

SEL
PROJECT ID: 2758-04-70
WITH: N/A
COUNTY: WAUKESHA

MAR 2016

ORDER OF SHEETS

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

TOTAL SHEETS = 114



DESIGN DESIGNATION	CTH JJ	SILVERNAIL RD
A.A.D.T. 2016	= 3,800-8,000	5,900
A.A.D.T. 2036	= 4,200-8,800	6,500
D.H.V.	= 483-1,012	748
D.D.	= 59/41	59/41
T.	= 3.3%	3.3%
DESIGN SPEED	= 50 MPH	50 MPH
ESALS	=	-

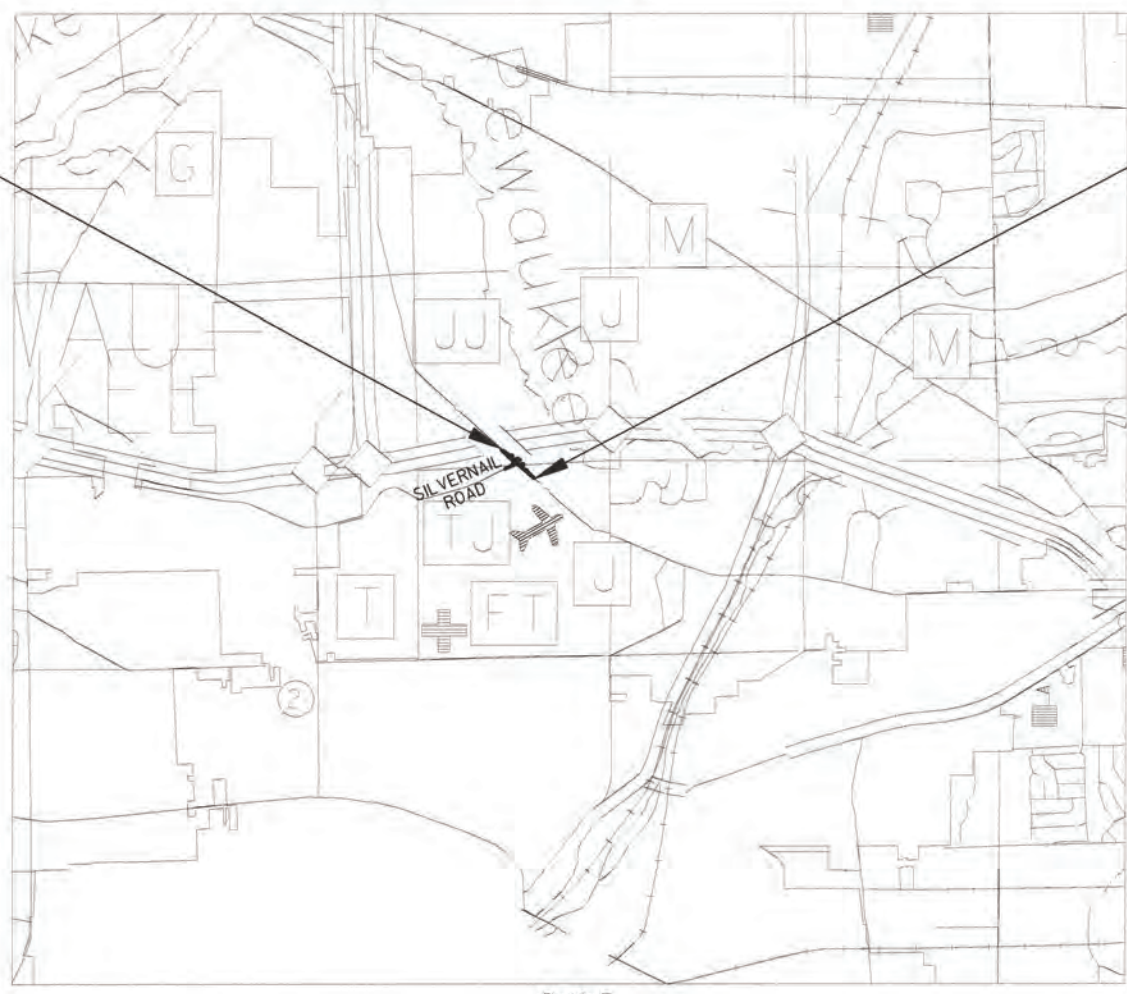
CONVENTIONAL SYMBOLS	
PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CTH JJ
INTERSECTION WITH SILVERNAIL ROAD
CTH JJ
WAUKESHA COUNTY

STATE PROJECT NUMBER
2758-04-70



BEGIN PROJECT
STA. 19+47.73
Y = 174,429.67
X = 681,877.89

END PROJECT
STA. 31+48.96

LAYOUT
SCALE 0 1 MI
TOTAL NET LENGTH OF CENTERLINE = 0.227 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATES SYSTEM, WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN 2012 VERTICAL DATUM OF 1988 NAVD88 (2012).

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2758-04-70	WISC 2016056	1

ACCEPTED FOR

COUNTY of WAUKESHA

9/30/15 Ben Barrett Sr. Engineer
(Date) (Signature & Title of Official)

ORIGINAL PLANS PREPARED BY
GRAEF 125 S. 84TH STREET, SUITE 401
MILWAUKEE, WI 53214



9/30/2015 Jacquelyn M. Messer
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY
Surveyor GRAEF
Designer GRAEF
Management Consultant DAAR ENGINEERING, INC.

APPROVED FOR THE DEPARTMENT
DATE: 10/22/15 J. D. Bink
(Manager Consultant Signature)

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED UNLESS INDICATED FOR REMOVAL BY THE ENGINEER.

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

ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM THE ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES OR FROM GRUBBING OF TREES OR STUMPS SHALL BE BACKFILLED WITH GRANULAR BACKFILL. BACKFILL GRANULAR MATERIAL IS INCIDENTAL TO THE REMOVAL ITEM.

ALL RADIUS DIMENSIONS FOR CURB & GUTTER ARE GIVEN TO THE FLANGE. ALL ELEVATIONS ALONG CURB & GUTTER ARE GIVEN TO THE FLANGE. OFFSETS NOTED ARE TO THE FLANGE OR EDGE OF LANE IF NO CURB, UNLESS OTHERWISE NOTED.

CONTRACTOR SHALL CONTACT SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION (SEWRPC) BEFORE DISTURBING ANY PUBLIC SURVEY MONUMENTS. CONTACT LEE KREBLIN AT (262) 547-6721 FOR MONUMENT RELOCATION PROCEDURES. CONTRACTOR SHALL ALSO CONTACT TOM LIPSKY AT WDOT SOUTHEAST REGION AT (262) 548-6737.

THE LOCATION OF KNOWN EXISTING UTILITIES IN THE VICINITY OF THE PROJECT ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITIES IN THE AREA THAT ARE NOT SHOWN.

HMA PAVEMENT, TYPE E-3, WHERE INDICATED ON THE PLANS, SHALL CONSIST OF LAYERS AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLANS OR DIRECTED BY THE ENGINEER.

2" DEPTH	2" OF 12.5mm HMA PAVEMENT TYPE E-3 PERFORMANCE GRADE 64-28
5 1/2" DEPTH	3 1/2" OF 19.0mm HMA PAVEMENT TYPE E-3 PERFORMANCE GRADE 64-28, AS THE LOWER LAYER
	2" OF 12.5mm HMA PAVEMENT TYPE E-3 PERFORMANCE GRADE 64-28, AS THE UPPER LAYER

SILT FENCE SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

ASPHALT AND CONCRETE DRIVEWAYS SHALL BE SAWCUT AT THE MATCH LINE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

INLET PROTECTION IS REQUIRED AT ALL INLETS AS PER DETAIL OR AS DIRECTED BY THE ENGINEER.

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

RE-TOPSOIL GRADED AREAS, AS DESIGNATED BY THE ENGINEER, IMMEDIATELY AFTER GRADING IS COMPLETED WITHIN THOSE AREAS. SEED, FERTILIZE, AND EROSION MAT TOPSOILED AREAS, AS DESIGNATED BY THE ENGINEER, WITHIN FIVE (5) CALENDAR DAYS AFTER PLACEMENT OF TOPSOIL. IF GRADED AREAS ARE LEFT EXPOSED FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, SEED THOSE AREAS WITH TEMPORARY SEED.

STOCKPILE EXCESS MATERIAL OR SPOILS ON UPLAND AREAS AWAY FROM WETLANDS, FLOODPLAINS AND WATERWAYS. STOCKPILED SOIL SHALL BE PROTECTED AGAINST EROSION. IF STOCKPILED MATERIAL IS LEFT FOR MORE THAN FOURTEEN (14) CALENDAR DAYS, SEED THE STOCKPILE WITH TEMPORARY SEED.

EROSION CONTROL BMP'S ARE AT SUGGESTED LOCATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE CONTRACTORS ECIP AND BY THE ENGINEER. EROSION CONTROL BMP'S SHALL BE MAINTAINED UNTIL PERMANENT VEGETATION IS ESTABLISHED OR UNTIL THE ENGINEER DETERMINES THAT THE BMP IS NO LONGER REQUIRED.

STANDARD ABBREVIATIONS

AEW	APRON END WALL
AGG	AGGREGATE
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
C&G	CURB AND GUTTER
C/L	CENTER OR CONSTRUCTION LINE
CONC	CONCRETE
CP	CULVERT PIPE
CPCM	CULVERT PIPE CORRUGATED METAL
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CSCP	CORRUGATED STEEL CULVERT PIPE
CSPA	CORRUGATED STEEL PIPE ARCH
CSD	CONCRETE SURFACE DRAIN
CY	CUBIC-YARD
D	DEGREE OF CURVE
	DELTA
DISCH	DISCHARGE
FE	FIELD ENTRANCE
HERCP	HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
HMA	HOT MIX ASPHALT
INV	INVERT
L	LENGTH OF CURVE
LHF	LEFT HAND FORWARD
LT	LEFT
MIN	MINIMUM
M/L	MATCHLINE
NB	NORTHBOUND
NC	NORMAL CROWN
NTS	NOT TO SCALE
PAVT	PAVEMENT
PB	PULL BOX
PC	POINT-OF-CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTRANCE
PI	POINT OF INTERSECTION
PLE	PERMANENT LIMITED EASEMENT
PT	POINT OF TANGENT
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RAD	RADIUS
RC	REVERSE CROWN
RCAEW	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
RCHES	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL STORM SEWER
RCPSS	REINFORCED CONCRETE PIPE - STORM SEWER
REQD	REQUIRED
RHF	RIGHT HAND FORWARD
RO	RUN OFF LENGTH
RT	RIGHT
SALV	SALVAGED
SB	SIGNAL BASE
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
STA	STATION
SY	SQUARE YARD
T	TANGENT LENGTH
TC	TOP OF CURB
TLE	TEMPORARY LIMITED EASEMENT

AGENCIES

WAUKESHA COUNTY
MR. BRUCE BARNES
515 W. MORELAND BLVD.
WAUKESHA, WI 53188
(262) 548-7748
BGBARNES@WAUKESHACOUNTY.GOV

DEPT. OF NATURAL RESOURCES

WISCONSIN DEPT. OF NATURAL RESOURCES
MR. CRAIG WEBSTER
141 NW BARSTOW STREET
WAUKESHA, WI 53187
(262) 574-2141
CRAIG.WEBSTER@WISCONSIN.GOV

WISDOT CONTACT

WISCONSIN DEPT OF TRANSPORTATION, SE REGION
MS. KATHLEEN KRAMER
141 NW BARSTOW STREET
P.O. BOX 798
WAUKESHA, WI 53187
(262) 548-8772
KATHLEENLKRAMER@DOT.WI.GOV

DESIGN CONTACT

GRAEF
MRS. JACQUELYN MESSER, P.E.
HONEY CREEK CORPORATE CENTER
125 S. 84TH STREET, SUITE 401
MILWAUKEE, WI 53212
(414) 266-9162
JACKIE.MESSER@GRAEF-USA.COM

UTILITIES

AT&T WISCONSIN
MR. ROBERT KOSANKE
425 S. 95TH STREET
MILWAUKEE, WI 53214
(414) 257-0206
(414) 534-7746

CITY OF WAUKESHA PUBLIC WORKS
DEPARTMENT (SANITARY)
MR. CHRISTOPHER J. LANGEMAK, P.E.
130 DELAFIELD STREET
WAUKESHA, WI 53188
(262) 524-3598
(262) 349-6512 (MOBILE)
CLANGEMA@CI.WAUKESHA.WI.US

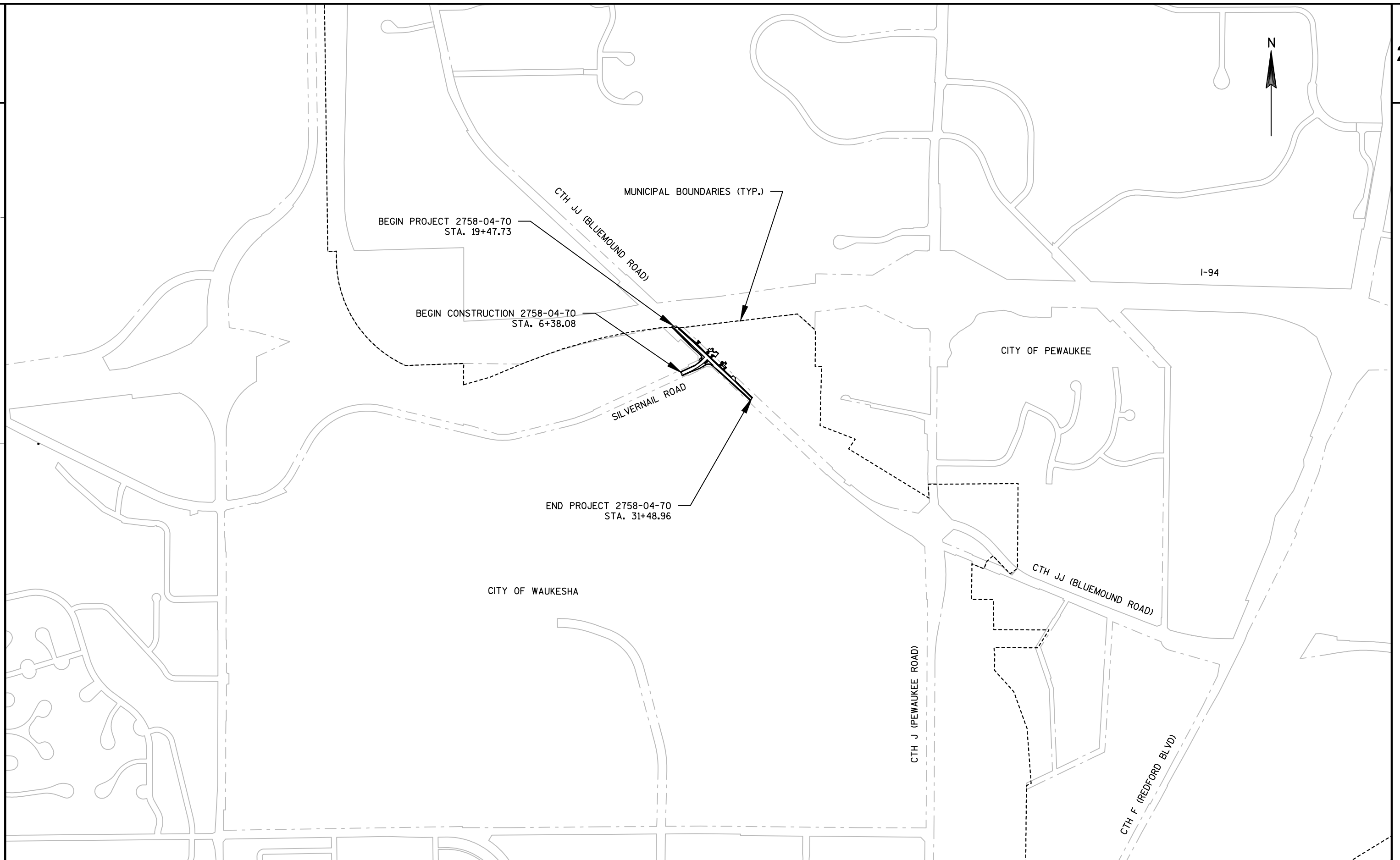
WAUKESHA WATER UTILITY
MR. TOM KRAUSE
115 DELAFIELD STREET
P.O. BOX 1648
WAUKESHA, WI 53187-1648
(262) 409-4462
(262) 352-3022 (MOBILE)
TKRAUSE@WAUKESHA-WATER.COM

TIME WARNER CABLE
MR. STEVE STORM
1320 N. MARTIN LUTHER KING JR. DRIVE
MILWAUKEE, WI 53212
(414) 908-4789
(414) 239-4106 (MOBILE)
STEVEN.STORM@TWCABLE.COM

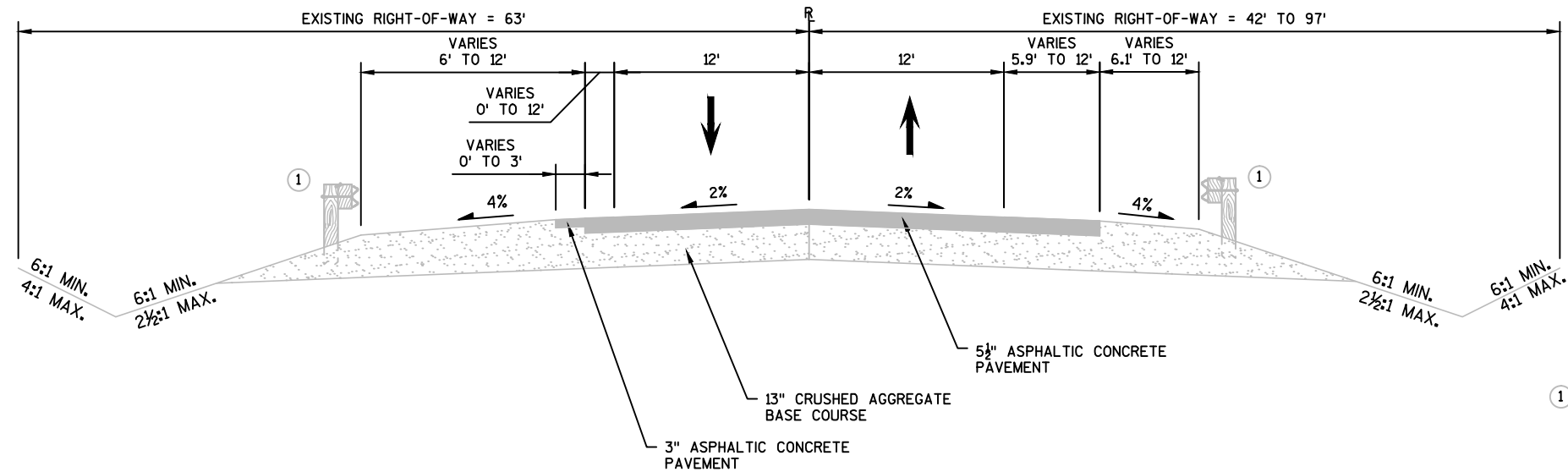
WE ENERGIES-ELECTRIC
MR. GERARD HEJLIK
W140 N9100 LILLY ROAD
MENOMONEE FALLS, WI 53051
(262) 502-6883
GERARD.HEJLIK@WE-ENERGIES.COM

WE ENERGIES - GAS/PETROLEUM
MR. TYLER ROEBKE
500 S. 116TH STREET
WEST ALLIS, WI 53214
(262) 424-9420
TYLER.ROEBKE@WE-ENERGIES.COM



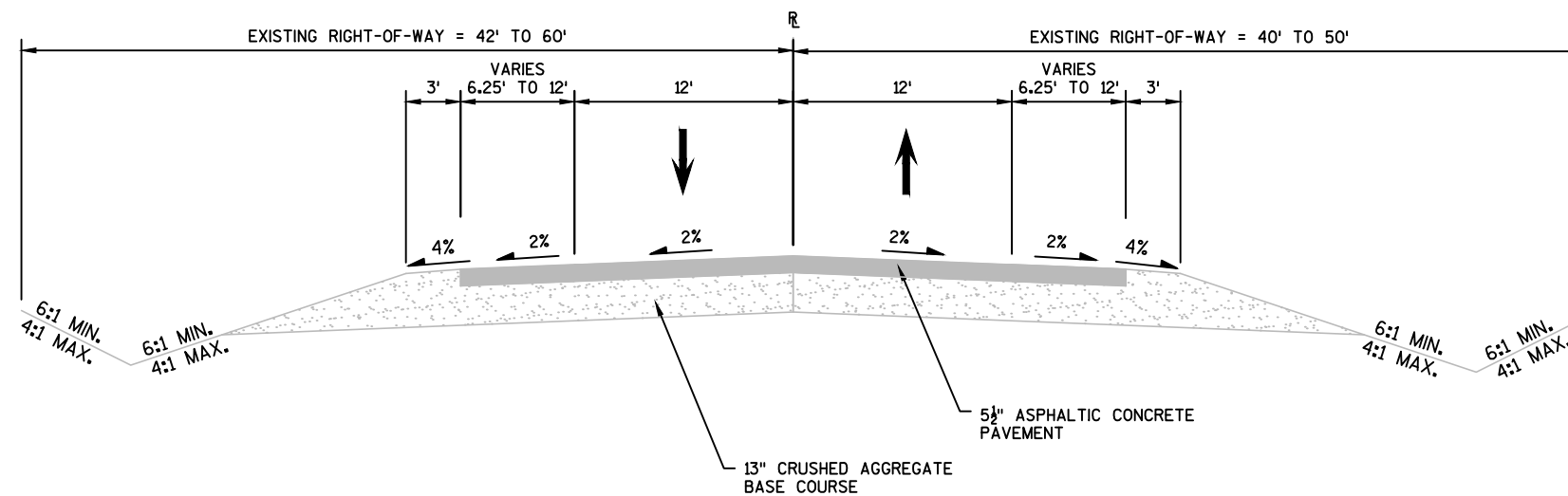


PROJECT NO:2758-04-70	HWY:CTH JJ	COUNTY:WAUKESHA	PROJECT OVERVIEW	SHEET	E
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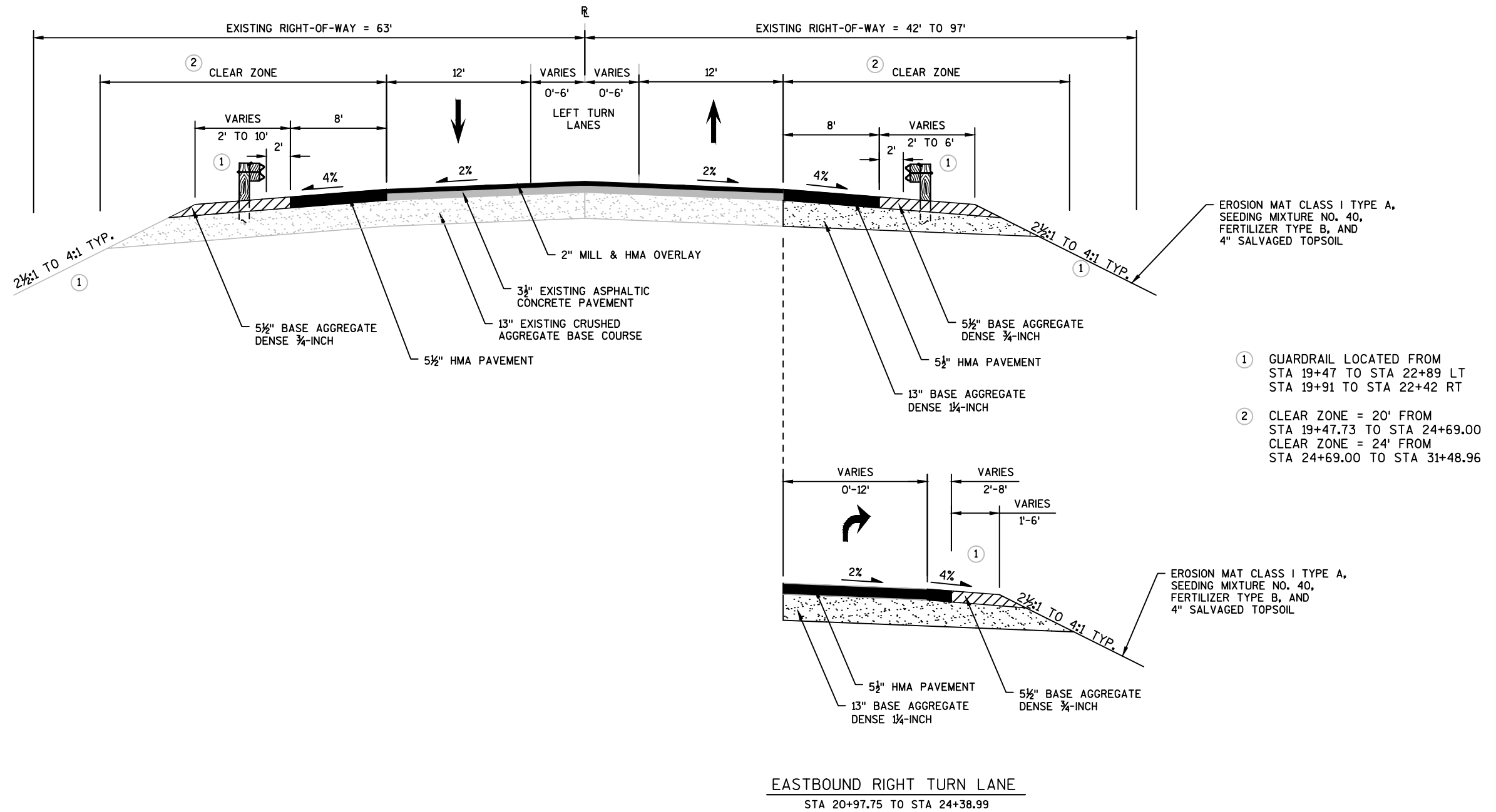
EXISTING TYPICAL SECTION CTH JJ

STA 19+47.73 TO STA 31+48.96



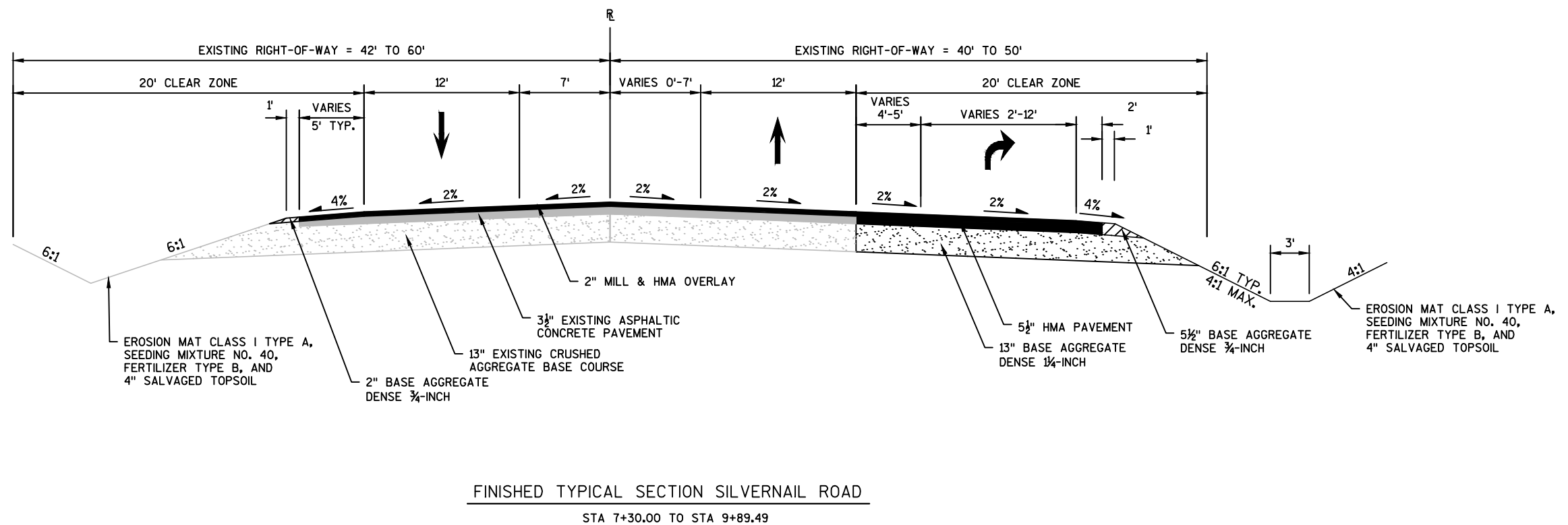
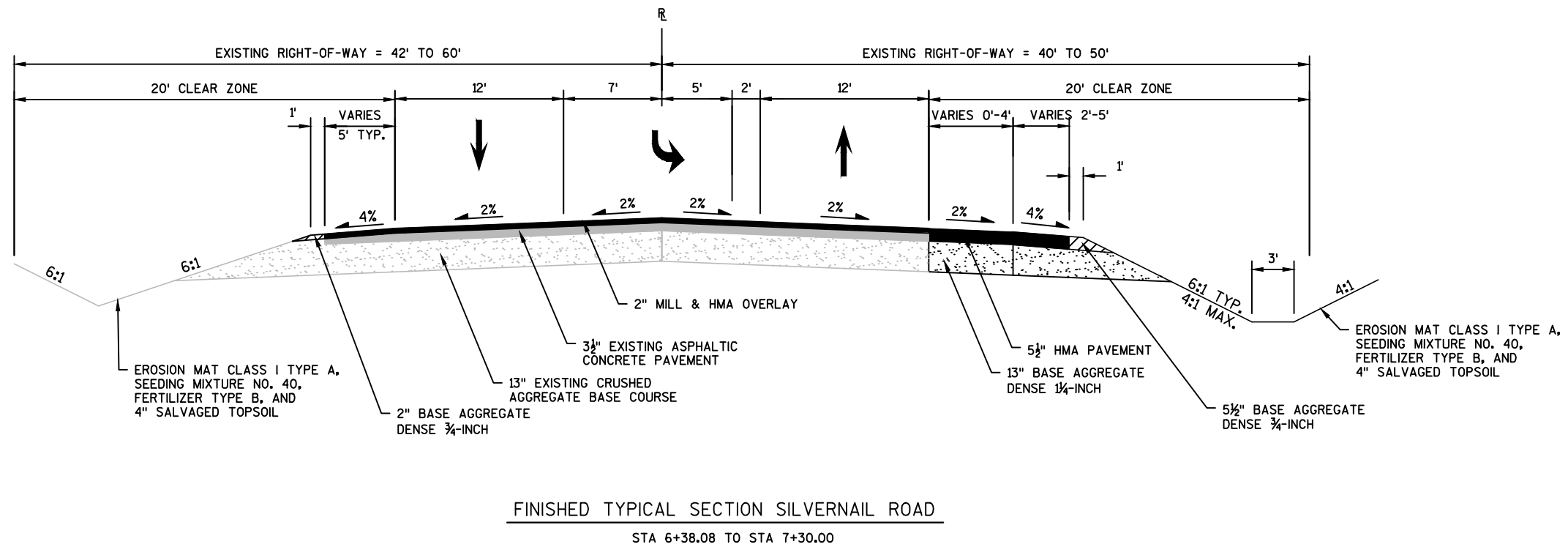
EXISTING TYPICAL SECTION SILVERNAIL ROAD

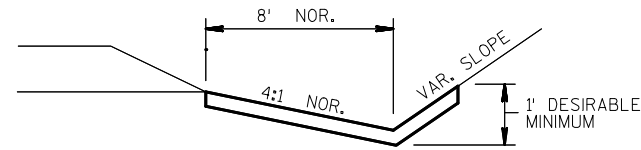
STA 6+38.08 TO STA 9+89.49



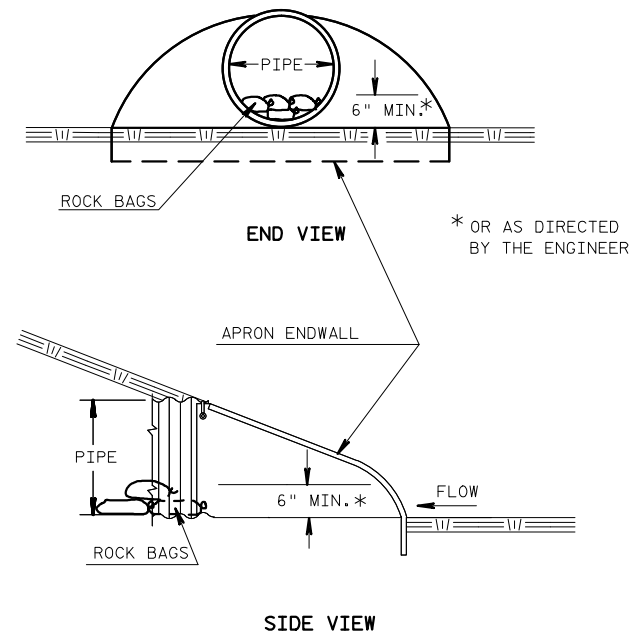
FINISHED TYPICAL SECTION CTH JJ

NORTH OF SILVERNAIL ROAD
STA 19+47.73 TO STA 31+48.96

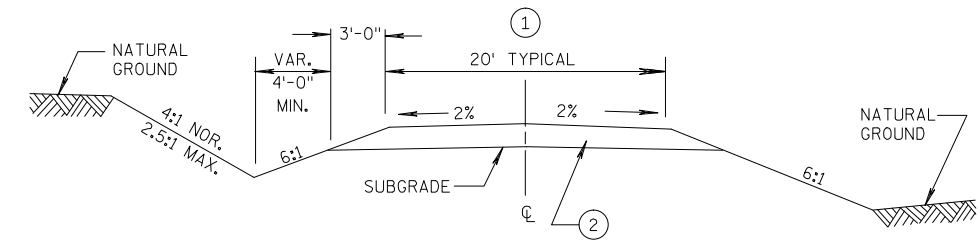




EROSION MAT DETAIL FOR DITCHES



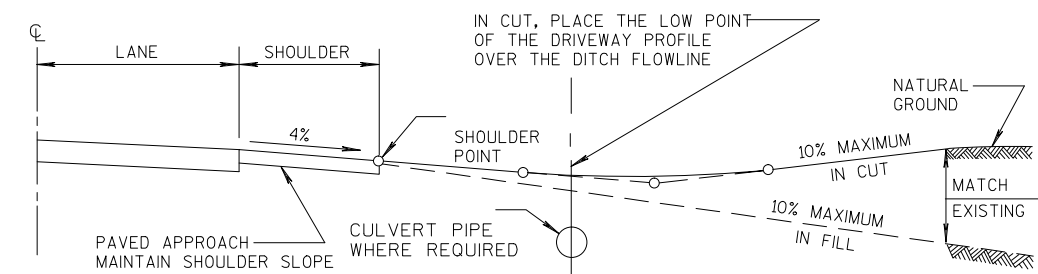
CULVERT PIPE CHECK
(PAID FOR AS ROCK BAGS)



IN CUT

TYPICAL CROSS SECTION

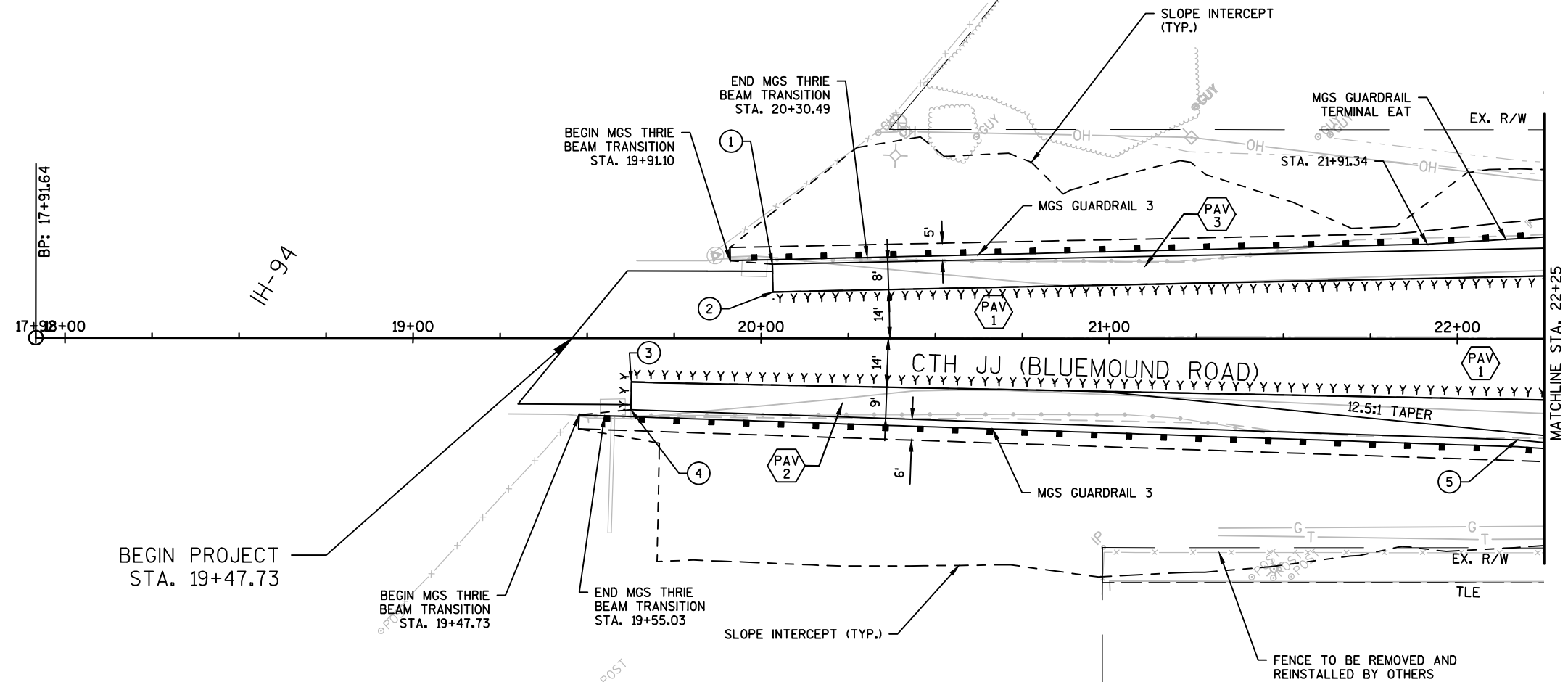
IN FILL



TYPICAL PROFILE

RURAL DRIVEWAY DETAIL

- ① DRIVEWAY WIDTHS:
COMMERCIAL, 35' MAX, 12' MIN
NON-COMMERCIAL, 24' MAX, 12' MIN
SEE PAVING DETAIL SHEETS FOR WIDTH REQUIRED
- ② DRIVEWAY SURFACE SHALL BE REPLACED IN-KIND WITH MINIMUM SECTION OF:
5½" HMA PAVEMENT OVER 13" BASE AGGREGATE DENSE 1½"



BEGIN PROJECT
STA. 19+47.73

BEGIN MGS THRIE
BEAM TRANSITION
STA. 19+47.73

END MGS THRIE
BEAM TRANSITION
STA. 19+55.03

SLOPE INTERCEPT (TYP.)

FENCE TO BE REMOVED AND
REINSTALLED BY OTHERS

LEGEND

- PAV 1 2-INCH MILL AND HMA OVERLAY
- PAV 2 5½-INCH HMA PAVEMENT,
13-INCH BASE AGGREGATE DENSE 1 1/4-INCH
- PAV 3 5½-INCH HMA PAVEMENT
OVER EXISTING BASE
- PAV 4 5½-INCH HMA PAVEMENT
8-INCH BASE AGGREGATE DENSE 1 1/4-INCH
- 36D CONCRETE CURB & GUTTER
- TYPE
SIZE (INCHES)
- SW 5 CONCRETE SIDEWALK 5-INCH
OVER 4" BASE AGGREGATE DENSE 1 1/4-INCH
- SNX SLOPED NOSE, TYPE X
- ① POINT NUMBER (REFER TO DATA TABLE)
- Y Y Y· SAWING ASPHALT

DATA TABLE			
POINT NUMBER	STATION	OFFSET	DESCRIPTION
1	20+03.21	21.33' LT	MATCH EXISTING
2	20+03.38	13.33' LT	MATCH EXISTING
3	19+62.74	12.51' RT	MATCH EXISTING
4	19+62.59	20.51' RT	MATCH EXISTING
5	22+17.27	29.00' RT	PAVEMENT PI

PROJECT NO: 2758-04-70

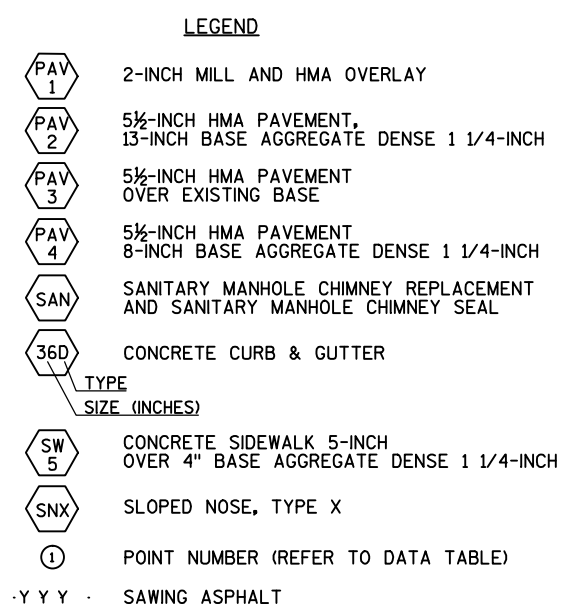
HWY: CTH JJ

COUNTY: WAUKESHA

PLAN DETAIL

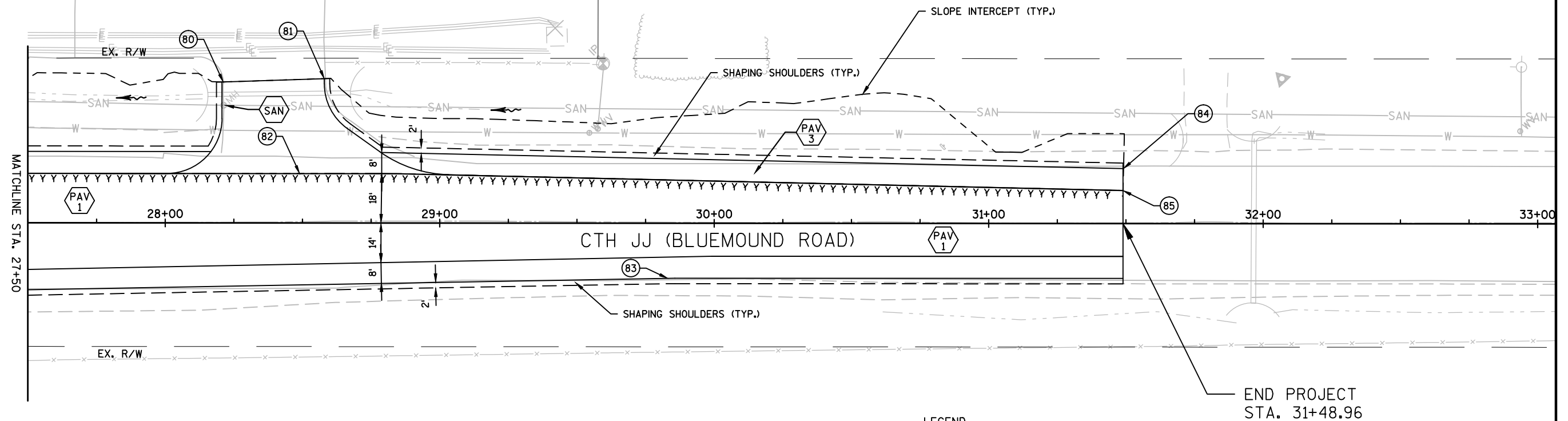
SHEET

E



DATA TABLE			
POINT NUMBER	STATION	OFFSET	DESCRIPTION
6	22+56.11	72.99' LT	BEGIN CURB & GUTTER, BEGIN 20' RADIUS
7	22+66.30	90.10' LT	20' RADIUS
8	22+66.33	70.15' LT	END 20' RADIUS
9	22+90.53	70.10' LT	END CURB & GUTTER
10	22+47.51	26.49' LT	PAVEMENT PI
11	--	--	NOT USED
12	24+31.92	26.46' LT	END PAV3, BEGIN PAV4
13	24+96.09	25.99' LT	END PAV 4, BEGIN PAV 3
14	24+43.70	45.68' LT	BEGIN CURB & GUTTER, BEGIN 35' RADIUS
15	24+10.40	34.83' LT	35' RADIUS
16	24+09.65	69.82' LT	END 35' RADIUS, END CURB & GUTTER
17	24+46.04	117.28' LT	BEGIN CURB & GUTTER, BEGIN 25' RADIUS
18	24+71.04	117.17' LT	25' RADIUS
19	24+66.57	92.57' LT	END 25' RADIUS, BEGIN 15' RADIUS
20	24+69.25	107.33' LT	15' RADIUS
21	24+75.21	93.56' LT	END 15' RADIUS, BEGIN 30' RADIUS
22	24+63.30	121.10' LT	30' RADIUS
23	24+92.98	116.71' LT	END 30' RADIUS
24	24+38.99	18.00' RT	END PAV2, BEGIN PAV1
25	--	--	NOT USED
26	25+25.57	118.71' LT	END CURB & GUTTER
27	25+03.65	67.61' LT	BEGIN CURB & GUTTER, BEGIN 25' RADIUS
28	25+02.94	42.62' LT	25' RADIUS
29	24+82.91	57.58' LT	END 25' RADIUS, BEGIN 10' RADIUS
30	24+90.92	51.60' LT	10' RADIUS
31	24+81.16	49.44' LT	END 10' RADIUS, END CURB & GUTTER
32	--	--	NOT USED
33	26+17.43	26.03' LT	END PAV3, BEGIN PAV4
34	27+04.64	26.02' LT	END PAV 4, BEGIN PAV 3
35	26+50.64	53.76' LT	BEGIN CURB & GUTTER, BEGIN 36' RADIUS
36	26+14.95	48.99' LT	36' RADIUS
37	26+25.59	83.38' LT	END 36' RADIUS, BEGIN 2' RADIUS
38	26+25.00	81.47' LT	2' RADIUS

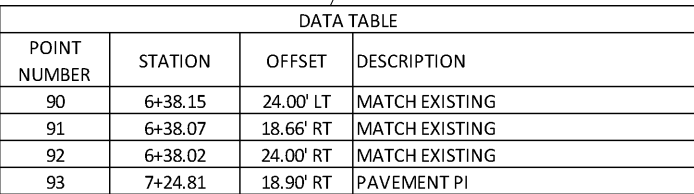
DATA TABLE			
POINT NUMBER	STATION	OFFSET	DESCRIPTION
39	26+23.26	82.45' LT	END 2' RADIUS
40	26+15.54	68.59' LT	END CURB & GUTTER
41	26+47.90	86.70' LT	PAVEMENT PI
42	26+50.03	105.80' LT	BEGIN CURB & GUTTER
43	26+51.97	98.73' LT	2' RADIUS
44	26+14.95	48.99' LT	60' RADIUS
45	26+59.68	96.15' LT	5' RADIUS
46	26+63.98	96.15' LT	5' RADIUS
47	26+68.98	105.75' LT	END CURB & GUTTER
48	26+69.03	67.72' LT	PAVEMENT PI
49	27+01.91	62.46' LT	BEGIN SHOULDER, BEGIN 15' RADIUS
50	26+99.65	47.67' LT	15' RADIUS
51	26+84.65	47.67' LT	END 15' RADIUS
52	22+47.63	32.00' RT	PAVEMENT PI
53	23+89.70	30.00' RT	BEGIN CURB & GUTTER, BEGIN 45' RADIUS
54	9+03.53	75.92' LT	45' RADIUS
55	9+03.63	30.92' LT	END 45' RADIUS, END CURB & GUTTER
56	8+85.74	28.88' LT	BEGIN 400' RADIUS
57	20+34.35	73.42' RT	400' RADIUS
58	8+03.77	19.00' LT	END 400' RADIUS
59	8+64.99	21.32' LT	END PAV2, BEGIN PAV1
60	9+03.66	24.11' LT	PAVEMENT PI
61	24+80.88	18.00' RT	END PAV1, BEGIN PAV2
62	24+89.96	33.42' RT	4' RADIUS
63	24+97.12	32.79' RT	4' RADIUS
64	9+26.63	21.00' RT	4' RADIUS
65	25+71.48	18.00' RT	END PAV2
66	25+62.48	26.23' RT	END CURB & GUTTER, END 65' RADIUS
67	9+10.94	102.17' RT	65' RADIUS
68	9+19.37	37.92' RT	BEGIN 65' RADIUS
69	9+07.43	35.98' RT	BEGIN CURB & GUTTER
70	8+49.96	12.00' RT	PAVEMENT PI
71	8+53.21	34.00' RT	PAVEMENT PI



LEGEND

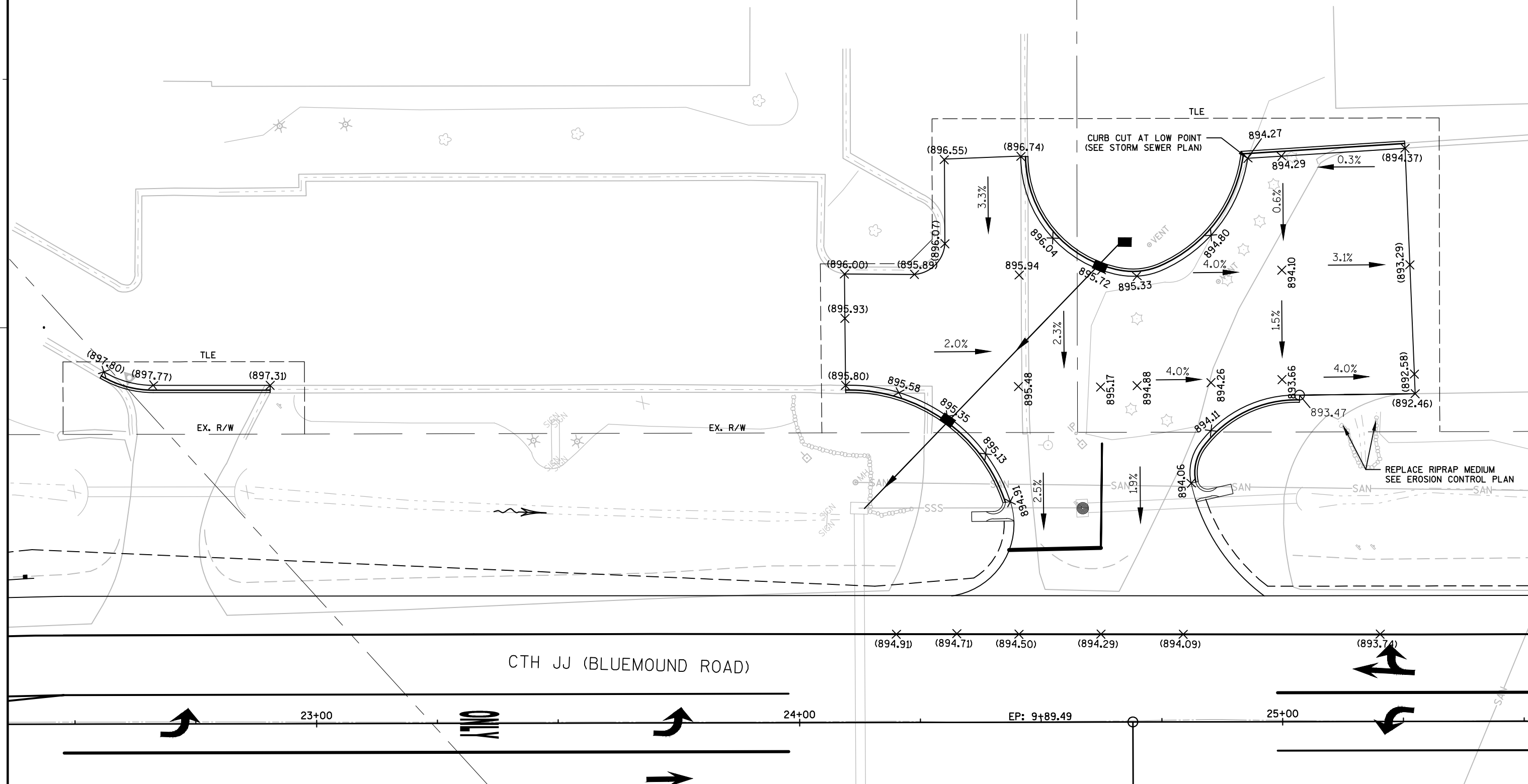
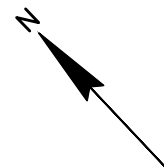
- PAV 1 2-INCH MILL AND HMA OVERLAY
- PAV 2 5½-INCH HMA PAVEMENT,
13-INCH BASE AGGREGATE DENSE 1 1/4-INCH
- PAV 3 5½-INCH HMA PAVEMENT
OVER EXISTING BASE
- PAV 4 5½-INCH HMA PAVEMENT
8-INCH BASE AGGREGATE DENSE 1 1/4-INCH
- SAN SANITARY MANHOLE CHIMNEY REPLACEMENT
AND SANITARY MANHOLE CHIMNEY SEAL
- 36D CONCRETE CURB & GUTTER
- TYPE
SIZE (INCHES)
- SW 5 CONCRETE SIDEWALK 5-INCH
OVER 4" BASE AGGREGATE DENSE 1 1/4-INCH
- SNX SLOPED NOSE, TYPE X
- ① POINT NUMBER (REFER TO DATA TABLE)
- Y Y Y · SAWING ASPHALT

DATA TABLE			
POINT NUMBER	STATION	OFFSET	DESCRIPTION
80	28+21.07	51.33' LT	MATCH EXISTING
81	28+57.91	52.57' LT	MATCH EXISTING
82	28+48.95	18.00' LT	PAVEMENT PI
83	29+83.00	20.00' RT	PAVEMENT PI
84	31+49.13	20.00' LT	MATCH EXISTING
85	31+48.95	12.00' LT	MATCH EXISTING

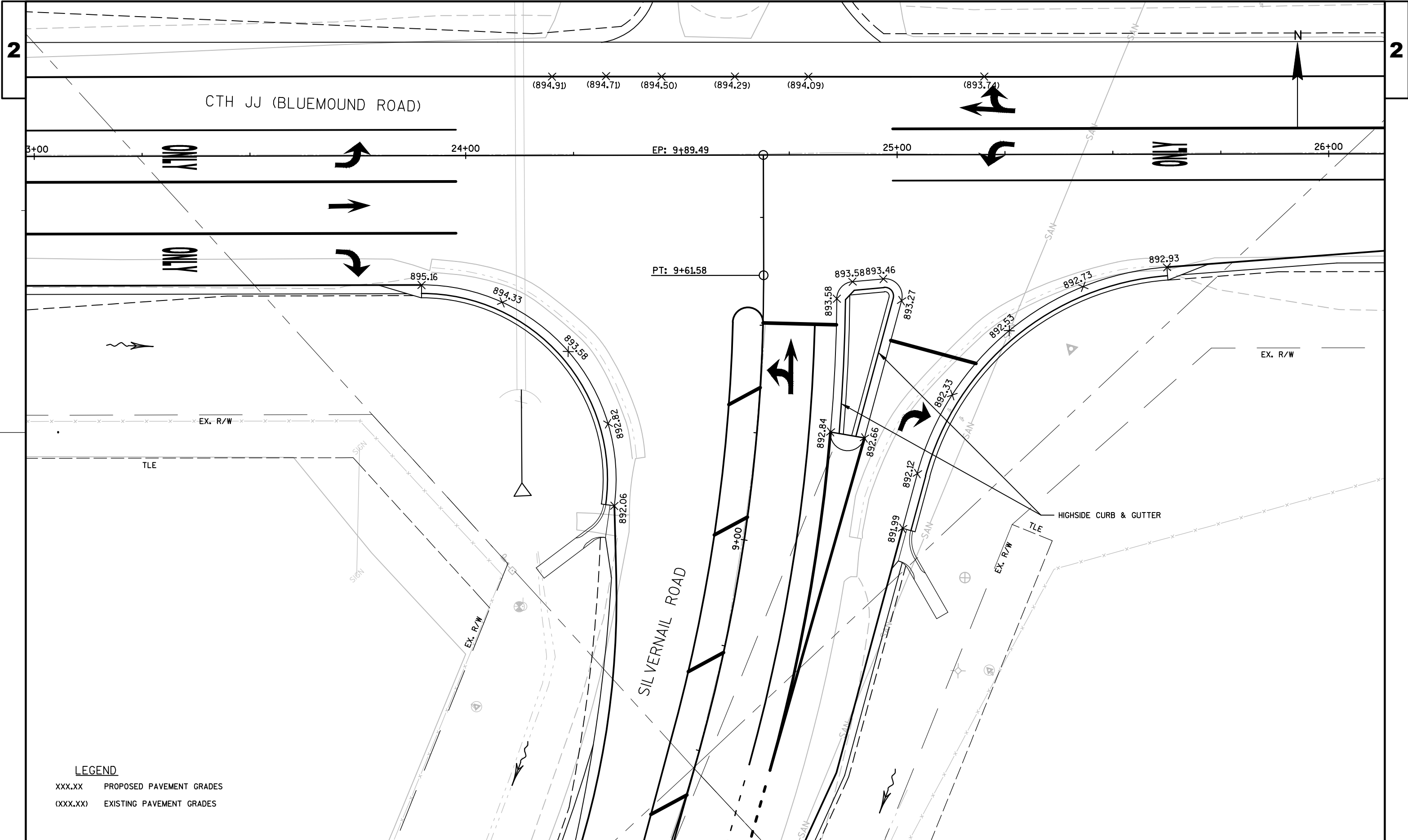


LEGEND

XXX.XX PROPOSED PAVEMENT GRADES
(XXX.XX) EXISTING PAVEMENT GRADES



PROJECT NO:2758-04-70	HWY:CTH JJ	COUNTY:WAUKESHA	PAVEMENT GRADES	SHEET	E
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LEGEND

- XXX.XX PROPOSED PAVEMENT GRADES
- (XXX.XX) EXISTING PAVEMENT GRADES

PROJECT NO:2758-04-70	HWY:CTH JJ	COUNTY:WAUKESHA	PAVEMENT GRADES	SHEET	E
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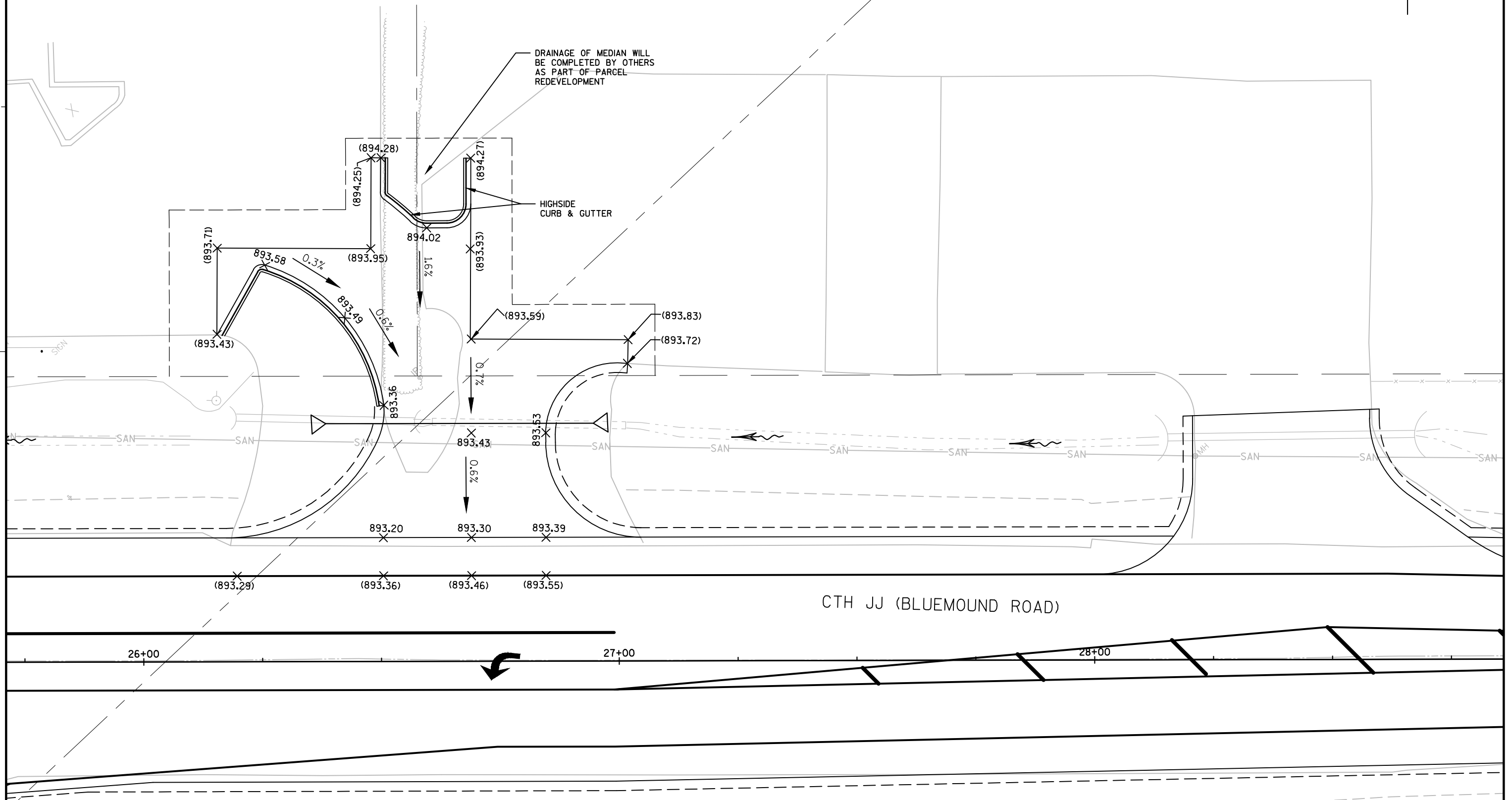
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LEGEND

XXX.XX	PROPOSED PAVEMENT GRADES
(XXX.XX)	EXISTING PAVEMENT GRADES

XXX.XX PROPOSED PAVEMENT GRADES
(XXX.XX) EXISTING PAVEMENT GRADES



PROJECT NO:2758-04-70

HWY: CTH JJ

COUNTY: WAUKESHA

PAVEMENT GRADES

SHEET

FILE NAME : L:\JOBS2014\20140096\CAD\TRANSPORTATION\DWG\SHEETSP\021301_JD.DWG
LAYOUT NAME - 021301_JD - 021303_JD

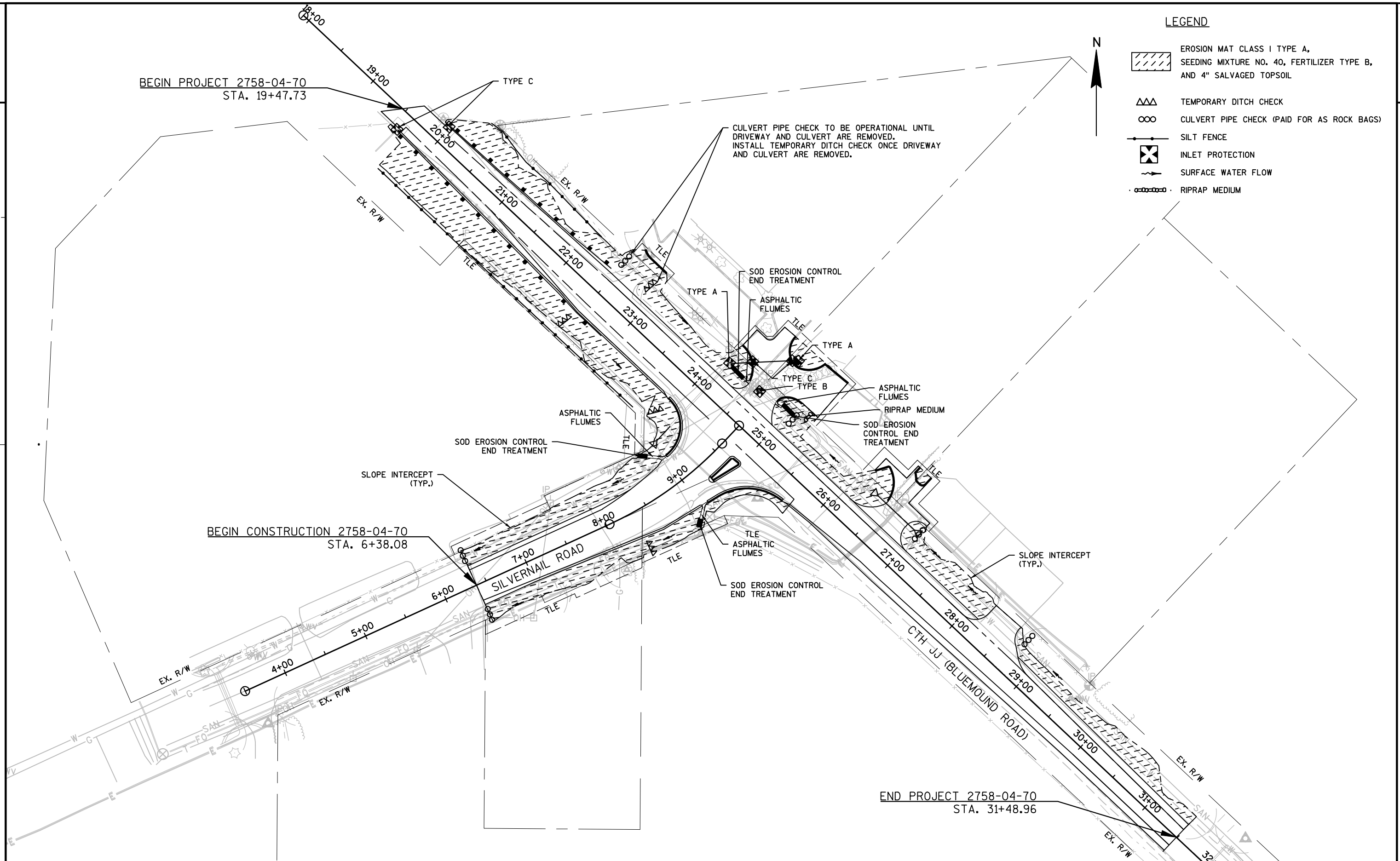
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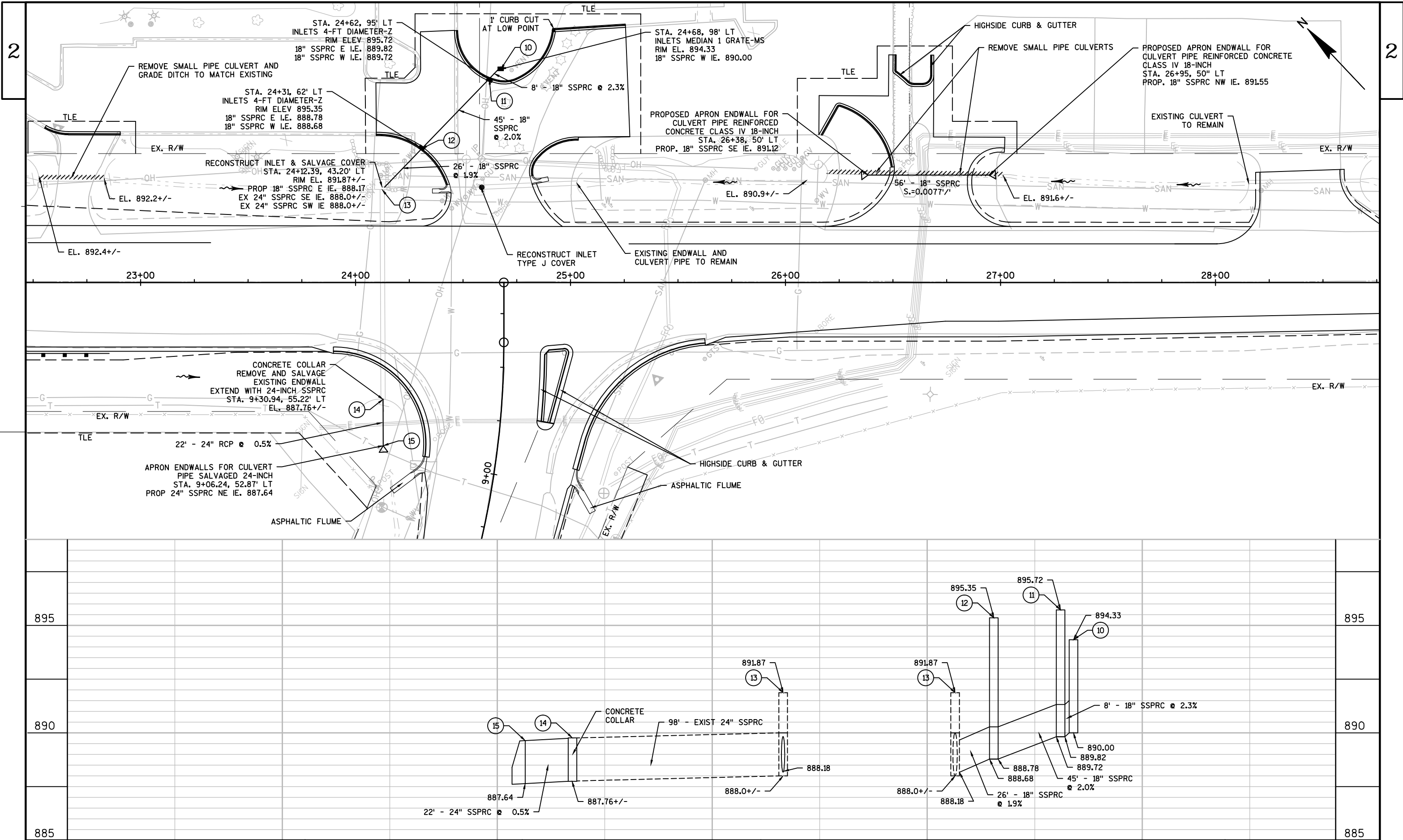
PLOT BY : MESSER, JACKIE

PLOT NAME :

PLOT SCALE : 1" = 20' _XREF

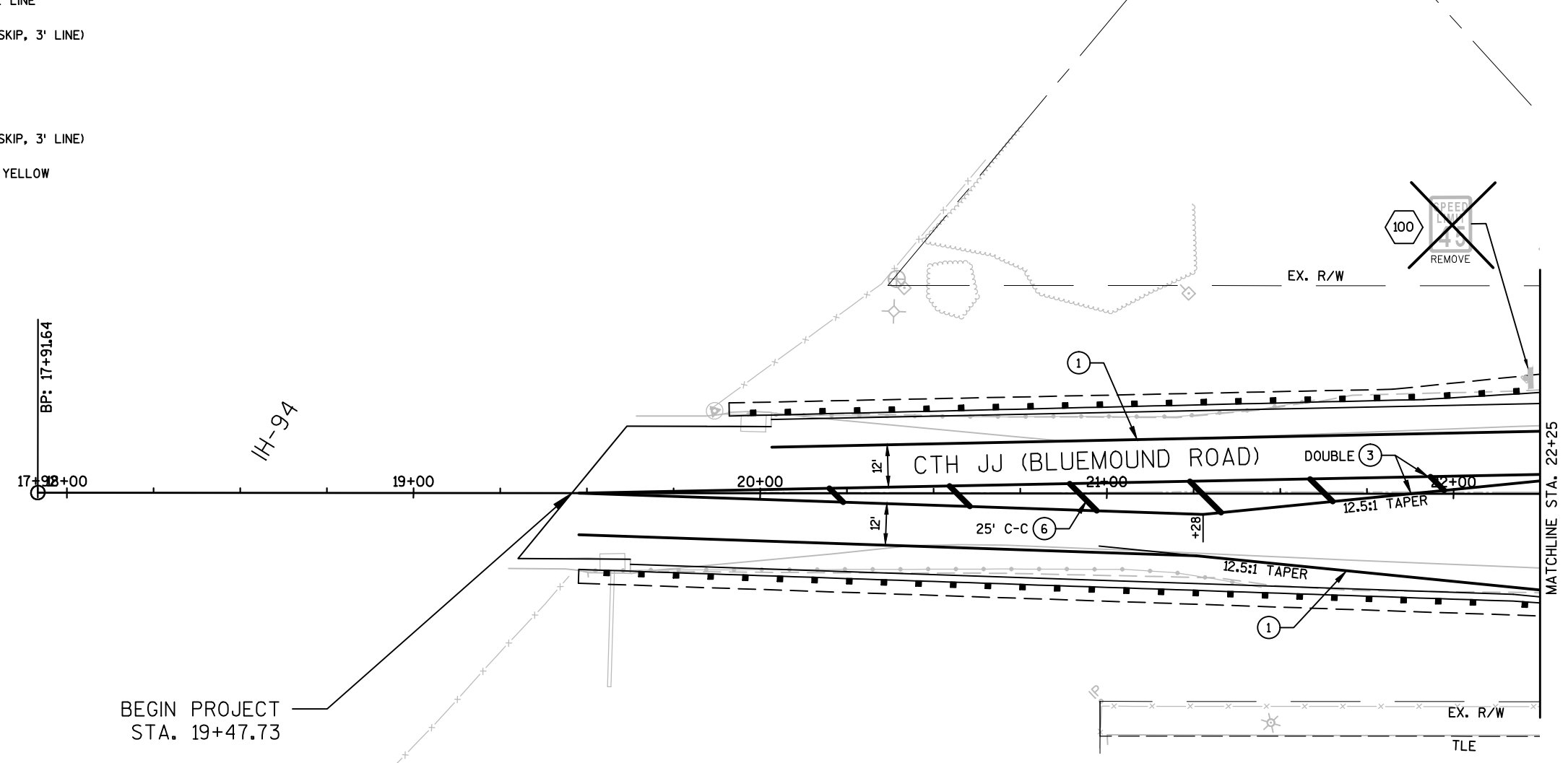
WISDOT/CADDS SHEET 42





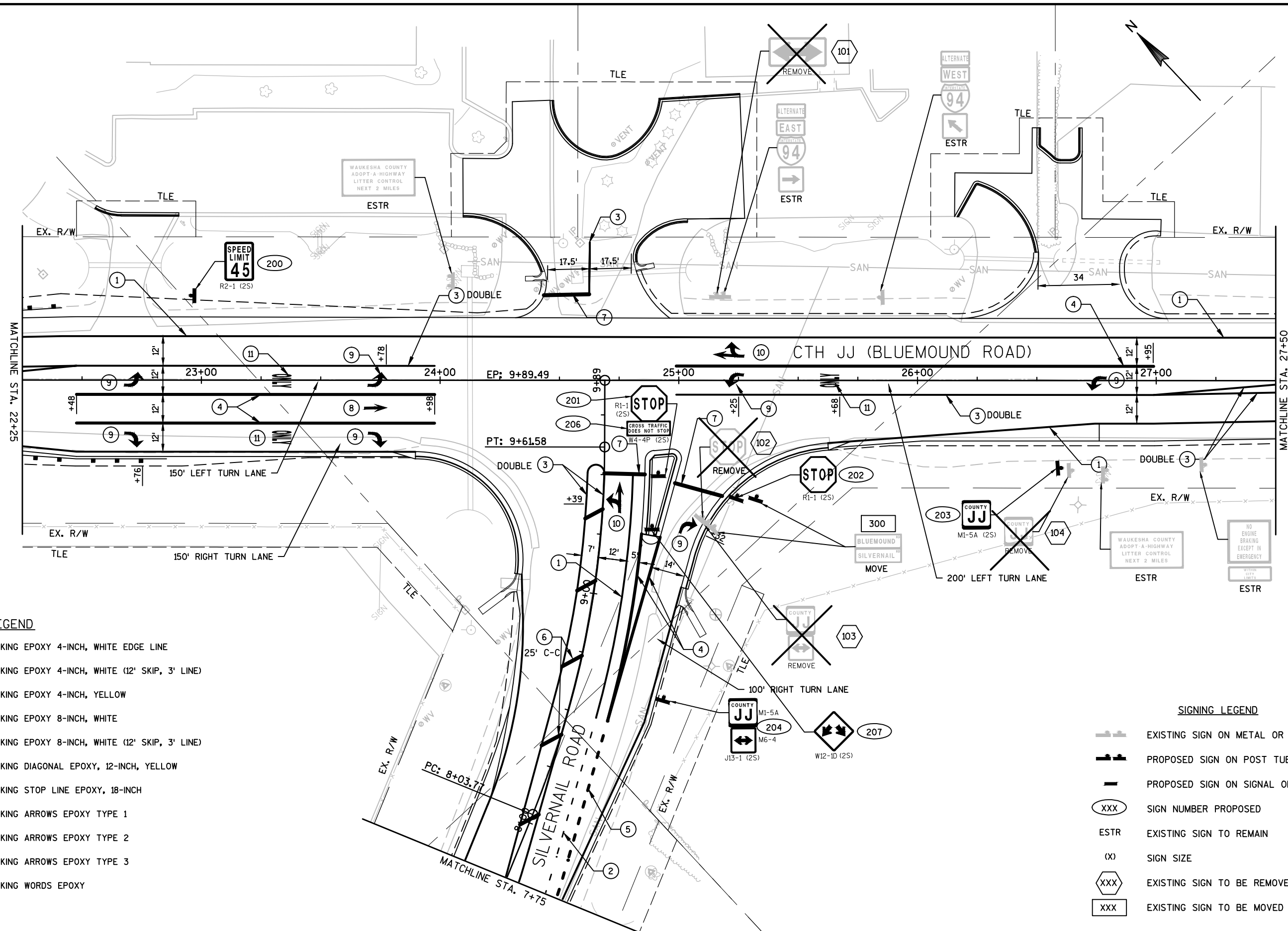
LEGEND

- 1 PAVEMENT MARKING EPOXY 4-INCH, WHITE EDGE LINE
- 2 PAVEMENT MARKING EPOXY 4-INCH, WHITE (12' SKIP, 3' LINE)
- 3 PAVEMENT MARKING EPOXY 4-INCH, YELLOW
- 4 PAVEMENT MARKING EPOXY 8-INCH, WHITE
- 5 PAVEMENT MARKING EPOXY 8-INCH, WHITE (12' SKIP, 3' LINE)
- 6 PAVEMENT MARKING DIAGONAL EPOXY, 12-INCH, YELLOW
- 7 PAVEMENT MARKING STOP LINE EPOXY, 18-INCH
- 8 PAVEMENT MARKING ARROWS EPOXY TYPE 1
- 9 PAVEMENT MARKING ARROWS EPOXY TYPE 2
- 10 PAVEMENT MARKING ARROWS EPOXY TYPE 3
- 11 PAVEMENT MARKING WORDS EPOXY

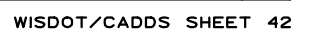


SIGNING LEGEND

- EXISTING SIGN ON METAL OR WOOD POST
- PROPOSED SIGN ON POST TUBULAR STEEL
- PROPOSED SIGN ON SIGNAL OR LIGHT POLE
- XXX SIGN NUMBER PROPOSED
- ESTR EXISTING SIGN TO REMAIN
- (X) SIGN SIZE
- XXX EXISTING SIGN TO BE REMOVED
- XXX EXISTING SIGN TO BE MOVED



2

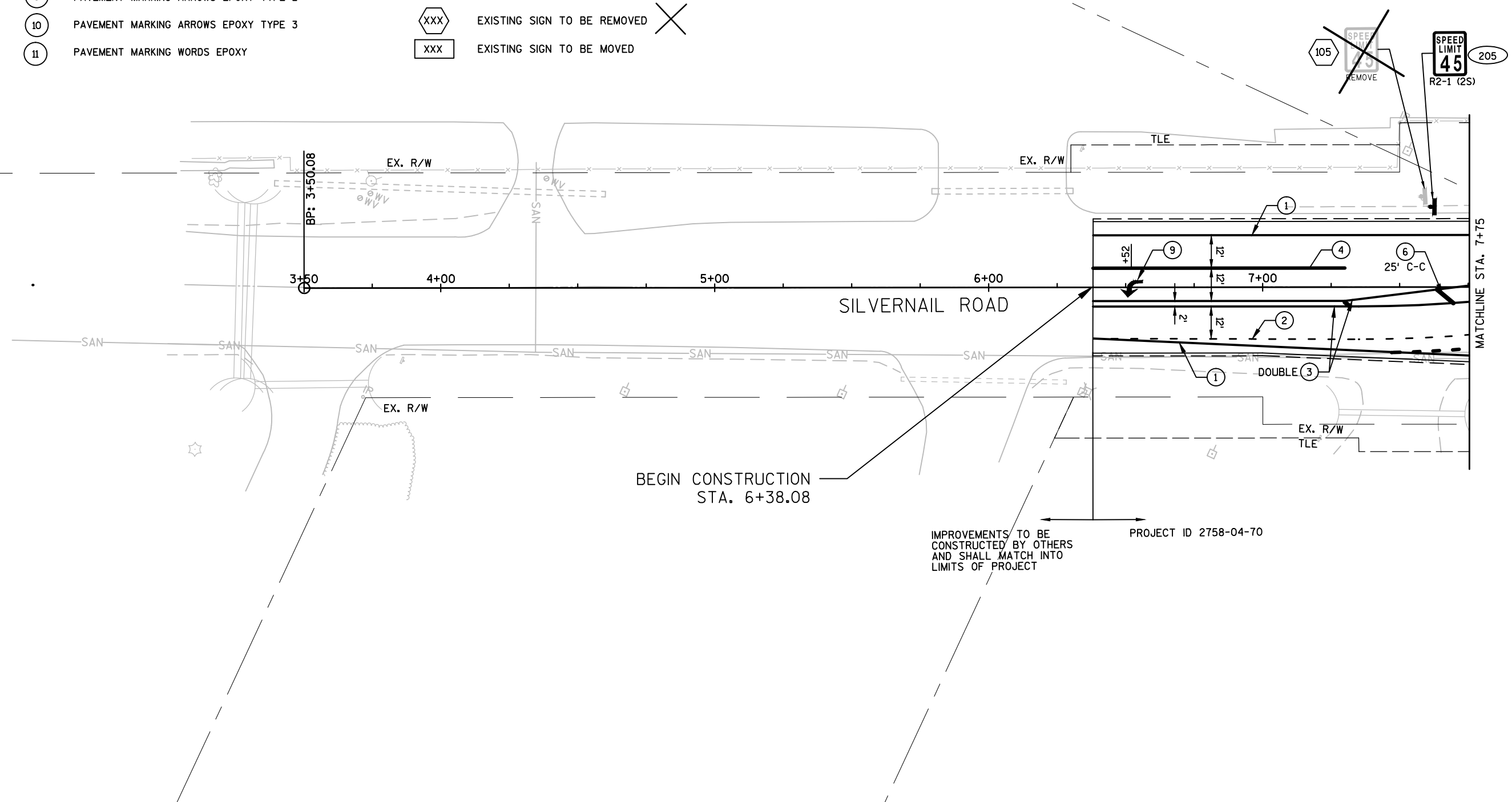


LEGEND

- 1 PAVEMENT MARKING EPOXY 4-INCH, WHITE EDGE LINE
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SIGNING LEGEND

- | | |
|------|---------------------------------------|
| | EXISTING SIGN ON METAL OR WOOD POST |
| | PROPOSED SIGN ON POST TUBULAR STEEL |
| | PROPOSED SIGN ON SIGNAL OR LIGHT POLE |
| | SIGN NUMBER PROPOSED |
| ESTR | EXISTING SIGN TO REMAIN |
| (X) | SIGN SIZE |
| | EXISTING SIGN TO BE REMOVED |
| | EXISTING SIGN TO BE MOVED |



GENERAL NOTES:

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

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED.

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




SIGNS THAT WILL REMAIN IN PLACE FOR LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

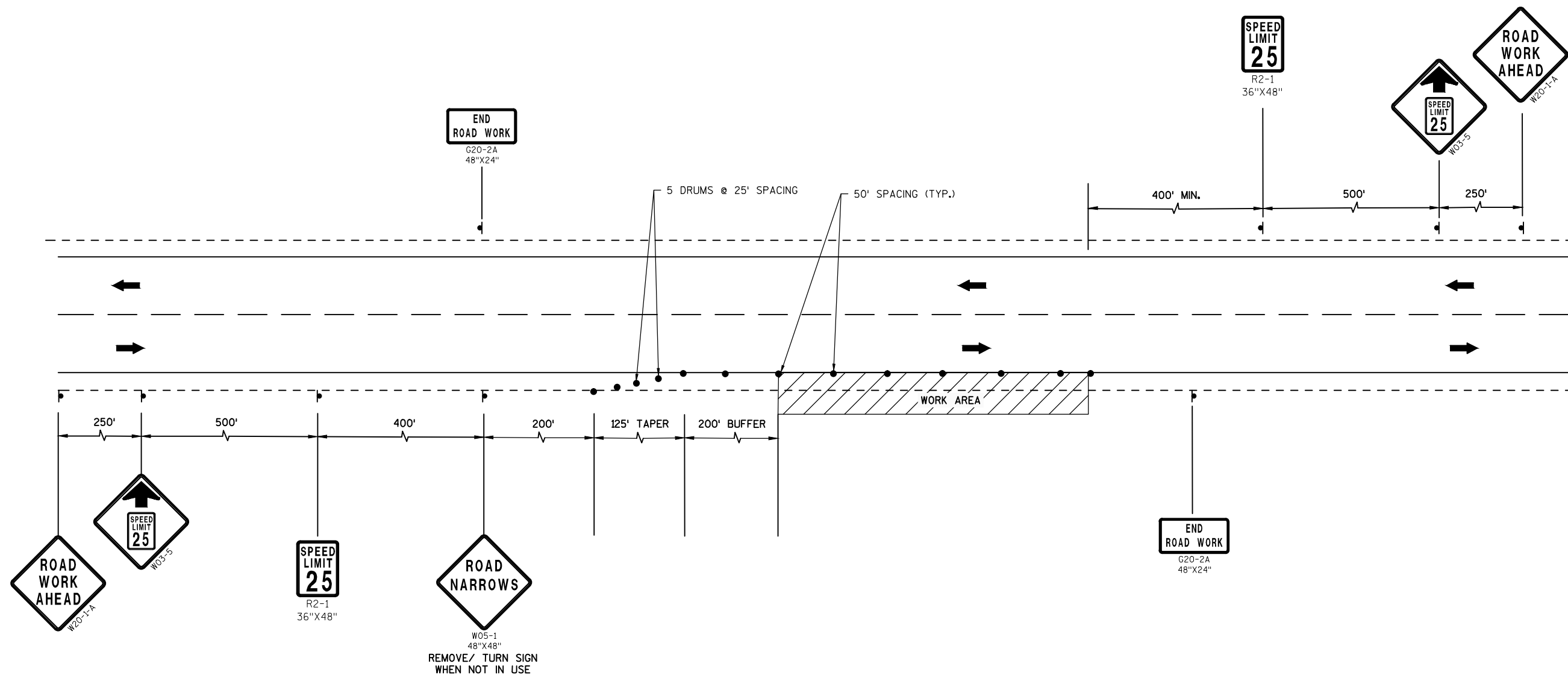
ANY SIGN, TEMPORARY OR EXISTING, WHICH CONFLICTS WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS DIRECTED BY THE ENGINEER.

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

BARRICADES IN A CLOSED LANE 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.

LEGEND







- TRAFFIC CONTROL DRUM
-  WORK AREA
-  DIRECTION OF TRAFFIC
-  SIGN OF PERMANENT SUPPORT

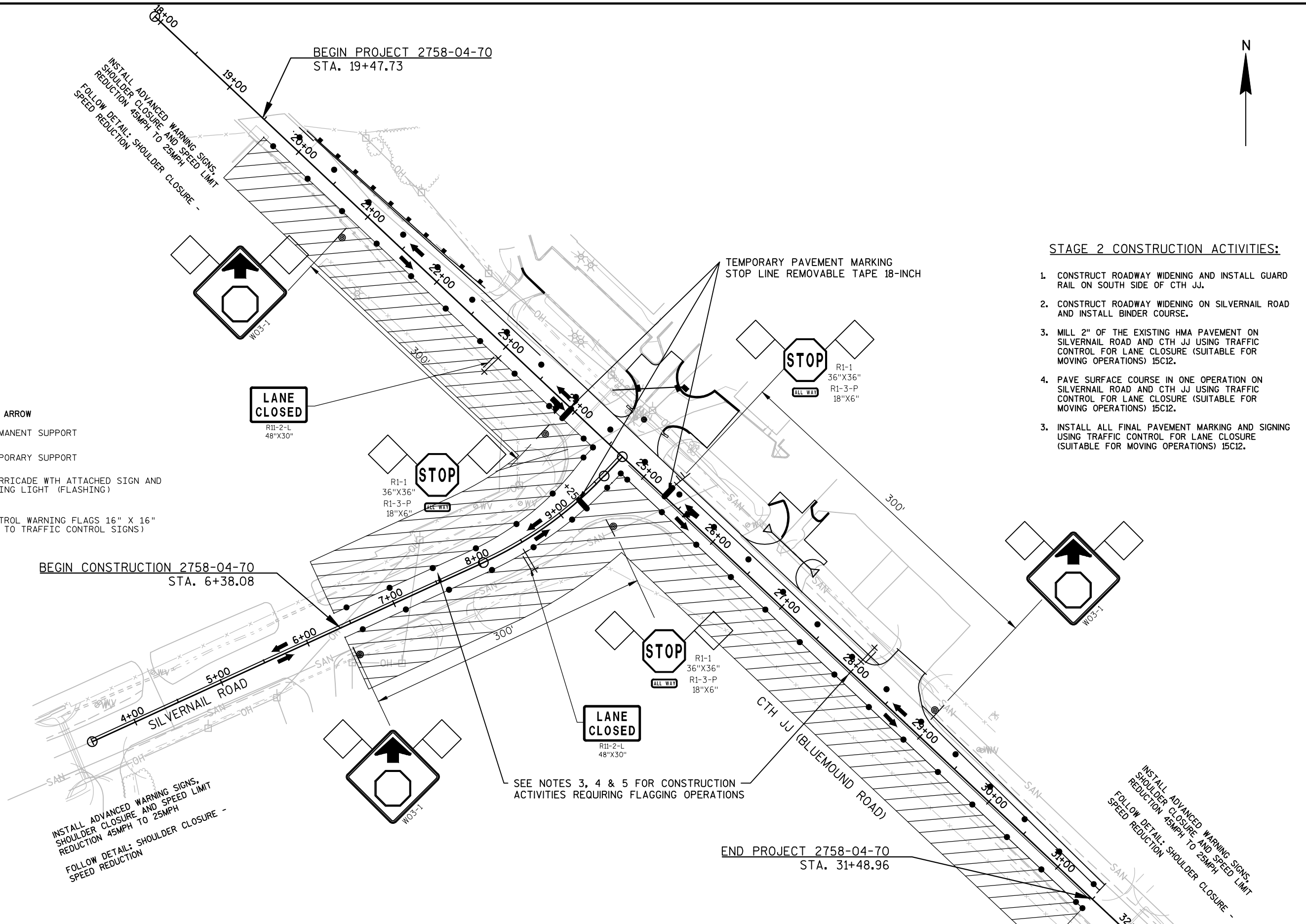


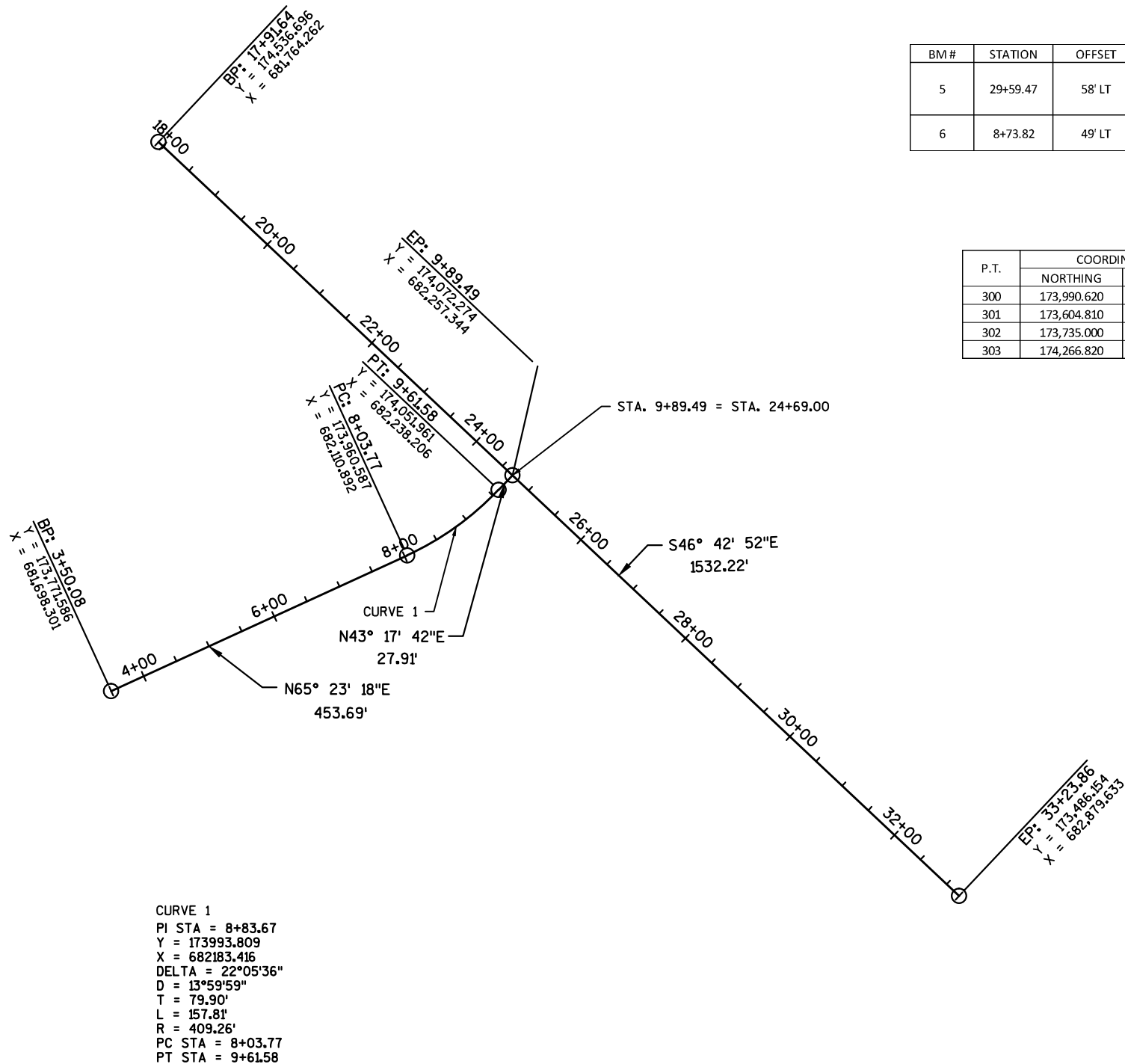


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**LEGEND**

-  WORK ZONE
-  TRAFFIC FLOW ARROW
-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE A WARNING LIGHT (FLASHING)
-  TRAFFIC CONTROL WARNING FLAGS 16" X 16" (INCIDENTAL TO TRAFFIC CONTROL SIGNS)





BENCHMARKS

BM #	STATION	OFFSET	DESCRIPTION	ELEVATION
5	29+59.47	58' LT	BM-5 SOUTHWEST BOLT ON TOP FLANGE OF FIRE HYDRANT 350' +/- EAST OF SILVERNAIL ROAD ON THE NORTH SIDE OF CTH JJ.	898.44
6	8+73.82	49' LT	BM-6 NORTHWEST BOLT ON TOP FLANGE OF FIRE HYDRANT AT THE SOUTHWEST CORNER OF CTH JJ AND SILVERNAIL ROAD.	890.82

HORIZONTAL CONTROL POINTS

P.T.	COORDINATES		TYPE	STATION	OFFSET
	NORTHING	EASTING			
300	173,990.620	682,278.280	CP REBAR WITH YELLOW GRAEF CAP	25+40.23	45.09' RT
301	173,604.810	682,830.570	CP REBAR WITH YELLOW GRAEF CAP	32+06.78	52.73' LT
302	173,735.000	681,724.230	CP MAG NAIL	3+58.41	44.07' RT
303	174,266.820	682,155.410	CP MAG NAIL	22+61.41	71.73' LT

CURVE 1
PI STA = 8+83.67
Y = 173993.809
X = 682183.416
DELTA = 22°05'36"
D = 13°59'59"
T = 79.90'
L = 157.81'
R = 409.26'
PC STA = 8+03.77
PT STA = 9+61.58

DATE 04JAN16		E S T I M A T E O F Q U A N T I T I E S			
LINE					2758-04-70
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTI TY
0010	203.0100	Removing Small Pipe Culverts	EACH	3.000	3.000
0020	204.0120	Removing Asphaltic Surface Milling	SY	6,274.000	6,274.000
0030	204.0150	Removing Curb & Gutter	LF	263.000	263.000
0040	204.0165	Removing Guardrail	LF	366.000	366.000
0050	204.0170	Removing Fence	LF	241.000	241.000
0060	205.0100	Excavation Common **P**	CY	2,637.000	2,637.000
0070	213.0100	Finishing Roadway (project) 01. 2758-04-70	EACH	1.000	1.000
0080	305.0110	Base Aggregate Dense 3/4-Inch	TON	240.000	240.000
0090	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,792.000	2,792.000
0100	305.0500	Shapi ng Shoul ders	STA	14.000	14.000
0110	440.4410	Incentive IRI Ride	DOL	1,153.000	1,153.000
0120	455.0120	Asphaltic Material PG64-28	TON	105.000	105.000
0130	455.0605	Tack Coat	GAL	535.000	535.000
0140	460.1103	HMA Pavement Type E-3	TON	1,754.000	1,754.000
0150	460.2000	Incentive Densi ty HMA Pavement	DOL	1,300.000	1,300.000
0160	465.0315	Asphaltic Flumes	SY	18.000	18.000
0170	520.8000	Concrete Collars for Pipe	EACH	1.000	1.000
0180	521.0118	Culvert Pipe Corrugated Steel 18-Inch	LF	56.000	56.000
0190	522.0324	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	22.000	22.000
0200	522.1018	Apron Endwalls for Culvert Pipe Reinforced Concrete 18-Inch	EACH	2.000	2.000
0210	524.0624	Apron Endwalls for Culvert Pipe Salvaged 24-Inch	EACH	1.000	1.000
0220	601.0407	Concrete Curb & Gutter 18-Inch Type D	LF	321.000	321.000
0230	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	255.000	255.000
0240	602.0410	Concrete Sidewalk 5-Inch	SF	180.000	180.000
0250	606.0200	Riprap Medium	CY	16.000	16.000
0260	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	79.000	79.000
0270	611.0430	Reconstructing Inlets	EACH	2.000	2.000
0280	611.0530	Manhole Covers Type J	EACH	1.000	1.000
0290	611.0642	Inlet Covers Type MS	EACH	1.000	1.000
0300	611.0666	Inlet Covers Type Z	EACH	2.000	2.000
0310	611.3004	Inlets 4-FT Diameter	EACH	2.000	2.000
0320	611.3901	Inlets Median 1 Grate	EACH	1.000	1.000
0330	614.2300	MGS Guardrail 3	LF	500.000	500.000
0340	614.2500	MGS Thrie Beam Transition	LF	46.000	46.000
0350	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0360	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0370	616.0205	Fence Chain Link 5-FT	LF	241.000	241.000
0380	619.1000	Mobilization	EACH	1.000	1.000
0390	620.0300	Concrete Median Sloped Nose	SF	37.000	37.000
0400	624.0100	Water	MGAL	30.000	30.000
0410	625.0500	Salvaged Topsoil	SY	4,968.000	4,968.000
0420	628.1104	Erosion Bales	EACH	45.000	45.000
0430	628.1504	Silt Fence	LF	647.000	647.000
0440	628.1520	Silt Fence Maintenance	LF	647.000	647.000
0450	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0460	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0470	628.2002	Erosion Mat Class I Type A	SY	5,168.000	5,168.000
0480	628.7005	Inlet Protection Type A	EACH	2.000	2.000
0490	628.7010	Inlet Protection Type B	EACH	1.000	1.000

DATE 04JAN16		E S T I M A T E O F Q U A N T I T I E S			
LINE					2758-04-70
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0500	628.7015	Inlet Protection Type C	EACH	4.000	4.000
0510	628.7504	Temporary Ditch Checks	LF	60.000	60.000
0520	628.7570	Rock Bags	EACH	54.000	54.000
0530	629.0210	Fertilizer Type B	CWT	3.400	3.400
0540	630.0140	Seeding Mixture No. 40	LB	99.000	99.000
0550	630.0200	Seeding Temporary	LB	149.000	149.000
0560	631.1100	Sod Erosion Control	SY	27.000	27.000
0570	634.0812	Posts Tubular Steel 2x2-Inch X 12-FT	EACH	6.000	6.000
0580	634.0814	Posts Tubular Steel 2x2-Inch X 14-FT	EACH	1.000	1.000
0590	637.2210	Signs Type II Reflective H	SF	40.100	40.100
0600	638.2102	Moving Signs Type II	EACH	2.000	2.000
0610	638.2602	Removing Signs Type II	EACH	7.000	7.000
0620	638.3000	Removing Small Sign Supports	EACH	6.000	6.000
0630	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0640	642.5001	Field Office Type B	EACH	1.000	1.000
0650	643.0100	Traffic Control (project) 01. 2758-04-70	EACH	1.000	1.000
0660	643.0300	Traffic Control Drums	DAY	3,325.000	3,325.000
0670	643.0420	Traffic Control Barricades Type III	DAY	140.000	140.000
0680	643.0705	Traffic Control Warning Lights Type A	DAY	280.000	280.000
0690	643.0900	Traffic Control Signs	DAY	1,715.000	1,715.000
0700	643.0920	Traffic Control Covering Signs Type II	EACH	5.000	5.000
0710	646.0106	Pavement Marking Epoxy 4-Inch	LF	2,988.000	2,988.000
0720	646.0126	Pavement Marking Epoxy 8-Inch	LF	778.000	778.000
0730	646.0406	Pavement Marking Same Day Epoxy 4-Inch	LF	5,622.000	5,622.000
0740	647.0156	Pavement Marking Arrows Epoxy Type 1	EACH	1.000	1.000
0750	647.0166	Pavement Marking Arrows Epoxy Type 2	EACH	8.000	8.000
0760	647.0176	Pavement Marking Arrows Epoxy Type 3	EACH	2.000	2.000
0770	647.0356	Pavement Marking Words Epoxy	EACH	3.000	3.000
0780	647.0566	Pavement Marking Stop Line Epoxy 18-Inch	LF	56.000	56.000
0790	647.0726	Pavement Marking Diagonal Epoxy 12-Inch	LF	233.000	233.000
0800	649.1200	Temporary Pavement Marking Stop Line Removable Tape 18-Inch	LF	50.000	50.000
0810	690.0150	Sawing Asphalt	LF	2,238.000	2,238.000
0820	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	200.000	200.000
0830	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	200.000	200.000
0840	SPV.0060	Special 01. Sanitary Manhole Chimney Replacement - City of Waukesha	EACH	4.000	4.000
0850	SPV.0060	Special 02. Sanitary Manhole Chimney Seal - City of Waukesha	EACH	4.000	4.000
0860	SPV.0105	Special 01. Construction Staking (Project 2758-04-70)	LS	1.000	1.000
0870	SPV.0120	Special 01. Water for Seeded Areas	MGAL	124.000	124.000

3

REMOVING SMALL PIPE CULVERTS							203.0100
CATEGORY	STREET	STATION	OFFSET	TYPE	SIZE (IN)	LENGTH (FT)	TOTAL EACH
0010	CTH JJ	24+68	LT	RCP	24	30	1
	CTH JJ	26+39	LT	RCP	18	37	1
	CTH JJ	26+80	LT	CMP	18	41	1
PROJECT TOTAL							3

REMOVING ASPHALTIC SURFACE MILLING			204.0120
CATEGORY	STREET		SY
0010	CTH JJ & SILVERNAIL ROAD		6,274
PROJECT TOTAL			6,274

3

REMOVING CURB & GUTTER			204.0150
CATEGORY	STREET		LF
0010	CTH JJ & SILVERNAIL ROAD		263
PROJECT TOTAL			263

REMOVING GUARDRAIL							204.0165
CATEGORY	STREET	STATION	TO	STATION	OFFSET		LF
0010	CTH JJ	19+91	-	21+60	LT		169
	CTH JJ	19+48	-	21+45	RT		197
PROJECT TOTAL							366

REMOVING FENCE							204.0170
CATEGORY	STREET	FROM	TO	OFFSET			LF
0010	CTH JJ	20+98	-	23+33	RT		241
PROJECT TOTAL							241

BASE AGGREGATE DENSE 3/4 INCH		
CATEGORY	STREET	305.0110 TON
0010	CTH JJ & SILVERNAIL ROAD	240
PROJECT TOTAL		240

EARTHWORK SUMMARY

Division	From/To Station	Location	Common Excavation (1)	(item # 205.0100)	Salvaged/ Unusable Pavement Material (3)	Available Material (4)	Unexpanded Fill	Expanded Fill (5)	Mass Ordinate +/- (6)	Waste	Borrow	Comment:
			Cut (2)	EBS Excavation				Factor 1.11				
CATEGORY 0010 CTH JJ SILVERNAIL ROAD	19+70 to 31+49	Mainline	1733	0	700	1033	749	831	202	202	-	
	6+38 to 9+50	Mainline	904	0	170	734	99	110	624	624	-	
PROJECT TOTAL			2637	0	870	1767	847	941	826	826	0	

- 1) Common Excavation is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 2) Salvaged/Unsuable Pavement Material is included in Cut.
- 3) Salvaged/Unusable Pavement Material = Quantity includes all asphaltic pavement material from "Common Excavation" and "Removing Asphalt Surface Milling" bid items.
- 4) Available Material = Cut - Salvaged/Unusuable Pavement Material
- 5) Expanded Fill. Factor = 1.11
- Depending on selections:
- Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh - Reduced EBS) * Fill Factor
- Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced EBS) * Fill Factor
- Or Expanded Fill = (Unexpanded Fill - Rock* Rock Factor - Reduced Marsh) * Fill Factor
- Expanded Fill = Unexpanded Fill * Fill Factor
- 6) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

3

BASE AGGREGATE DENSE 1 1/4-INCH					
STREET	STATION	TO	STATION	LOCATION	305.0120 TON
CTH JJ & Silvernail	19+48	-	31+49	PROJECT	2,792
PROJECT TOTAL					2,792

SHAPING SHOULDERS		
CATEGORY	STREET	305.0500 STA
0010	CTH JJ & SILVERNAIL ROAD	14
PROJECT TOTAL		14

ASPHALTIC PAVEMENT				
CATEGORY	STREET	455.0120 ASPHALTIC MATERIAL PG64-28 TON	455.0605 TACK COAT GAL	460.1103 HMA PAVEMENT TYPE E-3 TON
		TON	GAL	TON
0010	CTH JJ & SILVERNAIL ROAD	105	535	1,754
PROJECT TOTALS		105	535	1,754

3

ASPHALTIC FLUMES				
CATEGORY	STREET	STATION	LOCATION	465.0315 SY
0010	CTH JJ	24+40	43' LT	2
	CTH JJ	24+85	51' LT	2
	SILVERNAIL ROAD	8+99	32' LT	7
	SILVERNAIL ROAD	9+04	37' RT	7
PROJECT TOTAL				18

CONCRETE CURB & GUTTER 18-INCH TYPE D		
CATEGORY	STREET	601.0407 LF
0010	CTH JJ & SILVERNAIL ROAD	321
PROJECT TOTAL		321

CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D		
CATEGORY	STREET	601.0557 LF
0010	CTH JJ & SILVERNAIL ROAD	255
PROJECT TOTAL		255

CONCRETE SIDEWALK 5-INCH		
CATEGORY	STREET	602.0410 SF
0010	CTH JJ & SILVERNAIL ROAD	180
PROJECT TOTAL		180

RIPRAP MEDIUM		
CATEGORY	STREET	606.0200 CY
0010	CTH JJ & SILVERNAIL ROAD UNDISTRIBUTED	8 8
PROJECT TOTAL		16

3

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SILT FENCE			
		628.1504	628.1520
CATEGORY	STREET	SILT FENCE LF	MAINTENANCE LF
0010	CTH JJ & SILVERNAIL ROAD	587	587
	UNDISTRIBUTED	60	60
PROJECT TOTALS		647	647

EROSION CONTROL MOBILIZATIONS			
		628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL
CATEGORY	LOCATION	EACH	EACH
0010	PROJECT 2758-04-70	1	2
PROJECT TOTAL		1	2

EROSION MAT		
		628.2002 EROSION MAT CLASS 1 TYPE A SY
CATEGORY	STREET	
0010	CTH JJ & SILVERNAIL ROAD	4,968
	UNDISTRIBUTED	200
PROJECT TOTAL		5,168

3

INLET PROTECTION				
		628.7005 INLET PROTECTION TYPE A EACH	628.7010 INLET PROTECTION TYPE B EACH	628.7015 INLET PROTECTION TYPE C EACH
CATEGORY	STREET			
0010	CTH JJ & SILVERNAIL ROAD	2	1	4
PROJECT TOTALS		2	1	4

DITCH CHECKS			
		628.7504 TEMPORARY DITCH CHECKS LF	628.7570 ROCK BAGS EACH
CATEGORY	STREET		
0010	CTH JJ & SILVERNAIL ROAD	48	--
	CTH JJ - CULVERT PIPE STA. 22+53, LT	--	9
	CTH JJ - CULVERT PIPE STA. 25+04, LT	--	9
	CTH JJ - CULVERT PIPE STA. 26+95, LT	--	9
	CTH JJ - CULVERT PIPE STA. 28+68, LT	--	9
	SILVERNAIL ROAD - CULVERT PIPE STA. 6+38, LT	--	9
	SILVERNAIL ROAD - CULVERT PIPE STA. 6+38, RT	--	9
	UNDISTRIBUTED	12	--
PROJECT TOTALS		60	54

SEEDING QUANTITIES					
		629.0210	630.0140	630.0200	SPV.0120.01
		FERTILIZER	SEEDING	SEEDING	WATER FOR
		TYPE B	MIXTURE	TEMPORARY	SEEDED
CATEGORY	STREET	CWT	NO. 40	LB	AREAS
			LB		MGAL
0010	CTH JJ & SILVERNAIL ROAD	3.1	89	134	112
	UNDISTRIBUTED	0.3	10	15	12
PROJECT TOTALS		3.4	99	149	124

SOD QUANTITIES		
		631.1100 SOD EROSION CONTROL SY
CATEGORY	STREET	
0010	CTH JJ & SILVERNAIL ROAD	27
PROJECT TOTAL		27

PROJECT NO:2758-04-70

HWY:CTH JJ

COUNTY:WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET

E

TYPE II SIGNS												
CATEGORY	SIGN NO.	LOCATION	STATION	OFFSET	SIGN CODE	MESSAGE	SIZE	634.0812	634.0814	637.2210	638.2102	638.4000
								POSTS TUBULAR STEEL 2x2-INCH X 12-FT EACH	POSTS TUBULAR STEEL 2X2-INCH X 14-FT EACH	SIGNS TYPE II REFLECTIVE H SF	MOVING SIGNS TYPE II EACH	MOVING SMALL SIGN SUPPORTS EACH
0010	200	CTH JJ	22+96	35' LT	R2-1	SPEED LIMIT 45	24 X 30	1	-	5.0	-	-
	201	CTH JJ	24+91	40' RT	R1-1	STOP	30 X 30	1	-	6.3	-	-
	202	CTH JJ	25+24	49' RT	R1-1	STOP	30 X 30	1	-	6.3	-	-
	203	CTH JJ	26+60	38' RT	M1-5A	CTH JJ	24 X 24	1	-	4.0	-	-
	204	SILVERNAIL ROAD	8+65	38' RT	J13-1	CTH JJ, DOUBLE ARROW	24 X 45	-	1	7.5	-	-
	205	SILVERNAIL ROAD	7+62	33' LT	R2-1	SPEED LIMIT 45	24 X 30	1	-	5.0	-	-
	206	CTH JJ	24+91	40' RT	W4-4P	CROSS TRAFFIC DOES NOT STOP	24 X 12	-	-	2.0	-	-
	207	SILVERNAIL ROAD	9+29	21' RT	W12-1D	DOUBLE DOWN ARROWS	24 X 24	1	-	4.0	-	-
	300	CTH JJ	25+14	61' LT		BLUEMOUND ROAD SILVERNAIL ROAD		-	-	-	1	1
								-	-	-	1	-
PROJECT TOTAL								6	1	40.1	2	1

REMOVING SIGNS TYPE II							
CATEGORY	REMOVAL NO.	LOCATION	MESSAGE	STATION	OFFSET	638.2602	638.3000
						REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH
0010	100	CTH JJ	SL= 45	22+22	33' LT	1	1
	101	CTH JJ	DOUBLE ARROW	25+16	36' LT	1	1
	102	CTH JJ	STOP	25+10	57' RT	1	1
	103	CTH JJ	CTH JJ, DOUBLE ARROW	25+12	59' RT	2	1
	104	CTH JJ	CTH JJ	26+65	38' RT	1	1
	105	SILVERNAIL ROAD	SL= 45	7+59	33' LT	1	1
PROJECT TOTALS						7	6

FIELD OFFICE TYPE B		
CATEGORY	LOCATION	642.5001 EACH
0010	PROJECT 2758-04-70	1
PROJECT TOTAL		1

TRAFFIC CONTROL														
			643.0100 TRAFFIC CONTROL (2758-04-70)	643.0300 TRAFFIC CONTROL DRUMS		643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II		
CATEGORY	STAGE	DAYS	EACH	DRUM	DAYS	EACH	DAYS	EACH	DAYS	EACH	DAYS	COVER/UNCOVER CYCLES	EACH	TOTAL
0010	STAGE 1	35	-	33	1,155	2	70	4	140	24	840		-	-
0010	STAGE 2	35	-	62	2,170	2	70	4	140	25	875		-	-
0010	UNDISTRIBUTED		1		-		-		-		-	1	5	5
PROJECT TOTAL			70	1		3,325		140		280		1,715	5	

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PAVEMENT MARKING										
	646.0106 EPOXY 4-INCH (WHITE)	646.0126 EPOXY 8-INCH (WHITE)	646.0406 SAME DAY EPOXY 4-INCH (YELLOW)	647.0156 ARROWS EPOXY TYPE 1	647.0166 ARROWS EPOXY TYPE 2	647.0176 ARROWS EPOXY TYPE 3	647.0356 WORDS EPOXY	647.0566 STOP LINE EPOXY 18-INCH	647.0726 DIAGONAL EPOXY 12-INCH YELLOW	649.1200 TEMPORARY PAVEMENT MARKING STOP LINE REMOVABLE TAPE 18-INCH
STREET	LF	LF	LF	EACH	EACH	EACH	EACH	LF	LF	LF
CTH JJ & SILVERNAIL ROAD	2,988	778	5,622	1	8	2	3	56	233	50
SUBTOTAL	2,988	778	5,622	1	8	2	3	56	233	50
PROJECT TOTAL	2,988	778	5,622	1	8	2	3	56	233	50

3

SAWING ASPHALT		
CATEGORY	STREET	690.0150 LF
0010	CTH JJ & SILVERNAIL ROAD	2,238
PROJECT TOTAL		2,238

CONSTRUCTION STAKING		
CATEGORY	STREET	SPV.0105.01 LS
0010	PROJECT 2758-04-70	1
PROJECT TOTAL		1

SANITARY SEWER ITEMS						
CATEGORY	STREET	STATION	OFFSET	SPV.0060.01 SANITARY MANHOLE CHIMNEY REPLACEMENT	SPV.0060.02 SANITARY MANHOLE CHIMNEY SEAL	
				CITY OF WAUKESHA EACH	CITY OF WAUKESHA EACH	
0020	CTH JJ	24+12	50' LT	1	1	
	CTH JJ	25+63	48' LT	1	1	
	CTH JJ	28+21	43' LT	1	1	
	SILVERNAIL ROAD	7+37	26' RT	1	1	
PROJECT TOTAL				4	4	

CONVENTIONAL SYMBOLS

SECTION LINE	---	SECTION CORNER		R/W MONUMENT	•
QUARTER LINE	---	NOTATION FOR COMBUSTIBLE FLUIDS		NON-MONUMENTED R/W POINT	○
SIXTEENTH LINE	---	NOTATION FOR HIGH VOLTAGE TRANSMISSION LINES		FOUND IRON PIN	IP
NEW REFERENCE LINE	---			VALVE (GAS, WATER, ETC.)	○ (TYPE)
NEW R/W LINE	---			SIGN	Ⓜ
EXISTING R/W LINE	---			OFF-PREMISE SIGN	Ⓜ
PROPERTY LINE	---				
LOT, TIE & OTHER MINOR LINES	---				
CORPORATE LIMITS	---				
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC.)	---	ELECTRIC POLE		COMPOSABLE	
FEE ACQUISITION AREA (HATCHING VARIES BY OWNER)	---	TELEPHONE POLE		NON-COMPOSABLE	
TEMPORARY LIMITED EASEMENT AREA	---	PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)			
EASEMENT AREA (HIGHWAY, PERMANENT LIMITED, OR RESTRICTED DEVELOPMENT)	---				
TRANSMISSION STRUCTURES	---	ACCESS CONTROLLED BY ACQUISITION			
BUILDING	---	NO ACCESS (BY STATUTORY AUTHORITY)	*****		
NATIONAL GEODETIC SURVEY MONUMENT	Ⓜ	ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)	*****		
SIXTEENTH CORNER MONUMENT	Ⓜ				
		PARCEL NUMBER	25		
		UTILITY NUMBER	40		

CONVENTIONAL ABBREVIATIONS

ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS	(100')
AND OTHERS	ET AL	REFERENCE LINE	R/L
BACK	BK	REMAINING	REM
BLOCK	BLK	RIGHT	RT
CENTERLINE	C/L	RIGHT OF WAY	R/W
CERTIFIED SURVEY MAP	CSM	SECTION	SEC
CONCRETE	CONC	SEPTIC VENT	SEPV
COUNTY	CQ	SQUARE FEET	SF
COUNTY TRUNK HIGHWAY	CTH	STATE TRUNK HIGHWAY	STH
DISTANCE	DIST	STATION	STA
CORNER	COR	SUBDIVISION	SUBD
DOCUMENT	DOC	TANGENT	TAN
EASEMENT	EASE	TELEPHONE PEDESTAL	TP
EXISTING	EX	TEMPORARY LIMITED EASEMENT	TLE
GAS VALVE	GV	TRANSPORTATION PROJECT	TPP
GRID NORTH	GN	PLAT	
HIGHWAY EASEMENT	HE	UNITED STATES HIGHWAY	USH
IDENTIFICATION	ID	VOLUME	V
LAND CONTRACT	LC		
LEFT	LT		
MONUMENT	MON		
NATIONAL GEODETIC SURVEY	NCS		
NUMBER	NO		
OUTLOT	OL		
PAGE	P		
POINT OF TANGENCY	PT		
PERMANENT LIMITED EASEMENT	PLE		
POINT OF BEGINNING	POB		
POINT OF CURVATURE	PC		

CURVE DATA

LONG CHORD	LC
LONG CHORD BEARING	LCHB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE OR DELTA	Δ
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

CONVENTIONAL UTILITY SYMBOLS

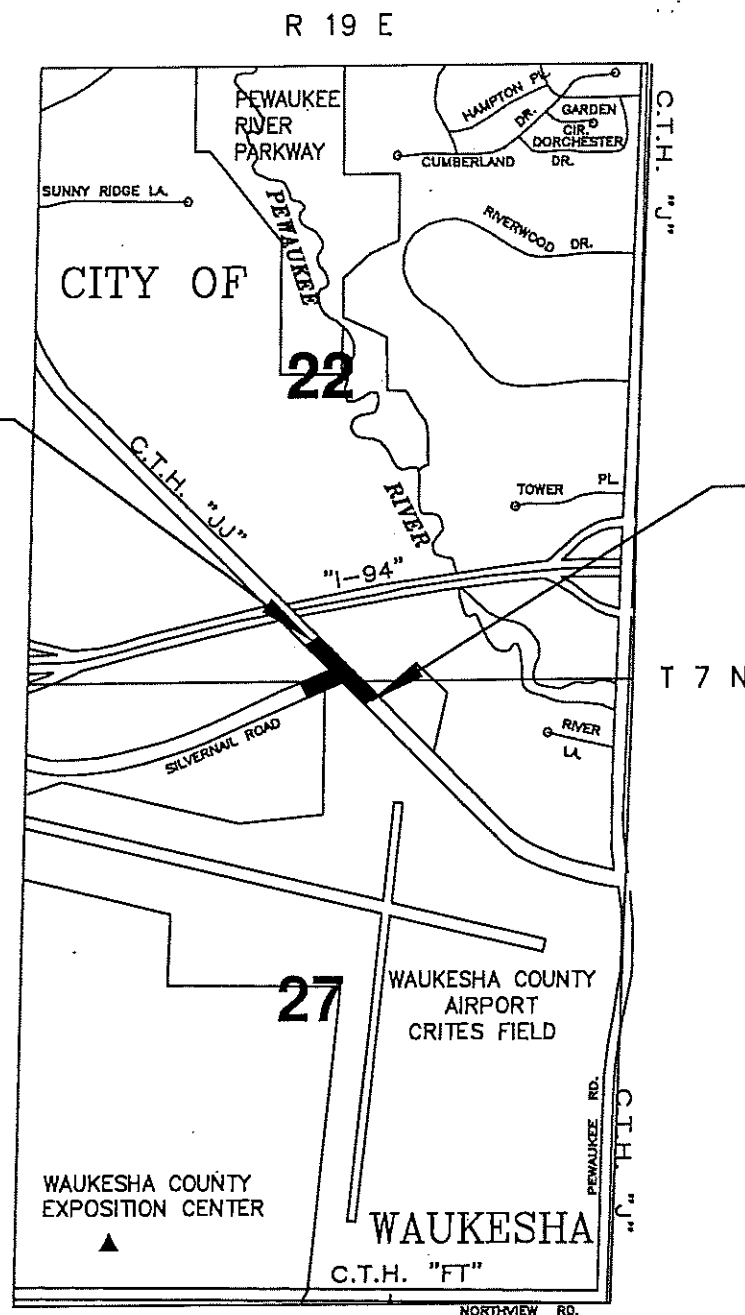
WATER	---
GAS	---
TELEPHONE	---
OVERHEAD	---
TRANSMISSION LINES	---
ELECTRIC	---
CABLE TELEVISION	---
FIBER OPTIC	---
SANITARY SEWER	---
STORM SEWER	---

BEGIN RELOCATION ORDER

PROJECT I.D. 2758-04-00
STA. 20+00.00
Y = 174393.836
X = 681915.938
413.68' NORTH OF AND 231.99' WEST
OF THE NORTH 1/4 OF SEC. 27,
T 7 N, R 19 E

END RELOCATION ORDER

PROJECT I.D. 2758-04-00
STA. 30+00.00
Y = 173708.202
X = 682643.884
271.95' SOUTH OF AND 495.95' EAST
OF THE NORTH 1/4 OF SEC. 27,
T 7 N, R 19 E



R 19 E

Layout

N/A

Scale

TOTAL NET LENGTH OF CENTERLINE = 0.19 MI. (RURAL)

NOTES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES. FIELD SURVEY AND COORDINATE DATA HAS BEEN PREPARED BY GRAEF.

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

THE EXISTING HIGHWAY RIGHT OF WAY SHOWN HEREON IS BASED ON THE RIGHT OF WAY PLAT FOR C.T.H. 'JJ' PROJECT 1065-05-22, EXISTING CERTIFIED SURVEY MAPS, SUBDIVISION PLATS, AND OTHER SURVEYS OF PUBLIC RECORD.

DIMENSIONING TO THE NEW RIGHT OF WAY IS MEASURED ALONG AND PERPENDICULAR TO THE CENTERLINE OF CONSTRUCTION.

R/W PROJECT NUMBER	2758-04-00	SHEET NUMBER	4.1	TOTAL SHEETS	3
FEDERAL PROJECT NUMBER					
PLAT OF RIGHT OF WAY REQUIRED FOR CTH JJ INTERSECTION WITH SILVERNAIL ROAD C.T.H. "JJ" WAUKESHA CO. CONSTRUCTION PROJECT NUMBER 2758-04-70					

ORIGINAL PLAT PREPARED BY
WAUKESHA COUNTY D.P.W.
515 W. MORELAND BLVD. RM 220
WAUKESHA, WI 53188

JASON T. MAYER
S-2844
Mendota Falls WI
LAND SURVEYOR

2-2-15
DATE
Jason T. Mayer
SIGNATURE

APPROVED FOR
WAUKESHA COUNTY
DEPARTMENT OF PUBLIC WORKS

DATE: 2-2-15
Allison Bassler
DIRECTOR

DATE: 2/2/15
Raghu Ramu
ENGINEERING SERVICES MANAGER

REVISION DATE		STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
		APPROVED FOR DISTRICT OFFICE:
		DATE: N/A SIGNATURE

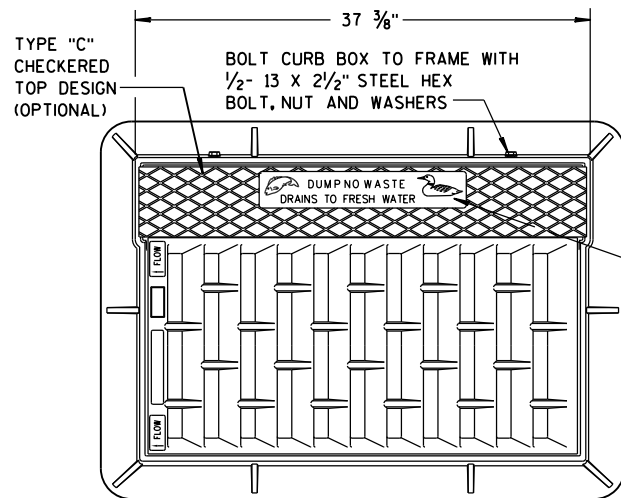
SCHEDULE OF LANDS & INTERESTS REQUIRED

AREAS SHOWN IN THE TOTAL AREA MAY BE APPROXIMATE AND ARE DERIVED FROM TAX ROLLS OR OTHER AVAILABLE SOURCES AND MAY NOT INCLUDE LANDS OF THE OWNER WHICH ARE NOT CONTIGUOUS TO THE AREA TO BE ACQUIRED.

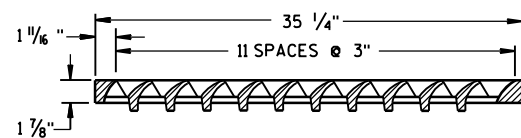
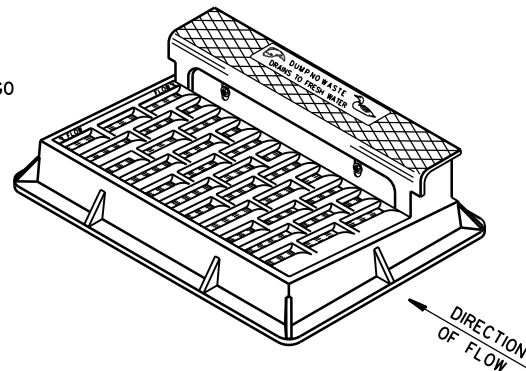
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Standard Detail Drawing List

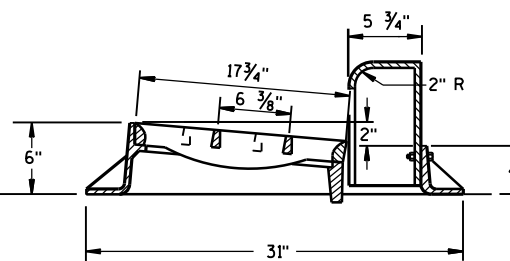
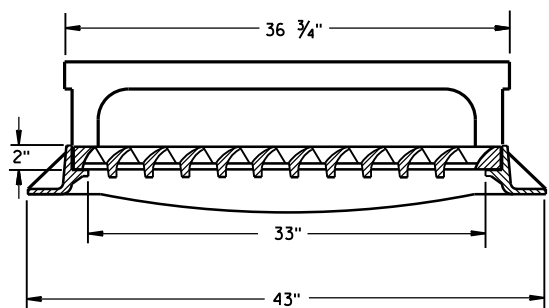
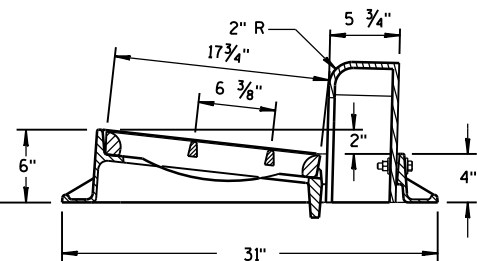
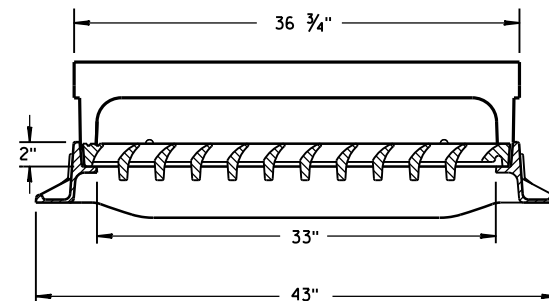
08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08C06-01	INLETS 3-FT AND 4-FT DIAMETER
08C08-01	INLETS MEDIAN 1 AND 2 GRATE
08D01-18	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
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
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
08F05-01	CLASS "B" BEDDING FOR CULVERT PIPE OR STORM SEWER
09A01-13A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
11B02-02	CONCRETE MEDIAN NOSE
14B42-03A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-03C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-02A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-02C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-04A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-04D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B47-02A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-02C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15B03-15A	FENCE CHAIN LINK
15B03-15B	FENCE CHAIN LINK
15C07-12B	PAVEMENT MARKING WORDS
15C07-12C	PAVEMENT MARKING ARROWS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C08-16E	PAVEMENT MARKING (LEFT TURN LANE)
15C08-16F	PAVEMENT MARKING (ISLANDS)
15C12-04	TRAFFIC CONTROL FOR LANE CLOSURE (SUITABLE FOR MOVING OPERATIONS)
15C27-01	DOUBLE ARROW WARNING SIGN PLACEMENT
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING



NOTE:
GRATE IS REVERSIBLE.

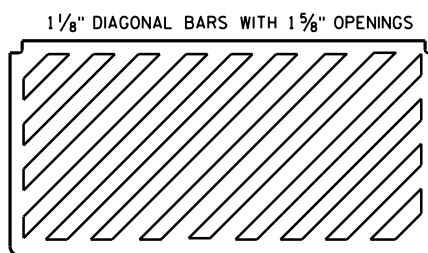


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

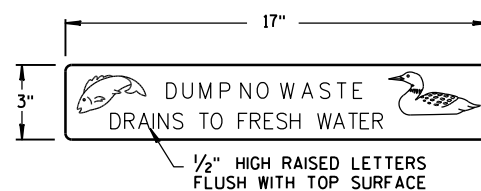


TYPE "H"

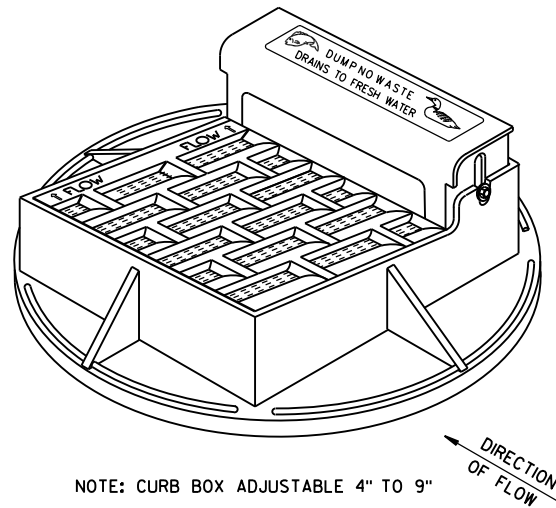
NOTE: EITHER CASTING IS ACCEPTABLE



SPECIAL GRATE FOR
TYPE "H" COVER
(MEASURES 35 1/4" X 17 3/4" X 2")
(NOTED AS TYPE H-S ON DRAINAGE TABLE)

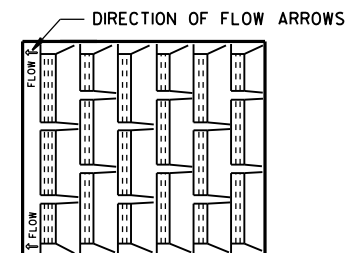


LOGO DETAIL

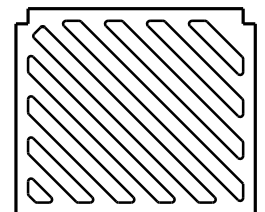


NOTE: CURB BOX ADJUSTABLE 4" TO 9"

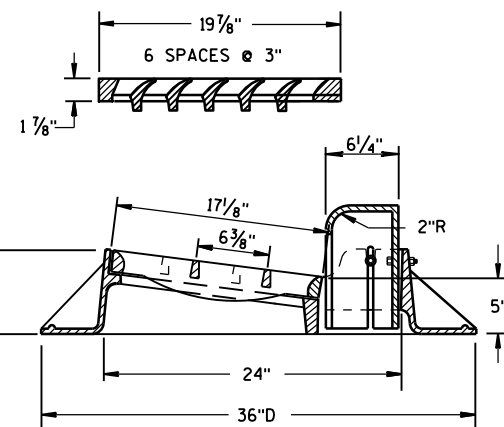
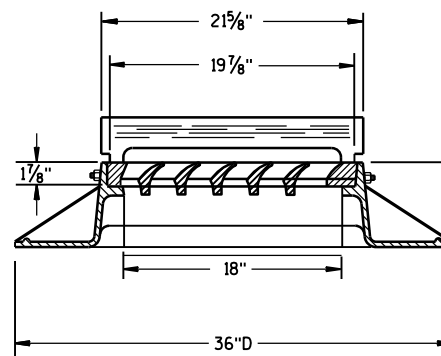
NOTE:
GRATE IS REVERSIBLE.



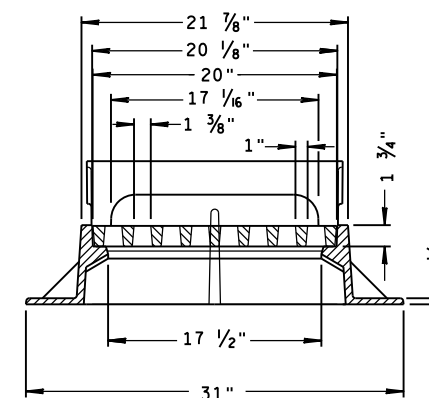
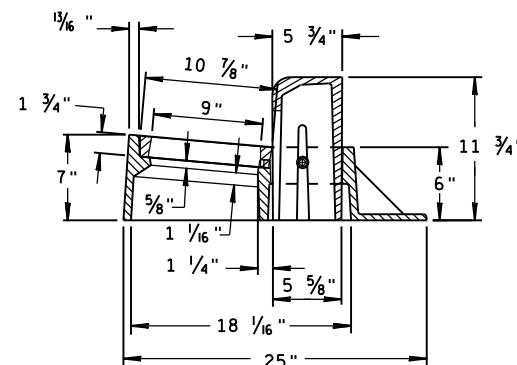
1" DIAGONAL BARS
WITH 1 1/2" OPENINGS



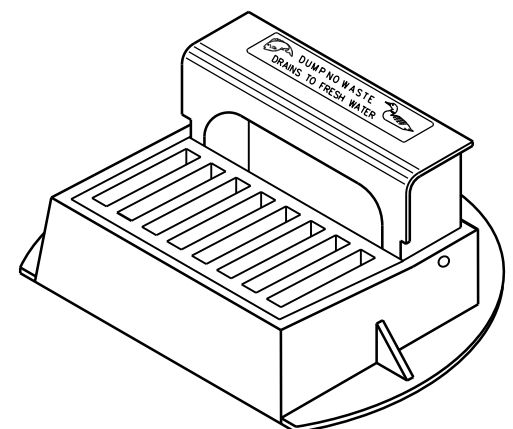
SPECIAL GRATE FOR
TYPE "A" COVER
(MEASURES 19 3/4" X 17" X 1 1/8")
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



TYPE "A"



TYPE "Z"

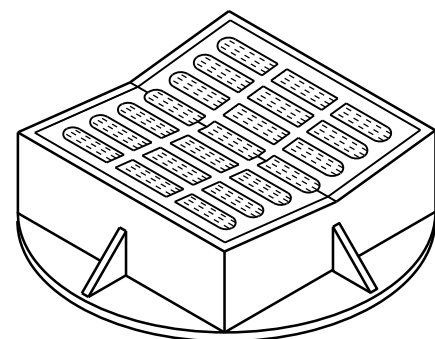
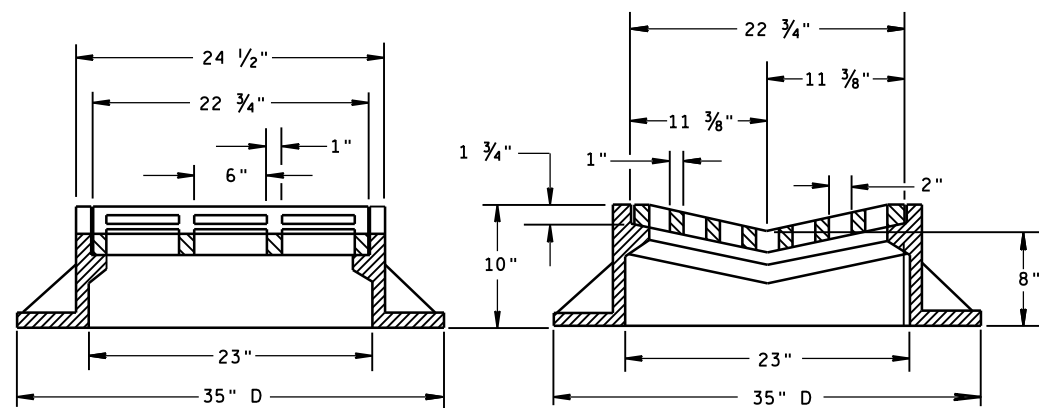


INLET COVERS
TYPE A, H, A-S, H-S & Z

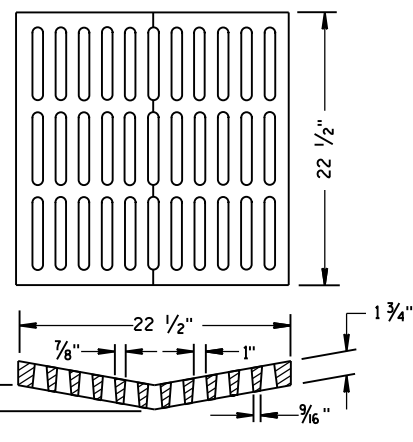
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11-27-13
DATE
FHWA

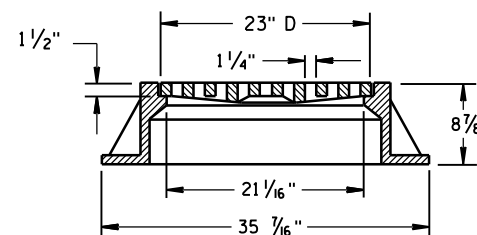
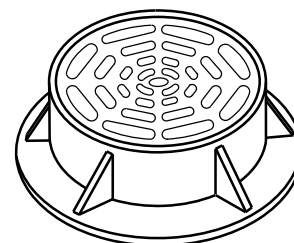
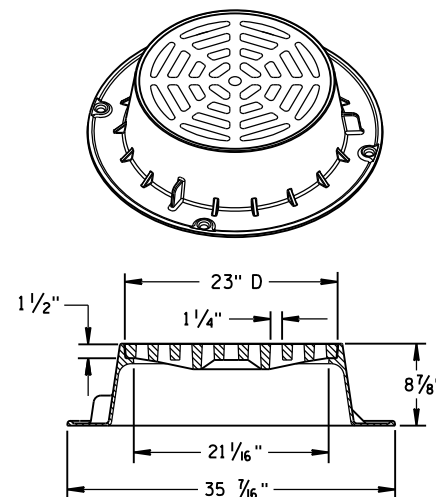
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TYPE "B"

ALTERNATIVE GRATE FOR
TYPE "B" COVER

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



TYPE "C"

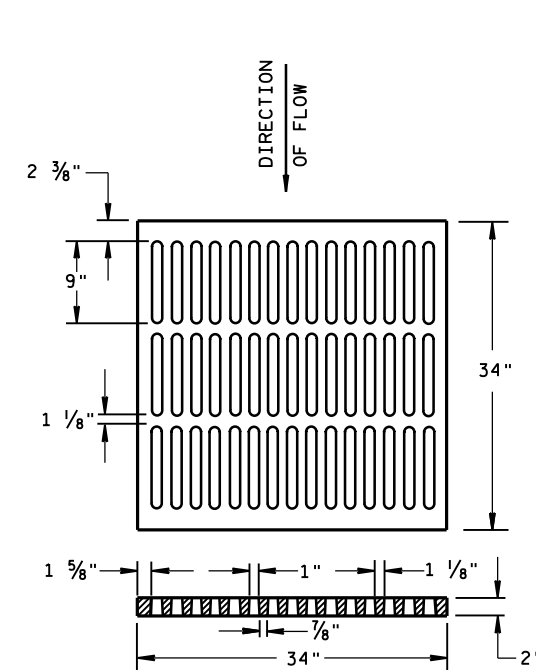
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

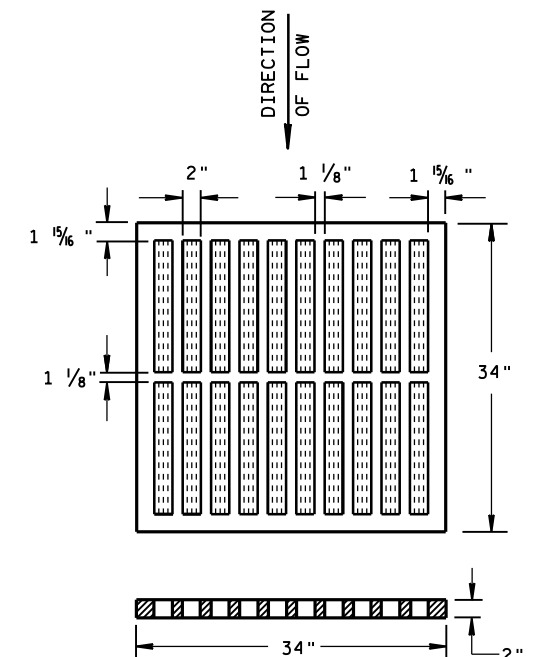
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



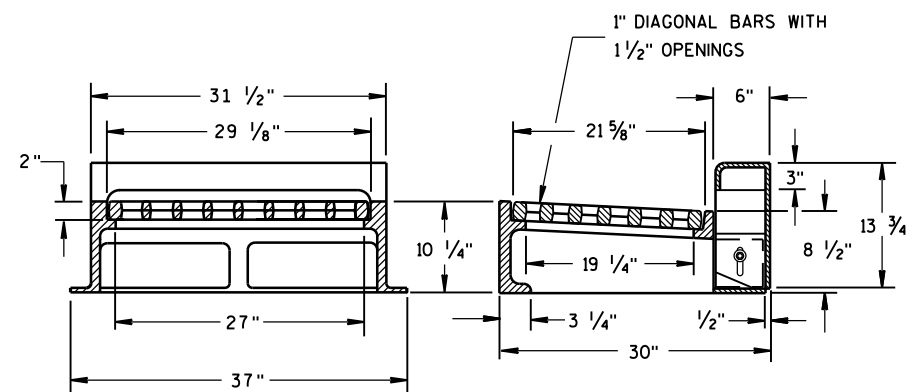
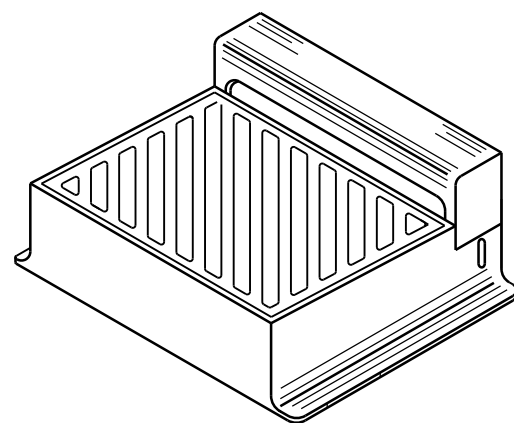
ALTERNATIVE TYPE "MS"

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



TYPE "MS"

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



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

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

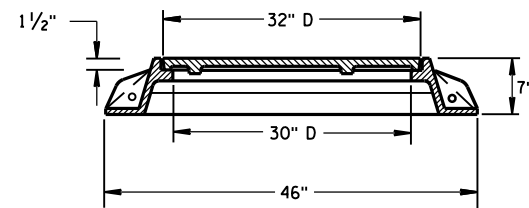
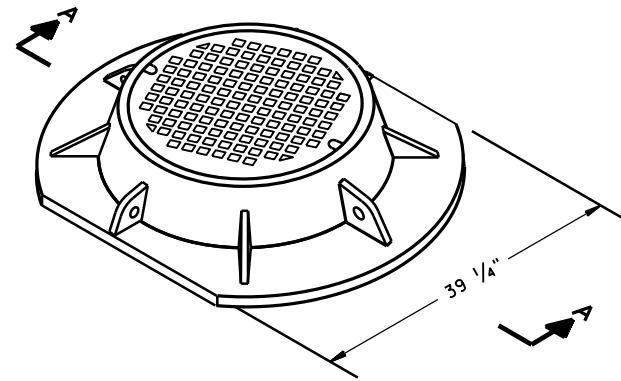
DIRECTION
OF FLOW

INLET COVERS
 TYPE B, B-A, C,
 MS, MS-A, & WM

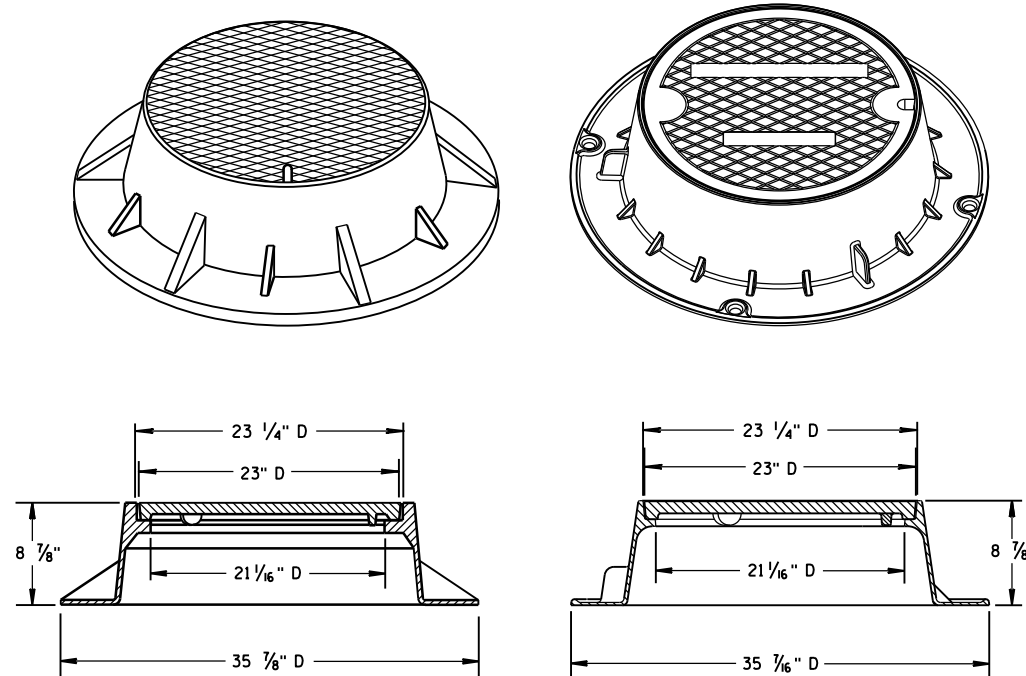
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 11/27/2013
 DATE
 FHWA

/S/ Jerry H. Zogg
 ROADWAY STANDARDS DEVELOPMENT
 ENGINEER

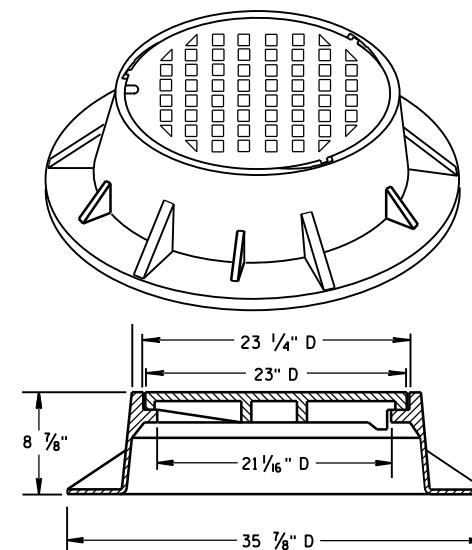
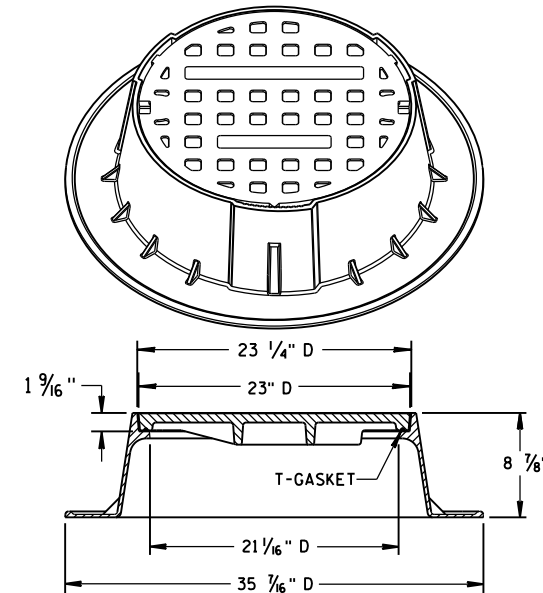


SECTION A-A
TYPE "K"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE



TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

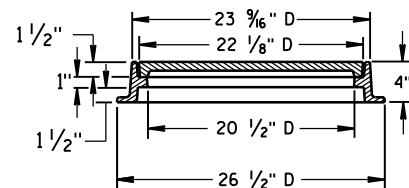
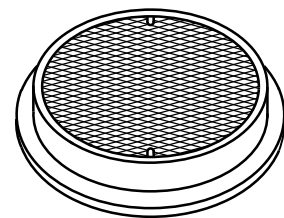
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

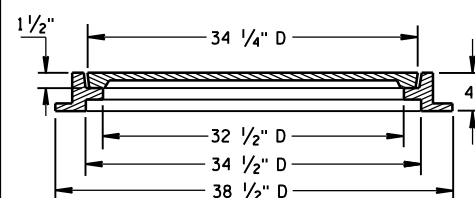
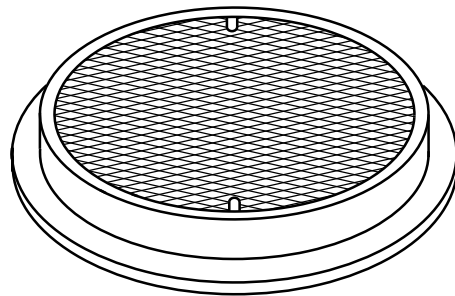
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

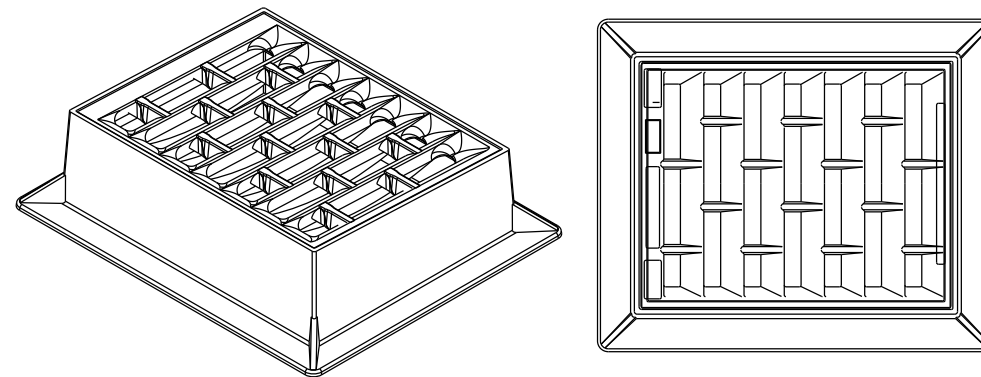
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.



TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"

INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/27/2013

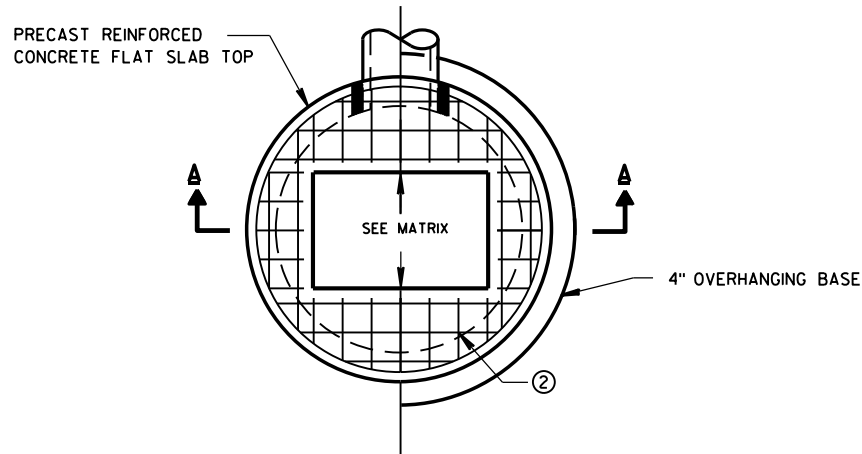
DATE

FHWA

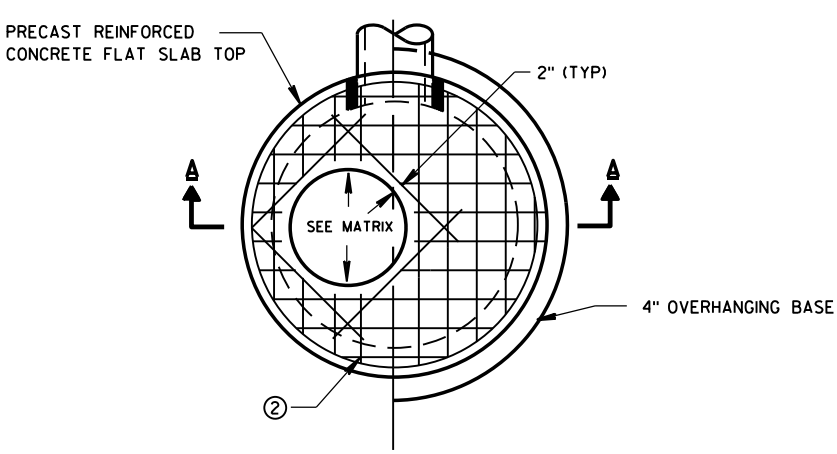
/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

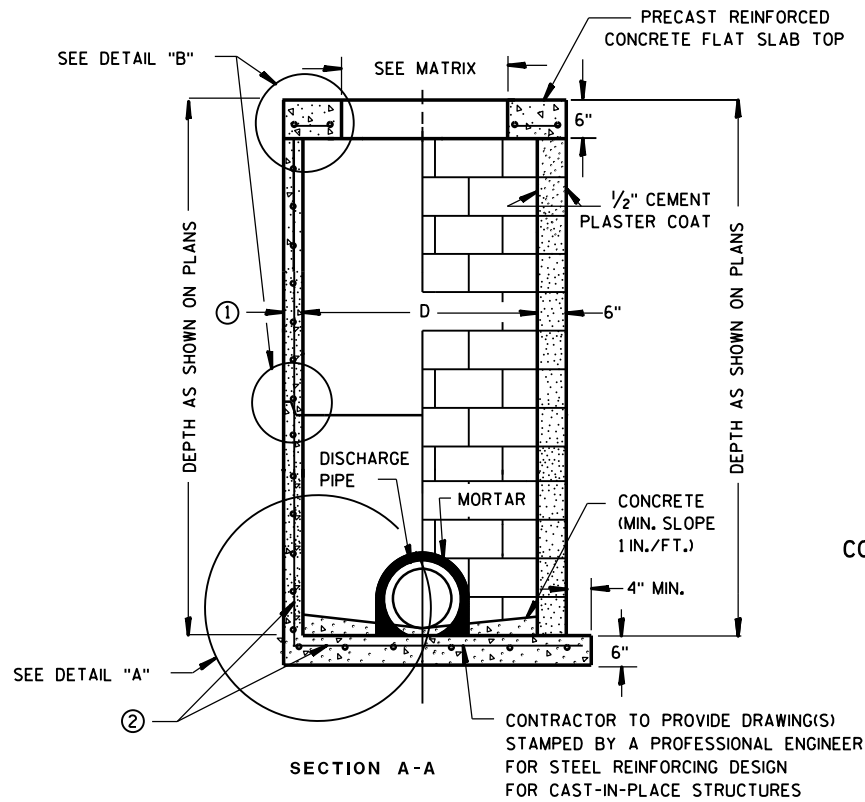
ENGINEER



PLAN VIEW RECTANGULAR OPENING



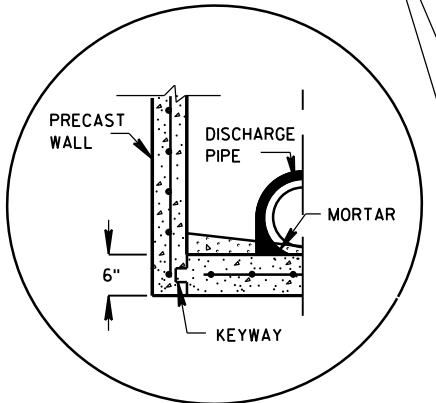
PLAN VIEW CIRCULAR OPENING



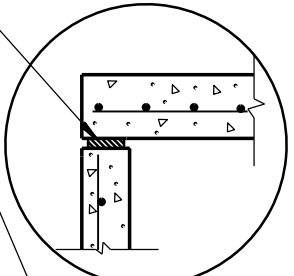
PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE **CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②**

CIRCULAR INLETS W/ FLAT TOP

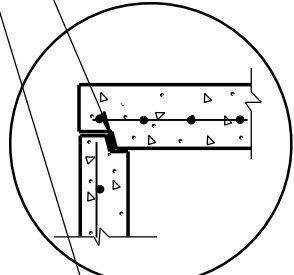
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)



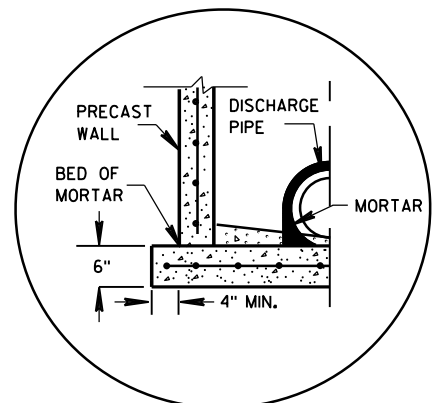
PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



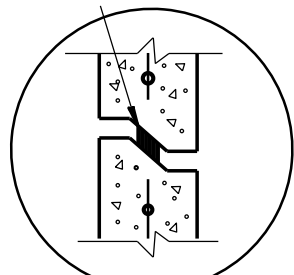
TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "A"

DETAIL "B"

INLETS 3-FT AND 4-FT DIAMETER

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 DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE 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.

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

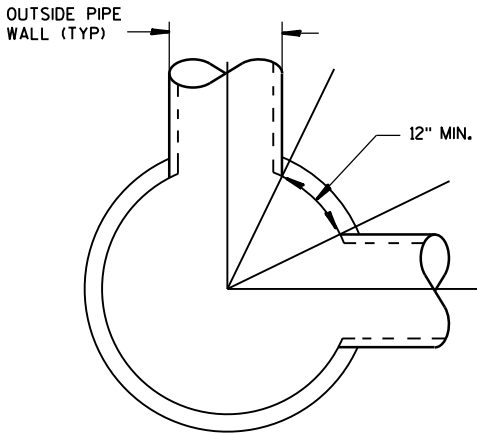
4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

- ① MINIMUM WALL THICKNESS SHALL BE 4-IN FOR 3-FT DIAMETER AND 5-IN FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

INLET COVER OPENING MATRIX

	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
INLET SIZE	OPENING SIZE (FT)											
3-FT	2 DIA.				X							X
	2X2	X	X					X		X		
4-FT	2 DIA.				X							X
	2X2	X	X					X	X	X	X	
	2X2.5			X								
	2X3						X					
	2.5X3					X						



DETAIL "C"

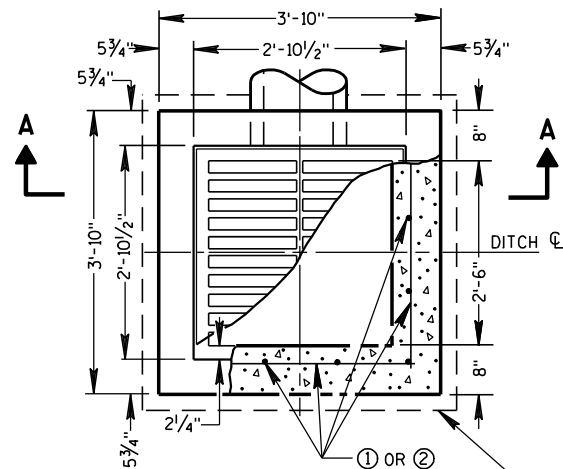
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18

INLETS 3-FT AND 4-FT DIAMETER

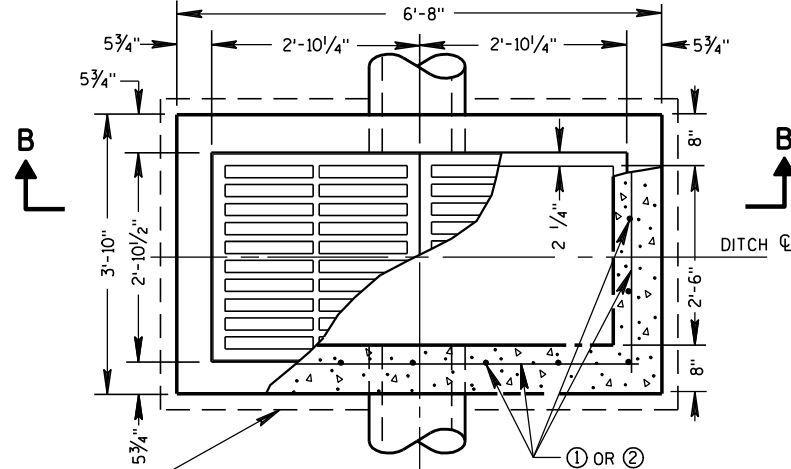
**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

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

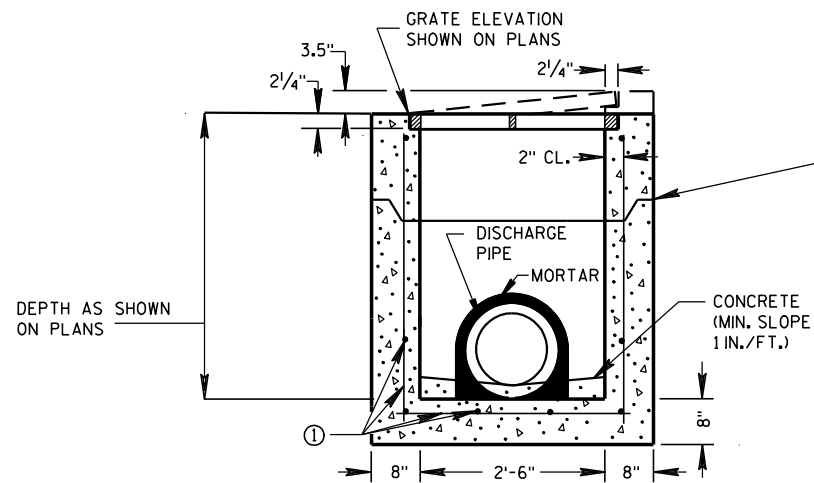


PLAN VIEW

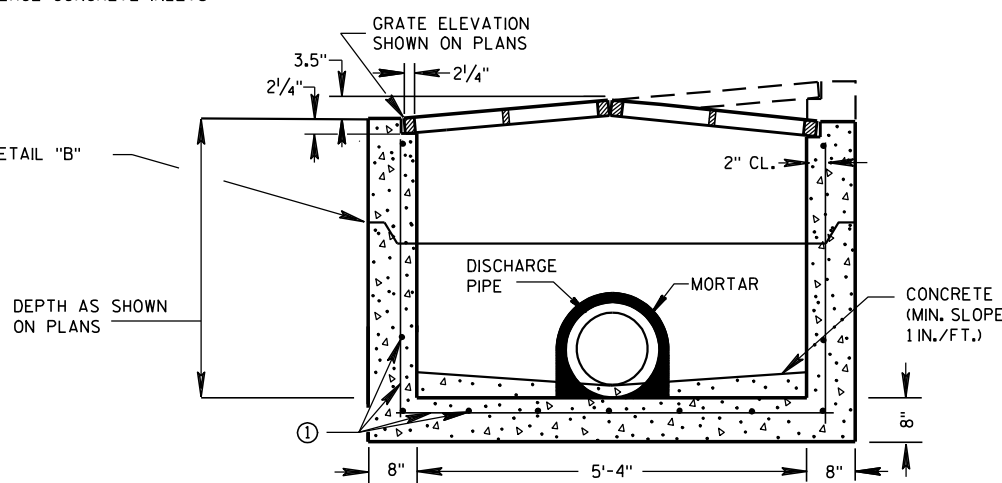
4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



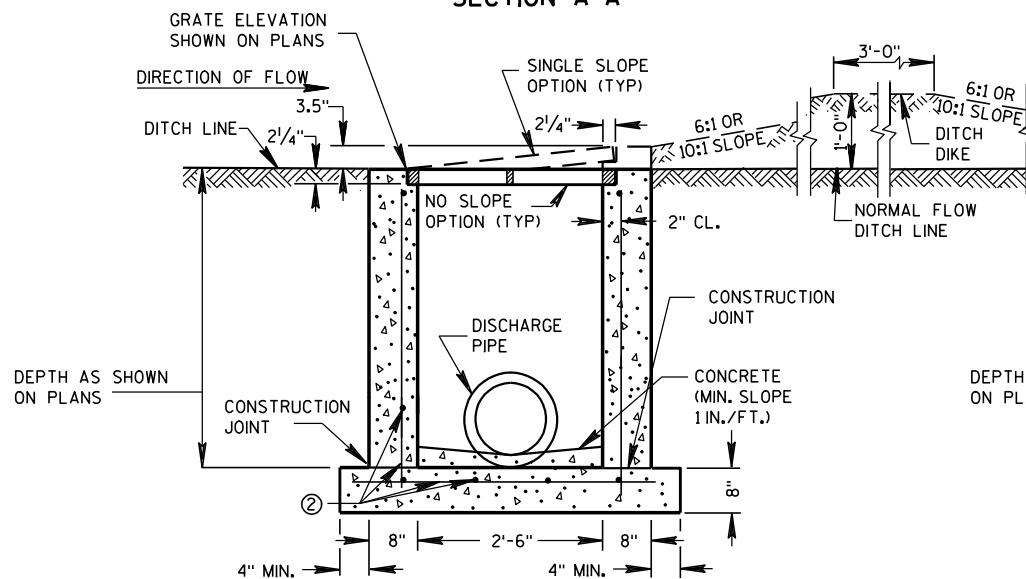
PLAN VIEW



PRECAST REINFORCED CONCRETE SECTION A-A

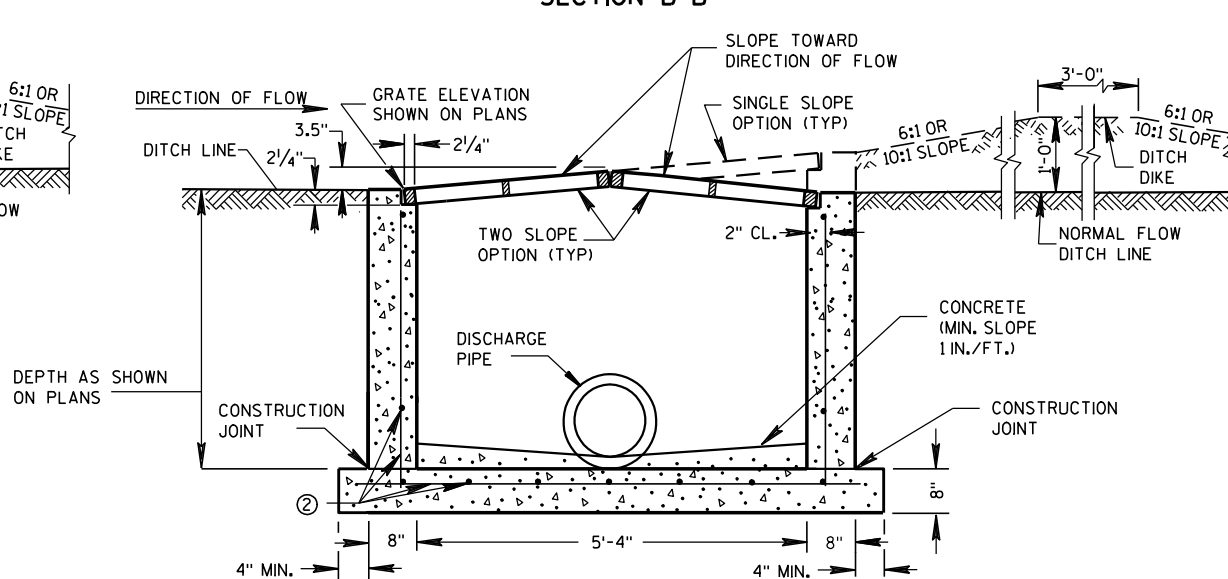


PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A

INLETS MEDIAN 1 GRATE



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

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

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

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

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, IG-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

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

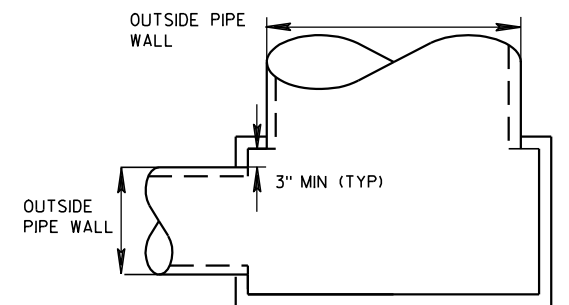
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

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

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

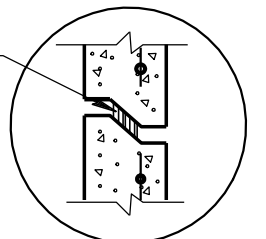
PIPE MATRIX

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



DETAIL "A"

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



DETAIL "B"

INLETS MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

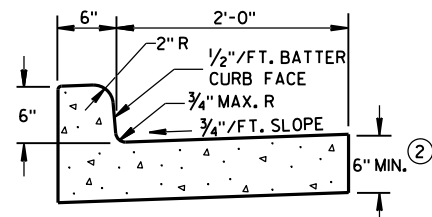
APPROVED

6/5/2012

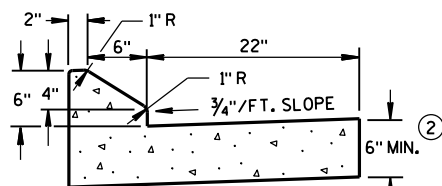
DATE

FHWA

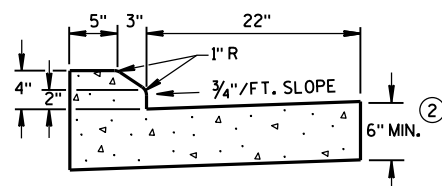
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TYPES A & D ①

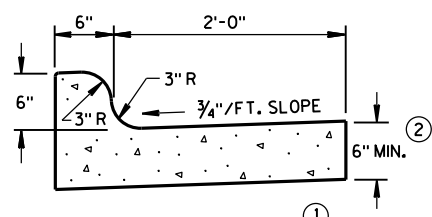


6" SLOPED CURB TYPES G & J ①



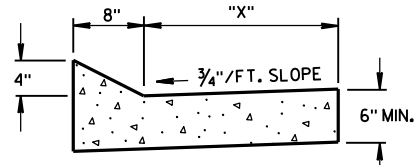
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



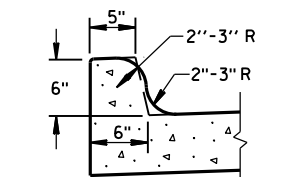
TYPES K & L ①

CONCRETE CURB & GUTTER 30"

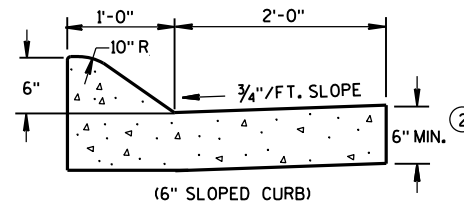


TYPES TBT & TBT ①
CONCRETE CURB & GUTTER

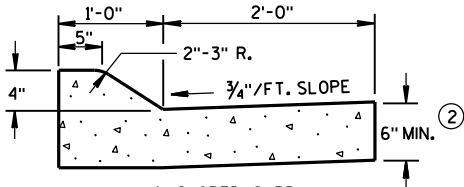
TBT & TBT	"X"
30"	22"
36"	28"



OPTIONAL CURB SHAPE
FOR TYPES K & L ①

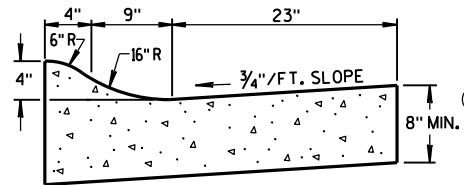


(6" SLOPED CURB)



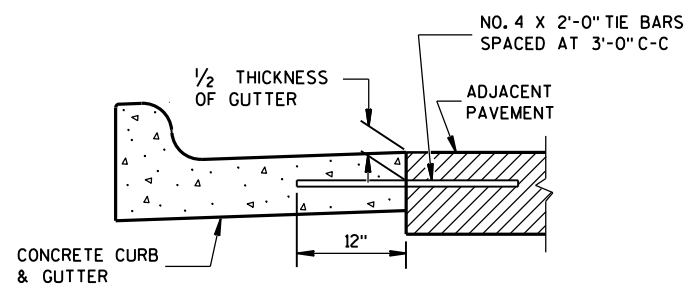
(4" SLOPED CURB)

TYPES A & D ①

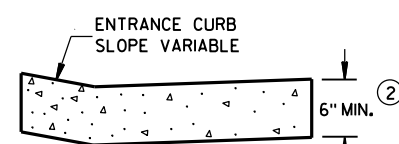


4" SLOPED CURB TYPES R & T ① ④

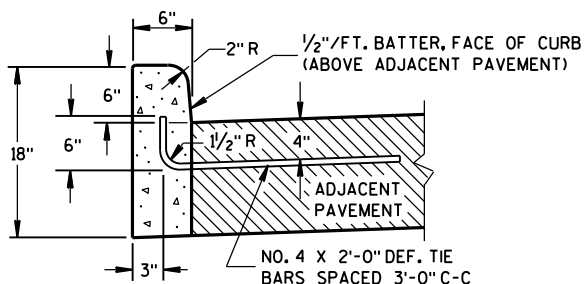
CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

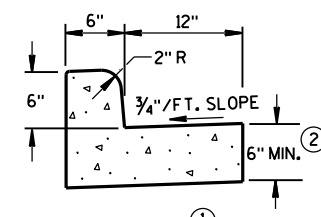


DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

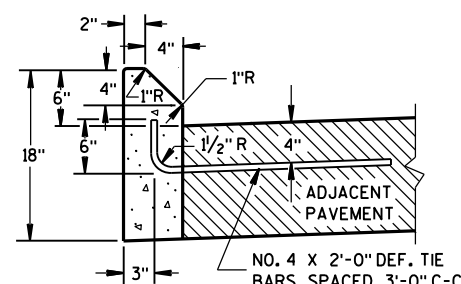


TYPES A & D ①

CONCRETE CURB



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.

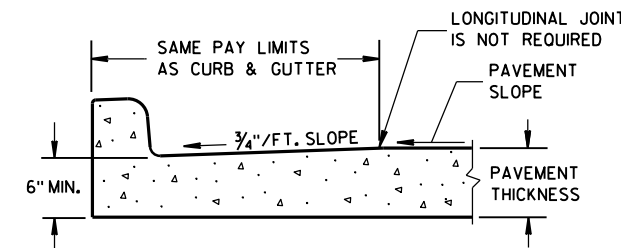
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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.

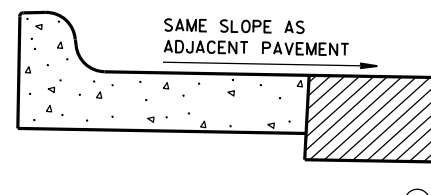
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

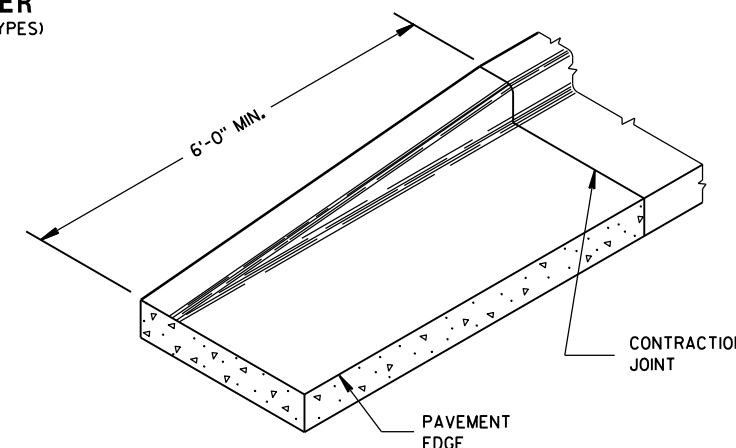
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED 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.



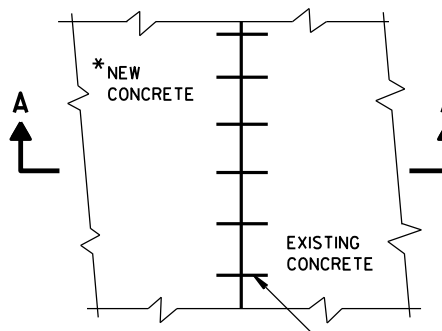
PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



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



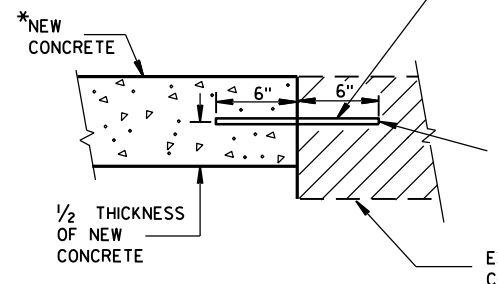
END SECTION CURB & GUTTER



PLAN VIEW

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

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



SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

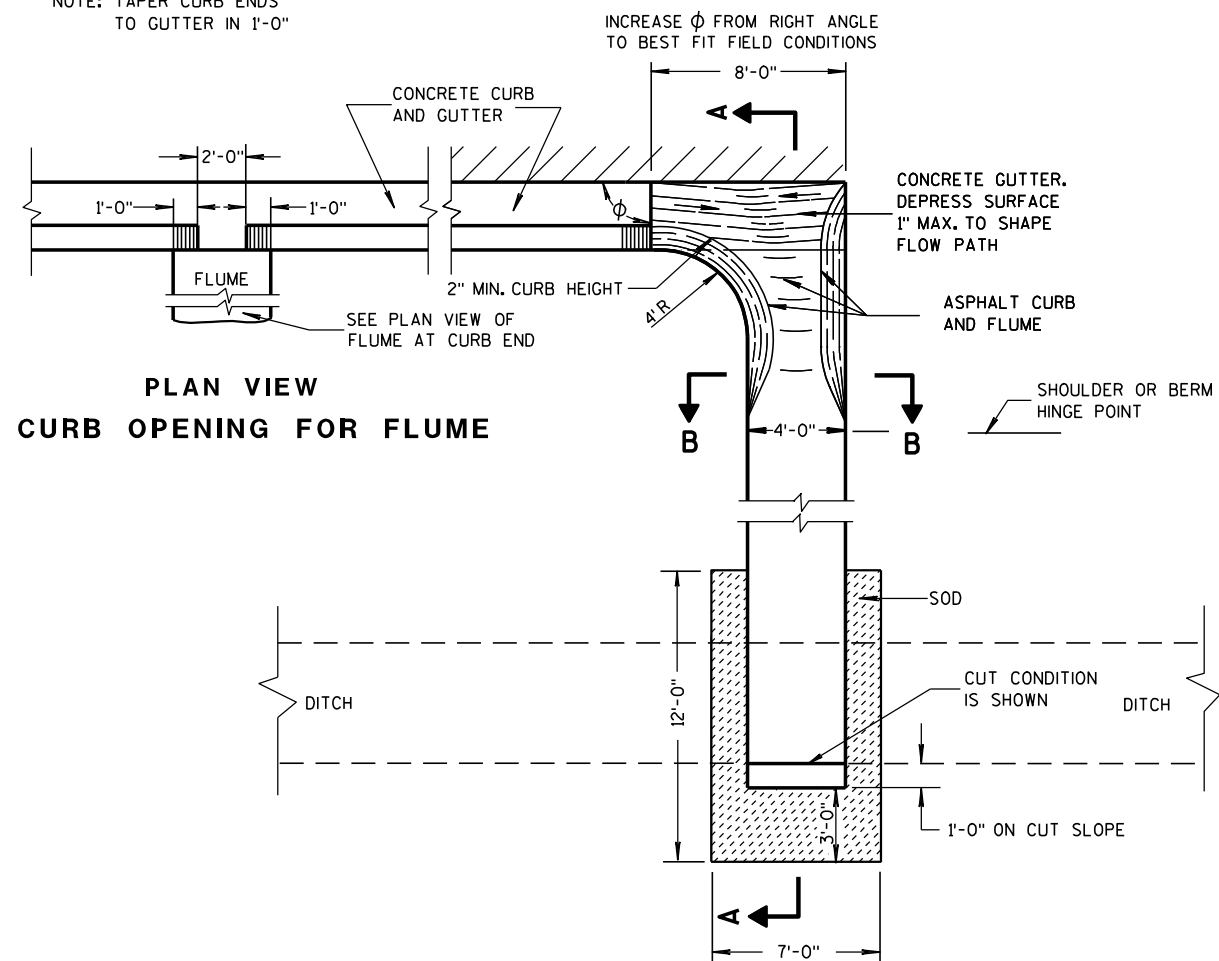
CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

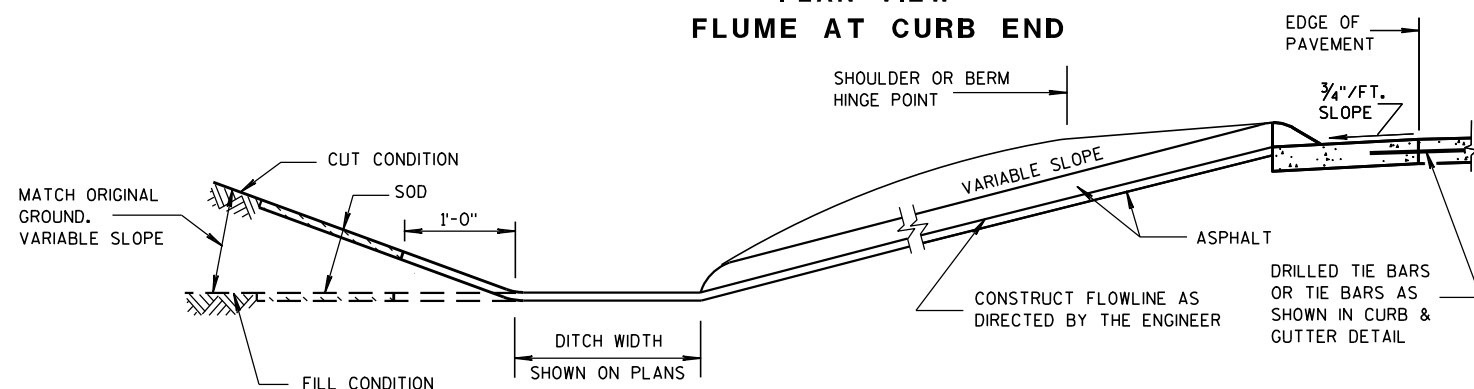
ASPHALTIC FLUME

NOTE: TAPER CURB ENDS
TO GUTTER IN 1'-0"

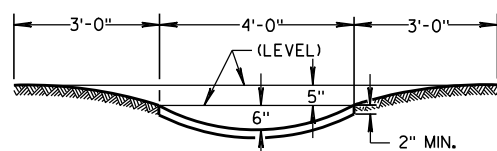


PLAN VIEW
CURB OPENING FOR FLUME

PLAN VIEW
FLUME AT CURB END



SECTION A-A



SECTION B-B

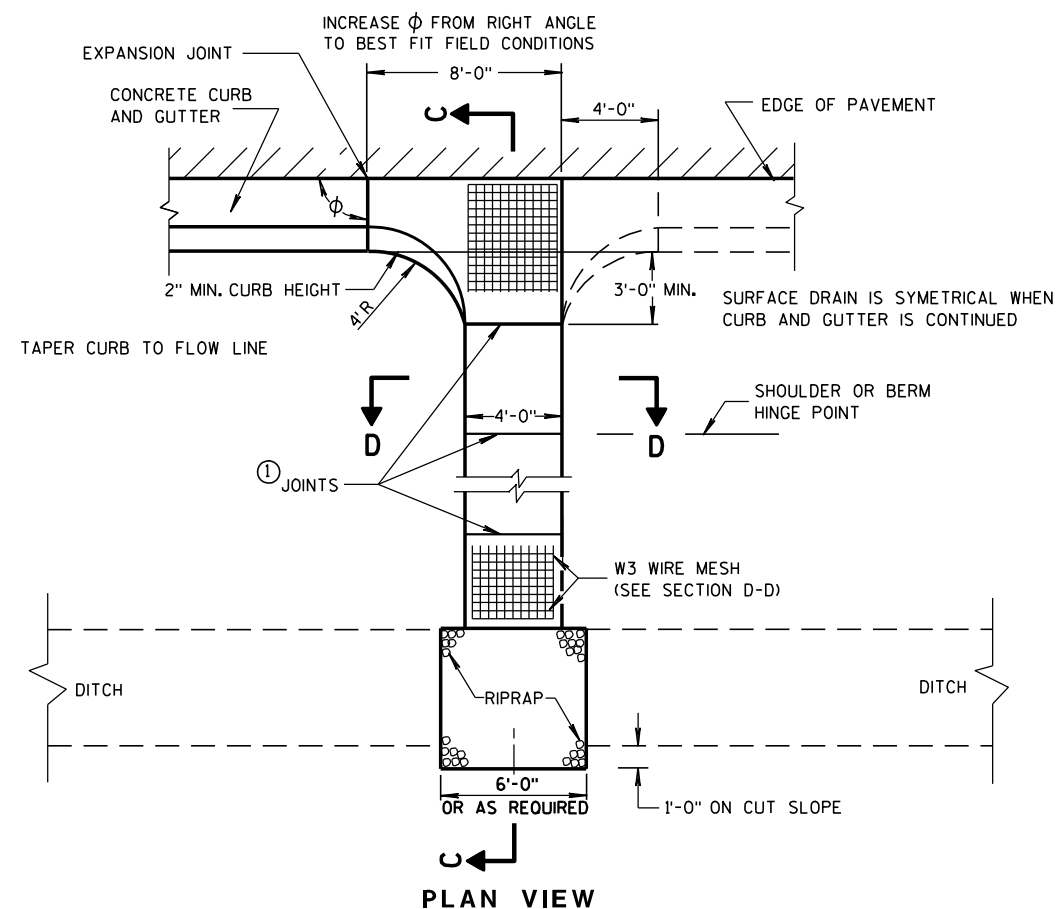
GENERAL NOTES

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

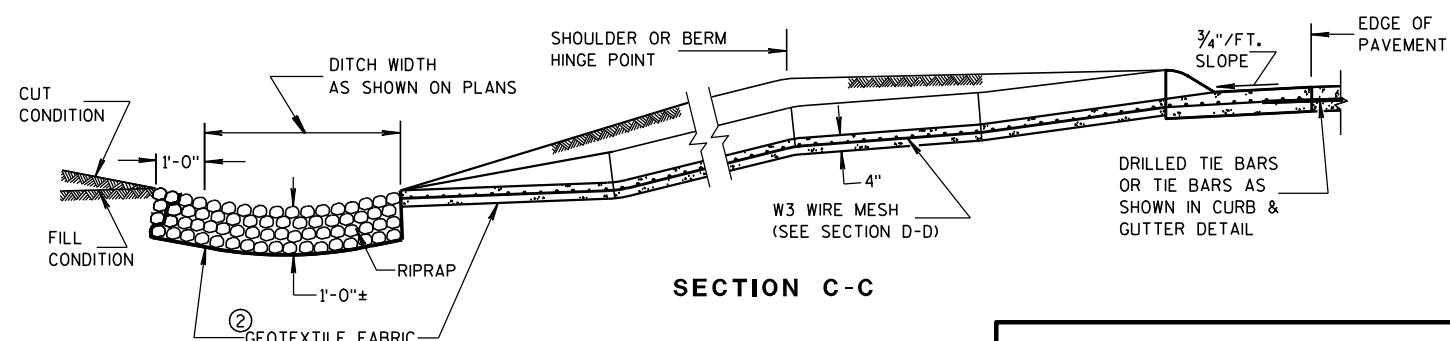
WELDED STEEL WIRE FABRIC SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

- ① JOINTS SHALL BE 1/8" TO 1/4" INCH WIDE BY 1 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

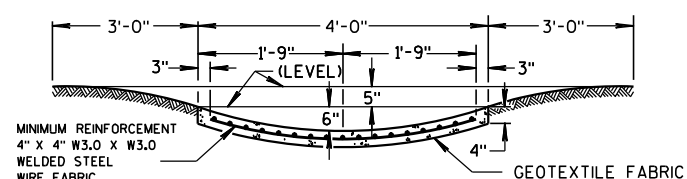
③ CONCRETE SURFACE DRAIN



PLAN VIEW



SECTION C-C



SECTION D-D

CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

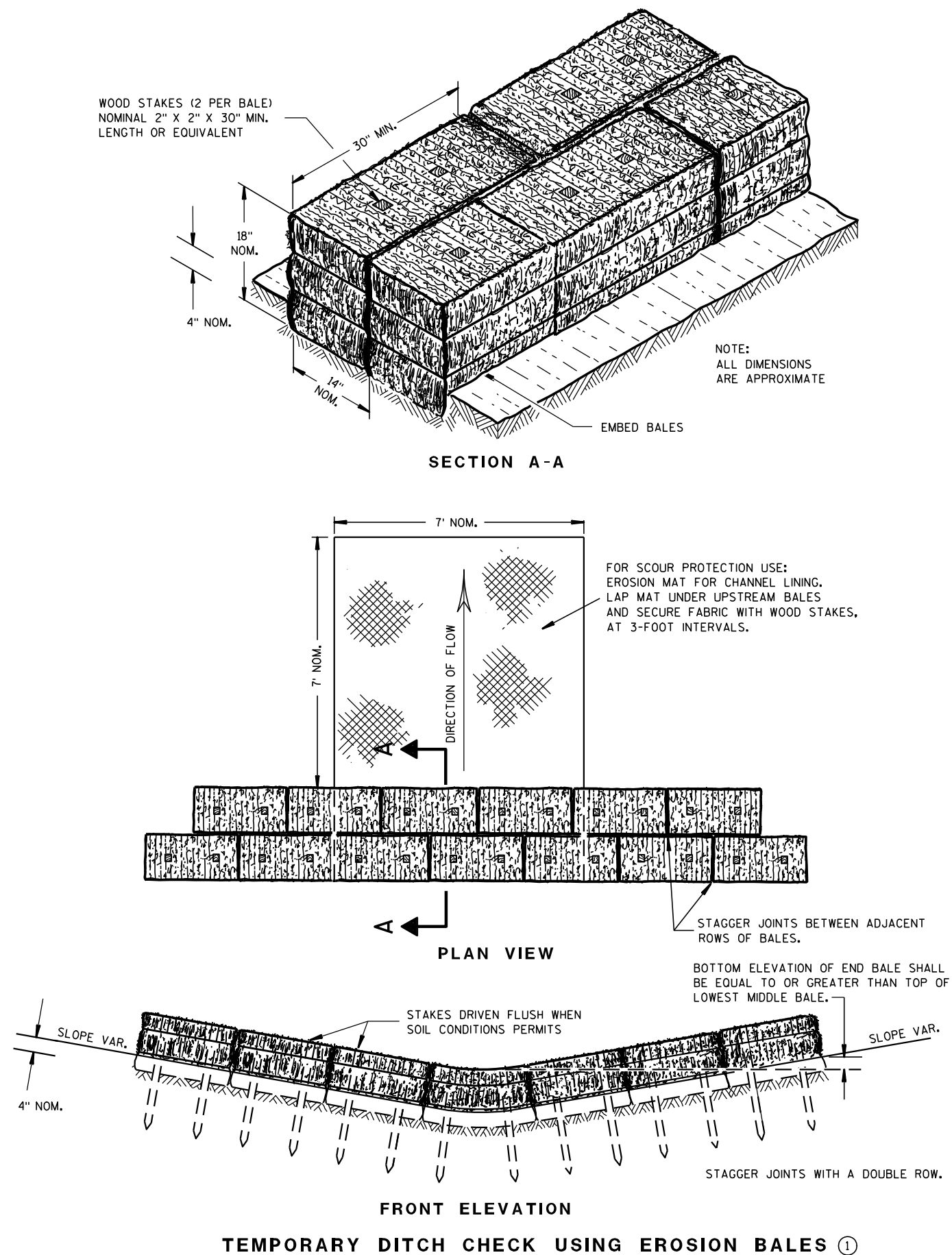
APPROVED

9-4-08

DATE

FHWA

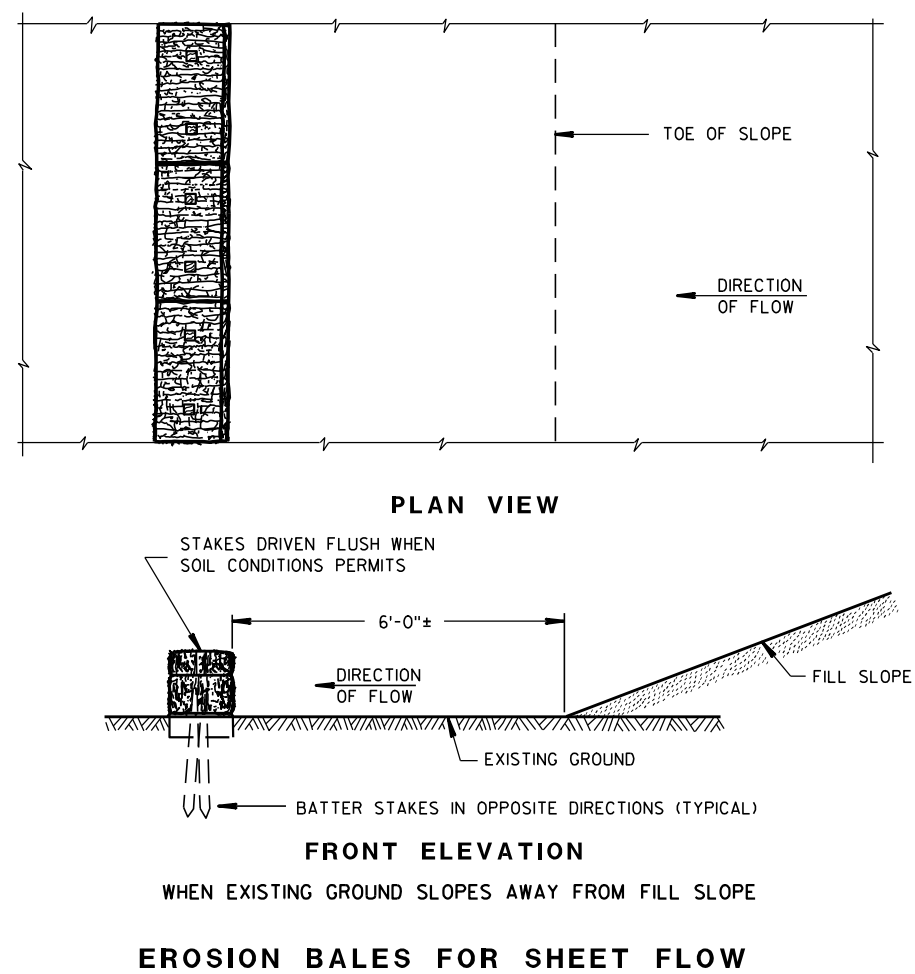
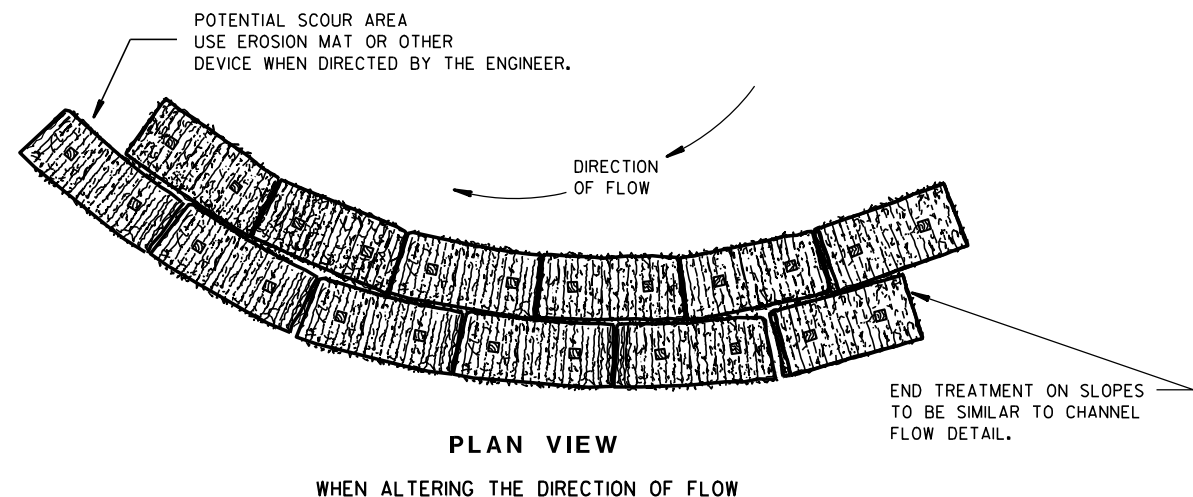
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



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.

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

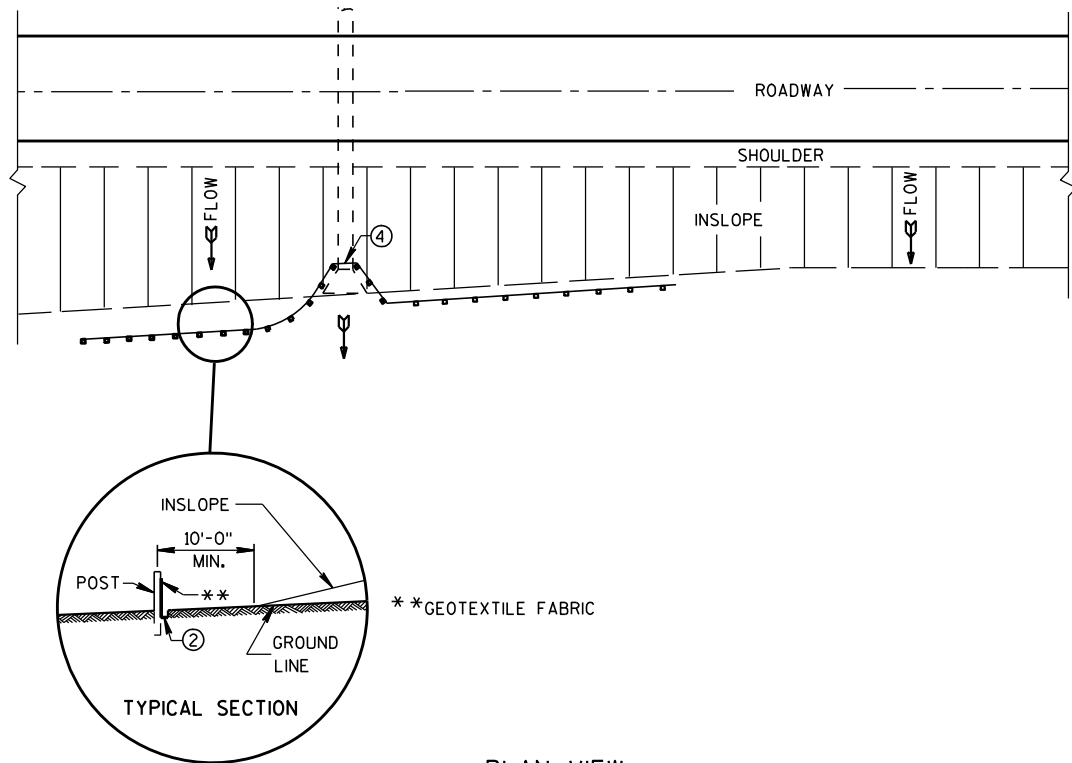
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

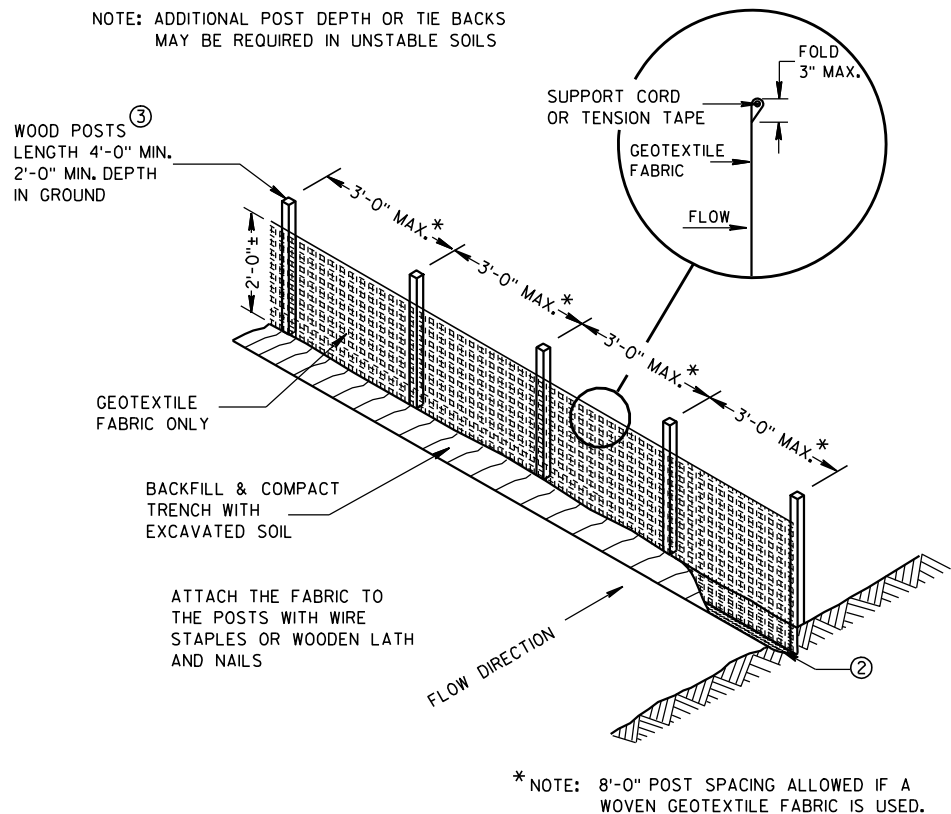
APPROVED

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

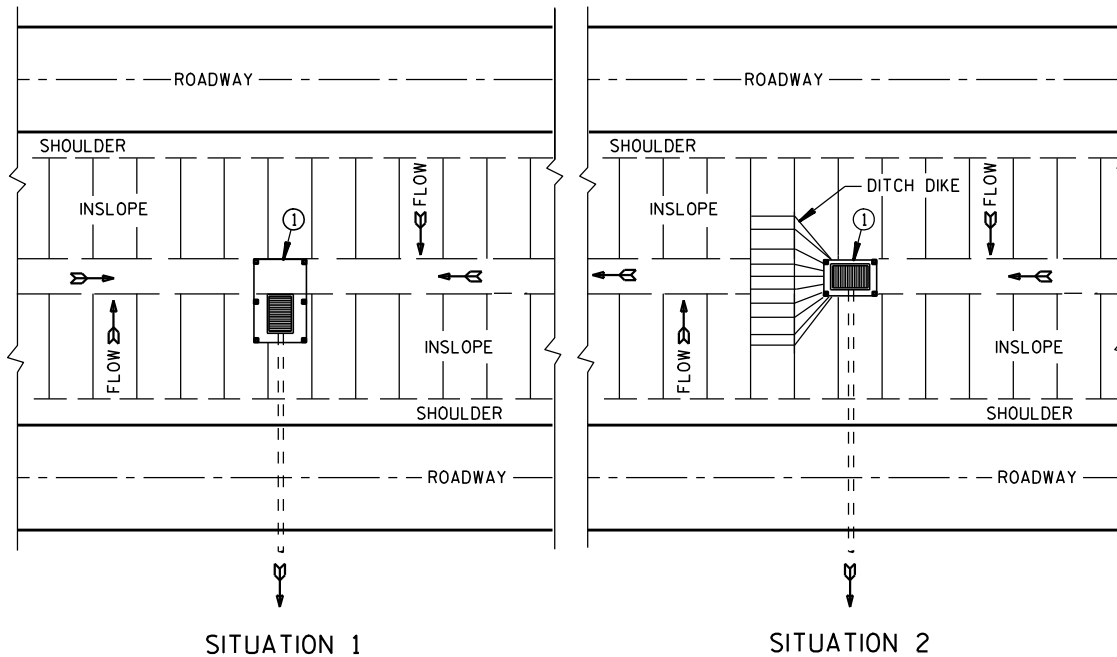
FHWA



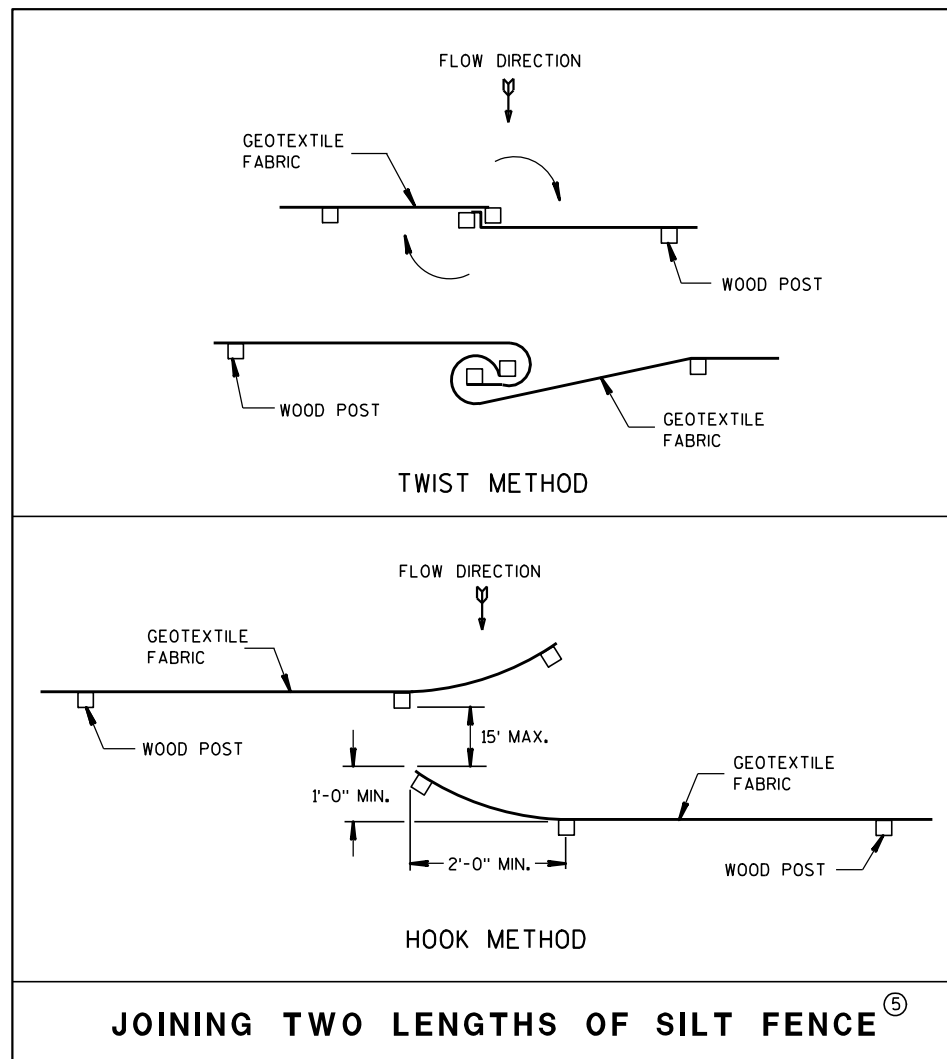
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

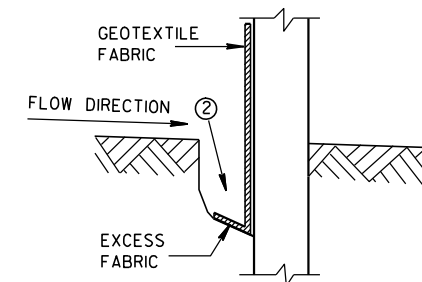


JOINING TWO LENGTHS OF SILT FENCE ⑤

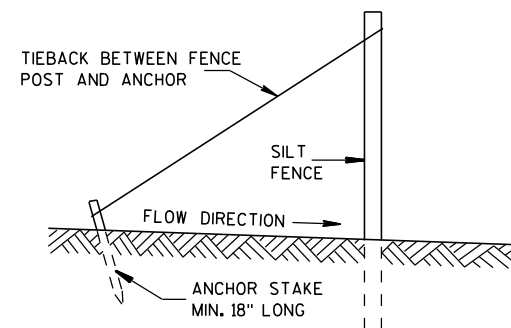
GENERAL NOTES

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

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



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Canestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



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.

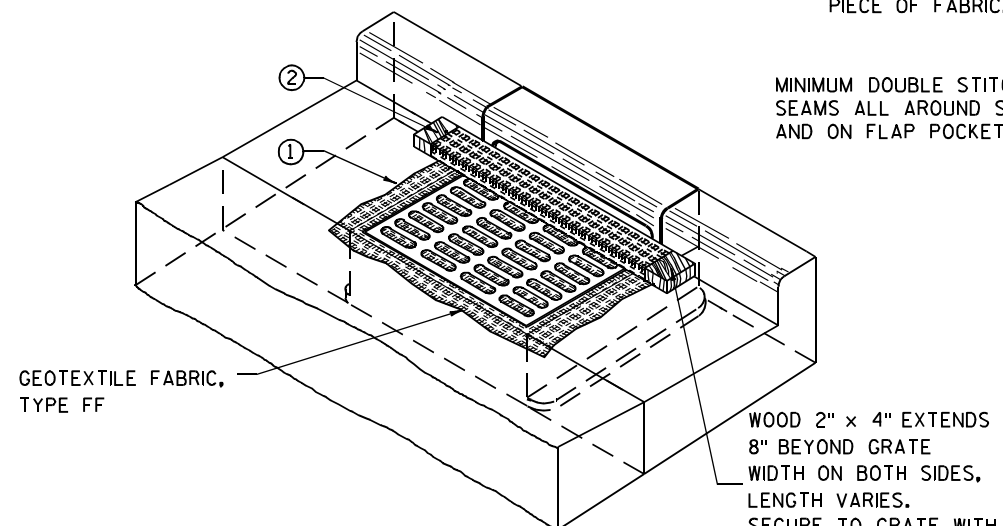
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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)

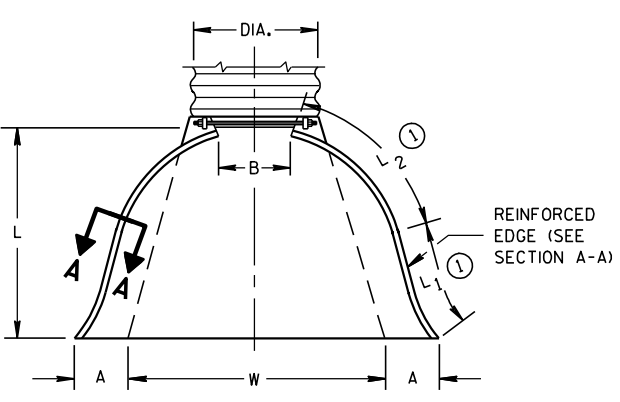
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

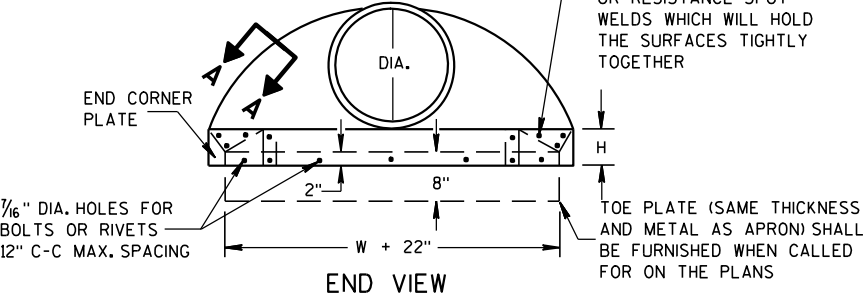
METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE		BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")			
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1		1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1		1 Pc.
18	.064	.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



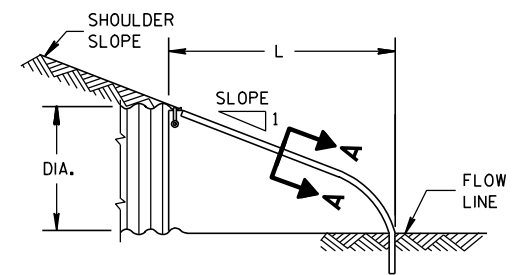
PLAN VIEW

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



END VIEW

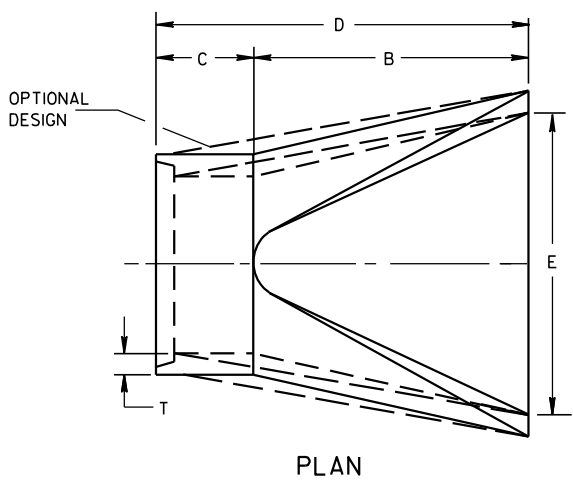
TOE PLATE (SAME THICKNESS
AND METAL AS APRON) SHALL
BE FURNISHED WHEN CALLED
FOR ON THE PLANS



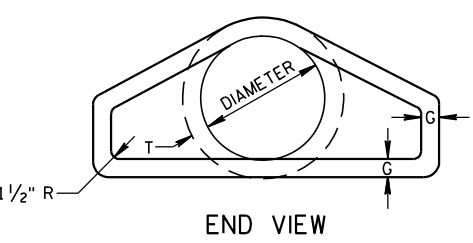
SIDE ELEVATION
METAL ENDWALLS

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

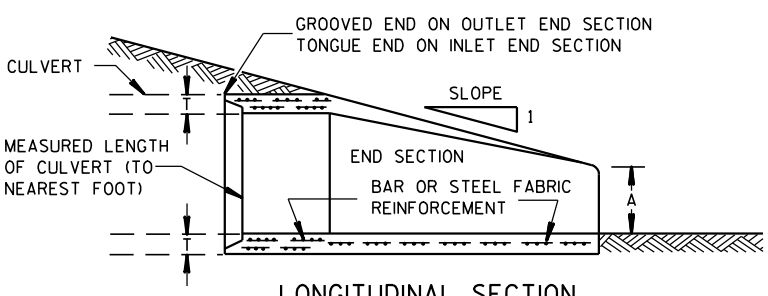
* MINIMUM
** MAXIMUM



PLAN

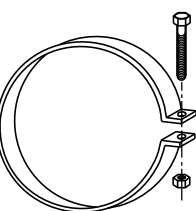


END VIEW

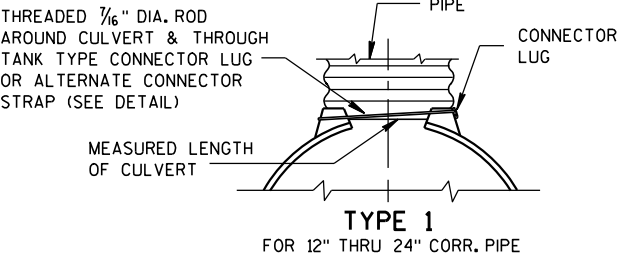


LONGITUDINAL SECTION
CONCRETE ENDWALLS

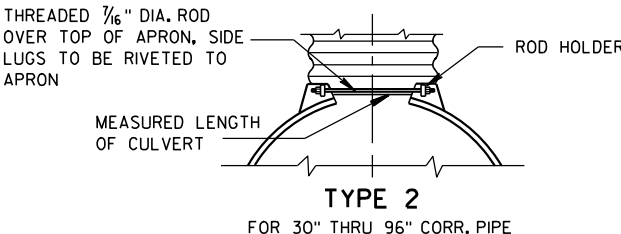
1" WIDE, 12 GA. (0.109"
THICK) GALVANIZED STRAP
WITH STANDARD 6" X 1/2"
BAND BOLT AND NUT



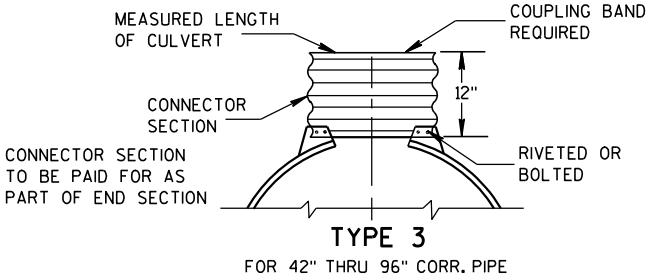
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



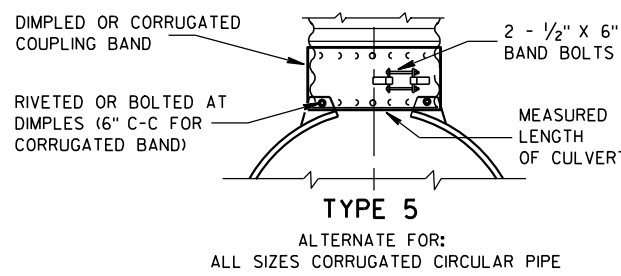
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

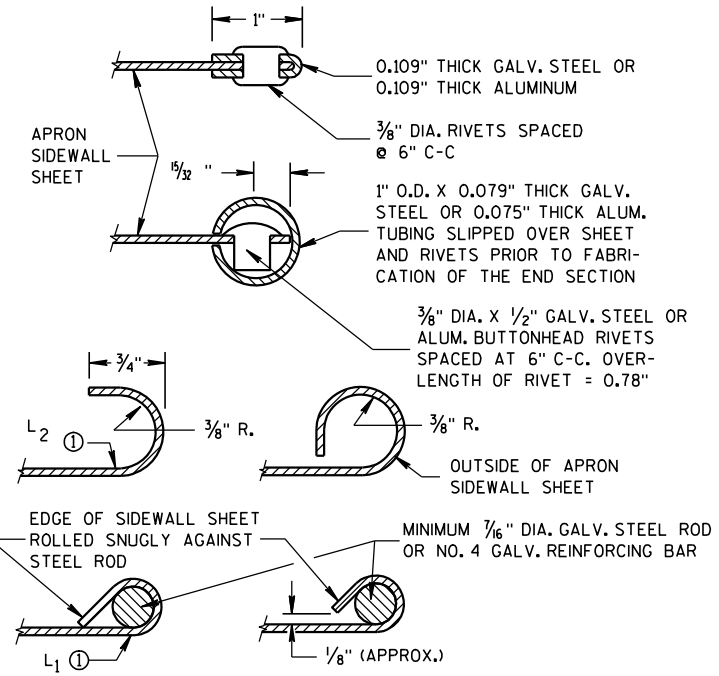
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.
DIMPLED BAND MAY BE USED WITH HELICALLY
CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL
OR ALUMINUM CULVERT PIPE OR 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.

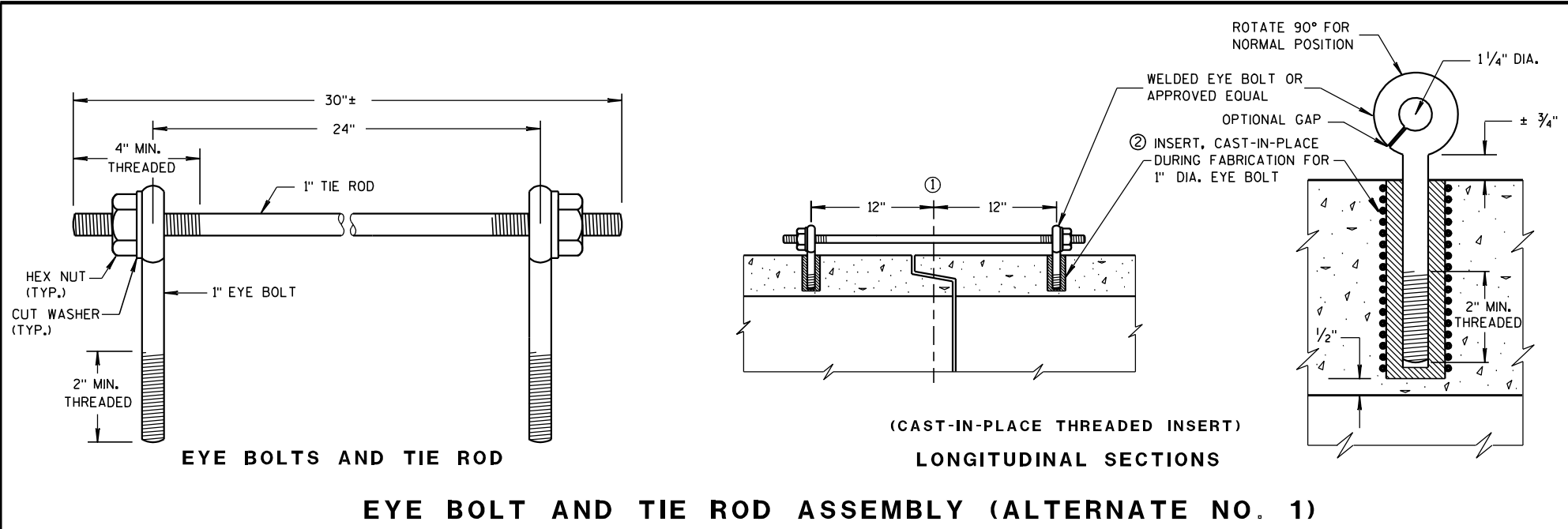
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT
TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT
TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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



GENERAL NOTES

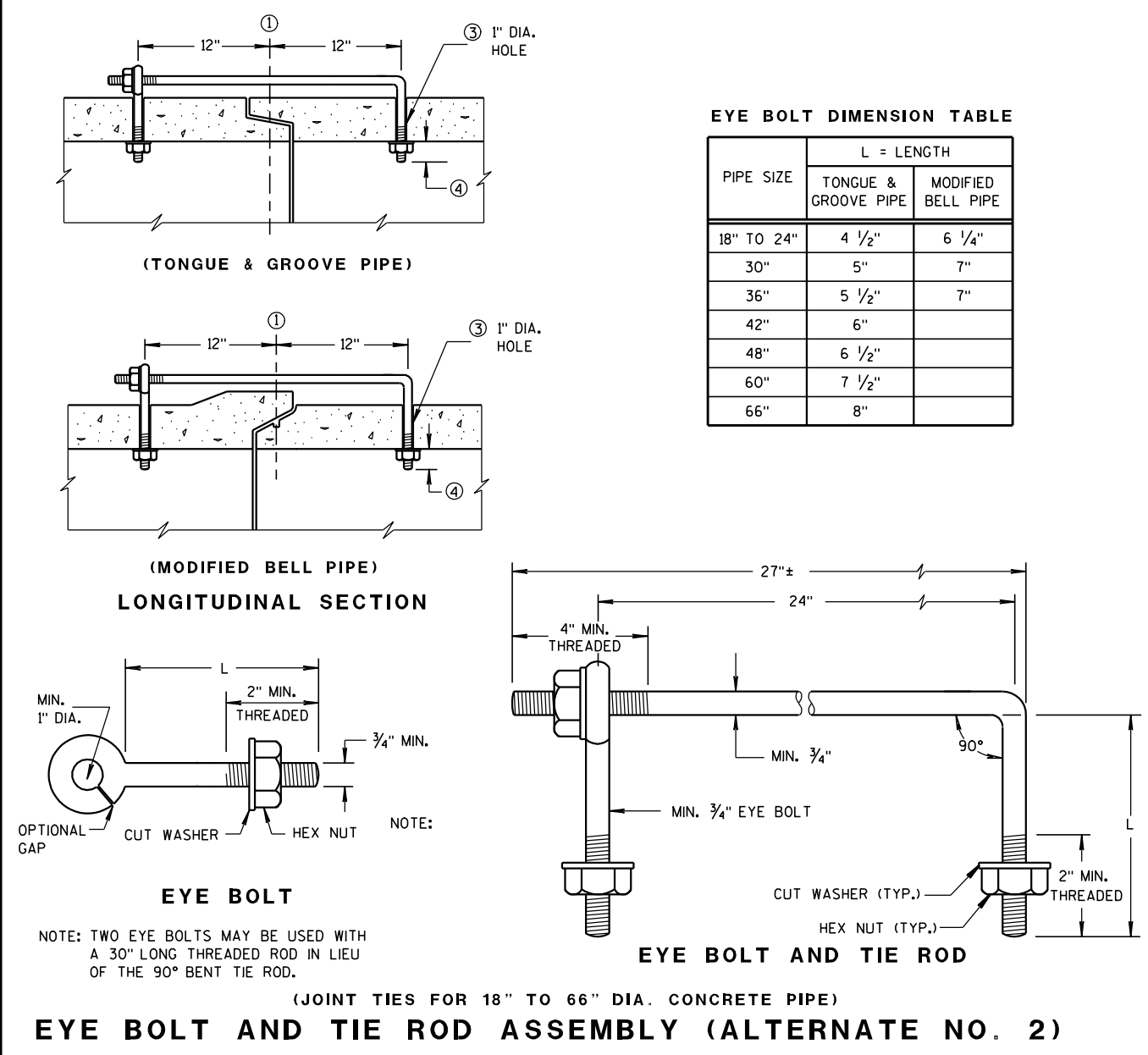
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

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

- ① ϕ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- ② THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- ③ HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12 INCHES FROM ϕ OF TONGUE AND GROOVE.
- ④ BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- ⑤ OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- ⑥ LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.



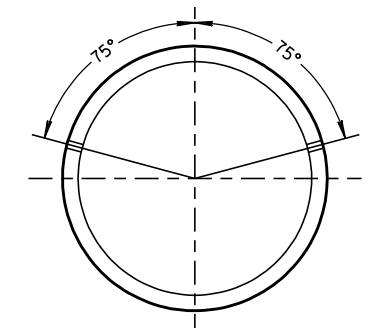
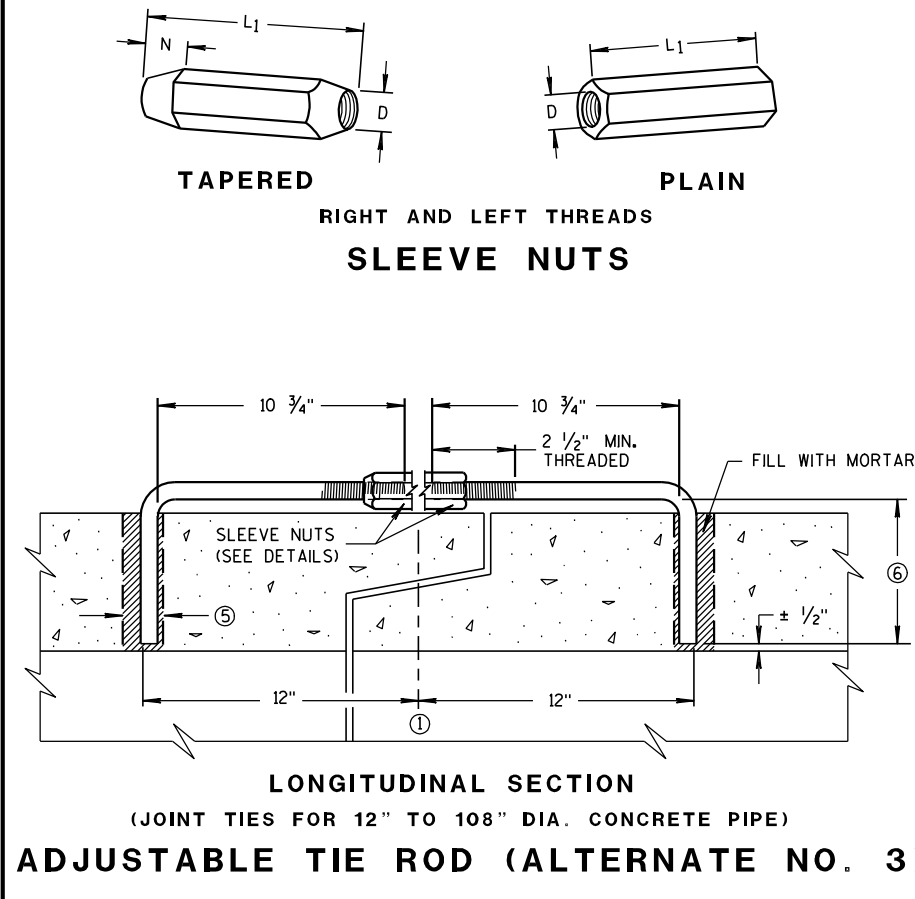
EYE BOLT DIMENSION TABLE

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

ADJUSTABLE TIE ROD TABLE

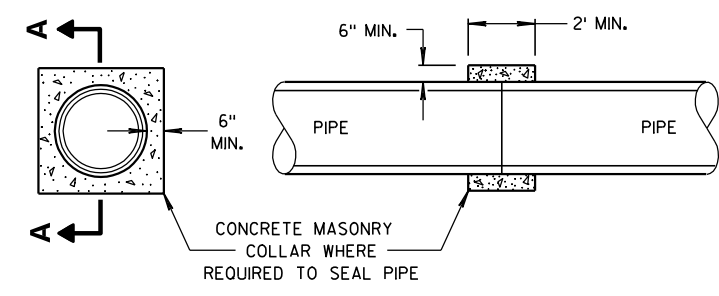
PIPE DIAMETER	TIE ROD DIAMETER	D	L ₁	N
12-60	5/8	5/8	5	1/2
66-84	3/4	3/4	5	1/2
90-108	1	1	7	1 1/16

DIMENSIONS SHOWN ARE IN INCHES



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

TRANSVERSE SECTION



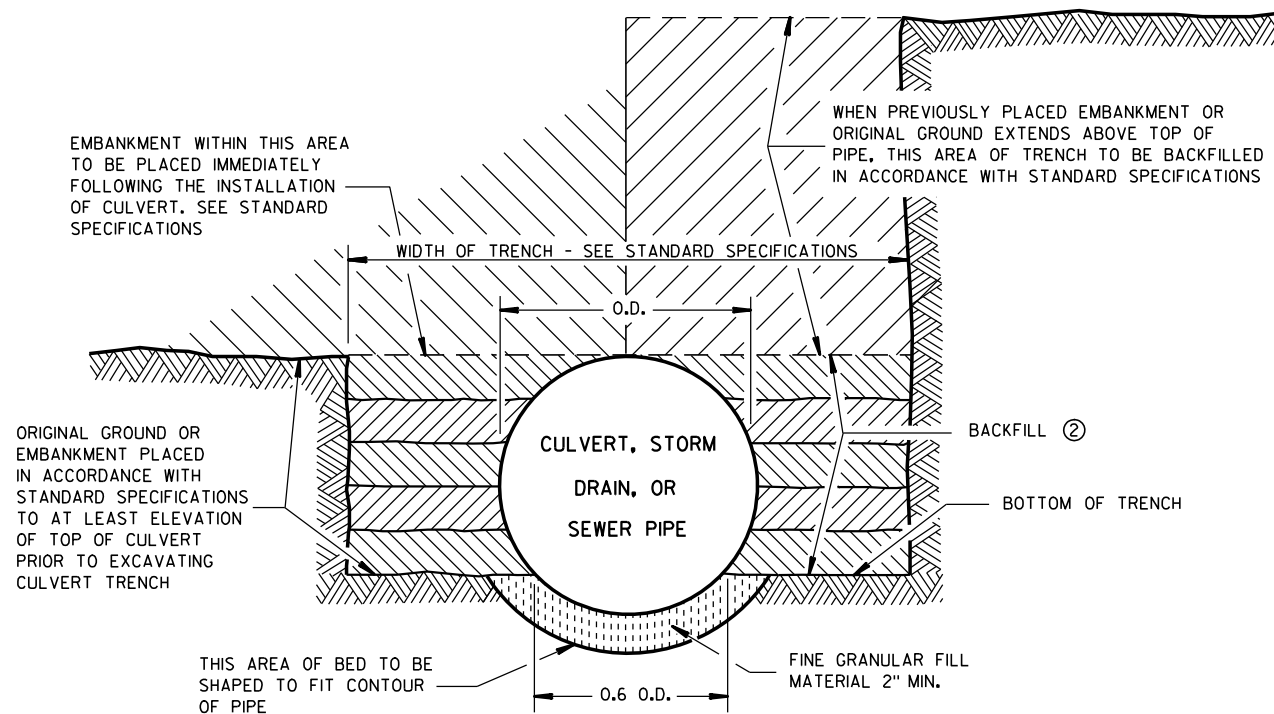
SECTION A-A

CONCRETE COLLAR DETAIL

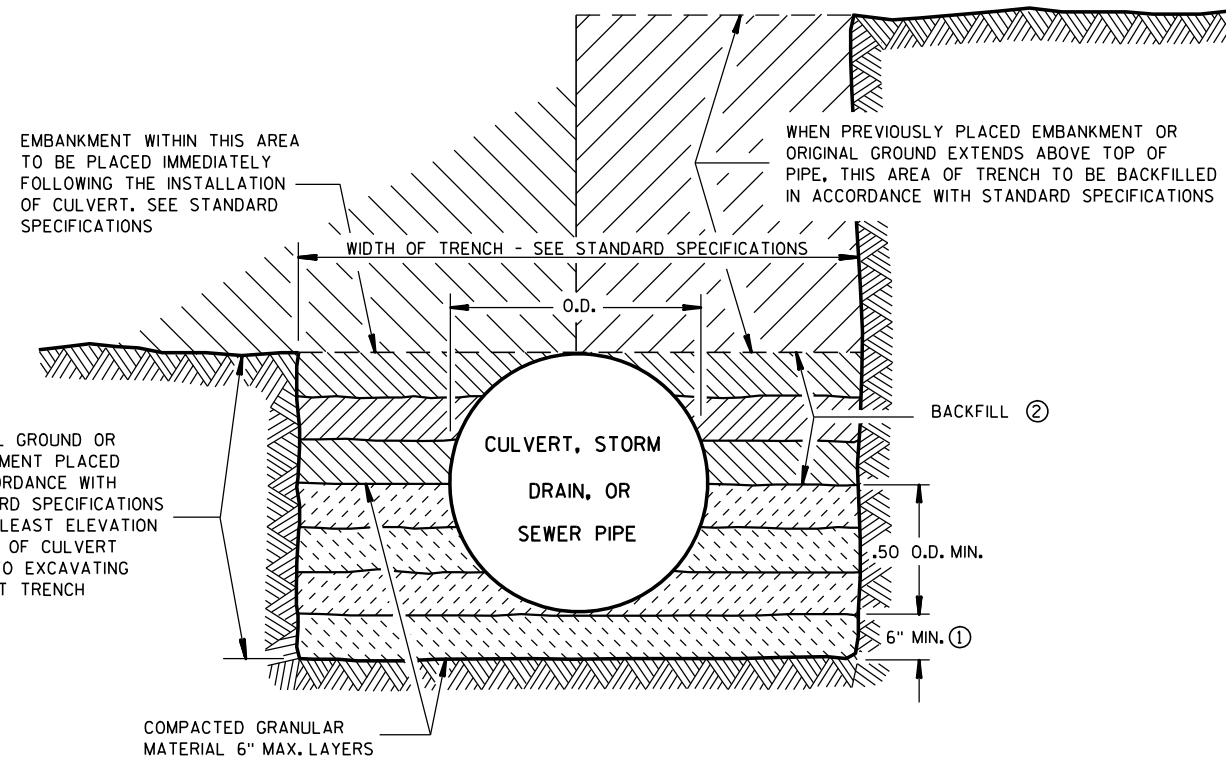
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



SHAPED SUBGRADE WITH GRANULAR FOUNDATION



GRANULAR FOUNDATION

GENERAL NOTES

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

THE SHAPED SUBGRADE WITH GRANULAR FOUNDATION IS AN EQUAL ALTERNATE TO THE GRANULAR FOUNDATION EXCEPT WHERE ROCK IS ENCOUNTERED.

- ① WHERE ROCK, HARD PAN OR FRAGMENTED MATERIAL IS ENCOUNTERED, THE TRENCH SHALL BE EXCAVATED BELOW THE BOTTOM OF THE PIPE AN AMOUNT EQUAL TO $\frac{1}{2}$ INCH PER FOOT OF PROPOSED EMBANKMENT ABOVE THE TOP OF THE PIPE, BUT NOT LESS THAN 6 INCHES.
- ② TRENCH SHALL BE BACKFILLED AS REQUIRED BY STANDARD SPECIFICATIONS; SECTION 520 FOR PIPE CULVERTS AND SECTION 607 FOR STORM SEWERS.

CLASS "B" BEDDING

CLASS "B" BEDDING FOR
CULVERT PIPE OR STORM SEWER

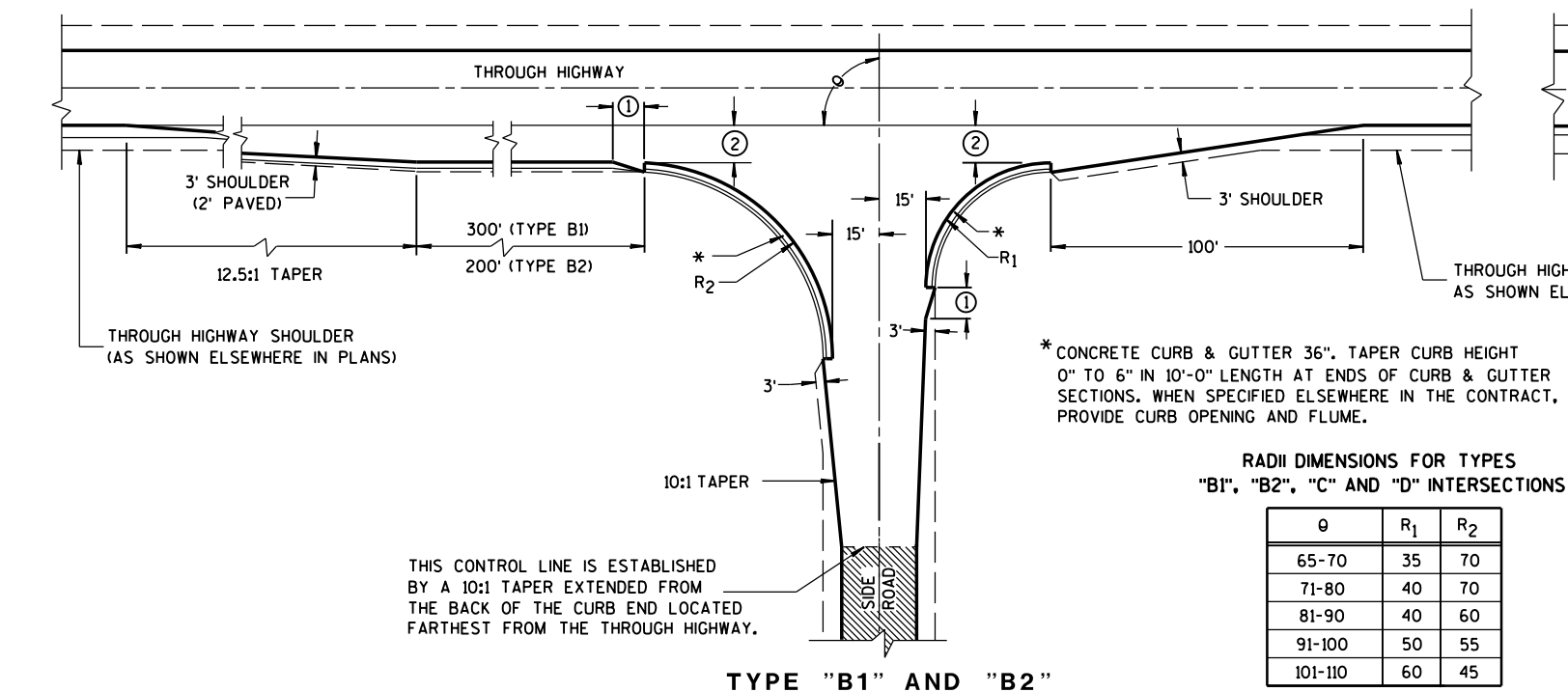
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

4/7/83
DATE

/S/ D.L. Strand
STATE DESIGN ENGINEER FOR HWYS

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.

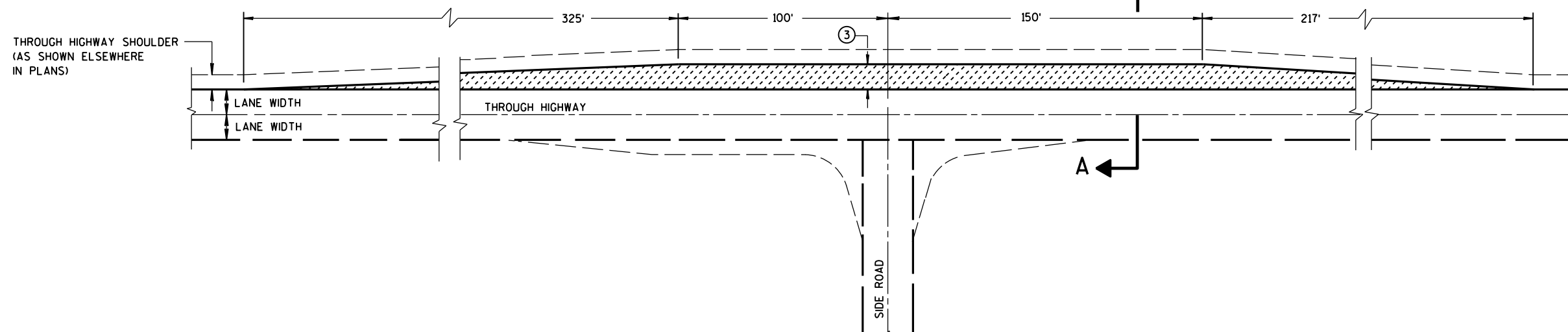
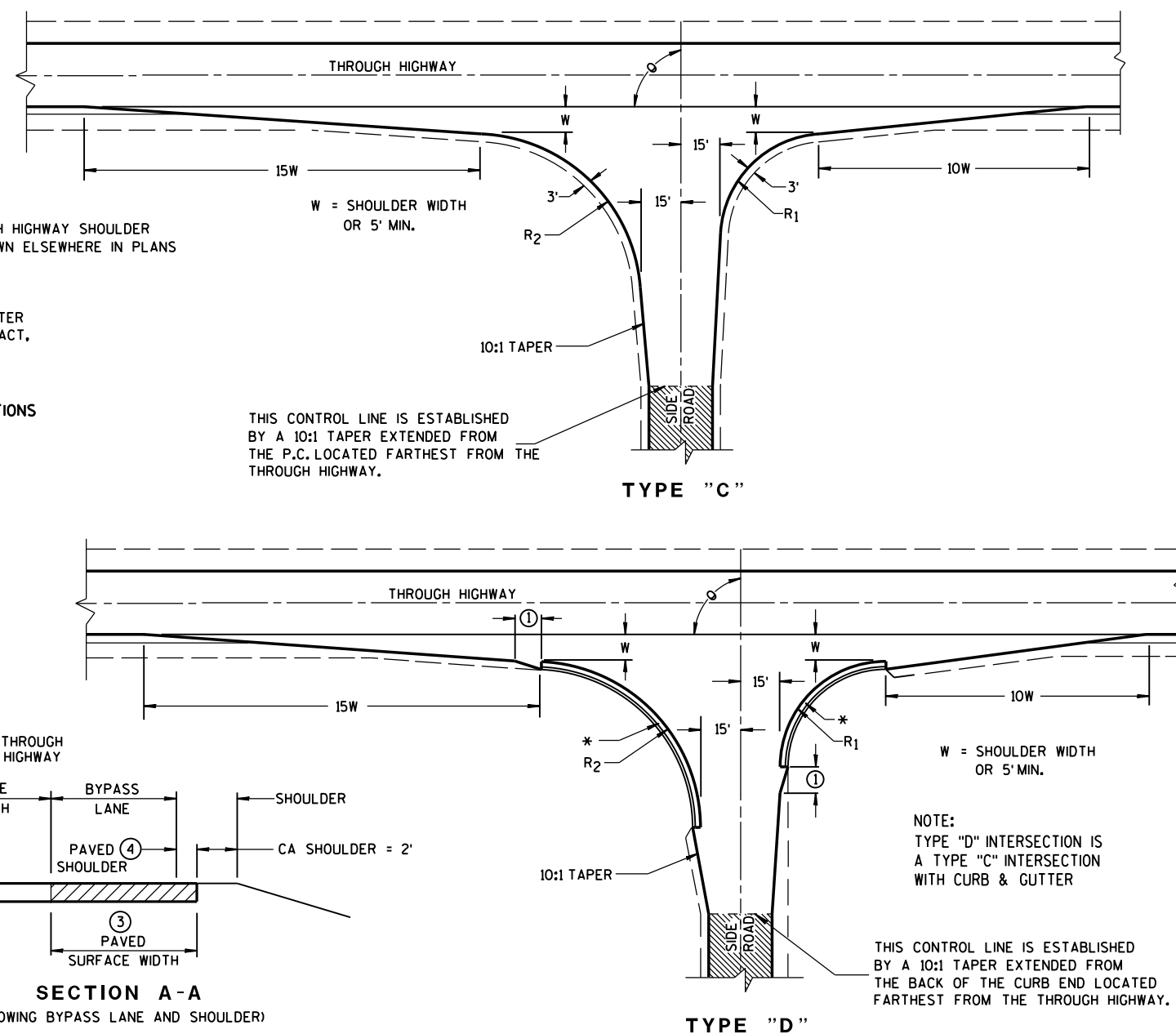
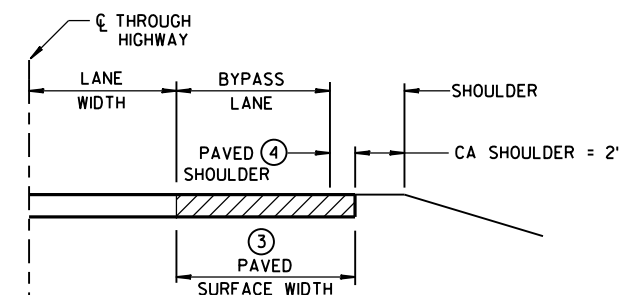
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

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

EXISTING PAVED SURFACE

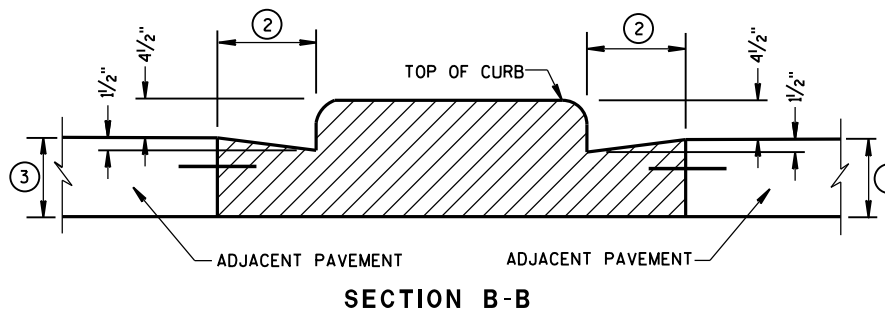
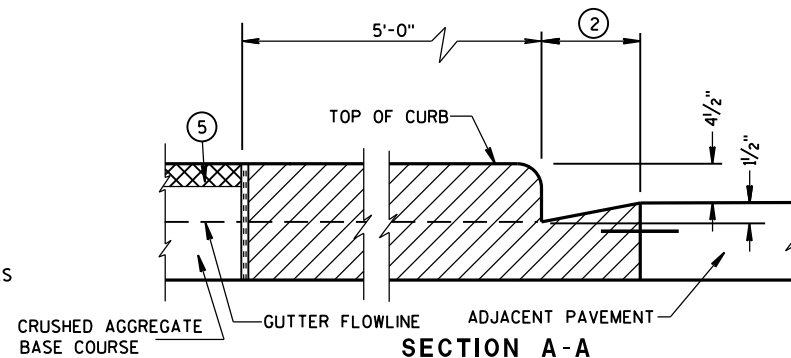
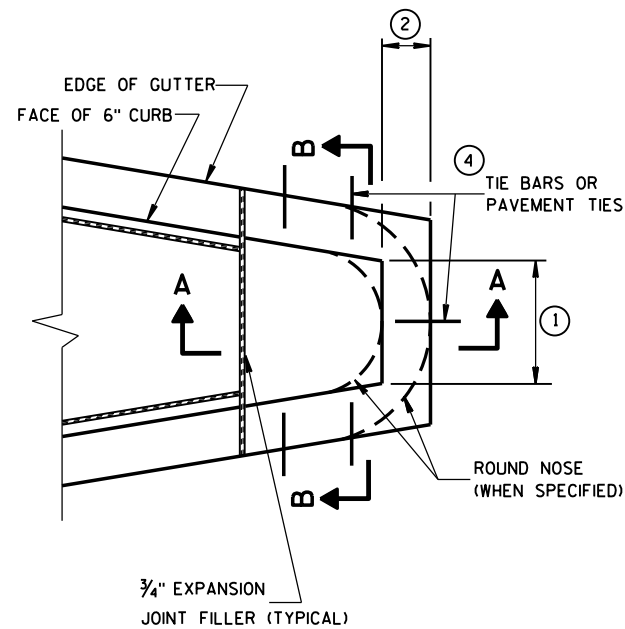
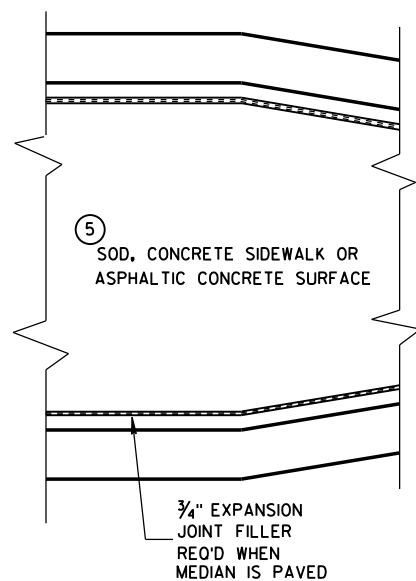
BYPASS LANE

- ① 10-FT TYPICAL.
- ② 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.
- **10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- ③ BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.
- ④ BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.

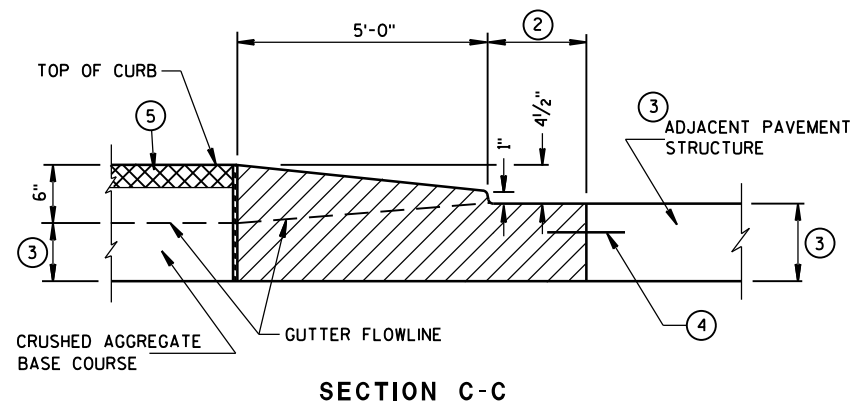
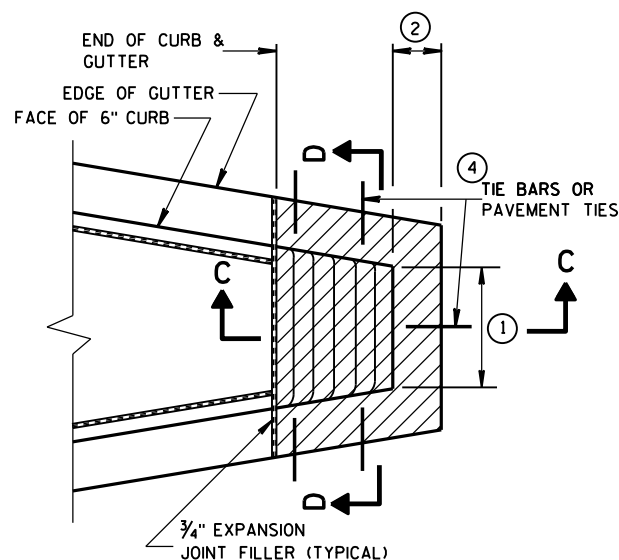
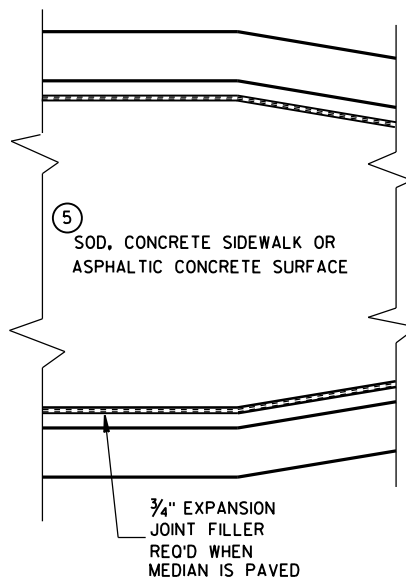


AT-GRADE SIDE ROAD
INTERSECTION, TYPES "B1", "B2",
"C" AND "D" AND TEE
INTERSECTION BYPASS LANE

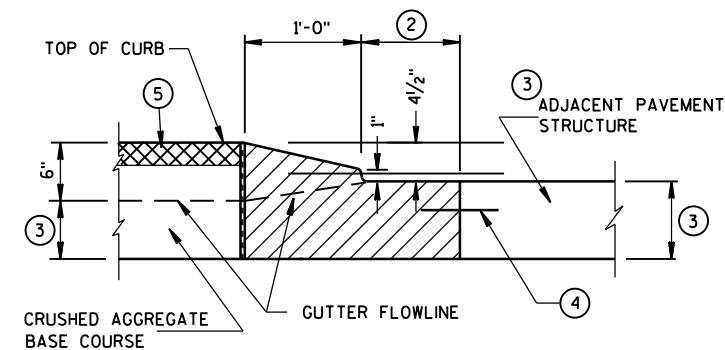
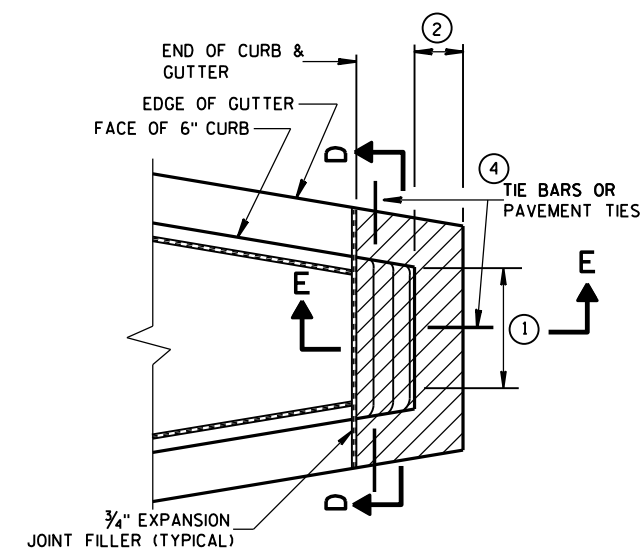
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



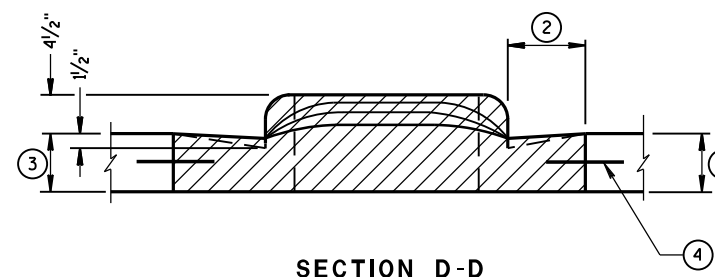
CONCRETE MEDIAN BLUNT NOSE DETAIL



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

6

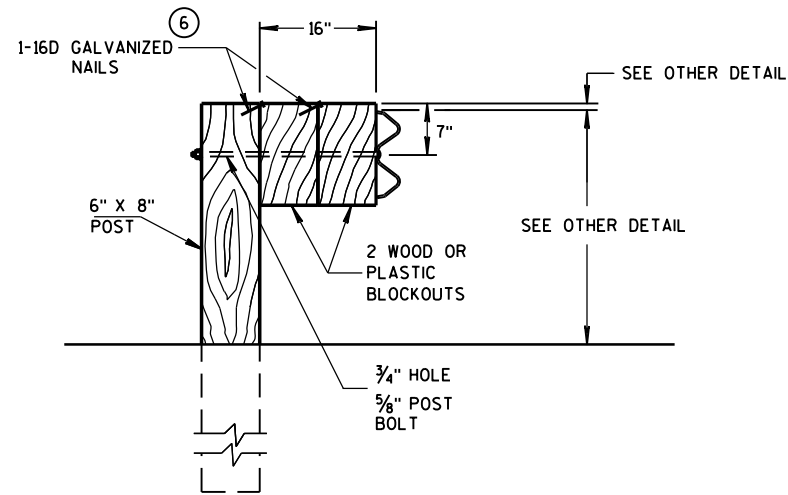
- S.D.D. 14 B 42-3a**



S.D.D. 14 B 42-3a

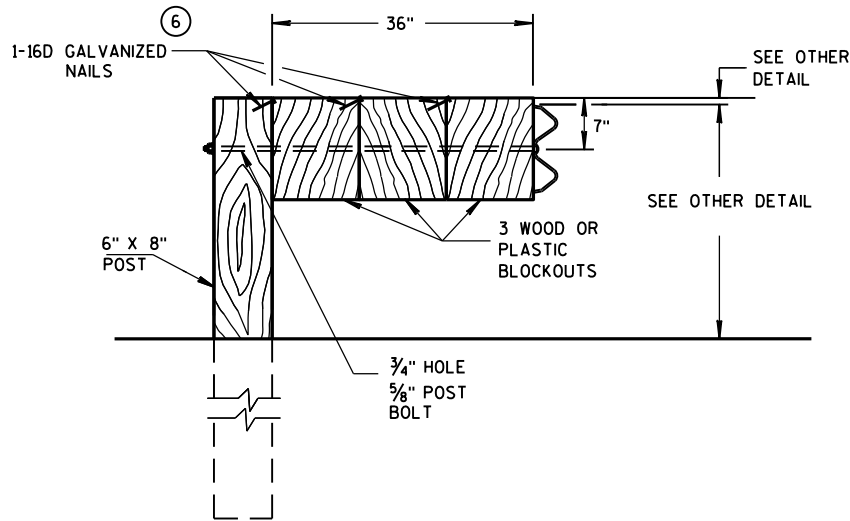


S.D.D. 14 B 42-3a



DETAIL FOR 16" BLOCKOUT DEPTH

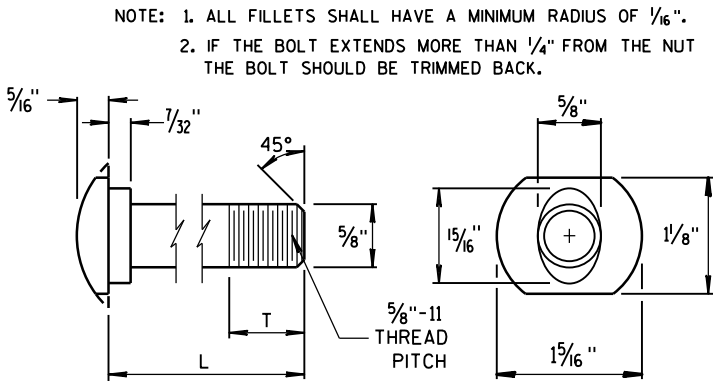
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.



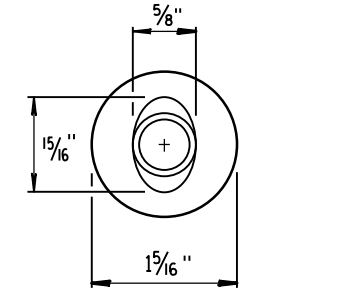
DETAIL FOR 36" BLOCKOUT DEPTH

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.

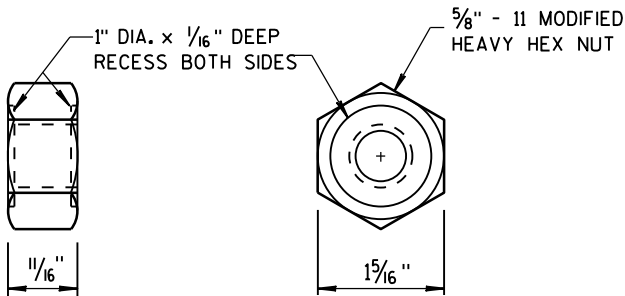
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



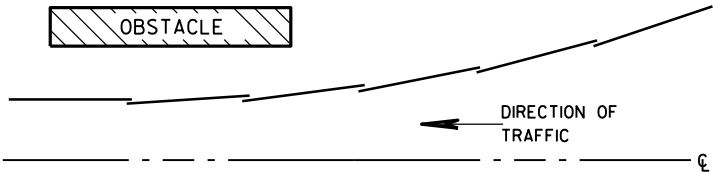
POST BOLT TABLE



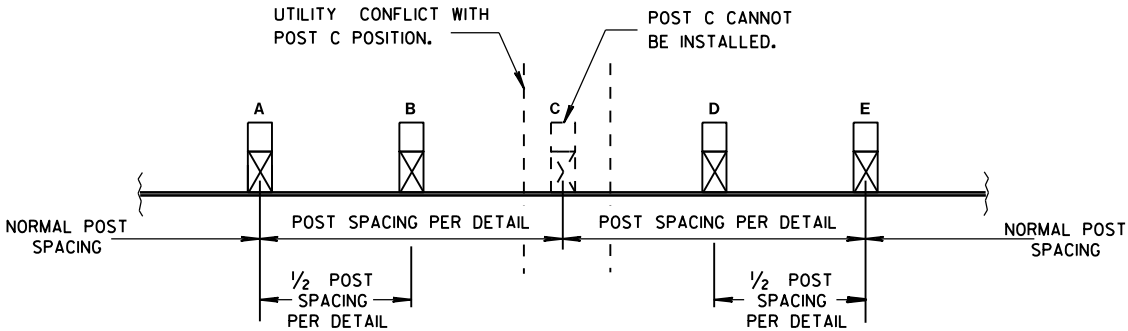
ALTERNATE BOLT HEAD



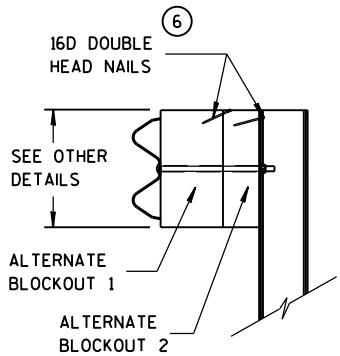
POST BOLT AND RECESS NUT



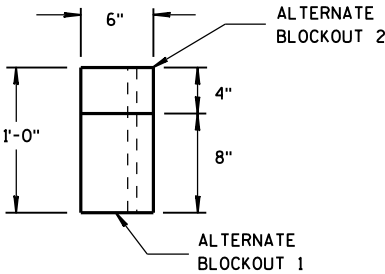
PLAN VIEW
BEAM LAPPING DETAIL



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
June 2014
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (C) DIFFERENT MANUFACTURES REQUIRE DIFFERENT PERFORATED W-BEAM RAIL END PANELS. SEE MANUFACTURES INFORMATION.
- (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) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.
- (G) 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.

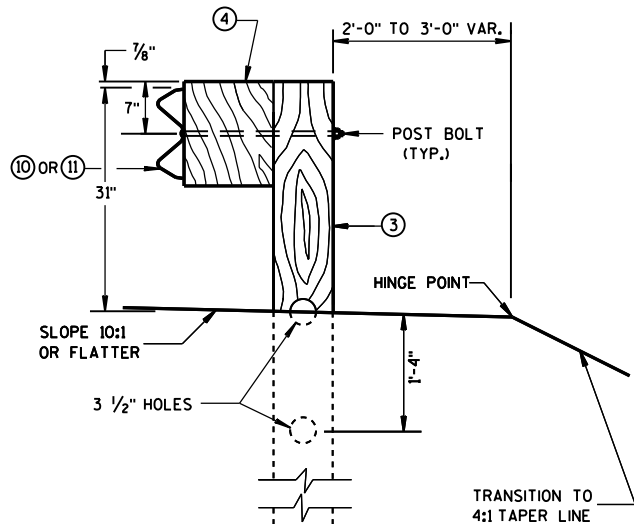
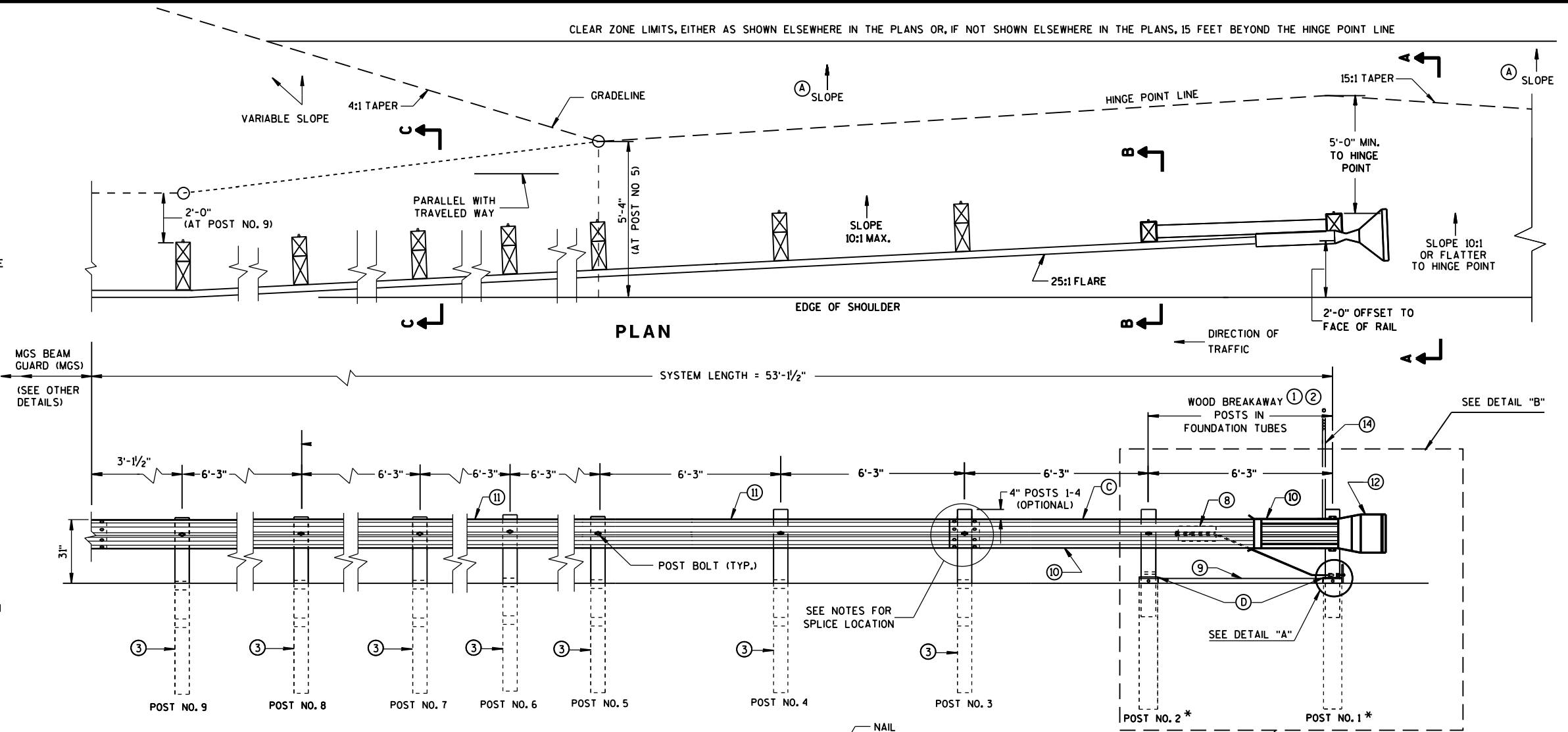
SEE SDD 14B42 FOR MORE INFORMATION.

* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

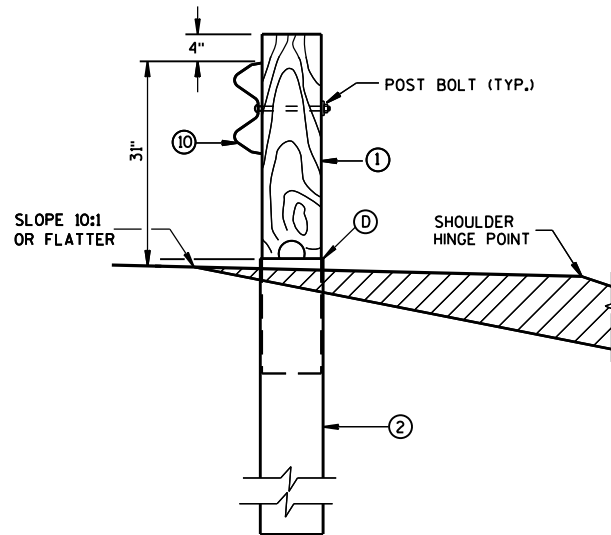
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

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.

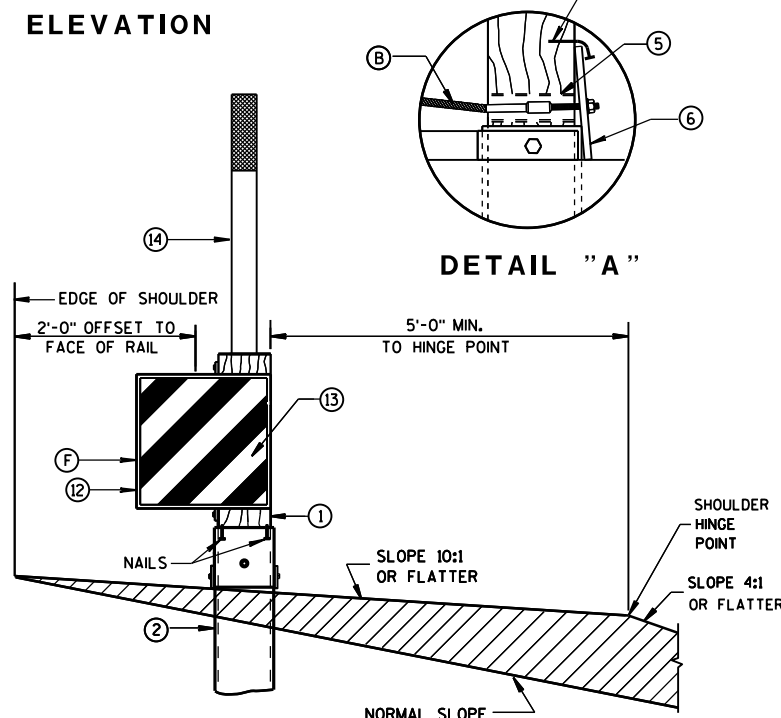
THE CENTER OF THE UPPER 3/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE.



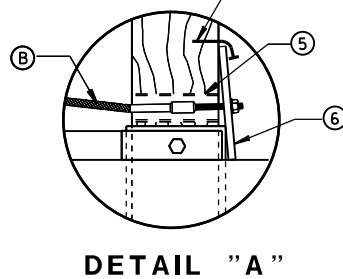
SECTION C-C
TYPICAL AT POST NOS. 3-9



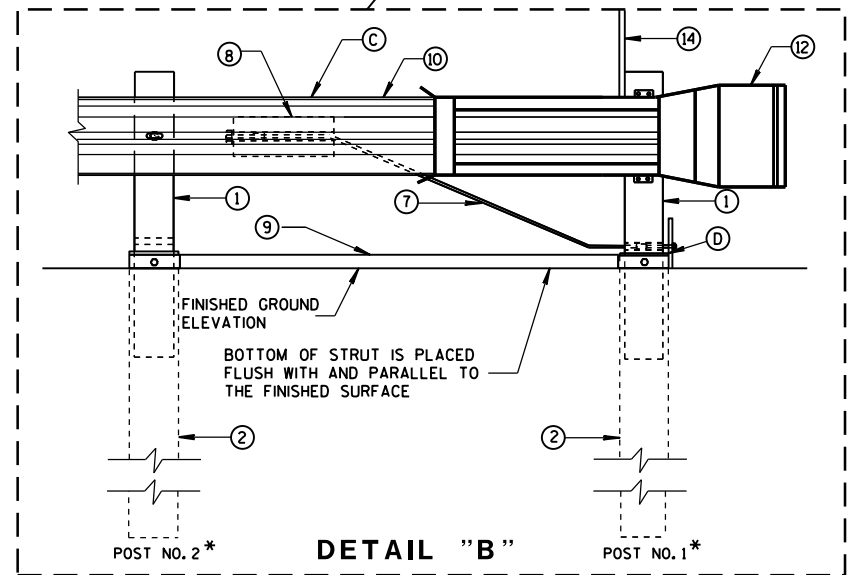
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



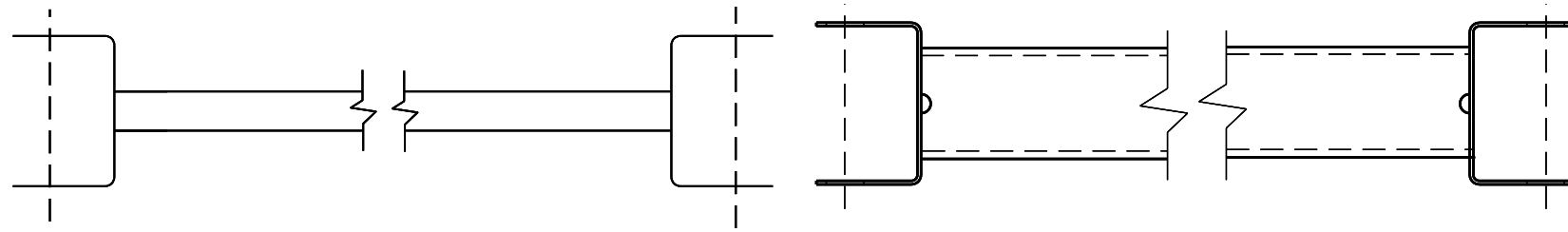
DETAIL "A"



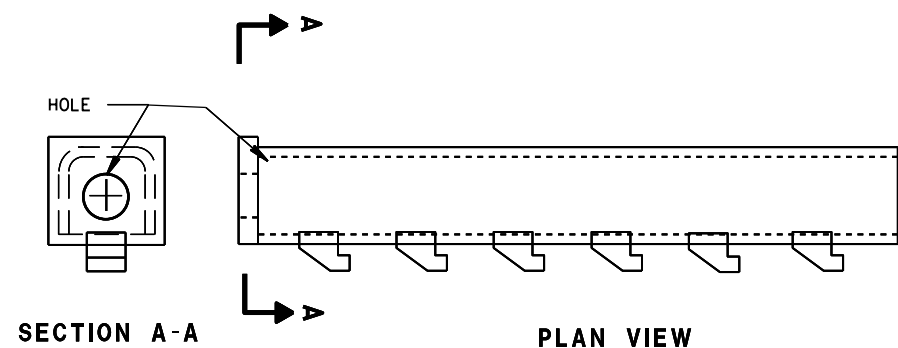
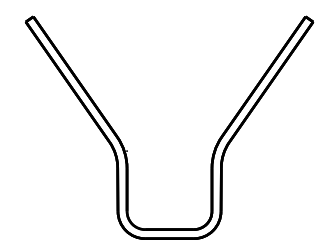
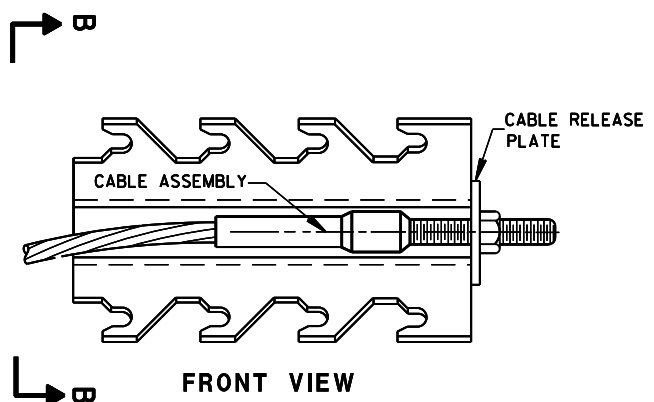
DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



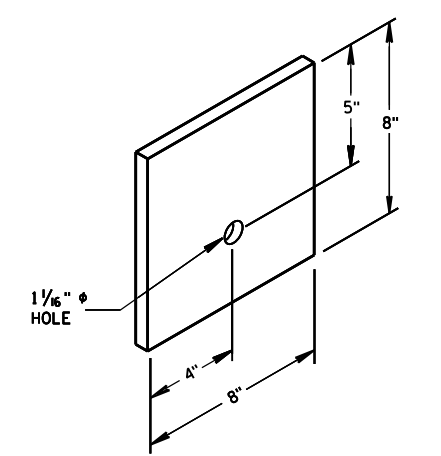
9 H
GENERIC GROUND STRUT



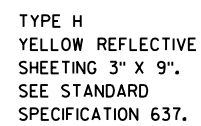
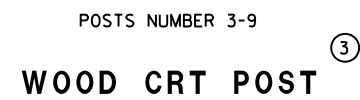
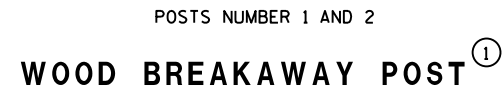
8 H
GENERIC ANCHOR CABLE BOX

BILL OF MATERIALS

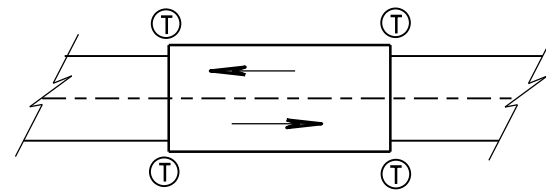
PART NO.	DESCRIPTION
MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.	
①	WOOD BREAKAWAY POST
②	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND 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 F PER SECTION 637 OF THE STANDARD SPECIFICATIONS
⑭	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



⑥
BEARING PLATE

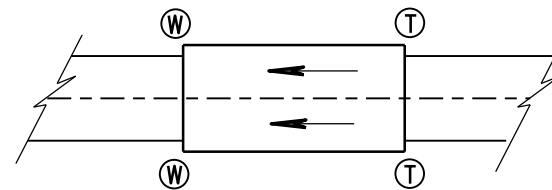


<p>MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)</p>	
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>	
<p>APPROVED June 2014</p>	<p>/S/ Jerry H. Zogg</p>
<p>DATE</p>	<p>ROADWAY STANDARDS DEVELOPMENT ENGINEER</p>
<p>FHWA</p>	



TWO WAY TRAFFIC

Ⓣ THRIE BEAM CONNECTION



ONE WAY TRAFFIC

Ⓦ W-BEAM CONNECTION WHEN REQUIRED

GENERAL NOTES

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

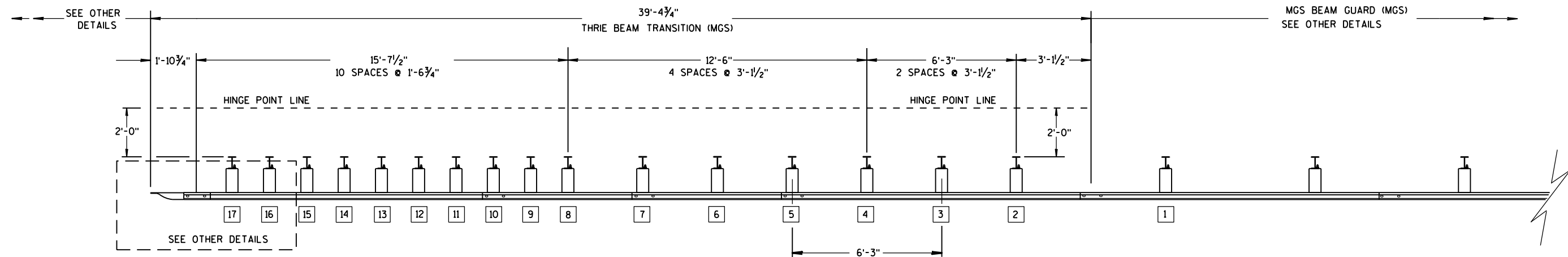
TRANSITION USES STEEL POSTS ONLY.

SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

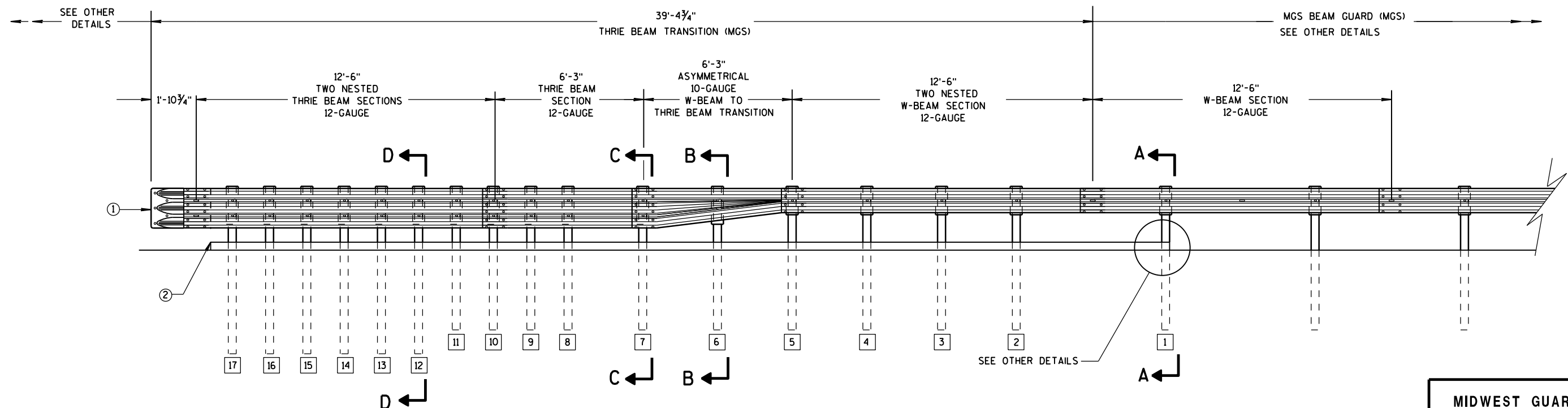
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

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



PLAN VIEW



ELEVATION VIEW

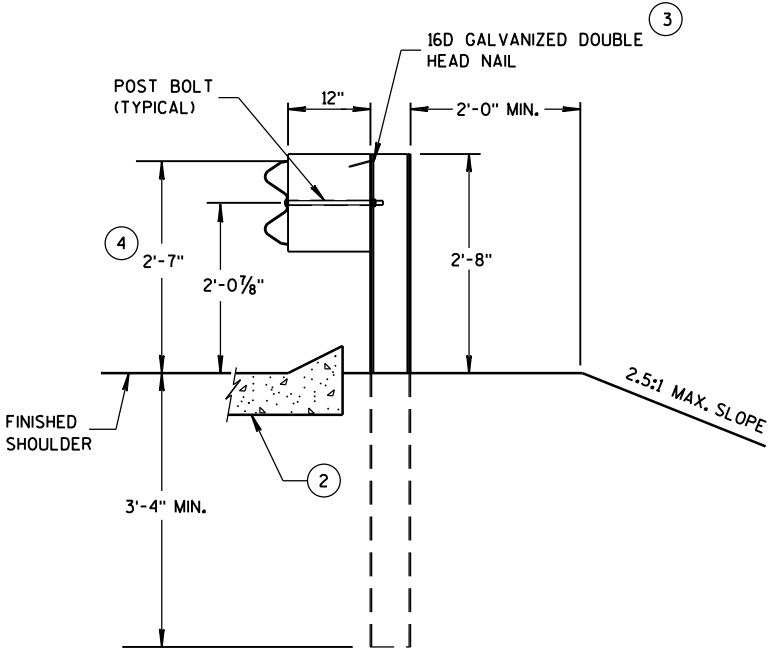
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

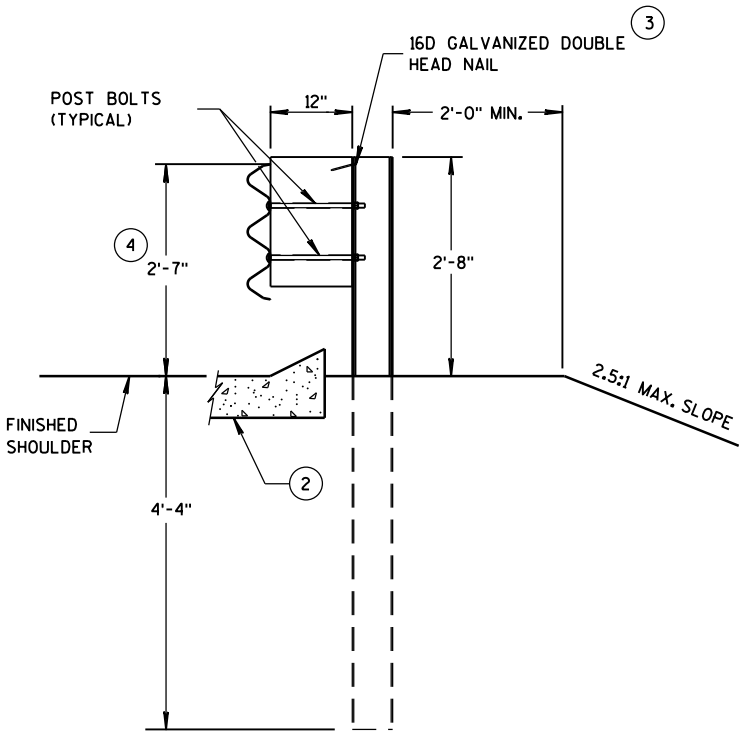
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

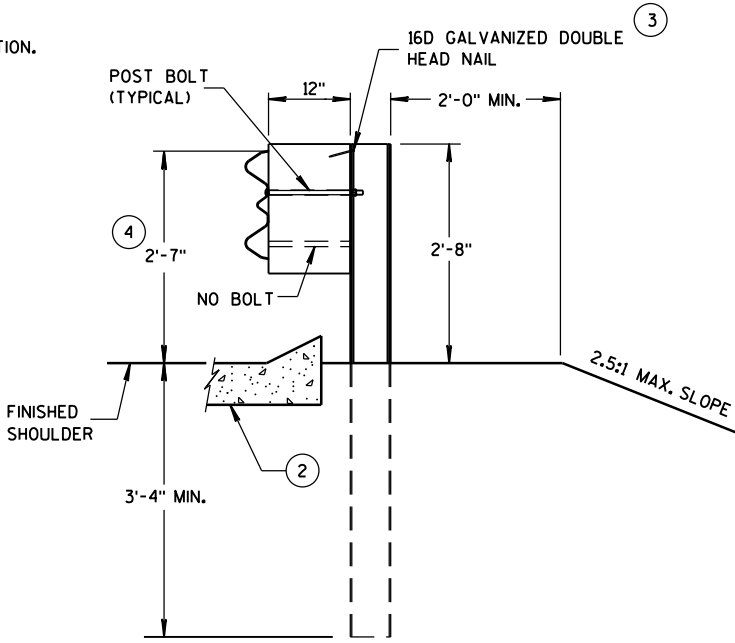
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



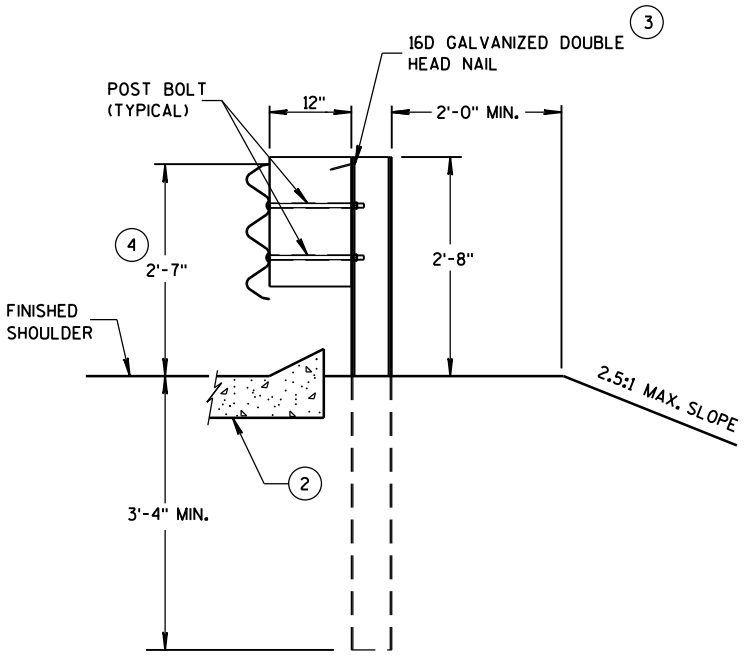
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

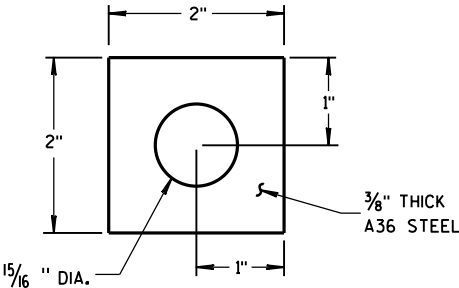
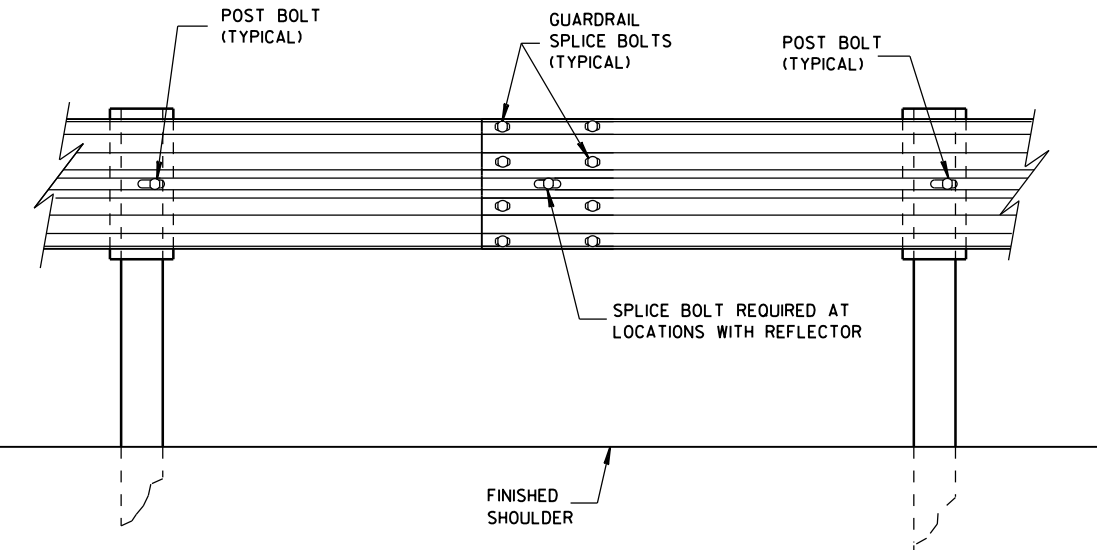
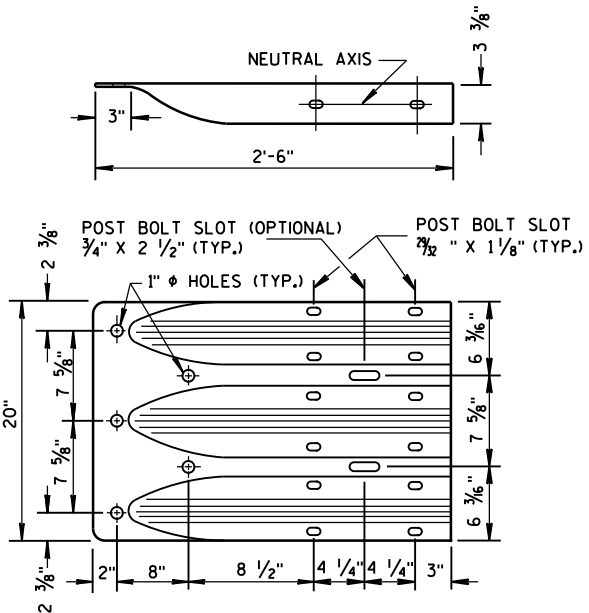


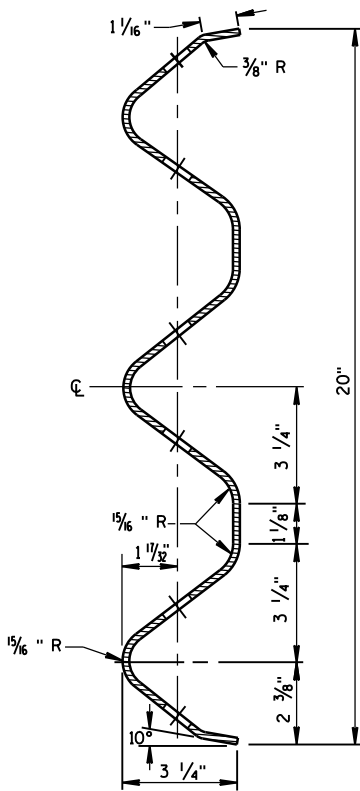
PLATE WASHER DETAIL



SPLICE DETAIL



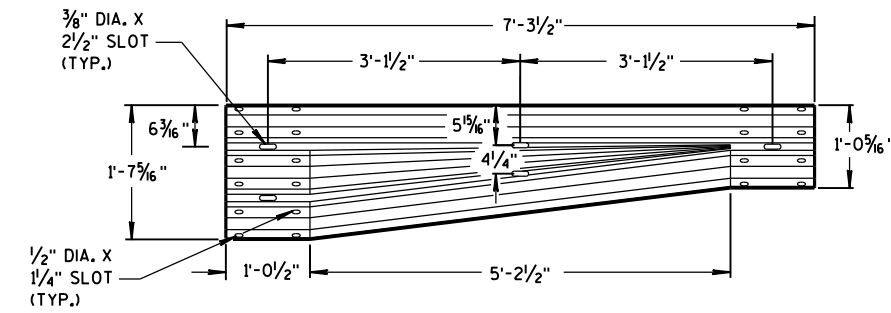
THRIE BEAM
TERMINAL CONNECTOR



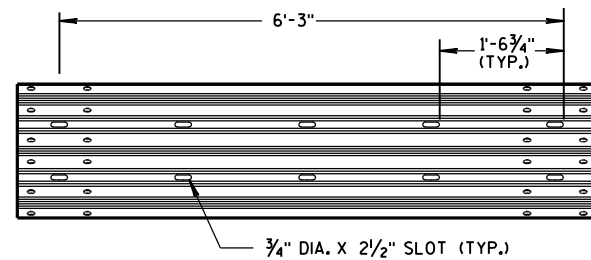
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

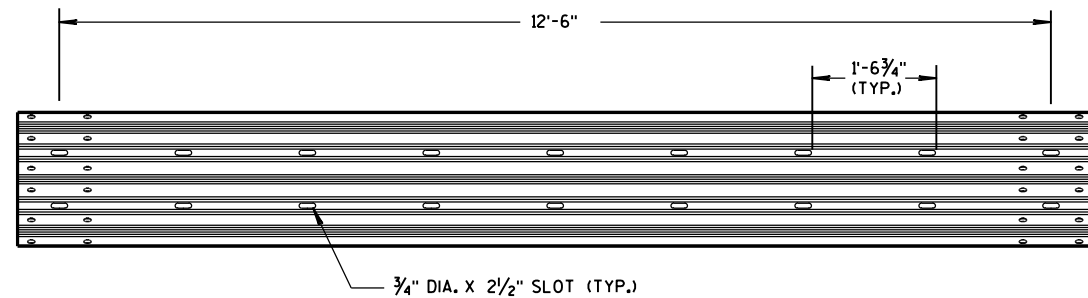
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



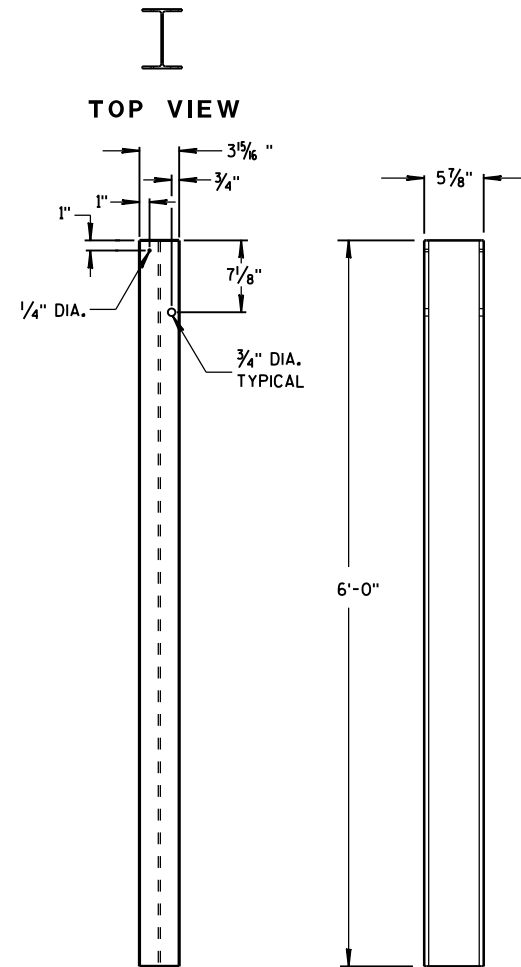
W-BEAM TO THRIE BEAM TRANSITION SECTION



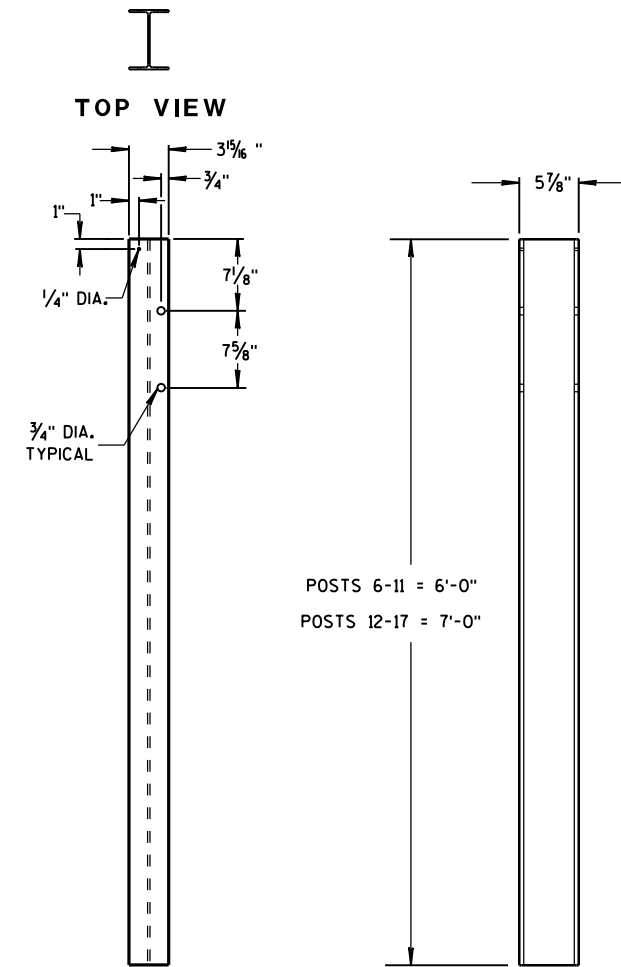
6'-3" THRIE BEAM SECTION



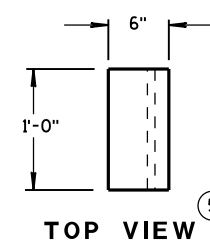
12'-6" THRIE BEAM SECTION



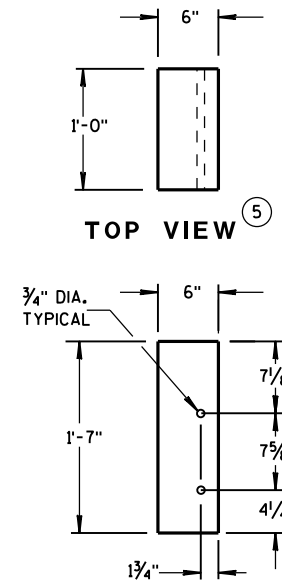
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



BLOCKOUT POSTS 6-17

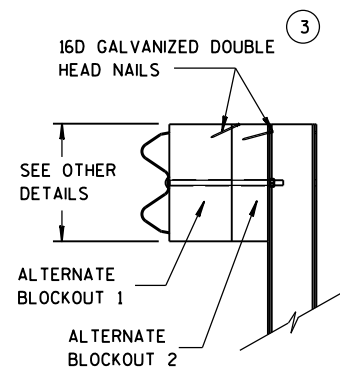
GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

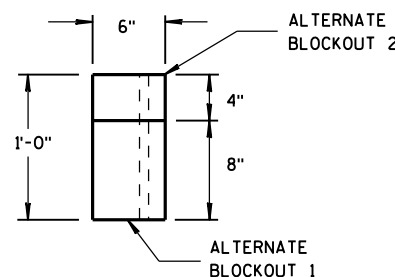
BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.

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

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



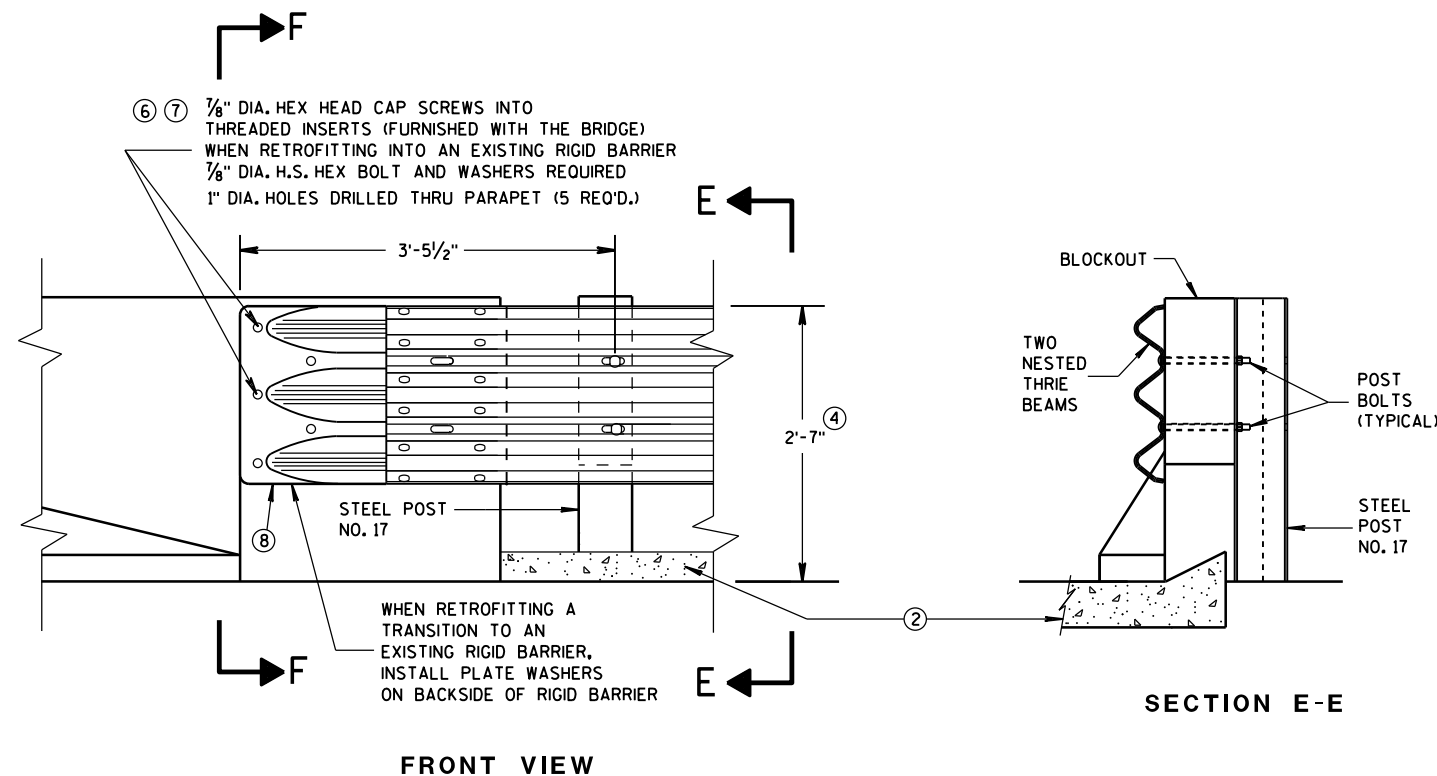
ALTERNATE WOOD BLOCKOUT DETAIL



TOP VIEW

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

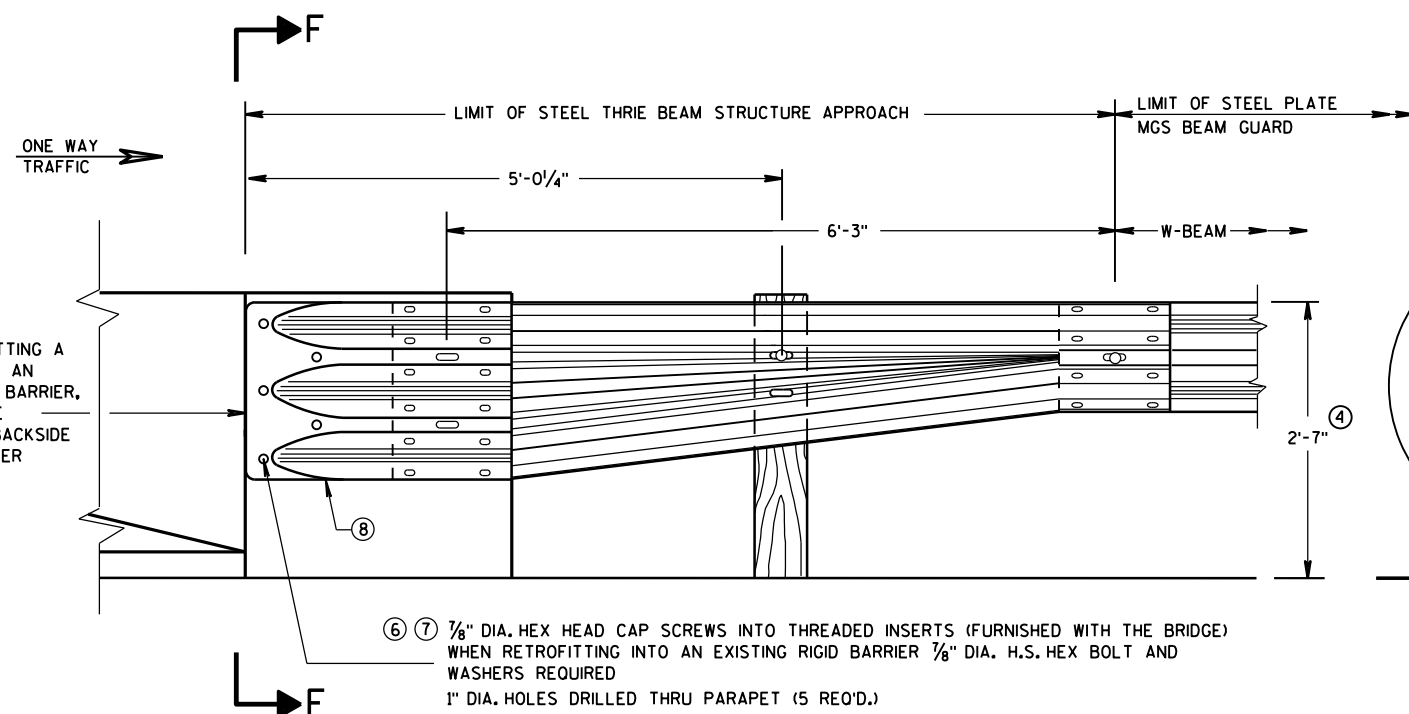
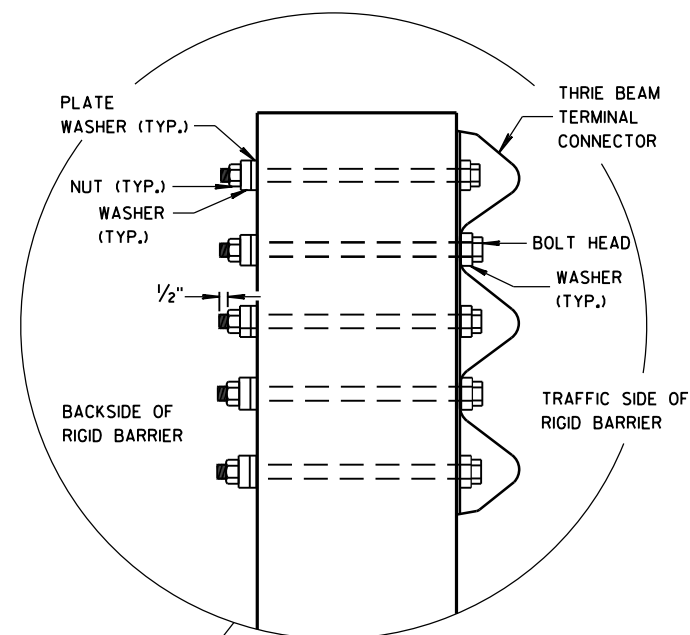
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



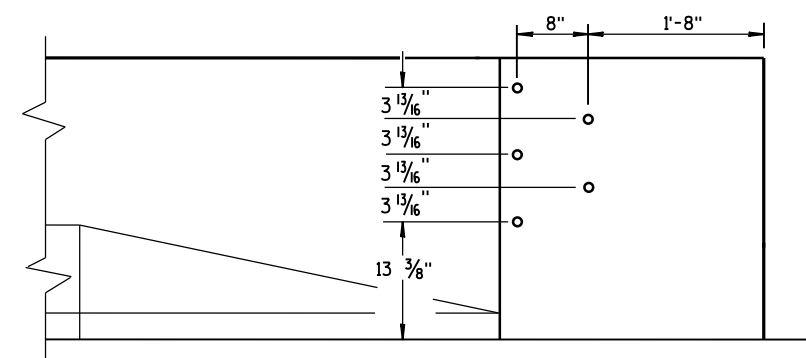
GENERAL NOTES

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

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



SECTION F-F



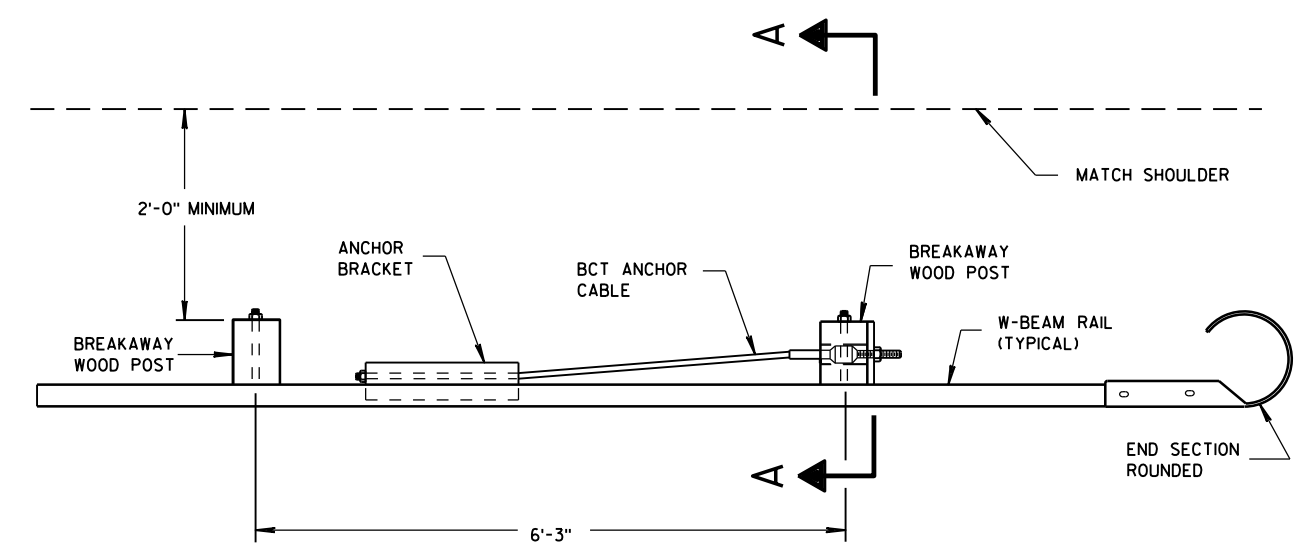
DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

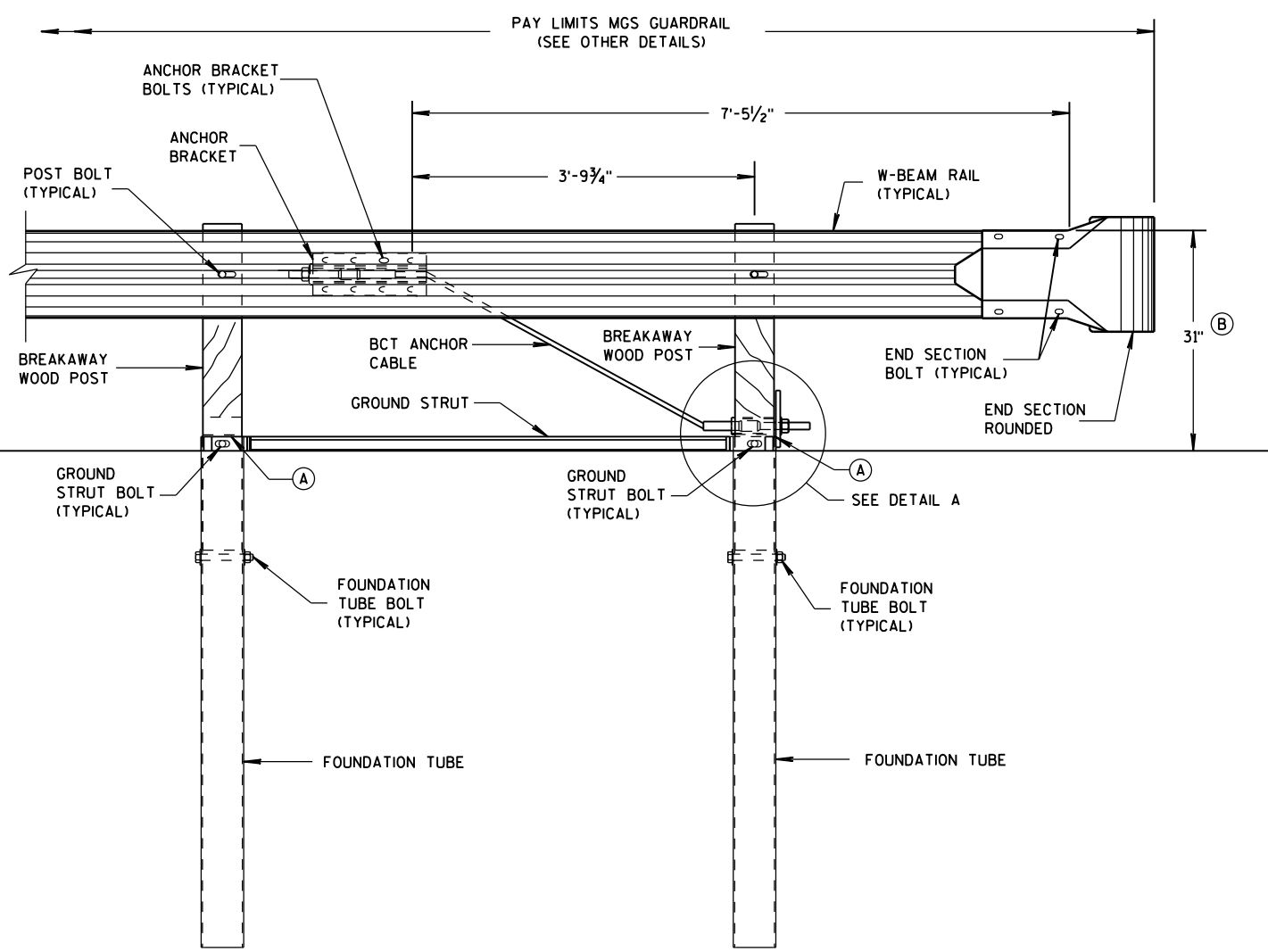
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

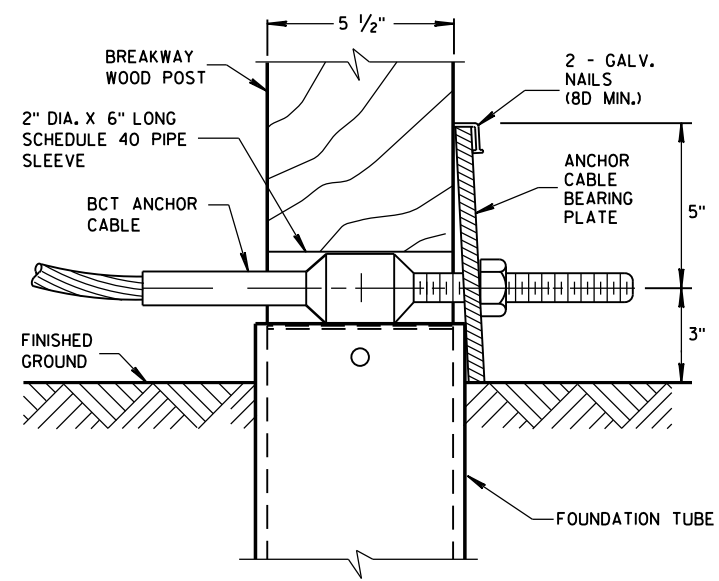


PLAN VIEW



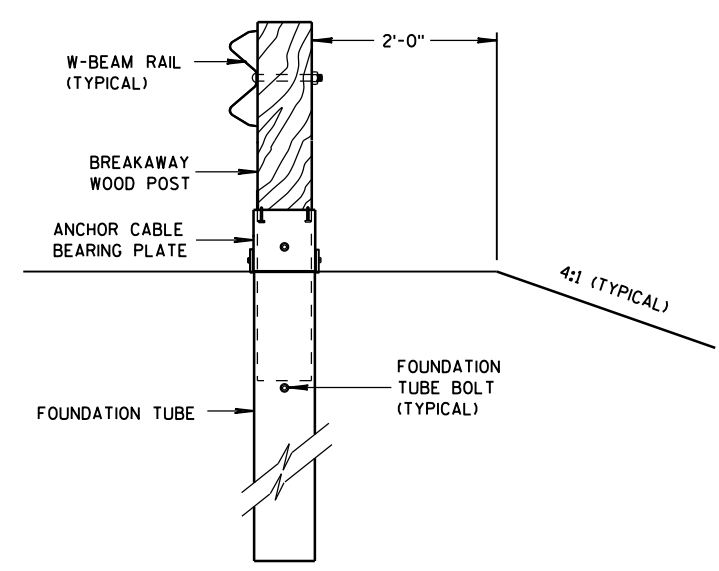
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1
GROUND STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

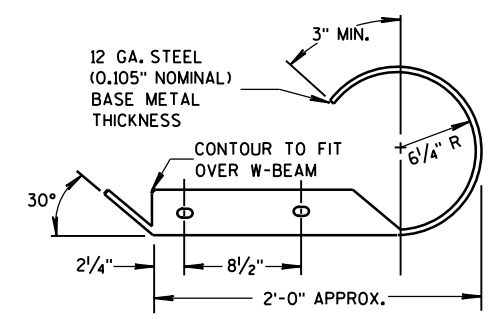
END SECTION BOLTS AND NUTS HAVE THE SAME MATERIAL REQUIREMENTS AS SPLICE BOLTS.

FOUNDATION TUBE BOLTS ARE 7/8" DIAMETER ASTM A307 HEX HEAD BOLT. FOUNDATION TUBE BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 7/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

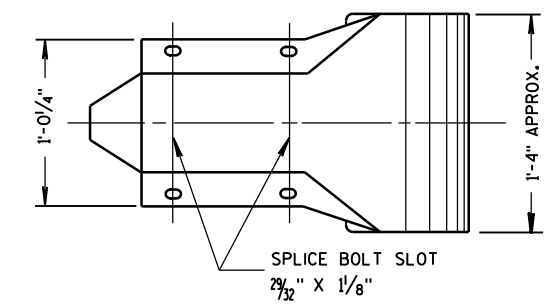
ANCHOR BRACKET AND GROUND STRUT BOLTS ARE A 5/8" DIAMETER ASTM A307 HEX HEAD BOLT. ANCHOR BRACKET BOLTS REQUIRE ASTM A563 A NUT AND TWO ASTM F844 5/8" DIAMETER FLAT WASHERS. INSTALL ONE WASHER UNDER BOLT HEAD AND ONE WASHER UNDER NUT.

W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

- (A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.
- (B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27 3/4" TO 32" ± 1".



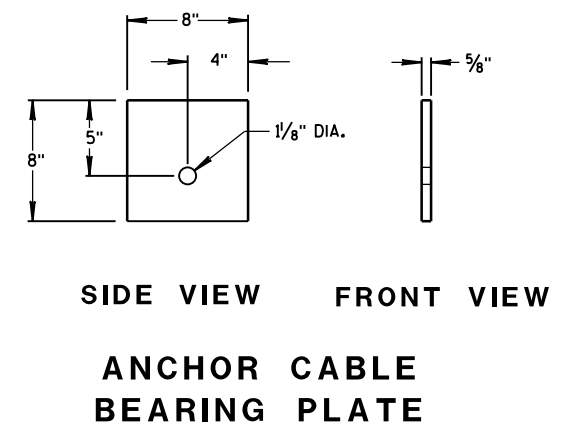
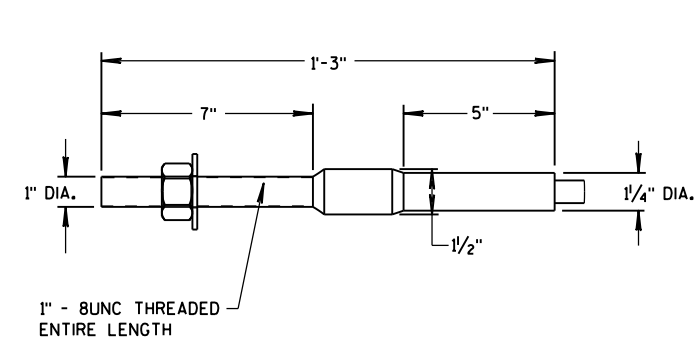
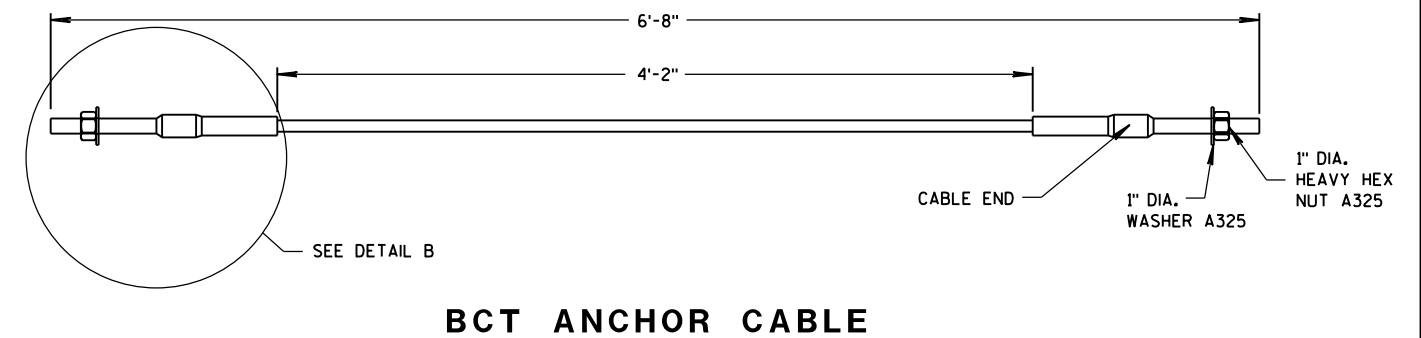
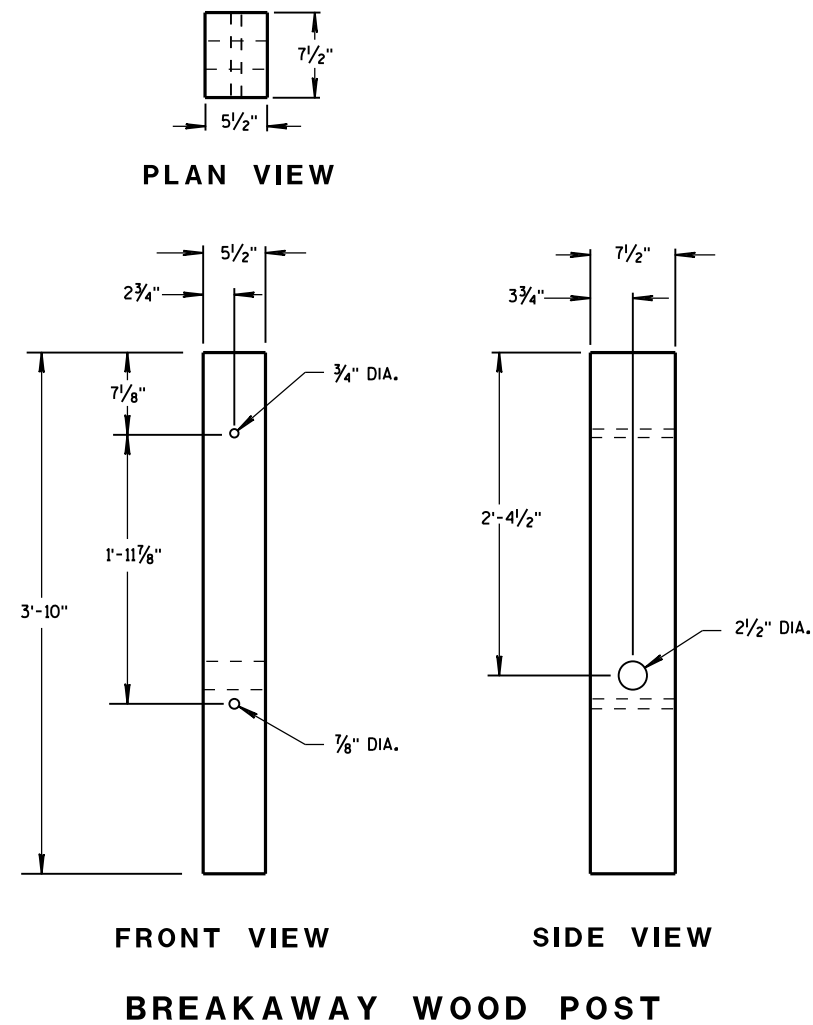
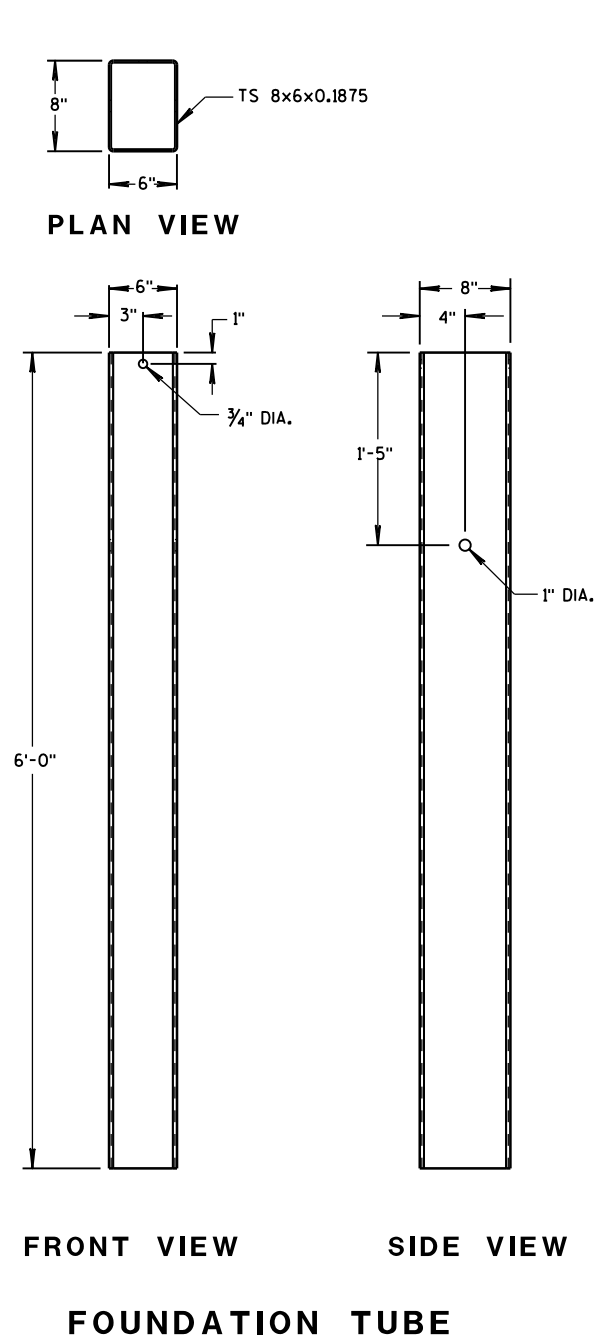
PLAN VIEW



FRONT VIEW

W BEAM END
SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

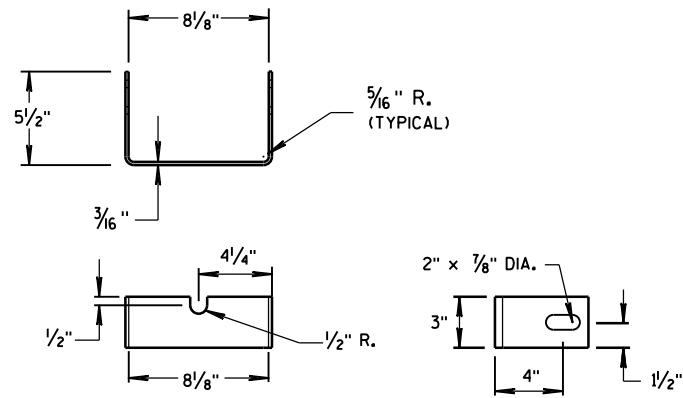


GENERAL NOTES

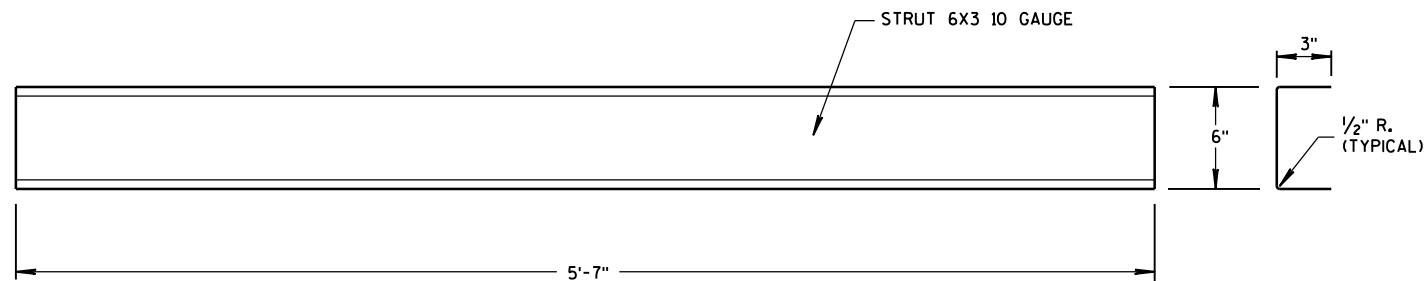
BCT ANCHOR CABLE IS A 3/4" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. TREADED STUD SHALL CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

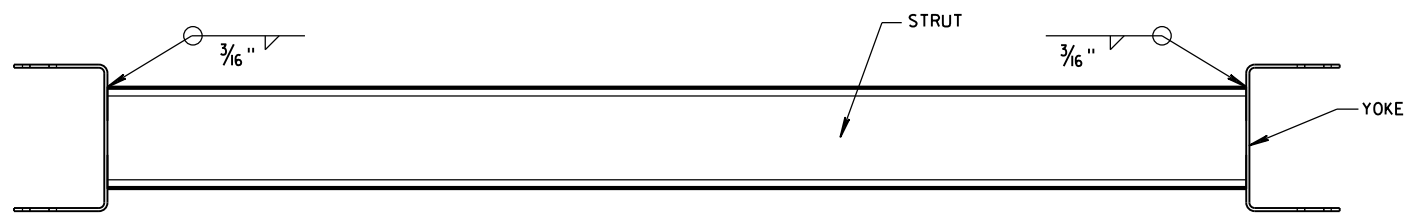
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



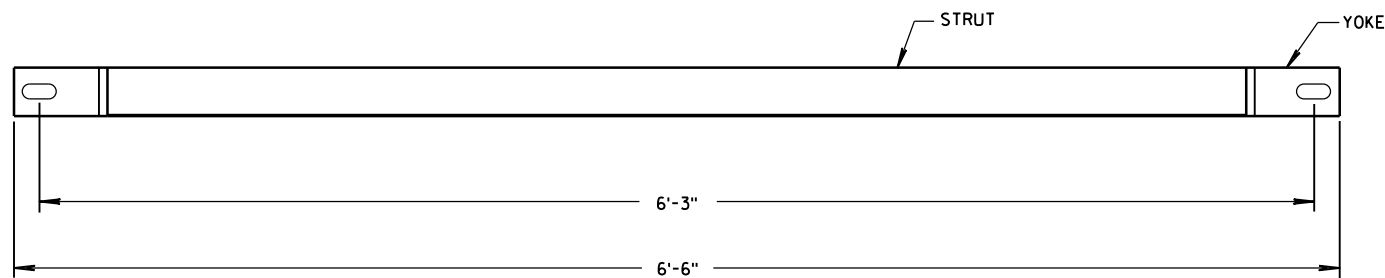
YOKE DETAIL



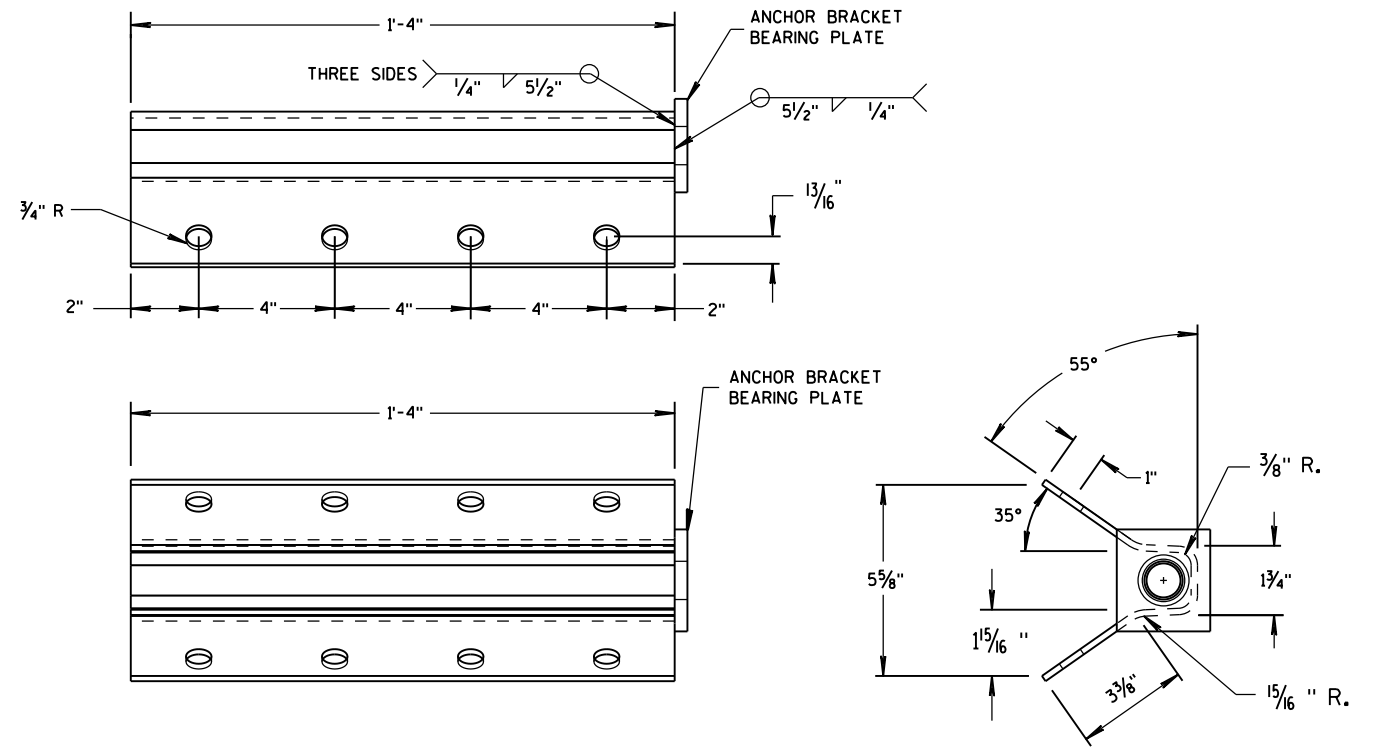
STRUT DETAIL



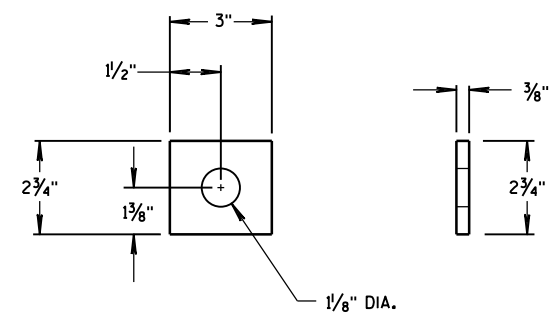
PLAN VIEW



FRONT VIEW
GROUND STRUT DETAIL

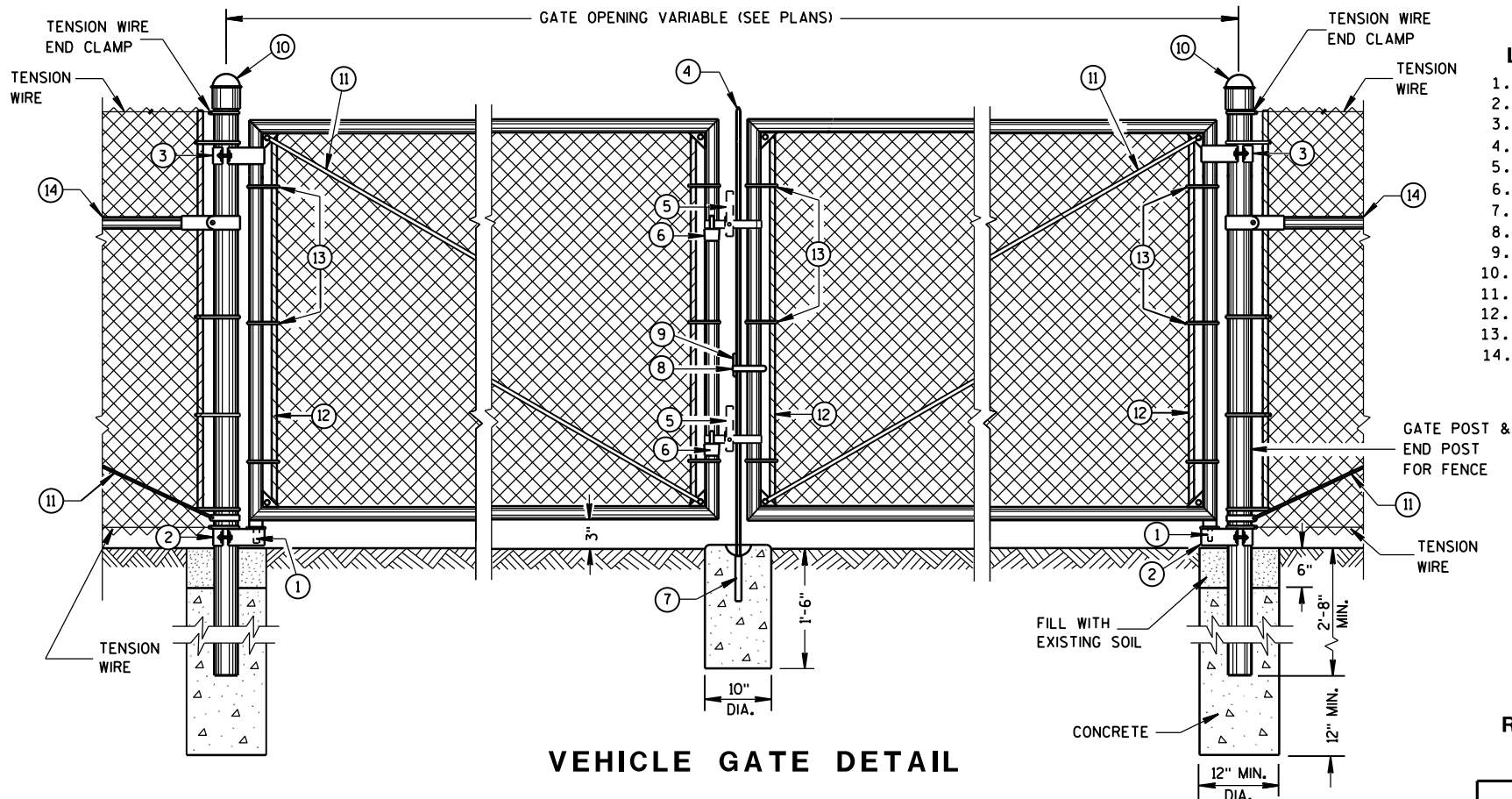


ANCHOR BRACKET

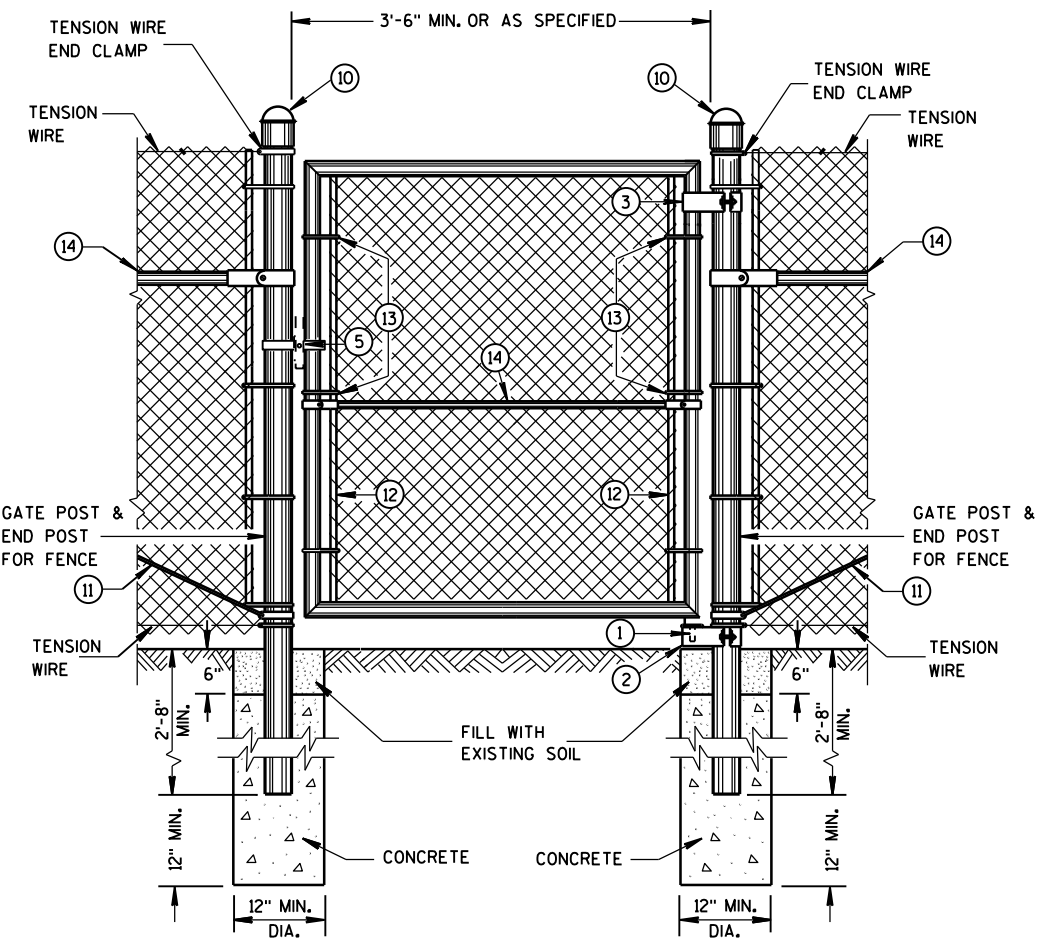


ANCHOR BRACKET
BEARING PLATE

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2014 DATE	/S/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



VEHICLE GATE DETAIL



PEDESTRIAN GATE DETAIL

REQUIRED FENCE POST SIZES

USE	FABRIC HEIGHTS FEET	POST TYPE
TERMINAL POSTS **	LESS THAN OR EQUAL TO 6 FT.	SP3
	GREATER THAN OR EQUAL TO 6 FT.	SP4
LINE POSTS	LESS THAN OR EQUAL TO 6 FT.	SP2
	LESS THAN OR EQUAL TO 8 FT.	SP3
	GREATER THAN OR EQUAL TO 8 FT.	SP4
	LESS THAN OR EQUAL TO 8 FT.	FS2 OR FS2+
	GREATER THAN OR EQUAL TO 8 FT.	FS3

BRACE RAIL TYPES

USE	TYPE
BRACE RAIL	SP1 OR FS1

** INCLUDES END, CORNER, ANGLE, INTERSECTION AND INTERMEDIATE BRACED POSTS

LEGEND

1. STRAIGHT PLUG
 2. BOTTOM HINGE
 3. TOP HINGE
 4. PLUNGER ROD
 5. FULCRUM LATCH
 6. FORK CATCH *
 7. PLUNGER ROD CATCH
 8. LOCK KEEPER GUIDE
 9. LOCK KEEPER
 10. DOME TOPS
 11. TRUSS RODS
 12. TENSION BAR
 13. TENSION BANDS
 14. BRACE RAIL
- *NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE

GENERAL NOTES

FENCE POSTS INSTALLED ON CONCRETE WALLS SHALL BE ANCHORED INTO EMBEDDED METAL SLEEVES OR CORED HOLE BY FILLING THE ANNULAR SPACE WITH PEA GRAVEL FOLLOWED BY AN EPOXY RESIN ADHESIVE. THE EPOXY RESIN ADHESIVE SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 235, CLASS A, B OR C.

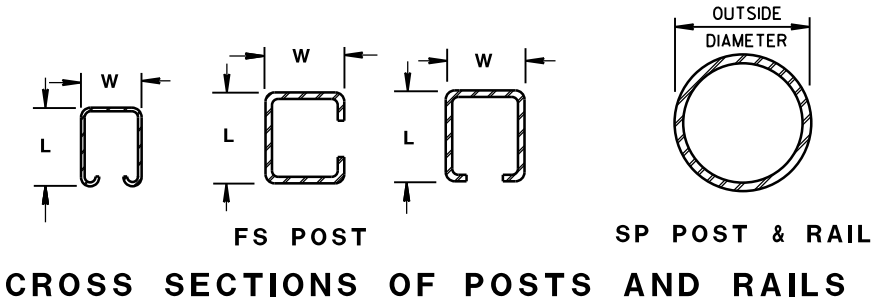
USE FENCE FABRIC KNUCKLED AT BOTH SELVAGES.

FOR LEAF GATES GREATER THAN 8 FEET WIDE, INSTALL INTERIOR VERTICAL BRACE RAIL AT 8 FOOT INTERVALS.

FOR FABRIC HEIGHTS GREATER THAN 8 FEET, INSTALL INTERIOR HORIZONTAL BRACE RAILS TO LEAF GATE.

MAXIMUM SAG FOR OUTER GATE MEMBER SHALL NOT EXCEED THE GREATER OF 1% OF THE LEAF GATE WIDTH OR 2 INCHES.

USE TYPE 2, CLASS 3, MARCELLED/CRIMPED, TENSION WIRE PER ASTM A 817.



ROLLED-FORMED STEEL FENCE POST
(2.0 OZ./SQ. FT. COATING)

POST TYPE	LENGTH (L) INCH	WIDTH (W) INCH	WEIGHT LBS/FT
FS1	1.625	1.25	1.35
FS2+	1.875	1.625	1.850
FS2	1.875	1.625	2.400
FS3	2.250	1.700	2.780

ROUND STEEL FENCE POST
(1.8 OZ./SQ. FT. COATING)

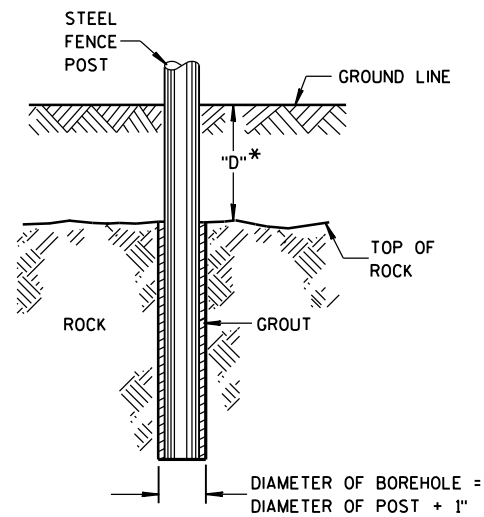
POST TYPE	OUTSIDE DIMENSION INCH	WALL THICKNESS INCH	WEIGHT LBS/FT
SP1	1.660	0.140	2.270
SP2	1.900	0.145	2.720
SP3	2.375	0.154	3.650
SP4	2.875	0.203	5.800
SP5	4.000	0.226	9.120
SP6	6.625	0.280	18.990
SP7	8.625	0.322	28.580

REQUIRED POST SIZE FOR GATES

USE	LEAF WIDTHS FEET	POST TYPE
GATES	LESS THAN OR EQUAL TO 6 FT.	SP4
	LESS THAN OR EQUAL TO 13 FT.	SP5
	LESS THAN OR EQUAL TO 18 FT.	SP6
	LESS THAN OR EQUAL TO 23 FT.	SP7

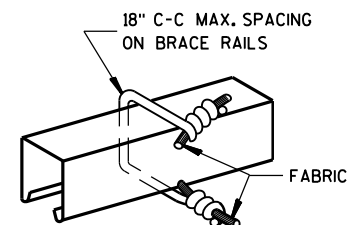
FENCE CHAIN LINK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



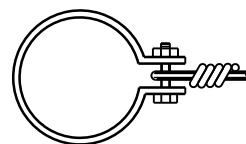
* IF "D" IS LESS THAN 2'-6",
DRILL ROCK AND INSTALL GROUT

ROCK INSTALLATION OF LINE POST

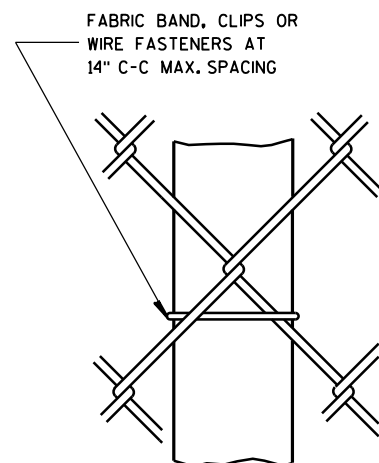


BRACE RAIL FABRIC FASTENER

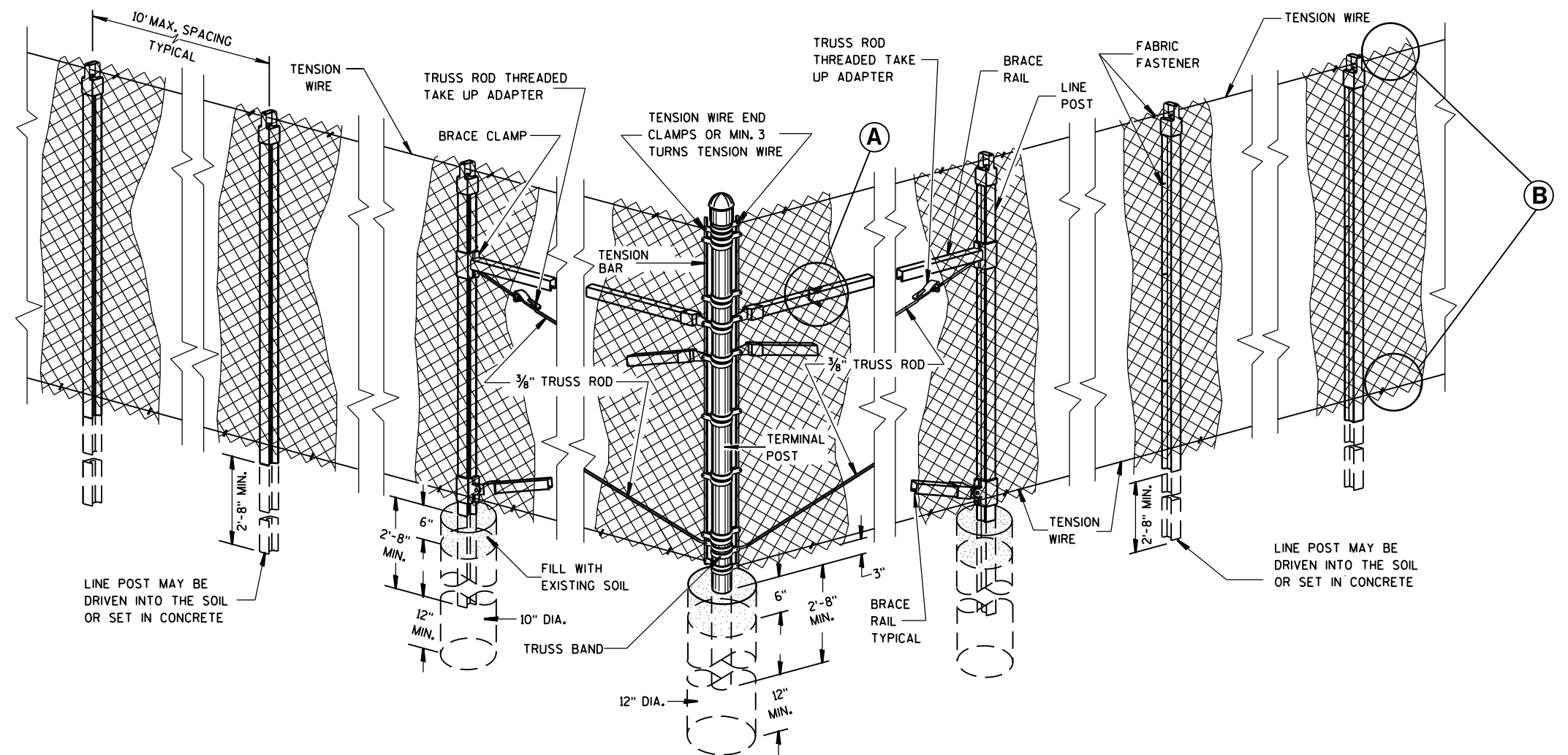
(A)



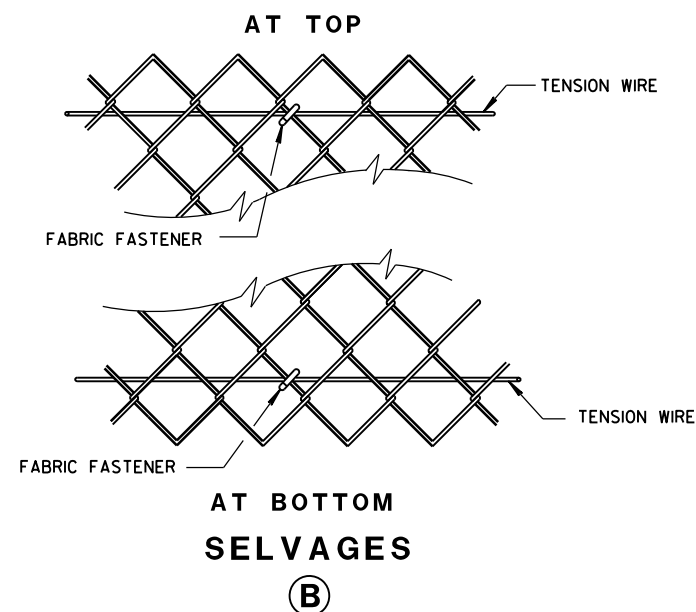
TENSION WIRE END CLAMP



LINE POST FABRIC FASTENER



END, CORNER, ANGLE INTERSECTION & INTERMEDIATE BRACED POSTS



FENCE CHAIN LINK

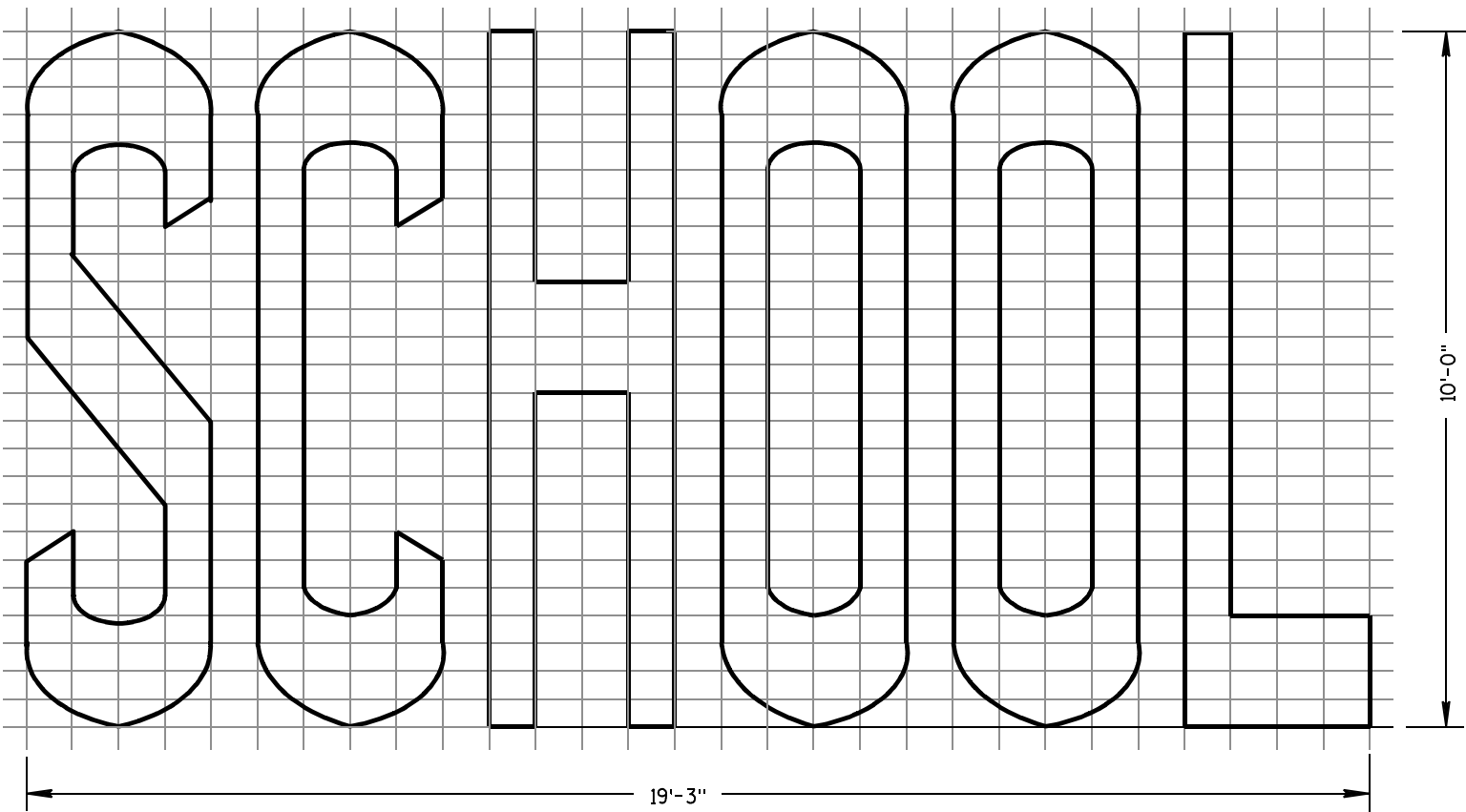
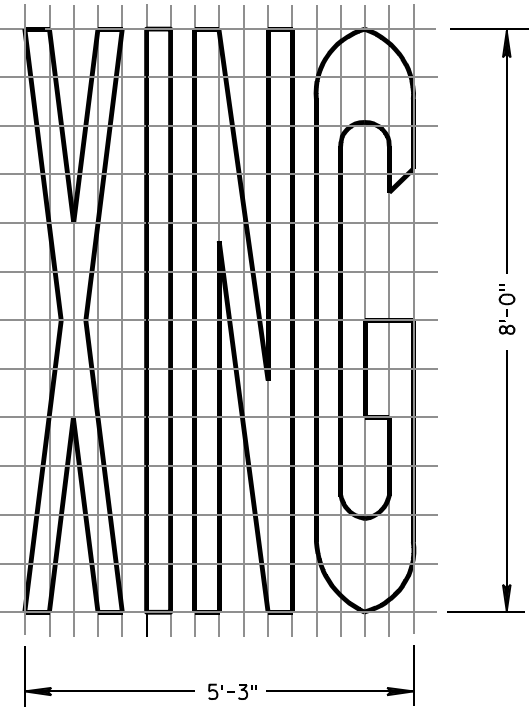
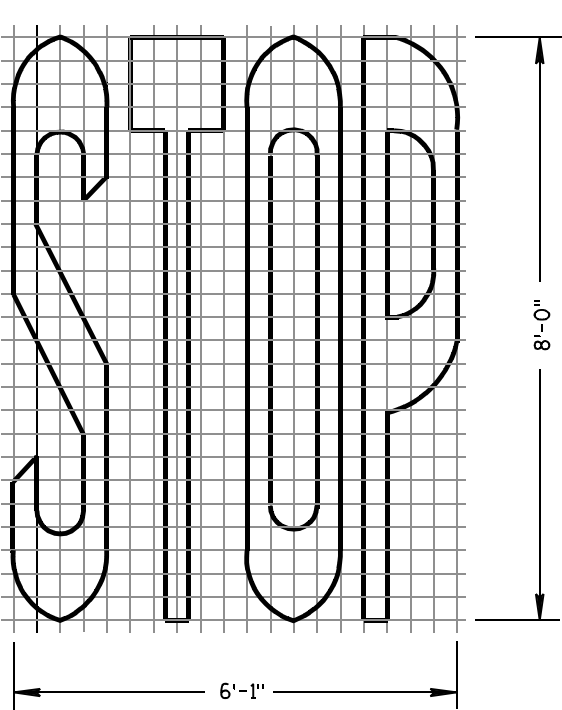
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
FEB. 2015
DATE /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

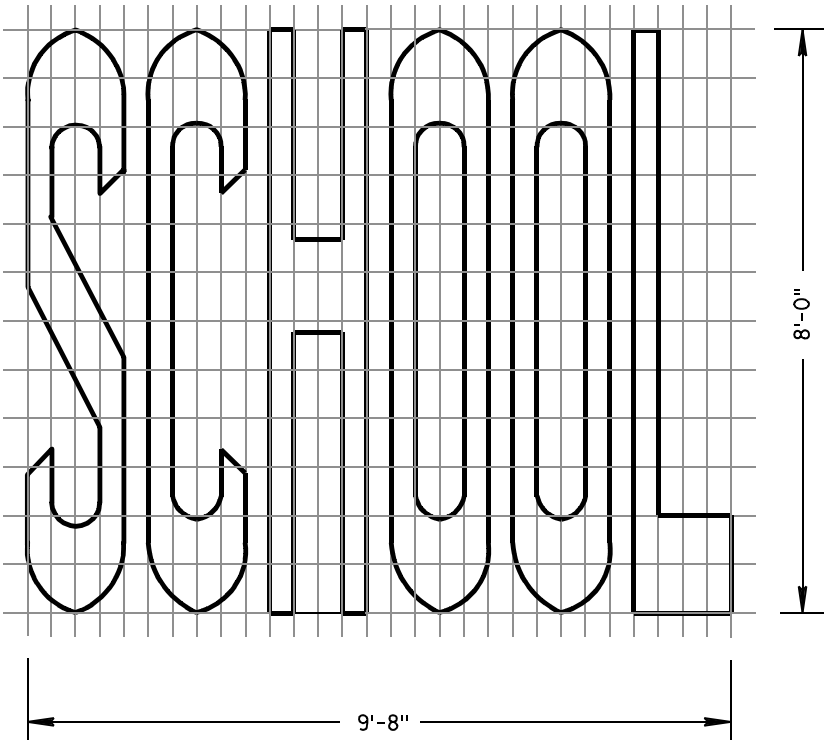
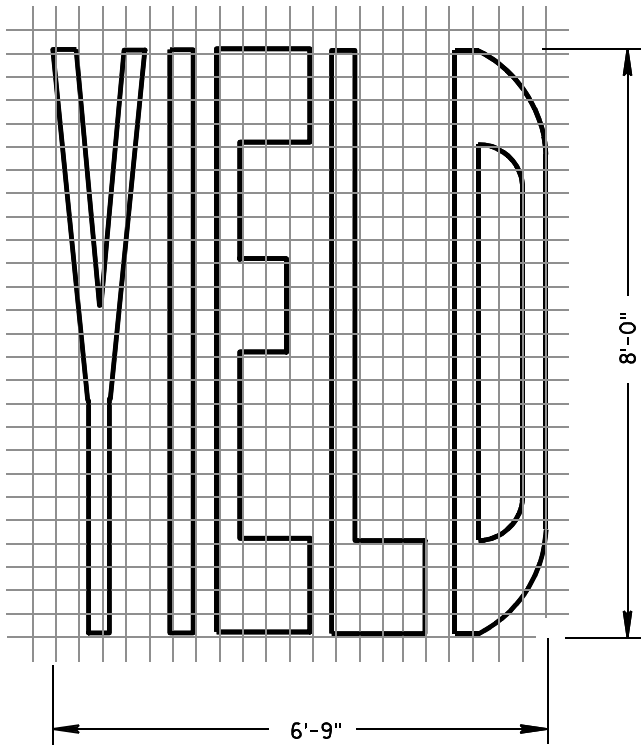
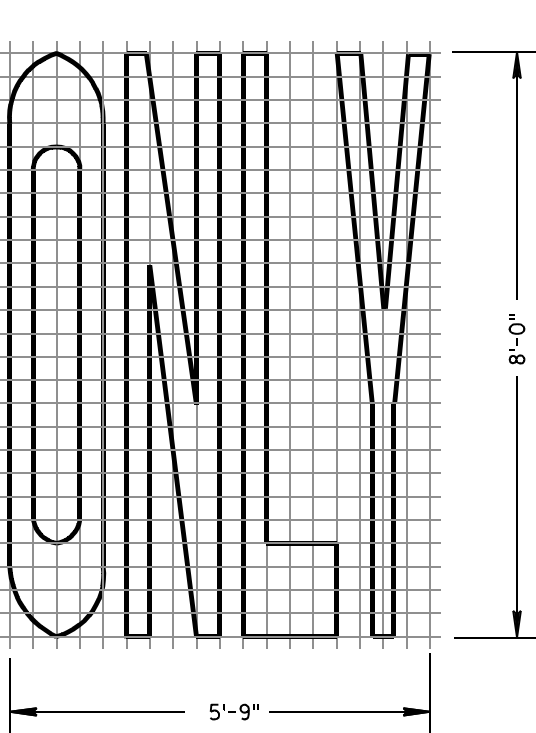
GENERAL NOTES

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

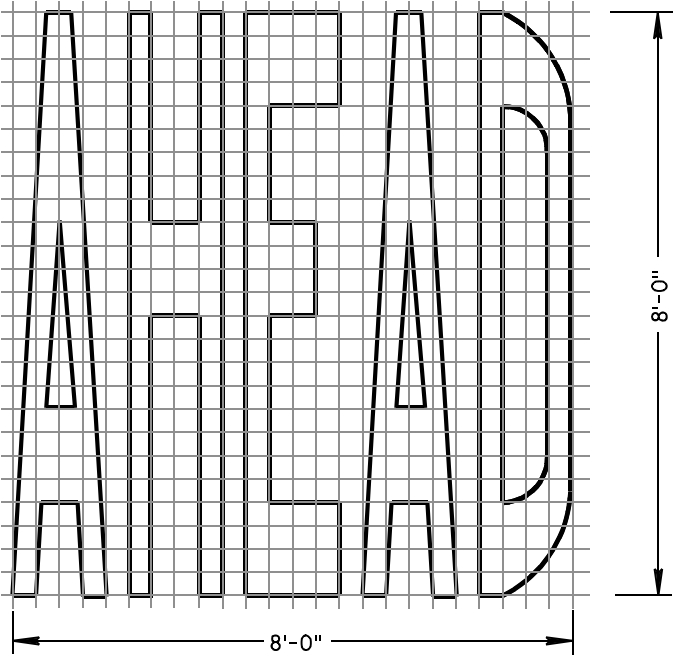
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



TWO-LANE



SINGLE-LANE



PAVEMENT MARKING WORDS

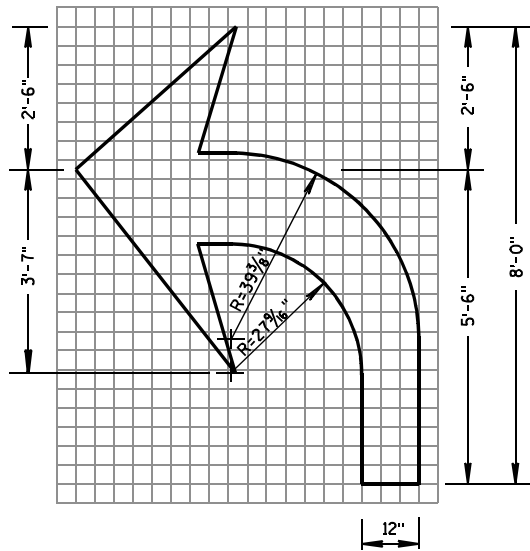
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

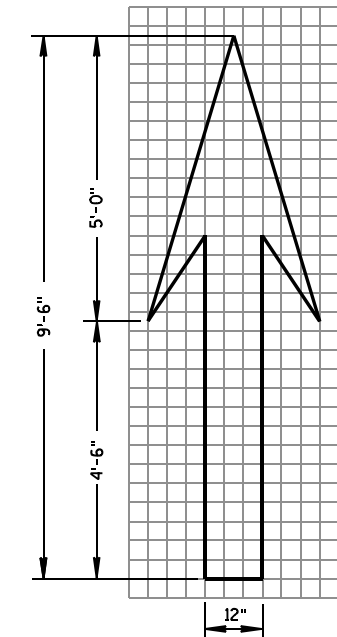
7-1-11
DATE

/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN

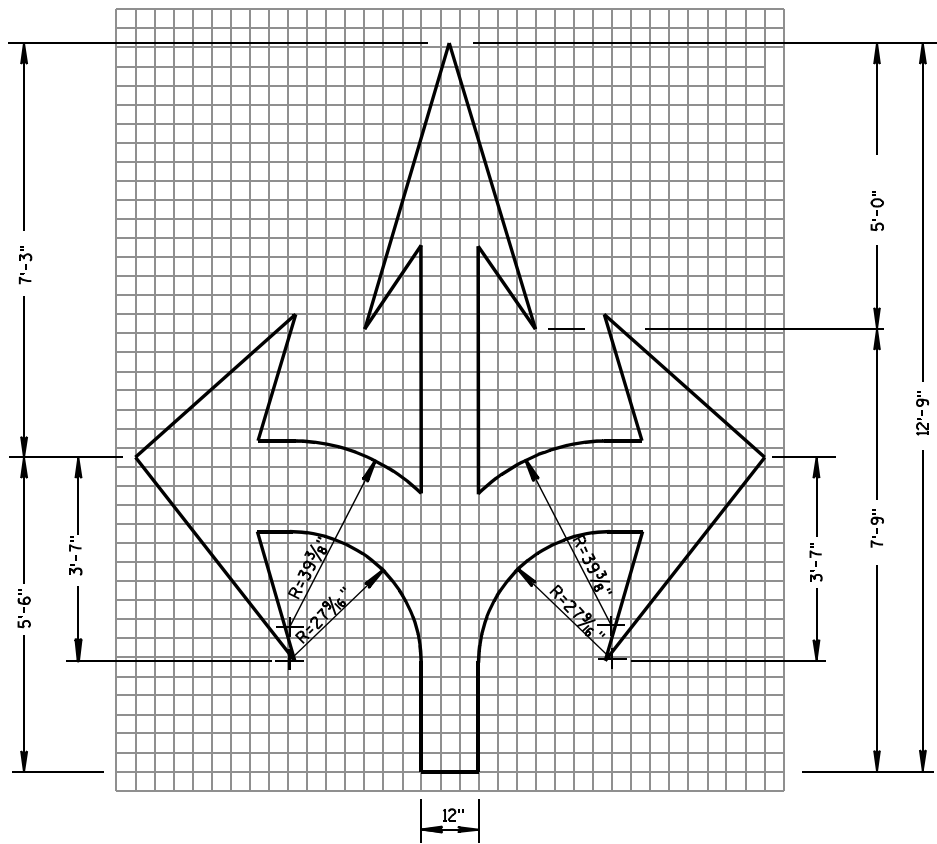
FHWA



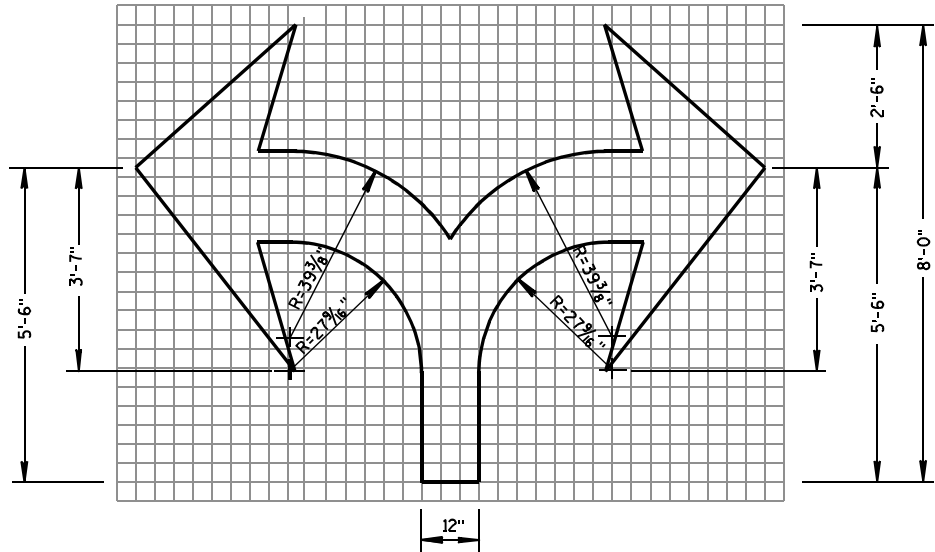
TYPE 2



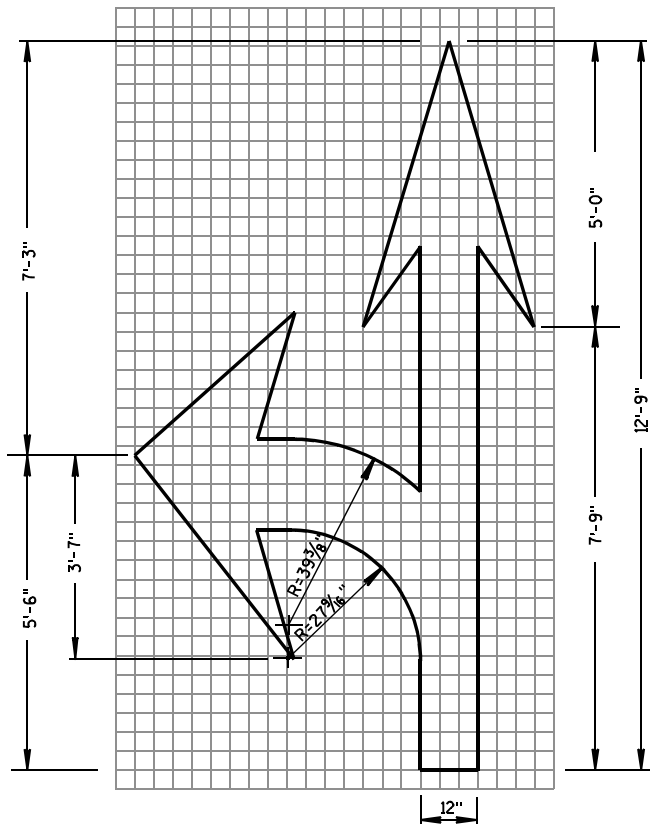
TYPE 1



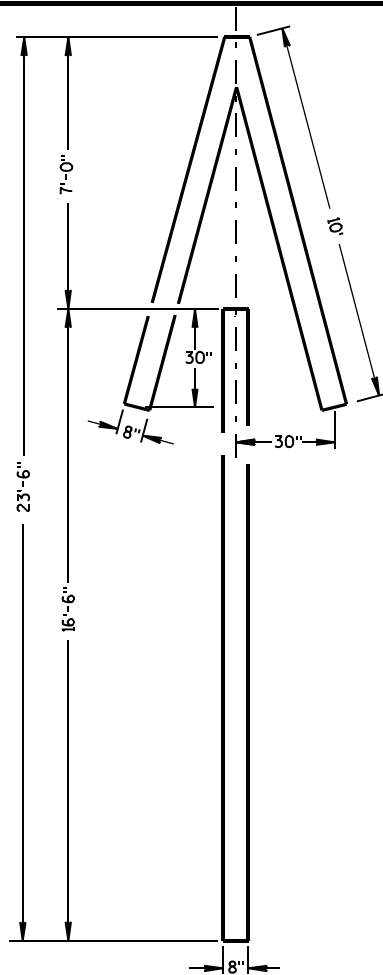
TYPE 6



TYPE 7



TYPE 3

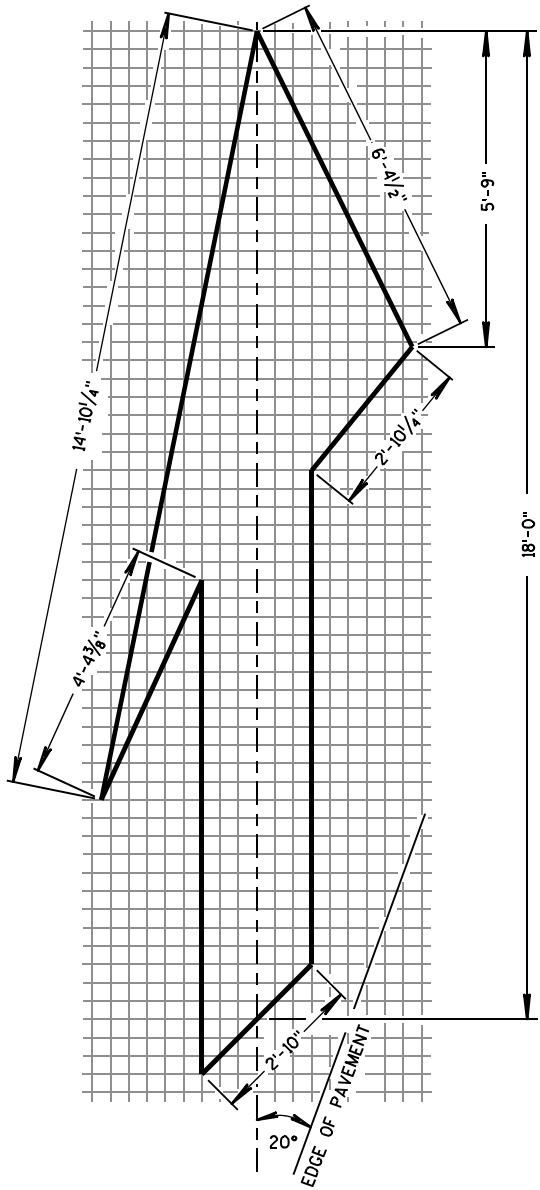


TYPE 4

GENERAL NOTES

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

ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES OF THAT BOOK ARE ACCEPTABLE.



TYPE 5 LANE DROP ARROW

PAVEMENT MARKING ARROWS

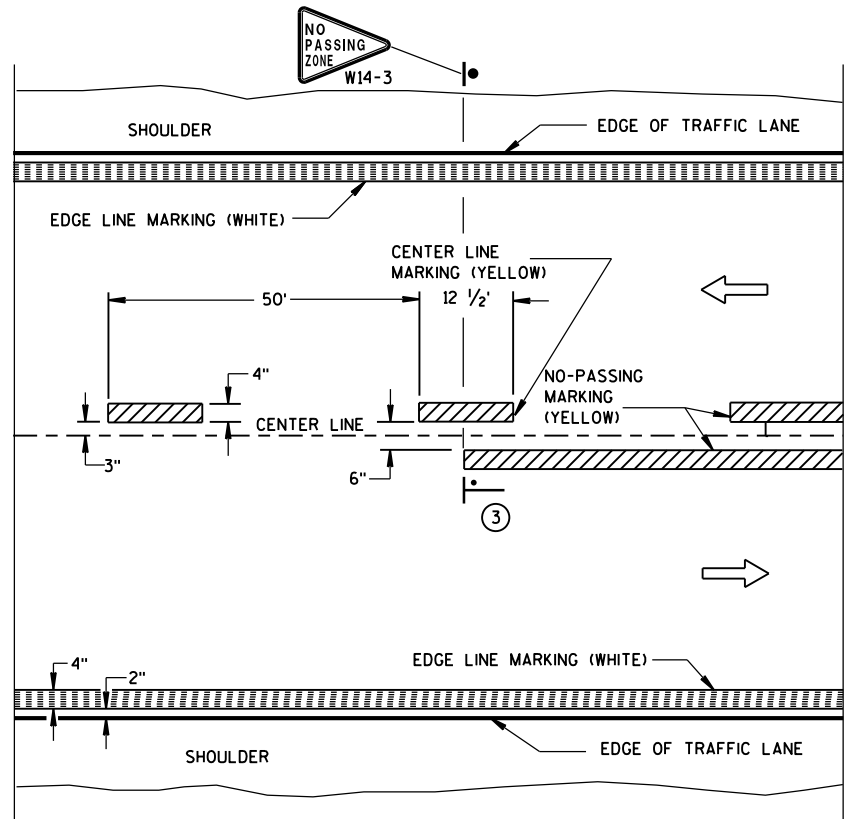
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

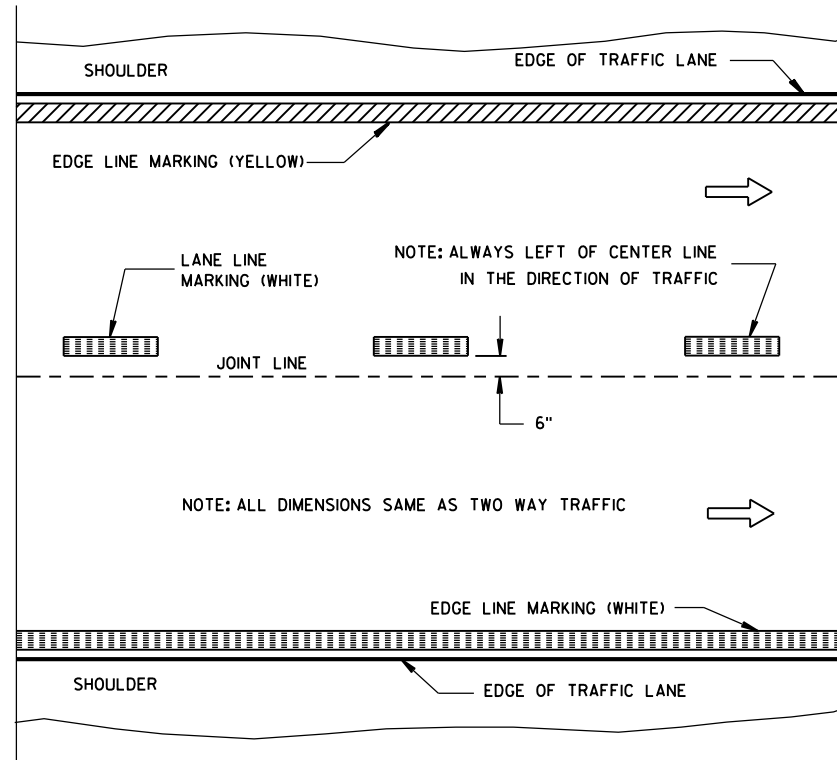
7/1/11
DATE

/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN

FHWA

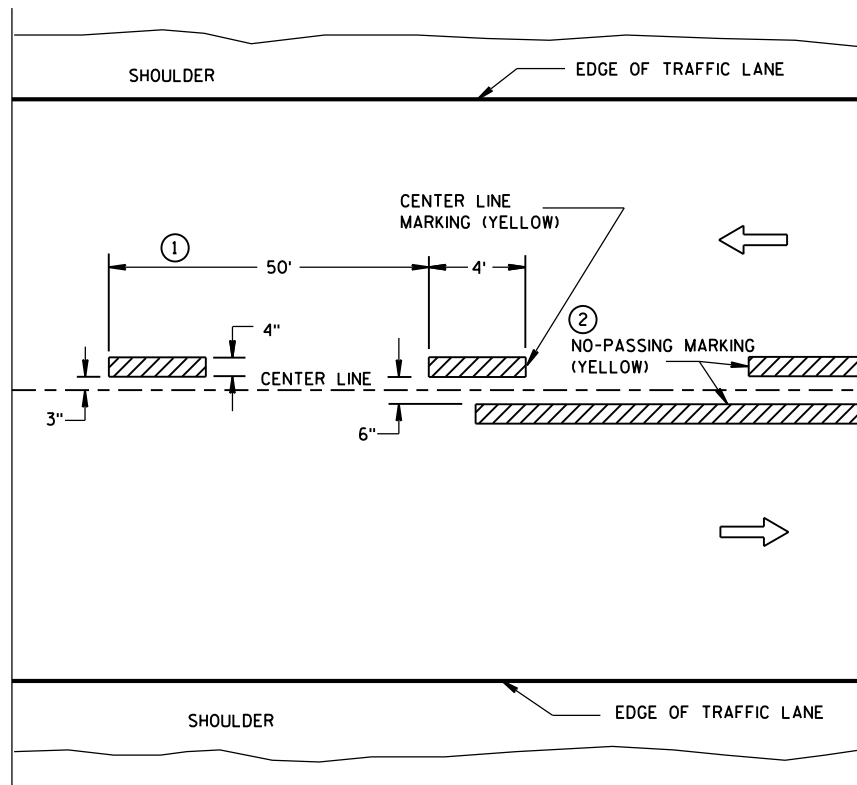


TWO WAY TRAFFIC

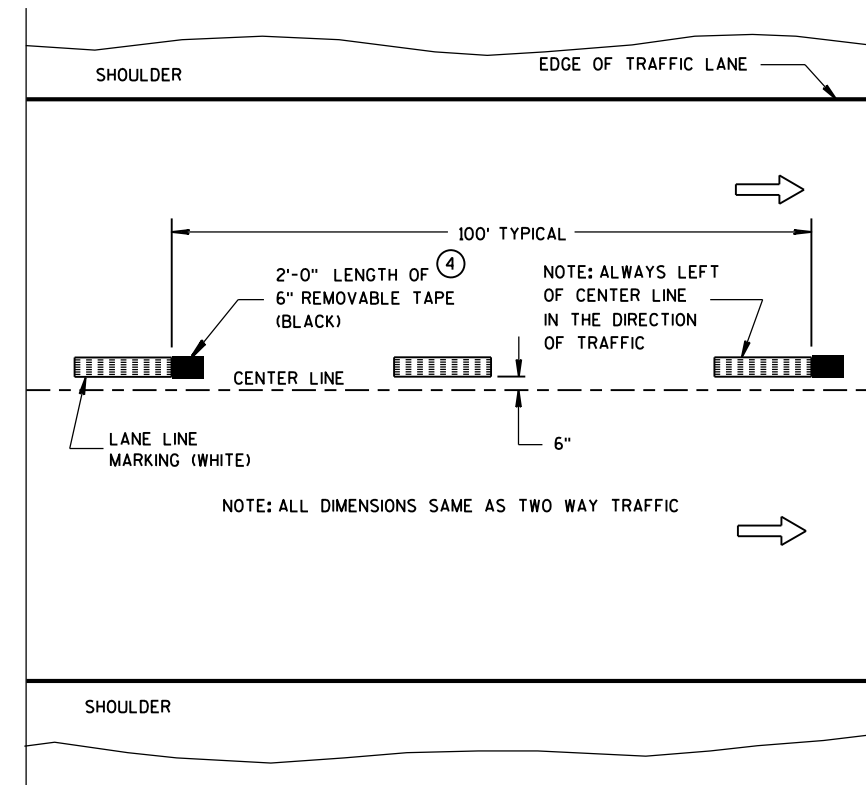


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

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

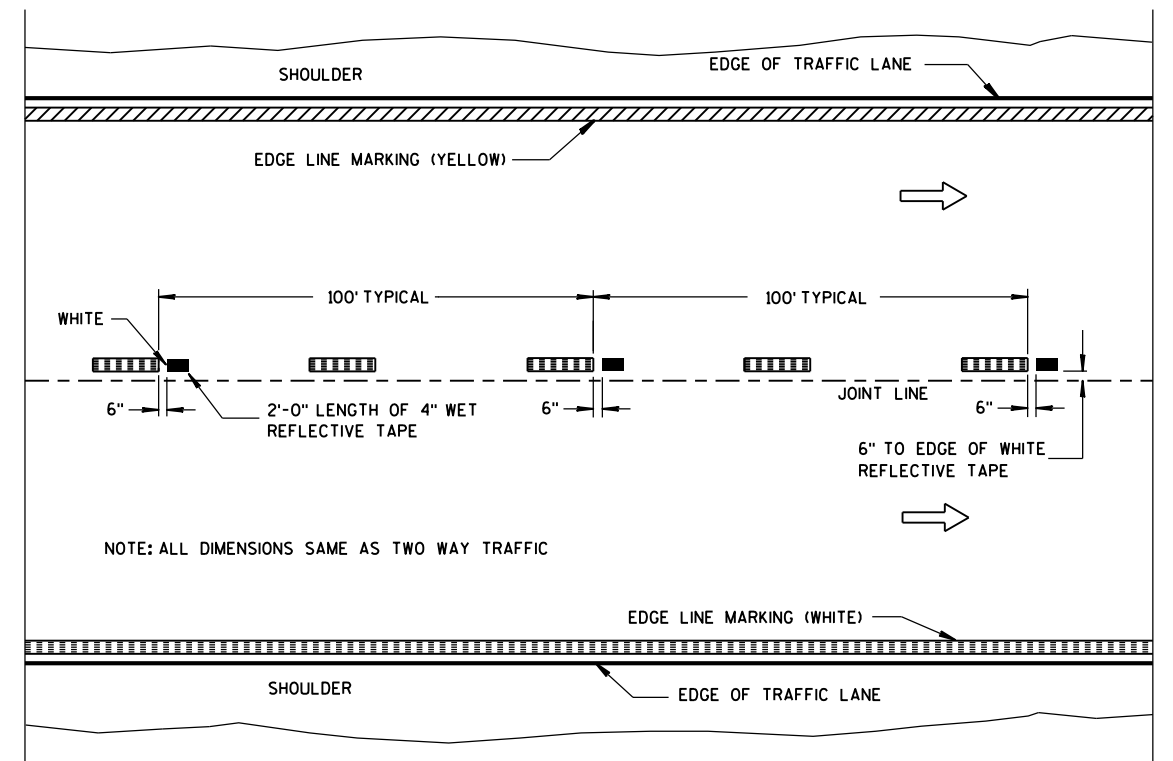
GENERAL NOTES

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

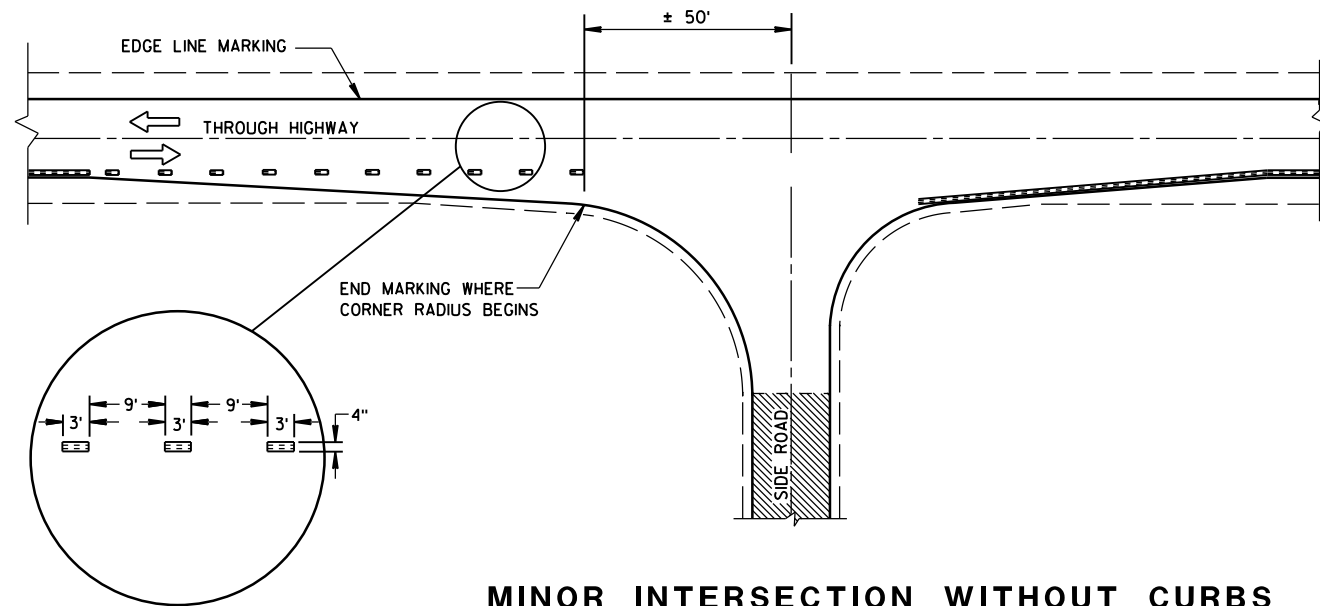
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

PAVEMENT MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

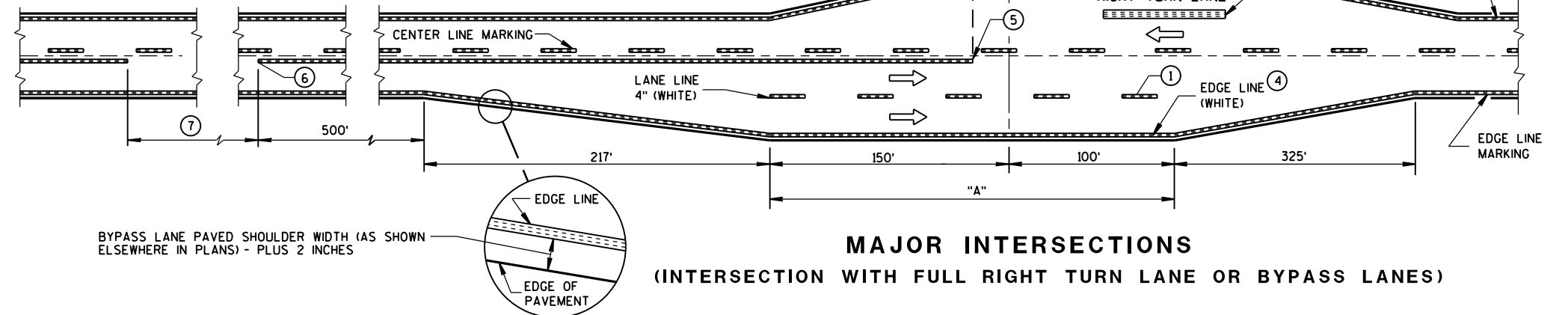
APPROVED
5-13-2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER
FHWA



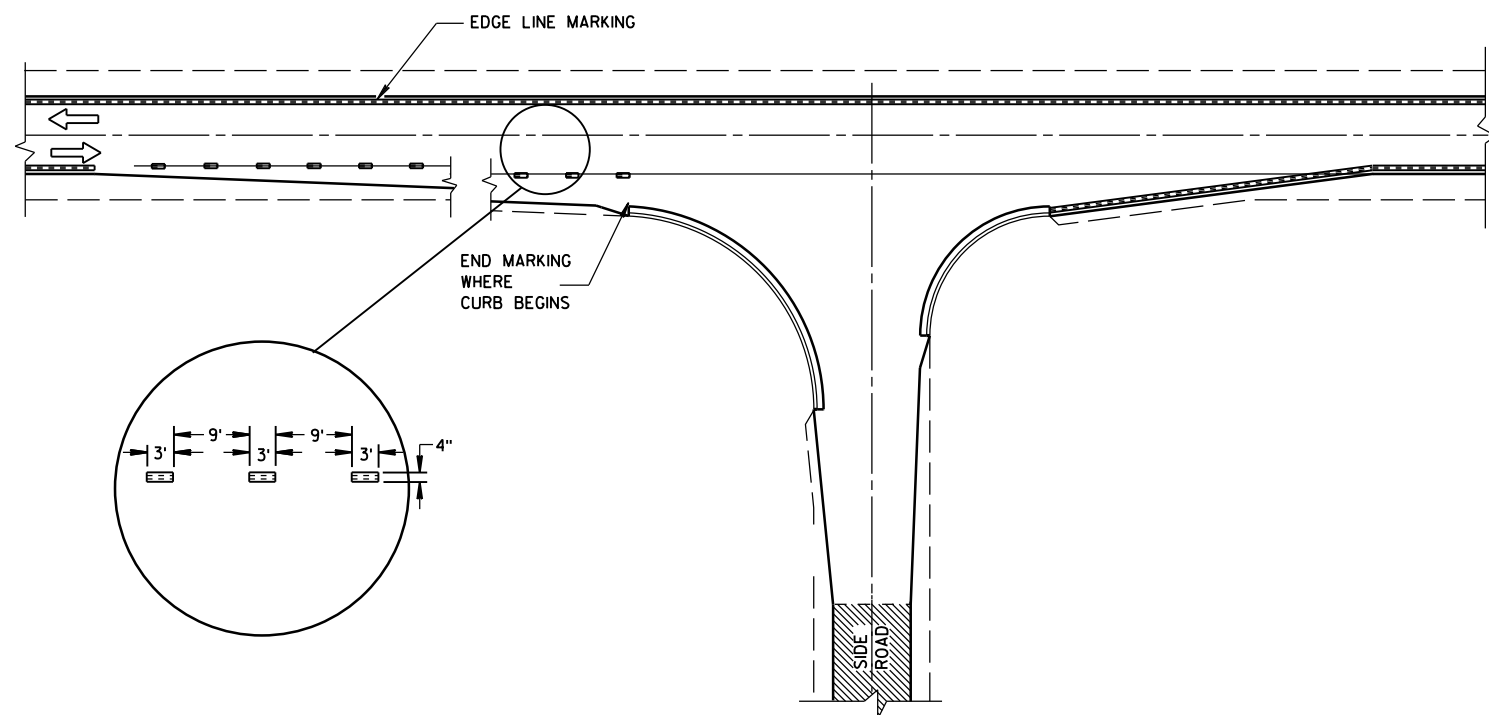
MINOR INTERSECTION WITHOUT CURBS

⑦

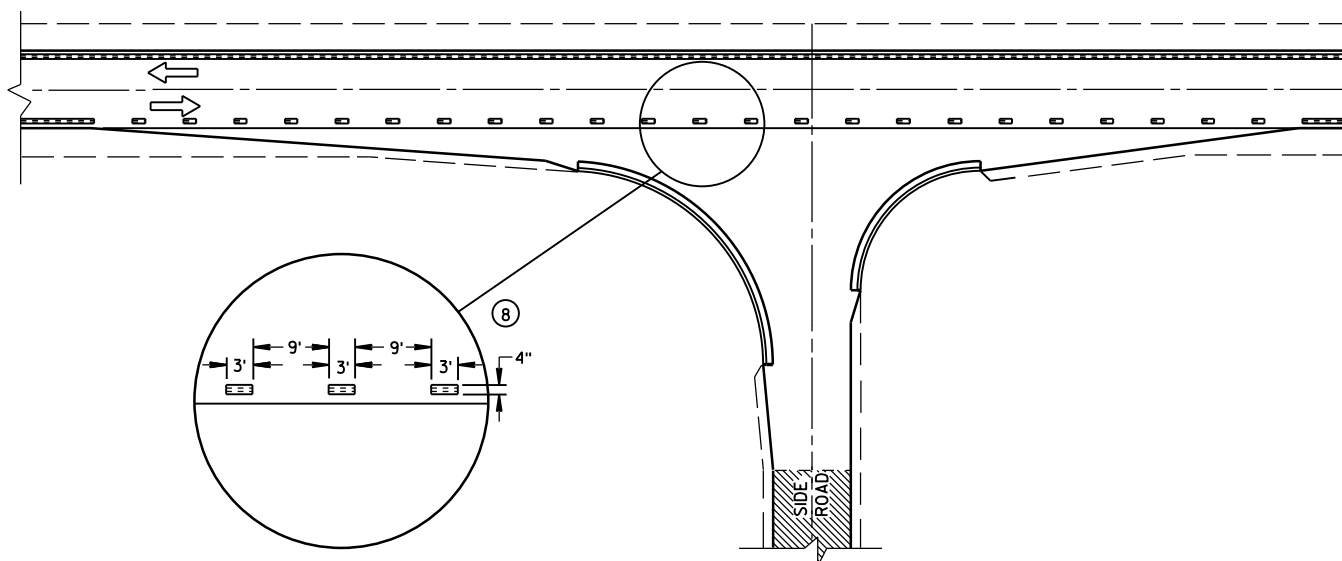
POSTED SPEED (MPH)	MINIMUM DISTANCE BETWEEN ZONES (FEET)
25 - 30	528
35 - 40	528
45 - 50	686
55	792



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



MINOR INTERSECTION WITH CURBS
(TYPICAL MARKING)



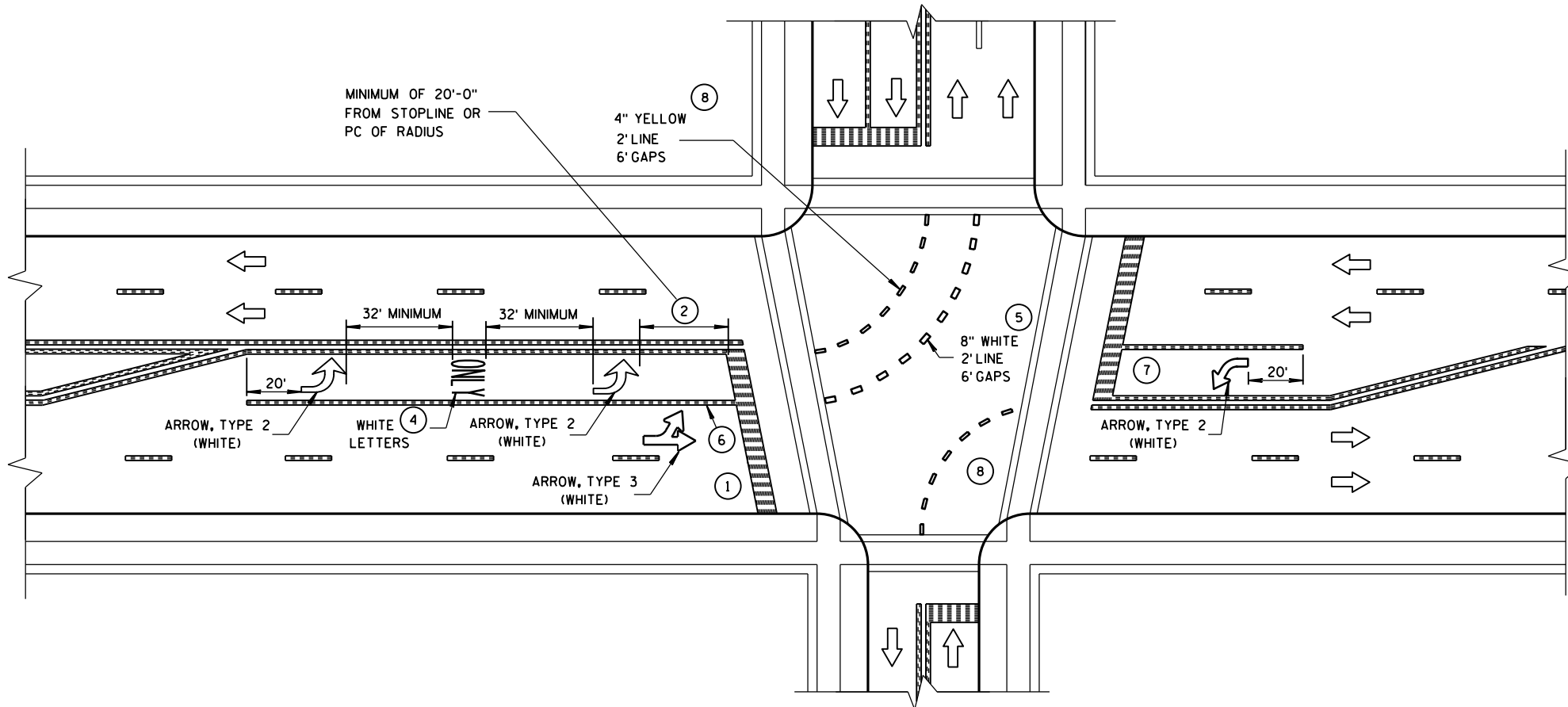
MINOR INTERSECTION WITH CURBS
③ (FOR SPECIAL CONDITIONS AS SPECIFIED)

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)

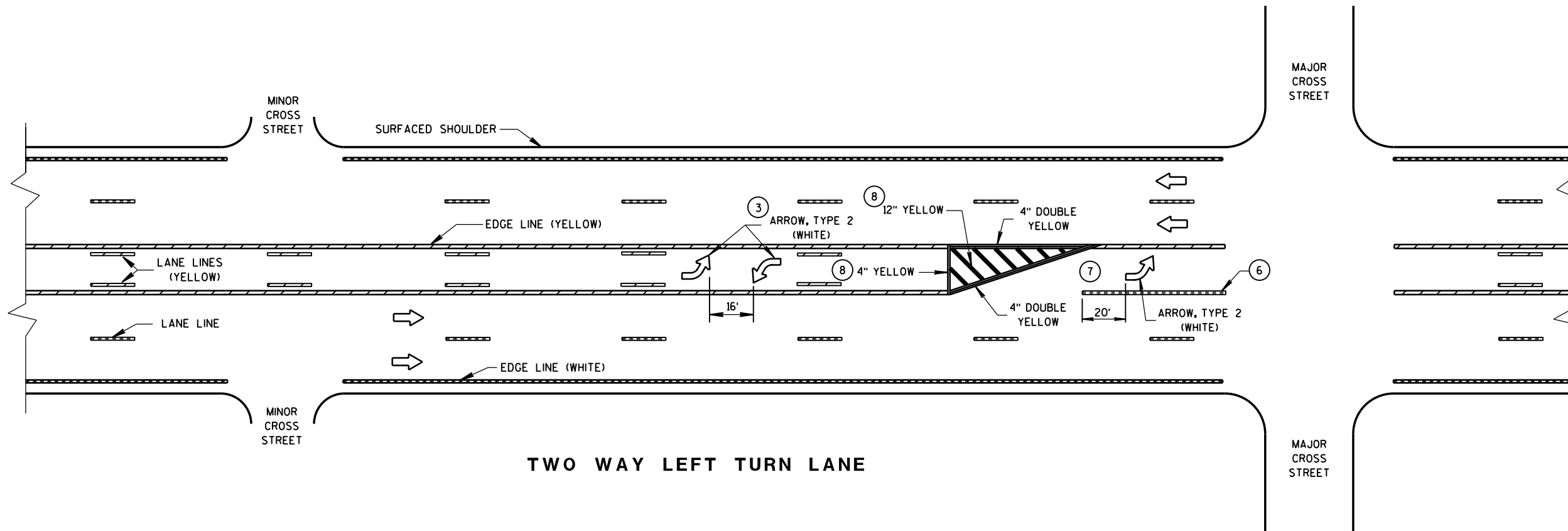
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

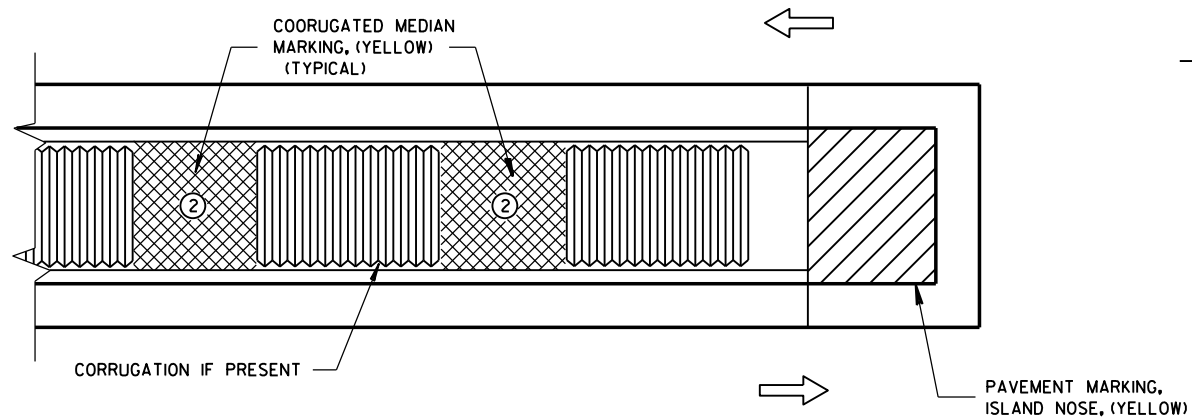
- ① STOP BAR IS REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.
- ② DISTANCE MAY BE ADJUSTED TO ACCOMODATE SHORT LEFT TURN LANES. AS APPROVED BY THE ENGINEER.
- ③ A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ④ ADD EXTRA SETS OF ONE ARROW AND ONE ONLY PER 160 FEET OR WHEN ON A CURVE.
- ⑤ 8" WHITE WITH 2' LINE 6' GAPS FOR DUAL TURN LANE.
- ⑥ 8" WHITE
- ⑦ ADD SECOND ARROW WHEN TURN BAY IS GREATER THAN OR EQUAL TO 108 FEET.
- ⑧ REQUIRED ONLY WHEN SPECIFIED IN THE CONTRACT.

NOTE:
ARROW SYMBOL (➡)
SHOWS DIRECTION OF TRAVEL

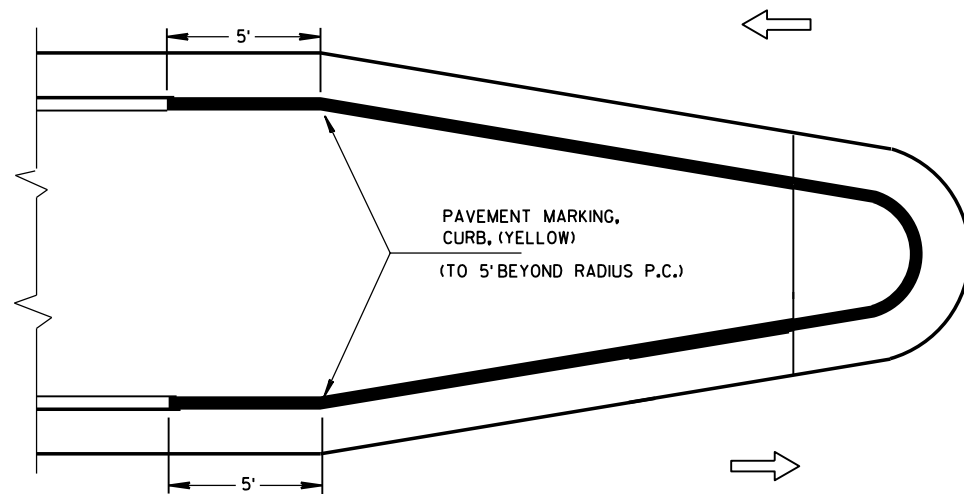


PAVEMENT MARKING
(LEFT TURN LANE)

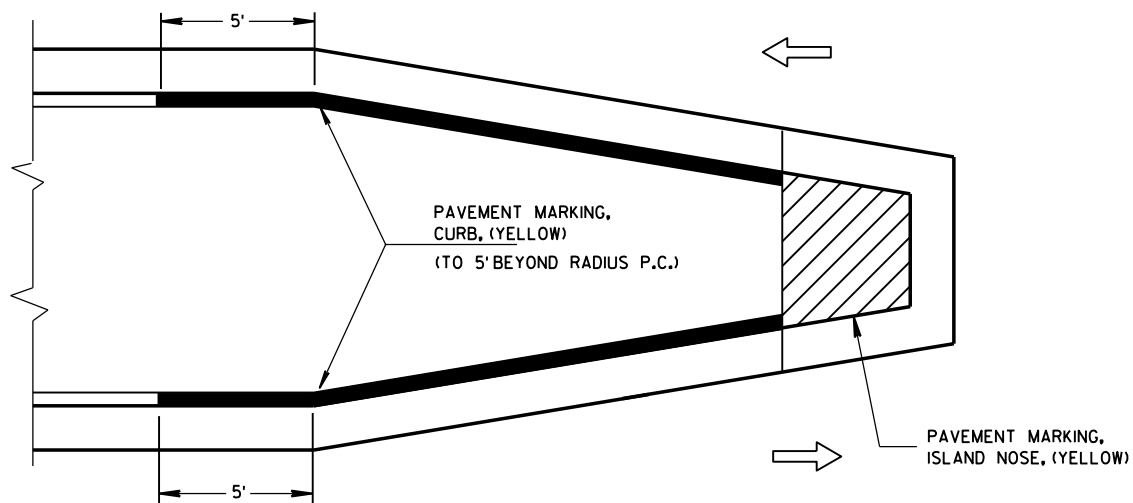
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

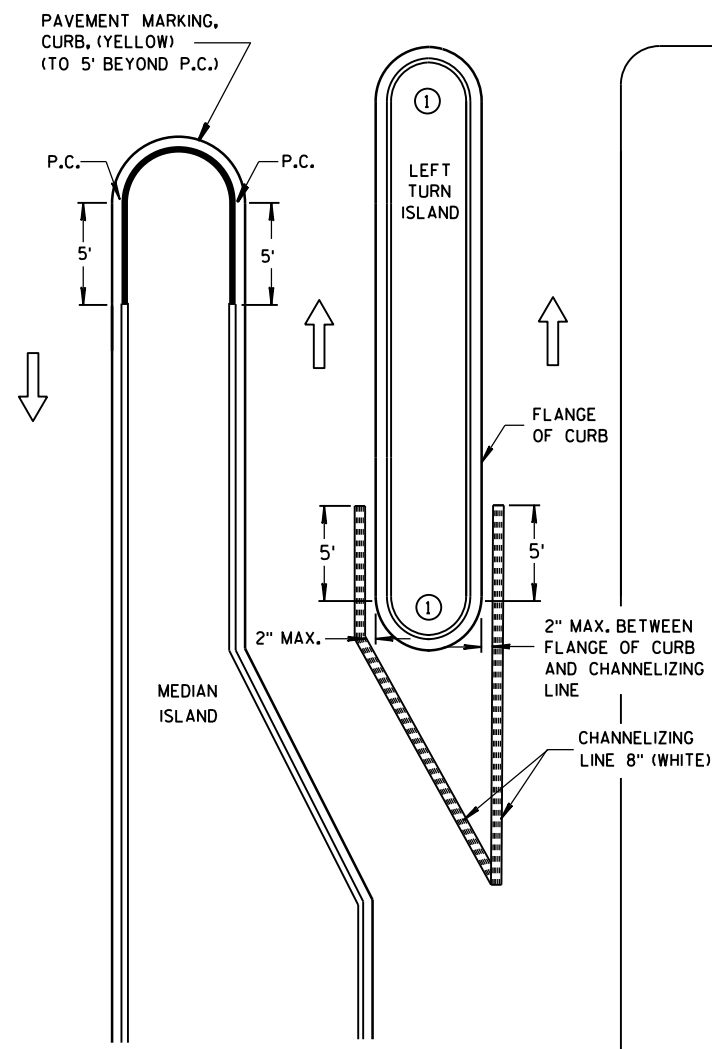


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

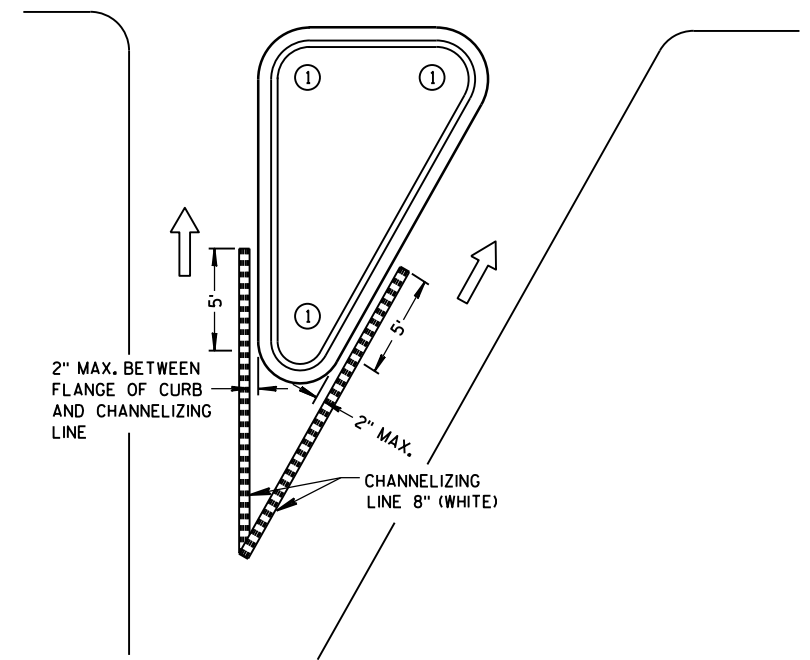
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

- 1 DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.
- 2 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 AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



RIGHT TURN ISLAND





LEGEND

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

PAVEMENT MARKING (ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

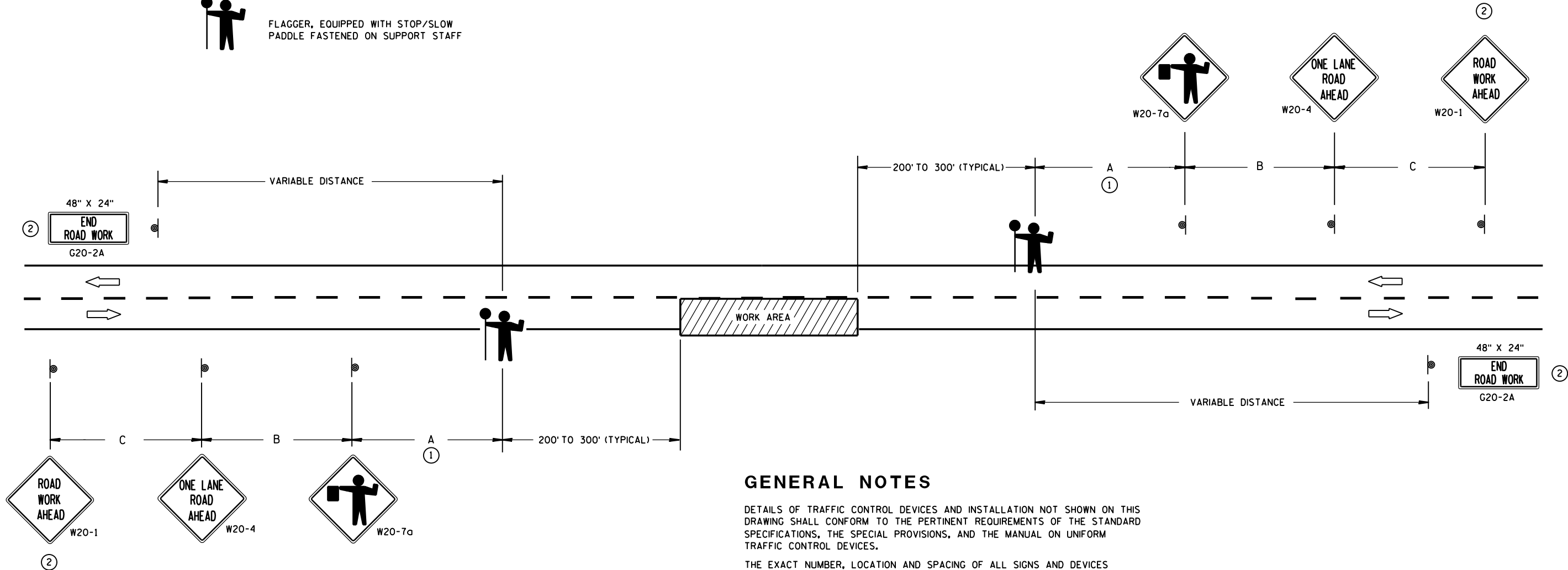
-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

SIGN SPACING TABLE

SPEED LIMIT	SIGN SPACING A,B,C
25-35 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF THE "BE PREPARED TO STOP" SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7a AND W20-4 SIGNS. A 500' TYPICAL SPACING SHALL BE PROVIDED BETWEEN THE SIGNS.



GENERAL NOTES

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

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

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

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

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT, COVER OR REMOVE ALL TEMPORARY TRAFFIC CONTROL SIGNS.

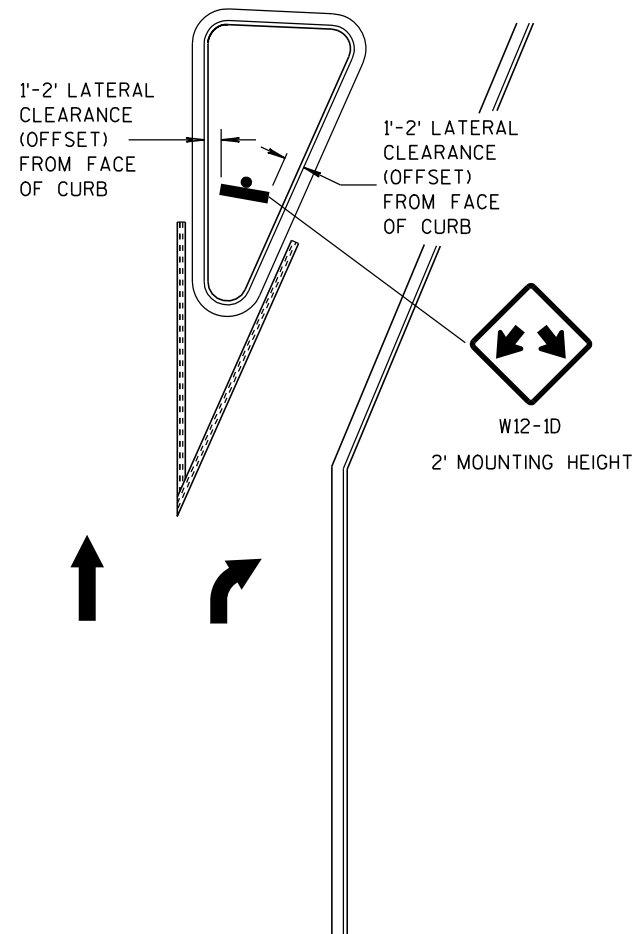
ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

- ① FOR A MOVING WORK OPERATION, SIGNING FOR BOTH DIRECTIONS SHALL BE REESTABLISHED (AS SIMULTANEOUSLY AS PRACTICAL) AT APPROXIMATELY 3500 FOOT INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

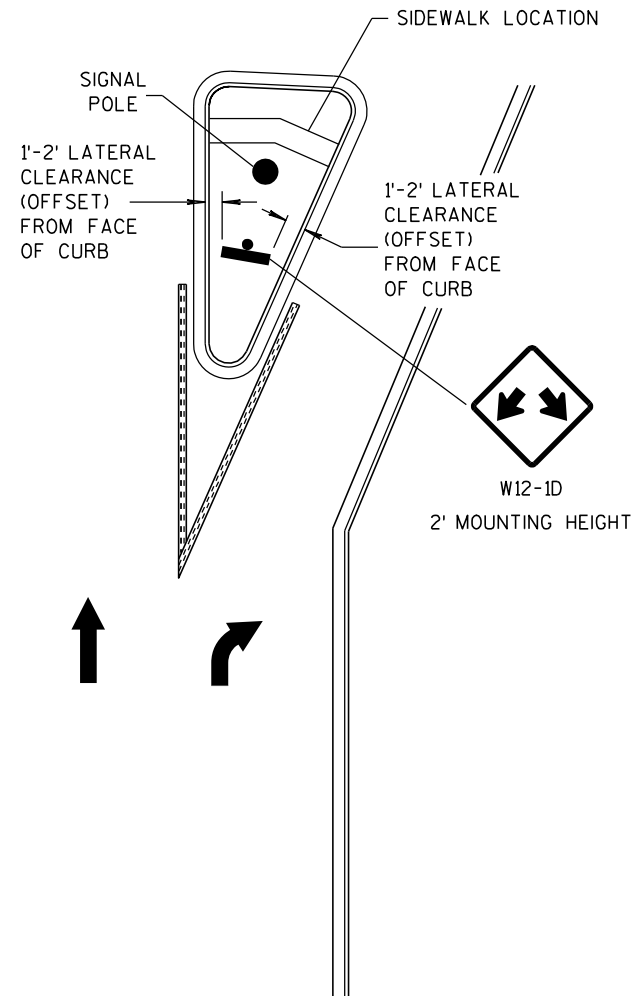
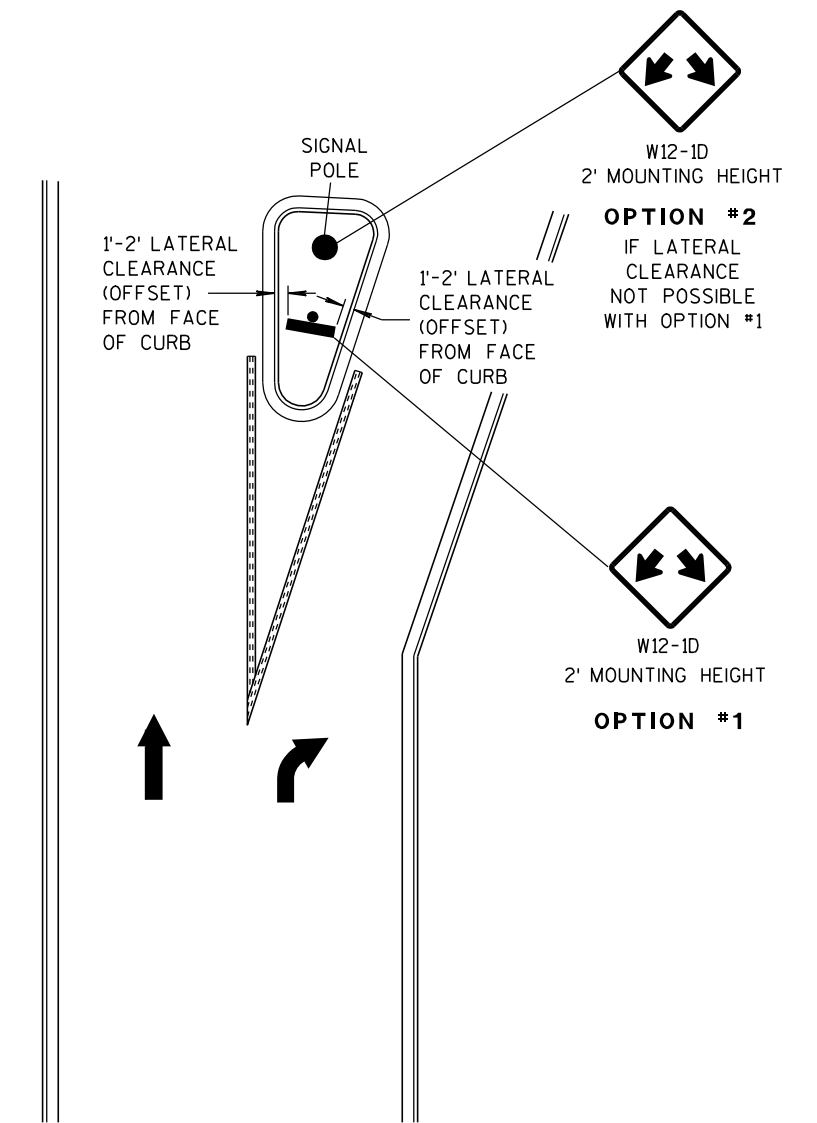
TRAFFIC CONTROL FOR LANE
CLOSURE (SUITABLE FOR
MOVING OPERATIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



LARGE RIGHT TURN ISLAND

LARGE RIGHT TURN ISLAND
WITH SIGNAL POLE

SMALL RIGHT TURN ISLAND

GENERAL NOTE

APPLIES TO ISLANDS AT LEFT TURNS AT ONE WAY ROADWAYS AS WELL.

SEE MISCELLANEOUS QUANTITIES FOR SIGN SIZE.

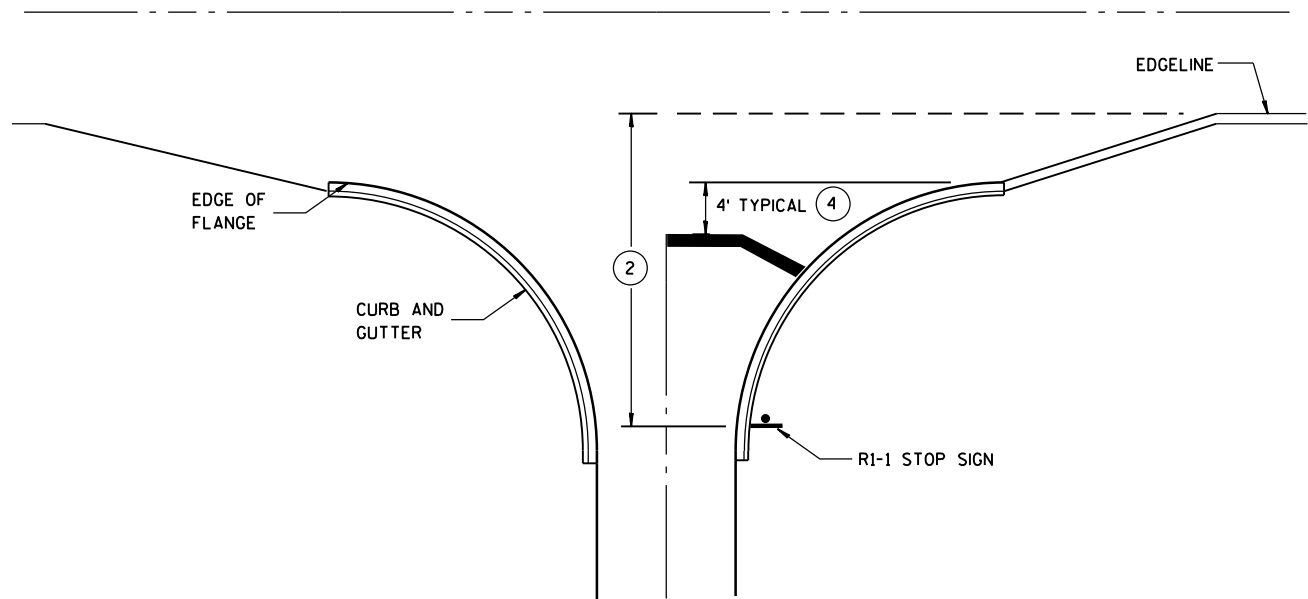
DOUBLE ARROW WARNING SIGN PLACEMENT**DOUBLE ARROW
WARNING SIGN PLACEMENT**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

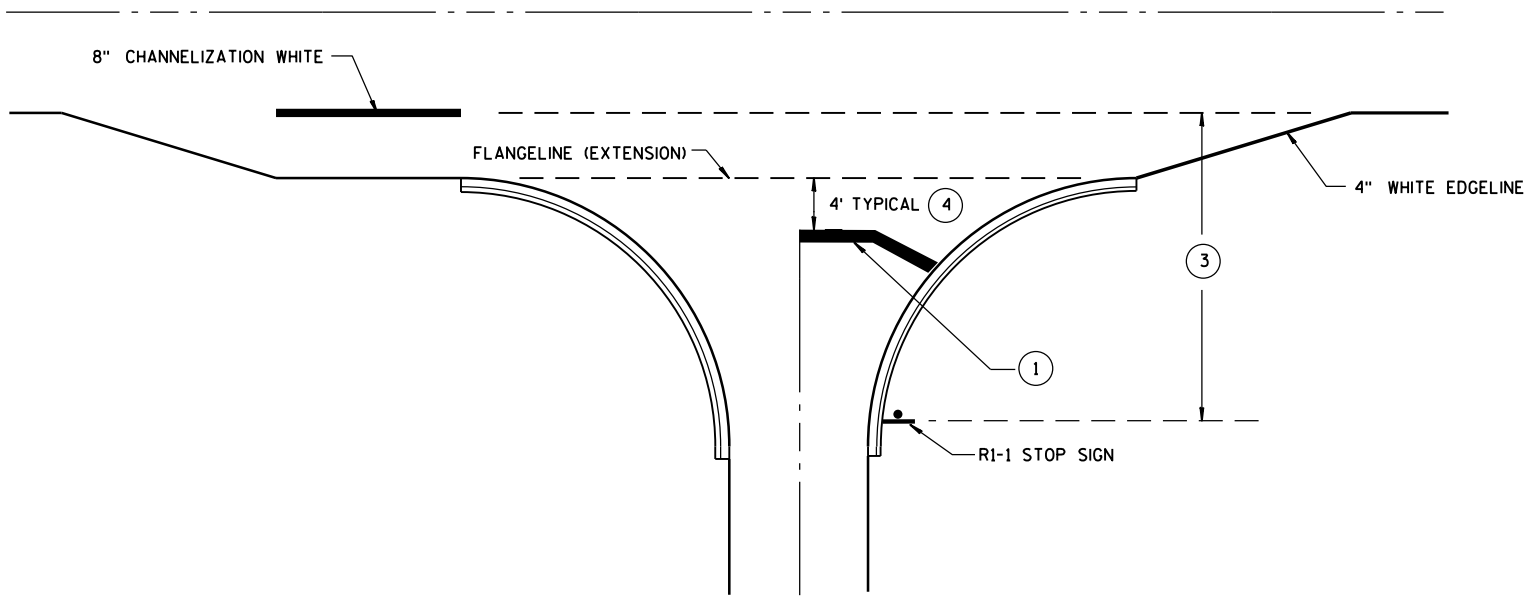
10-22-08
DATE

FHWA

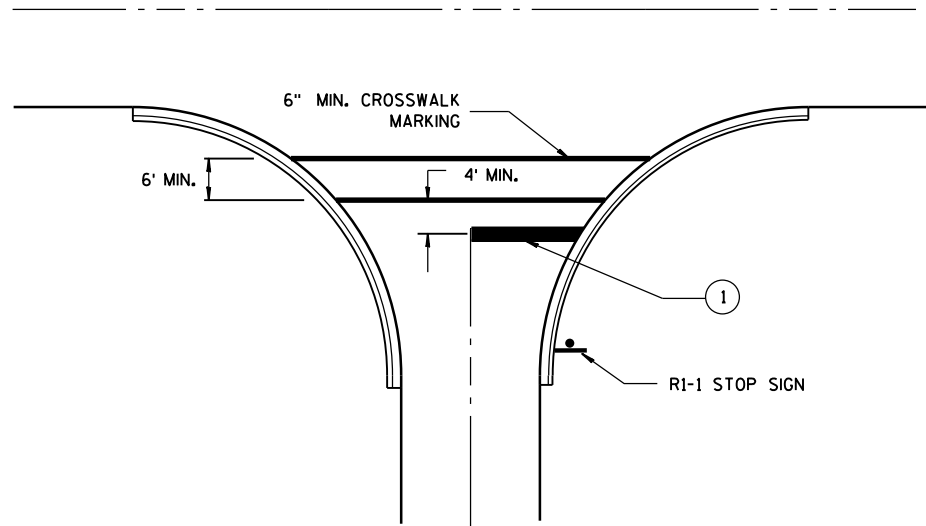
/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN



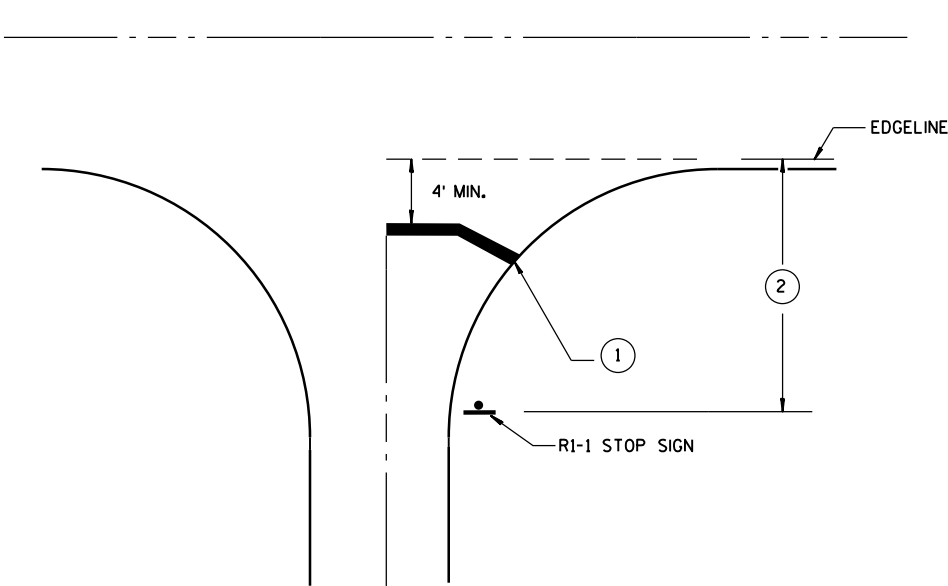
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

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

STOP LINE AND CROSSWALK
PAVEMENT MARKING

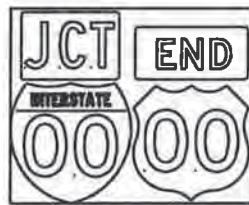
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/30/2013 DATE /S/ Travis Feltz
STATE TRAFFIC ENGINEER
FHWA

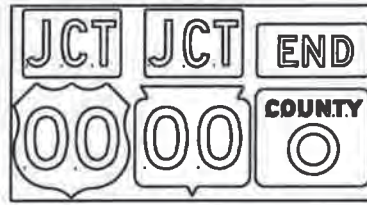
TYPICAL ASSEMBLIES



J1-1



J1-2



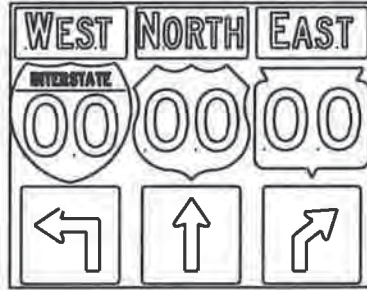
J1-3



J2-1



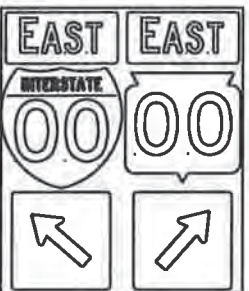
J2-2



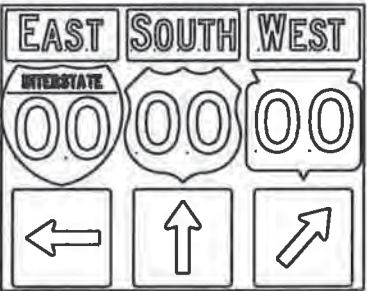
J2-3



J3-1



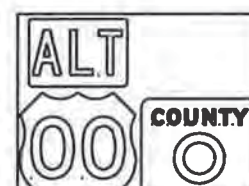
J3-2



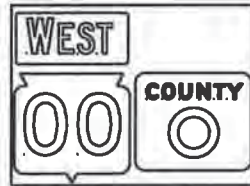
J3-3



J4-1



J4-2



J4-2



J13-1



J12-1



J32-1



J33-1



J23-1

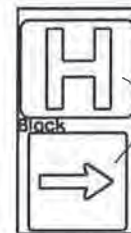


J22-1



JV

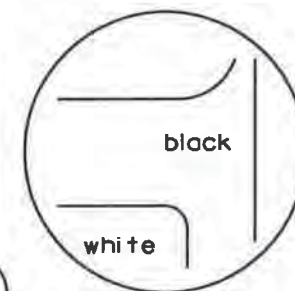
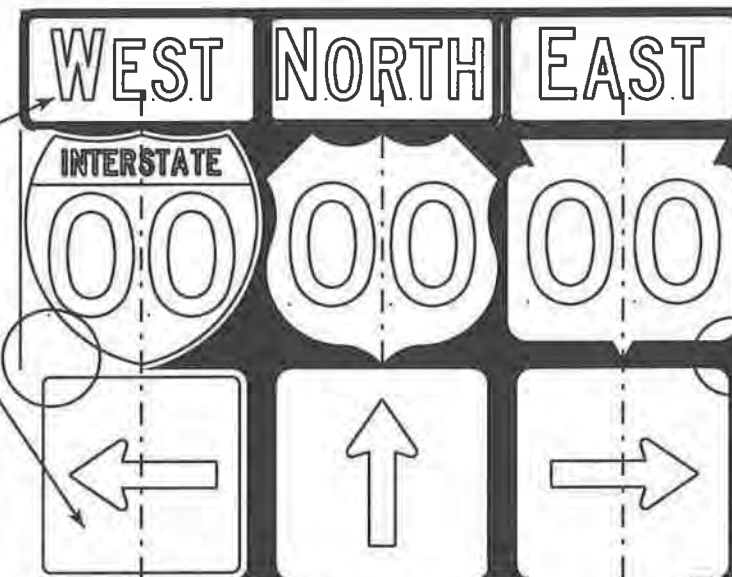
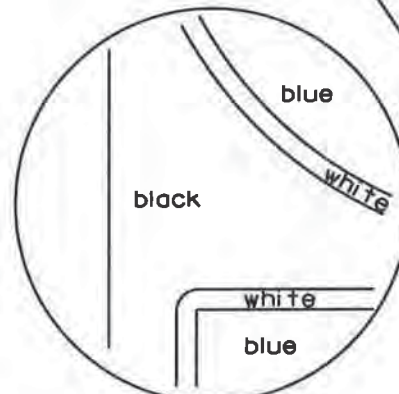
(Typical Vertical J-Assembly
See Note 10 and 11)



JH-1

Blue Background

blue background
with interstate



black background

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

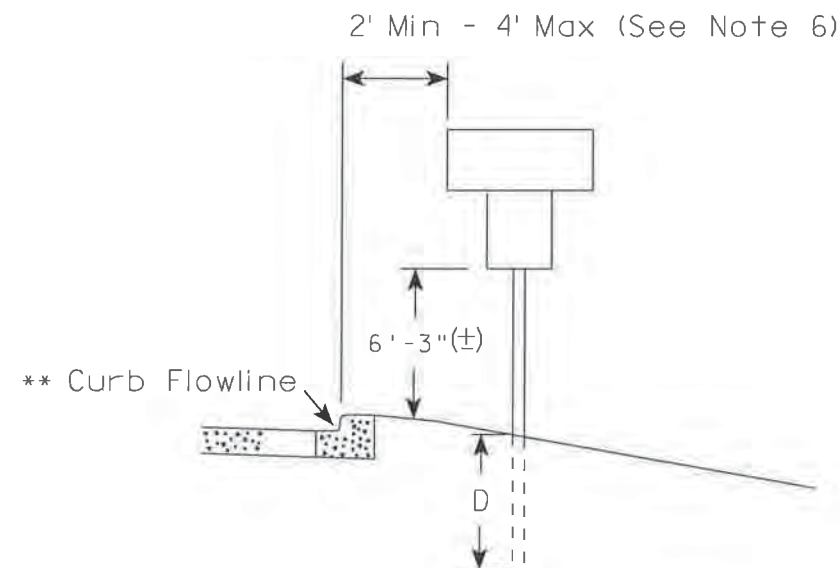
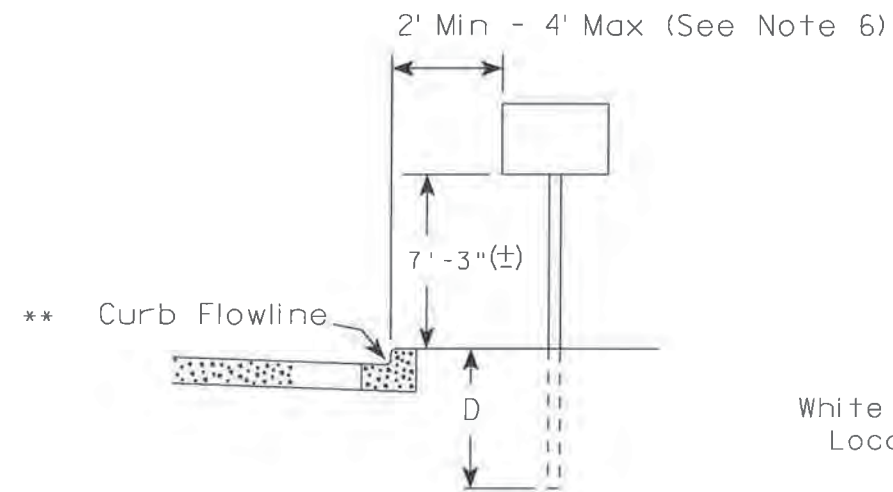
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/06/14 PLATE NO. A2-IS.8

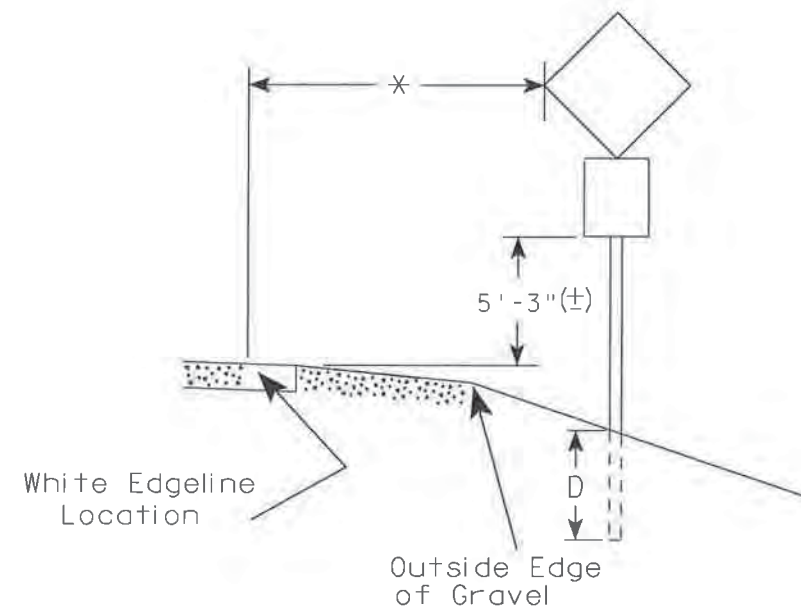
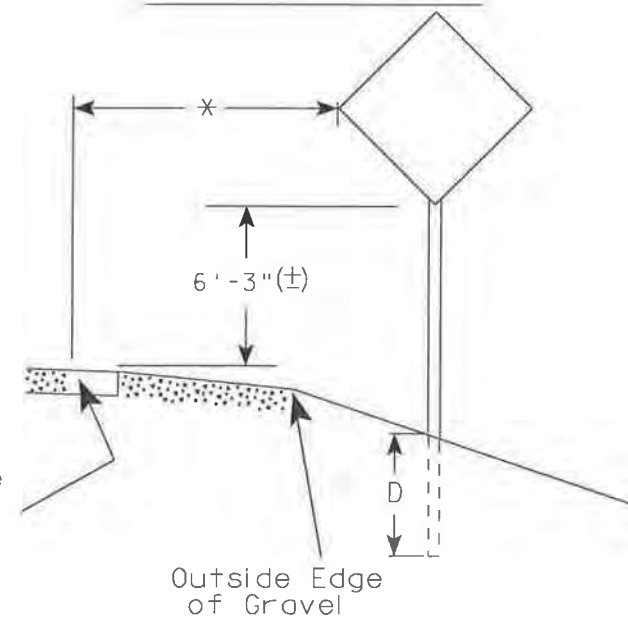
NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Black Non-reflective
Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. 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.
7. 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.
8. 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.
9. 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.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

1. Signs wider than 4 feet, 20 sq.ft or larger, 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 (A2-1S) 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 signs 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), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

✱✱ 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. Raub
for State Traffic Engineer

DATE 11/12/14

PLATE NO. A4-3.19

PROJECT NO: 2758-04-70

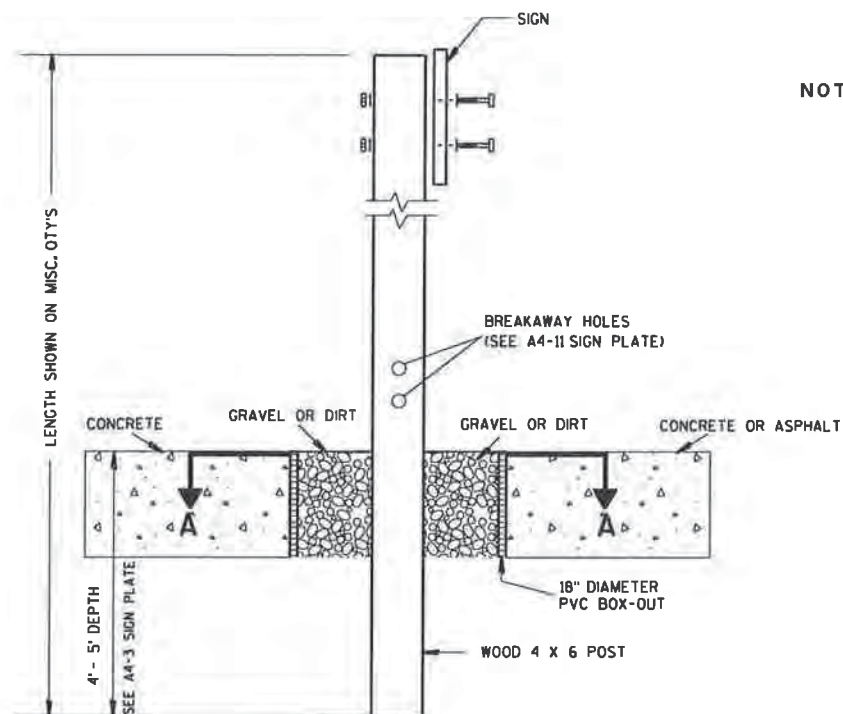
HWY: CTH JJ

COUNTY: WAUKESHA

SIGN DETAIL

SHEET NO:

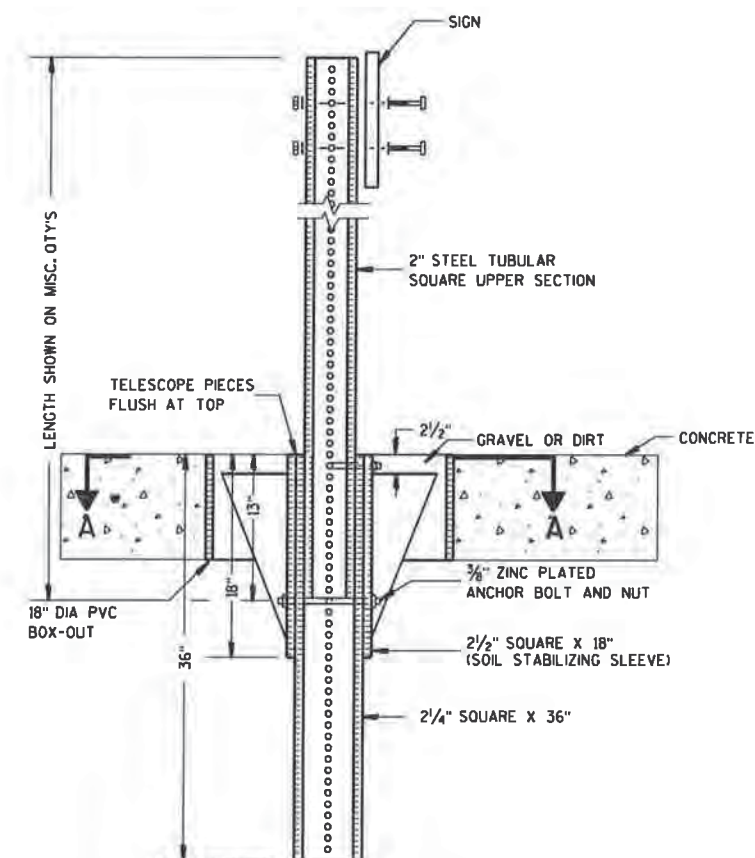
E



ELEVATION VIEW

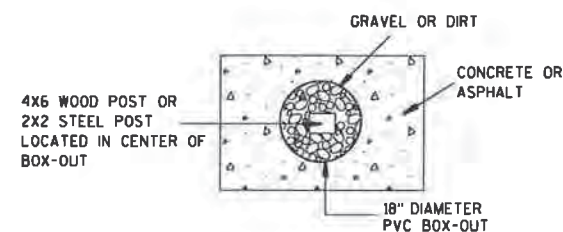
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO: 2758-04-70

HWY: CTH JJ

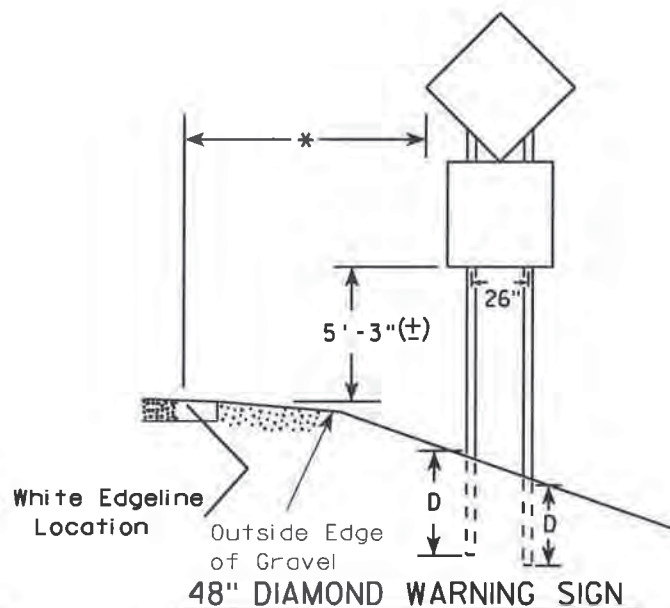
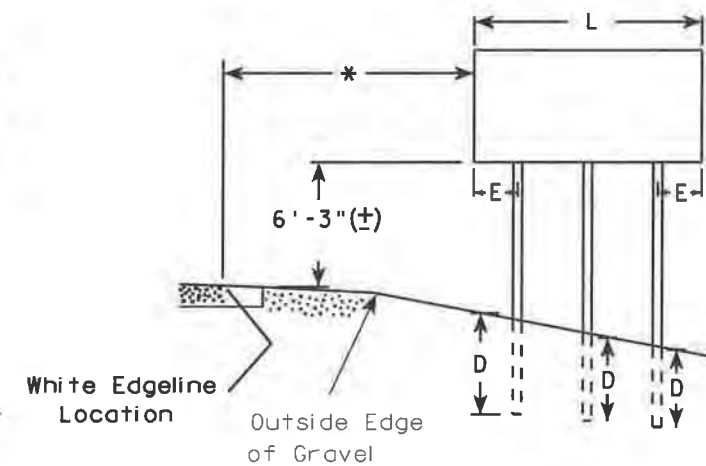
COUNTY: WAUKESHA

SIGN DETAIL

SHEET NO:

E

1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (\pm) or 6'-3" (\pm) depending upon existence of sub-sign.
4. The (\pm) tolerance for mounting height is 3 inches.
5. Minimum mounting height for J assemblies (A2-IS) is 7'-3" (\pm) or 6'-3" (\pm) per urban or rural detail respectively.
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. Folding signs shall be mounted at a height of 5'-3" (\pm) or as directed by the engineer.
8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (\pm). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (\pm).



- * 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 less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (FOUR POSTS REQUIRED)	
L	E
168" and greater	12"

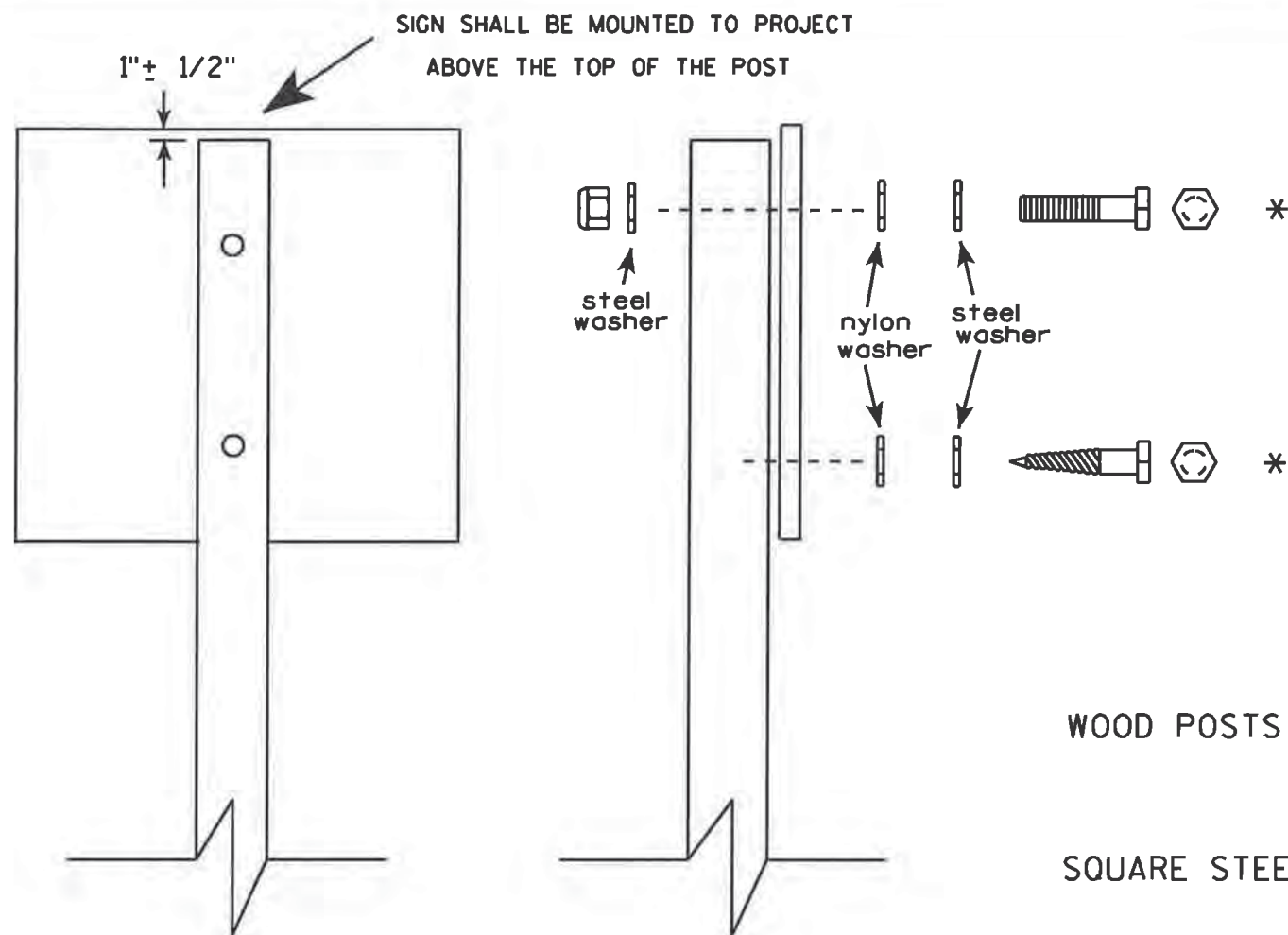
POST EMBEDMENT DEPTH	
Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R Rauch
For State Traffic Engineer

DATE 11/12/14 PLATE NO. A4-4.13



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

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

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

WOOD POSTS (4" x 4" or 4" x 6")

LAG SCREWS - $\frac{3}{8}$ " x 3"

MACHINE BOLTS - $\frac{5}{16}$ " x 6-1/2" or 7" Length w/ nuts

SQUARE STEEL POSTS (2" x 2")

MACHINE BOLTS - $\frac{3}{8}$ " x 3-1/4" Length w/ nuts

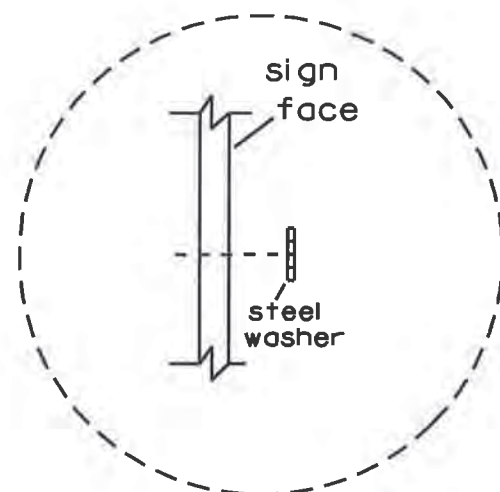
RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL

O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

WASHERS (ALL POSTS) -

1-1/4" O.D. x $\frac{3}{8}$ " I.D. x $\frac{1}{16}$ " STEEL

1-1/4" O.D. x $\frac{3}{8}$ " I.D. x .080 NYLON for all Type H signs.



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

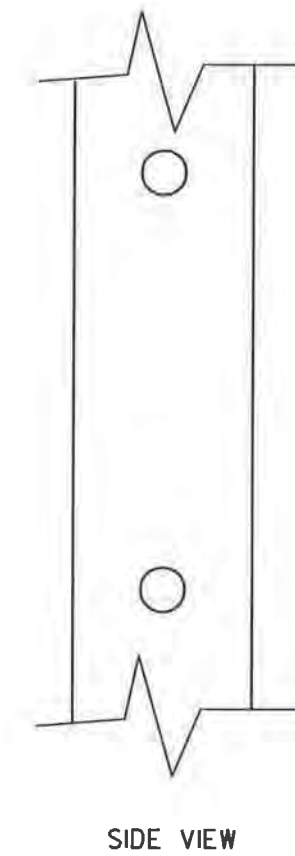
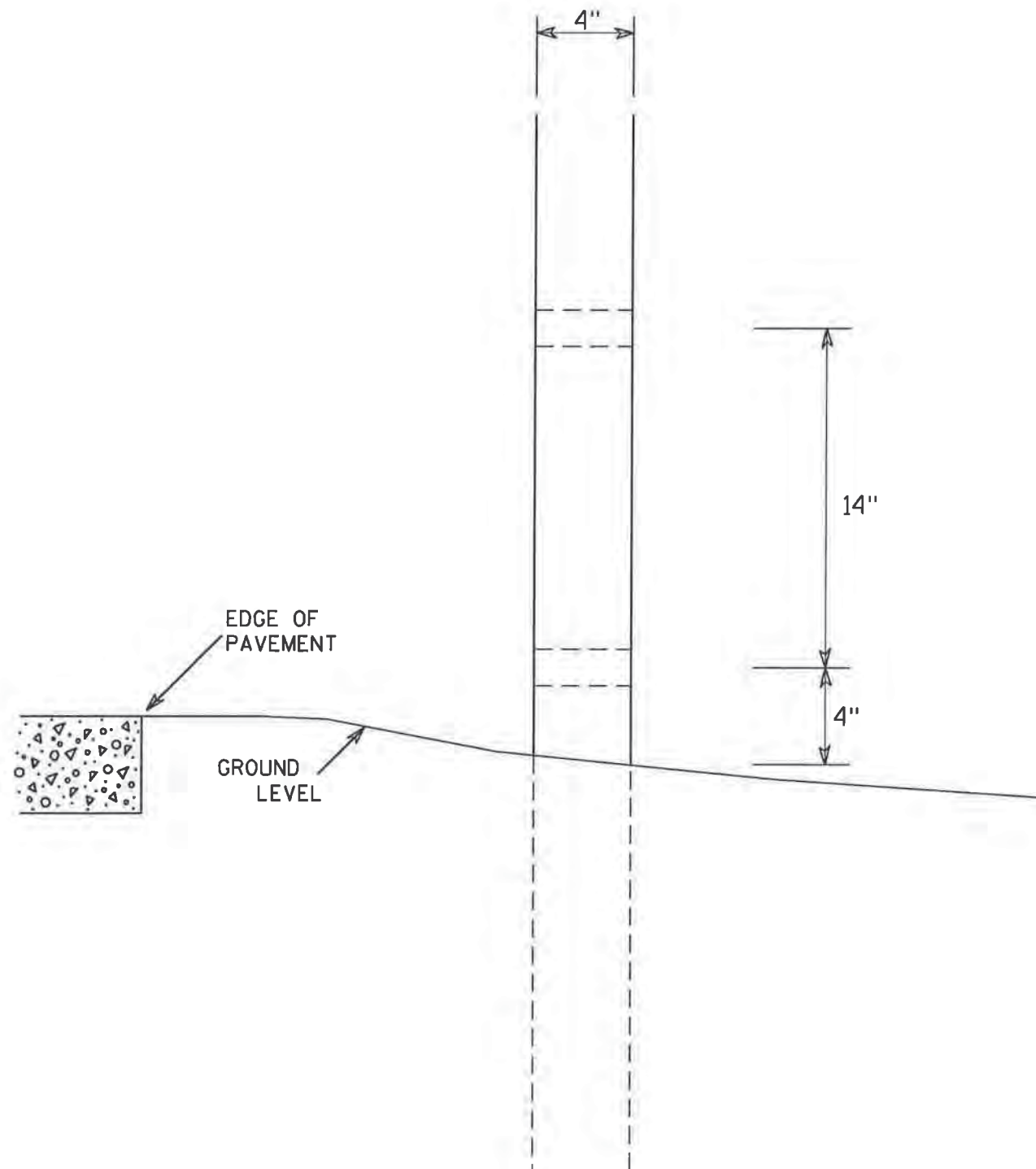
- * Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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



GENERAL NOTES

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

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: 2758-04-70

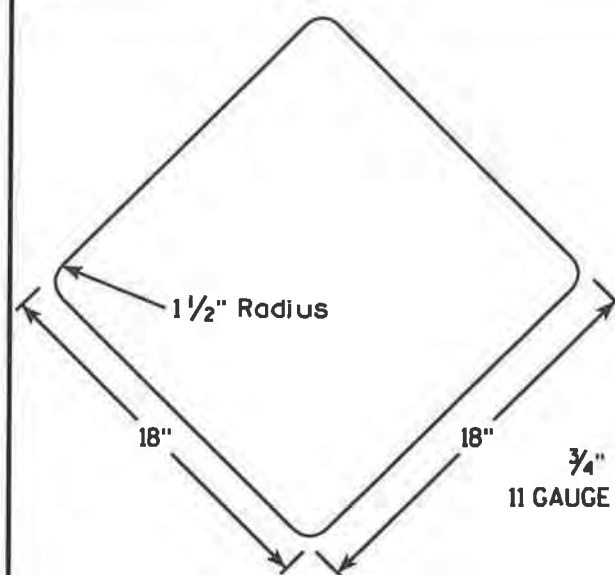
HWY: CTH JJ

COUNTY: WAUKESHA

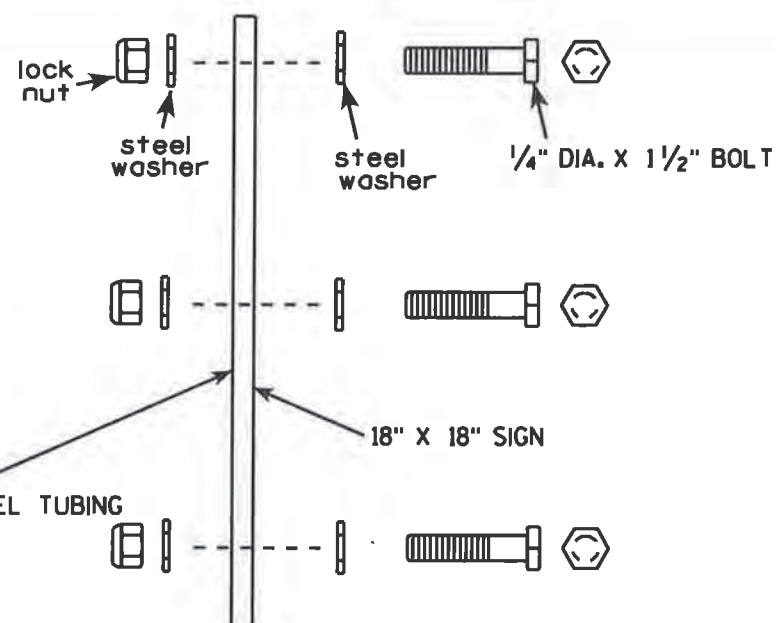
SIGN DETAIL

SHEET NO:

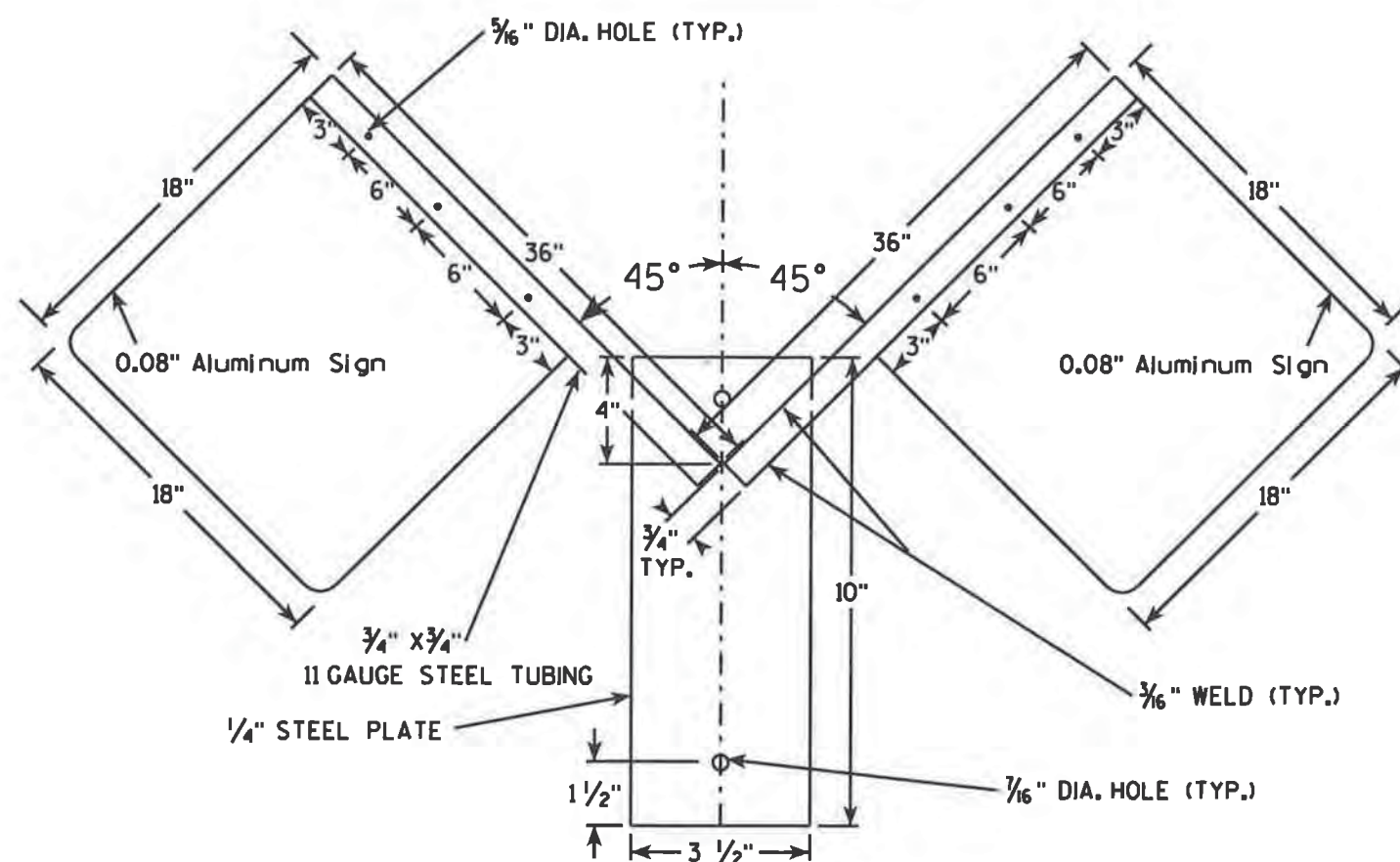
E



SIGN DETAIL



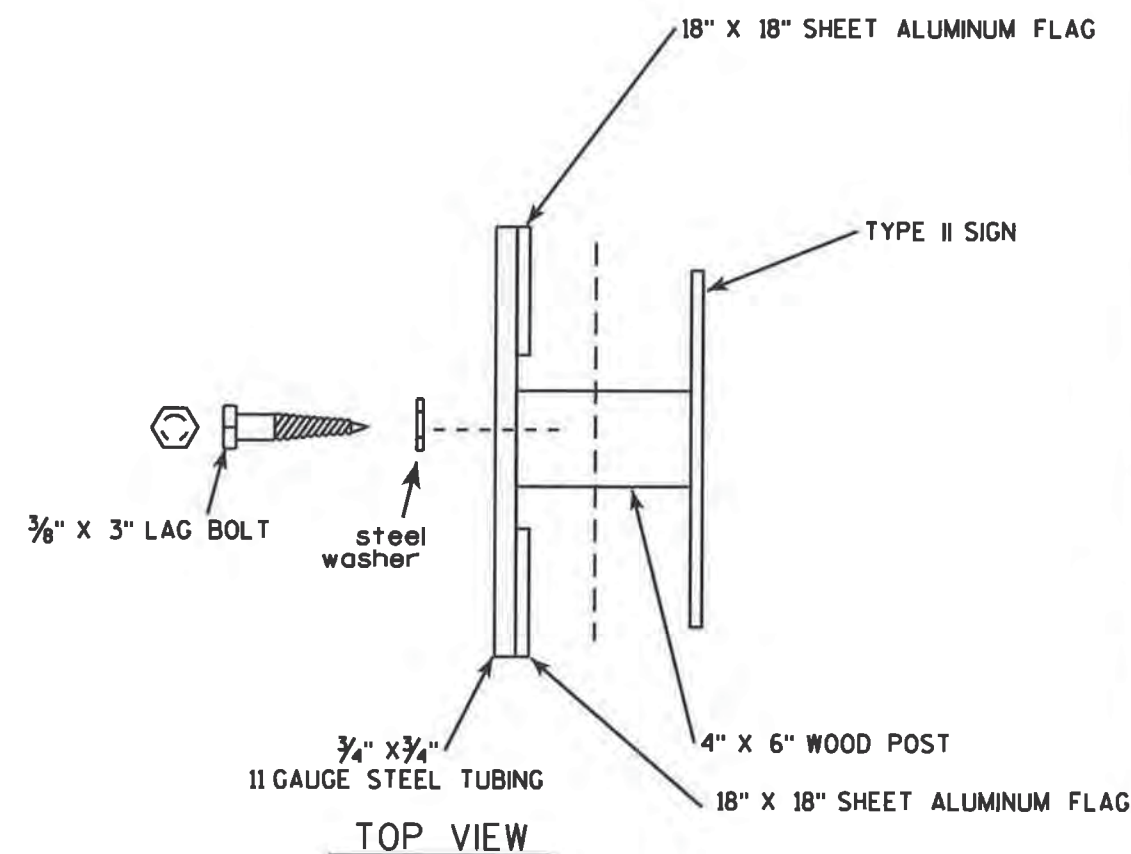
FLAG BOLTING PROCEDURE



BACK VIEW

GENERAL NOTES

1. ALL MATERIAL TO BE APPROVED BY ENGINEER BEFORE INSTALLATION.
2. SEE SIGN PLATE A4-8 FOR HARDWARE REQUIREMENTS.
3. SIGN IS TYPE II, TYPE F REFLECTIVE- REFERENCE WISDOT STANDARD. SPECIFICATION FOR HIGHWAY AND STRUCTURE CONSTRUCTION LATEST EDITION.
4. SIGN COLOR - ORANGE
5. SIGN CORNERS SHALL BE ROUNDED
6. BRACKET SHALL BE ENTIRELY PRIMED AND PAINTED WITH TWO COATS OF A BLACK POWDER COATED ENAMEL PAINT.



TOP VIEW

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGN FLAGS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/15/13 PLATE NO. A4-15.3

PROJECT NO: 2758-04-70

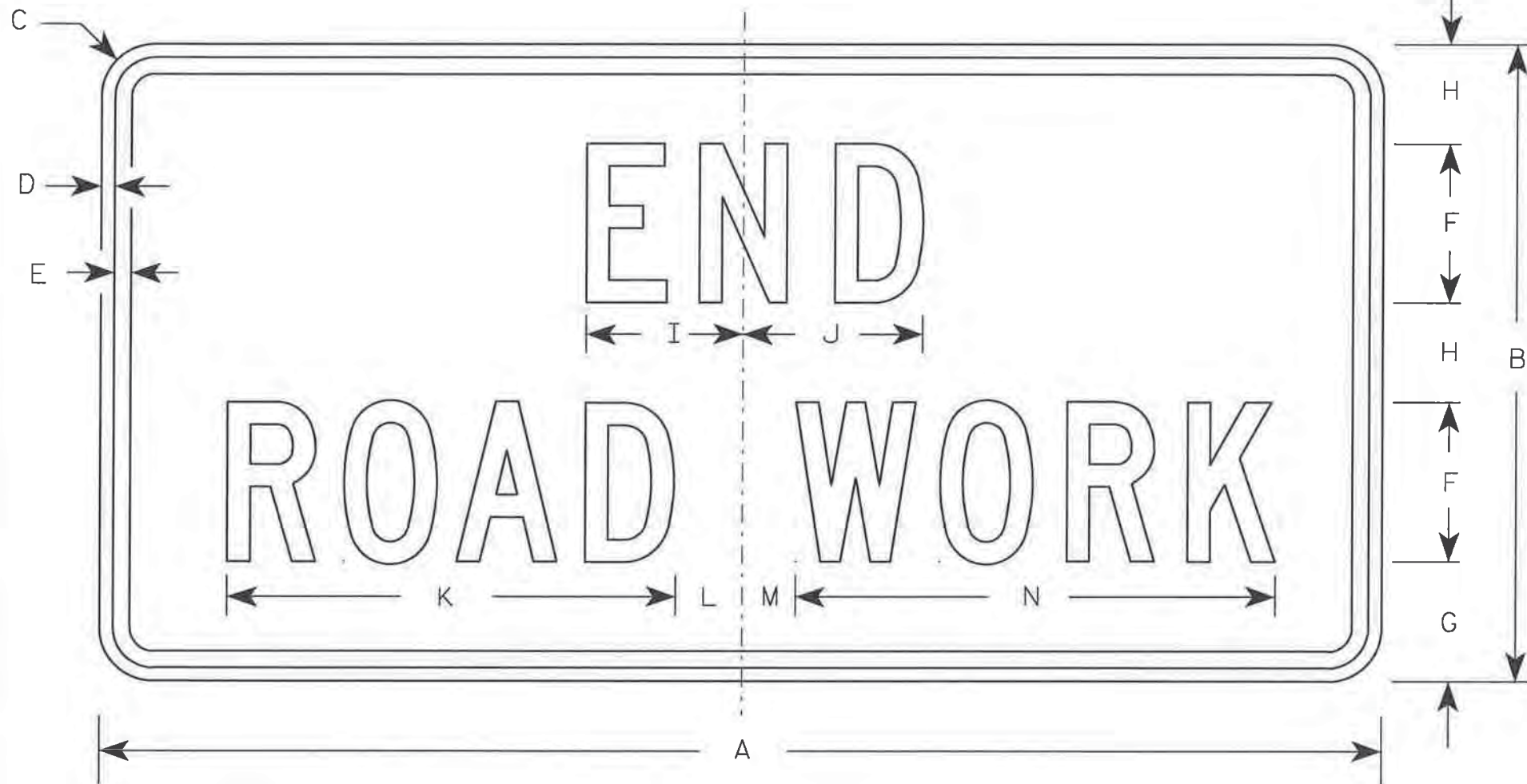
HWY: CTH JJ

COUNTY: WAUKESHA

SIGN DETAIL

SHEET NO:

E



G20-2A

NOTES

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

Metric equivalent
for this sign is:

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

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

STANDARD SIGN
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch

for State Traffic Engineer

DATE 9/30/09

PLATE NO. G20-2A.8

PROJECT NO: 2758-04-70

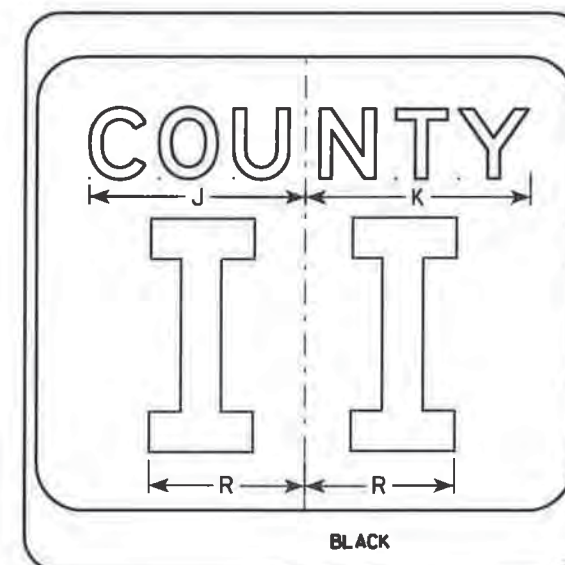
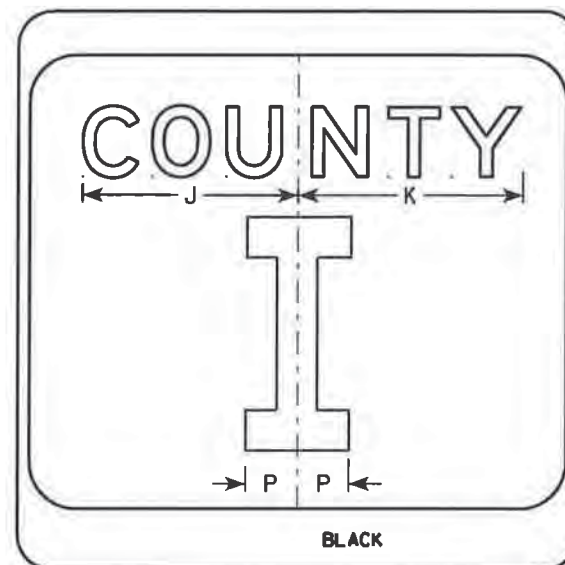
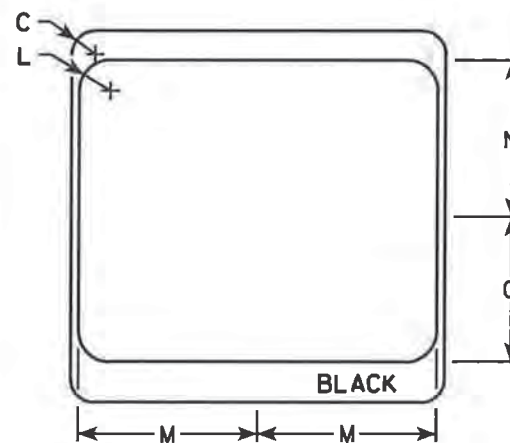
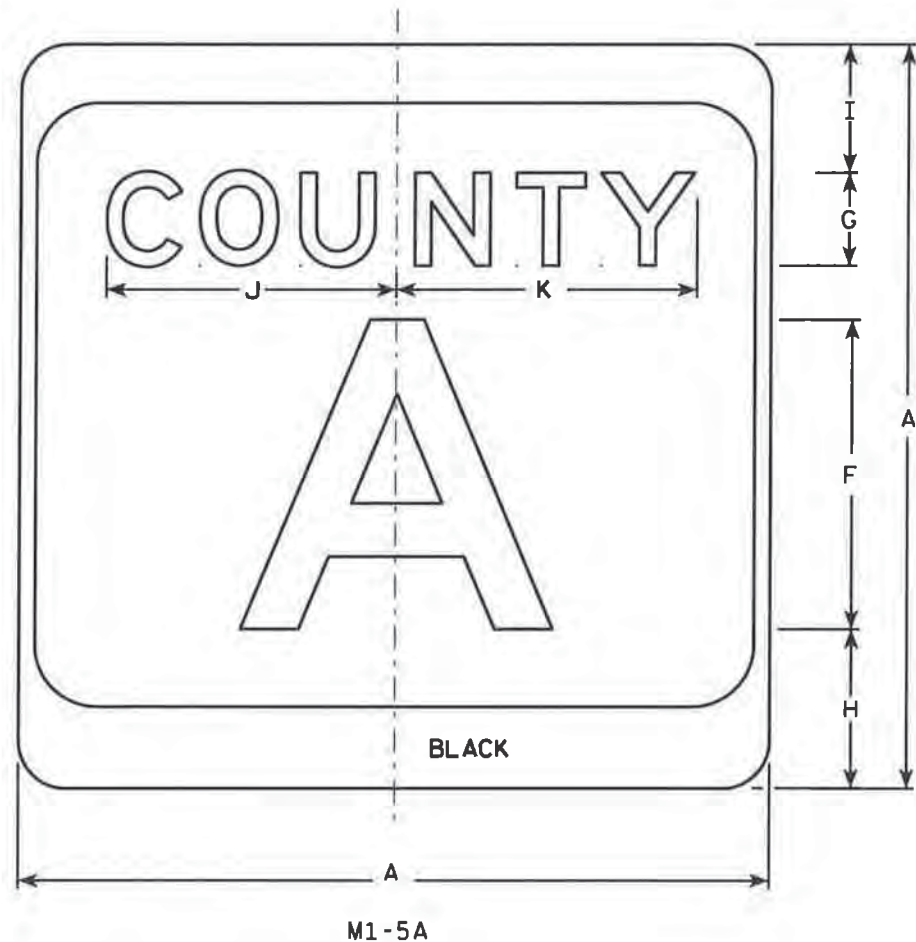
HWY: CTH JJ

COUNTY: WAUKESHA

SIGN DETAIL

SHEET NO:

E

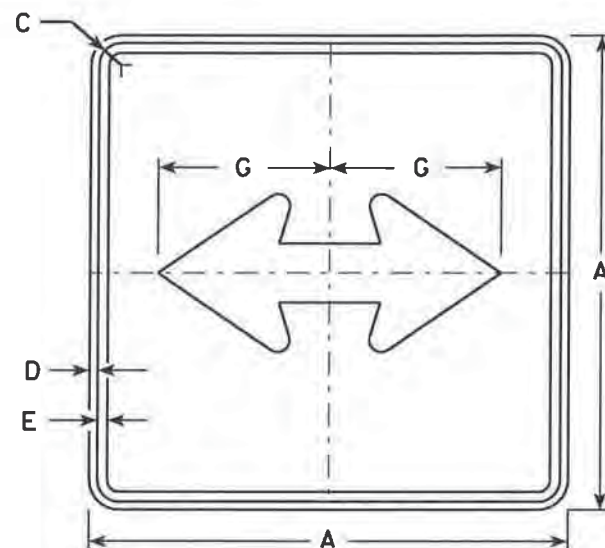


NOTES

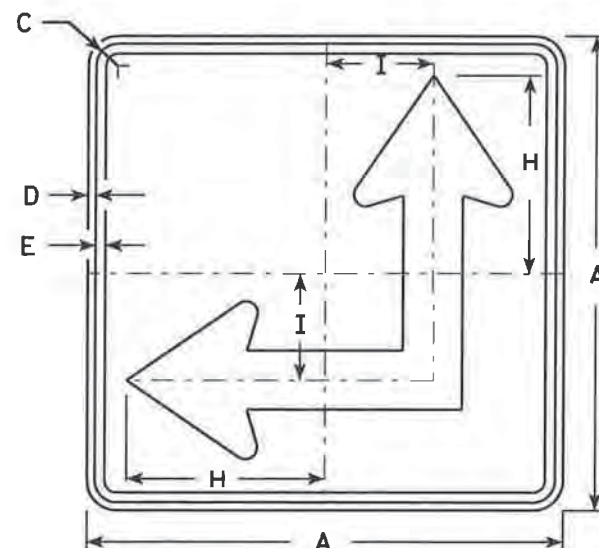
- Sign is Type II - see Note 7 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - White & Black - See Note 7
Message - Black
- Message Series - see Note 5
- Corners may be square or rounded when base material is plywood but borders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

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

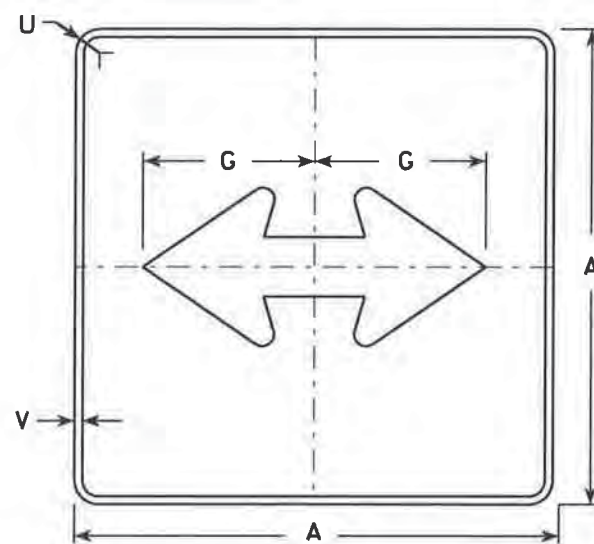
CTH MARKER	
M1-5A FOR ASSEMBLIES	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/27/11	PLATE NO. MI-5A.8



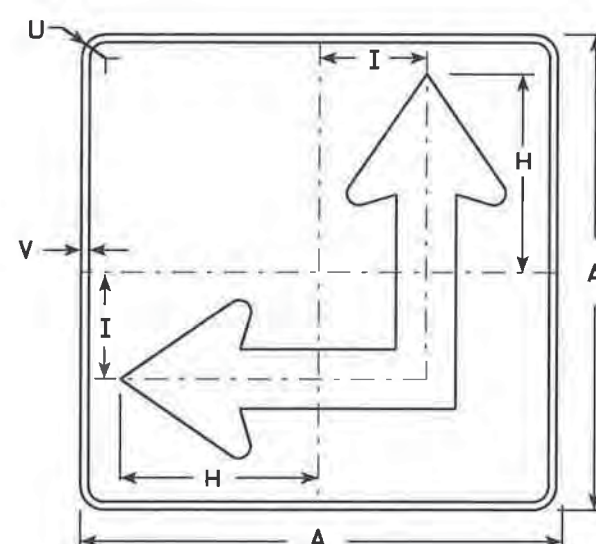
M6 - 4
MK6 - 4
MM6 - 4
MN6 - 4
MO6 - 4
MP6 - 4
MR6 - 4



M6 - 6
MK6 - 6
MM6 - 6
MN6 - 6
MO6 - 6
MP6 - 6
MR6 - 6



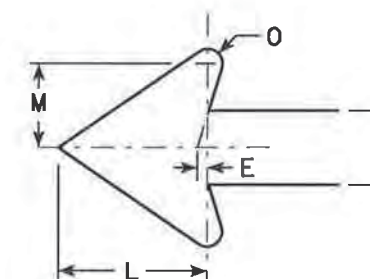
MB6 - 4



MB6 - 6

NOTES

- Signs are Type II - Type H except as Shown
- 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.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
MO6-4 and MO6-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



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	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

PROJECT NO: 2758-04-70

HWY: CTH JJ

COUNTY: WAUKESHA

SIGN DETAIL

STANDARD SIGN
M6-4 & M6-6
SERIES

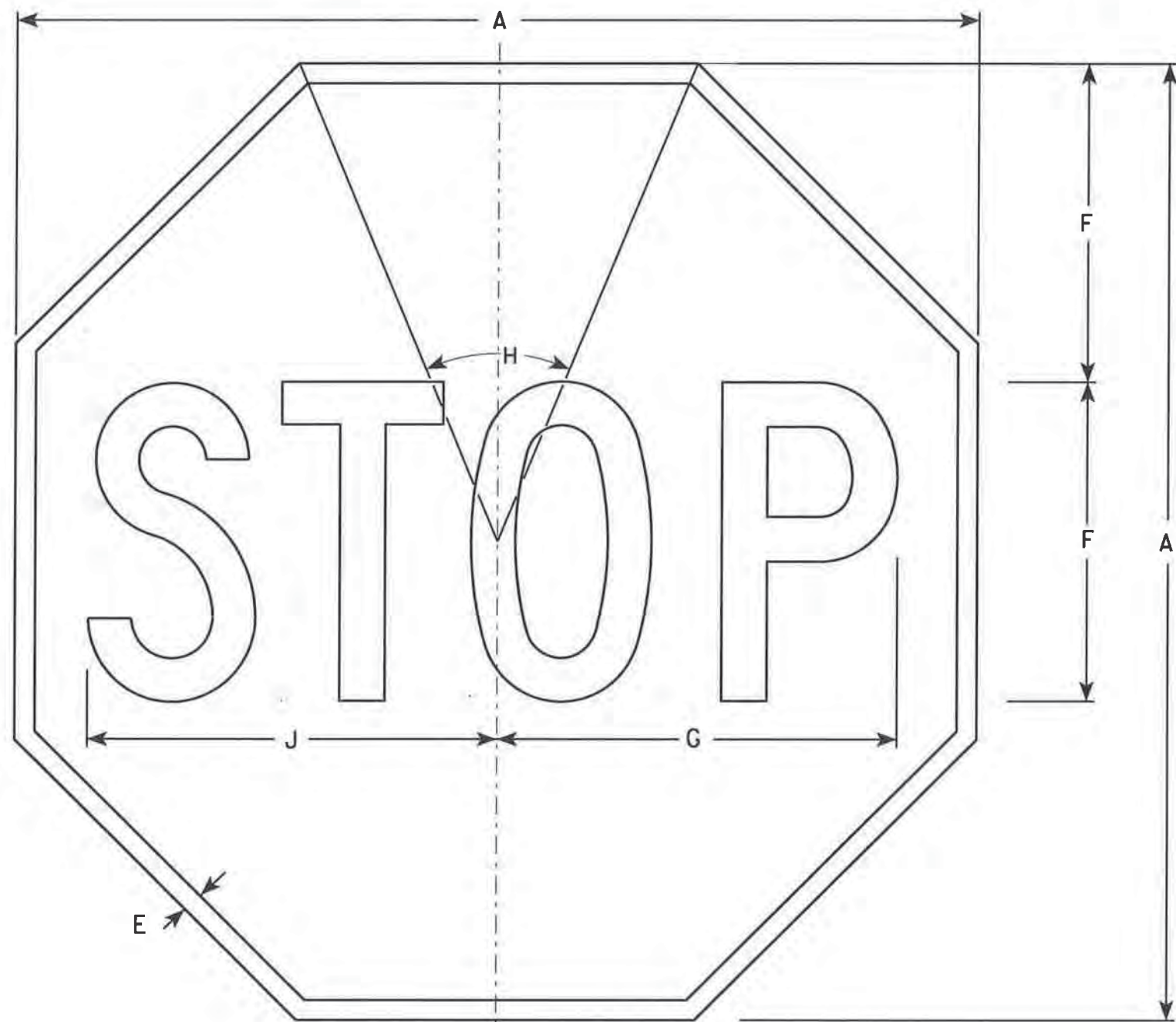
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/03/14 PLATE NO. M6-4.9

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

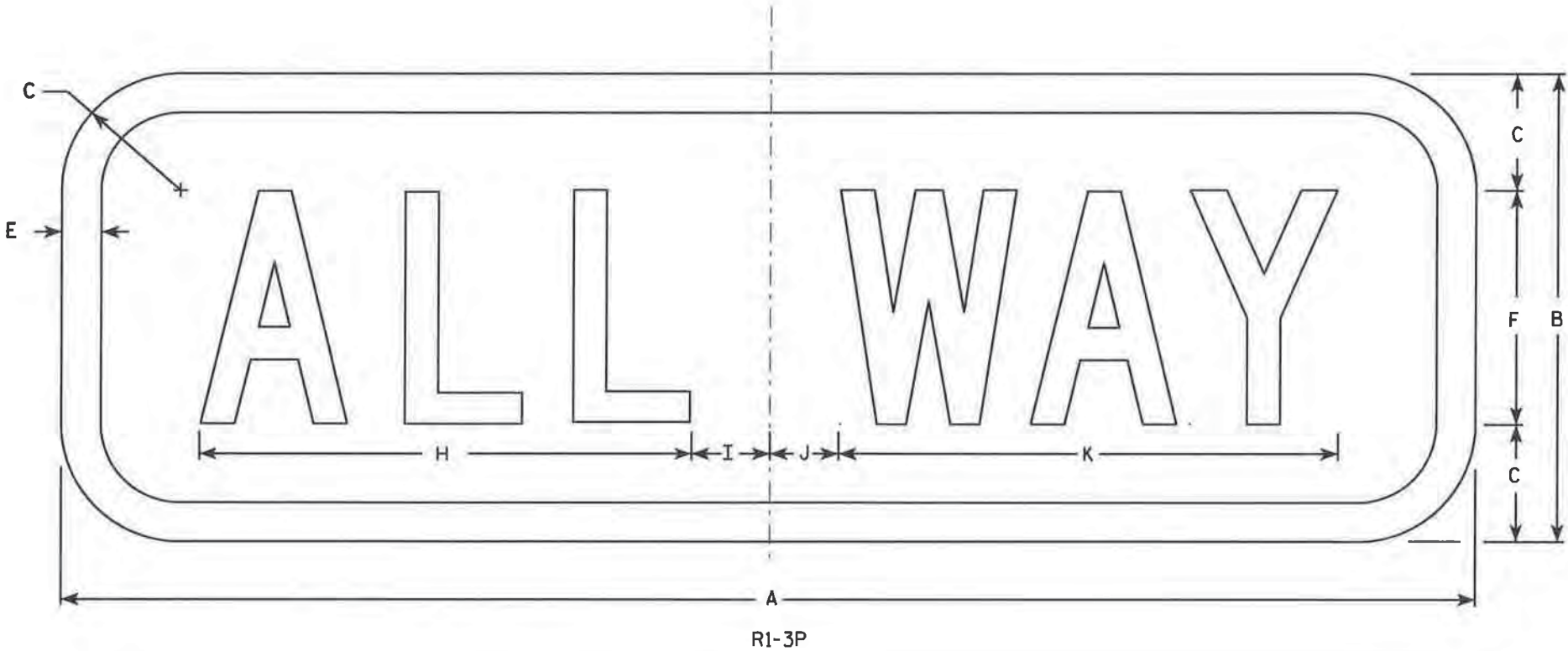
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

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
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



7

7

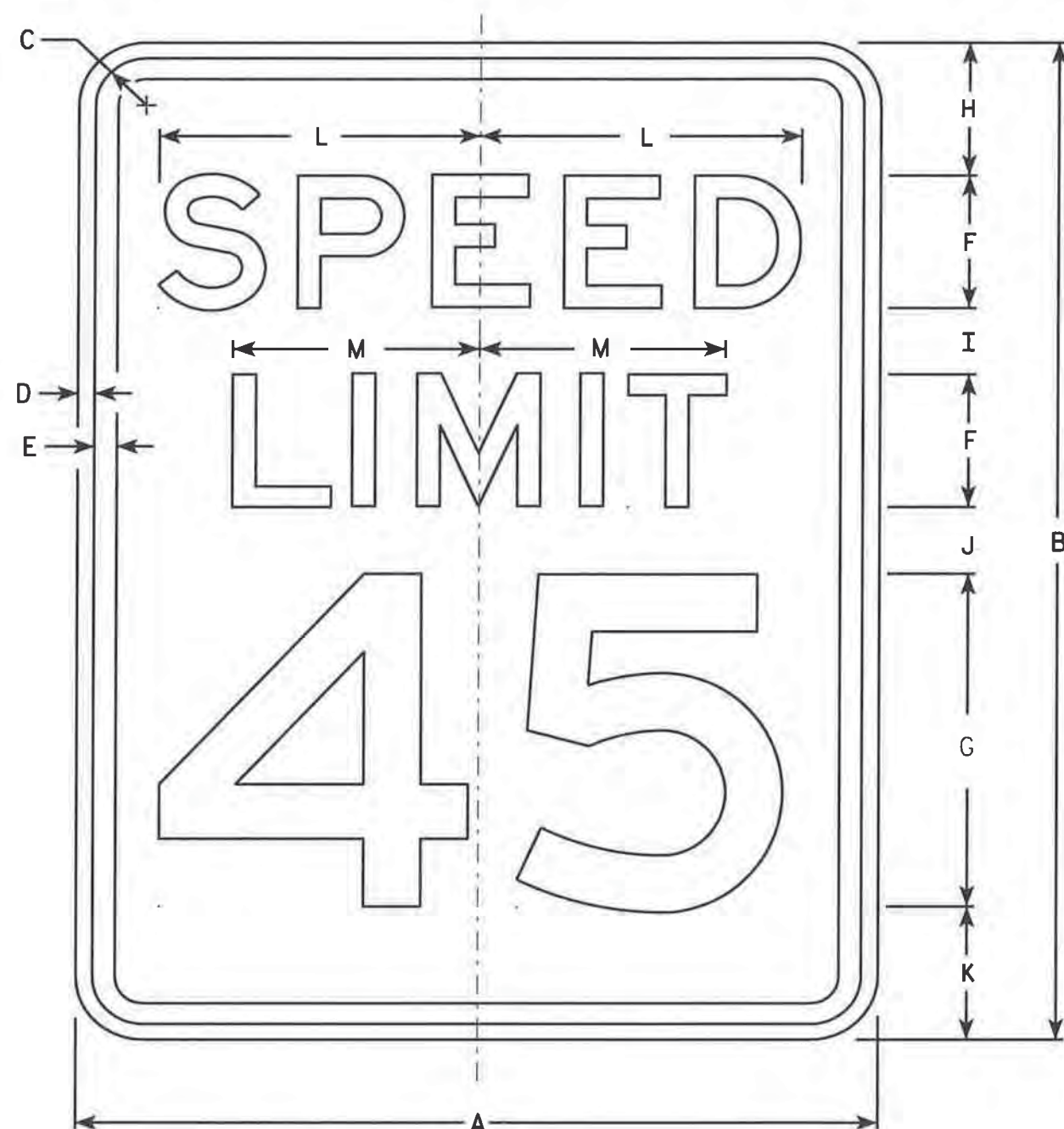
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	INCHES
1	18	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																0.75
2S	18	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																1.5
2M	24	9	1 1/2		1/2	5		9 1/4	1 1/4	3/4	9 3/4																1.5
3	30	12	2 1/4		5/8	6		11	2 1/4	1 1/2	11 3/4																2.5
4																											
5																											

STANDARD SIGN
R1 - 3P

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/02/10 PLATE NO. R1-3P.1



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

PROJECT NO: 2758-04-70

HWY: CTH JJ

COUNTY: WAUKESHA

SIGN DETAIL

SHEET NO:

E

FILE NAME : C:\Users\PROJECTS\tr_std\plate\R21.DGN

PLOT DATE : 28-MAY-2010 08:32

PLOT BY : dit:jph

PLOT NAME :

PLOT SCALE : 4.717577:1.000000

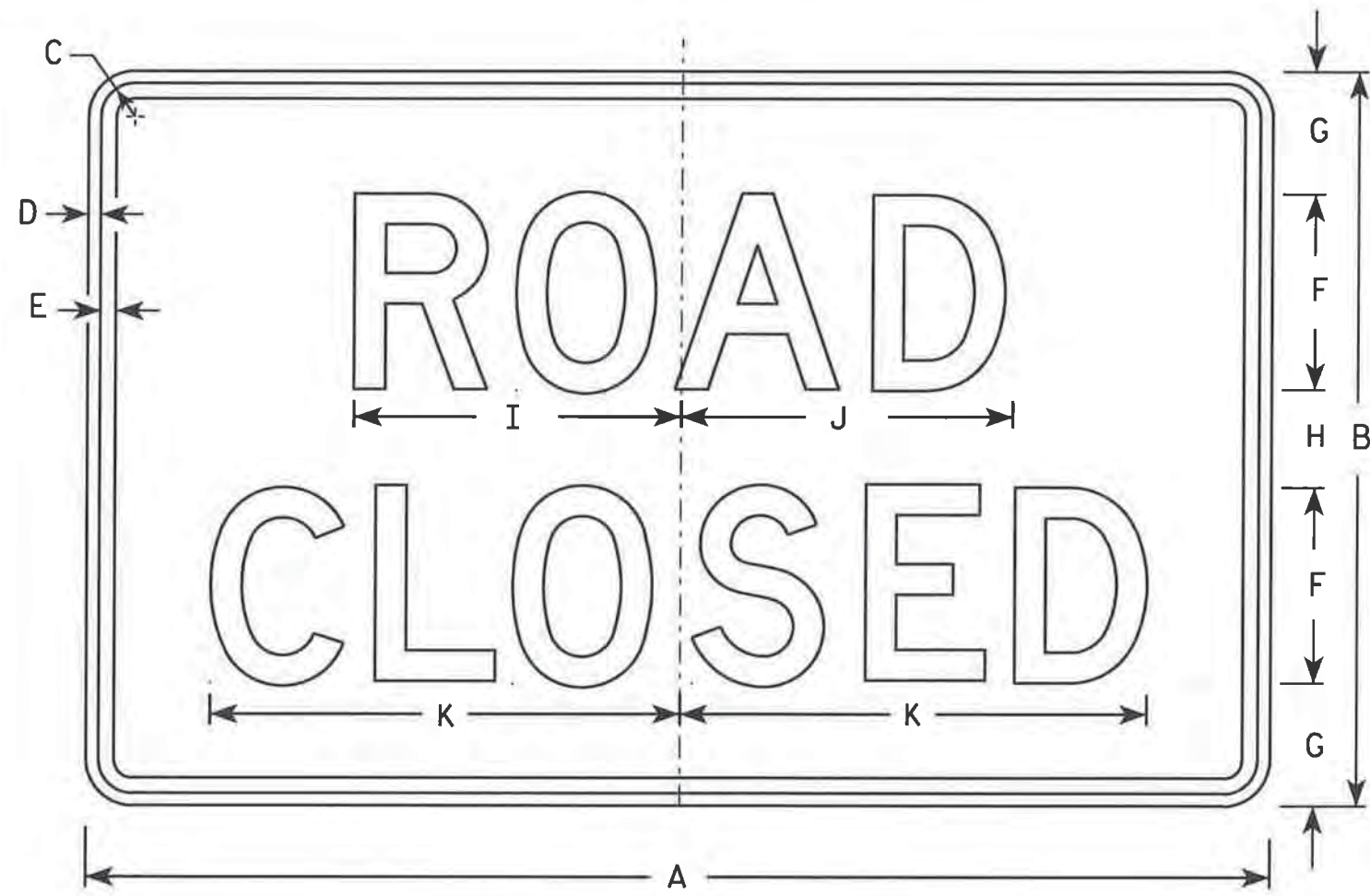
WISDOT/CADDs SHEET 42

STANDARD SIGN
R2-1

WISCONSIN DEPT OF TRANSPORTATION

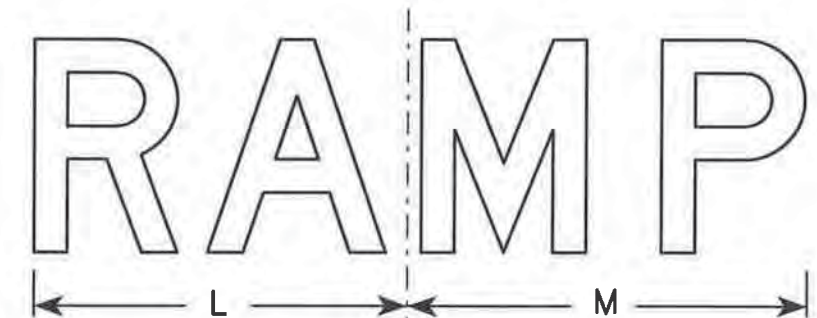
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/26/10 PLATE NO. R2-113

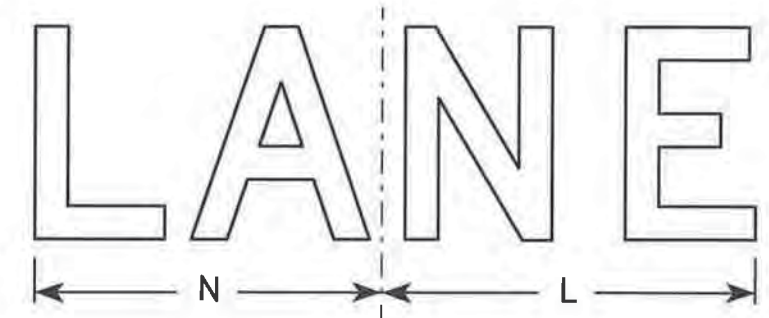


R11-2

- 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 - 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. Modify the message as required.



R11-2R



R11-2L

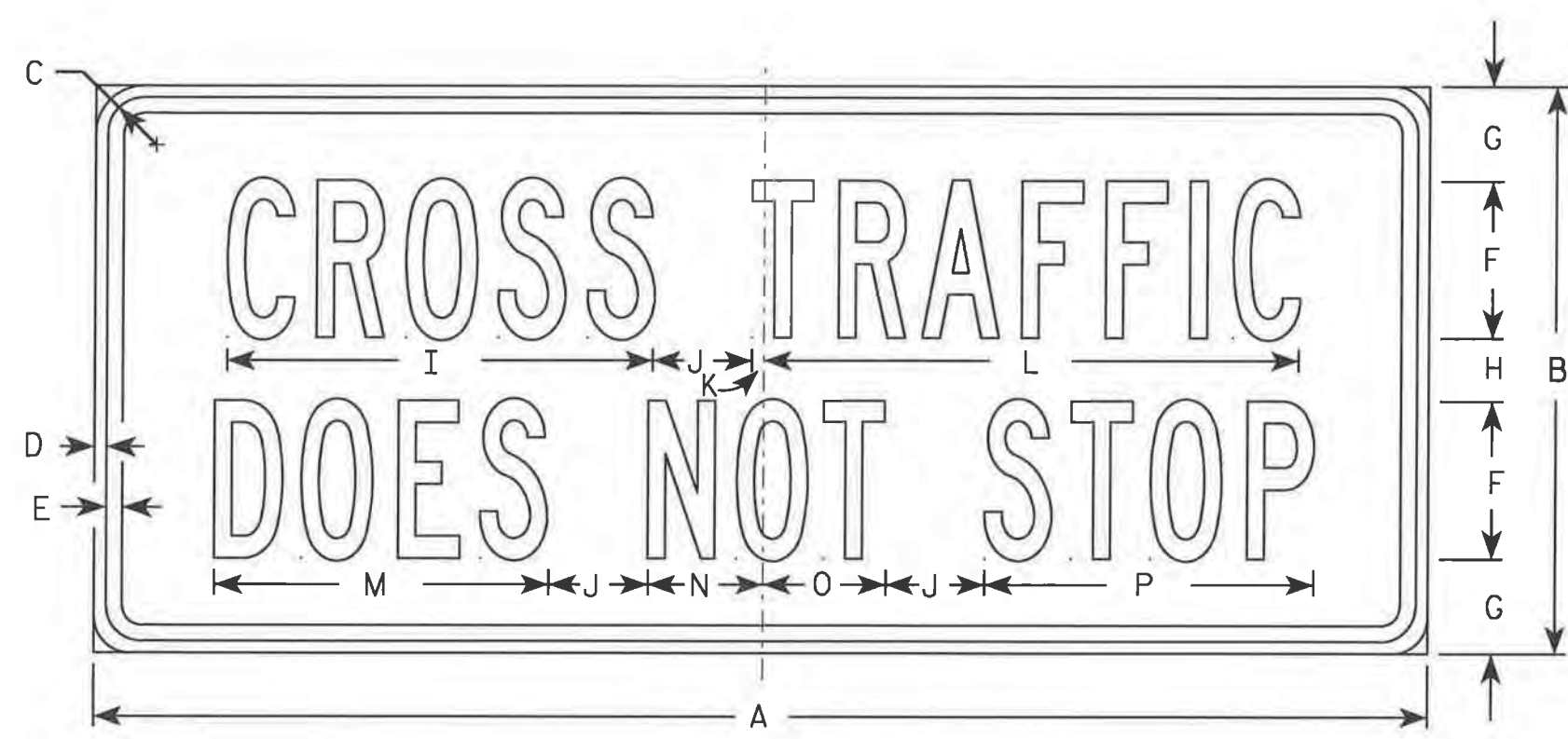
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	13 1/4	13 1/2	19	14	15	13													10.0

STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 4/1/11 PLATE NO. R11-2.10



W4-4P

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 - B
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

7

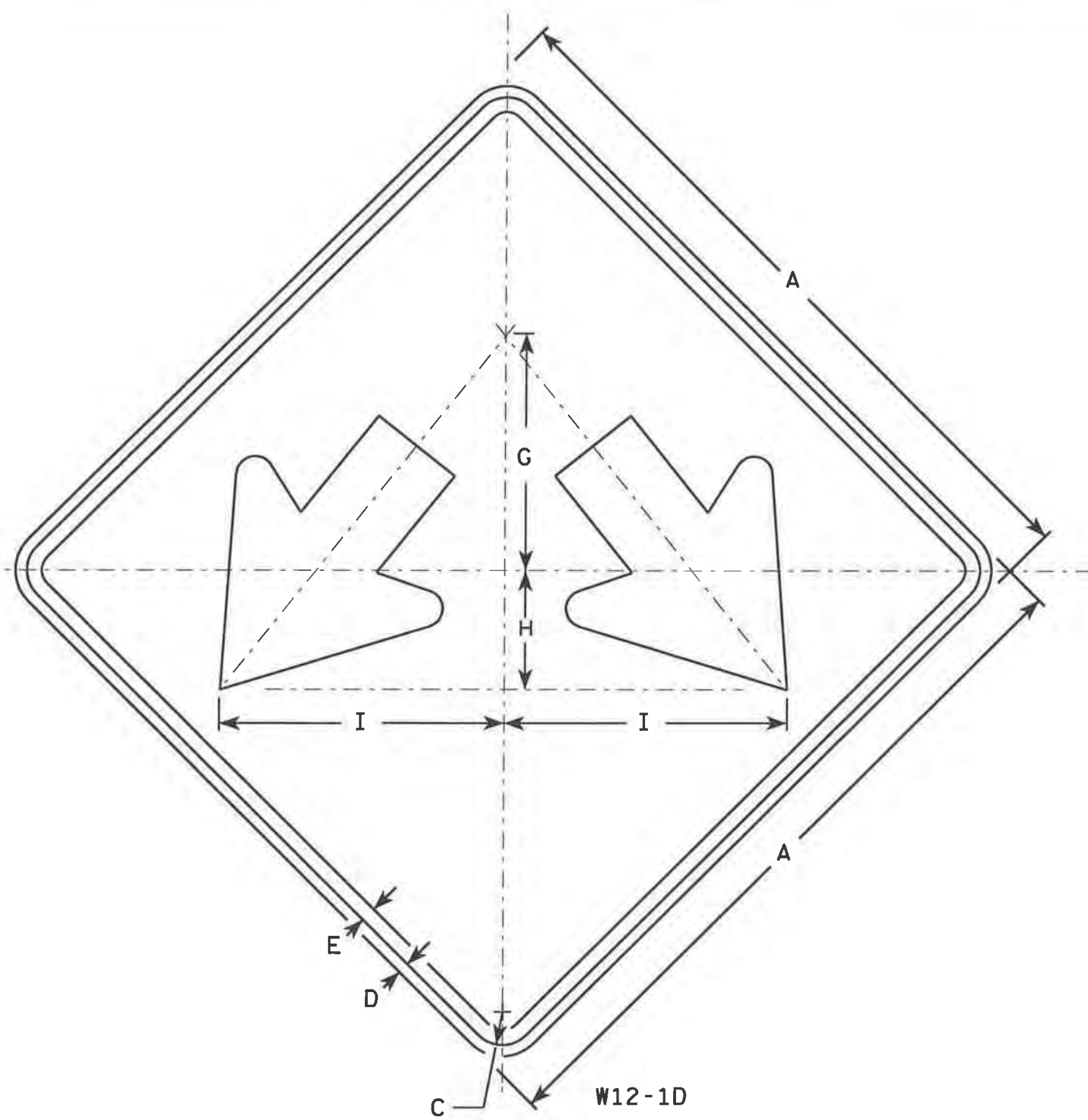
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/8	3/8	3/8	3	2 1/4	1 1/2	8	1 1/2	3/8	10	6 1/4	2 1/4	2 1/4	6 1/4											2.0
2M	24	12	1 1/8	3/8	3/8	3	2 1/4	1 1/2	8	1 1/2	3/8	10	6 1/4	2 1/4	2 1/4	6 1/4											2.0
3	36	15	1 1/8	3/8	1/2	4	2 5/8	1 3/4	10 3/4	2 3/8	3/8	13 1/2	8 3/8	3	3 1/8	8 3/8											3.75
4	42	18	1 1/8	3/8	1/2	5	3	2	13 3/8	3 1/8	3/8	16 7/8	10 1/2	3 5/8	3 7/8	10 3/8											5.25
5																											

STANDARD SIGN
W4-4P

WISCONSIN DEPT OF TRANSPORTATION

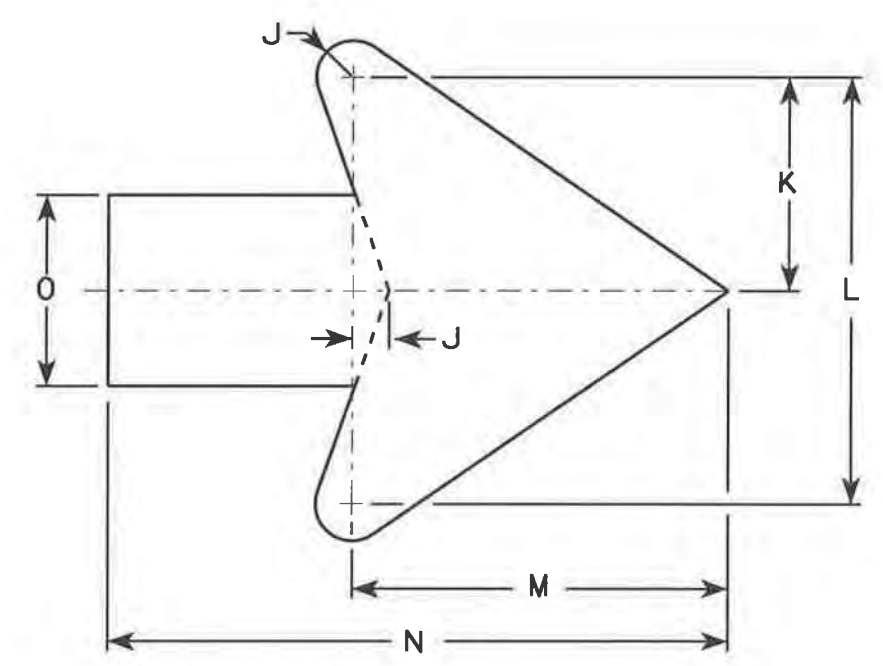
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 03/12/13 PLATE NO. W4-4P.2



NOTES

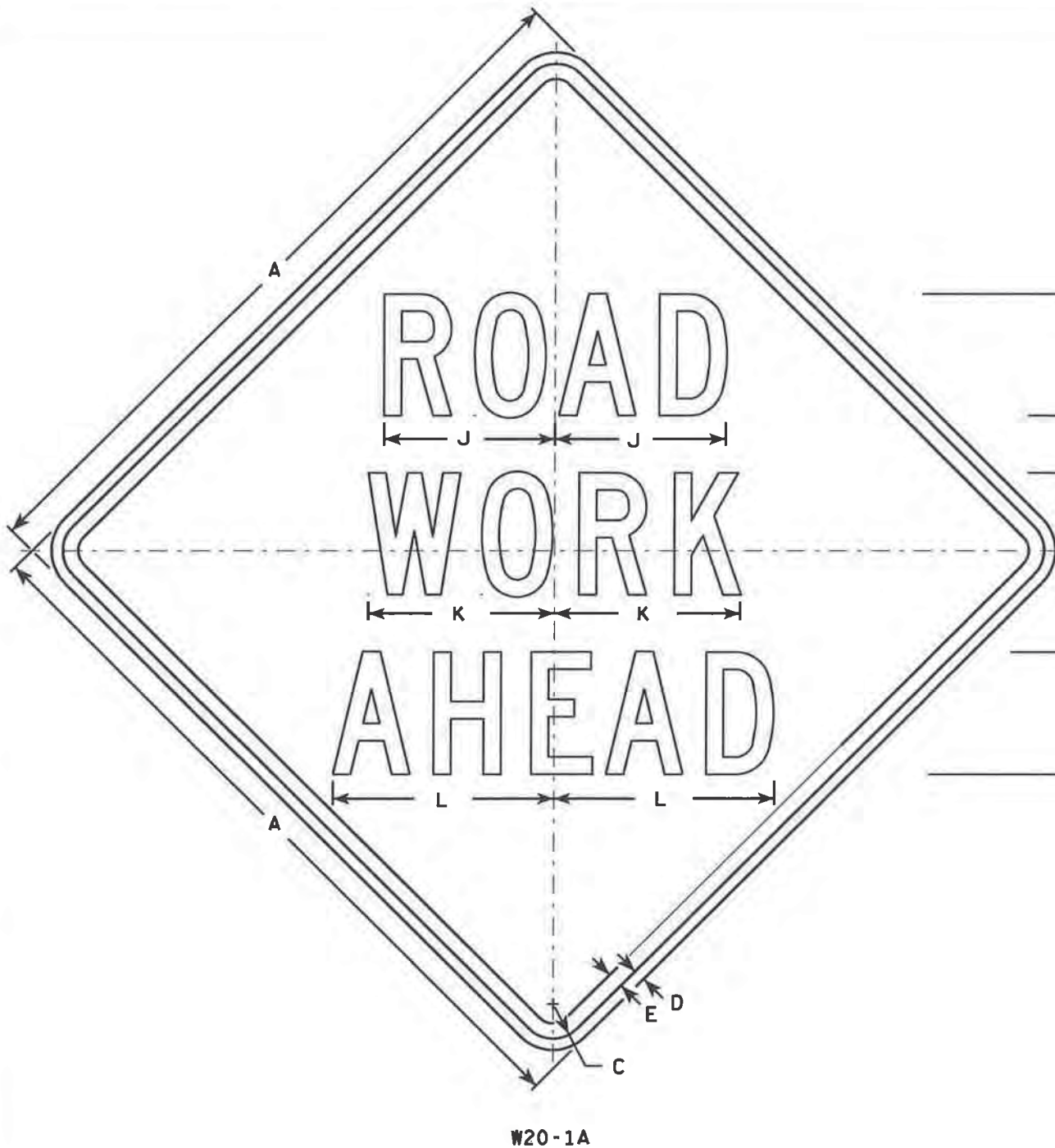
1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Yellow
Message - Black
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material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



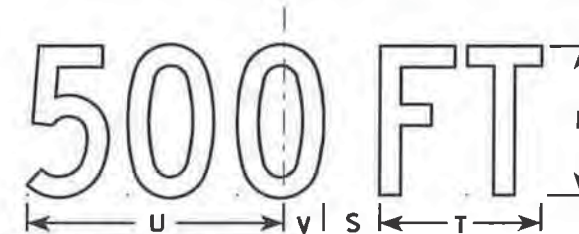
Arrow Detail

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																											
2S	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0

STANDARD SIGN	
W12-1D	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Raush</i> for State Traffic Engineer
DATE 3/13/13	PLATE NO. W12-1D.15



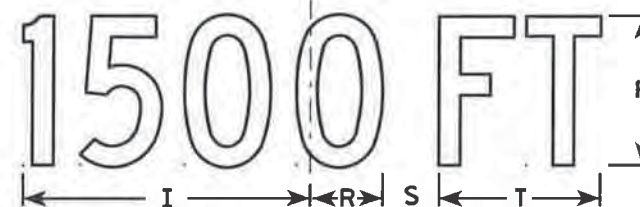
W20-1A



W20-1D



W20-1C



W20-1B



W20-1G



W20-1F

NOTES

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

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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 3/18/11 PLATE NO. W20-19

PROJECT NO: 2758-04-70

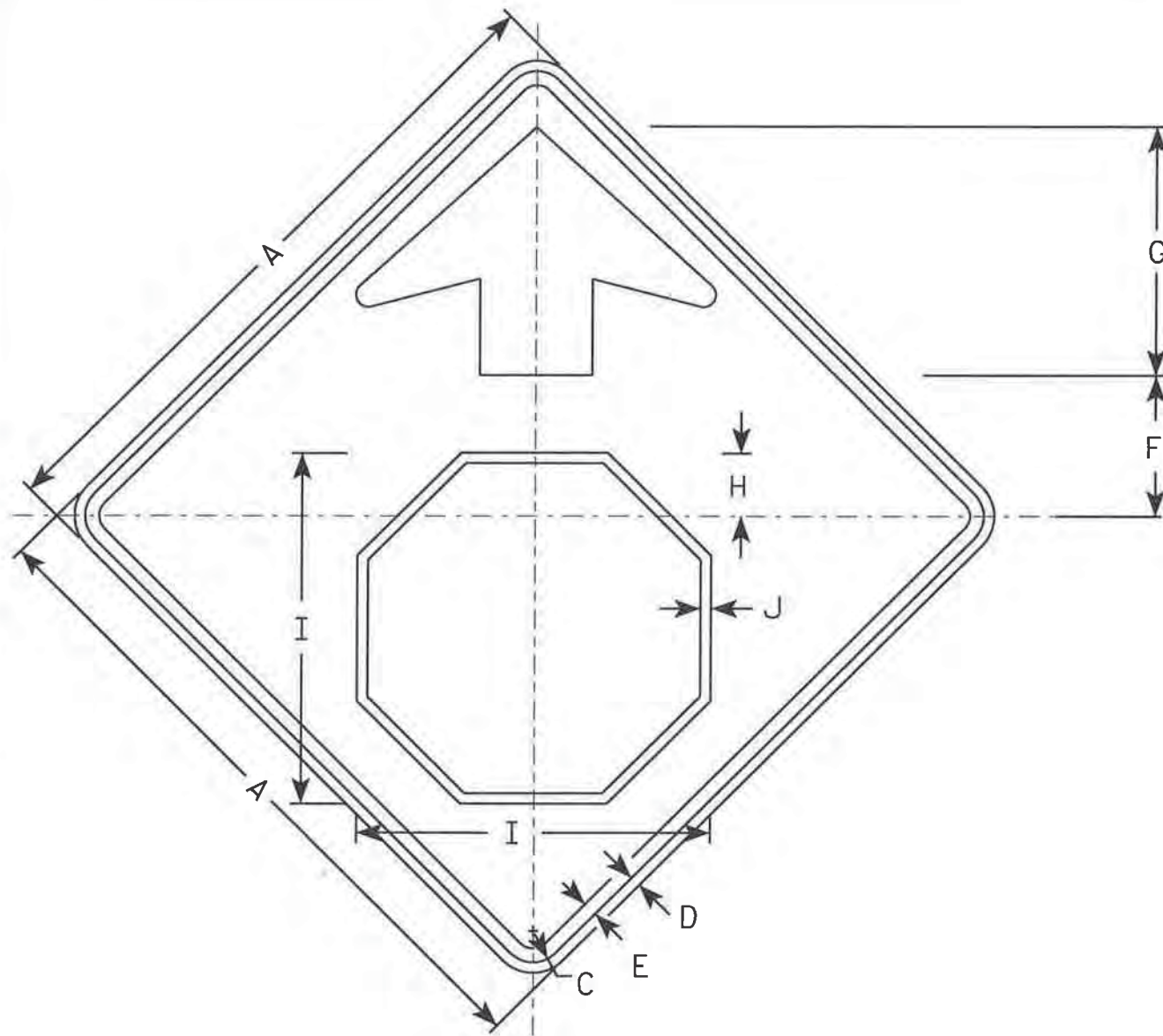
CTH JJ

WAUKESHA

SIGN DETAIL

SHEET NO:

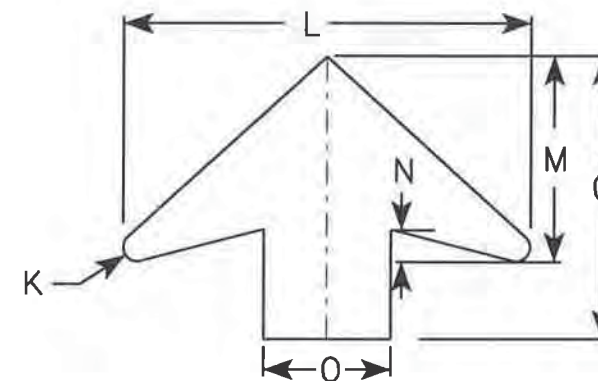
E



W03-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
 Background - ORANGE
 Arrow & Border - BLACK
 Stop Symbol - WHITE BORDER ON RED BACKGROUND



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	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
2S	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
2M	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
3	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
4	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
5	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0

STANDARD SIGN

W03-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
 For State Traffic Engineer

DATE 11/20/13 PLATE NO. W03-1.1

PROJECT NO: 2758-04-70

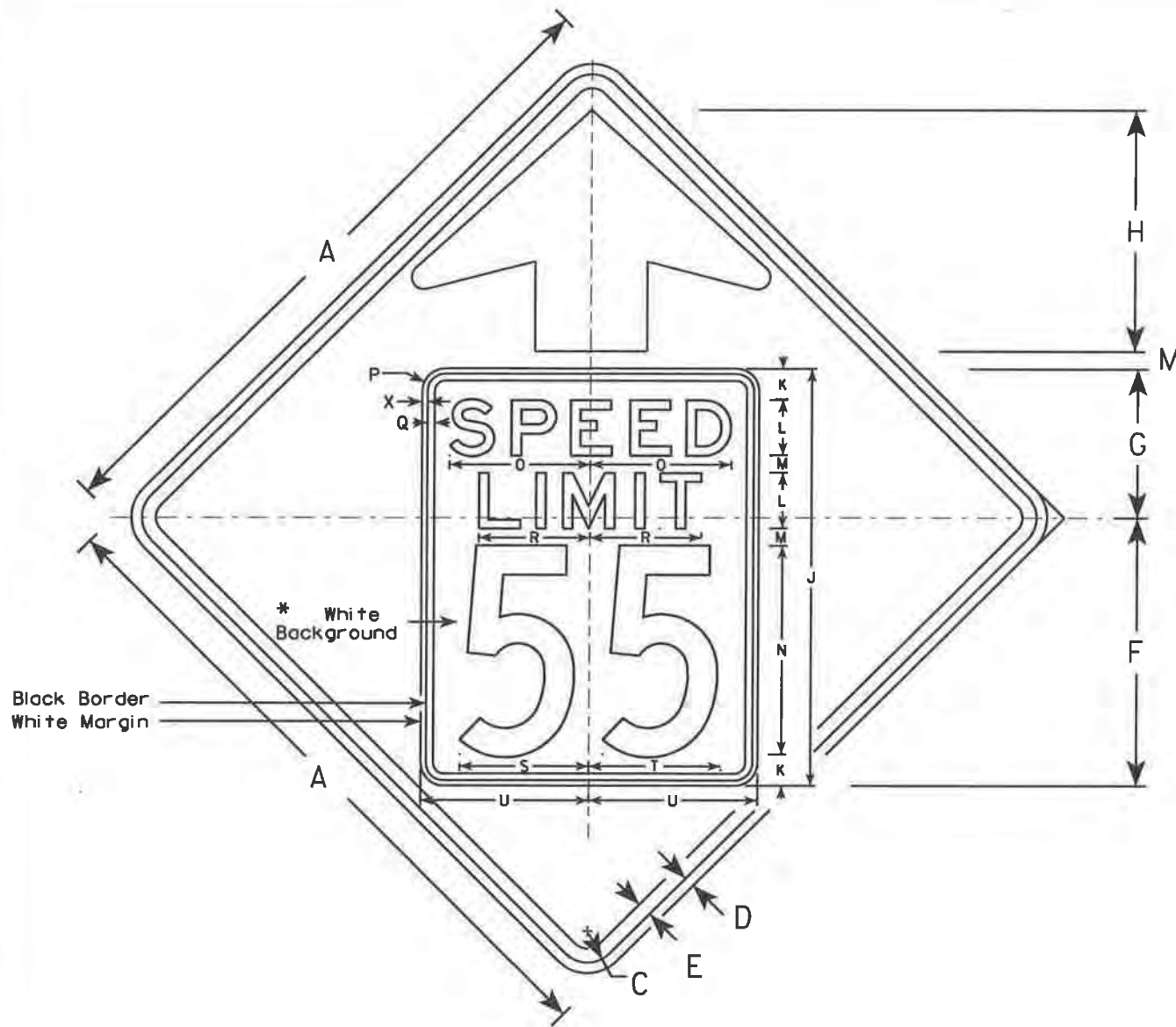
CTH JJ

WAUKESHA

SIGN DETAIL

SHEET NO:

E

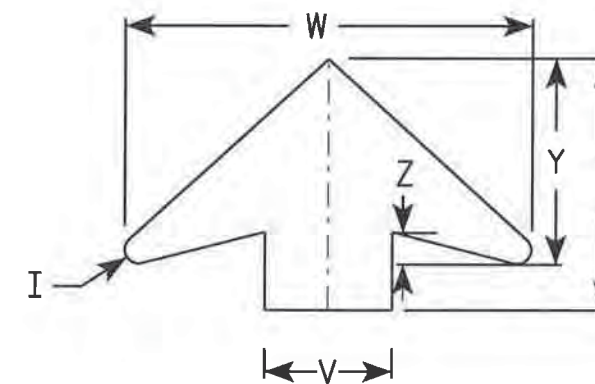


W03-5

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color: *
Background - ORANGE*
Message - BLACK
3. Message Series - C for numbers Series E for wording
4. Substitute appropriate numerals and optically adjust spacing to achieve proper balance

*Speed Limit Sign shall have a White Background



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	36		1 5/8	5/8	3/4	14 1/2	9 1/2	11 1/2	5/8	24	2	3	1	12	7 1/8	1 1/2	3/8	5 3/4	7 1/4	7 1/8	9	6	19 1/4	3/8	9 3/4	1 5/8	9.0
2S	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
2M	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
3	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
4	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0
5	48		2 1/4	3/4	1	19 1/4	10 3/4	17 3/8	7/8	30	2 1/4	4	1 1/4	15	10	1 5/8	1/2	8	9 1/4	9 3/8	12	8	25 5/8	3/8	13	2	16.0

STANDARD SIGN W03-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 11/20/13

PLATE NO. W03-5.1

PROJECT NO: 2758-04-70

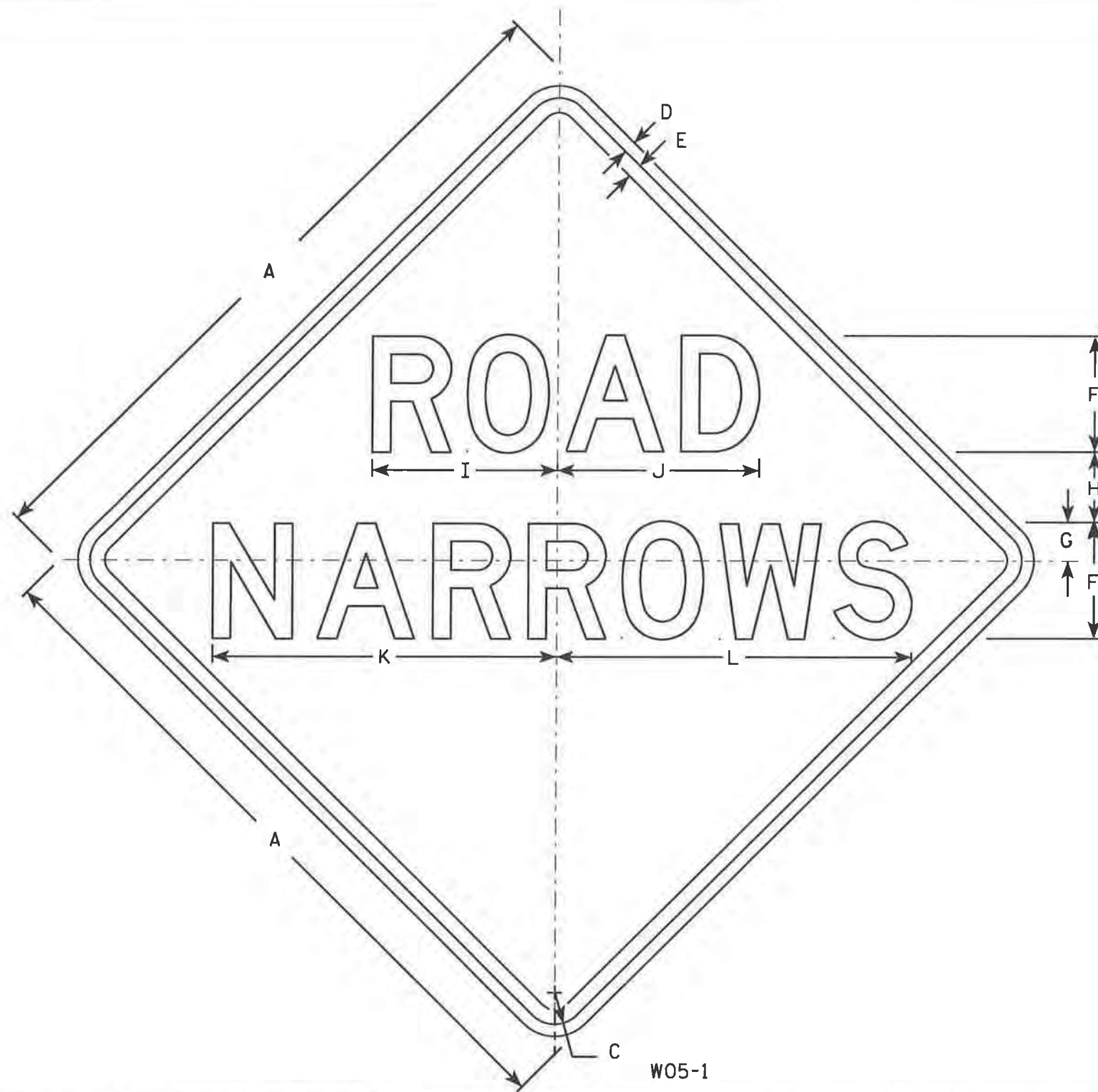
CTH JJ

WAUKESHA

SIGN DETAIL

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 - Orange
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.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	2	3 1/2	9 1/2	10 3/8	17 5/8	18 1/4															9.0
2S	48		2 1/4	3/4	1	8	3	4	12 3/4	13 3/4	23 1/2	24 3/8															16.0
2M	48		2 1/4	3/4	1	8	3	4	12 3/4	13 3/4	23 1/2	24 3/8															16.0
3	48		2 1/4	3/4	1	8	3	4	12 3/4	13 3/4	23 1/2	24 3/8															16.0
4	48		2 1/4	3/4	1	8	3	4	12 3/4	13 3/4	23 1/2	24 3/8															16.0
5	48		2 1/4	3/4	1	8	3	4	12 3/4	13 3/4	23 1/2	24 3/8															16.0

STANDARD SIGN W05-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Raub
for State Traffic Engineer

DATE 11/20/13

PLATE NO. W05-1.1

PROJECT NO: 2758-04-70

HWY: CTH JJ

COUNTY: WAUKESHA

SIGN DETAIL

SHEET NO:

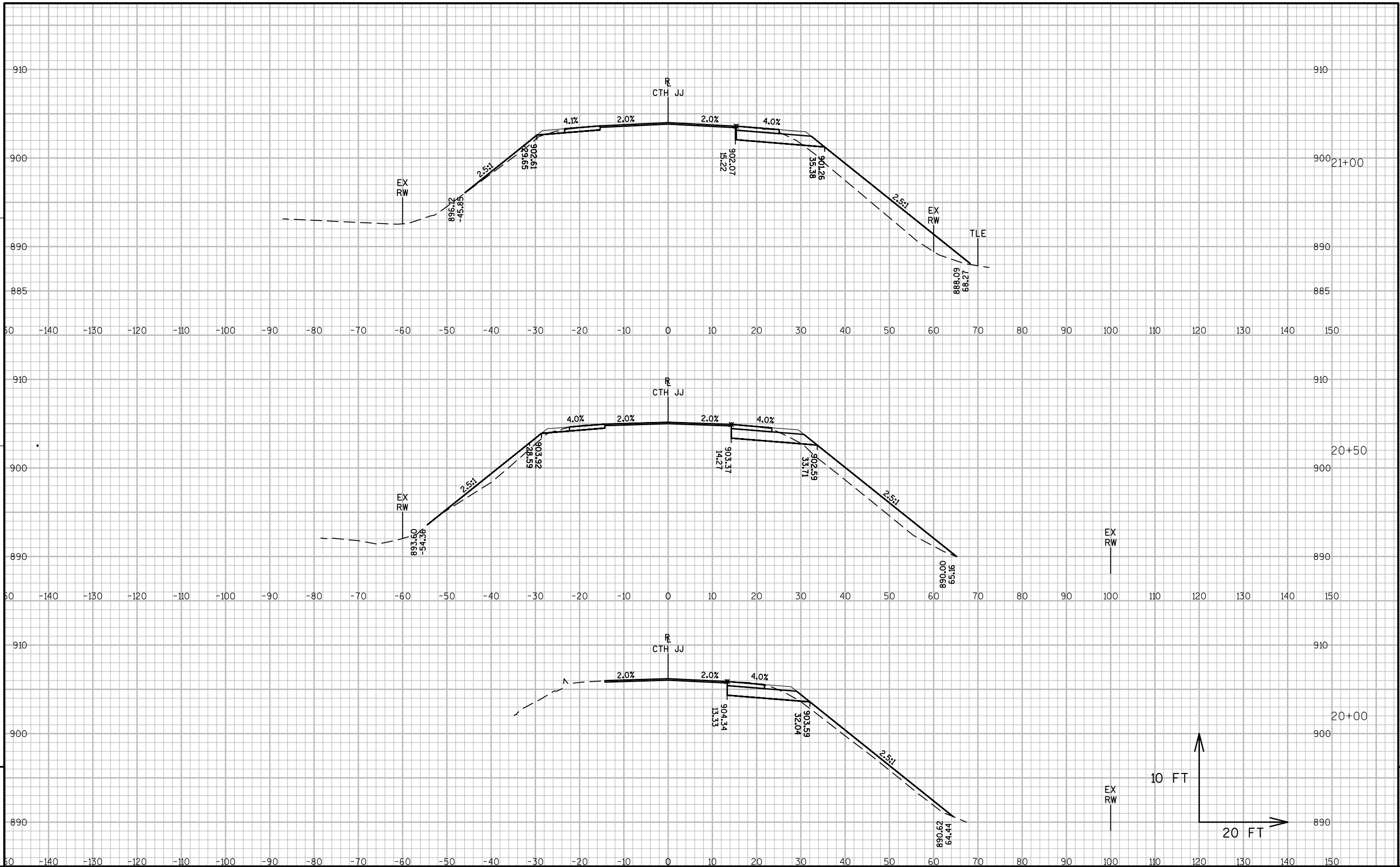
E

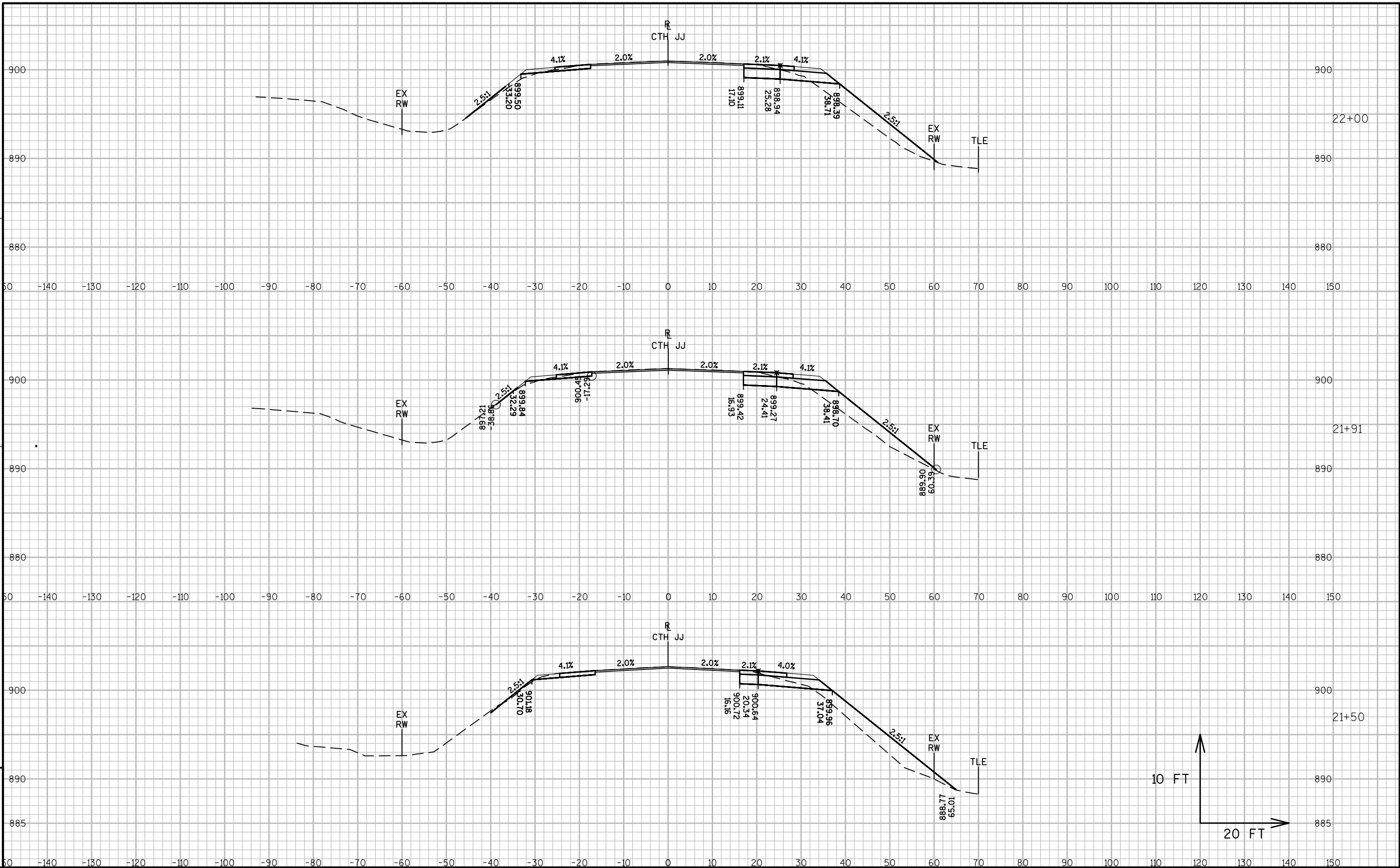
CTH JJ

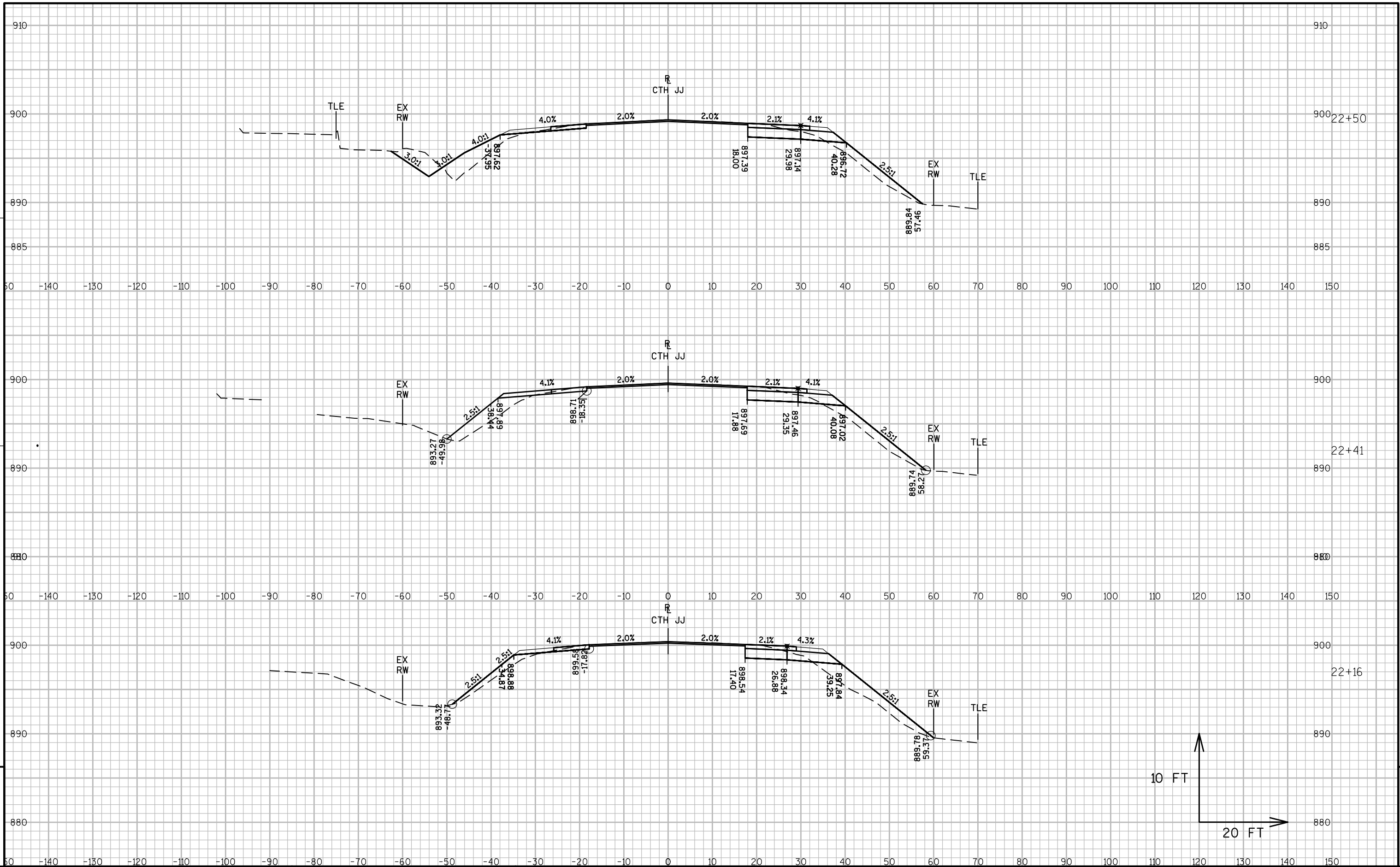
STATION	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Cut	Expanded Fill	
				Note 1	Note 3	1.00 Note 1	1.11	Note 8
19+70		0	0	0	0	0	0	0
19+75	5	20	18	2	2	2	2	0
20+00	25	20	19	19	17	20	21	-1
20+25	25	25	38	21	27	41	51	-9
20+50	25	24	57	22	44	64	100	-36
20+75	25	23	75	22	61	85	168	-83
21+00	25	23	69	21	67	106	242	-136
21+25	25	21	75	20	67	126	317	-190
21+50	25	21	47	19	57	146	380	-234
21+75	25	20	39	19	40	164	424	-259
22+00	25	19	42	18	38	182	466	-283
22+25	25	19	37	18	37	200	506	-306
22+50	25	22	42	19	36	219	547	-327
22+75	25	98	10	55	24	275	573	-299
23+00	25	26	56	57	30	332	607	-275
23+25	25	27	27	25	38	357	649	-293
23+50	25	27	8	25	16	381	667	-286
23+75	25	29	1	26	4	407	672	-265
24+00	25	39	27	31	13	439	687	-248
24+25	25	173	86	98	52	537	745	-208
24+50	25	176	2	162	41	699	790	-91
24+75	25	127	11	141	6	839	797	43
25+00	25	211	18	157	14	996	812	185
25+25	25	106	2	147	9	1143	822	321
25+50	25	38	1	67	2	1210	824	386
25+75	25	10	0	22	1	1232	824	407
26+00	25	16	0	12	0	1243	824	419
26+25	25	47	2	29	1	1272	826	447
26+50	25	108	0	72	1	1344	827	517
26+75	25	67	0	81	0	1425	827	598
27+00	25	83	0	69	0	1494	827	667
27+25	25	20	0	48	0	1541	827	715
27+50	25	18	0	17	0	1559	827	732
27+75	25	19	0	17	0	1576	827	749
28+00	25	16	0	16	0	1592	827	765
28+25	25	30	0	21	0	1614	827	787
28+50	25	37	0	31	0	1645	827	818
28+75	25	12	0	23	0	1668	827	841
29+00	25	7	0	9	0	1677	827	850
29+25	25	7	0	7	0	1683	827	856
29+50	25	5	0	6	0	1689	827	862
29+75	25	5	0	5	0	1694	827	867
30+00	25	6	0	5	0	1699	827	872
30+25	25	8	0	7	0	1705	827	878
30+50	25	8	0	7	0	1713	827	885
30+75	25	8	1	7	1	1720	828	892
31+00	25	4	0	5	1	1725	829	897
31+25	25	4	1	4	1	1729	830	899
31+49	24	5	1	4	1	1733	831	902
Column totals				1733	749			

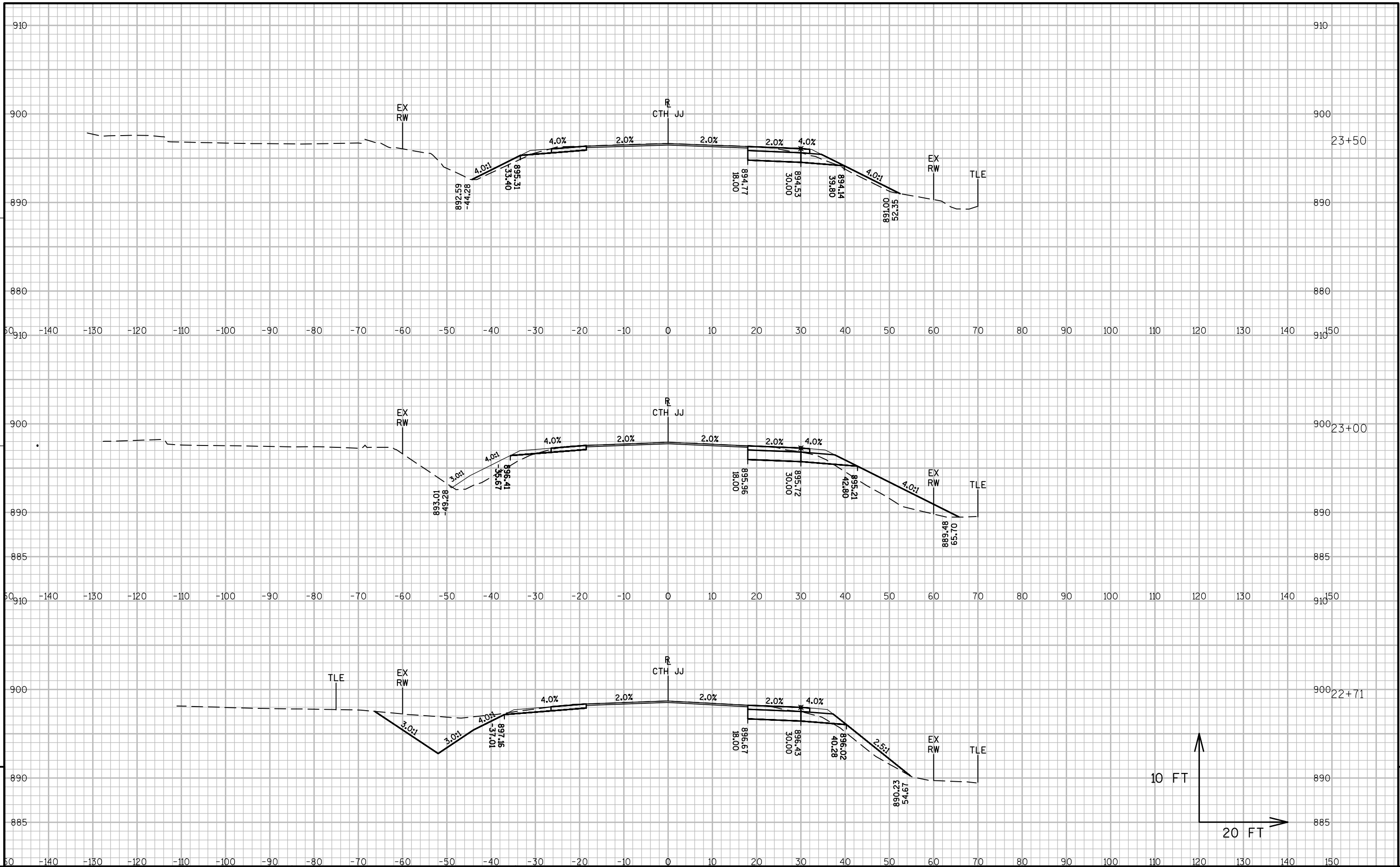
SILVERNAIL ROAD

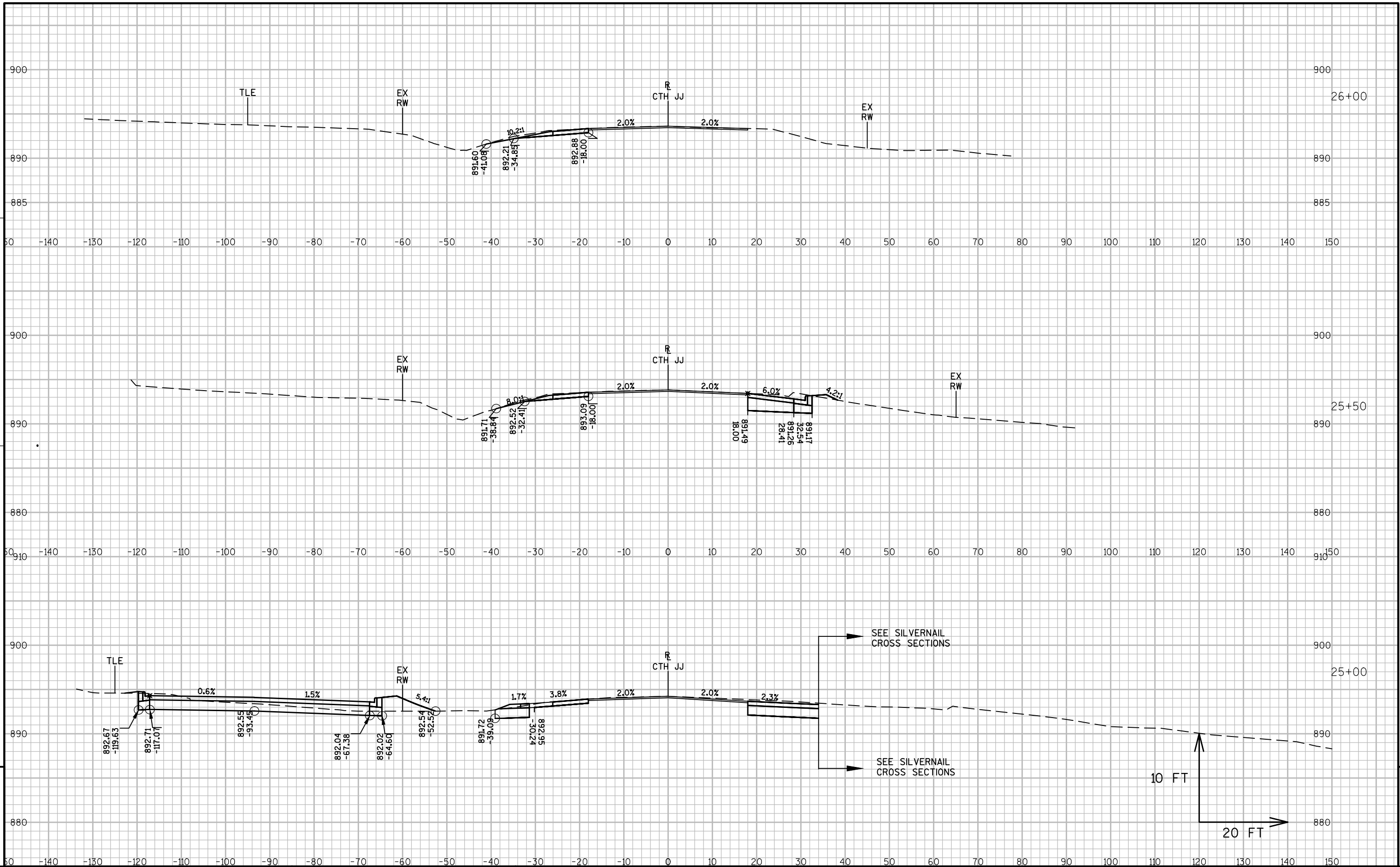
STATION	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
		Cut	Fill	Cut	Fill	Cut	Expanded Fill	
				Note 1	Note 3	1.00 Note 1	1.11	Note 8
6+38		73	0	0	0	0	0	0
6+50	12	73	0	32	0	32	0	32
6+75	25	70	0	66	0	98	0	98
7+00	25	71	0	66	0	164	0	164
7+25	25	77	0	69	0	233	0	233
7+50	25	98	0	81	0	314	0	314
7+75	25	76	0	81	0	394	0	394
8+00	25	72	0	68	0	463	0	463
8+25	25	64	0	63	0	526	0	526
8+50	25	68	1	61	1	587	1	586
8+75	25	65	9	61	5	648	6	642
9+00	25	77	6	65	7	714	14	700
9+25	25	83	78	74	39	788	57	731
9+50	25	168	25	116	48	904	110	794
Column totals				904	99			

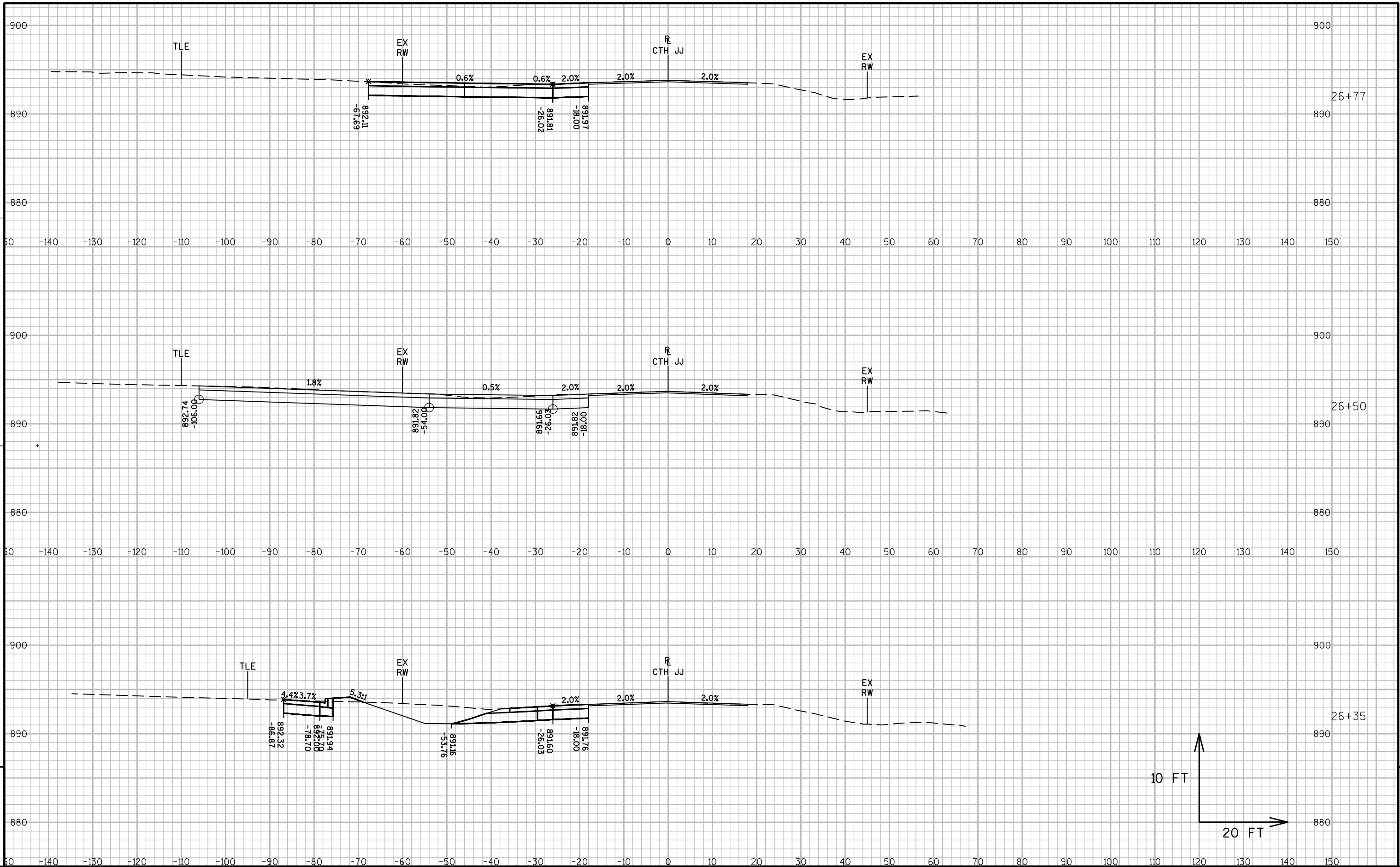












PROJECT NO:2758-04-70

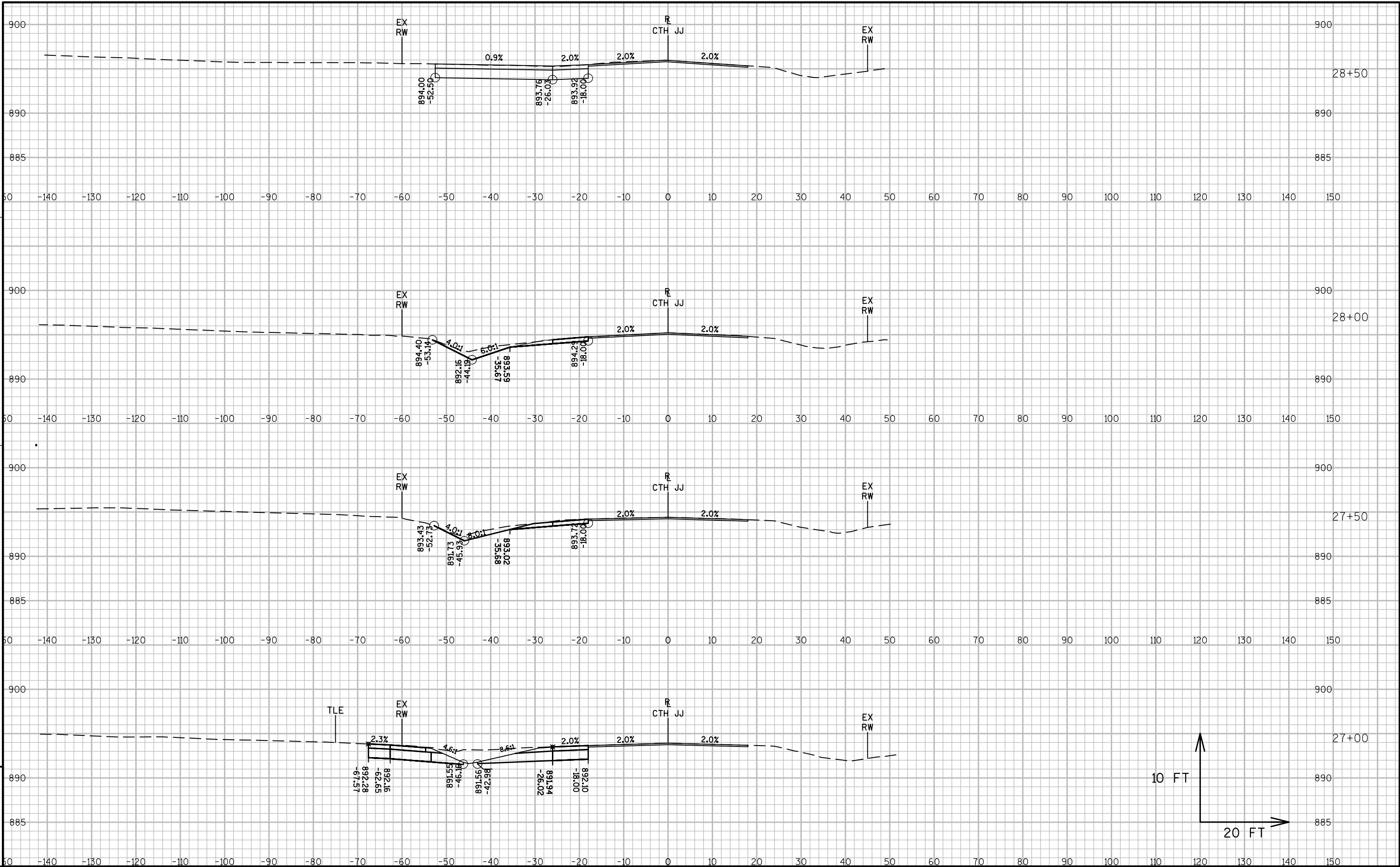
HWY:CTH JJ

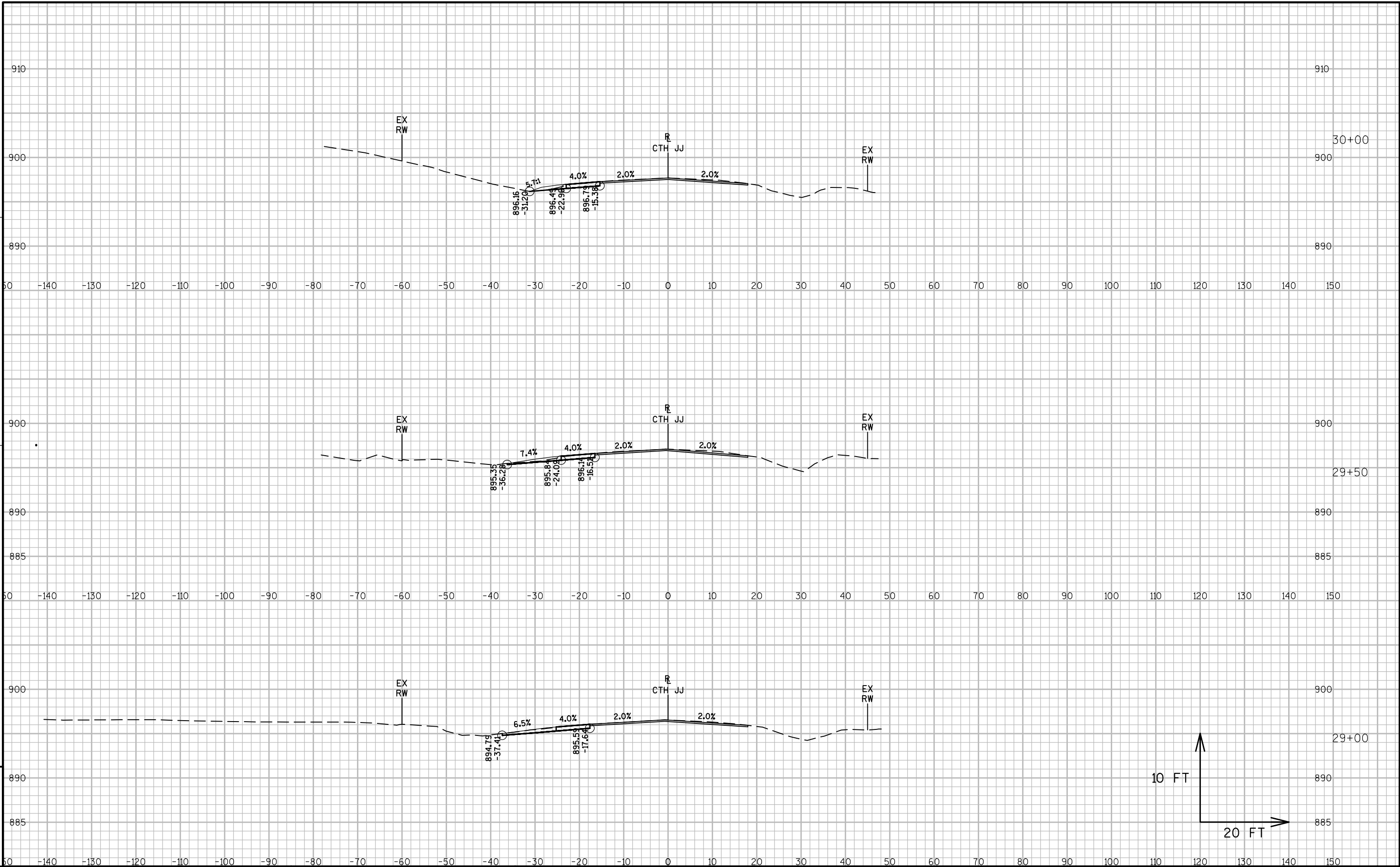
COUNTY:WAUKESHA

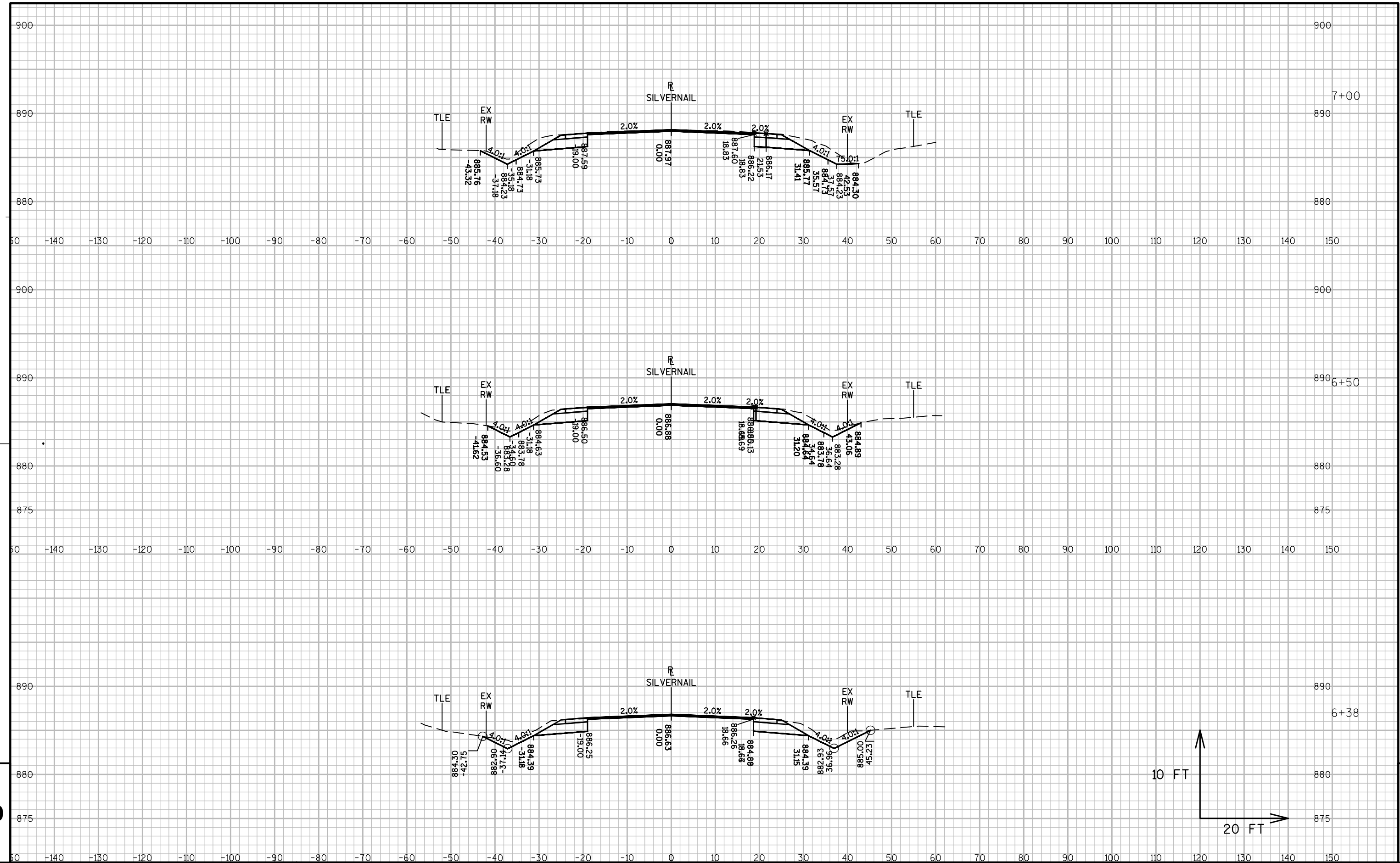
CROSS SECTIONS: CTH JJ

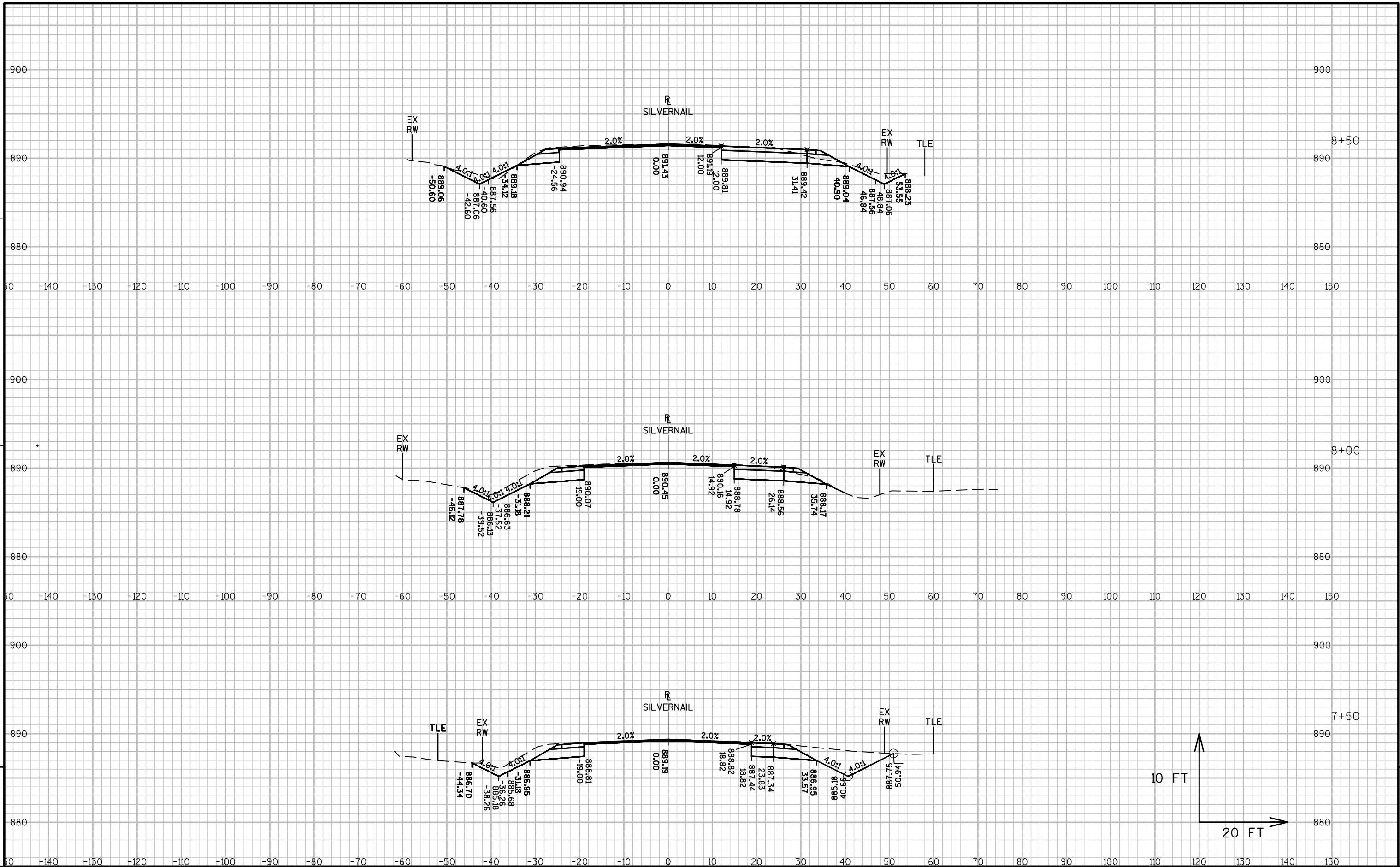
SHEET

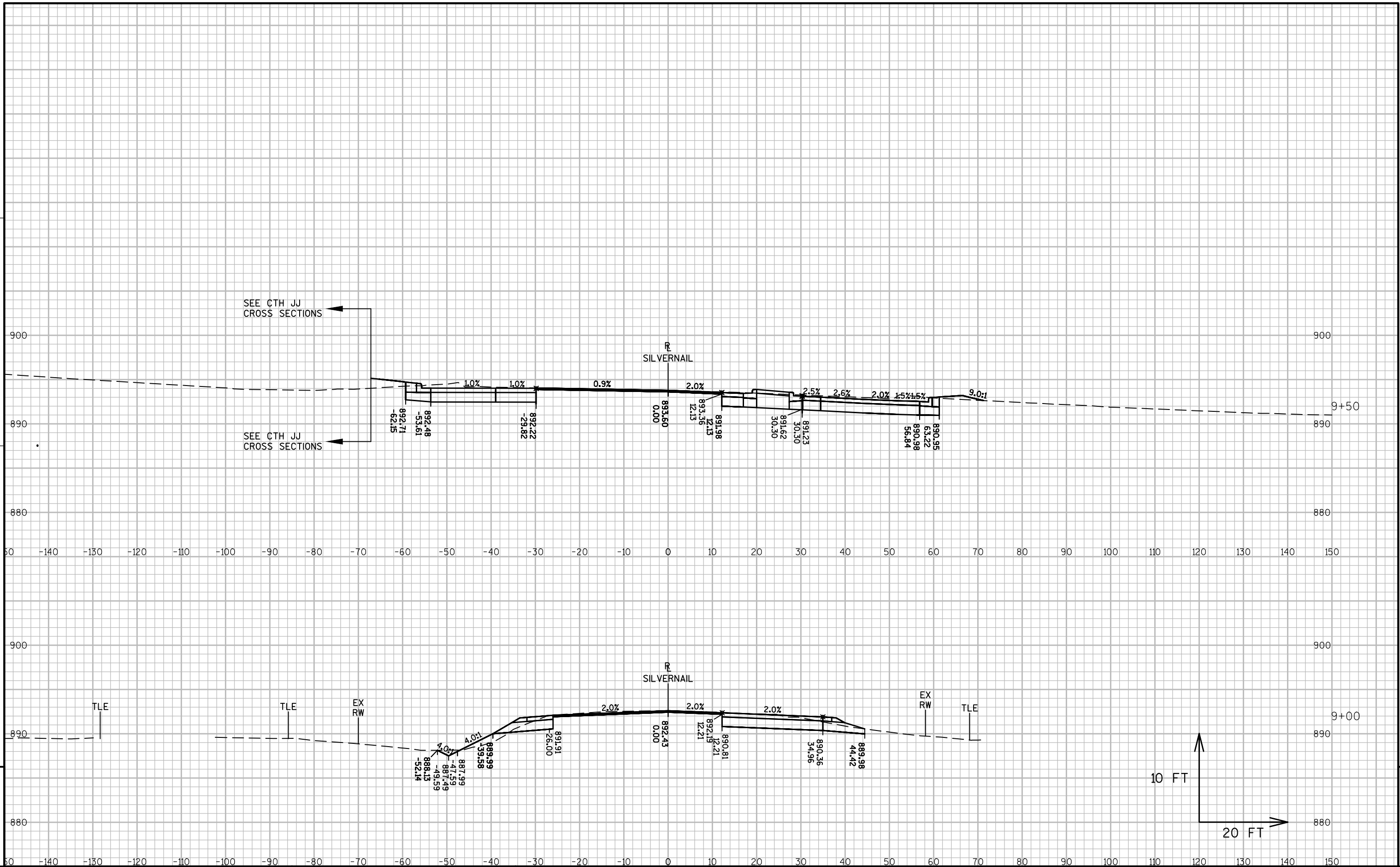
E











Notes



Wisconsin Department of Transportation

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