

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 82



DESIGN DESIGNATION

A.A.D.T.	=	N/A
A.A.D.T.	=	N/A
D.H.V.	=	N/A
D.D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	N/A
ESALS	=	N/A

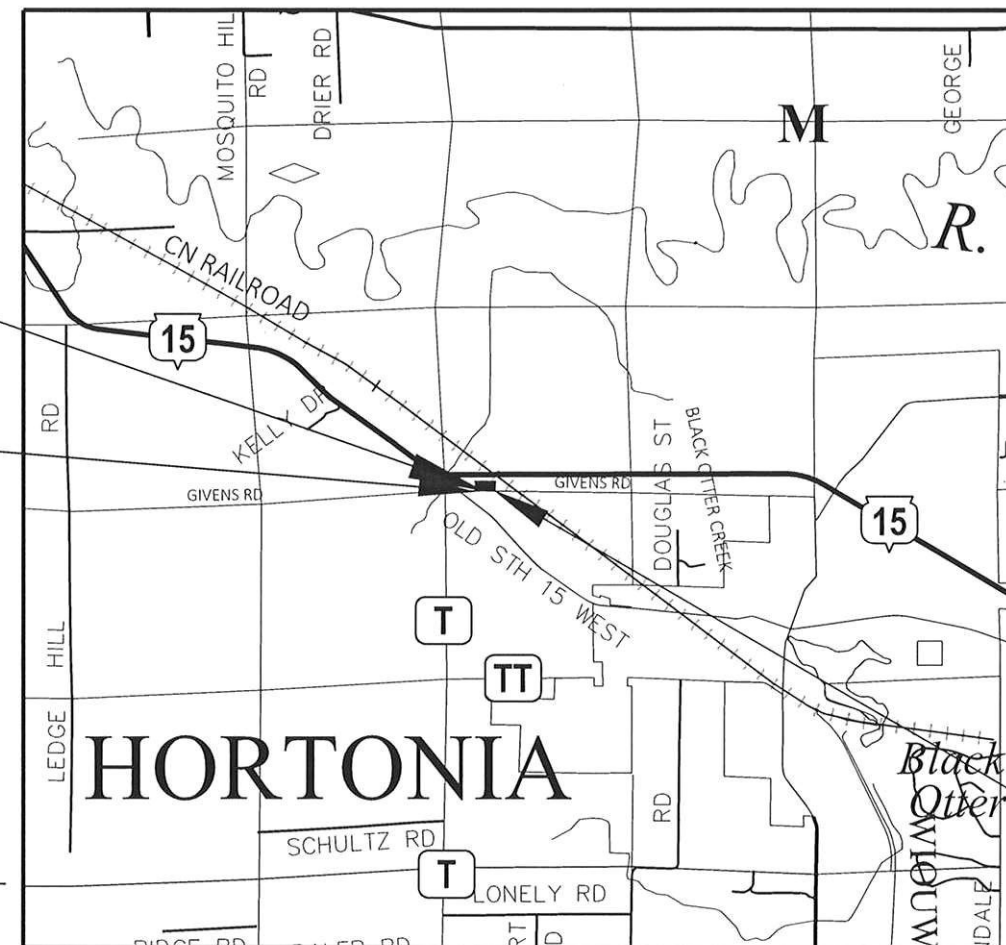
CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

PROJECT SITE

BEGIN CONSTRUCTION
STA 99+78.10
Y = 592,913.735
X = 758,304.012

END CONSTRUCTION
STA 104+50.00
Y = 592,904.991
X = 758,775.831



TOTAL NET LENGTH OF CENTERLINE = 0.000 MI

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, OUTAGAMIE COUNTY, NAD83 (2007)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 76 - NEW LONDON

CTH JJ - CTH T/GIVENS RD

STH 15

OUTAGAMIE COUNTY

STATE PROJECT NUMBER
1146-75-81

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1146-75-81		

ORIGINAL PLANS PREPARED BY
STRAND ASSOCIATES, INC.



DATE: 10-24-23 *Sara Grimme*
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WISDOT NE REGION
Designer	STRAND ASSOCIATES, INC.
Project Manager	WILLIAM BERTRAND, P.E.
Regional Examiner	WISDOT NE REGION
Regional Supervisor	TAMMY RABE, P.E.

APPROVED FOR THE DEPARTMENT
DATE: 10/25/23 *Bill Bertrand, P.E.*
(Signature)

E

GENERAL NOTES:

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

DISTURBED AREAS WITHIN THE RIGHT OF WAY SHALL BE RESTORED AS DIRECTED BY THE ENGINEER.

THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

WHEN THE QUANTITY OF BASE AGGREGATE DENSE IS MEASURED FOR PAYMENT IN TONS, THE DEPTH OR THICKNESS AS SHOWN ON THE PLAN IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND UPON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

ALL EXISTING SIGNS SHALL REMAIN IN PLACE UNLESS THE ENGINEER APPROVES THEIR REMOVAL. ANY SIGNS REMOVED DUE TO CONTRACTOR MEANS AND METHODS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR EXPENSE.

UTILITY/MUNICIPALITY

CONTACT/ADDRESS

UTILITY TYPE

*AT&T WISCONSIN

KYLE WEBER
221 W. WASHINGTON ST.
APPLETON, WI 54911
(920) 221-5969
KW715W@ATT.COM

COMMUNICATIONS

*WE ENERGIES

WE ENERGIES UTILITY COORDINATER
500 S. 116th ST.
WEST ALLIS, WI 53214
(414) 221-2738
WE-UTILITY-RELOCATIONS@WE-ENERGIES.COM

ELECTRICITY

*DENOTES DIGGERS HOTLINE MEMBER

DESIGN CONSULTANT

SARA GRIMME
STRAND ASSOCIATES, INC.
910 WEST WINGRA DR.
MADISON, WI 53715
(608) 251-4843
SARA.GRIMME@STRAND.COM

WISDOT CONTACT

WILLIAM BERTRAND
WISDOT NE REGION
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920) 360-3124
WILLIAM.BERTRAND@DOT.WI.GOV

OUTAGAMIE COUNTY

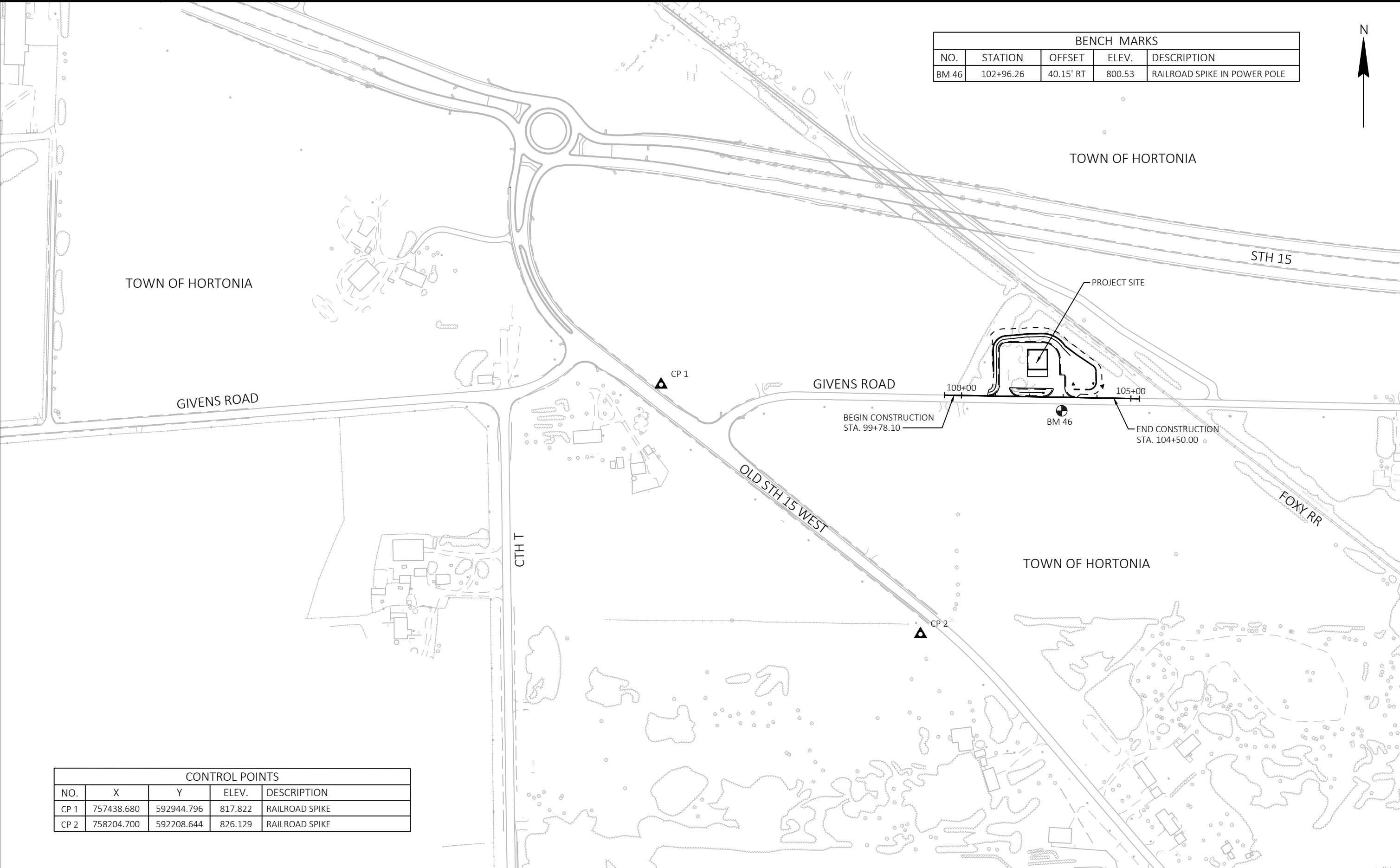
CHAD JOHNSON
OUTAGAMIE COUNTY HIGHWAY DEPARTMENT
1313 HOLLAND ROAD
APPLETON, WI 54911
(920) 832-5673
CHAD.JOHNSON@OUTAGAMIE.ORG

DNR LIASON

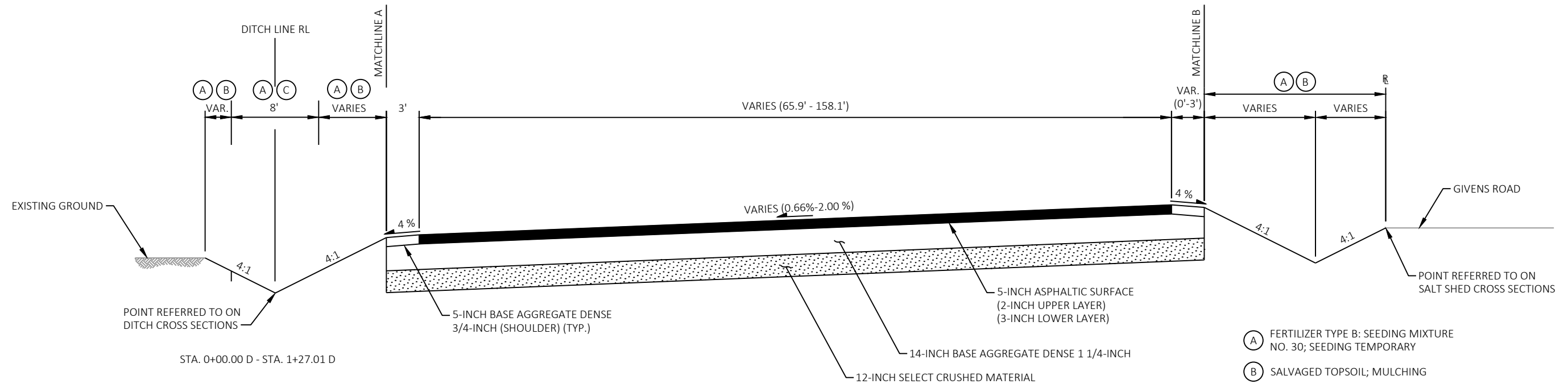
MATTHEW SCHAEVE
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
2984 SHAWANO AVE.
GREEN BAY, WI 54313
(920) 366-1544
MATTHEW.SCHAEVE@WISCONSIN.GOV



BENCH MARKS				
NO.	STATION	OFFSET	ELEV.	DESCRIPTION
BM 46	102+96.26	40.15' RT	800.53	RAILROAD SPIKE IN POWER POLE

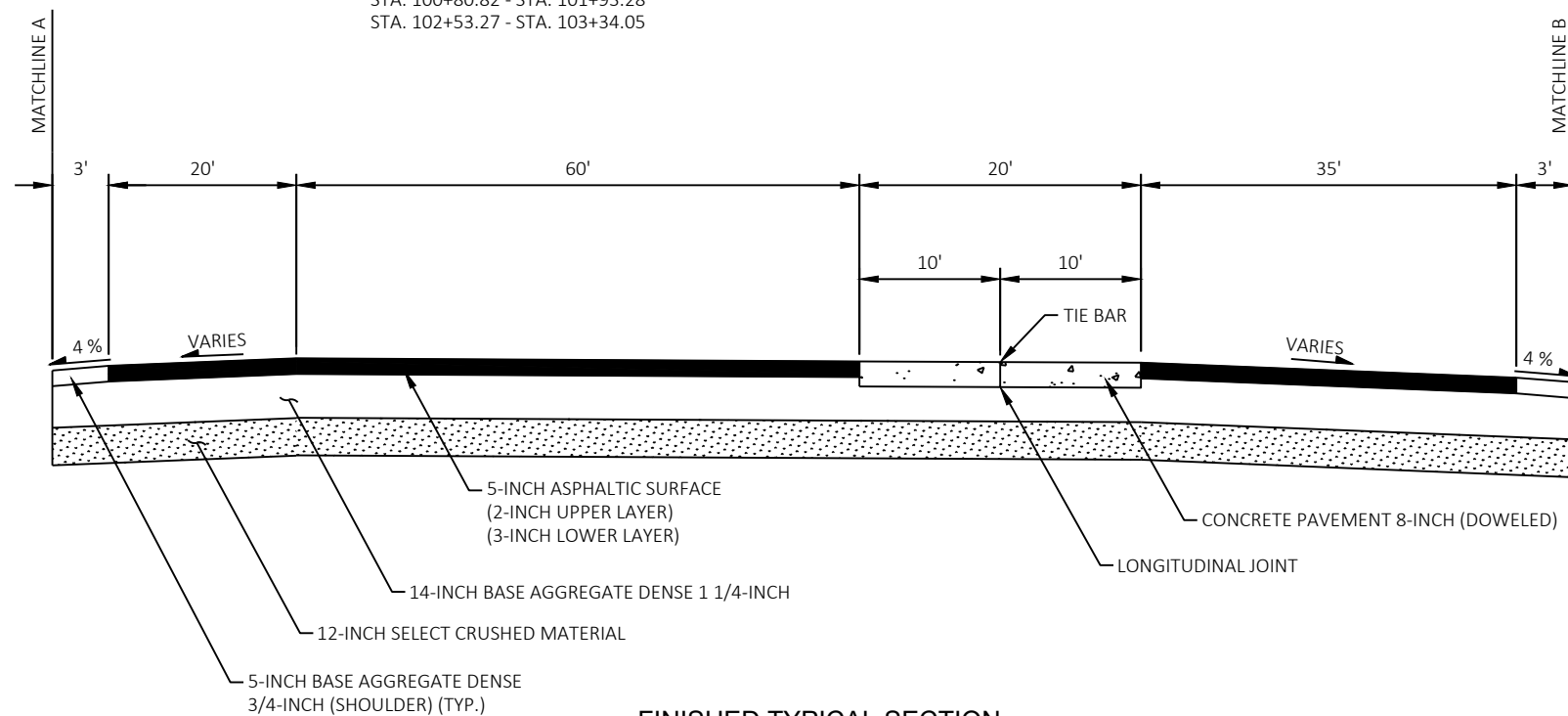
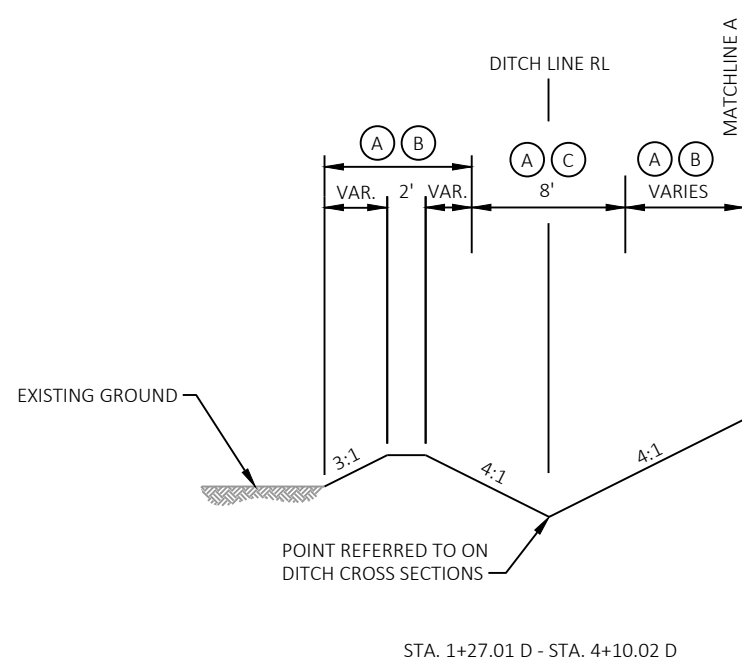


CONTROL POINTS				
NO.	X	Y	ELEV.	DESCRIPTION
CP 1	757438.680	592944.796	817.822	RAILROAD SPIKE
CP 2	758204.700	592208.644	826.129	RAILROAD SPIKE



FINISHED TYPICAL SECTION

STA. 100+80.82 - STA. 101+93.28
STA. 102+53.27 - STA. 103+34.05



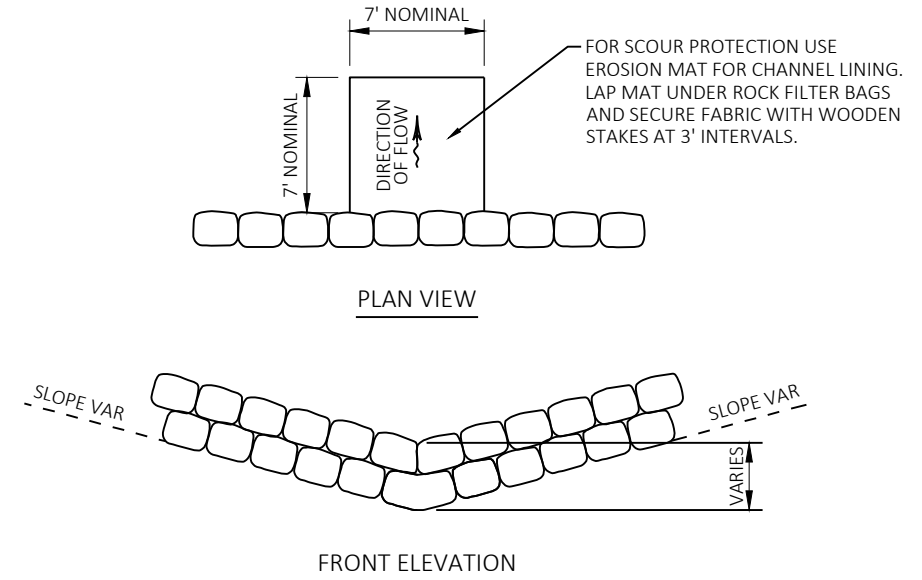
FINISHED TYPICAL SECTION

STA. 101+93.28 - STA. 102+53.27

RUNOFF COEFFICIENT TABLE

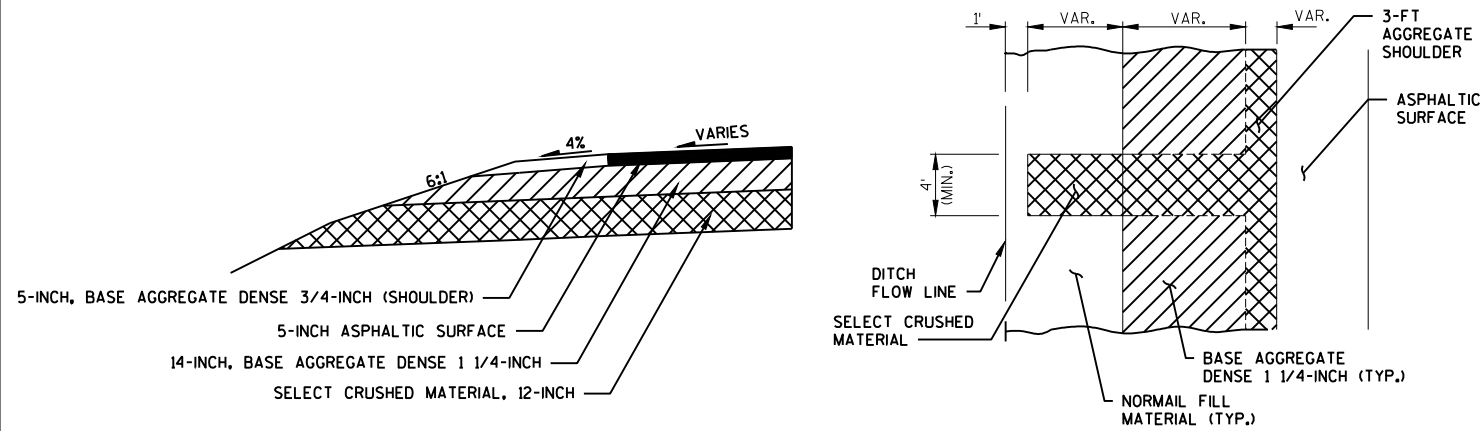
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 2.0 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.3 ACRES



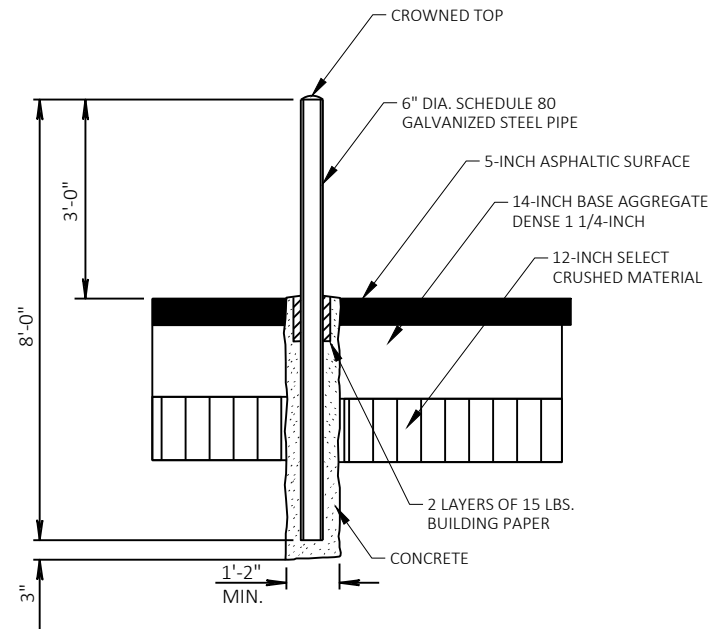
- NOTES:
1. PLACE ROCK FILTER BAGS TIGHTLY AGAINST EACH OTHER TO PREVENT VOIDS.
 2. STAGGER JOINTS BETWEEN BOTTOM AND TOP ROWS.
 3. BOTTOM ELEVATION OF END FILTER BAG SHALL BE EQUAL TO OR GREATER THAN TOP OF LOWEST FILTER BAG.
 4. DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DETAIL SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

ROCK BAGS (DITCH CHECK) DETAIL
 SEE EROSION CONTROL PLANS FOR LOCATIONS

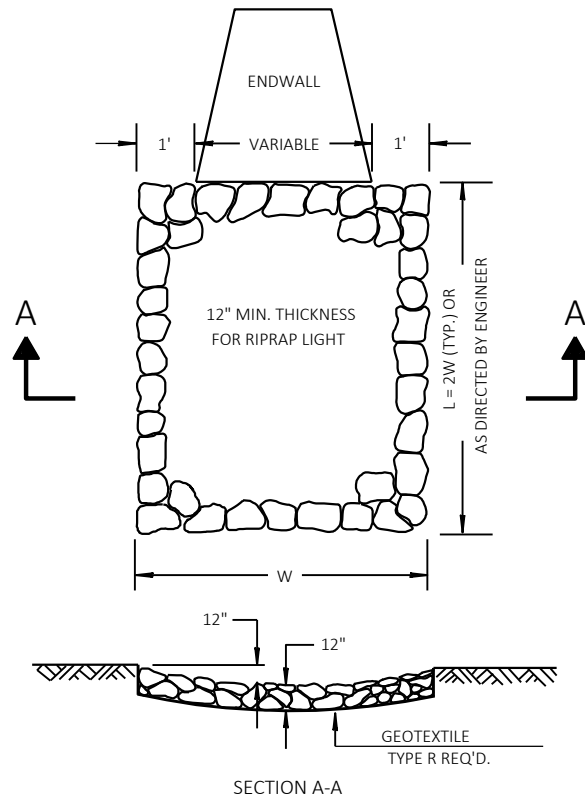


RELIEF TRENCH DETAIL

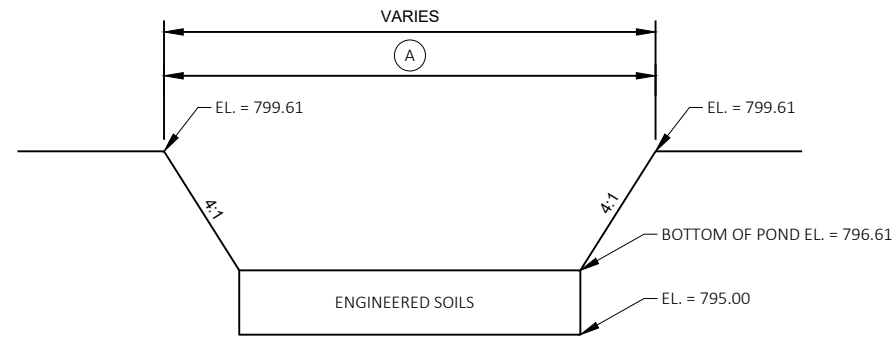
STA. 1+62 D
 STA. 2+38 D
 STA. 3+45 D
 STA. 103+03.5, 47.5' LT



PIPE BOLLARD DETAIL
 INCLUDED WITH BID ITEM
 SALT STORAGE FACILITY

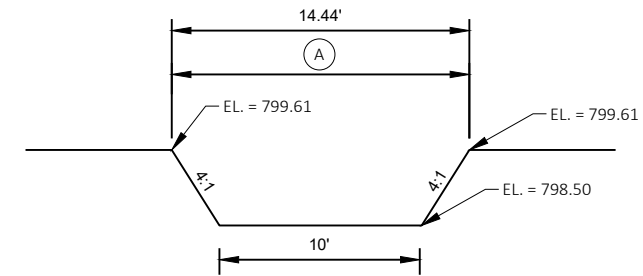


SECTION A-A
 RIPRAP TREATMENT AT CULVERTS



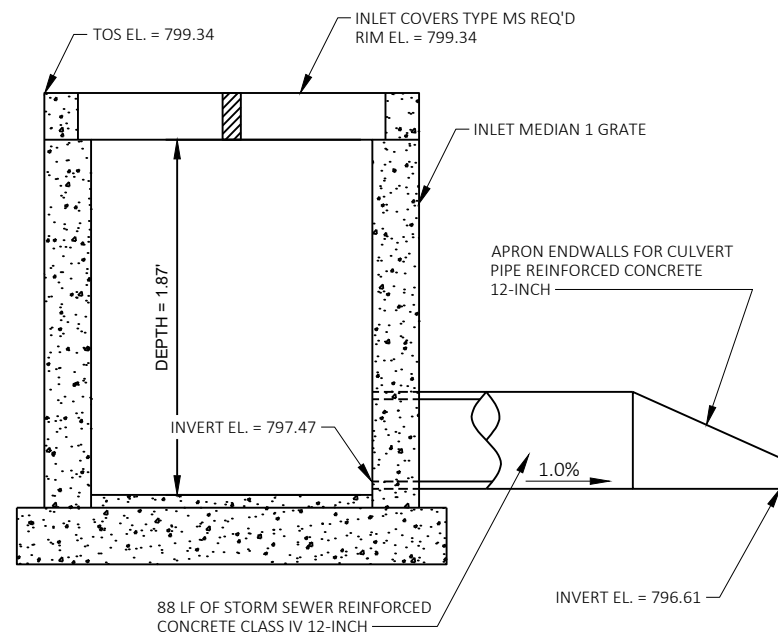
(A) SALVAGED TOPSOIL, SEEDING
TEMPORARY, SEEDING MIXTURE
NO. 30 AND EROSION MAT
CLASS I TYPE A

BIORETENTION BASIN DETAIL



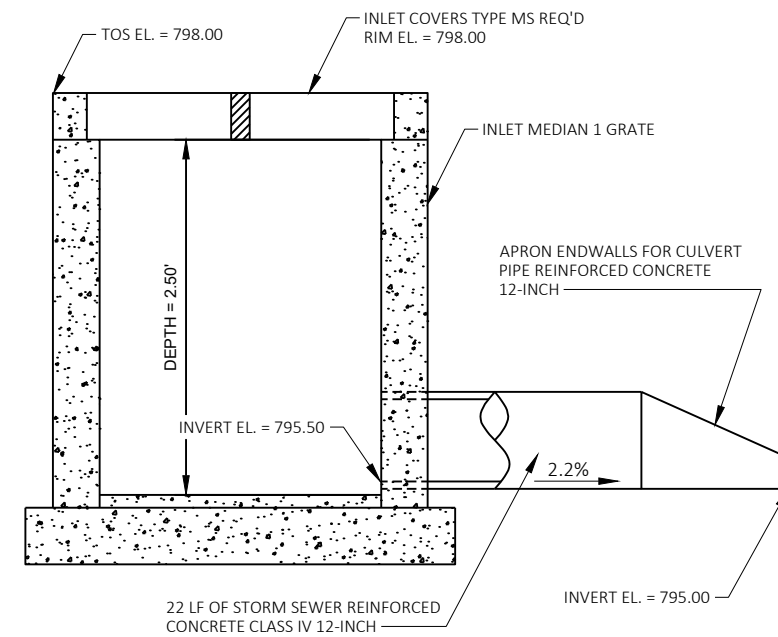
(A) SALVAGED TOPSOIL, SEEDING
TEMPORARY, SEEDING MIXTURE
NO. 30 AND EROSION MAT
CLASS I TYPE A

BIORETENTION BASIN WEIR OVERFLOW DETAIL



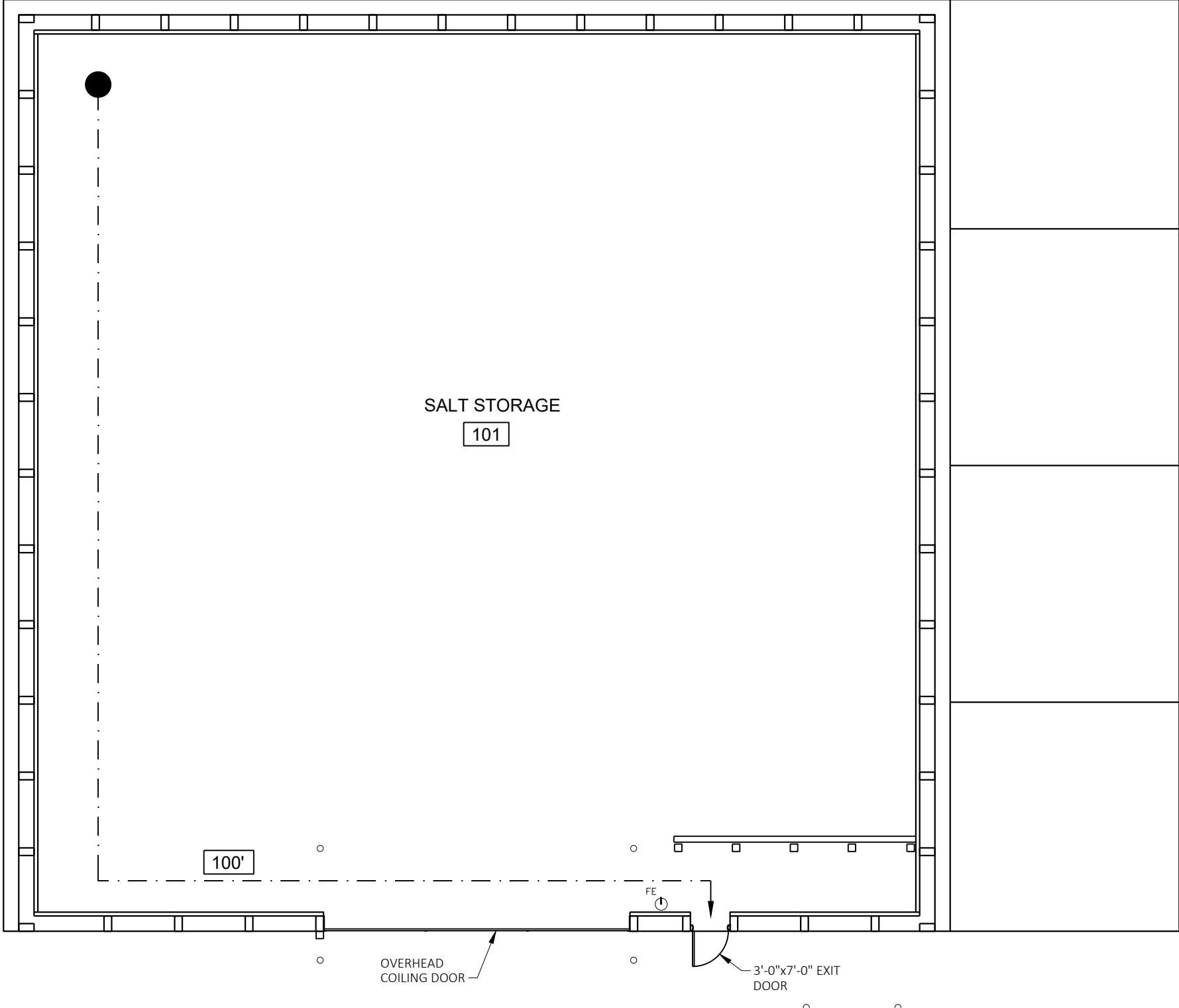
**BIORETENTION BASIN -
CULVERT PIPE ELEVATION DETAIL**

STA. 102+41



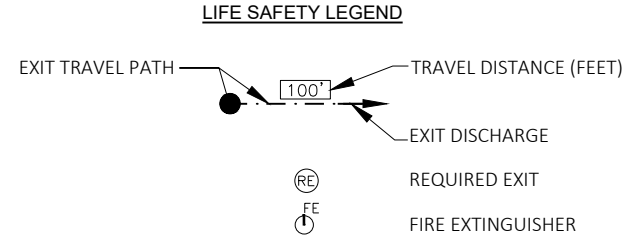
**BIORETENTION BASIN -
CULVERT PIPE ELEVATION DETAIL**

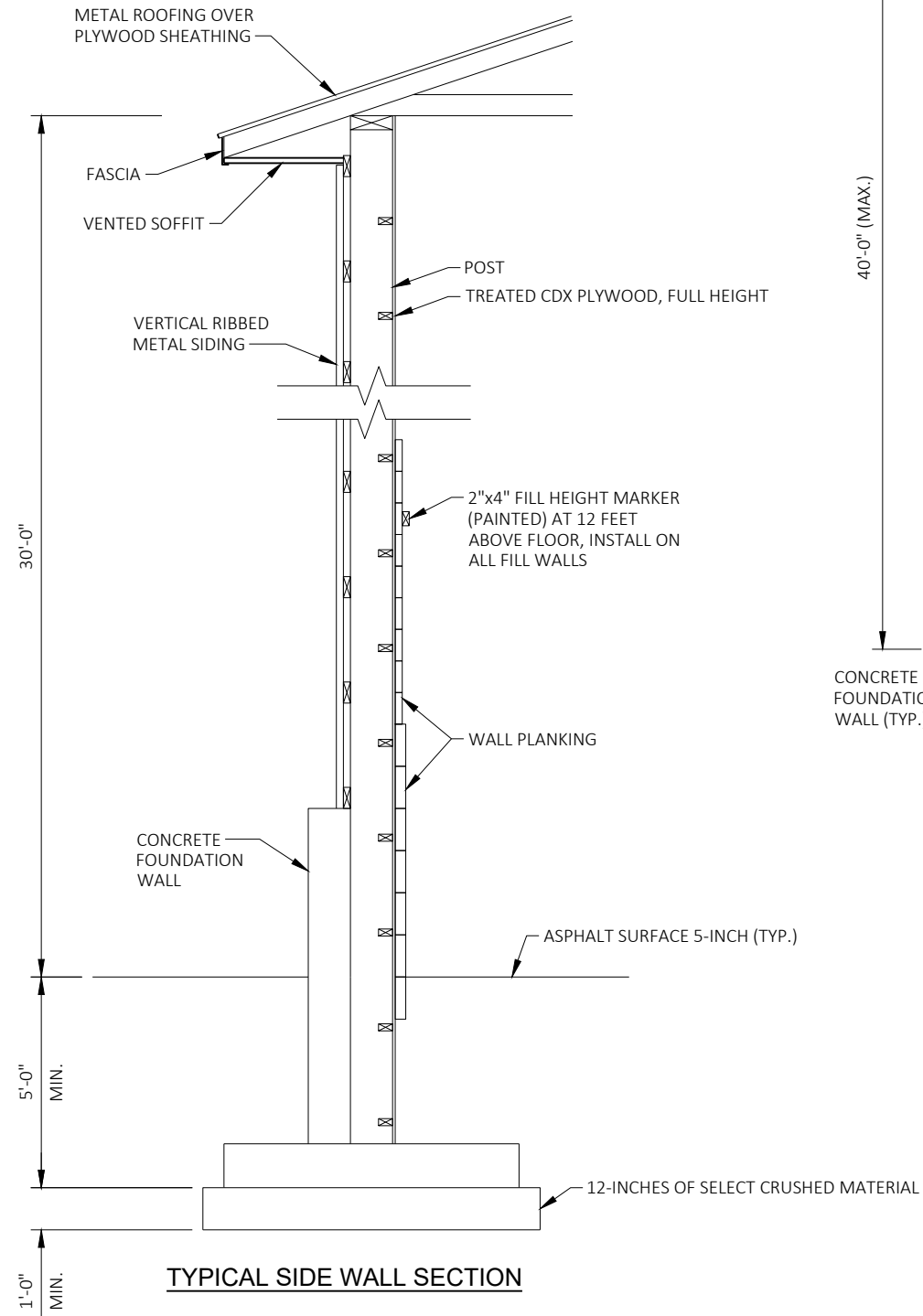
STA. 103+88



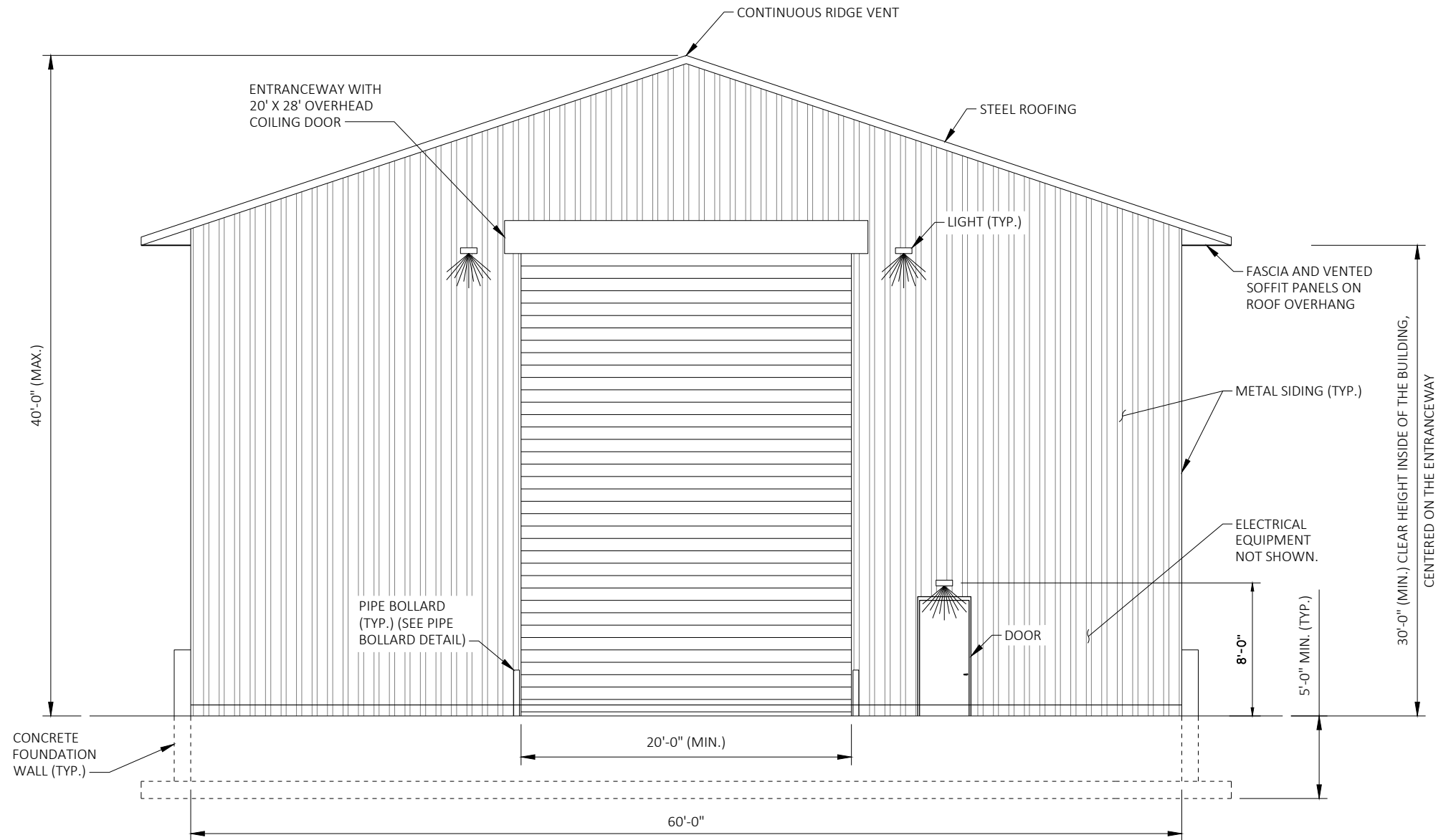
LIFE SAFETY AND EXITING PLAN

SALT STORAGE BUILDING CODE INFORMATION			
BUILDING CODE	2015 INTERNATIONAL BUILDING CODE (SPS 362)		
	2015 INTERNATIONAL MECHANICAL CODE (SPS 364)		
	2017 NATIONAL ELECTRICAL CODE (SPS 316)		
	2015 INTERNATIONAL ENERGY CONSERVATION CODE (SPS 363)		
	2015 INTERNATIONAL FIRE CODE (SPS 361)		
SCOPE OF WORK:			
CONSTRUCTION OF A NEW SALT STORAGE BUILDING			
OCCUPANCY TYPE	NON-SEPARATED USE		
USE GROUPS	S-2: LOW HAZARD STORAGE		
HAZARDOUS MATERIALS - NONE PRESENT			
CONSTRUCTION TYPE	TYPE 5B		
OCCUPANCY (FIRE AREA) SEPARATION - NONE			
GENERAL BUILDING INFORMATION			
	ALLOWABLE		ACTUAL
NO. OF STORIES	2 STORIES		1 STORY
HEIGHT	40 FEET		30 FEET AVG.
AREA PER FLOOR LEVEL (NET SF)			
	S-2	3,600 SF	
TOTAL ALLOWABLE AREA PER FLOOR LEVEL	13,500 SF	TOTAL ACTUAL AREA (FIRST FLOOR, GROSS SF)	3,600 SF
PUBLIC WAYS OR YARDS	ACCESSIBLE FROM 4 SIDES, MIN. 30-FOOT ACCESS WIDTH		
FIRE SUPPRESSION SYSTEM			
PORTABLE FIRE EXTINGUISHERS, RATED CLASS A, B, C; 10-POUND CAPACITY.			
NUMBER OF OCCUPANTS			
OCCUPANT LOAD FACTOR	500 (WAREHOUSE)		
OCCUPANT LOAD	8		
ACTUAL NUMBER OF OCCUPANTS	ZERO PERMANENT OCCUPANTS, ONLY PRESENT FOR MAINTENANCE AND OPERATION		
TRAVEL DISTANCE	S-2	EXIT ACCESS	COMMON PATH
		300 FEET	100 FEET
EXITS			
REQUIRED	PROVIDED		
SALT STORAGE 101	1	1	
NOTES:			





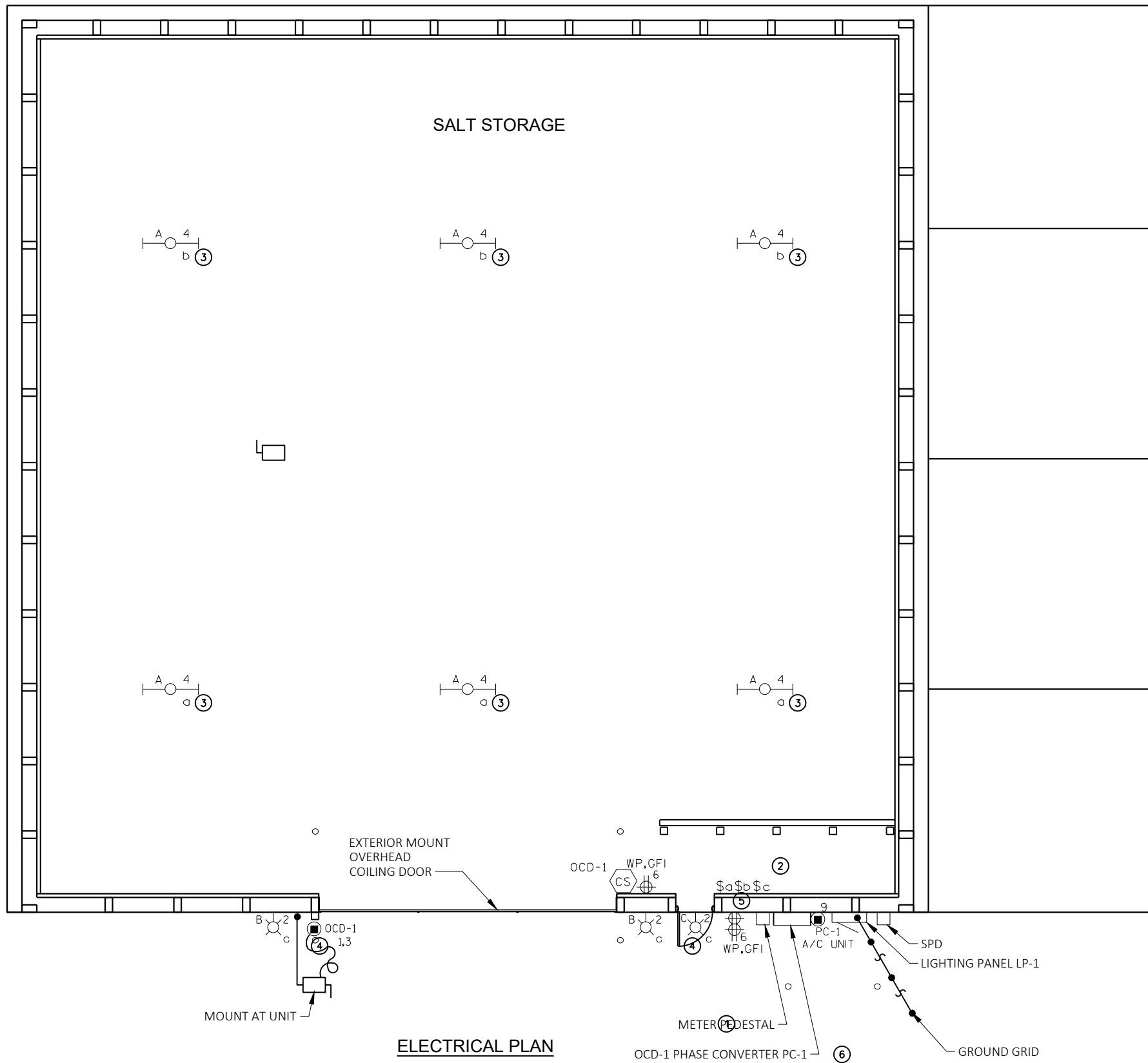
TYPICAL SIDE WALL SECTION



ELEVATION VIEW ON ENTRANCE SIDE OF BUILDING

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE COMPLETE BUILDING DESIGN IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
2. PROVIDE SOFFIT AT ALL OVERHANGS AND COMPLETELY COVER/SEAL ALL OPENINGS IN BUILDING TO PREVENT BIRDS AND RODENTS FROM ENTERING BUILDING.



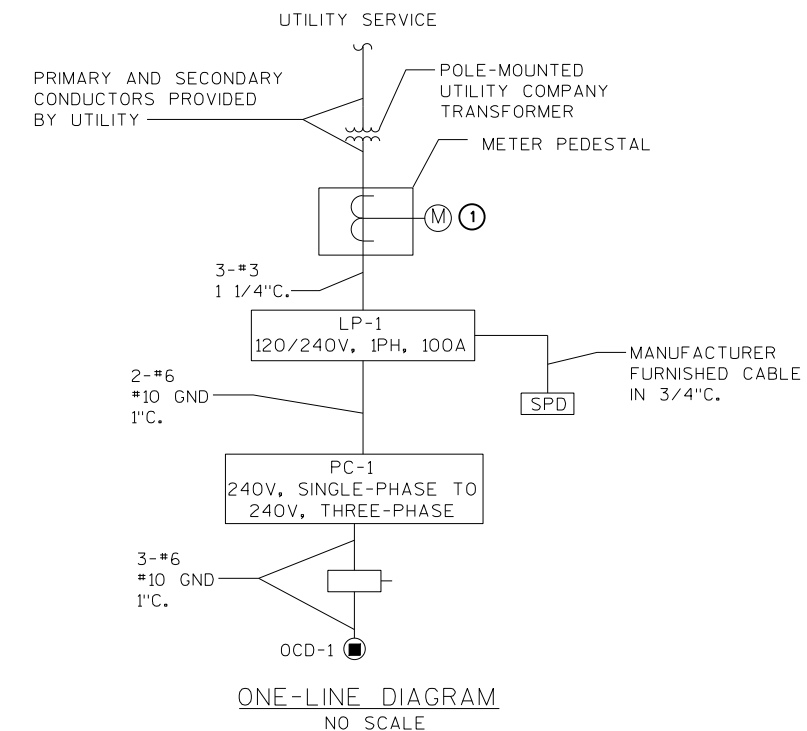
ELECTRICAL PLAN

GENERAL NOTES:

- 1. SEE SHEET E2.1 FOR SYMBOLS AND ABBREVIATIONS.

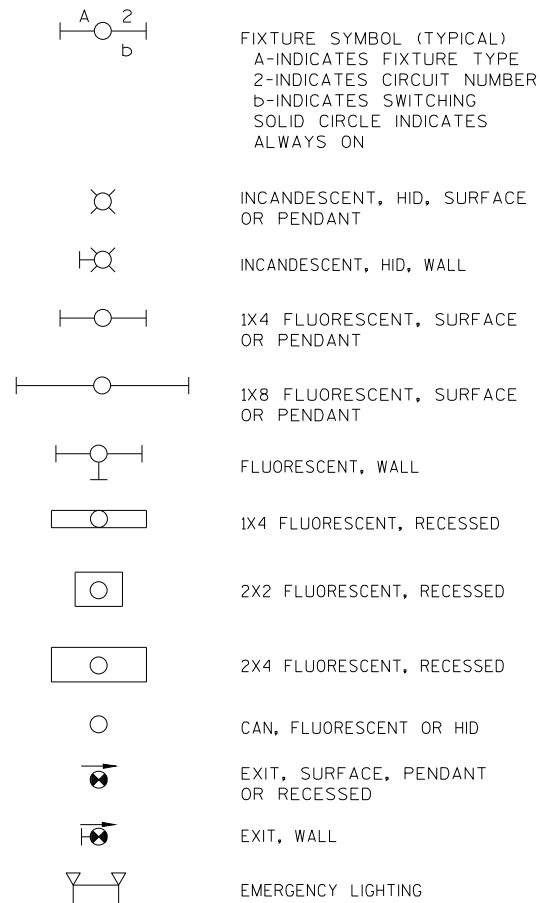
KEY NOTES:

- ① PROVIDE METER PEDESTAL AND 3" LONG SWEEP ELBOW OUT OF METER PEDESTAL FOR UTILITY COMPANY-PROVIDED SERVICE ENTRANCE CABLE PER UTILITY COMPANY REQUIREMENTS. METER PROVIDED BY UTILITY COMPANY. COORDINATE NEW UTILITY SERVICE WITH UTILITY COMPANY. REFER TO SPECIAL PROVISIONS SPECIFICATION SECTION 26 21 00 FOR ADDITIONAL INFORMATION.
- ② OVERHEAD GARAGE DOOR CONTROLS FURNISHED AS SPECIFIED IN SPECIAL PROVISIONS AND INSTALLED AND WIRED BY CONTRACTOR. REFER TO SPECIAL PROVISIONS FOR OPERATING DESCRIPTION AND ADDITIONAL CONTROLS TO BE WIRED BY CONTRACTOR. MOTOR DISCONNECT SHALL BE MOUNTED ADJACENT TO THIS OPERATOR.
- ③ SALT SHED INTERIOR LIGHT FIXTURES SHALL BE PENDANT MOUNTED 30' AFF. MOUNT FIXTURES PARALLEL WITH FLOOR.
- ④ SALT SHED EXTERIOR TYPE B FIXTURE SHALL BE MOUNTED 28' AFG.
- ⑤ SALT SHED EXTERIOR TYPE C FIXTURE SHALL BE MOUNTED 12" ABOVE SERVICE DOOR.
- ⑥ PHASE CONVERTER MANUFACTURED PHASE CONDUCTOR SHALL BE IDENTIFIED PER THE NATIONAL ELECTRICAL CODE.

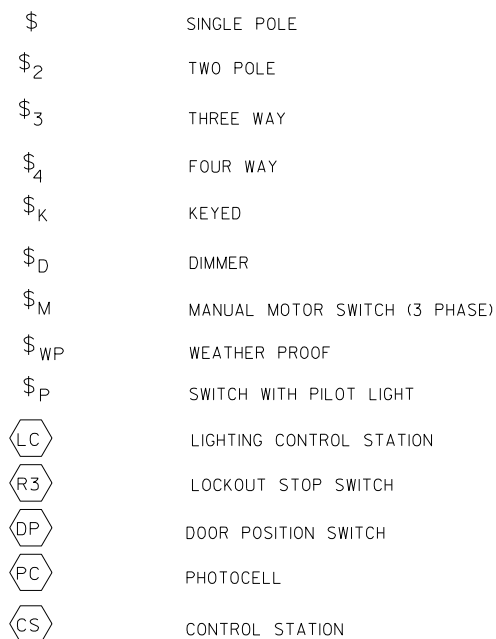


ELECTRICAL SYMBOLS

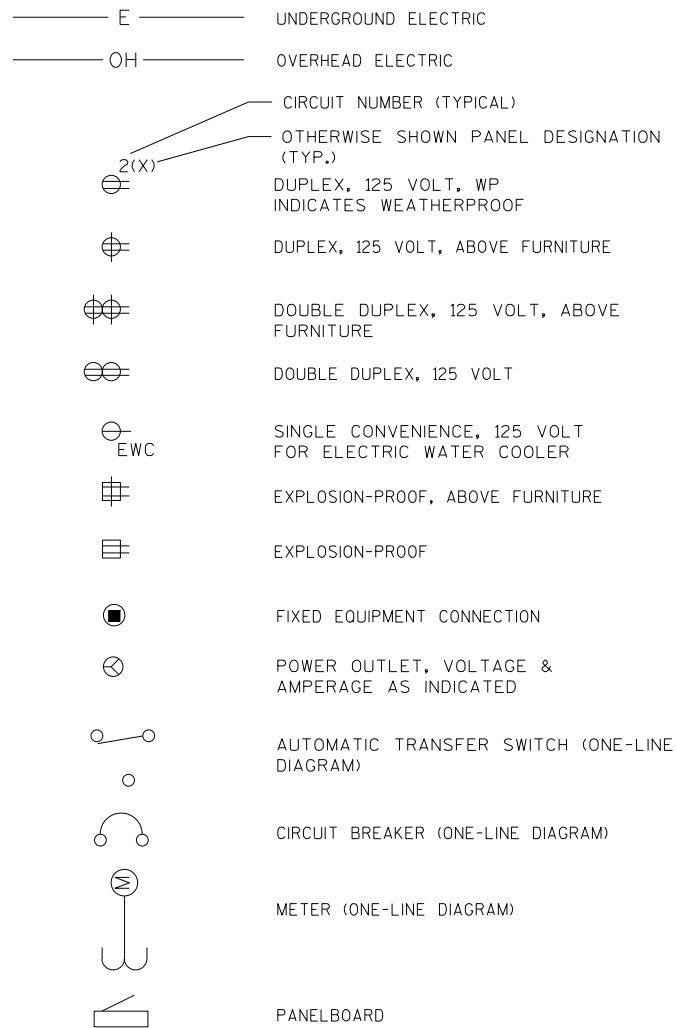
LIGHTING



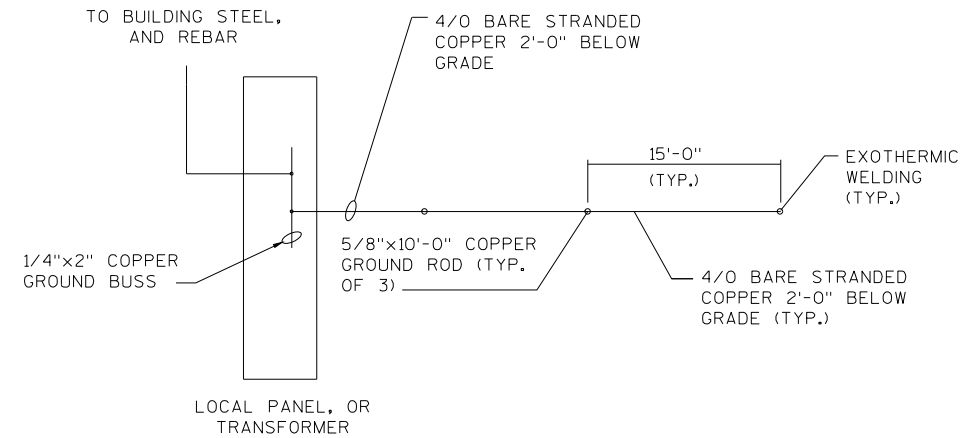
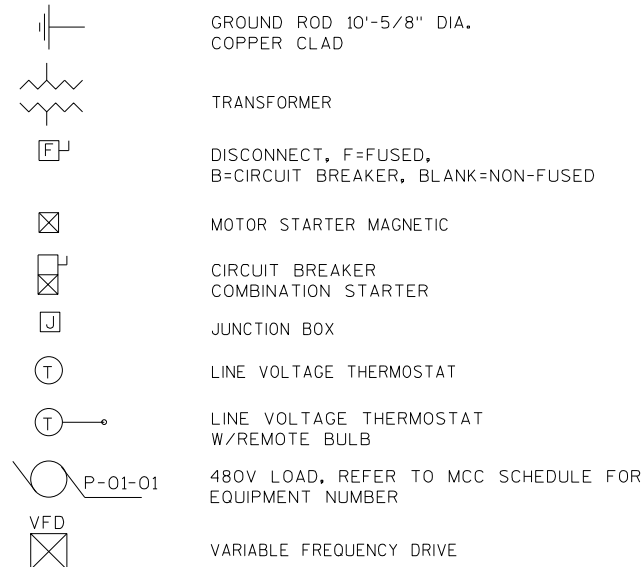
SWITCHES



POWER SYMBOLS



EQUIPMENT AND WIRING

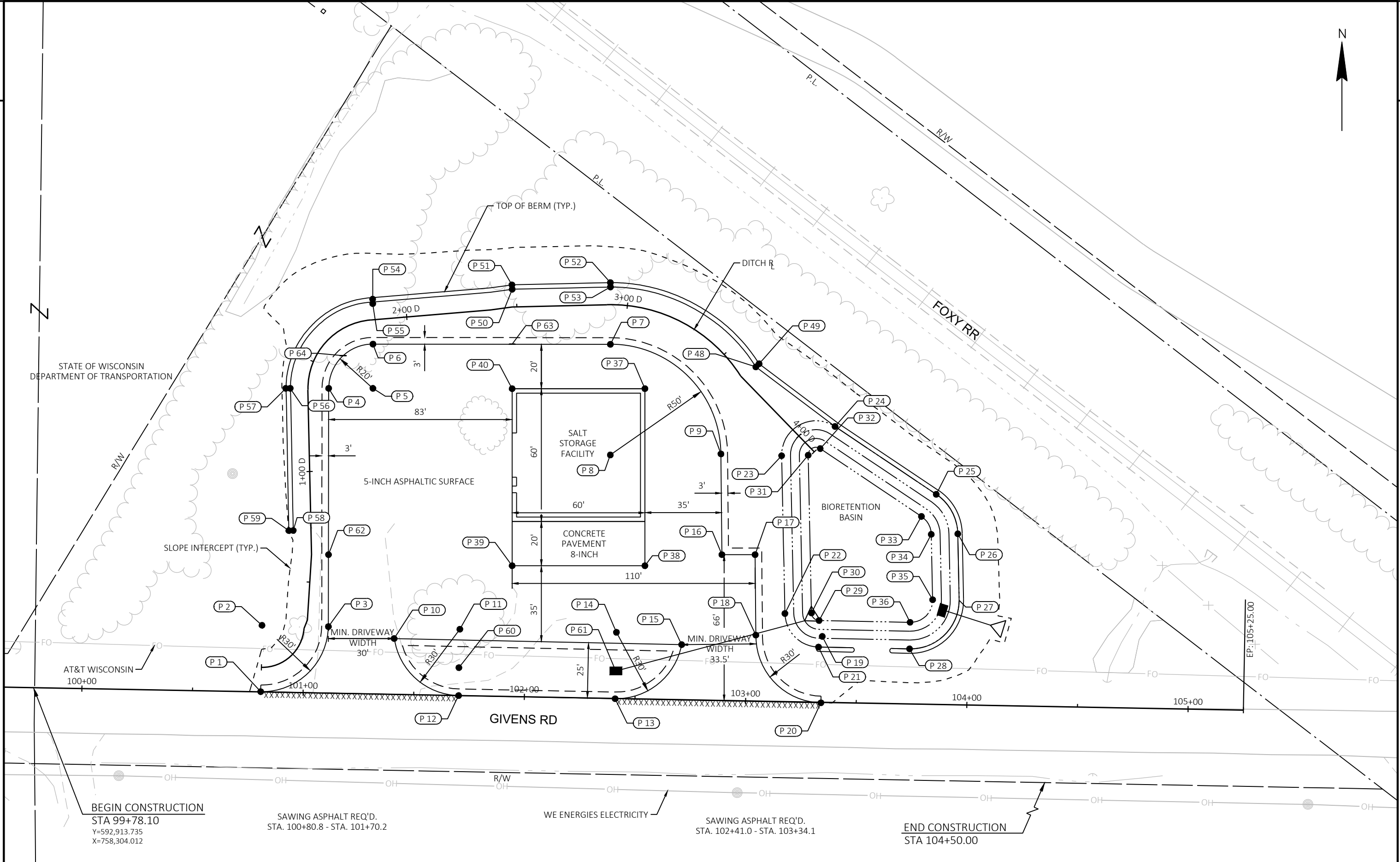


GROUND GRID DETAIL
E2.1 NO SCALE

ABBREVIATIONS

- SPD SURGE PROTECTIVE DEVICE
- XFMR TRANSFORMER
- OSD OVERHEAD SECTIONAL DOOR
- OCD OVERHEAD COILING DOOR
- EF EXHAUST FAN
- IR INFRARED HEATER
- LP LIGHTING PANEL (120/240V)
- MCB MAIN CIRCUIT BREAKER
- MLO MAIN LUGS ONLY
- GFI GROUND FAULT INTERRUPTER
- CT CURRENT TRANSFORMER
- GND GROUND
- C CONDUIT
- H-O-A HAND-OFF-AUTO
- FVNR FULL VOLTAGE, NON-REVERSING
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE

LIGHTING PANEL LP-1													
Service: 120/240V, 1φ, 3W			Enclosure: NEMA 4X 304 Stainless Steel				Mounting: Surface		Main Bus: Copper				
Main Breaker: 100A MCB Service Entrance Rated							SCIC: 10 kAIC						
Location: Salt Storage Building Exterior													
Room Number/Description	Amps	Poles	Ckt. #	Phase A	Phase B	Phase A	Phase B	Ckt. #	Amps	Poles	Room Number/Description		
OCD-1, PC-1	80	2	1	2000		266		2	20	1	EXTERIOR LIGHTS		
			3		2000		1074	4	20	1	INTERIOR LIGHTS		
SPARE	30	2	5	0		540		6	20	1	RECEPTACLES		
			7		0			8					
PC-1 A/C Unit	20	1	9	500		0		10	30	2	SPD		
SPARE	20	1	11		0			12	20	1	SPARE		
SPARE	20	1	13	0		0		14	20	1	SPARE		
SPARE	20	1	15		0			16	20	1	SPARE		
SPARE	20	1	17	0		0		18	20	1	SPARE		
SPARE	20	1	19		0			20	20	1	SPARE		
SPARE	20	1	21	0		0		22	20	1	SPARE		
SPARE	20	1	23		0			24	20	1	SPARE		
SPARE	20	1	25	0		0		26	20	1	SPARE		
SPARE	20	1	27		0			28	20	1	SPARE		
SPARE	20	1	29	0		0		30	20	1	SPARE		
Total Load per Phase per Side (VA)				2500	2000	806	1074						
Total Load Phase A (VA)				3306	VA					Total Connected Load		27	A
Total Load Phase B (VA)				3074	VA					Total Connected Load + 25%		33	A
Total Connected Load (VA)				6380	VA					Spare 25%		8	A
								Feeder Load		42	A		



BEGIN CONSTRUCTION
 STA 99+78.10
 Y=592,913.735
 X=758,304.012

SAWING ASPHALT REQ'D.
 STA. 100+80.8 - STA. 101+70.2

WE ENERGIES ELECTRICITY

SAWING ASPHALT REQ'D.
 STA. 102+41.0 - STA. 103+34.1

END CONSTRUCTION
 STA 104+50.00

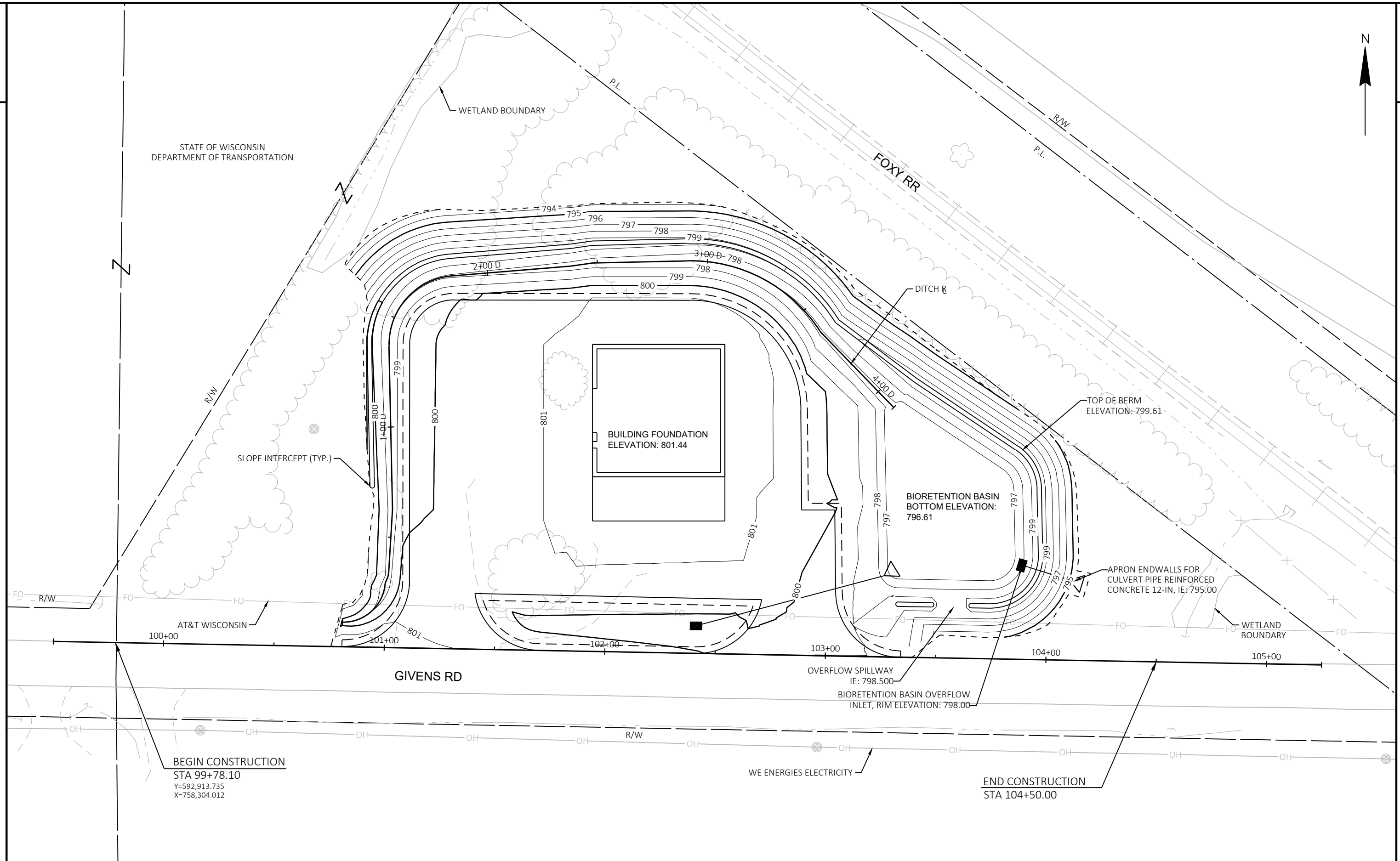
PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	PLAN DETAILS	SHEET	E
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STATION & OFFSET TABLE								
POINT	STATION	OFFSET	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	COMMENT
P 1	100+80.82	-0.137 LT	-	-	592911.968	758406.715	801.76	
P 2	100+80.86	-30.141 LT	-	-	592941.967	758407.313	801.23	R=30'
P 3	101+10.87	-30.099 LT	-	-	592941.369	758437.312	800.46	
P 4	101+08.99	-137.744 LT	1+37.61 D	9.38 RT	593049.030	758437.427	799.75	
P 5	101+28.98	-138.099 LT	1+37.85 D	29.38 RT	593049.015	758457.427	800.17	R=20'
P 6	101+28.63	-158.097 LT	1+83.78 D	10.96 RT	593069.016	758457.448	799.96	
P 7	102+35.94	-159.981 LT	2+92.30 D	17.88 RT	593068.911	758564.767	801.04	
P 8	102+36.81	-109.988 LT	2+90.71 D	67.88 RT	593018.911	758564.719	801.44	R=50'
P 9	102+86.79	-111.383 LT	3+81.35 D	30.90 RT	593019.380	758614.717	800.74	
P 10	101+40.67	-25.243 LT	0+28.25 D	40.97 RT	592935.961	758467.020	800.42	
P 11	101+70.29	-30.017 LT	0+32.92 D	69.01 RT	592940.186	758496.721	800.77	R=30'
P 12	101+70.24	-0.017 LT	0+23.63 D	75.28 RT	592910.192	758496.123	800.52	
P 13	102+41.02	0.081 RT	0+26.26 D	143.94 RT	592908.783	758566.882	800.05	
P 14	102+41.06	-29.919 LT	4+06.32 D	120.93 RT	592938.777	758567.480	800.73	R=30'
P 15	102+70.64	-24.902 LT	-	-	592933.212	758596.959	800.56	
P 16	102+88.06	-65.892 LT	-	-	592973.872	758615.143	800.37	
P 17	103+03.06	-66.174 LT	-	-	592973.876	758630.145	800.04	
P 18	103+04.08	-29.832 LT	0+38.49 D	202.69 RT	592937.522	758630.488	799.34	
P 19	103+34.09	-29.790 LT	0+39.74 D	232.67 RT	592936.924	758660.495	798.40	R=30'
P 20	103+34.05	0.210 RT	0+27.54 D	235.96 RT	592906.930	758659.897	798.81	
P 21	103+32.51	-24.952 LT	0+34.84 D	231.30 RT	592932.116	758658.825	799.61	
P 22	103+17.04	-39.841 LT	0+49.05 D	215.20 RT	592947.289	758643.633	798.81	
P 23	103+14.23	-111.087 LT	4+01.02 D	11.78 RT	593018.575	758642.141	798.90	
P 24	103+38.10	-124.733 LT	4+08.34 D	14.73 LT	593031.776	758666.266	799.61	
P 25	103+84.41	-94.929 LT	0+83.53 D	282.87 RT	593001.119	758712.014	799.61	
P 26	103+94.49	-77.297 LT	0+65.51 D	292.23 RT	592983.304	758721.762	799.61	
P 27	103+95.67	-47.315 LT	0+59.90 D	293.44 RT	592953.304	758722.385	799.61	
P 28	103+73.65	-24.907 LT	0+36.56 D	272.40 RT	592931.309	758699.953	799.61	
P 29	103+32.52	-36.952 LT	0+46.83 D	230.80 RT	592944.114	758659.061	796.61	
P 30	103+29.03	-40.314 LT	0+50.04 D	227.16 RT	592947.540	758655.630	796.61	

STATION & OFFSET TABLE								
POINT	STATION	OFFSET	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION	COMMENT
P 31	103+26.22	-111.561 LT	4+09.20 D	2.99 RT	593018.826	758654.138	796.61	
P 32	103+31.61	-114.642 LT	1+05.36 D	230.91 RT	593021.807	758659.586	796.61	
P 33	103+77.92	-84.838 LT	0+73.71 D	275.98 RT	592991.151	758705.333	796.61	
P 34	103+82.50	-76.824 LT	0+65.52 D	280.23 RT	592983.053	758709.764	796.61	
P 35	103+83.66	-47.301 LT	0+59.37 D	281.45 RT	592953.514	758710.382	796.61	
P 36	103+73.66	-36.907 LT	0+48.55 D	271.90 RT	592943.306	758700.188	796.61	
P 37	102+51.88	-140.238 LT	3+23.99 D	34.32 RT	593048.876	758580.344	801.44	
P 38	102+53.36	-60.252 LT	3+93.67 D	90.74 RT	592968.876	758580.344	801.44	
P 39	101+93.37	-59.140 LT	-	-	592968.876	758520.344	801.44	
P 40	101+91.89	-139.127 LT	2+42.73 D	36.56 RT	593048.876	758520.344	801.44	
P 48	103+01.81	-151.016 LT	3+64.07 D	7.80 LT	593058.727	758630.466	798.76	
P 49	103+03.27	-152.429 LT	3+64.11 D	9.83 LT	593060.113	758631.950	798.70	
P 50	101+91.09	-184.042 LT	2+48.08 D	8.00 LT	593093.799	758520.372	799.46	
P 51	101+90.92	-186.037 LT	2+48.00 D	10.00 LT	593095.797	758520.247	799.46	
P 52	102+35.41	-187.873 LT	2+92.29 D	10.02 LT	593096.809	758564.755	799.20	
P 53	102+35.49	-185.875 LT	2+92.33 D	8.02 LT	593094.809	758564.800	799.20	
P 54	101+28.13	-178.400 LT	1+85.33 D	9.29 LT	593089.325	758457.317	799.83	
P 55	101+28.20	-176.404 LT	1+85.20 D	7.29 LT	593087.328	758457.350	799.66	
P 56	100+91.60	-137.433 LT	1+37.60 D	8.01 LT	593049.042	758420.035	800.07	
P 57	100+89.60	-137.353 LT	1+37.57 D	10.01 LT	593048.999	758418.035	800.02	
P 58	100+94.18	-73.215 LT	0+73.51 D	8.00 LT	592984.786	758421.429	800.42	
P 59	100+92.18	-73.134 LT	0+73.51 D	10.00 LT	592984.743	758419.430	800.42	
P 60	101+70.17	-12.635 LT	0+26.13 D	71.97 RT	592922.809	758496.287	799.69	
P 61	102+41.05	-12.442 LT	0+27.72 D	142.12 RT	592921.303	758567.147	799.34	
P 62	101+10.30	-62.602 LT	-	-	592973.876	758437.347	799.78	
P 63	101+91.52	-159.200 LT	2+45.52 D	16.68 RT	593068.954	758520.344	801.04	
P 64	101+15.25	-152.635 LT	1+61.61 D	9.88 RT	593063.803	758443.962	799.74	



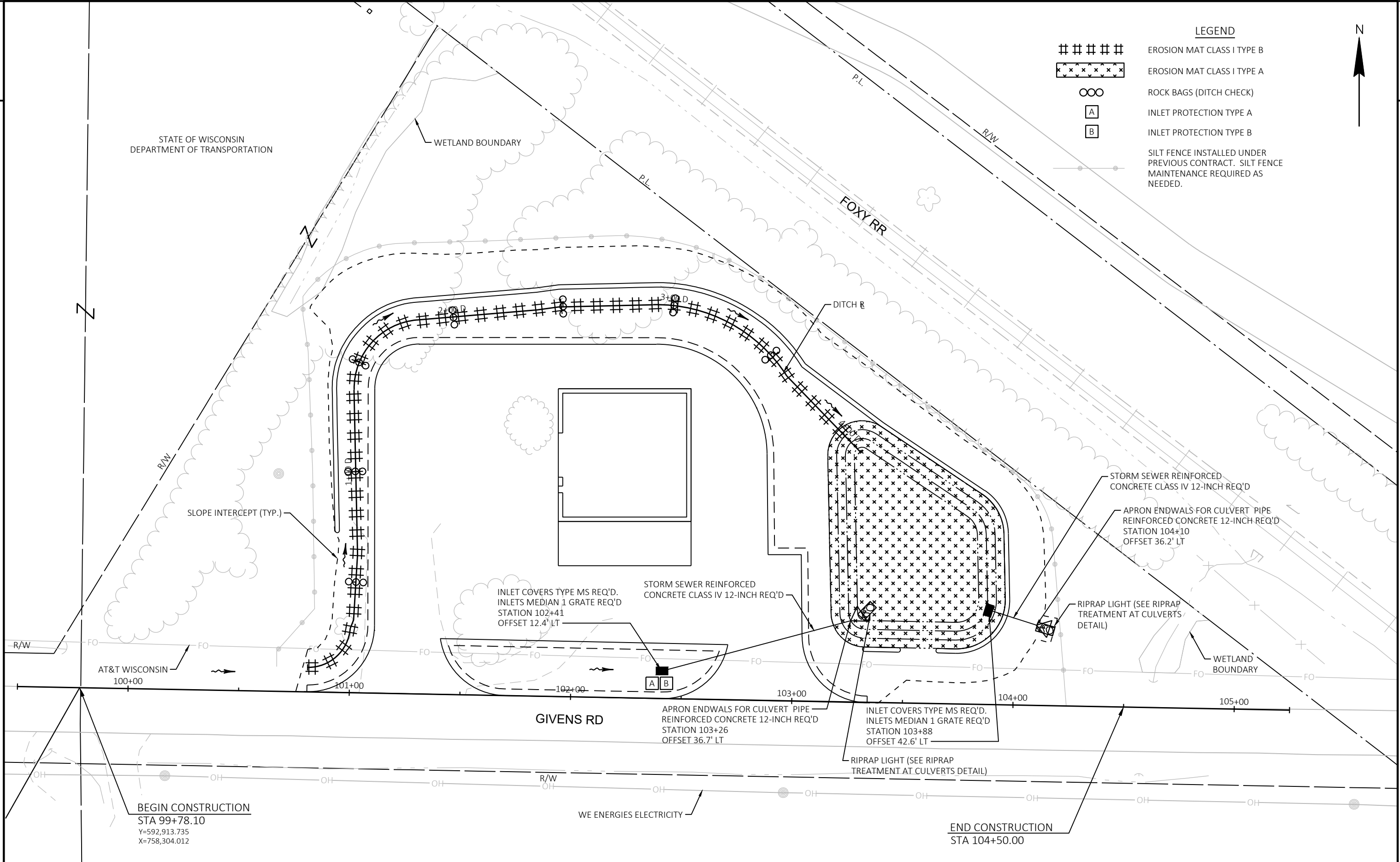
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



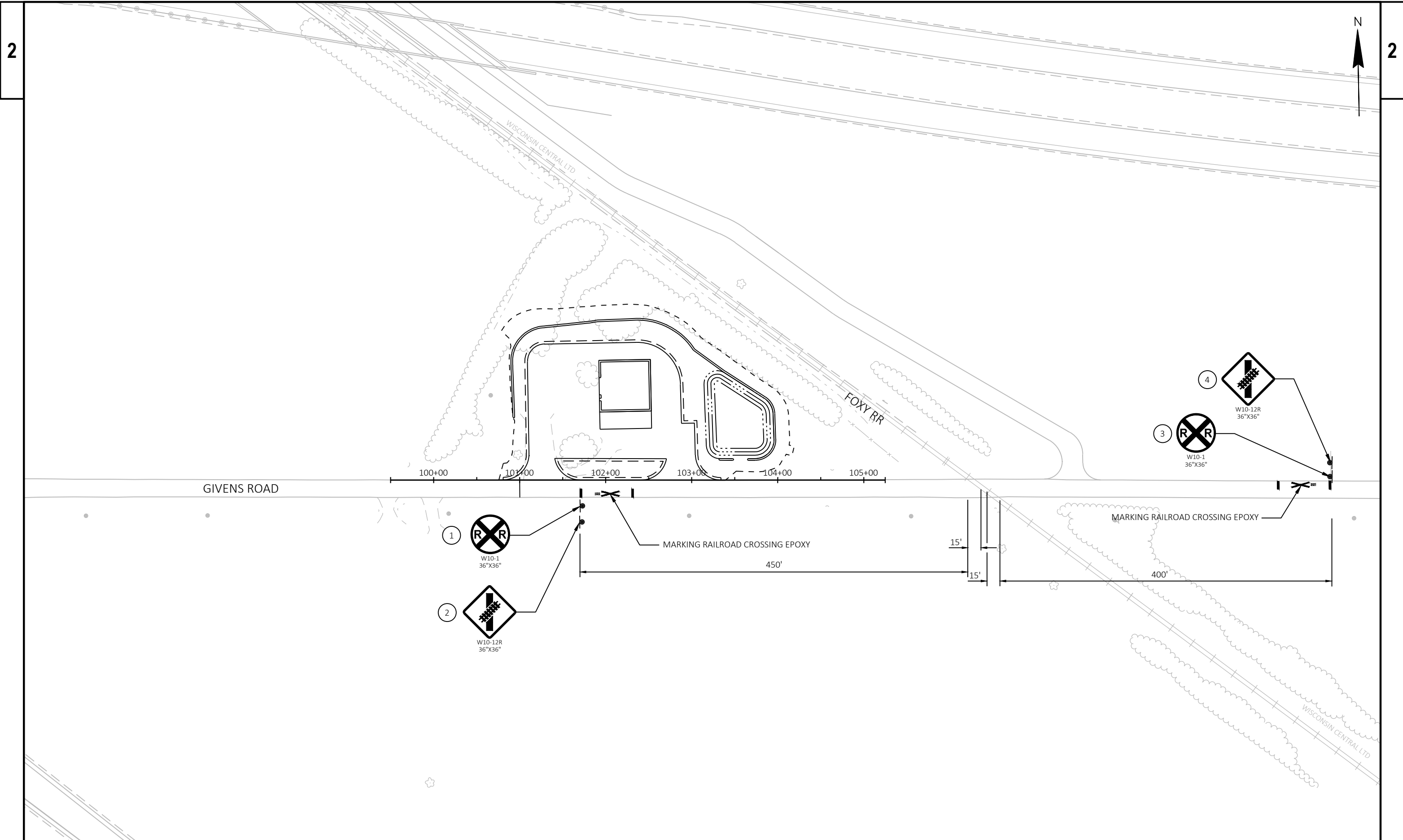
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

- ##### EROSION MAT CLASS I TYPE B
- xxxxxxx EROSION MAT CLASS I TYPE A
- ooo ROCK BAGS (DITCH CHECK)
- A INLET PROTECTION TYPE A
- B INLET PROTECTION TYPE B
- SILT FENCE INSTALLED UNDER PREVIOUS CONTRACT. SILT FENCE MAINTENANCE REQUIRED AS NEEDED.



PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	EROSION CONTROL	SHEET	E
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2




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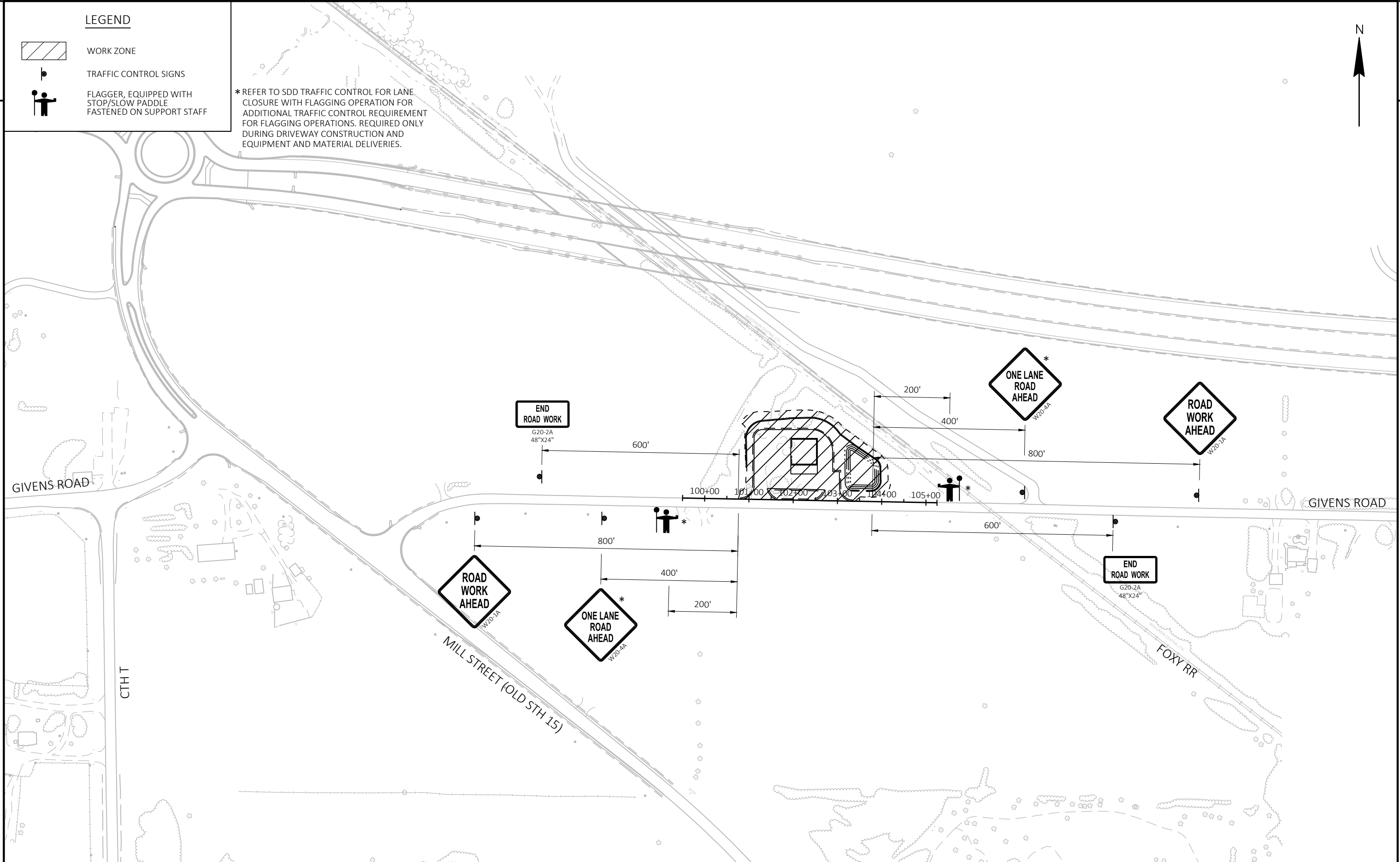
PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	PERMANENT SIGNING AND PAVEMENT MARKING	SHEET	E
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FILE NAME : S:\MAD\1000-1099\1089\938\DRAWINGS\CAD\CIVIL3D\11467500\SHEETSPLAN\024501-PM.DWG PLOT DATE : 1/11/2024 8:10 AM PLOT BY : GRIMME, SARA PLOT NAME : PLOT SCALE : ##### WISDOT/CADDS SHEET 44

LEGEND

-  WORK ZONE
-  TRAFFIC CONTROL SIGNS
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

*REFER TO SDD TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION FOR ADDITIONAL TRAFFIC CONTROL REQUIREMENT FOR FLAGGING OPERATIONS. REQUIRED ONLY DURING DRIVEWAY CONSTRUCTION AND EQUIPMENT AND MATERIAL DELIVERIES.



PROJECT NO: 1146-75-81

HWY: STH 15

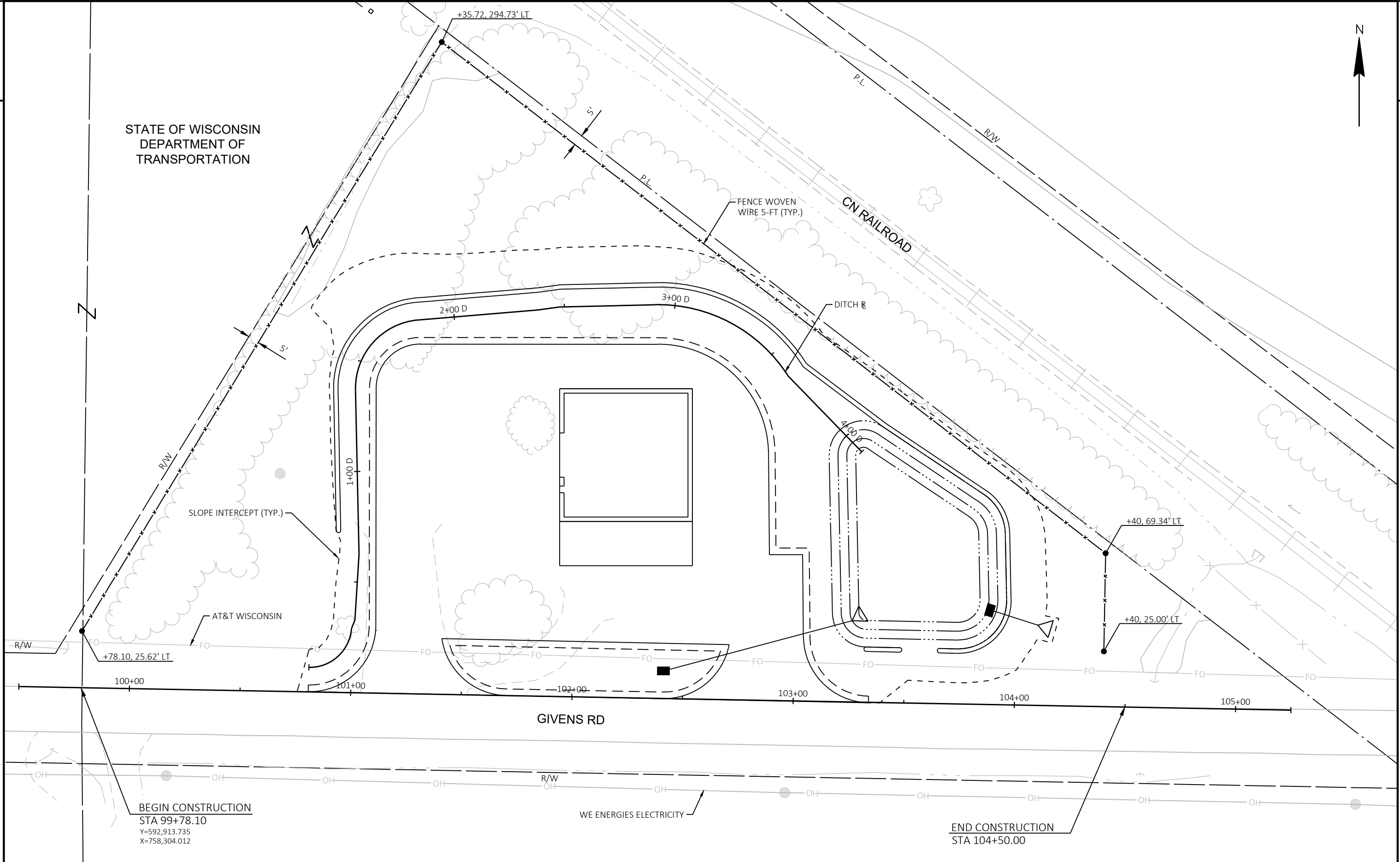
COUNTY: OUTAGAMIE

TRAFFIC CONTROL

SHEET

E

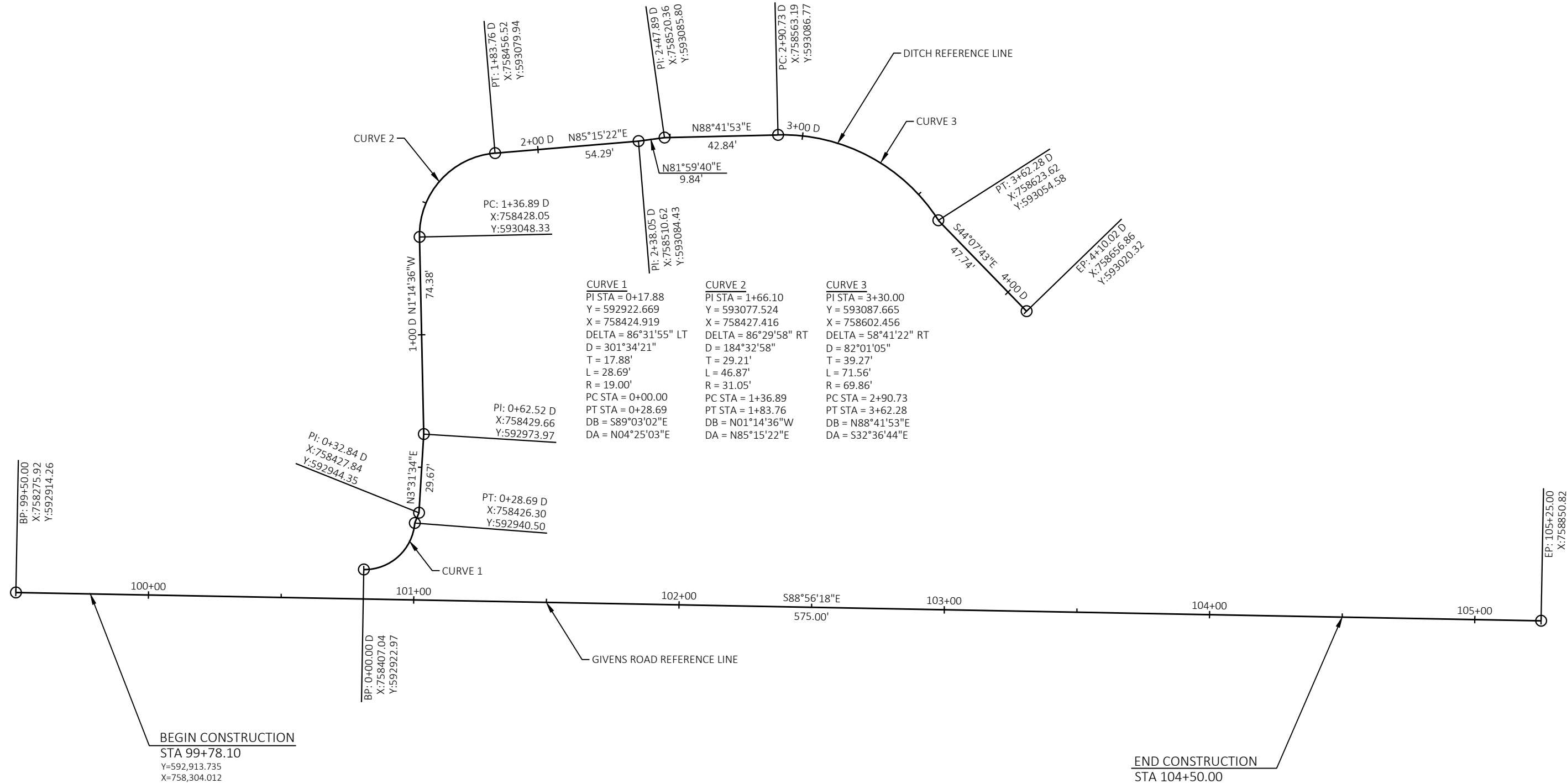
STATE OF WISCONSIN
DEPARTMENT OF
TRANSPORTATION



BEGIN CONSTRUCTION
STA 99+78.10
Y=592,913.735
X=758,304.012

END CONSTRUCTION
STA 104+50.00

PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	FENCING	SHEET	E
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Estimate Of Quantities

1146-75-81

Line	Item	Item Description	Unit	Total	Qty
0002	201.0215	Grubbing	ACRE	1.000	1.000
0004	205.0100	Excavation Common	CY	619.000	619.000
0006	208.0100	Borrow	CY	5,462.000	5,462.000
0008	213.0100	Finishing Roadway (project) 01. 1146-75-81	EACH	1.000	1.000
0010	305.0110	Base Aggregate Dense 3/4-Inch	TON	80.000	80.000
0012	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,400.000	2,400.000
0014	312.0110	Select Crushed Material	TON	2,010.000	2,010.000
0016	415.0080	Concrete Pavement 8-Inch	SY	135.000	135.000
0018	455.0605	Tack Coat	GAL	70.000	70.000
0020	465.0105	Asphaltic Surface	TON	780.000	780.000
0022	522.1012	Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	EACH	2.000	2.000
0024	606.0100	Riprap Light	CY	4.000	4.000
0026	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	110.000	110.000
0028	611.0642	Inlet Covers Type MS	EACH	2.000	2.000
0030	611.3901	Inlets Median 1 Grate	EACH	2.000	2.000
0032	616.0100	Fence Woven Wire (height) 01. 5-Foot	LF	735.000	735.000
0034	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1146-75-81	EACH	1.000	1.000
0036	619.1000	Mobilization	EACH	1.000	1.000
0038	624.0100	Water	MGAL	25.000	25.000
0040	625.0500	Salvaged Topsoil	SY	2,895.000	2,895.000
0042	627.0200	Mulching	SY	7,065.000	7,065.000
0044	628.1520	Silt Fence Maintenance	LF	1,650.000	1,650.000
0046	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0048	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0050	628.2002	Erosion Mat Class I Type A	SY	510.000	510.000
0052	628.2004	Erosion Mat Class I Type B	SY	440.000	440.000
0054	628.7005	Inlet Protection Type A	EACH	2.000	2.000
0056	628.7010	Inlet Protection Type B	EACH	2.000	2.000
0058	628.7560	Tracking Pads	EACH	1.000	1.000
0060	628.7570	Rock Bags	EACH	45.000	45.000
0062	629.0210	Fertilizer Type B	CWT	4.300	4.300
0064	630.0130	Seeding Mixture No. 30	LB	69.000	69.000
0066	630.0200	Seeding Temporary	LB	104.000	104.000
0068	630.0300	Seeding Borrow Pit	LB	120.000	120.000
0070	630.0500	Seed Water	MGAL	68.000	68.000
0072	633.5200	Markers Culvert End	EACH	2.000	2.000
0074	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	4.000	4.000
0076	637.2230	Signs Type II Reflective F	SF	36.000	36.000
0078	642.5201	Field Office Type C	EACH	1.000	1.000
0080	643.0300	Traffic Control Drums	DAY	1,568.000	1,568.000
0082	643.0900	Traffic Control Signs	DAY	784.000	784.000
0084	643.5000	Traffic Control	EACH	1.000	1.000
0086	645.0130	Geotextile Type R	SY	12.000	12.000
0088	646.5320	Marking Railroad Crossing Epoxy	EACH	2.000	2.000
0090	650.4000	Construction Staking Storm Sewer	EACH	2.000	2.000
0092	650.4500	Construction Staking Subgrade	LF	339.000	339.000
0094	650.5000	Construction Staking Base	LF	339.000	339.000
0096	650.7000	Construction Staking Concrete Pavement	LF	60.000	60.000
0098	650.9911	Construction Staking Supplemental Control (project) 01. 1145-75-81	EACH	1.000	1.000
0100	650.9920	Construction Staking Slope Stakes	LF	339.000	339.000

Estimate Of Quantities

1146-75-81

Line	Item	Item Description	Unit	Total	Qty
0102	690.0150	Sawing Asphalt	LF	182.000	182.000
0104	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0106	SPV.0035	Special 01. Engineered Soils	CY	205.000	205.000
0108	SPV.0060	Special 01. Salt Storage Facility	EACH	1.000	1.000

3

3

GRUBBING			
CATEGORY	STATION - STATION	LOCATION	201.0215 ACRE
0010	101+00 - 103+00	LT	1

CONCRETE PAVEMENT 8-INCH			
CATEGORY	STATION - STATION	LOCATION	415.0080 SY
0010	100+81 - 103+34	LT	135

ASPHALTIC SURFACE				
CATEGORY	STATION - STATION	LOCATION	465.0105 TON	455.0605 TACK COAT GAL
0010	100+81 - 103+34	LT	665	60
	INSIDE BUILDING	LT	115	10
TOTALS			780	70

BASE AGGREGATE SUMMARY						
CATEGORY	STATION - STATION	LOCATION	312.0110 SELECT CRUSHED MATERIAL TON	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL
0010	100+81 - 103+34	LT	1955	80	2,400	25

* ADDITIONAL QUANTITIES LISTED ELSEWHERE.

FENCE WOVEN WIRE 5-FT			
CATEGORY	STATION - STATION	LOCATION	616.0100 LF
0010	99+78 - 104+25	LT	735

STORM SEWER SUMMARY										
CATEGORY	STATION	LOCATION	522.1012 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH EACH	608.0412 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH LF	611.3901 INLETS MEDIAN 1 GRATE EACH	611.0642 INLET COVERS TYPE MS EACH	628.7005 INLET PROTECTION TYPE A EACH	628.7010 INLET PROTECTION TYPE B EACH	633.5200 MARKERS CULVERT END EACH	650.4000 CONSTRUCTION STAKING STORM SEWER EACH
0010	102+41	12.5' LT	---	88	1	1	1	1	---	1
	103+26	36.8' LT	1	---	---	---	---	---	1	---
	103+88	42.6' LT	---	22	1	1	1	1	---	1
	104+10	36.2' LT	1	---	---	---	---	---	1	---
TOTALS			2	110	2	2	2	2	2	2

EARTHWORK SUMMARY

CATEGORY	LOCATION	STATION - STATION	205.0100		AVAILABLE MATERIAL (3)	UNEXPANDED FILL	EXPANDED FILL (4)	MASS ORDINATE +/- (5)	208.0100	* 312.0110
			EXCAVATION COMMON (1)	EBS EXCAVATION (2)					BORROW	SELECT CRUSHED MATERIAL (6)
			CUT							
				5% OF CUT					FACTOR 1.25	
			CY	CY	CY	CY	CY	CY	CY	TON
0010	STH 15 - SALT SHED	101+40 - 104+50	162	8	162	3,086	3,858	-3,696	3,696	15
	STH 15 - DITCH	0+00 D - 4+00 D	428	21	428	1,755	2,193	-1,766	1,766	40
		SUBTOTALS	589	29	589	4,841	6,051	-5,462	5,462	55
		TOTALS		619					5,462	55

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

NOTES:

- EXCAVATION COMMON IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100.
- EBS EXCAVATION TO BE BACKFILLED WITH SELECT CRUSHED MATERIAL.
- AVAILABLE MATERIAL = CUT
- EXPANDED FILL = UNEXPANDED FILL * EXPANDED FILL FACTOR. EXPANDED FILL FACTOR = 1.25.
- MASS ORDINATE = CUT - (FILL * FILL FACTOR)
PLUS MASS ORDINATE QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS MASS ORDINATE QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
- USED FOR BACKFILL OF EBS

RIPRAP SUMMARY

CATEGORY	STATION	LOCATION	606.0100	645.0130
			RIPRAP LIGHT CY	GEOTEXTILE TYPE R SY
0010	103+26	36.8' LT	2	6
	104+12	35.5' LT	2	6
		TOTALS	4	12

SILT FENCE

CATEGORY	STATION - STATION	LOCATION	628.1520
			SLIT FENCE MAINTENANCE LF
0010	100+67 - 104+24	LT	1,320
	UNDISTRIBUTED	LT	330
		TOTALS	1,650

FINISHING ITEMS

CATEGORY	STATION - STATION	LOCATION	625.0500	627.0200	629.0210	630.0130	630.0200	630.0300	630.0500
			SALVAGED TOPSOIL SY	MULCHING SY	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEEDING TEMPORARY LB	SEEDING BORROW PIT LB	SEED WATER MGAL
0010	100+75 - 104+14	LT	2,205	2,205	1.4	40	60	---	25
	103+50	POND	---	---	---	13	20	---	5
	ELECTRIC UTILITY GROUND RESTORATION	LT	110	110	0.1	2	3	---	1
	BORROW PIT	---	---	3,335	1.9	---	---	95	37
	UNDISTRIBUTED		580	1,415	0.9	14	21	25	
		TOTALS	2,895	7,065	4.3	69	104	120	68

MOBILIZATIONS EROSION CONTROL

CATEGORY	628.1905 EACH
0010	2
	MOBILIZATIONS EMERGENCY EROSION CONTROL
CATEGORY	628.1910 EACH
0010	2

3

3

TRACKING PADS		EROSION MAT		628.2002	628.2004
CATEGORY	628.7560	CATEGORY	STATION - STATION	CLASS I	CLASS I
	EACH			TYPE A	TYPE B
				SY	SY
0010	1	0010	0+00 D - 3+96 D 103+50	---	350
			UNDISTRIBUTED	100	90
			TOTALS	510	440

ROCK BAGS			
CATEGORY	STATION	LOCATION	628.7570
			EACH
0010	0+50 D	LT & RT	5
	1+00 D	LT & RT	5
	1+50 D	LT & RT	5
	2+00 D	LT & RT	5
	2+50 D	LT & RT	5
	3+00 D	LT & RT	5
	3+50 D	LT & RT	5
	UNDISTRIBUTED		10
	TOTAL		45

FIELD OFFICE TYPE C		
CATEGORY	STATION - STATION	642.5201
		EACH
0010	1146-75-81	1

PERMANENT SIGNING SUMMARY

CATEGORY	SIGN NO.	APPROX. STA.	LOC.	SIGN CODE	SIGN MESSAGE	SIGN SIZE (W x H) IN	637.2230 REFLECTIVE F SF	634.0614 POSTS WOOD 4x6-INCH X 14-FT EACH
0010	1	100+25	LT	W10-1	RAILROAD CROSSING	36 x 36	9.00	1
	2	100+25	LT	W10-12R	SKewed RAILROAD CROSSING SYMBOL	36 x 36	9.00	1
	3	400' EAST OF RR TRACKS	RT	W10-1	RAILROAD CROSSING	36 x 36	9.00	1
	4	400' EAST OF RR TRACKS	RT	W10-12R	SKewed RAILROAD CROSSING SYMBOL	36 x 36	9.00	1
	TOTALS						36.00	4

CONSTRUCTION STAKING

CATEGORY	STATION - STATION	LOCATION	650.4500 SUBGRADE LF	650.5000 BASE LF	650.7000 CONCRETE PAVEMENT LF	650.9920 SLOPE STAKES LF
0010	100+75 - 104+14	LT	339	339	---	339
	101+93 - 102+53	LT	---	---	60	---
	TOTALS		339	339	60	339

TRAFFIC CONTROL						
CATEGORY	DURATION DAYS	643.5000 TRAFFIC CONTROL EACH	643.0300 DRUMS EACH	643.0300 DAY	643.0900 SIGNS EACH	643.0900 DAY
0010	98	1	16	1,568	8	784

MARKING RAILROAD CROSSING EPOXY

CATEGORY	LOCATION	646.5320
		EACH
0010	WEST OF FOXY RR CROSSING	1
	EAST OF FOXY RR CROSSING	1
	TOTALS	2

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

CATEGORY	PROJECT ID	650.9911
		EACH
0010	1146-75-81	1

SAWING ASPHALT

CATEGORY	STATION - STATION	LOCATION	690.0150
			LF
0010	100+80.8 - 101+70.2	LT	89
	102+41.0 - 103+34.1	LT	93
	TOTAL		182

ENGINEERED SOILS

CATEGORY	STATION - STATION	LOCATION	SPV.0035.01
			CY
0010	103+29 - 103+84	LT	205

SALT STORAGE FACILITY

CATEGORY	STATION	LOCATION	SPV.0060.01
			EACH
0010	102+23	LT	1

PROJECT NO: 1146-75-81

HWY: STH 15

COUNTY: OUTAGAMIE

MISCELLANEOUS QUANTITIES

SHEET:

E

FILE NAME:

PLOT DATE:

PLOT BY:

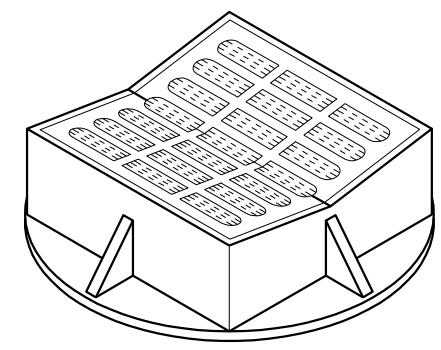
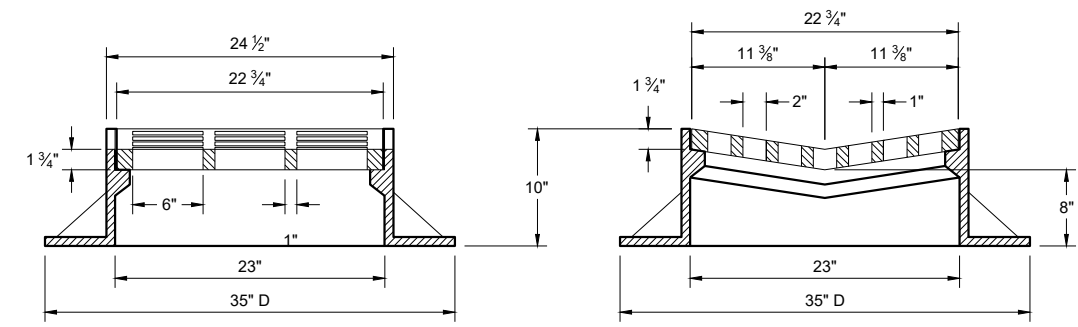
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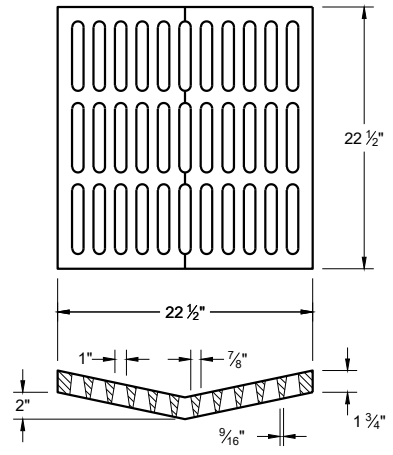
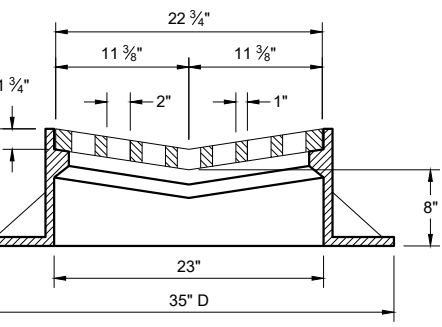
WISDOT/CADD SHEET 42

Standard Detail Drawing List

08A05-20B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08C08-02	INLETS MEDIAN 1 AND 2 GRATE
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C11-14A	RURAL DOWELED CONCRETE PAVEMENT
13C11-14B	RURAL DOWELED CONCRETE PAVEMENT
13C18-08A	CONCRETE PAVEMENT JOINTING
13C18-08B	CONCRETE PAVEMENT STEEL REINFORCEMENT
13C18-08C	CONCRETE PAVEMENT JOINT TYPES
13C18-08D	CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C12-09B	TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE

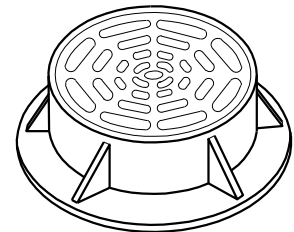
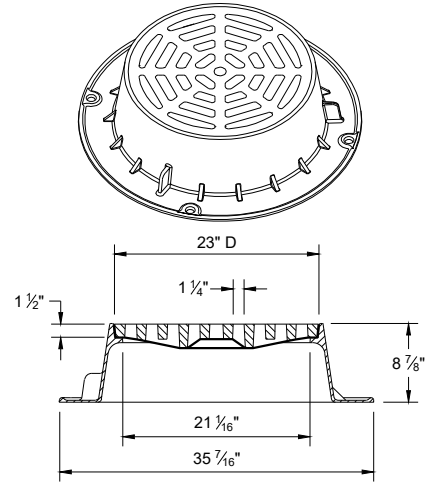


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE
NOTED AS TYPE B - A ON THE DRAINAGE TABLE



TYPE "C"

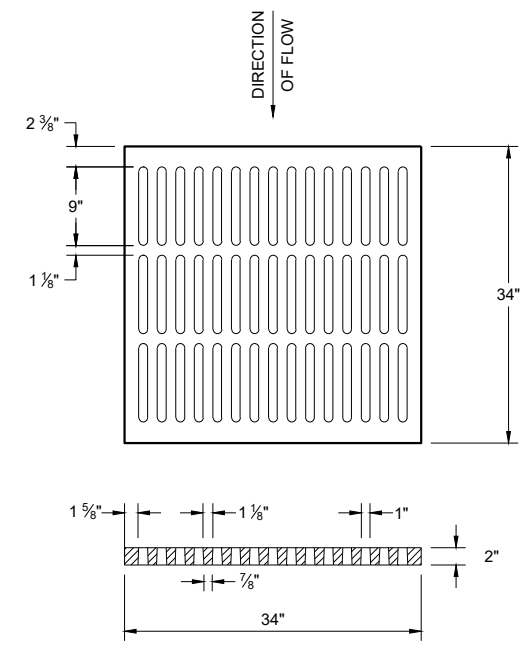
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

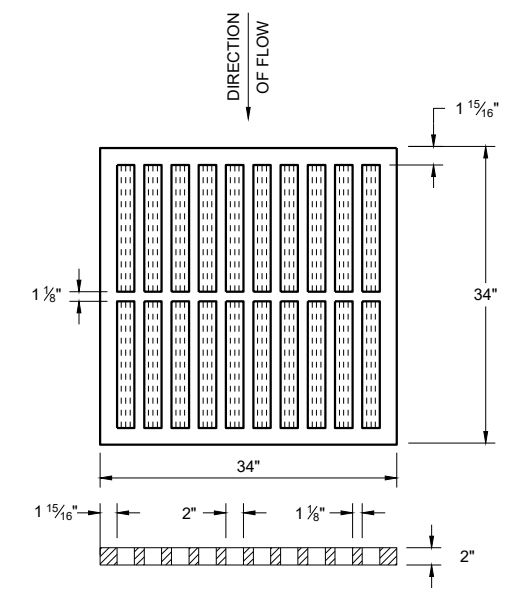
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



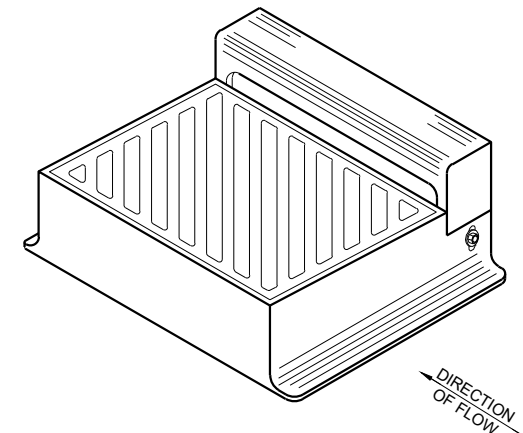
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



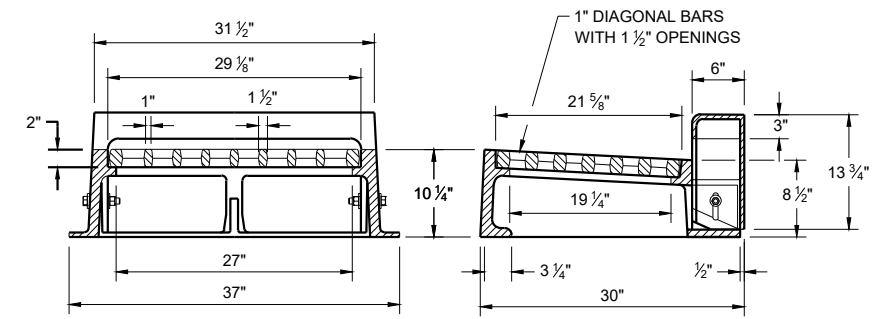
TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
NOTED AS TYPE MS ON THE DRAINAGE TABLE



DIRECTION OF FLOW

DIAGONAL SLOTS SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED.
 GRATES ARE MANUFACTURED TO BE REVERSIBLE.



TYPE "WM"

NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

6

6

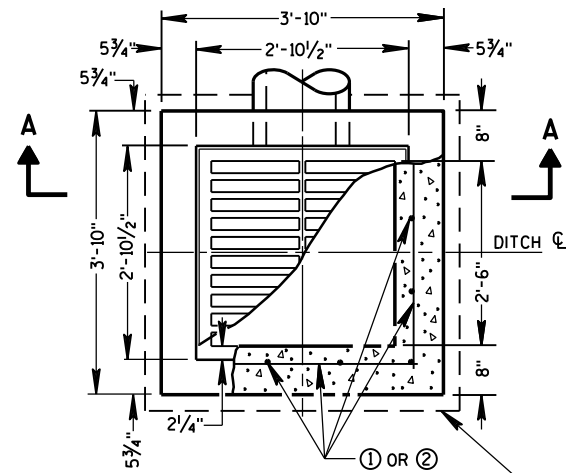
SDD 08A05-20b

SDD 08A05-20b

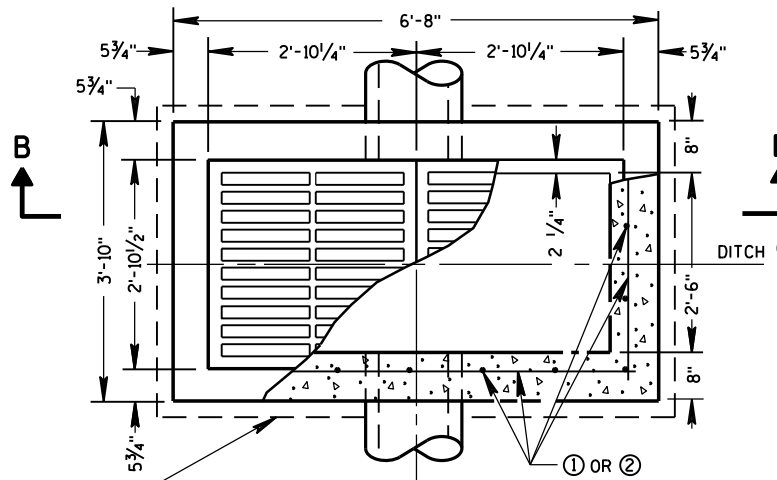
**INLET COVERS
 TYPES B, B-A, C,
 MS, MS-A AND WM**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 July 2023 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT
 FHWA UNIT SUPERVISOR

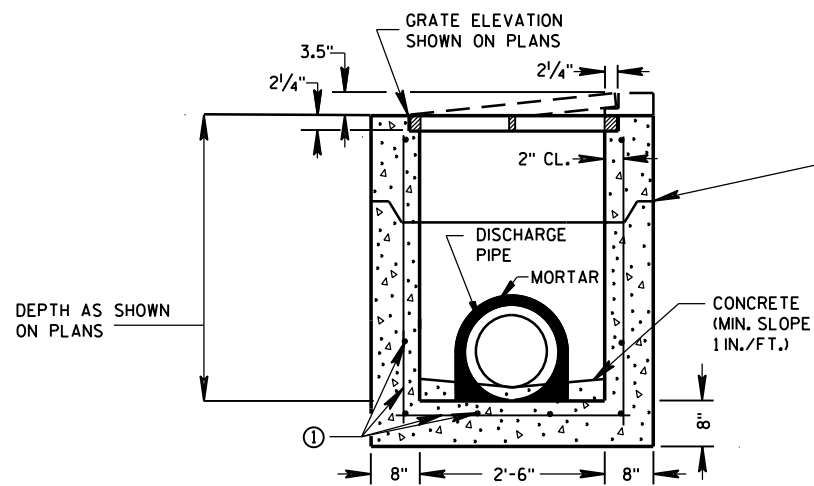


PLAN VIEW

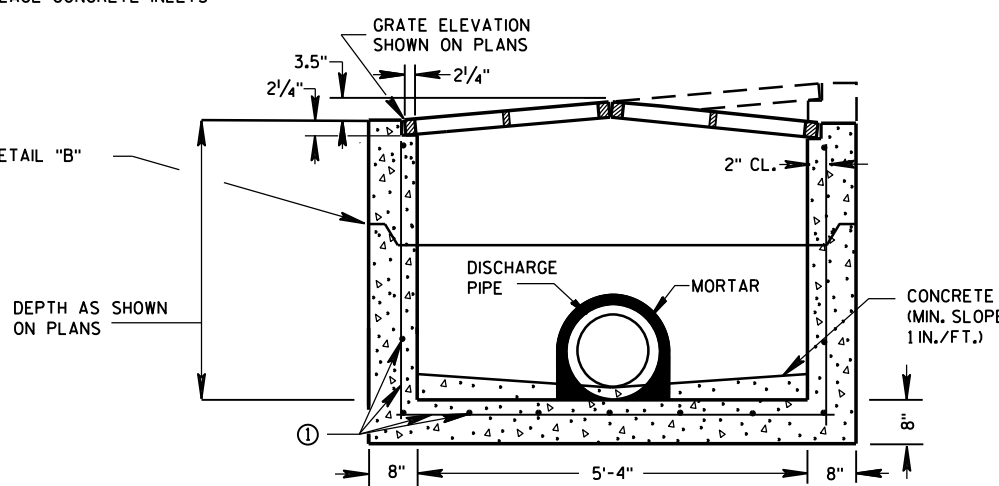


PLAN VIEW

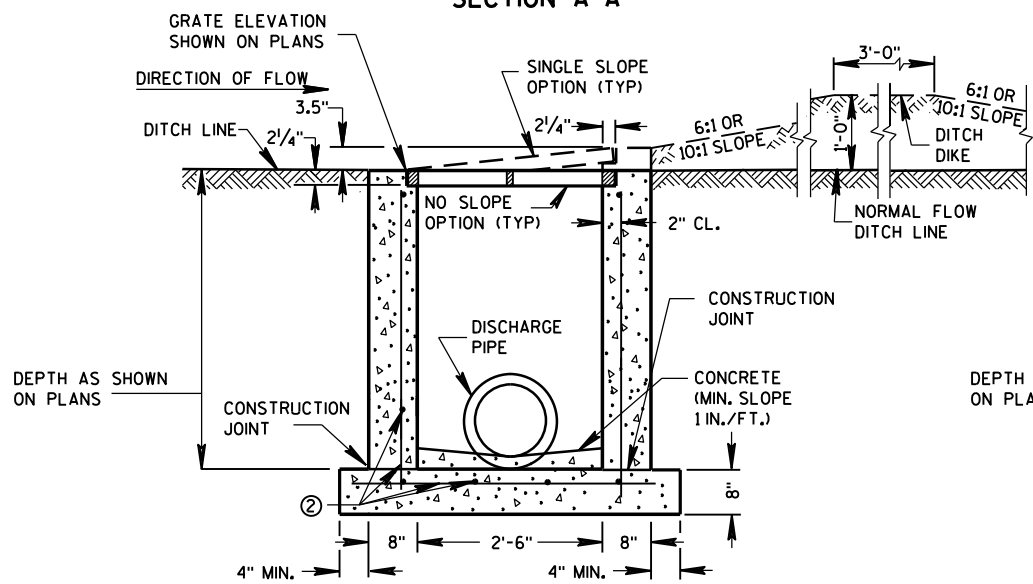
4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



PRECAST REINFORCED CONCRETE SECTION A-A

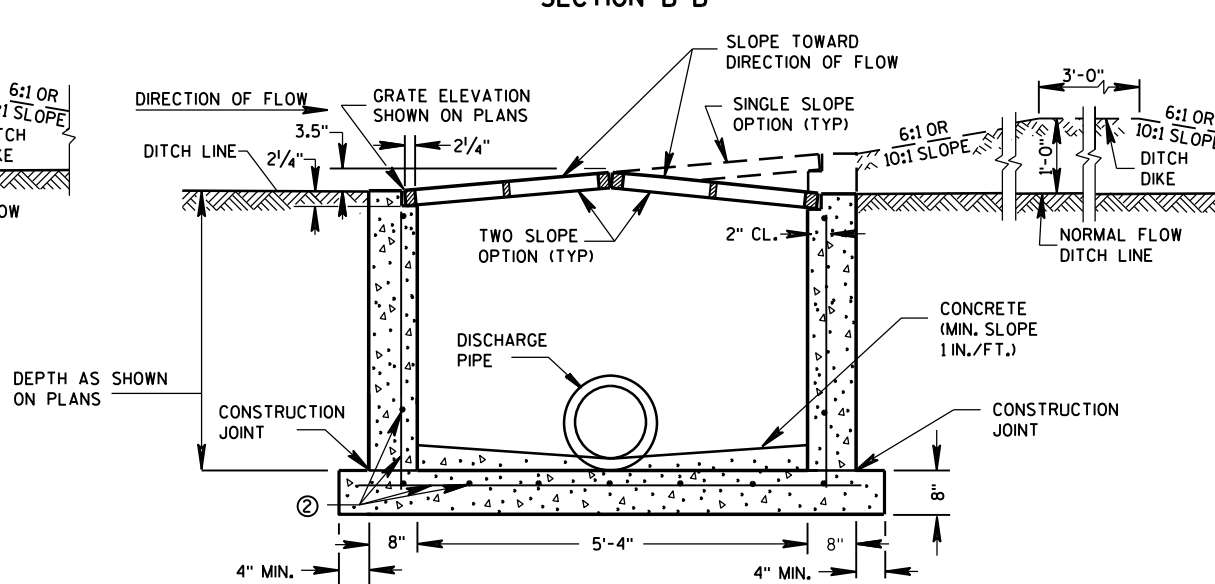


PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A

INLETS MEDIAN 1 GRATE



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, IG-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT. BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

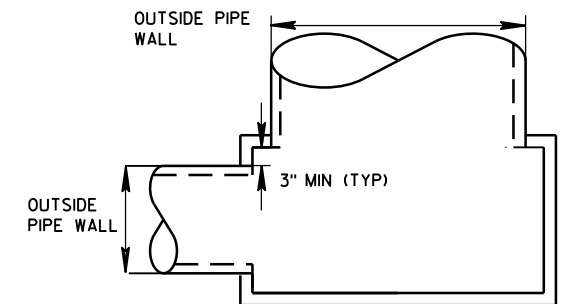
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

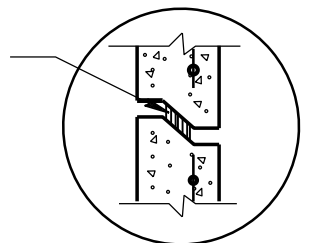
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42



DETAIL "A"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)

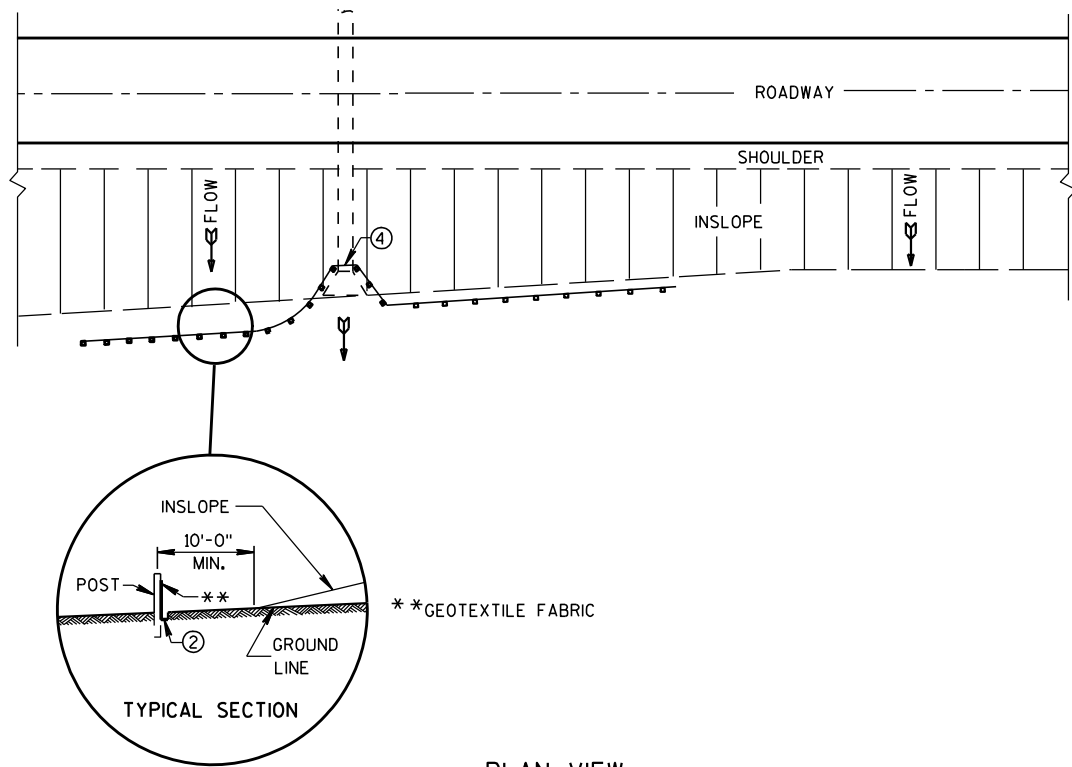


DETAIL "B"

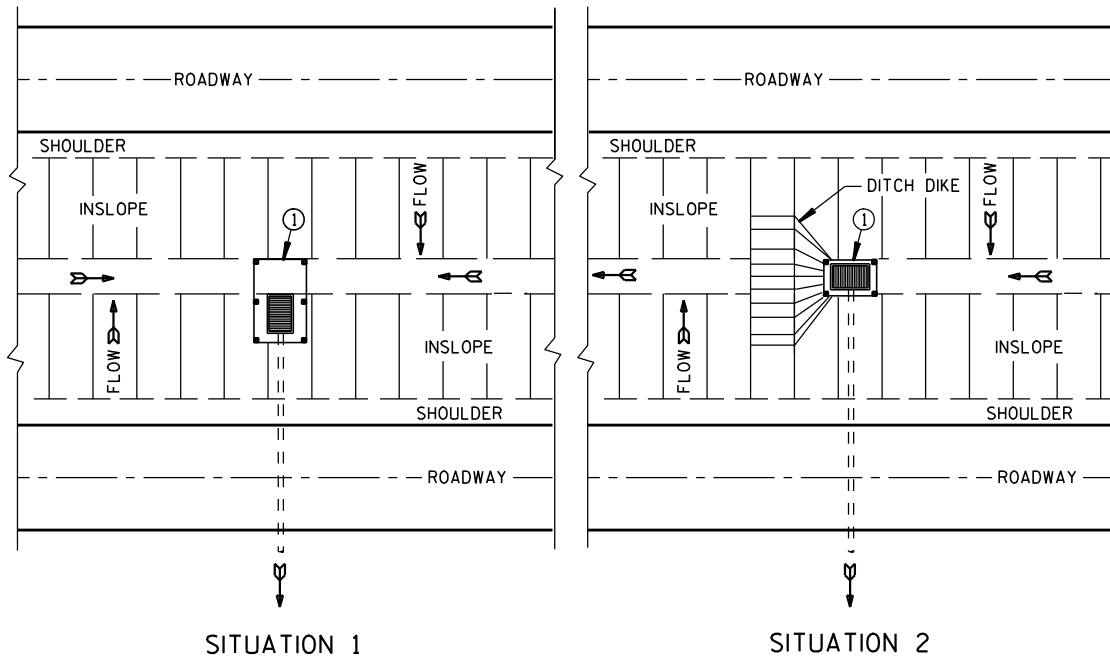
INLETS MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

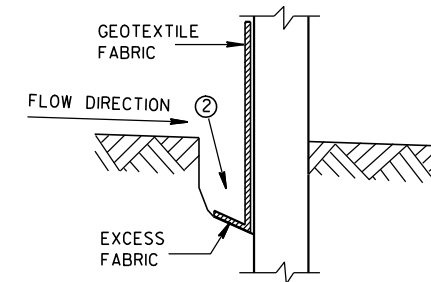


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

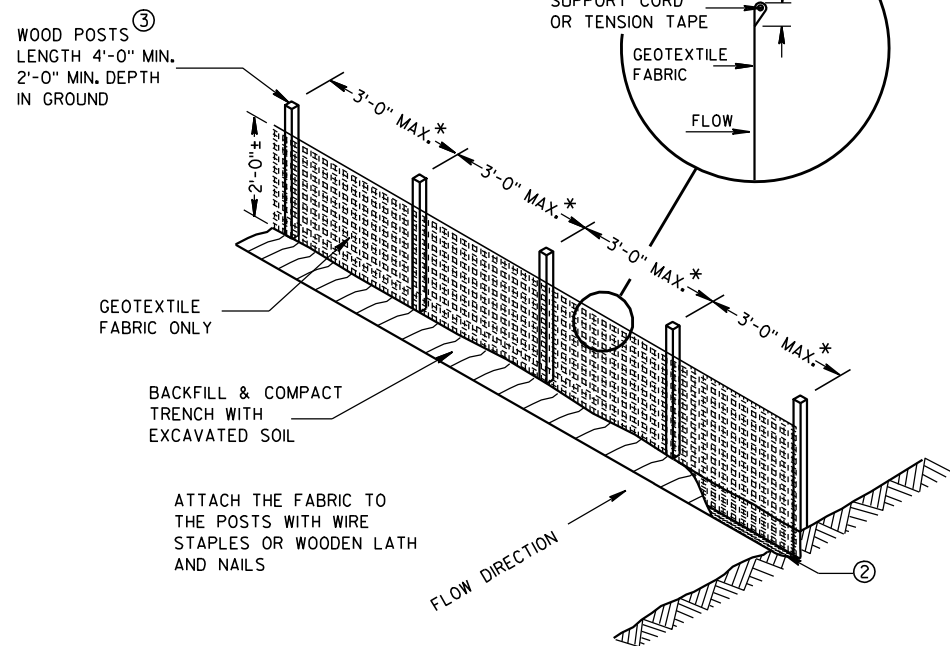
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



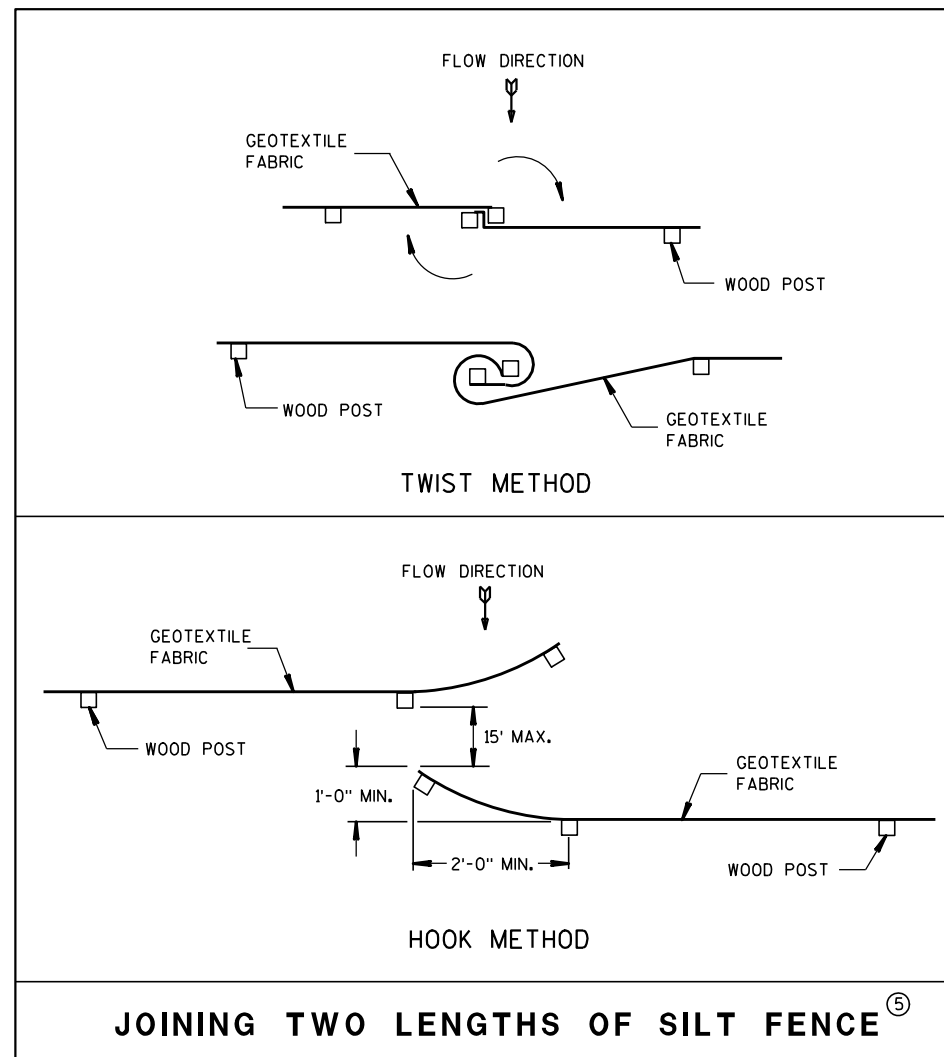
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

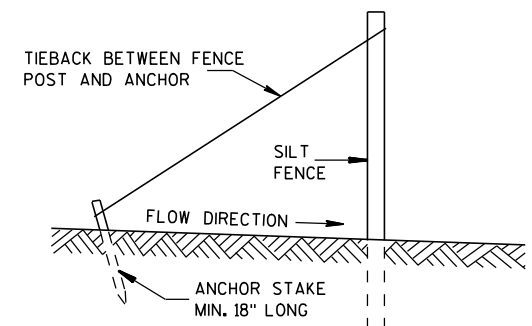


SILT FENCE

* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

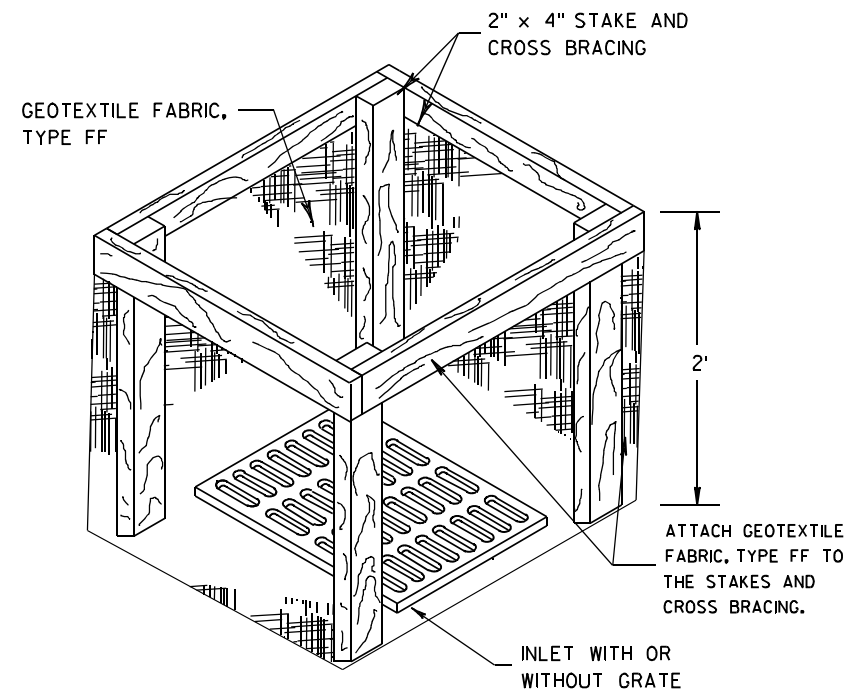
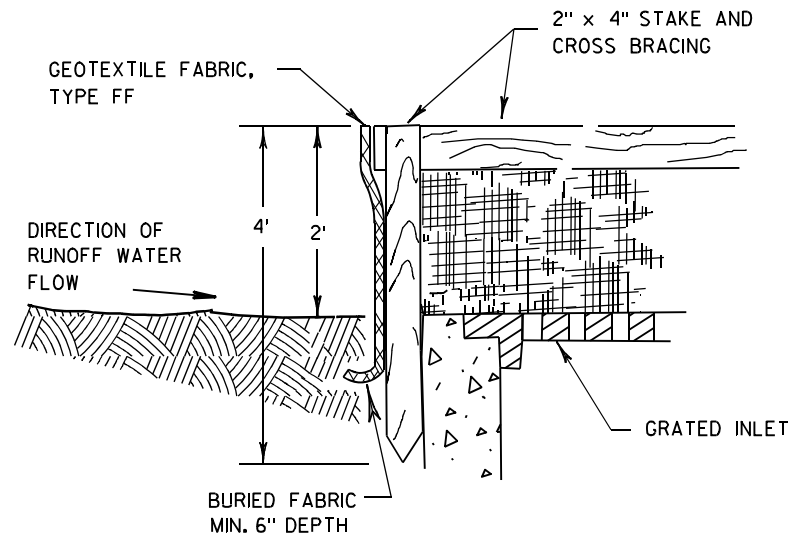
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4-29-05
DATE

FHWA

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

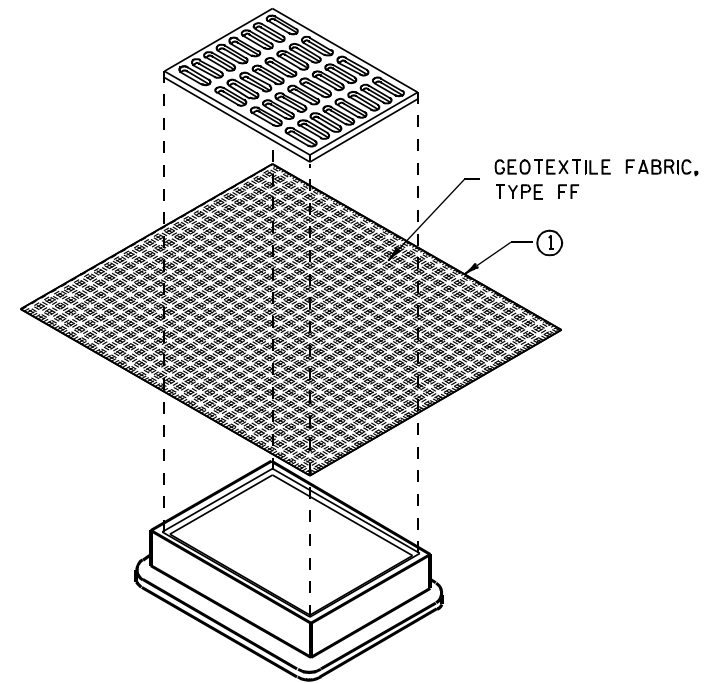
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

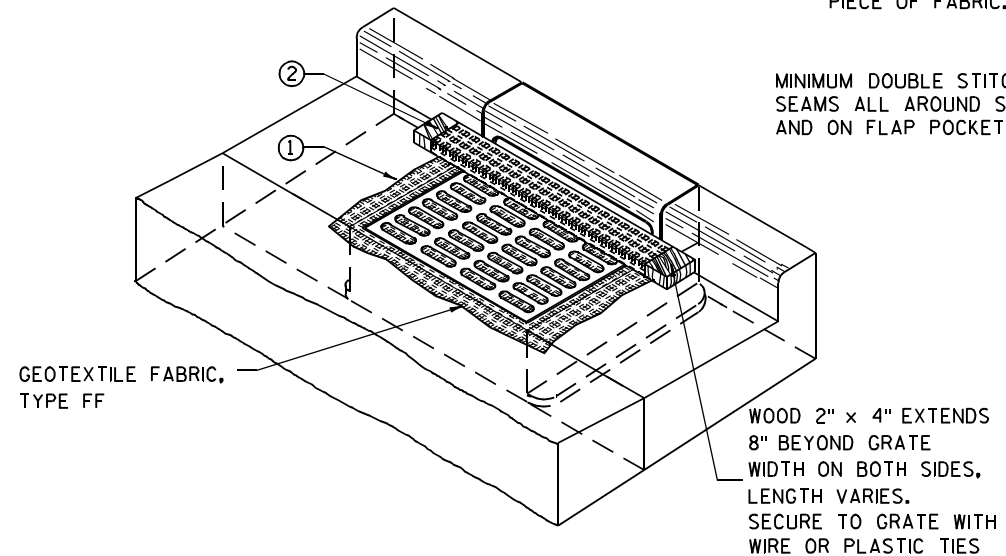
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

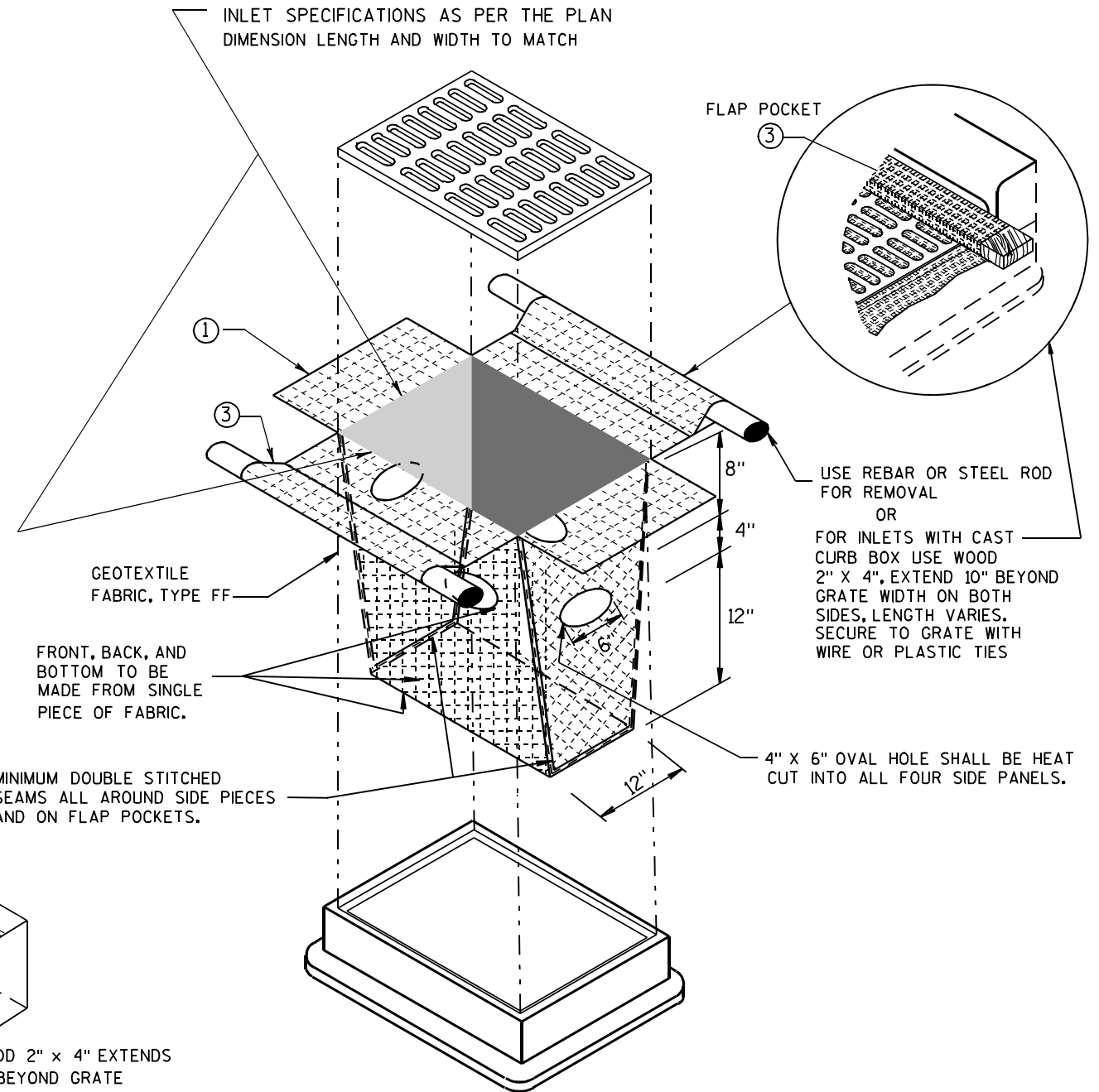
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/s/ Beth Connestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

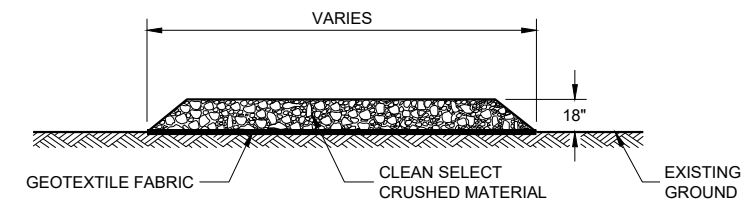
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

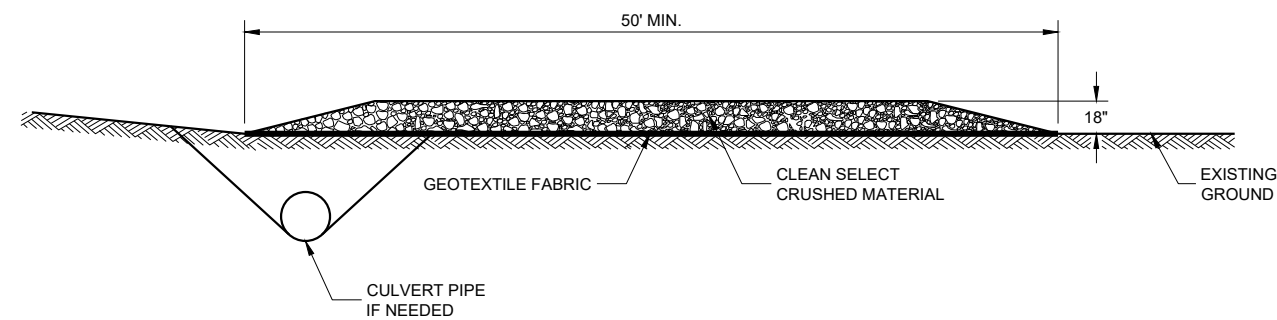
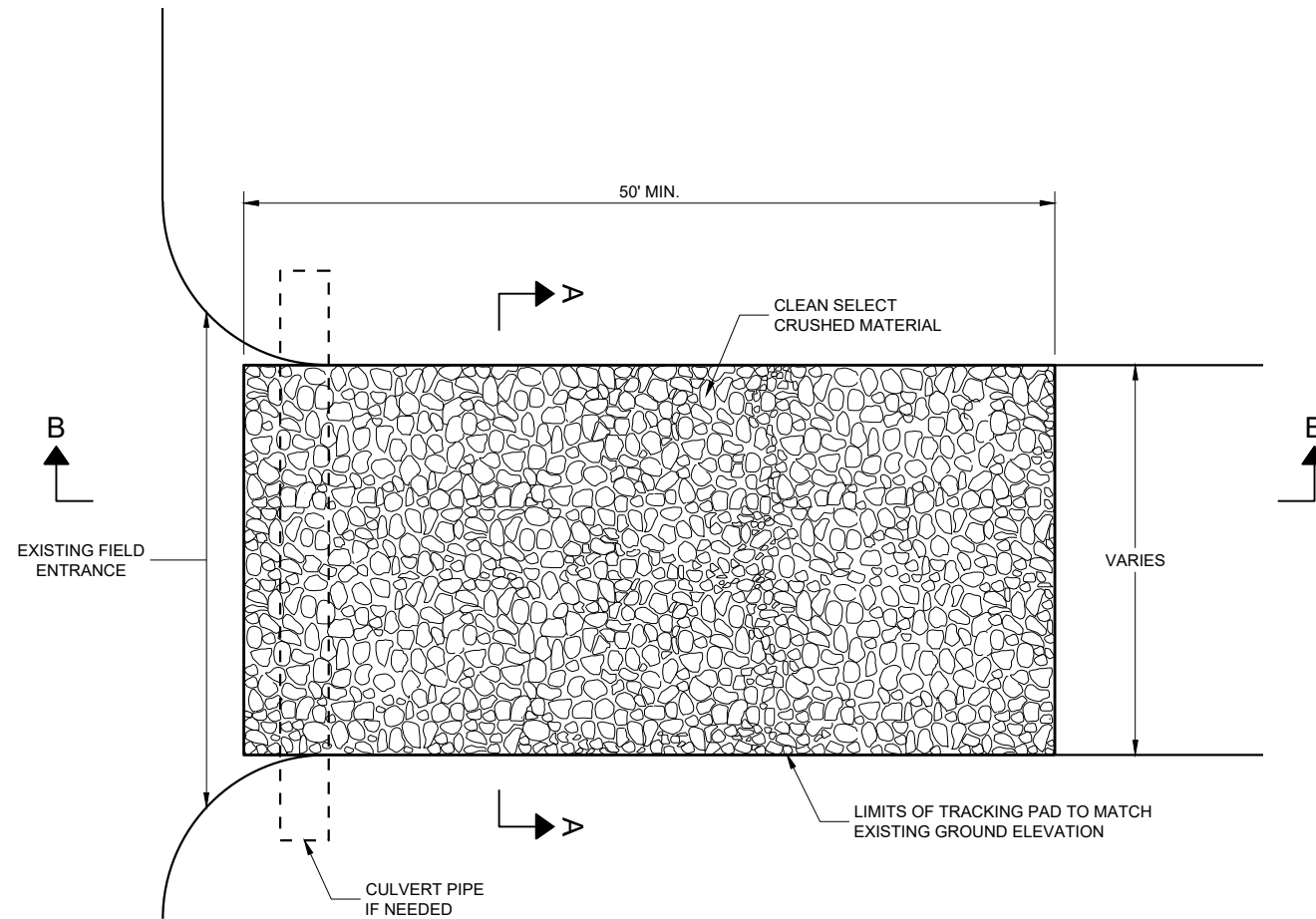
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A - A



SECTION B - B

TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/24/2011 DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

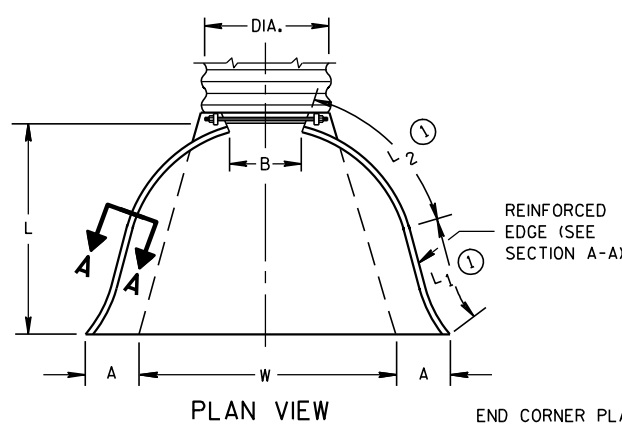
FHWA

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1	L2	W (±2")		
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

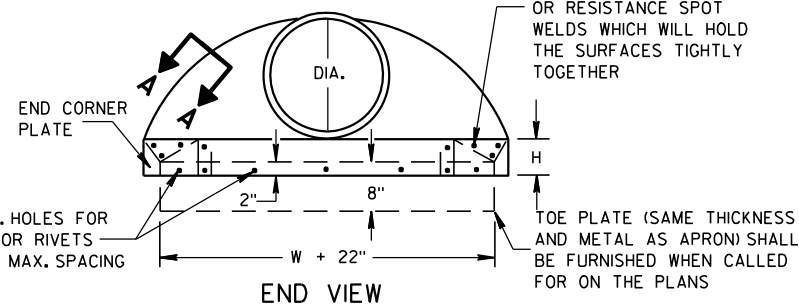
* EXCEPT CENTER PANEL SEE GENERAL NOTES

REINFORCED CONCRETE APRON ENDWALLS									
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE	
	T	A	B	C	D	E	G		
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1	
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1	
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1	
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1	
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1	
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1	
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1	
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1	
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1	
48	5	24	72	26	98	84	5	3 to 1	
54	5 1/2	27	65	33 1/4-35	98 1/4-100	90	5 1/2	2 1/2 to 1	
60	6	30-35	60	39	99	96	5	2 to 1	
66	6 1/2	24-30	72-78	21-27	99	102	5 1/2	2 to 1	
72	7	24-36	78	21	99	108	6	2 to 1	
78	7 1/2	24-36	78	21	99	114	6 1/2	2 to 1	
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1	
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1	

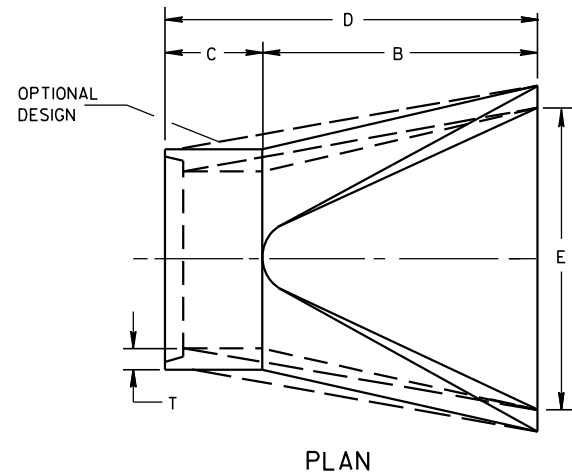
* MINIMUM
** MAXIMUM



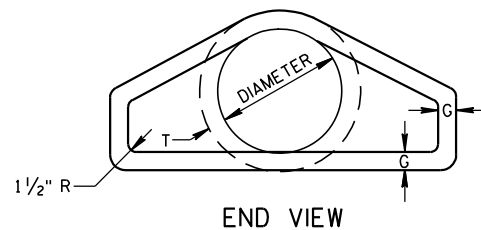
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



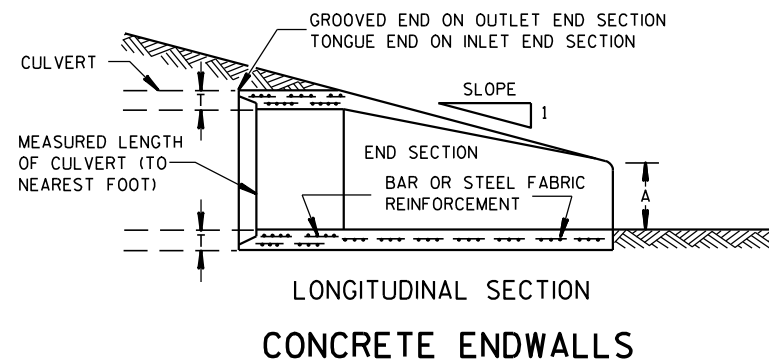
SIDE ELEVATION
METAL ENDWALLS



PLAN

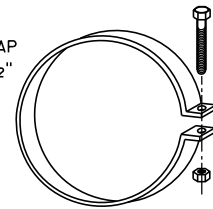


END VIEW

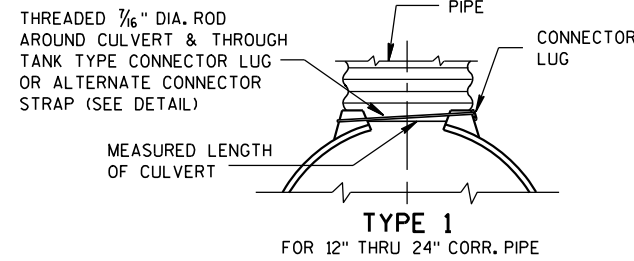


LONGITUDINAL SECTION
CONCRETE ENDWALLS

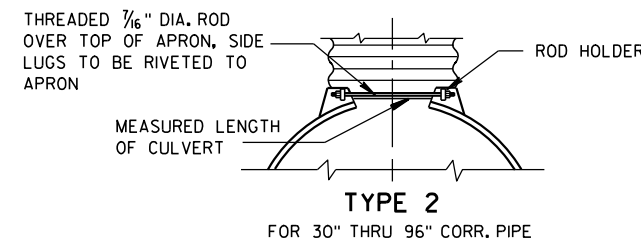
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



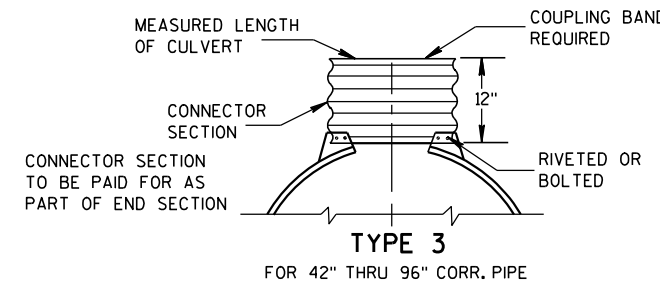
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



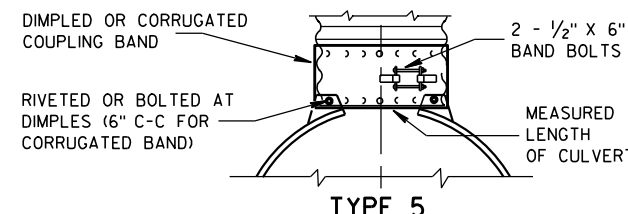
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

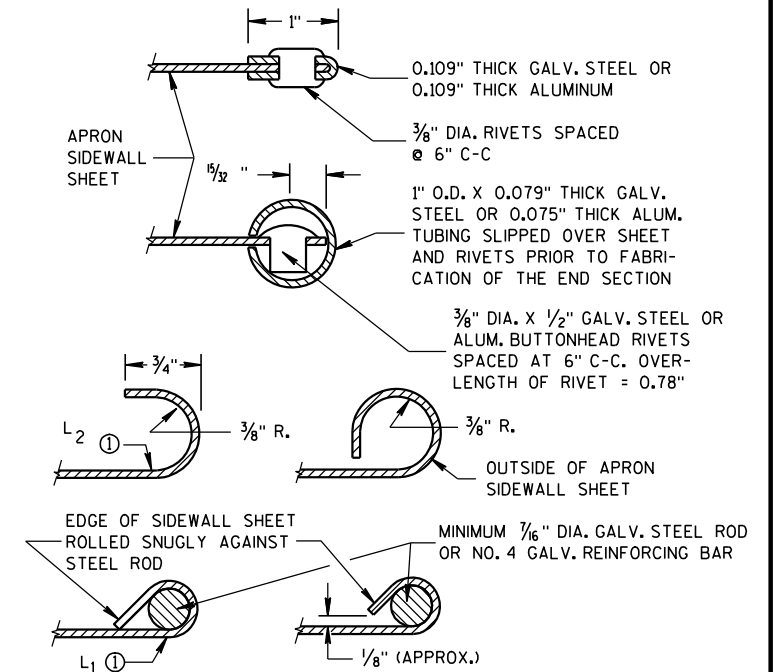
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VICE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

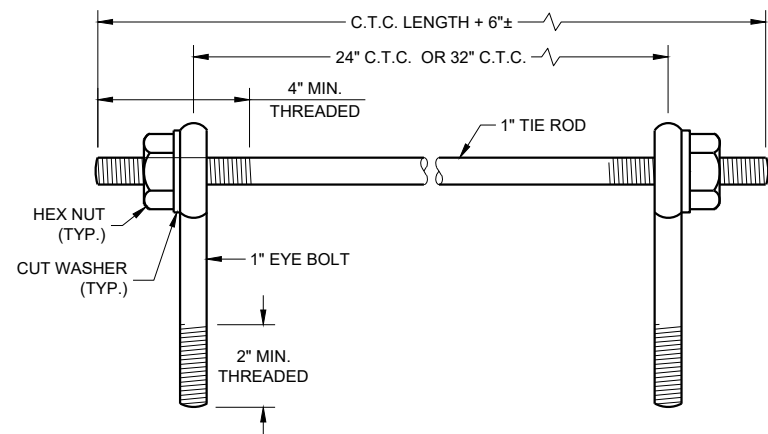
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
CULVERT PIPE

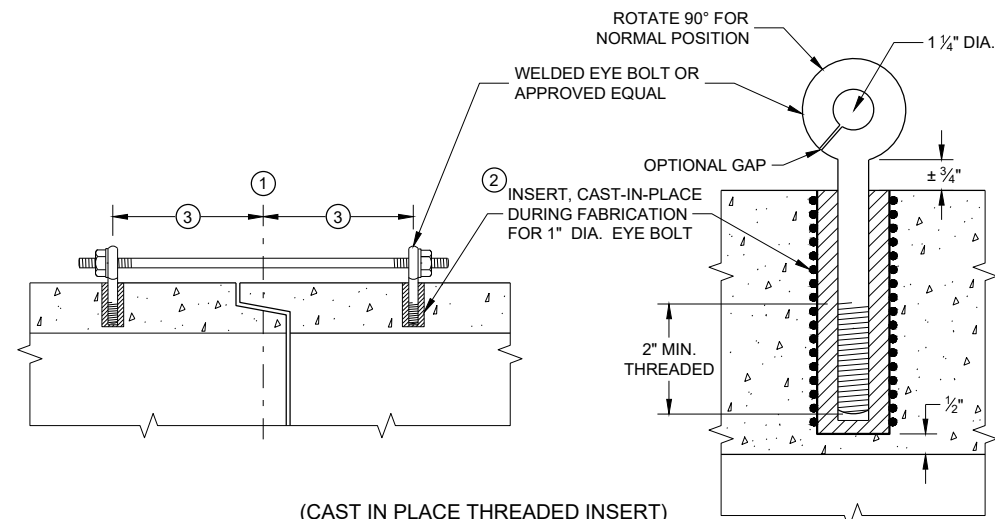
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94 DATE /S/ Rory L. Rhinesmith
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST IN PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

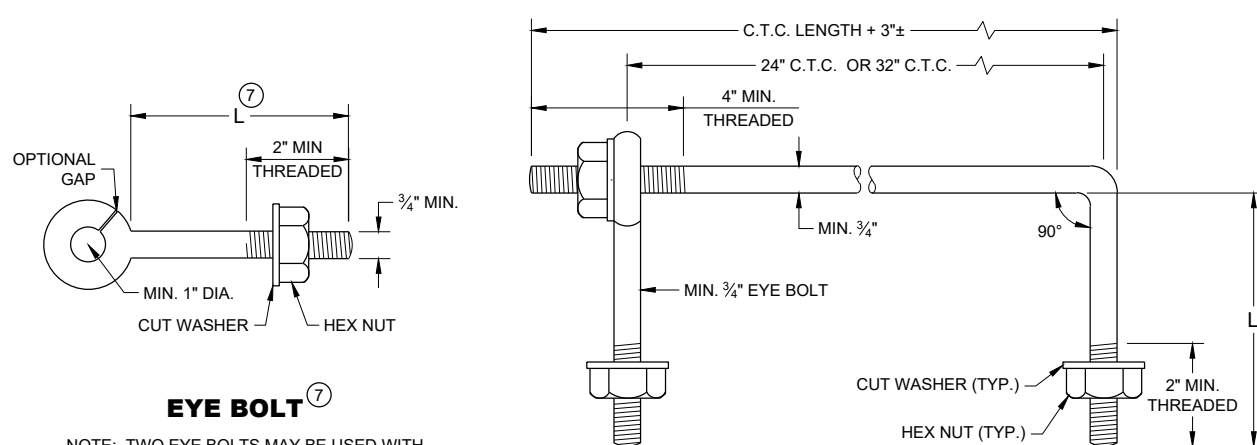
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

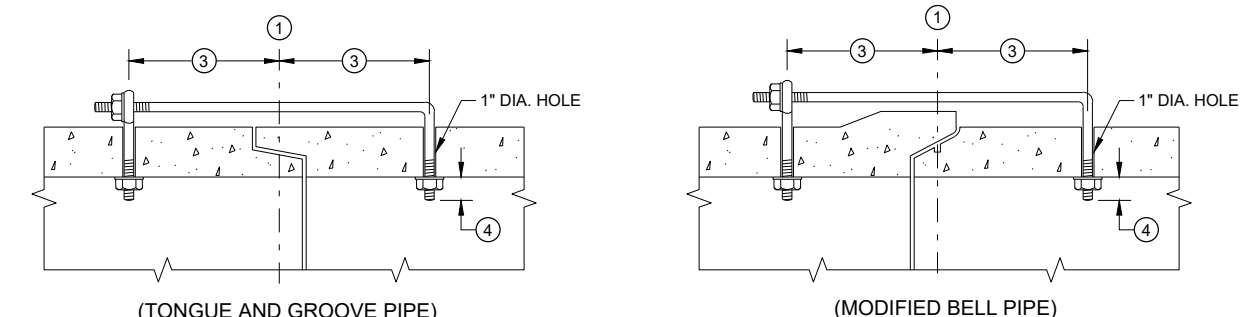
- ① CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- ⑦ EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.



EYE BOLT ⑦

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30\"/>

EYE BOLT AND TIE ROD



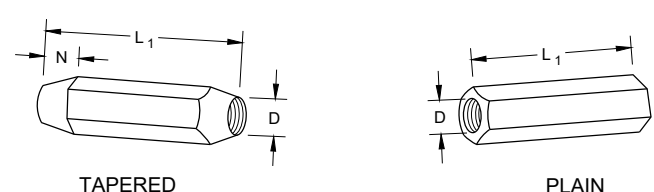
LONGITUDINAL SECTION
(JOINT TIES FOR 18\"/>

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

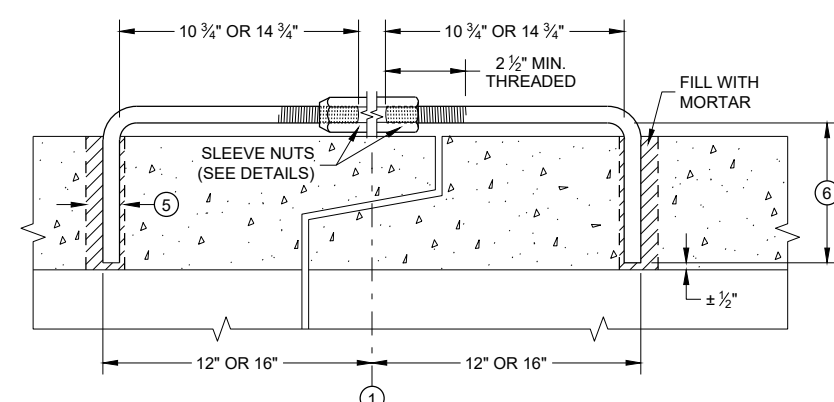
ADJUSTABLE TIE ROD TABLE

PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12 - 60	5/8	5/8	5	1/2
66 - 84	3/4	3/4	5	1/2
90 - 144	1	1	7	1 7/16

DIMENSIONS SHOWN ARE IN INCHES

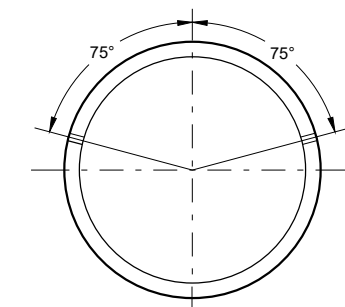


RIGHT AND LEFT THREADS SLEEVE NUTS



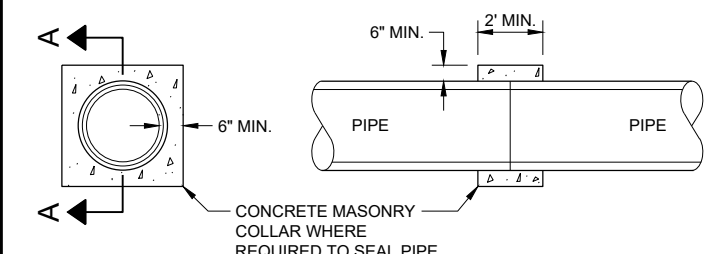
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION

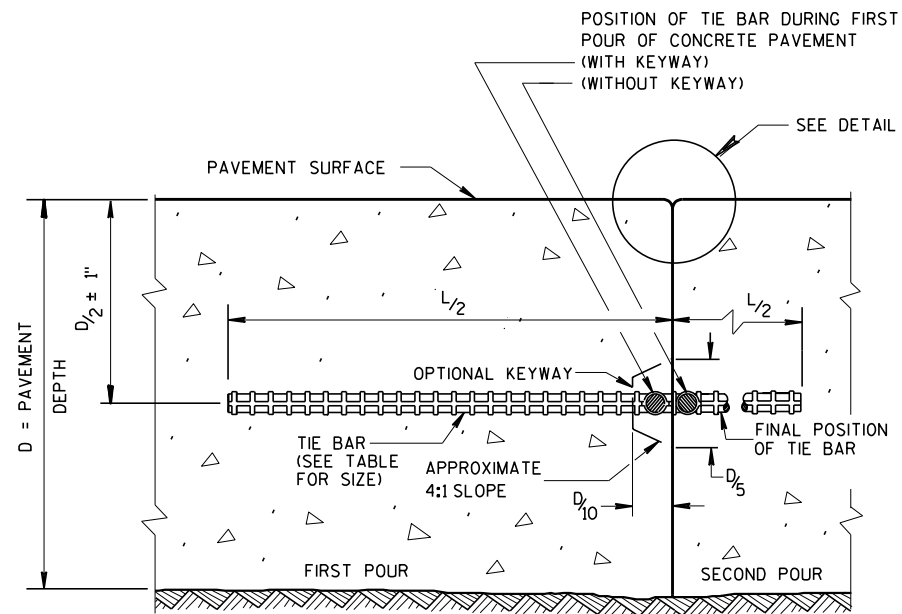


SECTION A - A
CONCRETE COLLAR DETAIL

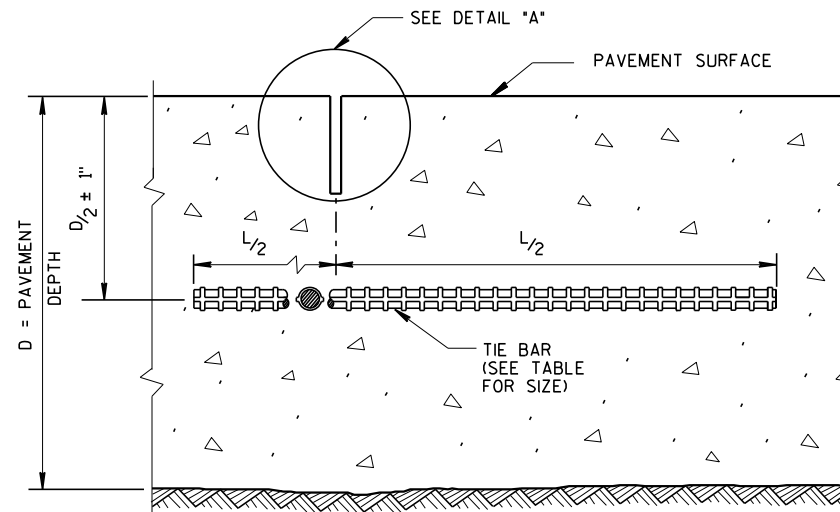
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



CONSTRUCTION JOINT



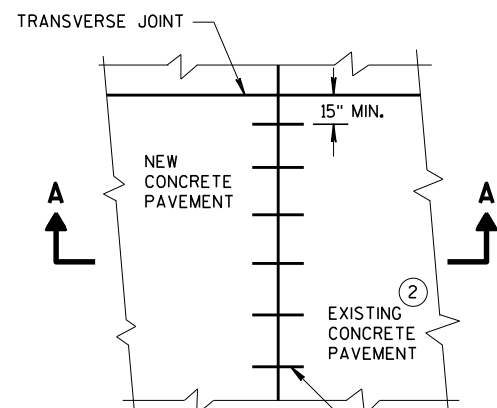
SAWED JOINT

GENERAL NOTES

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

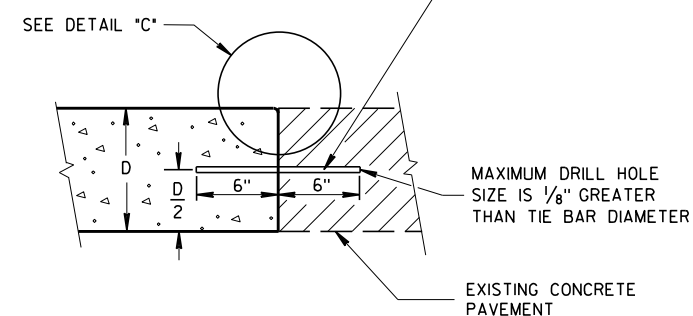
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

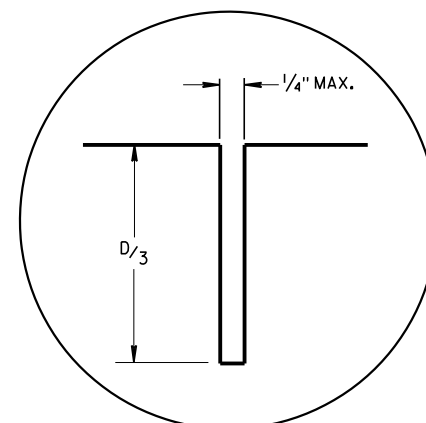


PLAN VIEW

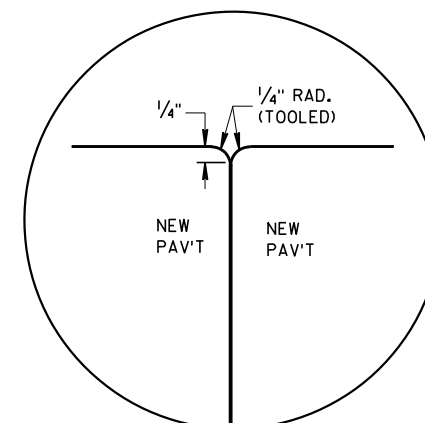
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



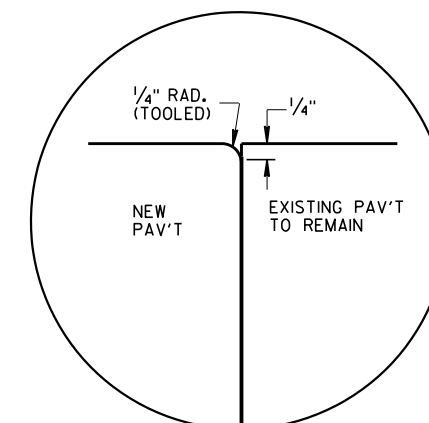
**SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT**



DETAIL "A"



DETAIL "B"



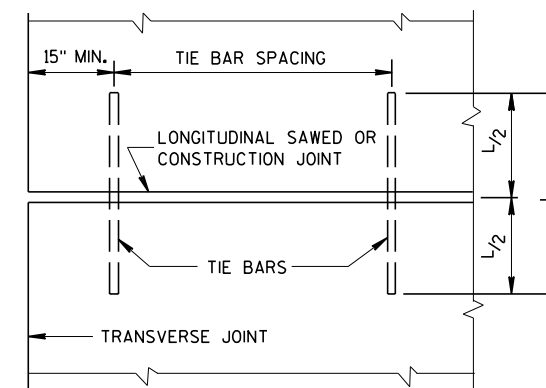
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



**PLAN VIEW
SHOWING LOCATION OF TIE BARS**

**CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

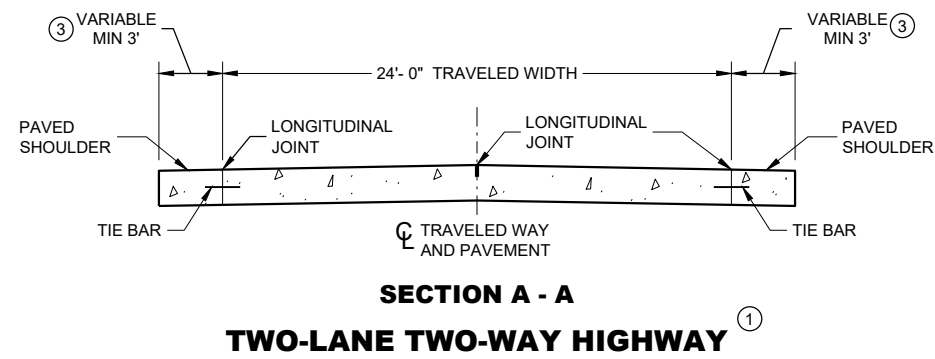
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

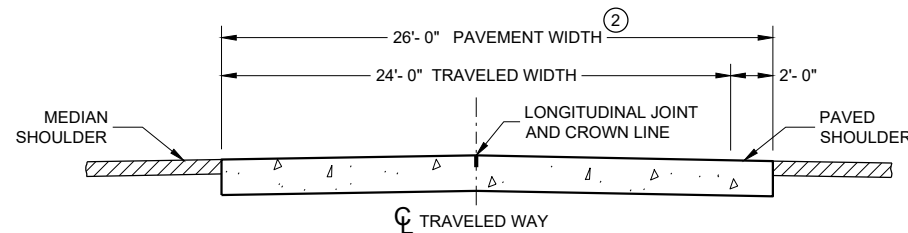
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED "PAVED SHOULDER" AS CONCRETE PAVEMENT.
- ③ SHOULDER WIDTHS LESS THAN 3 FEET SHALL BE PAVED INTEGRAL TO THE MAINLINE CONCRETE PAVEMENT, SEE SECTION B-B.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

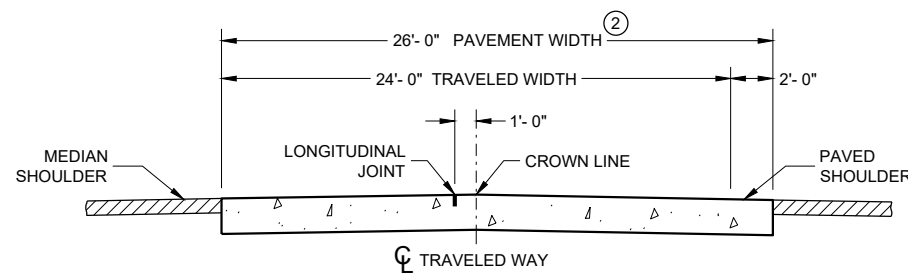
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8" & ABOVE	1 1/4"	15'



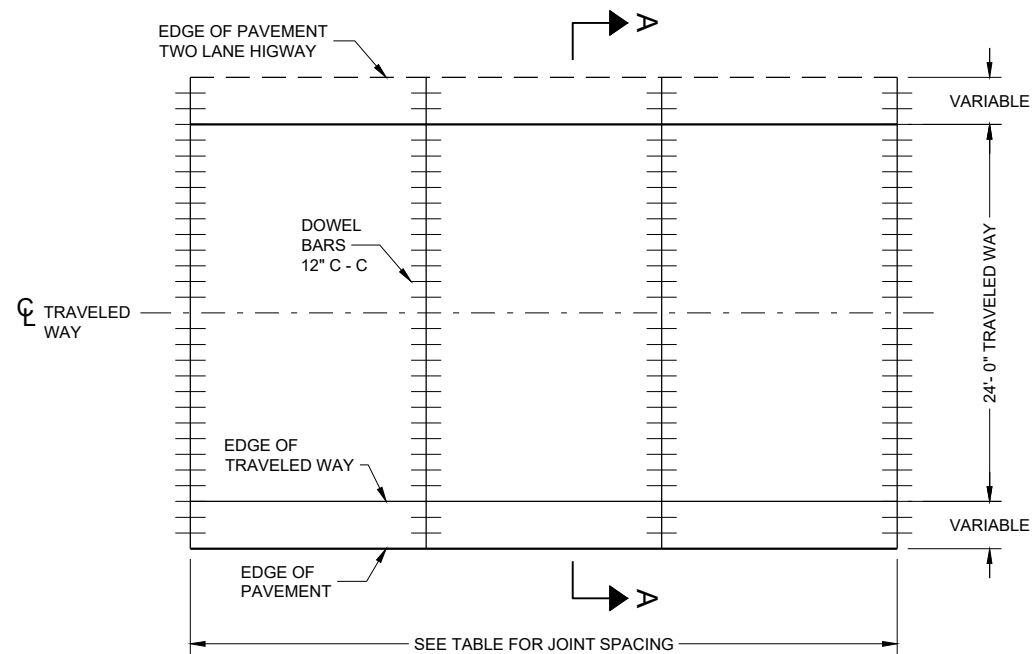
**SECTION A - A
TWO-LANE TWO-WAY HIGHWAY**



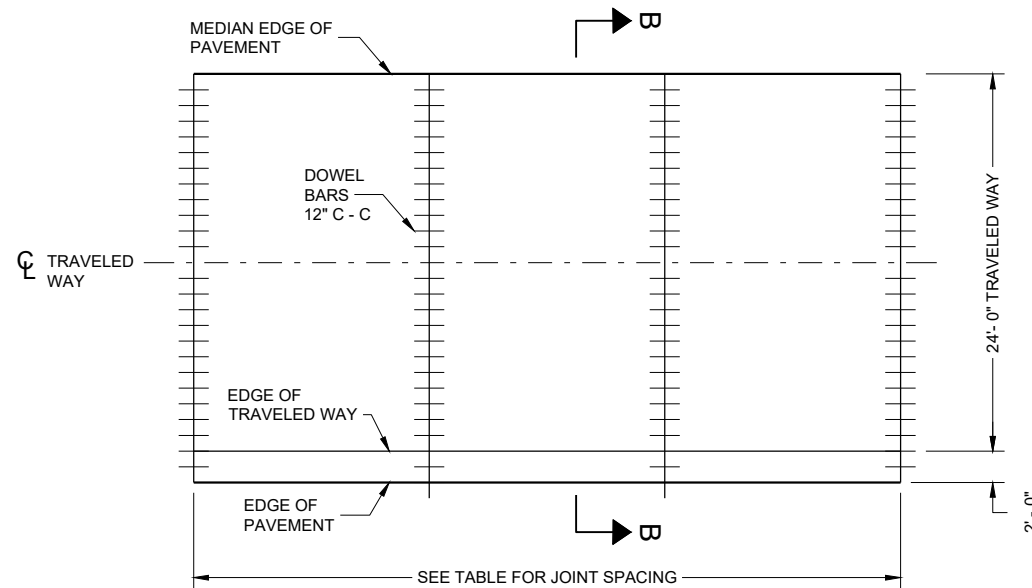
SECTION B - B



**ALTERNATIVE SECTION B - B
DIVIDED HIGHWAY**



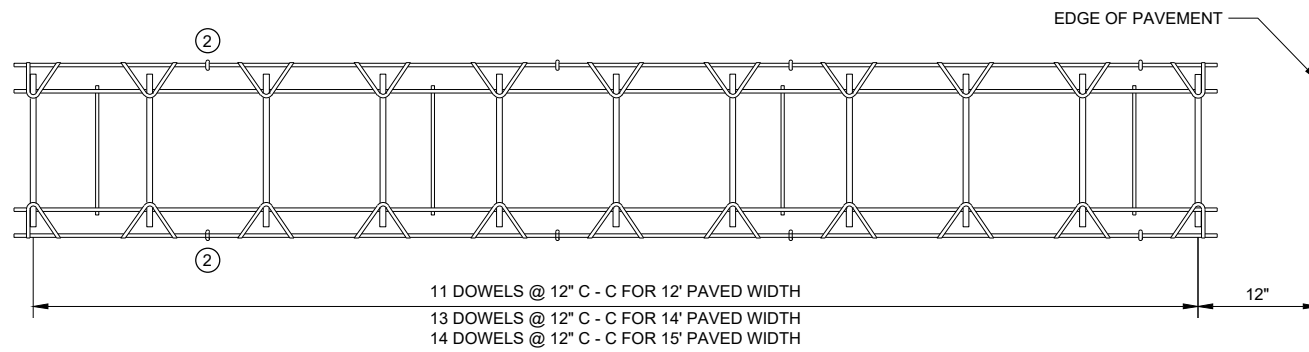
**CONTRACTION JOINT LAYOUT FOR
TWO-LANE TWO-WAY HIGHWAY**



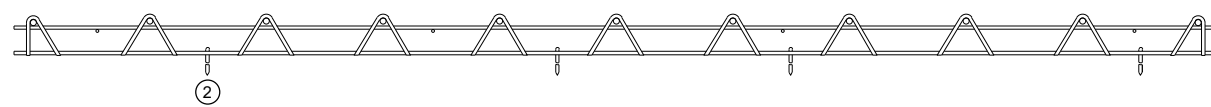
**CONTRACTION JOINT LAYOUT FOR
DIVIDED HIGHWAY**

**RURAL DOWELED
CONCRETE PAVEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

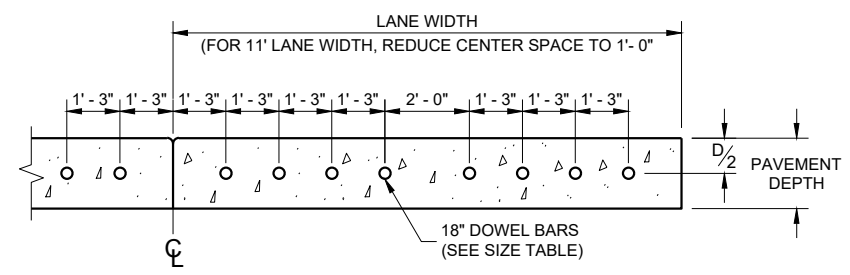


SIDE VIEW
(NORMAL TO CENTERLINE)

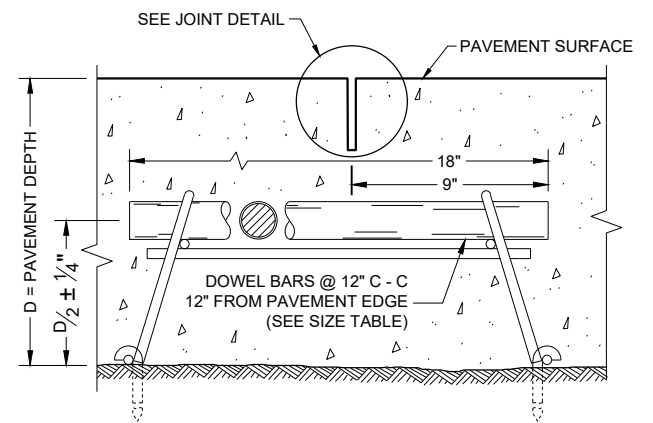
CONTRACTION JOINT DOWEL ASSEMBLY ①

GENERAL NOTES

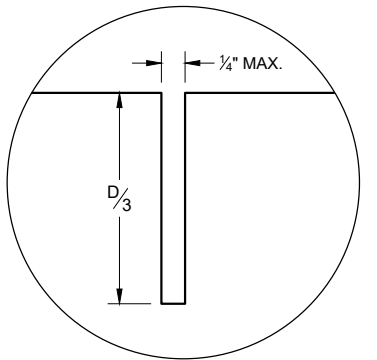
- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



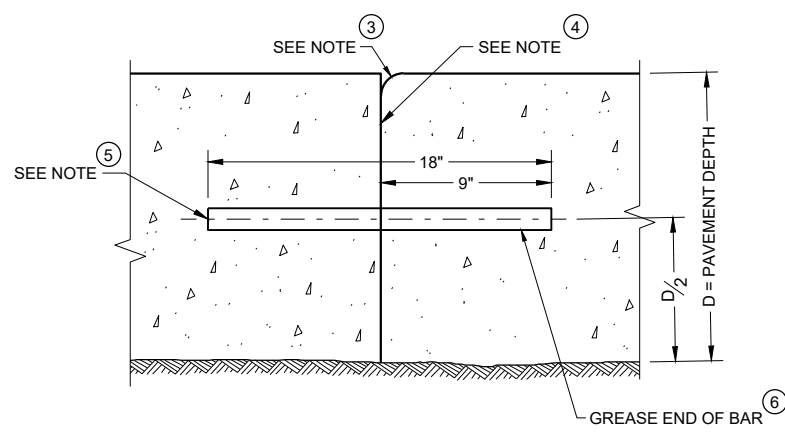
DRILLED DOWEL BAR CONSTRUCTION JOINT



DOWELED CONTRACTION JOINT



JOINT DETAIL



TRANSVERSE CONSTRUCTION JOINT

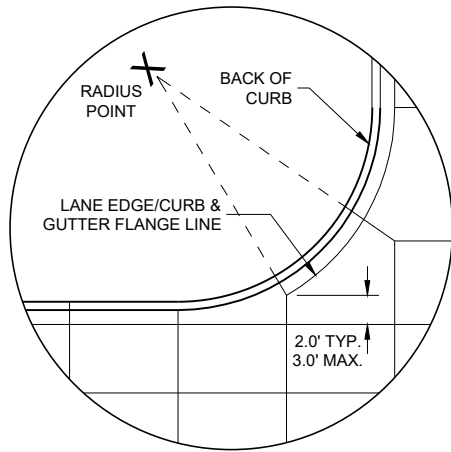
6

6

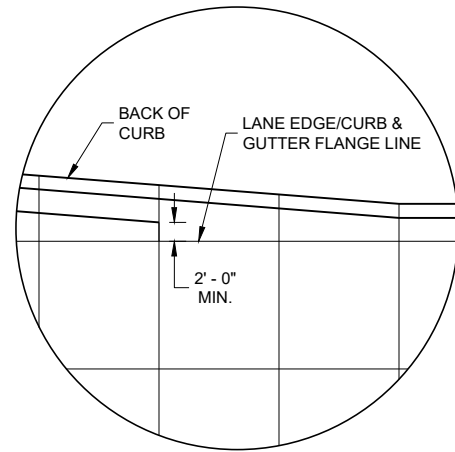
SDD 13C11 - 14b

SDD 13C11 - 14b

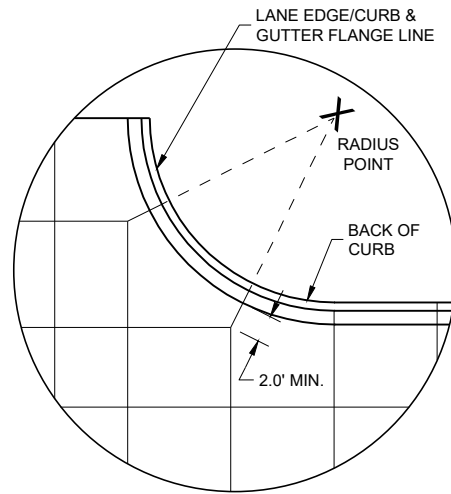
RURAL DOWELED CONCRETE PAVEMENT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Peter Kemp P.E. PAVEMENT SUPERVISOR
<small>FHWA</small>	



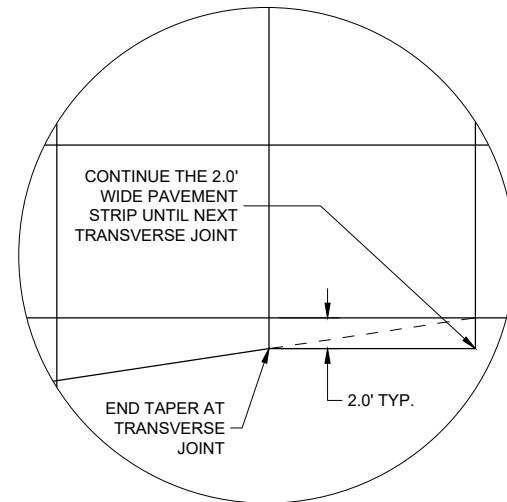
DETAIL "A"



DETAIL "B"



DETAIL "C"

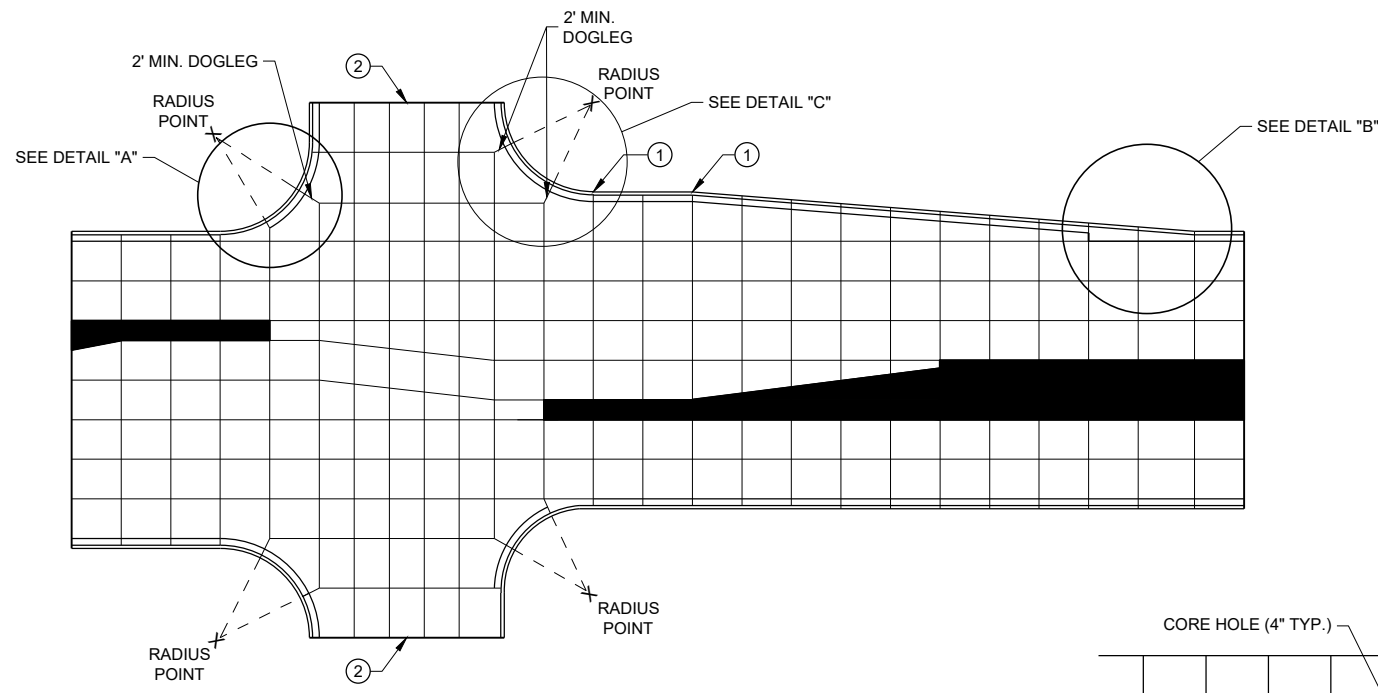


DETAIL "D"

GENERAL NOTES

- THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.
- ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.
- ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.
- AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.
- SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.
- AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

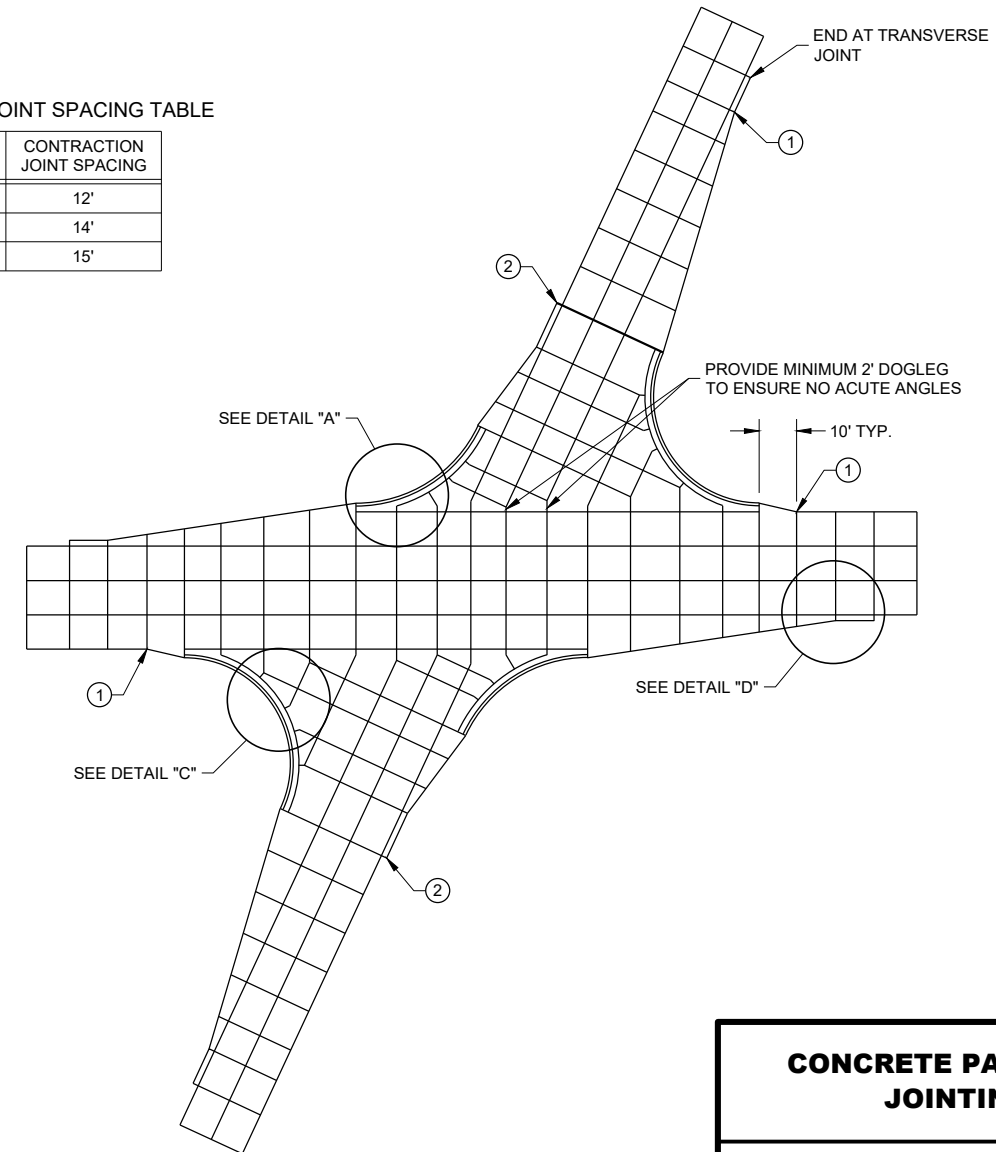
- ① PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- ② CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- ③ THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.



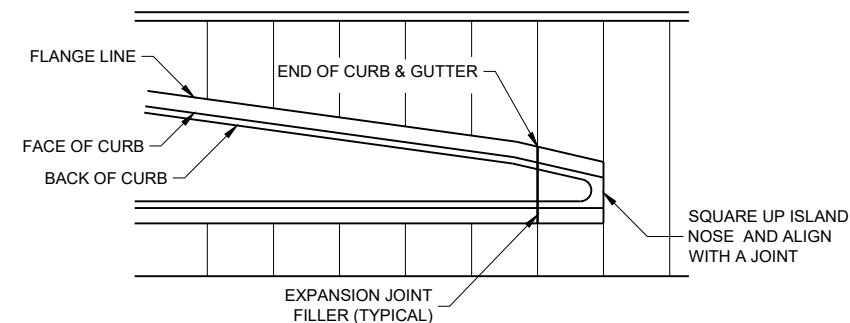
STANDARD INTERSECTION

PAVEMENT DEPTH AND JOINT SPACING TABLE

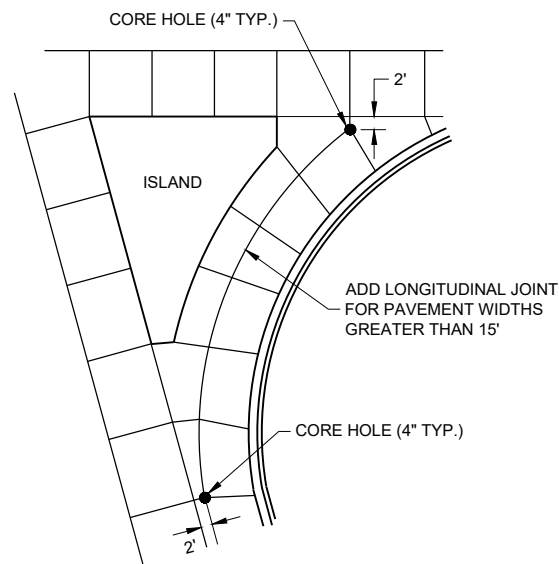
PAVEMENT DEPTH (D)	CONTRACTION JOINT SPACING
6", 6 1/2"	12'
7", 7 1/2"	14'
8" & ABOVE	15'



SKEWED INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN

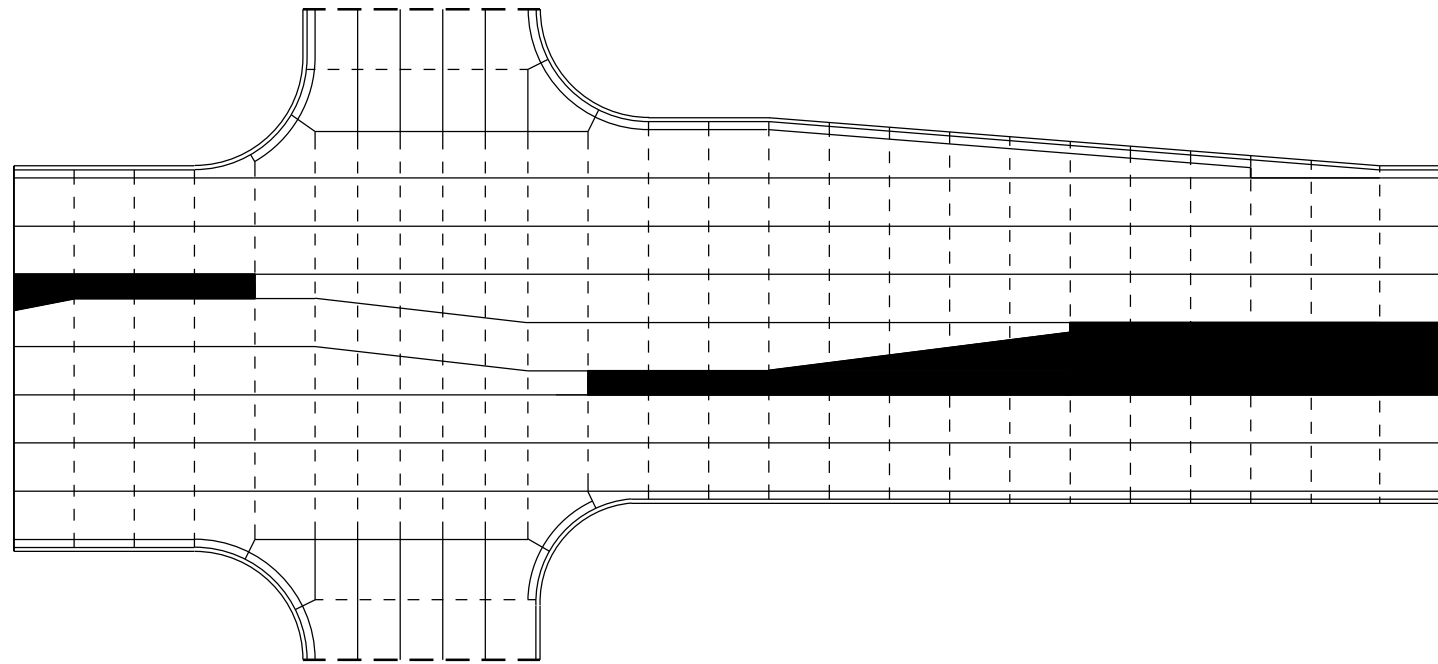
LEGEND

- - - - - POTENTIAL DOWELED EXPANSION JOINT
- - - - - DOWELED JOINT
- TIED JOINT

GENERAL NOTES

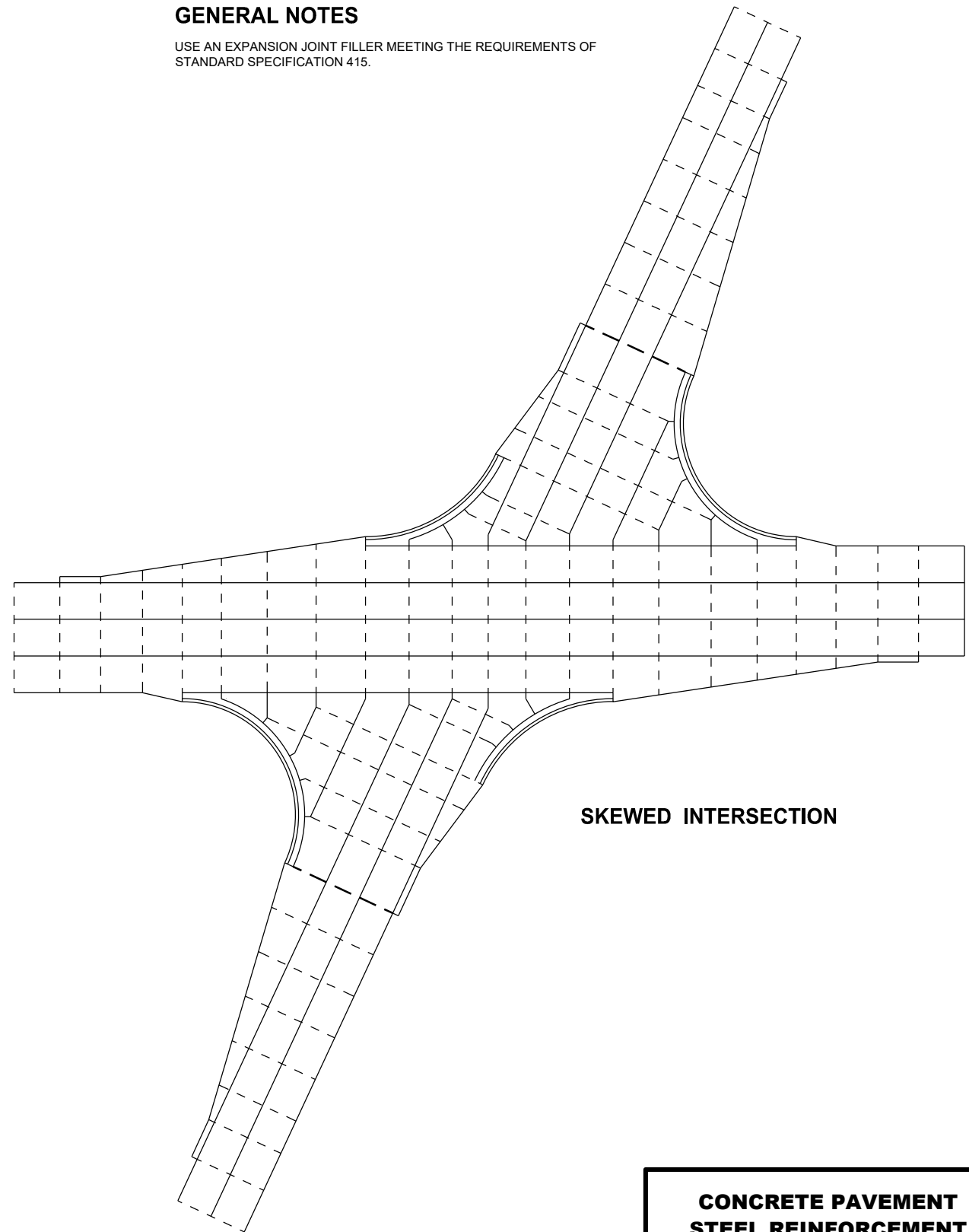
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.

6



STANDARD INTERSECTION

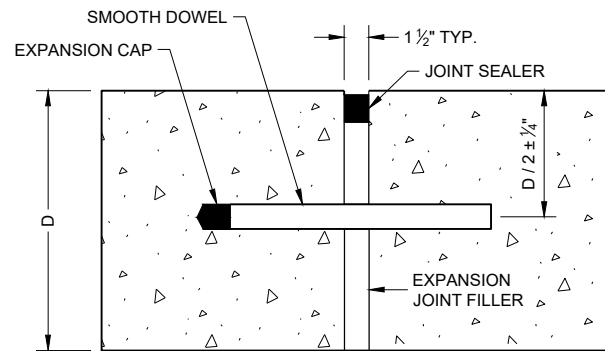
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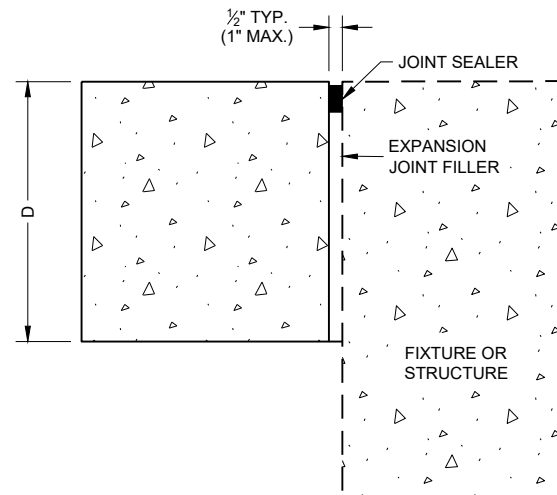
SKewed INTERSECTION

**CONCRETE PAVEMENT
STEEL REINFORCEMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DOWELED TRANSVERSE ①



UNTIED - LONGITUDINAL

EXPANSION JOINTS

TIE BAR TABLE

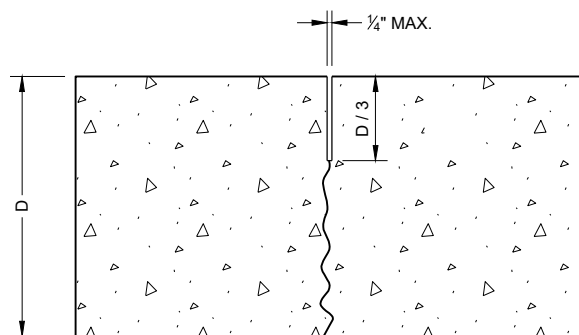
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4*	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

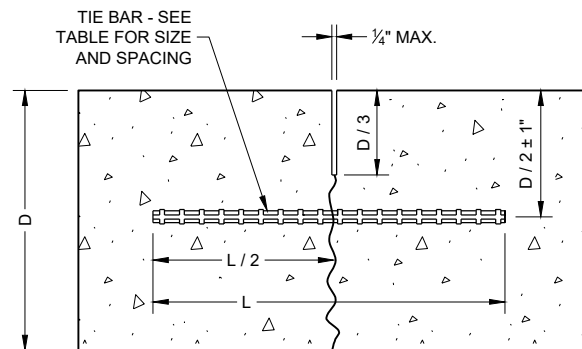
** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

GENERAL NOTES

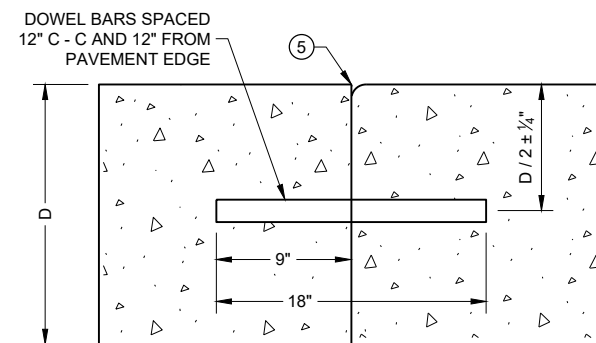
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



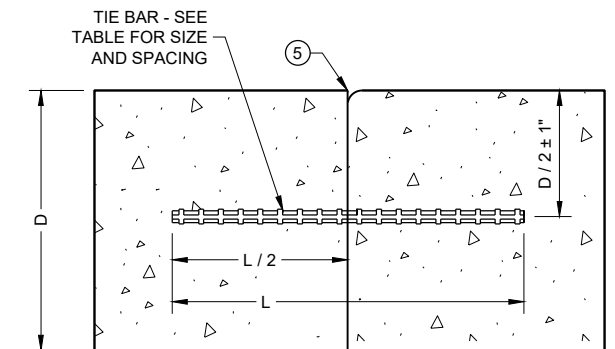
UNDOWELED TRANSVERSE



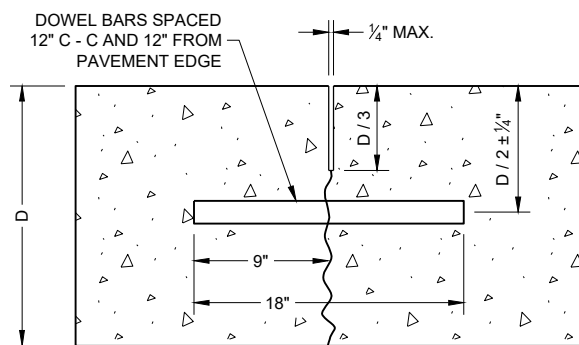
TIED LONGITUDINAL



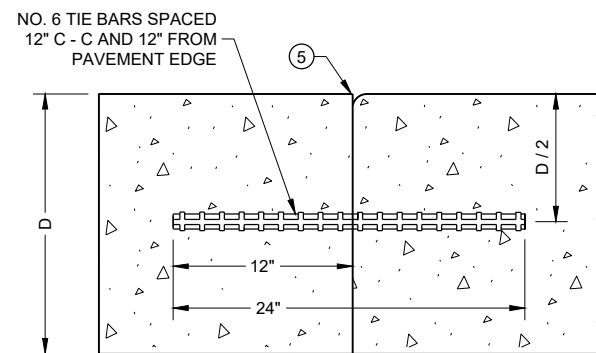
DOWELED TRANSVERSE ③



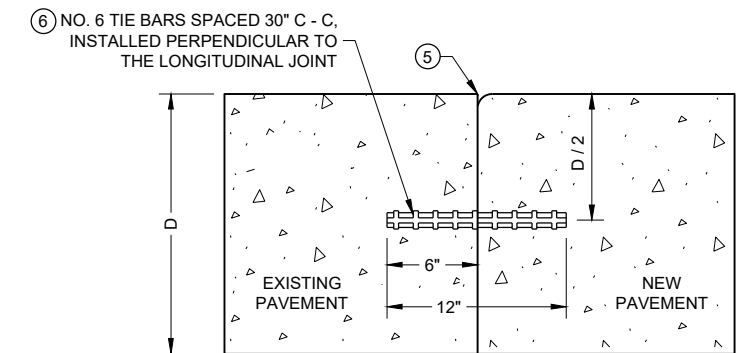
TIED LONGITUDINAL



DOWELED TRANSVERSE



TIED TRANSVERSE ③
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



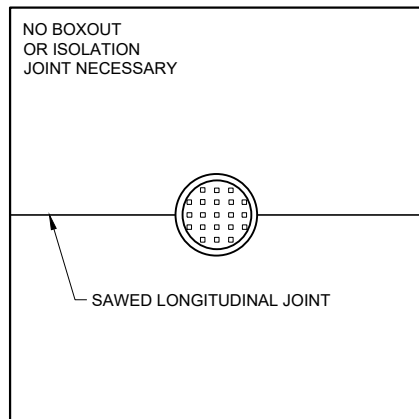
TIED LONGITUDINAL TO EXISTING

CONTRACTION JOINTS ②

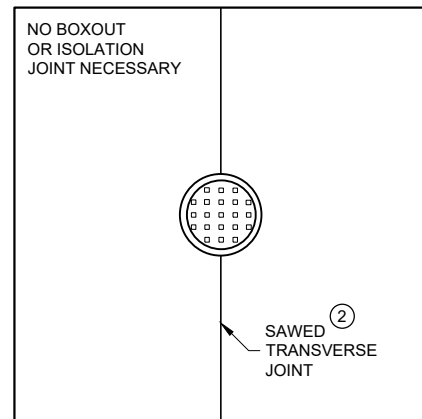
CONSTRUCTION JOINTS ④

**CONCRETE PAVEMENT
JOINT TYPES**

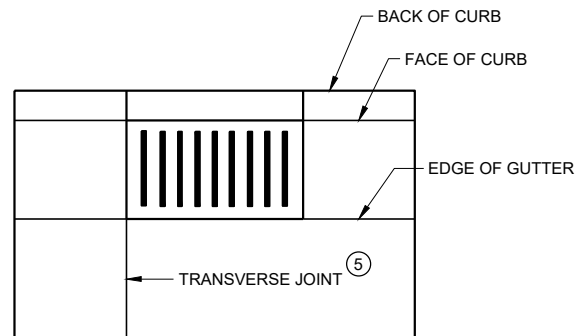
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MANHOLE WITH LONGITUDINAL JOINT



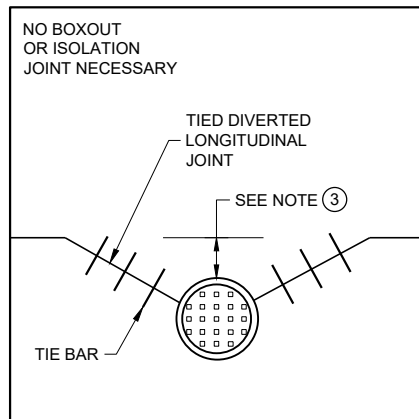
MANHOLE WITH TRANSVERSE JOINT



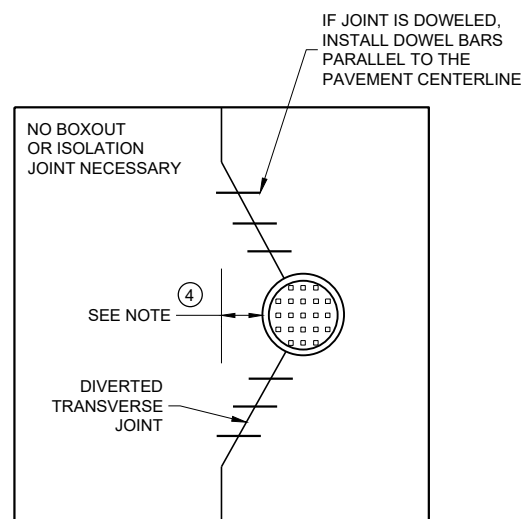
INLET WITH TRANSVERSE JOINT

GENERAL NOTES

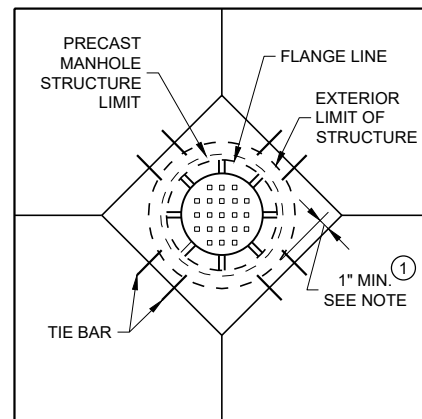
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1 FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL JOINT AT A 2:1 TAPER RATE TO THE CENTER OF THE MANHOLE. IF THE DISTANCE IS GREATER THAN 2 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ④ IF THE DISTANCE FROM THE EDGE OF THE MANHOLE TO THE NEAREST TRANSVERSE JOINT IS LESS 4 FEET OR LESS, REDIRECT JOINT TO INTERSECT THE CENTER OF THE MANHOLE. IF DISTANCE IS GREATER THAN 4 FEET, DO NOT DIVERT THE JOINT AND SAW AS NORMAL. PLACE REINFORCEMENT REBAR AROUND THE MANHOLE.
- ⑤ ALIGN TRANSVERSE JOINT WITH ONE EDGE OF INLET WHEN PRACTICAL.



MANHOLE WITH DIVERTED LONGITUDINAL CONTRACTION JOINT



MANHOLE WITH DIVERTED TRANSVERSE CONTRACTION JOINT

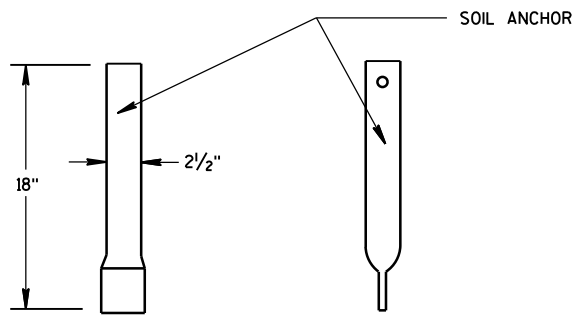
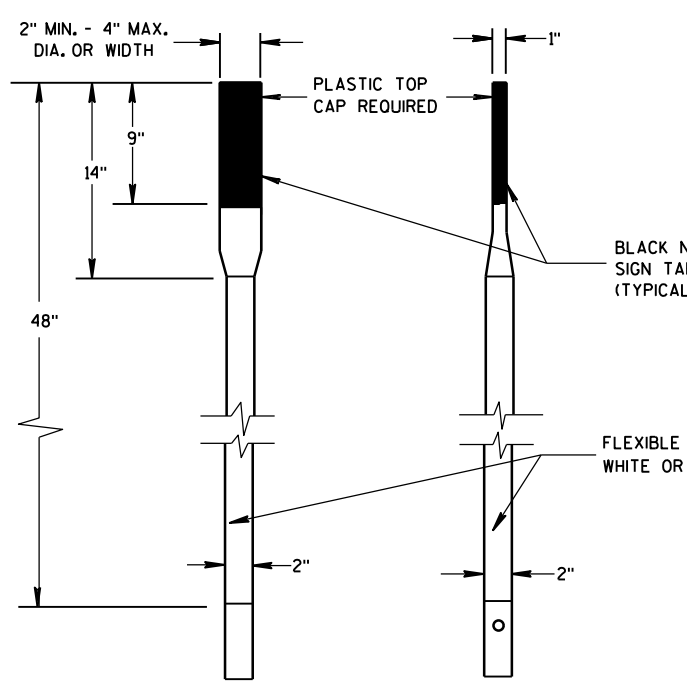


DIAGONAL MANHOLE BOXOUT FOR CONSTRUCTION JOINTS

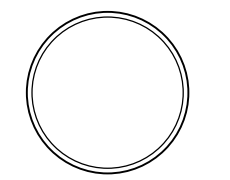
CONCRETE PAVEMENT JOINTING AT UTILITY FIXTURES

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

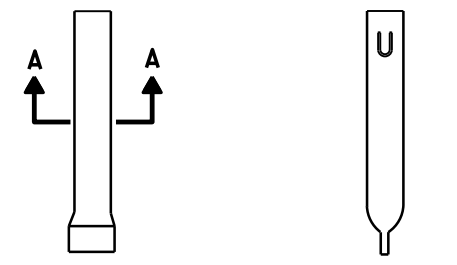
APPROVED
 May 2023 /S/ Peter Kemp P.E.
 DATE PAVEMENT SUPERVISOR



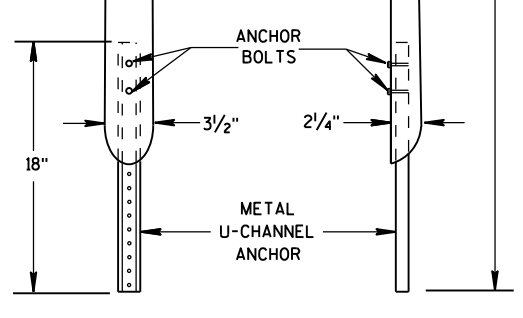
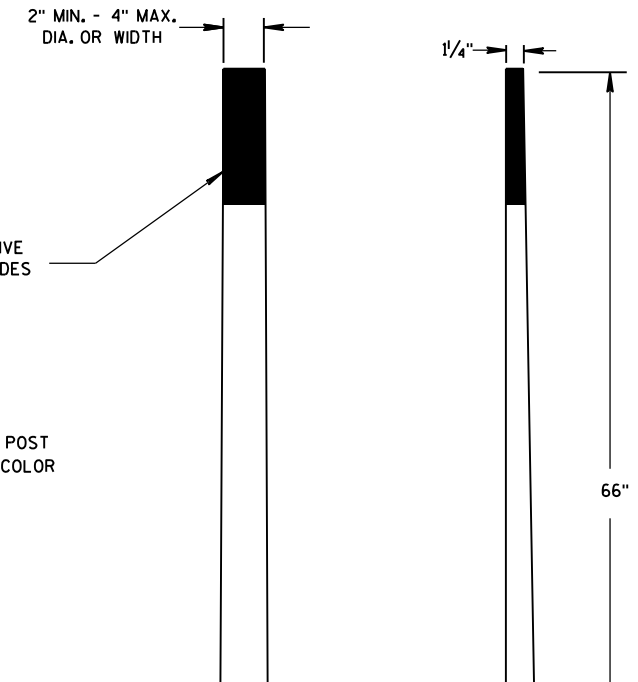
FRONT VIEW SIDE VIEW
ALTERNATE 1



SECTION A-A

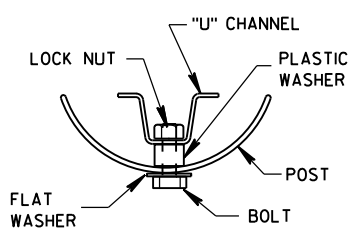


FRONT VIEW SIDE VIEW
ALTERNATE 1

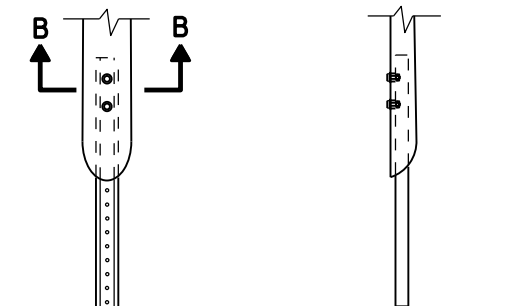


FRONT VIEW SIDE VIEW
ALTERNATE 2

FLEXIBLE MARKER POSTS

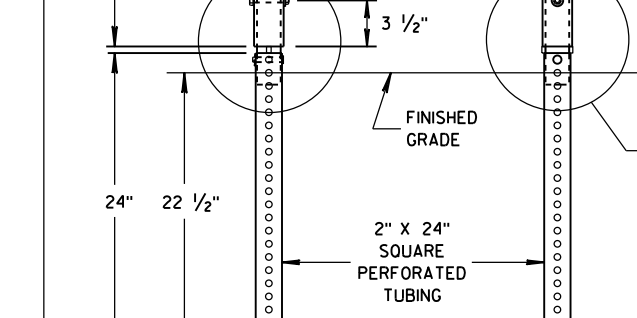
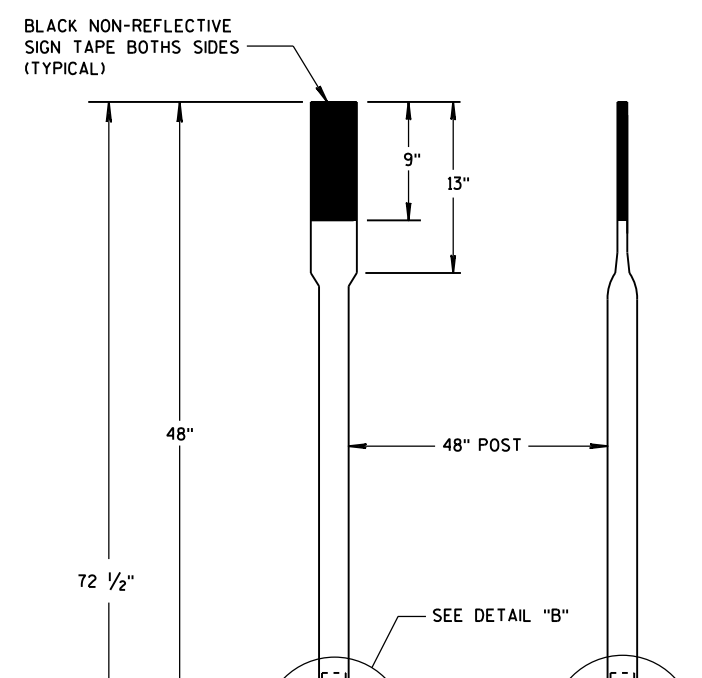


SECTION B-B

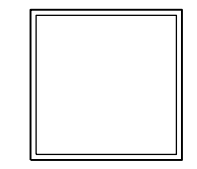


FRONT VIEW SIDE VIEW
ALTERNATE 2

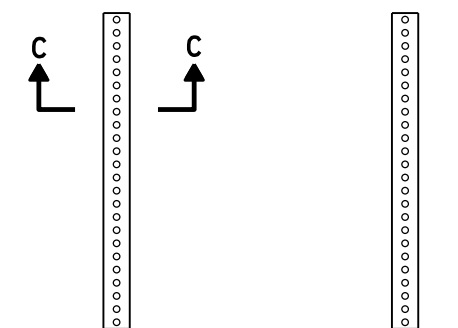
FLEXIBLE MARKER POST ANCHORS



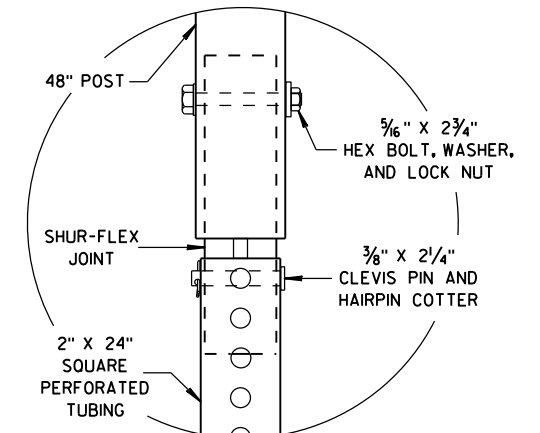
FRONT VIEW SIDE VIEW
ALTERNATE 3



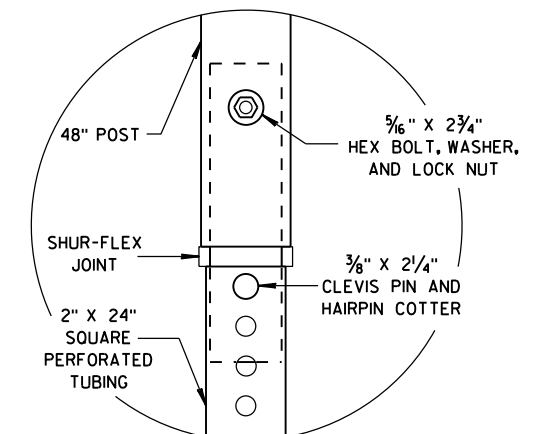
SECTION C-C



FRONT VIEW SIDE VIEW
ALTERNATE 3



DETAIL B



DETAIL C

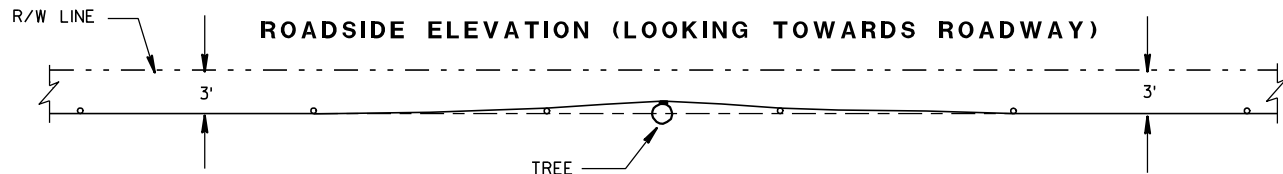
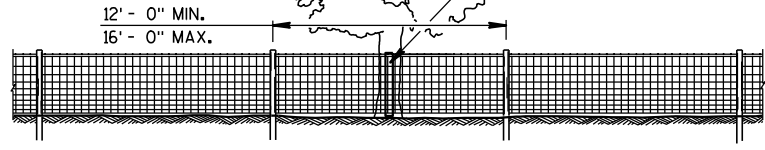
FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

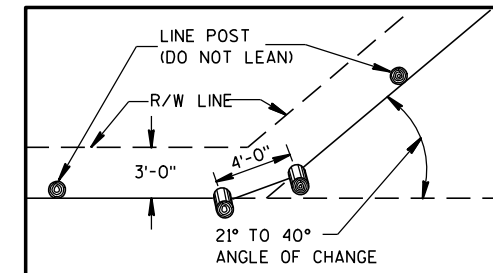
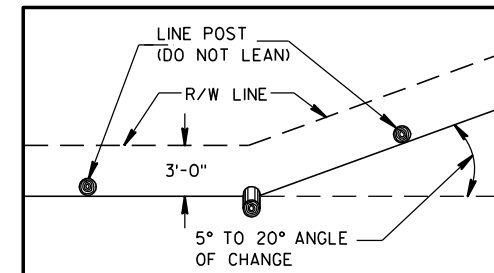
APPROVED
10/1/2012 DATE /S/ Travis Feltes
STATE TRAFFIC ENGINEER OF DESIGN
FHWA

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



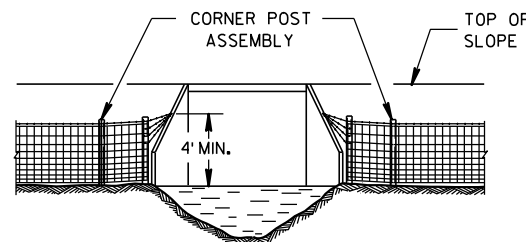
PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE



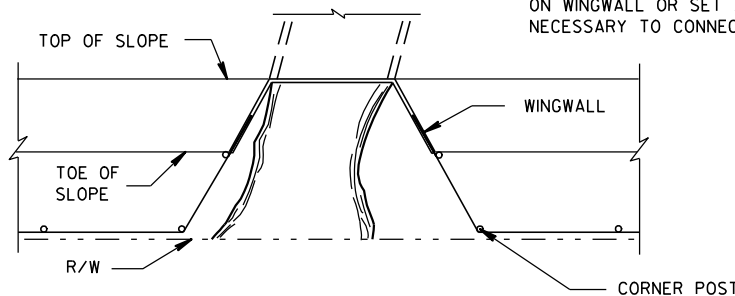
PLAN VIEW
SINGLE POST CORNER
PLAN VIEW
DOUBLE POST CORNER
RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

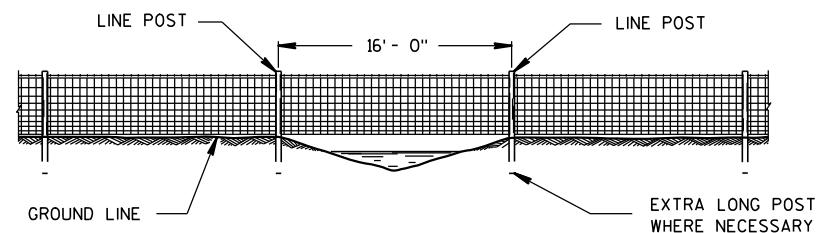
WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



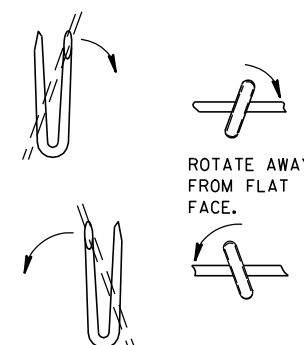
NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



FENCE INSTALLATION TO WINGWALLS



FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH



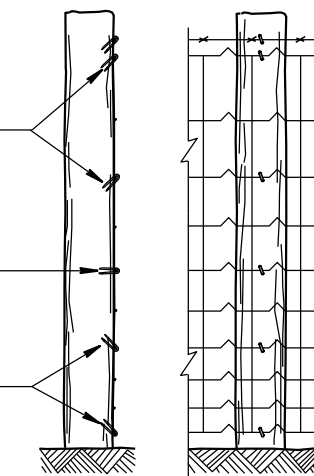
LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

STAPLES SLOPED DOWNWARD FOR SUSTAINED GRADES AND OVER KNOLLS.

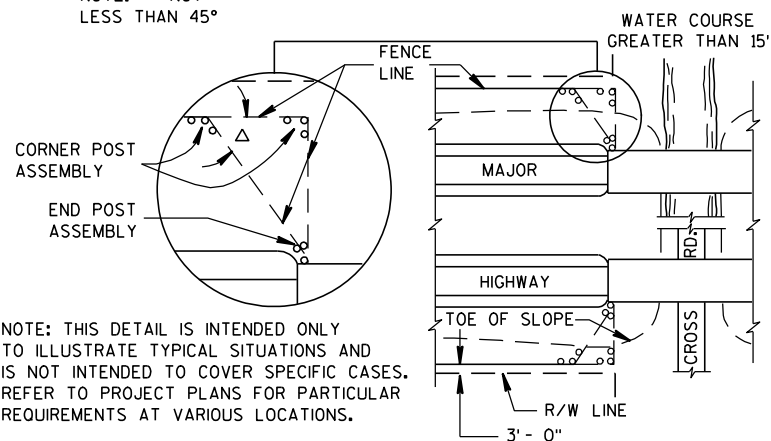
STAPLES LEVEL FOR LEVEL GROUND.

SLOPE UPWARDS WHEN FENCE TENDS TO LIFT.



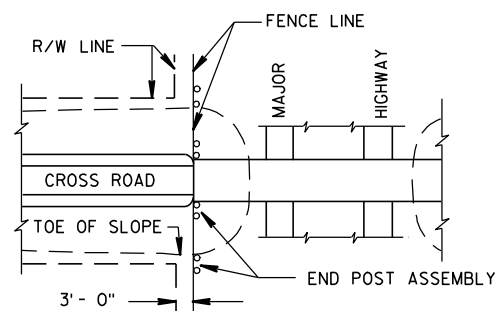
END ELEVATION
FARM SIDE ELEVATION
FENCE MOUNTING DETAIL

NOTE: Δ NOT LESS THAN 45°



NOTE: THIS DETAIL IS INTENDED ONLY TO ILLUSTRATE TYPICAL SITUATIONS AND IS NOT INTENDED TO COVER SPECIFIC CASES. REFER TO PROJECT PLANS FOR PARTICULAR REQUIREMENTS AT VARIOUS LOCATIONS.

PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH



PLAN VIEW
MAJOR HIGHWAY UNDERPASS

FENCE LOCATION AT STRUCTURES

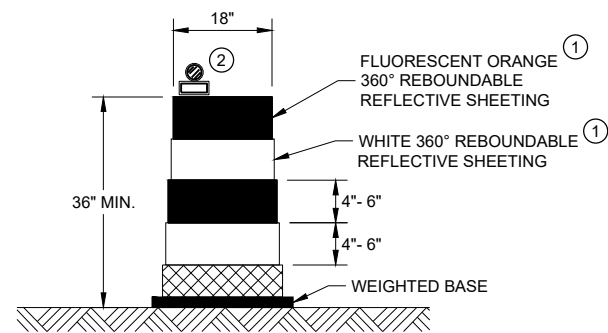
FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/4/2008
DATE

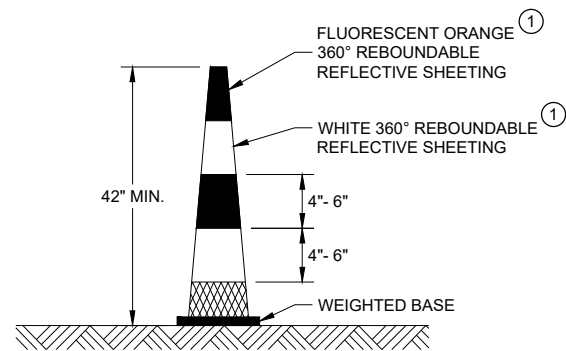
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA



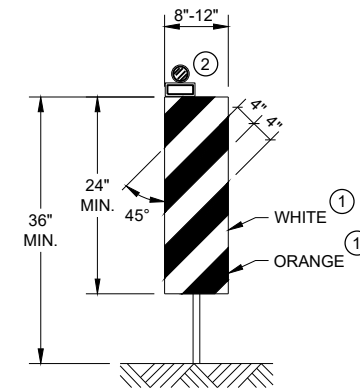
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS
BALLAST WIDTHS
RANGE FROM 14"-20"

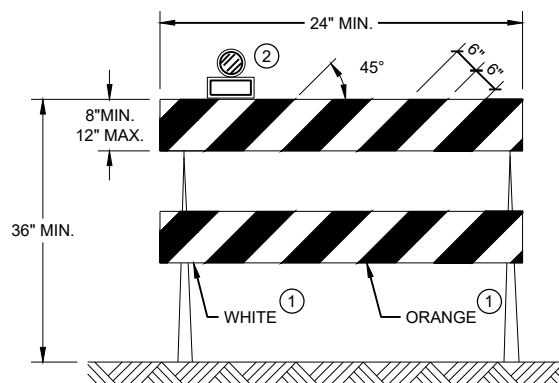


VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.

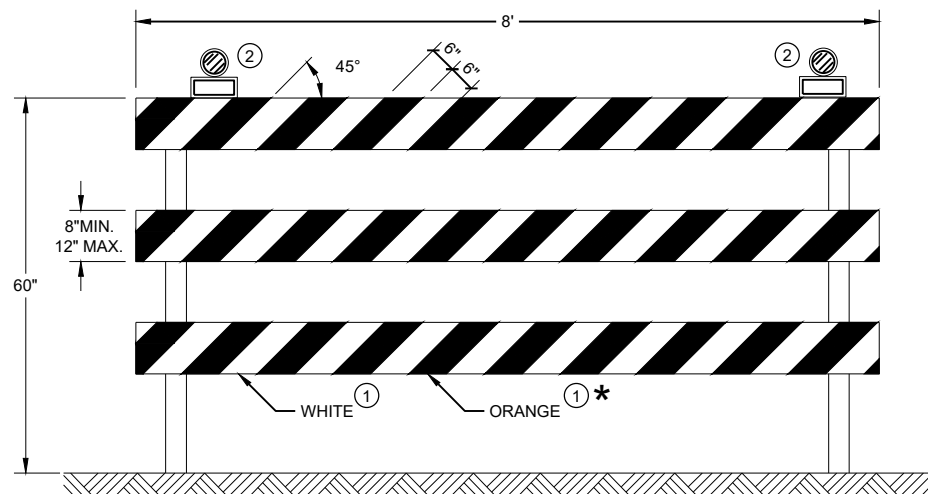
GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
TO THE TRAFFIC SIDE FOR CHANNELIZATION.








TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

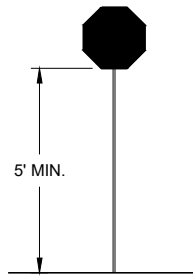
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.



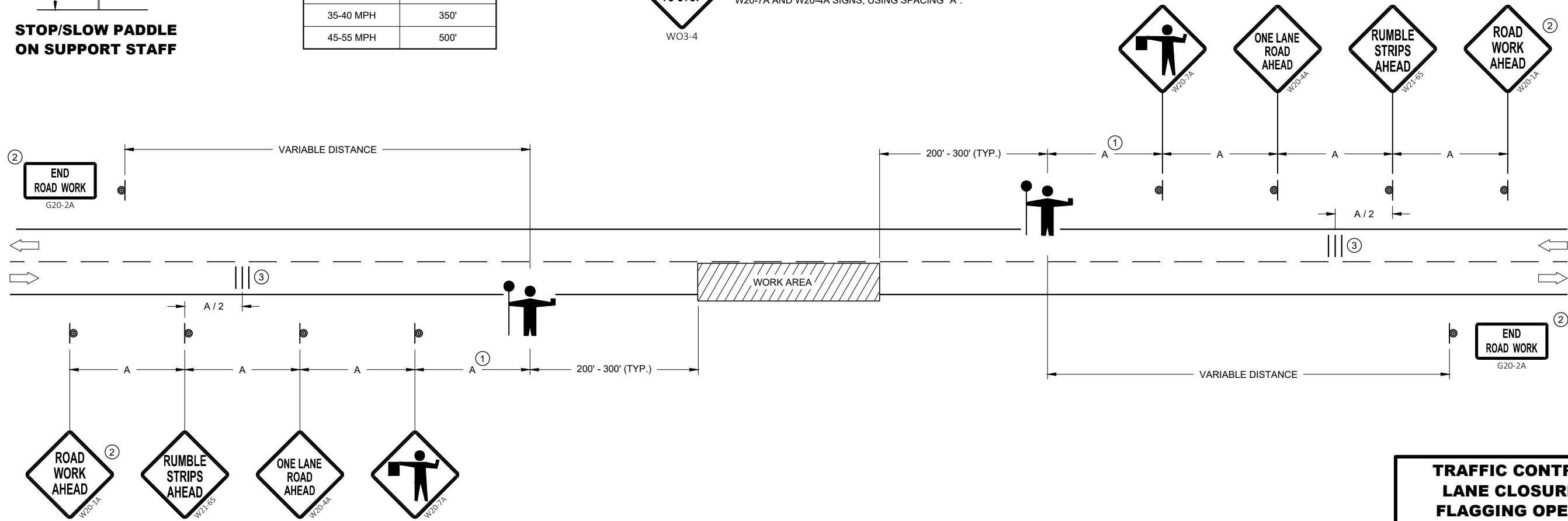
STOP/SLOW PADDLE ON SUPPORT STAFF

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



6

6

SDD 15C12 - 09a

SDD 15C12 - 09a








TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2022 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

GENERAL NOTES

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL CONE 42-INCH
-  TRAFFIC CONTROL DRUM
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

IF THE AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) STOPS WORKING, FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

- ① SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- ② IF FLAGGERS ARE PHYSICALLY NEEDED TO FLAG, REPLACE WO3-4 SIGNS WITH W20-7A SIGNS.

TEMPORARY PORTABLE RUMBLE STRIPS

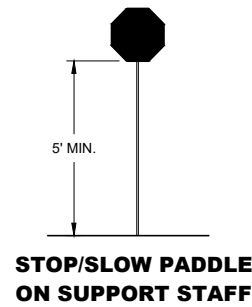
UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

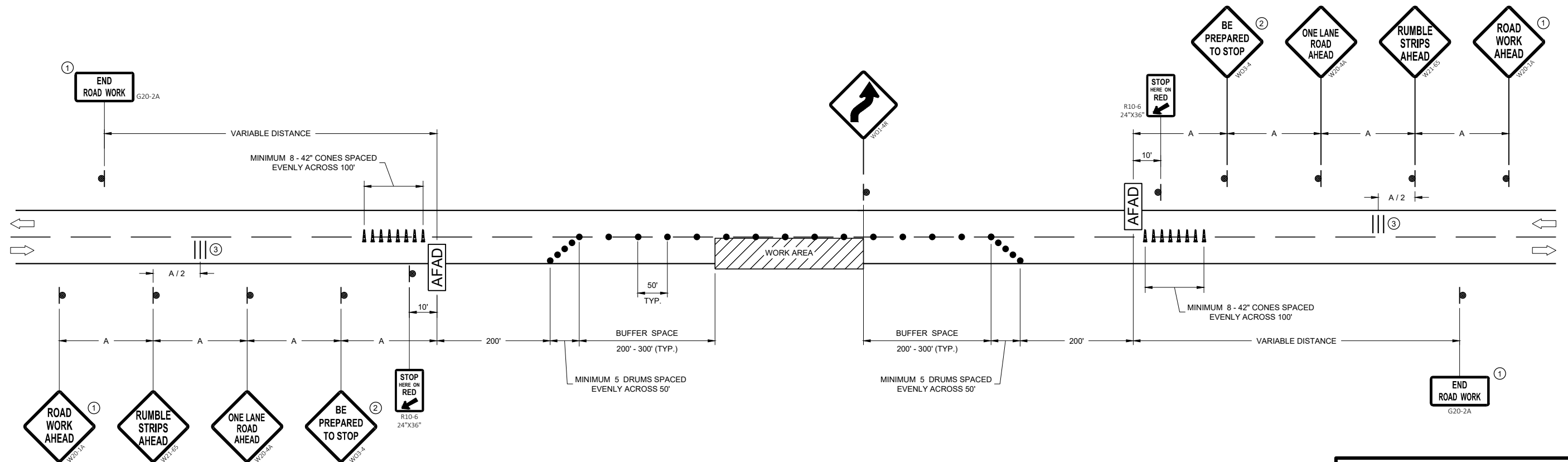
DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSELY AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER.



SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



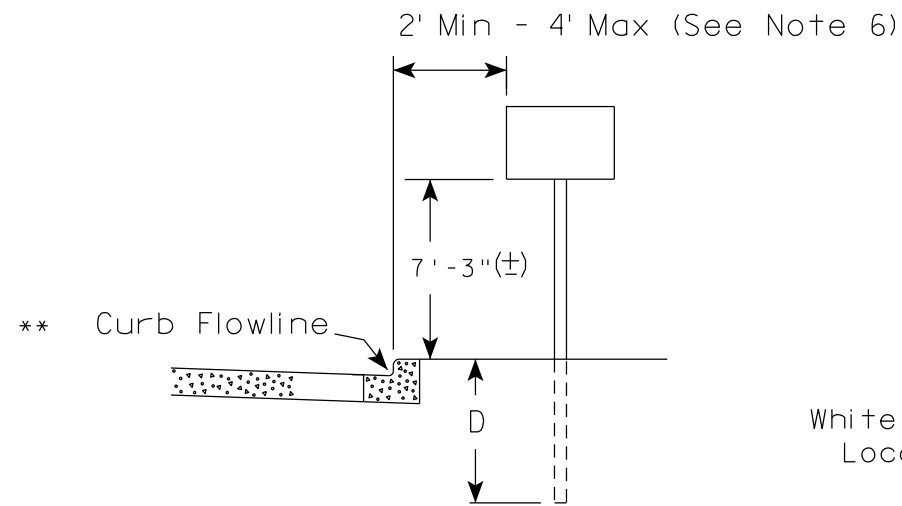
TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

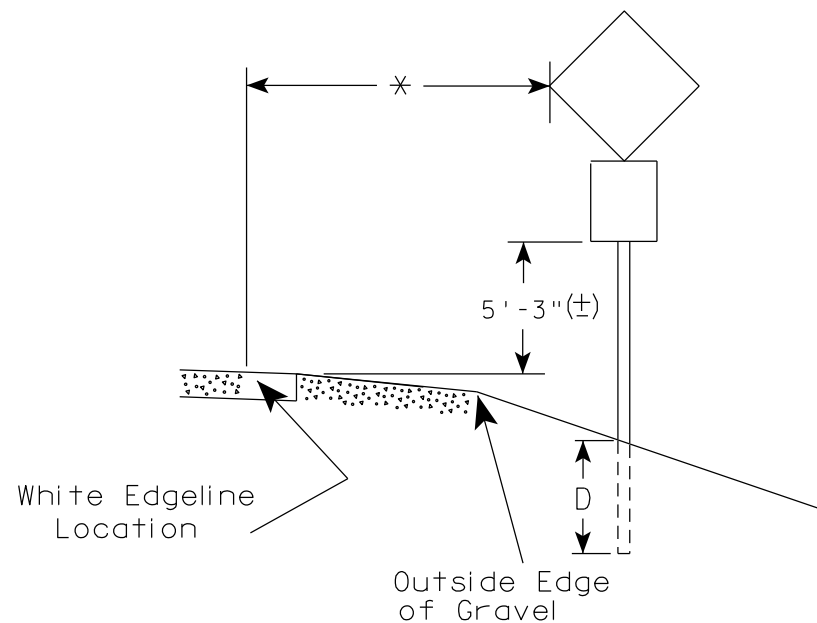
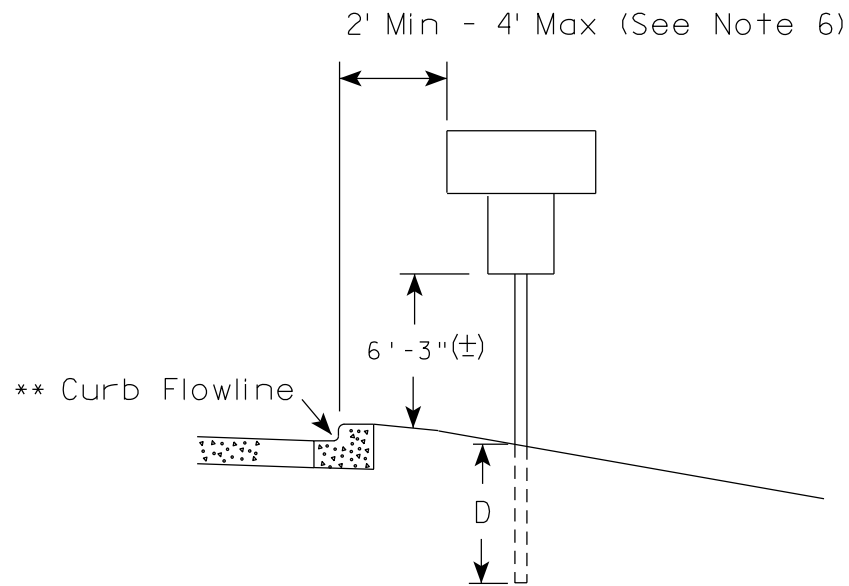
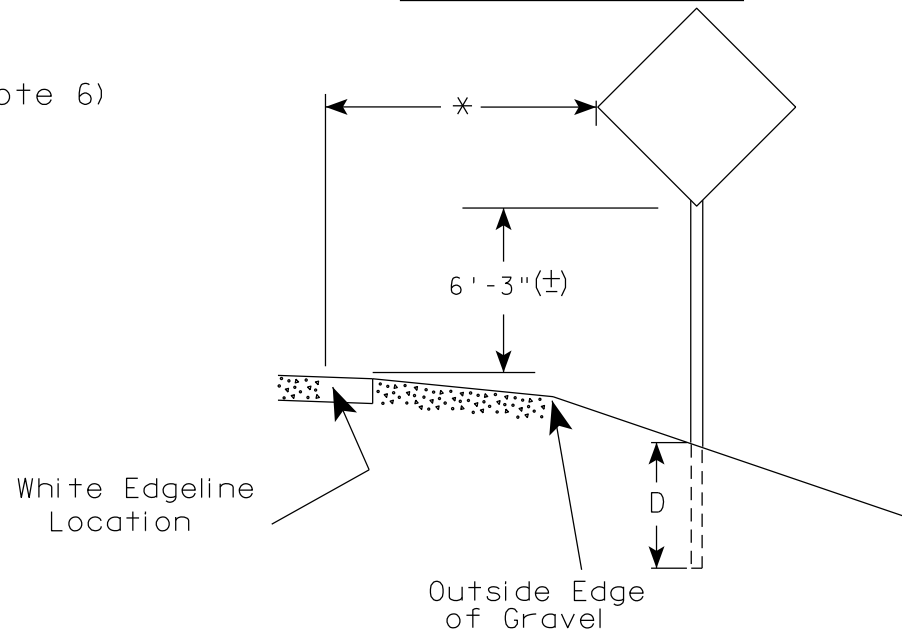
APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

* * The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

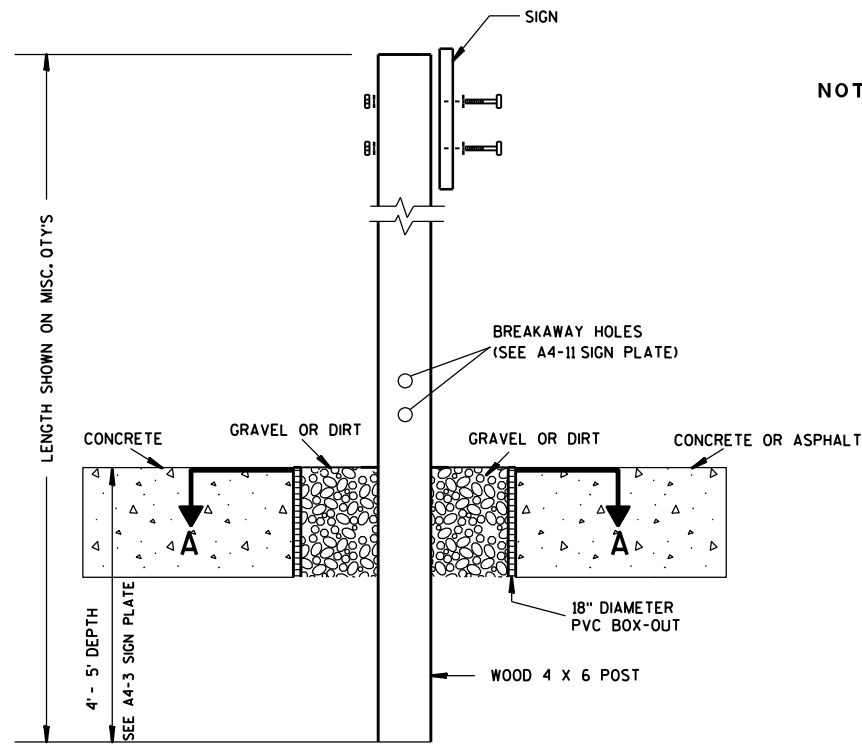
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

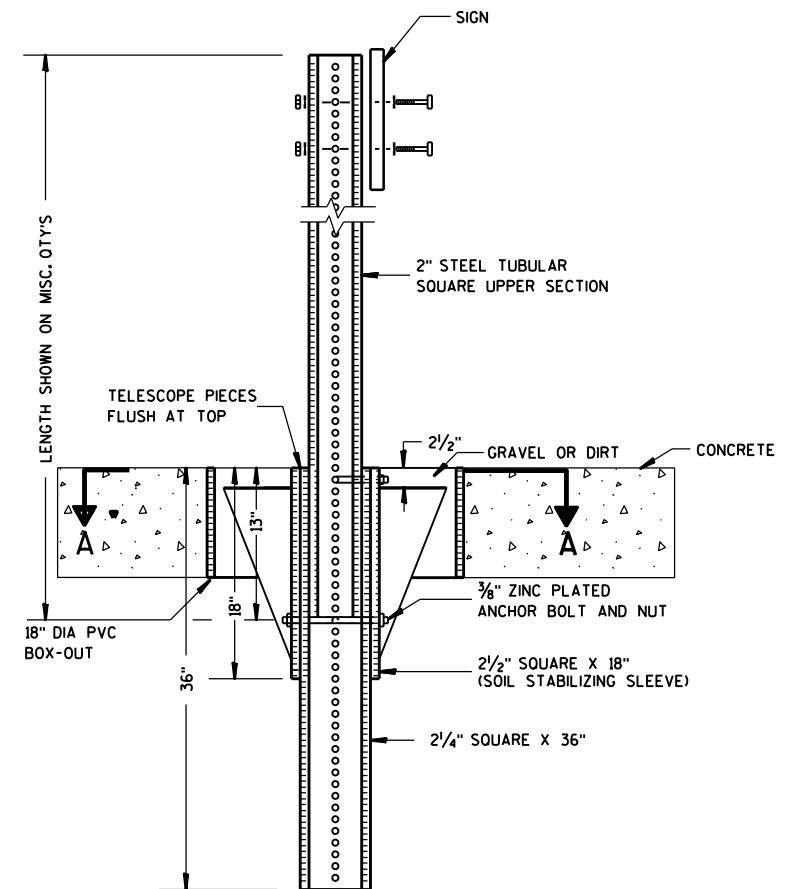
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

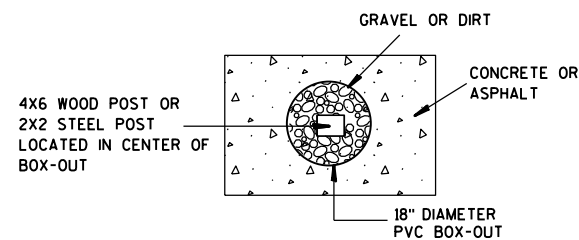
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES:**
1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
 2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
 3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

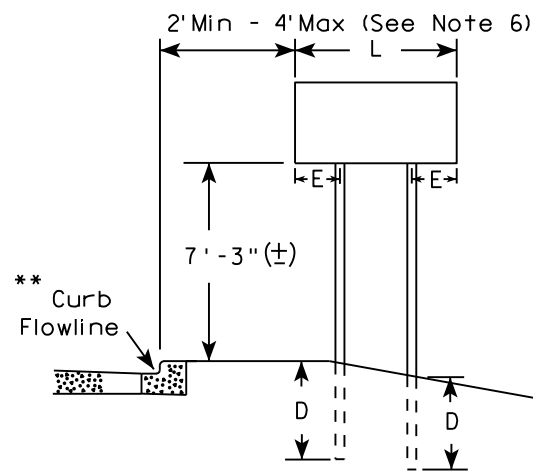
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R Rauch</i> <small>for State Traffic Engineer</small>	
DATE <u>1/27/14</u>	PLATE NO. <u>A4-3B.1</u>

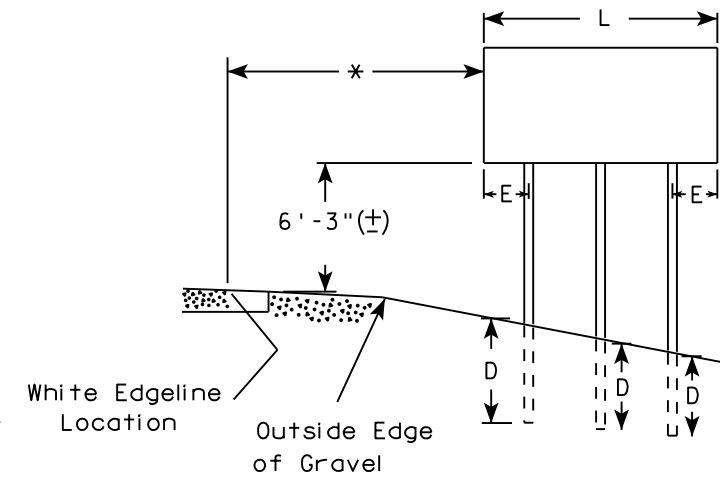
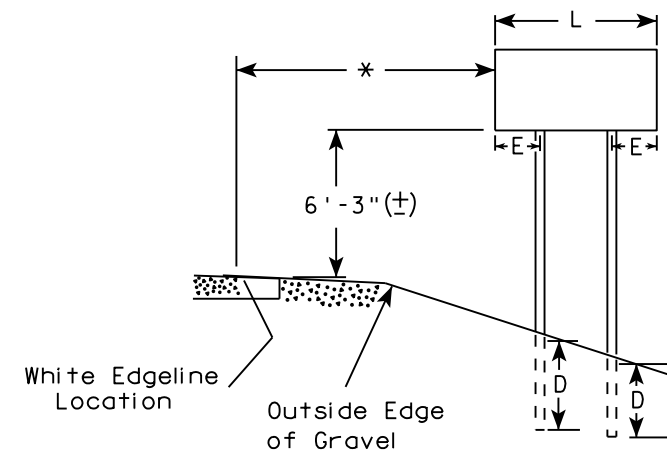
GENERAL NOTES

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3 inches.
5. J-Assemblies are considered to be one sign for mounting height.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

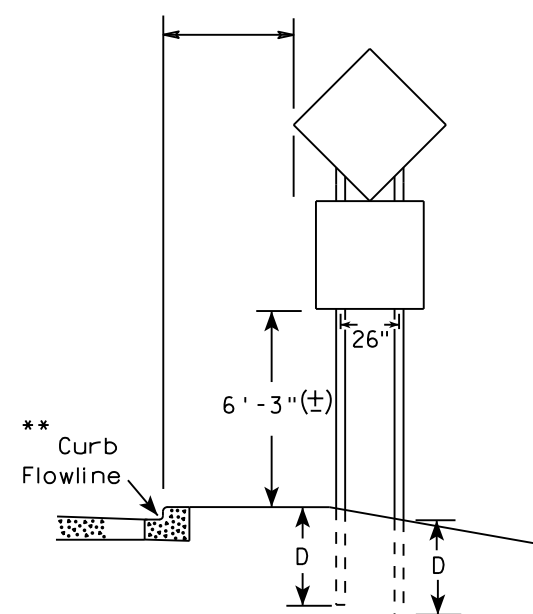
URBAN AREA



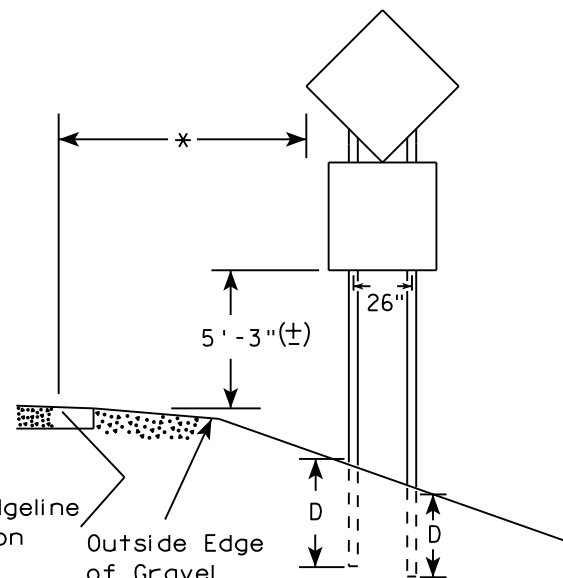
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

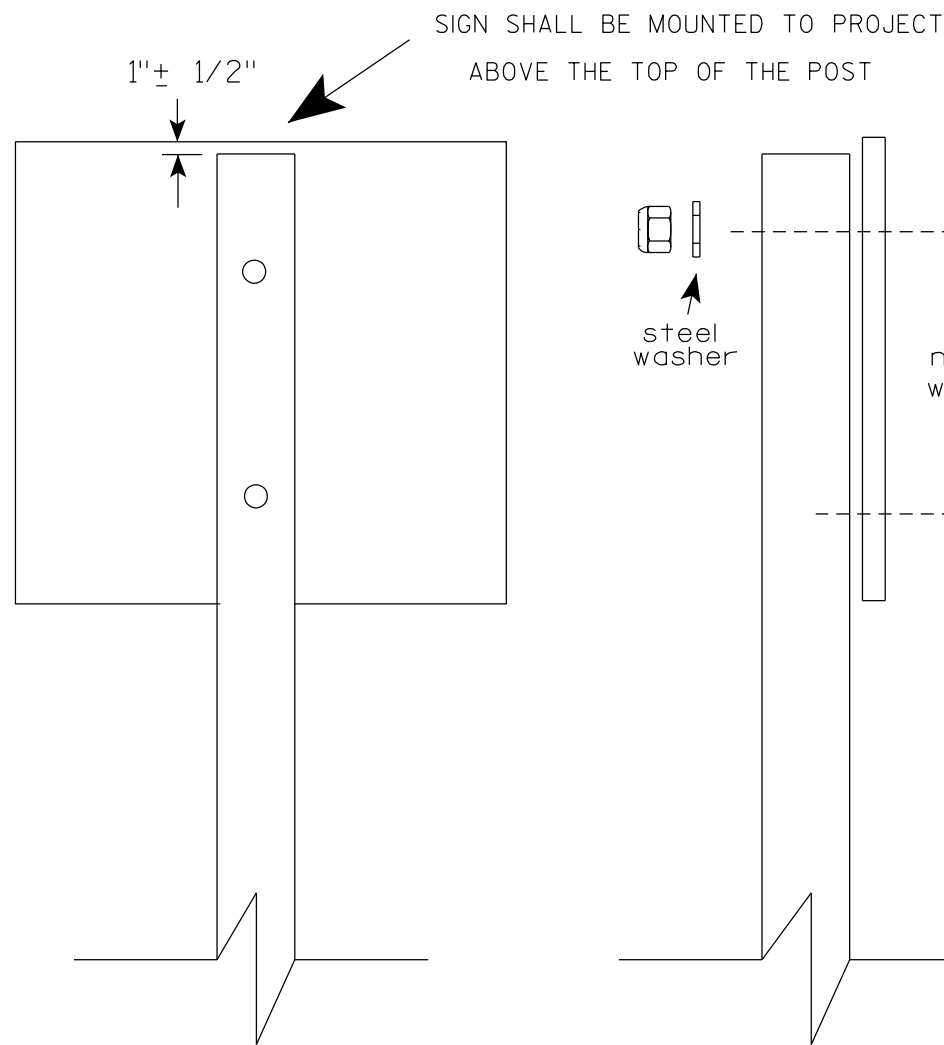
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

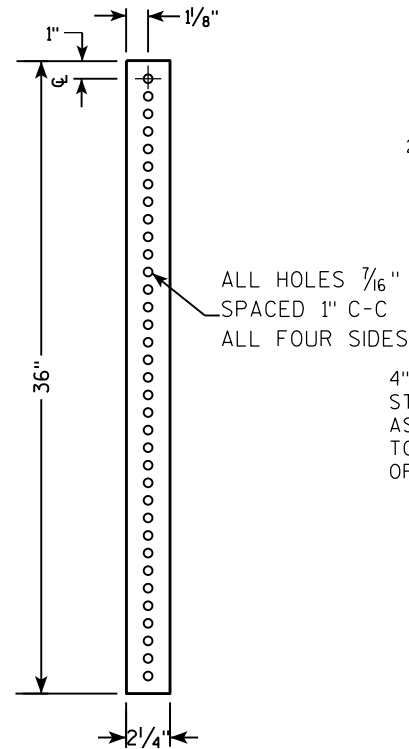
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

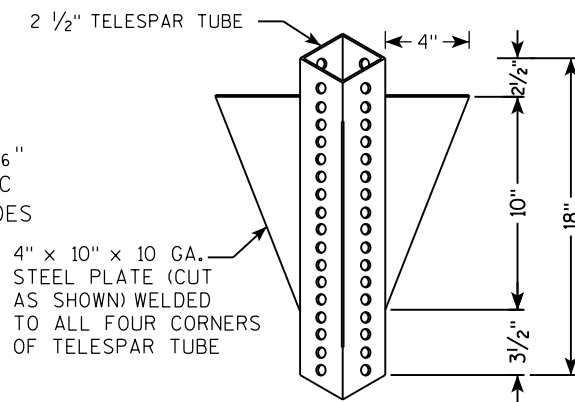
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

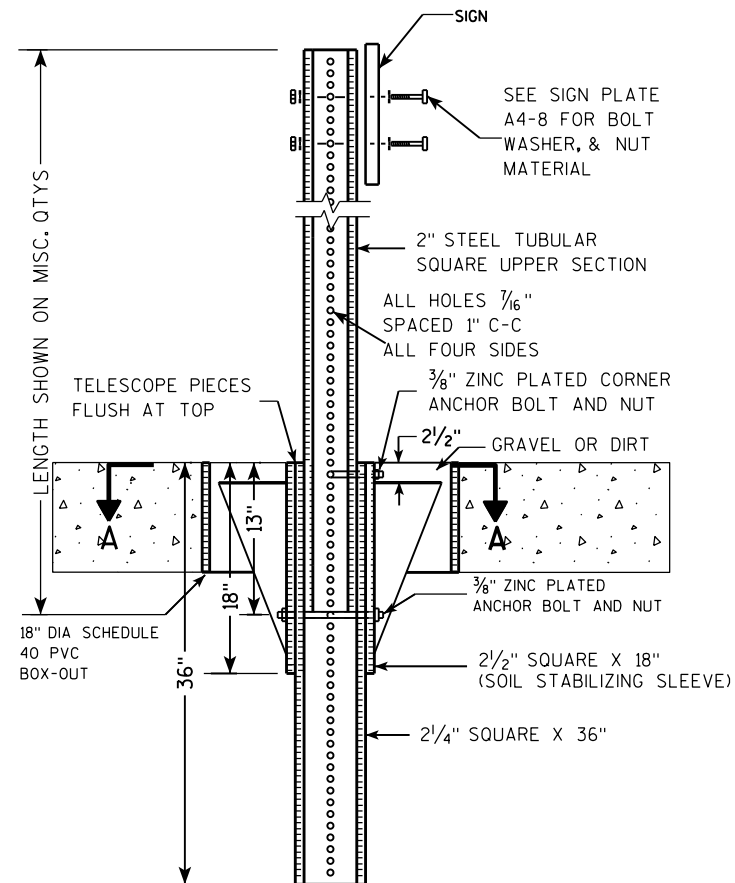
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



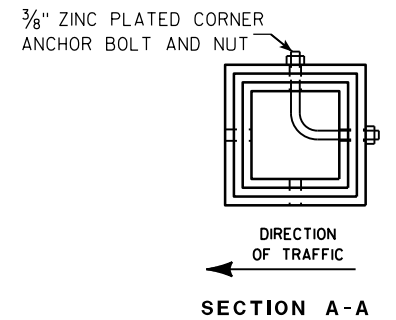
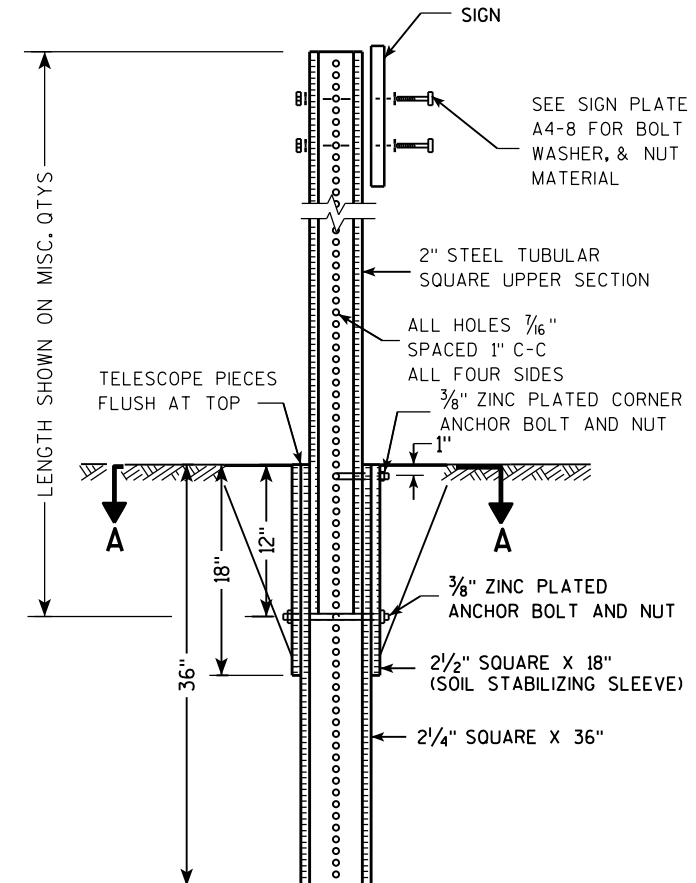
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



**DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)**



**DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)**



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

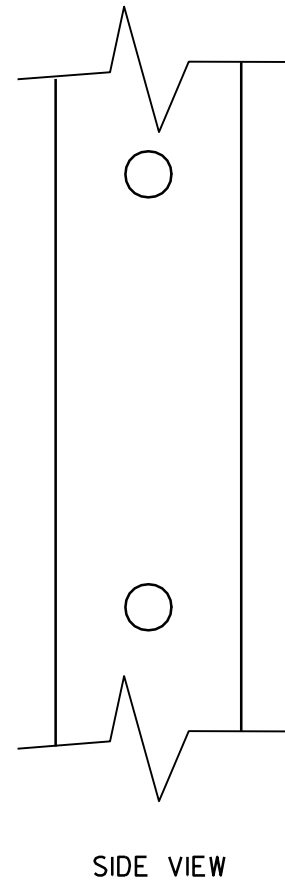
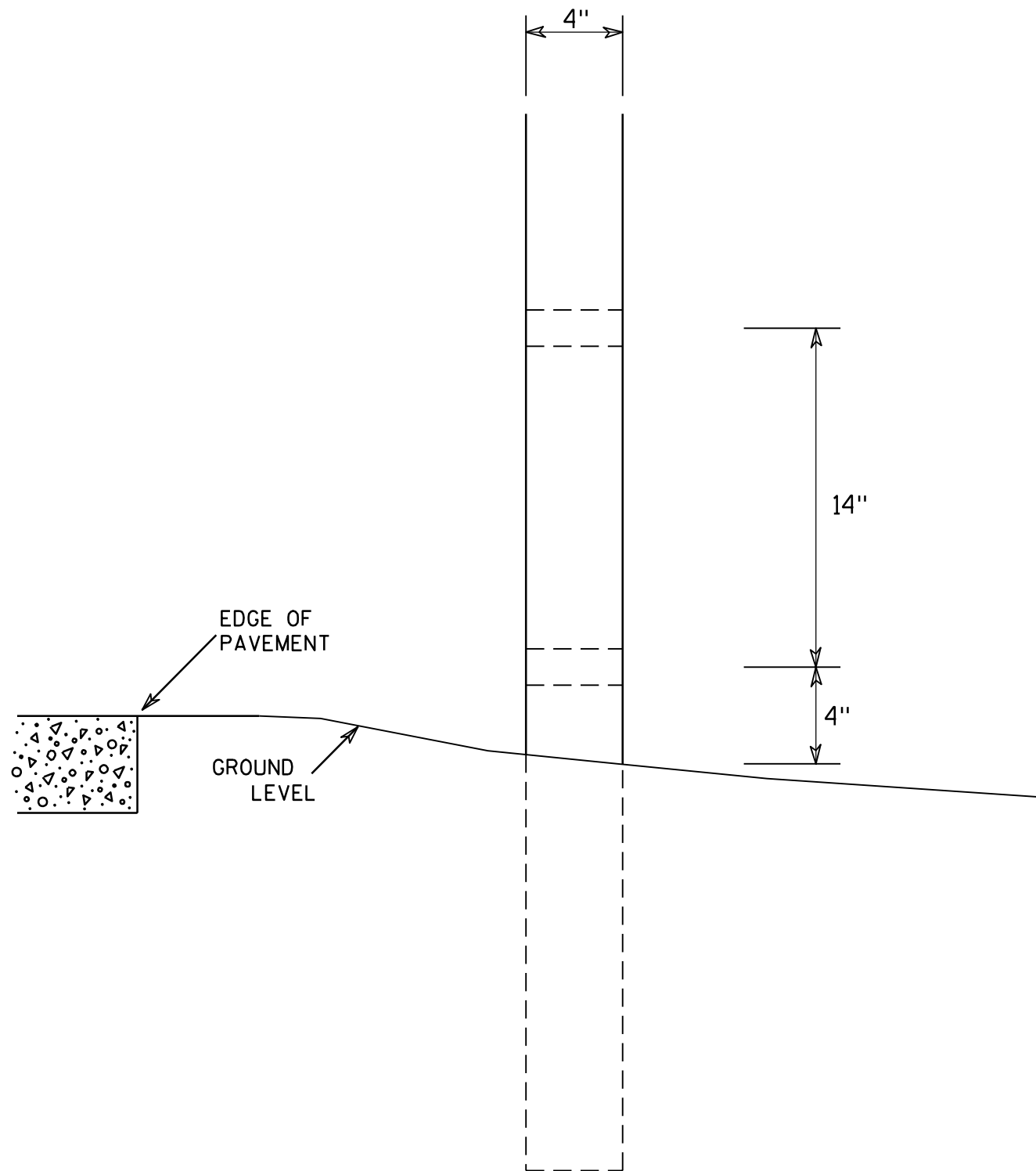
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

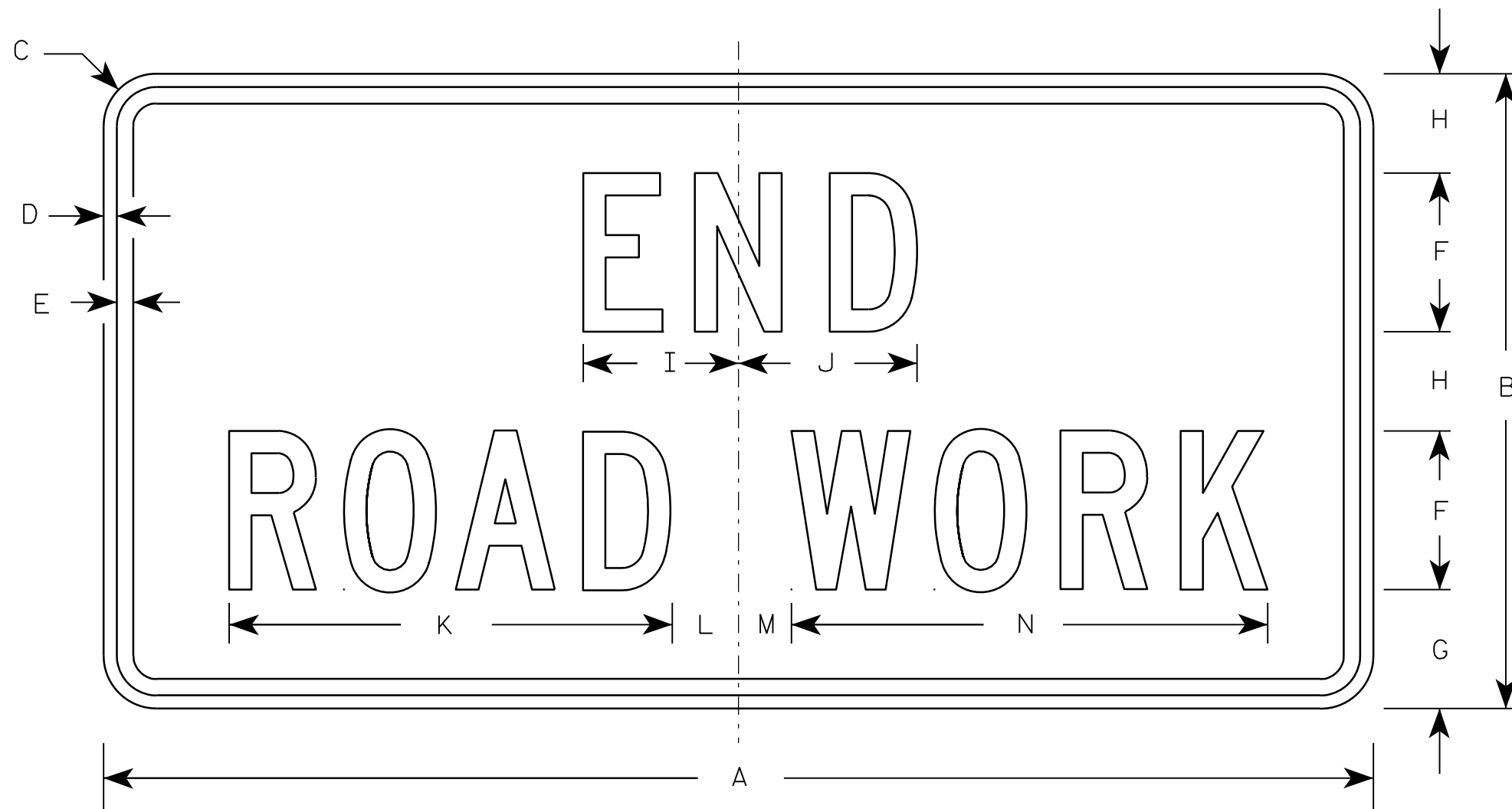
7

7

4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



G20-2A

7

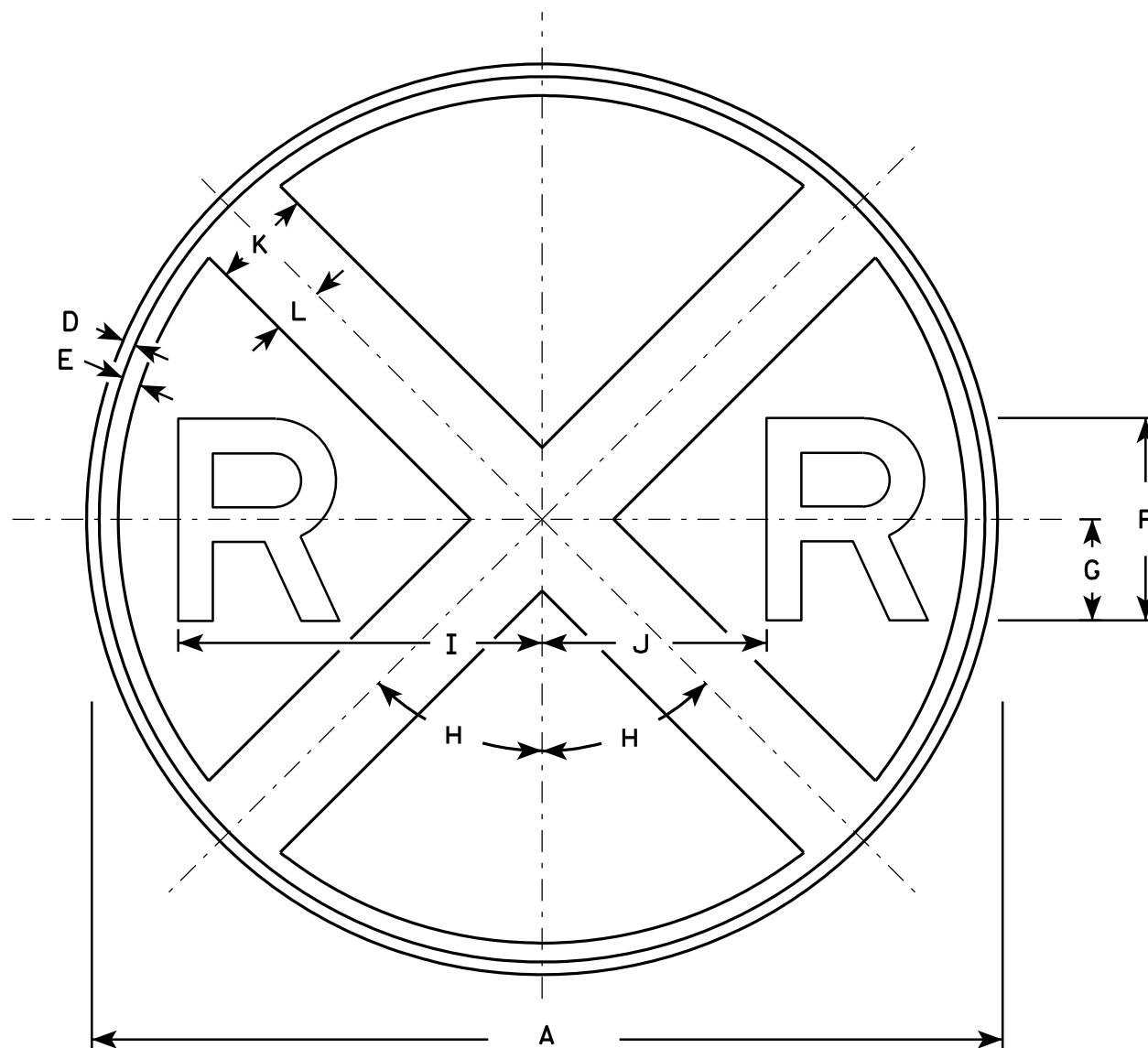
7

Metric equivalent for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

STANDARD SIGN G20-2A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/30/09	PLATE NO. G20-2A.8



W10-1

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Message Series - E

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30			3/8	5/8	7	3 1/2	45°	12 3/8	7 1/8	3	1 1/2															4.91
2S	36			5/8	3/4	8	4	45°	14 3/8	8 5/8	4	2															7.07
2M	36			5/8	3/4	8	4	45°	14 3/8	8 5/8	4	2															7.07
3																											
4	48			3/4	1 1/4	10	5	45°	18 3/8	11 5/8	5	2 1/2															12.57
5																											

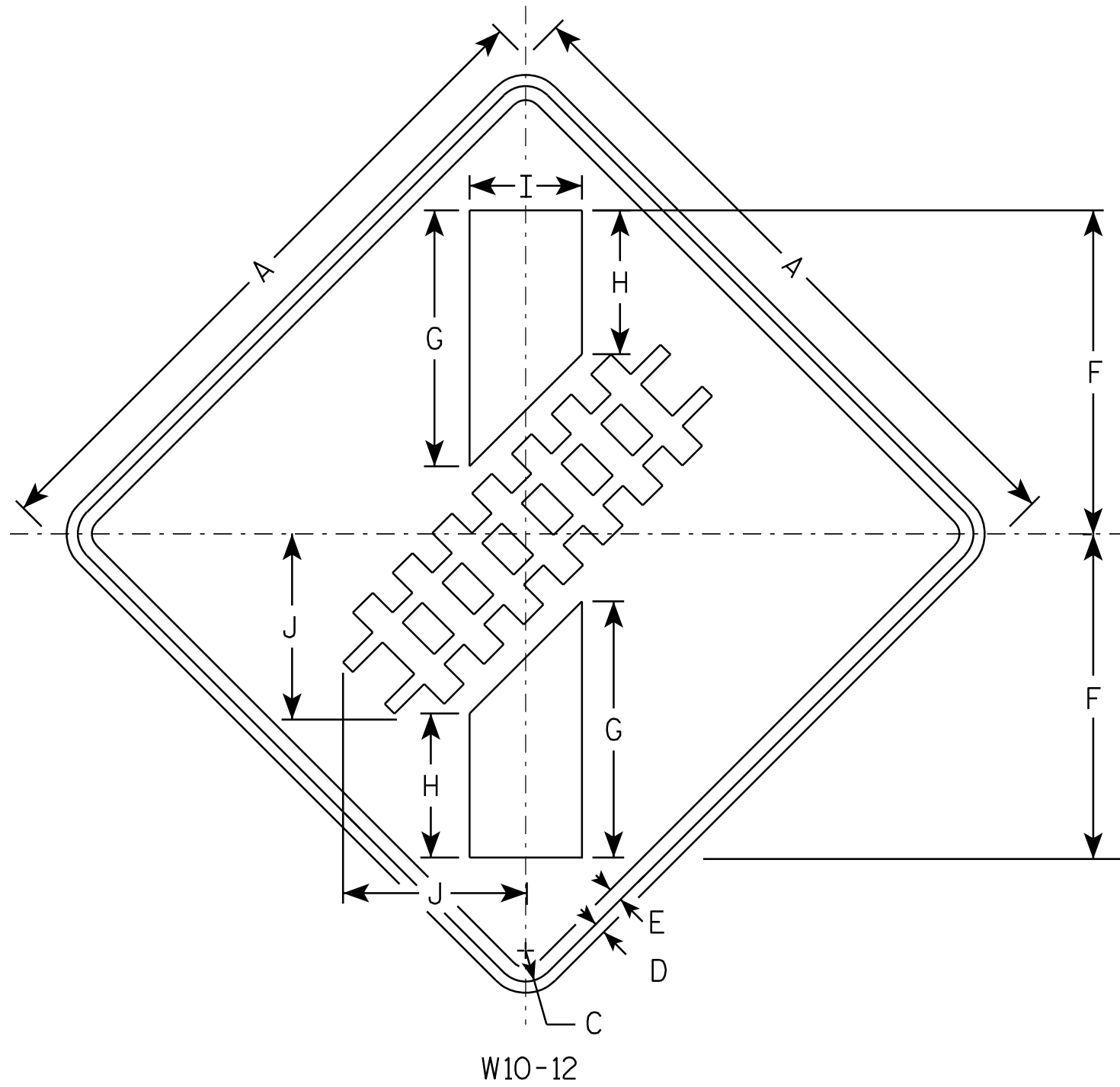
STANDARD SIGN
W10-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

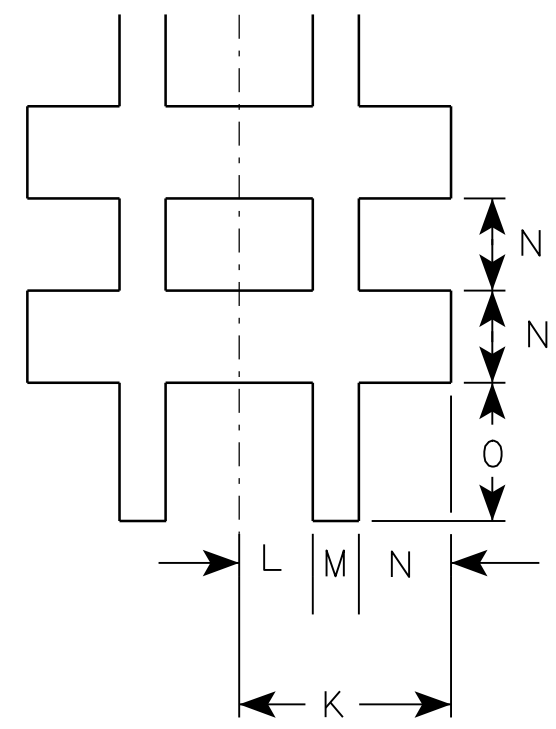
DATE 3/13/13 PLATE NO. W10-1.8

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



- NOTES**
1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
 2. Color:
Background - YELLOW
Message - BLACK
 3. W10-12L same as W10-12R except symbol is reversed.

BLOW UP OF DETAIL



7

7

W10-12

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36		1 3/8	1/2	5/8	17 3/8	13 3/4	7 3/4	6	9 7/8	3 1/2	1 1/4	3/4	1 1/2	2 1/4												9
2M	36		1 3/8	1/2	5/8	17 3/8	13 3/4	7 3/4	6	9 7/8	3 1/2	1 1/4	3/4	1 1/2	2 1/4												9
3	48		2 1/4	3/4	1	23 1/8	18 1/4	10 1/4	8	13 1/4	4 1/2	1 1/2	1	2	3												16
4	48		2 1/4	3/4	1	23 1/8	18 1/4	10 1/4	8	13 1/4	4 1/2	1 1/2	1	2	3												16
5	48		2 1/4	3/4	1	23 1/8	18 1/4	10 1/4	8	13 1/4	4 1/2	1 1/2	1	2	3												16

STANDARD SIGN
W10-12

WISCONSIN DEPT OF TRANSPORTATION

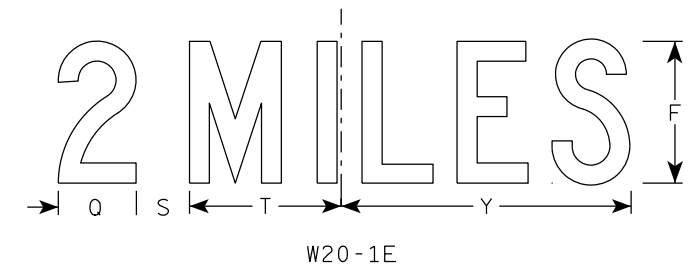
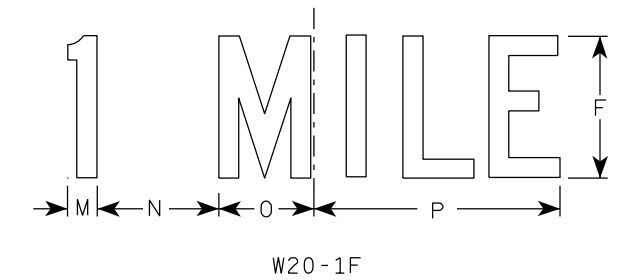
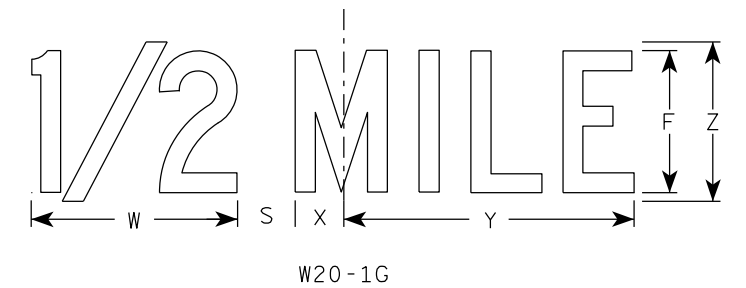
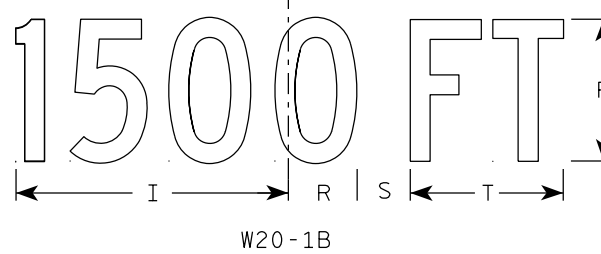
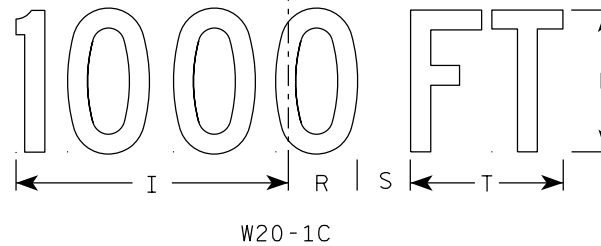
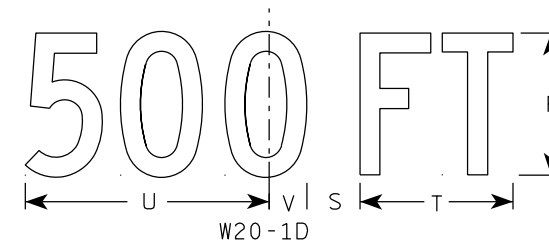
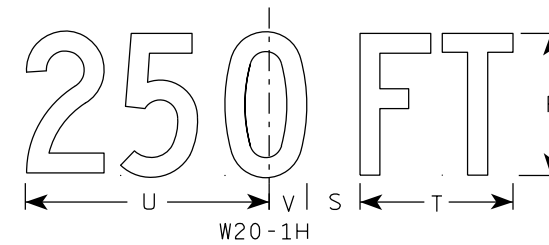
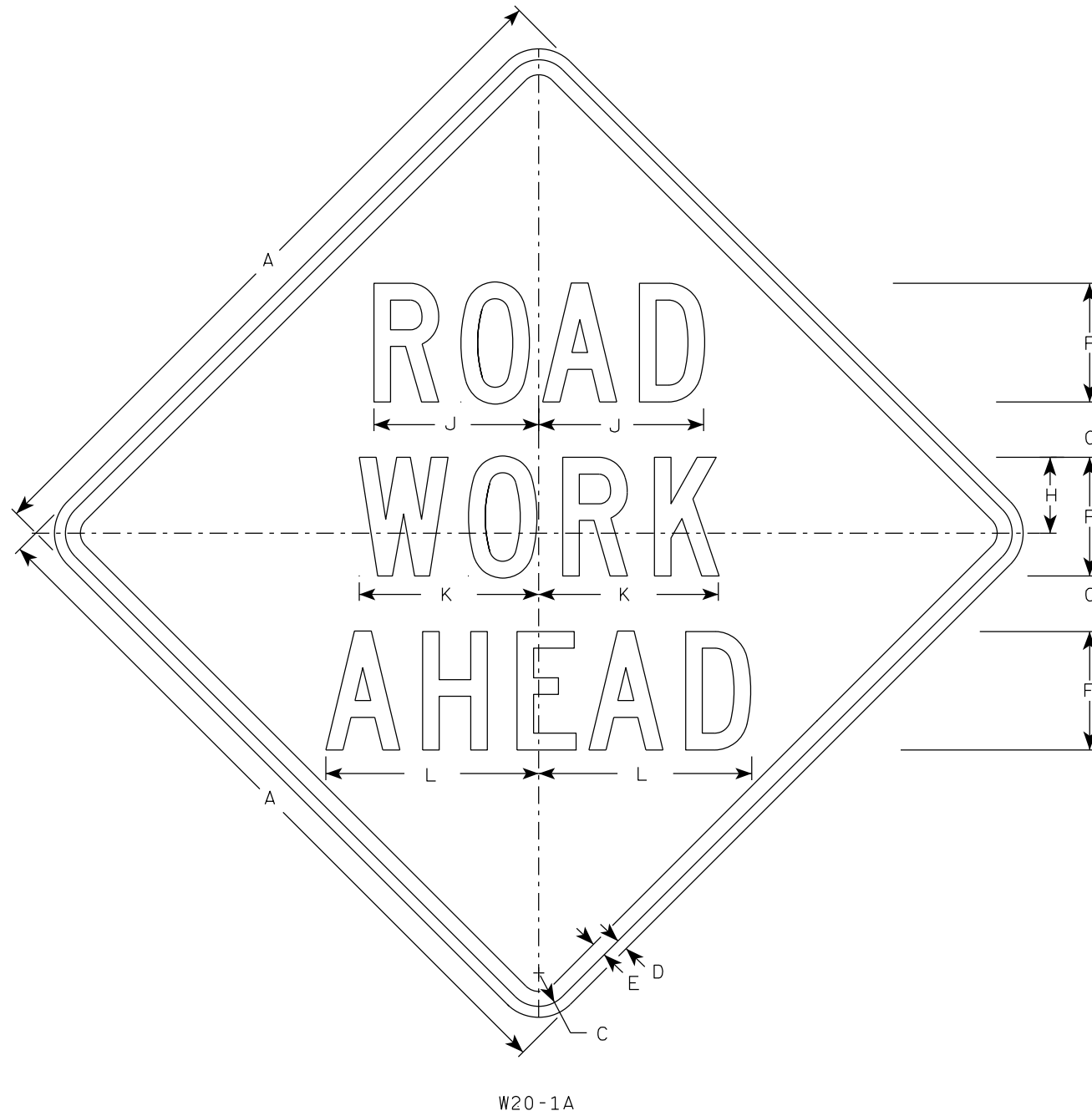
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/13/13 PLATE NO. W10-12.4

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



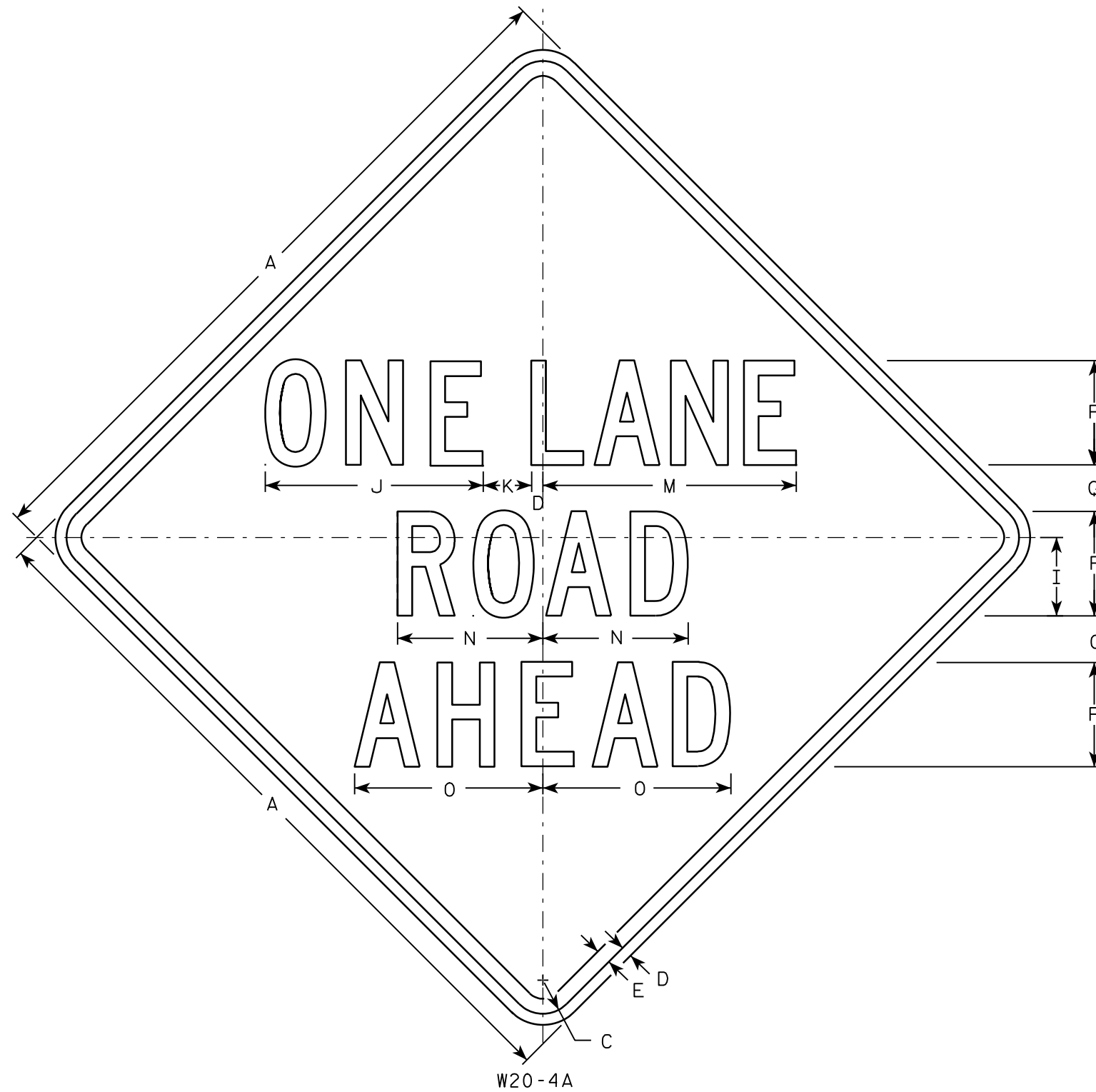
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, E, F, G & H

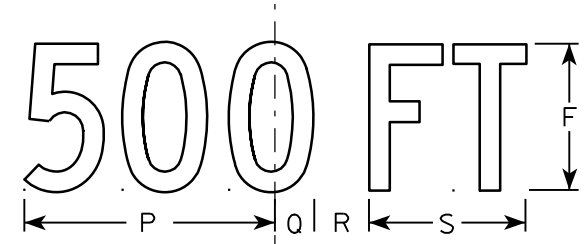
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

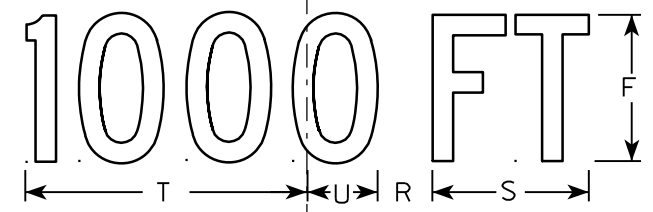
DATE 3/25/2020 PLATE NO. W20-1.11



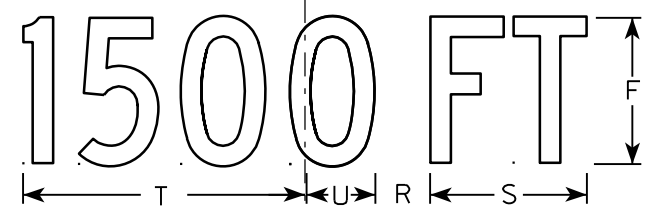
W20-4A



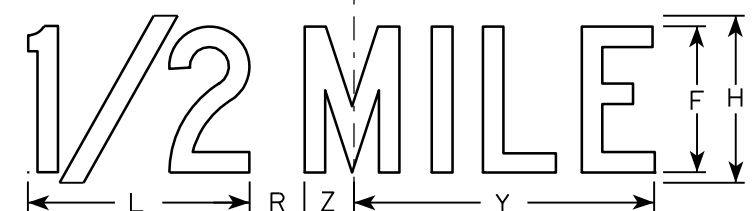
W20-4D



W20-4C



W20-4B



W20-4G



W20-4F

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 3/8	6	3 3/4	10 3/8	2 3/8	8	13 1/2	7	8 7/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-4A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-4.9

STH 15 - SALT SHED		AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 4
STATION	DISTANCE	CUT	FILL	EBS	CUT NOTE 1	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	
101+40.16	0	185.4	51.0	9.3	0.0	0.0	0.0	0.0	0.0	0
101+50.00	10	100.8	106.1	5.0	52.2	28.6	2.6	52.2	35.8	16
101+70.18	20	22.6	228.4	1.1	46.1	125.0	2.3	98.3	192.0	-94
102+00.00	30	6.6	448.5	0.3	16.1	373.9	0.8	114.3	659.4	-545
102+41.05	41	6.5	523.9	0.3	9.9	739.3	0.5	124.3	1,583.5	-1,459
102+50.00	9	8.6	523.1	0.4	2.5	173.5	0.1	126.8	1,800.4	-1,674
102+88.07	38	12.4	139.3	0.6	14.8	467.0	0.7	141.6	2,384.1	-2,243
103+00.00	12	12.3	212.5	0.6	5.5	77.8	0.3	147.0	2,481.3	-2,334
103+25.00	25	9.5	278.6	0.5	10.1	227.4	0.5	157.1	2,765.5	-2,610
103+50.00	25	0.1	275.2	0.0	4.4	256.4	0.2	161.5	3,086.0	-2,928
103+75.00	25	0.0	262.7	0.0	0.0	249.0	0.0	161.5	3,397.3	-3,243
104+00.00	25	0.0	266.5	0.0	0.0	245.0	0.0	161.5	3,703.5	-3,553
104+25.00	25	0.0	0.0	0.0	0.0	123.4	0.0	161.5	3,857.7	-3,708
104+50.00	25	0.0	0.0	0.0	0.0	0.0	0.0	161.5	3,857.7	-3,708
COLUMN TOTALS					161.5	3,086.2	8.1			

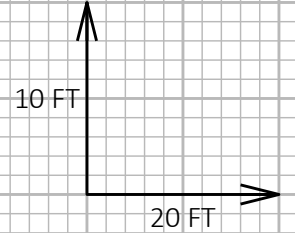
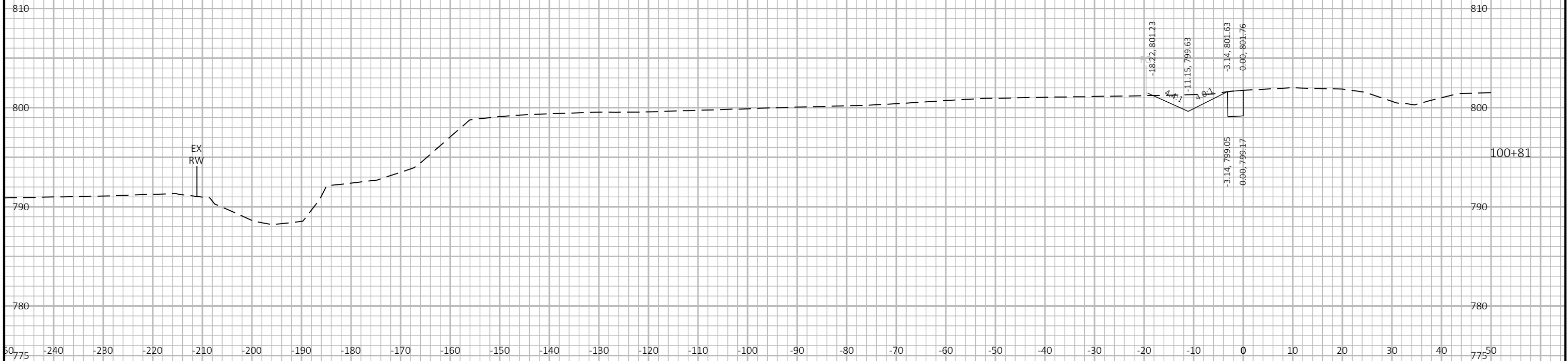
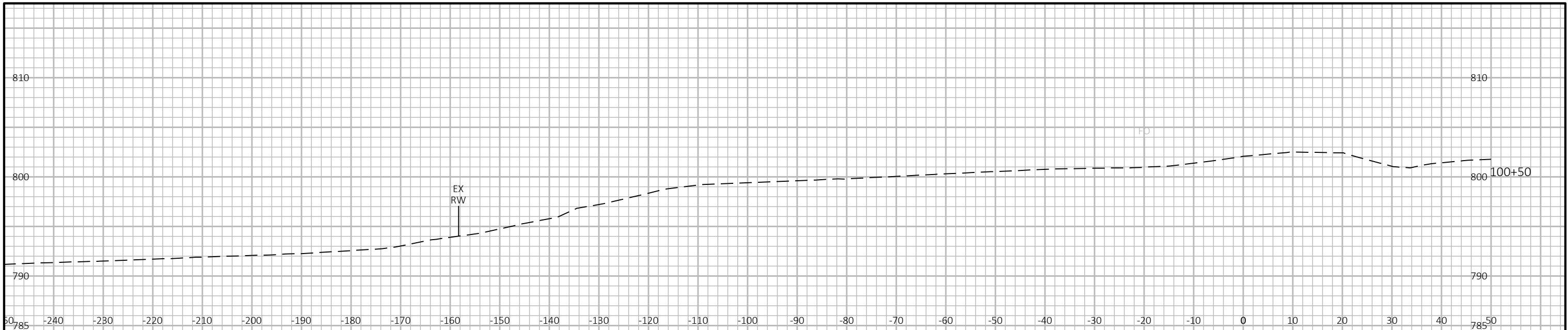
NOTES:

- 1) CUT: CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
- 2) FILL: FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL
- 3) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)

STH 15 - DITCH		AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		MASS ORDINATE NOTE 4
STATION	DISTANCE	CUT	FILL	EBS	CUT NOTE 1	FILL NOTE 3	EBS	CUT 1.00 NOTE 1	EXPANDED FILL 1.25	
0+00 D	0	19.8	0.1	1.0	0.0	0.0	0.0	0.0	0.0	0
0+33 D	33	106.5	0.0	5.3	77.1	0.1	3.9	77.1	0.1	77
0+50 D	17	109.9	0.0	5.5	68.4	0.0	3.4	145.5	0.1	145
1+00 D	50	64.0	1.7	3.2	161.0	1.6	8.0	306.4	2.1	304
1+38 D	38	29.0	8.7	1.5	64.7	7.3	3.2	371.1	11.2	360
1+50 D	12	25.3	13.0	1.3	12.5	5.0	0.6	383.6	17.4	366
1+84 D	34	0.0	152.7	0.0	16.2	105.8	0.8	399.8	149.6	250
2+00 D	16	0.1	139.2	0.0	0.0	83.9	0.0	399.8	254.5	145
2+50 D	50	0.0	163.5	0.0	0.1	280.3	0.0	399.9	604.9	-208
2+92 D	42	0.0	172.7	0.0	0.0	262.4	0.0	399.9	932.9	-540
3+00 D	8	0.0	171.2	0.0	0.0	50.0	0.0	399.9	995.4	-603
3+50 D	50	0.0	285.5	0.0	0.0	422.9	0.0	399.9	1,524.1	-1,141
3+62 D	12	0.0	275.9	0.0	0.0	126.4	0.0	399.9	1,682.0	-1,301
4+00 D	38	0.0	307.9	0.0	0.0	409.1	0.0	399.9	2,193.4	-1,821
COLUMN TOTALS					427.8	1,754.7	20.0			

NOTES:

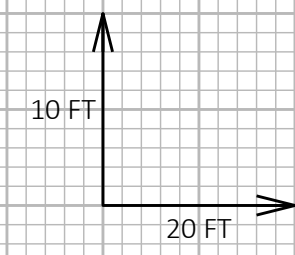
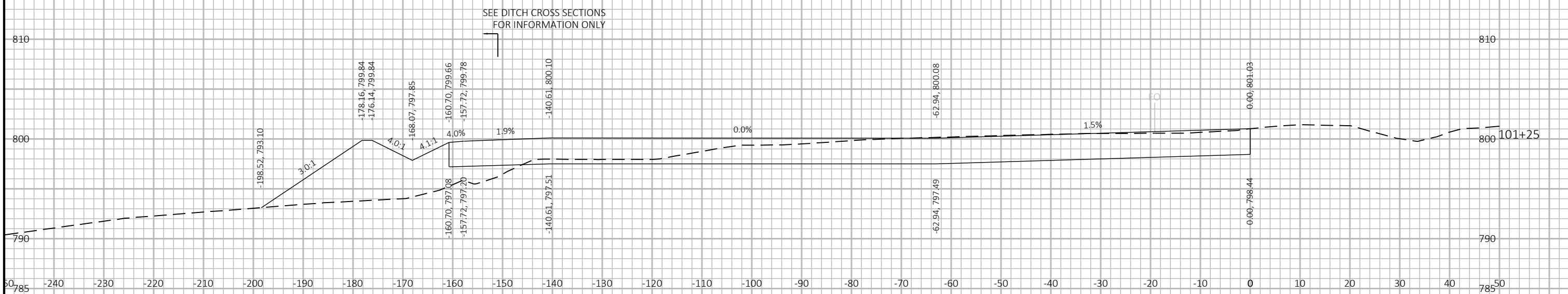
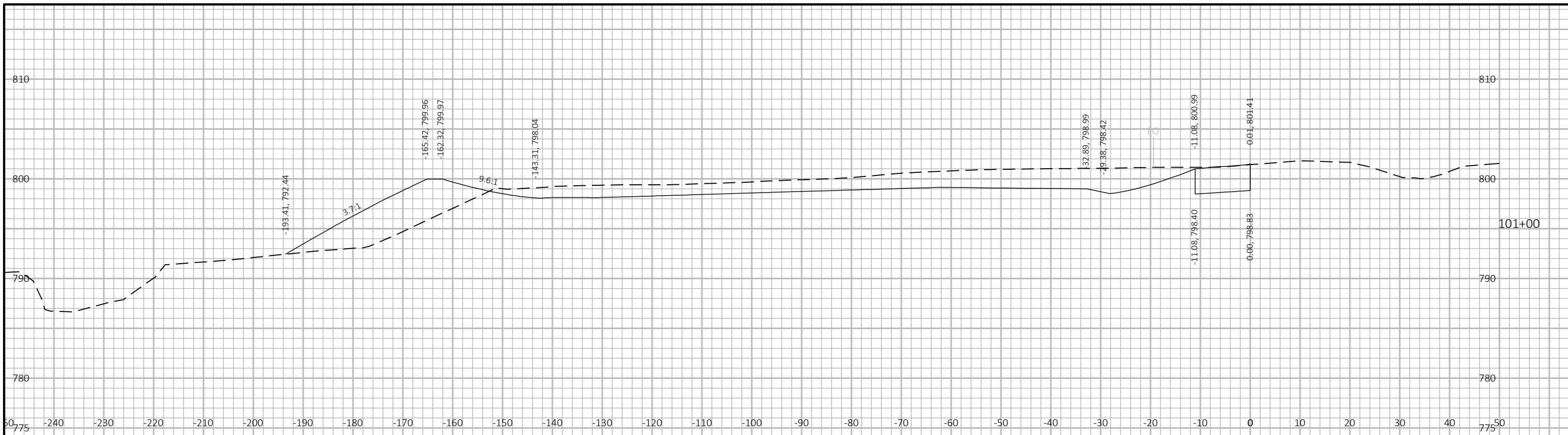
- 1) CUT: CUT INCLUDES UNUSABLE PAVEMENT MATERIAL
- 2) FILL: FILL DOES NOT INCLUDE UNUSABLE PAVEMENT MATERIAL
- 3) MASS ORDINATE = (CUT - UNUSABLE PAVEMENT MATERIAL) - (FILL * FILL FACTOR)



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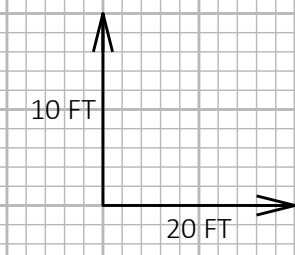
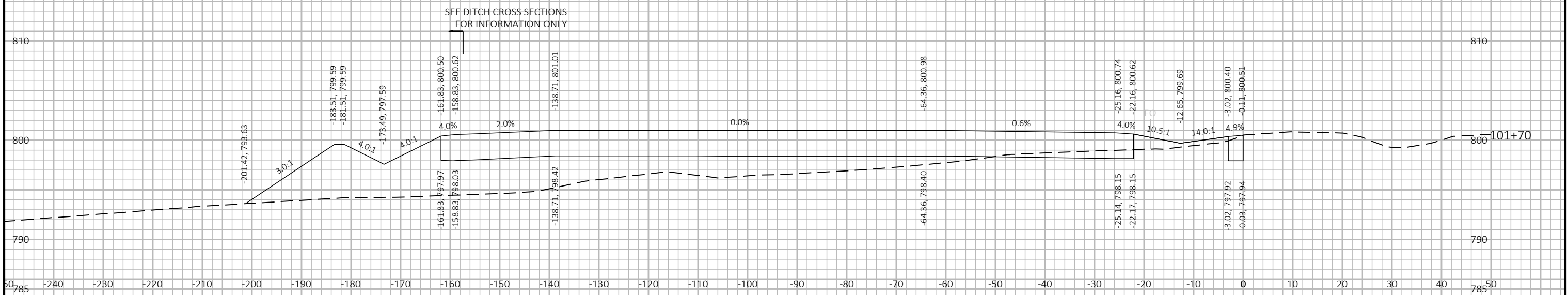
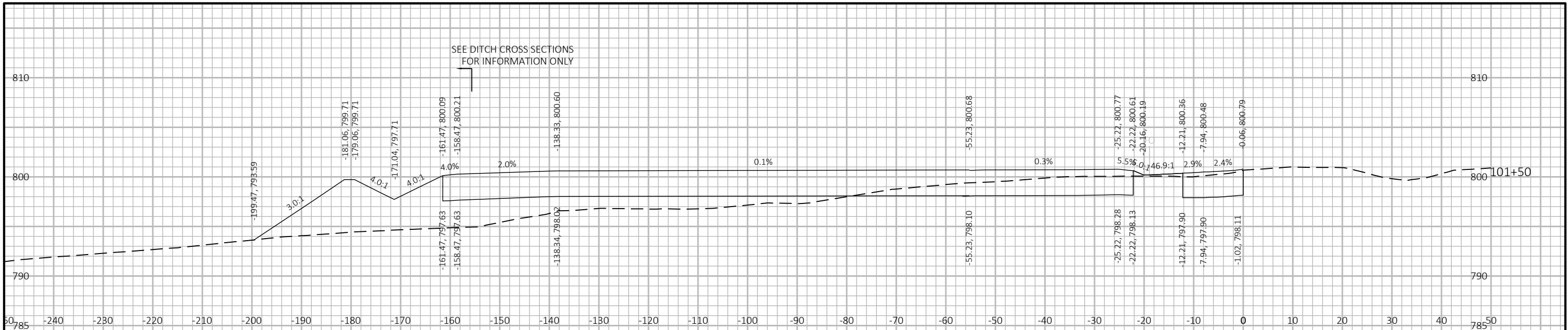
PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: SALT SHED	SHEET	E
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: SALT SHED	SHEET	E
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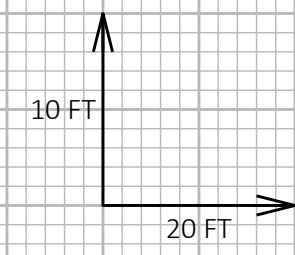
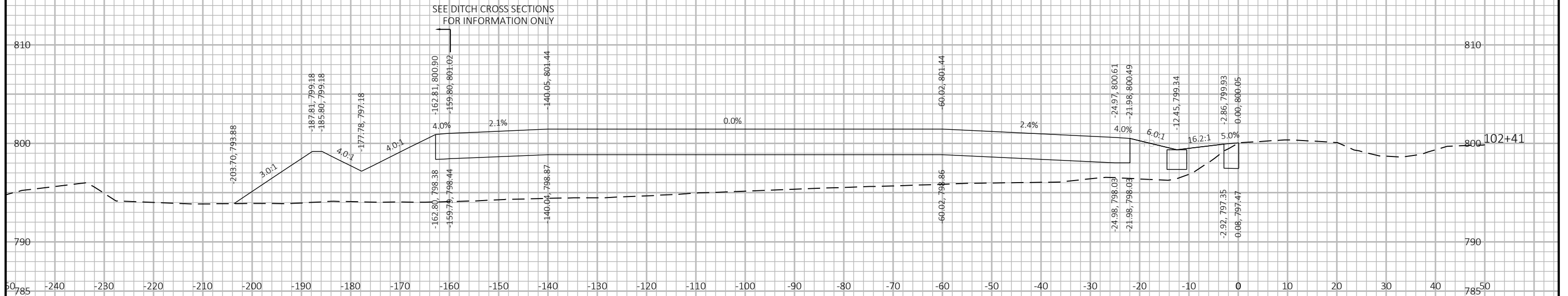
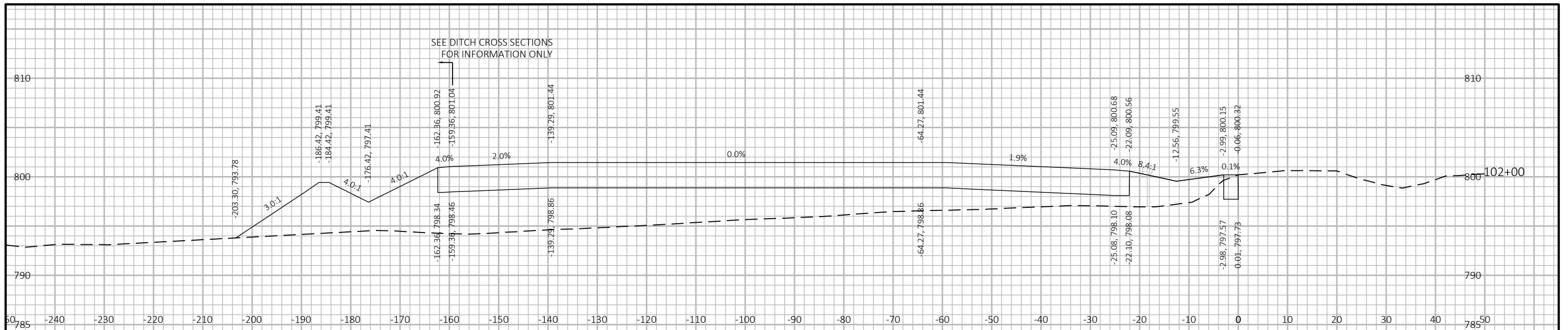
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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: SALT SHED SHEET E

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LAYOUT NAME - 090203-xs



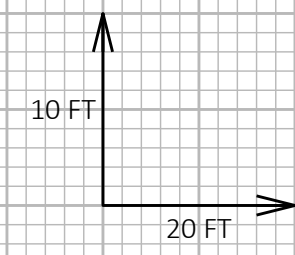
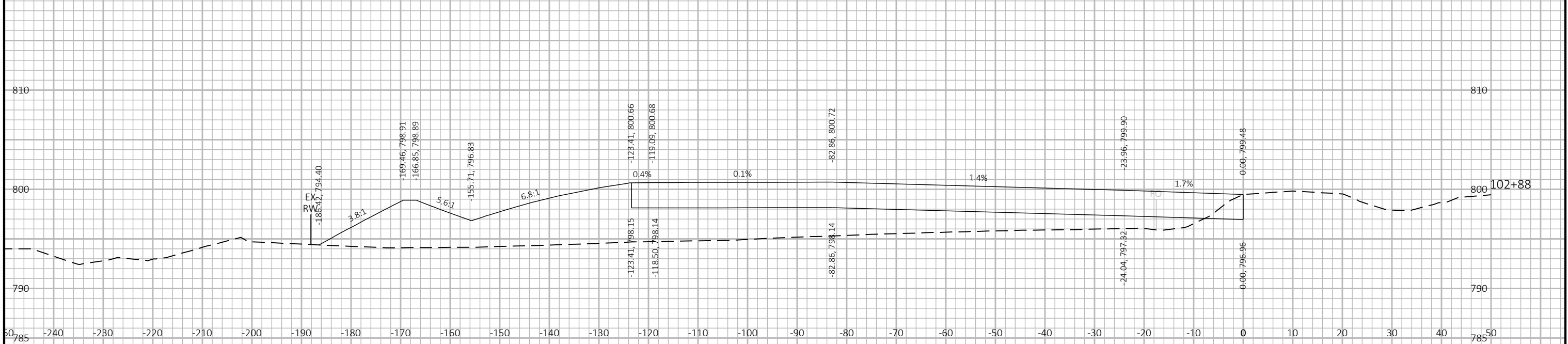
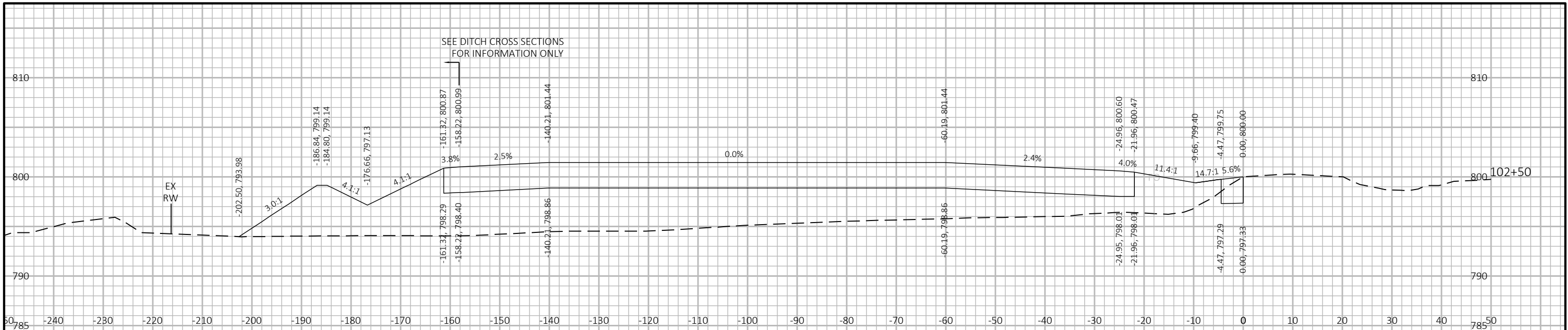
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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: SALT SHED SHEET E

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LAYOUT NAME - 090204-xs



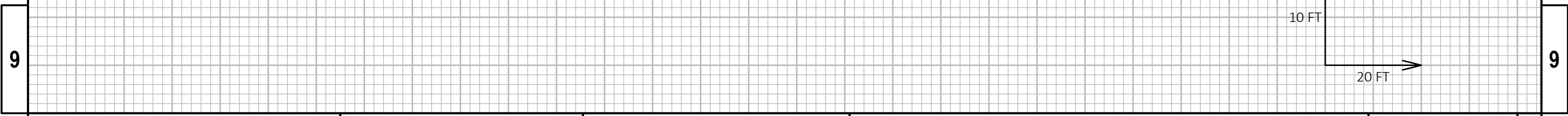
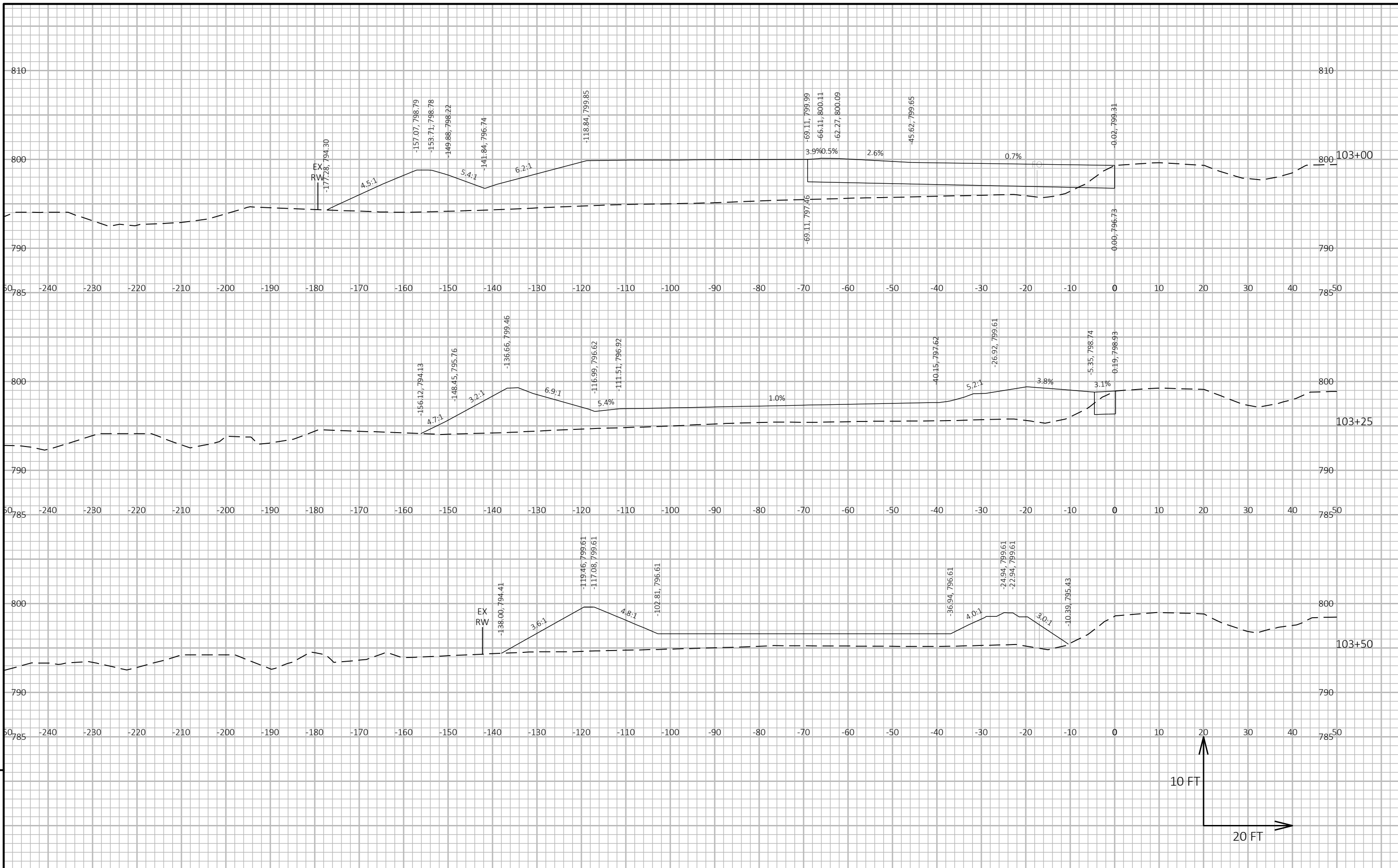
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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: SALT SHED SHEET E

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LAYOUT NAME - 090205-xs



PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: SALT SHED SHEET E



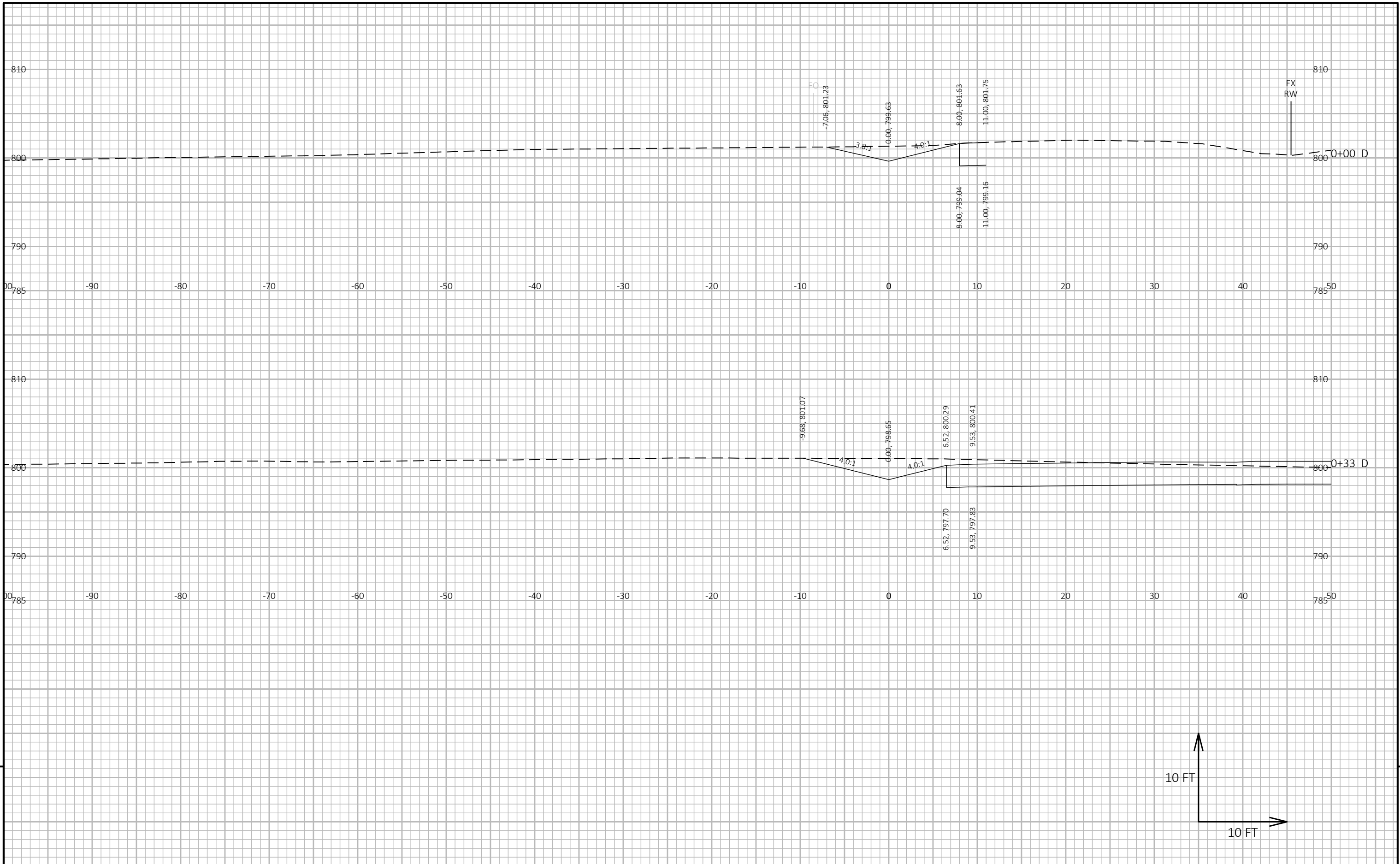
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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: SALT SHED SHEET E

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LAYOUT NAME - 090207-xs



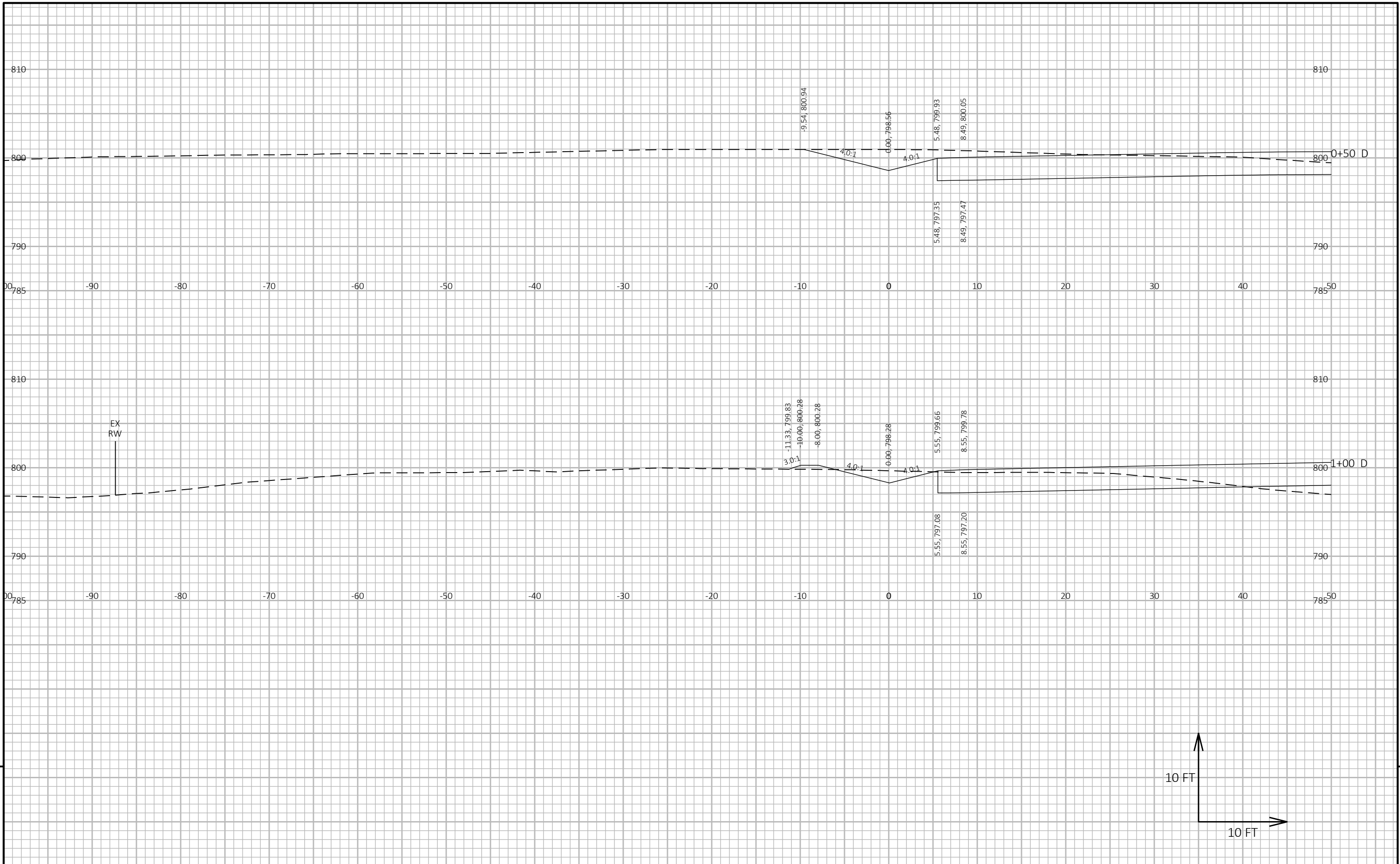
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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: DITCH SHEET E

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LAYOUT NAME - 090207 xs

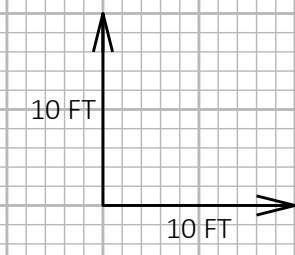
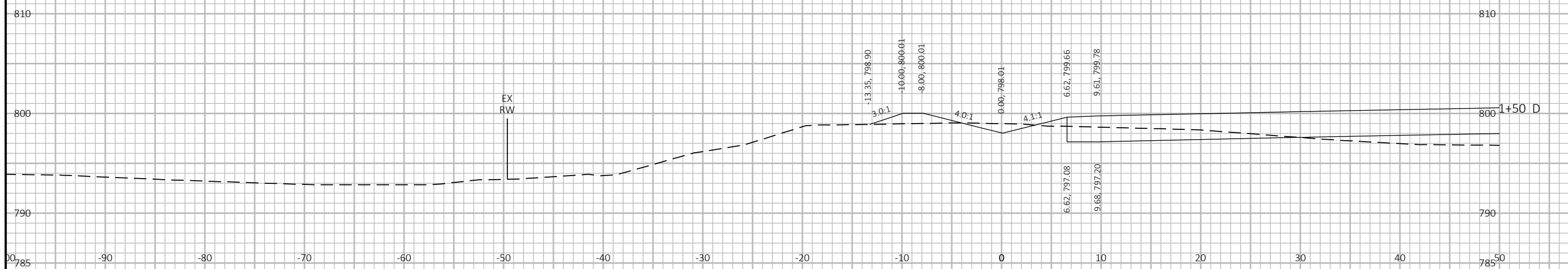
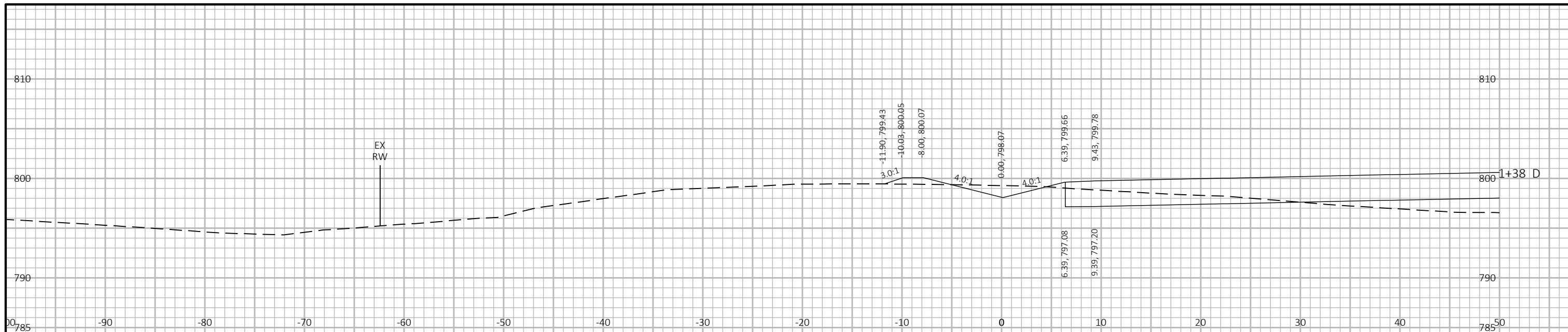


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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: DITCH SHEET E

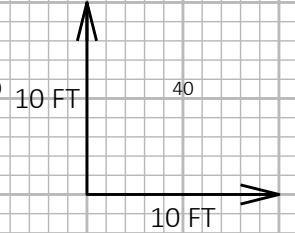
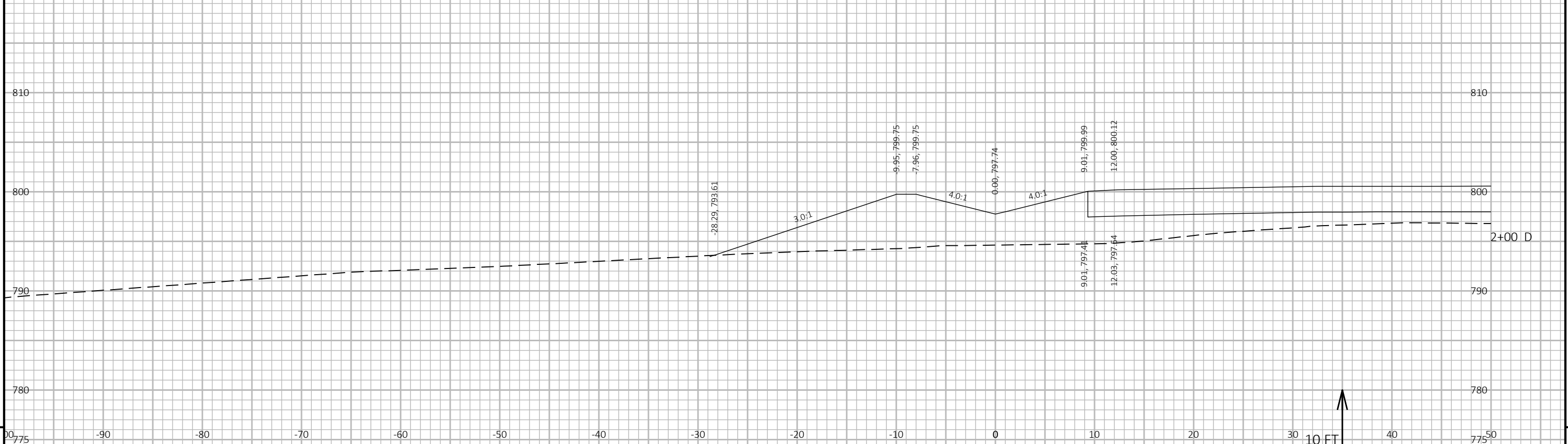
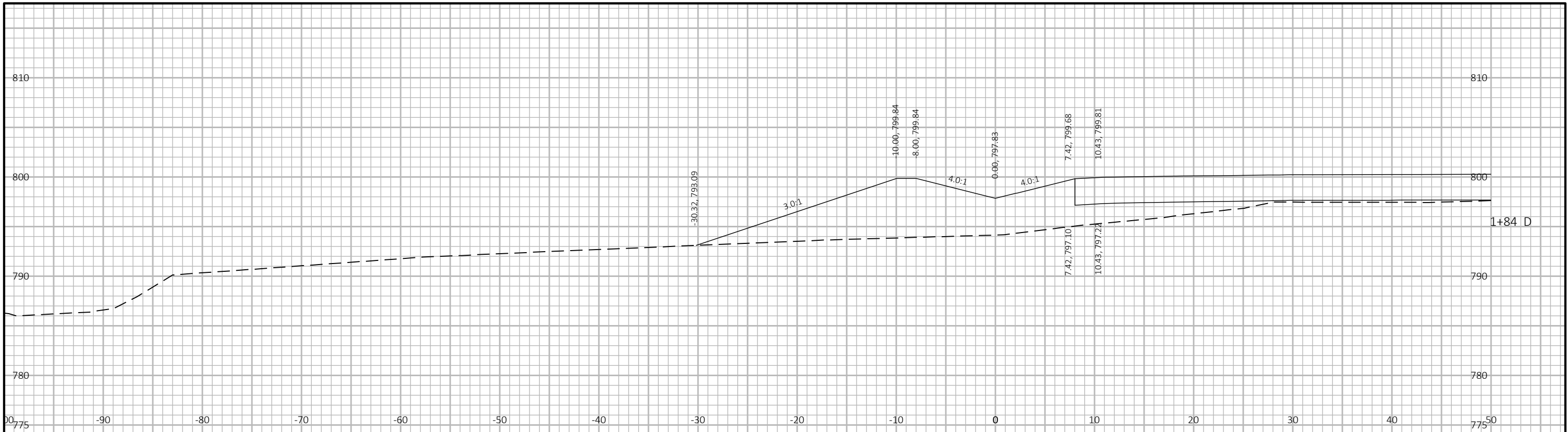
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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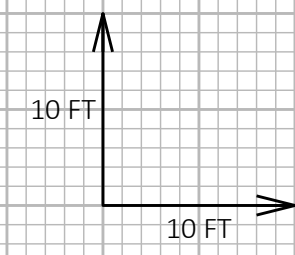
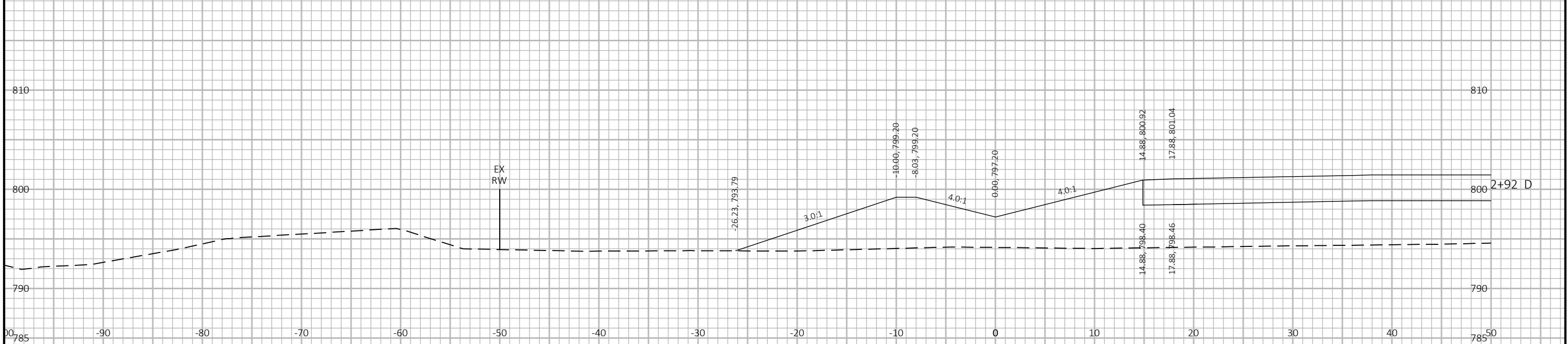
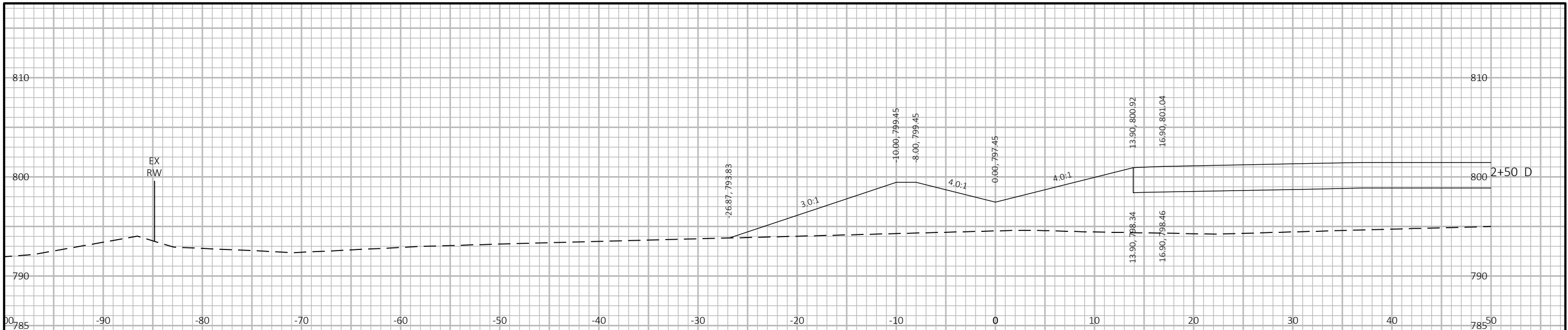


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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: DITCH SHEET E

FILE NAME : S:\MAD\1000-1099\1089\938\DRAWINGS\CAD\CIVIL3D\11467500\SHEETSPLAN\090202-XS.DWG PLOT DATE : 12/14/2023 4:23 PM PLOT BY : LYNCH, CHRIS PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

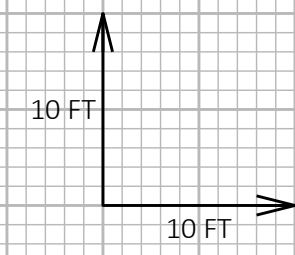
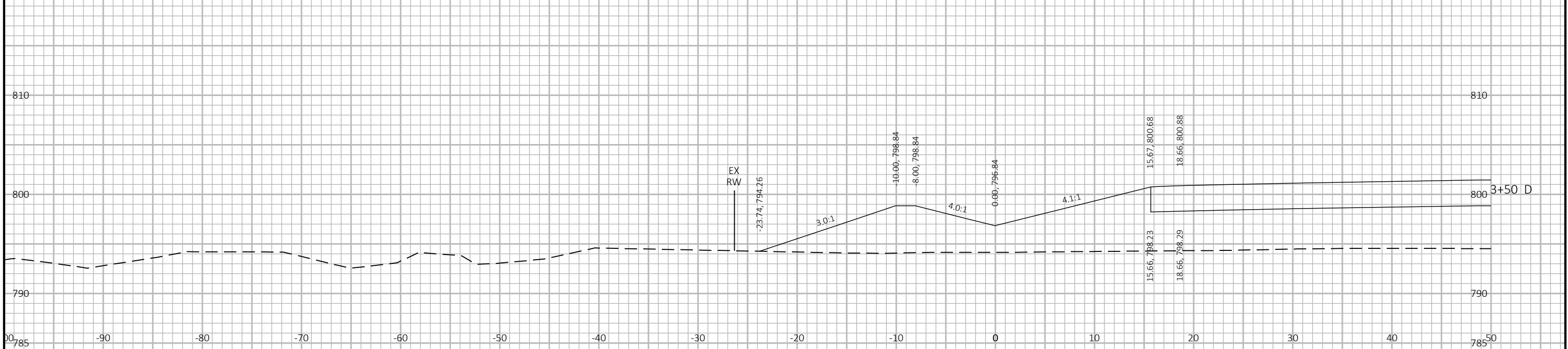
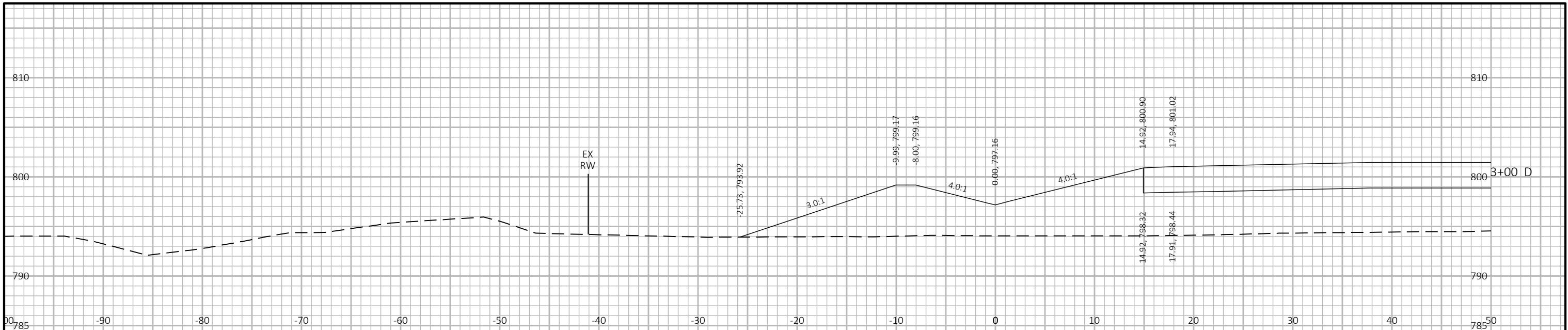
LAYOUT NAME - 090210.xs



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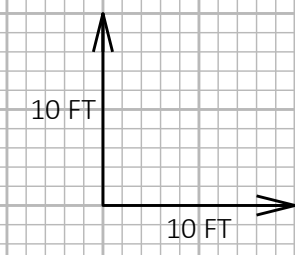
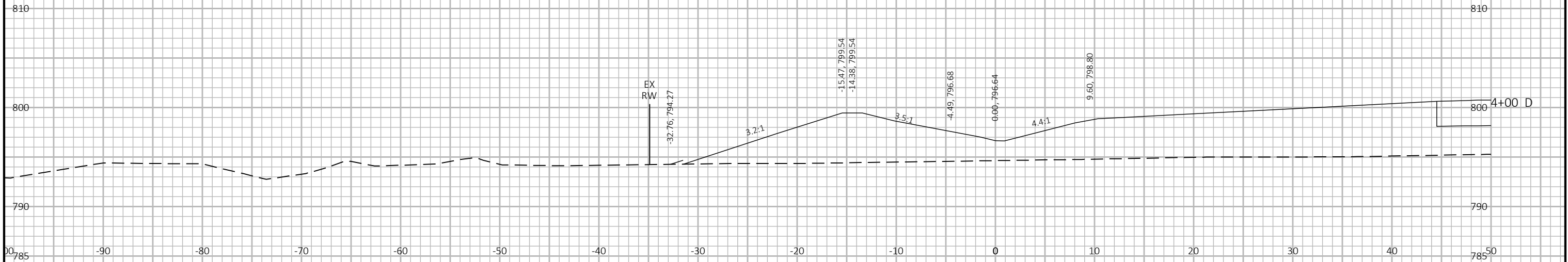
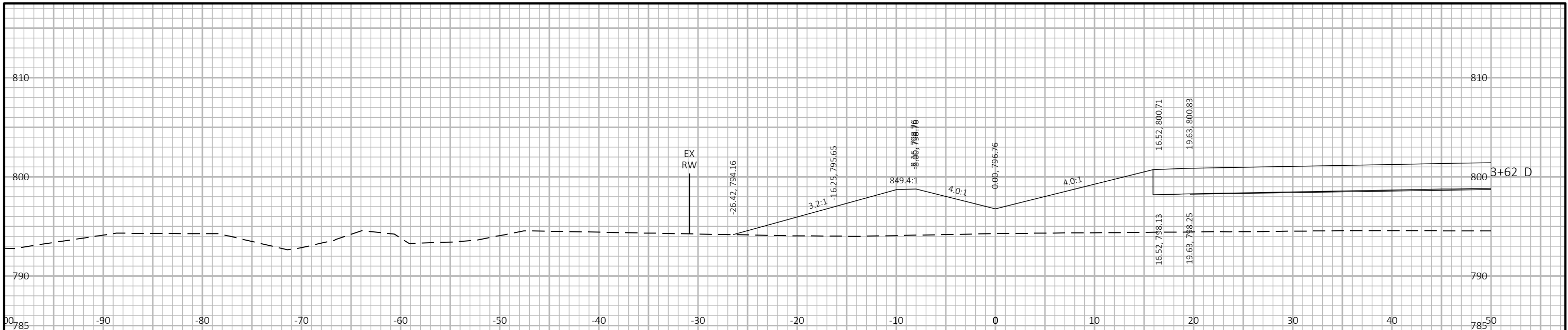
PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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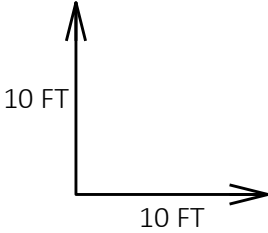
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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PROJECT NO: 1146-75-81

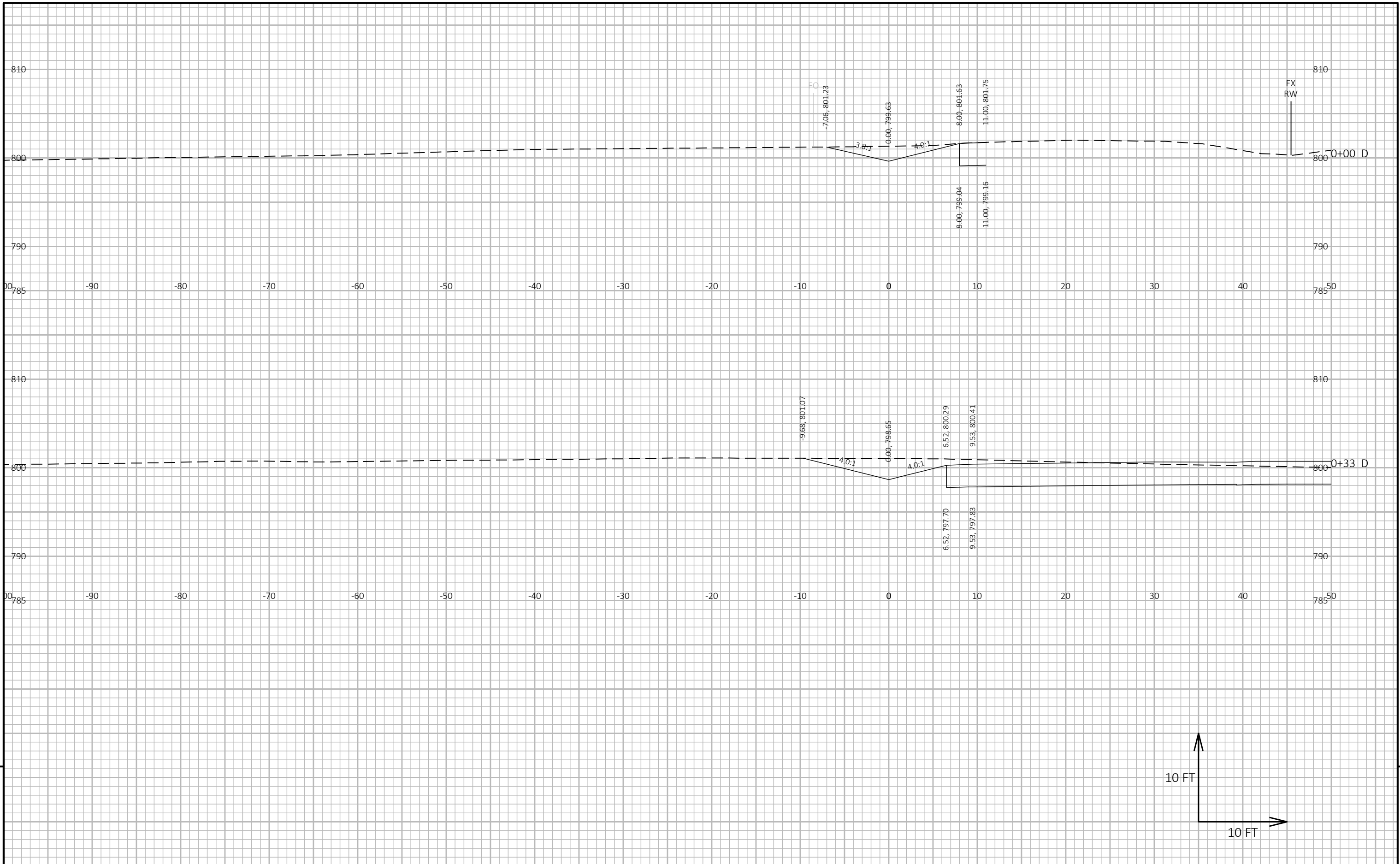
HWY: STH 15

COUNTY: OUTAGAMIE

CROSS SECTIONS: DITCH

SHEET

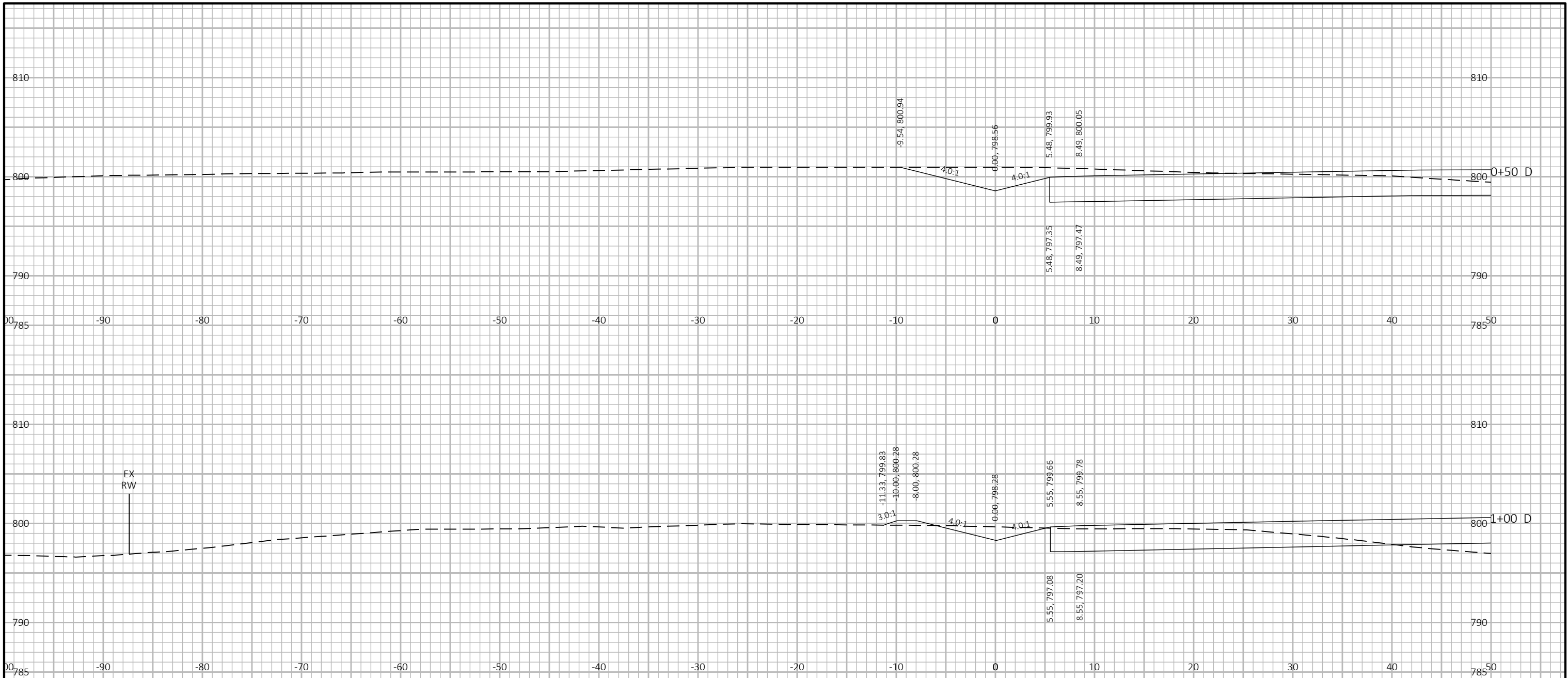
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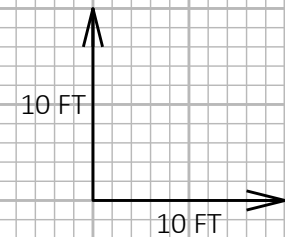
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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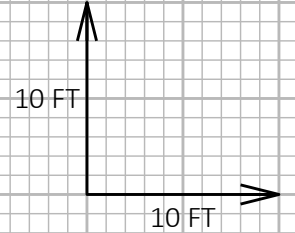
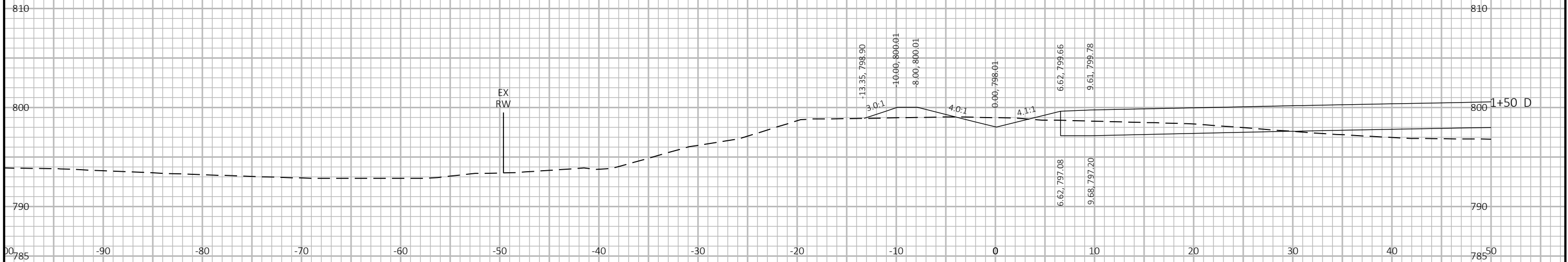
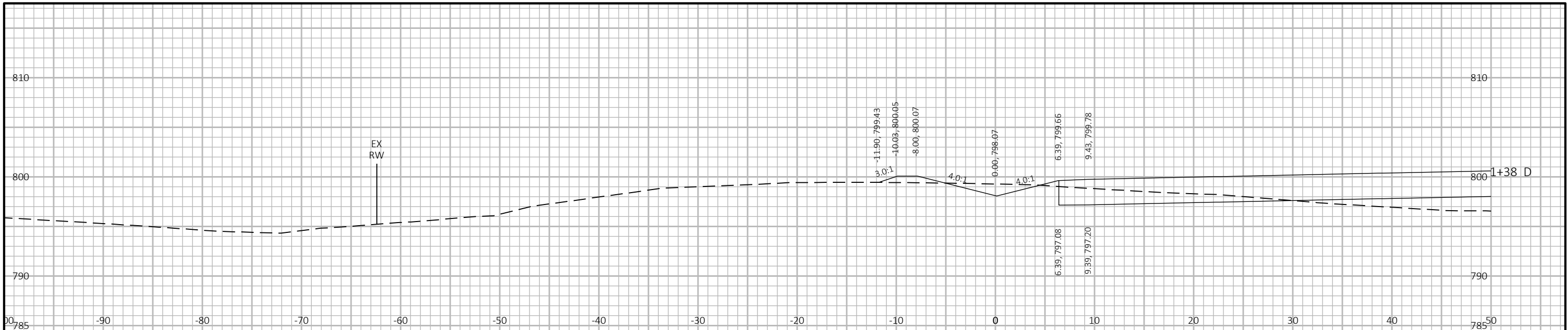
EX
RW



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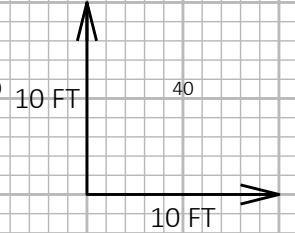
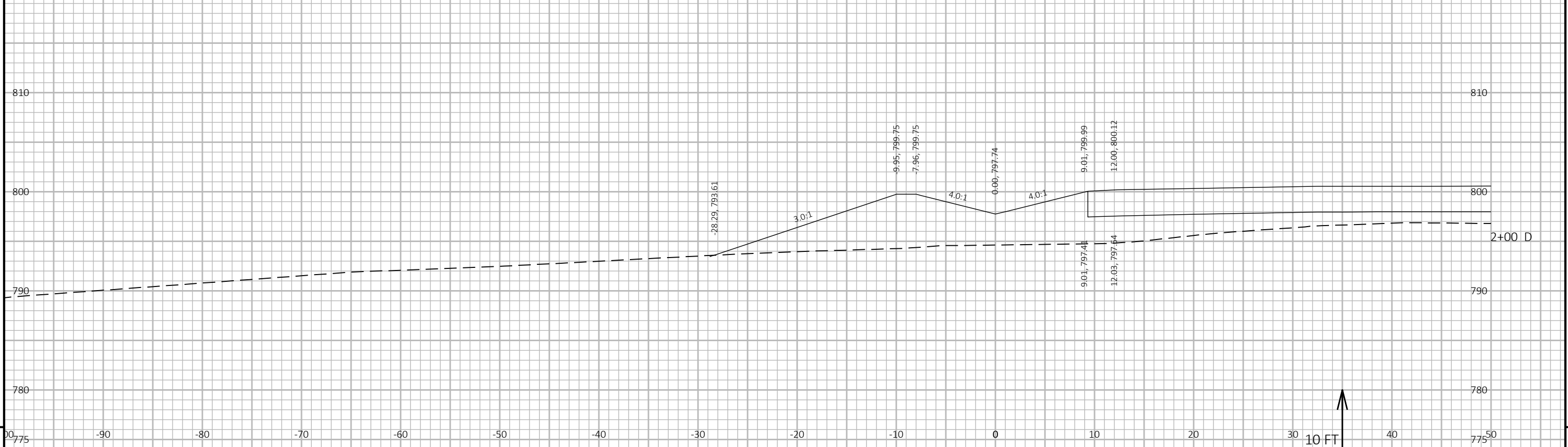
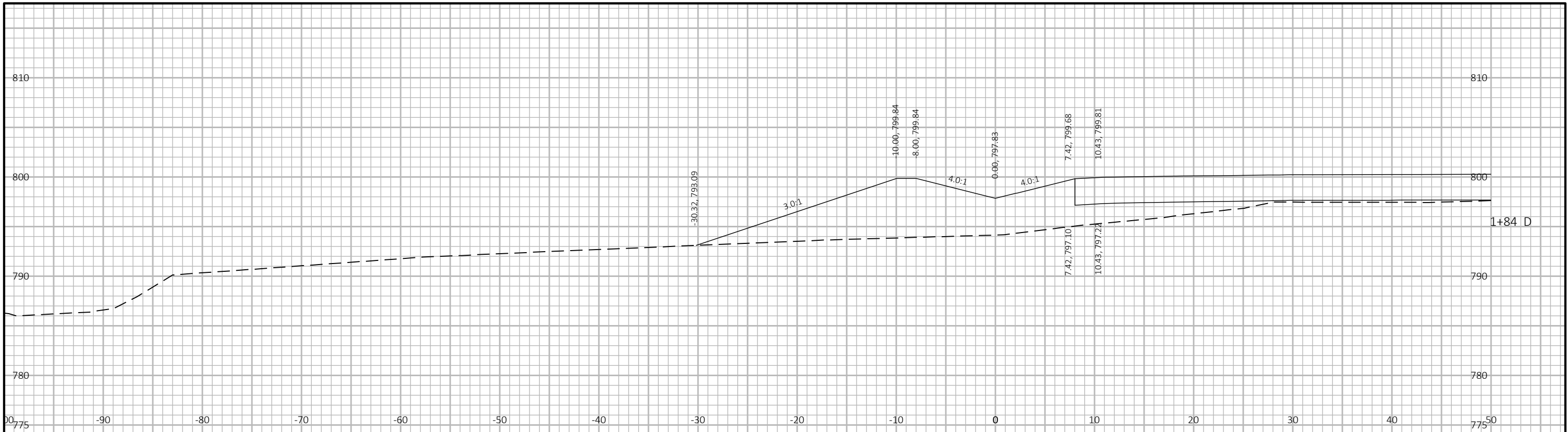
PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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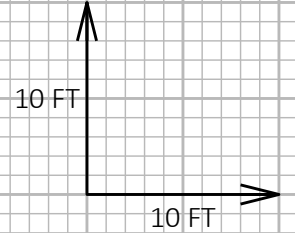
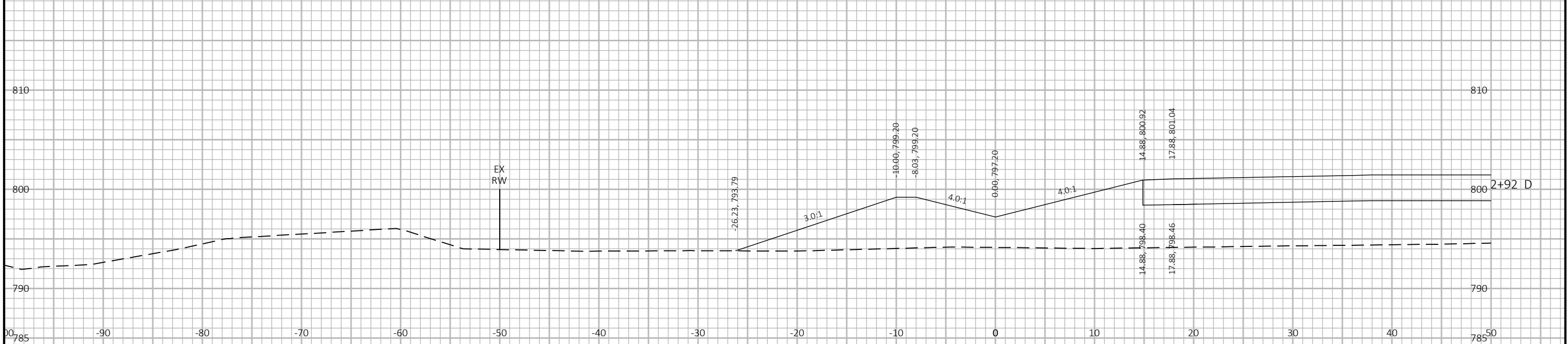
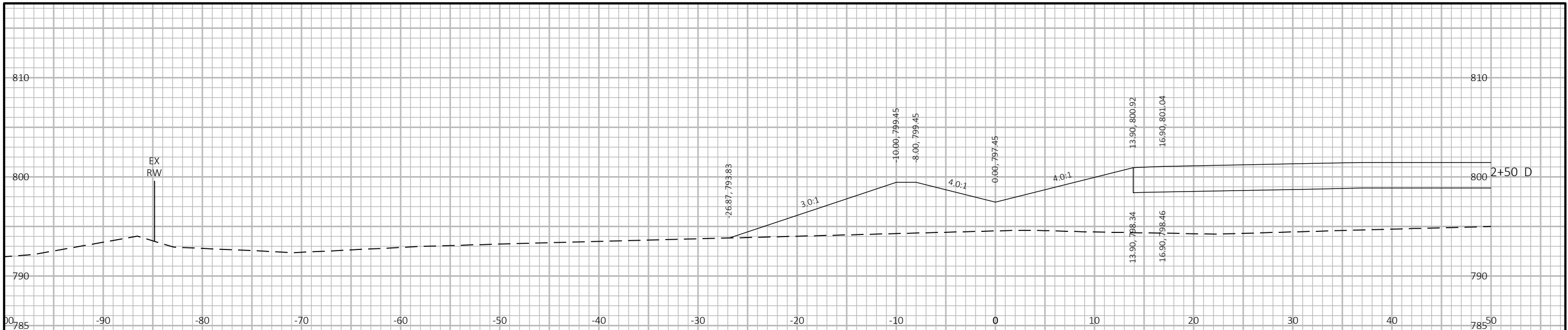


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PROJECT NO: 1146-75-81 HWY: STH 15 COUNTY: OUTAGAMIE CROSS SECTIONS: DITCH SHEET E

FILE NAME : S:\MAD\1000-1099\1089\938\DRAWINGS\CAD\CIVIL3D\11467500\SHEETSPLAN\090202-XS.DWG PLOT DATE : 10/26/2023 8:33 AM PLOT BY : LYNCH, CHRIS PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

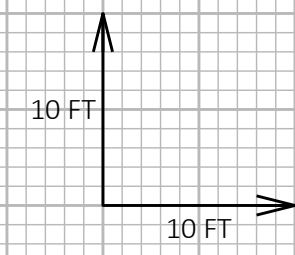
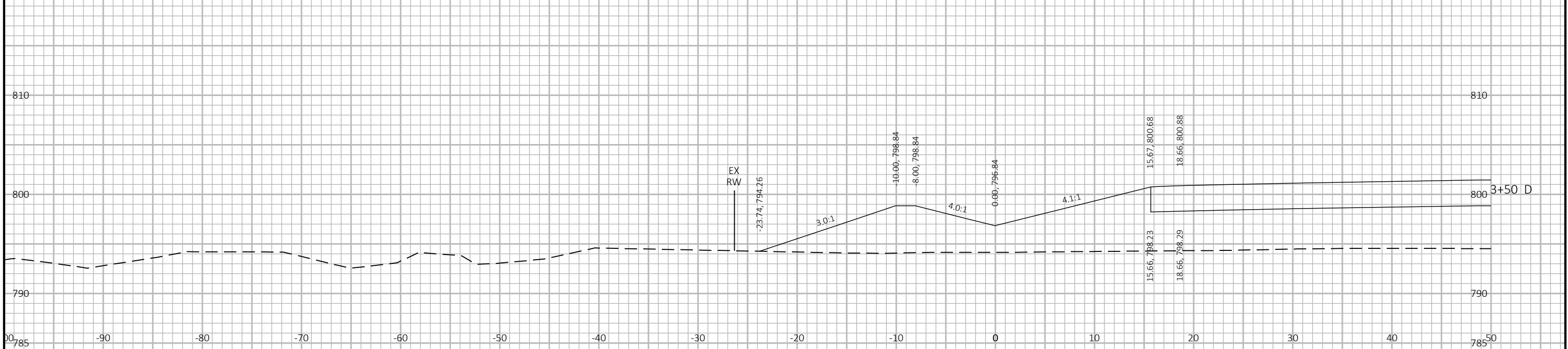
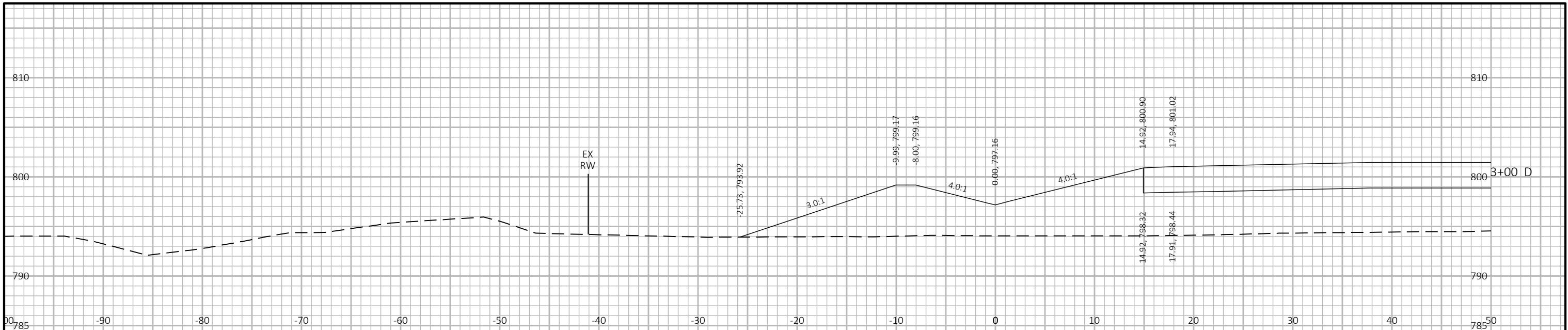
LAYOUT NAME - 090210.xs



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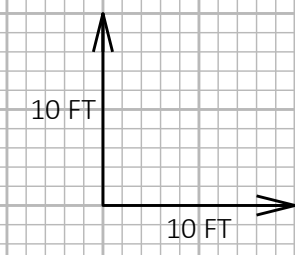
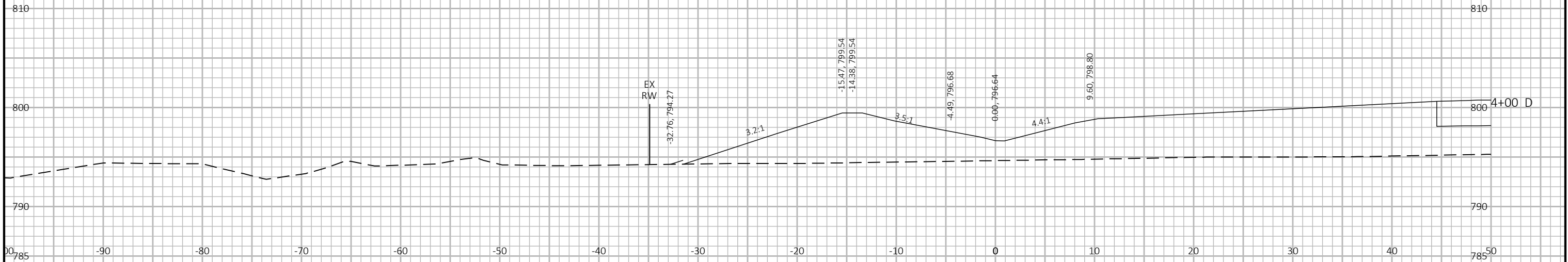
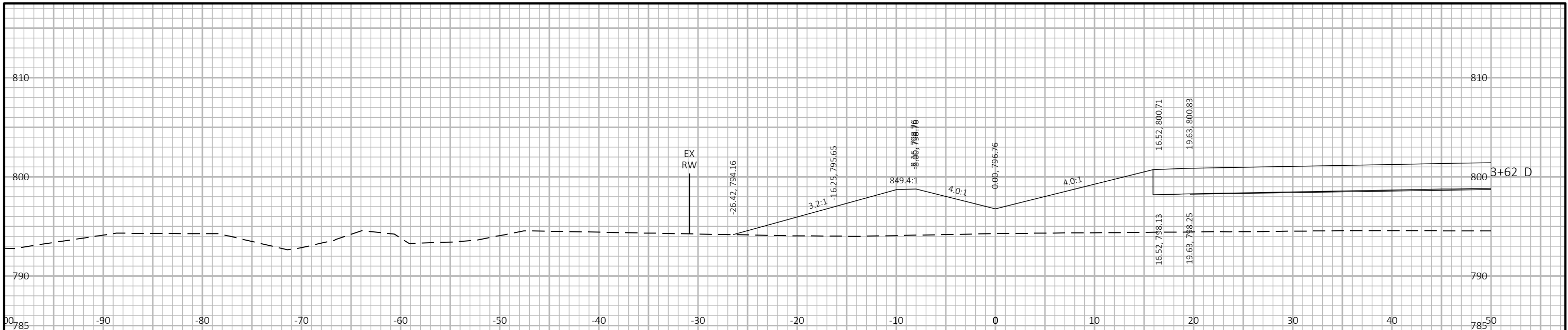
PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET	E
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PROJECT NO: 1146-75-81	HWY: STH 15	COUNTY: OUTAGAMIE	CROSS SECTIONS: DITCH	SHEET E
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Notes



Wisconsin Department of Transportation

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