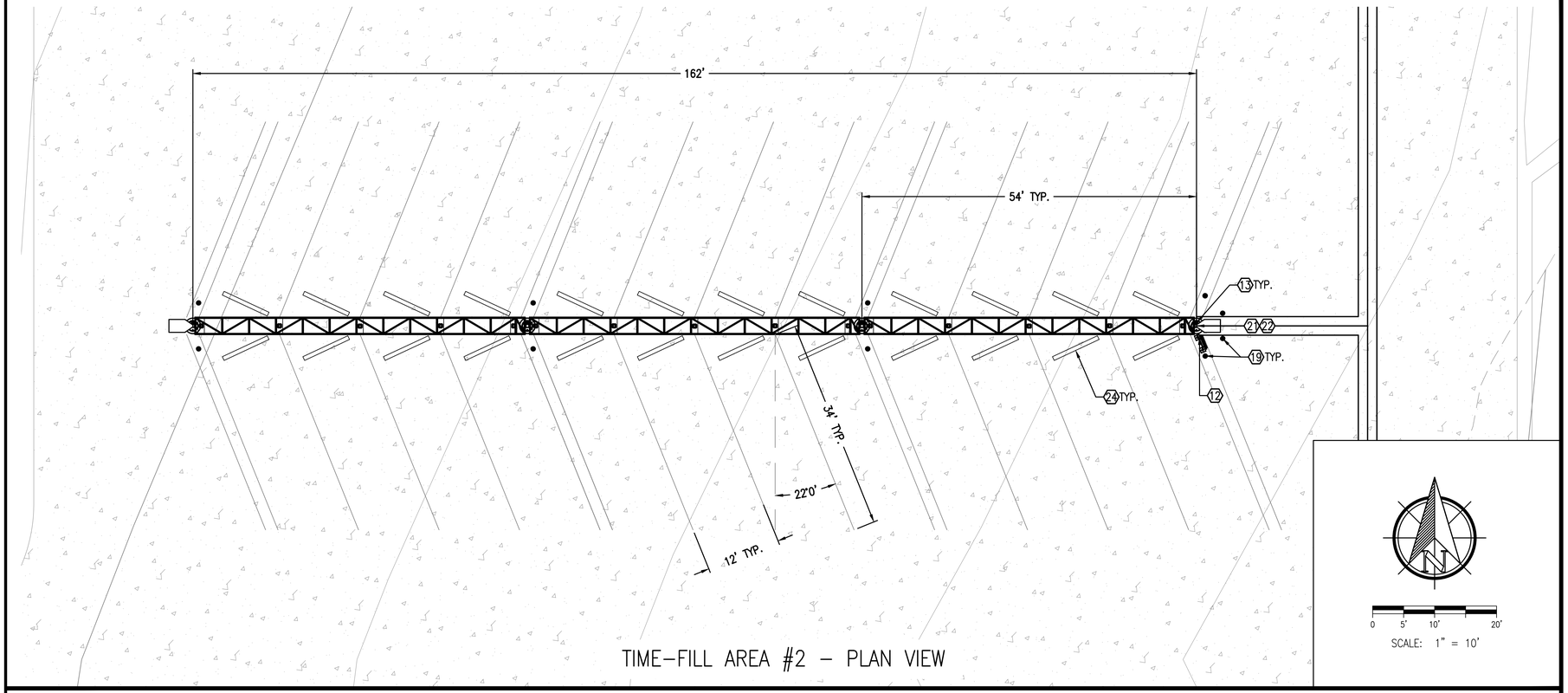
REVISIONS			
No.	DATE	BY	REMARK

CIVIL - TIME-FILL AREA

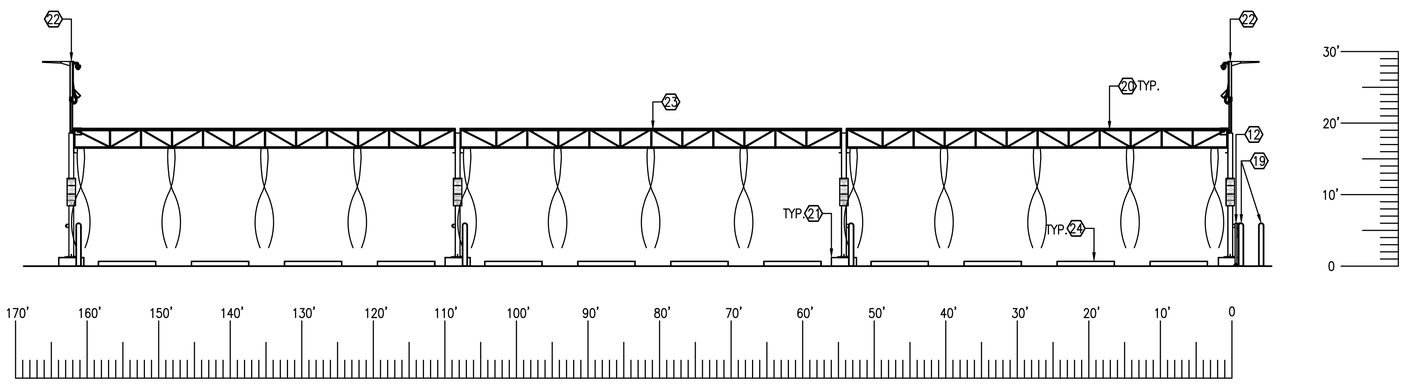
DRAWN:	SBR
CHECKED:	SRR
DATE:	14/04/2020
SCALE:	AS SHOWN
JOB NO:	20003

C-201

Z:\Projects\2020\20-003 - WM Germantown - Germantown, WI\Engineering\Working Folder\003.1 C-200 - CIVIL - TIME-FILL(FAST-FILL) AREA.dwg 04/14/20 3:58pm



TIME-FILL AREA #2 - PLAN VIEW



TIME-FILL AREA - SOUTH ELEVATION

EQUIPMENT LIST:

1. ANGI NG300 COMPRESSOR (QTY. 3)*
2. CNG DRYER GD-036-S-M-460-150-4*
3. TRUSTAR DE-FUELING SYSTEM*
4. SERVICE ENTRANCE RATED SWITCHBOARD - 1600 AMP*
5. 300 KVA XMFR*
6. SWITCHBOARD 800 AMP*
7. TRIPLE MOTOR STARTER PANEL - 1200A*
8. TRUSTAR COMMUNICATIONS PANEL*
9. WASTE MANAGEMENT COMM. PANEL*
10. DE-FUELING/DIRECT FILL POST*
11. FLOW METER*
12. FILTER STAND (WM SPEC)
13. EMERGENCY SHUT-DOWN SWITCH W/ FIRE EXTINGUISHER
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16. 6' CHAIN LINK FENCE*
17. 6" FIXED BOLLARD*
18. 6" REMOVEABLE BOLLARD*
19. 8" FIXED BOLLARD
20. TIME-FILL TRUSS
21. CAISSON FOR TRUSS
22. TRUSS COLUMN EXTENSION W/ LIGHT FLAME DETECTOR & CAMERA
23. WHEEL STOP
24. UTILITY GAS METER SET ASSEMBLY*
25. UTILITY TRANSFORMER*
26. CT CABINET & METER*

* SEE SHEET C-100

OWNER
WASTE MANAGEMENT
N96W13600 COUNTY LINE RD
GERMANTOWN, WI 53022
MATHEW MCGURN
906-235-9560

GENERAL CONTRACTOR:
TRUSTAR ENERGY
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RANCHO CUCAMONGA, CA. 91730
(909) 793-3700

TruStar Energy

WASTE MANAGEMENT

N96W13600 COUNTY LINE ROAD
GERMANTOWN, WI 53022

CNG FUEL FACILITY

Katahdin Environmental

3553 CAMINO MIRA COSTA, SUITE E
SAN CLEMENTE, CA 92672

REVISIONS			
No.	DATE	BY	REMARK

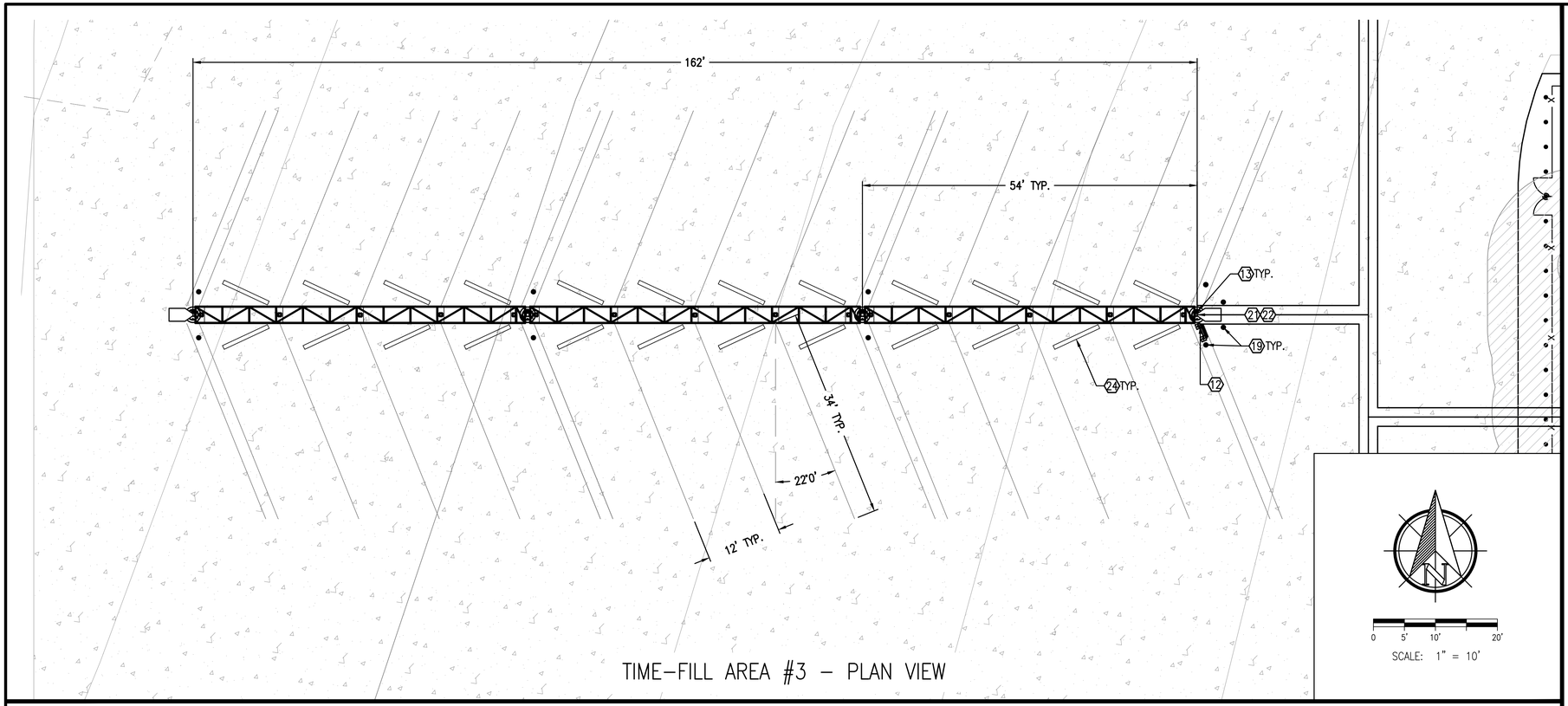
CIVIL - TIME FILL AREA

DRAWN: SBR
CHECKED: SRR
DATE: 14/04/2020
SCALE: AS SHOWN
JOB NO: 20003

C-202

DIGGERS HOTLINE

Z:\Projects\2020\20-003 - WM Germantown - Germantown, WI\Engineering\Working Folder\003.1 C-200 - CIVIL - TIME-FILL(FAST-FILL) AREA.dwg 04/14/20 3:59pm



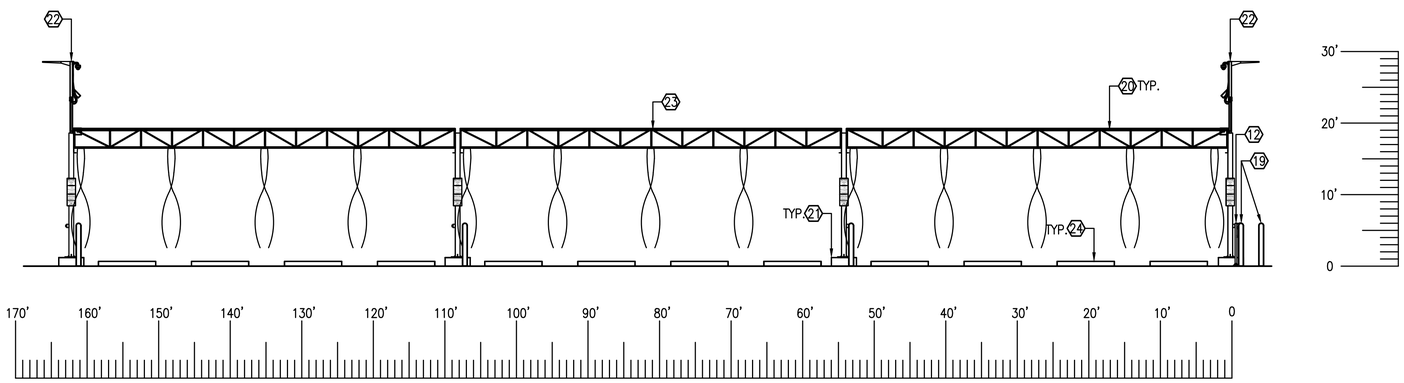
TIME-FILL AREA #3 - PLAN VIEW

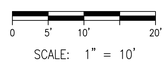
SCALE: 1" = 10'

EQUIPMENT LIST:

1. ANGI NG300 COMPRESSOR (QTY. 3)*
2. CNG DRYER GD-036-S-M-460-150-4*
3. TRUSTAR DE-FUELING SYSTEM*
4. SERVICE ENTRANCE RATED SWITCHBOARD - 1600 AMP*
5. 300 KVA XMFR*
6. SWITCHBOARD 800 AMP*
7. TRIPLE MOTOR STARTER PANEL - 1200A*
8. TRUSTAR COMMUNICATIONS PANEL*
9. WASTE MANAGEMENT COMM. PANEL*
10. DE-FUELING/DIRECT FILL POST*
11. FLOW METER*
12. FILTER STAND (WM SPEC)
13. EMERGENCY SHUT-DOWN SWITCH W/ FIRE EXTINGUISHER
14. 29' DUAL HEAD LED LIGHT*
15. 4" HOUSEKEEPING PAD*
16. 6' CHAIN LINK FENCE*
17. 6" FIXED BOLLARD*
18. 6" REMOVEABLE BOLLARD*
19. 8" FIXED BOLLARD
20. TIME-FILL TRUSS
21. CAISSON FOR TRUSS
22. TRUSS COLUMN EXTENSION W/ LIGHT FLAME DETECTOR & CAMERA
23. WHEEL STOP
24. UTILITY GAS METER SET ASSEMBLY*
25. UTILITY TRANSFORMER*
26. CT CABINET & METER*

* SEE SHEET C-100





SCALE: 1" = 10'

TIME-FILL AREA - SOUTH ELEVATION

DIGGERS HOTLINE

OWNER
WASTE MANAGEMENT
N96W13600 COUNTY LINE RD
GERMANTOWN, WI 53022
MATHEW MCGURN
906-235-9560

GENERAL CONTRACTOR:
TRUSTAR ENERGY
JEFF LUCERO (CA LIC # 942661)
10225 PHILADELPHIA CT.
RANCHO CUCAMONGA, CA. 91730
(909) 793-3700

TruStar Energy

WASTE MANAGEMENT

N96W13600 COUNTY LINE ROAD
GERMANTOWN, WI 53022

CNG FUEL FACILITY

Katahdin Environmental

3553 CAMINO MIRA COSTA, SUITE E
SAN CLEMENTE, CA 92672

REVISIONS			
No.	DATE	BY	REMARK

CIVIL - TIME FILL AREA

DRAWN:	SBR
CHECKED:	SRR
DATE:	14/04/2020
SCALE:	AS SHOWN
JOB NO:	20003

C-203

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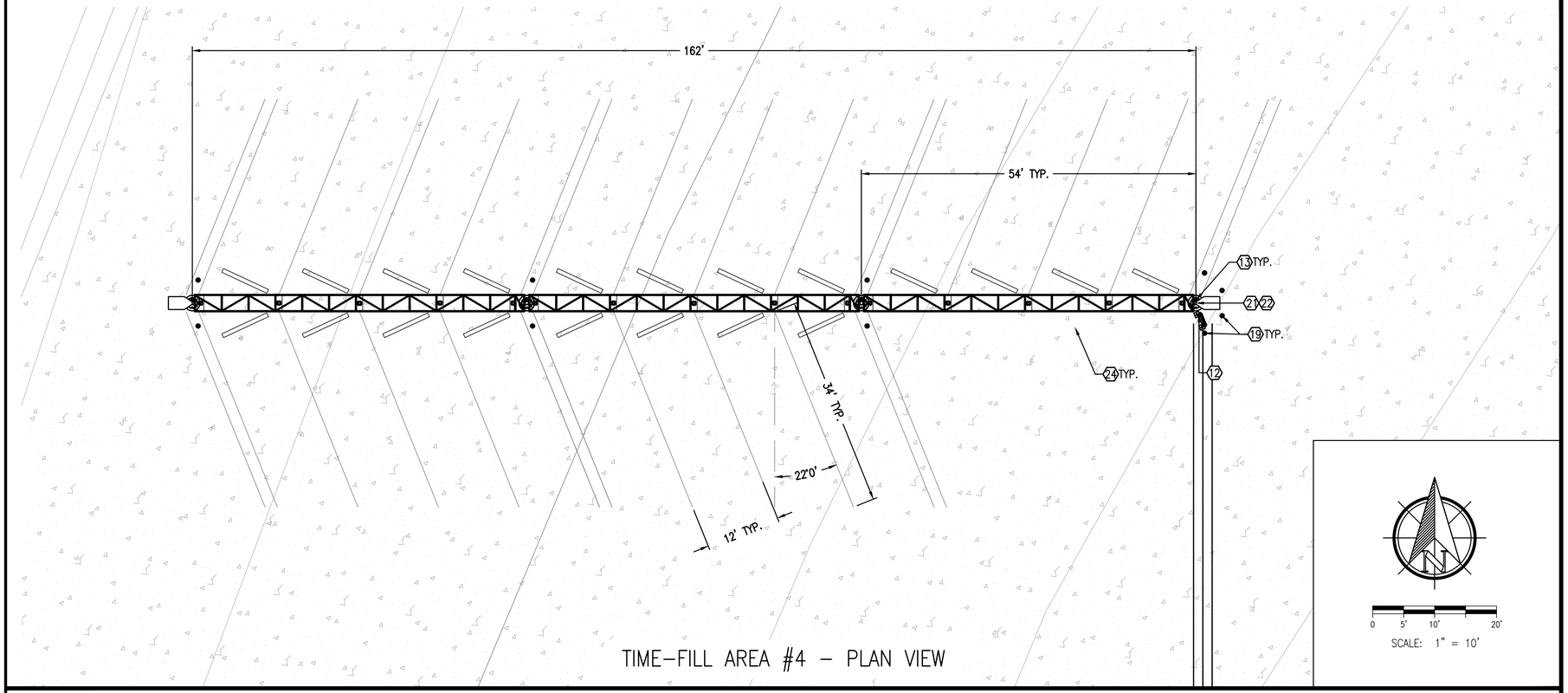


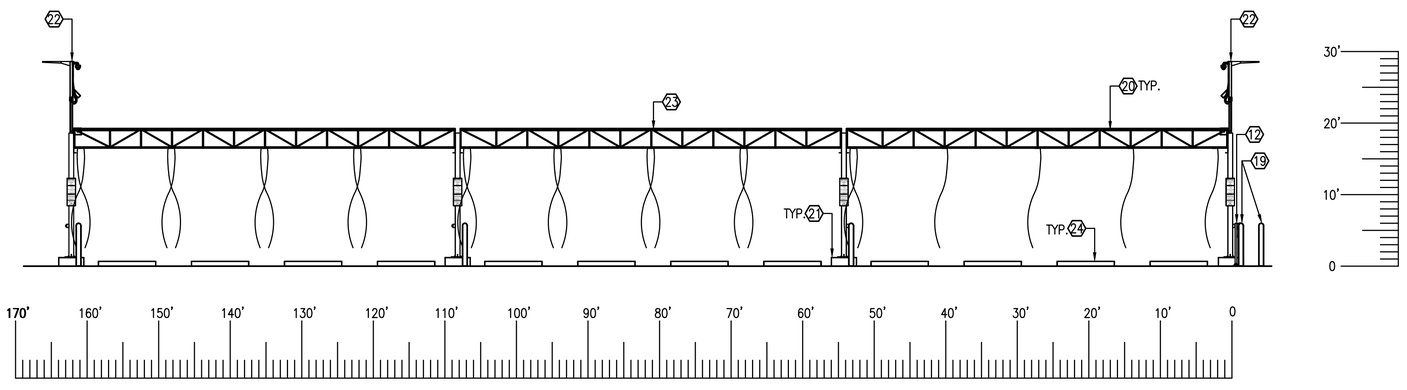
TIME-FILL AREA #4 - PLAN VIEW

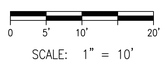
SCALE: 1" = 10'

EQUIPMENT LIST:

1. ANGI NG300 COMPRESSOR (QTY. 3)*
2. CNG DRYER GD-036-S-M-460-150-4*
3. TRUSTAR DE-FUELING SYSTEM*
4. SERVICE ENTRANCE RATED SWITCHBOARD - 1600 AMP*
5. 300 KVA XMFR*
6. SWITCHBOARD 800 AMP*
7. TRIPLE MOTOR STARTER PANEL - 1200A*
8. TRUSTAR COMMUNICATIONS PANEL*
9. WASTE MANAGEMENT COMM. PANEL*
10. DE-FUELING/DIRECT FILL POST*
11. FLOW METER*
12. FILTER STAND (WM SPEC)
13. EMERGENCY SHUT-DOWN SWITCH W/ FIRE EXTINGUISHER
14. 29' DUAL HEAD LED LIGHT*
15. 4" HOUSEKEEPING PAD*
16. 6' CHAIN LINK FENCE*
17. 6" FIXED BOLLARD*
18. 6" REMOVEABLE BOLLARD*
19. 8" FIXED BOLLARD
20. TIME-FILL TRUSS
21. CAISSON FOR TRUSS
22. TRUSS COLUMN EXTENSION W/ LIGHT FLAME DETECTOR & CAMERA
23. WHEEL STOP
24. UTILITY GAS METER SET ASSEMBLY*
25. UTILITY TRANSFORMER*
26. CT CABINET & METER*

* SEE SHEET C-100





SCALE: 1" = 10'

TIME-FILL AREA - SOUTH ELEVATION

DIGGERS HOTLINE

OWNER
WASTE MANAGEMENT
N96W13600 COUNTY LINE RD
GERMANTOWN, WI 53022
MATHEW MCGURN
906-235-9560

GENERAL CONTRACTOR:
TRUSTAR ENERGY
JEFF LUCERO (CA LIC # 942661)
10225 PHILADELPHIA CT.
RANCHO CUCAMONGA, CA. 91730
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TruStar Energy

WASTE MANAGEMENT

N96W13600 COUNTY LINE ROAD
GERMANTOWN, WI 53022

CNG FUEL FACILITY

Katahdin Environmental

3553 CAMINO MIRA COSTA, SUITE E
SAN CLEMENTE, CA 92672

REVISIONS			
No.	DATE	BY	REMARK

CIVIL - TIME FILL AREA

DRAWN:	SBR
CHECKED:	SRR
DATE:	14/04/2020
SCALE:	AS SHOWN
JOB NO:	20003

C-204

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