

GRE MAR 13

PROJECT ID: 4337-10-72
WITH: N/A

COUNTY: MANITOWOC

ORDER OF SHEETS

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

TOTAL SHEETS = 138



DESIGN DESIGNATION

A.A.D.T.	=	USH 10
A.A.D.T.	=	6700 (2013)
A.A.D.T.	=	8500 (2033)
D.H.V.(T)	=	14.4% (2033)
D.	=	62/38
TRUCK %	=	18.0%
DESIGN SPEED	=	60 mph
ESALS	=	2,394,400 HMA

CONVENTIONAL SYMBOLS

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

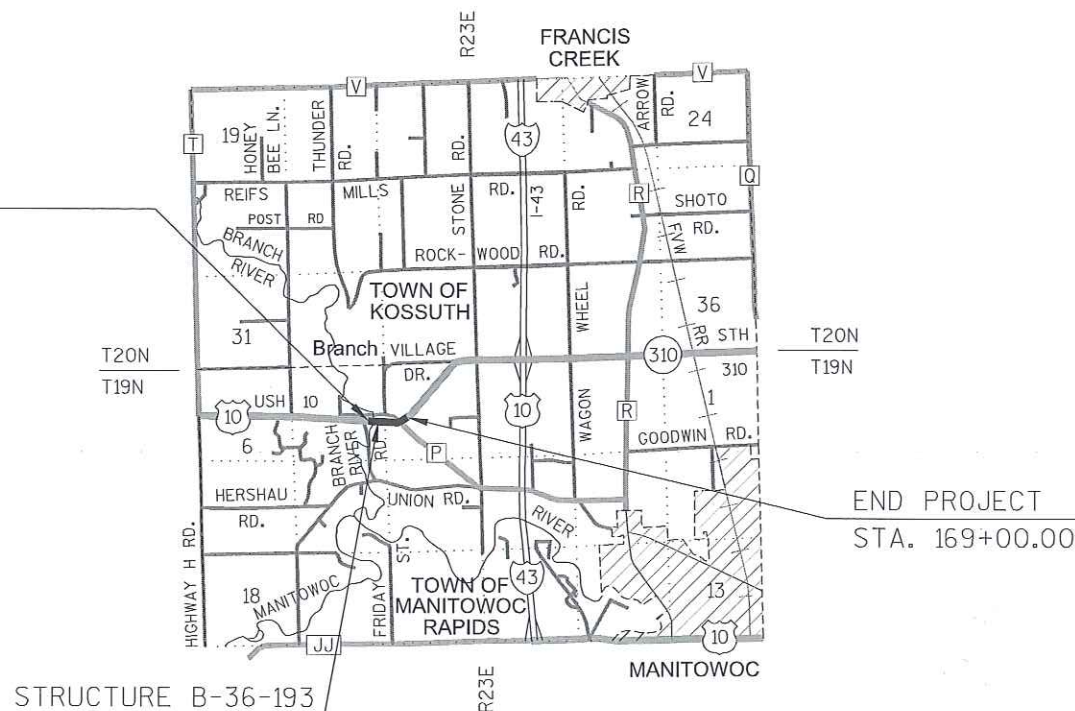
PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
BRANCH RIVER - INTERSTATE 43
BRANCH RIVER BRIDGE & APPROACHES
USH 10
MANITOWOC COUNTY

STATE PROJECT NUMBER

4337-10-72

BEGIN PROJECT
STA. 147+00.00
Y = 320174.342
X = 205308.241



LAYOUT
SCALE 0 1 Mi. 2 Mi.

TOTAL NET LENGTH OF CENTERLINE (4337-10-72) = 0.417 MI.

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MANITOWOC COUNTY.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO NAVD 88

STATE PROJECT

4337-10-72

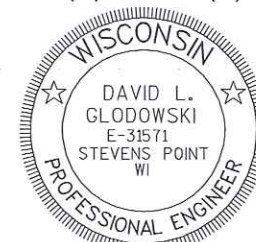
FEDERAL PROJECT

PROJECT

CONTRACT

ORIGINAL PLANS PREPARED BY

GREMMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
Stevens Point • Fond du Lac
120 Wilshire Boulevard North • Stevens Point, WI 54481
(715) 341-4363 • fax (715) 341-1856



10/25/12
DATE
DAVID L. GLODOWSKI, PE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor: WDOT NER / GREMMER
Designer: GREMMER & ASSOCIATES, INC.
Project Manager: M HAEFS
Regional Examiner: R ROOYAKKERS
Regional Supervisor: WISDOT BPD
C.O. Examiner:

APPROVED FOR THE DEPARTMENT
DATE: 10/25/12
(Signature)

E

GENERAL NOTES

CURVE DATA IS BASED ON ARC DEFINITION.

SEED, TEMPORARY SEED, FERTILIZER, AND MULCH SHALL BE PLACED ON ALL DISTURBED AREAS, EXCLUSIVE OF THE AREA OCCUPIED BY THE NEW PAVEMENTS, SHOULDERS, ENTRANCES, AND RELATED STRUCTURES.

THE EXACT LOCATION OF PRIVATE ENTRANCES IS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

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

A VERTICAL SAW CUT SHALL BE MADE THROUGH EXISTING DRIVEWAYS AND PAVEMENTS AT THE REMOVAL LIMITS.

ALL CURB RADII ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

ORDER OF SECTION 2 SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- INTERSECTION DETAILS
- EROSION CONTROL PLAN
- STORM SEWER
- PERMANENT SIGNING PLAN
- PAVEMENT MARKING PLAN
- TRAFFIC CONTROL PLAN
- DETOUR PLAN
- ALIGNMENT DIAGRAM

ABBREVIATIONS

A	ANGLE
ACP	ASPHALTIC CONCRETE PAVEMENT
AGG	AGGREGATE
AHD	AHEAD
ASPH	ASPHALTIC CONCRETE PAVEMENT
AVE	AVERAGE
B	BRIDGE
BK	BACK
BM	BENCH MARK
BOC	BACK OF CURB
BRK	BREAK POINT
C	CULVERT
CABC	CRUSHED AGGREGATE BASE COURSE
CB	CATCH BASIN
CL	CENTERLINE
CMCP	CORRUGATED METAL CULVERT PIPE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
C.S.	CURB STOP
CTH	COUNTY TRUNK HIGHWAY
CW	CONCRETE WALK
C&G	CURB AND GUTTER
D	DEGREE OF CURVE
DR	DRIVEWAY
E	EAST
E	EXTERNAL
EL	BURIED ELECTRIC CABLE
EOP	ELEVATION
EX	EDGE OF PAVEMENT
FE	EXISTING
FERT	FIELD ENTRANCE
FL	FERTILIZER
FLG.	FLOW LINE
F/F	FLAG LINE OF CURB & GUTTER
G	FACE TO FACE
GRAV	GAS MAIN
HSE	GARAGE
HYD	GRAVEL
INL	HOUSE
IP	HYDRANT
LC	INLET
LT	IRON PIPE
MAX	LENGTH OF CURVE
MH	LONG CHORD
MIN	LEFT
N	MAXIMUM
NORM	MANHOLE
PAVT	MINIMUM
PB	NORTH
PC	NORMAL
PE	PAVEMENT
PI	PULL BOX
PLE	POINT OF CURVE
PRVC	PRIVATE ENTRANCE
PT	POINT OF INTERSECTION
PVC	PERMANENT LIMITED EASEMENT
PVI	POINT OF REVERSE VERTICAL CURVE
PVT	POINT OF TANGENT
R	POINT OF VERTICAL CURVE
RCP	POINT OF VERTICAL INTERSECTION
RT	POINT OF VERTICAL TANGENCY
RL	RADIUS
R/W	REINFORCED CONCRETE PIPE
S	RIGHT
SAN	REFERENCE LINE
SE	RIGHT OF WAY
SHLD	SOUTH
SS	SANITARY SEWER
STA	SUPERELEVATION
SUPER	SHOULDER
SW	STORM SEWER
T	STATION
TOC	SUPERELEVATION
TLE	SIDEWALK
TYP	TANGENT
W	BURIED TELEPHONE CABLE
W	TOP OF CURB
WV	TEMPORARY LIMITED EASEMENT
	TYPICAL
	WEST
	WATERMAIN
	WATERVALVE

HIGHWAY DEPARTMENT

MANITOWOC COUNTY HIGHWAY DEPARTMENT
HIGHWAY COMMISSIONER
ATTN: GARY KENNEDY
3500 STATE HIGHWAY 310
MANITOWOC, WI 54220-9659
PHONE (920) 683-4345

COUNTY SURVEYOR

MANITOWOC COUNTY HIGHWAY DEPARTMENT
ATTN: JOHN KROPP
3500 STATE HIGHWAY 310
MANITOWOC, WI 54220-9659
PHONE (920) 683-4348

WDNR LIAISON

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
NORTHEAST REGION HEADQUARTERS
ATTN: MATT SCHAEVE
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
PHONE (920) 662-5472
EMAIL Matthew.Schaeve@wisconsin.gov

DESIGN CONTACT

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120 WILSHIRE BOULEVARD NORTH
STEVENS POINT, WI 54481
PHONE (715) 341-4363
EMAIL d.glodowski@gremmerassociates.com

UTILITIES

AT&T WISCONSIN
ATTN: KAREN WELLS
205 SOUTH JEFFERSON STREET
GREEN BAY, WI 54305-5010
PHONE (920) 433-4226
EMAIL kw9272@att.com

COMCAST CABLE
ATTN: ROBERT PERONTO
1614 WASHINGTON STREET
P.O. BOX 429
MANITOWOC, WI 54221
PHONE (920) 682-6511
EMAIL Robert_Peronto@cable.comcast.com

WISCONSIN PUBLIC SERVICE
ATTN: LORI BUTRY
700 NORTH ADAMS STREET
P.O. BOX 19001
GREEN BAY, WI 54307-9001
PHONE (920) 433-1360
EMAIL LButry@integrysgroup.com

AT&T WISCONSIN
ATTN: JAY GREENBERG (FIELD CONTACT)
1800 INDUSTRIAL DRIVE
GREEN BAY, WI 54304
PHONE (920) 433-4117
CELL (920) 227-3528
EMAIL jg3125@att.com

COMCAST CABLE
ATTN: MIKE DERENNE (FIELD CONTACT)
BROADBAND SOLUTIONS
1886 COMMERCE DRIVE
DE PERE, WI 54115
PHONE (920) 339-8056
CELL (920) 375-0970
EMAIL mderenne@broadband-solutions.com

WISCONSIN PUBLIC SERVICE
ATTN: JEFF PELISCHEK (FIELD CONTACT - ELECTRIC)
800 COLUMBUS STREET
TWO RIVER, WI 54241
PHONE (920) 657-1816
CELL (920) 323-4836
EMAIL jspell@wisconsinpublicservice.com

WISCONSIN PUBLIC SERVICE
ATTN: JERRY PEOT (FIELD CONTACT - GAS)
800 COLUMBUS STREET
TWO RIVER, WI 54241
PHONE (920) 657-1815
CELL (920) 655-0522
EMAIL gjpeot@wisconsinpublicservice.com

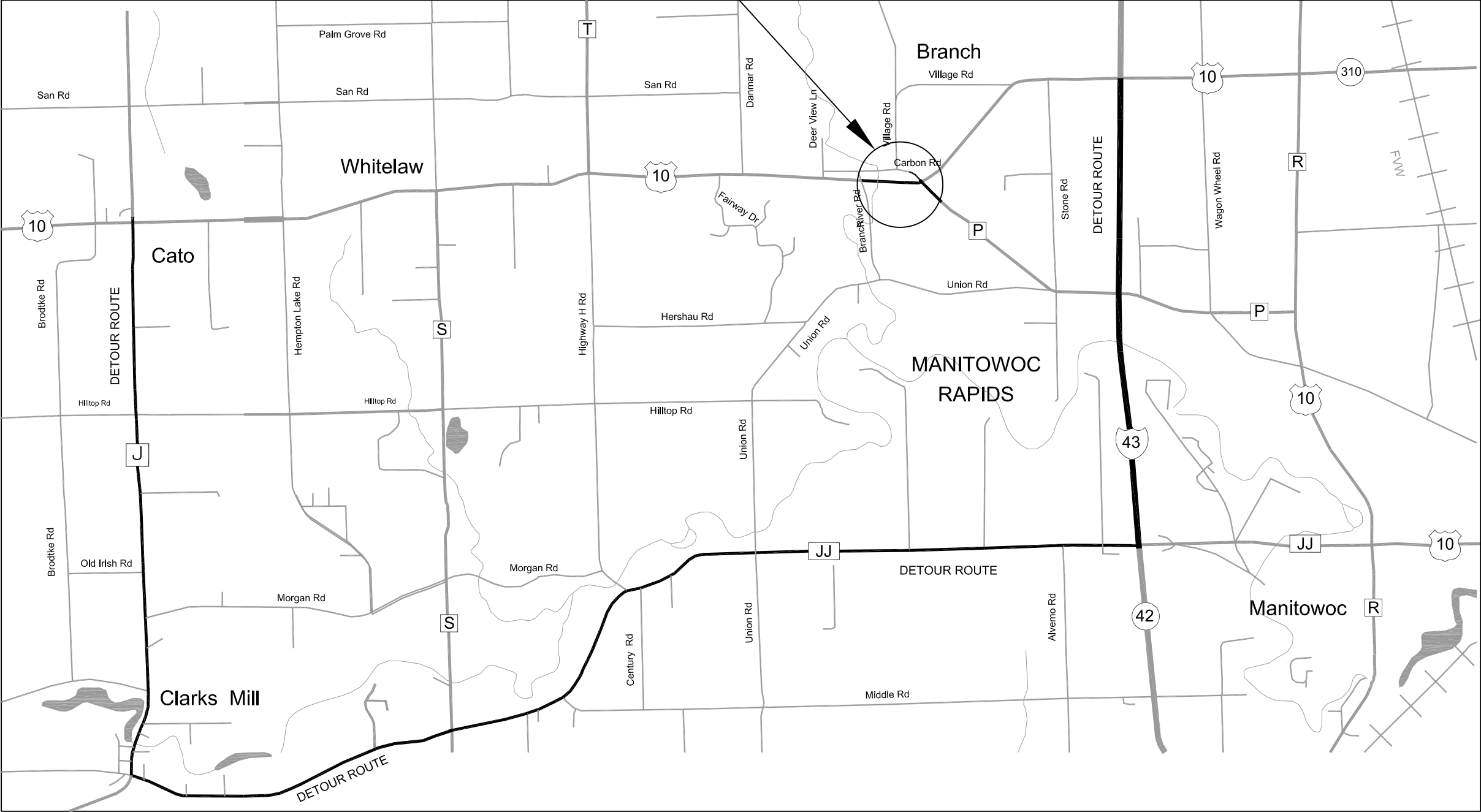


Call 811
Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

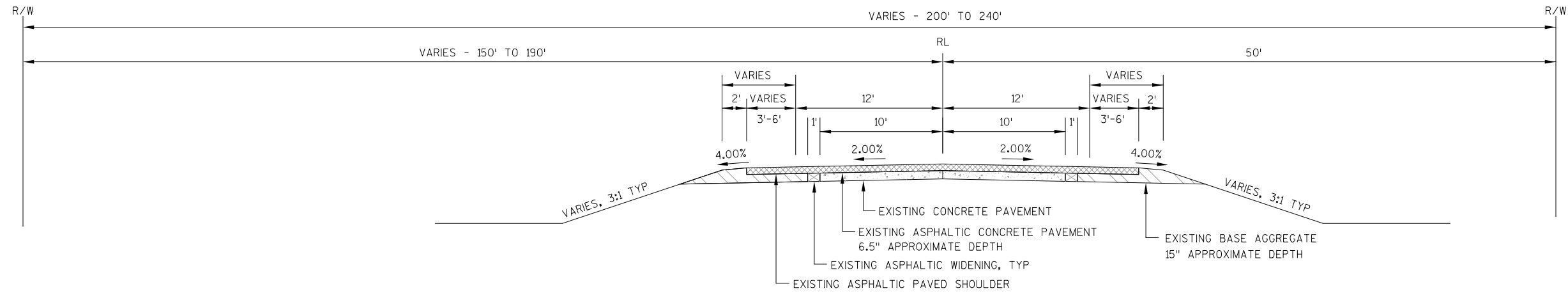
CALL DIGGERS HOTLINE
TO OBTAIN LOCATION OF
PARTICIPANTS' UNDERGROUND
FACILITIES BEFORE YOU DIG.

WISCONSIN STATUTE 182.0175
REQUIRES MINIMUM OF 3
WORK DAYS NOTICE BEFORE
YOU EXCAVATE.

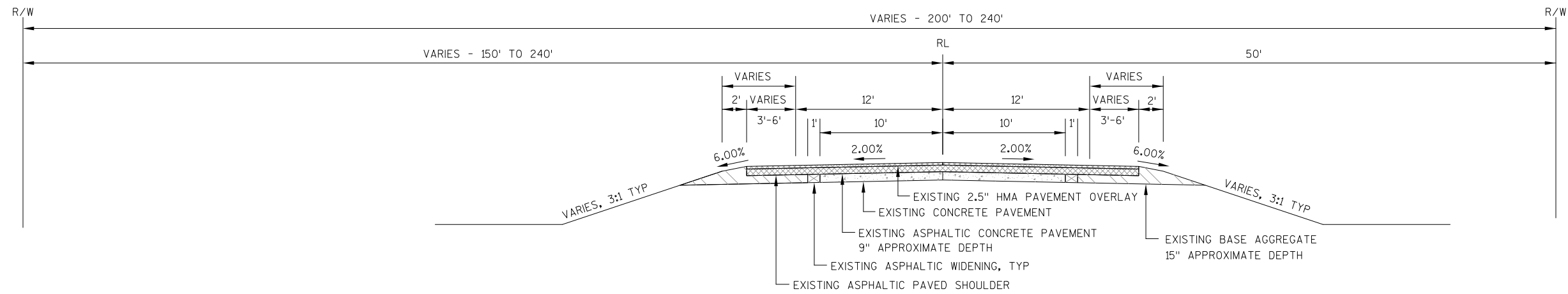
WisDOT PROJECT 4337-10-72
B-36-193 STRUCTURE



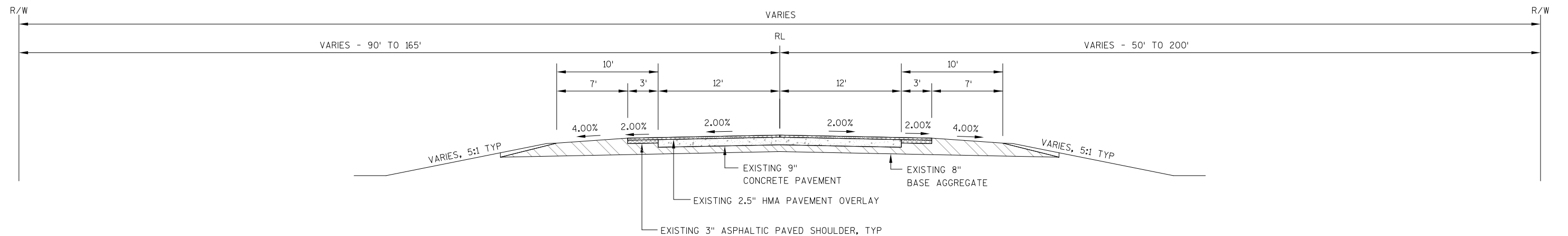
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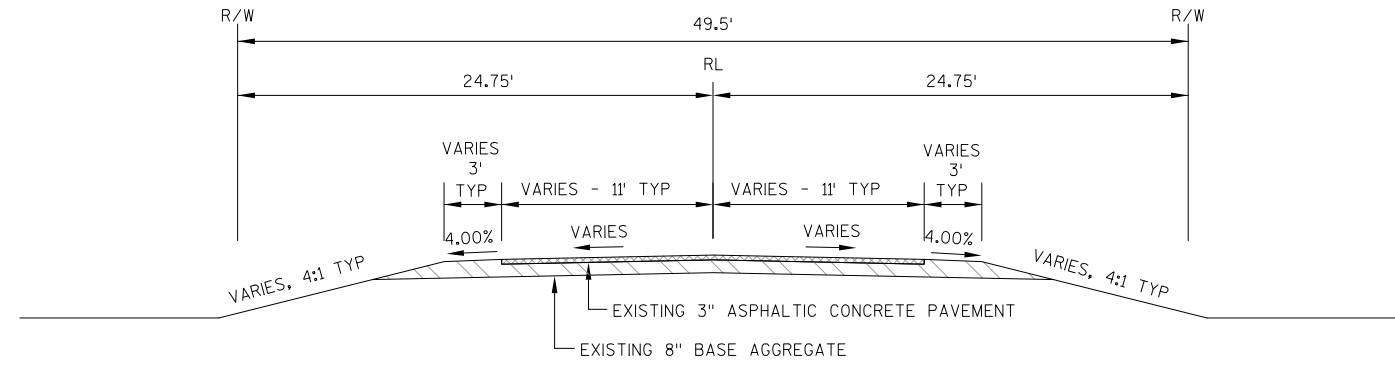
TYPICAL EXISTING SECTION USH 10
STA. 147+00.00 TO STA. 151+63.00



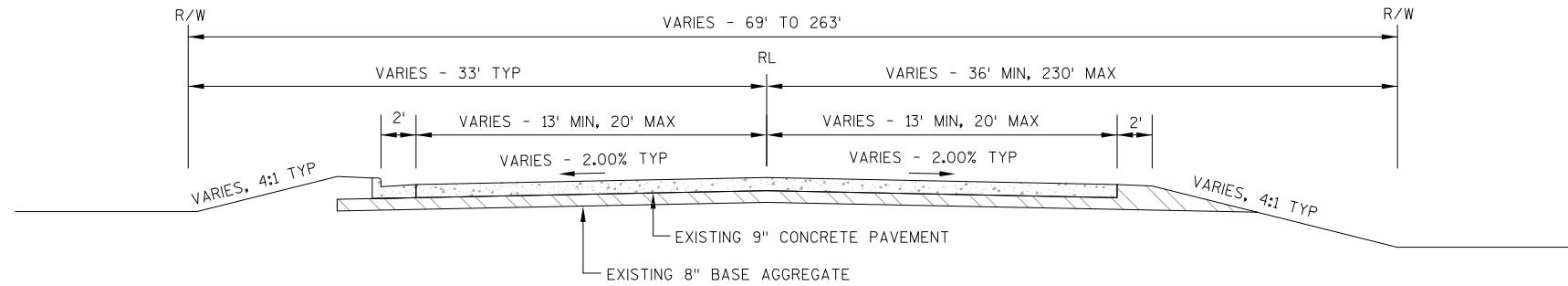
TYPICAL EXISTING SECTION USH 10
STA. 153+47.00 TO STA. 156+50.00



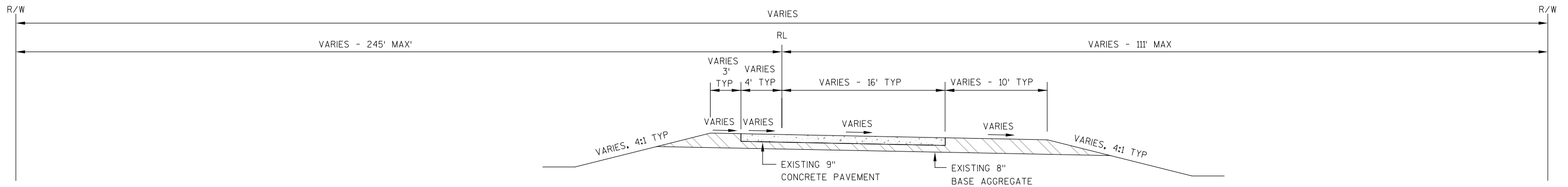
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STA. 156+50.00 TO STA. 169+00.00



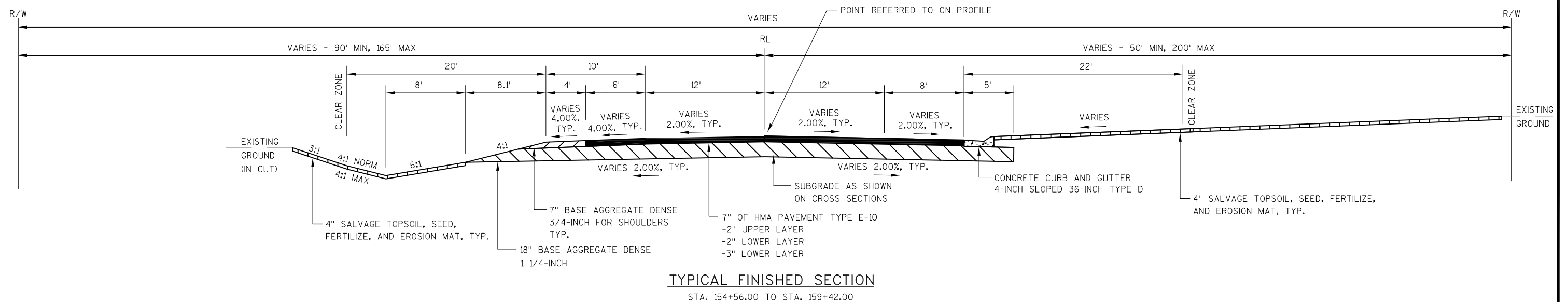
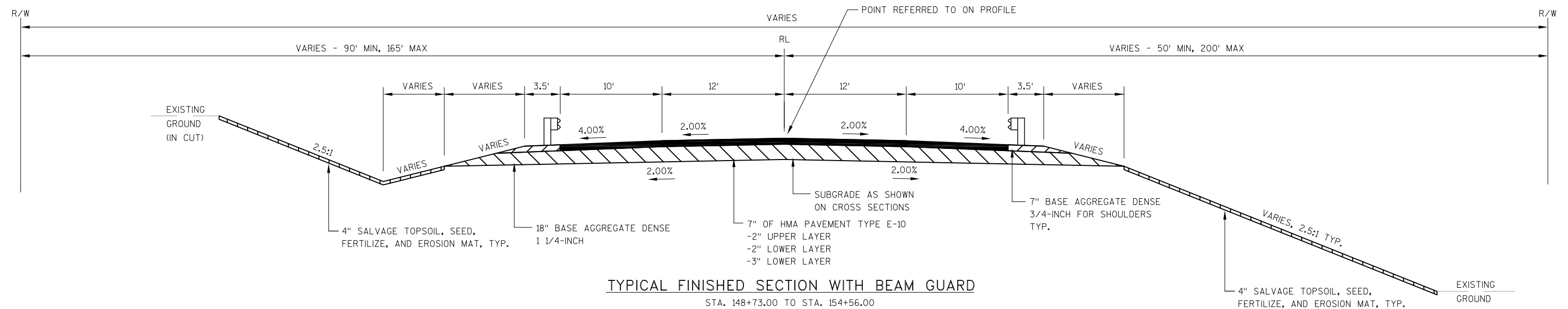
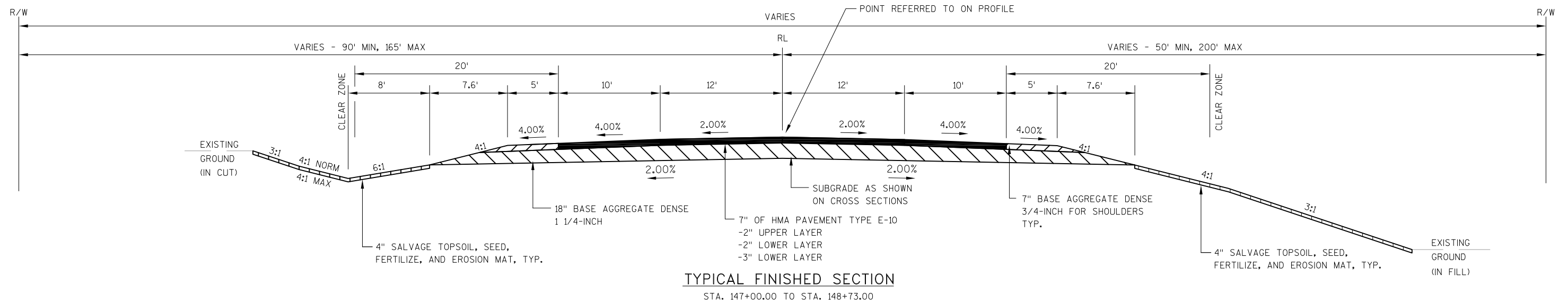
TYPICAL EXISTING SECTION
CARBON ROAD

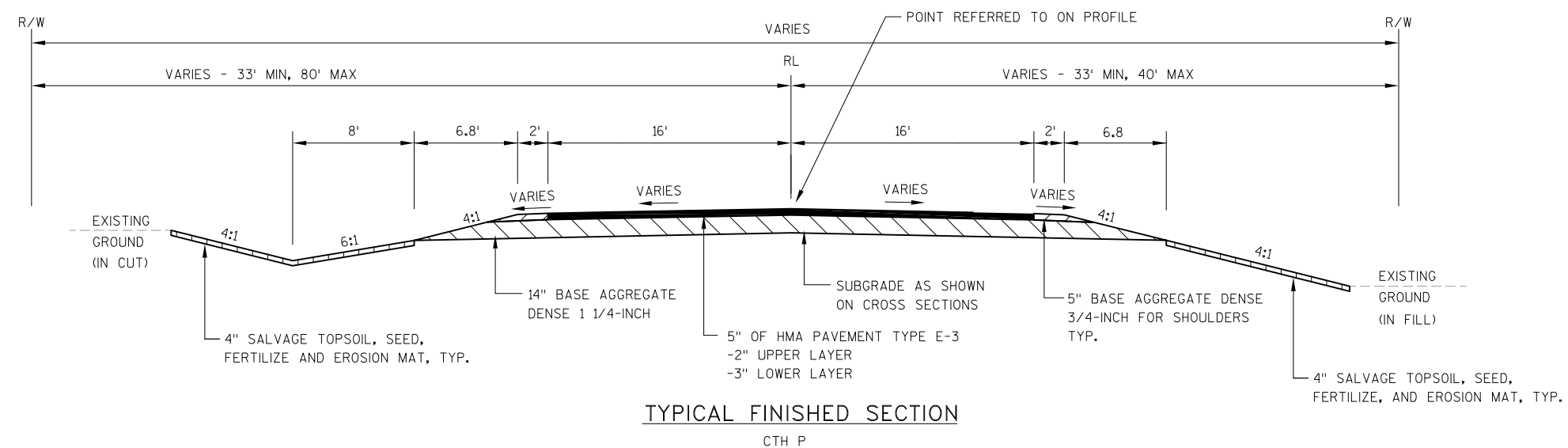
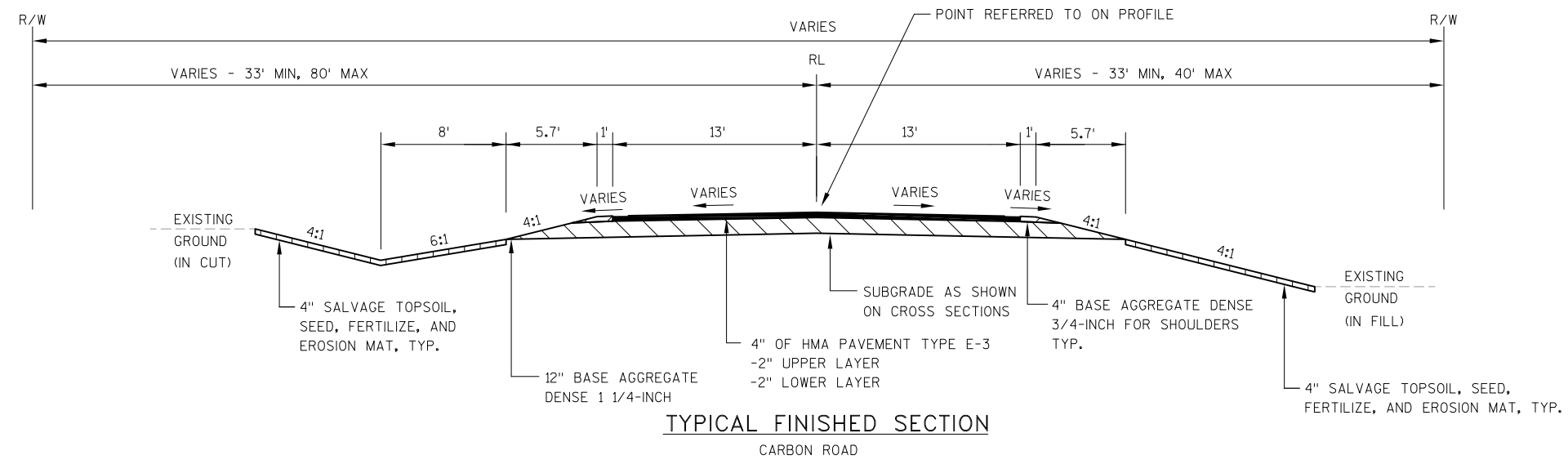
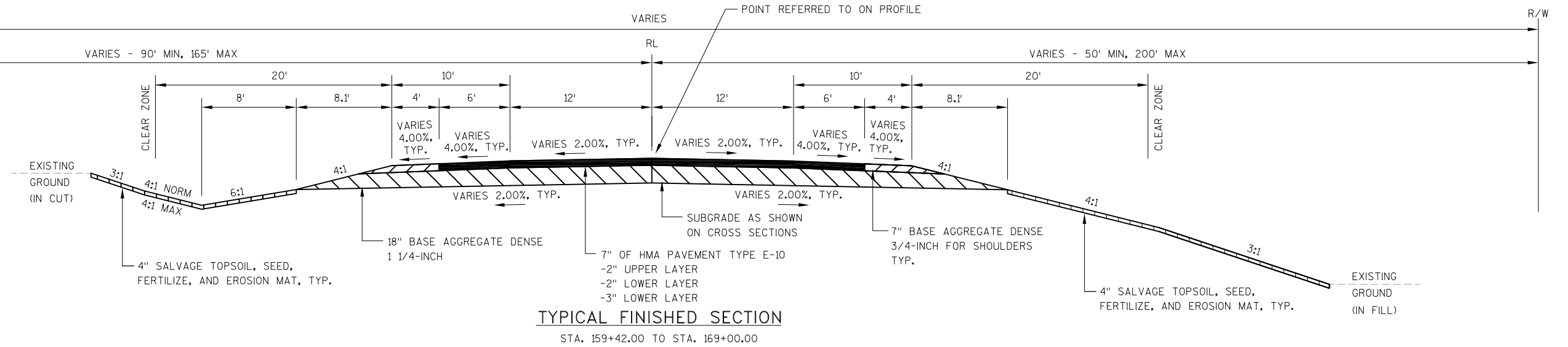


TYPICAL EXISTING SECTION
CTH P



TYPICAL EXISTING SECTION
CTH P RAMP





EXIST. DRIVEWAY WIDTH

P.E. 12' MIN. 24' MAX.
TO FIT EXISTING DRIVEWAY
AT CONSTRUCTION LIMITS

REPLACE IN KIND

4'

CURB

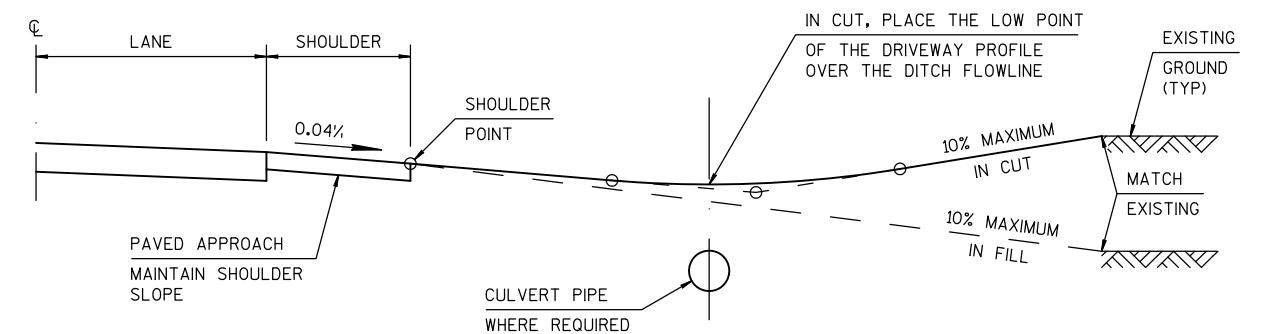
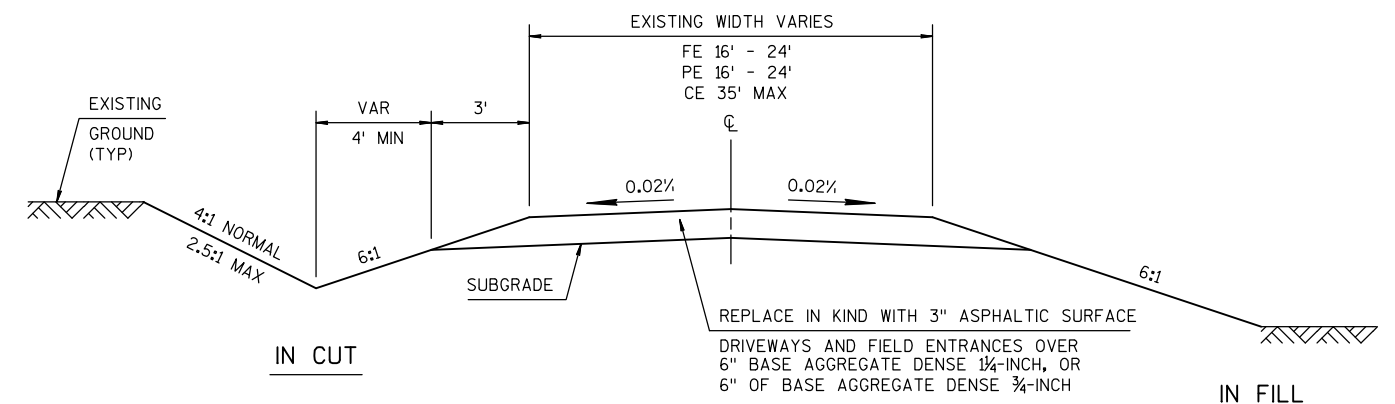
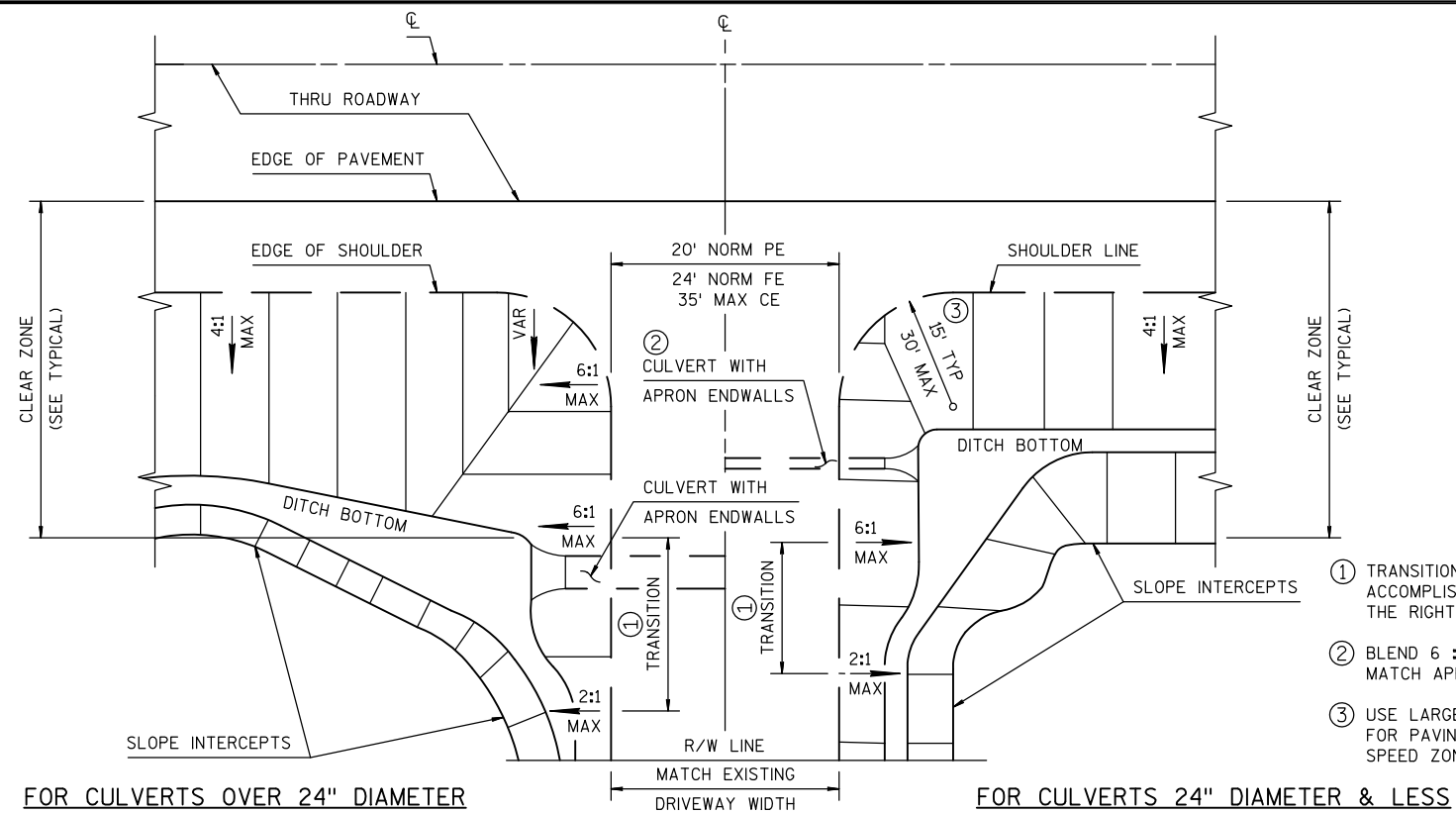
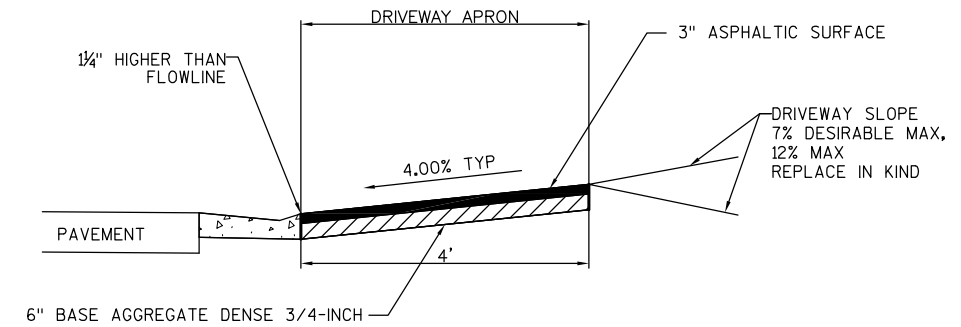
PAVEMENT

3'NOR.

1.5'NOR.

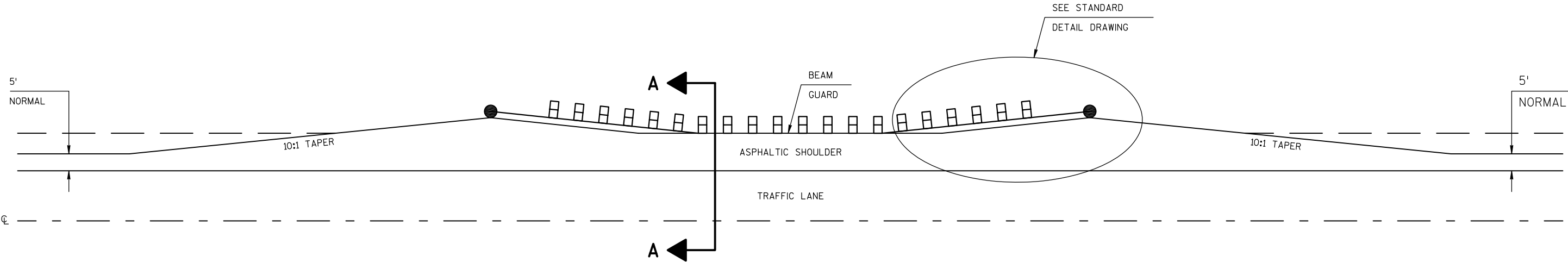
CONCRETE CURB
& GUTTER

CURB TAPER

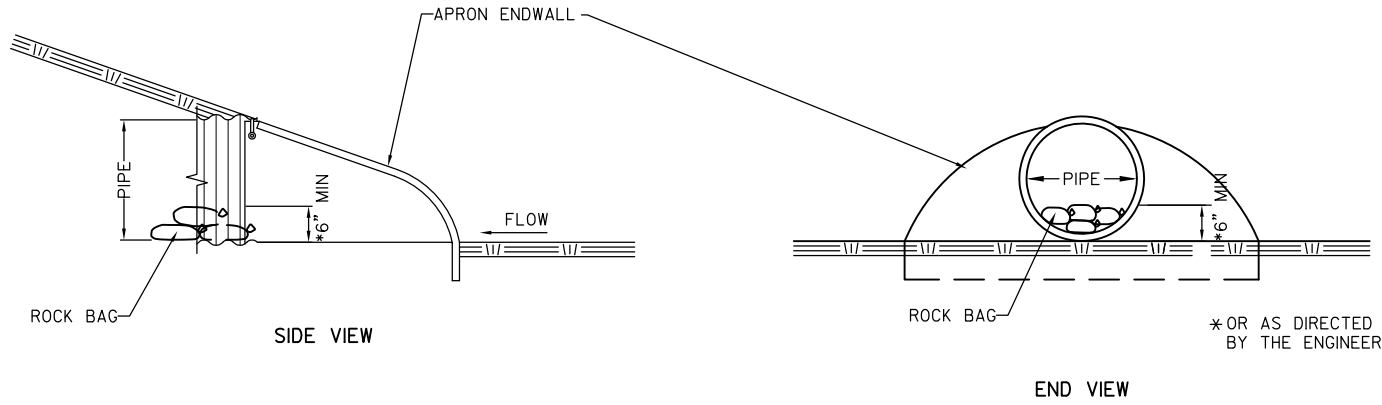


SUPERELEVATION DATA

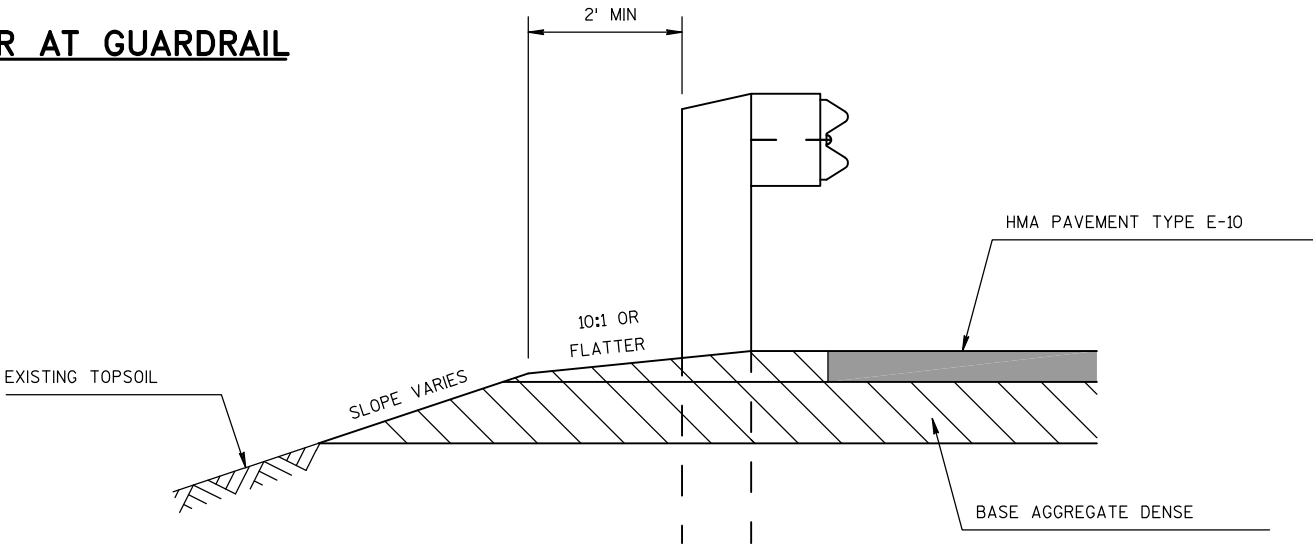
ROADWAY	CURVE NO.	PC	PT	R (FT)	TRANSITION IN REGION					TRANSITION OUT REGION					MAX e	DESIGN SPEED (MPH)
					END NORMAL CROWN	LEVEL CROWN	REVERSE CROWN	LOW SHOULDER MATCH	BEGIN FULL SUPER	END FULL SUPER	LOW SHOULDER MATCH	REVERSE CROWN	LEVEL CROWN	BEGIN NORMAL CROWN		
USH10	1	160+56.92	180+27.08	1922.60	159+20.39	159+71.59	160+22.79	160+73.99	160+99.59	---	---	---	---	---	5.00%	55
CARBON	2	6+85.32	7+82.64	400.00	6+00.15	6+36.65	6+73.15	7+09.65	7+09.65	7+13.67	---	---	---	---	4.00%	30
CARBON	3	8+04.70	9+50.00	150.00	---	---	---	---	8+73.67	9+08.40	---	---	---	---	4.00%	30
CTHP	4	10+50.00	12+22.55	250.00	---	---	---	---	11+16.40	11+60.74	---	---	---	---	4.00%	30
CTHP	5	12+80.59	15+39.87	600.00	---	---	---	---	13+58.74	14+99.20	15+38.49	15+79.85	16+21.20	16+62.56	5.90%	40



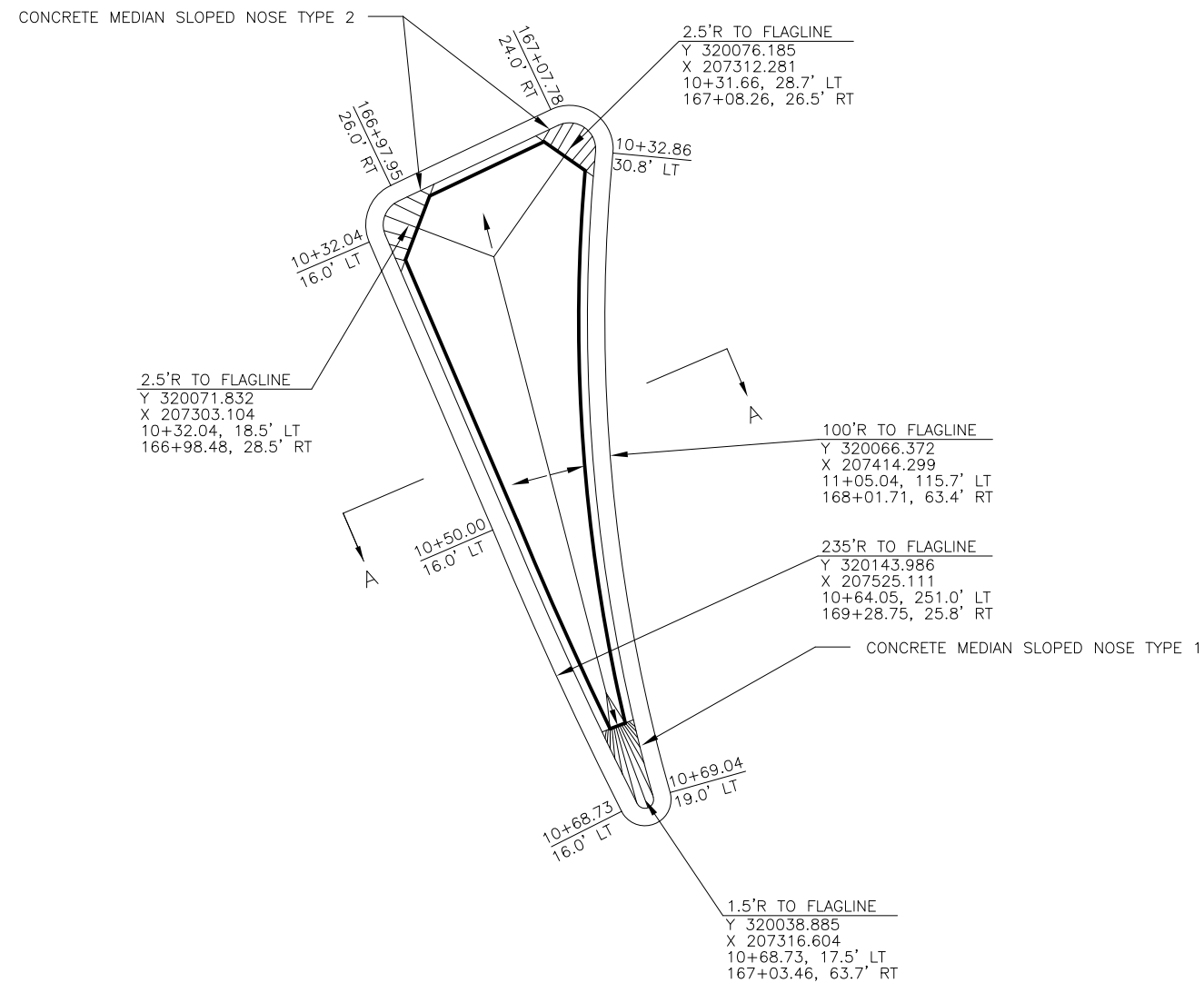
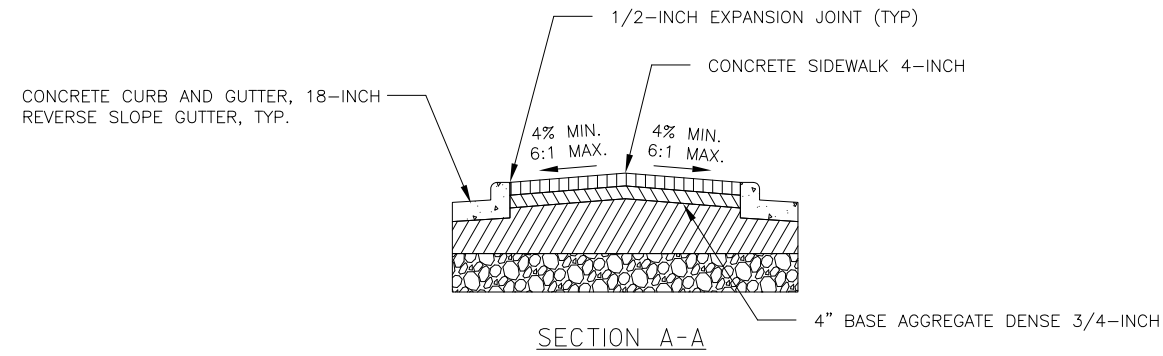
DETAIL FOR ASPHALTIC SHOULDER AT GUARDRAIL



CULVERT PIPE CHECKS DETAIL



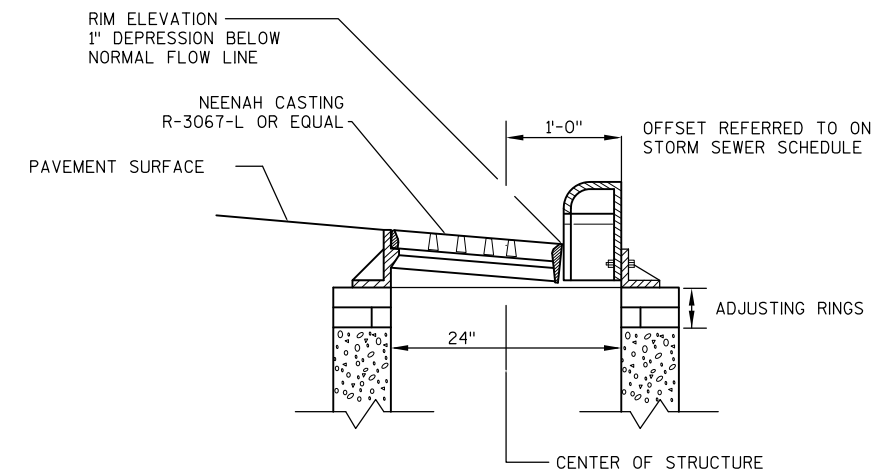
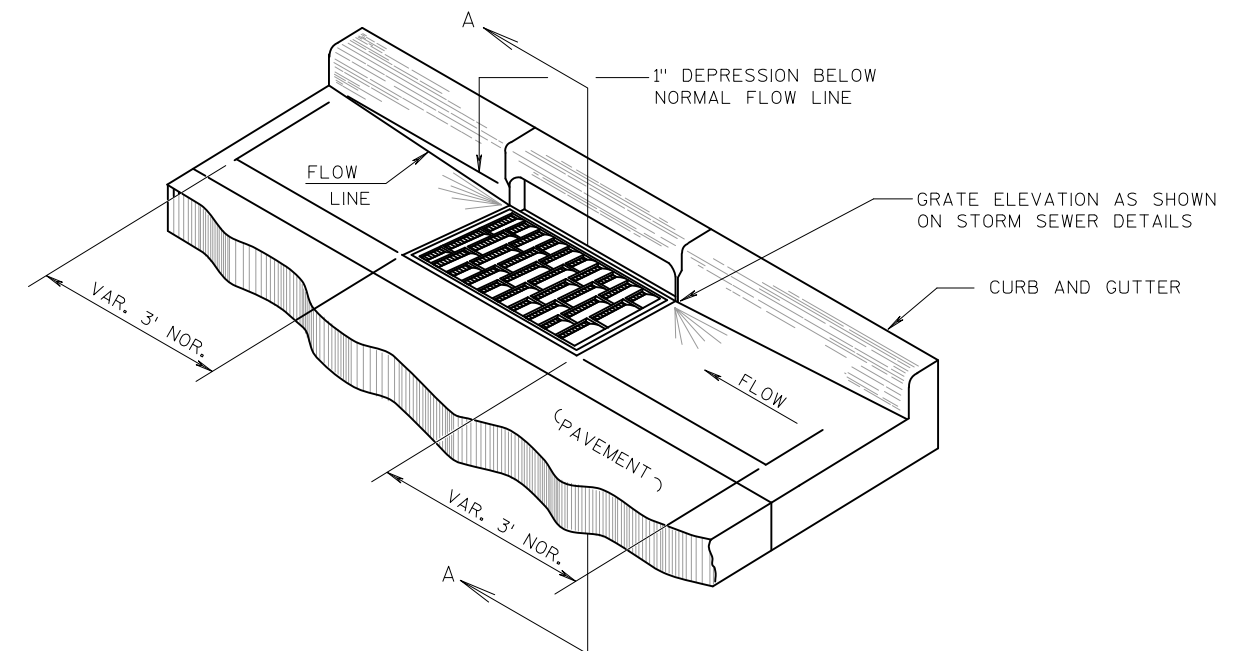
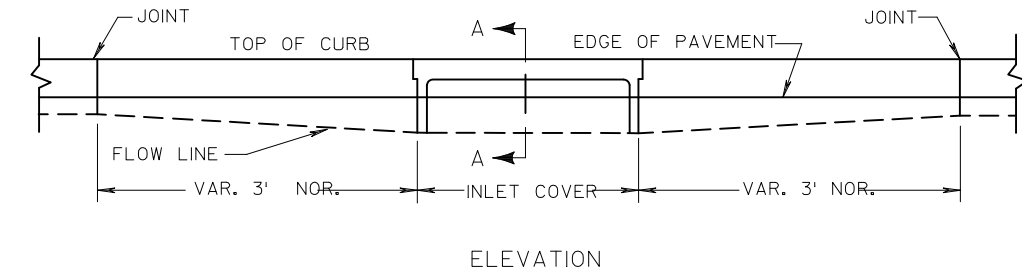
SECTION A-A



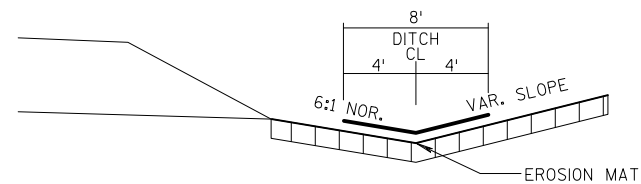
ISLAND DETAIL

NOTES:

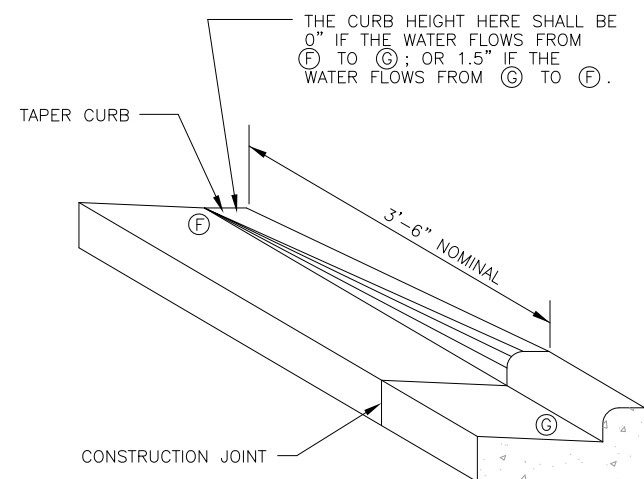
1. TROWEL ISLAND NOSE TO A SMOOTH FINISH.
2. JOINT SPACING TO BE DETERMINED IN FIELD.
3. BACK OF CONCRETE CURB MUST BE VERTICAL.
4. ALL CURB RADI ARE TO FLAG LINE OF CURB UNLESS OTHERWISE NOTED.



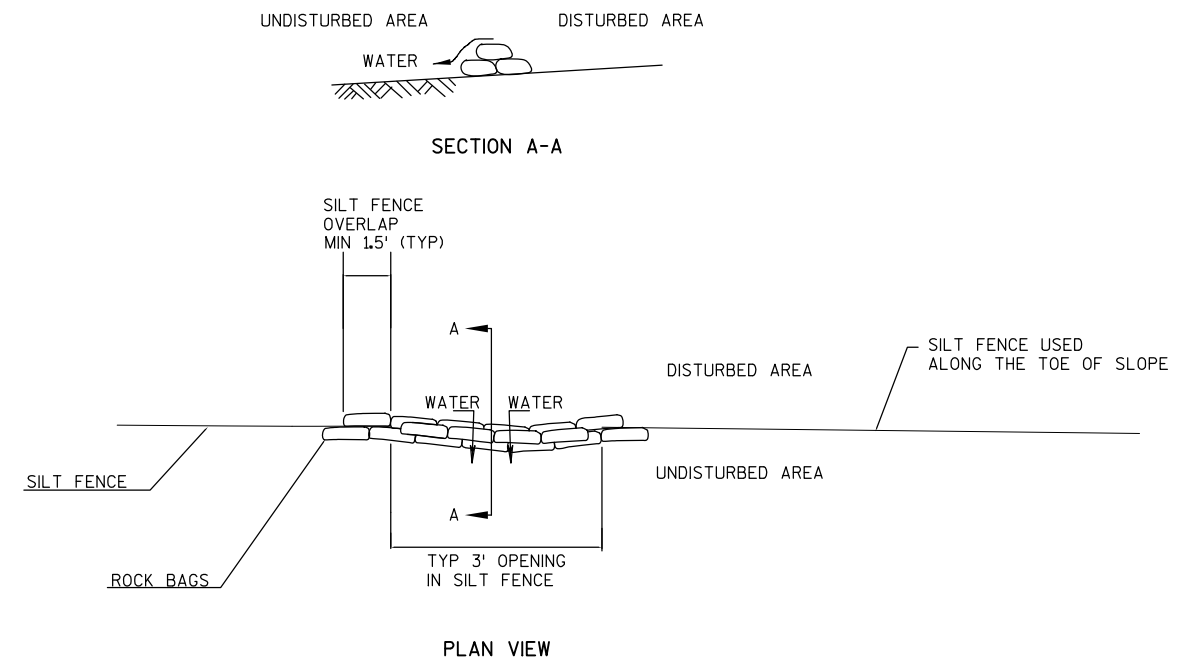
CURB AND GUTTER DETAIL AT INLETS



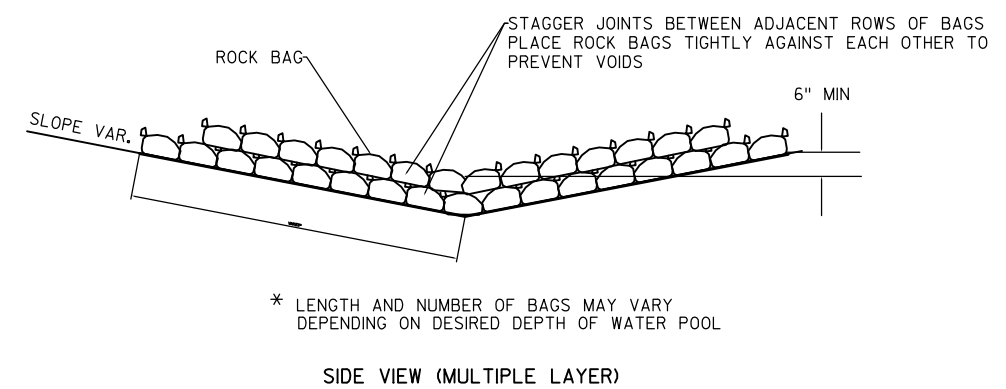
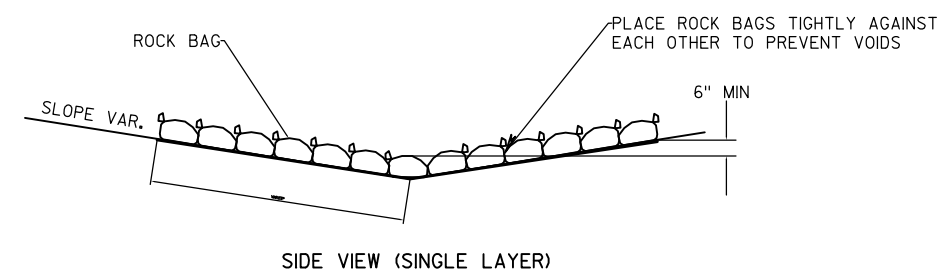
EROSION MAT DETAIL FOR DITCHES



DETAIL OF CURB AND GUTTER TERMINI



ROCK BAGS USED FOR SILT FENCE RELIEF POINT

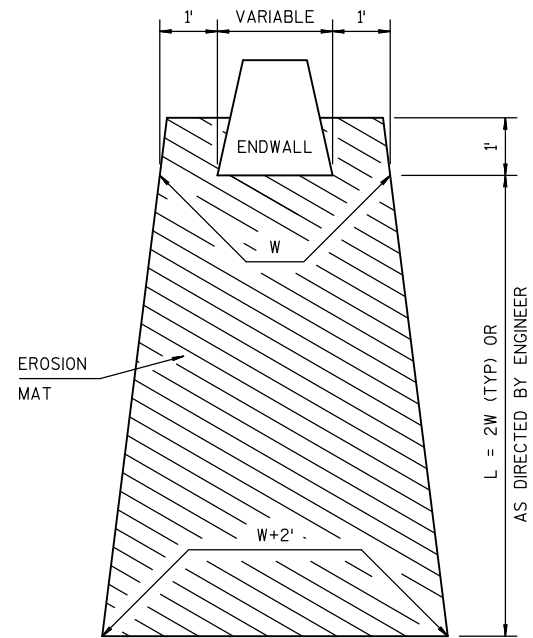


* LENGTH AND NUMBER OF BAGS MAY VARY
DEPENDING ON DESIRED DEPTH OF WATER POOL

ROCK BAGS USED FOR DITCH CHECKS

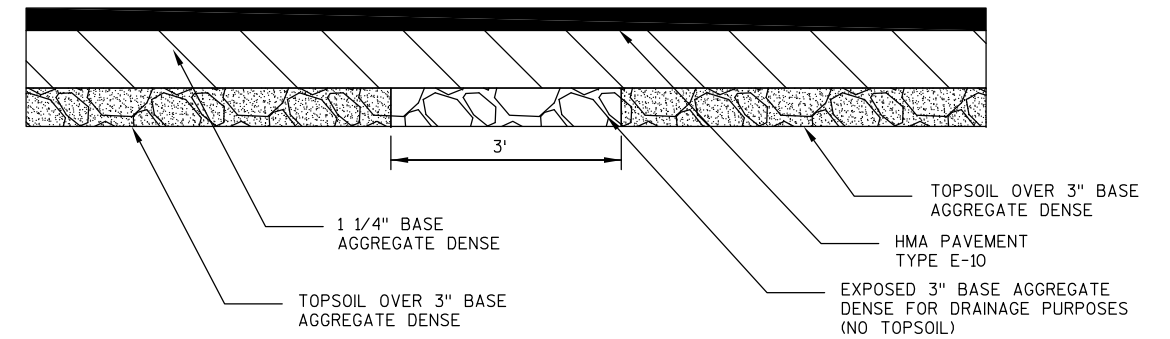
ROCK BAGS DETAIL

2

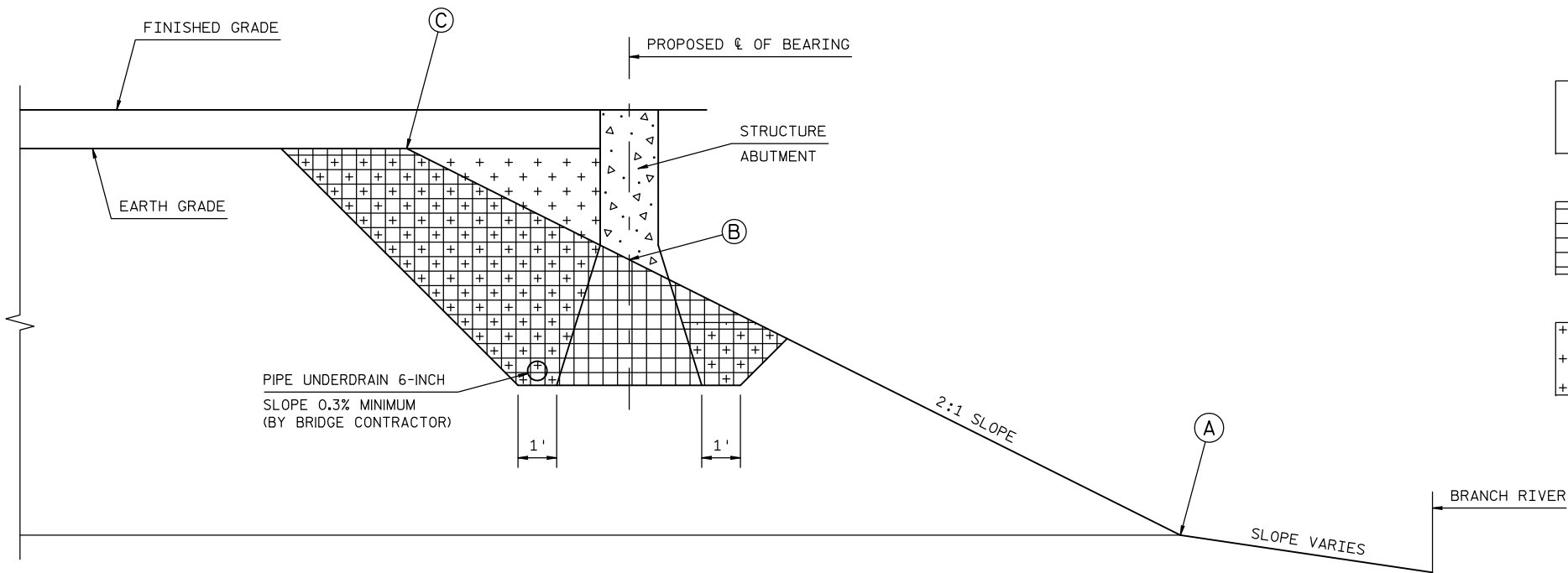


EROSION MAT TREATMENT AT CULVERTS

2



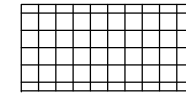
BASE AGGREGATE DRAINAGE OUTLET



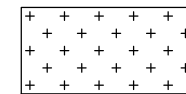
LEGEND



COMMON EXCAVATION OR BORROW FILL (BY GRADING CONTRACTOR)

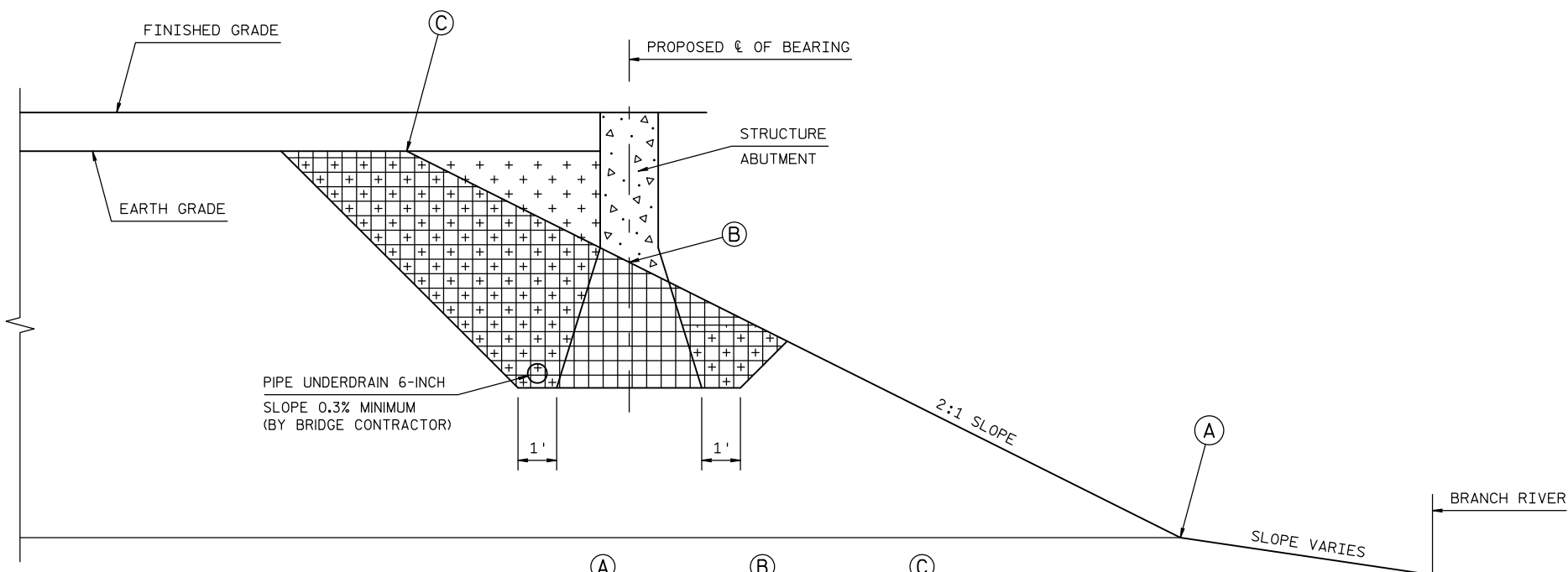


EXCAVATION FOR STRUCTURE (BY BRIDGE CONTRACTOR)

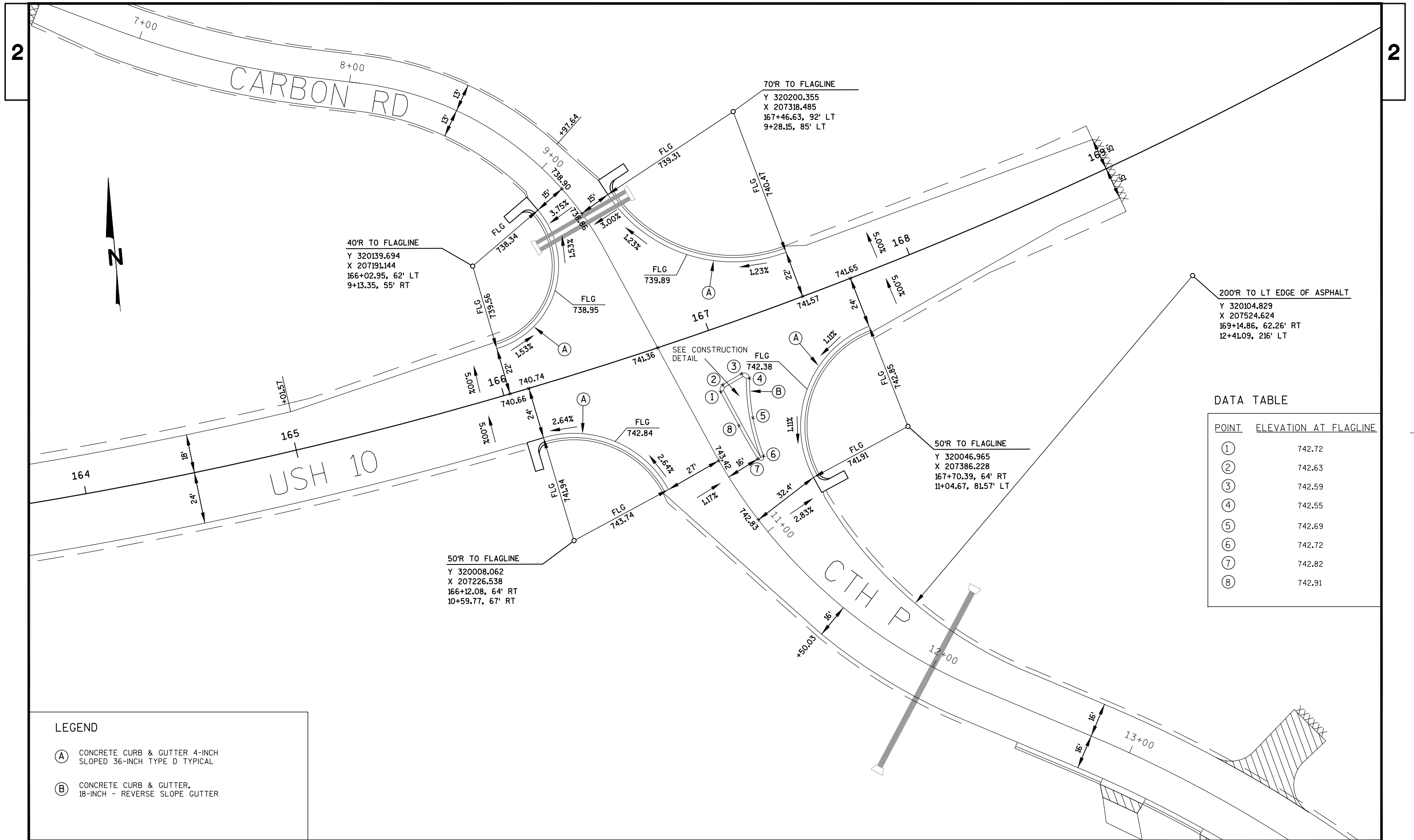


BACKFILL (PLACED BY BRIDGE CONTRACTOR)

LONGITUDINAL SECTION FOR EAST ABUTMENT



LONGITUDINAL SECTION FOR WEST ABUTMENT



DATA TABLE	
POINT	ELEVATION AT FLAGLINE
①	742.72
②	742.63
③	742.59
④	742.55
⑤	742.69
⑥	742.72
⑦	742.82
⑧	742.91

LEGEND

- Ⓐ CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE D TYPICAL
- Ⓑ CONCRETE CURB & GUTTER, 18-INCH - REVERSE SLOPE GUTTER

PROJECT NO: 4337-10-72

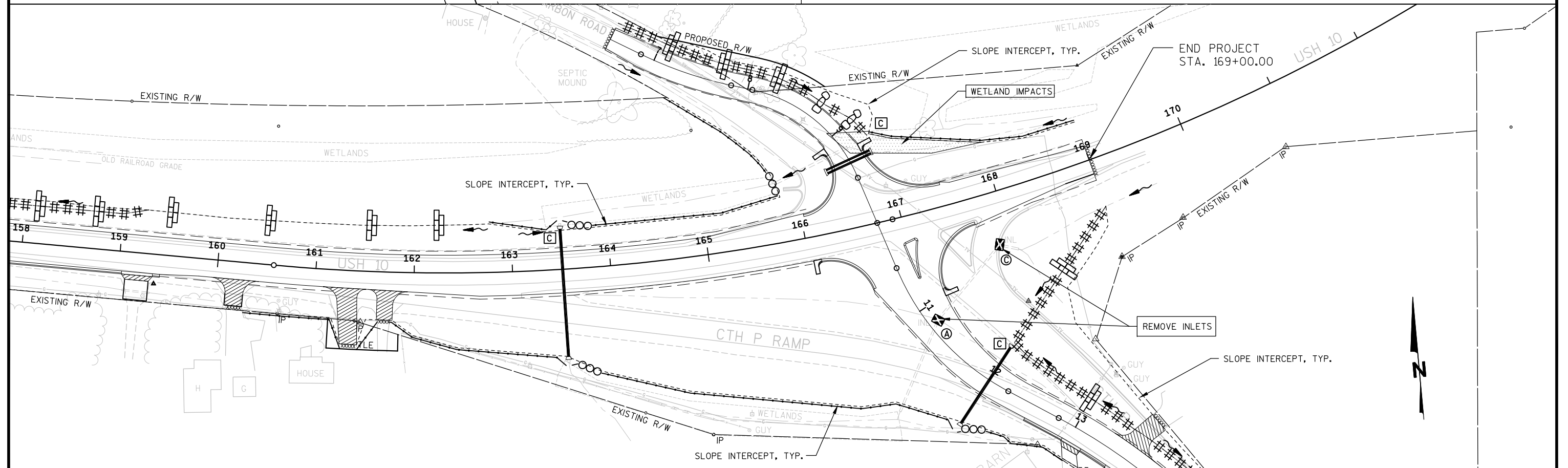
HWY: USH10

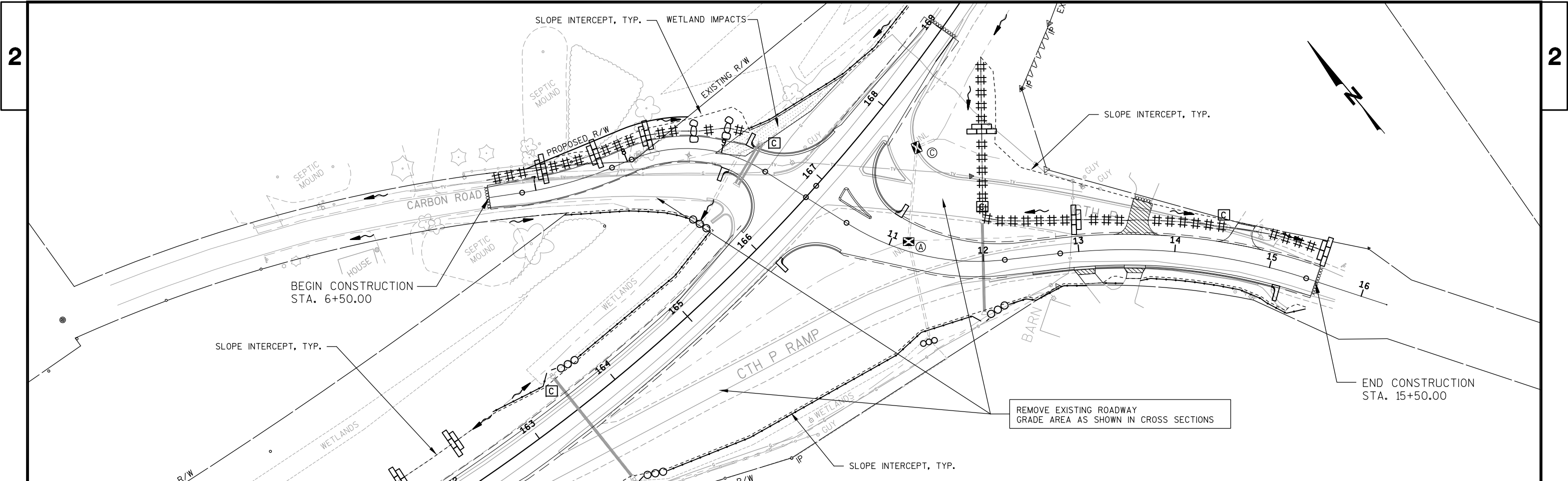
COUNTY: MANITOWOC

INTERSECTION DETAIL

SHEET NO:

E





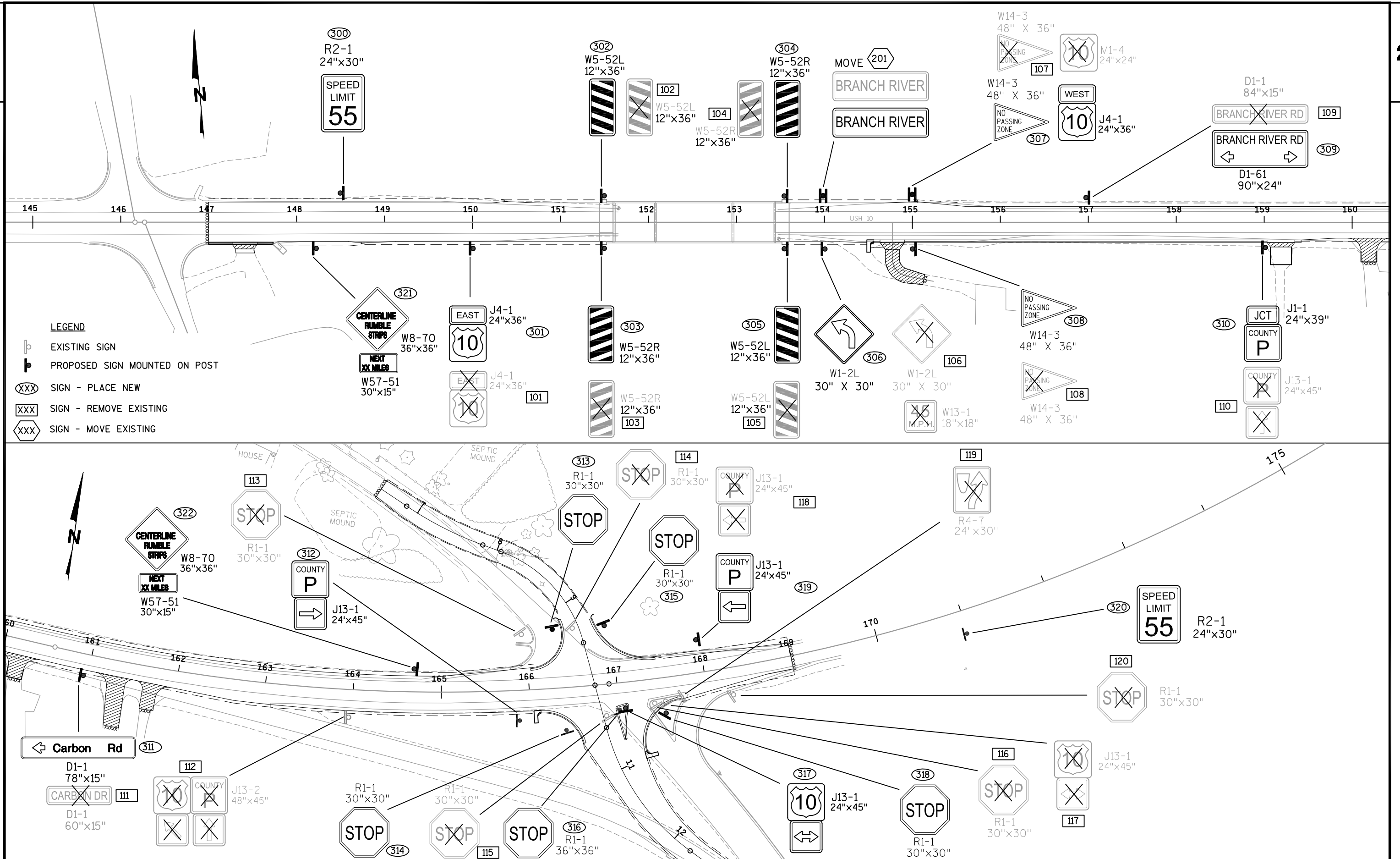
RUNOFF COEFFICIENT TABLE

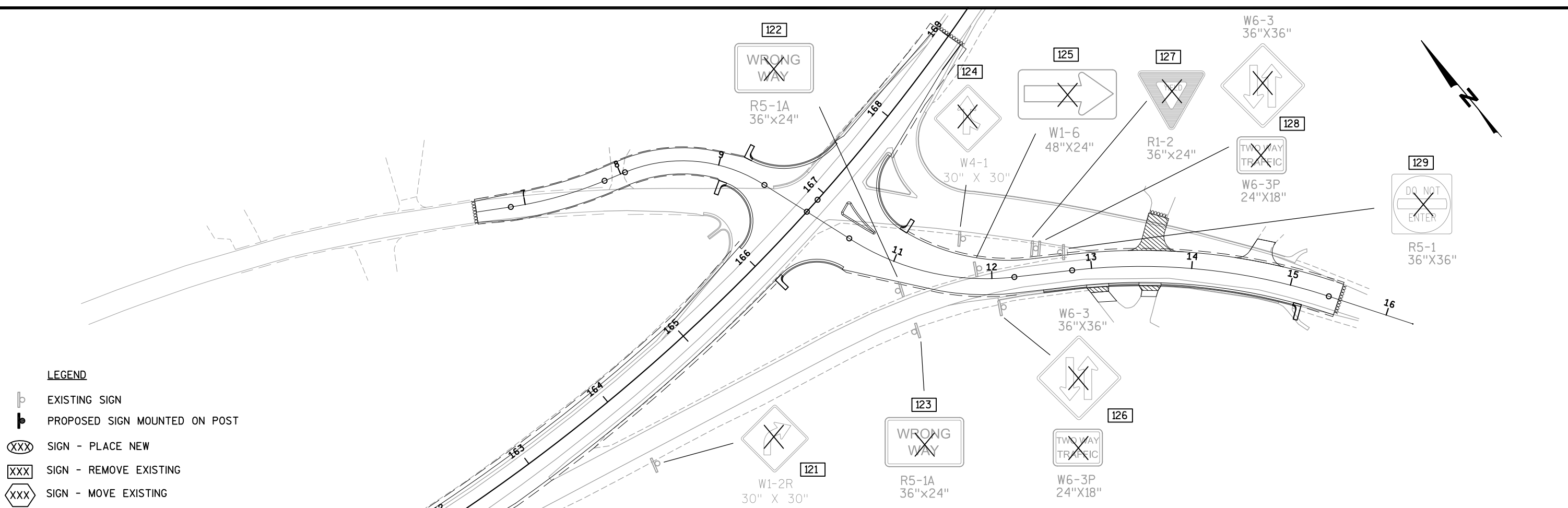
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34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

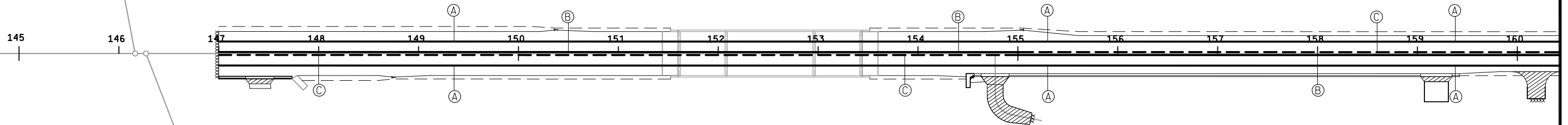
TOTAL PROJECT AREA = 7.5 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 4.5 ACRES

- LEGEND
- ROCK BAG DITCH CHECK
 - INLET PROTECTION, TYPE (A), (B), (C) AND/OR (D)
 - TEMPORARY DITCH CHECK
 - CULVERT PIPE CHECK
 - SILT FENCE
 - ROCK BAG SILT FENCE RELIEF (SEE CONSTRUCTION DETAIL)
 - DRAINAGE ARROW
 - RIPRAP HEAVY
 - EROSION MAT CLASS 1 TYPE B

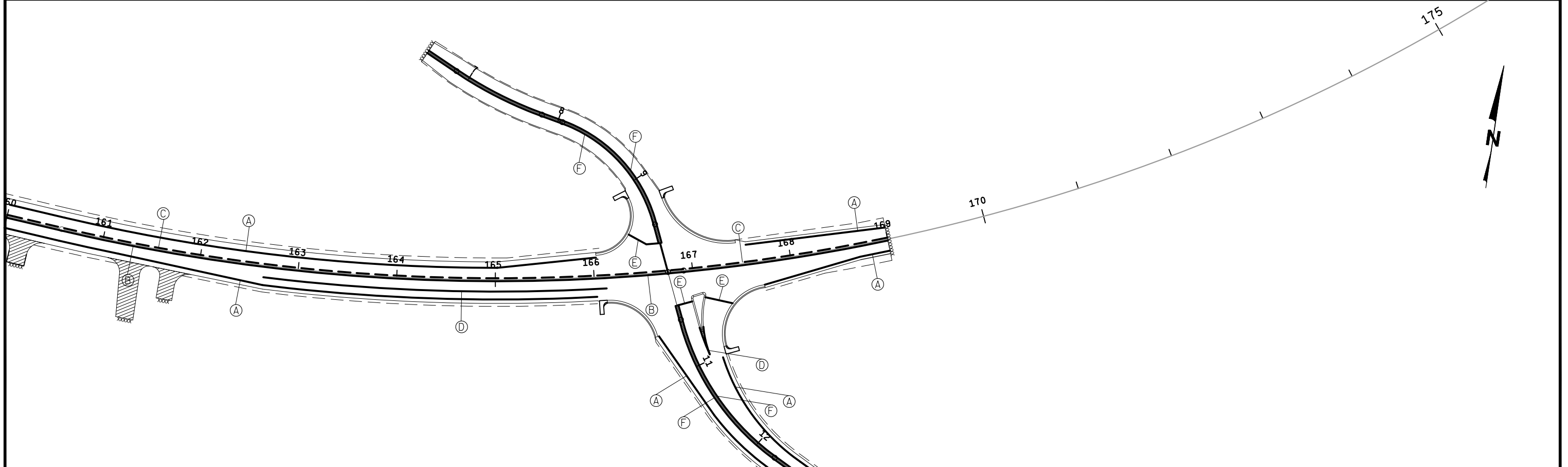
- NOTES
- ALL AREAS DISTURBED BY CONSTRUCTION SHALL RECEIVE SALVAGED TOPSOIL, TEMP SEED, SEED, FERTILIZER, AND MULCH;UNLESS NOTED OTHERWISE.
 - PLACE EROSION MAT CLASS 1 TYPE B, 8' WIDE CENTERED IN DITCH BOTTOMS, SEE CONSTRUCTION DETAIL.
 - PLACE EROSION MAT CLASS 1 TYPE A ON BACKSLOPES STEEPER THAN 3:1 TYPICAL.





**LEGEND**

- (A) PAVEMENT MARKING EPOXY 4-INCH (EDGE LINE WHITE)
- (B) PAVEMENT MARKING EPOXY 4-INCH SPECIAL (NO PASSING YELLOW)
- (C) PAVEMENT MARKING EPOXY 4-INCH SPECIAL (CENTERLINE DASHED YELLOW)
- (D) PAVEMENT MARKING EPOXY 8-INCH (CHANNELIZING WHITE)
- (E) PAVEMENT MARKING STOPLINE 18-INCH (WHITE)
- (F) PAVEMENT MARKING EPOXY 4-INCH (NO PASSING YELLOW)



PROJECT NO: 4337-10-72

HWY: USH10

COUNTY: MANITOWOC

PAVEMENT MARKING

SHEET NO:

E

FILE NAME: 024501_PM_BRIDGE PATH:

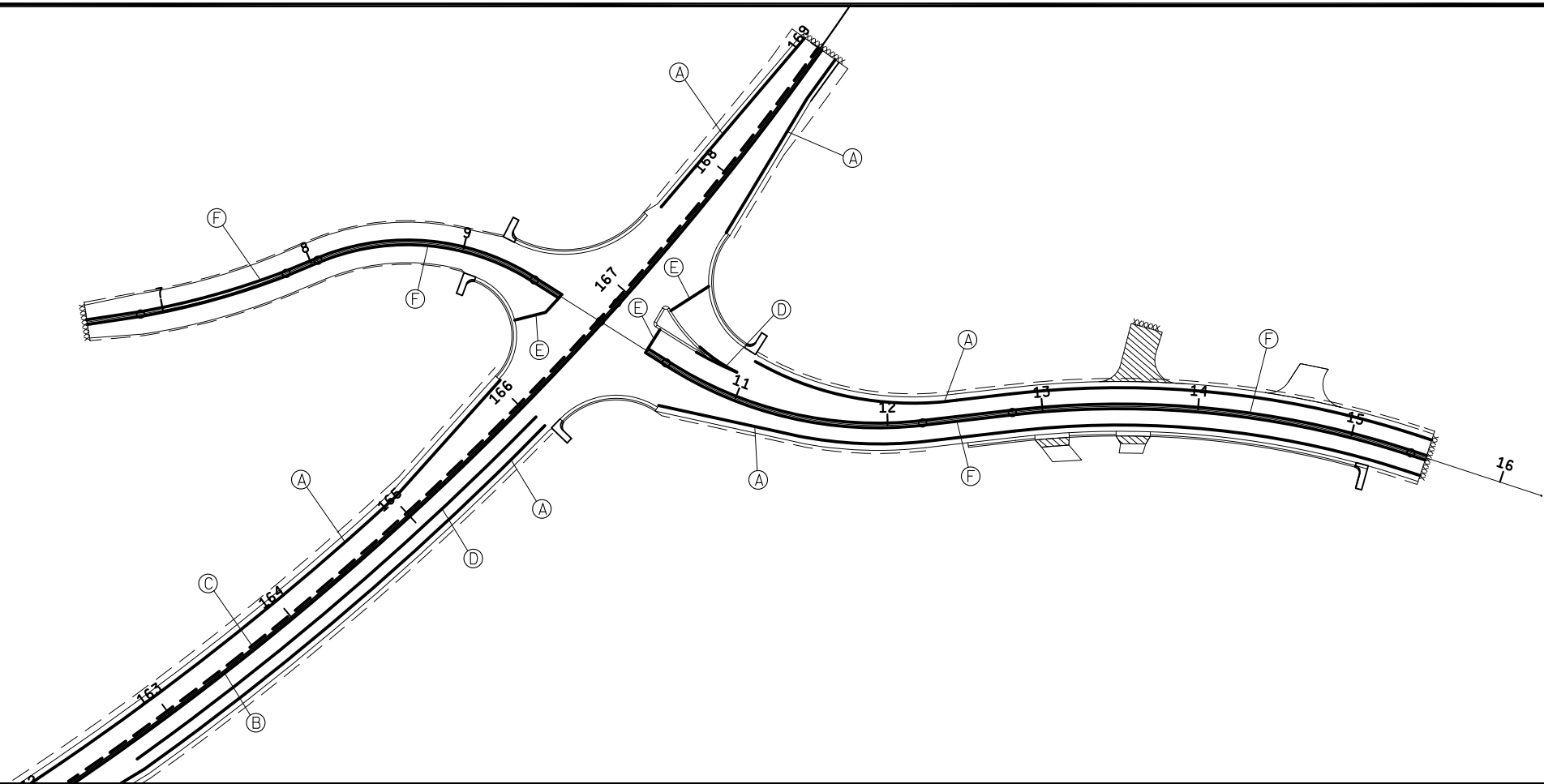
PLOTTED ON

30 AUG 2012 11:59:09

GADDK

1:2

WISDOT/CADDs SHEET 42

**LEGEND**

- (A) PAVEMENT MARKING EPOXY 4-INCH (EDGE LINE WHITE)
- (B) PAVEMENT MARKING EPOXY 4-INCH SPECIAL (NO PASSING YELLOW)
- (C) PAVEMENT MARKING EPOXY 4-INCH SPECIAL (CENTERLINE DASHED YELLOW)
- (D) PAVEMENT MARKING EPOXY 8-INCH (CHANNELIZING WHITE)
- (E) PAVEMENT MARKING STOPLINE 18-INCH (WHITE)
- (F) PAVEMENT MARKING EPOXY 4-INCH (NO PASSING YELLOW)

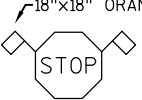
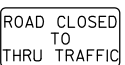
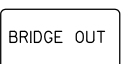
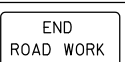
LEGEND

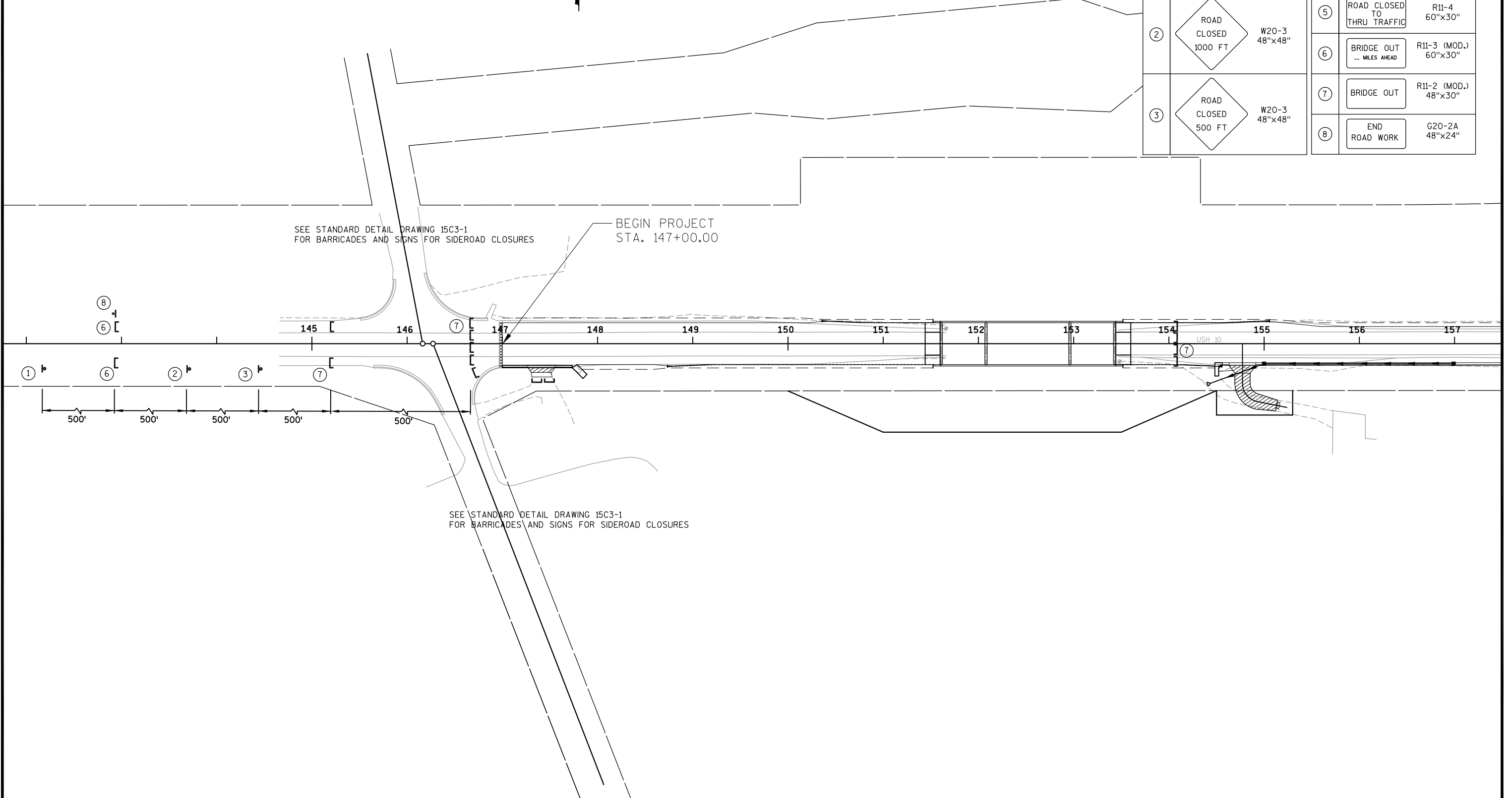
- POST MOUNTED SIGN
- [TYPE III BARRICADE

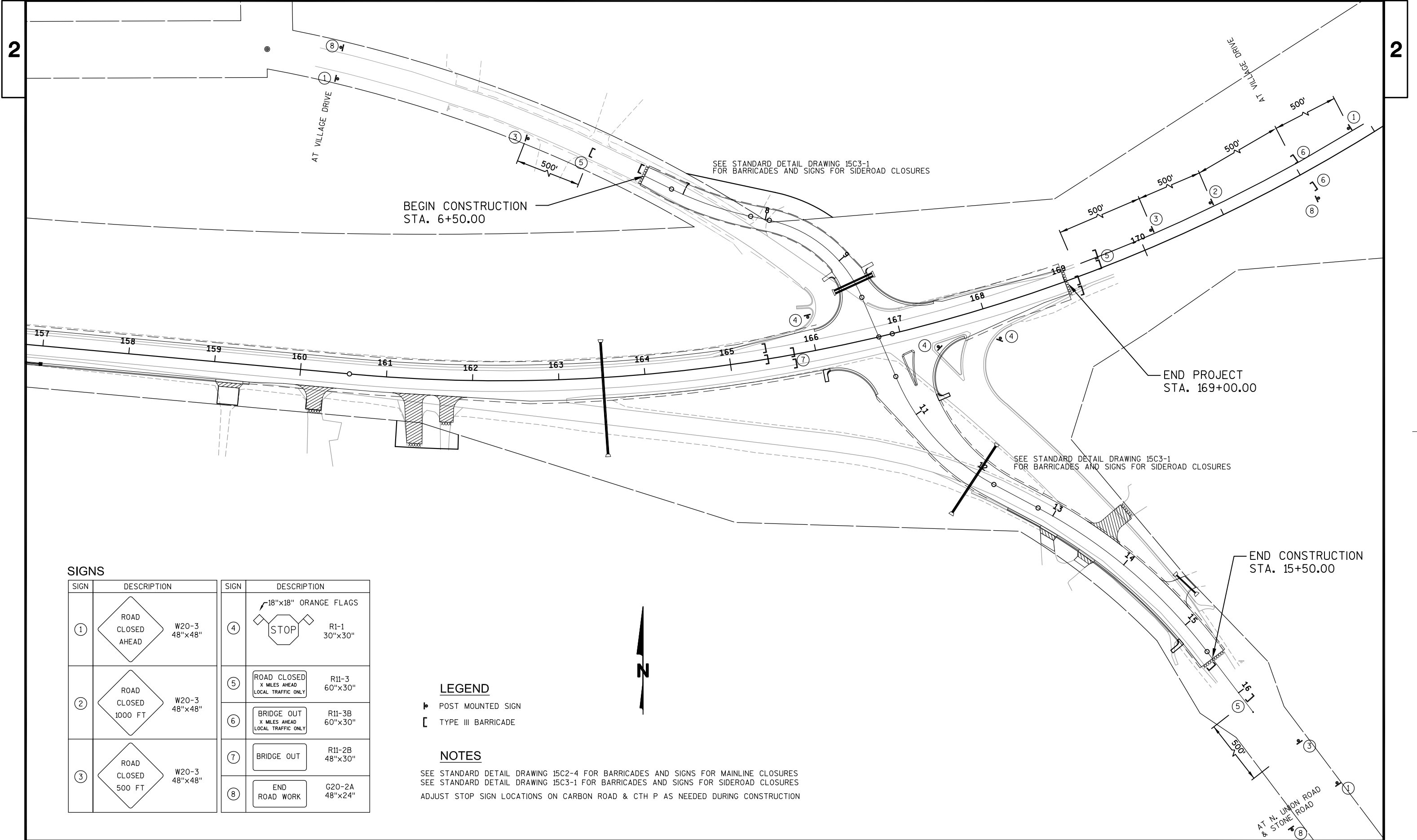
NOTES

SEE STANDARD DETAIL DRAWING 15C2-4 FOR BARRICADES AND SIGNS FOR MAINLINE CLOSURES
SEE STANDARD DETAIL DRAWING 15C3-1 FOR BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

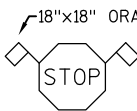
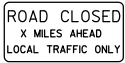
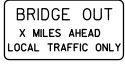
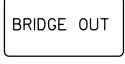
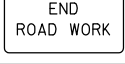
SIGNS

SIGN	DESCRIPTION	SIGN	DESCRIPTION
①	 W20-3 48"x48"	④	 18"x18" ORANGE FLAGS R1-1 30"x30"
②	 W20-3 48"x48"	⑤	 R11-4 60"x30"
		⑥	 R11-3 (MOD.) 60"x30"
③	 W20-3 48"x48"	⑦	 R11-2 (MOD.) 48"x30"
		⑧	 G20-2A 48"x24"





SIGNS

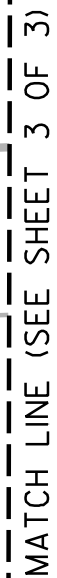
SIGN	DESCRIPTION	SIGN	DESCRIPTION
①	 ROAD CLOSED AHEAD W20-3 48"x48"	④	 18"x18" ORANGE FLAGS STOP R1-1 30"x30"
②	 ROAD CLOSED 1000 FT W20-3 48"x48"	⑤	 ROAD CLOSED X MILES AHEAD LOCAL TRAFFIC ONLY R11-3 60"x30"
③	 ROAD CLOSED 500 FT W20-3 48"x48"	⑥	 BRIDGE OUT X MILES AHEAD LOCAL TRAFFIC ONLY R11-3B 60"x30"
		⑦	 BRIDGE OUT R11-2B 48"x30"
		⑧	 END ROAD WORK G20-2A 48"x24"

LEGEND

- ▬ POST MOUNTED SIGN
- [] TYPE III BARRICADE

NOTES

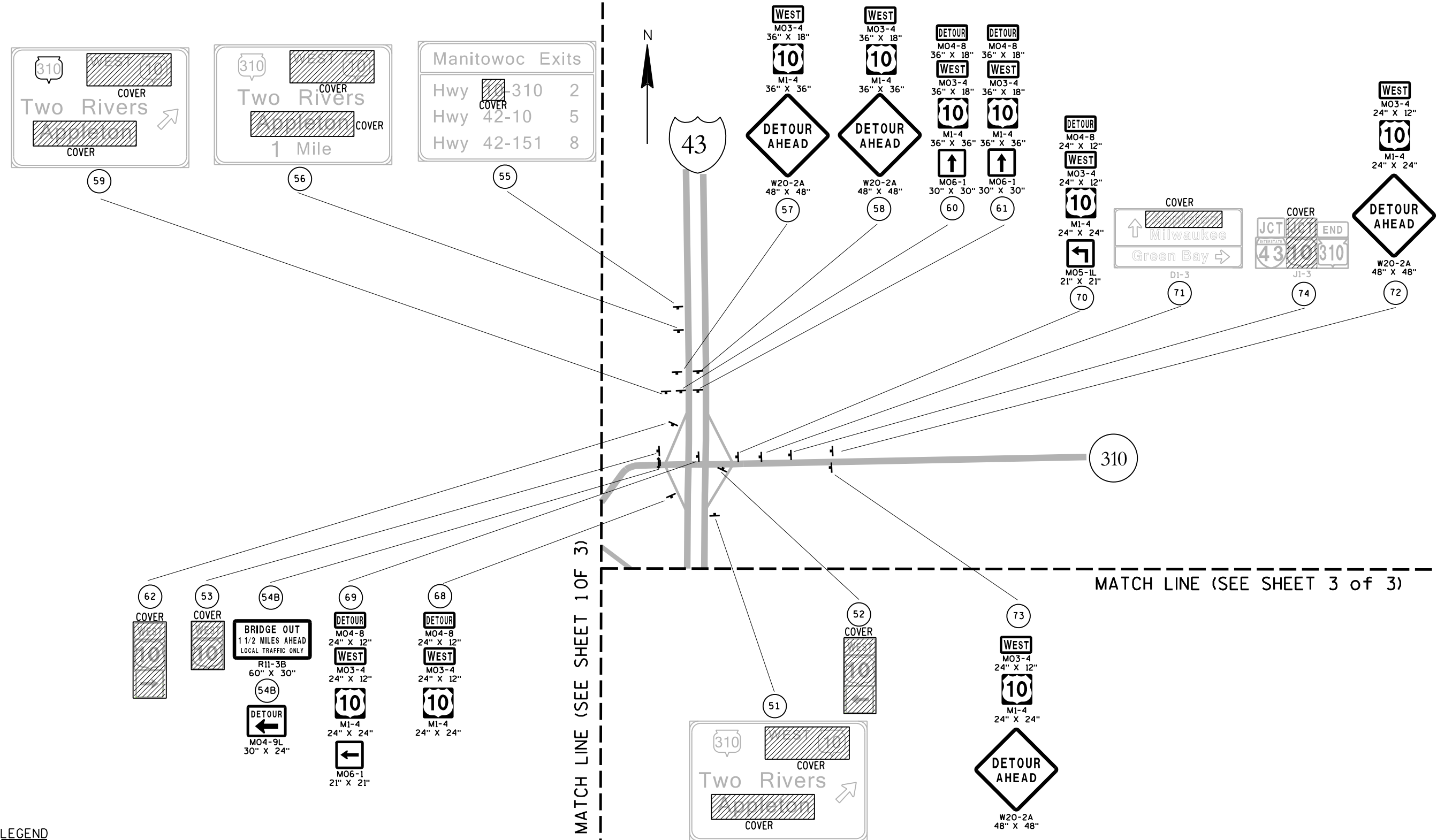
SEE STANDARD DETAIL DRAWING 15C2-4 FOR BARRICADES AND SIGNS FOR MAINLINE CLOSURES
SEE STANDARD DETAIL DRAWING 15C3-1 FOR BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
ADJUST STOP SIGN LOCATIONS ON CARBON ROAD & CTH P AS NEEDED DURING CONSTRUCTION



NOTE:
SIGNS NO. 1-20 ARE NOT NEEDED WHEN DETOUR FOR
PROJECT 1500-28-71 IS TO BE USED.

CONTRACTOR FROM THAT PROJECT WILL REPLACE
NECESSARY SIGNAGE.

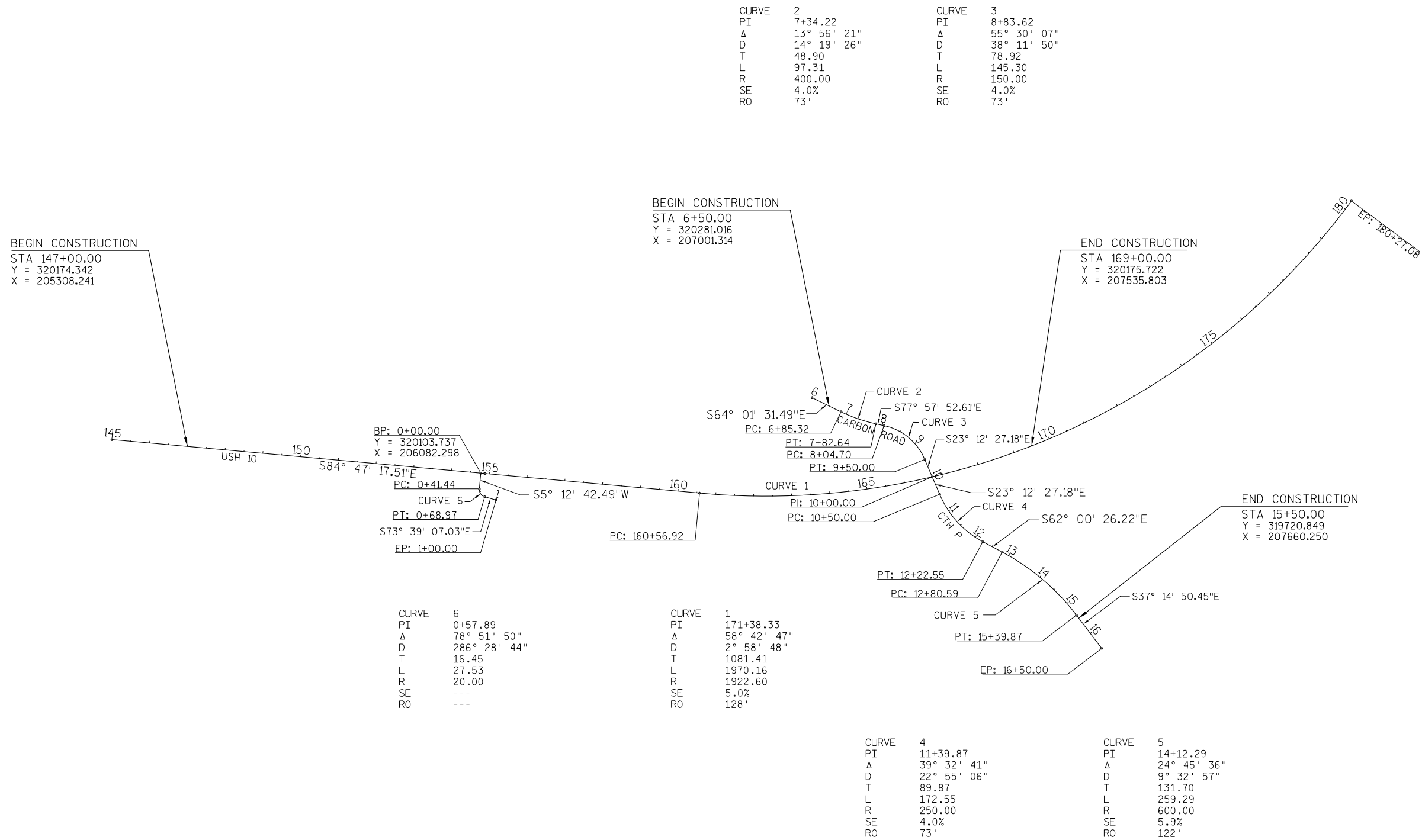
PLAN SHEET PRODUCED
BY WISDOT-NE REGION



MATCH LINE (SEE SHEET 3 of 3)

SHEET 2 OF 3
PLAN SHEET PRODUCED
BY WISDOT-NE REGION





DATE 23JAN13		E S T I M A T E O F Q U A N T I T I E S			
LINE		4337-10-72			
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0010	201.0105	CLEARING	STA	5.000	5.000
0020	201.0205	GRUBBING	STA	5.000	5.000
0030	203.0100	REMOVING SMALL PIPE CULVERTS	EACH	9.000	9.000
0040	203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS (STATION) 01. STA 152+56	LS	1.000	1.000
0050	204.0100	REMOVING PAVEMENT	SY	10,800.000	10,800.000
0060	204.0150	REMOVING CURB & GUTTER	LF	360.000	360.000
0070	204.0155	REMOVING CONCRETE SIDEWALK	SY	95.000	95.000
0080	204.0165	REMOVING GUARDRAIL	LF	1,050.000	1,050.000
0090	204.0170	REMOVING FENCE	LF	85.000	85.000
0100	204.0220	REMOVING INLETS	EACH	3.000	3.000
0110	205.0100	EXCAVATION COMMON	CY	19,508.000	19,508.000
0120	206.1000	EXCAVATION FOR STRUCTURES BRIDGES (STRUCTURE) 01. B-36-193	LS	1.000	1.000
0130	206.5000	COFFERDAMS (STRUCTURE) 01. B-36-193	LS	1.000	1.000
0140	208.0100	BORROW	CY	3,794.000	3,794.000
0150	210.0100	BACKFILL STRUCTURE	CY	310.000	310.000
0160	213.0100	FINISHING ROADWAY (PROJECT) 01. 4337-10-72	EACH	1.000	1.000
0170	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	4,350.000	4,350.000
0180	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	30,100.000	30,100.000
0190	305.0130	BASE AGGREGATE DENSE 3-INCH	TON	7,550.000	7,550.000
0200	415.0410	CONCRETE PAVEMENT APPROACH SLAB	SY	156.000	156.000
0210	455.0105	ASPHALTIC MATERIAL PG58-28	TON	265.000	265.000
0220	455.0605	TACK COAT	GAL	595.000	595.000
0230	460.1103	HMA PAVEMENT TYPE E-3	TON	970.000	970.000
0240	460.1110	HMA PAVEMENT TYPE E-10	TON	3,870.000	3,870.000
0250	460.2000	INCENTIVE DENSITY HMA PAVEMENT	DOL	3,100.000	3,100.000
0260	460.4110.S	REHEATING HMA LONGITUDINAL JOINTS	LF	5,960.000	5,960.000
0270	465.0120	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	TON	91.000	91.000
0280	465.0315	ASPHALTIC FLUMES	SY	65.000	65.000
0290	465.0475.S	ASPHALT CENTER LINE RUMBLE STRIP 2-LANE RURAL	LF	1,390.000	1,390.000
0300	502.0100	CONCRETE MASONRY BRIDGES	CY	627.000	627.000
0310	502.1100	CONCRETE MASONRY SEAL	CY	74.000	74.000
0320	502.3200	PROTECTIVE SURFACE TREATMENT	SY	1,065.000	1,065.000
0330	503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	1,279.000	1,279.000
0340	504.0900	CONCRETE MASONRY ENDWALLS	CY	3.000	3.000
0350	505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	10,820.000	10,820.000
0360	505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	95,525.000	95,525.000
0370	506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	42.000	42.000
0380	506.4000	STEEL DIAPHRAGMS (STRUCTURE) 01. B-36-193	EACH	24.000	24.000
0390	516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	22.000	22.000
0400	520.0115	CULVERT PIPE CLASS III 15-INCH	LF	28.000	28.000
0410	521.1015	APRON ENDWALLS FOR CULVERT PIPE STEEL 15-INCH	EACH	2.000	2.000
0420	522.0330	CULVERT PIPE REINFORCED CONCRETE CLASS IV 30-INCH	LF	222.000	222.000
0430	522.0521	CULVERT PIPE REINFORCED CONCRETE CLASS V 21-INCH	LF	96.000	96.000
0440	522.1015	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 15-INCH	EACH	1.000	1.000

DATE 23JAN13		E S T I M A T E O F Q U A N T I T I E S			
LINE				4337-10-72	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0450	522.1030	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 30-INCH	EACH	4.000	4.000
0460	550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	3,420.000	3,420.000
0470	601.0407	CONCRETE CURB & GUTTER 18-INCH TYPE D	LF	72.000	72.000
0480	601.0411	CONCRETE CURB & GUTTER 30-INCH TYPE D	LF	74.000	74.000
0490	601.0553	CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE D	LF	1,060.000	1,060.000
0500	602.0405	CONCRETE SIDEWALK 4-INCH	SF	190.000	190.000
0510	606.0200	RIPRAP MEDIUM	CY	135.000	135.000
0520	606.0300	RIPRAP HEAVY	CY	830.000	830.000
0530	608.0315	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 15-INCH	LF	260.000	260.000
0540	611.0615	INLET COVERS TYPE F	EACH	2.000	2.000
0550	611.3253	INLETS 2.5X3-FT	EACH	2.000	2.000
0560	612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	130.000	130.000
0570	614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4.000	4.000
0580	614.2300	MGS GUARDRAIL 3	LF	287.500	287.500
0590	614.2500	MGS THRIE BEAM TRANSITION	LF	157.600	157.600
0600	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	4.000	4.000
0610	618.0100	MAINTENANCE AND REPAIR OF HAUL ROADS (PROJECT) 01. 4337-10-72	EACH	1.000	1.000
0620	619.1000	MOBILIZATION	EACH	1.000	1.000
0630	620.0300	CONCRETE MEDIAN SLOPED NOSE	SF	35.000	35.000
0640	624.0100	WATER	MGAL	610.000	610.000
0650	625.0100	TOPSOIL	SY	5,500.000	5,500.000
0660	625.0500	SALVAGED TOPSOIL	SY	20,000.000	20,000.000
0670	627.0200	MULCHING	SY	22,050.000	22,050.000
0680	628.1504	SILT FENCE	LF	2,160.000	2,160.000
0690	628.1520	SILT FENCE MAINTENANCE	LF	1,080.000	1,080.000
0700	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	8.000	8.000
0710	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	5.000	5.000
0720	628.2004	EROSION MAT CLASS I TYPE B	SY	1,500.000	1,500.000
0730	628.2008	EROSION MAT URBAN CLASS I TYPE B	SY	1,950.000	1,950.000
0740	628.6005	TURBIDITY BARRIERS	SY	350.000	350.000
0750	628.7005	INLET PROTECTION TYPE A	EACH	5.000	5.000
0760	628.7015	INLET PROTECTION TYPE C	EACH	4.000	4.000
0770	628.7504	TEMPORARY DITCH CHECKS	LF	275.000	275.000
0780	628.7555	CULVERT PIPE CHECKS	EACH	25.000	25.000
0790	628.7560	TRACKING PADS	EACH	3.000	3.000
0800	628.7570	ROCK BAGS	EACH	430.000	430.000
0810	629.0210	FERTILIZER TYPE B	CWT	16.000	16.000
0820	630.0120	SEEDING MIXTURE NO. 20	LB	540.000	540.000
0830	630.0140	SEEDING MIXTURE NO. 40	LB	100.000	100.000
0840	630.0200	SEEDING TEMPORARY	LB	270.000	270.000
0850	633.5200	MARKERS CULVERT END	EACH	6.000	6.000
0860	634.0612	POSTS WOOD 4X6-INCH X 12-FT	EACH	4.000	4.000
0870	634.0614	POSTS WOOD 4X6-INCH X 14-FT	EACH	13.000	13.000
0880	634.0616	POSTS WOOD 4X6-INCH X 16-FT	EACH	8.000	8.000
0890	634.0618	POSTS WOOD 4X6-INCH X 18-FT	EACH	1.000	1.000
0900	637.0202	SIGNS REFLECTIVE TYPE II	SF	156.820	156.820
0910	638.2102	MOVING SIGNS TYPE II	EACH	2.000	2.000
0920	638.2602	REMOVING SIGNS TYPE II	EACH	33.000	33.000
0930	638.3000	REMOVING SMALL SIGN SUPPORTS	EACH	31.000	31.000

DATE 23JAN13		E S T I M A T E O F Q U A N T I T I E S			
LINE				4337-10-72	
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0940	642.5001	FIELD OFFICE TYPE B	EACH	1.000	1.000
0950	643.0100	TRAFFIC CONTROL (PROJECT) 01. 4337-10-72	EACH	1.000	1.000
0960	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	3,456.000	3,456.000
0970	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	5,184.000	5,184.000
0980	643.0900	TRAFFIC CONTROL SIGNS	DAY	3,348.000	3,348.000
0990	643.0910	TRAFFIC CONTROL COVERING SIGNS TYPE I	EACH	6.000	6.000
1000	643.0920	TRAFFIC CONTROL COVERING SIGNS TYPE II	EACH	8.000	8.000
1010	643.1050	TRAFFIC CONTROL SIGNS PCMS	DAY	28.000	28.000
1020	643.2000	TRAFFIC CONTROL DETOUR (PROJECT) 01. 4337-10-72	EACH	1.000	1.000
1030	643.3000	TRAFFIC CONTROL DETOUR SIGNS	DAY	21,276.000	21,276.000
1040	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	1,620.000	1,620.000
1050	646.0106	PAVEMENT MARKING EPOXY 4-INCH	LF	7,700.000	7,700.000
1060	646.0126	PAVEMENT MARKING EPOXY 8-INCH	LF	410.000	410.000
1070	647.0566	PAVEMENT MARKING STOP LINE EPOXY 18-INCH	LF	80.000	80.000
1080	648.0100	LOCATING NO-PASSING ZONES	MI	0.420	0.420
1090	650.4000	CONSTRUCTION STAKING STORM SEWER	EACH	3.000	3.000
1100	650.4500	CONSTRUCTION STAKING SUBGRADE	LF	2,866.000	2,866.000
1110	650.5000	CONSTRUCTION STAKING BASE	LF	2,834.000	2,834.000
1120	650.5500	CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	LF	1,206.000	1,206.000
1130	650.6000	CONSTRUCTION STAKING PIPE CULVERTS	EACH	3.000	3.000
1140	650.6500	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) 01. B-36-193	LS	1.000	1.000
1150	650.7000	CONSTRUCTION STAKING CONCRETE PAVEMENT	LF	32.000	32.000
1160	650.9910	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 4337-10-72	LS	1.000	1.000
1170	650.9920	CONSTRUCTION STAKING SLOPE STAKES	LF	2,866.000	2,866.000
1180	690.0150	SAWING ASPHALT	LF	135.000	135.000
1190	690.0250	SAWING CONCRETE	LF	82.000	82.000
1200	715.0502	INCENTIVE STRENGTH CONCRETE STRUCTURES	DOL	3,762.000	3,762.000
1210	SPV.0060	SPECIAL 01. PERMANENT STONE DITCH CHECK	EACH	3.000	3.000
1220	SPV.0090	SPECIAL 01. PAVEMENT MARKING EPOXY 4-INCH SPECIAL	LF	1,750.000	1,750.000

3

CLEARING AND GRUBBING ITEMS			
STATION - STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
CATEGORY CODE 0010			
150+00 - 151+00	LT	1	1
153+00 - 154+00	LT & RT	1	1
159+00 - 161+00	RT	1	1
7+00 - 9+00	LT	2	2
TOTALS		5	5

REMOVING SMALL PIPE CULVERTS			
STATION	LOCATION	203.0100 EACH	COMMENTS
CATEGORY CODE 0010			
153+12 - 154+64	RT	1	REMOVE 152 LF OF CP 18-INCH
153+20 - 154+71	LT	1	REMOVE 151 LF OF CP 18-INCH
159+19	RT	1	REMOVE 28 LF OF CP 18-INCH
163+51	LT & RT	1	REMOVE 141 LF OF CP 30-INCH
7+97	RT	1	REMOVE 21 LF OF CP 15-INCH
9+11	RT	1	REMOVE 81 LF OF CP 30-INCH
10+82 - 11+07	LT	1	REMOVE 20 LF OF CP 24-INCH
10+82 - 11+18	LT & RT	1	REMOVE 98 LF OF CP 24-INCH
11+18 - 11+56	RT	1	REMOVE 101 LF OF CP 24-INCH
TOTAL		9	

REMOVING PAVEMENT		
STATION - STATION	LOCATION	204.0100 SY
CATEGORY CODE 0010		
147+00 - 151+66	LT & RT	1,037
153+47 - 169+00	LT & RT	5,057
161+87 - 13+03	RT	1,558
8+99 - 9+75	LT & RT	368
10+12 - 15+50	LT & RT	2,780
TOTAL		10,800

REMOVING CURB & GUTTER		
STATION - STATION	LOCATION	204.0150 LF
CATEGORY CODE 0010		
147+00 - 147+72	RT	73
12+05 - 14+93	RT	287
TOTAL		360

EARTHWORK SUMMARY

DIVISION	FROM/TO STATION	LOCATION	EXCAVATION COMMON (ITEM #205.0100) (NOTE 1) (CY)		SALVAGED / UNUSABLE PAVEMENT MATERIAL (NOTE 4) (CY)	AVAILABLE MATERIAL (NOTE 5) (CY)	UNEXPANDED FILL (CY)	EXPANDED FILL (NOTE 6) (CY)	MASS ORDINATE +/- (NOTE 7) (CY)	WASTE (CY)	BORROW (ITEM #208.0100) (NOTE 8) (CY)	COMMENTS
			CUT (NOTE 2)	EBS EXCAVATION (NOTE 3)				FACTOR 1.30			FACTOR 1.15	
1	147+00.00 - 151+59.75 UNDISTRIBUTED	USH 10 USH 10	446 0	750	681 0	-235 750	3,119 0	4,054 0	-4,289 750	750	3,794	UNSUITABLE MATERIAL
DIVISION 1 SUBTOTAL			446	750	681	515	3,119	4,054	-3,539	750	3,794	
2	153+44.25 - 169+00.00 6+50.00 - 9+78.00 10+24.00 - 15+50.00 UNDISTRIBUTED	USH 10 CARBON ROAD CTH P USH 10	10,318 1,316 4,143 0	0 0 0 2,535	2,117 74 664 0	8,201 1,242 3,479 2,535	1,961 69 799 0	2,549 90 1,039 0	5,652 1,152 2,439 2,535	5,652 1,152 2,439 2,535		UNSUITABLE MATERIAL
DIVISION 2 SUBTOTAL			15,777	2,535	2,855	15,457	2,830	3,678	11,778	11,778	0	
TOTAL			16,223	3,285	3,536	15,972	5,948	7,733	8,239	12,528	3,794	
GRAND TOTAL			19,508									

- 1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS.
- 2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
- 3) EBS EXCAVATION = LENGTH X 44' WIDE X 1' DEEP. EBS EXCAVATION TO BE BACKFILLED WITH BASE AGGREGATE DENSE, 3-INCH.
- 4) SALVAGED/UNUSABLE PAVEMENT MATERIAL = LENGTH * TYPICAL WIDTH * TYPICAL DEPTH
- 5) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- 6) EXPANDED FILL. FACTOR = 1.30. EXPANDED FILL = (UNEXPANDED FILL) * FILL FACTOR
- 7) 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.
- 8) BORROW = MASS ORDINATE / FILL FACTOR * BORROW FACTOR

ASPHALTIC SURFACE
DRIVEWAYS AND FIELD ENTRANCES

STATION	LOCATION	465.0120 TON
CATEGORY CODE 0010		
147+39	RT	3
154+44	RT	20
159+19	RT	3
160+19	RT	12
161+32	RT	22
161+71	RT	10
13+06	RT	2
13+59	RT	2
13+66	LT	17
TOTAL		91

ASPHALTIC FLUMES

STATION	LOCATION	465.0315 SY
CATEGORY CODE 0010		
147+73	RT	11
154+56	RT	9
166+12	RT	9
9+14	RT	9
9+28	LT	9
10+88	LT	9
15+08	RT	9
TOTAL		65

RUMBLE STRIP ITEMS

STATION - STATION	LOCATION	465.0475.S ASPHALTIC CENTER LINE RUMBLE STRIP 2-LANE RURAL LF
CATEGORY CODE 0010		
148+27 - 151+19	C/L	294
153+85 - 164+75	C/L	1,096
TOTAL		1,390

REHEATING HMA PAVEMENT
LONGITUDINAL JOINTS

STATION - STATION	LOCATION	460.4110.S STA
CATEGORY CODE 0010		
147+00 - 151+44	C/L	1,334
153+60 - 169+00	C/L	4,626
TOTAL		5,960

CONCRETE MASONRY ENDWALLS

STATION	LOCATION	504.0900 CY
CATEGORY CODE 0010		
9+29	25.4' RT	1.5
9+33	22.5' LT	1.5
TOTAL		3.0

3

CULVERT PIPE ITEMS										
STATION	LOCATION	STEEL PIPE THICKNESS INCHES	ALUMINUM PIPE THICKNESS INCHES	520.0115 CP CLASS III 15-INCH LF	520.1015 AEW FOR CP 15-INCH EACH	522.0330 CPRC CLASS IV 30-INCH LF	522.0521 CPRC CLASS V 21-INCH LF	522.1030 AEW FOR CPRC 30-INCH EACH	633.5200 MARKERS CULVERT END EACH	650.6000 CONSTRUCTION STAKING PIPE CULVERTS EACH
CATEGORY CODE 0010										
163+50	LT & RT	--	--	--	--	130	--	2	2	1
9+30	LT & RT	--	--	--	--	--	96	--	2	1
12+00	LT & RT	--	--	--	--	92	--	2	2	1
14+65	LT	0.064	0.060	28	2	--	--	--	--	--
TOTALS				28	2	222	96	4	6	3

CONCRETE SIDEWALK		
STATION - STATION	LOCATION	602.0405 CONCRETE SIDEWALK 4-INCH SF
CATEGORY CODE 0010		
10+31 - 10+64	LT	190
TOTALS		190

RIPRAP AND GEOTEXTILE FABRIC ITEMS			
STATION	LOCATION	606.0200 RIPRAP MEDIUM CY	645.0120* GEOTEXTILE FABRIC TYPE HR SY
CATEGORY CODE 0010			
149+50 - 151+60	RT	67	100
153+40 - 154+60	RT	42	63
UNDISTRIBUTED		26	37
TOTALS		135	200
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLAN			

WATER			
STATION - STATION	LOCATION	624.0100 MGAL	COMMENTS
CATEGORY CODE 0010			
147+00 - 169+00	LT & RT	50	FOR EARTH GRADE
147+00 - 151+60	LT & RT	168	FOR BASE COURSE
153+44 - 169+00	LT & RT	336	FOR BASE COURSE
6+50 - 10+00	LT & RT	16	FOR BASE COURSE
10+00 - 15+50	LT & RT	40	FOR BASE COURSE
TOTAL		610	

STEEL PLATE BEAM GUARD ITEMS				
STATION - STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH
CATEGORY CODE 0010				
148+75 - 151+55	RT	187.5	39.4	1.0
150+37 - 151+55	LT	25.0	39.4	1.0
153+49 - 155+04	LT	62.5	39.4	1.0
153+49 - 154+54	RT	12.5	39.4	1.0
TOTALS		287.5	157.6	4.0

CONCRETE MEDIAN ITEMS		
STATION	LOCATION	620.0300 CONCRETE MEDIAN SLOPED NOSE SF
CATEGORY CODE 0010		
10+29 - 10+34	LT	8
10+29 - 10+34	LT	8
10+64 - 10+70	LT	19
TOTAL		35

SILT FENCE ITEMS			
STATION - STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 MAINTENANCE LF
CATEGORY CODE 0010			
160+30 - 15+50	RT	1,061	533
162+77 - 7+22	LT	452	227
166+90 - 169+00	LT	212	106
UNDISTRIBUTED		435	214
TOTALS		2,160	1,080

3

CONCRETE CURB AND GUTTER ITEMS					
STATION - STATION	LOCATION	601.0407 CONCRETE CURB & 18-INCH TYPED LF	601.0411 CONCRETE CURB & 30-INCH TYPED LF	601.0553 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPED LF	650.5500 CONSTRUCTION STAKING CURB, GUTTER AND CURB & GUTTER LF
CATEGORY CODE 0010					
147+00 - 147+73	RT	--	74	--	74
154+56 - 159+42	RT	--	--	490	490
9+13 - 9+64	RT	--	--	76	76
9+28 - 9+87	LT	--	--	92	92
10+14 - 10+60	RT	--	--	66	66
10+30 - 10+64	LT	72	--	--	72
10+40 - 10+93	LT	--	--	82	82
12+50 - 15+08	RT	--	--	254	254
TOTALS		72	74	1,060	1,206

REMOVING SIGN ITEMS						
SIGN NO.	STATION	LOCATION	638.2102	638.2602	638.3000	COMMENTS
			MOVING SIGNS TYPE II EACH	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
CATEGORY CODE 0010						
101	150+00	RT	--	1	1	--
102	151+52	LT	--	1	1	--
103	151+52	RT	--	1	1	--
104	153+52	LT	--	1	1	--
105	153+52	RT	--	1	1	--
106	154+00	RT	--	2	1	--
107	155+00	LT	--	2	1	--
108	155+00	RT	--	1	1	--
109	154+00	LT	--	1	2	--
110	159+00	RT	--	1	1	--
111	161+00	RT	--	1	2	--
112	164+00	RT	--	1	1	--
113	9+04	RT	--	1	1	--
114	9+30	RT	--	1	1	--
115	10+37	LT	--	1	1	--
116	10+38	LT	--	1	1	--
117	10+39	LT	--	1	1	--
118	168+00	LT	--	1	1	--
119	10+39	LT	--	1	1	--
120	10+52	LT	--	1	1	--
121	164+00	RT	--	1	1	--
122	11+13	RT	--	1	1	--
123	11+36	RT	--	1	1	--
124	11+67	LT	--	1	1	--
125	11+87	LT	--	1	1	--
126	12+10	RT	--	2	1	--
127	12+47	LT	--	1	1	--
128	12+47	LT	--	2	--	--
129	12+71	LT	--	1	1	--
201	154+00	LT	2	--	1	BRANCH RIVER SIGN
TOTALS			2	33	31	

TRAFFIC CONTROL ITEMS			
LOCATION	643.0420*	643.0705	643.0900
	BARRICADES TYPE III DAYS	WARNING LIGHTS TYPE A DAYS	SIGNS DAYS
CATEGORY CODE 0010			
2500' WEST OF BRANCH RIVER RD (EB USH 10)	--	--	108
2000' WEST OF BRANCH RIVER RD (EB USH 10)	216	432	216
2000' WEST OF BRANCH RIVER RD (WB USH 10)	--	--	108
1500' WEST OF BRANCH RIVER RD (EB USH 10)	--	--	108
1000' WEST OF BRANCH RIVER RD (EB USH 10)	--	--	108
500' WEST OF BRANCH RIVER RD (EB USH 10)	216	432	108
EAST SIDE OF BRANCH RIVER RD (EB USH 10)	540	648	108
EAST SIDE OF BRANCH RIVER BRIDGE (WB USH 10)	432	648	108
WEST SIDE OF CARBON RD (WB USH 10)	432	864	108
EAST CONST. LIMITS (WB USH 10)	432	864	108
500' EAST OF EAST CONST. LIMITS (WB USH 10)	--	--	108
1000' EAST OF EAST CONST. LIMITS (WB USH 10)	--	--	108
AT VILLAGE DRIVE (WB USH 10)	216	432	216
EAST OF VILLAGE DRIVE (WB USH 10)	--	--	108
EAST OF VILLAGE DRIVE (EB USH 10)	--	--	108
AT VILLAGE DRIVE (SB CARBON DR)	--	--	108
AT VILLAGE DRIVE (NB CARBON DR)	--	--	108
500' NORTH OF NORTH CONST. LIMITS (SB CARBON DR)	--	--	108
NORTH CONST. LIMITS (SB CARBON DR)	216	432	108
USH 10 INTERSECTION (SB CARBON DR)	--	--	108
USH 10 INTERSECTION (NB CTH P)	--	--	216
SOUTH CONST. LIMITS (NB CTH P)	216	432	108
500' SOUTH OF SOUTH CONST. LIMITS (NB CTH P)	--	--	108
AT NORTH UNION RD & STONE RD (NB CTH P)	--	--	108
AT NORTH UNION RD & STONE RD (SB CTH P)	--	--	108
500' SOUTH OF USH 10 (BRANCH RIVER ROAD)	--	--	216
500' NORTH OF USH 10 (BRANCH RIVER ROAD)	--	--	216
TOTALS	2,916	5,184	3,348

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS

<u>CULVERT PIPE CHECKS</u>		
STATION	LOCATION	628.7555 EACH
CATEGORY CODE 0010		
154+57	RT	3
163+51	LT	5
9+30	LT	6
12+00	LT	5
14+51	LT	2
UNDISTRIBUTED		4
TOTAL		25

<u>TRACKING PADS</u>		
		628.7560
STATION	LOCATION	EACH
CATEGORY CODE 0010		
147+00	LT & RT	1
169+00	LT & RT	1
15+50	LT & RT	1
TOTAL		3

<u>TURBIDITY BARRIERS</u>		
		628.6005
STATION - STATION	LOCATION	SY
CATEGORY CODE 0010		
152+24 - 152+40	LT & RT	127
152+73 - 153+03	LT & RT	153
UNDISTRIBUTED		70
TOTAL		350

TRAFFIC CONTROL DETOUR SIGNS AND COVERING SIGNS

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 108 DAYS	643.3000 DETOUR SIGNS DAYS	643.0420* BARRICADES TYPE III DAYS	643.1050 SIGNS PCMS DAYS	REMARKS
1	500' E OF MENCHALVILLE RD INTERSECTION ON USH 10	W-20-2-F	48"x48"	1	108	108			
2	500' E OF FRITSCH RD INTERSECTION ON USH 10	W-20-2-G	48"x48"	1	108	108			
3	LT OF J1-1 (JCT J)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-1-R	21"x21"	1	108	108			
4	LT OF J13-1 (J-DBL ARROW)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			RIGHT
5	ON BACK OF J13-1 (J-DBL ARROW; WB TRAFFIC)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			RIGHT
6A	SE QUAD OF USH 10 & CTH J INTERSECTION	R11-3-B	60"x30"	1	108	108	108		5 MILES
6B	BELOW SIGN # 6A	MO 4-9-R	30"x24"	1	108	108			
7	LT OF J13-1 (J-DBL ARROW)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			LEFT
8	LT OF J1-1 (JCT J)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-1-L	21"x21"	1	108	108			
9	500' E OF SIGN # 8 ON USH 10	W-20-2-G	48"x48"	1	108	108			
10	MODIFY J3-1 (10-DBL ARROW) SE QUAD OF USH 10 & CTH J	M 1-4	EXISTING						
	"	MO 6-1	21"x21"	1	108	108			LEFT
11	200' S OF USH 10 INTERSECTION ON CTH J	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
13	MODIFY J1-1 (JCT 10)	MO 4-8-A	24"x18"	1	108	108			
	"	M 1-4	EXISTING	1	108	108			
14	200' N OF HILLTOP RD INTERSECTION ON CTH J	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
15	200' S OF HILLTOP RD INTERSECTION ON CTH S	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
16	200' N OF MORGAN RD INTERSECTION ON CTH S	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
17	200' S OF MORGAN RD INTERSECTION ON CTH S	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
18	LT OF J1-1 (JCT JJ)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-1-L	21"x21"	1	108	108			
19	RT OF J13-1 (J-LEFT/AHEAD ARROWS)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			LEFT
20	ON BACK OF J13-1 (J RT ARROW) FAR LEFT OF INTERSECTION	MO 4-8	24"x12"	1	108	108			

CONTINUED ON NEXT SHEET

TRAFFIC CONTROL DETOUR SIGNS AND COVERING SIGNS (CONTINUED)

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 108 DAYS	643.3000 DETOUR SIGNS DAYS	643.0420* BARRICADES TYPE III DAYS	643.1050 SIGNS PCMS DAYS	REMARKS
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			LEFT
21	150' N OF CTH JJ INTERSECTION ON CTH J	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
22	200' E OF CTH J INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
23	75' E OF STOP SIGN @ CTH JJ & CTH j INTERSECTION	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			RIGHT
24	ABOVE J 13-3 (JJ-RT; J-DBL ARROW)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			RIGHT
25	RT OF J1-1 (JCT J)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-1-R	21"x21"	1	108	108			
26	200 ' W OF CTH S INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
27	200 ' E OF CTH S INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
28	150 ' W OF HIGHWAY H RD INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
29	100 ' E OF HIGHWAY H RD INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
30	150 ' W OF FRIDAY RD INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
31	100 ' E OF FRIDAY RD INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-2	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
32	MODIFY J1-4 (JCT 43; JCT 10; JCT 42; END JJ)	MO 4-8-A	24"x18"	1	108	108			
	"	M 1-4	EXISTING						10
33	TYPE 1 (10 WEST AHEAD) I 43 NB	R-55-58-A	76"x12"	1	108	108			PLACE BELOW WEST
34	LT OF TYPE 1 D1-1 (MANITOWOC COUNTY AIRPORT -EXIT 152)	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
35	ACROSS FROM SIGN # 34 (MEDIAN SIDE)	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
36	LT OF SIS (FOOD-EXIT # 152)	MO 4-8	36"x18"	1	108	108			
	"	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	M5-2-R	30"x30"	1	108	108			
37	ACROSS FROM SIGN # 36 (MEDIAN SIDE)	MO 4-8	36"x18"	1	108	108			

CONTINUED ON NEXT SHEET

TRAFFIC CONTROL DETOUR SIGNS AND COVERING SIGNS (CONTINUED)

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 108 DAYS	643.3000 DETOUR SIGNS DAYS	643.0420* BARRICADES TYPE III DAYS	643.1050 SIGNS PCMS DAYS	REMARKS
	"	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	M5-2-R	30"x30"	1	108	108			
38	LT OF TYPE 1 (N-42/JJ/E-10; MANITOWOC/STURGEON BAY-TILT RT)	MO 4-8	36"x18"	1	108	108			
	"	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	M6-2	30"x30"	1	108	108			RIGHT
39	ACROSS FROM STOP AHEAD SIGN	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-1-L	21"x21"	1	108	108			
40	LT OF TYPE 1 (N-42/JJ/E-10; MANITOWOC/STURGEON BAY-TILT RT)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			LEFT
41	300'E OF D1-2 (LT-MICHIGAN ST; SCHISEL CT-RT)	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
42	ACROSS FROM SIGN # 41 (MEDIAN SIDE)	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
43	MODIFY J2-4 (S-43-AH; S-42-AH; W-10-AH RT; N-43-AH RT)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	EXISTING						
	"	M 1-4	EXISTING						10
	"	MO 6-1	21"x21"	1	108	108			AHEAD
44	ACROSS FROM SIGN # 43 (MEDIAN SIDE)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			AHEAD
46	LT OF J2-2 (S-43-AH LT; S-42-AH LT)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			AHEAD
47	100' W OF NW RAMP INTERSECTION ON CTH JJ	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
48	ACROSS FROM SIGN # 47 (MEDIAN SIDE)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
54A	NW QUAD OF NW RAMP INTERSECTION & USH 10	R-11-3	60"x30"	1	108	108	108		1-1/2 MILES
54B	BELOW SIGN # 54A	MO 4-9-L	30"x24"	1	108	108			5 MILES
57	@ MILE MARKER 156	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
58	ACROSS FROM SIGN # 57 (MEDIAN SIDE)	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
60	LT OF SIGN # 59	MO 4-8	36"x18"	1	108	108			
	"	MO 3-4	36"x18"	1	108	108			
	"	M 1-4	36"x36"	1	108	108			10
	"	MO 6-1	30"x30"	1	108	108			AHEAD
61	ACROSS FROM SIGN # 60 (MEDIAN SIDE)	MO 4-8	36"x18"	1	108	108			
	"	MO 3-4	36"x18"	1	108	108			

CONTINUED ON NEXT SHEET

TRAFFIC CONTROL DETOUR SIGNS AND COVERING SIGNS (CONTINUED)

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 108 DAYS	643.3000 DETOUR SIGNS DAYS	643.0420* BARRICADES TYPE III DAYS	643.1050 SIGNS PCMS DAYS	REMARKS
	"	M 1-4	36"x36"	1	108	108			10
	"	MO 6-1	30"x30"	1	108	108			AHEAD
63	LT OF SIS (FOOD-EXIT # 152)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-2-R	21"x21"	1	108	108			
64	ACROSS FROM SIGN # 63 (MEDIAN SIDE)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-2-R	21"x21"	1	108	108			
65	LT OF TYPE 1 (N-42/JJ/E-10; MANITOWOC-TILT RT)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-2	21"x21"	1	108	108			RIGHT
66	200' S OF STOP AHEAD SIGN	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-1-R	21"x21"	1	108	108			
67	LT OF J3-2 (N-42-LT; W-JJ-RT)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			RIGHT
68	200' S OF USH 10 INTERSECTION ON SW RAMP	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
69	LT OF J3-2 (S-43-LT; S-10-LT)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 6-1	21"x21"	1	108	108			LEFT
70	LT OF J2-2 (S-43-AH LT; S-10-AH LT)	MO 4-8	24"x12"	1	108	108			
	"	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	MO 5-1-L	21"x21"	1	108	108			
72	350' W OF J2-3 (S-43-AH; W-10-AH; N-43-AD RT)	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
73	ACROSS FROM SIGN # 72 (MEDIAN SIDE)	MO 3-4	24"x12"	1	108	108			
	"	M 1-4	24"x24"	1	108	108			10
	"	W20-2-A	48"x48"	1	108	108			
75	SE QUAD OF USH 10 & CTH S INTERSECTION	R11-3-B	60"x30"	1	108	108	108		3 MILES
76	SE QUAD OF USH 10 & CTH T INTERSECTION	R11-3-B	60"x30"	1	108	108	108		2 MILES
77	NW QUAD OF USH 10 & CTH P INTERSECTION	R11-2-B	48"x30"	1	108	108	108		
78	TO BE DETERMINED IN THE FIELD	PCMS		1	14			14	
79	TO BE DETERMINED IN THE FIELD	PCMS		1	14			14	
	TOTAL			199		21,276	540	28	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLANS

3

TRAFFIC CONTROL COVERING SIGNS									
SIGN NUMBER	LOCATION	643.0910 TYPE I			643.0920 TYPE II			COMMENTS	
		NUMBER	NUMBER		NUMBER	NUMBER			
		OF CYCLES	OF SIGNS	EACH	OF CYCLES	OF SIGNS	EACH		
CATEGORY CODE 0010									
12	D3-3 (AH-MARIBEL; LT-REEDSVILLE; MANITOWOC-RT)	--	--	--	1	1	1	MANITOWOC-RT	
33	TYPE 1 (10 WEST AHEAD) I 43 NB	1	1	1	--	--	--	10-WEST-AHEAD	
45	J3-2 (N-43-RT; W-10-RT)	--	--	--	1	1	1	WEST 10 RIGHT	
49	J4-2 (N-43; W-10)	--	--	--	1	1	1	WEST-10	
50	TYPE 1 (310/WEST-10; TWO RIVERS/APPLETON; 1 MILE)	1	1	1	--	--	--	WEST 10 -APPLETON	
51	TYPE 1 (310/WEST-10; TWO RIVERS/APPLETON; TILT RT)	1	1	1	--	--	--	WEST 10 -APPLETON	
52	J3-1 (W-10-LT)	--	--	--	1	1	1	WEST-10-LEFT	
53	J4-1 (W-10)	--	--	--	1	1	1	WEST 10	
55	TYPE 1 (MANITOWOC EXITS-HWY 10-310=2; HWY 42-10=5; HWY 42-151=8)	1	1	1	--	--	--	10 OF 10/310 (ONLY)	
56	TYPE 1 (310/WEST-10; TWO RIVERS/APPLETON; 1 MILE)	1	1	1	--	--	--	WEST 10 -APPLETON	
59	TYPE 1 (310/WEST-10; TWO RIVERS/APPLETON; TILT RT)	1	1	1	--	--	--	WEST 10 -APPLETON	
62	J3-1 (W-10-RT)	--	--	--	1	1	1	WEST-10-RIGHT	
71	D1-3 (AH-APPLETON/MILWAUKEE; GREEN BAY-RT)	--	--	--	1	1	1	APPLETON	
74	J1-3 (JCT 43, JCT 10, END 310)	--	--	--	1	1	1	JCT 10	
TOTALS					6		8		

PAVEMENT MARKING ITEMS						
		646.0106 EPOXY 4-INCH	646.0126 EPOXY 8-INCH	647.0566 STOP LINE EPOXY 18-INCH	SPV.0090.01 EPOXY 4-INCH SPECIAL	
STATION - STATION	LOCATION	WHITE LF	YELLOW LF	WHITE LF	WHITE LF	WHITE LF
CATEGORY CODE 0010						
147+00 - 169+00	LT & RT	4,092	1,000	351	--	1,750
6+50 - 9+70	LT & RT	--	638	--	35	--
10+35 - 15+50	LT & RT	940	1,030	59	45	--
TOTALS		5,032	2,668	410	80	1,750
		7,700				

3

LOCATING NO-PASSING ZONES	
STATION - STATION	648.0100 MI
CATEGORY CODE 0010	
147+00 - 169+00	0.42
TOTAL 0.42	

CONSTRUCTION STAKING ITEMS							
STATION - STATION	LOCATION	650.4500	650.5000	650.6500	650.7000	650.9910	650.9920
		SUBGRADE	BASE	STRUCTURE	CONCRETE	SUPPLEMENTAL	SLOPE STAKES
		LF	LF	LS	LF	LS	LF
CATEGORY CODE 0010							
PROJECT 4337-10-72		--	--	1	--	1	--
147+00 - 151+60	LT & RT	460	444	--	16	--	460
153+44 - 169+00	LT & RT	1,556	1,540	--	16	--	1,556
6+50 - 10+00	LT & RT	350	350	--	--	--	350
10+00 - 15+50	LT & RT	500	500	--	--	--	500

STAKING ITEMS FOR STORM SEWER, CURB & GUTTER, AND PIPE CULVERTS SHOWN ELSEWHERE

SAWING PAVEMENT ITEMS			
STATION - STATION	LOCATION	690.0150 ASPHALT	690.0250 CONCRETE
		LF	LF
		CATEGORY CODE 0010	
147+00	LT & RT	28	23
155+13	RT	12	--
160+19	RT	17	--
161+32	RT	18	--
161+71	RT	13	--
169+50	LT & RT	6	27
6+50	LT & RT	22	--
13+61	LT	19	--
15+50	LT & RT	--	32
TOTALS		135	82

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER (S)	INTEREST REQUIRED	R/W NEW	SO.FT. EXISTING	REQUIRED TOTAL	P.L.E. SO.FT. PERM.	T.L.E. SO.FT. TEMP.
1	EDWARD F. VANDERBLOOMEN, III	FEE	8343	0	8343	0	0
2	NORBERT J. BAUMANN, JR.	FEE	6859	0	6859	0	0
3	EDWARD GRENIER, JR. AND CAROLINE T. GRENIER	FEE, TLE	19	0	19	0	2052

COORDINATE TABLE - ALIGNMENTS

POINT	Y (NORTH)	X (EAST)
100	320059.76	206564.43
101	320147.09	205607.00
201	320124.78	205857.13

COURSE TABLE - TLE

FROM POINT	TO POINT	BEARING	DISTANCE
301	401	S84°49'28"E	80.00'
401	402	S05°12'42"W	25.68'
402	403	N84°47'18"W	80.00'
403	301	N05°12'42"E	25.63'

OWNER'S NAMES ARE SHOWN FOR REFERENCE ONLY, AND ARE SUBJECT TO CHANGE PRIOR TO TRANSFER OF LAND INTERESTS TO THE DEPARTMENT.

TRANSPORTATION PROJECT PLAT NO: 4337-10-21 - 4.01

THAT PART OF THE NE1/4-SE1/4 OF SECTION 5, T19N, R23E, INCLUDING PART OF TRACT 1 OF CSM VOL. 22 PG. 271, AND INCLUDING PART OF TRACT 1 OF CSM VOL. 3 PG. 85, TOWN OF MANITOWOC RAPIDS, MANITOWOC COUNTY, WISCONSIN

RELOCATION ORDER - USH 10 (BRANCH RIVER - INTERSTATE 43), BRANCH RIVER BRIDGE & APPROACHES, MANITOWOC COUNTY

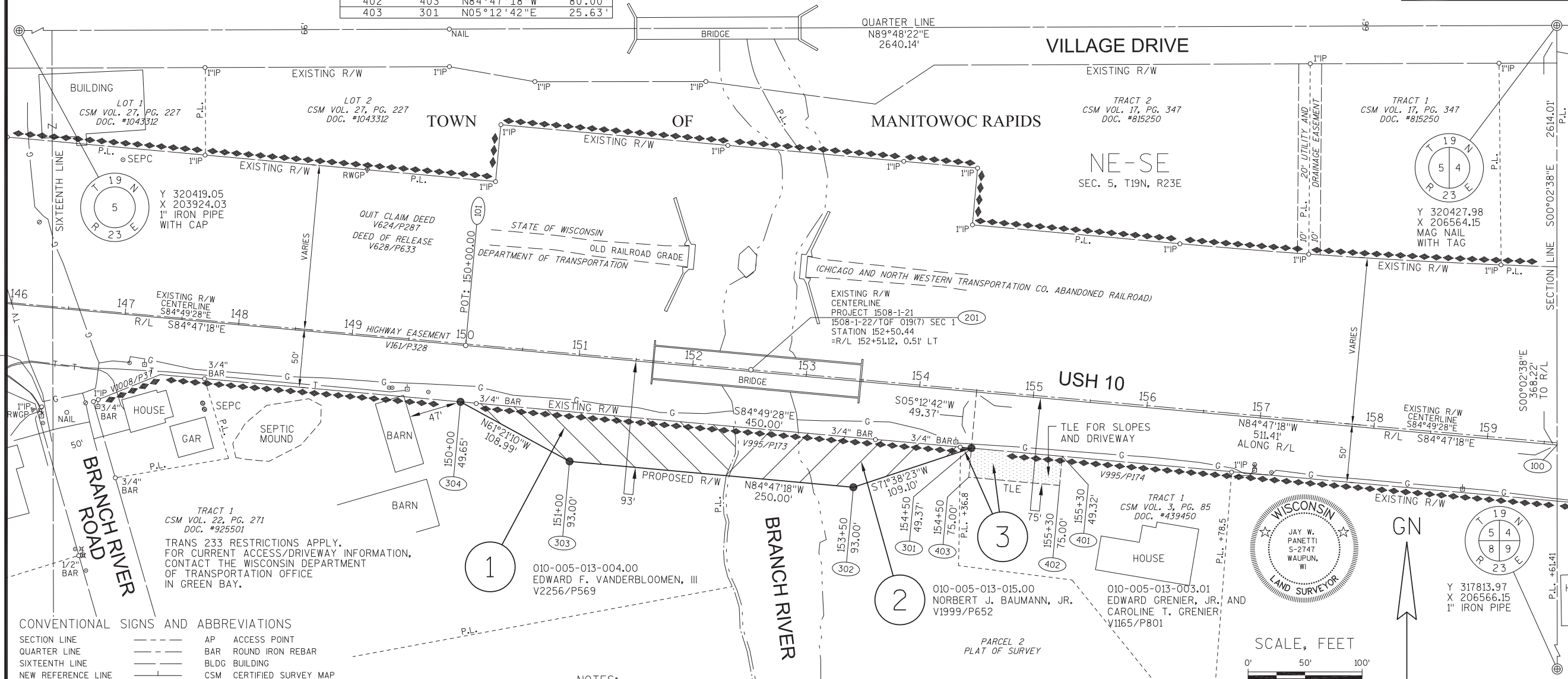
TO PROPERLY ESTABLISH, LAY OUT, WIDEN, ENLARGE, EXTEND, CONSTRUCT, RECONSTRUCT, IMPROVE, OR MAINTAIN A PORTION OF THE HIGHWAY DESIGNATED ABOVE, THE STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DEEMS IT NECESSARY TO RELOCATE OR CHANGE SAID HIGHWAY AND ACQUIRE CERTAIN LANDS AND INTERESTS OR RIGHTS IN LANDS FOR THE ABOVE NAMED PROJECT.

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SUBSECTION 84.02 (3) AND SECTION 84.09, WISCONSIN STATUTES, THE DEPARTMENT OF TRANSPORTATION 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 NAMED PROJECT.
2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY THE DEPARTMENT FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF THE STATE OF WISCONSIN, PURSUANT TO THE PROVISIONS OF SUBSECTION 84.09 (1) OR (2), WISCONSIN STATUTES.

ACCEPTED FOR RECORDING AND FILING IN THE OFFICE OF THE REGISTER OF DEEDS IN MANITOWOC COUNTY, WISCONSIN AT 9:35AM ON MAY 23, 2012 AS DOCUMENT #1116851 AND FILED IN CABINET D-PLATS-JACKET 56
SIGNATURE OF REGISTER OF DEEDS

RESERVED FOR REGISTER OF DEEDS PROJECT NUMBER 4337-10-21-4.01

AMENDMENT NO:



CONVENTIONAL SIGNS AND ABBREVIATIONS

SECTION LINE	---	AP ACCESS POINT
QUARTER LINE	---	BAR ROUND IRON REBAR
SIXTEENTH LINE	---	BLDG BUILDING
NEW REFERENCE LINE	---	CSM CERTIFIED SURVEY MAP
NEW R/W LINE	---	DOC DOCUMENT
EXISTING R/W LINE	---	E ELECTRIC CABLE
PROPERTY LINE	---	EX EXISTING
LOT AND TIE LINES	---	G GAS MAIN
UNDERGROUND FACILITY	---	GAR GARAGE
TEMP. LIMITED EASEMENT	---	H HOUSE
PERM. LIMITED EASEMENT	---	IP IRON PIPE
R/W MONUMENT (SET)	---	P.L. PROPERTY LINE
IRON PIPE OR BAR (FOUND)	---	POS PLAT OF SURVEY
POWER POLE	---	R/L REFERENCE LINE
UTILITY PEDESTAL	---	R/W RIGHT OF WAY
R/W GUARD POST	---	RWGP R/W GUARD POST
P. POLE (COMPENSABLE)	---	T TELEPHONE CABLE
PEDESTAL (COMPENSABLE)	---	TEMP. TEMPORARY
RECORDED AS	---	TLE TEMPORARY LIMITED EASEMENT
SAME OWNERSHIP	---	V/P VOLUME/PAGE
ACCESS RESTRICTED (BY PREVIOUS PROJECT/CONTROL)	---	
POINT NUMBER	---	

SECTION CORNER:

NOTES:

COORDINATES AND BEARINGS SHOWN ON THIS PLAT ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM, MANITOWOC COUNTY ZONE, ENGLISH, NAD83(1999) ADJUSTMENT. THE COORDINATES SHOWN ARE GRID COORDINATES AND ARE TO BE USED AS GRID OR GROUND VALUES ON THIS PLAT.

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 NEW REFERENCE LINES.

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

EXISTING HIGHWAY RIGHT-OF-WAY SHOWN HEREIN IS BASED ON THE FOLLOWING POINTS OF REFERENCE: EXISTING HIGHWAY RIGHT-OF-WAY FOR USH 10 ESTABLISHED FROM PREVIOUS WISDOT PROJECT I.D. 1508-1-21 AND 1508-1-22, V624/P287, AND ADJOINING CERTIFIED SURVEY MAPS. EXISTING ACCESS CONTROL WAS ACQUIRED UNDER PROJECT 1500-8-22.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND 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 NECESSARY OR DESIRABLE. ALL TLES EXPIRE AT THE COMPLETION OF THE CONSTRUCTION PROJECT FOR WHICH THIS INSTRUMENT IS GIVEN.

RIGHT-OF-WAY MONUMENTS ARE TYPE 2 MONUMENTS AND WILL BE PLACED BY WISDOT PRIOR TO THE COMPLETION OF THE PROJECT. TYPE 2 MONUMENTS ARE TYPICALLY 1" I.D. x 24" IRON PIPES WEIGHING 1.68 LBS/FT. UNLESS OTHERWISE NOTED.

GREMMER & ASSOCIATES, INC.
CONSULTING ENGINEERS
Stevens Point • Fond du Lac

I, JAY W. PANETTI, REGISTERED LAND SURVEYOR, HEREBY CERTIFY THAT IN FULL COMPLIANCE WITH THE PROVISIONS OF SECTION 84.095 OF THE WISCONSIN STATUTES AND UNDER THE DIRECTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, I HAVE SURVEYED AND MAPPED TRANSPORTATION PROJECT PLAT 4337-10-21-4.01, AND THAT SUCH PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES OF THE SURVEYED LAND.

DATE 5/4/2012 JAY W. PANETTI
RLS S-2747, FOR GREMMER & ASSOCIATES, INC.
THIS PLAT AND RELOCATION ORDER ARE APPROVED FOR THE WISCONSIN DEPARTMENT OF TRANSPORTATION.
DATE 5/11/2012 NORMAN H. PAWELCZYK
NORMAN H. PAWELCZYK
REAL ESTATE SUPERVISOR

REVISED: 5/4/2012

040401.10.DWG

APPRAISAL PLAT DATE: APRIL 1, 2012

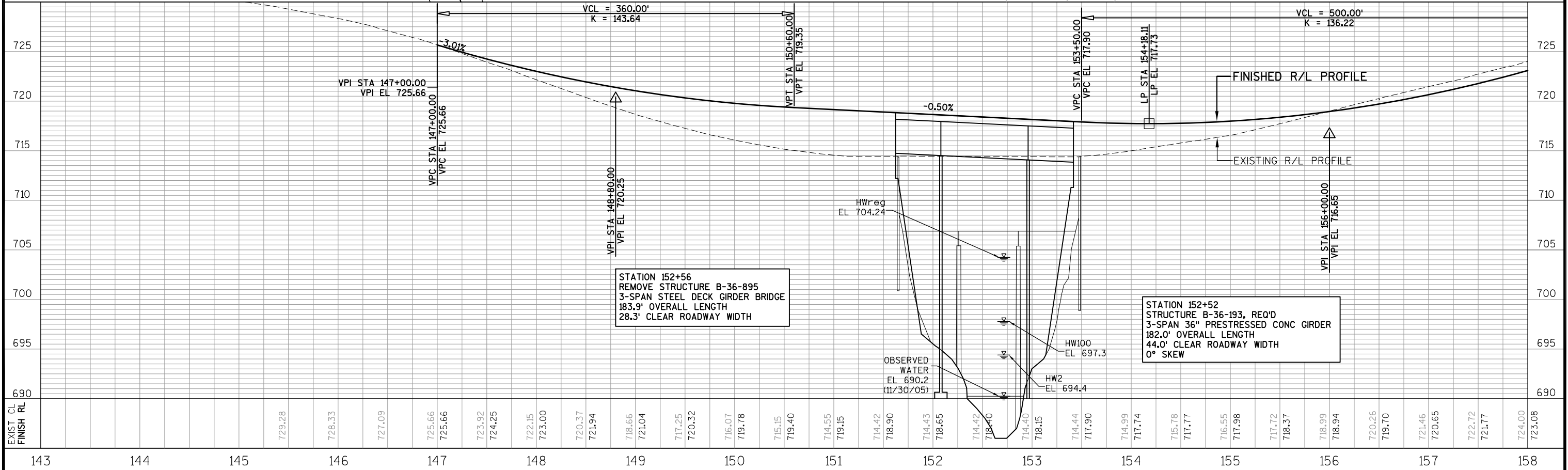
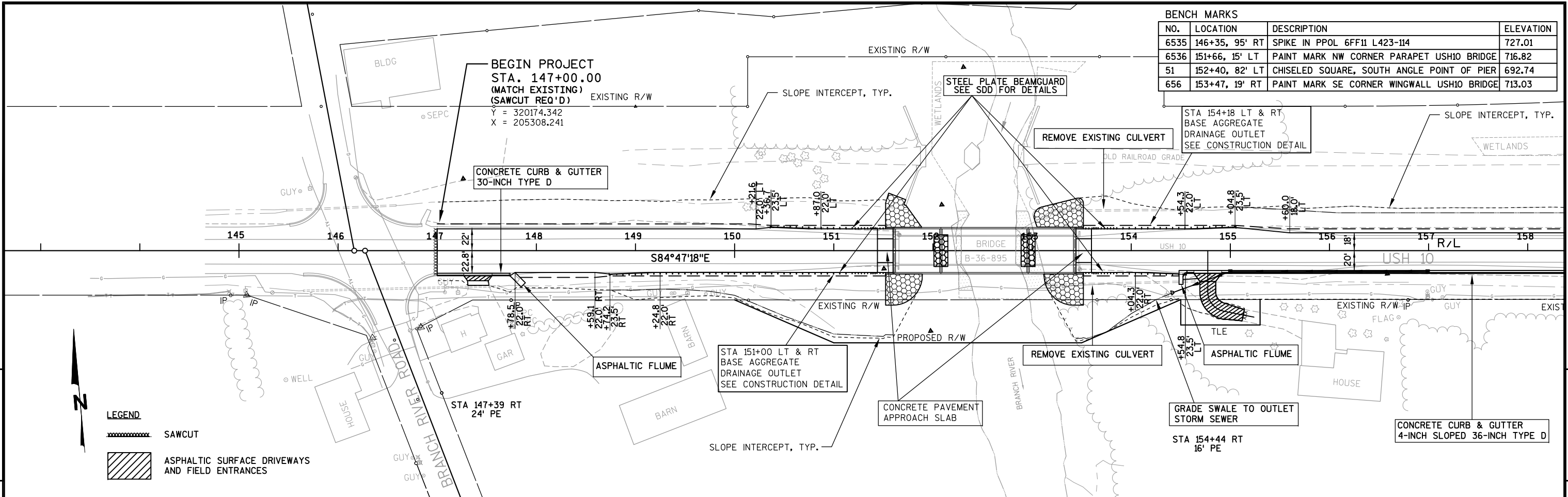
G
GREMMER
& ASSOCIATES, INC.
CONSULTING ENGINEERS
Stevens Point • Fond du Lac

I, JAY W. PANETTI, REGISTERED LAND SURVEYOR, HEREBY CERTIFY THAT IN FULL COMPLIANCE WITH THE PROVISIONS OF SECTION 84.095 OF THE WISCONSIN STATUTES AND UNDER THE DIRECTION OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION, HAVE SURVEYED AND MAPPED TRANSPORTATION PROJECT PLAT 4337-10-21-4.02, AND THAT SUCH PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES OF THE SURVEYED LAND.

DATE 5/4/2012 JAY W. PANETTI
RLS S-2747, FOR GREMMER & ASSOCIATES, INC.

THIS PLAT AND RELOCATION ORDER ARE APPROVED FOR THE WISCONSIN DEPARTMENT OF TRANSPORTATION.

DATE 5/11/2012 Norman W. Pawelczyk
NORMAN H. PAWELCZYK
REAL ESTATE SUPERVISOR



PROJECT NO: 4337-10-72

HWY: USH10

COUNTY: MANITOWOC

PLAN & PROFILE

SHEET NO:

E

FILE NAME: 050101_PP_BRIDGE PATH:

PLOTTED ON

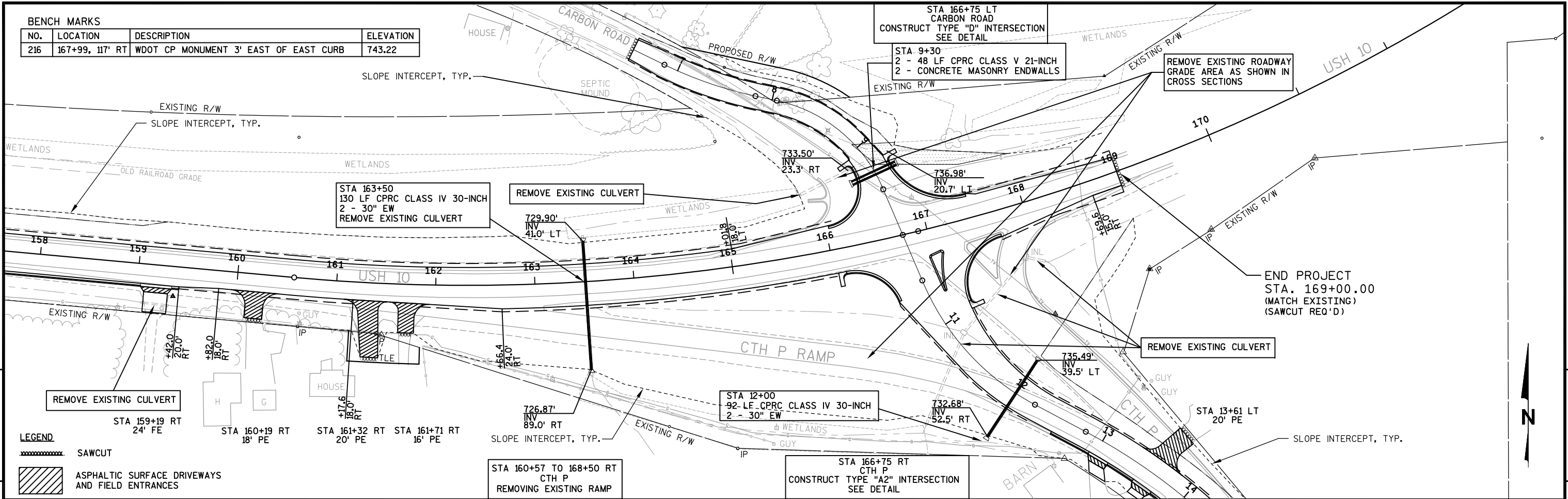
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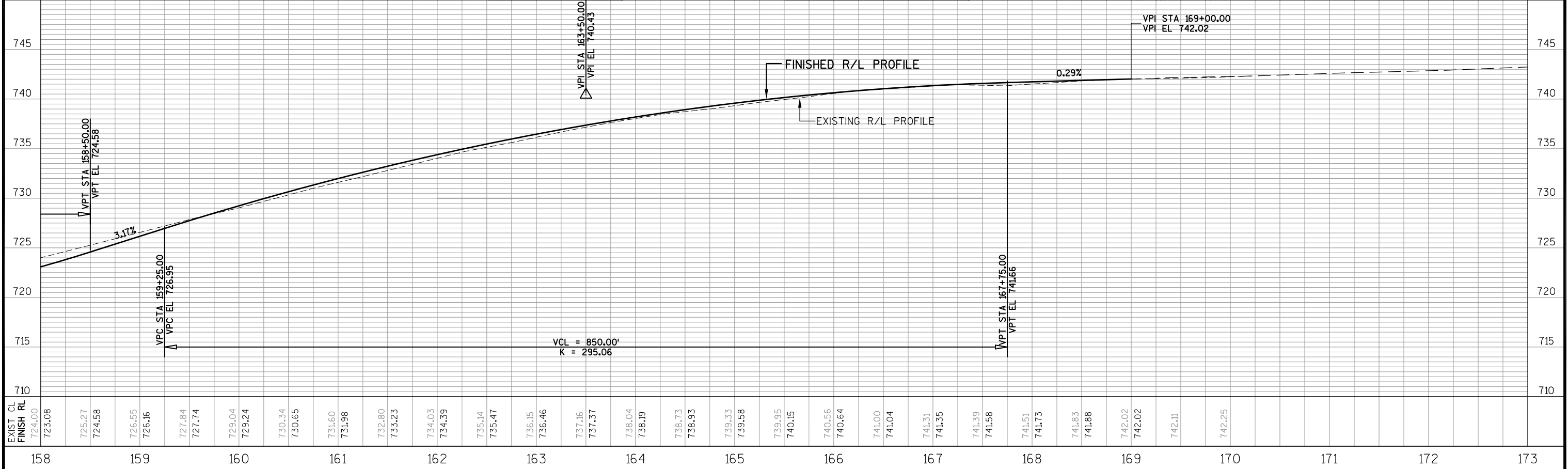
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WISDOT/CADDs SHEET 42

BENCH MARKS			
NO.	LOCATION	DESCRIPTION	ELEVATION
216	167+99, 117' RT	WDOT CP MONUMENT 3' EAST OF EAST CURB	743.22

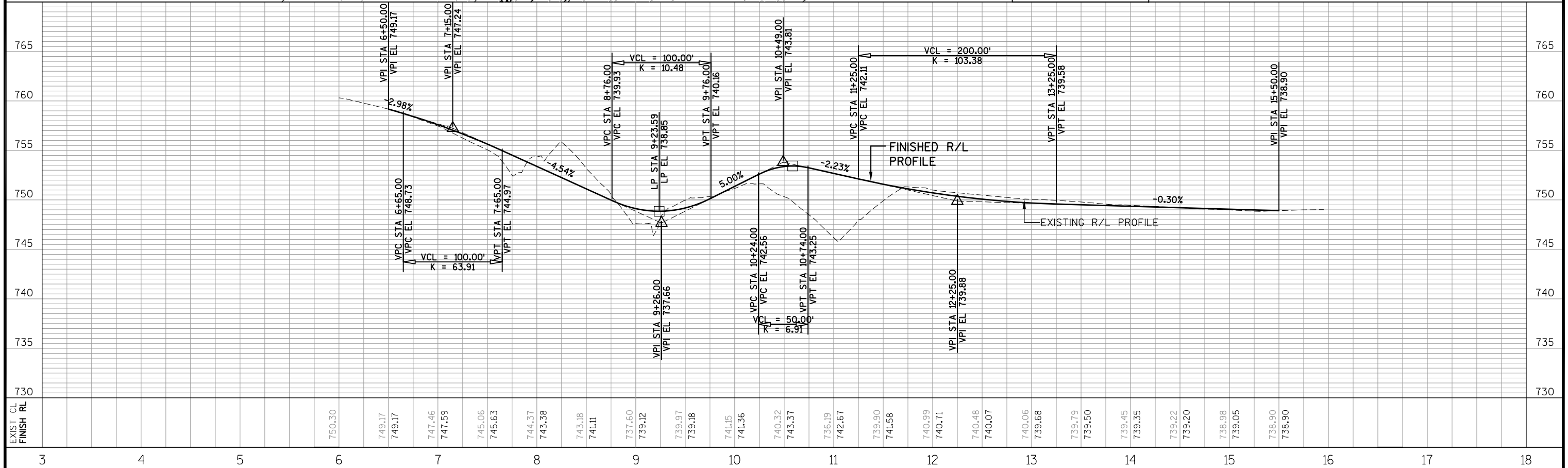
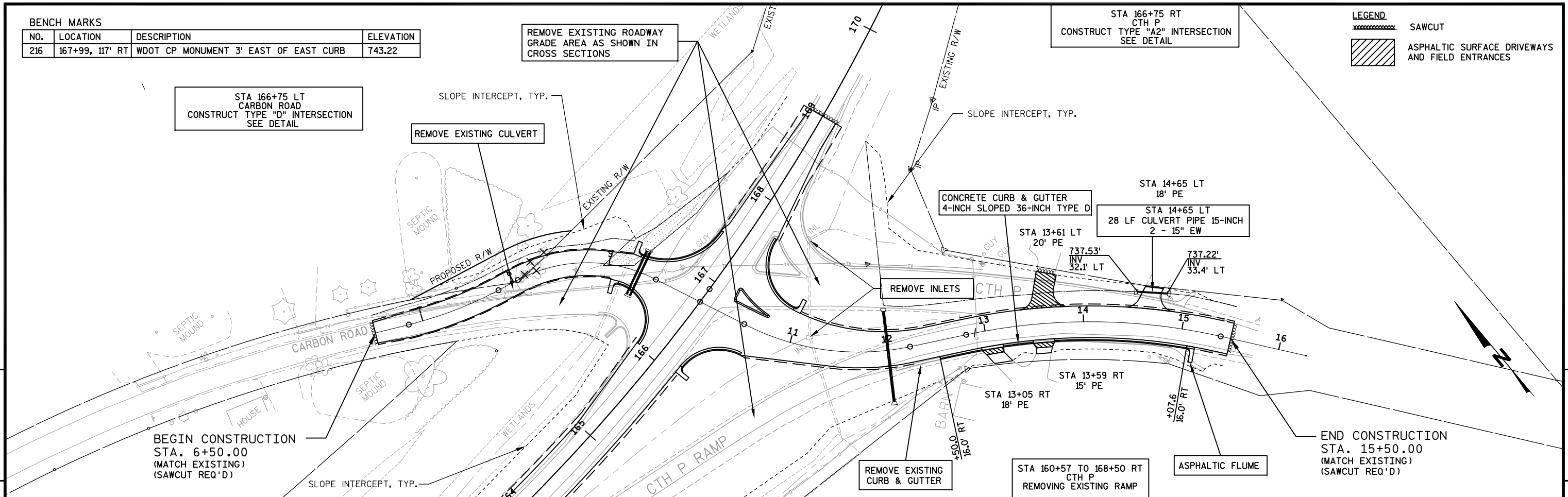


- LEGEND**
- SAWCUT
 - ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES



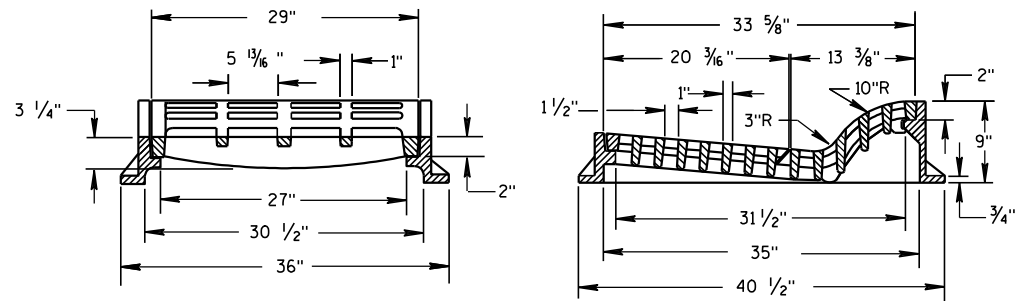
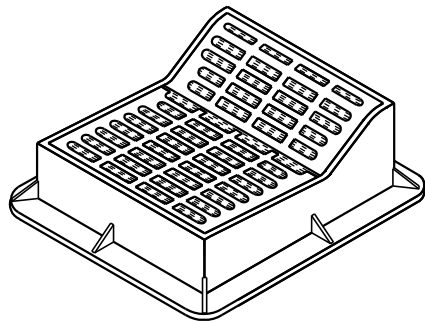
BENCH MARKS			
NO.	LOCATION	DESCRIPTION	ELEVATION
216	167+99, 117' RT	WDOT CP MONUMENT 3' EAST OF EAST CURB	743.22

LEGEND	
	SAWCUT
	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES



Standard Detail Drawing List

08A05-18C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08D04-05	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F10-01	CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH
09A01-12A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
11B02-02	CONCRETE MEDIAN NOSE
12A03-10	NAME PLATE (STRUCTURES)
13A11-01A	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13A11-01B	2-LANE RURAL CENTER LINE RUMBLE STRIP, MILLING
13B02-06	CONCRETE PAVEMENT APPROACH SLAB
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-02A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-02B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-02C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-02D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15A03-01	MARKER POSTS, FLEXIBLE, FOR CULVERT END
15C02-04A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04B	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-04C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-01	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-15A	PAVEMENT MARKING (MAINLINE)
15C08-15B	PAVEMENT MARKING (INTERSECTIONS)
15C08-15F	PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)

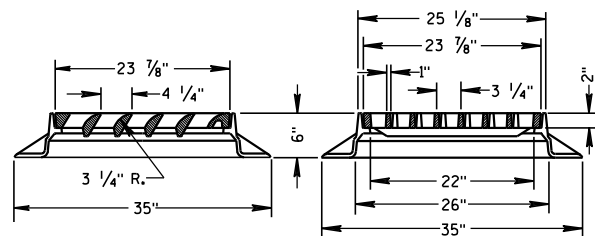
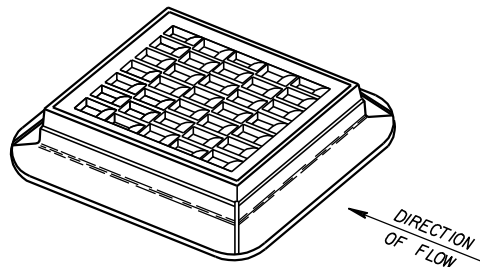


TYPE "F"

(APPROXIMATE WEIGHT 644 LBS.)

FRAME.....302 LBS.
GRATE.....160 LBS.
GRATE.....182 LBS.

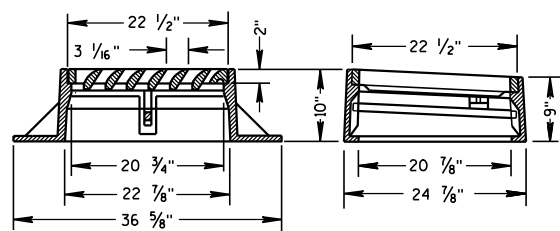
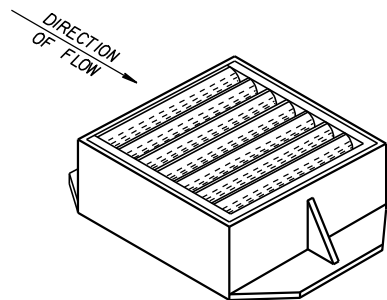
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



TYPE "S"

(APPROXIMATE WEIGHT 333 LBS.)

FRAME.....164 LBS.
GRATE.....169 LBS.



TYPE "V"

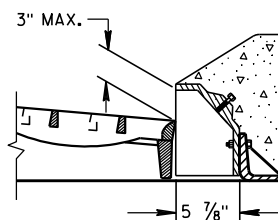
(APPROXIMATE WEIGHT 410 LBS.)

FRAME.....269 LBS.
GRATE.....136 LBS.
SAFETY BAR.....5 LBS.

**ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER**

(APPROXIMATE WEIGHT CURB BOX 68 LBS.)

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



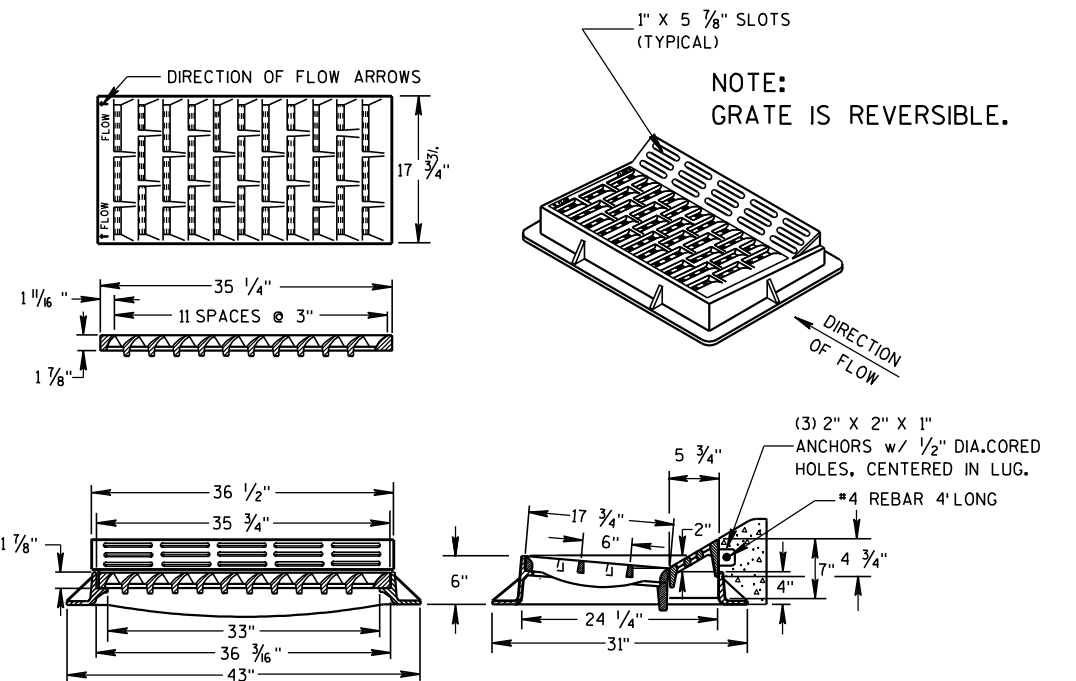
NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

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

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

THE ACTUAL WEIGHT OF COVERS MAY VARY WITHIN 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.



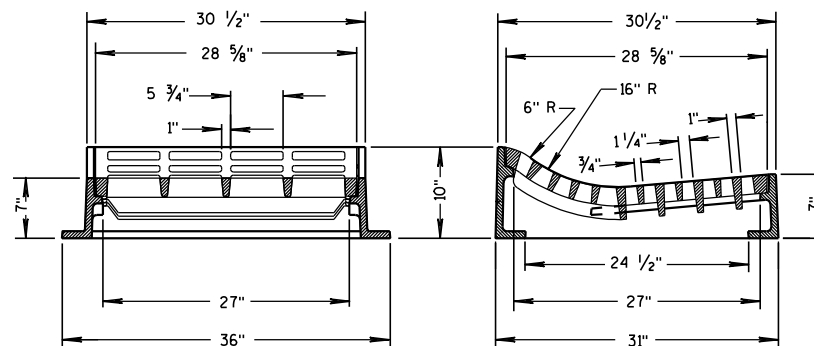
TYPE "HM"

(APPROXIMATE WEIGHT 414 LBS.)

FRAME.....181 LBS.
GRATE.....159 LBS.
CURB BOX.....74 LBS.

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

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

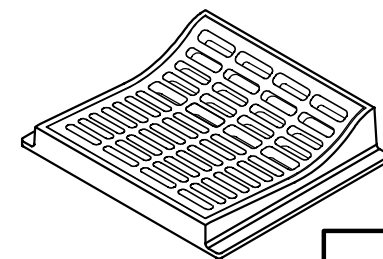


TYPE "T"

(APPROXIMATE WEIGHT 530 LBS.)

FRAME.....270 LBS.
GRATE.....260 LBS.

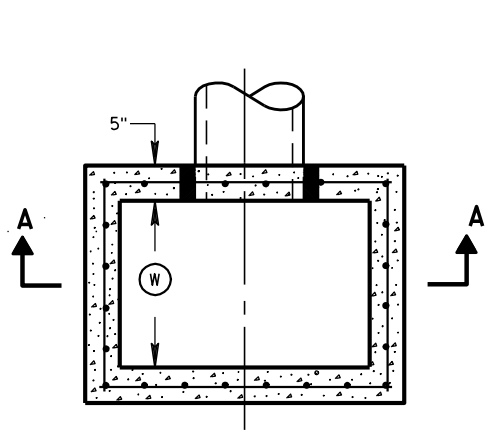
USE WITH TYPES R & T CONCRETE CURB & GUTTER, 36 INCH.



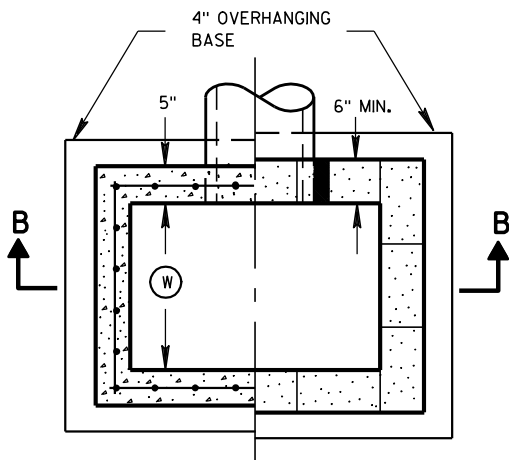
INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/5/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

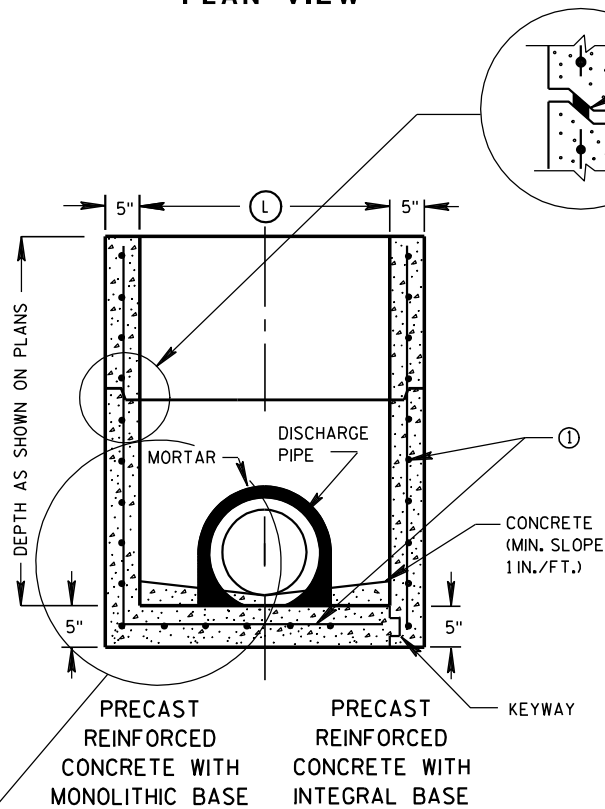


PLAN VIEW

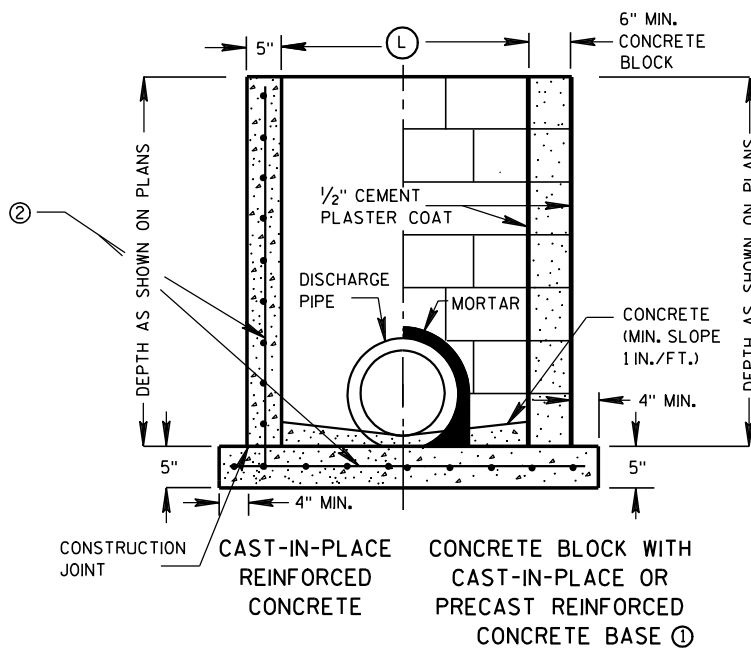


PLAN VIEW

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



SECTION A-A



SECTION B-B

SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

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

GENERAL NOTES

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

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

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

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

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

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

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

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

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

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

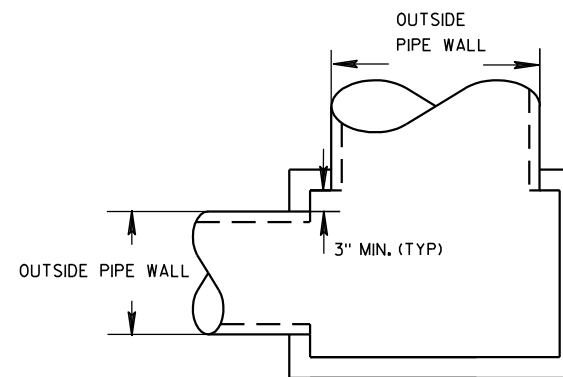
- FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

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

PIPE MATRIX

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

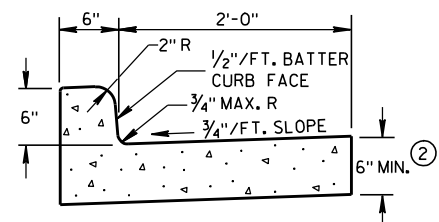


DETAIL "A"

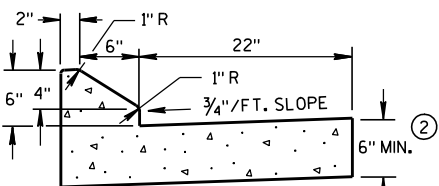
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

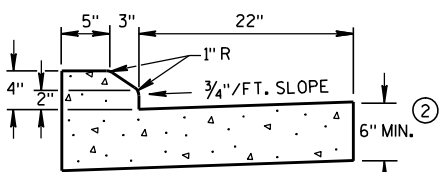
APPROVED
6/5/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



TYPES A & D ①



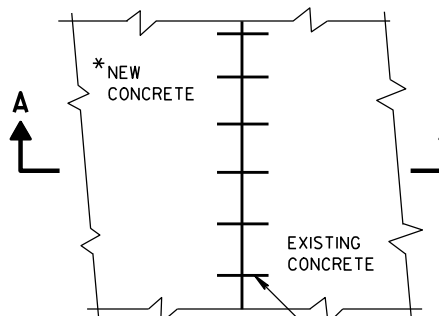
6" SLOPED CURB TYPES G & J ①



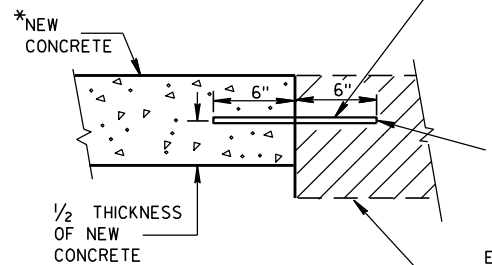
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

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



PLAN VIEW

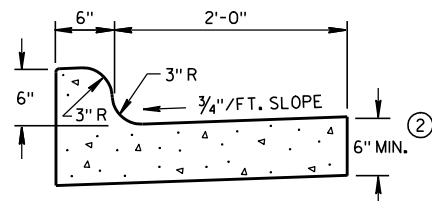


SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

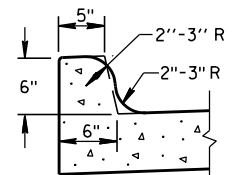
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

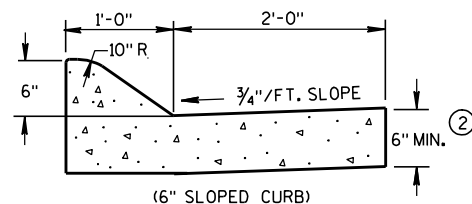
EXISTING
CONCRETE



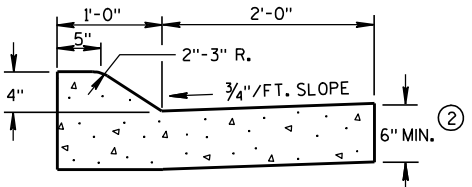
TYPES K & L ①



OPTIONAL CURB SHAPE
FOR TYPES K & L ①

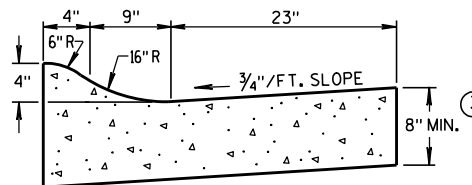


(6" SLOPED CURB)



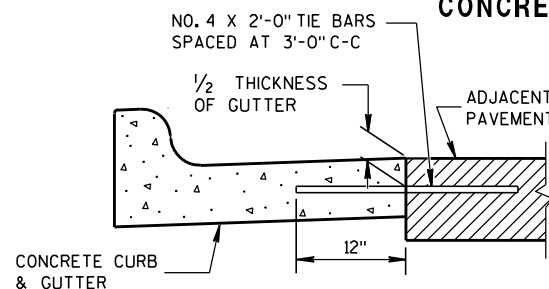
(4" SLOPED CURB)

TYPES A & D ①

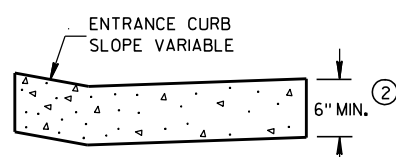


4" SLOPED CURB TYPES R & T ① ④

CONCRETE CURB & GUTTER 36"

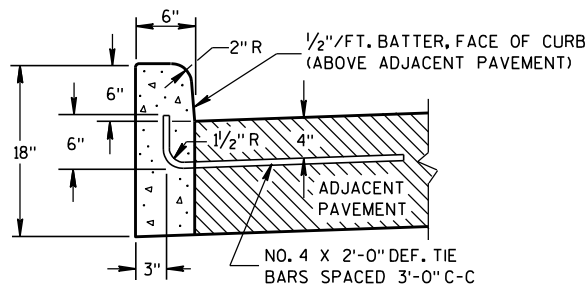


TYPICAL TIE BAR LOCATION ①



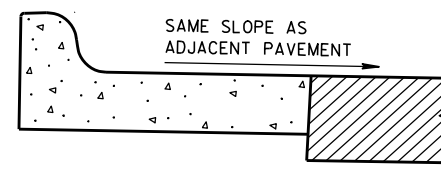
DRIVEWAY ENTRANCE CURB

(WHEN DIRECTED BY THE ENGINEER)

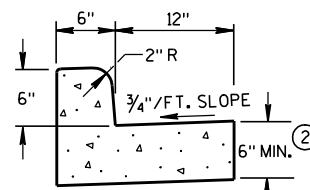


TYPES A & D ①

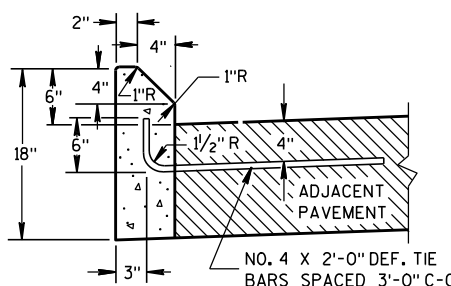
CONCRETE CURB



REVERSE SLOPE GUTTER ⑤
(TYPICAL FOR ALL CURB & GUTTER TYPES)



TYPES A & D
CONCRETE CURB & GUTTER 18"



TYPES G & J ①

GENERAL NOTES

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

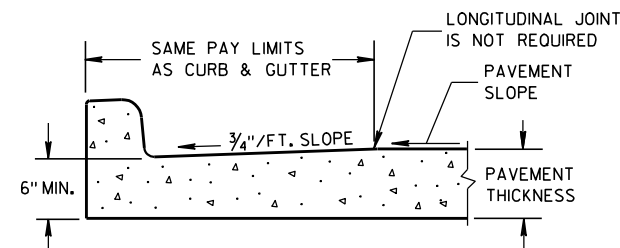
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

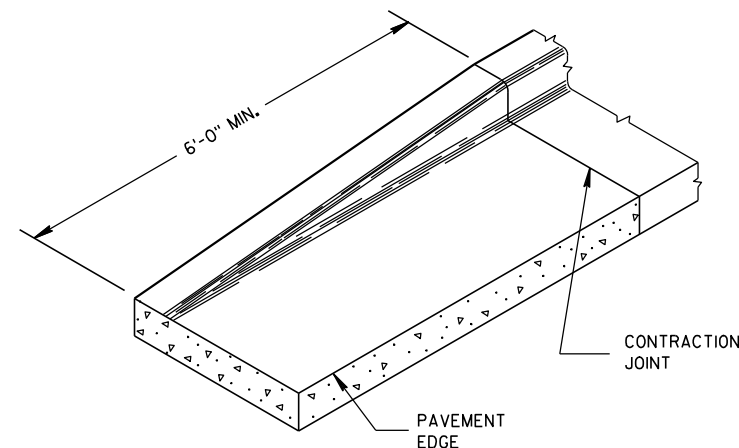
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

9/4/08

DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

6



PLAN VIEW
FLUME AT CURB END



6

S.D.D. 8 D 4-5

- ① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

EXPANSION JOINT

CONCRETE CURB AND GUTTER

2" MIN. CURB HEIGHT

5' R

TAPER CURB TO FLOW LINE

INCREASE ϕ FROM RIGHT ANGLE TO BEST FIT FIELD CONDITIONS

8'-0"

4'-0"

EDGE OF PAVEMENT

3'-0" MIN.

SURFACE DRAIN IS SYMMETRICAL WHEN CURB AND GUTTER IS CONTINUED

SHOULDER OR BERM HINGE POINT

JOINTS

W3 WIRE MESH (SEE SECTION D-D)

RIPRAP

6'-0"

OR AS REQUIRED

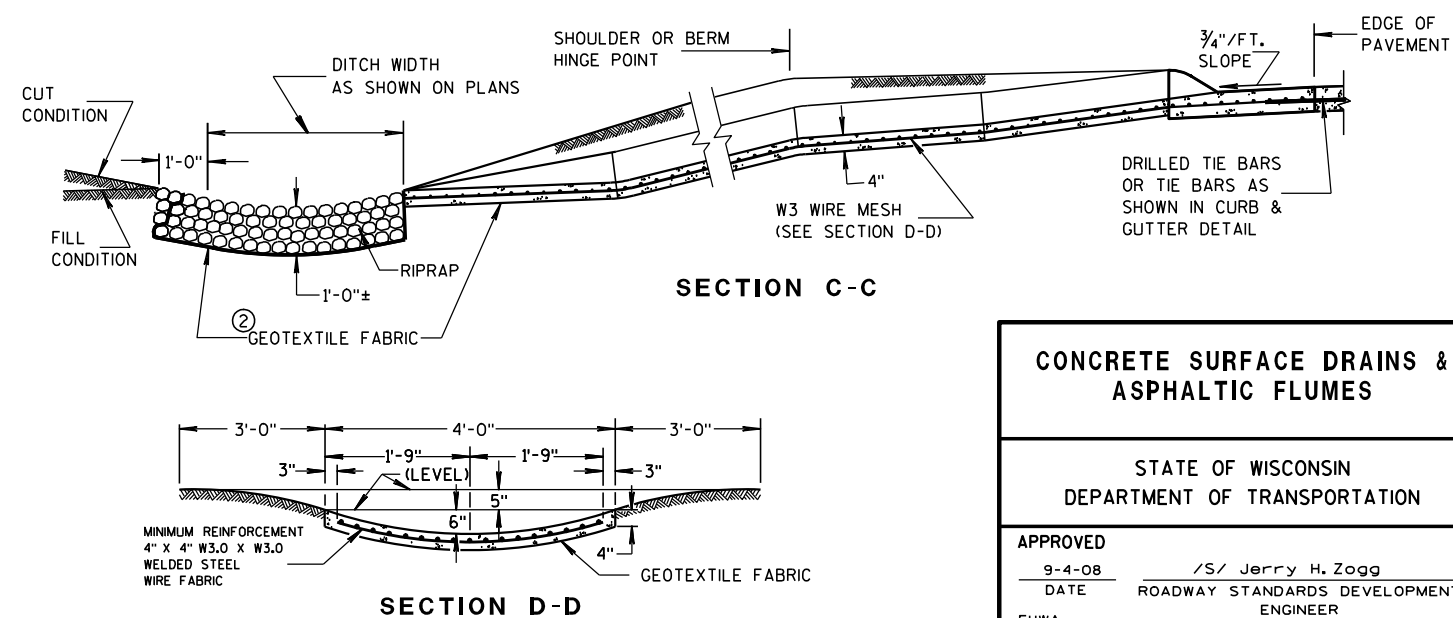
1'-0" ON CUT SLOPE

DITCH

DITCH

PLAN VIEW

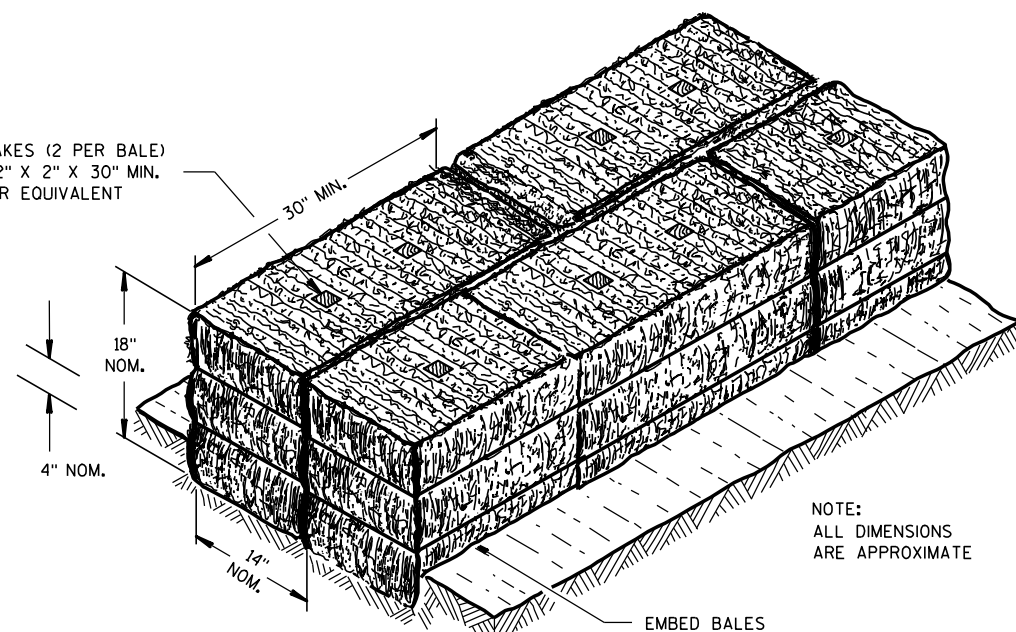
PLAN VIEW



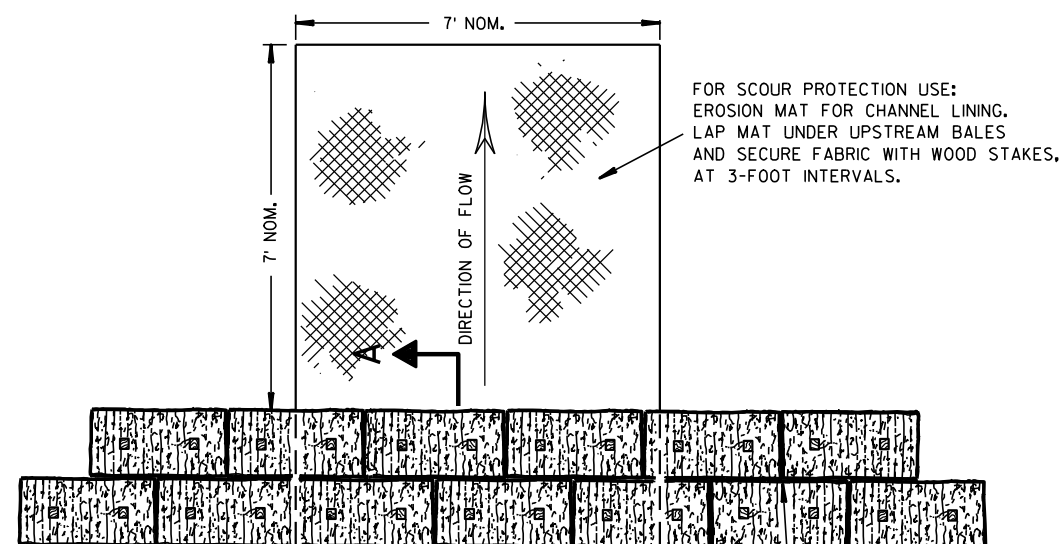
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9-4-08 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

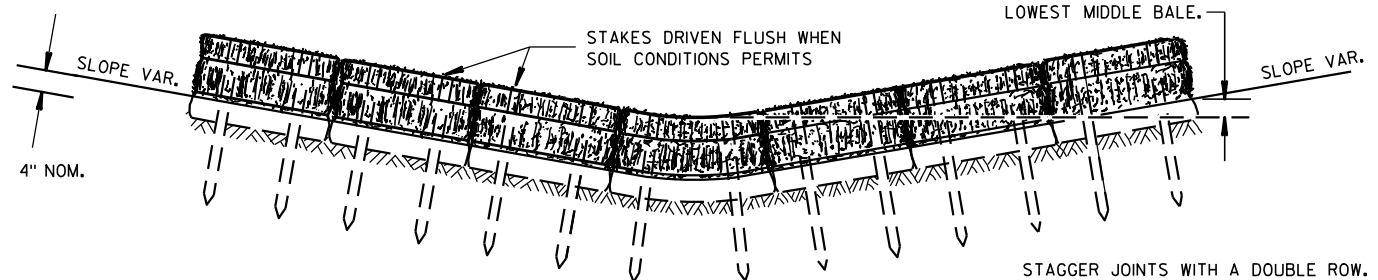
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



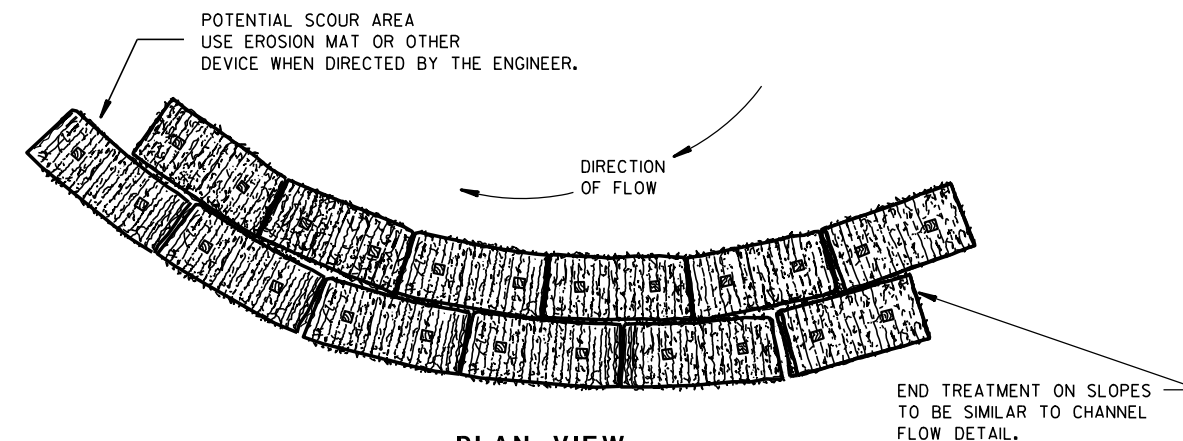
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

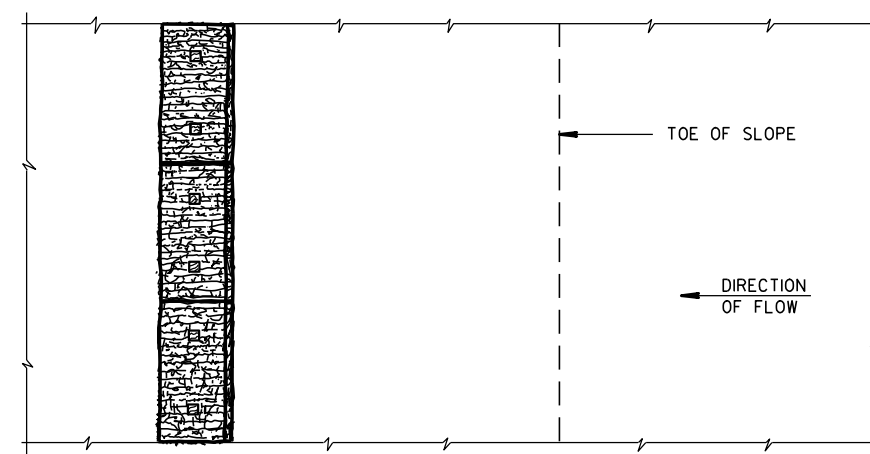
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

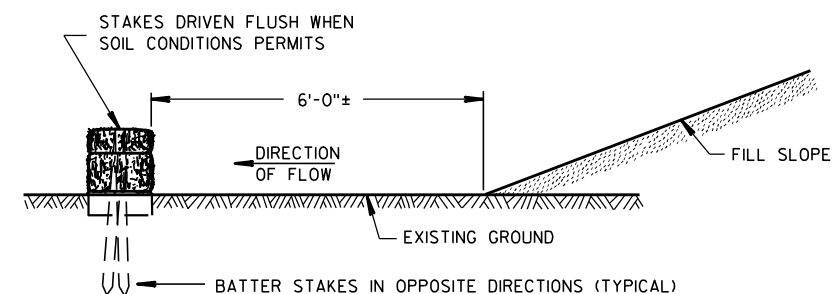


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

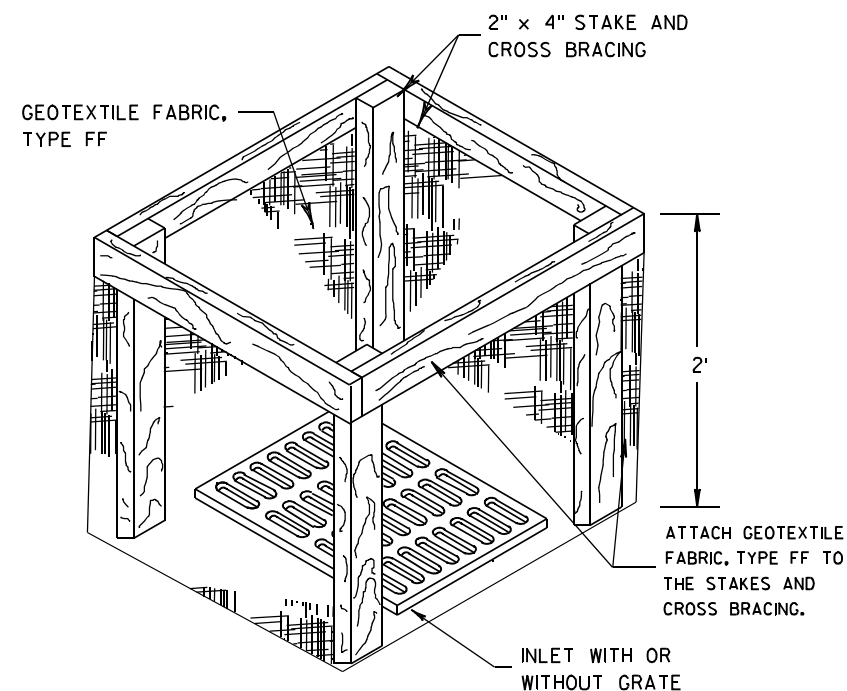
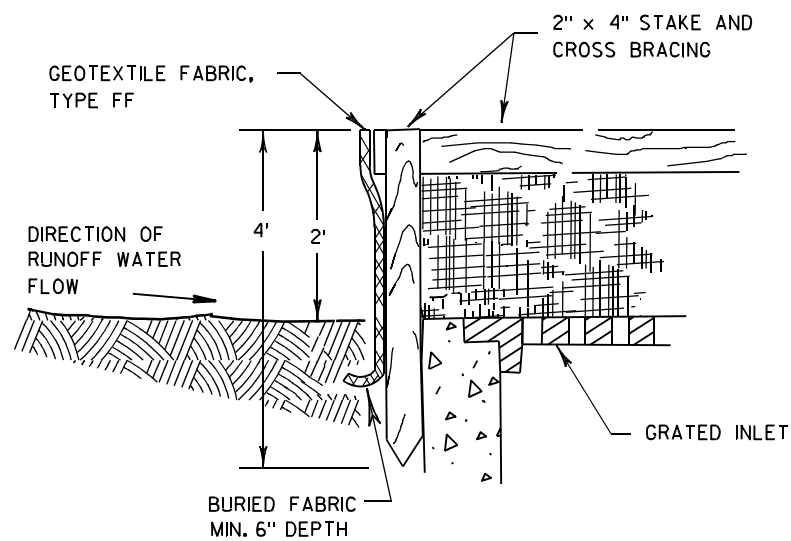
FHWA



TRENCH DETAIL



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/s/ Beth Cannestra CHIEF ROADWAY DEVELOPMENT ENGINEER



INLET PROTECTION, TYPE A

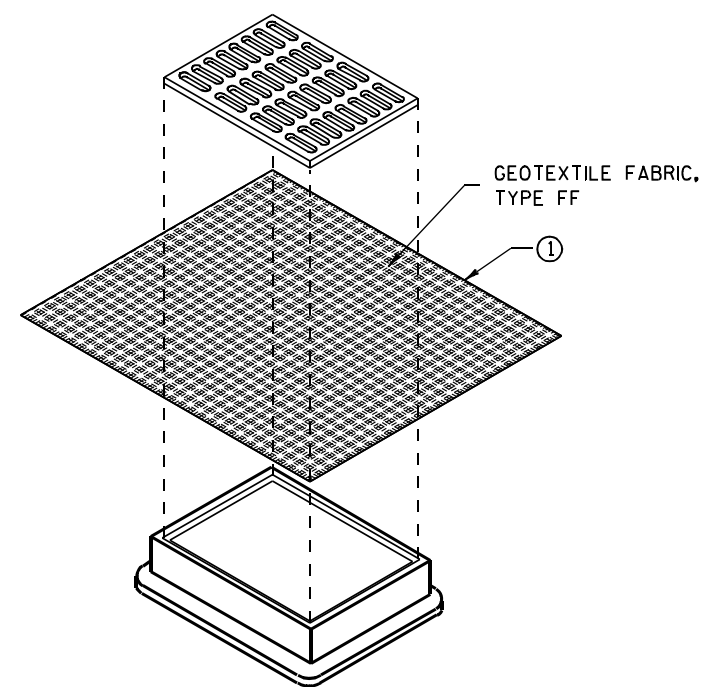
GENERAL NOTES

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

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

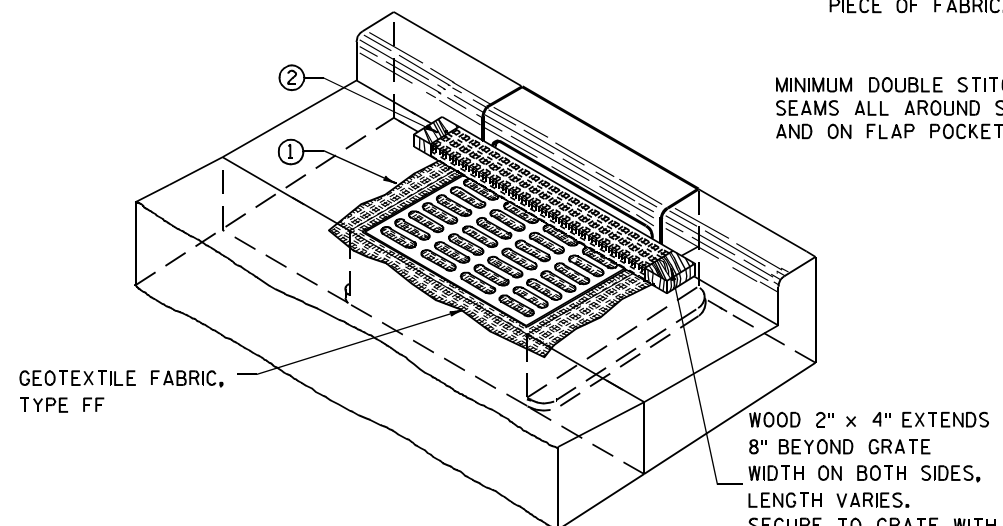
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

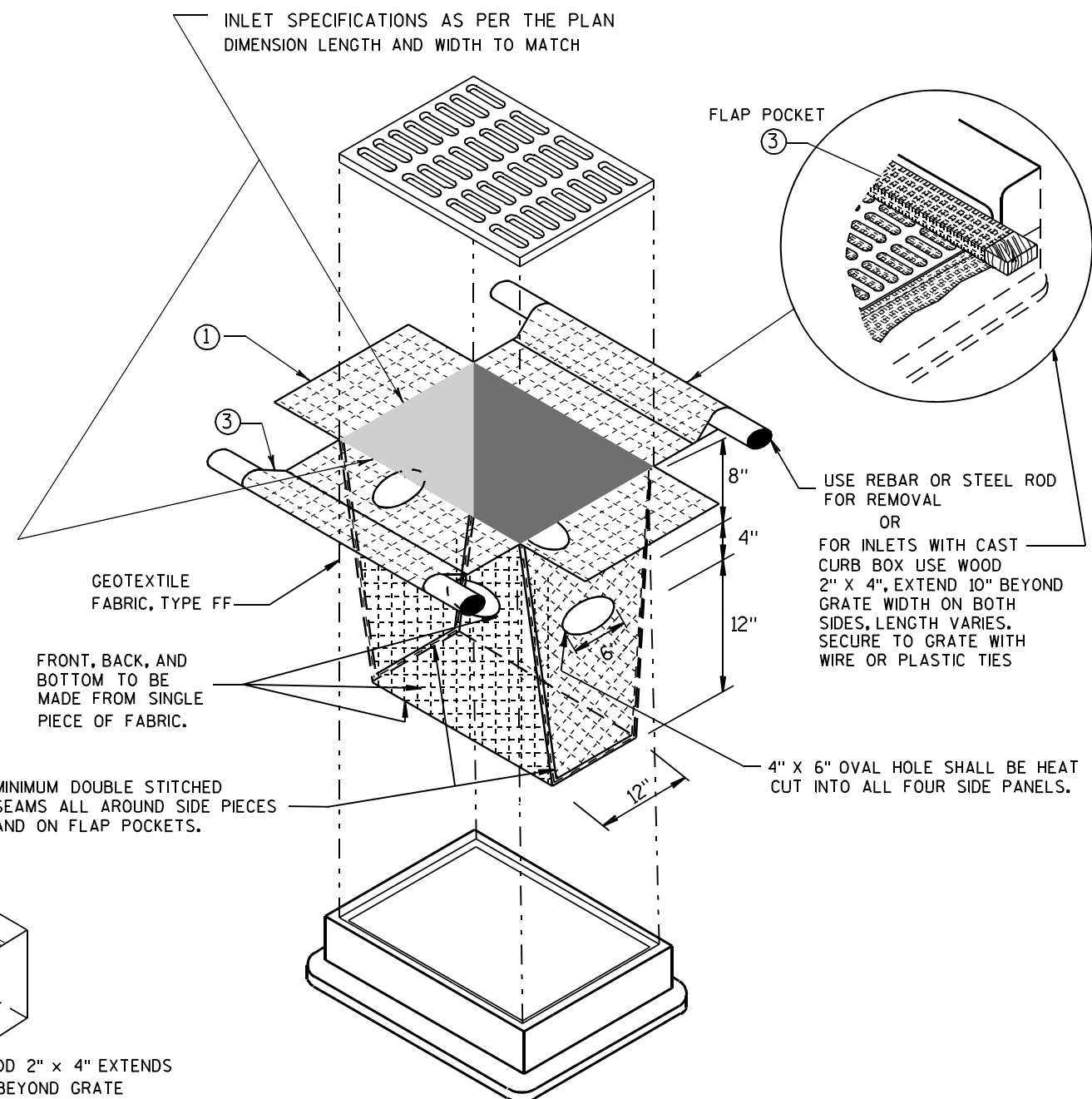
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



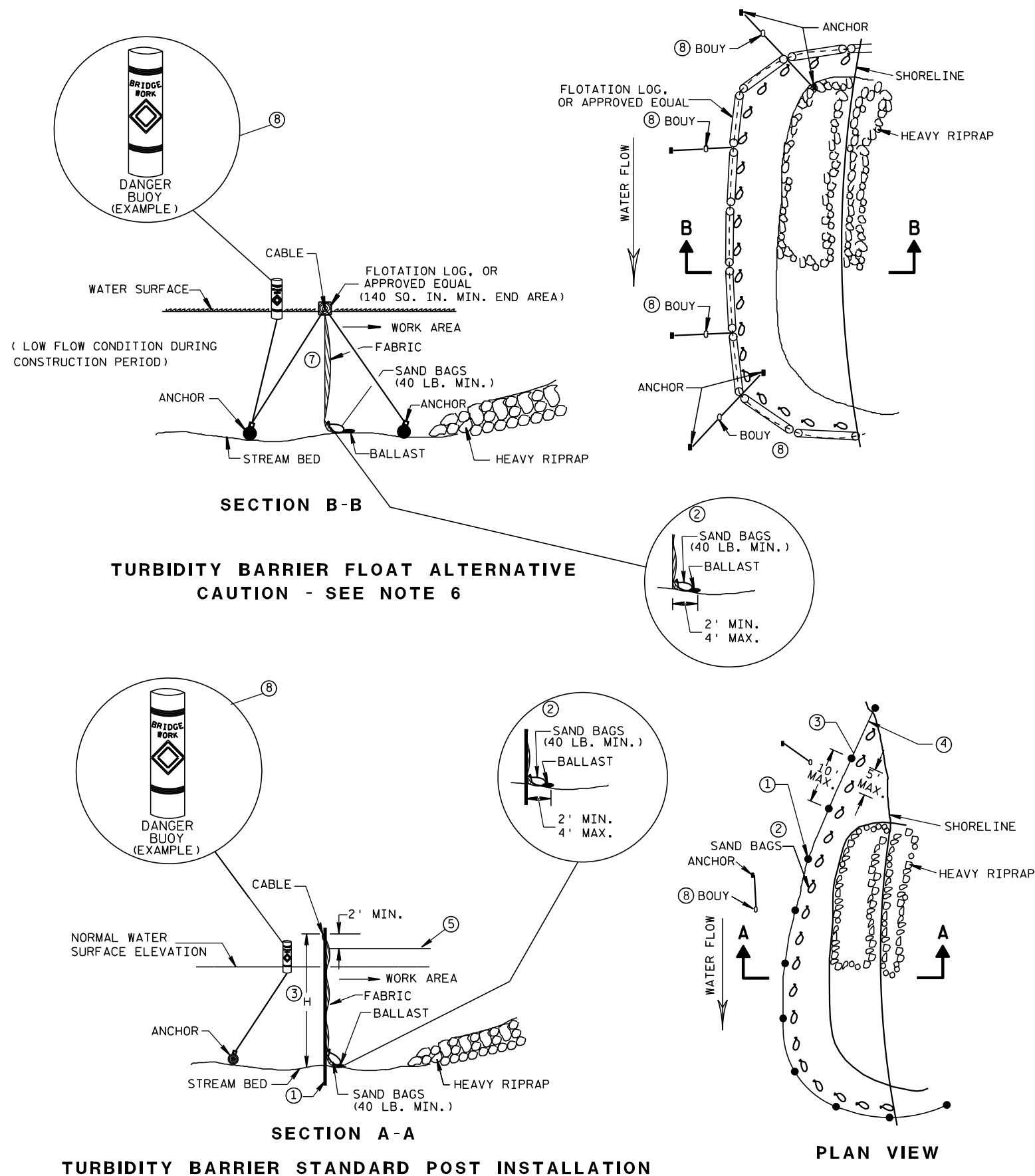
INLET PROTECTION, TYPE D

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

**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Cannestra
DATE
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

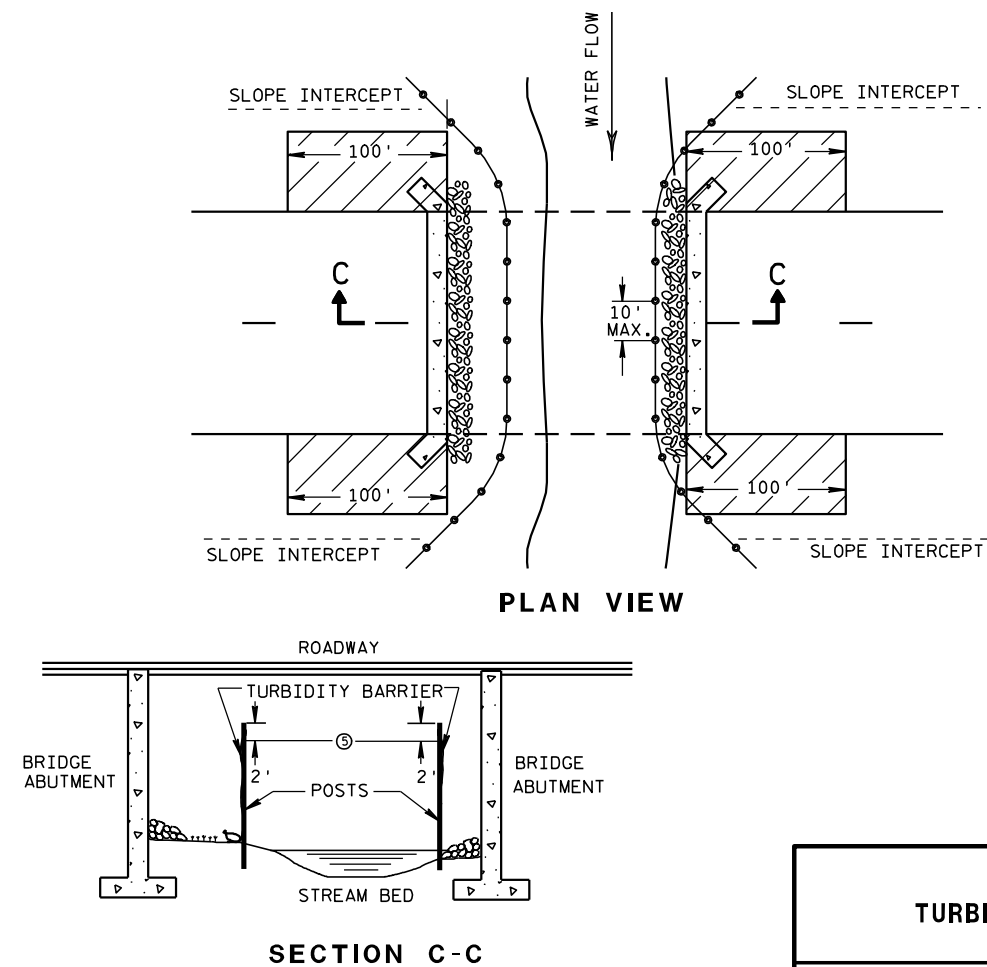


GENERAL NOTES

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.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SANDBAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT, H, EXCEEDS 8 FT., POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE 02 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BED ROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

TURBIDITY BARRIER

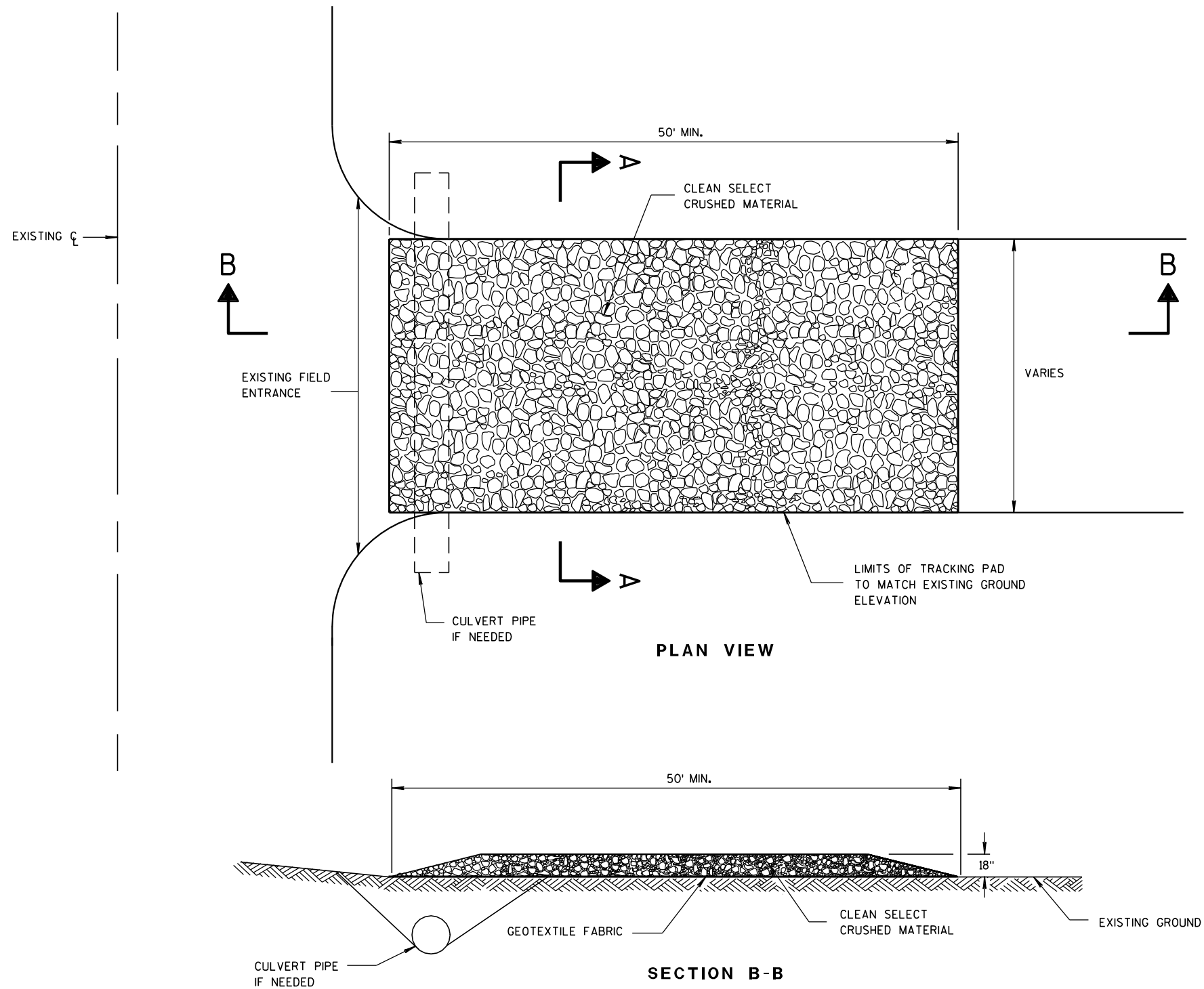
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02
DATE

FHWA

/S/ Beth Connestra
CHIEF ROADWAY DEVELOPMENT ENGINEER



TRACKING PAD

GENERAL NOTES

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

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

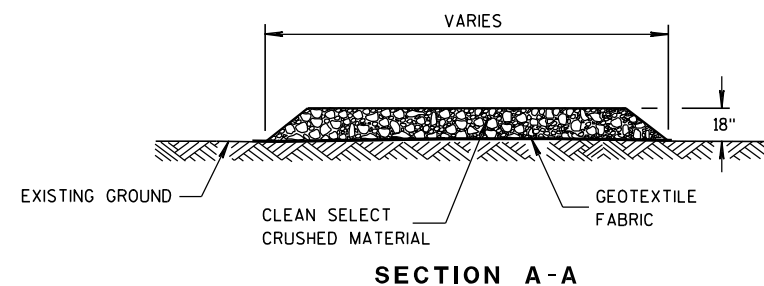
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

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

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

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

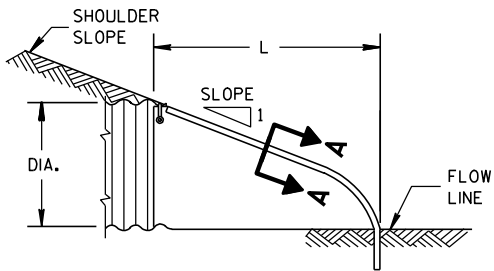
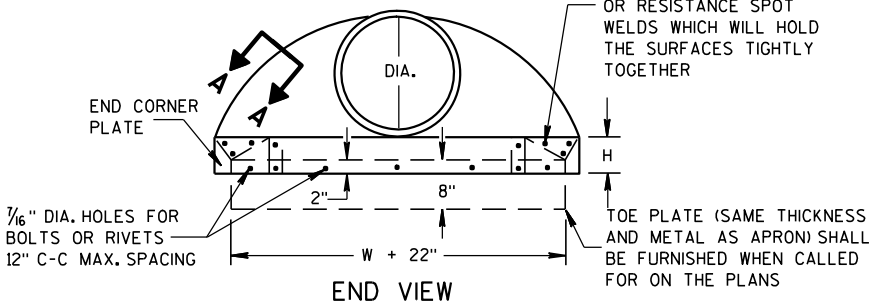
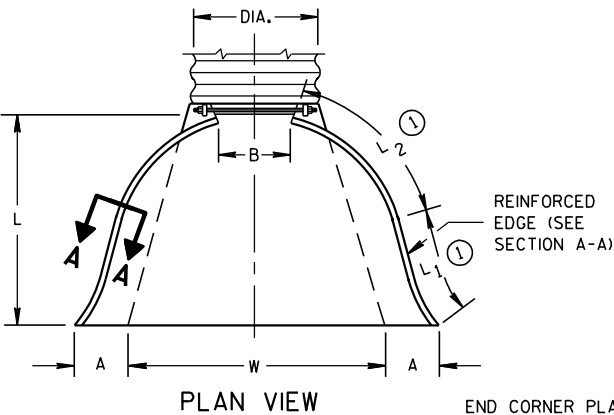
**TRACKING PAD**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

METAL APRON ENDWALLS											
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 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.

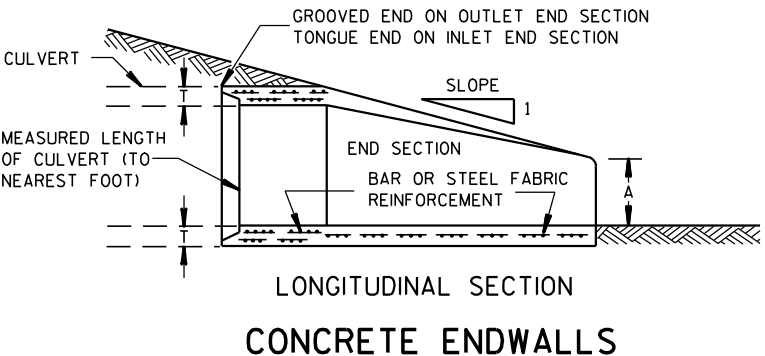
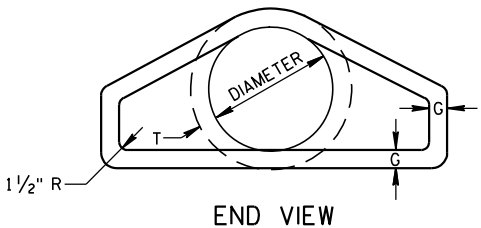
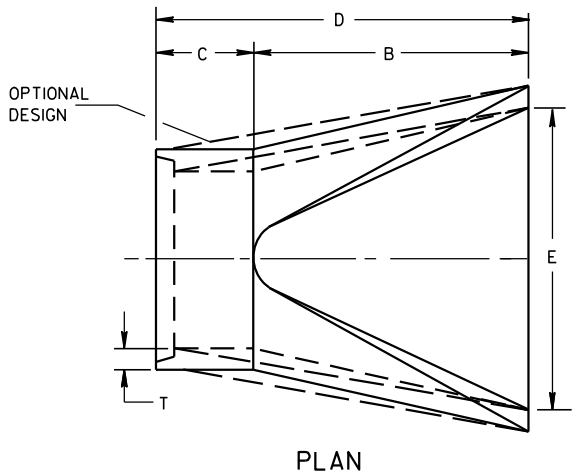
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



SIDE ELEVATION
METAL ENDWALLS

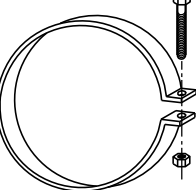
REINFORCED CONCRETE APRON ENDWALLS											
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE			
	T	A	B	C	D	E	G				
12	2	4	24	48 1/8	72 1/8	24	2	3 to 1			
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1			
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1			
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1			
24	3	9 1/2	43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

* MINIMUM
** MAXIMUM

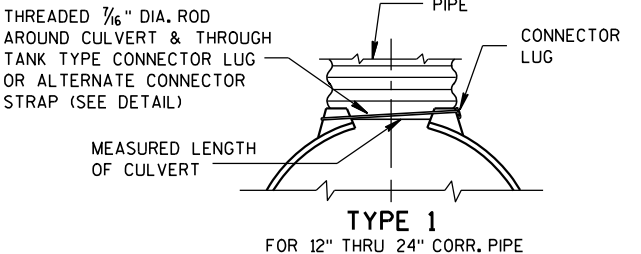


LONGITUDINAL SECTION
CONCRETE ENDWALLS

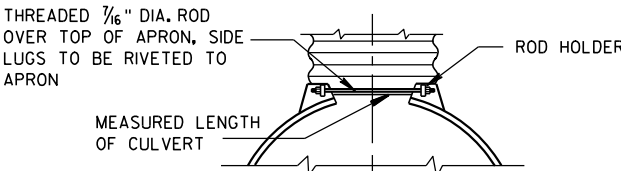
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



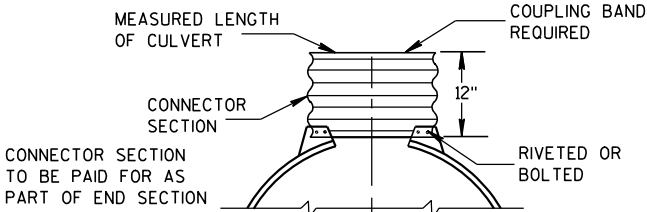
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



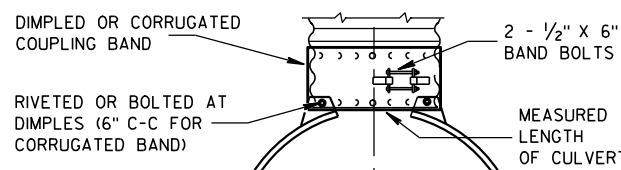
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

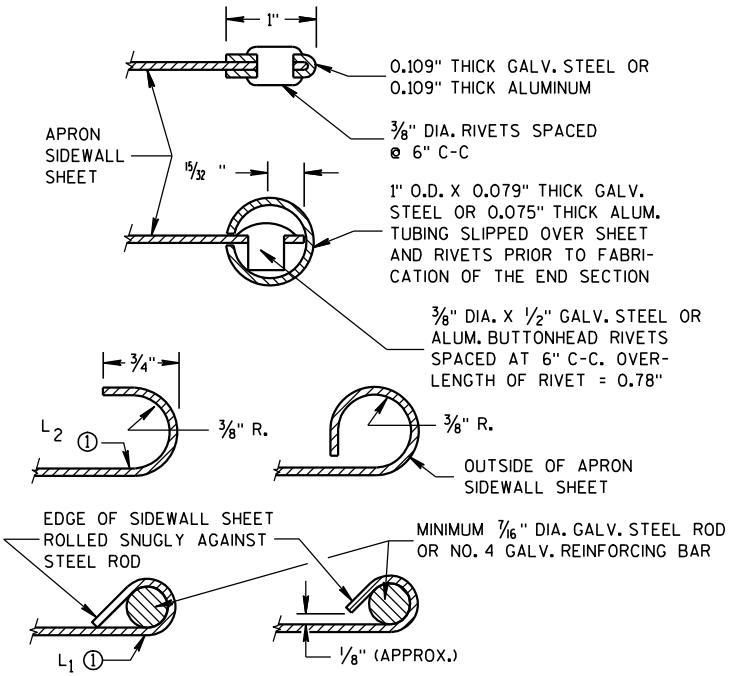
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

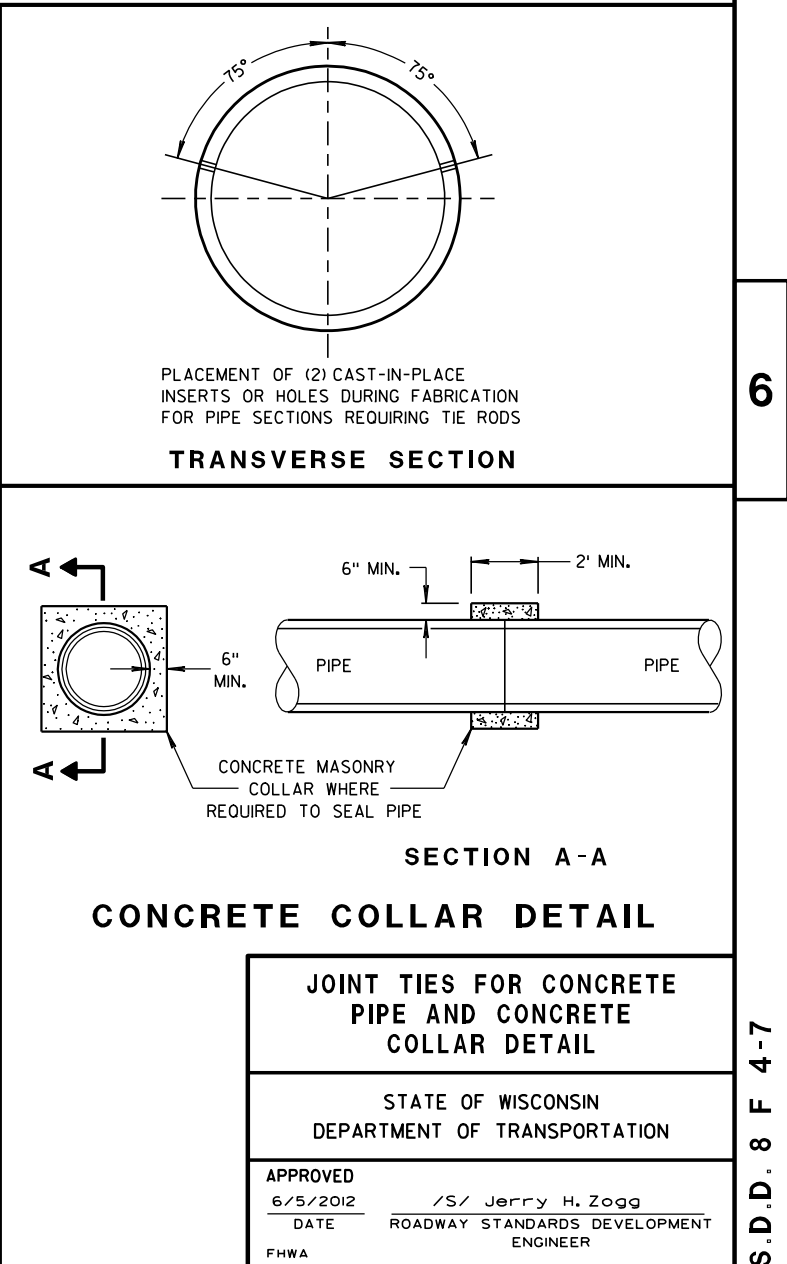
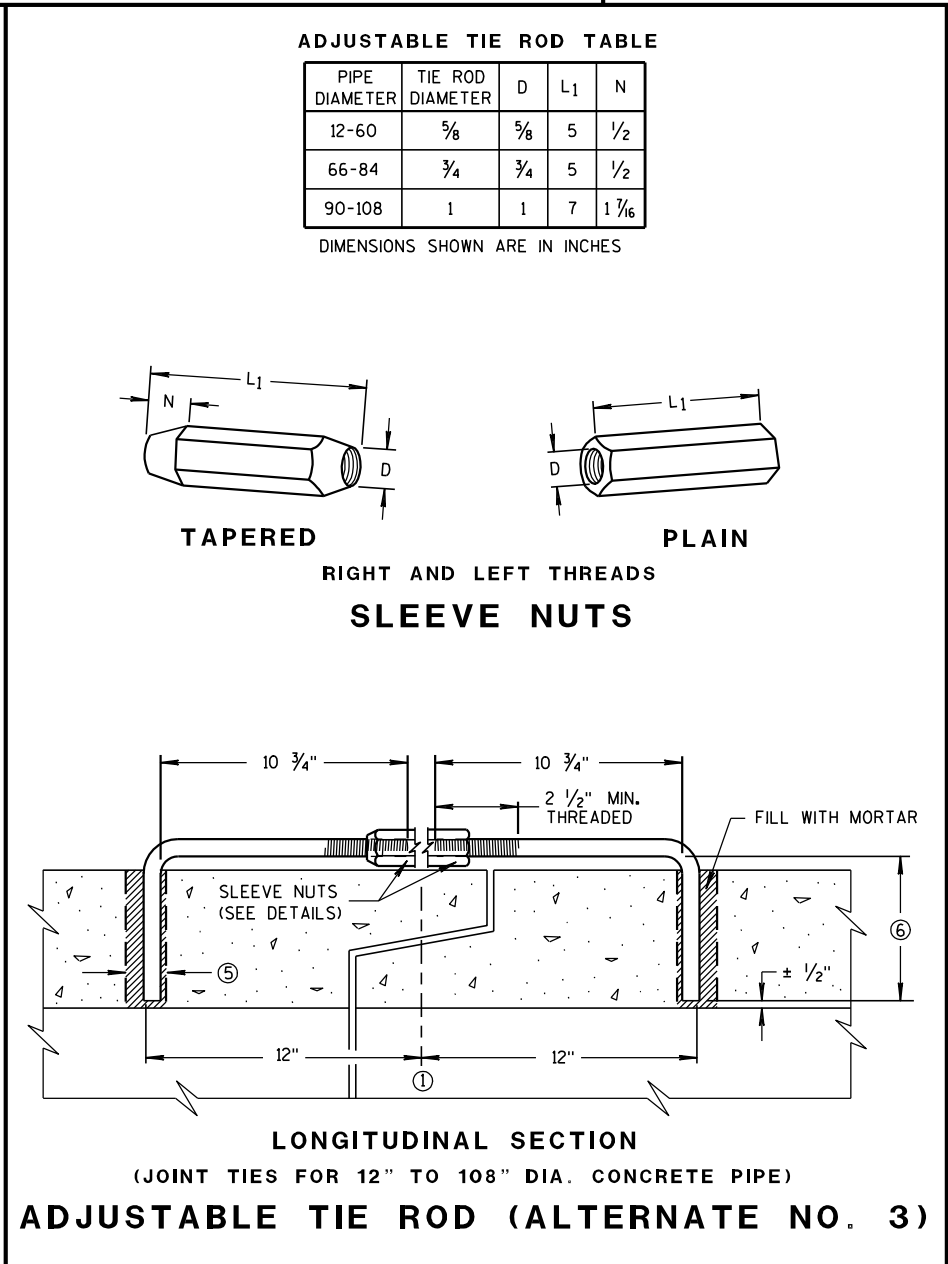
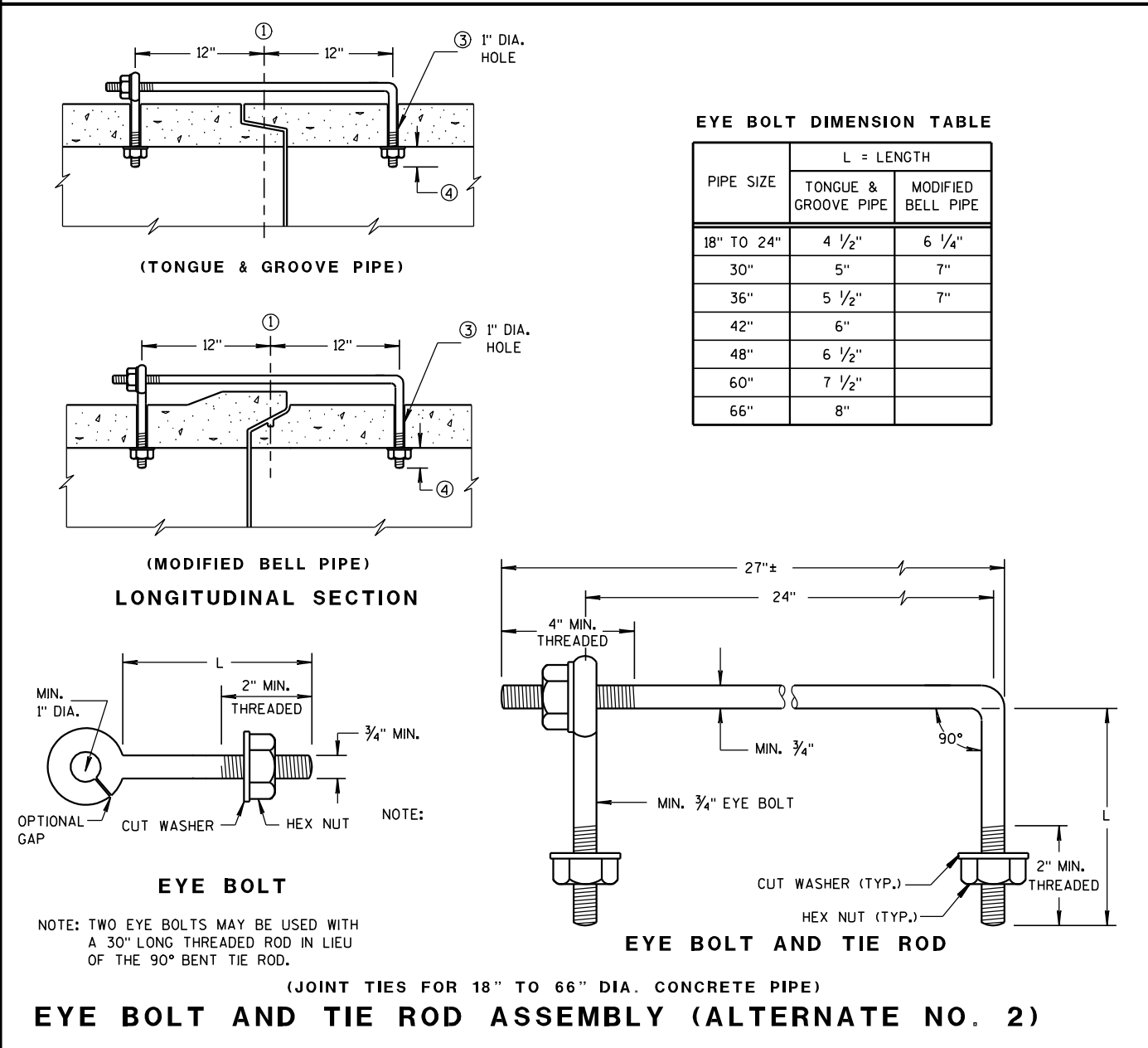
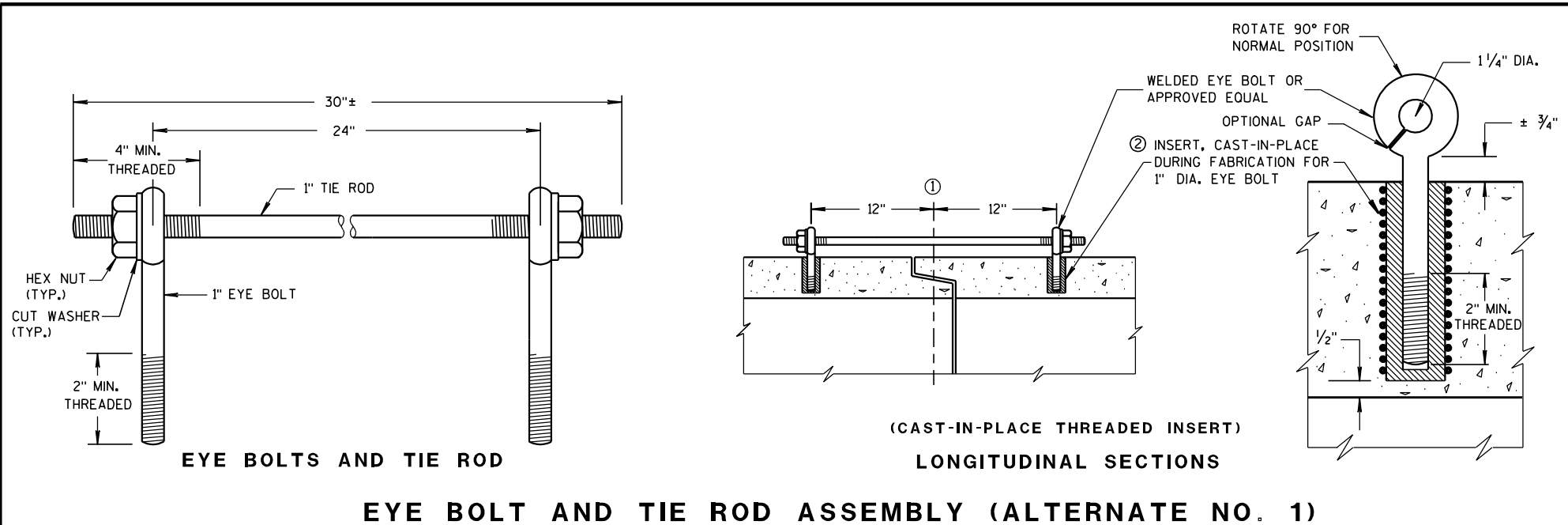
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

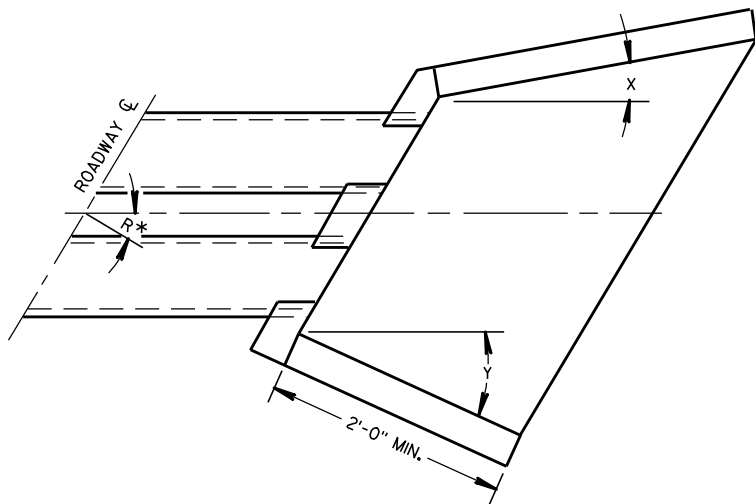
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

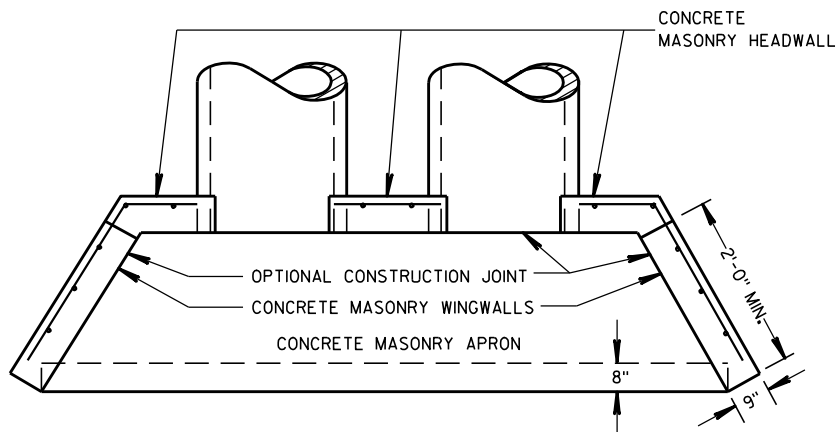




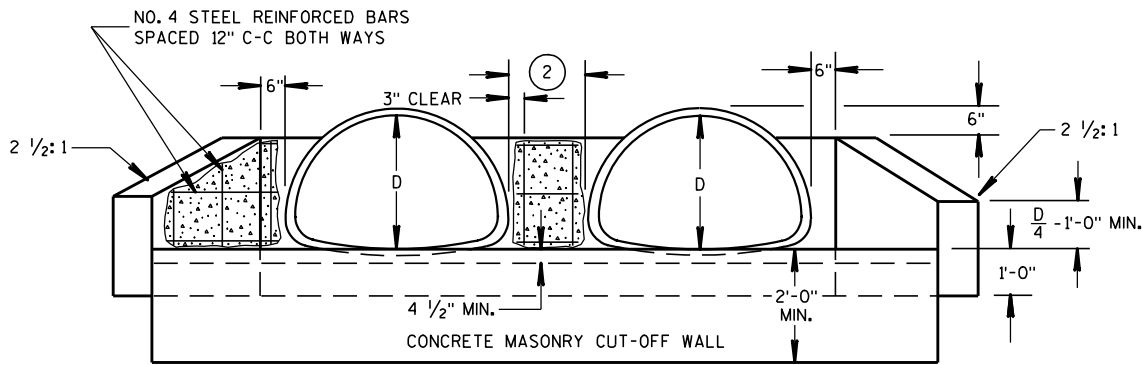
WINGWALL ANGLE DETAILS

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

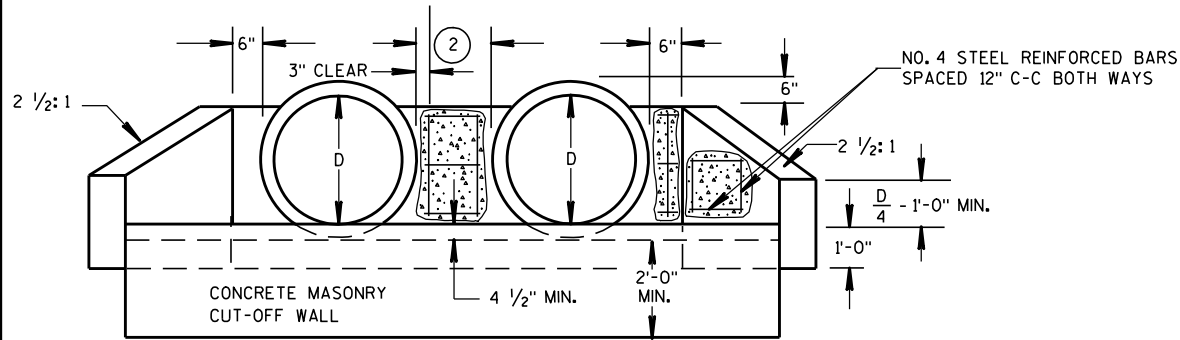
*R = NUMBER OF DEGREES RIGHT OR LEFT HAND FORWARD



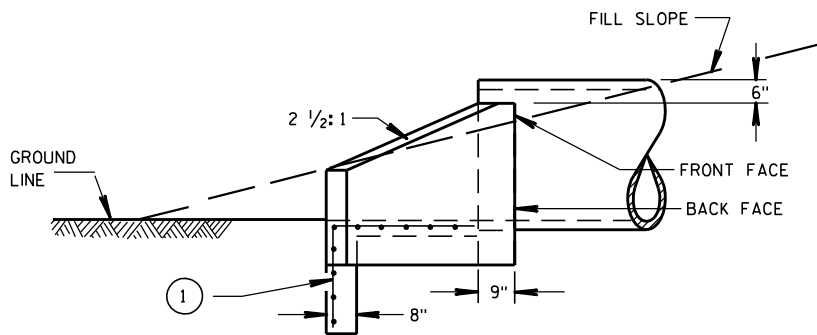
PLAN VIEW
CULVERT PIPE AND PIPE ARCH



END ELEVATION
PIPE ARCH



END ELEVATION
CULVERT PIPE



SIDE ELEVATION
CULVERT PIPE AND PIPE ARCH

GENERAL NOTES

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

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

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

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

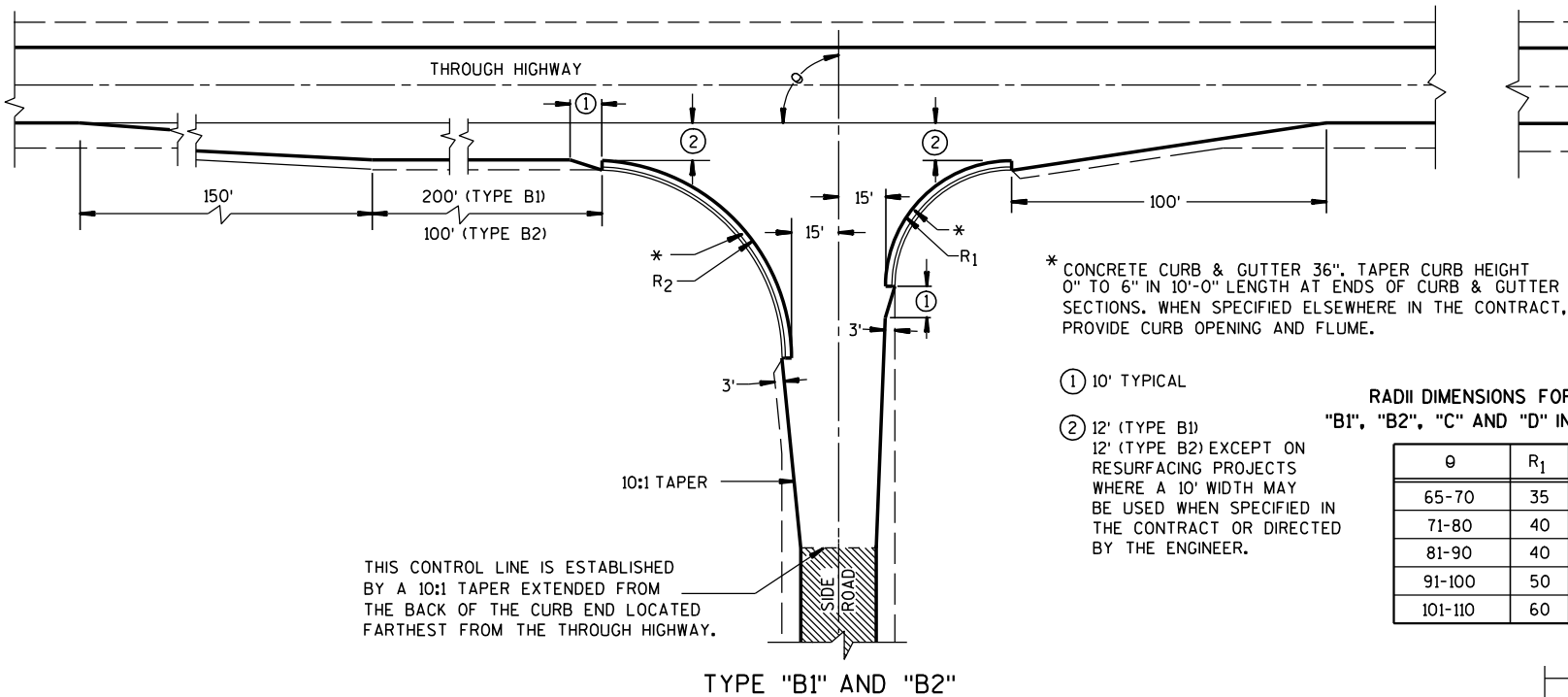
② THE SPACE BETWEEN PIPES SHALL BE AS FOLLOWS:

DIAMETER OR SPAN	SPACE
UP TO AND INCLUDING 48"	2'-0"
OVER 48" TO 72"	1/2 DIA. OR SPAN
OVER 72"	3'-0"

CONCRETE MASONRY ENDWALLS
FOR CULVERT PIPE AND
PIPE ARCH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



GENERAL NOTES

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

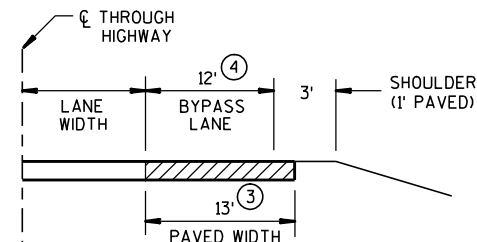
SIDE ROAD SURFACING NOTE

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

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

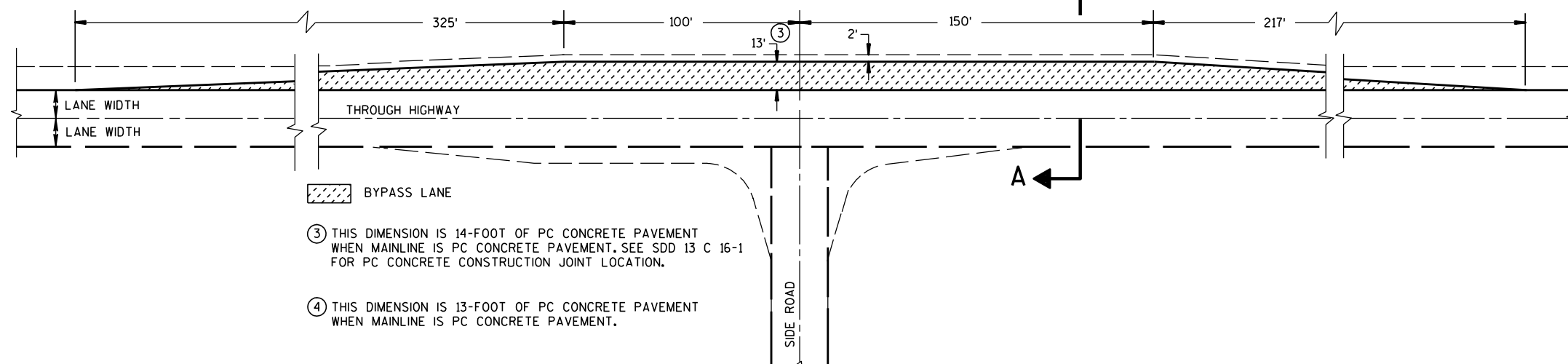
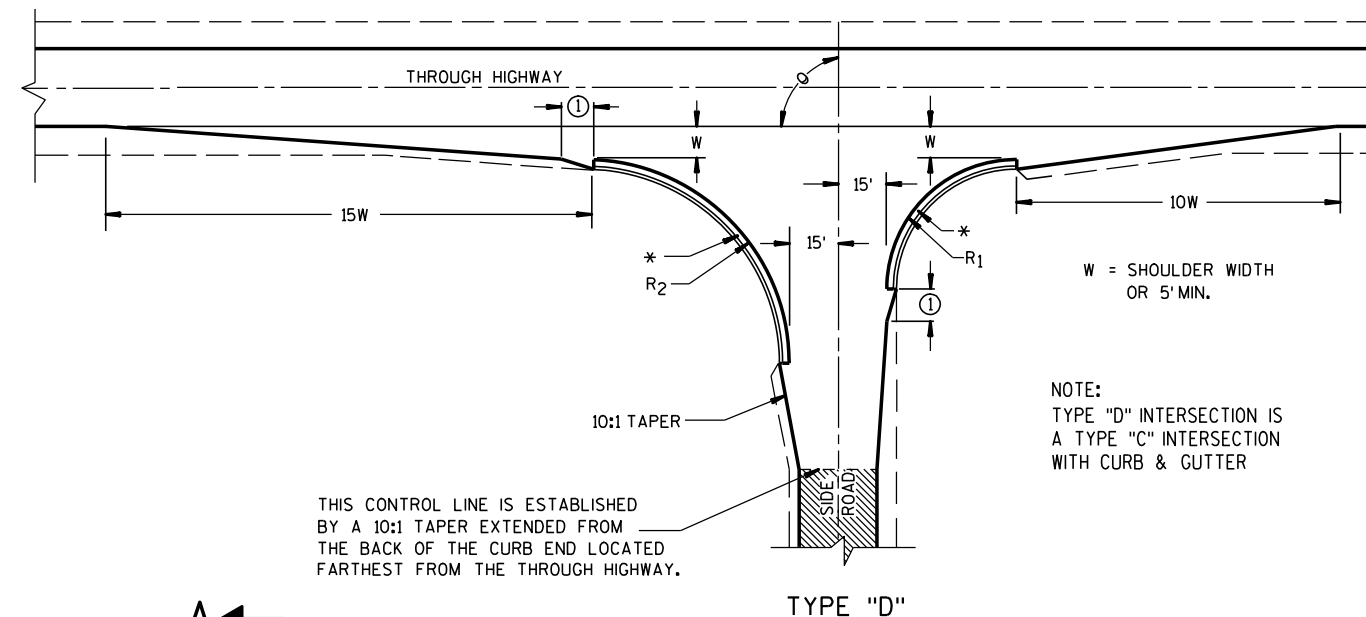
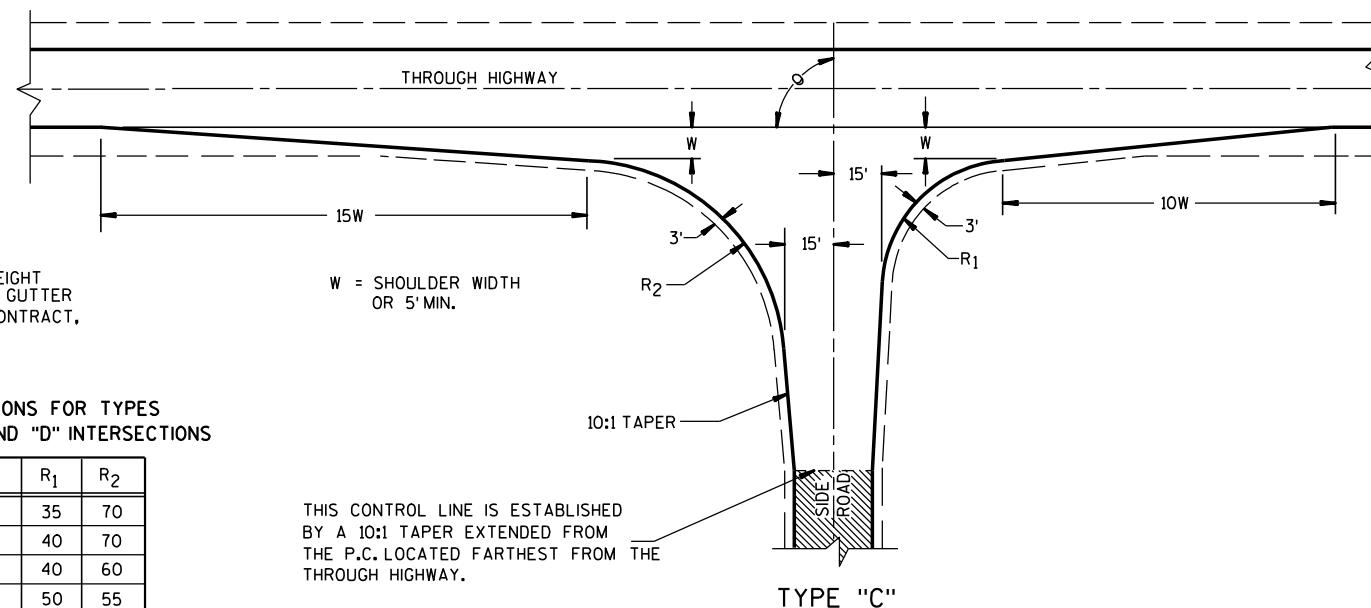
WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING SURFACE



SECTION A-A

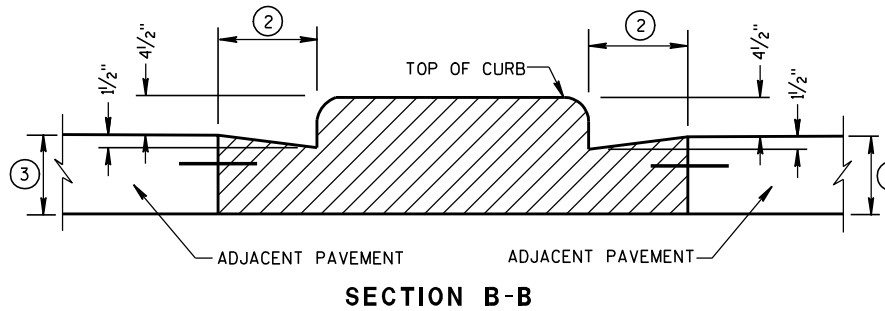
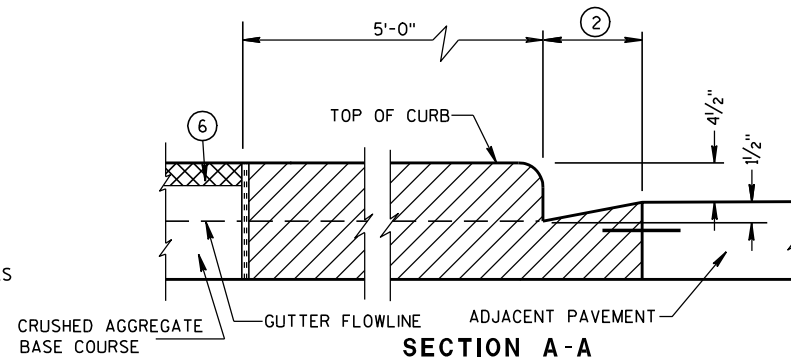
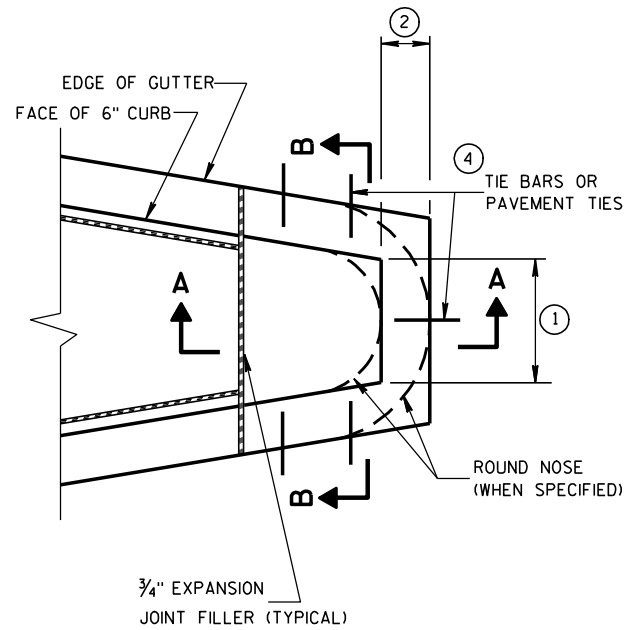
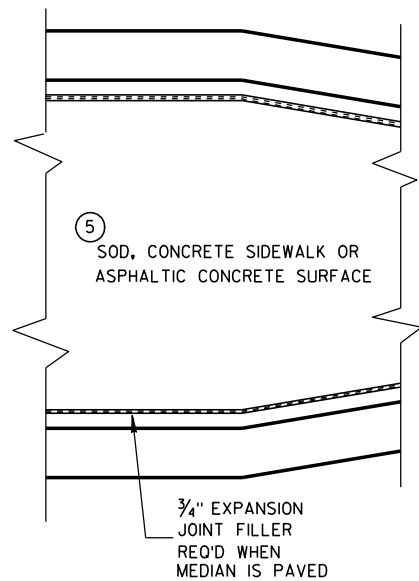
(SHOWING BYPASS LANE AND SHOULDER)



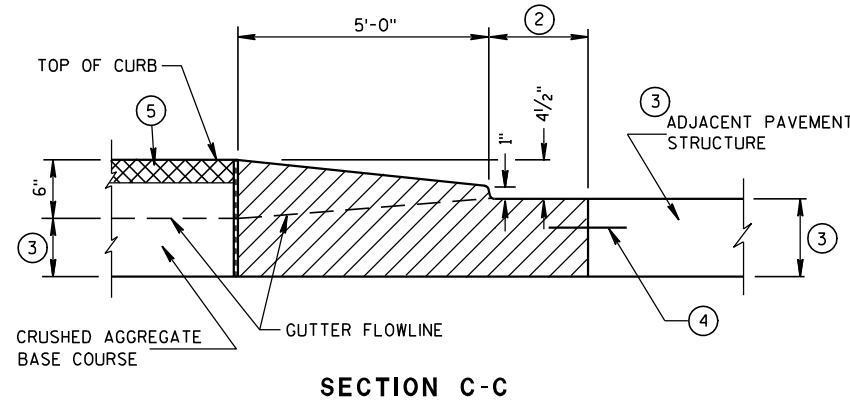
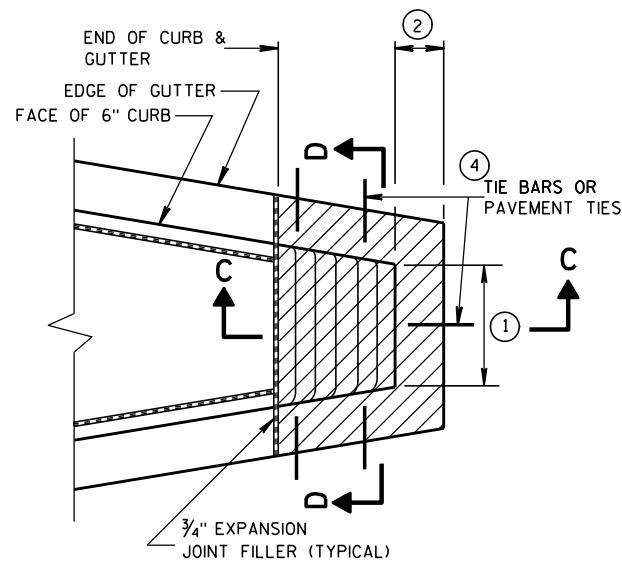
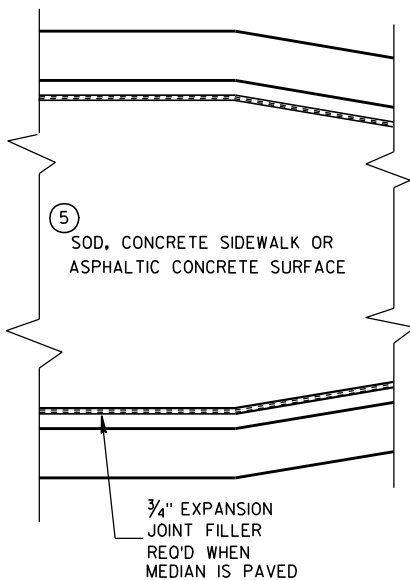
TEE INTERSECTION BYPASS LANE DETAIL

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

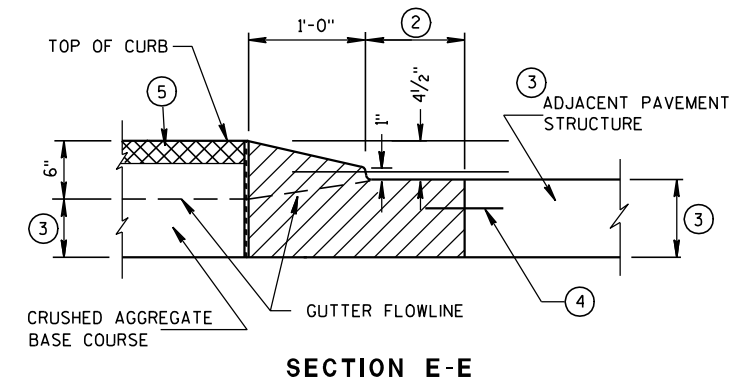
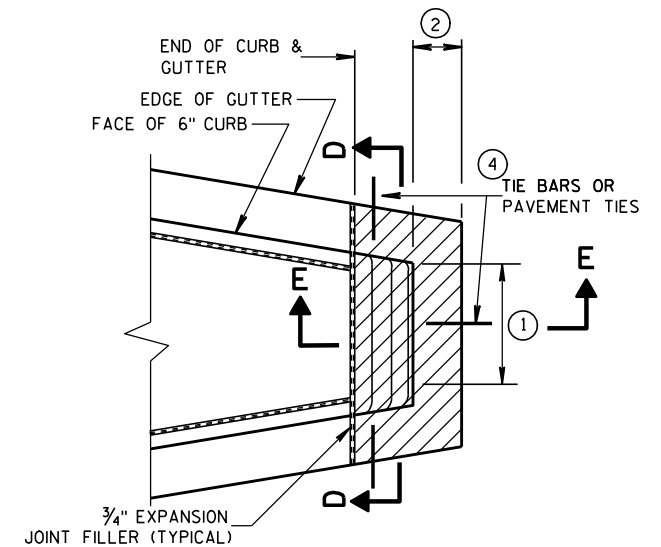
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



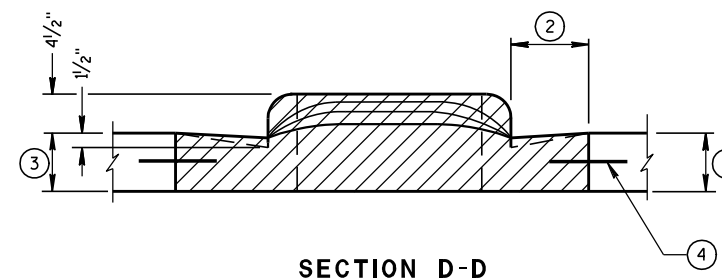
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



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 SEE PLAN FOR MEDIAN NOSE WIDTH AND RADIUS (FOR ROUND NOSE ALTERNATE).
- ② WIDTH OF GUTTER TO MATCH EXISTING ADJACENT GUTTER OR AS SPECIFIED ELSEWHERE IN THE PLAN.
- ③ DEPTH EQUAL TO ADJACENT PAVEMENT. ADJACENT PAVEMENT STRUCTURE DETAILS ARE SHOWN ON THE PLAN. TYPICAL OPTIONS ARE:
 - (1) NEW OR EXISTING CONCRETE PAVEMENT.
 - (2) ASPHALTIC CONCRETE PAVEMENT OVER NEW OR EXISTING CONCRETE BASE COURSE.
 - (3) ASPHALTIC CONCRETE PAVEMENT OVER CRUSHED AGGREGATE BASE COURSE.

- ④ TIE BARS OR PAVEMENT TIES REQUIRED IN NEW CONCRETE PAVEMENT OR CONCRETE BASE COURSE. TIE BARS SHALL BE NO. 4 X 2'-0" SPACED AT 2'-0" C-C.

PAVEMENT TIES REQUIRED IN EXISTING CONCRETE BASE COURSE. PAVEMENT TIES SHALL BE NO. 6 X 1'-0" SPACED AT 3'-0" C-C INSTALLED ON A HORIZONTAL SKEW OF 6:1. THE DIRECTION OF SKEW SHALL ALTERNATE AFTER EVERY ONE OR TWO BARS.

- ⑤ SURFACE TYPE AND DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

CONCRETE MEDIAN NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

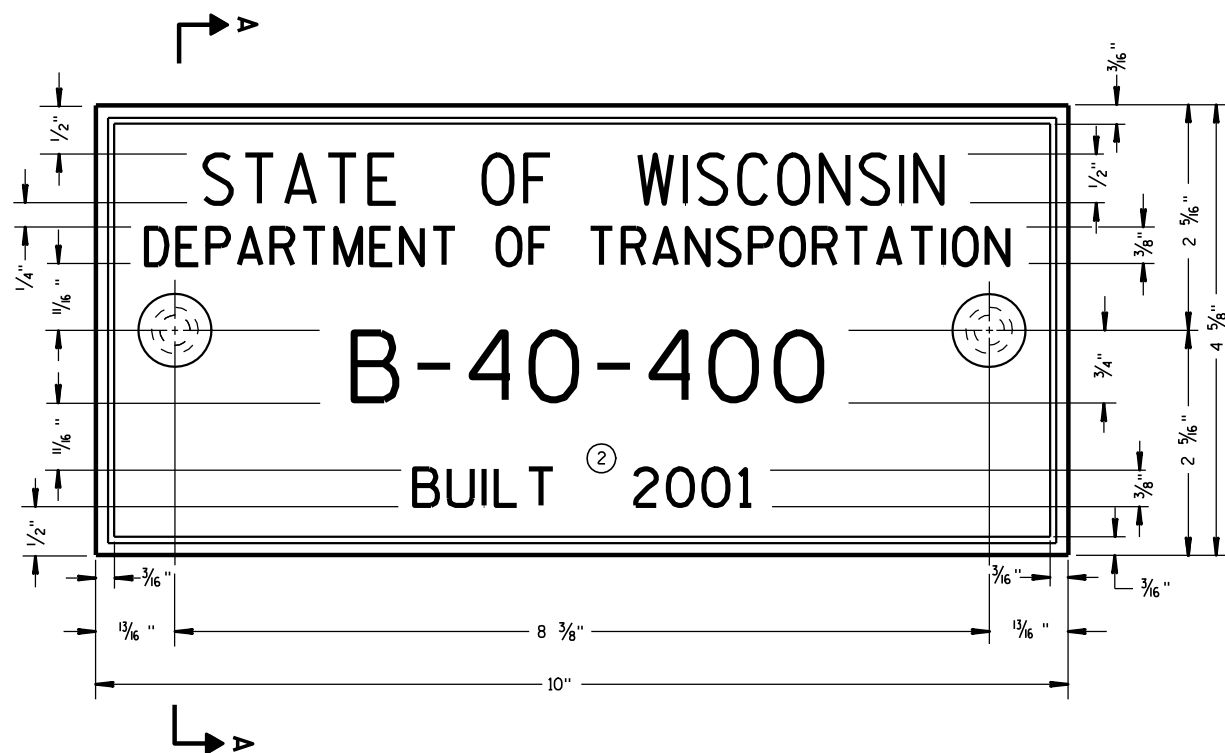
APPROVED

6/8/2006

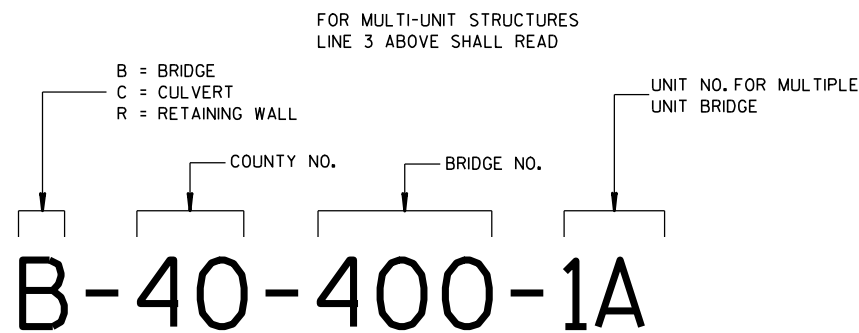
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)



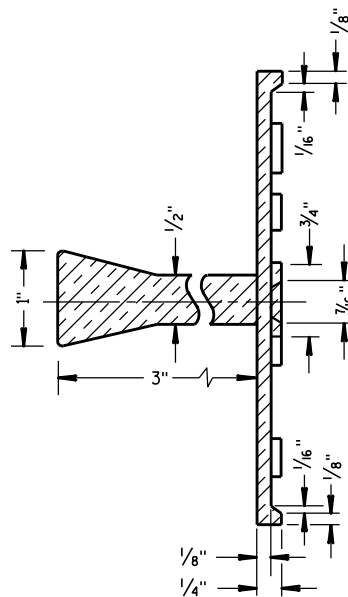
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

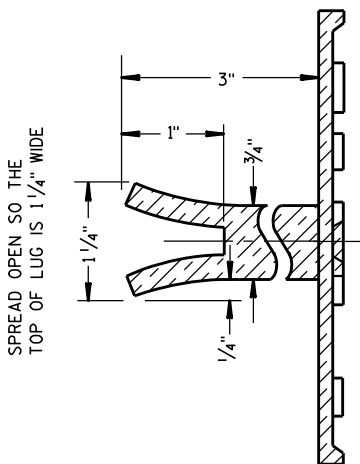
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

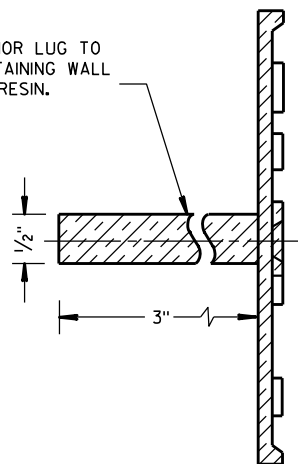


SECTION A-A



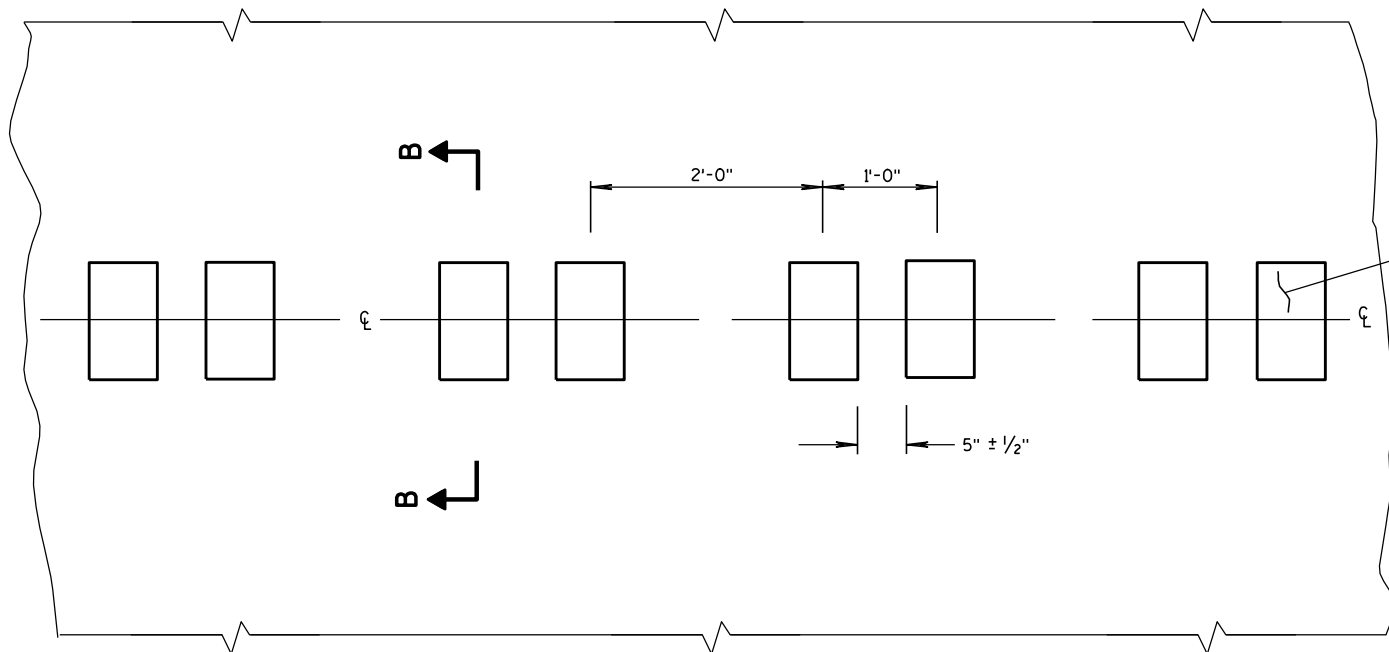
ALTERNATE LUG

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.



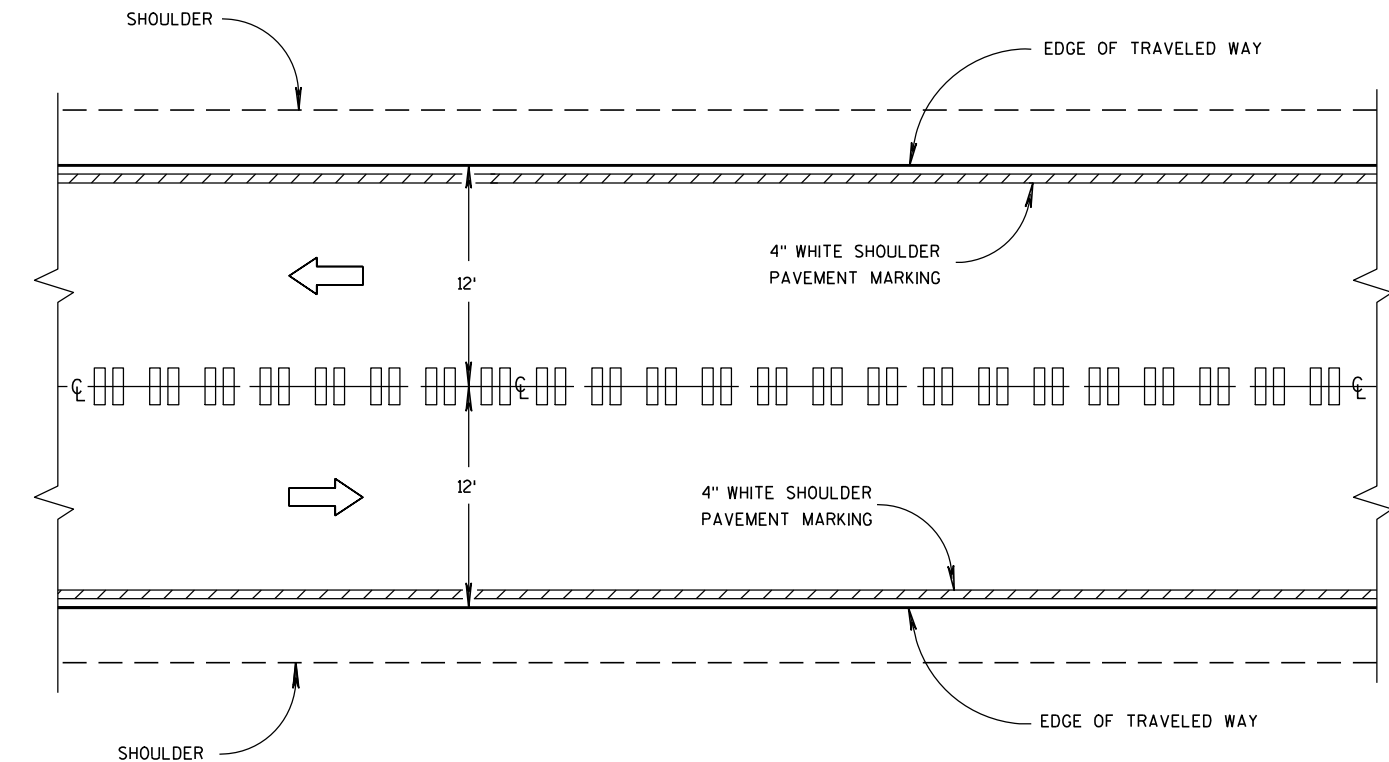
ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

NAME PLATE (STRUCTURES)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/26/10 DATE	/S/ Scot Becker CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA	

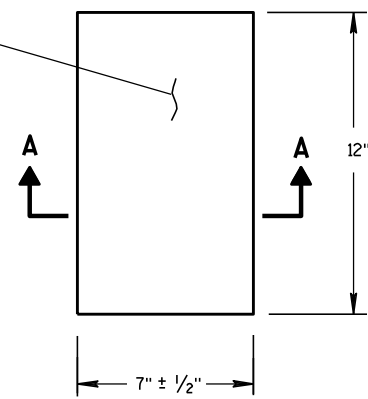


PLAN VIEW
CENTER LINE WITH GROOVES

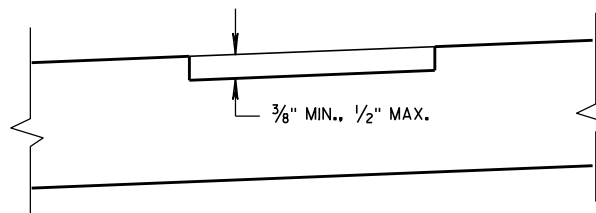
6
PLACEMENT DETAIL FOR MILLED RUMBLE STRIP



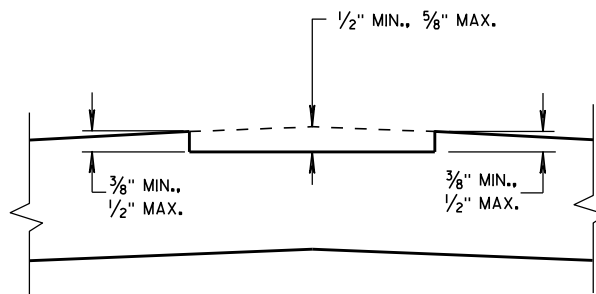
CENTER LINE GROOVES ON TWO-WAY ROADWAYS



PLAN VIEW
(SINGLE GROOVE)



SECTION B-B
SUPERELEVATED ROADWAY

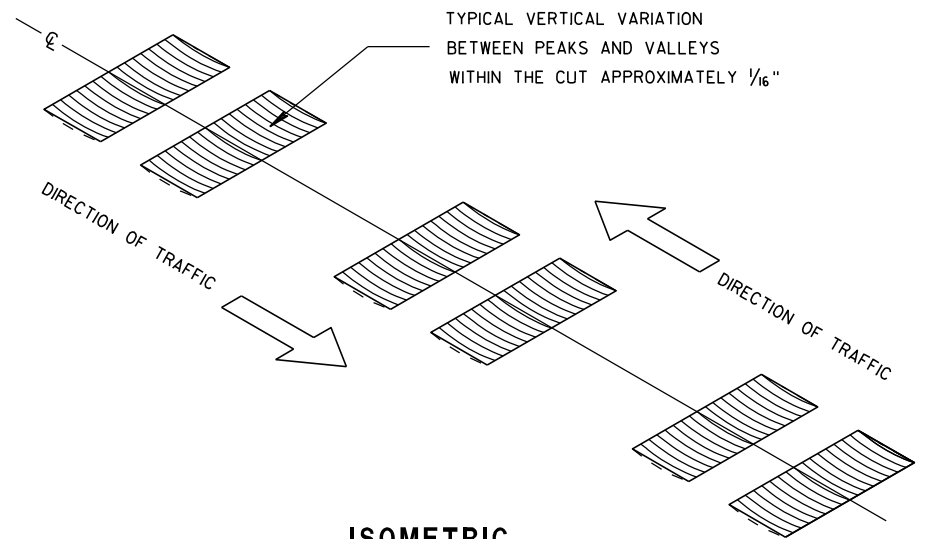


SECTION B-B
CROWNED ROADWAY

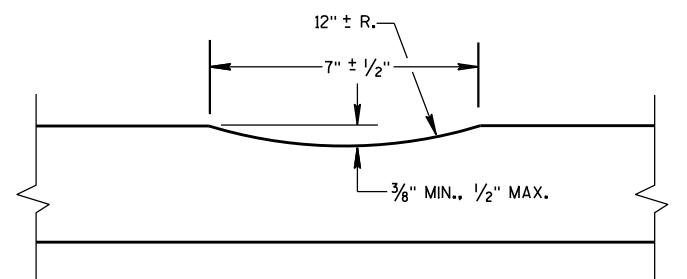
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.
DO NOT MILL CENTER LINE GROOVES THROUGH ANY INTERSECTION, MARKED CROSSWALK, NON-MOTORIZED PATH CROSSING, OR SNOWMOBILE CROSSING.
INSTALL PAVEMENT MARKING AFTER THE GROOVES ARE INSTALLED.
SEE SIGNING PLAN FOR SIGN REQUIREMENTS THAT MAY BE NEEDED.

- ① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



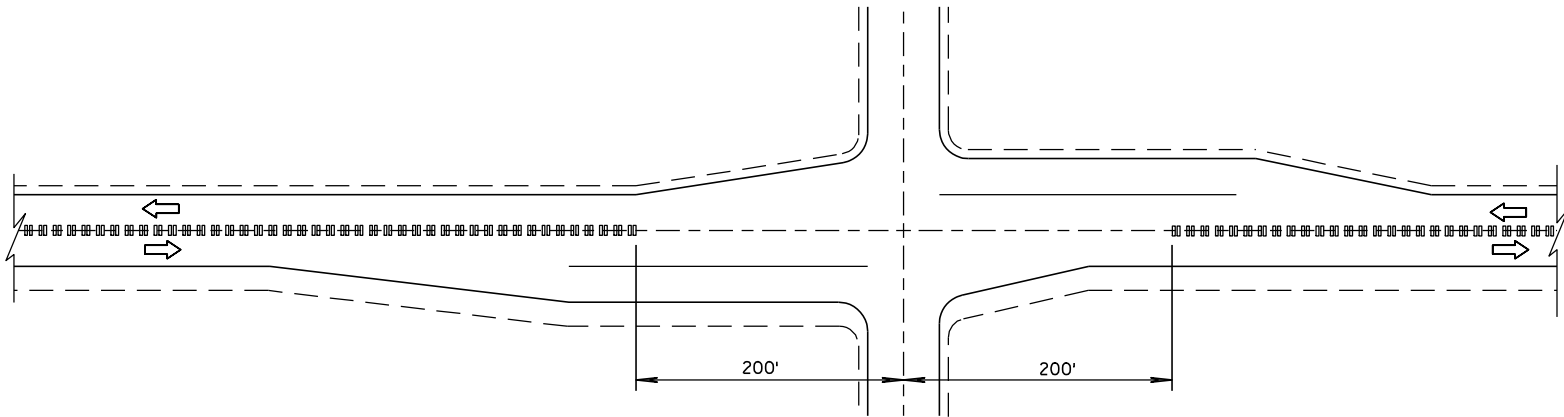
ISOMETRIC



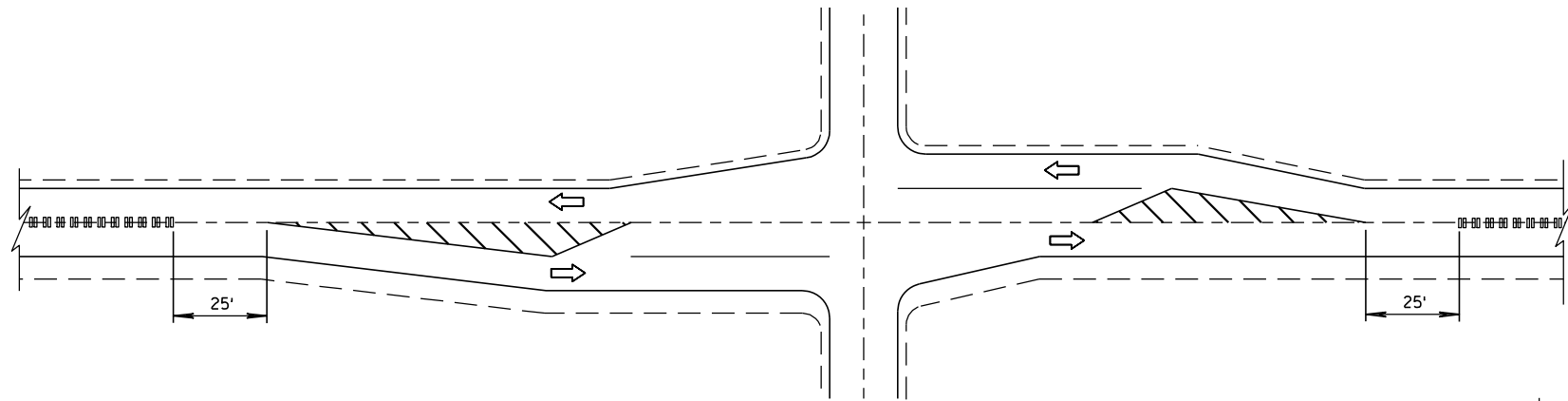
SECTION A-A

2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

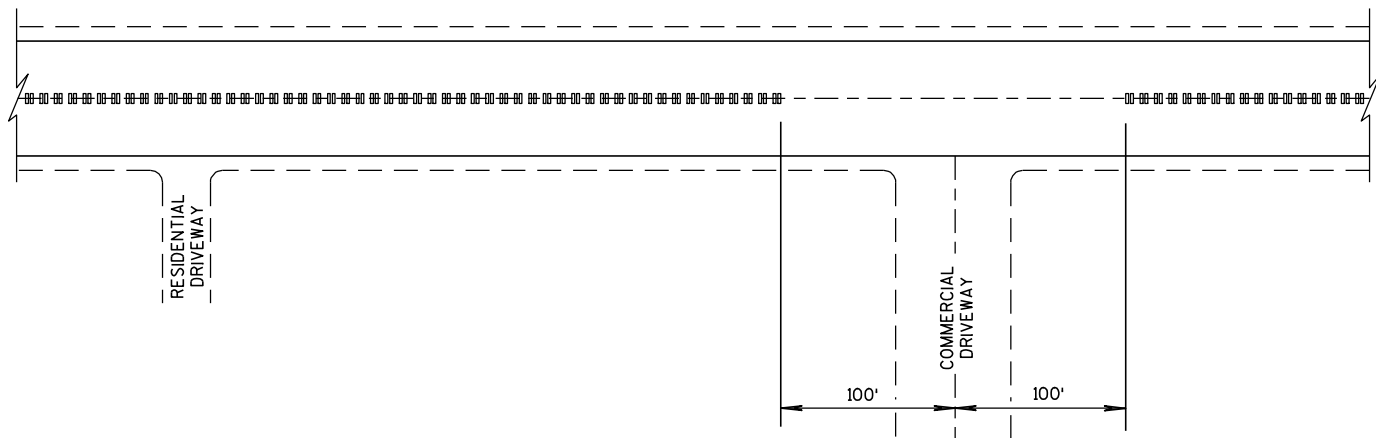
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



CENTER LINE GROOVES AT INTERSECTIONS

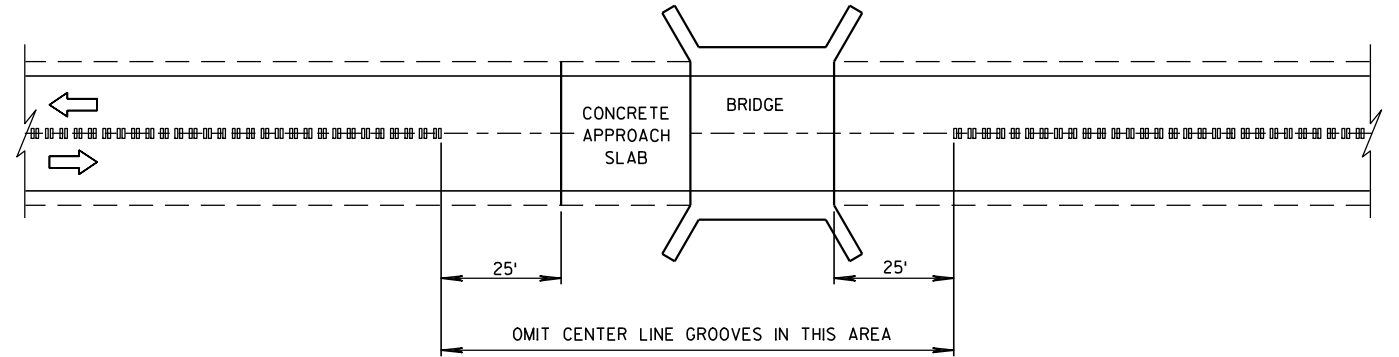


CENTER LINE GROOVES AT INTERSECTIONS
(WITH LEFT TURN LANES)

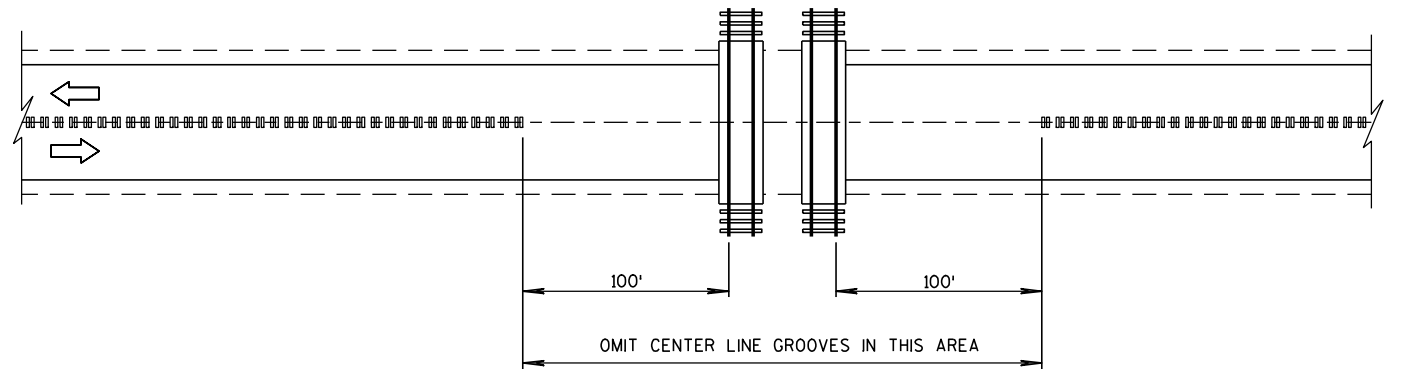


CENTER LINE GROOVES AT DRIVEWAYS ^①

① CENTERLINE GROOVES MAY BE OMITTED IN AREAS WITH HIGH CONCENTRATIONS OF DRIVEWAYS, WHEN DIRECTED BY THE ENGINEER.



CENTER LINE GROOVES AT BRIDGES

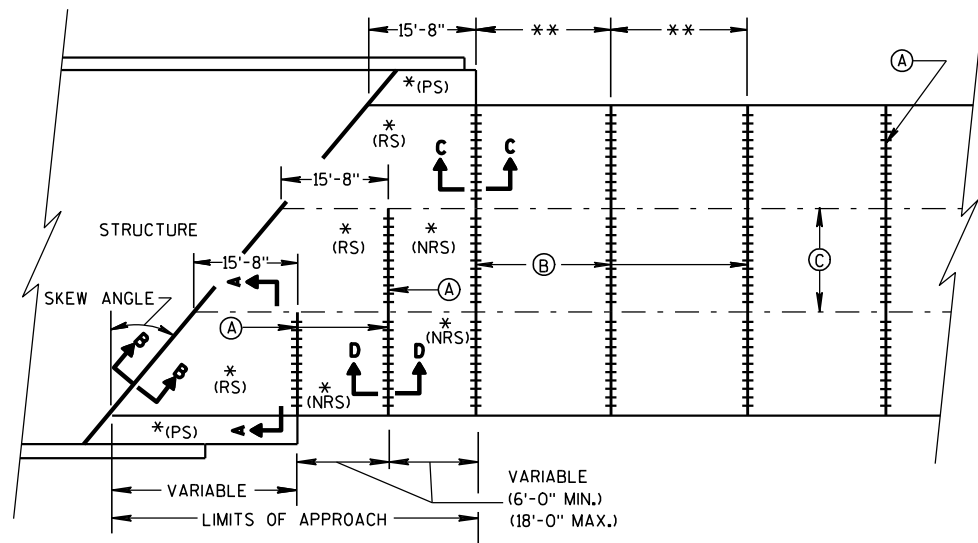


CENTER LINE GROOVES AT RAILROADS

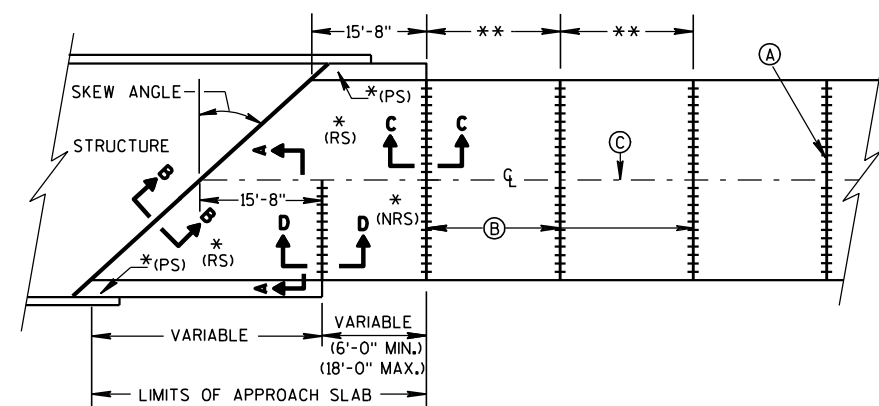
2-LANE RURAL
CENTER LINE RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

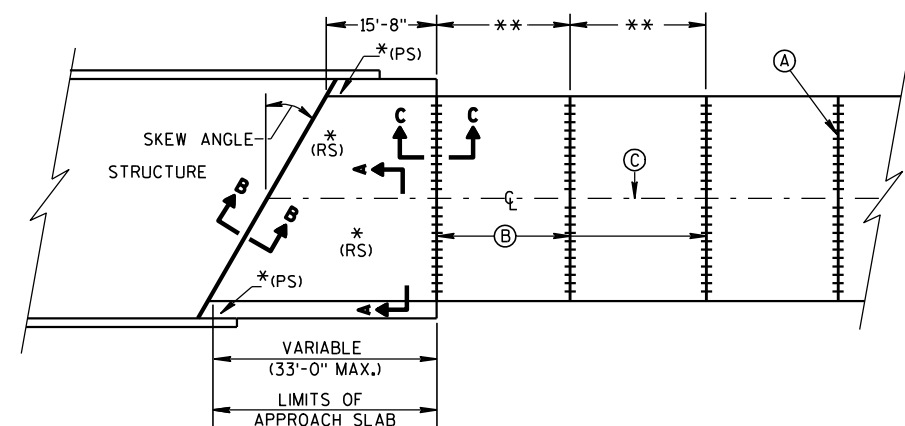
APPROVED
8/28/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



**SKewed APPROACH
(PAVEMENT MORE THAN 2 LANES)**

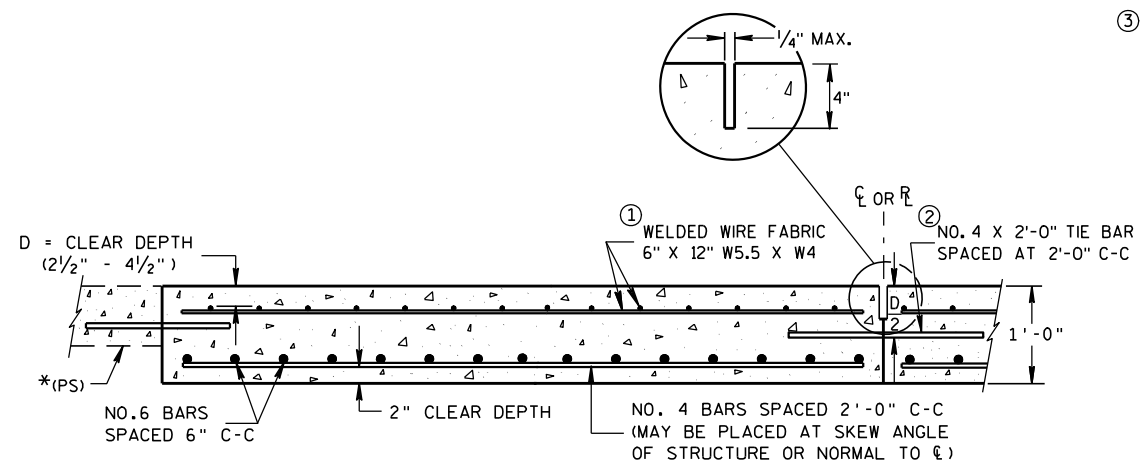


**SKEWS > 30°
(PAVEMENT WIDTH ≤ 30')**

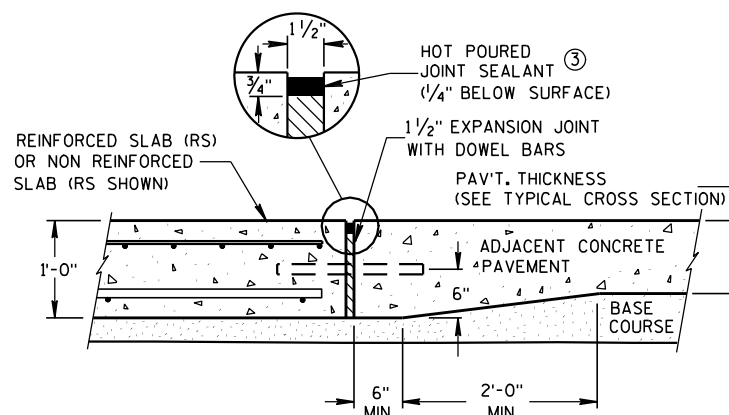


**SKEWS ≤ 30°
(PAVEMENT WIDTH ≤ 30')
APPROACH SLAB AND ADJACENT PAVEMENT**

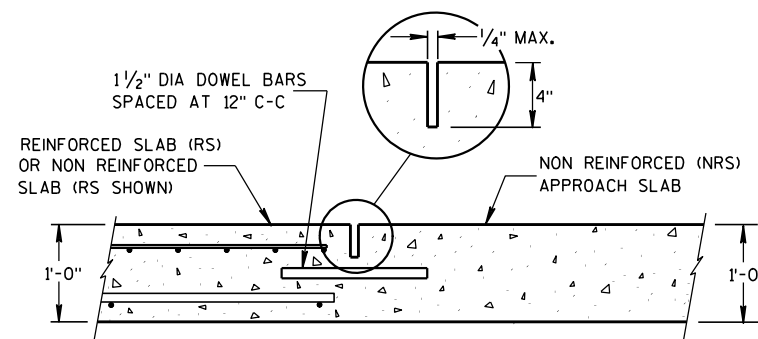
- * (RS) = REINFORCED CONCRETE SLAB
 * (PS) = PAVED CONCRETE SHOULDER: CONCRETE PAVEMENT, OR CONCRETE SURFACE DRAIN
 (SEE DETAILS ELSEWHERE IN THE PLAN)
 * (NRS) = NON-REINFORCED CONCRETE SLAB
 ** STANDARD TRANSVERSE JOINT SPACING
 (SEE SDD 13C4, SDD 13C11, & SDD 13C13)
 (A) STANDARD CONTRACTION JOINT NORMAL TO R_L OR R_C
 (B) 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO R_L OR R_C
 (C) STANDARD LONGITUDINAL JOINT AND TIE BARS.



**SECTION A-A
REINFORCEMENT POSITIONING DETAIL**



**SECTION C-C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**



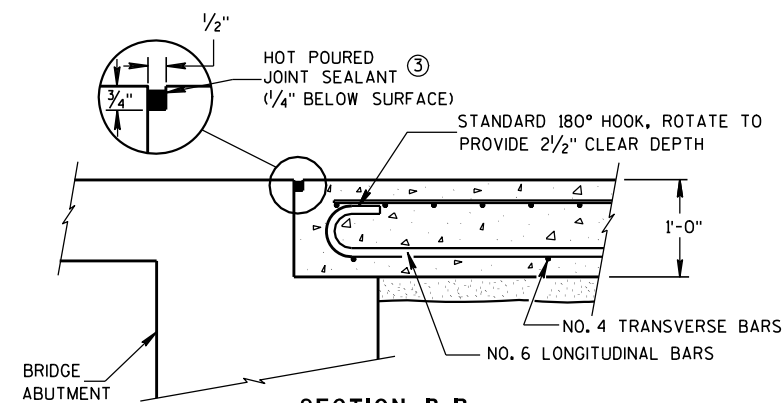
**SECTION D-D
CONTRACTION JOINT**

GENERAL NOTES

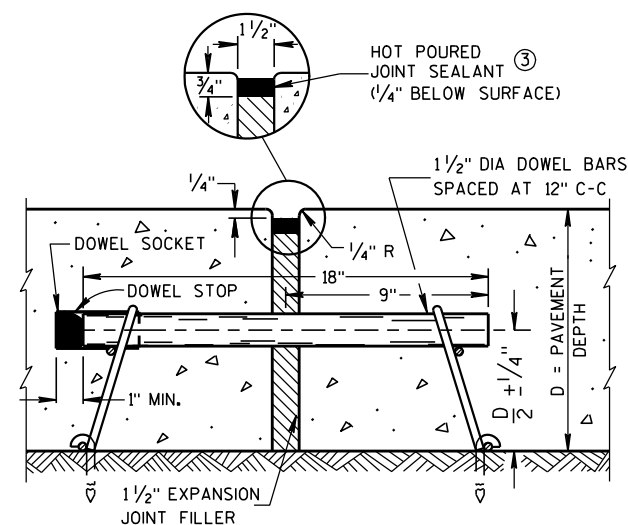
APPROACH SLABS ABUTTING AN HMA PAVEMENT OVER BASE COURSE DO NOT NEED TO BE DOWELED.

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

- THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2'-0" C-C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- THE CONTRACTOR MAY OMIT TIE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- USE A JOINT SEALANT MEETING THE REQUIREMENTS OF ASTM D6690.



**SECTION B-B
BEND DETAIL
BOTTOM REINFORCEMENT**



EXPANSION JOINT

CONCRETE PAVEMENT APPROACH SLAB

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/11/2009

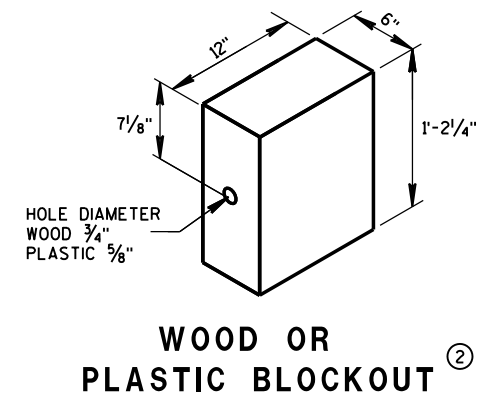
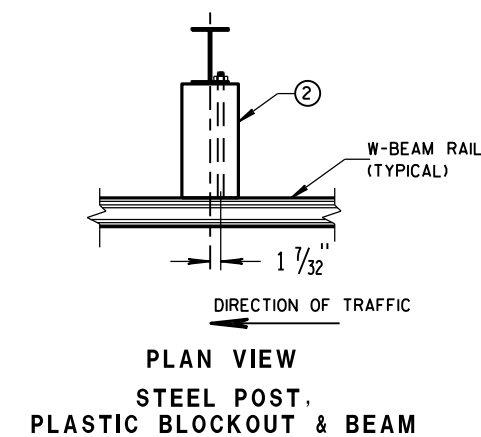
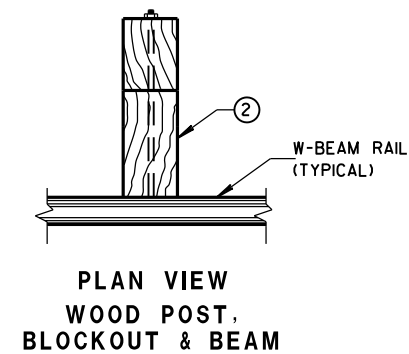
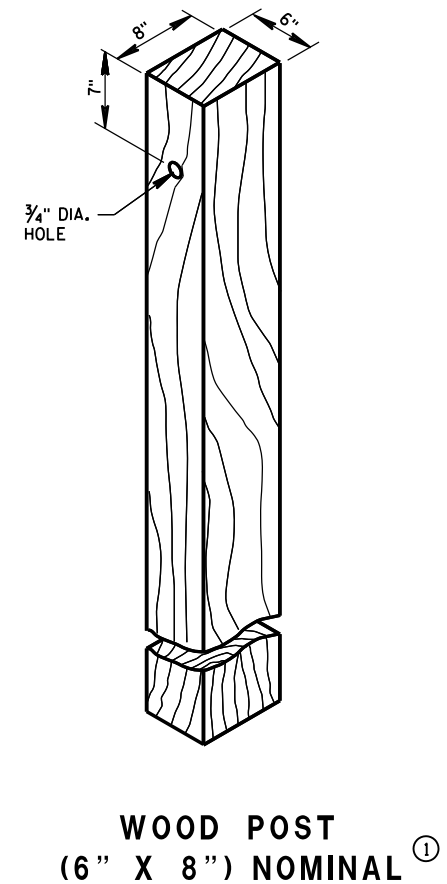
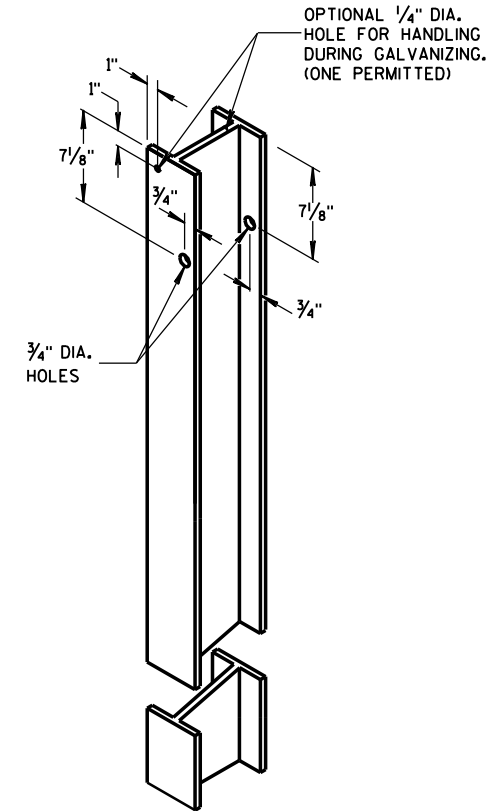
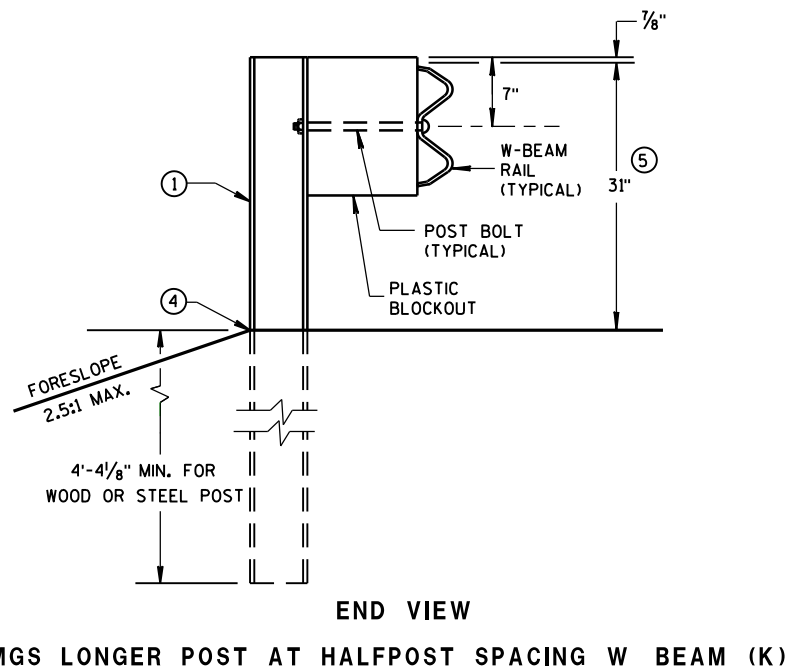
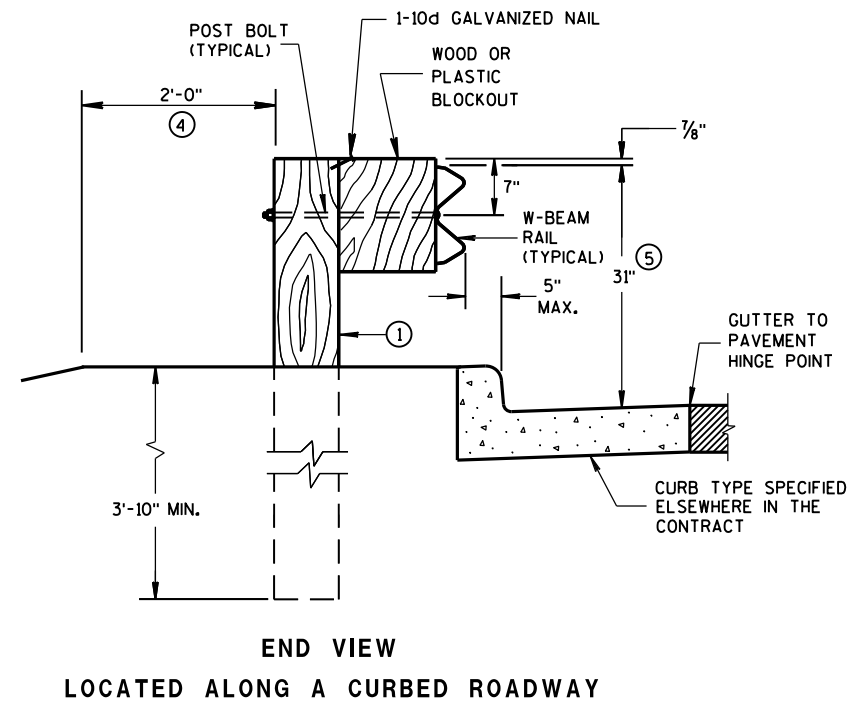
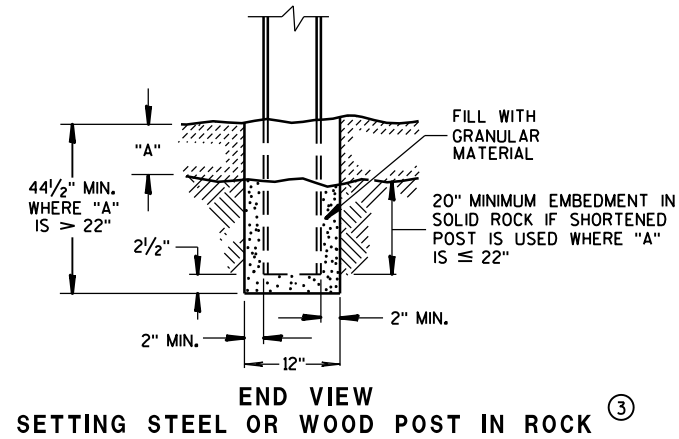
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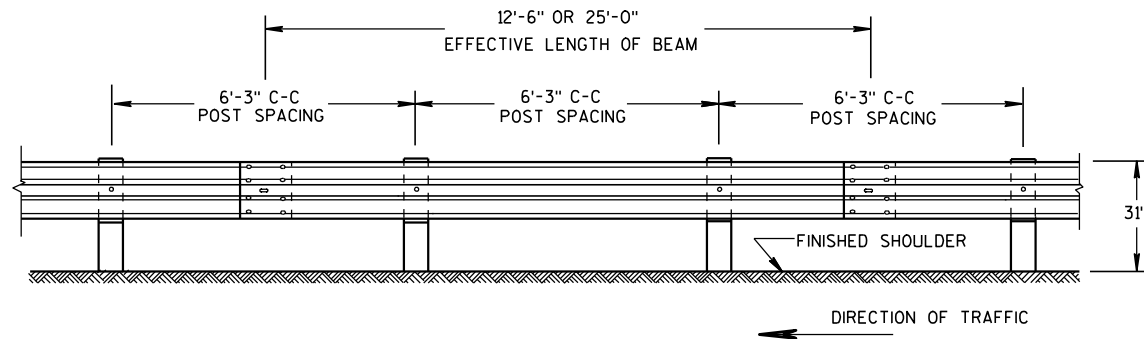
FHWA

/S/ Deb Bischoff
PAVEMENT POLICY & DESIGN ENGINEER

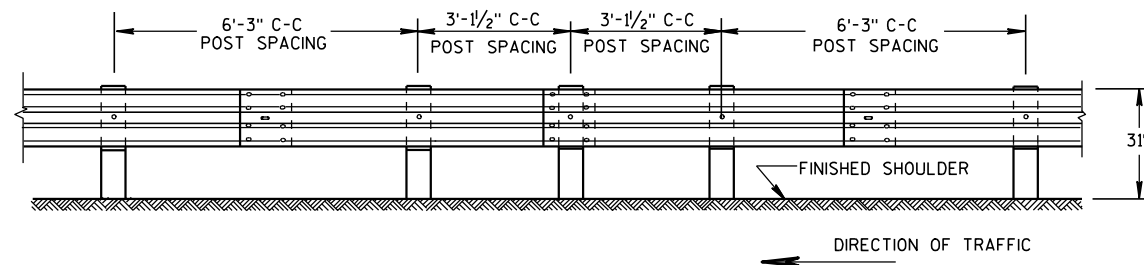
6

- S.D.D. 14 B 42-2a**

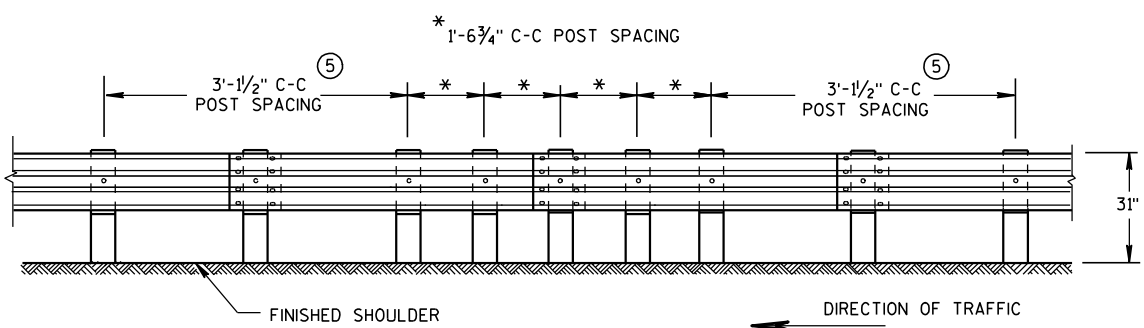




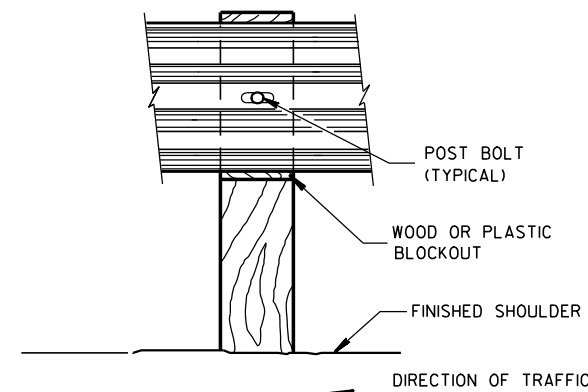
FRONT VIEW
POST SPACING STANDARD INSTALLATION



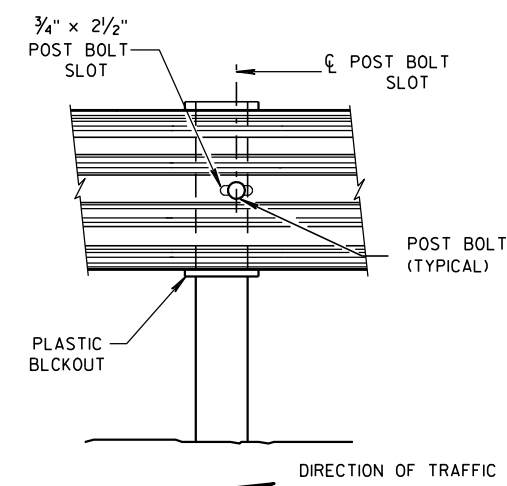
FRONT VIEW
**HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



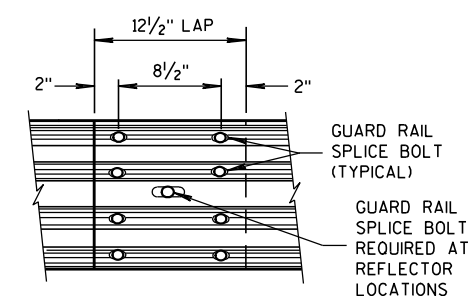
FRONT VIEW
QUARTER POST SPACING (QS)



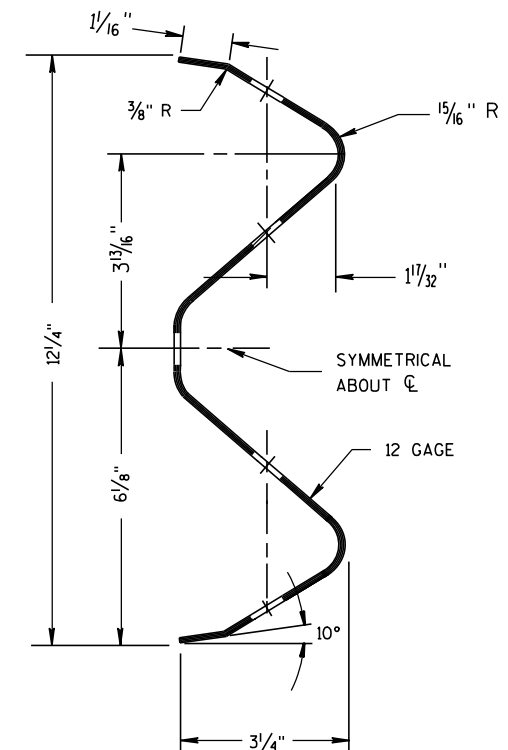
FRONT VIEW AT WOOD POST



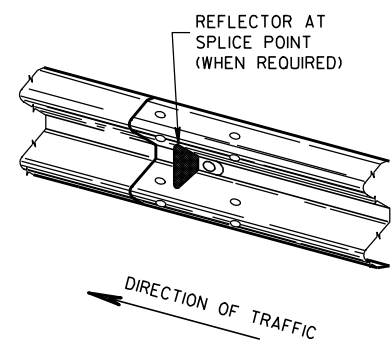
FRONT VIEW AT STEEL POST



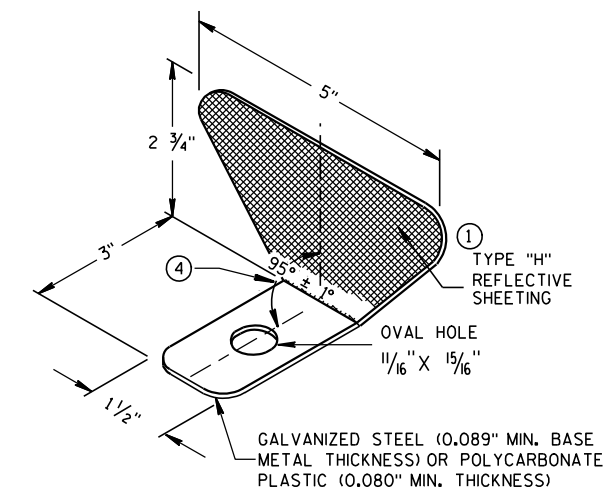
**FRONT VIEW
MID-SPAN BEAM SPLICE**



SECTION THRU W-BEAM RAIL



ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION



GENERAL NOTES

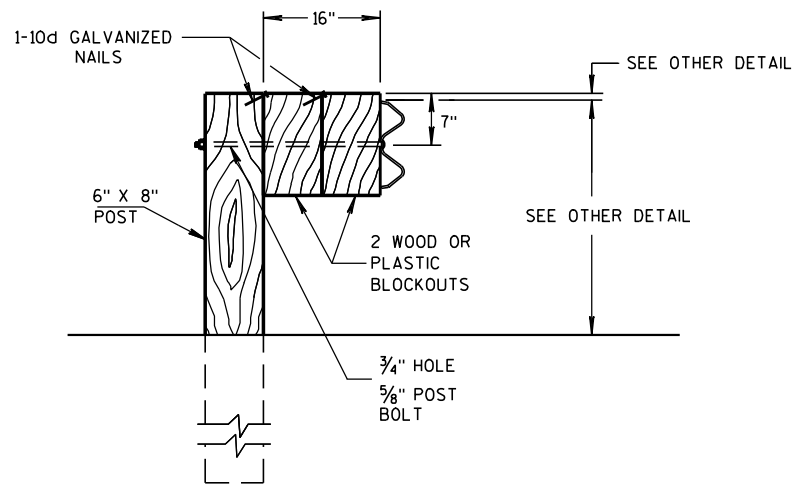
- ① PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
 - ② DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
 - ③ REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
 - ④ PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
 - ⑤ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.

REFLECTOR SPACING

	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200'	50' C-C	1	3
	> 200'	100' C-C	1	
TWO WAY TRAFFIC	< 200'	25' C-C	1 ③	6
	> 200'	50' C-C	1	
TWO WAY TRAFFIC	< 200'	50' C-C	2 ④	3
	> 200'	100' C-C	2	

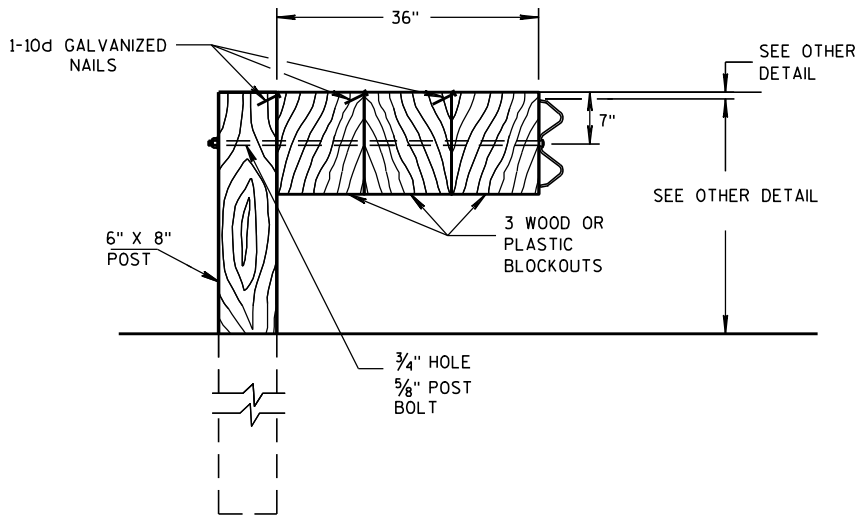
MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR 16" BLOCKOUT DEPTH

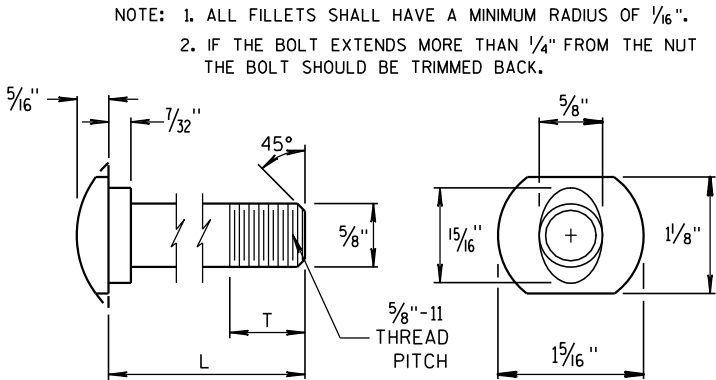
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



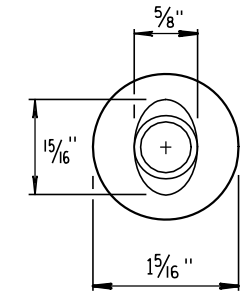
DETAIL FOR 36" BLOCKOUT DEPTH

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.

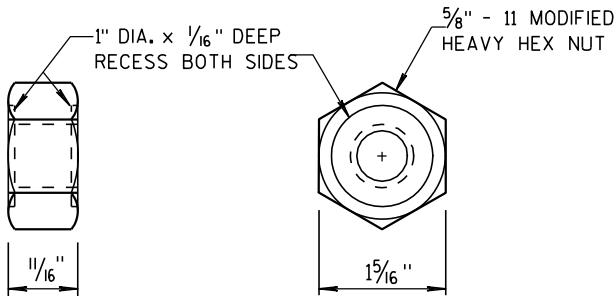
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



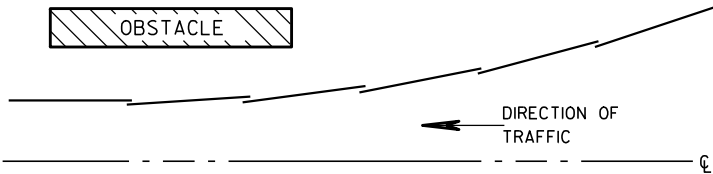
POST BOLT TABLE



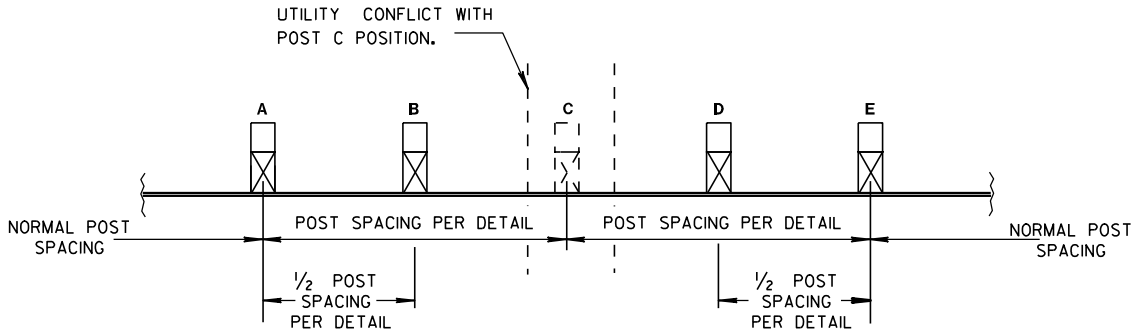
ALTERNATE BOLT HEAD



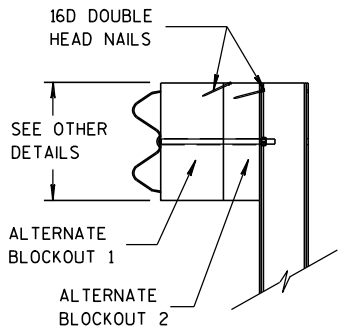
POST BOLT AND RECESS NUT



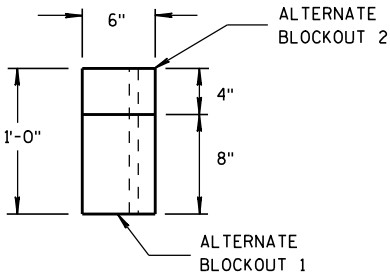
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/15/2011
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE EXTENDED VEHICLE RUNOUT PATH (EVRP), THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.
- (F) 1/2" DIAMETER X 3" LONG LAG BOLT AND WASHER.
- (H) HARDWARE VARIES BETWEEN DIFFERENT MANUFACTURES. SEE MANUFACTURE'S DRAWING FOR INFORMATION.
- (I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

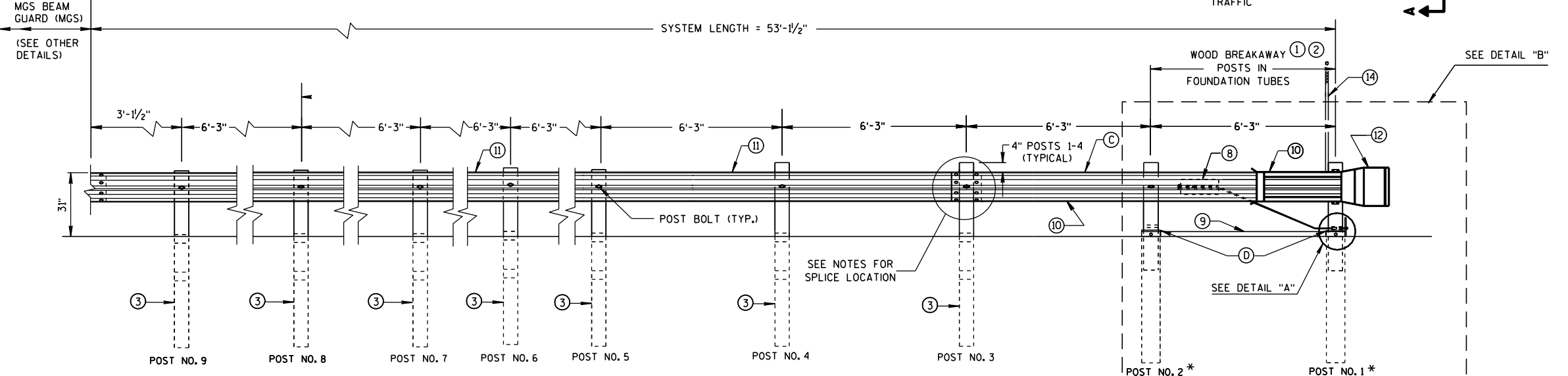
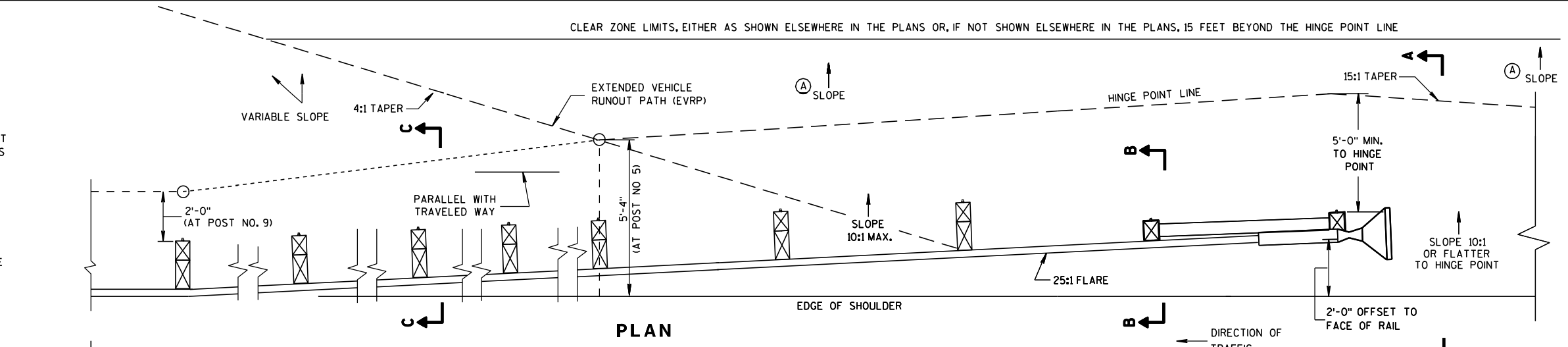
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

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

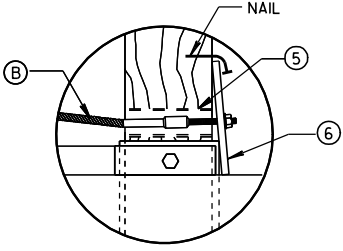
W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

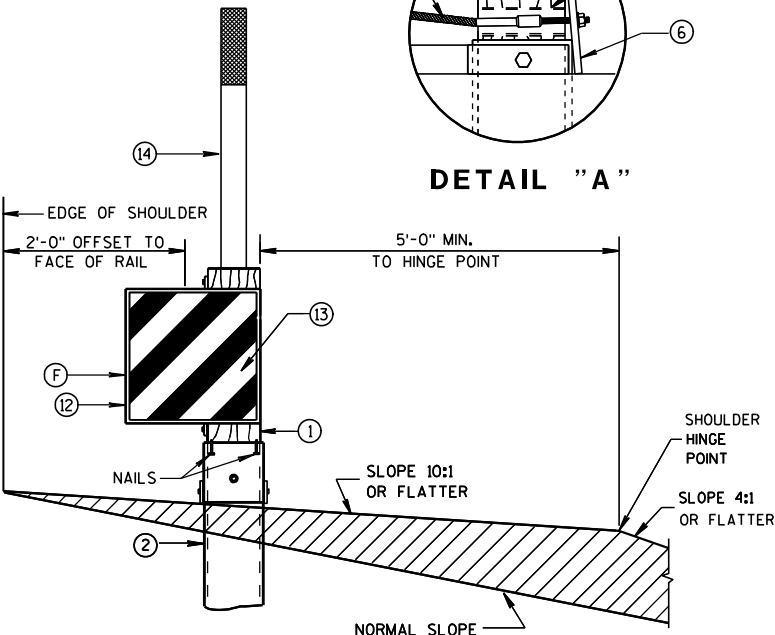
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE ($\pm \frac{3}{4}$ ")



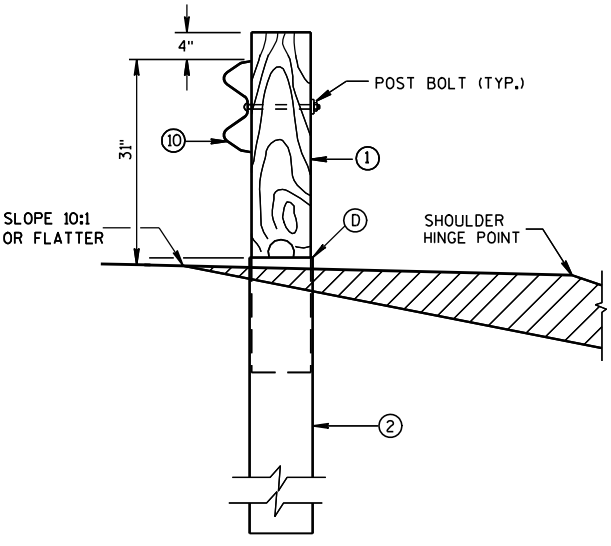
ELEVATION



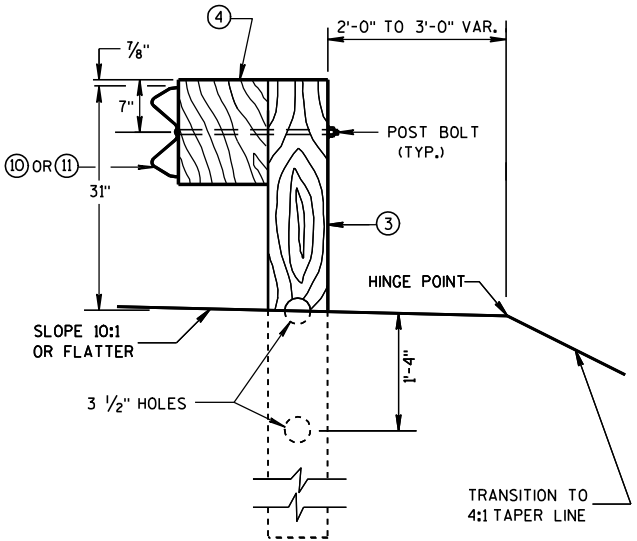
DETAIL "A"



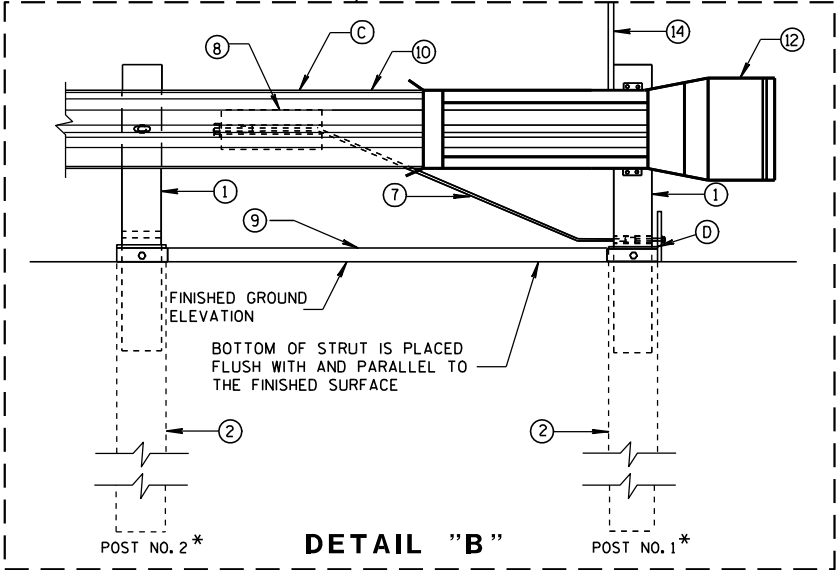
SECTION A-A
TYPICAL AT POST NO. 1*



SECTION B-B
TYPICAL AT POST NO. 2*



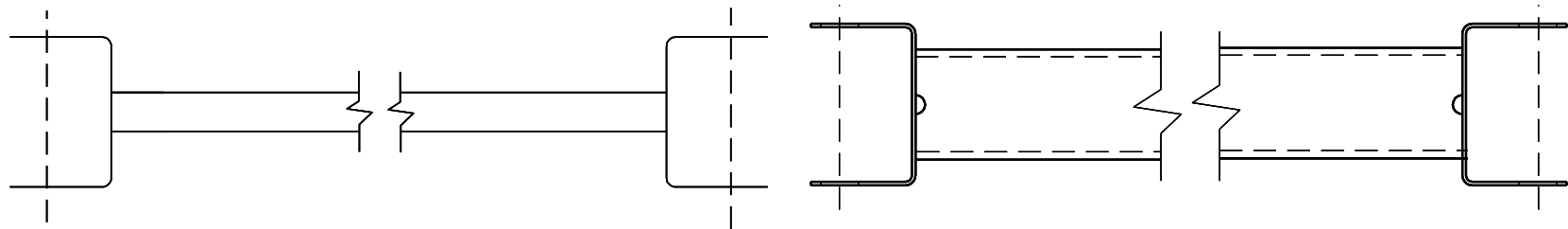
SECTION C-C
TYPICAL AT POST NOS. 3-9



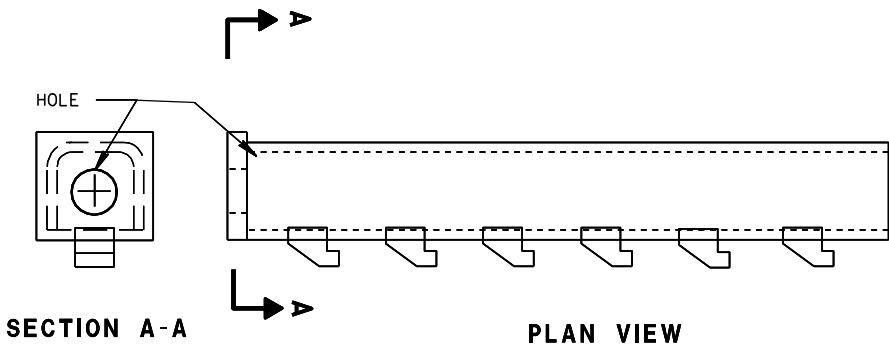
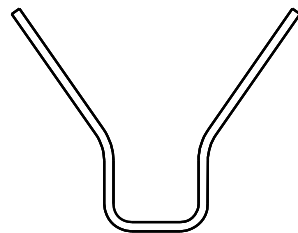
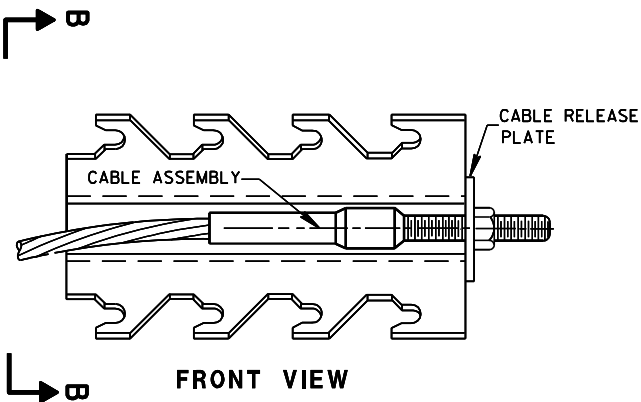
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



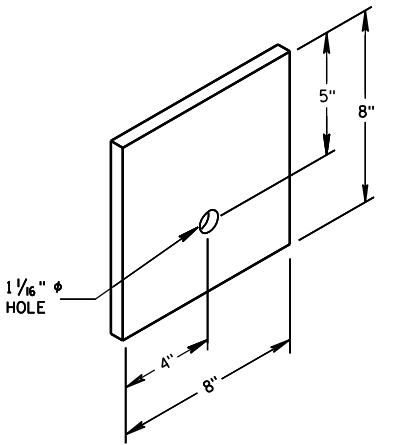
9 H
GENERIC GROUND STRUT



8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

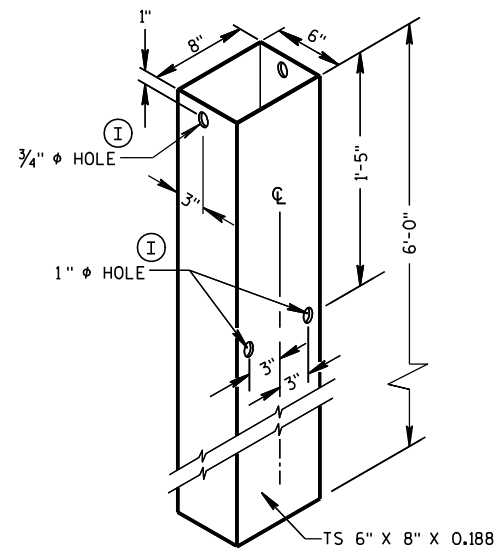
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
⑪	STANDARD W-BEAM RAIL, MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
⑫	END SECTION EAT
⑬	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



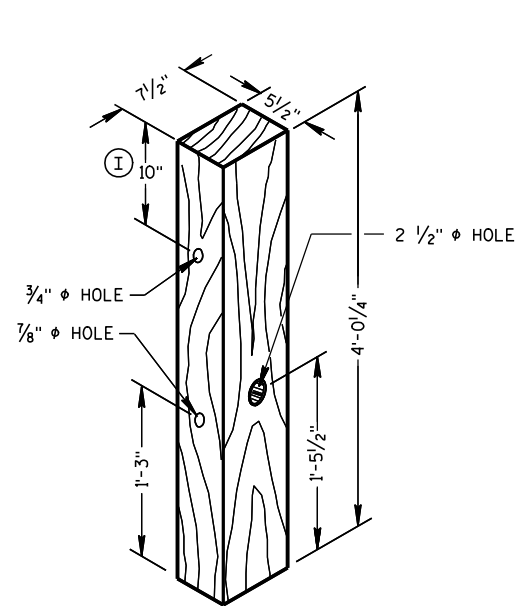
6
BEARING PLATE

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

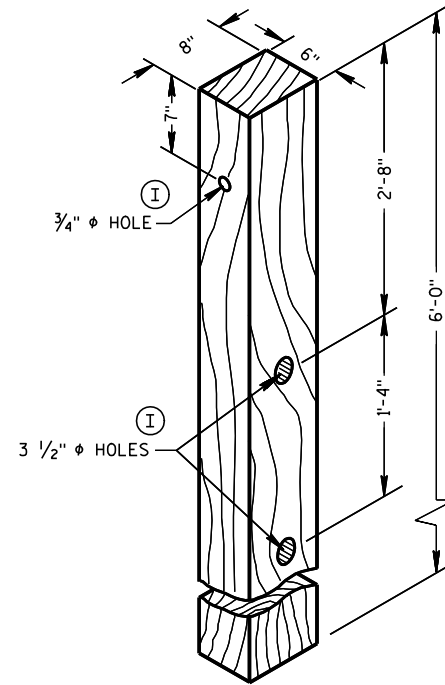
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



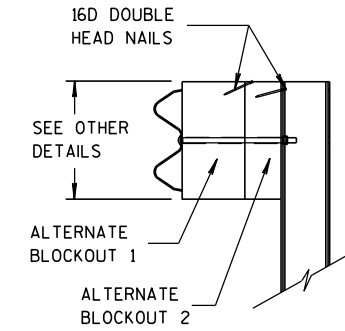
FOUNDATION TUBE ②



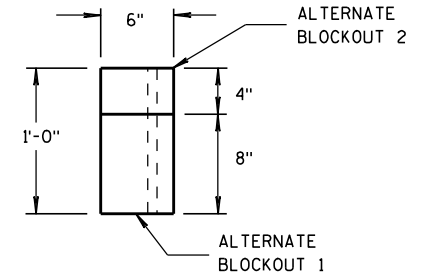
WOOD BREAKAWAY POST ①



WOOD CRT POST ③

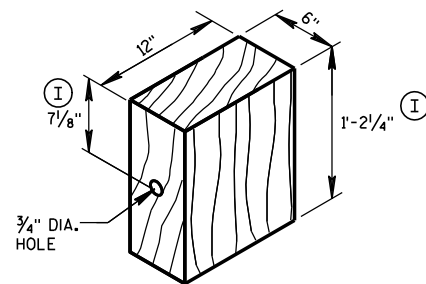


SIDE VIEW



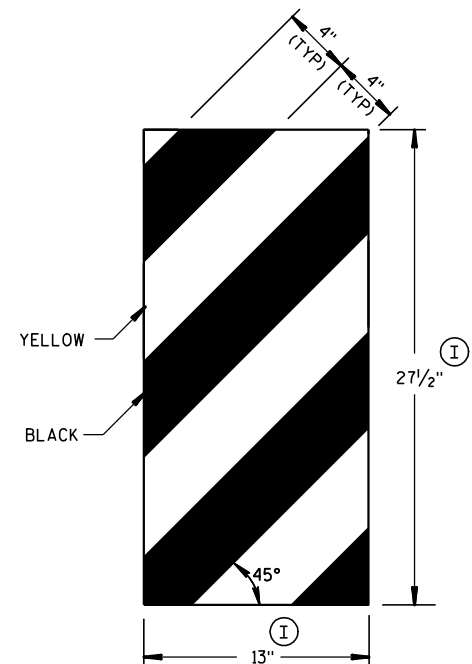
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

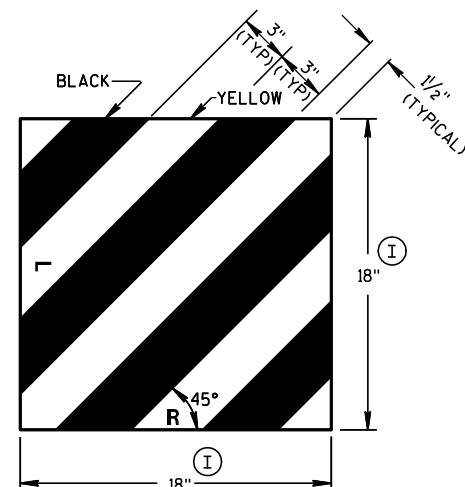


WOOD BLOCKOUT ④
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2

YELLOW REFLECTIVE TAPE
3" X 9" TYPE H
REFLECTIVE SHEETING



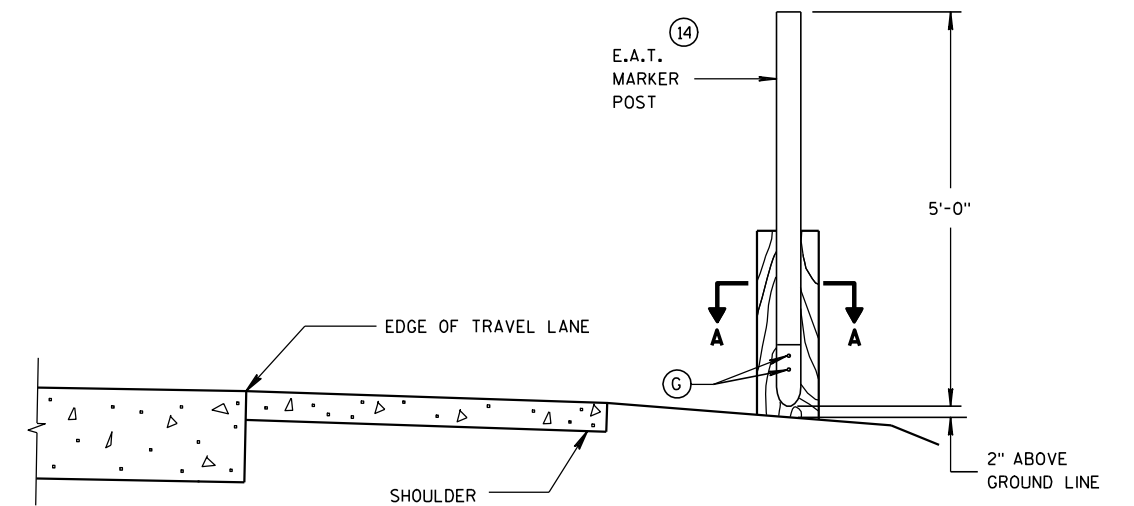
GENERIC REFLECTIVE SHEETING ⑬ ④



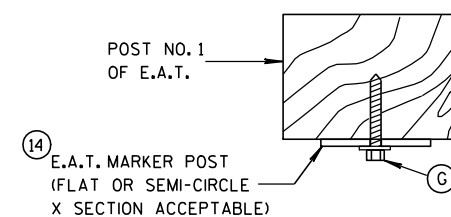
FRONT VIEW

SIDE VIEW

E.A.T. MARKER POST ⑭



TYPICAL INSTALLATION OF E.A.T.
MARKER POST BACKSIDE OF POST NO. 1
(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

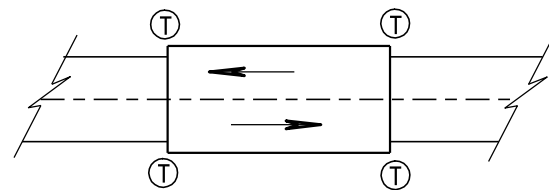
APPROVED

5/23/2011

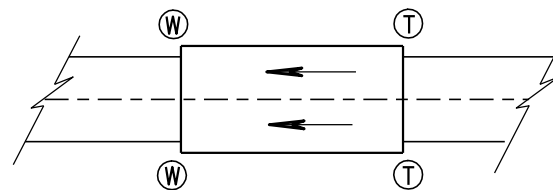
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TWO WAY TRAFFIC



ONE WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

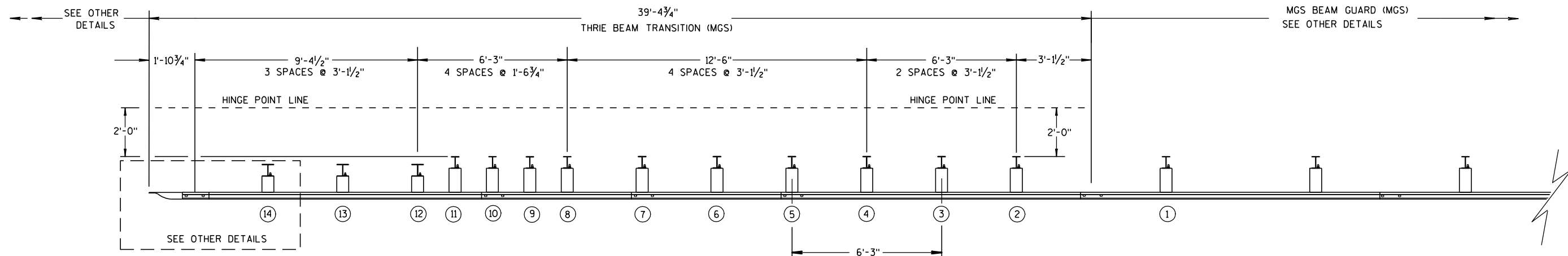
IF ROCK IS ENCOUNTERED DURING EXCAVATION, SEE STANDARD DETAIL DRAWING 14 B 42.

TRANSITION USES STEEL POSTS ONLY.

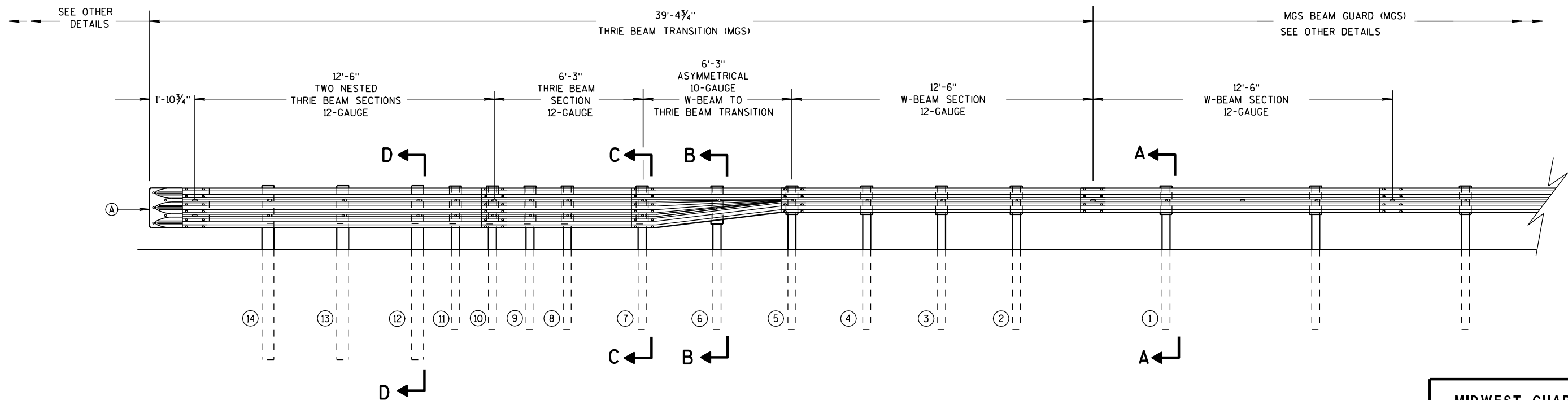
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

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



PLAN VIEW



ELEVATION VIEW

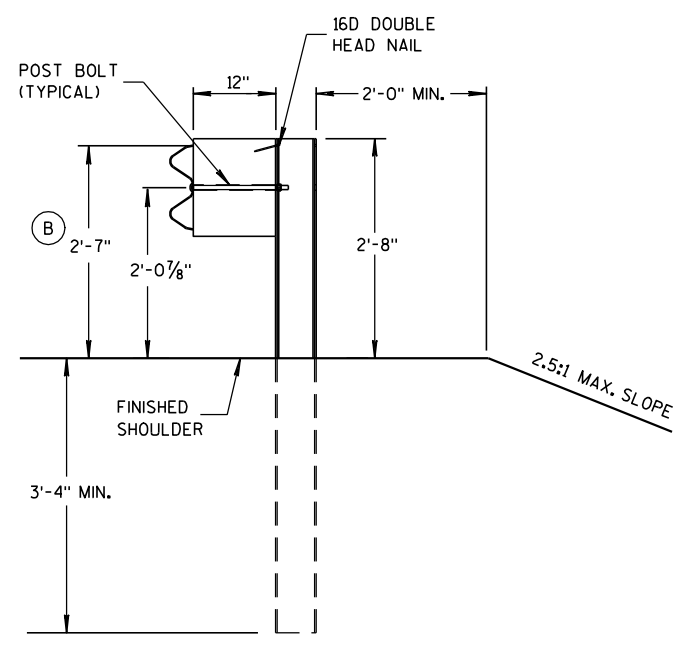
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

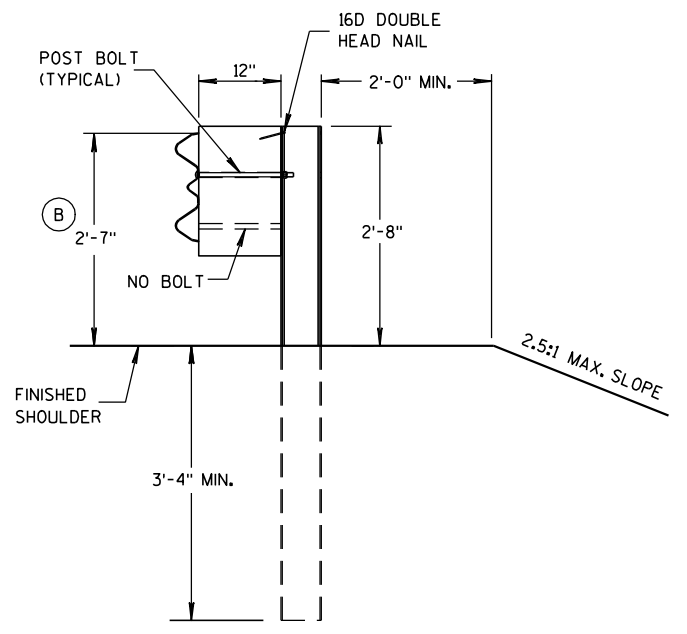
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

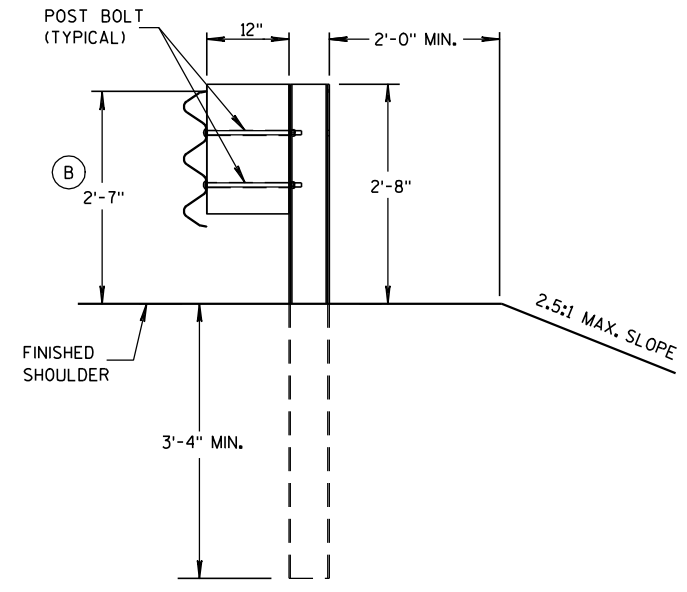
(B) TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



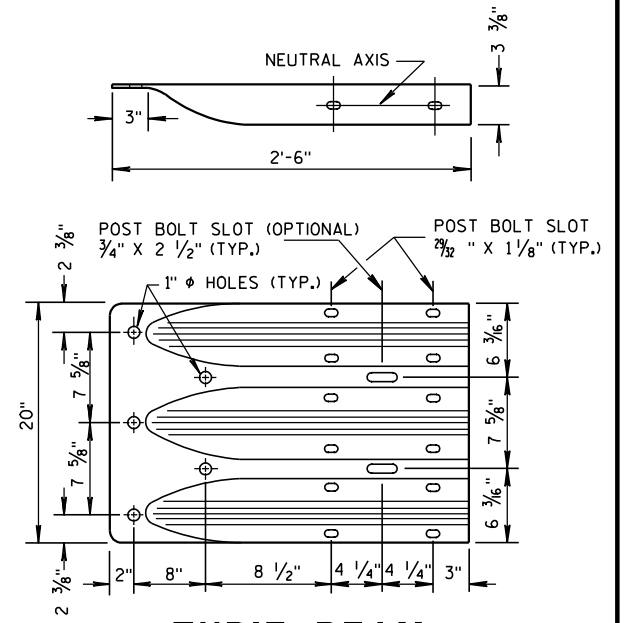
SECTION A-A
POSTS 1-5



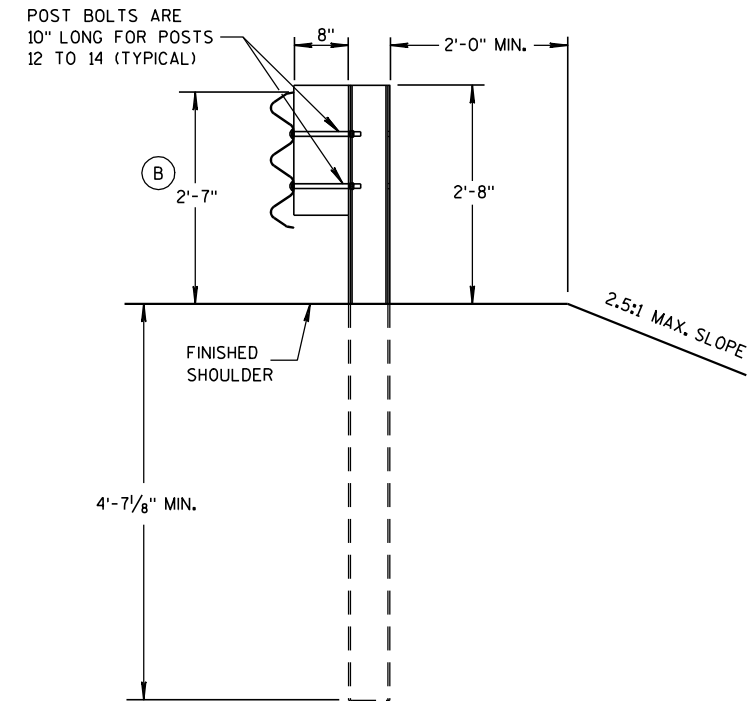
SECTION B-B
POST 6



SECTION C-C
POSTS 7-11



THRIE BEAM
TERMINAL CONNECTOR



SECTION D-D
POSTS 12-14

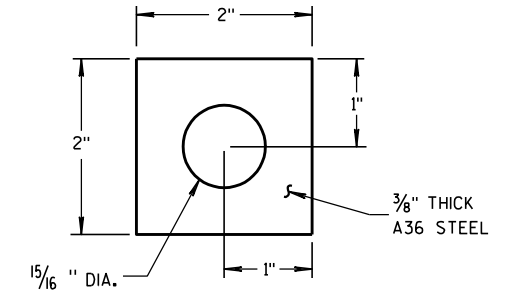
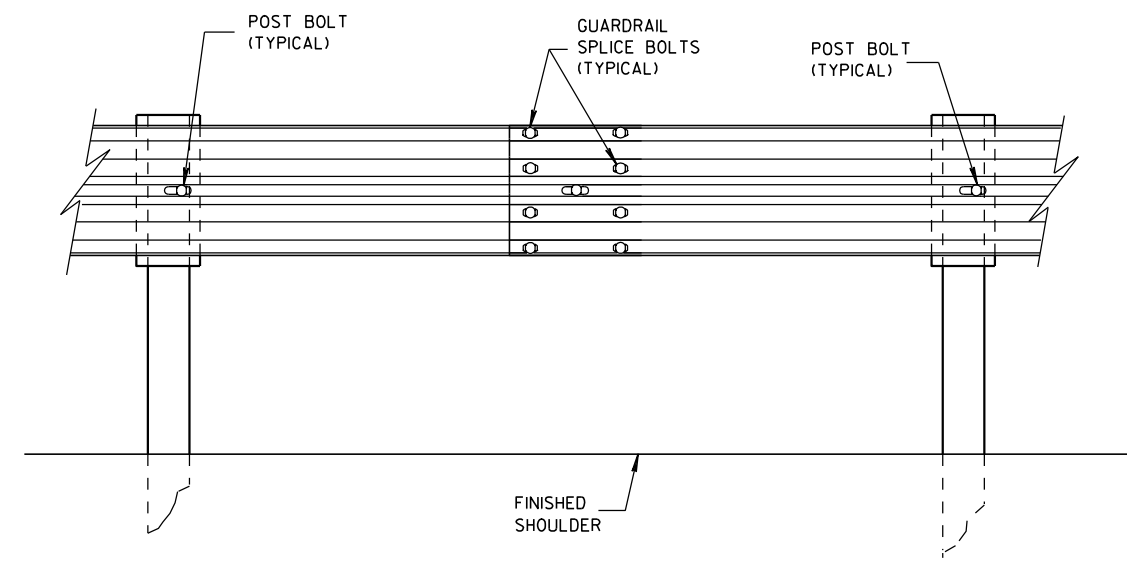
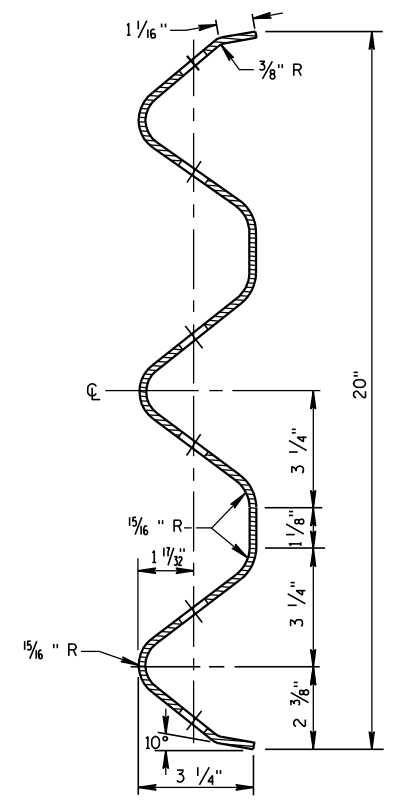


PLATE WASHER DETAIL



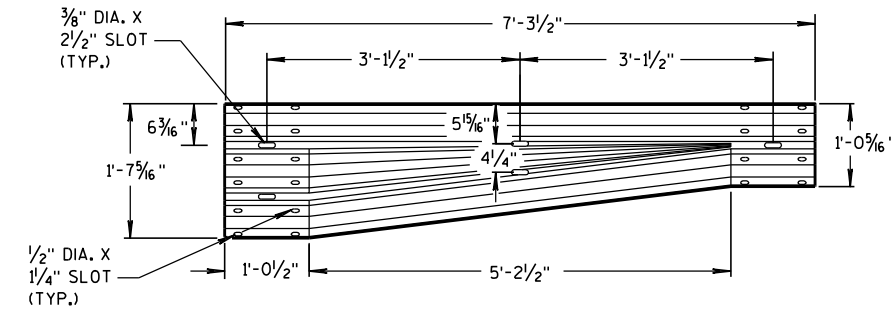
SPLICE DETAIL



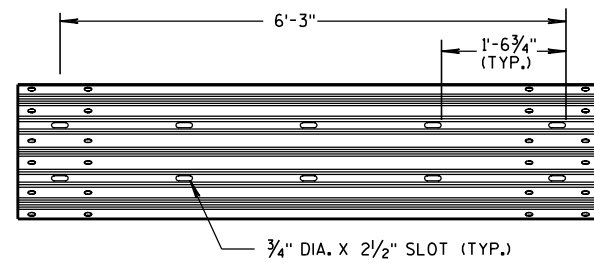
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

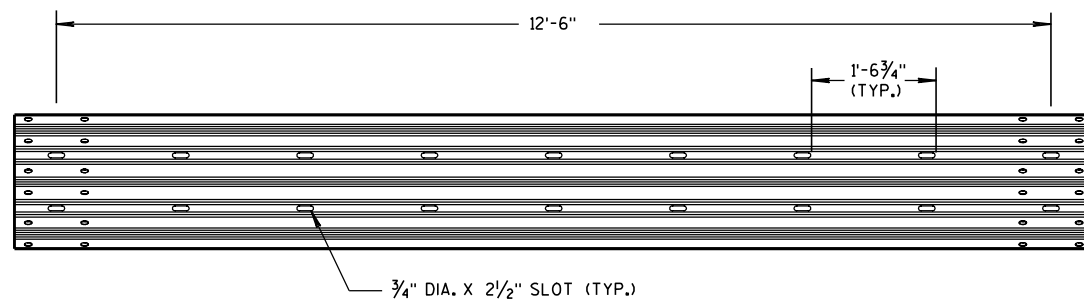
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



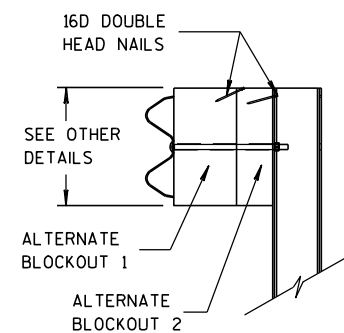
W-BEAM TO THRIE BEAM TRANSITION SECTION



6'-3" THRIE BEAM SECTION

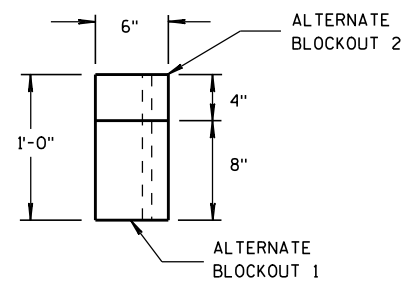


12'-6" THRIE BEAM SECTION

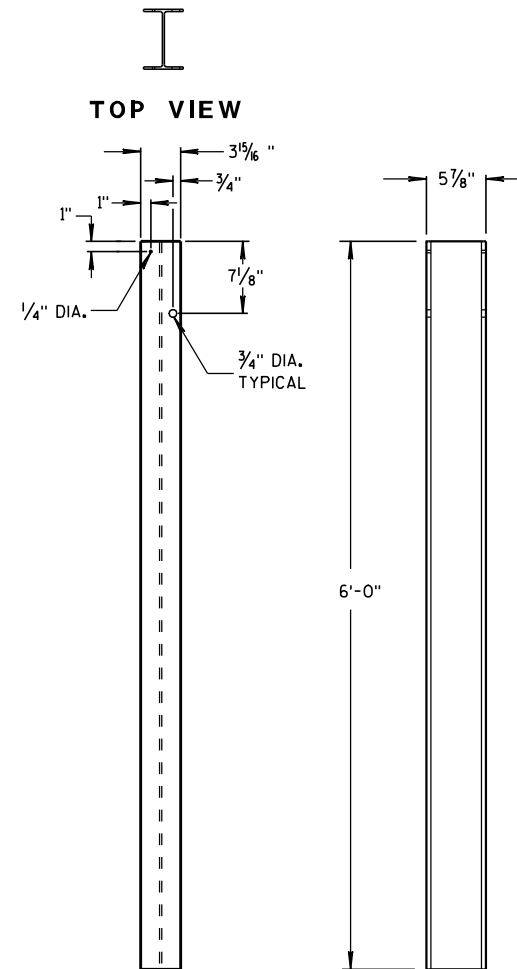


SIDE VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL



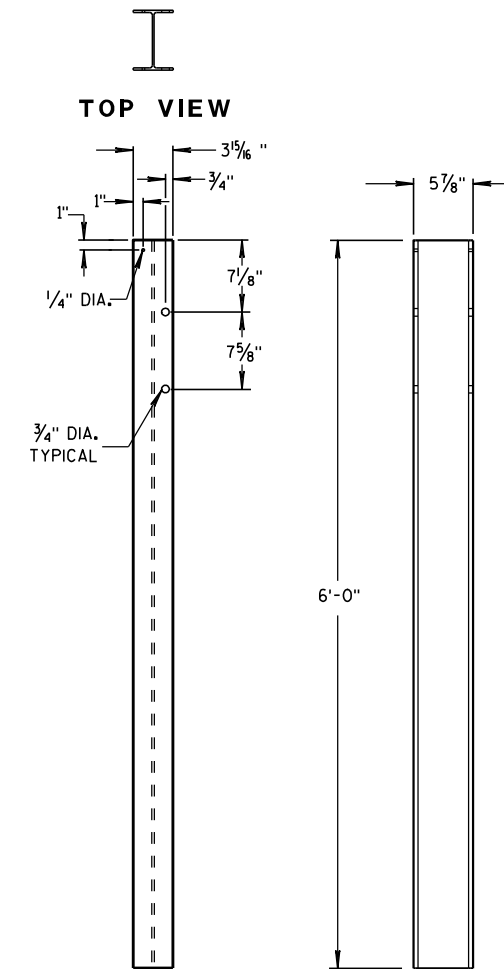
TOP VIEW



FRONT VIEW

SIDE VIEW

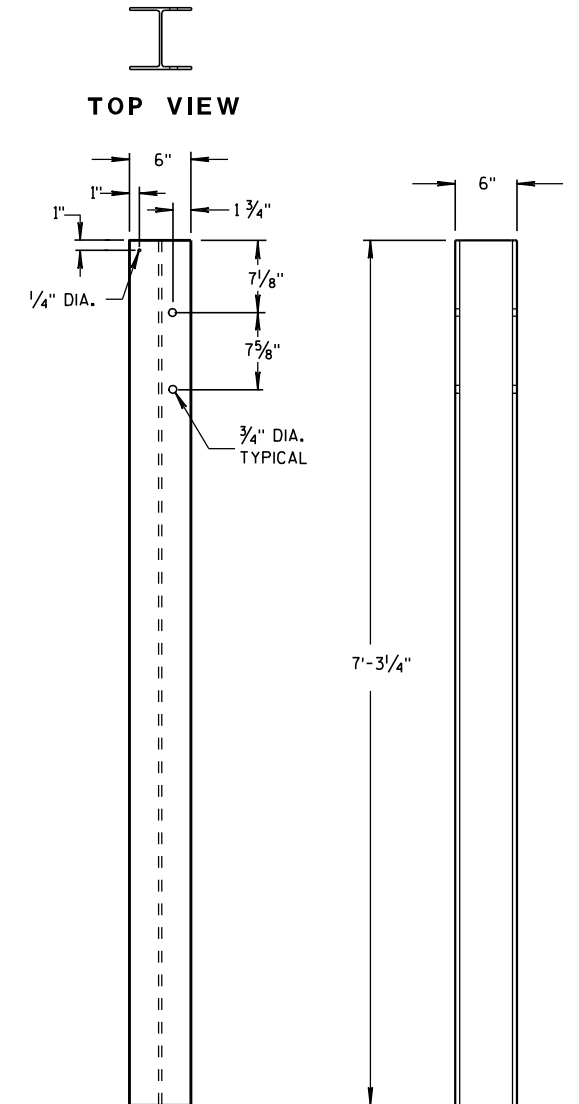
STEEL POSTS 1-5



FRONT VIEW

SIDE VIEW

STEEL POSTS 6-11

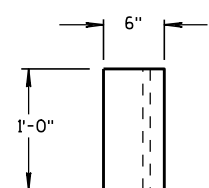


FRONT VIEW

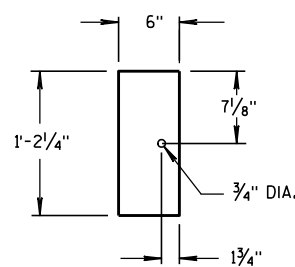
SIDE VIEW

STEEL POSTS 12-14

① WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.

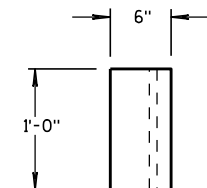


TOP VIEW

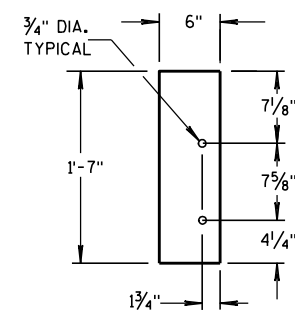


FRONT VIEW

BLOCKOUT
POSTS 1-5

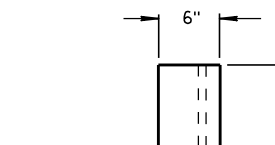


TOP VIEW

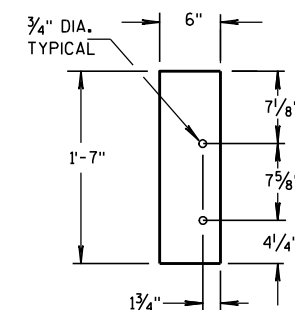


FRONT VIEW

BLOCKOUT
POSTS 6-11



TOP VIEW



FRONT VIEW

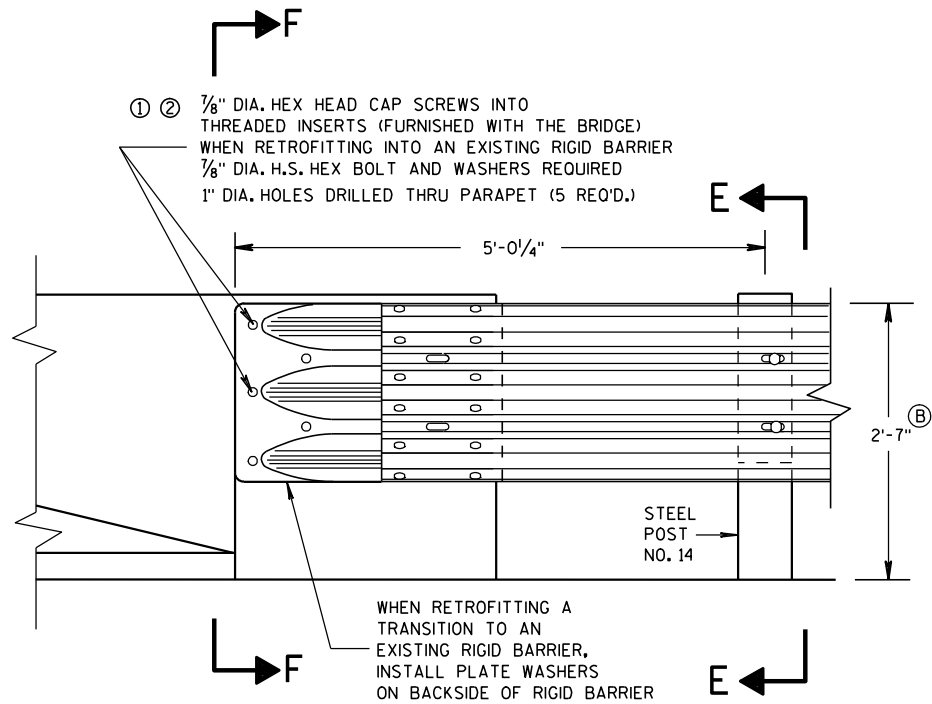
BLOCKOUT
POSTS 12-14

STEEL POST SIZES

POST NUMBER	SECTION TYPE	LENGTH
①	W6x9	72"
②	W6x9	72"
③	W6x9	72"
④	W6x9	72"
⑤	W6x9	72"
⑥	W6x9	72"
⑦	W6x9	72"
⑧	W6x9	72"
⑨	W6x9	72"
⑩	W6x9	72"
⑪	W6x9	72"
⑫	W6x15	87 7/8"
⑬	W6x15	87 7/8"
⑭	W6x15	87 7/8"

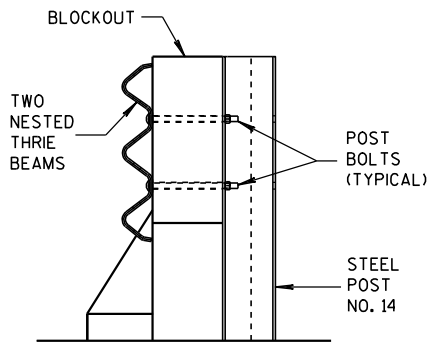
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS

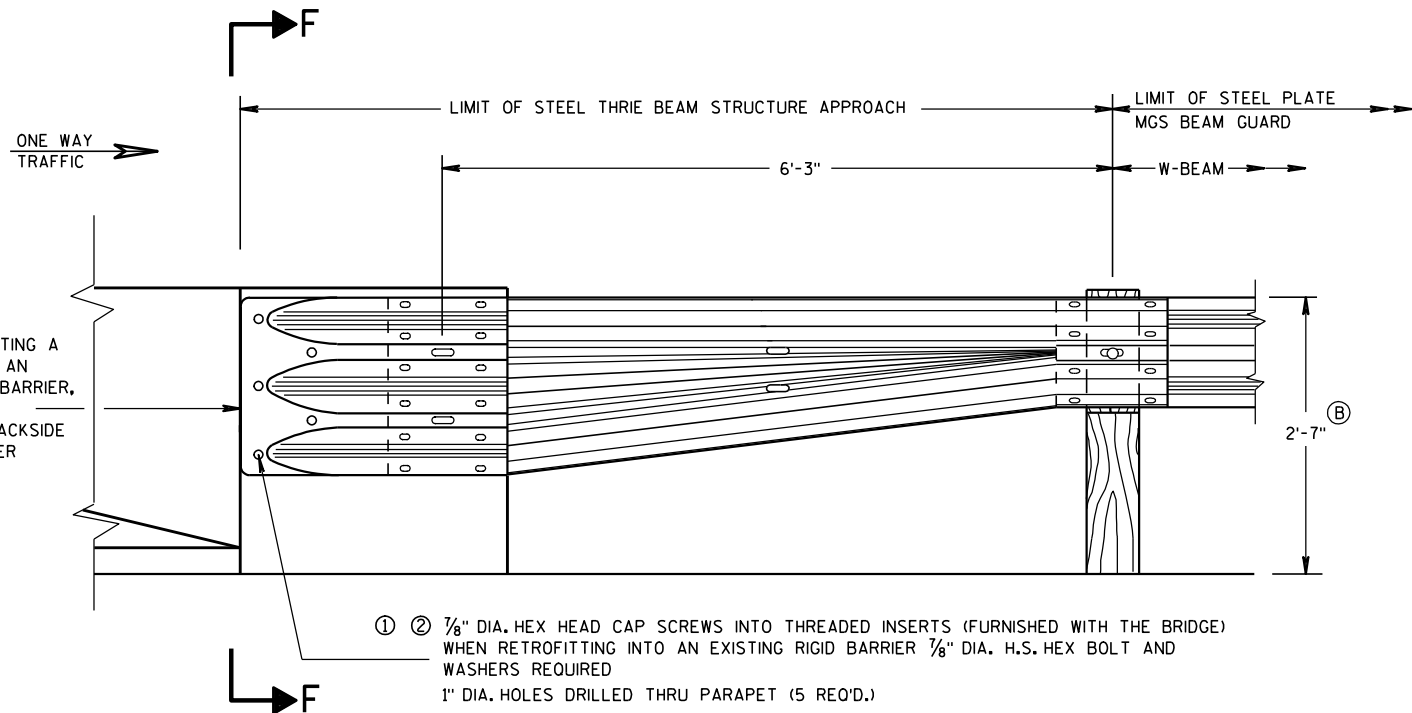


SECTION E-E

GENERAL NOTES

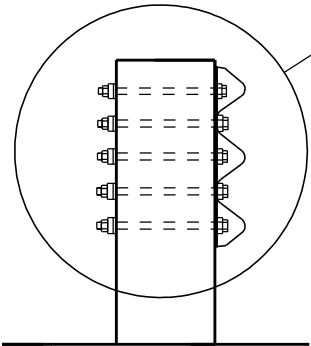
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ① INCLUDE THE PAYMENT FOR DRILLING BOLT HOLES THROUGH THE PARAPET, AND ALL BOLTS, NUTS AND WASHERS IN THE ITEM "STEEL THRIE BEAMSTRUCTURAL APPROACH".
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM. CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ 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".
- (B) TOLERANCE FOR TOP OF BEAM IS ± 1".

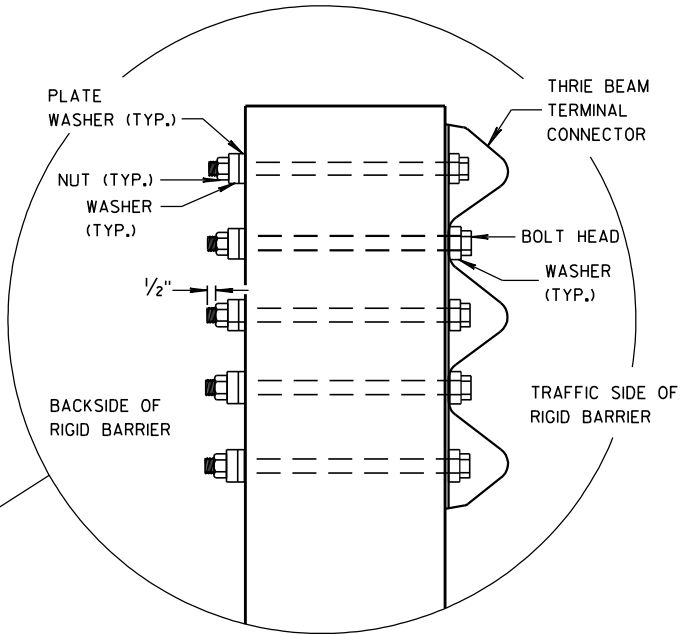


FRONT VIEW

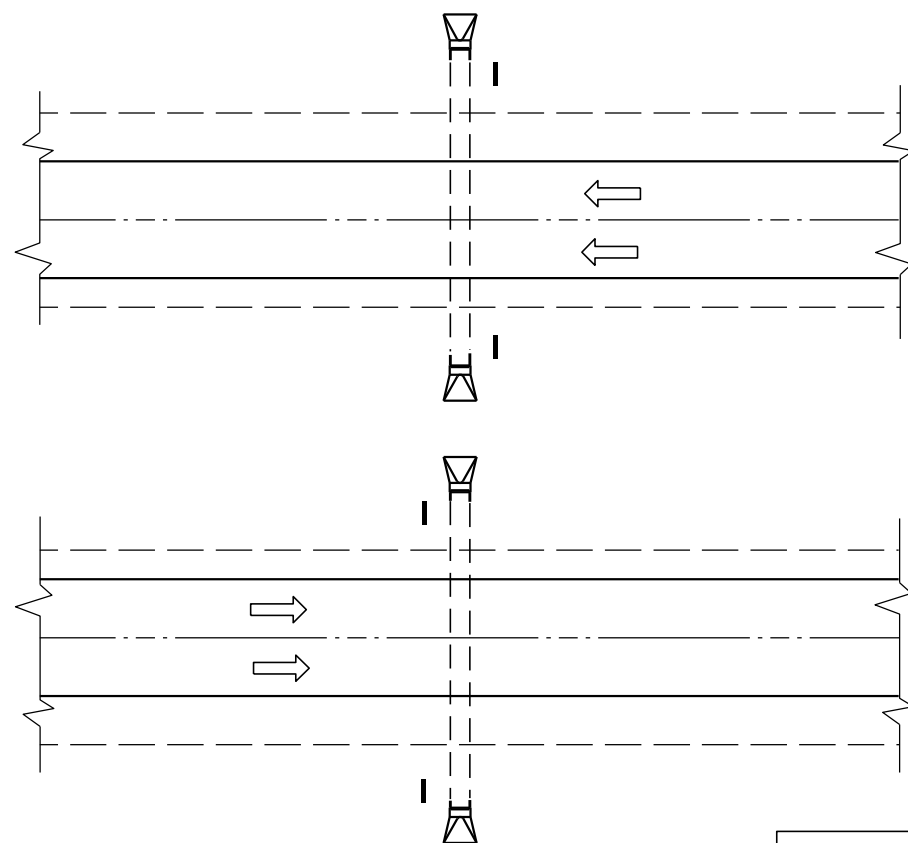
W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



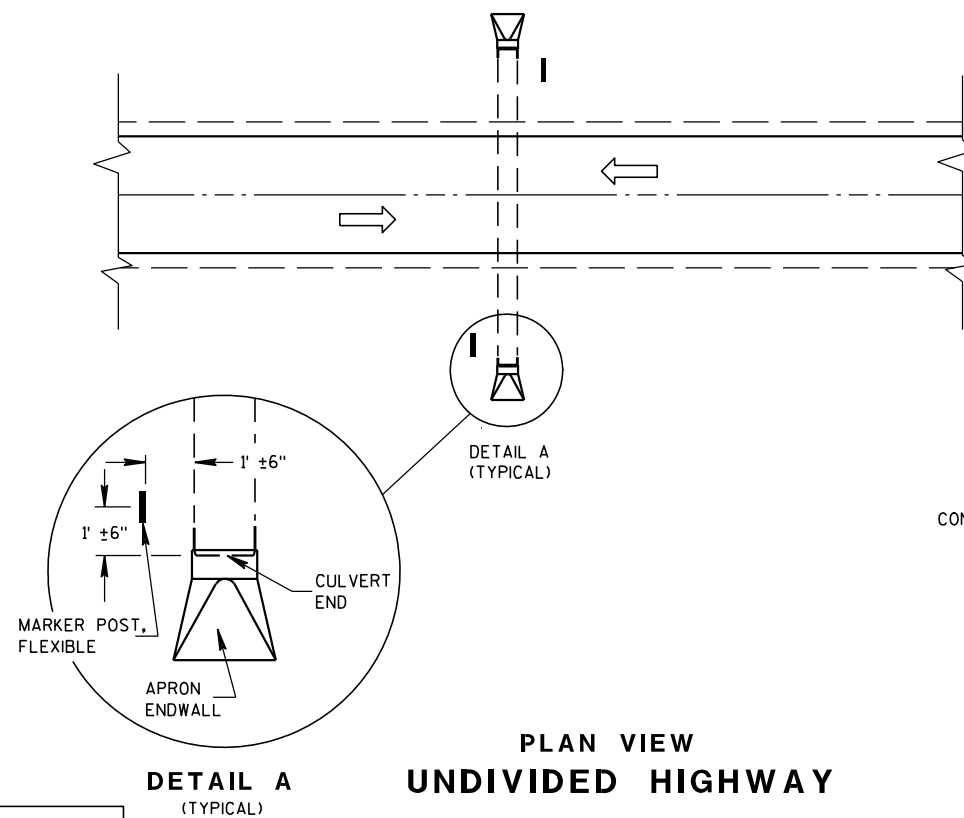
SECTION F-F



MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 2/8/2012 DATE FHWA	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER

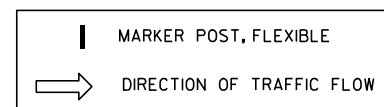


PLAN VIEW
DIVIDED HIGHWAY

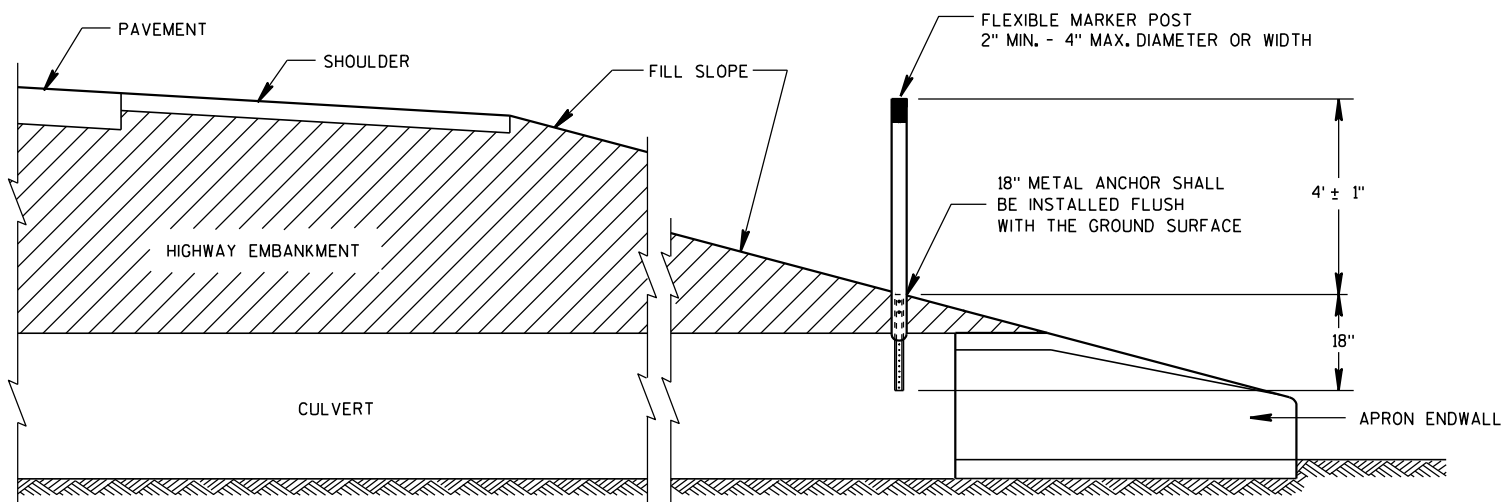


PLAN VIEW
UNDIVIDED HIGHWAY

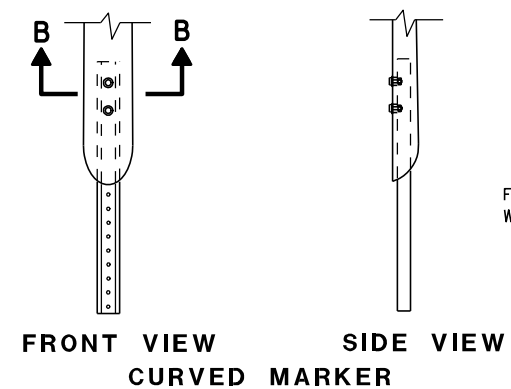
DETAIL A
(TYPICAL)



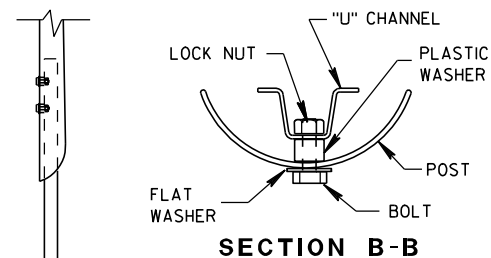
FLEXIBLE MARKER POST LOCATION



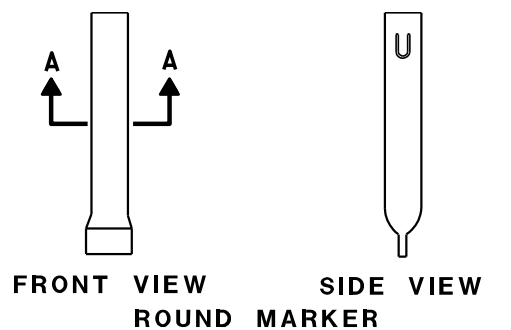
CROSS SECTION
FLEXIBLE MARKER POST



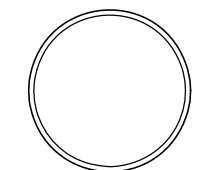
FRONT VIEW
CURVED MARKER



SECTION B-B



FRONT VIEW
ROUND MARKER

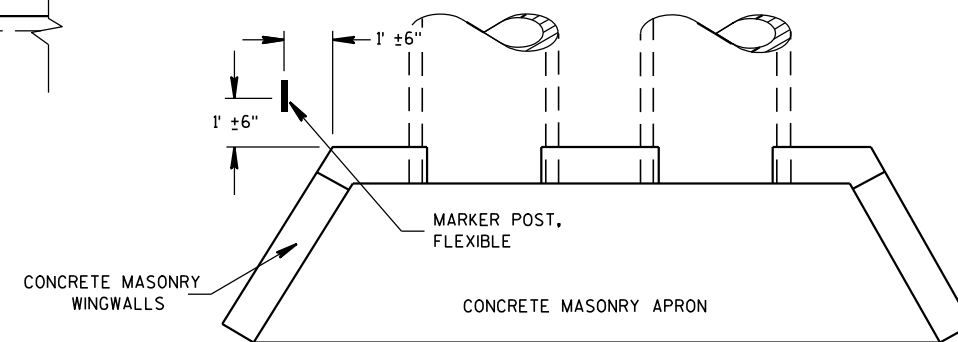


SECTION A-A

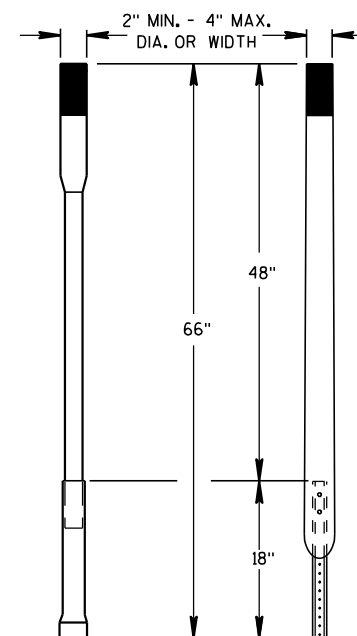
FLEXIBLE MARKER POST ANCHORS

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



ALTERNATE 1 ALTERNATE 2
FLEXIBLE MARKER POST

MARKER POST, FLEXIBLE,
FOR CULVERT END

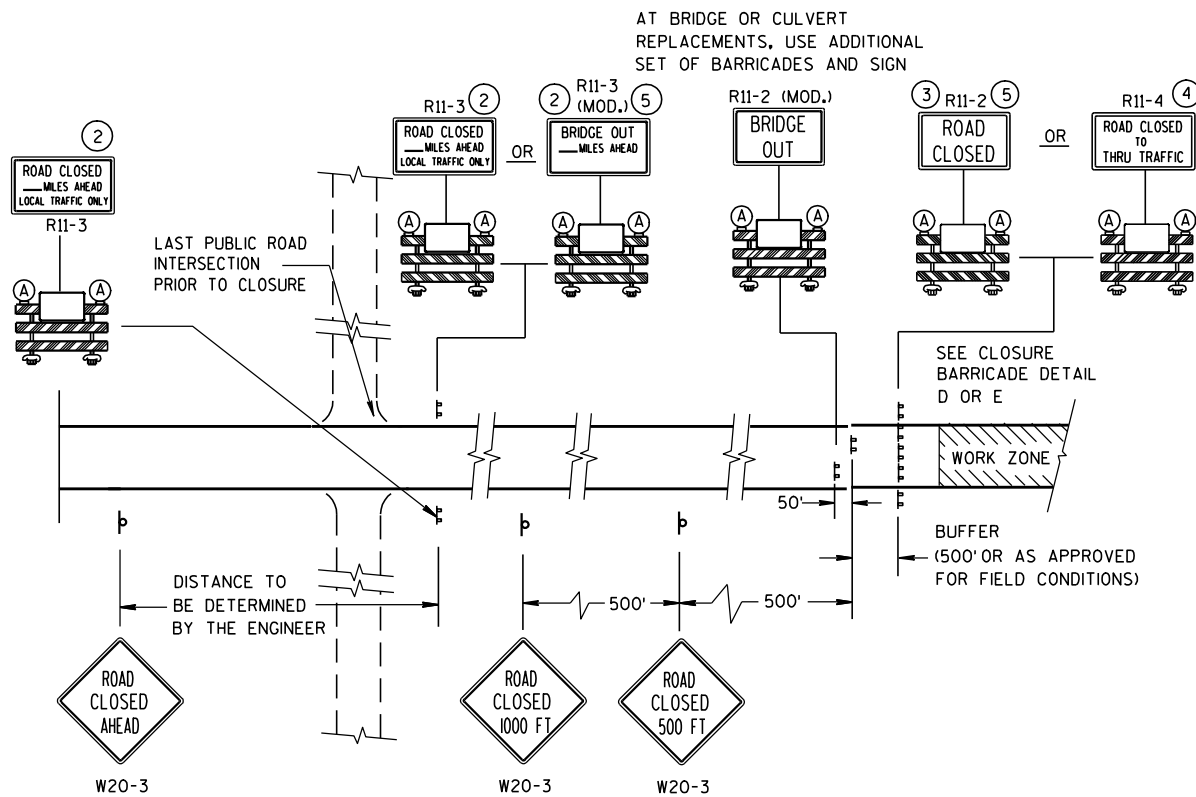
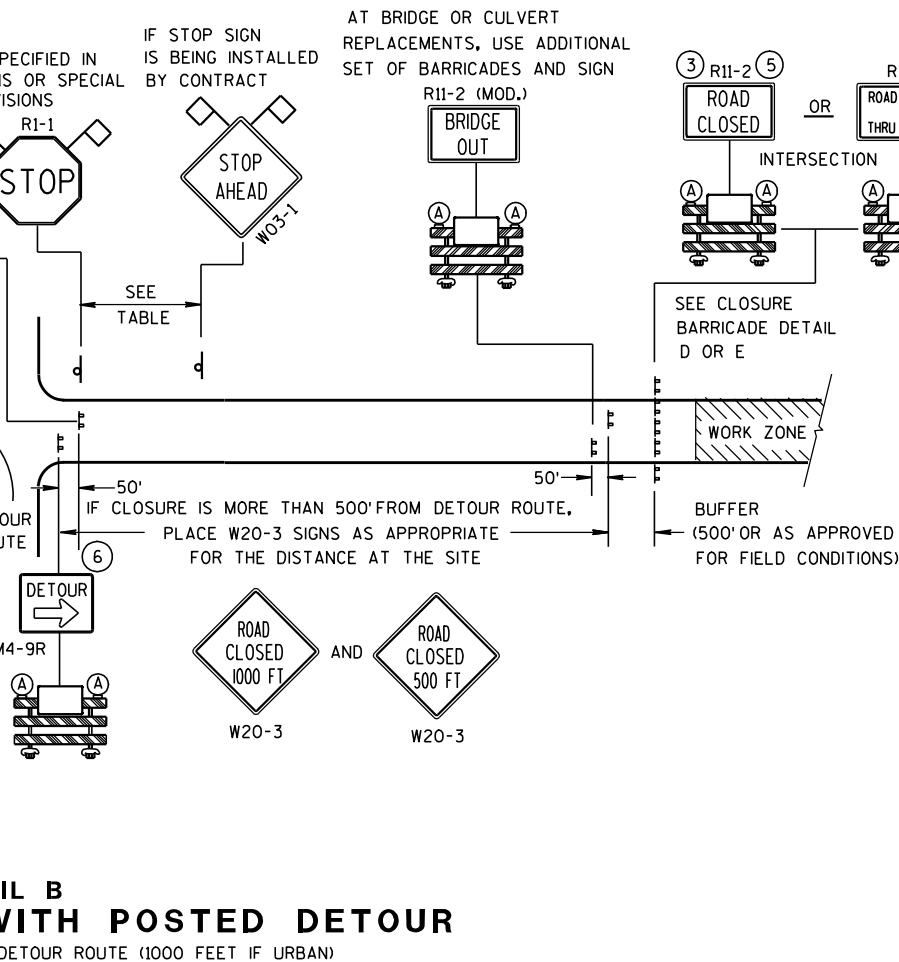
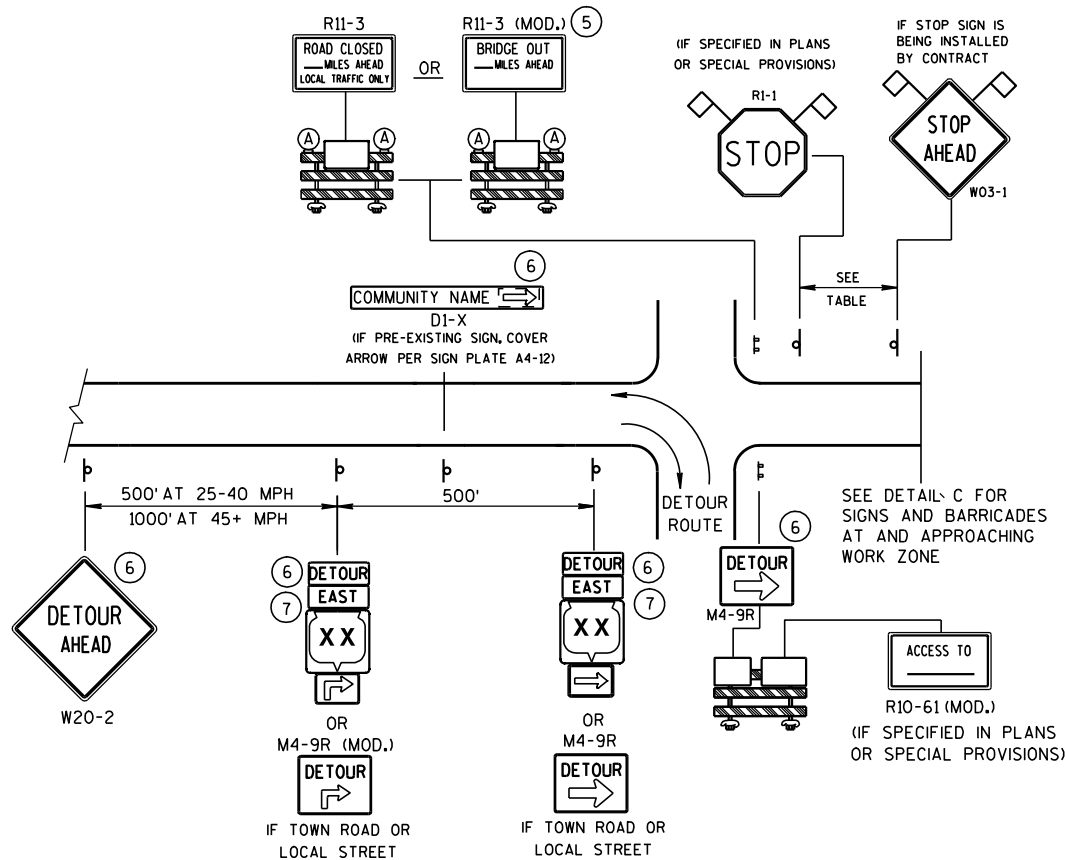
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

10/1/98
DATE

/S/ Rory L. Rhinesmith
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



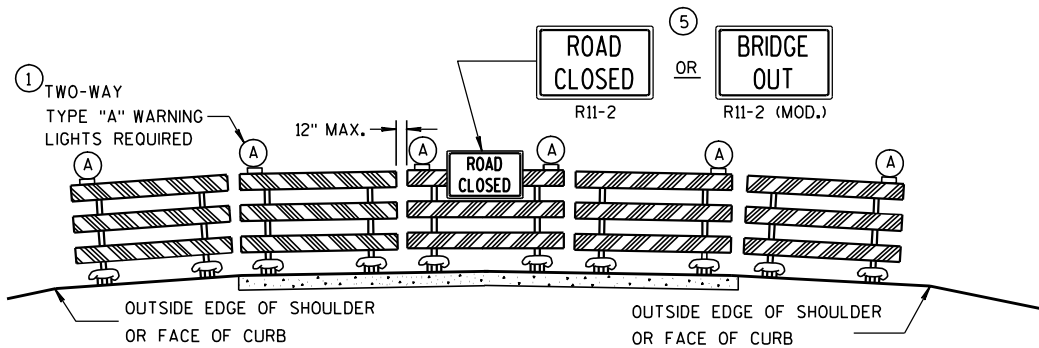
SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-4b
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

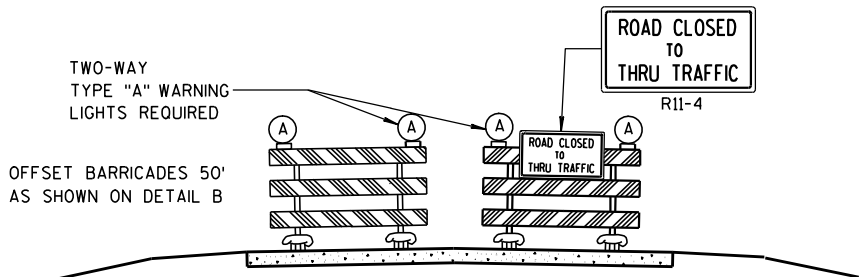
- LEGEND**
- POST MOUNTED SIGN
 - TYPE III BARRICADES
 - TYPE "A" LOW INTENSITY FLASHING WARNING LIGHT (FOR NIGHT USE)
 - WORK ZONE
 - DETOUR EAST M4-8 M3-X
 - MI-4 OR MI-5A OR MI-6
 - MO5-1 OR MO6-1
 - FLAGS, 16" X 16" MIN., (ORANGE)

**BARRICADES AND SIGNS
FOR
MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-4a FOR LEGEND

GENERAL NOTES

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

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

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

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION OR, FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

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

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL D FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, M4-9, R11-4 AND R10-61 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

THE REFLECTIVE SHEETING USED ON R11-2, R11-3, R11-4, R10-61 AND R1-1 SIGNS SHALL COMPLY WITH SUBSECTION 637.2.2.2 OF THE STANDARD SPECIFICATIONS.

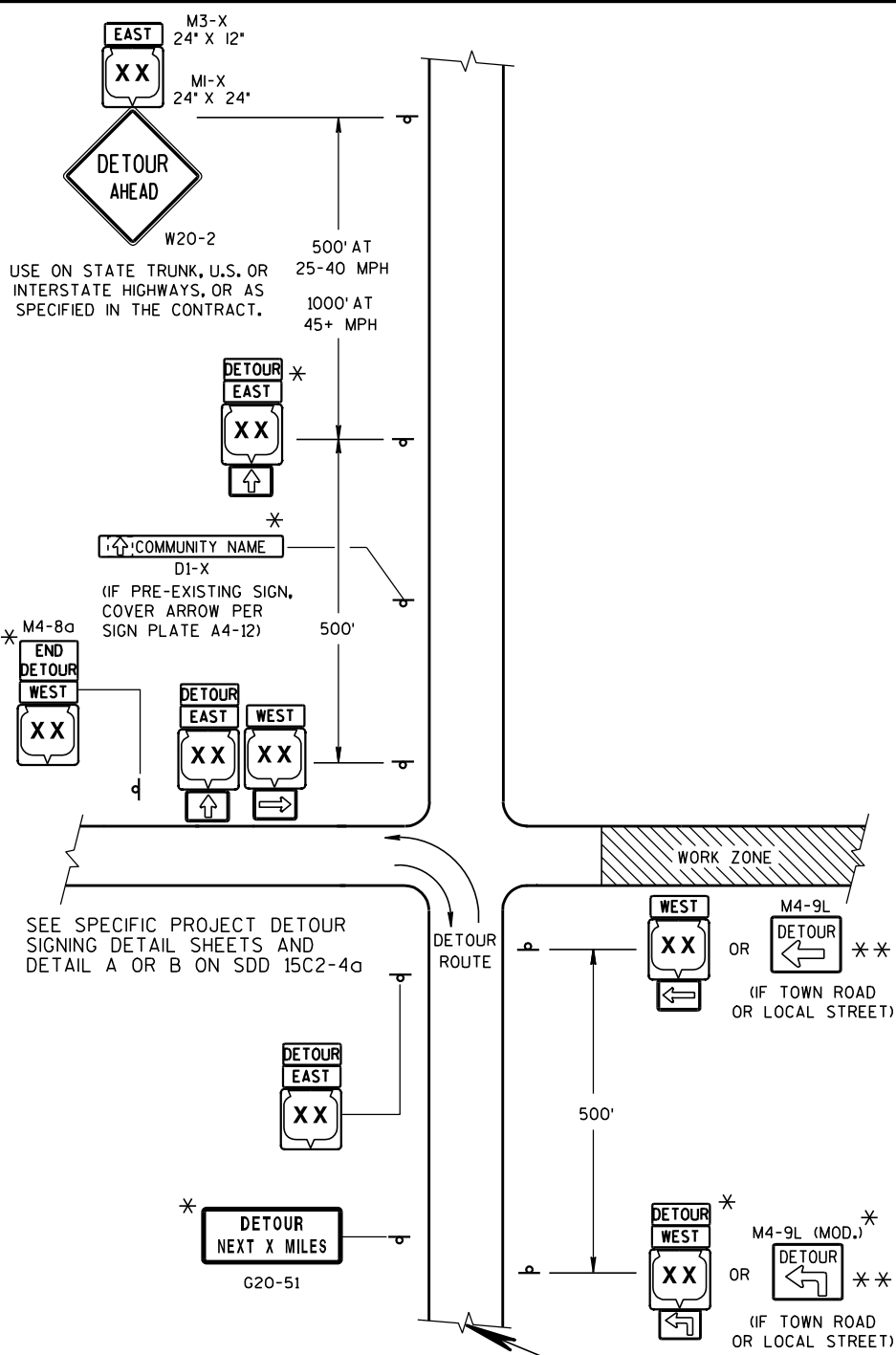
"WO AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

- R11-2 SHALL BE 48" X 30".
- R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".
- M4-9 SHALL BE 30" X 24".
- M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
- M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
- M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1-1 SHALL BE 36" X 36".

- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- 2 THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- 3 FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- 4 FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- 5 FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- 6 INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- 7 "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
9/16/03 DATE	/S/ Thomas N. Notbohm CHIEF SIGNS AND MARKING ENGINEER
FHWA	



LEGEND

POST MOUNTED SIGN

WORK ZONE

DETOUR EAST M4-8 M3-X

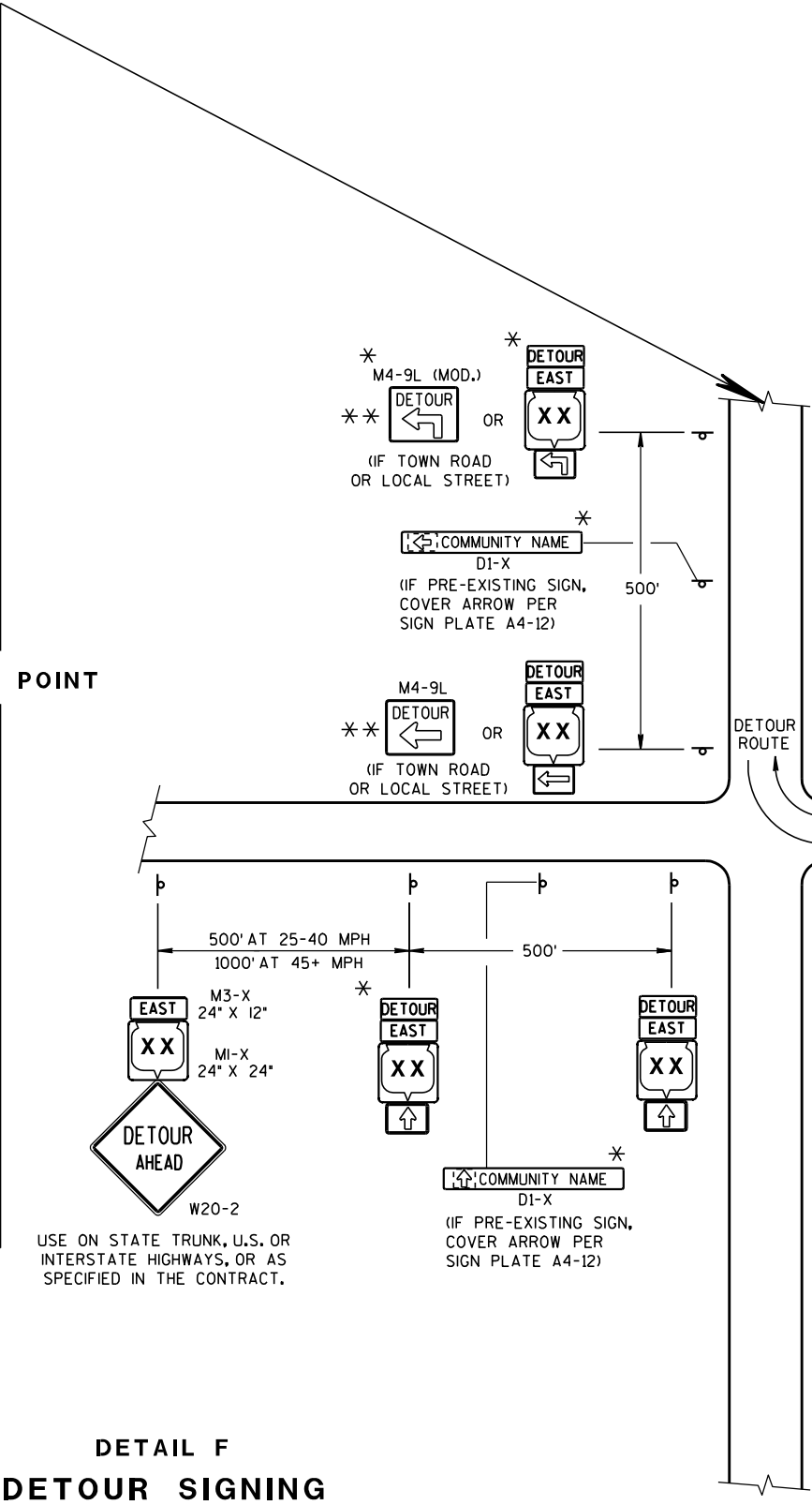
M1-4 OR COUNTY M1-5A OR M1-6

M05-1 OR M06-1 OR M06-1

THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

MATCH POINT

DETAIL F
DETOUR SIGNING



GENERAL NOTES

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

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

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

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

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

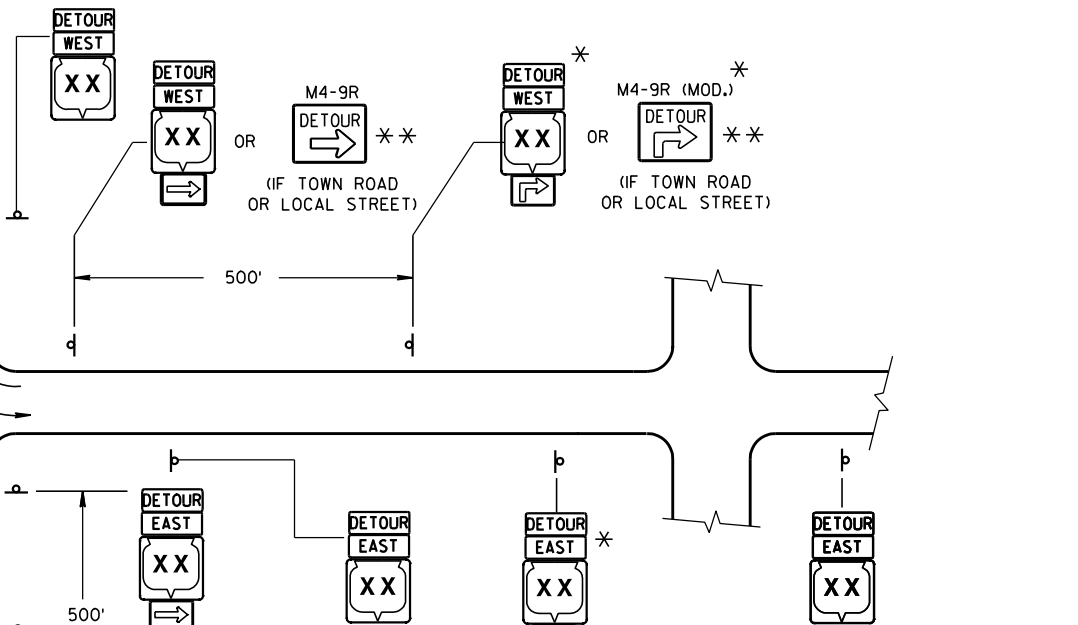
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

M3-X AND M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)
M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)
M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)
M4-9 SHALL BE 30" X 24".
M4-8a SHALL BE 24" X 18".
G20-51 SHALL BE 60" X 24".
W20-2 SHALL BE 48" X 48".
D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

* OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.

** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.



PLACE SIGNS BEYOND INTERSECTIONS WITH STATE OR COUNTY TRUNK HIGHWAYS OR AT 4 MILE MAXIMUM SPACING (4 BLOCKS IF URBAN AREA.)

DETOUR SIGNING FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

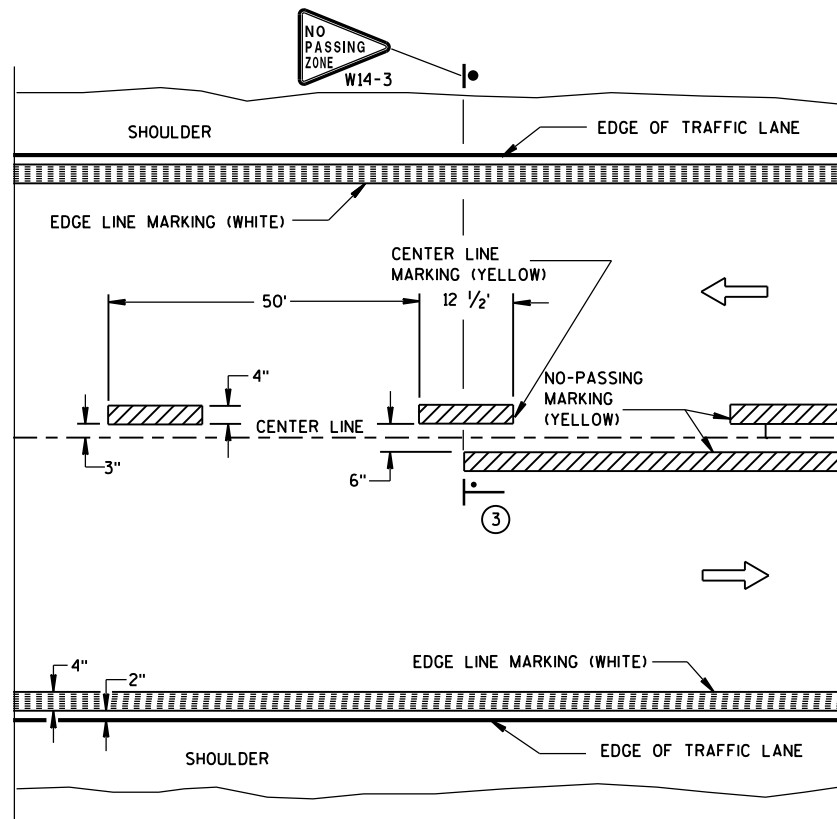
APPROVED
9-16-03 DATE /S/ Thomas N. Notbohm
CHIEF SIGNS AND MARKING ENGINEER
FHWA



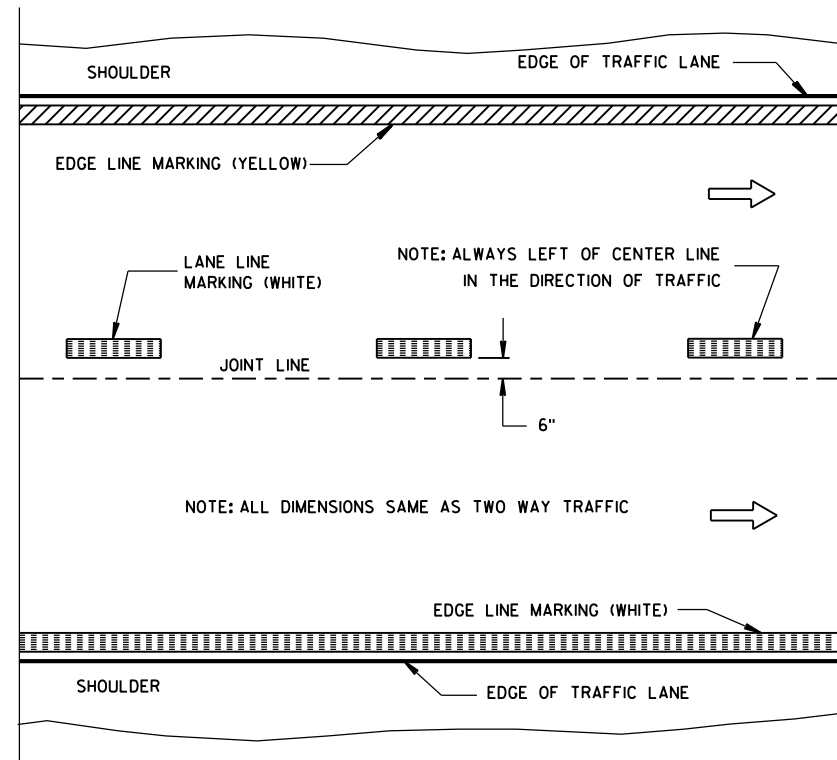
R11-4 AND R11-3 SHALL BE 60" X 30".

 WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED	
<u>9-16-03</u>	<u>/S/ Thomas N. Notbohm</u>
<u>DATE</u>	<u>CHIEF SIGNS AND MARKING ENGINEER</u>
FHWA	

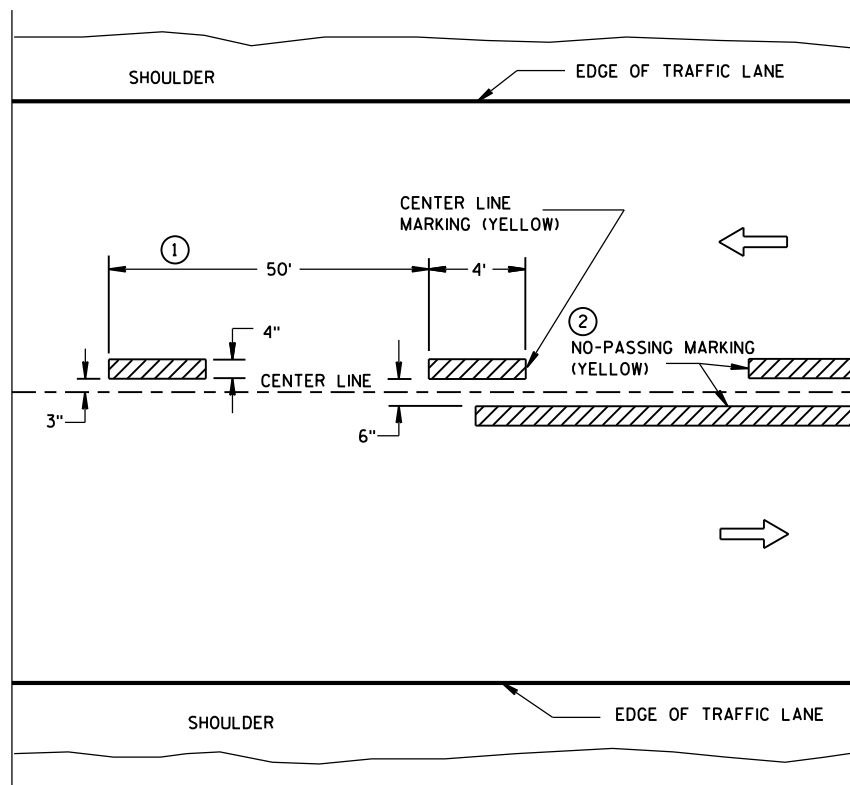


TWO WAY TRAFFIC

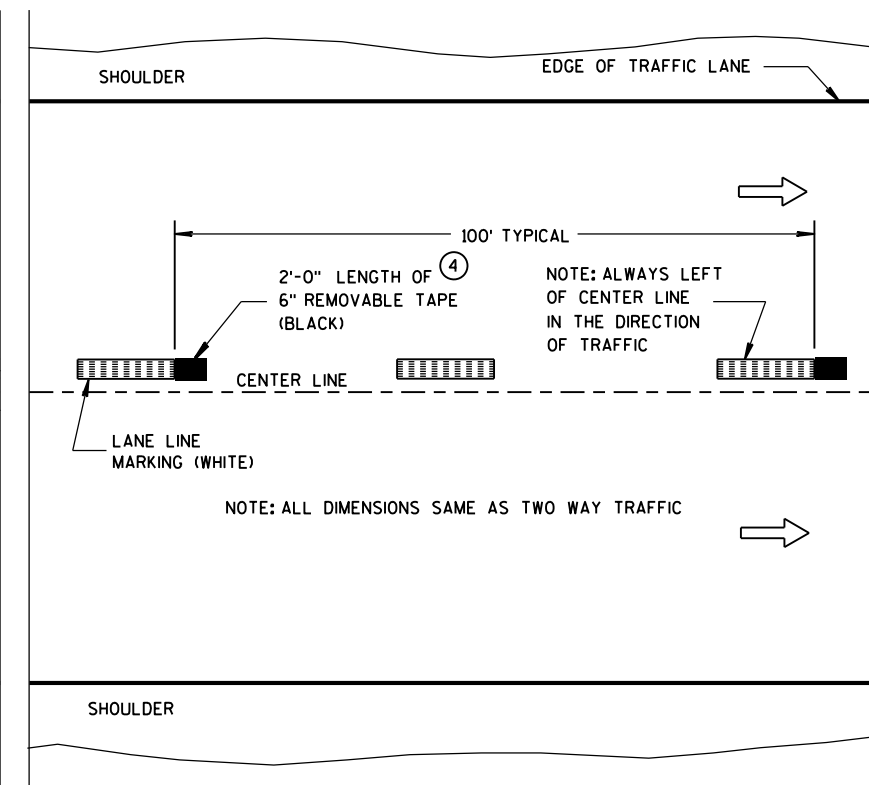


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY (INTERMEDIATE) PAVEMENT MARKING
(SHOWS CYCLE FOR TEMPORARY CENTER LINE OR TEMPORARY LANE LINE MARKING)

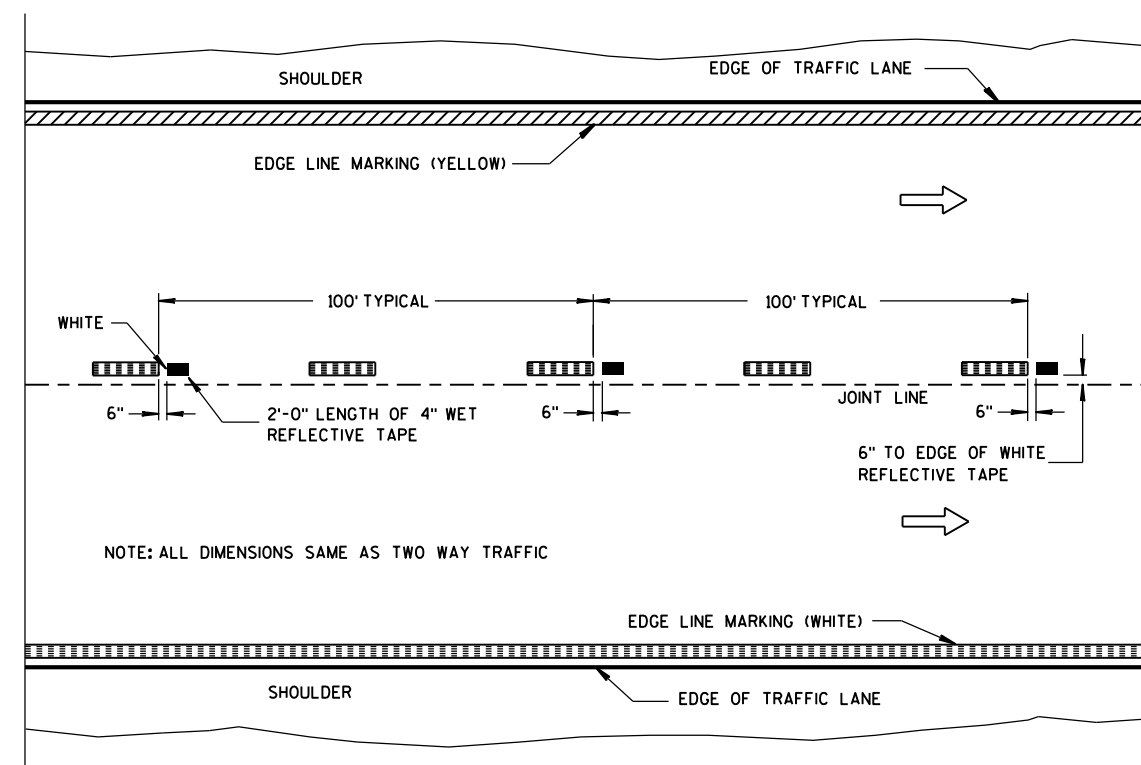
GENERAL NOTES

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

- ① HALF CYCLE LENGTHS (25'±) WITH 2' MINIMUM STRIPE LENGTHS SHALL BE PROVIDED ON ROADWAYS (INCLUDING TEMPORARY TRAVELED WAYS) WITH REVERSE CURVATURE, CURVATURE OF OVER 5 DEGREES OR WHEN DIRECTED BY THE ENGINEER TO MARK UNUSUAL ALIGNMENT OF THE TRAVELED WAY.
- ② NO PASSING ZONE TEMPORARY PAVEMENT MARKING IS REQUIRED TO BE PLACED, WHERE APPROPRIATE, ALONG WITH CENTERLINE TEMPORARY PAVEMENT MARKING WHEN A SAME DAY PERMANENT PAVEMENT MARKING ITEM IS INCLUDED IN THE CONTRACT.
- ③ NO PASSING ZONE MARKINGS ARE PLACED ACCORDING TO "T" MARKINGS. IF EXISTING NO PASSING ZONE W14-3 SIGNS ARE BEYOND 50 FEET IN EITHER DIRECTION, THE SIGNS SHALL BE MOVED TO THE "T" MARKINGS.
- ④ CONCRETE ONLY.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL



**WET REFLECTIVE TAPE SUPPLEMENT TO
SPRAYED OR NON WET REFLECTIVE TAPE LANE LINE**

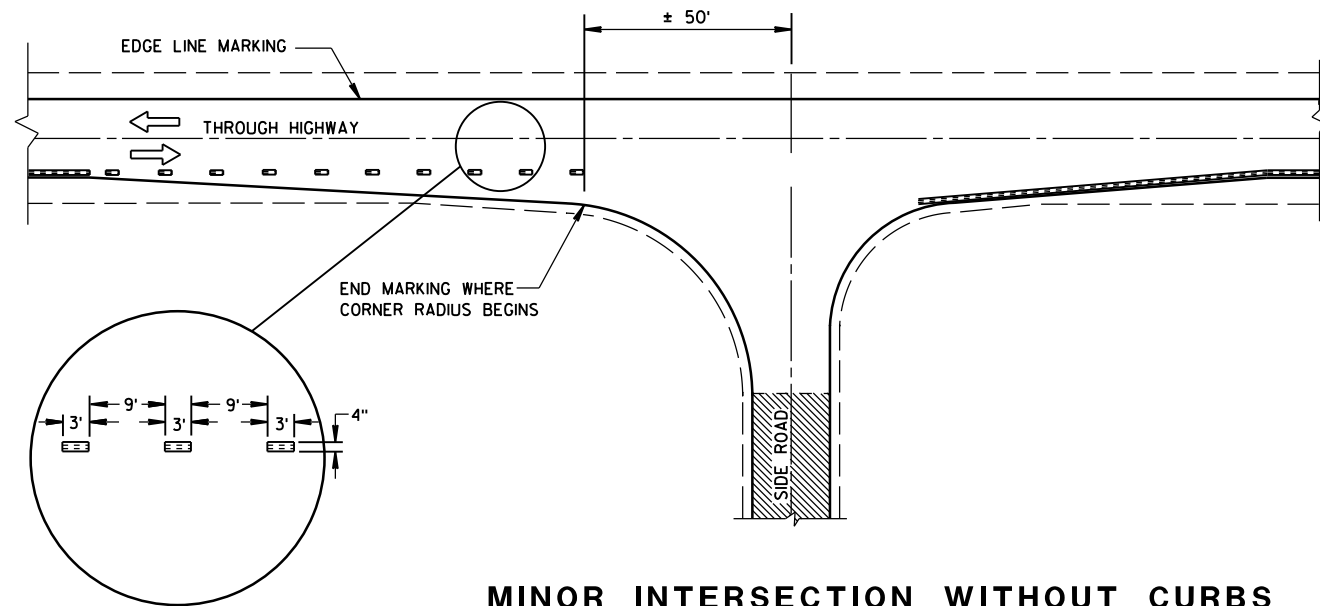
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

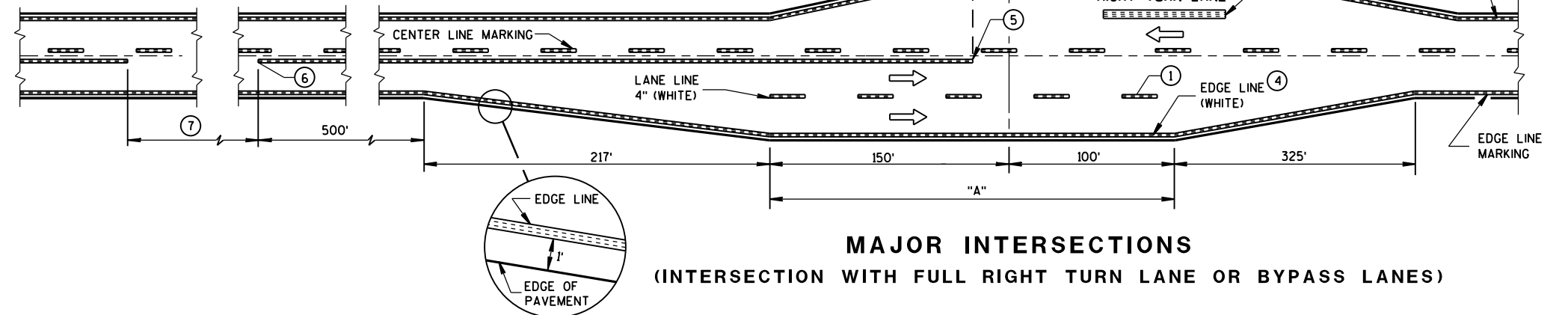
APPROVED
10-1-2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



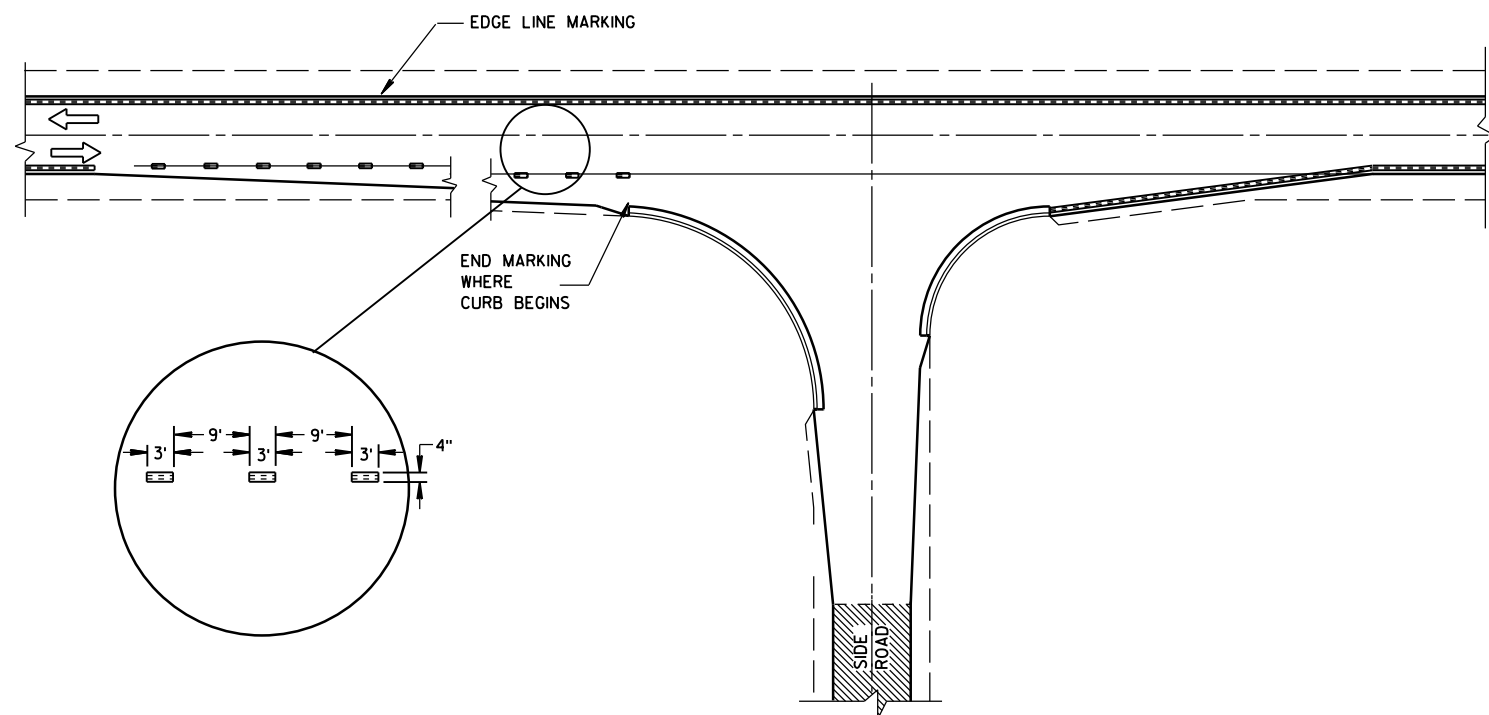
MINOR INTERSECTION WITHOUT CURBS

⑦

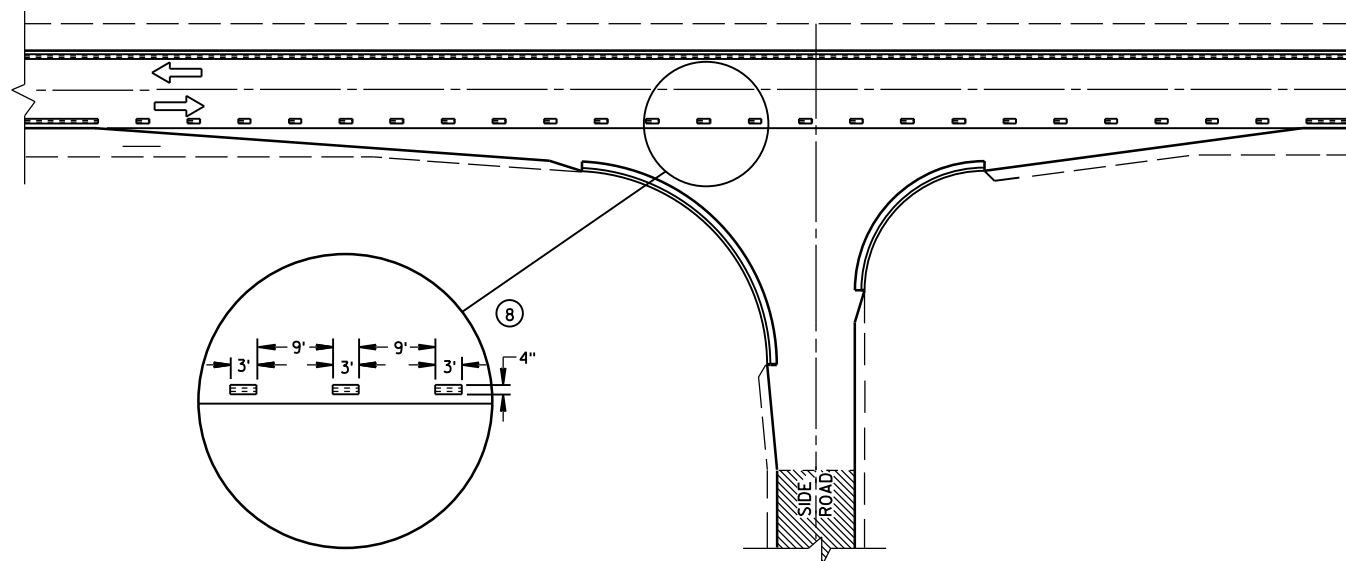
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



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



MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



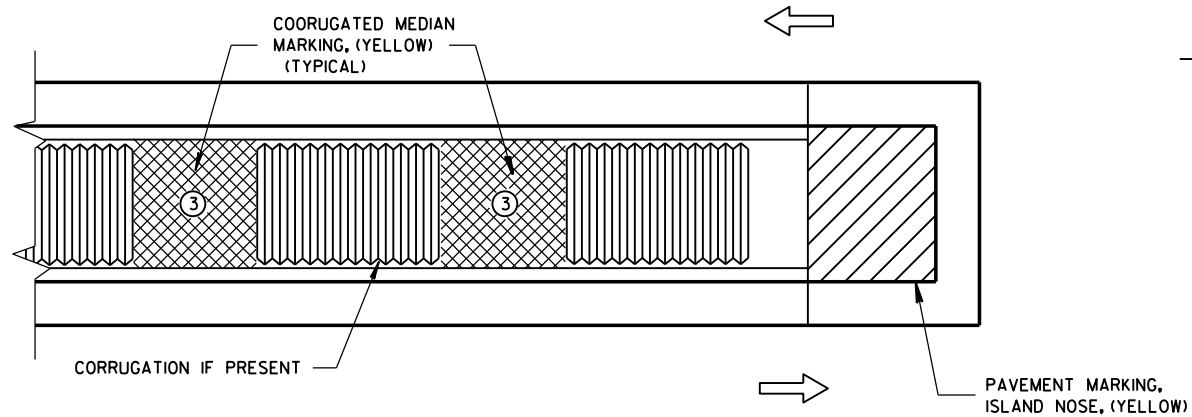
MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

GENERAL NOTES

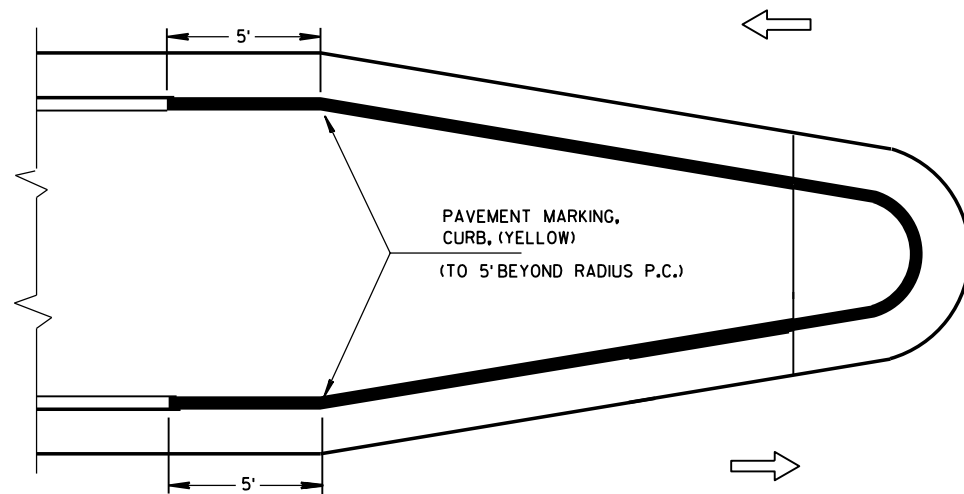
- EDGE LINES SHALL BE OMITTED THROUGH INTERSECTIONS. EDGE LINES SHALL BE CONTINUED THROUGH DRIVEWAYS.
- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
 - ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
 - ③ ALTERNATIVE MARKING SHALL BE PROVIDED WHEN SPECIFIED IN THE CONTRACT. TYPICAL SITUATIONS WHERE THIS MARKING MAY BE REQUIRED ARE WHERE THE INTERSECTION IS ON A SHARP HORIZONTAL CURVE OR CREST VERTICAL CURVE IN AN UNLIGHTED AREA SUCH THAT THE EDGE LINE MAY BE MISLEADING TO THE MOTORIST OR DISAPPEAR FROM SIGHT.
 - ④ THE EDGE LINE IN THE TAPER AREAS OF THE BYPASS LANE AND THE BYPASS LANE SHALL BE LOCATED 1-FOOT FROM EDGE OF PAVEMENT TO THE OUTSIDE EDGE OF EDGE LINE.
 - ⑤ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT/SURFACE EDGE EXTENSION.
 - ⑥ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
 - ⑦ IF THE DISTANCE BETWEEN 2 SUCCESSIVE NO-PASSING ZONES IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES, CONNECT THE 2 ZONES.
 - ⑧ 3' LINE 9' GAP, EXCEPT RETRACE THE EXISTING LINE - GAP PATTERN WHERE EXISTING MARKINGS ARE IN PLACE.
- ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

PAVEMENT MARKING
(INTERSECTIONS)

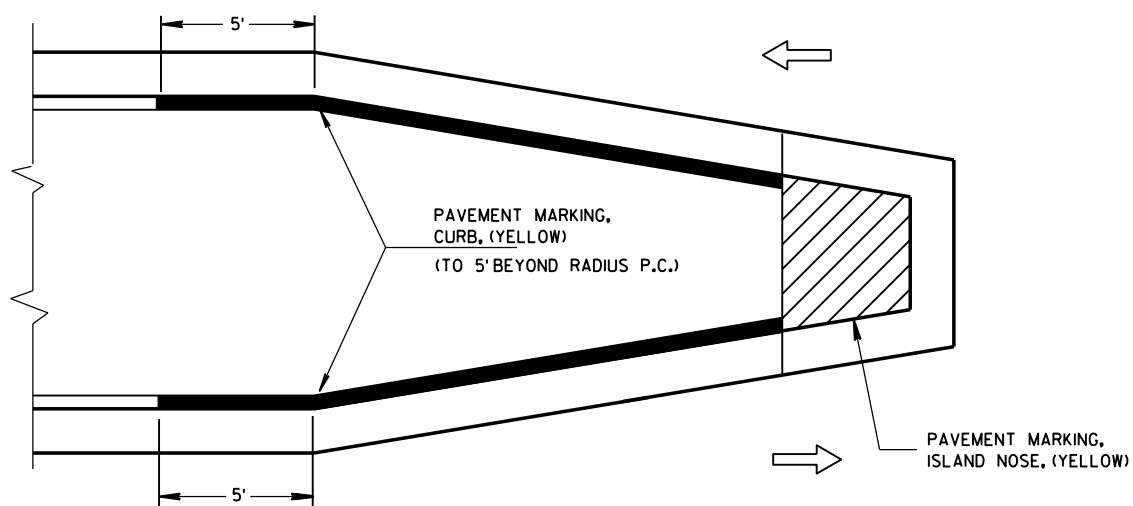
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

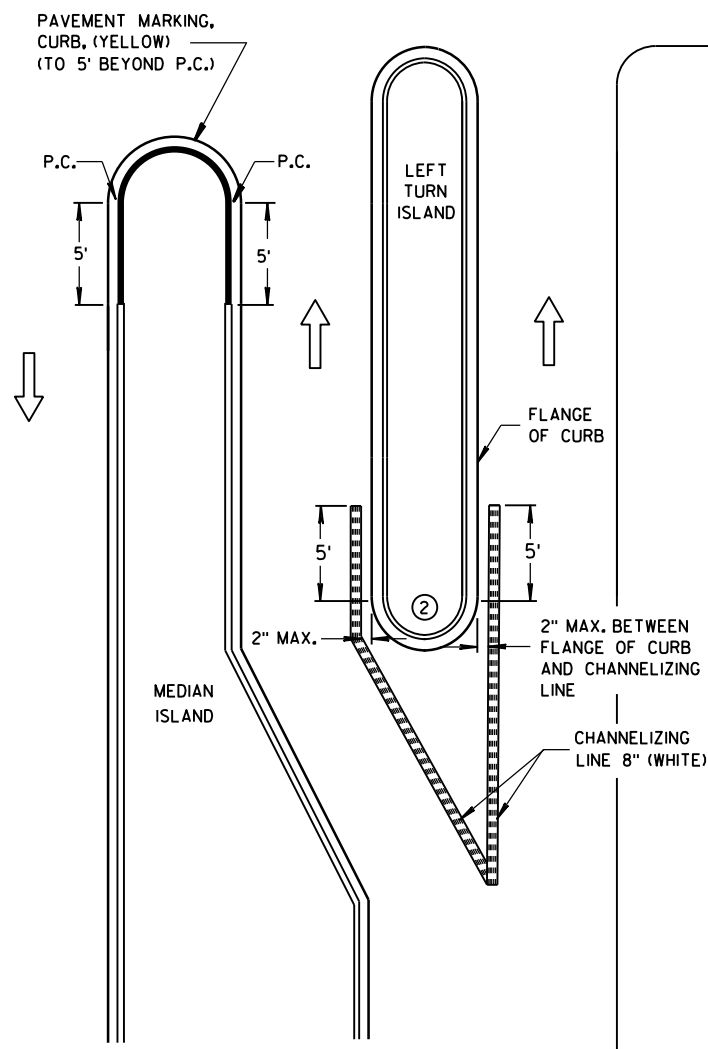


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

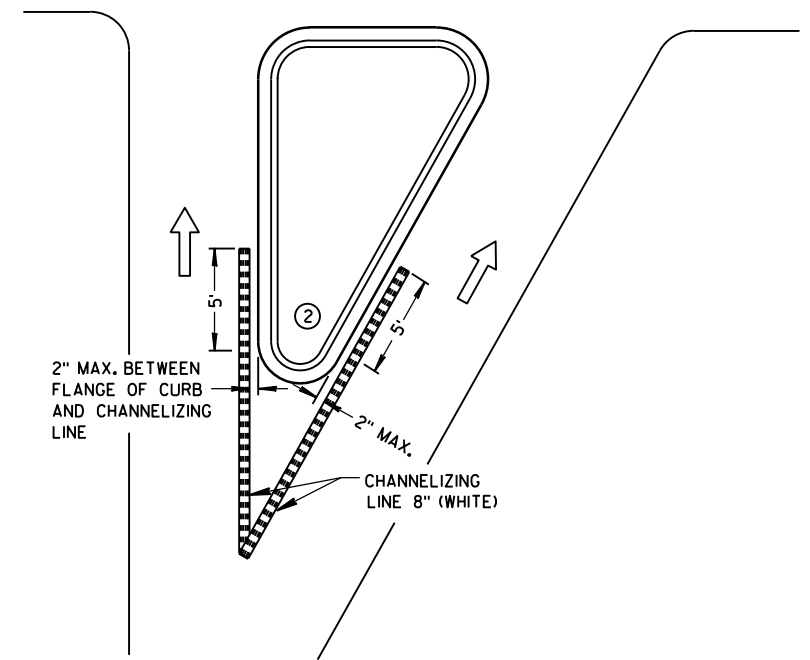
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



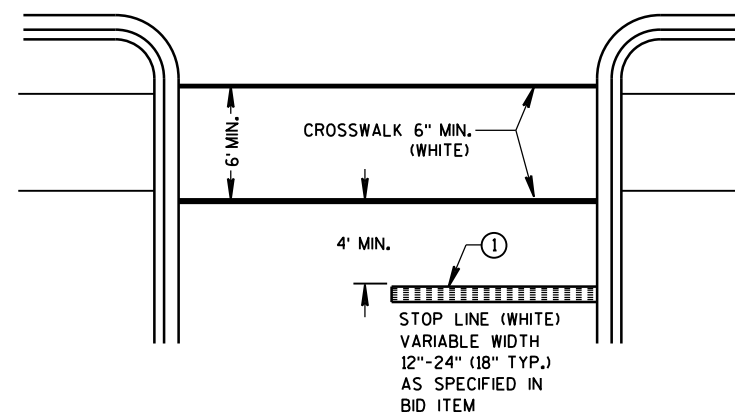
LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

- ① STOP LINE IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
- ② DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.
- ③ WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND



STOP LINE AND CROSSWALK

LEGEND

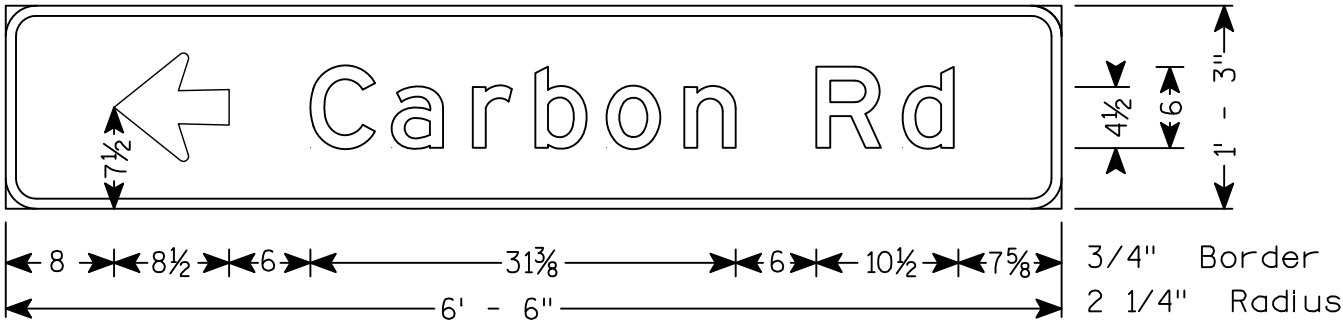
- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING (ISLANDS, STOP LINE & CROSS WALK)

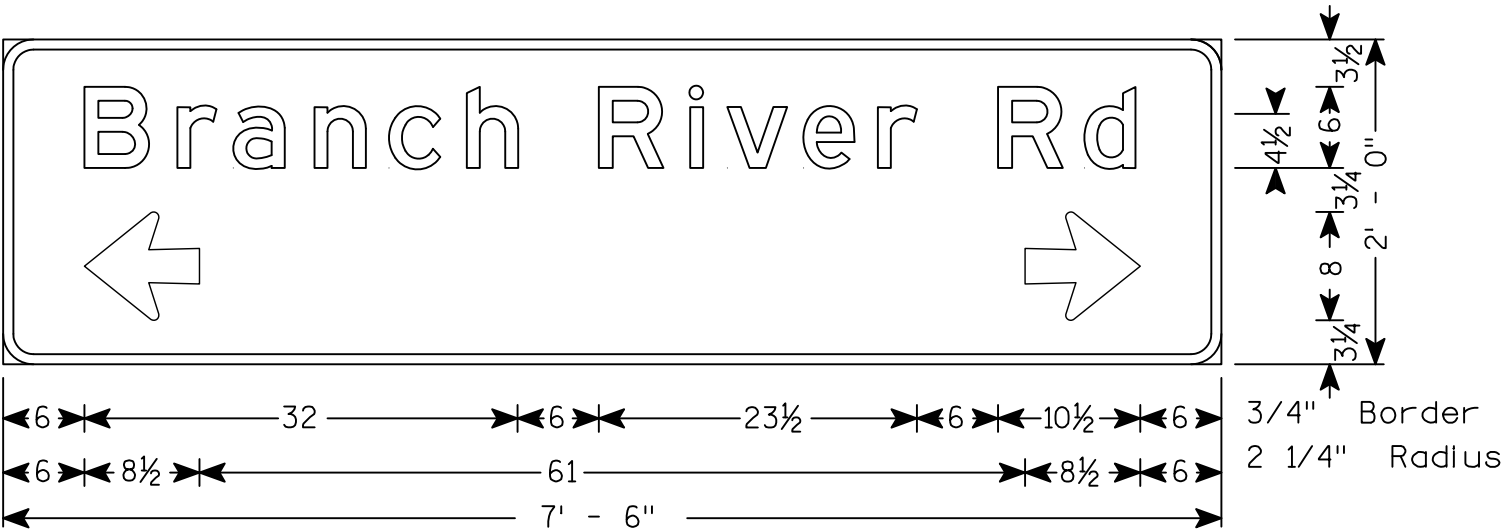
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTES

- 1. All SignsType II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - GREEN
Message - WHITE
- 3. Message Series - E

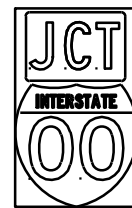


D1-1

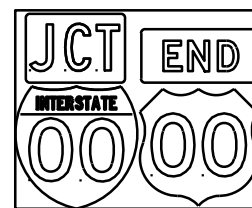


D1-61

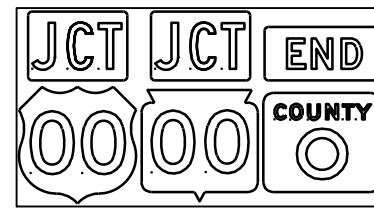
TYPICAL ASSEMBLIES



J1-1



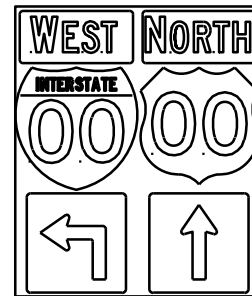
J1-2



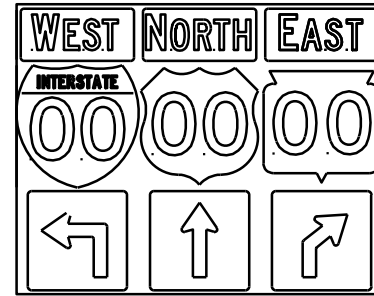
J1-3



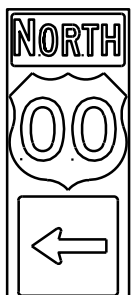
J2-1



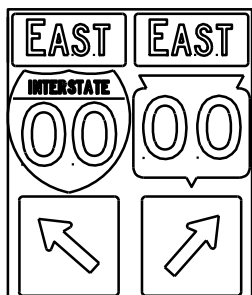
J2-2



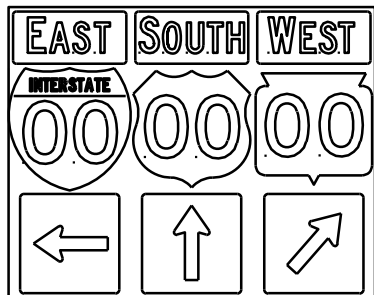
J2-3



J3-1



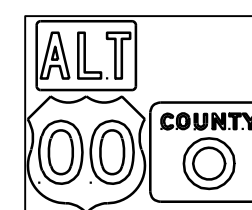
J3-2



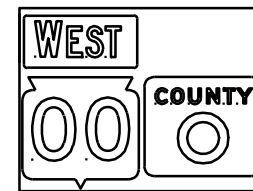
J3-3



J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1



J22-1

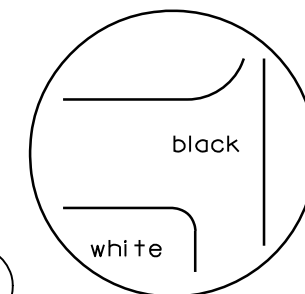
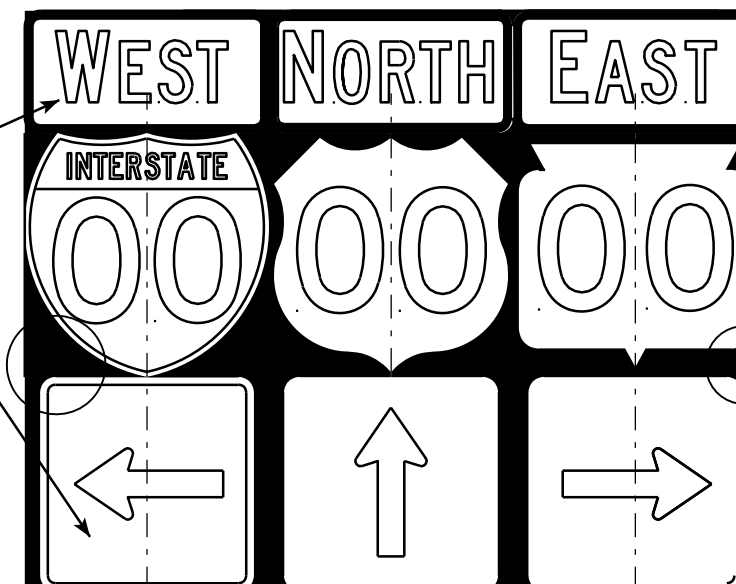
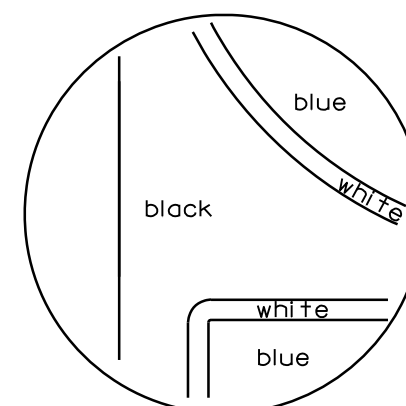


JV

NOTES

- Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Black Non-reflective
Message - see Note 5
- Message Series - See Note 5
- Corners shall be square since base material is plywood.
- The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
- Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
- Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
- Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
- Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.

[blue background with interstate]



[black background]

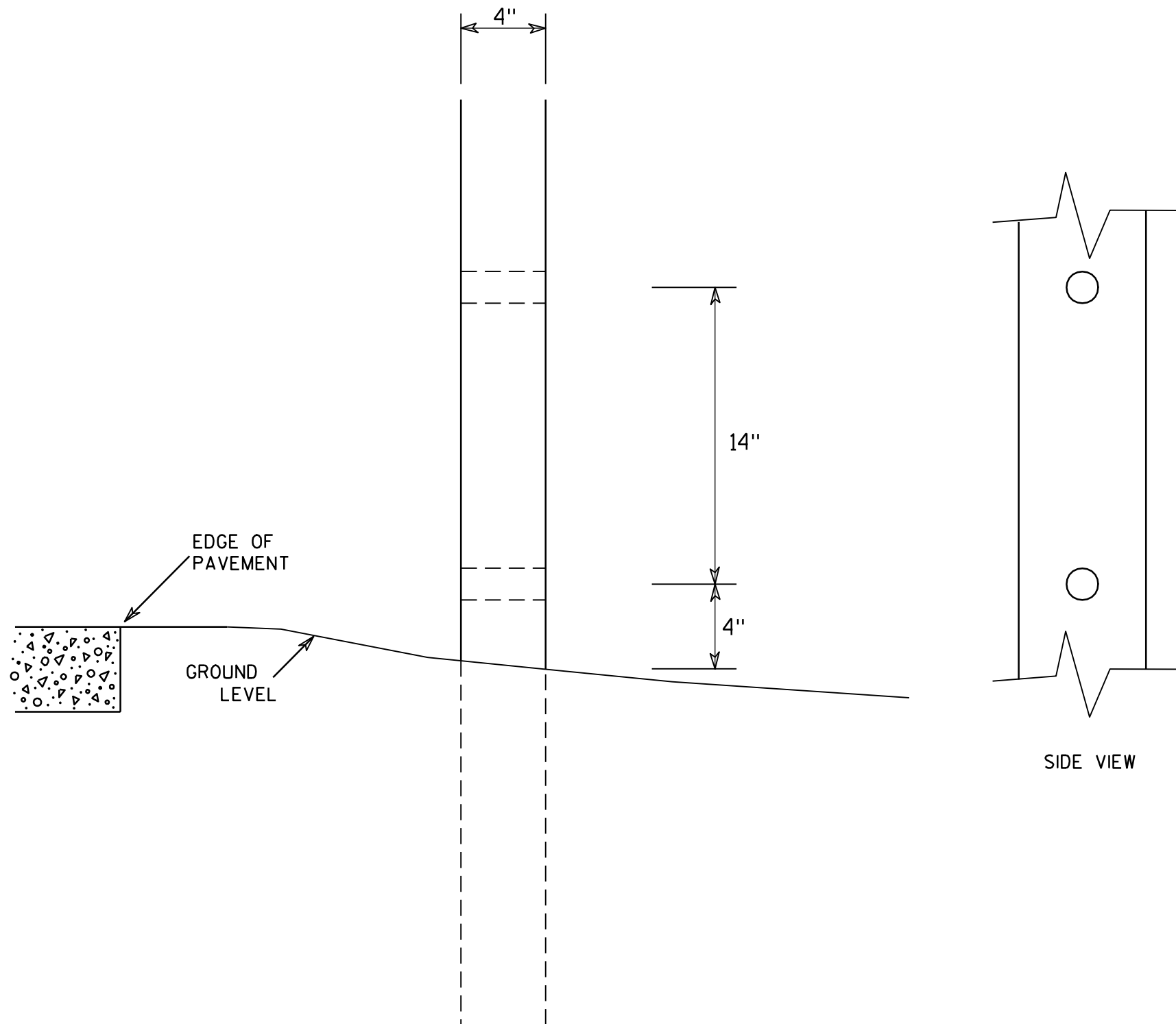
ROUTE MARKERS & COMPONENTS IN TYPICAL ASSEMBLIES	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 10/21/09	PLATE NO. A2-1S.6

PROJECT NO:

SHEET NO:

E

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:

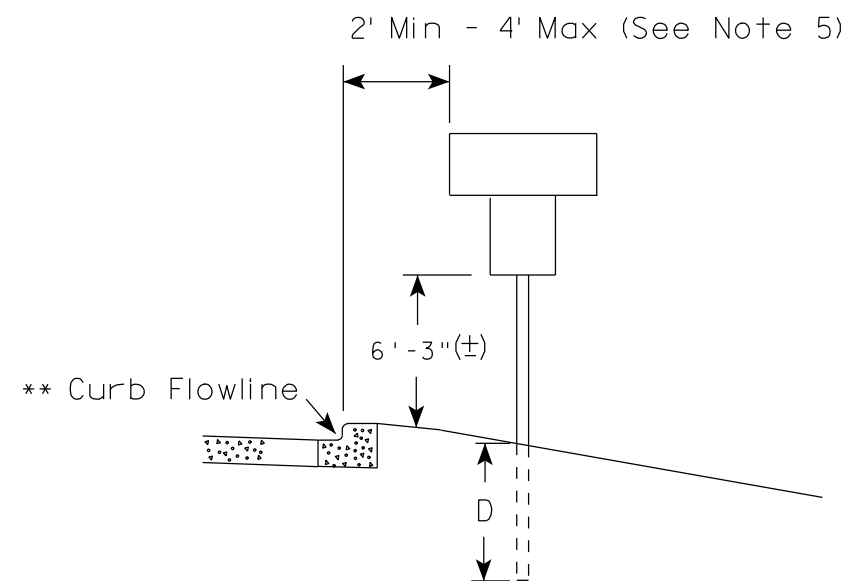
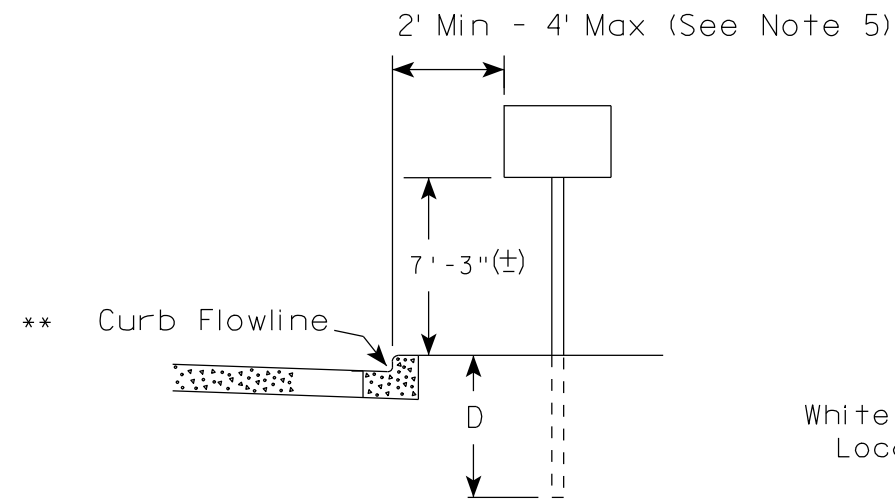
HWY:

COUNTY:

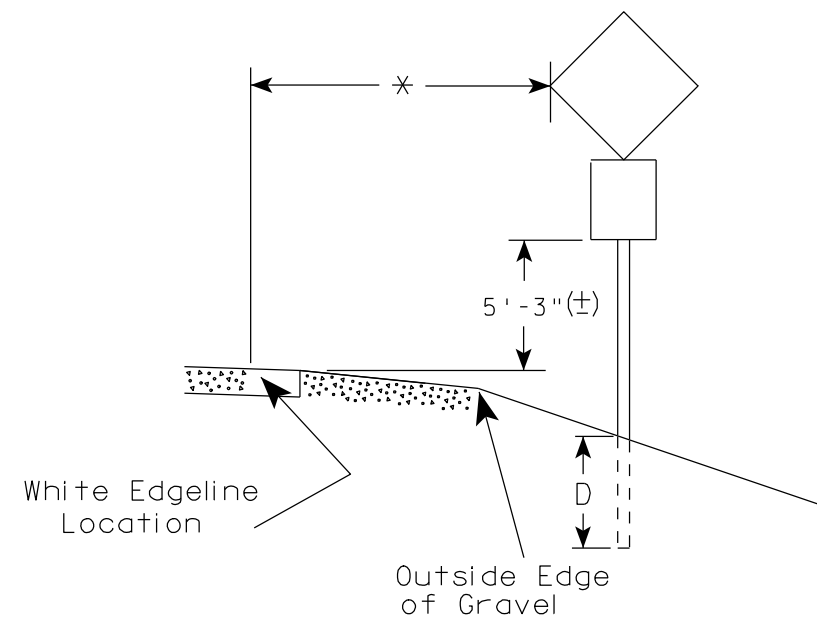
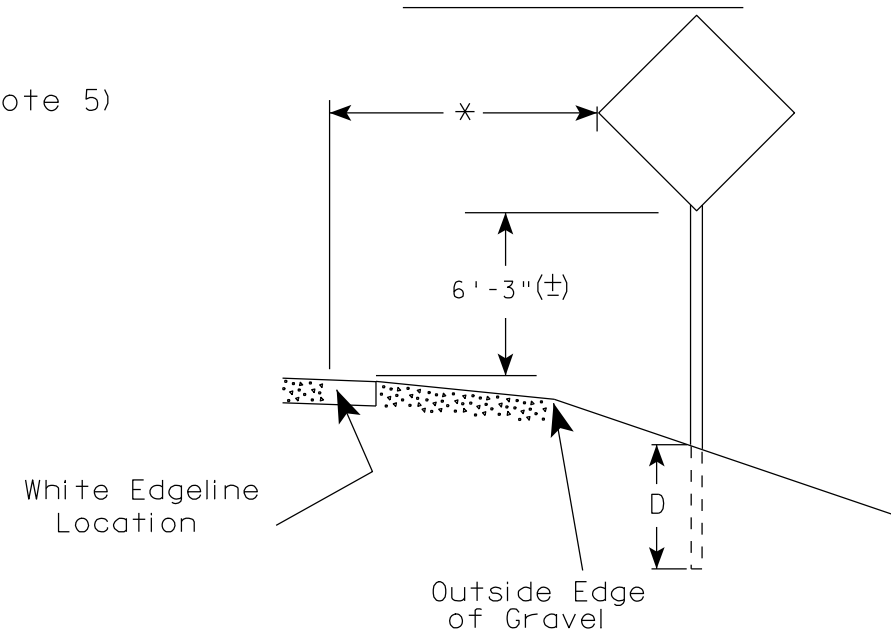
SHEET NO:

E

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or larger than 20 sq. ft. shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4'-3" (±).

POST EMBEDMENT DEPTH

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

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

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/21/2011 PLATE NO. A4-3.16

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

GENERAL NOTES

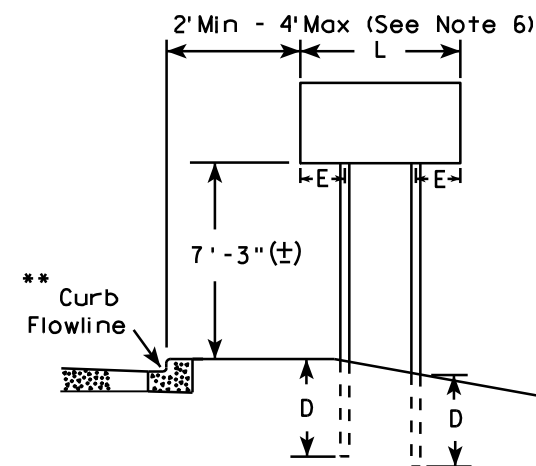
- For multiple post installations, individual post spacing shall be greater than 3'-6".
- See tables below for required number of posts.
- For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
- The (±) tolerance for mounting height is 3 inches.
- Minimum mounting height for J assemblies (A4-5) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
- Offset distance shall be consistent with existing signs or consistent throughout length of project.
- Folding stop signs (R1-1F) shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
- The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series) & End of Road Markers (W5-56 & W5-56A) shall be mounted at a height of 4"-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.

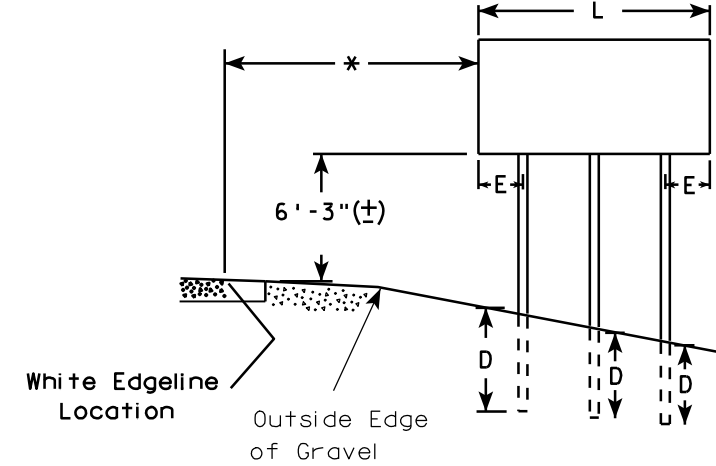
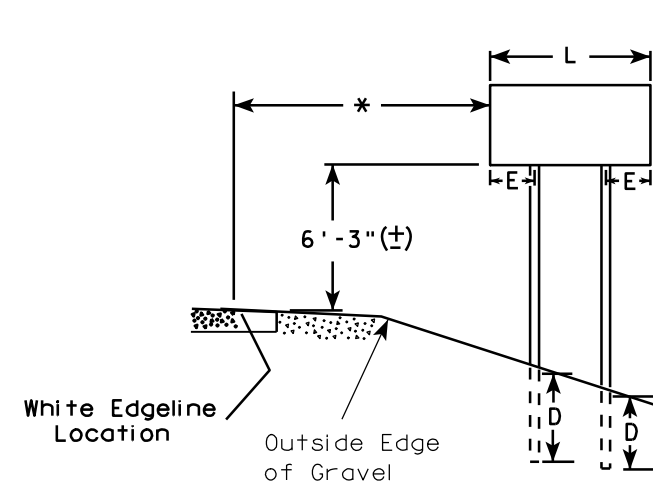
** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs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

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

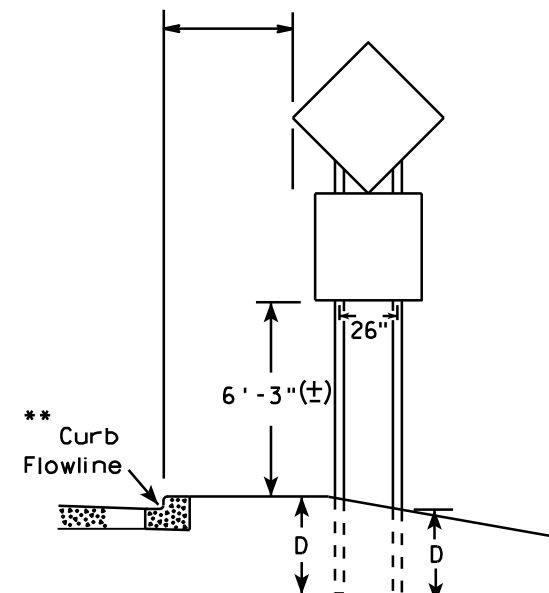
URBAN AREA



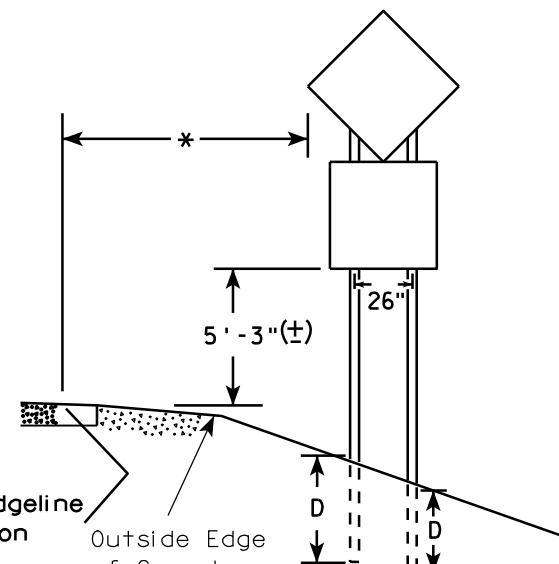
RURAL AREA (See Note 3)



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 120"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)

L	E
Greater than 120" less than 168"	12"

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)

L	E
168" and greater	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 9/21/2011 PLATE NO. A4-4.11

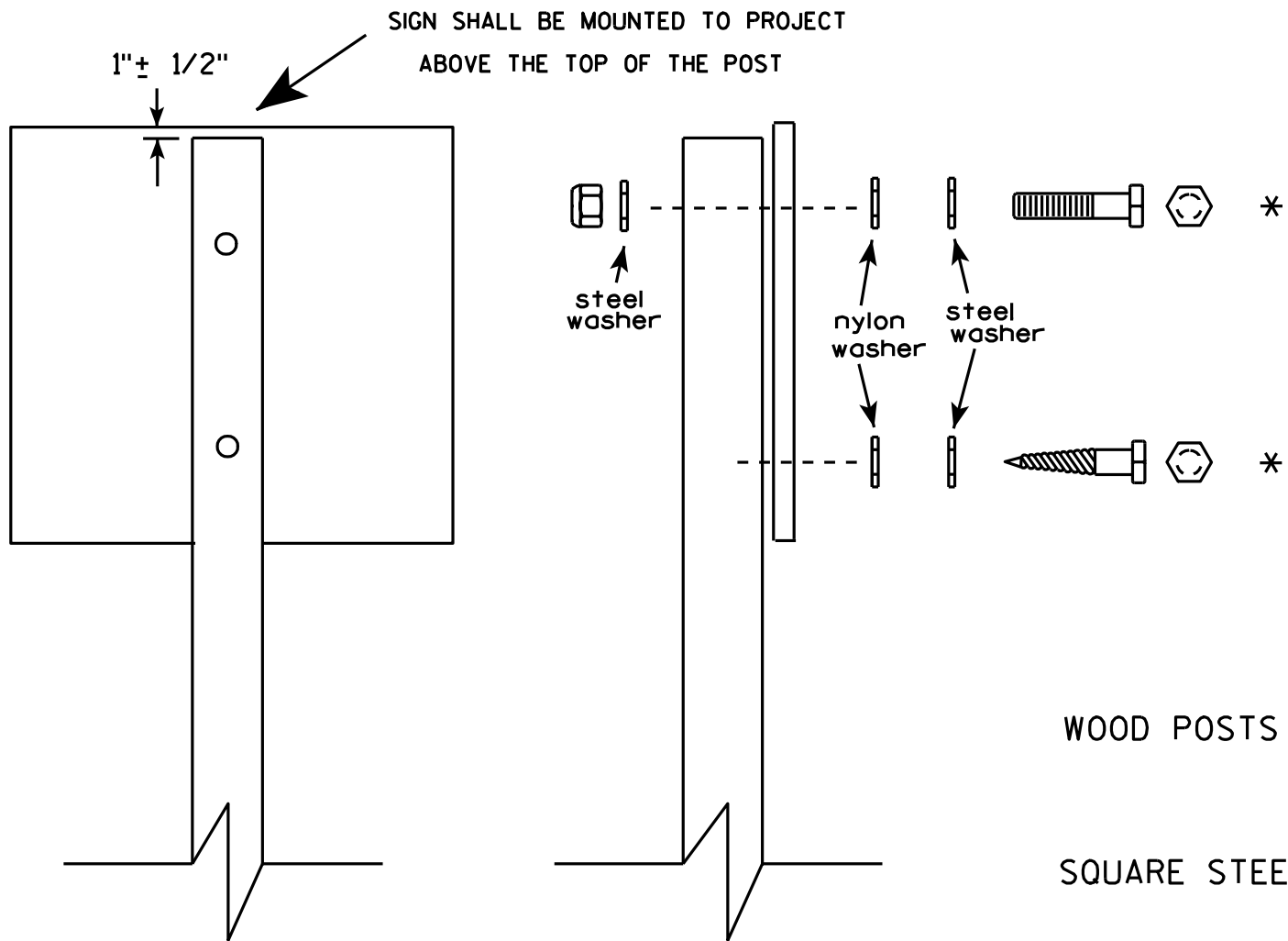
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

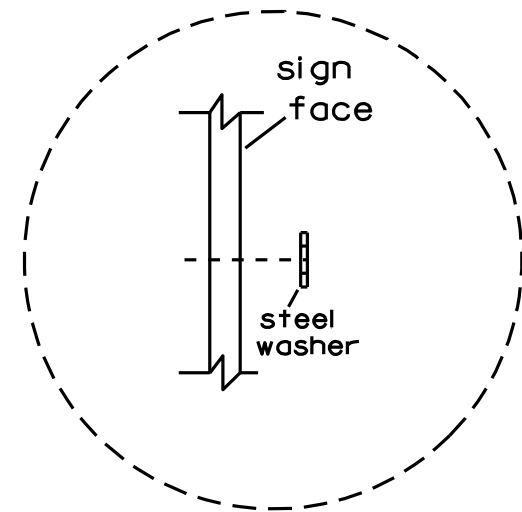


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- 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.

- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 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 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.

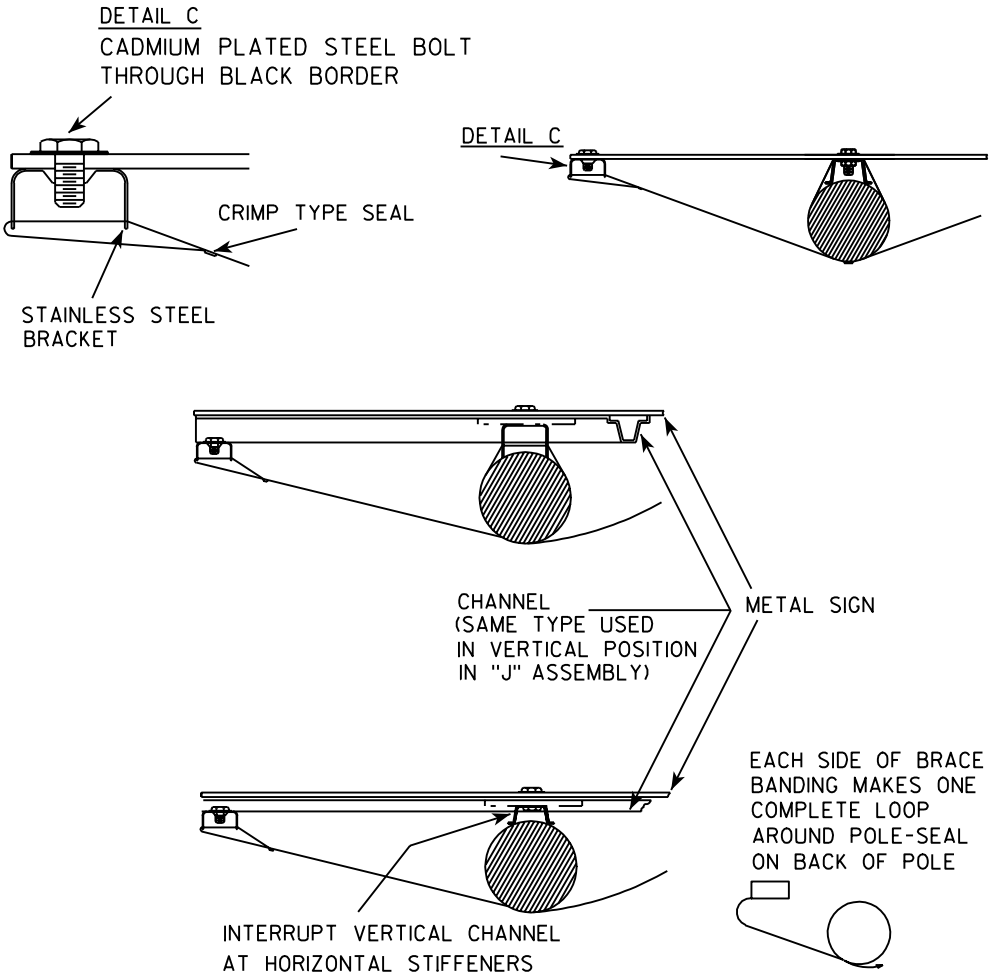


Washer Placement when Sign Has Other Than Type H or Type F Face

* 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 3/23/10	PLATE NO. A4-8.7

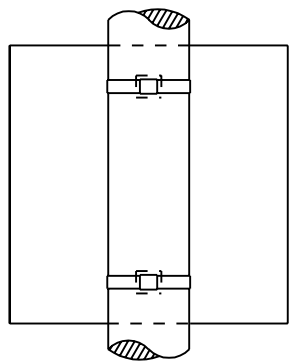
BRACE BANDING



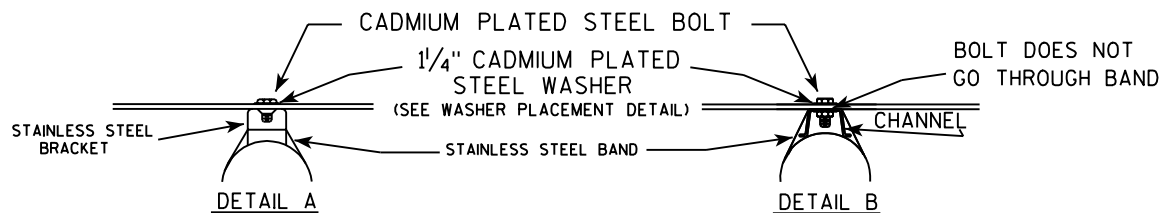
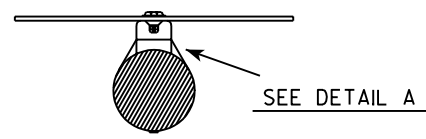
BRACE BANDING

BRACE BANDING SHALL BE TIGHTENED FIRMLY
BUT NOT SO TIGHT AS TO APPRECIABLY
CURVE FACE OF SIGN.

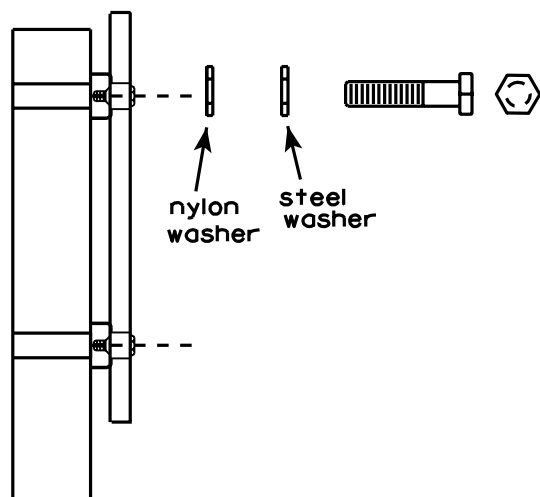
SINGLE SIGN



BRACKET BANDING

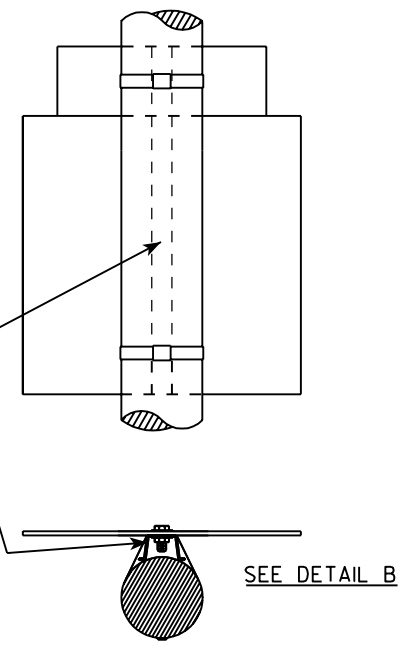


WASHER PLACEMENT



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

"J" ASSEMBLY



GENERAL NOTES

1. Signs 4' or greater in width shall have one brace band installed at the center of the sign.
2. Signs 3' or greater in height shall have three bracket bands installed. Signs less than 3' 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.

STANDARD SIGN
SIGN BANDING DETAILS

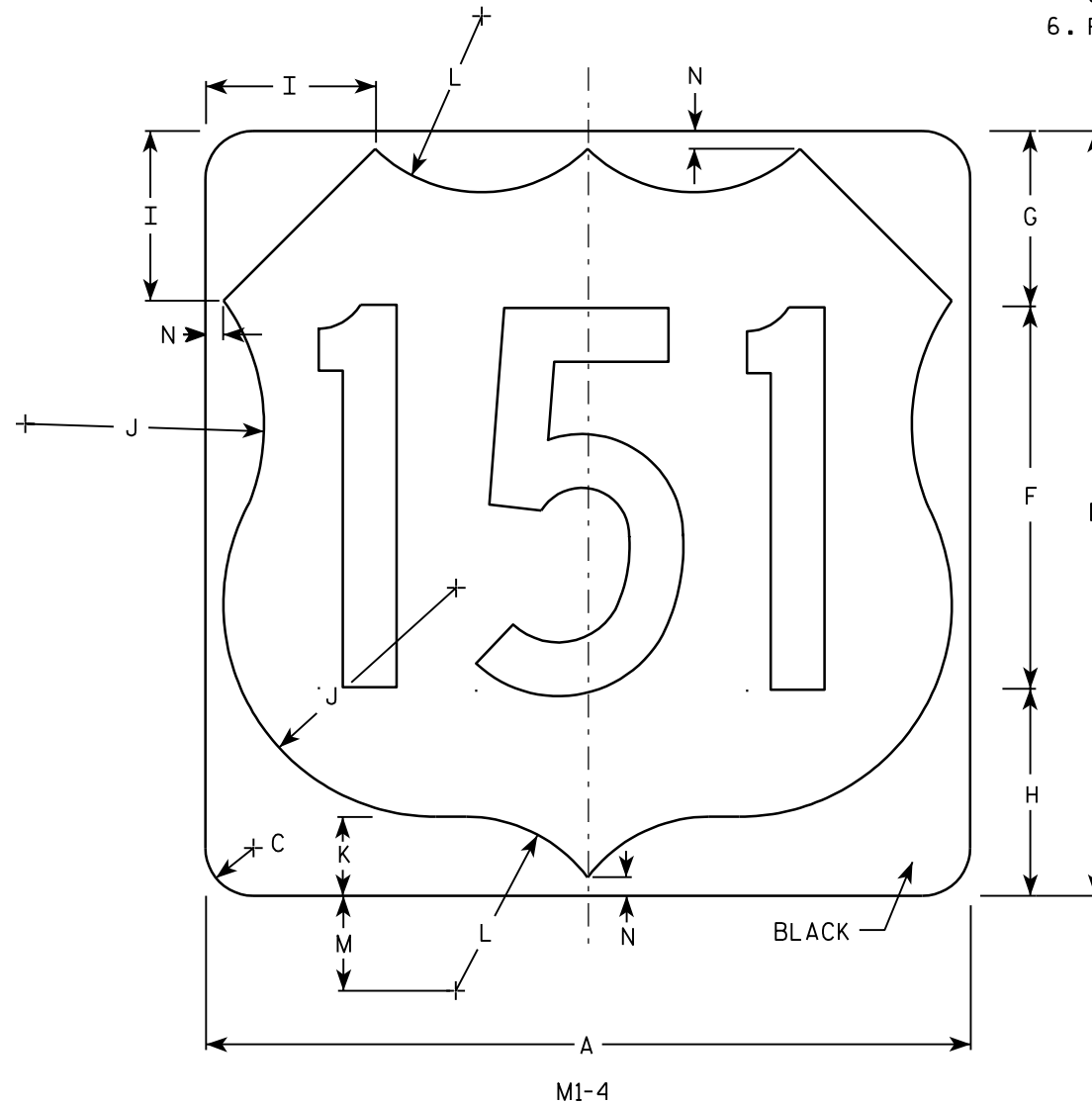
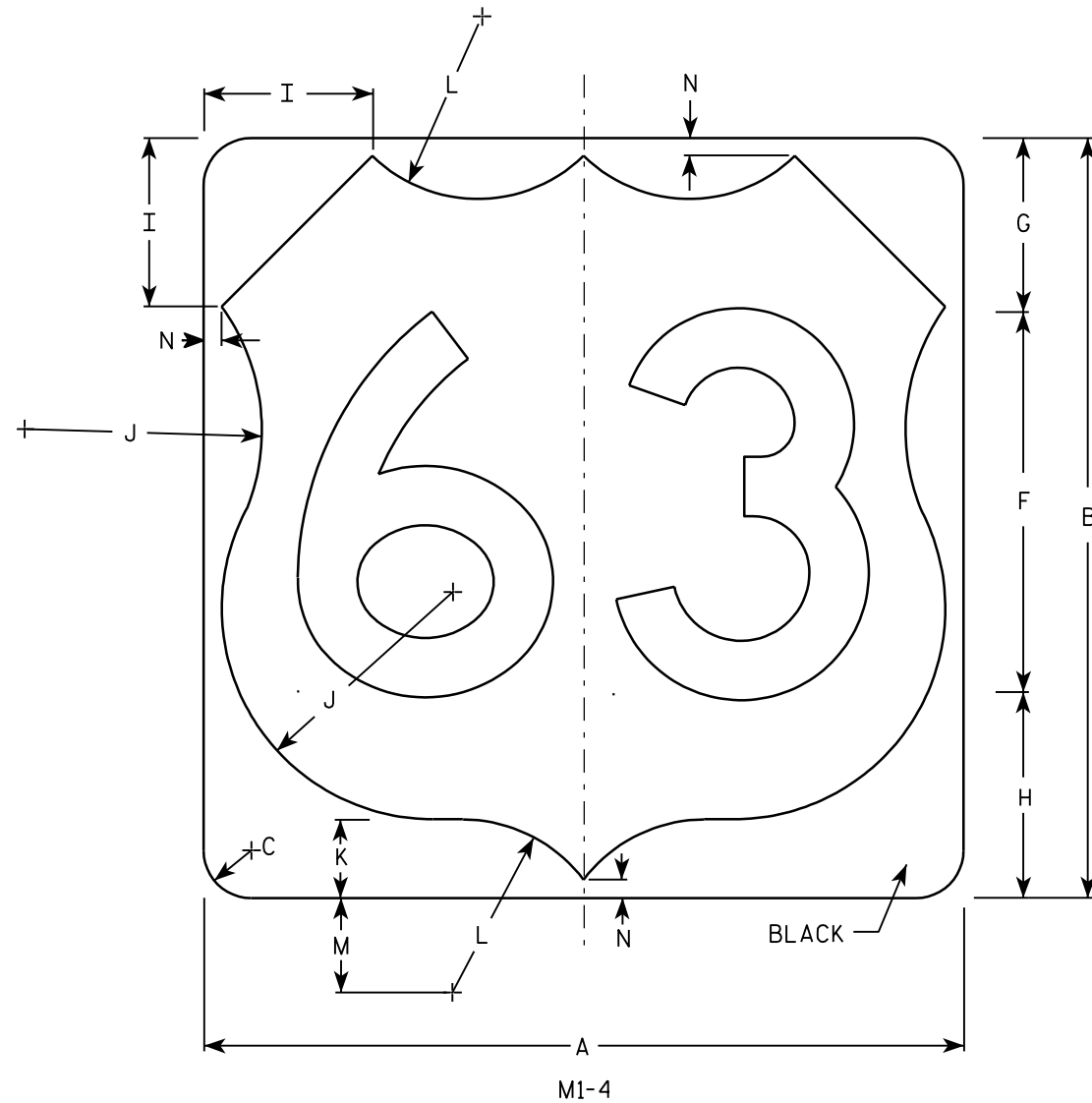
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 11/08/05 PLATE NO. A5-9.2

NOTES

1. Sign is Type II - See Note 6 - reference
WIS DOT Standard Specification for HIGHWAY
and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 6
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base
material is plywood but borders shall be rounded
as shown. When base material is metal, the
corners and borders shall be rounded.
5. Substitute appropriate numerals and adjust
spacing as per Plate A10-1.
6. Permanent Signs
Background - Type H Reflective
Detour or other temporary signs
Background - Reflective



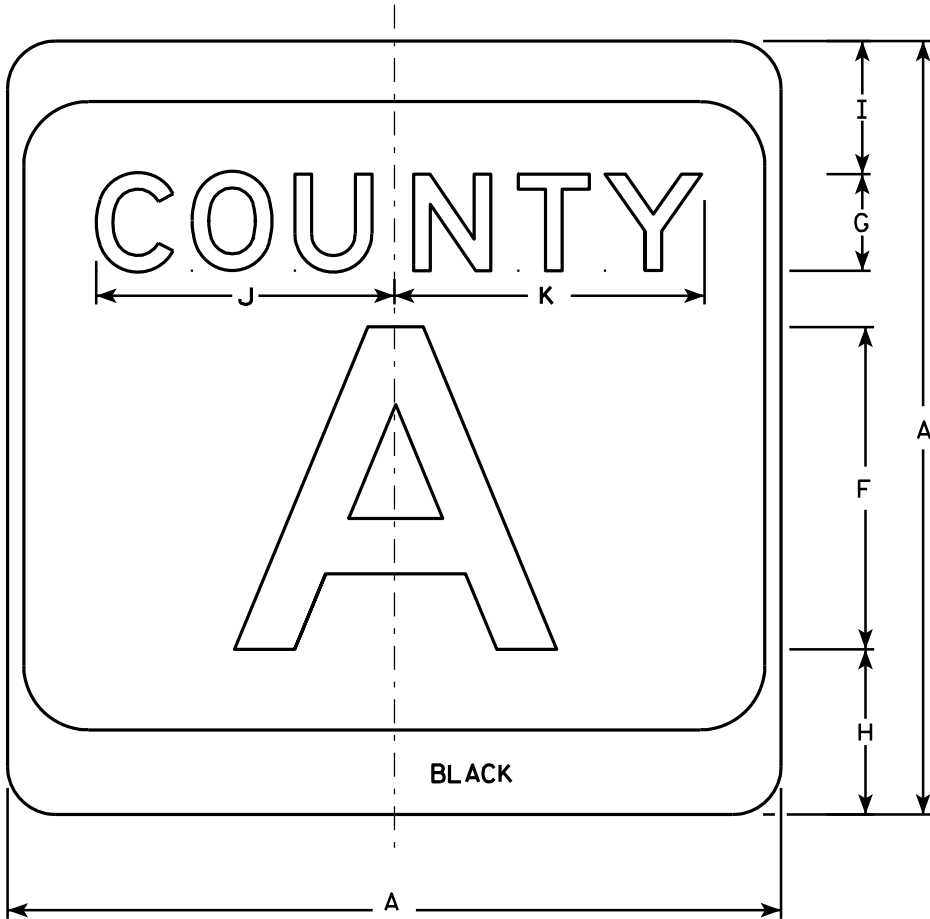
Metric equivalent
for this sign is:

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

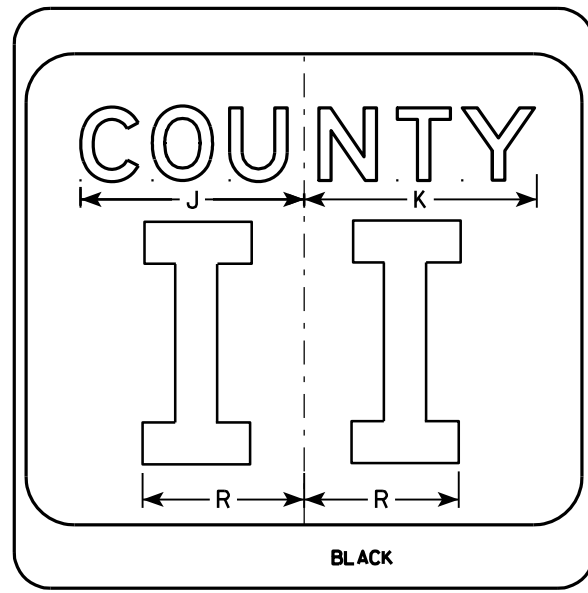
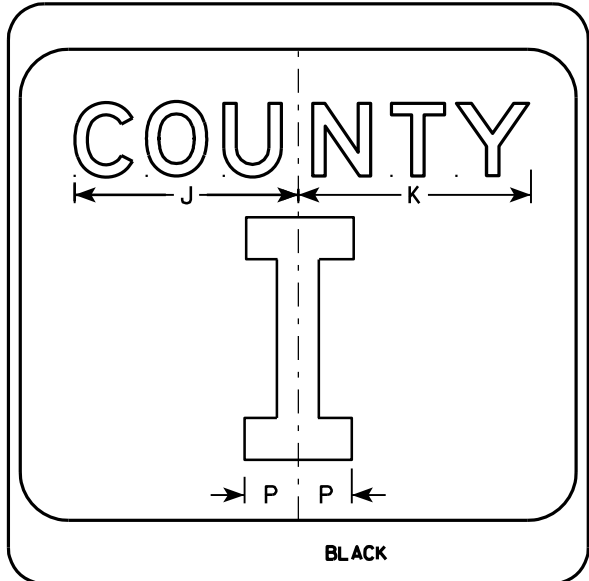
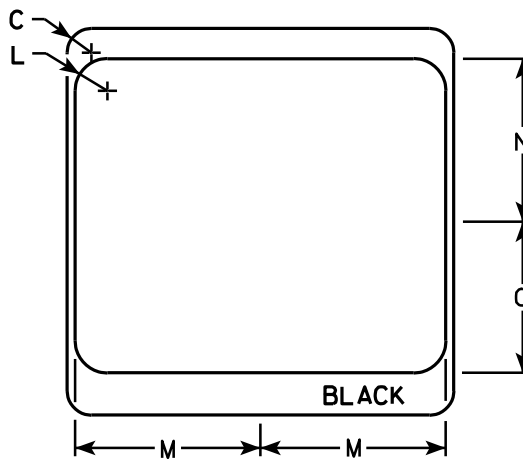
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Areq sq. ft.	Areq m ²
1																												
2	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0	.36
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0	.81

PROJECT NO: HWY: COUNTY: SHEET NO: E

7



M1-5A



NOTES

1. Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 7
Message - Black
3. Message Series - see Note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Message Series E for 1 letter.
Message Series D for 2 letters unless message is too big then Series C.
Message Series C for 3 letters unless message is too big then Series B.
6. Substitute appropriate letters & optically center to achieve proper balance.
7. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective

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																											
2	24		1 1/2			10	3	5 1/8	4 1/8	9 1/4	9 5/8	2	11 1/2	10 1/8	9 3/8	2 1/4		6 5/8									4.0
3	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
4	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0
5	36		2 1/4			16	4	7 5/8	5 5/8	12 1/4	12 7/8	3	17 1/8	15 1/4	14	3 3/8		10									9.0

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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CTH MARKER
M1-5A FOR ASSEMBLIES

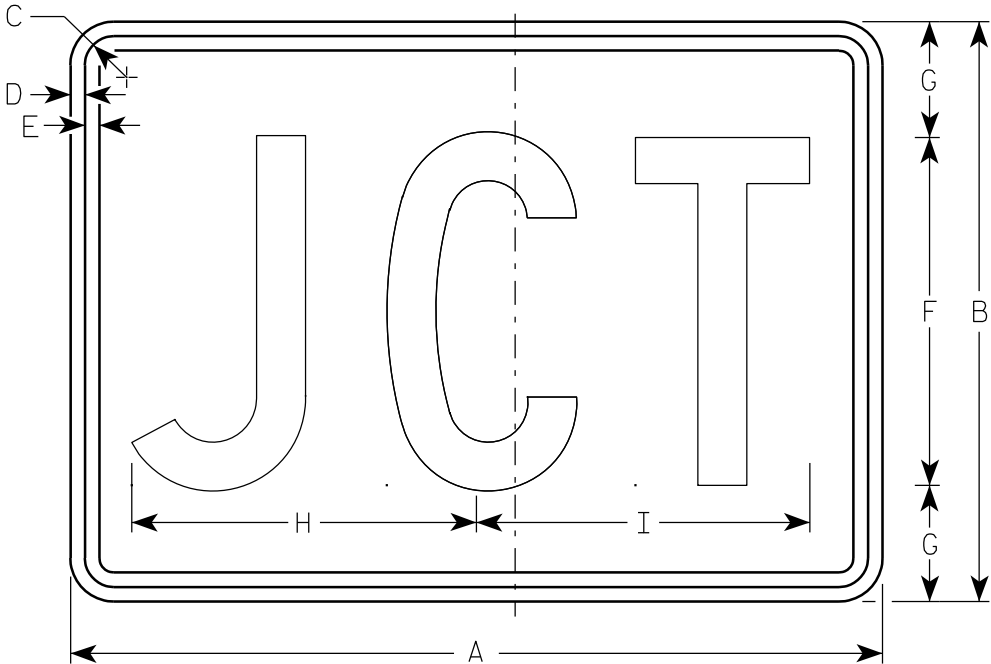
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

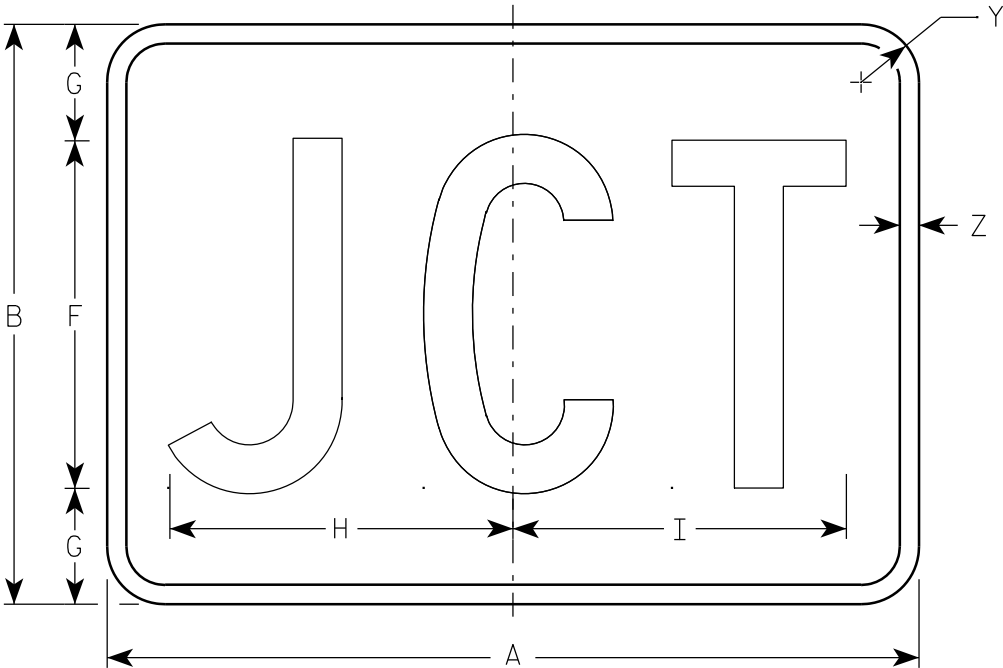
DATE 9/27/11 PLATE NO. M1-5A.8

NOTES

1. Sign is Type II - See Note 5 - reference
WIS DOT Standard Specification for HIGHWAY
and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base
material is plywood but borders shall be rounded
as shown. When base material is metal, the
corners and borders shall be rounded.
5. M2-1 Background - White - Type H Reflective
(Detour or temporary Signs - Reflective)
Message - Black
MB2-1 Background - Blue
Message - White - Type H Reflective
(Detour or temporary Signs - Reflective)
MG2-1 Background - Green
Message - White - Type H Reflective
MK2-1 Background - Green
Message - White - Type H Reflective
MM2-1 Background - White - Type H Reflective
Message - Green
MN2-1 Background - Brown
Message - White - Type H Reflective
MR2-1 Background - Brown
Message - Yellow - Type H Reflective



M2-1
MK2-1
MM2-1
MR2-1



MB2-1
MG2-1
MN2-1

Metric equivalent
for this sign is:

SIZE	
1	
2	525 mm X 375 mm
3	750 mm X 525 mm
4	750 mm X 525 mm
5	750 mm X 525 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2	21	15	1 1/8	3/8	3/8	9	3	8 7/8	8 5/8																1 1/2	1/2	2.20	0.20
3	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
4	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20
5	30	21	1 1/8	3/8	3/8	13	4	12 7/8	12 3/8																1 1/2	1/2	4.40	0.20

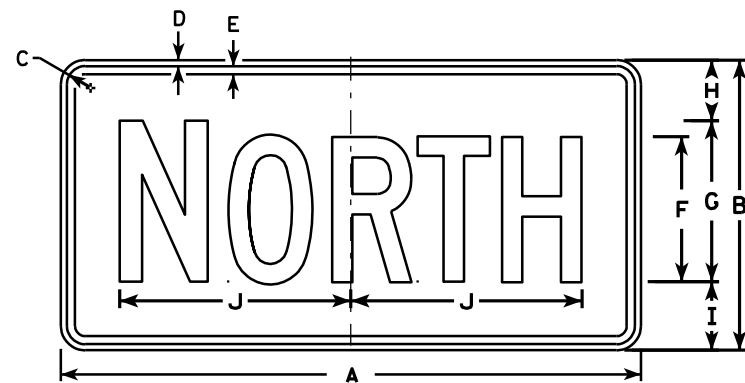
STANDARD SIGN
M2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 3/16/10 PLATE NO. M2-1.10

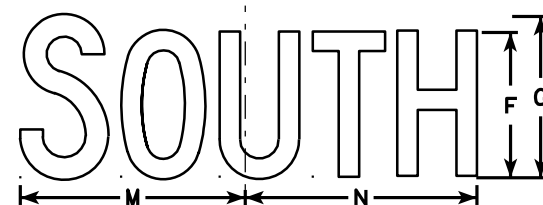
PROJECT NO: HWY: COUNTY: SHEET NO: E



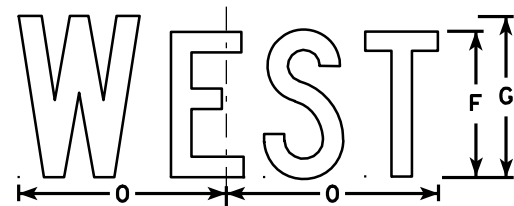
M3-1
MK3-1
M03-1



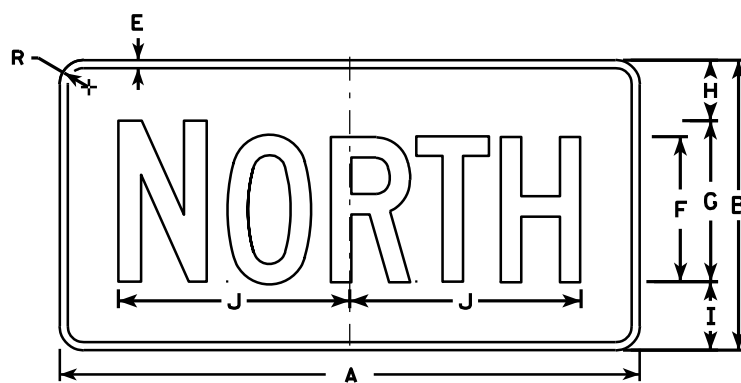
M3-2
MK3-2
M03-2



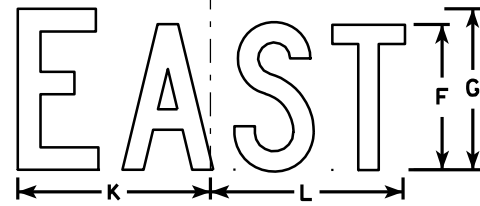
M3-3
MK3-3
M03-3



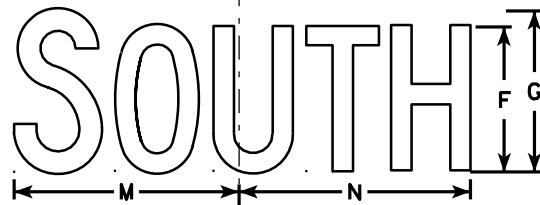
M3-4
MK3-4
M03-4



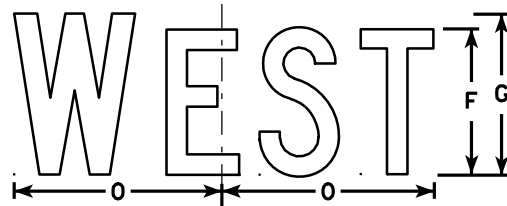
MB3-1
MG3-1
MM3-1
MN3-1



MB3-2
MG3-2
MM3-2
MN3-2



MB3-3
MG3-3
MM3-3
MN3-3



MB3-4
MG3-4
MM3-4
MN3-4

NOTES

1. All Signs Type II - See Note 5 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White - Type H Reflective (Detour or temporary signs - Reflective)
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White - Type H Reflective (Detour or temporary signs - Reflective)
MG3-1 thru MG3-4 Background - Green
Message - White - Type H Reflective
MK3-1 thru MK3-4 Background - Green
Message - White - Type H Reflective
MM3-1 thru MM3-4 Background - White - Type H Reflective
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White - Type H Reflective
M03-1 thru M03-4 Background - Orange - Reflective
Message - Black
6. Note the first letter of each direction is larger than the remainder of the message.

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																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

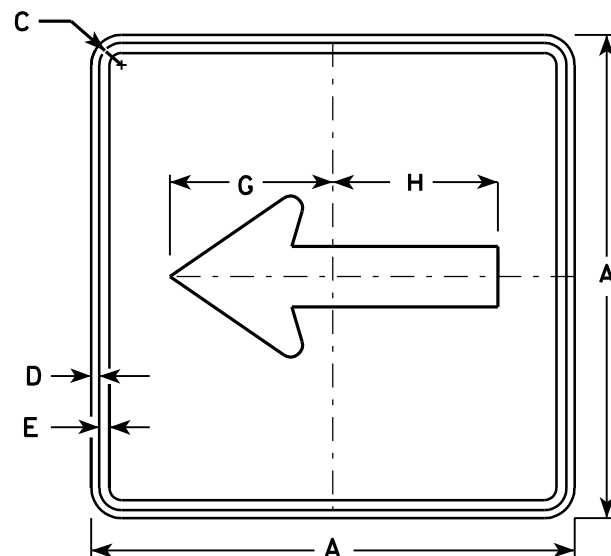
PROJECT NO: HWY: COUNTY: SHEET NO: E

STANDARD SIGNS
M3-1 thru M3-4
SERIES

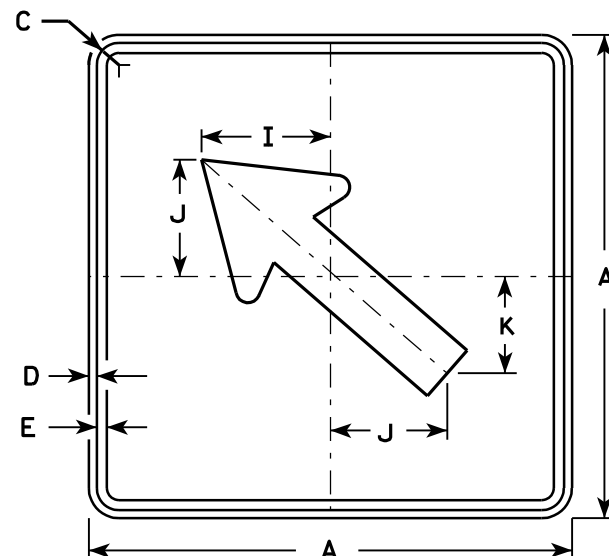
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

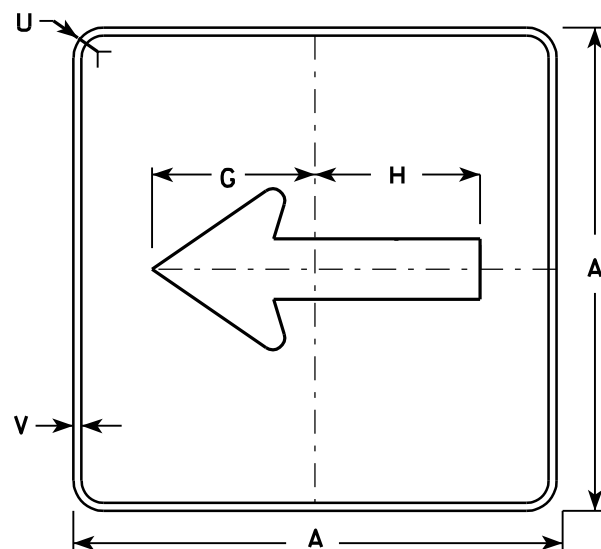
DATE 11/10/10 PLATE NO. M3-1.12



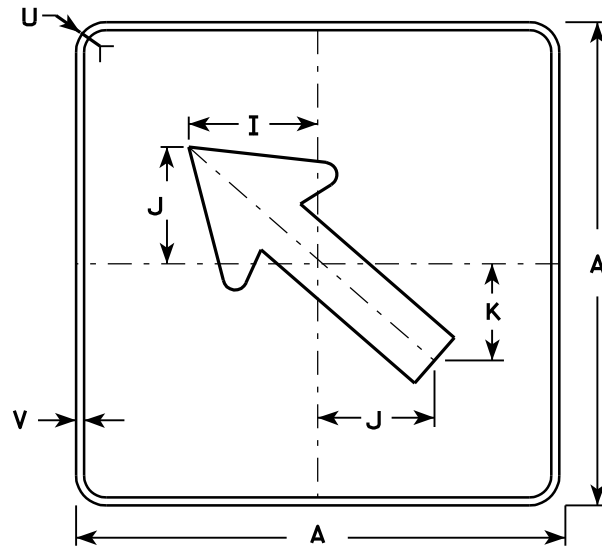
M6-1
MK6-1
MM6-1
MO6-1
MR6-1



M6-2
MK6-2
MM6-2
MO6-2
MR6-2



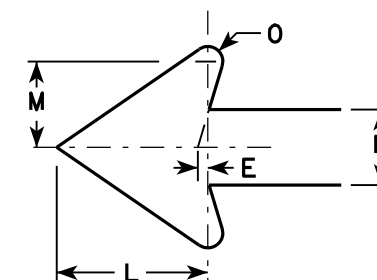
MB6-1
MG6-1
MN6-1



MB6-2
MG6-2
MN6-2

NOTES

- Signs are Type II - See Note 4 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White - Type H Reflective
(Detour or temporary Signs - Reflective)
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White - Type H Reflective
(Detour or temporary Signs - Reflective)
MG6-1 and MG6-2 Background - Green
Message - White - Type H Reflective
MK6-1 and MK6-2 Background - Green
Message - White - Type H Reflective
MM6-1 and MM6-2 Background - White - Type H Reflective
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White - Type H Reflective
MO6-1 and MO6-2 Background - Orange - Reflective
Message - Black
MR6-1 and MR6-2 Background - Brown
Message - Yellow - Type H Reflective

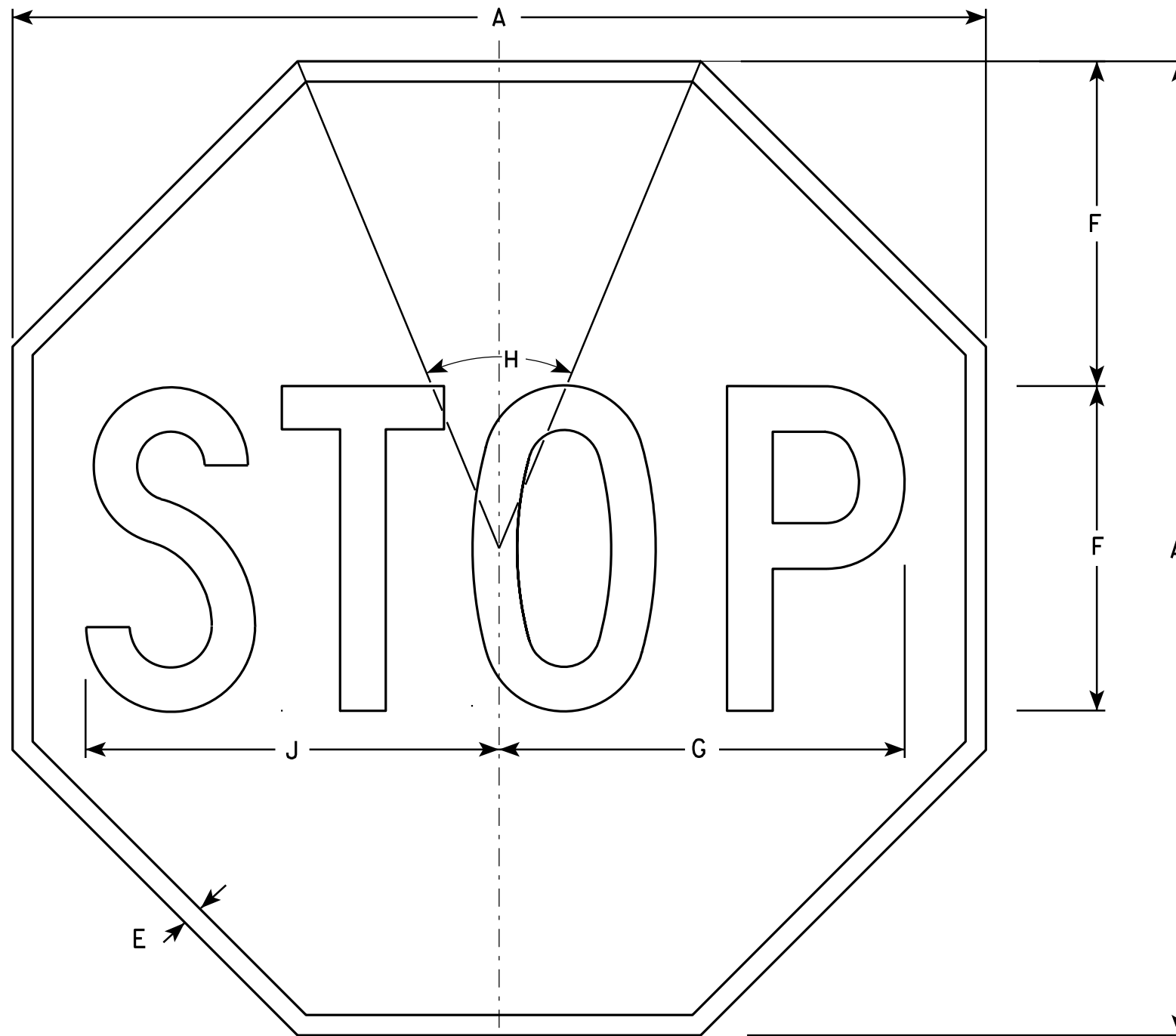


Metric equivalent
for this sign is:

SIZE	
1	
2	525 mm X 525 mm
3	750 mm X 750 mm
4	750 mm X 750 mm
5	750 mm X 750 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m2
1																												
2	21		1 1/8	3/8	3/8		7 1/2	7 1/8	5 5/8	5	4 1/4	5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06	0.28
3	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56
4	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56
5	30		1 3/8	1/2	5/8		10 3/4	10 1/4	8	7 1/4	6	7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25	0.56

PROJECT NO: HWY: COUNTY: SHEET NO: E



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

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	24				3/8	8	10	45°		10 1/4																	3.31
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

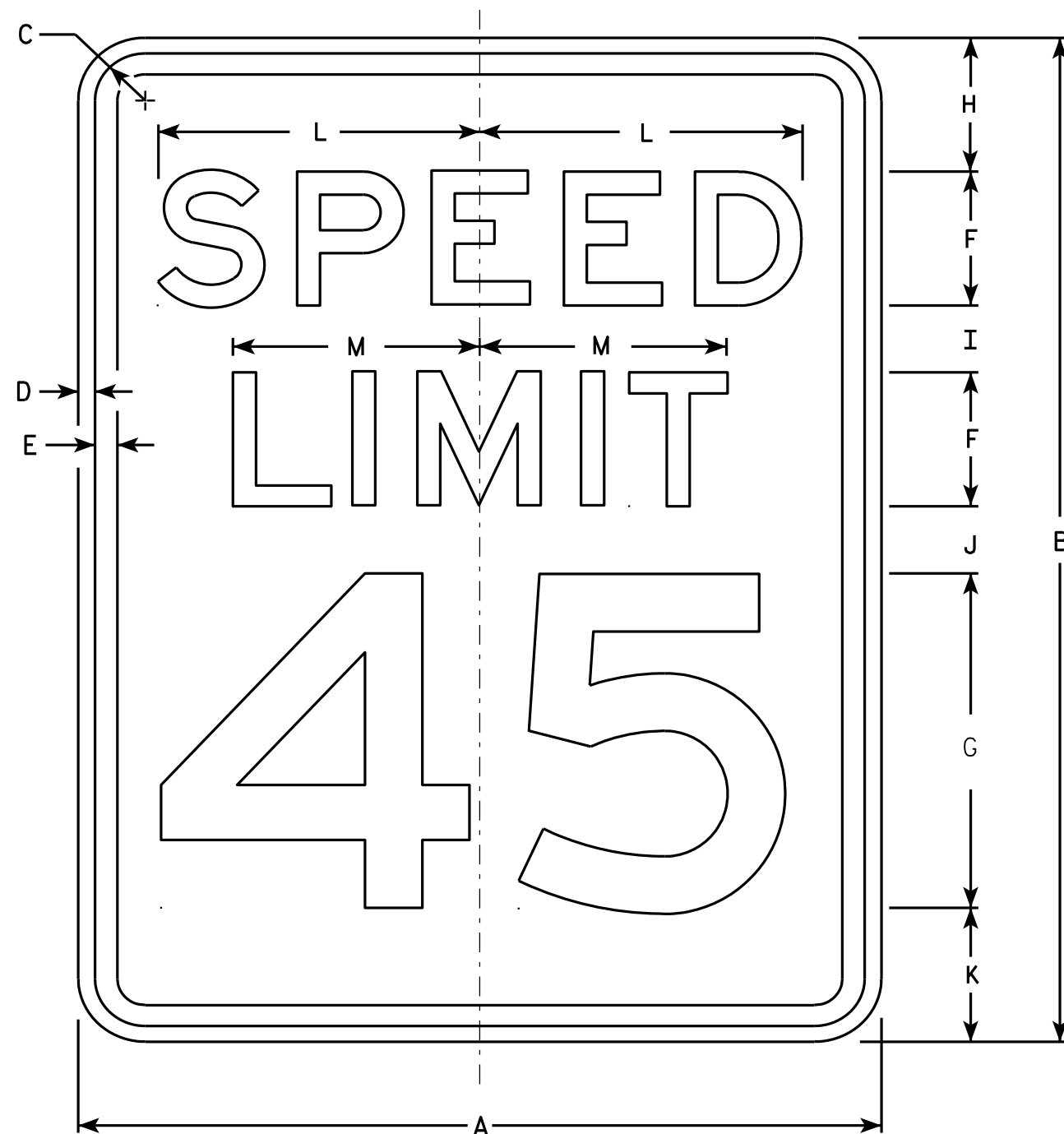
STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1.12

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
-------------	------	---------	-----------	---



R2-1

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - E
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

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	18	24	1 1/8	3/8	1/2	3	8	3	2	2	3	7 1/4	5 1/2														3.0
2S	24	30	1 1/8	3/8	1/2	4	10	3	2 1/4	3 3/8	3 3/8	9 5/8	7 3/8														5.0
2M	30	36	1 3/8	1/2	5/8	5	12	5	2 1/2	2 1/2	4	12	9 1/4														7.5
3	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
4	36	48	1 3/8	1/2	5/8	6	14	6	5	5	6	14 3/8	11														12.0
5	48	60	2 1/4	3/4	1	8	20	6	4 1/2	6 3/4	6 3/4	19 1/4	14 5/8														20.0

STANDARD SIGN R2-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-1.13

PROJECT NO:

HWY:

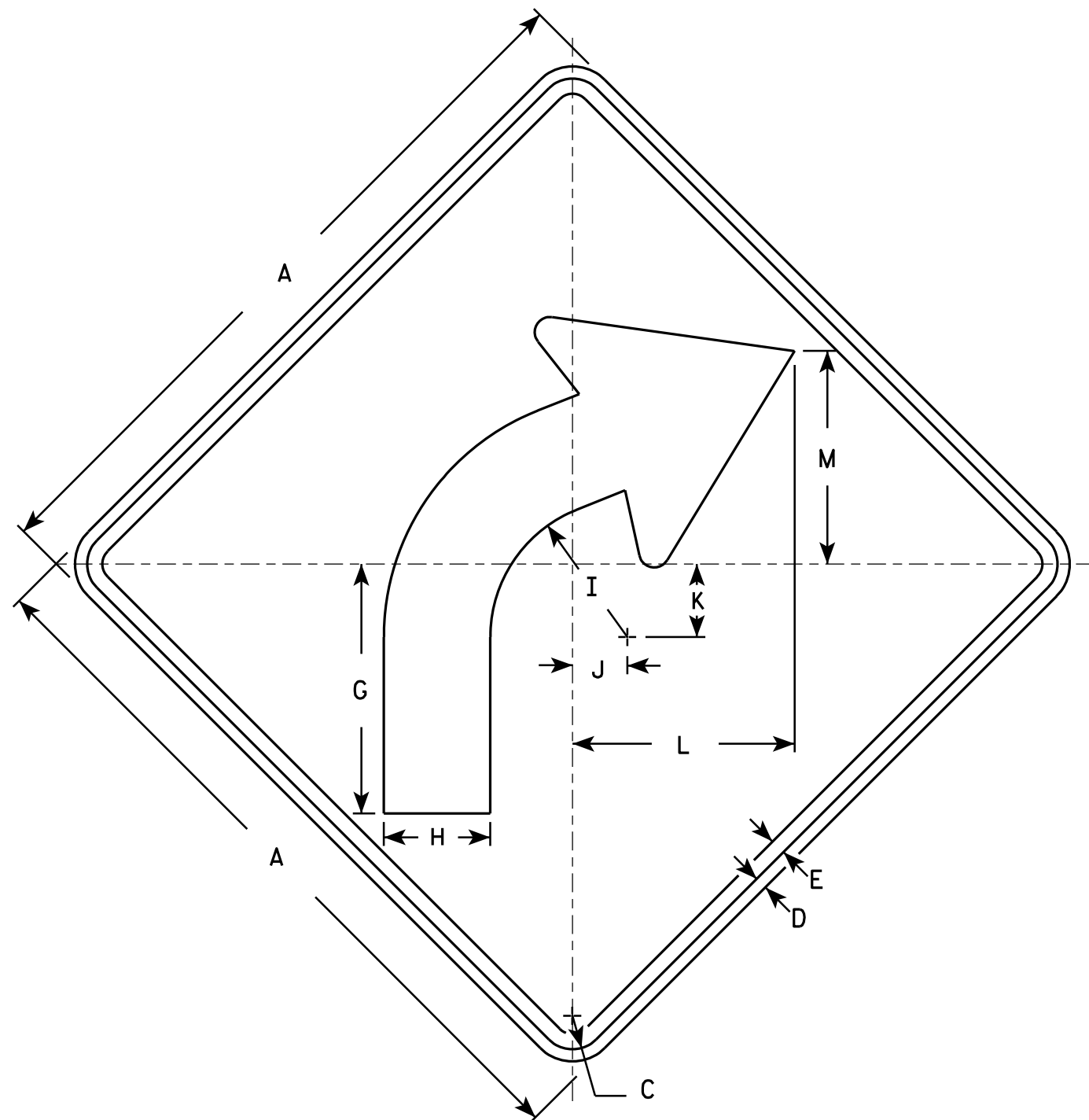
COUNTY:

SHEET NO:

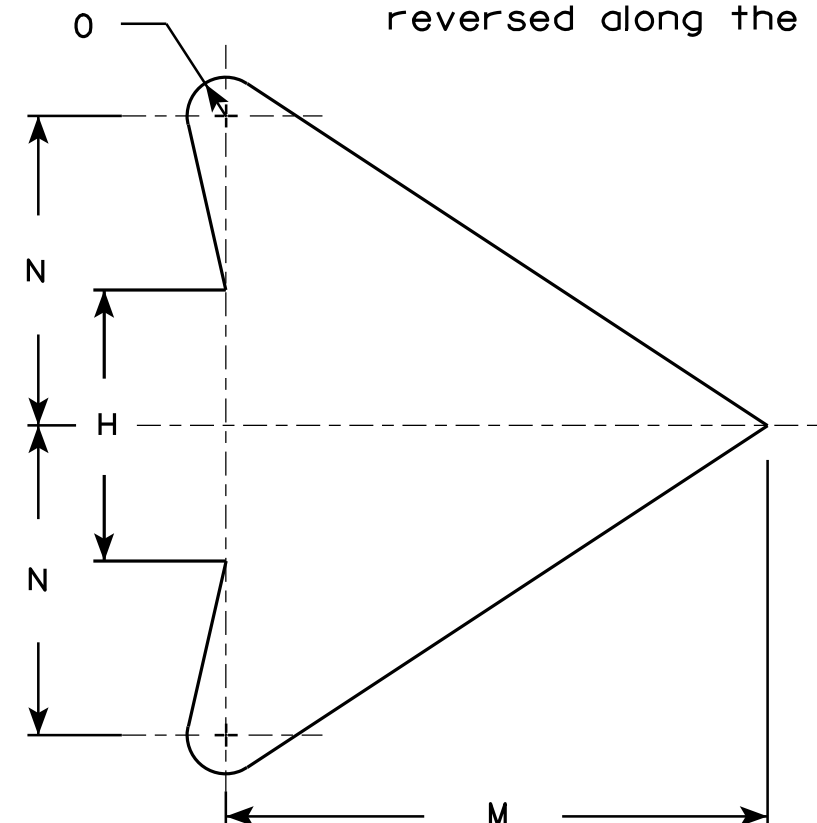
E

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. W1-2L is the same as W1-2R except the arrow is reversed along the vertical centerline.



W1-2R



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 1/8	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 3/8	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		1 5/8	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		1 5/8	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		1 5/8	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		2 1/4	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 5/15/12 PLATE NO. W1-2.10

PROJECT NO:

HWY:

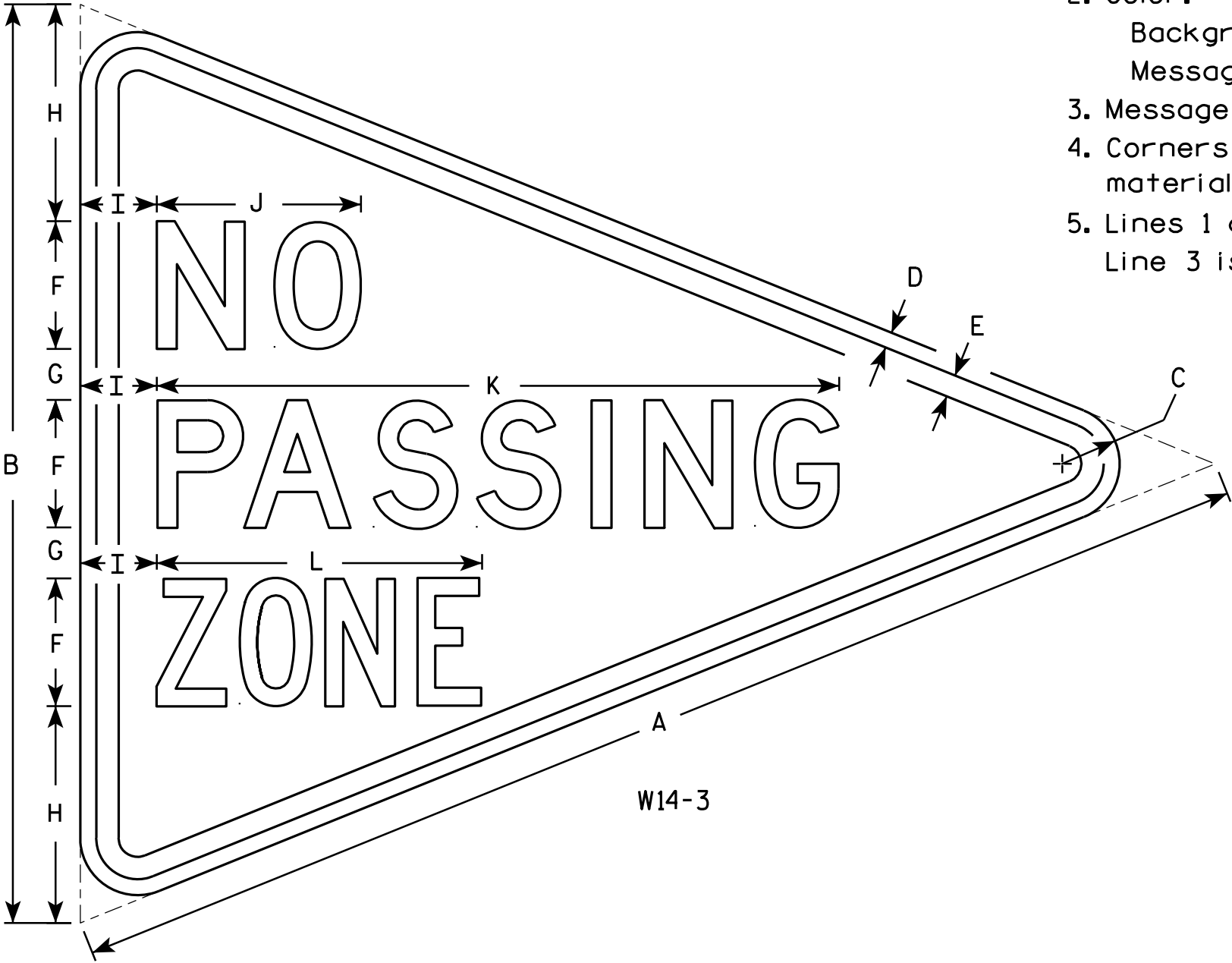
COUNTY:

SHEET NO:

E

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Yellow
Message - Black
- 3. Message Series - See note 5
- 4. Corners and borders shall be rounded on all base materials for this sign.
- 5. Lines 1 and 2 are Series D.
Line 3 is series C.



W14-3

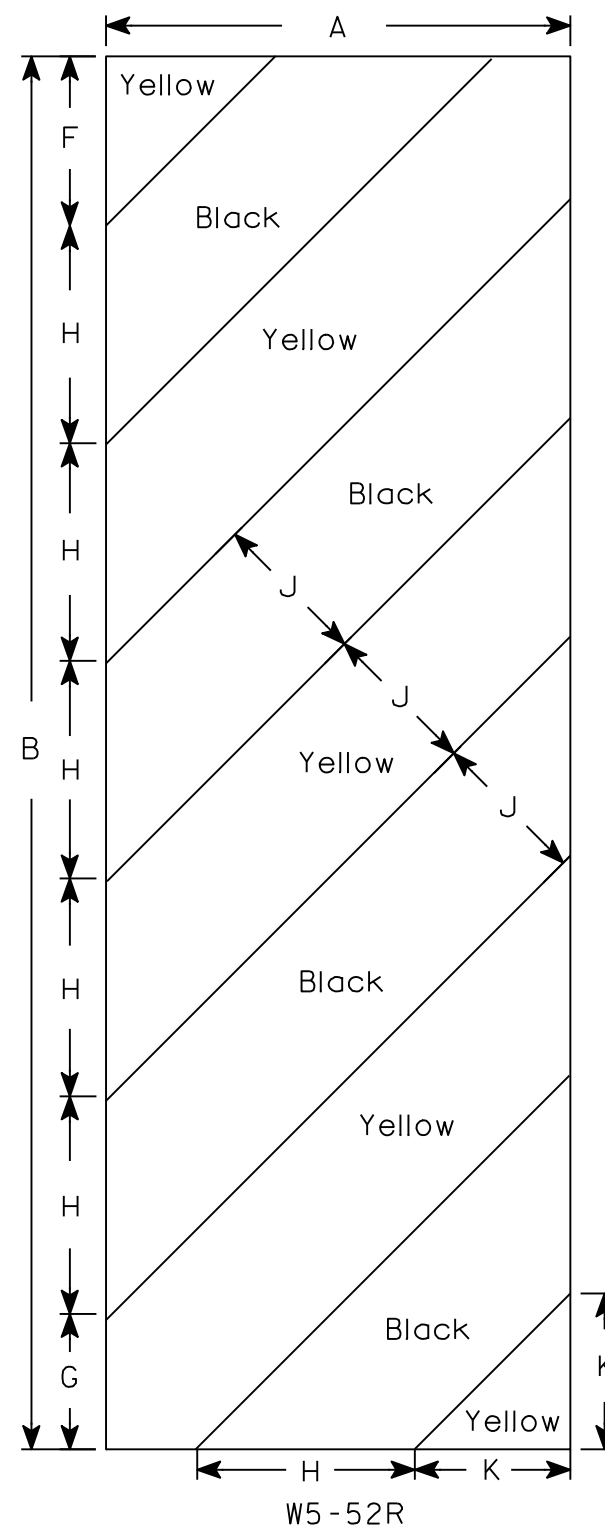
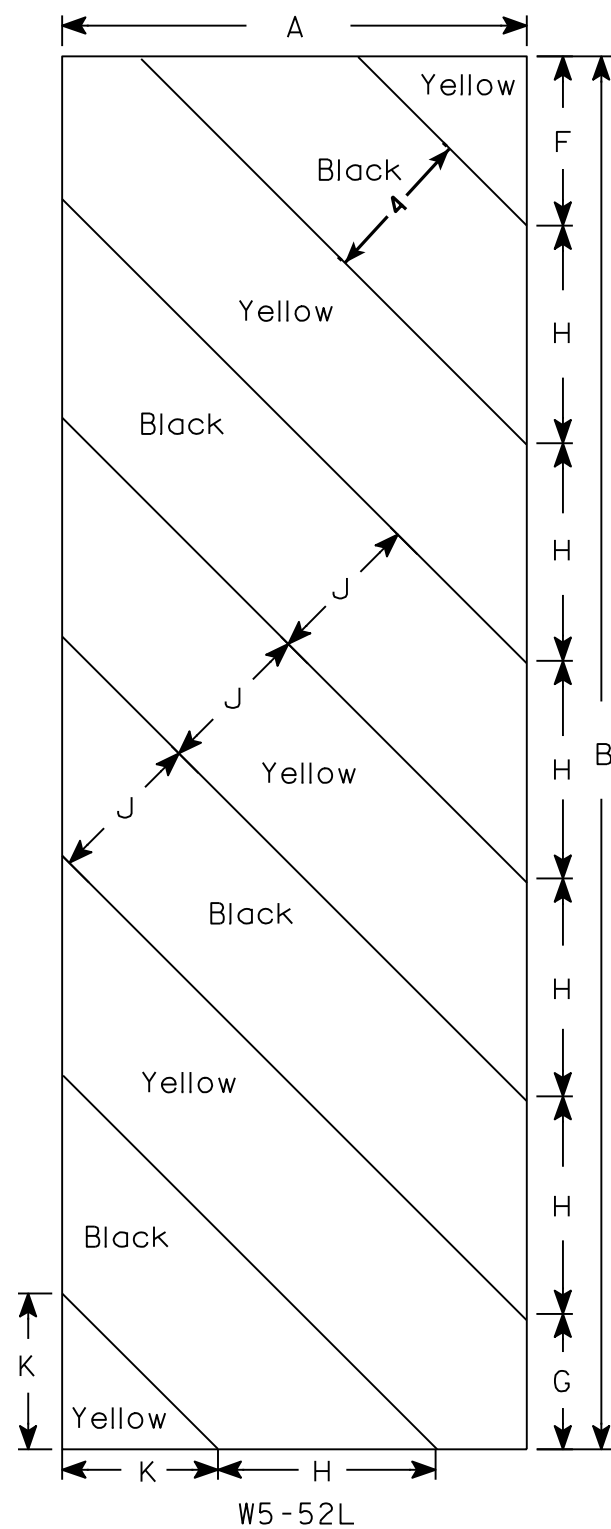
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
2M	48	36	2 1/4	5/8	7/8	5	2	8 1/2	3	8	26 3/4	12 3/4															6.0
3	64	48	3	3/4	1 1/4	6	3	12	4	10 3/4	33 5/8	16 1/2															10.7
4																											
5																											

STANDARD SIGN
W14-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 6/7/10 PLATE NO. W14-3.9



NOTES

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

[illegible]

STANDARD SIGN
W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
for State Traffic Engineer
DATE 5/29/12 PLATE NO. W5-52.9

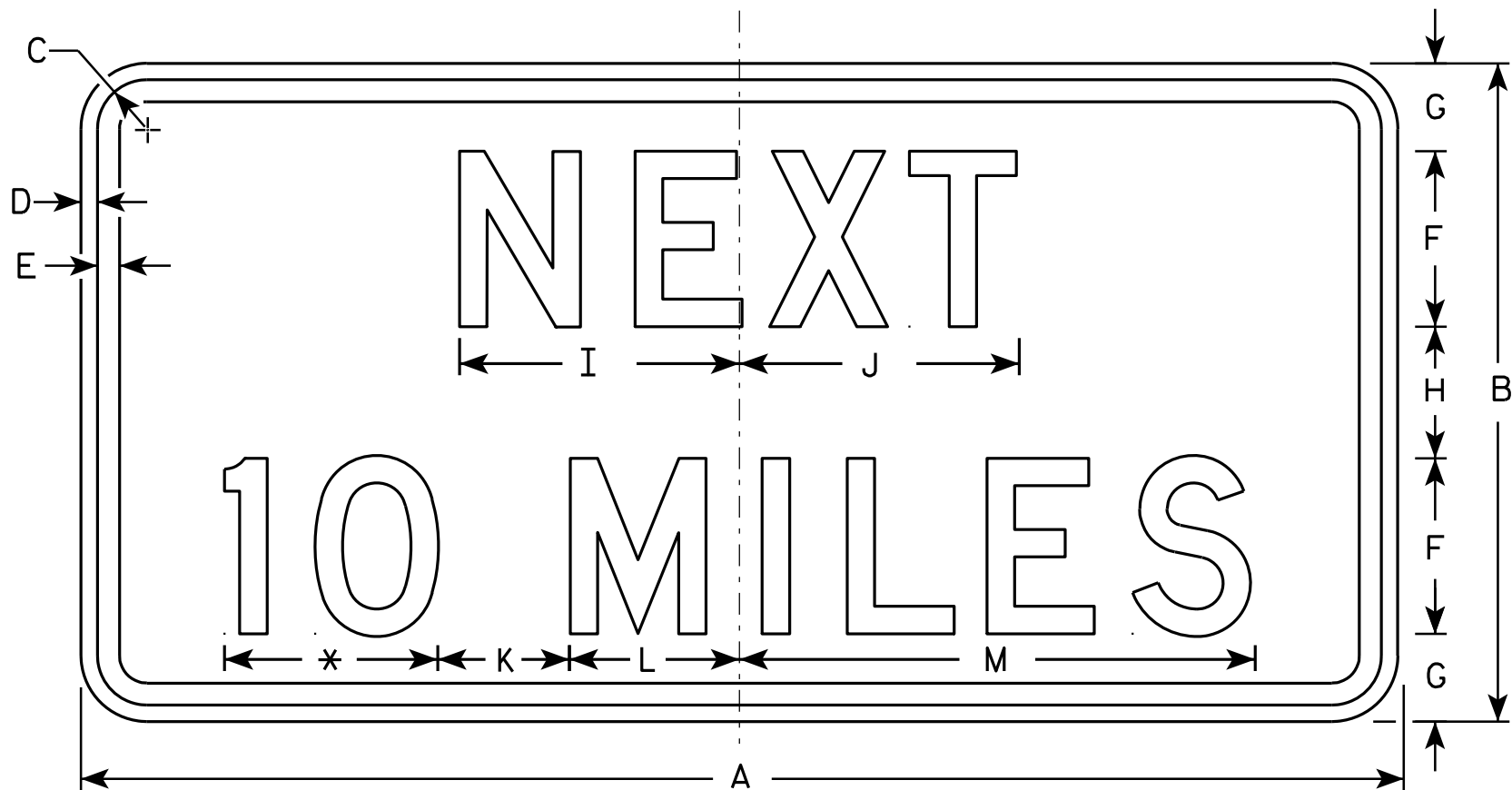
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



W57-51

- NOTES**
- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
 - 2. Color:
Background - Yellow
Message - Black
 - 3. Message Series - D
 - 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - 5. Substitute appropriate numerals and optically adjust spacing to achieve proper balance.

* See note 5

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	12	1 1/8	3/8	3/8	3	1 3/4	2 1/2	5	5 1/8	3	2 3/4	9 5/8														2.0
2S	30	15	1 1/8	3/8	1/2	4	2	3	6 3/8	6 3/8	3	3 7/8	11 3/4														3.13
2M	36	18	1 1/8	3/8	1/2	5	2 5/8	2 3/4	7 7/8	8	5	4 1/8	15 3/8														4.5
3	36	18	1 1/8	3/8	1/2	5	2 5/8	2 3/4	7 7/8	8	5	4 1/8	15 3/8														4.5
4	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0
5	48	24	1 3/8	1/2	5/8	6	3 1/2	5	10	10 1/8	6	5 5/8	19														8.0

STANDARD SIGN
W57-51

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 4/18/11 PLATE NO. W57-51.8

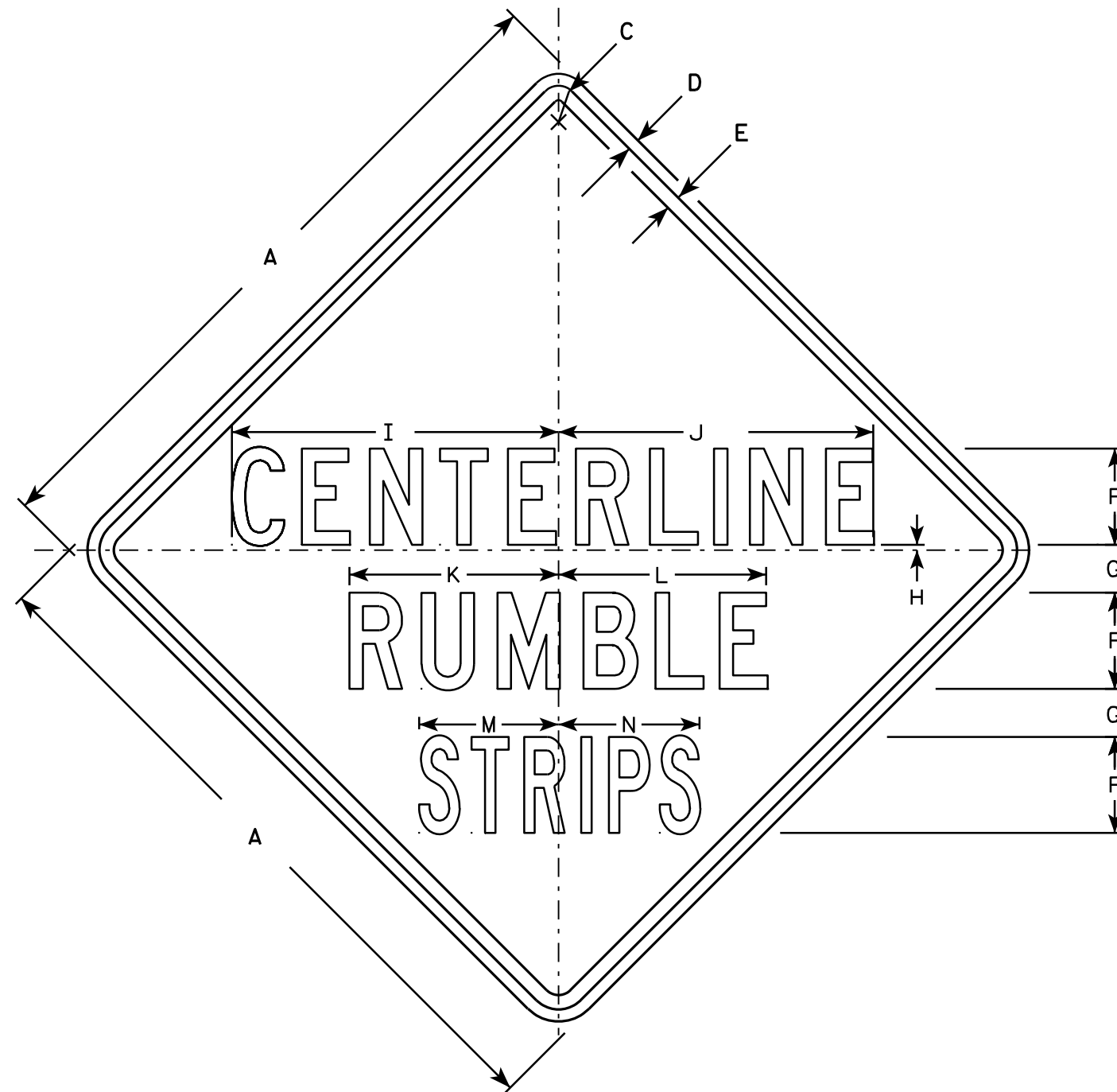
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



W8-70

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - YELLOW
Message - BLACK
3. Message Series - SEE NOTE 5.
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 and 2 are Series C.
Line 3 is Series B.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36		1 5/8	5/8	3/4	5	2 1/2	1/4	17	16 3/8	10 7/8	10 3/4	7 1/4	7 3/8													9.0
2M	36		1 5/8	5/8	3/4	5	2 1/2	1/4	17	16 3/8	10 7/8	10 3/4	7 1/4	7 3/8													9.0
3	36		1 5/8	5/8	3/4	5	2 1/2	1/4	17	16 3/8	10 7/8	10 3/4	7 1/4	7 3/8													9.0
4																											
5																											

STANDARD SIGN	
W8-70	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/11	PLATE NO. W8-70.2

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
 INVENTORY RATING FACTOR: RF=1.35
 OPERATING RATING FACTOR: RF=1.75
 WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV): 250 (KIPS)

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

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY SLAB — $f'_c = 4,000$ P.S.I. ALL OTHER — $f'_c = 3,500$ P.S.I.
 BAR STEEL REINFORCEMENT, GRADE 60 — $f_y = 60,000$ P.S.I.
 36W" PRESTRESSED GIRDERS, CONCRETE MASONRY — $f'_c = 8,000$ P.S.I.
 STRANDS- 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10X42 STEEL PILING
 DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 140 TONS ** PER PILE
 AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
 ESTIMATED 65'-0" LONG - WEST ABUT.
 ESTIMATED 75'-0" LONG - EAST ABUT.

PIERS TO BE SUPPORTED ON HP 10X42 STEEL PILING
 DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE
 AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
 ESTIMATED 45'-0" LONG.

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

TRAFFIC VOLUME

USH 10

A.D.T.=8800 (2031)
 R.D.S.=60 M.P.H.

HYDRAULIC DATA

100 YEAR FREQUENCY

$Q_{100} = 3350$ C.F.S.
 $VEL. = 5.5$ F.P.S.
 $HW. = EL. 697.3$
 WATERWAY AREA= 609 SQ. FT.
 DRAINAGE AREA= 103.3 SQ. MI.
 ROAD OVERTOPPING = NA
 SCOUR CRITICAL CODE = 5

2 YEAR FREQUENCY

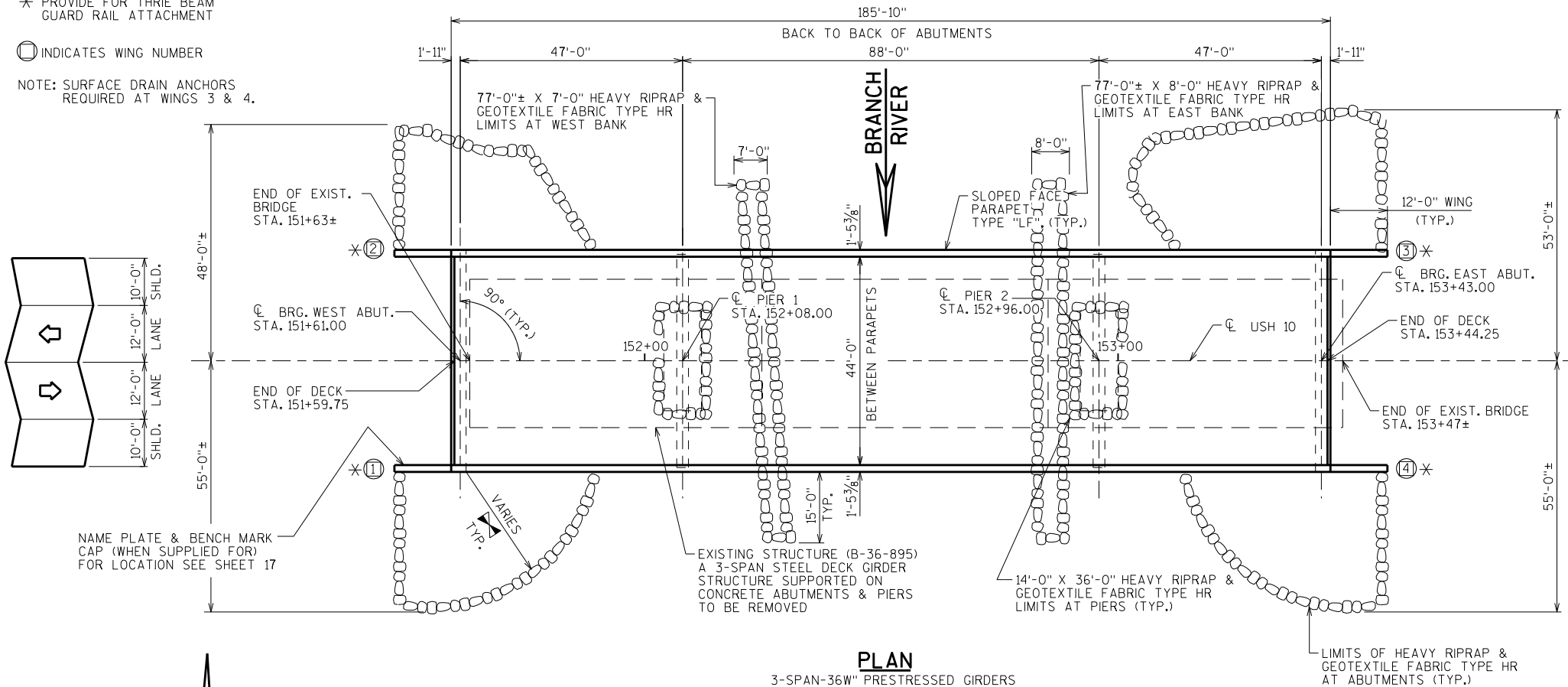
$Q_2 = 920$ C.F.S.
 $HW. = EL. 694.4$

STRUCTURES DESIGN CONTACTS:
 NICK RICE (608) 266-5092
 KENT BAHLER (608) 266-8490

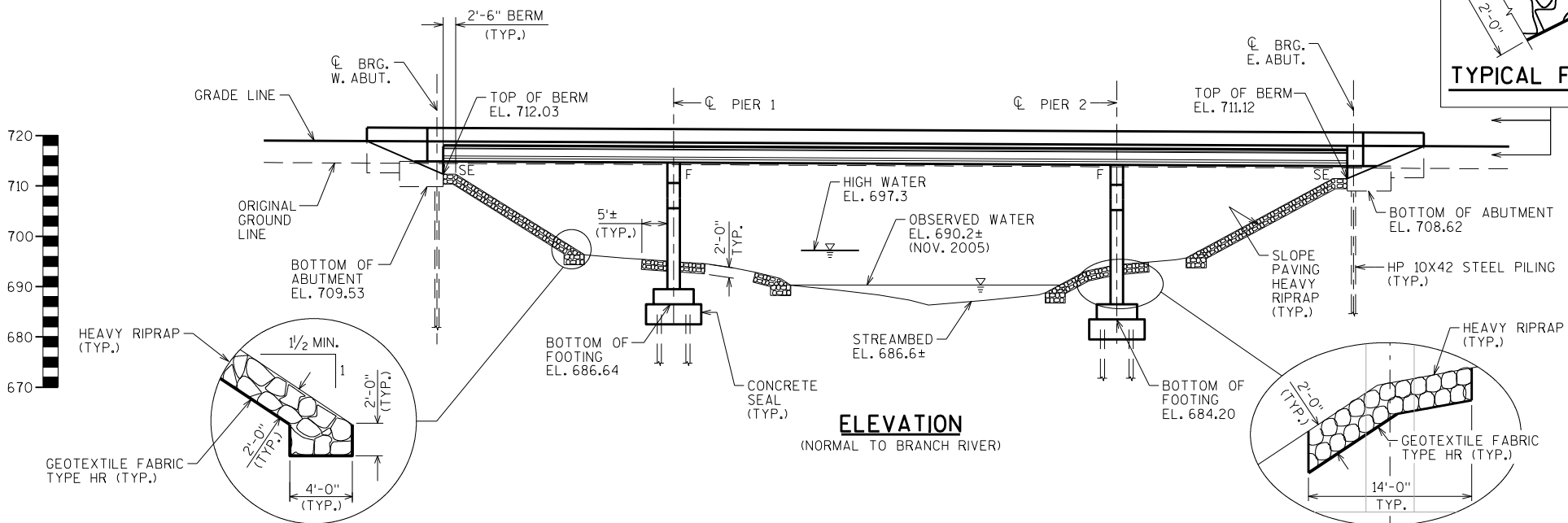
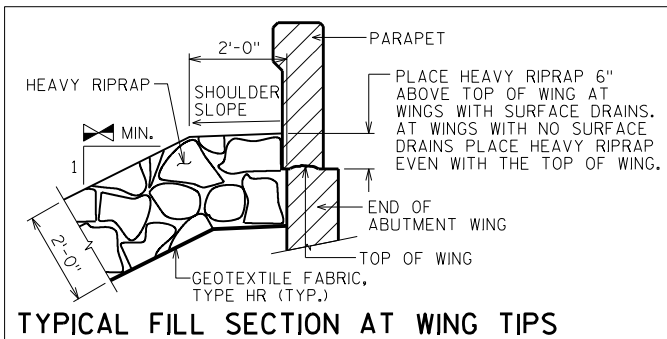
* PROVIDE FOR THRE BEAM
 GUARD RAIL ATTACHMENT

⊙ INDICATES WING NUMBER

NOTE: SURFACE DRAIN ANCHORS
 REQUIRED AT WINGS 3 & 4.



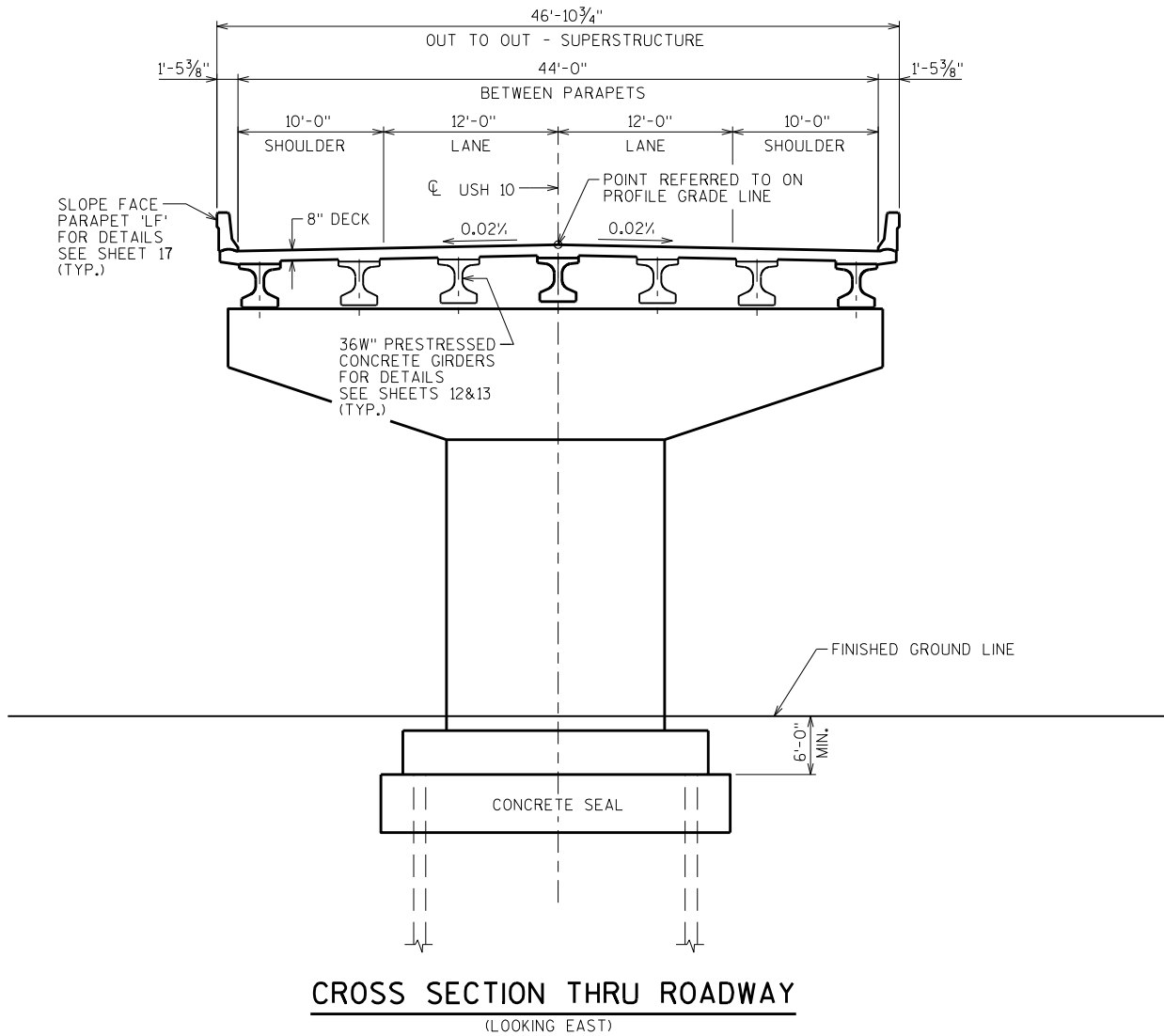
⚡ SLOPE VARIES FROM
 2.5:1 AT WING TIP
 TO 1.5:1 IN FRONT
 OF ABUTMENTS



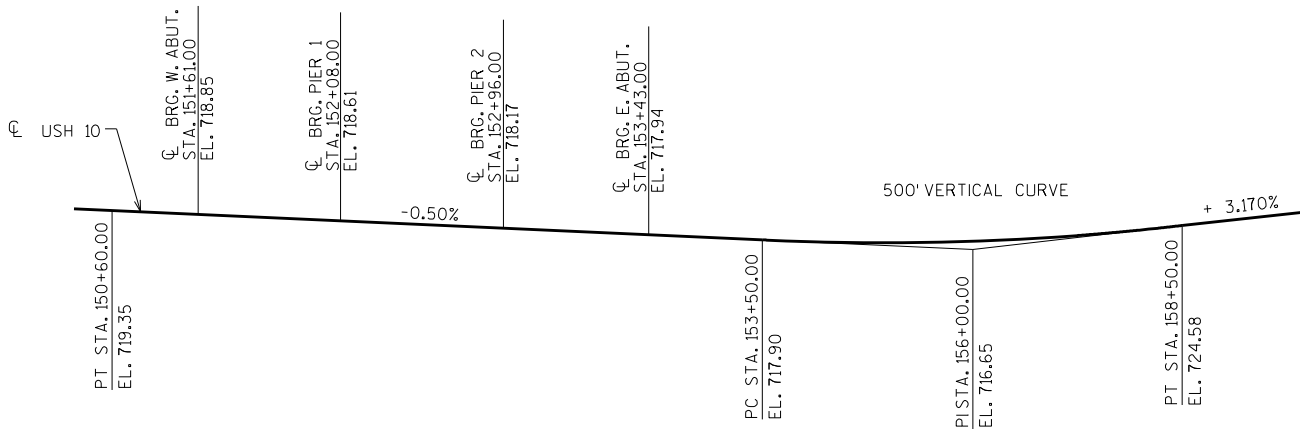
LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. WEST ABUTMENT
5. WEST ABUTMENT DETAILS
6. EAST ABUTMENT
7. EAST ABUTMENT DETAILS
8. PIER 1
9. PIER 1 DETAILS
10. PIER 2
11. PIER 2 DETAILS
12. 36W" PRESTRESSED GIRDER DETAILS
13. 36W" PRESTRESSED GIRDER DETAILS
14. STEEL DIAPHRAGMS
15. SUPERSTRUCTURE
16. SUPERSTRUCTURE DETAILS
17. SLOPED FACE PARAPET TYPE 'LF'

NO.	DATE	REVISION	BY
Plans Prepared By WISDOT BUREAU OF STRUCTURES ACCEPTED <i>William C. Dierker</i> 1/23/13 CHIEF STRUCTURES DESIGN ENGINEER DATE			
STRUCTURE B-36-193			
U.S.H. 10 OVER THE BRANCH RIVER			
COUNTY	MANITOWOC	TOWN/CITY/VILLAGE	MANITOWOC RAPIDS
DESIGN SPEC.	AASHTO LRFD	DESIGN SPEC.	5th EDITION
DESIGNED BY	NAR	DESIGN CKD.	MSC
DRAWN BY	NAR/DDS	PLANS CKD.	AMB
GENERAL PLAN			SHEET 1 OF 17



CROSS SECTION THRU ROADWAY
(LOOKING EAST)



PROFILE GRADE LINE - USH 10

TOTAL ESTIMATED QUANTITIES

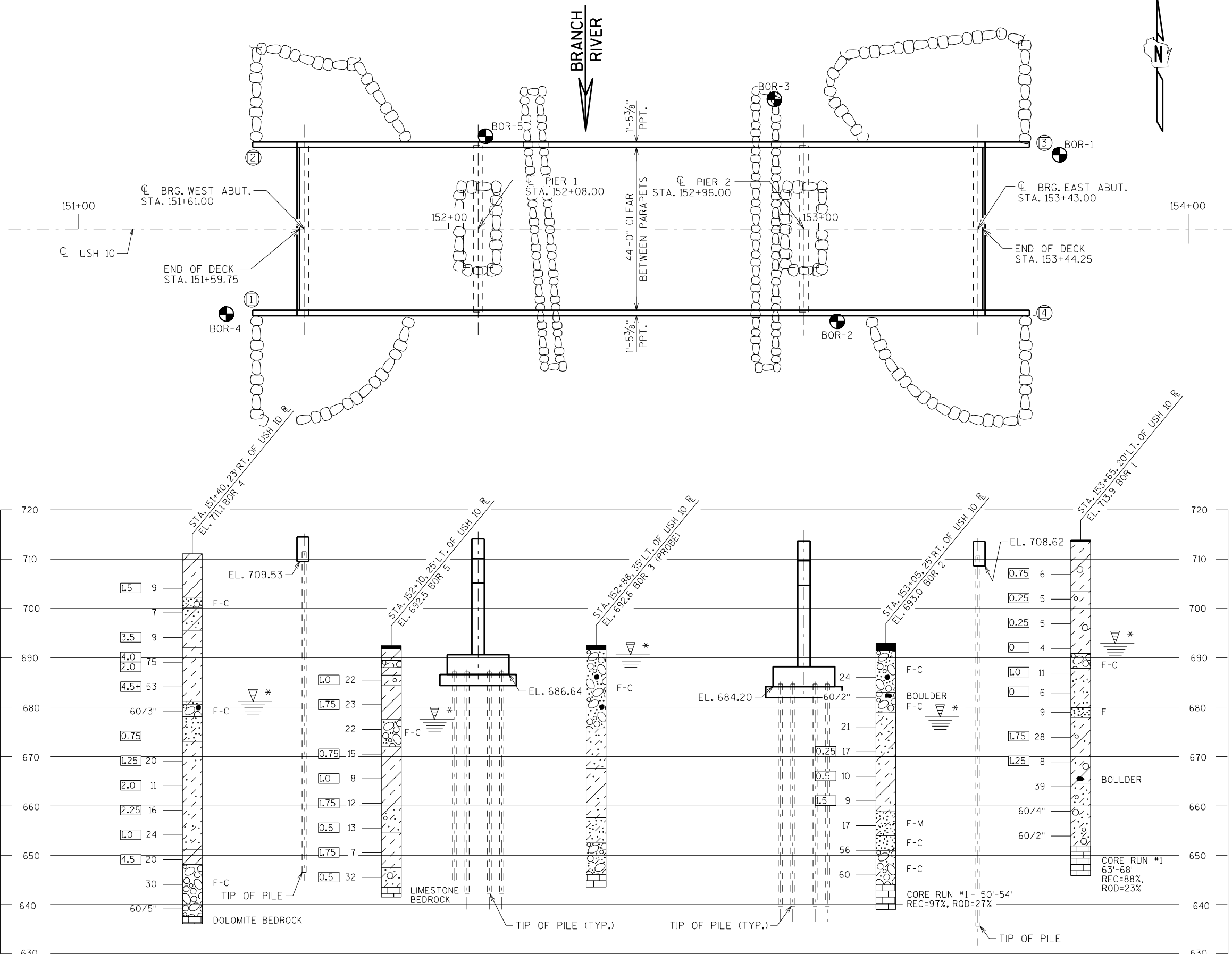
BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	WEST ABUT.	EAST ABUT.	PIER 1	PIER 2	TOTALS
203.0600.S	REMOVING OLD STRUCTURE OVER WATERWAY WITH MINIMAL DEBRIS STA. 152+56	LS	—	—	—	—	—	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-36-193	LS	—	—	—	—	—	1
206.5000	COFFERDAMS B-36-193	LS	—	—	—	—	—	1
210.0100	BACKFILL STRUCTURE	CY	—	155	155	—	—	310
502.0100	CONCRETE MASONRY BRIDGES	CY	334	44	44	101	104	627
502.1100	CONCRETE MASONRY SEAL	CY	—	—	—	37	37	74
502.3200	PROTECTIVE SURFACE TREATMENT	SY	1065	—	—	—	—	1065
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	1279	—	—	—	—	1279
505.0405	BAR STEEL REINFORCEMENT HS BRIDGES	LB	—	2530	2530	2880	2880	10820
505.0605	BAR STEEL REINFORCEMENT HS COATED BRIDGES	LB	69575	1760	1780	11000	11410	95525
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	—	7	7	14	14	42
506.4000	STEEL DIAPHRAGMS B-36-193	EACH	24	—	—	—	—	24
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	—	11	11	—	—	22
550.1100.S	PIILING STEEL HP 10-INCH X 42 LB	LF	—	585	675	1080	1080	3420
606.0300	RIPRAP HEAVY	CY	—	275	360	95	100	830
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	—	65	65	—	—	130
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	—	2	2	—	—	4
645.0120	GEOTEXTILE FABRIC TYPE HR	SY	—	435	565	205	215	1420
	NON-BID ITEMS							
	FILLER	SIZE	—	—	—	—	—	1/2" & 3/4"

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.
BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
AT THE BACKFACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL.
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE TOP OF DECK SURFACE AND THE FRONT FACE AND THE TOP OF THE PARAPET, INCLUDING PARAPETS ON ABUTMENT WINGS.
ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
CONCRETE FOR ABUTMENT AND PIER DIAPHRAGMS SHALL BE PLACED WITH THE DECK CONCRETE. NO OPTIONAL CONSTRUCTION JOINT WILL BE PERMITTED.
THE GRADATION OF THE STRUCTURE BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 209.2.2 OF THE STANDARD SPECIFICATIONS FOR GRADE 1 MATERIAL.
THE EXISTING STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIERS.
AT ABUTMENTS AND PIER(S), CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.
THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH HEAVY RIPRAP AND GEOTEXTILE FABRIC TYPE 'HR' TO THE EXTENT SHOWN ON SHEET 1 AND IN THE ABUTMENT DETAILS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-36-193			
DRAWN BY NAR/DDS		PLANS CK'D. AMB	
CROSS SECTION & QUANTITIES			SHEET 2

USH 10 OVER BRANCH RIVER
BRANCH RIVER - CTH R



STATE PROJECT NUMBER

4337-10-72

ABBREVIATIONS

F — FINE M — MEDIUM C — COARSE
WS — WEATHERED SO — SOUND

MATERIAL SYMBOLS

TOPSOIL SILT SANDSTONE
SAND PEAT LIMESTONE
GRAVEL CLAY IGNEOUS ROCK

LEGEND OF PROBING

PROBING NO. STA. ELEVATION
95/6=95 BLOWS FOR 6" PENETRATION
PROBING TAKEN WITH A 350# WT. FALLING 18" ON A 2" O.D. POINT.
7 AVERAGE BLOWS PER FOOT
REFUSAL 95/6

LEGEND OF BORING

BORING NO. STA. ELEV.
UNCONFINED STRENGTH 7.7
BLOWS PER FT. USING 140# WT. FALLING 30"
WASH SAMPLE
SHELBY TUBE — S.T.
GROUND WATER ELEVATION
NO GROUND WATER OBSERVED ABOVE THIS ELEVATION
SANDY GRAVEL
F. BOULDERS OR COBBLES
SAND
SILTY CLAY
SO
LIMESTONE

UNLESS OTHERWISE SPECIFIED, THE BLOWS PER FOOT AT THE LOCATIONS INDICATED ARE BASED ON DRIVING A 2" O.D. X 1.4" I.D. SPLIT SPOON SAMPLER WITH A 140# HAMMER HAVING A FREE FALL OF 30". THE BLOW COUNT IS TAKEN IN UNDISTURBED SOIL IMMEDIATELY BELOW A CASED OR OPEN HOLE ELIMINATING SIDE FRICTION ON THE DRIVE PIPE.

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

TO OBTAIN RELATIVE DATA CONCERNING THE CHARACTER OF MATERIAL IN AND UPON WHICH THE FOUNDATION MIGHT BE BUILT, BORINGS AND/OR SOUNDINGS WERE MADE AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING. THE DATA PRESENTED HEREIN REPRESENTS THE FINDINGS OF THE SUBSURFACE EXPLORATIONS MADE. HOWEVER, BECAUSE THE DEPTHS INVESTIGATED ARE LIMITED AND THE AREA OF THE BORINGS AND/OR SOUNDINGS IS VERY SMALL IN RELATION TO THE ENTIRE AREA, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT CONDITIONS BELOW THE DEPTHS INVESTIGATED OR THAT THE CLASSIFICATION OF MATERIAL ENCOUNTERED IN THESE INVESTIGATIONS IS NECESSARILY TYPICAL OF THE ENTIRE SITE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-36-193	
DRAWN BY		DDS	PLANS CK'D. AMB
SUBSURFACE EXPLORATION		SHEET 3	

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

8

8

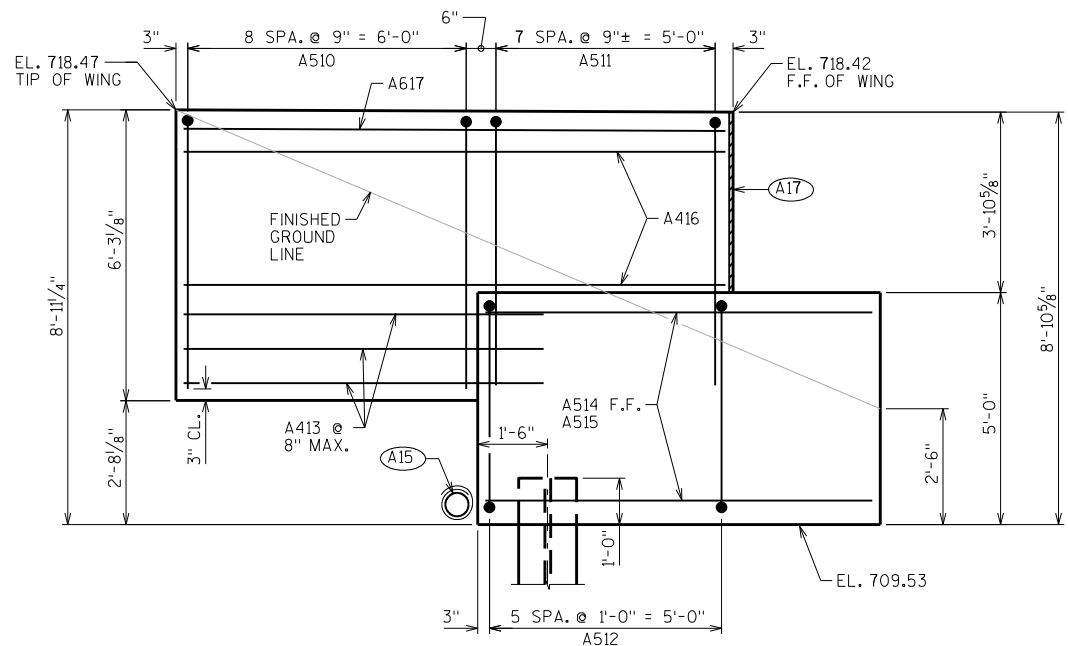
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BILL OF BARS

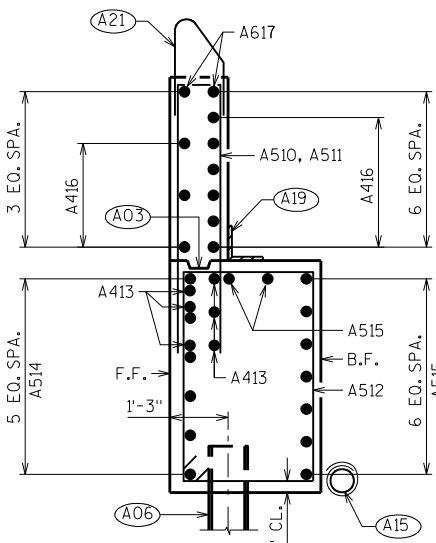
NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		58	15'-0"	X		BODY - STIRRUPS
A402		7	28'-0"	X		PILE - VERT. - ONE PER BODY PILE
A403		14	2'-3"			PILE - VERT. - TWO PER BODY PILE
A604		11	46'-2"			BODY - HORIZ.
A705		12	12'-0"			BODY - HORIZ. - B.F.
A406		3	8'-4"			BODY - HORIZ. - TOP
A507		9	5'-7"	X		BODY - VERT. - TOP
A408		12	5'-6"			BODY - HORIZ. - BETWEEN GIRDERS
A409		24	3'-11"	X		BODY - VERT. - BETWEEN GIRDERS
A510	X	18	12'-4"	X		WINGS 1&2 - VERT.
A511	X	16	12'-2"	X		WINGS 1&2 - VERT.
A512	X	12	15'-8"	X		WINGS 1&2 - STIRRUPS
A413	X	12	7'-9"			WINGS 1&2 - HORIZ. - OVERHANG
A514	X	12	8'-4"			WINGS 1&2 - HORIZ. - F.F.
A515	X	18	8'-4"			WINGS 1&2 - HORIZ.
A416	X	18	11'-8"			WINGS 1&2 - HORIZ. - F.F. & B.F.
A617	X	4	11'-8"			WINGS 1&2 - HORIZ. - TOP
A618		6	26'-4"			BODY - HORIZ. - B.F.

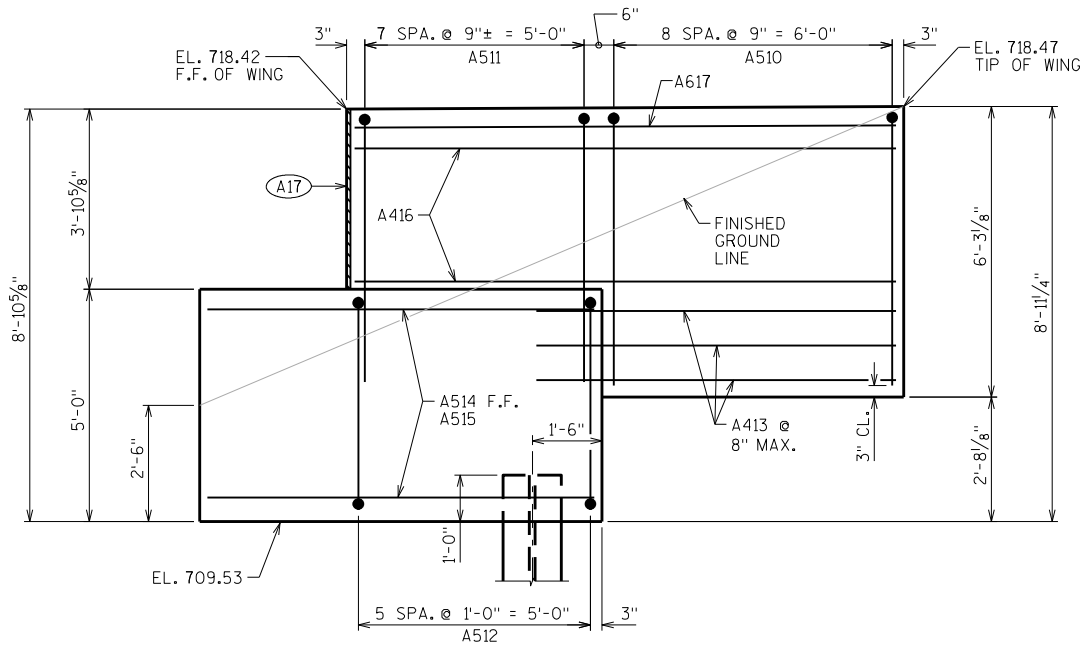
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 65'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A21) FOR PPT, BARS & DIMENSION. SEE PARAPET SHEET 17.



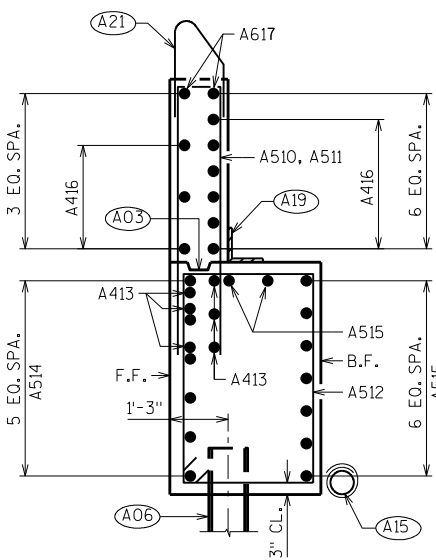
ELEVATION - WING 1



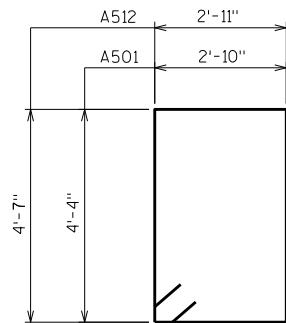
SECTION THRU WING 1



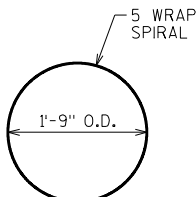
ELEVATION - WING 2



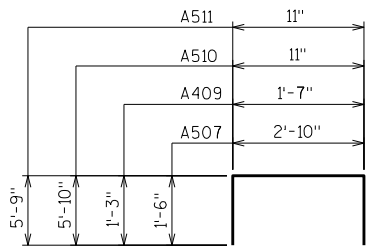
SECTION THRU WING 2



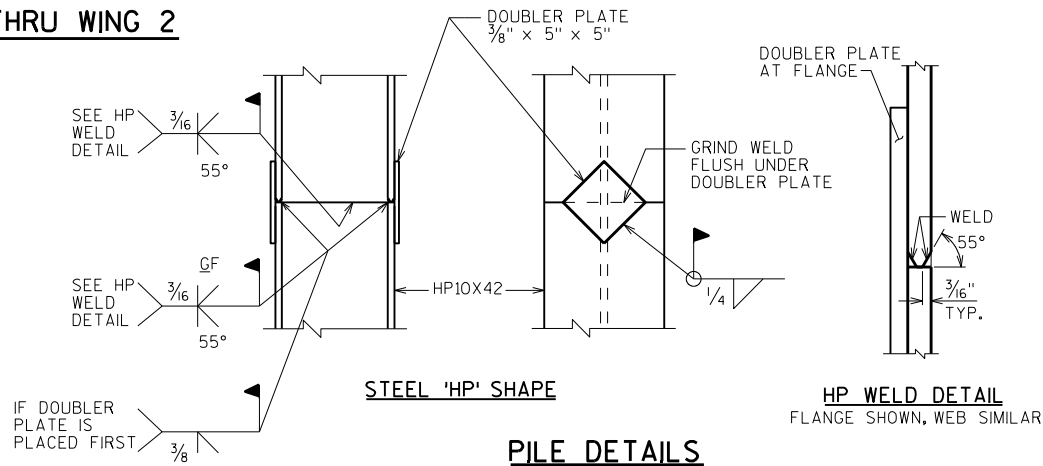
A501, A512



A402



A507, A409, A510, A511

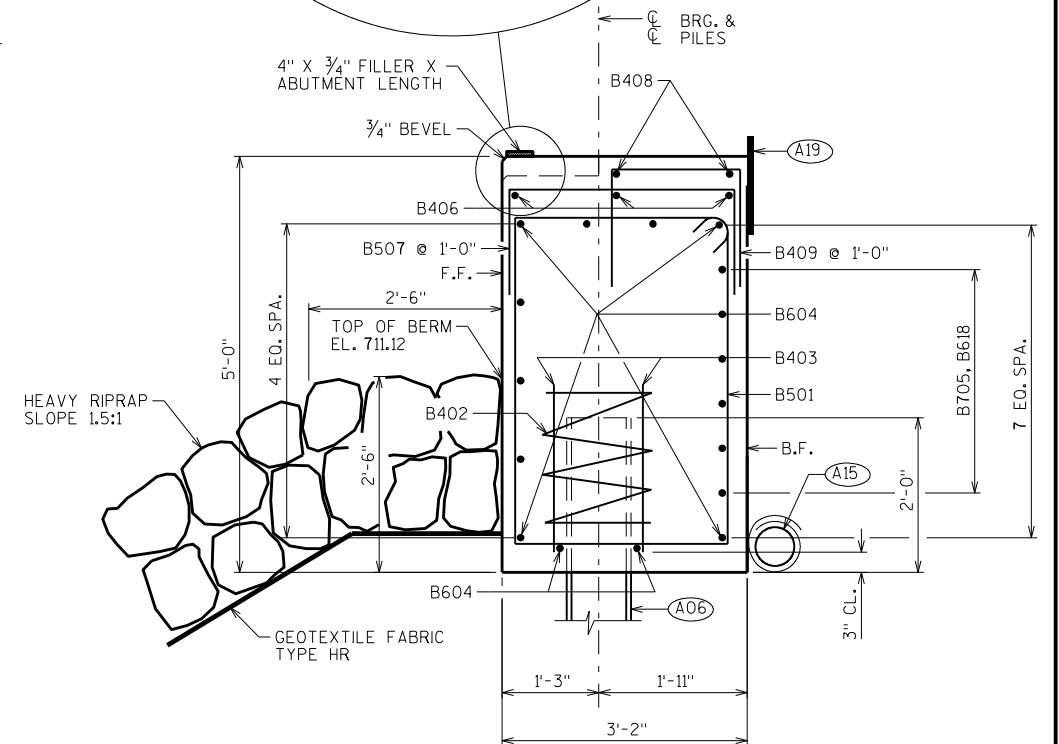


STEEL 'HP' SHAPE

PILE DETAILS

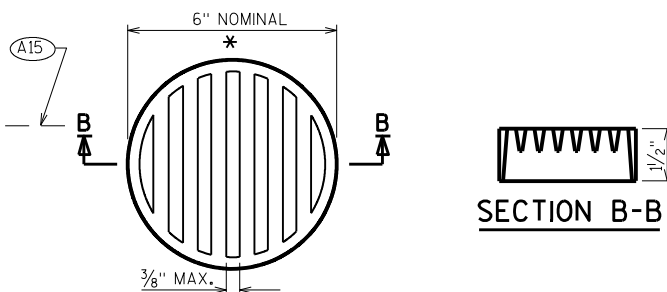
HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-36-193			
DRAWN BY DDS		PLANS CK'D. AMB	
WEST ABUTMENT DETAILS		SHEET 5	



SECTION THRU BODY

- (A06) SUPPORT ABUTMENT ON HP 10 X 42 STEEL PILING, ESTIMATED 75'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



RODENT SCREEN DETAIL

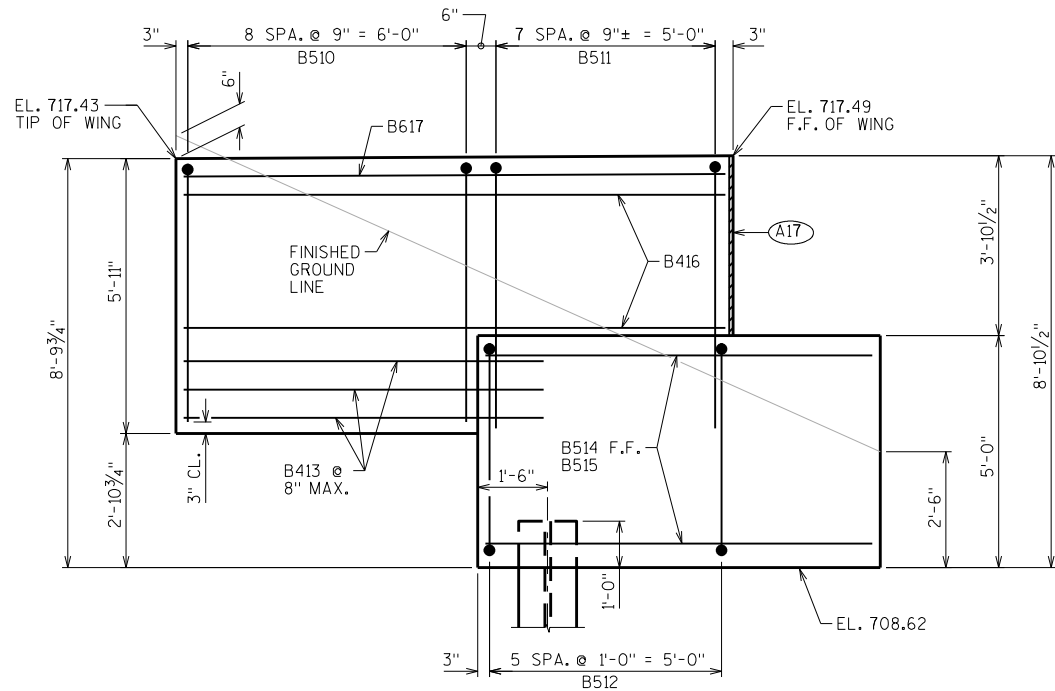
THE RODENT SCREEN SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SCREEN TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SCREEN SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION					
STRUCTURE			B-36-193		
			DRAWN BY	DDS	PLANS CK'D. AMB
EAST ABUTMENT				SHEET 6	

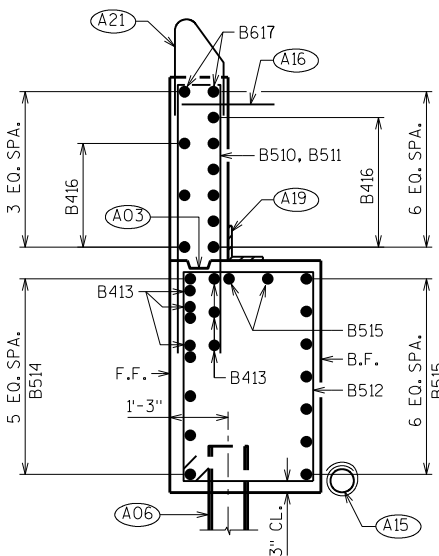
BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
B501		58	15'-0"	X		BODY - STIRRUPS
B402		7	28'-0"	X		PILE - VERT. - ONE PER BODY PILE
B403		14	2'-3"			PILE - VERT. - TWO PER BODY PILE
B604		11	46'-2"			BODY - HORIZ.
B705		12	12'-0"			BODY - HORIZ. - B.F.
B406		3	8'-4"			BODY - HORIZ. - TOP
B507		9	5'-7"	X		BODY - VERT. - TOP
B408		12	5'-6"			BODY - HORIZ. - BETWEEN GIRDERS
B409		24	3'-11"	X		BODY - VERT. - BETWEEN GIRDERS
B510	X	18	11'-8"	X		WINGS 3&4 - VERT.
B511	X	16	12'-2"	X		WINGS 3&4 - VERT.
B512	X	12	15'-8"	X		WINGS 3&4 - STIRRUPS
B413	X	12	7'-9"			WINGS 3&4 - HORIZ. - OVERHANG
B514	X	12	8'-4"			WINGS 3&4 - HORIZ. - F.F.
B515	X	18	8'-4"			WINGS 3&4 - HORIZ.
B416	X	18	11'-8"			WINGS 3&4 - HORIZ. - F.F. & B.F.
B617	X	4	11'-8"			WINGS 3&4 - HORIZ. - TOP
B618		6	26'-4"			BODY - HORIZ. - B.F.
B419	X	24	2'-0"			WINGS 3&4 - SURFACE DRAIN ANCHORS

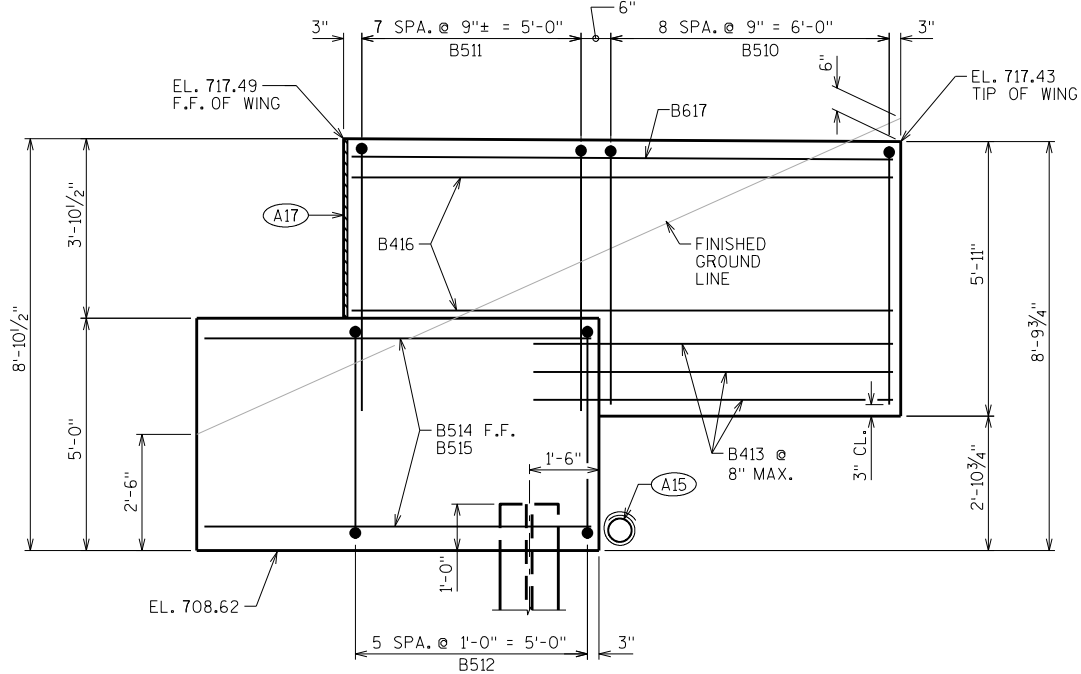


ELEVATION - WING 3

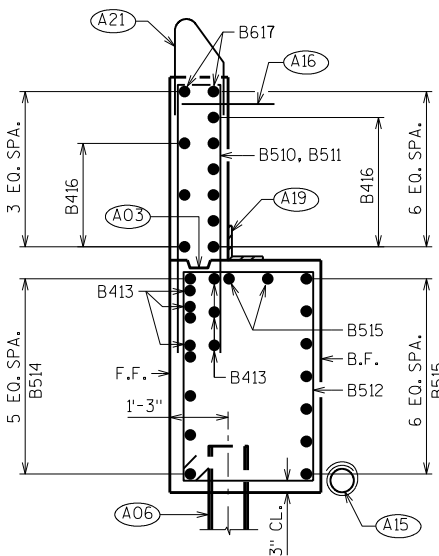


SECTION THRU WING 3

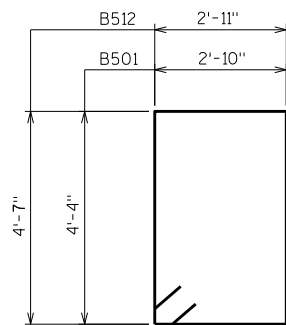
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" R.M.W. @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 75'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 140 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED 6-INCH. SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SCREEN REQUIRED.
- (A16) B419 BARS SPACED @ 1'-0" CTRS. EMBED 1'-0" INTO WING CONC. LOCATE 3" DOWN FROM TOP OF WING @ BACKFACE TO 6" DOWN @ WING TIP. (DRILLED IN EPOXY ANCHORED #4 BARS 2'-0" LONG MAY BE USED.) COST INCIDENTAL TO BID ITEM "BAR STEEL REINFORCEMENT HS COATED BRIDGES".
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A21) FOR PPT. BARS & DIMENSION SEE PARAPET SHEET 17.



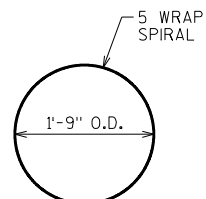
ELEVATION - WING 4



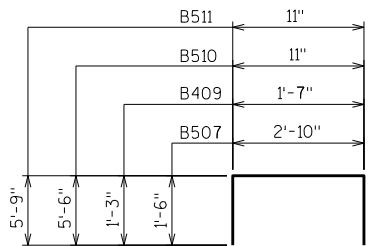
SECTION THRU WING 4



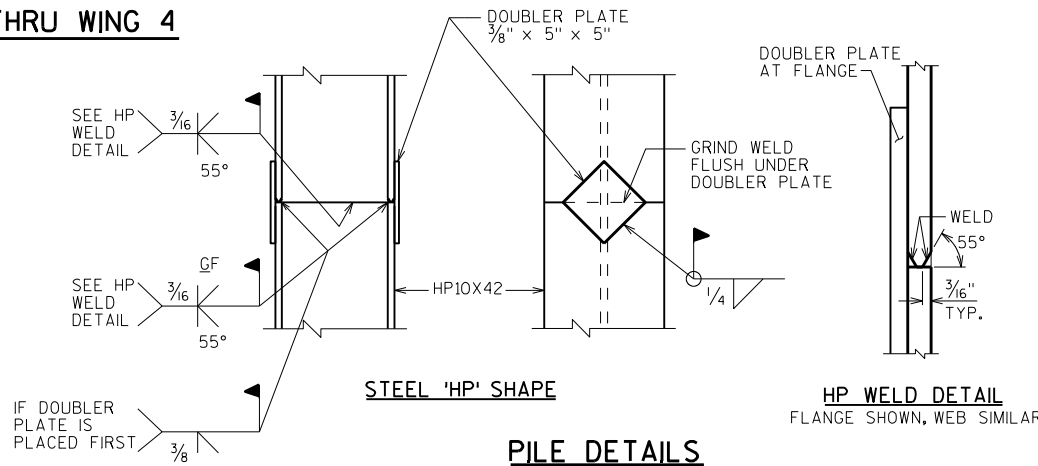
B501, B512



B402



B507, B409, B510, B511



STEEL 'HP' SHAPE

HP WELD DETAIL
FLANGE SHOWN, WEB SIMILAR

PILE DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-36-193			
DRAWN BY		DDS	PLANS CK'D. AMB
EAST ABUTMENT DETAILS			SHEET 7



-

SECTION THRU CAP



END VIEW



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-36-193	
		DRAWN BY	DDS PLANS CKD. AMB
PIER 1		SHEET 8	

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
P901		20	25'-2"			FOOTING - HORIZ.
P802		36	12'-2"			FOOTING - HORIZ.
P903	X	48	9'-4"	X		FOOTING/SHAFT - VERT.
P904	X	48	23'-0"			SHAFT/CAP - VERT.
P405	X	32	6'-3"	X		SHAFT - HORIZ.
P406	X	32	13'-0"			SHAFT - HORIZ.
P407	X	112	3'-0"	X		SHAFT - HORIZ. - TIES
P708	X	10	28'-1"		▲	CAP - HORIZ.
P709	X	6	45'-11"			CAP - HORIZ.
P510	X	32	17'-1"	X	▲	STIRRUPS
P611	X	8	17'-3"	X		CAP - HORIZ.
P912	X	8	45'-10"			CAP - HORIZ.
P913	X	16	30'-2"	X		CAP - HORIZ.
P614	X	6	6'-5"	X		CAP - HORIZ. - ENDS
P515	X	24	2'-0"			DOWEL BARS
P516	X	16	4'-4"	X		CAP - VERT. - TOP
P417	X	8	4'-11"	X		CAP - VERT. - TOP
P418	X	4	7'-8"			CAP - HORIZ.
P419	X	23	3'-11"	X		CAP - VERT.

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

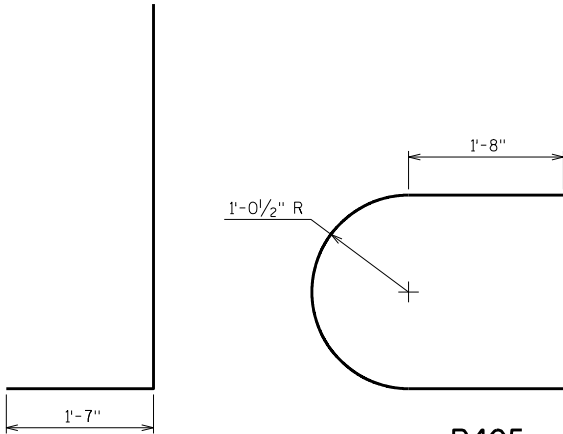
BAR SERIES TABLE

MARK	NO. REOD.	LENGTH
P708	2 SERIES OF 5	15'-7" TO 40'-6"
P510	2 SERIES OF 16	12'-2" TO 22'-0"

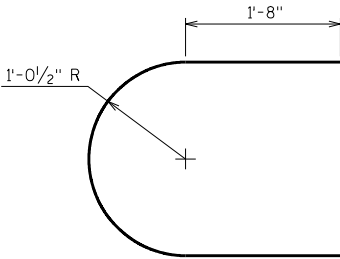
BUNDLE AND TAG EACH SERIES SEPARATELY.



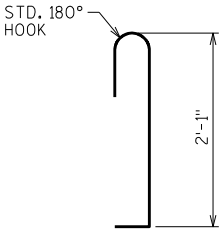
BUNDLING
DETAIL



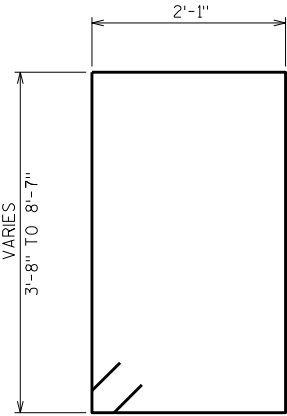
P903



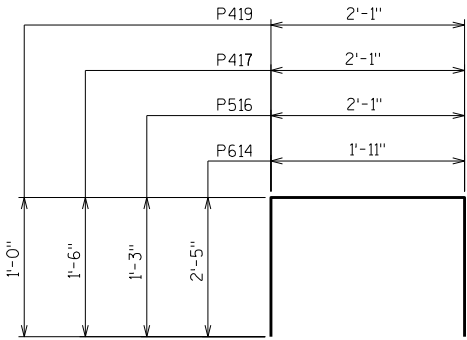
P405



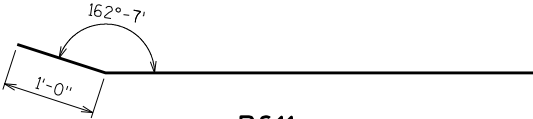
P407



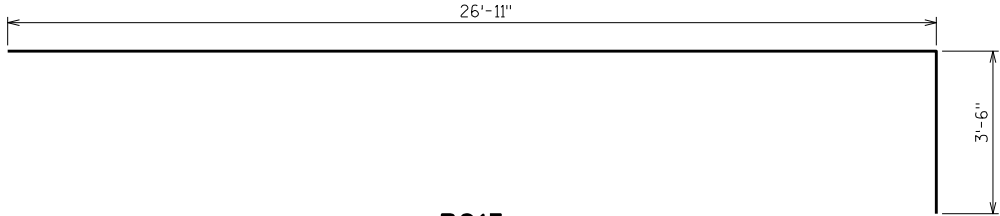
P510



P614, P516, P417, P419



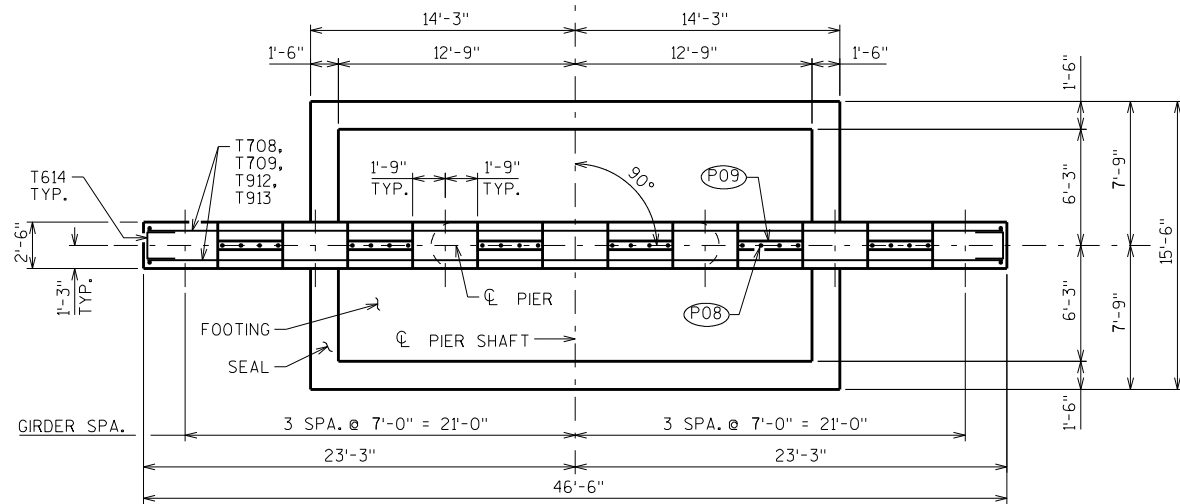
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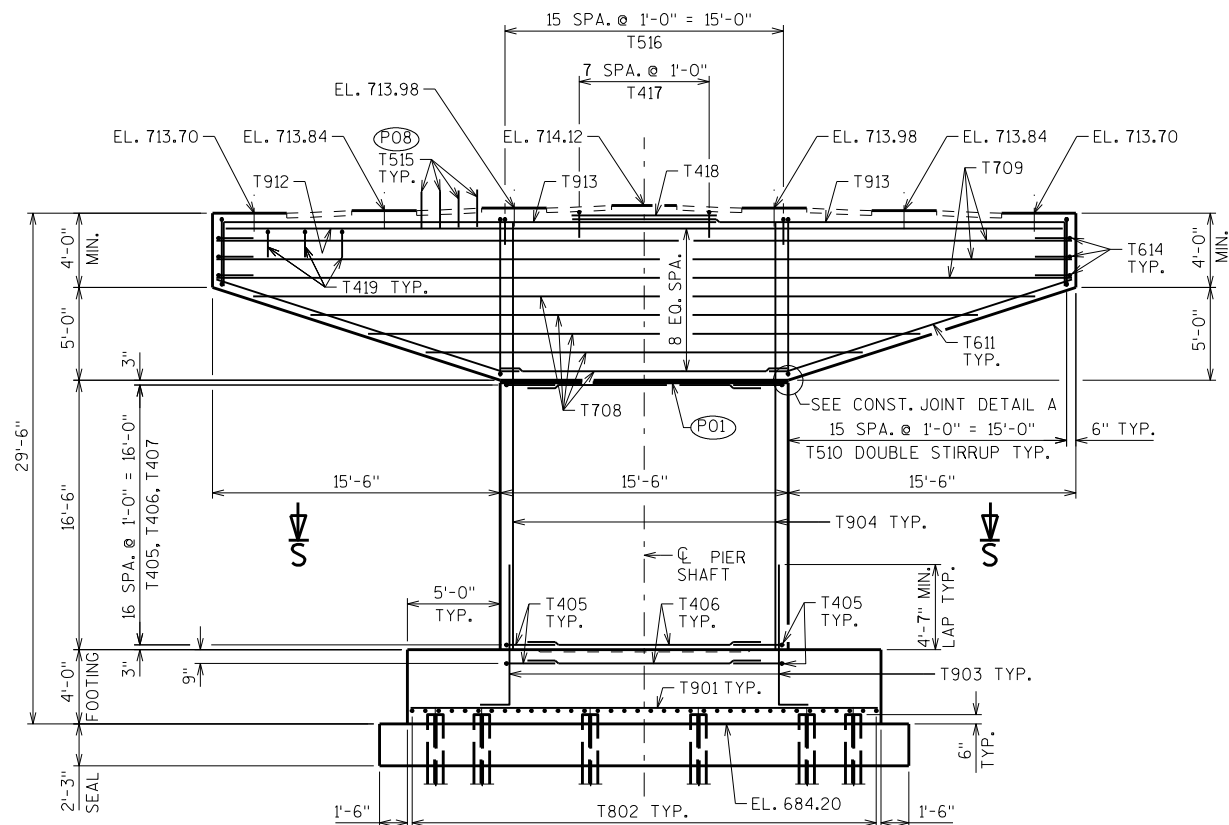
P913

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-36-193	
DRAWN BY		DDS	PLANS CK'D. AMB
PIER 1 DETAILS		SHEET 9	

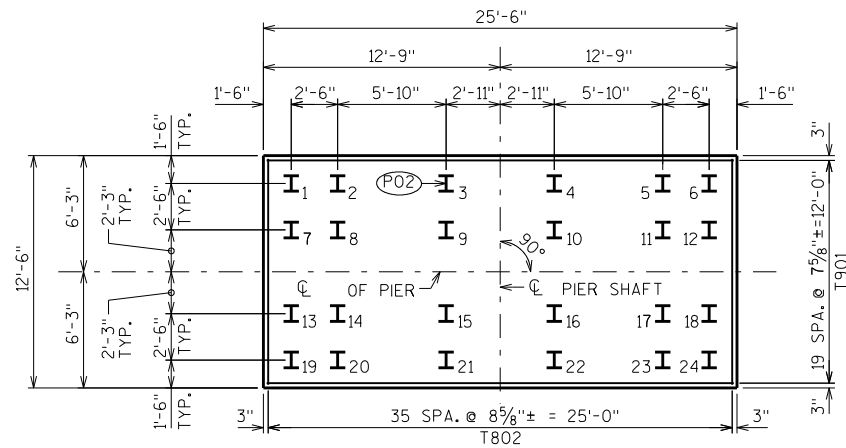
- (P01) 10" X 11'-6" X 4" DEEP CONSTRUCTION JOINT FORMED BY BEVELED KEYWAY.
- (P02) SUPPORT PIER ON HP 10 X 42 STEEL PILING, ESTIMATED 45'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (P08) T515 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- (P09) KEYED CONSTRUCTION JOINT-FORMED BY BEVELED 2 X 6 BETWEEN BEAM SEATS.



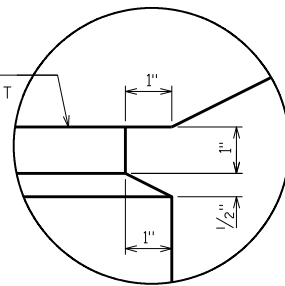
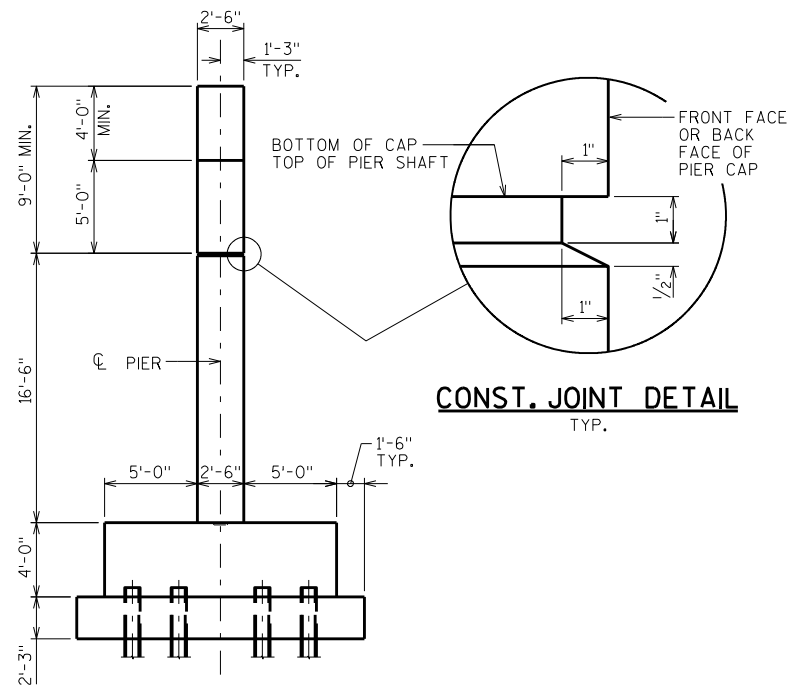
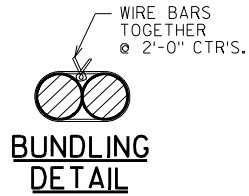
PLAN



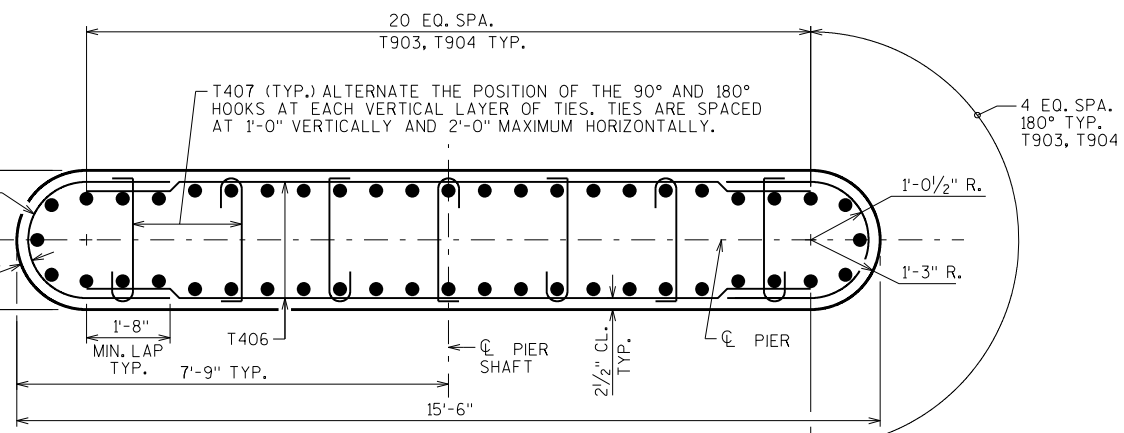
ELEVATION - LOOKING EAST



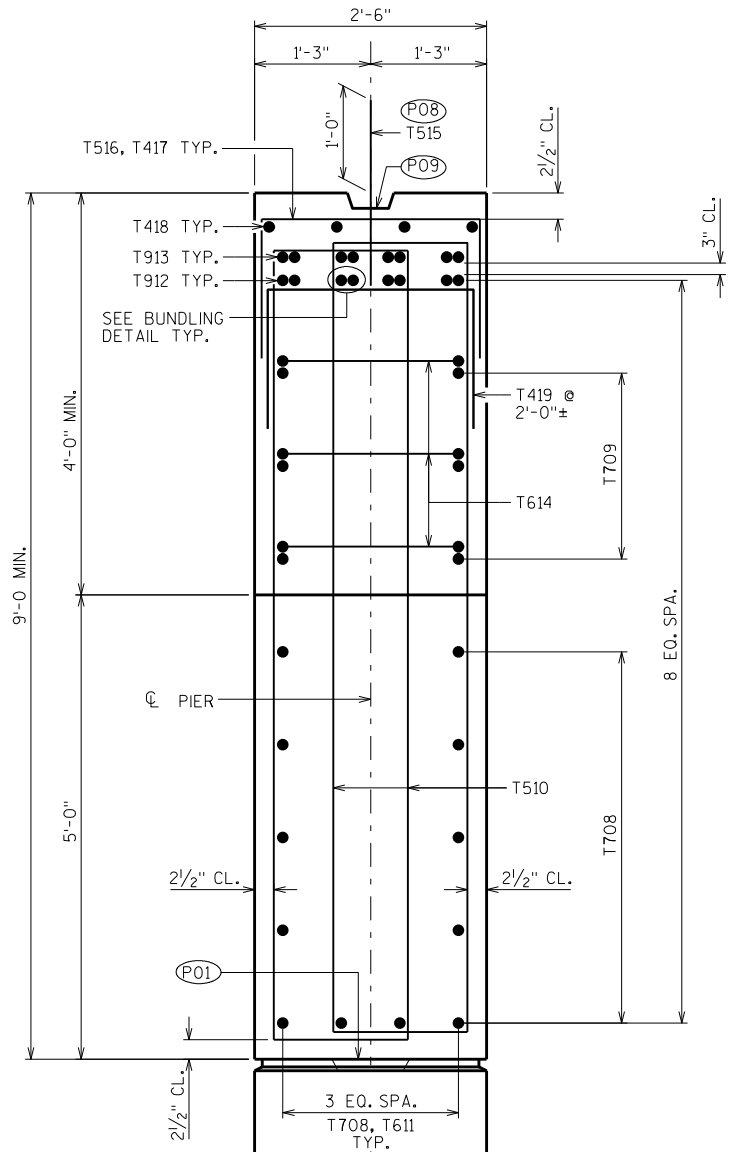
PILE/FOOTING PLAN

BOTTOM OF CAP
TOP OF PIER SHAFTCONST. JOINT DETAIL A
TYP.

END VIEW

CONST. JOINT DETAIL
TYP.

SECTION S-S



SECTION THRU CAP

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-36-193			
DRAWN BY DDS		PLANS CK'D. AMB	
PIER 2		SHEET 10	

BILL OF BARS

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

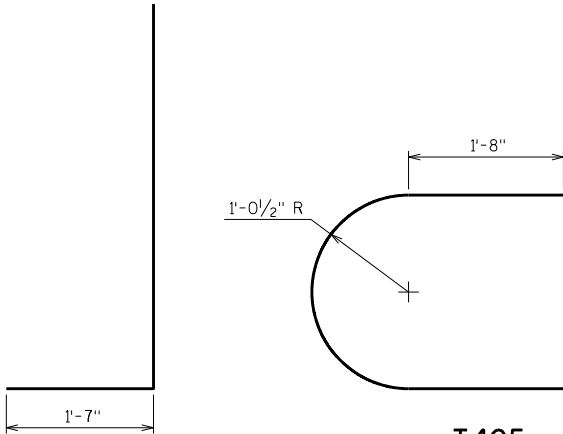
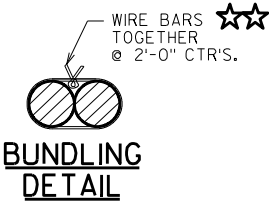
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
T901		20	25'-2"			FOOTING - HORIZ.
T802		36	12'-2"			FOOTING - HORIZ.
T903	X	48	9'-4"	X		FOOTING/SHAFT - VERT.
T904	X	48	25'-0"			SHAFT/CAP - VERT.
T405	X	36	6'-3"	X		SHAFT - HORIZ.
T406	X	36	13'-0"			SHAFT - HORIZ.
T407	X	126	3'-0"	X		SHAFT - HORIZ. - TIES
T708	X	10	28'-1"		▲	CAP - HORIZ.
T709	X	6	45'-11"			CAP - HORIZ.
T510	X	32	17'-1"	X	▲	STIRRUPS
T611	X	8	17'-3"	X		CAP - HORIZ.
T912	X	8	45'-10"			CAP - HORIZ.
T913	X	16	30'-2"	X		CAP - HORIZ.
T614	X	6	6'-5"	X		CAP - HORIZ. - ENDS
T515	X	24	2'-0"			DOWEL BARS
T516	X	16	4'-4"	X		CAP - VERT. - TOP
T417	X	8	4'-11"	X		CAP - VERT. - TOP
T418	X	4	7'-8"			CAP - HORIZ.
T419	X	23	3'-11"	X		CAP - VERT.

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

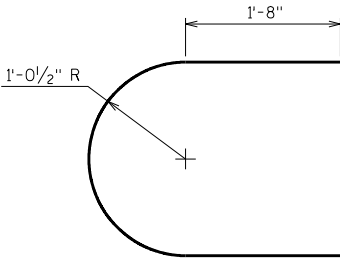
BAR SERIES TABLE

MARK	NO. REOD.	LENGTH
T708	2 SERIES OF 5	15'-7" TO 40'-6"
T510	2 SERIES OF 16	12'-2" TO 22'-0"
	OF SERIES	TO
	OF SERIES	TO

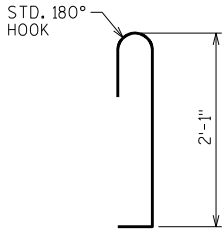
BUNDLE AND TAG EACH SERIES SEPARATELY.



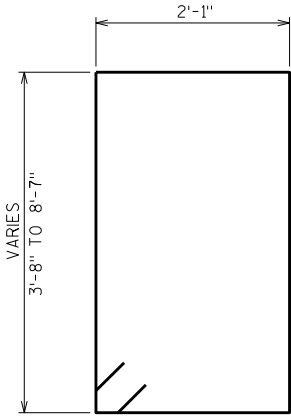
T903



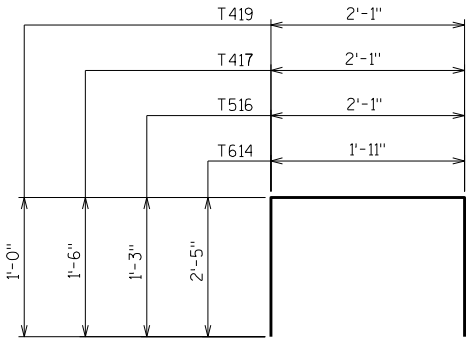
T405



T407



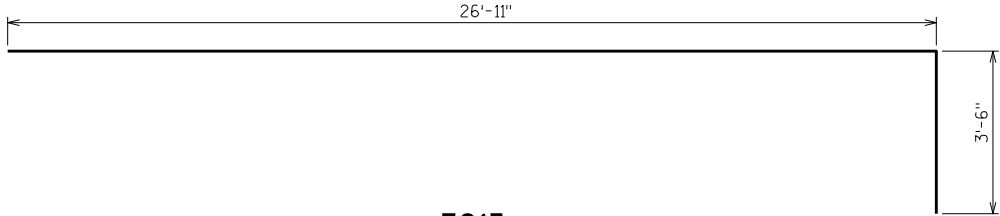
T510



T614, T516, T417, T419

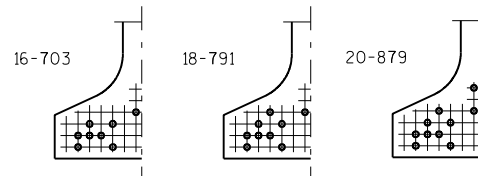


T611



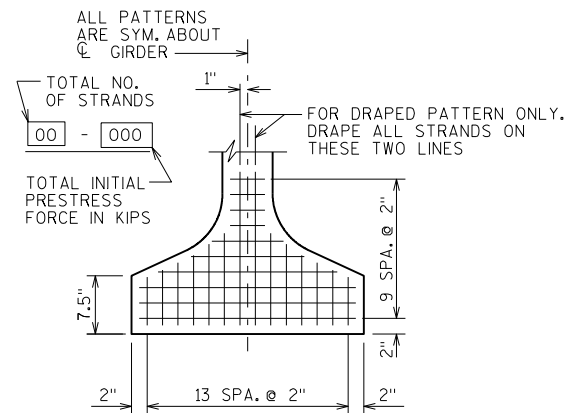
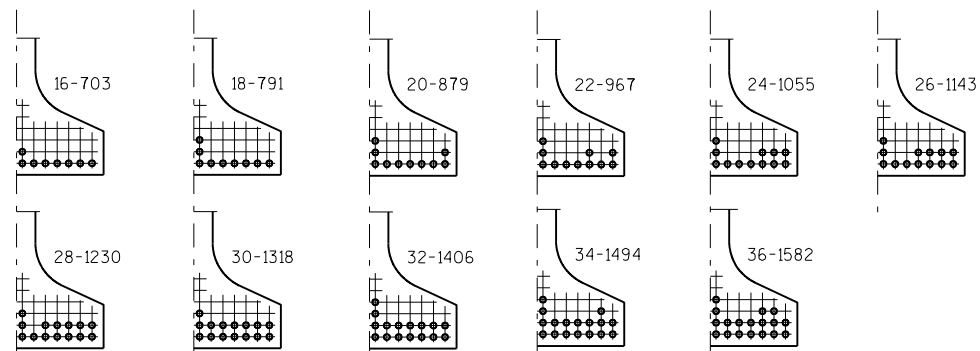
T913

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-36-193	
DRAWN BY		DDS	PLANS CK'D. AMB
PIER 2 DETAILS		SHEET 11	

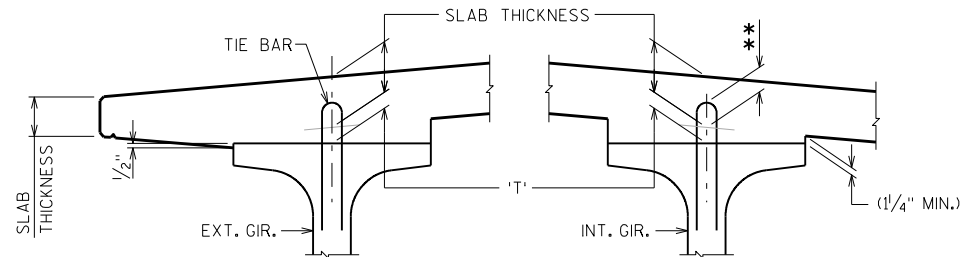


STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6"φ STRANDS



TYP. STRAND PATTERN



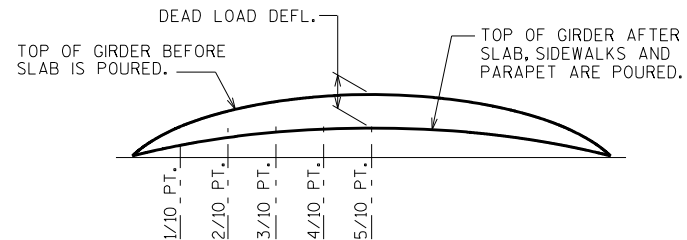
SLAB HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR. THE PLAN SLAB THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR,
 ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

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

$$\begin{aligned} & \text{TOP OF DECK ELEV. AT FINAL GRADE} \\ & - \text{TOP OF GIRDER ELEVATION} \\ & + \text{DEAD LOAD DEFLECTION} \\ & - \text{SLAB THICKNESS} \\ & = \text{HAUNCH HEIGHT 'T'} \end{aligned}$$

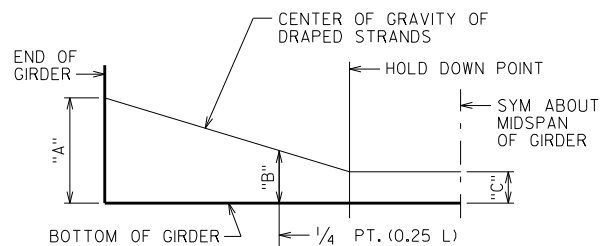
NOTE: AN AVERAGE HAUNCH ('T') OF 2 7/8" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DEAD LOAD DEFLECTION DIAGRAM

ARRANGEMENT AT G/ SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6"φ STRANDS



DRAPED STRAND PROFILE

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

SPAN	CAMBER (IN.) *
1	0.73
2	3.50
3	0.73

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'.
 USE ACTUAL GIRDER SHOTS.
 THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-36-193	
DRAWN BY		DDS	PLANS CK'D. AMB
36W" PRESTRESSED GIRDER DETAILS		SHEET 13	

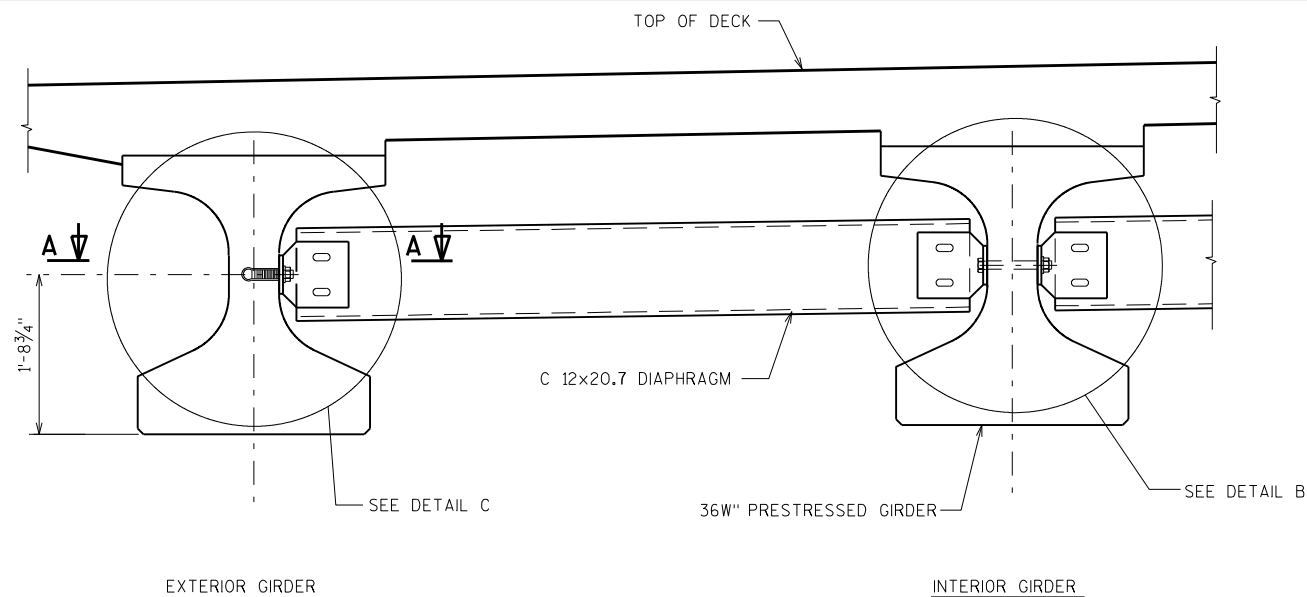
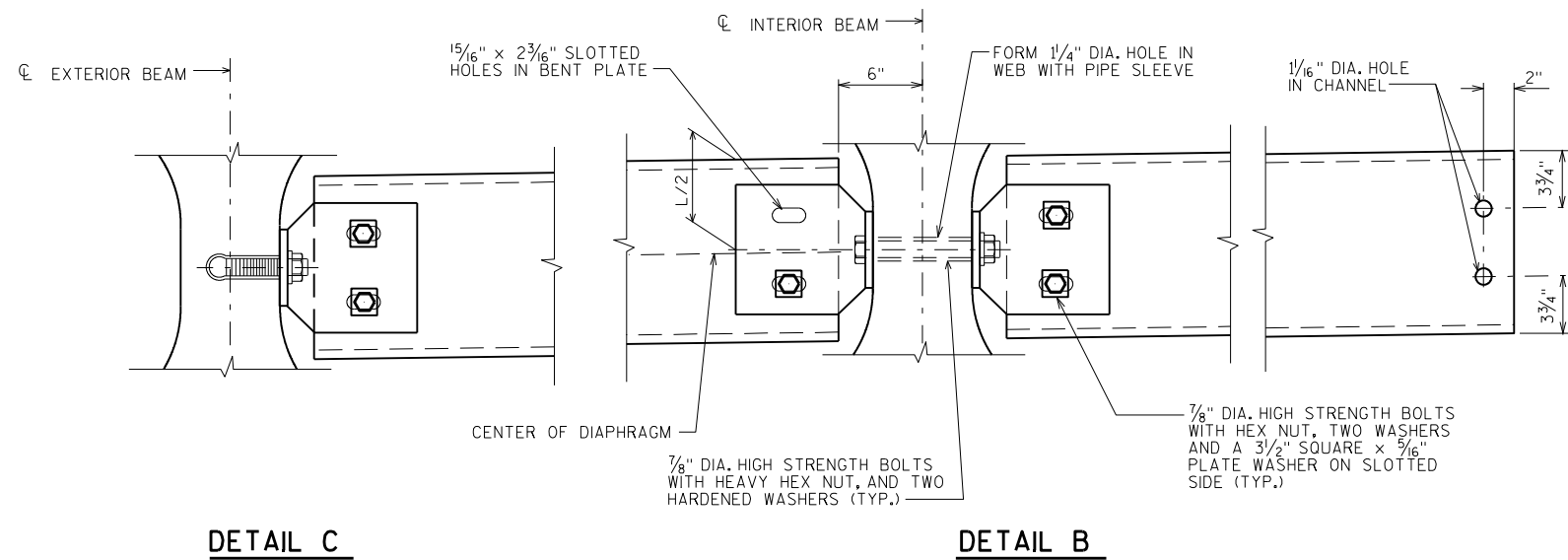
NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-36-193", EACH.

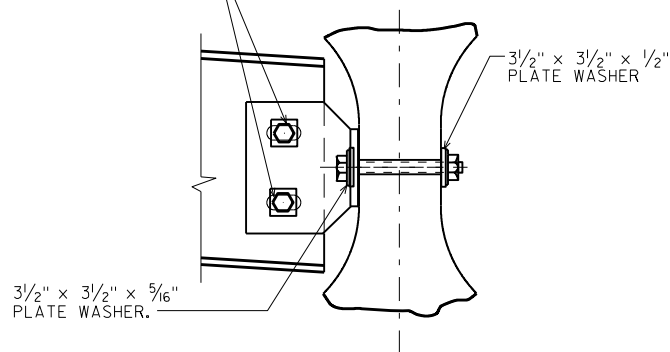
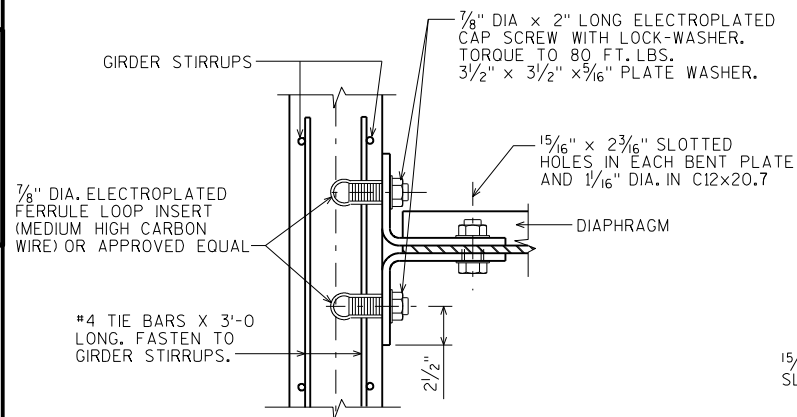
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36. ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325 TYPE 1.

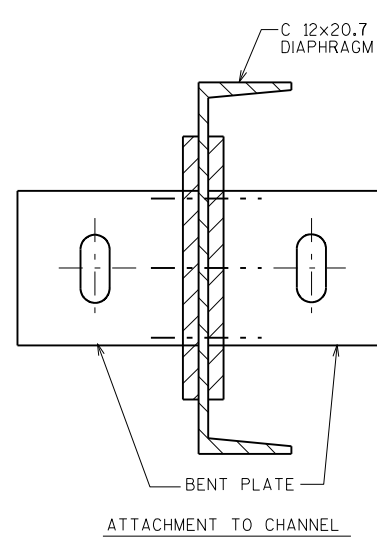
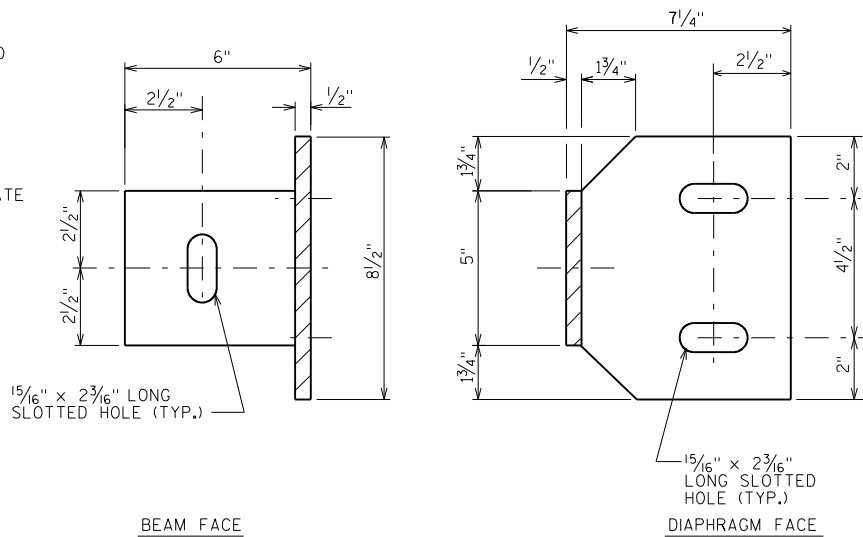
ALL DIAPHRAGM STRUCTURAL STEEL SHOWN SHALL BE HOT-DIPPED GALVANIZED. ALL BOLTS, NUTS AND WASHERS SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C. GALVANIZED NUTS SHALL BE TAPPED OVERSIZE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A563 AND SHALL MEET THE REQUIREMENTS OF SUPPLEMENTARY REQUIREMENT S1 OF ASTM A563, LUBRICANT AND TEST FOR COATED NUTS.

**PART TRANSVERSE SECTION AT DIAPHRAGM**

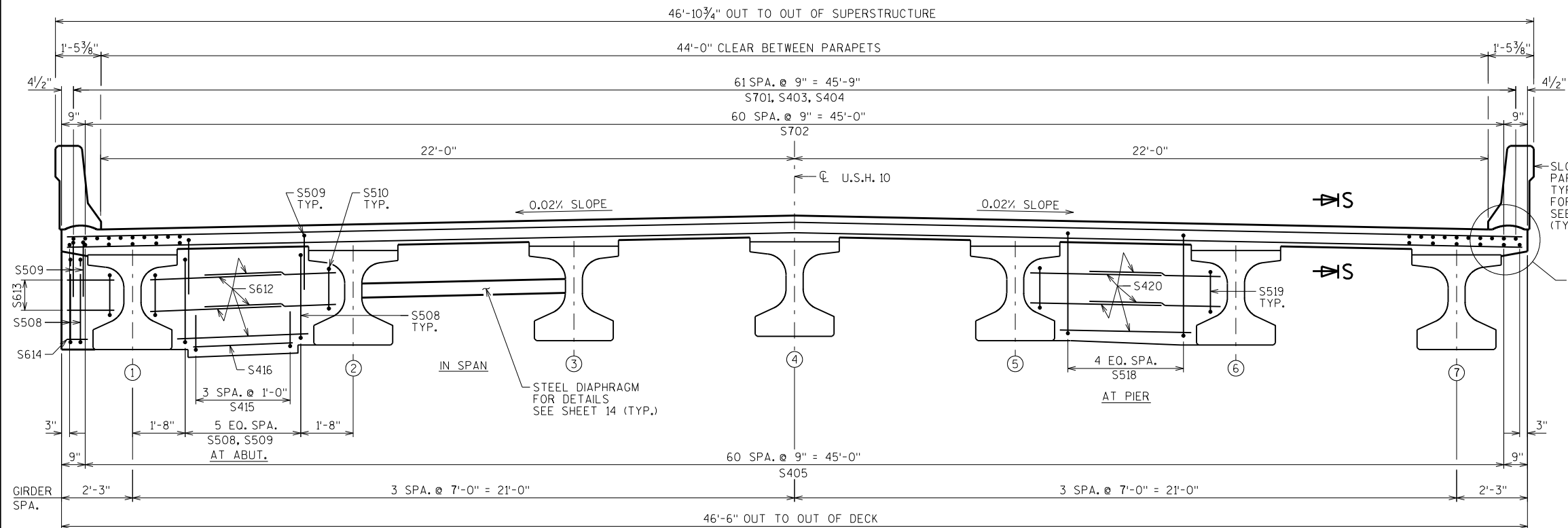
7/8" DIA HIGH STRENGTH BOLTS WITH HEX NUT, TWO WASHERS AND A 3/2" SQUARE x 5/16" PLATE WASHER ON SLOTTED SIDE.

**SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°****SECTION A-A**

(FOR EXTERIOR ATTACHMENT)

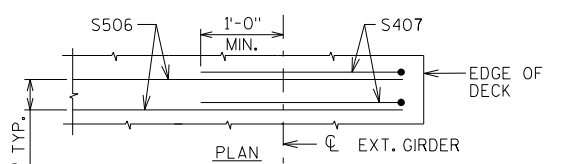


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-36-193	
DRAWN BY		DDS	PLANS CK'D. AMB
STEEL DIAPHRAGMS		SHEET 14	

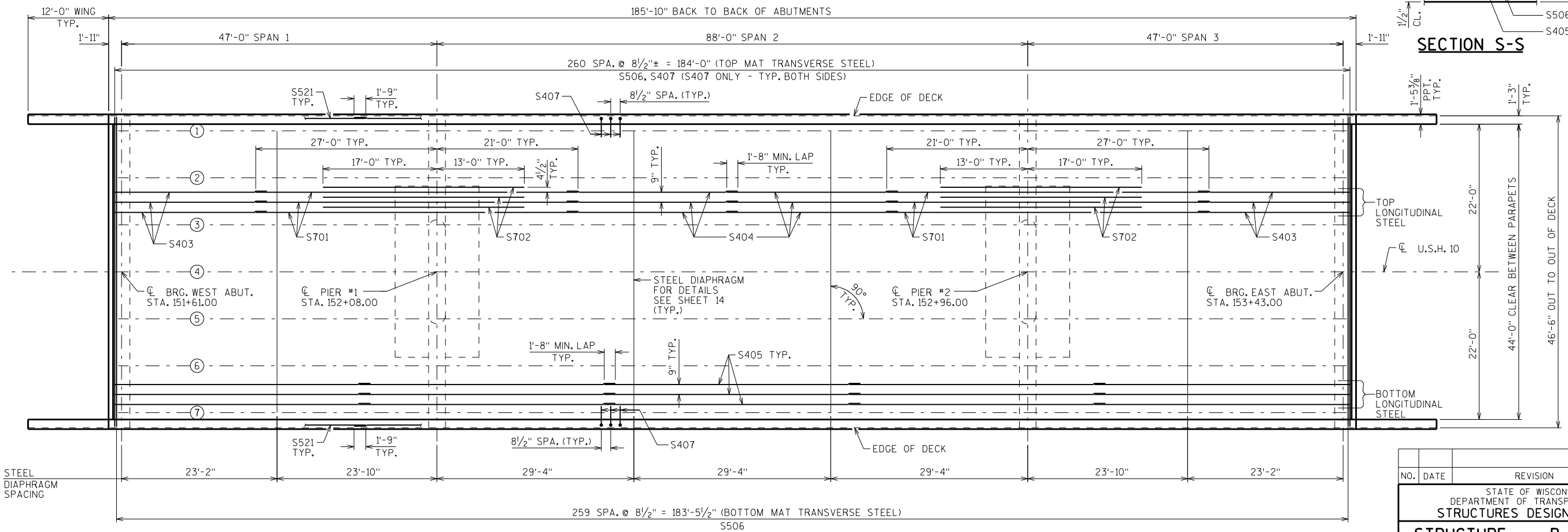
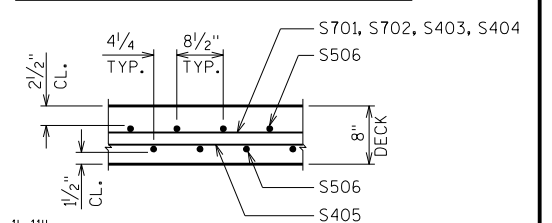


DETAIL A

NOTE: SPECIAL DRIP GROOVE LOCATION



ADDITIONAL REINFORCEMENT



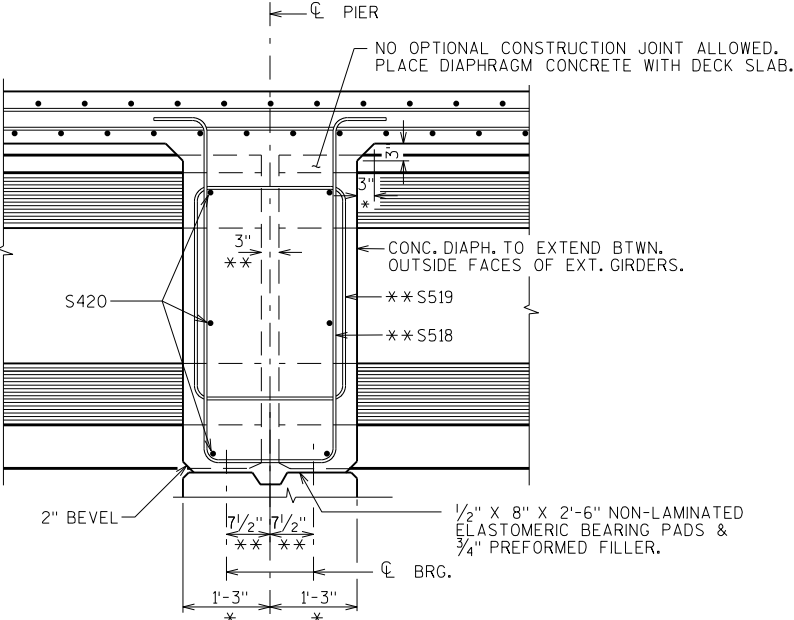
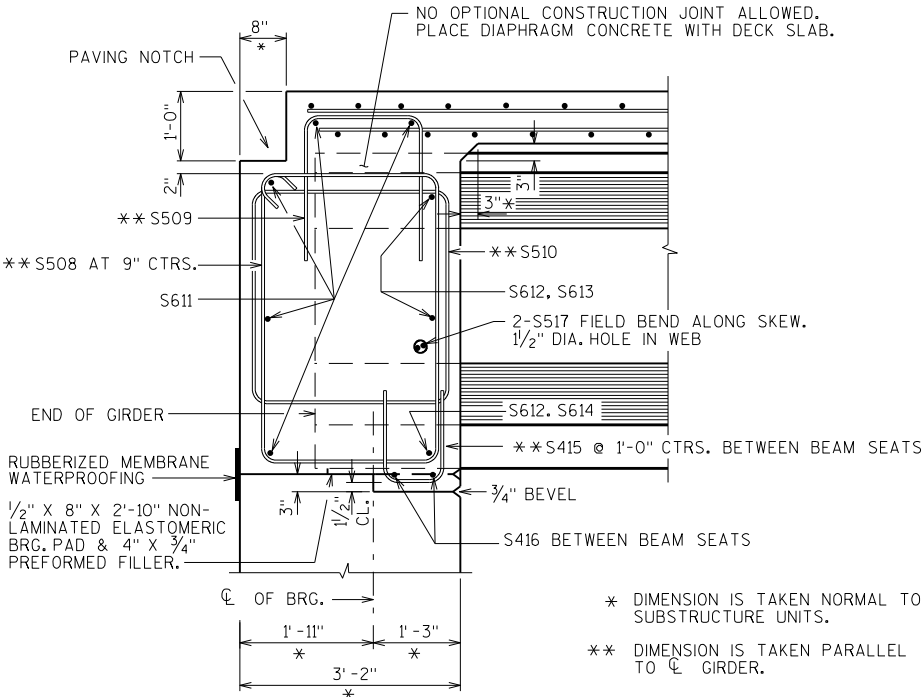
PLAN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-36-193	
DRAWN BY		DDS	PLANS CK'D. AMB
SUPERSTRUCTURE		SHEET 15	

BILL OF BARS

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

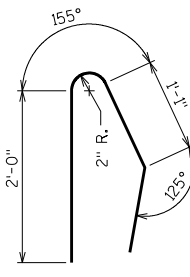
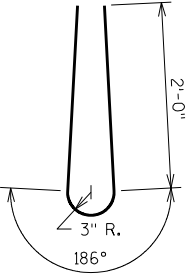
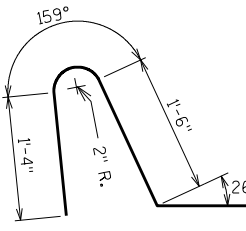
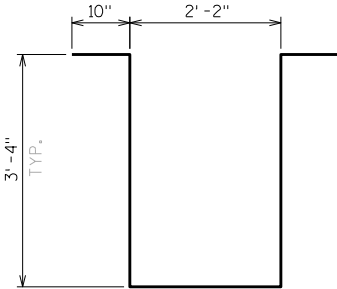
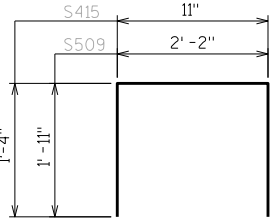
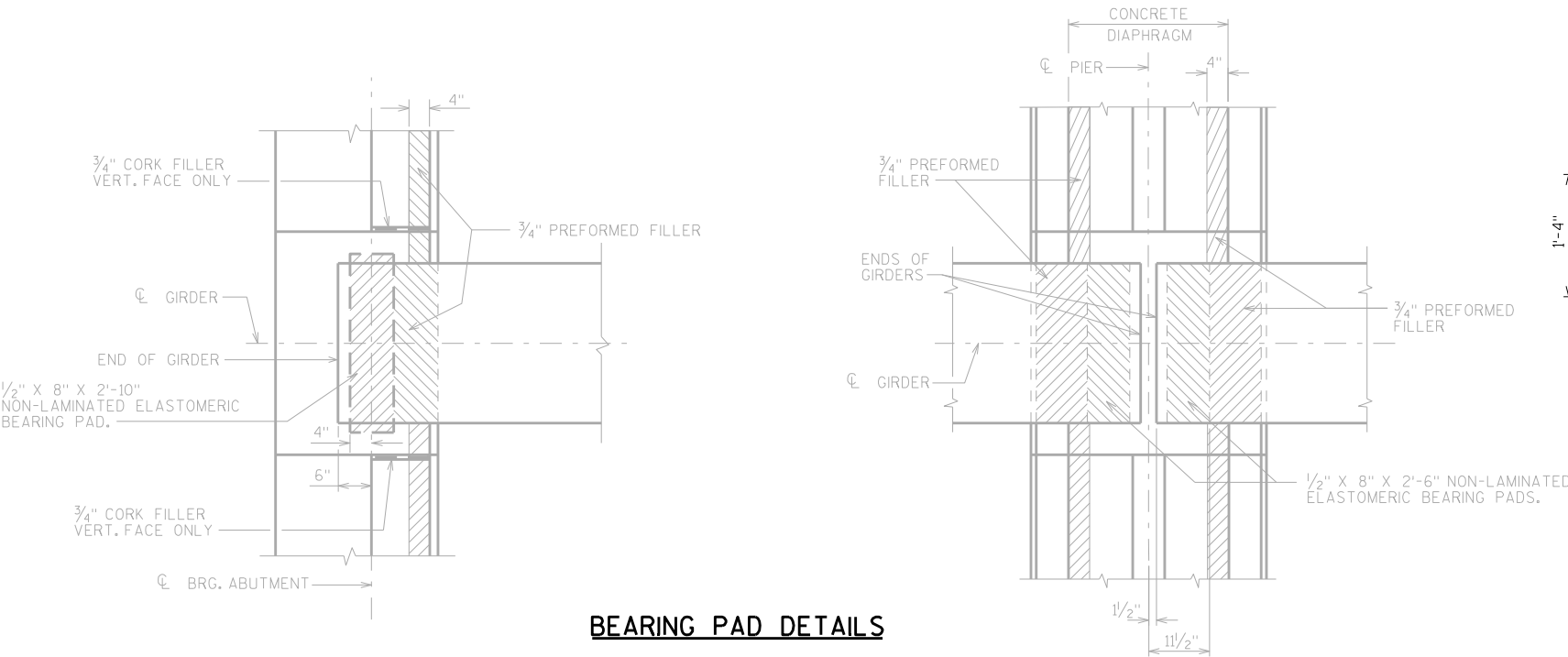
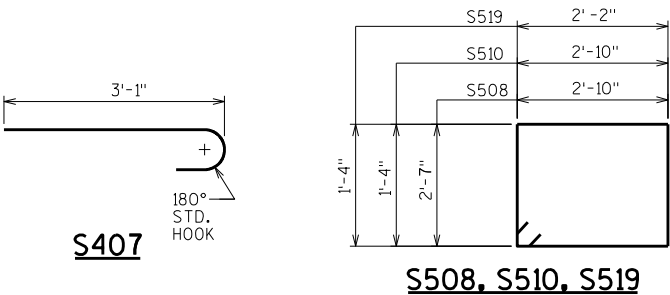
BAR MARK	COAT	NO. REQ'D.	LENGTH	BEND	BAR SERIES	LOCATION
S701	X	124	48'-0"			SLAB - CONTINUITY BARS - OVER PIERS
S702	X	122	30'-0"			SLAB - CONTINUITY BARS - OVER PIERS
S403	X	124	22'-9"			SLAB - LONGITUDINAL - TOP (SPAN 1&3)
S404	X	124	25'-6"			SLAB - LONGITUDINAL - TOP (SPAN 2)
S405	X	315	38'-2"			SLAB - LONGITUDINAL - BOTTOM
S506	X	521	46'-2"			SLAB - TRANSVERSE (TOP & BOTTOM)
S407	X	522	3'-7"	X		SLAB - TRANSVERSE - AT EDGE OF DECK
S508	X	80	11'-6"	X		ABUT. DIAPH. - STIRRUPS
S509	X	80	5'-9"	X		ABUT. DIAPH. - VERT.
S510	X	28	9'-0"	X		ABUT. DIAPH. - STIRRUPS - AT GIRDERS
S611	X	10	46'-2"			ABUT. DIAPH. - HORIZ. - B.F.
S612	X	60	4'-2"			ABUT. DIAPH. - HORIZ. - BETWEEN GIRDERS
S613	X	8	1'-7"			ABUT. DIAPH. - HORIZ. (ENDS)
S614	X	4	0'-8"			ABUT. DIAPH. - HORIZ. (ENDS)
S415	X	48	3'-5"	X		ABUT. DIAPH. - VERT. (BETWEEN GIRDERS)
S416	X	24	3'-2"			ABUT. DIAPH. - HORIZ. (BETWEEN GIRDERS)
S517	X	28	6'-0"			ABUT. DIAPH. - HORIZ. (THRU GIRDERS)
S518	X	60	10'-0"	X		PIER DIAPH. - VERT.
S519	X	28	7'-8"	X		PIER DIAPH. - STIRRUPS - AT GIRDERS
S420	X	120	4'-2"			PIER DIAPH. - HORIZ.
S521	X	50	38'-6"			PARAPET - HORIZ.
S522	X	550	4'-2"	X		PARAPET - VERT.
S523	X	558	4'-10"	X		PARAPET - VERT.
S524	X	8	4'-7"	X		PARAPET - VERT. (AT PAVING NOTCH ONLY)



PART LONGIT. SECTION

TOP OF DECK ELEVATIONS

	CL BRG. WEST ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	PIER 1	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	PIER 2	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CL BRG. EAST ABUT.
N. EOD	718.41	718.38	718.36	718.33	718.31	718.29	718.26	718.24	718.22	718.19	718.17	718.13	718.08	718.04	717.99	717.95	717.91	717.86	717.82	717.77	717.73	717.71	717.68	717.66	717.64	717.61	717.59	717.57	717.54	717.52	717.50
GIRDER 1	718.43	718.4	718.38	718.35	718.33	718.31	718.28	718.26	718.24	718.21	718.19	718.15	718.1	718.06	718.01	717.97	717.93	717.88	717.84	717.79	717.75	717.73	717.7	717.68	717.66	717.63	717.61	717.59	717.56	717.54	717.52
GIRDER 2	718.57	718.54	718.52	718.49	718.47	718.45	718.42	718.4	718.38	718.35	718.33	718.29	718.24	718.2	718.15	718.11	718.07	718.02	717.98	717.93	717.89	717.87	717.84	717.82	717.8	717.77	717.75	717.73	717.7	717.68	717.66
GIRDER 3	718.71	718.68	718.66	718.63	718.61	718.59	718.56	718.54	718.52	718.49	718.47	718.43	718.38	718.34	718.29	718.25	718.21	718.16	718.12	718.07	718.03	718.01	717.98	717.96	717.94	717.91	717.89	717.87	717.84	717.82	717.80
GIRDER 4	718.85	718.82	718.8	718.77	718.75	718.73	718.7	718.68	718.66	718.63	718.61	718.57	718.52	718.48	718.43	718.39	718.35	718.3	718.26	718.21	718.17	718.15	718.12	718.1	718.08	718.05	718.03	718.01	717.98	717.96	717.94
GIRDER 5	718.71	718.68	718.66	718.63	718.61	718.59	718.56	718.54	718.52	718.49	718.47	718.43	718.38	718.34	718.29	718.25	718.21	718.16	718.12	718.07	718.03	718.01	717.98	717.96	717.94	717.91	717.89	717.87	717.84	717.82	717.80
GIRDER 6	718.57	718.54	718.52	718.49	718.47	718.45	718.42	718.4	718.38	718.35	718.33	718.29	718.24	718.2	718.15	718.11	718.07	718.02	717.98	717.93	717.89	717.87	717.84	717.82	717.8	717.77	717.75	717.73	717.7	717.68	717.66
GIRDER 7	718.43	718.4	718.38	718.35	718.33	718.31	718.28	718.26	718.24	718.21	718.19	718.15	718.1	718.06	718.01	717.97	717.93	717.88	717.84	717.79	717.75	717.73	717.7	717.68	717.66	717.63	717.61	717.59	717.56	717.54	717.52
S. EOD	718.41	718.38	718.36	718.33	718.31	718.29	718.26	718.24	718.22	718.19	718.17	718.13	718.08	718.04	717.99	717.95	717.91	717.86	717.82	717.77	717.73	717.71	717.68	717.66	717.64	717.61	717.59	717.57	717.54	717.52	717.50



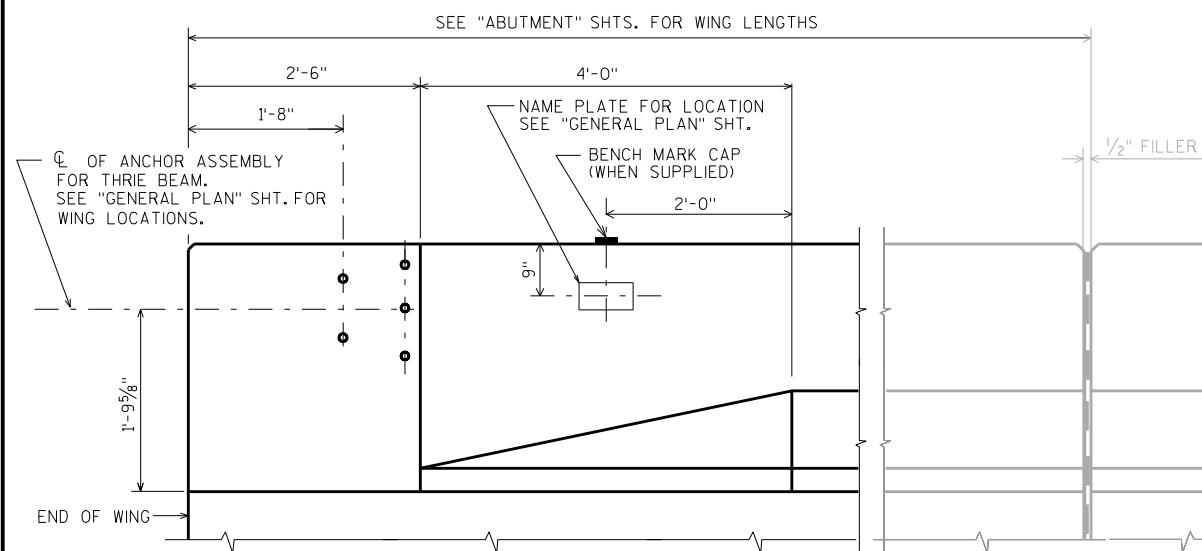
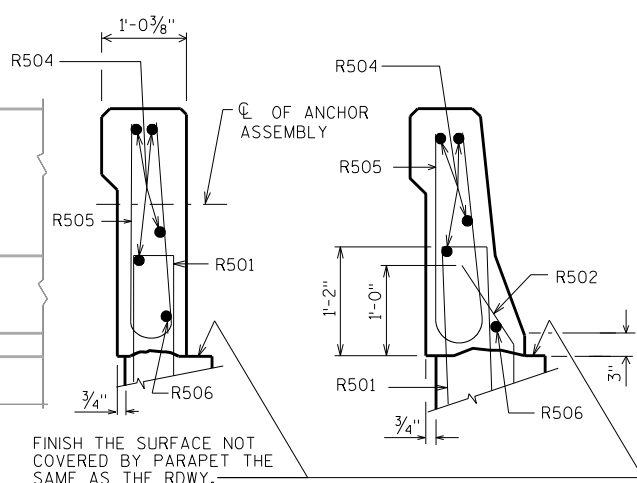
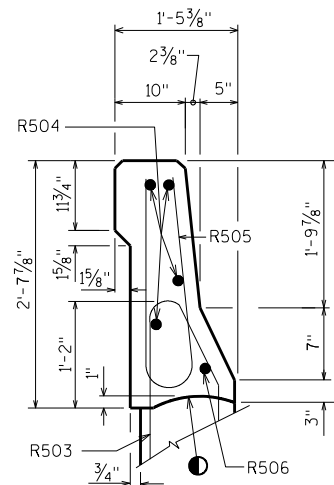
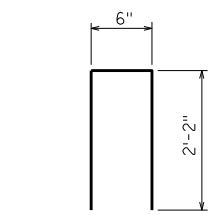
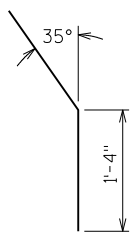
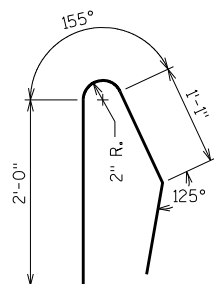
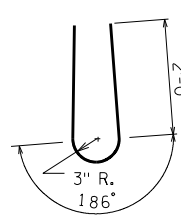
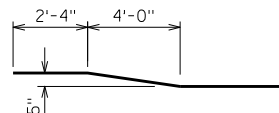
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-36-193			
DRAWN BY		DDS	PLANS CK'D. AMB
SUPERSTRUCTURE DETAILS		SHEET 16	

BILL OF BARS

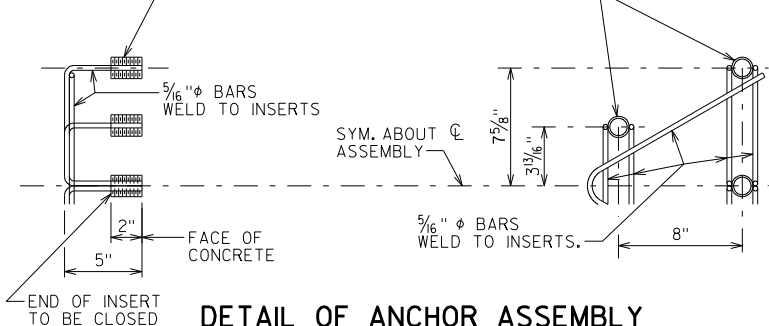
FOR ABUTMENT PARAPETS

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

BAR MARK	COAT	WEST ABUT.	EAST ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	28	28	4-7	X		PARAPET VERT.
R502	X	16	16	2-4	X		PARAPET VERT.
R503	X	16	16	4-7	X		PARAPET VERT.
R504	X	8	8	11-8			PARAPET HORIZ.
R505	X	44	44	4-10	X		PARAPET VERT.
R506	X	2	2	11-8	X		PARAPET HORIZ.

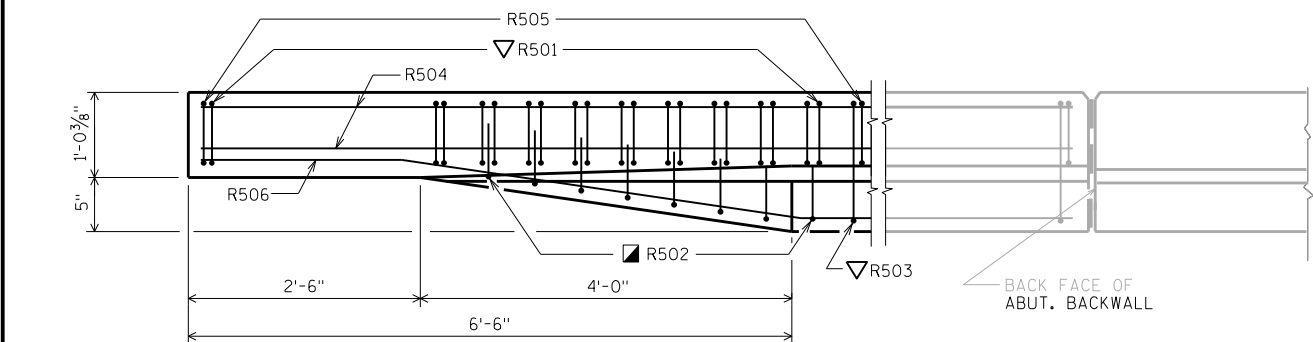
**INSIDE ELEVATION****SECTION A****SECTION B****SECTION C****R501****R502****R503****R505****R506**

THREADED INSERTS FOR $\frac{7}{8}$ " ϕ X 2" LONG GALVANIZED HEX HEAD CAP SCREWS. CAP SCREWS TO BE THREADED A MIN. OF $\frac{1}{8}$ " AND SHALL BE SUPPLIED, INCLUDING WASHERS, WITH ASSEMBLY. INSERTS TO BE THREADED A MINIMUM OF $\frac{1}{4}$ ".

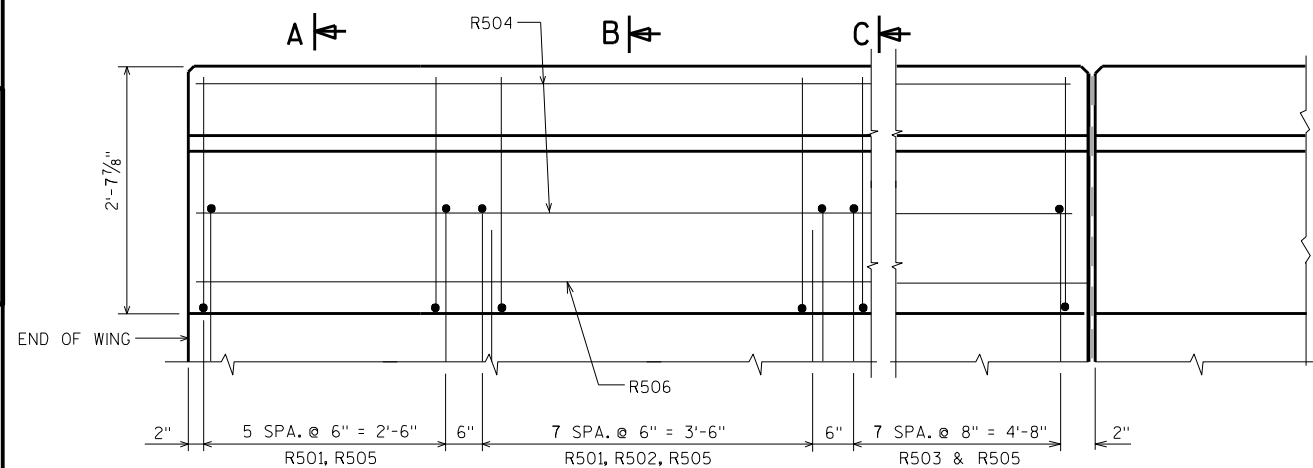
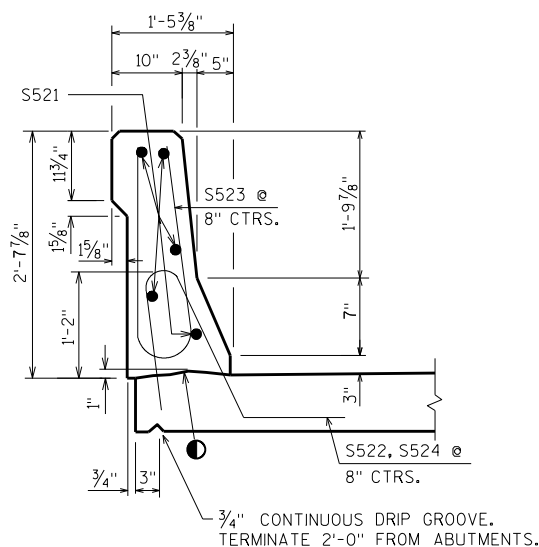
**DETAIL OF ANCHOR ASSEMBLY**

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

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

**PLAN**

OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A $\frac{3}{4}$ " 'V' GROOVE.

**OUTSIDE ELEVATION****SECTION THRU PARAPET ON BRIDGE**

● CONST. JOINT - STRIKE OFF AS SHOWN.

■ R502 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R502 BARS CORRECTLY ALONG TRANSITION OF PARAPET.

▽ R501 AND R503 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-36-193			
DRAWN BY DDS		PLANS CK'D. AMB	
SLOPED FACE PARAPET 'LF'			SHEET 17

DIVISION 1 - USH 10 WEST OF B-36-193

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDNATE
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.30	
					NOTE 1	NOTE 2	NOTE 1		NOTE 3
147+00	14700		0	0	0	0	0	0	0
147+50	14750	50	105	1	98	1	98	1	96
148+00	14800	50	71	9	163	9	261	13	248
148+50	14850	50	29	21	93	27	354	49	305
149+00	14900	50	11	53	37	68	391	137	254
149+50	14950	50	7	113	16	154	407	338	69
150+00	15000	50	4	185	10	277	417	698	-281
150+50	15050	50	5	353	8	499	425	1346	-922
151+00	15100	50	6	487	10	778	435	2357	-1922
151+50	15150	50	4	656	10	1058	445	3732	-3288
151+60	15160	10	3	715	1	248	446	4054	-3608
COLUMN TOTALS					446	3119			

DIVISION 2 - USH 10 EAST OF B-36-193

STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDNATE
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.30	
					NOTE 1	NOTE 2	NOTE 1		NOTE 3
153+44	15344		5	786	0	0	0	0	0
153+50	15350	6	2	675	1	156	1	202	-202
154+00	15400	50	11	149	12	763	13	1195	-1182
154+50	15450	50	28	10	36	148	49	1387	-1339
155+00	15500	50	40	73	63	77	112	1487	-1375
155+50	15550	50	88	46	118	110	230	1629	-1400
156+00	15600	50	140	40	211	79	440	1733	-1292
156+50	15650	50	162	31	280	66	720	1818	-1098
157+00	15700	50	179	30	316	56	1036	1891	-855
157+50	15750	50	184	29	336	55	1372	1962	-591
158+00	15800	50	182	29	339	54	1711	2032	-322
158+50	15850	50	166	29	322	54	2033	2102	-69
159+00	15900	50	146	19	289	45	2322	2160	161
159+50	15950	50	121	18	247	35	2569	2205	363
160+00	16000	50	115	0	218	17	2787	2227	559
160+50	16050	50	106	0	204	0	2991	2228	763
161+00	16100	50	108	0	198	1	3189	2228	960
161+50	16150	50	110	0	202	0	3391	2229	1162
162+00	16200	50	134	0	227	0	3617	2229	1389
162+50	16250	50	180	0	292	0	3909	2229	1680
163+00	16300	50	212	0	364	0	4273	2229	2044
163+50	16350	50	274	0	450	0	4723	2229	2494
164+00	16400	50	343	0	571	0	5294	2229	3065
164+50	16450	50	408	4	696	4	5990	2234	3756
165+00	16500	50	462	10	806	14	6795	2251	4544
165+50	16550	50	499	29	890	37	7685	2299	5386
166+00	16600	50	239	72	683	94	8369	2421	5947
166+50	16650	50	97	0	311	67	8679	2508	6171
167+00	16700	50	92	0	175	0	8854	2508	6346
167+50	16750	50	155	0	228	0	9083	2508	6574
168+00	16800	50	399	2	512	2	9595	2511	7084
168+50	16850	50	191	15	546	16	10141	2531	7610
169+00	16900	50	0	0	177	14	10318	2549	7768
COLUMN TOTALS					10318	1961			

NOTES	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL.
2 - FILL	DOES NOT INCLUDE PAVEMENT EXCAVATION VOLUME.
3 - MASS ORDNATE	[(CUT) - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

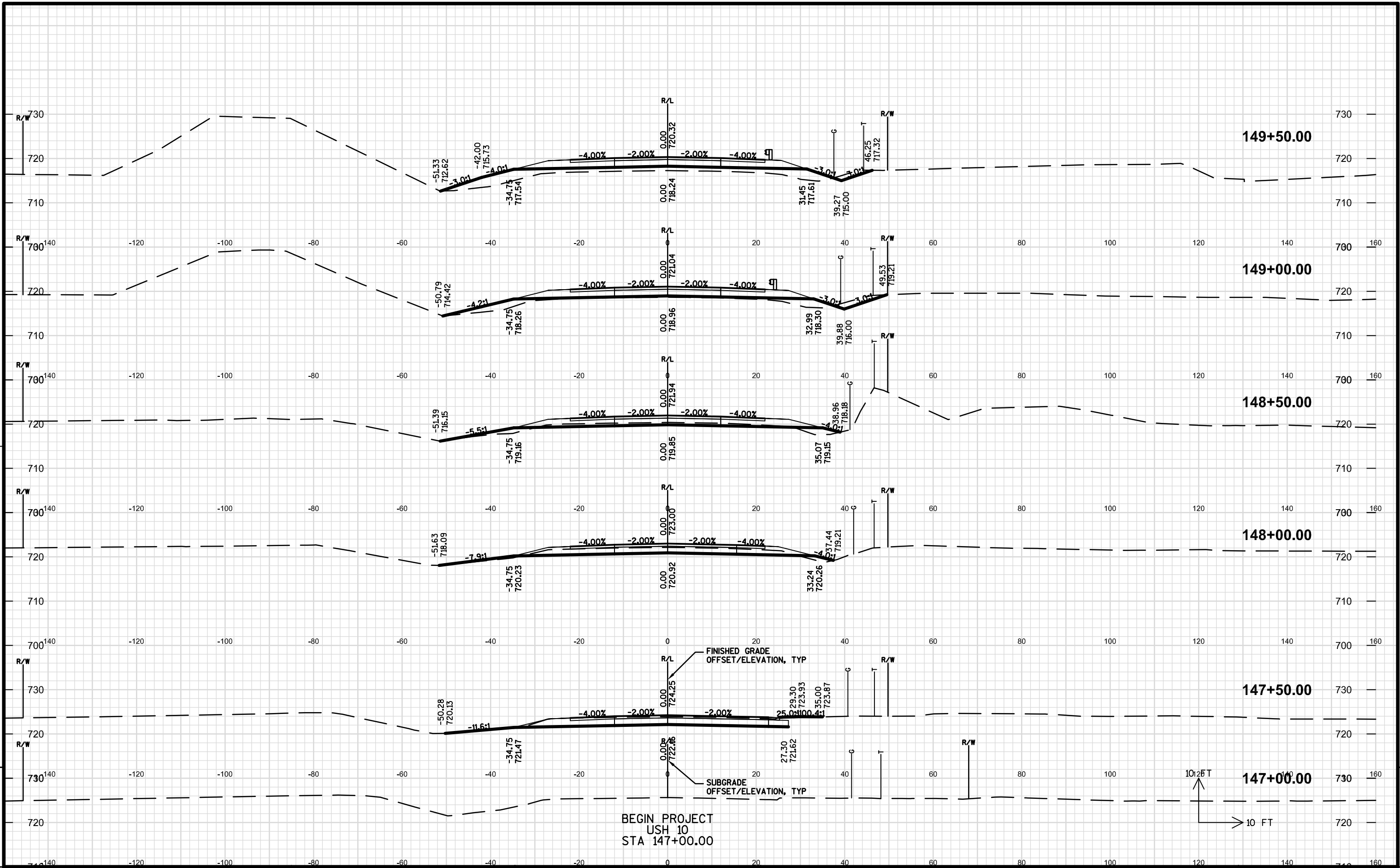
DIVISION 2 - CARBON ROAD

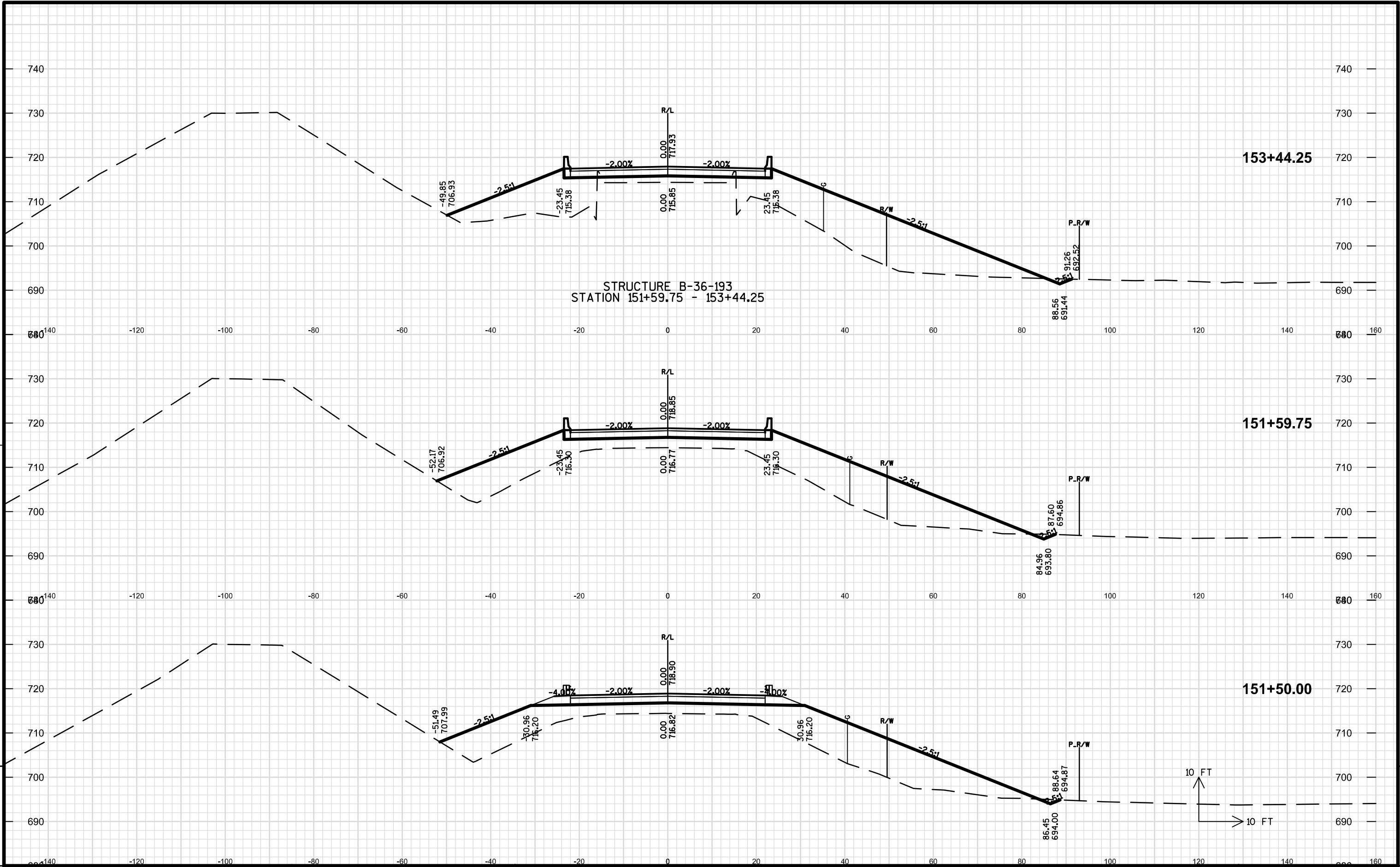
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDINATE
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.30	
					NOTE 1	NOTE 2	NOTE 1		NOTE 3
06+50	650		0	0	0	0	0	0	0
07+00	700	50	32	4	29	4	29	5	24
07+50	750	50	33	3	60	6	90	14	76
08+00	800	50	93	0	117	2	207	17	190
08+50	850	50	194	0	265	0	472	17	455
09+00	900	50	240	6	402	6	874	24	850
09+50	950	50	116	31	329	35	1203	69	1134
09+78	978	28	105	0	113	16	1316	90	1226
COLUMN TOTALS					1316	69			

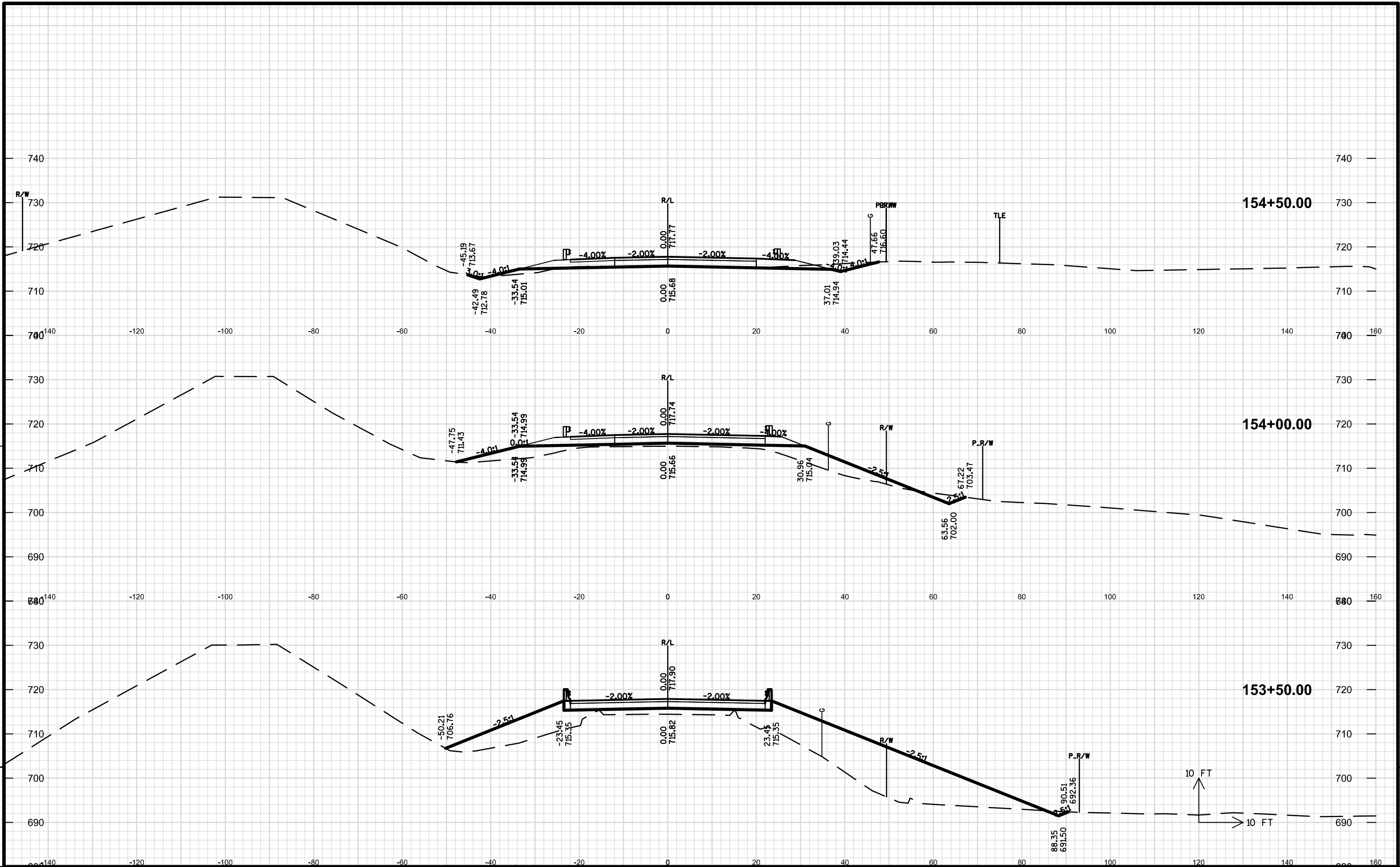
DIVISION 2 - CTH P

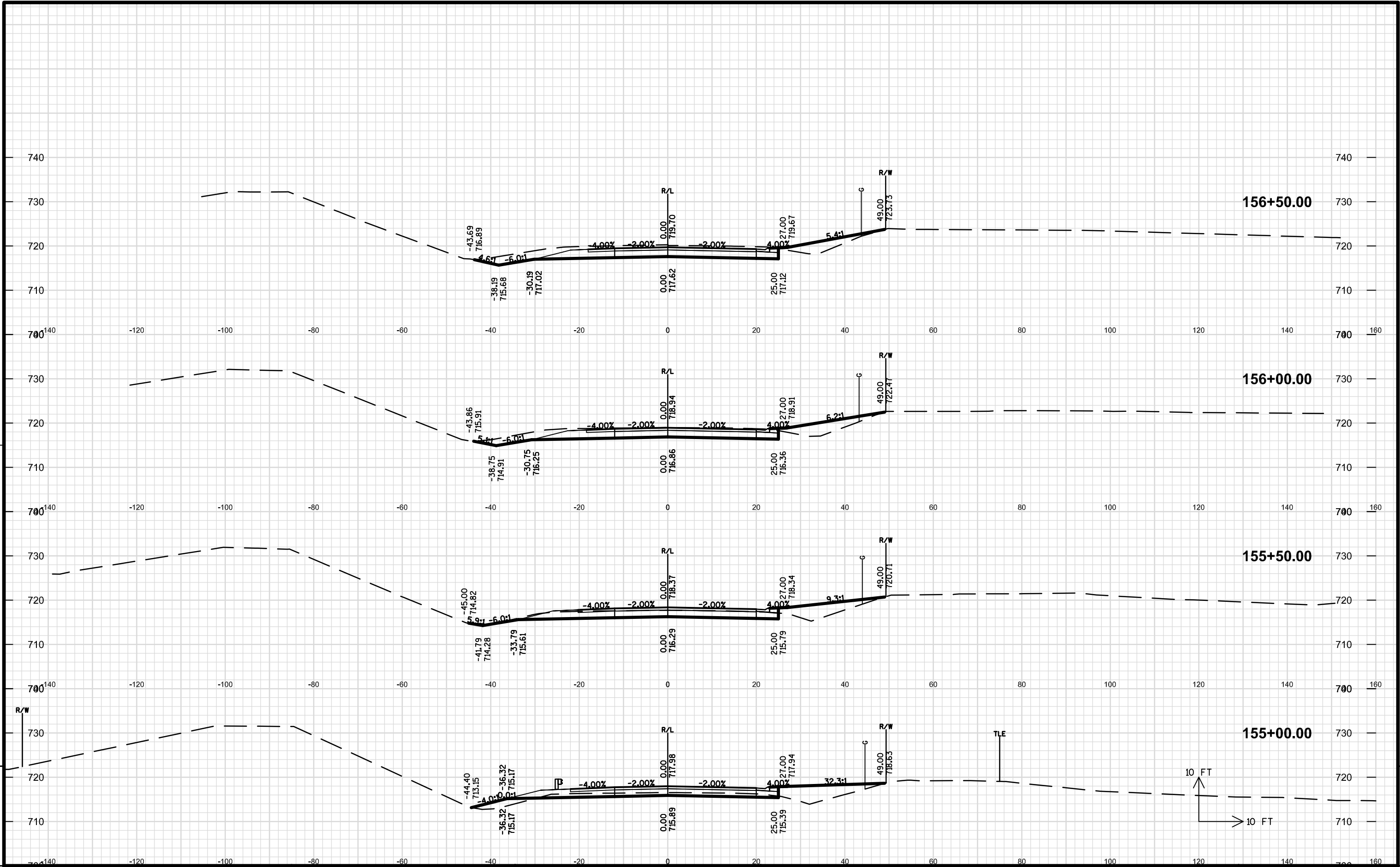
STATION	REAL STATION	DISTANCE	AREA (SF)		INCREMENTAL VOL (CY) (UNADJUSTED)		CUMULATIVE VOL (CY)		MASS ORDINATE
			CUT	FILL	CUT	FILL	CUT 1.00	EXPANDED FILL 1.30	
					NOTE 1	NOTE 2	NOTE 1		NOTE 3
10+24	1024		137	0	0	0	0	0	0
10+50	1050	26	69	208	98	99	98	129	-63
11+00	1100	50	478	211	507	389	605	634	-62
11+50	1150	50	298	33	719	226	1323	928	363
12+00	1200	50	377	0	625	31	1948	968	948
12+50	1250	50	349	22	672	21	2621	995	1593
13+00	1300	50	241	4	547	24	3167	1027	2108
13+50	1350	50	140	0	353	4	3520	1032	2456
14+00	1400	50	105	0	227	0	3747	1032	2683
14+50	1450	50	90	0	181	0	3928	1032	2863
15+00	1500	50	71	3	149	3	4077	1036	3009
15+50	1550	50	0	0	65	3	4143	1039	3071
COLUMN TOTALS					4143	799			

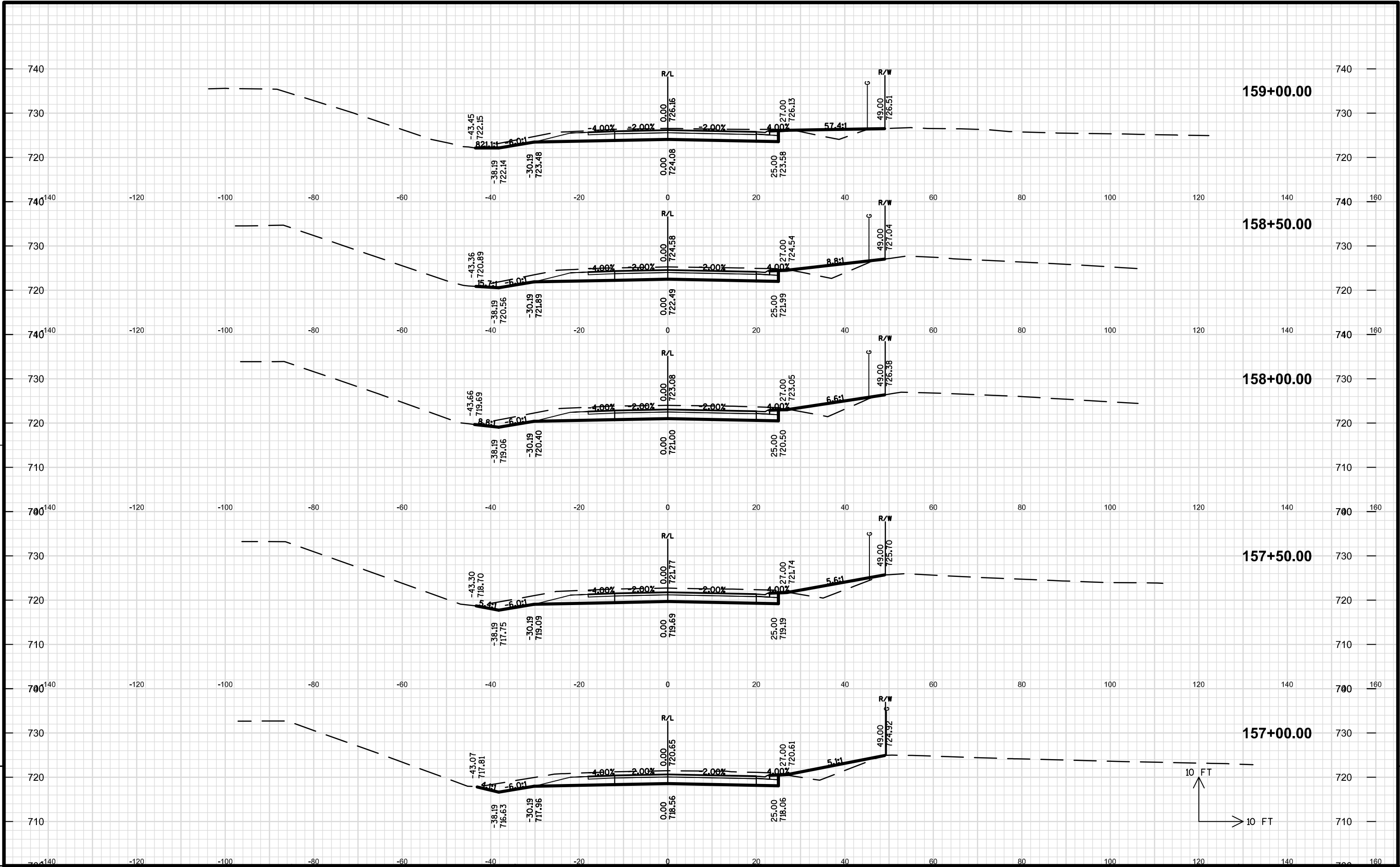
NOTES	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL.
2 - FILL	DOES NOT INCLUDE PAVEMENT EXCAVATION VOLUME.
3 - MASS ORDINATE	[(CUT) - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

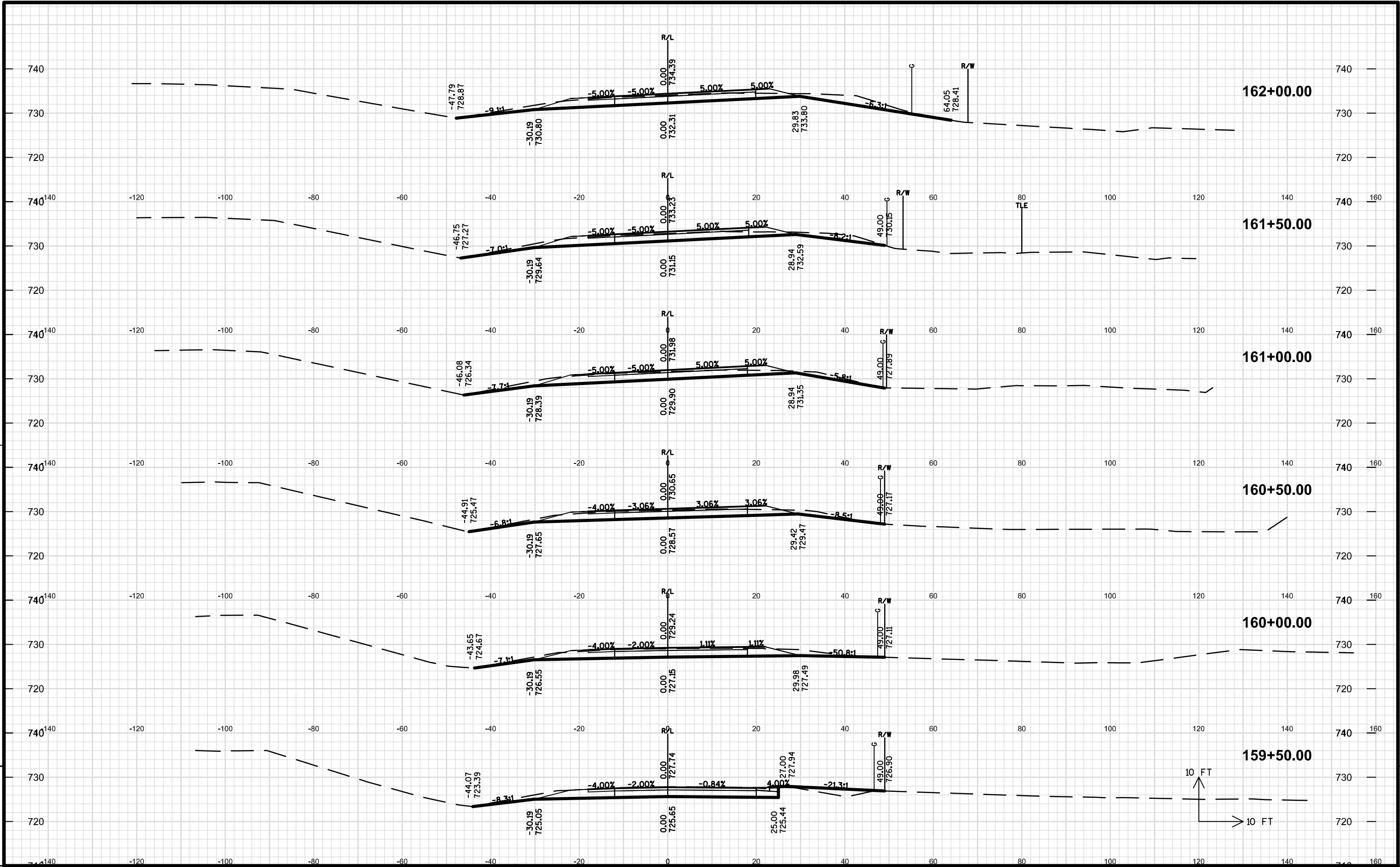


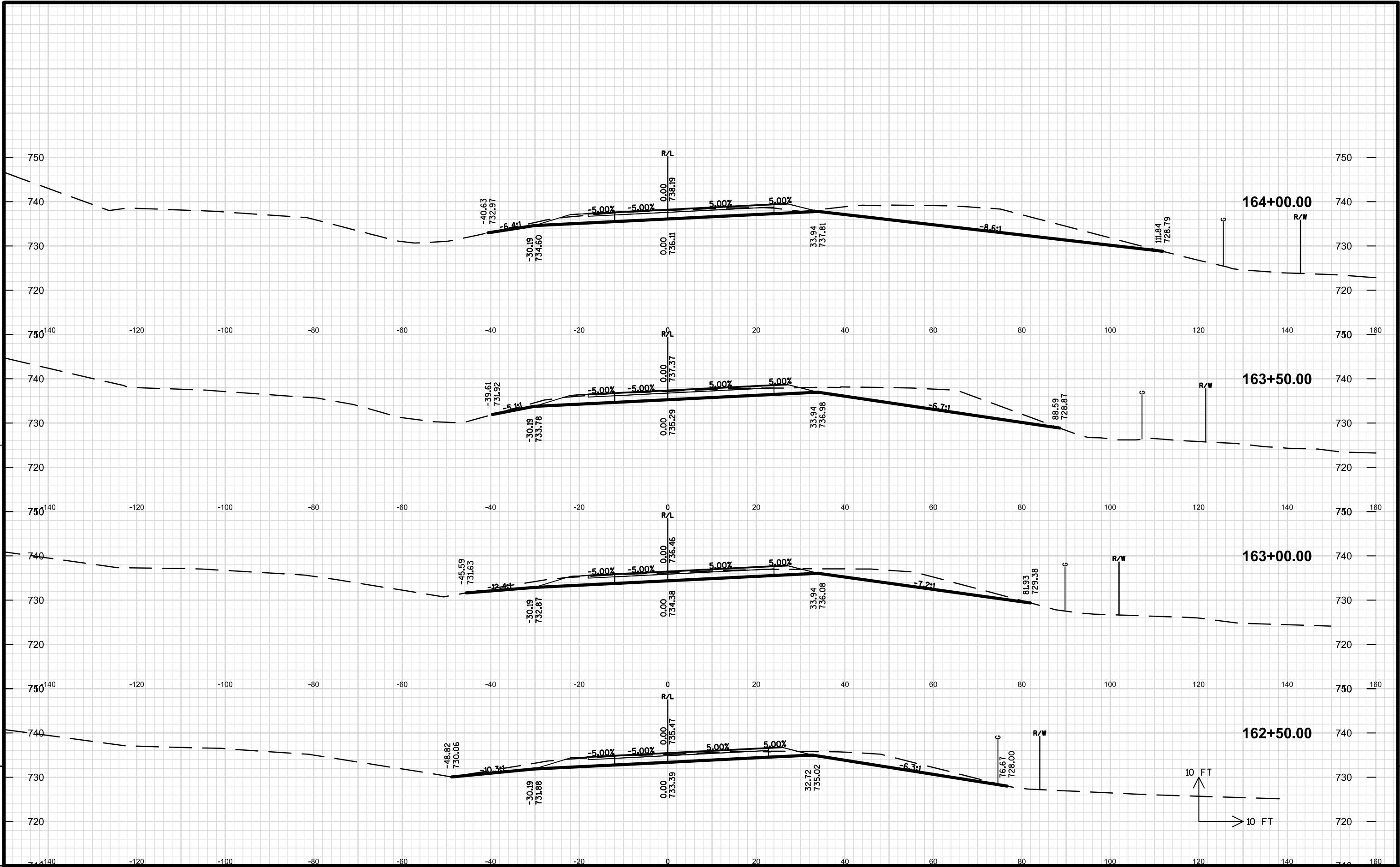


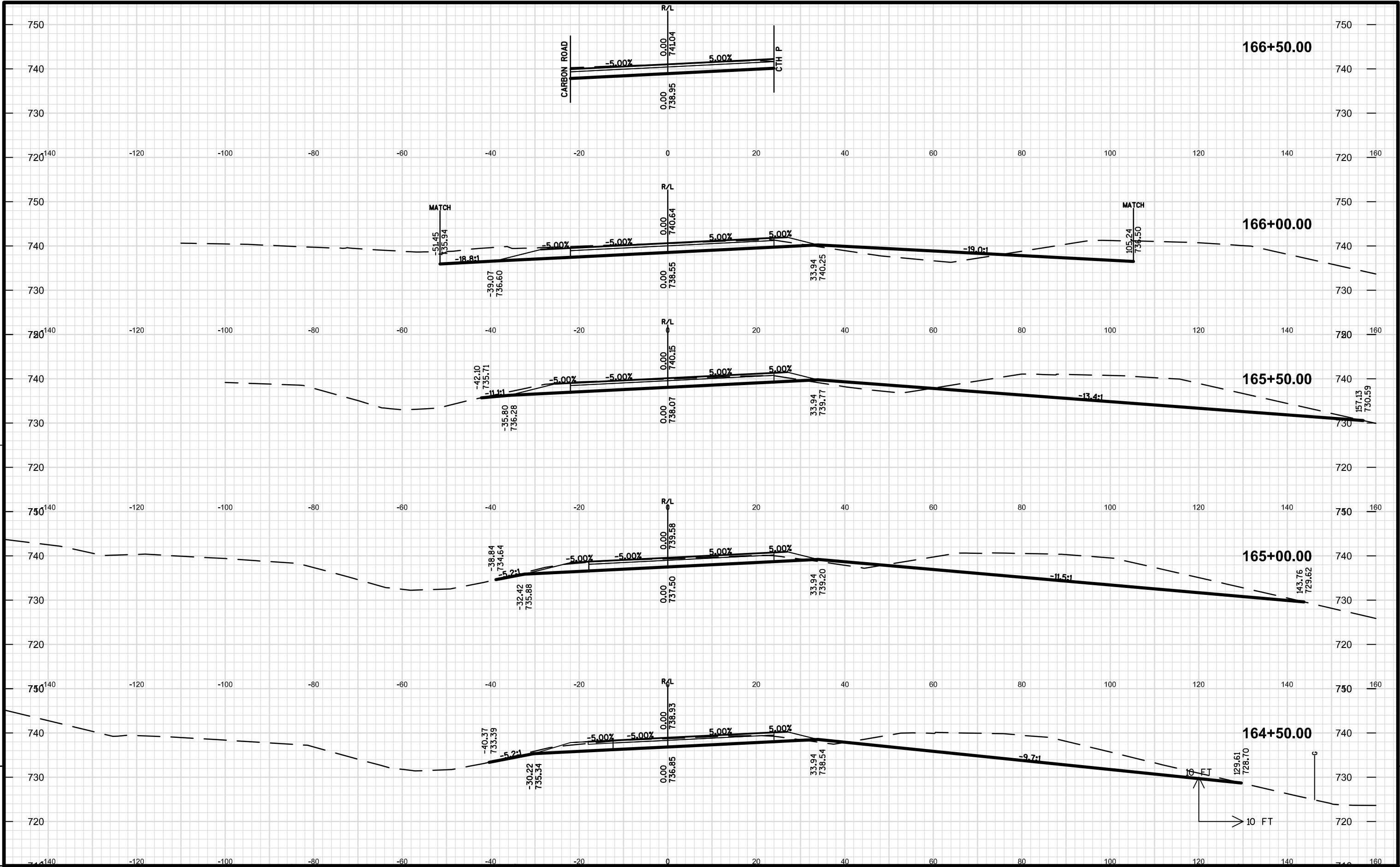


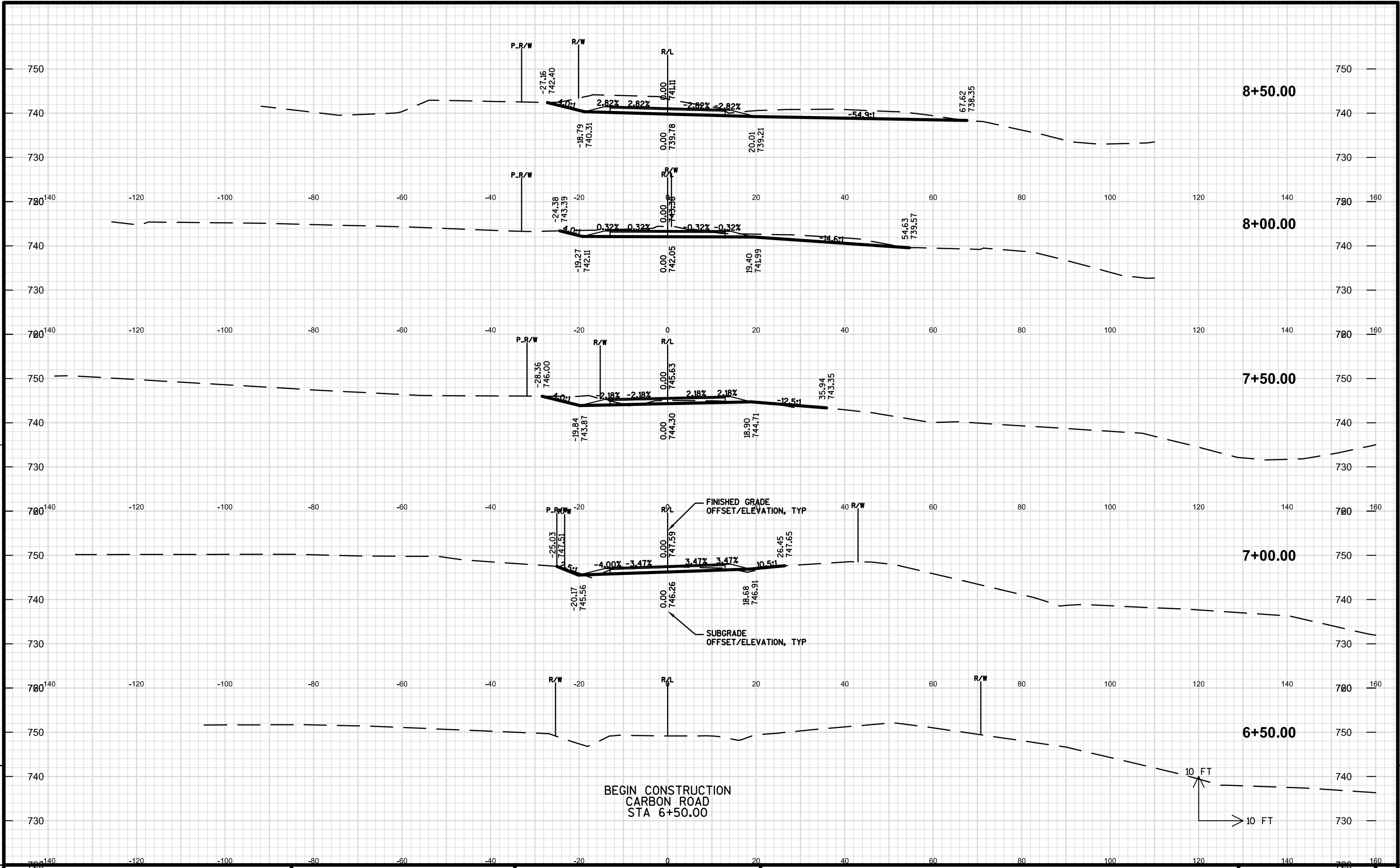


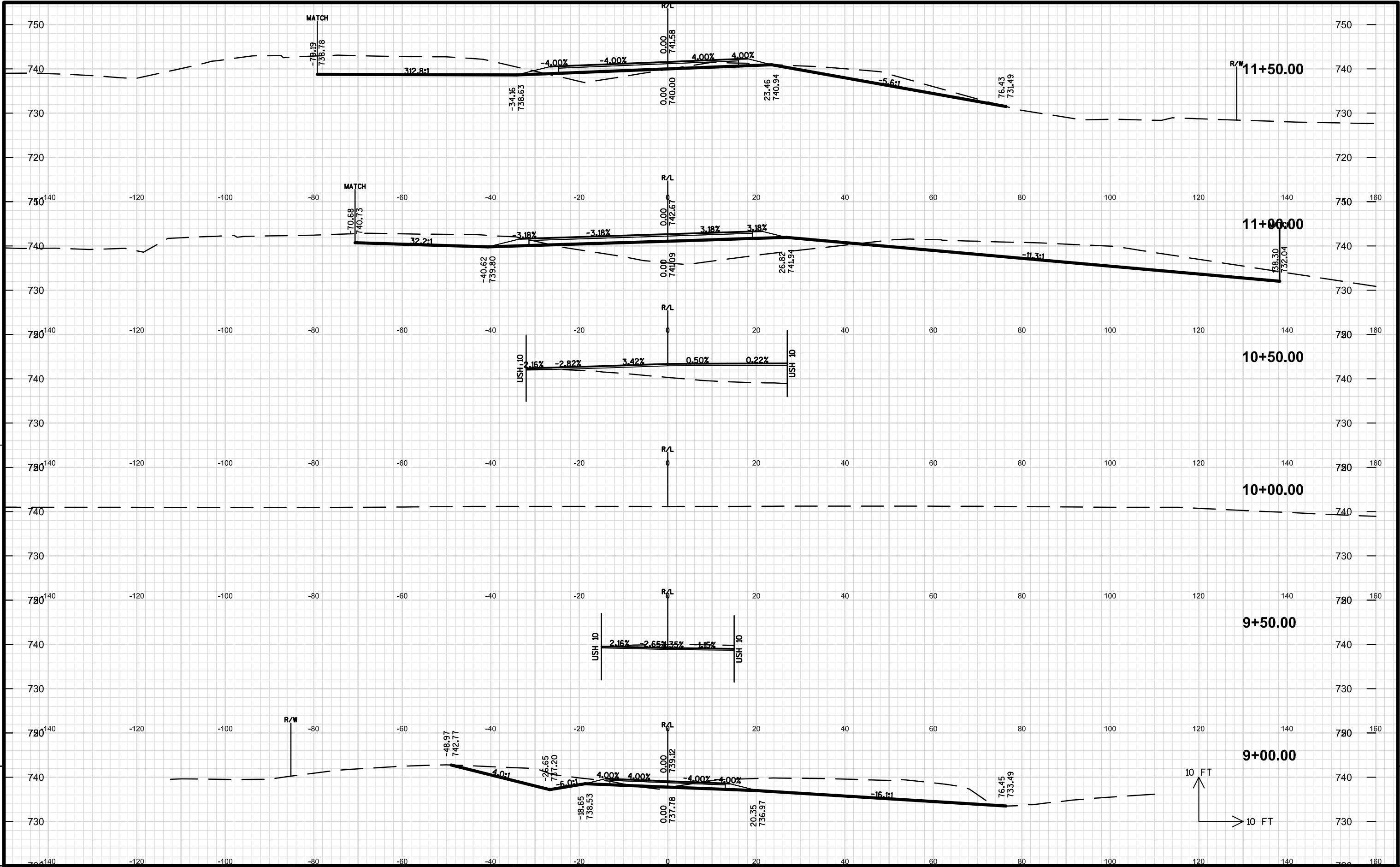


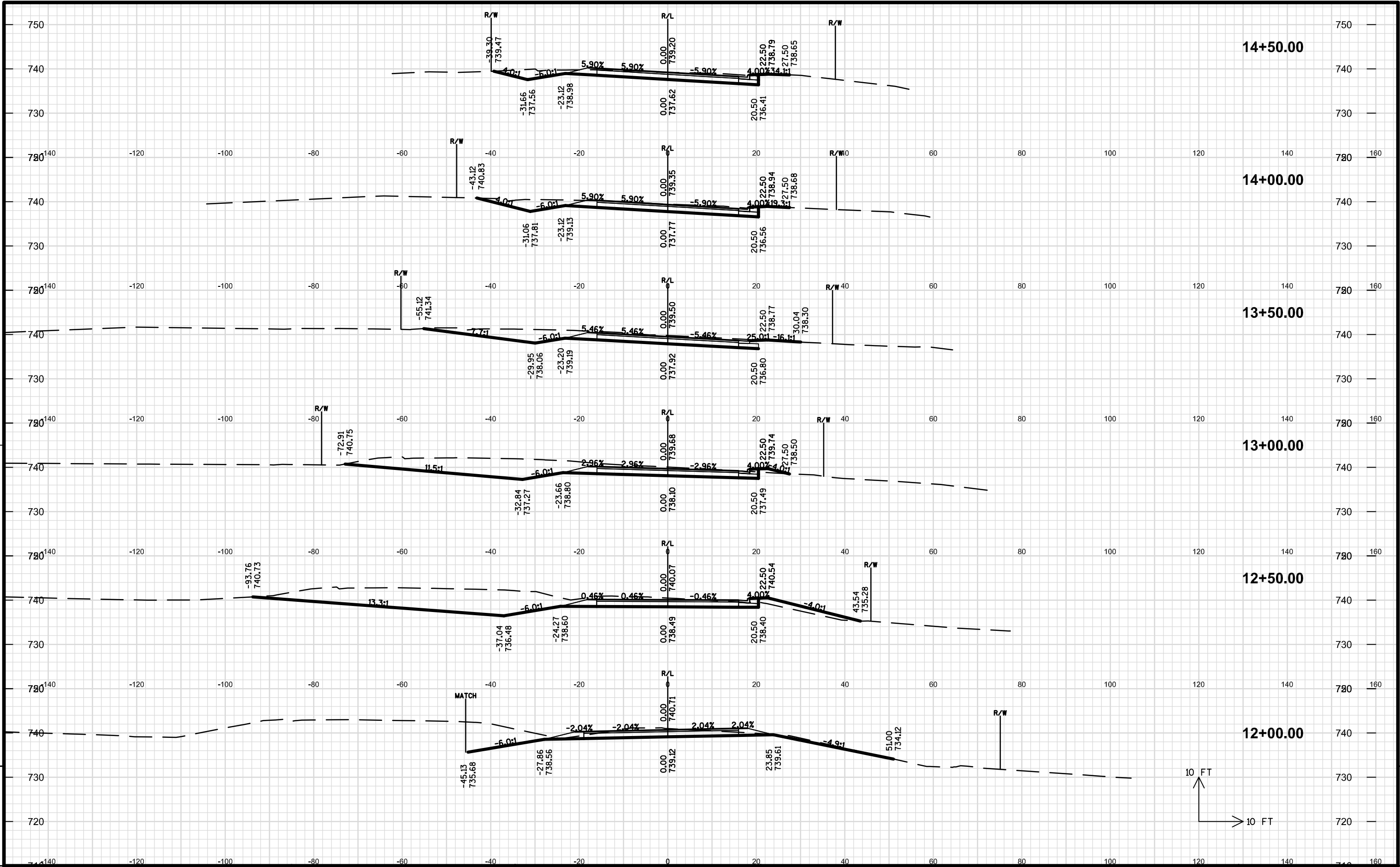


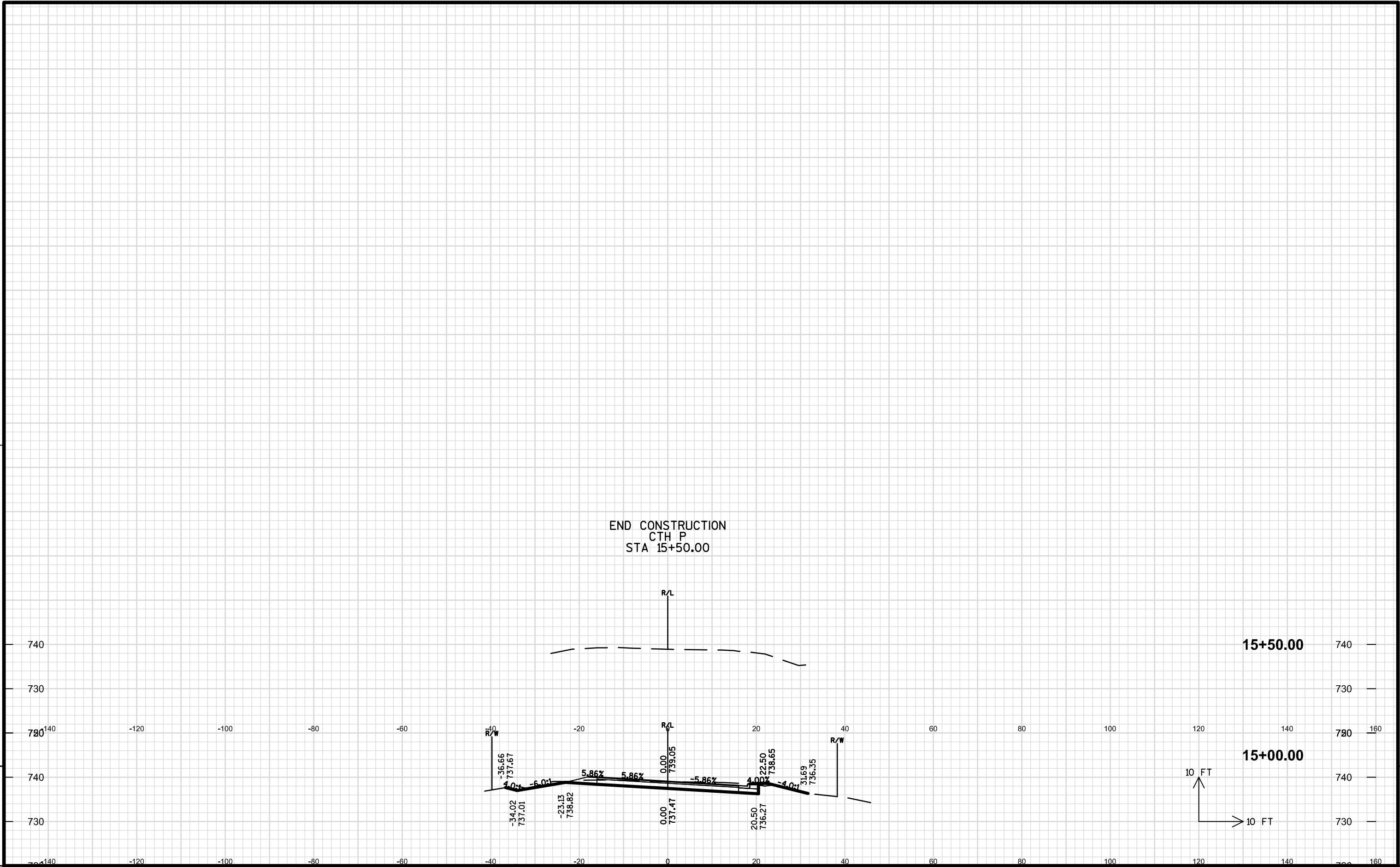


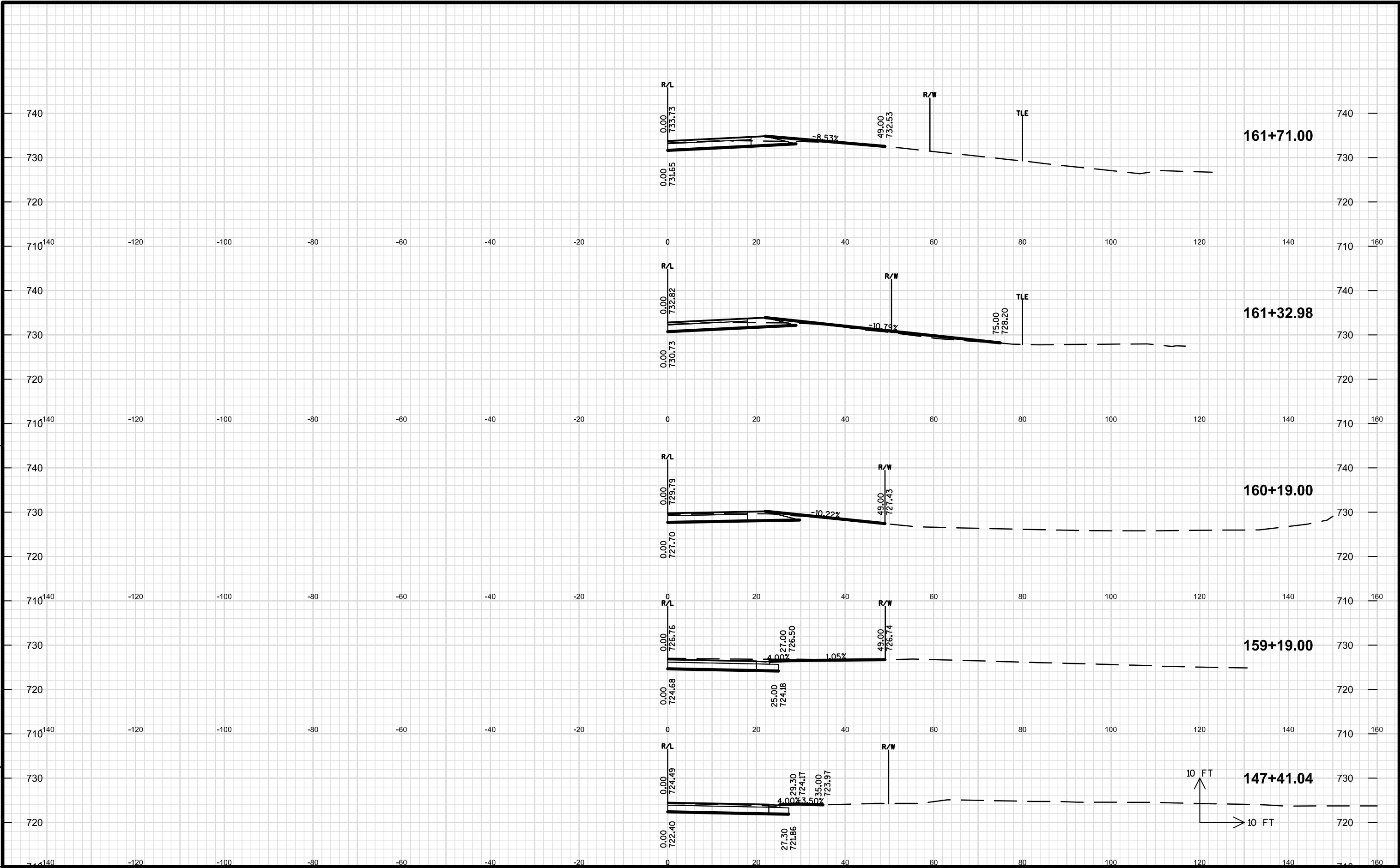


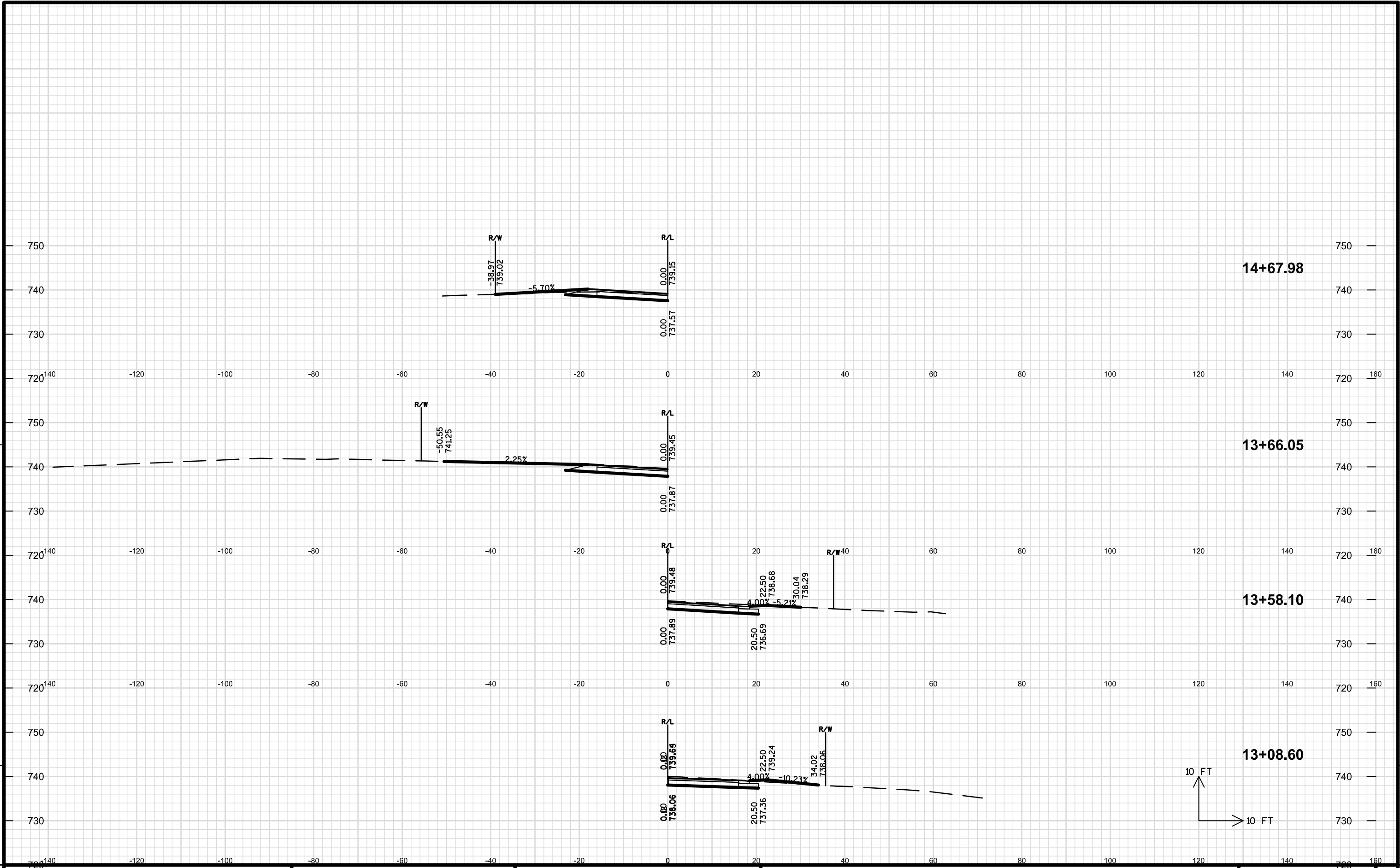




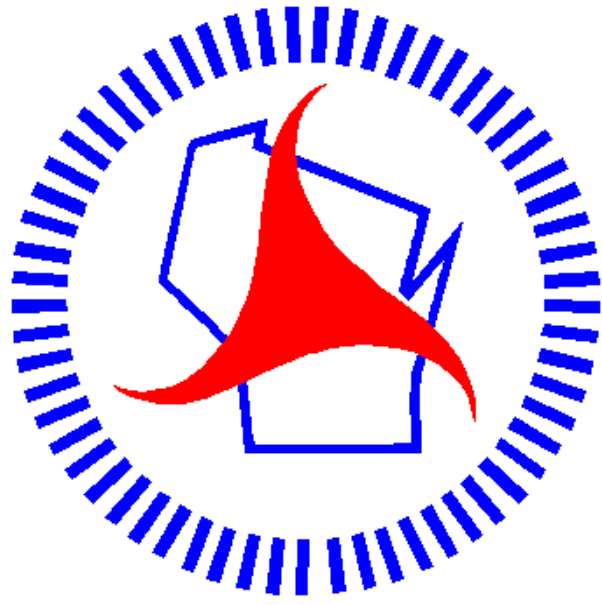








Notes



Wisconsin Department of Transportation

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