

RHI
PROJECT ID: 9488-02-70
COUNTY: PRICE
DATE: 10/28/2025

MARCH 2026

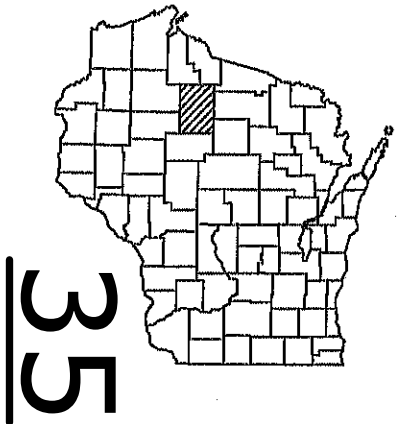
ORDER OF SHEETS		
Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	6	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure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

TOTAL SHEETS = 158

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
PHILLIPS-EMERY
PARK DRIVE TO MINK DRIVE
CTH D
PRICE COUNTY

STATE PROJECT NUMBER
9488-02-70

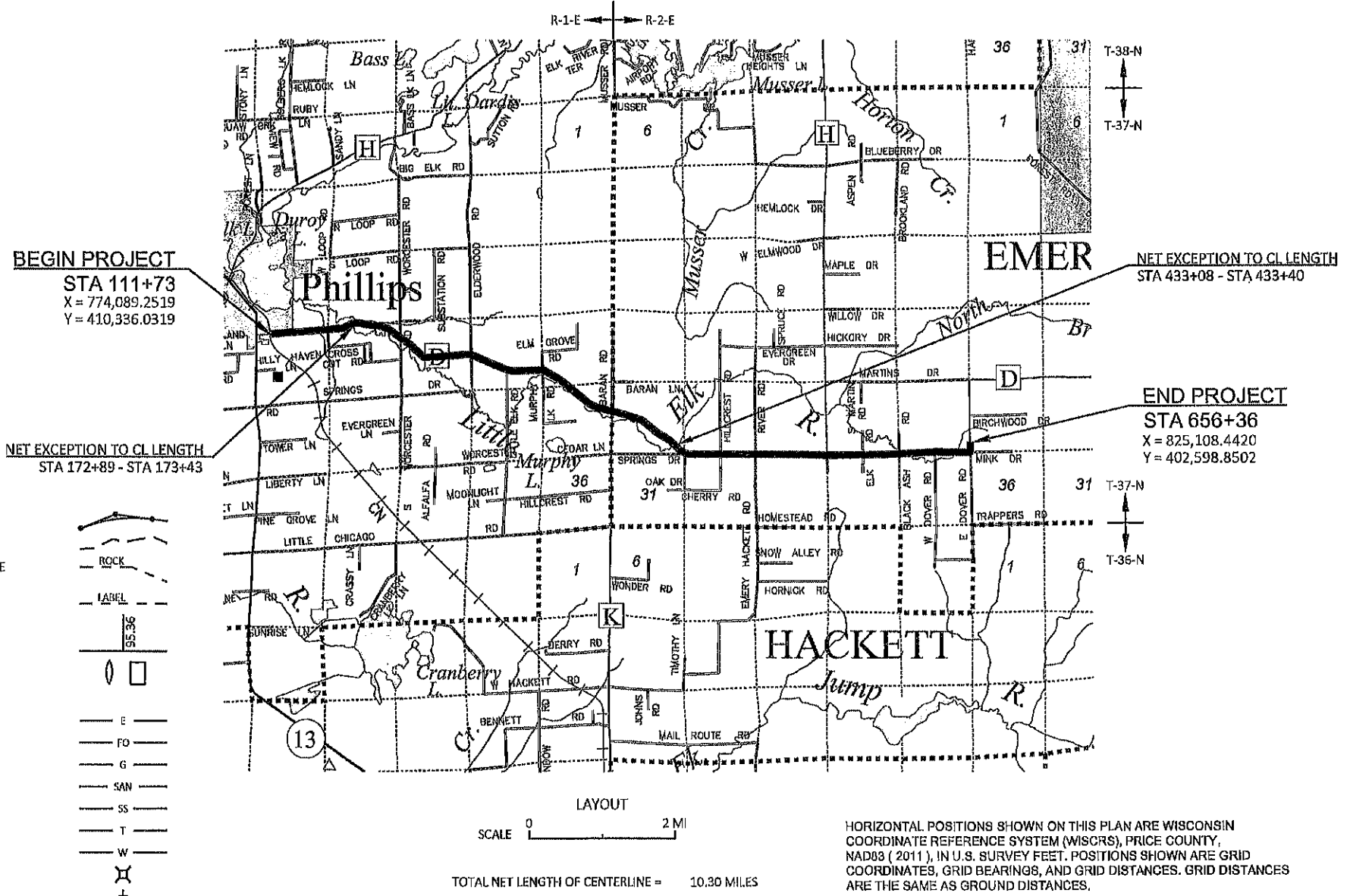
STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9488-02-70	WISC2026240	1



DESIGN DESIGNATION	9488-02-00
A.A.D.T. 2024	= 540
A.A.D.T. 2044	= 975
D.H.V.	= 140
D.D.	= 50/50
T.	= 13.6%
DESIGN SPEED	= 50 West of Snow Drift Rd/ 60 East of Snow Drift Rd
ESALS	= 180,000

CONVENTIONAL SYMBOLS

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



HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), PRICE COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18.

ACCEPTED FOR
PRICE COUNTY
Date: 10-28-25
(Signature and Title of Official)

ORIGINAL PLANS PREPARED BY
BECHER HOPPE
AARON J. WALLNER
E-48054-6
WAUSAU, WI
PROFESSIONAL ENGINEER

DATE: 10-28-25
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: BECHER HOPPE ASSOCIATES, INC.
Designer: BECHER HOPPE ASSOCIATES, INC.
Project Manager: MICHAEL GRAGE, PE
Regional Examiner: N/A
Regional Supervisor: DAN ERVA, PE

APPROVED FOR THE DEPARTMENT
DATE: 10/28/2025
(Signature)

GENERAL NOTES

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN IN THE PLAN ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT LIMITS THAT ARE NOT SHOWN.

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

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 115 LBS/SY/IN.

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

RIGHT OF WAY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE EXCEPT FOR CURVE RECONSTRUCTION (STA 643+19 - STA 656+36) AND GUARDRAIL WORK (STA 171+38 - STA 174+78 & STA 431+86 - STA 435+52).

THE CONTRACTOR IS TO WORK WITH UTMOST CARE AND PROTECT ALL SURVEY MARKERS. BEFORE BREAKING GROUND THE CONTRACTOR SHALL COORDINATE WITH THE COUNTY SURVEYOR. REMOVAL OF ANY SURVEY MARKER IS TO BE WITH THE APPROVAL OF THE ENGINEER AND THE COUNTY SURVEYOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY DAMAGED OR REMOVED SURVEY MONUMENTS.

EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT APPROXIMATE LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE CONTRACTOR’S EROSION CONTROL IMPLEMENTATION PLAN (ECIP) AND APPROVED BY THE ENGINEER. MAINTAIN EROSION CONTROL MEASURES UNTIL SUCH A TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

DRIVEWAYS SHALL BE REPLACED IN KIND UNLESS STATED OTHERWISE IN THE PLANS.

SAWCUTS, AS SHOWN ON THE PLANS, ARE SUGGESTED LOCATIONS AND MAY BE ADJUSTED AT THE DISCRETION OF THE ENGINEER TO BETTER SUIT FIELD CONDITIONS.

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES EXCEPT WHEN PAVING OPERATIONS REQUIRE THE DRIVEWAY TO BE CLOSED. ACCESS TO DRIVEWAYS SHALL BE RE-ESTABLISHED IMMEDIATELY AFTER OPERATIONS ARE COMPLETED. ACCESS SHALL BE PROVIDED DURING ALL NON-WORKING HOURS.

TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

DO NOT DRIVE OR STORE EQUIPMENT, OR STORE CONSTRUCTION MATERIALS IN ENVIRONMENTALLY SENSITIVE AREAS, WETLANDS OR WATERWAYS.

UTILITIES CONTACTS

COMMUNICATIONS
NORVADO
KRIK BOGDANOVIC
43705 USH 63, P.O. BOX 67
CABLE, WI, 54281
PHONE: 715-339-7511

ELECTRIC
PRICE ELECTRIC COOPERATIVE
W6803 SPRINGS DRIVE
P.O. BOX 110
PHILLIPS, WI, 54555

GAS
XCEL ENERGY, INC.
LUKE ZAKOVEE
310 HICKORY HILLS LN
PHILLIPS, WI, 5455

DESIGN PROJECT MANAGER

MICHAEL GRAGE, PE
NORTH CENTRAL REGION
510 HANSEN LAKE RD
RHINELANDER, WI, 54501
PHONE: 715-365-5705
EMAIL: michael.grage@dot.wi.gov

DESIGN PROJECT LEADER

AARON WALLNER, PE
BECHER HOPPE ASSOCIATES
330 N. 4TH STREET
WAUSAU, WI, 54403
PHONE: 715-845-0426
EMAIL: awallner@becherhoppe.com

COUNTY HIGHWAY COMMISSIONER

ROGER PETRICK
PRICE COUNTY
704 NORTH LAKE AVENUE P.O. BOX 169
PHILLIPS, WI, 54555
PHONE: 715-339-3081
EMAIL: roger.petrick@co.price.wi.us

COUNTY SURVEYOR

SAM KOTKE
PRICE COUNTY
126 CHERRY STREET ROOM 5
PHILLIPS, WI 54555
PHONE: 715-339-2985

ABUT	ABUTMENT
AC	ACRE
AGG	AGGREGATE
AH	AHEAD
	ANGLE
AADT	ANNUAL AVERAGE DAILY TRAFFIC
AEW	APRON ENDWALL
ASPH	ASPHALTIC
BK	BACK
BC	BACK OF CURB
BAD	BASE AGGREGATE DENSE
BL OR B/L	BASE LINE
BM	BENCH MARK
CB	CATCH BASIN
CL OR C/L	CENTER LINE
Δ	CENTRAL ANGLE OR DELTA
CE	COMMERCIAL ENTRANCE
CONC	CONCRETE
CSW	CONCRETE SIDEWALK
CONST	CONSTRUCTION
CP	CONTROL POINT
CO	COUNTY
CTH	COUNTY TRUCK HIGHWAY
CY	CUBIC YARD
CP	CULVERT PIPE
CPCA	CULVERT PIPE CORRUGATED ALUMINUM
CPCPE	CULVERT PIPE CORRUGATED POLYETHYLENE
CPCPP	CULVERT PIPE CORRUGATED POLYPROPYLENE
CPCS	CULVERT PIPE CORRUGATED STEEL
CPCSAC	CULVERT PIPE CORRUGATED STEEL ALUMINUM COATED
CPCSPC	CULVERT PIPE CORRUGATED STEEL POLYMER COATED
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CPS	CULVERT PIPE SALVAGED
CPT	CULVERT PIPE TEMPORARY
C & G	CURB AND GUTTER
D	DEGREE OF CURVE
DHV	DESIGN HOUR VOLUME
DIA	DIAMETER
DD	DIRECTIONAL DISTRIBUTION
DE	DRAINAGE EASEMENT
DWY	DRIVEWAY
EA	EACH
EB	EASTBOUND

EL OR ELEV	ELEVATION
EMB	EMBANKMENT
EW	ENDWALL
EAT	ENERGY ABSORBING TERMINAL
ESALS	EQUIVALENT SINGLE AXLE LOADS
EXC	EXCAVATION
EBS	EXCAVATION BELOW SUBGRADE
EXIST	EXISTING
FERT	FERTILIZER
FE	FIELD ENTRANCE
FL OR F/L	FLOW LINE
FT	FOOT
FTMS	FREE TRAFFIC MANAGEMENT SYSTEM
HES	HIGH EARLY STRENGTH
HE	HIGHWAY EASEMENT
CWT	HUNDRED WEIGHT
IN DIA	INCH DIAMETER
INL	INLET
ID	INSIDE DIAMETER
INTERS	INTERSECTION
IH	INTERSTATE HIGHWAY
INV	INVERT
JT	JOINT
LT	LEFT
LHF	LEFT HAND FORWARD
L	LENGTH OF CURVE
LF	LINEAR FOOT
LC	LONG CHORD OF CURVE
LS	LUMP SUM
MGAL	ONE THOUSAND GALLONS
MH	MANHOLE
ML OR M/L	MATCH LINE
NOM	NOMINAL
NC	NORMAL CROWN
NB	NORTHBOUND
NO	NUMBER
OD	OUTSIDE DIAMETER
PAVT	PAVEMENT
PLE	PERMANENT LIMITED EASEMENT
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PCC	PORTLAND CEMENT CONCRETE
LB	POUND
PSI	POUNDS PER SQUARE INCH

PE	PRIVATE ENTRANCE
PROJ	PROJECT
PL	PROPERTY LINE
PRW	PROPOSED RIGHT OF WAY
R	RADIUS
RL OR R/L	REFERENCE LINE
REQD	REQUIRED
RT	RIGHT
RHF	RIGHT HAND FORWARD
R/W	RIGHT OF WAY
RD	ROAD
RDWY	ROADWAY
SHLDR	SHOULDER
SW	SIDEWALK
SB	SOUTHBOUND
SPECS	SPECIFICATIONS
SF	SQUARE FEET
SY	SQUARE YARD
SDD	STANDARD DETAIL DRAWINGS
STH	STATE TRUNK HIGHWAY
STA	STATION
SSPC	STORM SEWER PIPE COMPOSITE
SSCPE	STORM SEWER PIPE CORRUGATED POLYETHYLENE
SSCPP	STORM SEWER PIPE CORRUGATED POLYPROPYLENE
SSPNRC	STORM SEWER PIPE NON-REINFORCED CONCRETE
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
SSPRCHE	STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
SE	SUPERELEVATION
SL OR S/L	SURVEY LINE
TEMP	TEMPORARY
TI	TEMPORARY INTEREST
TLE	TEMPORARY LIMITED EASEMENT
TC	TOP OF CURB
TL OR T/L	TRANSIT LINE
T	TRUCKS (PERCENT OF)
TYP	TYPICAL
USH	UNITED STATES HIGHWAY
VAR	VARIABLE
VC	VERTICAL CURVE
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WEST
WB	WESTBOUND

WISCONSIN DNR LIAISON

WENDY HENNIGES
NORTH CENTRAL REGION
107 SUTLIFF AVENUE
RHINELANDER, WI 54501
PHONE: 715-365-8916
EMAIL: wendy.henniges@wisconsin.gov

TOWN OF WORCESTER CONTACT

PAUL PRECOUR
CHAIRPERSON
W6895 SPRINGS DRIVE
PHILLIPS, WI 54555
PHONE: 715-820-2622
EMAIL: twnworchair@gmail.com

TOWN OF EMERY CONTACT

DALE HOUDEK
CHAIRPERSON
W2901 MARTINS DR
PHILLIPS, WI 54555
PHONE: 715-339-3307
EMAIL: tofemery@pctcnet.net

AS-BUILTS

S 0282(2) (1949)
S 0282(3) (1950)

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 5.437 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 3.804 ACRES



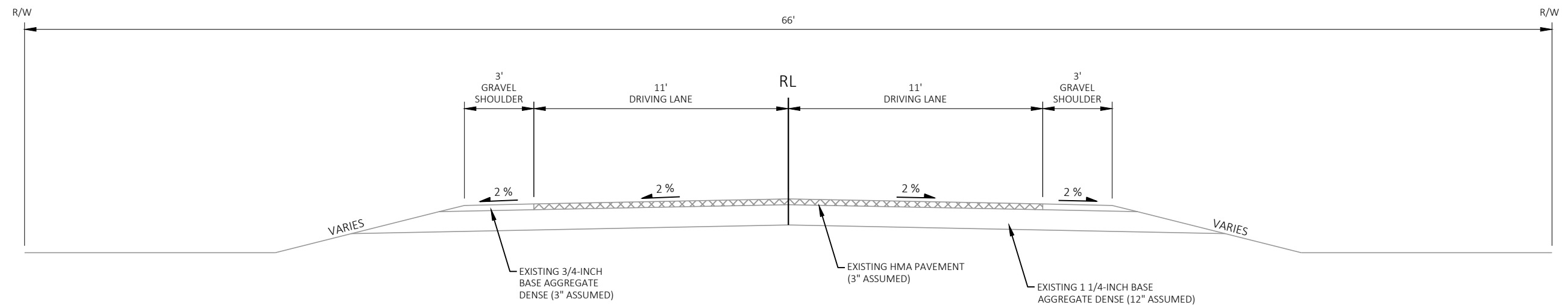
Dial  or (800)242-8511
www.DiggersHotline.com



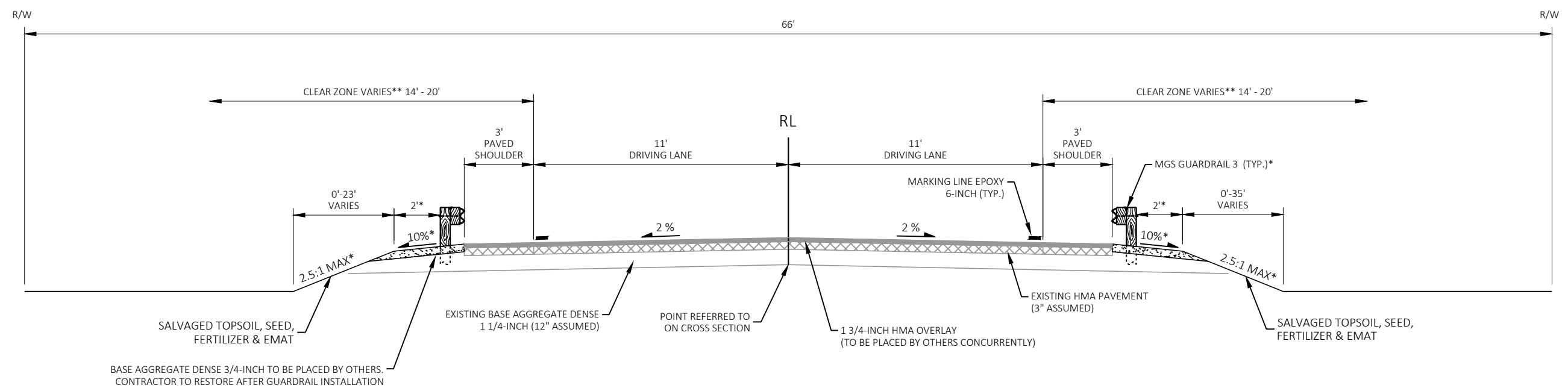
PROJECT NO: 9488-02-70	HWY: CTH D	COUNTY: PRICE	PROJECT OVERVIEW	SHEET 3	E
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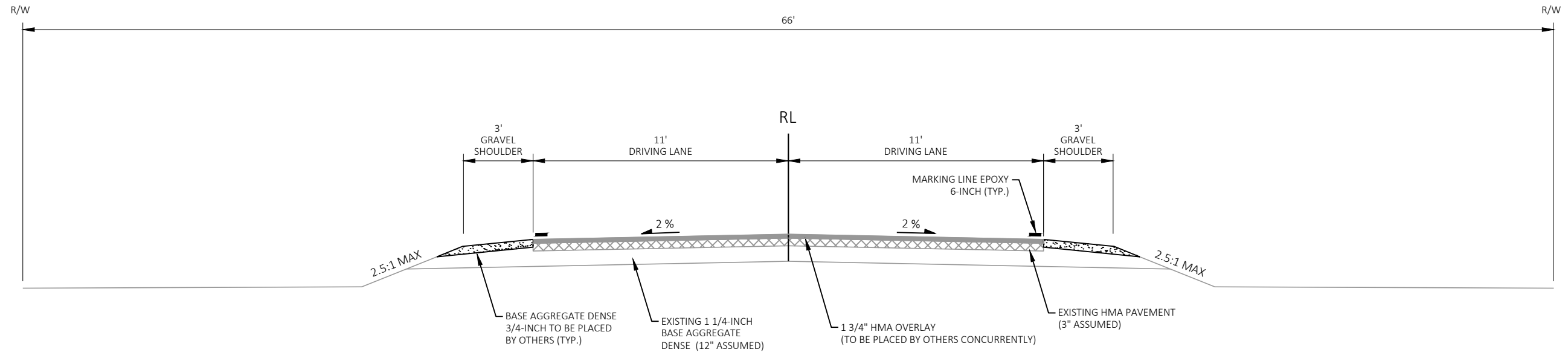


EXISTING CTH D TYPICAL SECTION
STA 111+73 - 656+36

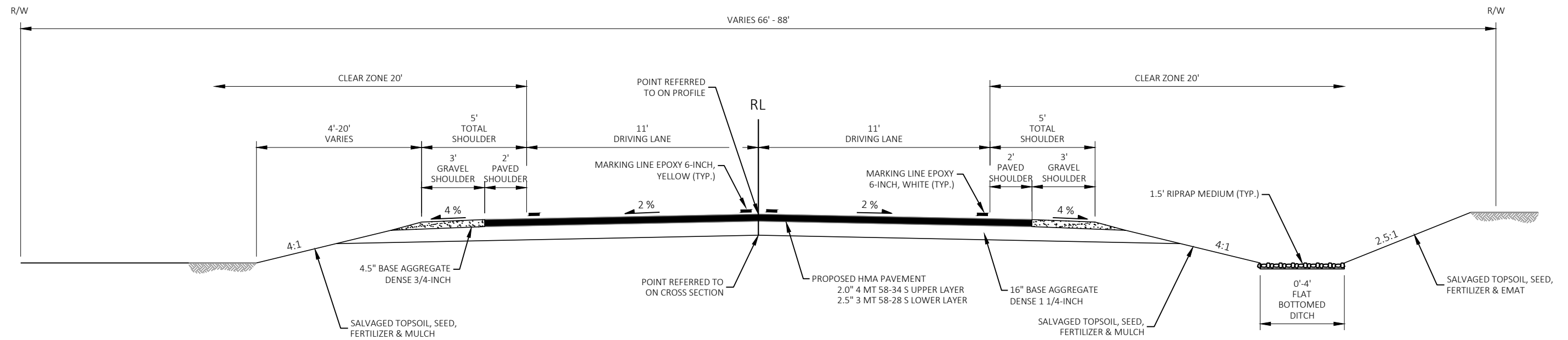


FINISHED GUARDRAIL TYPICAL SECTION

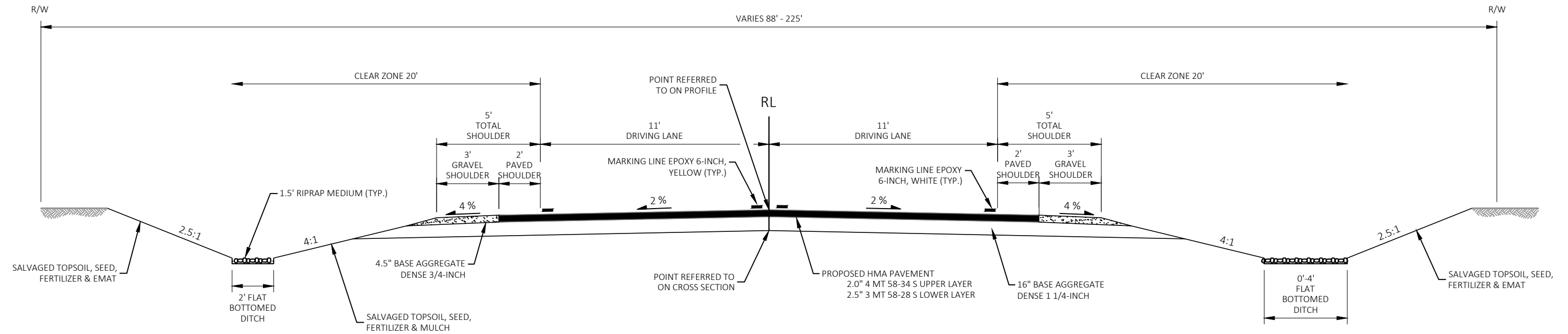
* REFER TO STANDARD DETAIL DRAWING 14B42: MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL FOR EXACT DIMENSIONS.
 **CLEAR ZONE WIDTHS
 14' WIDE FROM STATION 111+73 - 267+39 (45 MPH POSTED SPEED)
 20' WIDE FROM STATION 267+39 - 656+13 (55 MPH POSTED SPEED)



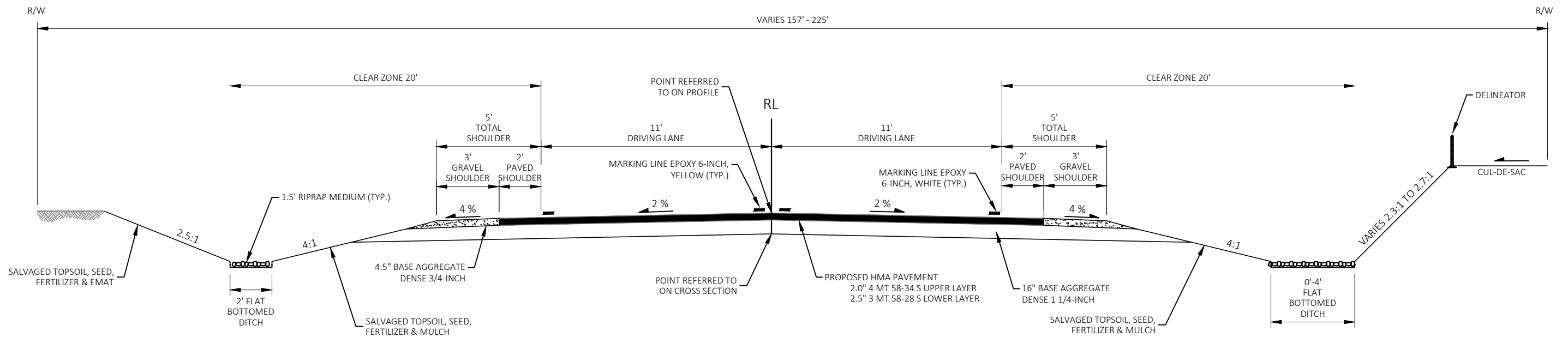
FINISHED PAVEMENT MARKING TYPICAL SECTION
STA 111+73 - 643+19



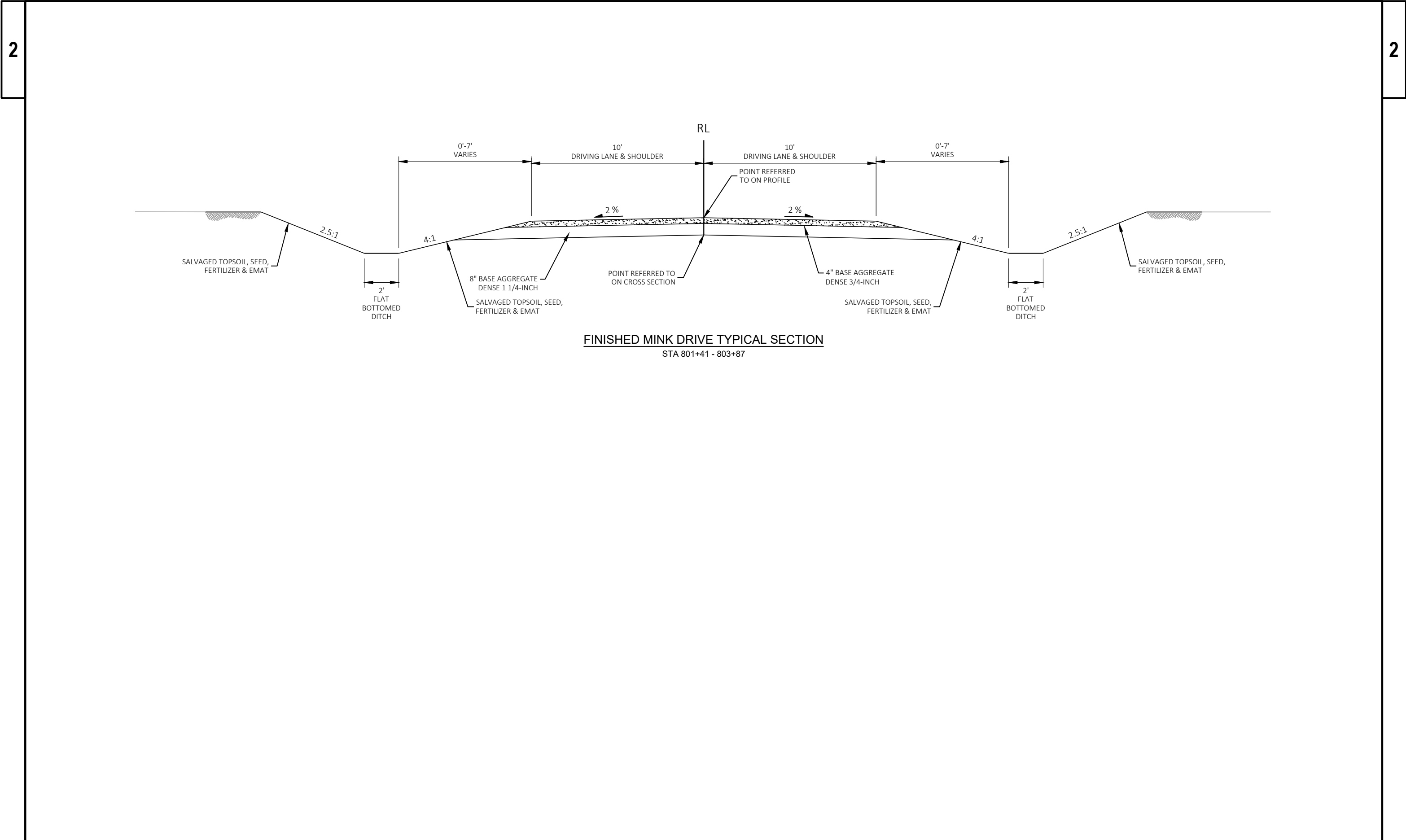
FINISHED CTH D TYPICAL SECTION
STA 643+19 - 644+28
STA 655+03 - 656+36

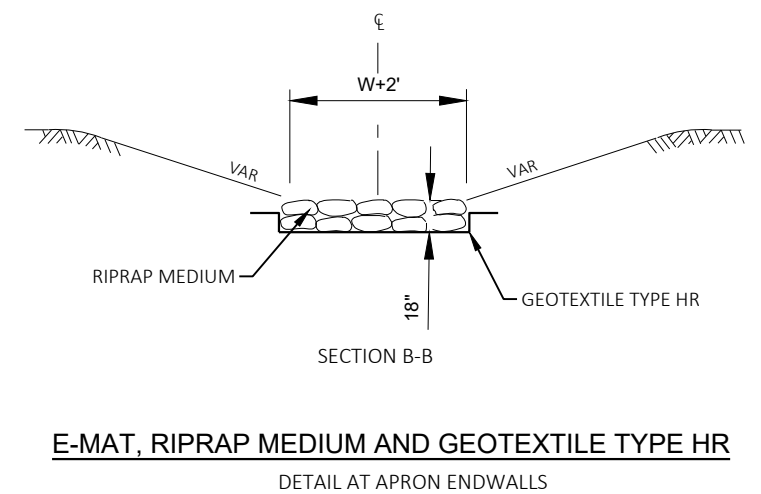
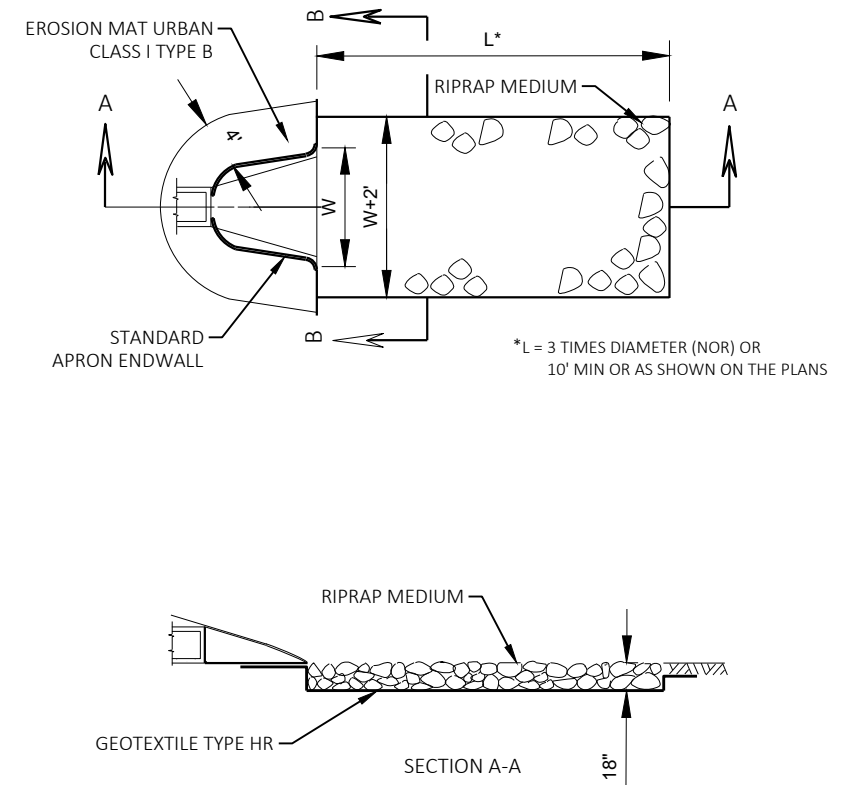
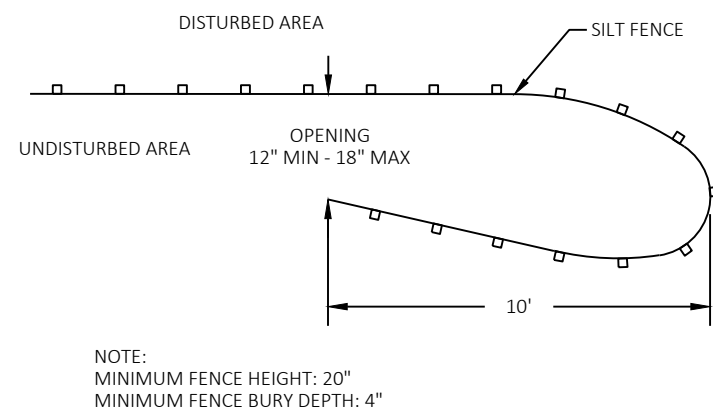
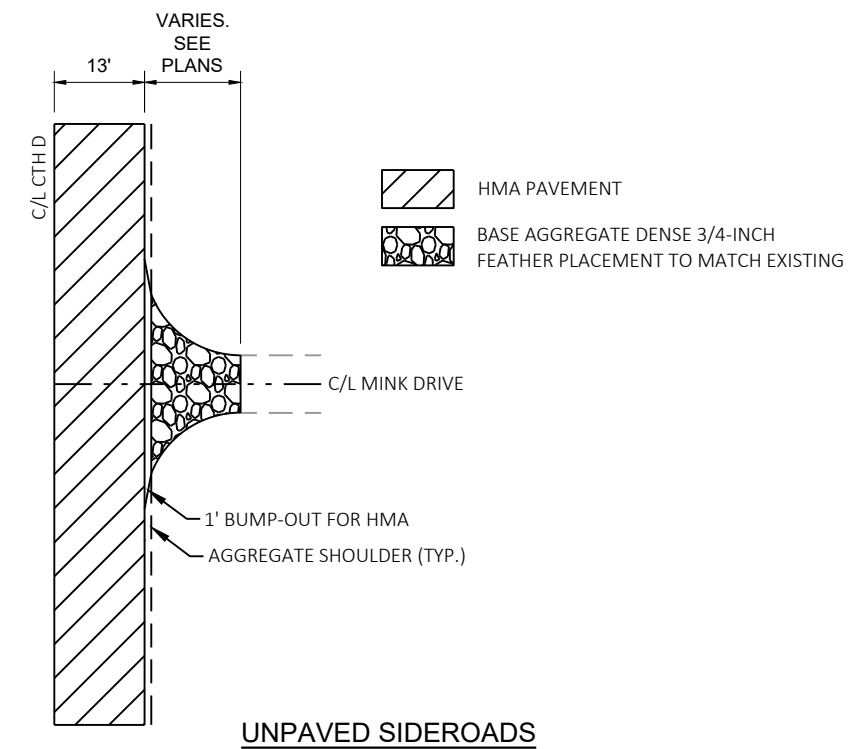
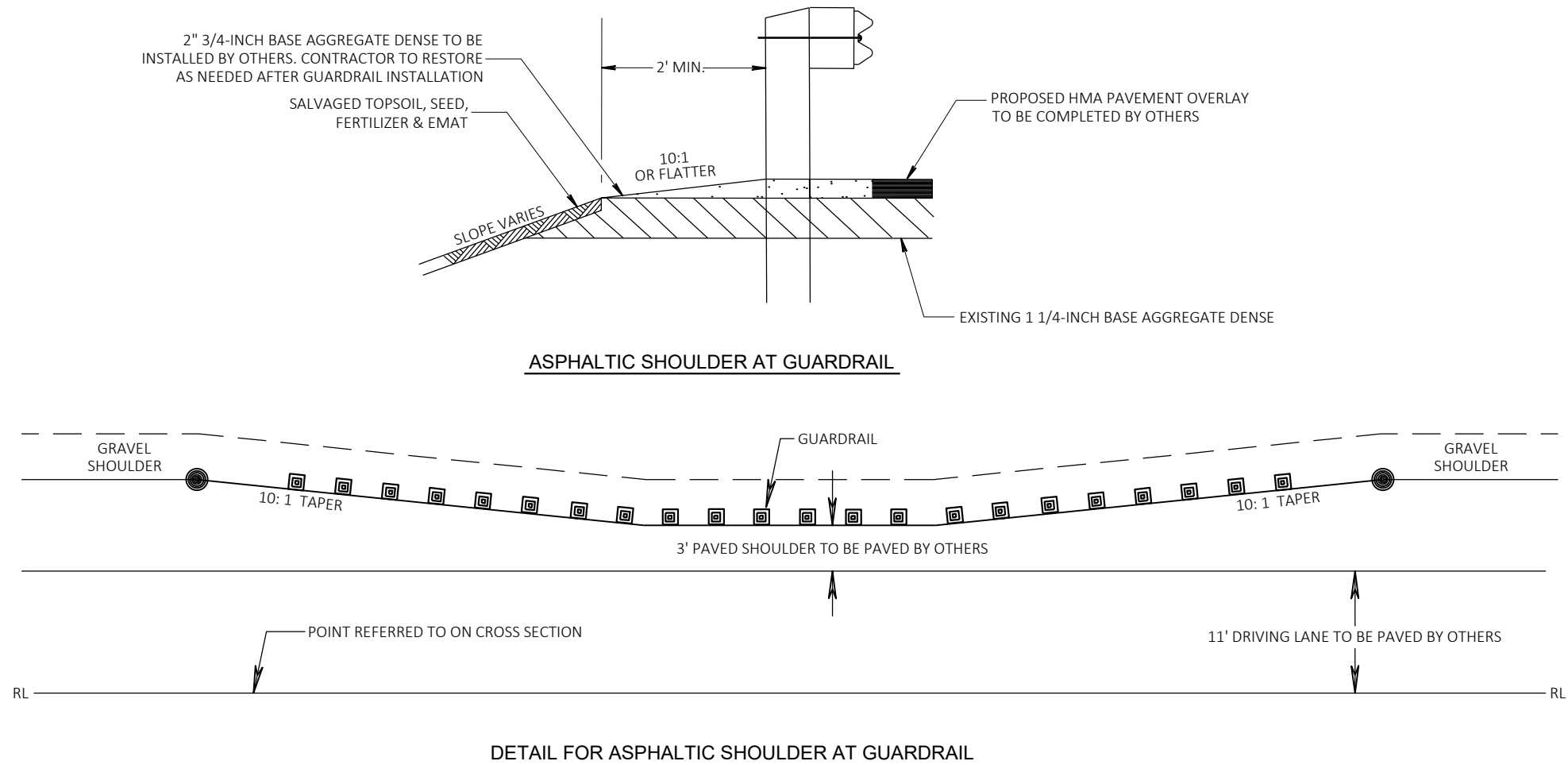
**FINISHED CTH D TYPICAL SECTION**

STA 644+28 - 647+50
STA 648+50 - 655+03

**FINISHED CTH D TYPICAL SECTION**

STA 647+50 - 648+50





STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
200	650+23.09	56.00 RT	401988.119	824994.148	1680.95
201	650+23.09	16.00 RT	402014.516	824964.094	1679.67
202	649+86.29	55.77 RT	401958.993	824966.732	1680.24
203	649+89.11	222.28 RT	401844.837	825088.008	1685.15
204	650+63.23	226.21 RT	401917.653	825156.549	1684.52
205	650+05.55	285.45 RT	401817.897	825149.571	1685.88
206	650+08.44	290.68 RT	401817.430	825156.249	1685.75
207	649+14.86	16.00 RT	401937.712	824884.240	1678.04
208	649+14.86	76.00 RT	401891.122	824922.046	1680.08
209	649+68.51	70.45 RT	401934.826	824963.156	1680.64
210	649+73.79	208.08 RT	401851.221	825052.037	1683.92
211	649+66.25	208.56 RT	401835.499	825050.547	1683.83
212	649+64.80	218.37 RT	401813.857	824909.584	1681.12
213	649+85.83	98.50 RT	401865.495	824902.722	1679.94
214	649+19.12	190.19 RT	401836.602	824865.939	1679.16
215	648+88.41	161.21 RT	401823.949	824800.202	1675.35
216	648+51.50	129.31 RT	401784.902	824854.579	1677.73
217	648+74.77	89.77 RT	401740.752	824881.269	N/A
218	648+32.95	82.24 RT	401792.343	824881.368	1680.02
219	647+97.56	78.35 RT	401792.289	824909.476	1681.28
220	647+99.06	118.31 RT	401835.425	824800.720	1676.11

FLAT BOTTOMED DITCH. SEE CROSS SECTIONS FOR ELEVATIONS.

SLOPE INTERCEPT (TYP.)

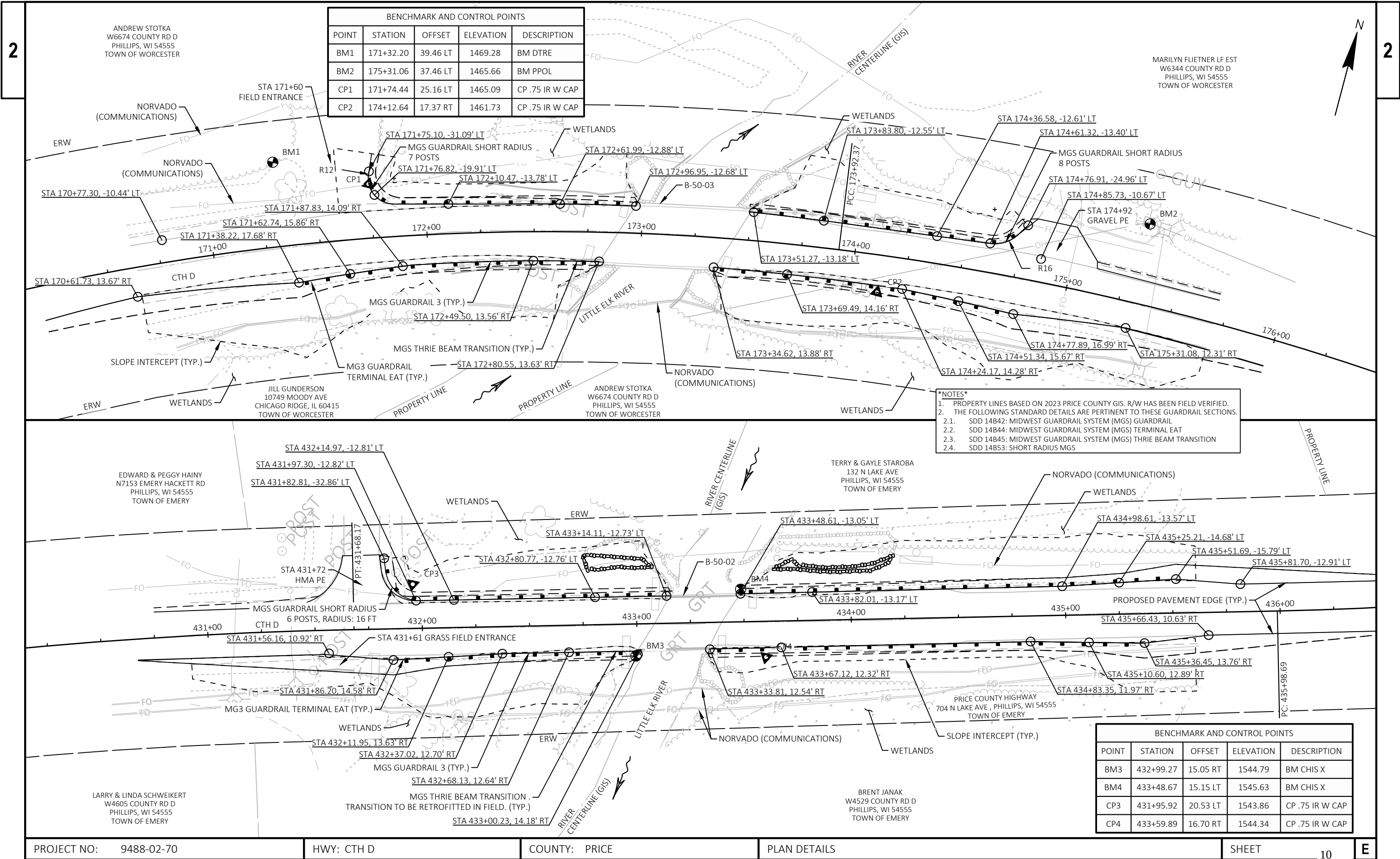
FLAT BOTTOMED DITCH. SEE CROSS SECTIONS FOR ELEVATIONS.

FLAT BOTTOMED DITCH. SEE CROSS SECTIONS FOR ELEVATIONS.

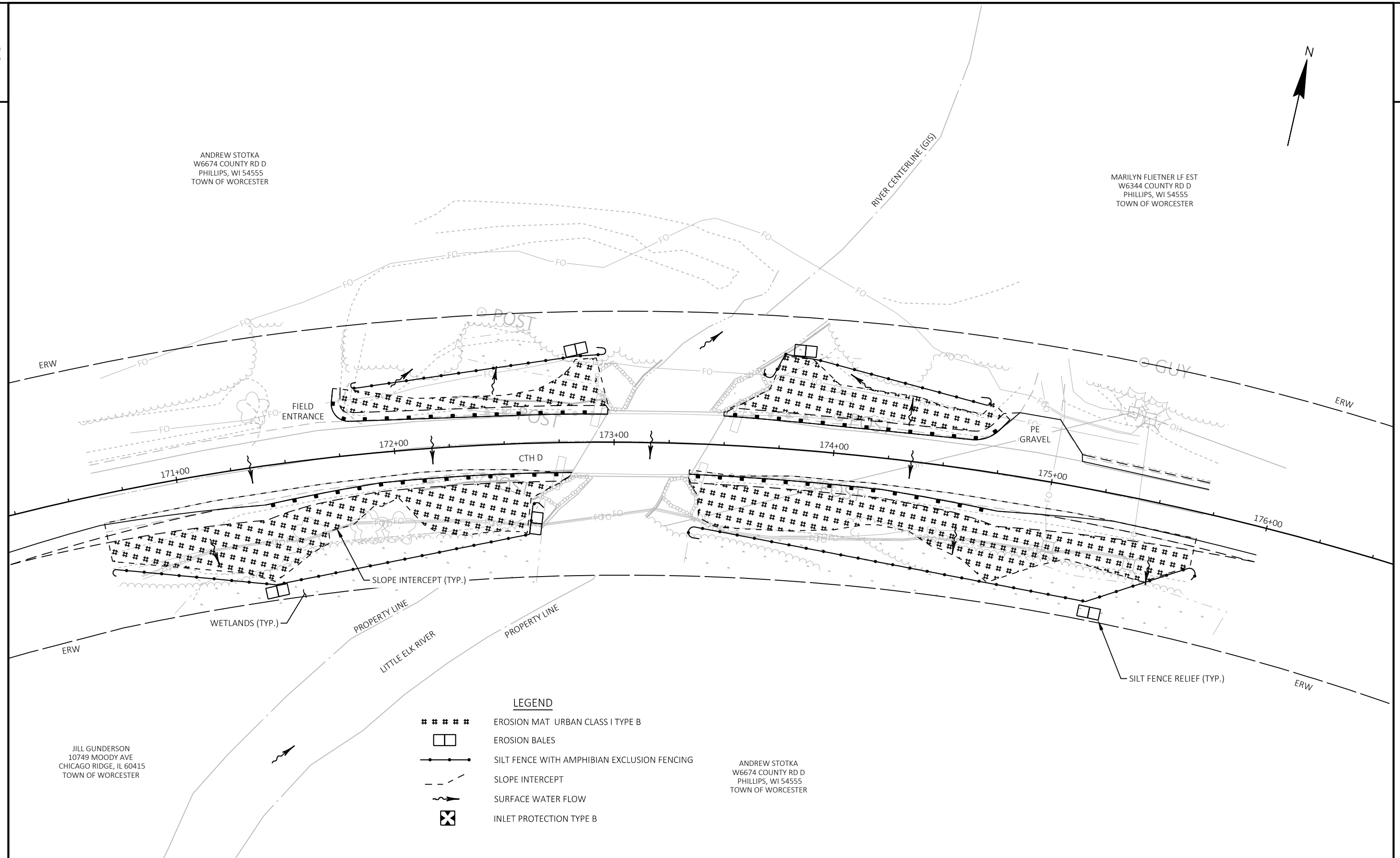
CUL-DE-SAC DITCH CENTERLINE.

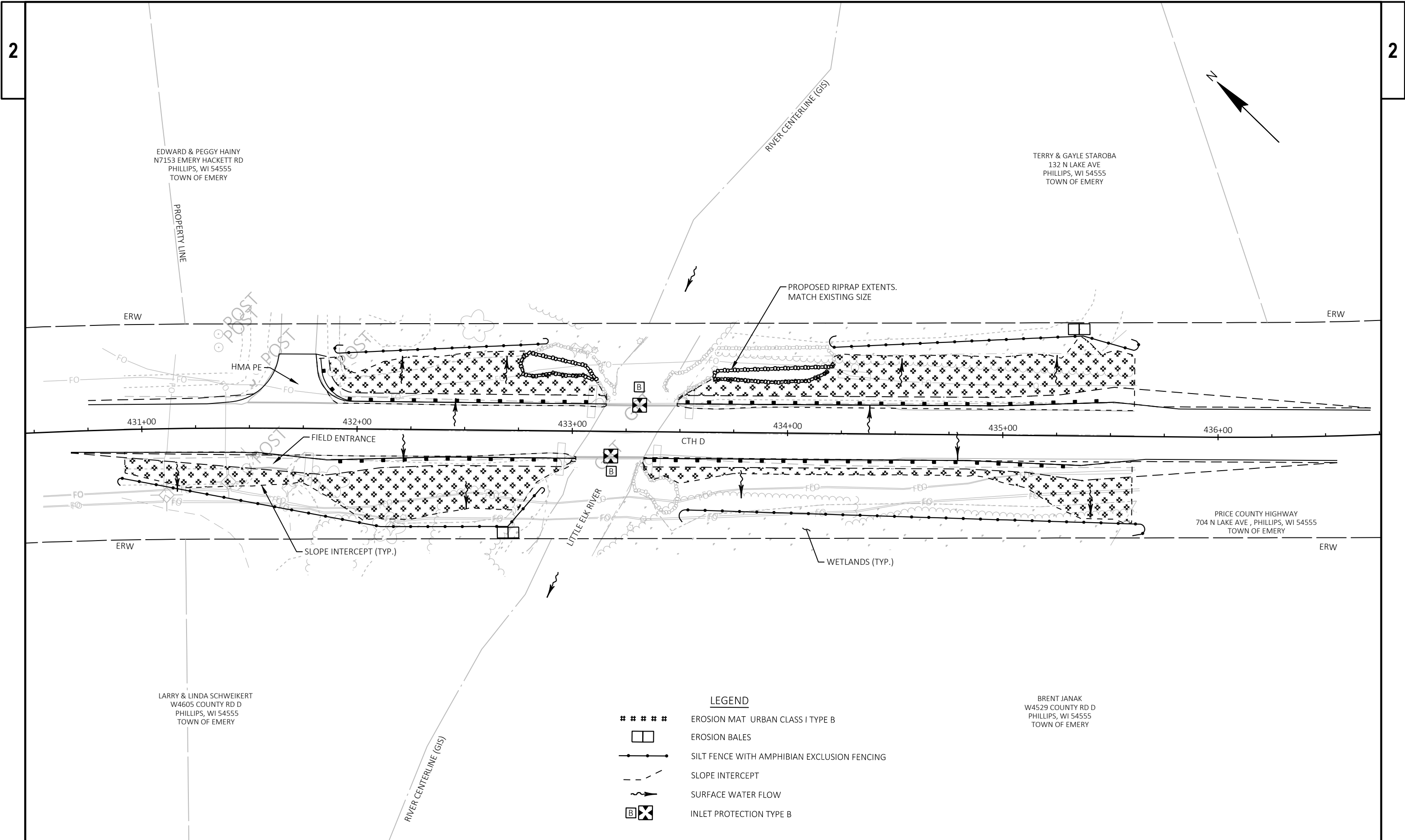
NOTE:
SEE PLAN PROFILE SHEETS FOR BENCHMARK AND CONTROL POINT LOCATIONS AND ELEVATIONS.

STATION & OFFSET TABLE					
POINT	STATION	OFFSET	Y COORDS	X COORDS	ELEVATION
221	648+00.67	166.27 RT	401801.568	824787.041	1675.61
222	648+20.16	124.64 RT	401767.711	824773.363	1676.09
223	648+81.01	174.21 RT	401764.901	824792.454	1676.49
224	649+11.60	202.83 RT	401784.541	824801.285	1674.39
225	649+28.45	218.19 RT	401785.791	824809.667	1675.73
226	649+46.47	232.87 RT	401782.449	824805.881	1674.54
227	649+67.27	255.44 RT	401816.131	824835.793	1677.80
228	649+55.73	275.81 RT	401800.213	825090.042	1686.02
229	649+69.40	292.91 RT	401775.282	825118.179	1685.60
230	649+83.21	299.07 RT	401785.036	825136.876	1686.09
231	649+90.73	309.18 RT	401785.846	825151.854	1684.28
232	649+98.03	298.72 RT	401800.846	825151.757	1685.61



2

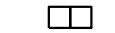
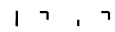




2

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<u>LEGEND</u>	
	EROSION MAT URBAN CLASS I TYPE B
	MULCH
	SILT FENCE WITH AMPHIBIAN EXCLUSION FENCING
	EROSION BALE, BARRIER
	SLOPE INTERCEPT
	CULVERT PIPE CHECK
	TEMPORARY DITCH CHECK



MICHAEL & TERRI FRANSON
W2998 COUNTY RD D
PHILLIPS, WI 54555
TOWN OF EMERY

WETLANDS •

BOTTOM OF DITCH TO BE LINED -
WITH MEDIUM RIPRAP (TYP.)

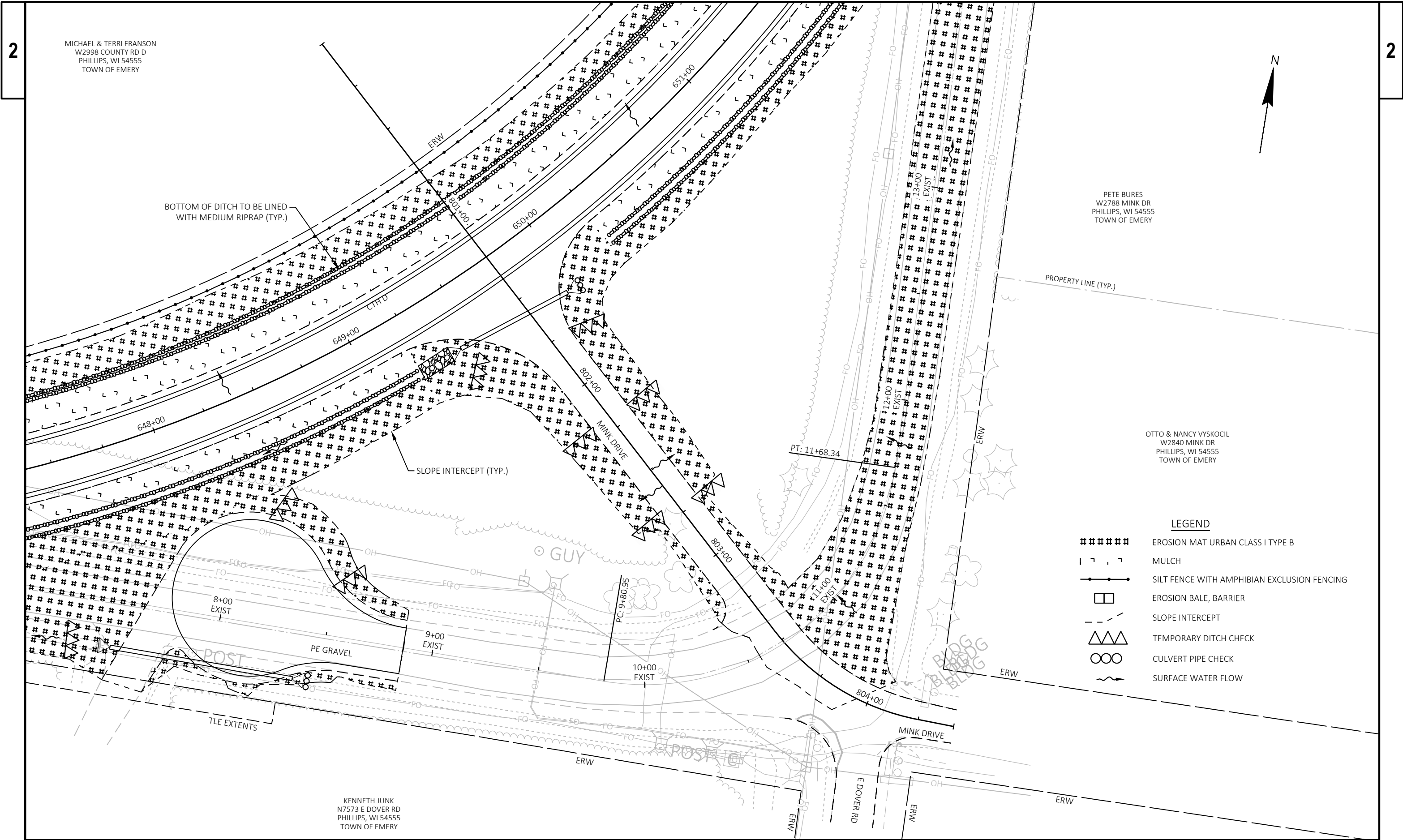
This engineering plan view illustrates a proposed road project on County Rd D. The plan shows stationing from 2+00 to 7+00, with existing conditions and proposed improvements. Key features include:

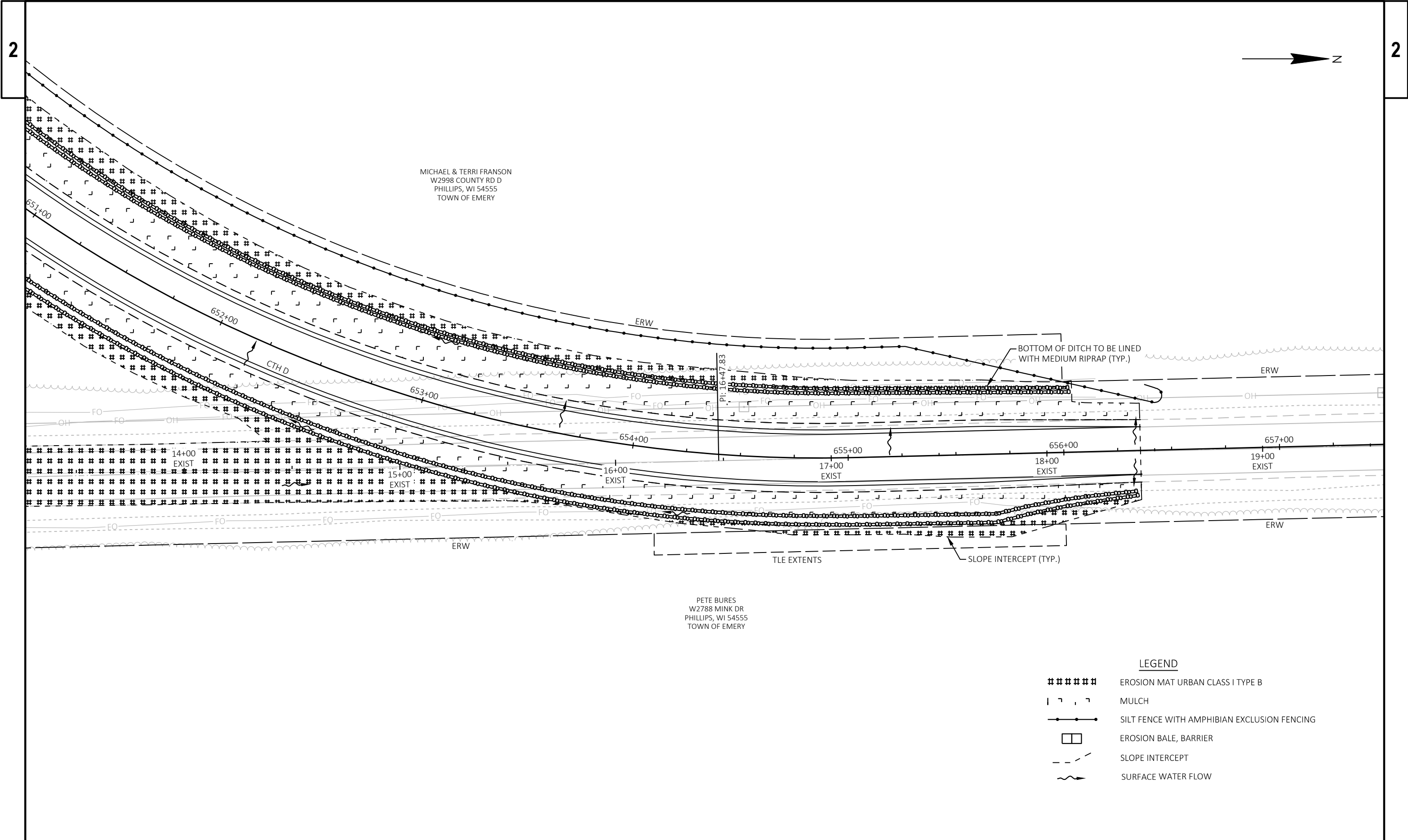
- Stationing:** 2+00, 3+00, 4+00, 5+00, 6+00, 7+00.
- Existing Conditions:** EXIST, ERW, OH, FO, CTH D, PE GRAVEL, TLE EXTENTS, SLOPE INTERCEPT (TYP.), PE GRAVEL TO BE EXTENDED TO CUL-DE-SAC.
- Proposed Improvements:** PE GRAVEL, TLE EXTENTS, SLOPE INTERCEPT (TYP.), PE GRAVEL TO BE EXTENDED TO CUL-DE-SAC.
- Property Boundaries:** PROPERTY LINE (TYP.), WETLANDS, GUY, POST, ERW, OH, FO, CTH D, PE GRAVEL, TLE EXTENTS, SLOPE INTERCEPT (TYP.), PE GRAVEL TO BE EXTENDED TO CUL-DE-SAC.
- Owner Information:**
 - NATHAN CARLILE, N2983 COUNTY RD D, PHILLIPS, WI 54555, TOWN OF EMERY
 - JEFFREY JUNK, W2983 COUNTY RD D, PHILLIPS, WI 54555-8666, TOWN OF EMERY
 - KENNETH JUNK, N7573 E DOVER RD, PHILLIPS, WI 54555, TOWN OF EMERY

PROJECT NO:	9488-02-70	HWY: CTH D	COUNTY: PRICE	EROSION CONTROL	SHEET 13	E
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FILE NAME :	P:\2023\2023.027 - WISDOT - CTH D 9488-02-00 (PRICE CO)\94880200\SHEETS\Q22001-EC.DWG	PLOT DATE :	10/30/2025 12:18 PM	PLOT BY :	JUSTIN N. HAASE	PLOT NAME :		PLOT SCALE :	1 IN=40 FT	WISDOT/CADD SHEET 42
LAYOUT NAME :	- 03									

WISDOT/CADDS SHEET 42











LEGEND

EXISTING SIGN MOUNTED ON POST(S)

PROPOSED SIGN MOUNTED ON POST(S)

(X) INDICATES SIGN SIZE

- NOTES:
- PERMANENT SIGN LOCATIONS ARE APPROXIMATE, FINAL LOCATIONS SHALL BE PLACED IN ACCORDANCE TO STANDARD DETAILS AND THE MUTCD.
 - CONTRACTOR TO INSTALL NEW RAILROAD CROSSING PAVEMENT MARKING PER SDD 15C09-A & 15C09B.
 - PROPERTY LINES BASED ON 2023 PRICE COUNTY GIS. ERW VERIFIED AT CURVE AND GUARDRAIL WORK LOCATIONS.
 - ALL EXISTING SIGNS NOT SHOWN ON PLANS ARE TO REMAIN.

PROJECT NO: 9488-02-70	HWY: CTH D	COUNTY: PRICE	PERMANENT SIGNAGE	SHEET 18	E
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LEGEND

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CURVE WARNING SIGN TO REMAIN.
REMOVE 35 MPH ADVISORY SPEED PLAQUE.
INSTALL 30 MPH ADVISORY SPEED PLAQUE.



LEGEND

 EXISTING SIGN MOUNTED ON POST(S)

 PROPOSED SIGN MOUNTED ON POST(S)

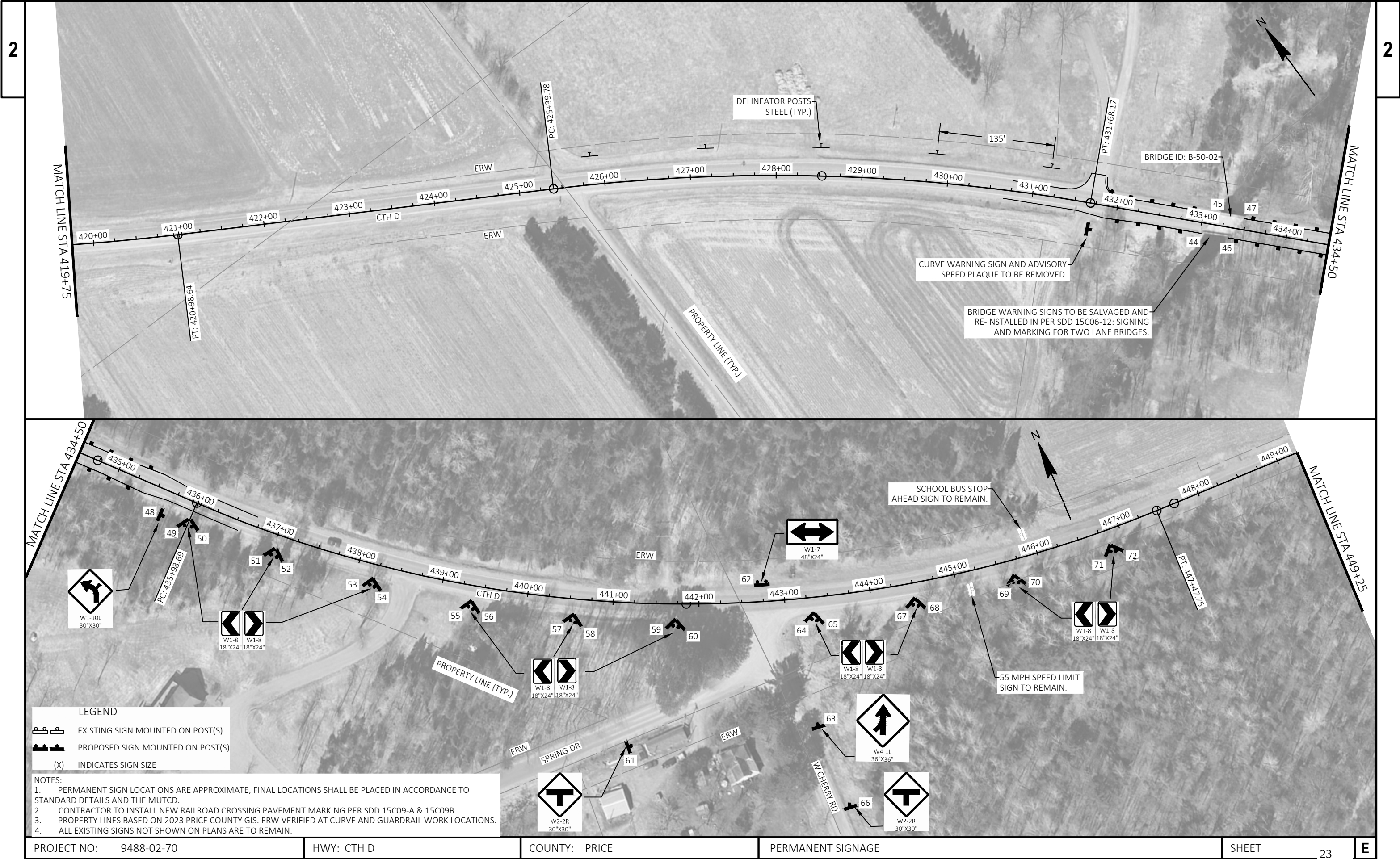
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2

2







2

2

LEGEND

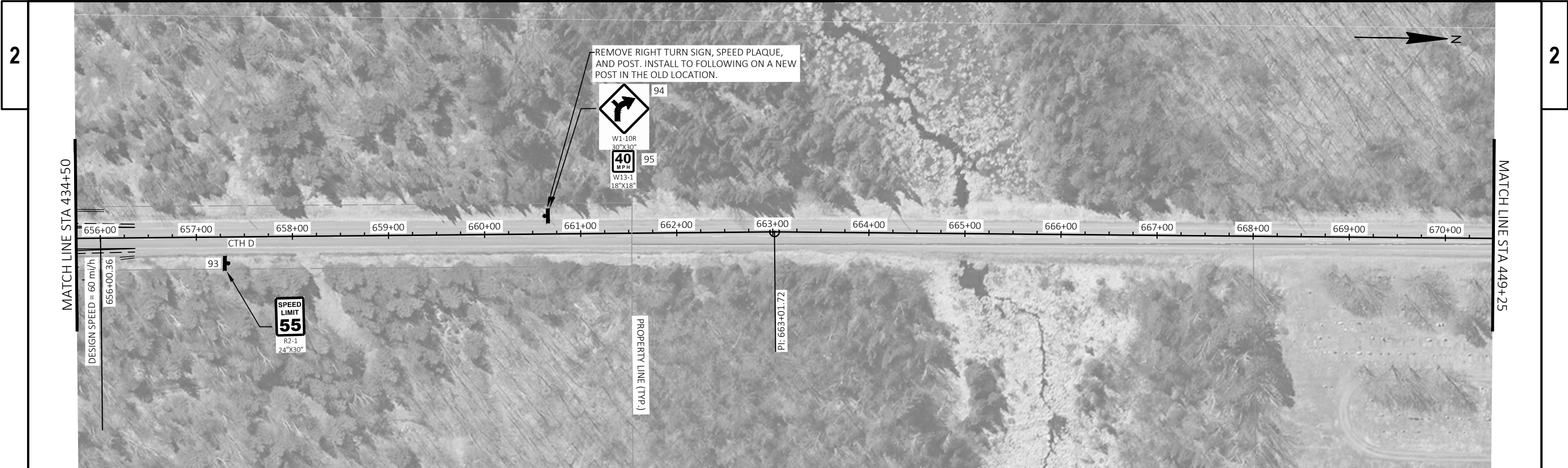
EXISTING SIGN MOUNTED ON POST(S)

PROPOSED SIGN MOUNTED ON POST(S)

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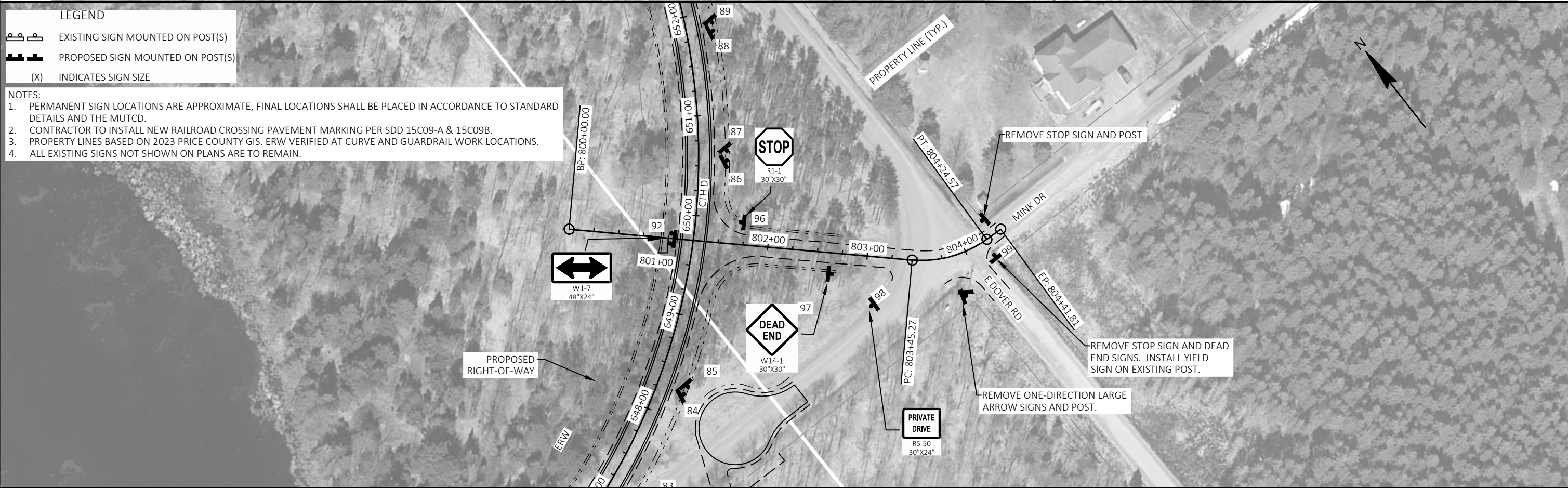
LEGEND

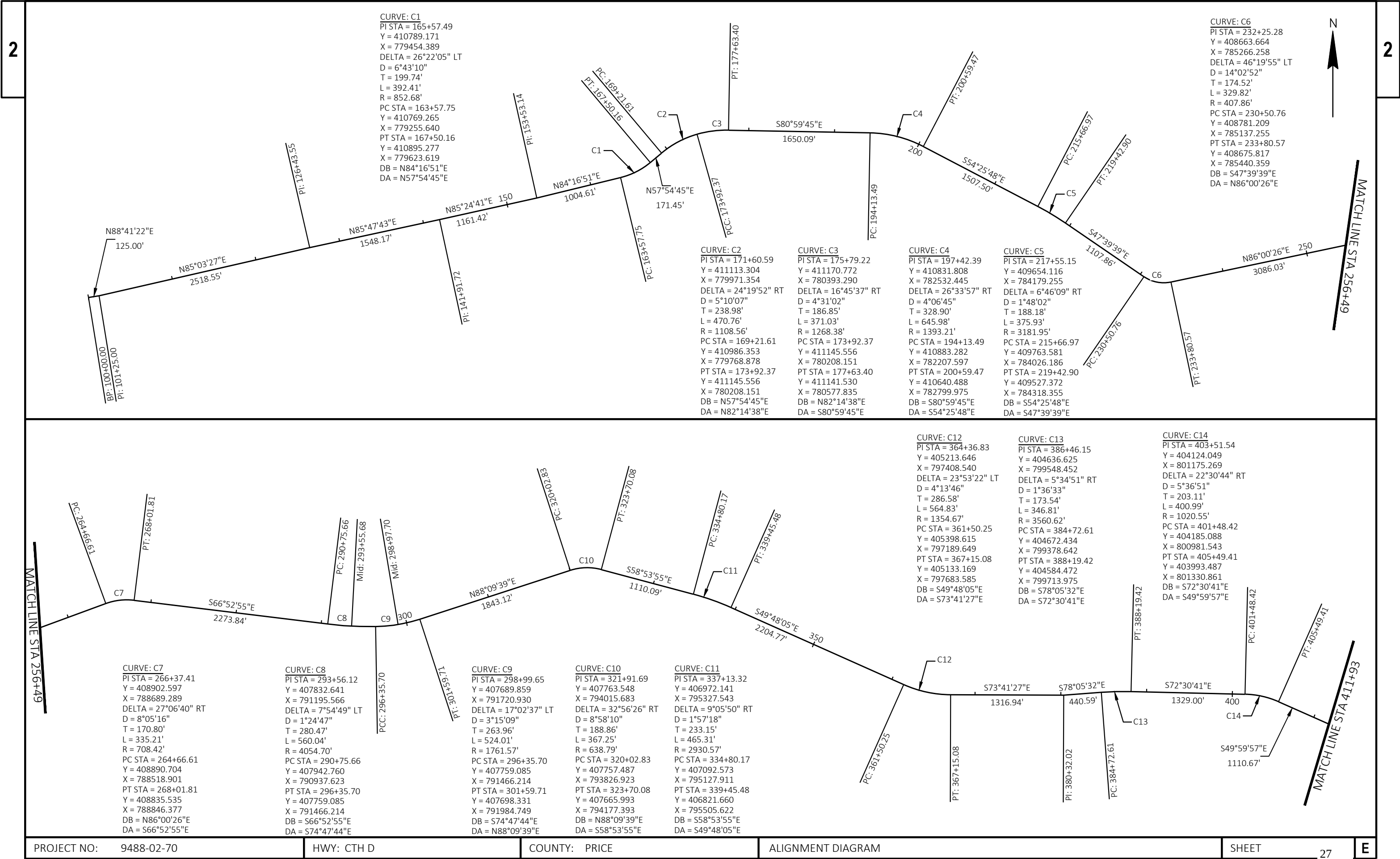
EXISTING SIGN MOUNTED ON POST(S)

PROPOSED SIGN MOUNTED ON POST(S)

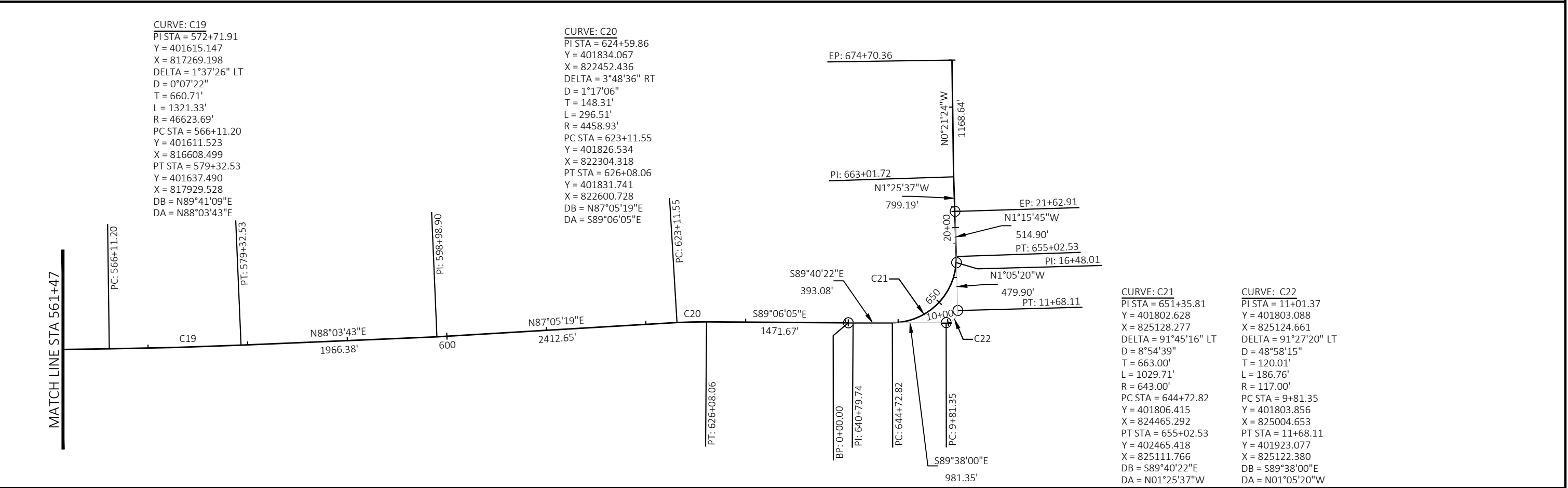
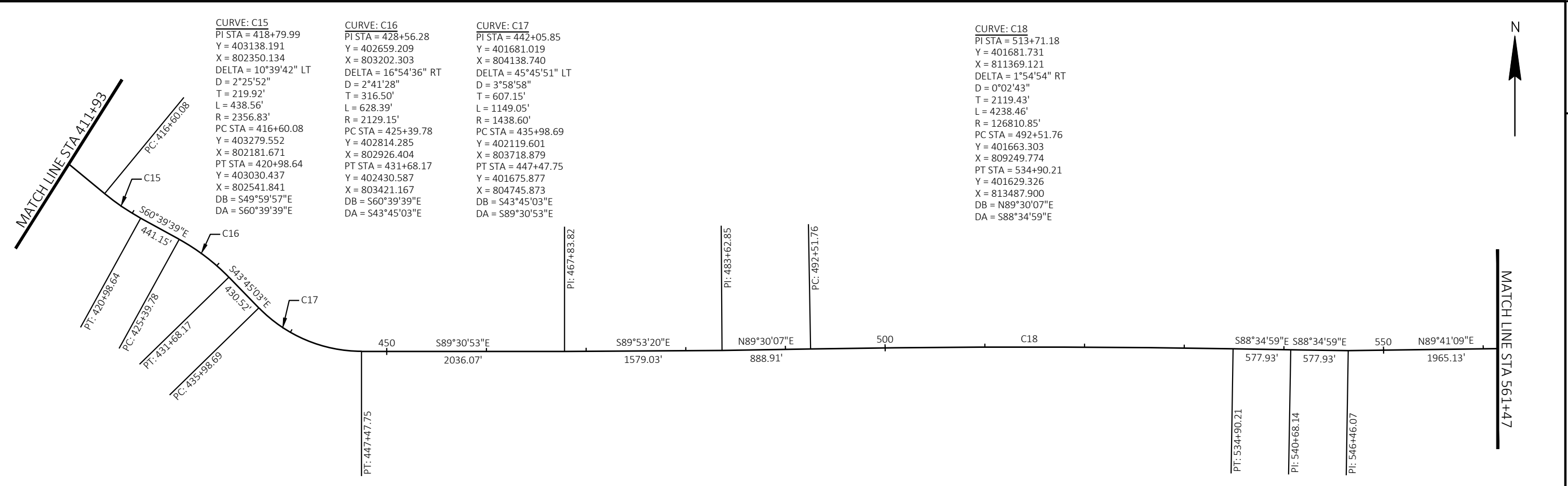
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2



PROJECT NO:	9488-02-70
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HWY: CTH D

COUNTY:	PRICE
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ALIGNMENT DIAGRAM

SHEET	28	E
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E

Estimate Of Quantities

9488-02-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	13.000	13.000
0004	204.0165	Removing Guardrail	LF	270.000	270.000
0006	205.0100	Excavation Common	CY	12,021.000	12,021.000
0008	213.0100	Finishing Roadway (project) 01.9488-02-70	EACH	1.000	1.000
0010	214.0100	Obliterating Old Road	STA	7.000	7.000
0012	305.0110	Base Aggregate Dense 3/4-Inch	TON	744.000	744.000
0014	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	5,721.000	5,721.000
0016	455.0605	Tack Coat	GAL	307.000	307.000
0018	460.2000	Incentive Density HMA Pavement	DOL	665.600	665.600
0020	460.6223	HMA Pavement 3 MT 58-28 S	TON	613.000	613.000
0022	460.6244	HMA Pavement 4 MT 58-34 S	TON	522.000	522.000
0024	502.4105	Adhesive Anchors 5/8-inch	EACH	24.000	24.000
0026	502.4112	Adhesive Anchors 1 1/2-inch	EACH	24.000	24.000
0028	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	2.000	2.000
0030	520.3318	Culvert Pipe Class III-A 18-Inch	LF	86.000	86.000
0032	522.0418	Culvert Pipe Reinforced Concrete Class IV 18-Inch	LF	118.000	118.000
0034	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	4.000	4.000
0036	606.0200	Riprap Medium	CY	588.000	588.000
0038	614.2300	MGS Guardrail 3	LF	525.000	525.000
0040	614.2350	MGS Guardrail Short Radius	LF	124.000	124.000
0042	614.2500	MGS Thrie Beam Transition	LF	312.000	312.000
0044	614.2610	MGS Guardrail Terminal EAT	EACH	5.000	5.000
0046	614.2630	MGS Guardrail Short Radius Terminal	EACH	3.000	3.000
0048	619.1000	Mobilization	EACH	1.000	1.000
0050	624.0100	Water	MGAL	96.900	96.900
0052	625.0500	Salvaged Topsoil	SY	13,507.000	13,507.000
0054	627.0200	Mulching	SY	3,479.000	3,479.000
0056	628.1104	Erosion Bales	EACH	6.000	6.000
0058	628.1504	Silt Fence	LF	1,585.000	1,585.000
0060	628.1520	Silt Fence Maintenance	LF	1,585.000	1,585.000
0062	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0064	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0066	628.2008	Erosion Mat Urban Class I Type B	SY	7,236.000	7,236.000
0068	628.7010	Inlet Protection Type B	EACH	2.000	2.000
0070	628.7504	Temporary Ditch Checks	LF	120.000	120.000
0072	628.7555	Culvert Pipe Checks	EACH	9.000	9.000
0074	629.0210	Fertilizer Type B	CWT	6.800	6.800
0076	630.0130	Seeding Mixture No. 30	LB	193.000	193.000
0078	630.0500	Seed Water	MGAL	2,165.000	2,165.000
0080	633.0100	Delineator Posts Steel	EACH	9.000	9.000
0082	633.0500	Delineator Reflectors	EACH	9.000	9.000
0084	633.5100	Markers ROW	EACH	5.000	5.000
0086	633.5200	Markers Culvert End	EACH	6.000	6.000
0088	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	77.000	77.000
0090	637.2210	Signs Type II Reflective H	SF	31.500	31.500
0092	637.2230	Signs Type II Reflective F	SF	379.750	379.750
0094	638.2101	Moving Signs Type I	EACH	8.000	8.000
0096	638.2602	Removing Signs Type II	EACH	24.000	24.000
0098	638.3000	Removing Small Sign Supports	EACH	9.000	9.000

Estimate Of Quantities

9488-02-70

Line	Item	Item Description	Unit	Total	Qty
0100	642.5001	Field Office Type B	EACH	1.000	1.000
0102	643.0300	Traffic Control Drums	DAY	176.000	176.000
0104	643.0420	Traffic Control Barricades Type III	DAY	236.000	236.000
0106	643.0705	Traffic Control Warning Lights Type A	DAY	352.000	352.000
0108	643.0900	Traffic Control Signs	DAY	494.000	494.000
0110	643.4100	Traffic Control Interim Lane Closure	EACH	4.000	4.000
0112	643.5000	Traffic Control	EACH	1.000	1.000
0114	645.0120	Geotextile Type HR	SY	1,527.000	1,527.000
0116	646.2020	Marking Line Epoxy 6-Inch	LF	111,455.000	111,455.000
0118	646.5320	Marking Railroad Crossing Epoxy	EACH	2.000	2.000
0120	650.4500	Construction Staking Subgrade	LF	2,261.000	2,261.000
0122	650.5000	Construction Staking Base	LF	2,261.000	2,261.000
0124	650.6000	Construction Staking Pipe Culverts	EACH	3.000	3.000
0126	650.9911	Construction Staking Supplemental Control (project) 01.9488-02-70	EACH	1.000	1.000
0128	650.9920	Construction Staking Slope Stakes	LF	2,023.000	2,023.000
0130	680.0100	Public Land Reference Monument Verify and Reset	EACH	2.000	2.000
0132	690.0150	Sawing Asphalt	LF	66.000	66.000
0134	999.2100.S	Installing and Maintaining Climbing Turtle Exclusion Fence	LF	2,539.000	2,539.000
0136	999.2105.S	Maintaining Climbing Turtle Exclusion Fence	LF	2,539.000	2,539.000
0138	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0140	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0142	SPV.0060	Special 01.Railing Steel Type W Modified B-50-2	EACH	1.000	1.000
0144	SPV.0195	Special 01.Infill Riprap	TON	130.000	130.000

REMOVALS									
CATEGORY	STATION	TO	STATION	LOCATION	201.0205	204.0165	214.0100	690.0150	REMARKS
					GRUBBING STA	REMOVING GUARDRAIL LF	OBLITERATING OLD ROAD STA	SAWING ASPHALT LF	
0010	172+11	-	174+17	ML	-	270	-	-	B-50-03 GUARDRAIL
0010	643+19	-	656+36	ML	13	-	-	44	CTH D CURVE RECONSTRUCTION
0010	7+50	-	10+50	ML	-	-	3	22	
0010	10+84	-	14+77	ML	-	-	4	-	EXISTING CTH D CURVE
TOTAL 0010					13	270	7	66	

BASE AGGREGATE								
					305.0110	305.0120	624.0100	
					BASE AGGREGATE DENSE	BASE AGGREGATE DENSE 1		
					3/4-INCH	1/4-INCH	WATER	
CATEGORY	STATION	TO	STATION	LOCATION	TON	TON	MGAL	REMARKS
0010	170+64	-	175+70	RT	15	53	1.0	B-50-03 GUARDRAIL
0010	171+60	-	174+90	LT	8	24	0.5	B-50-03 GUARDRAIL
0010	431+56	-	435+66	RT	8	47	0.8	B-50-02 GUARDRAIL
0010	431+83	-	435+83	LT	30	73	1.5	B-50-02 GUARDRAIL
0010	643+13	-	656+13	LT	132	2,346	37.2	CTH D
0010	643+13	-	656+13	RT	122	2,273	35.9	CTH D
0010	801+81	-	803+87	LT	59	131	2.9	MINK DRIVE
0010	801+95	-	803+87	RT	55	123	2.6	MINK DRIVE
0010	649+22	-	649+75	RT	153	87	3.6	CTH D SE CORNER OF INTERSECTION
0010	649+75	-	650+23	RT	106	60	2.5	CTH D NE CORNER OF INTERSECTION
0010	7+51	-	10+58	RT	56	504	8.4	CUL-DE-SAC & DRIVEWAY
TOTAL 0010					744	5,721	96.9	

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	COMMENT
			CUT (2)			FACTOR 1.25			
DIVISION 1									
B_50_03 GUARDRAIL	171+00.00/175+50.00	ML	48	48	495	619	-571	0	MATERIAL TO BE SUPPLIED FROM CURVE RECONSTRUCTION MATERIAL TO BE SUPPLIED FROM CURVE RECONSTRUCTION
B_50_02 GUARDRAIL	431+50.00/435+52.00	ML	6	6	491	614	-608	0	
CURVE RECONSTRUCTION	643+26.03/656+12.75	ML	9,814	9,814	67	0	9,814	9,814	
RIPRAP EXCAVATION	643+26.03/656+12.75	LT/RT	1,511	1,511	0	0	1,511	1,511	
CUL DE SAC	7+26.40/8+75.00	ML	248	248	21	26	222	222	
MINK DR	801+40.00/803+80.00	ML	321	321	61	0	321	321	
OBLITERATED ROAD	10+96.49/13+85.37	ML	73	73	0	0	73	73	
DIVISION 1 SUBTOTAL			12,021	12,021	1,135	1,259	10,762	11,941	
GRAND TOTAL			12,021	12,021	1,135	1,259	10,762	11,941	
NOTES:		TOTAL COMMON EXC		12,021					

(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUAABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(4) SALVAGED/UNUSABLE PAVEMENT MATERIAL
(5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUAABLE PAVEMENT MATERIAL
(6) MARSH EXCAVATION - TO BE BACKFILLED WITH SELECT BORROW MATERIAL. NOTE: THIS IS DESIGNERS CHOICE, CAN BE BACKFILLED WITH BORROW, OR CUT AS WELL. ITEM NUMBER 205.0500
(7) ROCK EXCAVATION ITEM NUMBER 205.0200
(13) EXPANDED FILL FACTOR = 1.25
DEPENDING ON SELECTIONS: EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH - REDUCED EBS) * FILL FACTOR
 OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED EBS) * FILL FACTOR
 OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH) * FILL FACTOR
 OR EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK) * FILL FACTOR
(14) 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.
(15) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

3

HMA PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	455.0605	460.6223	460.6244	REMARKS
					TACK COAT GAL	HMA PAVEMENT 3 MT 58-28 S	HMA PAVEMENT 4 MT 58-34 S	
0010	643+19	-	656+13	LT	133	273	219	
0010	643+19	-	656+13	RT	133	273	219	
0010	7+76	-	8+86	ML	41	67	84	
0010		Project		ML	-	-	-	
				TOTAL 0010	307	613	522	

CULVERTS

CATEGORY	STATION	TO	STATION	LOCATION	520.1018	520.3318	522.0418	522.1018	REMARKS
					APRON ENDWALLS FOR CULVERT PIPE 18-INCH	CULVERT PIPE CLASS III-A 18-INCH	CULVERT PIPE REINFORCED CONCRETE CLASS IV 18-INCH	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 18-INCH	
0010	644+24	-	644+63	ML	EACH	LF	LF	EACH	CULVERT 01
					-	-	62	2	
0010	646+97	-	647+60	RT	2	86	-	-	CULVERT 02, STEEL PIPE THICKNESS: 0.064", ALUMINUM PIPE THICKNESS: 0.060"
0010	649+42	-	649+95	RT	-	-	56	2	CULVERT 03
				TOTAL 0010	2	86	118	4	

3

GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	614.2300	614.2350	614.2500	614.2610	614.2630	REMARKS
					MGS GUARDRAIL 3 LF	MGS GUARDRAIL SHORT RADIUS LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH	MGS GUARDRAIL SHORT RADIUS TERMINAL EACH	
0010	171+38	-	172+81	RT	50.0	-	39	1	-	
0010	171+75	-	172+99	LT	62.5	42	39	-	1	
0010	173+34	-	174+78	RT	50.0	-	39	1	-	
0010	173+48	-	174+77	LT	50.0	45	39	-	1	
0010	431+85	-	433+17	LT	62.5	37	39	-	1	
0010	431+86	-	433+04	RT	25.0	-	39	1	-	
0010	433+31	-	435+36	RT	112.5	-	39	1	-	
0010	433+47	-	435+52	LT	112.5	-	39	1	-	
				TOTAL 0010	525.0	124	312	5	3	

EROSION CONTROL AND RESTORATION

CATEGORY	STATION	TO	STATION	LOCATION	606.0200	625.0500	627.0200	628.1104	628.1504	628.1520	628.1905	628.1910	628.2008	628.7010	628.7504	628.7555	629.0210	630.0130	630.0500	645.0120	SPV.0195.01	REMARKS
					RIPRAP MEDIUM CY	SALVAGED TOPSOIL SY	MULCHING SY	EROSION BALES EACH	SILT FENCE LF	SILT FENCE MAINTENANCE LF	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EROSION CONTROL EACH	EROSION MAT URBAN CLASS I TYPE B SY	INLET PROTECTION TYPE B EACH	TEMPORARY DITCH CHECKS LF	CULVERT PIPE CHECKS EACH	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	SEED WATER MGAL	GEOTEXTILE TYPE HR SY	INFIL RIPRAP TON	
0010	170+63	-	172+80	RT	-	513	-	2	215	215	-	-	385	-	-	-	0.25	7.0	78	-	-	
0010	171+74	-	172+97	LT	-	172	-	-	127	127	-	-	121	-	-	-	0.10	2.0	25	-	-	
0010	173+35	-	175+70	RT	-	542	-	1	249	249	-	-	420	-	-	-	0.25	8.0	85	-	-	
0010	173+49	-	174+78	LT	-	223	-	1	121	121	-	-	181	-	-	-	0.10	3.0	37	-	-	
0010	431+83	-	433+16	LT	18	250	-	-	109	109	-	-	199	-	-	-	0.15	4.0	40	24	-	
0010	430+92	-	433+02	RT	-	372	-	1	215	215	-	-	314	-	-	-	0.20	6.0	63	-	-	
0010	433+33	-	435+60	RT	-	226	-	-	230	230	-	-	159	1	-	-	0.10	3.0	32	-	-	
0010	433+49	-	435+61	LT	21	442	-	1	157	157	-	-	352	1	-	-	0.20	6.0	71	28	-	
0010	643+19	-	656+13	LT	182	4,925	2,045	-	162	162	-	-	1070	-	-	-	1.95	56.0	629	623	38	
0010	643+19	-	649+75	RT	159	2,095	687	-	-	-	-	-	865	-	-	-	1.00	28.0	314	365	40	
0010	644+68	-	644+68	RT	1	-	-	-	-	-	-	-	-	-	-	3	-	-	-	4	-	CULVERT 01
0010	648+22	-	648+22	RT	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	CULVERT 02
0010	649+75	-	656+13	RT	206	2,095	747	-	-	-	-	-	442	-	-	-	0.75	21.0	240	479	52	
0010	650+02	-	650+02	RT	1	-	-	-	-	-	-	-	-	-	-	3	-	-	-	4	-	CULVERT 03
0010	801+36	-	803+87	LT	-	402	-	-	-	-	-	-	289	-	30	-	0.20	5.0	58	-	-	
0010	801+36	-	803+52	RT	-	435	-	-	-	-	-	-	309	-	30	-	0.20	6.0	62	-	-	
0010	6+06	-	8+86	ML	-	816	-	-	-	-	-	-	730	-	60	-	0.45	13.0	148	-	-	
0010	10+84	-	14+77	ML	-	-	-	-	-	-	-	-	1400	-	-	-	0.90	25.0	283	-	-	
0010		PROJECT			-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	-	-	
				TOTAL 0010	588	13,507	3,479	6	1,585	1,585	1	2	7,236	2	120	9	6.80	193.0	2,165	1,527	130	

3

3

PERMANENT SIGNAGE

		633.0100		633.0500		634.0612		637.2210		637.2230		638.2101		638.2602		638.3000 REMOVING SMALL SIGN SUPPORTS			
		DELINEATOR POSTS STEEL EACH		DELINEATOR REFLECTORS EACH		POSTS WOOD 4X6-INCH X 12-FT EACH		SIGNS TYPE II REFLECTIVE H SF		SIGNS TYPE II REFLECTIVE F SF		MOVING SIGNS TYPE I EACH		REMOVING SIGNS TYPE II EACH				REMARKS	
CATEGORY	STATION	TO	STATION	LOCATION															
0010	105+20	-	105+20	LT	-	-	1	-	-	12.00	-	-	-	-	-	-	-	NO PASSING ZONE	W14-3
0010	106+13	-	106+13	RT	-	-	-	-	-	-	-	-	1	1	-	-	-	GRADE CROSSING ADVANCE WARNING	W10-1
0010	108+96	-	108+96	RT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	GRADE CROSSING ADVANCE WARNING	W10-1
0010	114+77	-	114+77	LT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	GRADE CROSSING ADVANCE WARNING	W10-1
0010	115+21	-	115+21	LT	-	-	-	-	-	-	-	-	1	1	-	-	-	GRADE CROSSING ADVANCE WARNING	W10-1
0010	115+64	-	115+64	RT	-	-	1	-	-	12.00	-	-	-	-	-	-	-	NO PASSING ZONE	W14-3
0010	158+12	-	158+12	RT	-	-	-	-	-	2.25	-	-	1	1	-	-	-	SPEED PLAQUE	W13-1
0010	172+78	-	172+78	RT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER RIGHT	W5-52-R
0010	172+96	-	172+96	LT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER LEFT	W5-52L
0010	173+36	-	173+36	RT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER RIGHT	W5-52-R
0010	173+52	-	173+52	LT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER LEFT	W5-52L
0010	184+22	-	184+22	LT	-	-	-	-	-	2.25	-	-	1	1	-	-	-	SPEED PLAQUE	W13-1
0010	188+40	-	188+40	RT	-	-	-	-	-	2.25	-	-	1	1	-	-	-	SPEED PLAQUE	W13-1
0010	203+13	-	203+13	RT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	INTERSECTION AHEAD	W2-1
0010	204+64	-	204+64	LT	-	-	-	-	-	2.25	-	-	1	1	-	-	-	SPEED PLAQUE	W13-1
0010	216+41	-	216+41	RT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	DEER CROSSING	W11-3
0010	219+92	-	219+92	LT	-	-	1	-	-	9.00	-	-	-	-	-	-	-	INTERSECTION AHEAD	W2-1
0010	225+52	-	225+52	LT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	DEER CROSSING	W11-3
0010	231+25	-	233+50	RT	-	-	6	-	-	18.00	-	-	2	-	1	-	-	CHEVRON	W1-8
0010	255+82	-	255+82	RT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	INTERSECTION AHEAD	W2-1
0010	275+79	-	275+79	LT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	INTERSECTION AHEAD	W2-1
0010	312+40	-	312+40	RT	-	-	-	-	-	2.25	-	-	1	1	-	-	-	SPEED PLAQUE	W13-1
0010	314+67	-	314+67	RT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	INTERSECTION AHEAD	W2-1
0010	320+50	-	323+30	LT	-	-	6	-	-	18.00	-	-	-	-	-	-	-	CHEVRON	W1-8
0010	327+50	-	327+50	LT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	INTERSECTION AHEAD	W2-1
0010	330+48	-	330+48	LT	-	-	-	-	-	2.25	-	-	1	1	-	-	-	SPEED PLAQUE	W13-1
0010	355+45	-	355+45	RT	-	-	-	-	-	2.25	-	-	1	1	-	-	-	SPEED PLAQUE	W13-1
0010	400+27	-	400+27	RT	-	-	1	-	-	11.25	-	-	-	-	-	-	-	RIGHT CURVE & SPEED PLAQUE	W1-2R, W13-1
0010	401+48	-	405+49	LT	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-
0010	406+68	-	406+68	LT	-	-	1	-	-	11.25	-	-	-	-	-	-	-	LEFT CURVE & SPEED PLAQUE	W1-2L, W13-1
0010	415+15	-	415+15	RT	-	-	1	-	-	8.50	-	-	-	-	-	-	-	WINDY ROAD & SPEED PLAQUE	W1-5, W13-1
0010	425+40	-	431+68	LT	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-
0010	431+74	-	431+74	RT	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-
0010	432+98	-	432+98	RT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER RIGHT	W5-52-R
0010	433+13	-	433+13	LT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER LEFT	W5-52L
0010	433+36	-	433+36	RT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER RIGHT	W5-52-R
0010	433+51	-	433+51	LT	-	-	-	-	-	-	-	1	-	-	-	-	-	CLEARANCE STRIPER LEFT	W5-52L
0010	435+68	-	435+68	RT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	COMBINATION LEFT CURVE / INTERSECTION SIGN	W1-10L, W2-1
0010	435+96	-	441+76	RT	-	-	13	-	-	45.25	-	-	-	-	-	-	-	CHEVRON & SIDE ROAD	W1-8, W2-2R
0010	442+75	-	442+75	LT	-	-	2	-	-	8.00	-	-	-	-	-	-	-	NIGHT ARROW (DOUBLE)	W1-7
0010	443+24	-	446+88	RT	-	-	10	-	-	45.25	-	-	-	-	-	-	-	CHEVRON & SIDE ROAD & MERGING TRAFFIC	W1-8, W2-2R, W4-1
0010	449+65	-	449+65	LT	-	-	1	-	-	6.25	-	-	-	-	-	-	-	COMBINATION RIGHT CURVE / INTERSECTION SIGN	W1-10L, W2-1
0010	452+75	-	452+75	LT	-	-	1	-	-	8.50	-	-	2	1	-	1	-	WINDY ROAD & SPEED PLAQUE	W1-5, W13-1
0010	605+58	-	605+58	RT	-	-	1	-	-	6.25	-	-	1	1	-	1	-	SCHOOL BUS STOP AHEAD	S3-1
0010	630+22	-	630+22	LT	-	-	1	-	-	6.25	-	-	1	1	-	1	-	SCHOOL BUS STOP AHEAD	S3-1
0010	640+40	-	640+40	RT	-	-	1	-	-	8.50	-	-	2	1	-	1	-	COMBINATION LEFT CURVE / INTERSECTION SIGN & SPEED PLAQUE	W1-10L, W2-1, W13-1
0010	645+84	-	653+05	RT	-	-	12	-	-	36.00	-	-	-	-	-	-	-	CHEVRON	W1-8
0010	649+74	-	649+74	LT	-	-	2	-	-	8.00	-	-	-	-	-	-	-	NIGHT ARROW (DOUBLE)	W1-7
0010	657+33	-	657+33	RT	-	-	1	5.00	-	-	-	-	-	-	-	-	-	SPEED LIMIT SIGN	R2-1
0010	660+62	-	660+62	LT	-	-	1	-	-	8.50	-	-	-	-	-	-	-	COMBINATION RIGHT CURVE / INTERSECTION SIGN & SPEED PLAQUE	W1-10R, W2-1, W13-1
0010	801+71	-	801+71	LT	-	-	1	6.25	-	-	-	-	-	-	-	-	-	STOP SIGN	R1-1
0010	802+66	-	802+66	RT	-	-	1	6.25	-	14.75	-	-	-	-	-	-	-	DEAD END	W14-1
0010	803+08	-	803+08	RT	-	-	1	5.00	-	-	-	-	-	-	-	-	-	PRIVATE DRIVE	R5-50
0010	803+88	-	803+88	RT	-	-	-	9.00	-	-	-	-	2	-	-	-	-	YIELD	R1-2
0010	804+22	-	804+22	RT	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-
0010	804+32	-	804+32	LT	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-
TOTAL 0010					9	9	77	31.50		379.75		8		24		9			

PROJECT NO: 9488-02-70

HWY: CTH D

COUNTY: PRICE

MISCELLANEOUS QUANTITIES

SHEET

E

3

3

CONSTRUCTION STAKING

CATEGORY	STATION	TO	STATION	LOCATION	650.4500	650.5000	650.6000	650.9920	650.9911.01	REMARKS
					CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING BASE LF	CONSTRUCTION STAKING PIPE CULVERTS EACH	CONSTRUCTION STAKING SLOPE STAKES LF	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (9488-02-70) EACH	
0010	171+38	-	174+78	LT/RT	-	-	-	340	-	B-50-03 GUARDRAIL
	431+86	-	435+52	LT/RT	-	-	-	366	-	B-50-02 GUARDRAIL
	643+19	-	656+36	ML	1,317	1,317	-	1317	-	CTH D
	644+24	-	644+63	RT	-	-	1	-	-	CULVERT 01
	646+97	-	647+60	RT	-	-	1	-	-	CULVERT 02
	649+42	-	649+95	RT	-	-	1	-	-	CULVERT 03
	801+36	-	803+87	ML	251	251	-	-	-	MINK DRIVE
	7+50	-	10+50	ML	300	300	-	-	-	OBLITERATING OLD ROAD
	10+84	-	14+77	ML	393	393	-	-	-	OBLITERATING OLD ROAD
	0010	Project		ML	-	-	-	-	1	GUARDRAIL SECTIONS AND CURVE REALIGNMENT
TOTAL 0010					2,261	2,261	3	2,023	1	

MONUMENTS AND MARKERS

CATEGORY	STATION	TO	STATION	LOCATION	633.5100	633.5200	680.0100	REMARKS
					MARKERS ROW EACH	MARKERS CULVERT END EACH	PUBLIC LAND SURVEY MONUMNET VERIFY AND RESET EACH	
0010	170+17	-	175+98	ML	-	-	1	1 SECTION CORNER, 4 REFERENCE MONUMENTS
0010	430+67	-	436+71	ML	-	-	-	
0010	643+25	-	656+13	LT	5	-	-	
0010	643+25	-	656+13	RT	-	6	1	1 SECTION CORNER, 4 REFERENCE MONUMENTS
TOTAL 0010					5	6	2	

PAVEMENT MARKING

CATEGORY	STATION	TO	STATION	LOCATION	646.2020	646.5320	REMARKS
					MARKING LINE EPOXY 6-INCH LF	MARKING RAILROAD CROSSING EPOXY EACH	
0010	108+92	-	110+59	RT	-	1	WEST RAILROAD MARKING
0010	110+64	-	112+31	LT	-	1	EAST RAILROAD MARKING
0010	111+73	-	656+13	LT	54,462	-	FOG LINE
0010	111+73	-	656+13	RT	54,361	-	FOG LINE
0010	643+25	-	656+13	ML	2632	-	DOUBLE YELLOW CENTERLINE, CURVE RECONSTRUCTION
TOTAL 0010					111,455	2	

TRAFFIC CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	643.0300	643.0420	643.0705	643.0900	643.4100	REMARKS
					TRAFFIC CONTROL DRUMS DAY	TRAFFIC CONTROL BARRICADES TYPE III DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	TRAFFIC CONTROL SIGNS DAY	TRAFFIC CONTROL INTERIM LANE CLOSURE EACH	
0010	172+11	-	174+03	ML	88	2	176	30	-	CLOSED SHOULDER FOR GUARDRAIL WORK
0010	431+75	-	435+75	ML	88	2	176	30	-	CLOSED SHOULDER FOR GUARDRAIL WORK
0010	643+25	-	656+13	ML	-	232	-	434	4	CURVE RECONSTRUCTION
TOTAL 0010					176	236	352	494	4	

TURTLE EXCLUSION FENCE

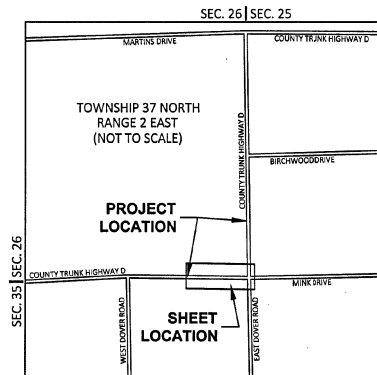
CATEGORY	STATION	TO	STATION	LOCATION	999.2100.S	999.2105.S	REMARKS
					INSTALLING AND MAINTAINING CLIMBING TURTLE EXCLUSION FENCE LF	MAINTAINING CLIMBING TURTLE EXCLUSION FENCE LF	
0010	170+63	-	172+80	RT	215	215	
0010	171+74	-	172+97	LT	127	127	
0010	173+35	-	175+70	RT	249	249	
0010	173+49	-	174+78	LT	121	121	
0010	431+83	-	433+16	LT	109	109	
0010	430+92	-	433+02	RT	215	215	
0010	433+33	-	435+60	RT	230	230	
0010	433+49	-	435+61	LT	157	157	
0010	643+19	-	656+13	LT	1,116	1,116	
TOTAL 0010					2,539	2,539	

PROJECT.

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SECTION 83.07 AND 83.08, WISCONSIN STATUTES, PRICE COUNTY HEREBY ORDERS THAT:

1. THAT PORTION OF SAID HIGHWAY AS SHOWN ON THIS PLAT IS LAID OUT AND ESTABLISHED TO THE LINES AND WIDTHS AS SO SHOWN FOR THE ABOVE PROJECT.
2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY PRICE COUNTY FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF PRICE COUNTY, PURSUANT TO THE PROVISIONS OF SECTION 83.07 AND 83.08, WISCONSIN STATUTES.

UTILITY NUMBER	OWNER(S)	INTEREST REQUIRED
100	PRICE COUNTY TELEPHONE CO.	TEMPORARY RELEASE OF RIGHTS & RELEASE OF RIGHTS
101	PRICE COUNTY ELECTRIC COOPERATIVE	RELEASE OF RIGHTS



PARCEL NUMBER	OWNER(S)	INTEREST REQUIRED	RIGHT-OF-WAY ACRES REQUIRED			TLE ACRES
			NEW	EXISTING	TOTAL	
1	MICHAEL J. & TERRI L. FRANSON	FEE	1.313 AC	0.484 AC	1.797 AC	----
2	NATHAN T. CARLILE	FEE/TLE	----	0.191 AC	0.191 AC	0.030 AC
3	JEFFREY A. JUNK	FEET/TLE	----	0.229 AC	0.229 AC	0.080 AC
4	KENNETH E. JUNK	FEE/TLE	----	0.382 AC	0.382 AC	0.029 AC

BASIS OF EXISTING RIGHT OF WAY			
ROAD NAME	SURVEYS / OTHER	VOLUME / PAGE	YEAR
COUNTY TRUNK HIGHWAY D	WIS. STAT. SEC. 82.31 (2)(A), EXISTING CENTERLINE		
EAST DOVER RD	GAS TAX RECORDS / SECTION LINE		
MINK DRIVE	SECTION LINE / SECTION 2-2 SECTION SUMMARY		(SEC. SUM)

SECTION LINE		SECTION CORNER SYMBOL		R/W MONUMENT (TO BE SET)	● (PRWXXX)
QUARTER LINE		SECTION CORNER MONUMENT		NON-MONUMENTED POINT	○ (PRWXXX) (TLEXXXX)
SIXTEENTH LINE		GEODETIC SURVEY MONUMENT		FOUND IRON PIPE (1-1/4" O.D. UNLESS NOTED)	● (IPXXX)
NEW REFERENCE LINE		SIXTEENTH CORNER MONUMENT			
NEW R/W LINE		SIGN	SIGN	OFF-PREMISE SIGN	SIGN
EXISTING R/W OR HE LINE					
PROPERTY LINE					
LOT, TIE & OTHER MINOR LINES					
SLOPE INTERCEPT					
CORPORATE LIMITS					
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC)		ELECTRIC POLE		TELEPHONE POLE	
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)		PEDESTAL (LABEL TYPE)		PEDESTAL (LABEL TYPE)	
TEMPORARY LIMITED EASEMENT AREA		GUY WIRE	○ GUY	○ GUY	○ GUY
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)		ACCESS RESTRICTED BY ACQUISITION			
TRANSMISSION STRUCTURES		NO ACCESS (BY STATUTORY AUTHORITY)			
BUILDING		ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)			
BRIDGE		NO ACCESS (NEW HIGHWAY)			
CULVERT		PARCEL NUMBER		UTILITY NUMBER	
		PARALLEL OFFSETS			

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS	(10
AND OTHERS	ET AL	REEL / IMAGE	R/
BACK	BK	REFERENCE LINE	R/L
BLOCK	BLK	REMAINING	RE
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT	RD
CERTIFIED SURVEY MAP	CSM	EASEMENT	
CONCRETE	CONC	RIGHT	RT
COUNTY	CO	RIGHT OF WAY	R/W
COUNTY TRUNK HIGHWAY	CTH	SECTION	SEC
DISTANCE	DIST	SEPTIC VENT	SE
CORNER	COR	SQUARE FEET	SF
DOCUMENT NUMBER	DOC	STATE TRUNK HIGHWAY	STA
EASEMENT	EASE	STATION	ST
EXISTING	EX	TELEPHONE PEDESTAL	TP
GAS VALVE	GV	TEMPORARY LIMITED	TL
GRID NORTH	GN	EASEMENT	
HIGHWAY EASEMENT	HE	TRANSPORTATION PROJECT PLAT	TP
IDENTIFICATION	ID	UNITED STATES HIGHWAY	US
LAND CONTRACT	LC	VOLUME	V

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/Δ_{LT}
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

SYLVIA R. KERNER
PRICE COUNTY, WI
REGISTER OF DEEDS
RECORDED ON
07/22/2025 12:06 PM
REC FEE: 25.00
PAGES: 1

SCALE, FEET

0 50 100

SCALE IS FOR 22" x 34" SHEET
(11" x 17" IS HALF SIZE)

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), PRICE 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.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 1-1/4" O.D. X 24" IRON PIPE), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, CENTERLINE OF EXISTING PAVEMENTS AND/OR EXISTING OCCUPATIONAL LINES.

RIGHT-OF-WAY BOUNDARIES ARE DEFINED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

PROPERTY LINES SHOWN ON THIS PLAT FOR PROPERTIES BEING IMPACTED ARE DRAWN FROM DATA DERIVED FROM FILED/RECORDED MAPS AND DOCUMENTS OF PUBLIC RECORD. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL (TLE)S OF THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

FOUND MONUMEN" INFORMATION SHOWN REPRESENTS TYPE AND LOCATION OF EXSTING MONUMENTS
WITHOUT OPINION AS TO THEIR VALIDITY AND USE AS A PROPERTY CORNER.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT PRICE COUNTY

PARCEL AND UTILITY IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION

FILE NAME : Z:\RLS_PROJECTS\4274 BHA PRICE COUNTY\TPP\4.01\4274 CTH D TPP4.01 AMENDMENT NO.1.DWG
APPRAISAL PLAT DATE :

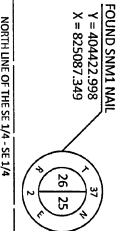
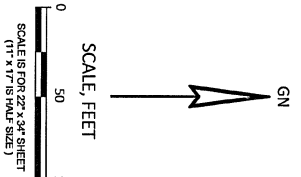
PLOT DATE : 7/8/2025 3:45 PM

PLOT BY : SAM HAUGEN

PLOT NAME :

PLOT SCALE :

9488-02-00 4.01 AMEND. NO. 1



TRANSPORTATION PROJECT PLAT NO: 9488-02-00 - 4.02 AMENDMENT NO. 1

AMENDS PARCELS 5 & 6 OF TRANSPORTATION PROJECT PLAT NO: 9488-02-00 - 4.02 RECORDED AS DOCUMENT NO. 408866 PART OF THE SOUTHEAST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 26 AND SOUTHWEST 1/4 OF THE SOUTHWEST 1/4 OF SECTION 25, ALL WITHIN TOWNSHIP 37 NORTH, RANGE 2 EAST, TOWN OF EMERY, PRICE COUNTY, WISCONSIN.

RELOCATION ORDER: COUNTY TRUNK HIGHWAY D (PHILLIPS TO EMERY) PRICE COUNTY, WISCONSIN

TO PROPERLY ESTABLISH LAY OUT, WIDTHS, EMBANKMENT, EXISTING, IMPROVE, OR MAINTAIN A PORTION OF THE HIGHWAY DESIGNATED ABOVE, PRICE COUNTY DEEMS IT NECESSARY TO RELOCATE OR CHANGE SAID HIGHWAY AND ACQUIRE CERTAIN LANDS AND INTERESTS IN LANDS FOR THE ABOVE PROJECT.

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SECTION 83.07 AND 83.08, WISCONSIN STATUTES, PRICE COUNTY HEREBY ORDERS THAT:

1. THAT PORTION OF SAID HIGHWAY AS SHOWN ON THIS PLAT IS LAY OUT AND ESTABLISHED TO THE LINES AND WIDTHS AS SO SHOWN FOR THE ABOVE PROJECT.
2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY PRICE COUNTY FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF PRICE COUNTY, PURSUANT TO THE PROVISIONS OF SECTION 83.07 AND 83.08, WISCONSIN STATUTES.

RESERVED FOR REGISTER OF DEEDS

PROJECT NUMBER 9488-02-00 4.02

AMENDMENT NO. 1

4089502

SYLVIA R. KEMER

PRICE COUNTY, WI

REGISTER OF DEEDS

RECORDED ON

07/27/2025 12:06 PM

FILED 25-00

PAGES: 1

ROAD NAME	SURVEY / OTHER	VOLUME / PAGE	YEAR
COUNTY TRUNK HIGHWAY D	WIS. STAT. SEC. 82.31 (2)(A)		
EAST DOVER RD	GAS TAX RECORDS / SECTION LINE		
MINK DRIVE	SECTION 25 SECTION SUMMARY		
			(SEE SUM) 393

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), PRICE COUNTY, MAD83(2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 1-1/4" O.D. X 24" IRON PIPE), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, CENTERLINE OF EXISTING PAVEMENTS AND/OR EXISTING OCCUPANCIAL LINES.

RIGHT-OF-WAY BOUNDARIES ARE DENIED WITH COURSES OF THE PERIMETER OF THE HIGHWAY LANDS REFERENCED TO THE U.S. PUBLIC LAND SURVEY SYSTEM OR OTHER "SURVEYS" OF PUBLIC RECORD.

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

PROPERTY LINES SHOWN ON THIS PLAT FOR PROPERTIES BEING IMPACTED ARE DRAWN FROM DATA DERIVED FROM FILED/RECORDED MAPS AND DOCUMENTS OF PUBLIC RECORD. THIS PLAT MAY NOT BE A TRUE REPRESENTATION OF EXISTING PROPERTY LINES, EXCLUDING RIGHT-OF-WAY, AND SHOULD NOT BE USED AS A SUBSTITUTE FOR AN ACCURATE FIELD SURVEY.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE. ALL (TLE) ON THIS PLAT EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

FOUND MONUMENT INFORMATION SHOWN REPRESENTS TYPE AND LOCATION OF EXISTING MONUMENTS WITHOUT OPINION AS TO THEIR VALIDITY AND USE AS A PROPERTY CORNER.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT PRICE COUNTY PARCEL AND UTILITY IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION.

TOWN

Line #	Direction	Length
L1	N88°34'23"E	32.77
L2	N88°34'23"E	6.04
L3	N88°34'23"E	27.19
L4	N88°40'46"E	10.00
L5	N90°00'00"W	10.00

SE 1/4 - SE 1/4

UNLAPIDATED LANDS

CURVE 1

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 2

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 3

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 4

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 5

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 6

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 7

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 8

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 9

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 10

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 11

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 12

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 13

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 14

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 15

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 16

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 17

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 18

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 19

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 20

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 21

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 22

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 23

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 24

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 25

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 26

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 27

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 28

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 29

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 30

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 31

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 32

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 33

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 34

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 35

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 36

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 37

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 38

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 39

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 40

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 41

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 42

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 43

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

L = 1029.71'

PC STA = 654+44.72 82

PT STA = 655+02.53

DB = 589'40'22"E

DA = 101'25'37"W

CURVE 44

PT STA = 651+35.81

Y = 401802.628

X = 825128.277

DELTA = 91°45'16" E

D = 87°54'39"

T = 603.00'

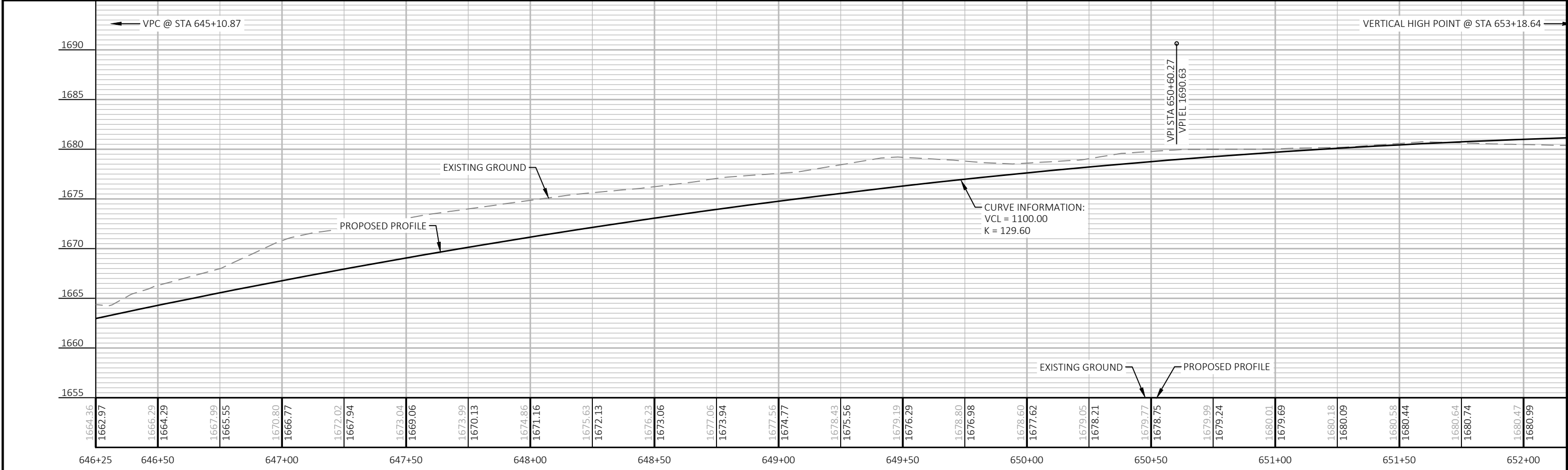
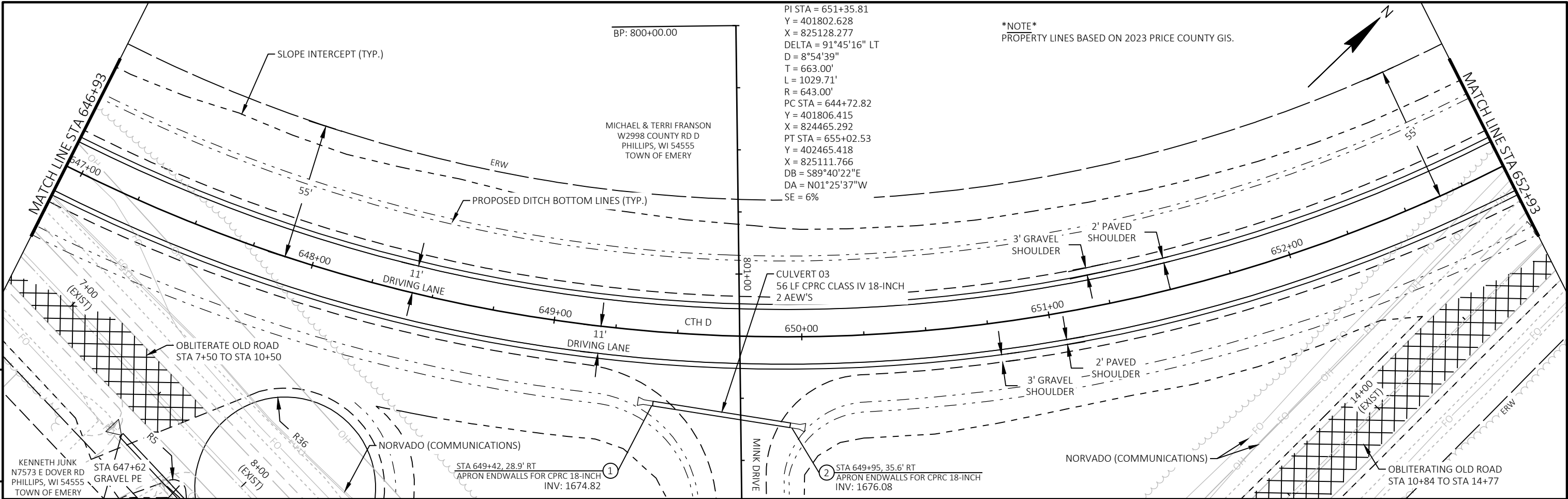
L = 1029.71'

PC STA = 654+44.72 82

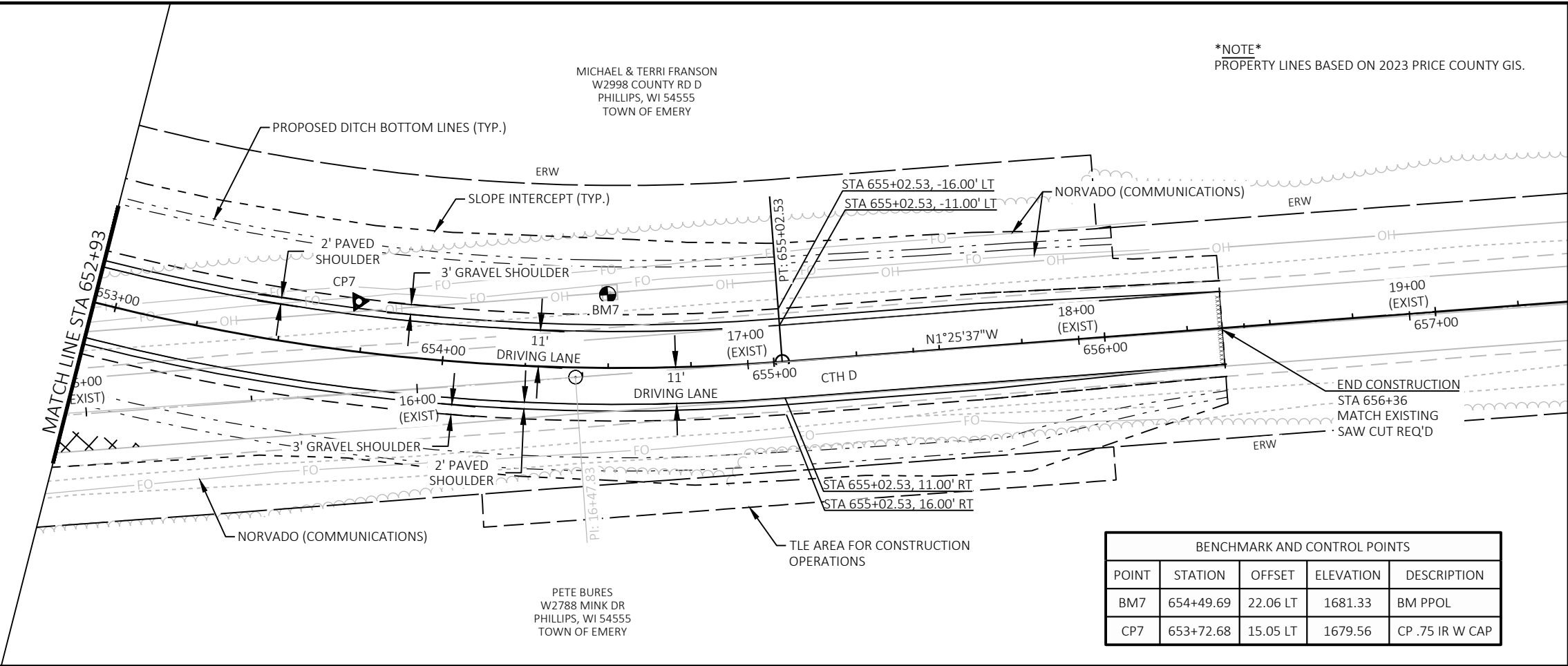
PT STA = 655+02.53

DB = 589'40'22"E

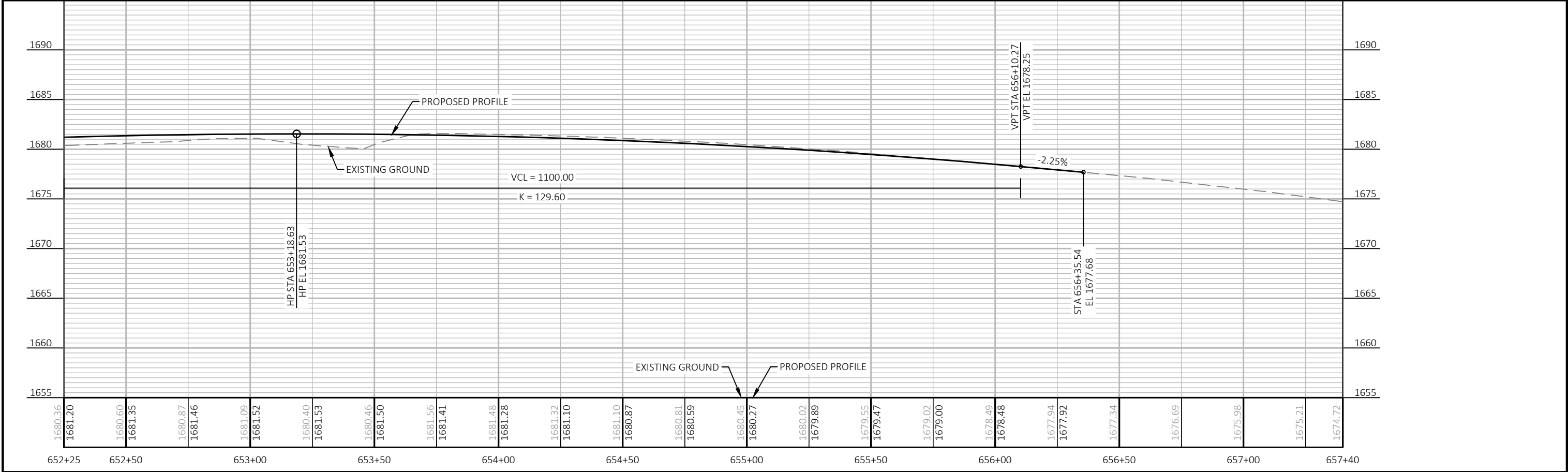
DA = 101'25'37"W

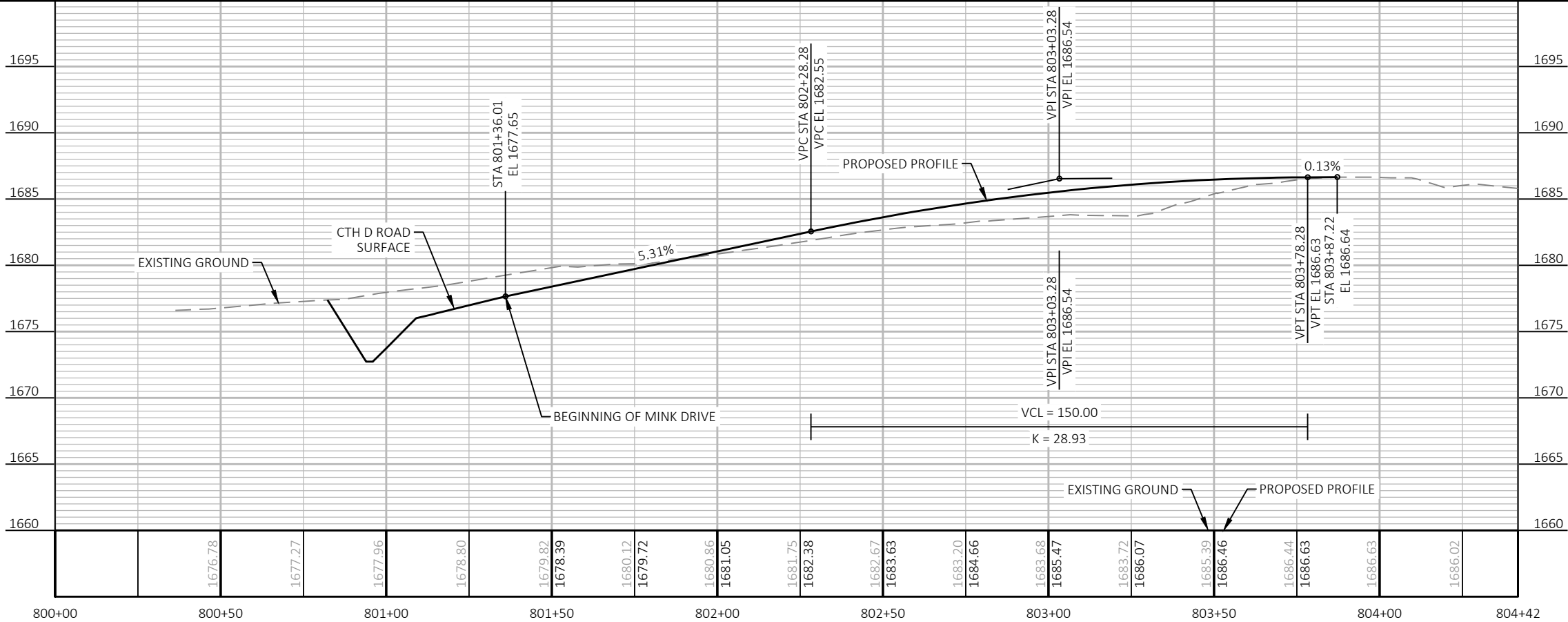
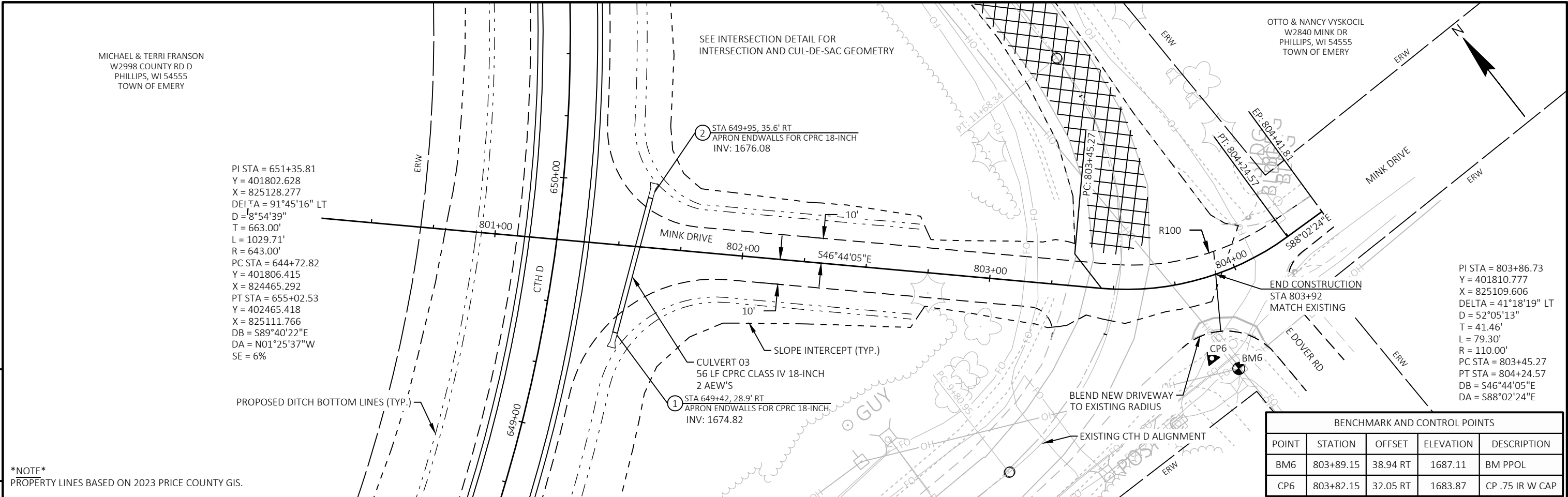


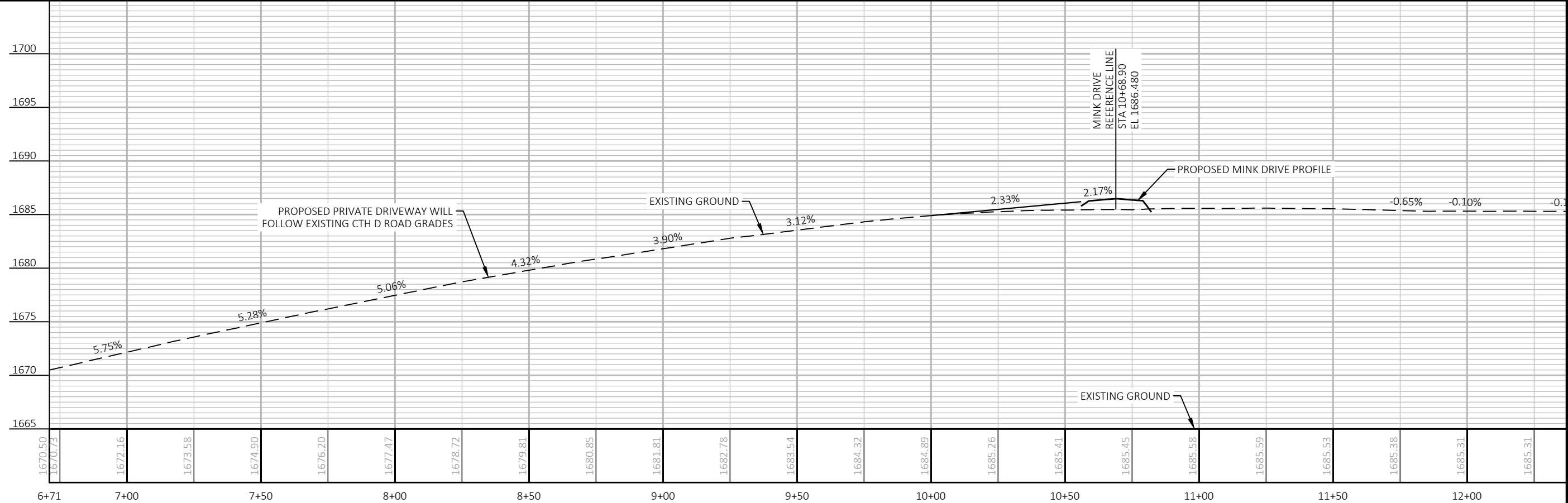
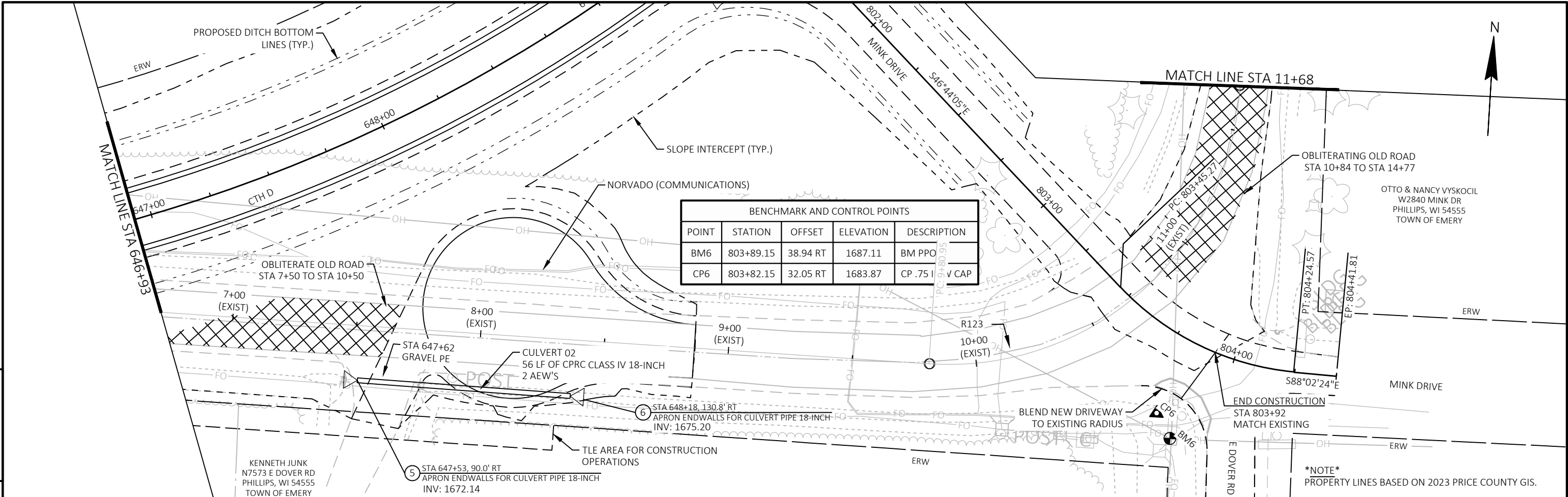
5



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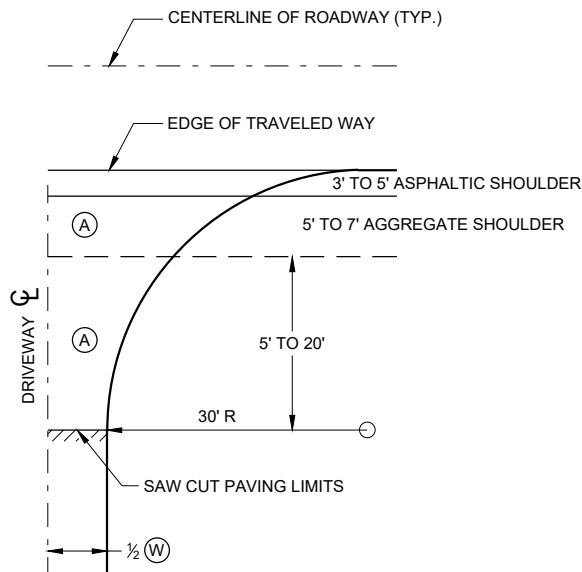






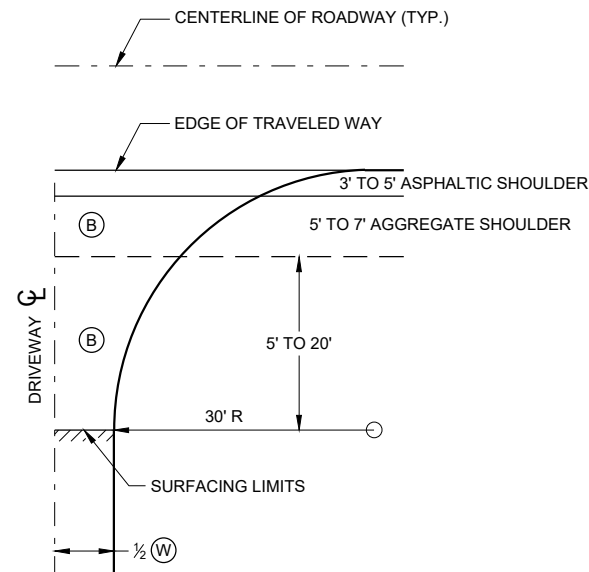
Standard Detail Drawing List

08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13C19-03	HMA LONGITUDINAL JOINTS
14B29-01	SAFETY EDGE
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B53-03A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-03I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14D01-01	TURTLE EXCLUSION FENCE CLIMBING TURTLE
15A01-13A	MARKER POST FOR RIGHT-OF-WAY
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15A04-08C	DELINEATOR POST WITH REFLECTIVE SHEETING
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-24A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C09-13A	SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD-HIGHWAY GRADE CROSSINGS
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15C35-06B	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15C35-06C	PAVEMENT MARKING AND SIGNING (CLIMBING LANE & PASSING LANE)
15D27-04	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D29-06	TRAFFIC CONTROL, VEHICLE ENTRANCE/EXIT OR HAUL ROAD
15D48-01	TRAFFIC CONTROL, LANE SHIFT IN FLAGGING OPERATION

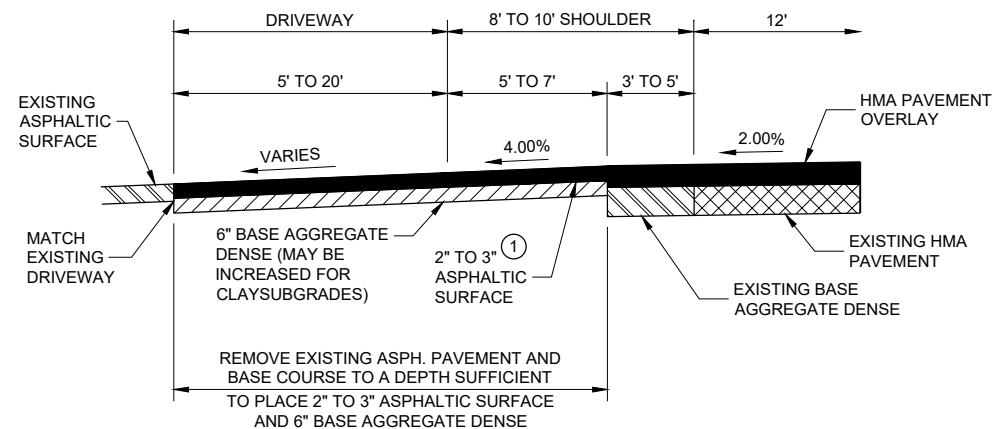


**PLAN VIEW
HALF SECTION**

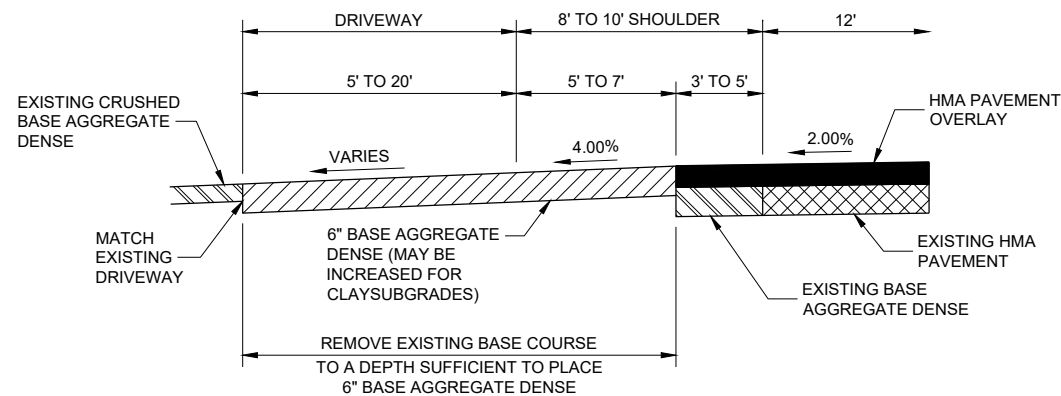
- (A) : PAID FOR AS ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES. (TON)
- (B) : PAID FOR AS BASE AGGREGATE DENSE 1 1/4" (TON)
- (W) : DRIVEWAY WIDTH 16' MIN. - 24' MAX.



**PLAN VIEW
HALF SECTION**



**PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS**



**PROFILE VIEW
RURAL ENTRANCE
WITH AGGREGATE SURFACE
6" BASE AGGREGATE DENSE
RESURFACING PROJECTS**

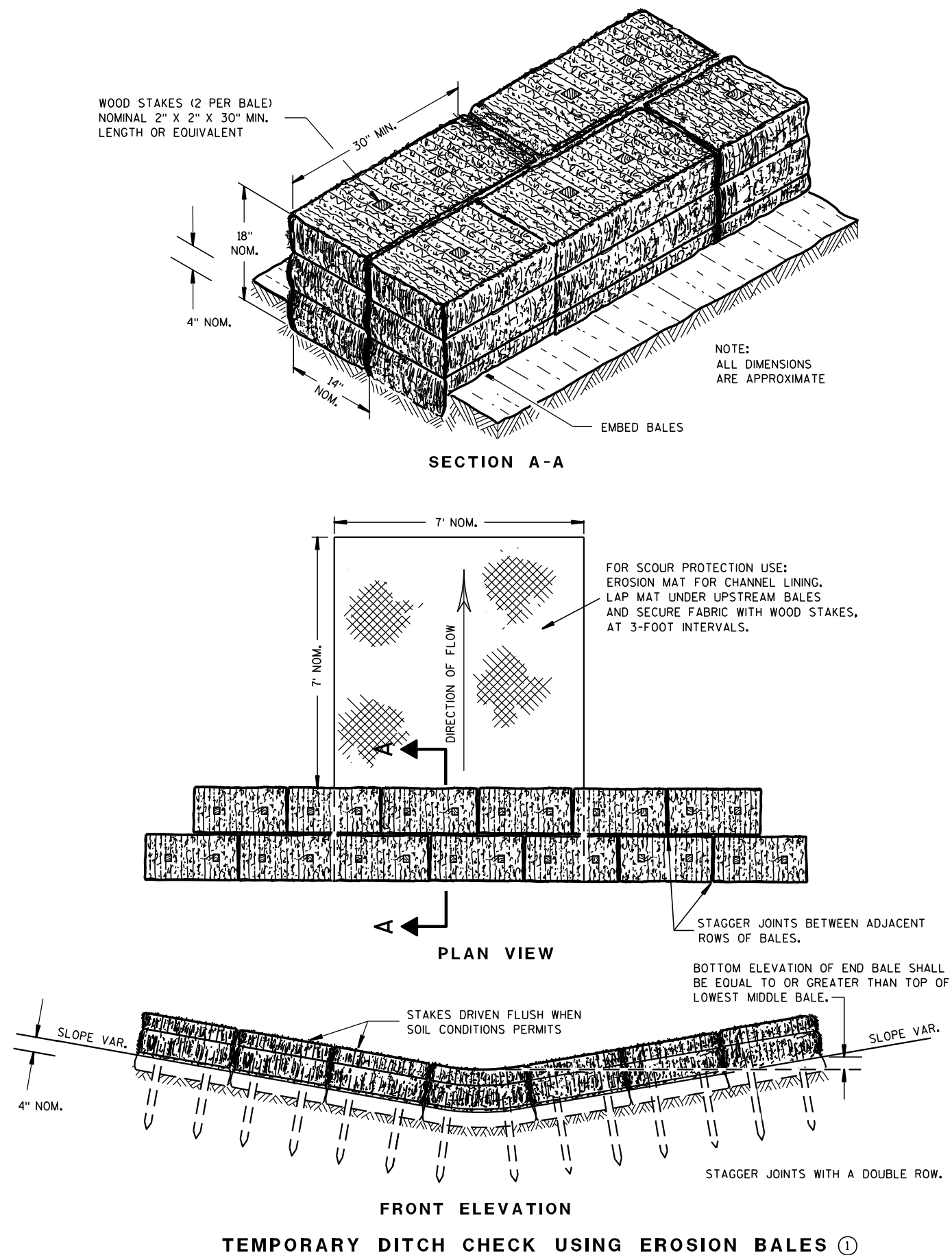
GENERAL NOTES

- ① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.

**DRIVEWAYS WITHOUT CURB
AND GUTTER RESURFACING
PROJECTS RURAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

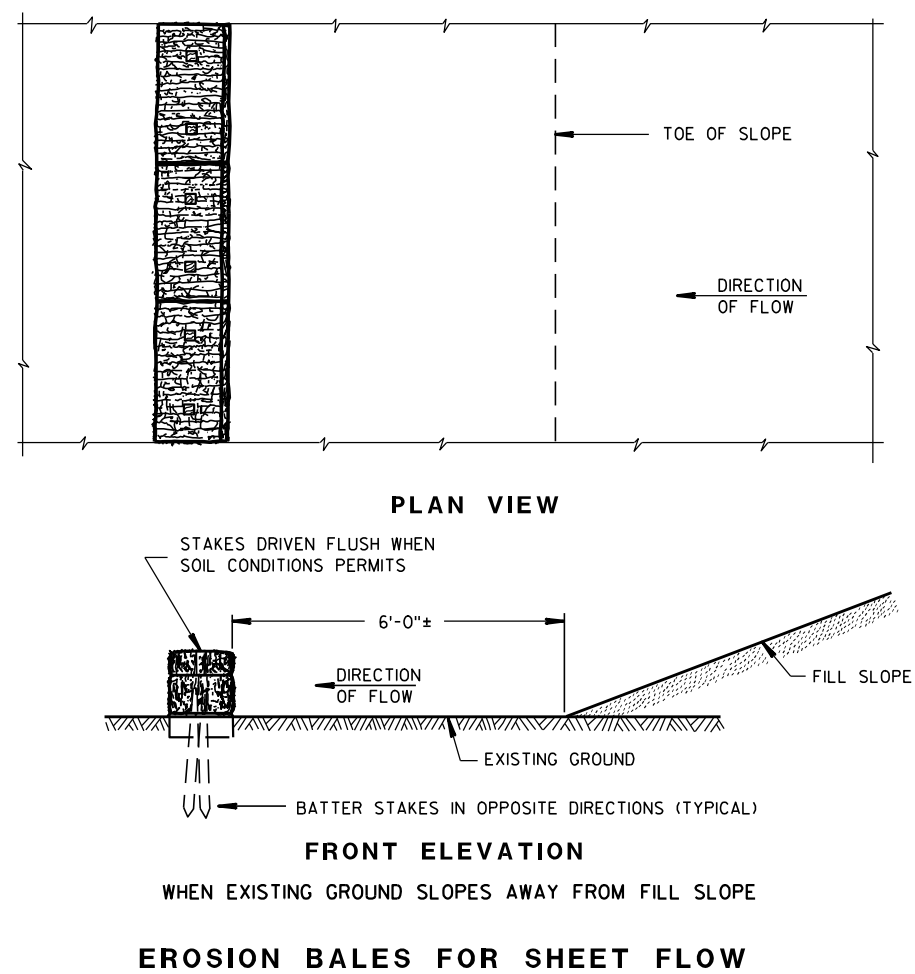
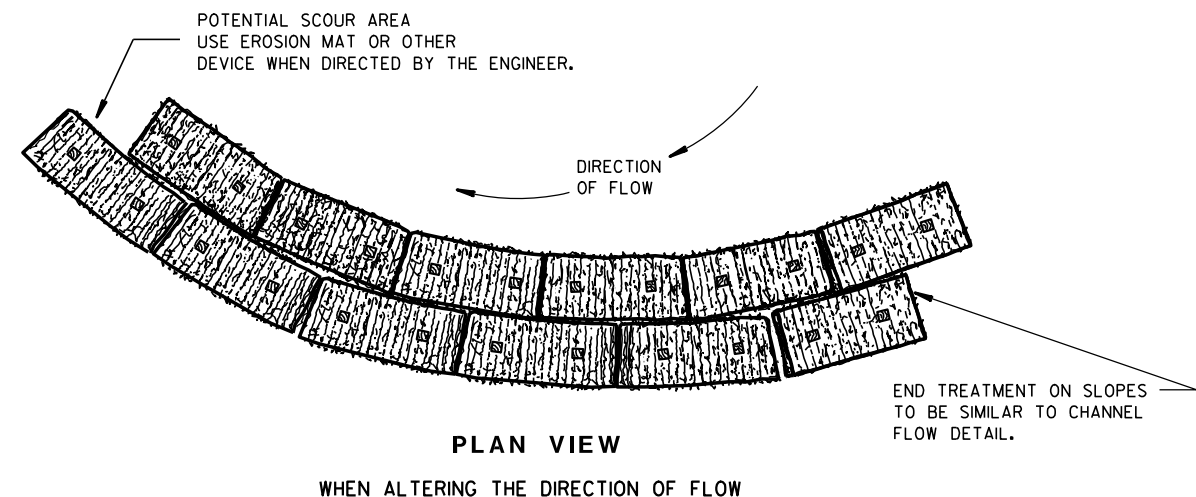
APPROVED
December 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 44
FHWA



GENERAL NOTES

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

- 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.



TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

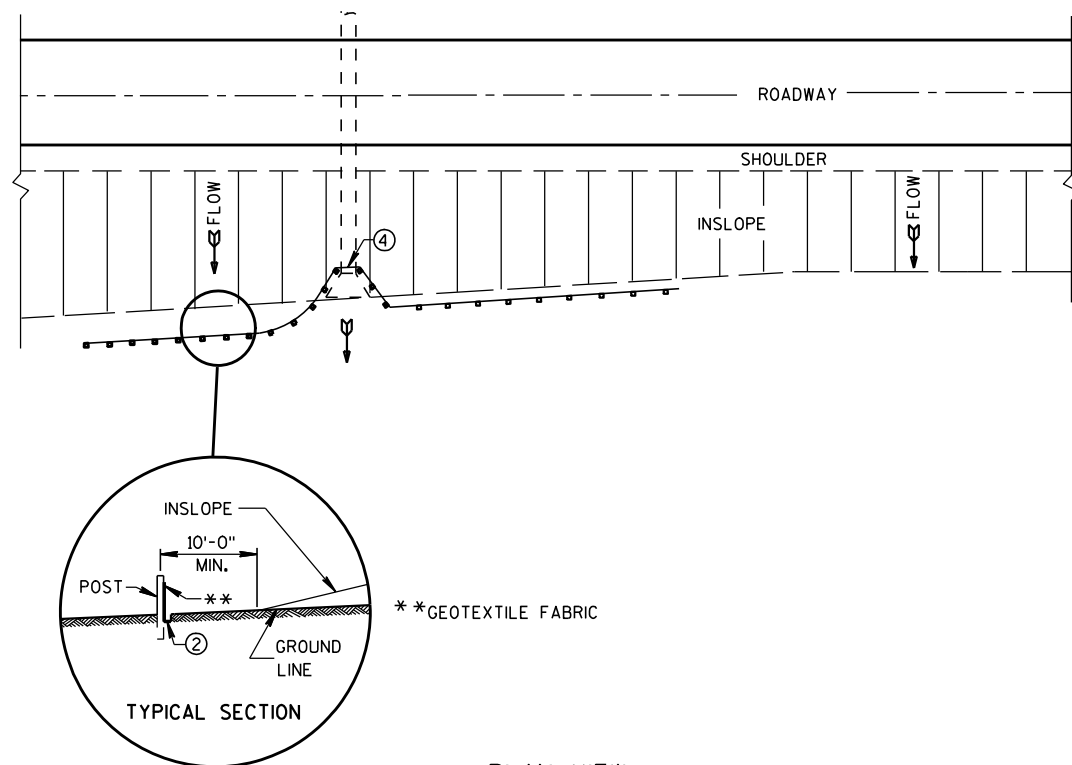
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

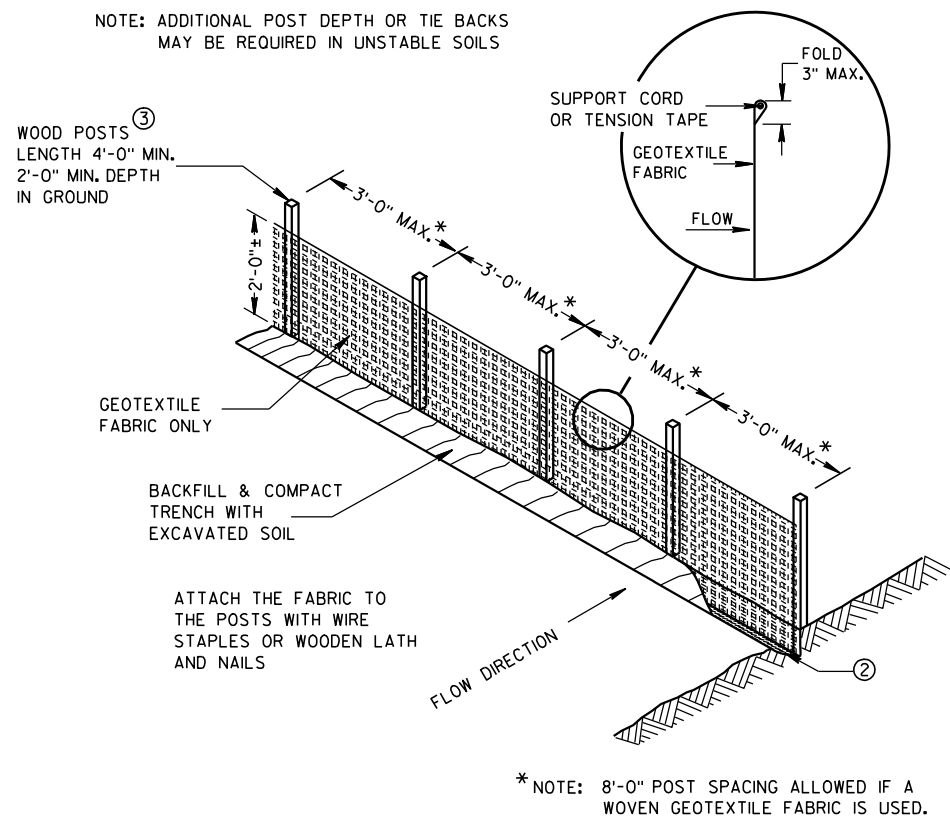
/S/ Beth Conn-----
CHIEF ROADWAY DEVELOPER 45 ENGINEER

FHWA



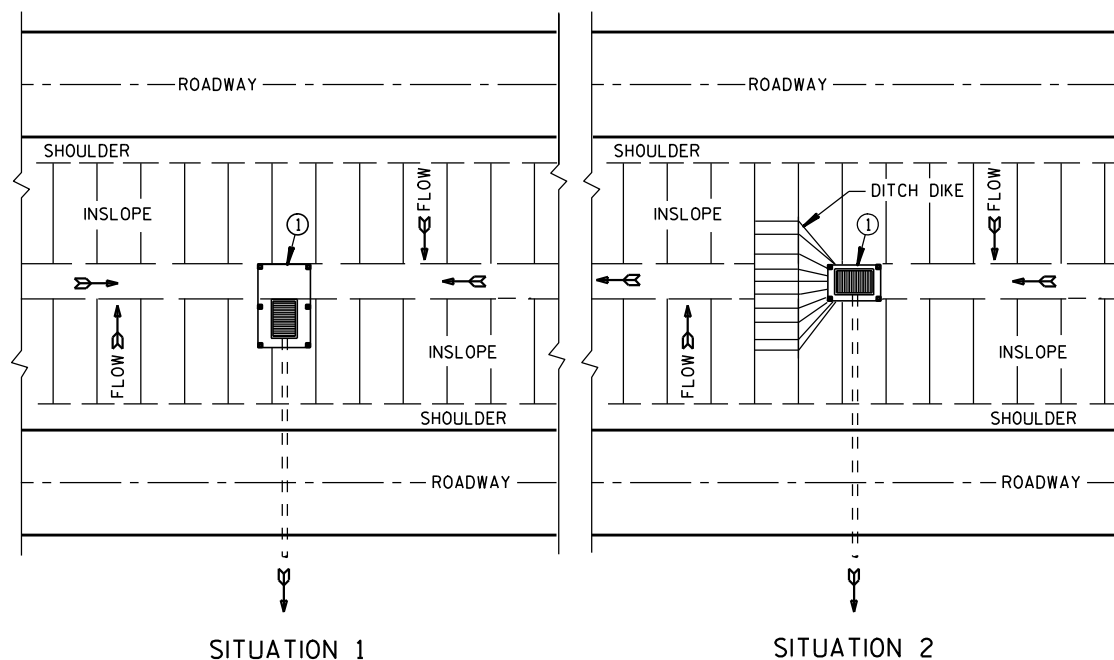
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

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

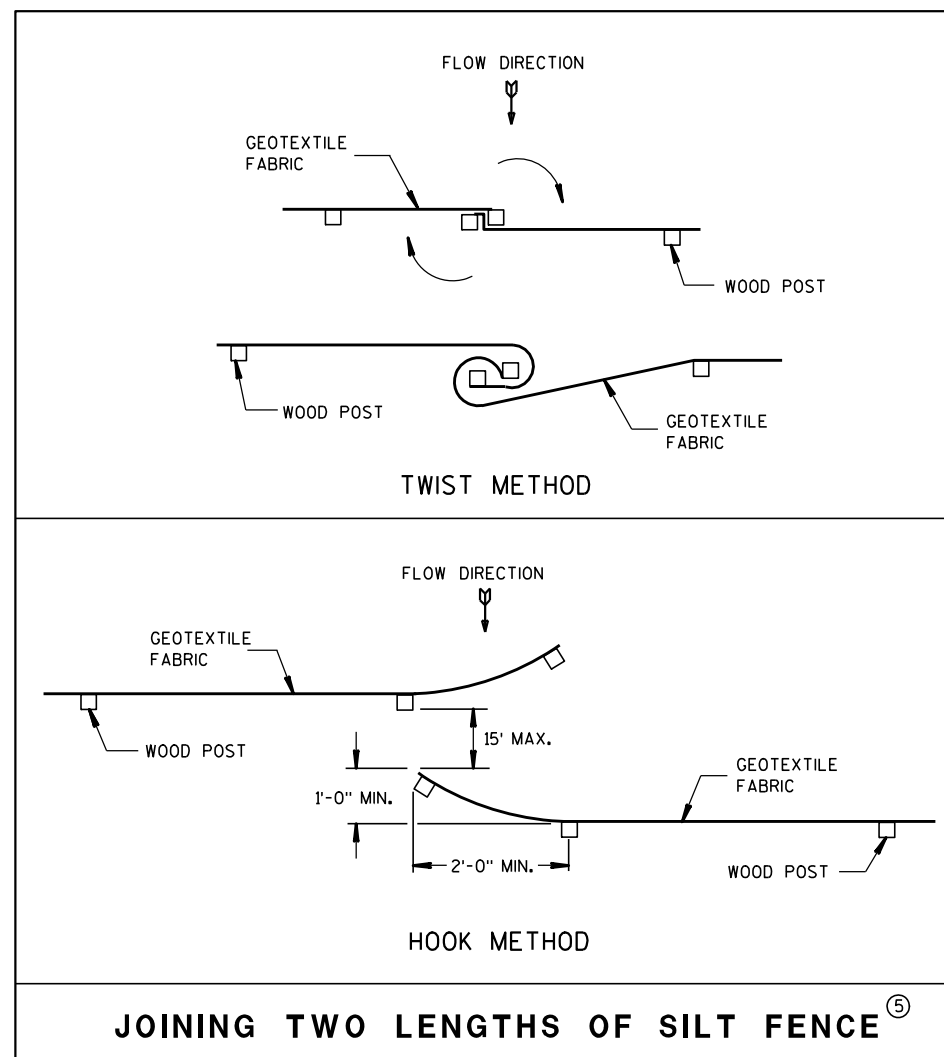


SILT FENCE

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



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

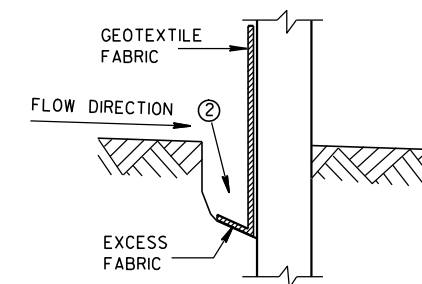


JOINING TWO LENGTHS OF SILT FENCE^⑤

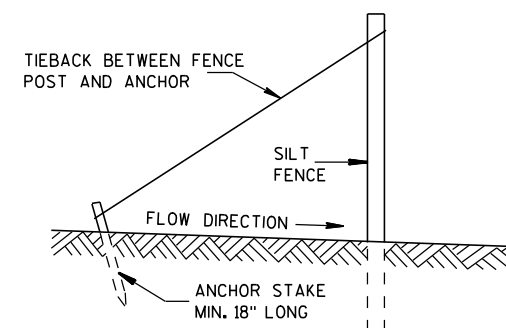
GENERAL NOTES

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

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



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

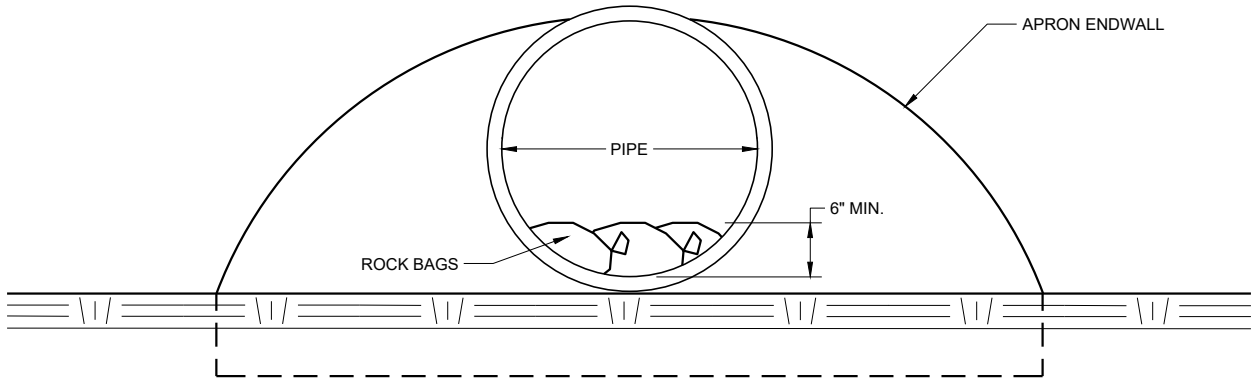
APPROVED

4-29-05
DATE

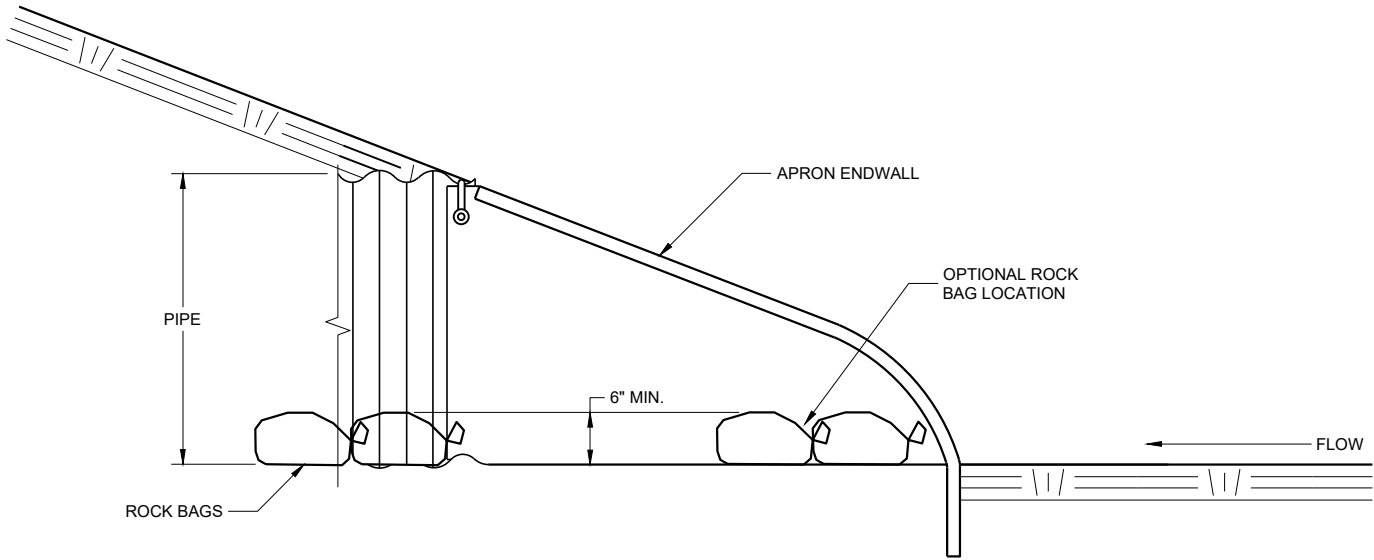
FHWA

/S/ Beth Conn
CHIEF ROADWAY DEVELOPER

ENGINEER



END VIEW



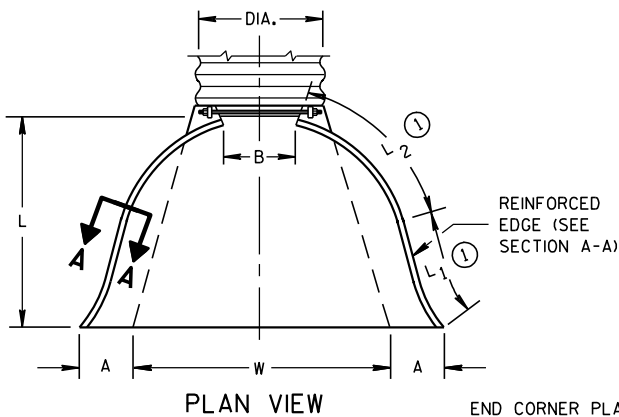
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI 47	-
FHWA		

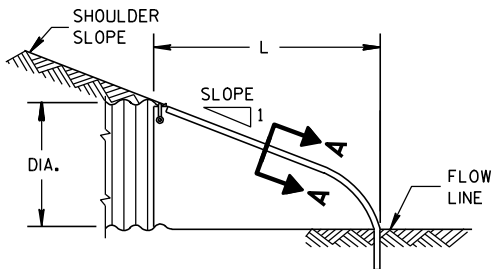
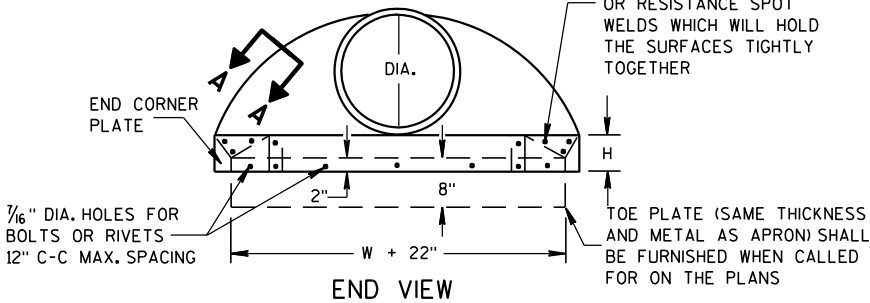
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE		BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1		1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1		1 Pc.
18	.064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

* EXCEPT CENTER PANEL
SEE GENERAL NOTES



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

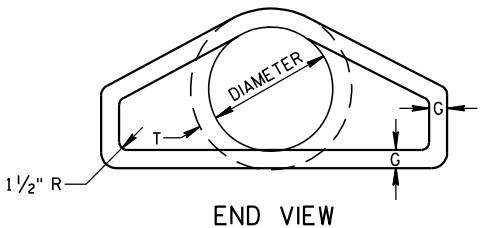
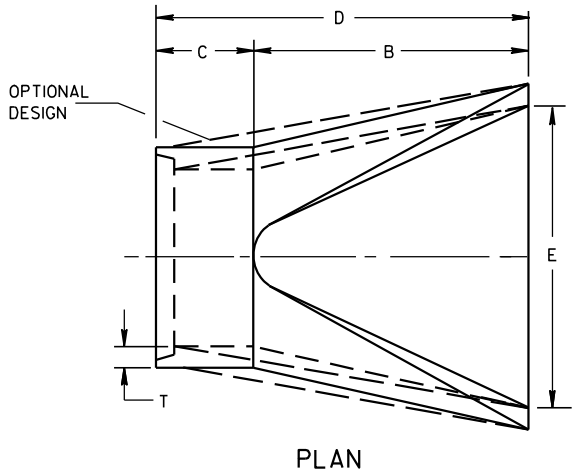
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS



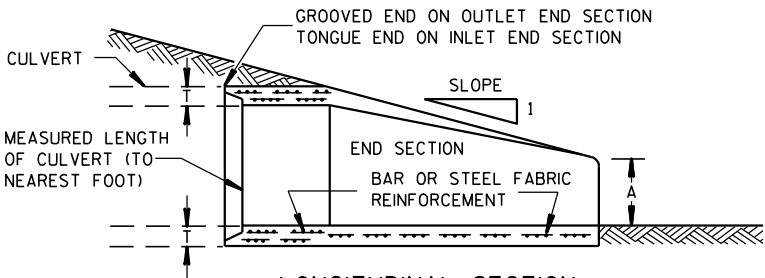
SIDE ELEVATION
METAL ENDWALLS

REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	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				

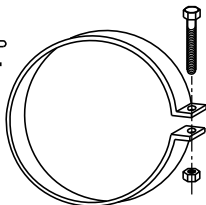
* MINIMUM
** MAXIMUM



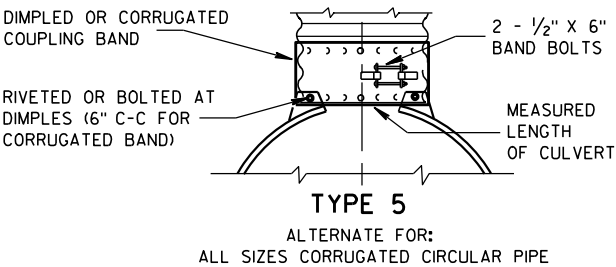
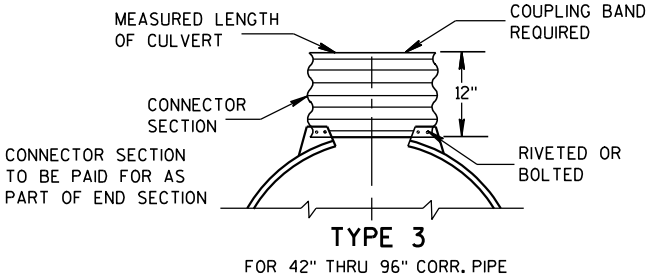
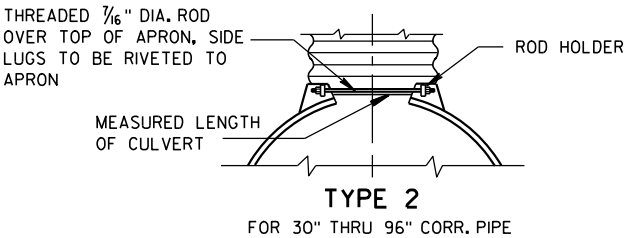
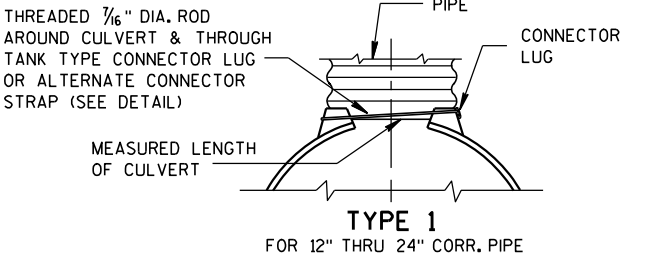
LONGITUDINAL SECTION
CONCRETE ENDWALLS



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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



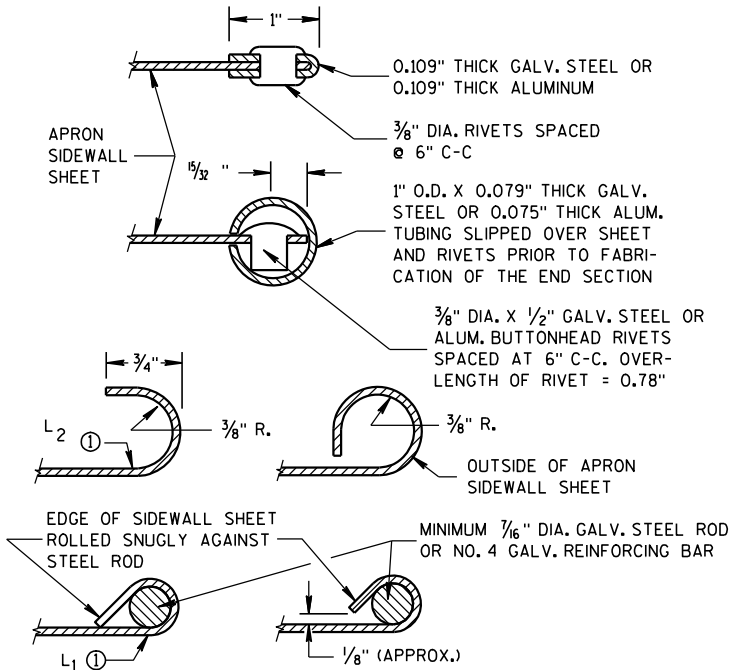
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

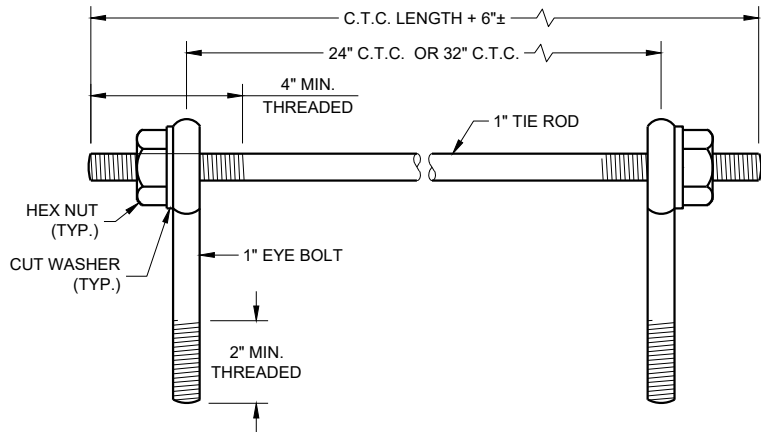
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

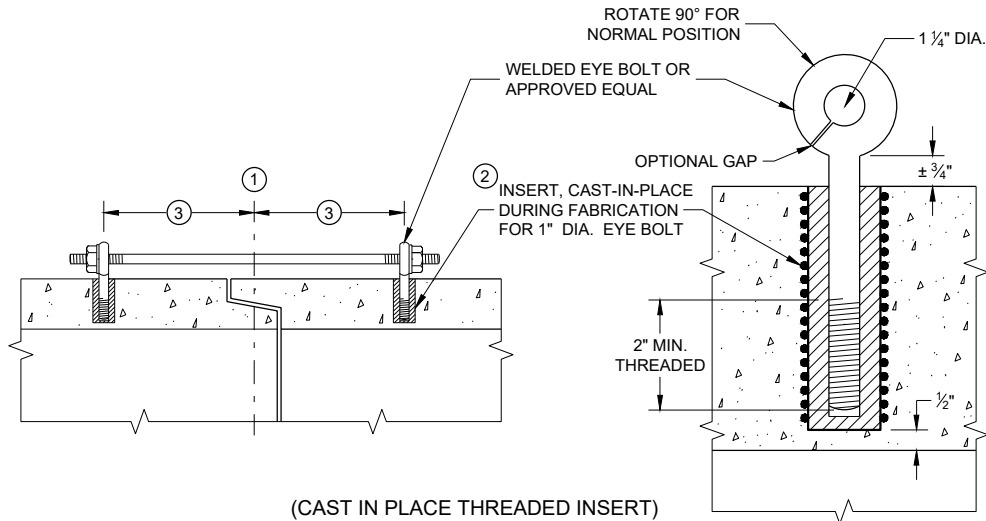
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 11/30/94 DATE	/S/ Rory L. Rhinehart CHIEF ROADWAY DEVELOP 48	NEER	
FHWA			



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

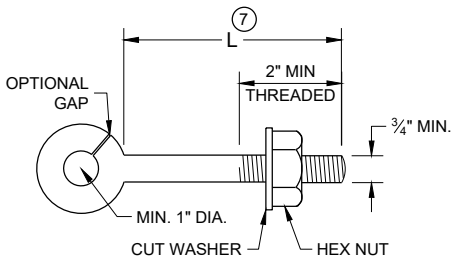
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

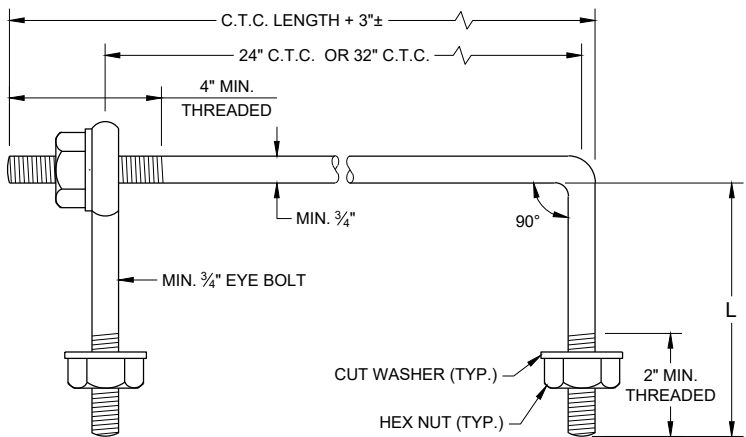
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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

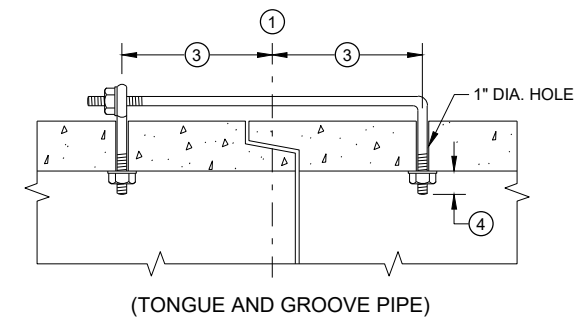


EYE BOLT 7

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

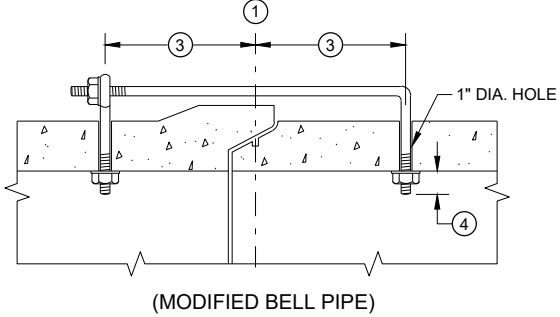


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

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

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

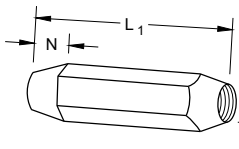


(MODIFIED BELL PIPE)

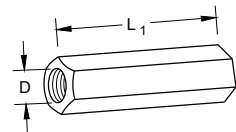
ADJUSTABLE TIE ROD TABLE

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

DIMENSIONS SHOWN ARE IN INCHES

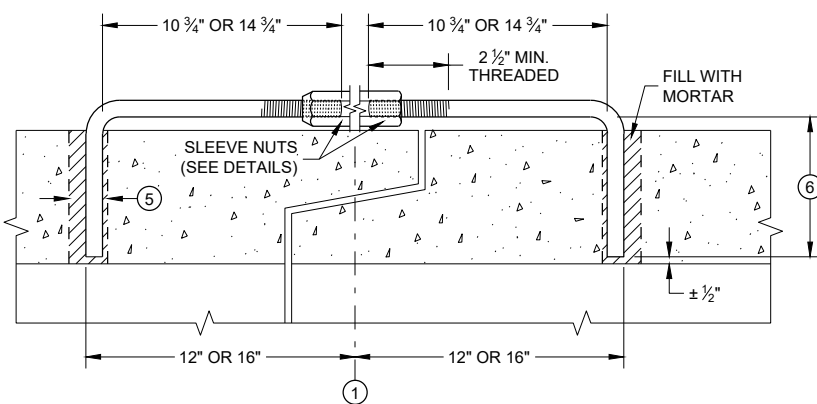


TAPERED



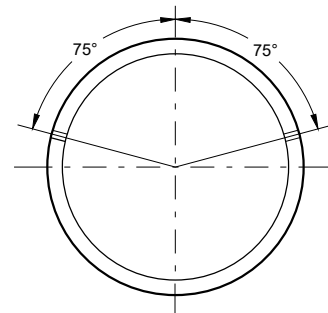
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



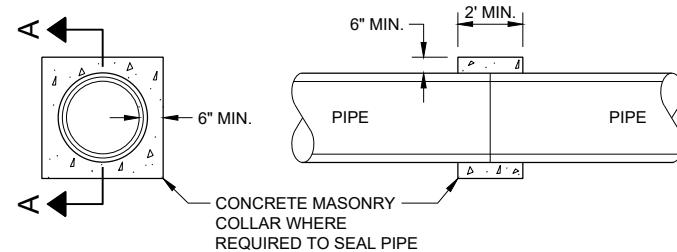
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



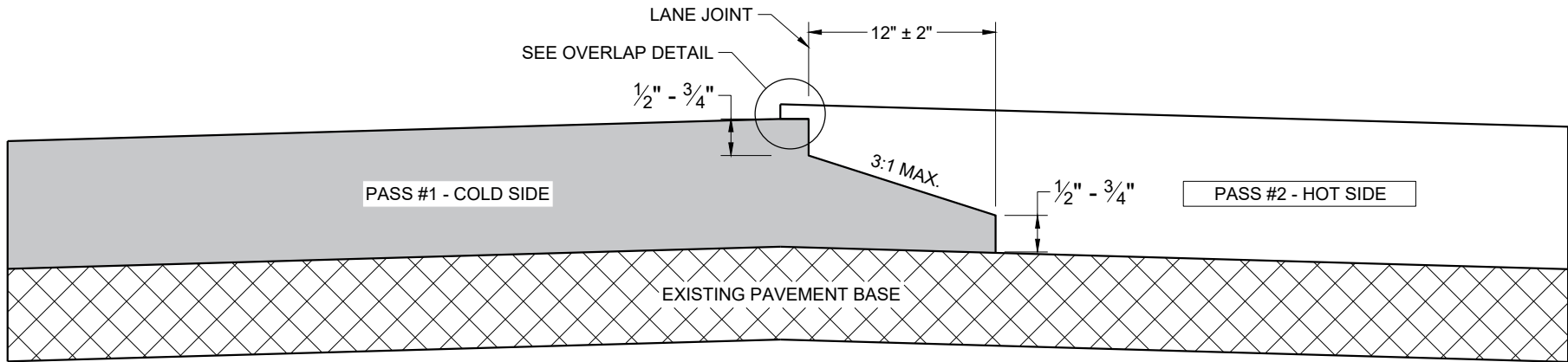
SECTION A - A

CONCRETE COLLAR DETAIL

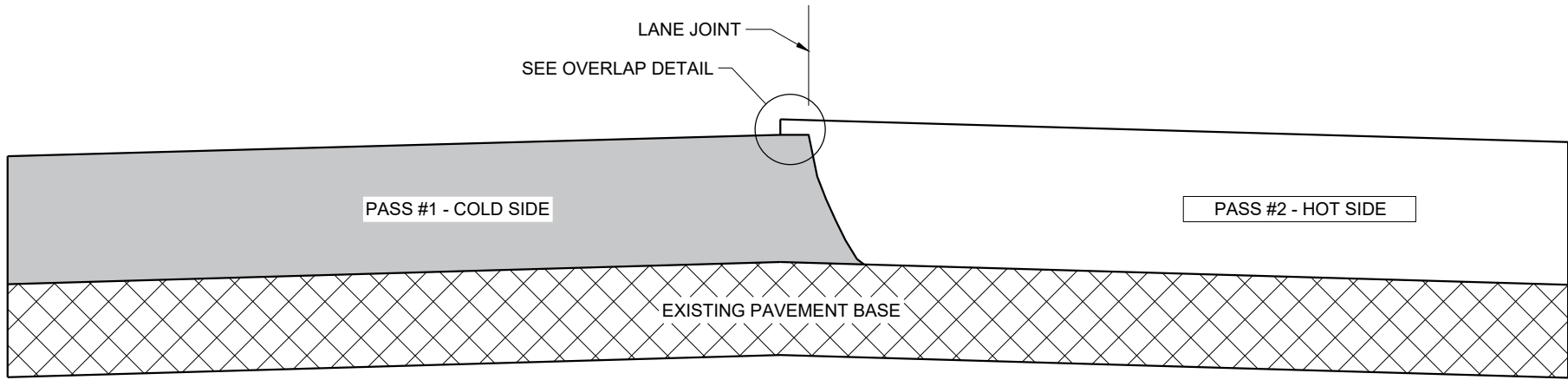
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

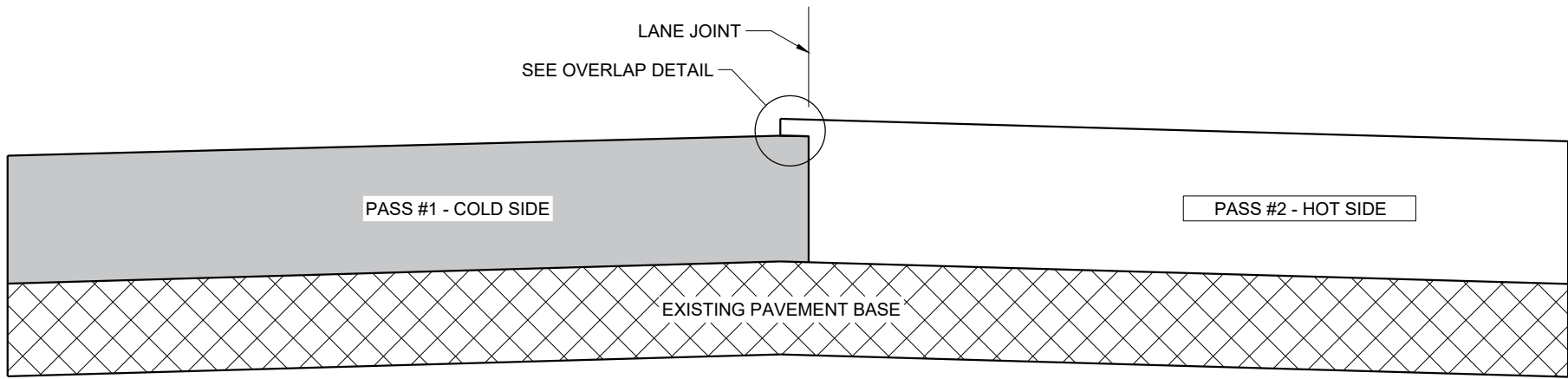
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 49
FHWA



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

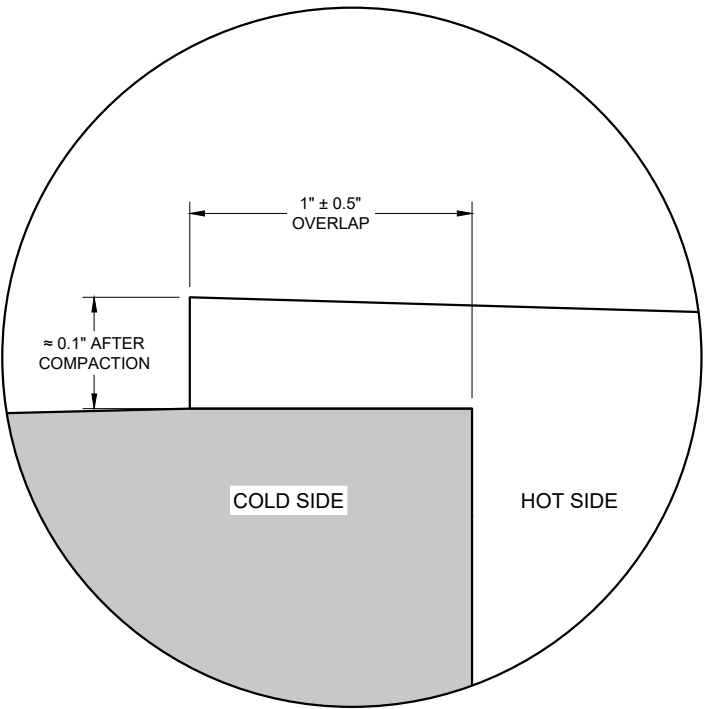
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY 0.1" AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO 2" FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.

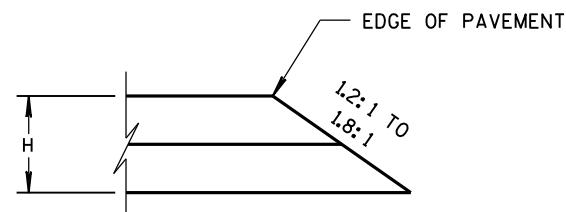


OVERLAP DETAIL (TYPICAL)

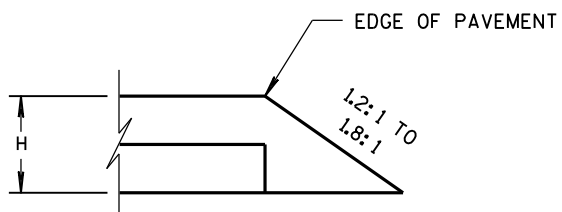
HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

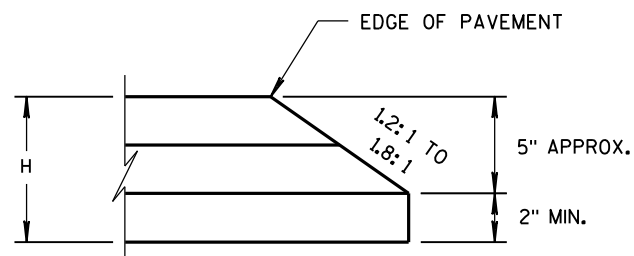
APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 50
FHWA



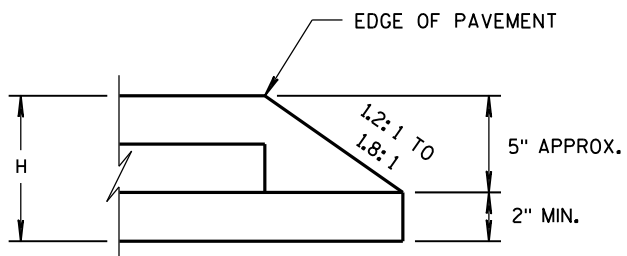
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

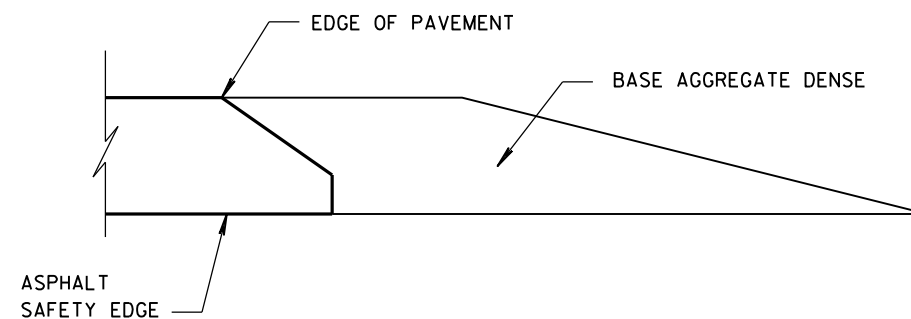


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

SAFETY EDGE_{SM}

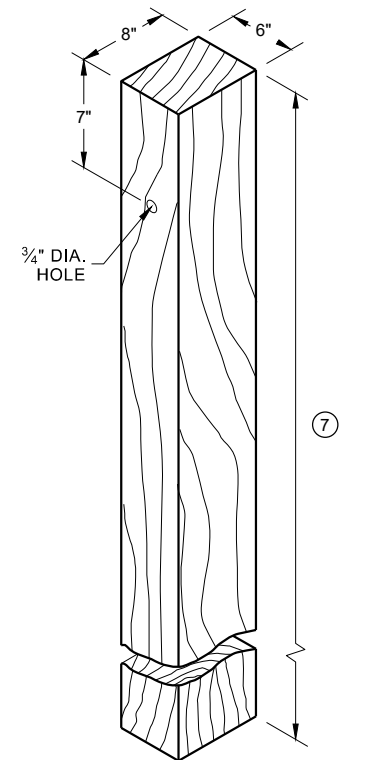
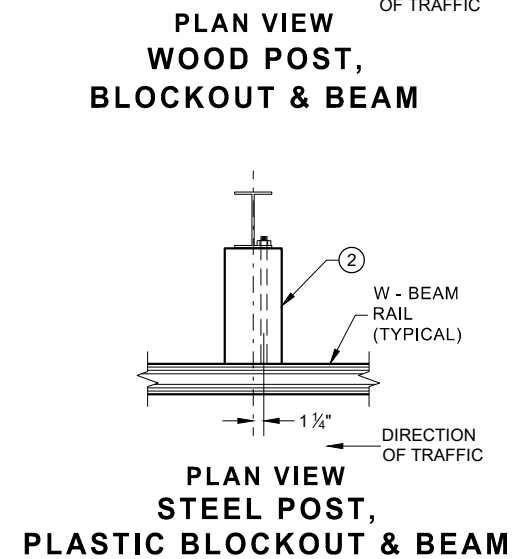
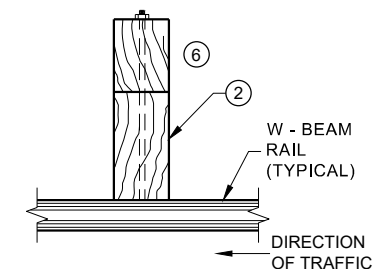
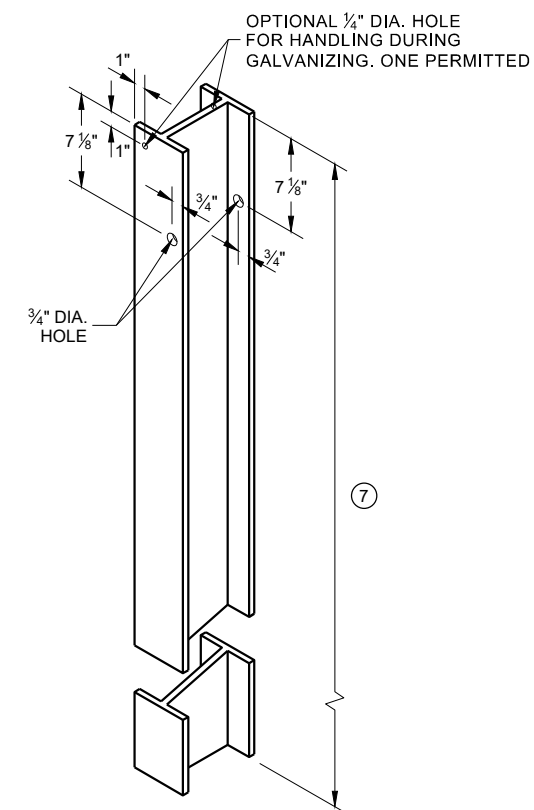
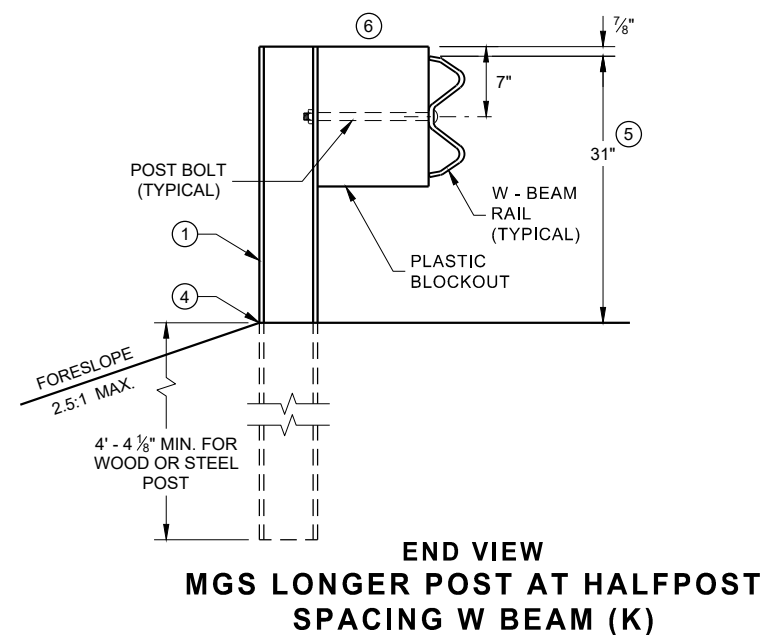
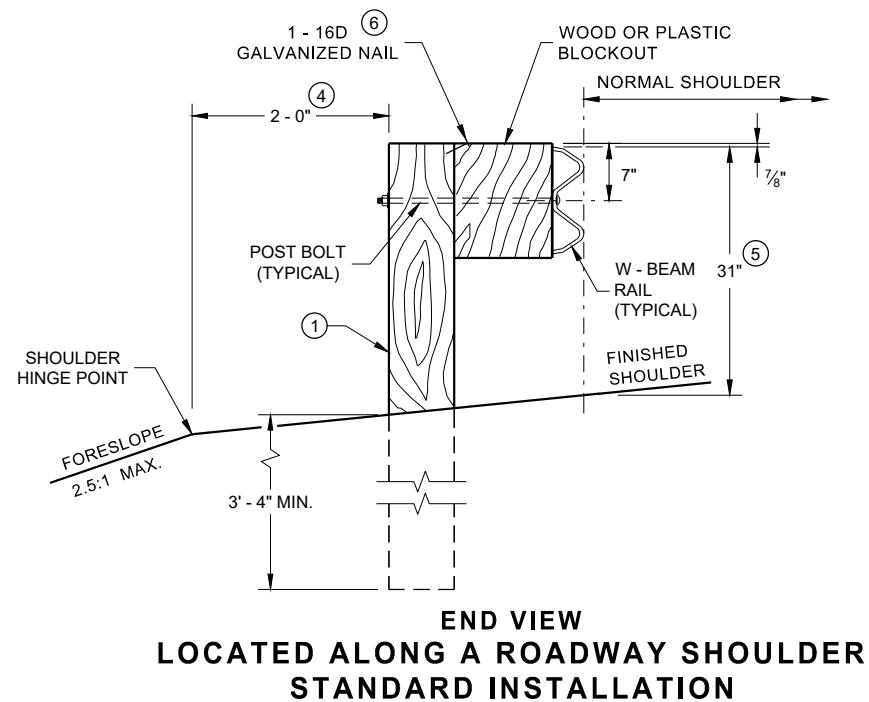
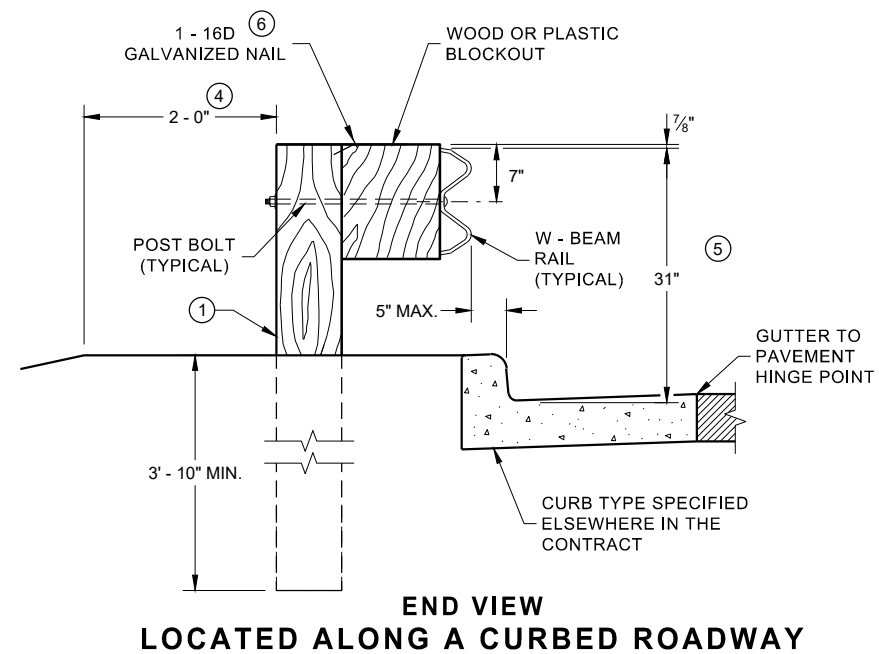
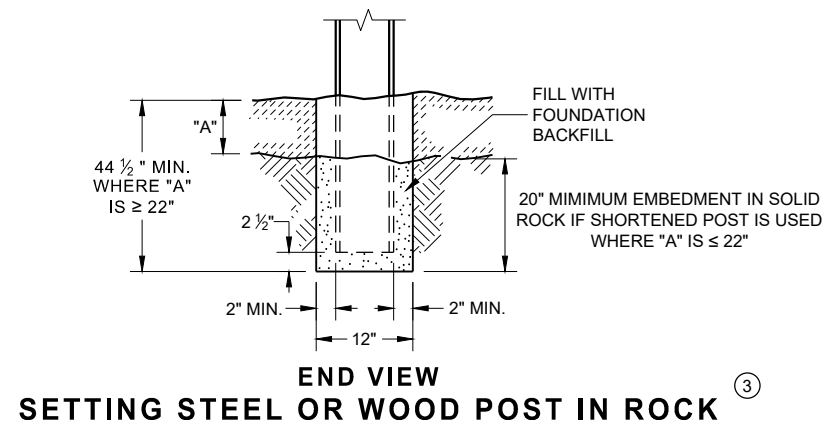
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 11/30/2012
FHWA

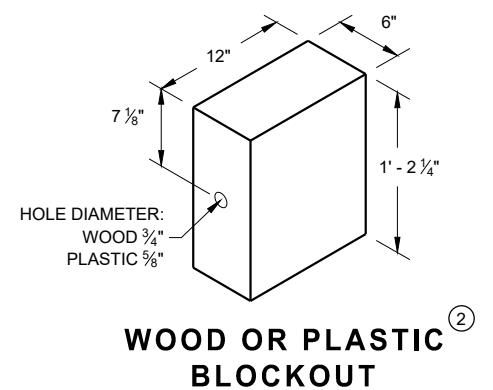
/s/ Jerry H. Zogg
ROADWAY STANDARDS
ENGINEER

51 ENT

- 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 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS TO LENGTH AND 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 $\pm 1"$. FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" 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.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0".
TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



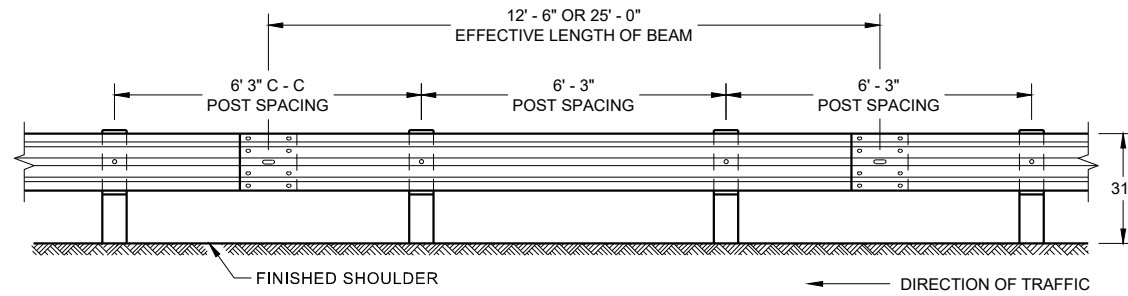
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



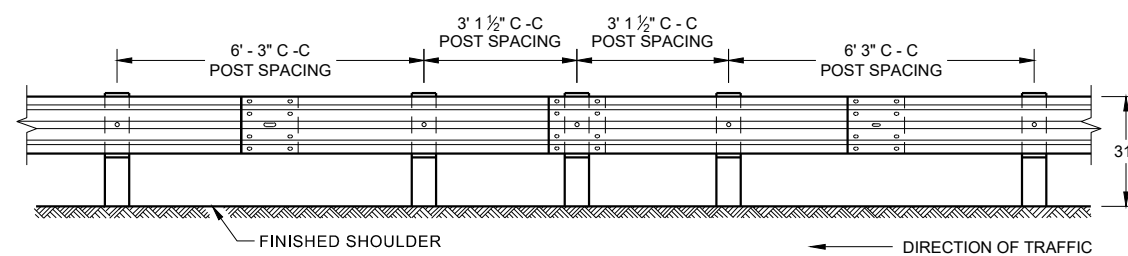
**WOOD OR PLASTIC
BLOCKOUT**

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

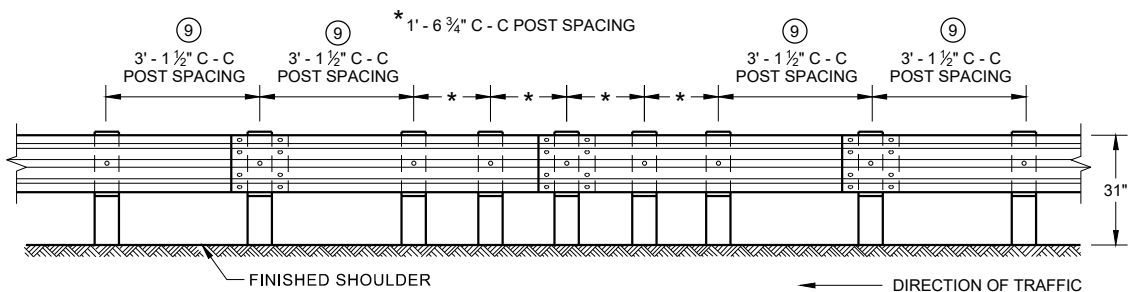
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 52



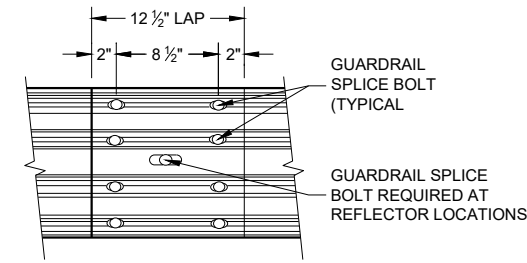
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



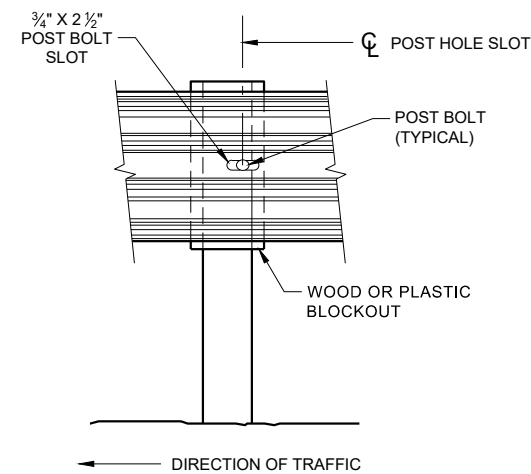
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



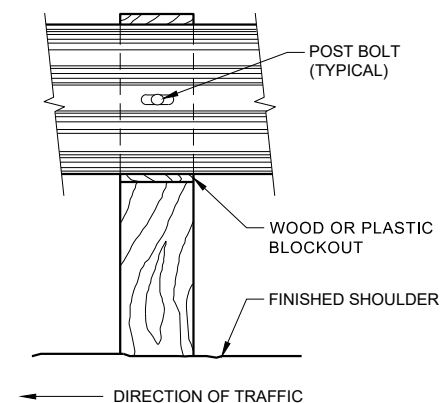
**FRONT VIEW
QUARTER POST SPACING (QS)**



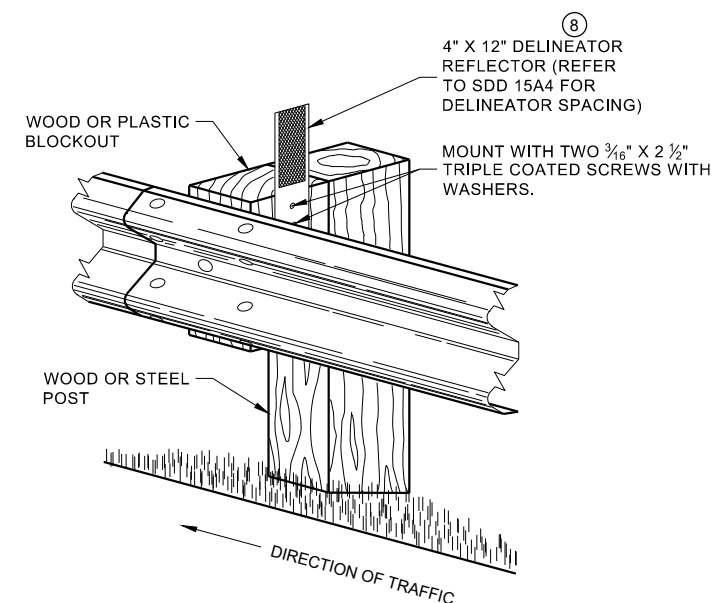
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



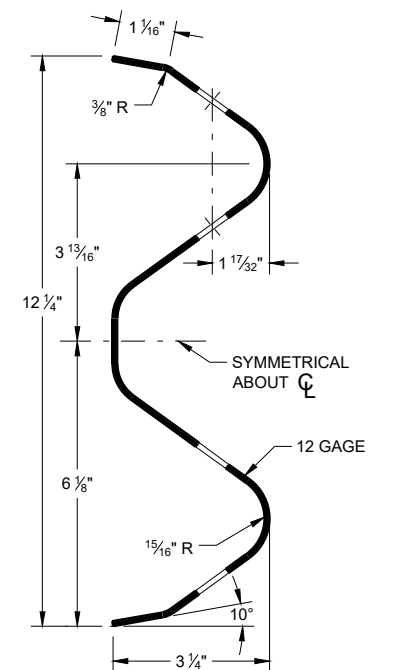
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/4" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/4" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

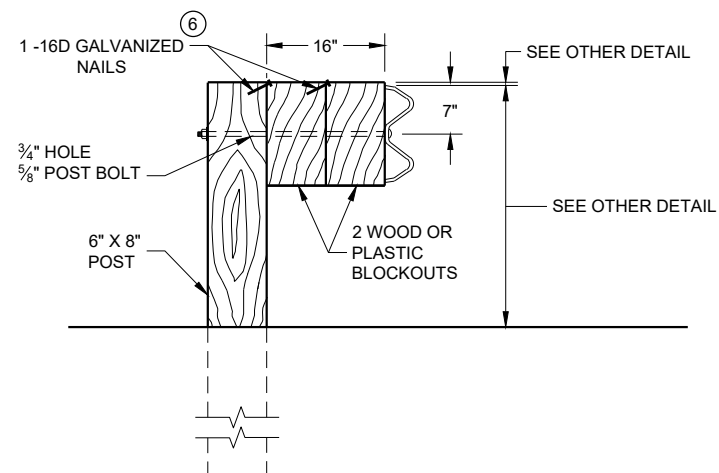
GUARD RAIL SPLICE BOLTS ARE A 3/4" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

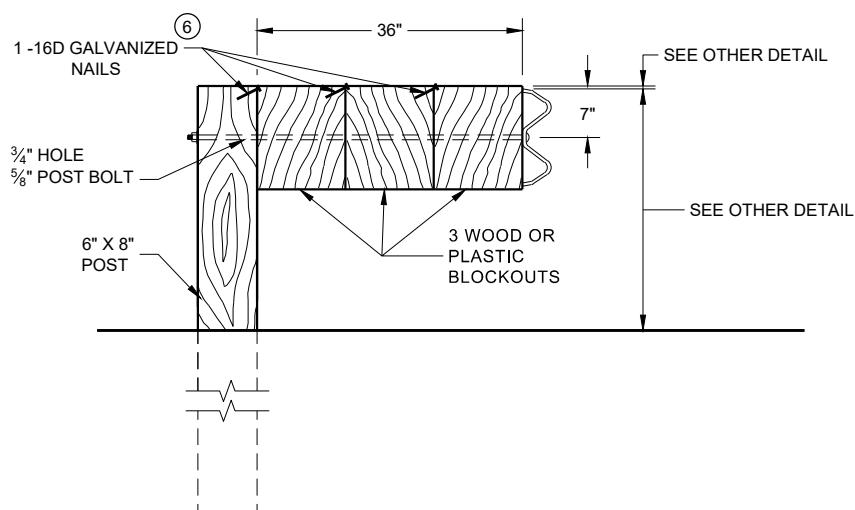
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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.



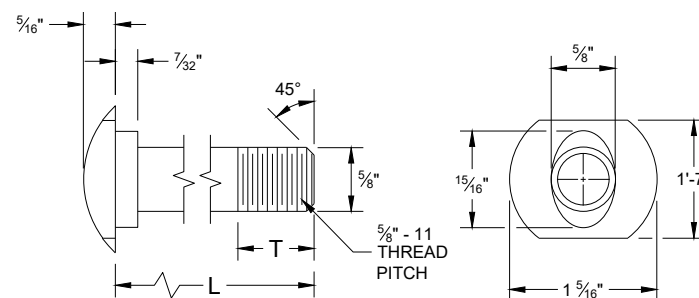
DETAIL FOR 36" BLOCKOUT DEPTH

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.

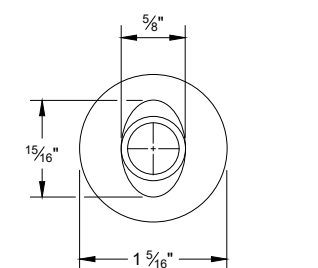
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF $\frac{3}{16}$ ".
2. IF THE BOLT EXTENDS MORE THAN $\frac{1}{4}$ " FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

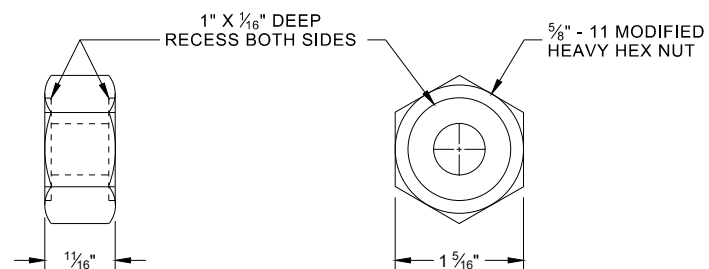


POST BOLT TABLE

L	T (MIN.)
1 ¼"	1 ⅛"
2"	1 ¾"
10"	4"
14"	4 ⅙"
18"	4"
21"	4 ⅙"
25"	4"

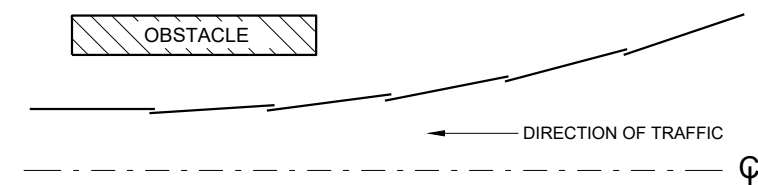


ALTERNATE BOLT HEAD

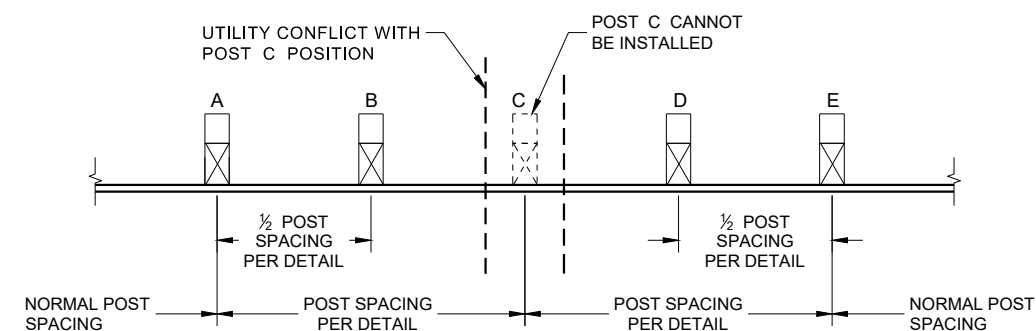


POST BOLT, SPLICE BOLT AND RECESS NUT

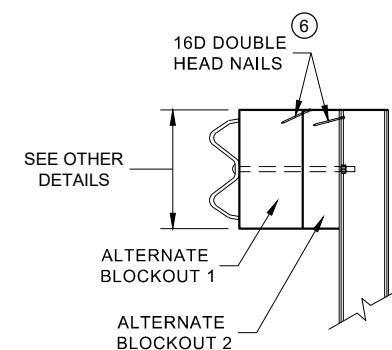
- ⑥ WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



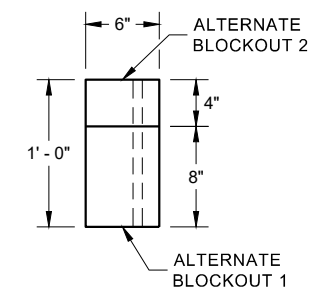
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW

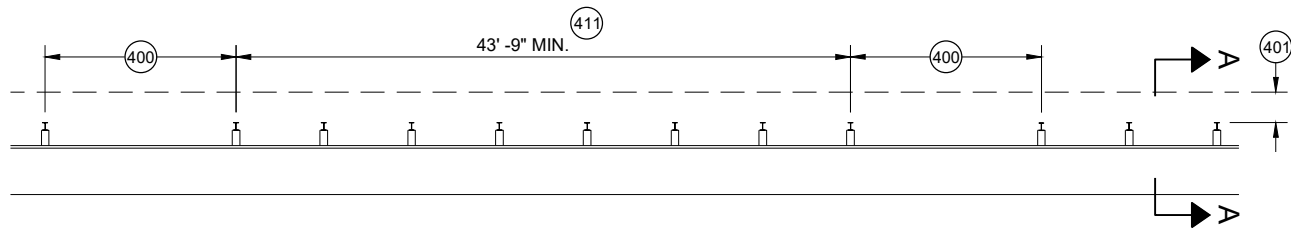


PLAN VIEW

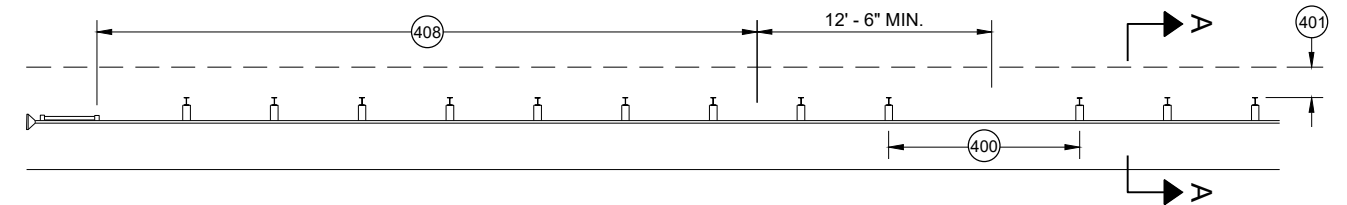
ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

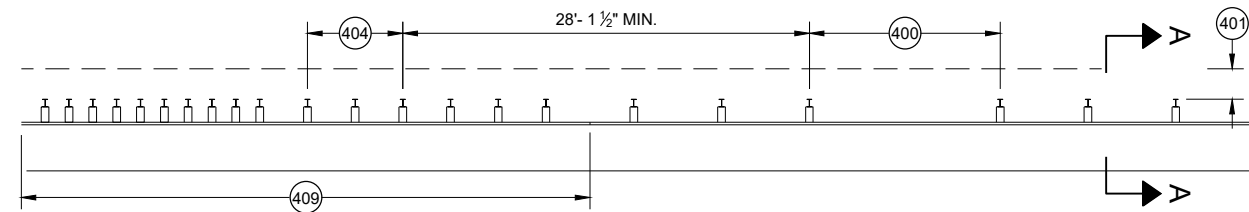
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 54



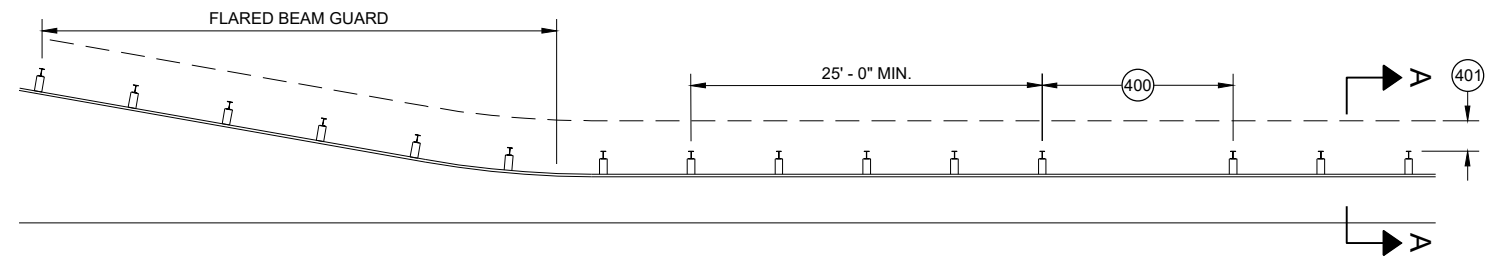
MISSING POST IN MGS GUARDRAIL



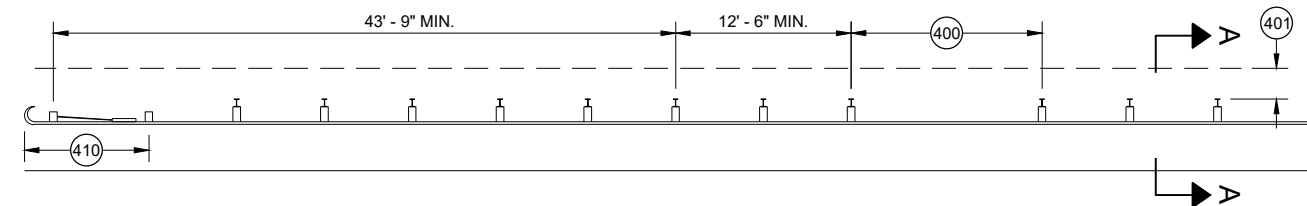
MISSING POST IN MGS GUARDRAIL NEAR EAT



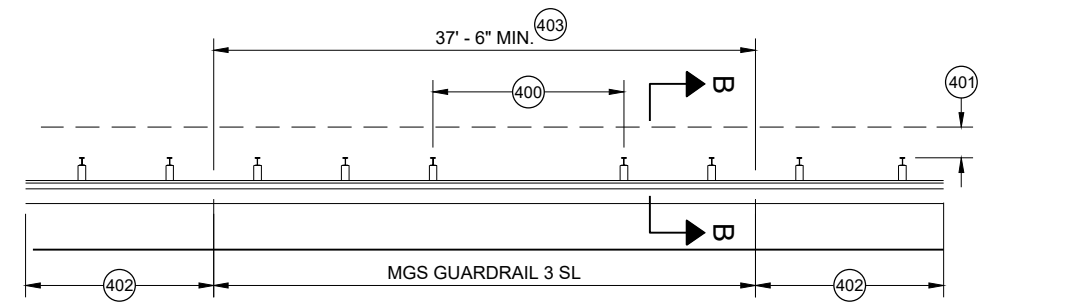
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

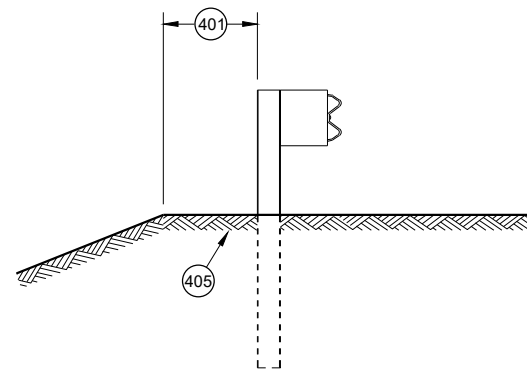


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

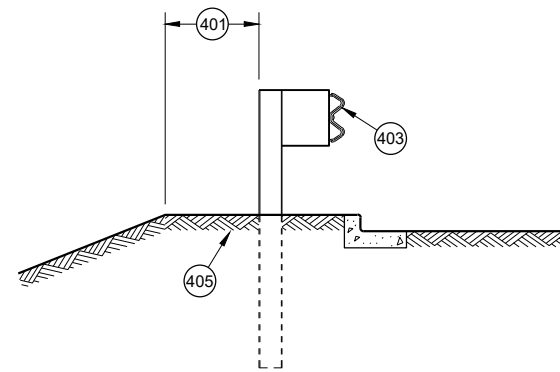


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- (400) MAX SPAN 12' - 6"
- (401) 2' MIN.
- (402) MGS GUARDRAIL 3
- (403) NESTING BEAM GUARD
- (404) ASYMMETRIC TRANSITION
- (405) SOIL WELL DRAINED AND COMPACTED
- (406) SEE OTHER DRAWINGS IN THIS SDD
- (407) SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- (408) SEE SDD 14B44
- (409) SEE SDD 14B45
- (410) SEE SDD 14B47
- (411) MINIMUM DISTANCE BETWEEN MISSING POST SPANS.



SECTION A - A



SECTION B - B

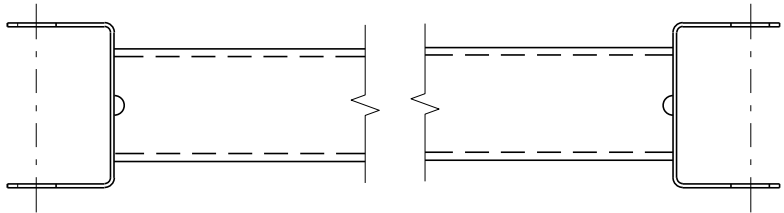
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

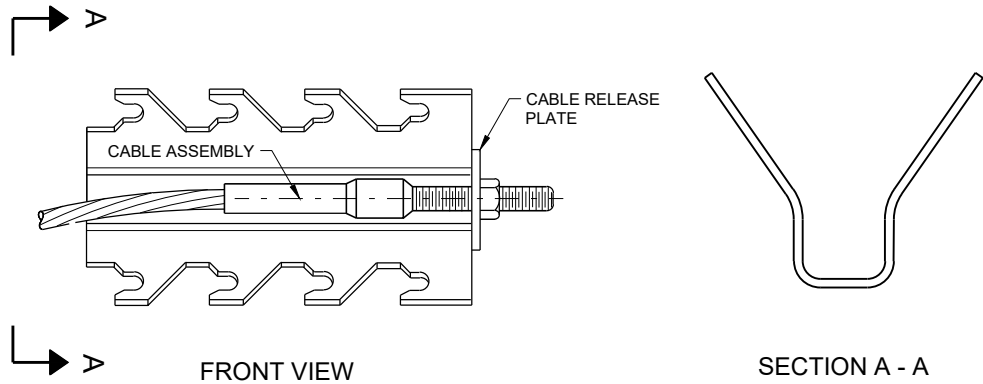
FHWA

SDD14B44 - 04a

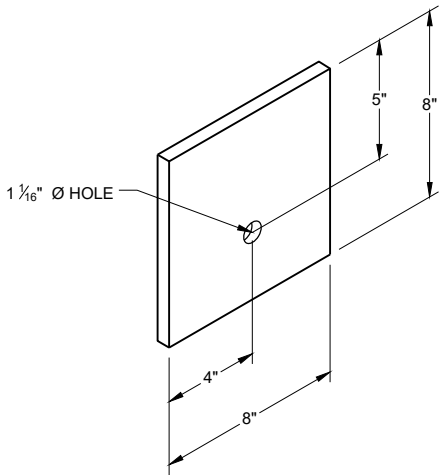


GENERIC GROUND STRUT⁹ ^E

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



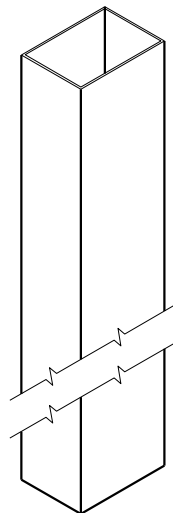
GENERIC ANCHOR CABLE BOX⁹ ^E



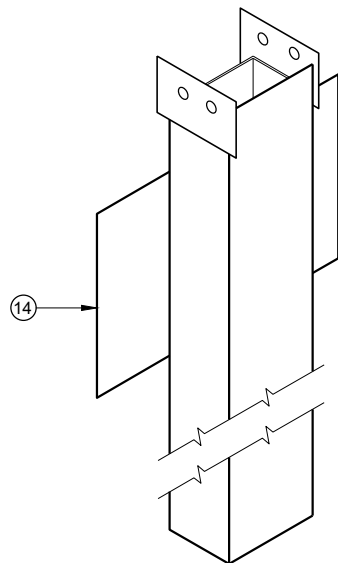
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

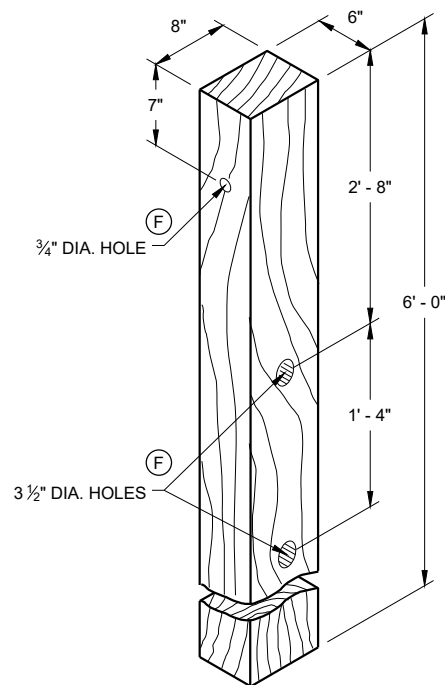
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



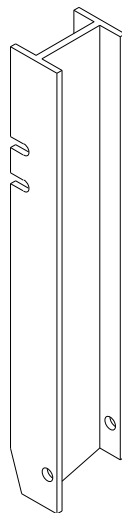
UPPER POST NO. 1 ⁽¹⁾ (E)



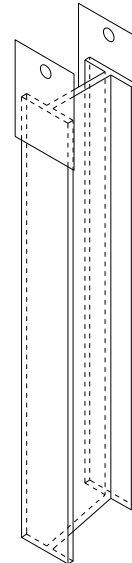
LOWER POST NO. 1 ⁽²⁾ (E)



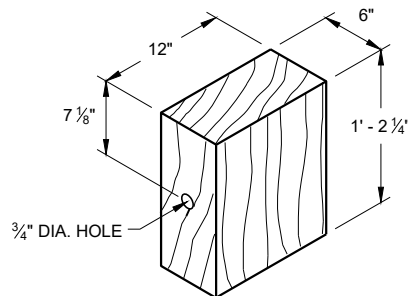
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



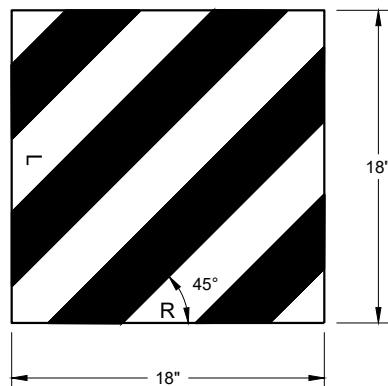
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



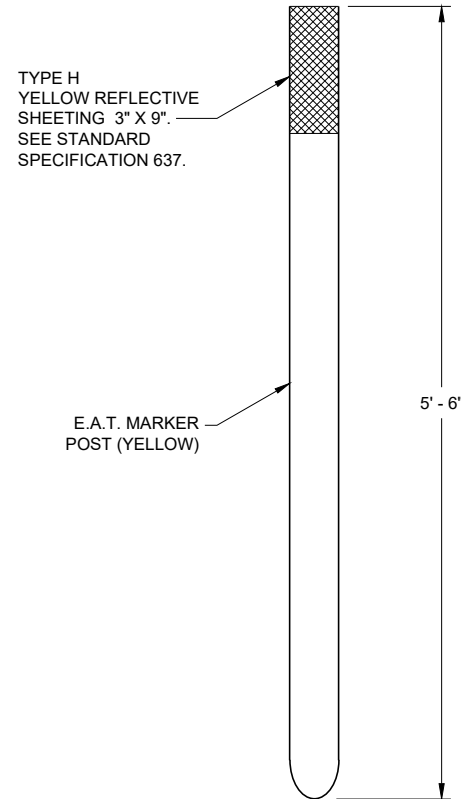
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



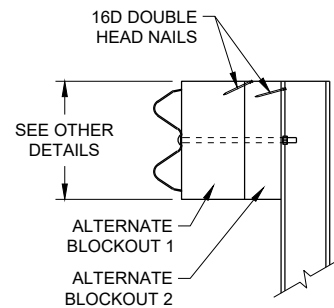
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)

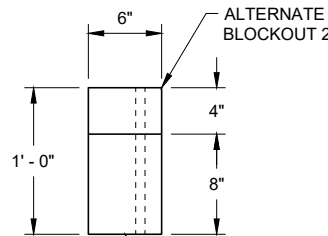


FRONT VIEW
SIDE VIEW
E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

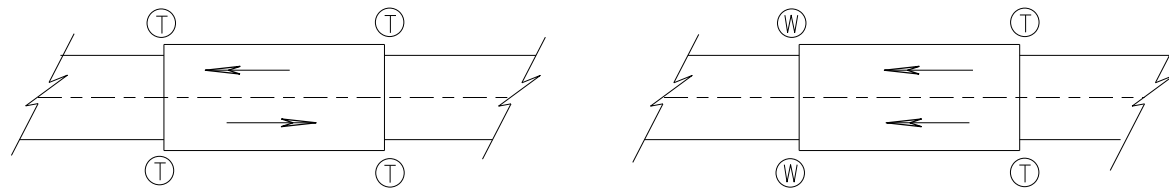


TOP VIEW

**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



TWO WAY TRAFFIC

ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

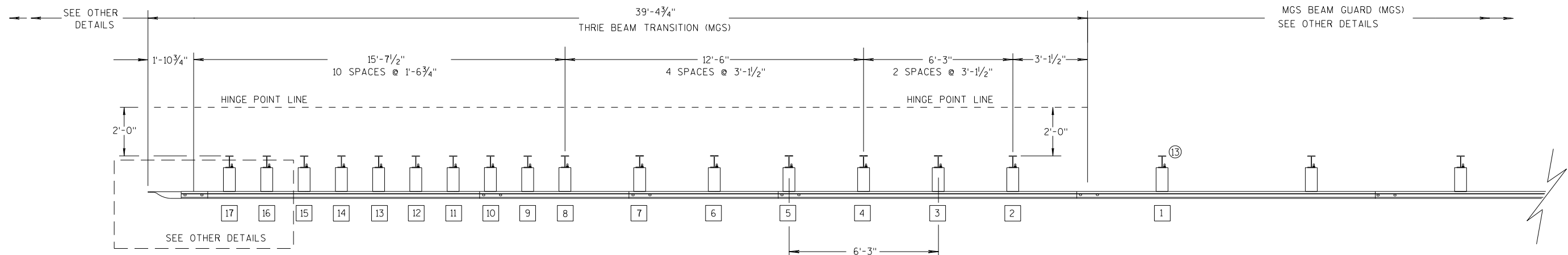
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

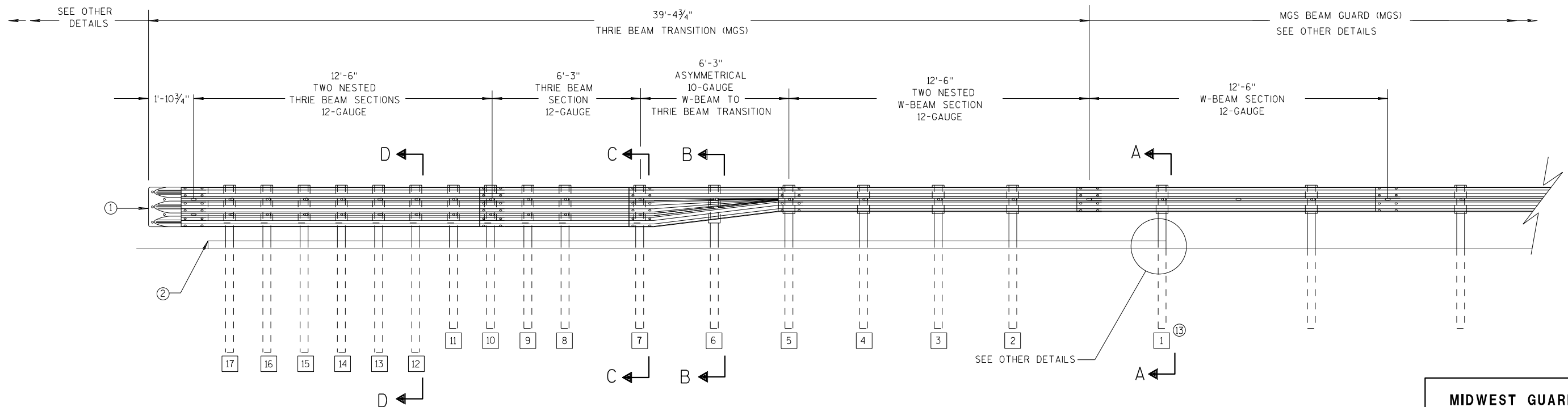
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

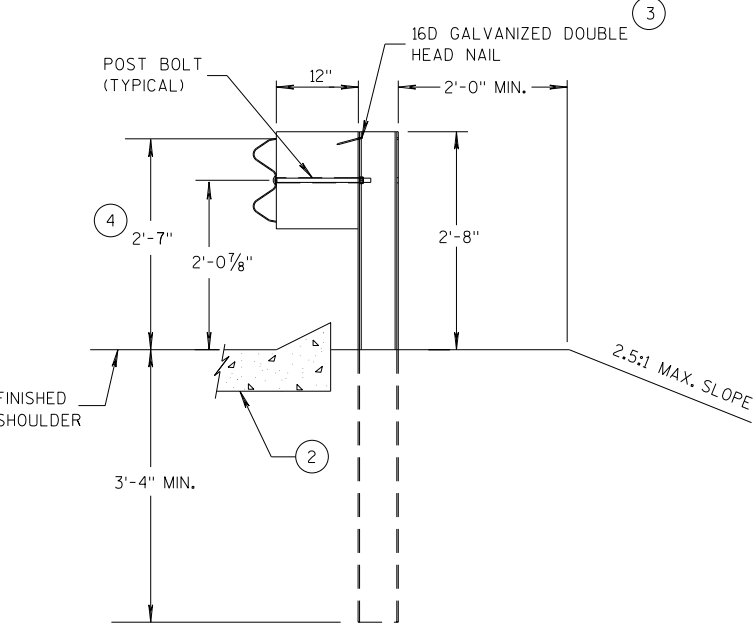
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

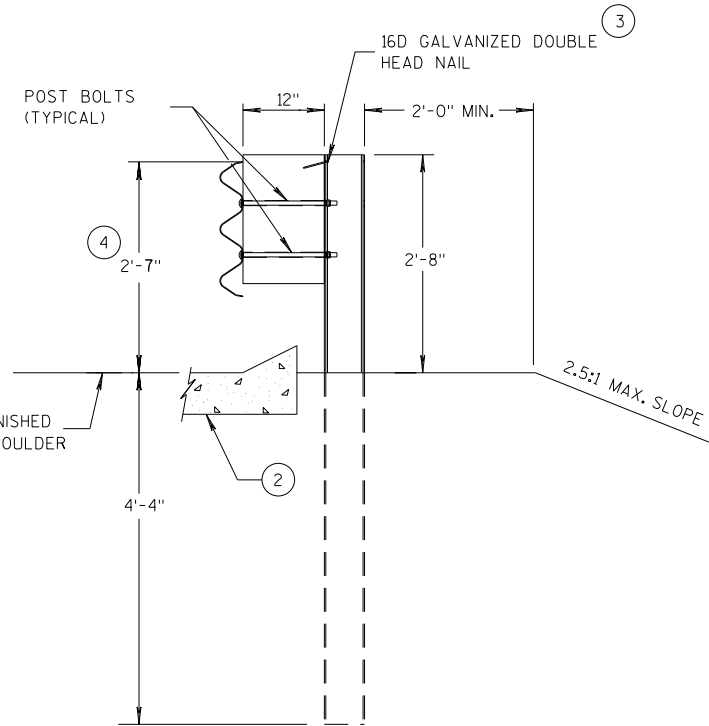
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

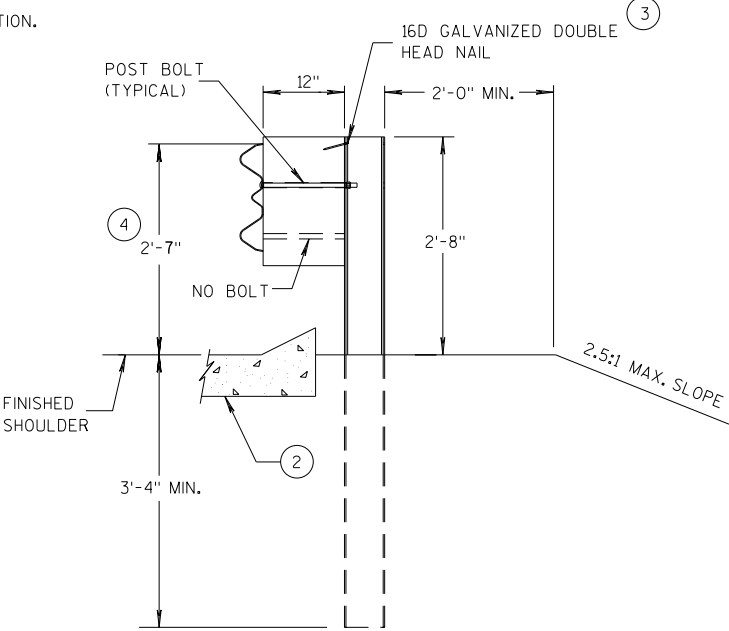
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.
- 13 STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



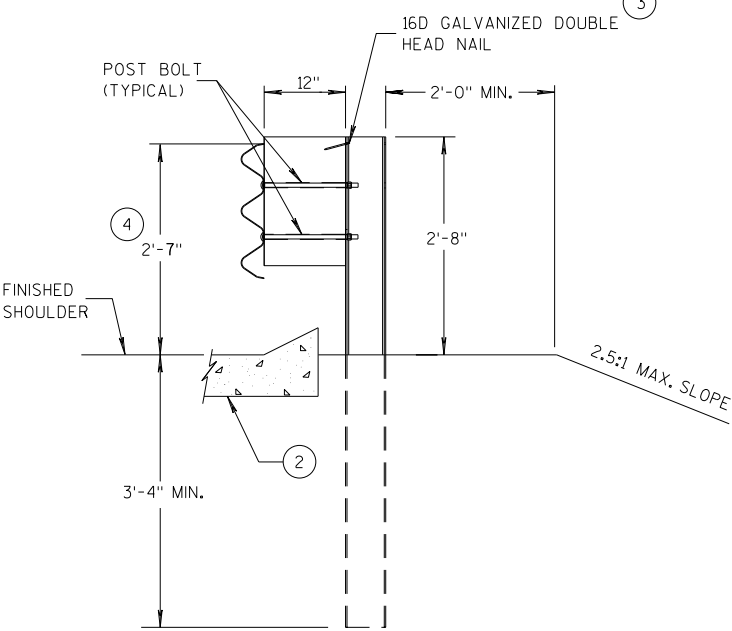
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

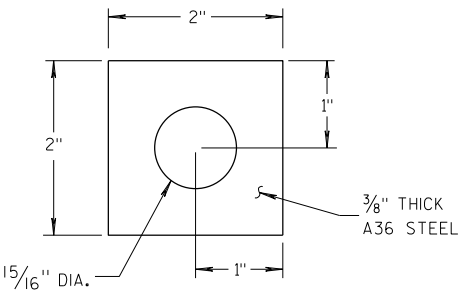
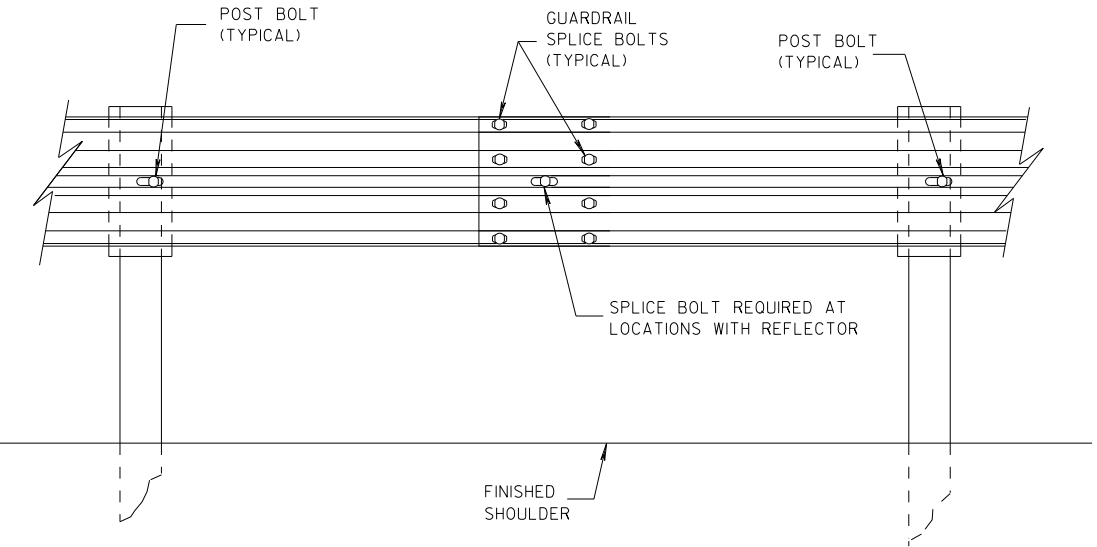
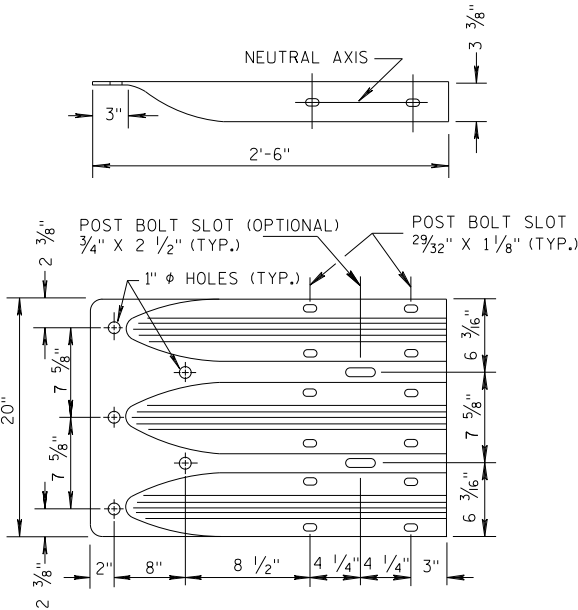


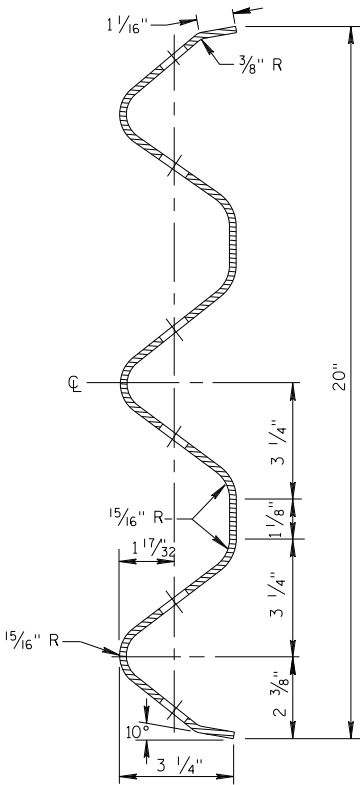
PLATE WASHER DETAIL



SPlice DETAIL



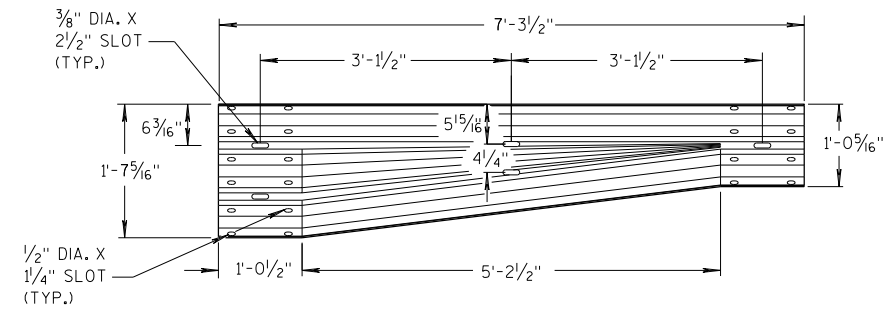
THRIE BEAM
TERMINAL CONNECTOR



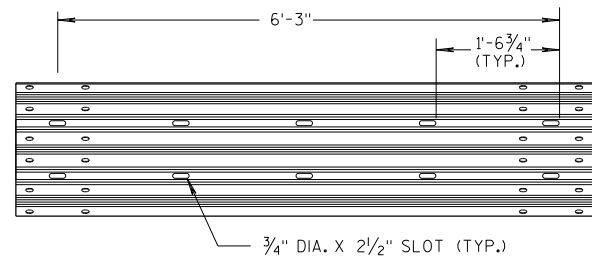
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

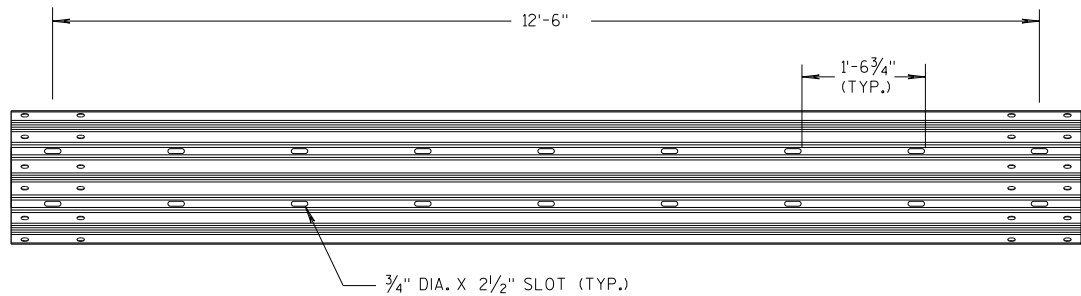
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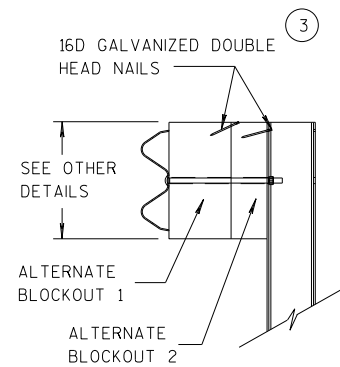
W-BEAM TO THRIE BEAM TRANSITION SECTION



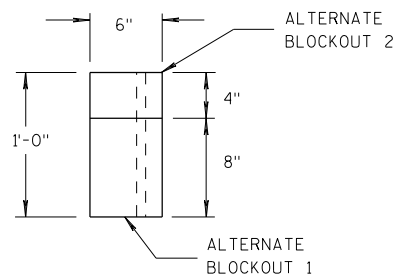
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

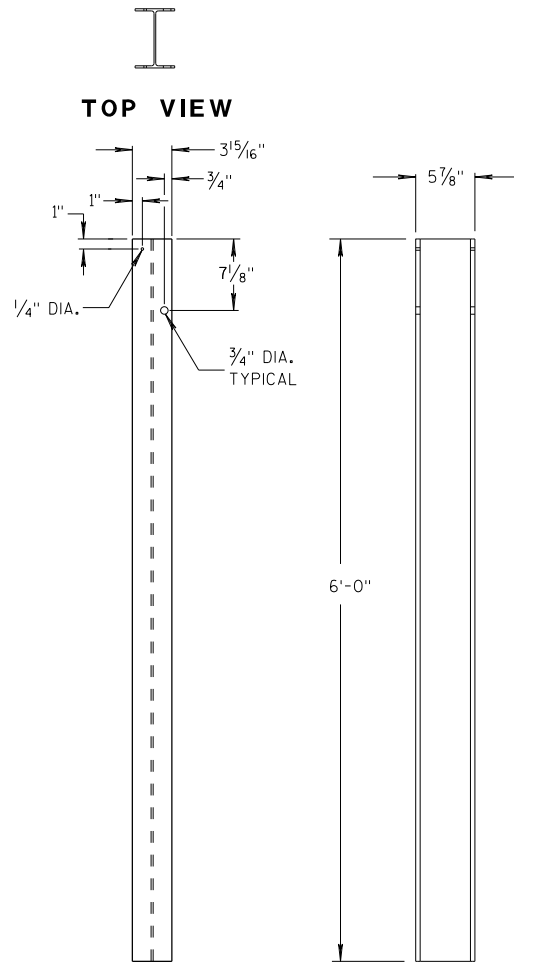


SIDE VIEW



TOP VIEW

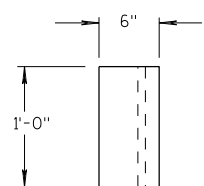
ALTERNATE WOOD BLOCKOUT DETAIL



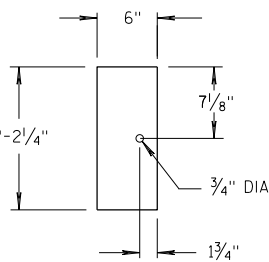
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

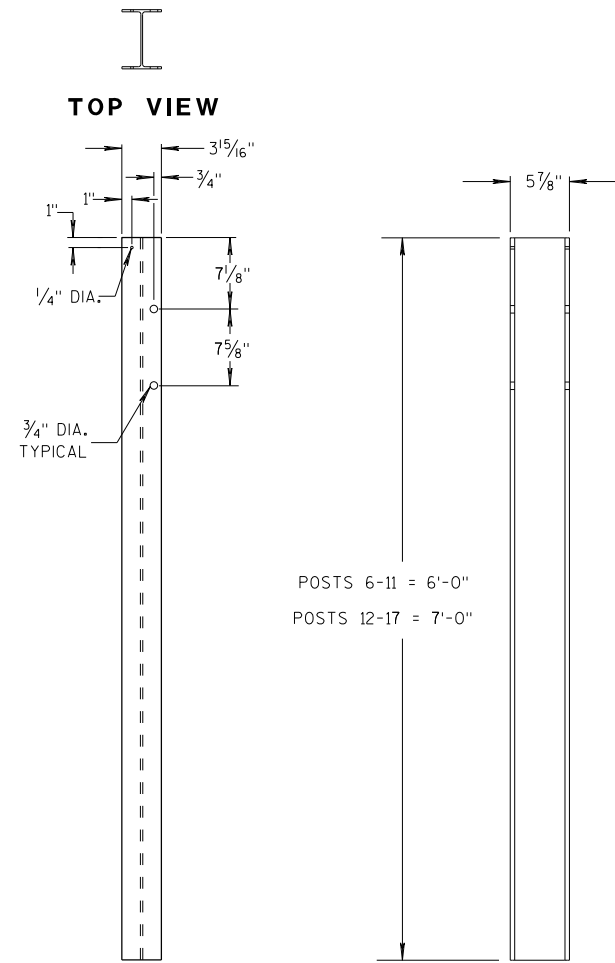


TOP VIEW



FRONT VIEW

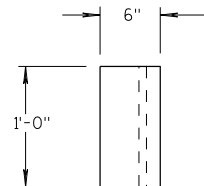
BLOCKOUT POSTS 1-5



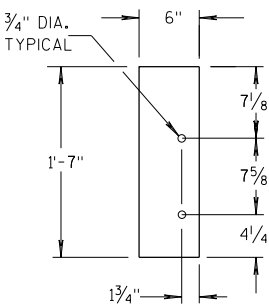
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



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.

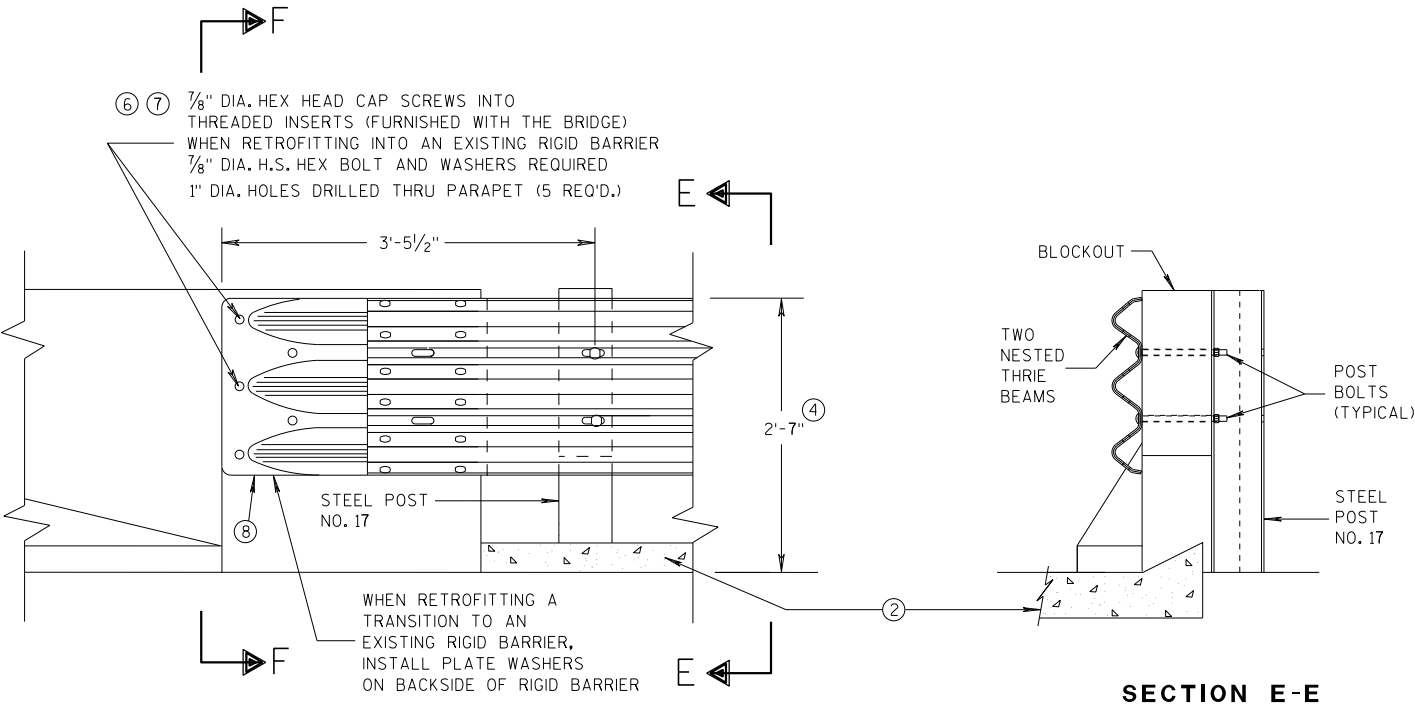
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

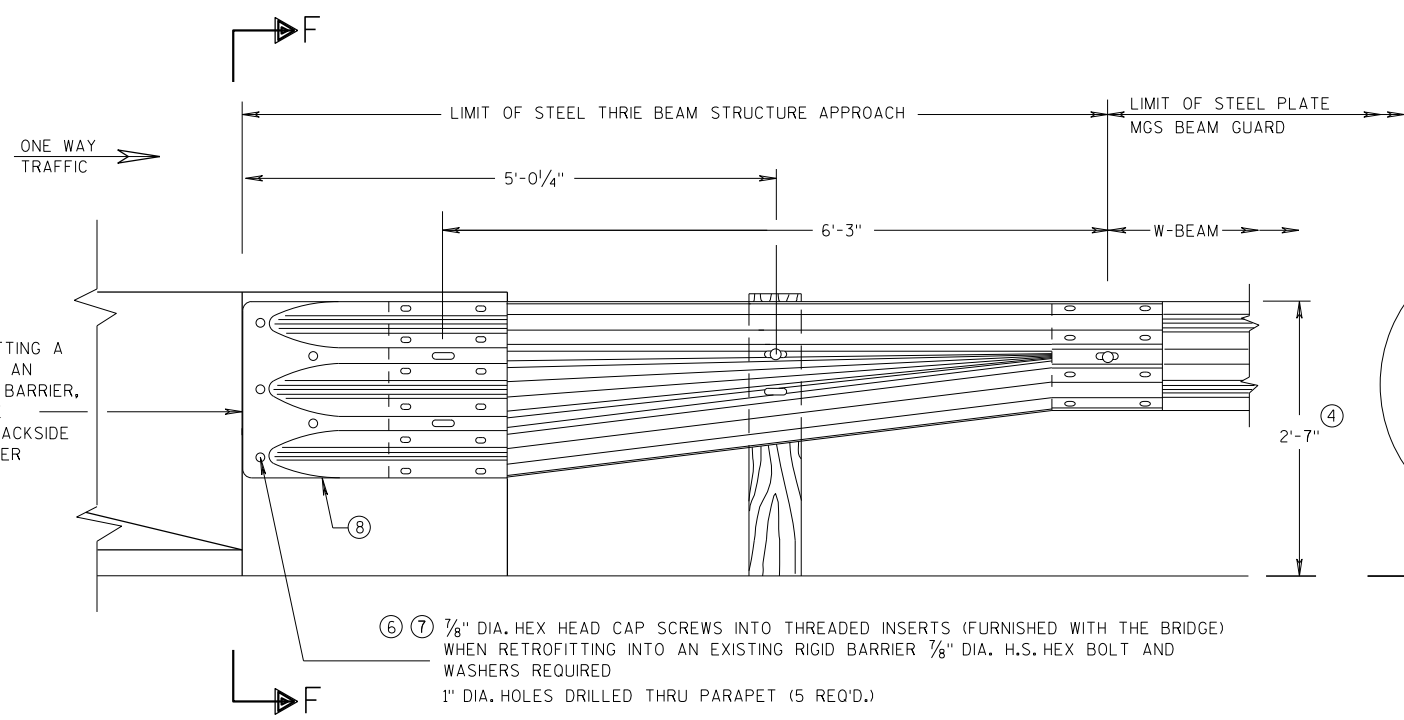
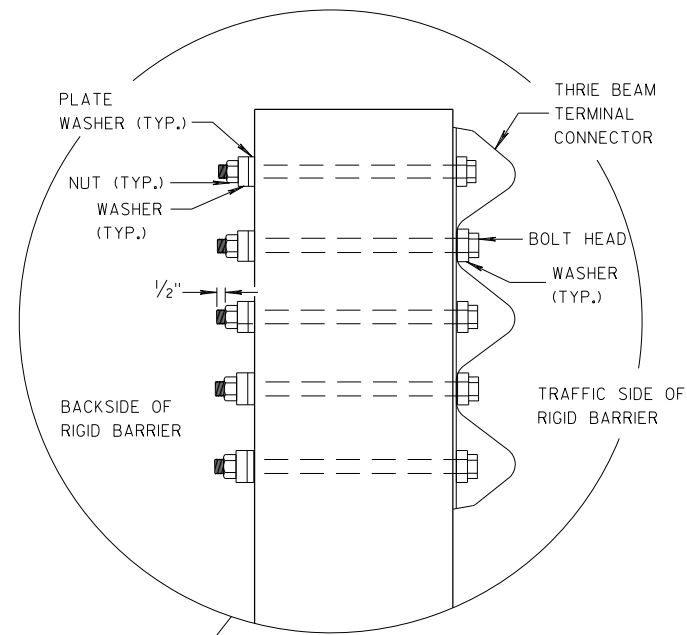
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

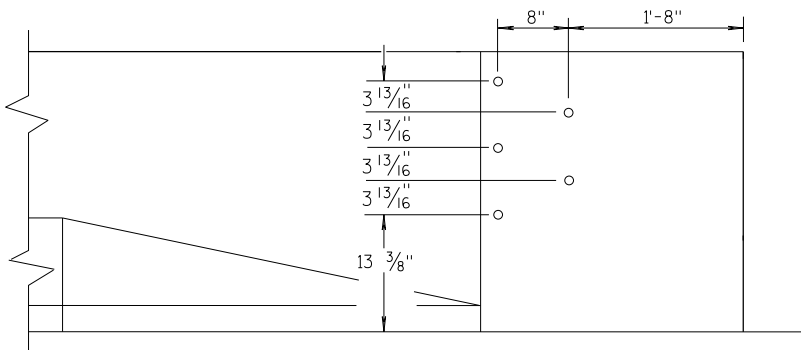


GENERAL NOTES

- 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 $\pm 1"$.
- 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 5/32" 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".



SECTION F-F



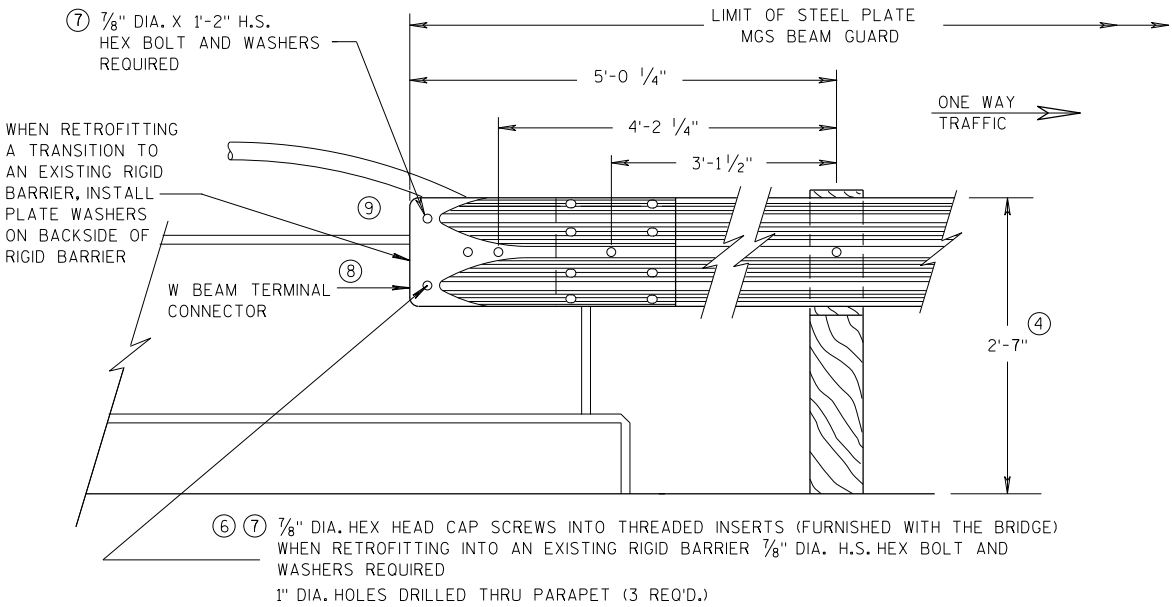
DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR		
FHWA	62	NT	

GENERAL NOTES

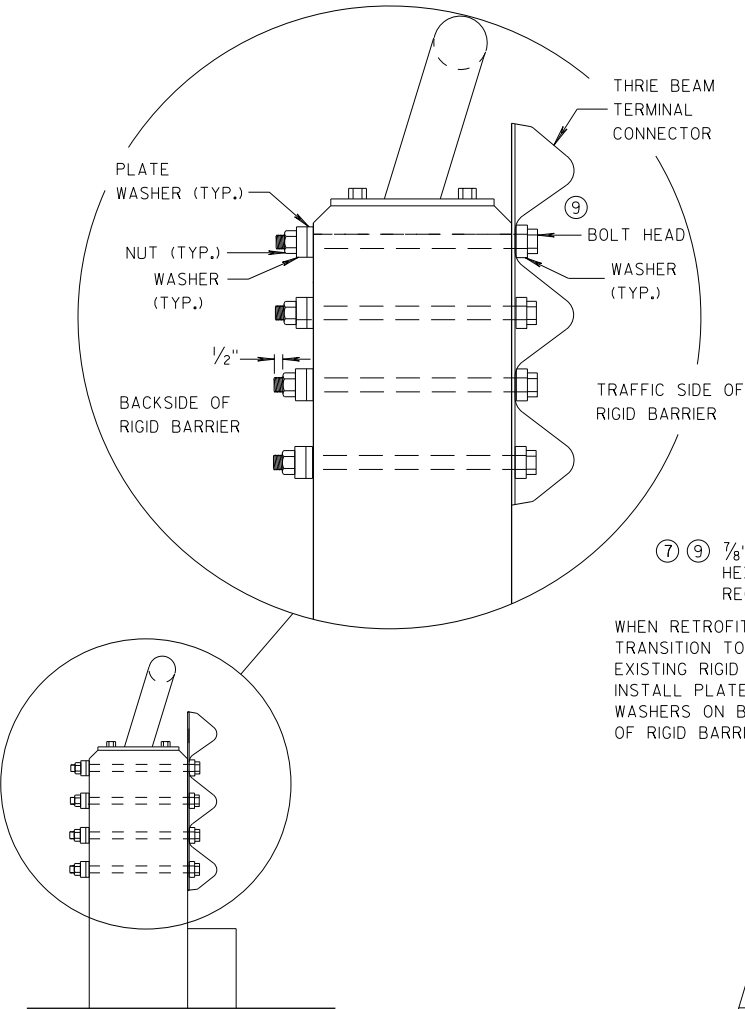
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ②
- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④
- TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- 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 $\frac{5}{32}"$ 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 $\frac{1}{2}"$.
- ⑨
- BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

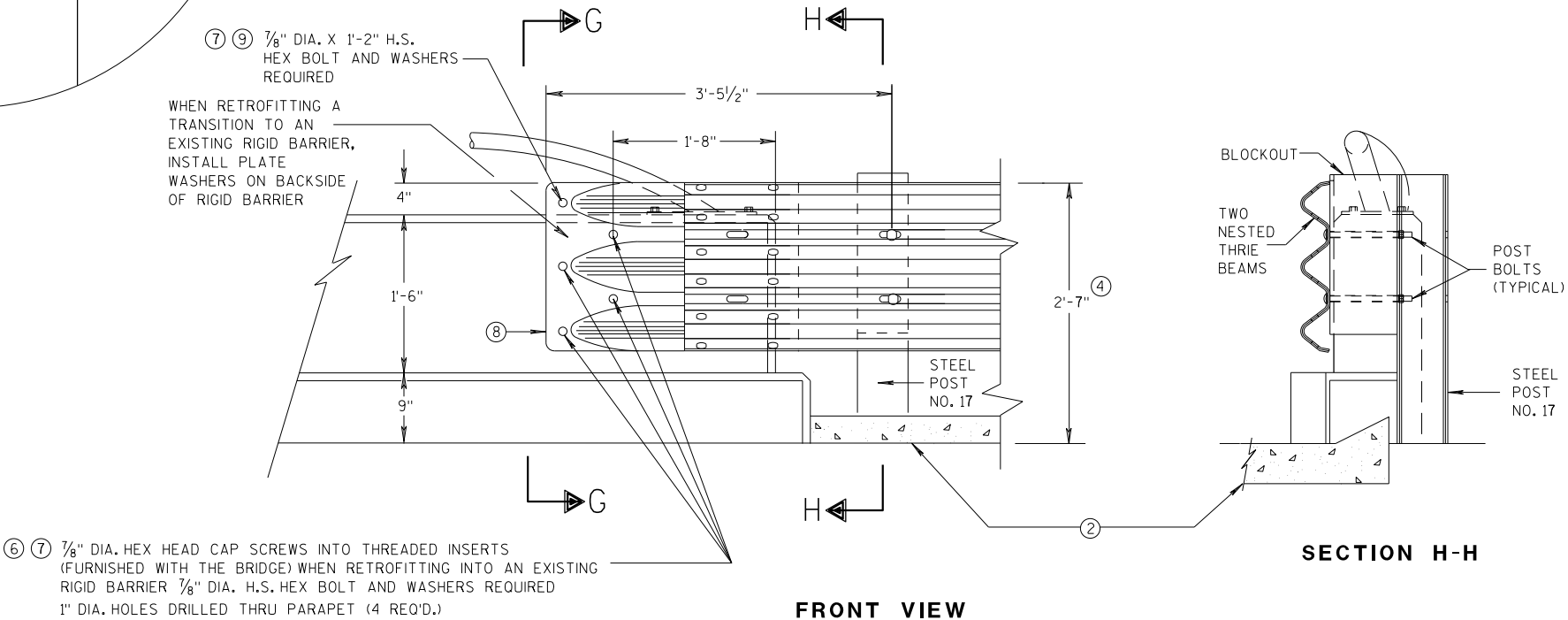


FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

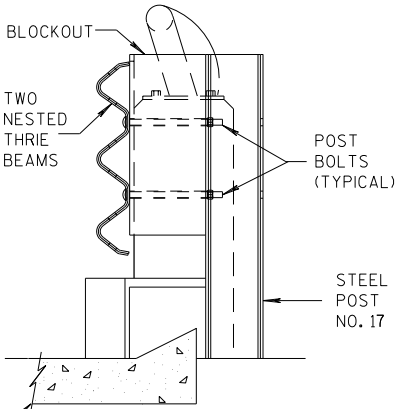


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

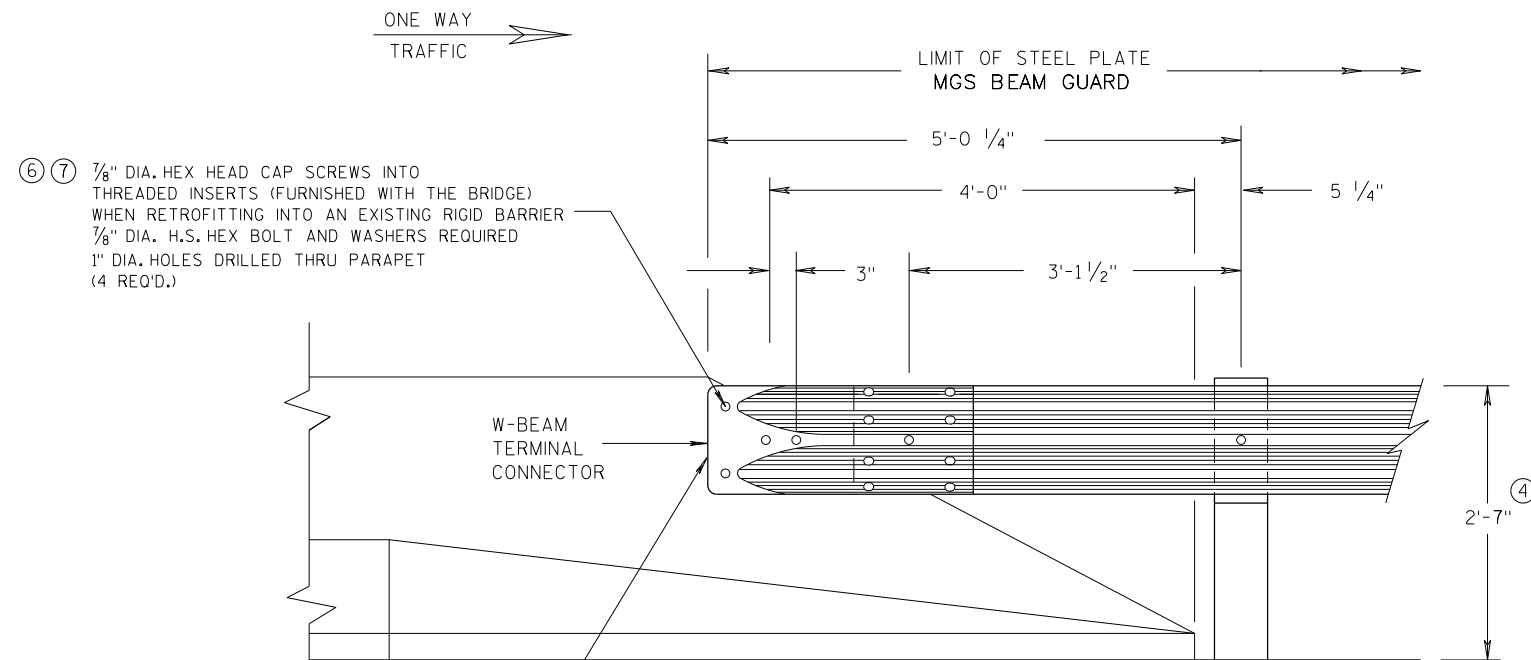


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

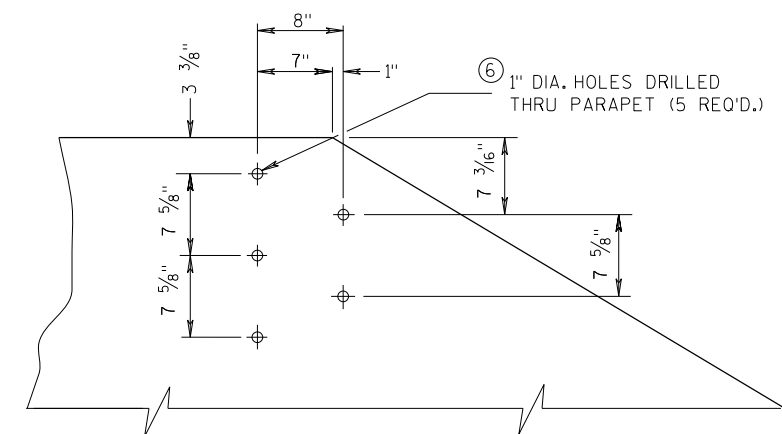
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FHWA 63

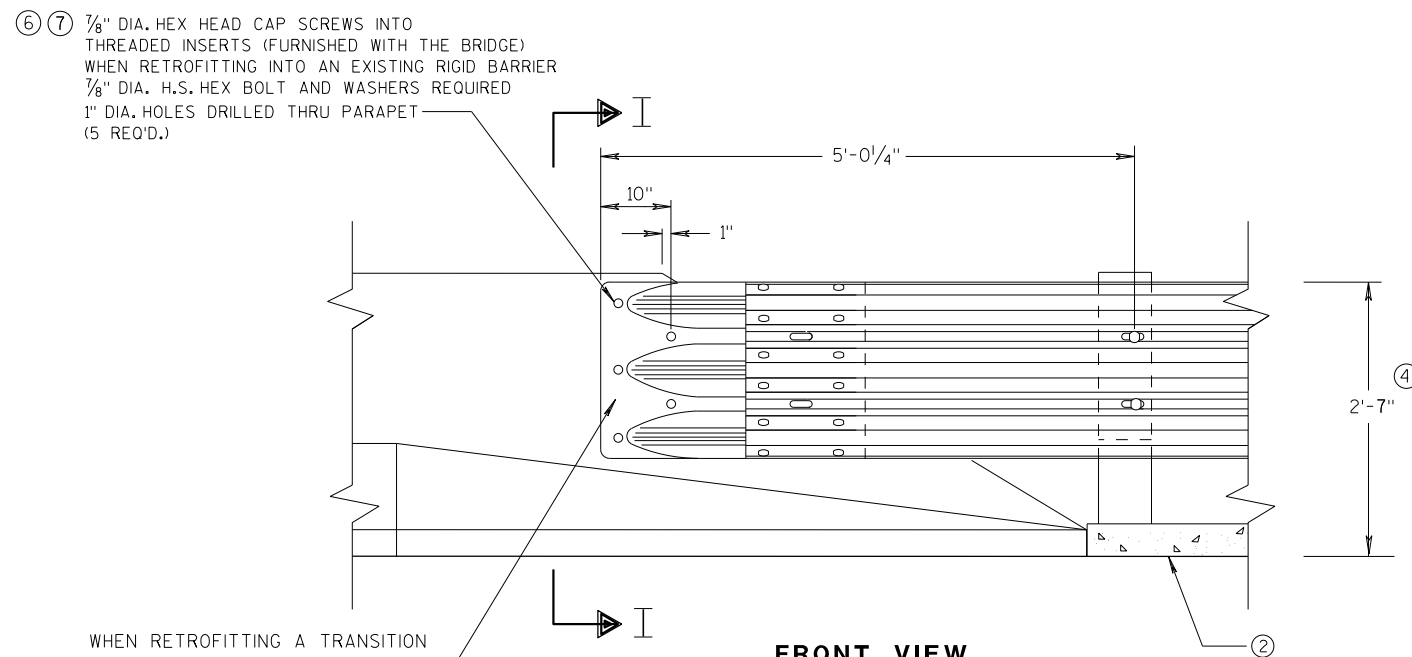


FRONT VIEW

**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)**

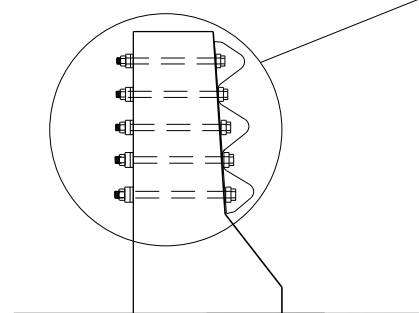


**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

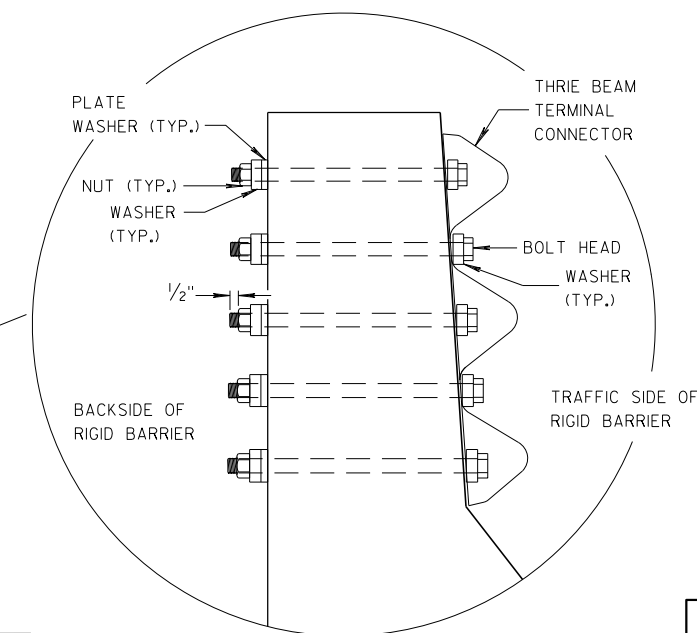


FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



SECTION I-I

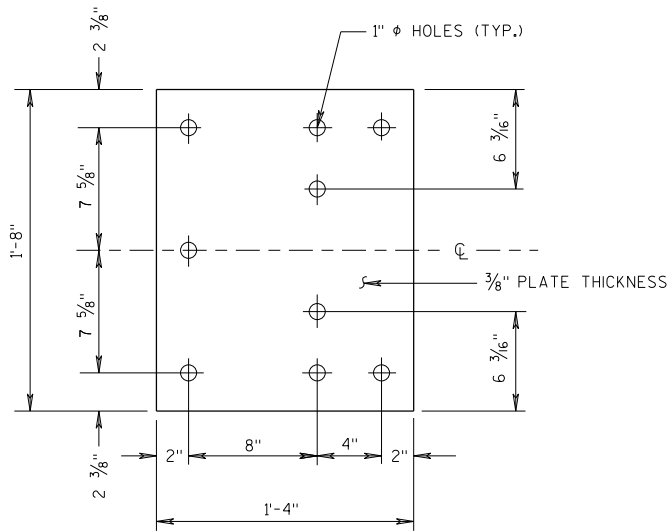
**GENERAL NOTES**

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

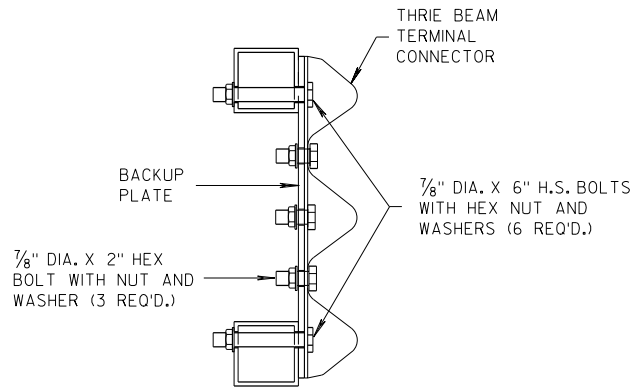
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

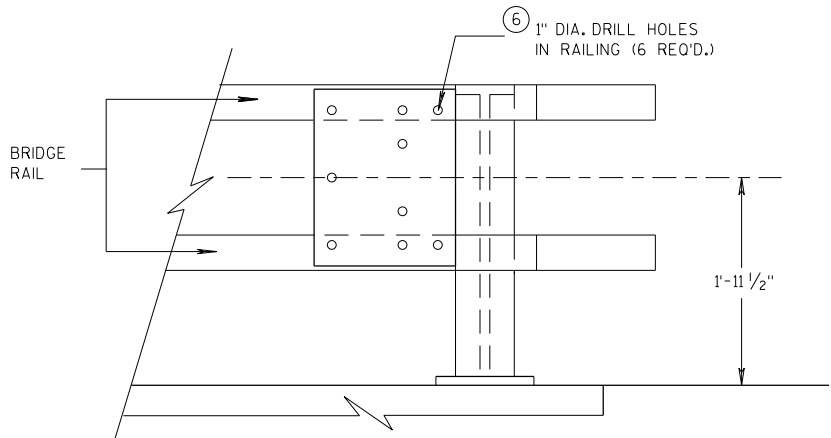
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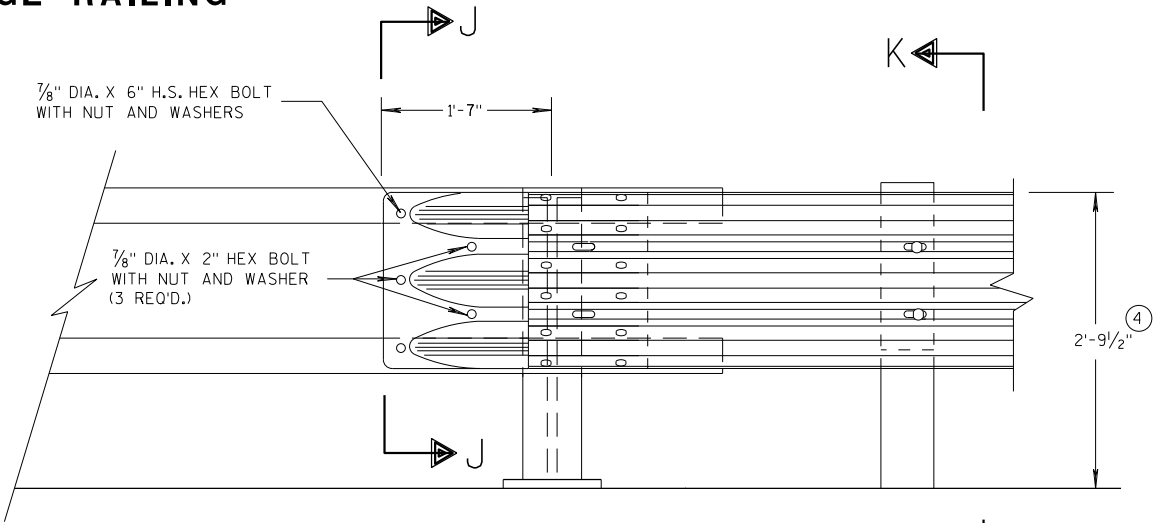
BACK-UP PLATE DETAIL



SECTION J-J

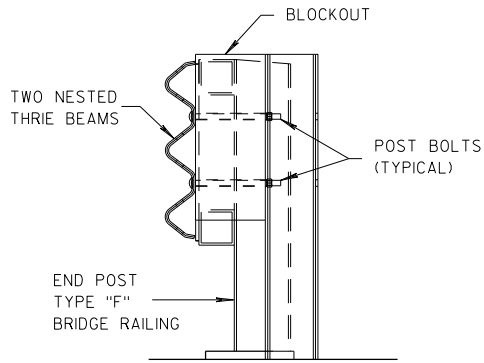


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

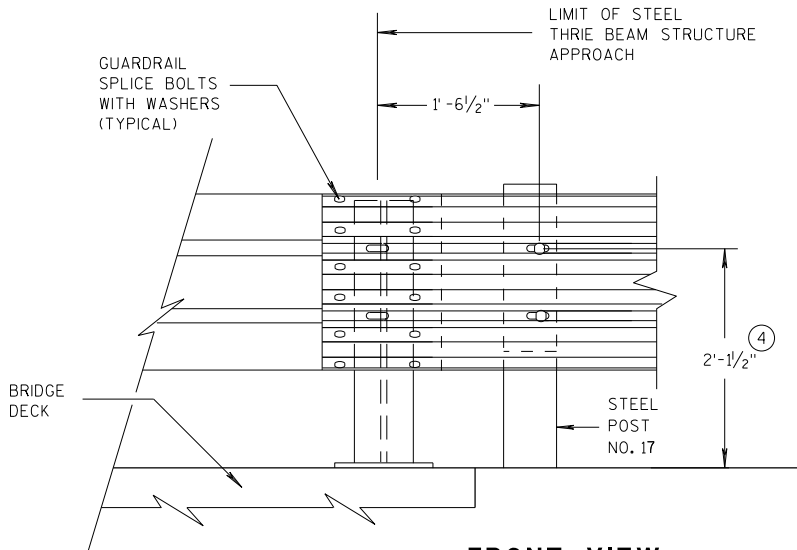
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
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④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



6



END POST
TYPE "M"
BRIDGE RAILING

TWO NESTED
THRIE BEAMS

POST BOLTS
(TYPICAL)

BLOCKOUT

STEEL POST
NO. 16

The technical drawings illustrate the bridge railing system with the following components and dimensions:

- SECTION L-L:**
 - TUBULAR STEEL RAILING TYPE "M":** The main vertical railing component.
 - 7/8" DIA. A325 ROUND HEAD BOLT WITH NUT, WASHER AND LOCK WASHER (4 REQ'D.):** Used to secure the railing to the back-up plate.
 - 2 1/2":** Dimension for the height of the railing section.
 - 1/4":** Dimension for the offset of the railing from the back-up plate.
 - BACK-UP PLATE:** The horizontal plate supporting the railing.
 - ANCHOR PLATE:** The plate that connects the back-up plate to the bridge structure.
 - 7/8" DIA. X 2" H.S. HEX BOLTS WITH NUTS AND WASHERS (4 REQ'D.):** Used to secure the back-up plate to the anchor plate.
 - 7 1/2":** Dimension for the height of the back-up plate.
- FRONT VIEW:**
 - BACK-UP PLATE:** The horizontal plate supporting the railing.
 - ANCHOR PLATE:** The plate that connects the back-up plate to the bridge structure.
 - 1" DIA. DRILL HOLES IN RAILING WITH 7/8" DIA. X 2" H.S. HEX BOLTS, NUTS AND WASHERS (4 REQ'D.):** Used to secure the railing to the back-up plate.
 - 1" DIA. DRILL HOLES IN RAILING WITH 7/8" DIA. X 7" H.S. HEX BOLTS, NUTS AND WASHERS (6 REQ'D.):** Used to secure the back-up plate to the bridge structure.
 - 1" DIA. HOLES FOR ATTACHING ANCHOR PLATE TO BRIDGE RAILING WITH 7/8" DIA. A325 ROUND HEAD BOLTS, WITH NUTS, WASHERS AND LOCK WASHERS (4 REQ'D.):** Used to secure the anchor plate to the railing.
 - END POST:** The vertical post at the end of the railing section.
 - TUBULAR STEEL RAILING TYPE "M":** The main vertical railing component.

SECTION L-L

FRONT VIEW

7/8" DIA. X 7" H.S. HEX BOLT, NUT AND WASHER

BACK-UP PLATE UNDER TERMINAL CONNECTOR

7/8" DIA. X 1 1/2" THREADED SHOP WELDED STUD WITH NUT

3'-9" MAX.

ANCHOR PLATE

7/8" DIA. X 2" H.S. HEX BOLTS, NUTS AND WASHERS (1 REQ'D.)

4

31 1/2"

TUBULAR STEEL RAILING TYPE "M"

7/8" DIA. X 7" H.S. HEX BOLT, NUT AND WASHER

THRIE BEAM TERMINAL CONNECTOR

END POST

STEEL POST NO. 16

FRONT VIEW

FRONT VIEW

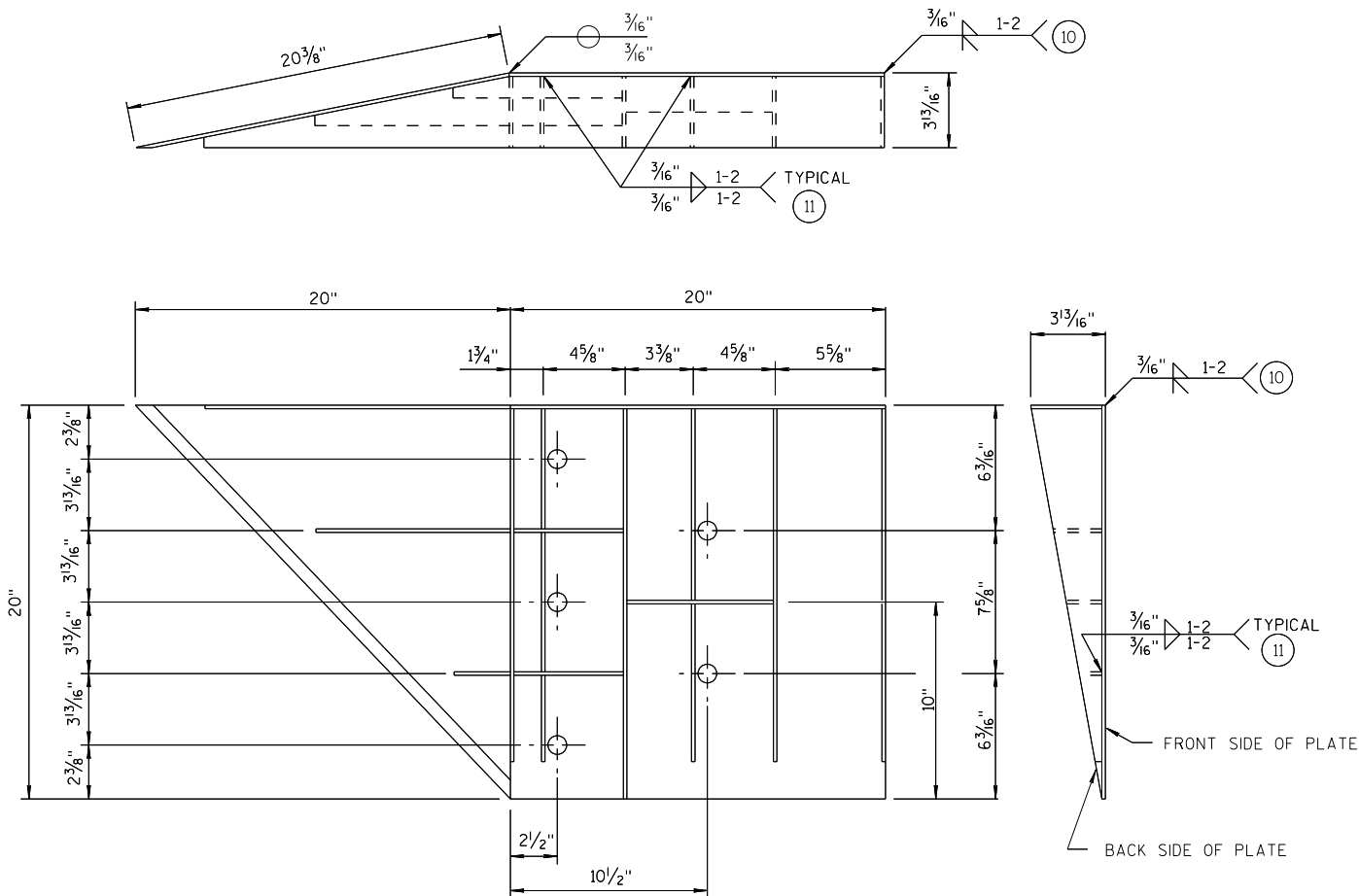


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WELDING INSTRUCTION

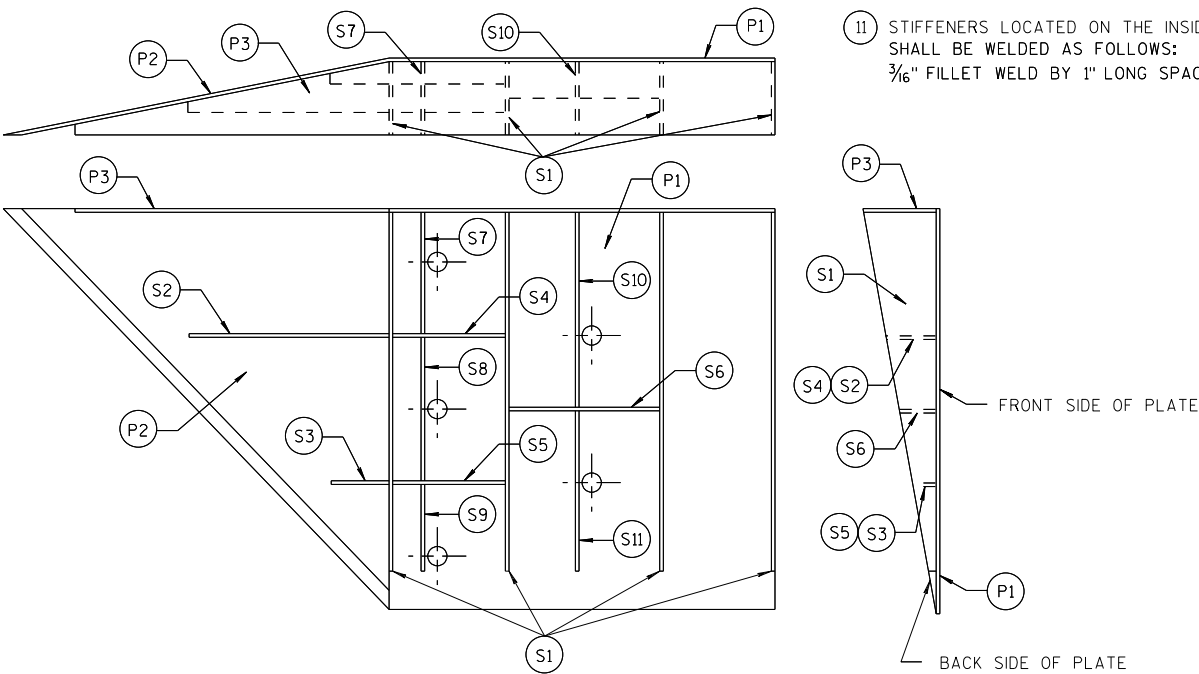
(VIEWED FROM BACK SIDE OF PLATE)

SINGLE SLOPE CONNECTION PLATE

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

PLATE AND STIFFENER IDENTIFICATION

(VIEWED FROM BACK SIDE OF PLATE)



GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

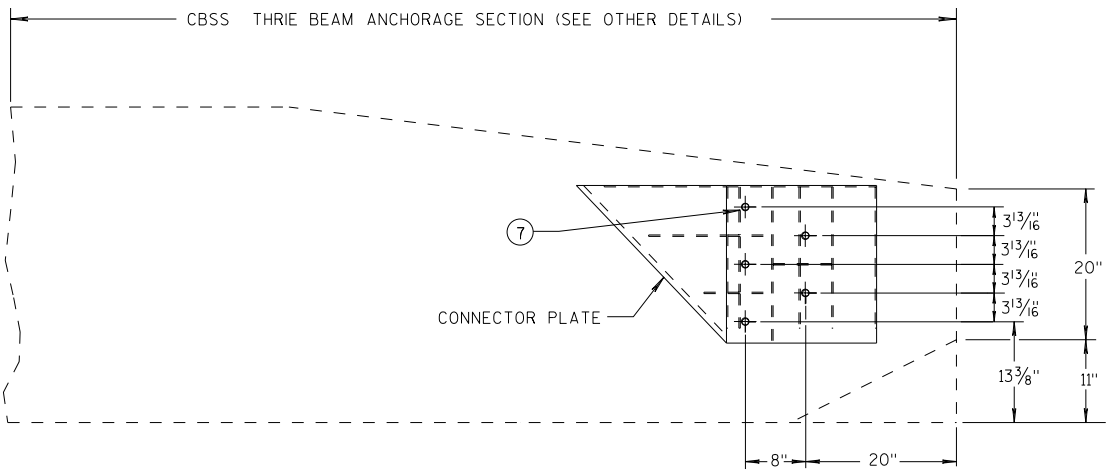
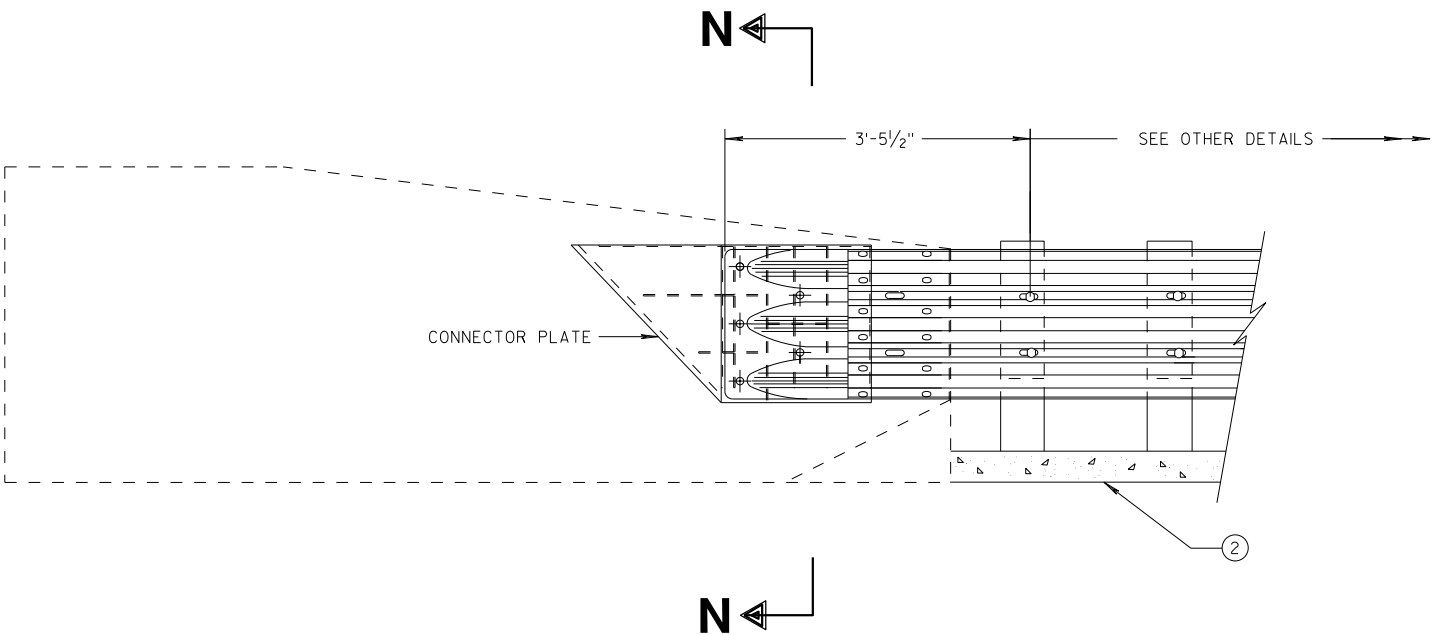
- 10 STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- 11 STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



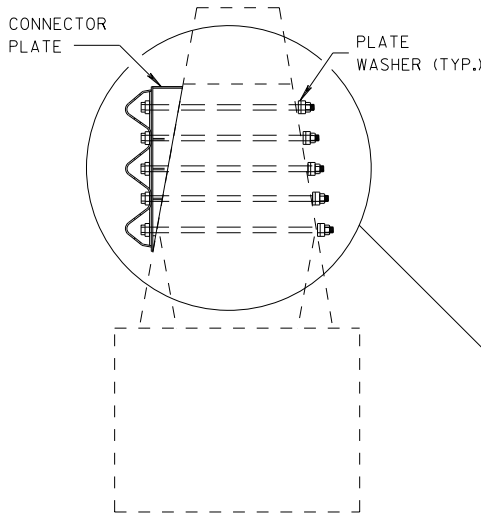
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

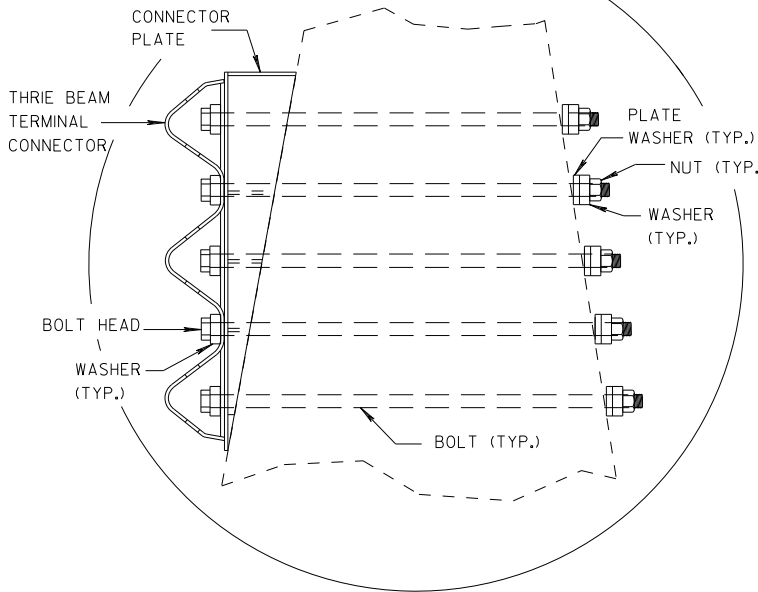
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



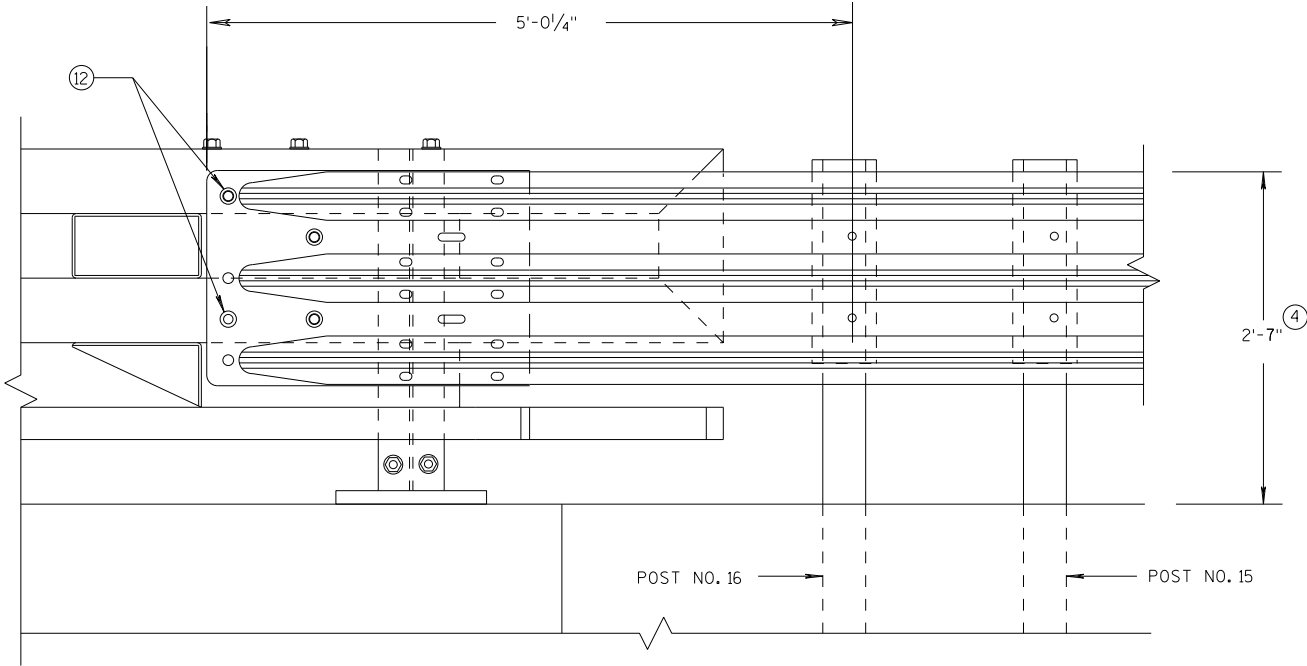
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

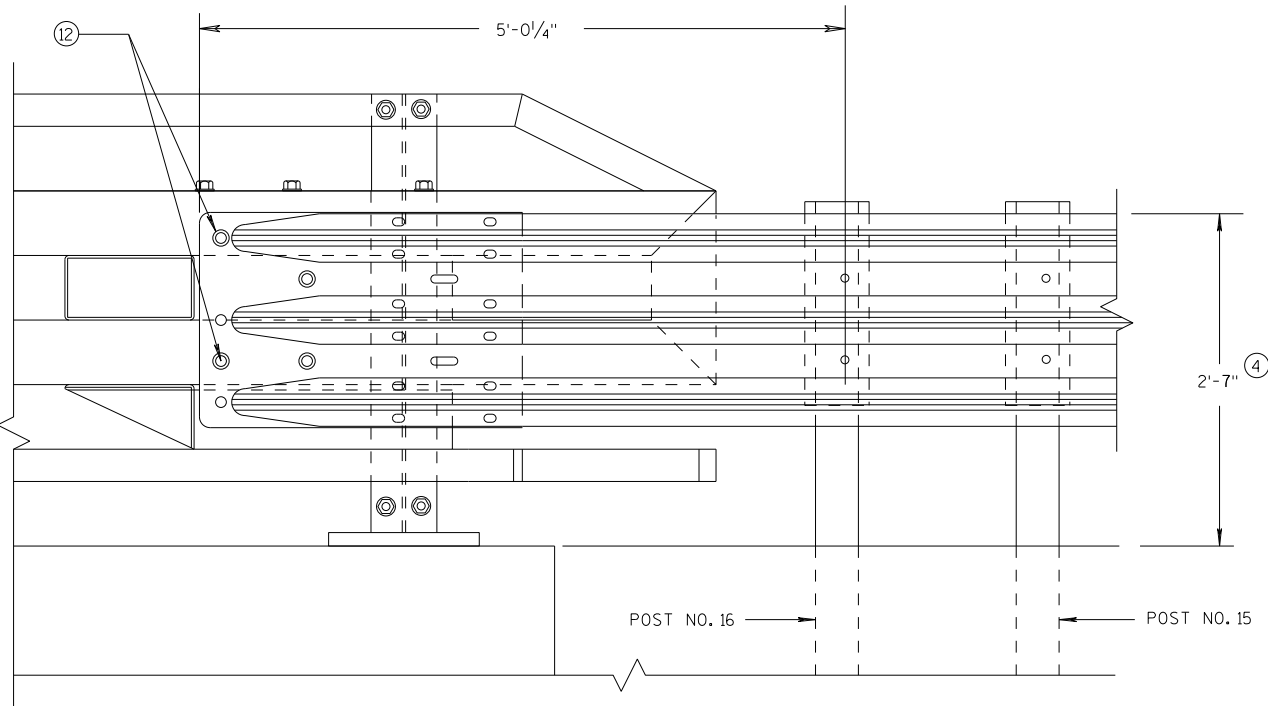
APPROVED
DATE 7/2018
ROADWAY STANDARDS DIVISION
UNIT SUPERVISOR /S/ Rodney Taylor
68
FHWA

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

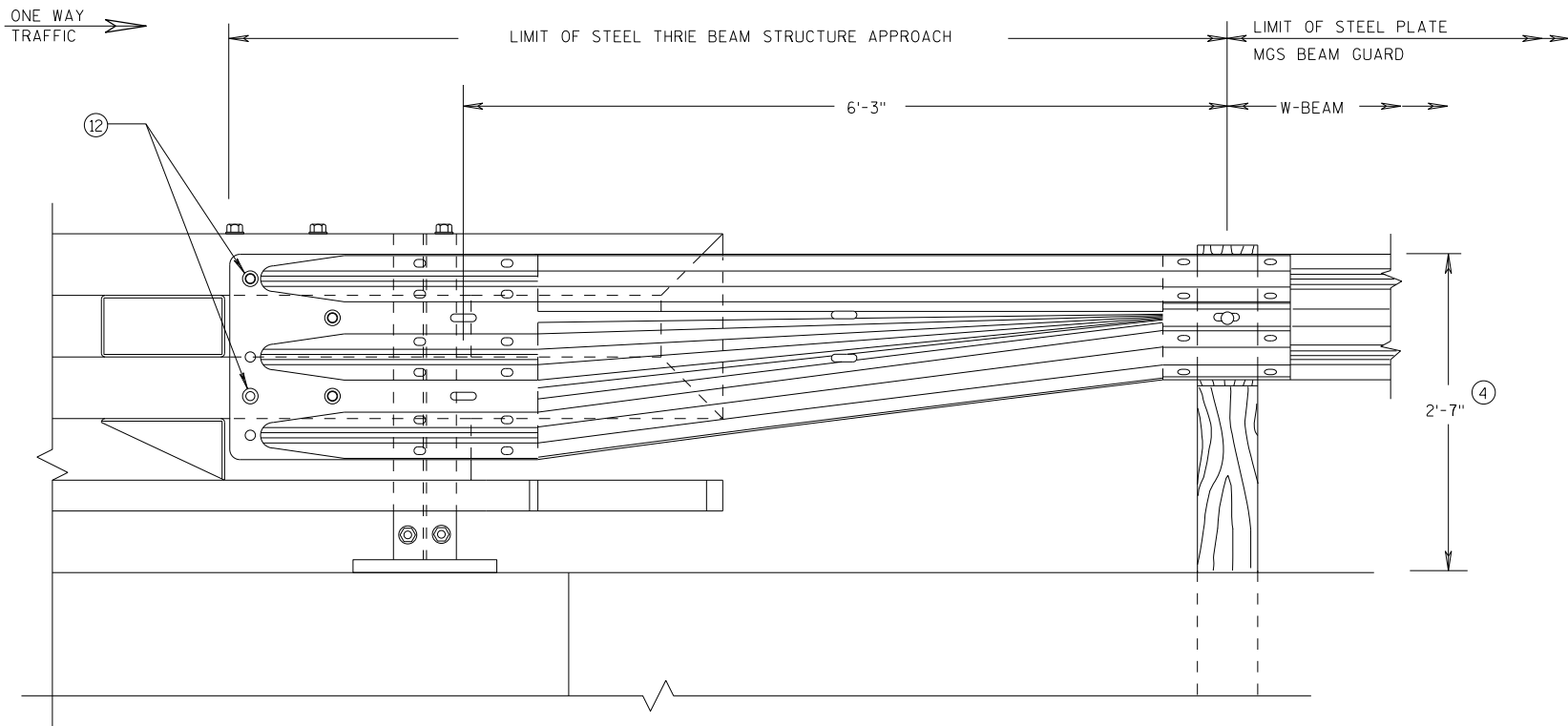


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Rodney Taylor
DATE	7/2018
FHWA	ROADWAY STANDARDS UNIT SUPERVISOR 69 NT



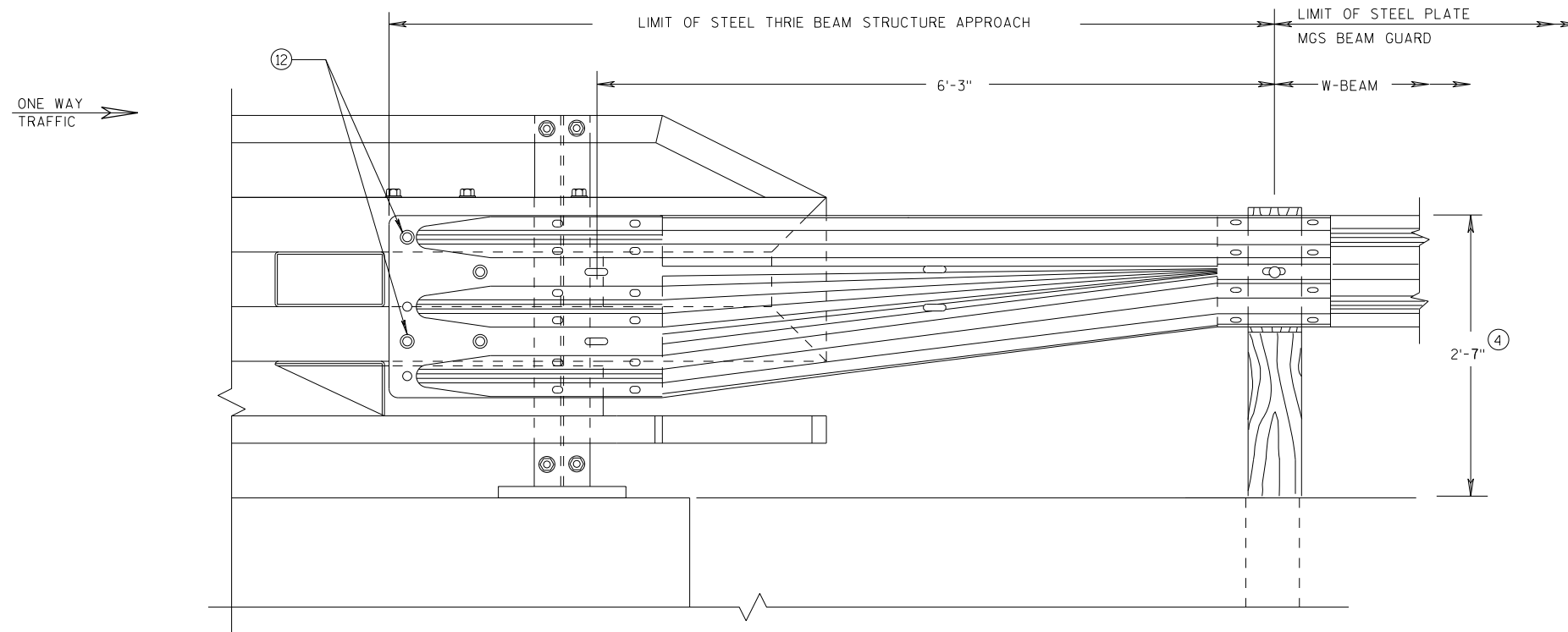
GENERAL NOTES

(4) TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.

(12) 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. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.

FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY3" (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4" (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

7/2018

DATE

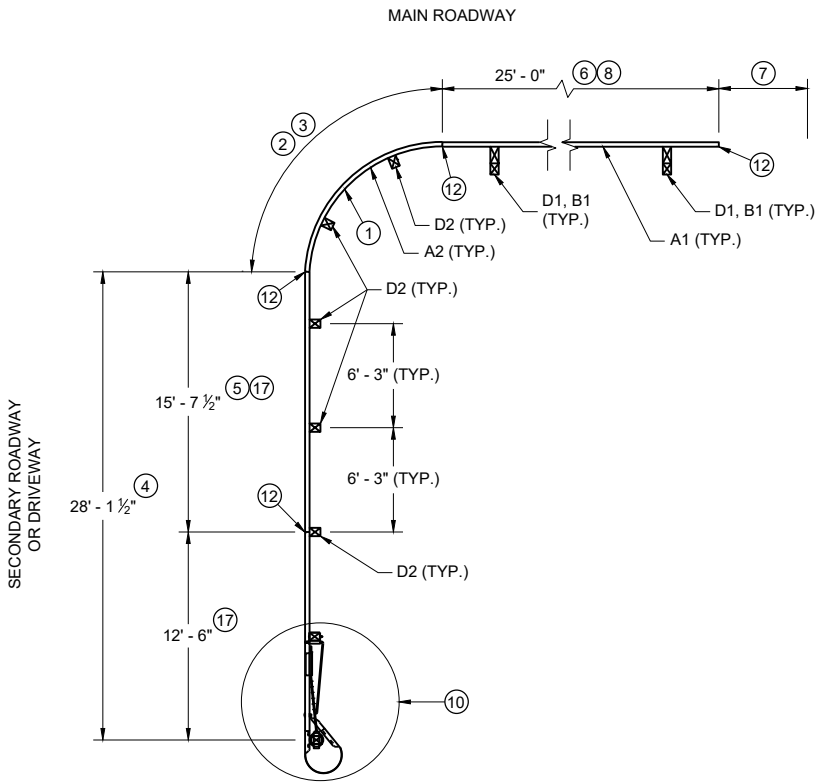
FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS C 70

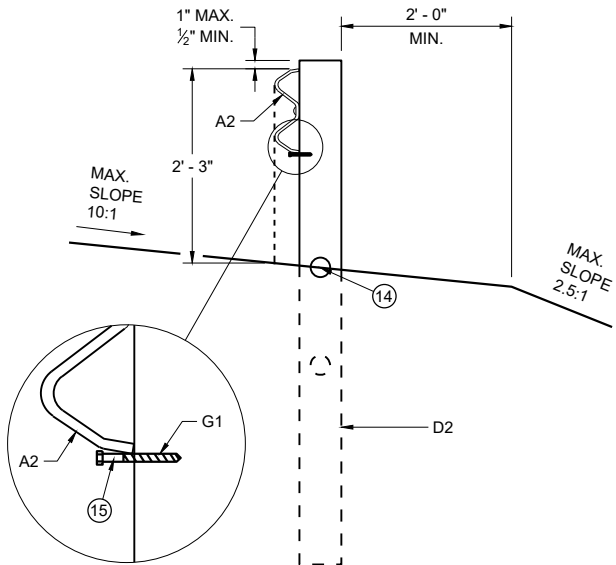
UNIT SUPERVISOR

S.D.D. 14 B 45-5L

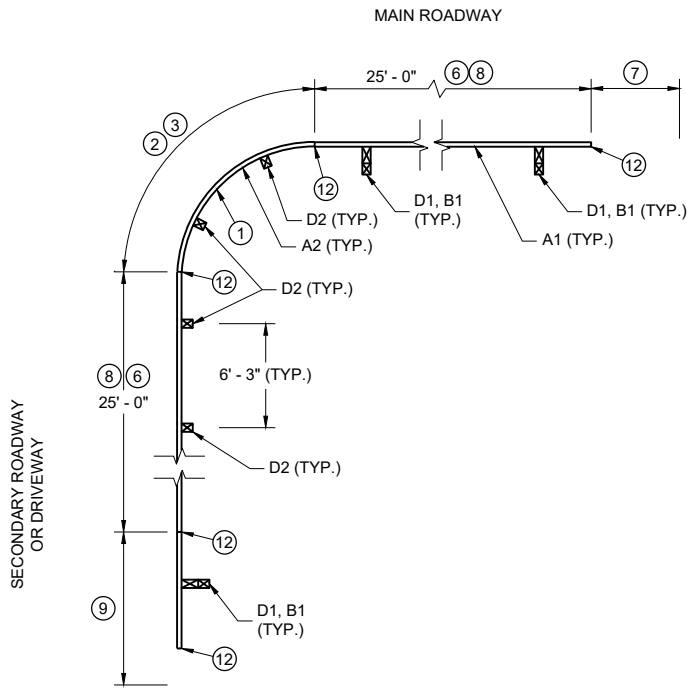


PLAN VIEW

**SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY**

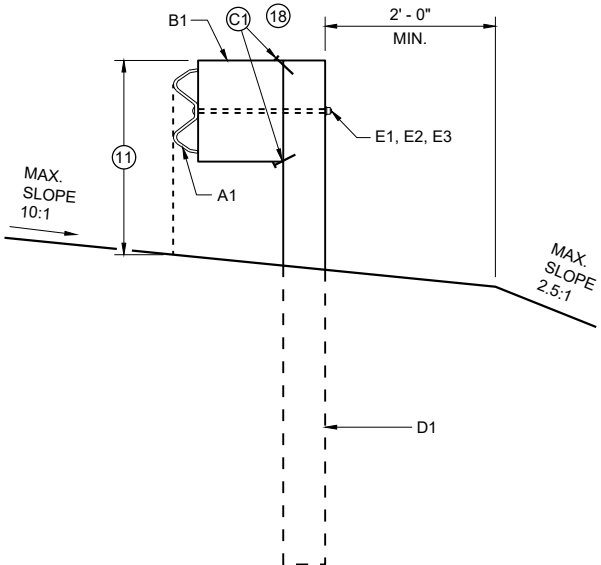


**CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS**



PLAN VIEW

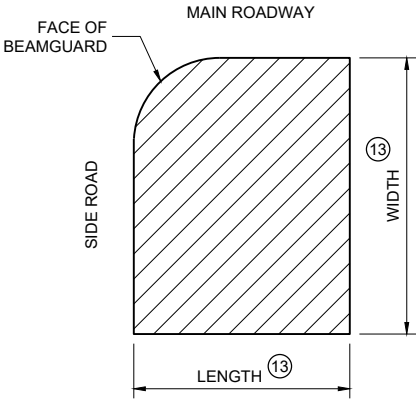
**SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY**



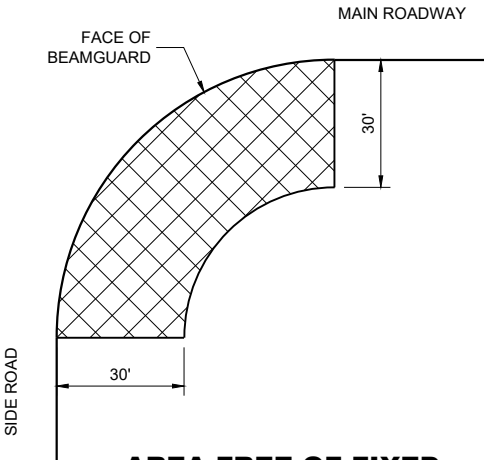
**BEAM GUARD POSTS
IN HEIGHT TRANSITION**

TABLE FOR RADIUS OF 32' AND LESS

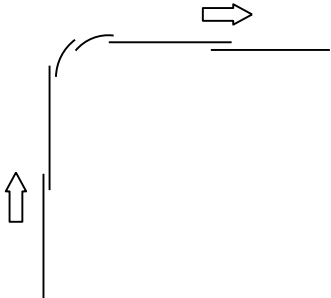
RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS**



**AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'**



LAP SPLICE DETAIL

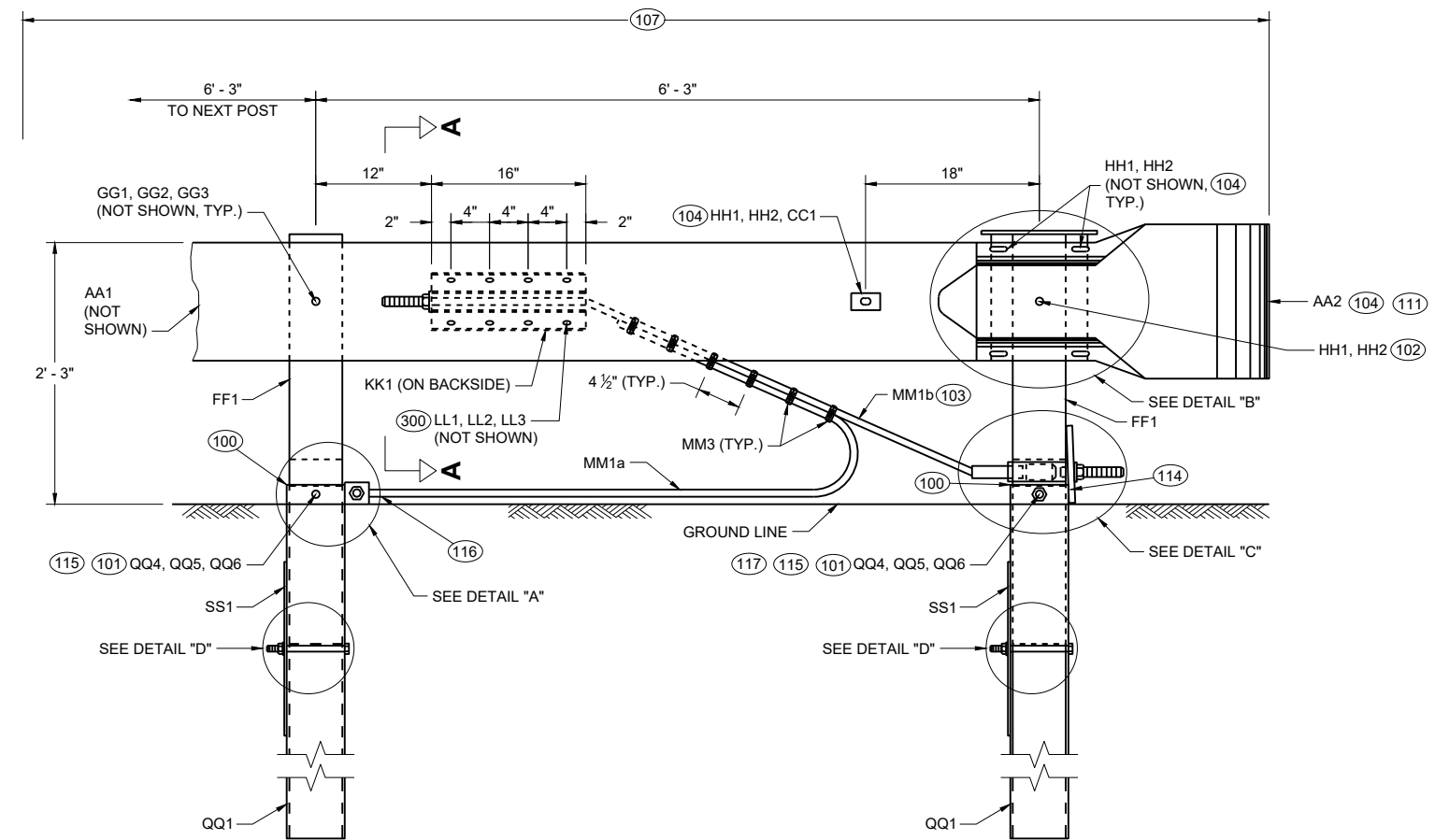
GENERAL NOTES

- SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.
- SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.
- GALVANIZE PARTS AFTER FABRICATION.
- WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.
- UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.
- UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.
- ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.
- UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.
- DRAWINGS ARE NOT TO SCALE.

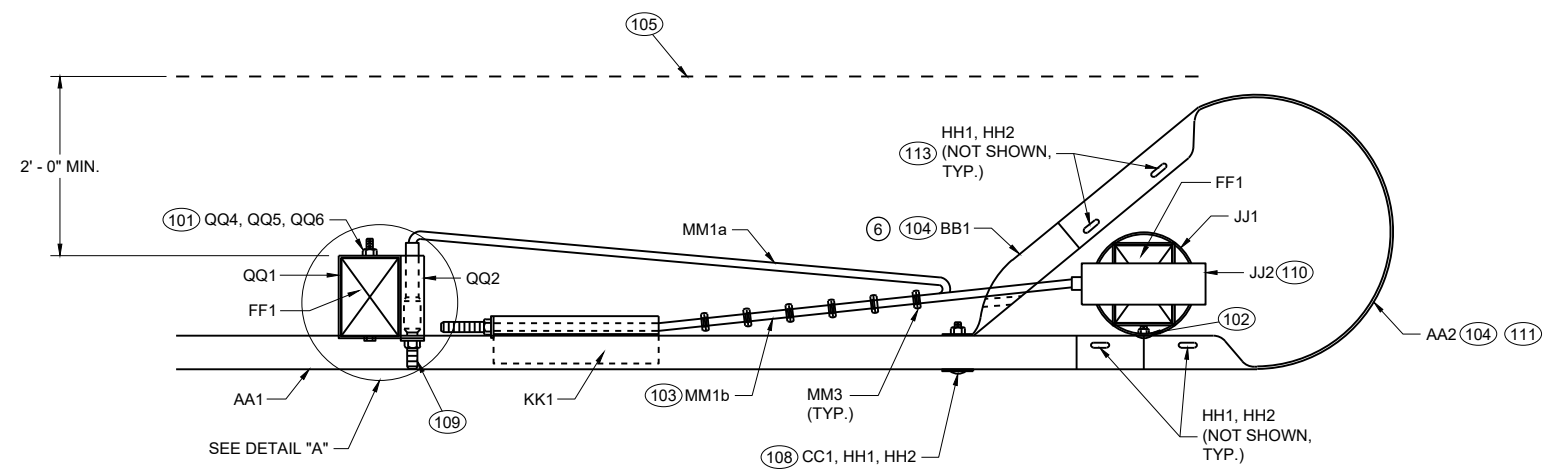
- (1) RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- (2) CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- (3) WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- (4) MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- (5) ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- (6) MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER. ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- (7) BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- (8) TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- (9) ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- (10) SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- (11) HEIGHT VARIES. SEE NOTE (8) AND (17).
- (12) BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- (13) SEE TABLE FOR VALUES.
- (14) MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- (15) DRILL POST 15/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- (16) SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- (17) TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).
- (18) INITIAL 1 NAIL AT EACH CORNER OF THE BLOCK TO CONNECT BLOCKS.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

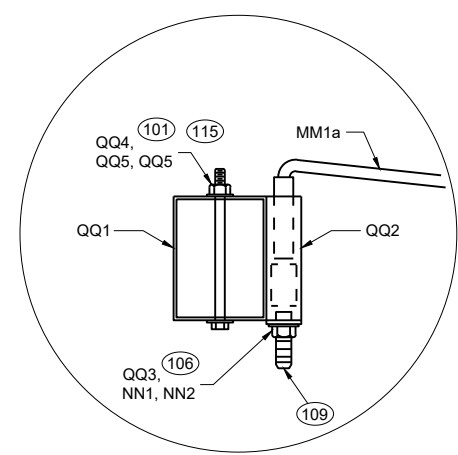
STATE OF WISCONSIN
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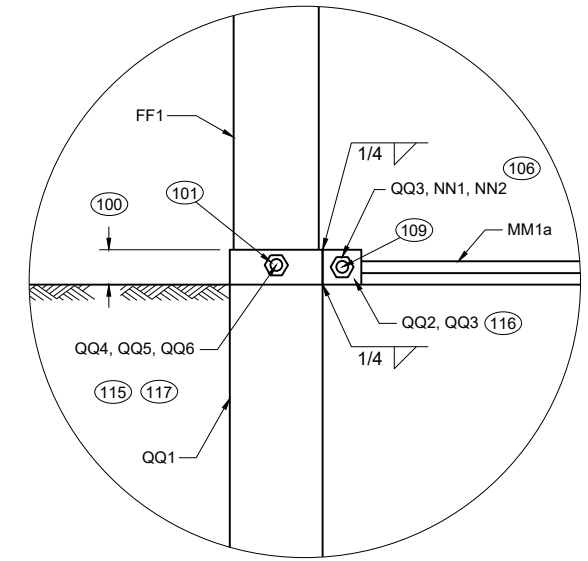
**PROFILE VIEW
SHORT RADIUS TERMINAL**



**TOP VIEW
SHORT RADIUS TERMINAL**



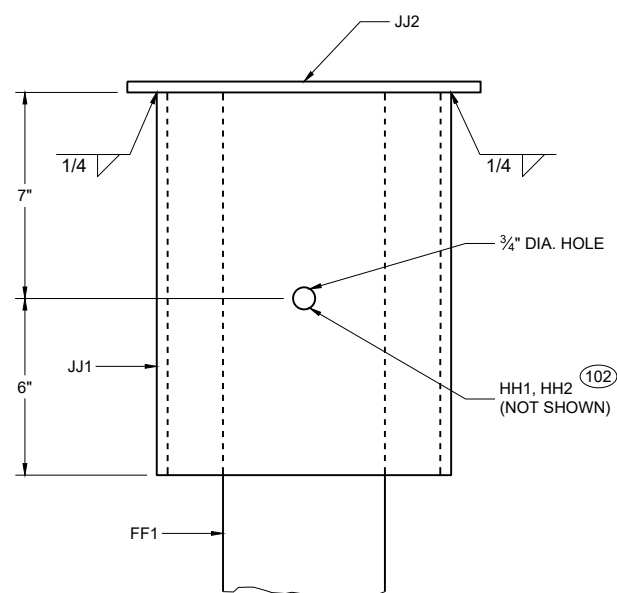
**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



**PROFILE VIEW
DETAIL "A"**

- GENERAL NOTES**
- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
 - (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
 - (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
 - (103) CABLE IS TAUT.
 - (104) ADJUST AA2 AND BB1 TO FIT.
 - (105) BREAK POINT OF SHOULDER.
 - (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
 - (107) PAY LIMIT FOR BEAM GUARD.
 - (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
 - (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
 - (110) SEE STEEL PIPE ASSEMBLY DETAILS.
 - (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
 - (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
 - (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.
 - (114) NO MATERIAL IS TO BE PLACED AGAINST THE VERTICAL FACES OF BEARING PLATE.
 - (115) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLTS FOR POST AND SOIL TUBE.
 - (116) PREVENT OR REMOVE MATERIALS THAT BLOCK ACCESS TO BOLT. PLACE CABLE ON TOP OF MATERIAL.
 - (117) ONE WASHER BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.

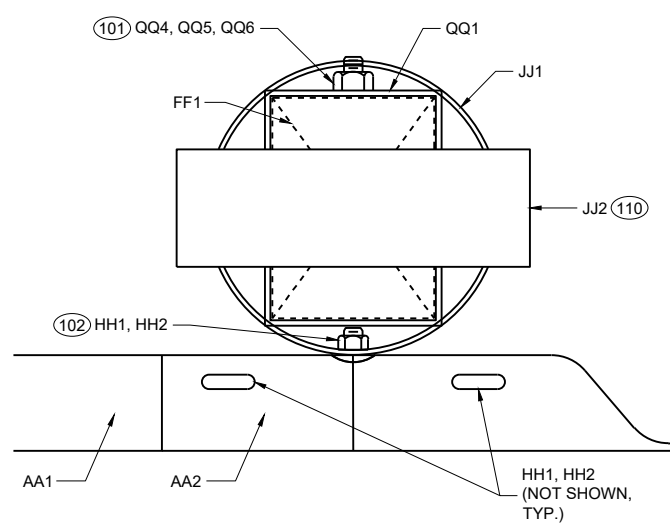
**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**



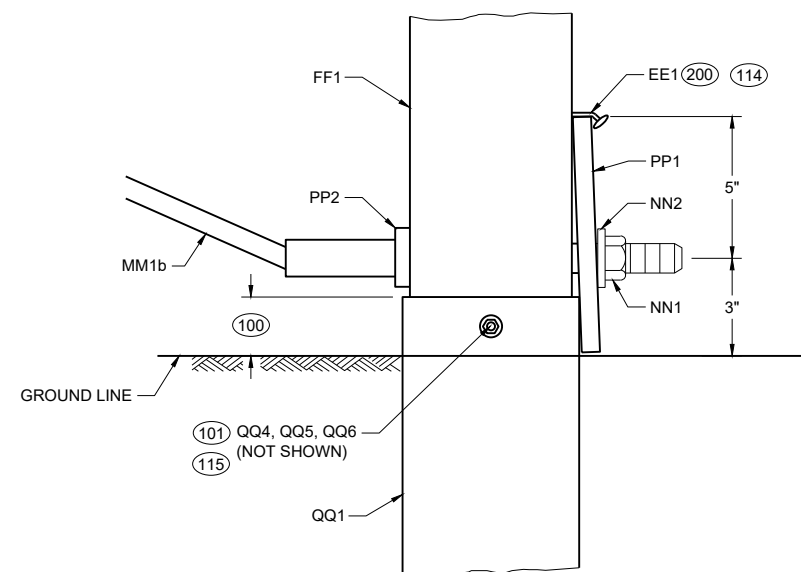
PROFILE VIEW

DETAIL "B"

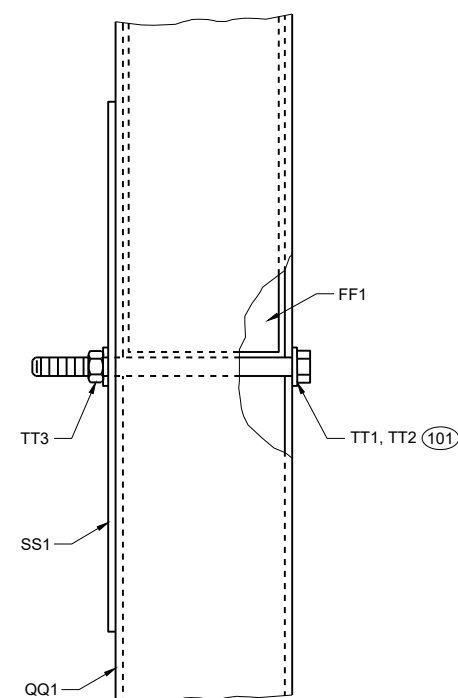
**STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)**



PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY



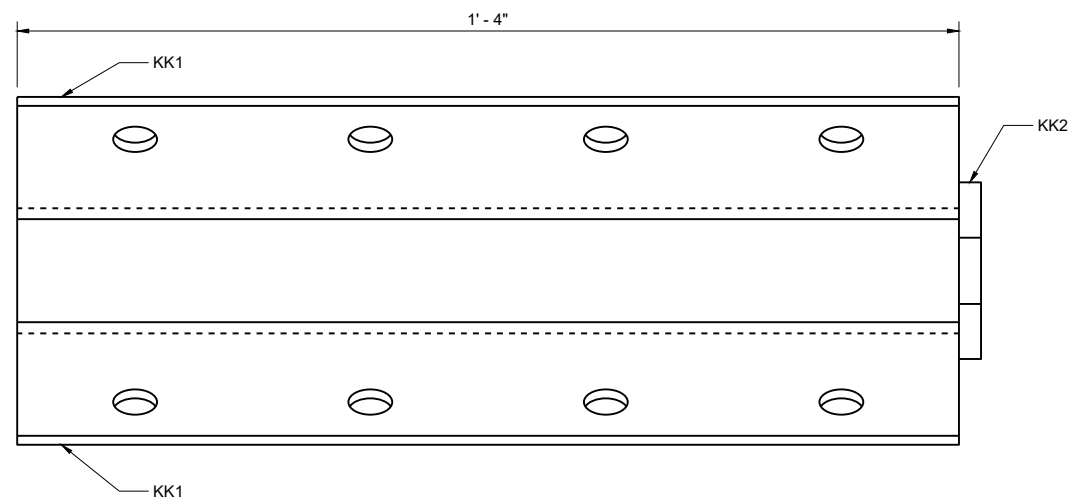
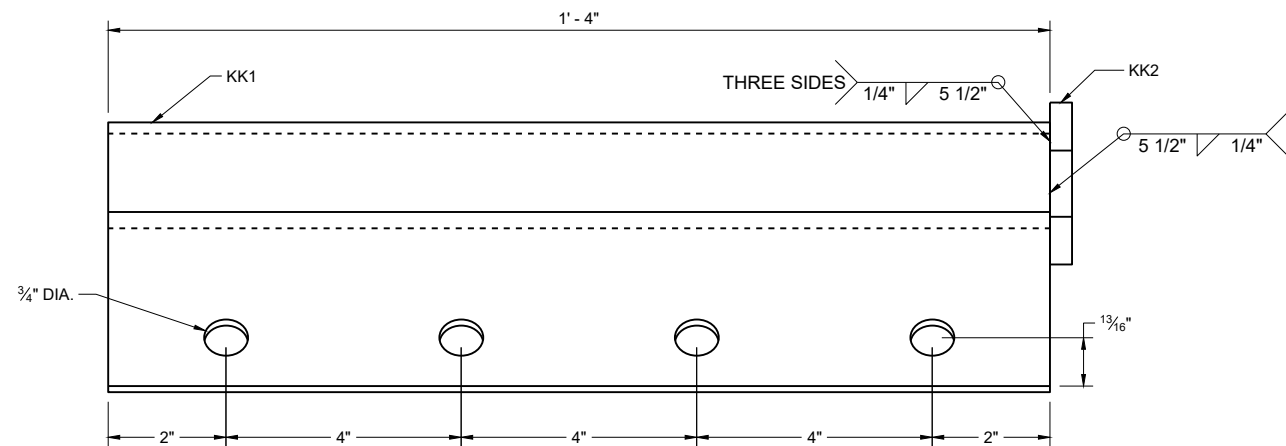
PROFILE VIEW
DETAIL "C"



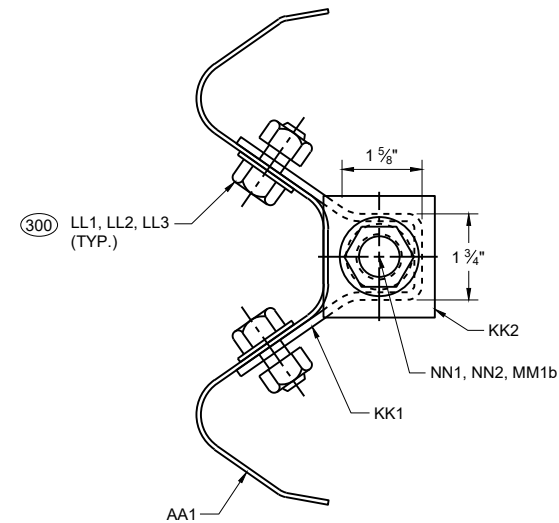
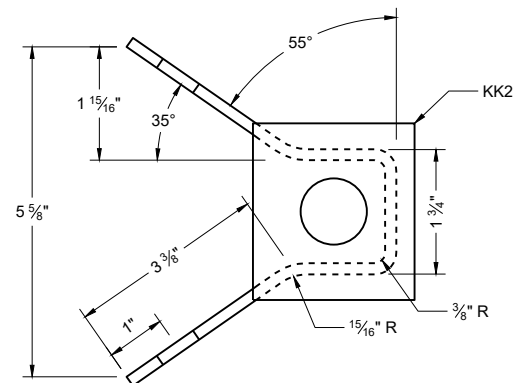
PROFILE VIEW
DETAIL "D"

GENERAL NOTES

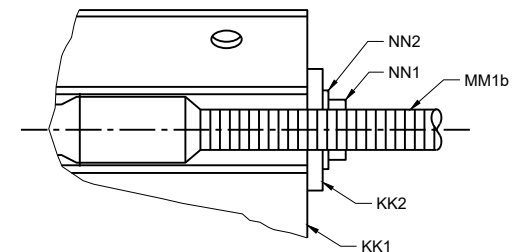
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.



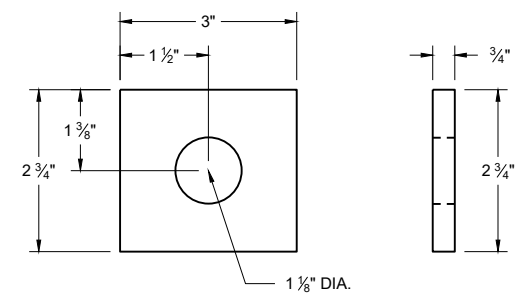
ANCHOR BRACKET (KK1, KK2)



SECTION A - A



ANCHOR BRACKET BEARING PLATE (KK2)

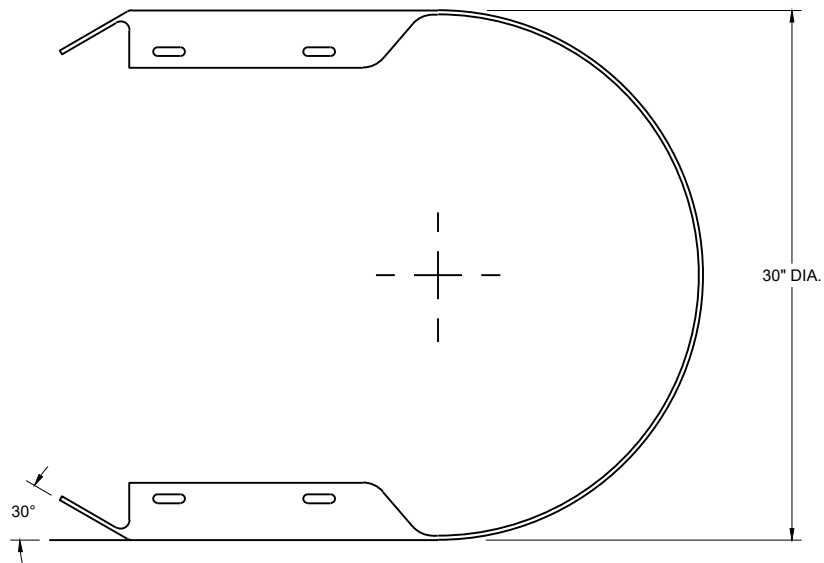


SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

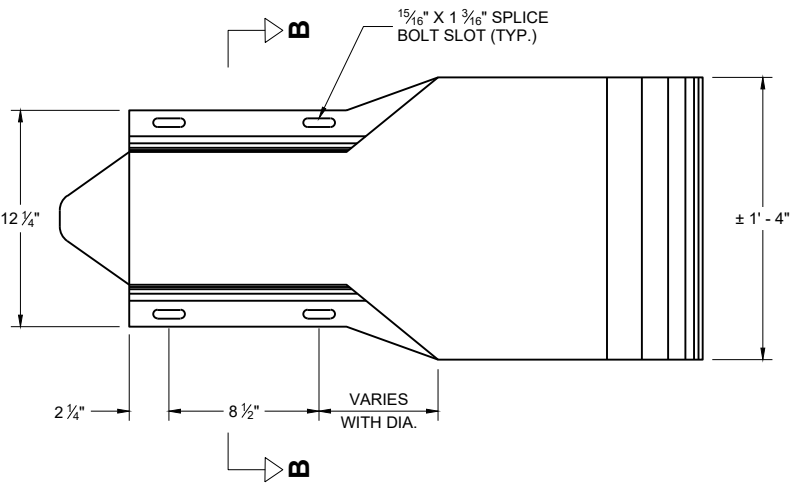
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GENERAL NOTES

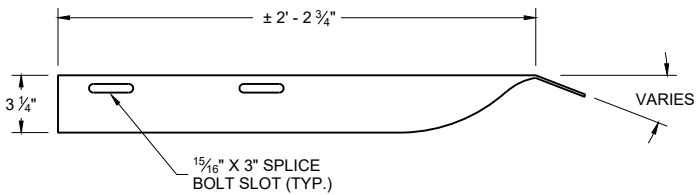
(300) WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.



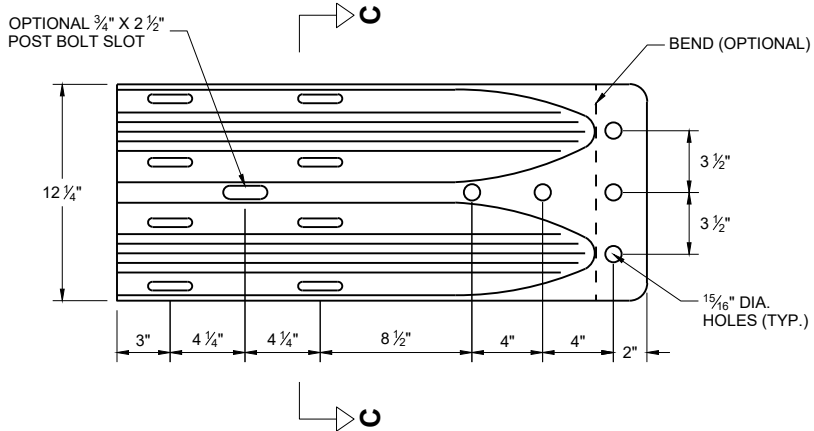
TOP VIEW



PROFILE VIEW
W BEAM
END SECTION BUFFER (AA2)



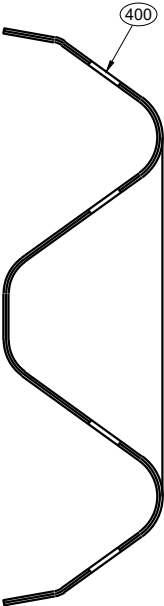
TOP VIEW



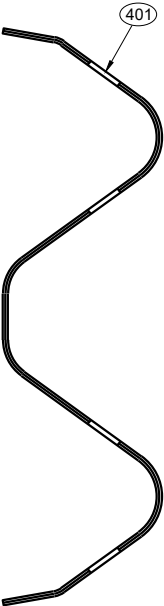
PROFILE VIEW
W BEAM
TERMINAL CONNECTOR (BB1)

GENERAL NOTES

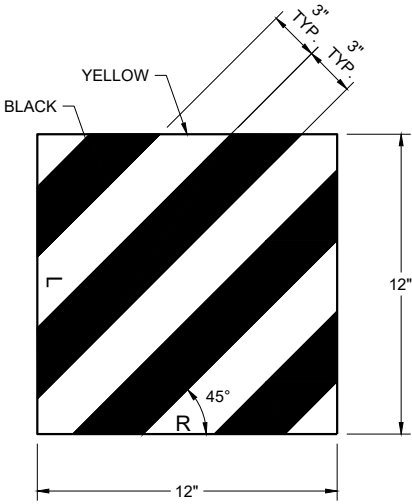
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



SECTION B -B



SECTION C -C



REFLECTIVE SHEETING (UU1, UU2)

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



"X" LENGTH	
MM1b	9' - 0"
MM1b	6' - 8"

(500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.

(501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.

(502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.

(503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109)



BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPlice BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPlice BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 3/8" X 4" X 1" - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	5/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X 3/16"
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 1/2" X 2 1/4" X 1/4" X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	DIMENSIONS 2 1/2" X 2 1/2" X 1/4"
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	5/8 DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	5/8 DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	5/8 DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8 DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

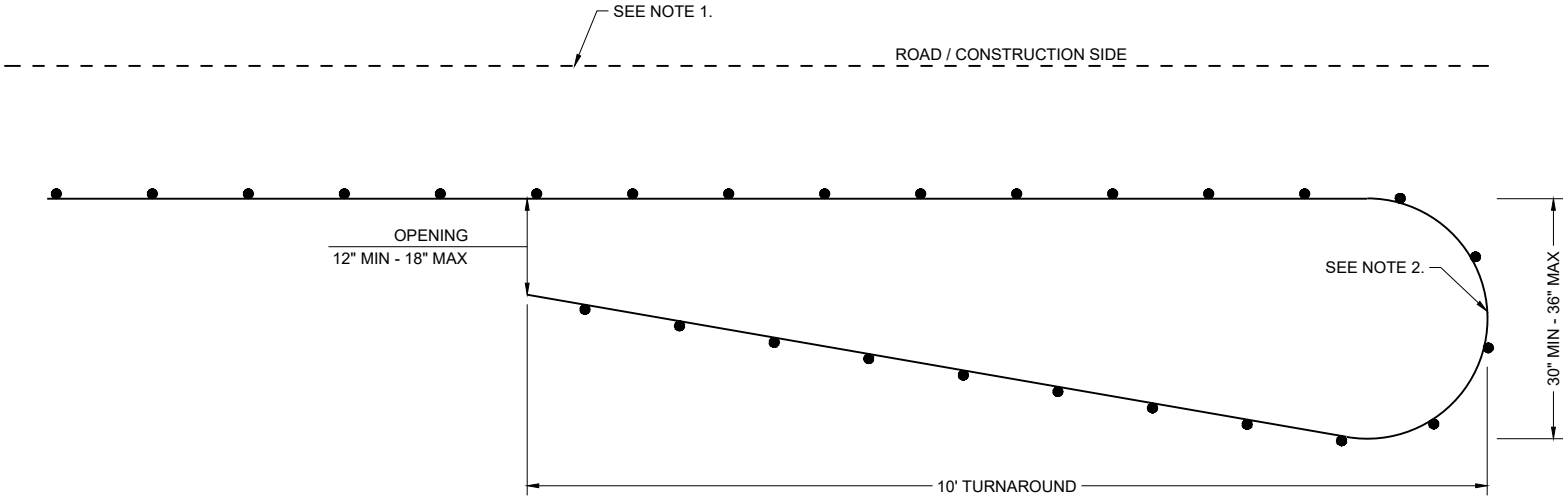
APPROVED
December 2024
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

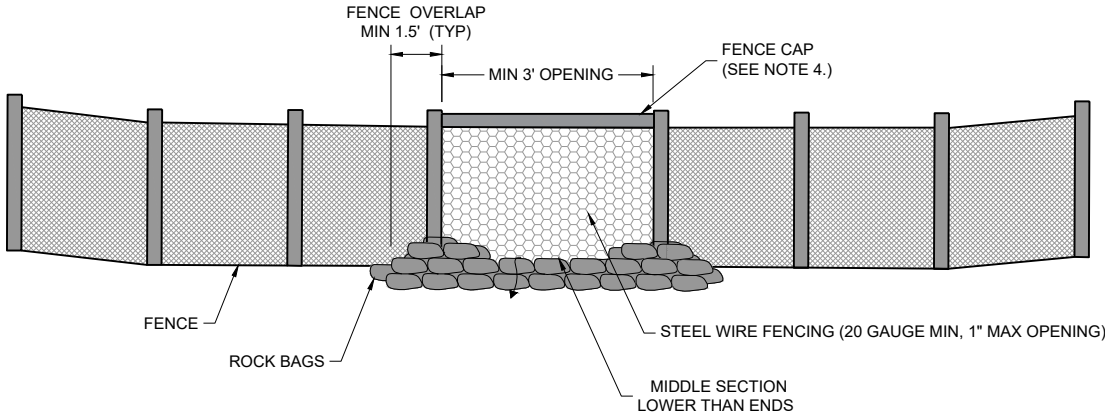
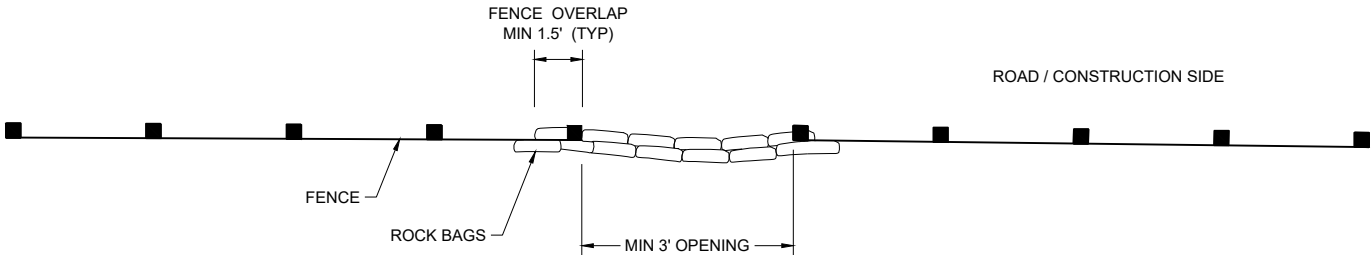
FHWA

GENERAL NOTES:

1. WHERE SILT FENCE IS REQUIRED, IT SHALL BE PLACED ON THE CONSTRUCTION SIDE OF THE EXCLUSION FENCING, OR COMBINED WITH THE EXCLUSION FENCING AS ALLOWED IN THE SPECIFICATIONS. STAKES ON THIS DETAIL ARE OPPOSITE OF STANDARD SILT FENCE FOR SEDIMENT CONTROL.
2. PLACE TURNAROUNDS AT ALL TERMINI ENDS OF THE EXCLUSION FENCING.
3. IF TEMPORARY ACCESS POINTS ARE NEEDED DURING CONSTRUCTION THAT REQUIRE OPENINGS IN THE EXCLUSION FENCING, ACCESS OPENINGS SHOULD BE TIGHTLY SECURED WITH BALES OF HAY OR STRAW WHENEVER CONSTRUCTION RELATED ACTIVITIES ARE NOT OCCURRING. REINSTALL EXCLUSION FENCING WHEN THE WORK REQUIRING THE TEMPORARY ACCESS OPENING IS COMPLETED.
4. THE FENCE CAP MAY BE A 6" UNDER DRAIN PIPE, SLIT DOWN THE CENTER AND PLACED OVER THE FENCE. COMMERCIALLY AVAILABLE SAFETY CAPS WITH A LIP MAY BE USED. OTHER DNR APPROVED METHODS TO PREVENT TURTLES FROM PASSING OVER THE TOP OF THE FENCE MAY BE USED.
- SECURELY FASTEN THE CAP TO PREVENT IT FROM BEING DISLODGED.

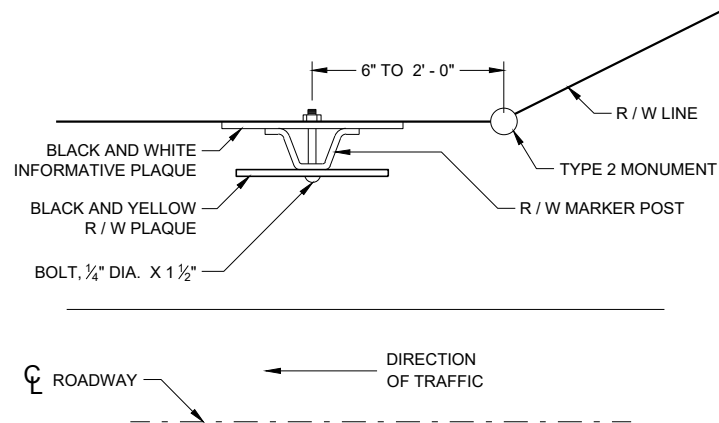


PLAN VIEW
CLIMBING TURTLE EXCLUSION FENCE DETAIL

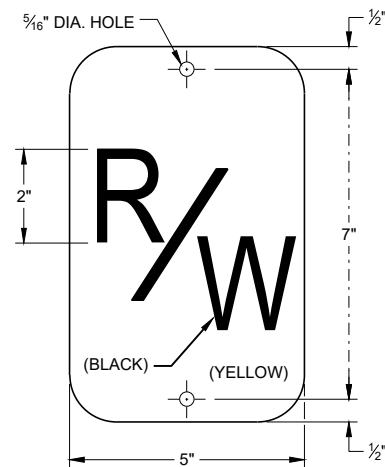


FRONT VIEW
CLIMBING TURTLE FENCE RELIEF DETAIL

TURTLE EXCLUSION FENCE CLIMBING TURTLE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED AUGUST 2025 DATE	/S/ ALYSSA BARRETTE CHIEF STATEWIDE ENVIRONMENTAL SERVICES BUREAU OF TECHNICAL SER
FHWA 80	

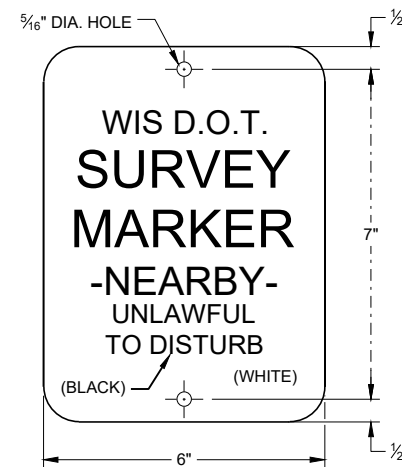


**PLAN VIEW
STEEL MARKER POST**



R / W PLAQUE

THE RIGHT-OF-WAY PLAQUE AND INFORMATIVE PLAQUE WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.



INFORMATIVE PLAQUE

GENERAL NOTES

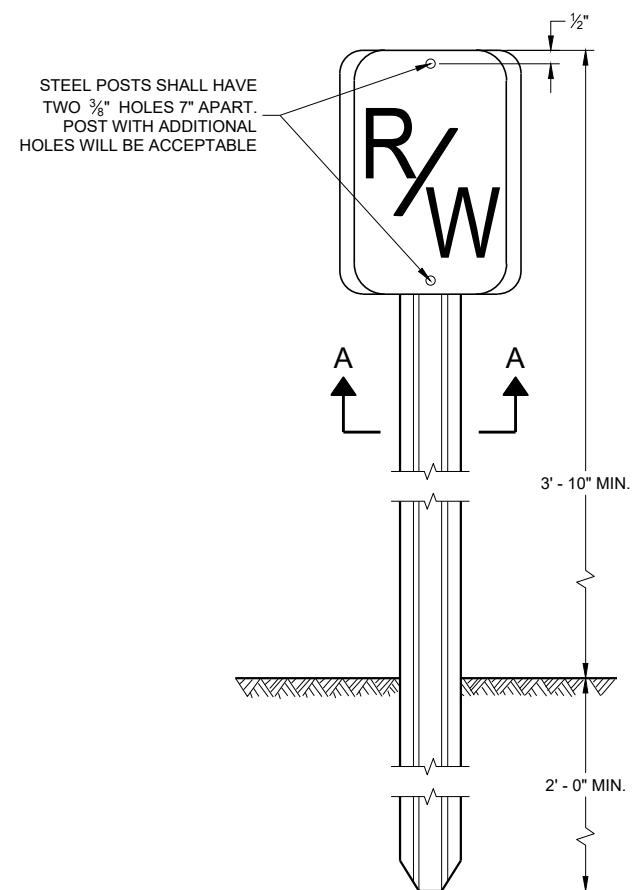
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A STEEL MARKER POST FOR RIGHT -OF-WAY SHALL BE PLACED IN THE RIGHT-OF-WAY WITH THE BACK OF THE POST ON THE LONGER RIGHT-OF-WAY TANGENT, 6 INCHES TO 24 INCHES FROM EACH TYPE 2 MONUMENT TO SERVE AS A GUARD POST, AND AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

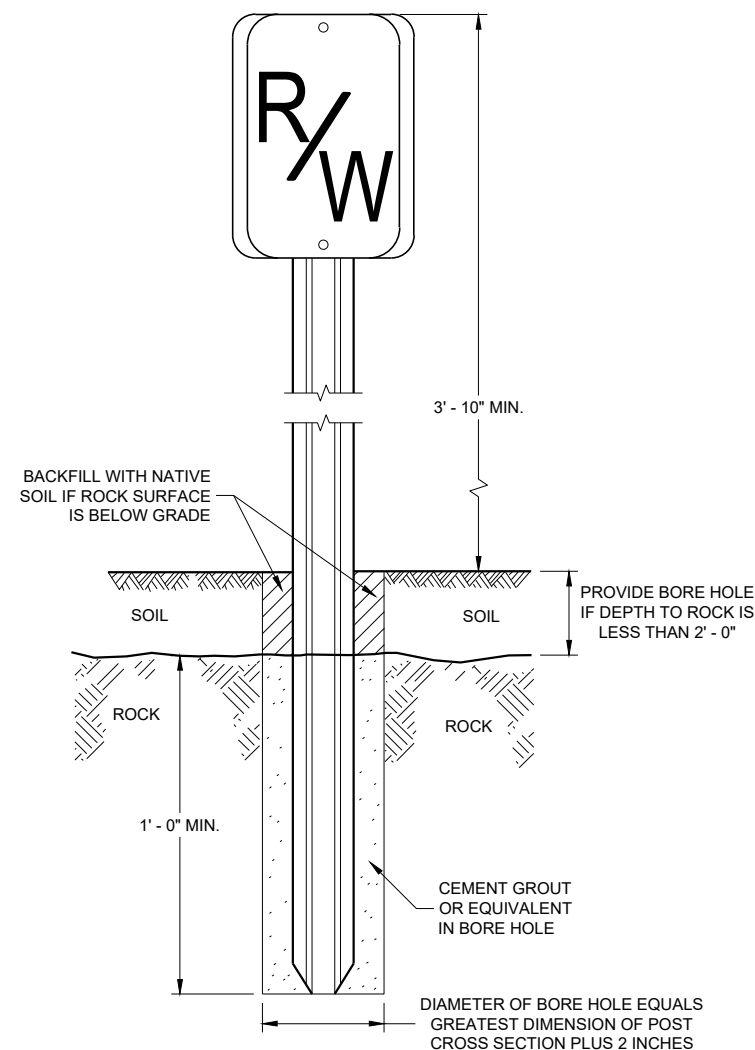
THE "R/W" PLAQUE SHALL FACE THE ROADWAY AND THE INFORMATIVE PLAQUE SHALL FACE AWAY FROM THE ROADWAY. "R/W" AND INFORMATIVE PLAQUES WILL BE FURNISHED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

STEEL MARKER POSTS SHALL MEET THE MINIMUM MATERIAL REQUIREMENTS FOR STEEL DELINEATOR POSTS; EXCEPT POSTS PAINTED WITH FEDERAL YELLOW ENAMEL NEED NOT BE ZINC COATED.

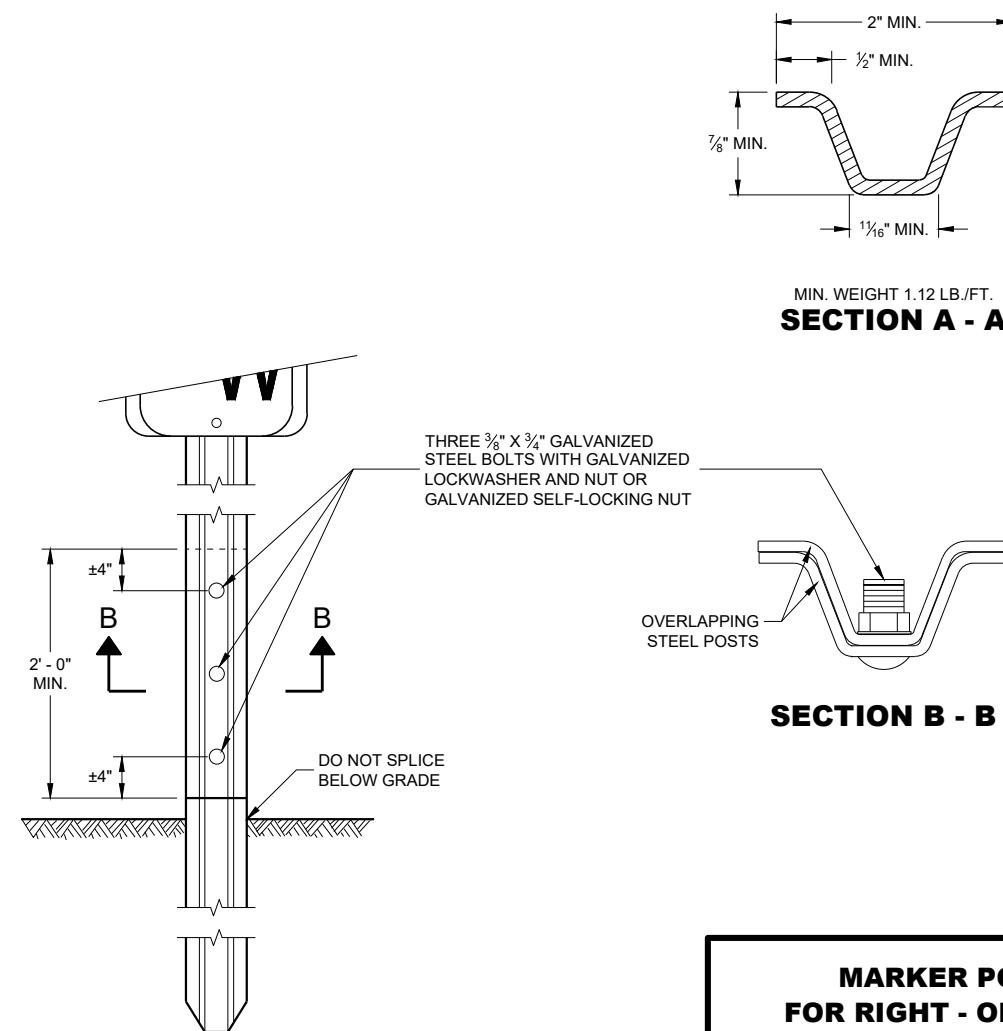
- IN AREAS OF SOLID ROCK, DRILL A BORE HOLE 2" GREATER THAN THE WIDEST DIMENSION OF THE POST CROSS SECTION INTO THE ROCK A MINIMUM DEPTH OF 12 INCHES. CUT OR SPLICE THE POST SO THAT A MINIMUM LENGTH OF 3' - 10" PROTRUDES ABOVE THE GROUND. BLOW OUT THE BORE HOLE IN THE ROCK USING COMPRESSED AIR. FILL THE BORE HOLE WITH CEMENT GROUT OR EQUIVALENT, DEPENDING ON THE STABILITY OF THE ROCK.



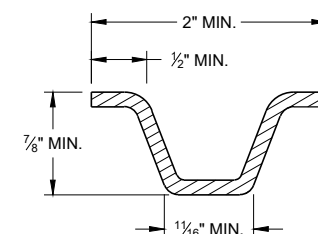
**FRONT VIEW
STEEL MARKER POST**



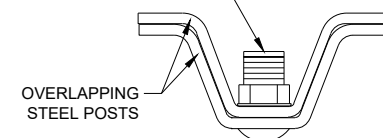
**FRONT VIEW
ROCK INSTALLATION**



**FRONT VIEW
SPLICE DETAIL**



MIN. WEIGHT 1.12 LB./FT.
SECTION A - A



SECTION B - B

MARKER POST FOR RIGHT - OF - WAY

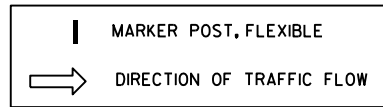
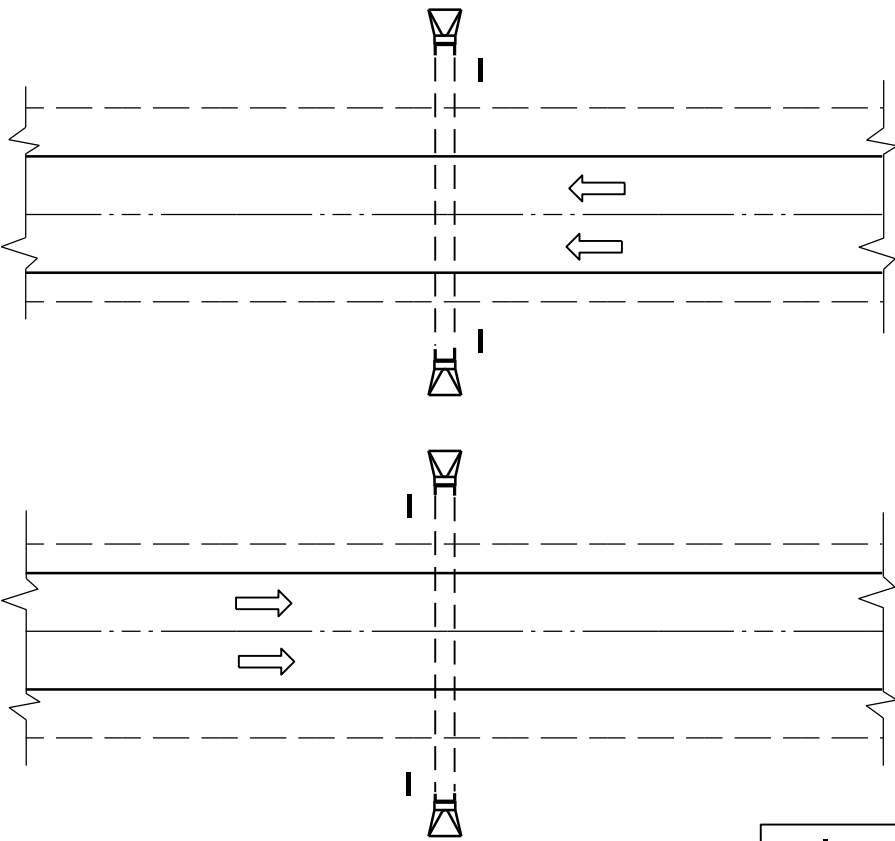
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/18/2016
DATE
/S/ Ray Kumapayi
CHIEF SURVEYING AND MAPPING ENGINEER

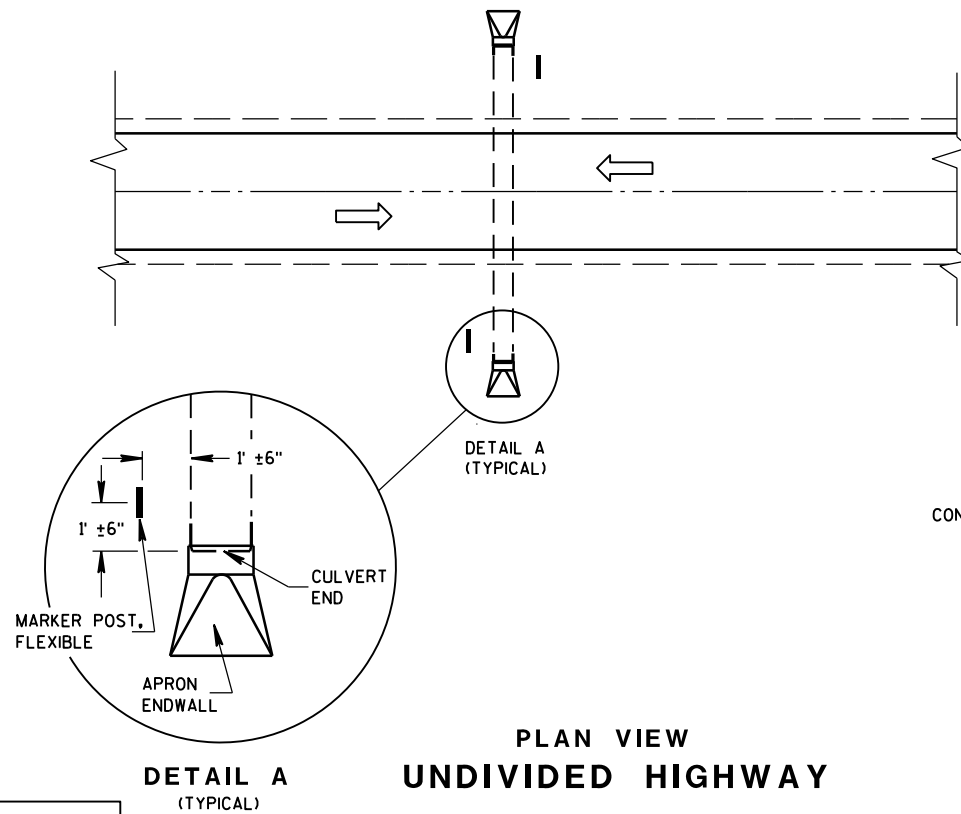
FHWA

81

PLAN VIEW
DIVIDED HIGHWAY

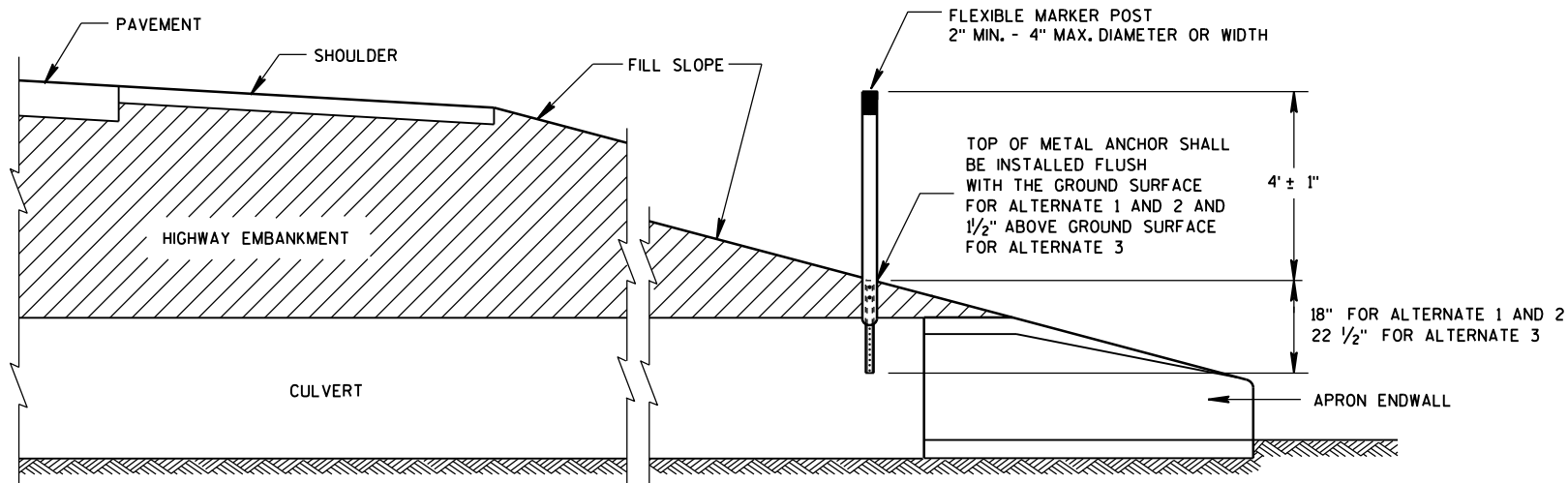


PLAN VIEW
UNDIVIDED HIGHWAY



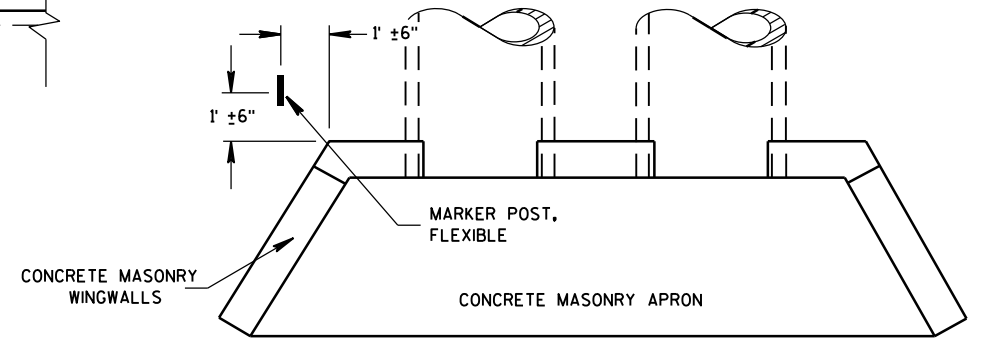
FLEXIBLE MARKER POST LOCATION

CROSS SECTION
FLEXIBLE MARKER POST



GENERAL NOTES

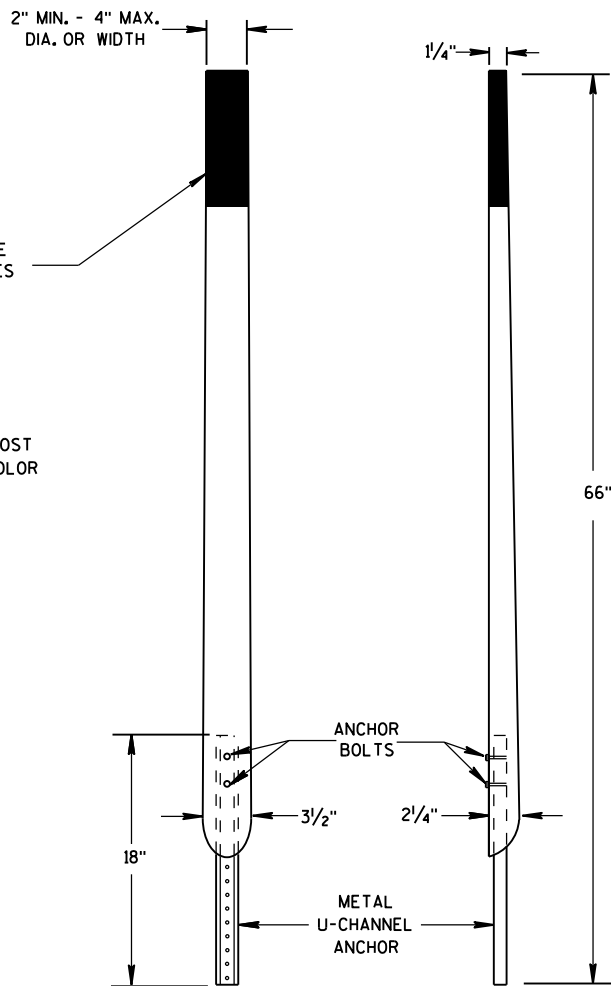
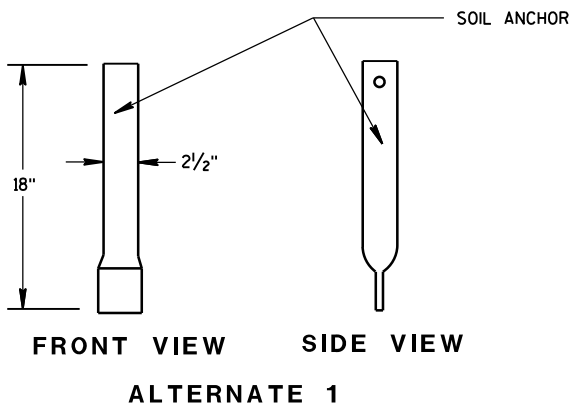
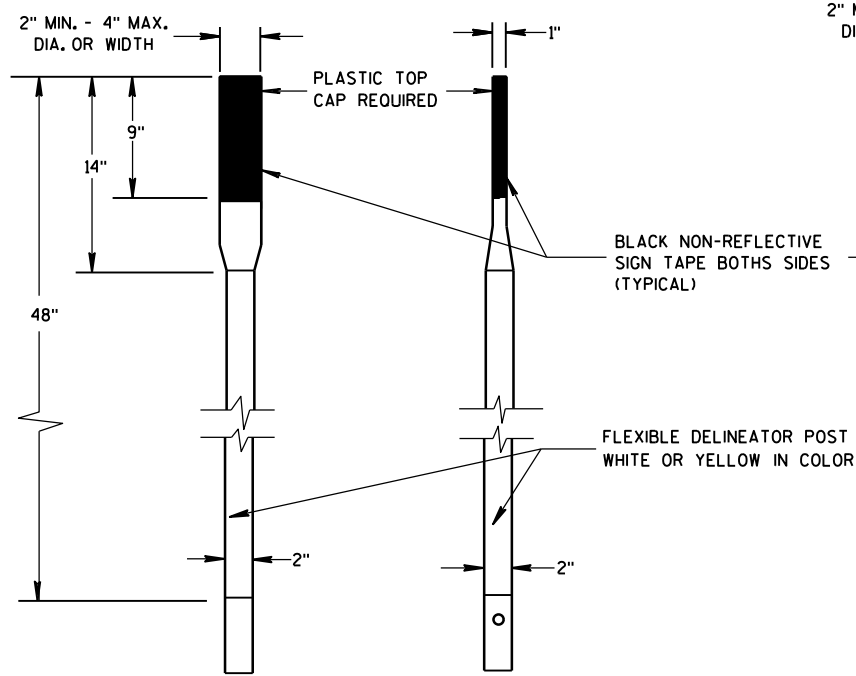
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

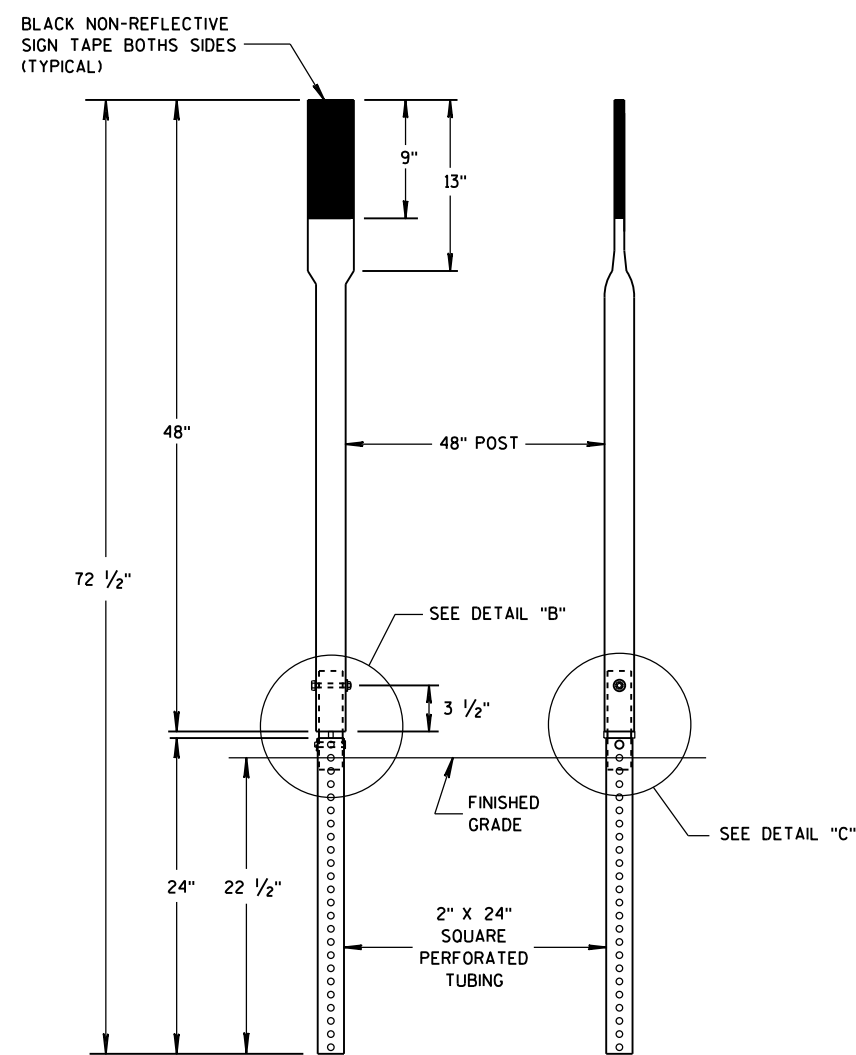
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

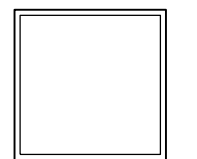


FRONT VIEW SIDE VIEW
ALTERNATE 2

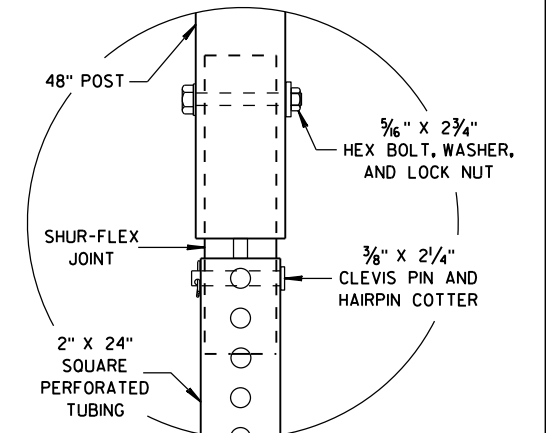
FLEXIBLE MARKER POSTS



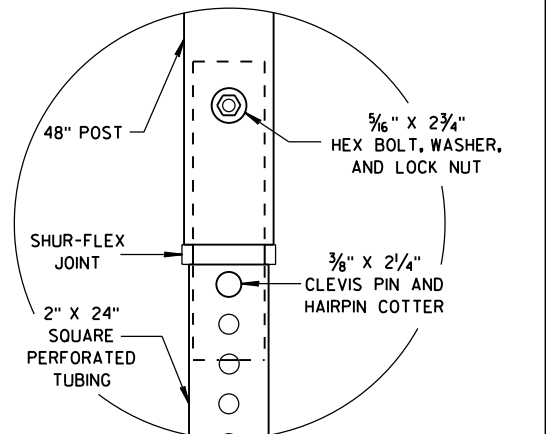
FRONT VIEW SIDE VIEW
ALTERNATE 3



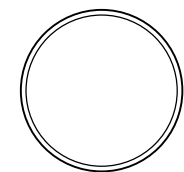
SECTION C-C



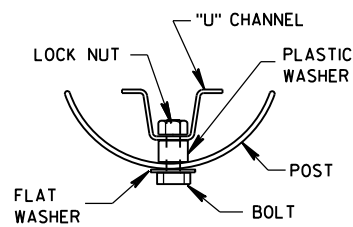
DETAIL B



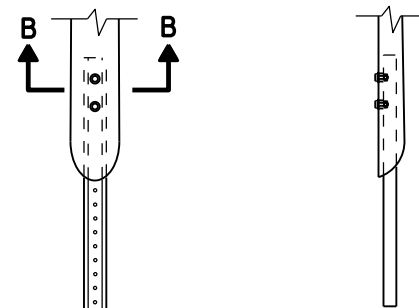
DETAIL C



SECTION A-A



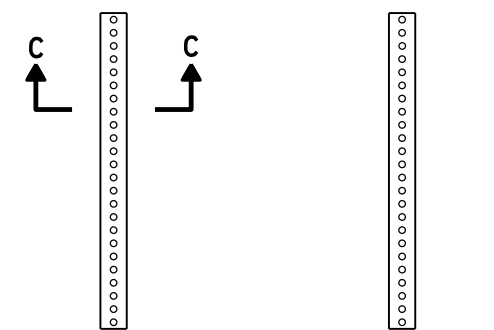
SECTION B-B



FRONT VIEW SIDE VIEW

ALTERNATE 2

FLEXIBLE MARKER POST ANCHORS



FRONT VIEW SIDE VIEW

ALTERNATE 3

FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

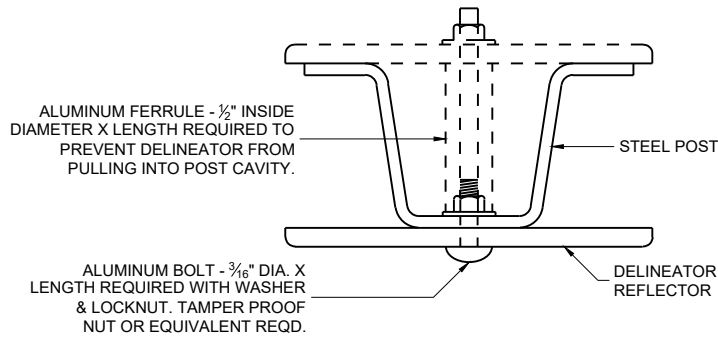
APPROVED

10/1/2012
DATE

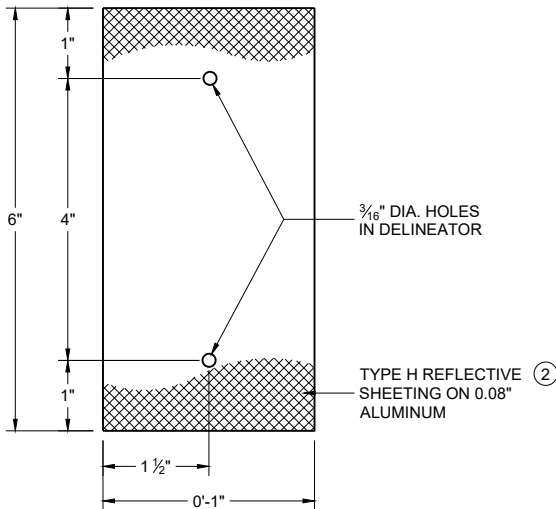
FHWA

/S/ Travis Feltes
STATE TRAFFIC ENGINEER 83

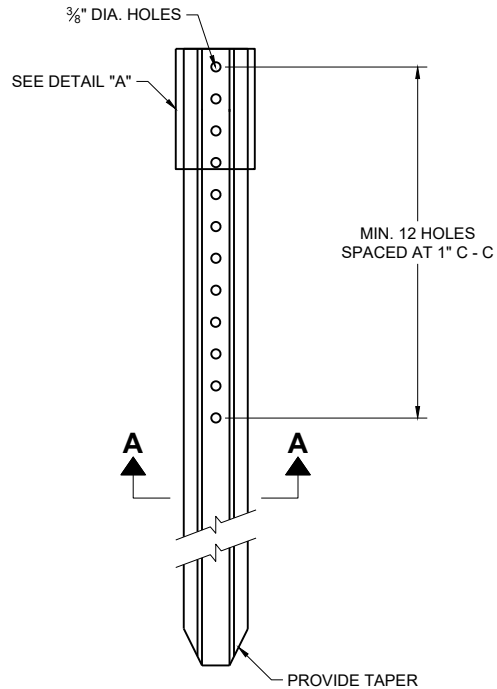
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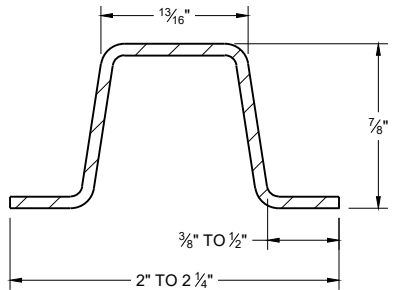
MOUNTING DETAIL FOR DELINEATOR REFLECTOR



DETAIL "A" 3" X 6" DELINEATOR REFLECTOR



DELINEATOR POST



SECTION A - A
WEIGHT 1.12 LBS PER FT. | 0.1 LB.

REFLECTOR SPACING TABLE

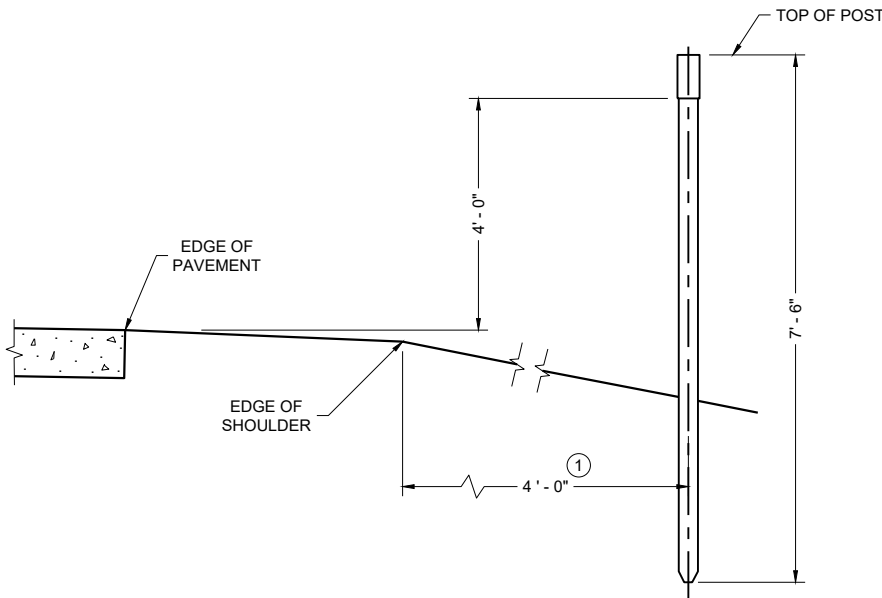
REFLECTOR SPACING	LOCATION
★ 100' C-C	RAMPS
400' C-C	MAINLINE

★ START AT BEGINNING OF RAMP TAPER AND END AT END OF RAMP TAPER

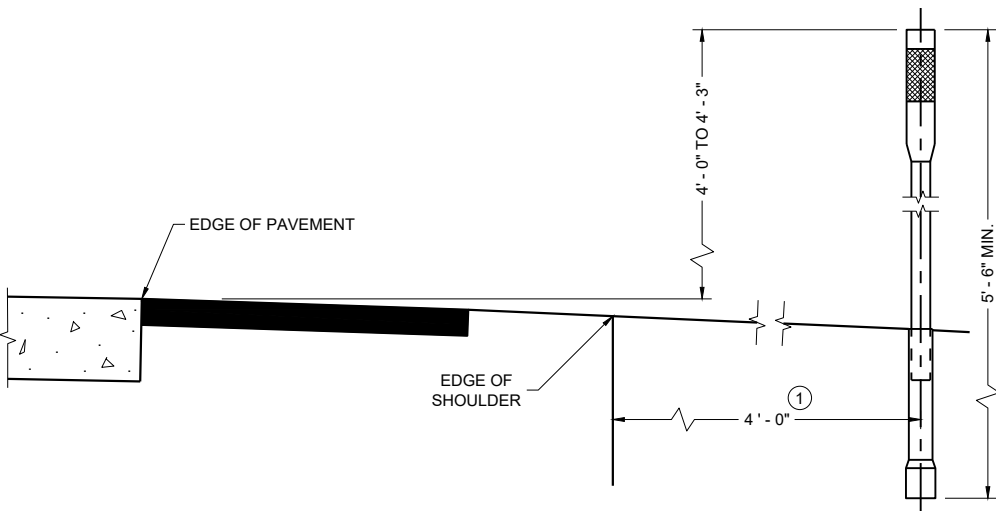
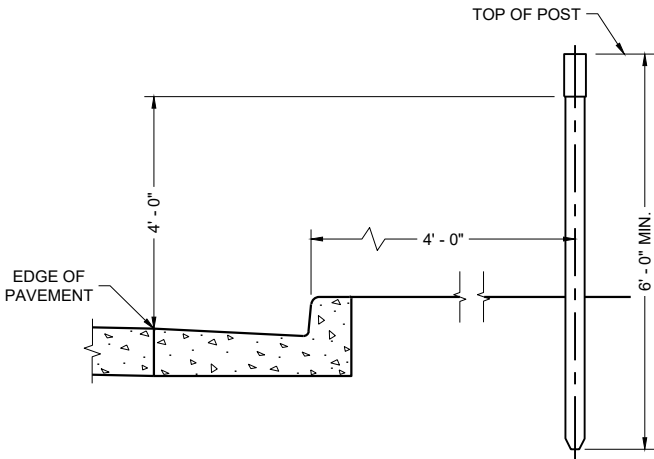
GENERAL NOTES

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

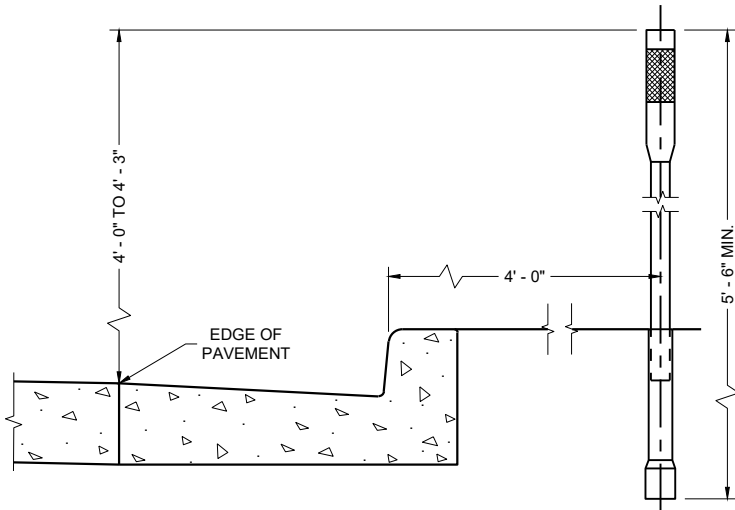
- ① DELINEATORS SHALL BE PLACED AT A CONSTANT DISTANCE FROM THE EDGE OF THE SHOULDER FOR THE LENGTH OF THE INSTALLATION.
- ② FURNISH TYPE H SHEETING FROM THE APPROVED PRODUCTS LIST.



TYPICAL INSTALLATIONS OF DELINEATOR POSTS



TYPICAL INSTALLATIONS OF FLEXIBLE DELINEATOR POSTS



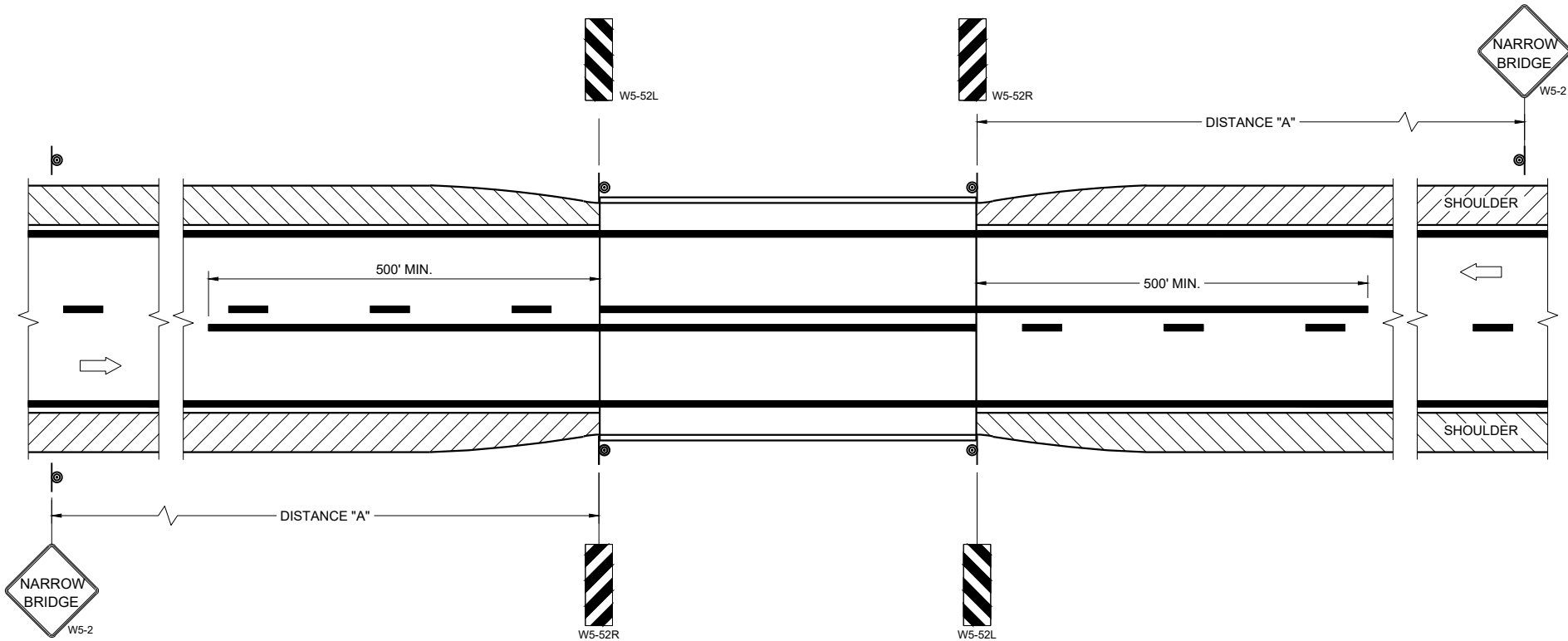
DELINEATOR POST
WITH REFLECTIVE SHEETING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

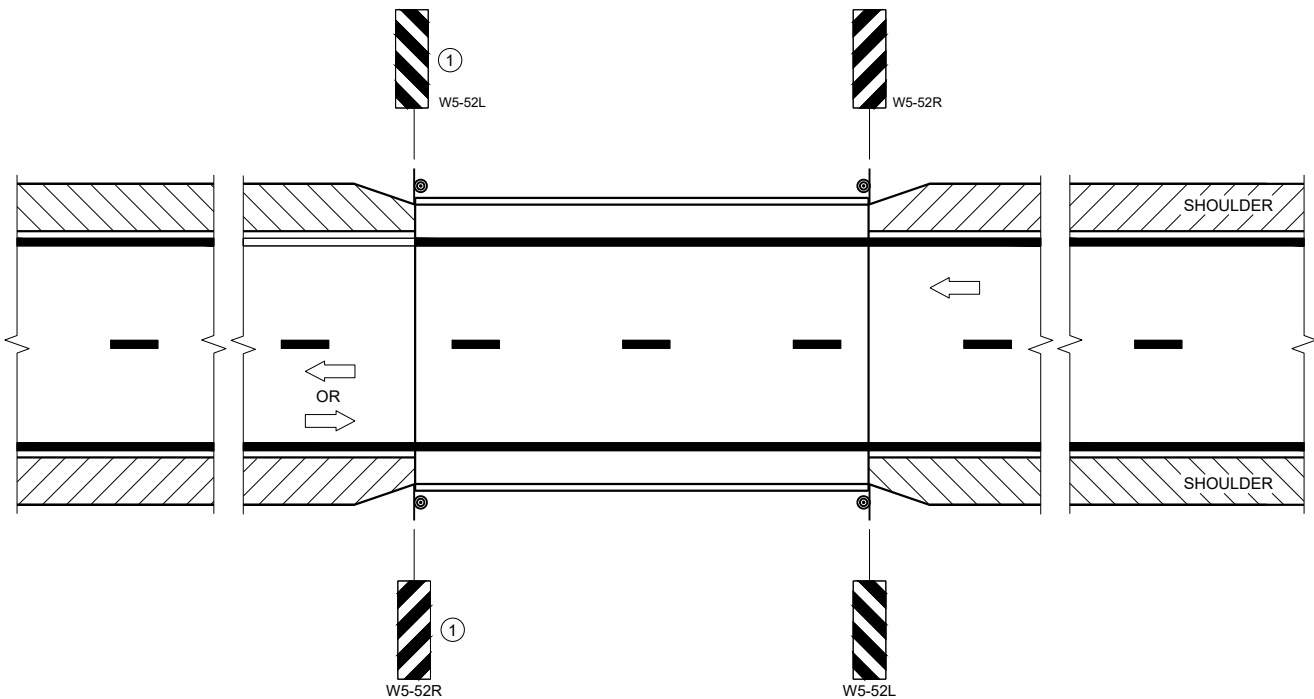
APPROVED
March 2024
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA



SITUATION 1
WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.



SITUATION 2
WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET

GENERAL NOTES

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

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

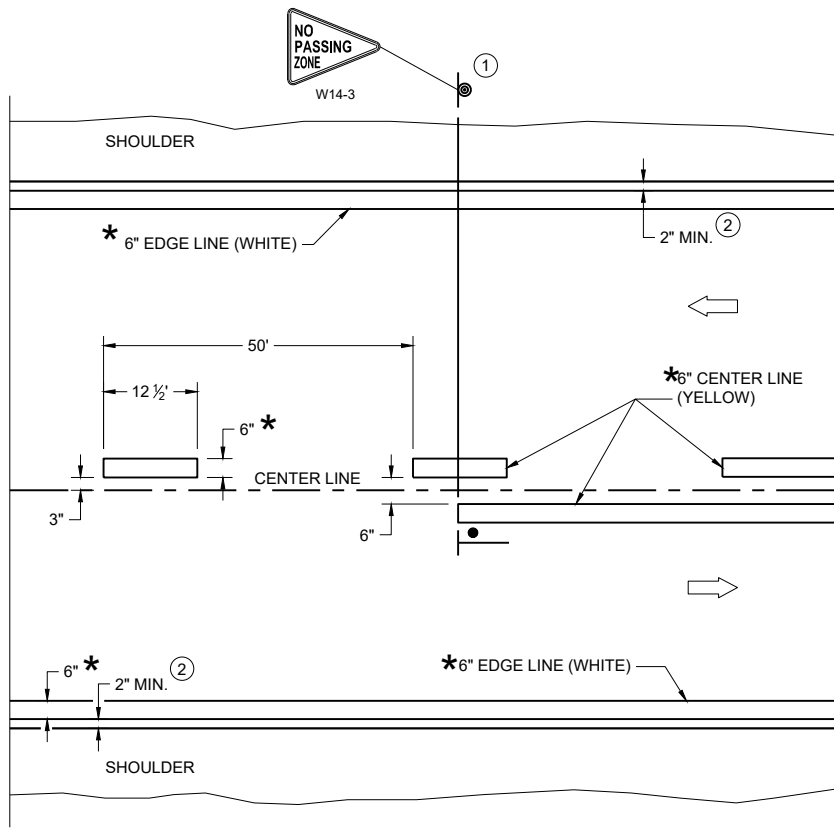
DISTANCE TABLE

POSTED OR 85TH PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	700'

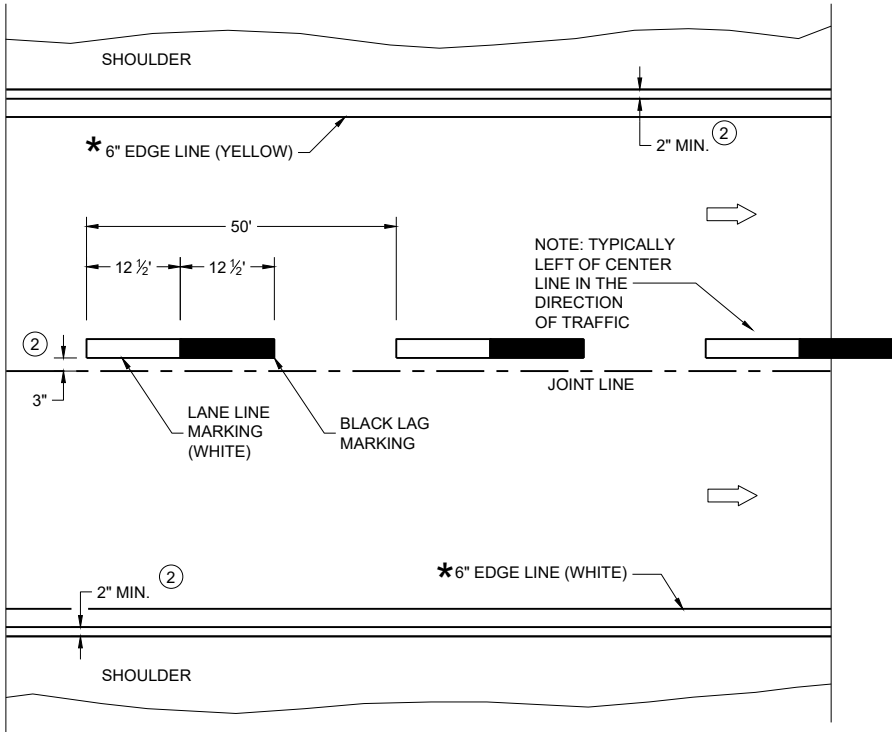
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

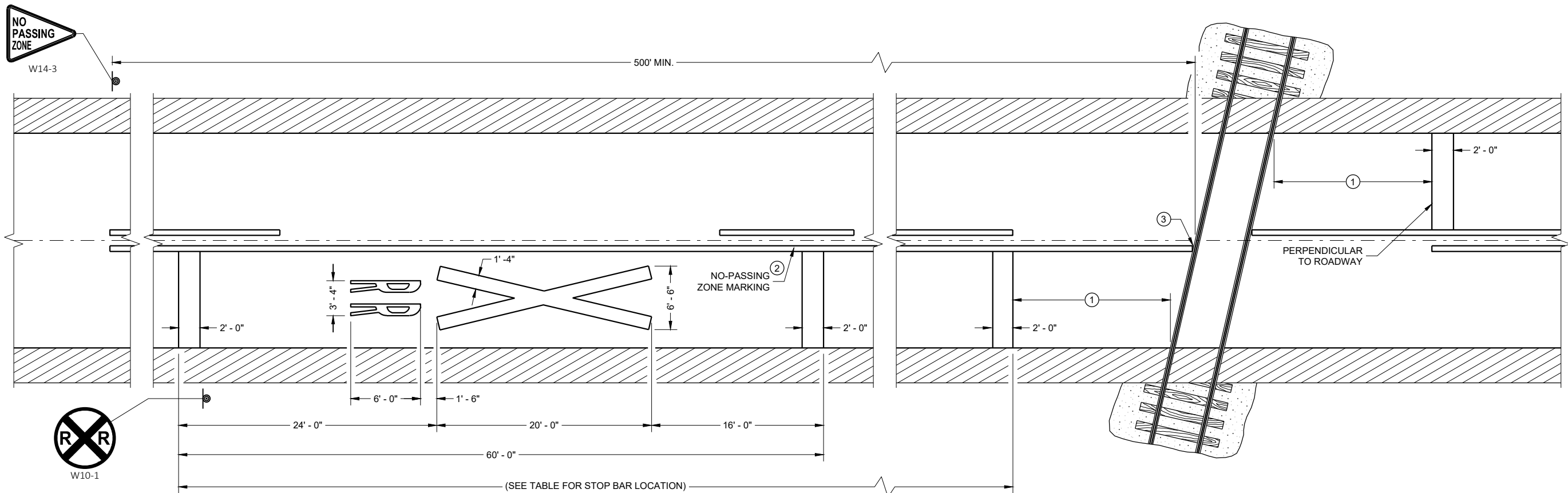
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED December 2024 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer
FHWA	86



PAVEMENT MARKING

LEGEND

SIGN ON PERMANENT SUPPORT

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.
- ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
- CENTER OR LANE LINES AND NO-PASSING ZONE MARKINGS SHOWN ON THIS DRAWING ARE REQUIRED AND PAID FOR UNDER OTHER ITEMS IN THE CONTRACT.
- TRACE EXISTING SYMBOL WHERE EXISTING SYMBOLS ARE PLACED.

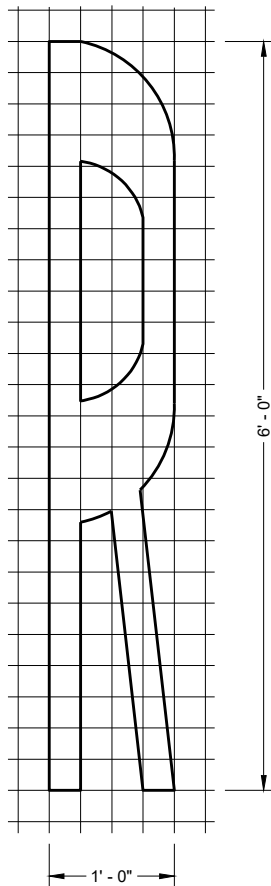
- ① PLACE STOP BAR APPROXIMATELY 8 FEET IN ADVANCE OF THE GATE (IF PRESENT), BUT NO CLOSER THAN 15 FEET IN ADVANCE OF THE NEAREST RAIL. FIELD-FIT STOP BAR TO MAXIMIZE VIEW OF APPROACHING TRAIN.
- ② 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE MARKINGS.
- ③ FOR MULTIPLE TRACK CROSSINGS, THE BARRIER LINE SHALL EXTEND TO THE NEAR RAIL OF THE FURTHEST TRACK IN THE DIRECTION OF HIGHWAY TRAVEL.

DISTANCE TABLE

TABLE BASED UPON 2C-4 WISCONSIN SUPPLEMENT OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

POSTED SPEED (M.P.H.)	DIMENSION RANGE (FEET)
25	150* - 250'
30	200* - 300'
35	250* - 450'
40	300* - 500'
45	400* - 650'
50	550* - 800'
55	750* - 1000'
60	1000* - 1250'
65	1000* - 1250'

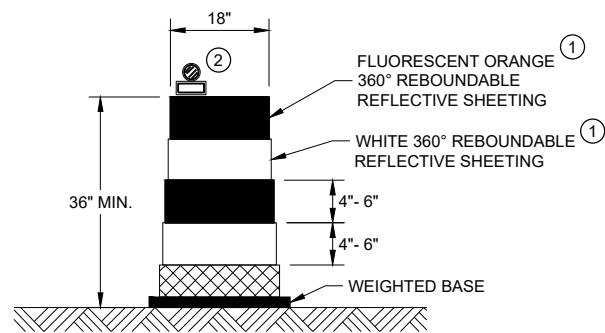
* THE MINIMUM DISTANCES IN THE TABLE ARE DESIRABLE AND SHOULD BE USED. THE DISTANCES MAY BE INCREASED UP TO THE MAXIMUM TO ALLOW FOR FIELD CONDITIONS SUCH AS THE CLOSED PROXIMITY OF DRIVEWAYS, BRIDGES, SIDE ROADS OR OTHER FEATURES THAT WOULD PROHIBIT THE MINIMUM DISTANCES FROM BEING USED.



SIGNING AND PAVEMENT MARKING DETAILS FOR RAILROAD - HIGHWAY GRADE CROSSINGS

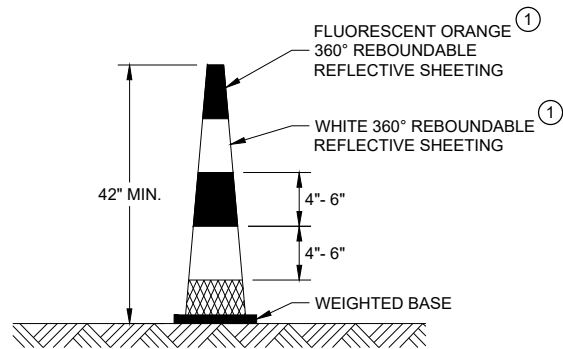
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Matthew R. Rauch
STATE SIGNING AND MAP ENGINEER
87
FHWA



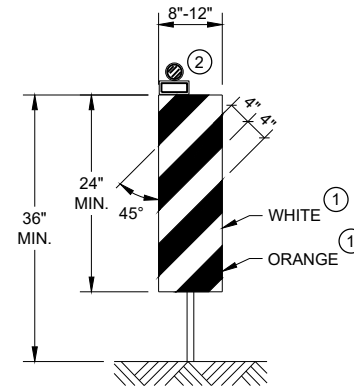
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



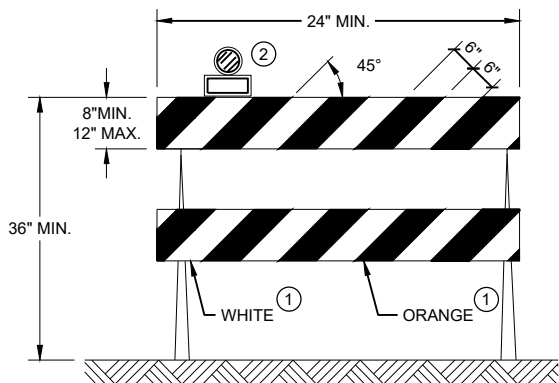
42" CONE

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



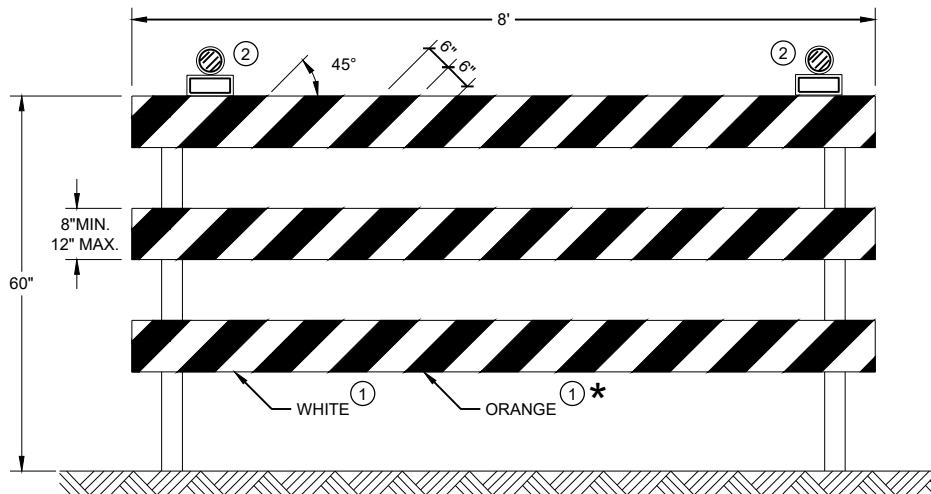
VERTICAL PANEL

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

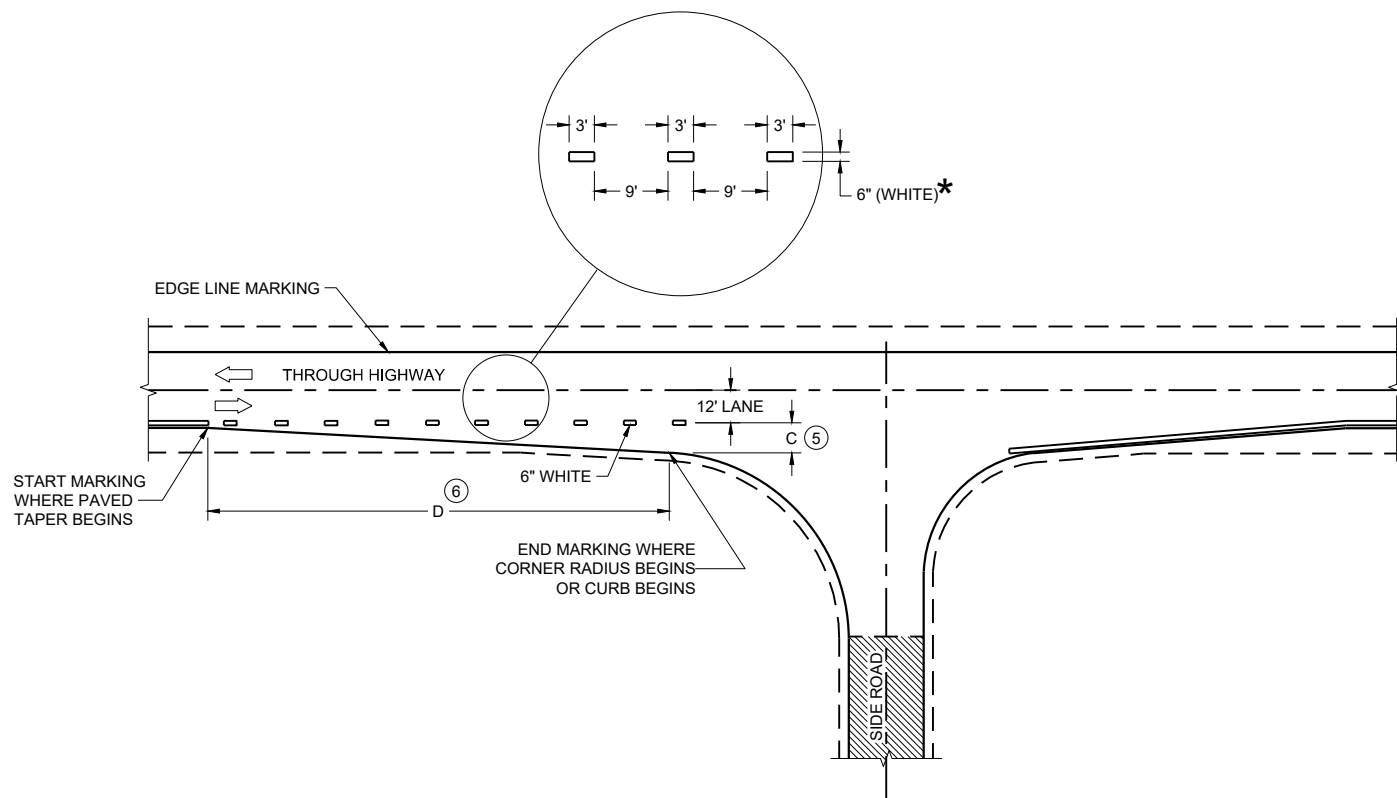
- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

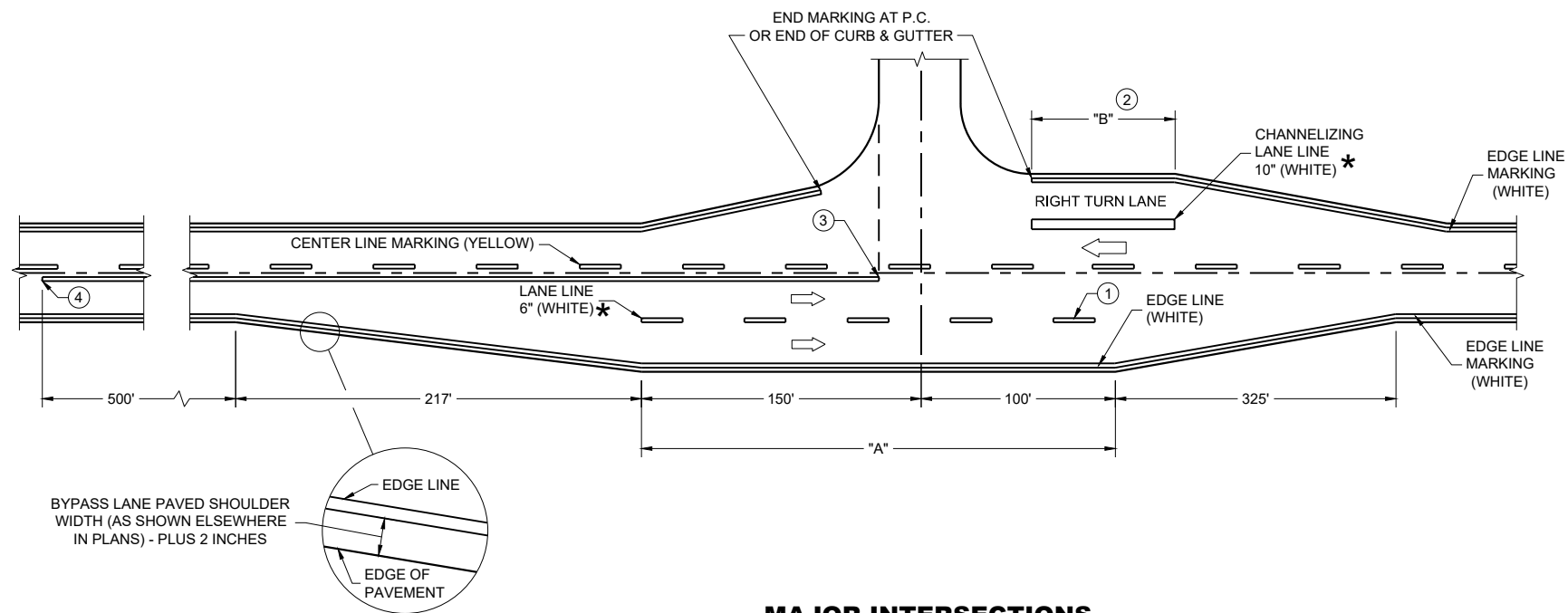
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 88

FHWA



MINOR INTERSECTION



MAJOR INTERSECTIONS
(INTERSECTION WITH FULL RIGHT TURN LANE OR BYPASS LANE)

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

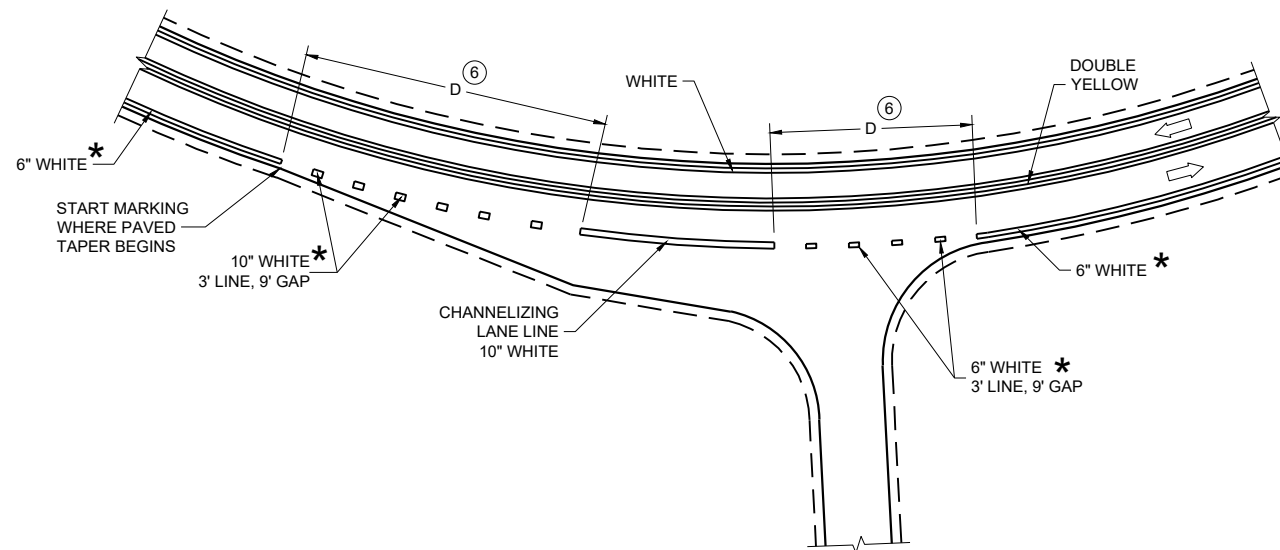
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES 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.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4 FEET, OMIT DOTTED EXTENSION.
- ⑥ WHEN DISTANCE "D" IS LESS THAN 50 FEET, OMIT DOTTED EXTENSION.

LEGEND

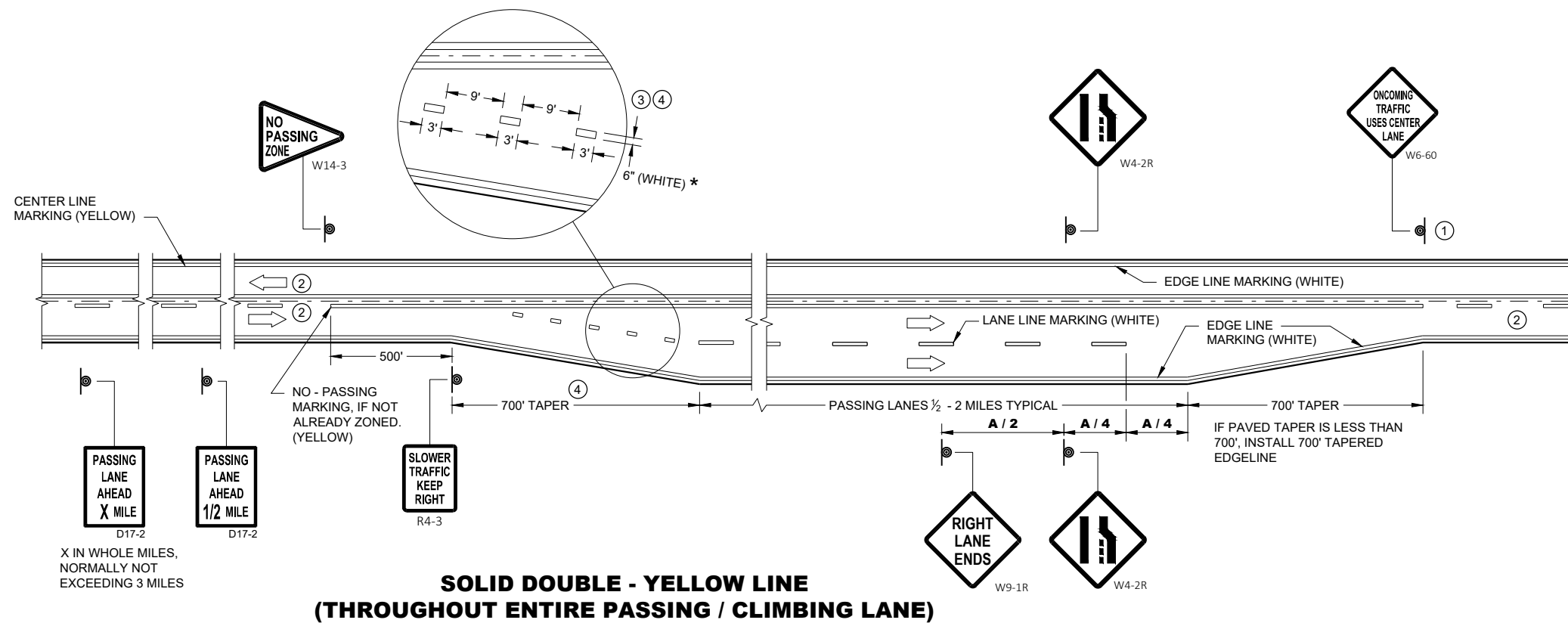
➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

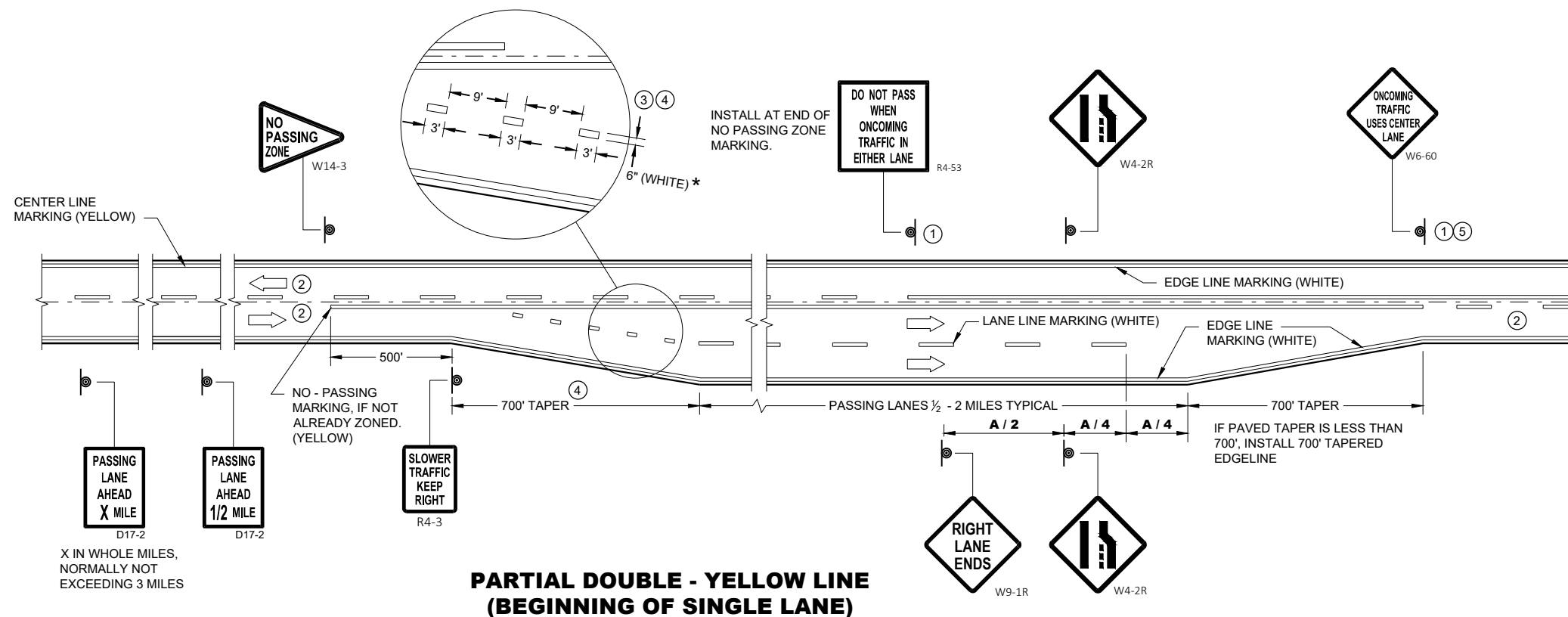


GENERAL NOTES

- 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.
- ⑤ REPEAT EVERY 1 MILE UP UNTIL R4-53.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

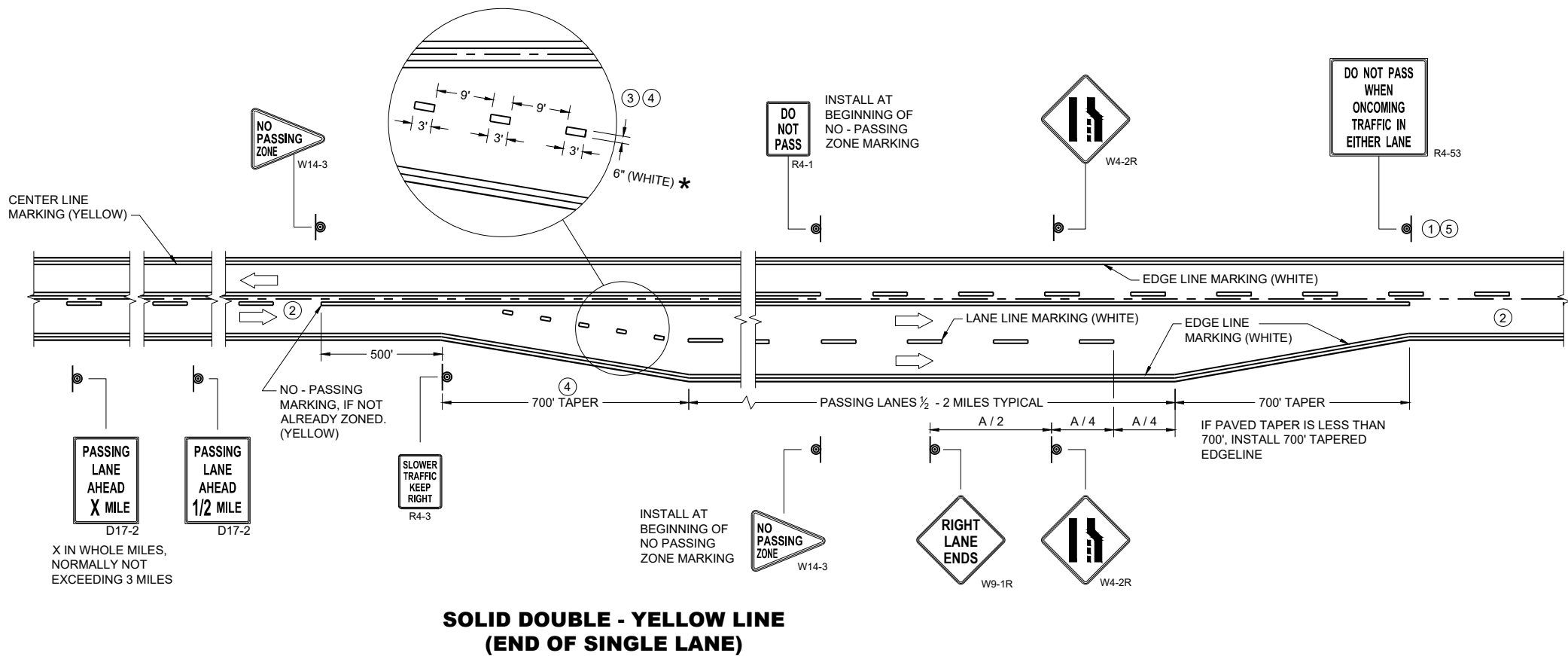
POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	775
50	885
55	990



* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

PAVEMENT MARKING & SIGNING (CLIMBING LANE & PASSING LANE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 90



GENERAL NOTES

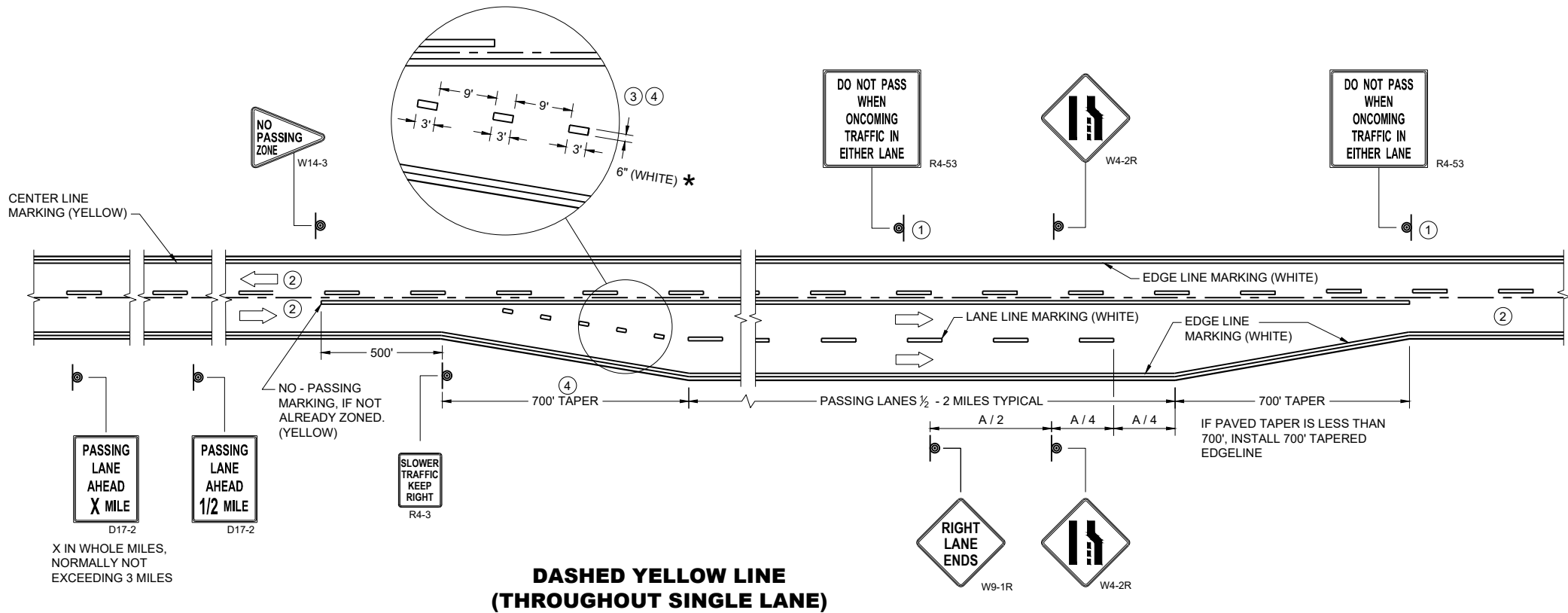
- 1 SIGN SHALL BE REPEATED AT 1 MILE INCREMENTS OR AT THE DISCRETION OF THE REGIONAL TRAFFIC ENGINEER.
- 2 THERE MAY BE SOLID YELLOW ON THE CENTERLINE DUE TO SIGHT CONDITIONS.
- 3 THE TAPER LENGTH OF THE DOTTED LINE PAVEMENT MARKING SHALL BE 700 FEET, 3' LINE, 9' GAP, EXCEPT RETRACE THE EXISTING LINE - 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.
- 5 REPEAT EVERY ONE MILE UP UNTIL NO PASSING ZONE.

ARROW SYMBOL () SHOWS DIRECTION OF TRAVEL

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
45	775
50	885
55	990

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



**PAVEMENT MARKING & SIGNING
(CLIMBING LANE & PASSING LANE)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Jeannie Silver
DATE Statewide Pavement Marking Engineer
FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- DIRECTION OF TRAFFIC
- CONNECTED ARROW BOARD
- WORK AREA
- WZ START LOCATION MARKER
- WZ END LOCATION MARKER

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

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

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

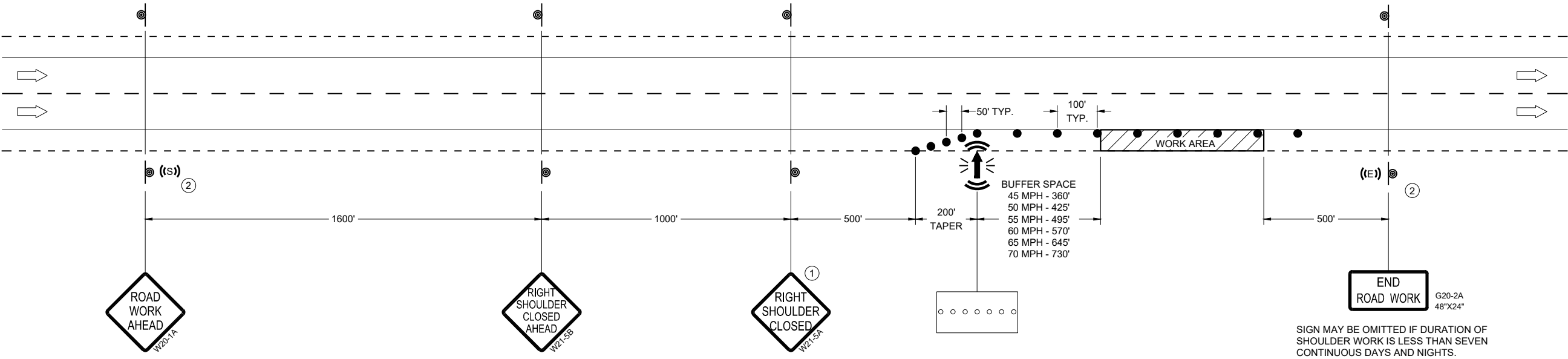
WHEN A RAMP OR SIDE ROAD INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

- 1 FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR THE W21-5A SIGN MAY BE OMITTED.
- 2 IF ALREADY PRESENT WITHIN PROJECT , DO NOT INCLUDE ADDITIONAL DEVICE.



**TRAFFIC CONTROL,
SHOULDER CLOSURE ON
DIVIDED ROADWAY, SPEEDS
GREATER THAN 40 MPH**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Noveber 2025 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER

FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY THE REGIONAL TRAFFIC UNIT.

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

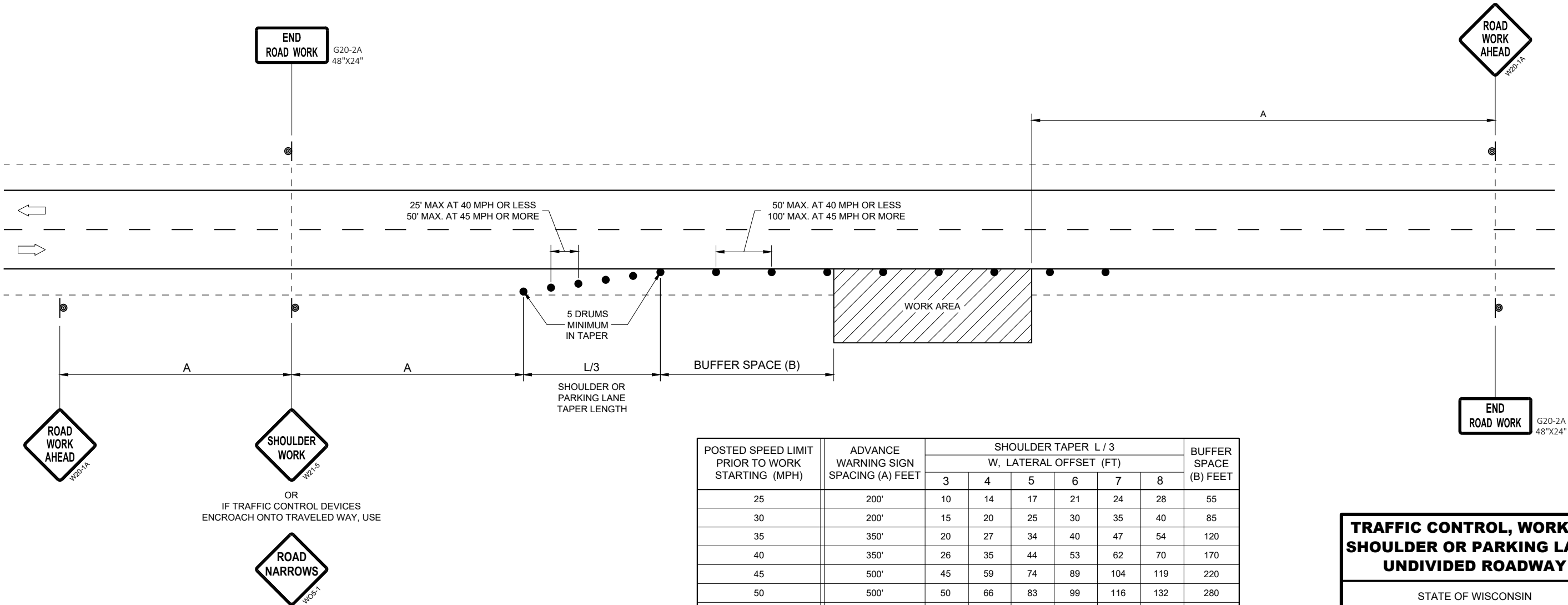
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

W20-1A AND G20-2A SIGNS ARE NOT REQUIRED IF THE WORK AREA IS WITHIN A LARGER WORK ZONE WHERE THESE SIGNS ARE ALREADY PRESENT. G20-2A SIGNS MAY ALSO BE OMITTED IF DURATION OF WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS.



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3						BUFFER SPACE (B) FEET
		W, LATERAL OFFSET (FT)						
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

TRAFFIC CONTROL, WORK ON
SHOULDER OR PARKING LANE,
UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE T SAFETY ENGINEER 93
FHWA

LEGEND

- SIGN ON TEMPORARY SUPPORT
- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET
0-30	200'
35-40	350'
45-55	500'

GENERAL NOTES

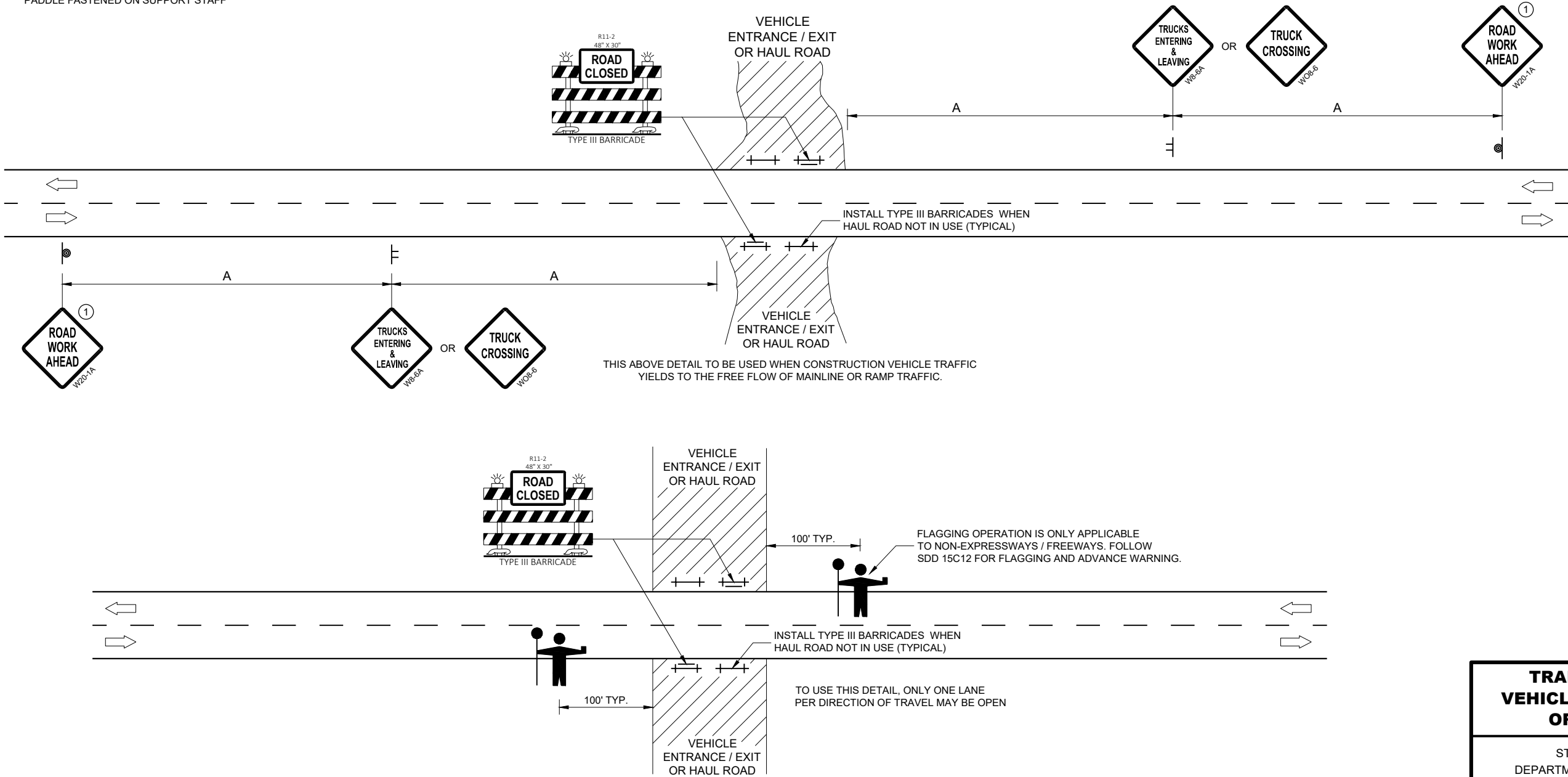
- ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- WARNING SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.
- WHEN ACTIVITY REFLECTED BY THE SIGN IS NOT CURRENTLY TAKING PLACE, THE HIGHWAY SHALL BE RESTORED TO NORMAL CONDITION AND THE SIGNS SHALL BE REMOVED, COVERED OR TURNED AWAY FROM TRAFFIC.
- WHEN A SIDE ROAD OR RAMP INTERSECTS WITHIN THE ADVANCE SIGNING AREA, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND / OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.
- PLACE SIGNS ON BOTH SIDES IF USED ON DIVIDED HIGHWAY.
- ① THESE SIGNS ARE TO BE USED ONLY WHEN VEHICLE ENTRANCE / EXIT CONDITIONS ARE SEPARATED BY MORE THAN TWO MILES FROM PREVIOUS WORK AREA OR SIGNING OR AS DIRECTED BY THE ENGINEER.

6

6

SDD 15D29 - 06

SDD 15D29 - 06



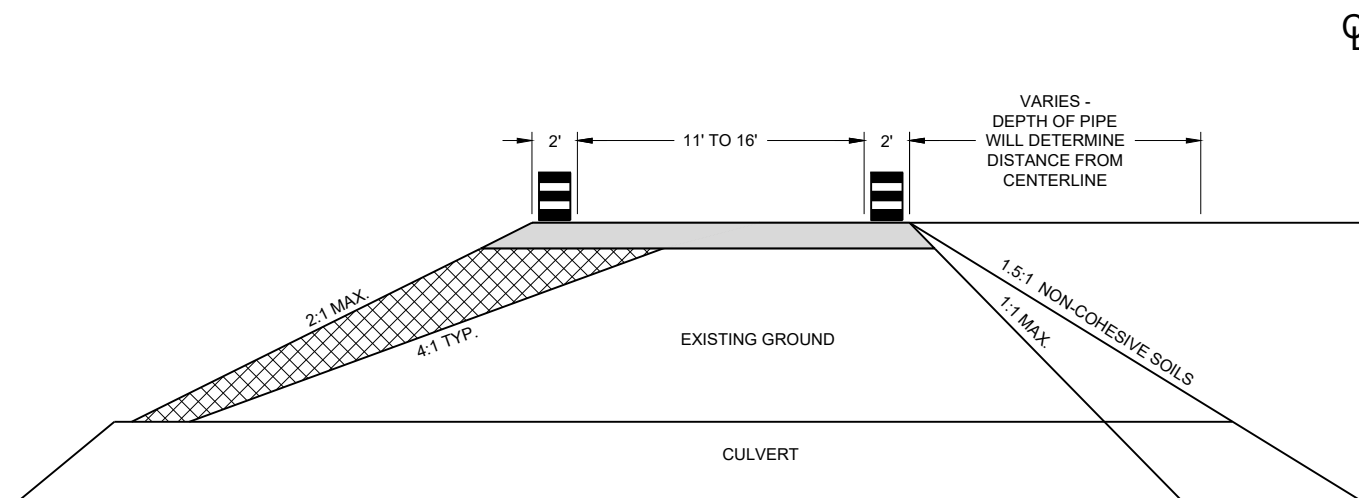
THIS DETAIL TO BE USED WHEN CONSTRUCTION WORK INCLUDING TRUCKING ACTIVITY REQUIRES MAINLINE TRAFFIC TO BE TEMPORARILY STOPPED IN ONE OR BOTH DIRECTIONS. DELAY TO HIGHWAY TRAFFIC SHALL BE MINIMIZED.

**TRAFFIC CONTROL,
VEHICLE ENTRANCE/EXIT
OR HAUL ROAD**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 94

FHWA



CROSS SECTION

GENERAL NOTES

USE 1:1 FOR COHESIVE CLAYS AND SILTS, LOAMS, SANDY CLAYS AND ANGULAR GRAVEL SOILS.
USE 1.5:1 FOR NON-COHESIVE SOILS.

THE TAPER SHOULD EXTEND ACROSS THE SHOULDER UNLESS DOING SO WOULD GREATLY CONFLICT WITH THE WORK OPERATION.

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 A SAFE OPERATING CONDITION.

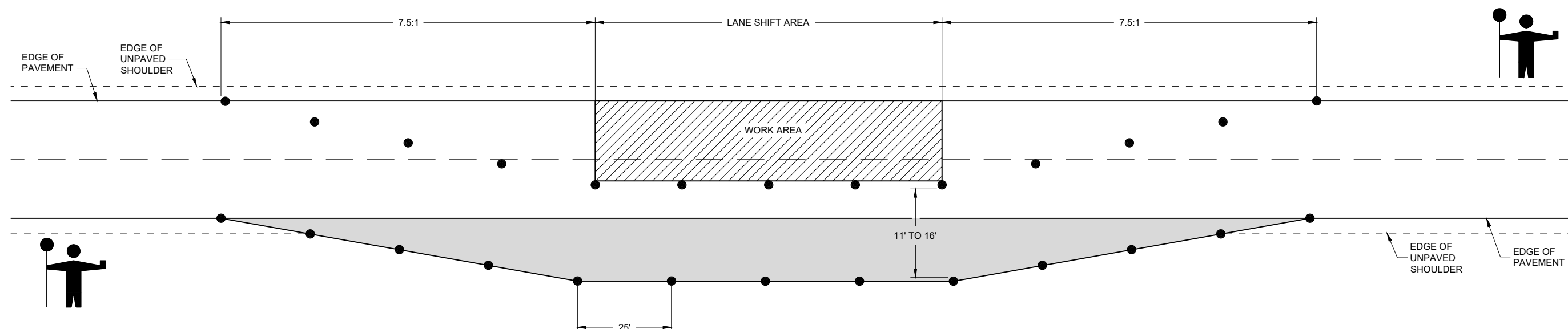
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

USE WITH SDD 15C12 "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATIONS"

USE WITH SDD 15D45 "SIGNING ON ROADWAYS WITH LOOSE GRAVEL"

LEGEND

- | | |
|---|--|
|  | DRUM WITHOUT WARNING LIGHT |
|  | 6" BASE AGGREGATE DENSE 1 1/4" -INCIDENTAL TO LANE SHIFT ITEM |
|  | FILL - INCIDENTAL TO LANE SHIFT ITEM |
|  | WORK AREA |
|  | FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE
FASTENED ON SUPPORT STAFF |



LANE SHIFT IN FLAGGING OPERATION

TRAFFIC CONTROL, TEMPORARY LANE SHIFT DURING CULVERT WORK

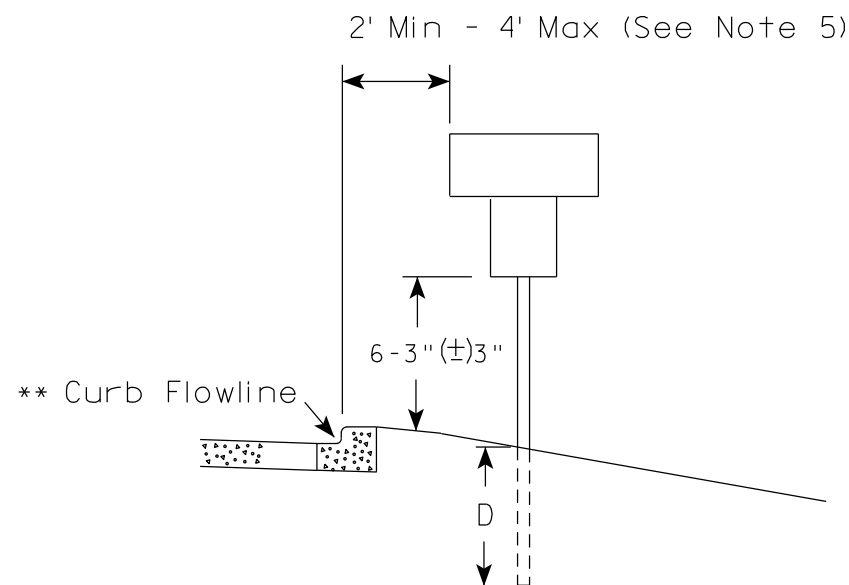
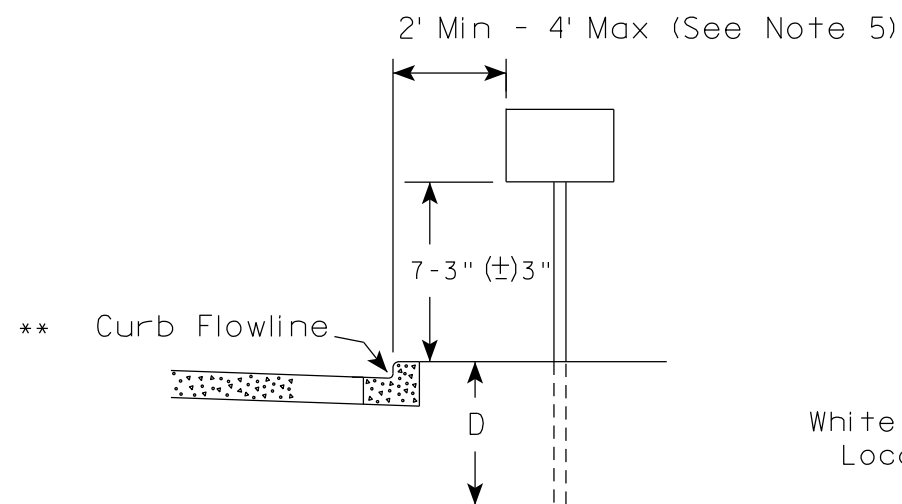
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 95

FHWA

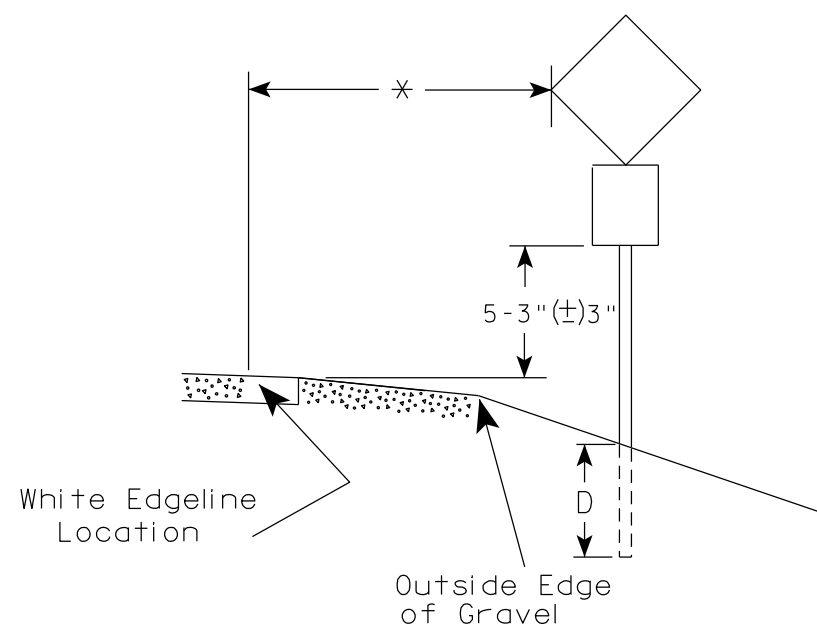
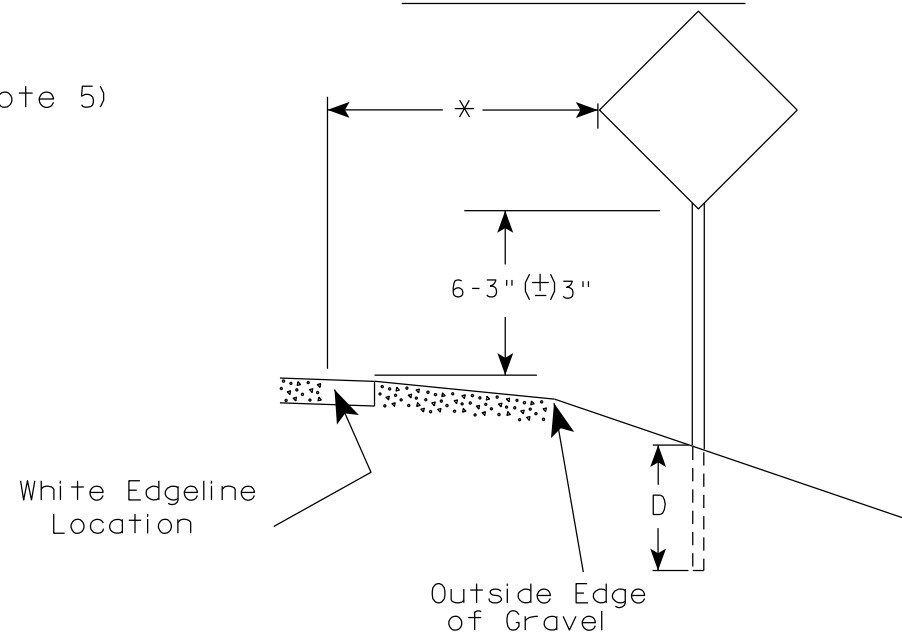
WORK ZONE ENGINEER 95

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

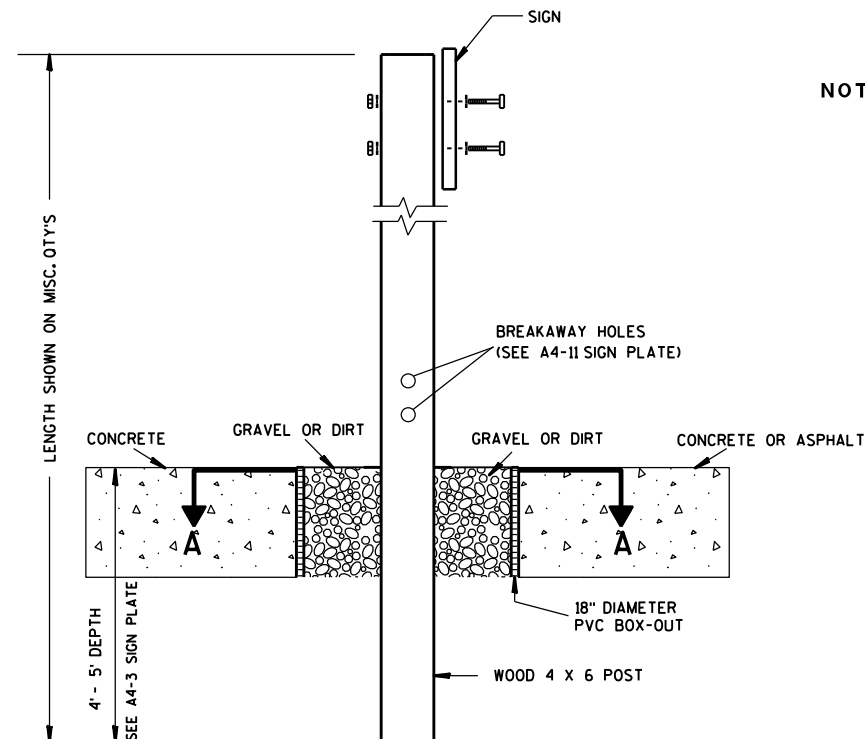
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

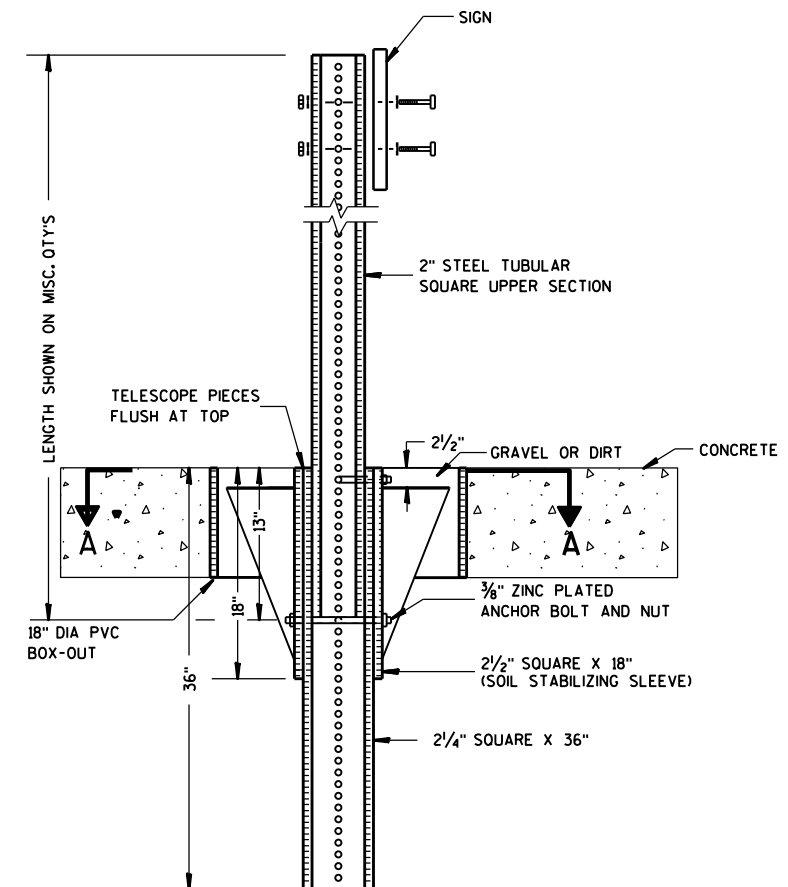
DATE 12/6/23 PLATE NO. A4-3.23



ELEVATION VIEW

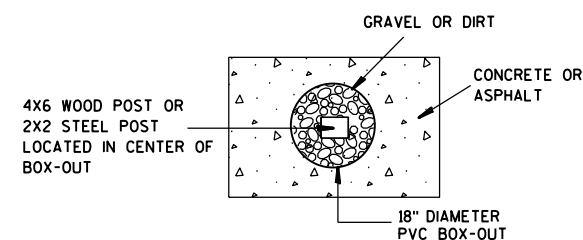
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

**SIGN POST
BOX-OUTS
A4-3B**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 97 A4-3B.1

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

GENERAL NOTES

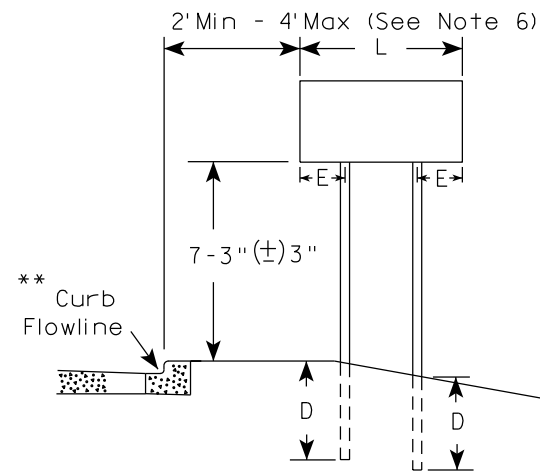
- For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.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

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

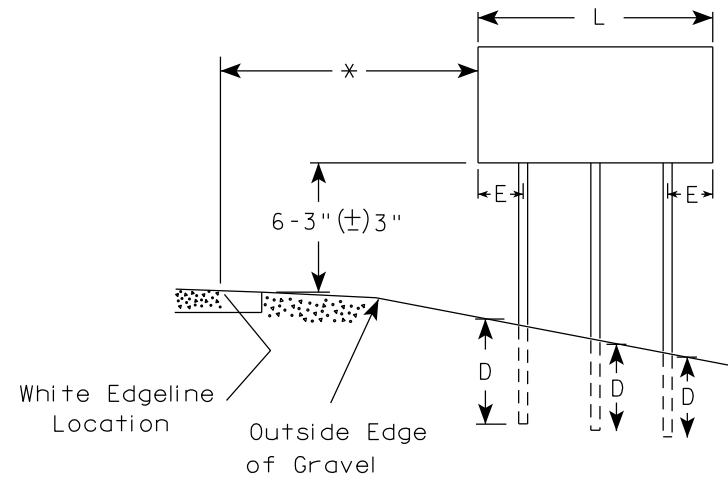
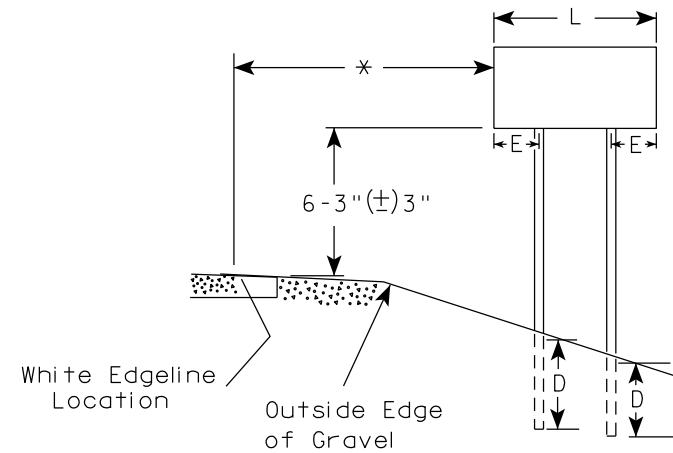
** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs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

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

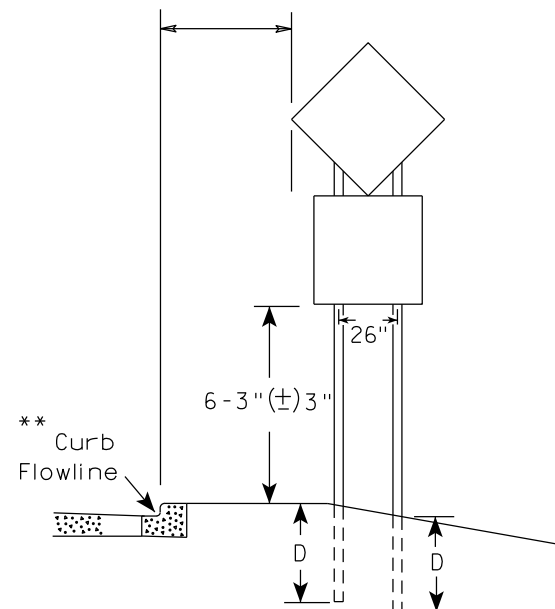
URBAN AREA



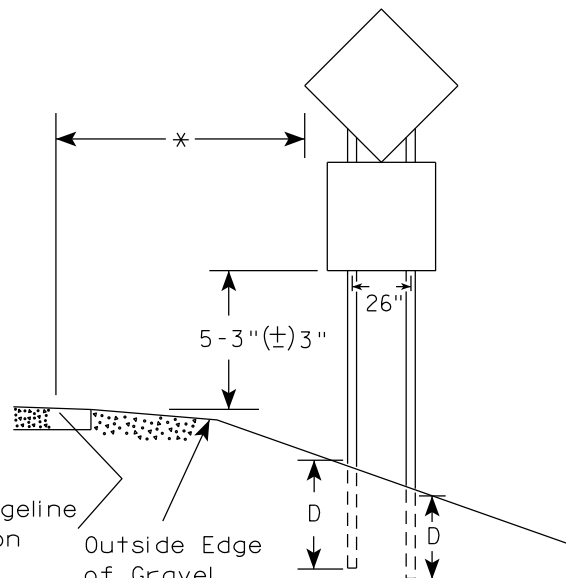
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

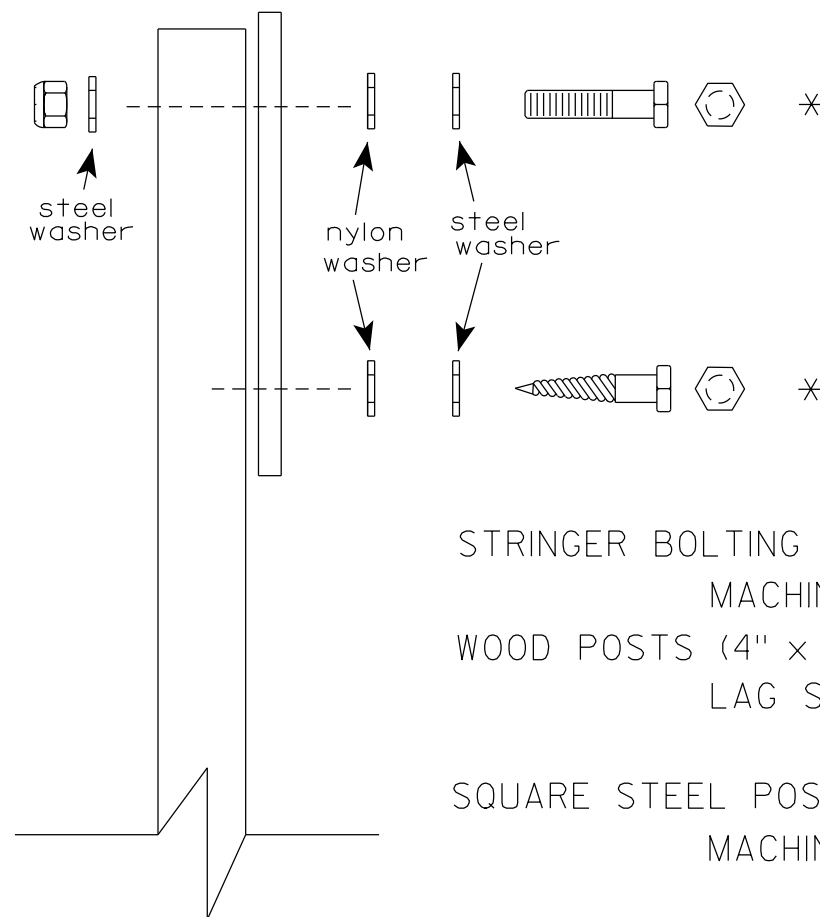
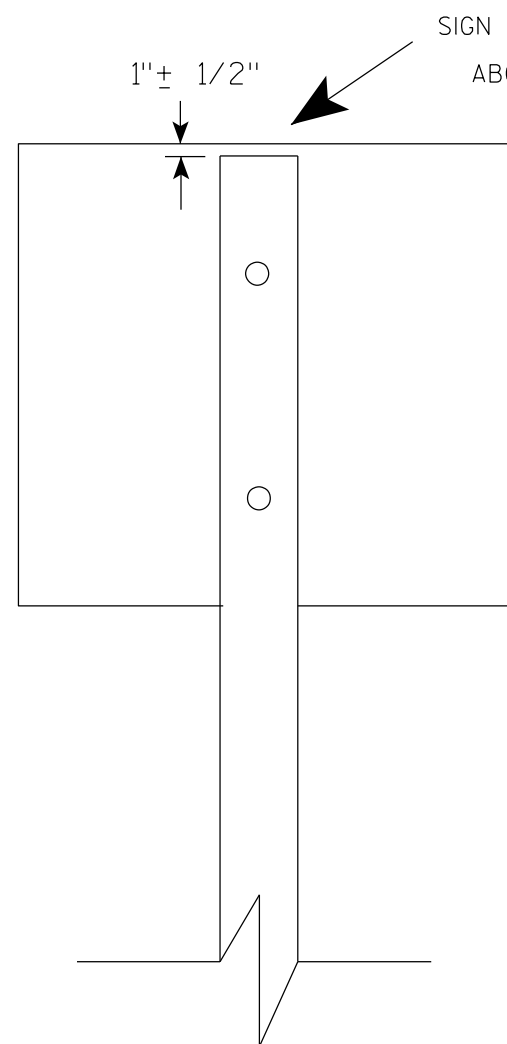
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 98

E



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

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

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

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

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

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

**2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**

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

2 1/2" TELES PAR TUBE

4"

2 1/2"

10"

1/2"

19"

6" C DES

4" x 10" x 10 GA. STEEL PLATE (CUT AS SHOWN) WELDED TO ALL FOUR CORNERS OF TELES PAR TUBE

LENGTH SHOWN ON MISC. QTY'S

TELESCOPE PIECES FLUSH AT TOP

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

2 1/2"

2 1/4" SQUARE X 36"

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

3/8" ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" GRAVEL OR DIRT

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES

3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT

SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Dimensions:**
 - Overall height: LENGTH SHOWN ON MISC. QTY'S
 - Section A-A: 36" (total), 18" (upper), 12" (lower)
 - Section B-B: 1"
- Components and Materials:**
 - SIGN
 - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 - 2" STEEL TUBULAR SQUARE UPPER SECTION
 - ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES
 - $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
 - $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
 - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 - 2 1/4" SQUARE X 36"
 - TELESCOPE PIECES FLUSH AT TOP

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT

DIRECTION
OF TRAFFIC

SECTION A-A

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

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 100 14-9.9

PROJECT NO:

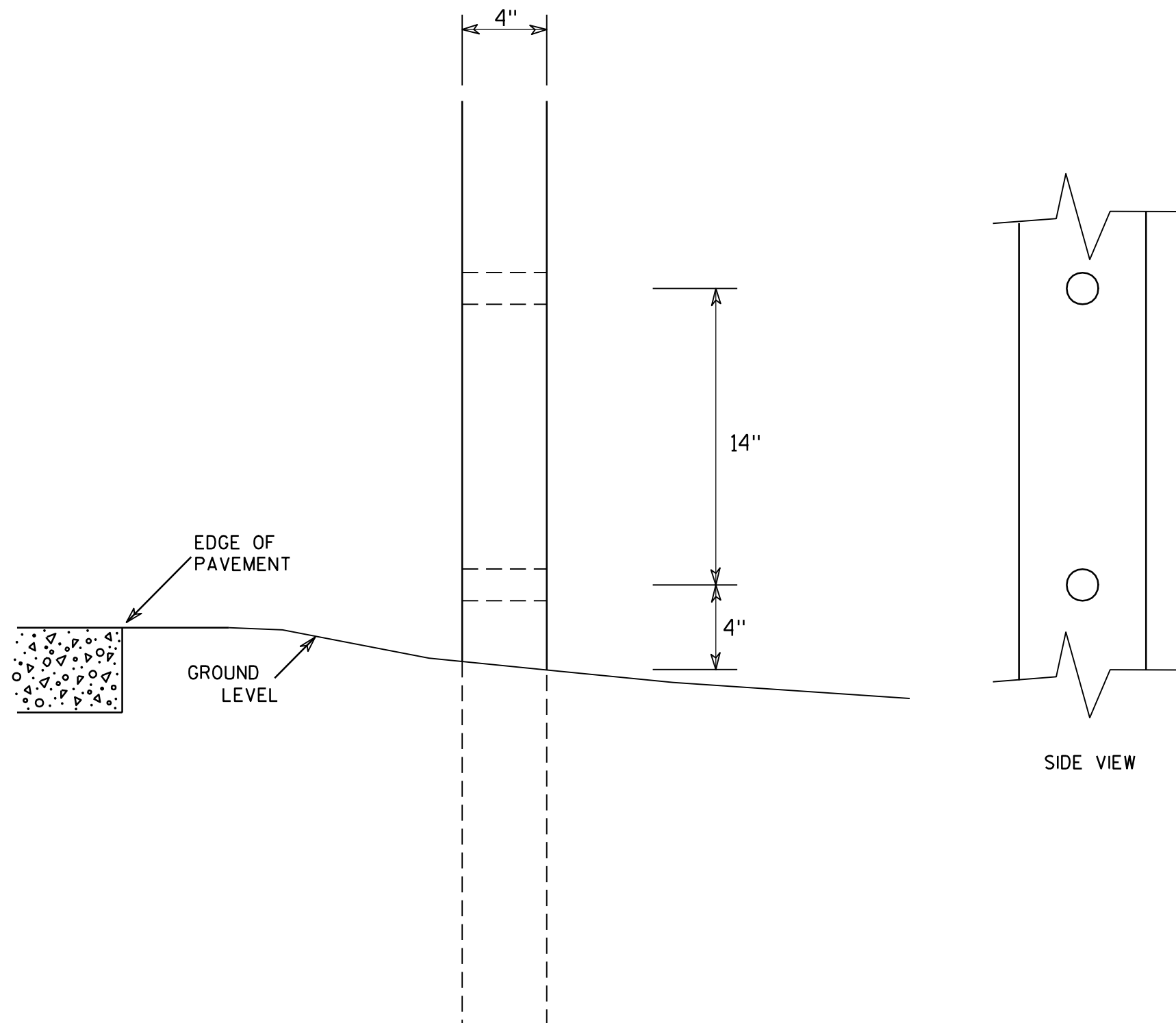
HWY:

COUNTY:

SHEET NO:

T

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

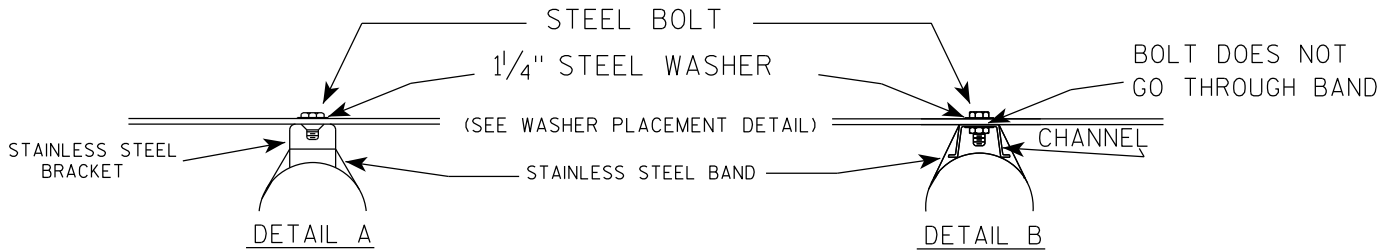
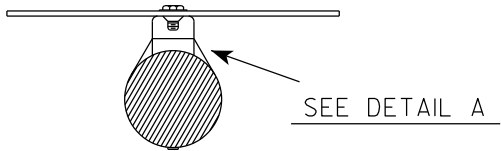
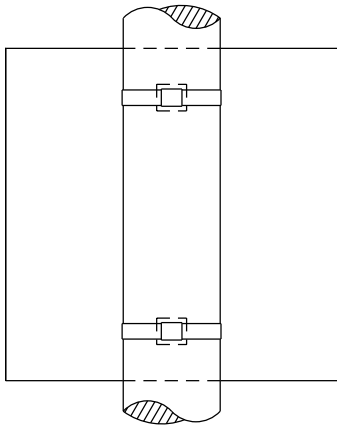
COUNTY:

SHEET NO: 101

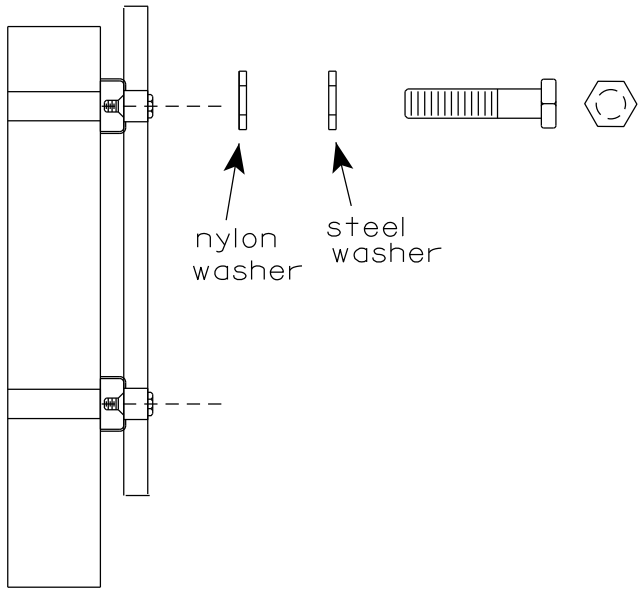
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

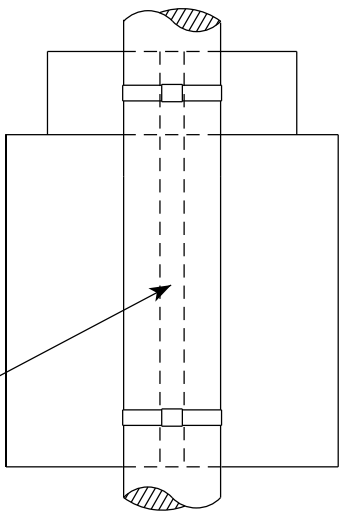


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

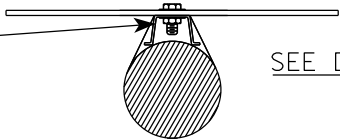
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



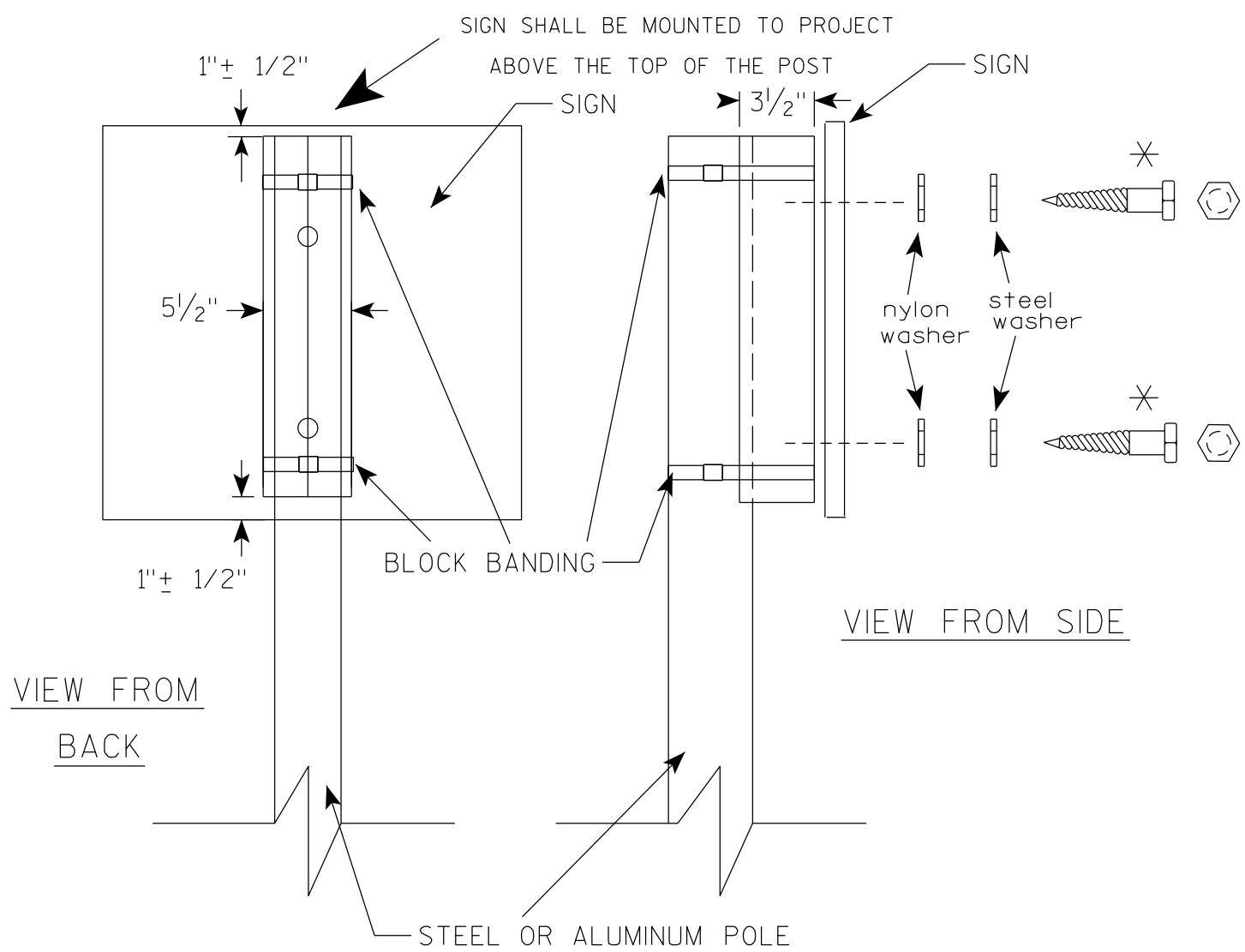
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

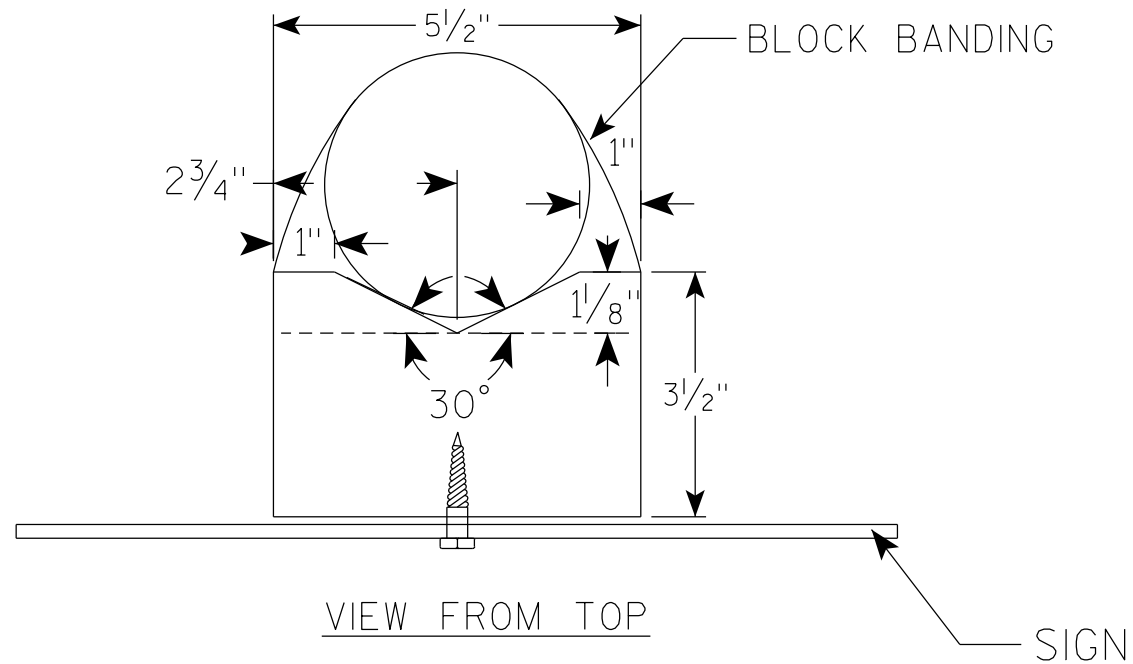
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

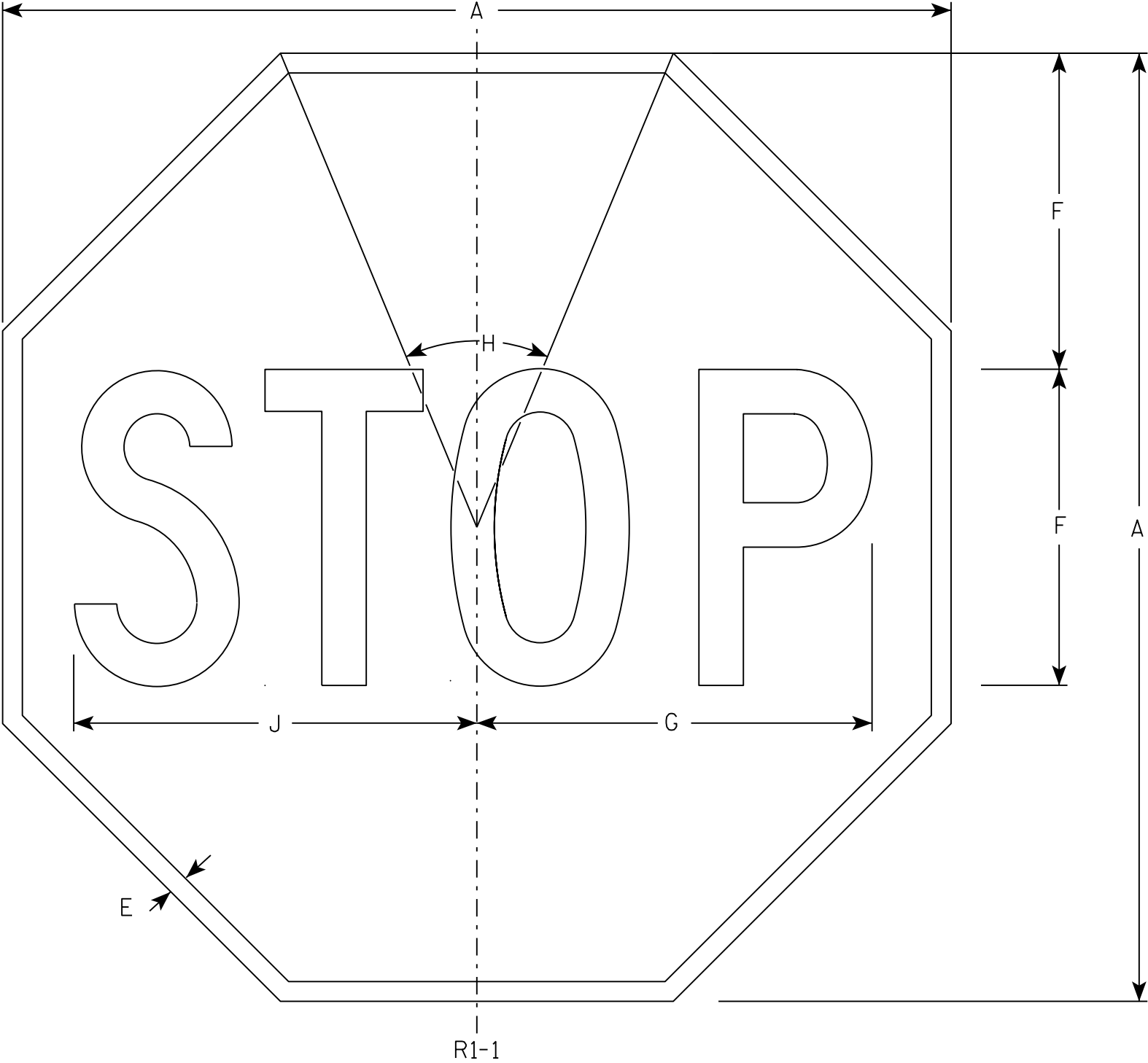
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 103

E

7



NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Red
Message - White
- 3. Message Series - C

7

R1-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

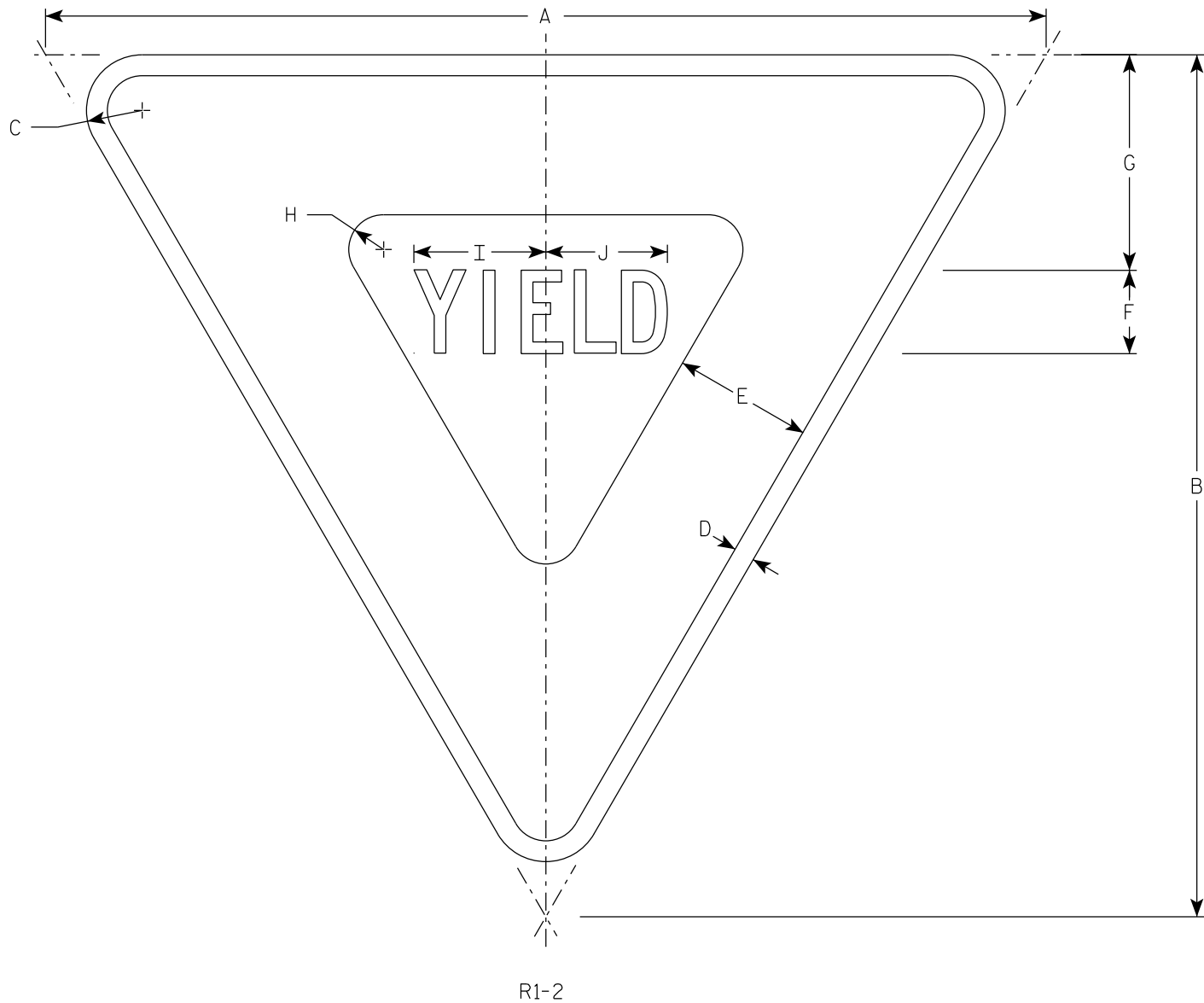
STANDARD SIGN
R1 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - See note 4
- 3. Message Series - C
- 4. The border strip and word message are reflectorized red.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	26	2	5⁄8	4	2 1⁄2	6 3⁄8	7⁄8	4	3 5⁄8																	2.71
2S	36	31	2	3⁄4	5	3	7 3⁄4	1 1⁄4	4 3⁄4	4 3⁄8																	3.88
2M	48	42	3	1	6	4	9 3⁄4	2	6 1⁄4	5 7⁄8																	7.00
3	48	42	3	1	6	4	9 3⁄4	2	6 1⁄4	5 7⁄8																	7.00
4	48	42	3	1	6	4	9 3⁄4	2	6 1⁄4	5 7⁄8																	7.00
5	60	52	3	1 1⁄2	8	5	13	2 1⁄2	7 7⁄8	7 1⁄4																	10.83
6																											
7	18	15 1⁄2	1	3⁄8	2 1⁄2	1 1⁄2	3 7⁄8	5⁄8	2 3⁄8	2 1⁄4																	0.97

PROJECT NO:

HWY:

COUNTY:

SHEET NO: 105

E

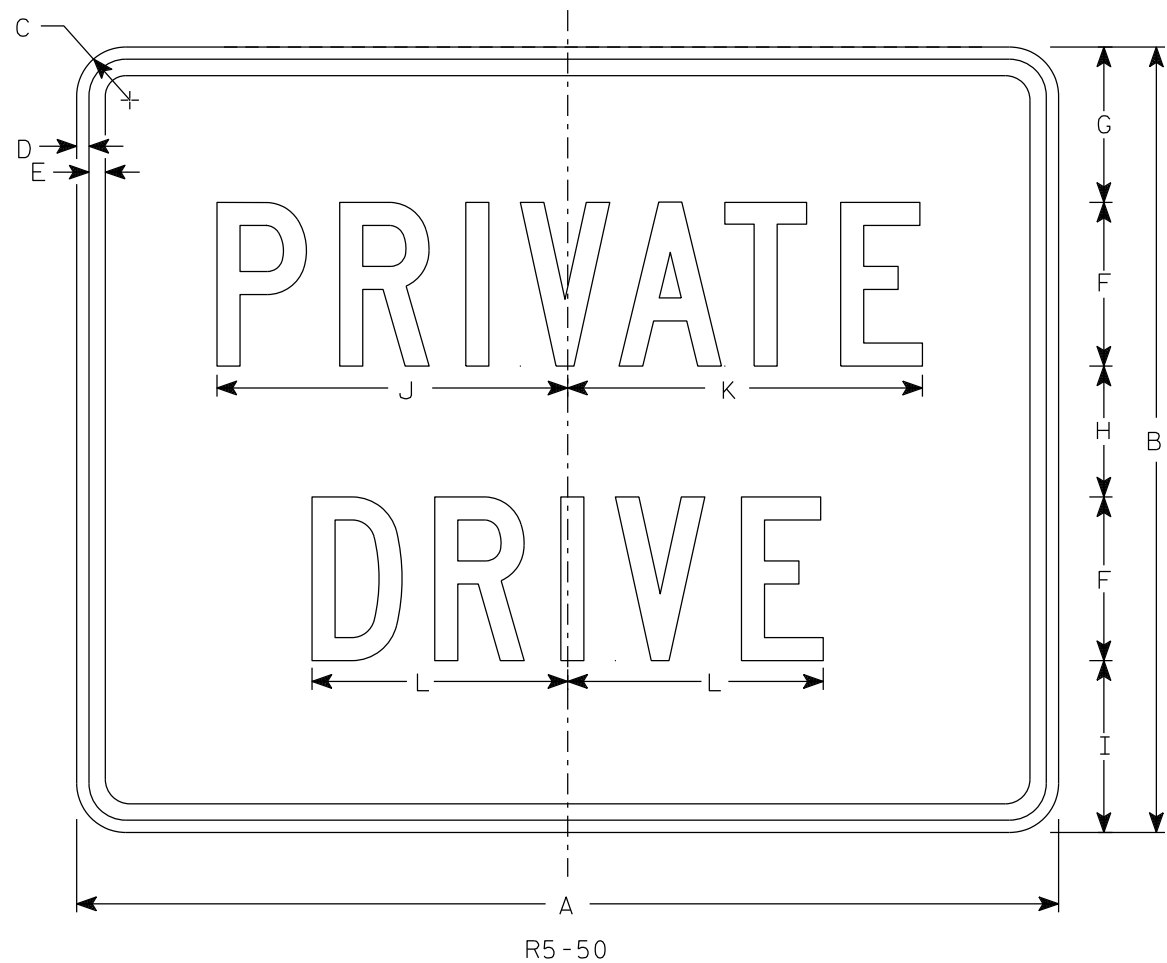
STANDARD SIGN
R1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/10/2024 PLATE NO. R1-2.13

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - C

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	24	1 1/2	3/8	1/2	5	4 3/4	4	5 1/4	10 3/4	10 7/8	7 3/4															5.0
2M	30	24	1 1/2	3/8	1/2	5	4 3/4	4	5 1/4	10 3/4	10 7/8	7 3/4															5.0
3																											
4																											
5																											

PROJECT NO:

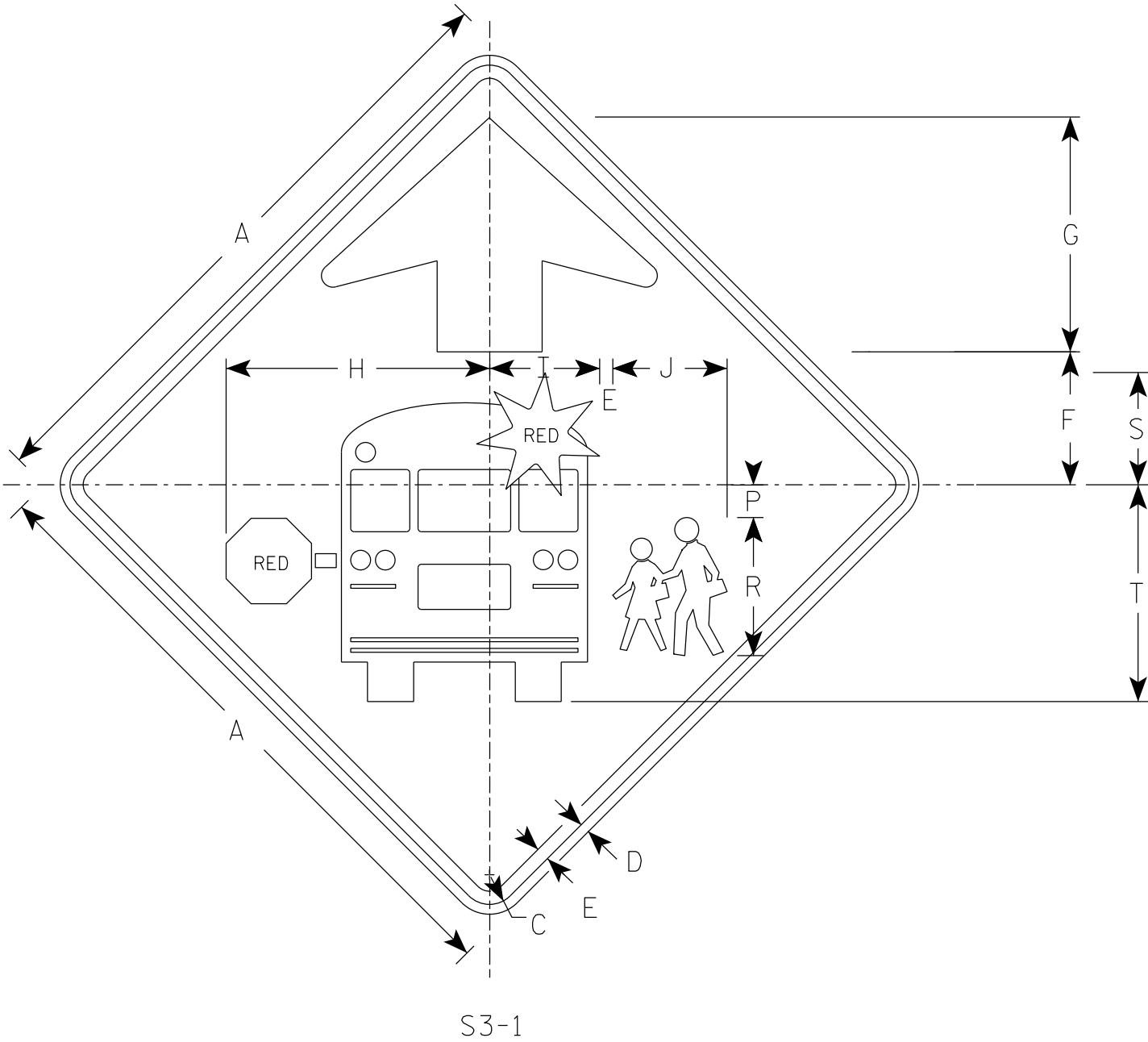
HWY:

COUNTY:

SHEET NO: 106

E

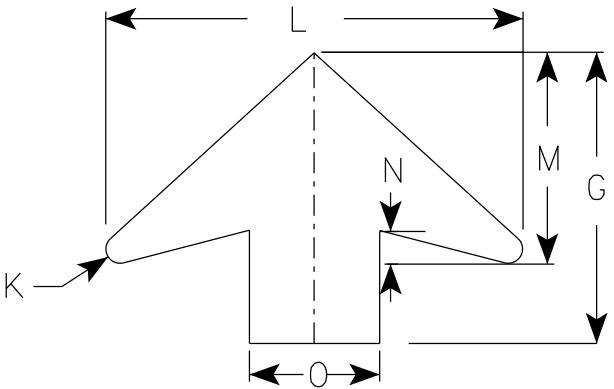
7



S3-1

NOTES

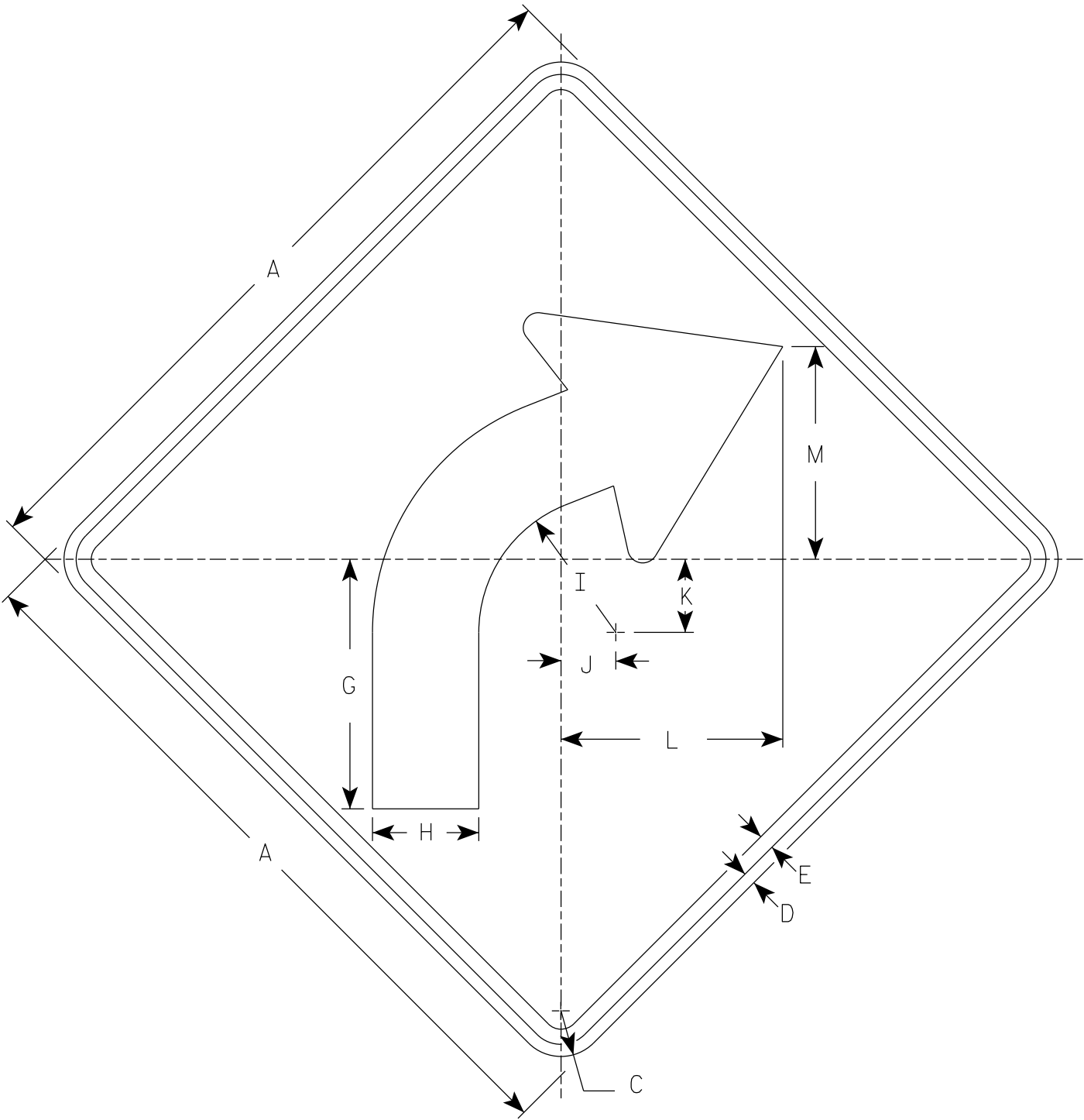
- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - YELLOW-GREEN
 - Message - BLACK except as noted
 - Circles except PEDS- RED BACKGROUND



ARROW DETAIL

7

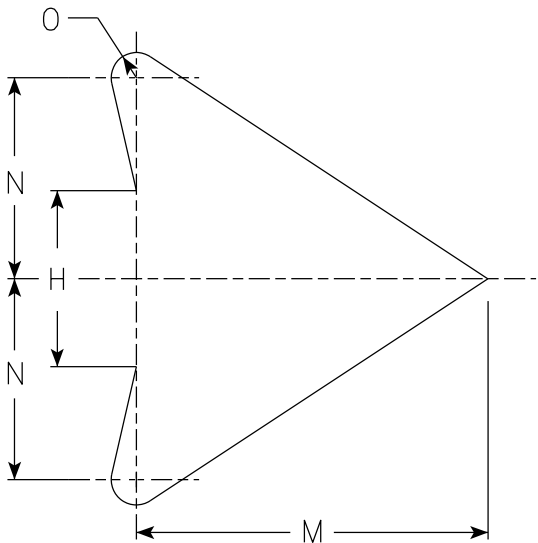
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 7/8	1/2	5/8	6 1/4	11 1/4	12 1/2	5 1/4	5 1/2	1/2	16	8	1 1/4	5	1 1/2		6 5/8	5 3/8	10 3/8							6.25
2S	36		2 1/4	5/8	3/4	7 1/2	13 1/2	15 1/8	6 1/4	6 1/2	5/8	19 1/4	9 3/4	1 5/8	6	1 7/8		7 7/8	6 3/8	12 3/8							9.0
2M	36		2 1/4	5/8	3/4	7 1/2	13 1/2	15 1/8	6 1/4	6 1/2	5/8	19 1/4	9 3/4	1 5/8	6	1 7/8		7 7/8	6 3/8	12 3/8							9.0
3	48		3	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
4	48		3	3/4	1	10	17 7/8	20 1/8	8 3/8	8 3/4	7/8	25 5/8	13	2	8	2 1/2		10 1/2	8 1/2	16 1/2							16.0
5																											



W1-2R

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. W1-2L is the same as W1-2R except the arrow is reversed along the vertical centerline.



ARROW DETAIL

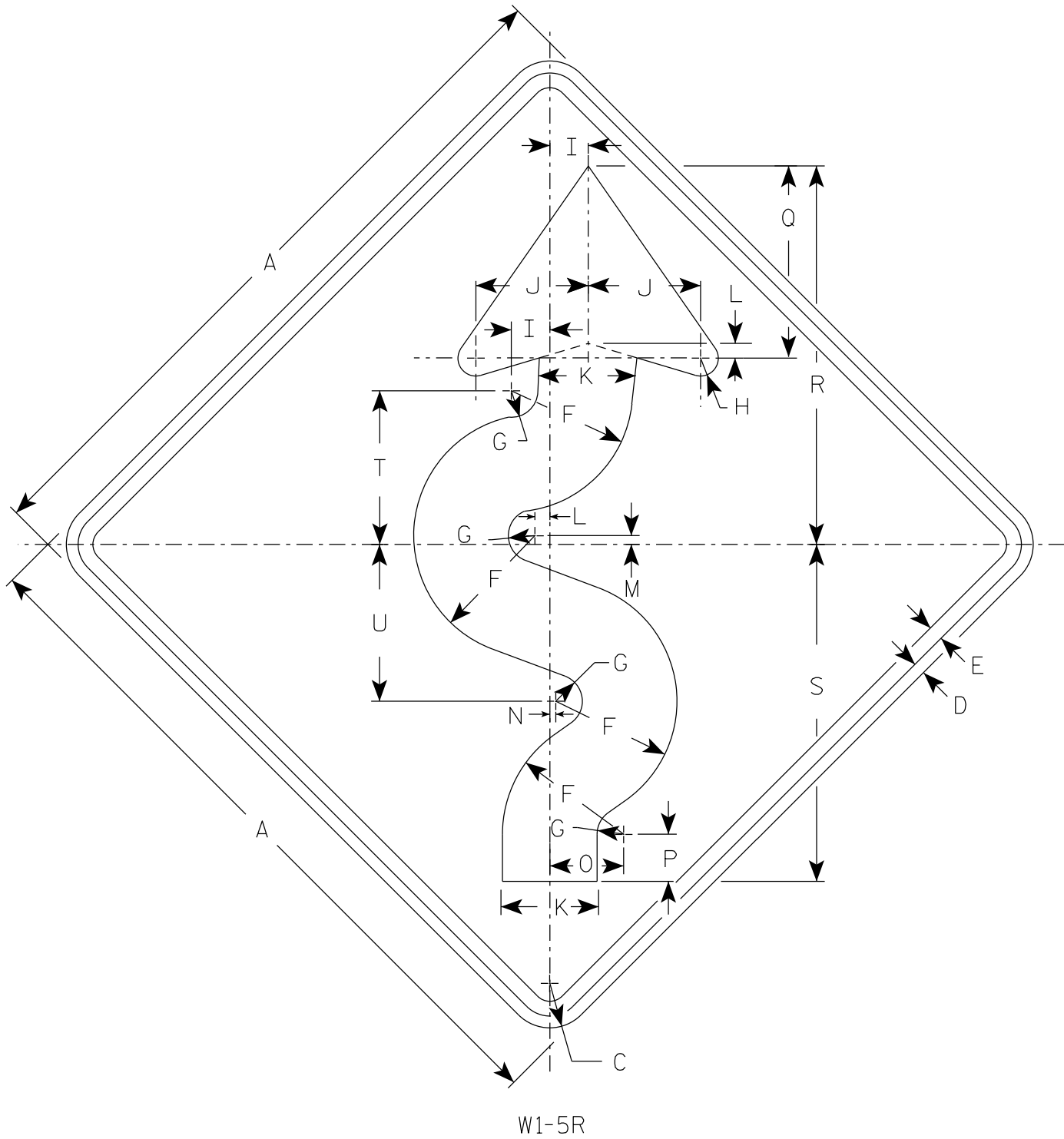
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2												4.0
2S	30		1 7/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8												6.25
2M	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
3	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
4	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4												9.0
5	48		3	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1												16.0

STANDARD SIGN
W1-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/23/2023 PLATE NO. W1-2.11



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. W1-5L is the same as W1-5R except the arrow is reversed along the vertical centerline.
- 4. If used with W13-1 of 30 MPH or less, use 36" sign for Size 2S.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2	4 1/8	7/8	5/8	1 1/4	3 3/4	3 1/4	1/2	1/4	1/8	2 1/2	1 5/8	6 1/2	12 3/4	11 3/8	5 1/4	5 1/4						4.0
2S	30		1 7/8	1/2	5/8	5 1/8	1 1/8	3/4	1 5/8	4 3/4	4 1/8	5/8	3/8	1/4	3 1/8	2	8 1/8	16	14 1/4	6 1/2	6 5/8						6.25
2M	36		2 1/4	5/8	3/4	6 1/4	1 3/8	1	1 7/8	5 5/8	4 7/8	3/4	3/8	1/4	3 3/4	2 7/8	9 3/4	19 1/8	17 1/8	7 3/4	7 7/8						9.0
3	36		2 1/4	5/8	3/4	6 1/4	1 3/8	1	1 7/8	5 5/8	4 7/8	3/4	3/8	1/4	3 3/4	2 7/8	9 3/4	19 1/8	17 1/8	7 3/4	7 7/8						9.0
4	36		2 1/4	5/8	3/4	6 1/4	1 3/8	1	1 7/8	5 5/8	4 7/8	3/4	3/8	1/4	3 3/4	2 7/8	9 3/4	19 1/8	17 1/8	7 3/4	7 7/8						9.0
5	48		3	3/4	1	8 1/4	1 3/4	1 1/4	2 1/2	7 1/2	6 1/2	1	1/2	3/8	5	3 1/4	13	25 1/2	22 3/4	10 3/8	10 1/2						16.0

STANDARD SIGN

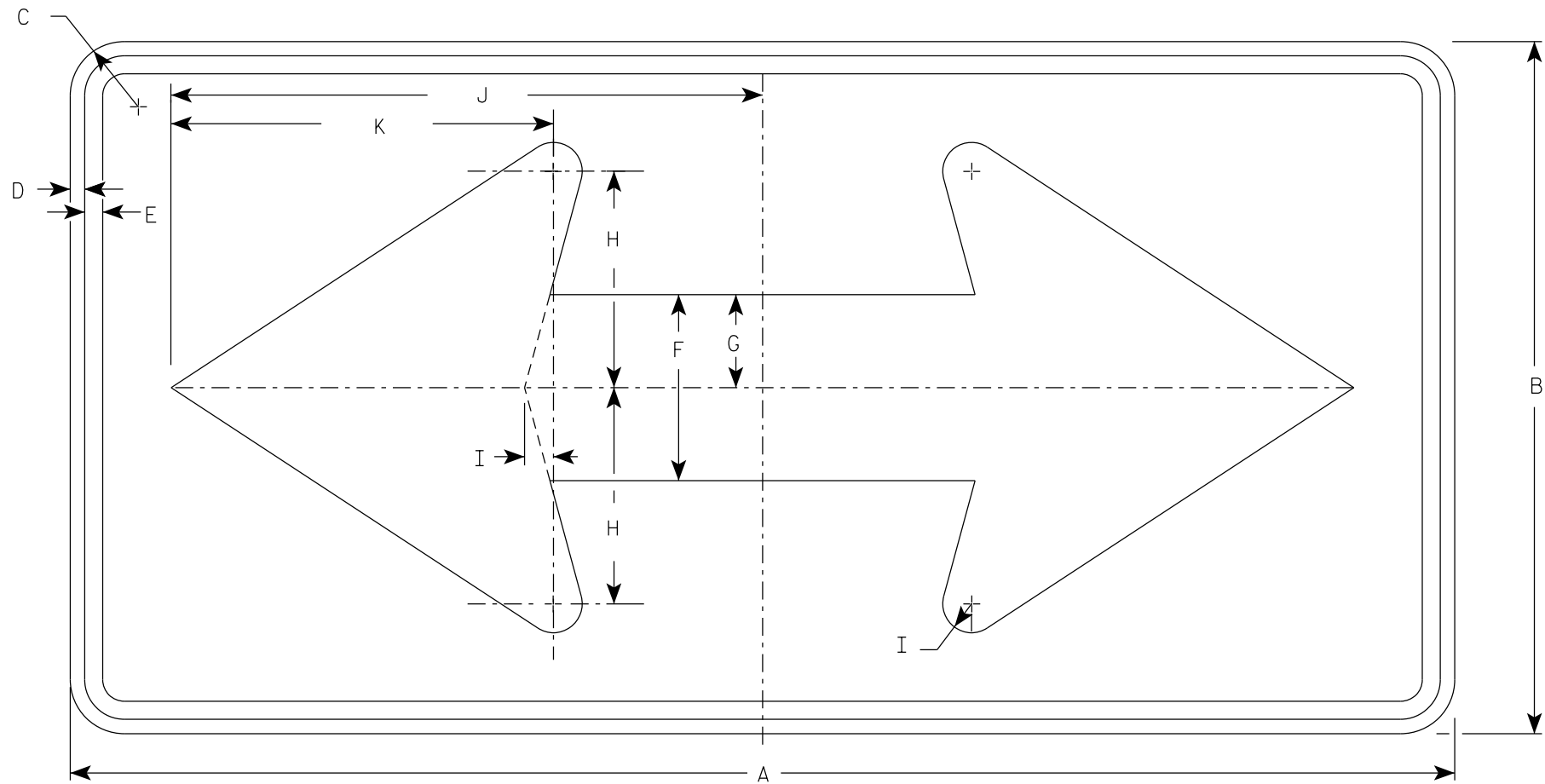
W1-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/11/2023 PLATE NO. W1-5.10

7



W1-7

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	18	1 1/2	3/8	1/2	5	2 1/2	5 3/4	3/4	15 5/8	10 1/8																4.5
2S	48	24	1 7/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
2M	48	24	1 7/8	1/2	5/8	6 1/2	3 1/4	7 1/2	1	20 1/2	13 1/4																8.0
3	60	30	1 7/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
4	60	30	1 7/8	1/2	5/8	8	4	9 1/4	1 1/4	25 3/8	16 1/4																12.5
5	96	48	3	3/4	1	13	6 1/2	15	2	41	26 1/2																32.0

STANDARD SIGN
W1-7

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/10/2023 PLATE NO. W1-7.8

PROJECT NO:

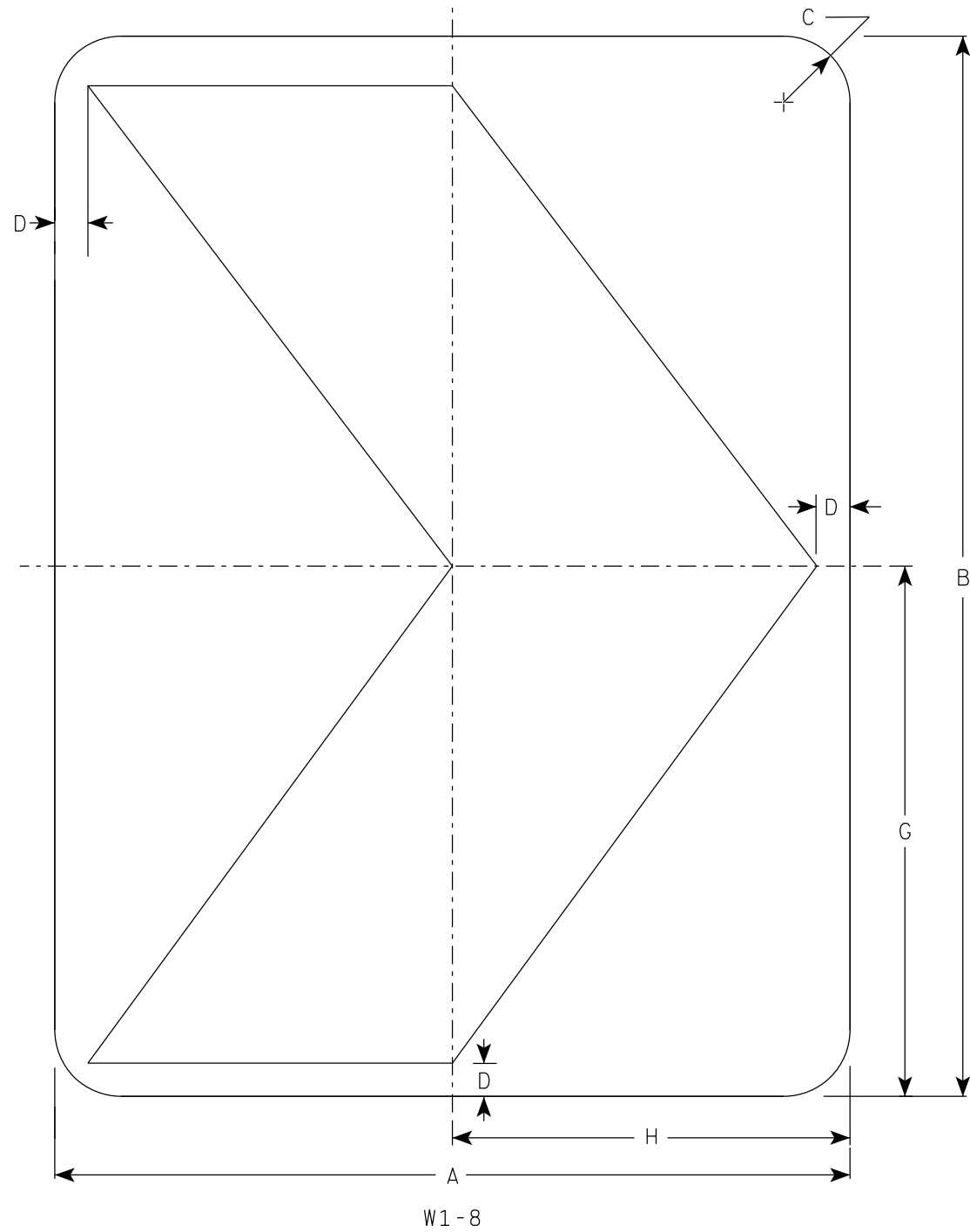
HWY:

COUNTY:

SHEET NO: 110

E

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/2	1/2			9	6																			1.5
2S	18	24	1 1/2	3/4			12	9																			3.0
2M	18	24	1 1/2	3/4			12	9																			3.0
3	24	30	1 1/2	1			15	12																			5.0
4	30	36	1 7/8	1 1/4			18	15																			7.5
5	36	48	1 7/8	1 1/2			24	18																			12.0

STANDARD SIGN

W1-8

WISCONSIN DEPT OF TRANSPORTATION

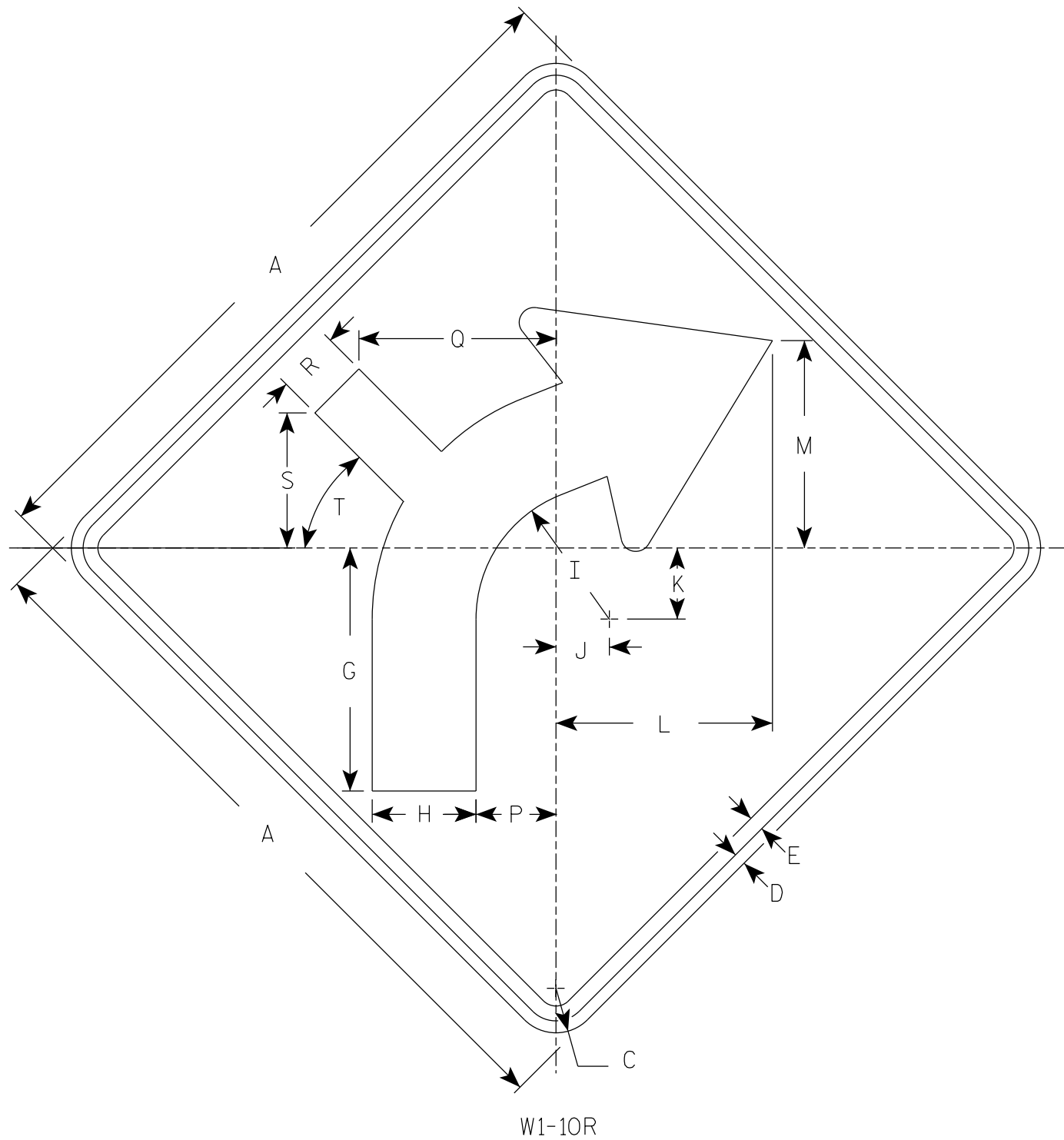
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/11/2023 PLATE NO. W1-8.7

SHEET NO: 111

E

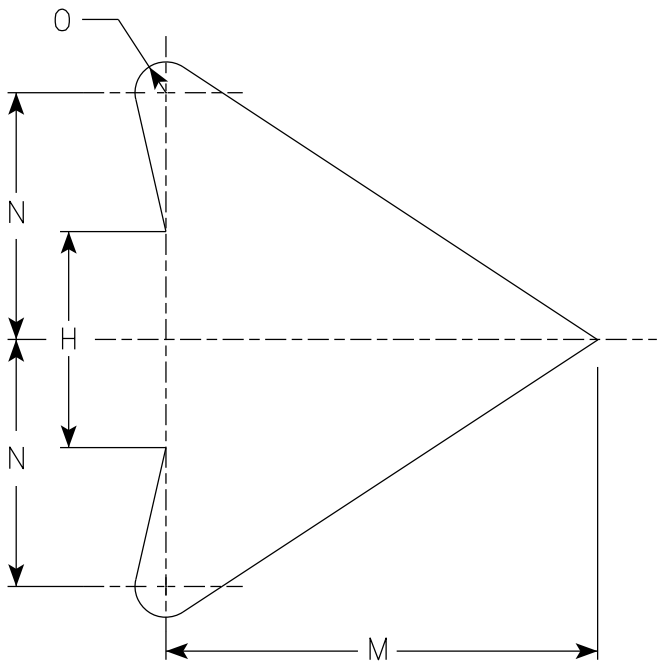
7



W1-10R

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. W1-10L is the same as W1-10R except the arrow is reversed along the vertical centerline.



ARROW DETAIL

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2		8 1/4	3 1/2	4 1/2	1 3/4	2 3/8	7 1/4	7	4	1/2	2 5/8	6 5/8	2 1/8	4 1/2	45°							4.0
2S	30		1 7/8	1/2	5/8		10 1/4	4 3/8	5 5/8	2 1/4	3	9 1/8	8 3/4	5	5/8	3 3/8	8 3/8	2 5/8	5 3/4	45°							6.25
2M	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4	4	10	3 1/4	6 7/8	45°							9.0
3	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4	4	10	3 1/4	6 7/8	45°							9.0
4	36		2 1/4	5/8	3/4		12 3/8	5 1/4	6 3/4	2 5/8	3 1/2	10 7/8	10 1/2	6	3/4	4	10	3 1/4	6 7/8	45°							9.0
5	48		3	3/4	1		16 1/2	7	9	3 1/2	4 5/8	14 1/2	14	8	1	5 3/8	13 1/4	4 1/4	9 1/8	45°							16.0

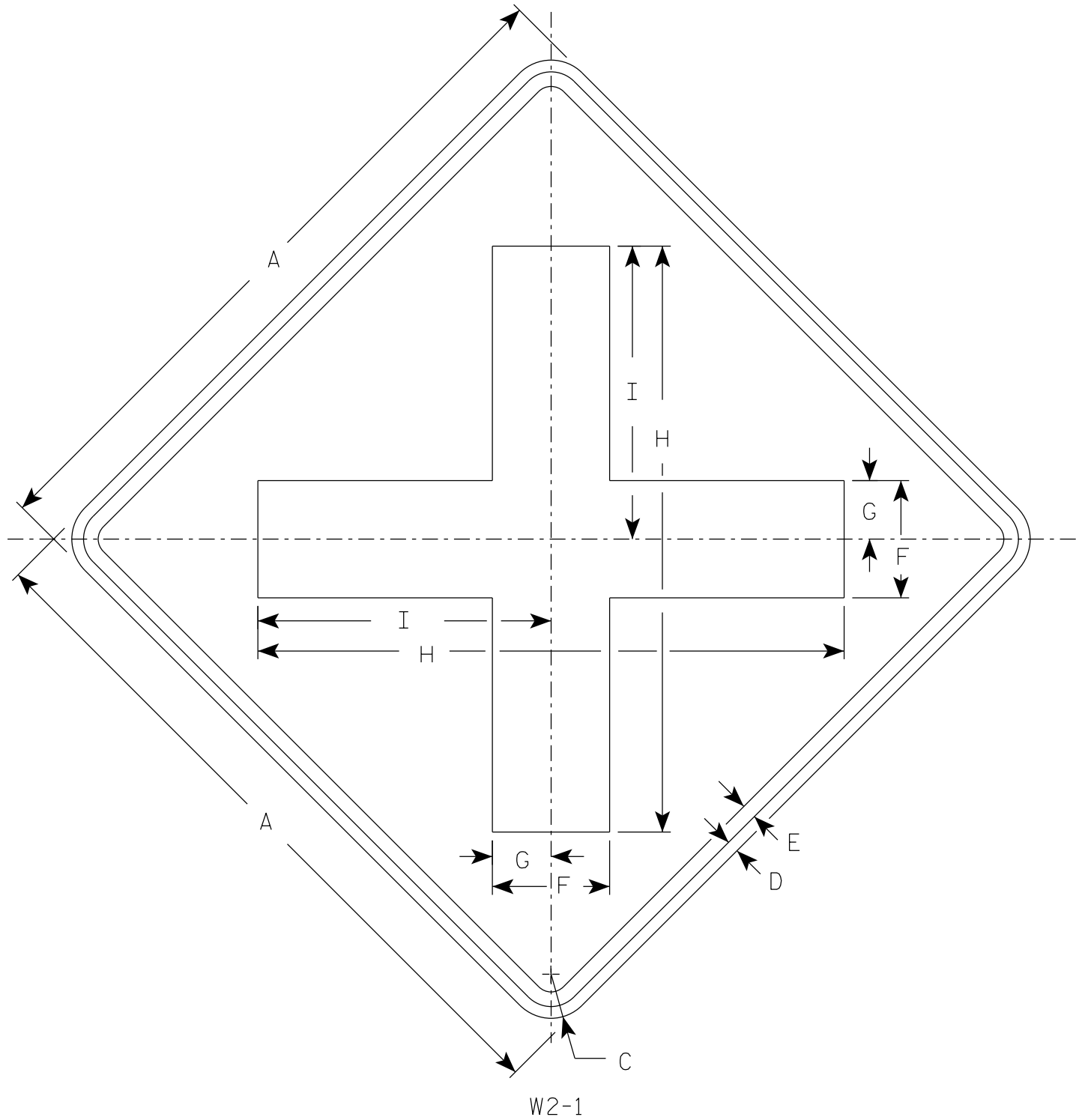
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 112

E



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/2	3/8	1/2	4	2	20	10																		4.0
2S	30		1 7/8	1/2	5/8	5	2 1/2	25	12 1/2																		6.25
2M	30		1 7/8	1/2	5/8	5	2 1/2	25	12 1/2																		6.25
3	36		2 1/4	5/8	3/4	6	3	30	15																		9.0
4	48		3	3/4	1	8	4	40	20																		16.0
5																											

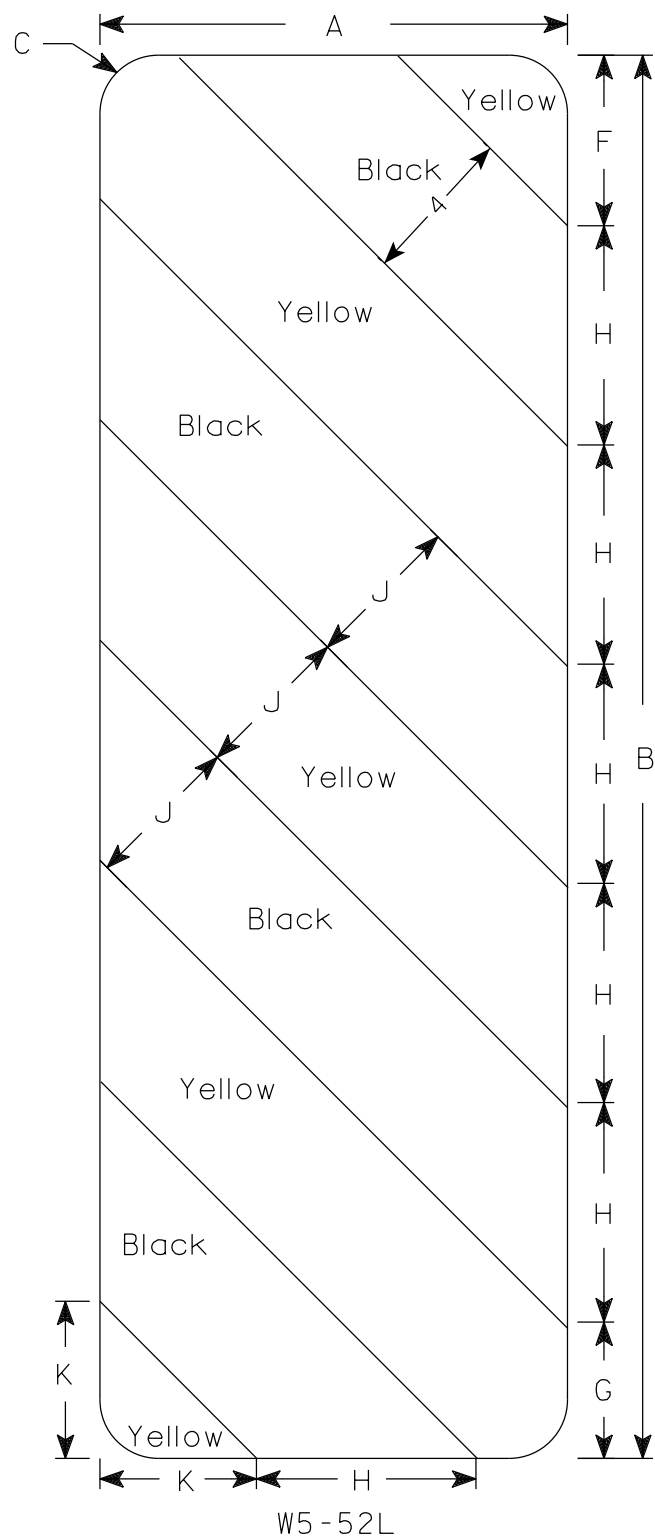
PROJECT NO:

HWY:

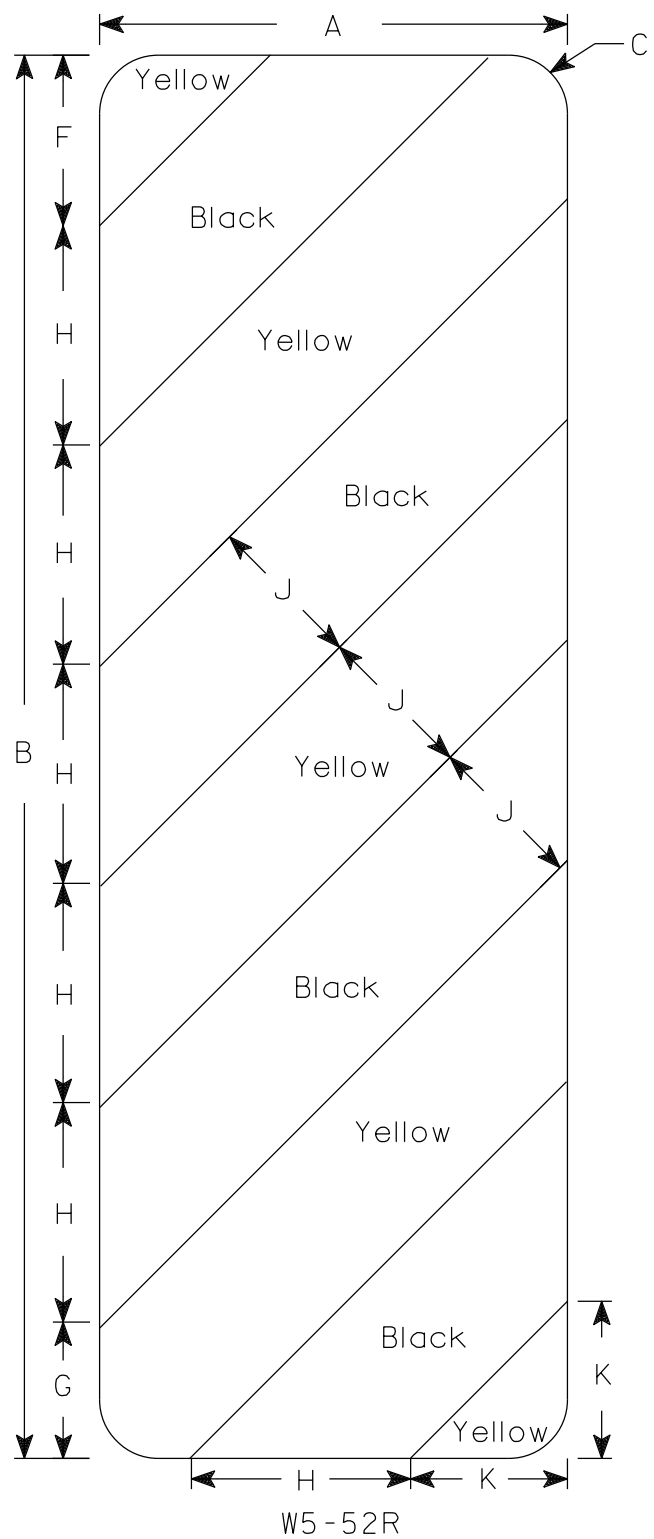
COUNTY:

SHEET NO: 113

E



W5-52L



W5-52R

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Yellow
 - Message - Black
- 3. Alternate colors of stripes as shown.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

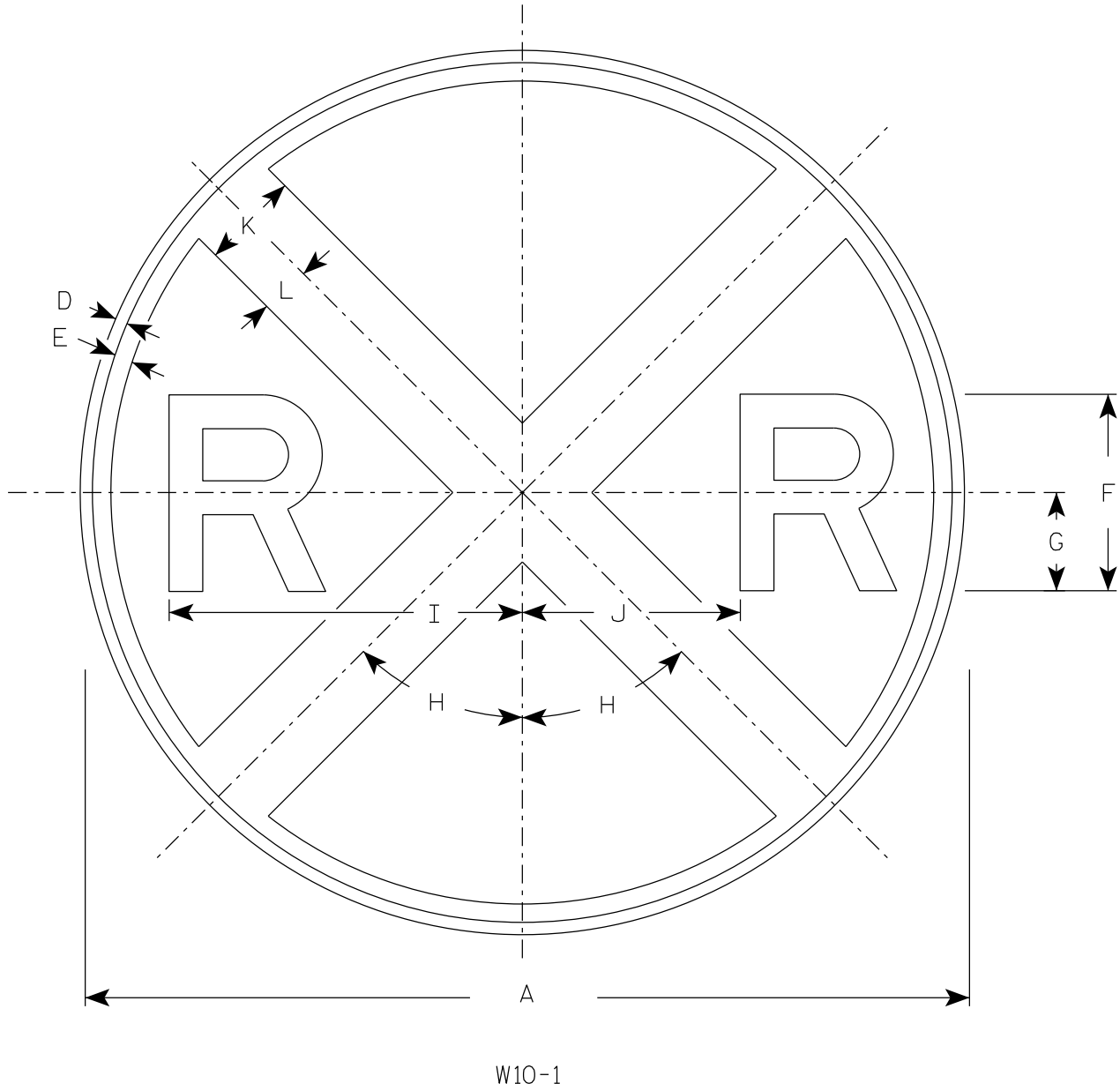
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 114

E



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. Message Series - E

7

7

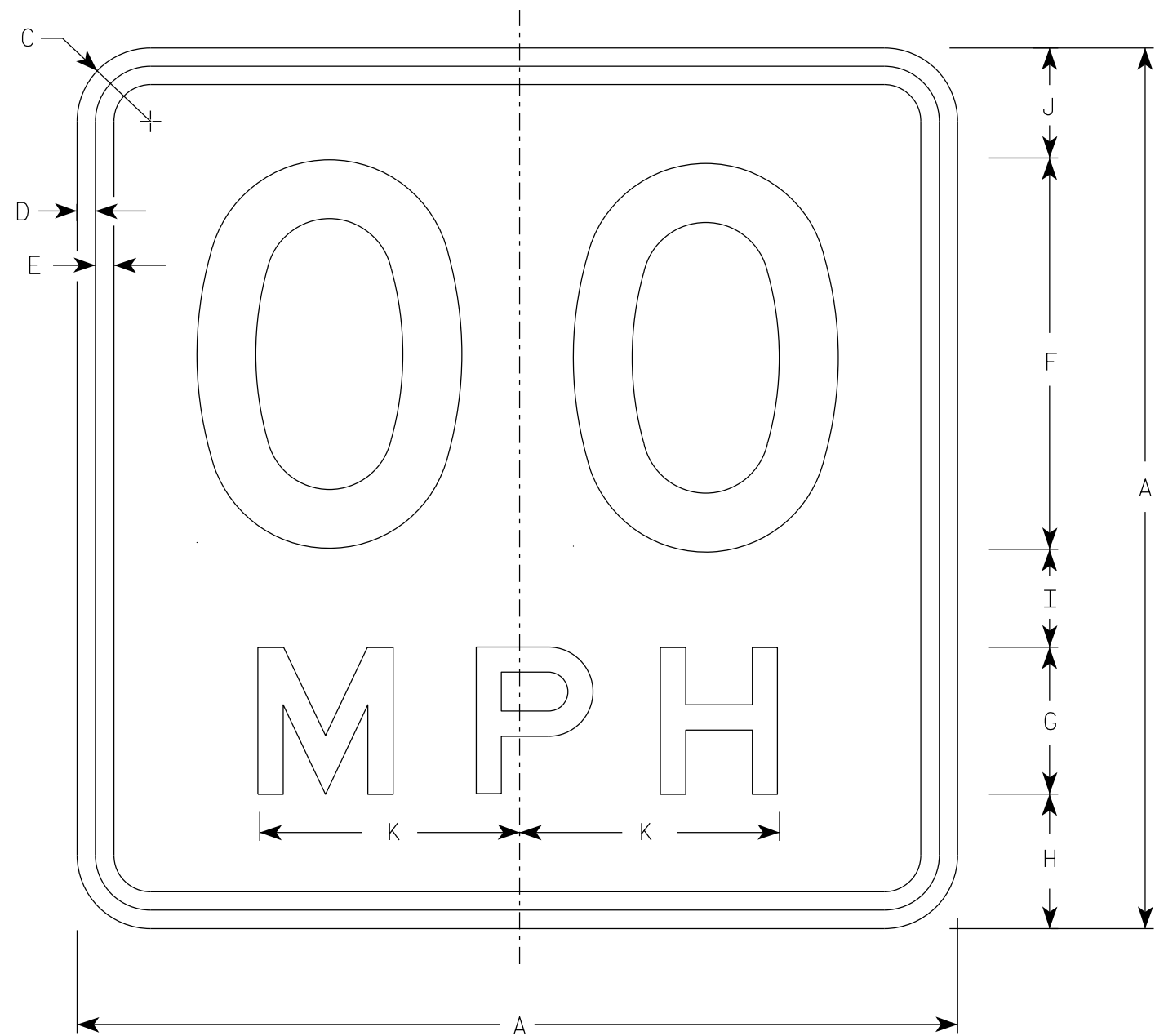
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30			3/8	5/8	7	3 1/2	45°	12 3/8	7 1/8	3	1 1/2															4.91
2S	36			5/8	3/4	8	4	45°	14 3/8	8 5/8	4	2															7.07
2M	36			5/8	3/4	8	4	45°	14 3/8	8 5/8	4	2															7.07
3	36			5/8	3/4	8	4	45°	14 3/8	8 5/8	4	2				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

STANDARD SIGN
W10-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/27/24 PLATE NO. W10-1.9



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Yellow
Message - Black
3. Message Series - See Note 5
4. Substitute appropriate numerals and optically space about centerline to achieve proper balance.
5. Line 1 is Series D
Line 2 is Series E

W13-1

* For 30" x 30" Warning Signs, use 18" x 18" W13-1 signs.
For 36" x 36" Warning Signs, use 24" x 24" W13-1 signs.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
✱ 2S	1	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8															2.25
	2	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8															2.25
✱ 2M	3	18		1 1/2	3/8	3/8	8	3	2 3/4	2	2 1/4	5 3/8															2.25
	4	24		1 1/2	3/8	1/2	10	4	4	2 3/4	3 1/4	6 5/8															4.00
	5	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8															9.00
	6	36		2 1/4	5/8	3/4	16	6	5 1/2	4	4 1/2	10 5/8															9.00

STANDARD SIGN
W13-1

WISCONSIN DEPT OF TRANSPORTATION
APPROVED Matthew R. Rauch
For State Traffic Engineer

DATE 1/8/2024 PLATE NO. W13-1.17

PROJECT NO:

HWY:

COUNTY:

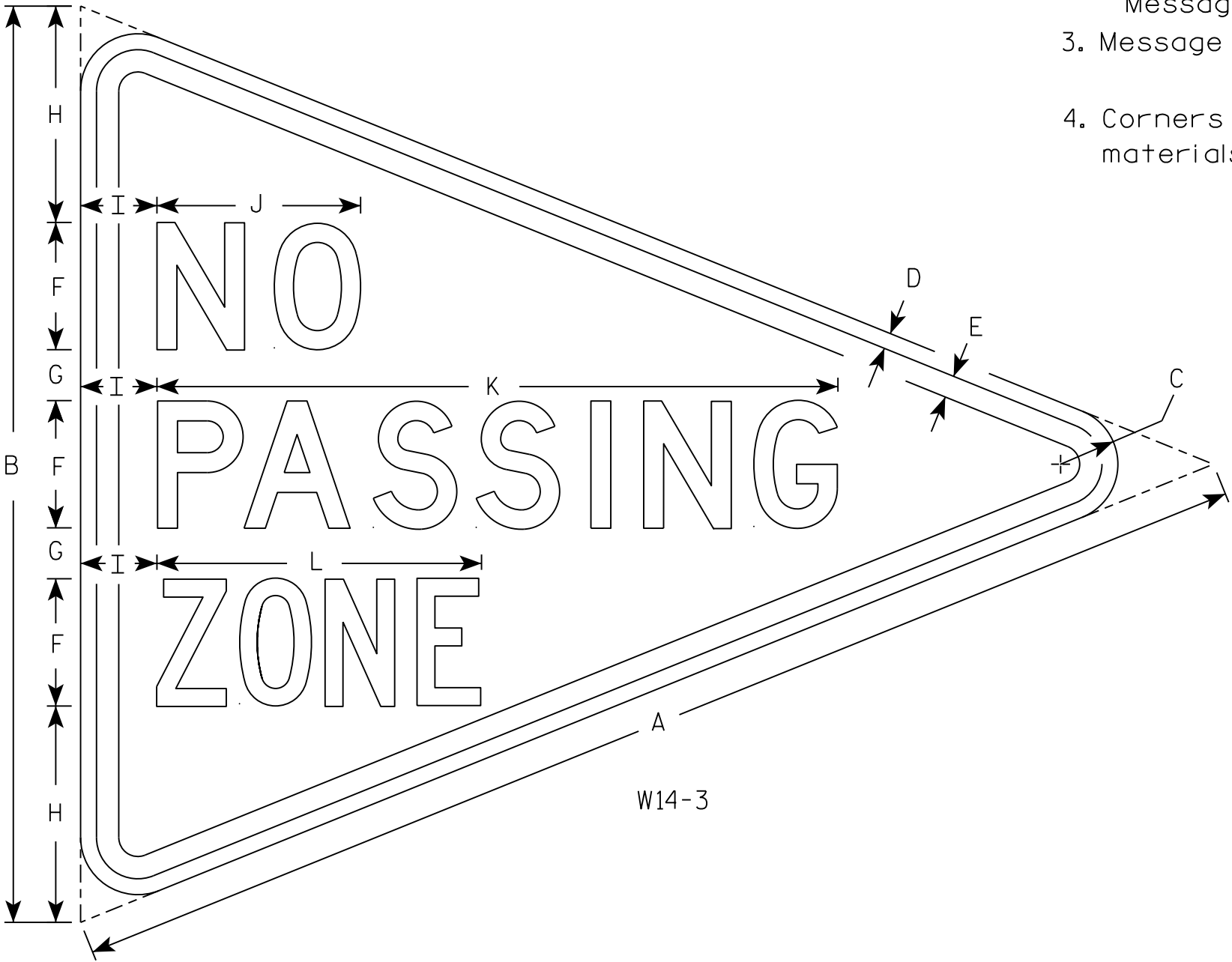
SHEET NO:

116

E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Yellow
Message - Black
- 3. Message Series - Lines 1 and 2 are Series D.
Line 3 is series C.
- 4. Corners and borders shall be rounded on all base materials for this sign.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															5.56
2M																											
3																											
4																											
5																											

STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W14-3.10

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HS-20
INVENTORY RATING: HS-17
OPERATING RATING: HS-29
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 190 (KIPS)
RAILING TEST LEVEL: N/A

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
DIMENSIONS SHOWN ARE BASED OFF OF ORIGINAL STRUCTURE PLANS.
STATIONS SHOWN ARE FROM FIELD SURVEY OF JOINTS. DUE TO JOINT WEAR AND APPROACH MAINTENANCE, THIS DOES NOT EXACTLY MATCH ORIGINAL STRUCTURE PLAN SPAN LENGTH.
EXISTING STEEL RAIL TO REMAIN IN PLACE.
MODIFIED "W" RAIL IS TO SUPPLEMENT THE EXISTING RAIL AND IS NOT DESIGNED OR TESTED TO MEET ANY MASH TEST LEVEL CRITERIA.
THE RAILING IS BID AS EACH AND IS A SINGLE UNIT FOR THE ENTIRE STRUCTURE.
ORIGINAL CONSTRUCTION YEAR WAS 1950.

TRAFFIC DATA

FEATURE ON: CTH D
ADT = 975 (2044)

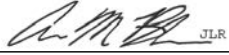
SCOPE OF WORK

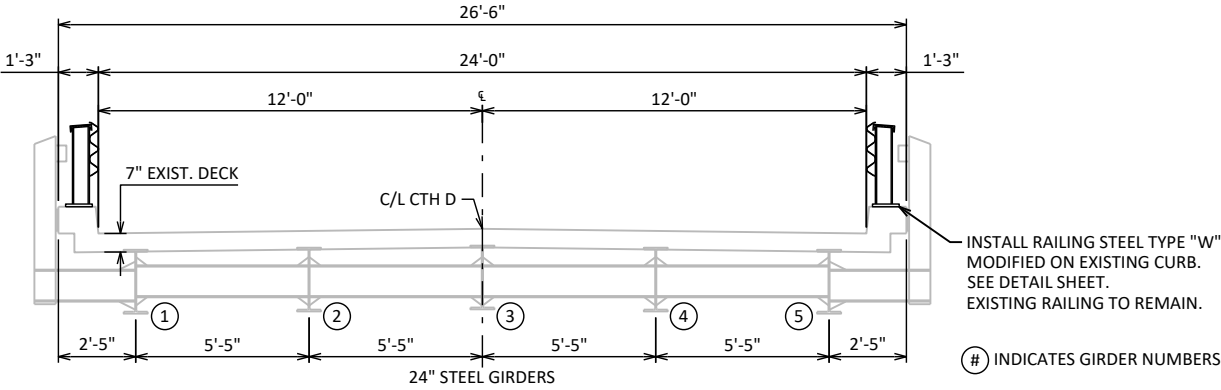
- INSTALL MODIFIED "W" RAIL TO TOP OF EXISTING CURB

LIST OF DRAWINGS

- 1. GENERAL PLANS
- 2. RAILING STEEL TYPE "W" MODIFIED

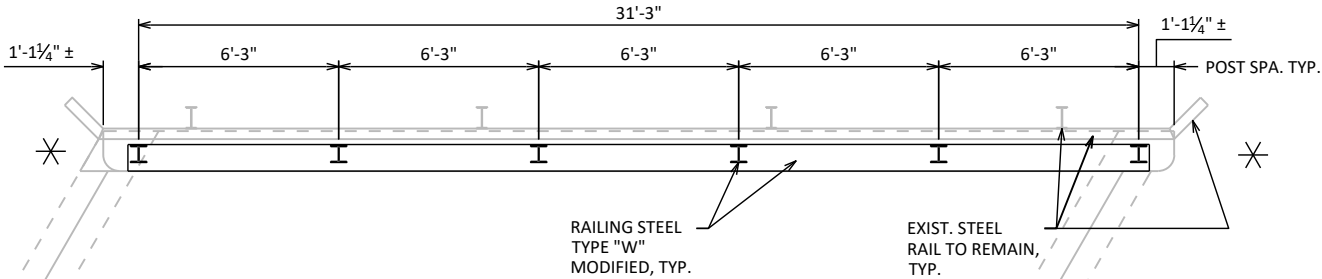
STRUCTURE DESIGN CONTACTS:
TIM BOROWSKI 608-298-5410
AARON BONK 608-261-0261

NO.	DATE	REVISION	BY
SRF STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION ACCEPTED  JLR 12/02/25 CHIEF STRUCTURES DESIGN ENGINEER DATE STRUCTURE B-50-2 CTH D OVER LITTLE ELK RIVER COUNTY PRICE TOWN EMERY DESIGN SPEC. REHABILITATION N/A DESIGNED BY AJM CK'D TAB BY VCH PLANS CK'D WCD GENERAL PLANS SHEET 1 OF 2 118			



CROSS SECTION THRU BRIDGE

NORMAL TO R/L LOOKING EAST



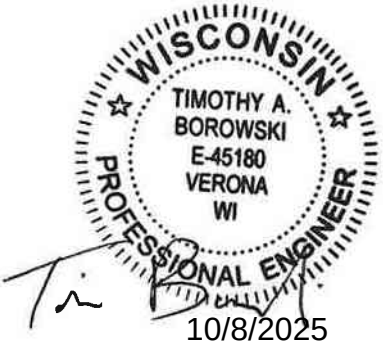
✱ PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT.

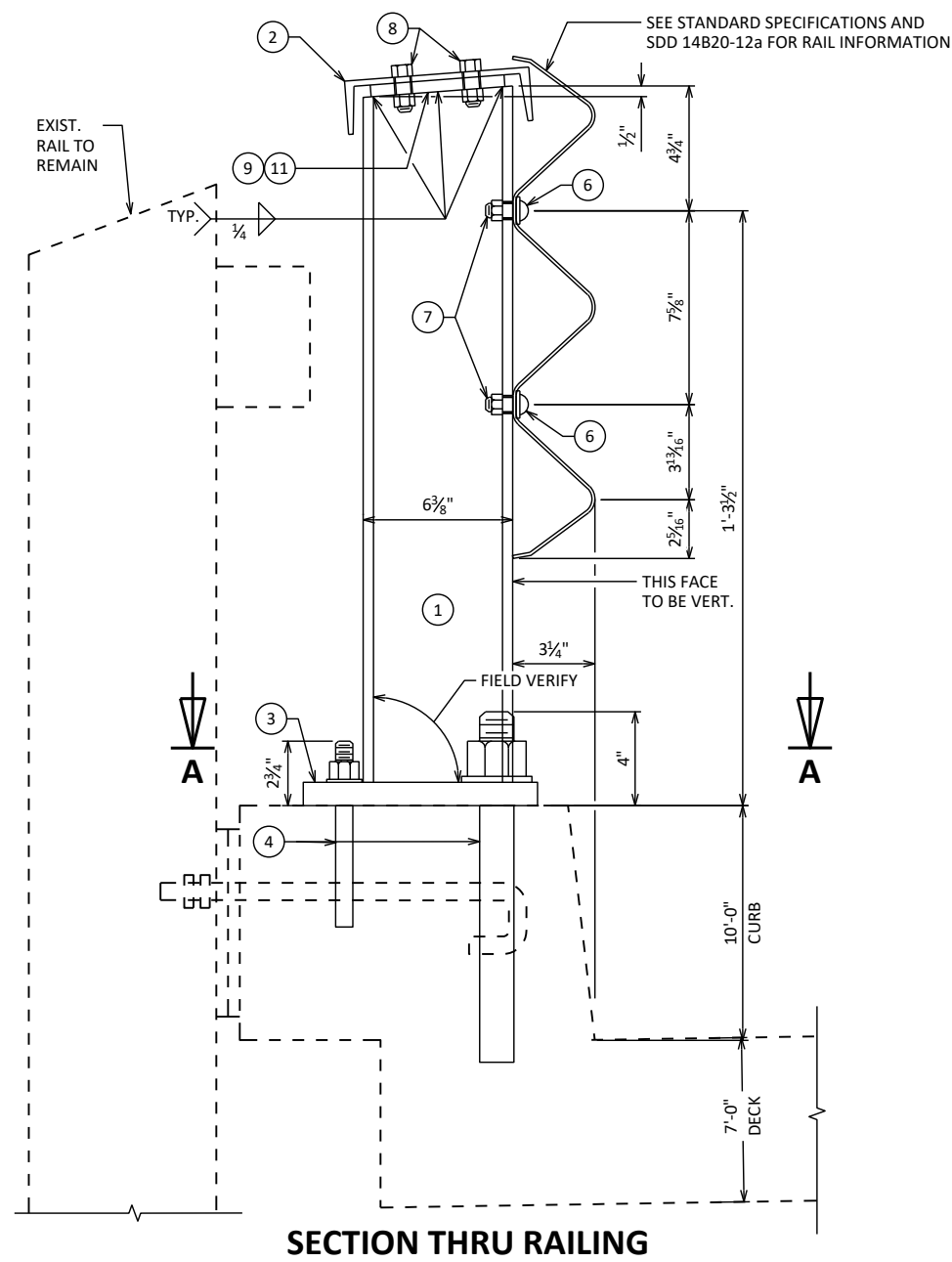
PLAN

SINGLE SPAN STEEL GIRDER
(WINGS NOT SHOWN)

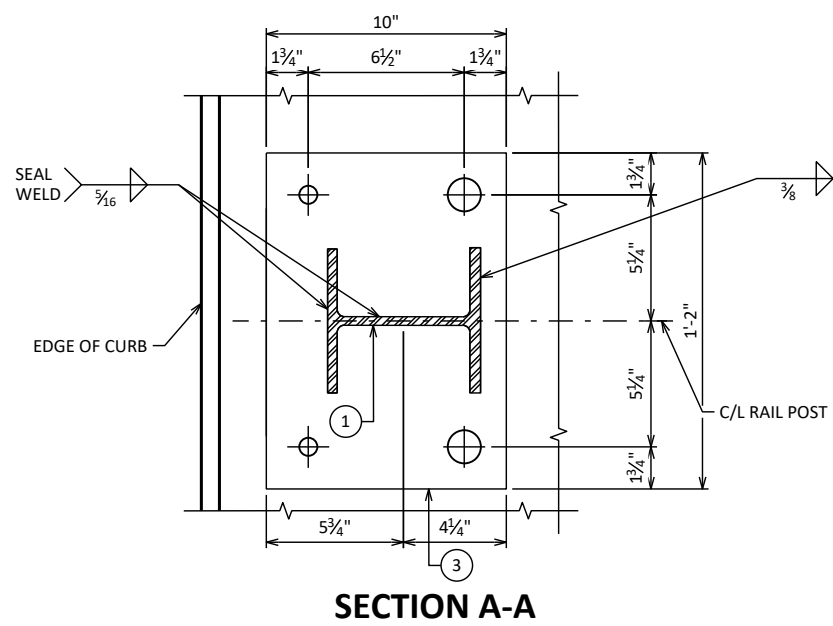
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	TOTALS
502.4105	ADHESIVE ANCHORS 5/8-INCH	EACH	24
502.4110	ADHESIVE ANCHORS 1 1/4-INCH	EACH	24
SPV.0060	RAILING STEEL TYPE W MODIFIED B-50-2	EACH	1



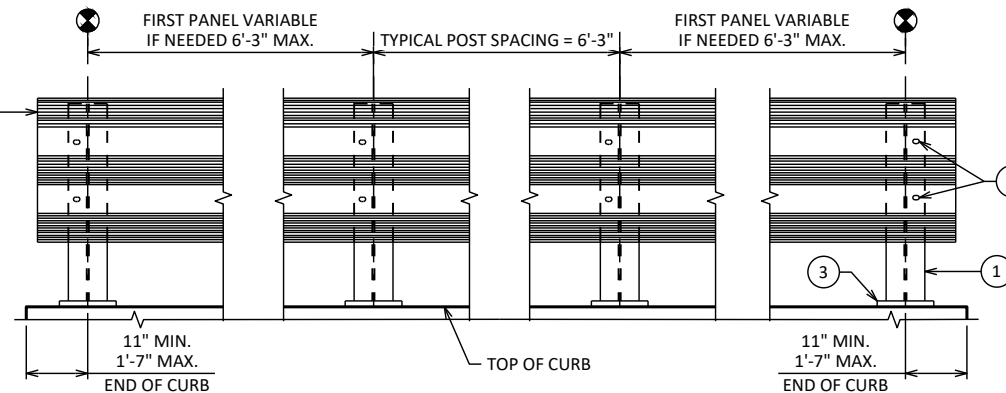


SECTION THRU RAILING

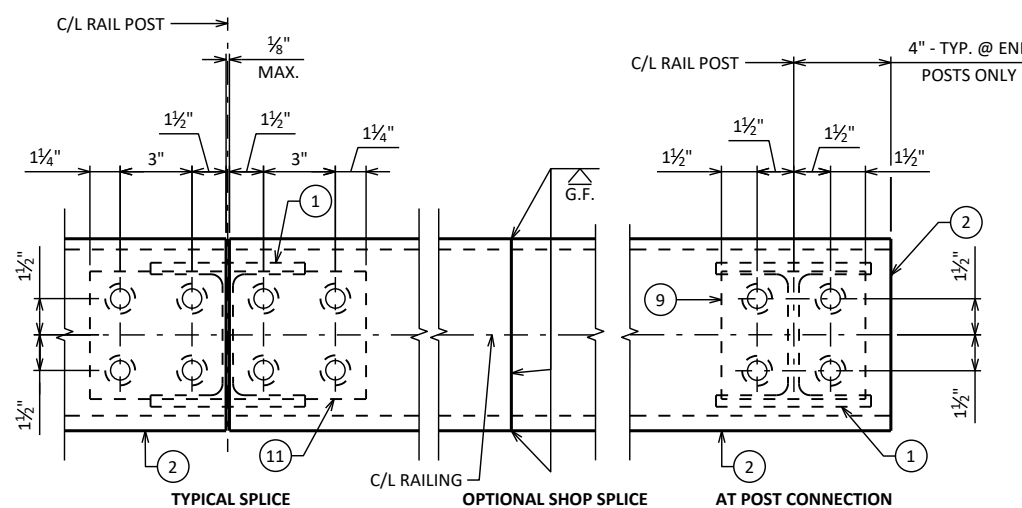


SECTION A-A

AT END POSTS, RAIL MEMBER SHALL HAVE PROVISIONS FOR A THREE BEAM CONNECTION AS SHOWN ON SDD 14 B 20 STANDARDS

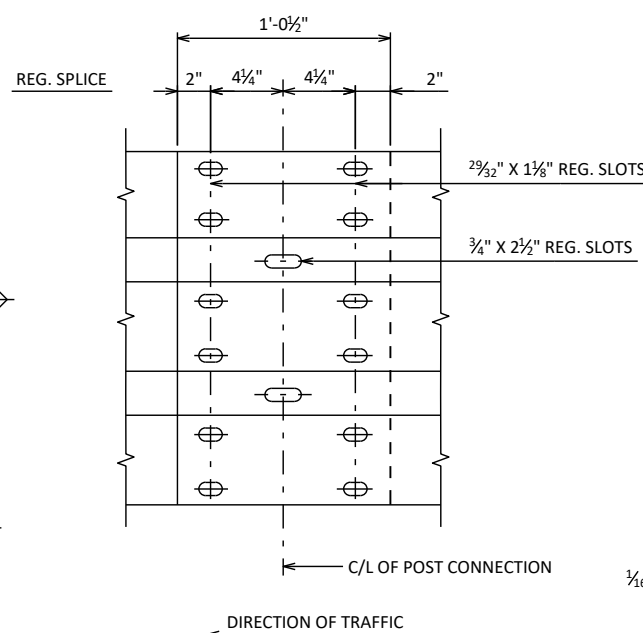


ELEVATION

 PAY LIMITS FOR "MODIFIED W RAIL"

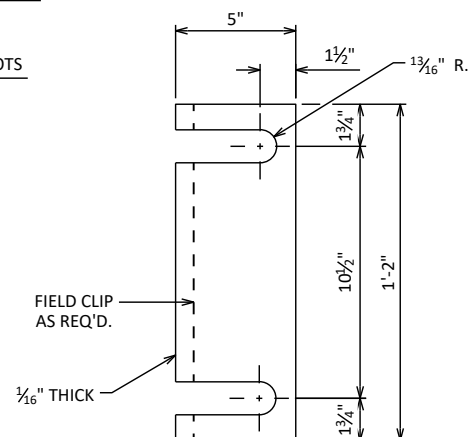
CHANNEL MEMBER DETAILS

SHIM PLATES 6" X $\frac{1}{16}$ " X 6" MAY BE USED BETWEEN TOP OF POSTS AND CHANNEL MEMBER TO ACHIEVE VERT. ALIGNMENT



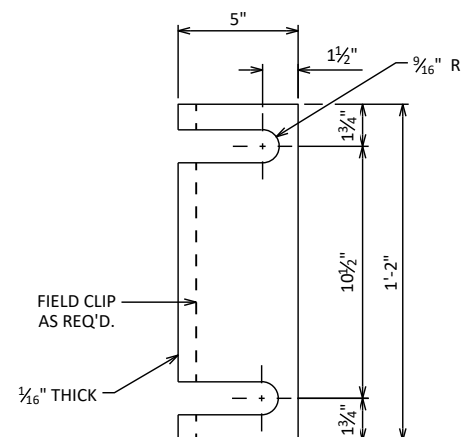
RAIL MEMBER SPLICE

5/8" DIA. BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS



POST SHIM DETAIL (FRONT)

(4 PER POST)



POST SHIM DETAIL (BACK)

(4 PER POST)

LEGEND

- 1) W6X25 WITH 2 - $\frac{3}{4}$ " X $2\frac{1}{2}$ " VERT. SLOTS IN FLG. (SLOT ON OTHER SIDE OF WEB IS OPTIONAL) FOR NO. 7. CUT BOTTOM OF POST TO MATCH CROSS SLOPE OF ROADWAY. PLACE POSTS VERTICAL AND NORMAL TO GRADE LINE.
- 2) C8X11.5 WITH $1\frac{3}{16}$ " DIA. HOLES FOR NO. 8.
- 3) BASE PLATE $1\frac{1}{2}$ " X $1'-2"$ X $10"$ WITH $\frac{3}{4}$ " DIA. (B.F.) AND $1\frac{3}{8}$ " DIA. (F.F.) HOLES FOR ANCHOR BOLTS. WELD TO NO. 1 AS SHOWN.
- 4) CORE DRILL FOR (2) $\frac{3}{4}$ " DIA. BOLTS (GALVANIZED) A325 ADHESIVE ANCHORS (15,000 LBS ULTIMATE ADHESIVE BOND STRENGTH). 5" MIN. EMBEDMENT. A325 NUT AND WASHER. ADHESIVE ANCHORS TO BE PAID FOR AS "ADHESIVE ANCHORS $\frac{3}{8}$ -INCH".

CORE DRILL FOR (2) $1\frac{1}{4}$ " DIA. BOLTS (GALVANIZED) A325 ADHESIVE ANCHORS (55,000 LBS ULTIMATE ADHESIVE BOND STRENGTH). 12" MIN. EMBEDMENT. A325 NUT AND WASHER. ADHESIVE ANCHORS TO BE PAID FOR AS "ADHESIVE ANCHORS $1\frac{1}{4}$ -INCH".
- 6) $1\frac{3}{4}$ " X 3" MOUNTING BOLT WASHER (GALVANIZED).
- 7) $\frac{5}{8}$ " DIA. BUTTON HEAD POST MOUNTING BOLT WITH ROUND WASHER AND NUT.
- 8) $\frac{5}{8}$ " DIA. X 2" HEX BOLTS WITH NUT AND TWO WASHERS EACH.
- 9) PLATE $\frac{1}{2}$ " X $5\frac{3}{4}$ " X 6" AT BASIC POST CONNECTION. $1\frac{1}{4}$ " DIA. HOLES IN PLATE. $1\frac{3}{16}$ " DIA. HOLES IN CHANNEL.
- 11) PLATE $\frac{1}{2}$ " X $5\frac{3}{4}$ " X $11\frac{1}{2}$ ". $1\frac{1}{4}$ " DIA. HOLES IN PLATE, $1\frac{3}{16}$ " DIA. HOLES IN CHANNEL. (AT TYPICAL SLOPE.)

NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE W MODIFIED B-50-2"
WHICH INCLUDES ALL ITEMS SHOWN EXCEPT ADHESIVE ANCHORS.

POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION.

PRIOR TO GALVANIZING, ALL STEEL RAILING POSTS AND CHANNELS SHALL BE GIVEN A NO. 6 COMMERCIAL BLAST CLEANING BY SSPC SPECS.

ALL MATERIAL USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO ASTM DESIGNATION A709 GRADE 36 UNLESS NOTED OTHERWISE.

FILL BOLT OPENINGS IN POST SHIMS & PLATE NO. 3 WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

CHANNEL MEMBER SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF EIGHT (EXCEPT AT ABUTMENTS).

STEEL POST SHIMS MAY BE USED UNDER POSTS WHERE REQ'D.
FOR ALIGNMENT.

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE		B-50-2			
		DRAWN BY	VCH	PLANS CK'D	WCD
RAILING STEEL TYPE "W" MODIFIED			SHEET 2 _____ 119 _____		

B-50-03 GUARDRAIL

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
171+00.00	17100.00	0.00	8.25	3.61	0	0	0	0	0
171+38.00	17138.00	38.00	0.11	50.05	6	38	6	48	-42
171+64.00	17164.00	26.00	0.79	54.91	0	51	6	111	-105
171+89.00	17189.00	25.00	0.15	45.27	0	46	6	169	-163
171+95.00	17195.00	6.00	0.31	36.35	0	9	6	180	-174
172+00.00	17200.00	5.00	0.39	5.16	0	4	6	185	-179
172+20.00	17220.00	20.00	1.26	68.42	1	27	7	219	-212
172+43.00	17243.00	23.00	1.94	9.34	1	33	8	260	-252
172+44.00	17244.00	1.00	1.72	9.44	0	0	8	260	-252
172+50.00	17250.00	6.00	0.63	9.93	0	2	8	263	-255
172+60.00	17260.00	10.00	0.29	31.07	0	8	8	273	-265
172+79.00	17279.00	19.00	0.62	31.29	0	22	8	300	-292
172+95.00	17295.00	16.00	0.00	1.70	0	10	8	313	-305
173+37.00	17337.00	42.00	0.15	11.41	0	10	8	325	-317
173+50.00	17350.00	13.00	8.97	42.53	2	13	10	341	-331
173+52.00	17352.00	2.00	9.75	49.59	1	3	11	345	-334
173+74.00	17374.00	22.00	9.40	85.49	8	55	19	414	-395
173+87.00	17387.00	13.00	8.72	66.83	4	37	23	460	-437
174+00.00	17400.00	13.00	8.52	36.81	4	25	27	491	-464
174+03.00	17403.00	3.00	7.69	39.22	1	4	28	496	-468
174+27.00	17427.00	24.00	4.17	32.85	5	32	33	536	-503
174+50.00	17450.00	23.00	0.94	6.92	2	17	35	558	-523
174+52.00	17452.00	2.00	0.95	6.72	0	1	35	559	-524
174+53.00	17453.00	1.00	1.26	7.42	0	0	35	559	-524
174+78.00	17478.00	25.00	4.22	24.72	3	15	38	578	-540
175+00.00	17500.00	22.00	0.85	8.24	2	13	40	594	-554
175+50.00	17550.00	50.00	7.81	13.36	8	20	48	619	-571

DIVISION 1 -50-02 GUARDRAIL

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT	EXPANDED FILL	MASS ORDINATE
					NOTE 1	NOTE 3	1.00 NOTE 1	1.25	NOTE 8
431+50.00	43150.00	0.00	1.75	1.12	0	0	0	0	0
431+86.00	43186.00	36.00	0.09	12.85	1	9	1	11	-10
432+00.00	43200.00	14.00	0.37	21.03	0	9	1	23	-22
432+11.00	43211.00	11.00	0.40	36.92	0	12	1	38	-37
432+12.00	43212.00	1.00	0.41	38.34	0	1	1	39	-38
432+36.00	43236.00	24.00	0.06	51.60	0	40	1	89	-88
432+37.00	43237.00	1.00	0.11	51.17	0	2	1	91	-90
432+50.00	43250.00	13.00	1.75	51.40	0	25	1	123	-122
432+62.00	43262.00	12.00	2.36	56.46	1	24	2	153	-151
432+64.00	43264.00	2.00	1.32	56.80	0	4	2	158	-156
432+77.00	43277.00	13.00	0.01	60.05	0	28	2	193	-191
432+99.00	43299.00	22.00	1.41	51.02	1	45	3	249	-246
433+00.00	43300.00	1.00	2.41	61.60	0	2	3	251	-248
433+13.00	43313.00	13.00	0.00	2.49	1	15	4	270	-266
433+35.00	43335.00	22.00	0.09	17.79	0	8	4	280	-276
433+71.00	43371.00	36.00	0.27	30.93	0	32	4	320	-316
434+00.00	43400.00	29.00	0.29	27.53	0	31	4	359	-355
434+50.00	43450.00	50.00	0.53	38.36	1	61	5	435	-430
434+86.00	43486.00	36.00	0.24	36.08	1	50	6	498	-492
435+00.00	43500.00	14.00	0.24	35.39	0	19	6	521	-515
435+02.00	43502.00	2.00	0.23	36.09	0	3	6	525	-519
435+11.00	43511.00	9.00	0.17	40.74	0	13	6	541	-535
435+27.00	43527.00	16.00	0.06	34.93	0	22	6	569	-563
435+36.00	43536.00	9.00	0.01	38.89	0	12	6	584	-578
435+50.00	43550.00	14.00	0.01	43.34	0	21	6	610	-604
435+52.00	43552.00	2.00	0.02	43.59	0	3	6	614	-608

RIPRAP LINED SWALE EXCAVATION																						
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)			STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)					
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDNATE				CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDNATE			
																				NOTE 1	NOTE 3	NOTE 1
643+26.03	64326.03	0.00	0.00	0.00	0	0	0	0	0	653+25.00	65325.00	25.00	166.76	0.00	154	0	1,273	0	1,273			
643+50.00	64350.00	23.97	0.00	0.00	0	0	0	0	0	653+50.00	65350.00	25.00	9.00	0.00	81	0	1,354	0	1,354			
643+75.00	64375.00	25.00	0.00	0.00	0	0	0	0	0	653+75.00	65375.00	25.00	9.00	0.00	8	0	1,362	0	1,362			
644+00.00	64400.00	25.00	0.00	0.00	0	0	0	0	0	654+00.00	65400.00	25.00	9.00	0.00	8	0	1,370	0	1,370			
644+25.00	64425.00	25.00	0.00	0.00	0	0	0	0	0	654+25.00	65425.00	25.00	9.00	0.00	8	0	1,378	0	1,378			
644+50.00	64450.00	25.00	0.00	0.00	0	0	0	0	0	654+50.00	65450.00	25.00	9.00	0.00	8	0	1,386	0	1,386			
644+72.81	64472.81	22.81	160.86	0.00	68	0	68	0	68	654+58.20	65458.20	8.20	166.76	0.00	27	0	1,413	0	1,413			
644+75.00	64475.00	2.19	9.00	0.00	7	0	75	0	75	654+75.00	65475.00	16.80	9.00	0.00	55	0	1,468	0	1,468			
645+00.00	64500.00	25.00	9.00	0.00	8	0	83	0	83	655+00.00	65500.00	25.00	9.00	0.00	8	0	1,476	0	1,476			
645+17.15	64517.15	17.15	9.00	0.00	6	0	89	0	89	655+02.53	65502.53	2.53	9.00	0.00	1	0	1,477	0	1,477			
645+25.00	64525.00	7.85	166.78	0.00	26	0	115	0	115	655+25.00	65525.00	22.47	9.00	0.00	7	0	1,484	0	1,484			
645+50.00	64550.00	25.00	163.38	0.00	153	0	268	0	268	655+50.00	65550.00	25.00	9.00	0.00	8	0	1,492	0	1,492			
645+75.00	64575.00	25.00	9.00	0.00	80	0	348	0	348	655+75.00	65575.00	25.00	9.00	0.00	8	0	1,500	0	1,500			
646+00.00	64600.00	25.00	9.09	0.00	8	0	356	0	356	656+00.00	65600.00	25.00	7.76	0.00	8	0	1,508	0	1,508			
646+25.00	64625.00	25.00	9.00	0.00	8	0	364	0	364	656+12.75	65612.75	12.75	4.13	0.00	3	0	1,511	0	1,511			
646+50.00	64650.00	25.00	9.00	0.00	8	0	372	0	372													
646+75.00	64675.00	25.00	9.15	0.00	8	0	380	0	380													
647+00.00	64700.00	25.00	9.08	0.00	8	0	388	0	388													
647+25.00	64725.00	25.00	9.10	0.00	8	0	396	0	396													
647+50.00	64750.00	25.00	9.00	0.00	8	0	404	0	404													
647+75.00	64775.00	25.00	168.20	0.00	82	0	486	0	486													
648+00.00	64800.00	25.00	9.00	0.00	82	0	568	0	568													
648+25.00	64825.00	25.00	9.00	0.00	8	0	576	0	576													
648+50.00	64850.00	25.00	9.11	0.00	8	0	584	0	584													
648+75.00	64875.00	25.00	174.21	0.00	85	0	669	0	669													
649+00.00	64900.00	25.00	9.00	0.00	85	0	754	0	754													
649+13.83	64913.83	13.83	9.00	0.00	5	0	759	0	759													
649+15.00	64915.00	1.17	9.00	0.00	0	0	759	0	759													
649+20.00	64920.00	5.00	9.33	0.00	2	0	761	0	761													
649+25.00	64925.00	5.00	3.00	0.00	1	0	762	0	762													
649+30.00	64930.00	5.00	3.00	0.00	1	0	763	0	763													
649+35.00	64935.00	5.00	3.00	0.00	1	0	764	0	764													
649+40.00	64940.00	5.00	3.00	0.00	1	0	765	0	765													
649+45.00	64945.00	5.00	3.04	0.00	1	0	766	0	766													
649+50.00	64950.00	5.00	3.00	0.00	1	0	767	0	767													
649+55.00	64955.00	5.00	3.00	0.00	1	0	768	0	768													
649+60.00	64960.00	5.00	3.00	0.00	1	0	769	0	769													
649+65.00	64965.00	5.00	3.00	0.00	1	0	770	0	770													
649+70.00	64970.00	5.00	3.00	0.00	1	0	771	0	771													
649+75.00	64975.00	5.00	3.00	0.00	1	0	772	0	772													
649+80.00	64980.00	5.00	3.00	0.00	1	0	773	0	773													
649+85.00	64985.00	5.00	3.00	0.00	1	0	774	0	774													
649+90.00	64990.00	5.00	3.00	0.00	1	0	775	0	775													
649+95.00	64995.00	5.00	3.00	0.00	1	0	776	0	776													
650+00.00	65000.00	5.00	2.99	0.00	1	0	777	0	777													
650+05.00	65005.00	5.00	3.00	0.00	1	0	778	0	778													
650+10.00	65010.00	5.00	3.00	0.00	1	0	779	0	779													
650+15.00	65015.00	5.00	3.00	0.00	1	0	780	0	780													
650+20.00	65020.00	5.00	2.99	0.00	1	0	781	0	781													
650+25.00	65025.00	5.00	9.00	0.00	1	0	782	0	782													
650+30.00	65030.00	5.00	9.00	0.00	2	0	784	0	784													
650+35.00	65035.00	5.00	166.34	0.00	16	0	800	0	800													
650+40.00	65040.00	5.00	166.35	0.00	31	0	831	0	831													
650+45.00	65045.00	5.00	166.49	0.00	31	0	862	0	862													
650+50.00	65050.00	5.00	166.76	0.00	31	0	893	0	893													
650+75.00	65075.00	25.00	9.00	0.00	81	0	974	0	974													
651+00.00	65100.00	25.00	9.00	0.00	8	0	982	0	982													
651+25.00	65125.00	25.00	9.00	0.00	8	0	990	0	990													
651+50.00	65150.00	25.00	9.00	0.00	8	0	998	0	998													
651+75.00	65175.00	25.00	9.00	0.00	8	0	1,006	0	1,006													
652+00.00	65200.00	25.00	9.00	0.00	8	0	1,014	0	1,014													
652+25.00	65225.00	25.00	9.00	0.00	8	0	1,022	0	1,022													
652+50.00	65250.00	25.00	9.00	0.00	8	0	1,030	0	1,030													
652+75.00	65275.00	25.00	9.00	0.00	8	0	1,038	0	1,038													
653+00.00	65300.00	25.00	166.76	0.00	81	0	1,119	0	1,119													
PROJECT NO: 9488-02-70					HWY: CTH D					COUNTY: PRICE					EARTHWORK DATA					SHEET 122		E

CUL-DE-SAC

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
					NOTE 1	NOTE 3	NOTE 1		NOTE 8
7+26.40	726.40	0.00	12.83	0.97	0	0	0	0	0
7+50.00	750.00	23.60	35.86	11.54	21	5	21	6	15
7+75.00	775.00	25.00	38.90	1.26	35	6	56	14	42
8+00.00	800.00	25.00	51.60	5.51	42	3	98	18	81
8+25.00	825.00	25.00	65.21	2.74	54	4	152	23	130
8+50.00	850.00	25.00	55.01	1.30	56	2	208	25	183
8+75.00	875.00	25.00	32.24	0.26	40	1	248	26	222

MINK DRIVE

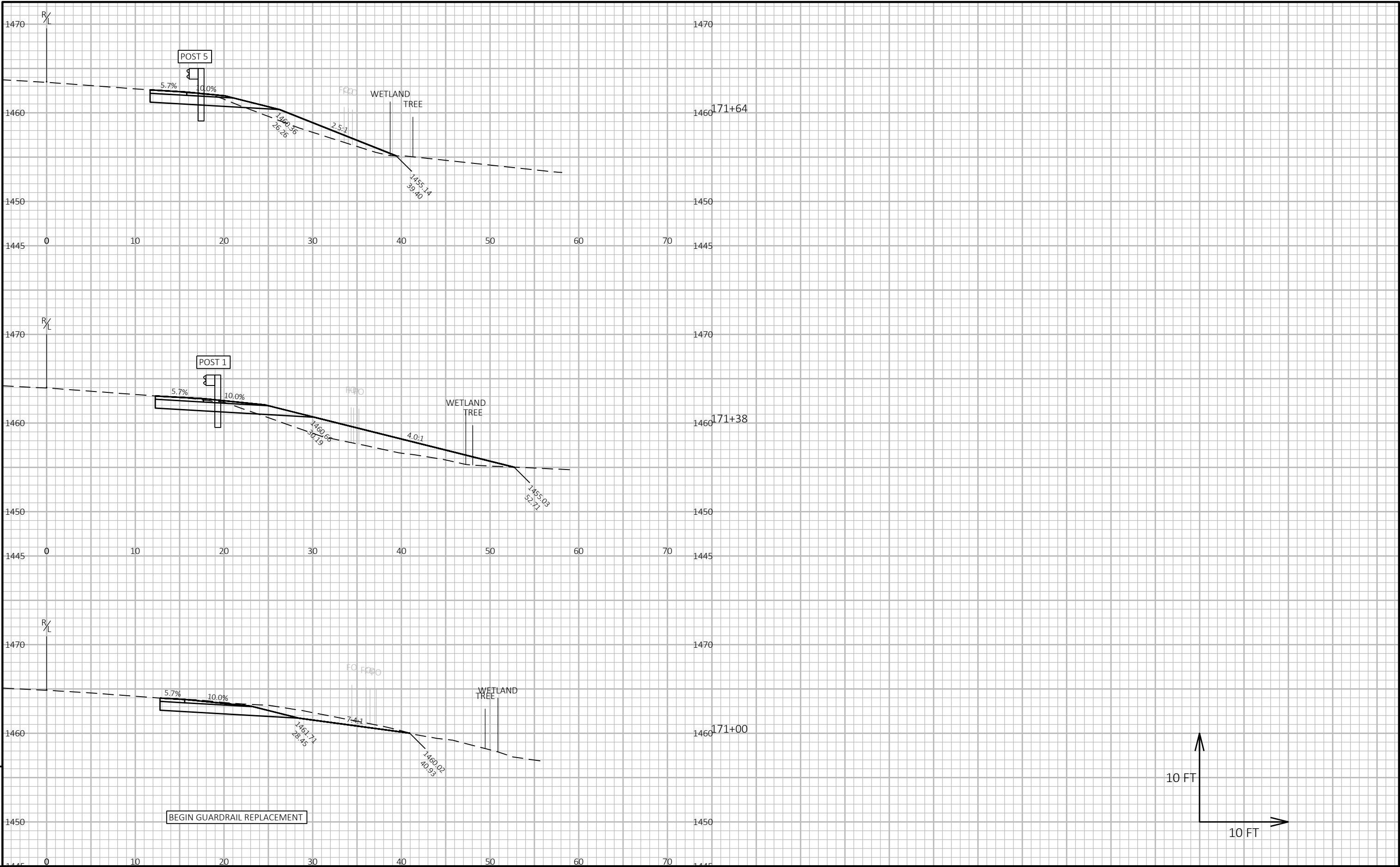
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
					NOTE 1	NOTE 3	NOTE 1		NOTE 8
801+40.00	80140.00	0.00	21.64	0.00	0	0	0	0	0
801+45.00	80145.00	5.00	47.21	0.00	6	0	6	0	6
801+50.00	80150.00	5.00	68.69	0.00	11	0	17	0	17
801+55.00	80155.00	5.00	84.84	0.00	14	0	31	0	31
801+60.00	80160.00	5.00	107.67	0.00	18	0	49	0	49
801+65.00	80165.00	5.00	143.89	0.00	23	0	72	0	72
801+70.00	80170.00	5.00	155.66	0.00	28	0	100	0	100
801+75.00	80175.00	5.00	132.61	0.00	27	0	127	0	127
801+80.00	80180.00	5.00	102.34	0.00	22	0	149	0	149
801+85.00	80185.00	5.00	85.99	0.00	17	0	166	0	166
801+90.00	80190.00	5.00	74.79	0.00	15	0	181	0	181
801+95.00	80195.00	5.00	65.15	0.00	13	0	194	0	194
802+00.00	80200.00	5.00	60.31	0.00	12	0	206	0	206
802+05.00	80205.00	5.00	54.66	0.01	11	0	217	0	217
802+25.00	80225.00	20.00	38.58	0.00	35	0	252	0	252
802+50.00	80250.00	25.00	23.44	0.00	29	0	281	0	281
802+75.00	80275.00	25.00	0.00	6.39	11	3	292	0	292
803+00.00	80300.00	25.00	0.00	18.11	0	11	292	0	292
803+25.00	80325.00	25.00	0.00	41.71	0	28	292	0	292
803+50.00	80350.00	25.00	6.35	0.27	3	19	295	0	295
803+60.00	80360.00	10.00	19.61	0.00	5	0	300	0	300
803+70.00	80370.00	10.00	28.74	0.00	9	0	309	0	309
803+80.00	80380.00	10.00	36.81	0.00	12	0	321	0	321

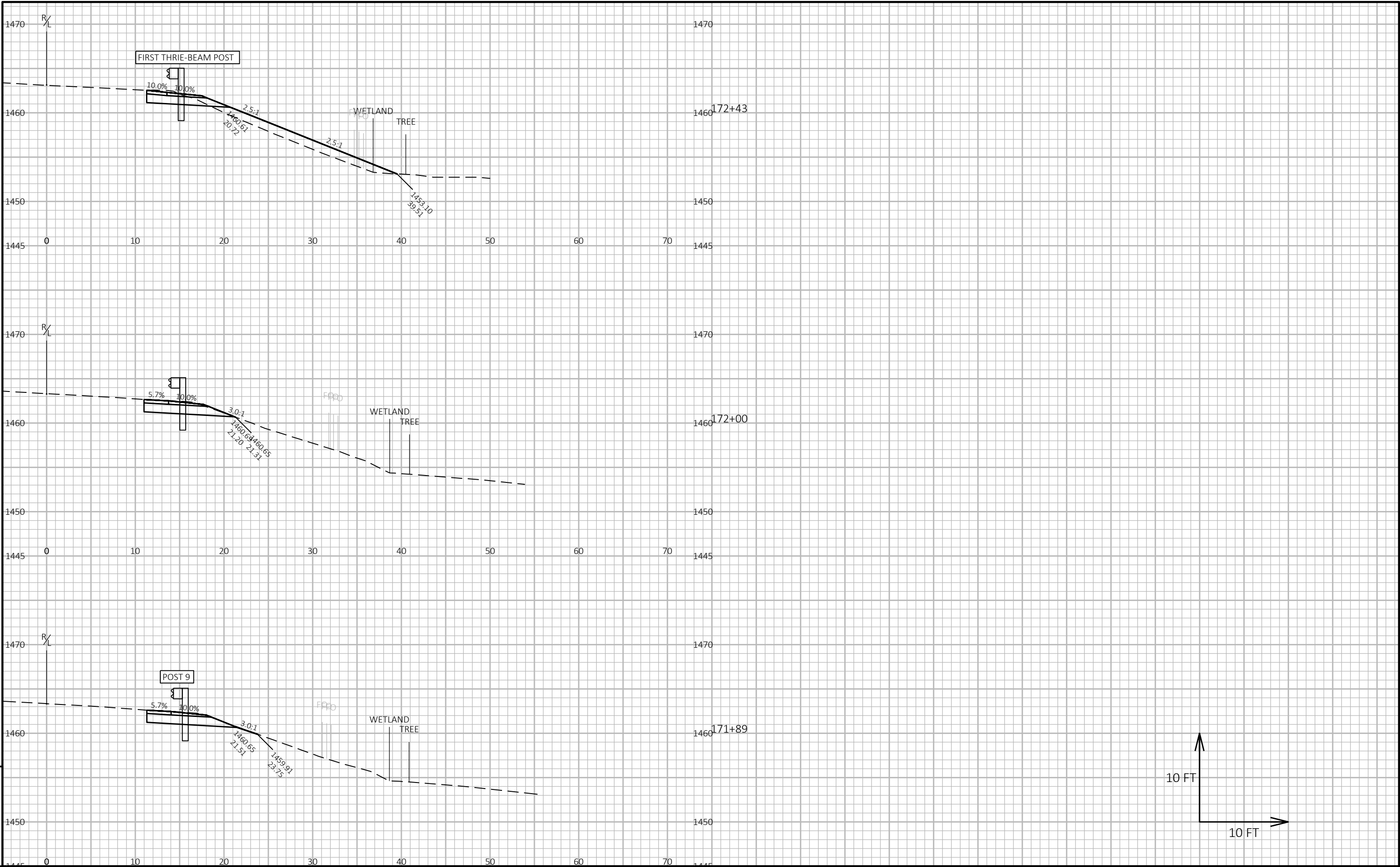
OBLITERATED ROAD

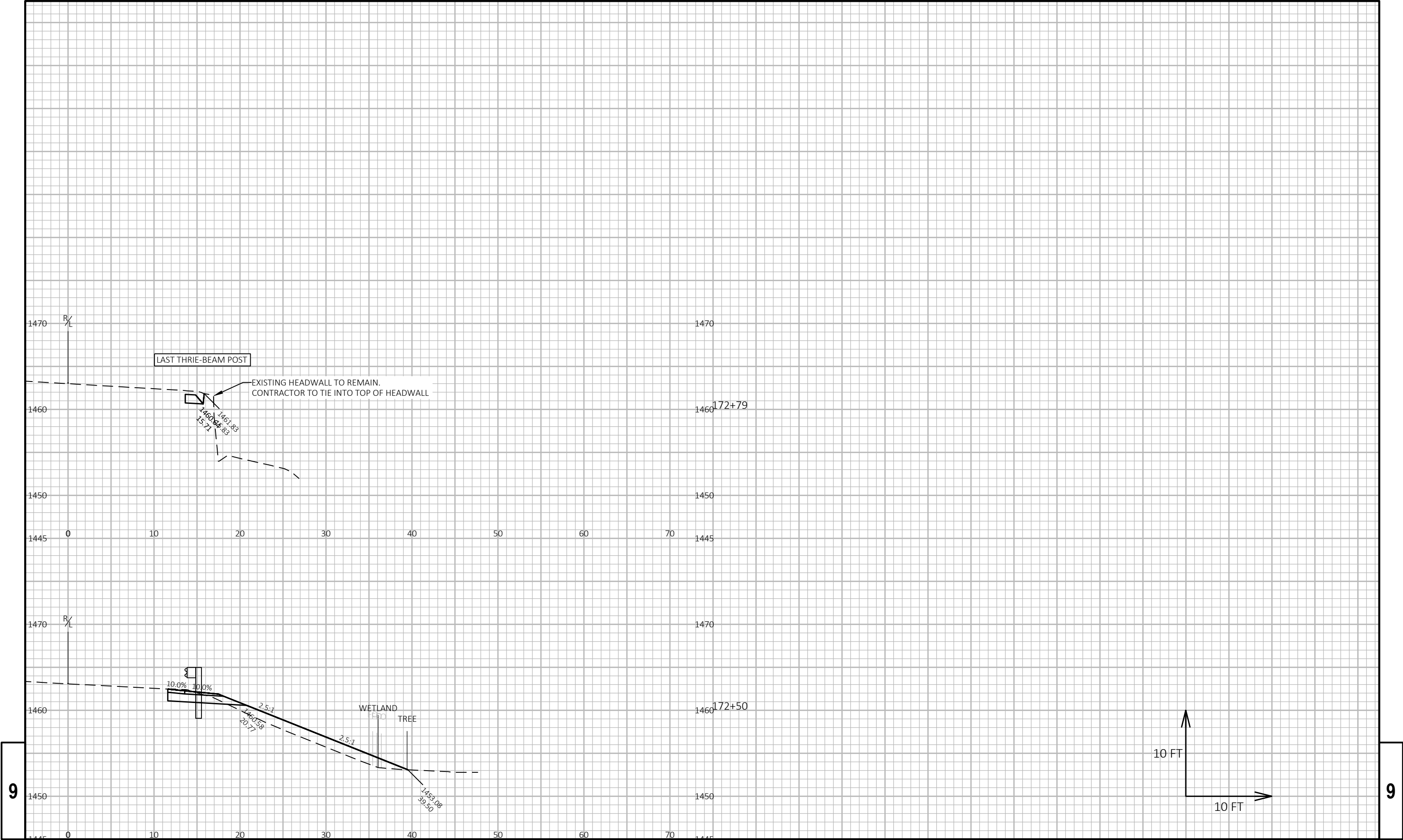
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.25	MASS ORDINATE
					NOTE 1	NOTE 3	NOTE 1		NOTE 8
10+96.49	1096.49	0.00	23.45	0.18	0	0	0	0	0
11+00.00	1100.00	3.51	21.44	0.11	3	0	3	0	3
11+10.00	1110.00	10.00	18.92	0.00	7	0	10	0	10
11+20.00	1120.00	10.00	12.74	0.00	6	0	16	0	16
11+30.00	1130.00	10.00	6.97	0.00	4	0	20	0	20
11+40.00	1140.00	10.00	4.96	0.00	2	0	22	0	22
11+50.00	1150.00	10.00	4.55	0.00	2	0	24	0	24
11+60.00	1160.00	10.00	3.46	0.00	1	0	25	0	25
11+68.34	1168.34	8.34	3.19	0.00	1	0	26	0	26
11+75.00	1175.00	6.66	3.97	0.00	1	0	27	0	27
12+00.00	1200.00	25.00	2.54	0.00	3	0	30	0	30
12+25.00	1225.00	25.00	4.25	0.00	3	0	33	0	33
12+50.00	1250.00	25.00	4.70	0.00	4	0	37	0	37
12+75.00	1275.00	25.00	5.30	0.00	5	0	42	0	42
13+00.00	1300.00	25.00	6.91	0.00	6	0	48	0	48
13+25.00	1325.00	25.00	7.70	0.00	7	0	55	0	55
13+50.00	1350.00	25.00	8.14	0.00	7	0	62	0	62
13+75.00	1375.00	25.00	8.76	0.00	8	0	70	0	70
13+85.37	1385.37	10.37	6.91	0.00	3	0	73	0	73

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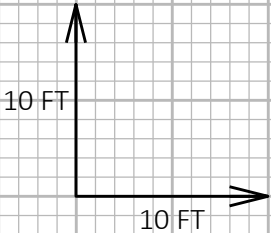
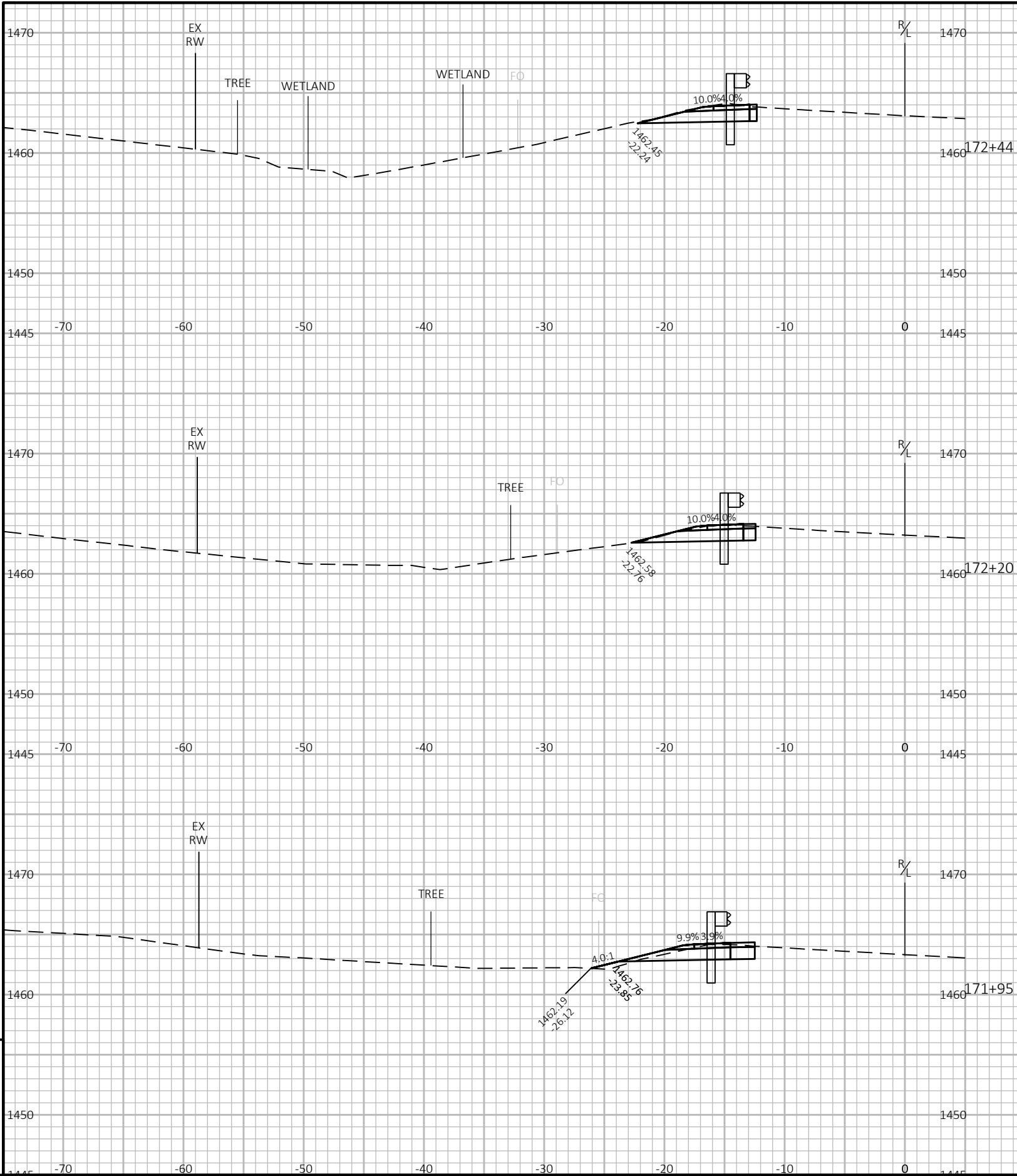






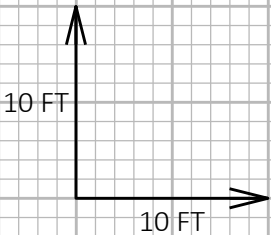
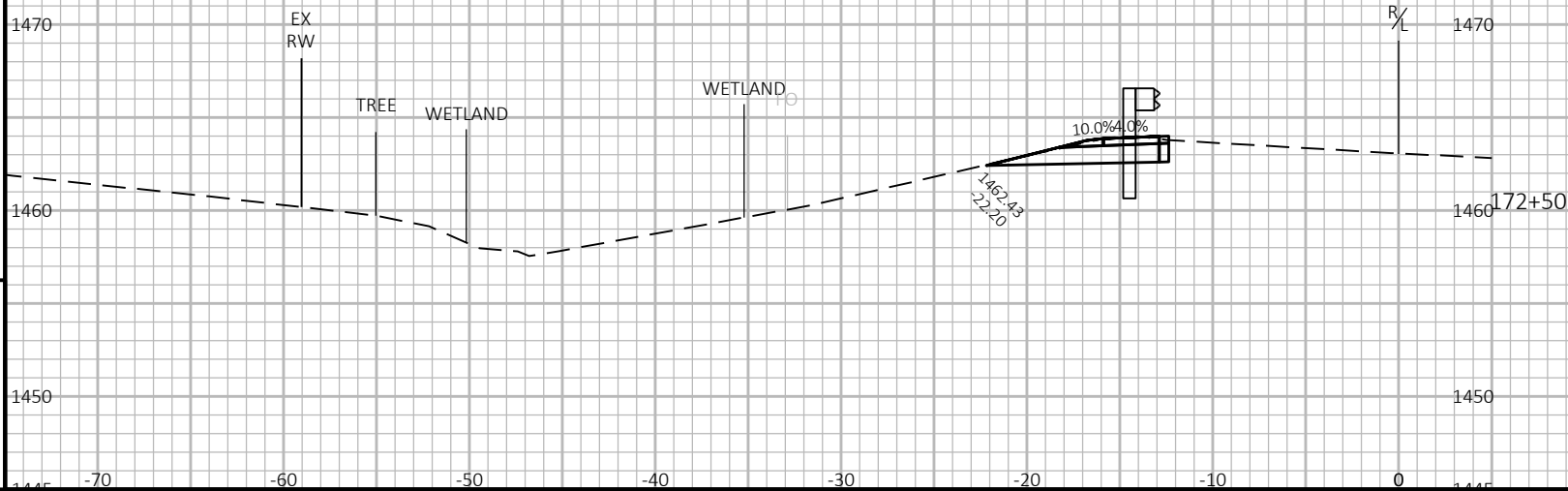
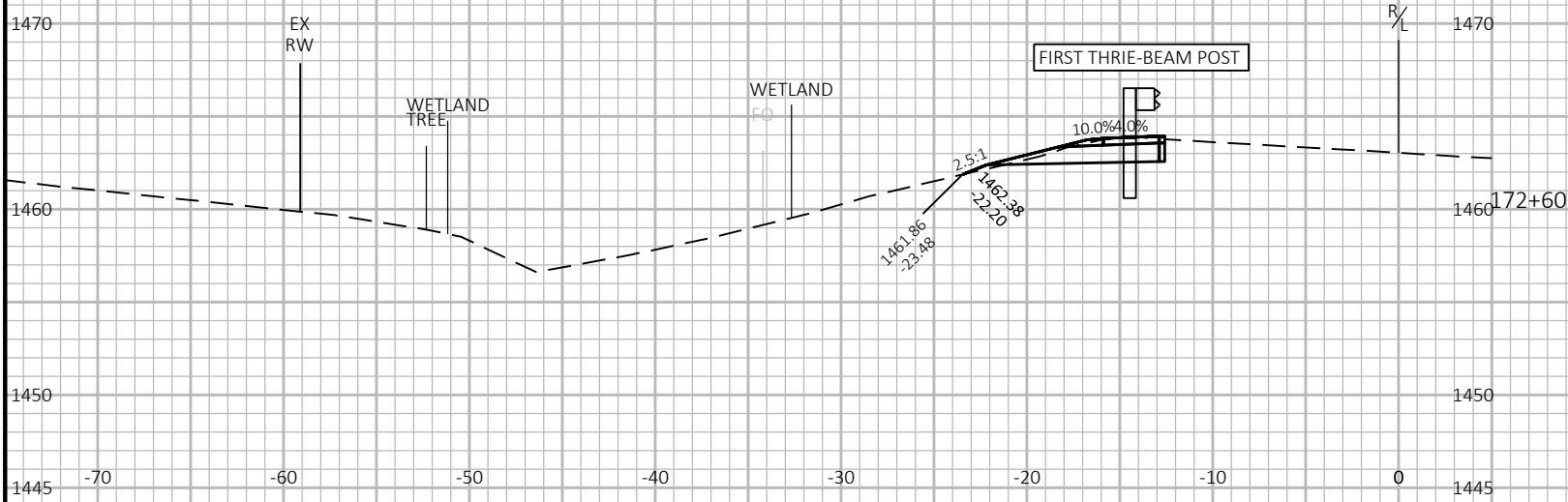
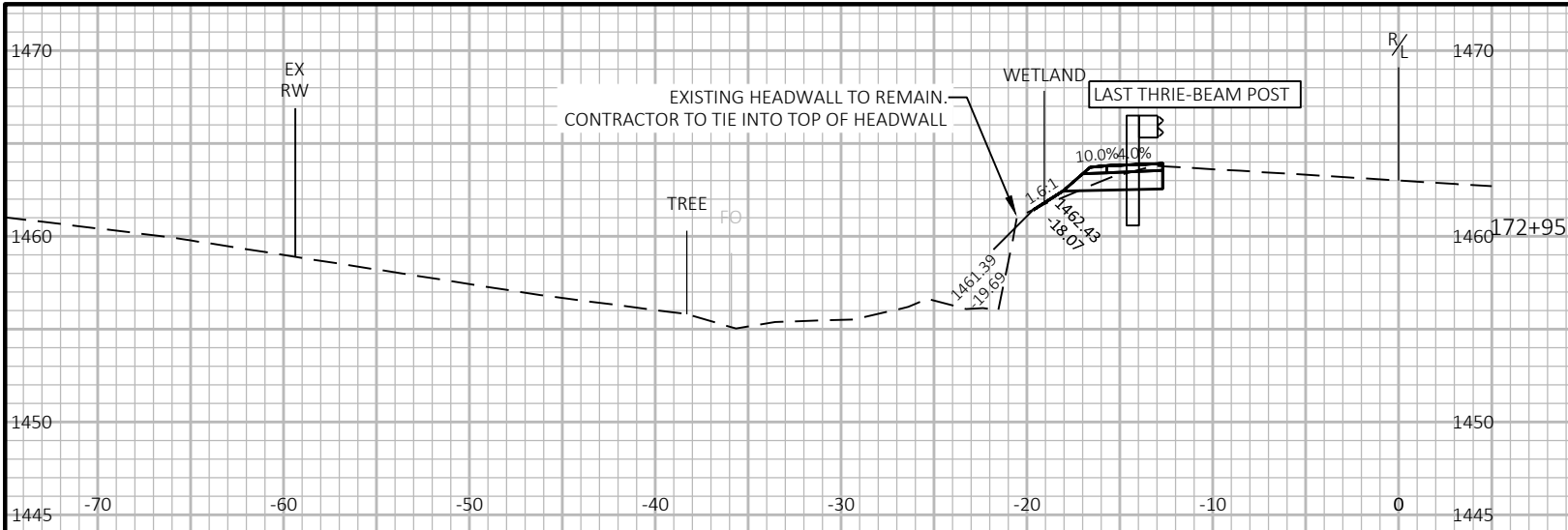
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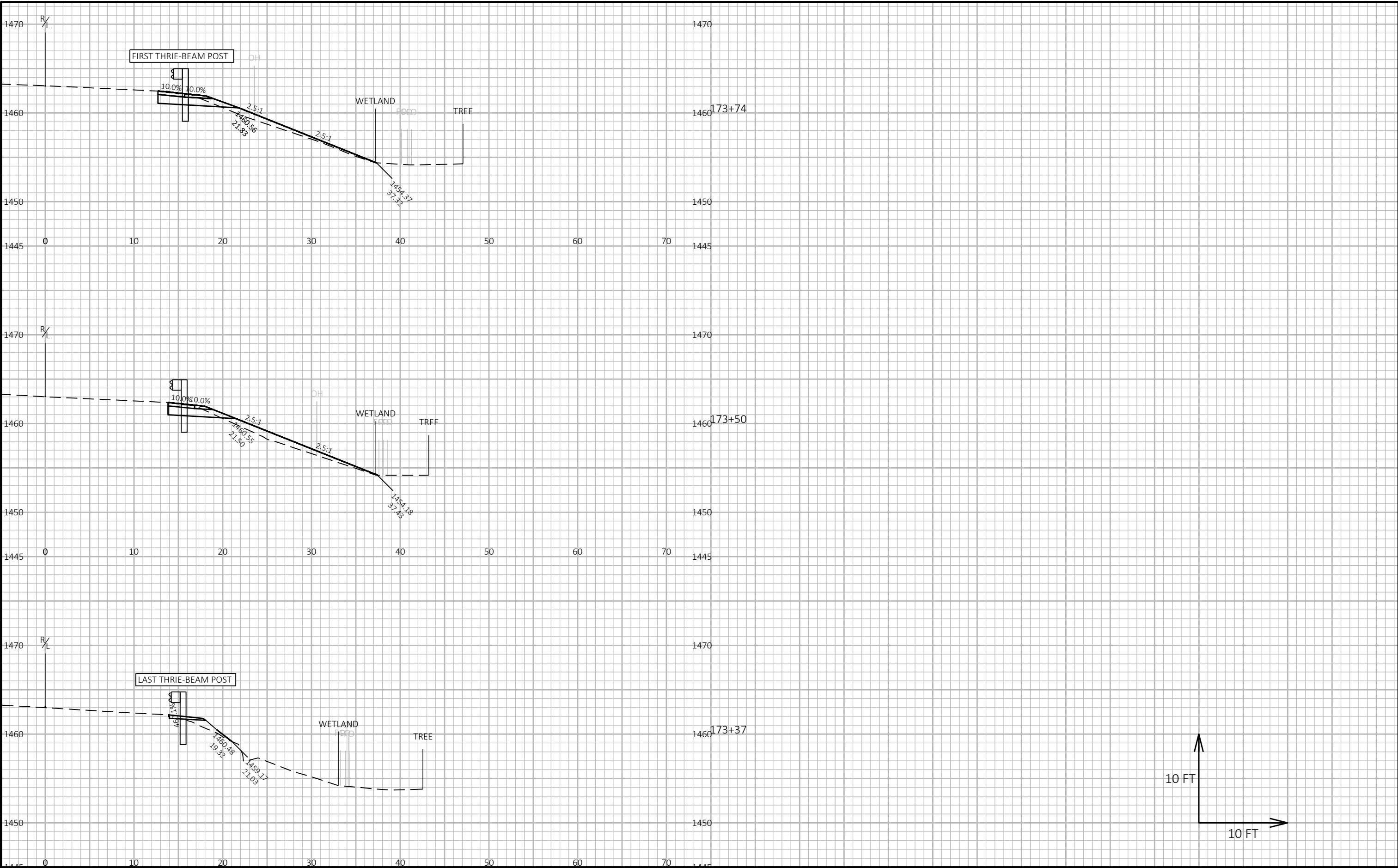
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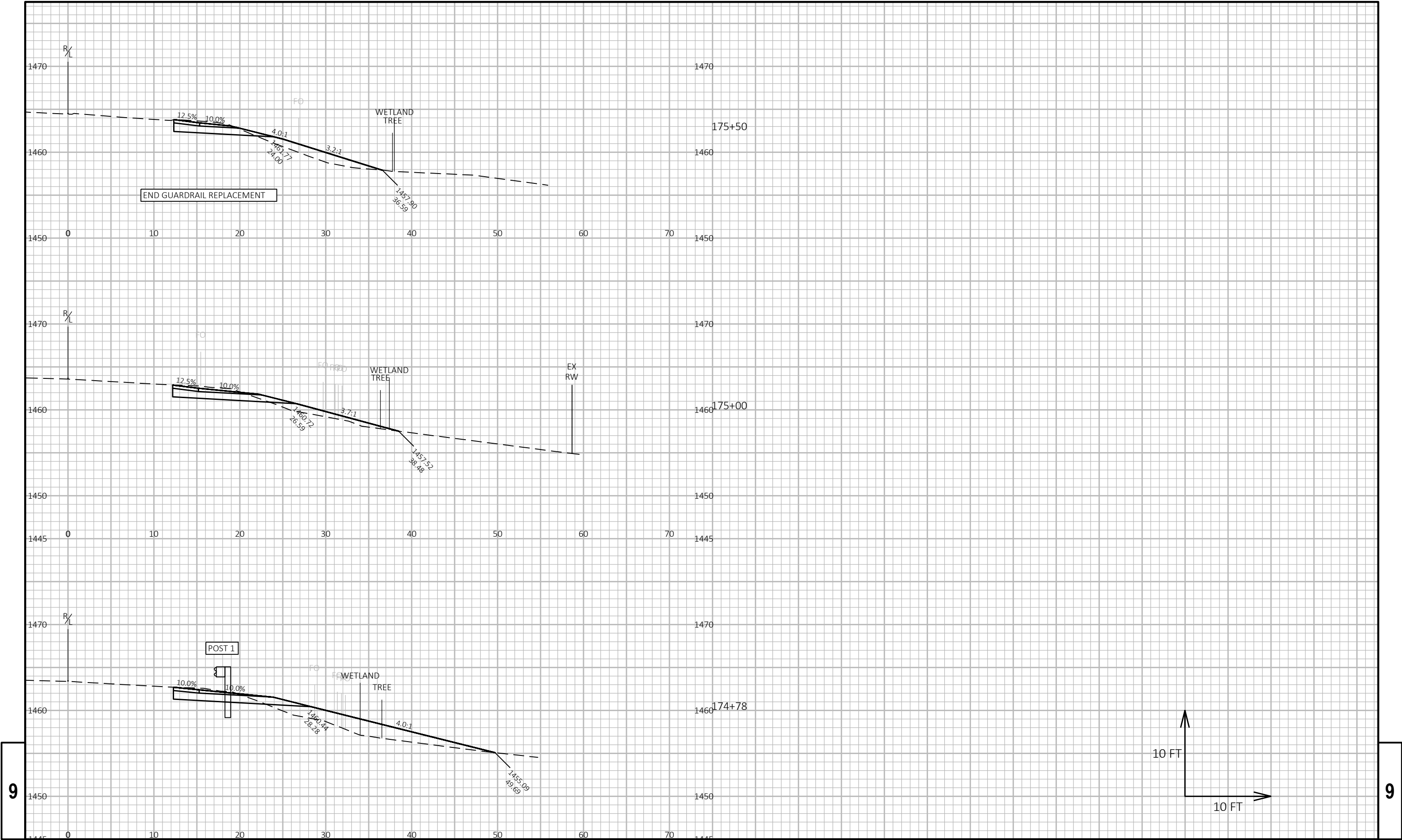
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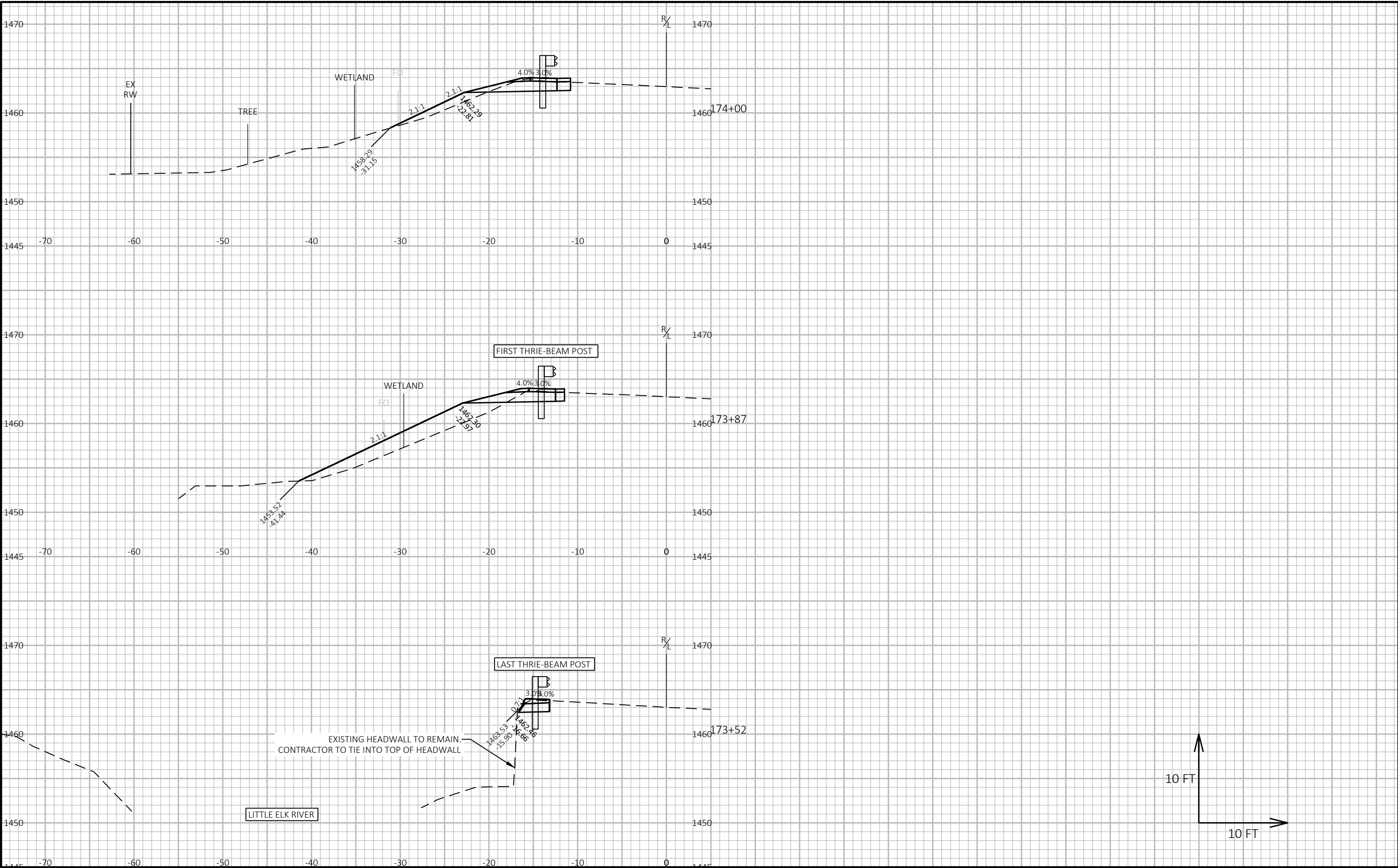
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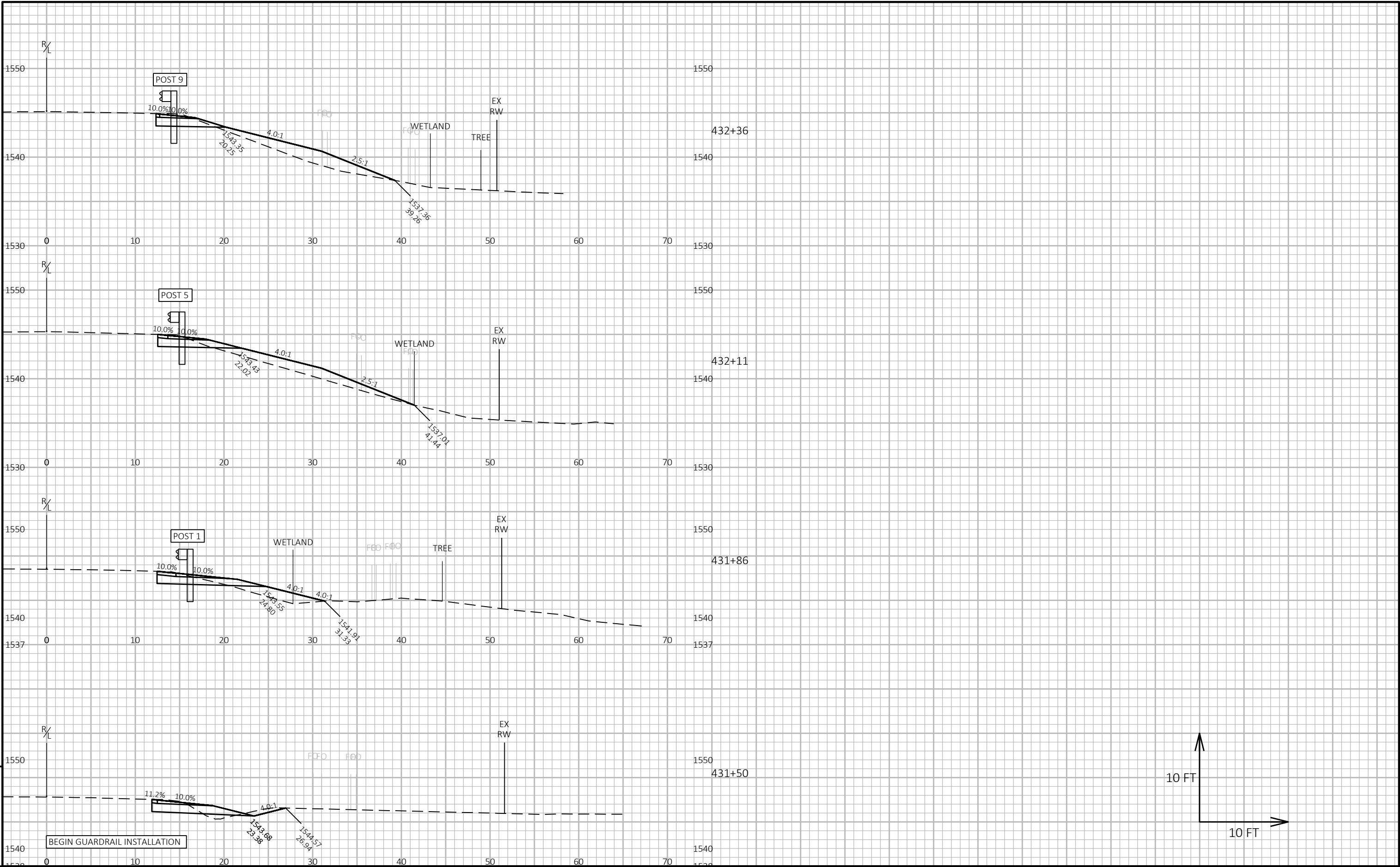
PROJECT NO: 9488-02-70	HWY: CTH D	COUNTY: PRICE	CROSS SECTIONS: B-50-03 GUARDRAIL CROSS SECTIONS	SHEET 129	E
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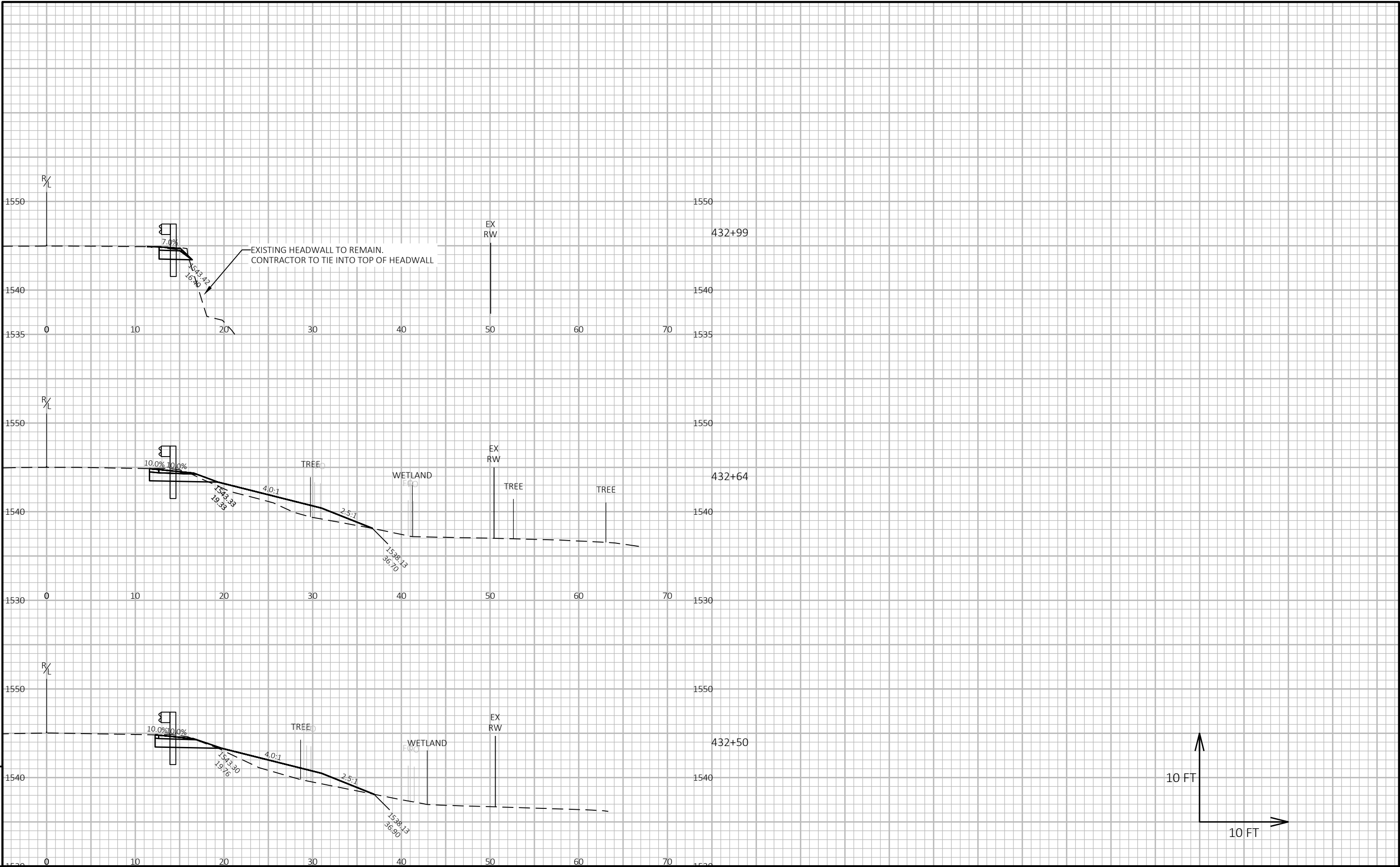


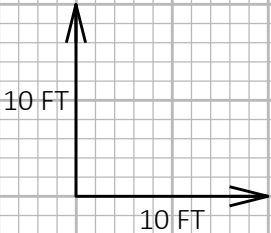
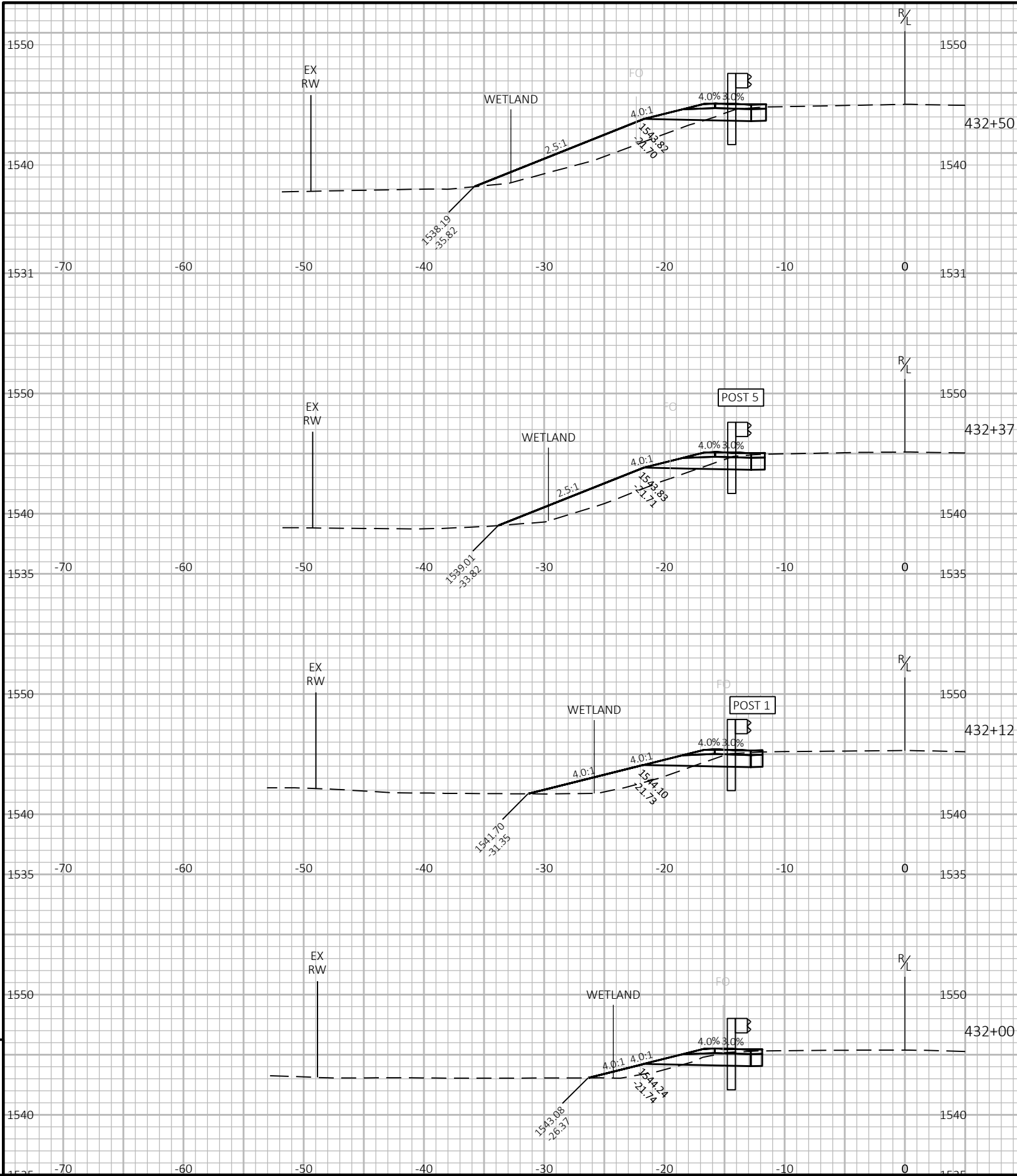
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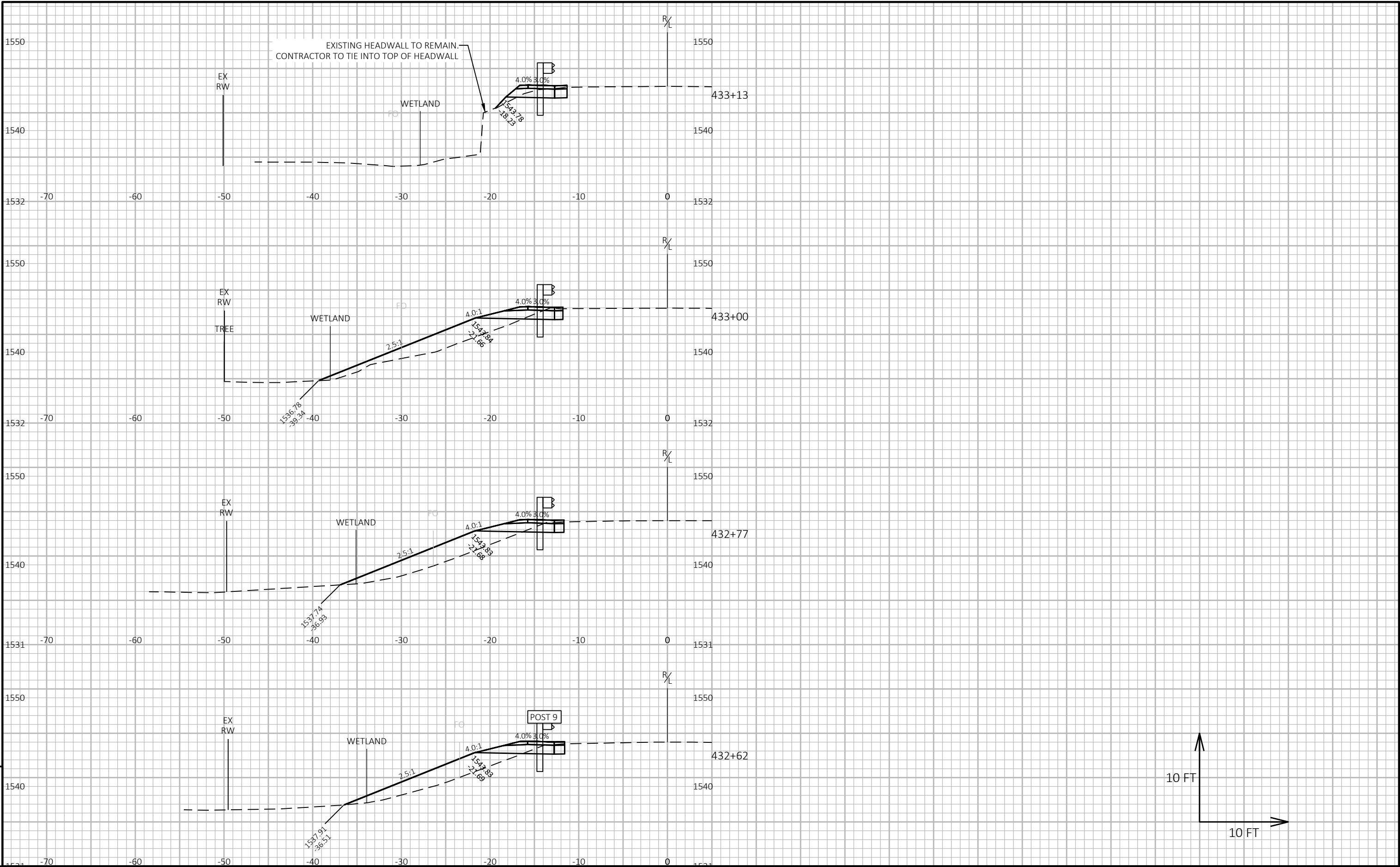
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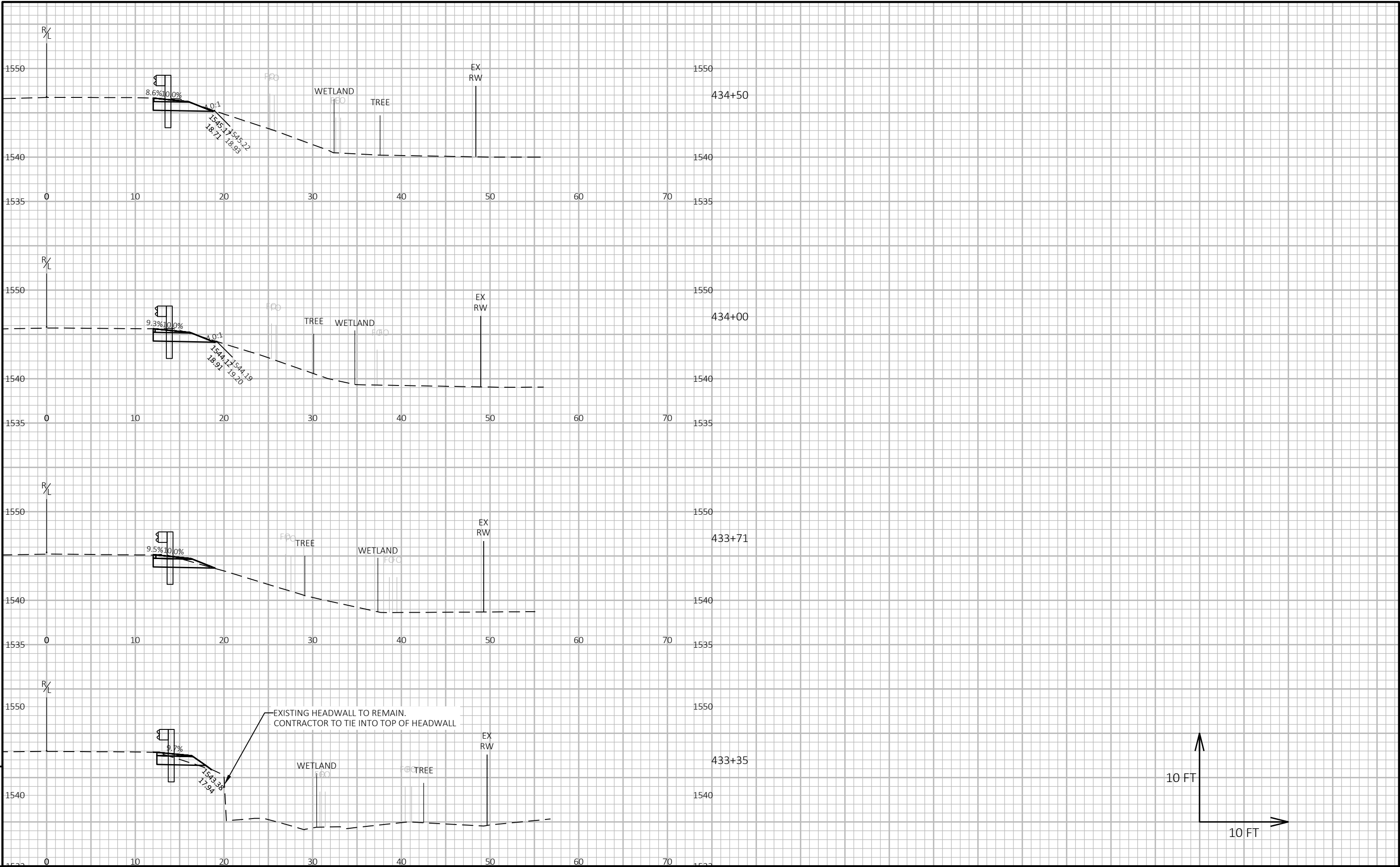


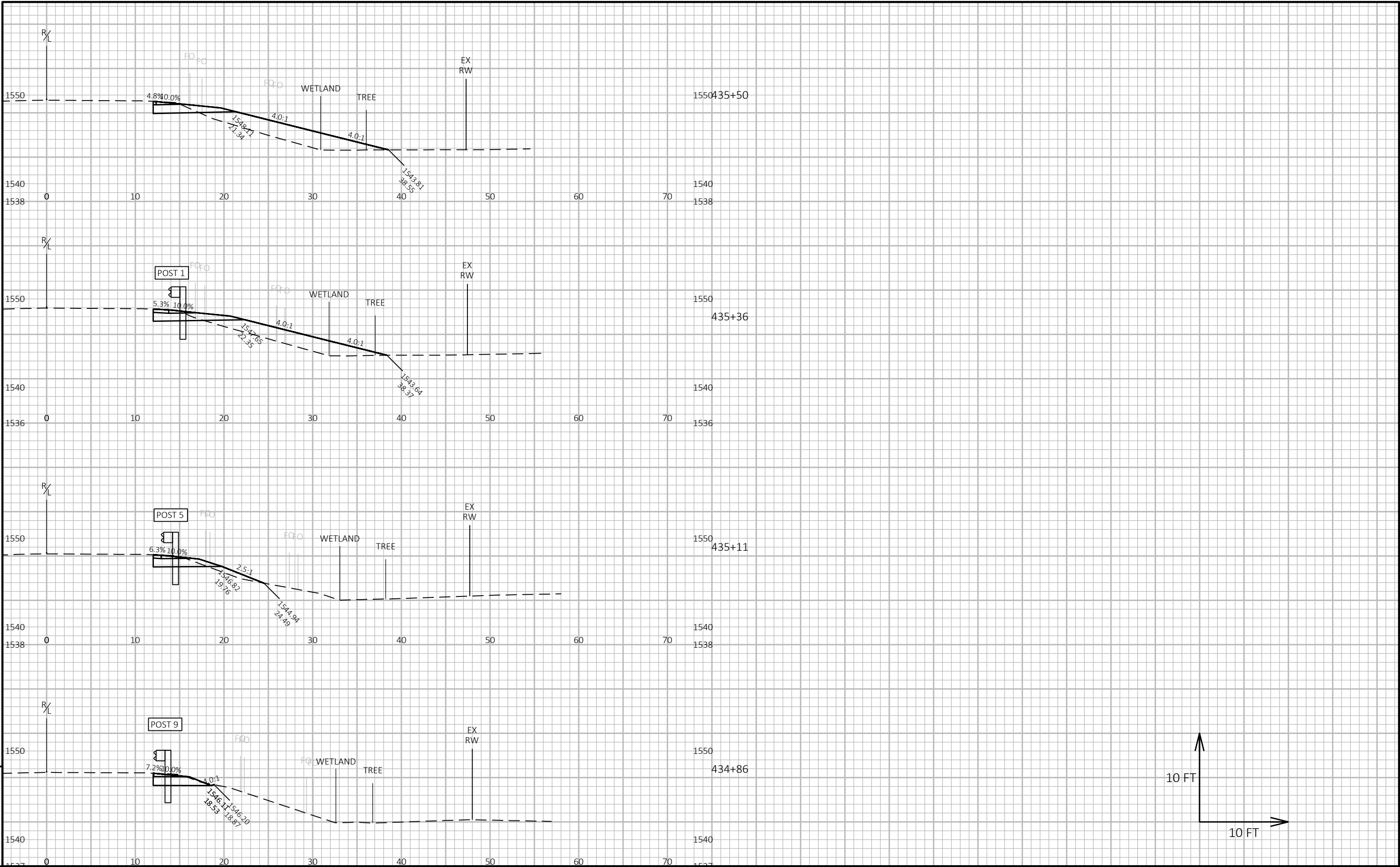








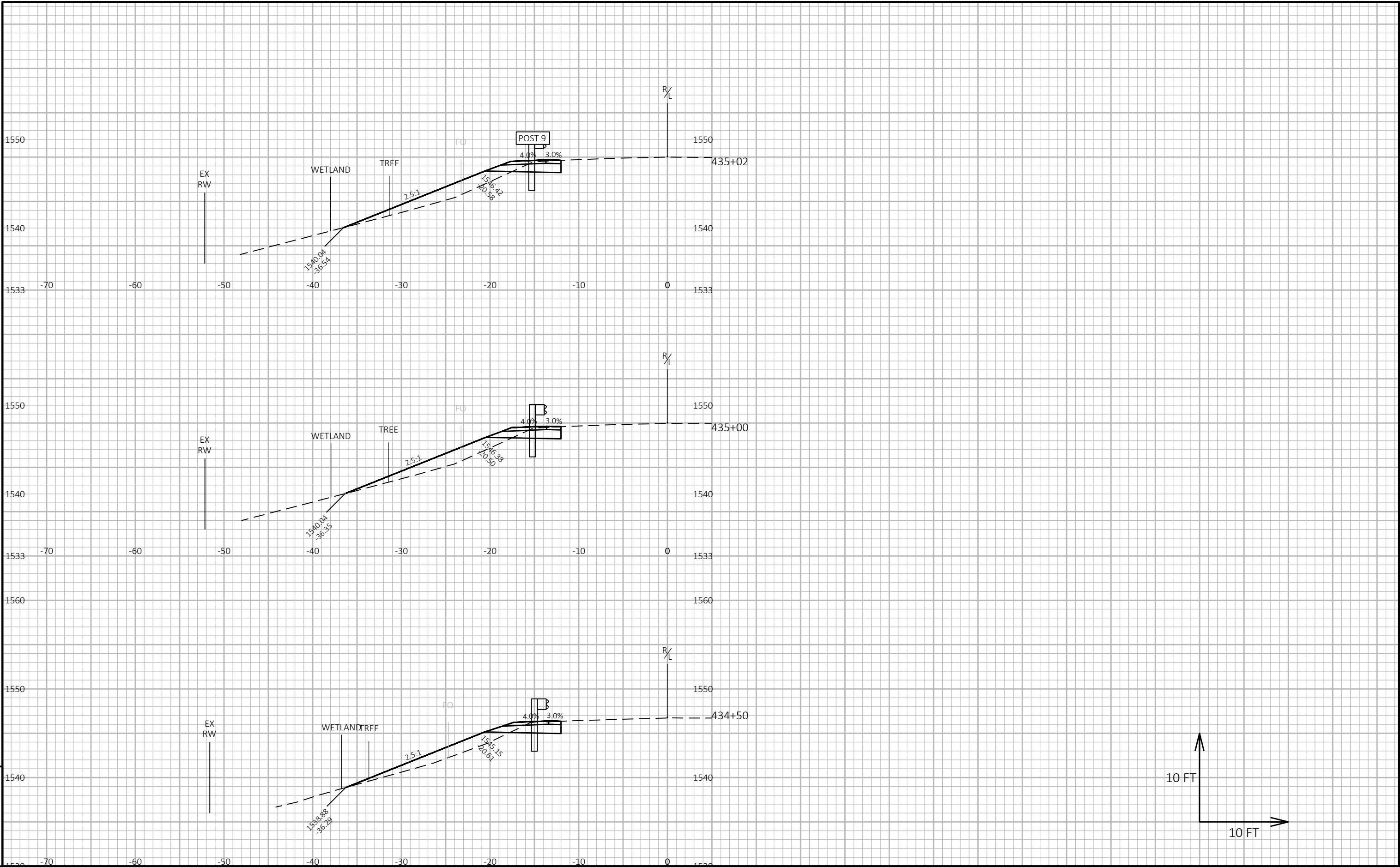


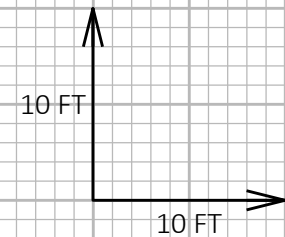
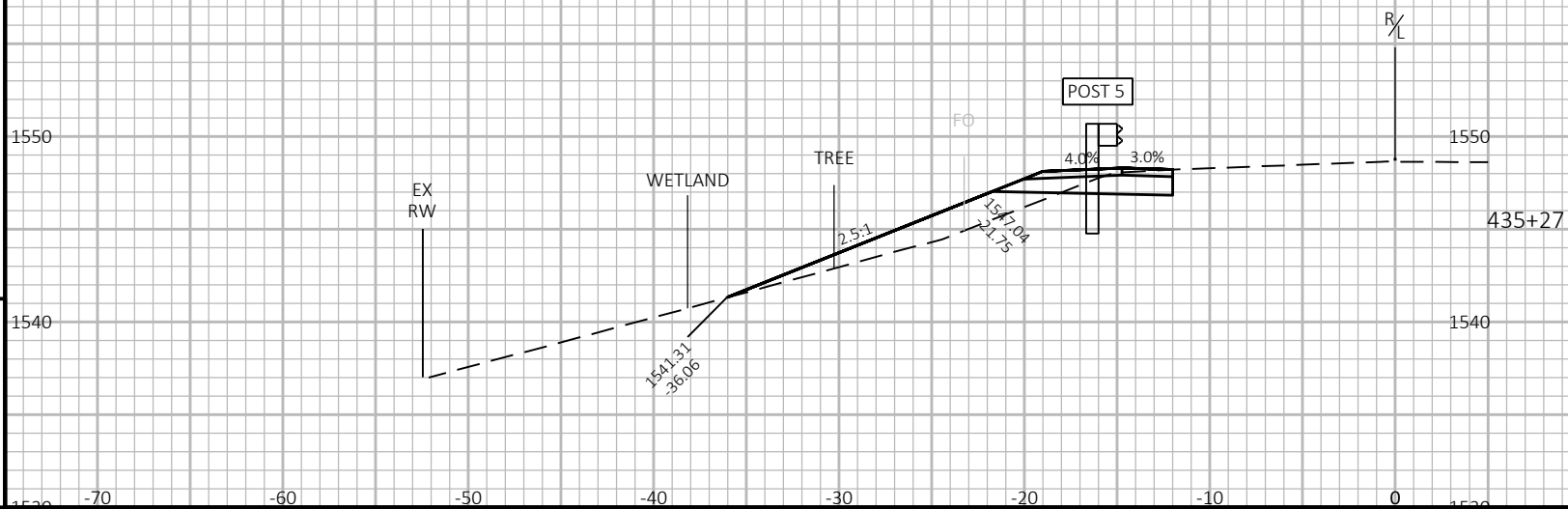


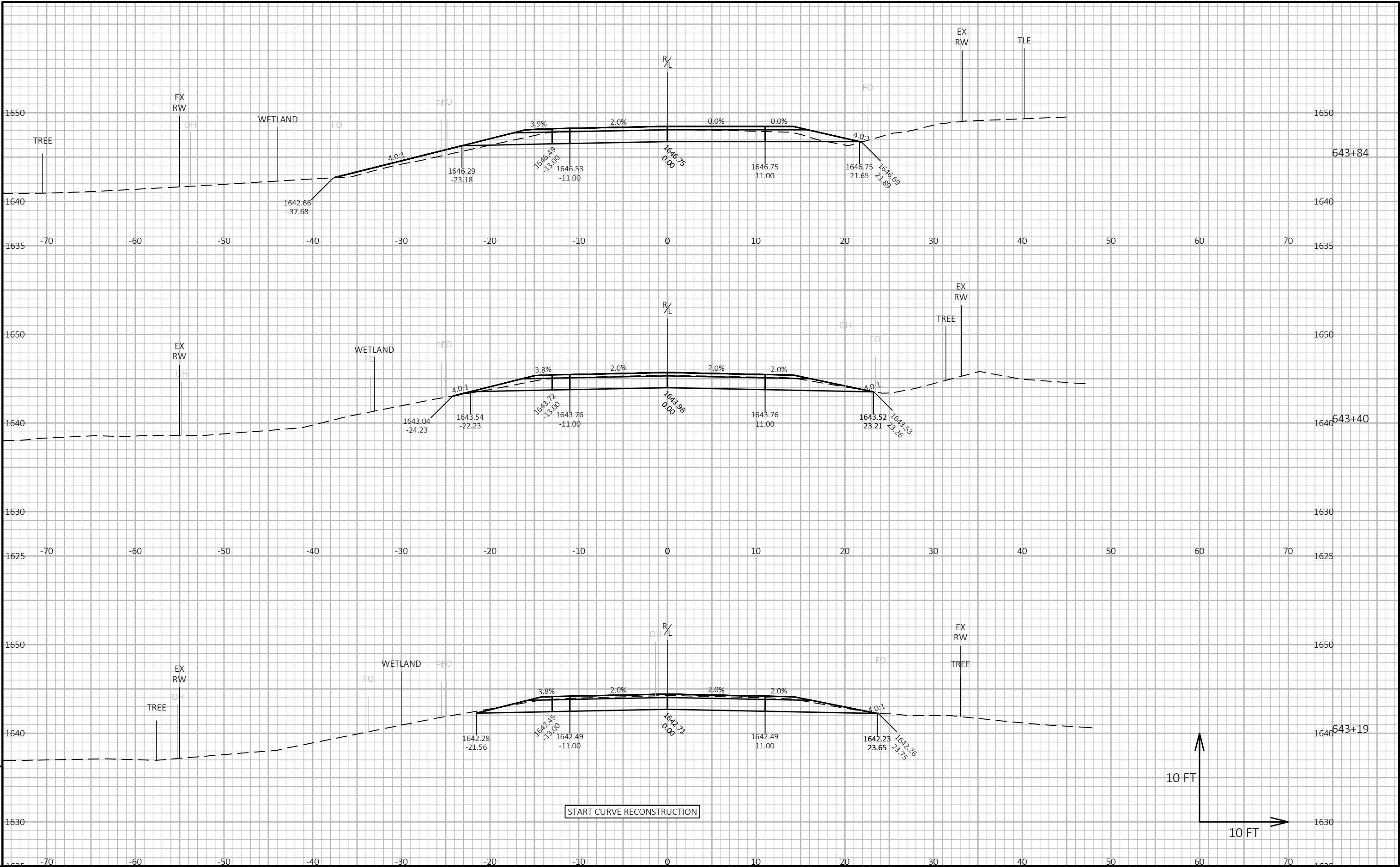
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PROJECT NO: 9488-02-70	HWY: CTH D	COUNTY: PRICE	CROSS SECTIONS: B-50-02 GUARDRAIL CROSS SECTIONS	SHEET 139	E
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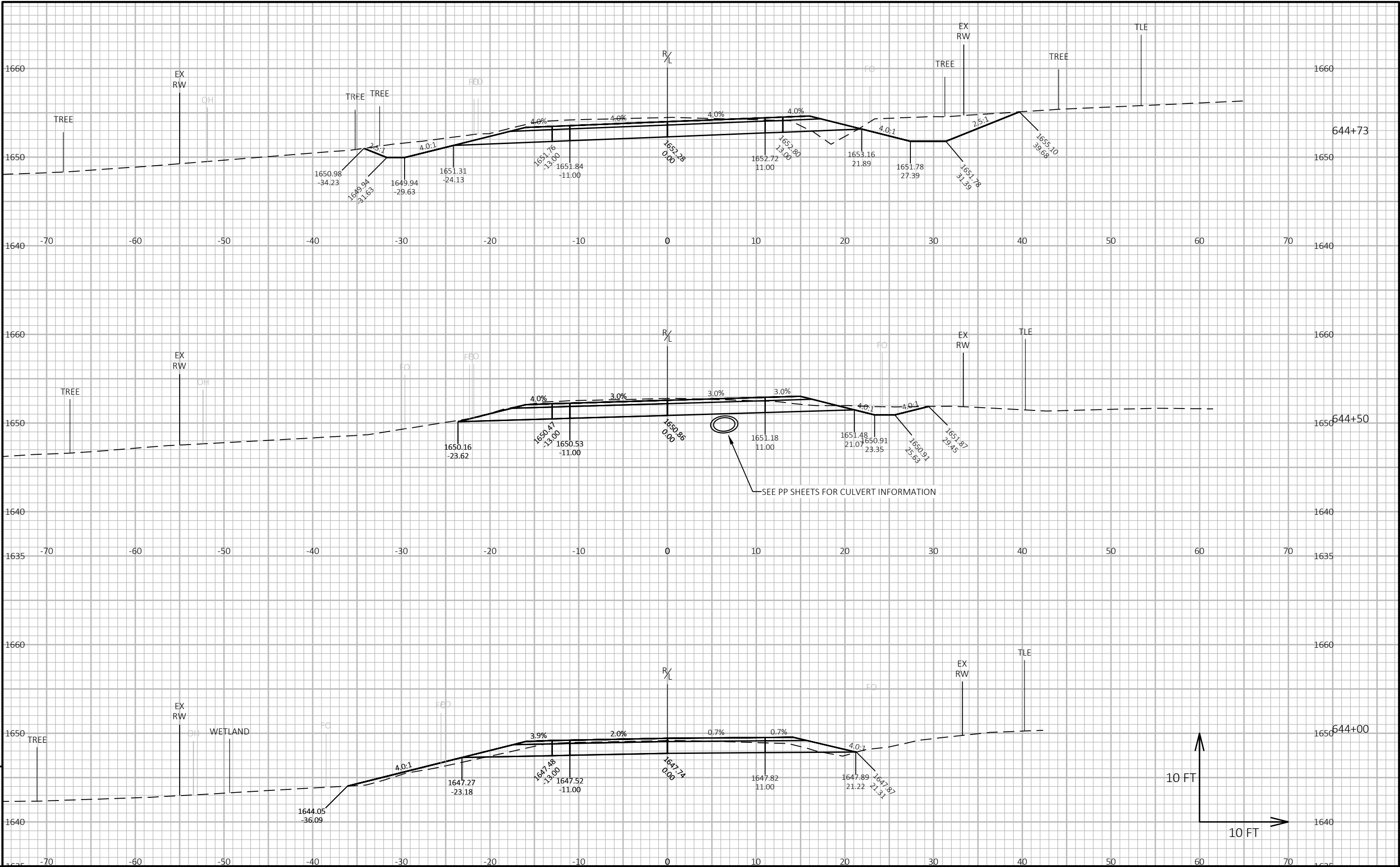


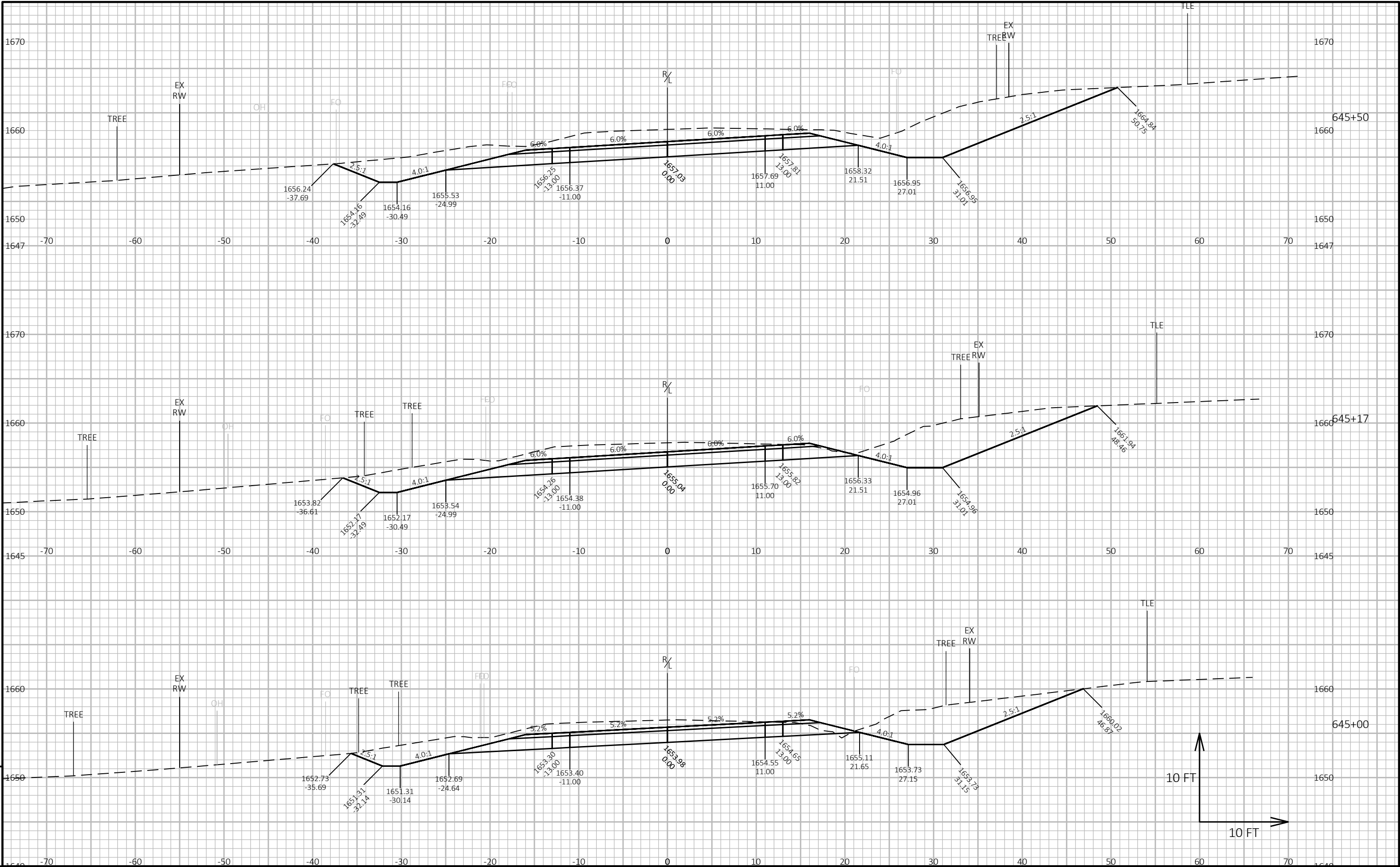


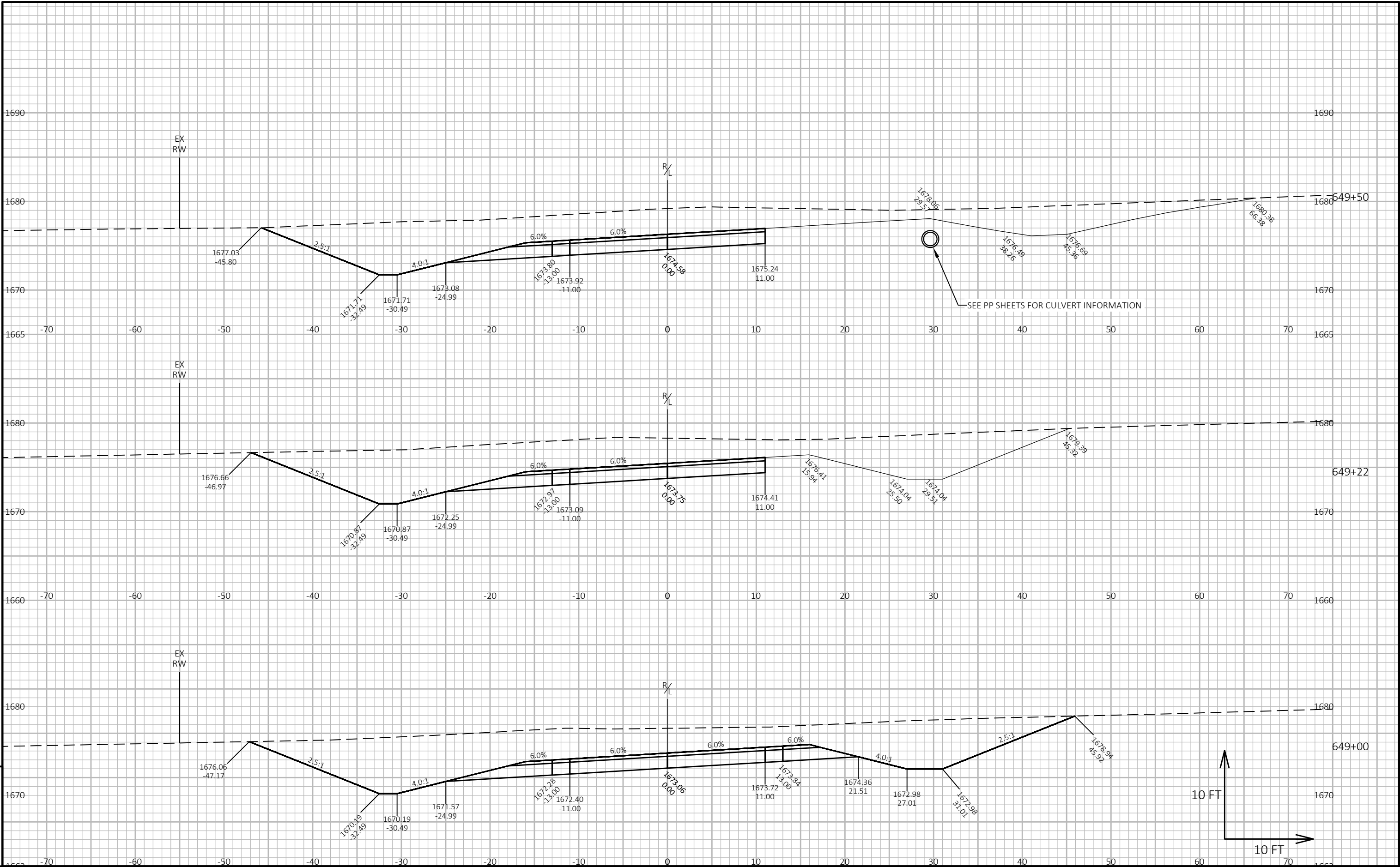


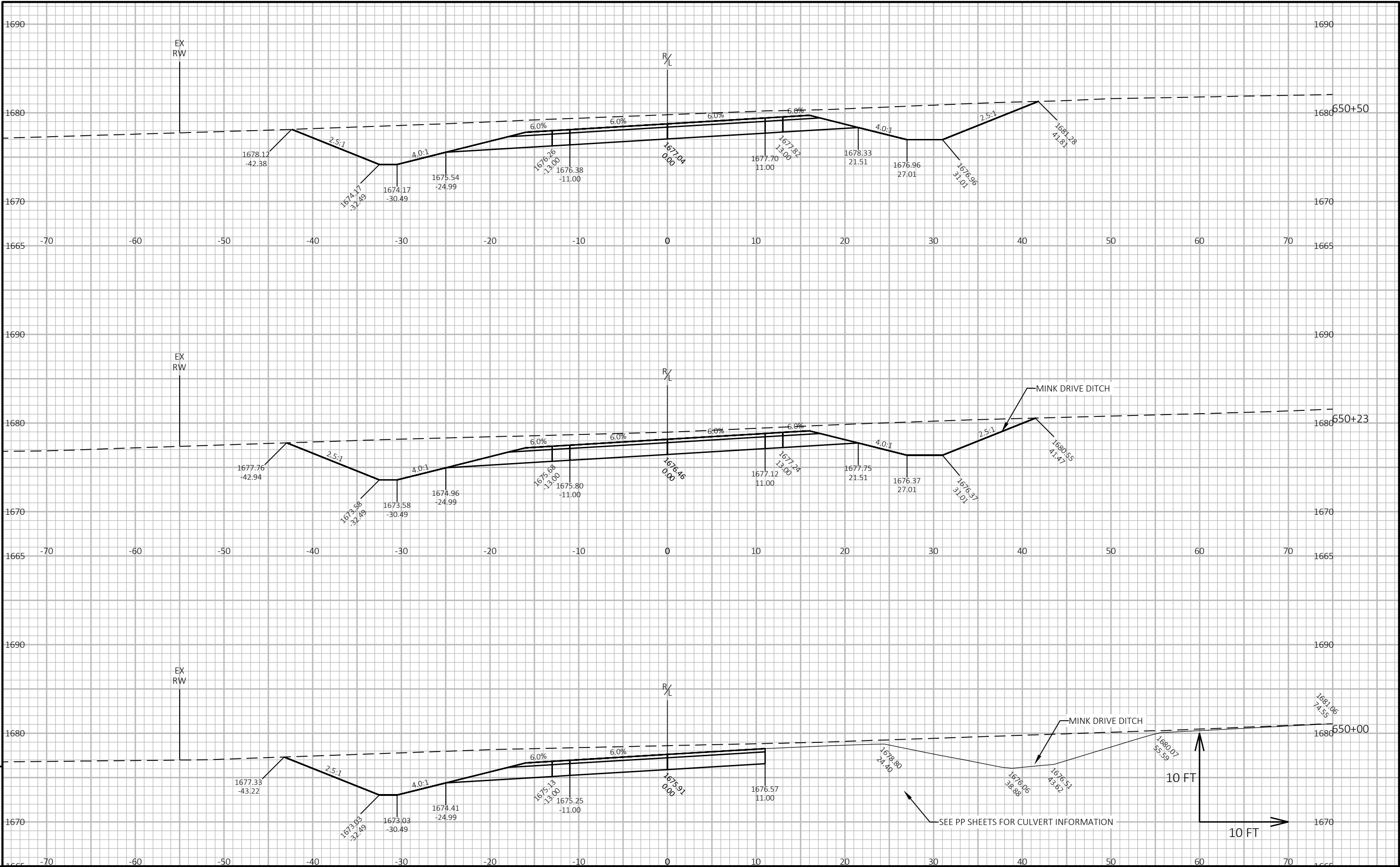
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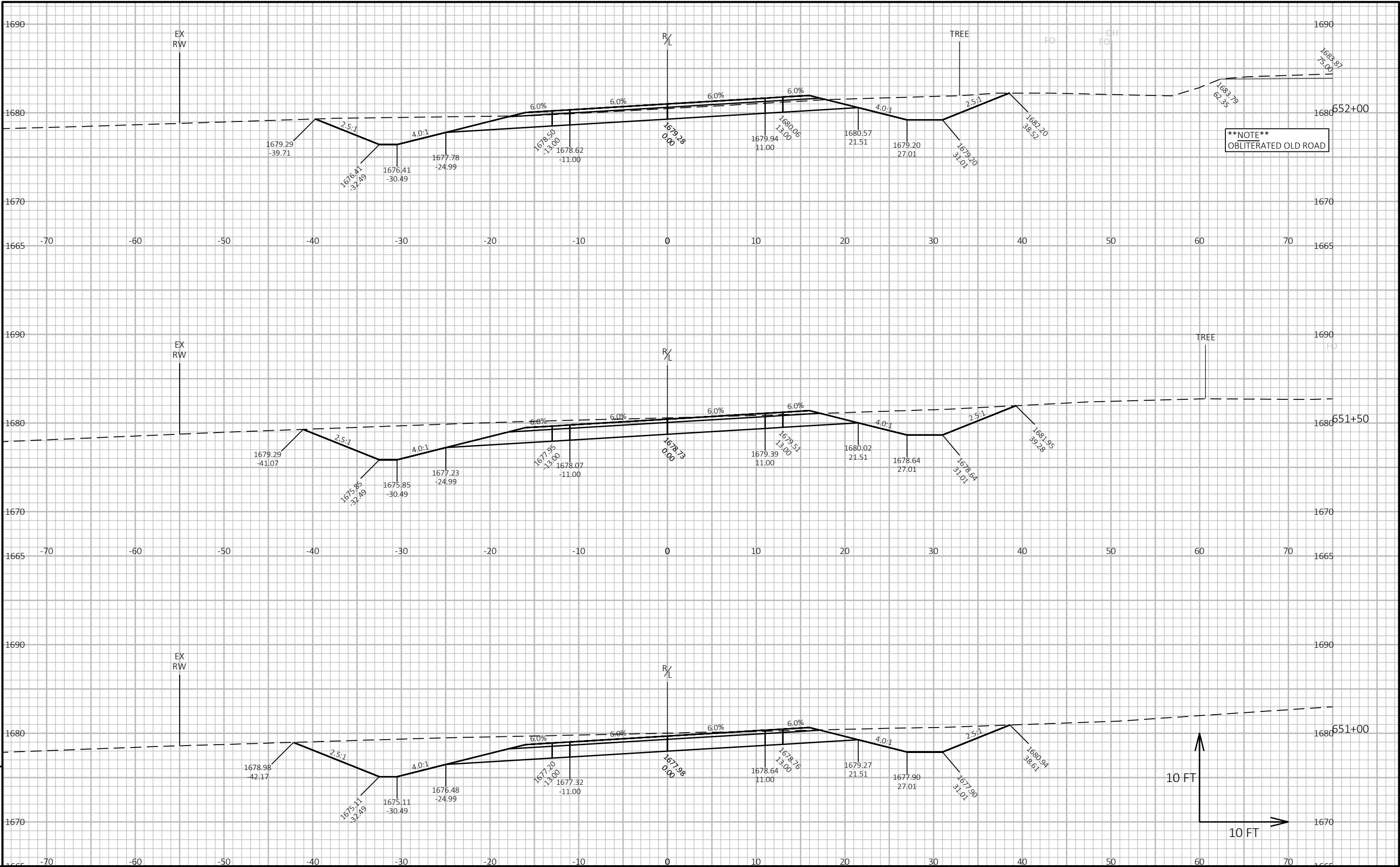
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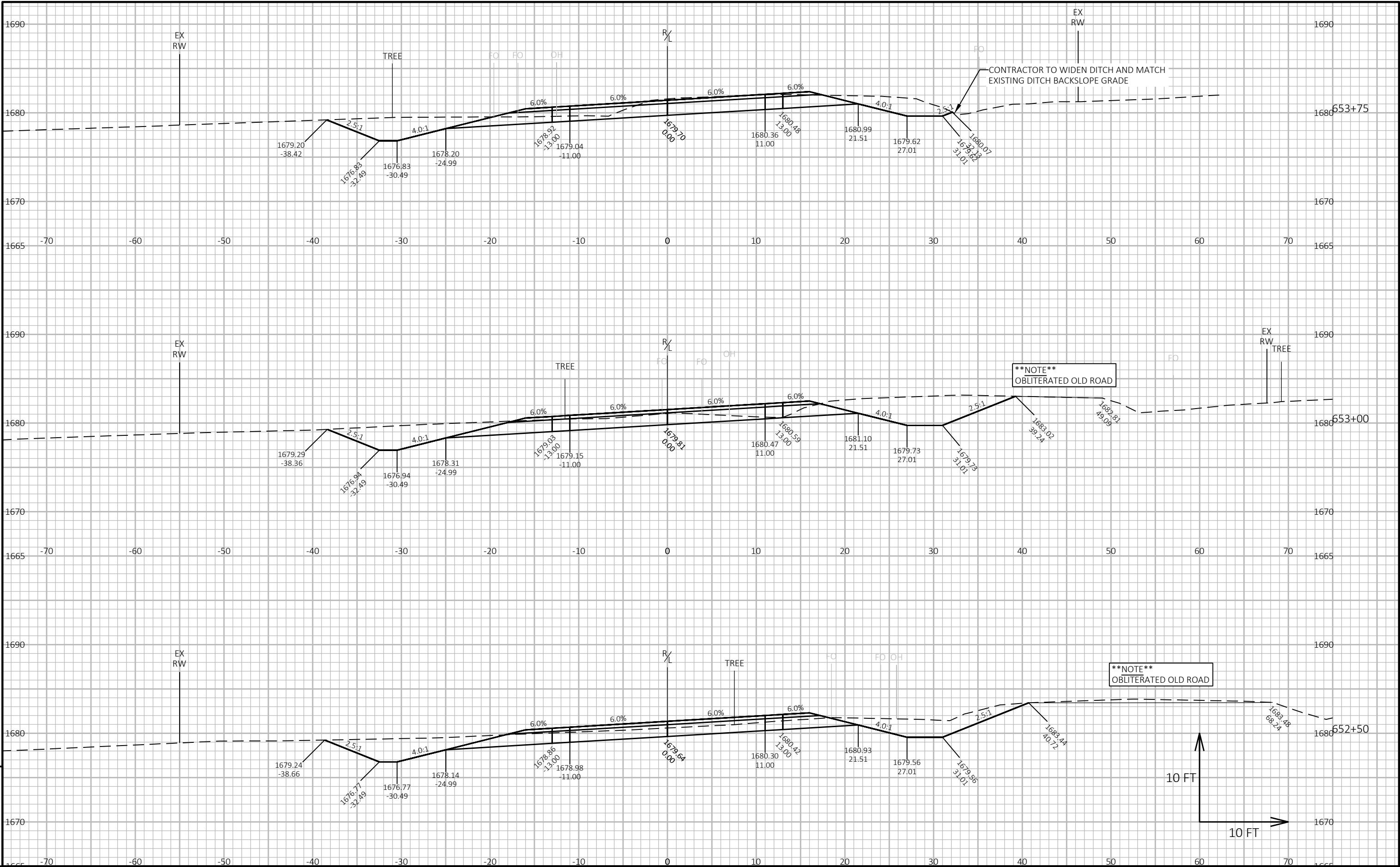


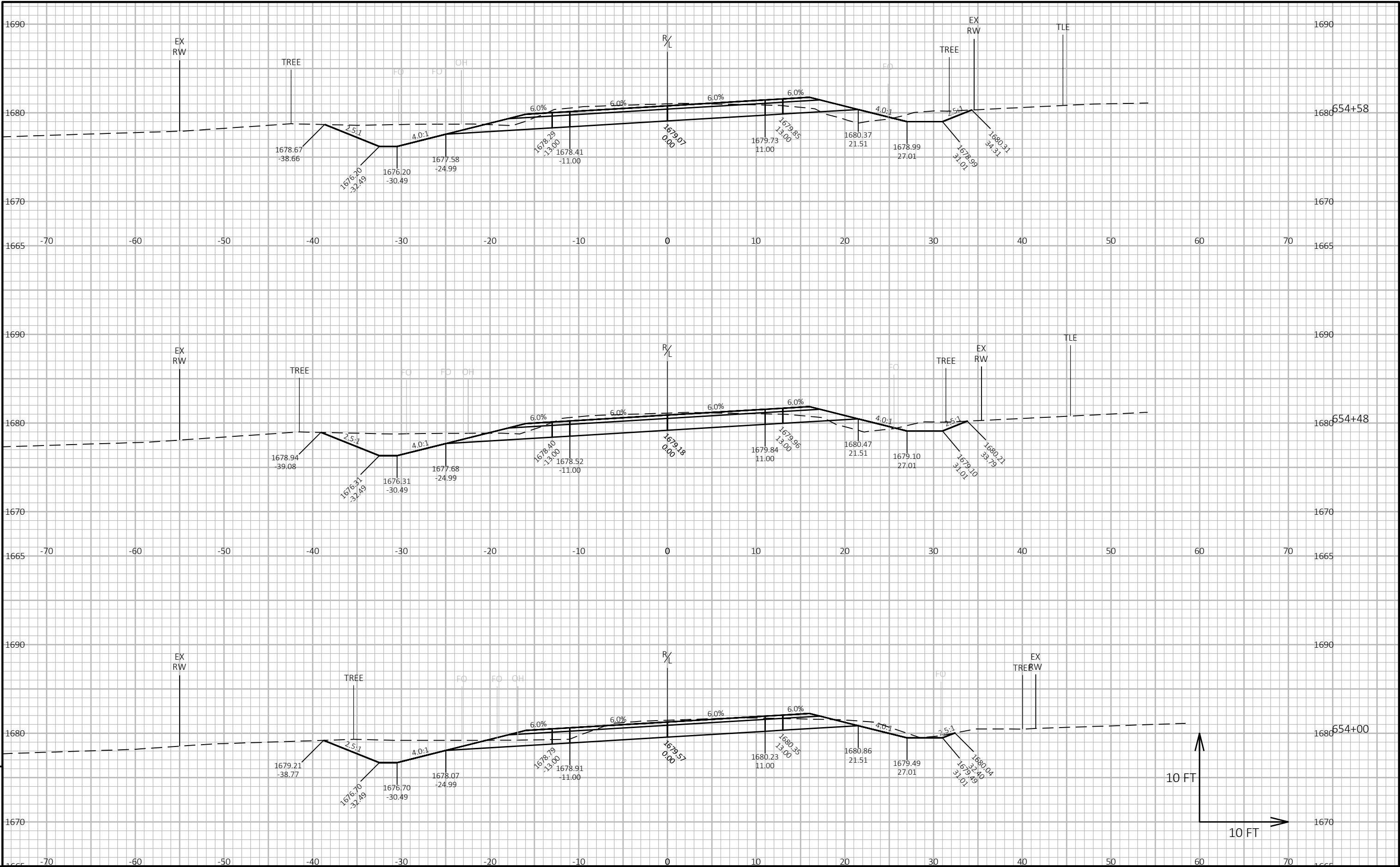


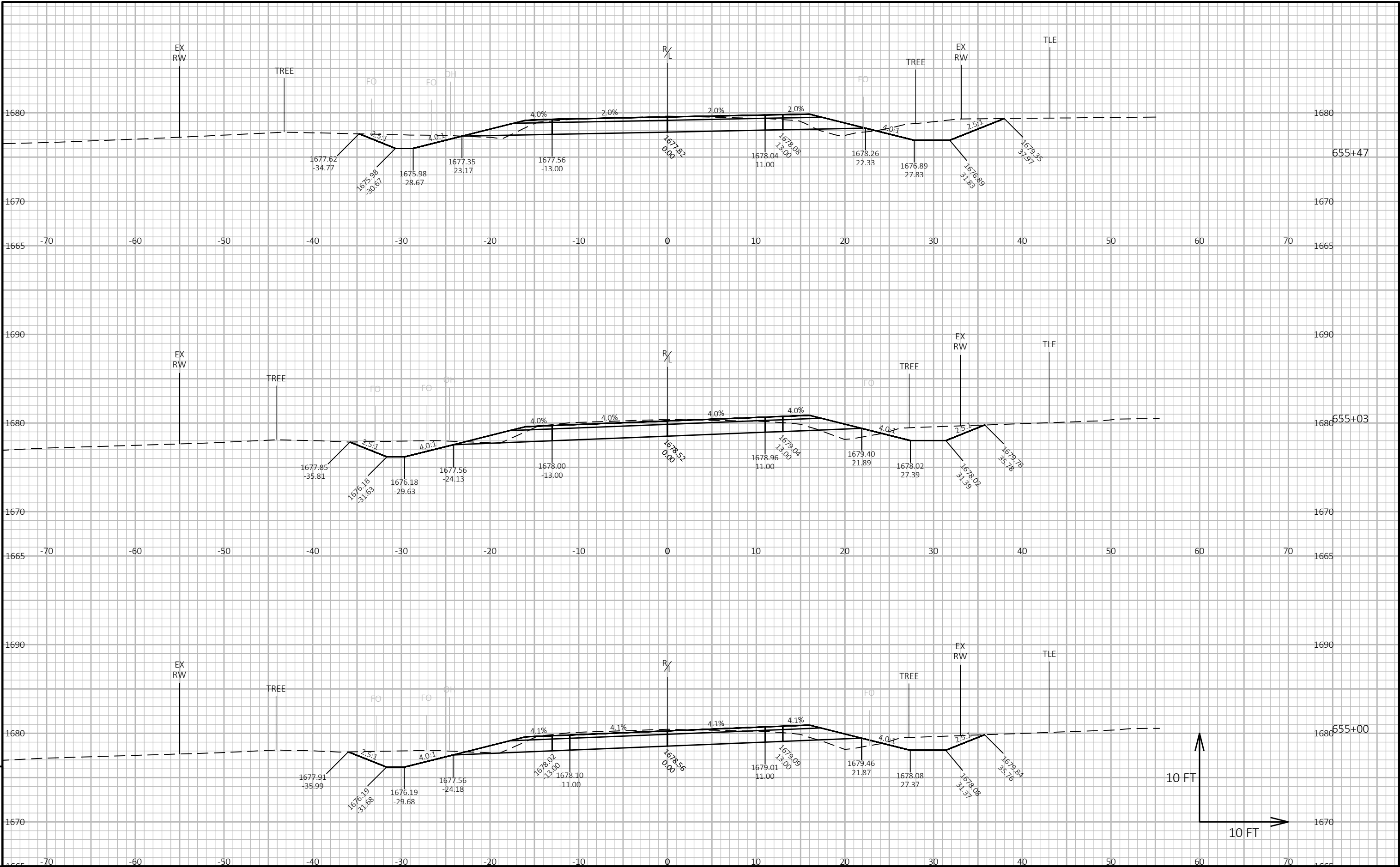


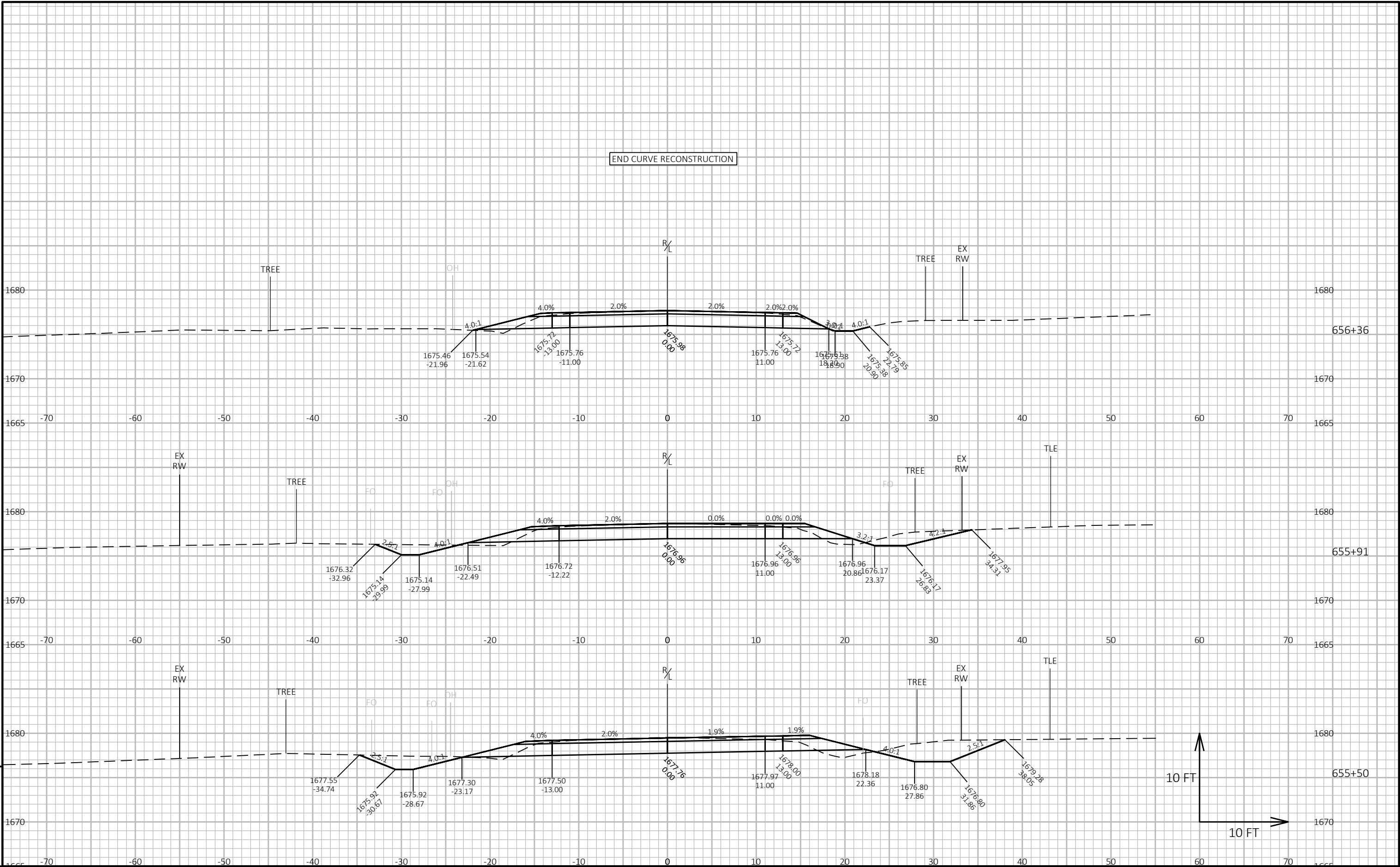


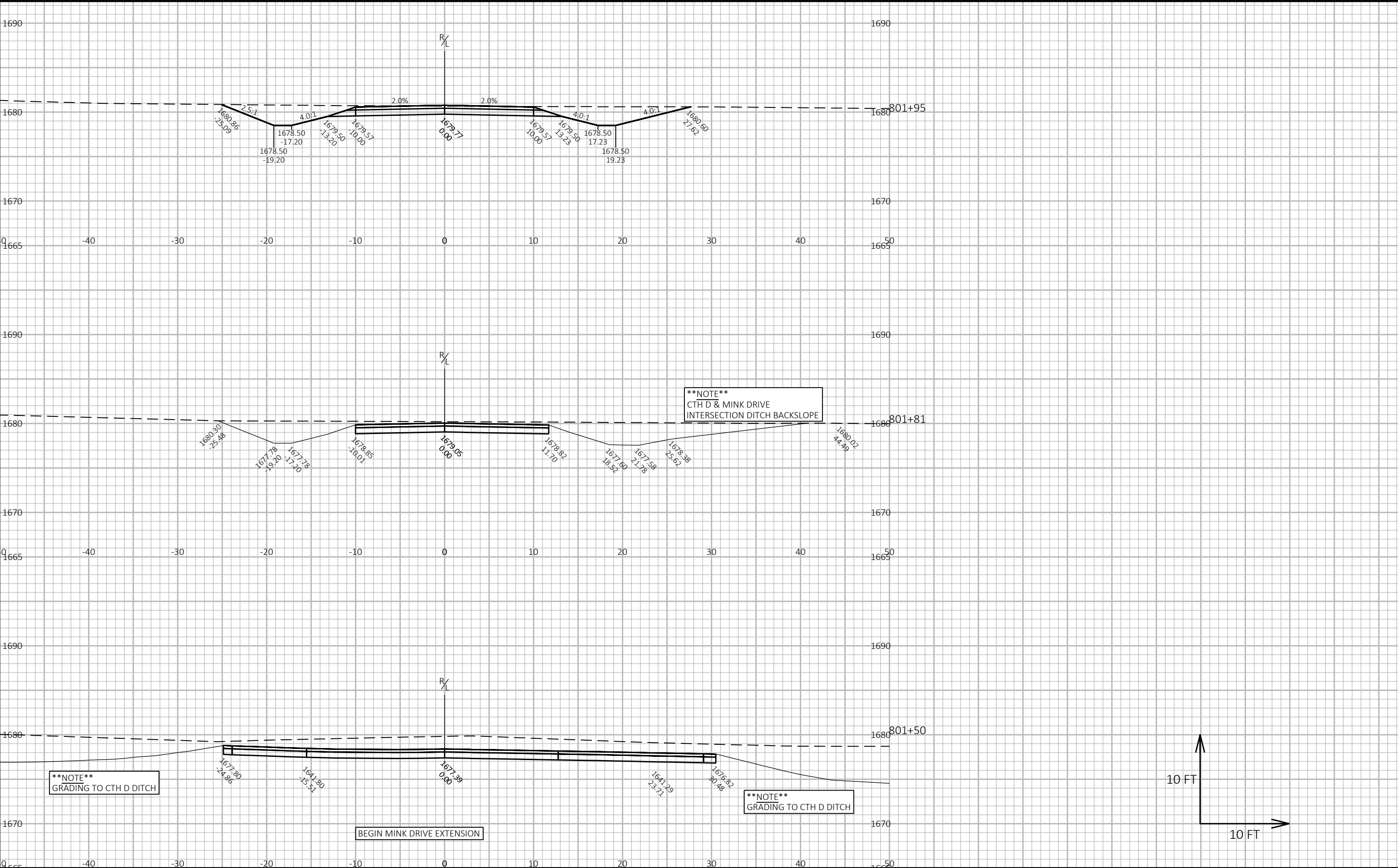


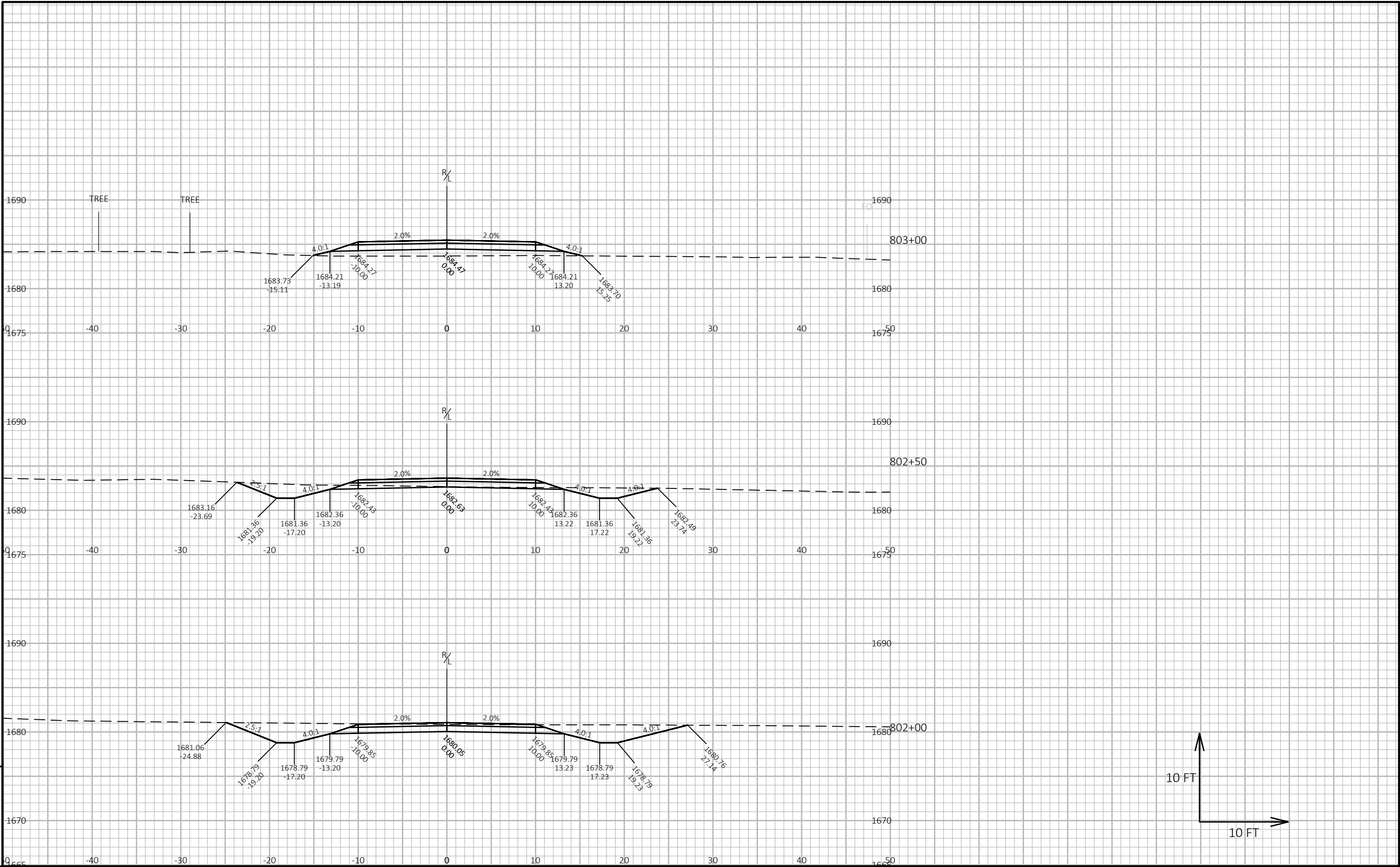






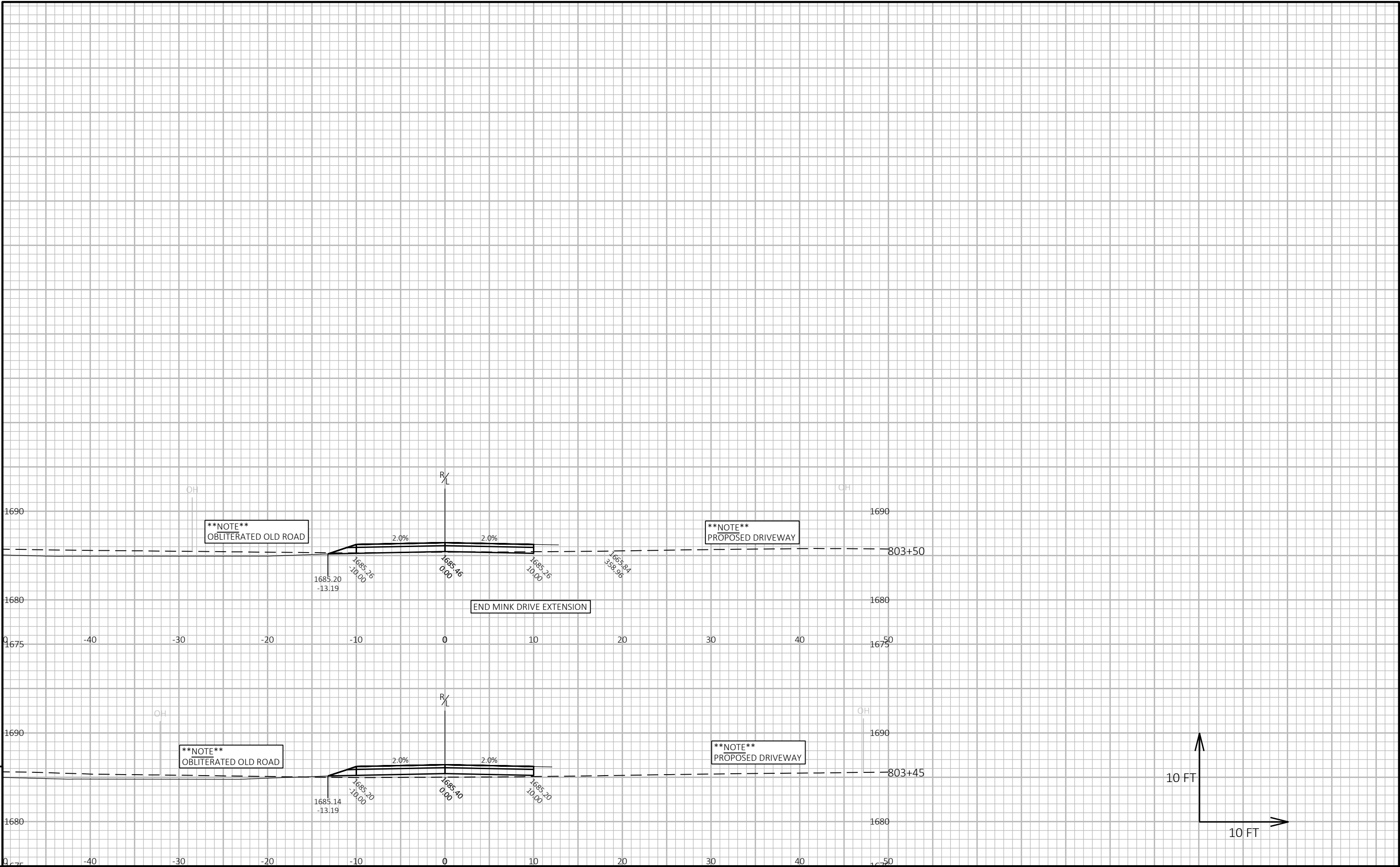


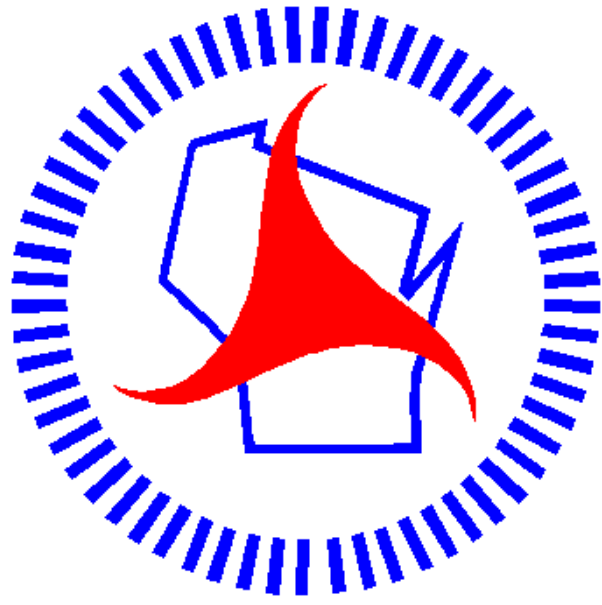




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