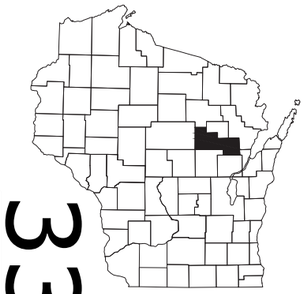
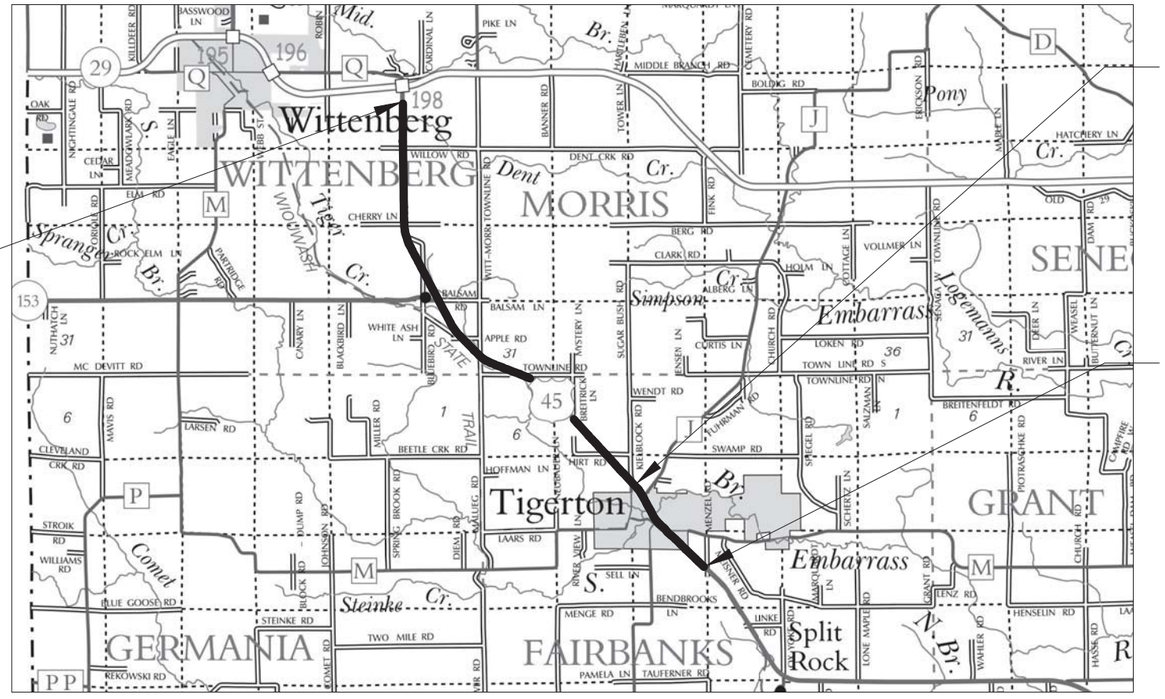




RHI

PROJECT ID: 1600-22-81/1600-22-62
WITH:

33

COUNTY: SHAWANO

MARCH 2018

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
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 = 154

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1600-22-81	WISC 2018160	1
1600-22-62		

CLINTONVILLE - WITTENBERG

MENZEL ROAD TO STH 29
USH 45
SHAWANO COUNTY

STATE PROJECT NUMBER
1600-22-81

STRUCTURE REPLACEMENT C-58-062
USH 45
SHAWANO COUNTY

STATE PROJECT NUMBER
1600-22-62

END PROJECT
STA 1413+58

PROJECT 1600-22-62
C-58-0062
STRUCTURE
REPLACEMENT
(B-58-0133)

BEGIN PROJECT
STA 1003+24

DESIGN DESIGNATION

A.A.D.T.	2012	=	3000
A.A.D.T.	2030	=	3700
D.H.V.		=	19.4%
D.D.		=	58/42
T.		=	10.4%
DESIGN SPEED		=	60 MPH
ESALS		=	1,190,000

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS — CAUTION
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) — ROCK
- SPECIAL DITCH — LABEL
- GRADE ELEVATION — 95.36
- CULVERT (Profile View)

UTILITIES

ELECTRIC	—— E ——
FIBER OPTIC	—— FO ——
GAS	—— G ——
SANITARY SEWER	—— SAN ——
STORM SEWER	—— SS ——
TELEPHONE	—— T ——
WATER	—— W ——
UTILITY PEDESTAL	⌧
POWER POLE	⊡
TELEPHONE POLE	Ø

LAYOUT
SCALE 0 — 2 MILE

TOTAL NET LENGTH OF CENTERLINE = 7.74

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, SHAWANO (WCCS) COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO NORTH AMERICA VERTICAL DATUM OF NAVD88 (2012).

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SURVEYOR
Designer	CHAD P. BLUMENSCHEIN
Project Manager	JIM L. VOLKMANN
Regional Examiner	CHERYL L. SIMON
Regional Supervisor	MICHAEL WENDT

APPROVED FOR THE DEPARTMENT

DATE: 11/01/2017 (Signature)

E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\010101_TI.DWG
_

PLOT DATE : 9/27/2017 11:49 AM

PLOT BY : BLUMENSCHEIN, CHAD P PLOT NAME :

GENERAL NOTES

THE LOCATIONS OF EXISTING UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

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

WHEN THE QUANTITY OF THE ITEMS BASE AGGREGATE OR HMA PAVEMENT IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYERS SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR WILL BE RESPONSIBLE FOR RESHAPING AND SEEDING ANY PREVIOUSLY GRASSED AREAS WHICH ARE DISTURBED BY THEIR OPERATION OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS.

UTILITY CONTACTS

GERALD RHODE
ATC MANAGEMENT, INC. - ELECTRIC/TRANSMISSION
801 O'KEEFE RD
P.O BOX 6113
DE PERE, WI 54115-6113
(920) 338-6522
GRHODE@ATCLLC.COM

DENNIS MAGEE
CENTRAL WISCONSIN ELECTRIC COOPERATIVE - ELECTRIC
P.O. BOX 100
ROSHOLT, WI 54473-0100
(715) 501-2047
DENNIS.MAGEE@CWECOOP.COM

JON WITTER
VILLAGE OF TIGERTON - SEWER/WATER
221 BIRCH ST
P.O. BOX 147
TIGERTON, WI 54486
(715) 535-2262
JWITTERTIGERTON@FRONTIER.COM

SCOTT SICKLER
WITTENBERG TELEPHONE COMPANY - COMMUNICATION LINE
104 W WALKER ST.
P.O. BOX 160
WITTENBERG, WI 54499-0160
OFFICE: (715) 253-2111, MOBILE: (715) 881-0302
SCOTT@WITTELCO.COM

BOB SAMPSON
CENTURYLINK COMMUNICATIONS, LLC - COMMUNICATION LINE
1310 EAST MARY ST.
OTTUMWA, IA 52501
(636) 887-5367
ROBERT.SAMPSON@CENTURYLINK.COM

JAMES JASKOLSKI
FRONTIER COMMUNICATIONS OF WI LLC - COMMUNICATION LINE
26 W 12TH STREET
CLINTONVILLE, WI 54929
(715) 823-1227
JAMES.JASKOLSKI@FTR.COM

SHAWN GUDEN
WISCONSIN PUBLIC SERVICE CORPORATION - GAS/PETROLEUM
1700 SHERMAN ST
WAUSAU, WI 54402
(715) 848-7463
SEGUDEN@WISCONSINPUBLICSERVICE.COM

DNR CONTACT

JON SIMONSEN
WISCONSIN DNR
107 SUTLIFF AVENUE
RHINELANDER, WI 54501
(715) 365-8916
JONATHON.SIMONSEN@WISCONSIN.GOV

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

PROPOSED SUPER ELEVATION TABLE

Curve No.	Station	Description	Left Outside Shoulder	Left Outside Lane	Right Outside Lane	Right Outside Shoulder
1	1045+60.35'	End Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
1	1045+60.35'	End Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
1	1046+08.35'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
1	1046+56.35'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
1	1047+04.35'	Low Shoulder Match	-4.00%	4.00%	-4.00%	-4.00%
1	1047+04.35'	Begin Shoulder Rollover	-4.00%	4.00%	-2.00%	-4.00%
1	1047+16.35'	Begin Full Super	-3.50%	4.50%	-4.50%	-4.50%
1	1052+35.34'	End Full Super	-3.50%	4.50%	-4.50%	-4.50%
1	1052+47.34'	Low Shoulder Match	-4.00%	4.00%	-4.00%	-4.00%
1	1052+47.34'	End Shoulder Rollover	-4.00%	4.00%	-2.00%	-4.00%
1	1052+95.34'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
1	1053+43.34'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
1	1053+91.34'	Begin Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
1	1053+91.34'	Begin Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
2	1068+60.83'	End Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
2	1068+60.83'	End Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
2	1069+14.31'	Level Crown	-4.00%	-2.00%	0.00%	-4.00%
2	1069+67.79'	Reverse Crown	-4.00%	-2.00%	2.00%	-4.00%
2	1070+21.27'	Low Shoulder Match	-4.00%	-4.00%	4.00%	-4.00%
2	1070+21.27'	Begin Shoulder Rollover	-4.00%	-2.00%	4.00%	-4.00%
2	1070+37.31'	Begin Full Super	-4.60%	-4.60%	4.60%	-3.40%
2	1076+31.89'	End Full Super	-4.60%	-4.60%	4.60%	-3.40%
2	1076+47.93'	Low Shoulder Match	-4.00%	-4.00%	4.00%	-4.00%
2	1076+47.93'	End Shoulder Rollover	-4.00%	-2.00%	4.00%	-4.00%
2	1077+01.41'	Reverse Crown	-4.00%	-2.00%	2.00%	-4.00%
2	1077+54.89'	Level Crown	-4.00%	-2.00%	0.00%	-4.00%
2	1078+08.37'	Begin Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
2	1078+08.37'	Begin Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
3	1168+17.64'	End Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
3	1168+17.64'	End Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
3	1168+71.15'	Level Crown	-4.00%	-2.00%	0.00%	-4.00%
3	1169+24.66'	Reverse Crown	-4.00%	-2.00%	2.00%	-4.00%
3	1169+70.15'	Begin Full Super	-4.00%	-3.70%	3.70%	-4.00%
3	1186+75.21'	End Full Super	-4.00%	-3.70%	3.70%	-4.00%
3	1187+20.70'	Reverse Crown	-4.00%	-2.00%	2.00%	-4.00%
3	1187+74.21'	Level Crown	-4.00%	-2.00%	0.00%	-4.00%
3	1188+27.72'	Begin Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
3	1188+27.72'	Begin Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
4	1210+28.49'	End Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
4	1210+28.49'	End Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
4	1210+81.82'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
4	1211+35.16'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
4	1211+88.49'	Low Shoulder Match	-4.00%	4.00%	-4.00%	-4.00%
4	1211+88.49'	Begin Shoulder Rollover	-4.00%	4.00%	-2.00%	-4.00%
4	1212+01.82'	Begin Full Super	-3.50%	4.50%	-4.50%	-4.50%
4	1223+98.38'	End Full Super	-3.50%	4.50%	-4.50%	-4.50%
4	1224+11.71'	Low Shoulder Match	-4.00%	4.00%	-4.00%	-4.00%
4	1224+11.71'	End Shoulder Rollover	-4.00%	4.00%	-2.00%	-4.00%
4	1224+65.04'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
4	1225+18.38'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
4	1225+71.71'	Begin Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
4	1225+71.71'	Begin Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
5	1242+76.66'	End Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
5	1242+76.66'	End Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
5	1243+29.84'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
5	1243+83.03'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
5	1244+36.21'	Low Shoulder Match	-4.00%	4.00%	-4.00%	-4.00%
5	1244+36.21'	Begin Shoulder Rollover	-4.00%	4.00%	-2.00%	-4.00%
5	1244+46.84'	Begin Full Super	-3.60%	4.40%	-4.40%	-4.40%
5	1252+19.75'	End Full Super	-3.60%	4.40%	-4.40%	-4.40%
5	1252+30.39'	Low Shoulder Match	-4.00%	4.00%	-4.00%	-4.00%
5	1252+30.39'	End Shoulder Rollover	-4.00%	4.00%	-2.00%	-4.00%
5	1252+83.57'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
5	1253+36.75'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
5	1253+89.93'	Begin Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
5	1253+89.93'	Begin Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
6	1312+44.15'	End Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
6	1312+44.15'	End Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
6	1312+97.67'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
6	1313+51.18'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
6	1313+96.67'	Begin Full Super	-4.00%	3.70%	-3.70%	-4.00%
6	1331+29.95'	End Full Super	-4.00%	3.70%	-3.70%	-4.00%
6	1331+75.43'	Reverse Crown	-4.00%	2.00%	-2.00%	-4.00%
6	1332+28.95'	Level Crown	-4.00%	0.00%	-2.00%	-4.00%
6	1332+82.46'	Begin Normal Crown	-4.00%	-2.00%	-2.00%	-4.00%
6	1332+82.46'	Begin Normal Shoulder	-4.00%	-2.00%	-2.00%	-4.00%
	1413+58.00'	End Alignment	-4.00%	-2.00%	-2.00%	-4.00%

PAVEMENT CORE BORING LOG

CORE #	LOG MILE*	OFFSET FROM C/L	ASPHALT DEPTH (INCHES)
29	8.4	6' RT	6.625"
30	8.7	6' LT	5.5"
31	9	6' RT	16.375"
32	9.3	6' LT	5.5"
33	9.6	6' RT	6.75"
34	9.9	6' LT	9.25"
35	10.2	6' RT	5.5"
36	10.5	6' LT	6.75"
37	10.8	6' RT	7"
38	11.1	6' LT	5.625"
39	11.4	6' RT	6.375"
40	11.7	6' LT	5.5"
41	12	4' RT	7.75"
42	12.3	6' LT	5.75"
43	12.6	5' RT	7.75"
44	12.9	9' LT	4.625"
45	13.2	6' RT	8"
46	13.5	6' LT	3"
47	13.8	6' RT	4.125"
48	14.1	7' LT	7.25"
49	14.4	6' RT	6.875"
50	14.7	6' LT	6.25"
51	15	6' RT	8.25"
52	15.3	6' LT	6.75"
53	15.6	6' RT	11.125"
54	15.9	6' LT	4.75"
55	16.2	6' RT	6.125"

*LOGGED MILES START 500' SOUTH OF GOLLNOW ROAD ON USH 45

2

N

END PROJECT
1600-22-81
STA 1413+58

PIPE CULVERT REPLACEMENT
STA 1280+26
58-045-049

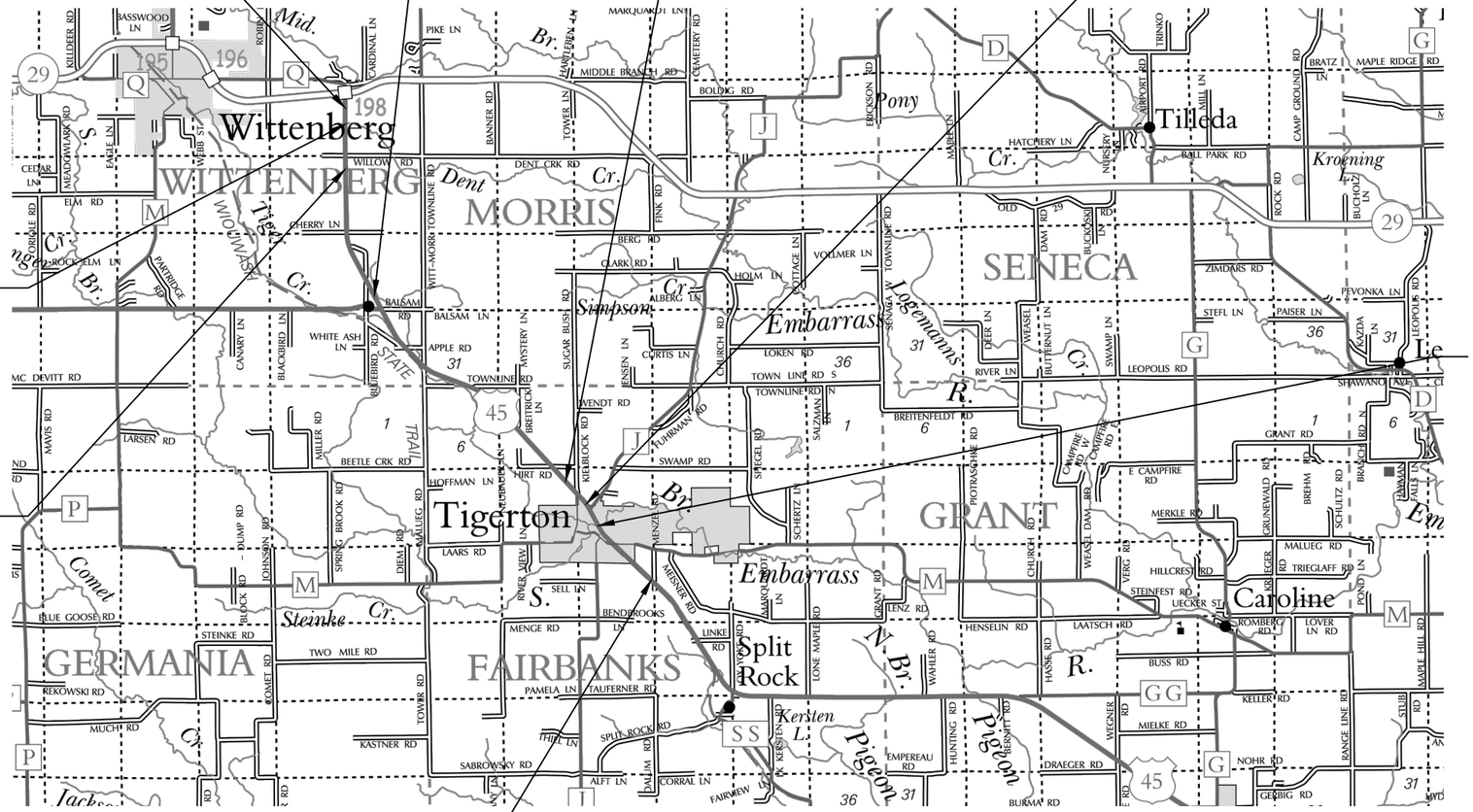
PIPE CULVERT REPLACEMENT
STA 1093+87
58-045-035

PROJECT 1600-22-62
STA 1072+89
B-58-0133
- STRUCTURE REPLACEMENT
- BEAMGUARD REPLACEMENT

PIPE CULVERT REPLACEMENT
STA 1404+81
58-045-057

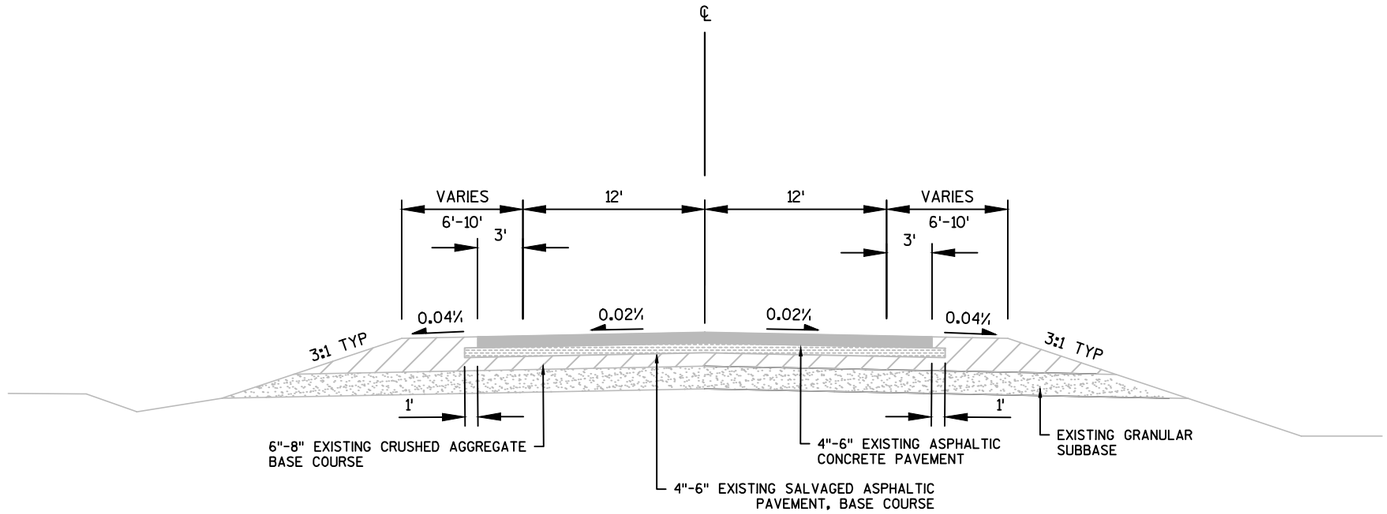
STA 1055+69-STA 1057+01
B-58-0103
- POLYMER OVERLAY
- BEAMGUARD REPLACEMENT

PIPE CULVERT REPLACEMENT
STA 1379+11
58-045-054R



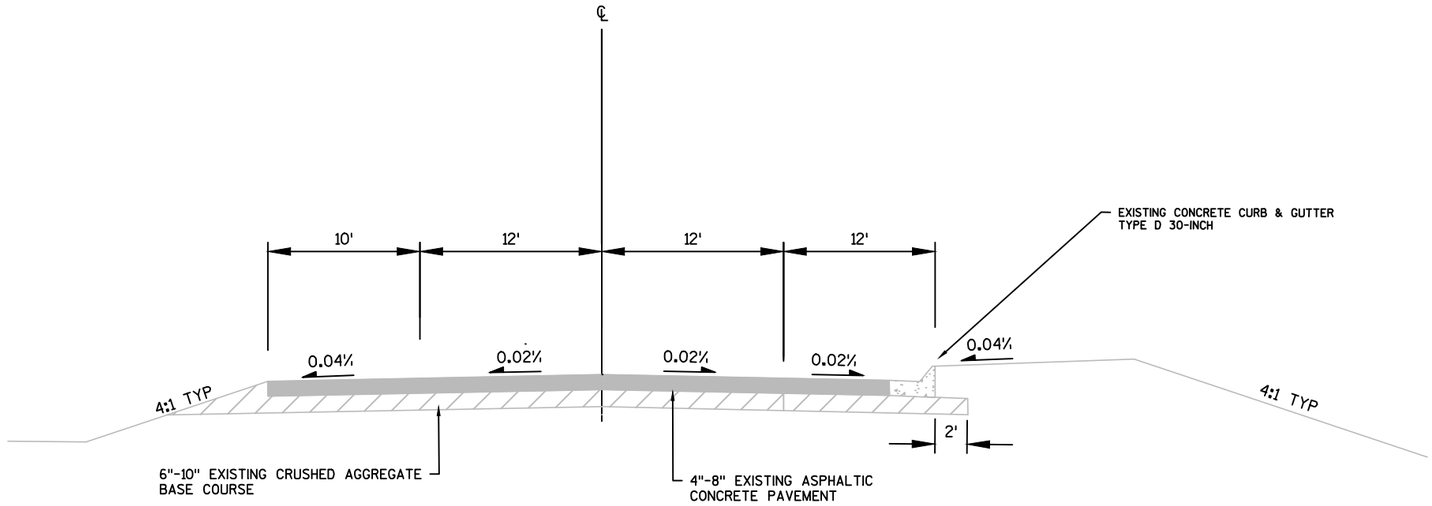
BEGIN PROJECT
1600-22-81
STA 1003+24

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PROJECT OVERVIEW	SHEET 3	E



EXISTING TYPICAL SECTION
USH 45

STA 1003+24 - STA 1027+00
STA 1074+75 - STA 1080+00
STA 1120+00 - STA 1152+50
STA 1269+00 - STA 1297+00

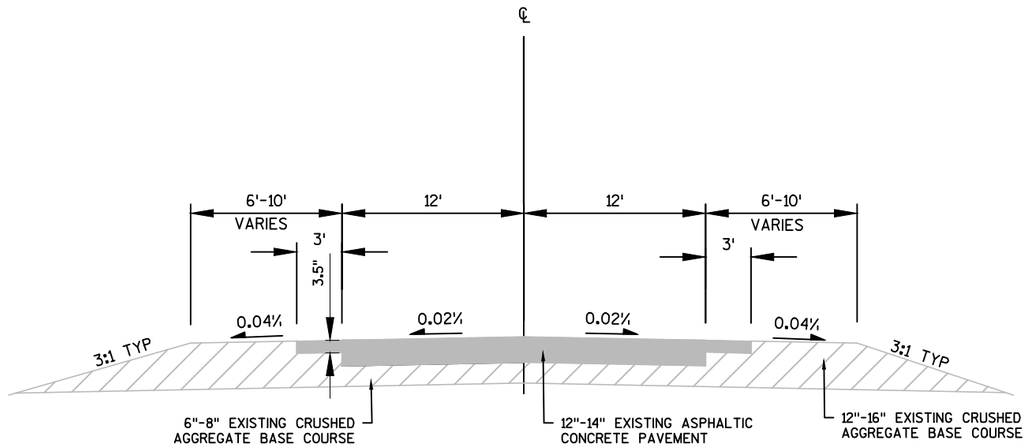


EXISTING TYPICAL SECTION
CURB RIGHT SIDE
USH 45

STA 1027+00 - STA 1040+00

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PLAN: TYPICAL SECTIONS	SHEET 4	E

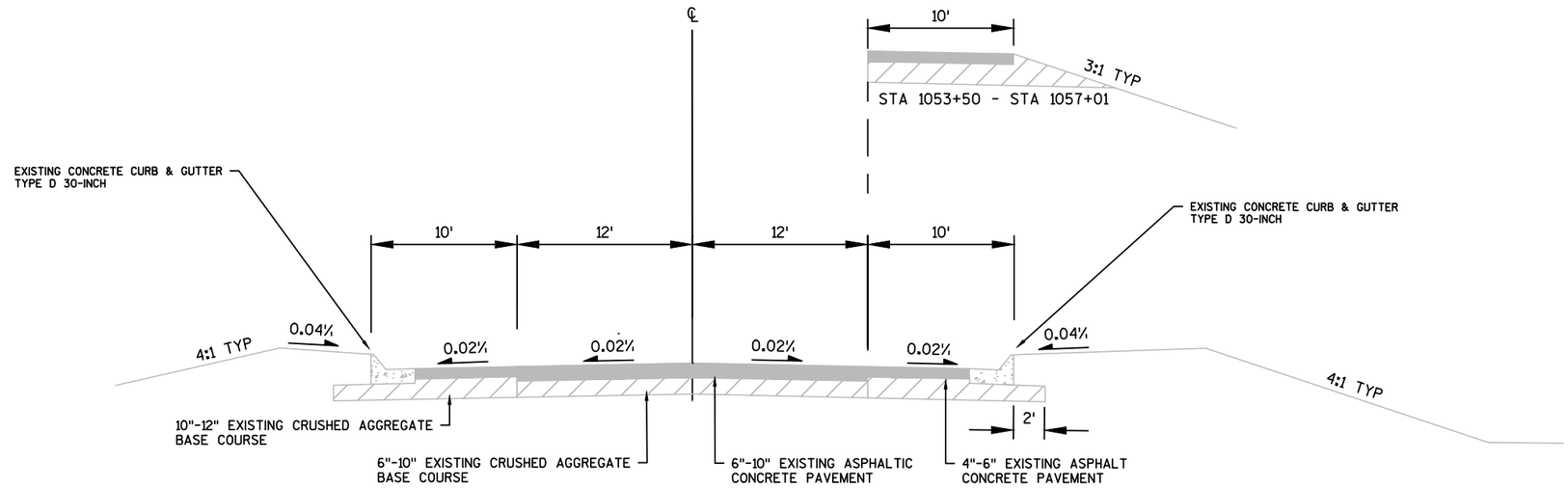
2



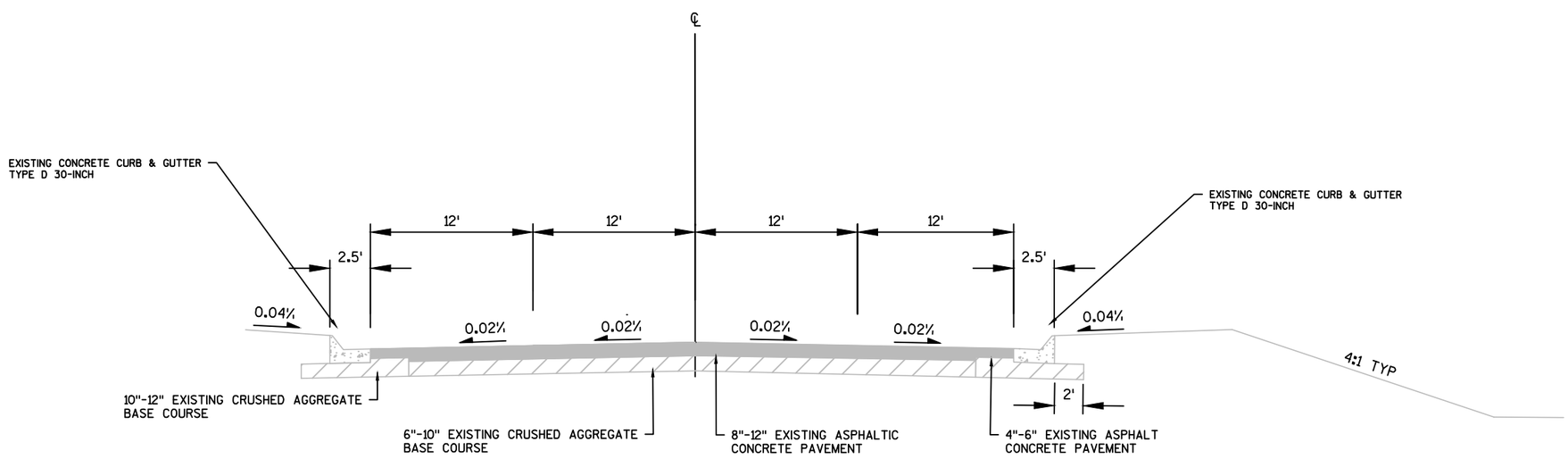
EXISTING TYPICAL SECTION

USH 45

STA 1040+00 - STA 1053+00
STA 1070+00 - STA 1074+75
STA 1080+00 - STA 1120+00
STA 1152+50 - STA 1269+00
STA 1297+00 - STA 1413+58



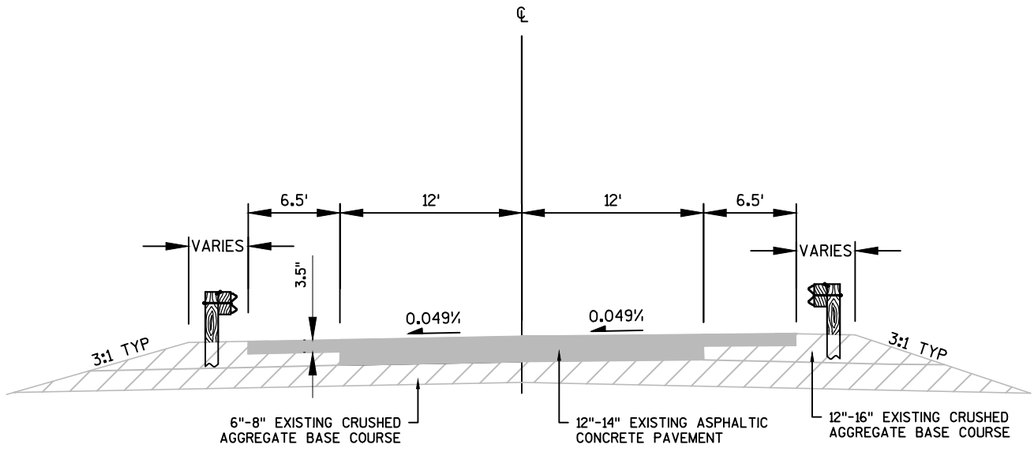
EXISTING TYPICAL SECTION
CURB LEFT/RIGHT SIDE
USH 45
STA 1053+50 - STA 1065+00



EXISTING TYPICAL SECTION
CURB LEFT/RIGHT SIDE
USH 45
STA 1065+00 - STA 1070+00

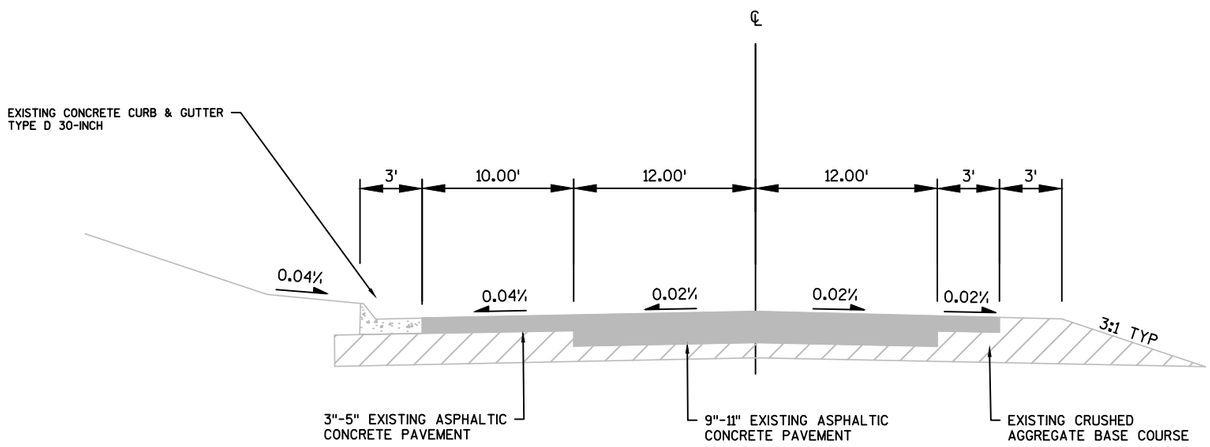
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PLAN: TYPICAL SECTIONS	SHEET 6	E

BOX CULVERT CROSS SECTION

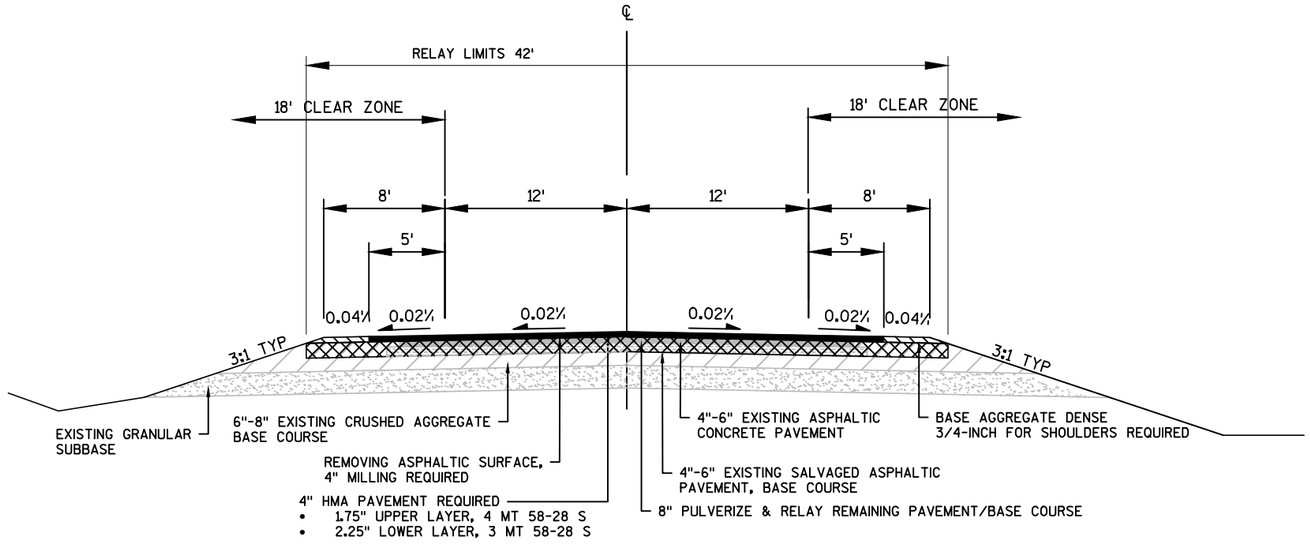


NOTES:
1. BOX CULVERT C-58-0062 BELOW ROADWAY STRUCTURE

EXISTING TYPICAL SECTION
USH 45
STA 1072+76 - STA 1073+02

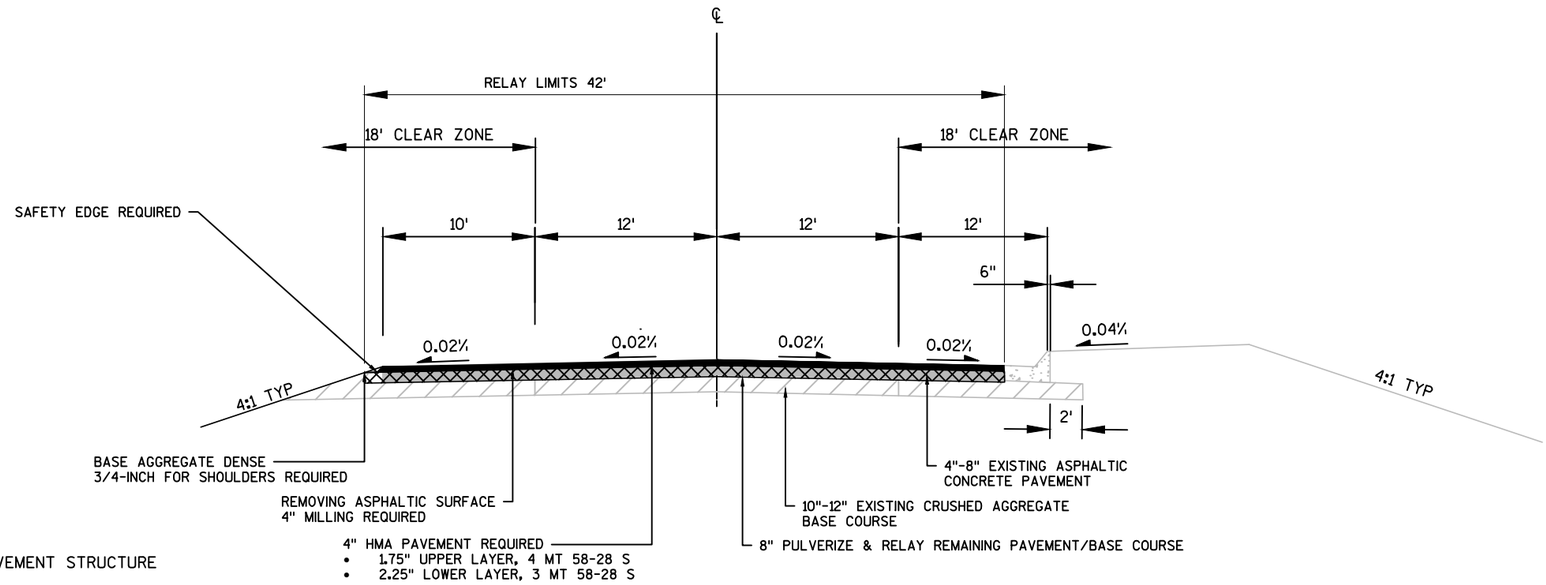


EXISTING TYPICAL SECTION
CURB LEFT SIDE
USH 45
STA 1393+16 - STA 1396+44



PROPOSED TYPICAL SECTION
USH 45

STA 1003+24 - STA 1027+00
STA 1074+75 - STA 1080+00
STA 1120+00 - STA 1152+50
STA 1269+00 - STA 1297+00

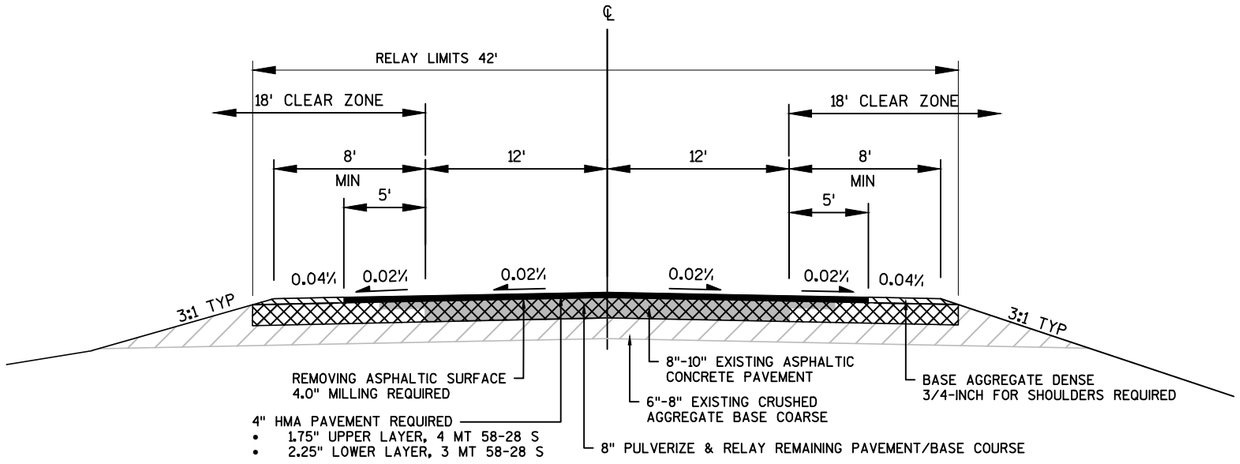


NOTES:
1. PROVIDE 0.5" OVERHANG OF PROPOSED PAVEMENT STRUCTURE ABOVE CURB & GUTTER.

PROPOSED TYPICAL SECTION
CURB RIGHT SIDE
USH 45

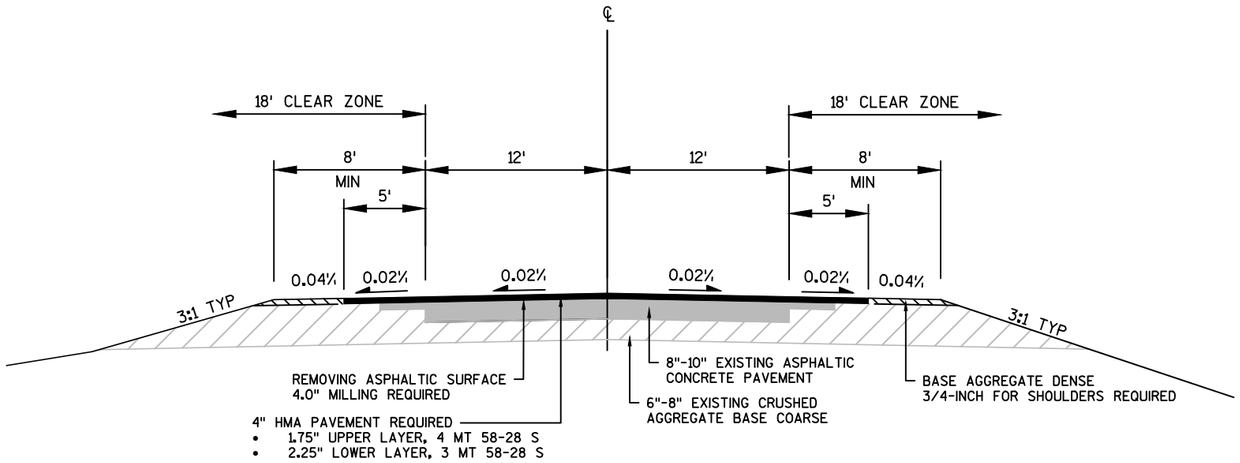
STA 1027+00 - STA 1040+00

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PLAN: TYPICAL SECTIONS	SHEET 8	E



PROPOSED TYPICAL SECTION
USH 45

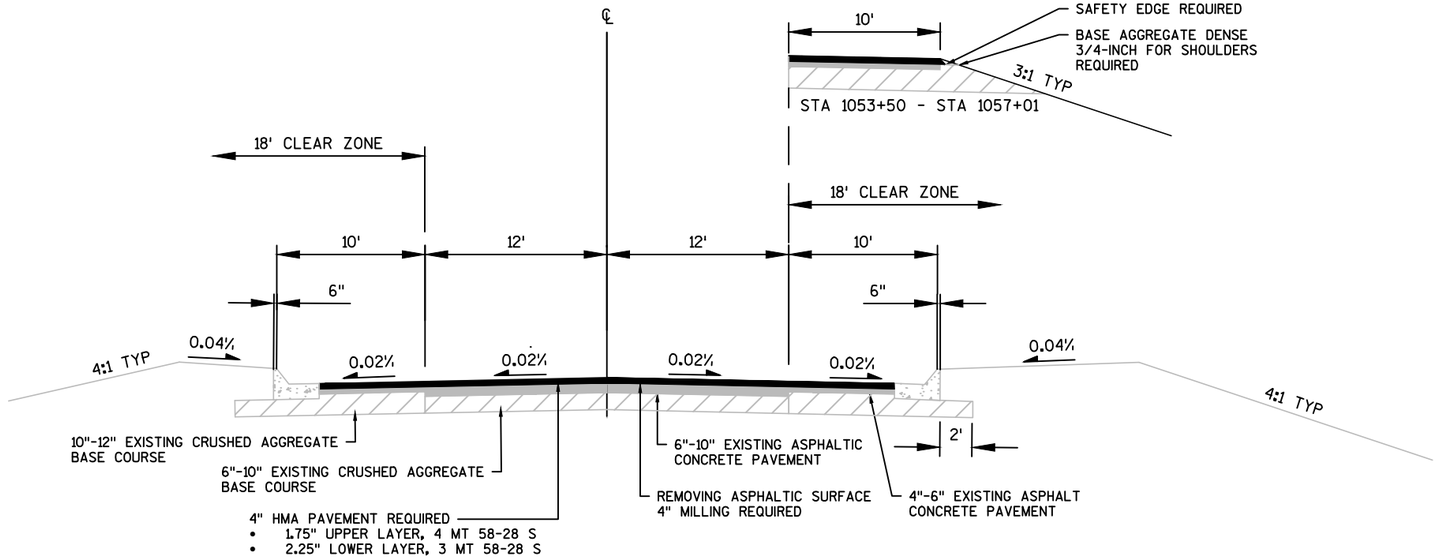
STA 1040+00 - STA 1053+50
STA 1080+00 - STA 1120+00
STA 1152+50 - STA 1269+00
STA 1297+50 - STA 1413+58



PROPOSED TYPICAL SECTION
USH 45

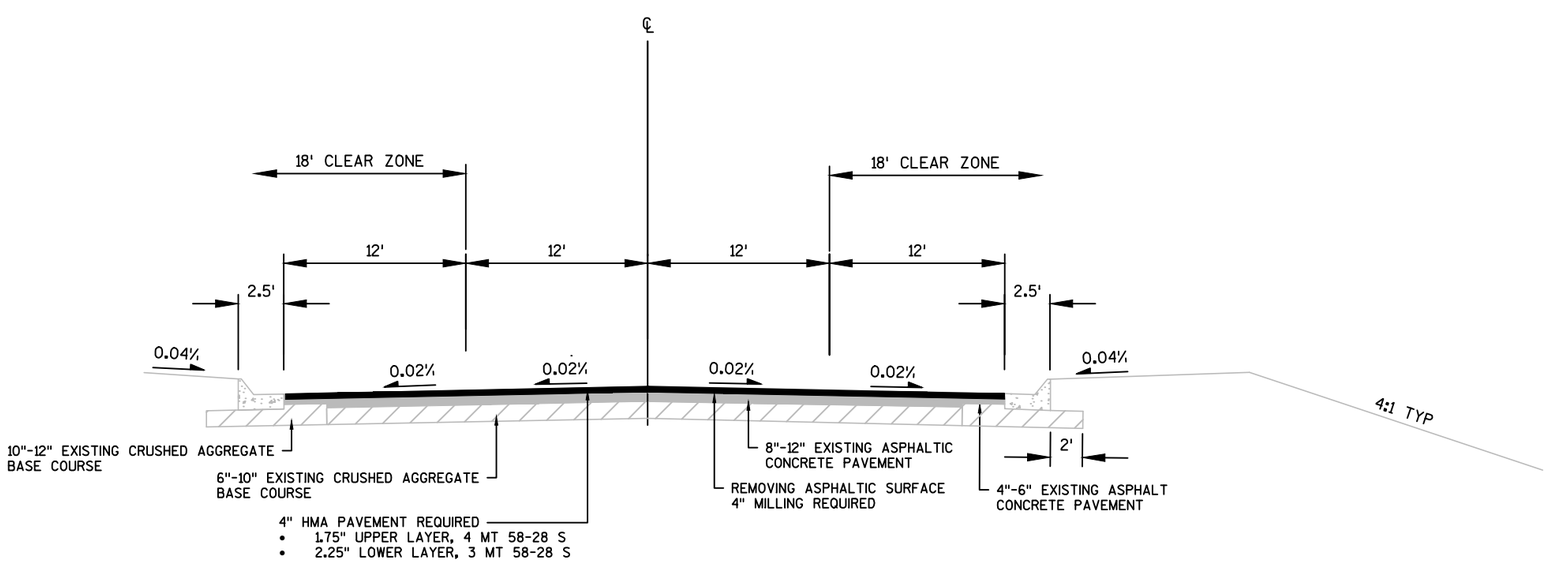
STA 1070+00 - STA 1074+75

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PLAN: TYPICAL SECTIONS	SHEET 9	E



NOTES:
1. PROVIDE 0.5" OVERHANG OF PROPOSED PAVEMENT STRUCTURE ABOVE CURB & GUTTER.

PROPOSED TYPICAL SECTION
USH 45
STA 1053+50 - STA 1065+00

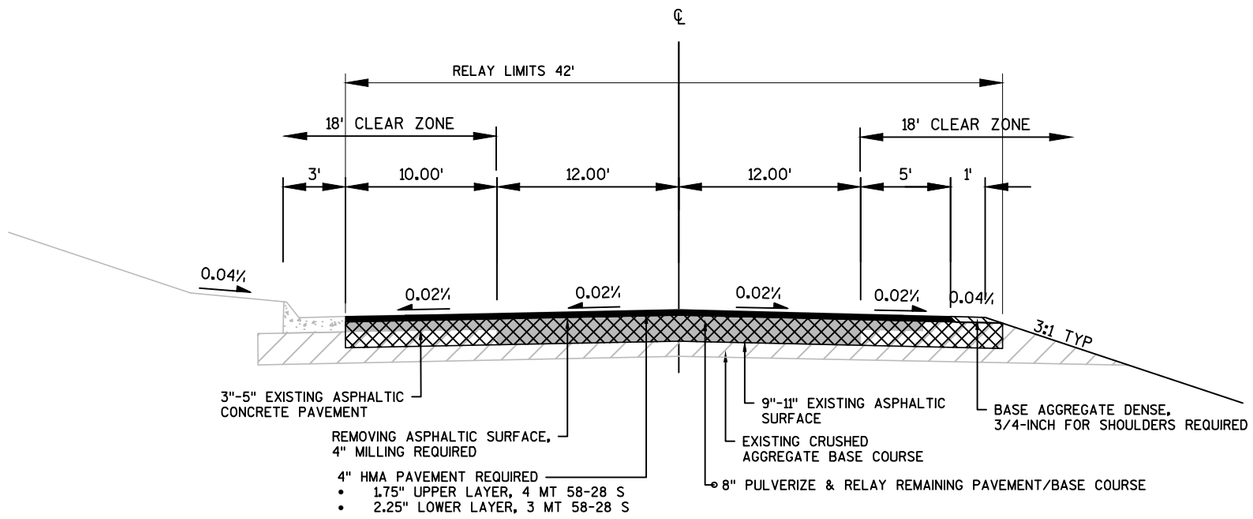


NOTES:
1. PROVIDE 0.5" OVERHANG OF PROPOSED PAVEMENT STRUCTURE ABOVE CURB & GUTTER.

PROPOSED TYPICAL SECTION
CURB LEFT/RIGHT SIDE
USH 45
STA 1065+00 - STA 1070+00

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PLAN: TYPICAL SECTIONS	SHEET 10	E

2



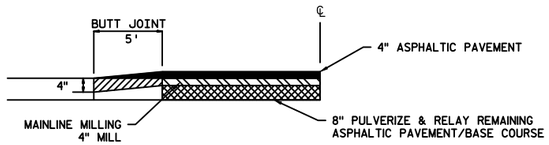
NOTES:
1. PROVIDE 0.5" OVERHANG OF PROPOSED PAVEMENT STRUCTURE ABOVE CURB & GUTTER.

PROPOSED TYPICAL SECTION
CURB LEFT SIDE

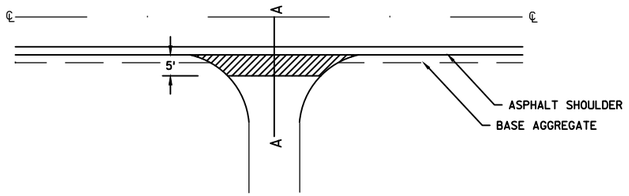
USH 45

STA 1393+16 - STA 1396+44

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PLAN: TYPICAL SECTIONS	SHEET 11	E



SECTION A-A



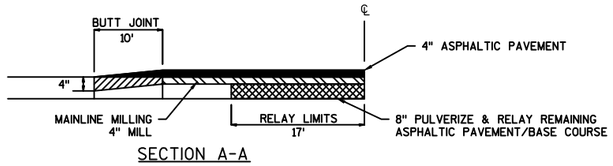
REMOVING ASPHALTIC SURFACE BUTT JOINT

REMOVING ASPHALTIC SURFACE MILLING

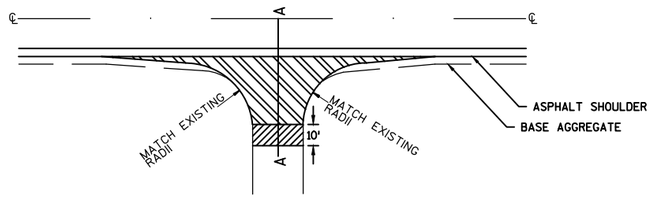
PULVERIZE AND RELAY MATERIAL

BUTT JOINT DETAIL

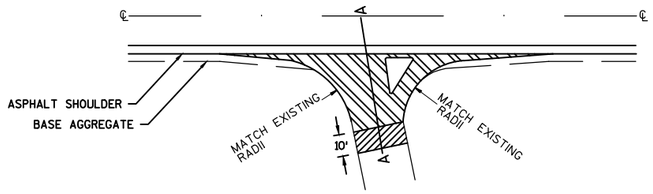
ALL ASPHALTIC DRIVEWAYS



SECTION A-A



SIDE ROADS WITHOUT ISLANDS



SIDE ROADS WITH ISLANDS

REMOVING ASPHALTIC SURFACE BUTT JOINT

REMOVING ASPHALTIC SURFACE MILLING

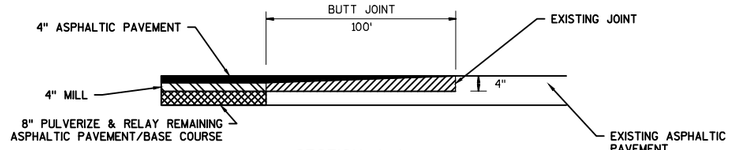
PULVERIZE AND RELAY MATERIAL

BUTT JOINT DETAIL

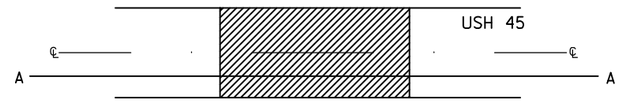
SIDE ROADS

ALL INTERSECTIONS

NOTE: SIDE ROADS WILL NOT BE PULVERIZED.



SECTION A-A



REMOVING ASPHALTIC SURFACE BUTT JOINT

REMOVING ASPHALTIC SURFACE MILLING

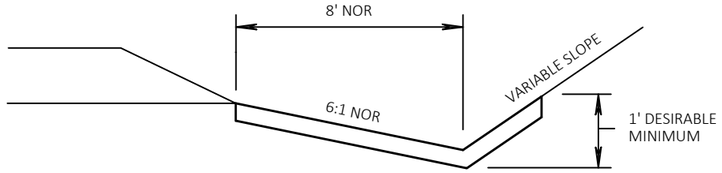
PULVERIZE AND RELAY MATERIAL

BUTT JOINT DETAIL

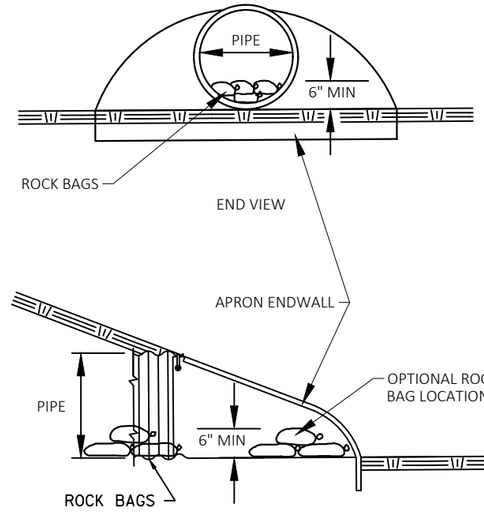
MAINLINE

STA 1003+24 - 1004+24
STA 1412+58 - 1413+58

2

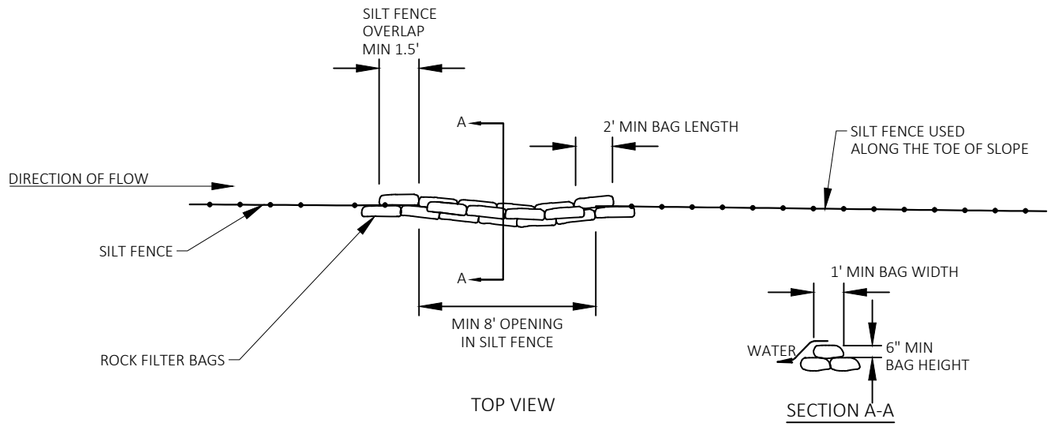


EROSION MAT DETAIL FOR DITCHES



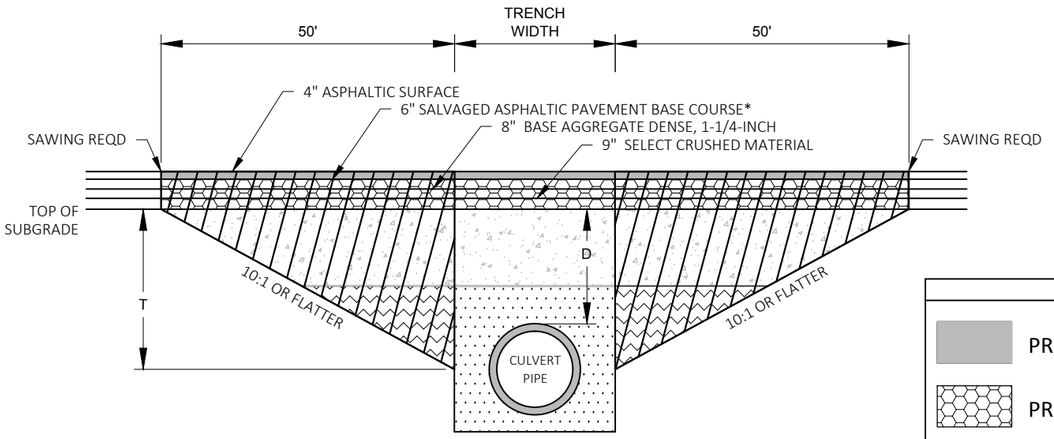
CULVERT PIPE CHECK

(INSTALL ON INLET END ONLY)



ROCK BAGS USED FOR SILT FENCE RELIEF

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	EROSION CONTROL DETAIL SHEET	SHEET 13	E

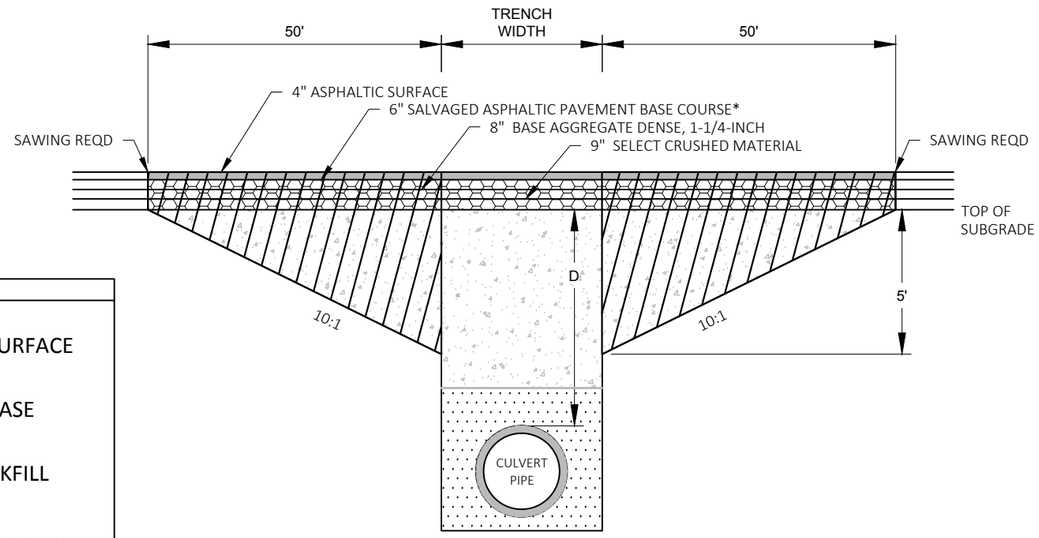


TRANSITION CUT DEPTH (T) = THE LESSER OF DEPTH TO CENTER OF PIPE OR 5 FT.
DO NOT EXTEND TRANSITION CUT BELOW HORIZONTAL CENTER OF PIPE.

DEPTH D < 6 FT

KEY

- PROPOSED SURFACE
- PROPOSED BASE
- TRENCH BACKFILL
- TRENCH OR FOUNDATION BACKFILL
- FOUNDATION BACKFILL
- TRANSITION CUT



DEPTH D ≥ 6 FT

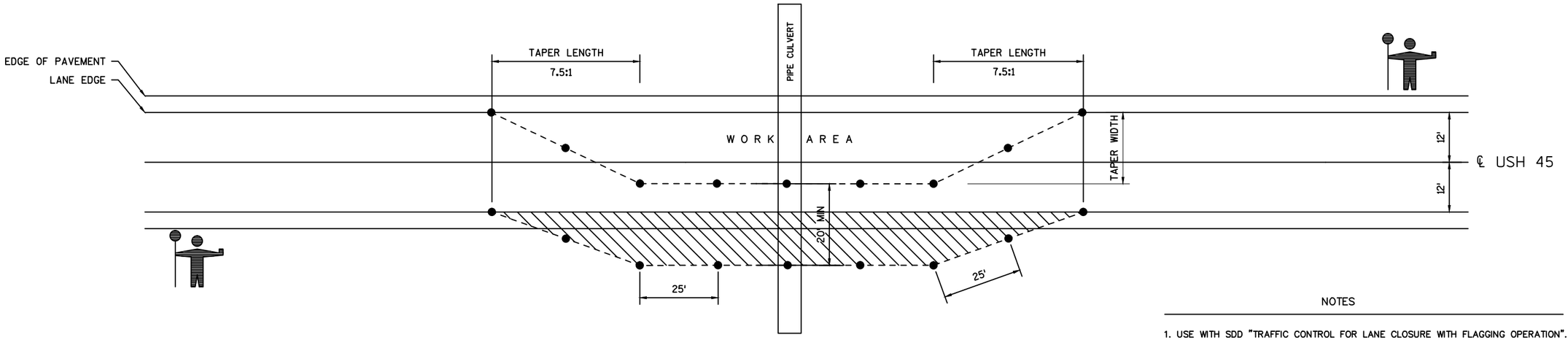
NOTES

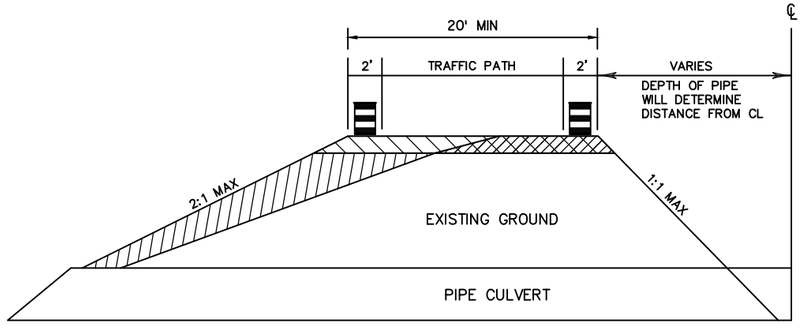
TRANSITION CUT IS PAID AS EXCAVATION COMMON.
TRANSITION CUT WIDTH IS FROM SUBGRADE SHOULDER POINT TO SUBGRADE SHOULDER POINT.
TRENCH BACKFILL AND FOUNDATION BACKFILL USED IN TRANSITION CUT AREA IS INCIDENTAL TO CULVERT PIPE BID ITEMS.
PERFORM CULVERT PIPE INSTALLATION BEFORE MILLING OPERATIONS.
PLACE ASPHALTIC SURFACE AFTER CULVERT PIPE INSTALLATION AND BEFORE MILLING OPERATIONS.
*SALVAGED ASPHALTIC BASE COURSE WILL BE PAID FOR AS BASE AGGREGATE DENSE, 1-1/4-INCH

CULVERT PIPE TRANSITION

ROUTE	STA (CL)	DEPTH D (FT)	PIPE DIA (IN)	REMARKS
USH 45	1093+87	7.5	24	58-045-035
USH 45	1280+26	2.9	24	58-045-049
USH 45	1379+11	6.4	24	58-045-054R
USH 45	1404+81	7.8	42	58-045-057

2





NOTES

1. USE WITH SDD "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION".
2. FLAGGERS ARE SPECIFIC TO THIS OPERATION.
3. THE TAPER SHOULD EXTEND ACROSS THE SHOULDER UNLESS DOING SO WOULD GREATLY CONFLICT WITH THE WORK OPERATION.
4. ALL LANE CLOSURE SIGNS SHALL BE REMOVED OR COVERED AND ALL DEVICES REMOVED BEYOND THE SHOULDER WHEN WORK IS NOT IN PROGRESS AND THE LANE IS RESTORED TO ORIGINAL CONFIGURATION.
5. CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED AWAY FROM TRAVEL LANE WHEN FLAGGING OPERATIONS ARE NOT IN USE.

KEY

- TRAFFIC CONTROL DRUM
- FILL – INCIDENTAL TO LANE SHIFT ITEM
- EXISTING PAVED SURFACE OR 6" BASE AGGREGATE DENSE 1 1/4-INCH – INCIDENTAL TO LANE SHIFT ITEM
- 6" BASE AGGREGATE DENSE 1 1/4-INCH – INCIDENTAL TO LANE SHIFT ITEM
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

LANE SHIFT DETAIL

STA 1093+87	58-045-035
STA 1280+26	58-045-049
STA 1379+11	58-045-054R
STA 1404+81	58-045-057

2

BEAMGUARD LEGEND

① MGS GUARDRAIL TERMINAL EAT

② MGS GUARDRAIL 3

③ MGS THRIE BEAM TRANSITION

ALDER ST

PT: 1052+71.33

REMOVING CURB & GUTTER,
DRIVEWAY ENTRANCE CURB (CONCRETE CURB & GUTTER 30-INCH TYPE D),
SEE SDD CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

CLEANING CULVERT PIPES

MATCH INTO EXISTING CURB

1054+03.64, -24.64' LT

1054+28.64, -23.64' LT

1054+53.64, -22.64' LT

1055+19.52, -22.64' LT

RIPRAP

B-58-0103

USH 45

1051 1052 1053 1054 1055 1056

15:1 TAPER

1053+10.73, 17.00' RT

1053+56.36, 29.77' RT

1053+81.10, 22.88' RT

1053+56.10, 23.88' RT

1054+96.99, 21.88' RT

1054+06.11, 21.88' RT

BRIDGE (B-58-0103) REPAIR
SEE STRUCTURE PLAN

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	B-58-0103: BEAM GUARD & CURB REPLACEMENT	SHEET 16	E

2

BEAMGUARD LEGEND

① MGS GUARDRAIL TERMINAL EAT

② MGS GUARDRAIL 3

③ MGS THRIE BEAM TRANSITION

N

B-58-0103

USH 45

1057 1058 1059 1060 1061 1062

21: 1059+01.65

1057+86.55, -22.54' LT

INLET COVERS TYPE F,
CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D,
ADJUSTING INLET COVERS

1058+14.93, -22.55' LT

1058+39.93, -23.55' LT

1058+64.93, -24.55' LT

REMOVING CURB & GUTTER,
DRIVEWAY ENTRANCE CURB (CONCRETE CURB & GUTTER 30-INCH TYPE D),
SEE SDD CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

RIPRAP

SIGN

INL

MH

W

1057+44.33, 21.45' RT

1057+97.72, 23.45' RT

1057+72.72, 22.45' RT

1057+47.71, 21.45' RT

MATCH INTO EXISTING CURB

MATCH INTO EXISTING CURB

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D,
ADJUSTING INLET COVERS

INLET COVERS TYPE F,

REMOVING CURB & GUTTER,
DRIVEWAY ENTRANCE CURB (CONCRETE CURB & GUTTER 30-INCH TYPE D),
SEE SDD CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	B-58-0103: BEAM GUARD & CURB REPLACEMENT	SHEET 17	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\021201_PD_NEW.DWG
LAYOUT NAME - 0212002

PLOT DATE : 9/5/2017 9:11 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

2

CONCRETE SIDEWALK 4-INCH

TYPE 3 CURB RAMP
SEE SDD CURB RAMPS TYPES 2 AND 3

REMOVING CONCRETE SIDEWALK

REMOVING CURB & GUTTER

5'
5'
3.5'
5'

CONCRETE CURB & GUTTER 30-INCH TYPE D

1038 1039 1040

USH 45

CURB RAMP DETECTABLE WARNING FIELD YELLOW

3.5'
5'
5'

REMOVING CURB & GUTTER

CONCRETE SIDEWALK 4-INCH

TYPE 1 CURB RAMP
SEE SDD CURB RAMPS TYPES 1 AND 1A

SIGN

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CURB RAMP DETAIL SHEET: CTH M	SHEET 18	E

2

2

BUTTERNUT ST

CONCRETE CURB & GUTTER,
30-INCH TYPE D

SIGN

W

MH

INL

MH

MH

1063

1064

1065

1066

USH 45

1067

1068

INL

INL

WALLS

SYCAMORE ST

INL

SIGN

CONCRETE CURB & GUTTER,
30-INCH TYPE D

ADJUSTING INLET COVERS

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	SYCAMORE ST: INLET & CURB REPAIR	SHEET 19	E

2

2

BEAMGUARD LEGEND

① MGS GUARDRAIL TERMINAL EAT

② MGS GUARDRAIL 3

③ MGS THRIE BEAM TRANSITION

SEPTIC

SEPTIC

SEPV

PV

PC: 1069+96.32

1070

1071

1072

1073

1074

1075

1076

1072+07.35, -22.00' LT

1071+82.13, -22.87' LT

1072+10.75, -22.00' LT

1071+56.90, -23.51' LT

1073+41.23, -22.00' LT

1073+69.84, -22.00' LT

1073+95.06, -22.85' LT

1074+20.29, -23.47' LT

1075+26.89, -17.01' LT

15:1 TAPER

T SIGN

USH 45

15:1 TAPER

3' UNPAVED SHOULDER

5' PAVED SHOULDER

1071+15.09, 19.52' RT

1071+58.45, 22.47' RT

1071+83.24, 21.12' RT

1072+08.05, 20.00' RT

1072+36.23, 20.00' RT

1073+68.68, 20.00' RT

1074+46.46, 22.39' RT

1074+21.67, 21.08' RT

1073+96.85, 19.99' RT

1075+04.52, 16.99' RT

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	B-58-0133: BEAMGUARD	SHEET 20	E

2

LEGEND

EROSION MAT URBAN CLASS I, TYPE A

SILT FENCE

SLOPE INTERCEPT

TEMPORARY DITCH CHECK

SURFACE WATER FLOW

EXISTING ROW

EXISTING ROW

ALDER ST

PT: 1052+71.33

1055

RIPRAP

RIPRAP

USH 45

RIPRAP

RIPRAP

EXISTING ROW

WETLAND BOUNDARY

EXISTING ROW

ROCK TO BE COVERED/TAPERED WITH TOPSOIL
IN ORDER TO MAKE TRAVERSABLE

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	EROSION CONTROL: B-58-0103	SHEET 21	E

2

LEGEND

- EROSION MAT URBAN CLASS I, TYPE A
- SILT FENCE
- RIP RAP
- SLOPE INTERCEPT
- PERMITTED WETLAND IMPACT
- TEMPORARY DITCH CHECK
- SURFACE WATER FLOW
- SILT FENCE RELIEF

N

PERMITTED WETLAND IMPACT,
0.020 AC TYPE RPE

PERMITTED WETLAND IMPACT,
0.018 AC TYPE RPE

EXISTING ROW

PC: 1069+96.32

1070

1075

USH 45

PERMITTED WETLAND IMPACT,
0.091 AC TYPE RPE

LIMITS OF HEAVY RIP RAP,
0.0256 ACRES (85 CY) REQ'D

PERMITTED WETLAND IMPACT,
0.080 AC TYPE RPE

EXISTING ROW

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	EROSION CONTROL: B-58-0133	SHEET 22	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\022001_EC.DWG
LAYOUT NAME - 022002

PLOT DATE : 1/12/2018 1:53 PM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

2

LEGEND

EROSION MAT URBAN CLASS I, TYPE A

SILT FENCE

SLOPE INTERCEPT

CULVERT PIPE DITCH CHECK

SURFACE WATER FLOW

EXISTING ROW

SIGN

SIGN

SIGN

USH 45

1095

PI: 1096+79.79

EXISTING ROW

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	EROSION CONTROL: 58-045-035	SHEET 23	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\022001_EC.DWG
LAYOUT NAME - 022003

PLOT DATE : 1/12/2018 1:53 PM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:40 FT

2

2

LEGEND

- EROSION MAT CLASS I, TYPE A OR B
- SILT FENCE
- SLOPE INTERCEPT
- PERMITTED WETLAND IMPACT
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

N

EXISTING ROW

1280

PERMITTED WETLAND IMPACT,
0.011 AC TYPE M

WETLAND BOUNDARY

EXISTING ROW

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	EROSION CONTROL: 58-045-049	SHEET 24	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\022001_EC.DWG
LAYOUT NAME - 022004

PLOT DATE : 1/12/2018 2:32 PM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

2

LEGEND

- EROSION MAT URBAN CLASS I, TYPE A
- SILT FENCE
- SLOPE INTERCEPT
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW
- SILT FENCE RELIEF

N

EXISTING ROW

1380

USH 45

EXISTING ROW

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	EROSION CONTROL: 58-045-054R	SHEET 25	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\022001_EC.DWG
LAYOUT NAME - 022005

PLOT DATE : 1/12/2018 1:54 PM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:40 FT

2

LEGEND

- EROSION MAT URBAN CLASS I, TYPE A
- SILT FENCE
- SLOPE INTERCEPT
- PERMITTED WETLAND IMPACT
- CULVERT PIPE DITCH CHECK
- SURFACE WATER FLOW

N

PERMITTED WETLAND IMPACT,
0.015 AC TYPE RPF

WETLAND BOUNDARY

EXISTING ROW

1405

USH 45

EXISTING ROW

WETLAND BOUNDARY

PERMITTED WETLAND IMPACT,
0.030 AC TYPE RPF

2

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	EROSION CONTROL: 58-045-057	SHEET 26	E

2

2

N

ALDER ST

PT: 1052+71.33

1050

1055

USH 45

RIPRAP

RIPRAP

RIPRA

646.1020 MARKING LINE EPOXY 4-INCH
CENTERLINE YELLOW

646.1040 MARKING LINE GROOVED
WET REFLECTIVE EPOXY 4-INCH,
EDGELINE WHITE

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PAVEMENT MARKING: STATION 1049+00 - 1057+00	SHEET 27	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\024500_PM.DWG
LAYOUT NAME - 02451_PM

PLOT DATE : 9/18/2017 8:22 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:50 FT

2

2

N

646.1040 MARKING LINE GROOVED WET REFLECTIVE EPOXY 4-INCH, EDGELINE WHITE

646.1020 MARKING LINE EPOXY 4-INCH CENTERLINE YELLOW

PI: 1059+01.65

1060

BUTTERNUT

SIGN

RIPRAP

INL

MH

W

WALLS

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PAVEMENT MARKING: STATION 1057+00 - 1064+00	SHEET 28	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\024500_PM.DWG
LAYOUT NAME - 02452_PM

PLOT DATE : 9/18/2017 8:23 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 42

2

2

646.1040 MARKING LINE GROOVED WET REFLECTIVE EPOXY 4-INCH, EDGELINE WHITE

646.5120 MARKING WORD EPOXY, WHITE

646.3040 MARKING LINE GROOVED WET REFLECTIVE EPOXY 8-INCH, CHANNELIZING WHITE

646.5020 MARKING ARROW EPOXY, WHITE

646.1040 MARKING LINE GROOVED WET REFLECTIVE EPOXY 4-INCH, DASHED WHITE

9' 9' 3' 3'

50' 12.5'

PC: 1069+96.32

1065 1070

USH 45

CTH J

SYCAMORE ST

LYNN ST

SEPTIC SEPV SEPTIC SEPV

MH

INL

I SIGN

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PAVEMENT MARKING: STATION 1064+00 - 1072+00	SHEET 29	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\024500_PM.DWG
LAYOUT NAME - 02453_PM

PLOT DATE : 9/18/2017 8:23 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:50 FT

2

2

PT: 1076+72.89

1075

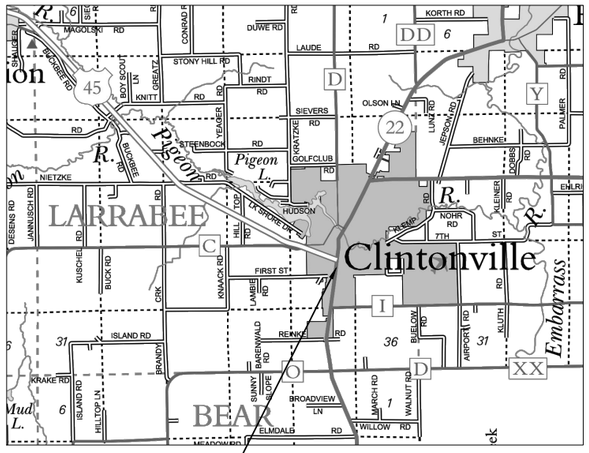
USH 45

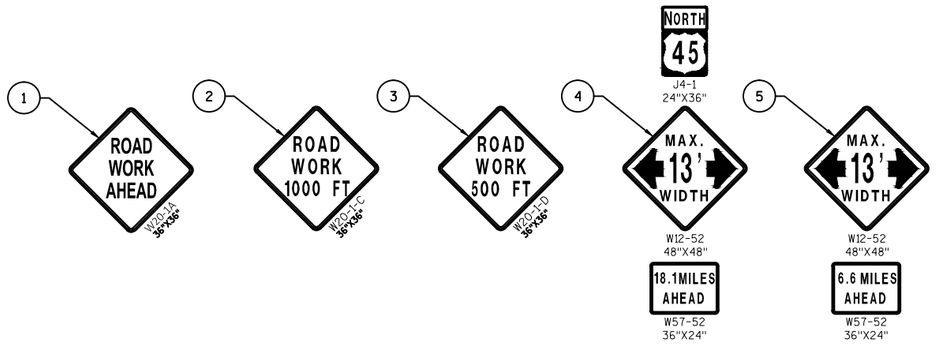
I SIGN

I SIGN

646.1040 MARKING LINE GROOVED WET REFLECTIVE EPOXY 4-INCH, WHITE EDGELINE

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	PAVEMENT MARKING: STATION 1072+00 - 1079+00	SHEET 30	E





NOTES

1. CONSIDER GEOMETRICS WHEN LOCATING PCMS MESSAGE BOARDS SO THE DRIVER HAS CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1000' IN FRONT OF THE MESSAGE BOARD.

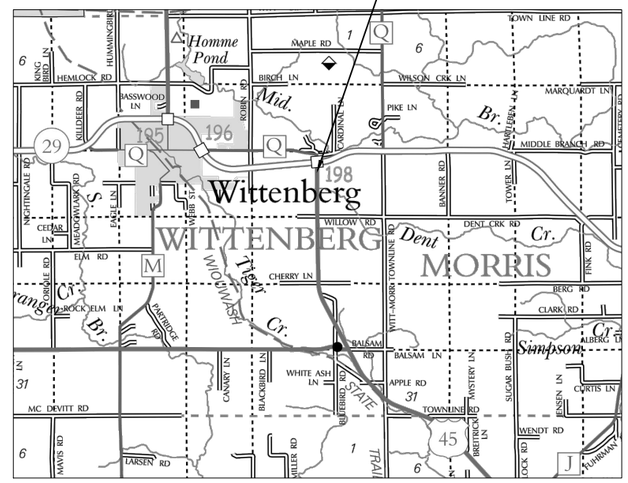
2. PLACE PCMS MESSAGE BOARDS AS FAR AWAY FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY. IN ADVANCE OF HIGHWAY CONSTRUCTION PROJECTS, THE SIGNS SHOULD BE PLACED ON THE BACK SLOPE BEYOND THE DITCH. THE LOCATION SELECTED SHOULD BE AT OR SLIGHTLY ABOVE THE ELEVATION OF THE ROADWAY. FOR INTERMITTENT WORK SUCH AS A LANE CLOSURE OR WHERE SITE CONDITIONS DO NOT ALLOW OTHERWISE, THE SIGNS MAY BE PLACED ON THE SHOULDER. THE SITE SHOULD BE VISITED TO ASSURE VISIBILITY, SAFETY AND MAINTENANCE CONSIDERATIONS. A TAPER OF REFLECTORIZED DRUMS SHOULD BE PLACED AHEAD OF THE PCMS PLACED ON A SHOULDER IF IT IS NOT SHIELDED BY A BARRIER.

3. DISPLAY THE "PRIOR TO CONSTRUCTION" MESSAGES 14 DAYS PRIOR TO THE EXPECTED START OF THE PROPOSED WORK.

4. SIGNS #4 AND #5 SHALL ONLY BE USED FOR THE DURATION OF STRUCTURE REPLACEMENT (B-58-0133).

TRAFFIC CONTROL SIGNS PCMS MESSAGES		
	PRIOR TO CONSTRUCTION	
PCMS SIGN NUMBER AND LOCATION	PHASE 1 (3 SEC)	PHASE 2 (3 SEC)
MB1 - LOCATION: STA 998+00 RT	ROADWORK BEGINS [DATE]	EXPECT DELAYS
MB2 - LOCATION: STA 1414+00 LT	ROADWORK BEGINS [DATE]	EXPECT DELAYS

COUNTY TRUNK HIGHWAY (CTH) / STATE TRUNK HIGHWAY (STH) LOCATIONS:
STA. 1040+00 LT/RT - CTH M
STA. 1069+00 RT - N. CTH J
STA. 1082+00 LT - S. CTH J
STA. 1272+00 LT - STH 153



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	TRAFFIC CONTROL WARNING SIGNS AND PCMS LOCATIONS	SHEET 31	E

2

2

GENERAL NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

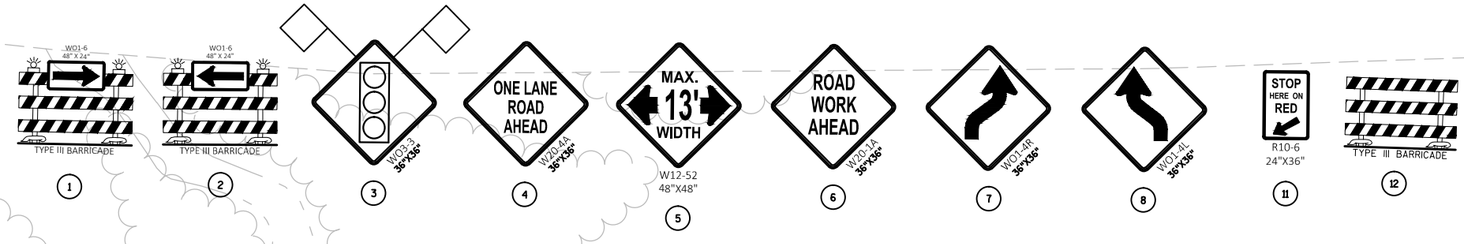
PLACE TEMPORARY PAVEMENT MARKING EDGELINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

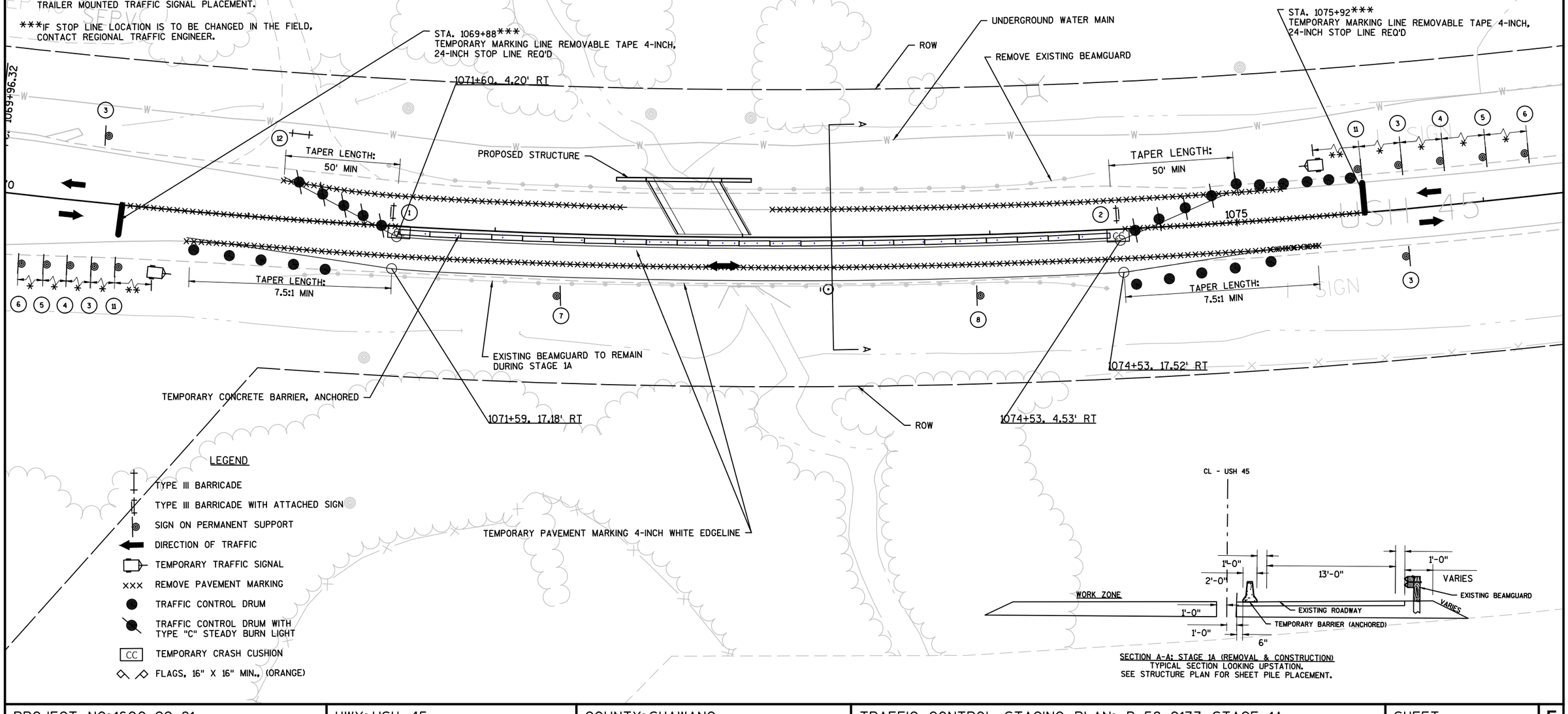
CRASH CUSHIONS WILL BE MOVED IN EACH STAGE ACCORDING TO HOW THEY ARE DISPLAYED BELOW.

* SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGN SPACING AND STOP LINE PLACEMENT.

** SEE STANDARD DETAIL DRAWING "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR MORE INFORMATION REGARDING TRAILER MOUNTED TRAFFIC SIGNAL PLACEMENT.

*** IF STOP LINE LOCATION IS TO BE CHANGED IN THE FIELD, CONTACT REGIONAL TRAFFIC ENGINEER.





LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- TEMPORARY TRAFFIC SIGNAL
- XXX REMOVE PAVEMENT MARKING
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- CC TEMPORARY CRASH CUSHION
- FLAGS, 16" X 16" MIN., (ORANGE)

SECTION A-A: STAGE 1A (REMOVAL & CONSTRUCTION)
TYPICAL SECTION LOOKING UPSTATION.
SEE STRUCTURE PLAN FOR SHEET PILE PLACEMENT.

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	TRAFFIC CONTROL STAGING PLAN: B-58-0133 STAGE 1A	SHEET 32	E

GENERAL NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

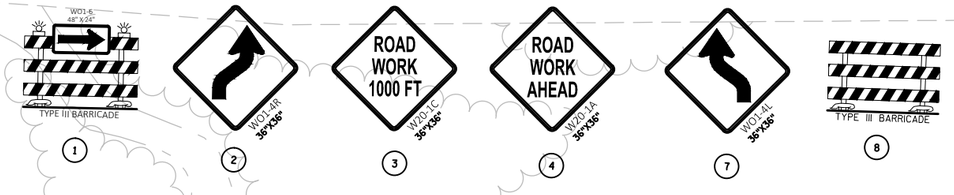
"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

CRASH CUSHIONS WILL BE MOVED IN EACH STAGE ACCORDING TO HOW THEY ARE DISPLAYED BELOW.

* SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY" FOR MORE INFORMATION.

** COVER TC SIGNS THAT ARE NOT IN USE DURING STAGE 1B.



LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- CC — TEMPORARY CRASH CUSHION
- XXX — REMOVE PAVEMENT MARKING
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT

1071+71. 20.99' LT

INSTALL PROPOSED MGS BEAMGUARD PRIOR TO STAGE 1B

ROW

1074+27. 20.99' LT

1071+72. 8.00' LT

PAVED SHOULDER

REMOVE EXISTING BEAMGUARD AND INSTALL UPDATED BEAMGUARD PRIOR TO STAGE 1B

1074+27. 7.99' LT

TEMPORARY TRAFFIC SIGNAL TO BE TURNED OFF DURING STAGE 1B

1069+96.32

1075

USH 45

SIGN

TEMPORARY TRAFFIC SIGNAL TO BE TURNED OFF DURING STAGE 1B

1074+53. 17.60' RT

1074+53. 4.59' RT

1075+13. 11.99' RT

1071+59. 17.26' RT

1071+60. 4.28' RT

1075+07. 0.55' LT

ROW

1070+31. 0.00'

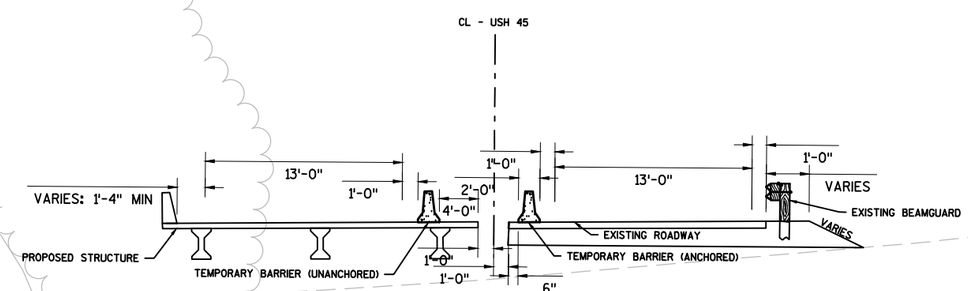
EXISTING BEAMGUARD TO REMAIN DURING STAGE 1B

1070+92. 11.77' RT

TEMPORARY CONCRETE BARRIER, ANCHORED

TEMPORARY CONCRETE BARRIER, UNANCHORED

TEMPORARY PAVEMENT MARKING 4-INCH EDGELINE



SECTION A-A: STAGE 1B (HOLIDAY STAGING)
TYPICAL SECTION LOOKING UPSTATION.
SEE STRUCTURE PLAN FOR SHEET PILE PLACEMENT.

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	TRAFFIC CONTROL STAGING PLAN: B-58-0133 STAGE 1B	SHEET 33	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\026001_S1B - V2.DWG
LAYOUT NAME - 025001

PLOT DATE : 10/19/2017 1:35 PM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:40 FT

WISDOT/CADDS SHEET 42

GENERAL NOTES:

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

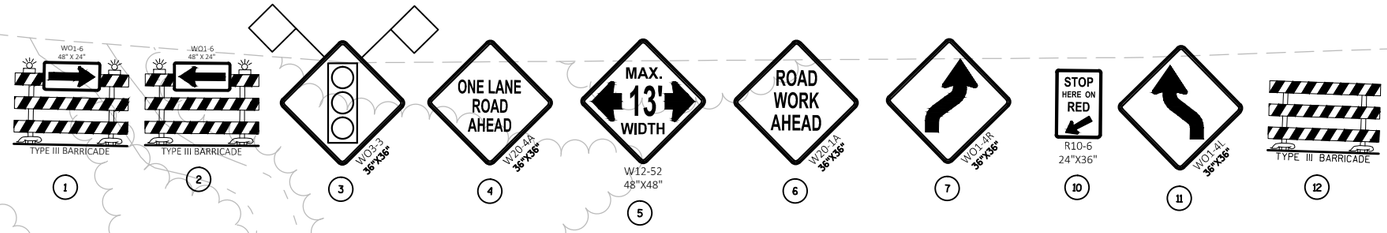
PLACE TEMPORARY PAVEMENT MARKING EDGELINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

CRASH CUSHIONS WILL BE MOVED IN EACH STAGE ACCORDING TO HOW THEY ARE DISPLAYED BELOW.

* SEE STANDARD DETAIL DRAWING "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR MORE INFORMATION REGARDING SIGN SPACING AND STOP LINE PLACEMENT.

** SEE STANDARD DETAIL DRAWING "BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION" FOR MORE INFORMATION REGARDING TRAILER MOUNTED TRAFFIC SIGNAL PLACEMENT.

*** IF STOP LINE LOCATION IS TO BE CHANGED IN THE FIELD, CONTACT REGIONAL TRAFFIC ENGINEER.



STA. 1069+88***
TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, 24-INCH STOP LINE REQ'D

ROW

STA. 1075+92***
TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH, 24-INCH STOP LINE REQ'D

1071+71, 20.99' LT

1074+27, 20.99' LT

TAPER LENGTH:
7.5:1 MIN

**

1075

USH 45

SIGN

TAPER LENGTH:
50' MIN

1071+72, 8.00' LT

TAPER LENGTH:
50' MIN

REMOVE EXISTING BEAMGUARD AND INSTALL UPDATED BEAMGUARD

1074+27, 7.99' LT

TEMPORARY CONCRETE BARRIER, UNANCHORED

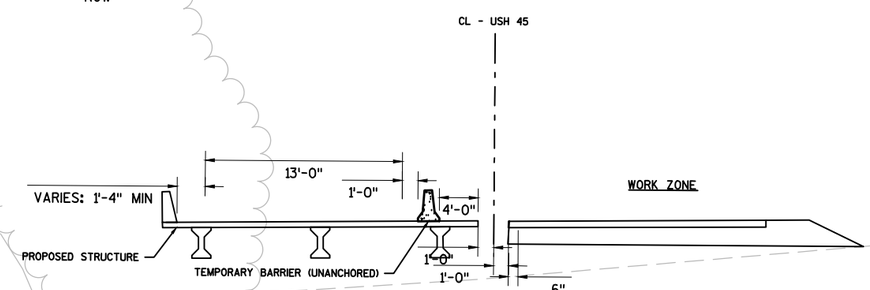
ROW

PROPOSED STRUCTURE

TEMPORARY PAVEMENT MARKING, 4-INCH WHITE EDGELINE, REMOVABLE TAPE (TYP.)

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- TEMPORARY TRAFFIC SIGNAL
- XXX REMOVE PAVEMENT MARKING
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- CC TEMPORARY CRASH CUSHION
- FLAGS, 16" X 16" MIN., (ORANGE)



SECTION A-A: STAGE 2
TYPICAL SECTION LOOKING UPSTATION.
SEE STRUCTURE PLAN FOR SHEET PILE PLACEMENT.

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	TRAFFIC CONTROL STAGING PLAN: B-58-0133 STAGE 2	SHEET 34	E

2

1600-22-81
B-58-103

note: stop bar placement at 620 FT spacing

Temporary Signal Timing # 1 — 7:00am to 7:00pm

EB	WB		Yellow	All Red	Green
red	red			21.0 sec	
green	red				**27.0 sec**
yellow	red		4.5 sec		
red	red			21.0 sec	
red	green				**27.0 sec**
red	yellow		4.5 sec		
Total cycle length	**105.0 sec**	=	9.0 sec	42.0 sec	54.0 sec

Temporary Signal Timing # 2 — 7:00pm to 7:00am

EB	WB		Yellow	All Red	Green
red	red			21.0 sec	
green	red				**19.0 sec**
yellow	red		4.5 sec		
red	red			21.0 sec	
red	green				**19.0 sec**
red	yellow		4.5 sec		
Total cycle length	**89.0 sec**	=	9.0 sec	42.0 sec	38.0 sec

2

1600-22-81
B-58-133

note: stop bar placement at 604 FT spacing

Temporary Signal Timing # 1 — 7:00am to 7:00pm

NB	SB	Yellow	All Red	Green
red	red		20.0 sec	
green	red			**26.0 sec**
yellow	red	4.5 sec		
red	red		20.0 sec	
red	green			**26.0 sec**
red	yellow	4.5 sec		
Total cycle length	**101.0 sec** =	9.0 sec	40.0 sec	52.0 sec

Temporary Signal Timing # 3 — 12:00pm to 7:00pm Fridays

NB	SB	Yellow	All Red	Green
red	red		20.0 sec	
green	red			**42.0 sec**
yellow	red	4.5 sec		
red	red		20.0 sec	
red	green			**21.0 sec**
red	yellow	4.5 sec		
Total cycle length	**112.0 sec** =	9.0 sec	40.0 sec	63.0 sec

Temporary Signal Timing # 2 — 7:00pm to 7:00am

NB	SB	Yellow	All Red	Green
red	red		20.0 sec	
green	red			**18.0 sec**
yellow	red	4.5 sec		
red	red		20.0 sec	
red	green			**18.0 sec**
red	yellow	4.5 sec		
Total cycle length	**85.0 sec** =	9.0 sec	40.0 sec	36.0 sec

Temporary Signal Timing # 4 — 10:00am to 7:00pm Sundays

NB	SB	Yellow	All Red	Green
red	red		20.0 sec	
green	red			**21.0 sec**
yellow	red	4.5 sec		
red	red		20.0 sec	
red	green			**42.0 sec**
red	yellow	4.5 sec		
Total cycle length	**112.0 sec** =	9.0 sec	40.0 sec	63.0 sec

					1600-22-62	1600-22-81
Line	**Item**	**Item Description**	**Unit**	**Total**	**Qty**	**Qty**
0002	203.0100	Removing Small Pipe Culverts	EACH	4.000		4.000
0004	203.0600.S	Removing Old Structure Over Waterway With Minimal Debris (station) 01. 1072+89	LS	1.000	1.000	
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	2,383.000		2,383.000
0008	204.0120	Removing Asphaltic Surface Milling	SY	156,742.000		156,742.000
0010	204.0150	Removing Curb & Gutter	LF	382.000		382.000
0012	204.0155	Removing Concrete Sidewalk	SY	9.500		9.500
0014	204.0165	Removing Guardrail	LF	1,146.000		1,146.000
0016	205.0100	Excavation Common	CY	6,657.000		6,657.000
0018	206.1000	Excavation for Structures Bridges (structure) 01. B-58-133	LS	1.000	1.000	
0020	208.0100	Borrow	CY	416.000		416.000
0022	210.1500	Backfill Structure Type A	TON	485.000	485.000	
0024	213.0100	Finishing Roadway (project) 01. 1600-22-81	EACH	1.000		1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,183.000		2,183.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,565.000		1,565.000
0030	305.0500	Shaping Shoulders	STA	818.000		818.000
0032	312.0110	Select Crushed Material	TON	931.000		931.000
0034	325.0100	Pulverize and Relay	SY	182,478.000		182,478.000
0036	374.1020.S	QMP Pulverize and Relay Compaction	SY	182,478.000		182,478.000
0038	440.4410	Incentive IRI Ride	DOL	31,000.000		31,000.000
0040	455.0605	Tack Coat	GAL	9,285.000		9,285.000
0042	460.2005	Incentive Density PWL HMA Pavement	DOL	22,128.600		22,128.600
0044	460.2010	Incentive Air Voids HMA Pavement	DOL	39,787.000		39,787.000
0046	460.4110.S	Reheating HMA Pavement Longitudinal Joints	LF	40,859.000		40,859.000
0048	460.6223	HMA Pavement 3 MT 58-28 S	TON	22,380.000		22,380.000
0050	460.6224	HMA Pavement 4 MT 58-28 S	TON	17,407.000		17,407.000
0052	465.0105	Asphaltic Surface	TON	326.000		326.000
0054	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	14.000		14.000
0056	465.0475	Asphalt Centerline Rumble Strips 2-Lane Rural	LF	25,500.000		25,500.000
0058	502.0100	Concrete Masonry Bridges	CY	191.000	191.000	
0060	502.3200	Protective Surface Treatment	SY	136.000	136.000	
0062	502.3210	Pigmented Surface Sealer	SY	46.000	46.000	
0064	503.0128	Prestressed Girder Type I 28-Inch	LF	162.000	162.000	
0066	505.0400	Bar Steel Reinforcement HS Structures	LB	7,570.000	7,570.000	
0068	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	16,650.000	16,650.000	
0070	505.0904	Bar Couplers No. 4	EACH	18.000	18.000	
0072	505.0905	Bar Couplers No. 5	EACH	83.000	83.000	
0074	505.0906	Bar Couplers No. 6	EACH	38.000	38.000	
0076	505.0908	Bar Couplers No. 8	EACH	14.000	14.000	

					1600-22-62	1600-22-81
Line	**Item**	**Item Description**	**Unit**	**Total**	**Qty**	**Qty**
0078	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	12.000	12.000	
0080	506.4000	Steel Diaphragms (structure) 01. B-58-133	EACH	5.000	5.000	
0082	509.0301	Preparation Decks Type 1	SY	1.000		1.000
0084	509.0302	Preparation Decks Type 2	SY	1.000		1.000
0086	509.1500	Concrete Surface Repair	SF	16.000		16.000
0088	509.5100.S	Polymer Overlay	SY	631.000		631.000
0090	511.1200	Temporary Shoring (structure) 01. B-58-133	SF	225.000	225.000	
0092	516.0500	Rubberized Membrane Waterproofing	SY	29.000	29.000	
0094	520.8700	Cleaning Culvert Pipes	EACH	1.000		1.000
0096	522.0124	Culvert Pipe Reinforced Concrete Class III 24-Inch	LF	267.000		267.000
0098	522.0142	Culvert Pipe Reinforced Concrete Class III 42-Inch	LF	96.000		96.000
0100	522.1024	Apron Endwalls for Culvert Pipe Reinforced Concrete 24-Inch	EACH	6.000		6.000
0102	522.1042	Apron Endwalls for Culvert Pipe Reinforced Concrete 42-Inch	EACH	2.000		2.000
0104	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	675.000	675.000	
0106	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	456.000		456.000
0108	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	21.000		21.000
0110	602.0405	Concrete Sidewalk 4-Inch	SF	188.000		188.000
0112	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	16.000		16.000
0114	603.8000	Concrete Barrier Temporary Precast Delivered	LF	700.000		700.000
0116	603.8125	Concrete Barrier Temporary Precast Installed	LF	700.000		700.000
0118	606.0300	Riprap Heavy	CY	145.000	145.000	
0120	611.0615	Inlet Covers Type F	EACH	2.000		2.000
0122	611.8115	Adjusting Inlet Covers	EACH	3.000		3.000
0124	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	180.000	180.000	
0126	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000	
0128	614.0905	Crash Cushions Temporary	EACH	6.000		6.000
0130	614.2300	MGS Guardrail 3	LF	250.000		250.000
0132	614.2500	MGS Thrie Beam Transition	LF	315.000		315.000
0134	614.2610	MGS Guardrail Terminal EAT	EACH	8.000		8.000
0136	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1600-22-81	EACH	1.000		1.000
0138	619.1000	Mobilization	EACH	1.000	0.500	0.500
0140	624.0100	Water	MGAL	2,535.000		2,535.000
0142	625.0100	Topsoil	SY	11,348.000		11,348.000
0144	628.1504	Silt Fence	LF	5,166.000		5,166.000
0146	628.1520	Silt Fence Maintenance	LF	5,166.000		5,166.000
0148	628.1905	Mobilizations Erosion Control	EACH	6.000		6.000
0150	628.1910	Mobilizations Emergency Erosion Control	EACH	6.000		6.000

					1600-22-62	1600-22-81
Line	**Item**	**Item Description**	**Unit**	**Total**	**Qty**	**Qty**
0152	628.2006	Erosion Mat Urban Class I Type A	SY	11,348.000		11,348.000
0154	628.7015	Inlet Protection Type C	EACH	8.000		8.000
0156	628.7504	Temporary Ditch Checks	LF	140.000		140.000
0158	628.7555	Culvert Pipe Checks	EACH	60.000		60.000
0160	628.7570	Rock Bags	EACH	100.000		100.000
0162	629.0210	Fertilizer Type B	CWT	7.250		7.250
0164	630.0120	Seeding Mixture No. 20	LB	315.000		315.000
0166	633.5200	Markers Culvert End	EACH	8.000		8.000
0168	642.5201	Field Office Type C	EACH	1.000		1.000
0170	643.0300	Traffic Control Drums	DAY	960.000		960.000
0172	643.0310.S	Temporary Portable Rumble Strips	LS	1.000		1.000
0174	643.0420	Traffic Control Barricades Type III	DAY	115.000		115.000
0176	643.0715	Traffic Control Warning Lights Type C	DAY	400.000		400.000
0178	643.0900	Traffic Control Signs	DAY	2,940.000		2,940.000
0180	643.1050	Traffic Control Signs PCMS	DAY	28.000		28.000
0182	643.5000	Traffic Control	EACH	1.000		1.000
0184	645.0111	Geotextile Type DF Schedule A	SY	131.000	131.000	
0186	645.0120	Geotextile Type HR	SY	280.000	280.000	
0188	646.1020	Marking Line Epoxy 4-Inch	LF	48,518.000		48,518.000
0190	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	75,913.000		75,913.000
0192	646.3040	Marking Line Grooved Wet Ref Epoxy 8-Inch	LF	1,173.000		1,173.000
0194	646.4520	Marking Line Same Day Epoxy 4-Inch	LF	48,518.000		48,518.000
0196	646.5020	Marking Arrow Epoxy	EACH	2.000		2.000
0198	646.5120	Marking Word Epoxy	EACH	2.000		2.000
0200	646.6120	Marking Stop Line Epoxy 18-Inch	LF	18.000		18.000
0202	646.9000	Marking Removal Line 4-Inch	LF	1,025.000		1,025.000
0204	648.0100	Locating No-Passing Zones	MI	7.770		7.770
0206	649.0105	Temporary Marking Line Paint 4-Inch	LF	48,518.000		48,518.000
0208	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	2,480.000		2,480.000
0210	650.6000	Construction Staking Pipe Culverts	EACH	4.000		4.000
0212	650.6500	Construction Staking Structure Layout (structure) 01. B-58-0133	LS	1.000		1.000
0214	650.8000	Construction Staking Resurfacing Reference	LF	41,034.000		41,034.000
0216	650.9910	Construction Staking Supplemental Control (project) 01. 1600-22-81	LS	1.000		1.000
0218	650.9920	Construction Staking Slope Stakes	LF	2,069.000		2,069.000
0220	661.0100	Temporary Traffic Signals for Bridges (structure) 01. B-58-0133	LS	1.000		1.000
0222	661.0100	Temporary Traffic Signals for Bridges (structure) 02. B-58-0103	LS	1.000		1.000
0224	690.0150	Sawing Asphalt	LF	1,042.000		1,042.000

					1600-22-62	1600-22-81
Line	**Item**	**Item Description**	**Unit**	**Total**	**Qty**	**Qty**
0226	715.0502	Incentive Strength Concrete Structures	DOL	1,146.000	1,146.000	
0228	ASP.1T0A	On-the-Job Training Apprentice at $5.00/HR	HRS	2,000.000		2,000.000
0230	ASP.1T0G	On-the-Job Training Graduate at $5.00/HR	HRS	1,260.000		1,260.000
0232	SPV.0060	Special 01. Lane Shifts	EACH	8.000		8.000
0234	SPV.0060	Special 02. Reestablish Section Corner Monuments	EACH	3.000		3.000
0236	SPV.0060	Special 03. HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	2.000		2.000
0238	SPV.0060	Special 04. HMA Percent Within Limits (PWL) Test Strip Density	EACH	2.000		2.000
0240	SPV.0090	Special 01. Sawing Pavement Deck Preparation Areas	LF	10.000		10.000
0242	SPV.0105	Special 01. Temporary Water Diversion	LS	1.000		1.000
0244	SPV.0180	Special 01. Fast Set Deck Patching	SY	1.000		1.000

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STATION	LOCATION	203.0100 REMOVING SMALL PIPE CULVERTS (EACH)
1093+87	58-045-035	1
1280+26	58-045-049	1
1379+11	58-045-054R	1
1404+81	58-045-057	1
	TOTAL	4

STATION	LOCATION	204.0155 REMOVING CONCRETE SIDEWALK (SY)
1039+30	CTH M (LT)	9.5
	TOTAL	9.5

STATION	LOCATION	204.0165 REMOVING GUARDRAIL (LF)
1053+55 - 1058+66	B-58-0103 (LT/RT)	518
1071+12 - 1074+50	C-58-0062 (LT/RT)	628
	TOTAL	1146

STATION - STATION	LOCATION	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS (SY)
1003+24 - 1004+24	MAINLINE SOUTH	333
1011+88	PE RT	22
1023+28	CE LT	27
1030+00	EDGEWOOD RD	24
1040+00	CTH "M"	49
1043+80	CE RT	300
1047+57	PE RT	22
1053+15	E. ALDER ST	24
1054+45 - 1055+45	B-58-0103 SOUTH APPROACH	333
1057+20 - 1058+20	B-58-0103 NORTH APPROACH	333
1065+30	SYCAMORE ST	24
1065+30	BUTTERNUT ST	24
1069+00	S. CTH "J"	24
1082+47	KIELBLOCK RD	24
1082+47	N. CTH "J"	24
1108+30	MOGENSON RD	24
1108+30	S. HIRT RD	24
1117+59	PE LT	20
1144+00	BREITRICK RD	24
1184+50	FAIR-MORR TOWNLINE RD	24
1222+40	WITT-MORR TOWNLINE RD	49
1240+40	APPLE RD	24
1240+45	BLACK ASH LN	24
1271+70	BALSAM RD	24
1271+70	STH 153	24
1292+70	S. BLUEBIRD RD	24
1296+00	S. BLUEBIRD RD	24
1320+00	N. BLUEBIRD RD	24
1330+00	CHERRY LN	49
1382+80	WILLOW RD	49
1412+85	RED OAK LN	24
1412+58 - 1413+58	MAINLINE NORTH	333
		2383

STATION - STATION	LOCATION	REMARKS	204.0120 REMOVING ASPHALTIC SURFACE MILLING (SY)
1004+24 - 1054+45	USH 45 (MAINLINE)	4-INCH DEPTH	16737
1058+20 - 1412+58	USH 45 (MAINLINE)	4-INCH DEPTH	118127
1026+12 - 1044+20	10' SHOULDERS	LT/RT	2753
1052+04 - 1074+80	8' SHOULDERS	LT/RT	2509
1080+00 - 1084+40	KIELBLOCK RD - TURNING LANE	RT	331
1080+60 - 1085+82	CTH J - TURNING LANE	LT	358
1268+40 - 1275+18	BALSAM LANE - TURNING LANE	RT	558
1270+52 - 1276+88	STH 153 - TURNING LANE	LT	494
1392+84 - 1397+47	COMMERCIAL TURNING LANE	LT	279
1407+05 -1413+58	10' SHOULDERS	LT/RT	783
	SIDEROADS		13815
	TOTAL		156742

STATION	LOCATION	204.0150 REMOVING CONCRETE CURB & GUTTER (LF)
1039+04 LT - 1039+26 RT	CTH M	26
1039+18 LT - 1039+44 LT	CTH M	26
1053+30 LT - 1054+03 LT	B-58-0103 (SW QUAD)	100
1057+85 RT - 1058+00 RT	B-58-0103 (NE QUAD)	115
1059+01 LT - 1060+16 LT	B-58-0103 (NW QUAD)	115
	TOTAL	382

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EARTHWORK SUMMARY

FROM/TO STATION	LOCATION	205.0100 EXCAVATION COMMON (1) Cut (2) (CY)	EBS (CY)	SALVAGED/ UNUSABLE PAVEMENT MATERIAL (3) (CY)	AVAILABLE MATERIAL (4) (CY)	UNEXPANDED FILL (CY)	EXPANDED FILL (5) (FACTOR) 1.25	MASS ORDINATE +/- (6) (CY)	208.0100 BORROW WASTE (CY)	(CY)	COMMENTS:
1070+50/1075+50	B-58-0133	827	0	0	827	994	1,242	-416	0	416	
1093+87	58-045-035	1,700	0	0	1,700	1,360	1,700	0	0	0	
1280+26	58-045-049	1,340	0	0	1,340	1,072	1,340	0	0	0	
1379+11	58-045-054R	1,395	0	0	1,395	1,116	1,395	0	0	0	
1404+81	58-045-057	1,395	0	0	1,395	1,116	1,395	0	0	0	
	TOTAL	6,657	0	0	6,657	5,658	7,072	-416	0	416	

1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
2) Salvaged/Unsuable Pavement Material is included in Cut.
3) Salvaged/Unusable Pavement Material
4) Available Material = Cut - Salvaged/Unusuable Pavement Material
5) Expanded Fill. Factor = 1.25

Depending on selections: **Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor**

Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced EBS) * Fill Factor

Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh) * Fill Factor

Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor) * Fill Factor

6) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

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BASE AGGREGATE ITEMS

STATION - STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH (TON)	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH (TON)	312.0110 SELECT CRUSHED MATERIAL (TON)
1003+24 - 1055+69	LT/RT SHOULDER	267		
1057+01 - 1413+58	LT/RT SHOULDER	1816		
1072+89	B-58-0133		25	25
1093+87	58-045-035		397	234
1280+26	58-045-049		325	189
1379+11	58-045-054R		397	234
1404+81	58-045-057		397	234
	UNDISTRIBUTED	100	25	15
		2183	1565	931

STATION - STATION	LOCATION	305.0500 SHAPING SHOULDERS (STA)
1003+28 - 1413+58	LT/RT SHOULDER	818
	TOTAL	818

STATION - STATION	LOCATION	325.0100 PULVERIZE AND RELAY (SY)
1003+24 - 1053+50	MAINLINE (42' WIDTH)	23455
1074+75 - 1413+58	MAINLINE (42' WIDTH)	158121
1026+10 - 1038+98	10' SHOULDERS (LT/RT)	416
1040+95 - 1044+19	CTH M TURNING LANE (LT)	65
1080+03 - 1081+99	KIELBLOCK RD TURNING LANE (RT)	38
1082+84 - 1085+82	BEECH ST/CTH J TURNING LANE (LT)	39
1268+39 - 1274+96	BALSAM RD TURNING LANE (RT)	113
1272+52 - 1276+88	STH 153 TURNING LANE (LT)	77
1407+18 - 1413+58	10' SHOULDERS (LT/RT)	156
	TOTAL	182478

NOTE: EXCESS SHOULDER MATERIAL
MAY BE PULVERIZED & BLENDED INTO MAINLINE

STATION	LOCATION	465.0120 ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES (TON)
STA 1011+88	RT	2
STA 1023+28	LT	3
STA 1043+80	RT	5
STA 1047+57	RT	2
STA 1117+59	LT	2
	TOTAL	14

STATION - STATION	LOCATION	465.0475 ASPHALTIC CENTER LINE RUMBLE STRIPS 2-LANE RURAL (LF)
1003+67 - 1021+00	USH 45 (MAINLINE)	1733
1084+50 - 1410+83	USH 45 (MAINLINE)	23767
	TOTAL	25500

FILE NAME : N:pds\project_id\1600-22-31,61_USH45_Menzel-STH29\Quantities\16002281_mq.ppt PLOT DATE : June 9, 2017 PLOT BY : Chad Blumenschein PLOT NAME : _____ PLOT SCALE : 1:1

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HMA PAVEMENT ITEMS

STATION - STATION	LOCATION	455.0605 TACK COAT (GAL)	460.4110.S REHEATING HMA PAVEMENT LONGITUDINAL JOINTS (LF)	460.6223 HMA PAVEMENT 3 MT 58-28 S (TON)	460.6224 HMA PAVEMENT 4 MT 58-28 S (TON)	465.0105 ASPHALTIC SURFACE (TON)
1003+24 - 1055+45	MAINLINE	986	5221	2,485	1,933	
1057+20 - 1413+58	MAINLINE	6732	35638	16,964	13,194	
1041+25 - 1053+45	SHOULDER WIDENING (5')	27		68	53	
1053+45 - 1055+45	8' SHOULDERS (LT/RT)	11		28	22	
1057+20 - 1064+65	8' SHOULDERS (LT/RT)	41		104	81	
1070+00 - 1080+00	SHOULDER WIDENING (5')	22		56	44	
1026+00 - 1038+09	10' SHOULDER (LT)	48		121	94	
1027+06 - 1039+00	CTH "M" BYPASS LANE (RT)	50		127	99	
1040+94 - 1044+62	CTH "M" BYPASS LANE (LT)	13		32	25	
1065+85 - 1068+18	S. CTH "J" BYPASS LANE (RT)	12		30	23	
1065+85 - 1070+00	S. CTH "J" BYPASS LANE (LT)	20		49	38	
1082+85 - 1085+85	N. CTH "J" BYPASS LANE (LT)	12		30	23	
1268+39 - 1270+90	BALSAM RD BYPASS LANE (RT)	10		24	19	
1272+00 - 1275+00	BALSAM RD BYPASS LANE (RT)	11		27	21	
1272+49 - 1276+89	STH 153 BYPASS LANE (LT)	16		39	31	
1392+85 - 1397+49	RED OAK LN 7' SHOULDER (LT)	13		33	26	
1407+17 - 1411+88	RED OAK LN 7' SHOULDER (RT)	15		39	30	
1409+28 - 1413+58	RED OAK LN 10' SHOULDER (LT)	15		39	30	
	SIDEROADS	1158		2084	1621	
1072+89	B-58-0133	3				12
1093+87	58-045-035	18				82
1280+26	58-045-049	15				67
1379+11	58-045-054R	18				82
1404+81	58-045-057	18				82
	TOTAL	9285	40859	22380	17407	326

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CULVERT PIPE ITEMS

STATION	LOCATION	520.8700 CLEANING CULVERT PIPES (EACH)	522.0124 CULVERT PIPE REINFORCED CONCRETE CLASS III 24-INCH (LF)	522.0142 CULVERT PIPE REINFORCED CONCRETE CLASS III 42-INCH (LF)	522.1024 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 24-INCH (EACH)	522.1042 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 42-INCH (EACH)
1055+39 LT	SW QUAD B-58-0103	1				
1093+87	58-045-035		107		2	
1280+26	58-045-049		68		2	
1379+11	58-045-054R		92		2	
1404+81	58-045-057			96		2
	TOTAL	1	267	96	6	2

NOTE: PROVIDE AND INSTALL JOINT TIES AT EVERY SECTION OF PROPOSED CULVERT PIPE. JOINT TIES INCIDENTAL TO CULVERT PIPE ITEM.

CONCRETE SIDEWALK ITEMS

STATION - STATION	LOCATION	602.0405 CONCRETE SIDEWALK 4-INCH (SF)	602.0505 CONCRETE DETECTABLE WARNING FIELD YELLOW (SF)
1039+30	CTH M (LT/RT)	188	16
	TOTAL	188	16

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CONCRETE CURB & GUTTER ITEMS

STATION - STATION	LOCATION	REMARKS	601.0411 CONCRETE CURB & GUTTER 30-INCH TYPE D (LF)	601.0557 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D (LF)	611.0615 INLET COVERS TYPE F (EACH)	611.8115 ADJUSTING INLET COVERS (EACH)
1039+04 LT - 1039+26 RT	CTH M		26			
1039+18 LT - 1039+44 LT	CTH M		26			
1053+27 LT - 1054+14 LT	B-58-0103 (SW QUAD)	DRIVEWAY ENTRANCE CURB	100			
1057+85 RT - 1059+00 RT	B-58-0103 (NE QUAD)	DRIVEWAY ENTRANCE CURB	104.5	10.5		
1058+51 LT - 1059+66 LT	B-58-0103 (NW QUAD)	DRIVEWAY ENTRANCE CURB	104.5	10.5		
1065+66 RT - 1065+94 RT	SYCAMORE ST (NE QUAD)		25			
1064+50 LT - 1064+88 LT	BUTTERNUT ST (SW QUAD)		70			
1058+71 RT	MAINLINE				1	1
1058+71 LT	MAINLINE				1	1
1065+96 RT	MAINLINE					1
	TOTAL		456	21	2	3

EROSION CONTROL ITEMS

STATION - STATION	LOCATION	628.1504 SILT FENCE (LF)	628.1520 SILT FENCE MAINTENANCE (LF)	628.7015 INLET PROTECTION TYPE C (EACH)	628.7504 TEMPORARY DITCH CHECKS (LF)	628.7555 CULVERT PIPE CHECKS (EACH)	628.7570 ROCK BAGS (EACH)
1033+34 - 1065+95	NB LANE			5			
1033+34 - 1065+95	SB LANE			3			
1051+88 - 1055+85	B-58-0103 (SE QUAD)	365	365		20		15
1057+04 - 1058+00	B-58-0103 (NE QUAD)	120	120				
1072+89	B-58-0133	1135	1135		70		50
1093+87	58-045-035	730	730			15	
1280+26	58-045-049	850	850			15	
1379+11	58-045-054R	857	857			15	15
1404+81	58-045-057	1009	1009			15	
	UNDISTRIBUTED	100	100		50		20
	TOTAL	5,166	5,166	8	140	60	100

STATION - STATION	LOCATION	624.0100 WATER (MGAL)
1003+24 - 1413+58	PROJECT	2,535
	TOTAL	2,535

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BEAM GUARD ITEMS

STATION - STATION	LOCATION	614.2300 MGS GUARDRAIL 3 (LF)	614.2500 MGS THRIE BEAM TRANSITION (LF)	614.2610 MGS GUARDRAIL TERMINAL EAT (EACH)
1053+56 RT - 1055+36 RT	B-58-0103 (SE QUAD)	87.5	39.4	1
1053+91 LT - 1055+59 LT	B-58-0103 (SW QUAD)	62.5	39.4	1
1057+05 RT - 1057+97 RT	B-58-0103 (NE QUAD)		39.4	1
1057+47 LT - 1058+65 LT	B-58-0103 (NW QUAD)	25	39.4	1
1071+58 RT - 1073+00 RT	B-58-0133 (SE QUAD)	25	39.4	1
1071+57 LT - 1072+50 LT	B-58-0133 (SW QUAD)		39.4	1
1073+30 RT - 1074+46 RT	B-58-0133 (NE QUAD)	25	39.4	1
1073+05 LT - 1074+20 LT	B-58-0133 (NW QUAD)	25	39.4	1
		250	315	8

RESTORATION ITEMS

STATION - STATION	LOCATION	625.0100 TOPSOIL (SY)	628.2006 EROSION MAT URBAN CLASS I TYPE A (SY)	629.0210 FERTILIZER TYPE B (CWT)	630.0120 SEEDING MIXTURE NO. 20 (LB)
1003+24 - 1413+58	SHOULDERS (LT/RT)				
1053+81 - 1055+36	B-58-0103 (SE QUAD-	825	825	0.52	22
1057+68	B-58-0103 (NE QUAD-ROCK)	70	70	0.04	2
1072+89	B-58-0133	2300	2300	1.45	62
1093+87	PIPE CULVERT: 58-045-035	1802	1802	1.14	49
1280+26	PIPE CULVERT: 58-045-049	1552	1552	0.98	42
1379+11	PIPE CULVERT: 58-045-54R	2031	2031	1.28	55
1404+81	PIPE CULVERT: 58-045-057	2718	2718	1.71	73
	CURB & GUTTER/INLET REPAIR	50	50	0.13	10
		11,348	11,348	7.25	315

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LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL (EACH)	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
PROJECT	6	6
TOTAL	6	6

STATION	LOCATION	REMARKS	633.5200 MARKERS CULVERT END (EACH)
1093+87	PIPE CULVERT: 58-045-035	LT/RT	2
1280+26	PIPE CULVERT: 58-045-049	LT/RT	2
1379+11	PIPE CULVERT: 58-045-054R	LT/RT	2
1404+81	PIPE CULVERT: 58-045-057	LT/RT	2
		TOTAL	8

LOCATION	643.0310.S TEMPORARY PORTABLE RUMBLE STRIPS (LS)
PROJECT	1
TOTAL	1

TRAFFIC CONTROL ITEMS

STATION - STATION	LOCATION	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED (LF)	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED (LF)	643.0300 TRAFFIC CONTROL DRUMS (DAY)	643.0420 TRAFFIC CONTROL BARRICADES TYPE III (DAY)	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C (DAY)	643.0900 TRAFFIC CONTROL SIGNS (DAY)	643.1050 TRAFFIC CONTROL SIGNS PCMS (DAY)	661.0100 TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (LS)
PROJECT LIMITS									
1003+24 - 1413+58	PROJECT						2145	28	
STRUCTURE REPLACEMENT/BEAMGUARD									
1072+89	B-58-0133	700	700	700	105	350	665		1
PIPE REPLACEMENTS									
1093+87	58-045-035			40					
1280+26	58-045-049			40					
1379+11	58-045-054R			40					
1404+81	58-045-057			40					
BRIDGE POLYMER OVERLAY/BEAMGUARD									
1056+40	B-58-0103			100	10	50	130		1
	TOTAL	700	700	960	115	400	2,940	28	2

LOCATION	REMARKS	614.0905 CRASH CUSHIONS TEMPORARY (EACH)	OBJECT MARKING PATTERN	TRAFFIC DIRECTION
1071+61, 2.18' RT	STAGE 1A	1	OM-3L	UNIDIRECTIONAL
1074+50, 2.49' RT	STAGE 1A	1	OM-3R	UNIDIRECTIONAL
1071+21, CL	STAGE 1B	1	OM-3C	BIDIRECTIONAL
1074+86, CL	STAGE 1B	1	OM-3C	BIDIRECTIONAL
1071+71, 5.84' LT	STAGE 2	1	OM-3R	UNIDIRECTIONAL
1074+21, 6.00' LT	STAGE 2	1	OM-3L	UNIDIRECTIONAL
	TOTAL	6		

NOTE: ALL CRASH CUSHIONS TEMPORARY SHALL HAVE A BACK WIDTH OF 2-FT AND CRASH TEST LEVEL TL-3

PAVEMENT MARKING ITEMS

STATION - STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH CENTERLINE YELLOW (LF)	646.1040 MARKING LINE GROOVED WET REFLECTIVE EPOXY 4-INCH WHITE (LF)	646.3040 MARKING LINE GROOVED WET REFLECTIVE EPOXY 8-INCH CHANNELIZING WHITE (LF)	646.4520 MARKING LINE SAME DAY EPOXY 4-INCH CENTERLINE YELLOW (LF)	646.9000 MARKING REMOVAL LINE 4-INCH (LF)	646.5020 MARKING ARROW EPOXY (EACH)	646.5120 MARKING WORD EPOXY (EACH)	646.6120 MARKING STOP LINE EPOXY 18-INCH WHITE (LF)	649.0105 TEMPORARY MARKING LINE PAINT 4-INCH YELLOW CENTERLINE (LF)	649.0150 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH (LF)
1003+24 - 1413+58	MAINLINE	48518	75863		48518					48518	
1068+17 - 1070+10	N. CTH J (LT)		50								
1036+89 - 1039+00	CTH M (RT)			205							
1040+92 - 1043+00	CTH M (LT)			205							
1055+69 - 1057+01	B-58-0103										480
1065+86 - 1067+17	N. CTH J (RT)			33			1	1			
1067+17 - 1068+17	N. CTH J (RT)			100							
1065+95 - 1066+95	N. CTH J (LT)			100							
1066+95 - 1068+17	N. CTH J (LT)			30			1	1			
1072+89	B-58-0133					1025					2000
1082+84 - 1084+84	S. CTH J (LT)			200							
1269+93 - 1270+93	BALSAM RD (RT)			100							
1272+51 - 1274+51	STH 153 (LT)			200							
1271+88	STH 153								18		
	TOTALS	48518	75913	1173	48518	1025	2	2	18	48518	2480

FILE NAME : N:pds\project_id\1600-22-31,61_USH45_Menzel-STH29\Quantities\16002281_mq.ppt PLOT DATE : June 9, 2017 PLOT BY : Chad Blumenschein PLOT NAME : _____ PLOT SCALE : 1:1

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CONSTRUCTION STAKING ITEMS

STATION - STATION	LOCATION	650.6000 CONSTRUCTION STAKING PIPE CULVERTS (EACH)	650.6500 CONSTRUCTION STAKING STRUCTURE LAYOUT (LS)	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE (LF)	650.9910 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (1600-22-81) (LS)	650.9920 CONSTRUCTION STAKING SLOPE STAKES (LF)
1003+24 - 1413+58	PROJECT			41034	1	
1052+40 - 1055+36	B-58-0103 (SE QUAD)					296
1070+41 - 1076+00	B-58-0133 (RT)		0.5			559
1070+41 - 1076+00	B-58-0133 (LT)		0.5			559
1093+87	58-045-035	1				205
1280+26	58-045-049	1				150
1379+11	58-045-054R	1				150
1404+81	58-045-057	1				150
	TOTAL	4	1	41034	1	2069

STATION - STATION	LOCATION	648.0100 LOCATING NO-PASSING ZONES (MI)
1003+24 - 1413+58	PROJECT	7.77
	TOTAL	7.77

STATION - STATION	LOCATION	SPV.0060.01 LANE SHIFT (EACH)
1093+87	58-045-035	2
1280+26	58-045-049	2
1379+11	58-045-054R	2
1404+81	58-045-057	2
	TOTAL	8

STATION - STATION	LOCATION	SPV.0105.01 TEMPORARY WATER DIVERSION (LS)
1404+81	58-045-057	1
		1

STATION	LOCATION	690.0150 SAWING ASPHALT (LF)
1003+24 - 1004+24	MAINLINE SOUTH	30
1011+88	PE RT	22
1023+28	CE LT	22
1030+00	EDGEWOOD RD	24
1040+00	CTH "M"	24
1043+80	CE RT	22
1047+57	PE RT	22
1053+15	E. ALDER ST	24
1054+45 - 1055+45	B-58-0103 SOUTH APPROACH	30
1057+20 - 1058+20	B-58-0103 NORTH APPROACH	30
1065+30	SYCAMORE ST	24
1065+30	BUTTERNUT ST	24
1069+00	S. CTH "J"	24
1082+47	KIELBLOCK RD	24
1082+47	N. CTH "J"	24
1093+87	CULVERT PIPE: 58-045-035	60
1108+30	MOGENSON RD	24
1108+30	S. HIRT RD	24
1117+59	PE LT	22
1144+00	BREITRICK RD	24
1184+50	FAIR-MORR TOWNLINE RD	24
1222+40	WITT-MORR TOWNLINE RD	24
1240+40	APPLE RD	24
1240+45	BLACK ASH LN	24
1271+70	BALSAM RD	24
1271+70	STH 153	24
1280+26	CULVERT PIPE: 58-045-049	60
1292+70	S. BLUEBIRD RD	24
1296+00	S. BLUEBIRD RD	24
1320+00	N. BLUEBIRD RD	24
1330+00	CHERRY LN	24
1379+11	CULVERT PIPE: 58-045-054R	60
1382+80	WILLOW RD	24
1404+81	CULVERT PIPE: 58-045-057	60
1412+85	RED OAK LN	24
1412+58 - 1413+58	MAINLINE NORTH	50
	TOTAL	1042

PROJECT START LOCATION
STATION 1003+24

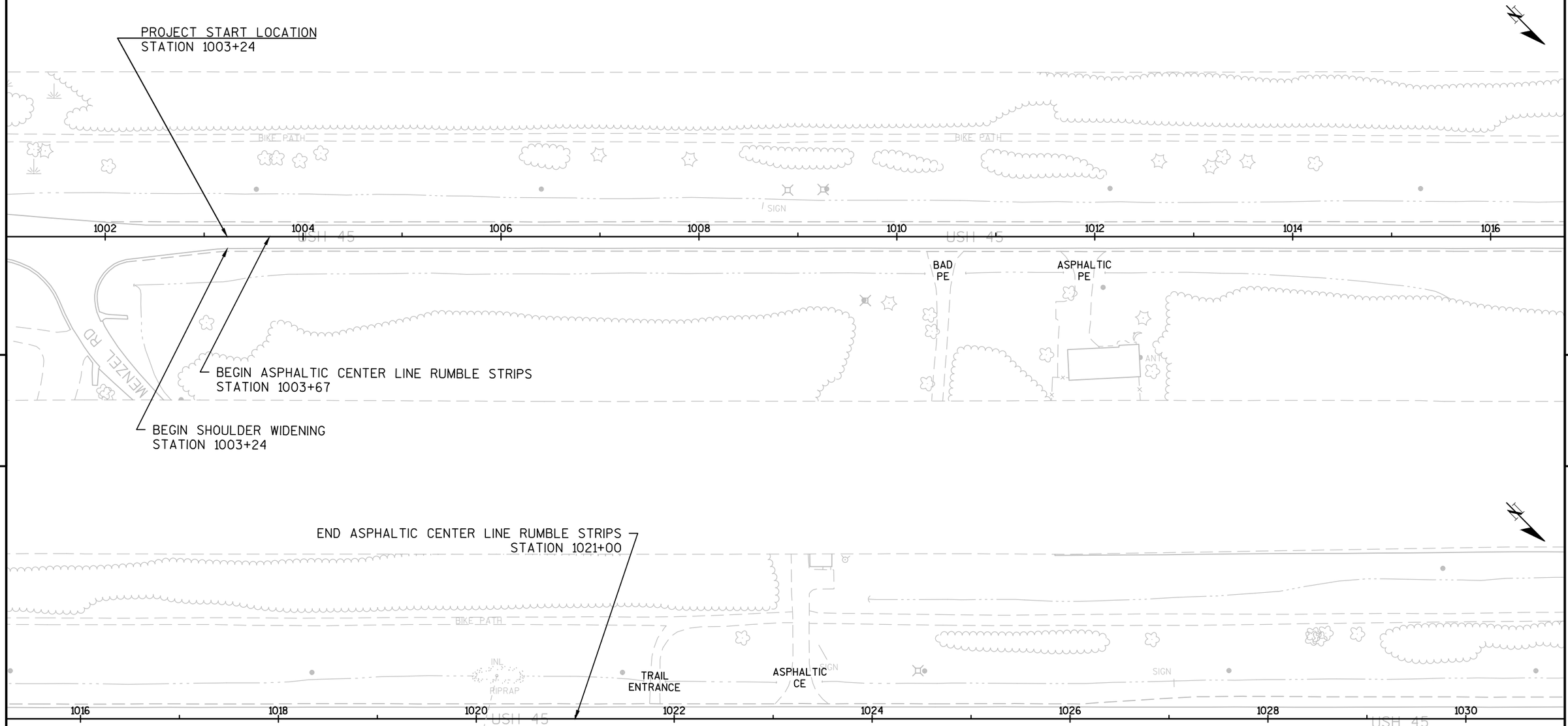
BEGIN ASPHALTIC CENTER LINE RUMBLE STRIPS
STATION 1003+67

BEGIN SHOULDER WIDENING
STATION 1003+24

END ASPHALTIC CENTER LINE RUMBLE STRIPS
STATION 1021+00

5

5



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 50	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\050401_LD.DWG
LAYOUT NAME - 050401

PLOT DATE : 3/17/2017 8:16 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:100 FT

PIPE CULVERT 58-045-031

REMOVE AND REPLACE TYPE 3 CURB RAMP/
CURB AND GUTTER
SEE PLAN DETAILS

ZION RD

CTH M

USH 45

1030 1032 1034 1036 1038 1040 1042 1044

INLET PROTECTION TYPE C

INLET PROTECTION TYPE C

NEW TYPE 1 CURB RAMP/
CURB AND GUTTER
SEE PLAN DETAILS

ASPHALTIC CE

BAD FE

EDGEWOOD RD

CANOPY

SIGN

PHONE

SCALE

MH

5

5

PIPE CULVERT 58-045-032

PC: 1046+80.36

PT: 1052+71.33

ALDER ST

1046 1048 1050 1052 1054 1056 1058 1060

ASPHALTIC PE

BAD PE

BAD FE

RIPRAP

INLET PROTECTION TYPE C

CLEAN CULVERT PIPE

INLET PROTECTION TYPE C

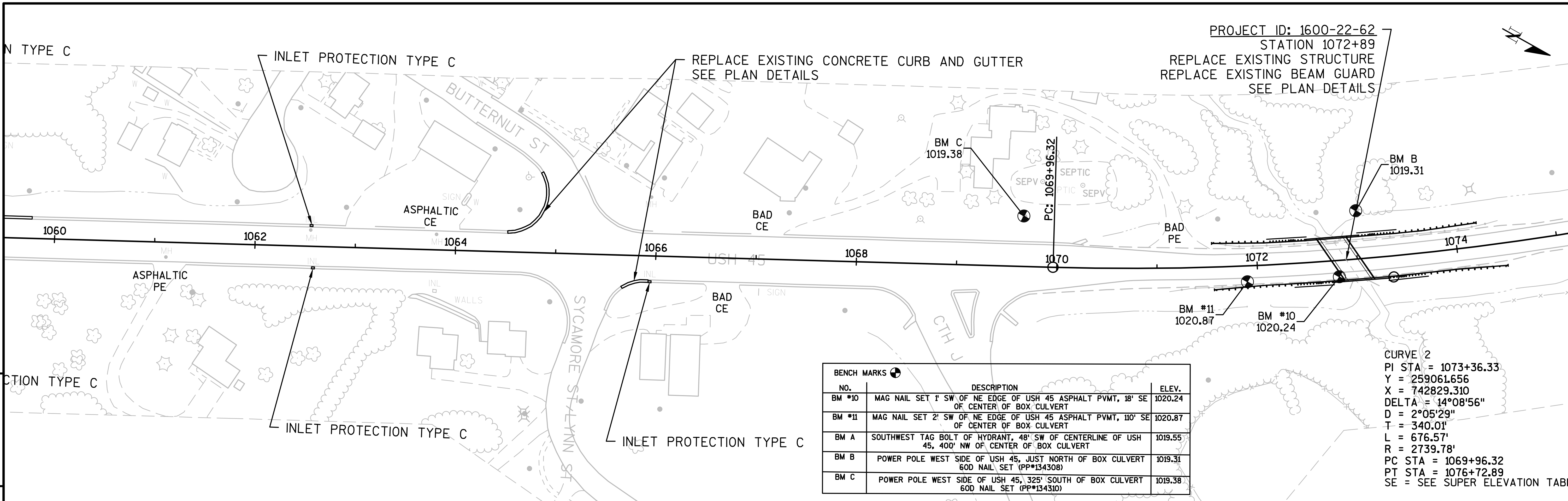
PI: 1059+01.65

INLET PROTECTION TYPE C

CURVE 1
PI STA = 1049+78.23
Y = 256967.986
X = 743924.609
DELTA = 17°43'46"
D = 3°00'00"
T = 297.87'
L = 590.98'
R = 1909.86'
PC STA = 1046+80.36
PT STA = 1052+71.33
SE = SEE SUPER ELEVATION TABLE

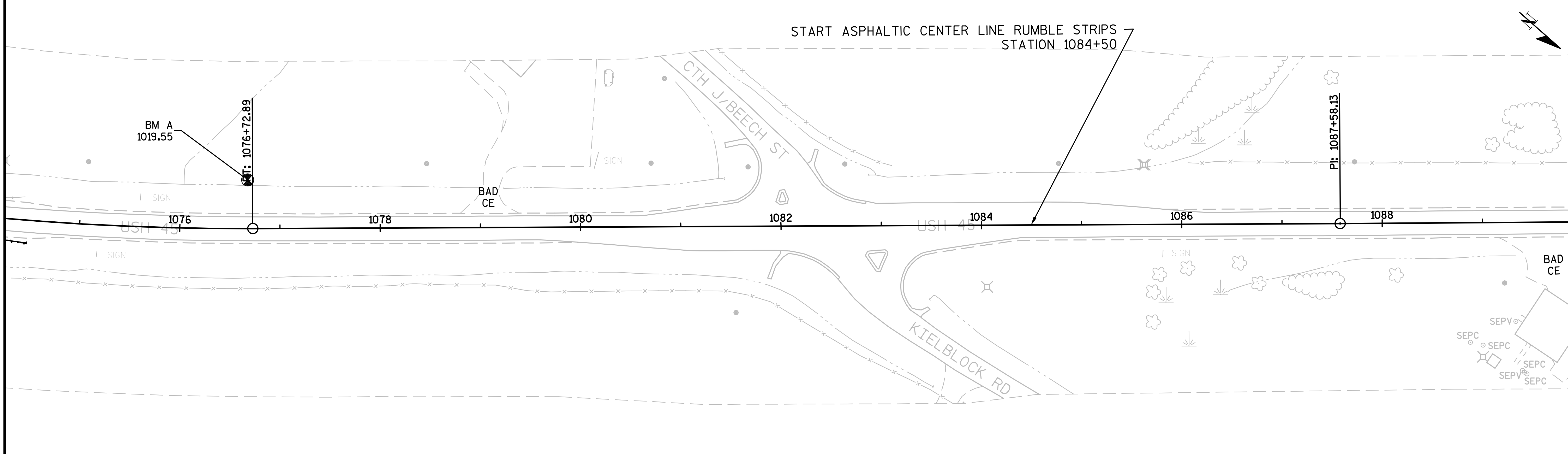
STATION 1055+69 - STATION 1057+01
B-58-0103
BRIDGE DECK REPAIR/POLYMER OVERLAY
REMOVE AND REPLACE EXISTING BEAM GUARD
REMOVE AND REPLACE EXISTING CURB AND GUTTER (SPOT LOCATIONS)
SEE PLAN DETAILS

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 51	E

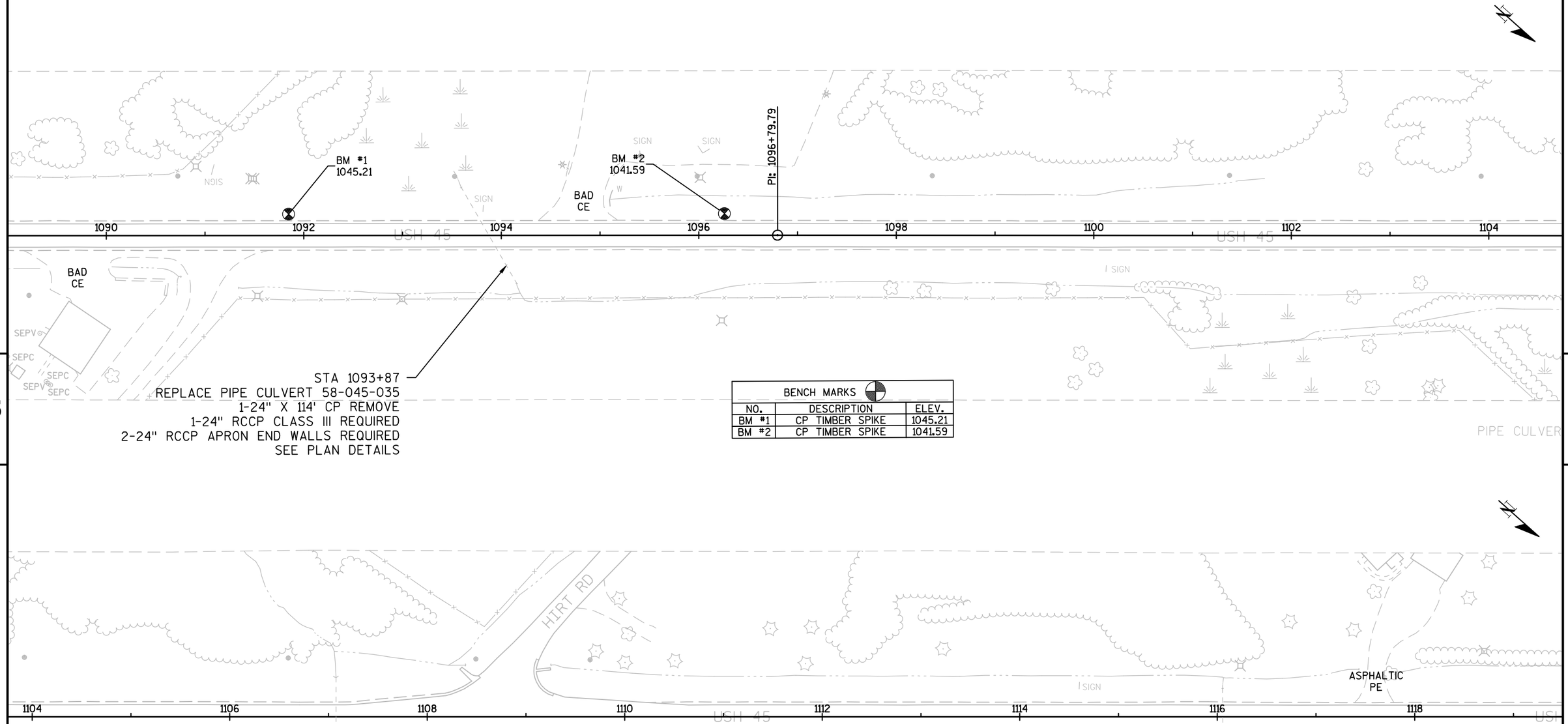


PROJECT ID: 1600-22-62
STATION 1072+89
REPLACE EXISTING STRUCTURE
REPLACE EXISTING BEAM GUARD
SEE PLAN DETAILS
N TYPE C
INLET PROTECTION TYPE C
REPLACE EXISTING CONCRETE CURB AND GUTTER
SEE PLAN DETAILS
BUTTERNUT ST
ASPHALTIC
CE
BAD
CE
BM C
1019.38
PC: 1069+96.32
SEPTIC
SEPV
BM B
1019.31
BAD
PE
1060
1062
1064
1066
USH 45
1068
1070
1072
1074
ASPHALTIC
PE
BAD
CE
SYCAMORE ST/LYNN ST
CTH J
BM #11
1020.87
BM #10
1020.24
CTION TYPE C
INLET PROTECTION TYPE C
INLET PROTECTION TYPE C
CURVE 2
PI STA = 1073+36.33
Y = 259061.656
X = 742829.310
DELTA = 14°08'56"
D = 2°05'29"
T = 340.01'
L = 676.57'
R = 2739.78'
PC STA = 1069+96.32
PT STA = 1076+72.89
SE = SEE SUPER ELEVATION TABLE
5
5

BENCH MARKS		
NO.	DESCRIPTION	ELEV.
BM #10	MAG NAIL SET 1' SW OF NE EDGE OF USH 45 ASPHALT PVMT, 18' SE OF CENTER OF BOX CULVERT	1020.24
BM #11	MAG NAIL SET 2' SW OF NE EDGE OF USH 45 ASPHALT PVMT, 110' SE OF CENTER OF BOX CULVERT	1020.87
BM A	SOUTHWEST TAG BOLT OF HYDRANT, 48' SW OF CENTERLINE OF USH 45, 400' NW OF CENTER OF BOX CULVERT	1019.55
BM B	POWER POLE WEST SIDE OF USH 45, JUST NORTH OF BOX CULVERT 60D NAIL SET (PP#134308)	1019.31
BM C	POWER POLE WEST SIDE OF USH 45, 325' SOUTH OF BOX CULVERT 60D NAIL SET (PP#134310)	1019.38



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 52	E



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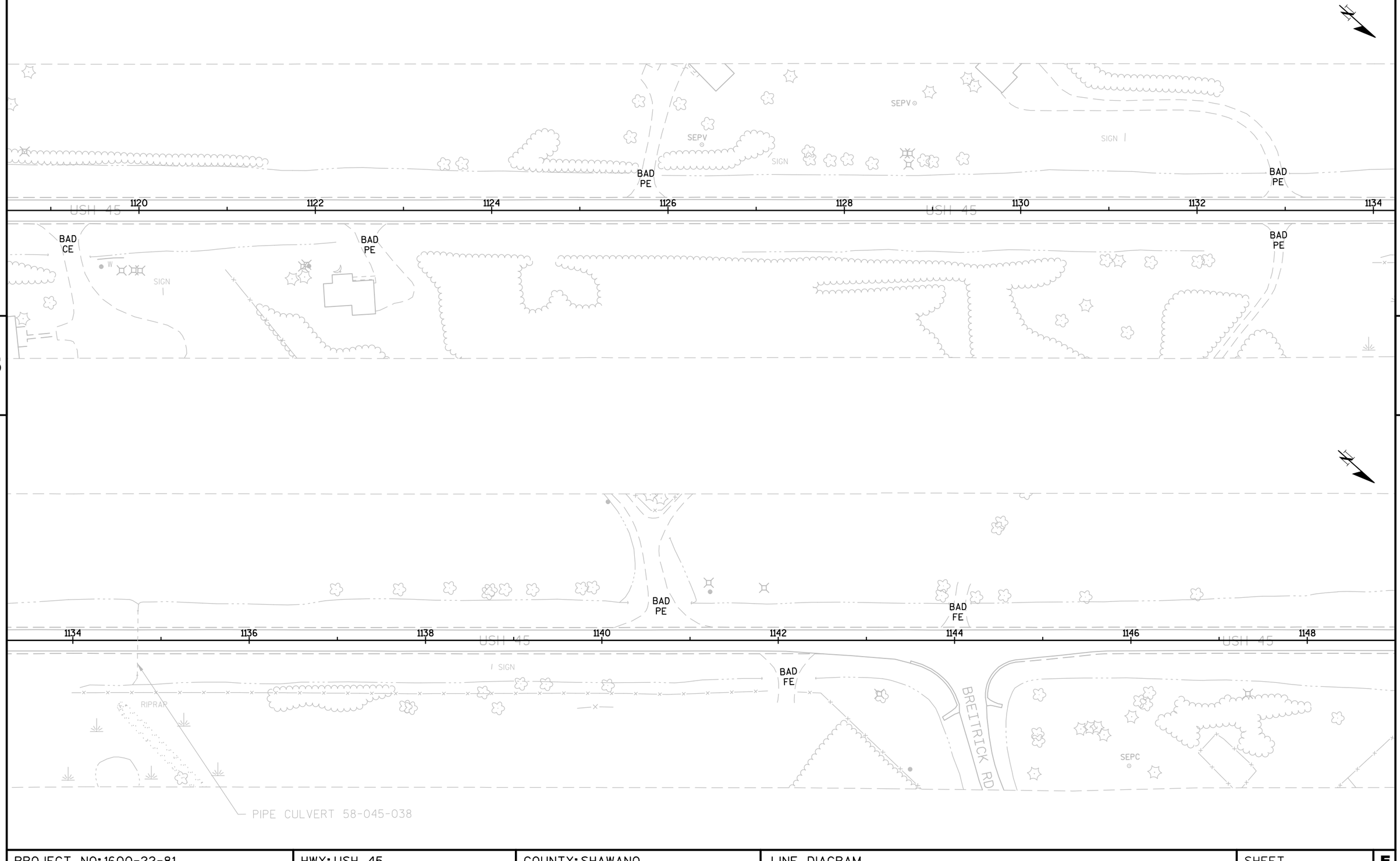
BENCH MARKS		
NO.	DESCRIPTION	ELEV.
BM #1	CP TIMBER SPIKE	1045.21
BM #2	CP TIMBER SPIKE	1041.59

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 53	E



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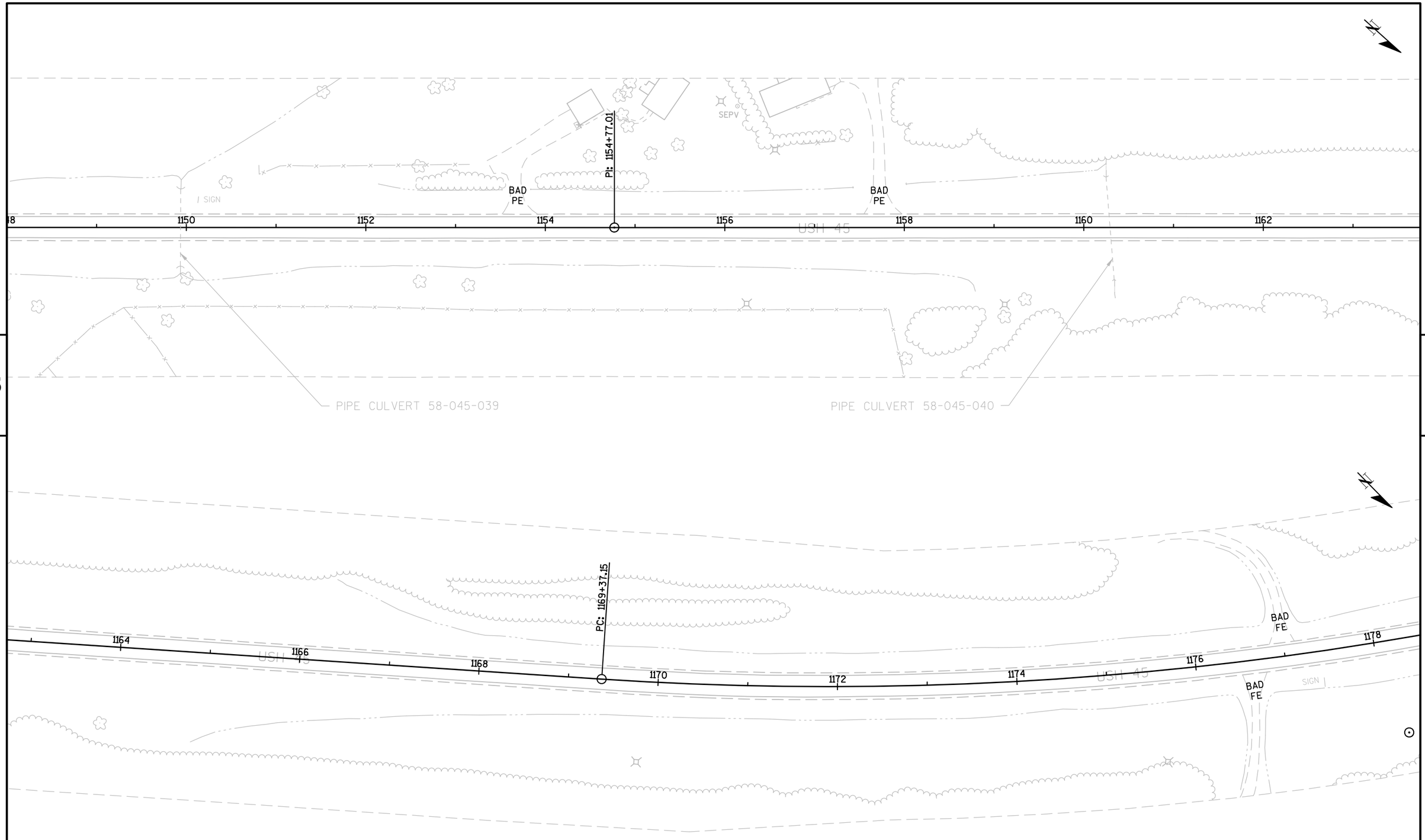
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 54	E



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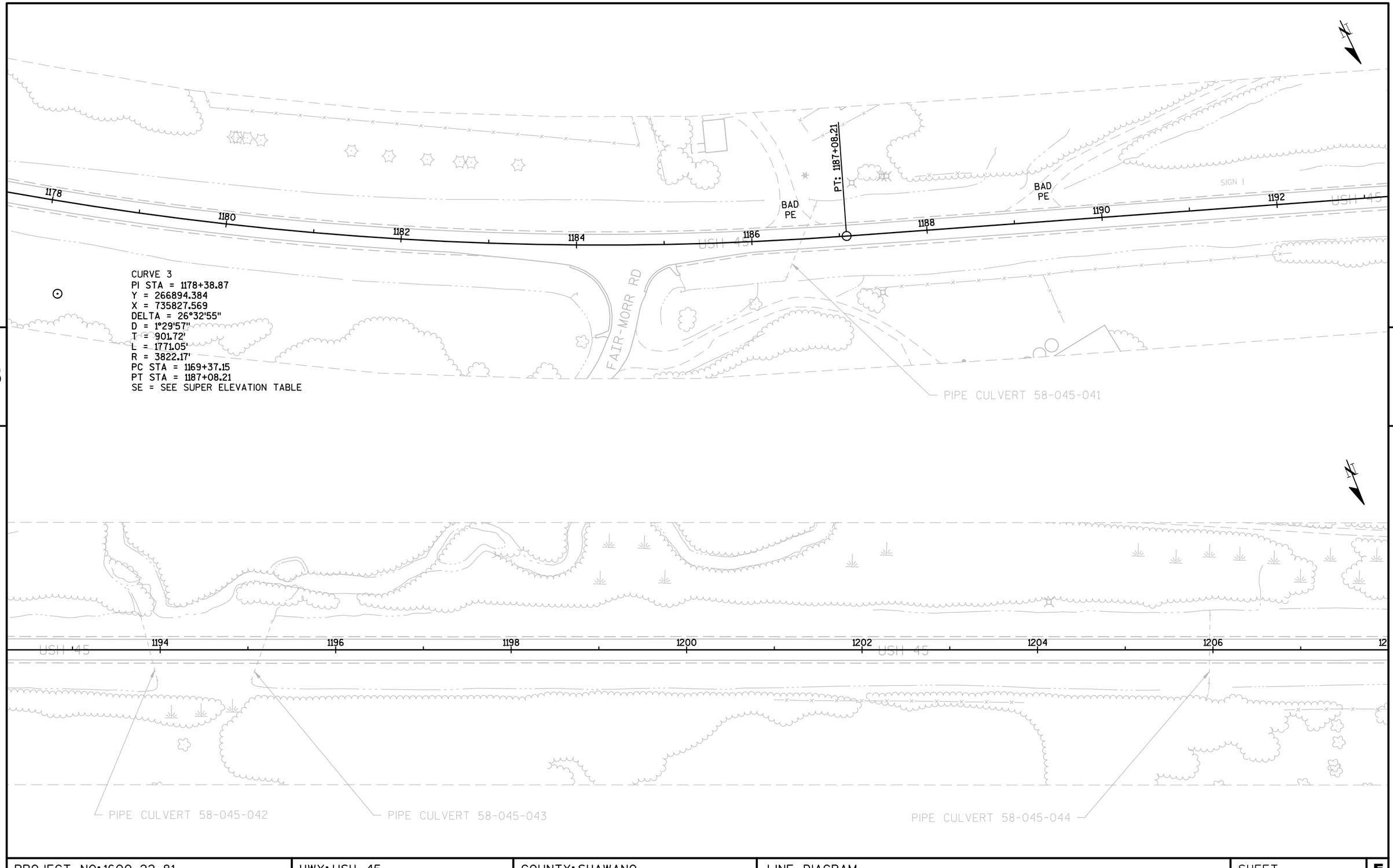
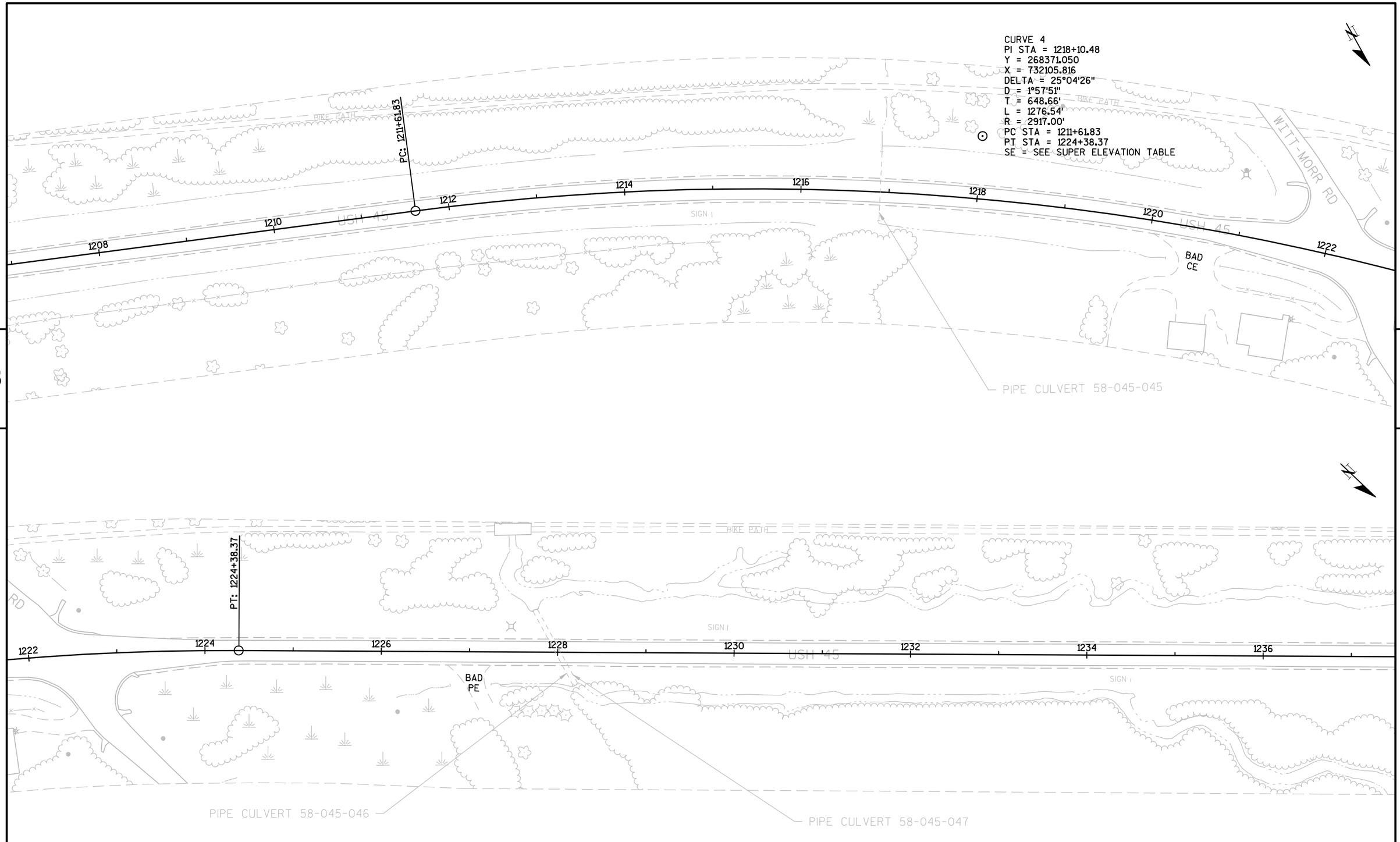
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 55	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\050401_LD.DWG
LAYOUT NAME - 050406

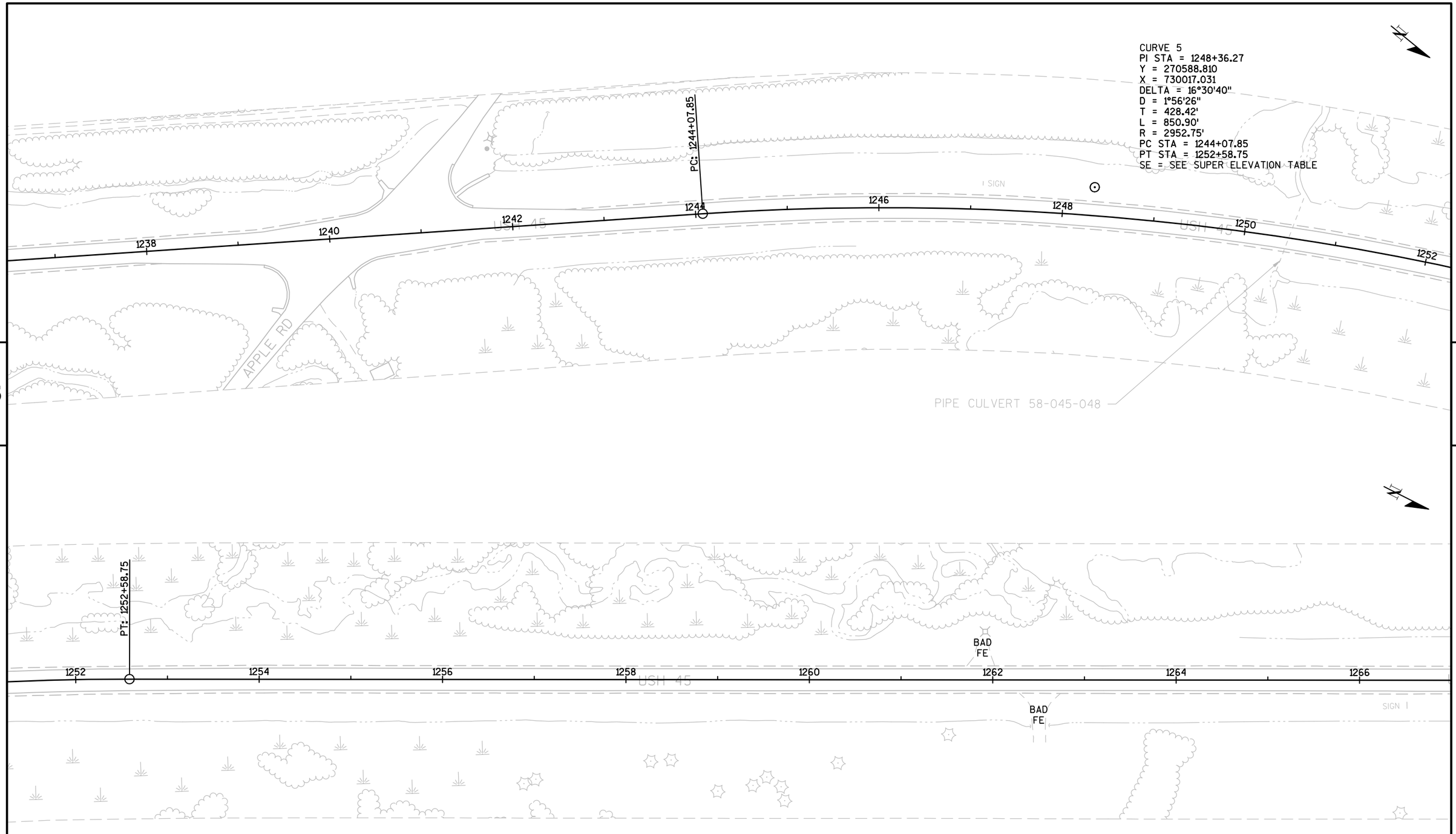
PLOT DATE : 3/17/2017 8:33 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:100 FT



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 56	E



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 57	E



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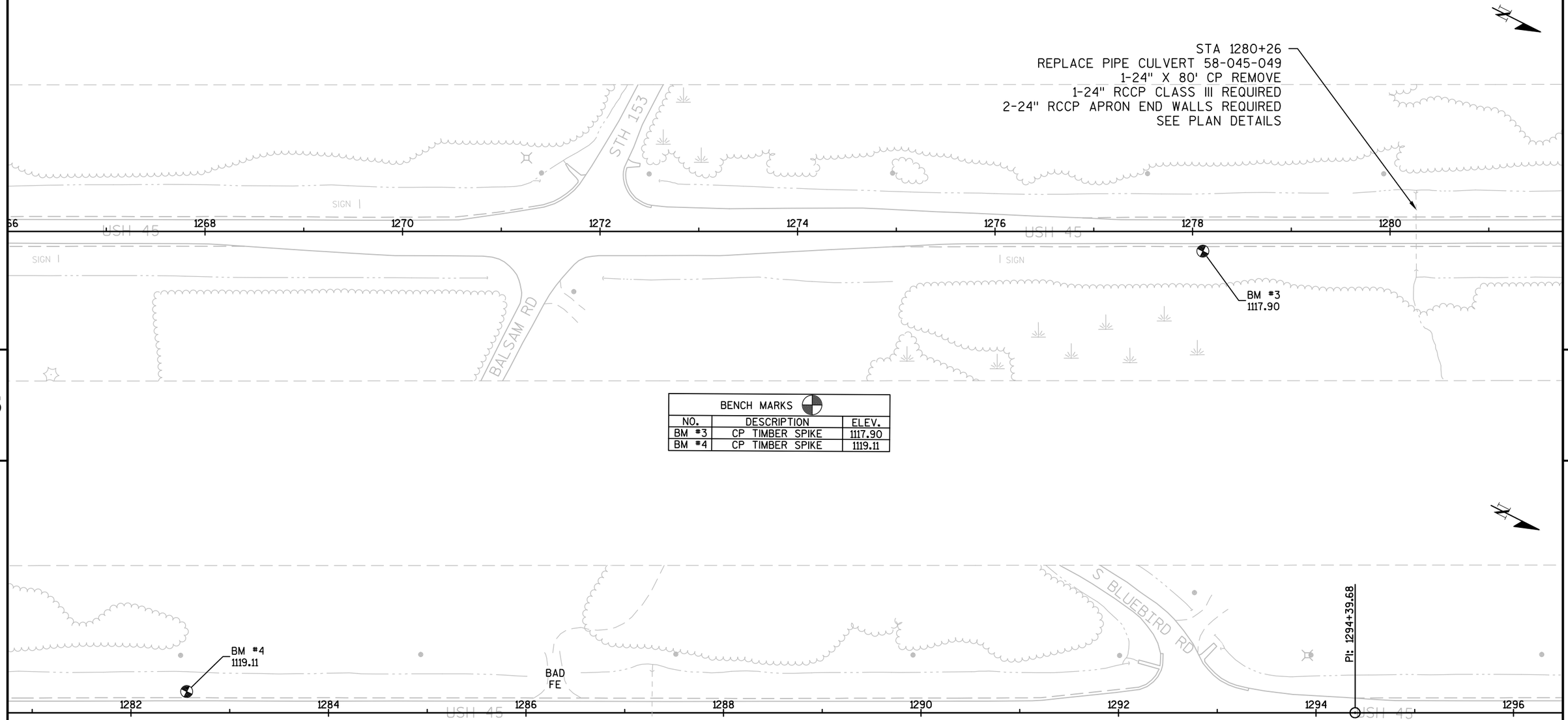
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 58	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\050401_LD.DWG
LAYOUT NAME - 050409

PLOT DATE : 3/17/2017 8:35 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:100 FT



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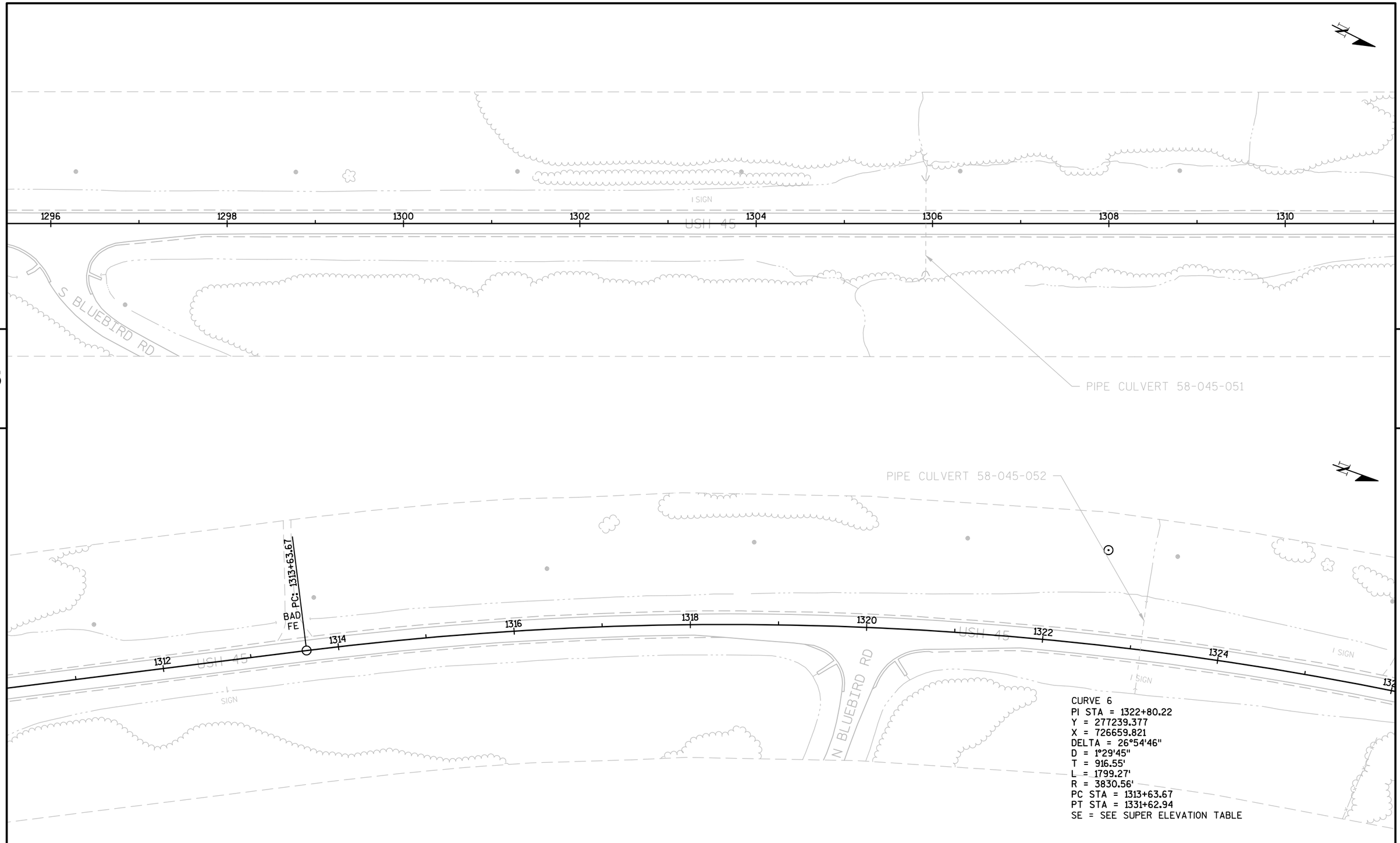
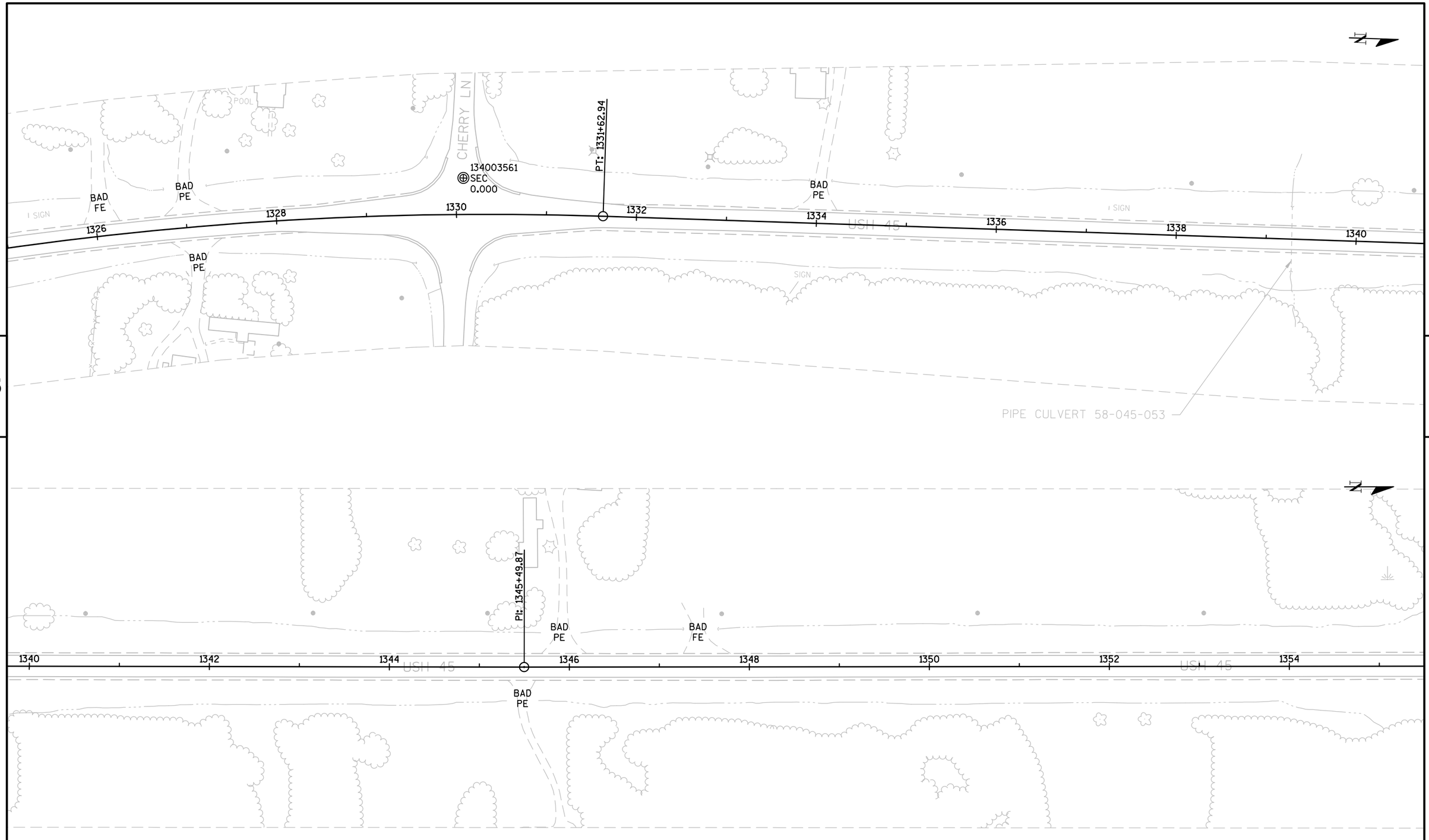
BENCH MARKS

NO.	DESCRIPTION	ELEV.
BM #3	CP TIMBER SPIKE	1117.90
BM #4	CP TIMBER SPIKE	1119.11

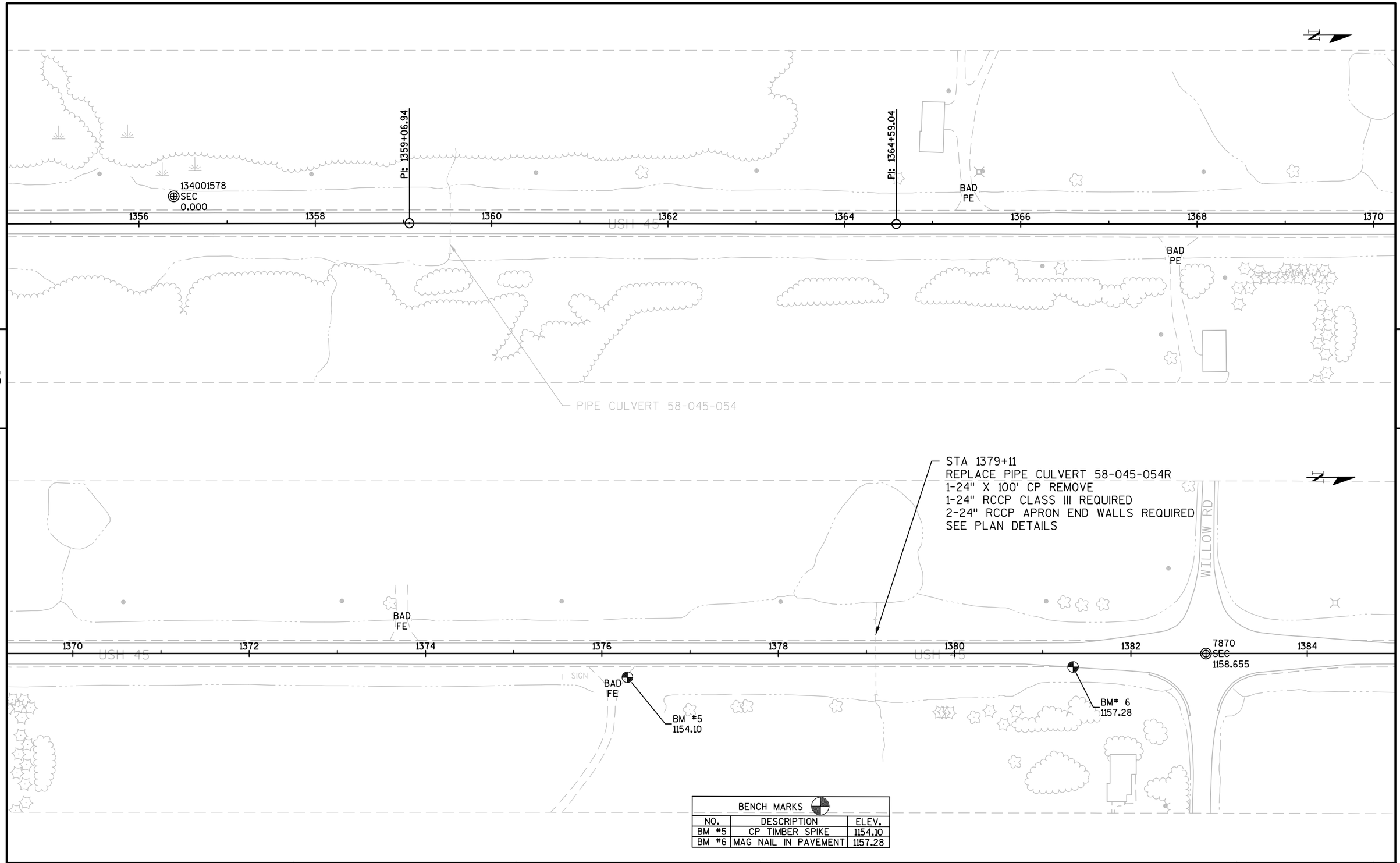
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 59	E



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 60	E

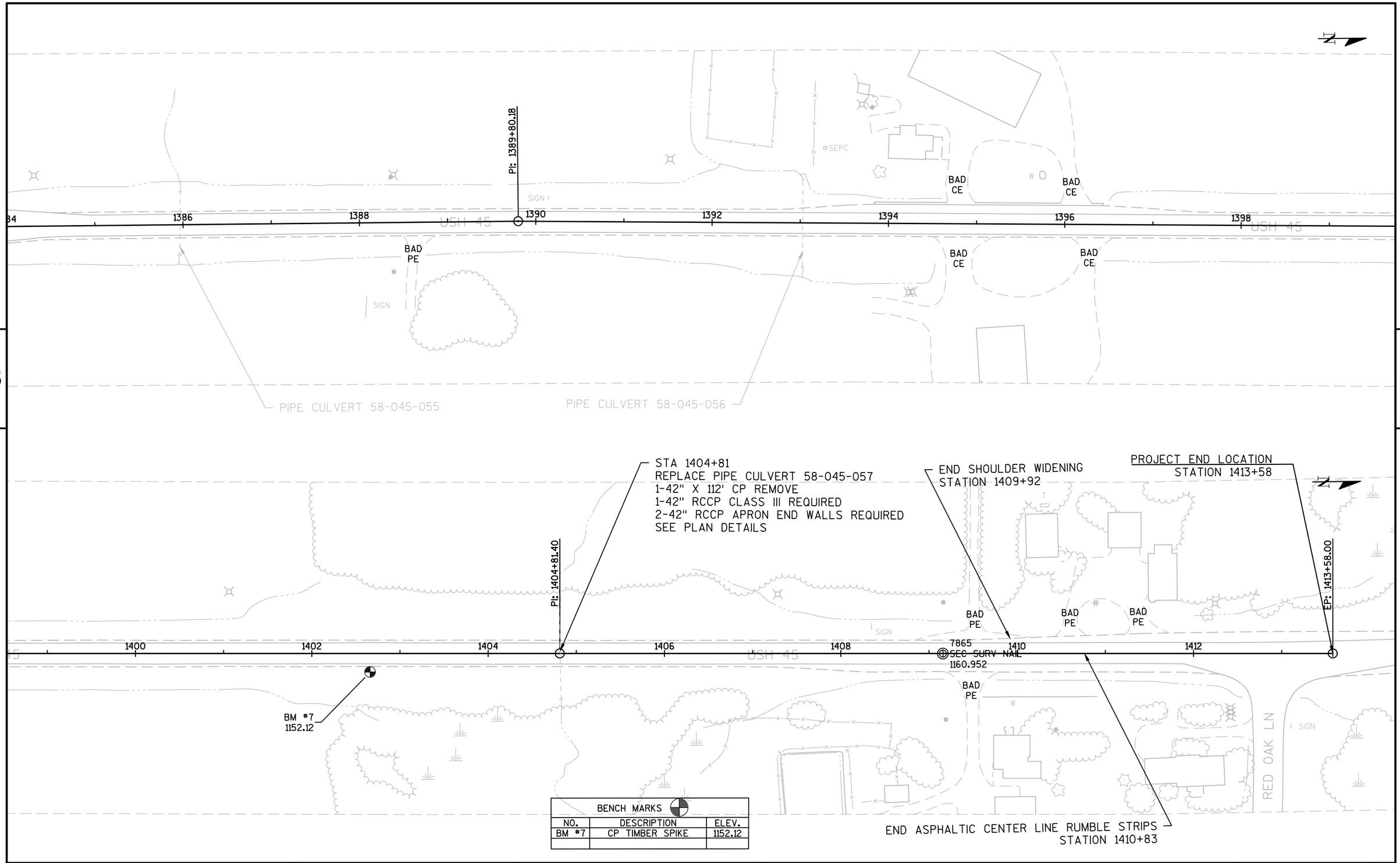


PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 61	E



BENCH MARKS		
NO.	DESCRIPTION	ELEV.
BM #5	CP TIMBER SPIKE	1154.10
BM #6	MAG NAIL IN PAVEMENT	1157.28

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 62	E



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BENCH MARKS

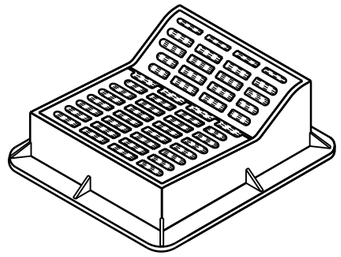
NO.	DESCRIPTION	ELEV.
BM #7	CP TIMBER SPIKE	1152.12

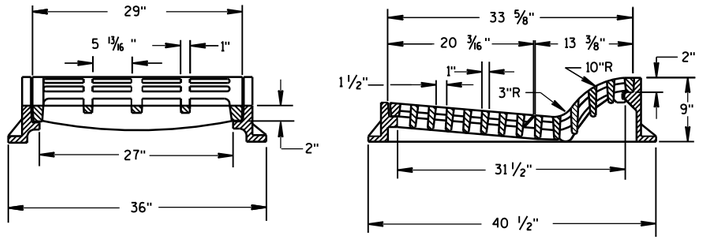
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	LINE DIAGRAM	SHEET 63	E

Standard Detail Drawing List

08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-19	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D05-18A	CURB RAMPS TYPES 1 AND 1-A
08D05-18B	CURB RAMPS TYPES 2 AND 3
08D16-10	CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F10-01	CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-13B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
09G02-04C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
13B02-08A	CONCRETE PAVEMENT APPROACH SLAB
13B02-08B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C08-02	CONCRETE PAVEMENT PARTIAL DEPTH REPAIR
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B29-01	SAFETY EDGE
14B42-05A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-05D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-03A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-03C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C07-14B	PAVEMENT MARKING WORDS
15C07-14C	PAVEMENT MARKING ARROWS
15C08-18A	LONGITUDINAL MARKING (MAINLINE)
15C12-06	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-04A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15C33-02	STOP LINE AND CROSSWALK PAVEMENT MARKING
15C35-01A	PAVEMENT MARKING (INTERSECTIONS)
15C35-01B	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15C35-01C	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15D31-03	TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY
15D33-04	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

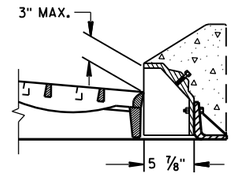
6





TYPE "F"

USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

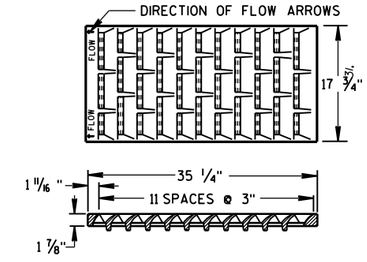
USE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLE

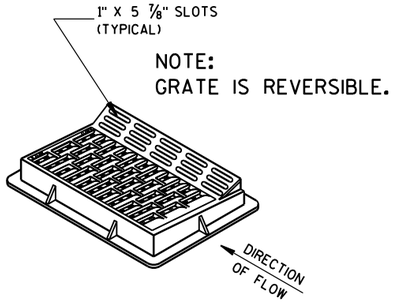
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

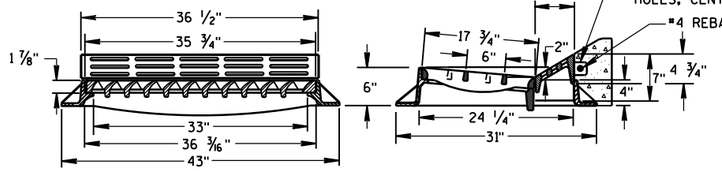
GENERAL NOTES

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 INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



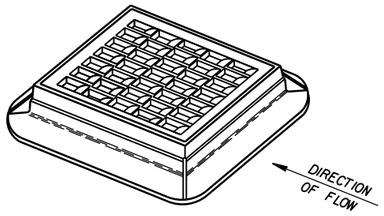


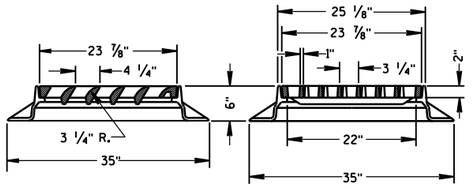


TYPE "HM"

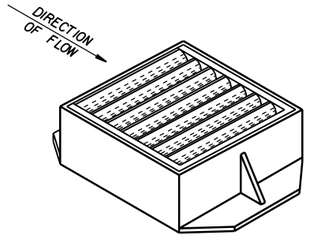
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

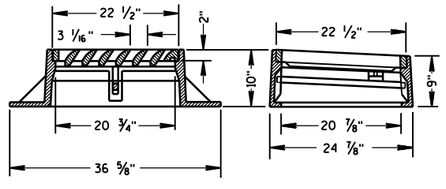
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE



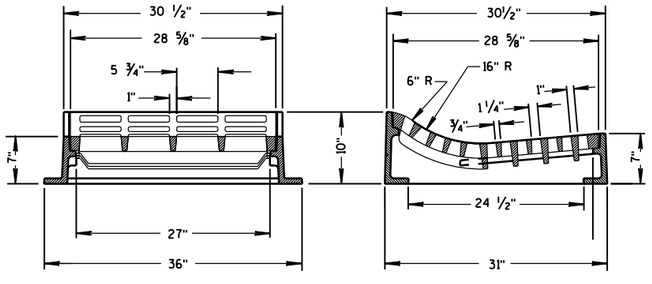


TYPE "S"



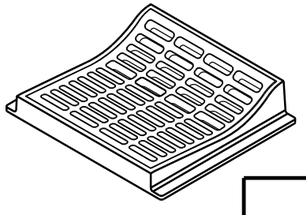


TYPE "V"



TYPE "T"

USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



INLET COVERS
TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

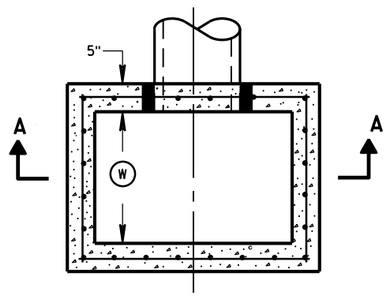
FHWA

6

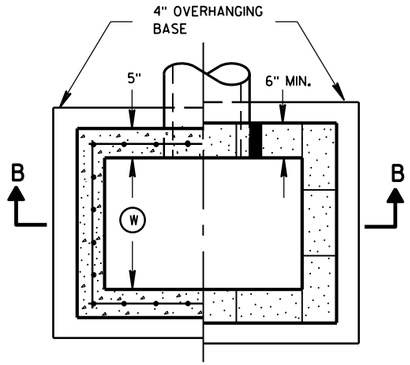
S.D.D. 8 A 5-19c

6

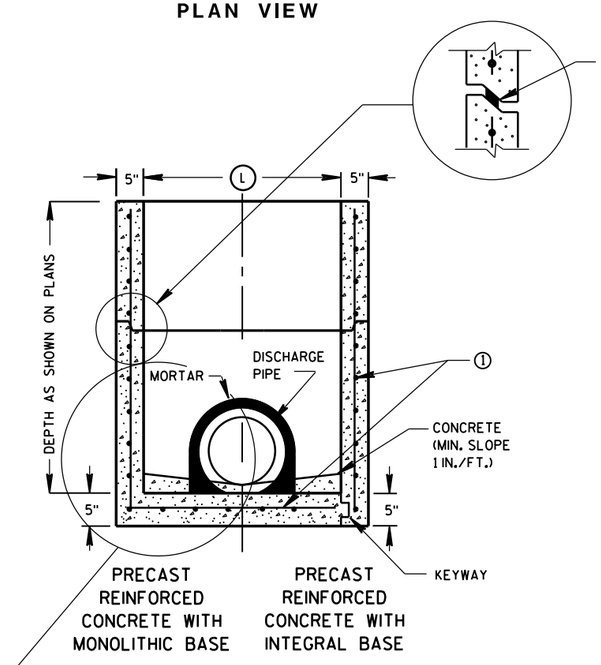
S.D.D. 8 A 5-19c



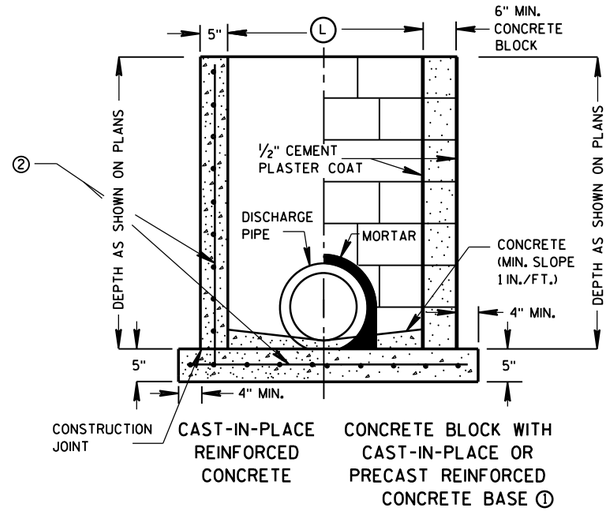
PLAN VIEW



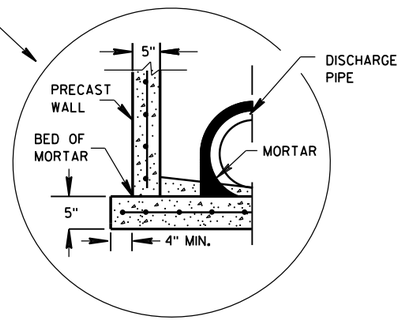
PLAN VIEW



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

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 UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES 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.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS.
4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED.
OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH 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.

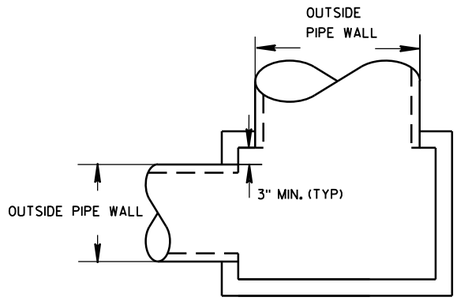
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH (W) (FT)	LENGTH (L) (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24



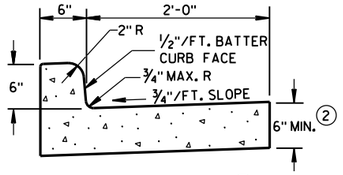
DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

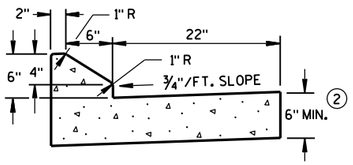
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Rodney Taylor
ROADWAY STANDARDS D IT UNIT SUPERVIS
FHWA

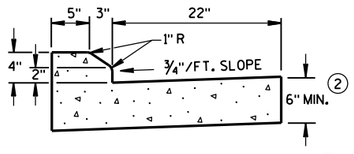
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT



TYPES A & D ①

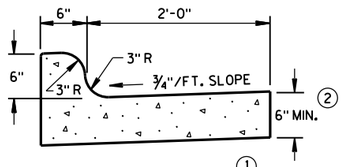


6" SLOPED CURB TYPES G & J ①

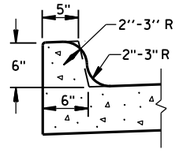


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

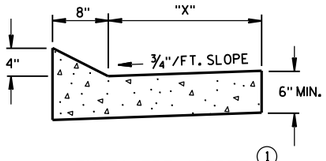


TYPES K & L ①



OPTIONAL CURB SHAPE FOR TYPES K & L ①

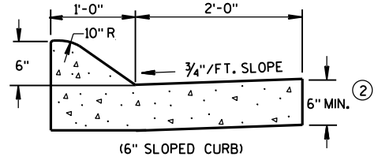
CONCRETE CURB & GUTTER 30"



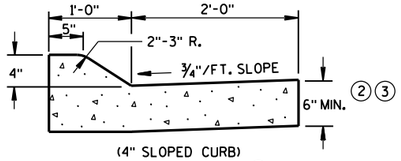
TYPES TBT & TBTT ①

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

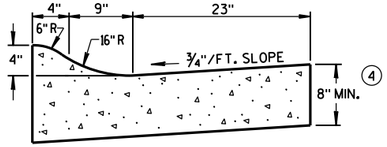


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

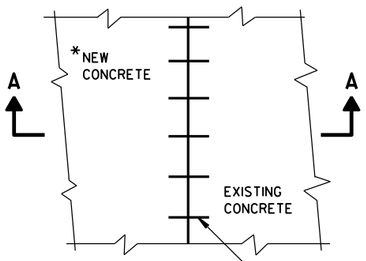
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

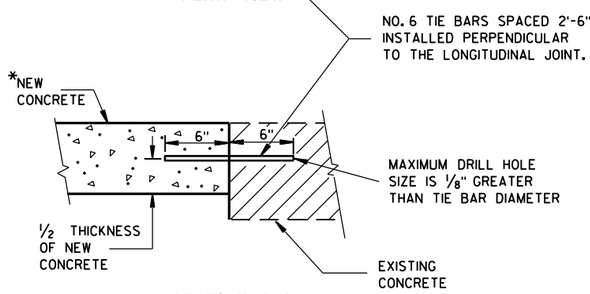
⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



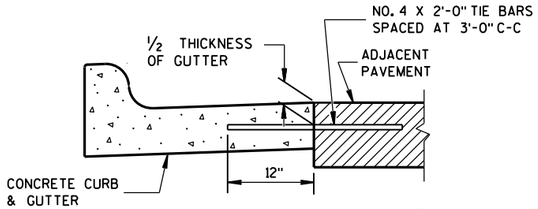
PLAN VIEW

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

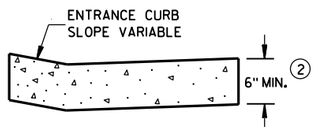


SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT

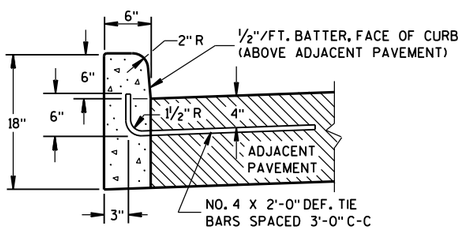


TYPICAL TIE BAR LOCATION ①

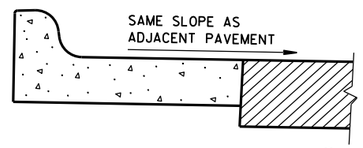


DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

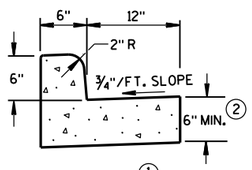


① TYPES A & D



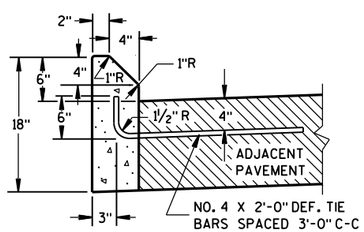
⑥ REVERSE SLOPE GUTTER

(TYPICAL FOR ALL CURB & GUTTER TYPES)



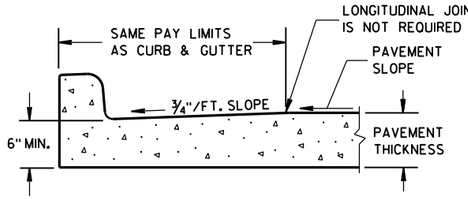
① TYPES A & D

CONCRETE CURB & GUTTER 18"

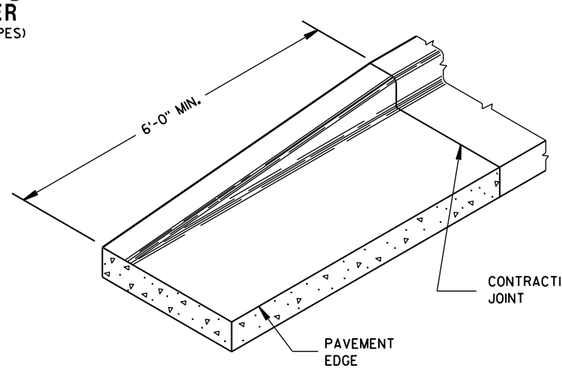


① TYPES G & J

CONCRETE CURB



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

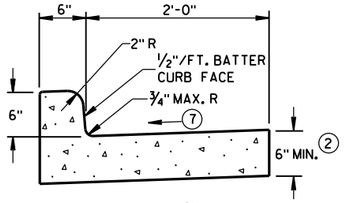
CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

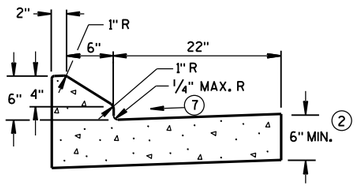
APPROVED
June, 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

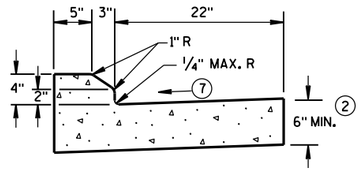
S.D.D. 8 D 1-19



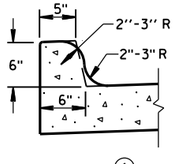
TYPES A (1) & D



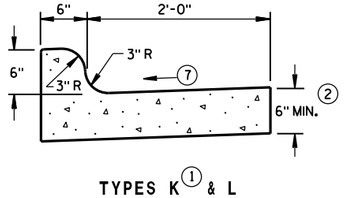
6" SLOPED CURB TYPES G (1) & J



4" SLOPED CURB TYPES G (1) & J

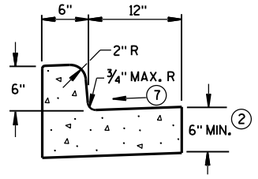


TYPES K (1) & L
(OPTIONAL CURB SHAPE)



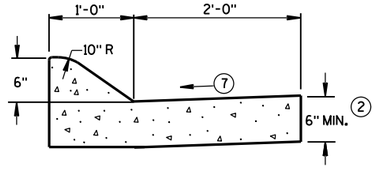
TYPES K (1) & L

CONCRETE CURB & GUTTER 30"

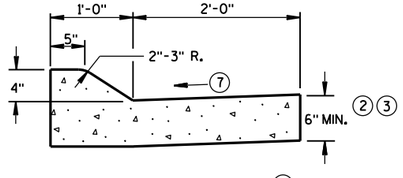


TYPES A (1) & D

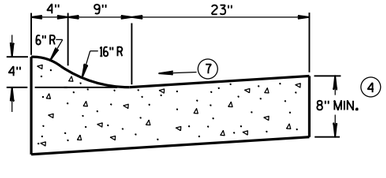
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A (1) & D

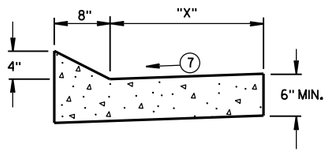


4" SLOPED CURB TYPES A (1) & D



4" SLOPED CURB TYPES R (1) & T (5)

CONCRETE CURB & GUTTER 36"



TYPES TBT & TBTT (1)

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(3) USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

(4) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(5) THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

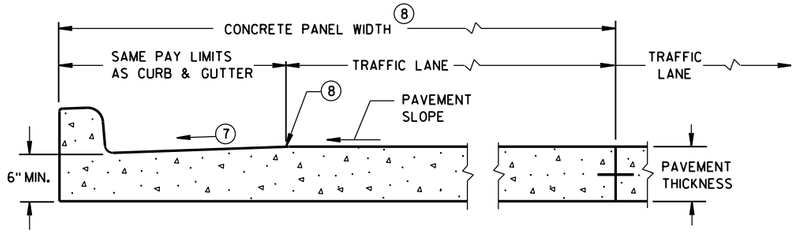
(6) WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

(7) USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.

(8) INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

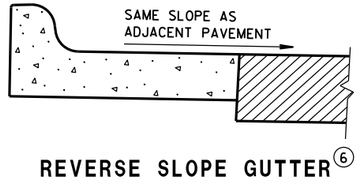
PAVEMENT THICKNESS AND MAXIMUM CONCRETE PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB & GUTTER

* BIKE LANE IS NOT SHOWN.

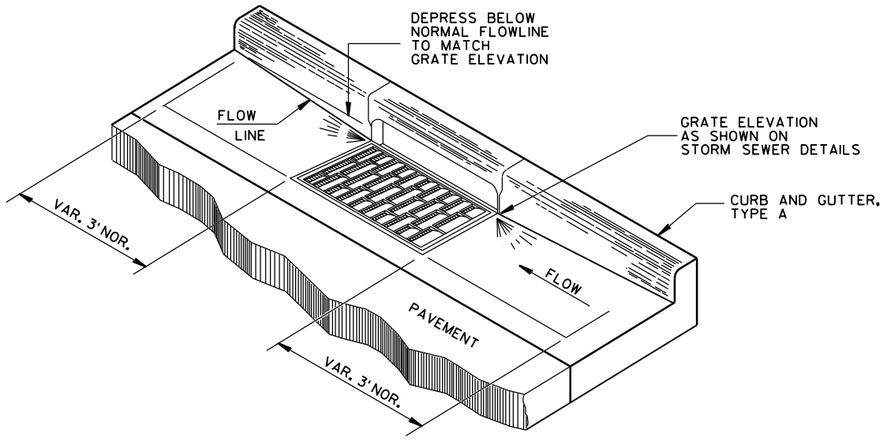


REVERSE SLOPE GUTTER (6)
(TYPICAL FOR ALL CURB & GUTTER TYPES)

CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

S.D.D. 8 D 1-20a



DETAIL OF CURB AND GUTTER AT INLETS

(TYPE H INLET COVER SHOWN)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

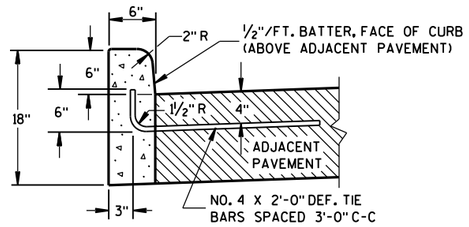
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

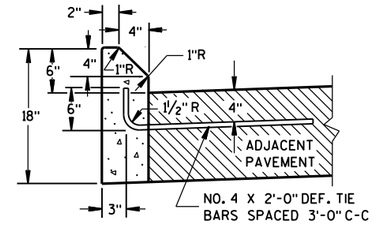
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

(2) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(9) REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

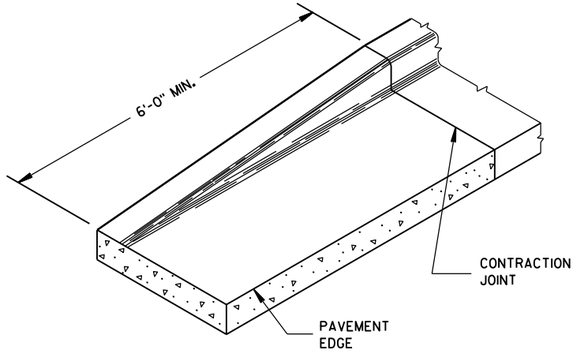


TYPES A(1) & D

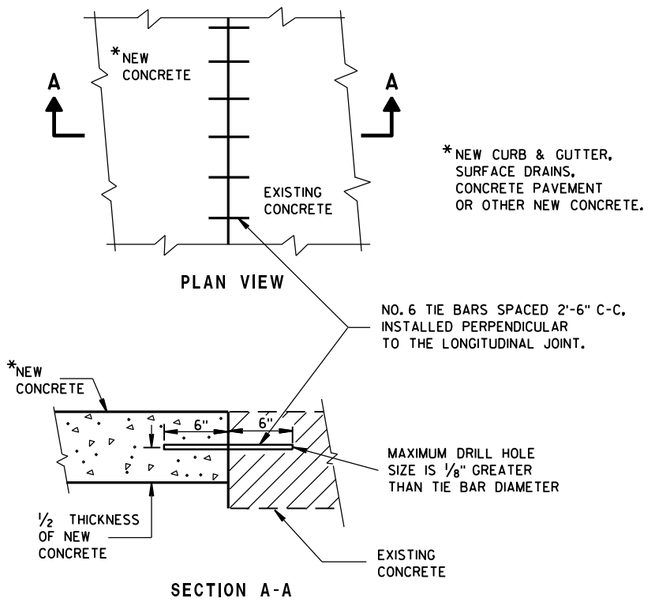


TYPES G(1) & J

CONCRETE CURB



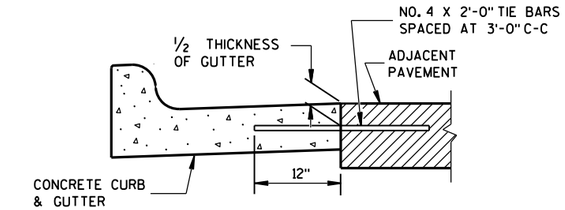
END SECTION CURB & GUTTER



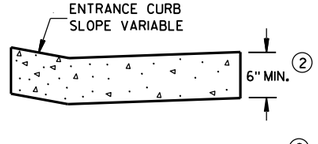
PLAN VIEW

SECTION A-A

TIE BARS DRILLED INTO EXISTING PAVEMENT



TYPICAL TIE BAR LOCATION (1)



DRIVEWAY ENTRANCE CURB (9)

(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2017 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS UNIT SUPERVISOR
FHWA
ENT

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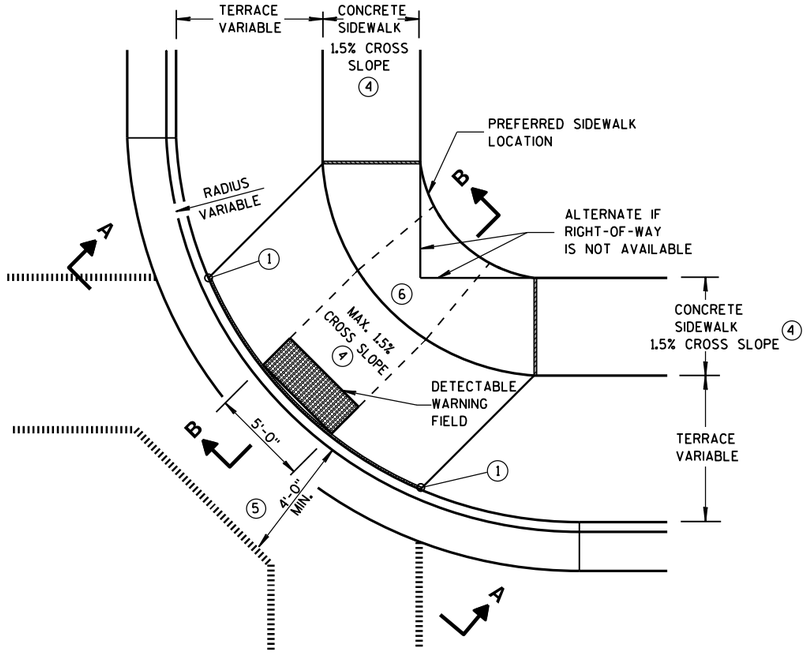
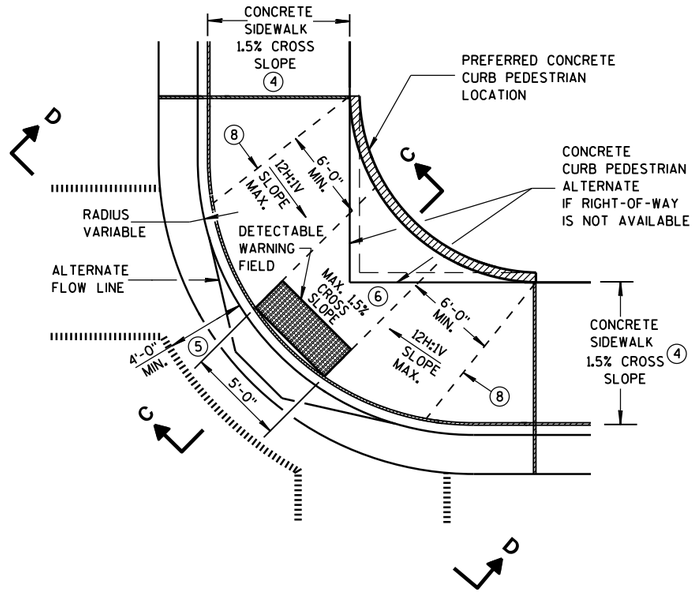
S.D.D. 8 D 1-20b



PLAN VIEW

TYPE 1 RAMP

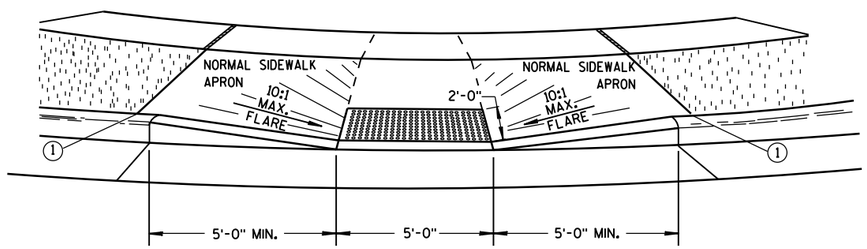
(CENTER OF CORNER RADIUS)



PLAN VIEW

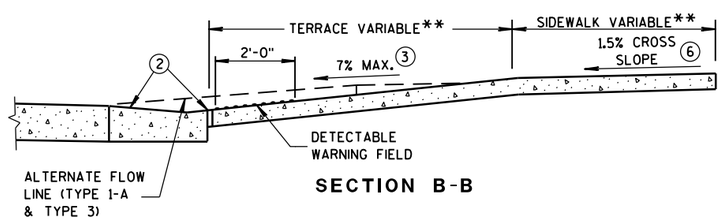
TYPE 1-A RAMP

(NO TERRACE)

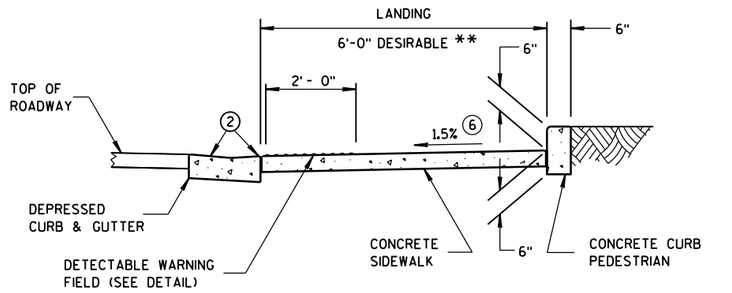


VIEW A-A

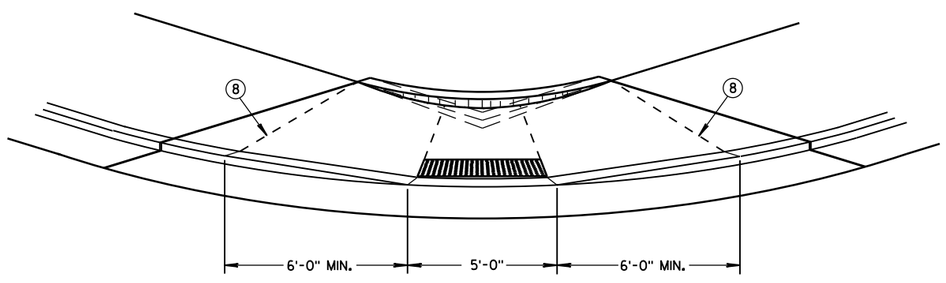
** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION B-B



SECTION C-C



VIEW D-D

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.

WHEN NECESSARY, THE SIDEWALK ELEVATION MAY BE LOWERED TO MEET THE HIGH POINT ON THE RAMP.

TYPE 1 RAMPS SHALL HAVE A NORMAL SIDEWALK APRON AND CURB ON BOTH SIDES OF RAMP.

DETECTABLE WARNING FIELD SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS "CURB RAMP DETECTABLE WARNING FIELD". THE CONCRETE PEDESTRIAN CURB, IF NEEDED, SHALL BE MEASURED AND PAID BY THE LINEAL FOOT AS "CONCRETE CURB PEDESTRIAN". CONCRETE SIDEWALK IN THE CURB RAMP AREA SHALL BE MEASURED AND PAID BY THE SQUARE FOOT AS CONCRETE SIDEWALK, INCLUDING THE AREA UNDER THE DETECTABLE WARNING FIELD.

SELECT CURB RAMP DETECTABLE WARNING FIELD MATERIALS AND DEVICES FROM THE DEPARTMENT'S APPROVED MATERIALS LIST. THE COLOR OF THE DETECTABLE WARNING FIELD IS SPECIFIED ELSEWHERE AND IS INCIDENTAL TO THE BID ITEM OF "CURB RAMP DETECTABLE WARNING FIELD".

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

(1) THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB. POINT LOCATION MAY BE ADJUSTED TO ALIGN WITH BEGINNING OF FULL-HEIGHT CURB IF THIS DISTANCE IS SHORT.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(5) PROVIDE A LEVEL LANDING IN THE STREET AND GUTTER AREA. (2% MAXIMUM SLOPE IN ANY DIRECTION). WHEN THE GUTTER SLOPE EXCEEDS 2%, CONSTRUCT THE LEVEL LANDING IN THE STREET AREA.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

LEGEND

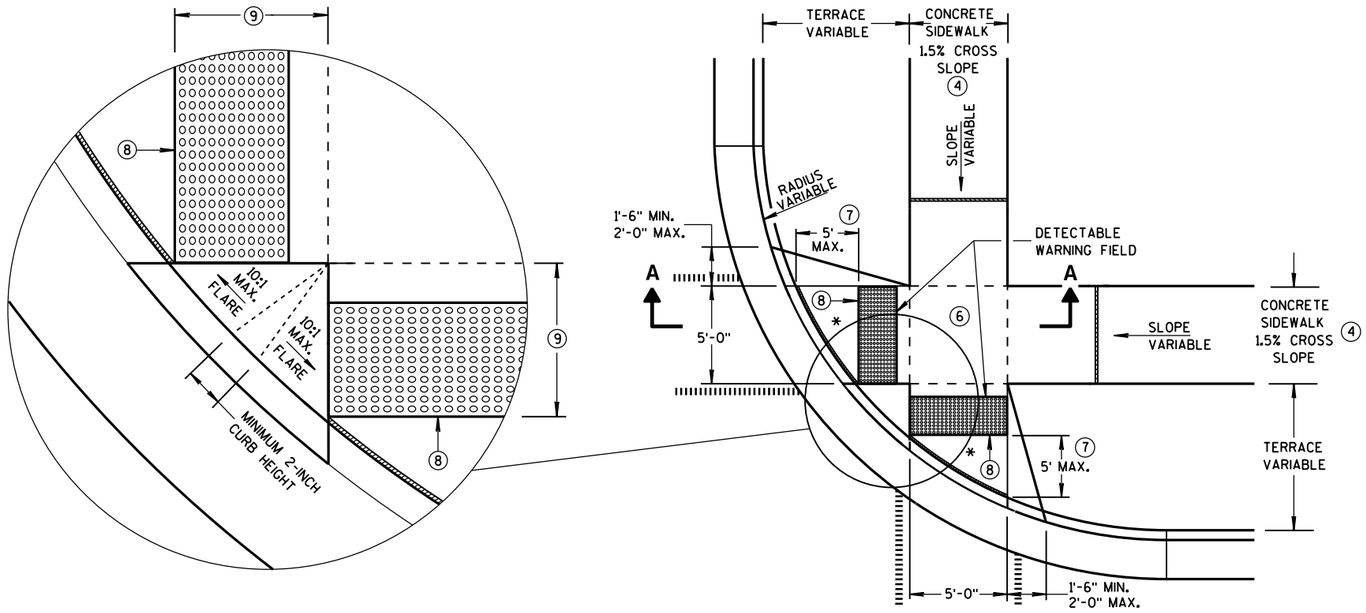
- 1/2" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT

CURB RAMPS TYPES 1 AND 1-A

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 8 D 5-18a

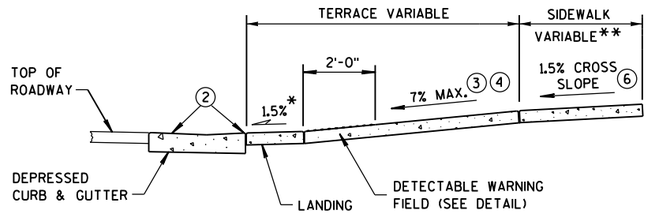


PLAN VIEW

TYPE 2 RAMP

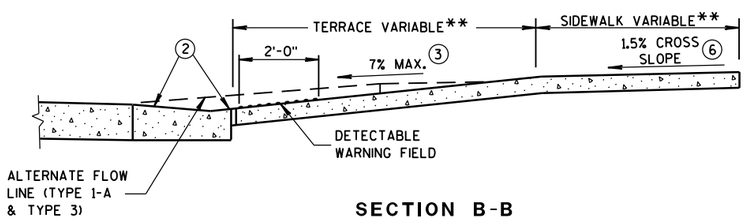
(ON LINE WITH SIDEWALK)

* MAXIMUM 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK



SECTION A-A

** WIDTH SHOWN ELSEWHERE IN THE PLANS



SECTION B-B

GENERAL NOTES

DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.

(2) GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE LONGITUDINAL DRAINAGE AROUND CURB AND AWAY FROM CURB RAMP. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED. SLOPE OF CURB HEAD OPENING SHALL NOT EXCEED 7%.

(3) ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.

(4) ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

(6) PROVIDE A LEVEL LANDING (MAXIMUM 2% SLOPE) IN ANY DIRECTION OF PEDESTRIAN TRAVEL. STANDARD LANDING SIZE IS 5 FEET X 5 FEET.

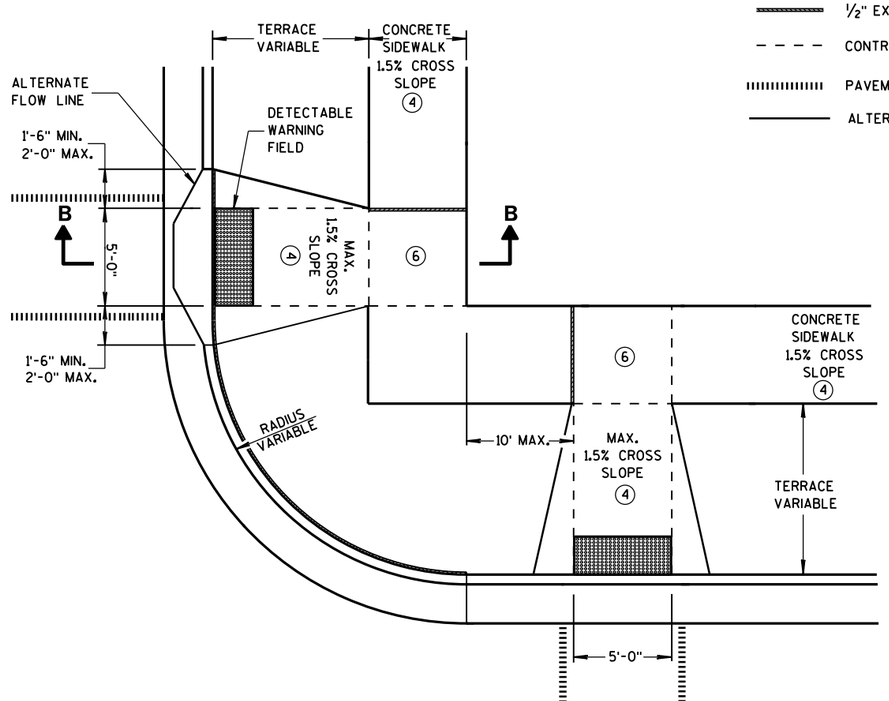
(7) WHEN THIS DISTANCE EXCEEDS 5 FEET, STAGGER ADDITIONAL DETECTABLE WARNING PANEL FORWARD TO REDUCE THIS DISTANCE. PROVIDE MINIMUM 12-INCH ROW OVERLAP TO AVOID SIDESTEP OF DOME DETECTION. USE EQUAL-SIZE PANELS TO DEVELOP OVERLAPPING, STAGGERED ROWS. ALIGN DOMES BETWEEN OVERLAPPING ROWS AND IN DIRECTION OF PEDESTRIAN TRAVEL.

(8) PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.

(9) WHEN THIS DISTANCE IS LESS THAN 6'-0", IT MAY BE DIFFICULT TO ACHIEVE A 7% SLOPE OR FLATTER ALONG THE RAMP. REDUCE CURB HEIGHT IN TRIANGLE AREA TO ACHIEVE 7% SLOPE OR FLATTER ON RAMP. CONSTRUCT 2-INCH MINIMUM CURB HEIGHT BETWEEN 10:1 FLARES.

LEGEND

- ½" EXPANSION JOINT-SIDEWALK
- CONTRACTION JOINT FIELD LOCATED
- PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



PLAN VIEW

TYPE 3 RAMP

(OUTSIDE OF CROSSWALK AREA)

CURB RAMPS TYPES 2 AND 3

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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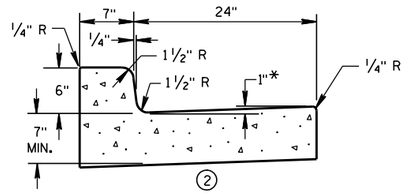
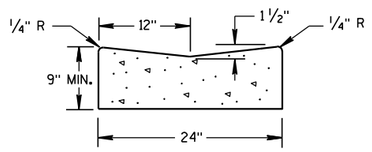
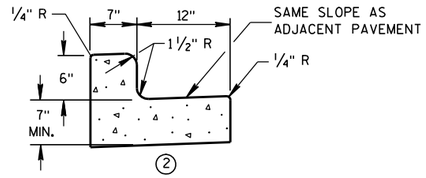
S.D.D. 8 D 5-18b



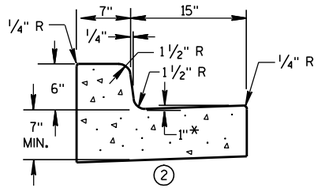
① CONCRETE CURB & GUTTER 31"



① CONCRETE GUTTER 24"

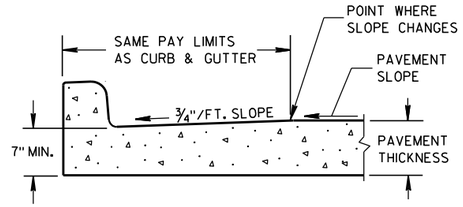


① CONCRETE CURB & GUTTER 19"



① CONCRETE CURB & GUTTER 22"

* TO BE MEASURED TO A MAXIMUM OF 3" WHERE DRAINAGE PROBLEMS EXIST.



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

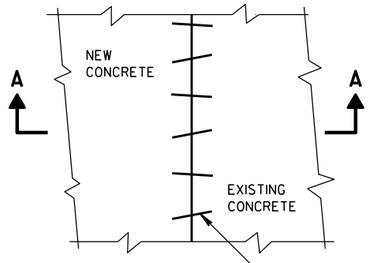
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE COURSE AND UNCLASSIFIED EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURB.

① WHEN PLACED ADJACENT TO NEW CONCRETE, TIE BARS ARE REQUIRED FOR CURB AND GUTTER 31", 22", 19" AND CONCRETE GUTTER 24".

② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE COURSE PROVIDED A 7" MIMIMUM GUTTER THICKNESS IS MAINTAINED.

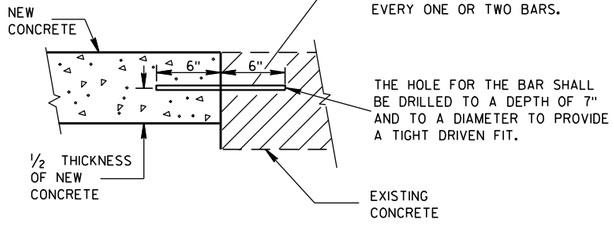
③ WHEN HIGH SIDE CURB SECTION IS REQUIRED, THE LOCATION(S) WILL BE NOTED ON THE PLAN.



PLAN VIEW

EXISTING AND NEW CONCRETE MAY BE CURB & GUTTER, SURFACE DRAIN, PAVEMENT OR OTHER CONCRETE STRUCTURE.

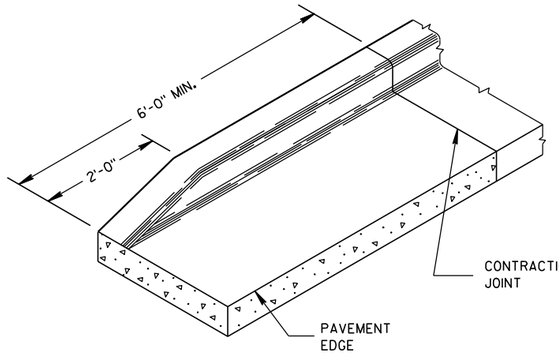
NO. 6 X 12" DEF. BARS SPACED 3'-0" C-C, INSTALLED ON 6:1 SKEW HORIZONTALLY. DIRECTION OF SKEW ALTERNATING AFTER EVERY ONE OR TWO BARS.



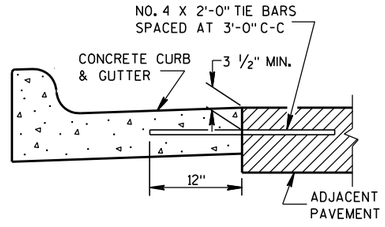
THE HOLE FOR THE BAR SHALL BE DRILLED TO A DEPTH OF 7" AND TO A DIAMETER TO PROVIDE A TIGHT DRIVEN FIT.

SECTION A-A

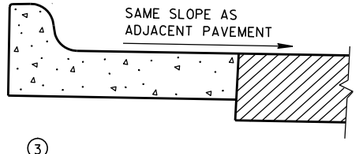
PAVEMENT TIES



END SECTION CURB & GUTTER



① TYPICAL TIE BAR LOCATION



③ HIGH SIDE SECTION

(TYPICAL FOR ALL CURB & GUTTER)

CONCRETE GUTTER, CURB AND GUTTER AND PAVEMENT TIES

(For Optional Use in Milwaukee Co. Only)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/2/2010 — DATE

/S/ Jerry Zogg — ROADWAY STANDARDS ENGINEER

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FHWA

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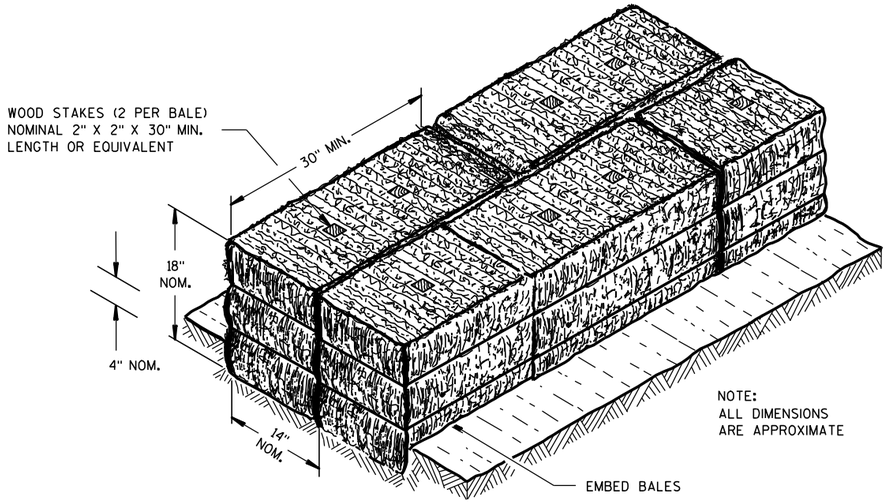
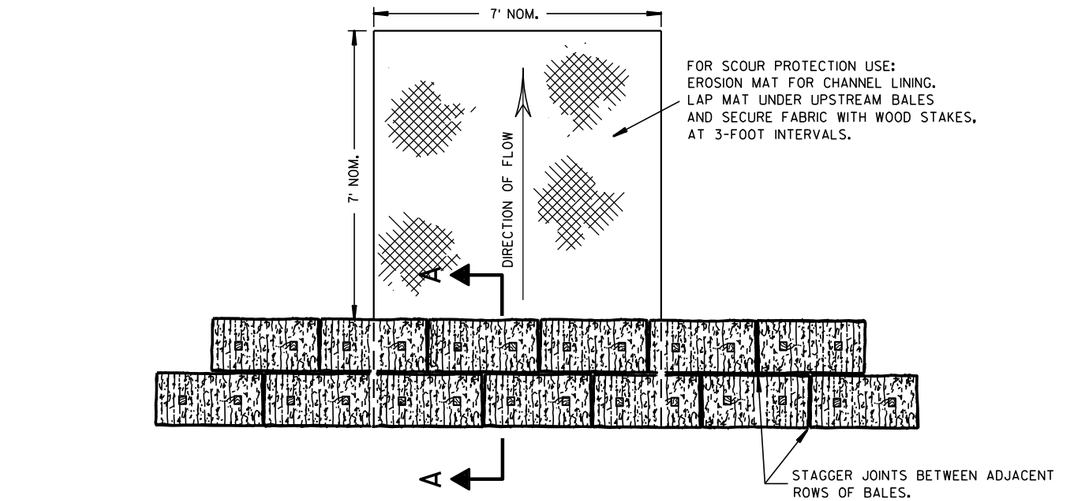
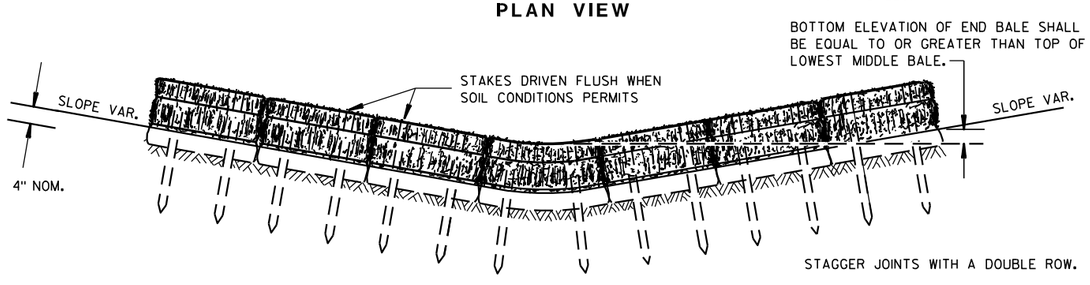
S.D.D.® 8 D 16-10



SECTION A-A



PLAN VIEW



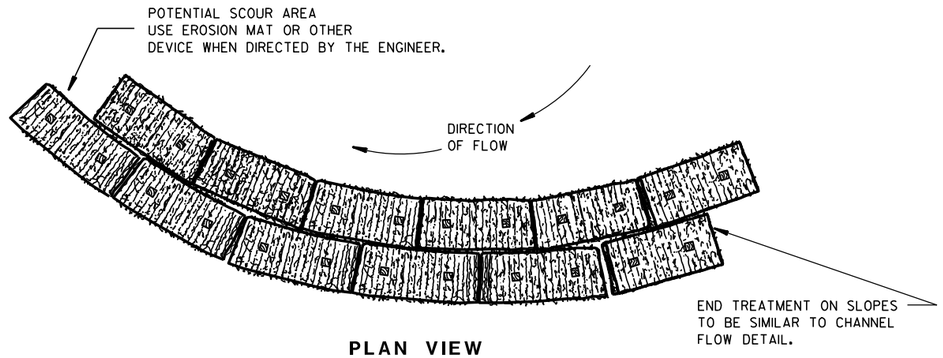
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

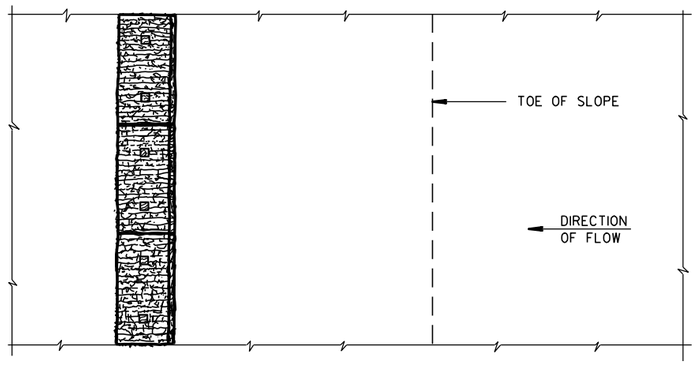
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(1) TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

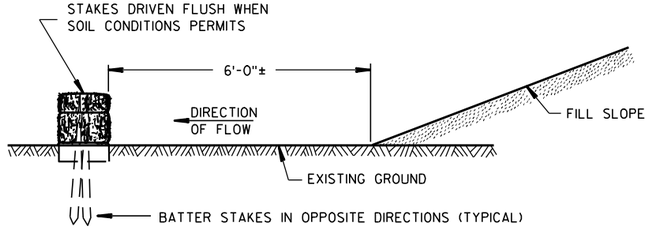


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

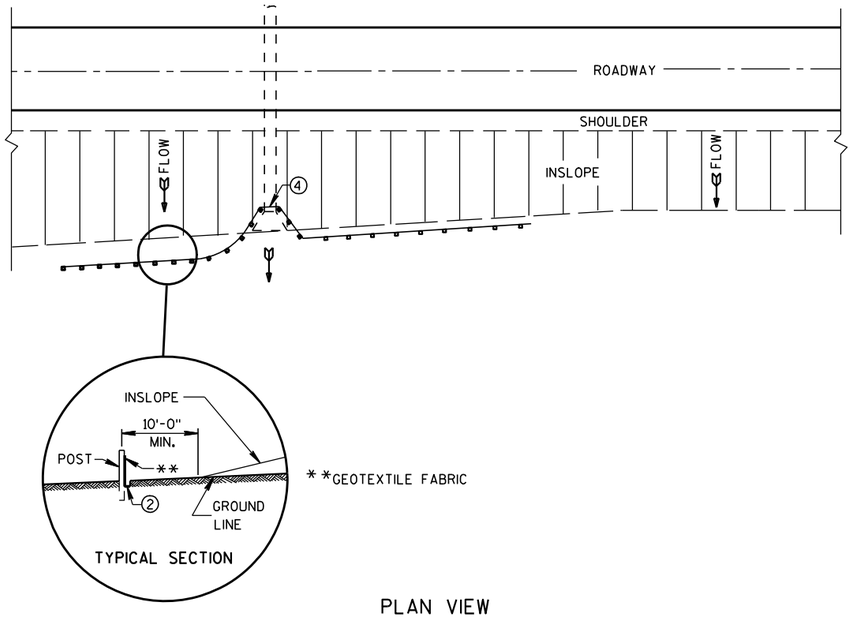
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02 — DATE

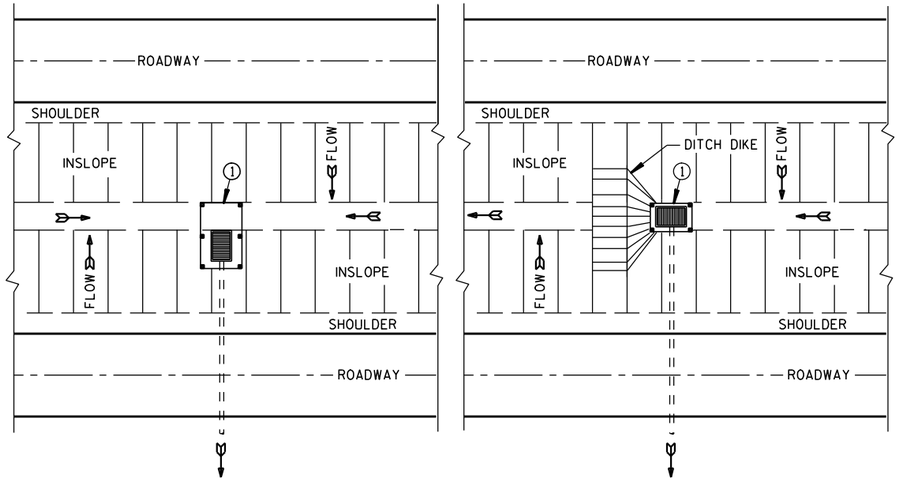
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



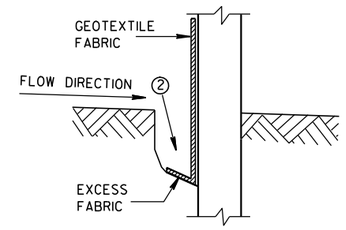
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

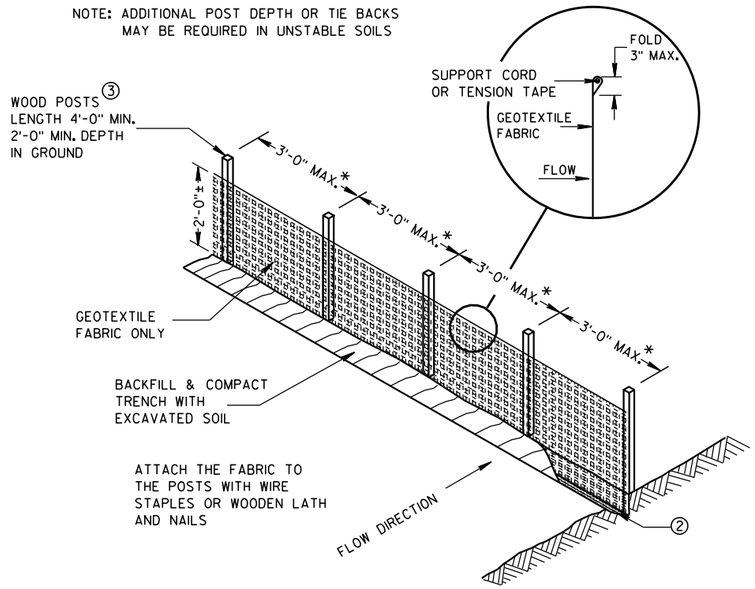
GENERAL NOTES

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

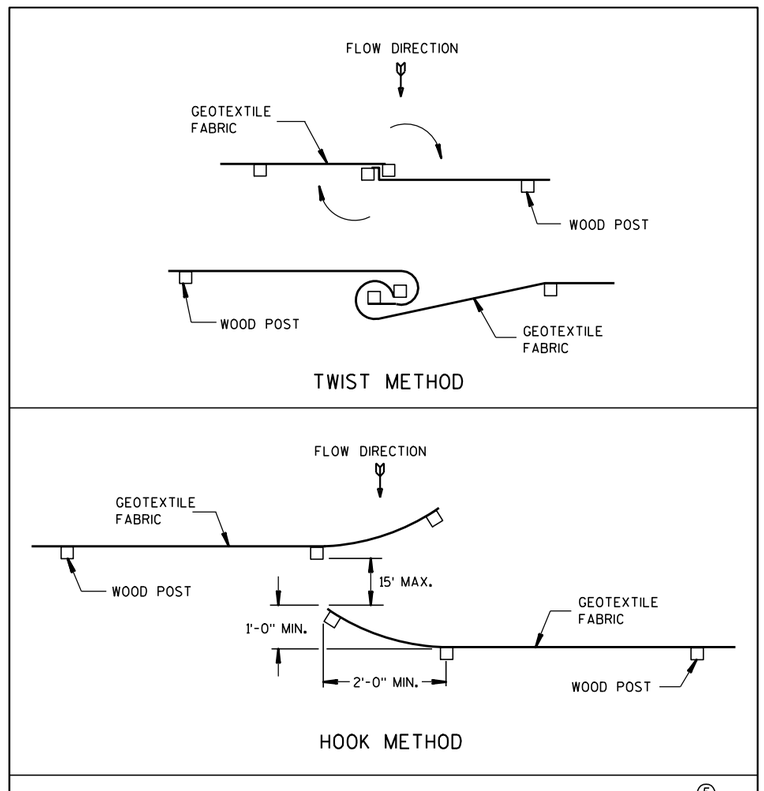
1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" 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.



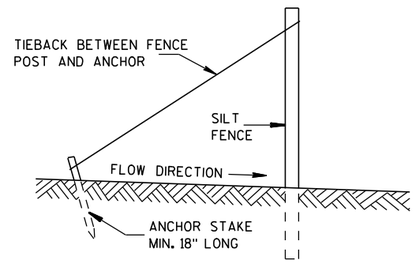
TRENCH DETAIL



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

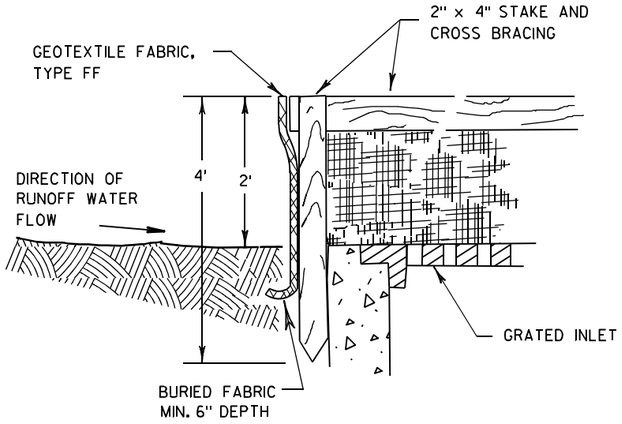
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

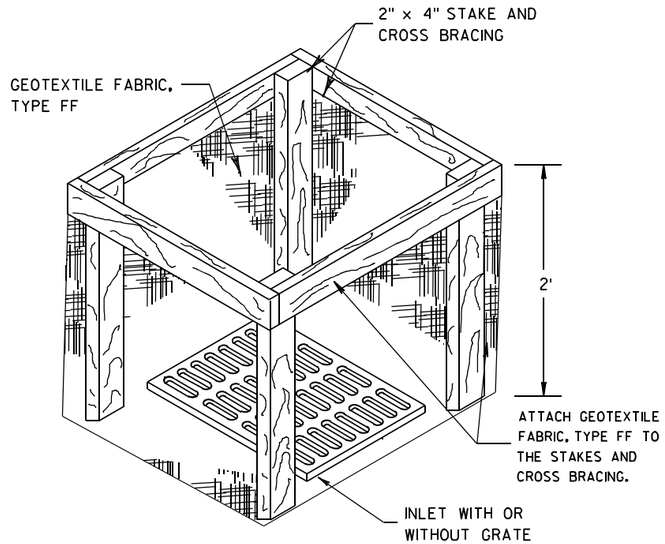
6

S.D.D. 8 E 9-6

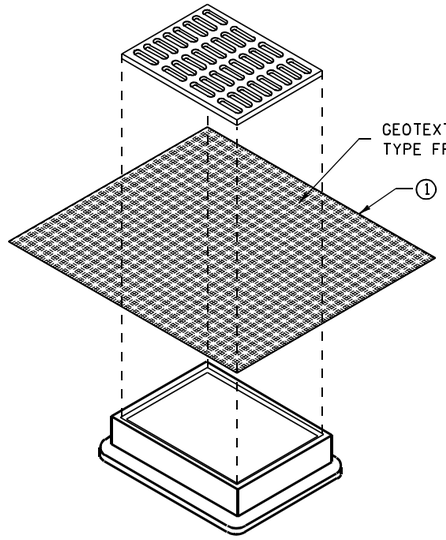
6

S.D.D. 8 E 9-6



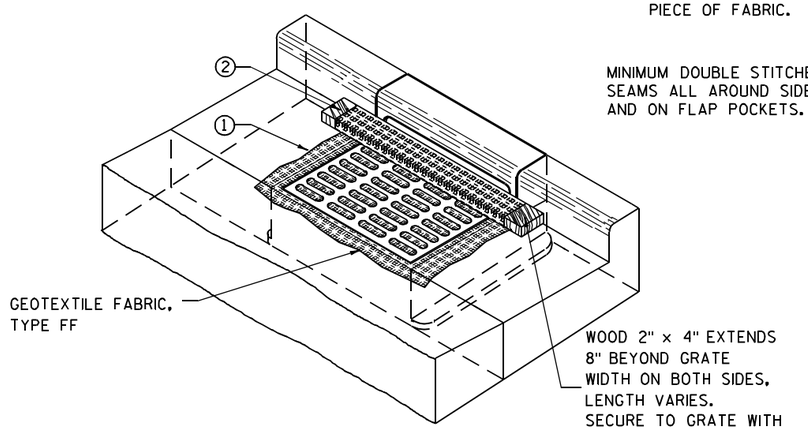


INLET PROTECTION, TYPE A

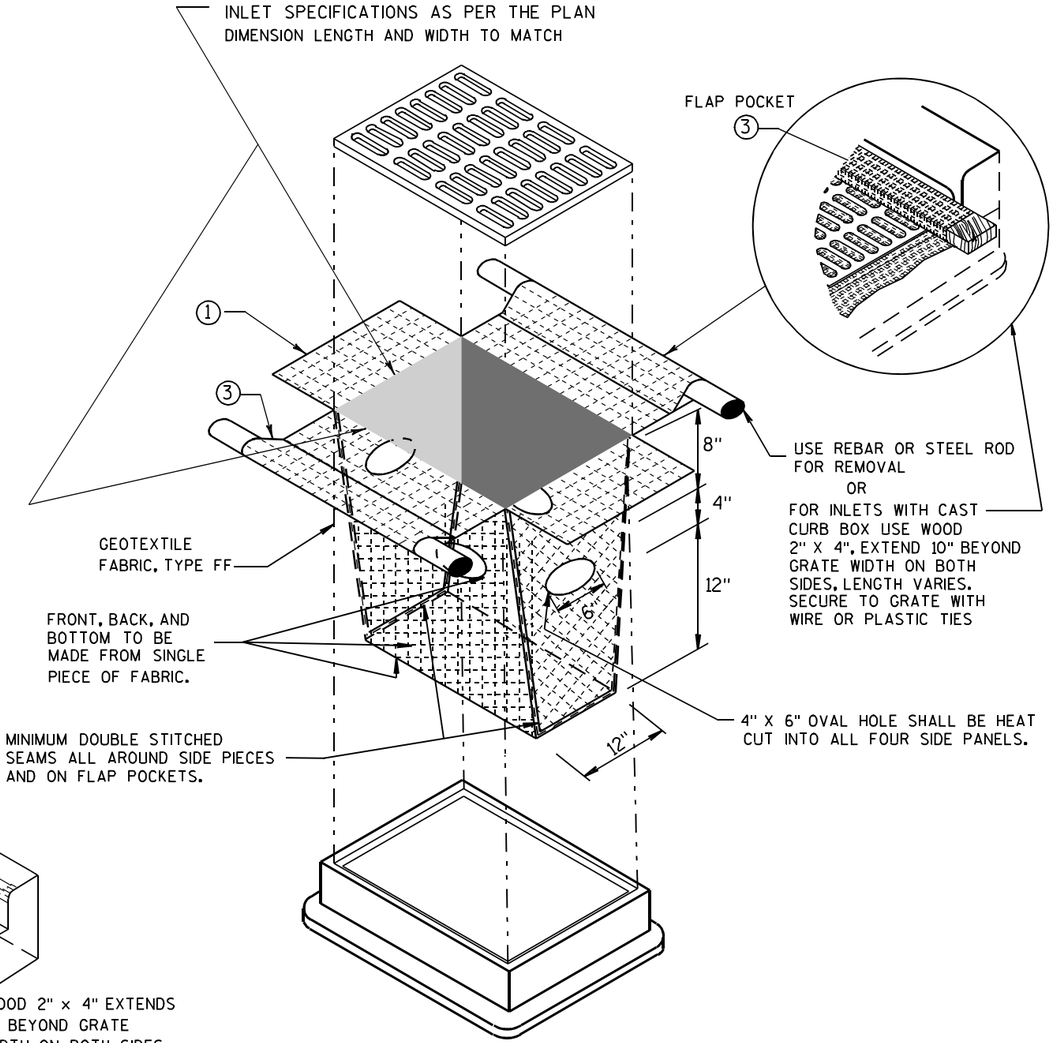


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

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

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.

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 A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/16/02
DATE

/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

6

S.D.D. 8 E 10-2

6

S.D.D. 8 E 10-2

METAL APRON ENDWALLS

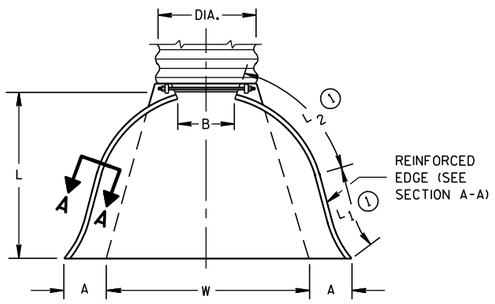
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	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	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

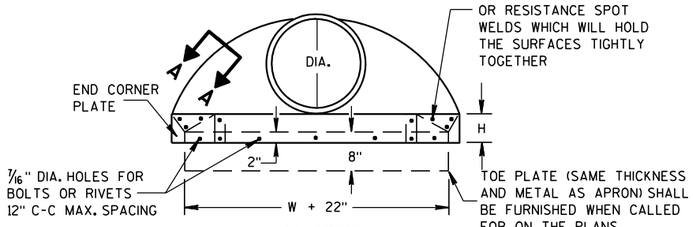
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	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 2/5 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

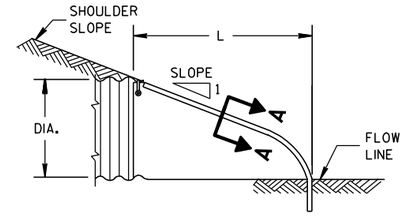
* MINIMUM
** MAXIMUM



PLAN VIEW

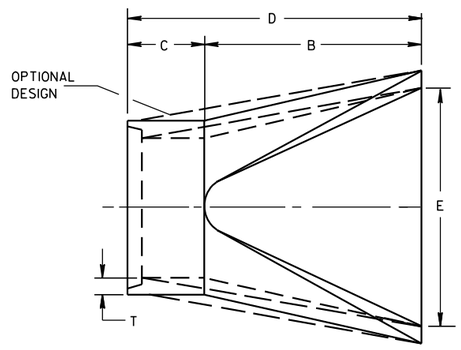


END VIEW

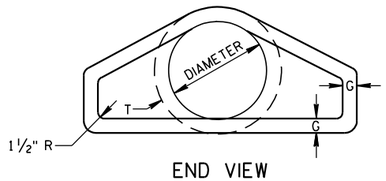


SIDE ELEVATION

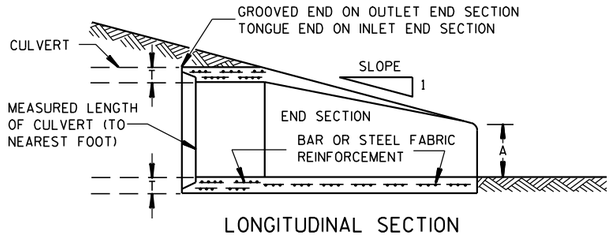
METAL ENDWALLS



PLAN

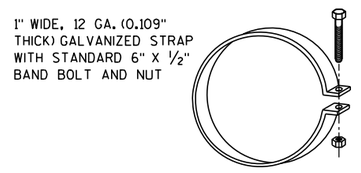


END VIEW



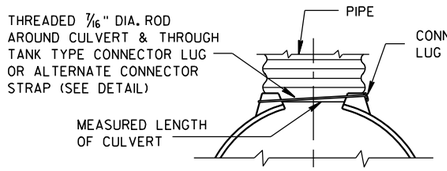
LONGITUDINAL SECTION

CONCRETE ENDWALLS

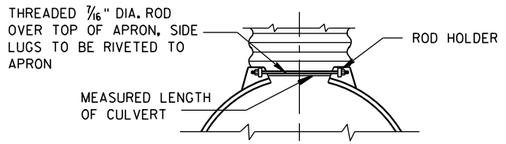


ALTERNATE FOR TYPE 1 CONNECTION

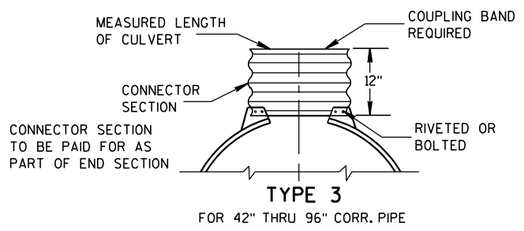
END SECTION CONNECTOR STRAP



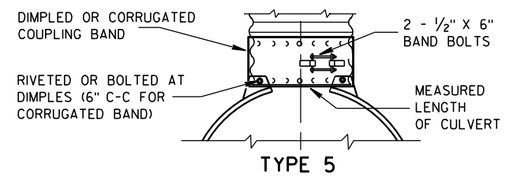
TYPE 1
FOR 12" THRU 24" CORR. PIPE



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

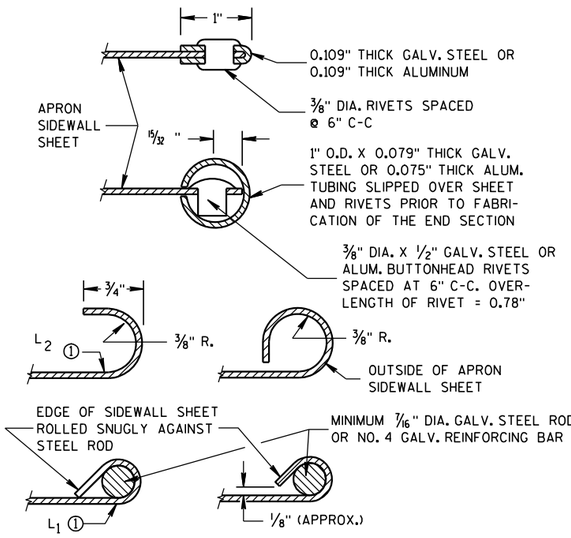
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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 VISE 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.

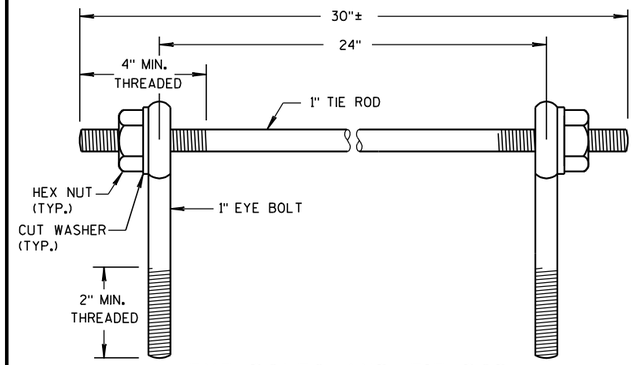
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

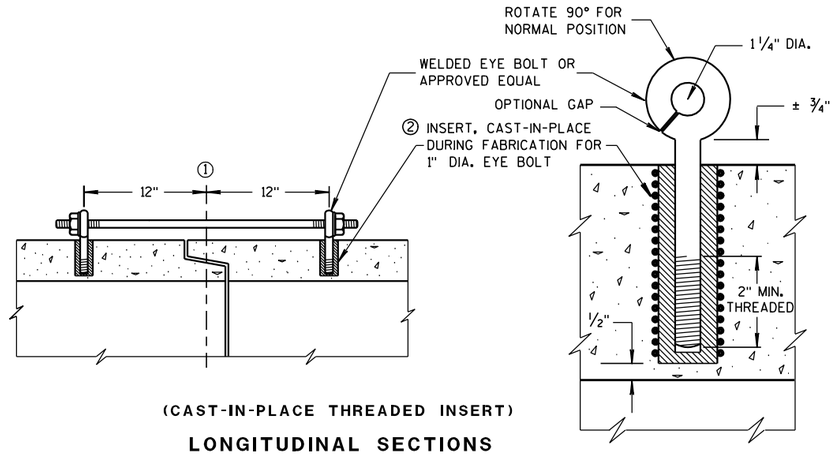
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94 DATE
/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOP NEER
FHWA

6
S.D.D. 8 F 1-11



EYE BOLTS AND TIE ROD



(CAST-IN-PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

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

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 ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.

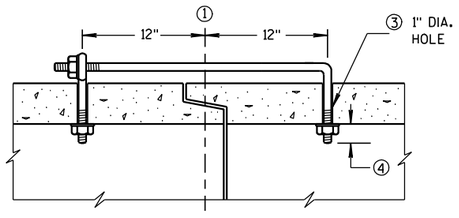
② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.

③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ℄ OF TONGUE AND GROOVE.

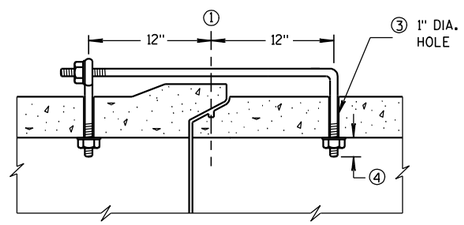
④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.

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.



(TONGUE & GROOVE PIPE)

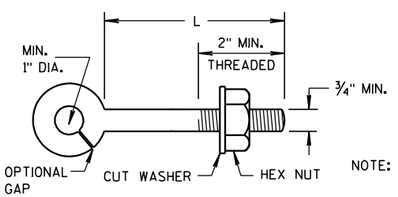


(MODIFIED BELL PIPE)

LONGITUDINAL SECTION

EYE BOLT DIMENSION TABLE

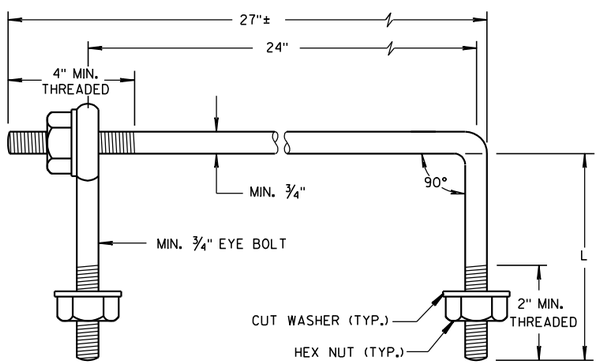
PIPE SIZE	L = LENGTH	
	TONGUE & GROOVE PIPE	MODIFIED BELL PIPE
18" TO 24"	4 1/2"	6 1/4"
30"	5"	7"
36"	5 1/2"	7"
42"	6"	
48"	6 1/2"	
60"	7 1/2"	
66"	8"	



NOTE:

EYE BOLT

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

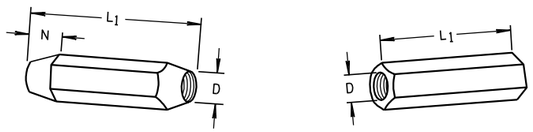
(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

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
90-108	1	1	7	1 1/16

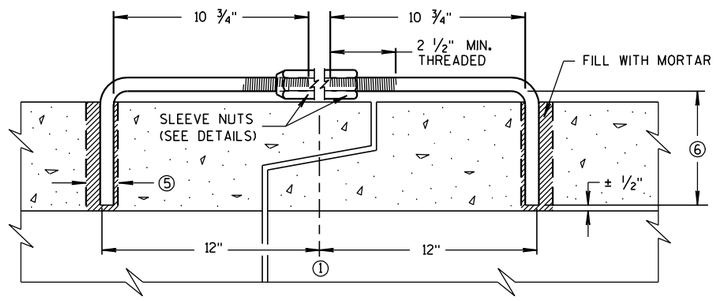
DIMENSIONS SHOWN ARE IN INCHES



TAPERED PLAIN

RIGHT AND LEFT THREADS

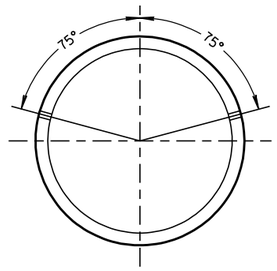
SLEEVE NUTS



LONGITUDINAL SECTION

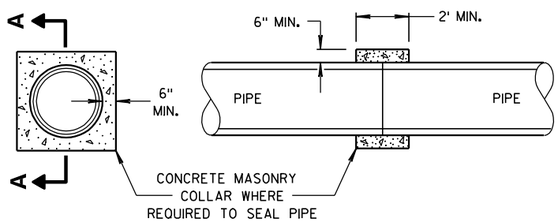
(JOINT TIES FOR 12" TO 108" DIA. CONCRETE PIPE)

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
6/5/2012 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS ENGINEER
77
FHWA

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S.D.D. 8 F 4-7

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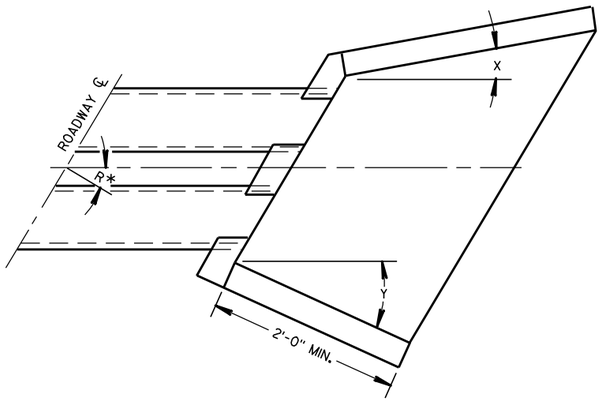


WINGWALL ANGLE DETAILS

INLET			OUTLET		
R*	X	Y	R*	X	Y
0 - 7°	30°	30°	0 - 15°	15°	15°
8 - 22°	25°	"	16 - 45°	10°	"
23 - 37°	20°	"	46 - 75°	5°	"
38 - 52°	15°	"	OVER 75°	0°	"
53 - 67°	10°	"			
68 - 82°	5°	"			
OVER 82°	0°	"			

*R = NUMBER OF DEGREES RIGHT OR LEFT HAND FORWARD

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.

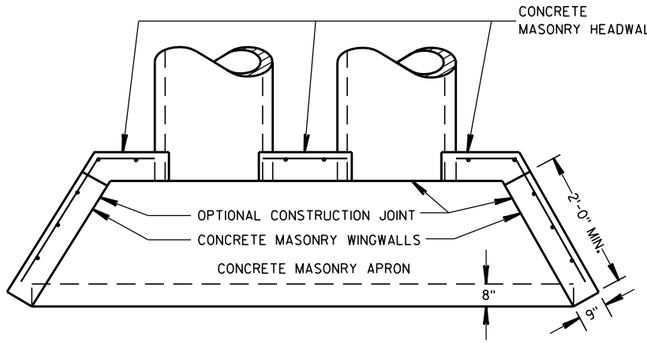
FILL SLOPES FLATTER THAN 2 ½:1 SHALL BE WARPED TO MEET THE TOP OF THE WINGWALLS.

ALL STEEL REINFORCEMENT AND WELDED STEEL WIRE FABRIC SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE NOTED.

(1) MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS SPACED 12" C-C IN BOTH DIRECTIONS.

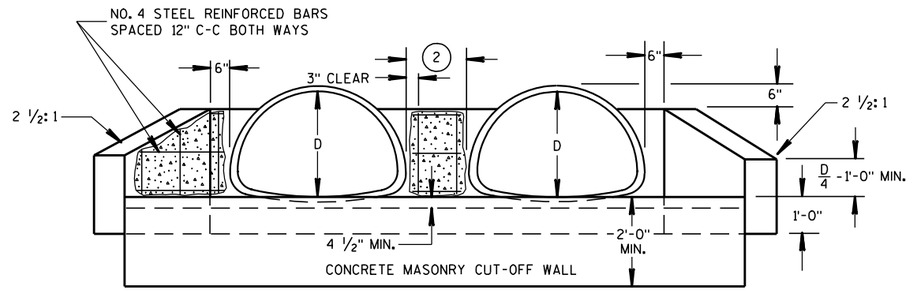
(2) THE SPACE BETWEEN PIPES SHALL BE AS FOLLOWS:

DIAMETER OR SPAN	SPACE
UP TO AND INCLUDING 48"	2'-0"
OVER 48" TO 72"	½ DIA. OR SPAN
OVER 72"	3'-0"



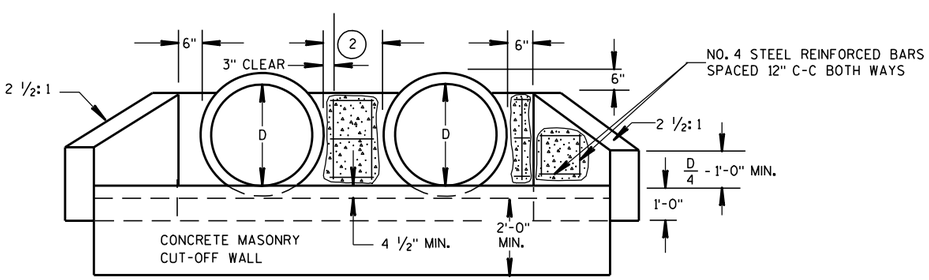
PLAN VIEW

CULVERT PIPE AND PIPE ARCH



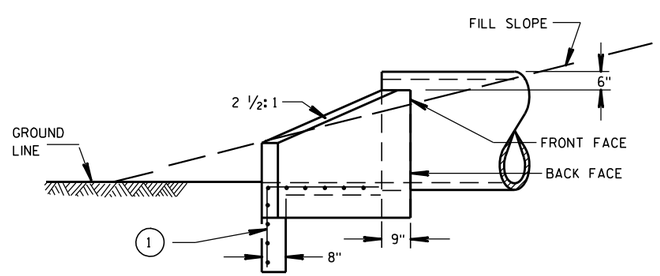
END ELEVATION

PIPE ARCH



END ELEVATION

CULVERT PIPE



SIDE ELEVATION

CULVERT PIPE AND PIPE ARCH

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/14/98 DATE
/S/ Rory L. Rhinehart
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

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S.D.D. 8 F 10-1

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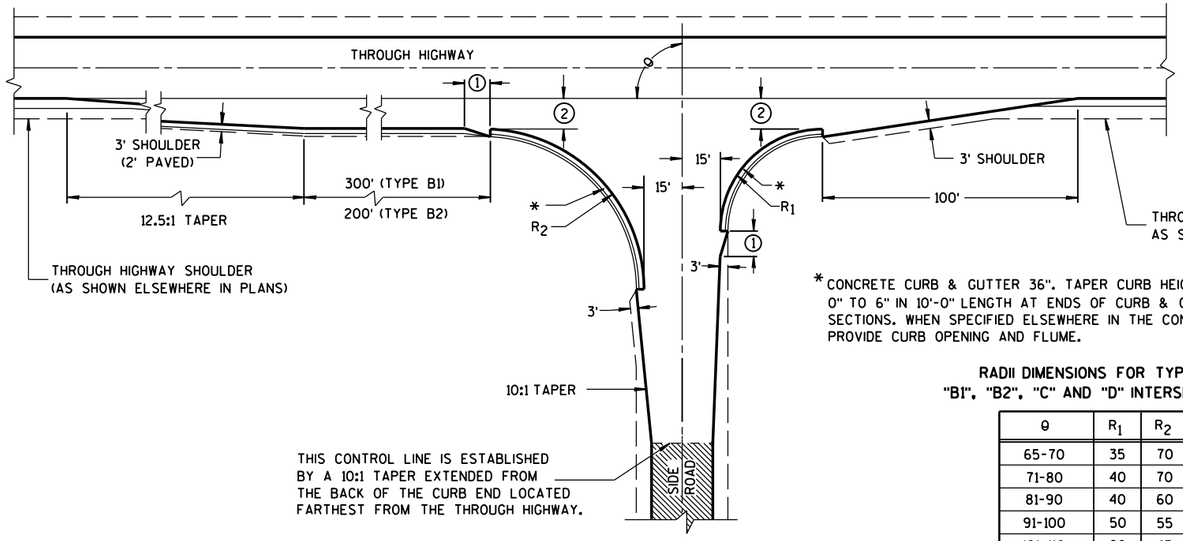
S.D.D. 8 F 10-1

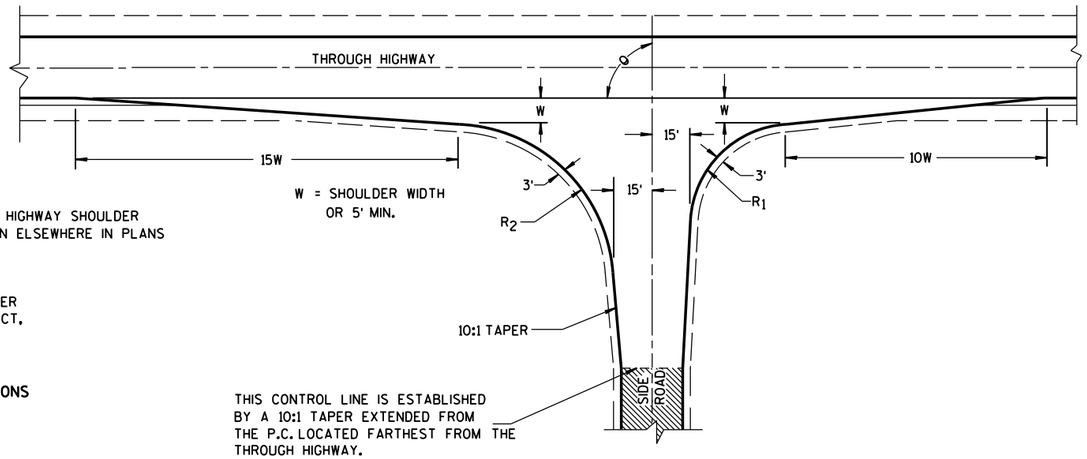


TYPE "B1" AND "B2"

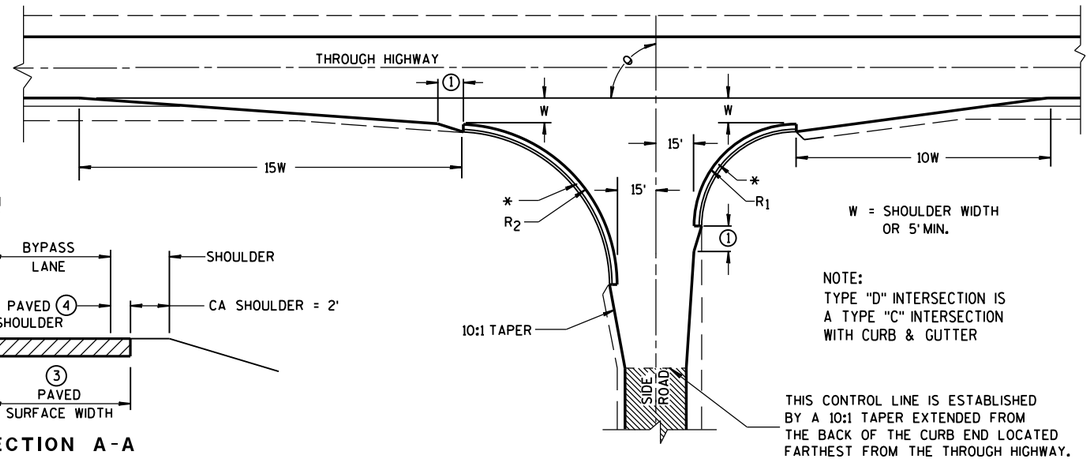
*CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45



TYPE "C"



TYPE "D"

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

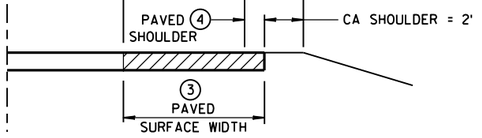
(1) 10-FT TYPICAL.

(2) 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

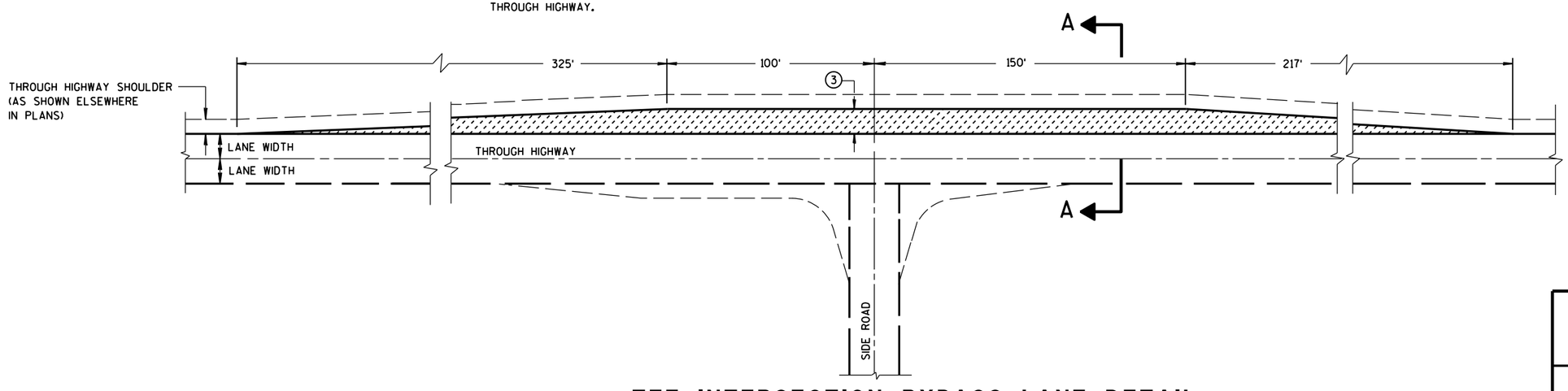
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.

(3) BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.

(4) BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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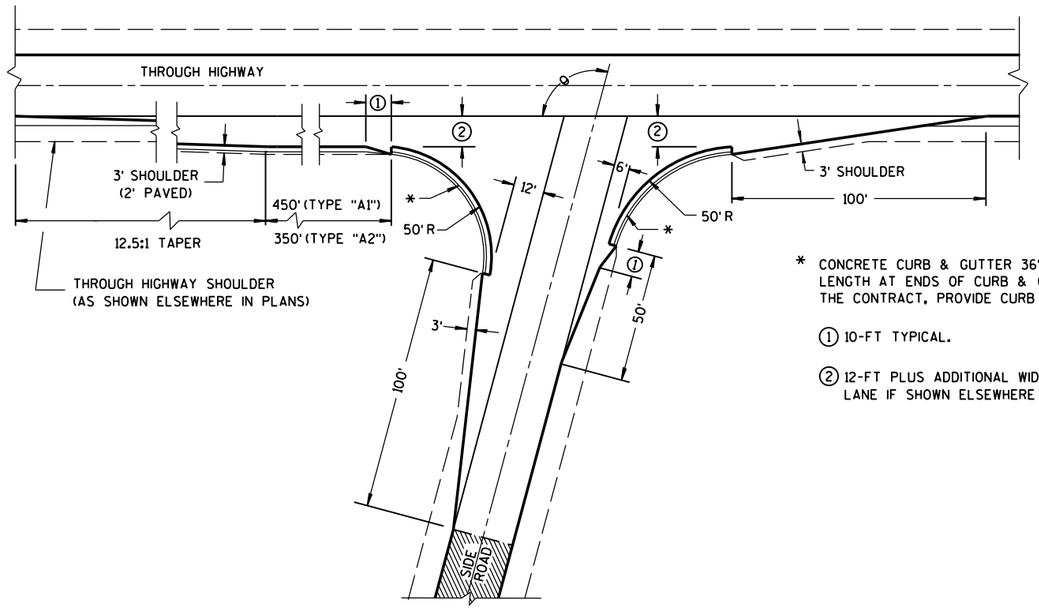
S.D.D. 9 A 1-13a



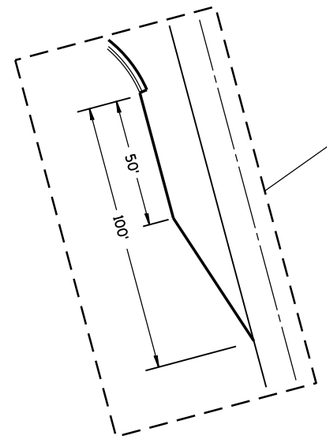
θ = MORE THAN 80°

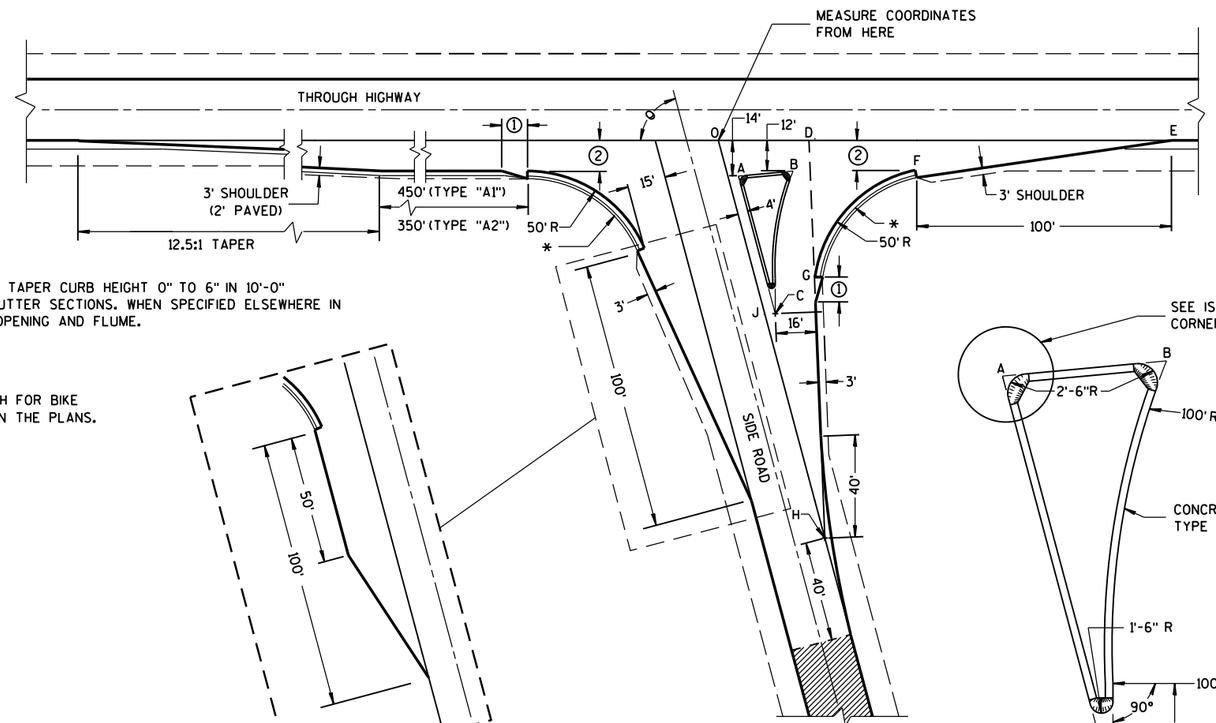
* CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.

① 10-FT TYPICAL.

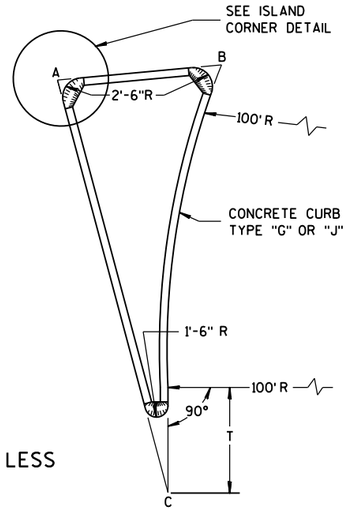
② 12-FT PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLANS.

EXISTING PAVED SURFACE

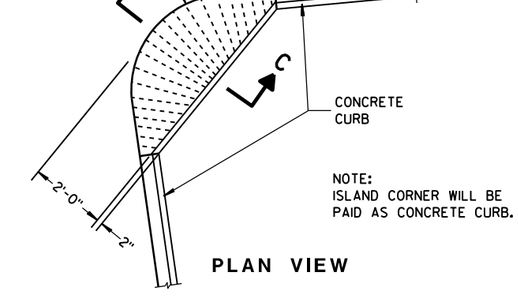




θ = ACUTE ANGLES 80° OR LESS

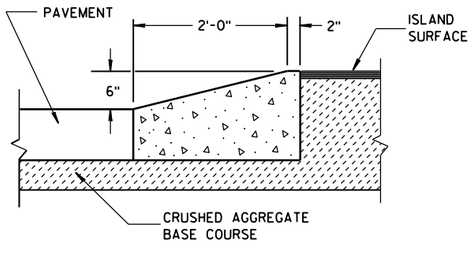


SIDE ROAD WIDENING AND TAPER REQUIRED WHERE
THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
θ = ACUTE ANGLES 70° OR LESS



NOTE:
ISLAND CORNER WILL BE
PAID AS CONCRETE CURB.

PLAN VIEW



SECTION C-C

ISLAND CORNER DETAIL

(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

TABLE OF DIMENSIONS FOR
VARIABLE SIDE ROAD INTERSECTION ANGLES
(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O") X/Y								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 / -14.0	44.9 / -12.0	46.4 / -72.4	41.9 / 0.0	205.0 / 0.0	104.6 / -12.0	64.0 / -75.5	85.0 / -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 / -14.0	39.0 / -12.0	37.8 / -71.6	39.4 / 0.0	196.1 / 0.0	95.7 / -12.0	54.1 / -71.5	70.5 / -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 / -14.0	33.9 / -12.0	29.8 / -70.1	37.4 / 0.0	188.3 / 0.0	87.8 / -12.0	45.6 / -67.5	56.1 / -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 / -14.0	29.3 / -12.0	22.3 / -67.9	35.7 / 0.0	181.2 / 0.0	80.7 / -12.0	38.2 / -63.4	41.8 / -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 / -14.0	25.4 / -12.0	15.6 / -65.2	34.4 / 0.0	174.8 / 0.0	74.4 / -12.0	31.8 / -59.3	27.6 / -156.5	18.9	52.0	15.6	66.9	158.9

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

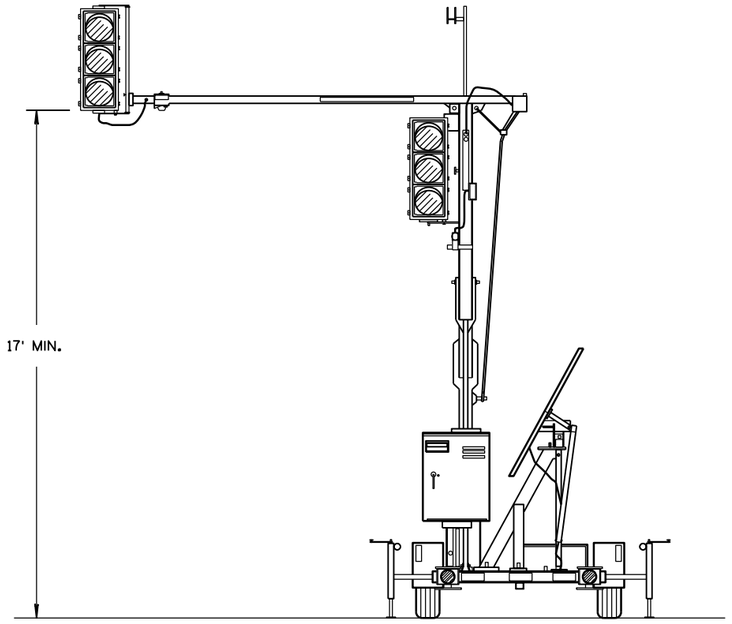
AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/12 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

S.D.D. 9 A 1-13b

6

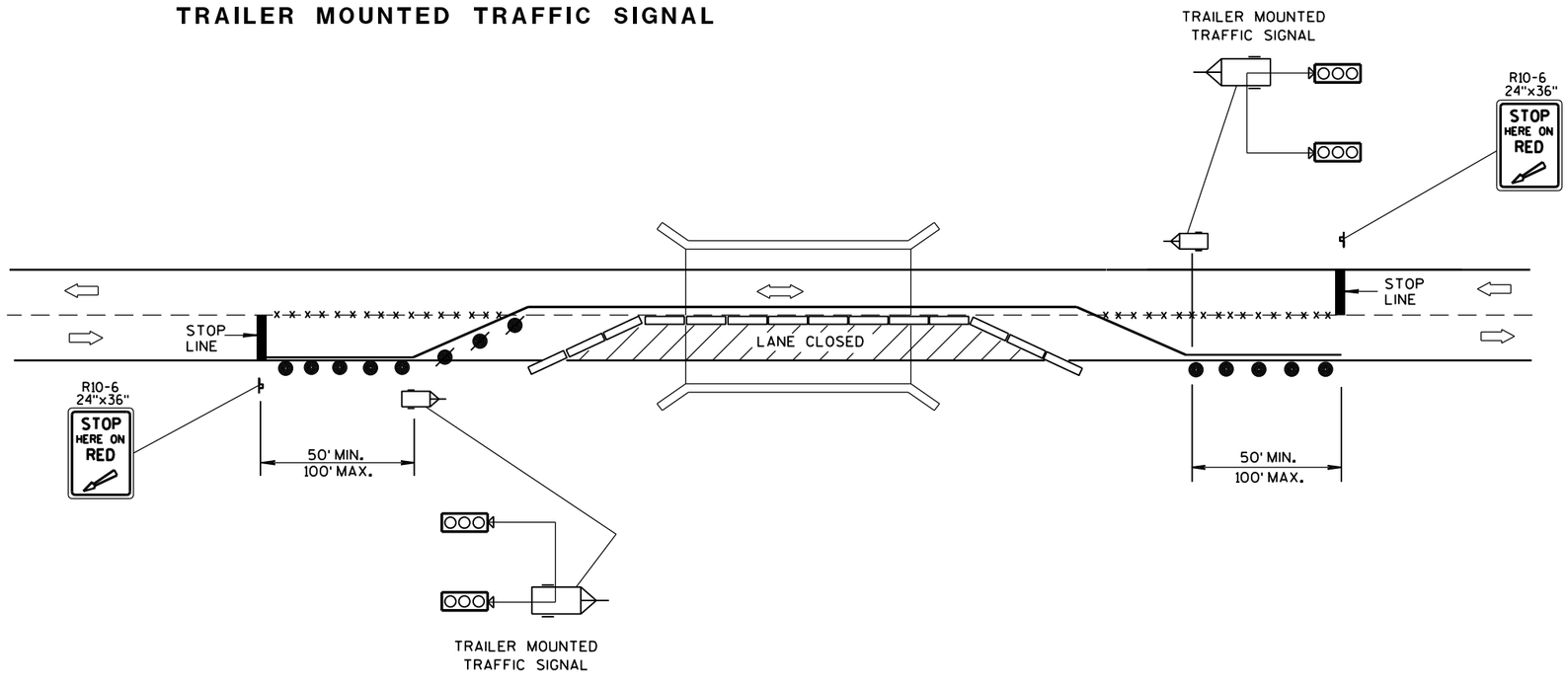


TRAILER MOUNTED TRAFFIC SIGNAL

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15 D 33.



TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION

LEGEND

- POST MOUNTED SIGN
- REMOVING PAVEMENT MARKING
- DRUM WITH/WITHOUT WARNING LIGHT, TYPE C (STEADY-BURN)
- TEMPORARY PRECAST CONCRETE BARRIER
- TRAILER MOUNTED TRAFFIC SIGNAL
- DIRECTION OF TRAFFIC FLOW

BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Ahmet Demirbilek — STATE ELECTRICAL
FHWA

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S.D.D. 9 G 2-4c

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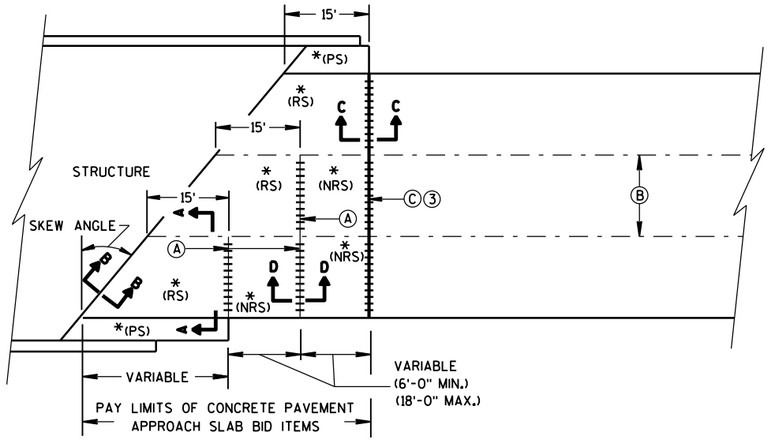
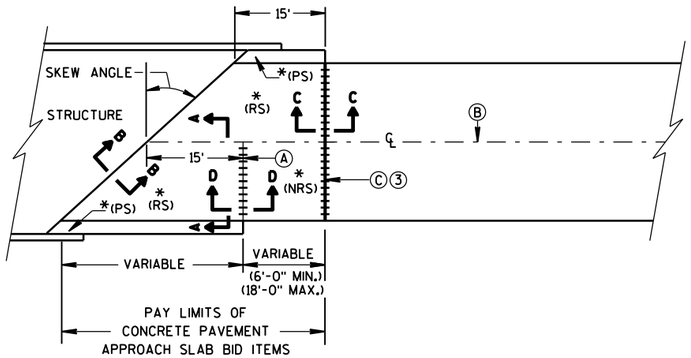
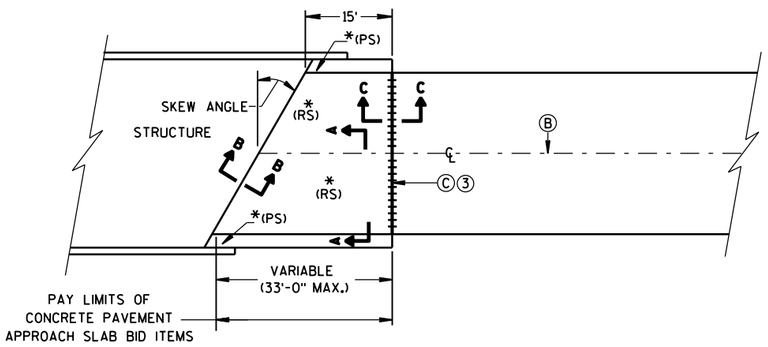
S.D.D. 9 G 2-4c



SKEWED APPROACH
(PAVEMENT MORE THAN 2 LANES)



SKEWS >20°
(PAVEMENT WIDTH ≤30')



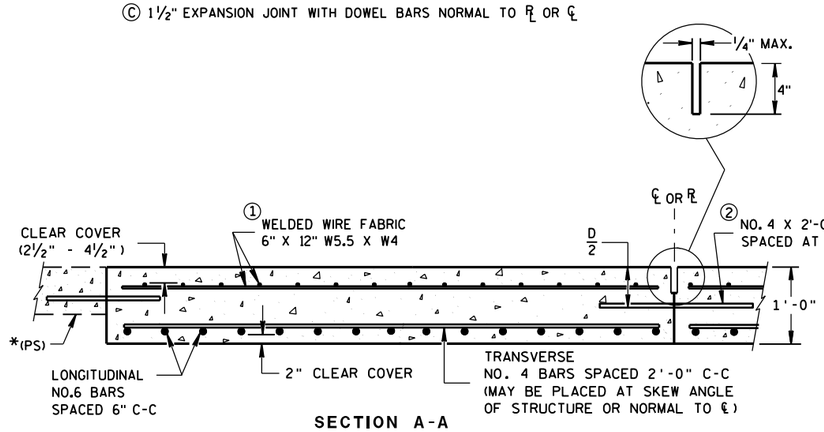
SKEWS ≤20°
(PAVEMENT WIDTH ≤30')

APPROACH SLAB AND ADJACENT PAVEMENT

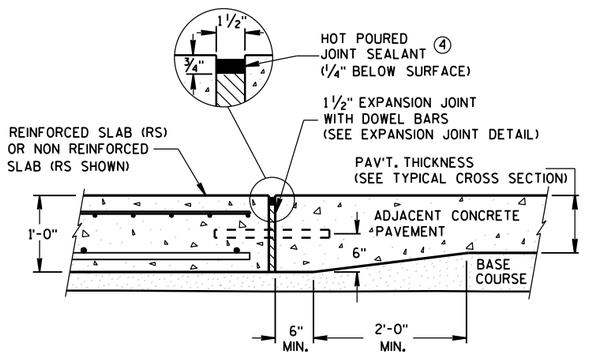
*(RS) = REINFORCED CONCRETE SLAB
*(PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
(SEE DETAILS ELSEWHERE IN THE PLAN)
*(NRS) = NON-REINFORCED CONCRETE SLAB

***STANDARD DOWEL BAR DIAMETER
(SEE SDD 13C11, & SDD 13C13)

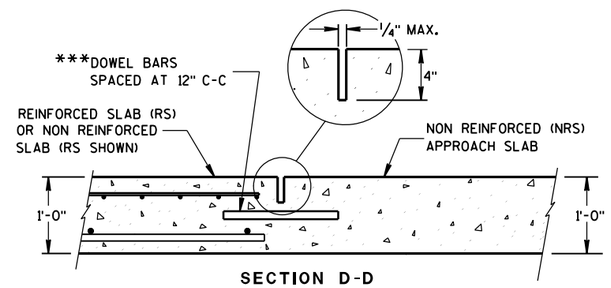
Ⓐ STANDARD CONTRACTION JOINT NORMAL TO ℄ OR ℄
Ⓑ STANDARD LONGITUDINAL JOINT WITH TIE BARS.
Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄



SECTION A-A
REINFORCEMENT POSITIONING DETAIL



SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT



SECTION D-D
CONTRACTION JOINT

GENERAL NOTES

THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

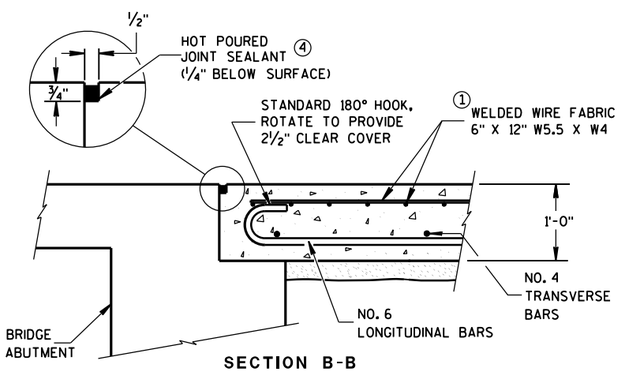
① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.

② THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.

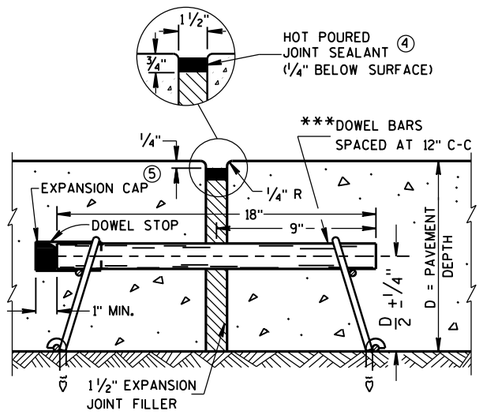
③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

④ USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.

⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.



SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT



EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
/S/ Peter Kemp, P.E.
PAVEMENT SUPE
FHWA

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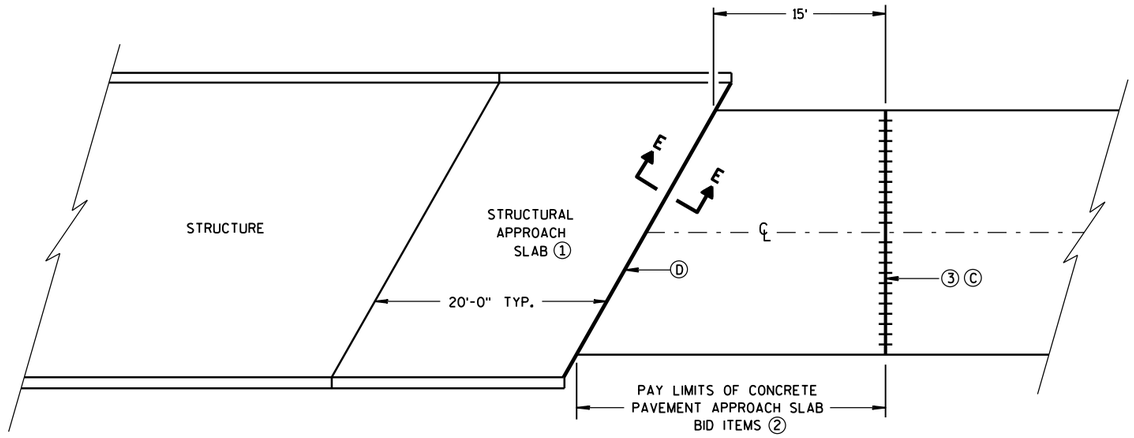
S.D.D. 13 B 2-8a



GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

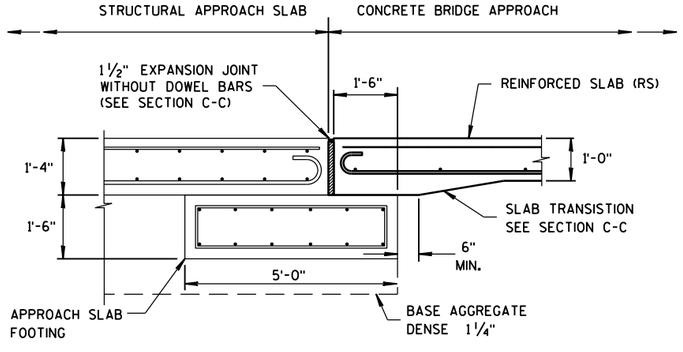
① SEE BRIDGE PLAN.

② CONFORM TO SHEET 13 B 2(A) FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS.

③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.

Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO ℄ OR ℄

Ⓓ 1½" EXPANSION JOINT (NO DOWELS)



SECTION E-E

FOOTING DETAIL

STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH

STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015
DATE

/S/ Peter Kemp, P.E.
PAVEMENT SUPERV

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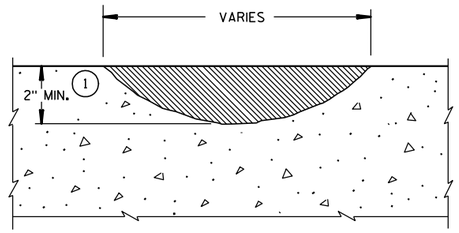
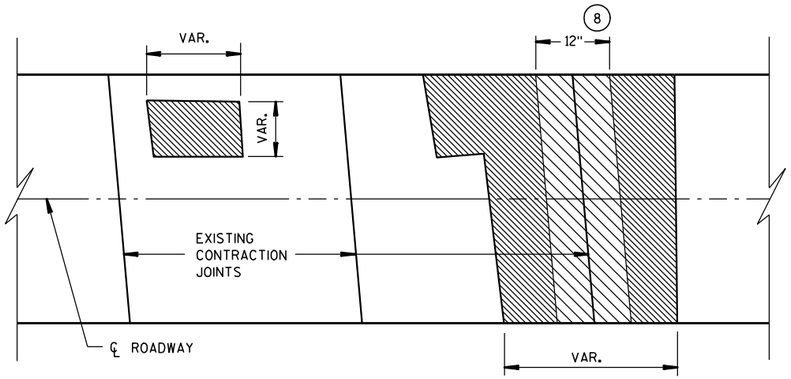
S.D.D. 13 B 2-8b

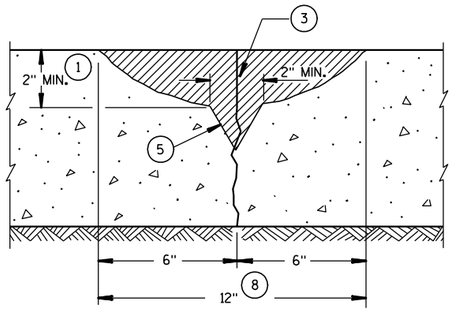


PROFILE VIEW

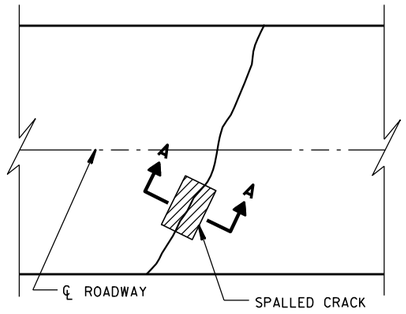


PLAN VIEW

SURFACE REPAIR



SECTION A-A

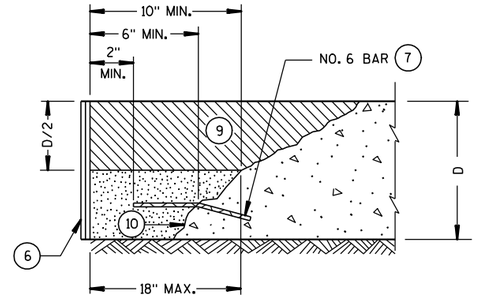


PLAN VIEW

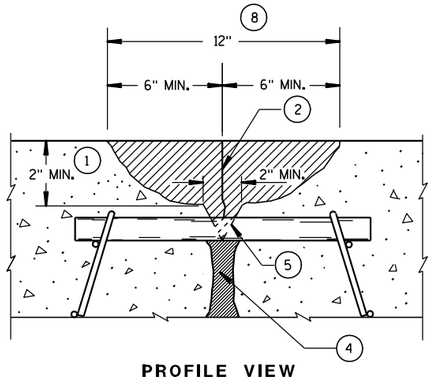
CRACK REPAIR

GENERAL NOTES

1. REMOVE ALL CONCRETE, TO LIMITS SHOWN, TO A MAXIMUM OF ½ THE PAVEMENT DEPTH OR TOP OF DOWELS.
2. IF REPAIR IS DEEPER THAN ANTICIPATED SAWCUT, COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK (1/4"). THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
3. COMPRESSION RELIEF MATERIAL MUST BE USED. THE THICKNESS OF COMPRESSION RELIEF MATERIAL MUST BE EQUAL TO OR GREATER THAN THE WIDTH OF THE JOINT OR CRACK (1/4"). THIS MATERIAL SHOULD EXTEND FULL DEPTH OF THE REPAIR.
4. CLEAN, DRY SAND WHEN NECESSARY.
5. REMOVE UNSOUND MATERIAL BY CHIPPING AT 1:1 SLOPE.
6. ¼" MINIMUM PREFORMED JOINT FILLER IF ADJACENT TO CONCRETE. EDGING REQUIRED. FULLY FORMED EDGE IF ADJACENT TO SHOULDER.
7. PAVEMENT TIES AS SHOWN. ALL EMBEDMENTS 6" MINIMUM AND INSTALLED WITH GROUT.
8. OVER 12" (NOMINAL WIDTH) WILL BE PAID AS SURFACE REPAIR.
9. PAID AS JOINT OR CRACK REPAIR.
10. FULL-DEPTH ADJUSTMENT SHALL BE CHIPPED TO BOTTOM OF PCC PAVEMENT AT 1:1 SLOPE.
11. BEYOND 18" WILL BE PAID AS SURFACE REPAIR.

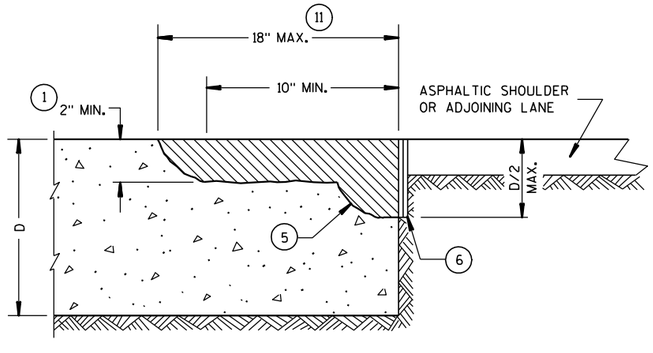


PROFILE VIEW

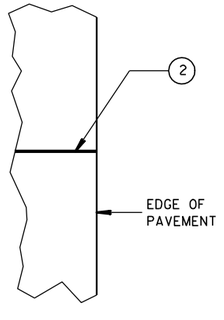


PROFILE VIEW

JOINT REPAIR

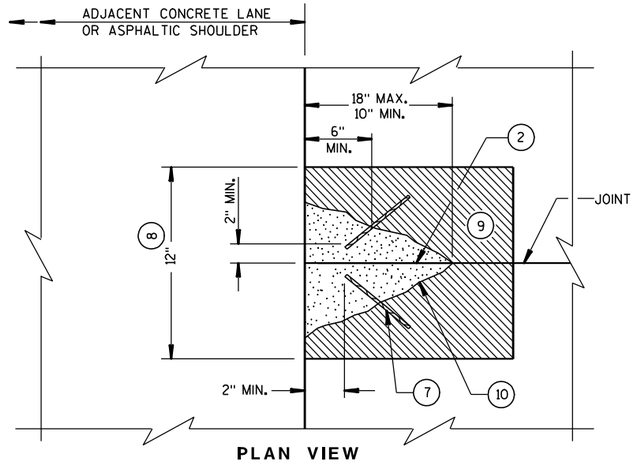


PROFILE VIEW



PLAN VIEW

EDGE REPAIR



PLAN VIEW

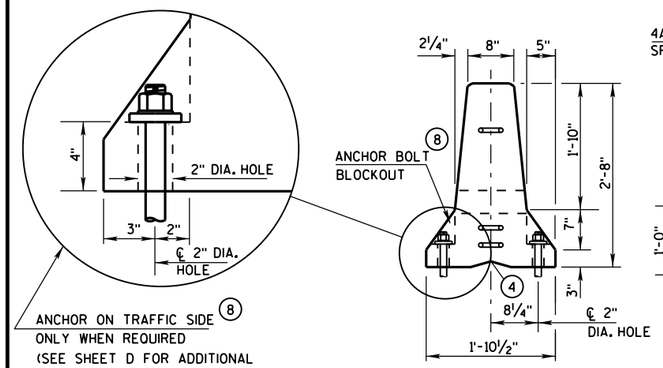
FULL DEPTH REPAIR ADJUSTMENT

CONCRETE PAVEMENT
PARTIAL DEPTH REPAIR

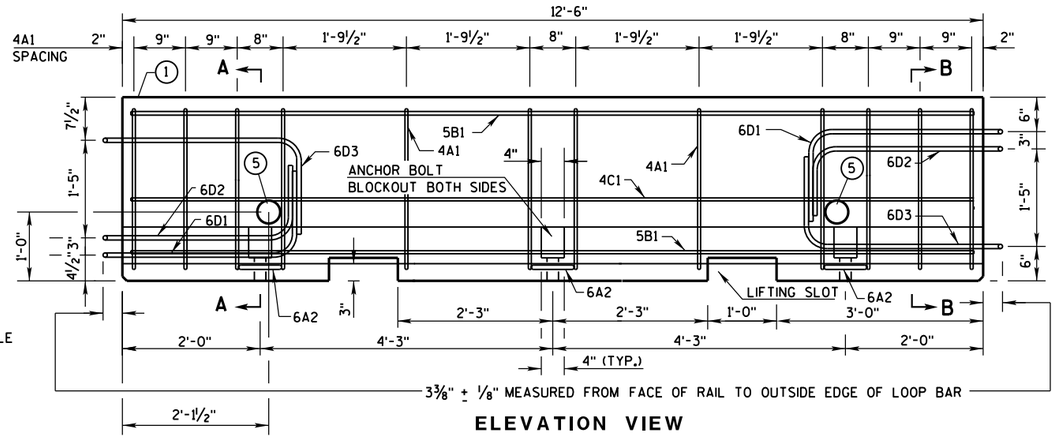
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/21/03 DATE
/S/ Bill Ducker PAVEMENT ENGR
FHWA

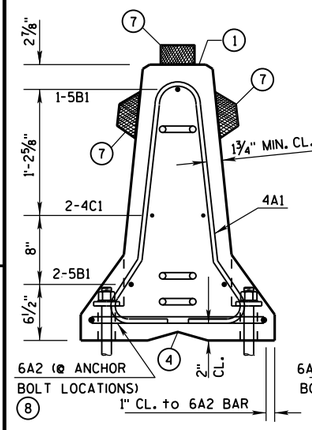
6
S.D.D. 13 C 8-2



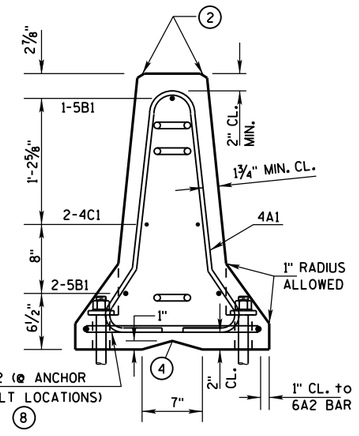
END VIEW



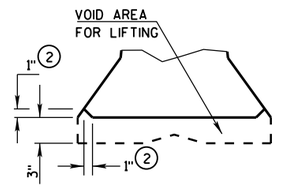
ELEVATION VIEW



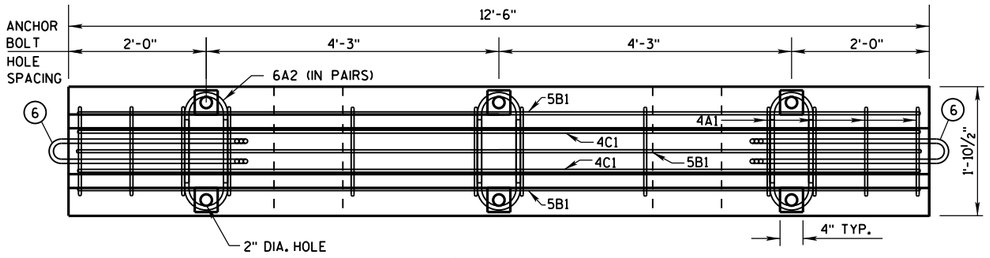
SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)

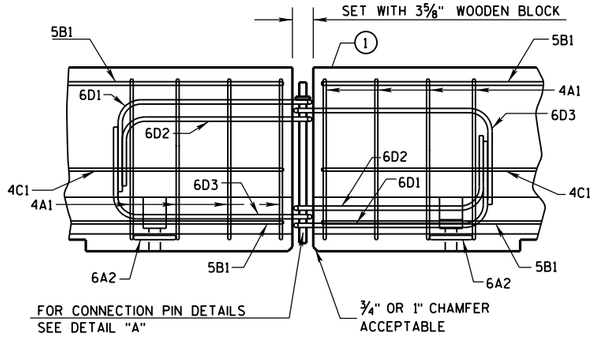


DETAIL "B"
LIFTING SLOT DETAIL

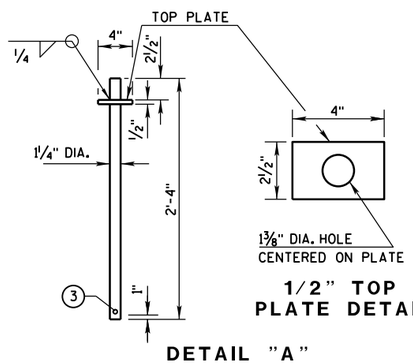


PLAN VIEW

DETAILS OF BARRIER SECTION

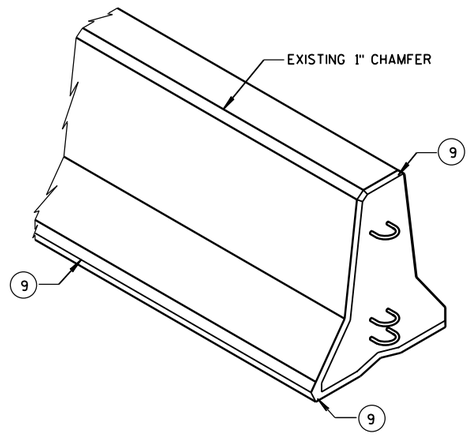


DETAILS OF BARRIER CONNECTION



1/2" TOP
PLATE DETAIL

DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))



GENERAL NOTES

THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE ¾" SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A 3-½" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN ⅛" OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

(1) MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
- a. TYPE: WI CBTP
- b. MANUFACTURER
- c. DATE MANUFACTURED (MONTH AND YEAR)

(2) 1" CHAMFER TO PREVENT SPALLING.

(3) A ⅜" HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..

(4) "V" NOTCH IS OPTIONAL.

(5) THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).

(6) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

(7) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

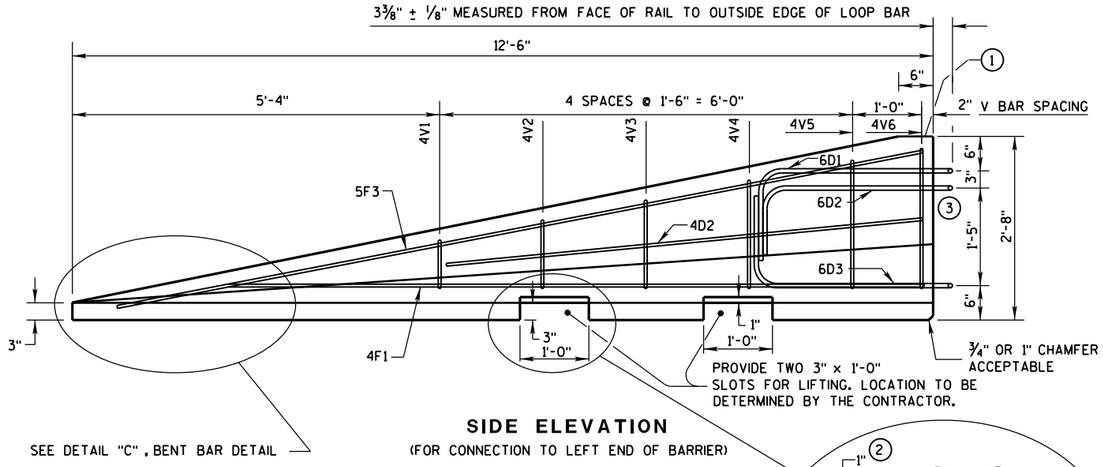
(8) SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.

(9) 1" CHAMFER OPTIONAL.

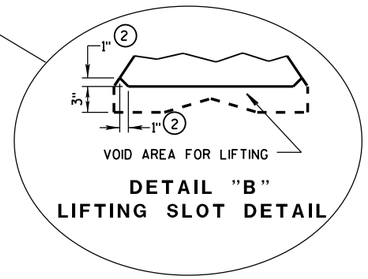
f'c = 4,000 psi

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

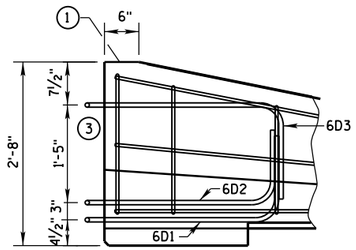
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR 85



SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



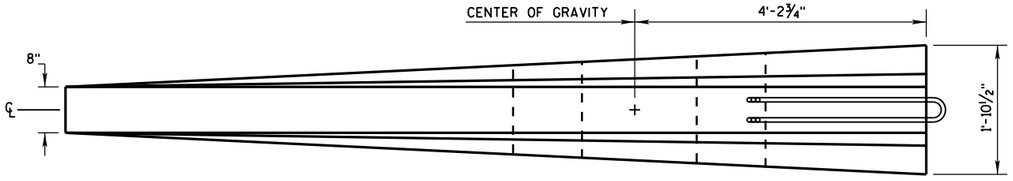
DETAIL "B"
LIFTING SLOT DETAIL



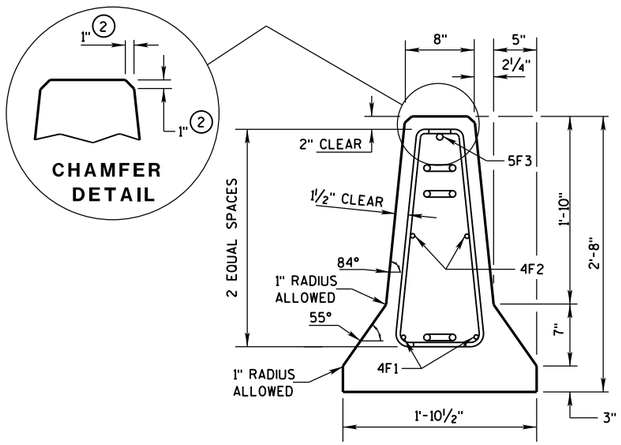
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

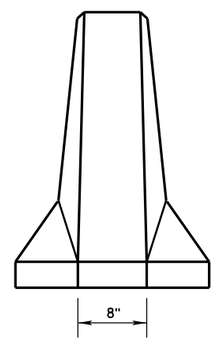
1. MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
   a. TYPE WICBTP
   b. MANUFACTURER
   c. DATE MANUFACTURED (MONTH AND YEAR)
2. 1" CHAMFER TO PREVENT SPALLING.
3. NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



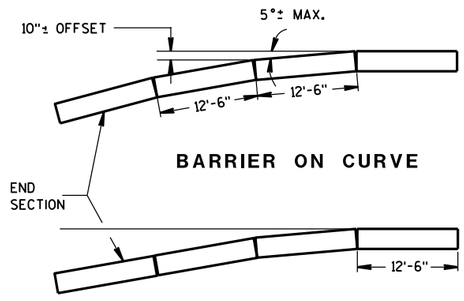
PLAN VIEW



END SECTION



FRONT ELEVATION



BARRIER ON CURVE

FLARE AT BARRIER END

POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

DETAILS OF BARRIER TAPER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

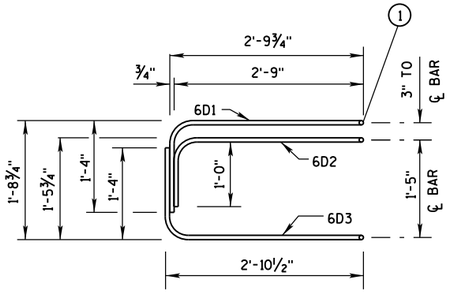
6

S.D.D. 14 B 7-15b

BARRIER TAPER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



ELEVATION
LOOP BAR ASSEMBLY

DETAIL "C"
BENT BAR DETAIL

BAR	a	b
V1	10"	1"
V2	1'-1"	1¼"
V3	1'-5"	1⅝"
V4	1'-8"	1⅞"
V5	2'-0½"	2⅜"
V6	2'-3"	2¾"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

TAPER BARRIER SECTION

GENERAL NOTES

(1) NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

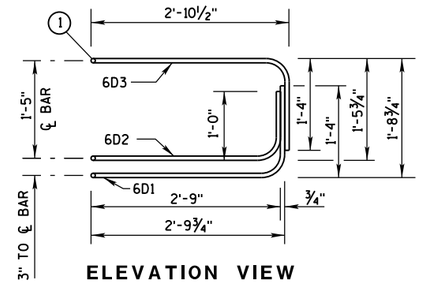
BARRIER SECTION BILL OF MATERIALS

(PER 12'-6" BARRIER SECTION)

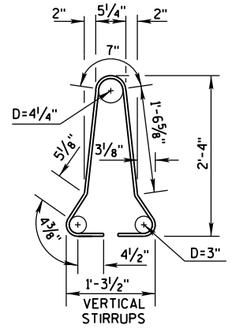
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

PLAN VIEW
LOOP BAR ASSEMBLY
(MARKED END SHOWN, INVERT FOR OTHER END)

6A2



ELEVATION VIEW



4A1

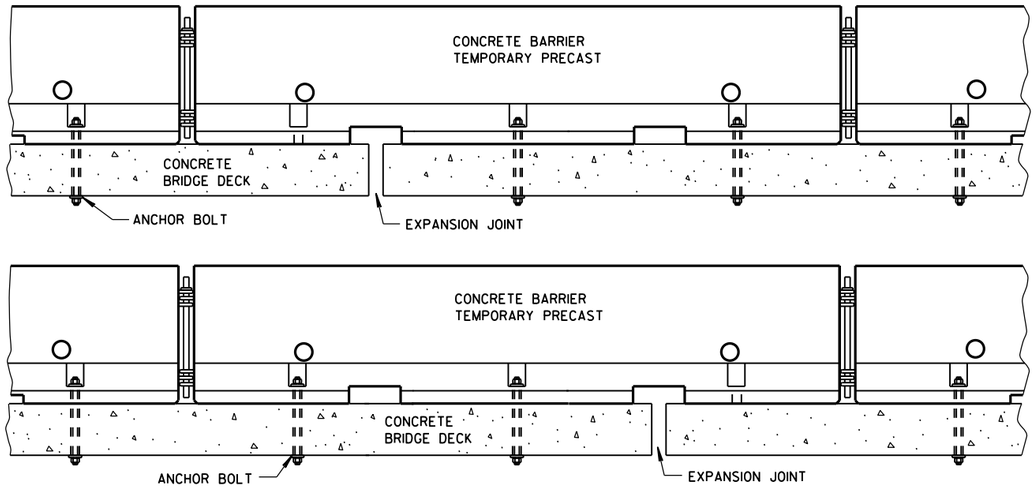
BARRIER SECTION

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

S.D.D. 14 B 7-15c



TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)

GENERAL NOTES

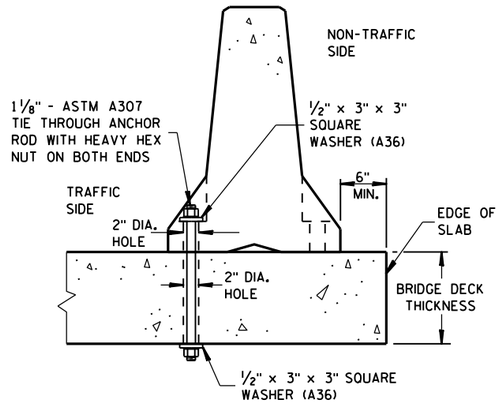
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERICAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

(1) 1⅛" DIAMENTER A307 THREADED ROD. ½" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL. ASTM A563A HEAVY HEX NUT.

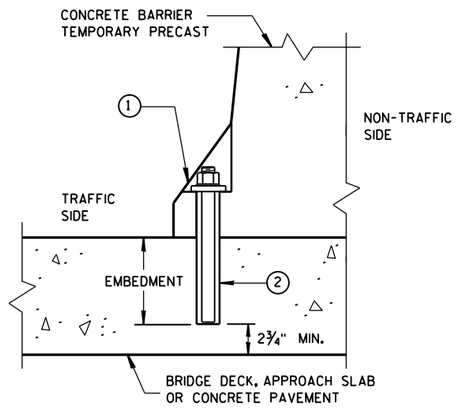
(2) ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5¼" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.

(3) ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THAN DRIVE ASPHALT ANCHOR PIN.



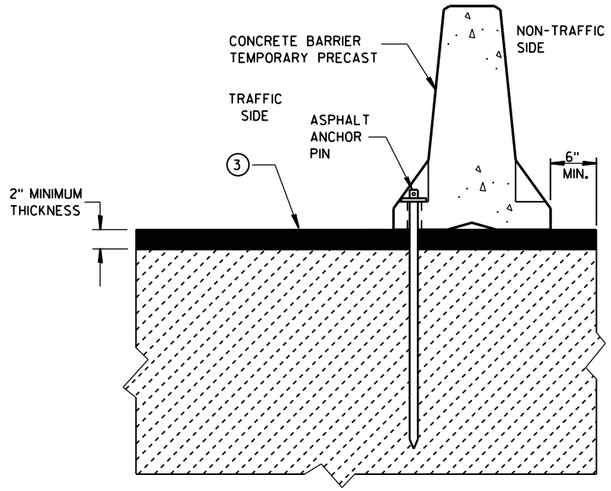
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOTUSE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)

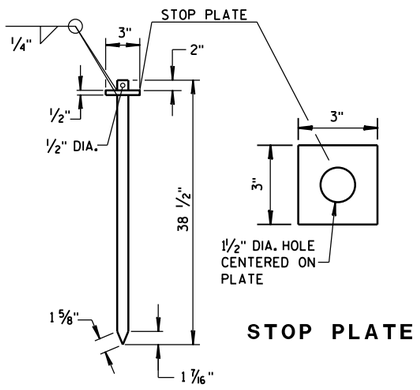


REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



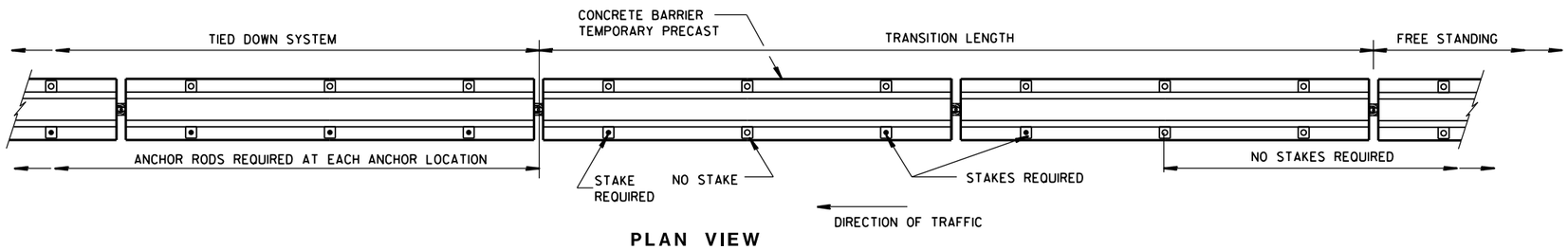
STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



STOP PLATE

ASPHALT ANCHOR PIN

(ASTM A36 STEEL)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

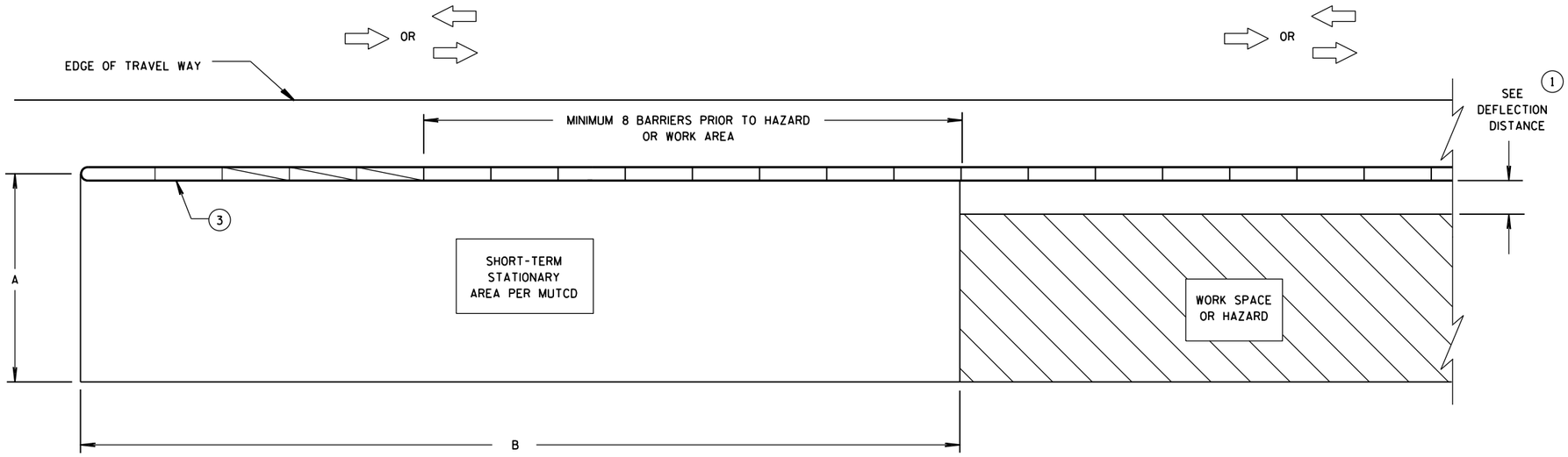
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 7-15d



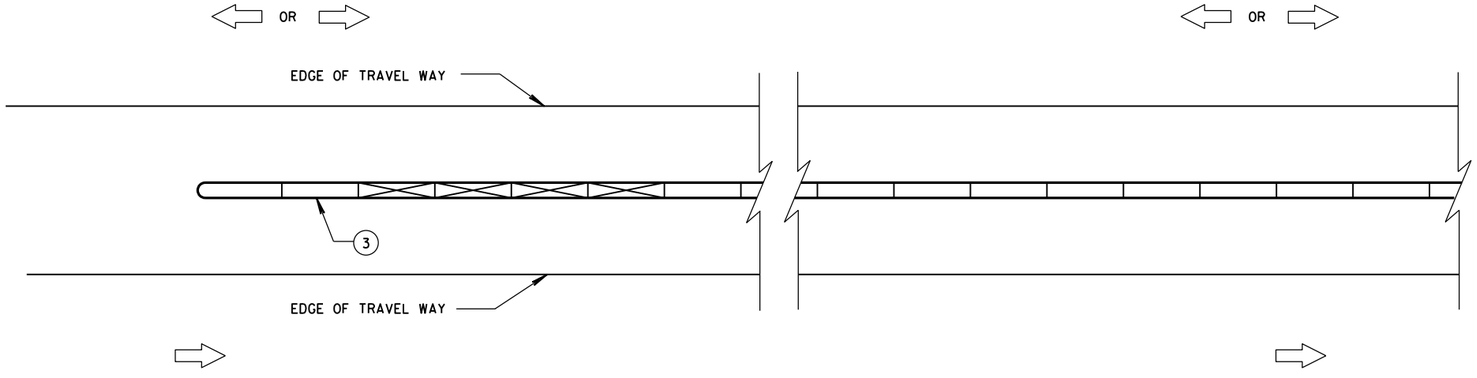
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE (2)

FACILITY	POSTED SPEED MPH	DIMENSION A	
		MIN. FT	MAX. FT
FREEWAY/EXPRESSWAY	ALL	15	20
NON-FREEWAY/EXPRESSWAY	GREATER THAN OR EQUAL TO 45	10	15
NON-FREEWAY/EXPRESSWAY	LESS THAN 45	8	10
AADT LESS THAN 1,500	ALL	8	10

DIMENSION B TABLE (2)

POSTED SPEEDS MPH	DIMENSION B FT
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

(1) FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.

(2) VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

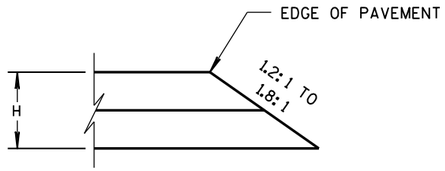
(3) ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

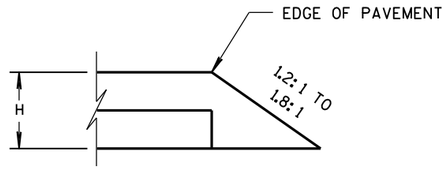
6

S.D.D. 14 B 8-2a
S.D.D. 14 B 8-2a



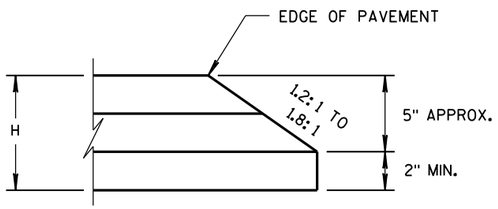
CONSTRUCTED WITH FINAL TWO LAYERS

FOR H 5" OR LESS



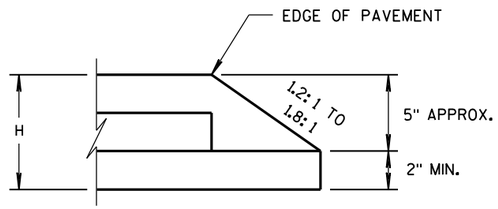
CONSTRUCTED WITH FINAL LAYER

FOR H 5" OR LESS



CONSTRUCTED WITH FINAL TWO LAYERS

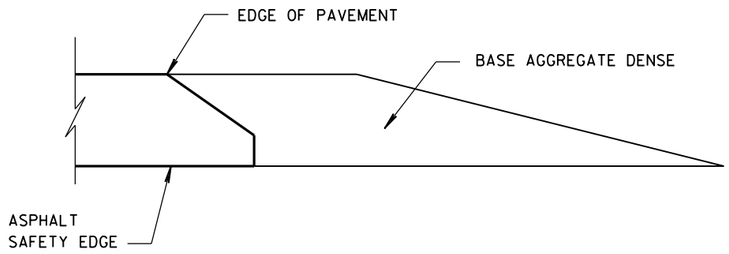
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER

FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

6

SAFETY EDGE SM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/30/2012
DATE

/S/ Jerry H. Zoda
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

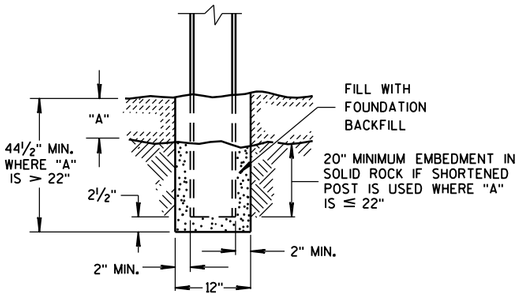
② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.

③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2½ INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AMD INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.

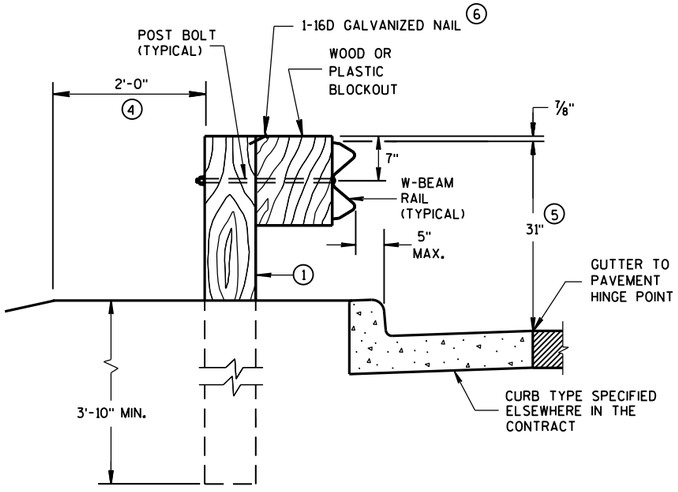
④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS ± 1". FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27¾" TO 32".

⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



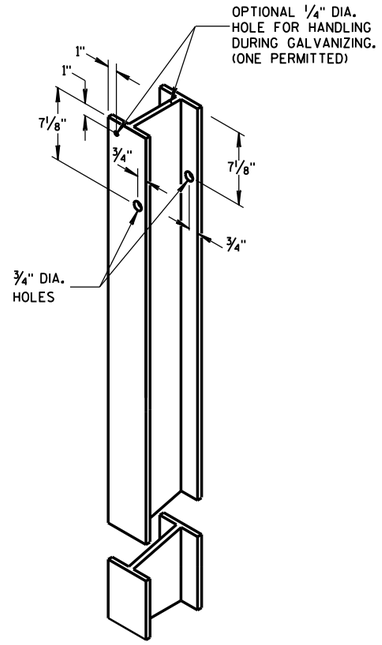
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ③



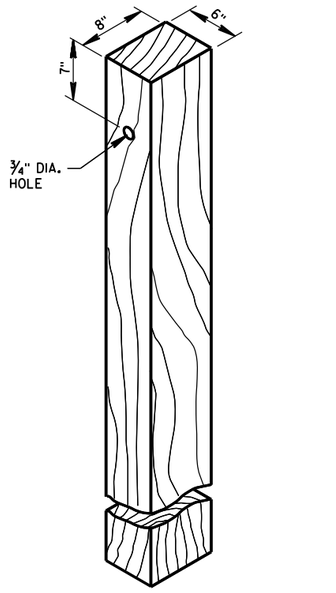
END VIEW
LOCATED ALONG A CURBED ROADWAY

END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION

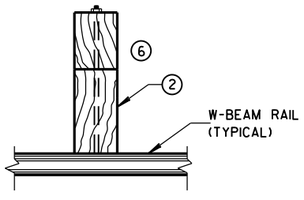
END VIEW
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



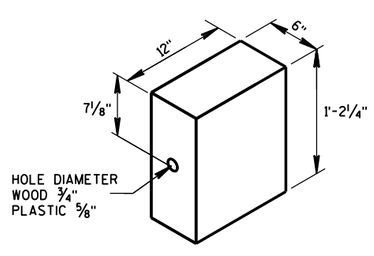
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



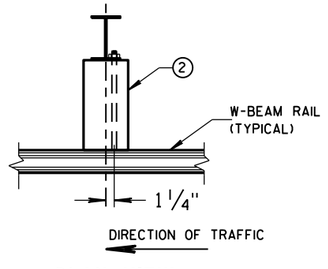
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②

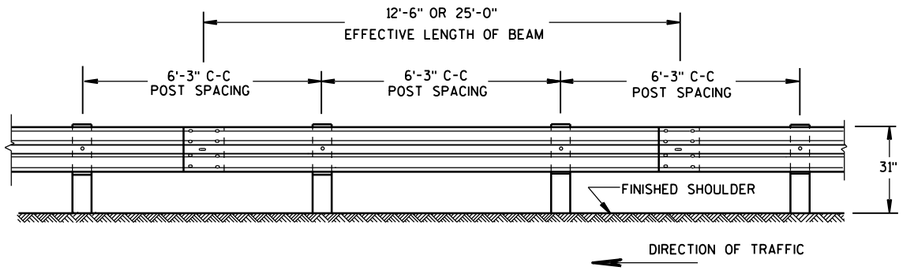


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

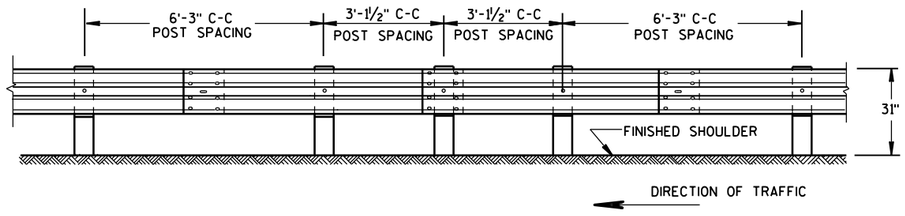
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6
S.D.D. 14 B 42-5a



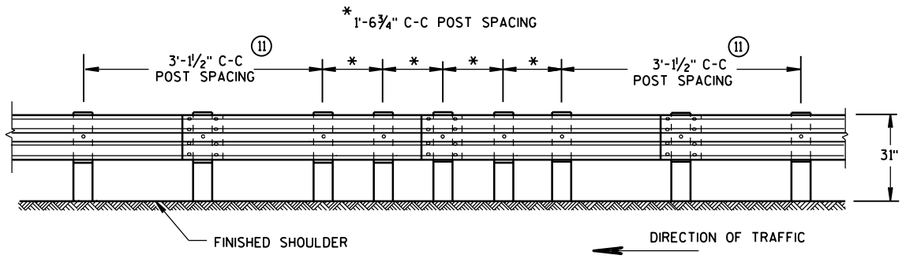
FRONT VIEW

POST SPACING STANDARD INSTALLATION



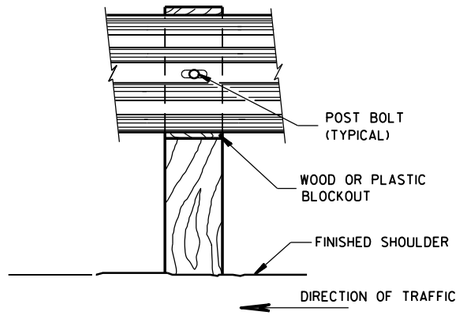
FRONT VIEW

HALF POST SPACING (HS) AND HALF POST SPACING WITH LONGER POSTS (K)

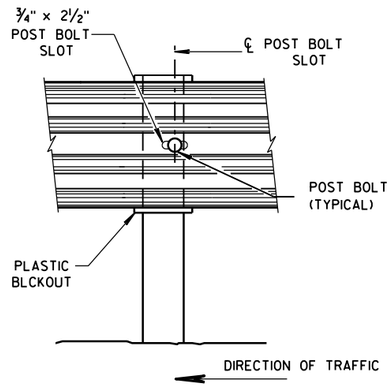


FRONT VIEW

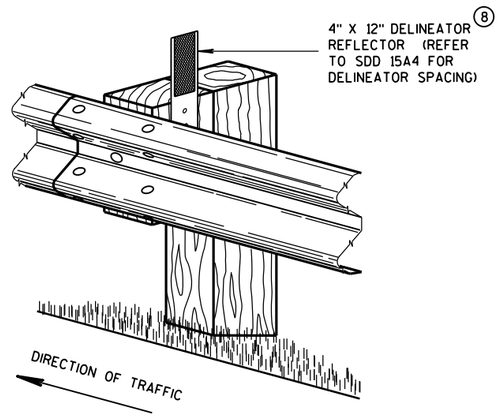
QUARTER POST SPACING (QS)



FRONT VIEW AT WOOD POST



FRONT VIEW AT STEEL POST



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION

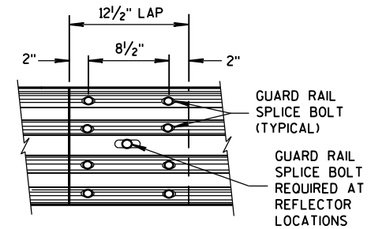
GENERAL NOTES

(8) DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.

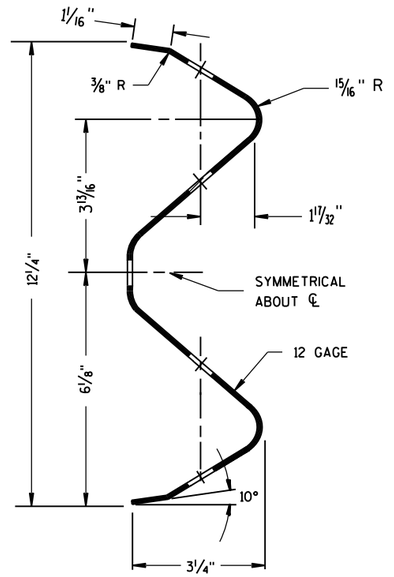
(11) 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND ⅝" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

GUARD RAIL SPLICE BOLTS ARE A ⅝" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES ⅝" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



FRONT VIEW
MID-SPAN BEAM SPLICE



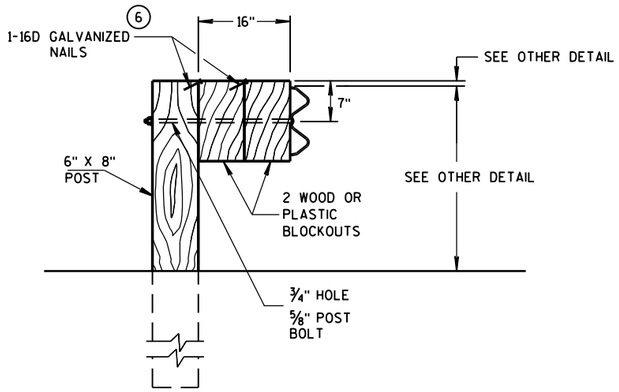
SECTION THRU W-BEAM RAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

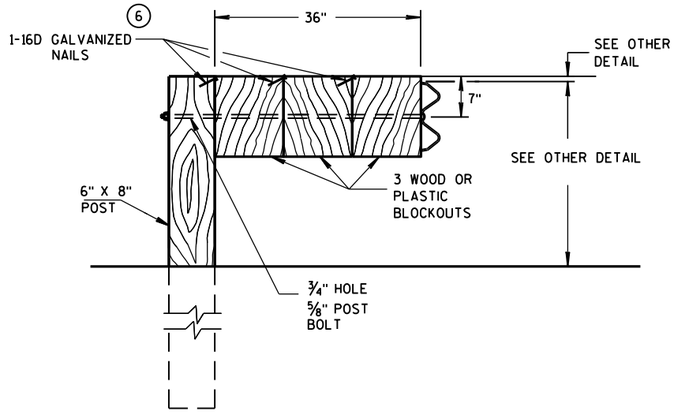
6

S.D.D. 14 B 42-5b



DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

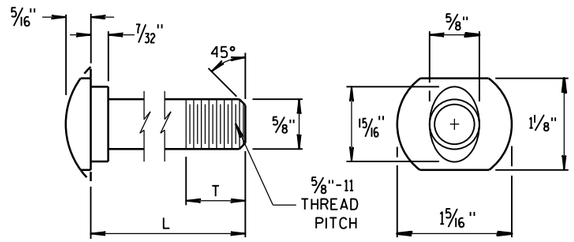


DETAIL FOR 36" BLOCKOUT DEPTH

NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.

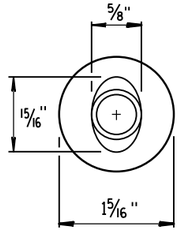
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

NOTE: 1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 1/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

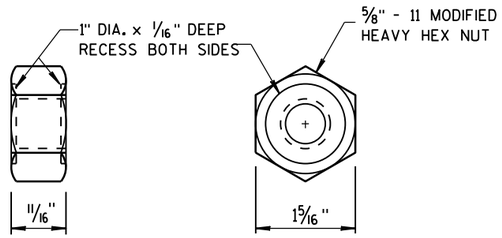


POST BOLT TABLE

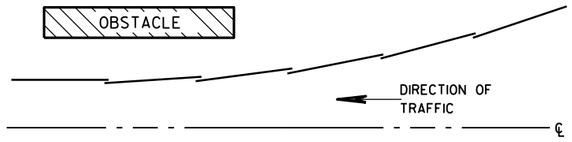
L	T (MIN.)
1¼"	1⅛"
2"	1¾"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

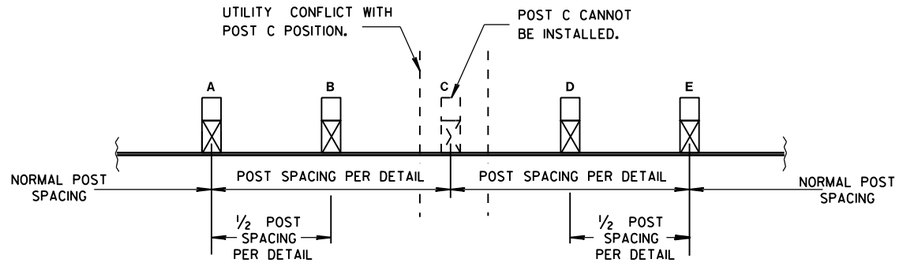


POST BOLT, SPLICE BOLT AND RECESS NUT

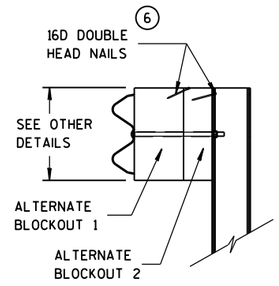


PLAN VIEW

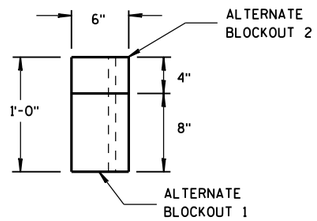
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

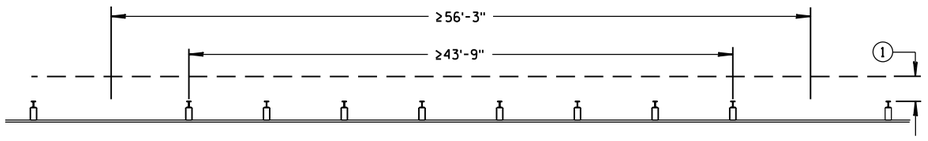
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

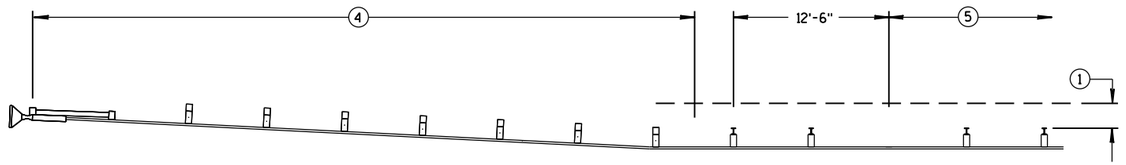
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

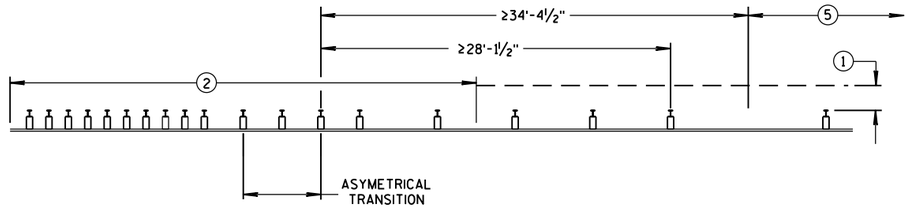
S.D.D. 14 B 42-5c



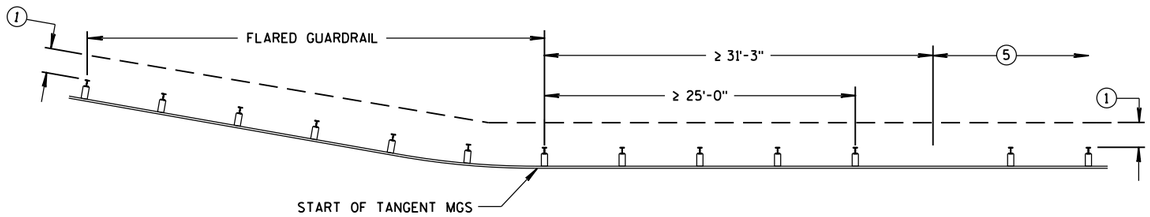
MISSING POST IN NORMAL BEAM GUARD RUN



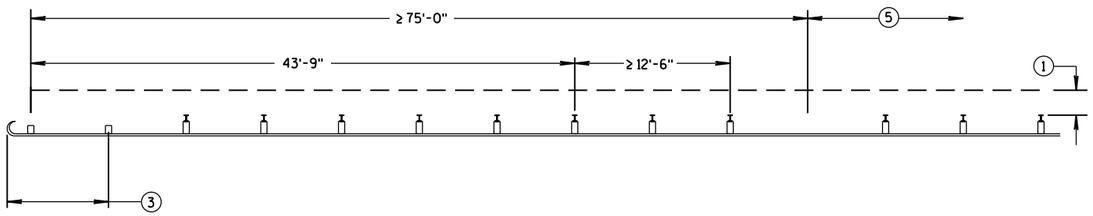
MISSING POST IN NORMAL BEAM GUARD RUN NEAR EAT



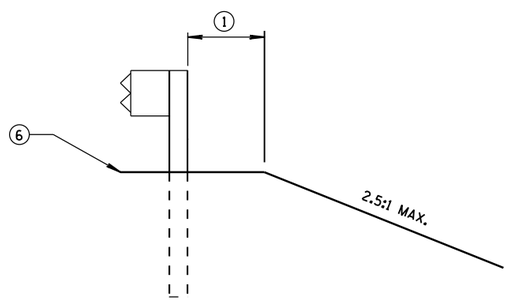
MISSING POST NEAR APPROACH THRIE BEAM TRANSITION



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR FLARED BEAM GUARD



MISSING POST IN NORMAL BEAM GUARD RUN
NEAR TYPE 2 TERMINAL



CROSS SECTION VIEW

(1) MINIMUM OF 2 FEET OF GRADING BEHIND POST.

(2) SEE SDD 14B45 FOR MORE DETAILS.

(3) SEE SDD 14B47 FOR MORE DETAILS.

(4) SEE SDD 14B44 FOR MORE DETAILS.

(5) SEE MISSING POST IN NORMAL BEAM GUARD RUN FOR DISTANCE TO NEXT MISSING POST AND AREA FOR WELL DRAINED, COMPACTED SOILS.

(6) SEE PLAN FOR SHOULDER DESIGN.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

6

S.D.D. 14 B 42-5d

6

S.D.D. 14 B 42-5d

GENERAL NOTES

(A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.

(B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.

(C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.

(F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER.

(H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.

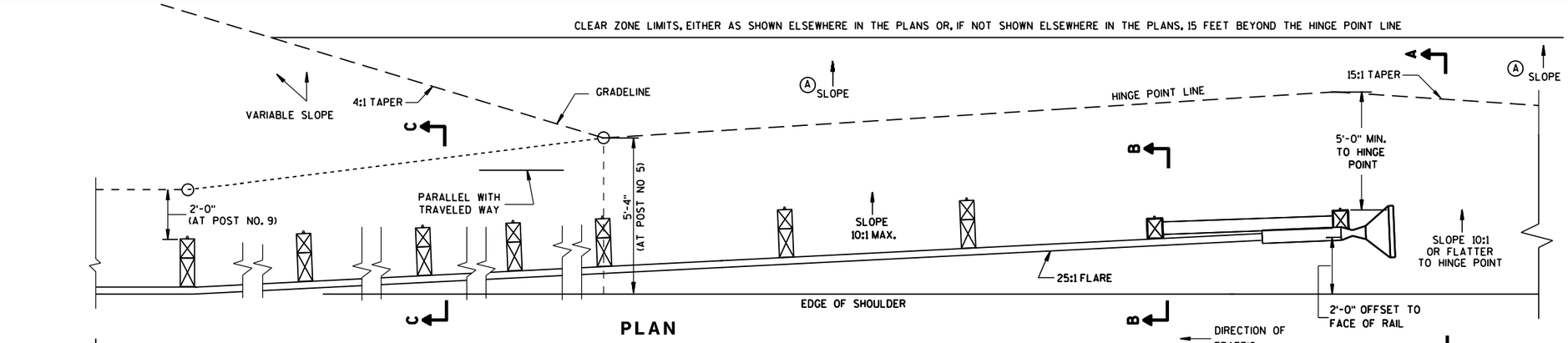
SEE SDD 14B42 FOR MORE INFORMATION.

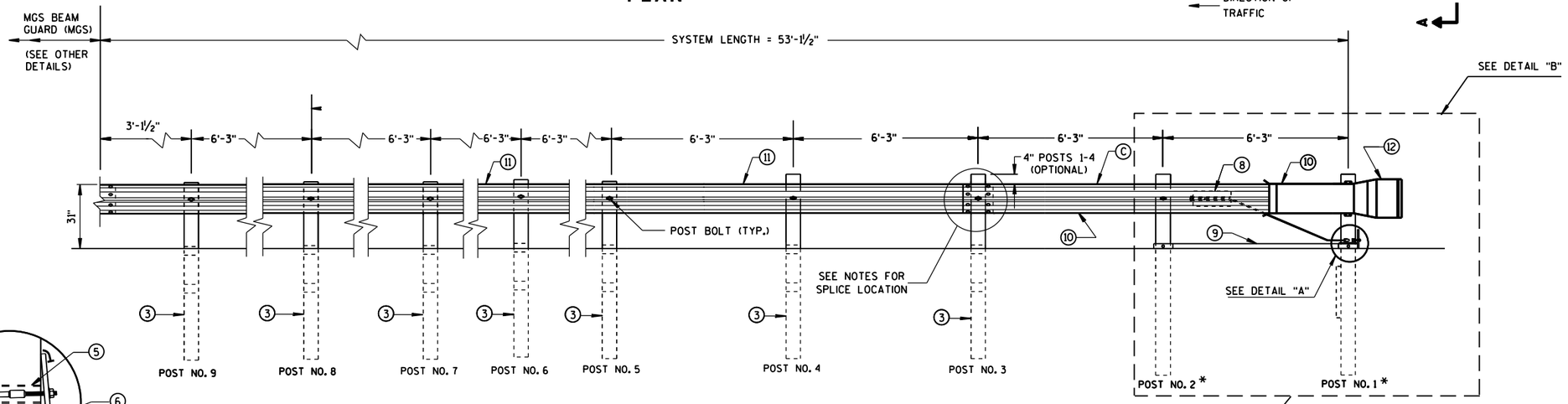
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

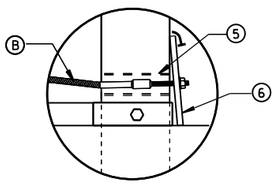
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

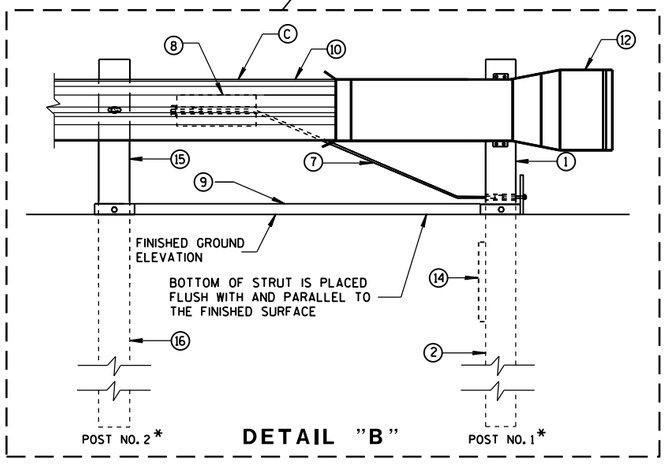
SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

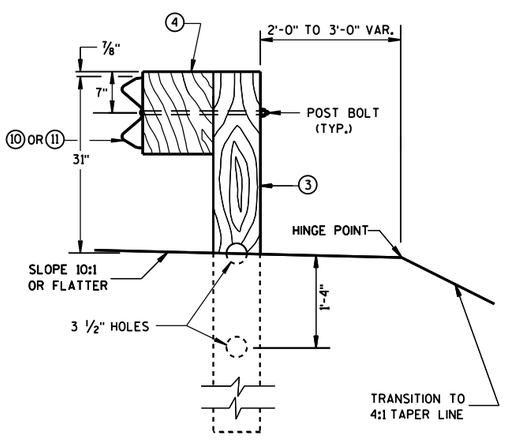
THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.

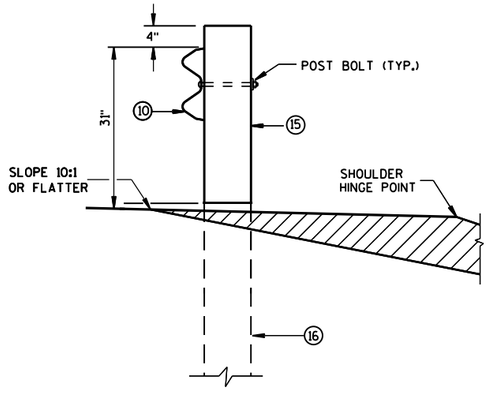


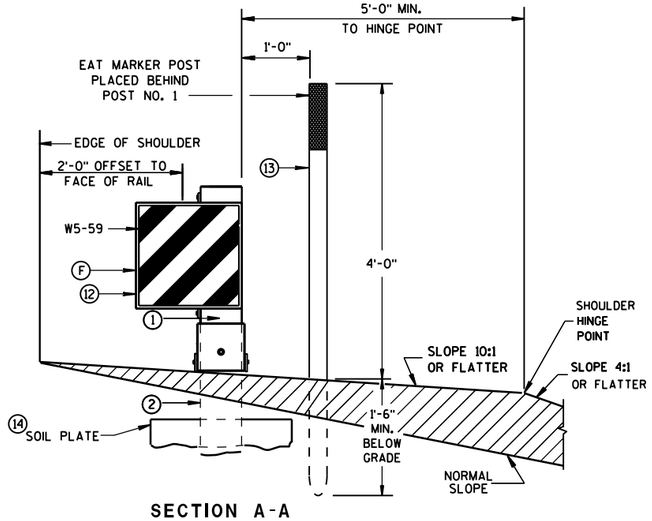












MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPO	95

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S.D.D. 14 B 44-3a

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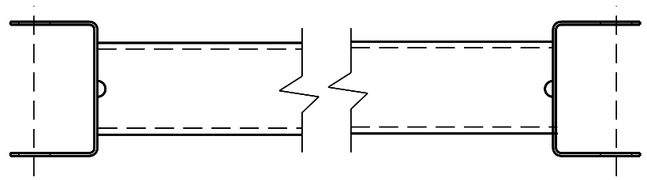
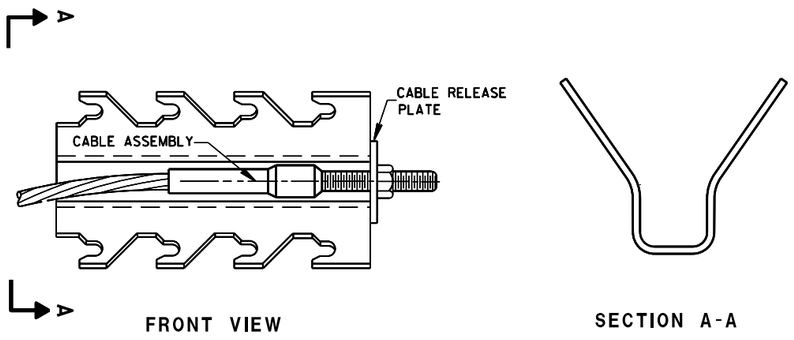
S.D.D. 14 B 44-3a



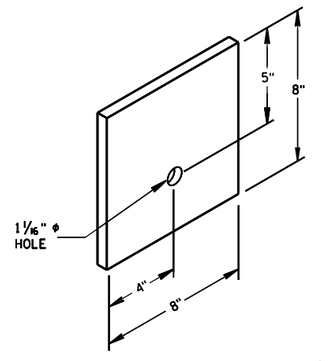
GENERIC GROUND STRUT (9) (H)



GENERIC ANCHOR CABLE BOX (8) (H)

BILL OF MATERIALS

PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	UPPER POST NO. 1 6" X 6" TUBE
(2)	LOWER POST NO. 1
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	IMPACT HEAD
(13)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)
(14)	SOIL PLATE
(15)	UPPER POST NO. 2
(16)	LOWER POST NO. 2



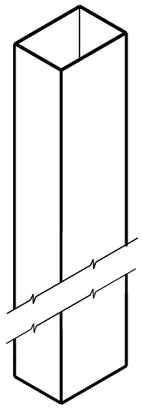
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

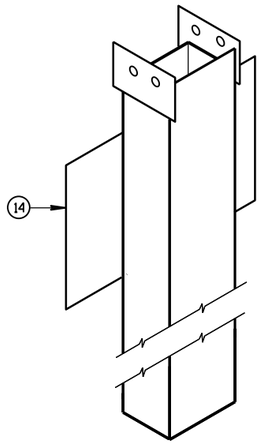
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

6

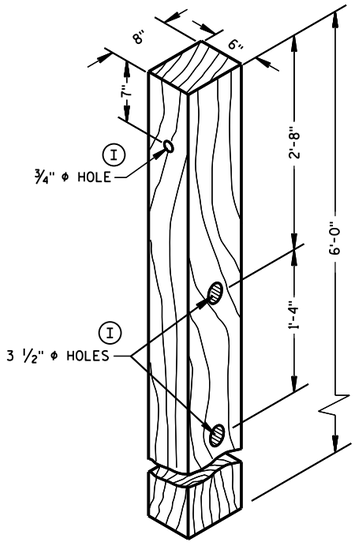
S.D.D. 14 B 44-3b



UPPER POST NO. 1 (1)

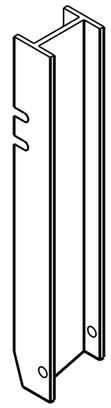


LOWER POST NO. 1 (2)

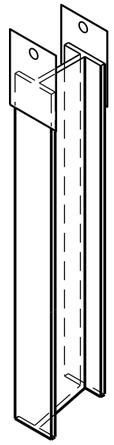


POSTS NUMBER 3-9

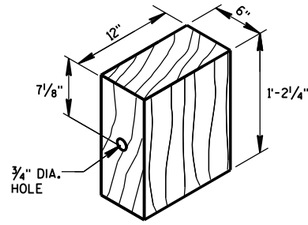
WOOD CRT POST (3)



UPPER POST NO. 2 (15)

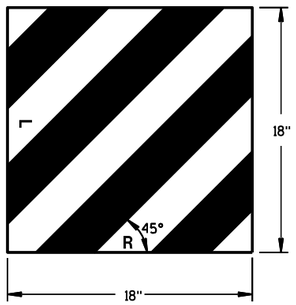


LOWER POST NO. 2 (16)



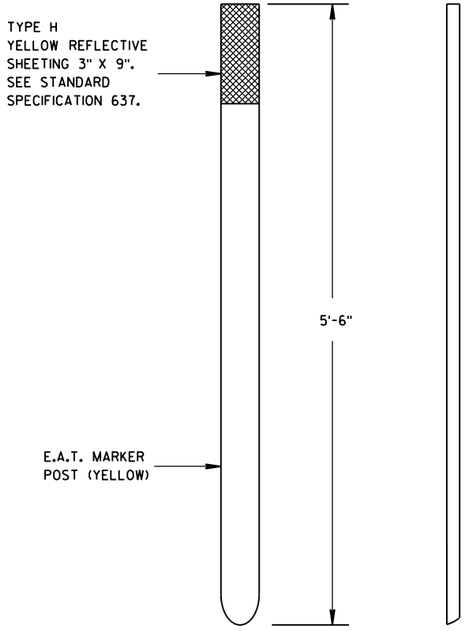
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



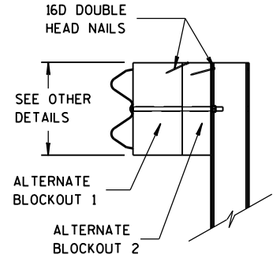
W5-59

REFLECTIVE SHEETING DETAIL (H)

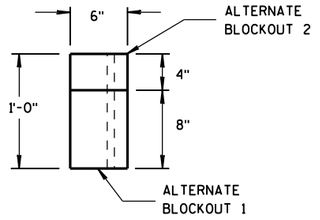


FRONT VIEW SIDE VIEW

E.A.T. MARKER POST (13)



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS
UNIT SUPERVISOR

FHWA

6

S.D.D. 14 B 44-3c

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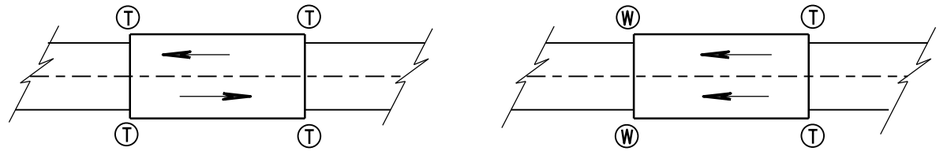
S.D.D. 14 B 44-3c



TWO WAY TRAFFIC

ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

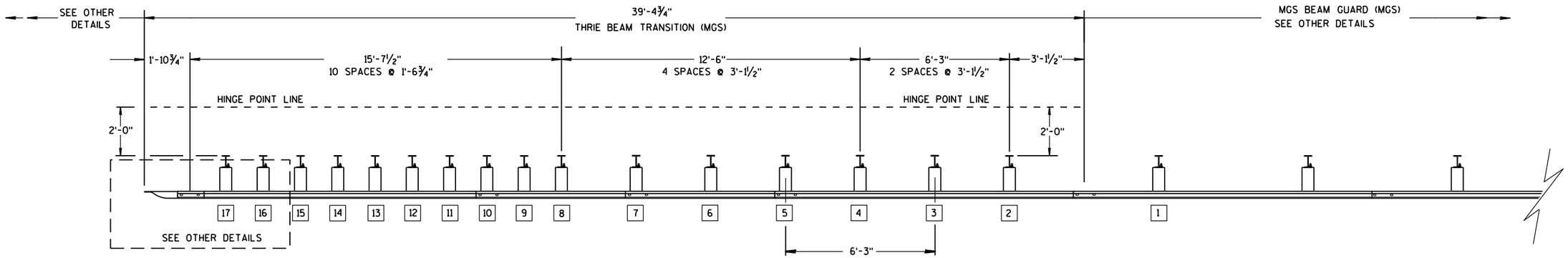
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2½", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

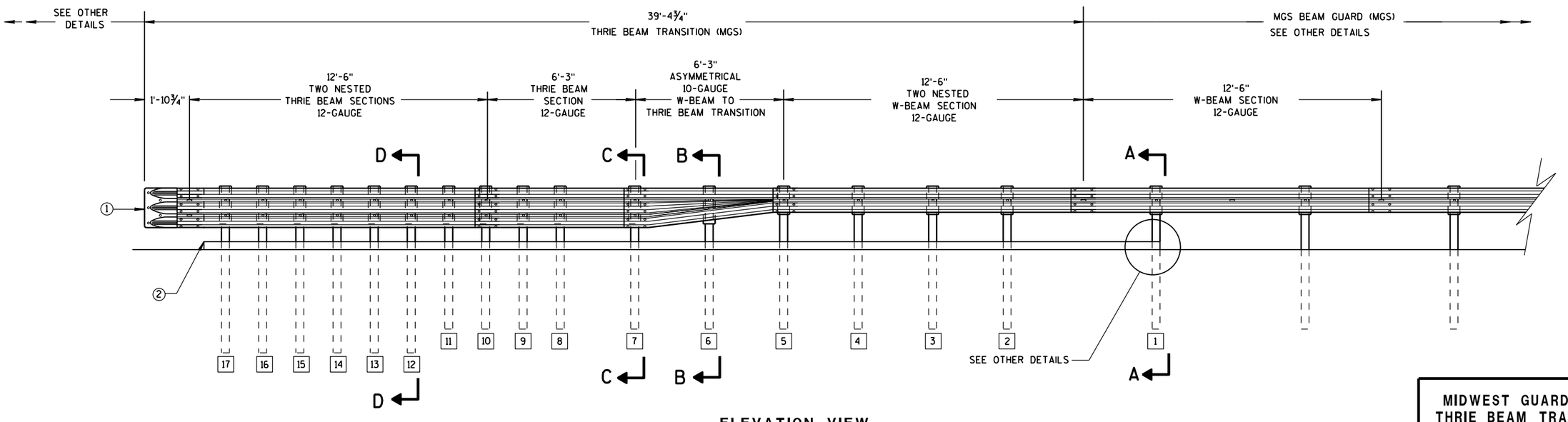
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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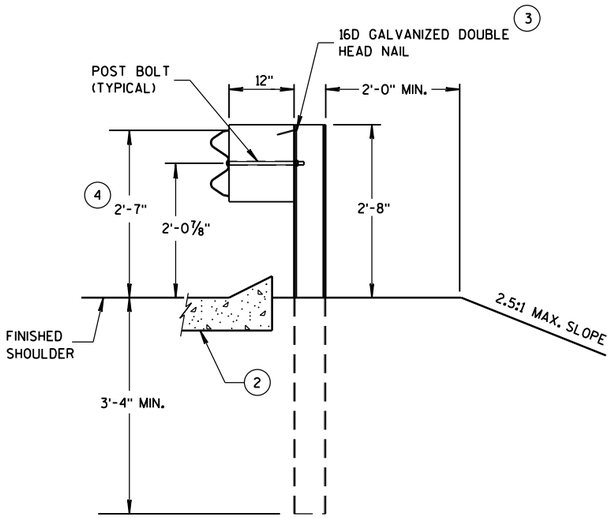
S.D.D. 14 B 45-4a

GENERAL NOTES

(2) OPTIONAL CURB AND GUTTER OR DRAINAGE_FEATURE SEE PLAN FOR INFORMATION.

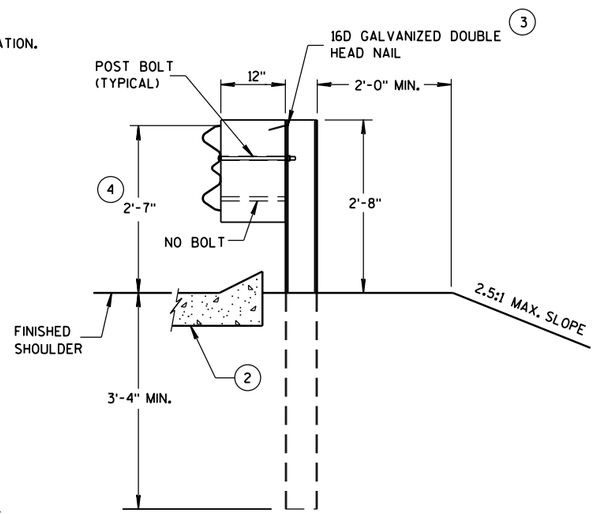
(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



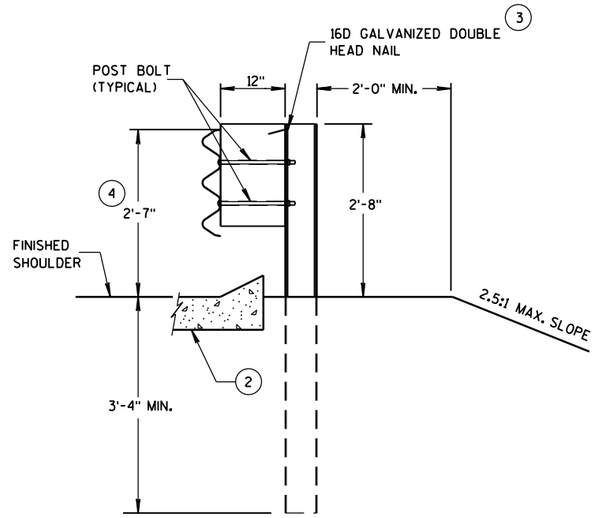
SECTION A-A

POSTS 1-5



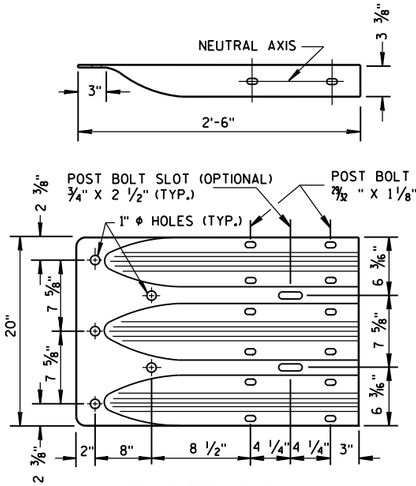
SECTION B-B

POST 6



SECTION C-C

POSTS 7-11



THRIE BEAM TERMINAL CONNECTOR

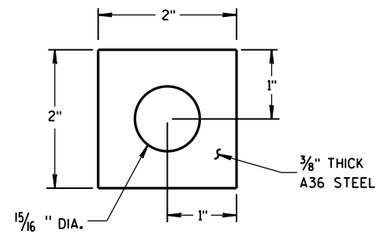
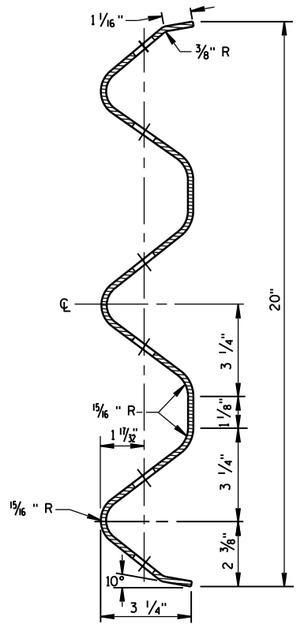
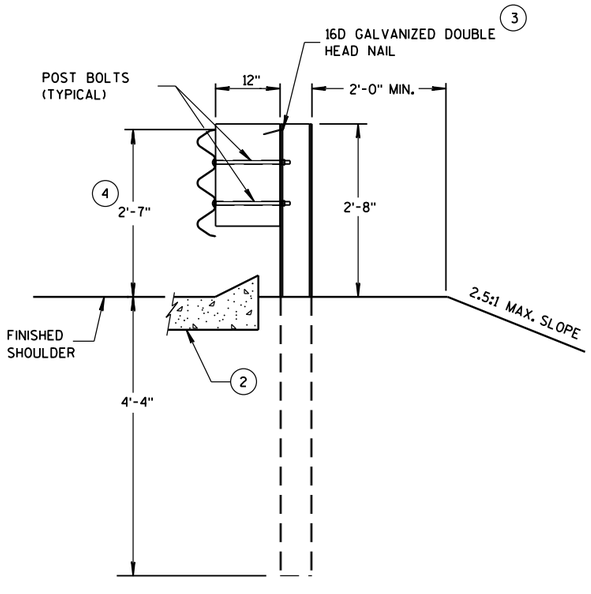


PLATE WASHER DETAIL

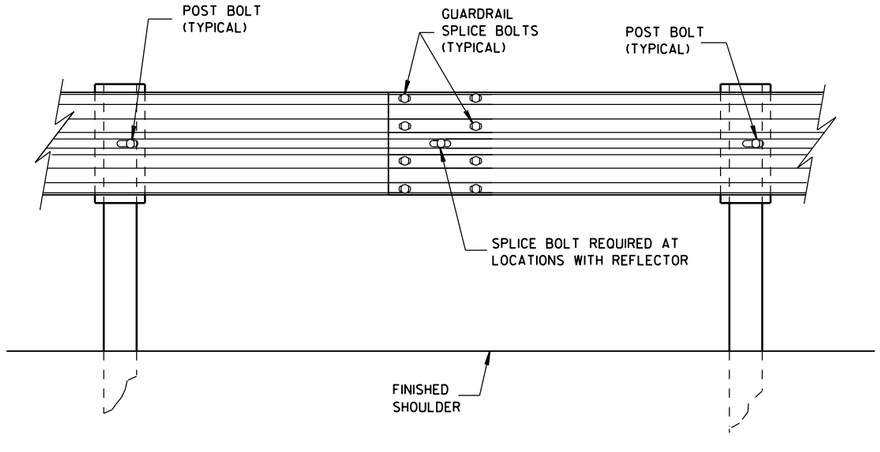


SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION D-D

POSTS 12-17



SPLICE DETAIL

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPO

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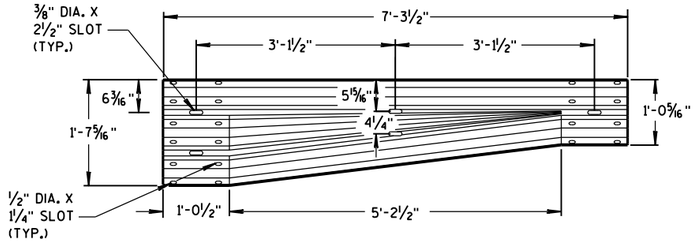
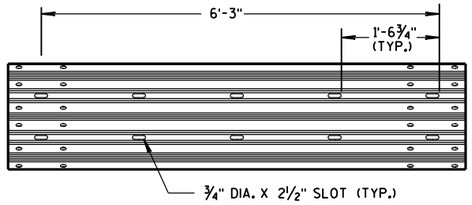
S.D.D. 14 B 45-4b

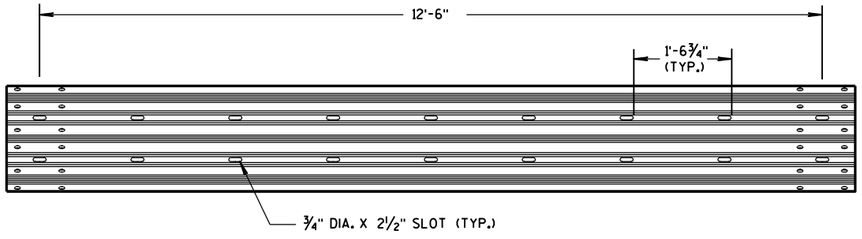
S.D.D. 14 B 45-4b



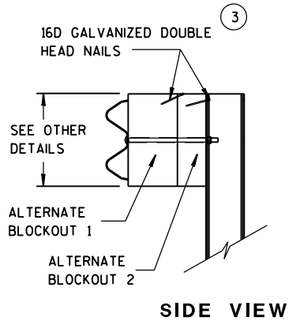
W-BEAM TO THRIE BEAM TRANSITION SECTION



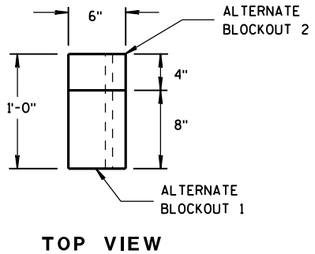
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

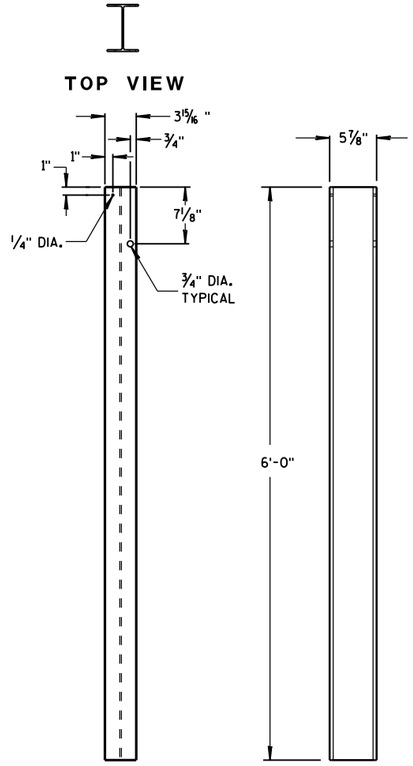


SIDE VIEW



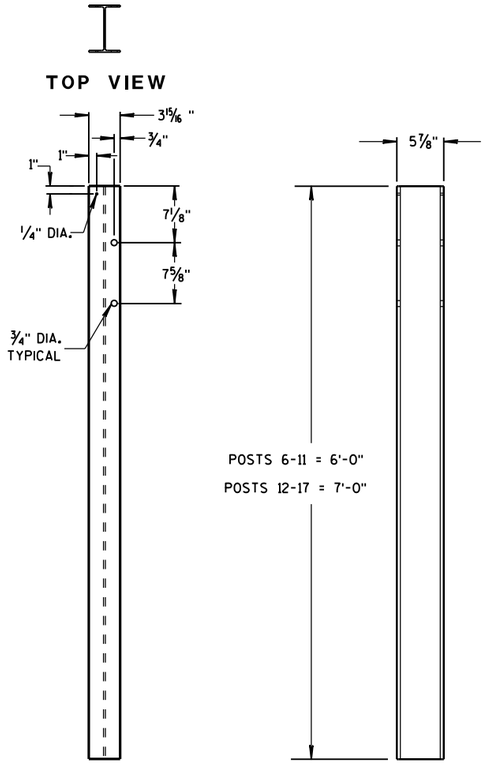
TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL



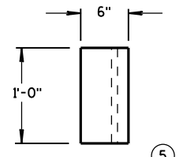
FRONT VIEW SIDE VIEW

STEEL POSTS 1-5

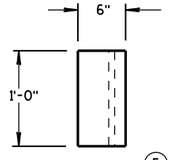


FRONT VIEW SIDE VIEW

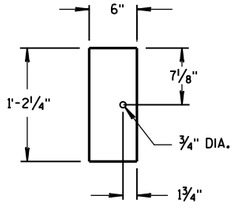
STEEL POSTS 6-17



TOP VIEW (5)

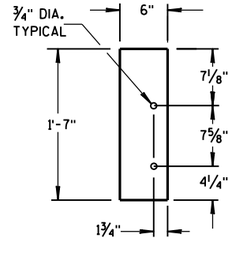


TOP VIEW (5)



FRONT VIEW

BLOCKOUT POSTS 1-5



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

(3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

(5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 14 B 45-4c

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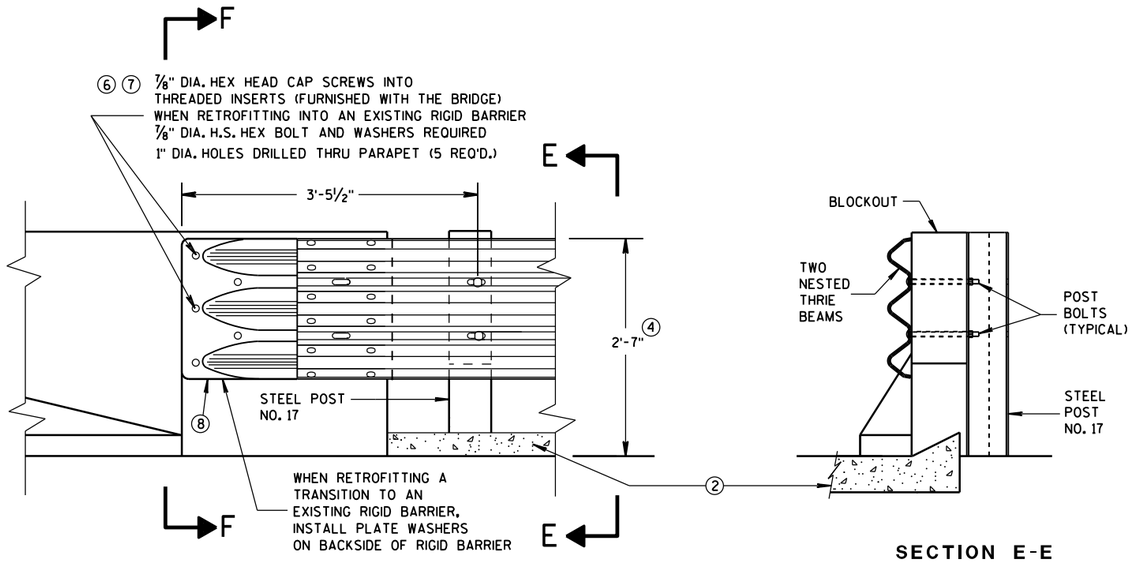
S.D.D. 14 B 45-4c



FRONT VIEW

SECTION E-E

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

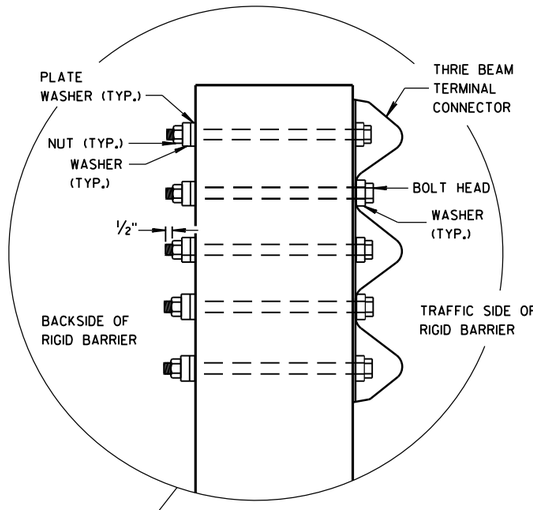
② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

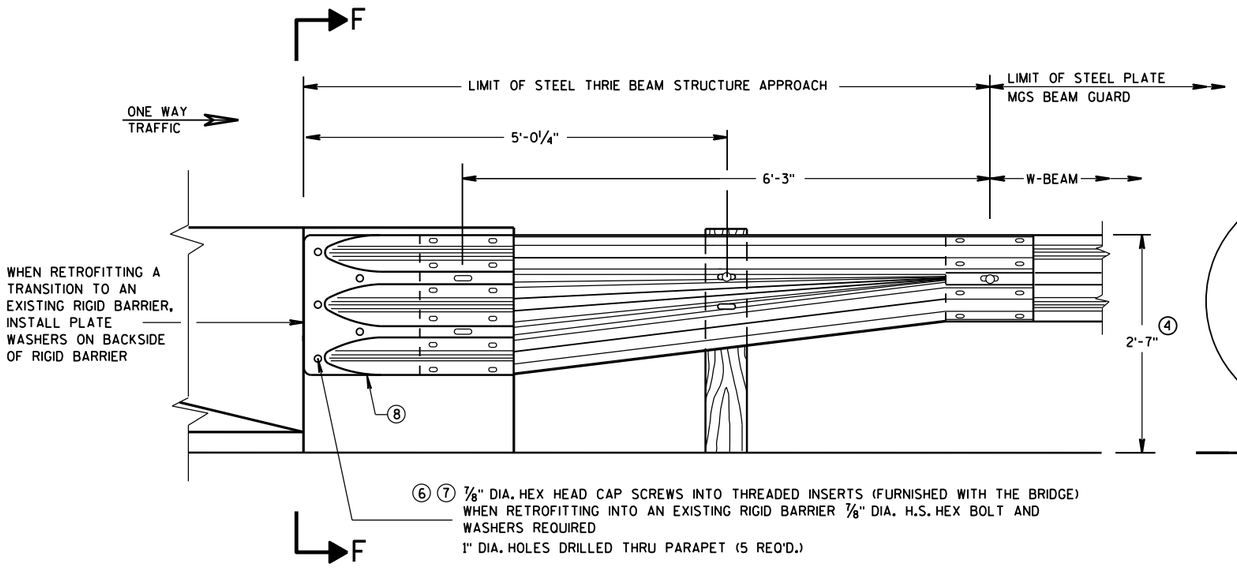
④ TOLERANCE FOR TOP OF BEAM IS ± 1".

⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

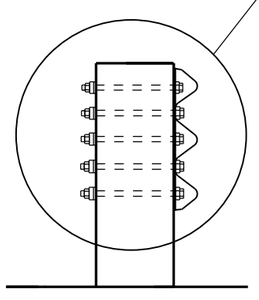
⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".

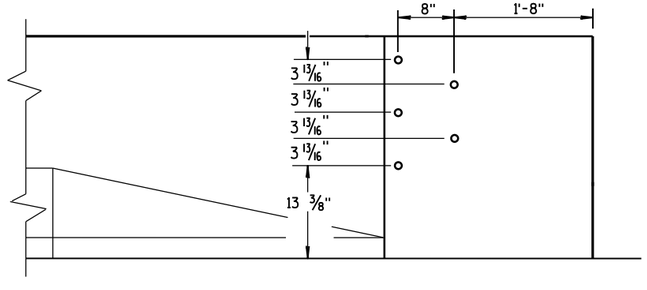




FRONT VIEW



SECTION F-F



DRILL HOLE LOCATION

W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

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S.D.D. 14 B 45-4d

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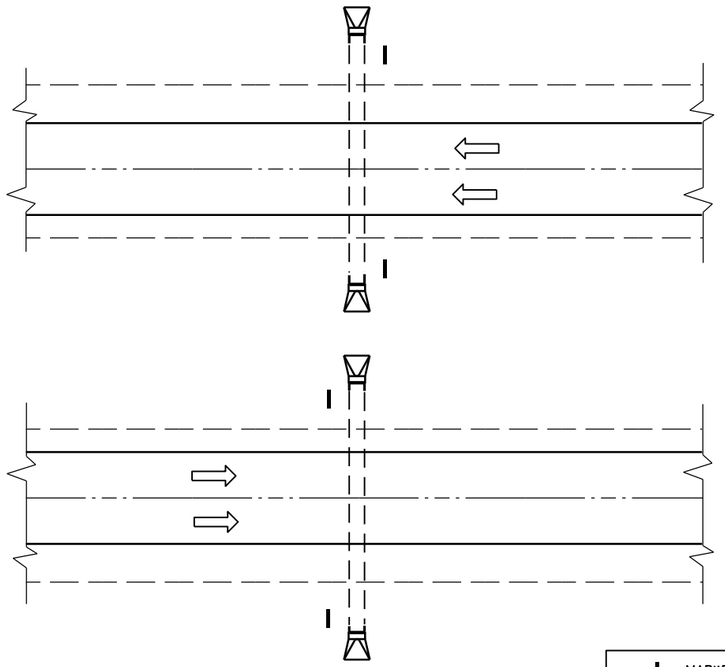
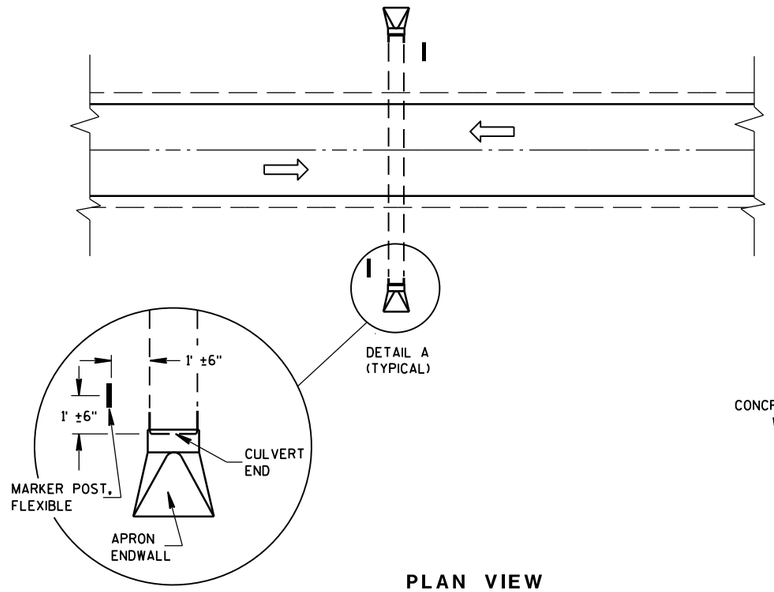
S.D.D. 14 B 45-4d



PLAN VIEW

DIVIDED HIGHWAY



DETAIL A
(TYPICAL)

PLAN VIEW

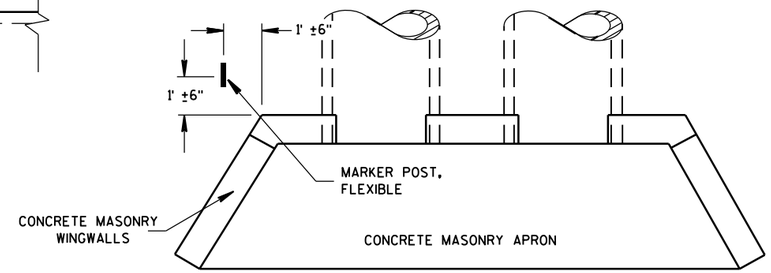
UNDIVIDED HIGHWAY

MARKER POST, FLEXIBLE

DIRECTION OF TRAFFIC FLOW

GENERAL NOTES

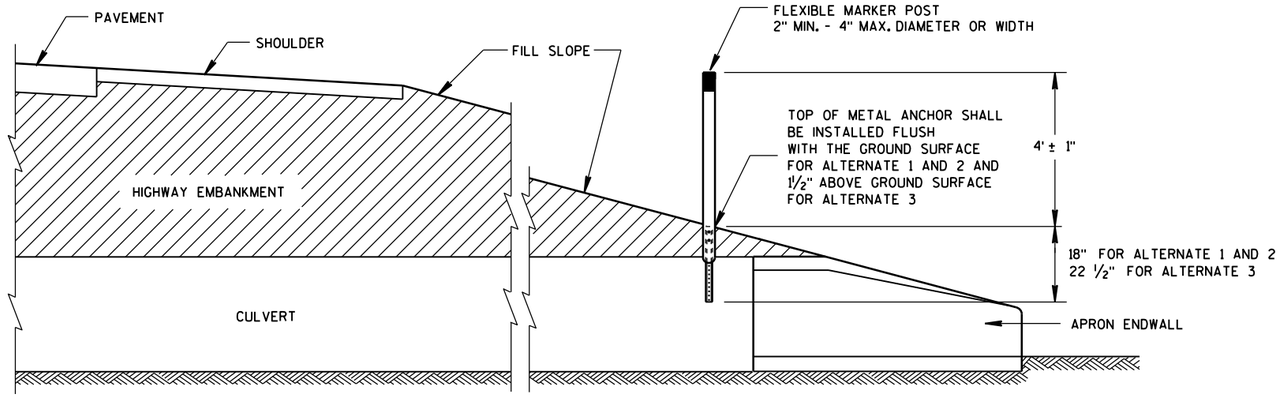
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW

CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION

FLEXIBLE MARKER POST

FLEXIBLE MARKER POST FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 15 A 3-2a

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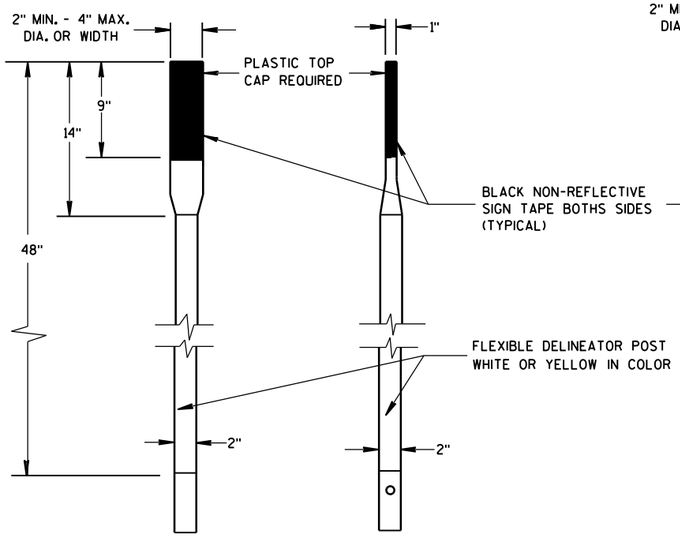
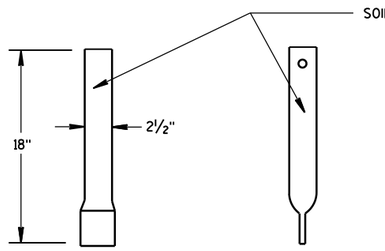
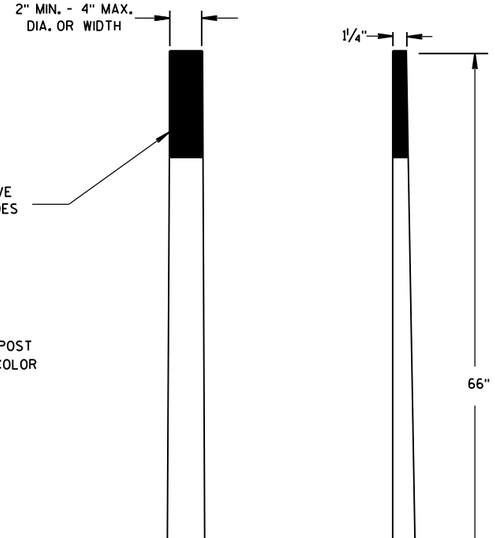
S.D.D. 15 A 3-2a





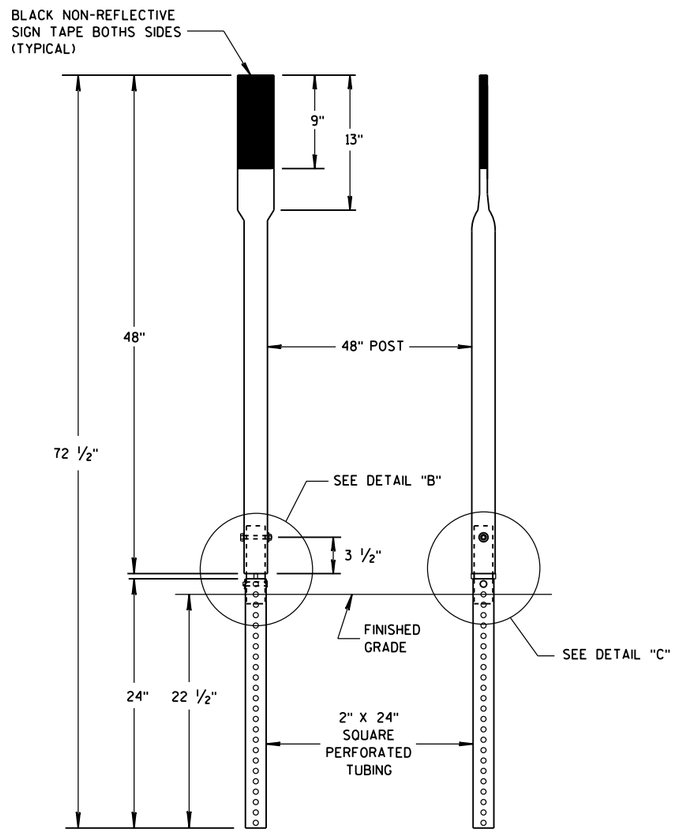
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

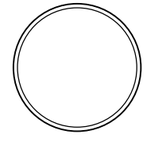
ALTERNATE 2



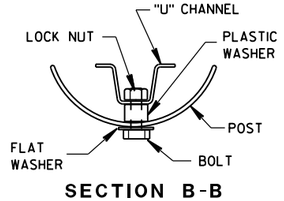
FRONT VIEW SIDE VIEW

ALTERNATE 3

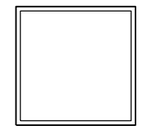
FLEXIBLE MARKER POSTS



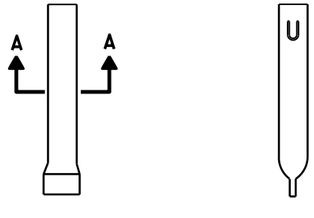
SECTION A-A



SECTION B-B

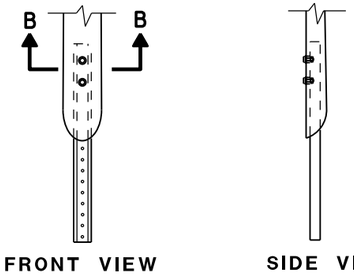


SECTION C-C



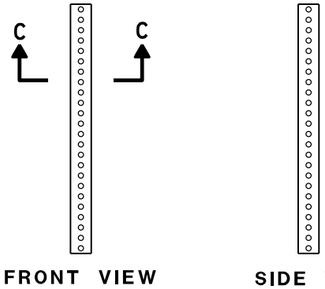
FRONT VIEW SIDE VIEW

ALTERNATE 1



FRONT VIEW SIDE VIEW

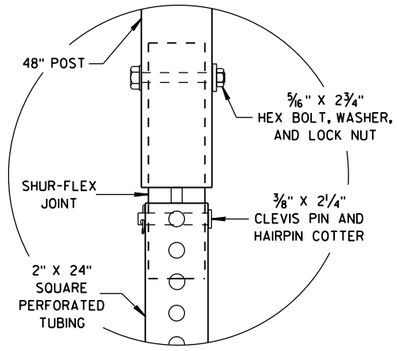
ALTERNATE 2



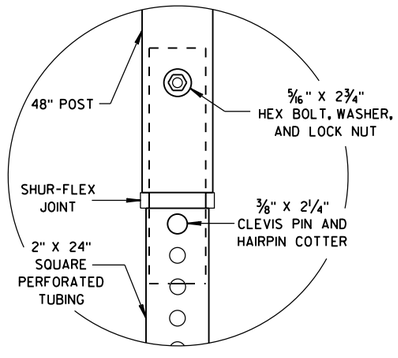
FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST ANCHORS



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
FHWA

6

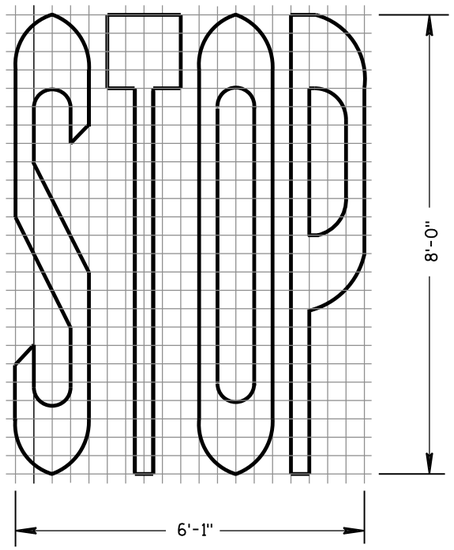
S.D.D. 15 A 3-2b

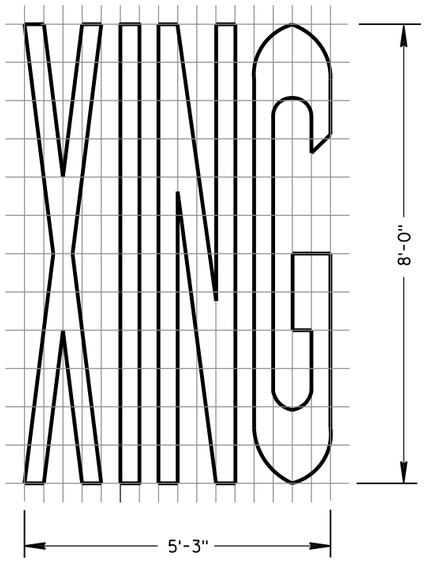
6

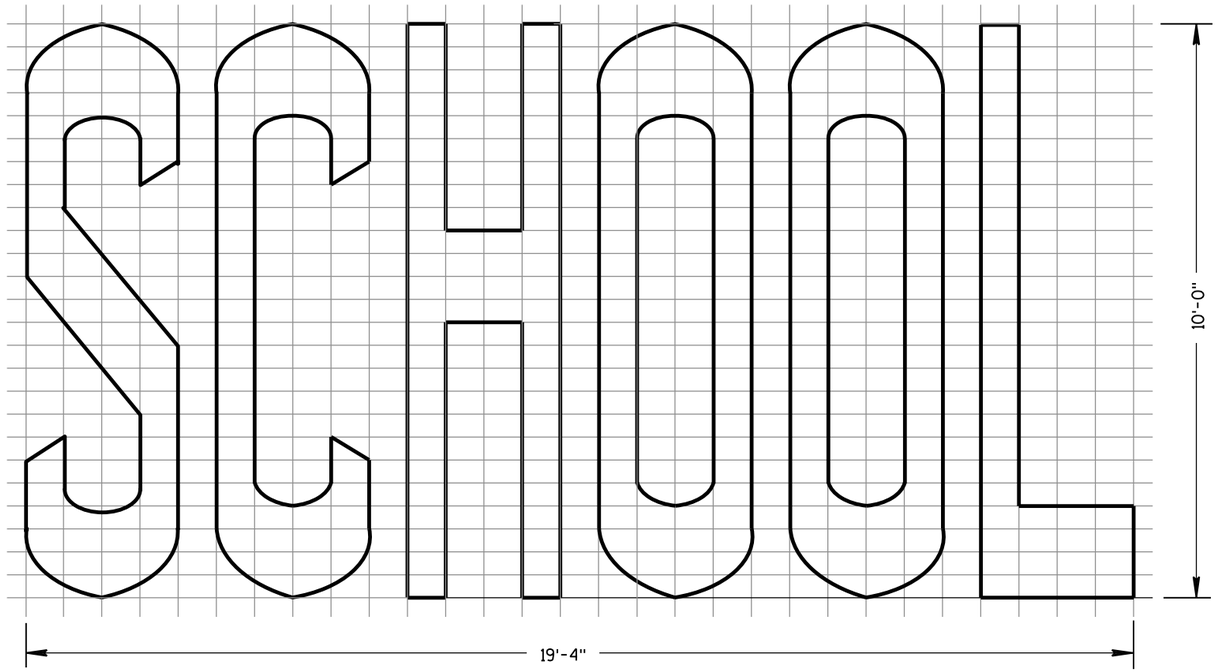
S.D.D. 15 A 3-2b

GENERAL NOTES

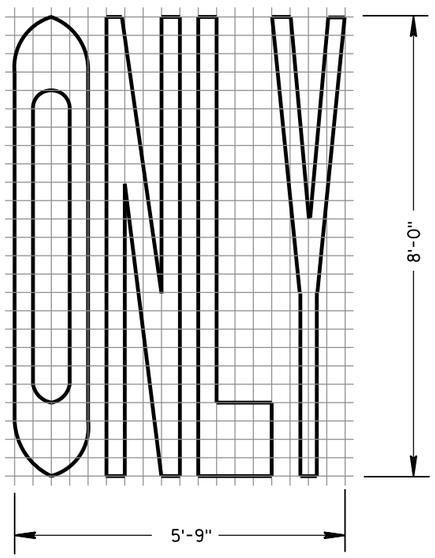
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

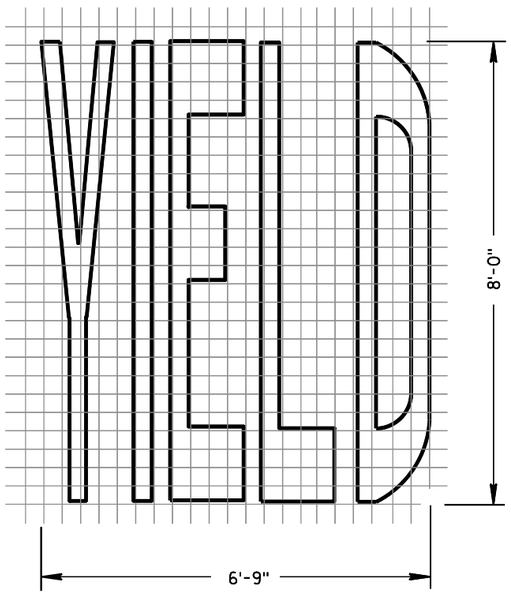


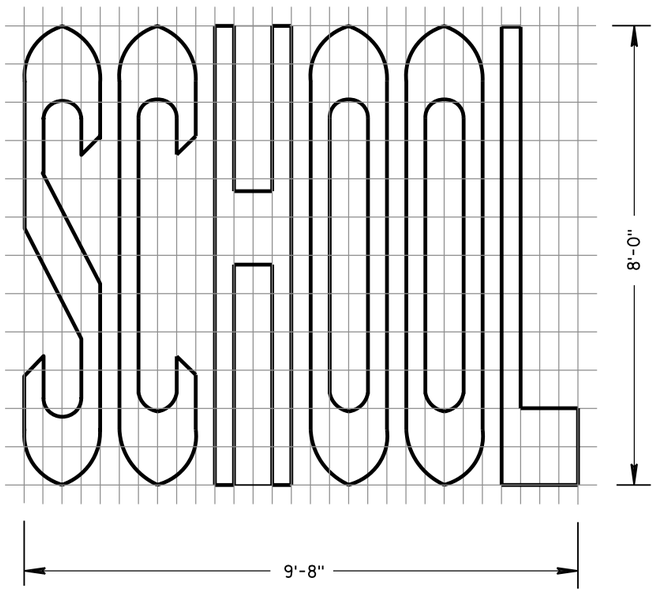




TWO-LANE







SINGLE-LANE

PAVEMENT MARKING WORDS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June 2017 — DATE

/S/ Matthew R. Rauch — STATE SIGNING AND MARK ENGINEER

FHWA

6

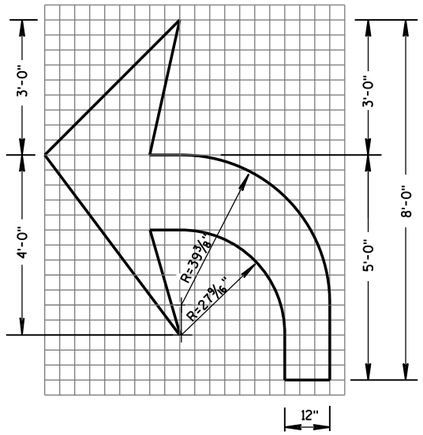
S.D.D. 15 C 7-14b

6

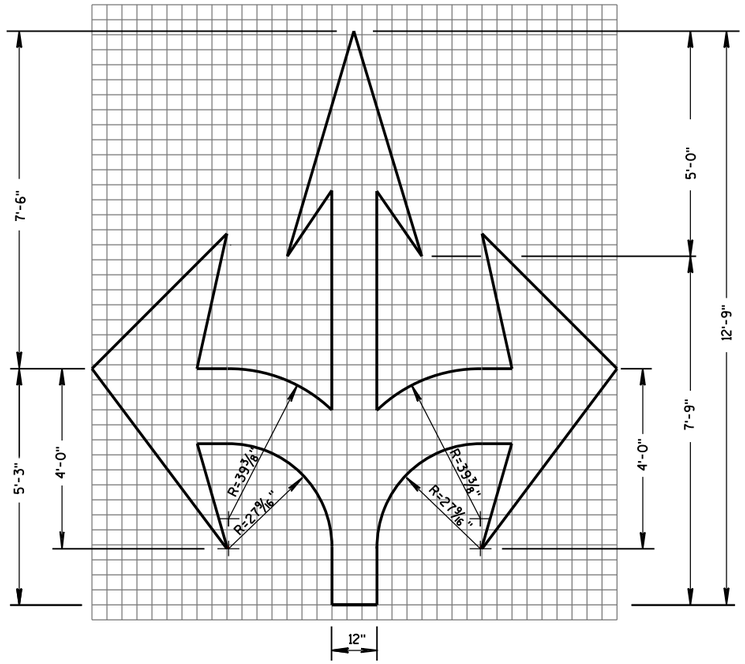
S.D.D. 15 C 7-14b

GENERAL NOTES

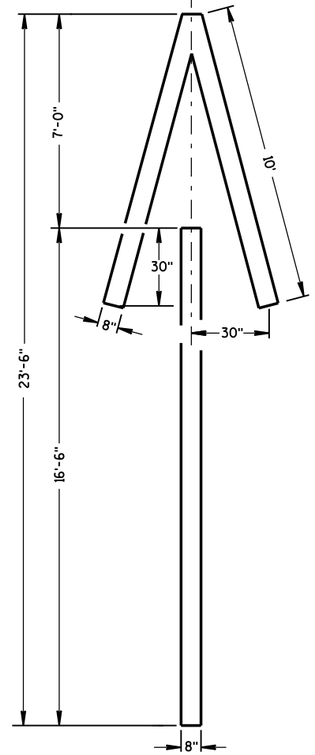
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.



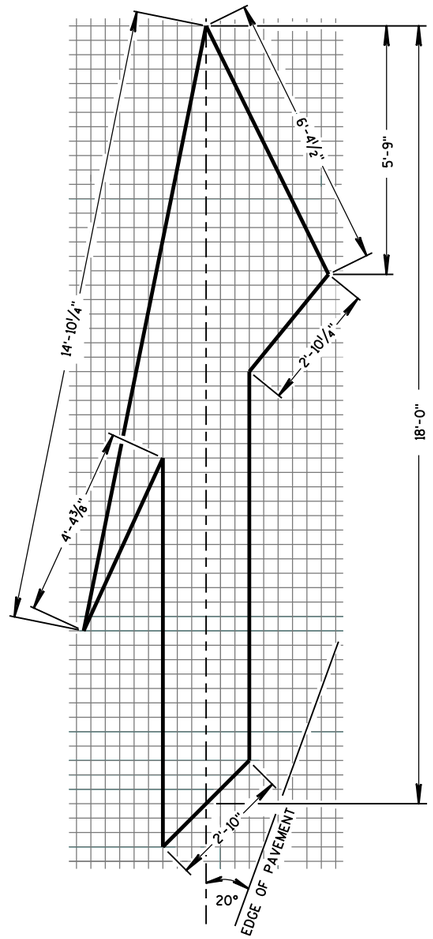
TYPE 2



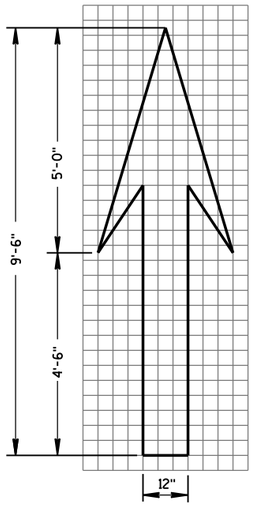
TYPE 6



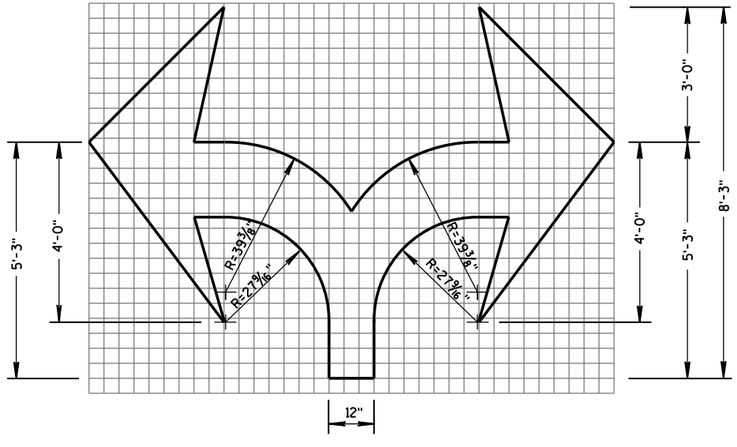
TYPE 4



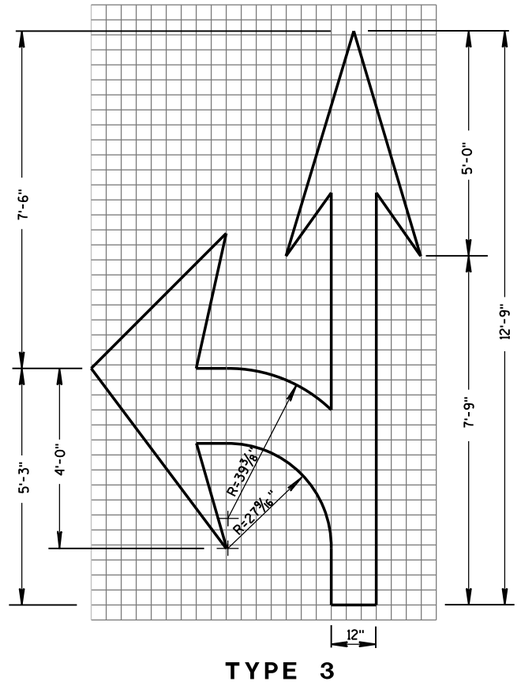
TYPE 5 LANE DROP ARROW



TYPE 1



TYPE 7



TYPE 3

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

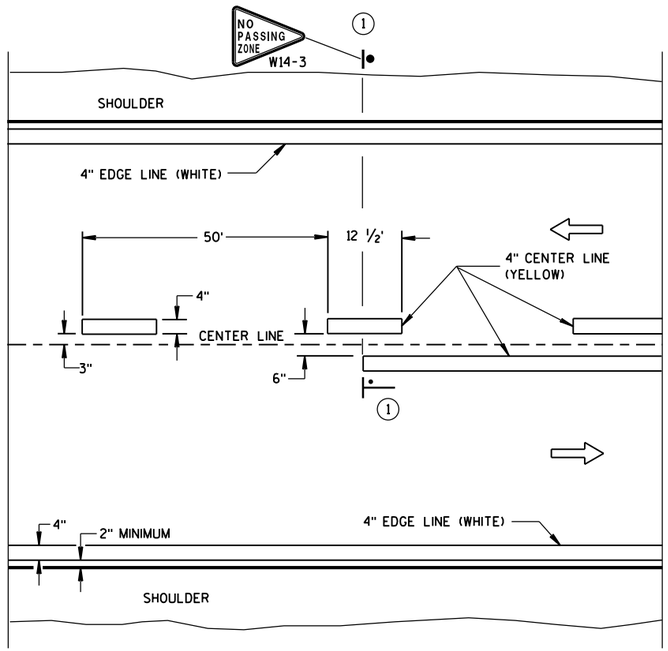
APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible]NEER
FHWA

6

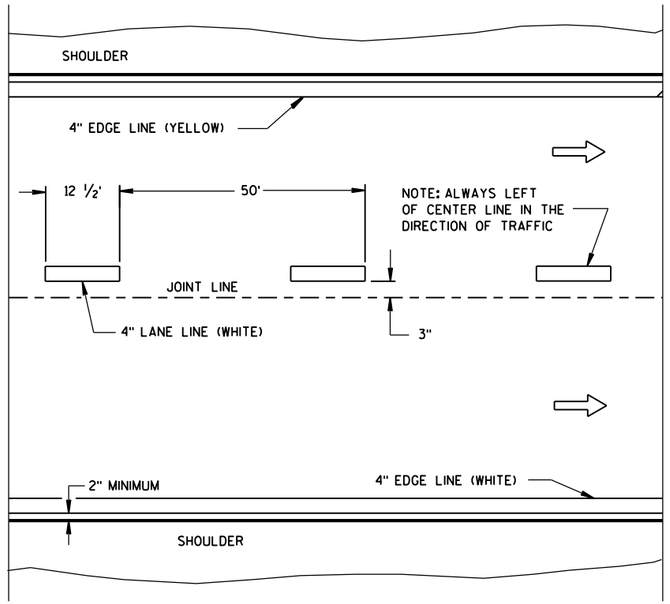
S.D.D. 15 C 7-14c

6

S.D.D. 15 C 7-14c



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

GENERAL NOTES

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

(1) LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

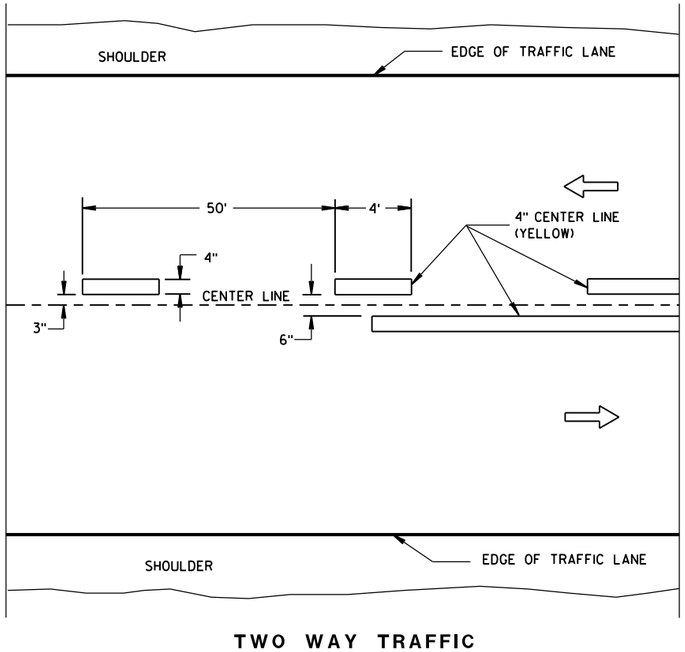
NOTE

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

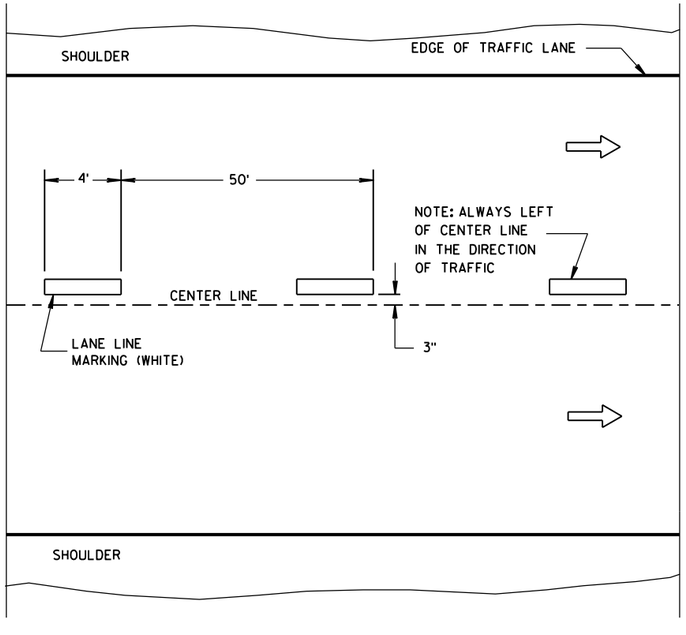
LEGEND

"T" MARKING

POST MOUNTED SIGN



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

LONGITUDINAL MARKING (MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible]INEER
FHWA

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S.D.D. 15 C 8-18a

LEGEND

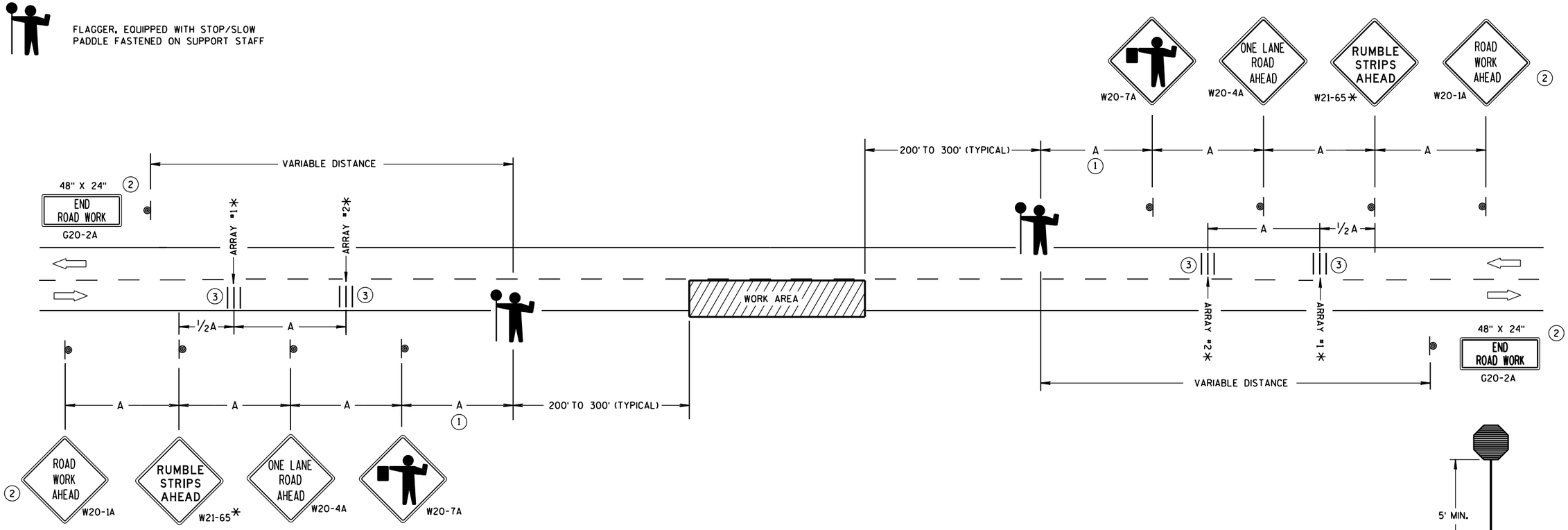
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

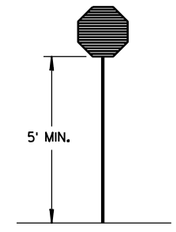
SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

W03-4

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





STOP/SLOW PADDLE ON SUPPORT STAFF

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

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.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES (AND THE 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.

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

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.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

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 RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

* UTILIZE TEMPORARY RUMBLE STRIPS WHEN FLAGGING OPERATION IS ANTICIPATED TO BE STATIONARY IN EXCESS OF TWO HOURS.

(1) FOR A MOVING WORK OPERATION, SIGNING AND TEMPORARY RUMBLE STRIPS (IF USED) SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3,500 FOOT 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.

(3) EACH TEMPORARY RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

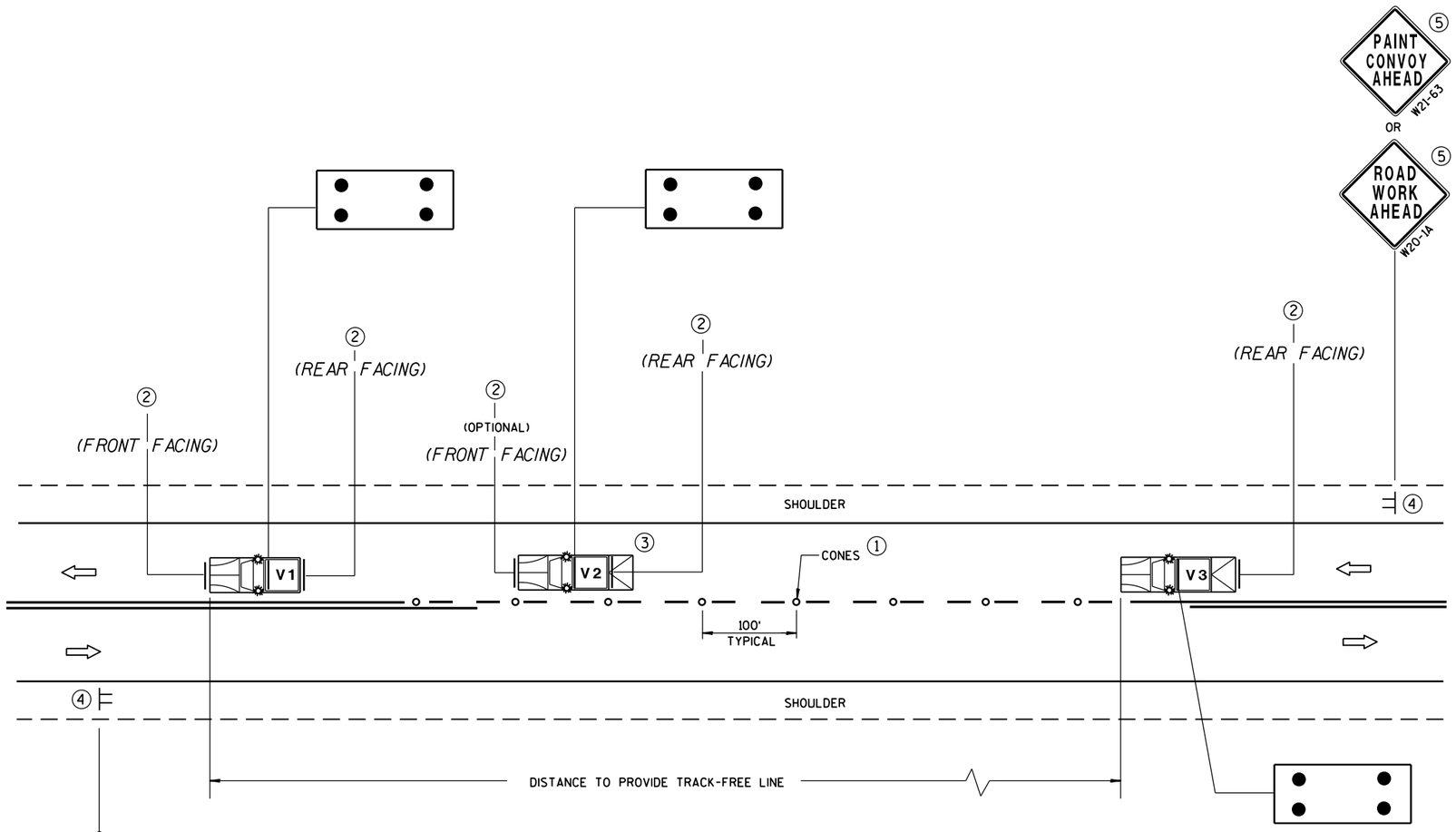
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 — DATE
/S/ Andrew Heldtke — WORK ZONE ENG
FHWA

6

S.D.D. 15 C 12-6



MOVING PAVEMENT MARKING OPERATIONS
TWO-LANE TWO-WAY ROADWAY

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

IF SPEED LIMIT IS 40 MPH OR LESS STATIONARY SIGNS MAY BE OMITTED IF CONES ARE USED.

ALTERNATE SIGN MESSAGES, SUCH AS "PAINT CREW AHEAD" OR "ROAD PAINTING AHEAD" MAY BE USED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

THIS DRAWING SHALL BE USED FOR CENTERLINE OR EDGELINE MARKING.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR TURN THE STATIONARY WARNING SIGNS AWAY FROM TRAFFIC.

(1) CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

(2) USE STANDARD SIGN W21-64 WITH APPROPRIATE ARROW.

WET PAINT W21-64 OR WET PAINT W21-64

(3) OPTIONAL TRUCK-MOUNTED ATTENUATOR.

(4) SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.

(5) IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1 OR W21-63 ARE NOT REQUIRED.

LEGEND

V1	LEAD VEHICLE
V2	SHADOW VEHICLE
V3	TRAIL VEHICLE WITH TMA
TMA	TRUCK-MOUNTED ATTENUATOR
	SIGN ON TEMPORARY SUPPORT
	DIRECTION OF TRAFFIC
	CONES
	FLASHING ARROW PANEL (CAUTION)

MOVING PAVEMENT MARKING OPERATION
TWO-LANE TWO-WAY ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 — DATE
/S/ Peter Amakobe Atepe — STATEWIDE WORK ZON SAFETY ENGINE
FHWA

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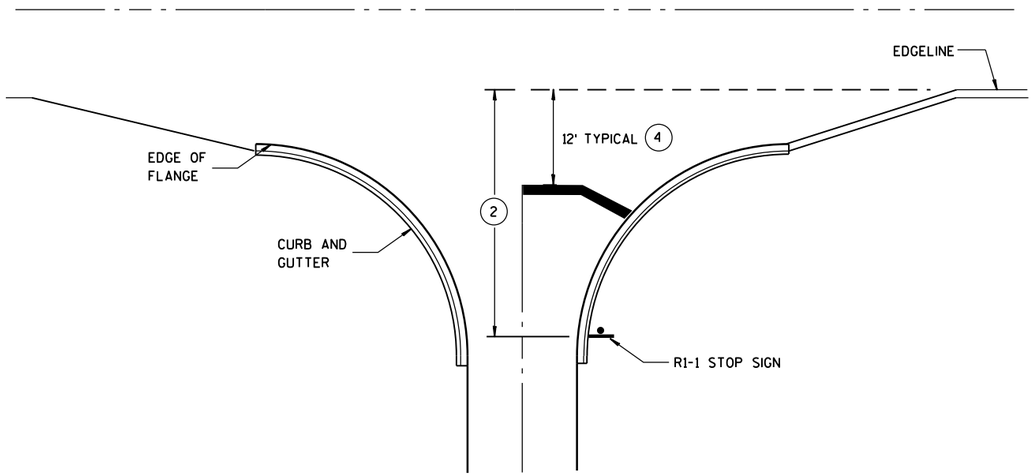
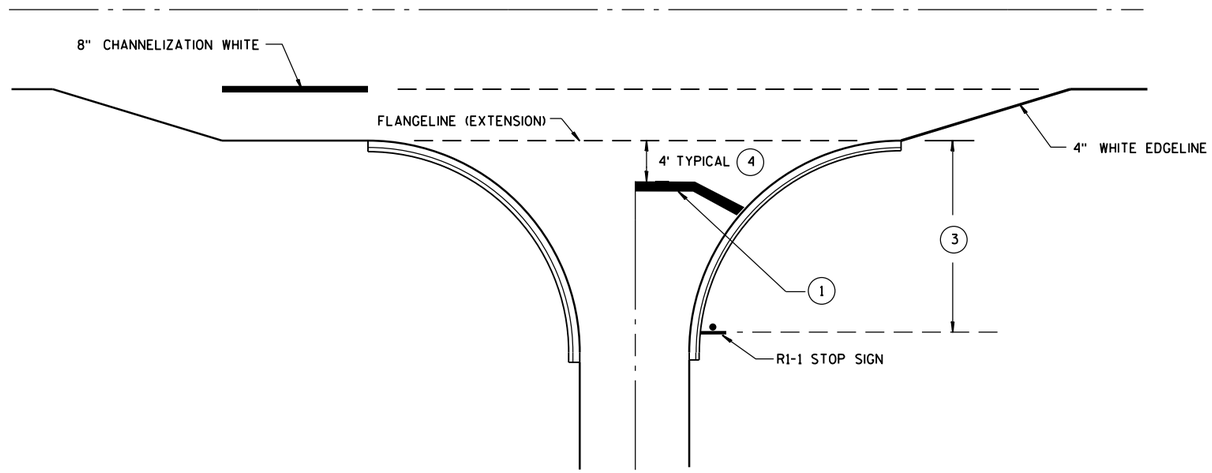
S.D.D. 15 C 19-4a

6

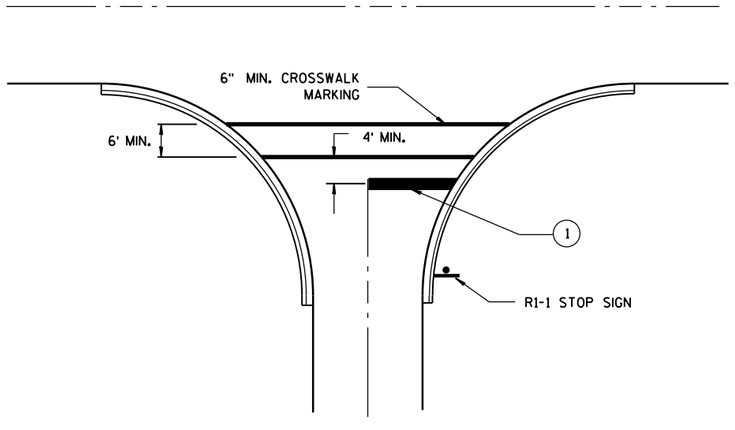
S.D.D. 15 C 19-4a



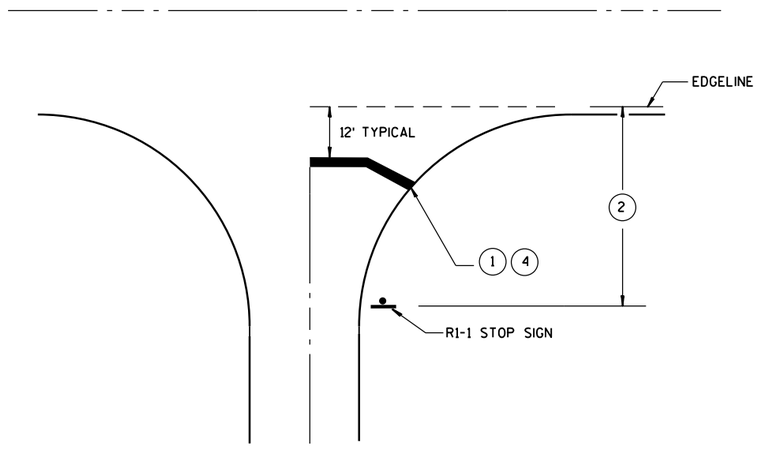
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

1. 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
2. IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE THAN NO STOP LINE IS REQUIRED.
3. IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
4. MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES. (NO CLOSER THAN 4 FEET).

STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

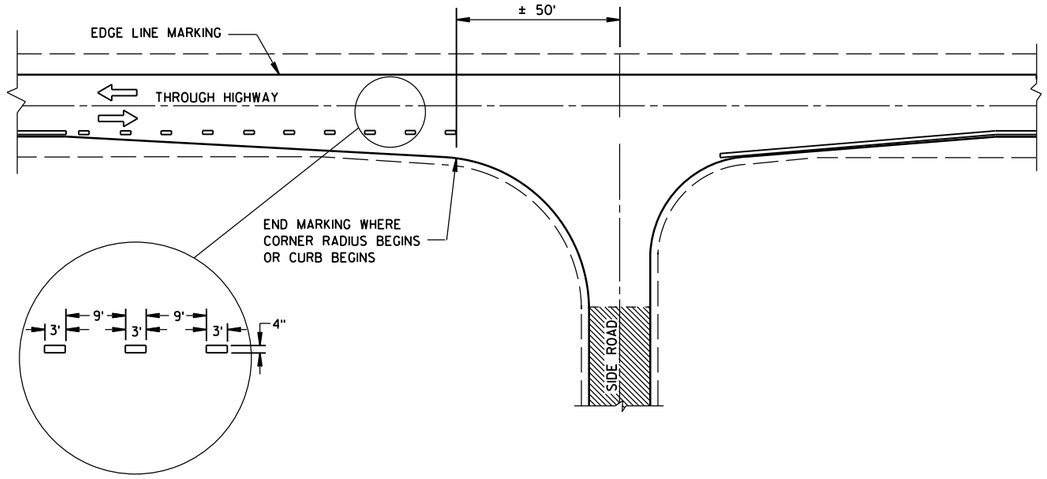
4-18-2016
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MAR[illegible]NEER

FHWA

6

S.D.D. 15 C 33-2



MINOR INTERSECTION WITHOUT CURBS

GENERAL NOTES

EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.

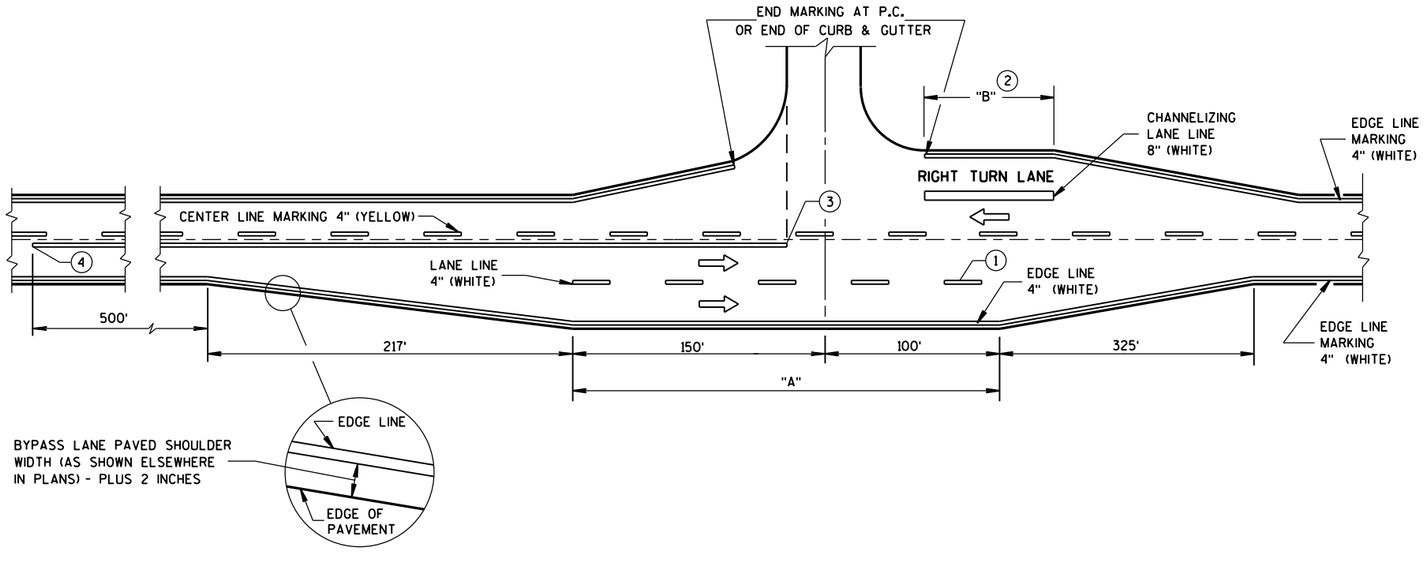
(1) WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.

(2) WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.

(3) BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.

(4) BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL



MAJOR INTERSECTIONS

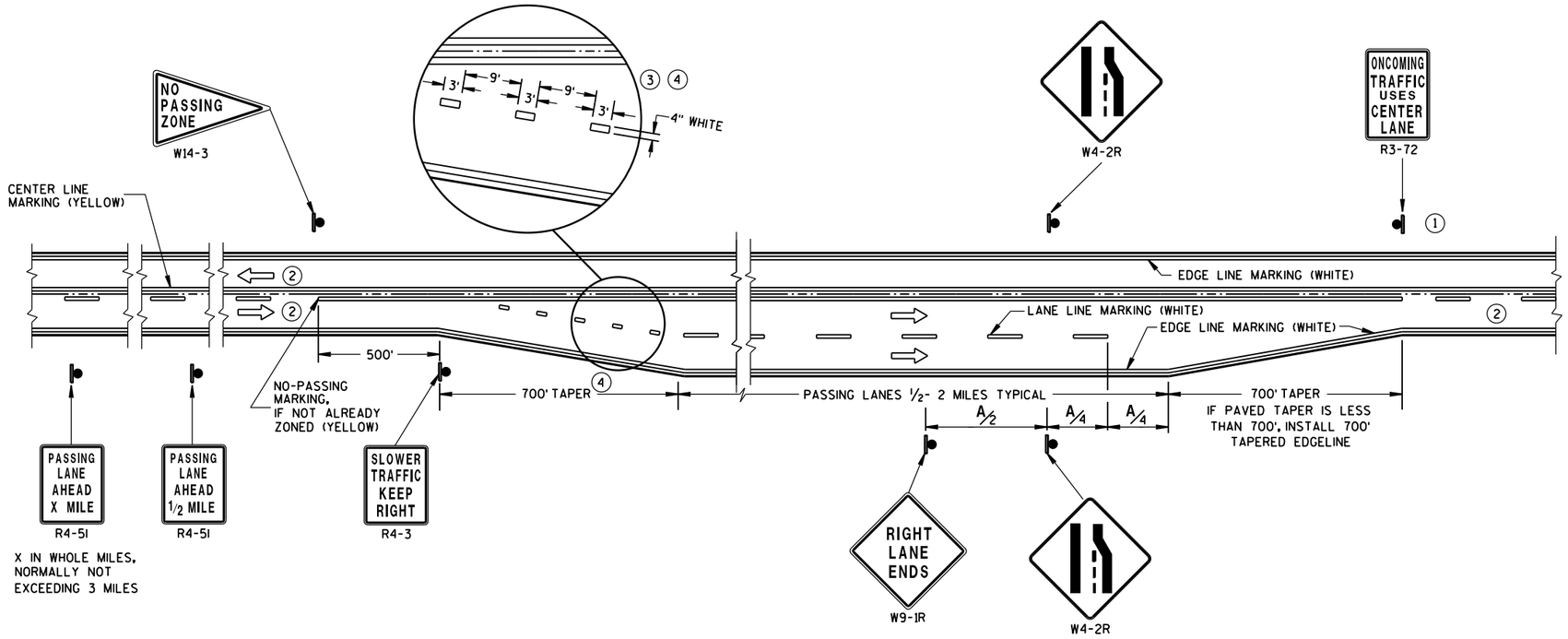
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANES)

PAVEMENT MARKING
(INTERSECTIONS)

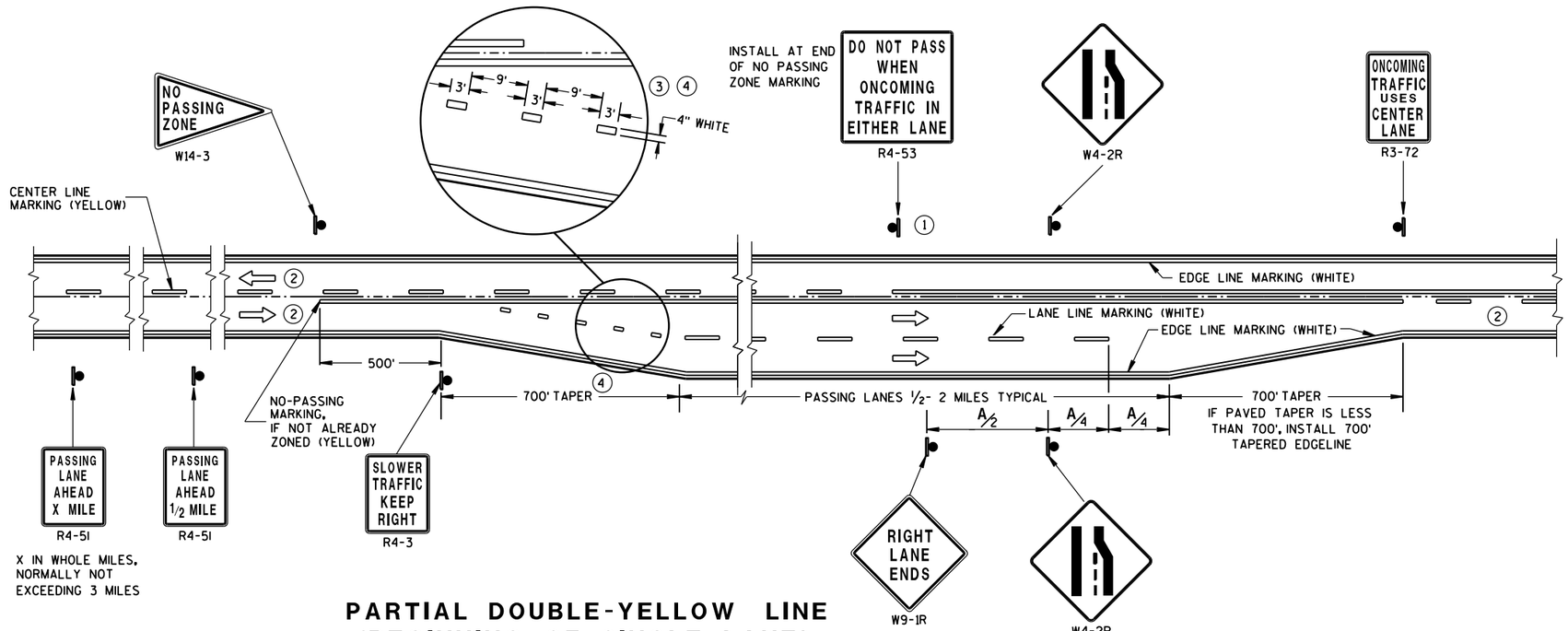
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

S.D.D. 15 C 35-1a



SOLID DOUBLE-YELLOW LINE
(THROUGHOUT ENTIRE PASSING/CLIMBING LANE)



PARTIAL DOUBLE-YELLOW LINE
(BEGINNING OF SINGLE LANE)

GENERAL NOTES

1. SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
2. THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
3. THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3'LINE 9'GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
4. WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING/CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	750
50	850
55	950

PAVEMENT MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

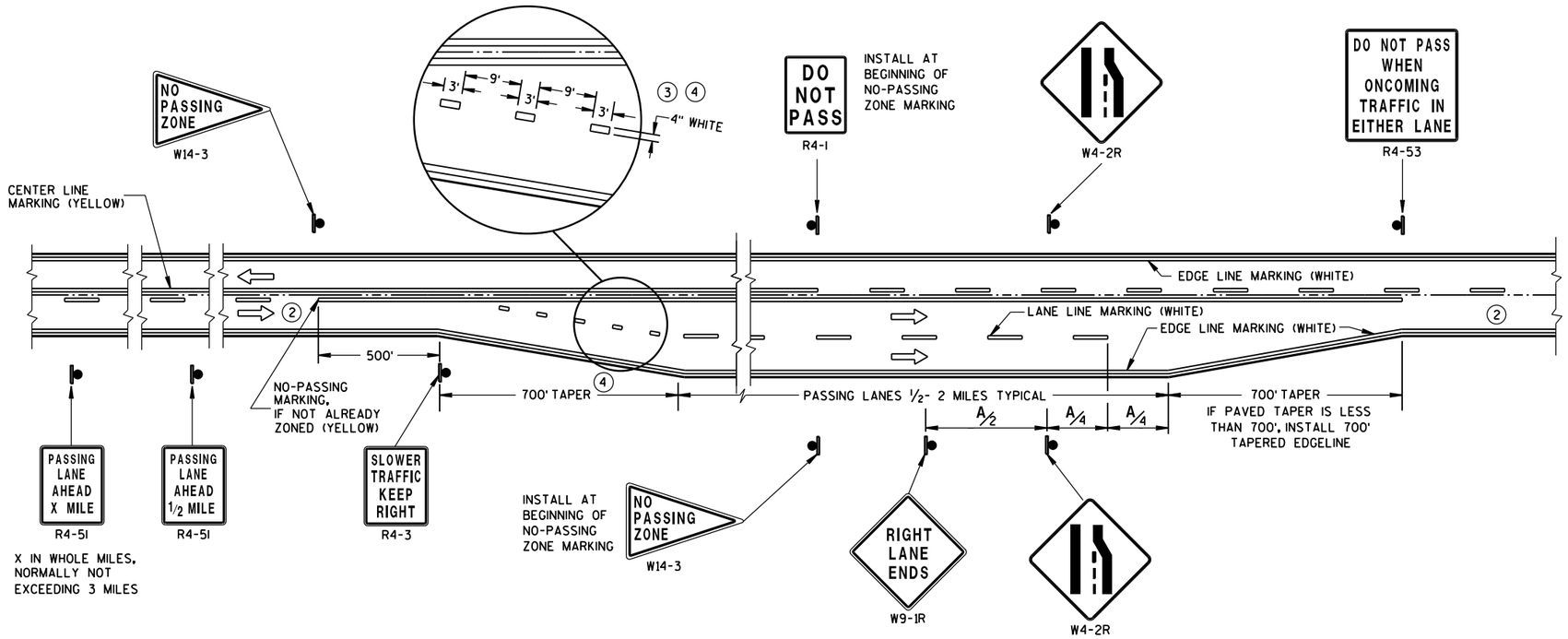
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

6

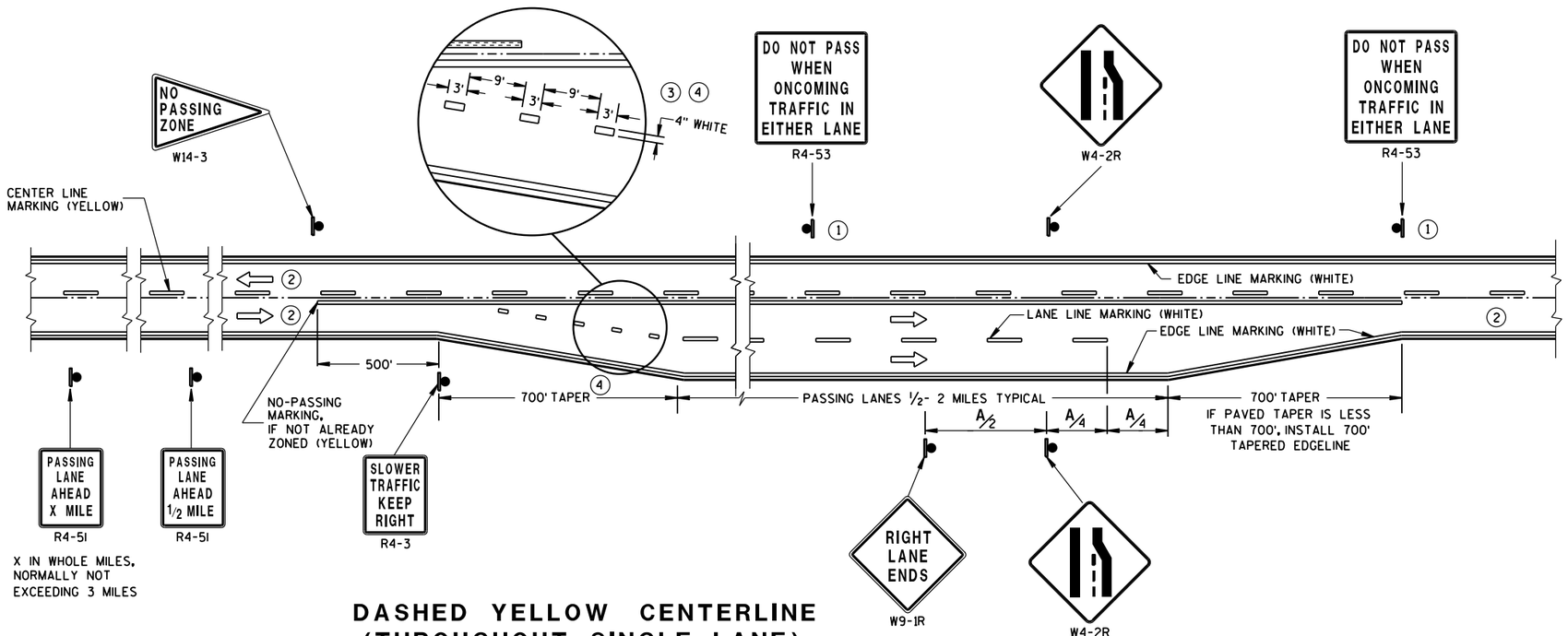
S.D.D. 15 C 35-1b

6

S.D.D. 15 C 35-1b



SOLID DOUBLE-YELLOW LINE (END OF SINGLE LANE)



DASHED YELLOW CENTERLINE (THROUGHOUT SINGLE LANE)

GENERAL NOTES

1. SIGN SHALL BE REPEATED AT ONE MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
2. THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
3. THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3'LINE 9'GAP, EXCEPT RETRACE THE EXISTING LINE-GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
4. WHEN THE ENTRANCE TAPER IS LESS THAN 700 FEET OR THE SHOULDER WIDTH IN THE PASSING/CLIMBING LANE IS LESS THAN THE ADJACENT HIGHWAY, DO NOT INSTALL DOTTED LINE PAVEMENT MARKING.

ARROW SYMBOL (⇨) SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	750
50	850
55	950

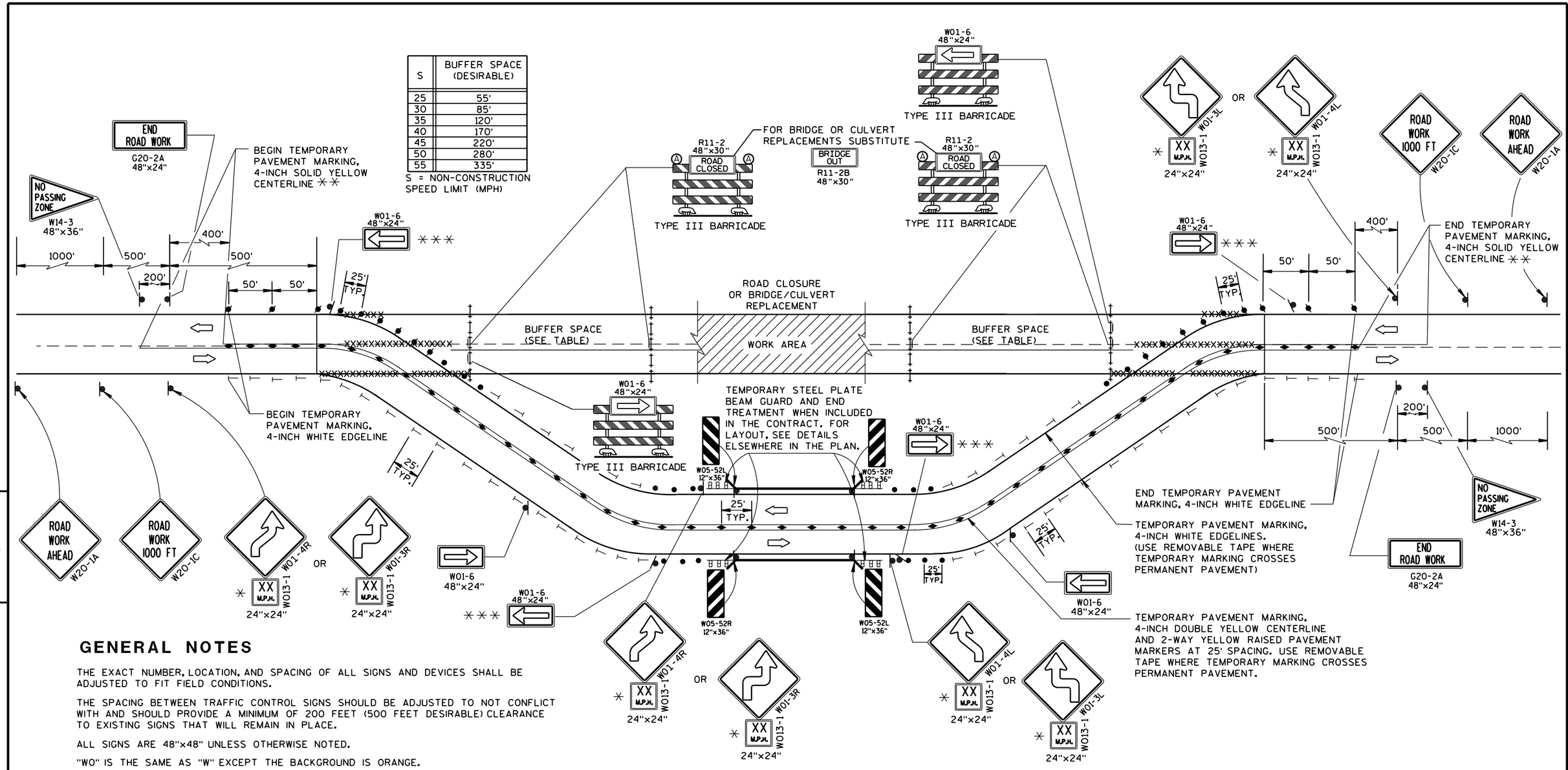
PAVEMENT MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 — DATE
/S/ Matthew R. Rauch — STATE SIGNING AND MAR[illegible] ENGINEER
FHWA

6

S.D.D. 15 C 35-1c



GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED.

EQUIPMENT, VEHICLES, OR MATERIAL SHOULD NOT BE STORED IN BUFFER SPACE.

✳ IF ADVISORY SPEED IS GREATER THAN 30 MPH, USE THE W01-4 SIGN. IF ADVISORY SPEED IS 30 MPH OR LESS, USE THE W01-3 SIGN.

✳✳ WHEN THE DISTANCE TO/FROM THE NEXT CLOSEST NO-PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.

✳✳✳ OMIT THESE W01-6 SIGNS IF THE ADVISORY SPEED OF THE CURVE IS GREATER THAN 30 MPH.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY-BURN LIGHT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)
- TEMPORARY DELINEATOR, (WHITE) (SINGLE DELINEATOR)
- TEMPORARY RAISED PAVEMENT MARKERS (TWO-WAY YELLOW)
- XXX REMOVE PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- TEMPORARY STEEL PLATE BEAM GUARD AND END TREATMENT
- WORK AREA

TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZONE SAFETY ENGINEER

FHWA

FIC

6

S.D.D. 15 D 31-3

6

S.D.D. 15 D 31-3

LEGEND

- SIGN ON PERMANENT SUPPORT
- REMOVING PAVEMENT MARKING
- TYPE III BARRICADE WITH ATTACHED SIGN
- CONCRETE BARRIER TEMPORARY PRECAST
- FLAGS, 16" x 16" MIN., (ORANGE)
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- ASPHALTIC PAVEMENT WIDENING
- DIRECTION OF TRAFFIC
- 4" X 6" WOOD POST
- TEMPORARY SIGNAL WITH BACKPLATE AND 12-INCH LENSES ON BREAKAWAY POLE

INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET.)

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

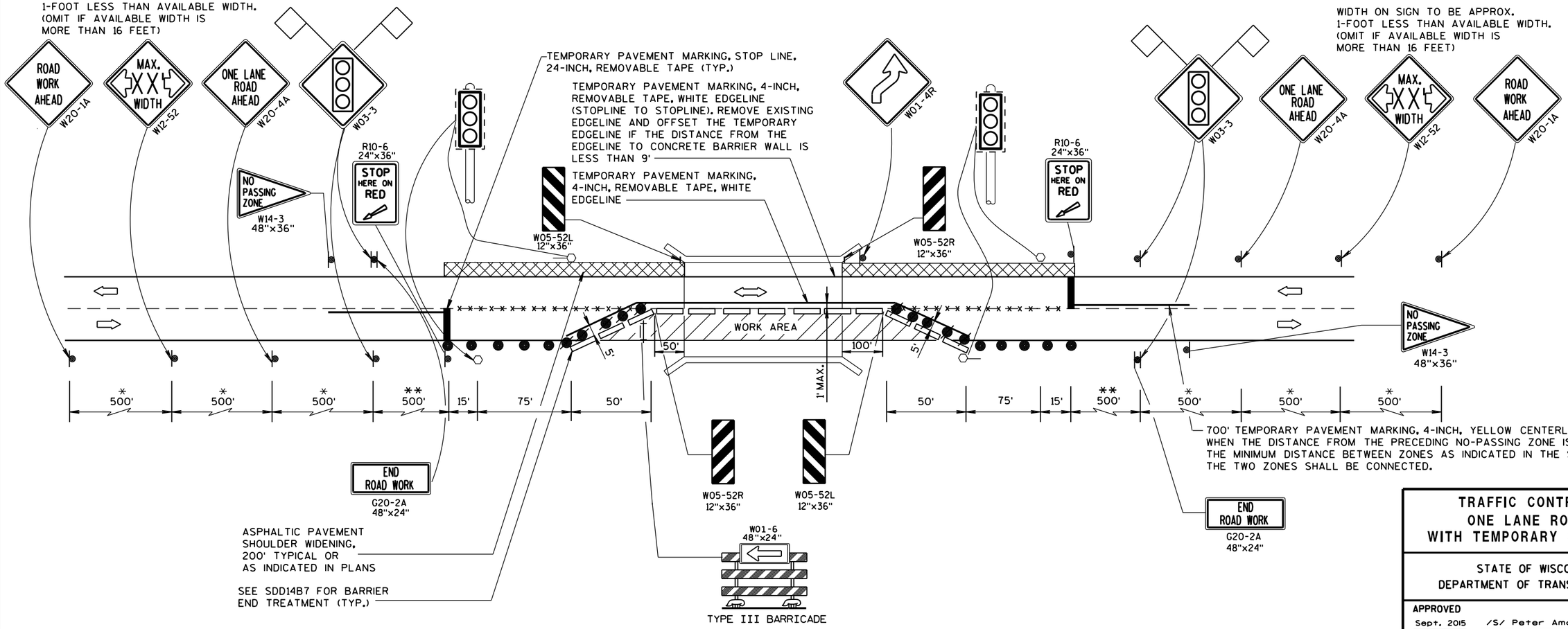
SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

PLACE TEMPORARY PAVEMENT MARKING EDGELINE AND CENTERLINE, AND REMOVE EXISTING PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS OR AS NOTED ON DETAIL.

* 500-FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350-FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200-FOOT TYPICAL SPACING.

** USE 300' SPACING IF PRE-CONSTRUCTION REGULATORY SPEED LIMIT IS 35 MPH OR LESS.



TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2015 — DATE

/S/ Peter Amakobe Atepe — STATEWIDE WORK ZO SAFETY ENGI

FHWA

6

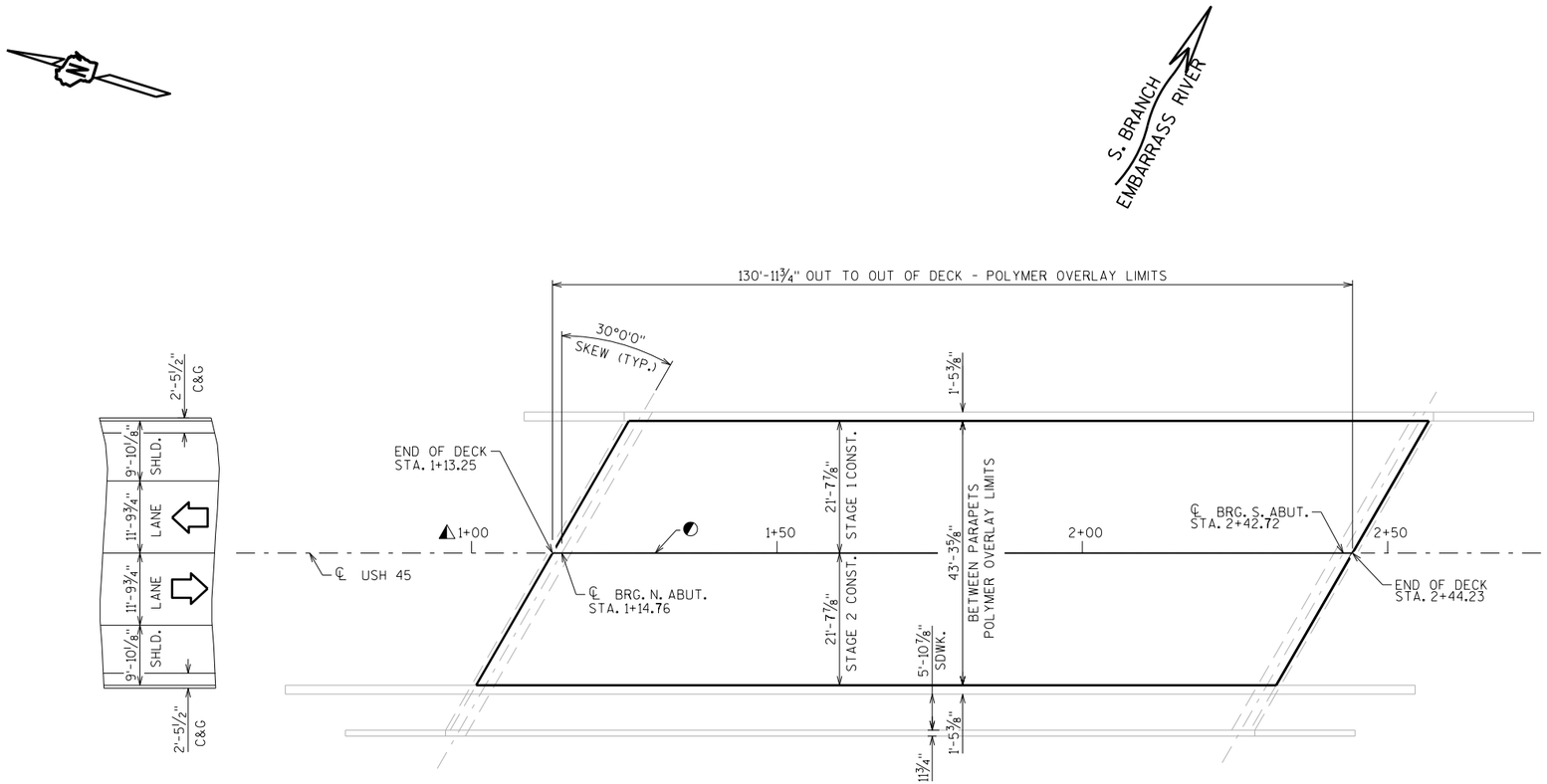
S.D.D. 15 D 33-4

6

S.D.D. 15 D 33-4

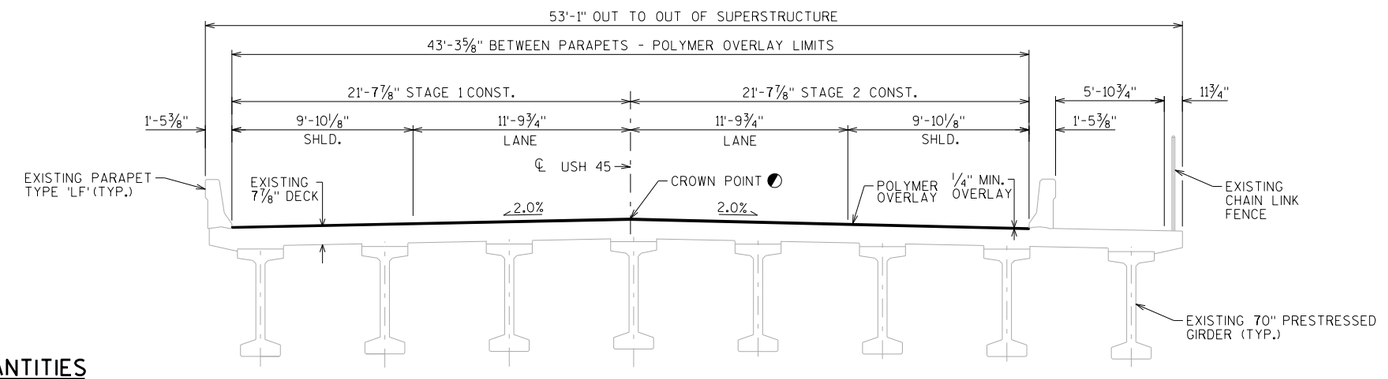
STATE PROJECT NUMBER

1600-22-81



PLAN

SINGLE SPAN 70" PRESTRESSED GIRDER BRIDGE



CROSS SECTION THRU ROADWAY

(LOOKING UPSTATION)

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
509.0301	PREPARATION DECKS TYPE 1	SY	1
509.0302	PREPARATION DECKS TYPE 2	SY	1
509.1500	CONCRETE SURFACE REPAIR	SF	16
509.5100.S	POLYMER OVERLAY	SY	631
SPV.0035	CONCRETE MASONRY DECK REPAIR	CY	1
SPV.0090	SAWING PAVEMENT DECK PREPARATION AREAS	LF	10

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: HS-24
OPERATING RATING: HS-48
MAXIMUM STANDARD PERMIT VEHICLE: 250(KIPS)

MATERIAL PROPERTIES:

CONCRETE MASONRY f'c = 4,000 P.S.I.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

DECK SURFACE PREPARATION IS INCLUDED IN THE BID ITEM "POLYMER OVERLAY".

"CONCRETE SURFACE REPAIR" LOCATIONS SHALL BE DETERMINED BY THE FIELD ENGINEER.

AREAS OF "PREPARATION DECKS TYPE 1" AND "PREPARATION DECKS TYPE 2" SHALL BE DEFINED BY A SAW CUT.

"PREPARATION DECKS TYPE 1" AND "PREPARATION DECKS TYPE 2" AREAS ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. DECK PREPARATION REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY DECK REPAIR".

TRAFFIC VOLUME

USH 45

ADT = 3,800 (2009)
R.D.S. = 60 M.P.H.

LIST OF DRAWINGS

1. POLYMER OVERLAY

◐ LONGITUDINAL CONSTRUCTION JOINT
◭ STA. 21+400 ORIGINAL PLANS

STRUCTURE DESIGN CONTACTS:

DAN MONROE (608) 266-8490
LAURA SHADEWALD (608) 267-9592

NO.	DATE	REVISION	BY

BUREAU OF STRUCTURES

ACCEPTED William C. Ducker 11/27/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-58-103

USH 45 OVER SOUTH BRANCH EMBARASS RIVER

COUNTY	~~TOWN/CITY~~/VILLAGE
SHAWANO	TIGERTON

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGNED CK'D.	DRAWN BY	PLANS CK'D.
DLM	MJL	DLM	MJL

POLYMER OVERLAY

SHEET 1 OF 1

115

I.D. 1600-22-31B DATE: MAY 2017

SCALE = 12.00

8

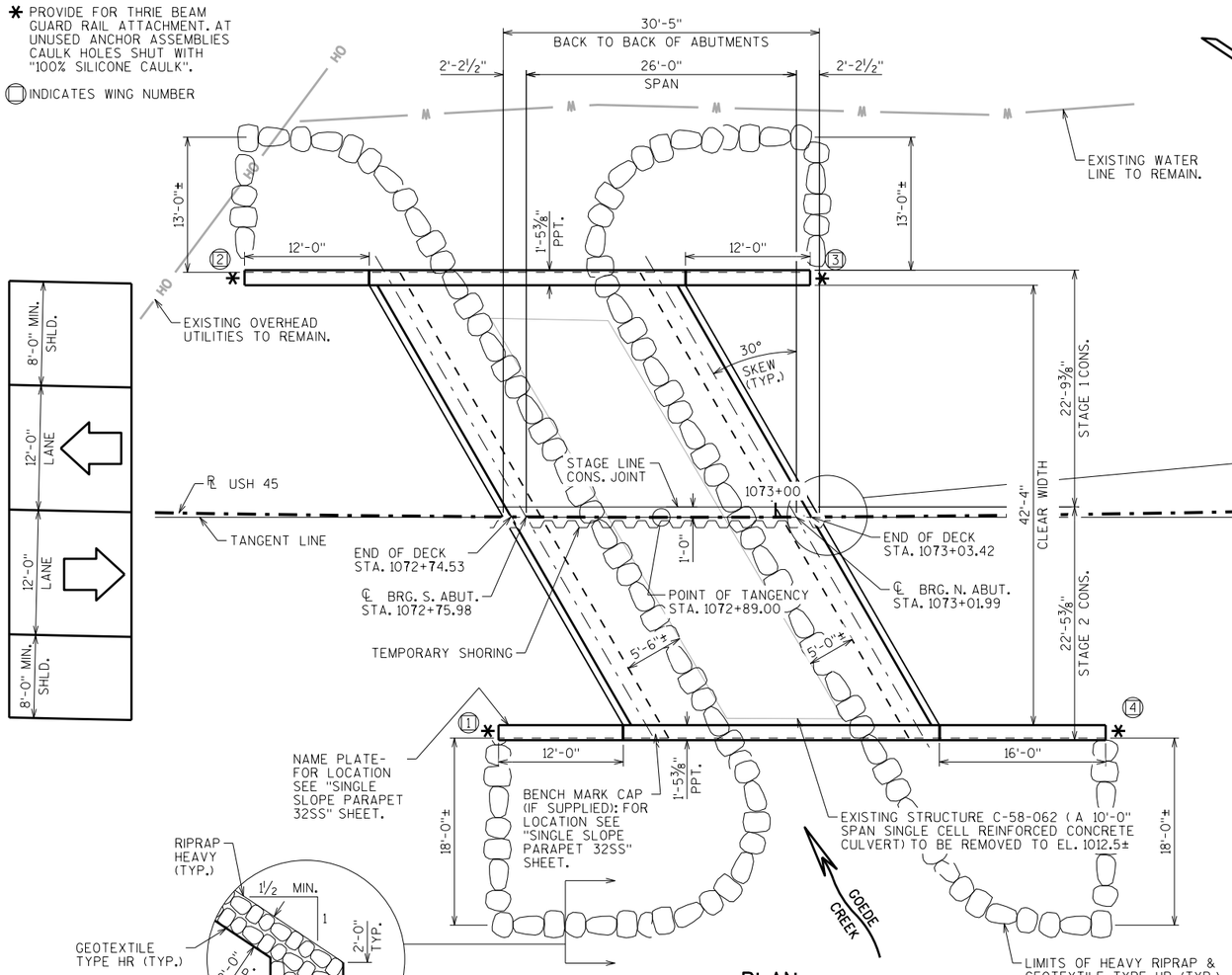
8

STATE PROJECT NUMBER

1600-22-62

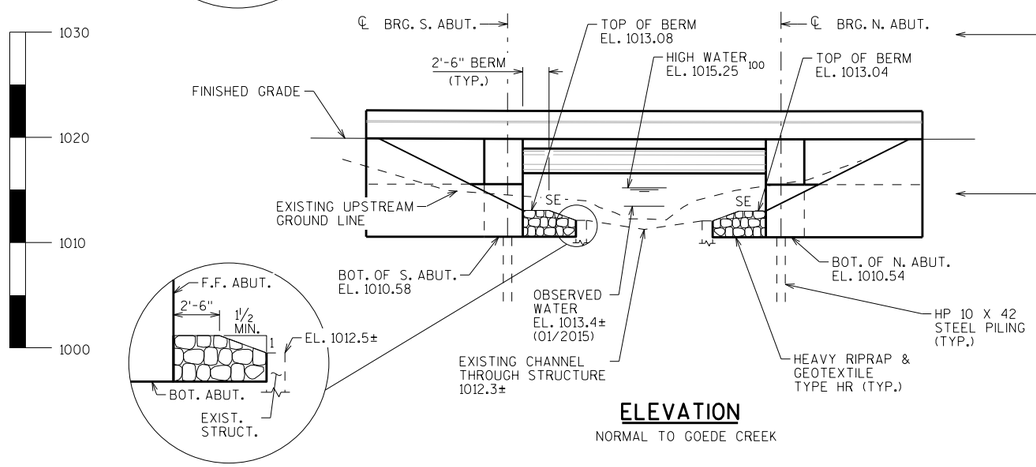
✱ PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT. AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".

(2) INDICATES WING NUMBER



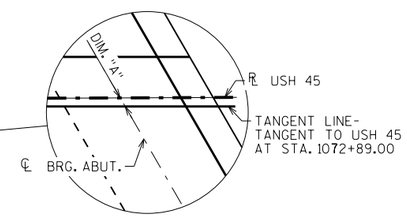
PLAN

SINGLE SPAN - 28" PRESTRESSED CONCRETE GIRDER



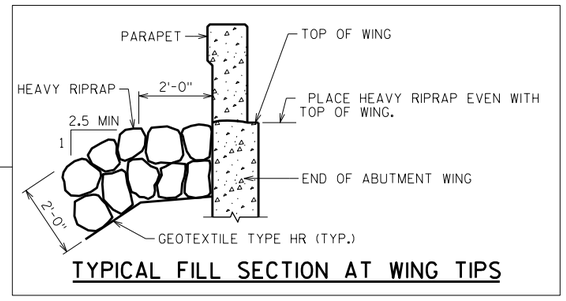
ELEVATION

NORMAL TO GOEDE CREEK



TANGENT OFFSET DETAIL

LOCATION	DIM. "A" (ALONG ℄ SUB.)
SOUTH ABUT.	0½"
NORTH ABUT.	0⅜"



TYPICAL FILL SECTION AT WING TIPS

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF = 1.11
OPERATING RATING FACTOR: RF = 1.44
WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 250(KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE — f'c = 4,000 P.S.I.
ALL OTHER — f'c = 3,500 P.S.I.

BAR STEEL REINFORCEMENT:
GRADE 60 — fy = 60,000 P.S.I.

28" PRESTRESSED GIRDERS:
CONCRETE MASONRY — f'c = 8,000 P.S.I.
STRANDS: 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10X42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 120 TONS ✱✱ PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
ESTIMATED 45'LONG AT SOUTH ABUTMENT.
ESTIMATED 35'LONG AT NORTH ABUTMENT.

✱✱ THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

HYDRAULIC DATA

100 YEAR FREQUENCY

Q_{100} = 100 C.F.S.
VEL. = 2.0 F.P.S.
$HW._{100}$ = EL. 1015.25
WATERWAY AREA = 49 SQ. FT.
DRAINAGE AREA = 3.3 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 8

2 YEAR FREQUENCY

Q_2 = 35 C.F.S.
$HW._2$ = EL. 1014.29
VEL. = 1.1 F.P.S.

CURVE DATA

USH 45

P.I. = 1073+36.33
△ = 14°08'56"
D = 2°05'29"
T = 340.01'
L = 676.57
R = 2739.78
S.E. = 4.9%
P.C. = 1069+96.32
P.T. = 1076+72.89

TRAFFIC VOLUME

USH 45

ADT = 3500 (2020)
R.D.S. = 60 M.P.H.

LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITES
3. STAGING 1 OF 2
4. STAGING 2 OF 2
5. SUBSURFACE EXPLORATION
6. SOUTH ABUTMENT
7. SOUTH ABUTMENT DETAILS
8. NORTH ABUTMENT
9. NORTH ABUTMENT DETAILS
10. GIRDER DETAILS 28" PRESTRESSED
11. STEEL DIAPHRAGM
12. SUPERSTRUCTURE
13. SUPERSTRUCTURE DETAILS
14. SINGLE SLOPE PARAPET 32SS
15. TEMPORARY SHORING

STRUCTURE DESIGN CONTACTS:

DANIEL MONROE (608) 266-8490
LAURA SHADEWALD (608) 267-9592

NO.	DATE	REVISION	BY

WISCONSIN DEPARTMENT OF TRANSPORTATION — BUREAU OF STRUCTURES

ACCEPTED William C. Dreher LLS 11/27/17
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-58-133

USH 45 OVER GOEDE CREEK

COUNTY SHAWANO | ~~TOWN/CITY/~~VILLAGE TIGERTON

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGNED CK'D.	DRAWN BY	PLANS CK'D.
DLM	MWB	DLM	MWB

GENERAL PLAN

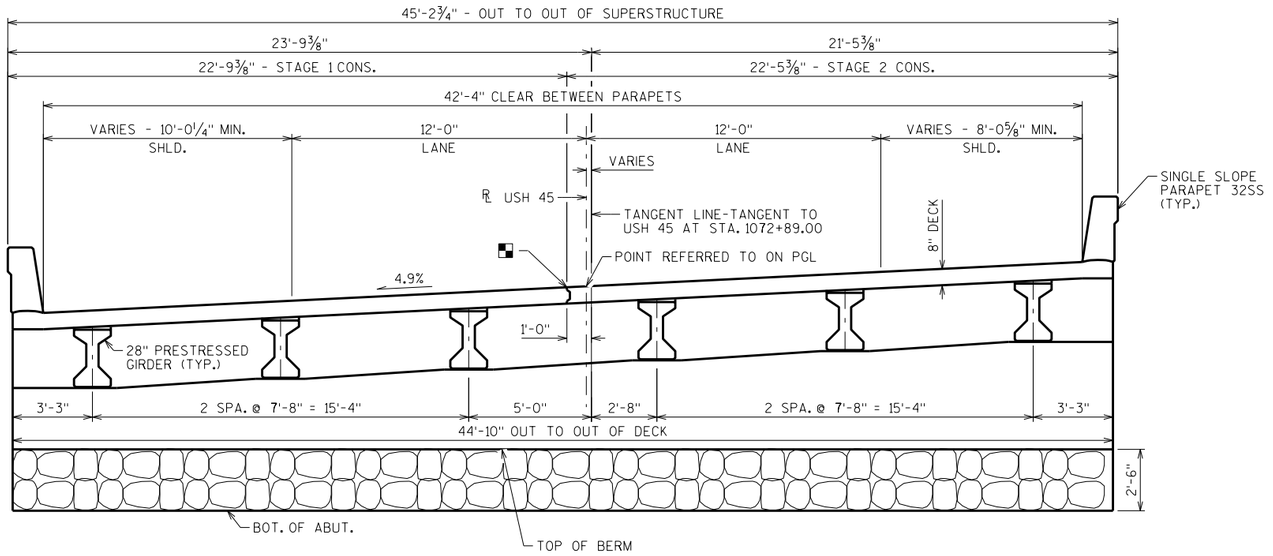
SHEET 1 OF 15

116

I.D. 1600-22-31C DATE: AUG. 2017

SCALE = 7.00

STATE PROJECT NUMBER
1600-22-62



CROSS SECTION THRU ROADWAY
(LOOKING NORTH)

■ = LONGITUDINAL CONSTRUCTION JOINT. SEE "SUPERSTRUCTURE" SHEET FOR DETAILS.
CONSTRUCTION STAGING NOT SHOWN. SEE "CONSTRUCTION STAGING" SHEETS FOR DETAILS.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-58-133" SHALL BE THE EXISTING GROUNDLINE.

AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.

ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.

THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN ON THIS SHEET.

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK SURFACE.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS, INCLUDING PARAPETS ON ABUTMENT WINGS.

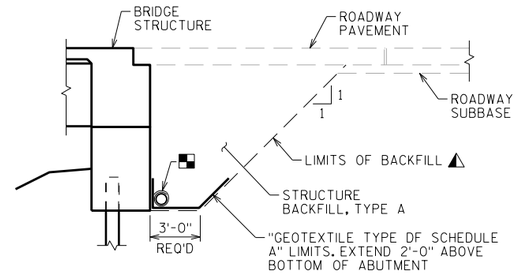
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE TYPE "HR" TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE " GIRDER DETAILS 28" PRESTRESSED" SHEET.

AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.

SAWCUT AND REMOVE EXISTING REINFORCED CONCRETE CULVERT TO ELEVATION 1012.5±. INCORPORATE THE EXISTING CULVERT IN STREAM BANK PROTECTION AS SHOWN ON THE "GENERAL PLAN" SHEET.



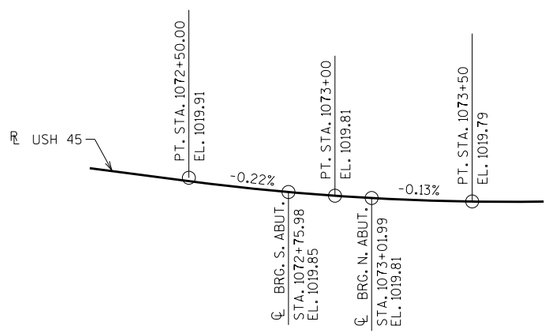
TYPICAL SECTION THRU ABUTMENT

◭ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

■ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	NORTH ABUT.	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 1072+89.00	LS	——	——	——	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-58-133	LS	——	——	——	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	——	245	240	485
502.0100	CONCRETE MASONRY BRIDGES	CY	72	60	59	191
502.3200	PROTECTIVE SURFACE TREATMENT	SY	136	——	——	136
502.3210	PIGMENTED SURFACE SEALER	SY	25	10	11	46
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	162	——	——	162
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	——	3,770	3,800	7,570
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	11,740	2,440	2,470	16,650
505.0904	BAR COUPLERS NO. 4	EACH	4	7	7	18
505.0905	BAR COUPLERS NO. 5	EACH	83	——	——	83
505.0906	BAR COUPLERS NO. 6	EACH	16	11	11	38
505.0908	BAR COUPLERS NO. 8	EACH	——	7	7	14
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	——	6	6	12
506.4000	STEEL DIAPHRAGMS B-58-133	EACH	5	——	——	5
511.1200	TEMPORARY SHORING B-58-133	SF	225	——	——	225
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	——	15	14	29
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	——	360	315	675
606.0300	RIPRAP HEAVY	CY	——	75	70	145
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	——	90	90	180
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	——	——	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	——	65	66	131
645.0120	GEOTEXTILE TYPE HR	SY	——	145	135	280
	NON-BID ITEMS					
	FILLER	SIZE	——	——	——	½", ¾"



PROFILE GRADE LINE - USH 45

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

CROSS SECTION & QUANTITES

SHEET 2

117

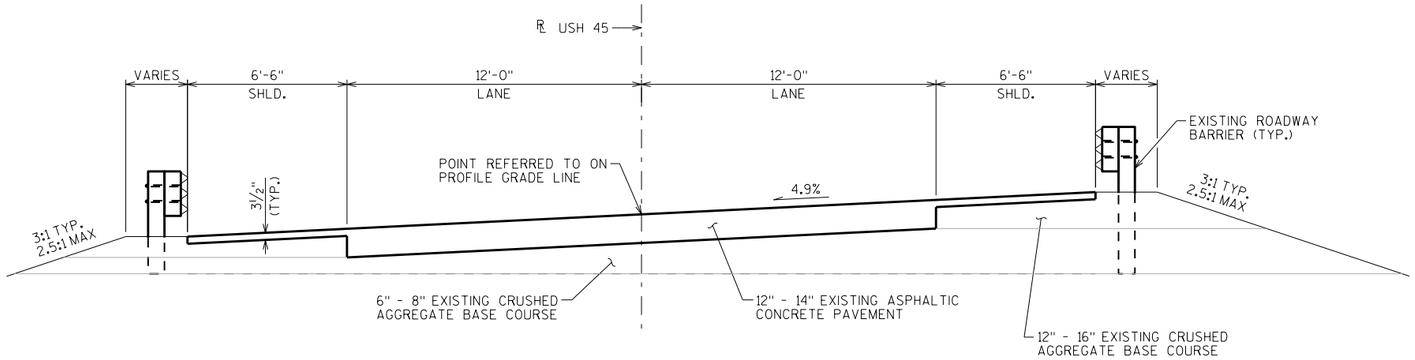
SCALE = 3.00

8

8

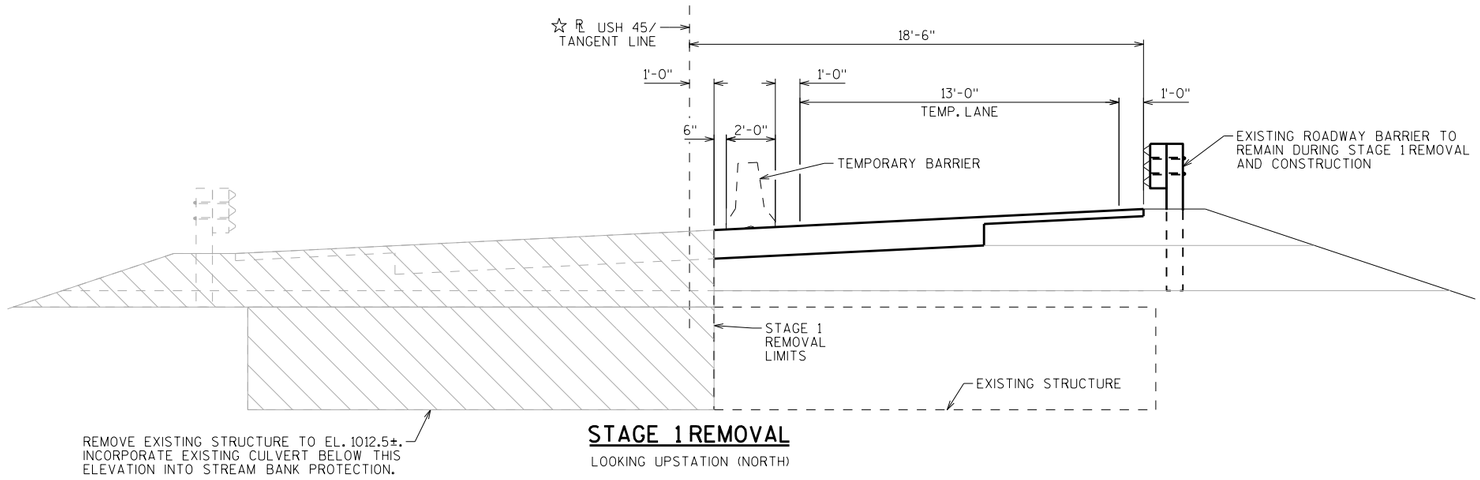
STATE PROJECT NUMBER

1600-22-62



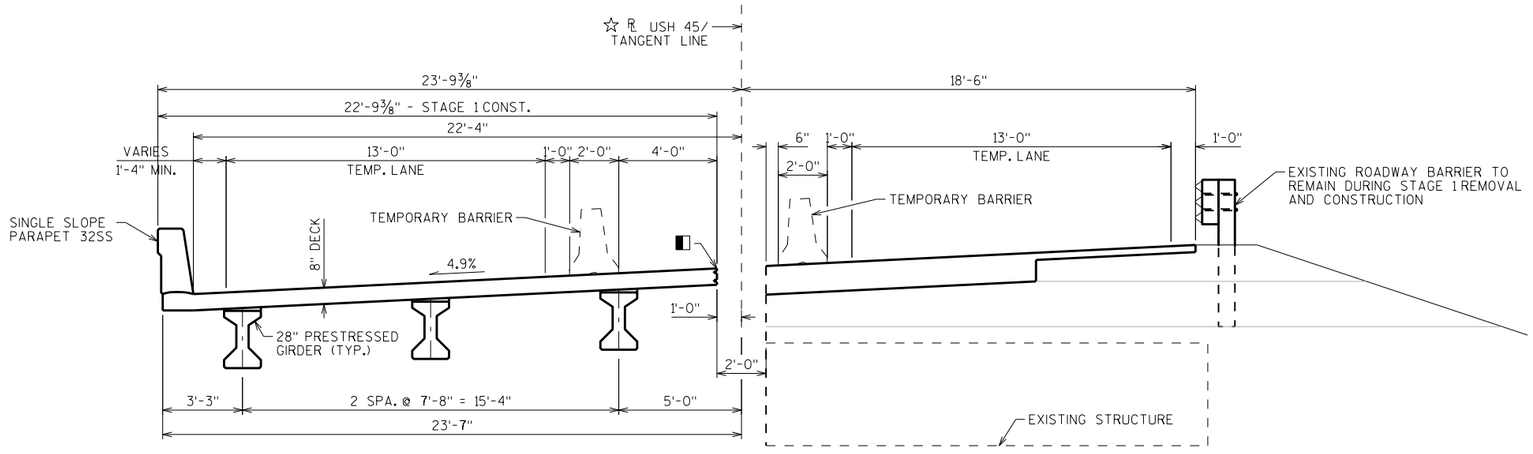
EXISTING STRUCTURE

LOOKING UPSTATION (NORTH)



STAGE 1 REMOVAL

LOOKING UPSTATION (NORTH)



STAGE 1 CONSTRUCTION

LOOKING UPSTATION (NORTH)

NOTE: SEE ROADWAY PLANS FOR FULL STAGING DETAILS.

◨ LONGITUDINAL CONSTRUCTION JOINT SEE SUPERSTRUCTURE AND ABUTMENT SHEETS FOR DETAILS.

☆ LOOKING AT POINT OF TANGENCY STA. 1072+89.00

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

STAGING 1 OF 2

SHEET 3

118

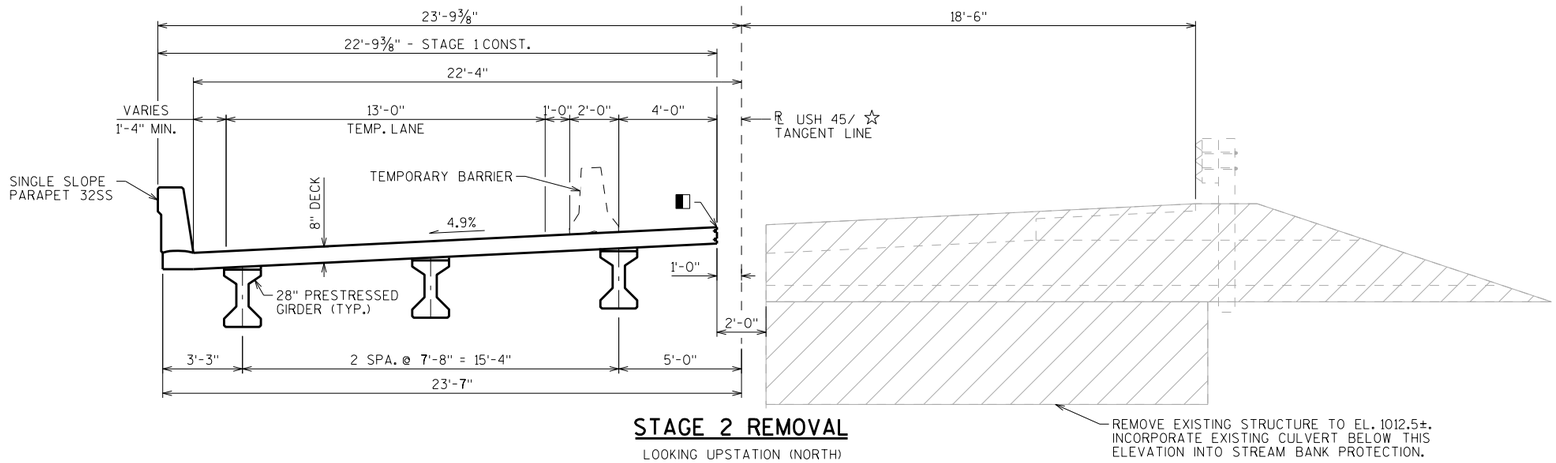
SCALE = 3.00

8

8

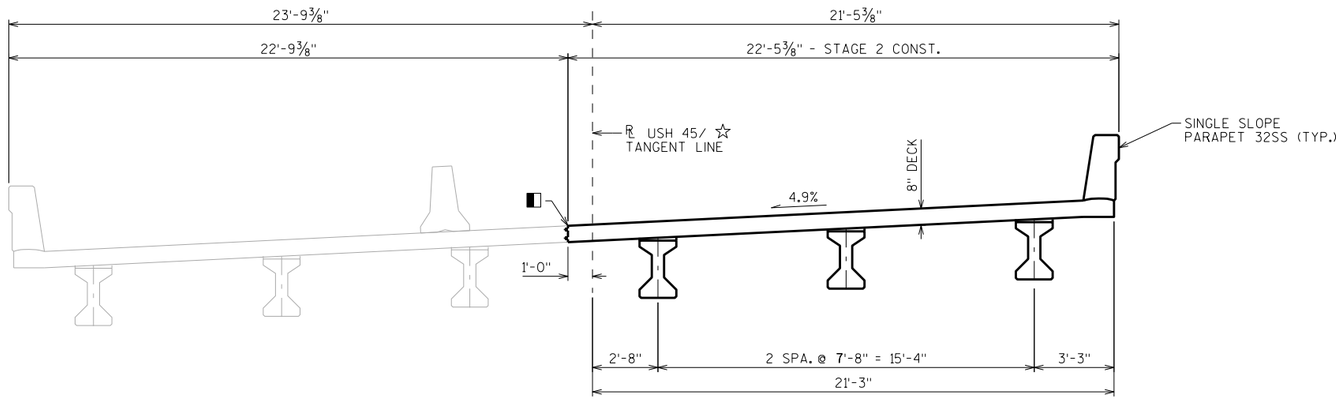
STATE PROJECT NUMBER

1600-22-62



STAGE 2 REMOVAL

LOOKING UPSTATION (NORTH)



STAGE 2 CONSTRUCTION

LOOKING UPSTATION (NORTH)

NOTE: SEE ROADWAY PLANS FOR FULL STAGING DETAILS.

◨ LONGITUDINAL CONSTRUCTION JOINT
SEE SUPERSTRUCTURE AND ABUTMENT
SHEETS FOR DETAILS.

☆ SECTION IS TAKEN AT POINT OF
TANGENCY STA. 1072+89.00

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

STAGING 2 OF 2

SHEET 4

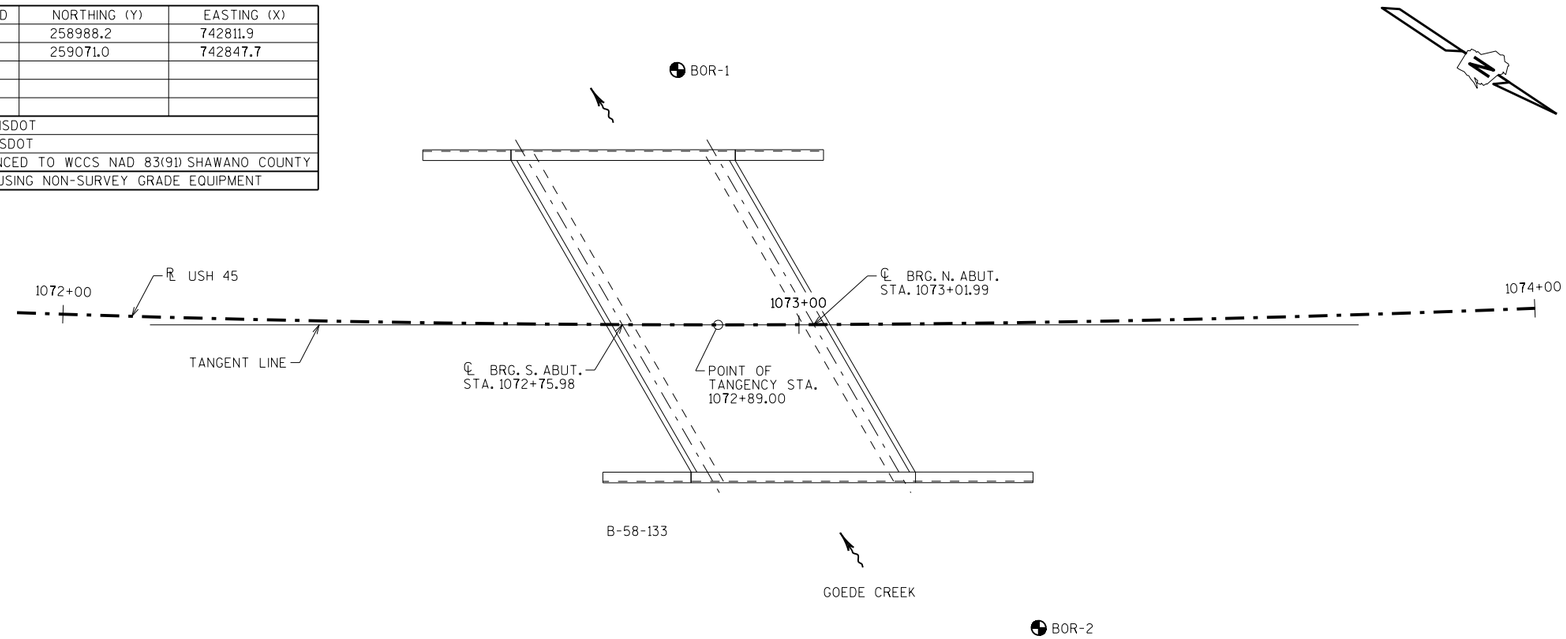
119

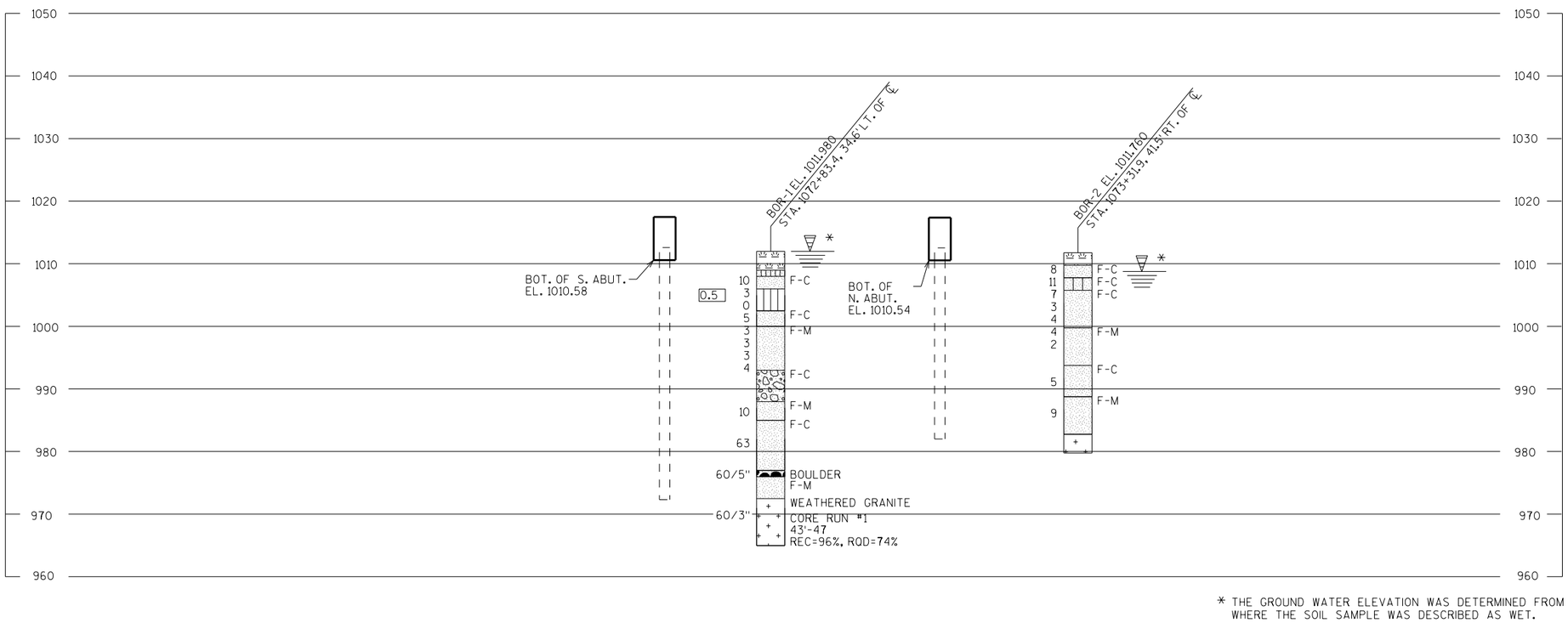
SCALE = 3.00

8

8

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	2/07/2017	258988.2	742811.9
2	2/07/2017	259071.0	742847.7
BORINGS COMPLETED BY: WISDOT			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83(91) SHAWANO COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			





* THE GROUND WATER ELEVATION WAS DETERMINED FROM WHERE THE SOIL SAMPLE WAS DESCRIBED AS WET.

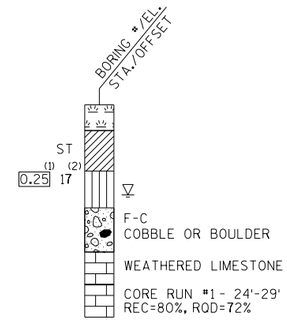
STATE PROJECT NUMBER

1600-22-62

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY TLP/DLM | PLANS CK'D. MWB

SUBSURFACE EXPLORATION

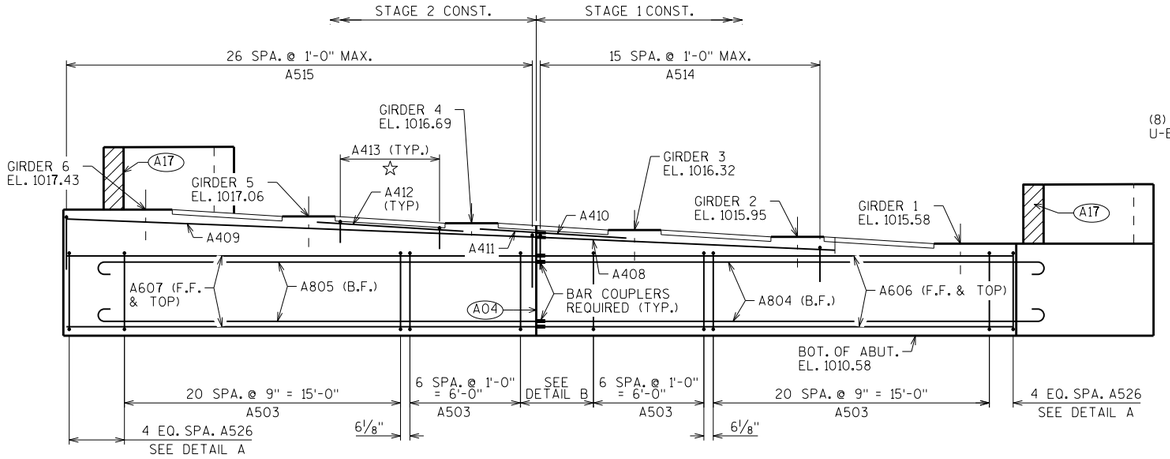
SHEET 5

120

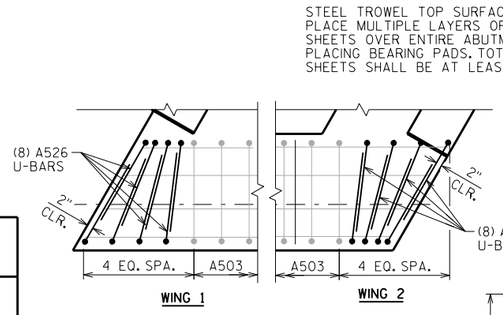
SCALE = 10.00

STATE PROJECT NUMBER

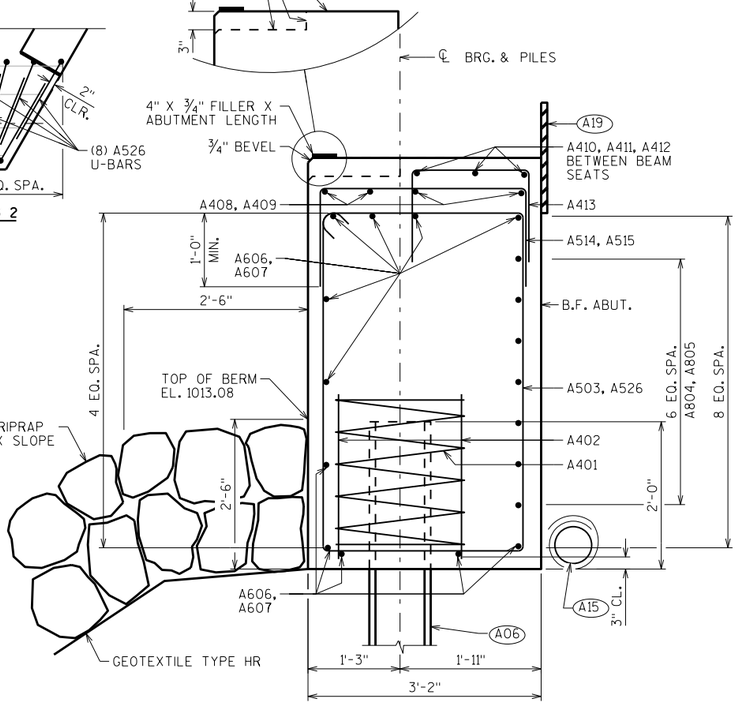
1600-22-62



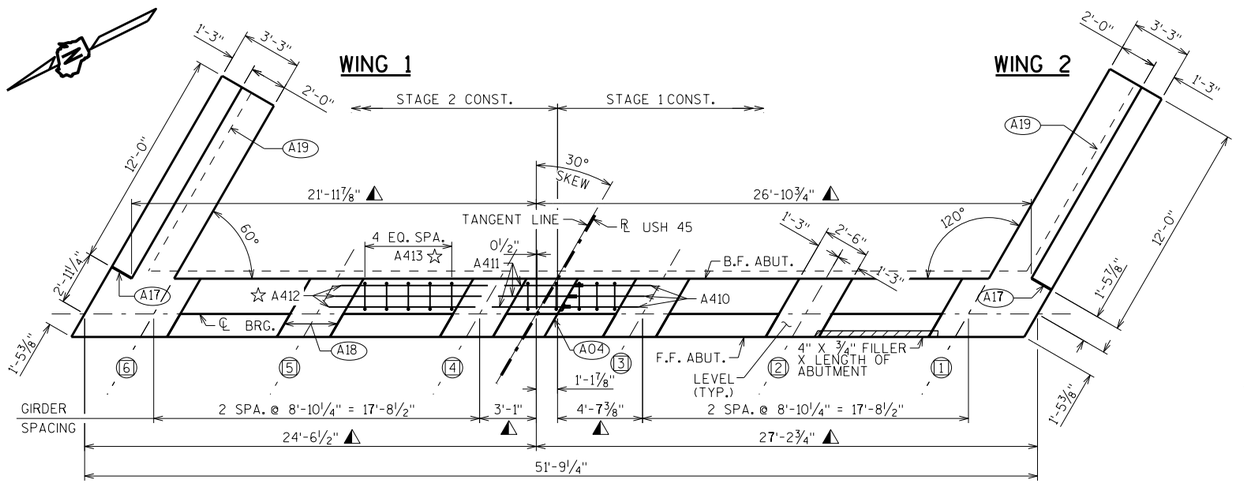
ELEVATION LOOKING SOUTH AT F.F. ABUT.



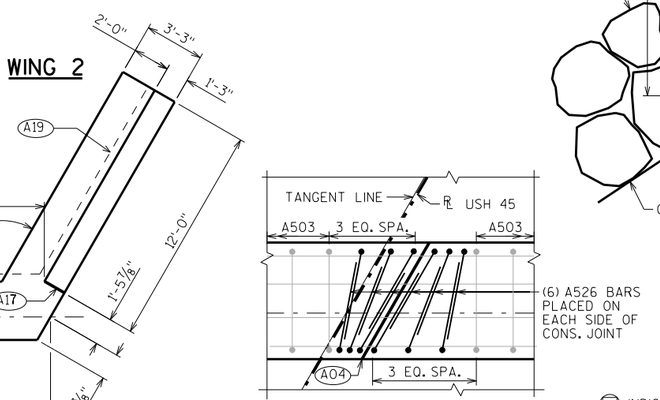
DETAIL A



SECTION THRU BODY

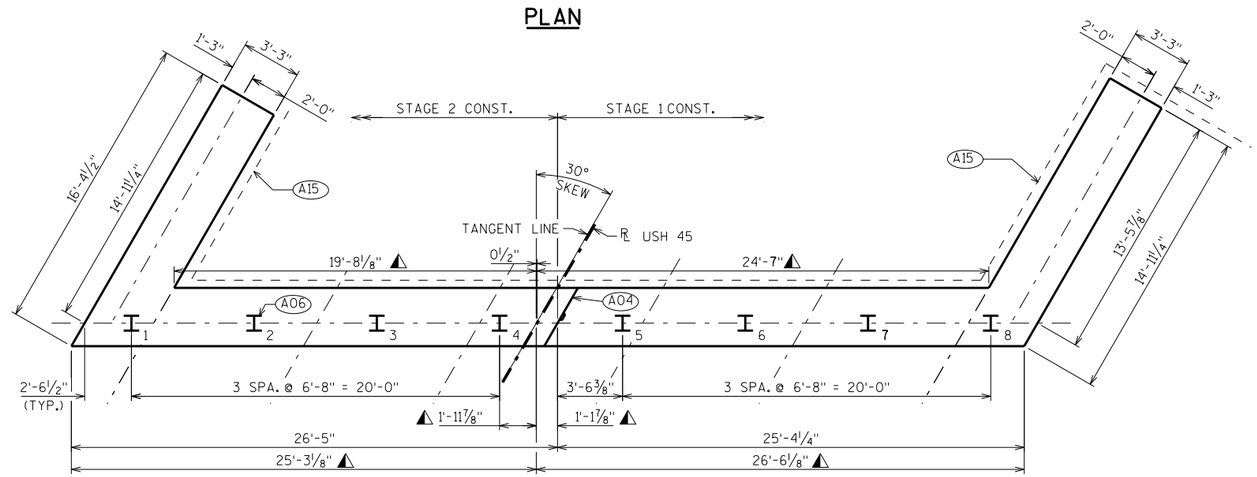


PLAN

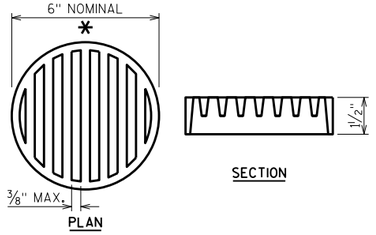


DETAIL B

PLAN AT CONST. JOINT



PILE PLAN



PLAN

SECTION

RODENT SHIELD DETAIL

✱ DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

INDICATES GIRDER NUMBER

MEASURED TO TANGENT LINE

☆ BETWEEN BEAM SEATS (TYP.)

A04 VERT. CONST. JOINT/STAGE JOINT: KEYWAY FORMED BY A BEVELED 2 x 8 3/4" "V" GROOVE @ THE FRONT FACE AND 18" RMW @ BACKFACE.

A06 SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 45'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

A18 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.

A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

SOUTH ABUTMENT

SHEET 6

121

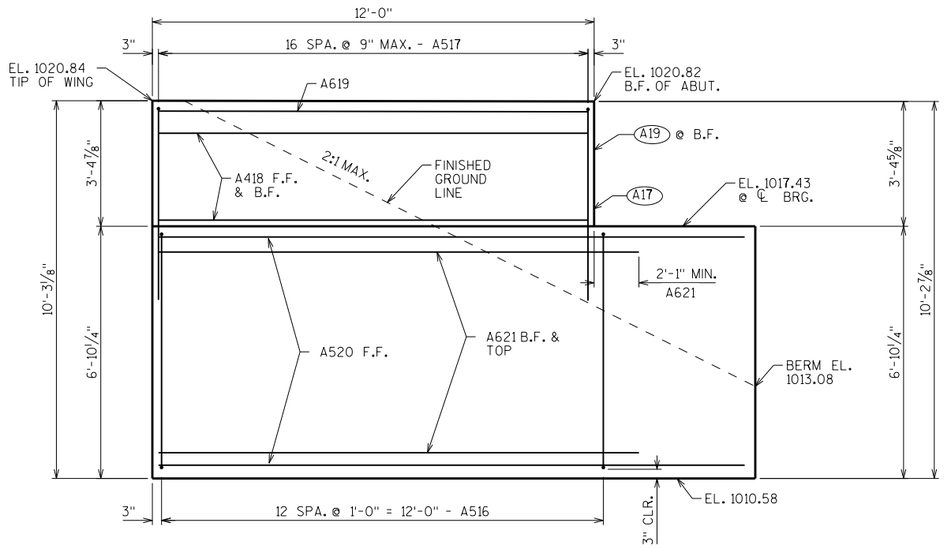
SCALE = 4.00

8

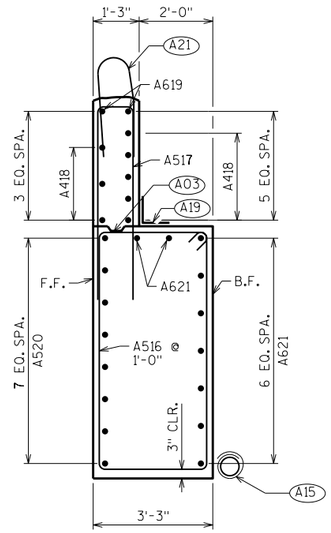
8

STATE PROJECT NUMBER

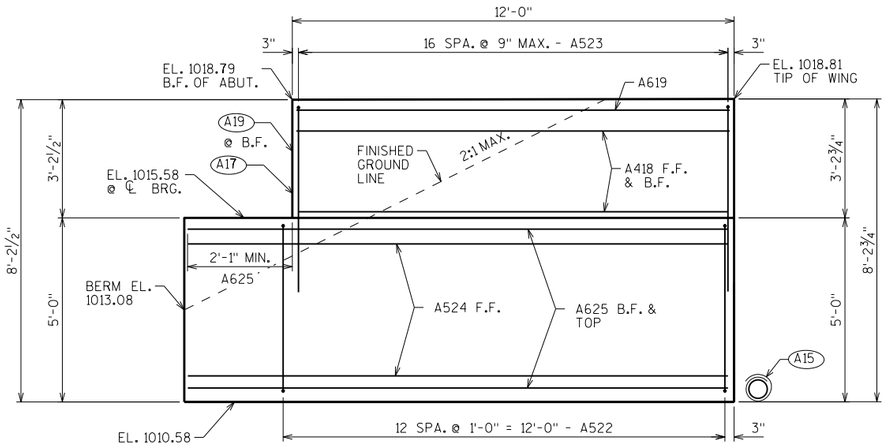
1600-22-62



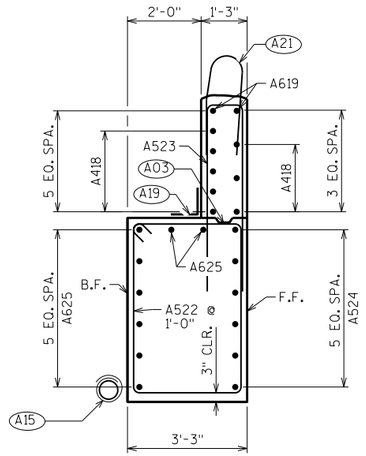
WING 1 ELEVATION



WING 1 SECTION



WING 2 ELEVATION

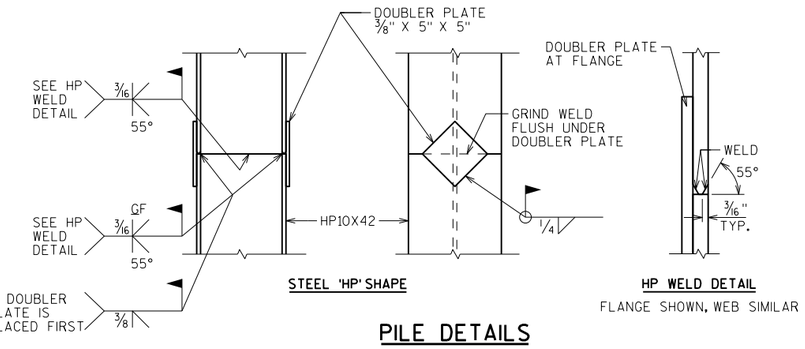


WING 2 SECTION

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

	BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
	A401		8	28'-0"	X		BODY - 1 PER BODY PILE - VERT.
	A402		16	2'-3"			BODY - 2 PER BODY PILE - VERT.
	A503		56	15'-0"	X		BODY - STIRRUP
★	A804		7	26'-9"	X		BODY - HORIZ. - B.F. - STAGE 1
	A805		7	26'-5"	X		BODY - HORIZ. - B.F. - STAGE 2
★	A606		11	25'-10"			BODY - HORIZ. - STAGE 1
	A607		11	25'-6"			BODY - HORIZ. - STAGE 2
★	A408		4	14'-11"			BODY - HORIZ. - TOP - STAGE 1
	A409		4	25'-6"			BODY - HORIZ. - TOP - STAGE 2
★	A410		3	4'-2"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS - STAGE 1
	A411		3	3'-9"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS - STAGE 2
	A412		12	8'-0"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS
	A413		25	4'-1"	X		BODY - VERT. - BTWN. BEAM SEATS
	A514		16	6'-7"	X		BODY - VERT. - TOP - STAGE 1
	A515		27	8'-7"	X		BODY - VERT. - TOP - STAGE 2
	A516	X	13	19'-4"	X		WING 1 - STIRRUP
	A517	X	17	11'-2"	X		WING 1 - VERT.
	A418	X	16	11'-6'			WING 1 & 2 - HORIZ. - TOP
	A619	X	4	11'-6"			WING 1 & 2 - HORIZ. - TOP
	A520	X	8	15'-11"			WING 1 - HORIZ. - BOT. - F.F.
	A621	X	9	13'-1"			WING 1 - HORIZ. - BOT.
	A522	X	13	15'-8"	X		WING 2 - STIRRUP
	A523	X	17	10'-10"	X		WING 2 - VERT.
	A524	X	6	14'-8"			WING 2 - HORIZ. - BOT. - F.F.
	A625	X	8	15'-2"			WING 2 - HORIZ. - BOT.
	A526		28	9'-1"	X		BODY- U BAR



STEEL 'HP' SHAPE

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

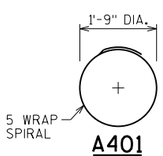
(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED. DRAIN TO DISCHARGE END OF STREAM ONLY.

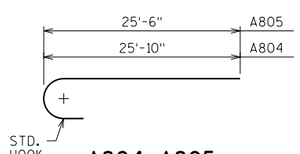
(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

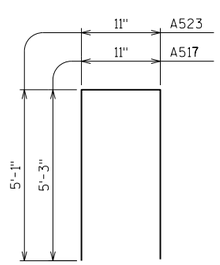
(A21) FOR PPT. BARS & DIMENSIONS SEE PARAPET SHEET.



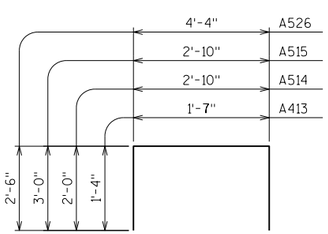
A401



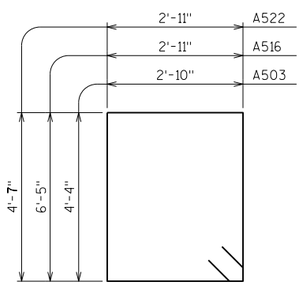
A804, A805



A517, A523



A413, A514, A515, A526



A503, A516, A522

★ BAR LENGTHS SHOWN ASSUME THE BAR TERMINATES AT THE FACE OF THE CONSTRUCTION JOINT. CONTRACTOR TO DETERMINE ACTUAL LENGTH REQUIRED BASED ON BAR COUPLER TYPE BEING UTILIZED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

SOUTH ABUTMENT DETAILS

SHEET 7

122

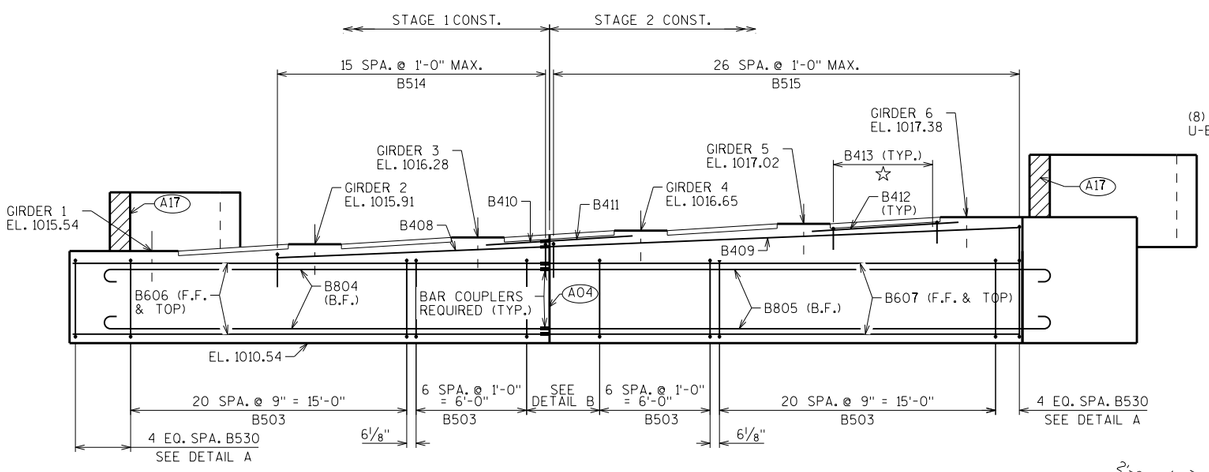
SCALE = 2.00

8

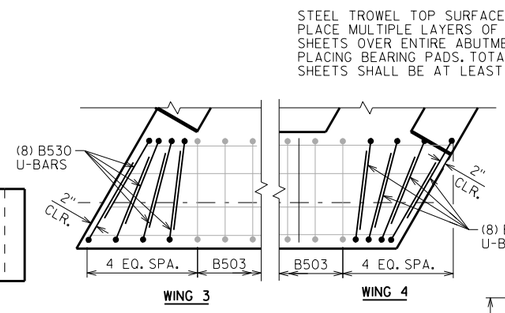
8

STATE PROJECT NUMBER

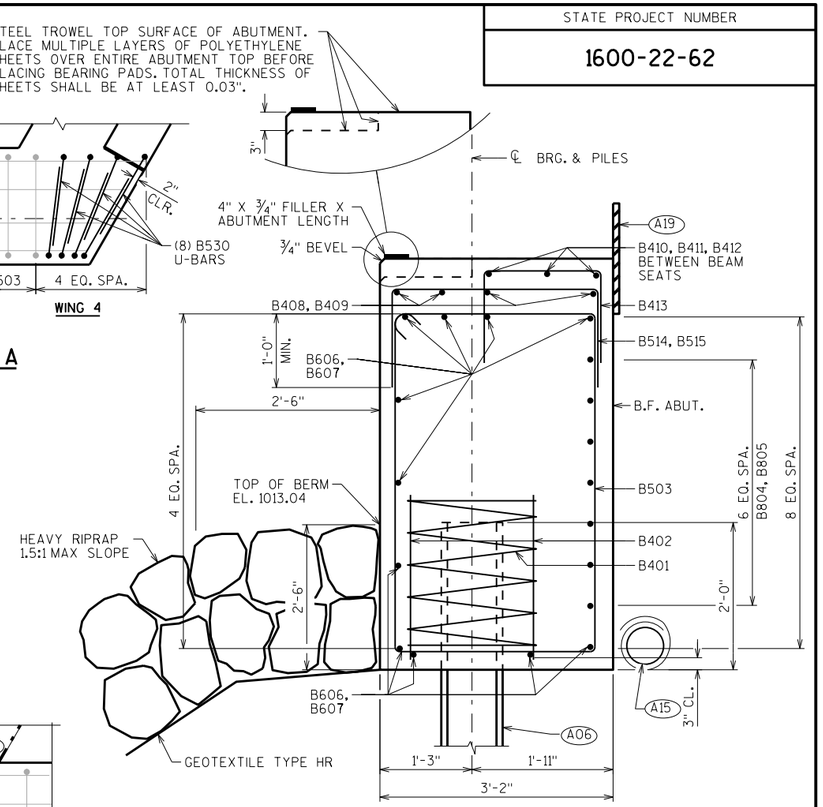
1600-22-62



ELEVATION LOOKING NORTH AT F.F. ABUT.



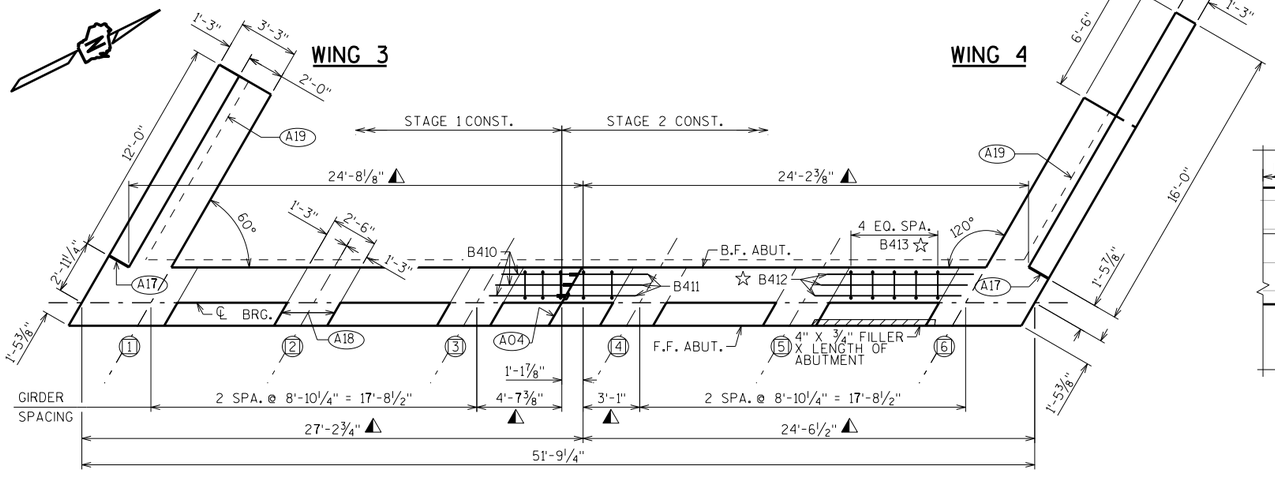
DETAIL A



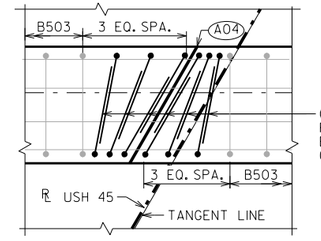
SECTION THRU BODY

WING 3

WING 4

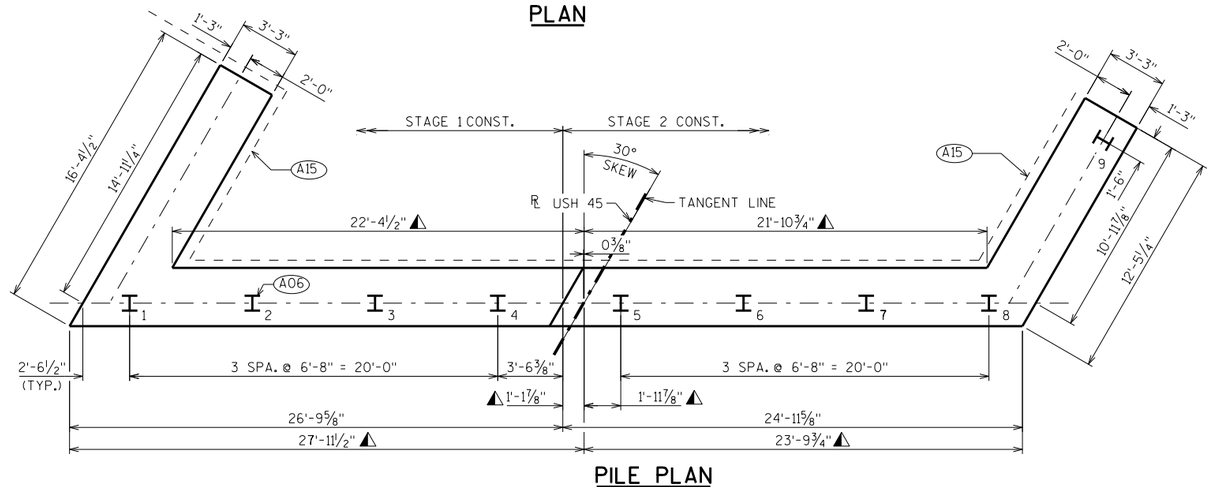


PLAN



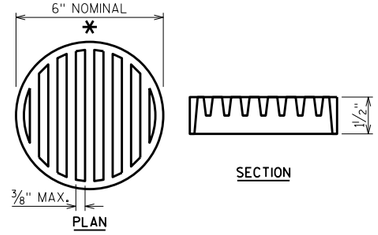
DETAIL B

PLAN AT CONS. JOINT



PILE PLAN

- ⬭ INDICATES GIRDER NUMBER
- ◭ MEASURED TO TANGENT LINE
- ☆ BETWEEN BEAM SEATS (TYP.)



RODENT SHIELD DETAIL

✱ DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALLY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

- (A04) VERT. CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 8. 3/4" "V" GROOVE @ THE FRONT FACE AND 18" RMW @ BACKFACE.
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 35'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

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NORTH ABUTMENT

SHEET 8

123

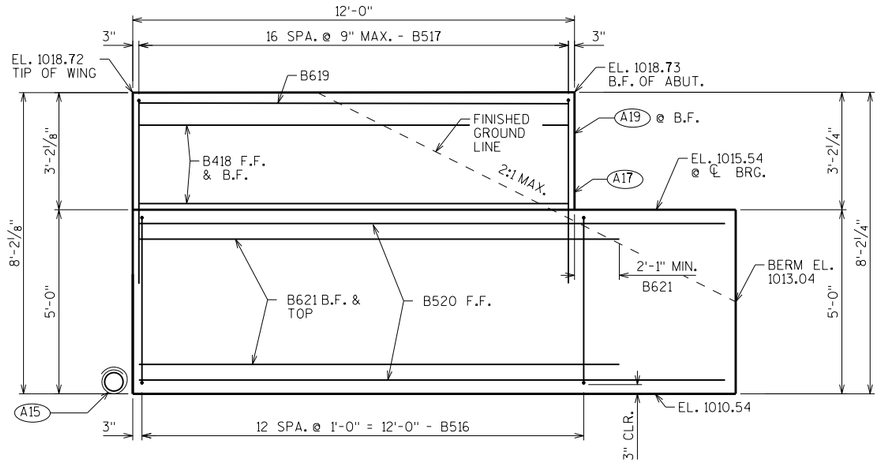
SCALE = 4.00

8

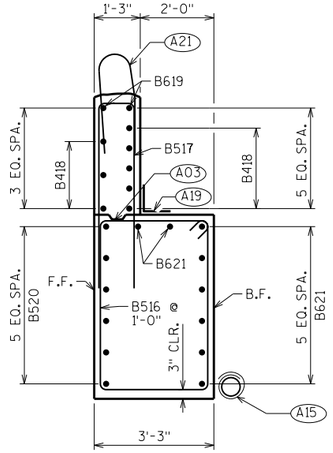
8

STATE PROJECT NUMBER

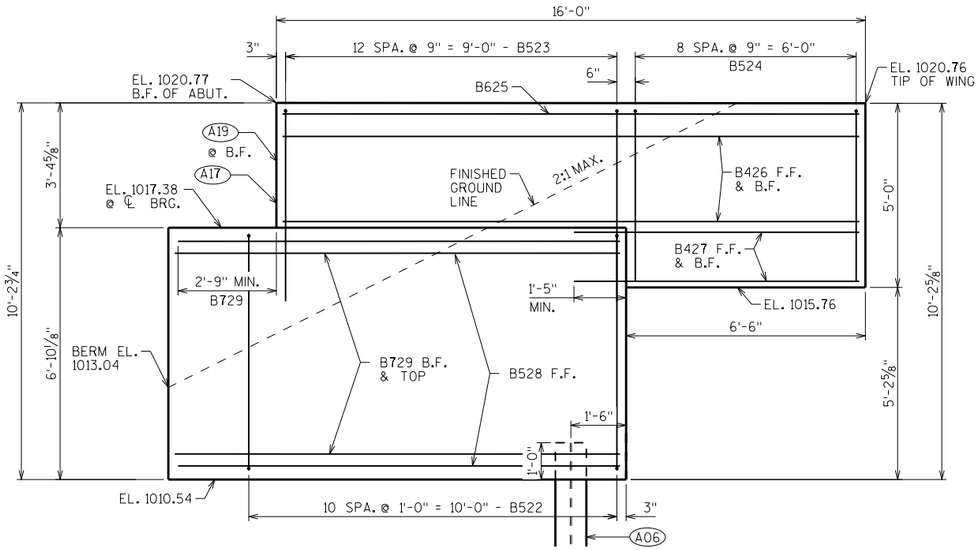
1600-22-62



WING 3 ELEVATION



WING 3 SECTION



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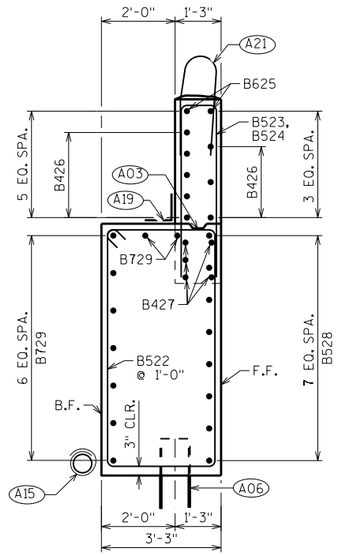
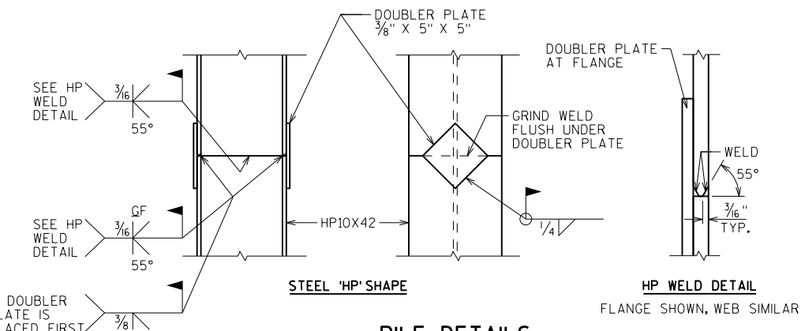


WING 4 SECTION

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

	BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
	B401		9	28'-0"	X		BODY - 1 PER BODY PILE - VERT.
	B402		18	2'-3"			BODY - 2 PER BODY PILE - VERT.
	B503		56	15'-0"	X		BODY - STIRRUP
★	B804		7	26'-9"	X		BODY - HORIZ. - B.F. - STAGE 1
★	B805		7	26'-5"	X		BODY - HORIZ. - B.F. - STAGE 2
★	B606		11	25'-10"			BODY - HORIZ. - STAGE 1
	B607		11	25'-6"			BODY - HORIZ. - STAGE 2
★	B408		4	15'-0"			BODY - HORIZ. - TOP - STAGE 1
	B409		4	25'-10"			BODY - HORIZ. - TOP - STAGE 2
★	B410		3	4'-2"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS - STAGE 1
	B411		3	3'-9"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS - STAGE 2
	B412		12	8'-0"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS
	B413		25	4'-1"	X		BODY - VERT. - BTWN. BEAM SEATS
	B514		16	6'-3"	X		BODY - VERT. - TOP - STAGE 1
	B515		27	8'-11"	X		BODY - VERT. - TOP - STAGE 2
	B516	X	13	15'-8"	X		WING 3 - STIRRUP
	B517	X	17	10'-8"	X		WING 3 - VERT.
	B418	X	8	11'-6"			WING 3 - HORIZ. - TOP
	B619	X	2	11'-6"			WING 3 - HORIZ. - TOP
	B520	X	6	15'-10"			WING 3 - HORIZ. - BOT. - F.F.
	B621	X	8	13'-1"			WING 3 - HORIZ. - BOT.
	B522	X	11	19'-4"	X		WING 4 - STIRRUP
	B523	X	13	11'-2"	X		WING 4 - VERT.
	B524	X	9	10'-0"	X		WING 4 - VERT.
	B625	X	2	15'-8"			WING 4 - HORIZ.
	B426	X	8	15'-8"			WING 4 - HORIZ.
	B427	X	5	7'-9"			WING 4 - HORIZ.
	B528	X	8	12'-2"			WING 4 - HORIZ. - BOT. - F.F.
	B729	X	9	13'-4"			WING 4 - HORIZ. - BOT.
	B530		28	9'-1"	X		BODY- U BAR



STEEL 'HP' SHAPE

HP WELD DETAIL

FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

★ BAR LENGTHS SHOWN ASSUME THE BAR TERMINATES AT THE FACE OF THE CONSTRUCTION JOINT. CONTRACTOR TO DETERMINE ACTUAL LENGTH REQUIRED BASED ON BAR COUPLER TYPE BEING UTILIZED.

(A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).

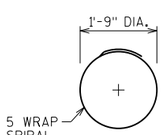
(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 35'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 120 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED. DRAIN TO DISCHARGE END OF STREAM ONLY.

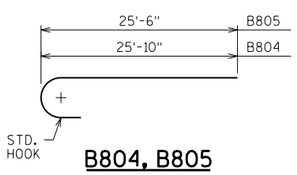
(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

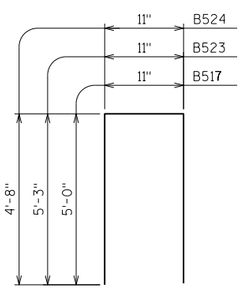
(A21) FOR PPT. BARS & DIMENSIONS SEE PARAPET SHEET.



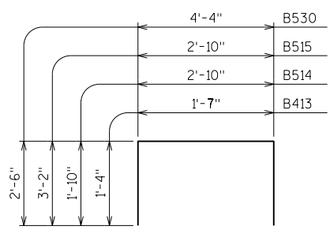
B401



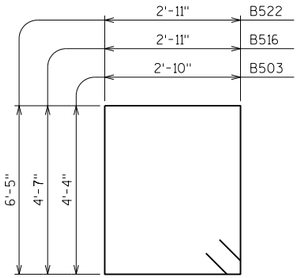
B804, B805



B517, B523, B524



B413, B514, B515, B530



B503, B516, B522

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

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NORTH ABUTMENT DETAILS

SHEET 9

124

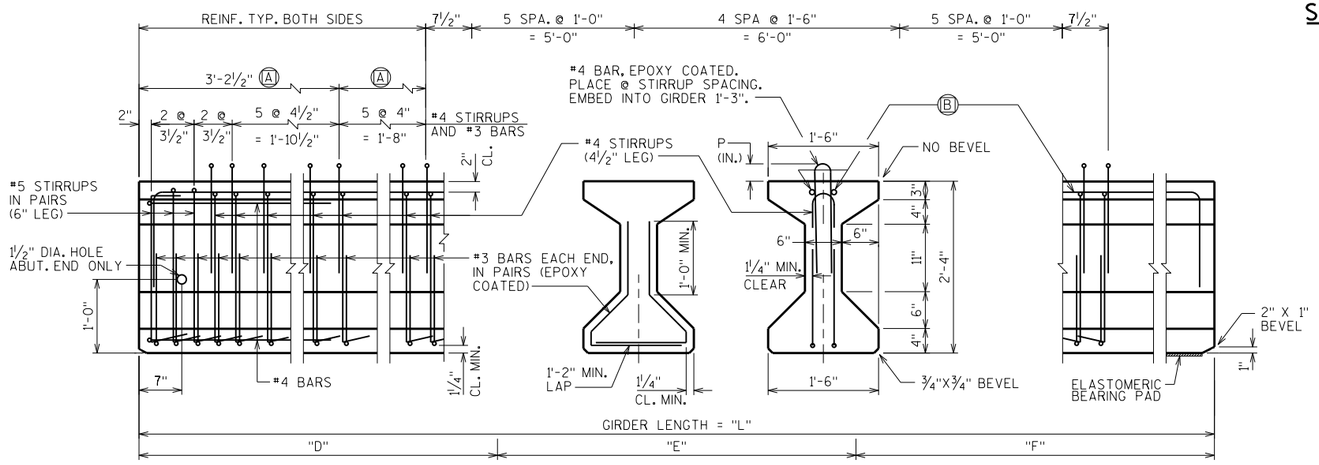
SCALE = 2.00

8

8

STATE PROJECT NUMBER

1600-22-62



SIDE VIEW & TYPICAL SECTION IN SPAN

Ⓐ DETAIL TYP. AT EACH END

Ⓑ 2- #4 BARS BEND DOWN 16 BAR DIA. AT ENDS

SPAN DIAPHRAGM HOLE LOCATIONS

GIRDER	"D"	"E"	"F"
1	15'-8½"	——	11'-3½"
2-5	11'-3½"	4'-5"	11'-3½"
6	11'-3½"	——	15'-8½"

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" OF THE TOP FLANGE.

DO NOT APPLY CONCRETE SEALER OR EPOXY TO SURFACES RECEIVING APPLICATION OF CONCRETE STAINING.

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.3 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

STRANDS SHALL BE FLUSH WITH END OF GIRDER. FOR GIRDER ENDS EMBEDDED COMPLETELY IN CONCRETE, END OF STRANDS SHALL BE COATED WITH NON-BITUMINOUS JOINT SEALER. FOR GIRDER ENDS THAT ARE FINALLY EXPOSED, COAT THE GIRDER ENDS, EXPOSED STRAND ENDS AND ALL NON-BONDING SURFACES WITHIN 2 FEET OF THE GIRDER ENDS WITH A NON-PIGMENTED EPOXY CONFORMING TO AASHTO M-235 TYPE III, GRADE 2, CLASS B OR C. THE EPOXY SHALL BE APPLIED AT LEAST 3 DAYS AFTER MOIST CURING HAS CEASED AND PRIOR TO THE APPLICATION OF THE SEALER.

ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

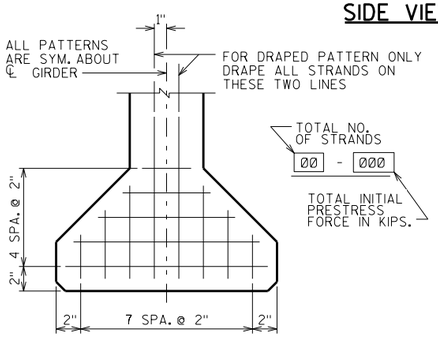
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A497 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

PRESTRESSING STRANDS SHALL BE (0.6" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

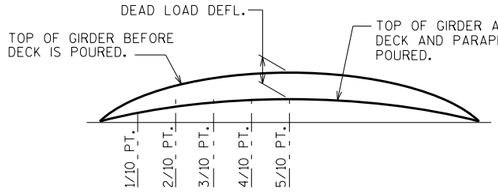
BEND EACH END OF #4 STIRRUPS 4½" AND #5 STIRRUPS 6".

FOR DIAPHRAGM INSERT & CONNECTION DETAILS SEE "STEEL DIAPHRAGM" SHEET.

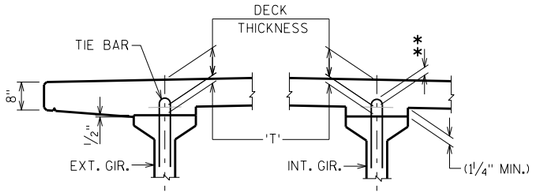


TYP. STRAND PATTERN

TOP VIEW OF GIRDER ENDS



DEAD LOAD DEFLECTION DIAGRAM



DECK HAUNCH DETAIL

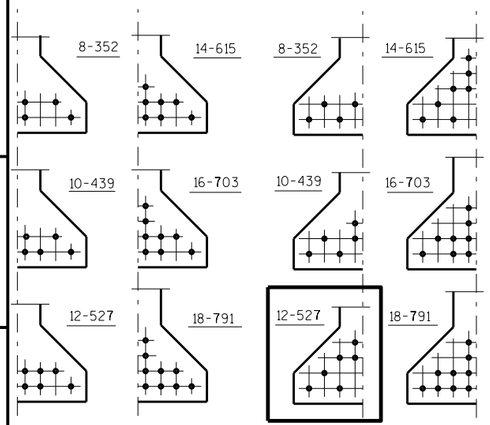
IF 1¼" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN ½" OR,

** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT ℄ OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
+ DEAD LOAD DEFLECTION
- DECK THICKNESS
= HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 2⅝" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DRAPED PATTERN
0.6"Φ STRANDS

UNDRAPED PATTERN
0.6"Φ STRANDS

* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	0.37"

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T', USE ACTUAL GIRDER SHOTS.

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L"	DEAD LOAD DEFL. (IN.) 1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CONC. STRGTH. f'c (p.s.i.)	"P" 1ST 1/3 OF GIRDER	"P" MID 1/3 OF GIRDER	"P" END 1/3 OF GIRDER	DIA. OF STRAND (IN.)	DRAPED PATTERN TOTAL NO. OF STRANDS	DRAPED PATTERN f'ci (P.S.I.) *	DRAPED PATTERN (IN.) "A"	"B" MIN.	"B" MAX.	"C"	UNDRAPED PATTERN TOTAL NO. OF STRANDS	UNDRAPED PATTERN f'ci (P.S.I.) *
1	ALL	27'-0"	0.02	0.03	0.04	0.05	0.05	0.05	0.04	0.03	0.02	8,000	6"	6"	6"	0.6"							12	6,400

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STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

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GIRDER DETAILS 28" PRESTRESSED

SHEET 10

125

SCALE = 1.00

8

8

STATE PROJECT NUMBER

1600-22-62

NOTES

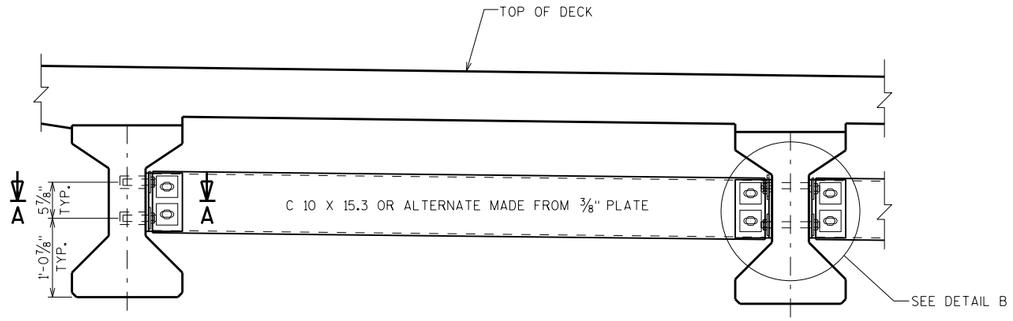
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-58-133", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

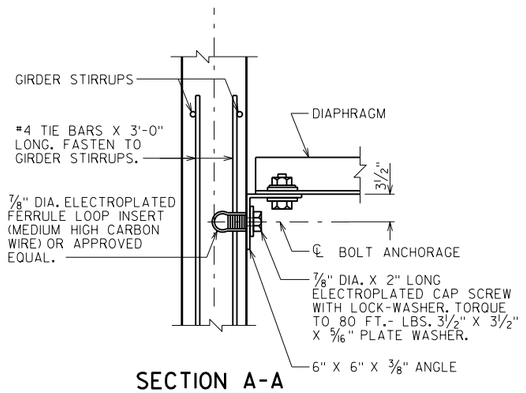
STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.



EXTERIOR GIRDER

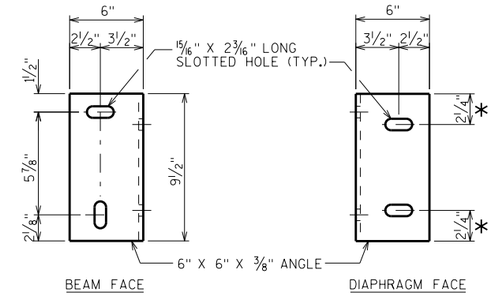
INTERIOR GIRDER

PART TRANSVERSE SECTION AT DIAPHRAGM



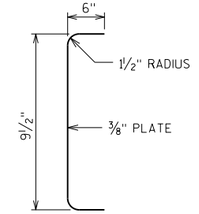
SECTION A-A

(FOR EXTERIOR ATTACHMENT)

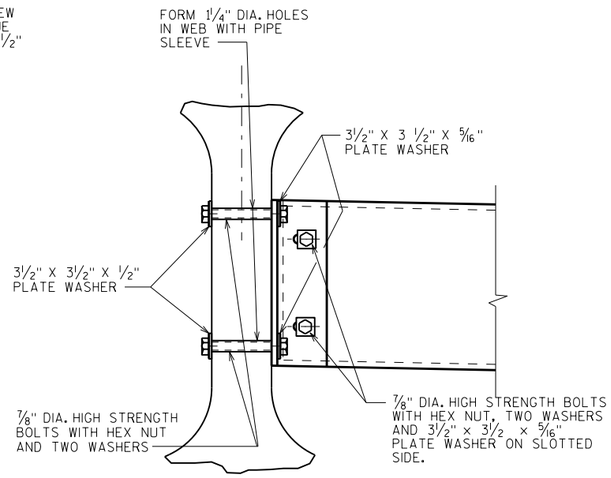


DIAPHRAGM SUPPORT

* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



SECTION THRU ALTERNATE DIAPHRAGM



(FOR STAGGERED DIAPHRAGM)

DETAIL B

8

8

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

STEEL DIAPHRAGM

SHEET 11

126

SCALE = 1.00

STATE PROJECT NUMBER

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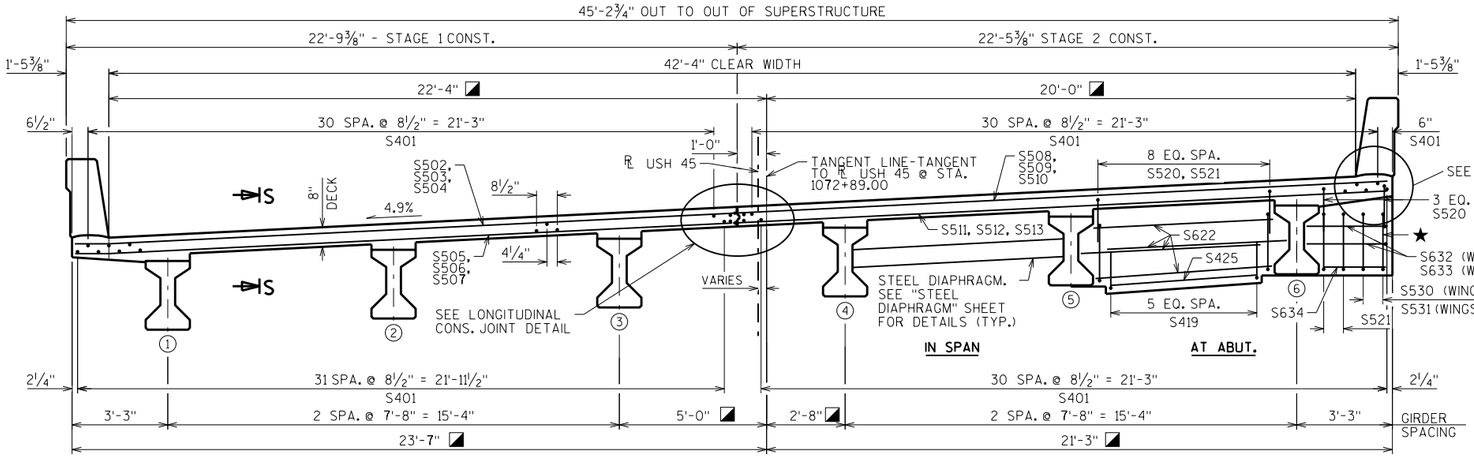
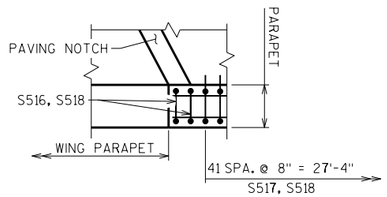


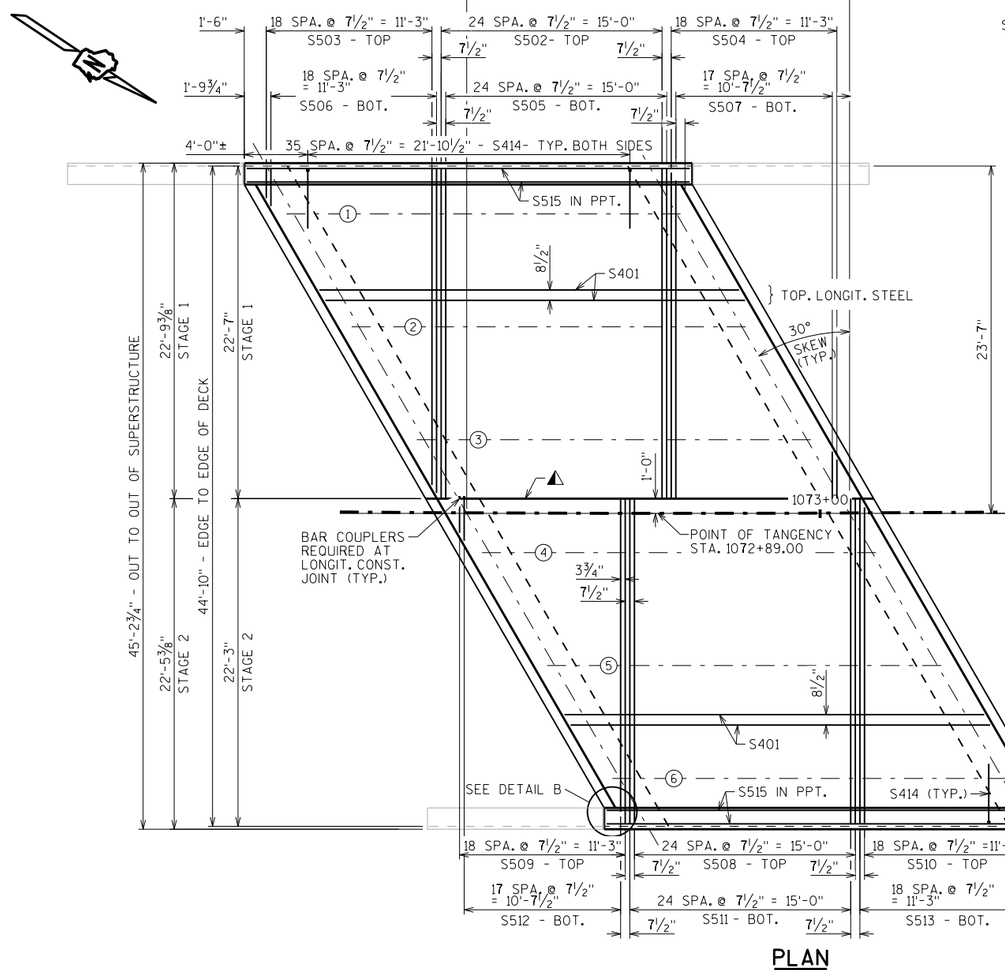
CROSS SECTION THRU ROADWAY

(LOOKING NORTH)

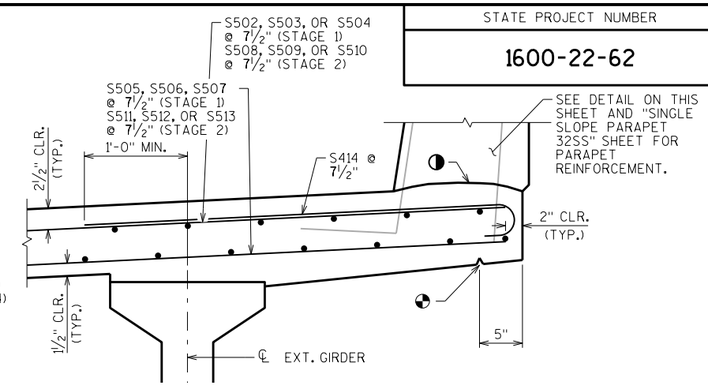


DETAIL B

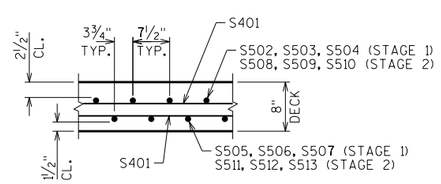
SOUTHEAST CORNER SHOWN. OTHERS SIMILAR



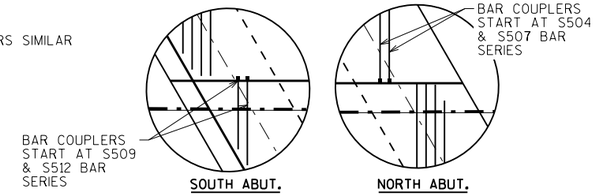
PLAN



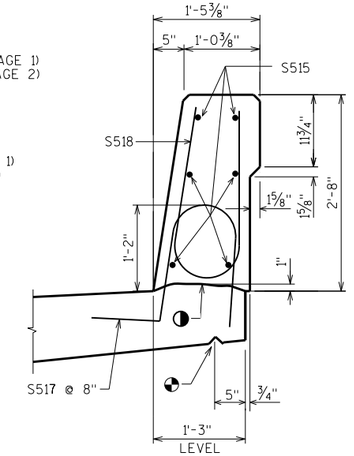
DETAIL A



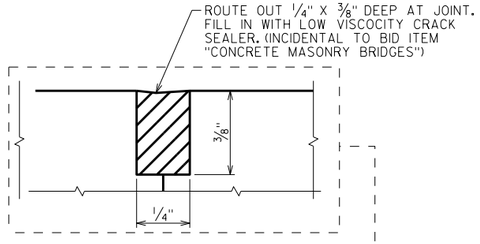
SECTION S-S

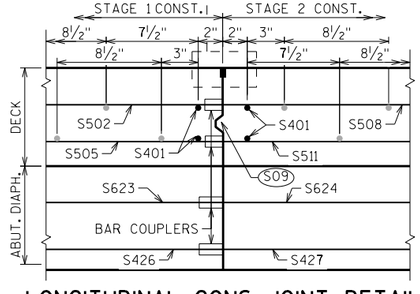


COUPLER LOCATION DETAIL



SECTION THRU PARAPET ON BRIDGE





LONGITUDINAL CONS. JOINT DETAIL

(LOOKING NORTH)

(S09) HORIZONTAL KEYWAY CONST. JOINT; KEYWAY FORMED BY BEVELED 2" X 2".

◯ INDICATES GIRDER NUMBER

◪ MEASURED TO TANGENT LINE

★ 2 -S435 BARS. PLACE AT ENDS INSIDE OF U-BARS.

◑ HORIZONTAL CONSTRUCTION JOINT. STRIKE OFF AND LEAVE ROUGH AS SHOWN.

◭ LONGITUDINAL CONSTRUCTION JOINT

◔ ¾" V-GROOVE. EXTEND V-GROOVE TO 6" FROM F.F. OF ABUT. DIAPHRAGM

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STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

SUPERSTRUCTURE

SHEET 12

127

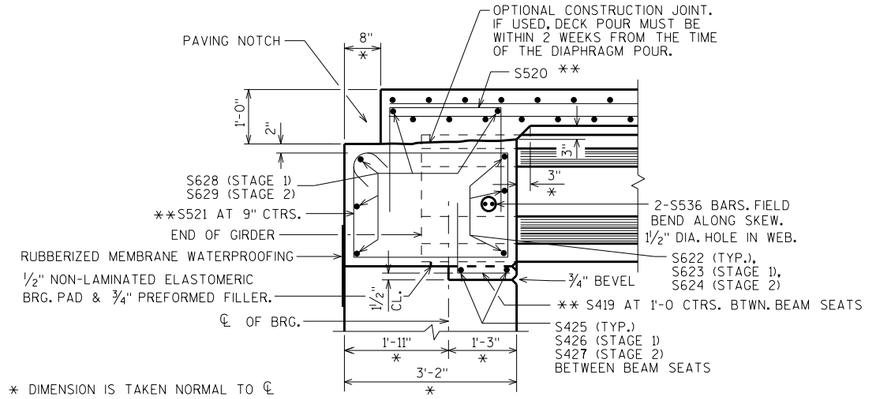
8

8

SCALE = 5.00

STATE PROJECT NUMBER

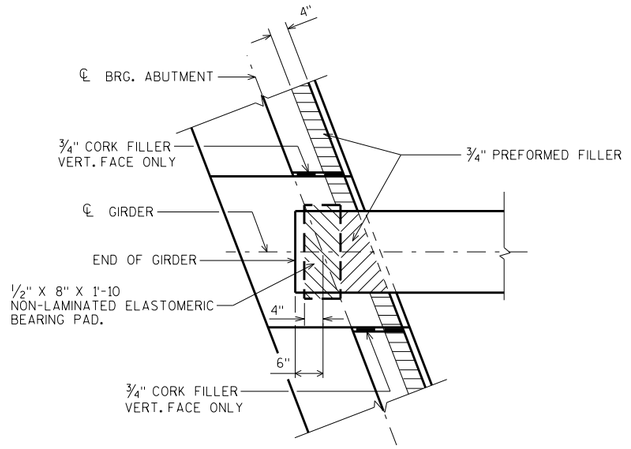
1600-22-62



* DIMENSION IS TAKEN NORMAL TO ℄ SUBSTRUCTURE UNITS.

** BARS PLACED PARALLEL TO GIRDERS SPACING PERPENDICULAR TO ℄ GIRDERS

CROSS SECTION THRU ABUTMENT DIAPHRAGMS



BEARING PAD DETAIL

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

	BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
	S401	X	129	28'-6"			LONGIT. - TOP & BOT.
★	S502	X	25	22'-5"			TRANSVERSE - TOP - STAGE 1
★	S503	X	19	11'-9"		⚠	TRANSVERSE - TOP - STAGE 1
★	S504	X	19	12'-5"		⚠	TRANSVERSE - TOP - STAGE 1
★	S505	X	25	22'-5"			TRANSVERSE - BOT. - STAGE 1
★	S506	X	19	12'-4"		⚠	TRANSVERSE - BOT. - STAGE 1
★	S507	X	18	12'-5"		⚠	TRANSVERSE - BOT. - STAGE 1
	S508	X	25	22'-1"			TRANSVERSE - TOP - STAGE 2
	S509	X	19	12'-1"		⚠	TRANSVERSE - TOP - STAGE 2
	S510	X	19	11'-9"		⚠	TRANSVERSE - TOP - STAGE 2
	S511	X	25	22'-1"			TRANSVERSE - BOT. - STAGE 2
	S512	X	18	12'-1"		⚠	TRANSVERSE - BOT. - STAGE 2
	S513	X	19	12'-4"		⚠	TRANSVERSE - BOT. - STAGE 2
	S414	X	72	4'-7"	X		TRANSVERSE - TOP - OVERHANG
	S515	X	12	30'-1"			32SS PARAPET - LONGIT.
	S516	X	8	5'-10"	X		32SS PARAPET - VERT. - AT PAVING NOTCH
	S517	X	84	4'-5"	X		32SS PARAPET & DECK - VERT.
	S518	X	92	5'-0"	X		32SS PARAPET - VERT.
	S419	X	60	3'-9"	X		ABUT. DIAPH. - VERT. -BTWN. BEAM SEATS
	S520	X	106	6'-3"	X		ABUT. DIAPH. & DECK - VERT.
	S521	X	98	11'-0"	X		ABUT. DIAPH. - VERT.
	S622	X	32	6'-10"			ABUT. DIAPH. - HORIZ. -F.F.
★	S623	X	6	3'-7"			ABUT. DIAPH. - HORIZ. - F.F. - STAGE 1
	S624	X	6	3'-2"			ABUT. DIAPH. - HORIZ. - F.F. - STAGE 2
	S425	X	16	5'-7"			ABUT. DIAPH. - HORIZ. - BTWN. BEAM SEATS
★	S426	X	4	3'-0"			ABUT. DIAPH. - HORIZ. - BTWN. BEAM SEATS - STAGE 1
	S427	X	4	2'-7"			ABUT. DIAPH. - HORIZ. - BTWN. BEAM SEATS - STAGE 2
	S628	X	10	24'-9"			ABUT. DIAPH. - HORIZ. - B.F. - STAGE 1
	S629	X	10	24'-2"			ABUT. DIAPH. - HORIZ. - B.F. - STAGE 2
	S530	X	4	11'-4"	X		ABUT. DIAPH. VERT. - ENDS - WING 1 & 3
	S531	X	4	10'-2"	X		ABUT. DIAPH. VERT. - ENDS - WING 2 & 4
	S632	X	4	10'-6"	X		ABUT. DIAPH. HORIZ. - ENDS - WING 1 & 3
	S633	X	4	9'-10"	X		ABUT. DIAPH. HORIZ. - ENDS - WING 2 & 4
	S634	X	4	2'-5"			ABUT. DIAPH. - HORIZ. -ENDS
	S435	X	8	1'-11"			ABUT. DIAPH. - VERT. -ENDS
	S536	X	24	6'-0"			GIRDER WEB BARS - HORIZ.

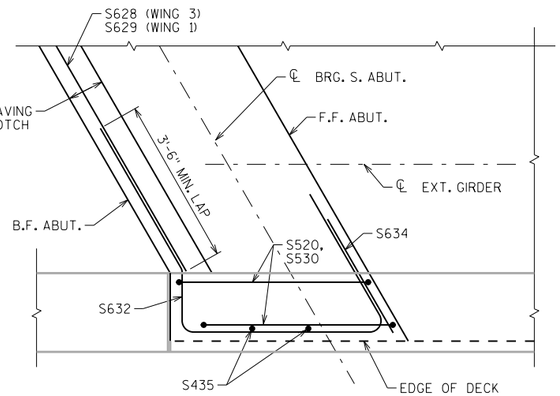
⚠ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

★ BAR LENGTHS SHOWN ASSUME THE BAR TERMINATES AT THE FACE OF THE CONST. JOINT. CONTRACTOR TO DETERMINE ACTUAL LENGTH REQUIRED BASED ON BAR COUPLER TYPE BEING UTILIZED.

BAR SERIES TABLE

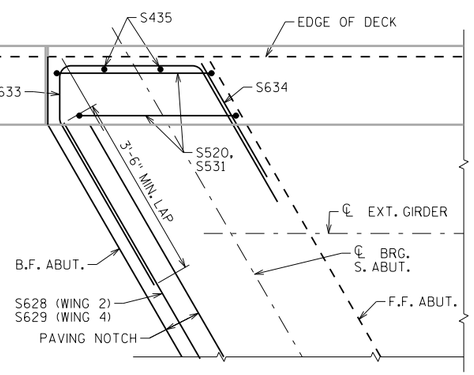
BAR MARK	NO. REQ'D.	LENGTH
S503	1 SERIES OF 19	2'-0" TO 21'-6"
S504	1 SERIES OF 19	2'-8" TO 22'-2"
S506	1 SERIES OF 19	2'-7" TO 22'-0"
S507	1 SERIES OF 18	3'-2" TO 21'-7"
S509	1 SERIES OF 19	2'-4" TO 21'-10"
S510	1 SERIES OF 19	2'-0" TO 21'-6"
S512	1 SERIES OF 18	2'-10" TO 21'-3"
S513	1 SERIES OF 19	2'-7" TO 22'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY.



WING 1

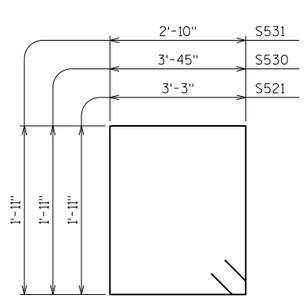
(WING 3 SIMILAR)



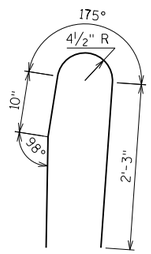
WING 2

(WING 4 SIMILAR)

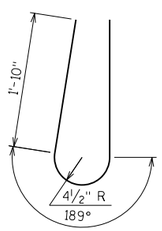
ABUTMENT DIAPHRAGM ENDS



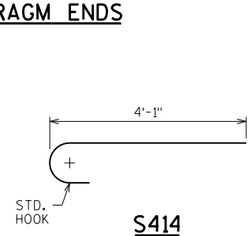
S521, S530, S531



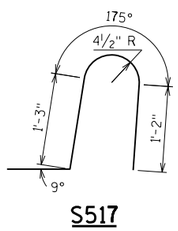
S516



S518



S414



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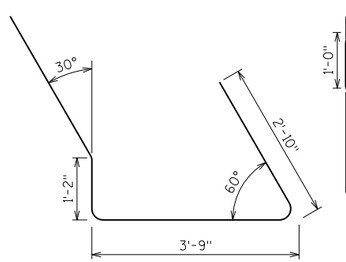
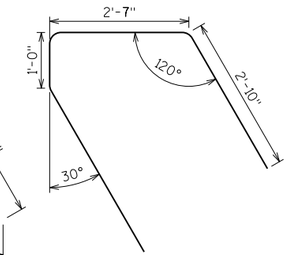


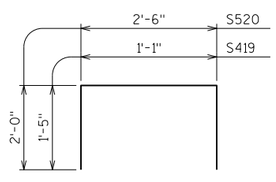
S632



S633

TOP OF DECK ELEVATIONS

LOCATION	℄ BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	℄ BRG. N. ABUT.
LT. EOD	1018.78	1018.77	1018.77	1018.76	1018.76	1018.76	1018.75	1018.75	1018.74	1018.74	1018.74
GIRDER 1	1018.87	1018.87	1018.86	1018.86	1018.86	1018.85	1018.85	1018.84	1018.84	1018.83	1018.83
GIRDER 2	1019.24	1019.24	1019.23	1019.23	1019.22	1019.22	1019.22	1019.21	1019.21	1019.20	1019.20
GIRDER 3	1019.61	1019.61	1019.60	1019.60	1019.59	1019.59	1019.58	1019.58	1019.58	1019.57	1019.57
GIRDER 4	1019.98	1019.97	1019.97	1019.97	1019.96	1019.96	1019.95	1019.95	1019.94	1019.94	1019.94
GIRDER 5	1020.35	1020.34	1020.34	1020.33	1020.33	1020.33	1020.32	1020.32	1020.31	1020.31	1020.31
GIRDER 6	1020.72	1020.71	1020.71	1020.70	1020.70	1020.69	1020.69	1020.69	1020.68	1020.68	1020.67
RT. EOD	1020.81	1020.81	1020.80	1020.80	1020.79	1020.79	1020.79	1020.78	1020.78	1020.77	1020.77



S419, S520

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

SUPERSTRUCTURE DETAILS

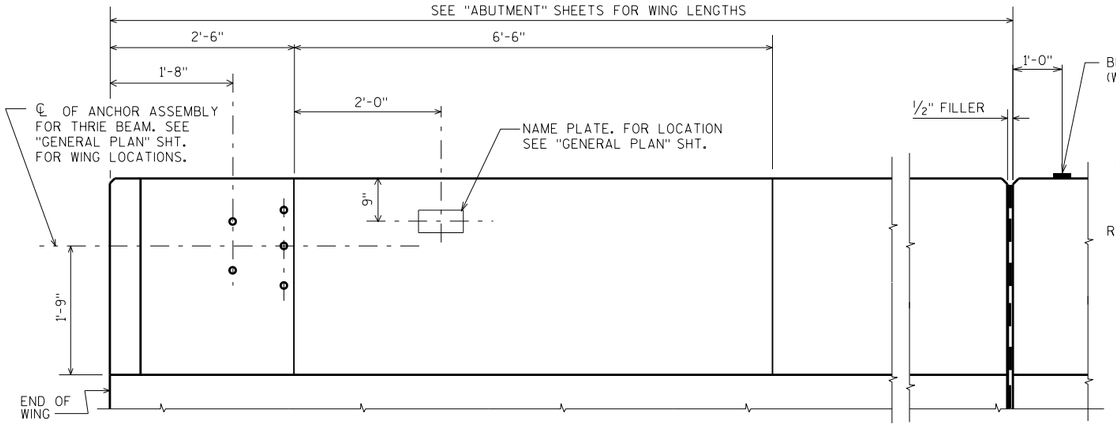
SHEET 13

128

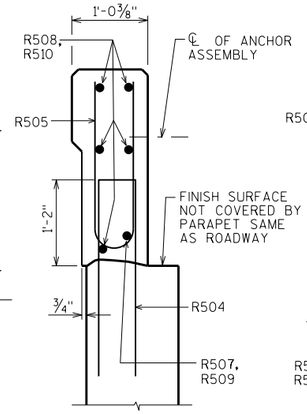
SCALE = 1.35

STATE PROJECT NUMBER

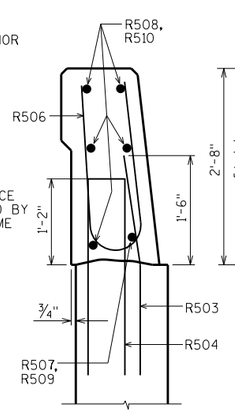
1600-22-62



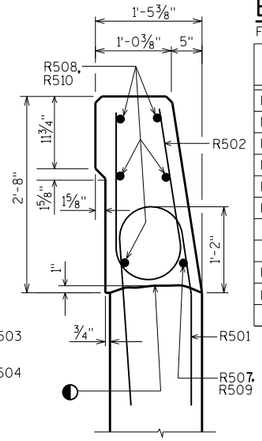
INSIDE ELEVATION



SECTION A



SECTION B

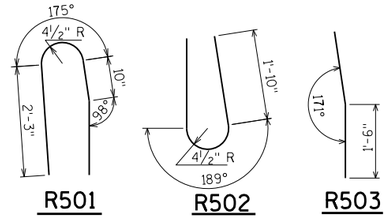


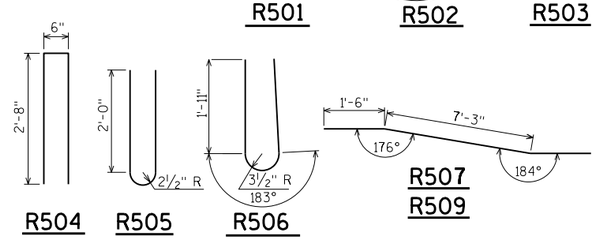
SECTION C

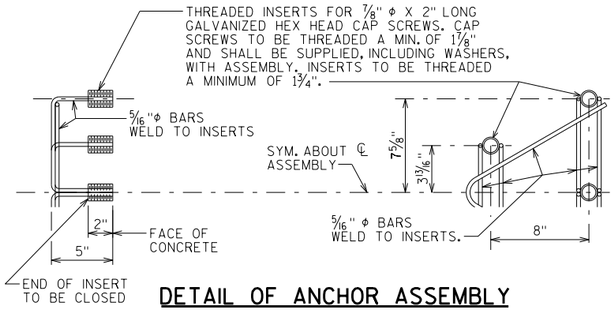
BILL OF BARS

FOR ABUTMENT PARAPETS

BAR MARK	COAT	S. ABUT.	N. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	12	18	5'-10"	X		PARAPET VERT.
R502	X	12	18	5'-0"	X		PARAPET VERT.
R503	X	24	24	3'-0"	X		PARAPET VERT.
R504	X	34	34	5'-7"	X		PARAPET VERT.
R505	X	22	22	4'-9"	X		PARAPET VERT.
R506	X	12	12	4'-10"	X		PARAPET VERT.
R507	X	3	—	11'-7"	X		HORIZ.- WINGS 1-3
R508	X	15	—	11'-8"			HORIZ.- WINGS 1-3
R509	X	—	1	15'-7"	X		HORIZ.- WING 4
R510	X	—	5	15'-8"			HORIZ.- WING 4



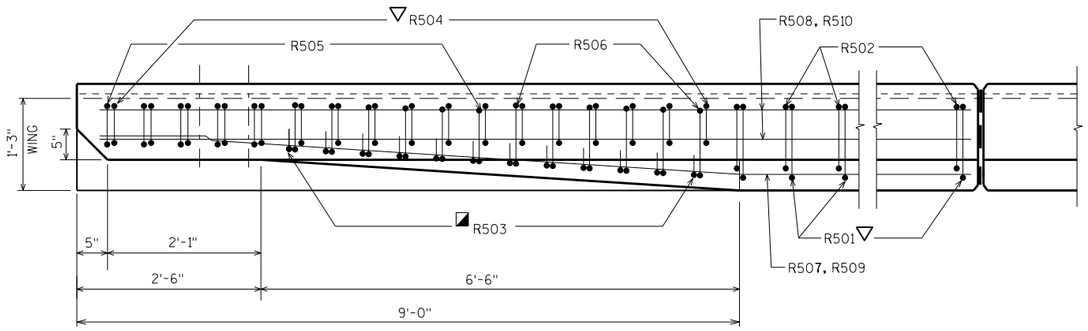




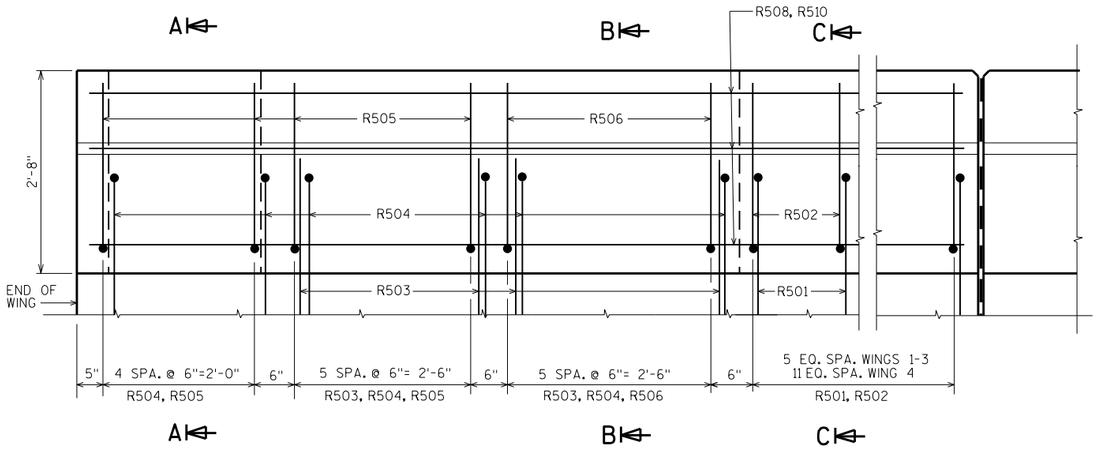
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.

ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.



PLAN



OUTSIDE ELEVATION

◐ CONST. JOINT - STRIKE OFF AS SHOWN.

◪ R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

SINGLE SLOPE PARAPET 32SS

SHEET 14

129

8

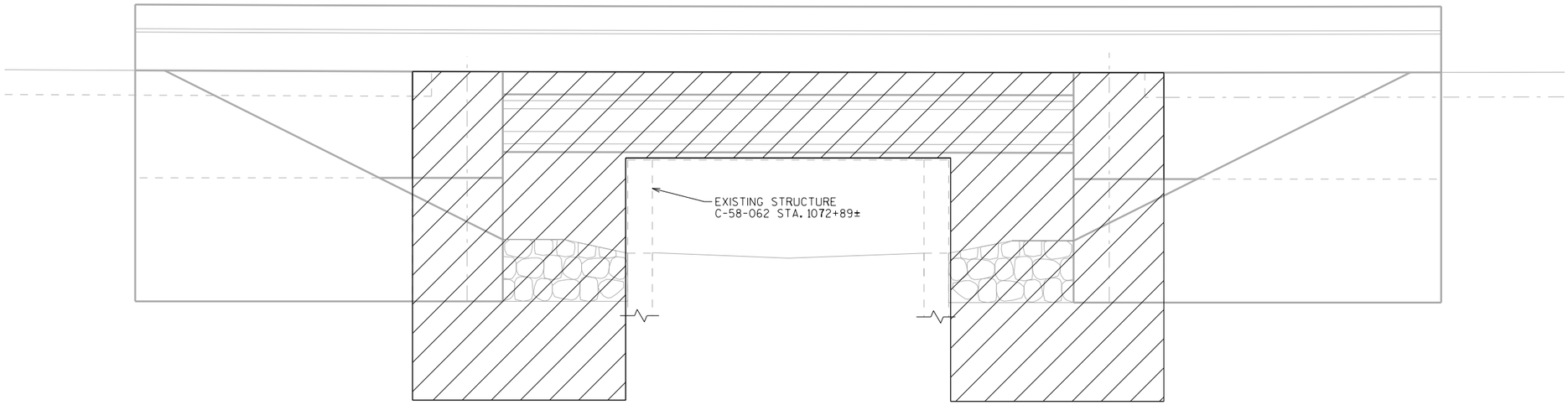
12

8

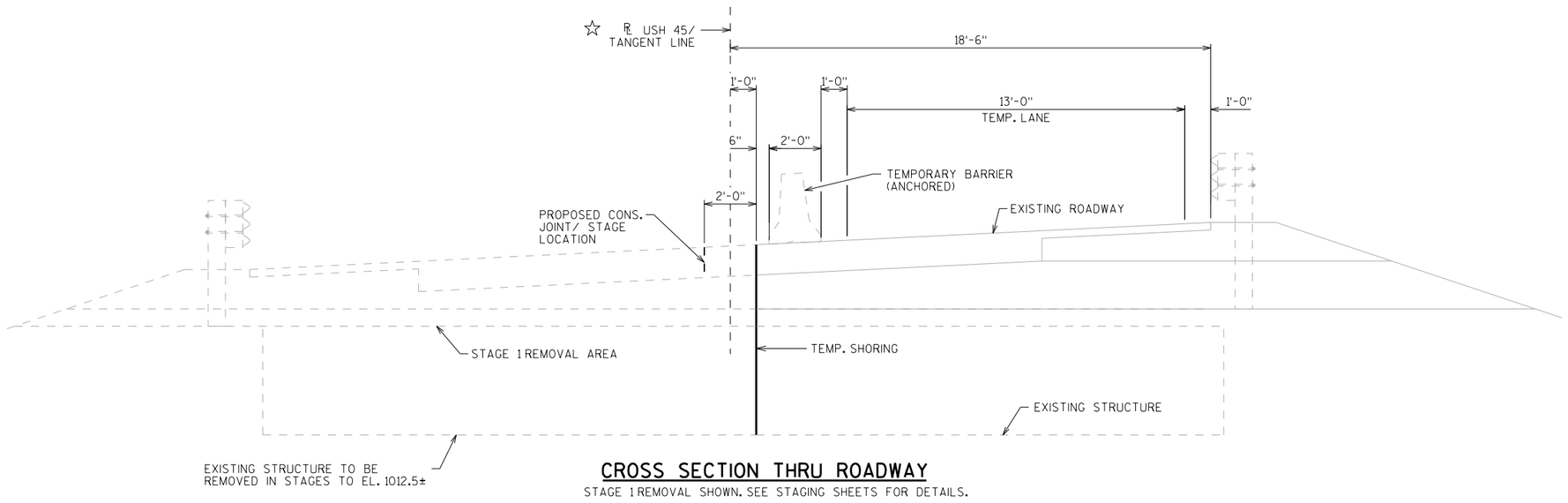
SCALE = 1.00

STATE PROJECT NUMBER

1600-22-62



ELEVATION



CROSS SECTION THRU ROADWAY

STAGE 1 REMOVAL SHOWN. SEE STAGING SHEETS FOR DETAILS.

ASSUMED LIMITS
TEMP. SHORING

LOOKING AT POINT OF
TANGENCY STA. 1072+89.00

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-58-133

DRAWN BY DLM | PLANS CK'D. MWB

TEMPORARY SHORING

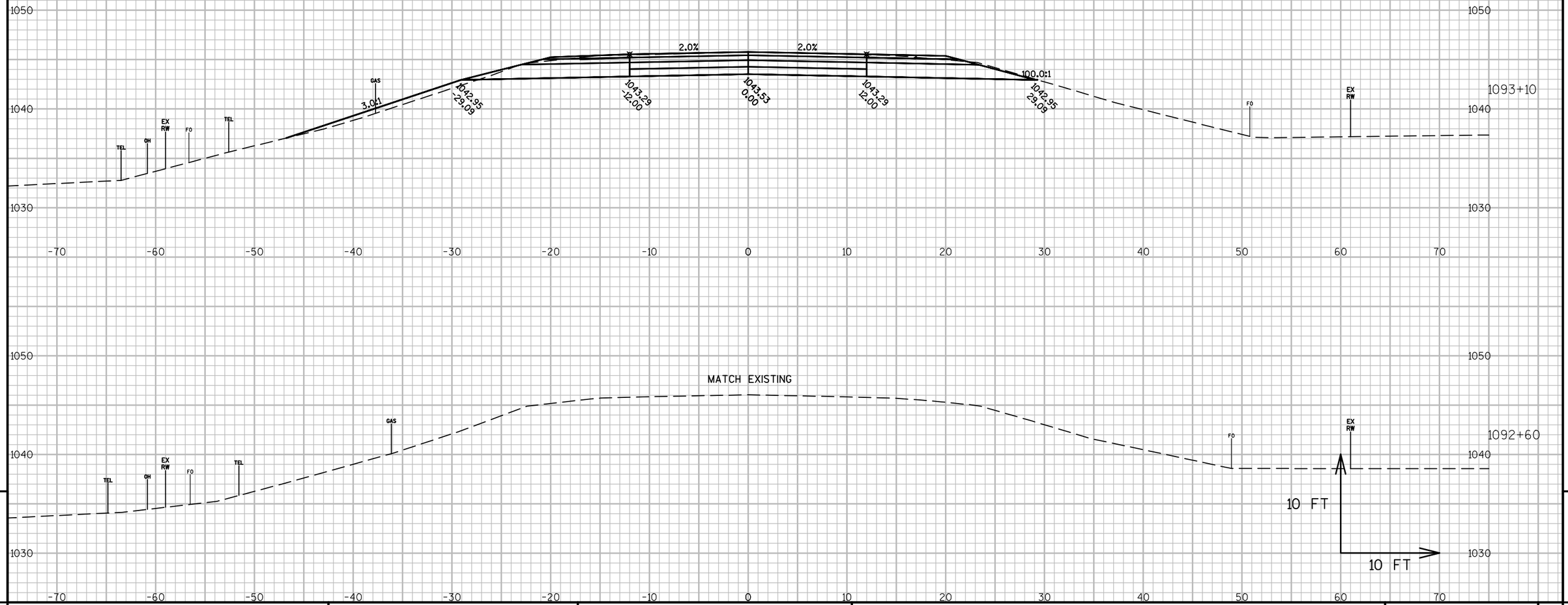
SHEET 15

130

SCALE = 2.50

8

8

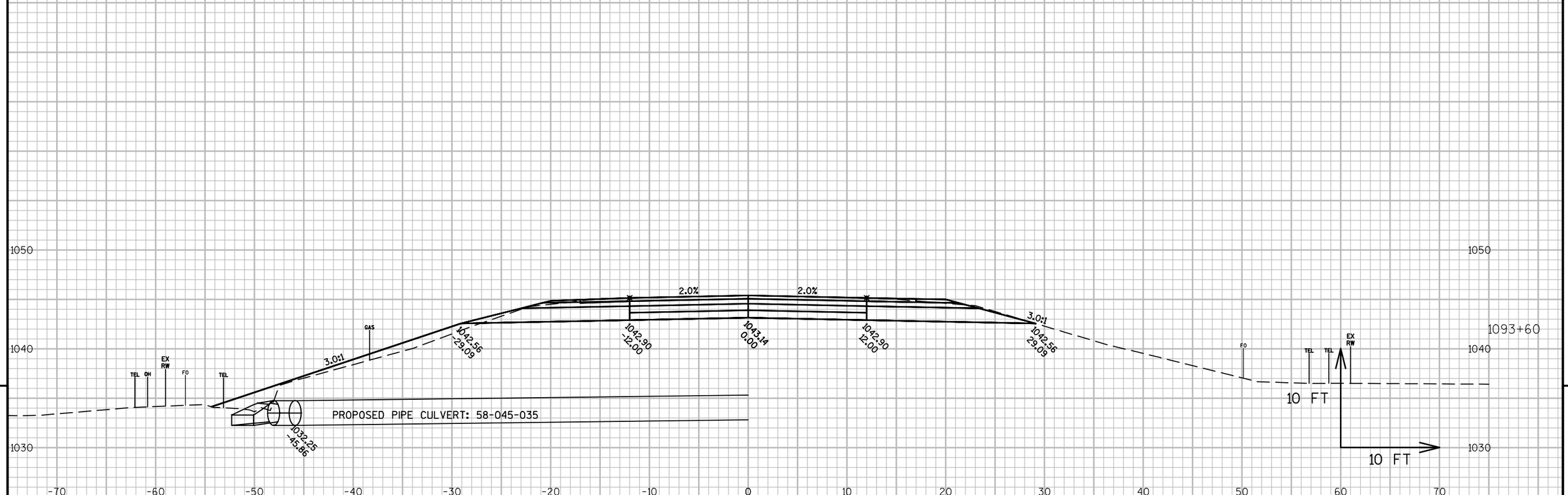


9

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 131	E

9

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - ****
PLOT DATE : 8/8/2017 8:34 AM
PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49



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9

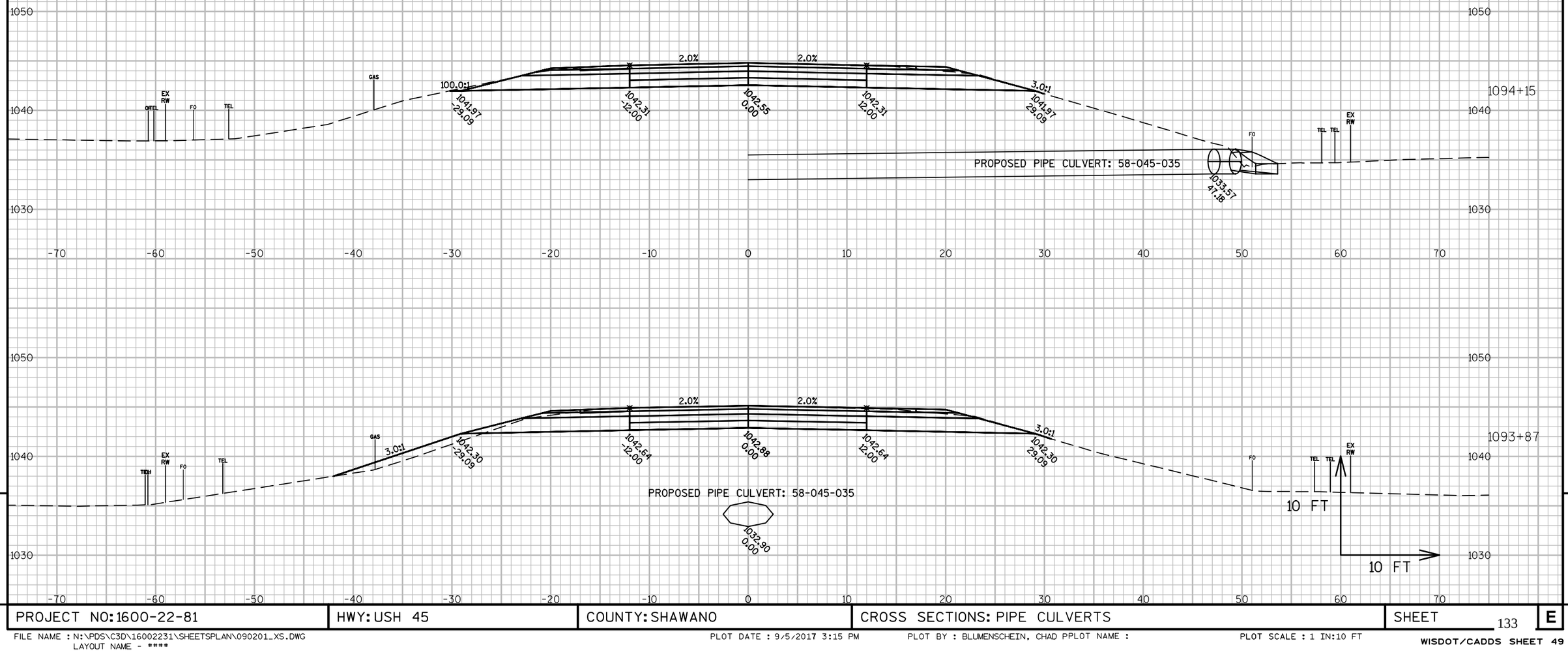
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 132	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 9/5/2017 3:15 PM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT



9

9

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 133	E

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LAYOUT NAME - ****

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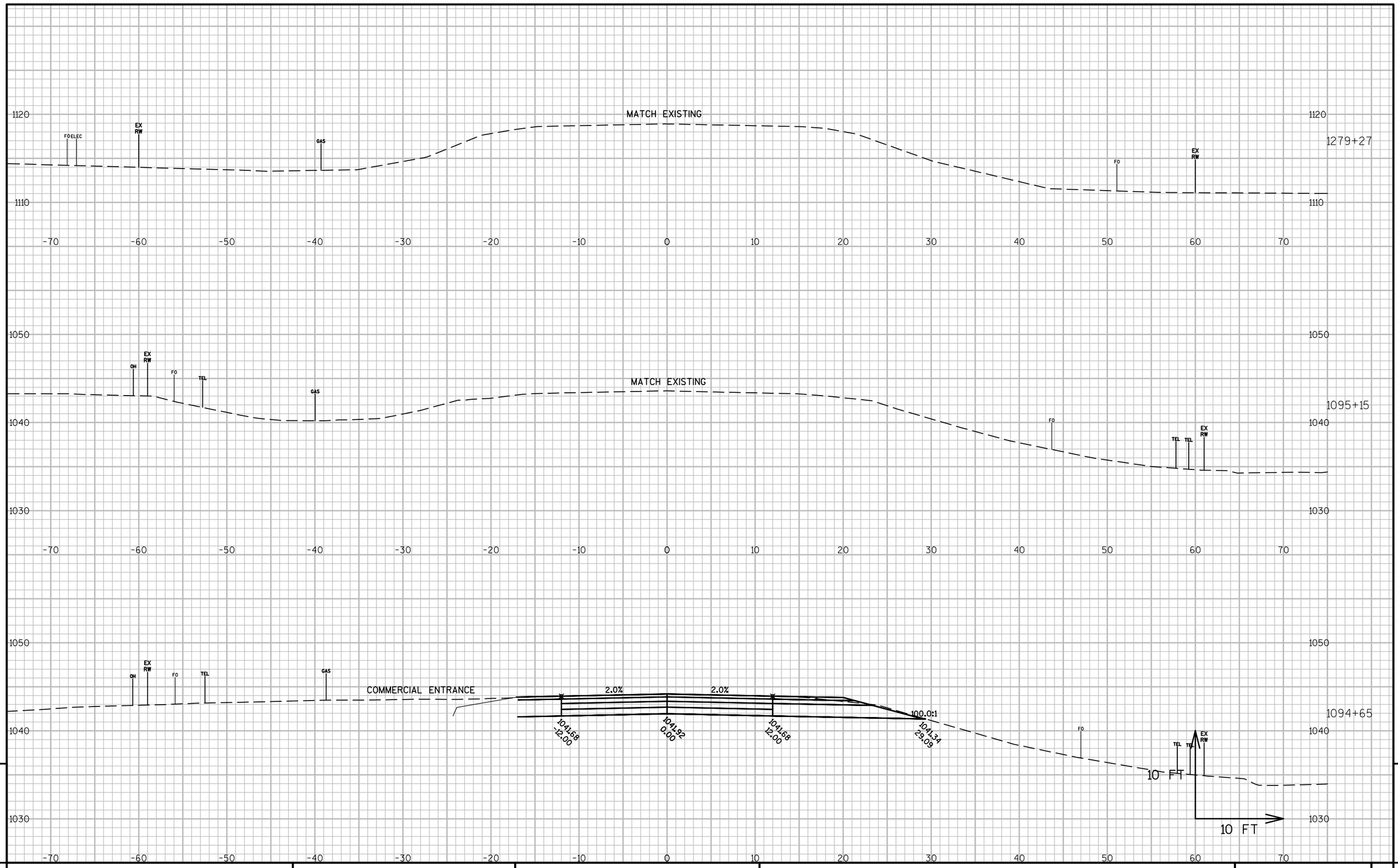
PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 134	E

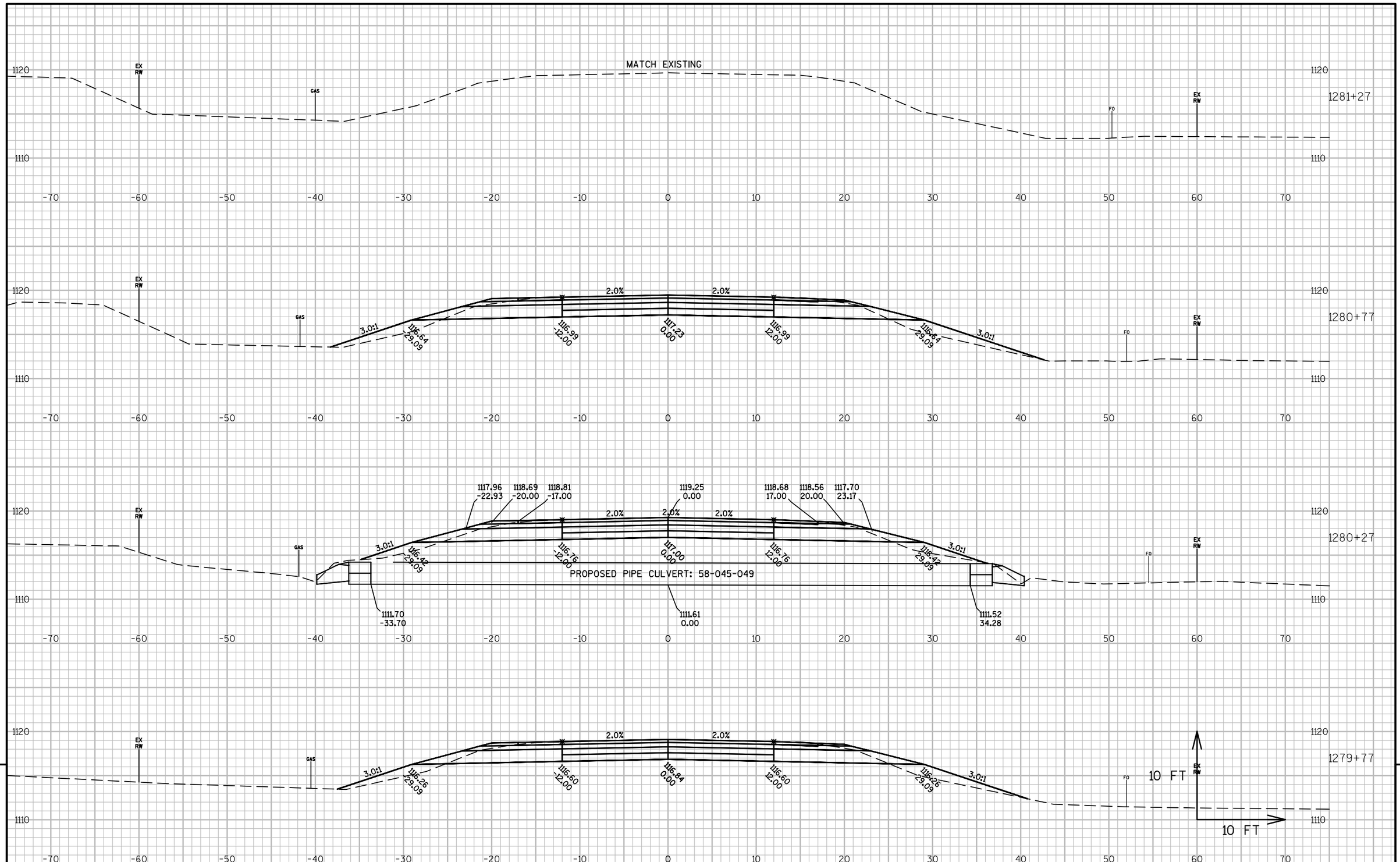
FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 8:35 AM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



9

9

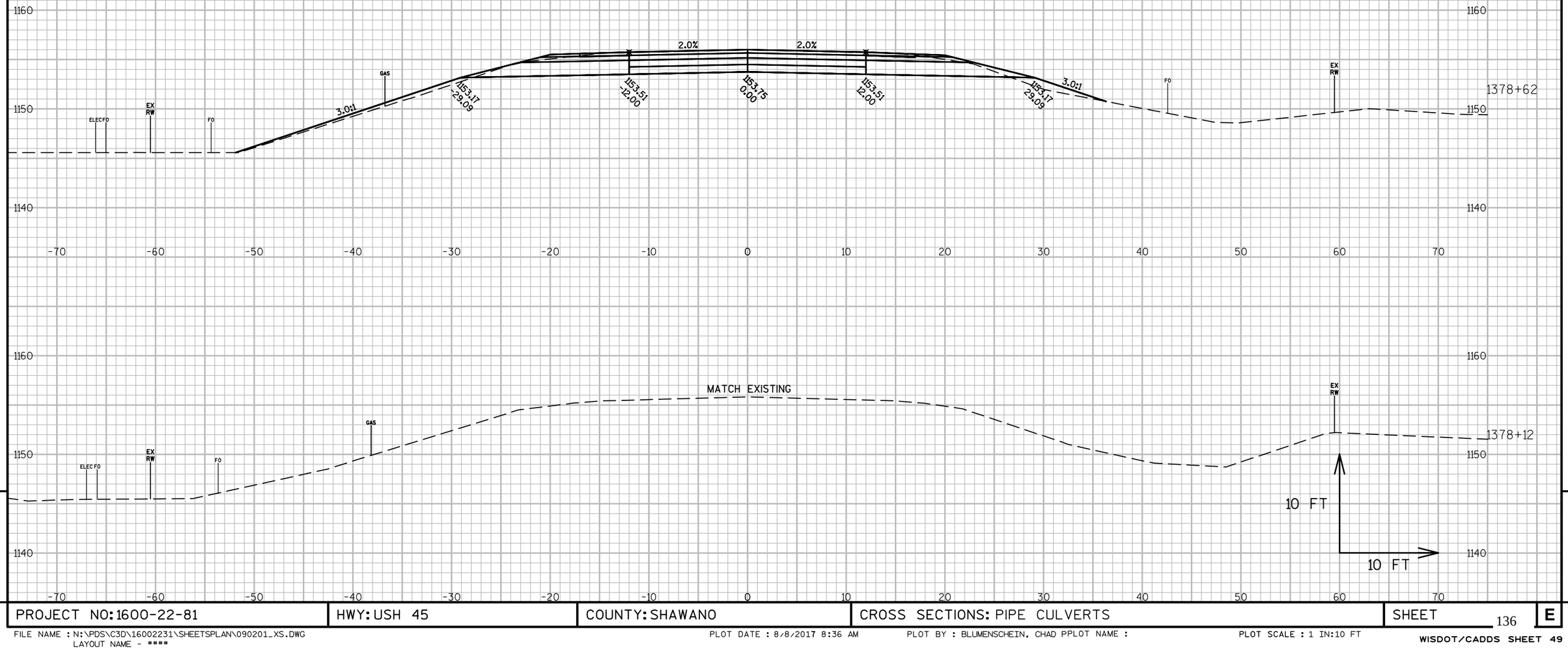
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 135	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 8:35 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT

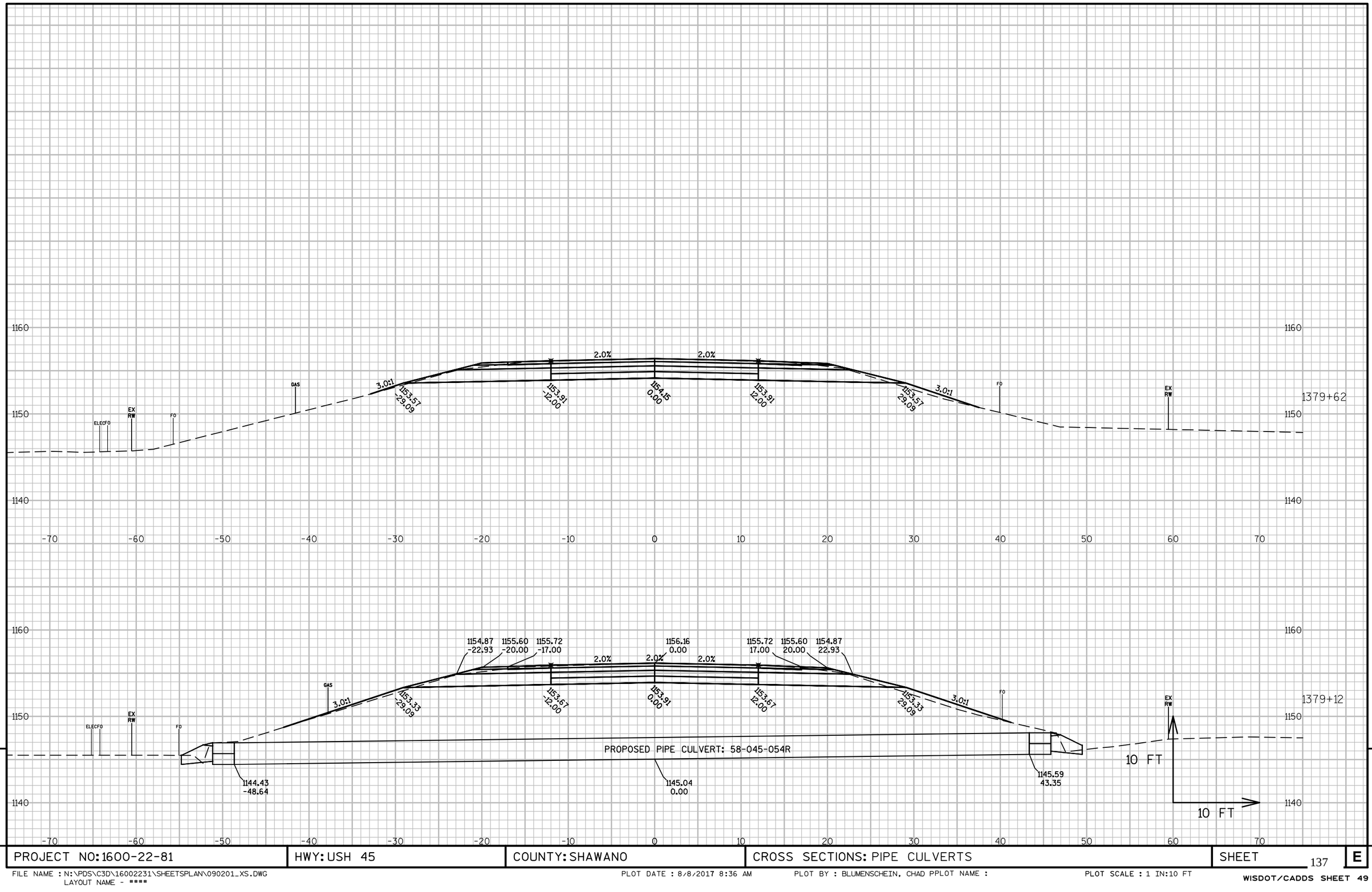
WISDOT/CADDS SHEET 49



9

9

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 136	E



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 137	E

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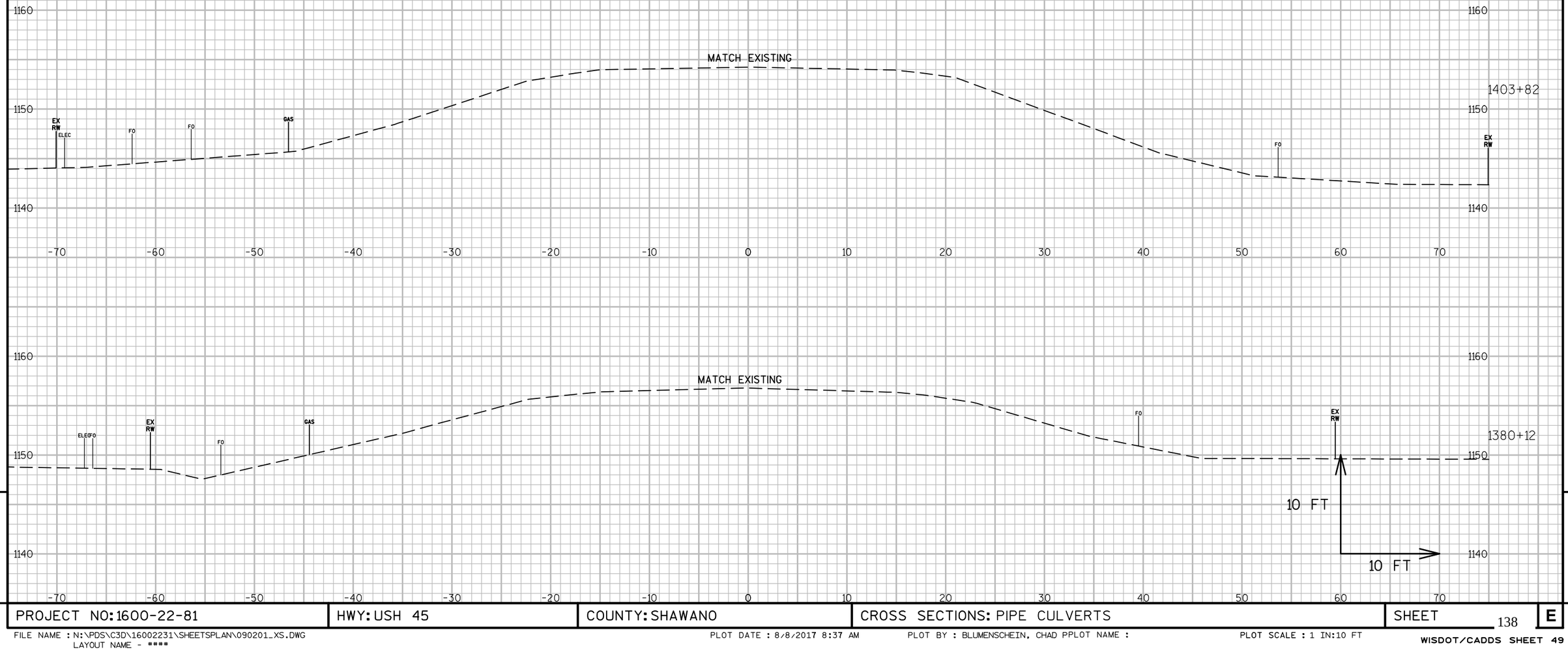
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 8:36 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



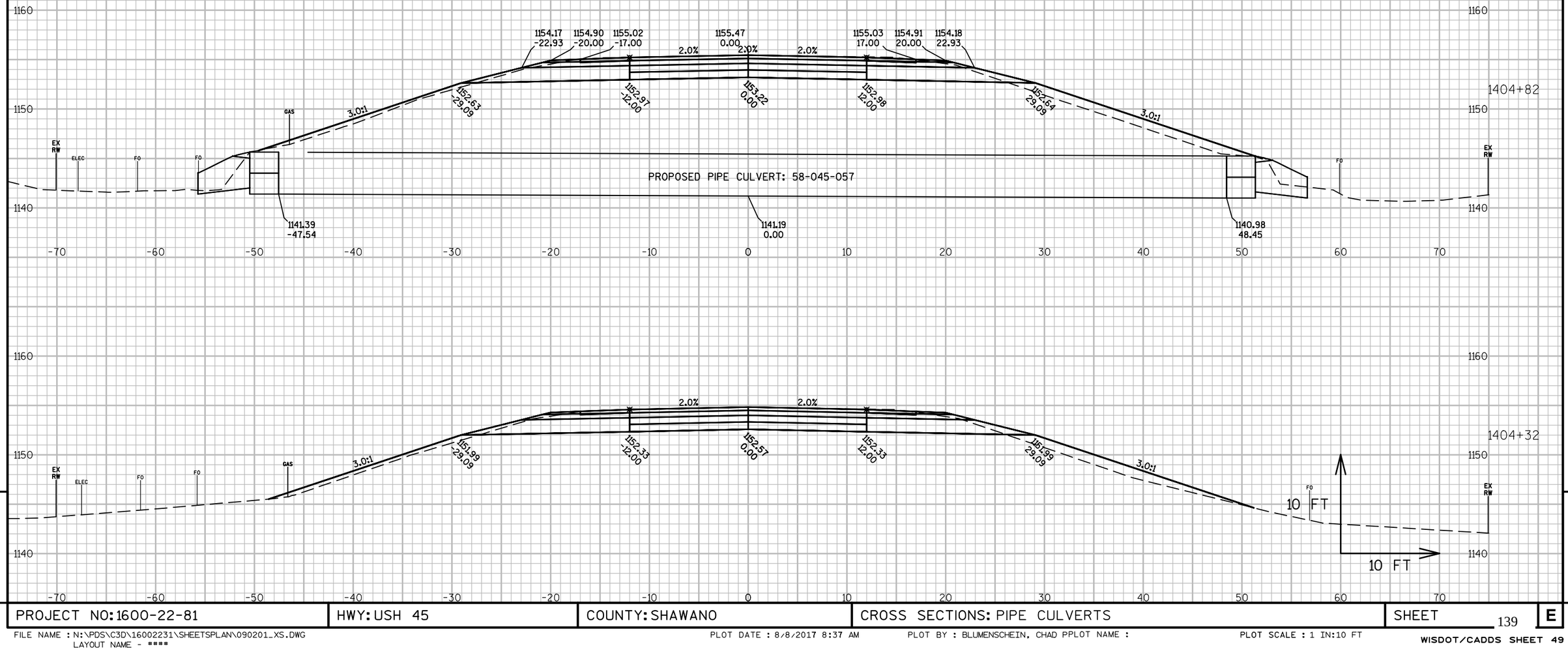
9

9

PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 138	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 8:37 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:10 FT



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PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 139	E

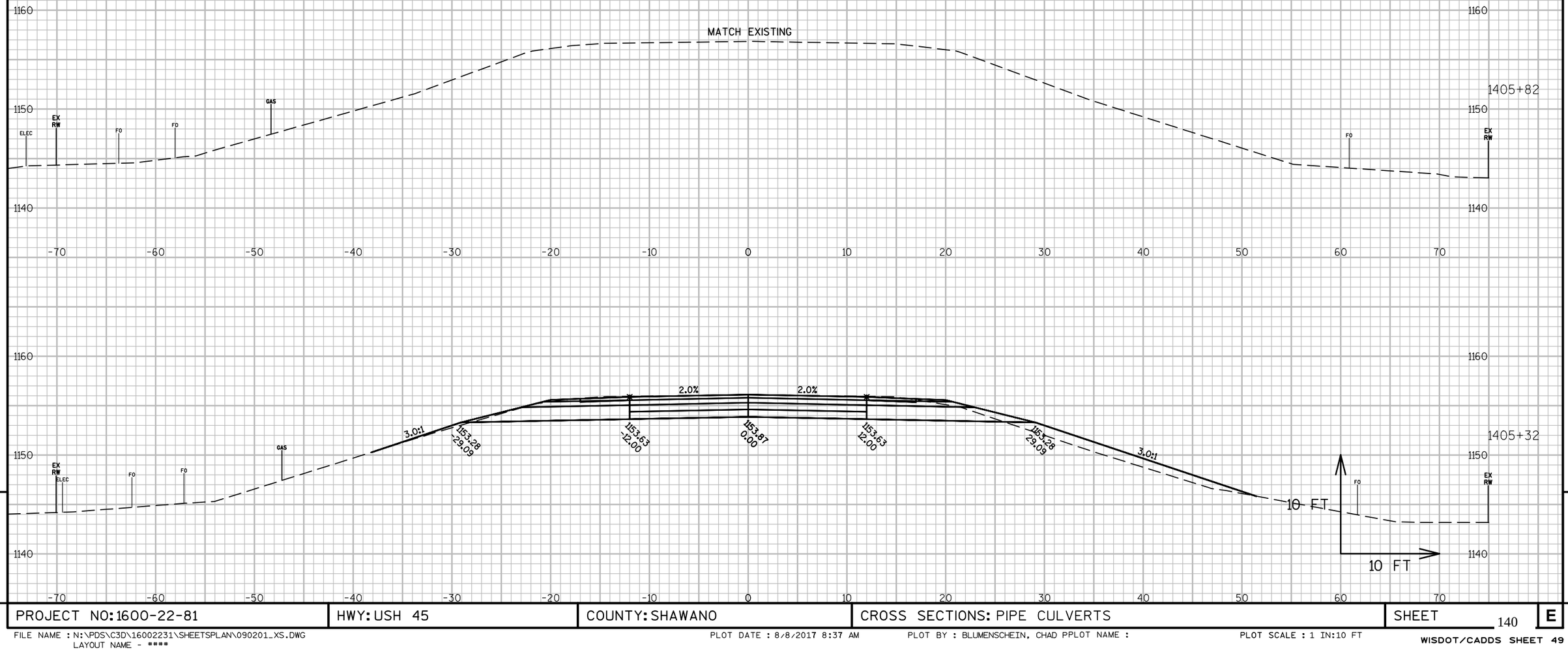
FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 8:37 AM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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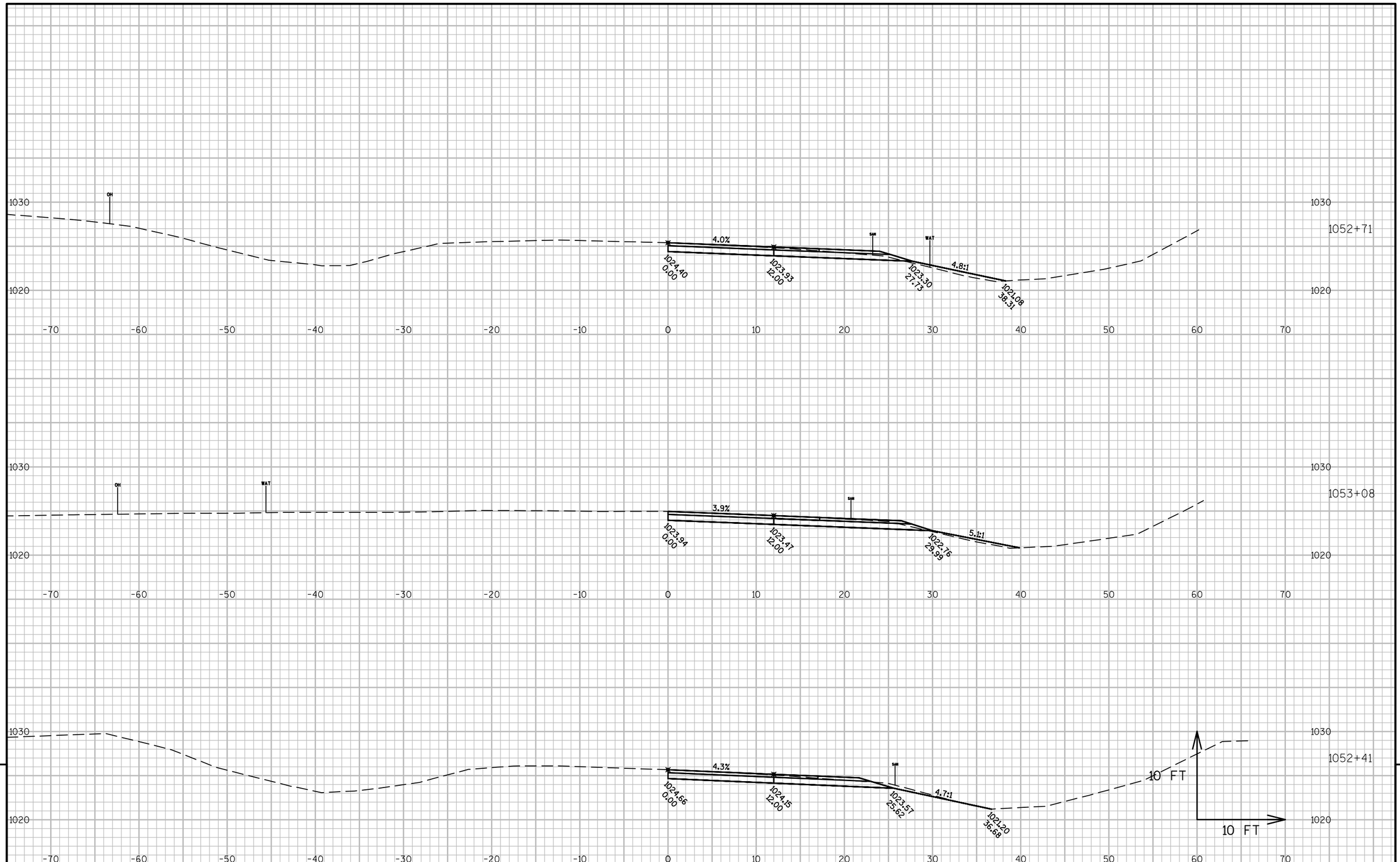
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: PIPE CULVERTS	SHEET 140	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090201_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 8:37 AM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT



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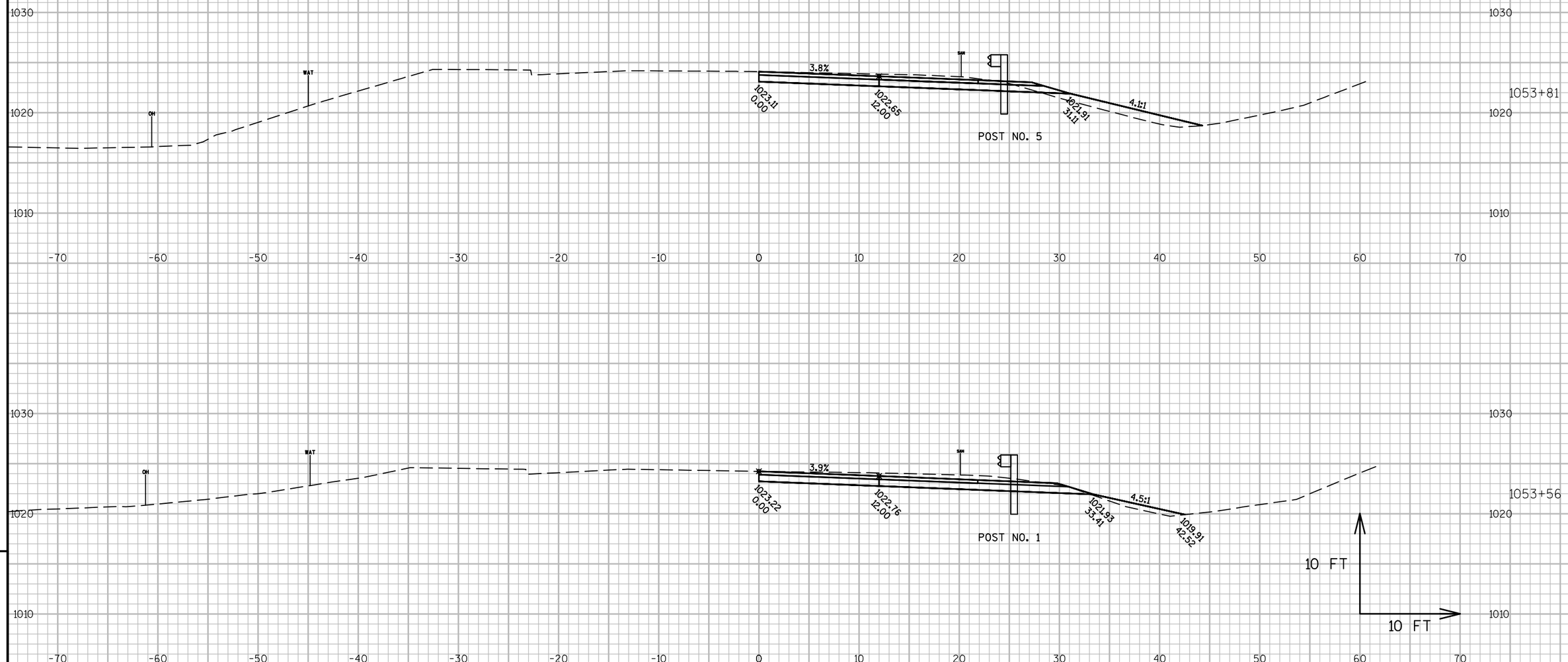
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 141	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 9:01 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:10 FT



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PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 142	E

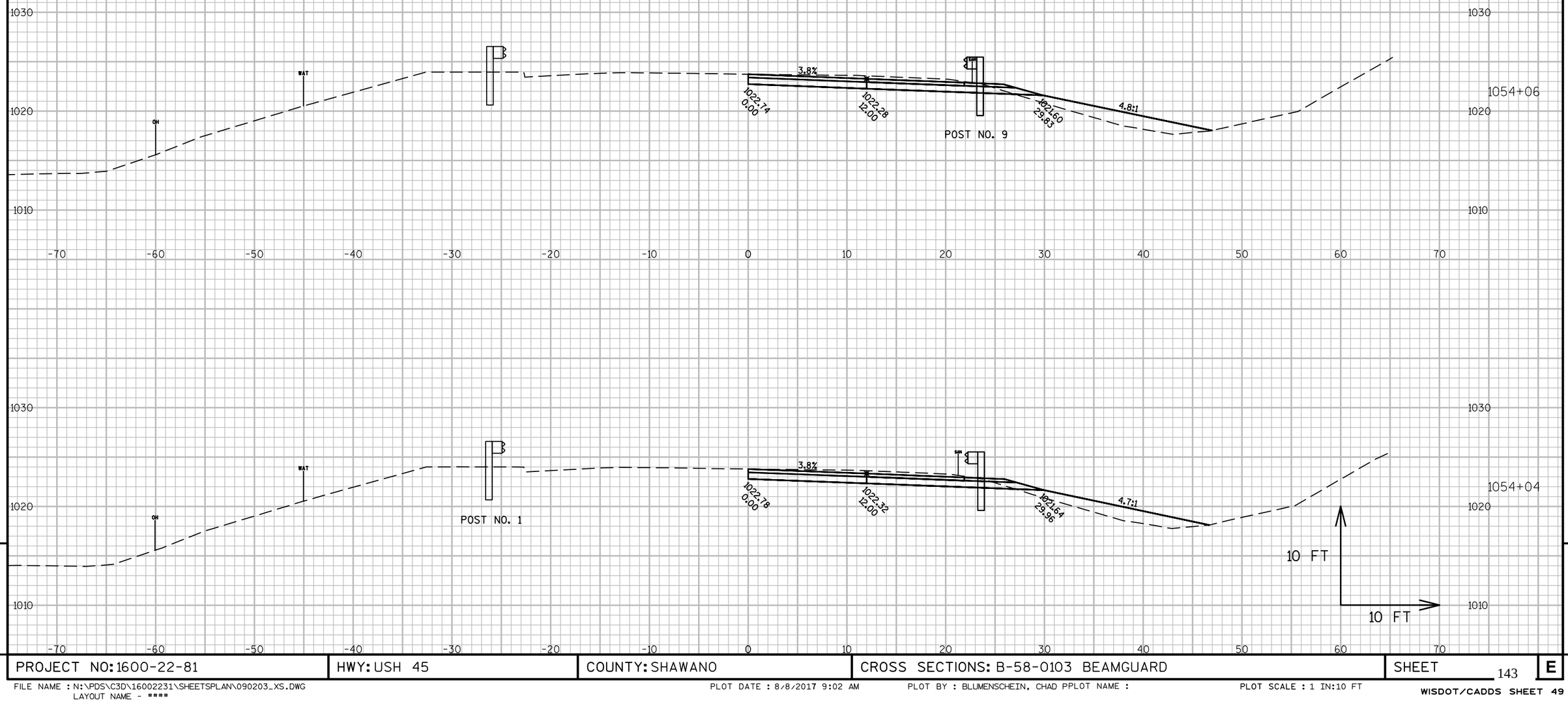
FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 9:02 AM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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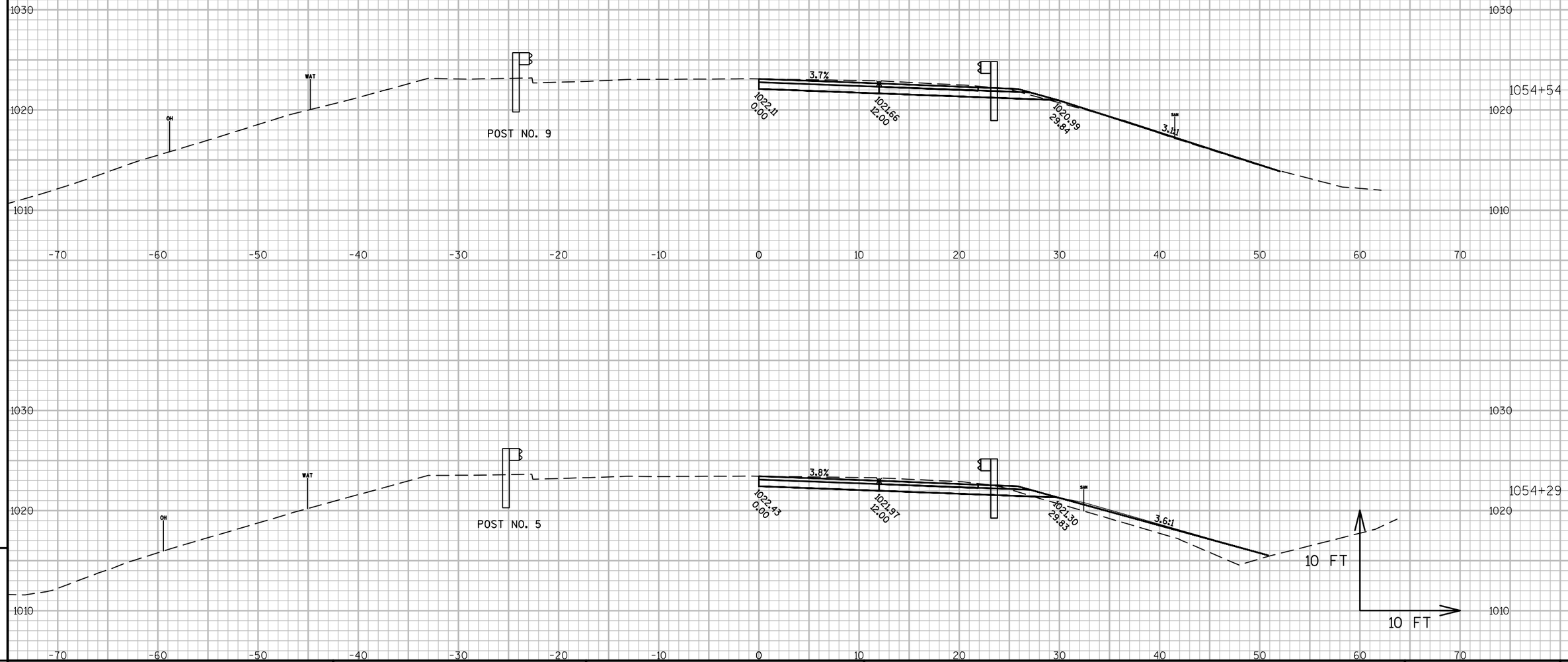
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 143	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 9:02 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 144	E

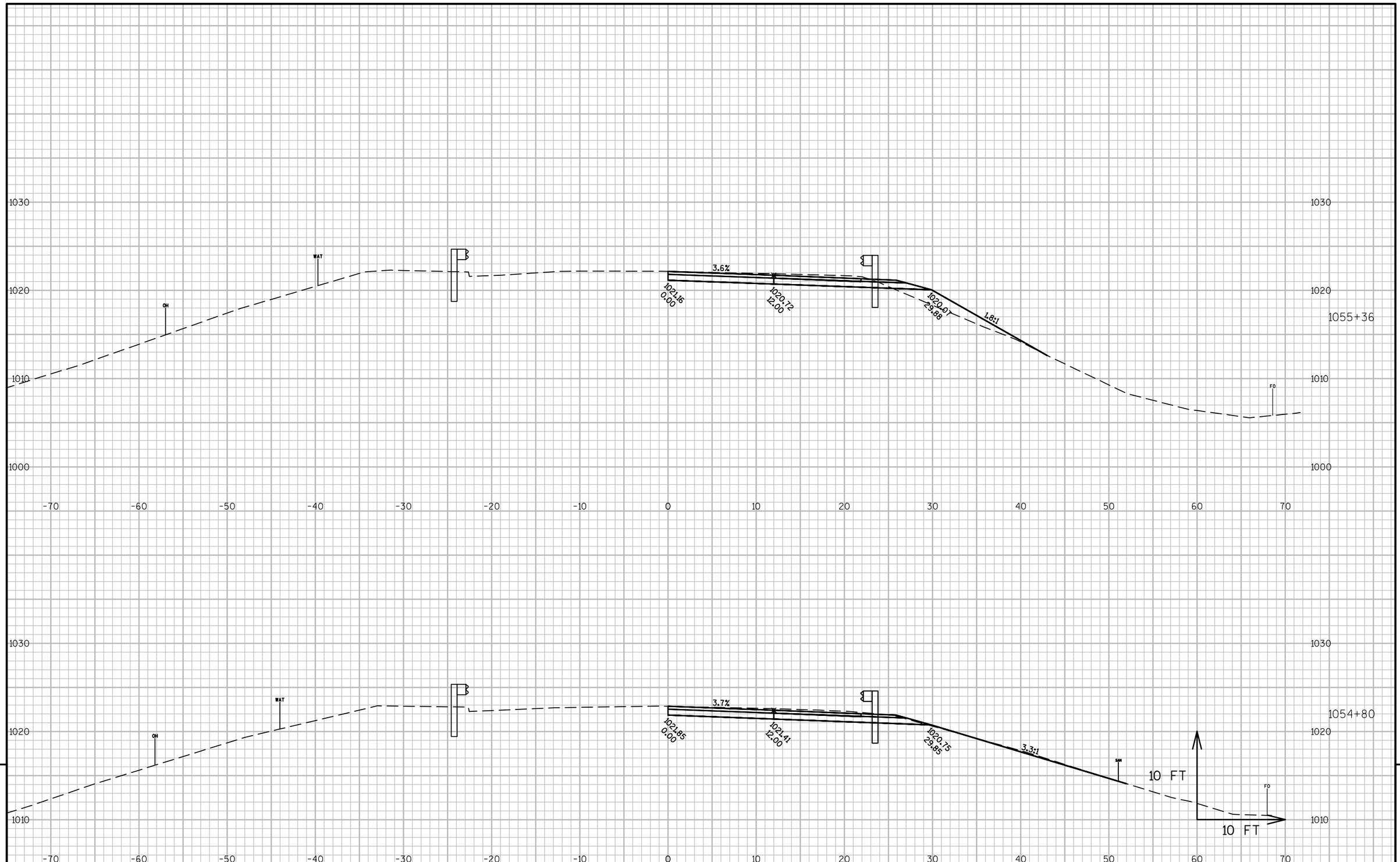
FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 9:05 AM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49

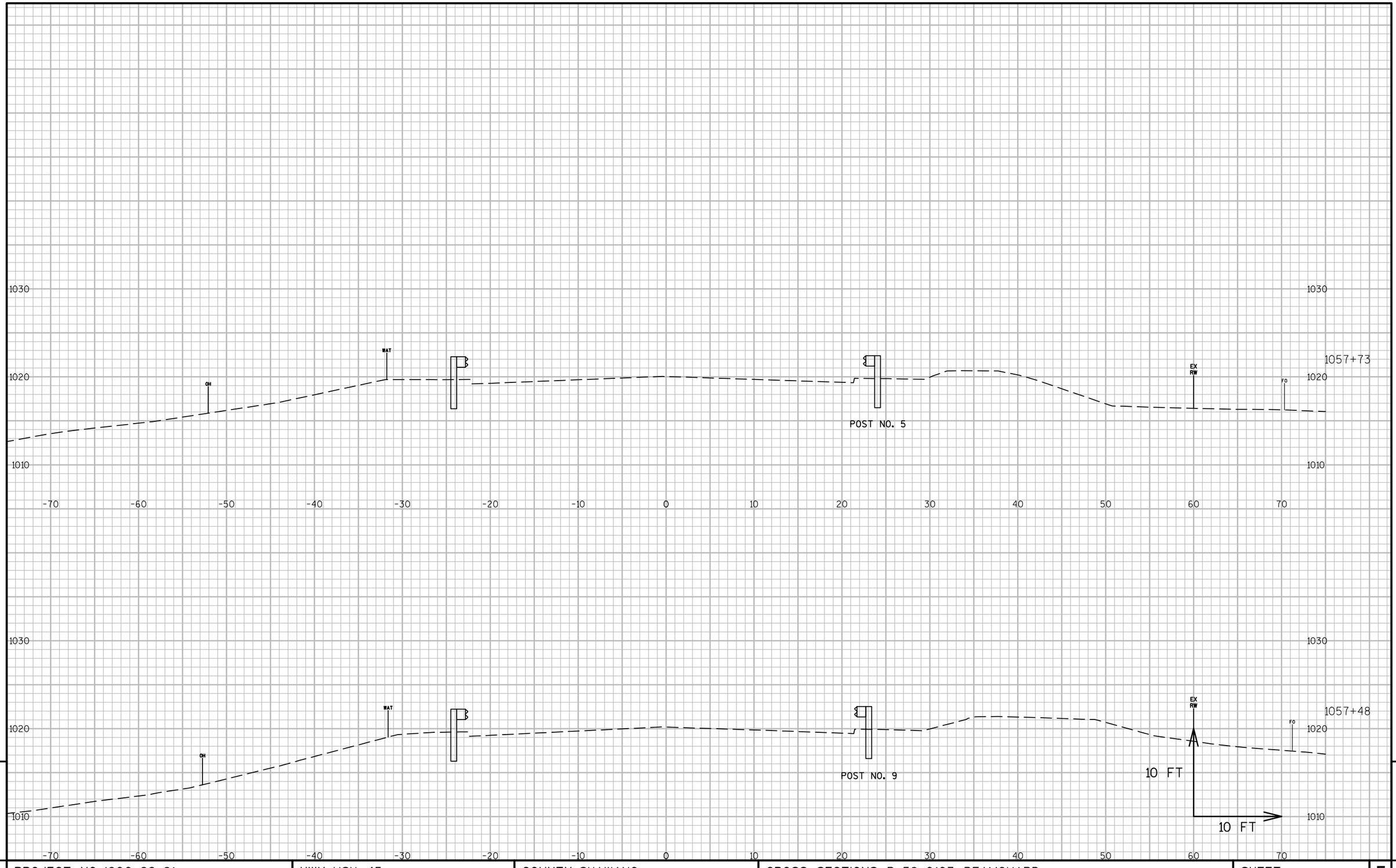


PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 145	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 9:03 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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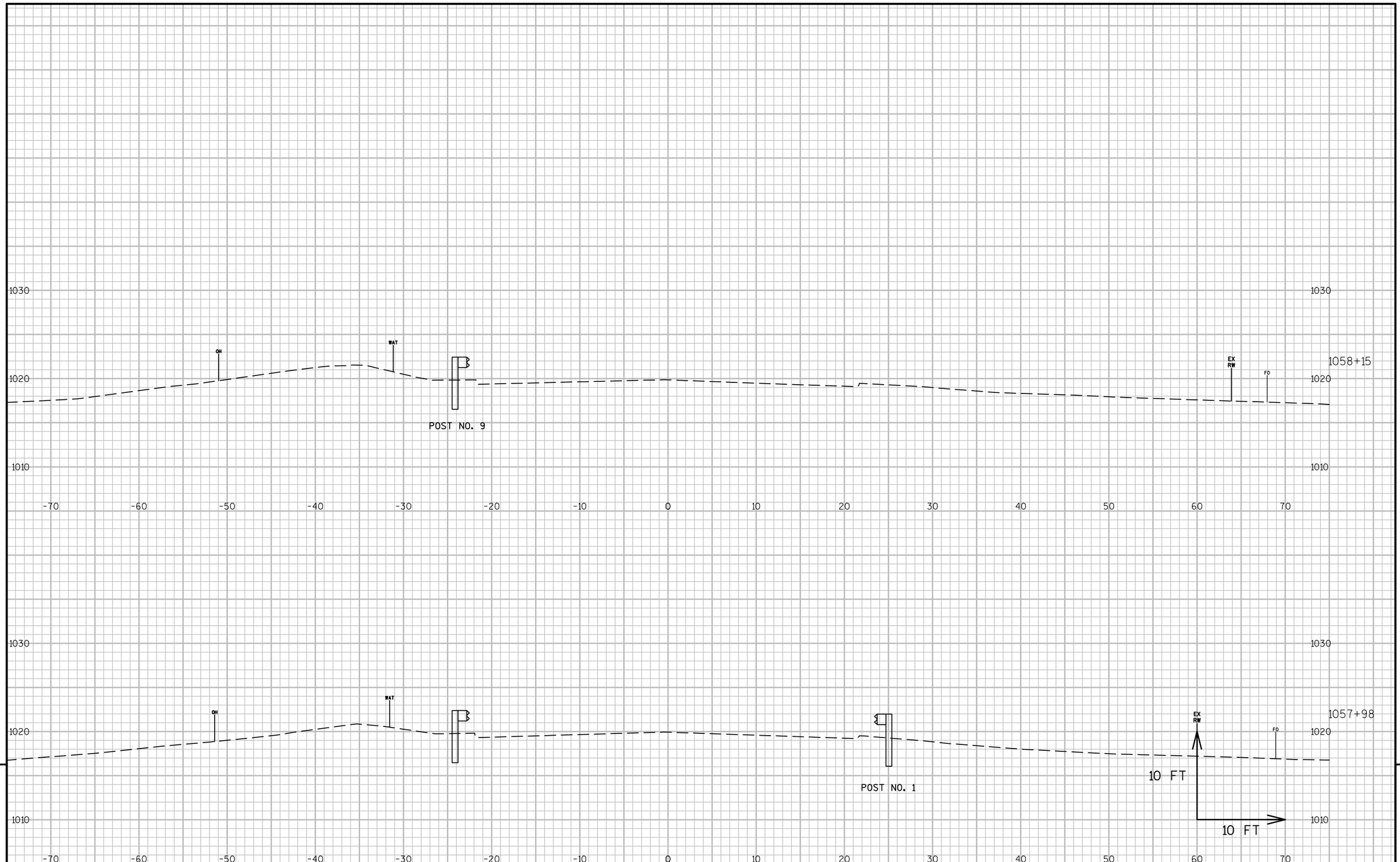
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 146	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 9:04 AM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT



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PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 147	E

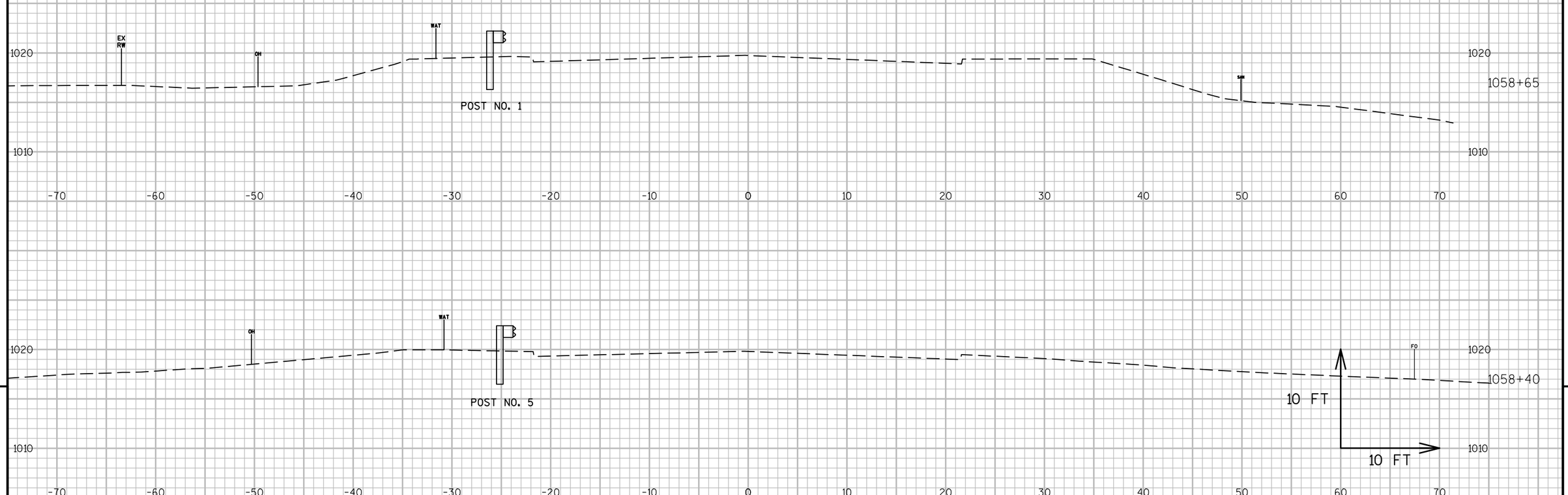
FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090203_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 9:04 AM

PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :

PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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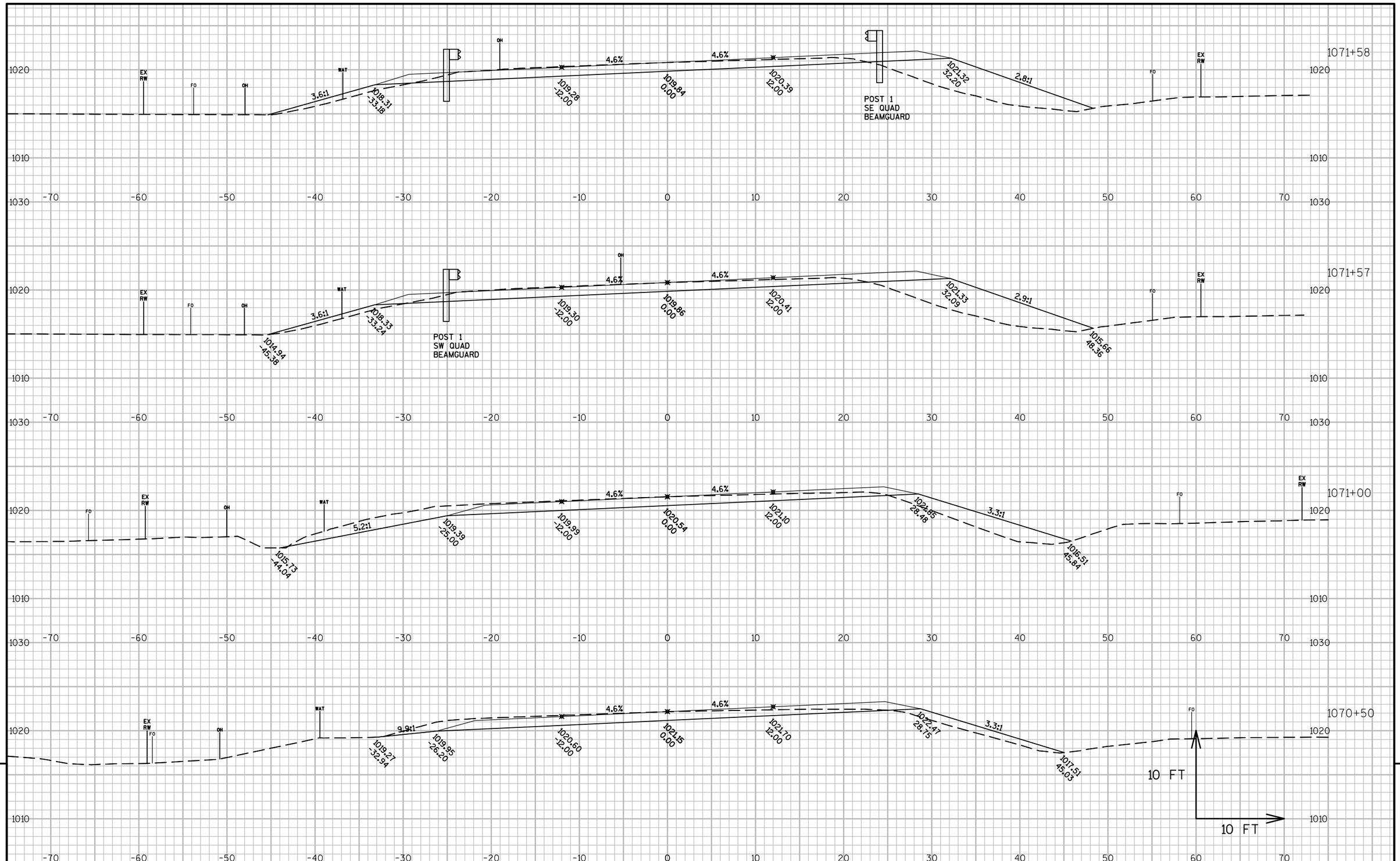
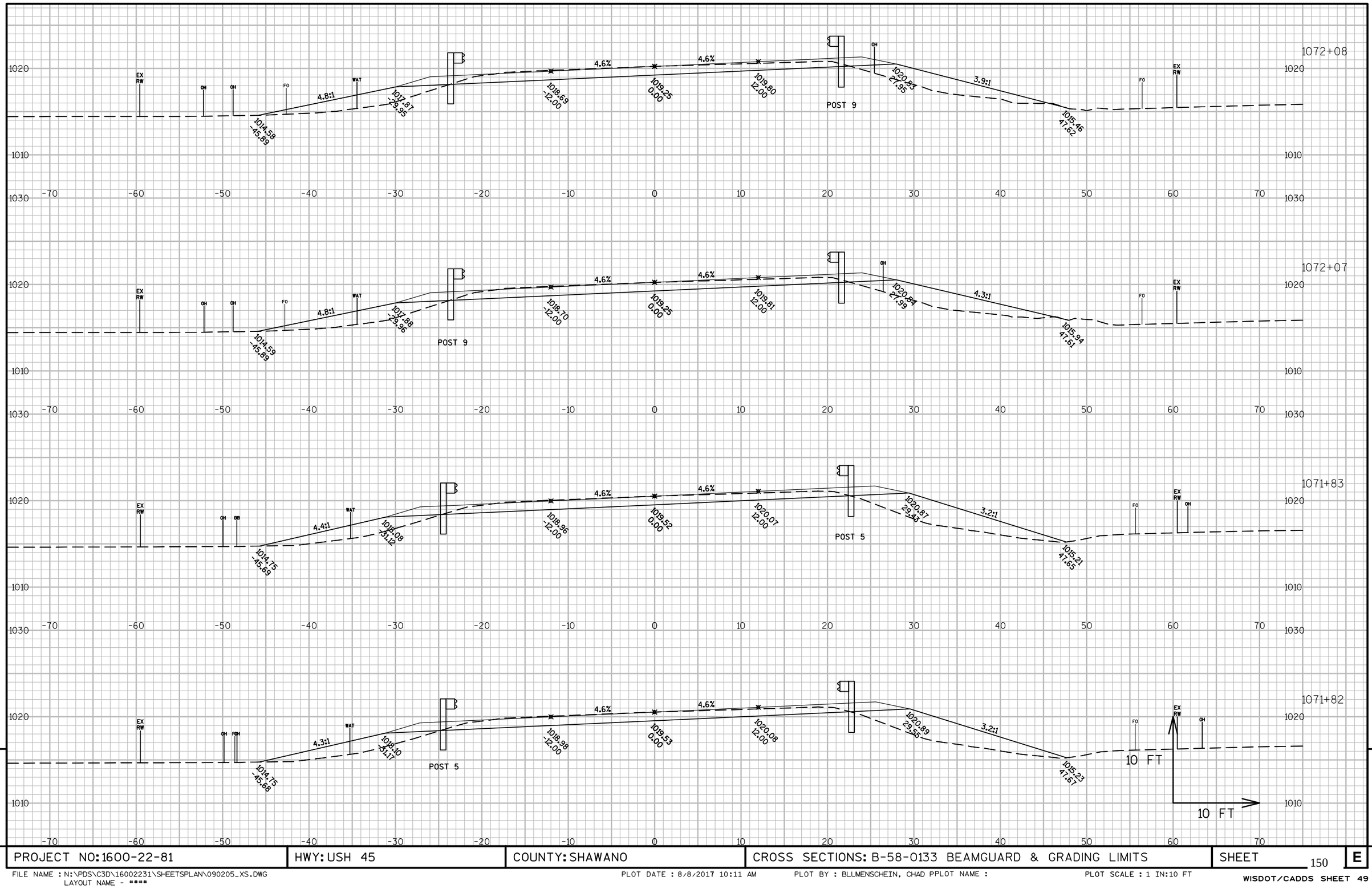
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0103 BEAMGUARD	SHEET 148	E



PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0133 BEAMGUARD & GRADING LIMITS	SHEET 149 E



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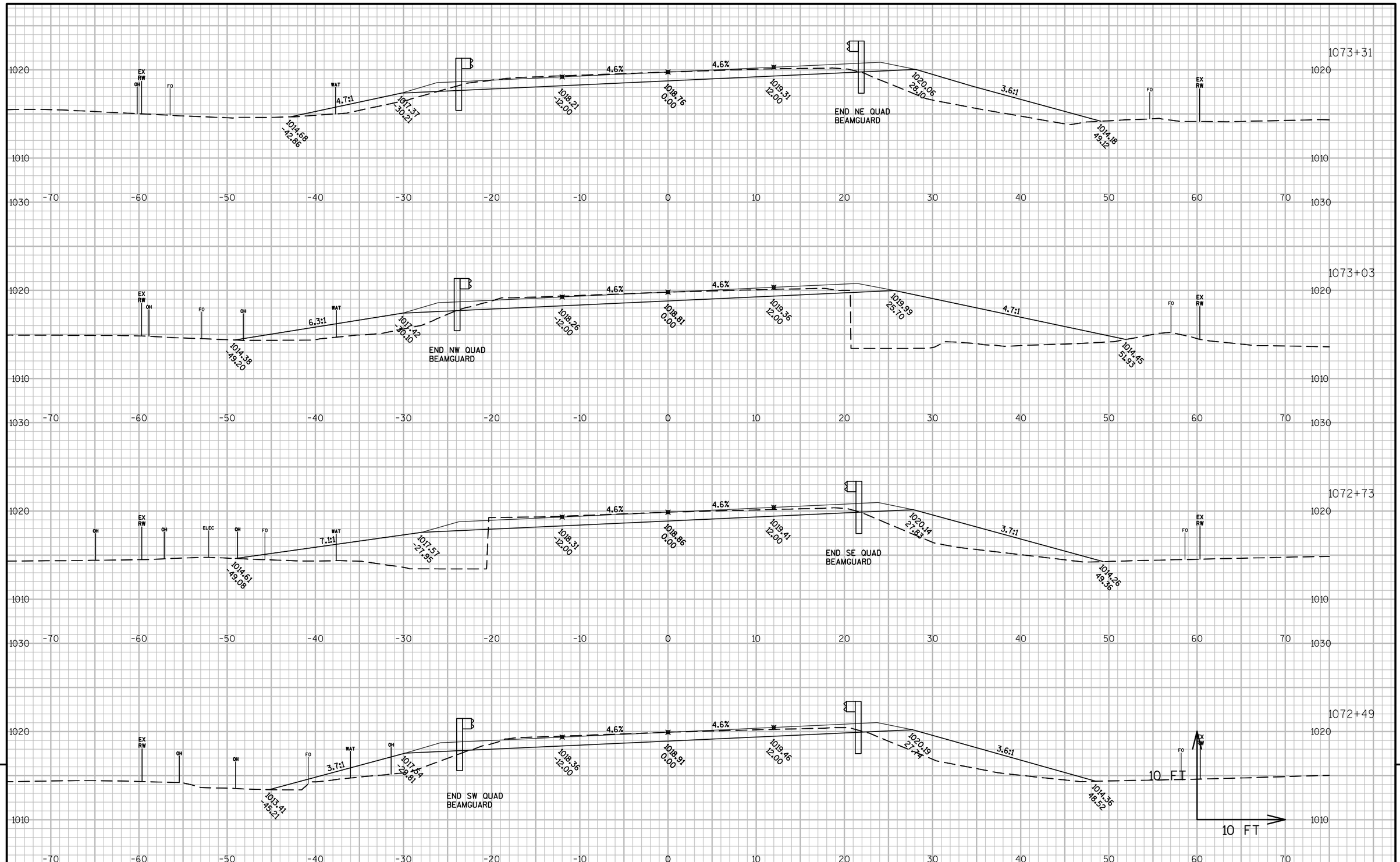
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0133 BEAMGUARD & GRADING LIMITS	SHEET 150 E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090205_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 10:11 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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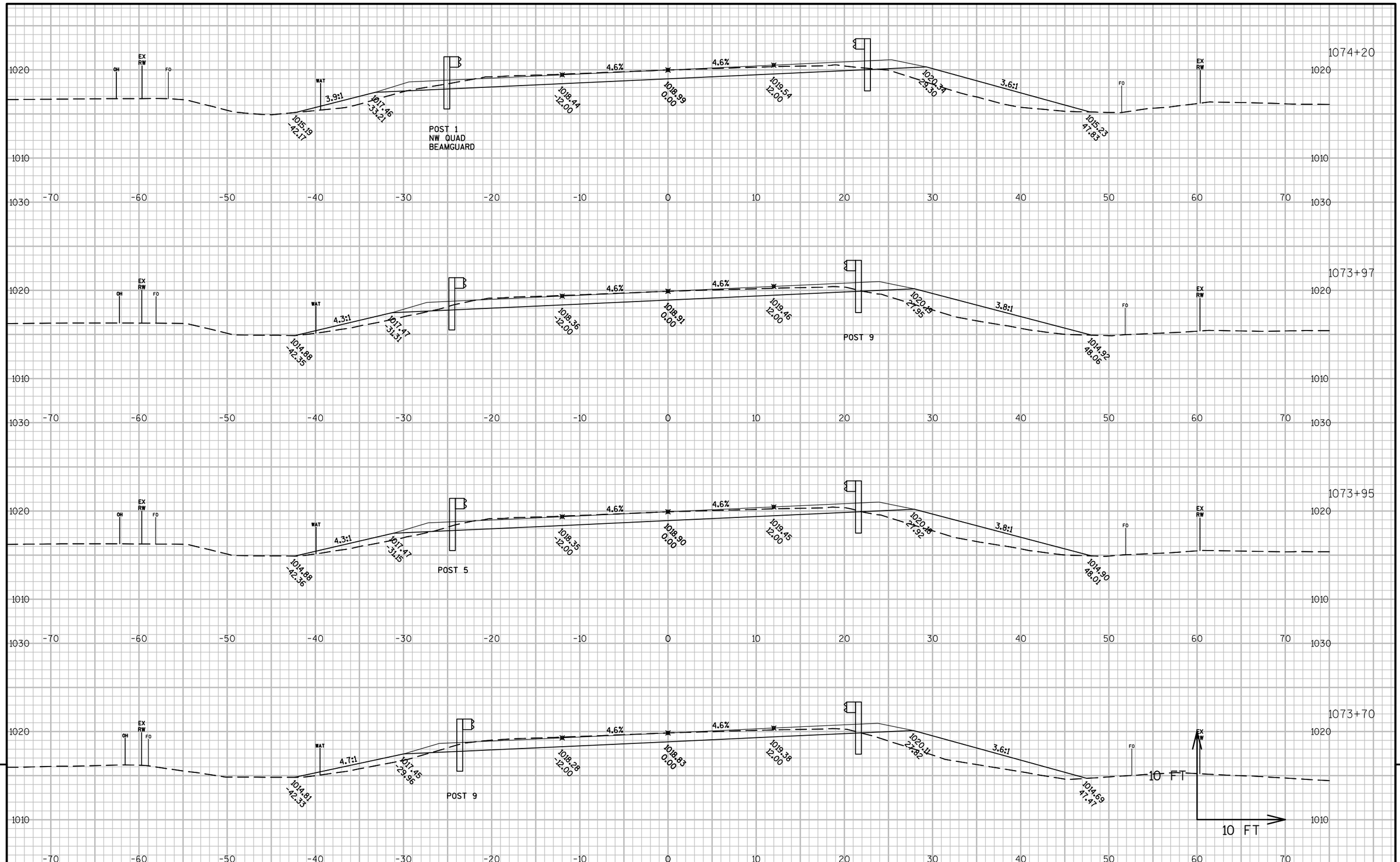
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0133 BEAMGUARD & GRADING LIMITS	SHEET 151	E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090205_XS.DWG
LAYOUT NAME - ****
PLOT DATE : 8/8/2017 10:11 AM
PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME :
PLOT SCALE : 1 IN:10 FT
WISDOT/CADDS SHEET 49



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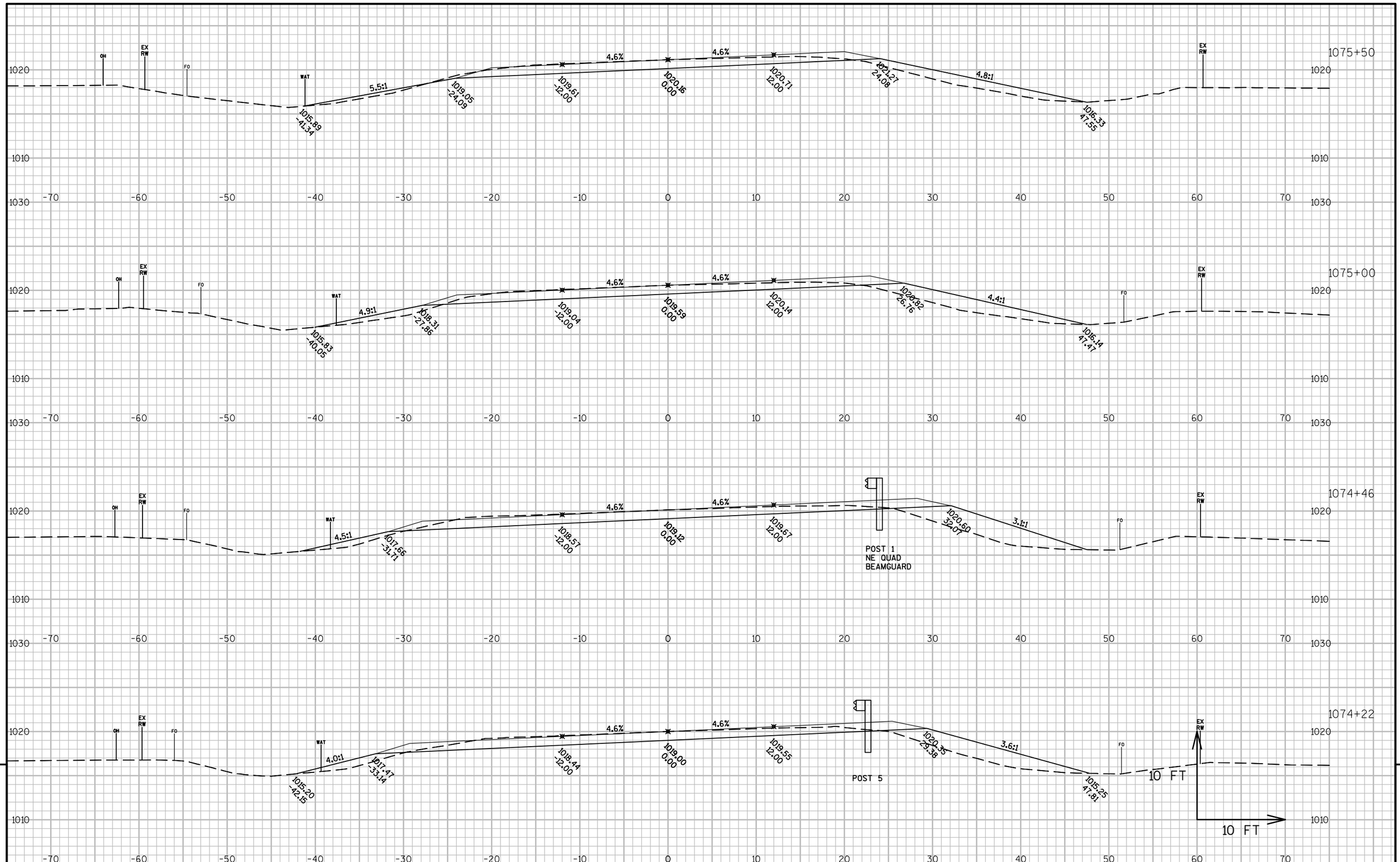
PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0133 BEAMGUARD & GRADING LIMITS	SHEET 152 E

FILE NAME : N:\PDS\C3D\16002231\SHEETSPLAN\090205_XS.DWG
LAYOUT NAME - ****

PLOT DATE : 8/8/2017 10:11 AM PLOT BY : BLUMENSCHEIN, CHAD PPLOT NAME : PLOT SCALE : 1 IN:10 FT

WISDOT/CADDS SHEET 49



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PROJECT NO: 1600-22-81	HWY: USH 45	COUNTY: SHAWANO	CROSS SECTIONS: B-58-0133 BEAMGUARD & GRADING LIMITS	SHEET 153	E

Wisconsin Department of Transportation

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