



Village of Menomonee Falls  
 W156 N8480 Pilgrim Road  
 Menomonee Falls, WI 53051-3140  
 Telephone: (262) 532-4200

## STORMWATER MANAGEMENT FACILITIES OPERATION AND INSPECTION REPORT

Quarter Section 08 SE Name of Business/Subdivision FIRE STATION NO.1  
 Property Tax ID Number 0032997002 Address of Property N84W18989 MENOMONEE AVE

Dry Pond	
Wet Pond	X
Other	

Description: SWP08S002  
P-0152

Location Of Pond S OF MENOMONEE AVE  
W OF MAIN ST (CTH 74/CTH F)

Year Pond Constructed 2014 Year of Last Certification N/A

Compliance Verification	Design (Non-AsBuilt)	Actual (GPS)	Compliant Yes	No	Comments (Condition of Structure)
<b>Primary Outlet Pipe</b>					Outlet Pipe Material
Opening Diameter (inches)	12"	12"	Y	-	RCP  ELEVATIONS TO VARY SLIGHTLY FROM YEAR TO YEAR DUE TO GPS TECHNOLOGY
Upstream Invert (ST014022)	866.00	866.01	Y	-	
Downstream Invert (ST014023)	861.65	861.73	Y	-	
Length (feet)	60.0 FT	58.9 FT	Y	-	
Slope (%)	7.250%	7.267%	Y	-	
<b>Secondary Outlet Pipe</b>					Outlet Pipe Material
Opening Diameter (inches)			-	-	
Upstream Invert			-	-	
Downstream Invert			-	-	
Length (feet)			-	-	
Slope (%)			-	-	
<b>Riser</b>	N/A				Riser Material
Opening Diameter (inches)	24"	24"	Y	-	REINFORCED CONCRETE
Elevation	868.60	868.69	Y	-	
<b>Upper Discharge Control</b>	N/A				
Opening Diameter (inches)			-	-	
Elevation			-	-	

Compliance Verification	Design	Actual	Compliant Yes   No		Comments	
Lower Discharge Control						
Opening Diameter (inches)	3.5"	4"	Y	-		
Elevation	866.00	866.05	Y	-		
Other (Description)	N/A					
Opening Type and Size (inches)			-	-		
Elevation			-	-		
Emergency Spillway						
Elevation	868.66	868.72	Y	-		
Length of spillway (feet)	13.0 FT	13.6 FT	Y	-	NE CORNER OF POND, S OF ST014022	
Embankment	Present Yes   No		Comments/Maintenance Requirements			
Unauthorized Plantings, trees, or woody vegetation	-	N	SLOPE EROSION AT SE & NW CORNERS OF POND			
Animal burrows or slope erosion or hole	Y	-				
Storm Sewer Outfalls	Type & Size		Location		Comments	
Outfall 1 (ST014014)	12" RCP		SE CORNER		WESTERLY – RCP GOOD COND.	
Outfall 2 (ST014016)	12" RCP		SE CORNER		EASTERLY – RCP GOOD COND.	
Outfall 3 (ST014021)	12" RCP		NW CORNER		GOOD COND.	
Outfall 4	-		-			
Outfall 5	-		-		-	
Storage Properties	Design (NON-ASBUILT)	Actual (GPS)	Compliant Yes   No		Not Applicable	Equipment Used
Normal Water Elevation (Wet Ponds)	866.00	866.01	Y	-		GPS EQUIPMENT: SOKKIA GSR2700ISX & CARLSON SURVEYOR+ WITH SURV CE v1.7  2015 HAS BEEN A DRY YEAR TO DATE
Design High Water Elevation	868.66	868.72	Y	-		
Area at Normal Water Elevation (Ac) (Wet Ponds)	0.176 AC	0.162 AC	Y	-		
Area at Design High Water Elevation (Ac)	0.495 AC	0.482 AC	Y	-		
Active Storage Available (Ac-Ft)*	1.321 ACFT	1.287 ACFT	Y	-		
Lowest Elevation at Top of Embankment (If Applicable)	868.66	868.72	Y	-		
Average Elevation at Top of Embankment (If Applicable)	869.65	869.68	Y	-		
Maximum Bottom Elevation	-	-	-	-		NO MEASUREMENTS TAKEN OF POND BOTTOM
Average Pond Bottom Elevation	-	-	-	-		NO MEASUREMENTS TAKEN OF POND BOTTOM
Pond Bottom Area (Ac)	-	-	-	-		NO MEASUREMENTS TAKEN OF POND BOTTOM
Maximum Pond Depth	-	-	-	-		NO MEASUREMENTS TAKEN OF POND BOTTOM
Average Pond Depth	-	-	-	-		
Average Permanent Pool Depth (Wet Ponds)	-	-	-	-	N/A	

\*To Determine Active Storage  $V = \left( \left( \frac{H}{3} \right) \left( A1 + A2 + \left( \left( A1 + A2 \right)^{\frac{1}{2}} \right) \right) \right)$

Wet Ponds Use  $H$  = Height of Section ,  $A1$ = area at normal water elevation,  $A2$ =area at top section

Dry Ponds Use  $H$ = Height of Section,  $A1$ = pond bottom area,  $A2$ =area at top section

# Fire Station No.1 – SWP08S002

## Overview



Storm Sewer Inlet ST014022



Storm Sewer Outlet ST014023





## Fire Station No.1 – SWP08S002

Storm Sewer Outlets ST014014 (Right) and ST014016 (Left)



Storm Outlet ST014021





## Fire Station No.1 – SWP08S002

### Storm Overflow Structure ST014022

- 4" Diameter Lower Discharge Control
- 22"x22" Top Opening
- 12" RCP to ST014023



### Emergency Spillway

At NE Corner of Pond

# Fire Station No.1 – SWP08S002

Repairs Needed (7/2015)

Slope Erosion/Sediment Deposit in Pond

NW Corner



SE Corner



*Sketch Outlet*

*Place Photograph of Pond*

*Place Photograph of Pond*

Inspection Firm: VILLAGE OF  
MENOMONEE FALLS  
Phone Number: 262-532-4411  
Address: W156N8480 PILGRIM RD  
MENOMONEE FALLS, WI  
53051

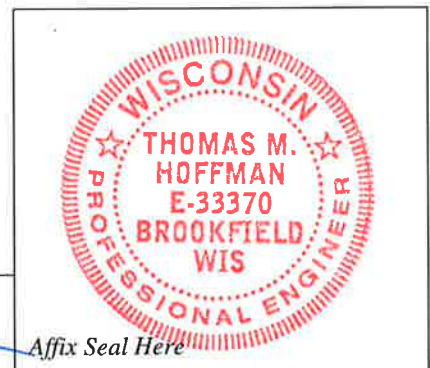
Inspector Name : CHRISTOPHER M GARIEPY

Inspection Date: 7/29/2015

Certifying  
Professional Name: THOMAS M. HOFFMAN, P.E.  
Phone Number: 262-532-4415

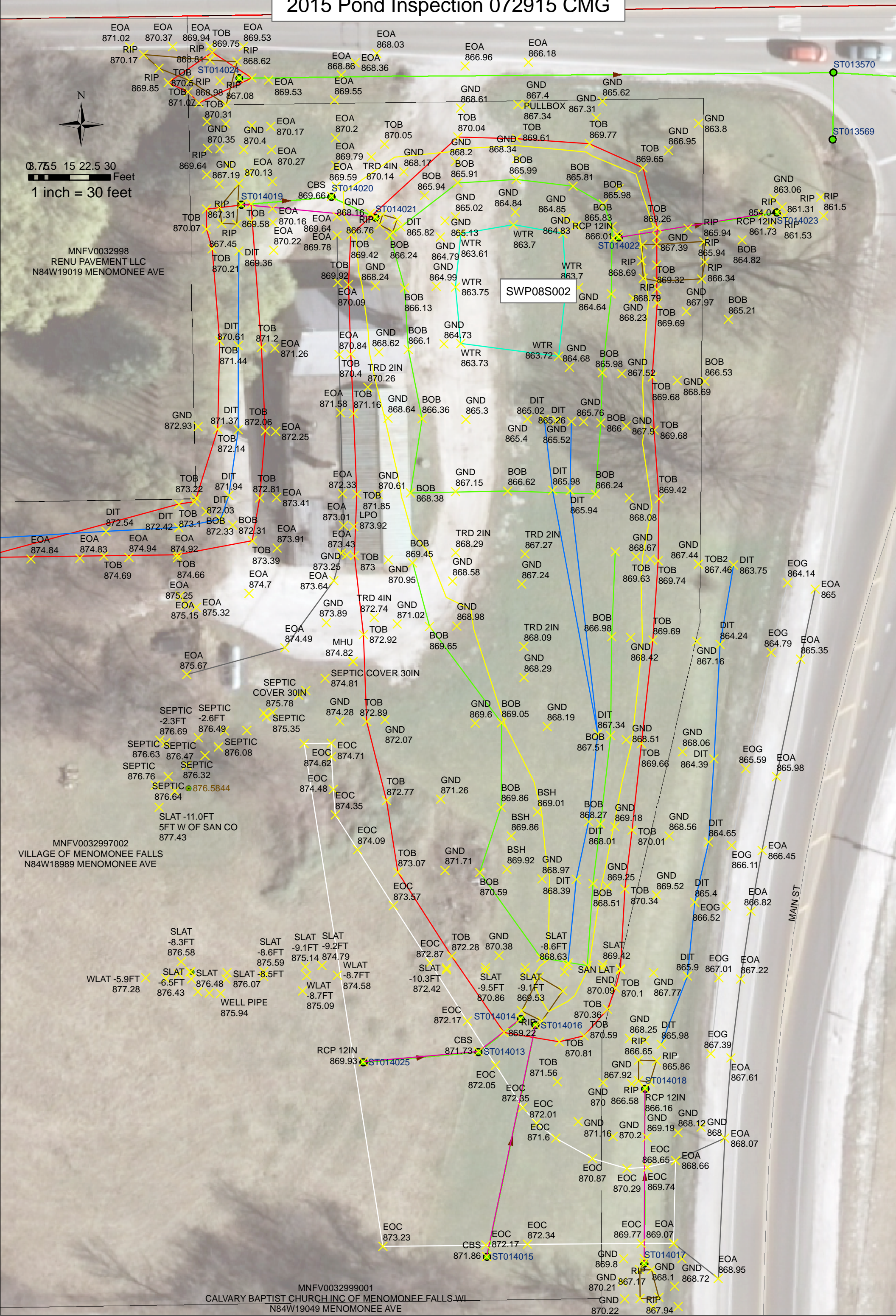
Date: 2/26/16

Signature: 

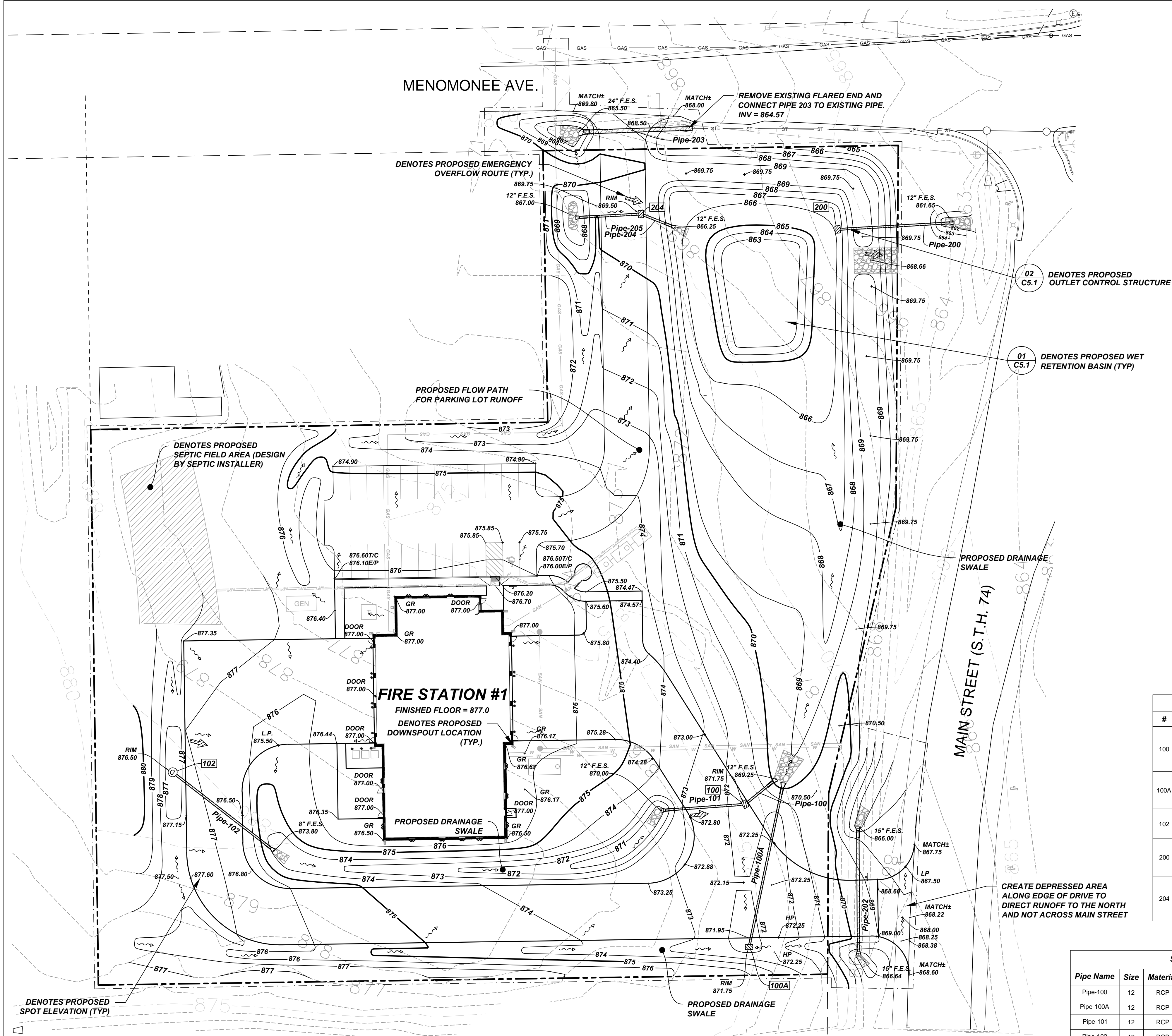




SWP08S002  
Fire Station No.1 - MNFV0032997002  
2015 Pond Inspection 072915 CMG







NOTE: THE STORM SEWER AND STORMWATER MANAGEMENT FOR THIS SITE WAS REVISED AND RE-AUTHORED BY THE VILLAGE OF MENOMONEE FALLS ENGINEERING DEPT. HARWOOD ENGINEERING REMOVES ALL DESIGN LIABILITY FROM THOSE PORTIONS OF THE PROJECT.

NOTE: ALL RCP PIPE SHALL BE CLASS IV MINIMUM.

Storm Structure Table	
#	Structure Details
100	2' x 3' CATCH BASIN R3067-C, TYPE C GRATE RIM = 871.75 Pipe-101 = 869.50 Pipe-100 = 869.50
100A	2' x 3' CATCH BASIN R3067-C, TYPE L GRATE RIM = 871.75 Pipe-100A = 869.75
102	CATCH BASIN (3' DIA) RIM = 876.50 Pipe-102 = 874.13
200	OUTLET CONTROL STRUCTURE (SEE DETAIL) RIM = 868.60 Pipe-200 = 866.00
204	2' x 3' CATCH BASIN R3067-C, TYPE L GRATE RIM = 869.50 Pipe-204 = 866.54 Pipe-205 = 866.54

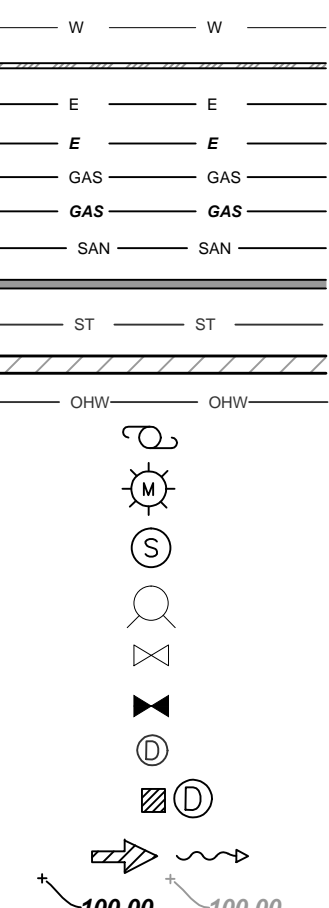
Storm Pipe Table					
Pipe Name	Size	Material	Length	Slope	Description
Pipe-100	12	RCP	19	1.31%	W/ FLARED END SECTION
Pipe-100A	12	RCP	87	0.57%	
Pipe-101	12	RCP	43	1.18%	W/ FLARED END SECTION
Pipe-102	12	RCP	66	0.50%	W/ FLARED END SECTION
Pipe-200	12	RCP	60	7.29%	W/ F.E.S.
Pipe-202	15	RCP	64	1.00%	W/ FLARED END SECTION BOTH ENDS
Pipe-203	24	RCP	57	1.62%	EXTEND EXISTING PIPE
Pipe-204	12	RCP	18	1.64%	
Pipe-205	12	RCP	33	1.40%	

GENERAL NOTES AND SPECIFICATIONS

- THE EXISTING SITE INFORMATION ON THIS PLAN WAS TAKEN FROM A SITE SURVEY PROVIDED BY GAI CONSULTANTS, INC. THE ENGINEER MAKES NO WARRANTY OR REPRESENTATION WITH REFERENCE TO THE ACCURACY AND COMPLETENESS OF THE EXISTING CONDITIONS INDICATED OR NOT INDICATED ON THE ENGINEERING PLANS PROVIDED. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING SITE CONDITIONS INCLUDING UNDERGROUND UTILITIES, UNDERGROUND UTILITY ELEVATIONS, BUILDING SETBACKS AND EXISTING BUILDING LOCATIONS. THE CONTRACTOR SHALL INFORM THE OWNER AND ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING WITH WORK. QUESTIONS REGARDING THE EXISTING SURVEY SHALL BE DIRECTED TO THE PARTIES LISTED ABOVE.
- BEFORE PROCEEDING WITH ANY UTILITY CONSTRUCTION, CONTRACTOR SHALL EXCAVATE EACH EXISTING LATERAL TO BE CONNECTED TO VERIFYING ELEVATION, LOCATION AND SIZE. SHOULD THE EXISTING UTILITY NOT BE AS INDICATED ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR EVALUATION.
- ALL UTILITY CONSTRUCTION SHALL ADHERE TO THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN (2003), AS WELL AS, THE VILLAGE OF MENOMONEE FALLS CONSTRUCTION STANDARDS AND THE DEPT. OF SAFETY AND PROFESSIONAL SERVICED SEC. 382-387.
- ALL UTILITY PERMITS SHALL BE RECEIVED FROM THE VILLAGE OF MENOMONEE FALLS PRIOR TO THE START OF CONSTRUCTION.
- NOTIFY THE PUBLIC WORKS INSPECTION DEPT. AT LEAST 48 HOURS BEFORE STARTING CONSTRUCTION.
- BACKFILL REQUIREMENTS AND ROADWAY/SIDEWALK RESTORATION SHALL ADHERE TO LOCAL STANDARDS (GRANULAR BACKFILL UNDER OR WITHIN 5' OF CURBS, SIDEWALK, OR PAVEMENT. SPOIL MAY BE USED ELSEWHERE. SLURRY BACKFILL SHALL BE REQUIRED IN PUBLIC ROADWAYS.)
- ALL BUILDING UTILITIES SHALL BE VERIFIED WITH THE ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.
- ALL PROPOSED WATERMAIN SHALL BE PVC SDR 18, CLASS 150, AWWA C900 WITH ELASTOMERIC JOINTS. (SDR 14 FOR FIRE SERVICE)
- PROPOSED SANITARY SEWER PIPE SHALL BE PVC, ASTM D-3034, SDR 35 WITH RUBBER GASKETED JOINTS CONFORMING TO ASTM D-3212.
- PROPOSED STORM SEWER SHALL BE PVC, ASTM D-3034, SDR 35 WITH RUBBER ELASTOMERIC JOINTS CONFORMING TO ASTM D-3212 (UNLESS OTHERWISE NOTED).
- UTILITY TRENCHES SHALL BE MECHANICALLY COMPACTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN.
- SILT FENCE AND ALL OTHER EROSION CONTROL METHODS SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALSO, CONTRACTOR IS RESPONSIBLE FOR REMOVING EROSION CONTROL METHODS ONCE THE SITE IS STABILIZED.
- THE PROPOSED SITE LOCATION AND SURROUNDING STREETS SHALL BE KEPT DEBRIS FREE. SWEEP STREETS AS NEEDED TO MAINTAIN CLEAN STREETS.
- ALL EXCAVATED OR STRIPPED MATERIALS NOT BEING REPLACED IN UTILITY TRENCHES OR BEING USED FOR FILL SHALL BE REMOVED FROM THE SITE, UNLESS OTHERWISE DIRECTED BY THE OWNER.
- ALL DISTURBED GRASS AREAS SHALL BE STABILIZED (PER DNR TECHNICAL STANDARDS) WITHIN 7 DAYS OF COMPLETION. DISTURBED GRASS AREAS SHALL BE TOPSOILED (6"), RESEDED AND STABILIZED. AREAS WITH A SLOPE OF 3H:1V OR STEEPER SHALL BE COVERED WITH A CLASS 1 - TYPE A EROSION FABRIC. (SEE SPECIFICATIONS)
- SEE ARCHITECTURAL PLANS FOR EXACT BUILDING & FOUNDATION DETAILS AND ORIENTATION.
- ALL ON-SITE CONCRETE CURB AND GUTTER SHALL BE 18" WIDE VERTICAL FACE, UNLESS OTHERWISE NOTED. REVERSE OR REGULAR STYLE CURB DENOTED ON PLANS.
- ALL CURB ELEVATIONS ARE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED. SEE CURB DETAIL FOR TOP OF CURB ELEVATIONS.
- ALL CURB RADII ARE MEASURED TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL MATCH PROPOSED CONCRETE CURB AND GUTTER, SIDEWALK AND PAVEMENT TO EXISTING IN ELEVATION AND ALIGNMENT.
- REMOVAL OF CURB AND GUTTER, SIDEWALK AND PAVEMENT SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE WISCONSIN D.O.T.
- ALL CONCRETE FOR CURB AND GUTTER, ROADWAY AND SIDEWALKS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR READY MIXED CONCRETE. MINIMUM 28 DAY COMPRESSIVE STRENGTH TEST SHALL EQUAL 4000 PSI.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PROPERTY CORNERS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES OR SITE IMPROVEMENTS. CONTRACTOR SHALL DOCUMENT ALL EXISTING DAMAGE PRIOR TO START OF CONSTRUCTION AND NOTIFY CONSTRUCTION MANAGER OF ANY FINDINGS.
- PROJECT SAFETY ON-SITE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXISTING SOIL CONDITIONS, CONSTRUCTION MANAGER MAY HAVE SOILS REPORT FOR MORE INFO.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE OWNER WITH A SET OF MARKED UP PLANS (AS-BUILTS) SHOWING ANY CHANGES DURING CONSTRUCTION.
- DIGGERS HOTLINE SHALL BE NOTIFIED (3) DAYS IN ADVANCE OF COMMENCING EXCAVATION TO LOCATION UTILITIES.

UTILITY LEGEND

SYMBOL



DESCRIPTION

EXISTING WATER MAIN  
PROPOSED WATER SERVICE  
EXISTING ELECTRICAL LINE  
PROPOSED ELECTRICAL LINE  
EXISTING GAS MAIN  
PROPOSED GAS MAIN  
EXISTING SANITARY SEWER  
PROPOSED SANITARY SEWER  
EXISTING STORM SEWER  
PROPOSED STORM SEWER  
OVERHEAD WIRES  
EXISTING POWER POLES  
EXISTING LIGHT POLES  
SANITARY MANHOLE  
FIRE HYDRANT  
EXISTING WATER VALVE  
PROPOSED WATER VALVE  
EXISTING STORM STRUCTURE  
PROPOSED STORM STRUCTURE  
DENOTES EMERGENCY OVERFLOW ROUTE /  
DRAINAGE PATH  
PROPOSED & EXISTING SPOT GRADE

THE ARCHITECTURAL WORKSHOP, LLC

W161 N11110 Meadow Drive  
Germantown, WI 53022

© THE ARCHITECTURAL WORKSHOP, LLC 2014

FIRE STATION NO. 1  
VILLAGE OF MENOMONEE FALLS  
MENOMONEE FALLS, WISCONSIN

GRADING  
PLAN

Scale: 1" = 30'

SHEET NUMBER

C2.1

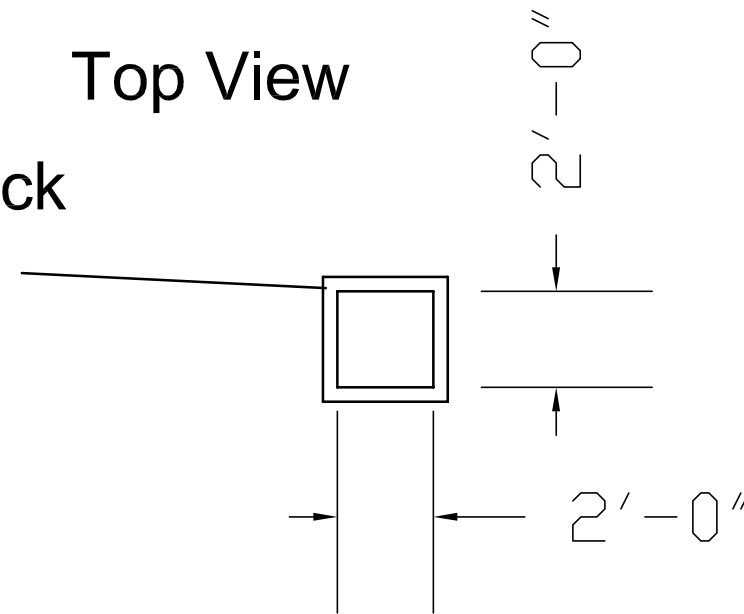
HARWOOD  
ENGINEERING  
CONSULTANTS, LTD  
255 North 21st Street Milwaukee Wisconsin 53233  
414.475.5554 414.773.9299 fax harwood@hecl.com  
HEC Project Number: 13-1090.00

# Pond Outfall Detail

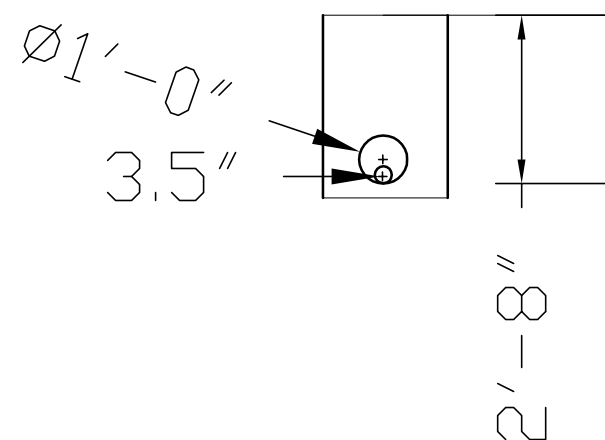
Reinforced  
Concrete Riser &  
Pipe

Top View

Galvanized Trash Rack  
1/4" Wire Mesh  
4"x4" Opening

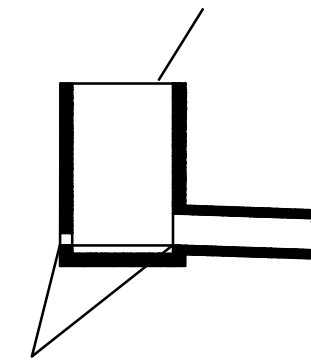


Side View



Rim Elevation  
868.6

Elevation 866



NOT TO SCALE



$$H = 868.72 - 866.05 = 2.67'$$

$$A_1 = 7,053, \text{ @ } SF = 0.162 AC$$

$$A_2 = 29,977.2 \text{ SF} = 0.482 AC$$

Free Sta 701; As-Built

$$V = \left( \frac{H}{3} \right) (A_1 + A_2 + \sqrt{A_1 A_2})$$

$$V = \left( \frac{2.67}{3} \right) (0.162 AC + 0.482 AC + \sqrt{0.162 AC \times 0.482 AC})$$

$$V = (0.89') (0.644 AC + \sqrt{0.644 AC})$$

$$V = (0.89') (0.644 AC + 0.802 AC)$$

$$V = (0.89') (1.446 AC)$$

$$V = 1.287 ACFT$$

CMG  
9/24/15

$$H = 868.60 - 868.00 = 2.60'$$

$$A_1 = 0.1763 \text{ AC}$$

$$A_2 = 0.4947 \text{ AC}$$

Free Sta. No. 1, Plan

$$V = \left( \frac{H}{3} \right) (A_1 + A_2 + \sqrt{A_1 A_2})$$

$$V = \left( \frac{2.60'}{3} \right) (0.1763 \text{ AC} + 0.4947 \text{ AC} + \sqrt{0.1763 \text{ AC} \times 0.4947 \text{ AC}})$$

$$V = \left( \frac{0.867'}{0.867'} \right) (0.671 \text{ AC} + \sqrt{0.671 \text{ AC}})$$

$$V = \left( \frac{0.867'}{0.867'} \right) (0.671 \text{ AC} + 0.819 \text{ AC})$$

$$V = \left( \frac{0.867'}{0.867'} \right) (1.49 \text{ AC})$$

$$\frac{V = 1.322 \text{ AC-FT}}{1.292 \text{ AC-FT} \leftarrow \text{CMG } 2/11/16}$$

2014  
085002