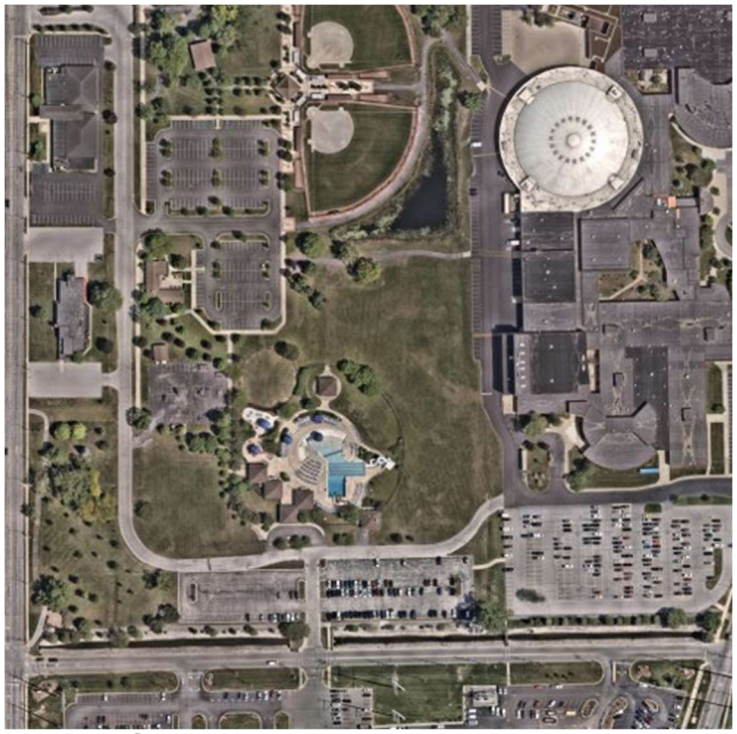
WT Group
Engineering • Design • Consulting

Stormwater Management Report
Town of Munster, IN



Map Data © 2025 Nearmap

School Town of Munster – Tennis Courts

8823 Columbia Ave.,
Munster, IN 46321
WT Group Project #C2400082

August 15, 2025
Revised: September 16, 2025

James Glascott, PE, CPESC
Indiana P.E. License No. 12400652

WT Group AEC, LLC

Phone:
224.293.6333

Headquarters:
2000 Center Drive, Suite B411
Hoffman Estates, IL 60192

Website:
wtgroup.com

Table of Contents

Introduction

Munster High School proposes to construct new tennis courts west of the existing school building at 8823 Columbia Ave., Munster, IN 46321. The subject site is approximately 42.11-acres per Lake County's GIS data and is legally described as: SE QUARTER OF SE SECTION 19, TWP 36 N, RANGE 9W.

The existing condition of the subject property is a developed lot with existing athletic fields and facilities, an existing pond, parking lots and existing driveways along Calumet Ave.

The proposed improvements will consist of new concrete tennis courts, bleachers and stairs, concrete pad, stadium lights, concrete walks, two surface detention ponds, an underground detention vaults, and new underground storm sewers. The total estimated disturbed area is 2.385-acres.

Methodology

The stormwater management plan for the subject property was developed in accordance with the Town of Munster Storm Water Technical Standards Manual and the Town of Munster Storm Water Management Ordinance. Section 3.A of the Storm Water Management Ordinance requires "the storage and controlled release of excess stormwater runoff shall be required for all new business, institutional developments, commercial and industrial developments, residential subdivisions, planned development, rural estate subdivisions, and any redevelopment or other new construction located within the Town of Munster". Section 3.B of the Storm Water Technical Standards requires the 24-hour NRCS Type 2 Rainfall distribution to be used for the runoff calculations and section 6.C requires that the "post-developed release rate from the site is no greater than 0.2 cfs per acre of development for 0-100 year return interval storms". Stormwater runoff was quantified for the proposed conditions using the NRCS methodology. WinTR-20 software was utilized for the calculation of peak discharge and determining the required detention volume.

Existing Drainage Conditions

The existing site is a developed site with athletic facilities for the high school. The 2.385-acre disturbed area consists 0.017 acres of impervious area (0.7% imperviousness), and 2.368-acres of pervious area (99.3% perviousness). The existing disturbed area primarily drains to the north and east, tributary to the existing pond. Some runoff is also directed towards the south and is collected in existing storm sewers. The existing pond to the north will not be disturbed as part of the proposed improvements.

The USDA NRCS Custom Soil Resource Report obtained for the site indicates Hydrologic Soil Group D condition. The Curve Number (CN) used for the impervious areas is 98. For the pervious areas, the CN is 80. The CN for the disturbed area in existing conditions is 80.

Per the FEMA National Flood Hazard Layer FIRMette map, there is no floodplain within 100-feet of the site. Per the US Fish & Wildlife Service Wetlands Inventory, there are no wetlands within the disturbed area.

Fifteen (15) soil borings, 10 to 15-ft deep, were taken during a geotechnical investigation performed on October, 2024 by Geocon Professional Services, LLC. Per the Geotechnical report dated November 8th, 2024, the estimated seasonal high-water table (ESHWT) for the site is approximately 612.50.

Proposed Drainage Conditions

The proposed drainage improvements to capture, detain, treat, and convey stormwater will consist of site grading, earthen drainage swales, and underground storm sewers, an underground detention vault and a control structure with a restrictor. In the proposed conditions, the total impervious cover is 2.385-acres (100% imperviousness). The CN for the disturbed area in proposed conditions is 93.

Per the Storm Water Technical Standards Section 6.C, the allowable release rate for the proposed improvements is 0.20 cfs per acre of development. For the 2.385-acre disturbed area, the maximum 100-year allowable release rate is calculated to be 0.48 cfs. Stormwater runoff from the disturbed area will be routed to two new detention ponds and an underground detention StormTrap vault with a total storage of 0.936 ac-ft. A concrete manhole equipped with a combination concrete weir wall and 2.65-in restrictor orifice will regulate discharge flows from the proposed detention system. A TR-20 model was prepared to analyze the proposed drainage conditions. The TR-20 model run results for the proposed condition analysis indicate the following:

Disturbed Area (2.385-acre) - 100YR, 24hr Storm Event:
Peak Inflow discharge (before restrictor): 15.41 cfs
Peak Outflow discharge (after restrictor): 0.46 cfs
High-water Level (HWL): 613.94

The TR-20 results demonstrate the proposed detention system and restrictor structure will detain the flows to the allowable release rate. The approximate calculated volume at the HWL of 613.94’ is 0.928 ac-ft, which is also the required volume. The proposed pond will provide an excess volume of 0.018 ac-ft.

Drainage plan exhibits, peak runoff calculations, StormTrap system plan sheet & details, and supporting documentation are included in the *Appendix* section of this report.

A 6-ft wide, 1-ft deep overflow weir will be provided in the control structure at elevation 614.00'. Per Chapter 6.D.9, the overflow weir must handle a flow of one and one-quarter (1.25) times the peak inflow discharge from the 100-year storm event. The overflow weir must handle a flow of 19.26 cfs. The flow is handled by the overflow weir at a depth of 0.98-ft, at elevation 614.98'.

Proposed Storm Water Quality Management

Per Town of Munster Storm Water Technical Standards Manual, developed areas are required to provide post-construction Best Management Practices (BMPs) to treat the Channel Protection Volume (CPv) and Water Quality Volume (WQv) as appropriate. For areas 1 to 10-acres, water quality BMPs are not required. Since the total disturbed area is at least 1-acres, one (1) water quality BMP is required for the proposed development.

The required WQv is determined through the proposed TR20 model using a 1-inch rainfall depth for a 24-hour storm. The TR-20 model results for the proposed condition analysis indicate the following:

1-inch, 24-hr Rainfall:
High water level: 609.37'
Discharge: 0.23 cfs
Volume: 0.123 ac-ft

The existing detention pond will be proposed to meet the required BMPs for the site. A detention drawdown calculation was prepared to determine if the required detention drawdown times are met to use the pond as a BMP system. Per the Technical Standards Manual, 10% of the maximum stored volume shall remain after 36 hours and no more than 40% of the maximum stored volume shall be released within the first 12 hours. The detention drawdown calculations demonstrate that the requirements are met.

Conclusion

The proposed development will comply with the requirements of the Town of Munster Storm Water Technical Standards Manual and the Town of Munster Stormwater Management Ordinance by providing detention volume with a peak discharge less than the allowable release rate. It is my professional opinion the proposed development complies with Town of Munster Storm Water Technical Standards Manual and the Town of Munster Stormwater Management Ordinance

Respectfully Submitted,

The W-T Group, LLC

Jim Glascott P.E., CPESC
Principal in Charge, Civil Engineering

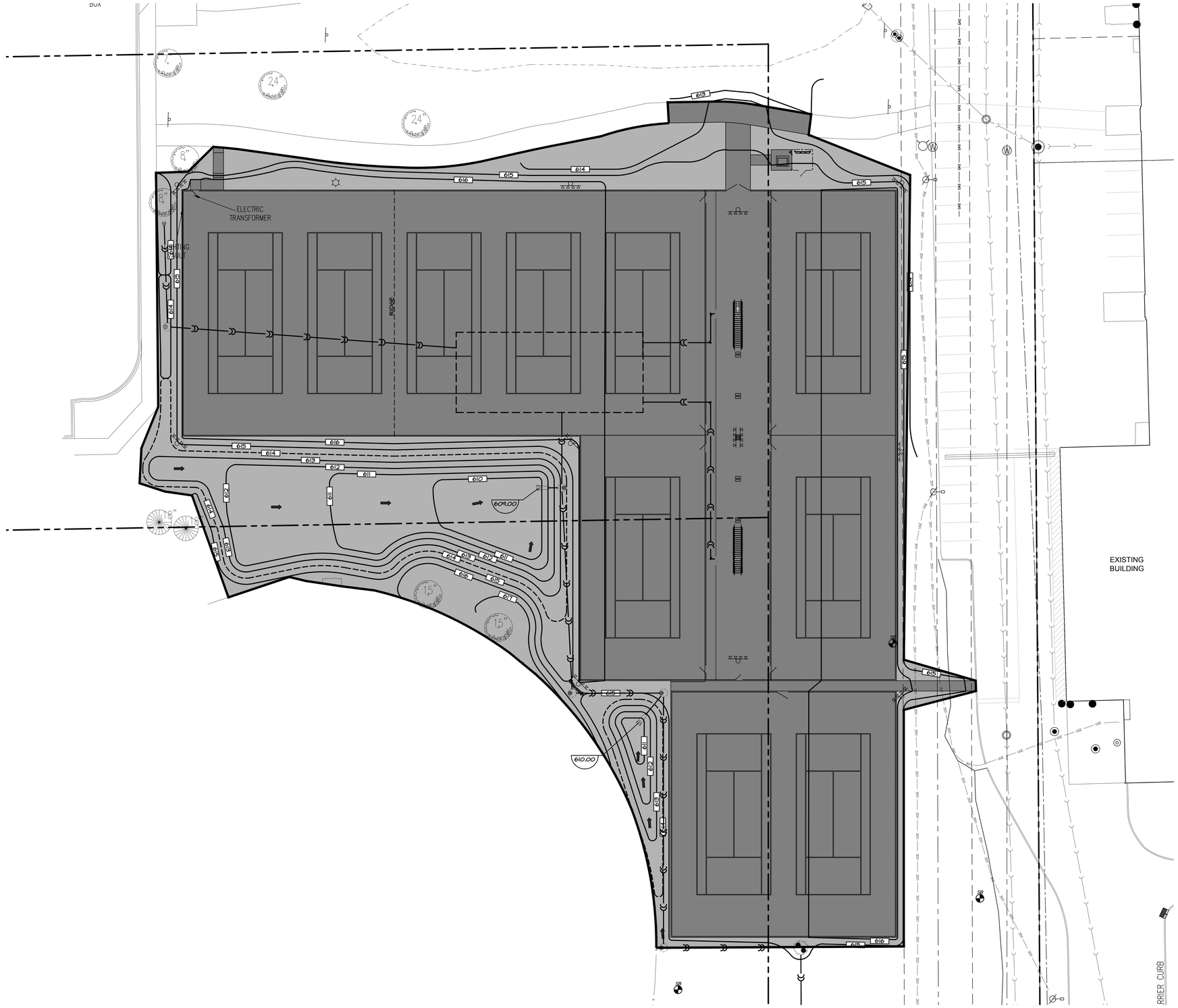
Appendix

- Proposed Drainage Conditions
  - EX-2.0 Proposed Drainage Conditions
  - Proposed CN Calculations
  - Allowable Release Rate Calculation
  - Restrictor Discharge Calculation
  - Proposed Detention Volumes
  - Detention Drawdown Calculation
  - TR 20 Model – Proposed Conditions
  - Overflow Weir Calculation
- Maps
  - Location Map
  - NRCS Soils Report
  - FEMA FIRMette
  - National Wetlands Inventory Map
- StormTrap Vault Sheet & Details

Proposed Drainage Condition

- EX-2.0 Proposed Drainage Conditions
- Proposed CN Calculations
- Allowable Release Rate Calculation
- Restrictor Discharge Calculation
- Proposed Detention Volumes
- Detention Drawdown Calculation
- TR 20 Model – Proposed Conditions
- Overflow Weir Calculation

AREA	
IMPERVIOUS	
PERVIOUS	



STORMWATER MANAGEMENT REQUIREMENTS

DISTURBED AREA = 2.385-ACRES ; CN = 92.86
PROPOSED HWL = 614.00'
PROVIDED DETENTION @ 614.00' = 0.946 AC-FT
RESTRICTOR TYPE & SIZE = 2.65-IN STEEL PLATE ORIFICE RESTRICTOR
RESTRICTOR INV. = 607.75'
ALLOWABLE RELEASE RATE = 0.20 CFS/ACRE x 2.385 ACRE = 0.477CFS
MAX. RELEASE RATE = 0.477 CFS

PER TR20 MODEL:
PROPOSED INFLOW PEAK DISCHARGE = 15.41 CFS
PROPOSED OUTFLOW PEAK DISCHARGE = 0.465 CFS < 0.477 CFS (ALLOWABLE RELEASE RATE)
ACTUAL HWL = 613.94'
PROVIDED VOLUME @ 613.94' = 0.928 AC-FT (REQUIRED DETENTION VOLUME)
ACTUAL RELEASE RATE = 0.46 CFS

STORM 100Y24H

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (cms)
AREA 1	0.004		7.165		12.00	20.78	5574.95
BASIN	0.004	Upstream	7.165		12.00	20.78	5574.95
BASIN	0.004	Downstream	7.165	613.94	15.41	0.46	124.07
OUTLET	0.004		7.165		15.41	0.46	124.07

STORM 10Y24H

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (cms)
AREA 1	0.004		4.123		12.00	12.43	3335.67
BASIN	0.004	Upstream	4.123		12.00	12.43	3335.67
BASIN	0.004	Downstream	4.122	612.37	14.31	0.40	106.62
OUTLET	0.004		4.122		14.31	0.40	106.62

STORM 11NCH

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (cms)
AREA 1	0.004		0.441		12.01	1.55	416.82
BASIN	0.004	Upstream	0.441		12.01	1.55	416.82
BASIN	0.004	Downstream	0.441	609.37	12.32	0.23	60.97
OUTLET	0.004		0.441		12.32	0.23	60.97

School Town of Munster - Tennis Courts
Proposed Conditions

Area or Reach Identifier	Drainage Area (sq mi)	Alternate	Peak Flow by Storm 100Y24H (cfs)	10Y24H (cfs)	11NCH (cfs)	(cfs)	(cfs)
AREA 1	0.004		20.78	12.43	1.55		
BASIN	0.004		20.78	12.43	1.55		
DOWNSTREAM			0.46	0.40	0.23		
OUTLET	0.004		0.46	0.40	0.23		

PROPOSED STORAGE VOLUME (TOTAL)

	ELEVATION	TOTAL CUMULATIVE STORAGE VOLUME		DISCHARGE	
HWL	614.00			0.465	CFS
		41,201 CU. FT.	0.946 AC-FT		
	613.00			0.425	CFS
		27,868 CU. FT.	0.640 AC-FT		
	612.00			0.381	CFS
		16,896 CU. FT.	0.388 AC-FT		
	611.00			0.332	CFS
		8,720 CU. FT.	0.200 AC-FT		
	610.00			0.274	CFS
		3,379 CU. FT.	0.078 AC-FT		
	609.00			0.200	CFS

TOTAL POND $V_{614.00}$ PROVIDED = 0.946 AC-FT

TOTAL REQUIRED DETENTION: 0.928 AC-FT

PROVIDED STORAGE: 0.946 AC-FT

EXCESS VOLUME = 0.018 AC-FT

NORTH
1" = 20'
00 10 20 40 80

JAMES GLASCOTT REGISTERED PE12400652 STATE OF INDIANA PROFESSIONAL ENGINEER

WT GROUP JOB NUMBER - C2400072

WT Group
Engineering • Design • Consulting

WT GROUP
Structural | Mechanical/Electrical/Plumbing
Civil | Land Survey | Telecommunication| Aquatic Accessibility Consulting | Design & Program Management
Engineering with Precision, Pace & Passion.
2675 Pratum Avenue | Hoffman Estates, IL 60192
P: 224.293.8333 | F: 224.293.8444
wtengineering.com

DLA ARCHITECTS
www.dla-ltd.com
form follows learning℠
Two Pierce Place | Suite 1300 | Itasca | 60143 | 847.742.4063

SCHOOL TOWN OF MUNSTER
2025 NEW TENNIS FACILITY
MUNSTER HIGH SCHOOL
8823 COLUMBIA AVE. MUNSTER, IN 46321

SCHOOL TOWN OF MUNSTER

DATE:	DESCRIPTION:
	ISSUED FOR BID

PROJECT # 2024.073
DATE: AUGUST 12, 2025
SHEET TITLE: PROPOSED CONDITIONS EXHIBIT
SHEET: EX-2.0

COMPOSITE RUNOFF CURVE NUMBER (*CN*)

PROJECT: **School Town of Munster - Tennis Courts** **PERMIT NUMBER:**

LOCATION: **Munster, IN** **DATE:** **9/15/2025**

TYPE OF AREA (SELECT WITH DROP-DOWN)

___ DETAINED AREA

___ UNRESTRICTED AREA

___ UPSTREAM AREA

___ MAJOR STORMWATER SYSTEM

___ OTHER: _____

CONDITION (SELECT WITH DROP-DOWN)

X PROPOSED CONDITION

___ EXISTING CONDITION

RUNOFF CURVE NUMBER

Surface Description	Hydrologic Soil Group (HSG)	CN	Area (acres)	Product (CN)(Area)
Pervious	D	80	0.68	54.48
Impervious		98	1.70	166.89
TOTALS:			2.38	221.37

COMPOSITE RUNOFF CURVE NUMBER

$$\text{Composite CN} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{221.37}{2.38} \rightarrow \textbf{Composite CN} = \textbf{92.86}$$

CIVIL ENGINEERING
2675 PRATUM AVENUE
HOFFMAN ESTATES, IL 60192
(224) 293-6333
WWW.WTENGINEERING.COM

PROJECT NAME: STM-Tennis Courts
PROJECT NUMBER: C2400082
LOCATION: Munster, IN
DATE: 9/15/2025
BY: DMC

ALLOWABLE RELEASE RATE

PROPOSED IMPROVEMENTS:

TOTAL PROJECT AREA =	2.385	ACRES	
UNDETAINED AREA =	0.00	ACRES	
TOTAL AREA TRIBUTARY TO BASIN =	2.385	ACRES	
% OF TOTAL AREA TRIBUTARY TO BASIN=	100.0%		
ALLOWABLE RELEASE RATE =	0.477	CFS	**(0.20 CFS/ACRE x PROJECT AREA)**
UNDETAINED FLOW =	0.000	CFS	
MAX. ALLOWABLERELEASE RATE =	**0.477**	**CFS**	

WT Group
Engineering • Design • Consulting

CIVIL ENGINEERING
2675 PRATUM AVENUE
HOFFMAN ESTATES, IL 60192
(224) 293-6333
WWW.WTENGINEERING.COM

PROJECT NAME: Munster Tennis Courts
PROJECT NUMBER: C2400082
LOCATION: Munster, IN
DATE: 9/15/2025
BY: DMC

RESTRICTOR RELEASE RATE:

$$Q = C_d \times A \times \sqrt{(2\mathrm{GH})}$$

$$A = \left(\frac{DIA}{12\ in}\right) \times \frac{\pi}{4}$$

G =	32.2	FT/S
DIA. =	2.65	IN
C =	0.61	
OUTLET ELEVATION=	607.75	FEET
HIGH WATER LEVEL (HWL)=	614.00	FEET
HEAD=	6.14	FEET
Q =	**0.465**	**CFS**

WATER ELEVATION		HEAD	RESTRICTOR DISCHARGE (CFS)
HWL	614.00	6.14	**0.465**
	613.00	5.14	**0.425**
	612.00	4.14	**0.381**
	611.00	3.14	**0.332**
	610.00	2.14	**0.274**
	609.00	1.14	**0.200**
	608.00	0.14	**0.070**
RESTRICTOR INVERT	607.75	0.00	**0.000**

WT Group
Engineering • Design • Consulting

CIVIL ENGINEERING
2675 PRATUM AVENUE
HOFFMAN ESTATES, IL 60192
(224) 293-6333
WWW.WTENGINEERING.COM

PROJECT NAME: STM-Tennis Courts
PROJECT NUMBER: C2400082
LOCATION: Munster, IN
DATE: 8/15/2025
BY: OC

PROPOSED DETENTION POND VOLUME (NORTH)

ELEVATION	AREA	INCR. STORAGE VOLUME	CUMULATIVE STORAGE VOLUME
614.00 HWL	10,464 SQ. FT.		
		9,536 CU. FT.	26,034 CU. FT. **OR** 0.5977 AC-FT
613.00	8,609 SQ. FT.		
		7,713 CU. FT.	16,498 CU. FT. **OR** 0.3787 AC-FT
612.00	6,816 SQ. FT.		
		5,290 CU. FT.	8,785 CU. FT. **OR** 0.2017 AC-FT
611.00	3,764 SQ. FT.		
		2,688 CU. FT.	3,495 CU. FT. **OR** 0.0802 AC-FT
610.00	1,613 SQ. FT.		
		807 CU. FT.	807 CU. FT. **OR** 0.0185 AC-FT
609.00	0 SQ. FT.		

TOTAL POND $V_{614.00}$= 26,034 CU. FT.
OR 0.598 AC-FT

WT Group
Engineering • Design • Consulting

CIVIL ENGINEERING
2675 PRATUM AVENUE
HOFFMAN ESTATES, IL 60192
(224) 293-6333
WWW.WTENGINEERING.COM

PROJECT NAME: STM-Tennis Courts
PROJECT NUMBER: C2400082
LOCATION: Munster, IN
DATE: 8/15/2025
BY: OC

PROPOSED DETENTION POND VOLUME (SOUTH)

ELEVATION	AREA	INCR. STORAGE VOLUME	CUMULATIVE STORAGE VOLUME	
614.00 HWL	1,540 SQ. FT.			
		1,224 CU. FT.	2,304 CU. FT. **OR**	0.0529 AC-FT
613.00	908 SQ. FT.			
		687 CU. FT.	1,080 CU. FT. **OR**	0.0248 AC-FT
612.00	466 SQ. FT.			
		313 CU. FT.	393 CU. FT. **OR**	0.0090 AC-FT
611.00	160 SQ. FT.			
		80 CU. FT.	80 CU. FT. **OR**	0.0018 AC-FT
610.00	0 SQ. FT.			

TOTAL POND $V_{614.00}$= 2,304 CU. FT.
OR 0.053 AC-FT

WT Group
Engineering • Design • Consulting

CIVIL ENGINEERING
2675 PRATUM AVENUE
HOFFMAN ESTATES, IL 60192
(224) 293-6333
WWW.WTENGINEERING.COM

PROJECT NAME: STM-Tennis Courts
PROJECT NUMBER: C2400082
LOCATION: Munster, IN
DATE: 9/15/2025
BY: DMC

PROPOSED STORAGE VOLUME (STORMTRAP)

ELEVATION	TOTAL CUMULATIVE STORAGE VOLUME		DISCHARGE
614.00 HWL			0.465 CFS
	12,863 CU. FT.	0.2953 AC-FT	
613.00			0.425 CFS
	10,290 CU. FT.	0.2362 AC-FT	
612.00			0.381 CFS
	7,718 CU. FT.	0.1772 AC-FT	
611.00			0.332 CFS
	5,145 CU. FT.	0.1181 AC-FT	
610.00			0.274 CFS
	2,573 CU. FT.	0.0591 AC-FT	
609.00			2.000 CFS

TOTAL POND $_{V614.00}$ PROVIDED = 0.295 AC-FT

Engineering • Design • Consulting

CIVIL ENGINEERING
2675 PRATUM AVENUE
HOFFMAN ESTATES, IL 60192
(224) 293-6333
WWW.WTENGINEERING.COM

PROJECT NAME: STM-Tennis Courts
20763.00 IECT NUMBER: C2400082
LOCATION: Munster, IN
DATE: 9/15/2025
BY: DMC

PROPOSED STORAGE VOLUME (TOTAL)

	ELEVATION	TOTAL CUMULATIVE STORAGE VOLUME		DISCHARGE
HWL	614.00			0.465 CFS
		41,201 CU. FT.	0.946 AC-FT	
	613.00			0.425 CFS
		27,868 CU. FT.	0.640 AC-FT	
	612.00			0.381 CFS
		16,896 CU. FT.	0.388 AC-FT	
	611.00			0.332 CFS
		8,720 CU. FT.	0.200 AC-FT	
	610.00			0.274 CFS
		3,379 CU. FT.	0.078 AC-FT	
	609.00			0.200 CFS

TOTAL POND $_{V614.00}$ PROVIDED = 0.946 AC-FT

WT Group
Engineering • Design • Consulting

CIVIL ENGINEERING
2675 PRATUM AVENUE
HOFFMAN ESTATES, IL 60192
(224) 293-6333
WWW.WTENGINEERING.COM

PROJECT NAME: STM- Tennis Courts
PROJECT NUMBER: C2400082
LOCATION: Munster, IN
DATE: 9/15/2025
BY: DMC

POND DRAWDOWN TIME

100-YR VOLUME =	0.928	AC-FT		
100-YR RELEASE RATE =	0.46	CFS		
100-YR HWL =	613.94	FT		
BOTTOM OF DETENTION =	609	FT		
RELEASE RATE =	0.20	CFS		
VOLUME =	0.000	AC-FT		
AVERAGE RELEASE RATE =	0.33	CFS		
DRAWDOWN TIME =	100-YR VOLUME / AVERAGE RELEASE RATE			
=	**34**	**HRS**		
VOLUME LEFT AFTER 36 HOURS =	0.000	AC-FT		
% OF MAXMIMUM =	**0**	**%**	<	10%
VOLUME RELEASED AT 12 HRS =	0.327	AC-FT		
% OF MAXIMUM =	**35**	**%**	<	40%

```
WinTR-20 Printed Page File      Beginning of Input Data List
C:\WinTR-20\Project\C2400082- Munster  Tennis Court\Proposed.inp

WinTR-20: Version 1.11                  0         0         .01       0
School Town of Munster - Tennis Courts
Proposed Conditions

SUB-AREA:
          AREA 1    BASIN               0.003727  92.86     0.10      YN NN

STREAM REACH:
          BASIN     OUTLET              STRUC-01                      YN NNN


STORM ANALYSIS:
          100Y24H                       8.02      24 Hour   2
          10Y24H                        4.94      24 Hour   2
          1INCH                         1.00      24 Hour   2


STRUCTURE RATING:
          STRUC-01  607.75
                    607.75    0.000     0.000
                    608.00    0.070     0.0001
                    609.00    0.200     0.0002
                    610.00    0.274     0.078
                    611.00    0.332     0.200
                    612.00    0.381     0.388
                    613.00    0.425     0.640
                    614.00    0.465     0.946


RAINFALL DISTRIBUTION:
          24 Hour             0.25
                    0.        0.002     0.005     0.008     0.011
                    0.014     0.017     0.020     0.023     0.026
                    0.029     0.032     0.035     0.038     0.041
                    0.044     0.048     0.052     0.056     0.060
                    0.064     0.068     0.072     0.076     0.080
                    0.085     0.090     0.095     0.100     0.105
                    0.110     0.115     0.120     0.126     0.133
                    0.140     0.147     0.155     0.163     0.172
                    0.181     0.191     0.203     0.218     0.236
                    0.257     0.283     0.387     0.663     0.707
                    0.735     0.758     0.776     0.791     0.804
                    0.815     0.825     0.834     0.842     0.849
                    0.856     0.863     0.869     0.875     0.881
                    0.887     0.893     0.898     0.903     0.908
                    0.913     0.918     0.922     0.926     0.930
                    0.934     0.938     0.942     0.946     0.950
                    0.953     0.956     0.959     0.962     0.965
                    0.968     0.971     0.974     0.977     0.980
                    0.983     0.986     0.989     0.992     0.995
                    0.998     1.000


GLOBAL OUTPUT:
          2         .01       0.1       YNNNN     YNNNNN


VERIFICATION:
          DATA PREP                     Y Y                             Y Y
          PROCESSING          Y   Y     Y


WinTR-20 Printed Page File      End of Input Data List

                    School Town of Munster - Tennis Courts
                              Proposed Conditions

                         Name of printed page file:
       C:\WinTR-20\Project\C2400082- Munster  Tennis Court\Proposed.out
```

STORM 100Y24H

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
AREA 1	0.004		7.165		12.00	20.78	5574.95
BASIN	0.004	Upstream	7.165		12.00	20.78	5574.95
BASIN	0.004	Downstream	7.165	613.94	15.41	0.46	124.07
OUTLET	0.004		7.165		15.41	0.46	124.07

STORM 10Y24H

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
AREA 1	0.004		4.123		12.00	12.43	3335.67
BASIN	0.004	Upstream	4.123		12.00	12.43	3335.67
BASIN	0.004	Downstream	4.122	612.37	14.31	0.40	106.62
OUTLET	0.004		4.122		14.31	0.40	106.62

STORM 1INCH

Area or Reach Identifier	Drainage Area (sq mi)	Rain Gage ID or Location	Runoff Amount (in)	Peak Flow Elevation (ft)	Peak Flow Time (hr)	Peak Flow Rate (cfs)	Peak Flow Rate (csm)
AREA 1	0.004		0.441		12.01	1.55	416.82
BASIN	0.004	Upstream	0.441		12.01	1.55	416.82
BASIN	0.004	Downstream	0.441	609.37	12.32	0.23	60.97
OUTLET	0.004		0.441		12.32	0.23	60.97

School Town of Munster - Tennis Courts
Proposed Conditions

Area or Reach Identifier	Drainage Area (sq mi)	Alternate	Peak Flow by Storm 100Y24H (cfs)	10Y24H (cfs)	1INCH (cfs)	(cfs)	(cfs)
AREA 1	0.004		20.78	12.43	1.55		
BASIN	0.004		20.78	12.43	1.55		
DOWNSTREAM			0.46	0.40	0.23		
OUTLET	0.004		0.46	0.40	0.23		

Weir Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Sep 15 2025

Structure #7 - Overflow Weir

Rectangular Weir

Crest	= Sharp
Bottom Length (ft)	= 6.00
Total Depth (ft)	= 1.00

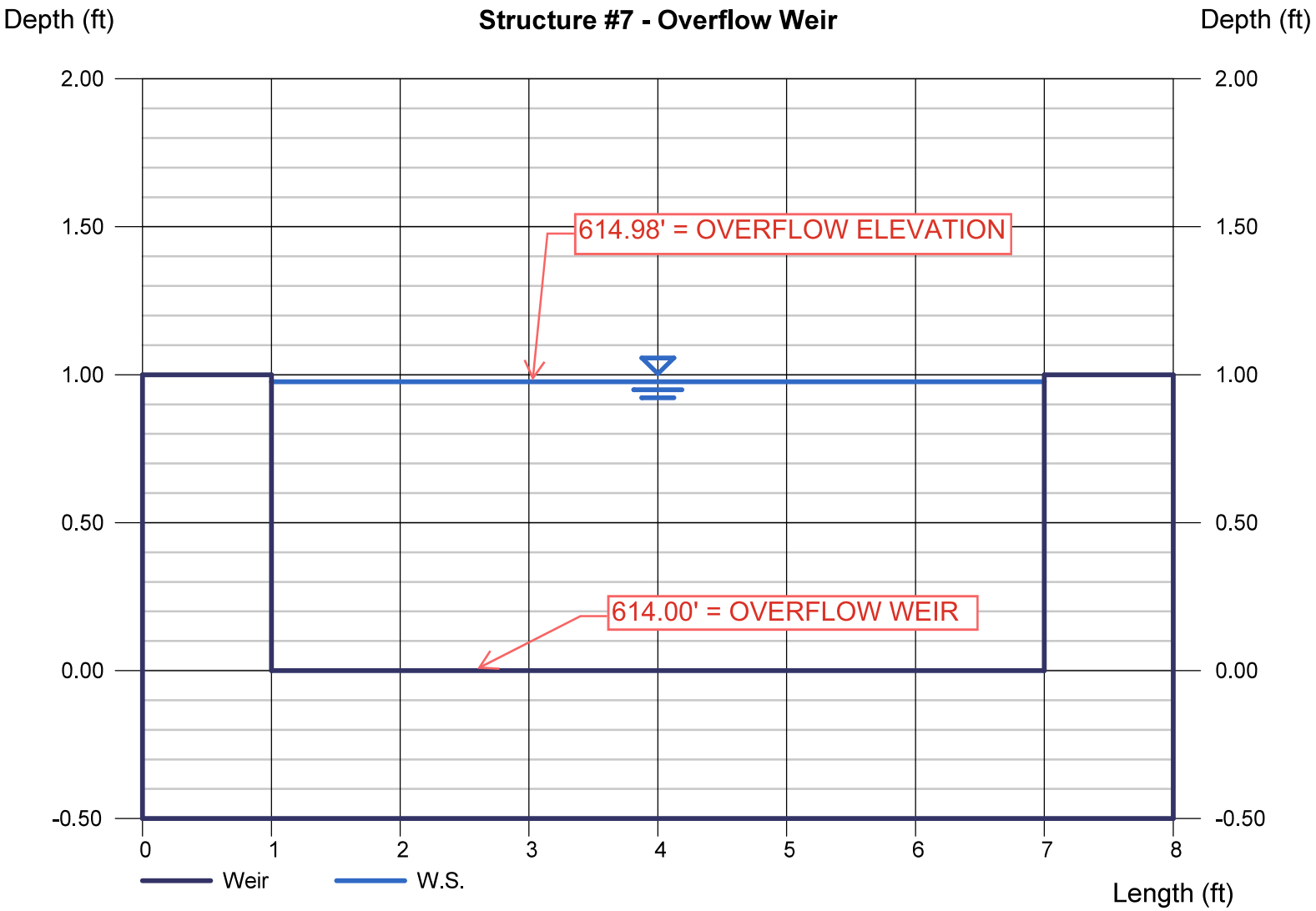
Calculations

Weir Coeff. Cw	= 3.33
Compute by:	Known Q
Known Q (cfs)	= 19.26

Highlighted

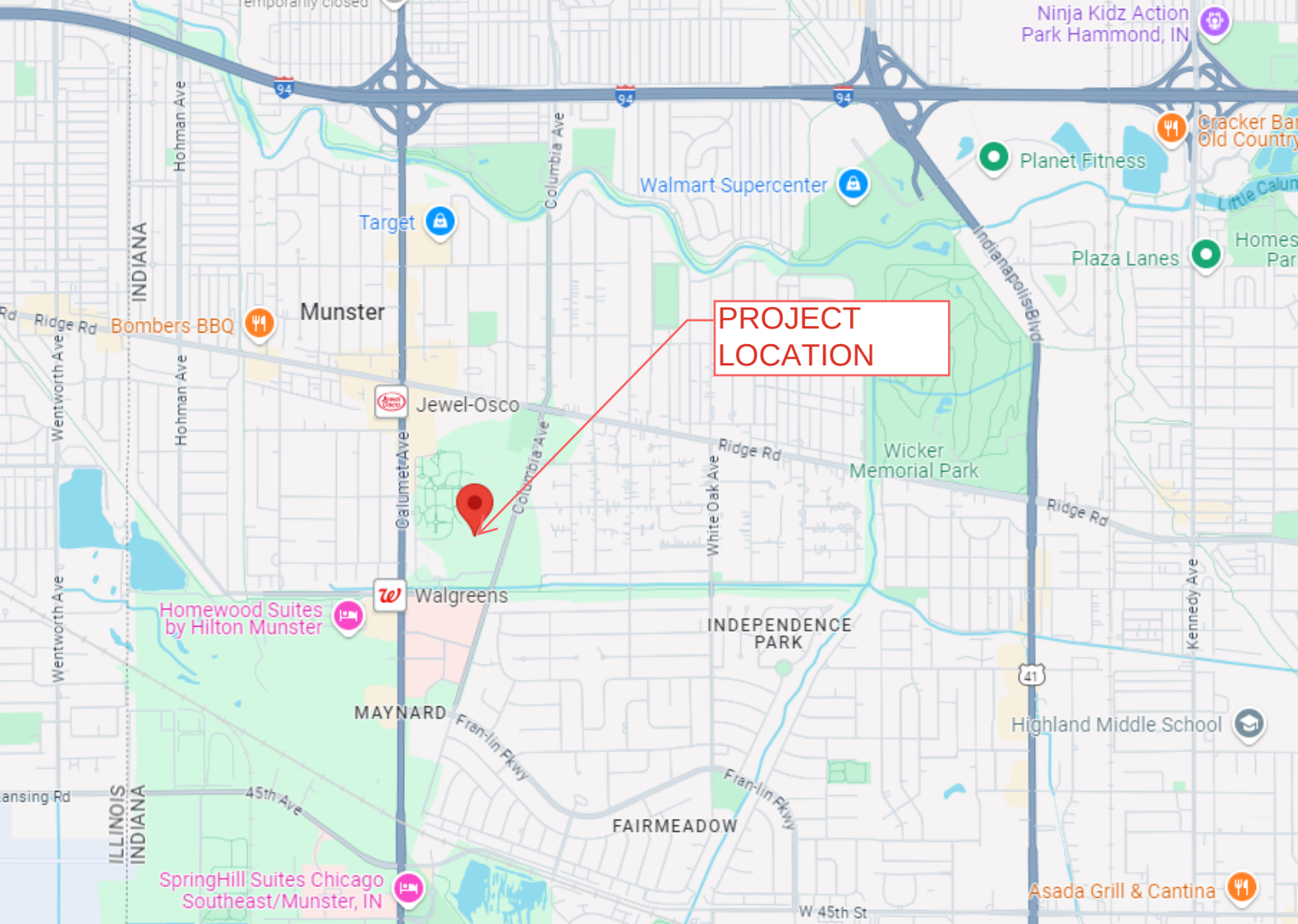
Depth (ft)	= 0.98
Q (cfs)	= 19.26
Area (sqft)	= 5.85
Velocity (ft/s)	= 3.29
Top Width (ft)	= 6.00

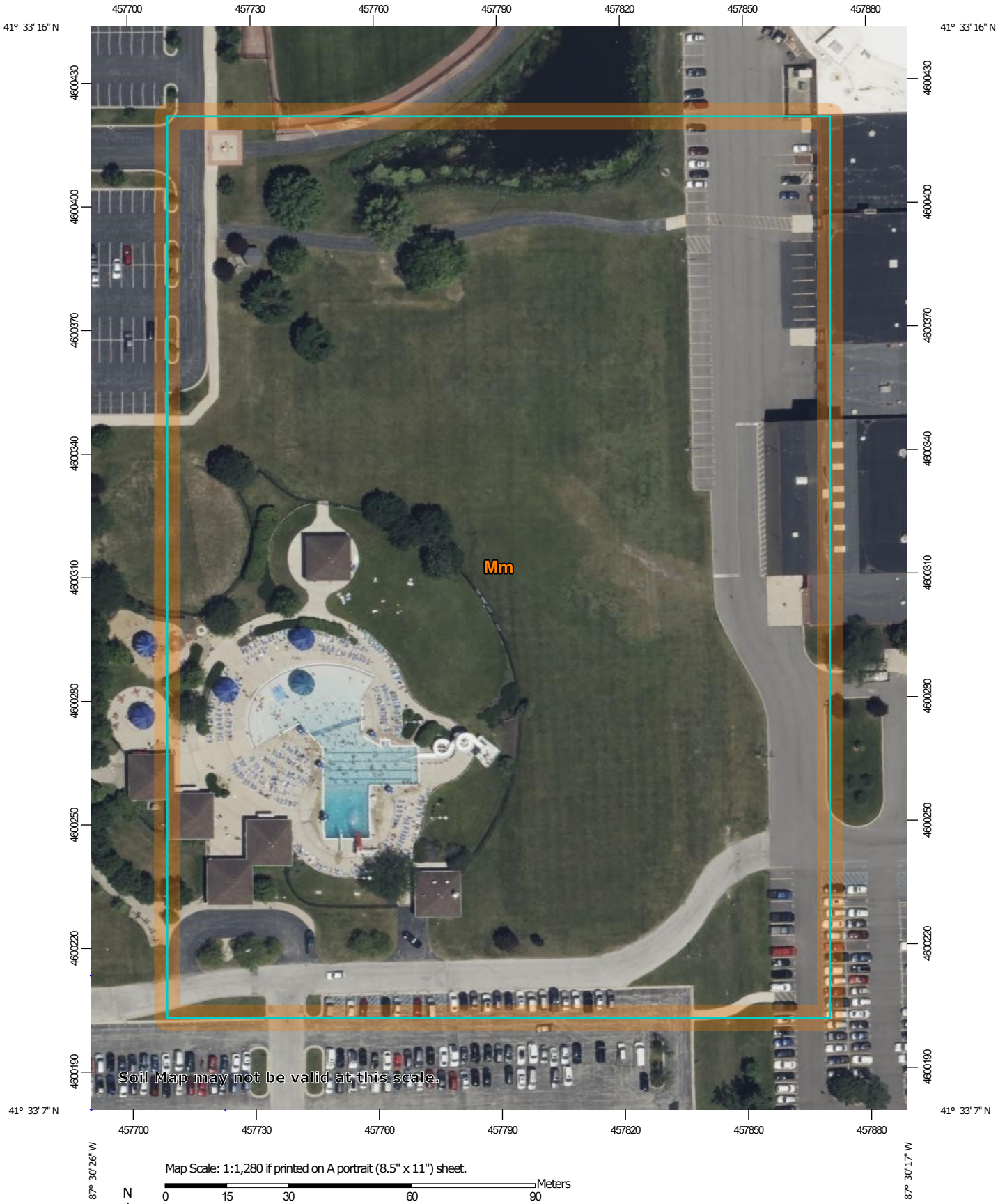
1.25 x PEAL INFLOW
1.25 x 15.41 CFS = 19.26 CFS



Maps

- Location Map
- USDA NRCS Soils Report
- FEMA FIRMette
- National Wetlands Inventory Map


PROJECT LOCATION
Ninja Kidz Action Park Hammond, IN
Planet Fitness
Walmart Supercenter
Target
Plaza Lanes
Munster
Bombers BBQ
Jewel-Osco
Wicker Memorial Park
Walgreens
Homewood Suites by Hilton Munster
INDEPENDENCE PARK
MAYNARD
FAIRMEADOW
Highland Middle School
SpringHill Suites Chicago Southeast/Munster, IN
Asada Grill & Cantina
INDIANA
ILLINOIS
Hohman Ave
Columbia Ave
Calumet Ave
White Oak Ave
Wentworth Ave
Ridge Rd
Fran-lin Pkwy
45th Ave
W 45th St
Kennedy Ave
Indianapolis Blvd
94
41



Map Scale: 1:1,280 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

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

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

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

Special Point Features

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Lake County, Indiana
Survey Area Data: Version 27, Aug 26, 2024

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

Date(s) aerial images were photographed: Jun 16, 2022—Jun 27, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Mm	Maumee loamy fine sand, 0 to 1 percent slopes	8.8	100.0%
Totals for Area of Interest		**8.8**	**100.0%**

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

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.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

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

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

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Lake County, Indiana														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
Mm—Maumee loamy fine sand, 0 to 1 percent slopes														
Maumee	90	A/D	0-10	Loamy fine sand	SC-SM, SM	A-2-4	0- 0- 0	0- 0- 0	90-98-100	90-98-100	80-90-96	20-24-28	21-25 -31	2-4 -6
			10-17	Loamy sand, loamy fine sand, sand	SM	A-2-4	0- 0- 0	0- 0- 0	90-98-100	90-98-100	80-90-94	18-21-24	0-20 -25	NP-2 -3
			17-28	Sand, loamy fine sand, fine sand	SP-SM, SM	A-2-4	0- 0- 0	0- 0- 0	80-92-100	79-92-100	68-81-91	11-15-19	0-17 -20	NP-3 -3
			28-80	Fine sand, coarse sand, sand	SP-SM	A-2-4, A-3	0- 0- 0	0- 0- 0	80-88-100	79-87-100	62-70-84	5- 8- 12	0-0 -17	NP-0 -2

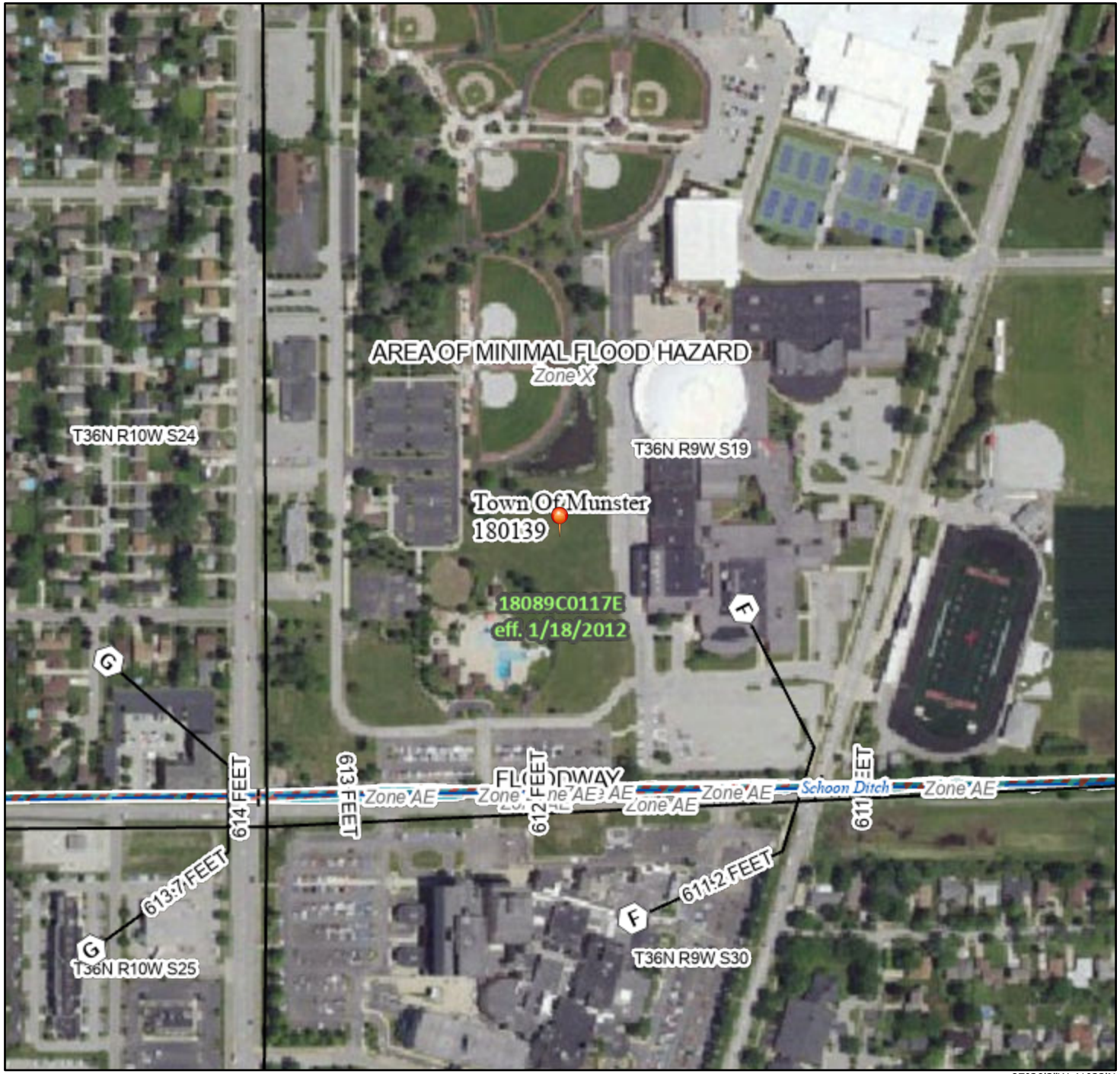
Data Source Information

Soil Survey Area: Lake County, Indiana
Survey Area Data: Version 27, Aug 26, 2024

National Flood Hazard Layer FIRMette

FEMA

87°30'40"W 41°33'27"N



87°30'3"W 41°33'N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/26/2025 at 1:22 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands

June 26, 2025

Wetlands

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

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

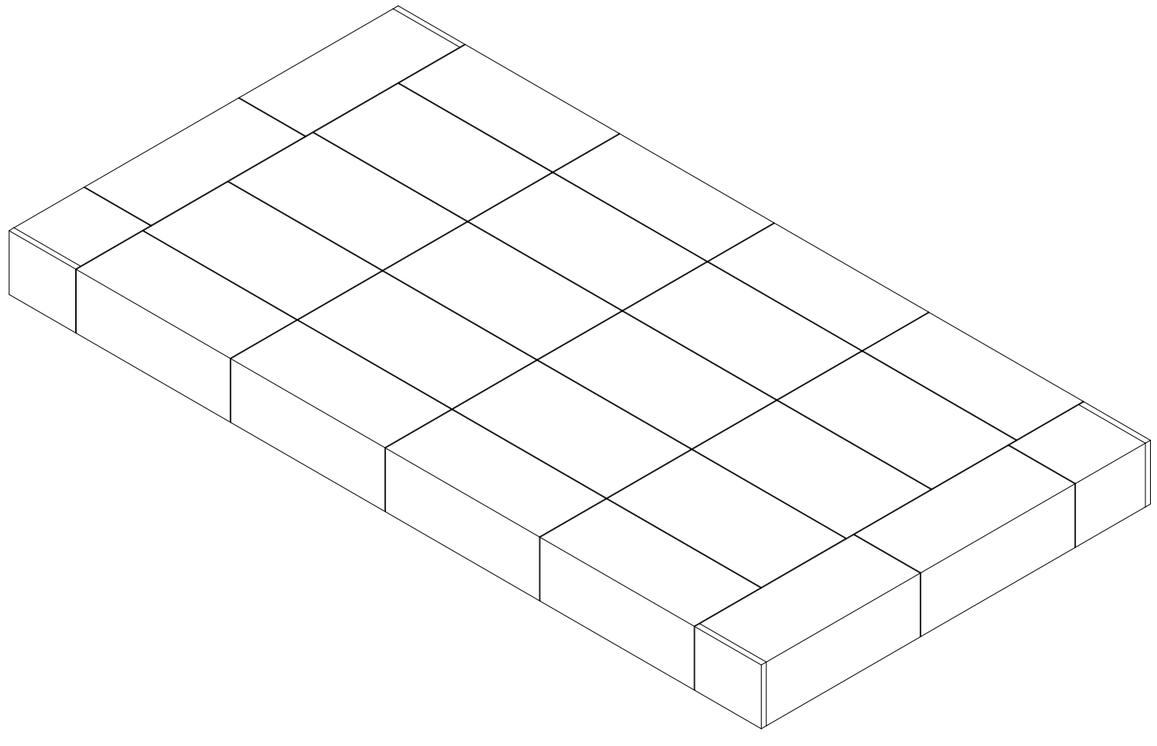
StormTrap Vault Sheet & Details

StormTrap®

MODULAR CONCRETE
STORMWATER MANAGEMENT

SHEET INDEX	
PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	GENERAL NOTES
1.1	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATION
3.1	SINGLETRAP INSTALLATION SPECIFICATION
4.0	SINGLETRAP BACKFILL SPECIFICATION
5.0	PIPE/ACCESS OPENING SPECIFICATION
6.0	SPLASH PAD & GEOWEB DETAILS
7.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION	
STORMTRAP SUPPLIER:	STORMTRAP
CONTACT NAME:	Brian Rieger
CELL PHONE:	(815) 258-1261
SALES EMAIL:	brieger@stormtrap.com



School Town of Munster New Tennis Courts
Munster , IN

StormTrap®
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

0.0

GENERAL NOTES:

1. STRUCTURE PROXIMITY LOADING DISCLAIMER:

STORMTRAP MODULES AND FOUNDATION ARE NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADING FROM ANY NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. EXAMPLES OF NEARBY STRUCTURES MAY INCLUDE BUT ARE NOT LIMITED TO BUILDINGS, FOUNDATION ELEMENTS, RETAINING WALLS, LIGHT POLES, BOLLARDS, SIGNPOSTS, FENCES. ADDITIONALLY, STORMTRAP IS NOT RESPONSIBLE FOR INSTALLATION CONFLICTS ARISING FROM ANY OF THESE NEARBY STRUCTURES. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY. FOR LIGHT POLES SHOWN OVER THE TOP OF THE SYSTEM, STORMTRAP WILL PROVIDE A 5'-0" LATERAL DISTANCE CAVITY AROUND THE LIGHT POLE TO ACCOMMODATE IT. THE EOR TO TAKE RESPONSIBILITY FOR ENSURING THE LIGHT POLE IS NOT INFLICTING ANY LOADING ON THE STORMTRAP MODULES AND FOUNDATION.

2. TREE LOADING DISCLAIMER:

THE NUMBER OF TREES OR WEIGHT OF TOTAL PLANT MATERIAL PRESENT ON TOP OF A SINGLE STORMTRAP MODULE SHALL NOT EXCEED 16,000 LBS. THE REQUIREMENTS LISTED HERE APPLY AT BOTH THE TIME OF INSTALLATION AND FOR THE LIFE OF THE TREES AND PLANTS IN QUESTION. THE EOR AND LANDSCAPE ARCHITECT ARE RESPONSIBLE FOR ENSURING THAT TREE AND OTHER PLANT ROOTS DO NOT INTERFERE WITH OR COMPROMISE THE FUNCTIONAL AND STRUCTURAL INTEGRITY OF STORMTRAP'S UNDERGROUND MODULES. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ROOT GROWTH INTO THE STORMTRAP SYSTEM FROM ADJACENT OR OVERHEAD TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACED AROUND OR ON TOP OF THE SYSTEM.

3. PRE-TREATMENT/SEDIMENT/FILTER CHAMBER DISCLAIMER:

FOR SYSTEMS CONTAINING PRE-TREATMENT, SEDIMENTATION AND/OR FILTER CHAMBERS; IF REQUIRED TO BE SEALED TO PREVENT SAND AND/OR PRE-TREATED WATER FROM MIGRATING INTO ADJOINING MODULES, IT IS THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT THOSE MODULES ARE SEALED.

4. OUTLET CONTROL STRUCTURE DISCLAIMER (IF SHOWN ON THESE PLANS):

IF A WATERTIGHT SOLUTION IS REQUIRED FOR AN OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.

StormTrap®
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

1.0

STRUCTURAL DESIGN LOADING CRITERIA

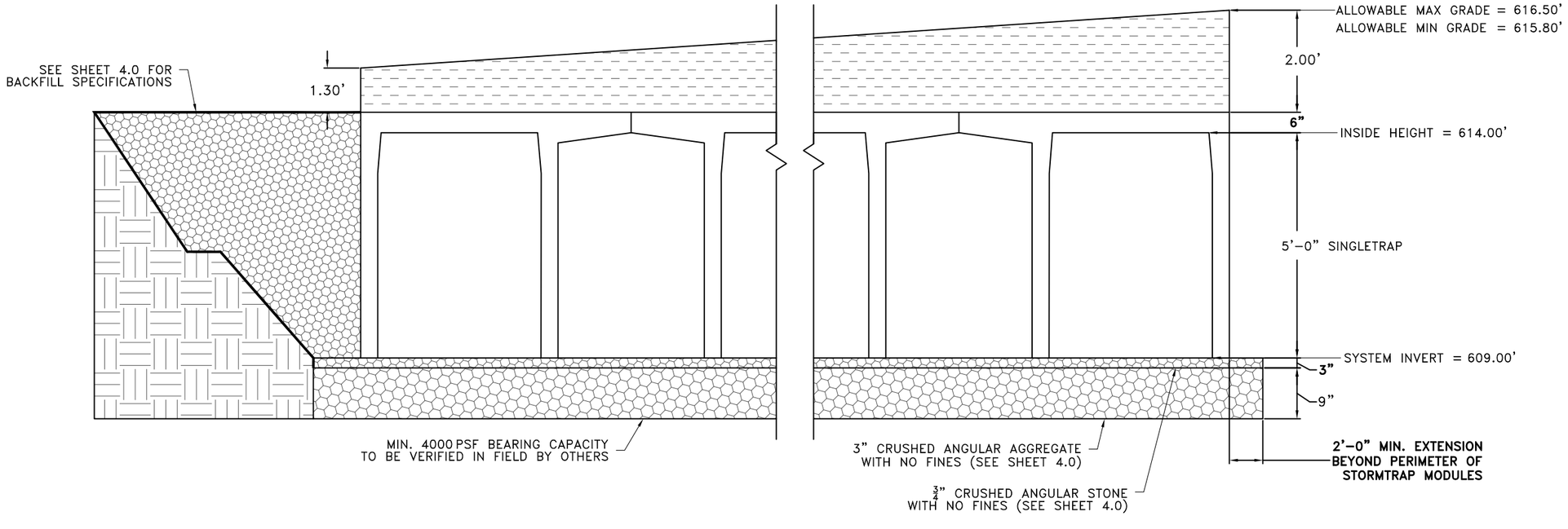
LIVE LOADING:	AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE:	@ ELEV. 609.00'
SOIL BEARING PRESSURE:	4000 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI-318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM:	5'-0" SINGLETRAP
TOTAL STORAGE PROV:	12,863.08 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.30' MAX. 2.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE @ ELEV. 609.00' IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.



5'-0" SINGLETRAP

StormTrap

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]

1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

SINGLETRAP DESIGN CRITERIA

SHEET NUMBER:

1.1

BILL OF MATERIALS

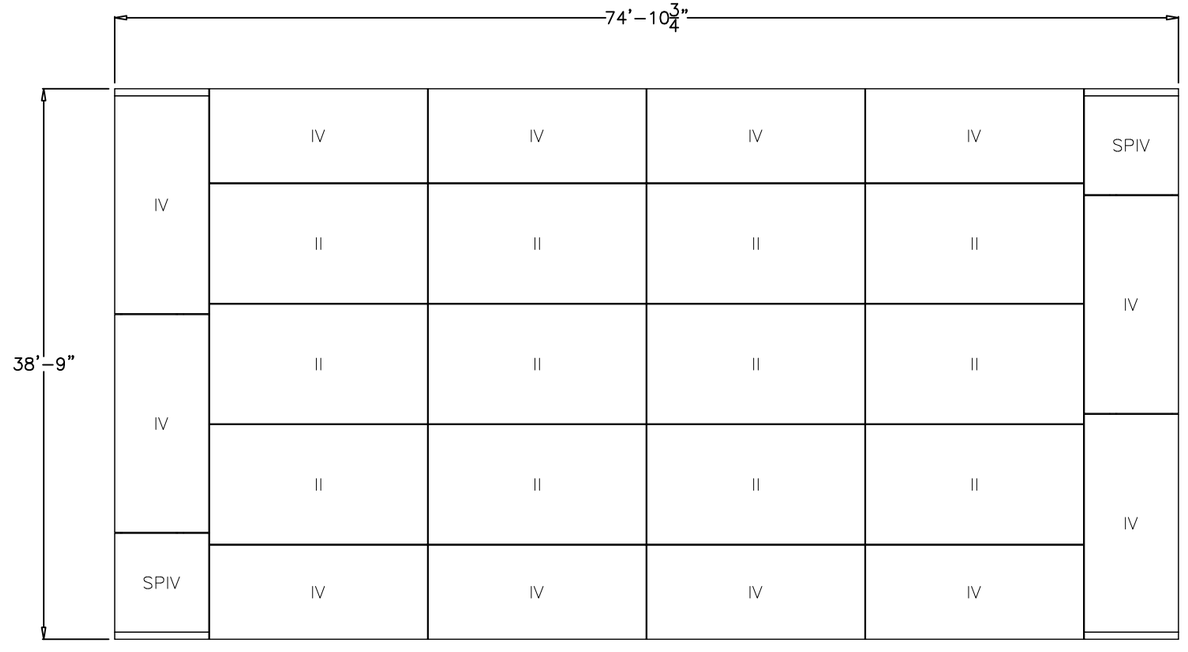
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	5'–0" SINGLETRAP	0
12	II	5'–0" SINGLETRAP	17906
0	III	5'–0" SINGLETRAP	0
12	IV	5'–0" SINGLETRAP	16618
0	VII	5'–0" SINGLETRAP	0
0	VII–1	5'–0" SINGLETRAP	0
0	VII–2	5'–0" SINGLETRAP	0
0	VII–3	5'–0" SINGLETRAP	0
0	VII–4	5'–0" SINGLETRAP	0
0	SPIII	5'–0" SINGLETRAP	VARIES
2	SPIV	5'–0" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	0
4	T4 PANEL	6" THICK PANEL	2733
0	T7 PANEL	6" THICK PANEL	0
6	JOINTWRAP	150' PER ROLL	
0	JOINTTAPE	14.5' PER ROLL	
TOTAL PIECES = 26			
TOTAL PANELS = 4			
HEAVIEST PICK WEIGHT = 17,906			

DESIGN CRITERIA

ALLOWABLE MAX GRADE = 616.50'
ALLOWABLE MIN GRADE = 615.80'
INSIDE HEIGHT ELEVATION = 614.00'
SYSTEM INVERT = 609.00'

NOTES:

1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE. IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



StormTrap®
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815–941–4549 / F:331–318–5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster
New Tennis Courts
Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

SINGLETRAP
SYSTEM LAYOUT

SHEET NUMBER:

2.0

STORMTRAP INSTALLATION SPECIFICATION

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 (STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES). THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS ARE PROVIDED FOR EMPHASIS. THE MENTION OF THESE ITEMS DOES NOT PRECLUDE THE INSTALLING CONTRACTOR FROM FOLLOWING ASTM C891 IN ITS ENTIRETY AND IMPLEMENTING ALL APPROPRIATE MEASURES. THE INSTALLING CONTRACTOR OWNS AND IS RESPONSIBLE FOR THE STORMTRAP SYSTEM UPON REMOVAL OF THE MODULES FROM THE DELIVERY TRUCK THROUGH 'FINAL CONSTRUCTION'. FINAL CONSTRUCTION IS ACHIEVED WHEN ALL MODULES ARE SET, FULLY BACKFILLED, AND WHEN FINAL FINISHED GRADES ARE REACHED. THE CONTRACTOR IS RESPONSIBLE FOR ANY COUNTERMEASURES NECESSARY TO RESIST UPLIFT/BUOYANCY BEFORE 'FINAL CONSTRUCTION' IS ACHIEVED.

2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.

3. THE AGGREGATE FOUNDATION HAS BEEN DESIGNED BASED ON THE FOLLOWING ASSUMPTIONS. THESE ASSUMPTIONS WILL NEED TO BE VERIFIED BY A GEOTECHNICAL ENGINEER WHICH WILL NEED TO BE EMPLOYED BY THE OWNER.

   3.1. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS BELOW THE PROPOSED ENGINEERED STONE FOUNDATION. IF A STONE FOUNDATION DESIGN IS TO BE USED, THE BEARING PRESSURE OF THE SOILS BELOW THE STONE WILL NEED TO MEET OR EXCEED ALLOWABLE CAPACITY. IF THIS IS NOT POSSIBLE, THE STONE FOUNDATION MAY NOT BE AN OPTION FOR THIS LOCATION.

   3.2. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO EVALUATE A SOURCE OF STONE AGGREGATES THAT WILL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.1 FOR SOIL BEARING CAPACITY REQUIREMENTS). THE AGGREGATE BASE COURSE FOR WHICH THE STORMTRAP SYSTEM WILL BEAR DIRECTLY ON SHALL CONSIST OF A 3" THICK BED OF ¾" DIAMETER ANGULAR STONE, WELL COMPACTED AND SEATED, WITH NO FINES. AND A 9" THICK BED OF 3" ANGULAR AGGREGATE (SEE SHEET 4.0 FOR FURTHER DESCRIPTION/EXPLANATION). PLEASE NOTE THAT THESE ARE ONLY MINIMUM RECOMMENDATIONS AND A QUALIFIED GEOTECHNICAL ENGINEER SHALL BE USED TO DETERMINE THE EXACT REQUIREMENTS FOR THE LOCATIONS THAT THE STORMTRAP SYSTEM IS TO BE LOCATED.

   3.3. THE CONTRACTOR SHALL REMOVE ANY AND ALL EXPANDABLE OR COLLAPSIBLE SOILS AT THE DIRECTION OF A QUALIFIED GEOTECHNICAL ENGINEER.

   3.4. THE AGGREGATE FOUNDATION SHALL BE INSTALLED SUCH THAT THE AGGREGATE EXTENDS A MINIMUM OF 2'-0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1).

   3.5. THE ¾" AGGREGATE SHALL BE COMPACTED USING A VIBRATING ROLLER WITH ITS' FULL DYNAMIC FORCE APPLIED TO ACHIEVE A FLAT SURFACE.

   3.6. DISK, DRY AND COMPACT THE TOP 8" OF THE SUBGRADE SOILS TO 95% OF THE STANDARD DRY DENSITY AND 110% OPTIMUM MOISTURE CONTENT.

   3.7. AGGREGATE SHALL BE GRADED WITHIN +/- ¼" OF THE GRADE SHOWN ON THE PLANS.

   3.8. MINIMUM SOIL BEARING CAPACITY LISTED ON SHEET 1.1 SHALL BE VERIFIED IN FIELD BY OTHERS.

4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED ¾" (SEE DETAIL 2). IF THE SPACE EXCEEDS ¾", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.

5. STORMTRAP MODULES ARE NOT WATERTIGHT.

6. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:

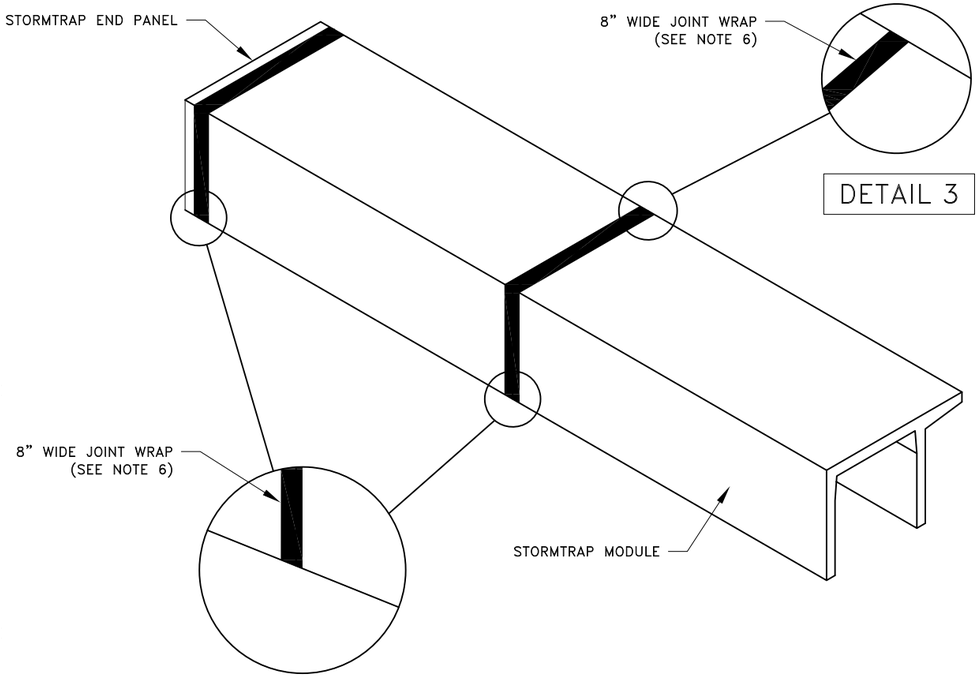
   6.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE THE JOINT WRAP IS TO BE APPLIED.

   6.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.

7. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.

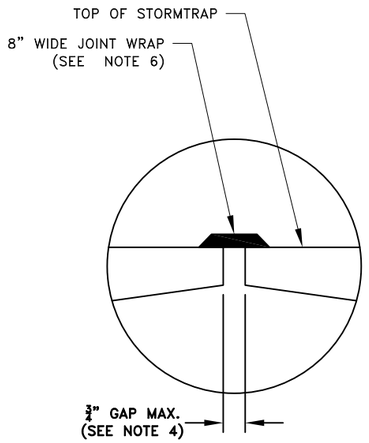
8. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP, MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP, IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.

9. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.

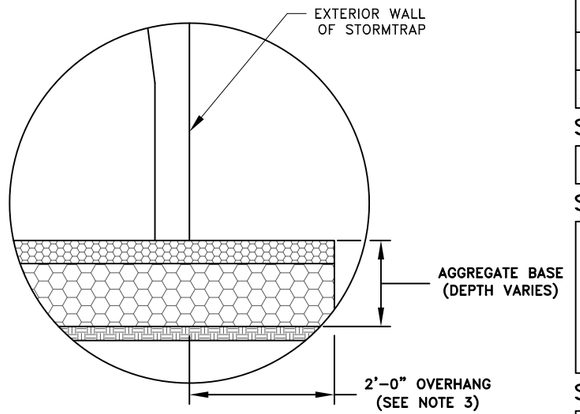


DETAIL 3

DETAIL 4



DETAIL 2



DETAIL 1

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

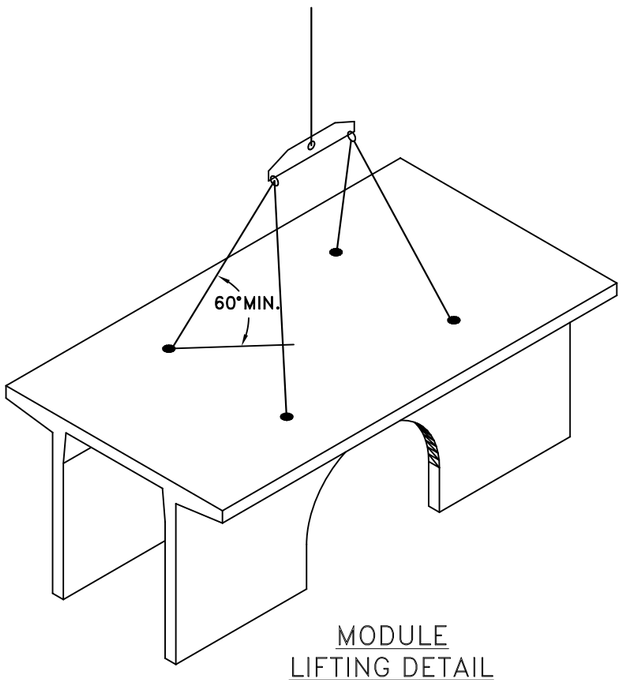
SINGLETRAP INSTALLATION SPECIFICATION

SHEET NUMBER:

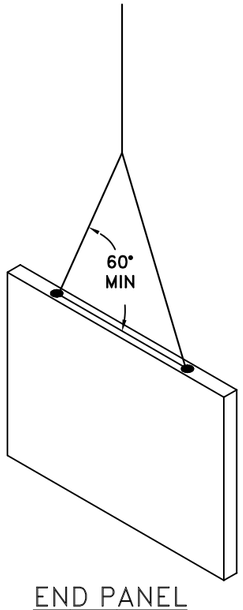
3.0

STORMTRAP MODULE LIFTING SPECIFICATION

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE.
2. MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.
4. IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.



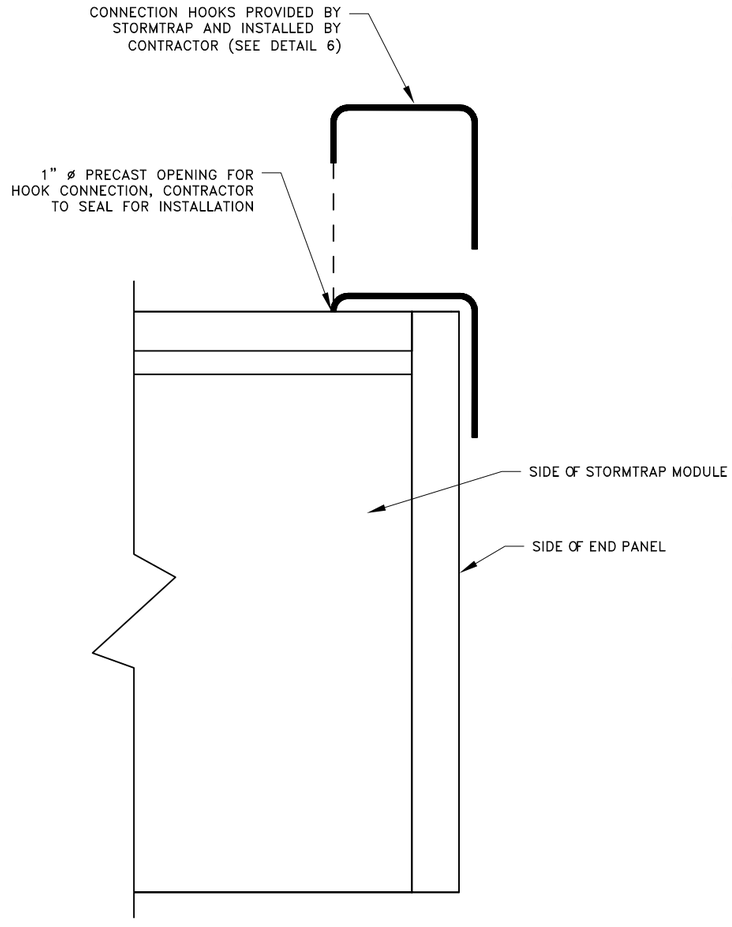
MODULE
LIFTING DETAIL



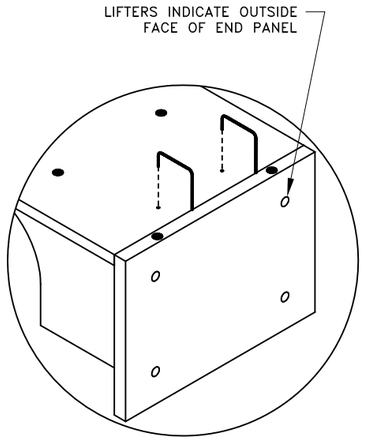
END PANEL
LIFTING DETAIL

END PANEL ERECTION/INSTALLATION SPECIFICATION

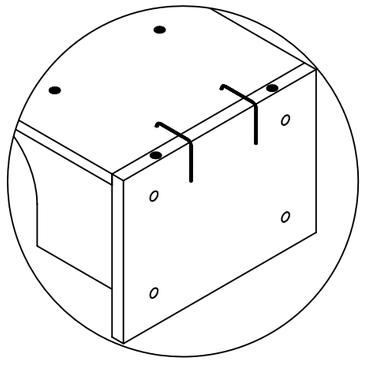
1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS). SIDE WITH LIFTERS INDICATES OUTSIDE FACE.
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



PANEL CONNECTION
ELEVATION VIEW



STEP 1



STEP 2

DETAIL 6

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

SINGLETRAP
INSTALLATION
SPECIFICATION

SHEET NUMBER:

3.1

ZONE CHART

ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1A	FOUNDATION AGGREGATE	#5 (¾") STONE ANGULAR AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 1B	FOUNDATION AGGREGATE (INFILTRATION NOT ALLOWED)	3" RECYCLED CRUSHED CONCRETE (SEE NOTES 5 & 6 FOR DESCRIPTION)
	FOUNDATION AGGREGATE (INFILTRATION ALLOWED)	3" STONE AGGREGATE (SEE NOTE 5)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

APPROVED ZONE 2 BACKFILL OPTIONS

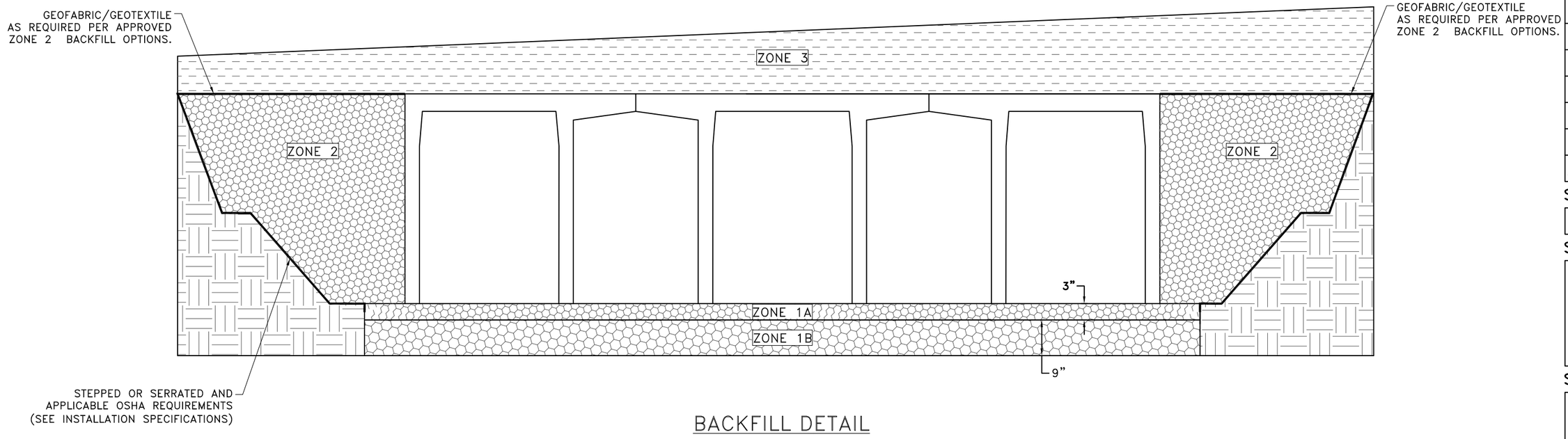
OPTION	REMARKS
¾" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1690 psf
	18"	56.1	1219 psf
	24"	68.1	1111 psf
	30"	76.7	1000 psf
	36"	85.0	924 psf

NOTE:
TRACK LENGTH NOT TO EXCEED 15'-4".
ONLY TWO TRACKS PER VEHICLE.

STORMTRAP ZONE INSTALLATION SPECIFICATION/PROCEDURE

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST BE DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS). ALL MODULES MUST BE SET AND ALL SIDES MUST BE FULLY BACKFILLED BEFORE TRAVEL OVERTOP THE SYSTEM IS PERMITTED. SEE NOTE 2 FOR EXCEPTIONS AND LIMITATIONS.
2. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED IN MINIMUM 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN LIVE LOAD LISTED ON SHEET 1.1 TRAVEL OVERTOP THE SYSTEM. IF TRAVEL OVER THE SYSTEM OCCURS BEFORE THE MINIMUM DESIGN COVER IS ACHIEVED, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. VEHICLES AND MACHINERY USED TO PLACE FILL MATERIAL ON TOP OF THE SYSTEM SHALL TRAVEL PARALLEL TO THE LONGITUDINAL AXIS OF THE STORMTRAP MODULES WHENEVER POSSIBLE.
3. THE VIBRATORY FUNCTION OF ANY ROLLER, COMPACTOR, VEHICLE, ETC. SHALL NOT BE USED OVERTOP THE SYSTEM WITHOUT PRIOR APPROVAL FROM STORMTRAP. IN SOME CASES, HAND COMPACTION MAY BE NECESSARY TO ENSURE THAT THE ALLOWABLE DESIGN LOADING IS NOT EXCEEDED.
4. FREE DRAINING ANGULAR AGGREGATE – 80% AGGREGATE RETAINED ON ½" SIEVE MAJORITY OF AGGREGATE SIZE BETWEEN ½" AND 1" ONLY 5% OF MATERIAL PASSING #⅜ SIEVE.
5. FREE DRAINING, NO FINES, 3" ANGULAR AGGREGATE – MAJORITY OF STONE SIZE IN BETWEEN 1½" AND 3" – VERY SIMILAR TO AASHTO (#1, #2, #3, & #24) STONE AGGREGATE GRADATION.
6. CRUSHED CONCRETE AGGREGATE IS KNOWN TO REACT WITH WATER AND CAN INCREASE THE PH VALUE OF THE GROUND WATER. PRIOR TO USING CRUSHED CONCRETE AGGREGATE IN ZONE 1B IT IS IMPERATIVE THAT THE USE OF SUCH MATERIAL SHALL BE VERIFIED BY THE EOR AND/OR THE PROJECT GEOTECHNICAL ENGINEER.



BACKFILL DETAIL

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

SINGLETRAP BACKFILL SPECIFICATION

SHEET NUMBER:

4.0

ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'–0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 4'–0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 2'–0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED. SEE SHEET 2.0 FOR SIZES AND LOCATIONS.
2. UNLESS OTHERWISE SPECIFIED, PLASTIC COATED STEPS ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'–0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

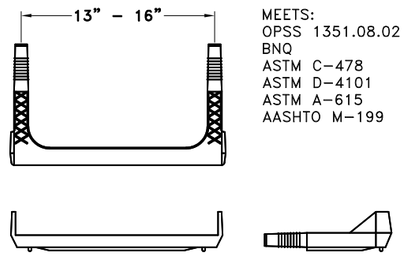
PIPE OPENING SPECIFICATION

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'–0".
2. CONNECTING PIPES MAY BE INSTALLED WITH A 1'–0" CONCRETE COLLAR AND AN AGGREGATE CRADLE (AS REQUIRED) FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON–SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MAY BE USED.
3. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON–SHRINK GROUT.

PIPE INSTALLATION INSTRUCTIONS

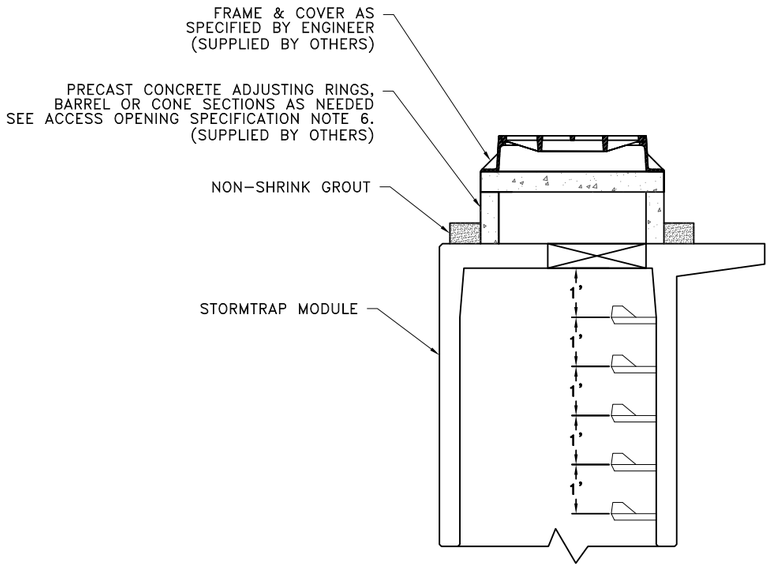
1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET INCLUDING BUT NOT LIMITED TO CONCRETE COLLARS, AGGREGATE CRADLES, GRADE RINGS, RISER SECTIONS, ETC., ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.

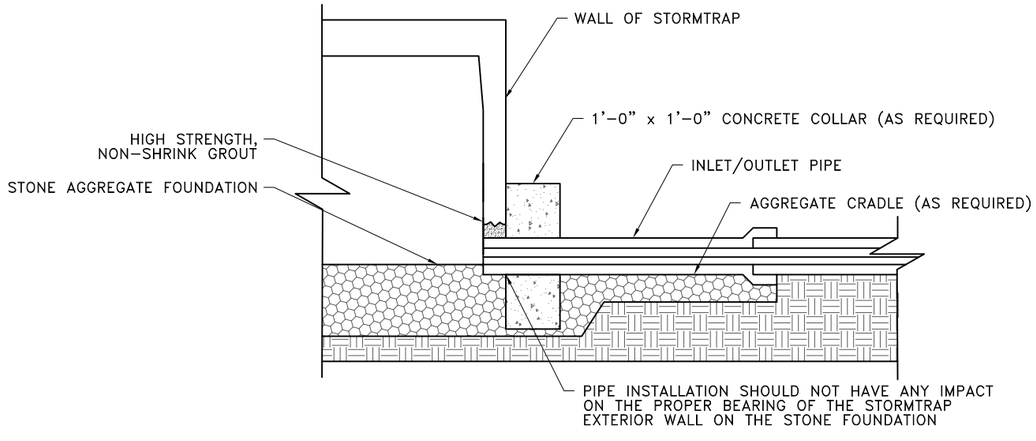


MEETS:
OPSS 1351.08.02
BNQ
ASTM C–478
ASTM D–4101
ASTM A–615
AASHTO M–199

STEP DETAIL



RISER/STAIR DETAIL



PIPE CONNECTION DETAIL
WHEN PIPE INVERT IS AT
INVERT OF STORMTRAP SYSTEM

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815–941–4549 / F:331–318–5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

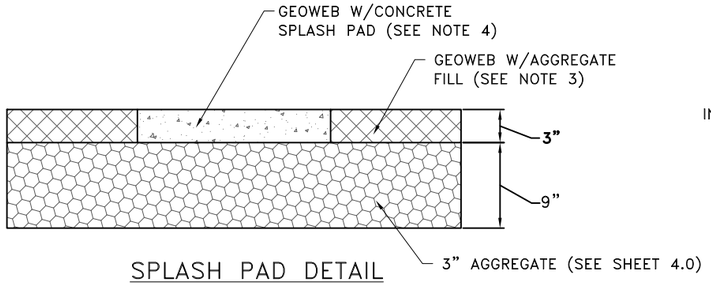
PIPE / ACCESS OPENING SPECIFICATION

SHEET NUMBER:

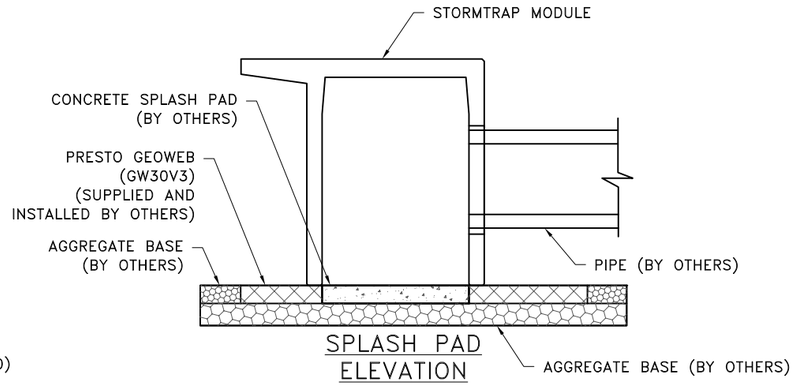
5.0

GEOWEB AND SPLASH PAD INSTALLATION SPECIFICATION

1. THE APPROVED GEOWEB SHALL BE PRESTO GEOWEB (GW30V3). THE GEOWEB NOMINAL DIMENSIONS SHALL BE 9–FT x 25–FT.
2. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE STORMTRAP MODULES.
3. THE GEOWEB INFILL MATERIAL SHALL BE #5 AGGREGATE.
4. THE CONCRETE SPLASH PAD SHALL BE INSTALLED WITHIN THE GEOWEB AND IS REQUIRED AT ALL PIPE ENTRY LOCATIONS.
5. THE GEOWEB EDGE SHALL BE INSTALLED 1–FT BEYOND THE OUTER PERIMETER OF THE STORMTRAP SYSTEM.
6. THE GEOWEB LONGITUDINAL DIMENSION (25–FT) SHALL BE INSTALLED PARALLEL TO THE STORMTRAP LEGS.
7. THE CONCRETE SPLASH PAD AND GEOWEB SHALL BE CENTERED AT THE PIPE PENETRATION.
8. REFER TO SPLASH PAD LAYOUT FOR CONCRETE SPLASH PAD DIMENSIONS.
9. IF ANY PRODUCT OTHER THAN PRESTO GEOWEB IS TO BE INSTALLED, THE PRODUCT MANUFACTURER IS REQUIRED TO SUBMIT A LETTER STATING THAT THE PRODUCT IS EQUAL OR BETTER THEN PRESTO GEOWEB, BOTH IN PERFORMANCE AND IN STRUCTURAL CAPACITY.
10. ALL GEOWEB AND SPLASH PADS TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
11. A CONCRETE SPLASH PAD IS REQUIRED AT ANY ACCESS OPENING THAT HAS AN OPEN GRATE FOR DRAINAGE. THE CONCRETE SPLASH PAD SHALL EXTEND BETWEEN THE UNIT LEG WALLS AND 3'–0" FROM THE CENTERLINE OF THE OPENING ON BOTH SIDES UNLESS SPECIFIED OTHERWISE ON THE SPLASH PAD LAYOUT. GEOWEB IS NOT REQUIRED UNDER ACCESS OPENINGS.

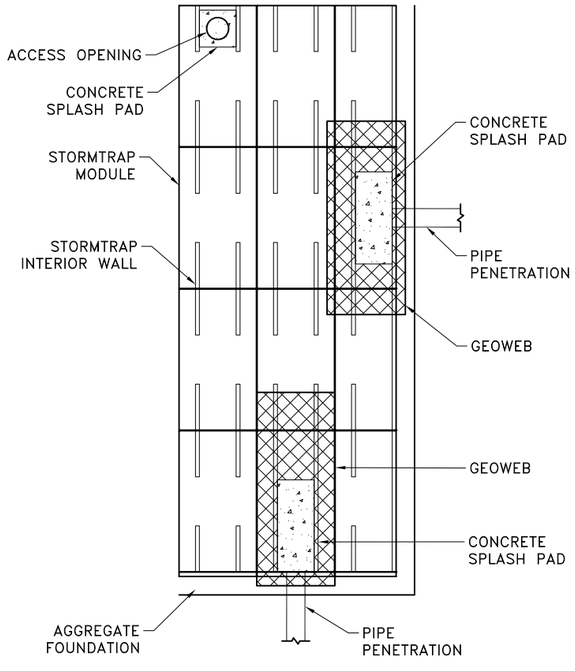


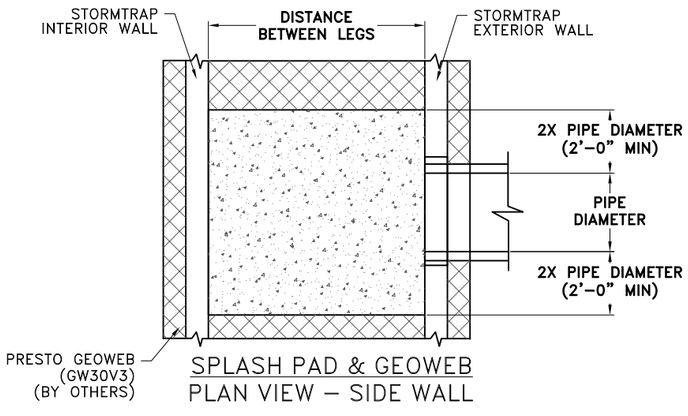
SPLASH PAD DETAIL



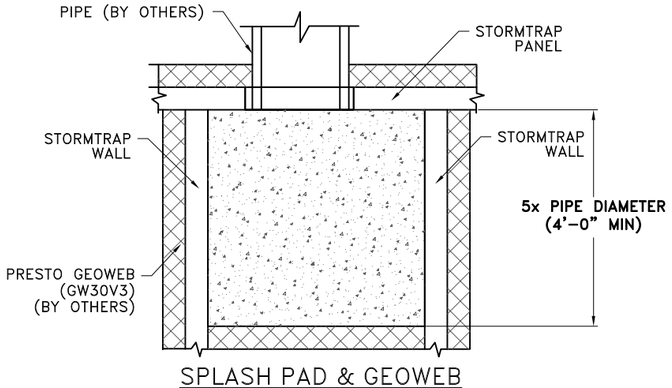
SPLASH PAD ELEVATION

SPLASH PAD CONFIGURATION





SPLASH PAD & GEOWEB
PLAN VIEW – SIDE WALL



SPLASH PAD & GEOWEB
PLAN VIEW – END PANEL

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815–941–4549 / F:331–318–5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

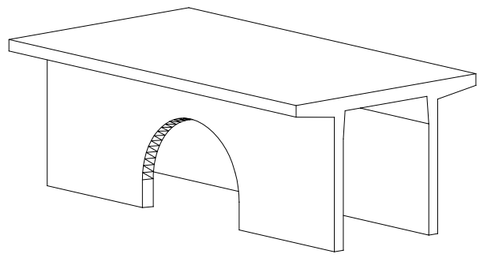
NTS

SHEET TITLE:

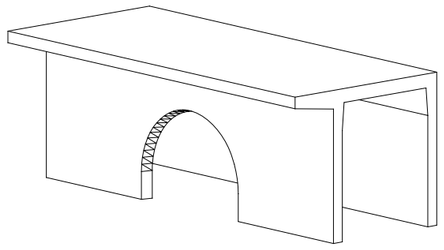
SPLASH PAD & GEOWEB DETAILS

SHEET NUMBER:

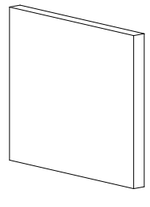
6.0



TYPE II



TYPE IV



TYPE IV
END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

StormTrap
PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:

WT Group
2675 Pratum Ave
Hoffman Estate, IL
60192
224.293.6333

PROJECT INFORMATION:

School Town of Munster

New Tennis Courts

Munster, IN

CURRENT ISSUE DATE:

07/30/2025

ISSUED FOR:

PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
1	07/30/2025	PRELIMINARY	KS

SCALE:

NTS

SHEET TITLE:

SINGLETRAP
MODULE TYPES

SHEET NUMBER:

7.0