

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 = 122

PROJECT ID: 9165-00-70

COUNTY: FOREST

# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

## PLAN OF PROPOSED IMPROVEMENT

# ARGONNE - NELMA

FOREST CO BRIDGES, B-21-0002, 0008

### STH 55

### FOREST COUNTY

STATE PROJECT NUMBER

9165-00-70

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9165-00-70		



DESIGN DESIGNATION	B-21-0002	B-21-0008
A.A.D.T. 2027	= 200	230
A.A.D.T. 2047	= 200	250
D.H.V.	=	-
D.D.	=	-
T.	= 18.5%	18.5%
DESIGN SPEED	= 60 MPH	60 MPH
ESALS	=	-

#### CONVENTIONAL SYMBOLS

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

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

ROCK
LABEL
9% 36'
ELECTRIC
FO FIBER OPTIC
G GAS
SAN SANITARY SEWER
SS STORM SEWER
T TELEPHONE
W WATER
UTILITY PEDESTAL
POWER POLE
TELEPHONE POLE

END PROJECT  
STA 103+50.00  
Y = 694,382.61  
X = 857,226.24

END CONSTRUCTION  
STA 102+80

BEGIN CONSTRUCTION  
STA 97+00

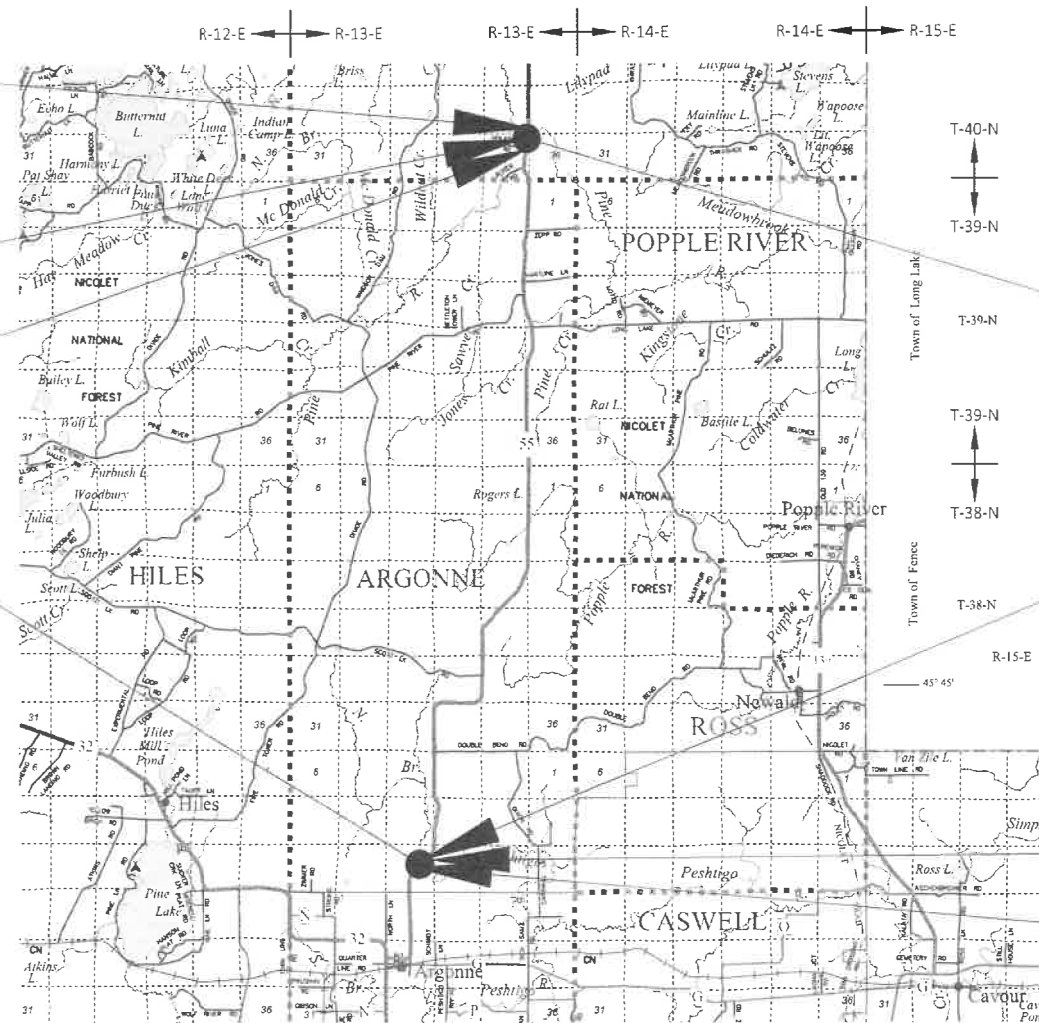
STRUCTURE B-21-0002

STRUCTURE B-21-0008

END CONSTRUCTION  
STA 37+05

BEGIN CONSTRUCTION  
STA 30+83

BEGIN PROJECT  
STA 30+02  
Y = 613,579.01  
X = 844,646.22



LAYOUT  
SCALE 0 4 MI  
TOTAL NET LENGTH OF CENTERLINE = 0.000 MILES

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

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

ORIGINAL PLANS PREPARED BY



MADISON | EAU CLAIRE | WAUKESHA | APPLETON | TOMAH | WITTENBERG



DATE: \_\_\_\_\_ (Signature)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	CORRE, INC.
Designer	CORRE, INC.
Project Manager	ANDREW CASPER
Regional Examiner	FRED SCHUNKE
Regional Supervisor	KAI KILEN

APPROVED FOR THE DEPARTMENT  
DATE: 2/26/2024 Andrew Casper (Signature)

E

GENERAL NOTES:

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

CONTRACTOR SHALL MAINTAIN ACCESS TO ALL DRIVEWAYS AND BUSINESSES AT ALL TIMES.

HMA PAVEMENT WEIGHT CALCULATIONS ARE BASED ON 112 LB/SY/IN.

TACK COAT CALCULATIONS ARE BASED ON AN APPLICATION RATE OF 0.07 GAL/SY.

UTILITY CONTACTS

COMMUNICATION

FRONTIER COMMUNICATIONS OF WI LLC  
521 4TH STREET  
WAUSAU, WI 54403

CHRIS POLLACK  
PHONE: (715) 847-1240  
EMAIL: CHRISTOPHER.POLLACK@FTR.COM

ELECTRICITY

WISCONSIN PUBLIC SERVICE CORPORATION  
P.O. BOX 19001  
GREEN BAY, WI 54307-9001

DON LUTZOW  
PHONE: (715) 848-7487  
EMAIL: DONALD.LUTZOW@WISCONSINPUBLICSERVICE.COM



**RUNOFF COEFFICIENT TABLE**

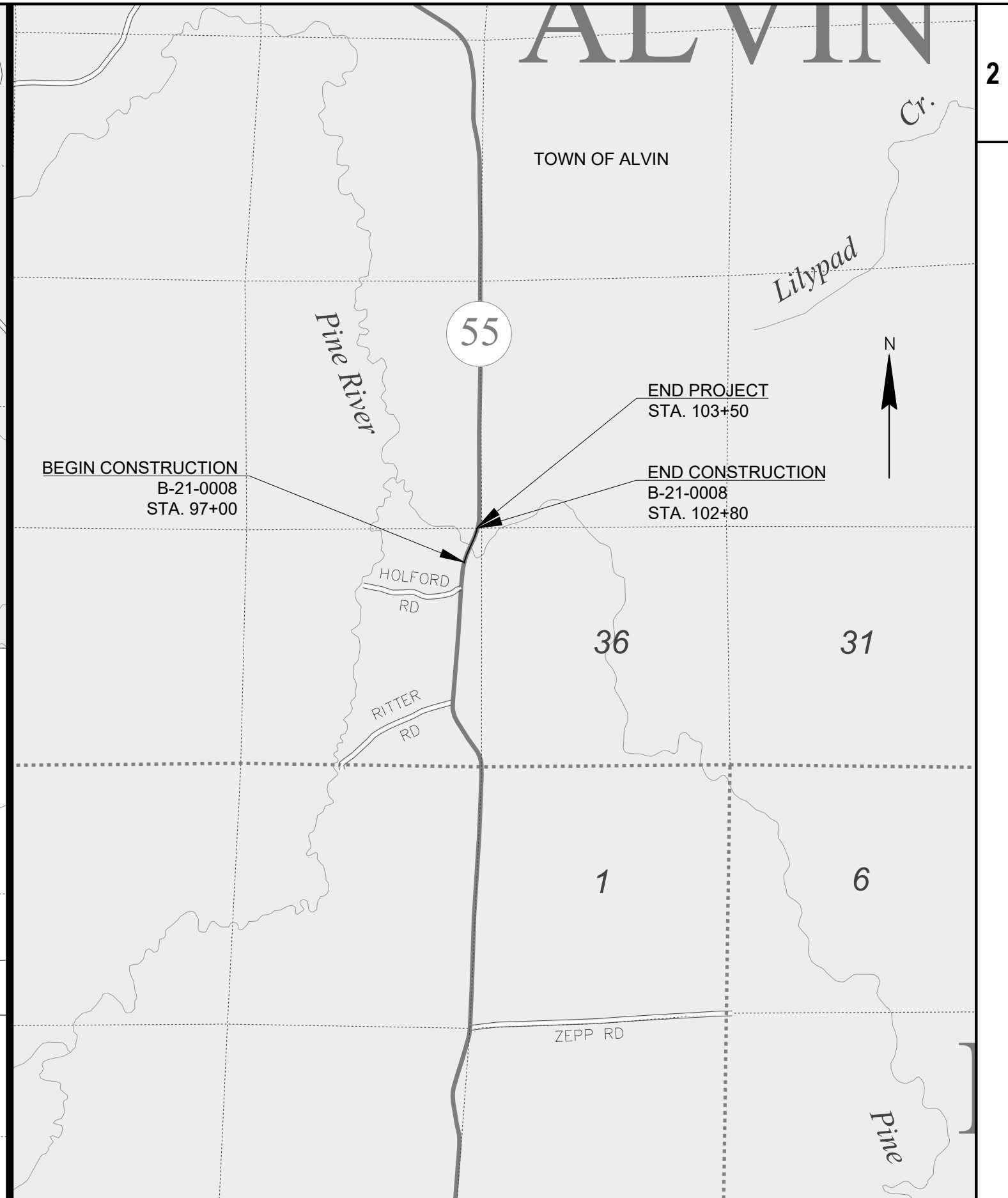
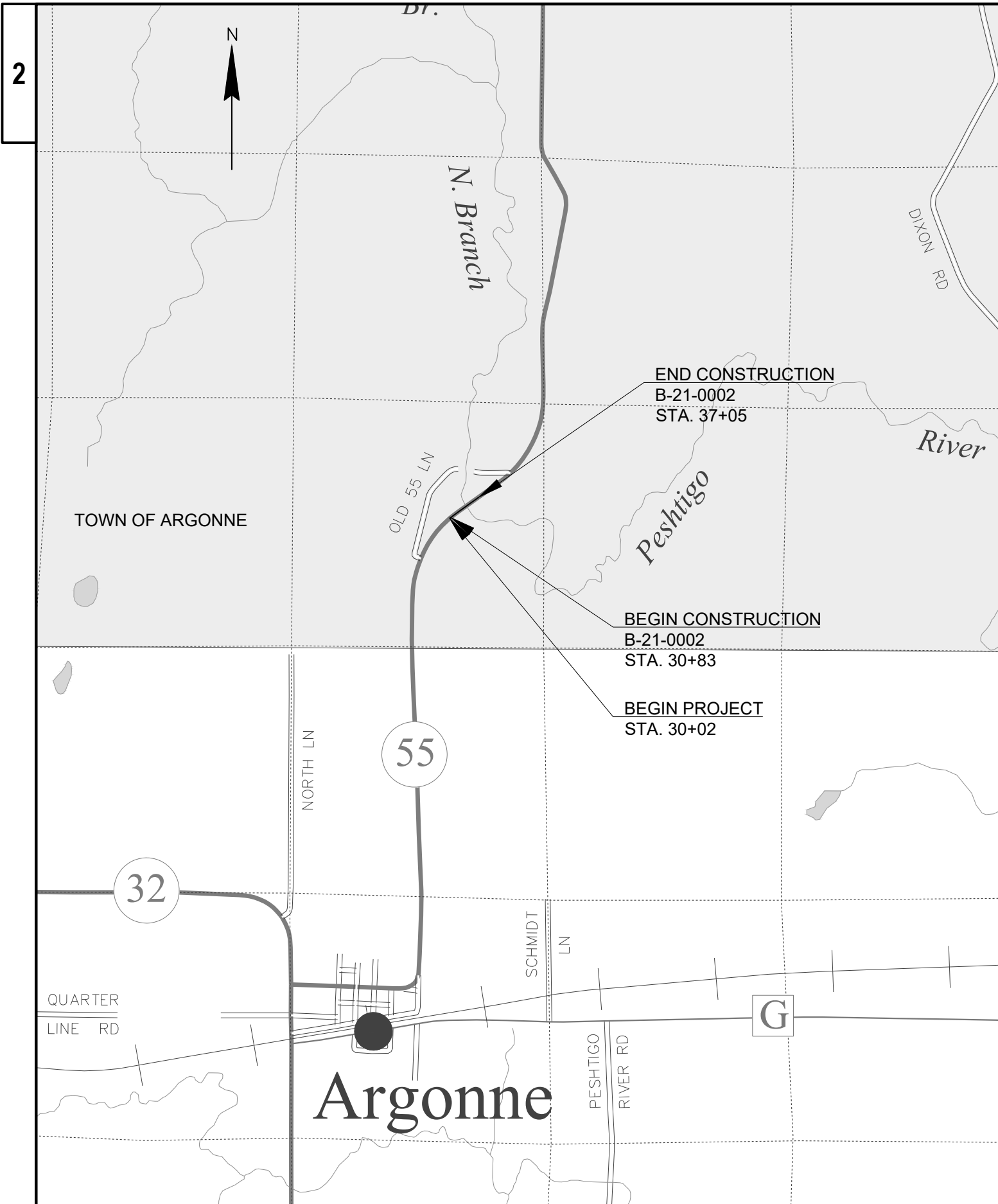
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33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

TOTAL PROJECT AREA = 1.87 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.74 ACRES

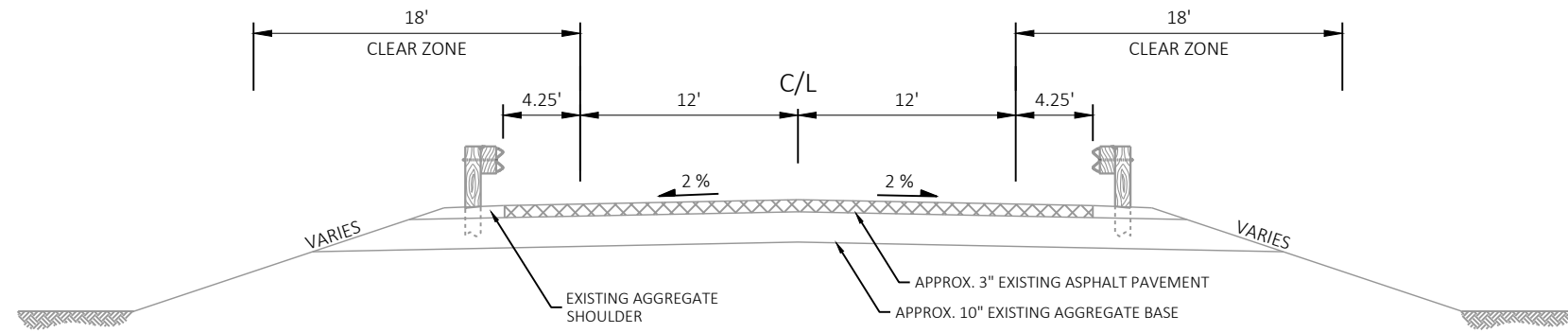
DNR CONTACT

DNR RHINELANDER SERVICE CENTER  
107 SUTLIFF AVENUE  
RHINELANDER, WI 54501

JON SIMONSEN  
PHONE: (715) 367-1936  
JONATHAN.SIMONSEN@WISCONSIN.GOV

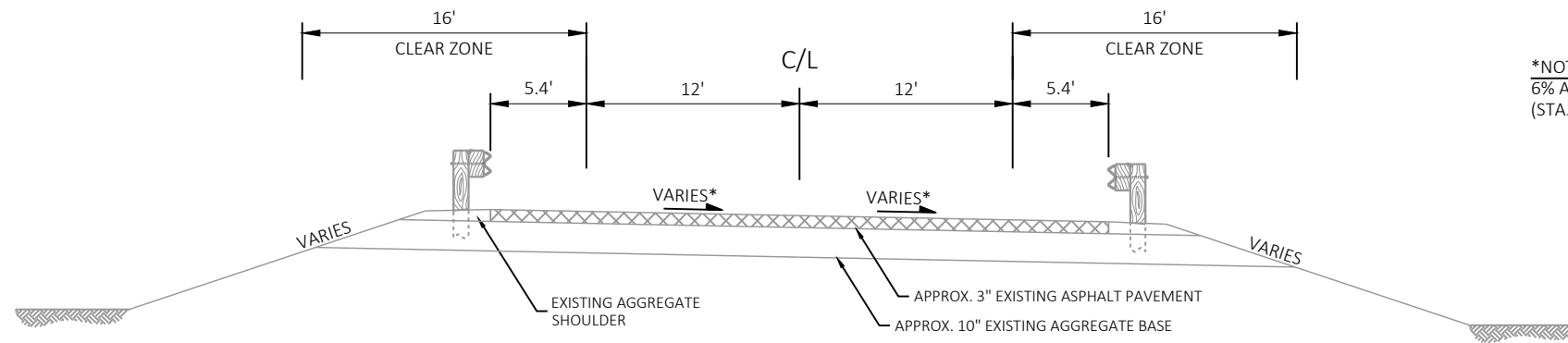


PROJECT NO: 9165-00-70	HWY: STH 55	COUNTY: FOREST	PROJECT OVERVIEW	SHEET	E
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**EXISTING TYPICAL SECTION - B-21-0002**

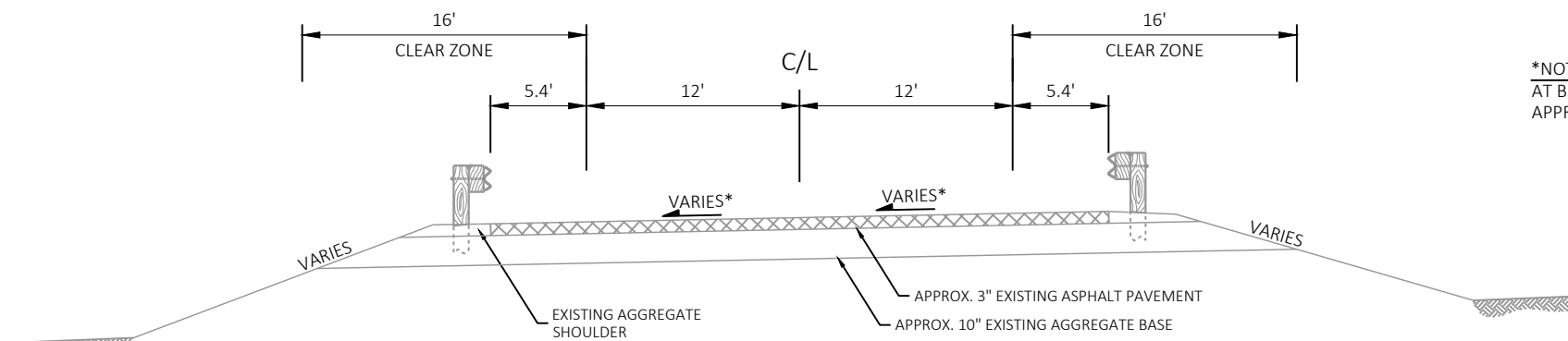
STA 30+83 - 33+58.63 (BRIDGE)  
STA 34+41.37 (BRIDGE) - 37+05



**EXISTING TYPICAL SECTION - B-21-0008**

STA 97+00 - 99+55.97 (BRIDGE)

\*NOTE: SUPERELEVATION BEGINS AT APPROXIMATELY 6% AND TRANSITIONS TO NORMAL CROWN AT BRIDGE (STA. 99+55.97).



**EXISTING TYPICAL SECTION - B-21-0008**

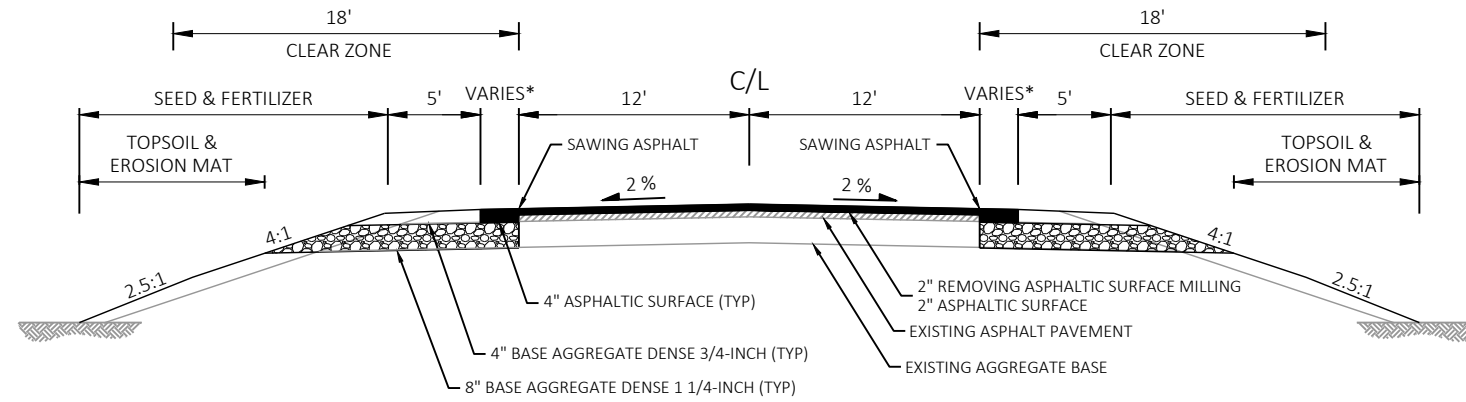
STA 100+26.03 (BRIDGE) - 102+80

\*NOTE: SUPERELEVATION BEGINS AT NORMAL CROWN AT BRIDGE (STA. 100+26.03) AND TRANSITIONS TO APPROXIMATELY 6% BY STA. 103+00.



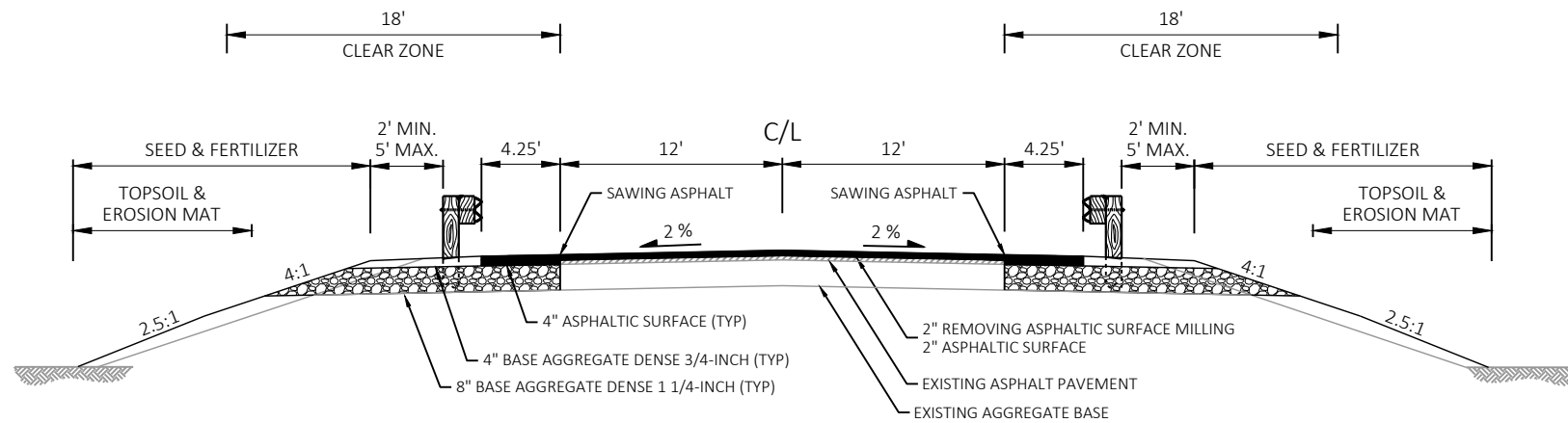
\*NOTE: WIDEN EDGE OF PAVEMENT OUT TO GUARDRAIL FACE AT EACH OF THE FOLLOWING GUARDRAIL END TERMINAL LOCATIONS.

STA. 30+93 - 31+50 RT  
STA. 31+71 - 32+50 LT  
STA. 35+55 - 36+35 RT  
STA. 36+17 - 36+94 LT



**FINISHED TYPICAL SECTION - B-21-0002**

STA 30+83 - 31+81  
STA 36+17 - 37+05

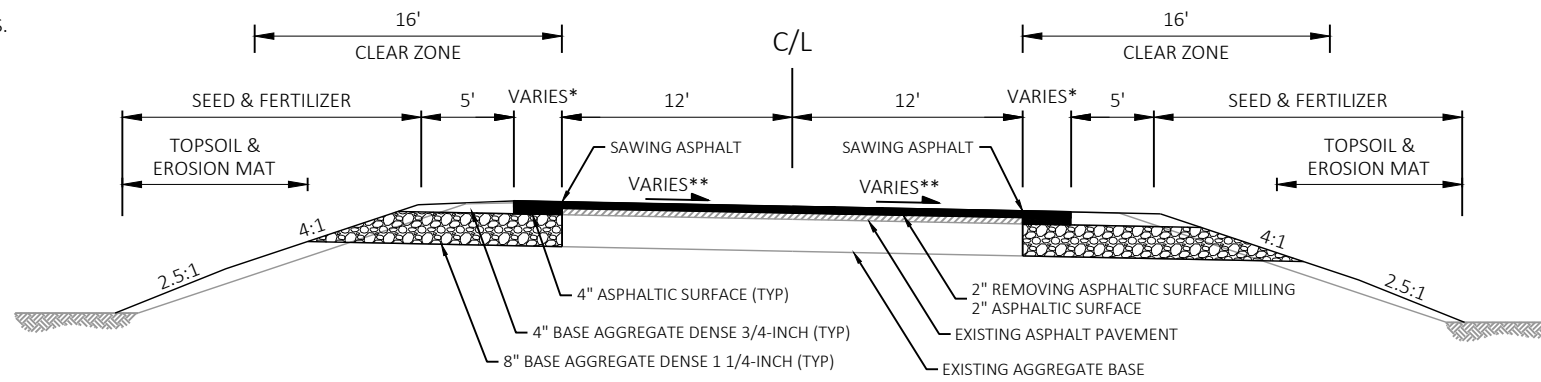


**FINISHED TYPICAL SECTION - B-21-0002**

STA 31+81 - 33+58.63 (BRIDGE)  
STA 34+41.37 (BRIDGE) - 36+17

\*NOTE: WIDEN EDGE OF PAVEMENT OUT TO GUARDRAIL FACE AT EACH OF THE FOLLOWING GUARDRAIL END TERMINAL LOCATIONS.

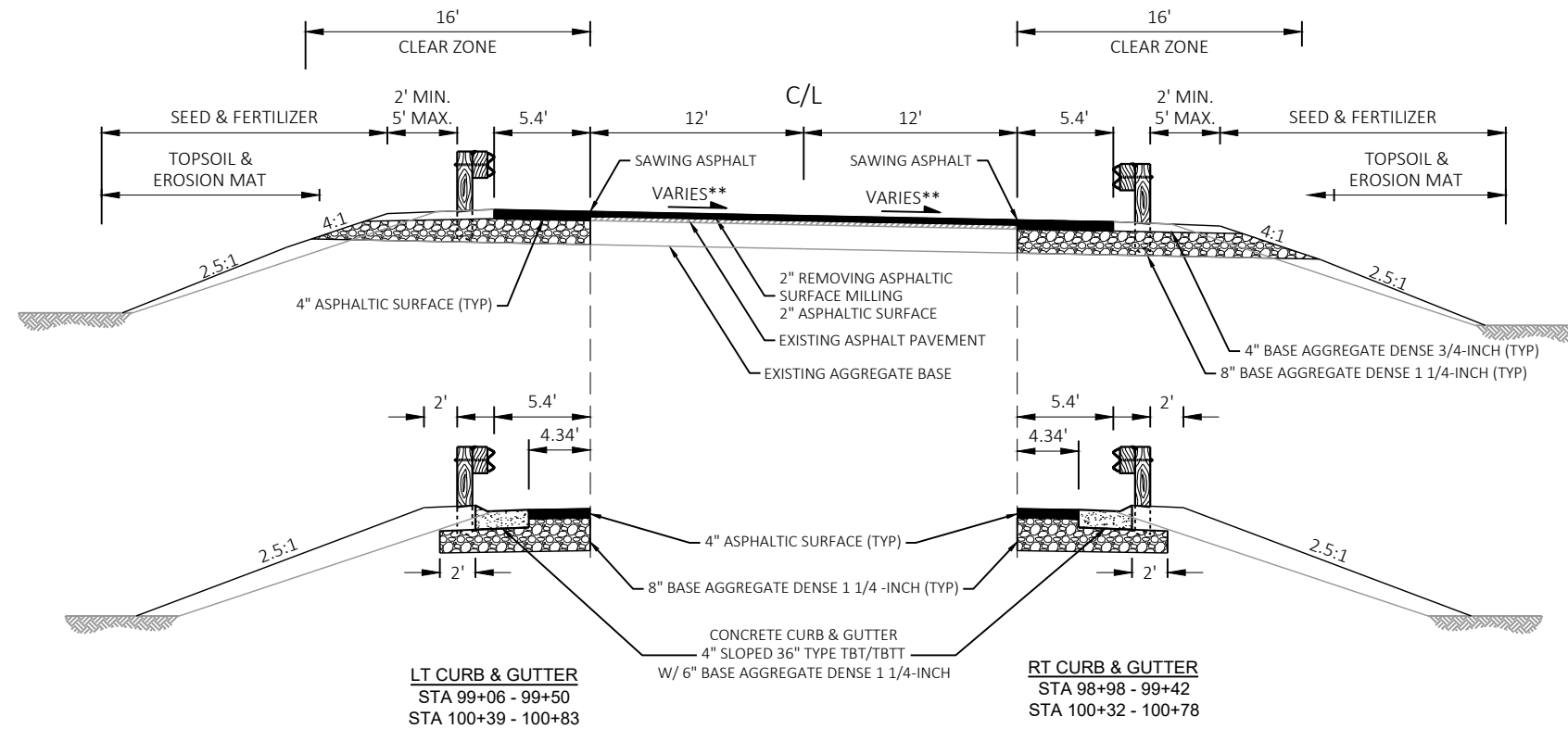
STA. 98+01 - 99+02 RT  
STA. 97+49 - 98+62 LT  
STA. 102+25 - 103+15 RT  
STA. 101+53 - 102+51 LT



**FINISHED TYPICAL SECTION - B-21-0008**

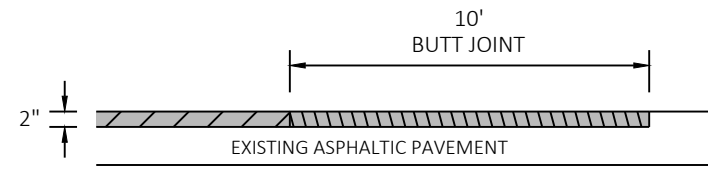
STA 97+00 - 98+03  
STA 101+53 - 102+80




\*\*NOTE: SUPERELEVATION RATES VARY FROM NORMAL CROWN TO 6%. MATCH EXISTING SLOPES. STH 55 IS A SUPERELEVATED RIGHT CURVE (AS SHOWN) SOUTH OF THE BRIDGE AND A SUPERELEVATED LEFT CURVE NORTH OF THE BRIDGE.



**FINISHED TYPICAL SECTION - B-21-0008**

STA 98+03 - 99+37  
STA 100+45 - 101+53



-  HMA PAVEMENT
-  REMOVING ASPHALTIC SURFACE MILLING
-  REMOVING ASPHALTIC SURFACE BUTT JOINTS

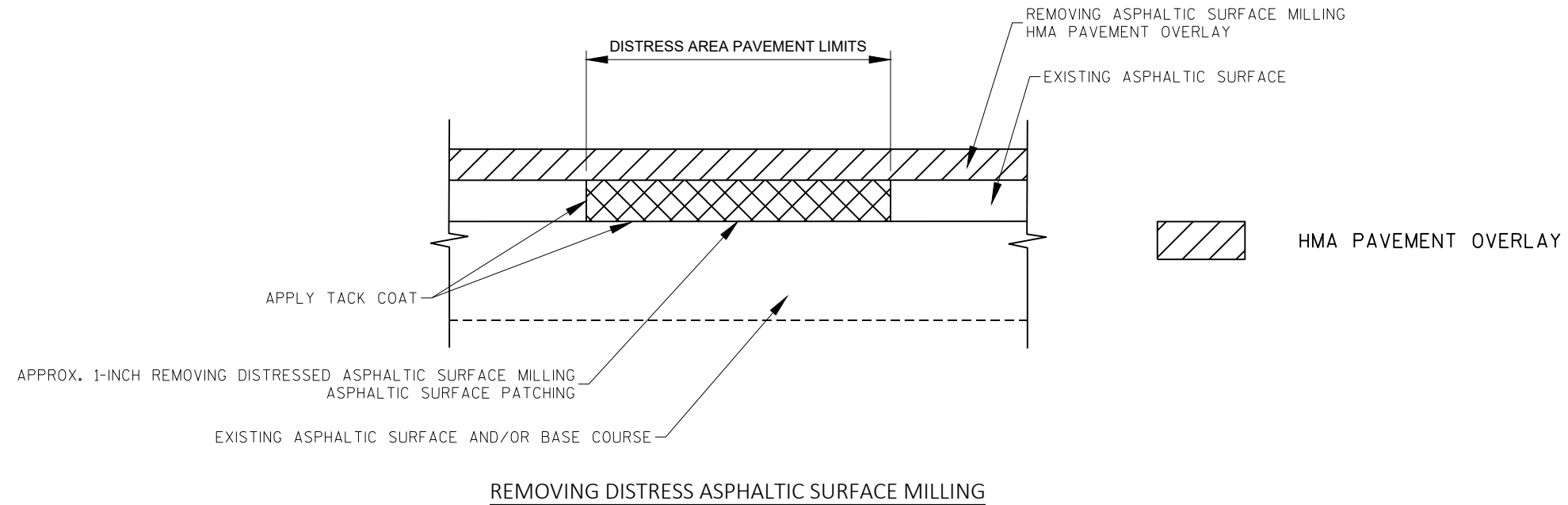
LOCATIONS

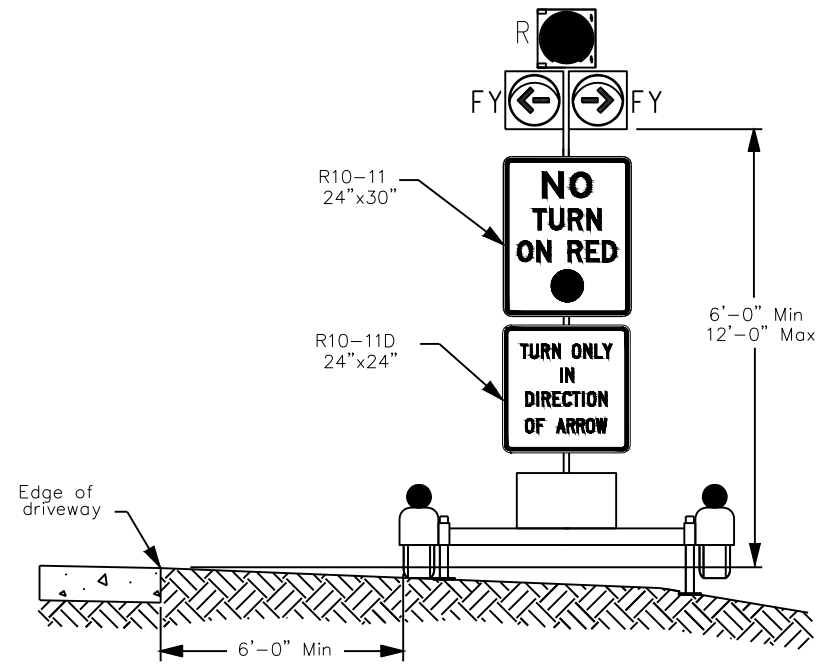
B-21-0002: STA. 30+83, 33+58.63, 34+41.37 & 37+05

B-21-0008: STA. 97+00, 99+55.97, 100+26.03 & 102+80

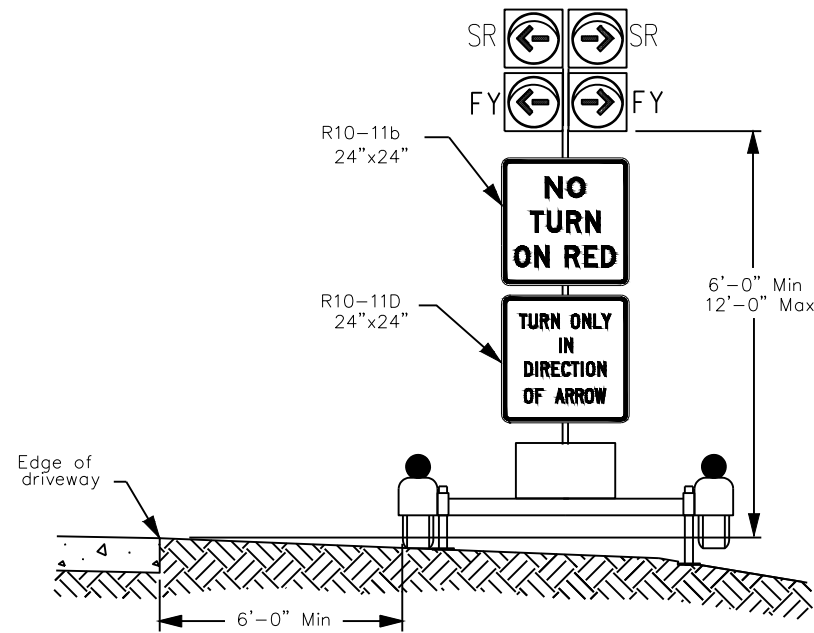
**BUTT JOINT**

STH 55

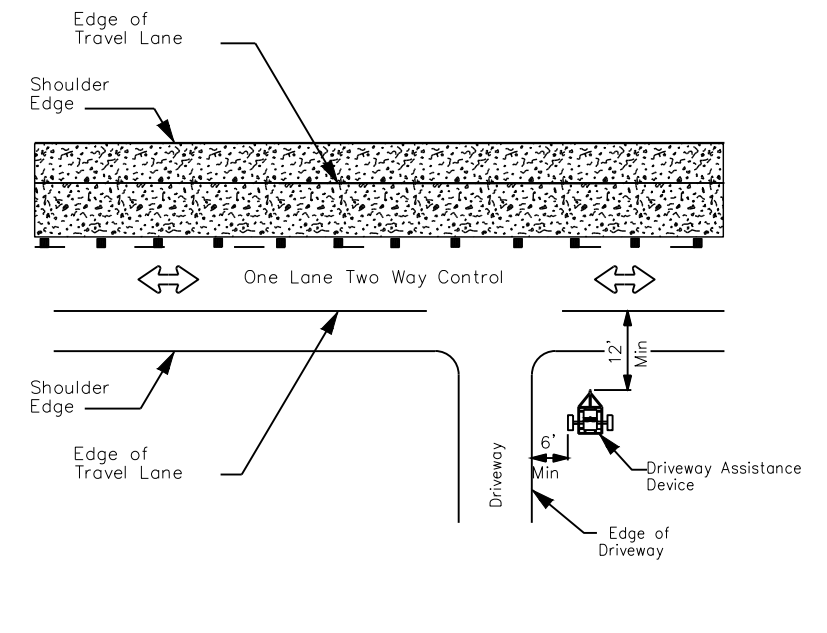




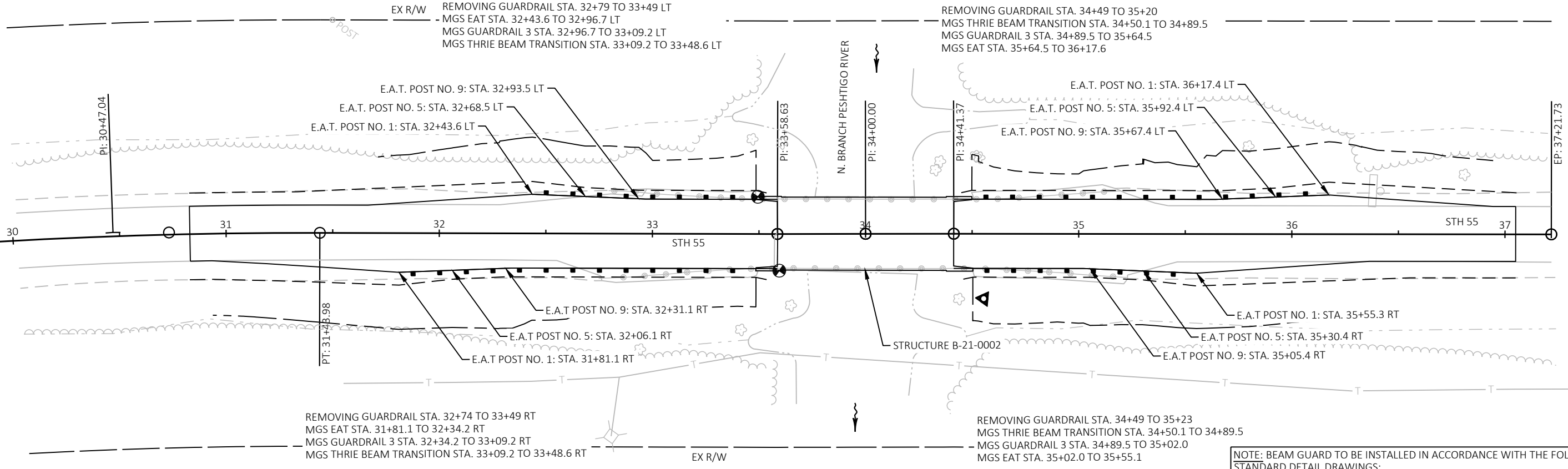
ELEVATION VIEW  
DAD 3 HEAD DEVICE



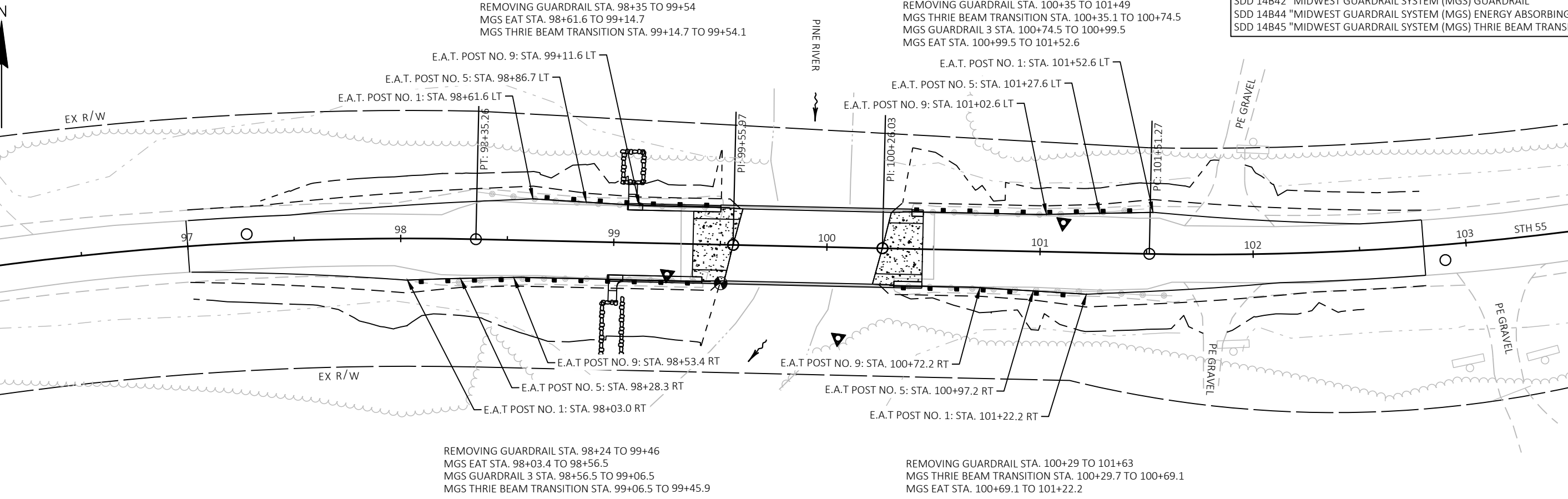
ELEVATION VIEW  
DAD 4 HEAD DEVICE

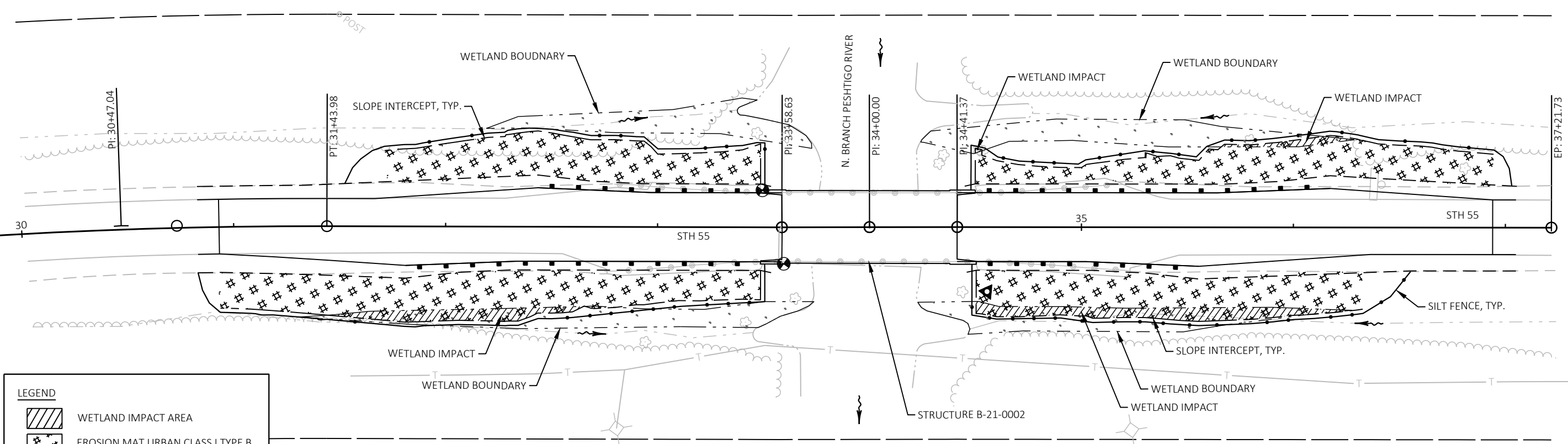


PLAN VIEW  
TYPICAL DAD INSTALLATION



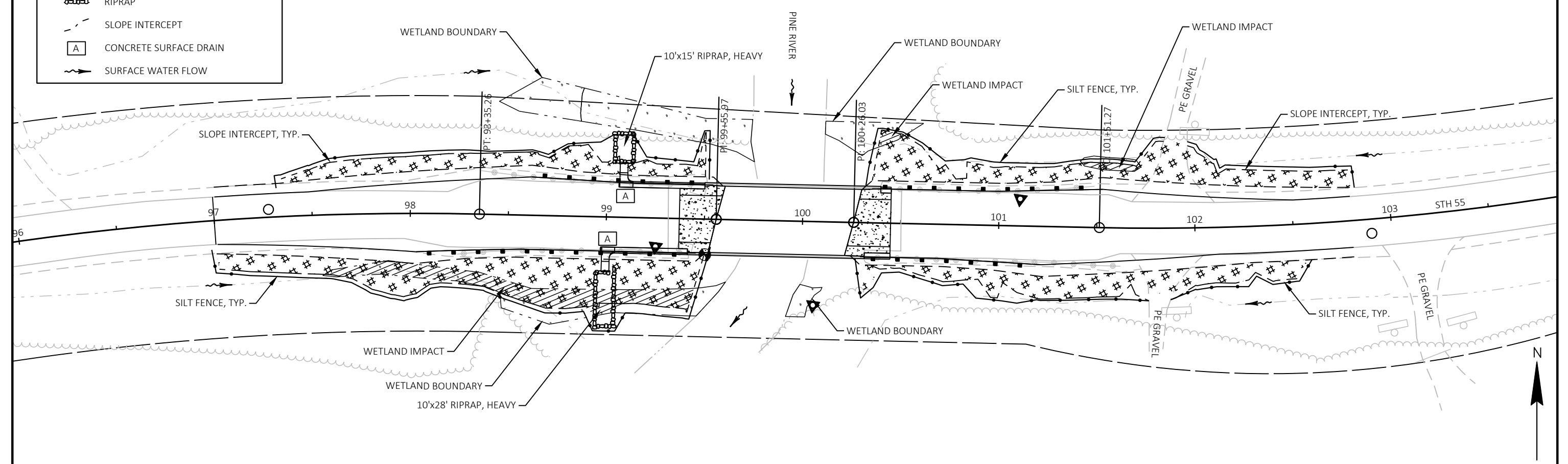
NOTE: BEAM GUARD TO BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARD DETAIL DRAWINGS:  
 SDD 14B42 "MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL"  
 SDD 14B44 "MIDWEST GUARDRAIL SYSTEM (MGS) ENERGY ABSORBING TERMINAL"  
 SDD 14B45 "MIDWEST GUARDRAIL SYSTEM (MGS) THRIE BEAM TRANSITION"





**LEGEND**

- WETLAND IMPACT AREA
- EROSION MAT URBAN CLASS I TYPE B
- SILT FENCE
- RIPRAP
- SLOPE INTERCEPT
- CONCRETE SURFACE DRAIN
- SURFACE WATER FLOW



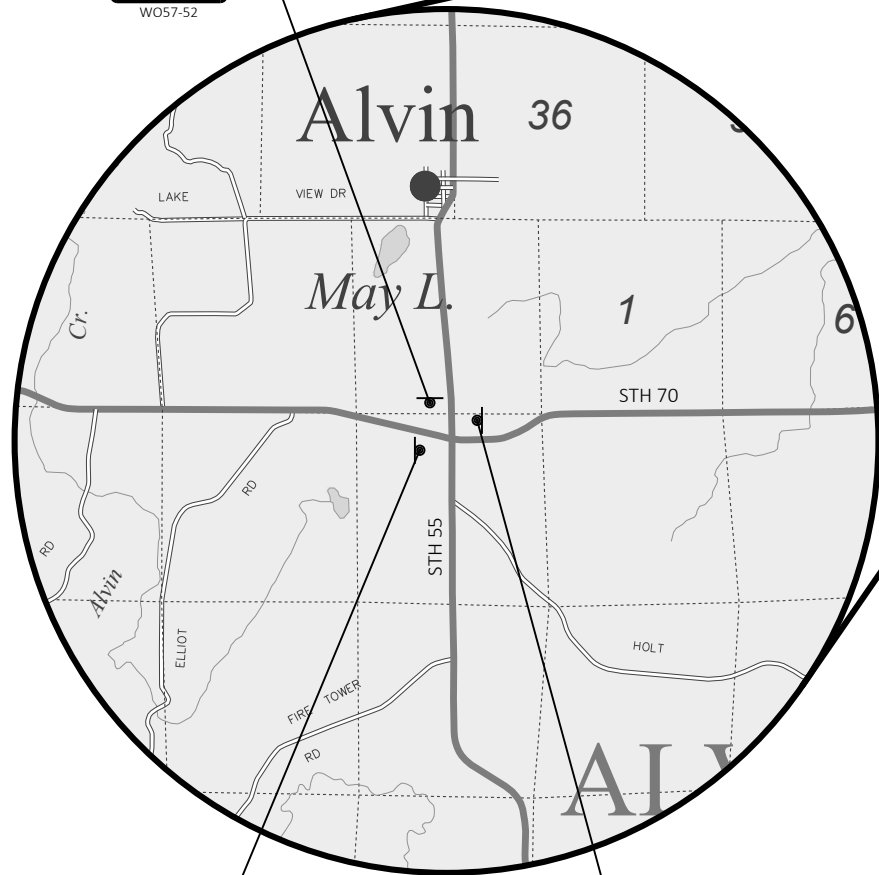




W12-52  
48"x48"



W057-52



M3-3  
24"x12"



M1-6  
24"x24"



W12-52  
48"x48"



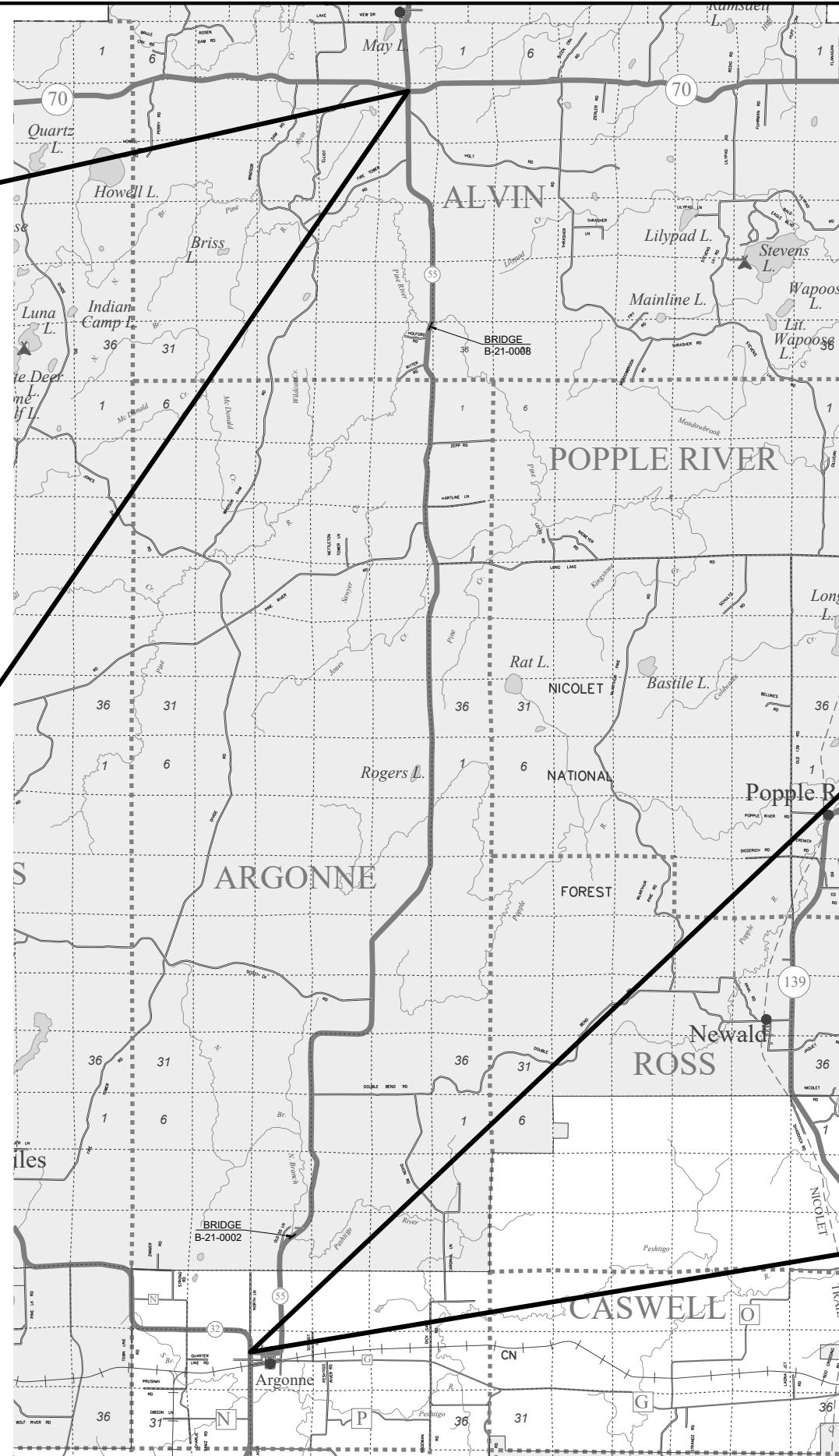
M3-3  
24"x12"



M1-6  
24"x24"



W12-52  
48"x48"



M3-1  
24"x12"

M1-6  
24"x24"



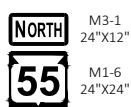
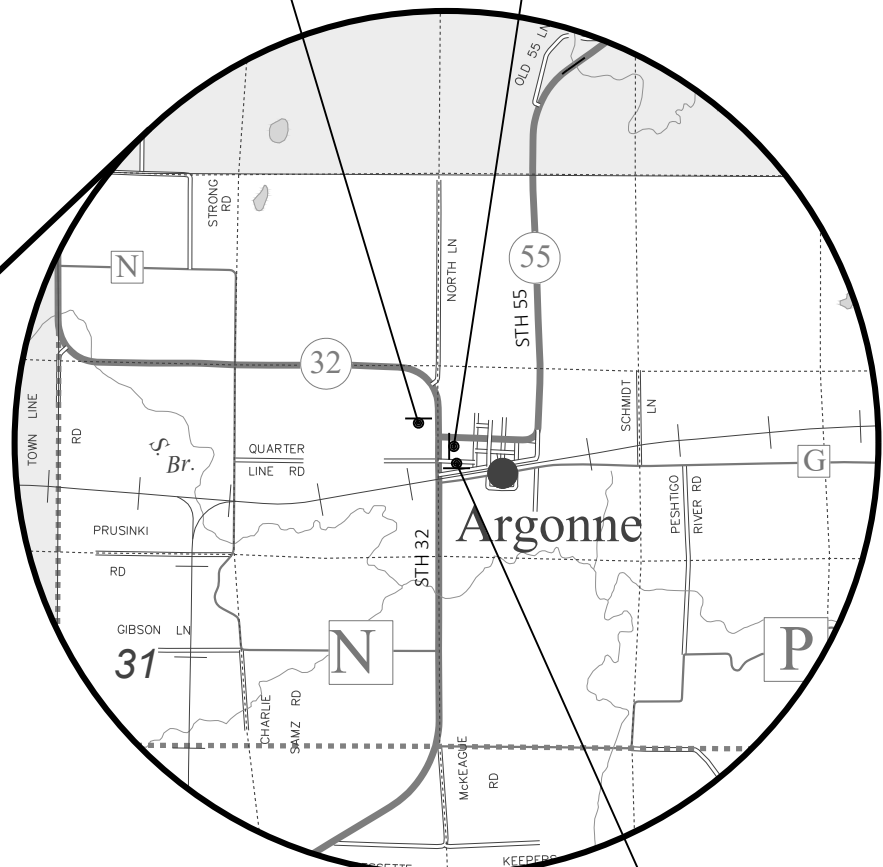
W12-52  
48"x48"



W12-52  
48"x48"



W057-52



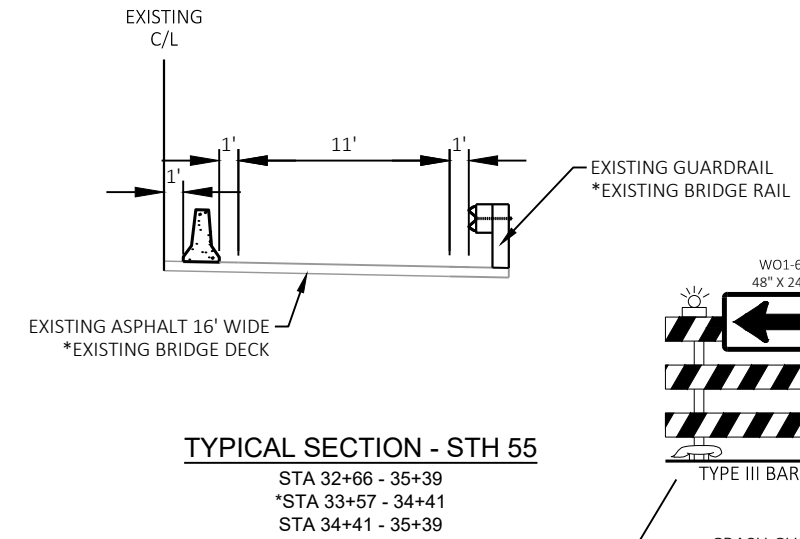
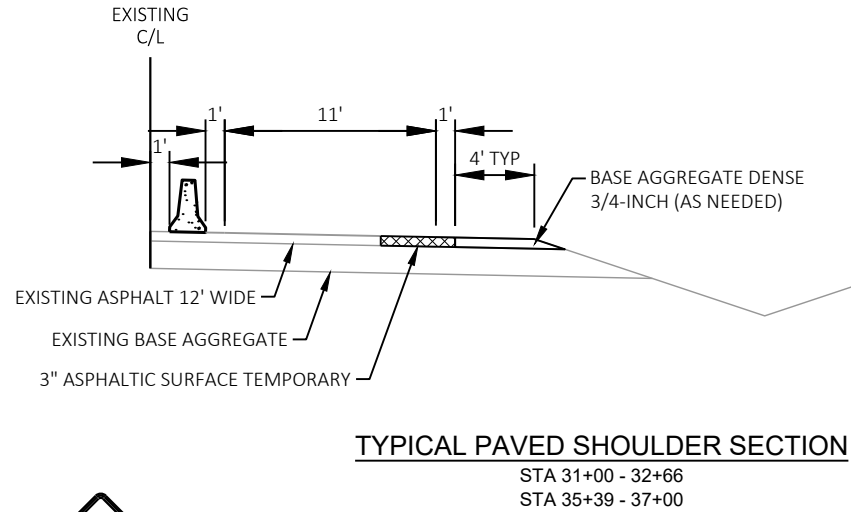
M3-1  
24"x12"

M1-6  
24"x24"

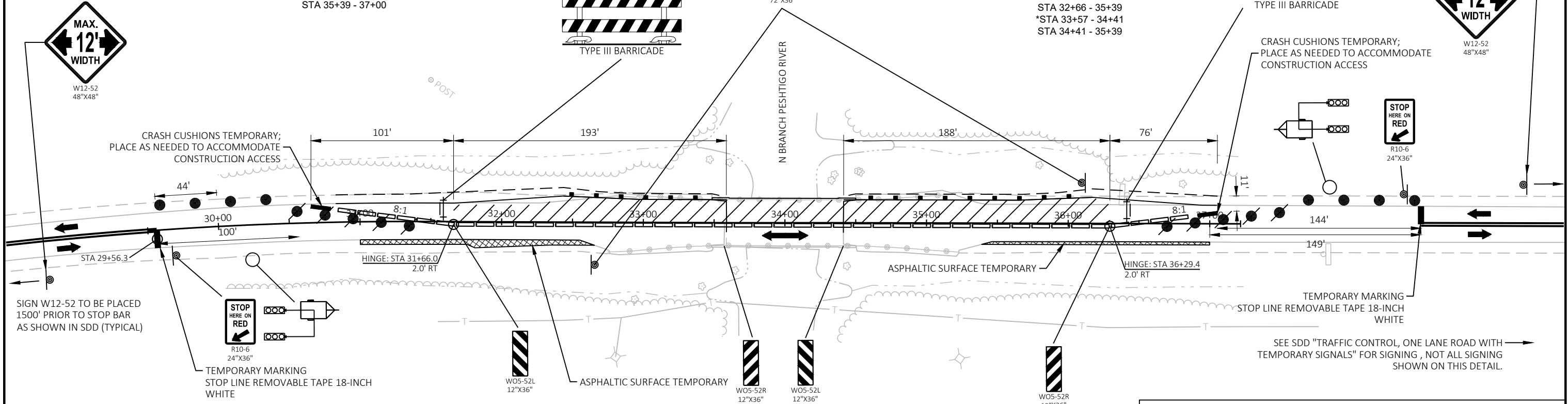


W12-52  
48"x48"





**HWY 55  
 BRIDGE WORK  
 BEGINS XXX-XX**  
 G20-57B  
 72"X36"



**NOTES:**

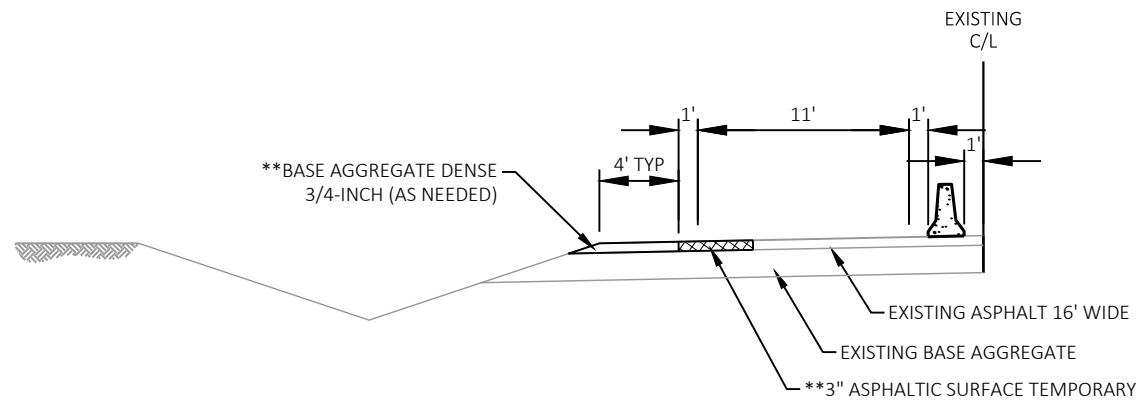
1. WORK THIS DRAWING WITH SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS"
2. G20-57B SIGNS SHALL BE PLACED ON EACH BRIDGE APPROACH SEVEN (7) DAYS PRIOR TO CONSTRUCTION AND SHALL BE REMOVED WHEN CONSTRUCTION BEGINS

TEMPORARY TRAFFIC SIGNAL TIMING

INTERVAL	NB	SB	SECONDS
1	G	R	15
2	Y	R	5
3	R	R	30
4	R	G	15
5	R	Y	5
6	R	R	30

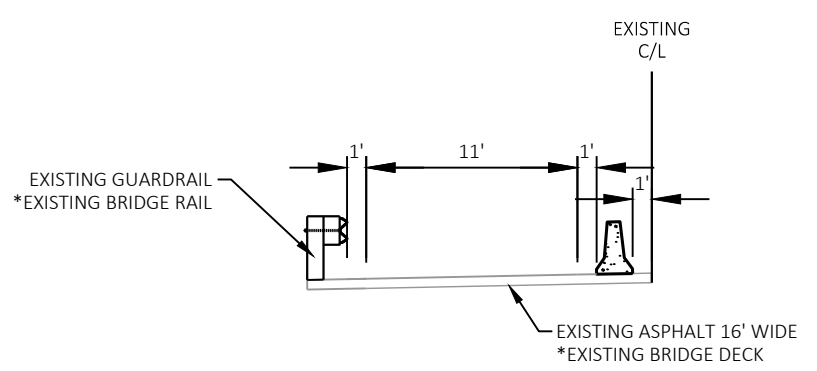
**LEGEND**

- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ASPHALTIC SURFACE TEMPORARY
- CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC
- TEMPORARY TRAFFIC SIGNAL



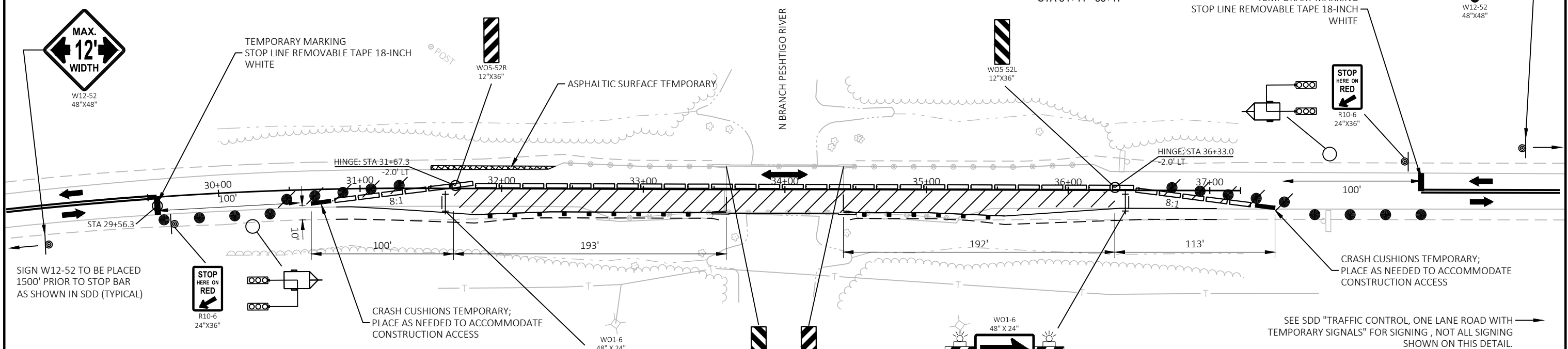
TYPICAL PAVED SHOULDER SECTION

\*\*STA 31+50 - 32+66  
STA 36+17 - 37+00



TYPICAL SECTION - STH 55

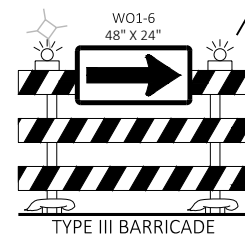
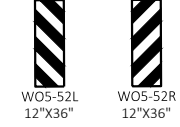
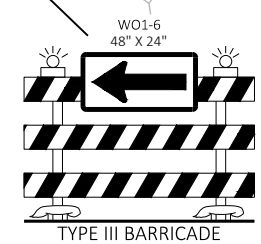
STA 32+66 - 33+57  
\*STA 33+57 - 34+41  
STA 34+41 - 36+17



SIGN W12-52 TO BE PLACED 1500' PRIOR TO STOP BAR AS SHOWN IN SDD (TYPICAL)



CRASH CUSHIONS TEMPORARY; PLACE AS NEEDED TO ACCOMMODATE CONSTRUCTION ACCESS



SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGNING, NOT ALL SIGNING SHOWN ON THIS DETAIL.

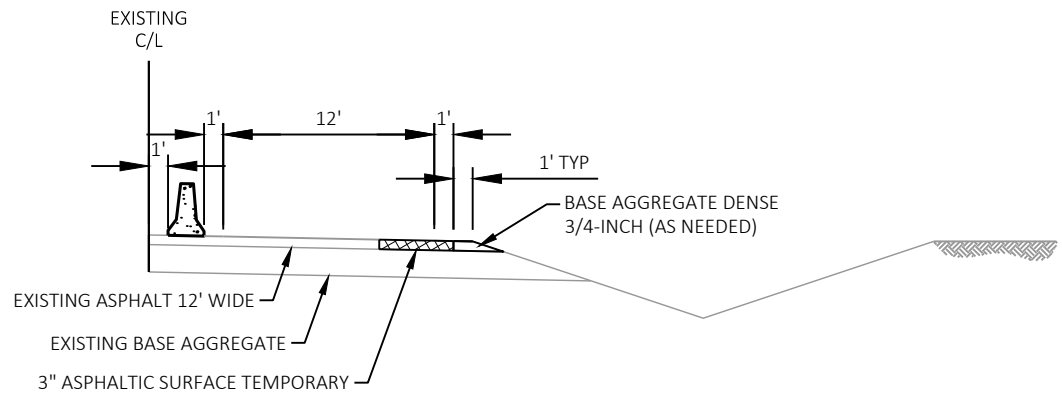
NOTES:

- 1. WORK THIS DRAWING WITH SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS"

TEMPORARY TRAFFIC SIGNAL TIMING			
INTERVAL	NB	SB	SECONDS
1	G	R	15
2	Y	R	5
3	R	R	30
4	R	G	15
5	R	Y	5
6	R	R	30

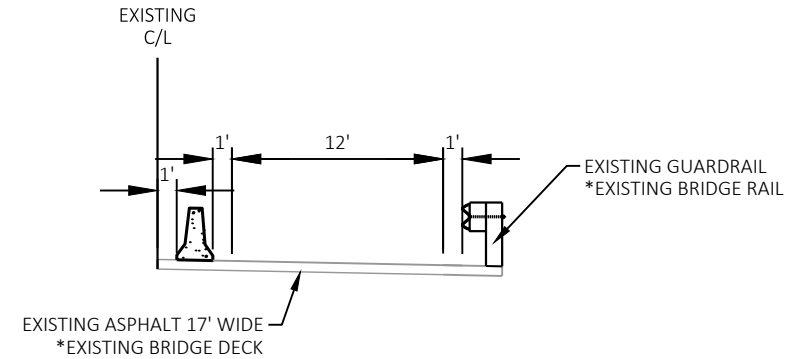
**LEGEND**

- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ASPHALTIC SURFACE TEMPORARY
- CRASH CUSHION TEMPORARY
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC
- TEMPORARY TRAFFIC SIGNAL



**TYPICAL PAVED SHOULDER SECTION**

STA 95+87 - 98+25  
STA 101+62 - 104+22

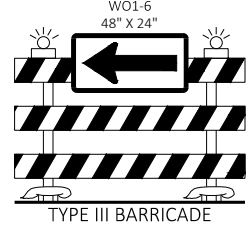
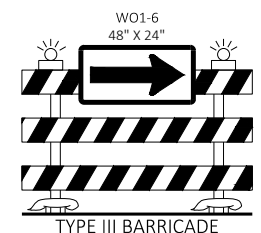


**TYPICAL SECTION - STH 55**

STA 98+25 - 99+50  
\*STA 99+50 - 100+30  
STA 100+30 - 101+62



**HWY 55  
BRIDGE WORK  
BEGINS XXX-XX**  
G20-57B  
72"X36"



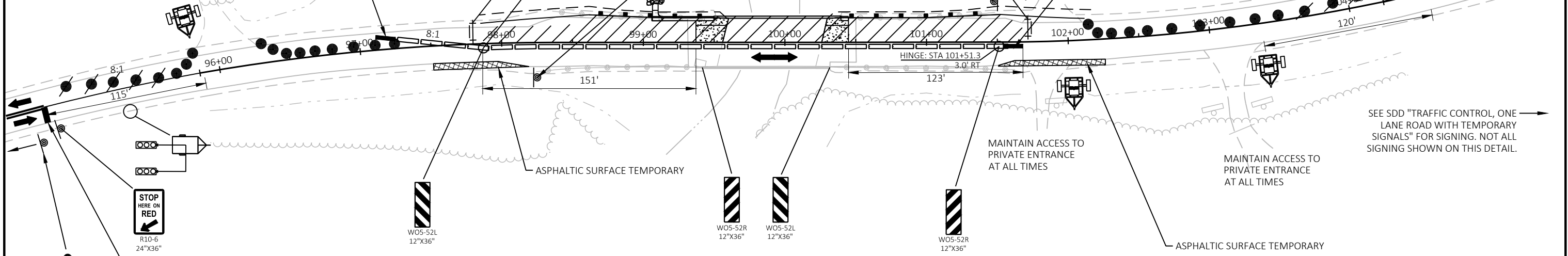
SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGNING. NOT ALL SIGNING SHOWN ON THIS DETAIL.

MAINTAIN ACCESS TO PRIVATE ENTRANCE AT ALL TIMES

MAINTAIN ACCESS TO PRIVATE ENTRANCE AT ALL TIMES

CRASH CUSHIONS TEMPORARY

TEMPORARY MARKING  
STOP LINE REMOVABLE TAPE 18-INCH WHITE



SEE SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS" FOR SIGNING. NOT ALL SIGNING SHOWN ON THIS DETAIL.



TEMPORARY MARKING  
STOP LINE REMOVABLE TAPE 18-INCH WHITE



SIGN W12-52 TO BE PLACED 1500' PRIOR TO STOP BAR AS SHOWN IN SDD (TYPICAL)

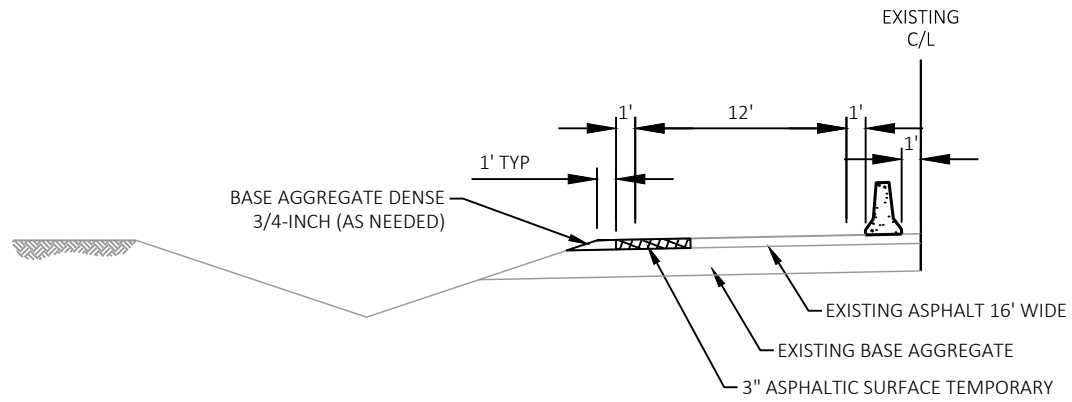
**NOTES:**

1. WORK THIS DRAWING WITH SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS".
2. G20-57B SIGNS SHALL BE PLACED ON EACH BRIDGE APPROACH SEVEN (7) DAYS PRIOR TO CONSTRUCTION AND SHALL BE REMOVED WHEN CONSTRUCTION BEGINS.
3. SEE CONSTRUCTION DETAILS SHEET AND SPECIAL PROVISIONS FOR MORE INFORMATION ON DRIVEWAY ASSISTANCE DEVICE (DAD) SYSTEMS.

TEMPORARY TRAFFIC SIGNAL TIMING			
INTERVAL	NB	SB	SECONDS
1	G	R	16
2	Y	R	5
3	R	R	32
4	R	G	16
5	R	Y	5
6	R	R	32

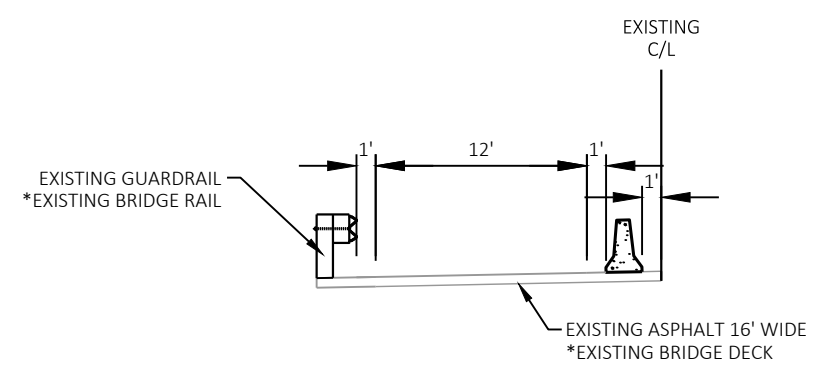
**LEGEND**

- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC
- TEMPORARY TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE
- ASPHALTIC SURFACE TEMPORARY
- CRASH CUSHION TEMPORARY



TYPICAL PAVED SHOULDER SECTION

STA 97+70 - 98+62  
STA 101+52 - 102+35

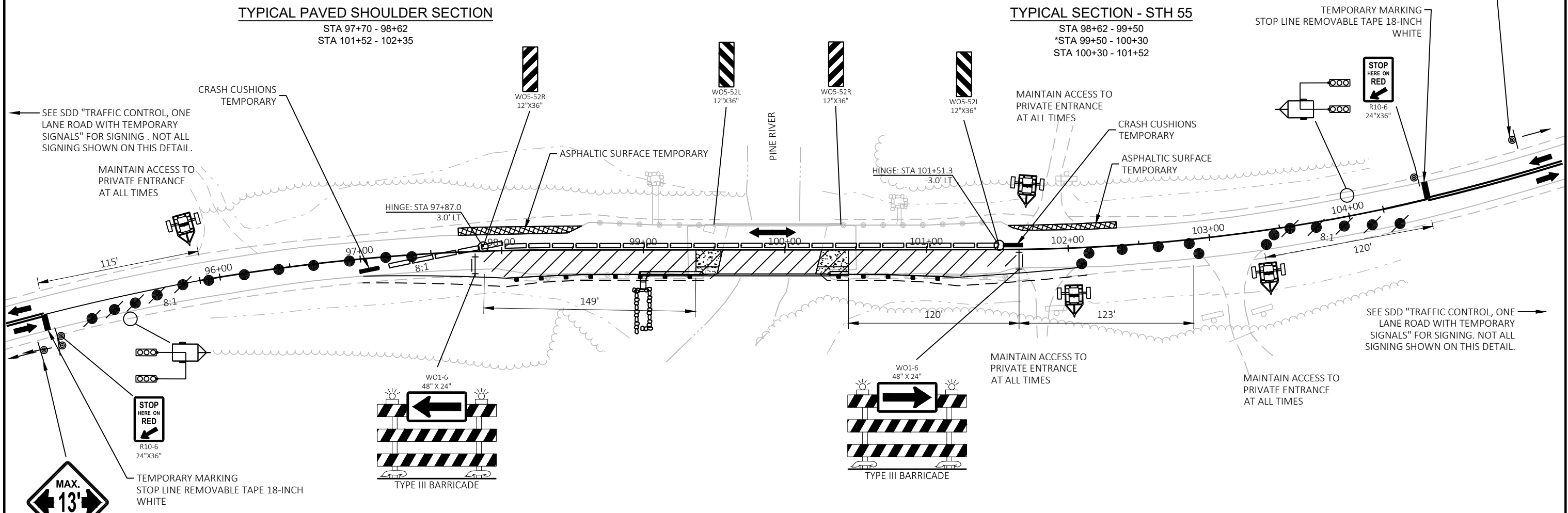


TYPICAL SECTION - STH 55

STA 98+62 - 99+50  
\*STA 99+50 - 100+30  
STA 100+30 - 101+52



W12-52  
48"x48"



SIGN W12-52 TO BE PLACED  
1500' PRIOR TO STOP BAR  
AS SHOWN IN SDD (TYPICAL)

NOTES:

1. WORK THIS DRAWING WITH SDD "TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS".
2. SEE CONSTRUCTION DETAILS SHEET AND SPECIAL PROVISIONS FOR MORE INFORMATION ON DRIVEWAY ASSISTANCE DEVICE (DAD) SYSTEMS.

TEMPORARY TRAFFIC SIGNAL TIMING			
INTERVAL	NB	SB	SECONDS
1	G	R	16
2	Y	R	5
3	R	R	32
4	R	G	16
5	R	Y	5
6	R	R	32

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- TRAFFIC CONTROL SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- CONCRETE BARRIER TEMPORARY PRECAST
- WORK AREA
- DIRECTION OF TRAFFIC
- TEMPORARY TRAFFIC SIGNAL
- DRIVEWAY ASSISTANCE DEVICE
- ASPHALTIC SURFACE TEMPORARY
- CRASH CUSHION TEMPORARY

Estimate Of Quantities

9165-00-70

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	3.000	3.000
0004	203.0220	Removing Structure (structure) 01. B-21-0008	EACH	1.000	1.000
0006	203.0335	Debris Containment Over Waterway (structure) 01. B-21-0002	EACH	1.000	1.000
0008	203.0335	Debris Containment Over Waterway (structure) 02. B-21-0008	EACH	1.000	1.000
0010	204.0100	Removing Concrete Pavement	SY	180.000	180.000
0012	204.0115	Removing Asphaltic Surface Butt Joints	SY	190.000	190.000
0014	204.0120	Removing Asphaltic Surface Milling	SY	2,690.000	2,690.000
0016	204.0150	Removing Curb & Gutter	LF	10.000	10.000
0018	204.0165	Removing Guardrail	LF	780.000	780.000
0020	204.0220	Removing Inlets	EACH	2.000	2.000
0022	204.0245	Removing Storm Sewer (size) 01. 12-Inch	LF	40.000	40.000
0024	205.0100	Excavation Common	CY	506.000	506.000
0026	206.1001	Excavation for Structures Bridges (structure) 01. B-21-0008	EACH	1.000	1.000
0028	208.0100	Borrow	CY	1,045.000	1,045.000
0030	210.1500	Backfill Structure Type A	TON	65.000	65.000
0032	213.0100	Finishing Roadway (project) 01. 9165-00-70	EACH	1.000	1.000
0034	305.0110	Base Aggregate Dense 3/4-Inch	TON	310.000	310.000
0036	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,080.000	1,080.000
0038	415.0120	Concrete Pavement 12-Inch	SY	40.000	40.000
0040	415.0410	Concrete Pavement Approach Slab	SY	110.000	110.000
0042	450.4000	HMA Cold Weather Paving	TON	128.000	128.000
0044	455.0605	Tack Coat	GAL	210.000	210.000
0046	465.0105	Asphaltic Surface	TON	510.000	510.000
0048	465.0110	Asphaltic Surface Patching	TON	18.000	18.000
0050	465.0125	Asphaltic Surface Temporary	TON	33.000	33.000
0052	502.0100	Concrete Masonry Bridges	CY	14.000	14.000
0054	502.3101	Expansion Device	LF	35.000	35.000
0056	502.3200	Protective Surface Treatment	SY	609.000	609.000
0058	502.3205	Pigmented Surface Sealer Reseal	SY	68.000	68.000
0060	502.3210	Pigmented Surface Sealer	SY	4.000	4.000
0062	502.4204	Adhesive Anchors No. 4 Bar	EACH	162.000	162.000
0064	502.4205	Adhesive Anchors No. 5 Bar	EACH	42.000	42.000
0066	502.4206	Adhesive Anchors No. 6 Bar	EACH	8.000	8.000
0068	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	2,290.000	2,290.000
0070	505.0904	Bar Couplers No. 4	EACH	4.000	4.000
0072	505.0906	Bar Couplers No. 6	EACH	14.000	14.000
0074	506.2610	Bearing Pads Elastomeric Laminated	EACH	4.000	4.000
0076	506.7050.S	Removing Bearings (structure) 01. B-21-0002	EACH	4.000	4.000
0078	509.0301	Preparation Decks Type 1	SY	46.000	46.000
0080	509.0302	Preparation Decks Type 2	SY	21.000	21.000
0082	509.0500	Cleaning Decks	SY	290.000	290.000
0084	509.0505.S	Cleaning Decks to Reapply Concrete Masonry Overlay	SY	265.000	265.000
0086	509.1000	Joint Repair	SY	15.000	15.000
0088	509.1500	Concrete Surface Repair	SF	120.000	120.000
0090	509.2000	Full-Depth Deck Repair	SY	2.000	2.000
0092	509.2500	Concrete Masonry Overlay Decks	CY	48.000	48.000
0094	509.9005.S	Removing Concrete Masonry Deck Overlay (structure) 01. B-21-0008	SY	265.000	265.000
0096	511.1200	Temporary Shoring (structure) 01. B-21-0008	SF	120.000	120.000
0098	516.0500	Rubberized Membrane Waterproofing	SY	3.000	3.000
0100	517.3001.S	Structure Overcoating Cleaning and Priming (structure) 01. B-21-0002	EACH	1.000	1.000



Estimate Of Quantities

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Line	Item	Item Description	Unit	Total	Qty
0102	517.4001.S	Containment and Collection of Waste Materials (structure) 01. B-21-0002	EACH	1.000	1.000
0104	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000
0106	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	72.000	72.000
0108	601.0590	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBTT	LF	40.000	40.000
0110	602.3010	Concrete Surface Drains	CY	3.000	3.000
0112	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,125.000	1,125.000
0114	603.8125	Concrete Barrier Temporary Precast Installed	LF	2,200.000	2,200.000
0116	603.8500	Anchoring Concrete Barrier Temporary Precast	LF	1,895.000	1,895.000
0118	603.8505	Anchoring Concrete Barrier Temporary Precast on Bridge Decks	LF	305.000	305.000
0120	606.0300	Riprap Heavy	CY	33.000	33.000
0122	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	35.000	35.000
0124	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	1.000	1.000
0126	614.0905	Crash Cushions Temporary	EACH	8.000	8.000
0128	614.2300	MGS Guardrail 3	LF	250.000	250.000
0130	614.2500	MGS Thrie Beam Transition	LF	316.000	316.000
0132	614.2610	MGS Guardrail Terminal EAT	EACH	8.000	8.000
0134	618.0100	Maintenance and Repair of Haul Roads (project) 01. 9165-00-70	EACH	1.000	1.000
0136	619.1000	Mobilization	EACH	1.000	1.000
0138	624.0100	Water	MGAL	13.900	13.900
0140	625.0100	Topsoil	SY	3,000.000	3,000.000
0142	628.1504	Silt Fence	LF	2,770.000	2,770.000
0144	628.1520	Silt Fence Maintenance	LF	2,770.000	2,770.000
0146	628.1905	Mobilizations Erosion Control	EACH	4.000	4.000
0148	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0150	628.2008	Erosion Mat Urban Class I Type B	SY	3,750.000	3,750.000
0152	628.7570	Rock Bags	EACH	20.000	20.000
0154	629.0210	Fertilizer Type B	CWT	4.000	4.000
0156	630.0130	Seeding Mixture No. 30	LB	80.000	80.000
0158	642.5001	Field Office Type B	EACH	1.000	1.000
0160	643.0300	Traffic Control Drums	DAY	3,080.000	3,080.000
0162	643.0420	Traffic Control Barricades Type III	DAY	176.000	176.000
0164	643.0705	Traffic Control Warning Lights Type A	DAY	352.000	352.000
0166	643.0715	Traffic Control Warning Lights Type C	DAY	1,760.000	1,760.000
0168	643.0900	Traffic Control Signs	DAY	1,672.000	1,672.000
0170	643.1000	Traffic Control Signs Fixed Message	SF	36.000	36.000
0172	643.3165	Temporary Marking Line Paint 6-Inch	LF	8,825.000	8,825.000
0174	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	56.000	56.000
0176	643.5000	Traffic Control	EACH	1.000	1.000
0178	645.0111	Geotextile Type DF Schedule A	SY	10.000	10.000
0180	645.0120	Geotextile Type HR	SY	80.000	80.000
0182	646.2020	Marking Line Epoxy 6-Inch	LF	6,900.000	6,900.000
0184	646.6466	Cold Weather Marking Epoxy 6-Inch	LF	1,725.000	1,725.000
0186	646.9000	Marking Removal Line 4-Inch	LF	1,740.000	1,740.000
0188	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	112.000	112.000
0190	650.9911	Construction Staking Supplemental Control (project) 01. 9165-00-70	EACH	1.000	1.000
0192	650.9920	Construction Staking Slope Stakes	LF	1,120.000	1,120.000
0194	661.0101	Temporary Traffic Signals for Bridges (structure) 01. B-21-0002	EACH	1.000	1.000
0196	661.0101	Temporary Traffic Signals for Bridges (structure) 02. B-21-0008	EACH	1.000	1.000
0198	690.0150	Sawing Asphalt	LF	1,290.000	1,290.000
0200	715.0502	Incentive Strength Concrete Structures	DOL	1,000.000	1,000.000

Estimate Of Quantities

9165-00-70

Line	Item	Item Description	Unit	Total	Qty
0202	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0204	999.2005.S	Maintaining Bird Deterrent System (station) 01. 34+00	EACH	1.000	1.000
0206	SPV.0045	Special 01. Driveway Assistance Device System	DAY	176.000	176.000
0208	SPV.0060	Special 01. Embedded Galvanic Anodes	EACH	106.000	106.000
0210	SPV.0060	Special 02. Maintaining Bat Deterrent System (station) 99+91	EACH	1.000	1.000
0212	SPV.0090	Special 01. Flashing Stainless Steel	LF	165.000	165.000
0214	SPV.0090	Special 02. Railing Steel Type W Modified B-21-0002	LF	204.000	204.000
0216	SPV.0165	Special 01. Repair Galvanized Coating	SF	34.000	34.000
0218	SPV.0165	Special 02. Deck Edge Preparation	SF	340.000	340.000
0220	SPV.0180	Special 01. Removing Distressed Asphaltic Surface Milling	SY	270.000	270.000
0222	SPV.0195	Special 01. Travel Corridor Stone	TON	42.000	42.000

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DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL (2)	UNEXPANDED FILL	EXPANDED FILL (3)	MASS ORDINATE +/- (4)	WASTE	208.0100 BORROW
			CUT	EBS EXCAVATION				FACTOR 1.25			
STH 55	B-21-0002	SHOULDERS	199	0	34	165	591	739	-574	0	574
	B-21-0008	SHOULDERS	307	0	53	254	580	725	-471	0	471
DIVISION 1 SUBTOTAL			506	0	88	419	1,171	1,464	-1,045	0	1,045
GRAND TOTAL			506	0	88	419	1,171	1,464	-1,045	0	1,045
TOTAL COMMON EXC			506								

**NOTES:**

- (1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
- (2) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (3) EXPANDED FILL FACTOR = 1.25
- (4) 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.
- (5) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

**REMOVALS**

CATEGORY	STATION TO	STATION	LOCATION	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	204.0150 REMOVING CURB & GUTTER LF	204.0165 REMOVING GUARDRAIL LF	204.0220 REMOVING INLETS EACH	204.0245.01 REMOVING STORM SEWER (12-INCH) LF	646.9000 MARKING REMOVAL LINE 4-INCH LF	690.0150 SAWING ASPHALT LF	SPV.0180.01 SPECIAL (REMOVING DISTRESSED ASPHALTIC SURFACE MILLING) SY	REMARKS
			B-21-0002											
0010	30+83 -	37+05	APPROACHES	-	-	1,450	-	-	-	-	-	510	145	
	30+83 -	37+05	APPROACHES	-	130	-	-	-	-	-	810	-	-	MILLING LIMITS & EACH SIDE OF BRIDGE DECK
	32+74 -	35+23	SW, SE, NW, NE	-	-	-	-	290	-	-	-	-	-	APPROACH RAIL ONLY; BRIDGE RAIL SEPARATE
			B-21-0008											
0010	99+31 -	100+50	APPROACH SLABS	180	-	-	-	-	-	-	-	-	-	REMOVING CONCRETE APPROACH SLABS
	97+00 -	102+80	APPROACHES	-	60	-	-	-	-	-	930	-	-	BEGINNING AND END OF MILLING LIMITS
	97+00 -	102+80	APPROACHES	-	-	1,240	-	-	-	-	-	780	125	
	98+24 -	101+63	SW, SE, NW, NE	-	-	-	-	490	-	-	-	-	-	
	99+37 -	99+50	SOUTH DECK END	-	-	-	10	-	2	40	-	-	-	CURB & GUTTER, INLETS, AND PIPES; LT & RT
			TOTAL 0010	180	190	2,690	10	780	2	40	1,740	1,290	270	

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GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0205 GRUBBING STA
0010	31+70	-	33+00	B-21-0002	2
0010	36+28	-	36+73	B-21-0002	1
TOTAL 0010					3

ASPHALT

CATEGORY	STATION	TO	STATION	LOCATION	450.4000 HMA COLD WEATHER PAVING TON	455.0605 TACK COAT GAL	465.0105 ASPHALTIC SURFACE TON	465.0110 ASPHALTIC SURFACE PATCHING TON	465.0125 ASPHALTIC SURFACE TEMPORARY TON
<b>B-21-0002</b>									
0010	30+83	-	33+59	SOUTH APPROACH	35	60	140	5	11
0010	34+41	-	37+05	NORTH APPROACH	33	50	130	5	5
<b>B-21-0008</b>									
0010	97+00	-	99+56	SOUTH APPROACH	30	50	120	4	9
0010	100+26	-	102+80	NORTH APPROACH	30	50	120	4	8
TOTAL 0010					128	210	510	18	33

BASE AGGREGATE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	624.0100 WATER MGAL	REMARKS
<b>B-21-0002</b>								
0010	30+83	-	33+59	SOUTH APPROACH	80	230	3.1	SHOULDERS & PAVEMENT WIDENING BASE
0010	34+41	-	37+05	NORTH APPROACH	80	230	3.1	SHOULDERS & PAVEMENT WIDENING BASE
<b>B-21-0008</b>								
0010	97+00	-	99+56	SOUTH APPROACH	70	310	3.8	SHOULDERS; WIDENING, C&G, APPROACH SLAB BASE
0010	100+26	-	102+80	NORTH APPROACH	80	310	3.9	SHOULDERS; WIDENING, C&G, APPROACH SLAB BASE
TOTAL 0010					310	1,080	13.9	

CONCRETE

CATEGORY	LOCATION	415.0120 CONCRETE PAVEMENT 12- INCH SY	415.0410 CONCRETE PAVEMENT APPROACH SLAB SY	601.0588 CONCRETE CURB & GUTTER 4- INCH SLOPED 36- INCH TYPE TBT LF	601.0590 CONCRETE CURB & GUTTER 4- INCH SLOPED 36- INCH TYPE TBT LF	602.3010 CONCRETE SURFACE DRAINS CY	REMARKS
<b>B-21-0008</b>							
0010	DECK ENDS	40	110	-	-	-	APPROACH SLABS
0010	SOUTH APPROACH	-	-	-	-	3	STA. 98+99.8 RT & 99+08.5 LT
0010	SOUTH APPROACH	-	-	72	20	-	
0010	NORTH APPROACH	-	-	-	20	-	
TOTAL 0010		40	110	72	40	3	

PROJECT NO: 9165-00-70

HWY: STH 55

COUNTY: FOREST

MISCELLANEOUS QUANTITIES

SHEET

E

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RIPRAP

CATEGORY	LOCATION	606.0300	645.0120
		RIPRAP HEAVY CY	GEOTEXTILE TYPE HR SY
	B-21-0008		
0010	98+99.8 RT	21	50
0010	99+08.5 LT	12	30
	TOTAL 0010	33	80

GUARDRAIL

CATEGORY	STATION	TO	STATION	LOCATION	614.2300	614.2500	614.2610
					MGS GUARDRAIL 3 LF	MGS THRIE BEAM TRANSITION LF	MGS GUARDRAIL TERMINAL EAT EACH
				B-21-0002			
0010	32+44	-	33+49	LT	12.5	39.5	1
0010	32+81	-	33+49	RT	75	39.5	1
0010	34+50	-	36+18	LT	75	39.5	1
0010	34+50	-	35+55	RT	12.5	39.5	1
				B-21-0008			
0010	98+62	-	99+54	LT	-	39.5	1
0010	98+03	-	99+46	RT	50	39.5	1
0010	100+35	-	101+53	LT	25	39.5	1
0010	100+30	-	101+22	RT	-	39.5	1
				TOTAL 0010	250	316	8

LANDSCAPING

CATEGORY	LOCATION	625.0100	628.1504	628.1520	628.1905	628.1910	628.2008	628.7570	629.0210	630.0130
		TOPSOIL SY	SILT FENCE LF	SILT FENCE MAINTENANCE LF	MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EROSION CONTROL EACH	EROSION MAT URBAN CLASS I TYPE B SY	ROCK BAGS EACH	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB
0010	B-21-0002	1,360	1,070	1,070	2	1	1,360	-	1	30
0010	B-21-0008	1,640	1,140	1,140	2	1	1,640	-	2	30
0010	UNDISTRIBUTED	-	560	560	-	-	750	20	1	20
	TOTAL 0010	3,000	2,770	2,770	4	2	3,750	20	4	80

TRAFFIC CONTROL

CATEGORY	LOCATION	643.0300	643.0420	643.0705	643.0715	643.0900	643.1000	643.3165	643.3850	661.0101.01	661.0101.02	SPV.0045.01	REMARKS
		TRAFFIC CONTROL DRUMS DAY	TRAFFIC CONTROL BARRICADES TYPE III DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	TRAFFIC CONTROL SIGN DAY	TRAFFIC CONTROL SIGNS FIXED MESSAGE SF	TEMPORARY MARKING LINE PAINT 6-INCH LF	TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH LF	TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) (01. B-21-0002) EACH	TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) (02. B-21-0008) EACH	SPECIAL (01. DRIVEWAY ASSISTANCE DEVICE SYSTEM) DAY	
0010	B-21-0002	1,100	88	176	880	836	18	4,225	28	1	-	-	ESTIMATED 44 CALENDAR DAYS
0010	B-21-0008	1,980	88	176	880	836	18	4,600	28	-	1	176	ESTIMATED 44 CALENDAR DAYS
	TOTAL 0010	3,080	176	352	1,760	1,672	36	8,825	56	1	1	176	

PROJECT NO: 9165-00-70

HWY: STH 55

COUNTY: FOREST

MISCELLANEOUS QUANTITIES

SHEET

E

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PAVEMENT MARKING

CATEGORY	LOCATION	646.2020	646.6466
		MARKING LINE EPOXY 6-INCH LF	COLD WEATHER MARKING EPOXY 6-INCH LF
0010	B-21-0002	3,300	825
0010	B-21-0008	3,600	900
TOTAL 0010		6,900	1,725

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.5500	650.9920
		CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER LF	CONSTRUCTION STAKING SLOPE STAKES LF
0010	B-21-0002	-	540
0010	B-21-0008	112	580
TOTAL 0010		112	1,120

DETERRENT SYSTEMS

CATEGORY	LOCATION	999.2005.S.01	SPV.0060.02
		MAINTAINING BIRD DETERRENT SYSTEM (STATION 34+00) EACH	SPECIAL (MAINTAINING BAT DETERRENT SYSTEM STATION 99+91) EACH
0010	B-21-0002	1	-
0010	B-21-0008	-	1
TOTAL 0010		1	1

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CONCRETE BARRIERS

CATEGORY	LOCATION	603.8000	603.8125	603.8500	603.8505
		CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	ANCHORING CONCRETE BARRIER TEMPORARY PRECAST LF	ANCHORING CONCRETE BARRIER TEMPORARY PRECAST ON BRIDGE DECKS LF
<b>B-21-0002</b>					
0010	STAGE 1	675	625	543	83
0010	STAGE 2	-	675	593	83
<b>B-21-0008</b>					
0010	STAGE 1	450	450	380	70
0010	STAGE 2	-	450	380	70
TOTAL 0010		1,125	2,200	1,895	305

CRASH CUSHIONS TEMPORARY

CATEGORY	STATION	LOCATION	614.0905	BACK WIDTH (FT)	OBJECT MARKING PATTERN	CRASH TEST LEVEL	TRAFFIC DIRECTION	TRAFFIC LOCATION	CRASH	REMARKS	
			CRASH CUSHIONS TEMPORARY (4'x26' PAD) EACH						CUSHION SHIELDS		
0010	30+72	8' RT	1	4	OM3-L (W05-58L)	TL-3	UNIDIRECTIONAL	RT	CBTP	B-21-002 STAGE 1	
0010	36+98	4' LT	1	4	OM3-R (W05-58R)	TL-3	UNIDIRECTIONAL	LT	CBTP	B-21-002 STAGE 1	
0010	30+72	7' RT	1	4	OM3-R (W05-58R)	TL-3	UNIDIRECTIONAL	LT	CBTP	B-21-002 STAGE 2	
0010	37+40	10' RT	1	4	OM3-L (W05-58L)	TL-3	UNIDIRECTIONAL	RT	CBTP	B-21-002 STAGE 2	
0010	97+18	5' LT	1	4	OM3-L (W05-58L)	TL-3	UNIDIRECTIONAL	RT	CBTP	B-21-008 STAGE 1	
0010	101+68	2' RT	1	4	OM3-R (W05-58R)	TL-3	UNIDIRECTIONAL	LT	CBTP	B-21-008 STAGE 1	
0010	97+05	6' RT	1	4	OM3-R (W05-58R)	TL-3	UNIDIRECTIONAL	LT	CBTP	B-21-008 STAGE 2	
0010	101+61	2' LT	1	4	OM3-L (W05-58L)	TL-3	UNIDIRECTIONAL	RT	CBTP	B-21-008 STAGE 2	
TOTAL 0010			8								

PROJECT NO: 9165-00-70

HWY: STH 55

COUNTY: FOREST

MISCELLANEOUS QUANTITIES

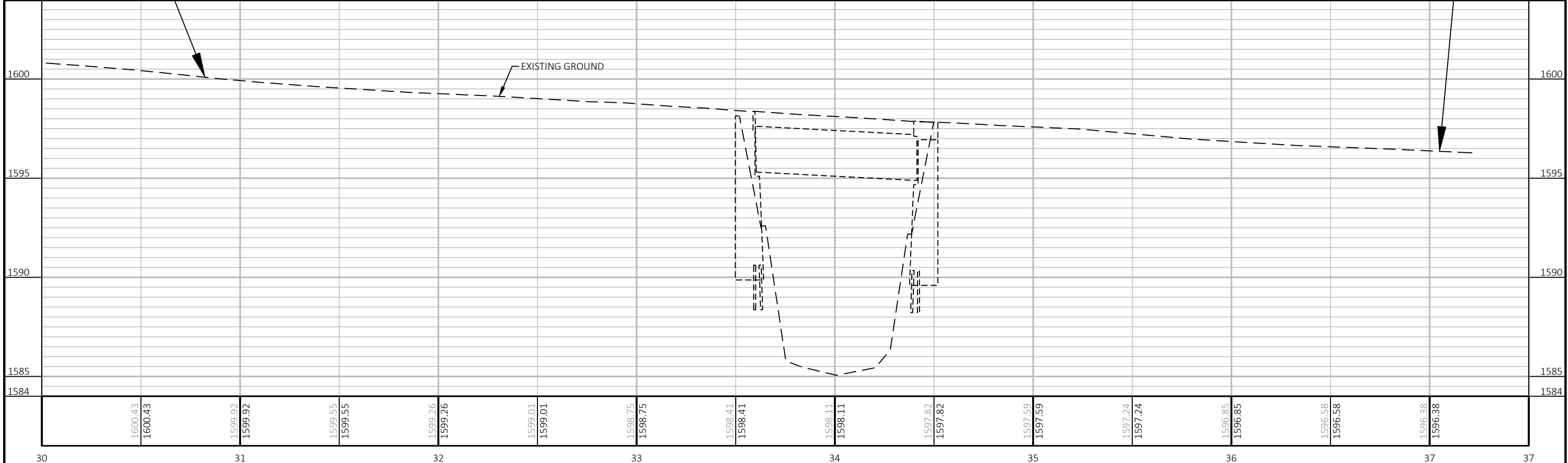
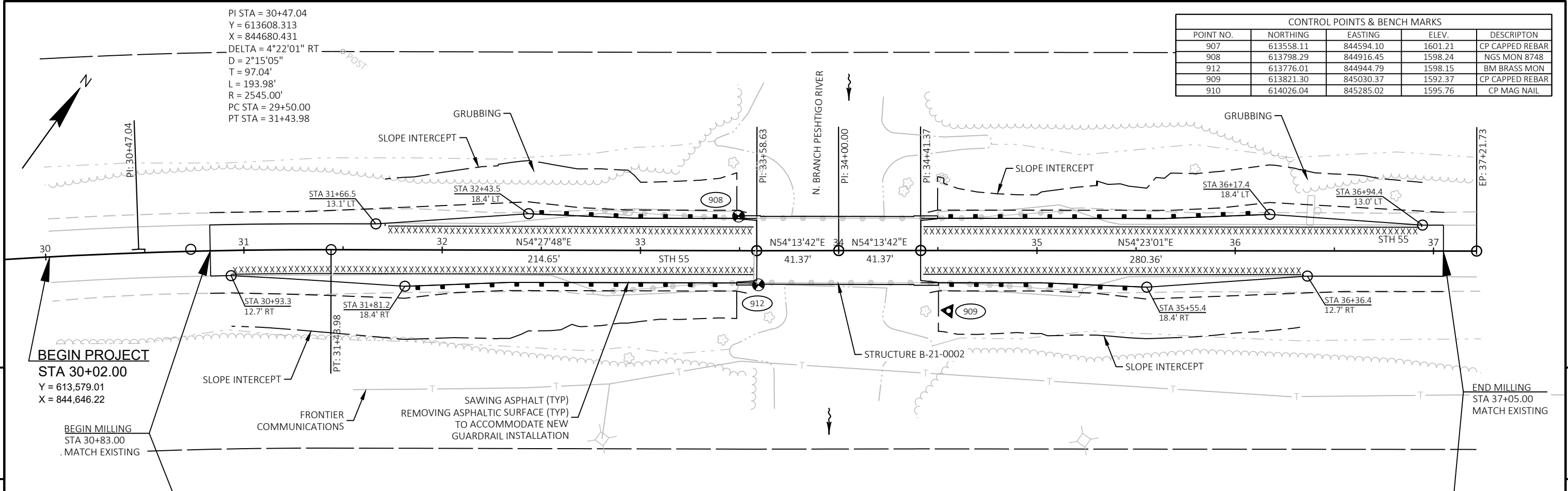
SHEET

E



PI STA = 30+47.04  
 Y = 613608.313  
 X = 844680.431  
 DELTA = 4°22'01" RT  
 D = 2°15'05"  
 T = 97.04'  
 L = 193.98'  
 R = 2545.00'  
 PC STA = 29+50.00  
 PT STA = 31+43.98

CONTROL POINTS & BENCH MARKS				
POINT NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
907	613558.11	844594.10	1601.21	CP CAPPED REBAR
908	613798.29	844916.45	1598.24	NGS MON 8748
912	613776.01	844944.79	1598.15	BM BRASS MON
909	613821.30	845030.37	1592.37	CP CAPPED REBAR
910	614026.04	845285.02	1595.76	CP MAG NAIL



PROJECT NO: 9165-00-70      HWY: STH 55      COUNTY: FOREST      PLAN AND PROFILE: STH 55 - B-21-0002      SHEET: 5

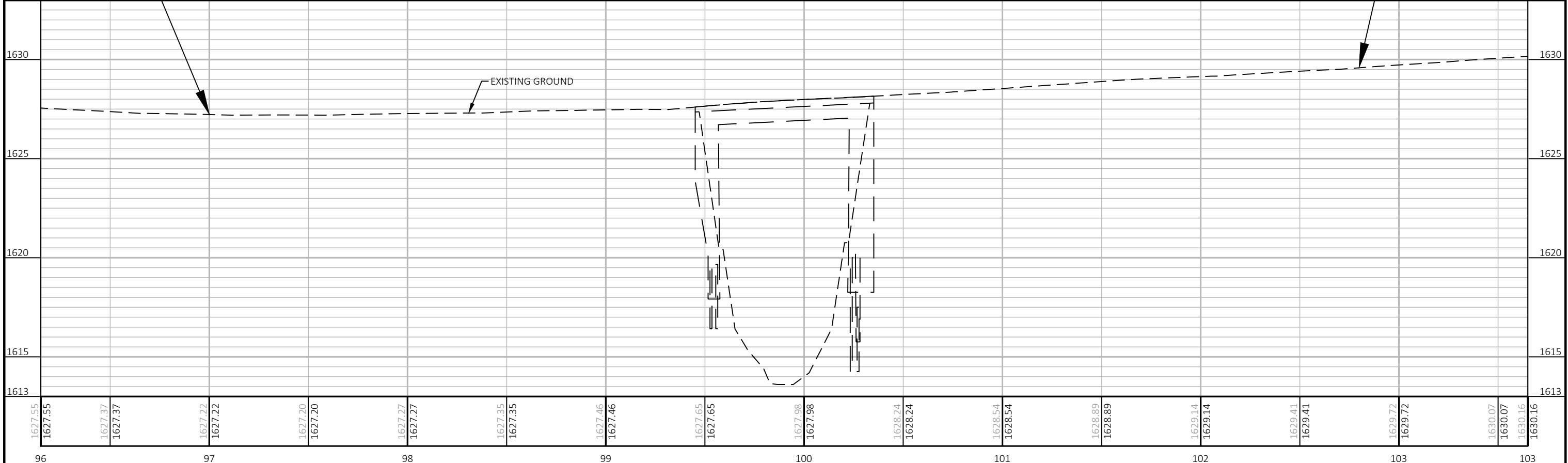
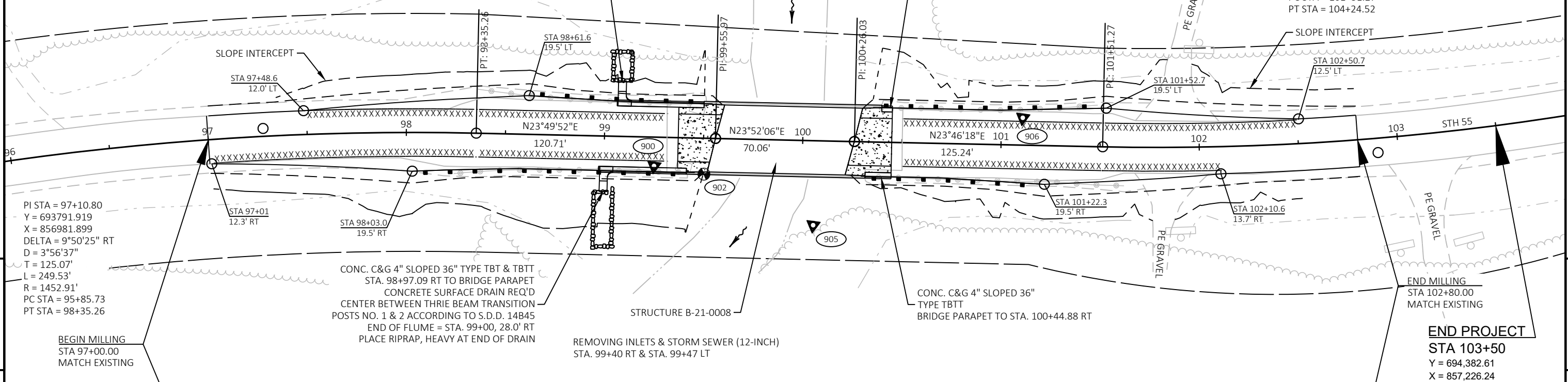
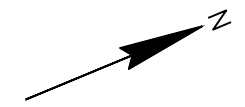
CONTROL POINTS & BENCH MARKS				
POINT NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
901	693632.97	856930.86	1628.80	CP MAG NAIL
900	693982.78	857082.14	1627.30	CP MAG NAIL
902	694004.42	857095.57	1630.06	NGS MON 8721
905	694045.40	857140.52	1619.18	CP CAPPED REBAR
906	694163.86	857131.06	1628.28	CP MAG NAIL
903	694477.88	857260.65	1631.44	CP MAG NAIL

CONC. C&G 4" SLOPED 36" TYPE TBT & TBTT  
 STA. 99+06.1 RT TO BRIDGE PARAPET  
 CONCRETE SURFACE DRAIN REQ'D  
 CENTER BETWEEN E.A.T. POSTS NO. 8 & 9  
 ACCORDING TO S.D.D. 8D2  
 END OF FLUME = STA. 99+08, 28.0' LT  
 PLACE HEAVY RIPRAP AT END OF DRAIN

CONCRETE PAVEMENT  
 12-INCH APPROACH SLAB  
 STA. 99+37.17 TO 99+60.23  
 SEE S.D.D. 13B2

CONCRETE PAVEMENT  
 12-INCH APPROACH SLAB  
 STA. 100+21.73 TO 100+44.88  
 SEE S.D.D. 13B2

PI STA = 102+88.38  
 Y = 694320.908  
 X = 857215.307  
 DELTA = 11°48'24" LT  
 D = 4°19'15"  
 T = 137.11'  
 L = 273.25'  
 R = 1326.05'  
 PC STA = 101+51.27  
 PT STA = 104+24.52



PROJECT NO: 9165-00-70	HWY: STH 55	COUNTY: FOREST	PLAN AND PROFILE: STH 55 - B-21-0008	SHEET	<b>E</b>
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## Standard Detail Drawing List

08D02-08A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-08C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E09-06	SILT FENCE
09G02-05A	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05B	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
09G02-05C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B07-16A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16M	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16N	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-08A	MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY
15D33-09	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
15D51-01	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

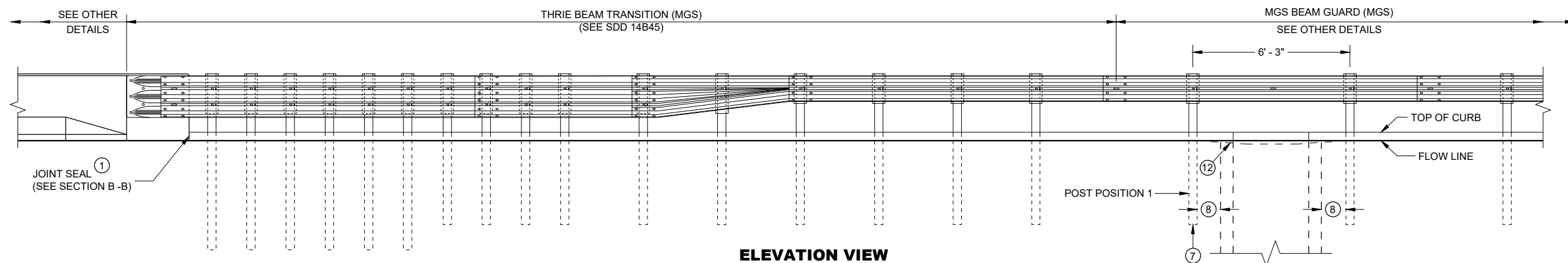
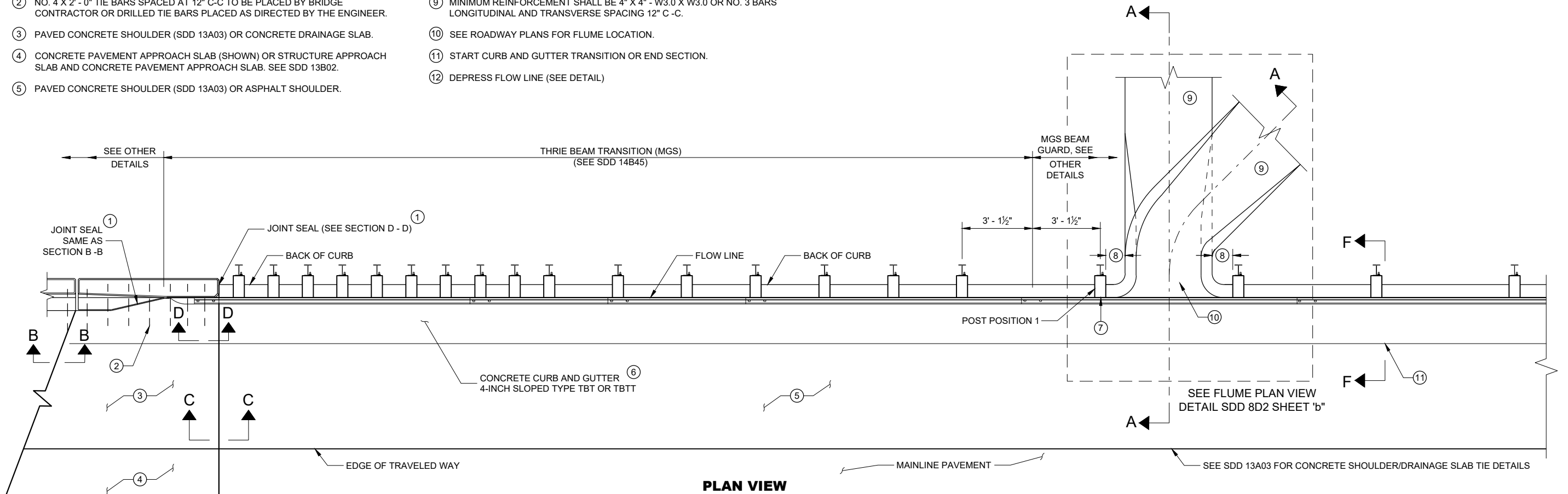
**GENERAL NOTES**

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.

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)



**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

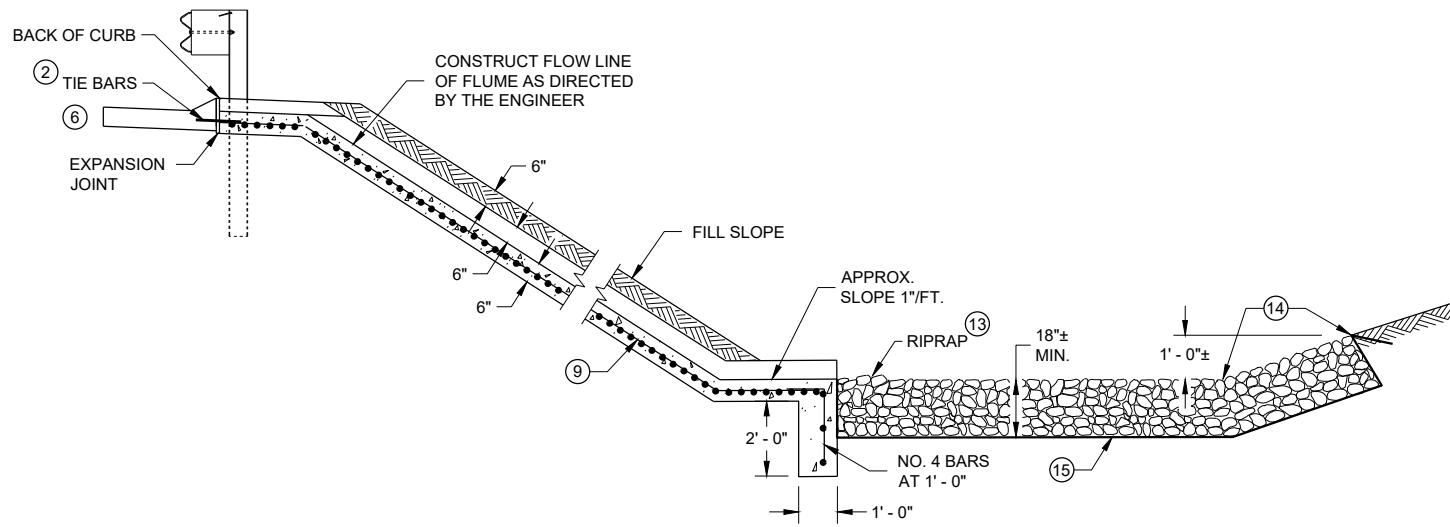
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

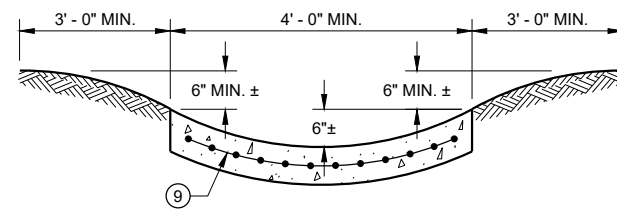
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SDD 08D02 - 08a

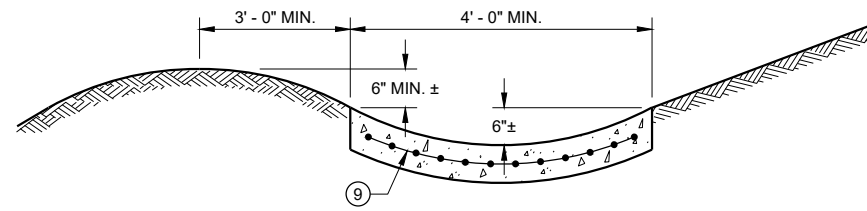
SDD 08D02 - 08a



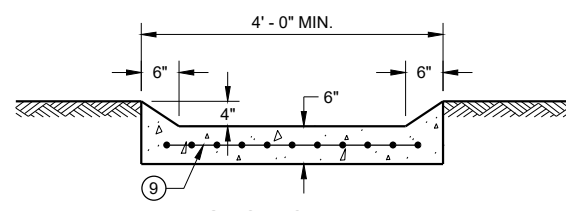
**SECTION A - A**



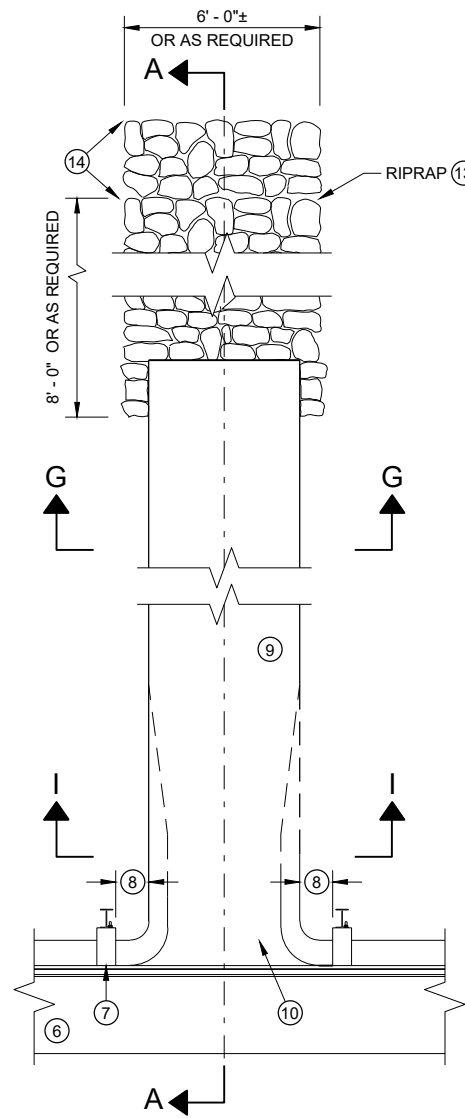
**SECTION G - G**



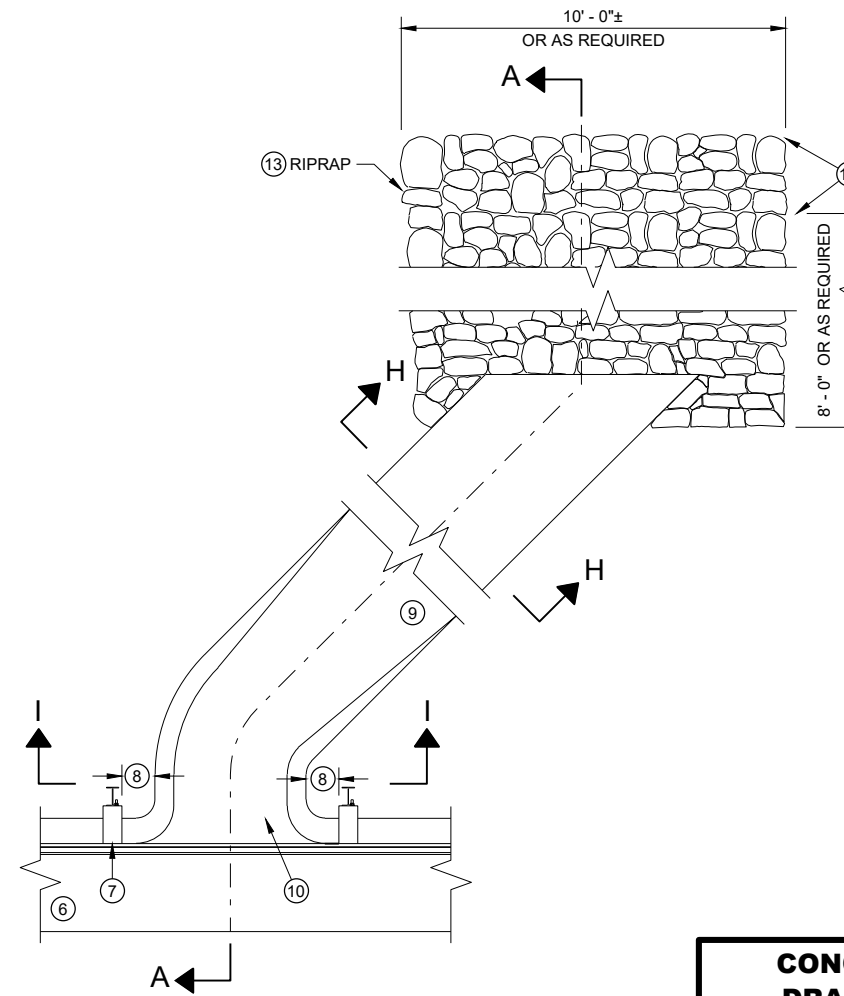
**SECTION H - H**



**SECTION I - I**



**PLAN VIEW  
PERPENDICULAR FLUME**



**PLAN VIEW  
SKEWED FLUME**

**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.

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

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
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- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.

6

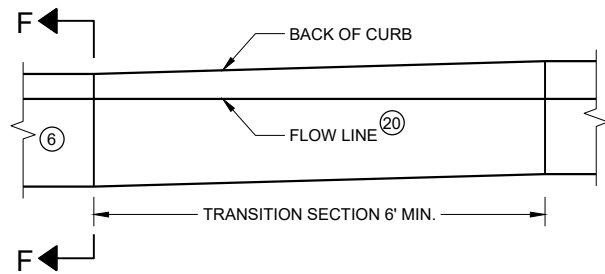
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SDD 08D02 - 08b

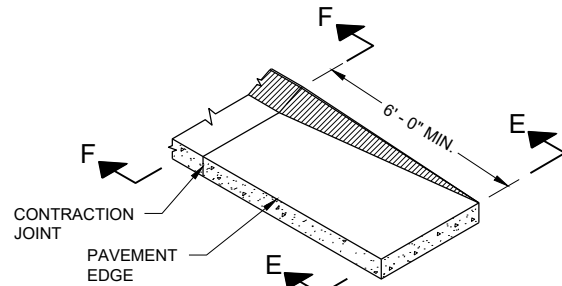
SDD 08D02 - 08b

**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

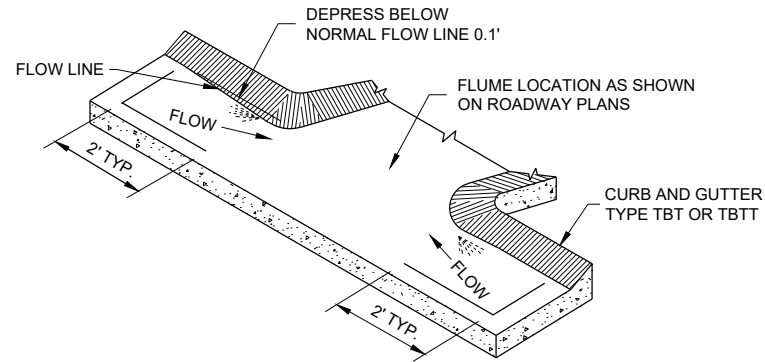
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**CURB AND GUTTER TRANSITION SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



**CURB AND GUTTER END SECTION  
CONCRETE CURB AND GUTTER 4-INCH SLOPED  
36 INCH TYPE TBT OR TBTT**



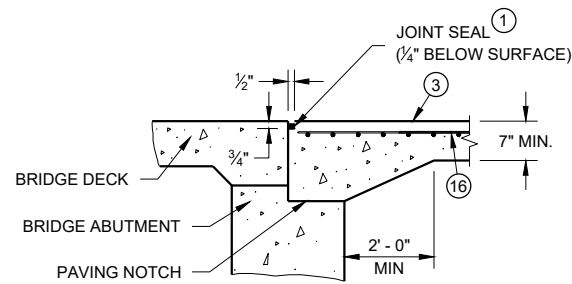
**CURB AND GUTTER FLOW LINE DEPRESSION  
AT FLUMES CONCRETE CURB AND GUTTER  
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

**GENERAL NOTES**

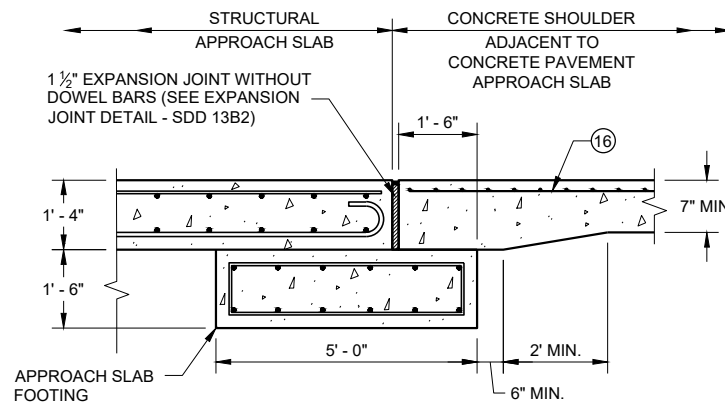
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

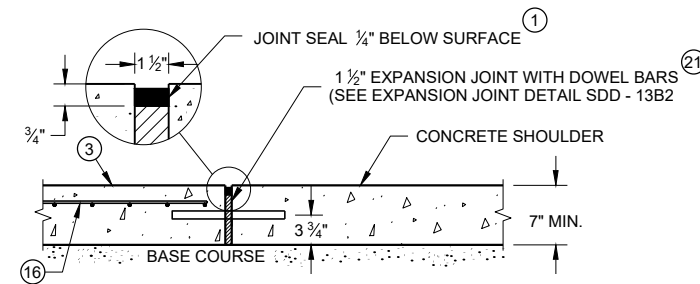
- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
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- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



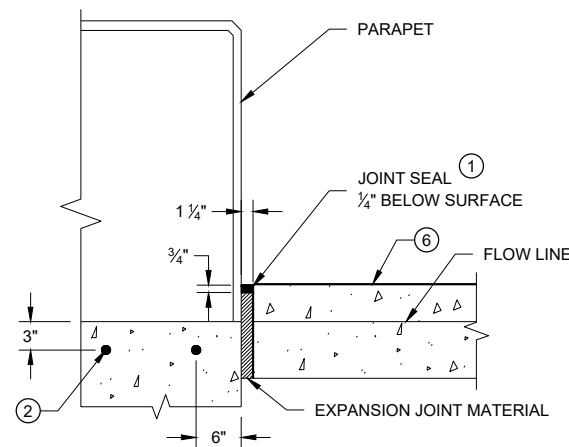
**SECTION B-B**



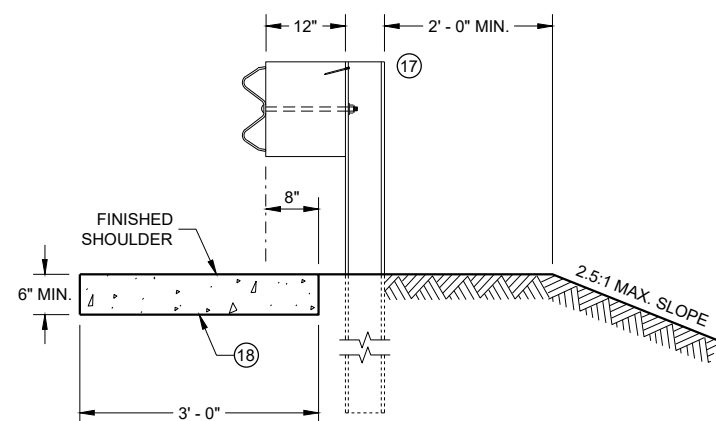
**SECTION C - C  
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL  
APPROACH SLAB AND CONCRETE APPROACH SLAB**



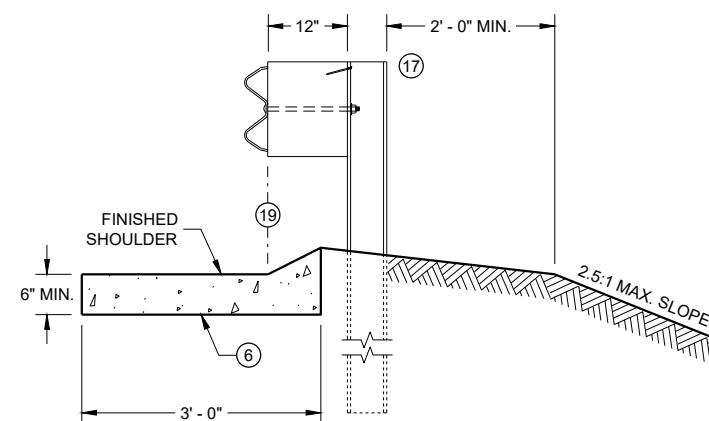
**SECTION C - C  
JOINT DETAIL FOR BRIDGE APPROACH  
WITH CONCRETE SHOULDERS**



**SECTION D - D**



**SECTION E - E**



**SECTION F - F**

6

6

SDD08D02 - 08C

SDD08D02 - 08C

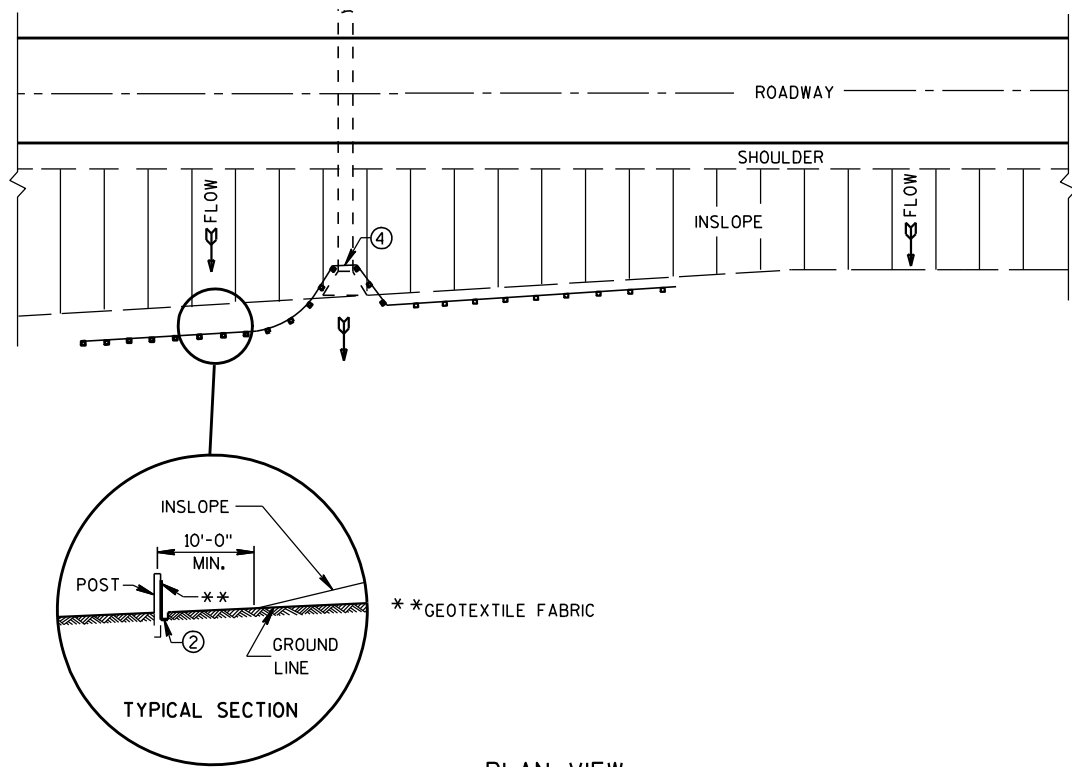
**CONCRETE SURFACE  
DRAINS FLUME TYPE  
AT STRUCTURES**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

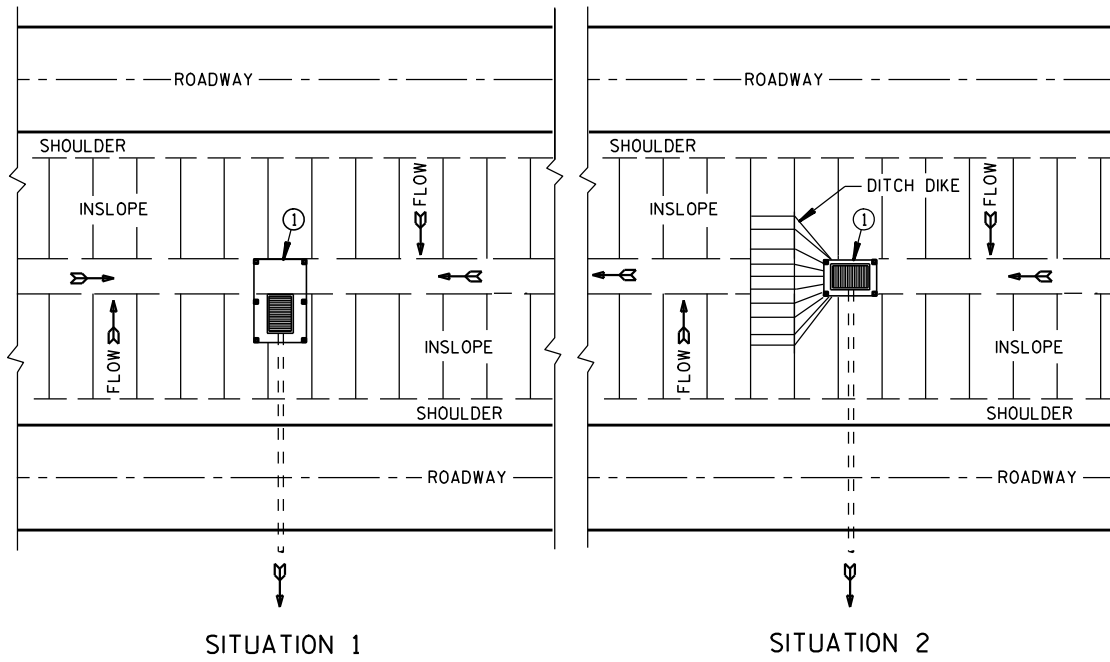
APPROVED  
May 2023 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

FHWA





PLAN VIEW  
TYPICAL APPLICATION OF SILT FENCE

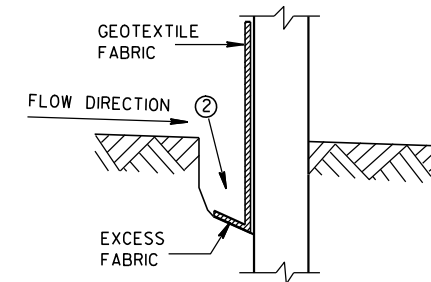


SITUATION 1 SITUATION 2  
PLAN VIEW  
SILT FENCE AT MEDIAN SURFACE DRAINS

**GENERAL NOTES**

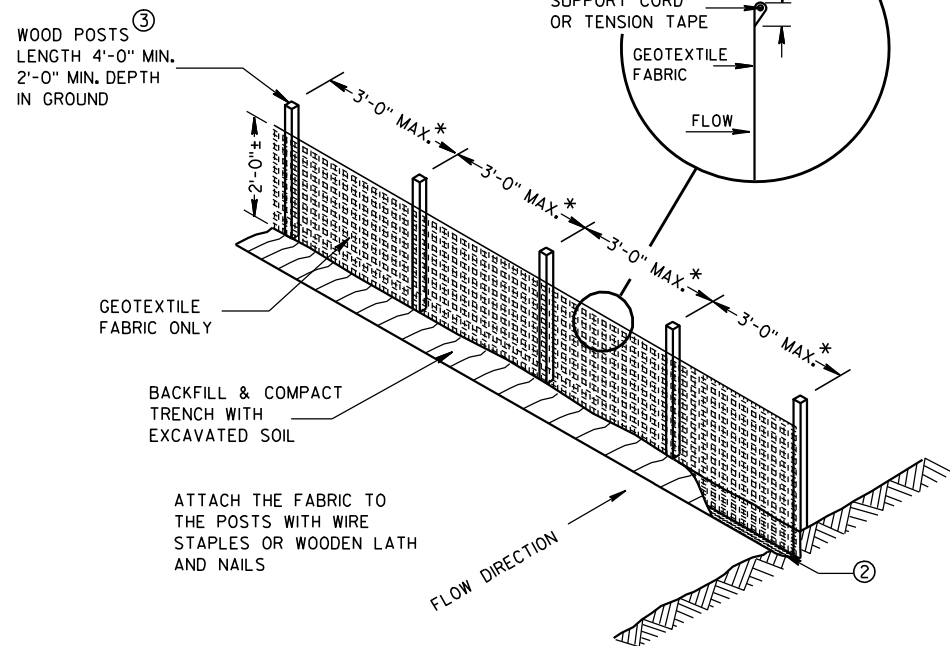
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

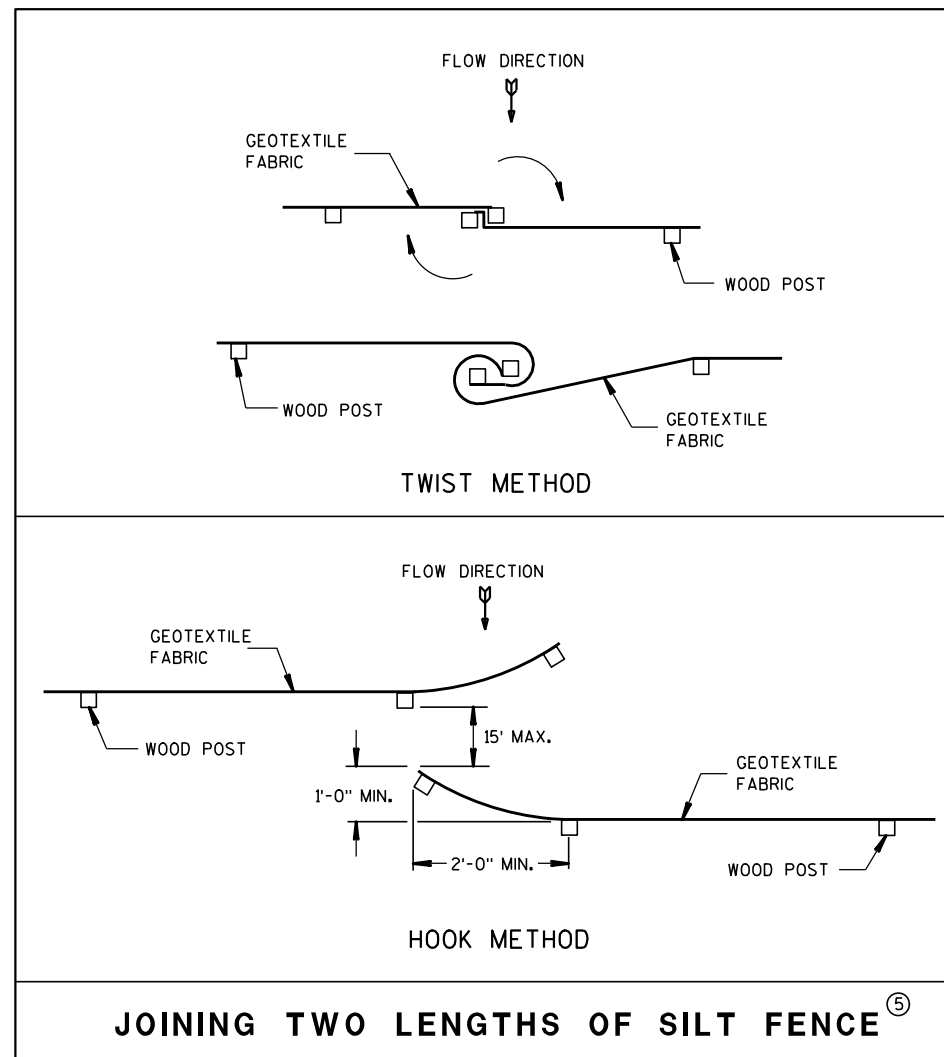


TRENCH DETAIL

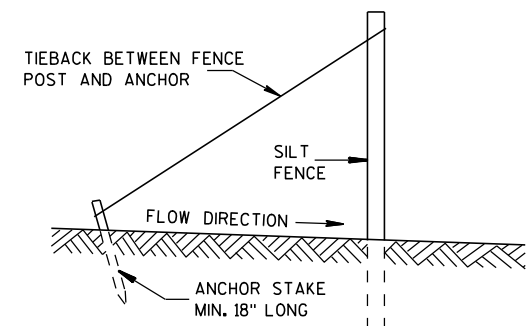
NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS



SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤

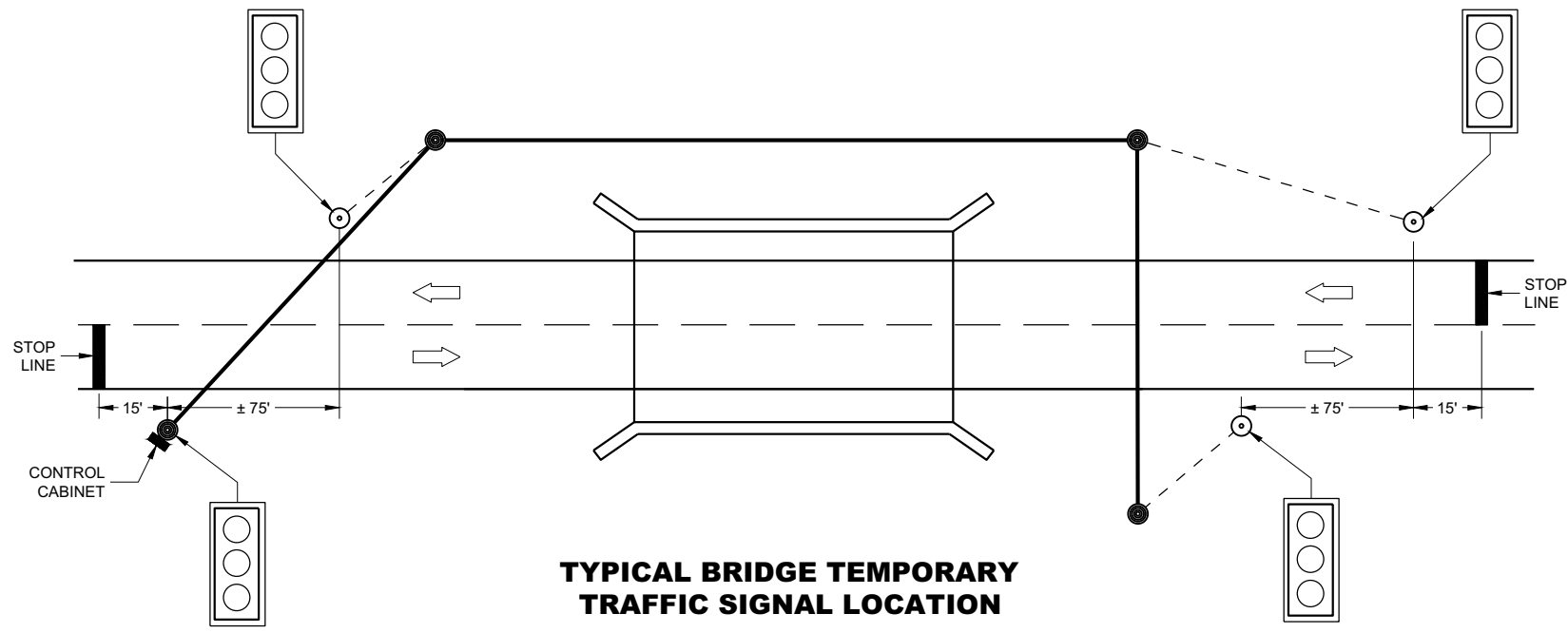


SILT FENCE TIE BACK  
(WHEN REQUIRED BY THE ENGINEER)

**SILT FENCE**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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



**TYPICAL BRIDGE TEMPORARY TRAFFIC SIGNAL LOCATION**

**LEGEND**

- WOOD POLE (NON-BREAKAWAY)
- WOOD POST (BREAKAWAY)
- - - SIGNAL CABLE
- SIGNAL CABLE W/MESSENGER
- DIRECTION OF TRAFFIC
- LED TRAFFIC SIGNAL WITH BACKPLATE  
3-12"

**GENERAL NOTES**

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

POLE MOUNTED TRAFFIC SIGNAL CONTROL CABINET MAY BE MOUNTED ON THE SERVICE POLE IF THE ELECTRICAL UTILITY ALLOWS THE INSTALLATION.

WHEN UTILITY POLES ARE USED TO SPAN THE TEMPORARY OVERHEAD CABLE, WRITTEN PERMISSION MUST BE OBTAINED FROM THE OWNER OF THE POLES AND GIVEN TO THE PROJECT MANAGER. ALL PERTINENT UTILITY AND CODE CLEARANCES SHALL BE MAINTAINED.

WOOD POLES (NON-BREAKAWAY) SHALL BE NO CLOSER TO EDGE OF PAVEMENT THAN OFFSET DISTANCE CHART ALLOWS OR 4 FEET BEHIND PROTECTIVE BARRIER (BEAM GUARD, ETC.).

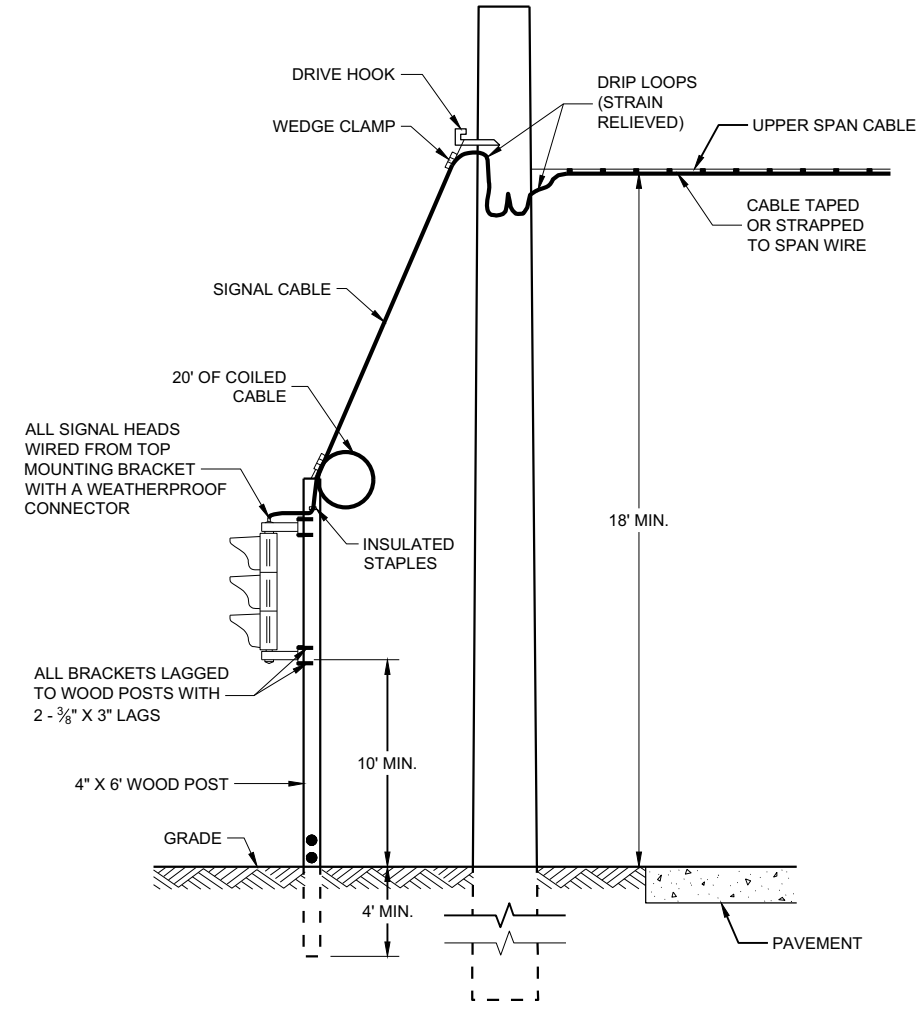
WOOD POSTS (BREAKAWAY) SHALL BE NO CLOSER THAN 2 FEET OUTSIDE OF SHOULDER.

VERTICAL CLEARANCE ETC. PER NEC.

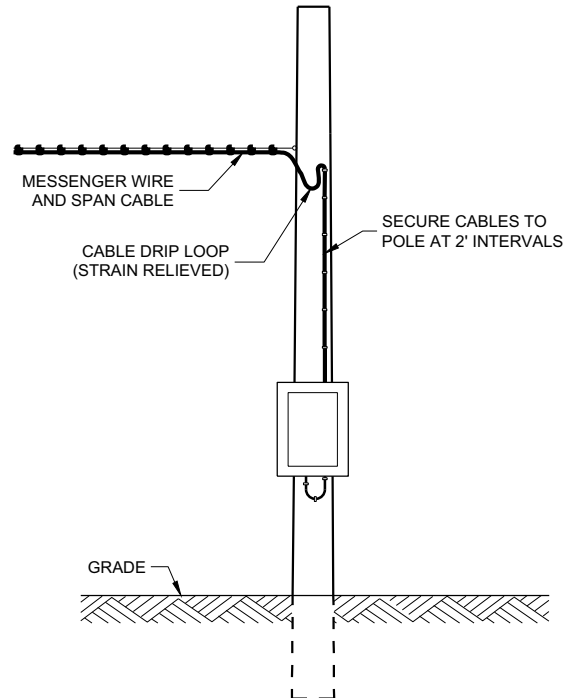
TRAFFIC SIGNAL FACES SHALL BE TYPICALLY PLACED 12 FEET FROM EDGE OF PAVEMENT.

EACH TRAFFIC SIGNAL SHALL HAVE A BACKPLATE.

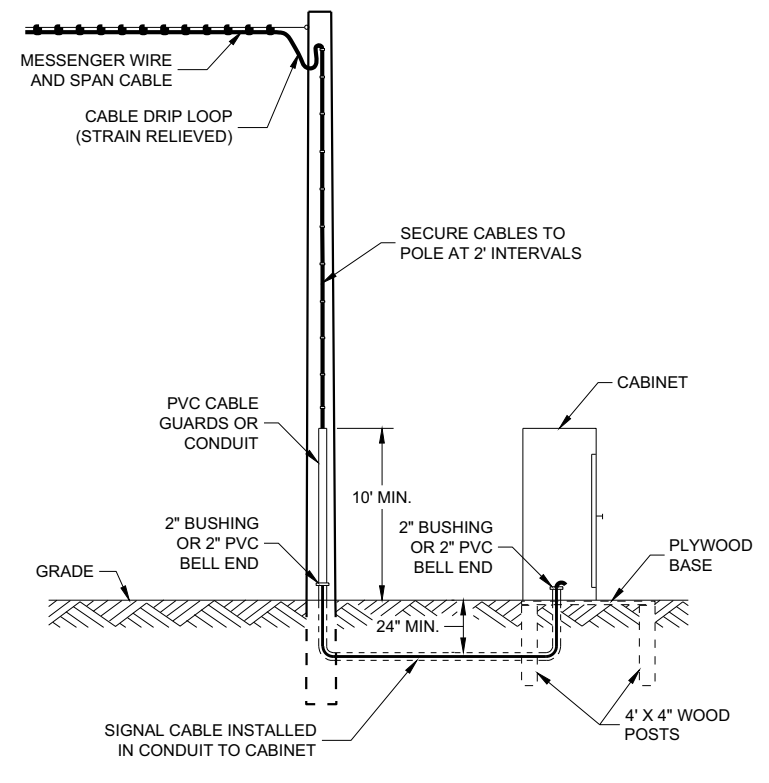
SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



**TYPICAL DROP TO TRAFFIC SIGNAL FACE**



**POLE MOUNT CABINET INSTALLATION**



**GROUND MOUNT CABINET INSTALLATION**

MINIMUM POLE LENGTHS	CLASS	POLE BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

OFFSET DISTANCES FOR TEMPORARY NON-BREAKAWAY POLES	
SPEED LIMIT	OFFSET DISTANCE*
GREATER THAN 45 MPH	18 FT
45 MPH OR LESS	12 FT
45 MPH OR LESS W/CURBS	2 FT

\* NOTE: OFFSET MEASURED FROM OUTER EDGE OF OUTSIDE THRU LANE.

**BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2018 /S/ Ahmet Demirbilek  
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

6

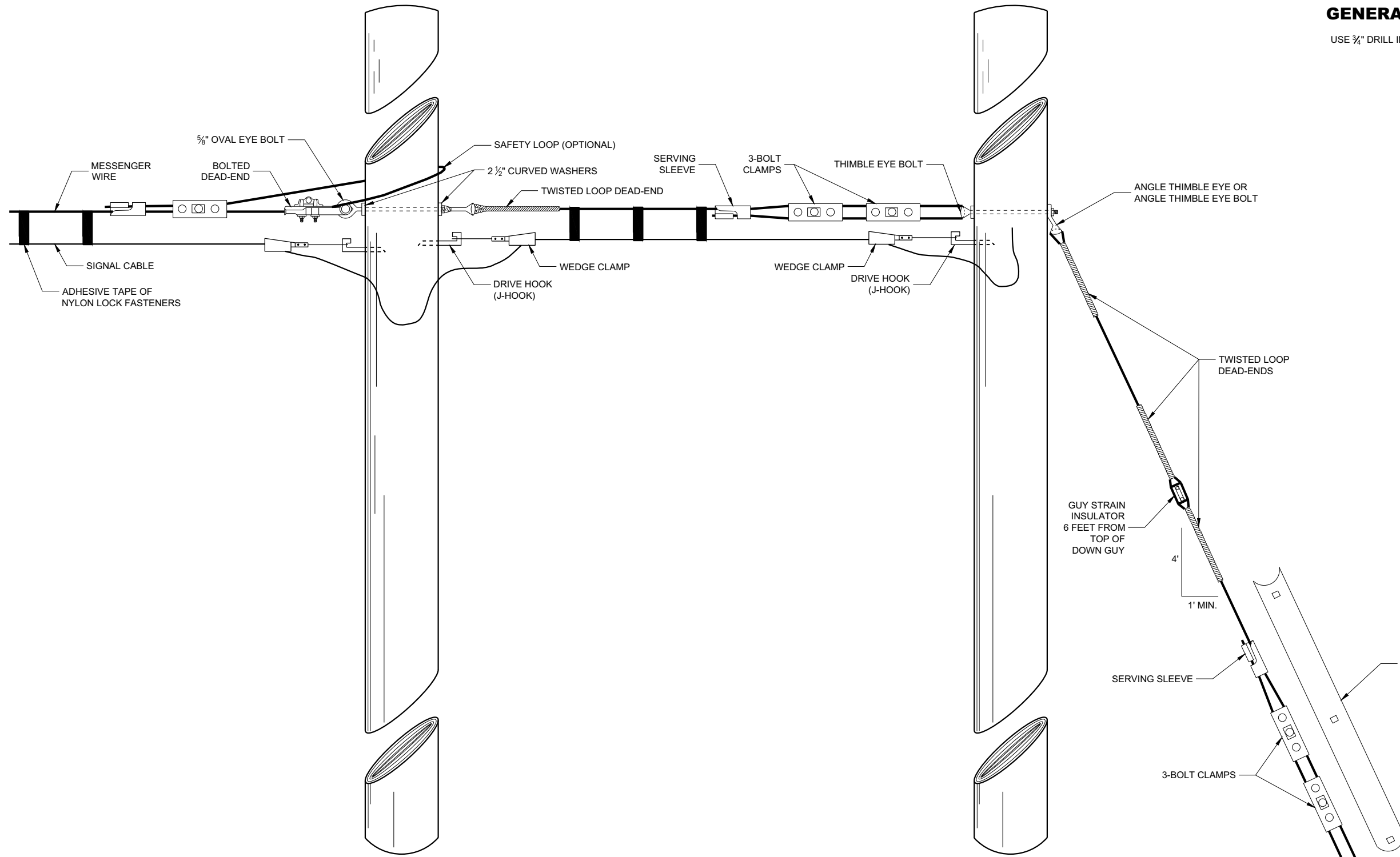
6

SDD09G02 - 05a

SDD09G02 - 05a

**GENERAL NOTES**

USE 3/4" DRILL IN WOOD POLE TO PROVIDE FOR 5/8" BOLTS.



**SPAN WIRE POLE**

**GUY POLE**

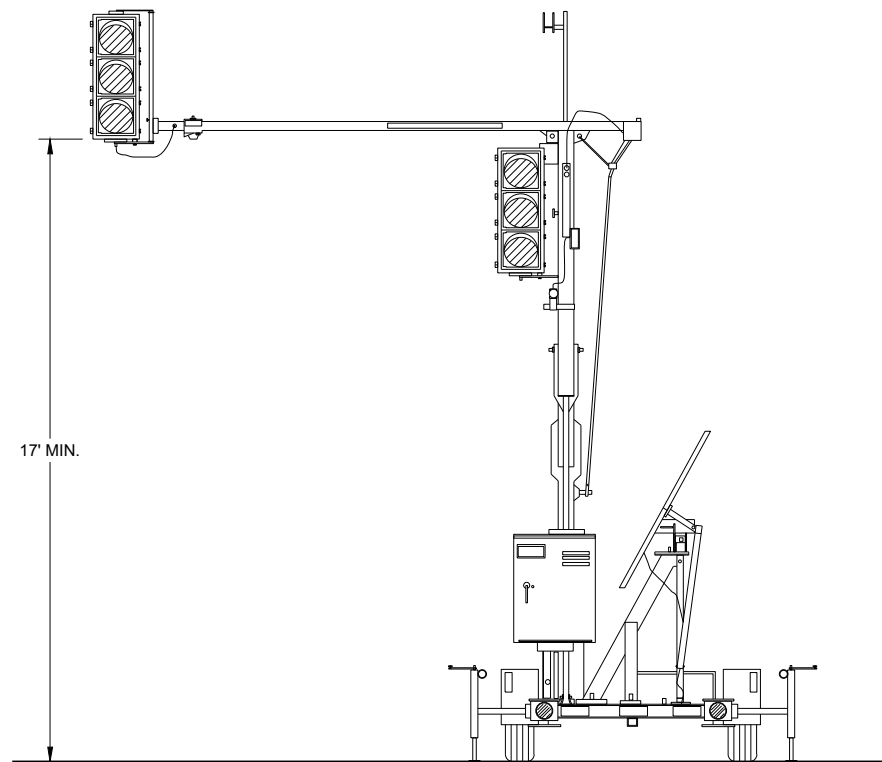
**TYPICAL DEAD-ENDINGS OR GUYING**

**BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2015 DATE /S/ Ahmet Demerbilek  
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

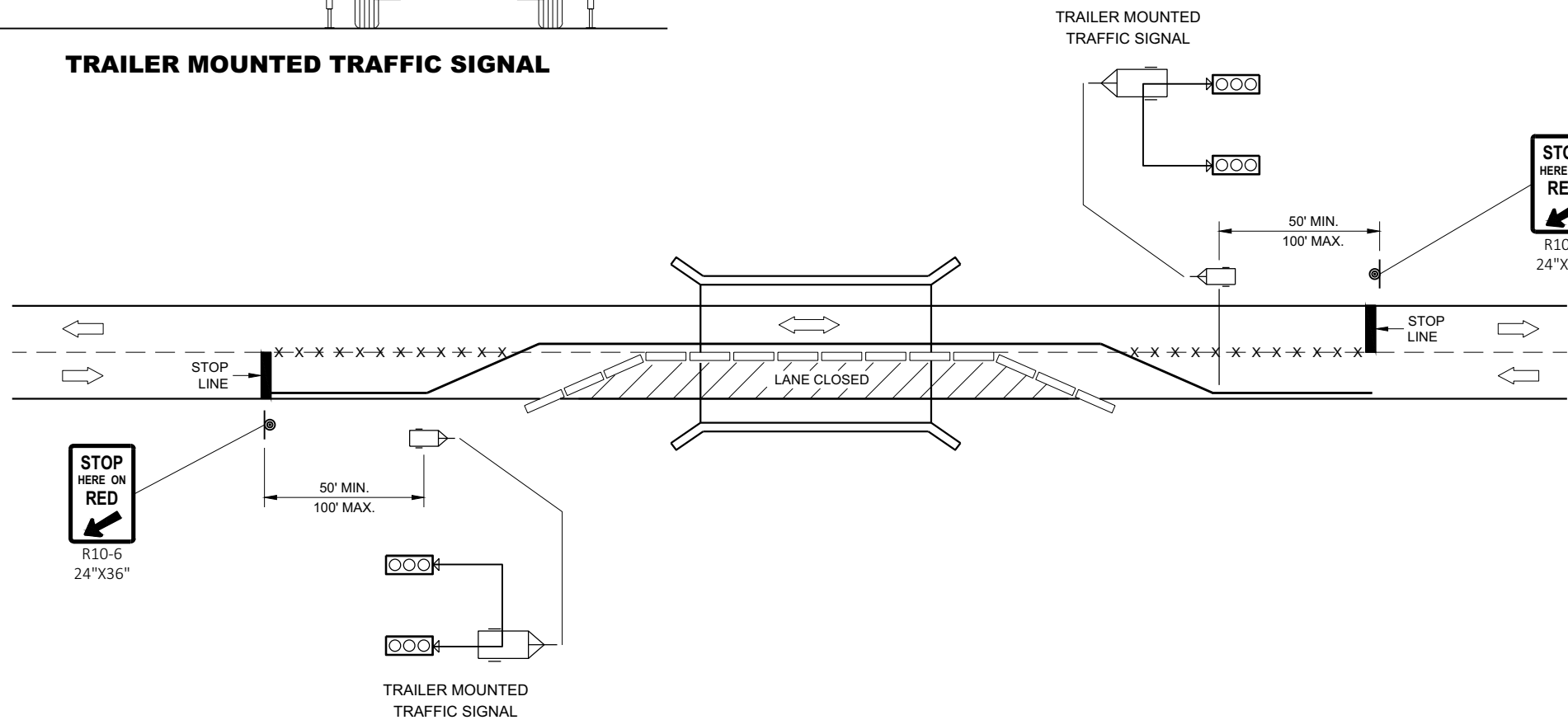


**TRAILER MOUNTED TRAFFIC SIGNAL**

**GENERAL NOTES**




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

SIGNING, PAVEMENT MARKING AND LANE CONTROL REQUIREMENTS SHALL CONFORM TO STANDARD DETAIL DRAWING 15D33.



**TYPICAL TRAILER MOUNTED TRAFFIC SIGNAL LOCATION**

**LEGEND**

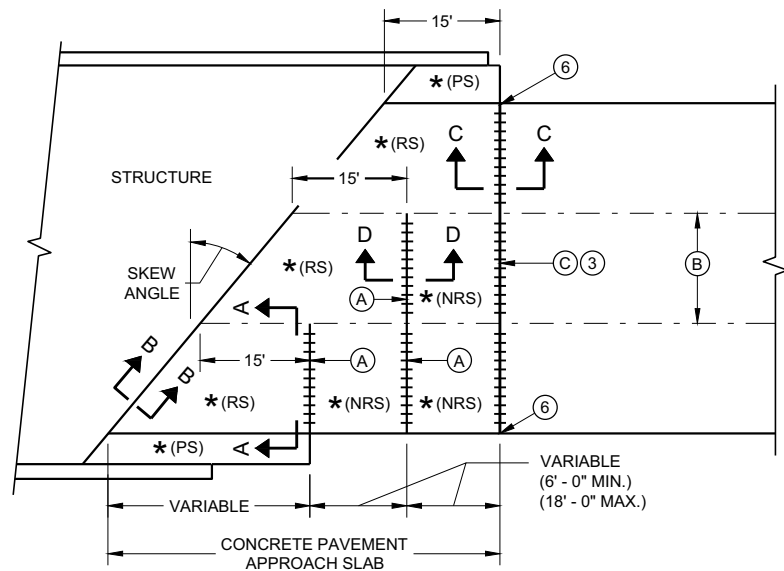
-  POST MOUNTED SIGN
-  TEMPORARY PRECAST CONCRETE BARRIER
-  TRAILER MOUNTED TRAFFIC SIGNAL
-  REMOVE PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC

**BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION**

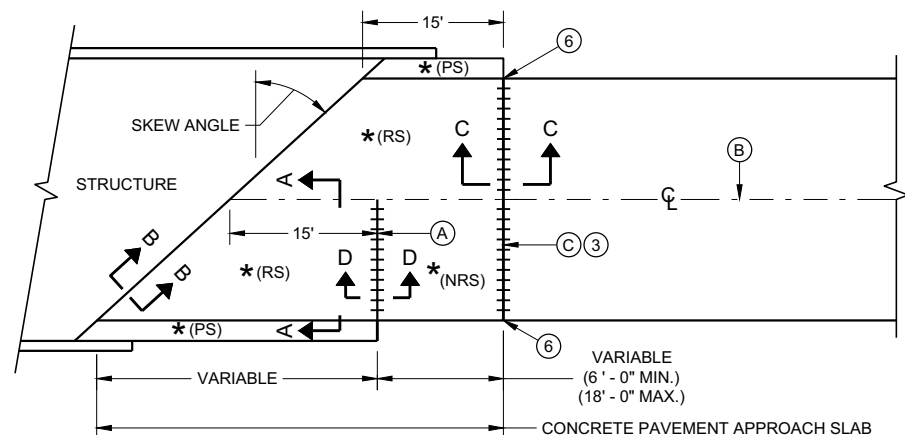
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
June 2015 /S/ Ahmet Demerbilek  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER

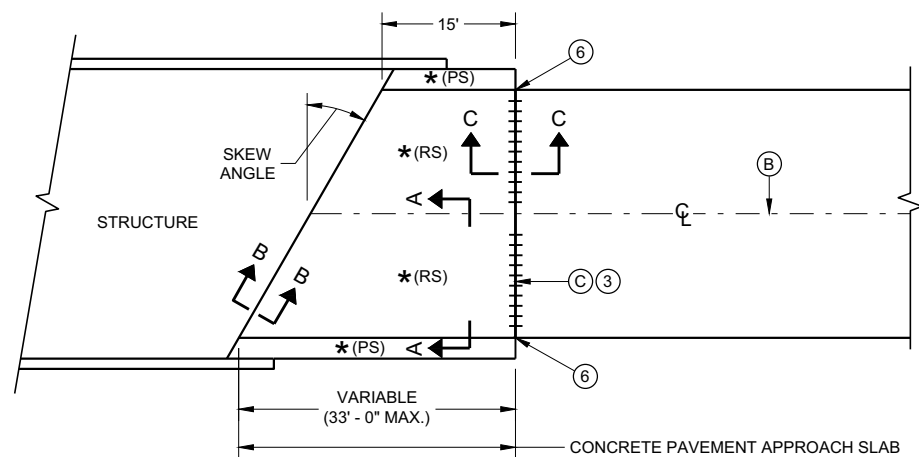
FHWA



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

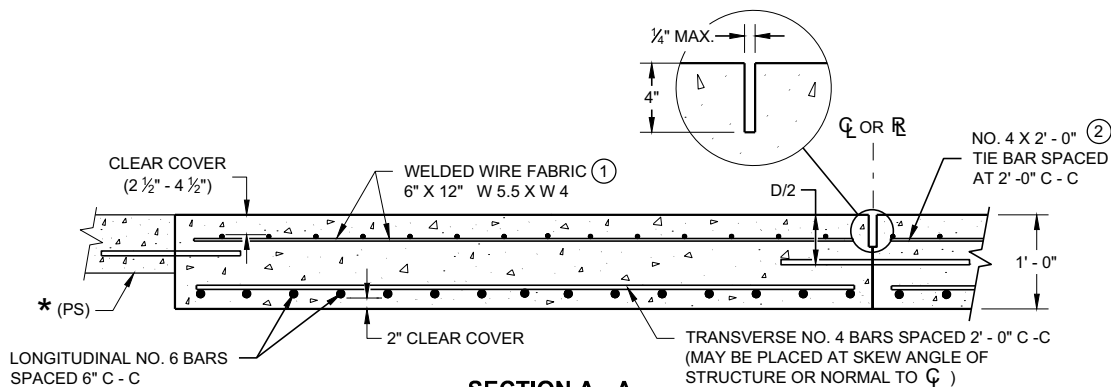


**SKews > 20°  
(PAVEMENT WIDTH ≤ 30')**

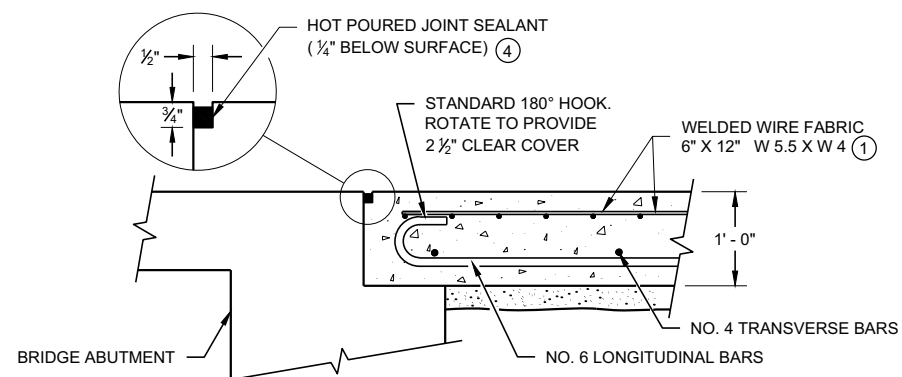


**SKews ≤ 20°  
(PAVEMENT WIDTH ≤ 30')**  
**APPROACH SLAB AND ADJACENT PAVEMENT**

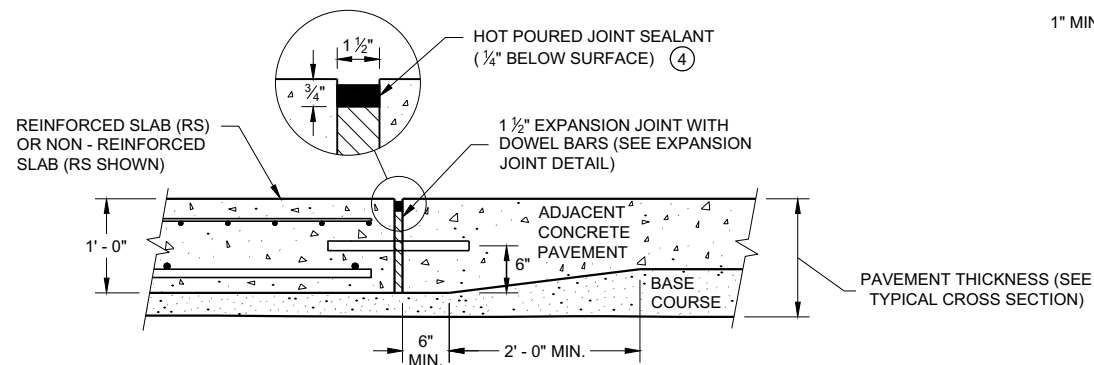
- \* (RS) = REINFORCED CONCRETE SLAB
- \* (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- \* (NRS) = NON - REINFORCED CONCRETE SLAB
- \*\*\* STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A  
REINFORCEMENT POSITIONING DETAIL**



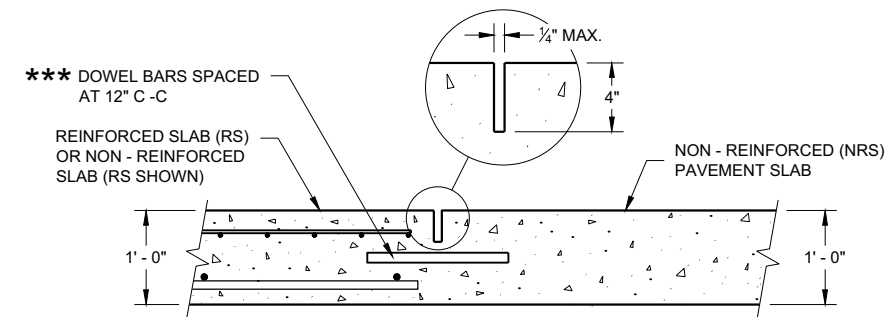
**SECTION B - B  
BEND DETAIL  
BOTTOM REINFORCEMENT**



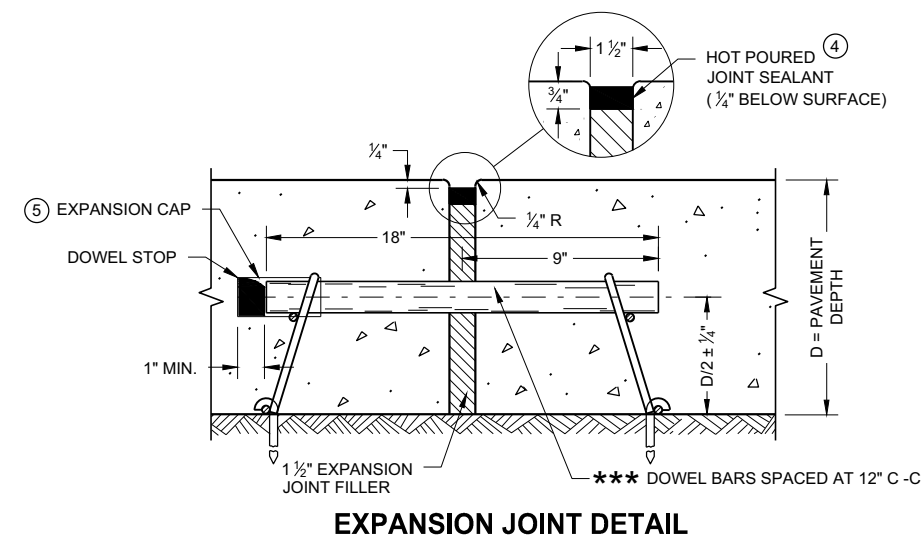
**SECTION C - C  
TRANSITION DETAIL  
APPROACH SLAB TO ADJACENT PAVEMENT**

**GENERAL NOTES**

- THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.
- TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.
- (1) THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
  - (2) THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
  - (3) DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
  - (4) USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
  - (5) PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
  - (6) EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
  - (A) STANDARD CONTRACTION JOINT NORMAL TO  $\perp$  OR  $\parallel$ .
  - (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
  - (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO  $\perp$  OR  $\parallel$ .



**SECTION D - D  
CONTRACTION JOINT**



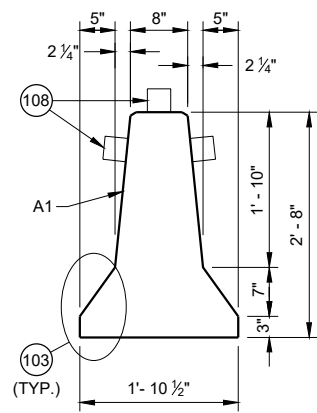
**EXPANSION JOINT DETAIL**

**CONCRETE PAVEMENT  
APPROACH SLAB**

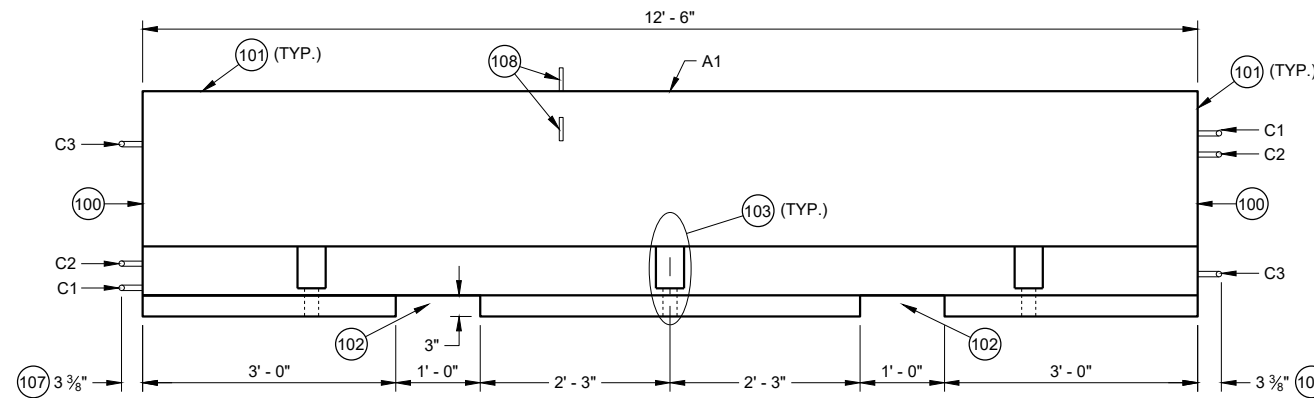
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**CROSS SECTION**



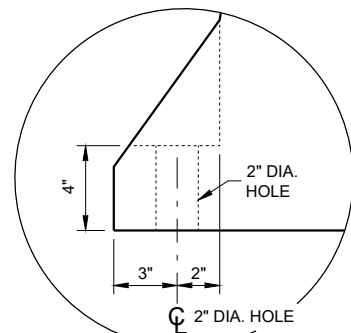
**PROFILE VIEW**

**GENERAL NOTES**

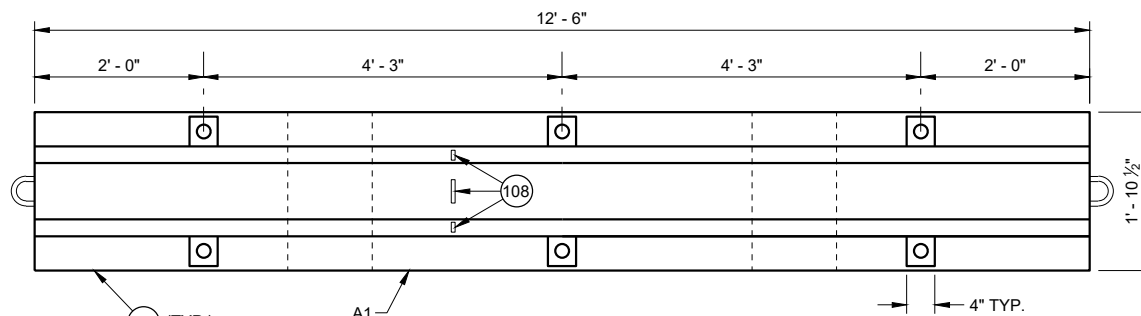
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

LOOP BARS C1, C2 AND C3 ARE NOT FOR PLACEMENT OR MOVEMENT OF BARRIER.

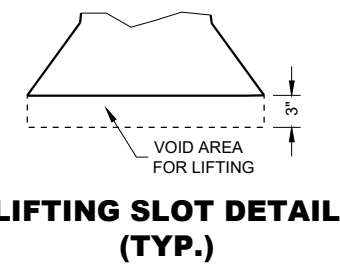
- (100) PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:  
A. TYPE OF BARRIER: WI-CBTP  
B. MANUFACTURER  
C. DATE OF MANUFACTURE (MONTH AND YEAR)
- (101) 1" OPTIONAL CHAMFER
- (102) SEE LIFTING SLOT DETAIL
- (103) SEE ANCHOR BLOCK DETAIL
- (104) 1 3/4" MIN. CLEAR COVER
- (105) 2" MIN. CLEAR COVER
- (106) 1" MIN. CLEAR COVER
- (107) ± 1/8" MEASURED FROM FACE OF CONCRETE BARRIER TO OUTSIDE OF LOOP BAR (TYP.)
- (108) USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED LEFT OF TRAFFIC AND WHITE WHEN BARRIER IS LOCATED RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART, PROVIDE TO MOUNTED DELINEATORS IN ADDITION TO SIDE MOUNTED DELINEATORS ON BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAT 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.



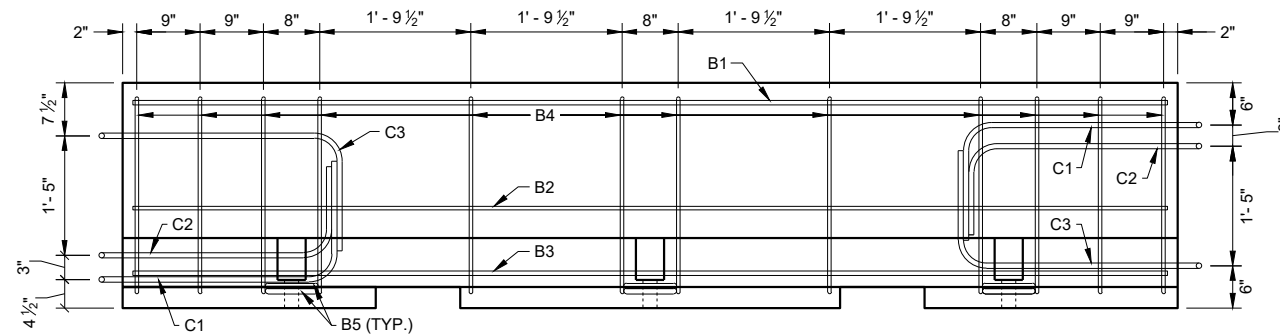
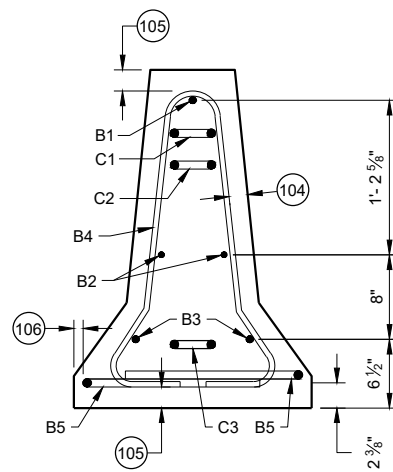
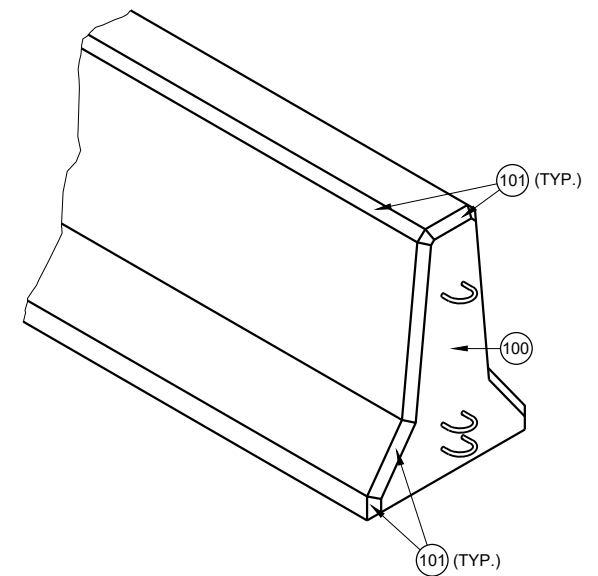
**ANCHOR BLOCK DETAIL**



**PLAN VIEW  
TEMPORARY BARRIER**



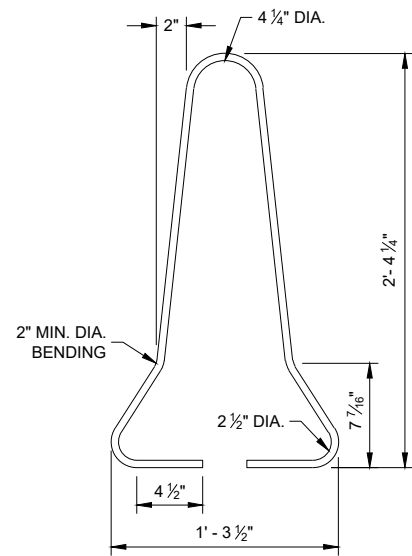
**LIFTING SLOT DETAIL  
(TYP.)**



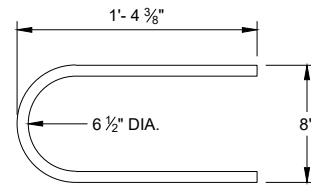
**PROFILE VIEW  
TEMPORARY BARRIER REINFORCEMENT**

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

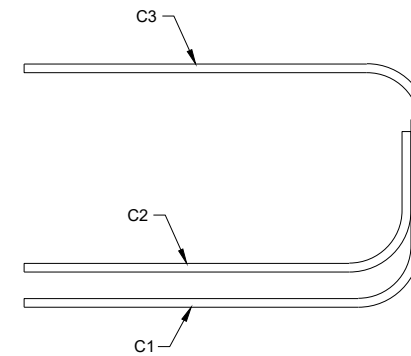
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



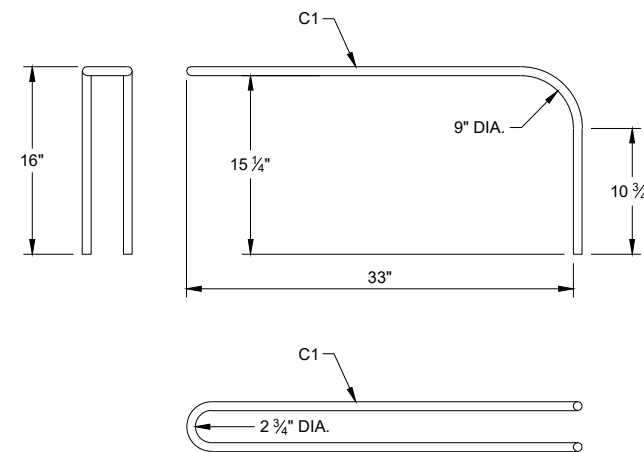
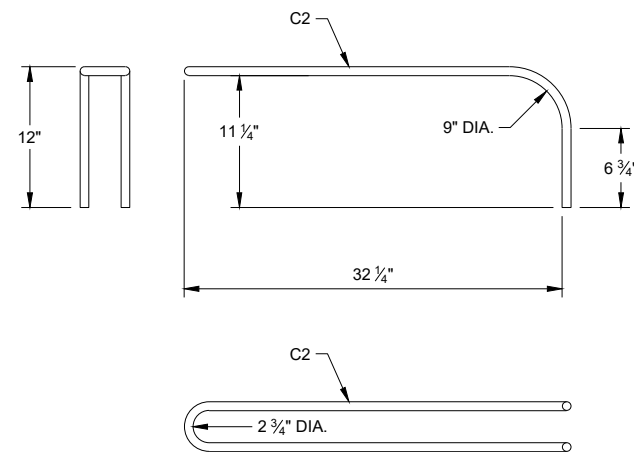
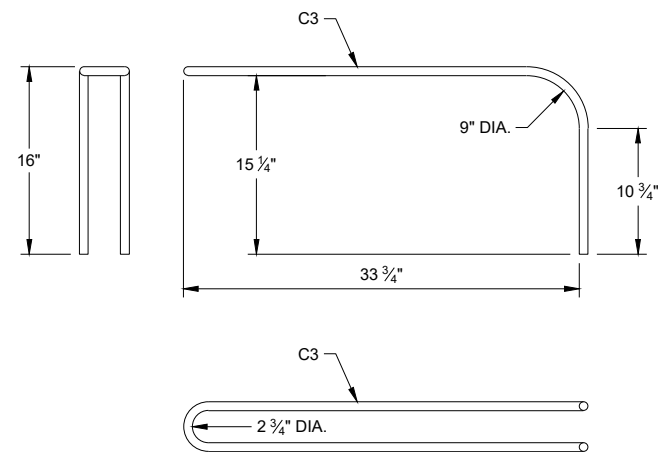
**B4 BAR DETAIL**



**B5 BAR DETAIL**



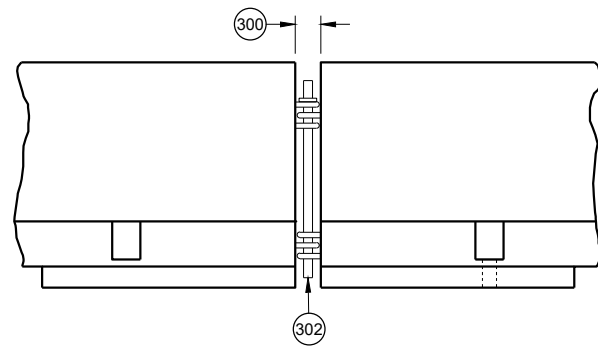
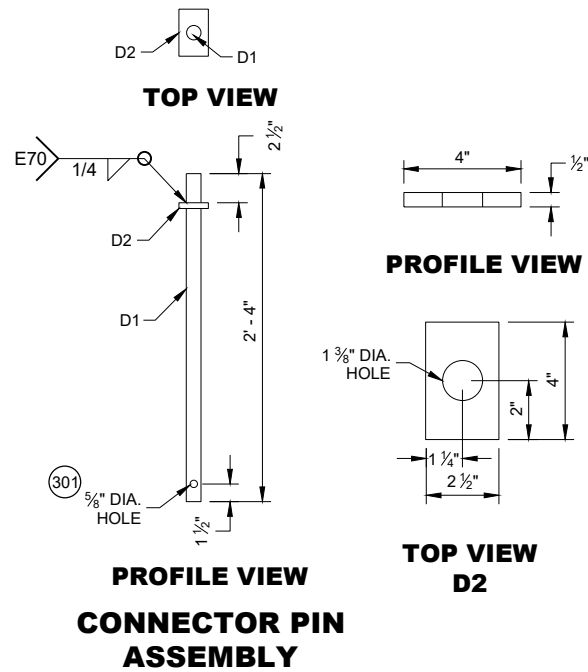
**PROFILE VIEW  
LOOP BAR ASSEMBLY**



**C BAR DETAILS**

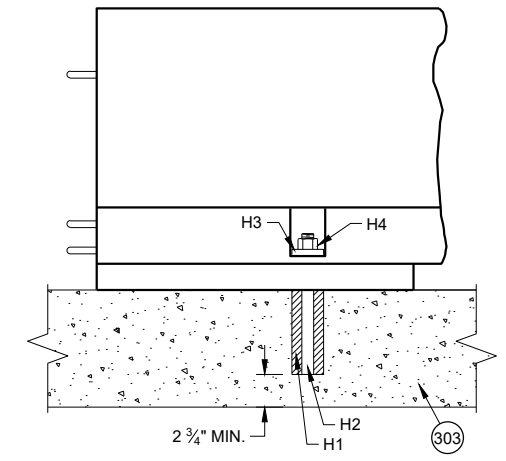
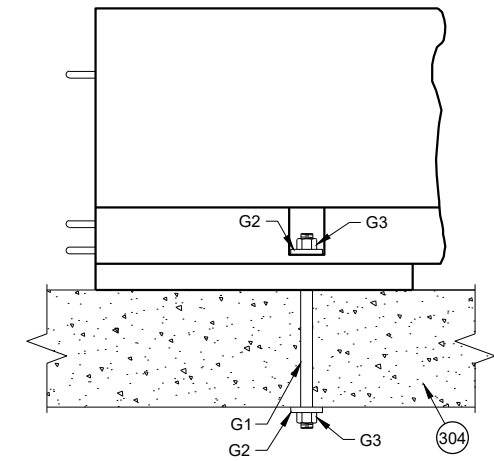
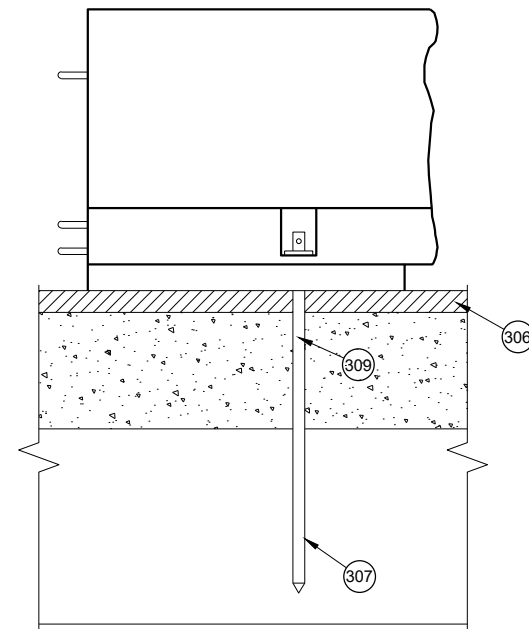
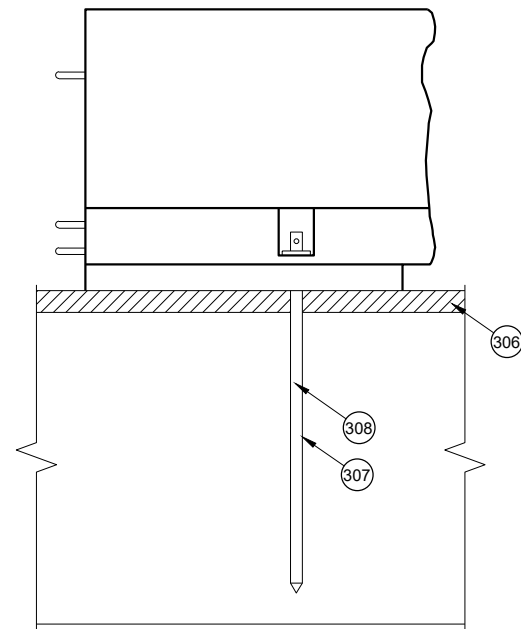
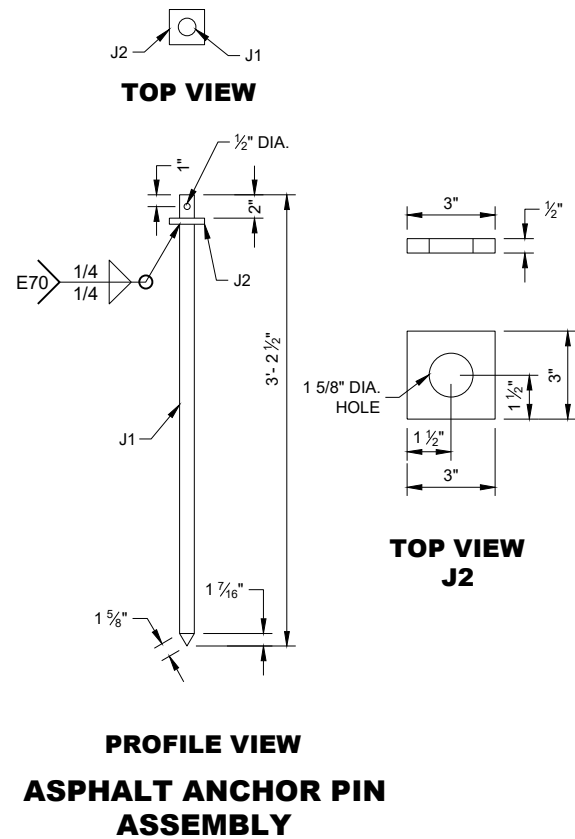
**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**GENERAL NOTES**

- (300) SET WITH 3 5/8" WOOD BLOCK.
- (301) HOLE IS OPTIONAL.
- (302) CONNECTOR PIN ASSEMBLY.
- (303) CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.
- (304) CONCRETE DECK.
- (305) DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
- (306) MINIMUM OF 2" OF ASPHALT.
- (307) ASPHALT ANCHOR PIN ASSEMBLY
- (308) IF DRILLING A PILOT HOLE, THE MAX. DIA. OF THE HOLE IS 3/4"
- (309) WHEN THERE IS ASPHALT OVERLAYING CONCRETE PAVEMENT, A 1 5/8" DIA. PILOT HOLE CAN BE DRILLED INTO THE OVERLAY AND CONCRETE. IF NEEDED DRILL A 3/4" PILOT HOLE IN BASE COURSE.



6

6

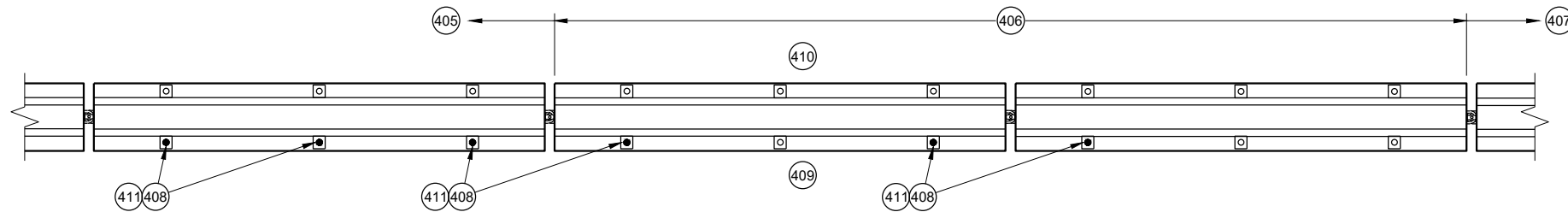
SDD 14B07-16C

SDD 14B07-16C

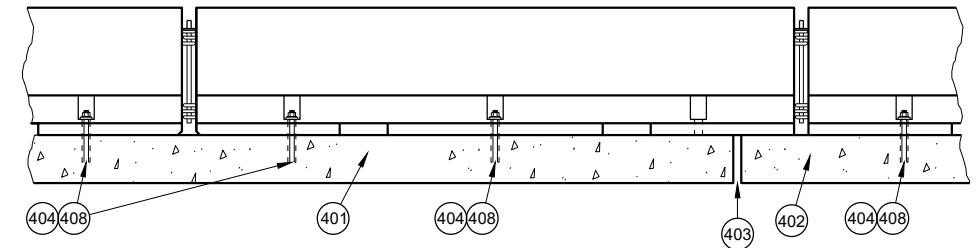
**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

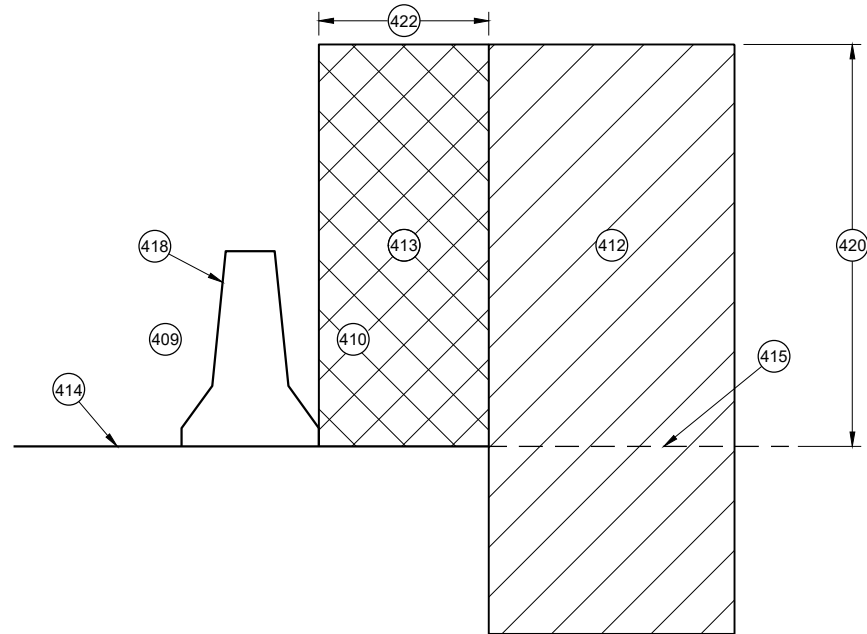




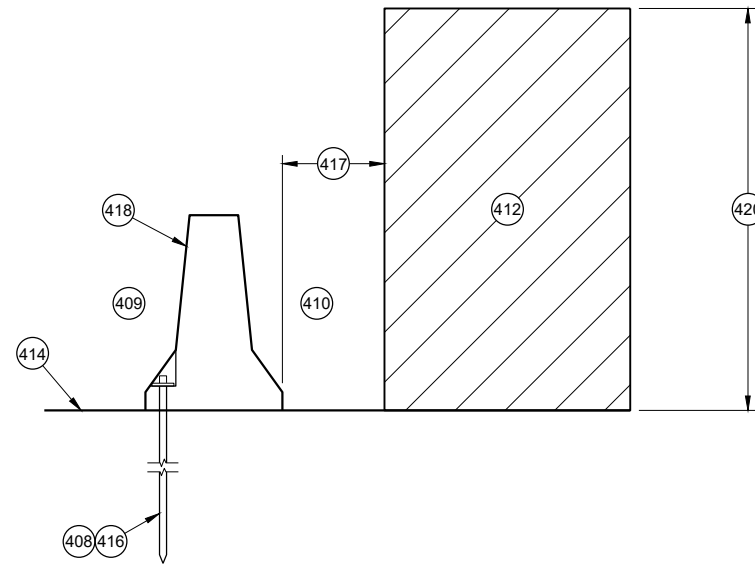
**PLAN VIEW**  
**TRANSITION FROM FREE STANDING TO ANCHORED BARRIER**



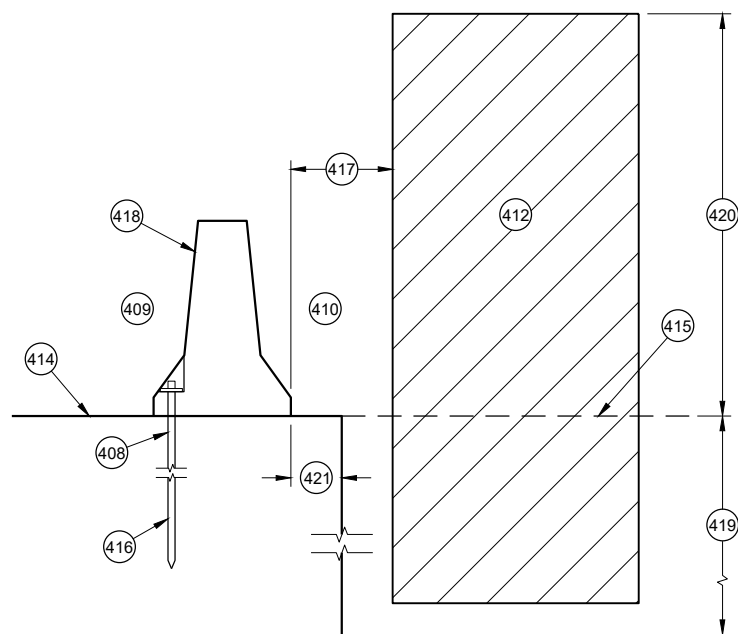
**PROFILE VIEW**  
**ANCHORED BARRIER NEAR EXPANSION JOINT**



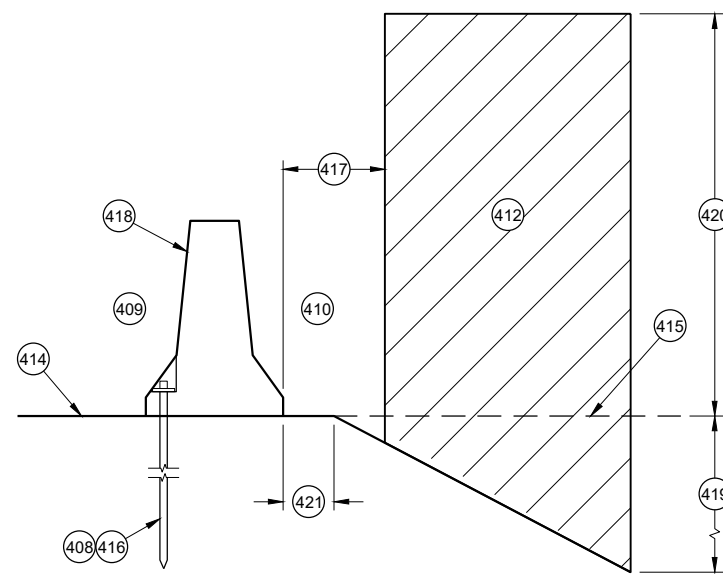
**CROSS SECTION**  
**FREE STANDING BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER FOR OBJECTS ABOVE THE GRADE LINE AND NEAR THE BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER NEAR VERTICAL DROP OFF**



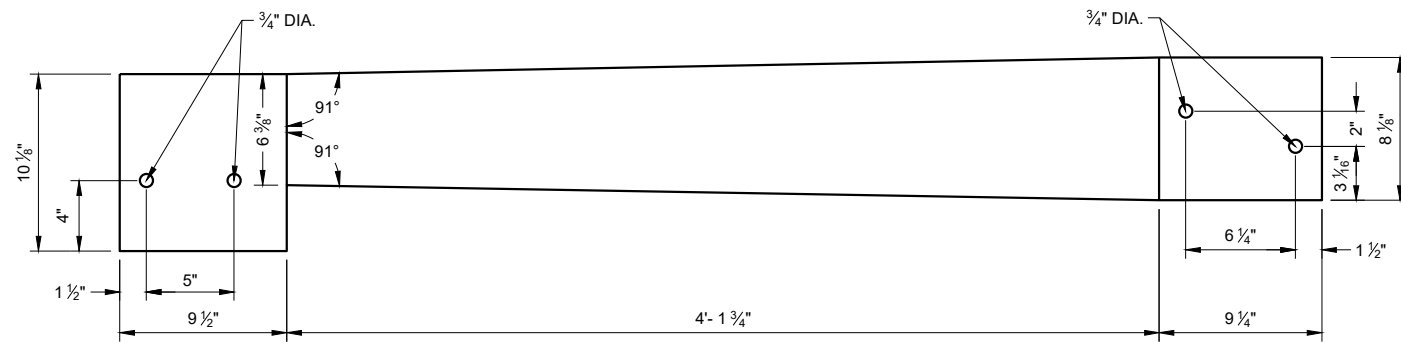
**CROSS SECTION**  
**ANCHORED BARRIER NEAR A SLOPE**

**GENERAL NOTES**

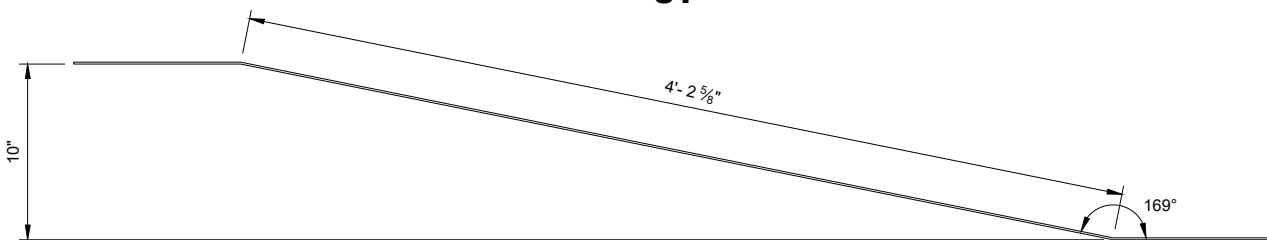
- (400) NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.
- (401) CONCRETE DECK
- (402) CONCRETE DECK OR APPROACH SLAB.
- (403) EXPANSION JOINT
- (404) ADHESIVE ANCHOR SHOWN. SEE ANCHOR DETAILS.
- (405) ANCHORED TEMPORARY BARRIER
- (406) TRANSITION FROM ANCHORED TEMPORARY BARRIER TO FREE STANDING
- (407) FREE STANDING BARRIER
- (408) REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.
- (409) TRAFFIC SIDE
- (410) NON-TRAFFIC SIDE
- (411) ANCHOR LOCATION. SEE ANCHORING DETAILS.
- (412) WORK AREA
- (413) AREA FREE OF OBJECTS AND WORKERS
- (414) GRADE LINE
- (415) EXTENDED GRADE LINE
- (416) ANCHORED TEMPORARY BARRIER. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR AN ASPHALT ANCHOR ROD DETAILS FOR MORE INFORMATION. ASPHALT ANCHOR ROD SHOWN.
- (417) WHEN OBJECTS EXTEND ABOVE THE GRADE. A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT.
- (418) OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR ALLOWED TO LEAN AGAINST THE BARRIER WITHOUT WRITTEN PERMISSION OF THE PROJECT ENGINEER.
- (419) DEPTHS OF 3 FEET OR MORE.
- (420) Y = 6.5'
- (421) OFFSET FROM BACK OF BARRIER EDGE:  
 CONCRETE PAVEMENT 0.5'  
 ASPHALT 0.5'
- (422) POSTED SPEED (MPH):  
 45 OR GREATER 4.0'  
 40 OR LOWER 2.0'

**CONCRETE BARRIER**  
**TEMPORARY PRECAST,**  
**12' - 6"**

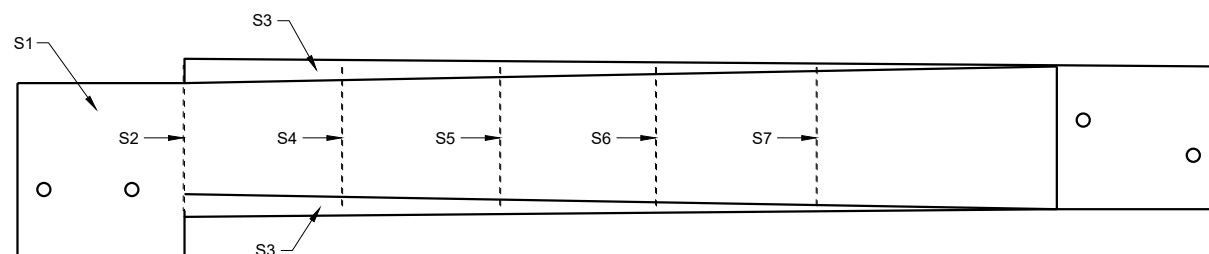
STATE OF WISCONSIN  
 DEPARTMENT OF TRANSPORTATION



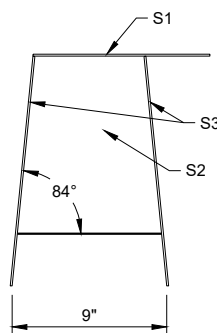
**TOP VIEW  
S1**



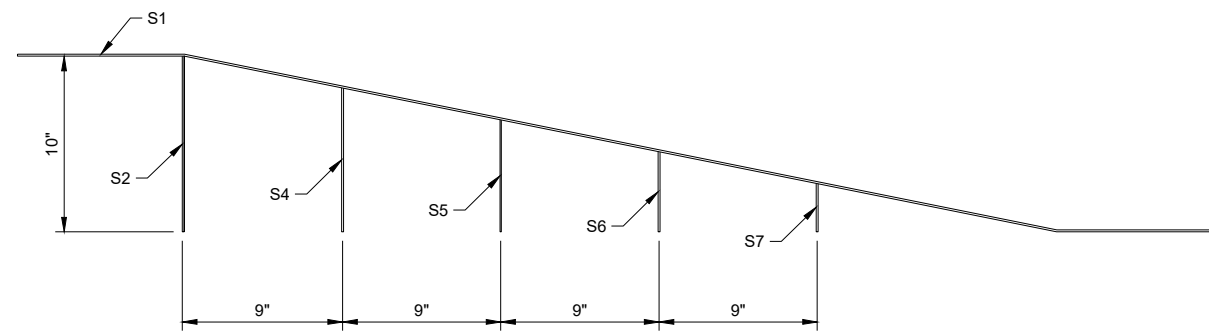
**ELEVATION VIEW  
S1**



**PLAN VIEW**

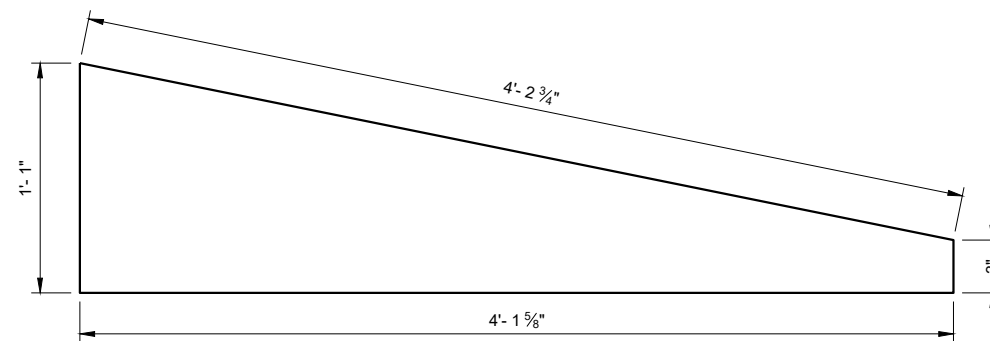


**BACK VIEW**

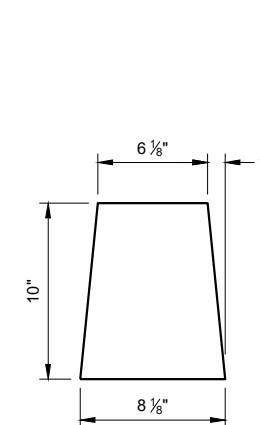


**SIDE VIEW (600)**

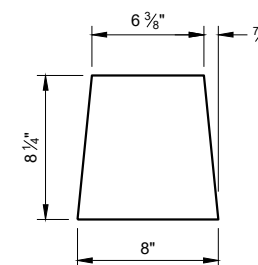
**42" TOP CAP ASSEMBLY**



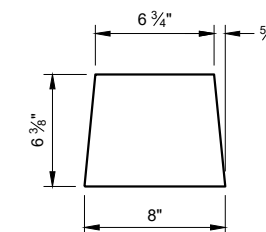
**SIDE VIEW  
S3**



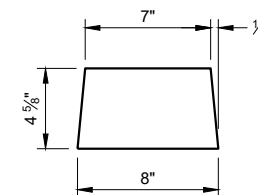
**S2**



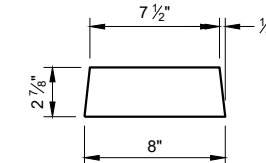
**S4**



**S5**



**S6**



**S7**

**GENERAL NOTES**

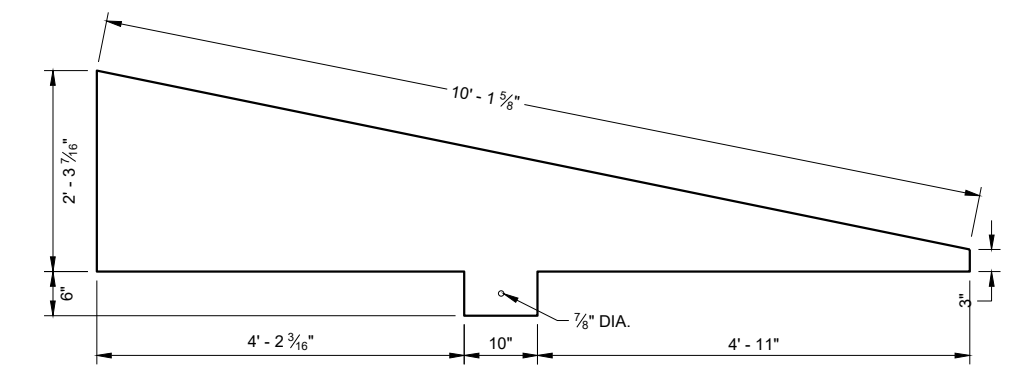
STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

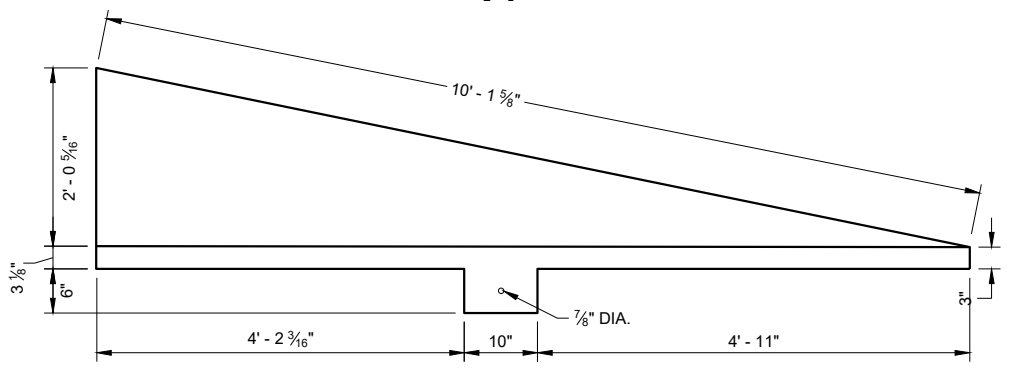
(600) SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**SIDE VIEW  
T4**



**SIDE VIEW  
T3**

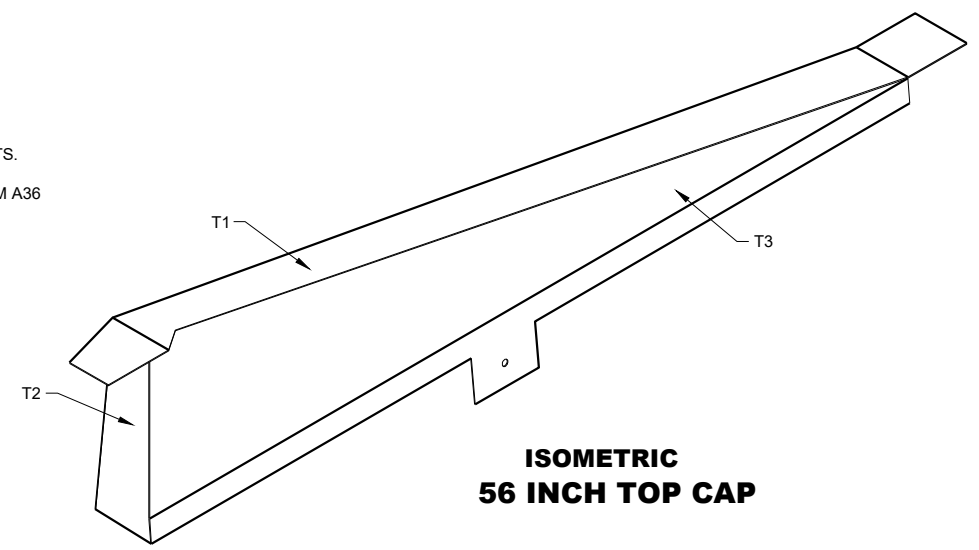
**END  
VIEW**



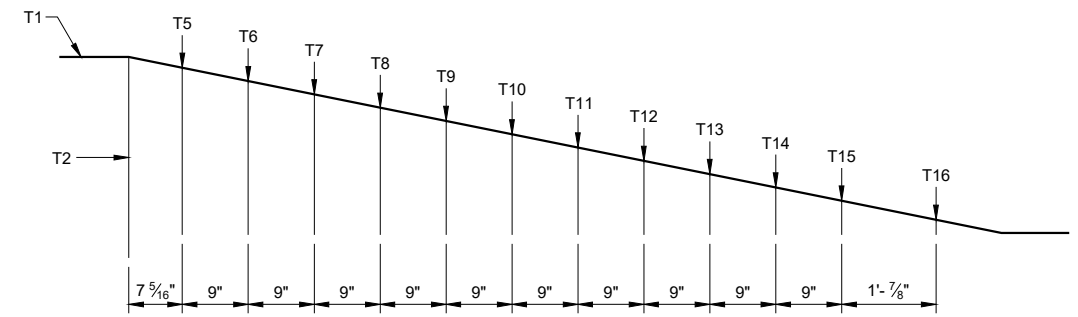
**END  
VIEW**

**GENERAL NOTES**

- STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES
- STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.
- SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.
- (700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.

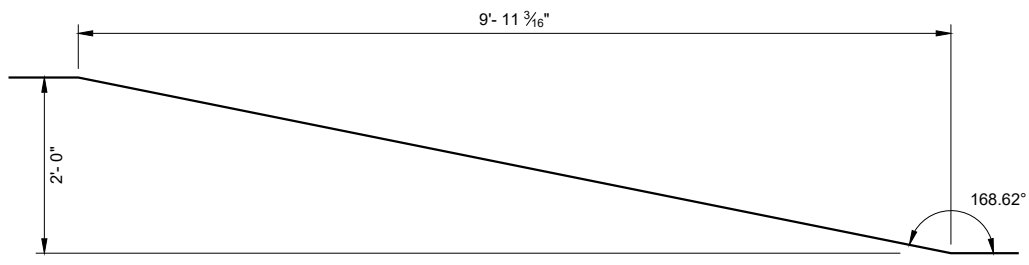
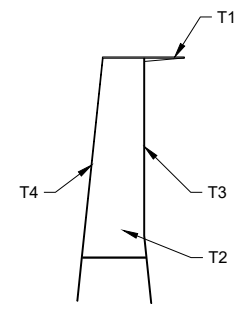


**ISOMETRIC  
56 INCH TOP CAP**

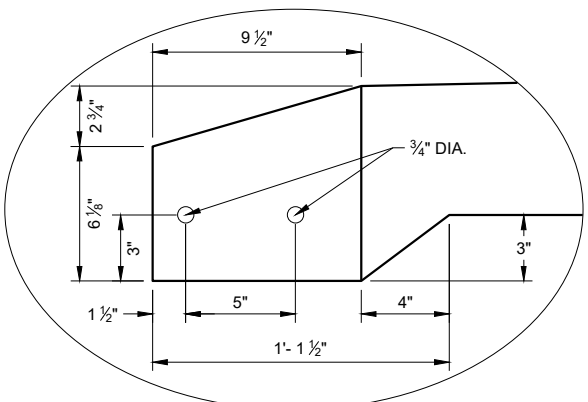


**SIDE VIEW  
56 INCH TOP CAP (700)**

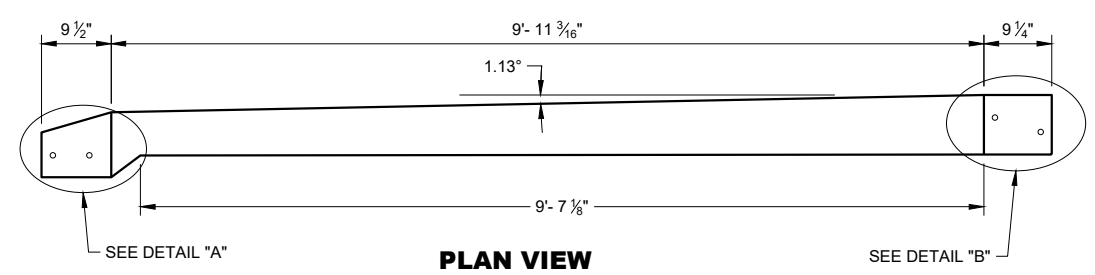
**END VIEW  
56 INCH TOP CAP**



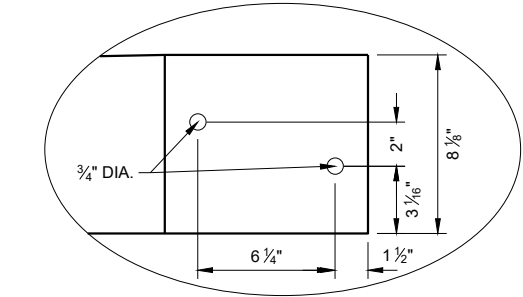
**SIDE VIEW  
TOP PLATE T1**



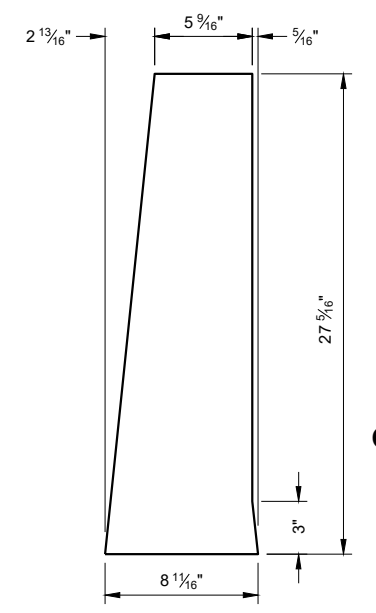
**DETAIL "A"**



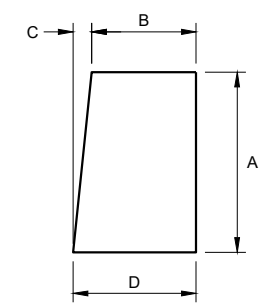
**PLAN VIEW  
TOP PLATE T1**



**DETAIL "B"**



**END PLATE T2**



**GUSSET PLATES  
T5 - T16**

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/8"	1 13/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 9/16"	6 7/16"	1 1/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"	7"	1 1/16"	8 1/16"
T13	8 5/16"	7 3/16"	7/8"	8 1/16"
T14	6 1/2"	7 3/8"	1 1/16"	8 1/16"
T15	4 1/16"	7 1/16"	1/2"	8"
T16	2 7/8"	7 3/4"	1/4"	8"

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - CONCRETE BARRIER PRECAST**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	PRECAST TEMPORARY BARRIER - CONCRETE	MIN. = f <sub>c</sub> 5000 PSI	
B1	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B2	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-2"
B3	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 12'-2"
B4	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 6'-0"
B5	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#6 REBAR, LENGTH 2'-11"
B6	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 1'-11"
B7	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-2"
B8	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-6"
B9	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 2'-9"
B10	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-2"
B11	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 3'-4"
B12	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 12'-0"
B13	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#4 REBAR, LENGTH 7'-9"
B14	REBAR	STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR	#5 REBAR, LENGTH 11'-9"
C1	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C2	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
C3	LOOP BAR	ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED	¾" DIA.
D1	CONNECTION PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
D2	CONNECTION PIN - TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G1	BOLT THROUGH ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A OR SAE J429 GRADE 2 UNC	1 ½" DIA.
G2	BOLT THROUGH ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G3	BOLT THROUGH ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
H1	ADHESIVE ANCHOR - ADHESIVE	ICC-ES-AC308 5 ¼" EMBEDMENT WITH A MIN. BOND STRENGTH OF 1,650 PSI. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
H2	ADHESIVE ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A / SAE J429 GRADE 2 UNC	1 ½" DIA.
H3	ADHESIVE ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
H4	ADHESIVE ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
J1	ASPHALT ANCHOR PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
J2	ASPHALT ANCHOR PIN - STOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
K1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE
L1	THRIE BEAM RAIL - TERMINAL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
M1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	¾" DIA.
M2	SPLICE BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
N1	THRIE BEAM RAIL TERMINAL - MECHANICAL ANCHOR	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA. LENGTH 6"
N2	THRIE BEAM RAIL TERMINAL - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
N3	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
P1	THRIE BEAM RAIL CONNECTION 1-BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
P2	THRIE BEAM RAIL CONNECTION 1-WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
P3	THRIE BEAM RAIL CONNETION 1- MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
Q1	BLOCK WOOD	SEE STANDARD SPEC. 614	
R1	CAP - BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	¾" DIA.
R2	CAP - BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1	
R3	CAP - BOLT - MECHANICAL ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	12 GAUGE
S1	CAP 42-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S2	CAP 42-INCH END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S3	CAP 42-INCH SIDE PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S4	CAP 42-INCH GUSSET 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S5	CAP 42-INCH GUSSET 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S6	CAP 42-INCH GUSSET 3	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
S7	CAP 42-INCH GUSSET 4	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE

6

6

SDD 14B07-16m

SDD 14B07-16m

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**BILL OF MATERIALS - CONCRETE BARRIER PRECAST**

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
T1	CAP 56-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T2	CAP 56-INCH END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T3	CAP 56-INCH SIDE PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T4	CAP 56-INCH SIDE PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T5	CAP 56-INCH GUSSET 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T6	CAP 56-INCH GUSSET 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T7	CAP 56-INCH GUSSET 3	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T8	CAP 42-INCH GUSSET 4	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T9	CAP 42-INCH GUSSET 5	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T10	CAP 42-INCH GUSSET 6	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T11	CAP 42-INCH GUSSET 7	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T12	CAP 42-INCH GUSSET 8	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T13	CAP 42-INCH GUSSET 9	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T14	CAP 42-INCH GUSSET 10	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T15	CAP 42-INCH GUSSET 11	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T16	CAP 42-INCH GUSSET 12	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
U1	GAP STIFFENER	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
U2	GAP STIFFENER - CONNECTOR PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
U3	GAP STIFFENER - CONNECTOR PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
V1	THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR	MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 24.0 KIPS AND ULTIMATE SHEAR LOAD 21.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	¾" DIA.
V2	GAP STIFFENER - BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C O R MECHANICAL GALVANIZE TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
W1	TOE PLATE	AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	
X1	TOE PLATE - CONNECTION BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC HEAVY HEX HEAD OR AASTHO M180 HEAD, ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED. PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	¾" DIA.
X2	TOE PLATE - CONNECTION BOLT - WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1 (HARDEN WASHER ONLY)	
X3	TOE PLATE - CONNECTION BOLT - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	

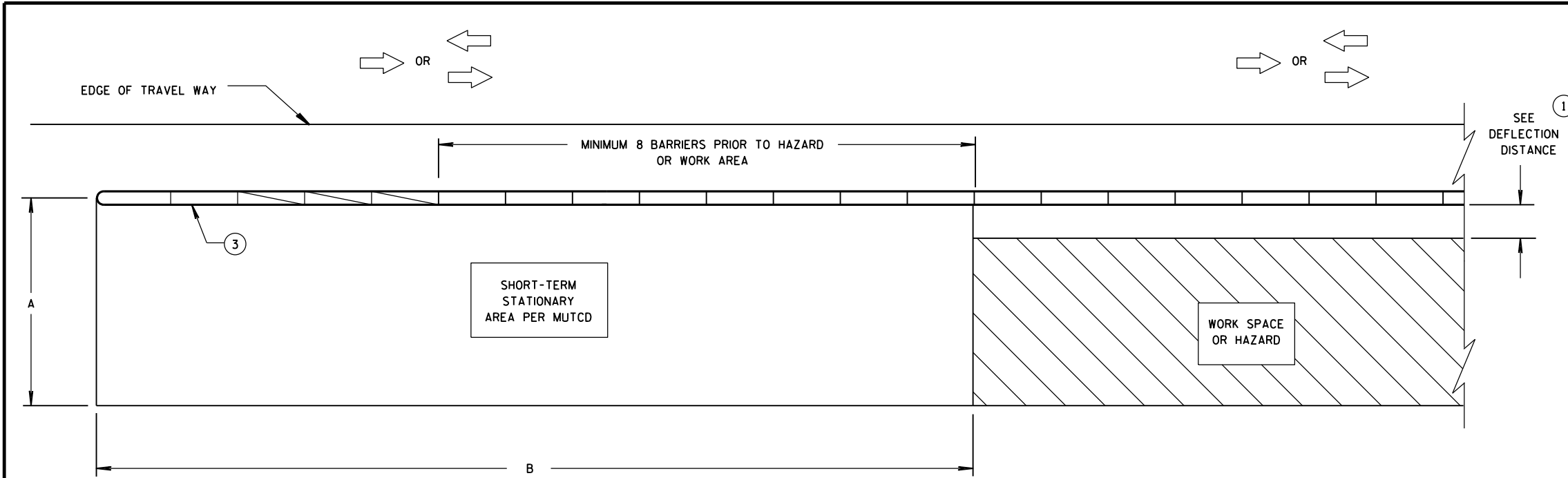
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SDD 14B07-16n

SDD 14B07-16n

<b>CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2023 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



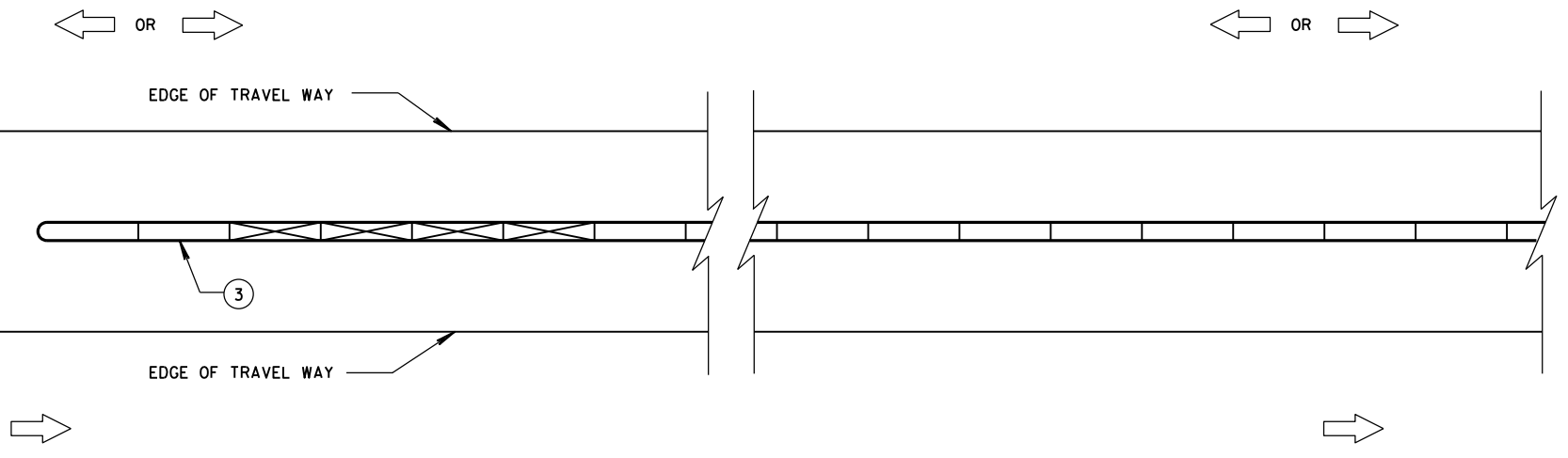
**DIMENSION A TABLE** <sup>②</sup>

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

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

**DIMENSION B TABLE** <sup>②</sup>

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



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

**LEGEND**

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

**GENERAL NOTES**

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

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

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

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

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

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

- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

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

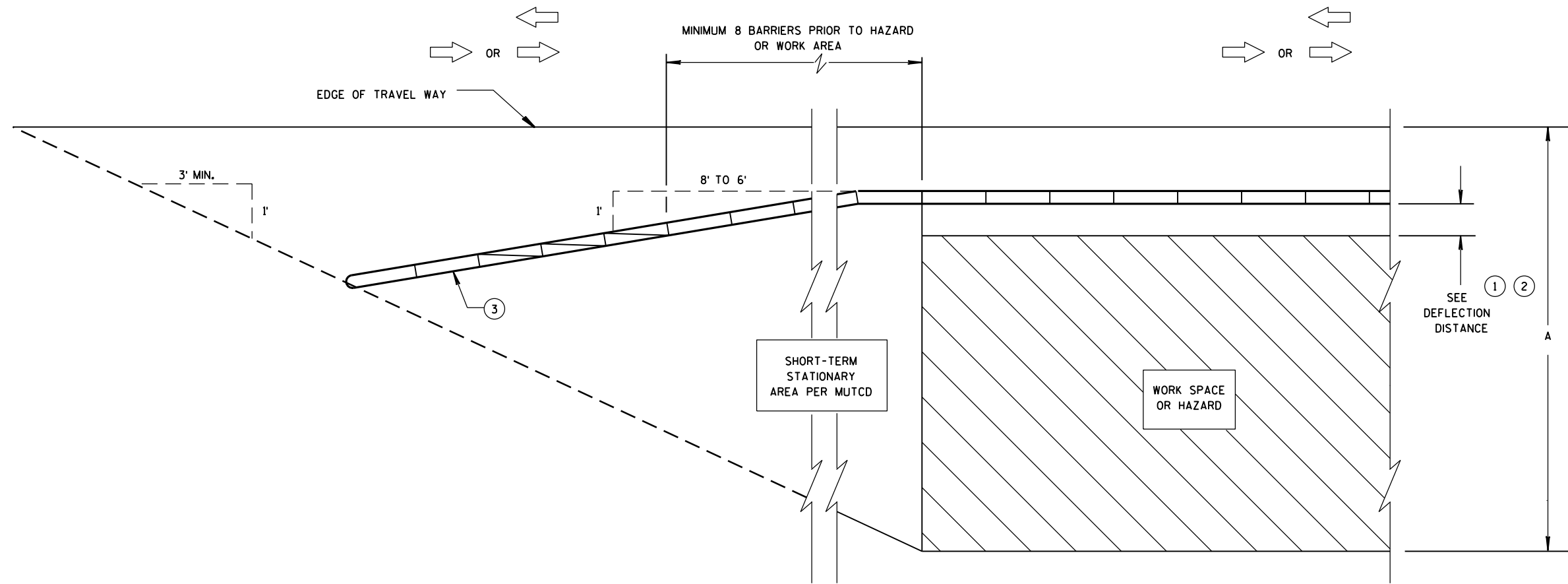
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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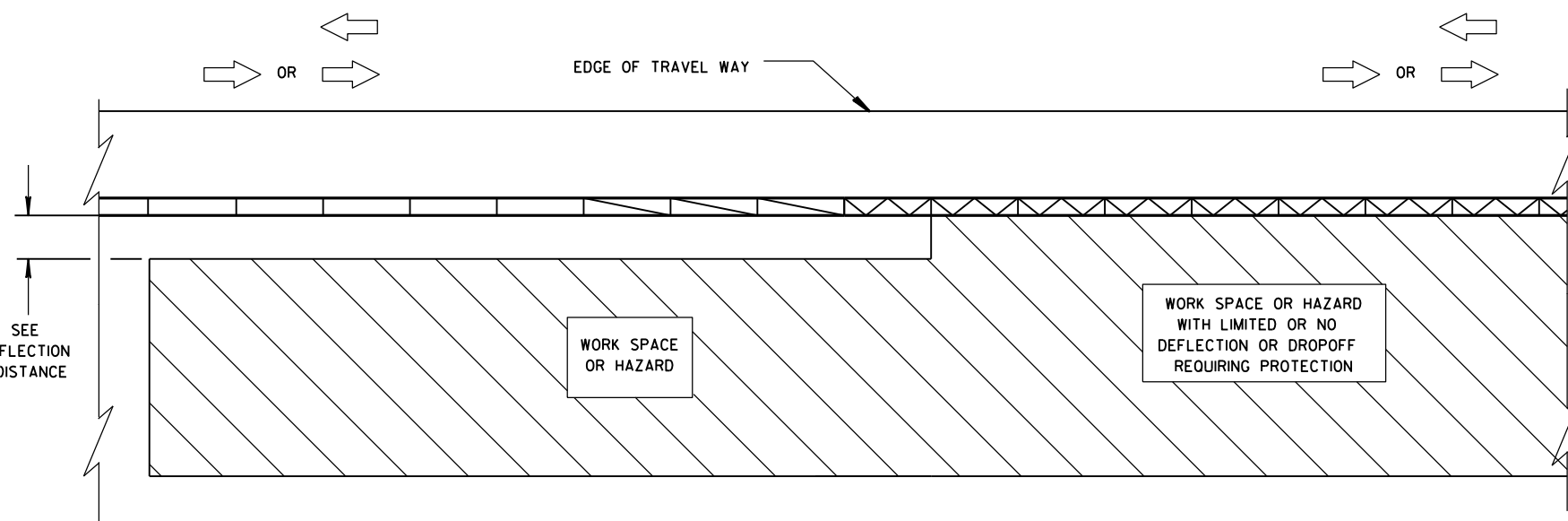
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S.D.D. 14 B 8-2a

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



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



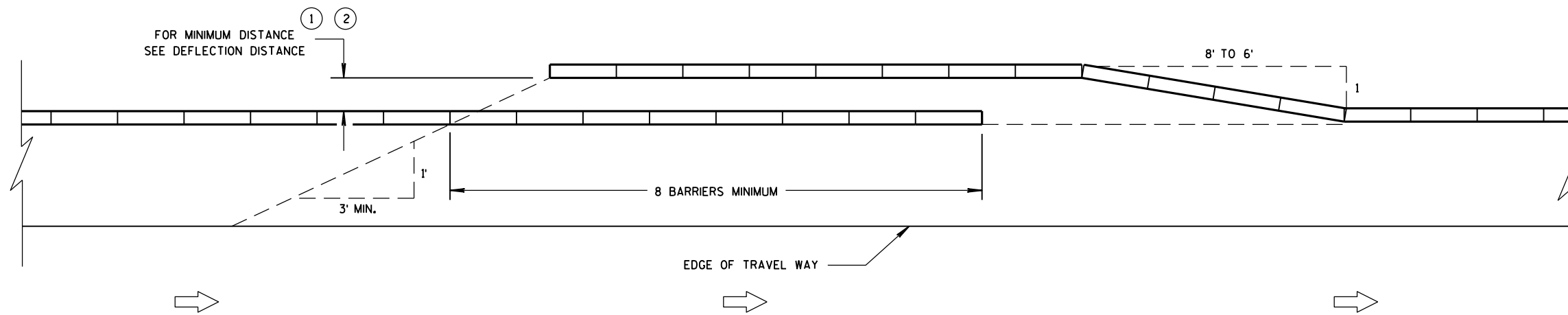
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER  
TO ANCHORED BARRIER**

**LEGEND**

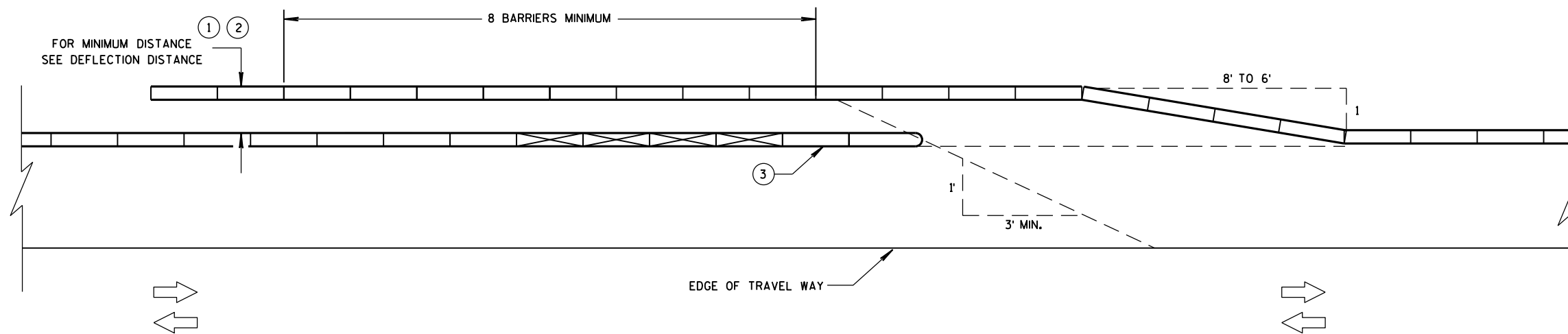
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

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

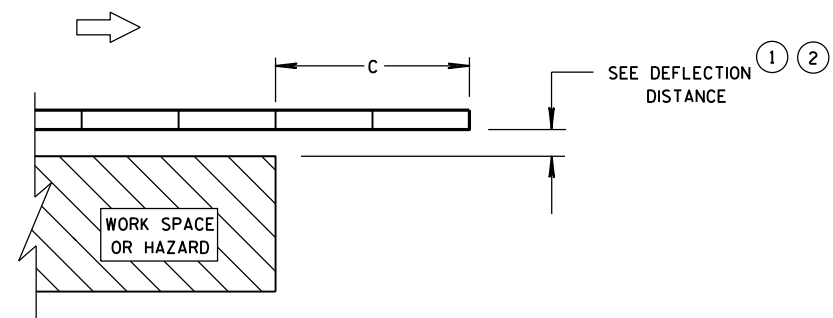
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



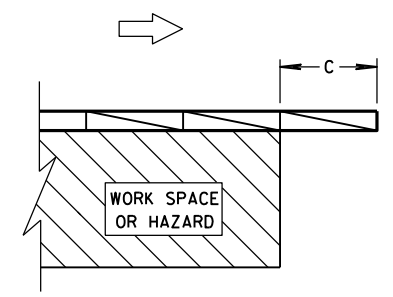
**TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC**



**TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - ANCHORED**

**LEGEND**

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

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

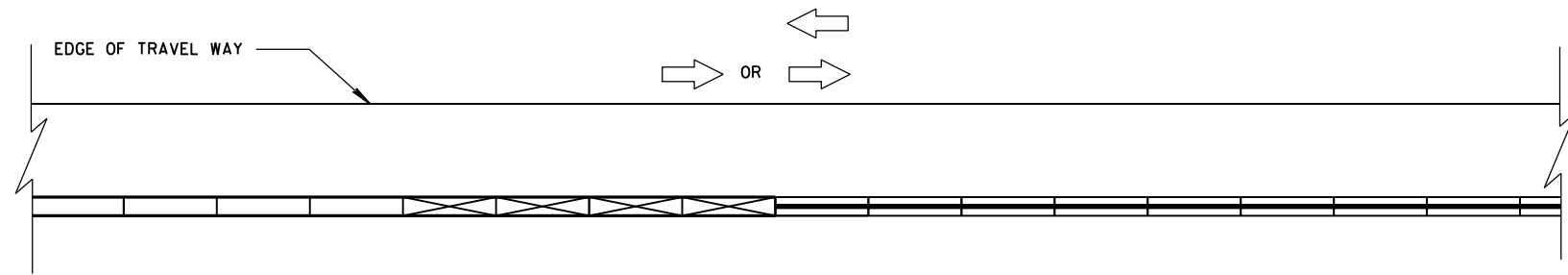
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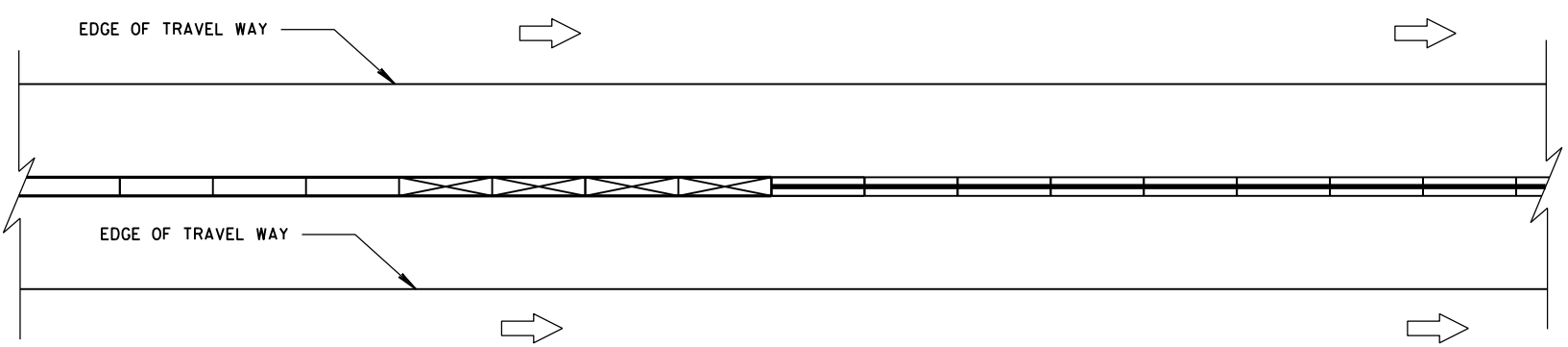
S.D.D. 14 B 8-2c

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





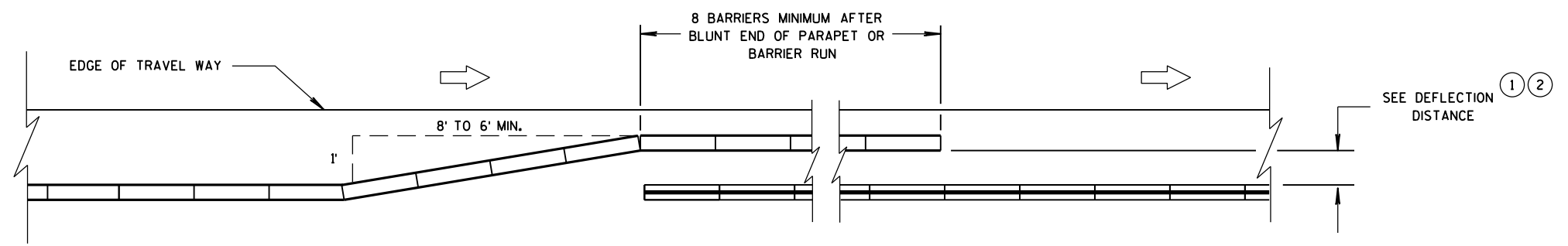
**CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON ONE SIDE**



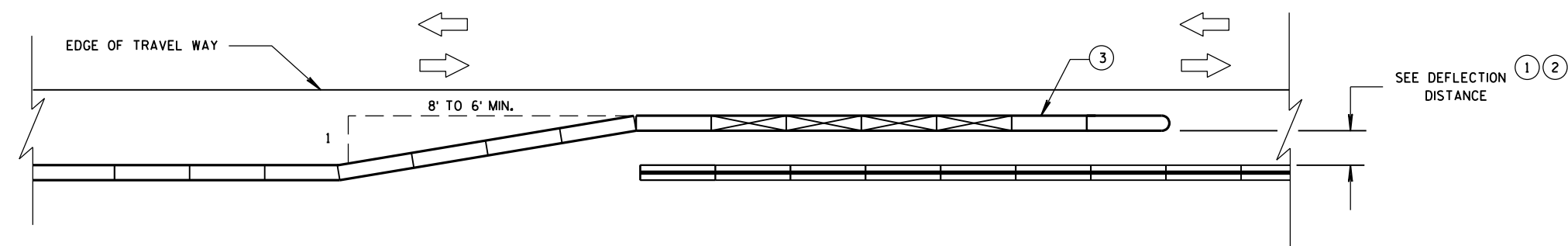
**CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON BOTH SIDES**

**LEGEND**

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



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC**



**OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC**

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

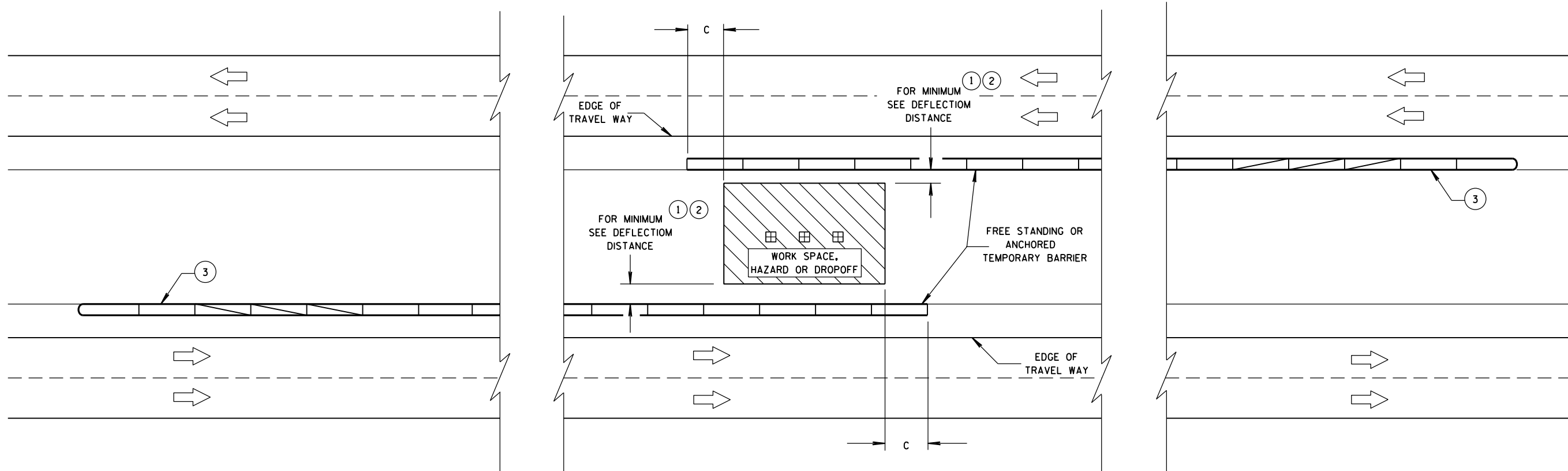
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**LEGEND**

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

**DIMENSION C TABLE** <sup>2</sup>

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100



6

6

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

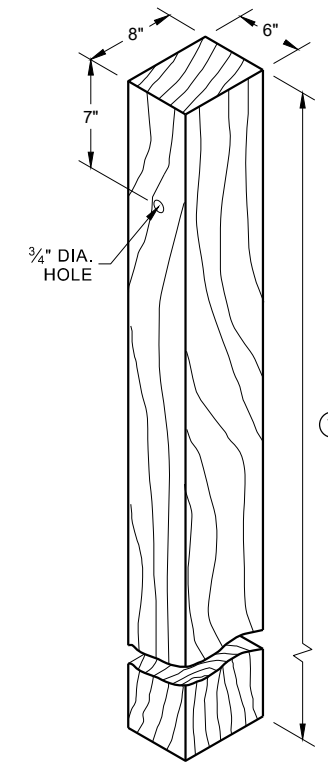
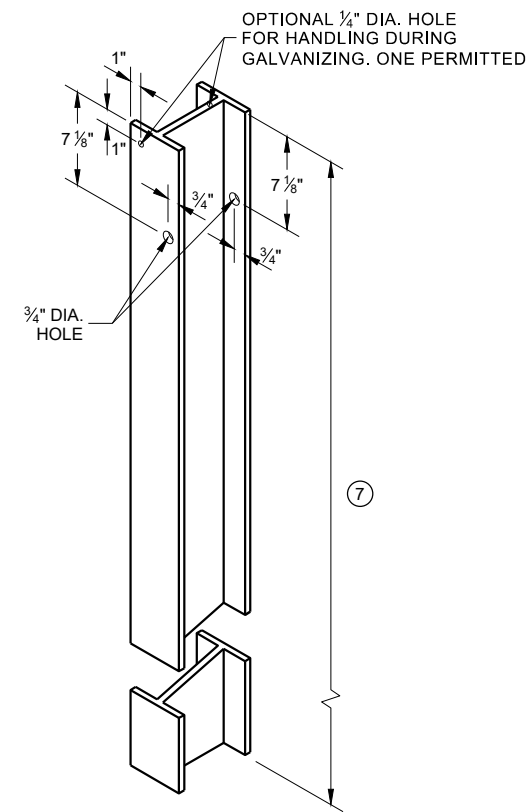
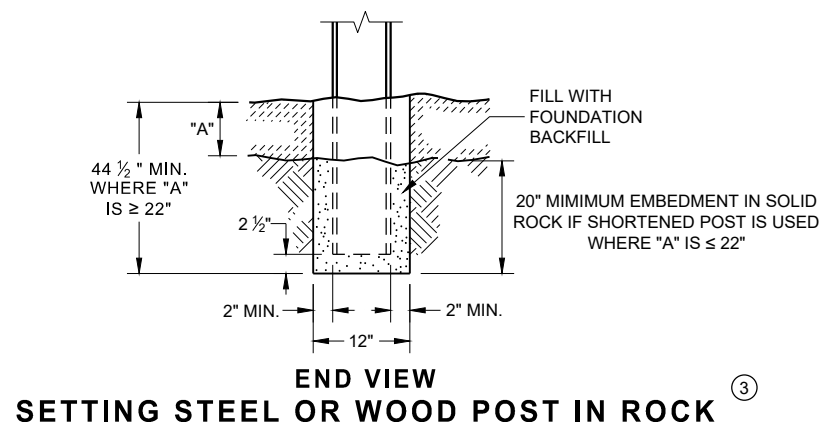
S.D.D. 14 B 8-2e

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

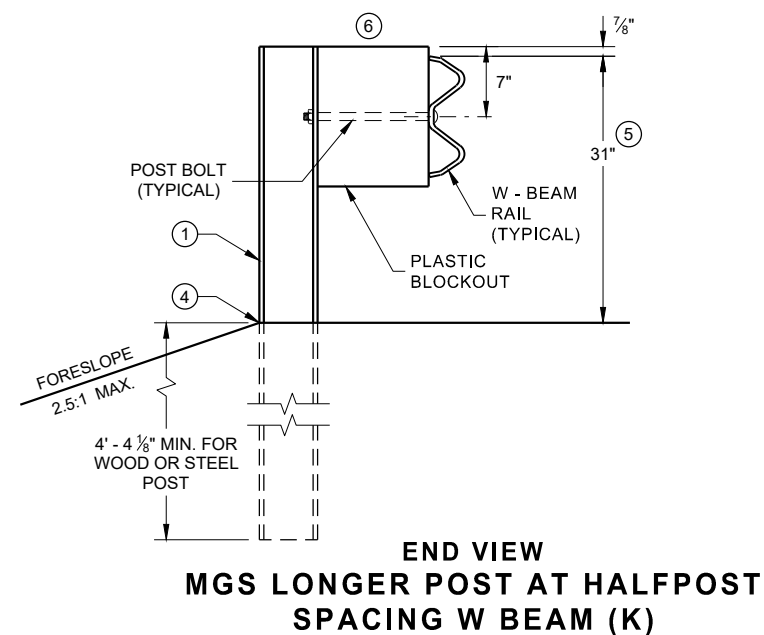
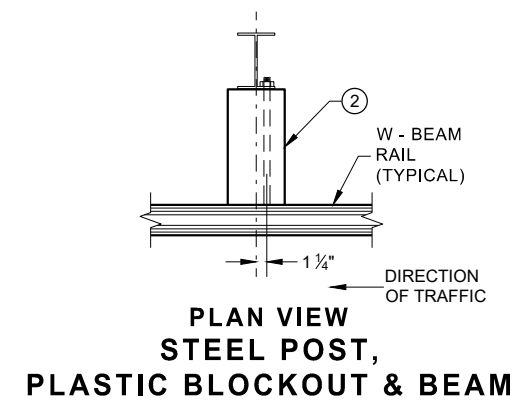
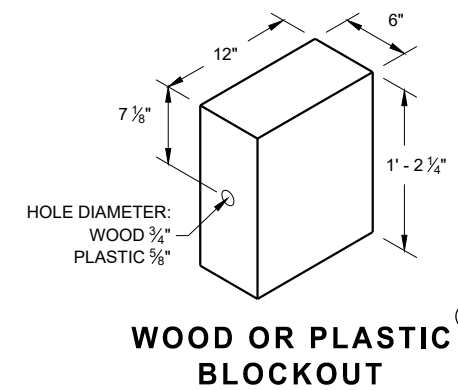
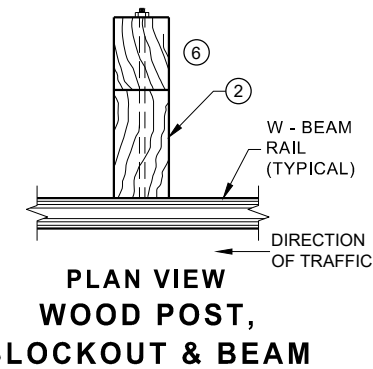
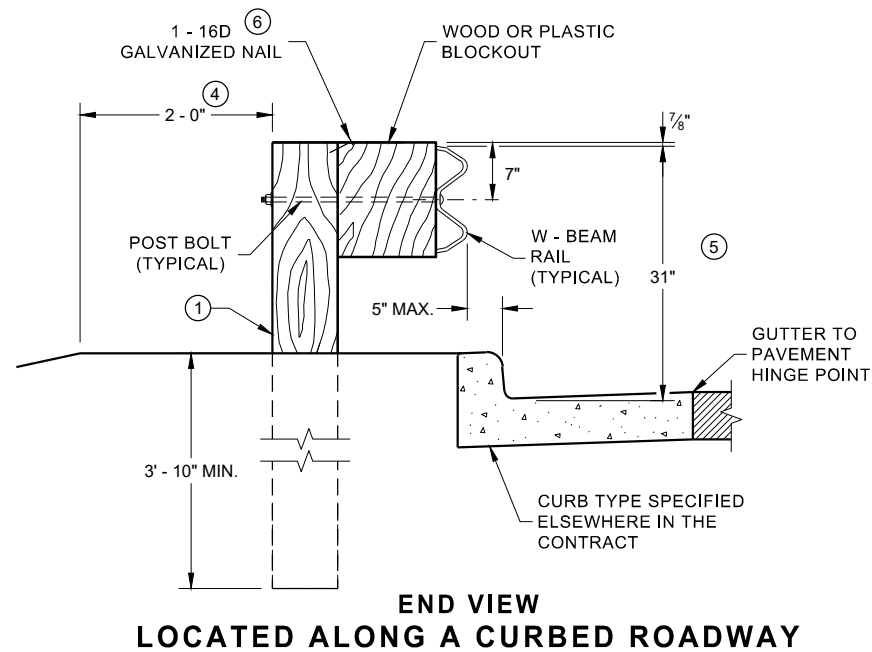
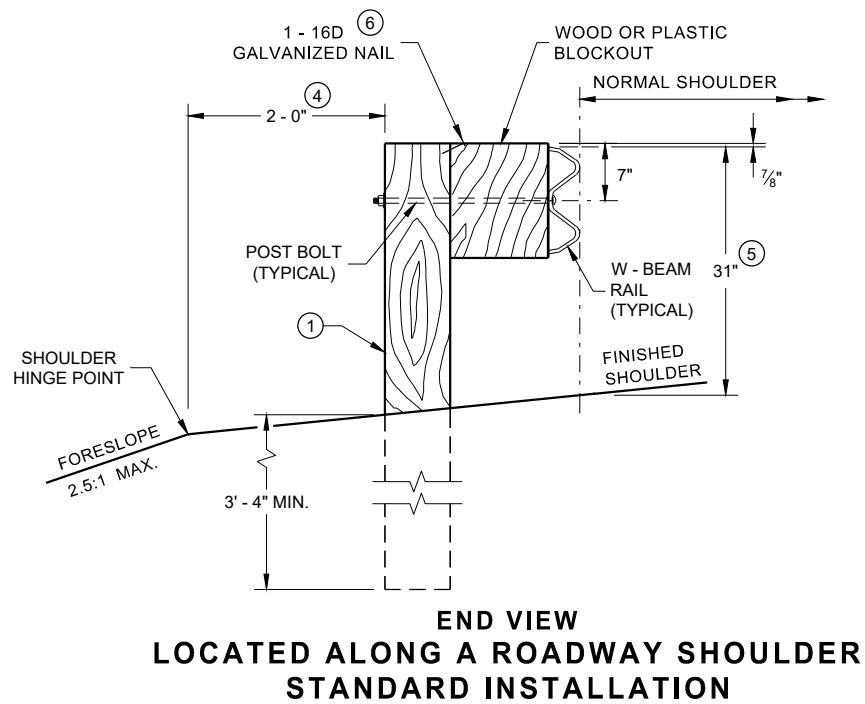
APPROVED  
June, 2015 /S/ Jerry H. Zogg  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA ENGINEER

- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. DIMENSIONS OF APPROVED PLASTIC BLOCKOUTS MAY VARY.
- ③ IF ROCK IS ENCOUNTERED DURING EXCAVATION, PROVIDE A HOLE 12 INCHES IN DIAMETER EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE APPROXIMATELY 2 1/2" INCHES OF GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE. CUT THE POSTS THE TO LENGTH AND INSTALL. BACKFILL WITH EXCAVATED MATERIAL AND COMPACT. BACKFILL IS TO BE FREE OF LARGE ROCKS.
- ④ WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).
- ⑤ FOR NEW MGS INSTALLATION TOP OF W-BEAM RAIL TOLERANCE IS  $\pm 1"$ . FOR EXISTING MGS INSTALLATION TOP OF W-BEAM IS BETWEEN 27 3/4" TO 32".
- ⑥ WHEN USING STEEL POST AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ⑦ TOTAL POST LENGTH FOR TYPE K IS 7' - 0". TOTAL POST LENGTH FOR OTHER MGS TYPES IS 6' - 0".



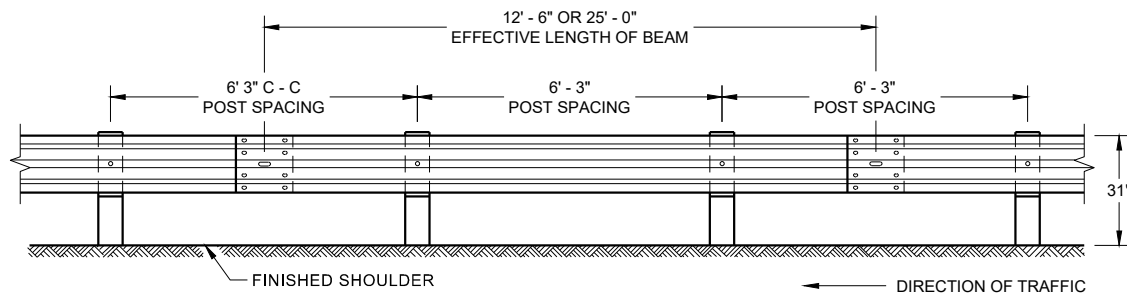
**STEEL POST & HOLE PUNCHING DETAIL (W 6 X 9) ①**

**WOOD POST (6" X 8") NOMINAL ①**

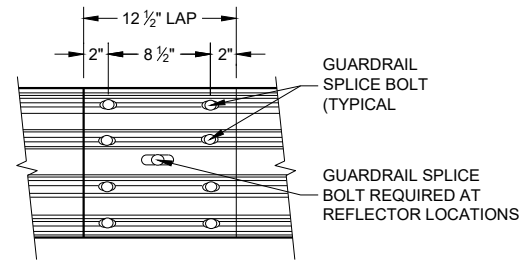


**MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



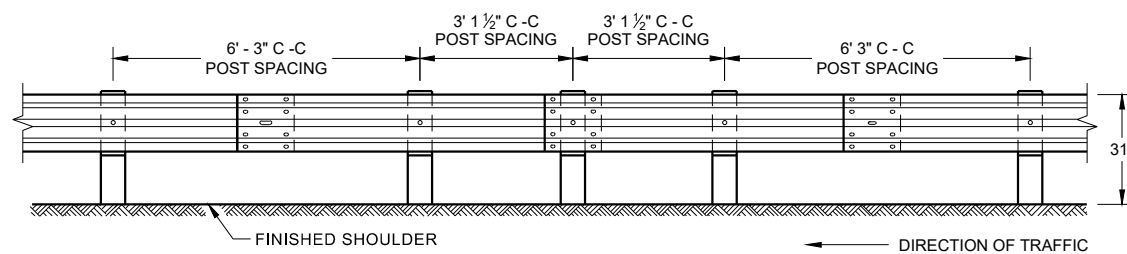
**FRONT VIEW  
POST SPACING STANDARD INSTALLATION**



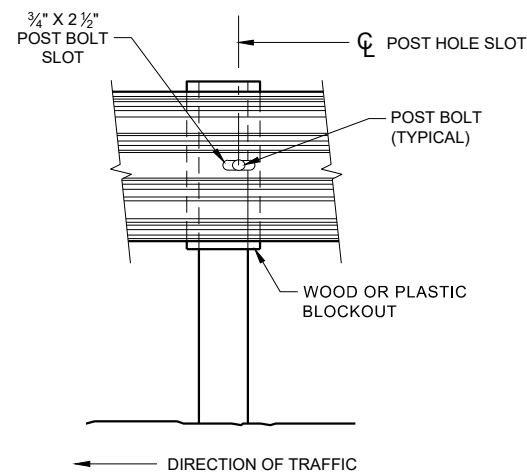
**FRONT VIEW  
MID-SPAN BEAM SPLICE**

**GENERAL NOTES**

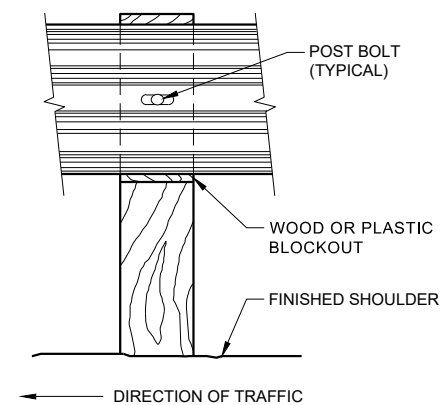
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
  - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



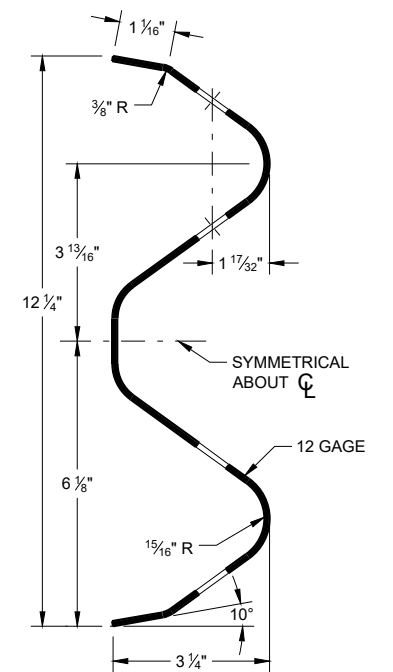
**FRONT VIEW  
HALF POST SPACING (HS) AND  
HALF POST SPACING WITH LONGER POSTS (K)**



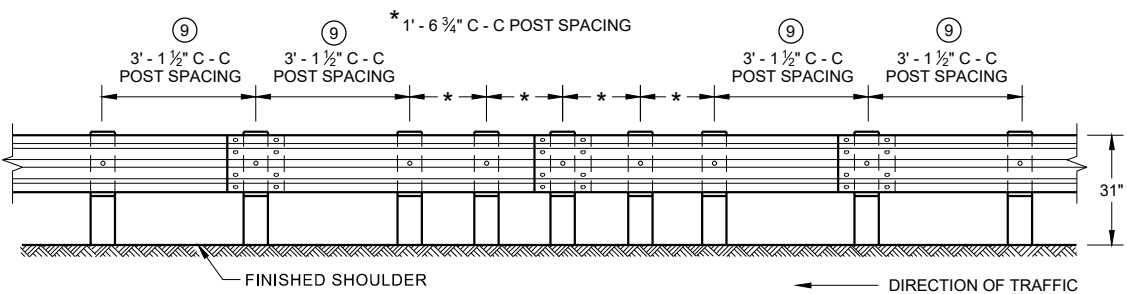
**FRONT VIEW AT STEEL POST**



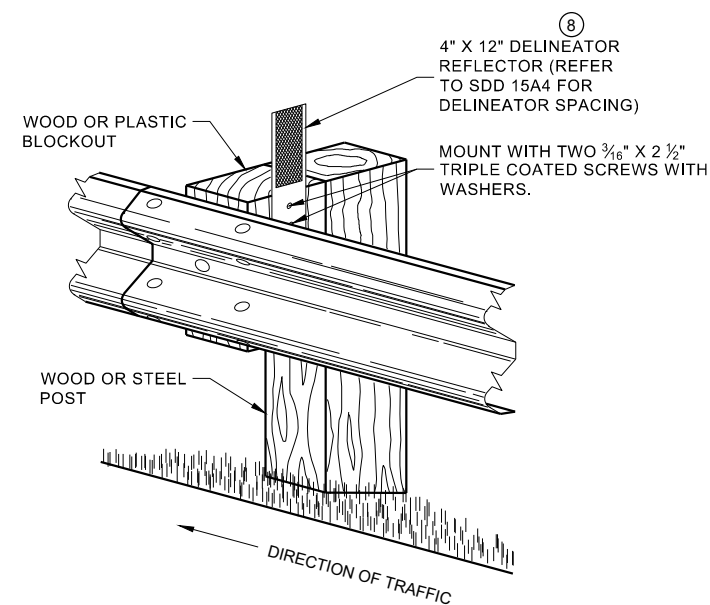
**FRONT VIEW AT WOOD POST**



**SECTION THRU W-BEAM RAIL**



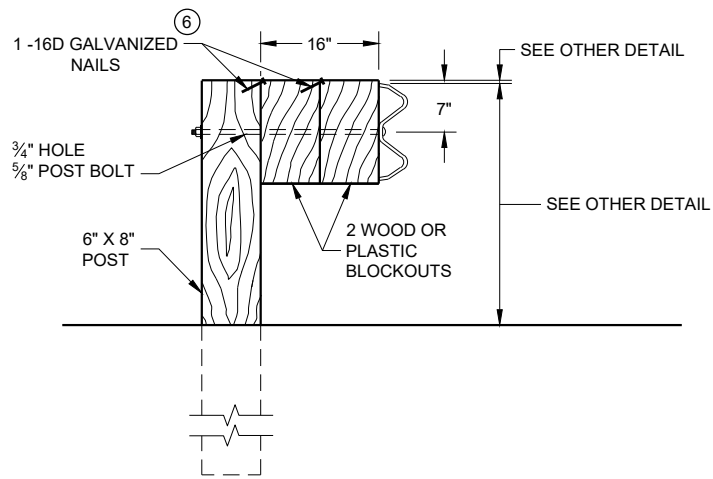
**FRONT VIEW  
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL  
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

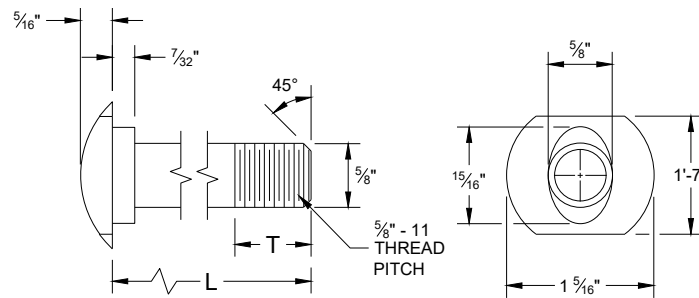


**DETAIL FOR 16" BLOCKOUT DEPTH**

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

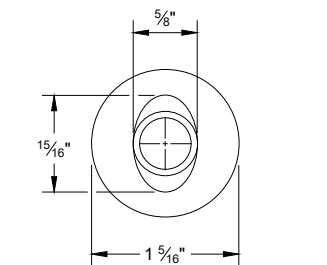
**NOTE:**

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

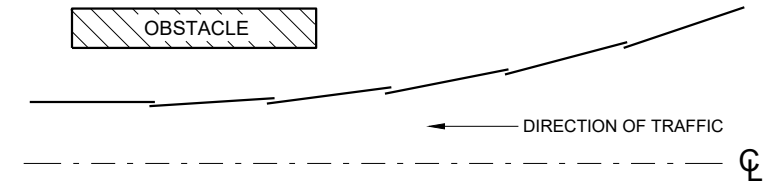


**POST BOLT TABLE**

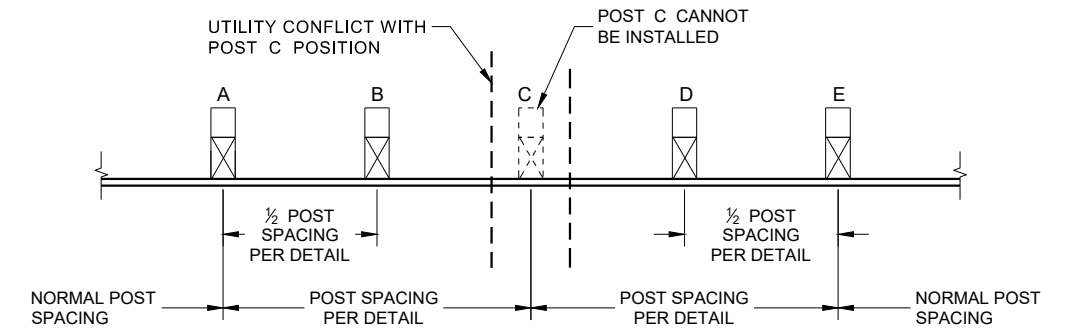
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



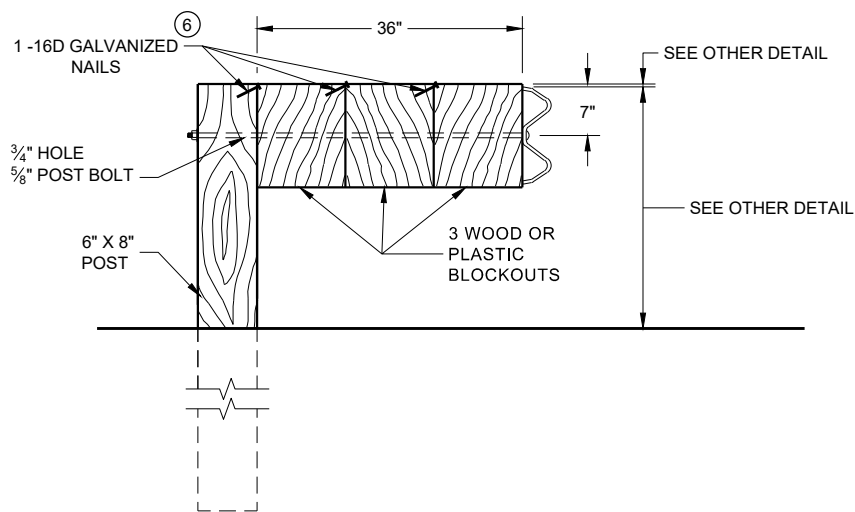
**ALTERNATE BOLT HEAD**



**PLAN VIEW  
BEAM LAPPING DETAIL**

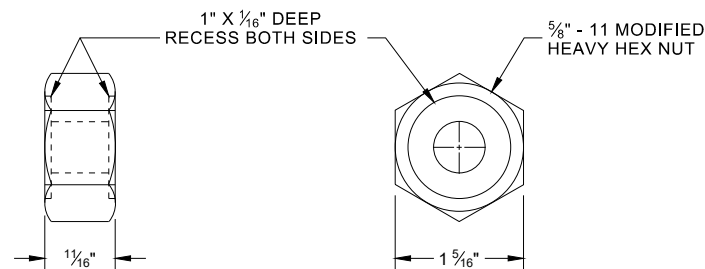


**POST DRIVING FOR CONTINUOUS  
UNDERGROUND OBSTRUCTION**

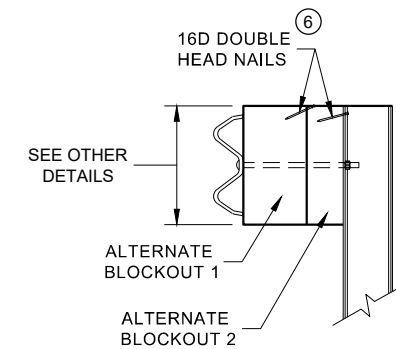


**DETAIL FOR 36" BLOCKOUT DEPTH**

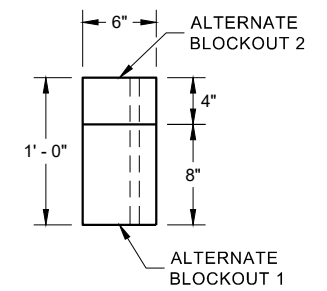
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.  
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



**POST BOLT, SPLICE BOLT  
AND RECESS NUT**



**SIDE VIEW**



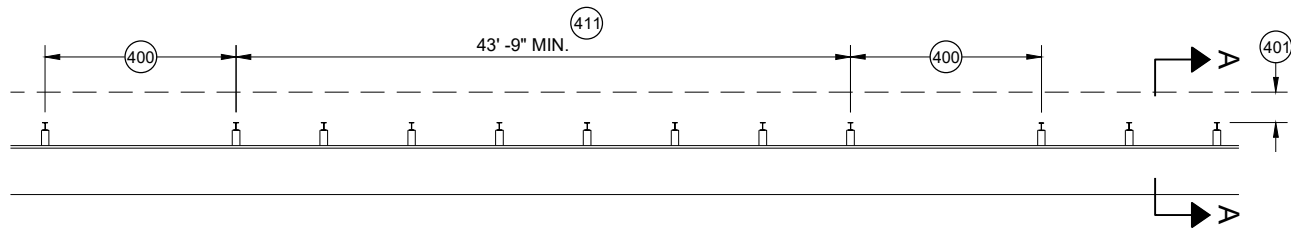
**PLAN VIEW**

**ALTERNATE WOOD  
BLOCKOUT DETAIL**

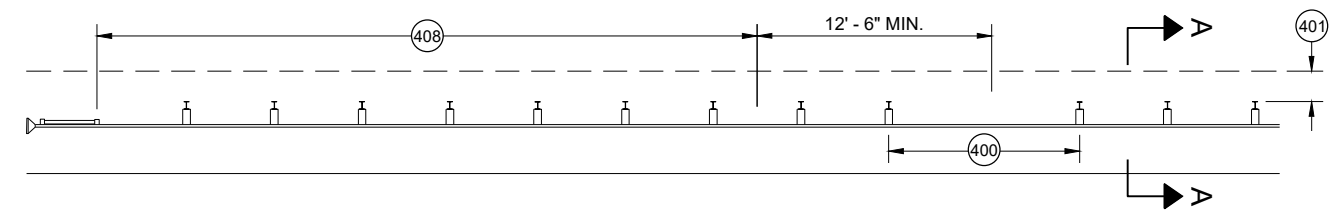
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM  
(MGS) GUARDRAIL**

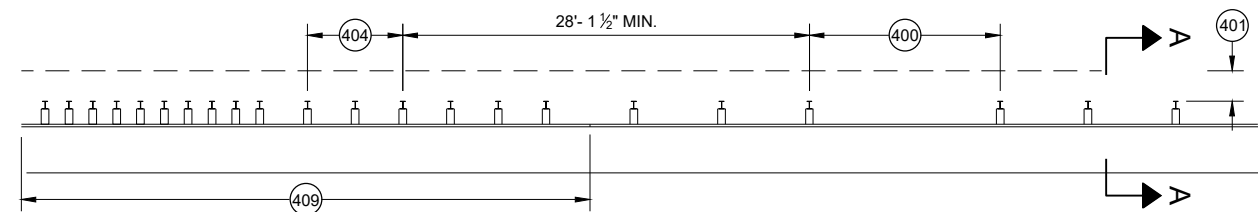
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



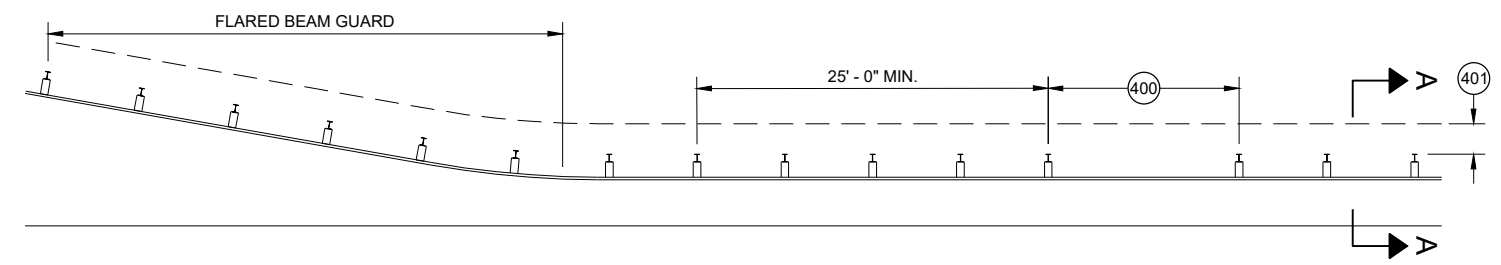
**MISSING POST IN MGS GUARDRAIL**



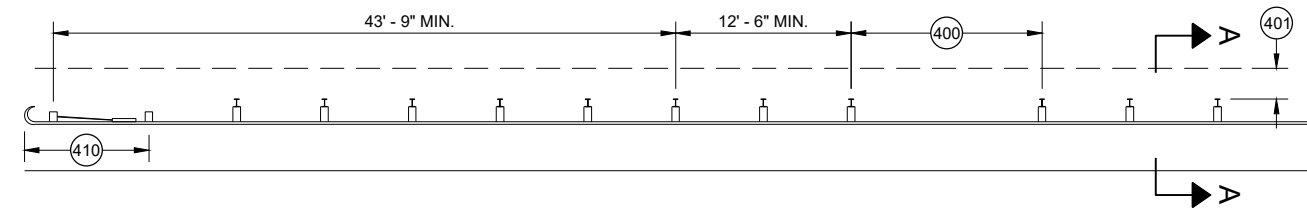
**MISSING POST IN MGS GUARDRAIL NEAR EAT**



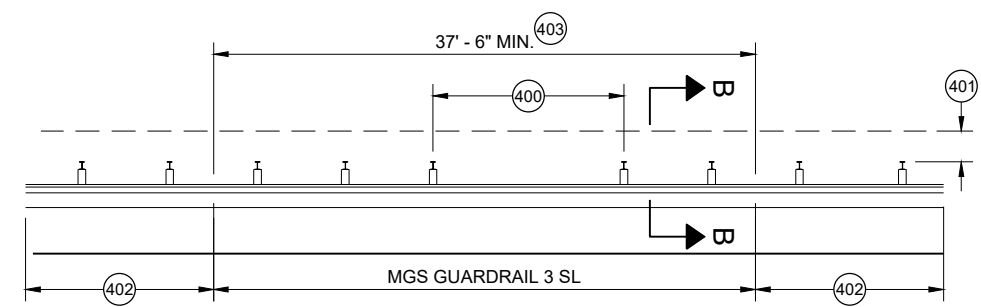
**MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION**



**MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD**

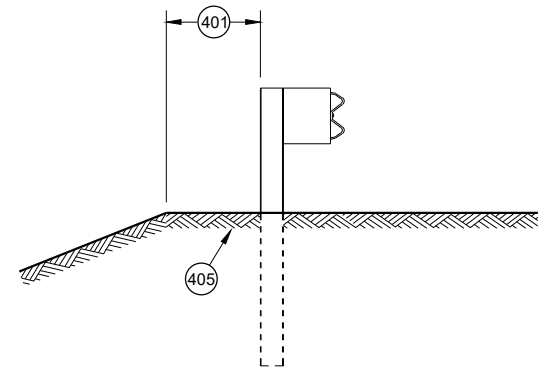


**MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL**

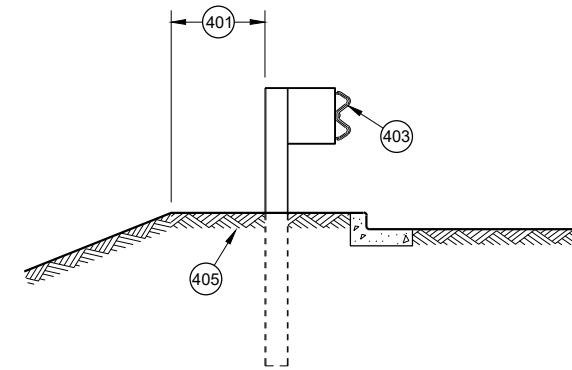


**MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)**

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



**SECTION A - A**



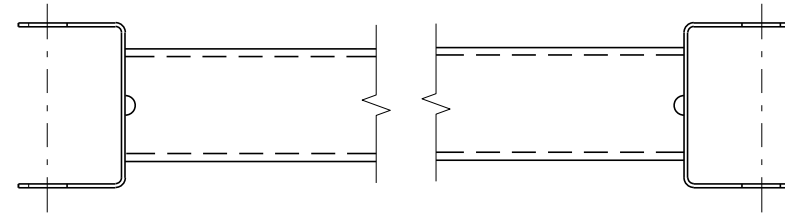
**SECTION B - B**

<b>MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	

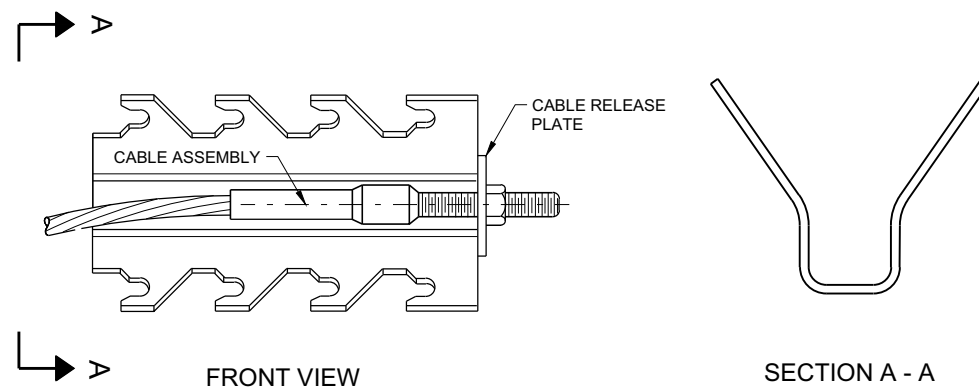


**BILL OF MATERIALS**

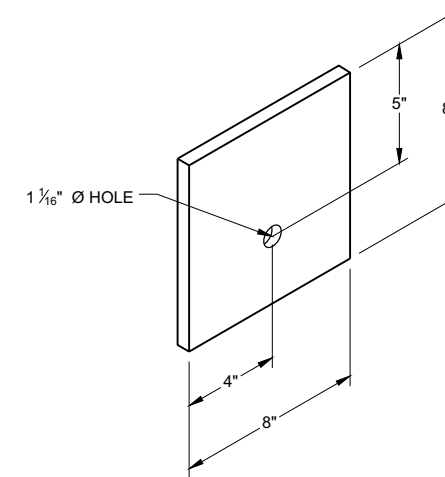
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



**GENERIC GROUND STRUT** ⑨ ⑤



**GENERIC ANCHOR CABLE BOX** ⑨ ⑤



**BEARING PLATE** ⑥ ⑤

6

6

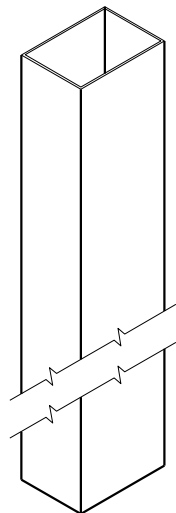
SDD 14B44 - 04b

SDD 14B44 - 04b

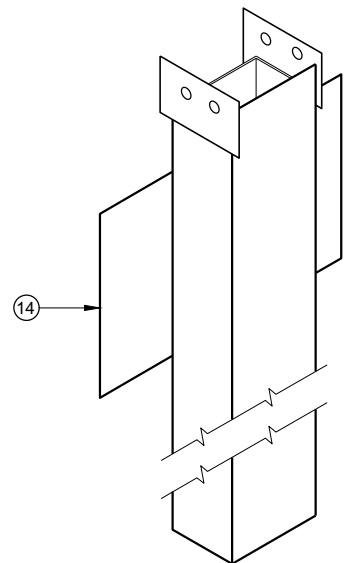
**MIDWEST GUARDRAIL SYSTEM  
ENERGY ABSORBING TERMINAL  
(MGS)**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

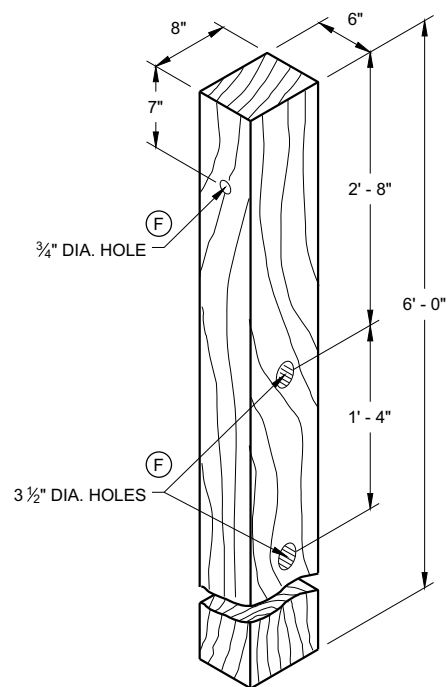




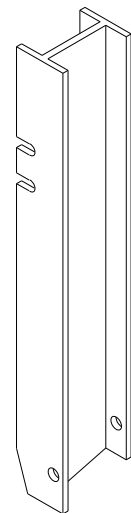
UPPER POST NO. 1 <sup>(1)</sup> (E)



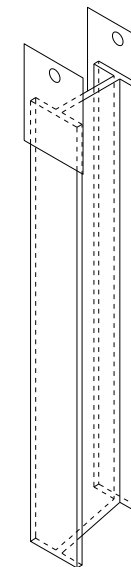
LOWER POST NO. 1 <sup>(2)</sup> (E)



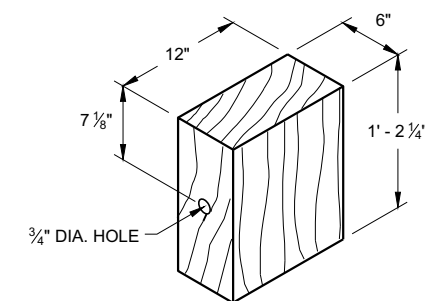
WOOD CRT POST <sup>(3)</sup> (E)  
POSTS NUMBER 3-9



UPPER POST NO. 2 <sup>(15)</sup> (E)

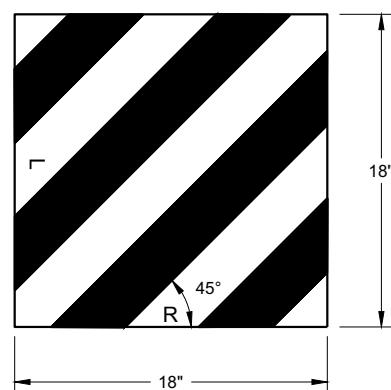


LOWER POST NO. 2 <sup>(16)</sup> (E)



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

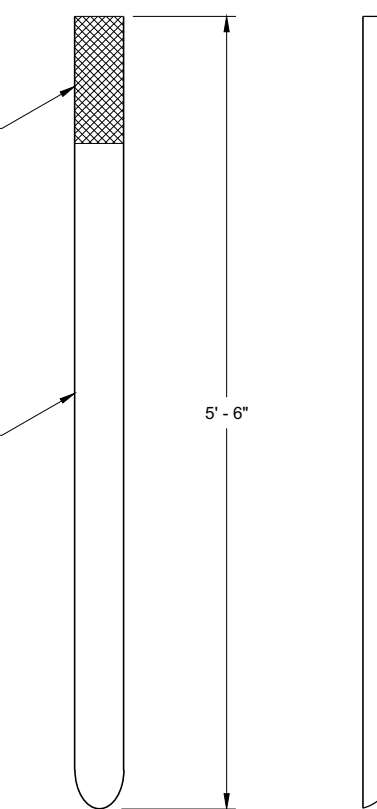
6



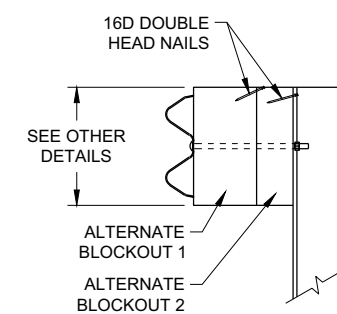
W5 - 59  
REFLECTIVE SHEETING DETAIL <sup>(E)</sup>

TYPE H  
YELLOW REFLECTIVE  
SHEETING 3" X 9".  
SEE STANDARD  
SPECIFICATION 637.

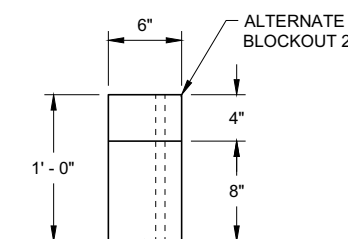
E.A.T. MARKER  
POST (YELLOW)



FRONT VIEW SIDE VIEW  
E.A.T. MARKER POST <sup>(13)</sup>



SIDE VIEW



TOP VIEW

ALTERNATE WOOD  
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

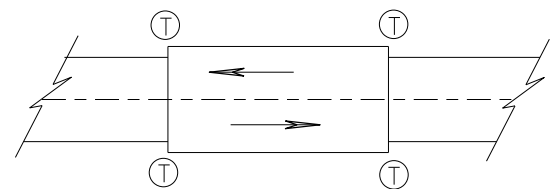
SDD 14B44 - 04c

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

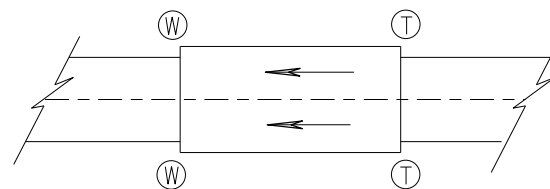
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

**GENERAL NOTES**

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

TRANSITION USES STEEL POSTS ONLY.

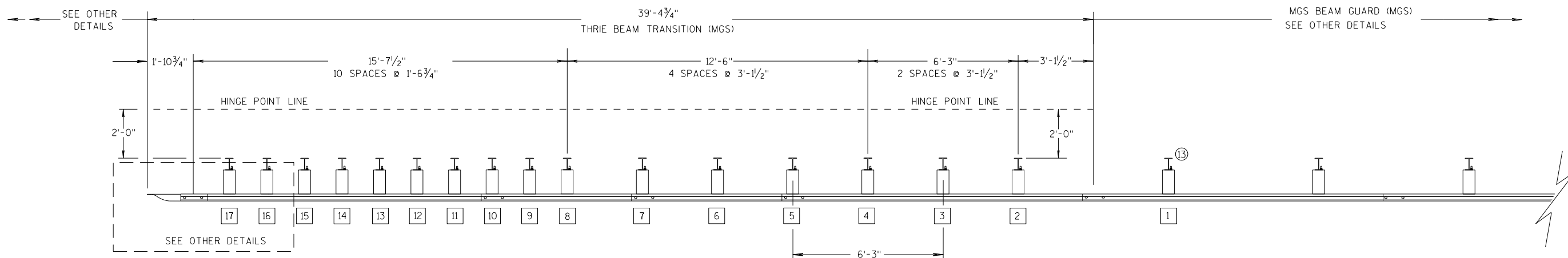
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

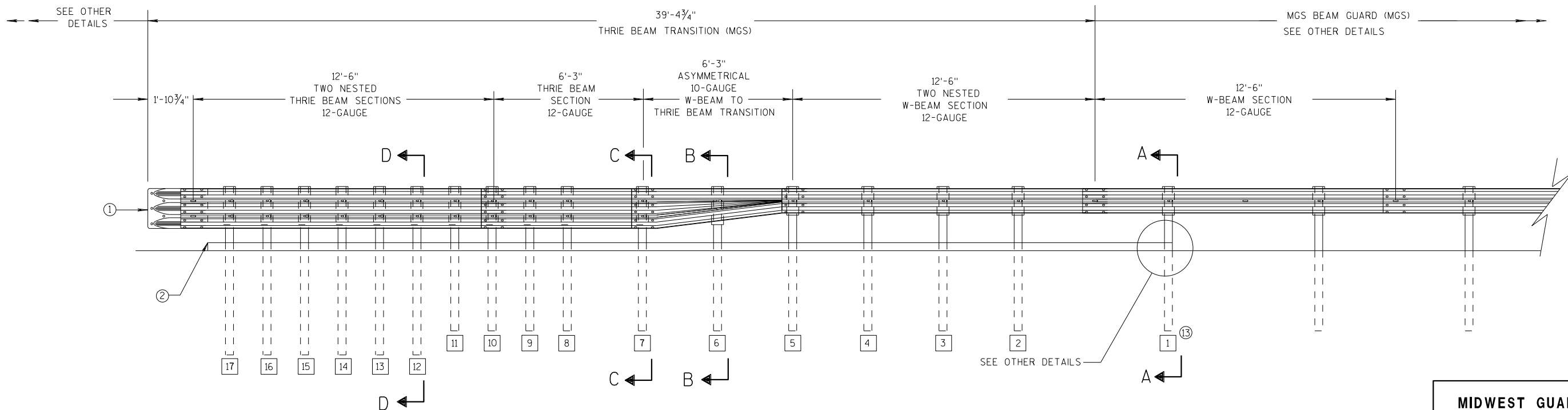
① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.

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

⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



**PLAN VIEW**



**ELEVATION VIEW**

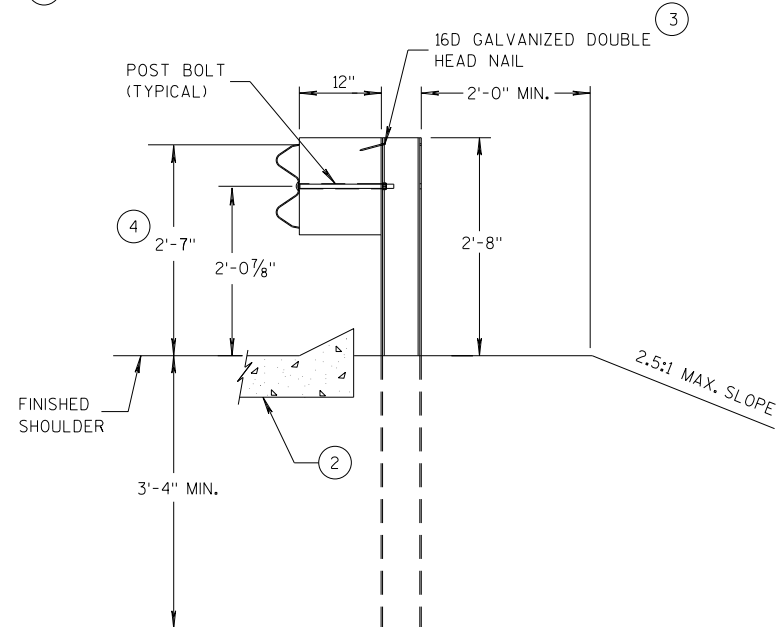
**MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION**

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

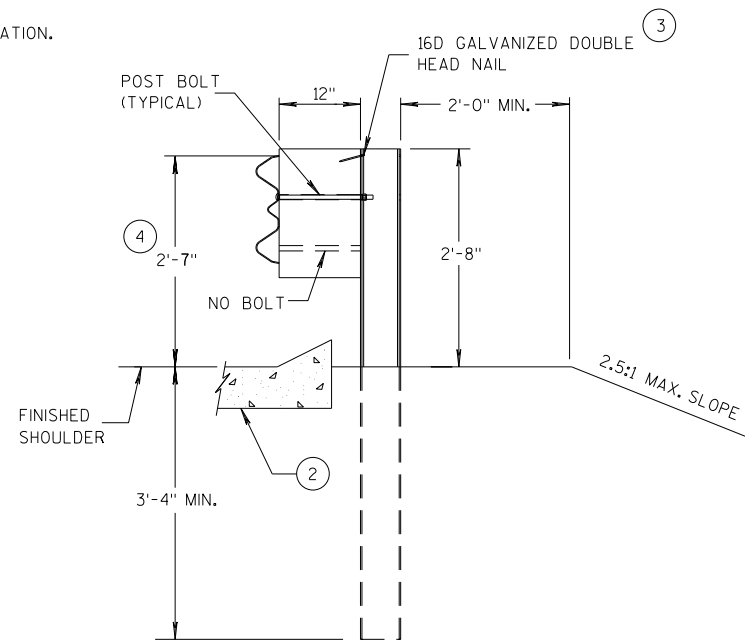
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

**GENERAL NOTES**

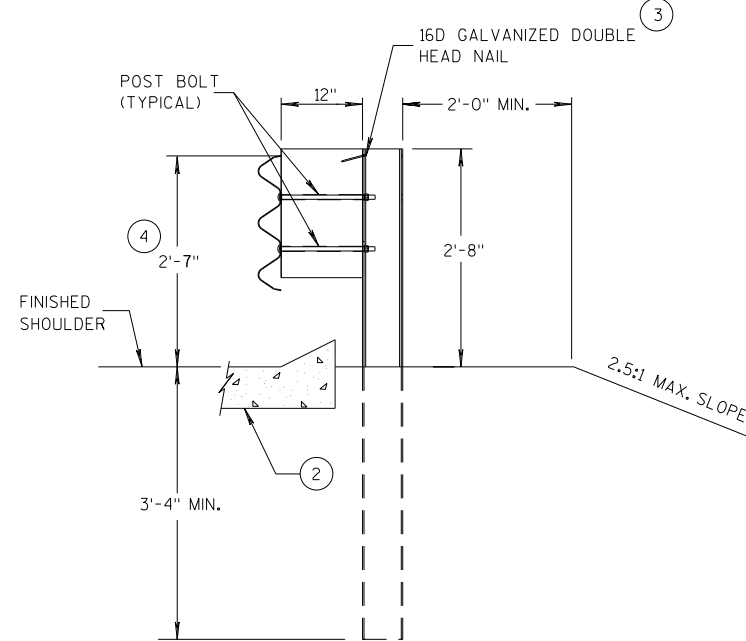
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



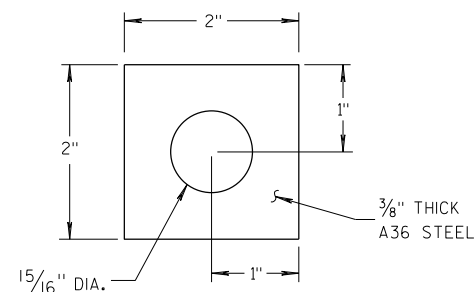
**SECTION A-A  
POSTS 1-5**



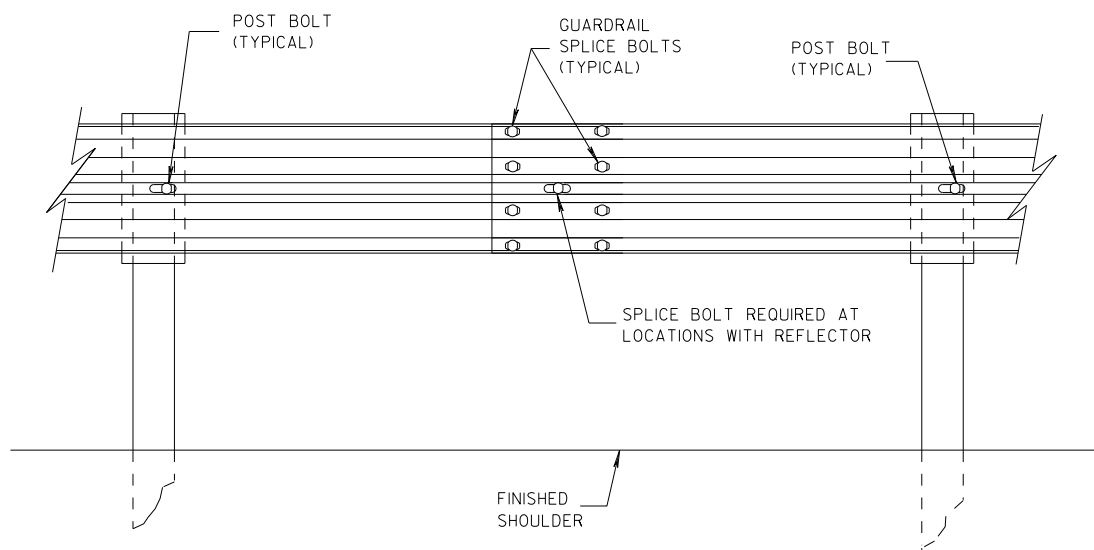
**SECTION B-B  
POST 6**



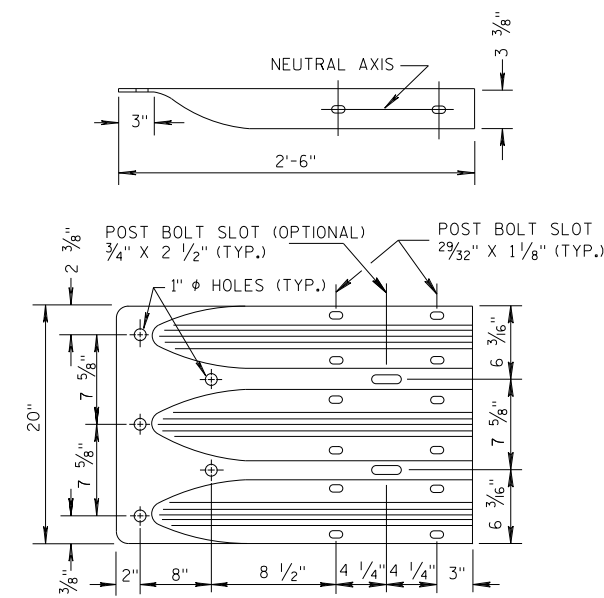
**SECTION C-C  
POSTS 7-11**



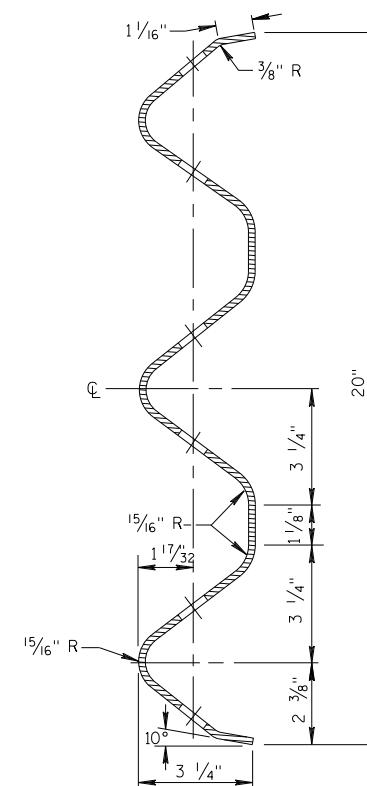
**PLATE WASHER DETAIL**



**SPLICE DETAIL**



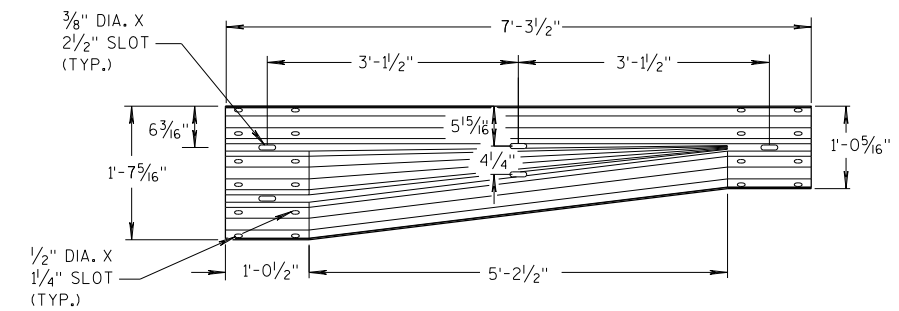
**THRIE BEAM  
TERMINAL CONNECTOR**



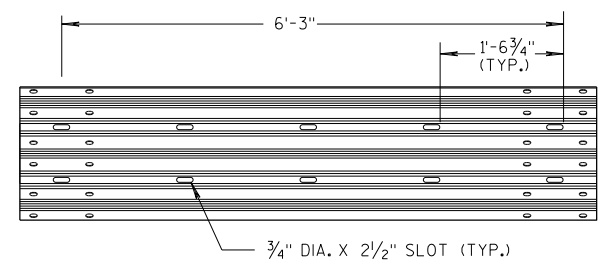
**SECTION THRU THRIE  
BEAM RAIL ELEMENT**

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

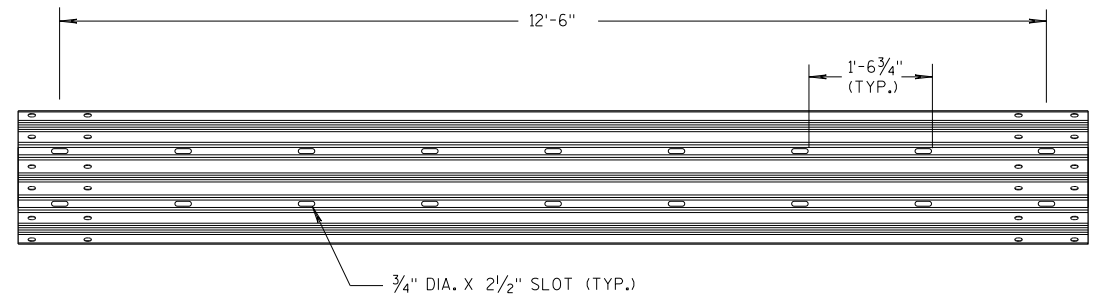
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



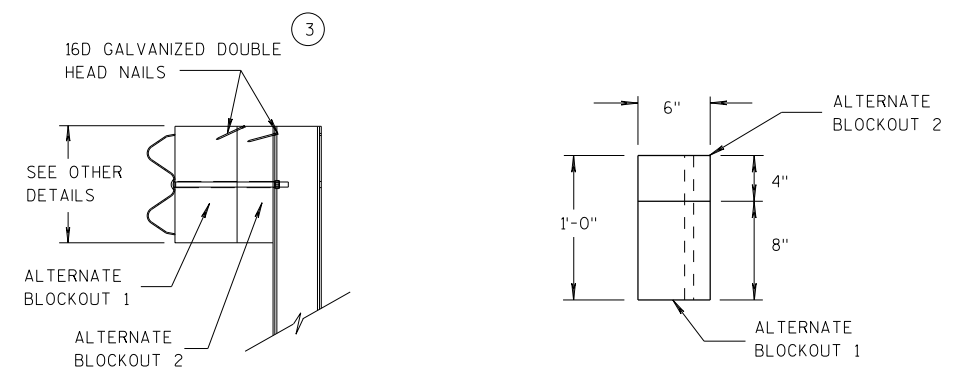
**W-BEAM TO THRIE BEAM TRANSITION SECTION**



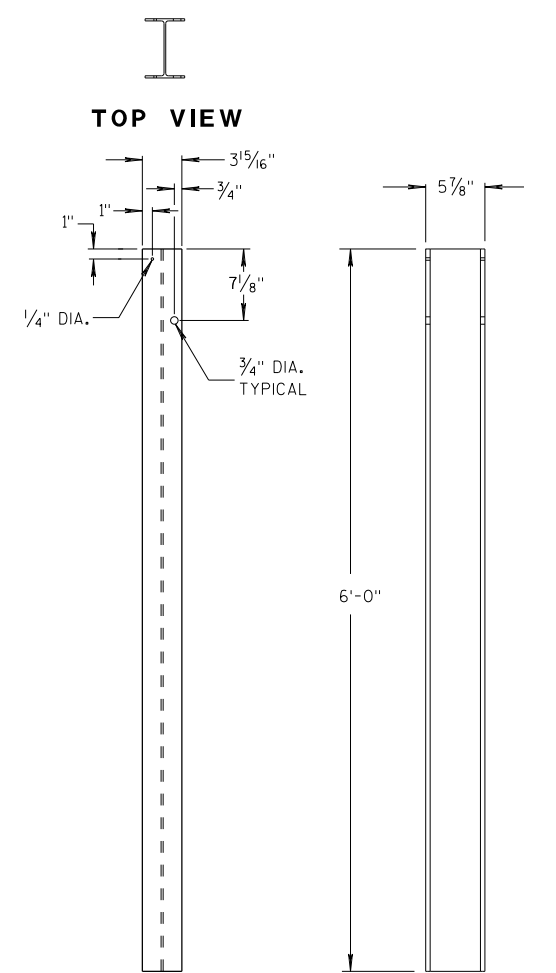
**6'-3\"/>**



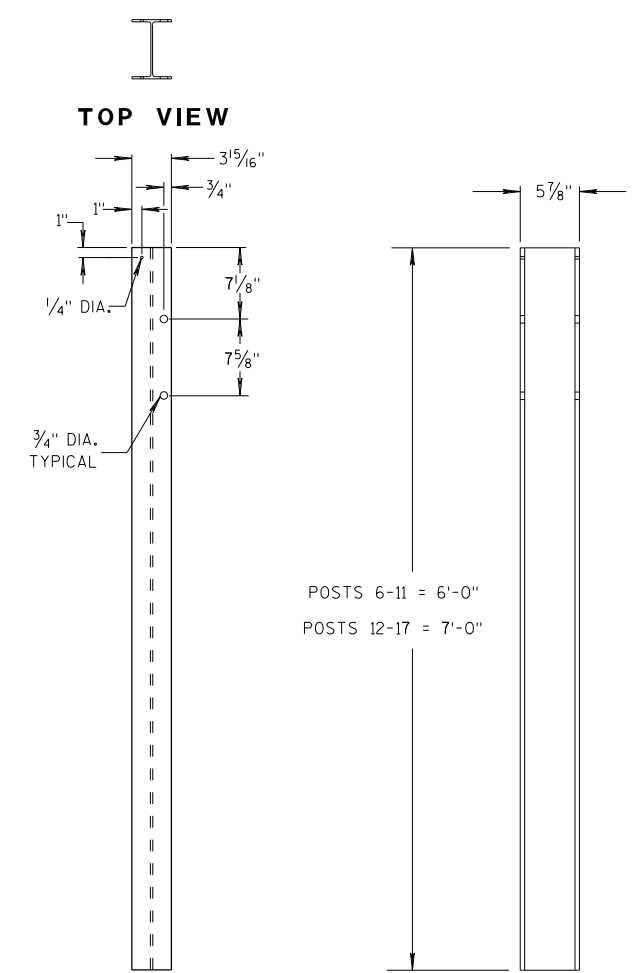
**12'-6\"/>**



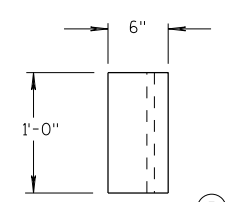
**ALTERNATE WOOD BLOCKOUT DETAIL**



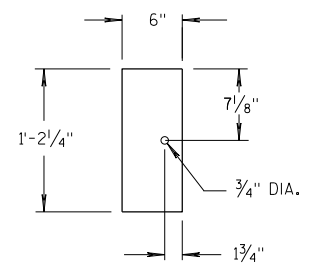
**STEEL POSTS 1-5**



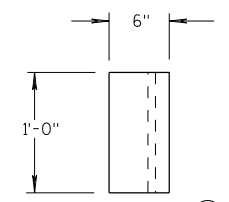
**STEEL POSTS 6-17**



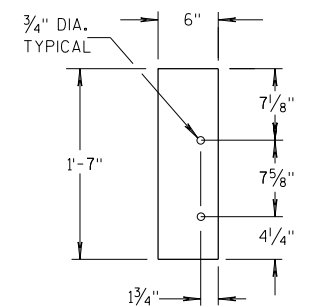
**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 1-5**



**TOP VIEW**



**FRONT VIEW  
BLOCKOUT  
POSTS 6-17**

**GENERAL NOTES**

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

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

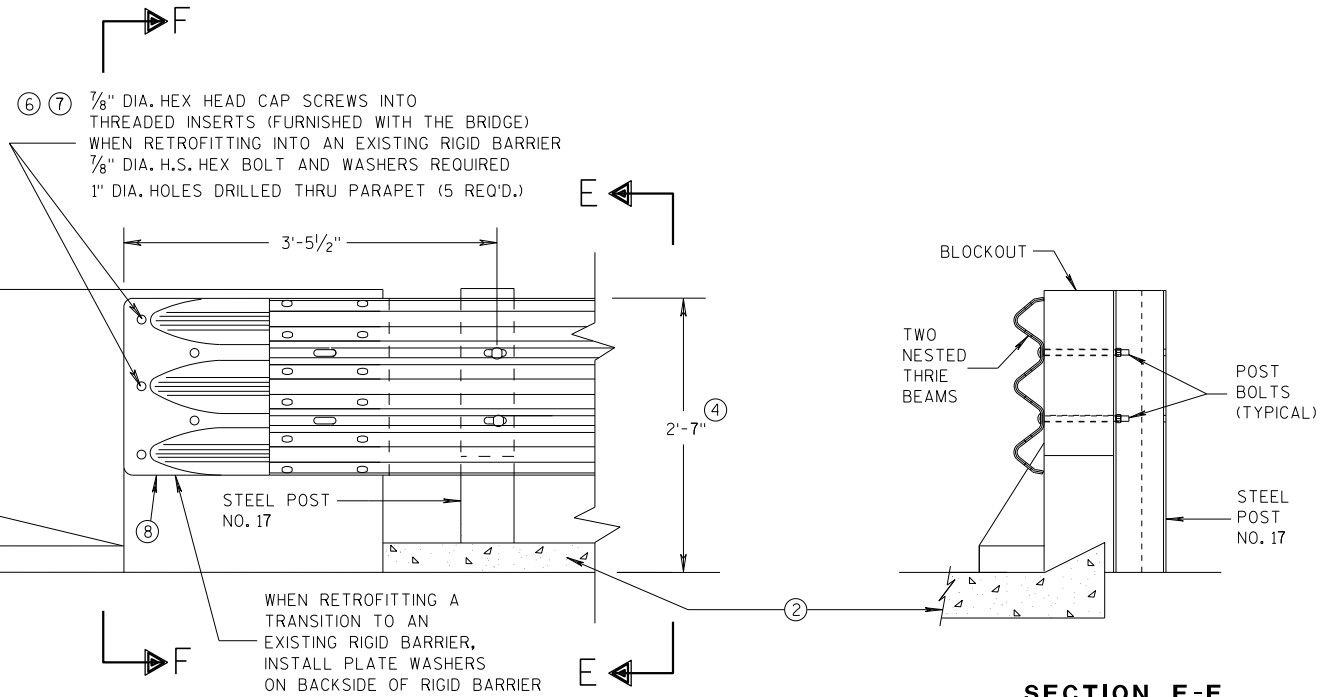
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

6

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

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



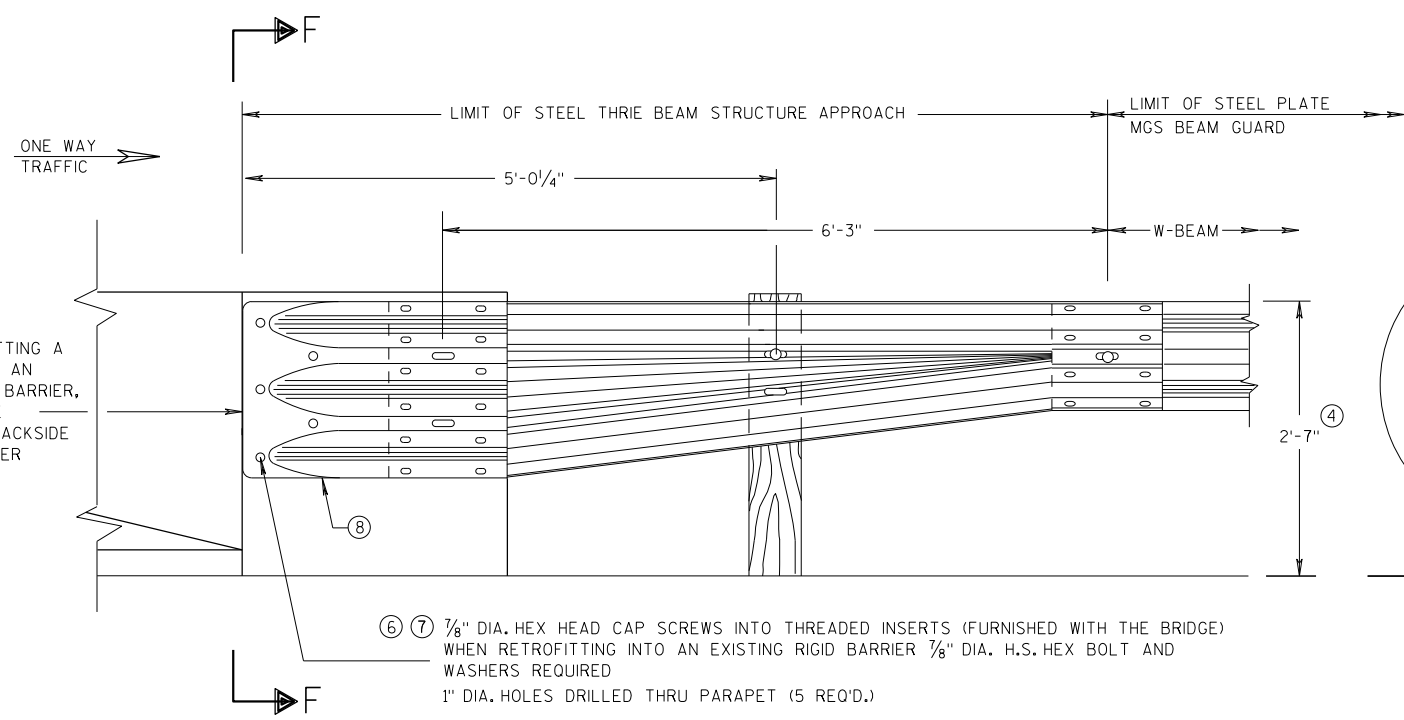
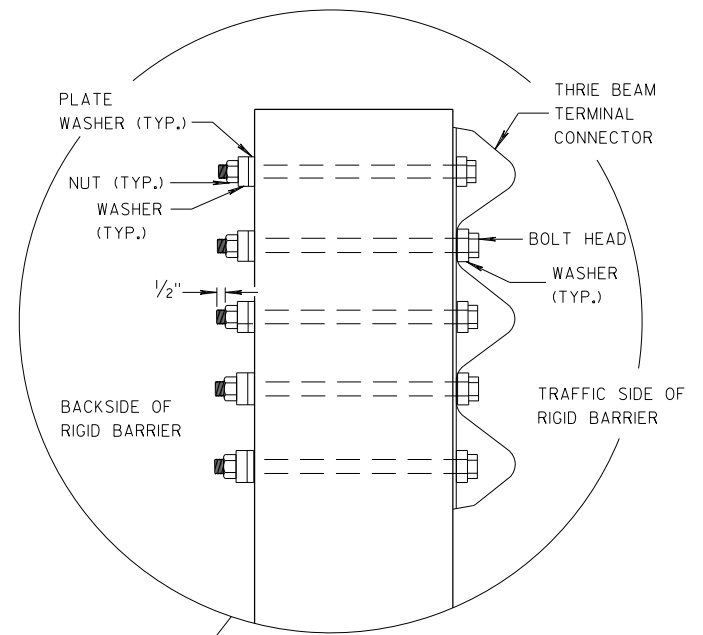
FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS**

SECTION E-E

**GENERAL NOTES**

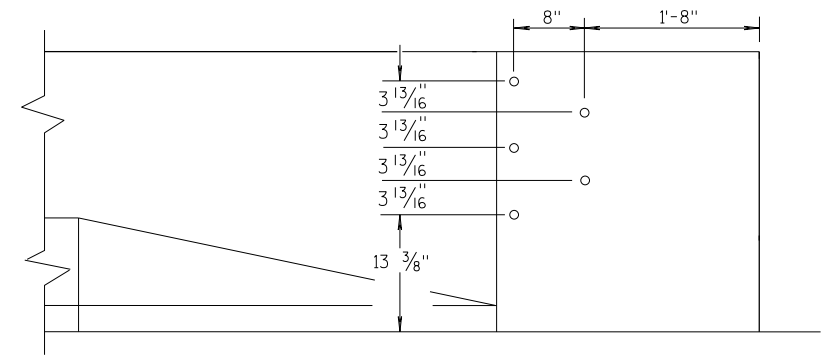
- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
  - (4) TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
  - (6) DRILLING BOLT HOLES THROUGH 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
  - (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



FRONT VIEW

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

SECTION F-F



DRILL HOLE LOCATION

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

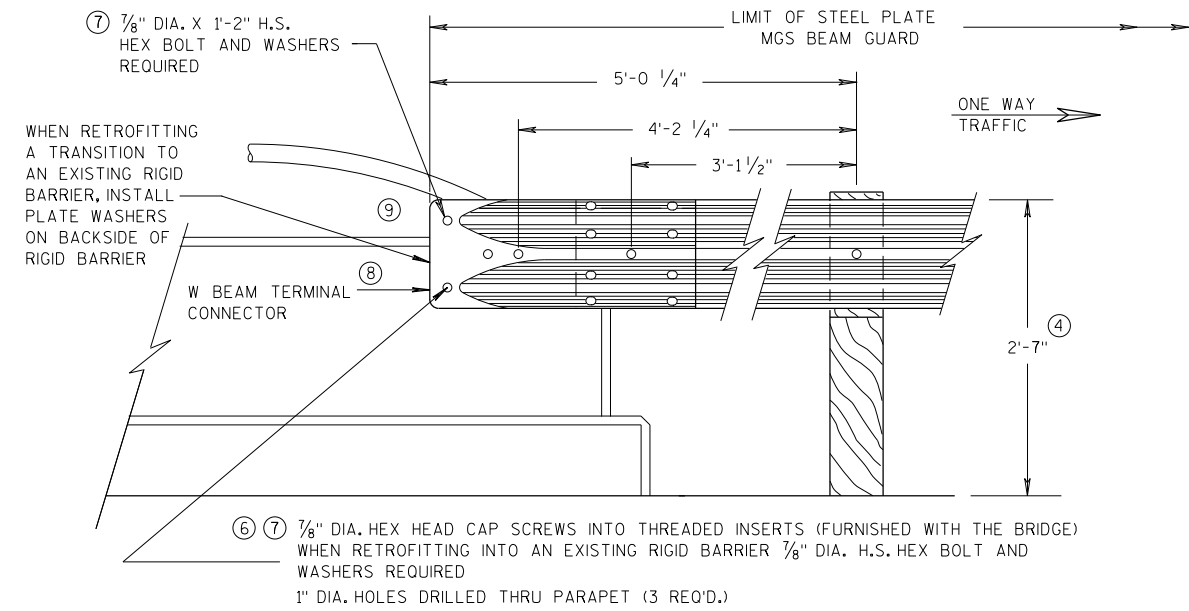
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

## GENERAL NOTES

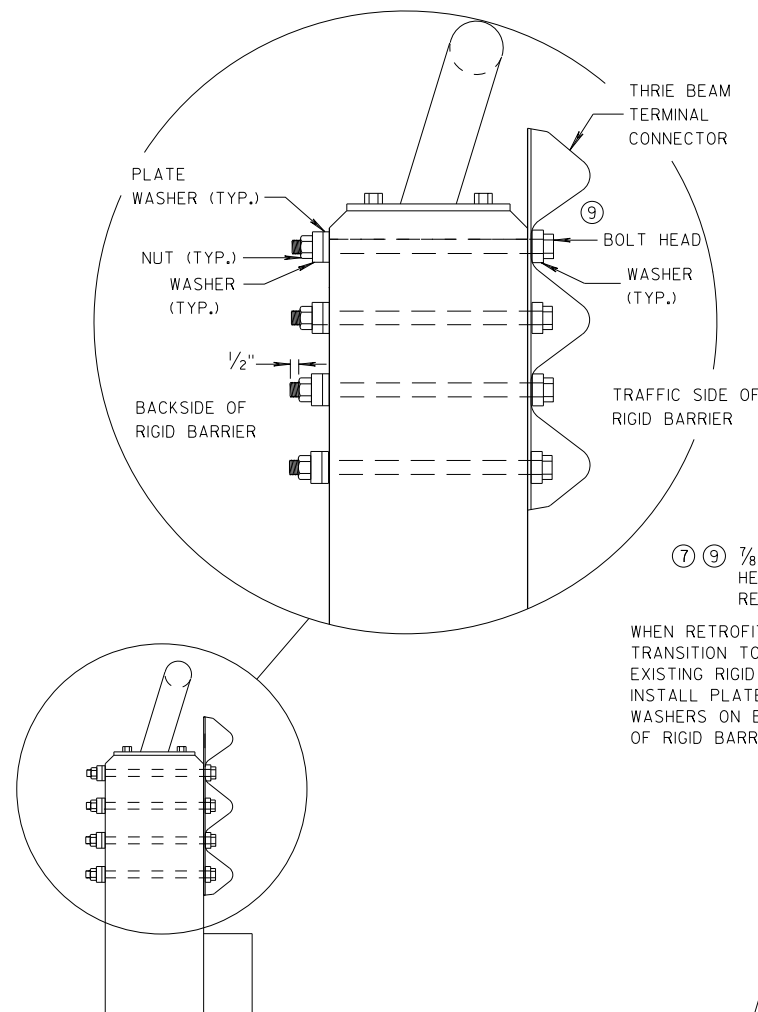
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- 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 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

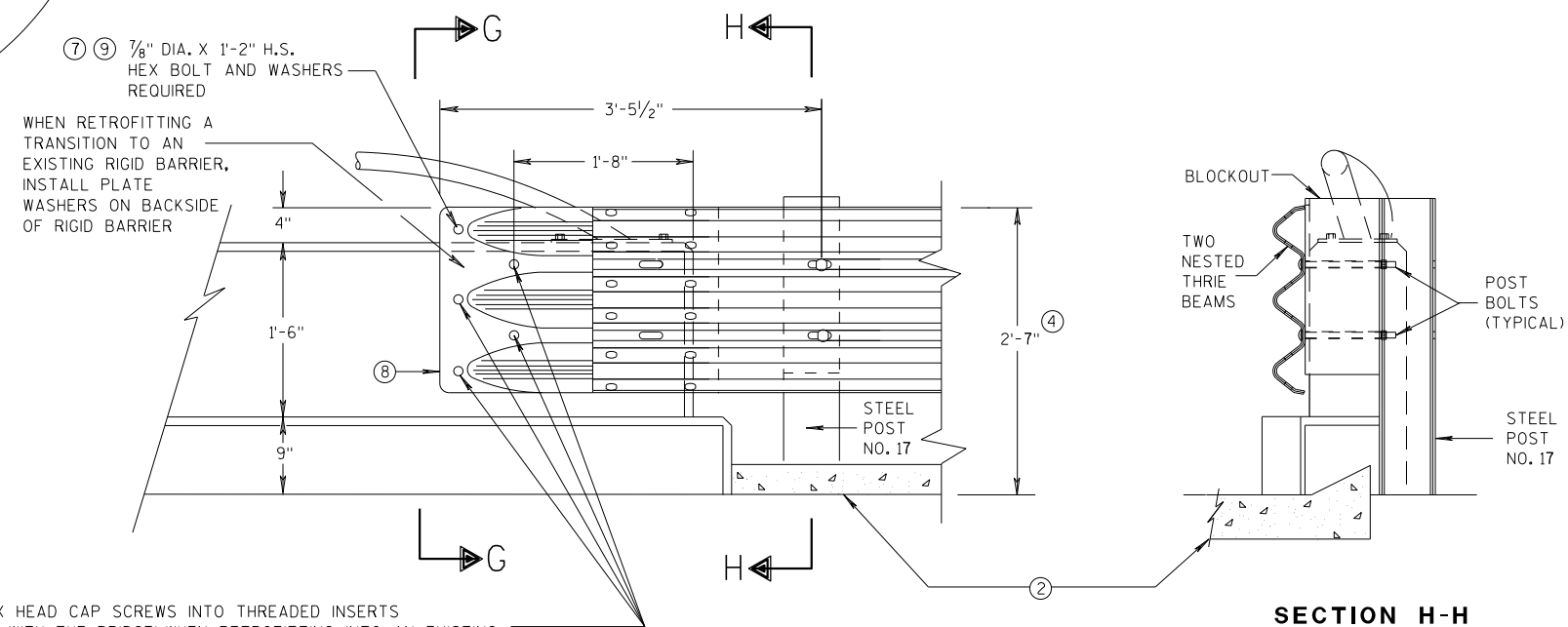


FRONT VIEW

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



SECTION G-G



FRONT VIEW

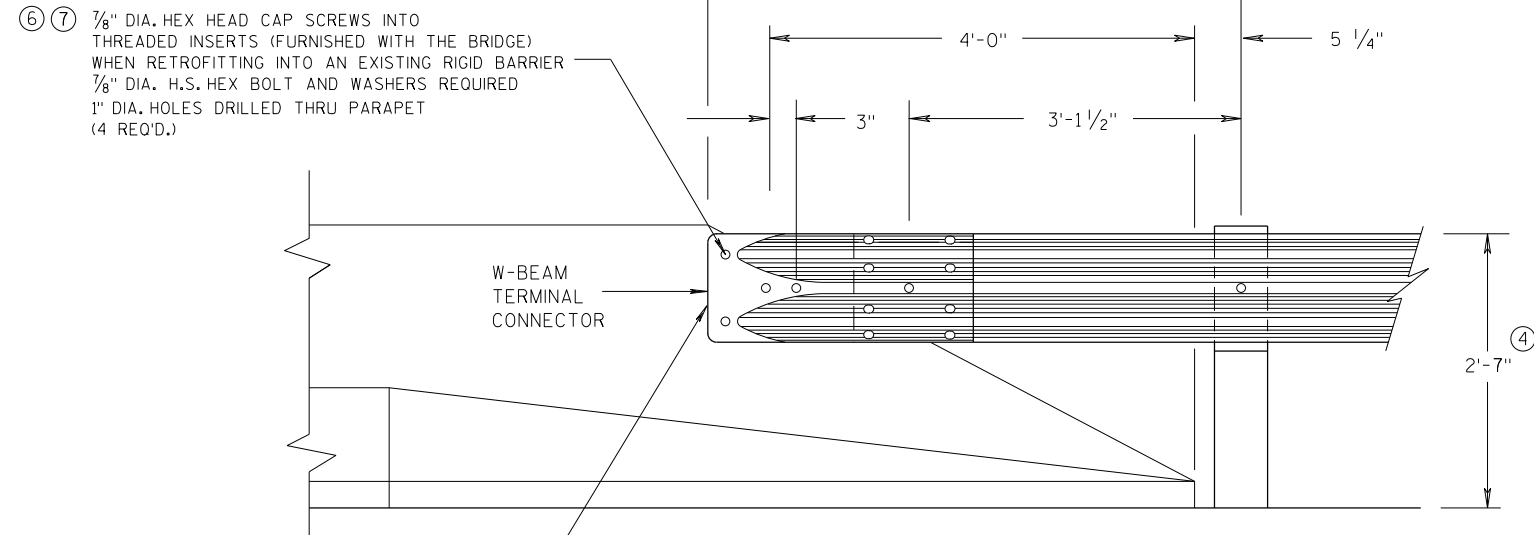
### THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM  
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
07/2018 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
FHWA UNIT SUPERVISOR

ONE WAY  
TRAFFIC



W-BEAM  
TERMINAL  
CONNECTOR

FRONT VIEW

**W BEAM CONNECTION TO  
PARAPETS WITH SLOPED ENDS**

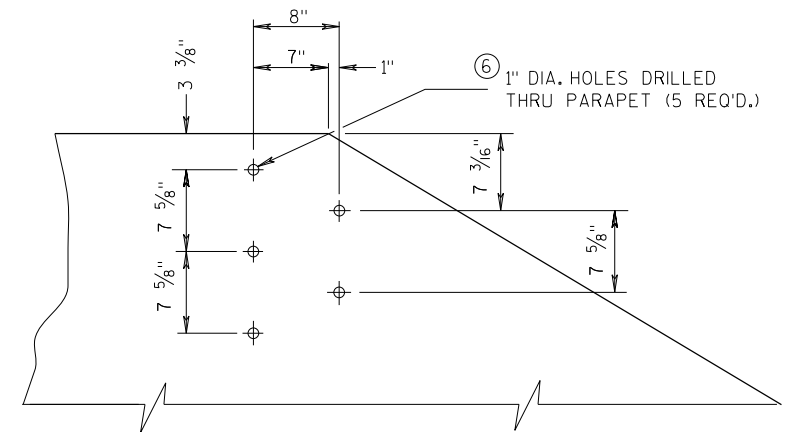
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

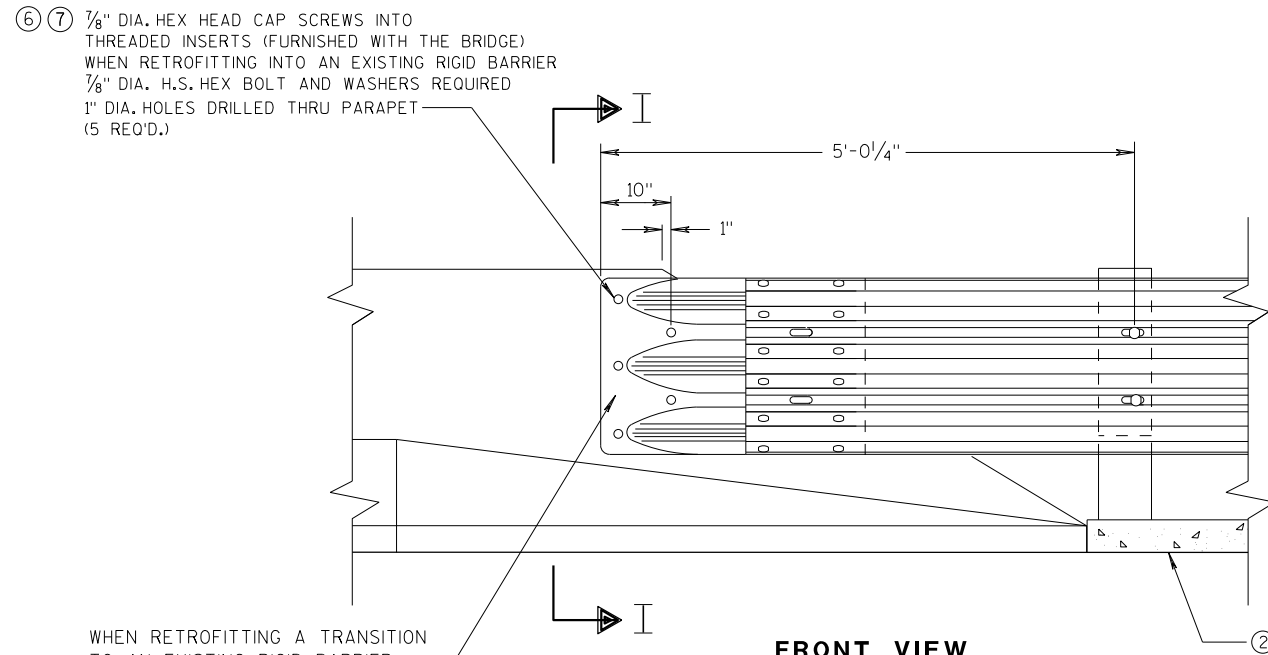
⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(4 REQ'D.)

**GENERAL NOTES**

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS  $\pm 1"$ .
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



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

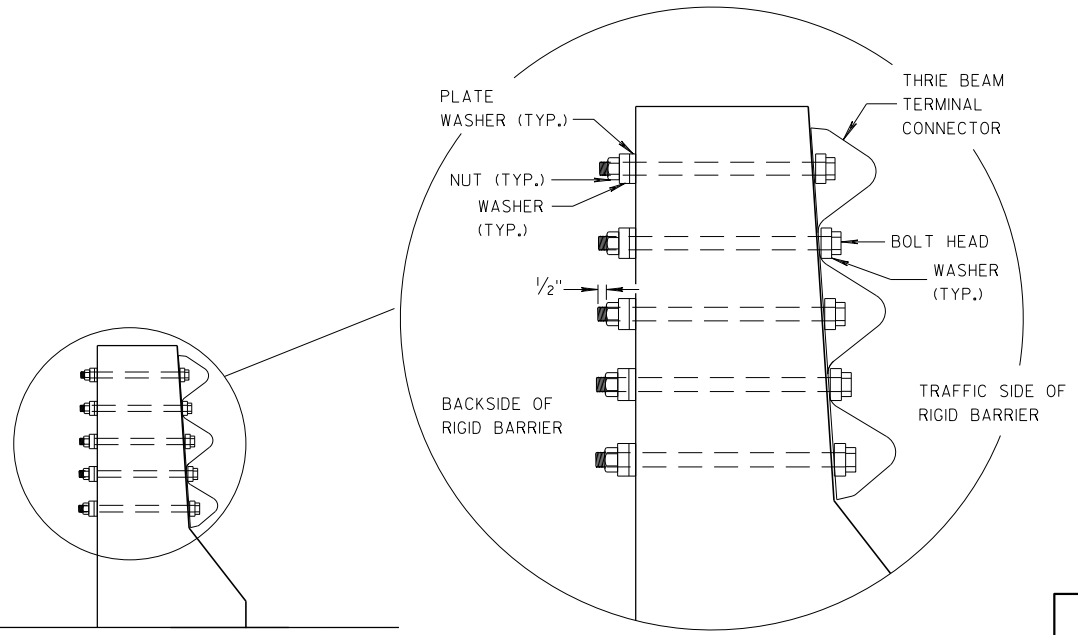


FRONT VIEW

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

WHEN RETROFITTING A TRANSITION  
TO AN EXISTING RIGID BARRIER,  
INSTALL PLATE WASHERS ON  
BACKSIDE OF RIGID BARRIER.

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO  
THREADED INSERTS (FURNISHED WITH THE BRIDGE)  
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER  
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED  
1" DIA. HOLES DRILLED THRU PARAPET  
(5 REQ'D.)



SECTION I-I

PLATE  
WASHER (TYP.)

NUT (TYP.)  
WASHER  
(TYP.)

1/2"

BACKSIDE OF  
RIGID BARRIER

THRIE BEAM  
TERMINAL  
CONNECTOR

BOLT HEAD  
WASHER  
(TYP.)

TRAFFIC SIDE OF  
RIGID BARRIER

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

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 07/2018 /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
UNIT SUPERVISOR  
FHWA

**GENERAL NOTES**

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

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




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

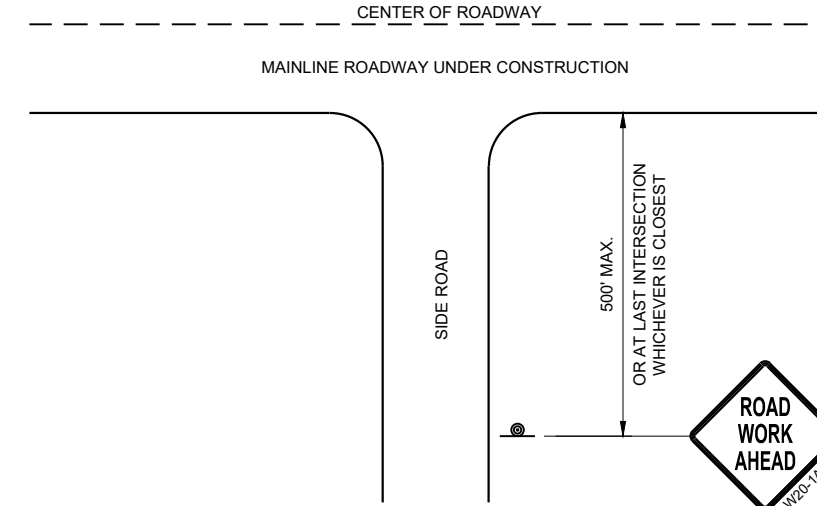
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

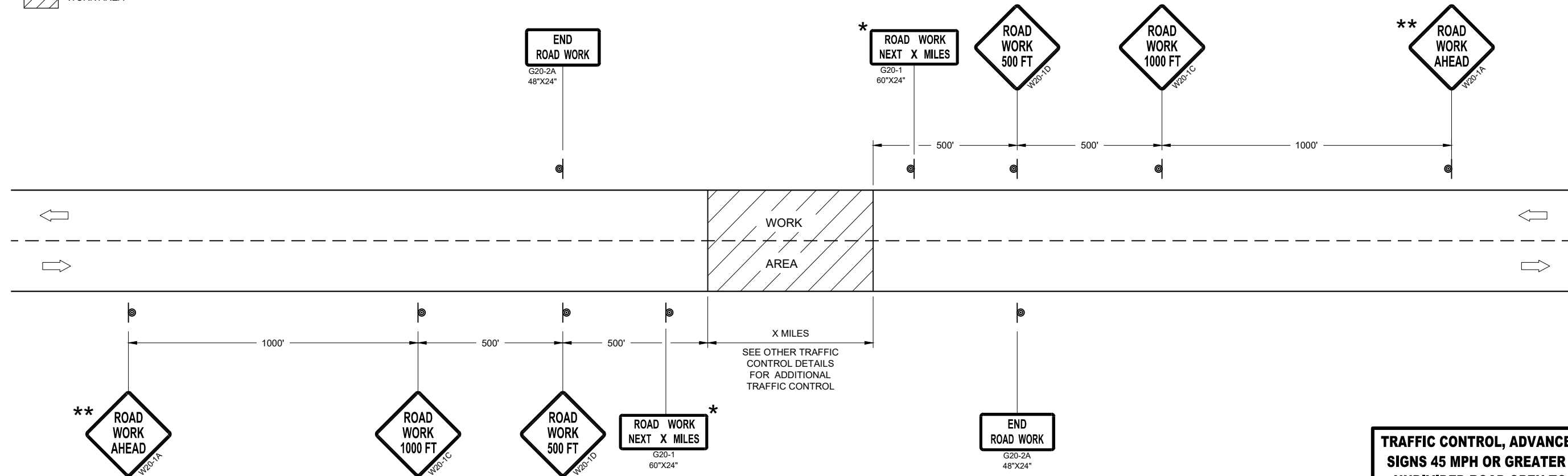
- \* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- \*\* PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

**LEGEND**

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



**TYPICAL SIDE ROAD APPROACH  
WARNING SIGN DETAIL**



**TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER**

**TRAFFIC CONTROL, ADVANCE WARNING  
SIGNS 45 MPH OR GREATER TWO-WAY  
UNDIVIDED ROAD OPEN TO TRAFFIC**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED \_\_\_\_\_ /S/ Andrew Heidtke  
DATE July 2018 WORK ZONE ENGINEER

FHWA






**GENERAL NOTES**

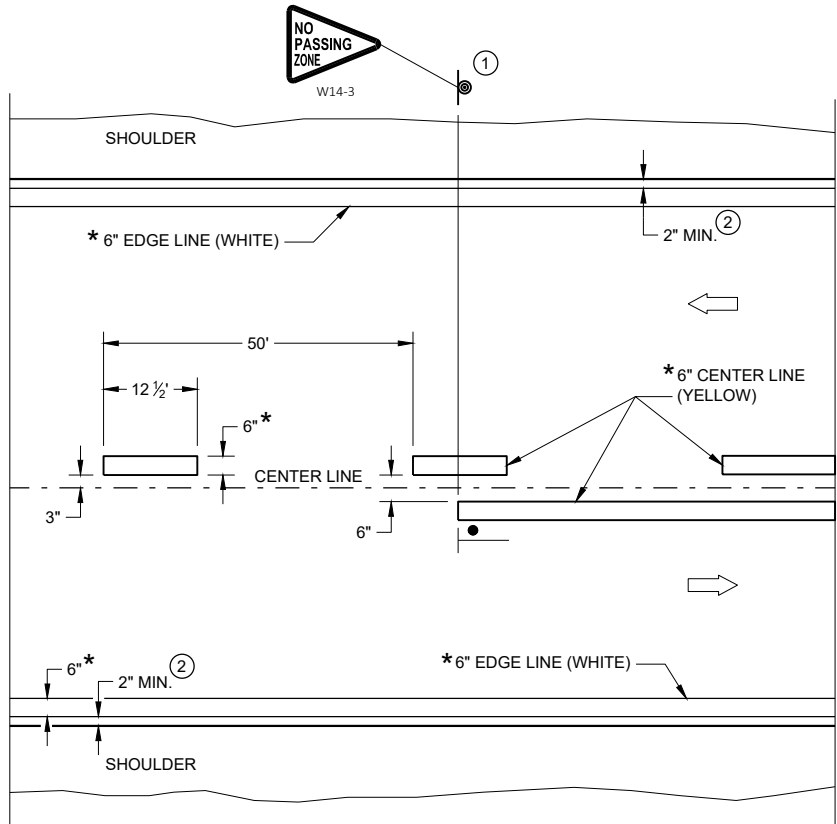
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

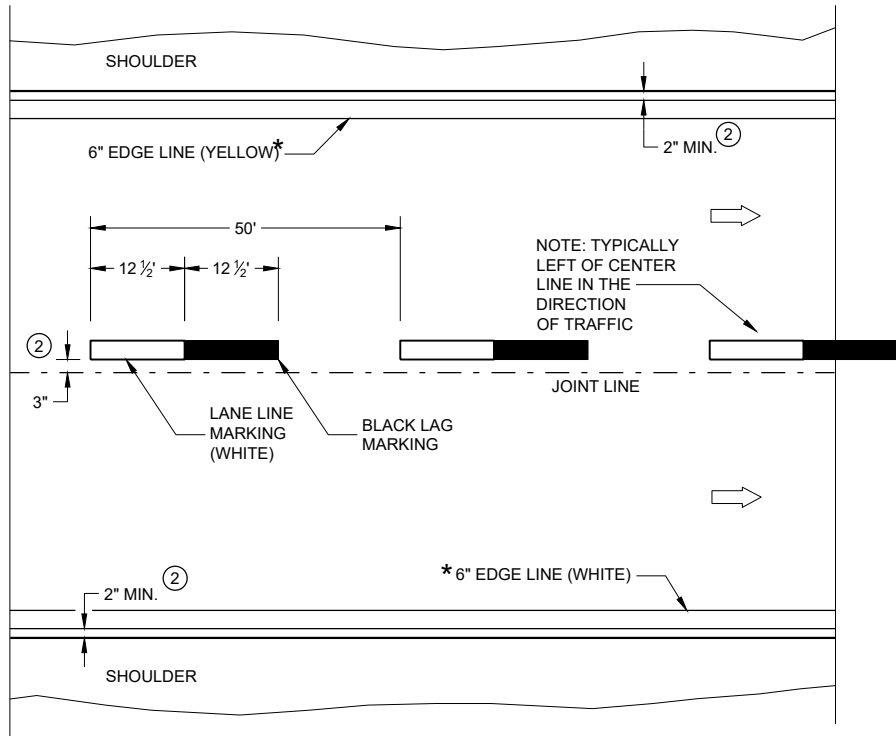
**LEGEND**

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

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**

**PERMANENT PAVEMENT MARKING**

6

6

SDD 15C08-23a

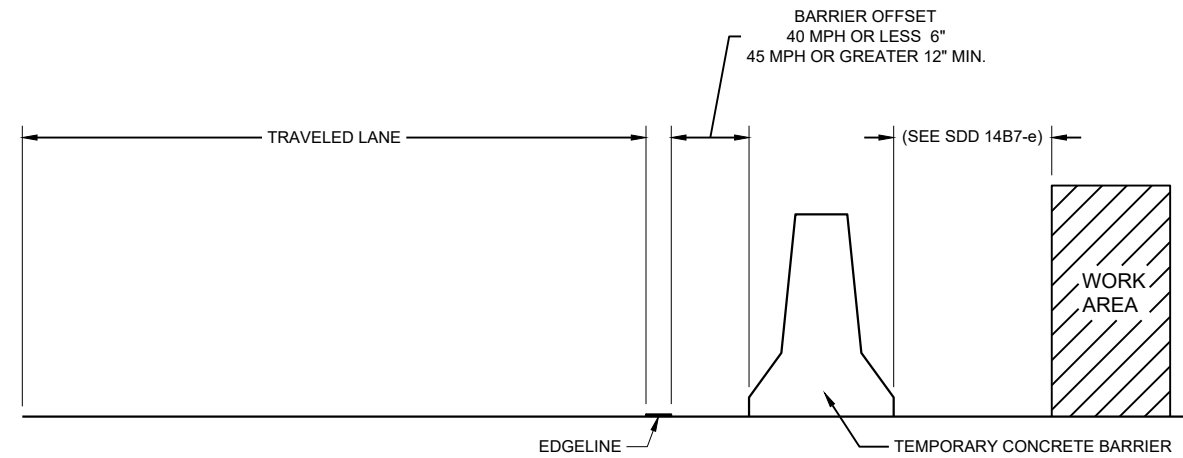
SDD 15C08-23a

**PERMANENT LONGITUDINAL PAVEMENT MARKINGS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Jeannie Silver  
DATE STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



**TEMPORARY BARRIER OFFSET FROM EDGELINE**

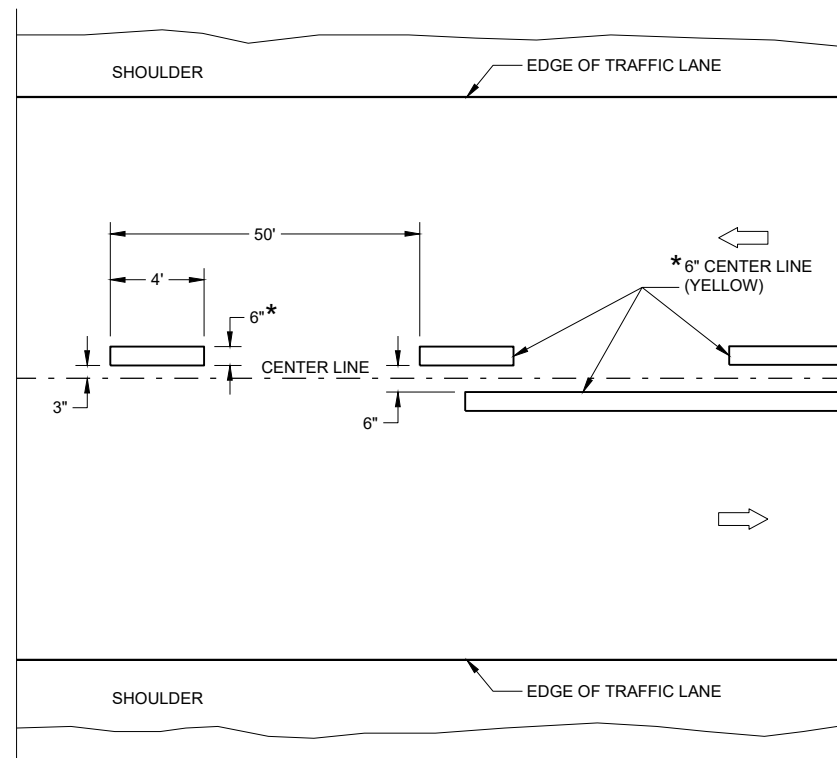
**GENERAL NOTES**

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

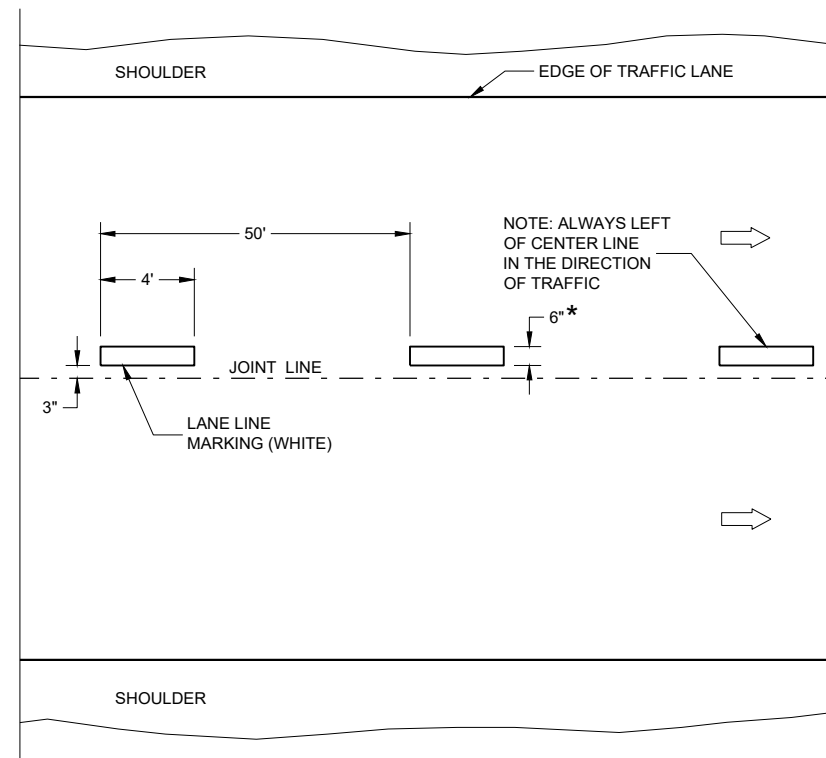
**LEGEND**

➡ DIRECTION OF TRAFFIC

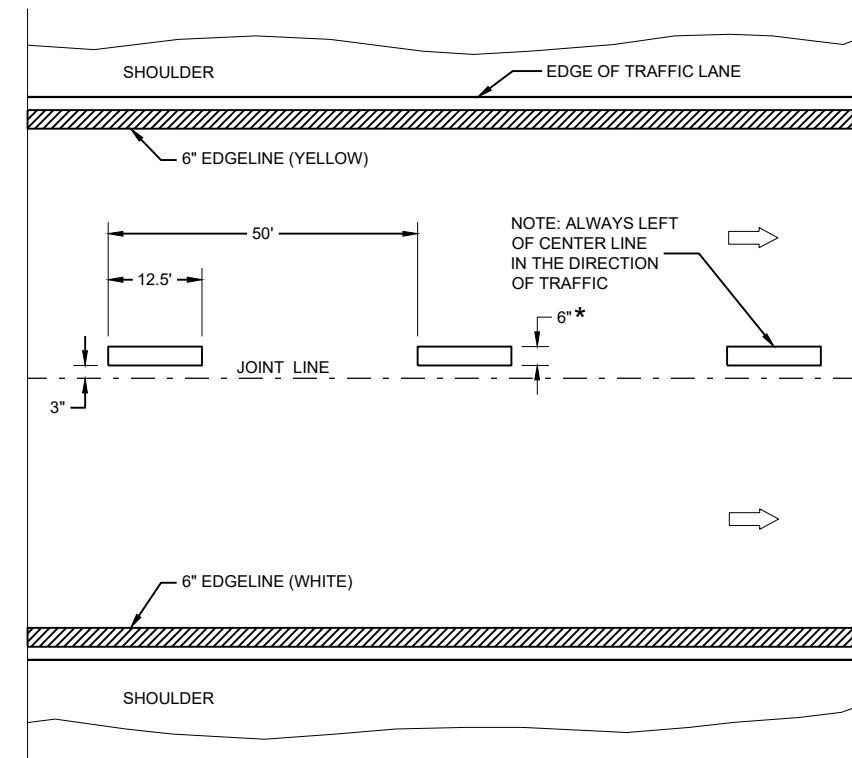
\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



**TWO WAY TRAFFIC**



**ONE WAY TRAFFIC**



**FREEWAYS AND EXPRESSWAYS**

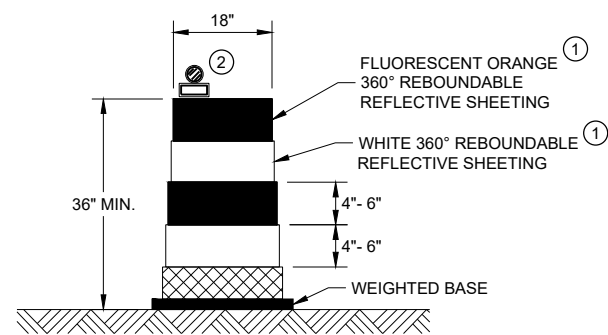
**TEMPORARY PAVEMENT MARKING**

**TEMPORARY LONGITUDINAL PAVEMENT MARKING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

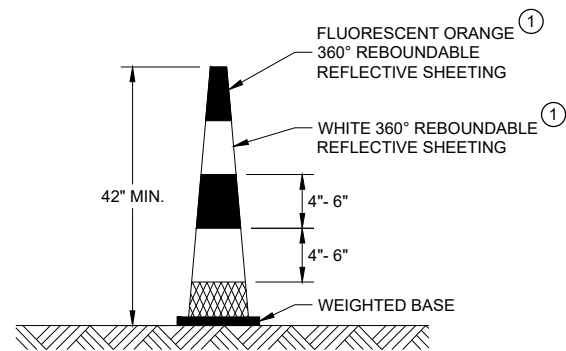
APPROVED  
May 2023 /S/ Jeannie Silver  
DATE STATEWIDE SIGNING AND MARKING ENGINEER

FHWA



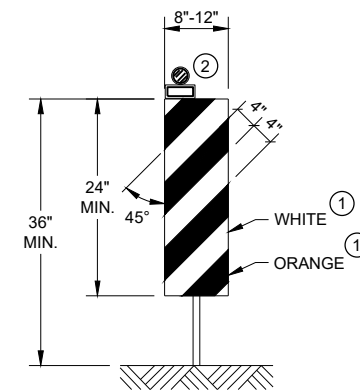
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



**42" CONE**

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

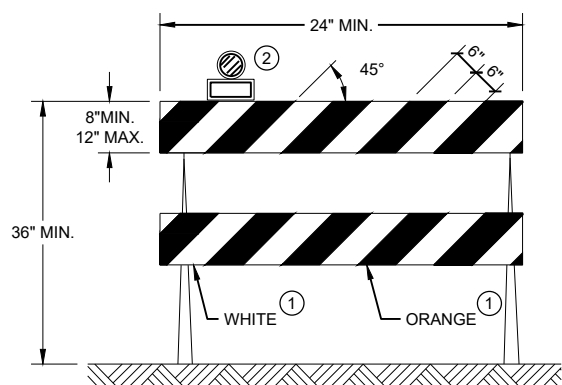


**VERTICAL PANEL**

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

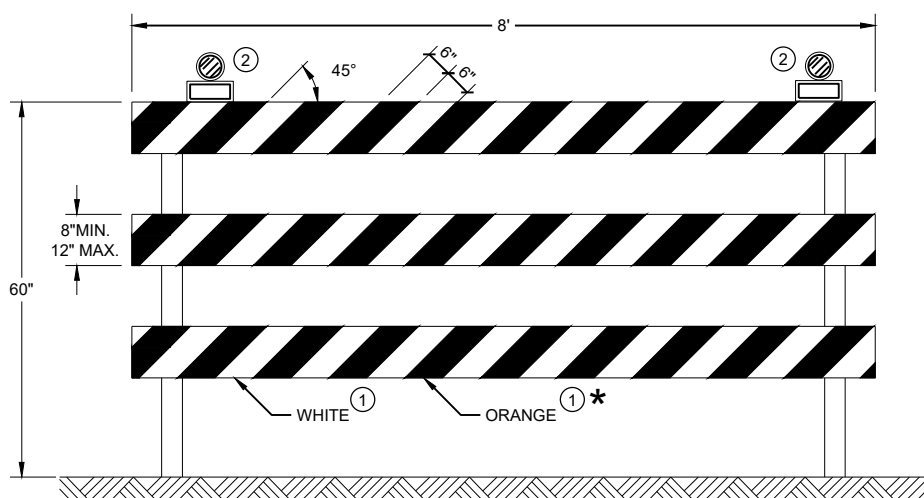
**GENERAL NOTES**

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



**TYPE II BARRICADE**

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








**TYPE III BARRICADE**

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

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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

**LEGEND**

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

**GENERAL NOTES**

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

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

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

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

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

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

**FLAGGING**

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

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

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

**TEMPORARY PORTABLE RUMBLE STRIPS**

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

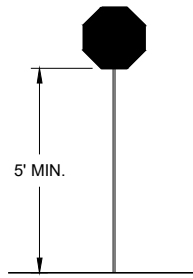
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER

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

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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



**STOP/SLOW PADDLE ON SUPPORT STAFF**

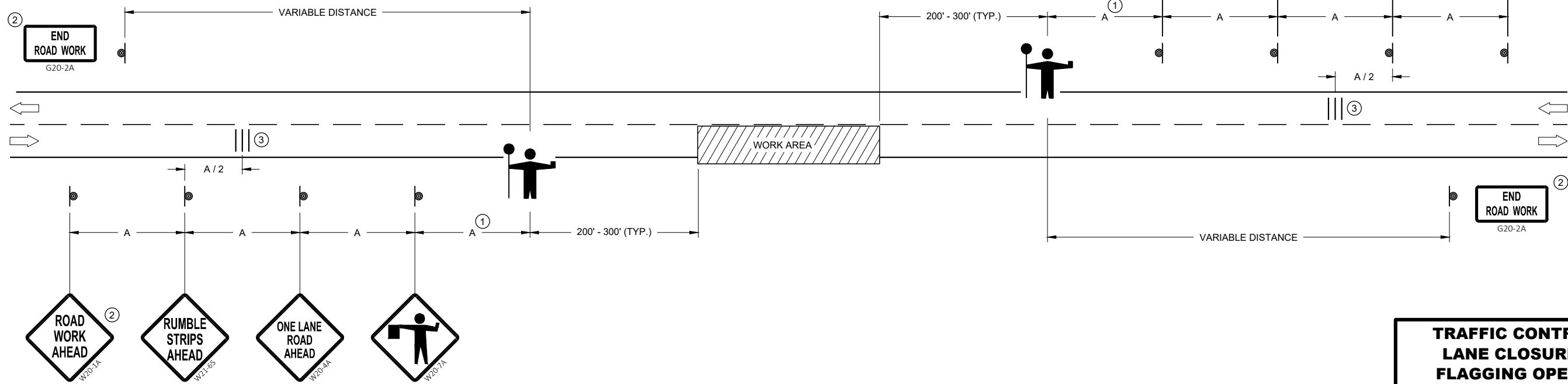
**SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE**

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



W03-4

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







**TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

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

FHWA

**LEGEND**

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

**GENERAL NOTES**

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

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

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

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

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

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

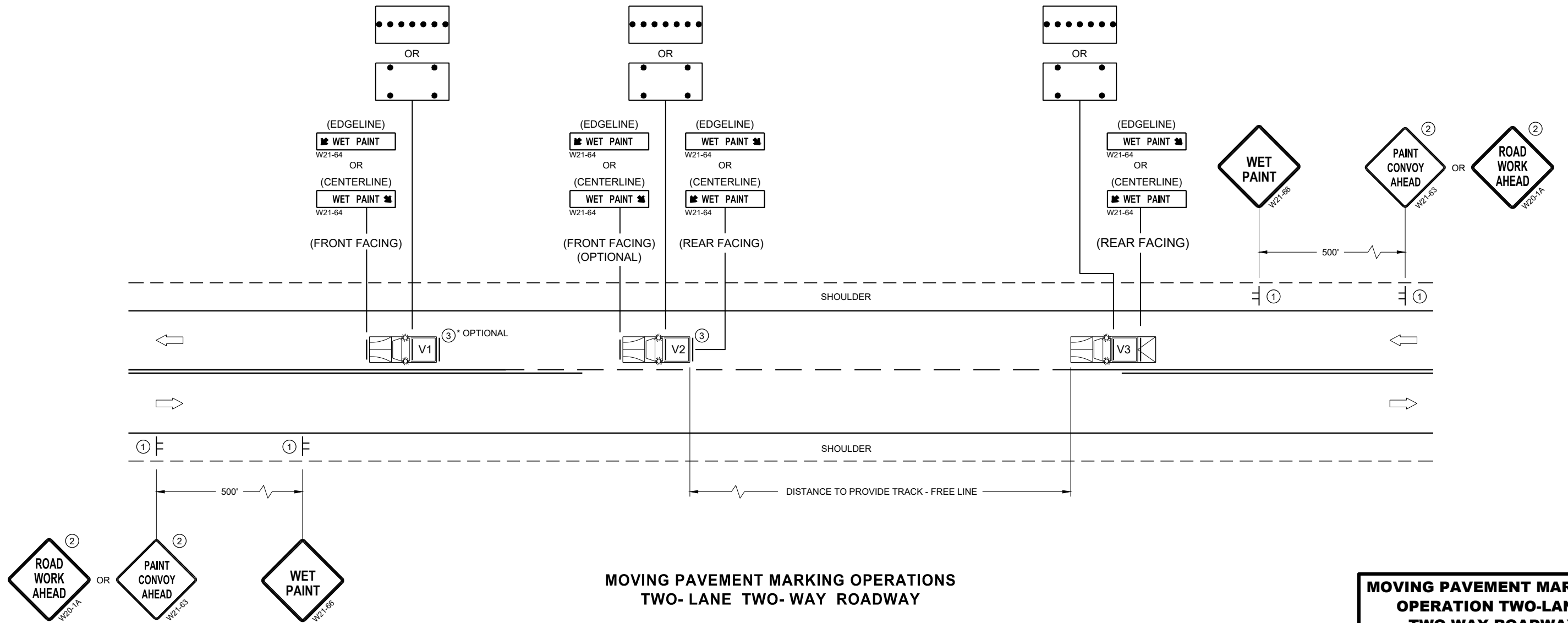
CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.

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**MOVING PAVEMENT MARKING OPERATIONS  
TWO-LANE TWO-WAY ROADWAY**

SDD 15C19-08a

SDD 15C19-08a

<b>MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY</b>	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

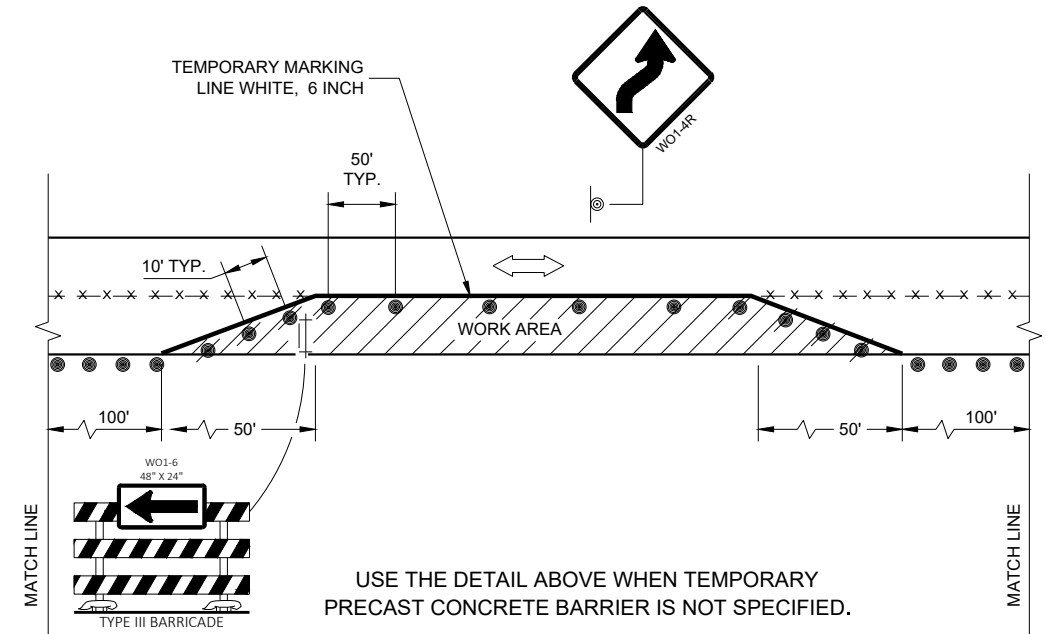
**LEGEND**

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST
- TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT

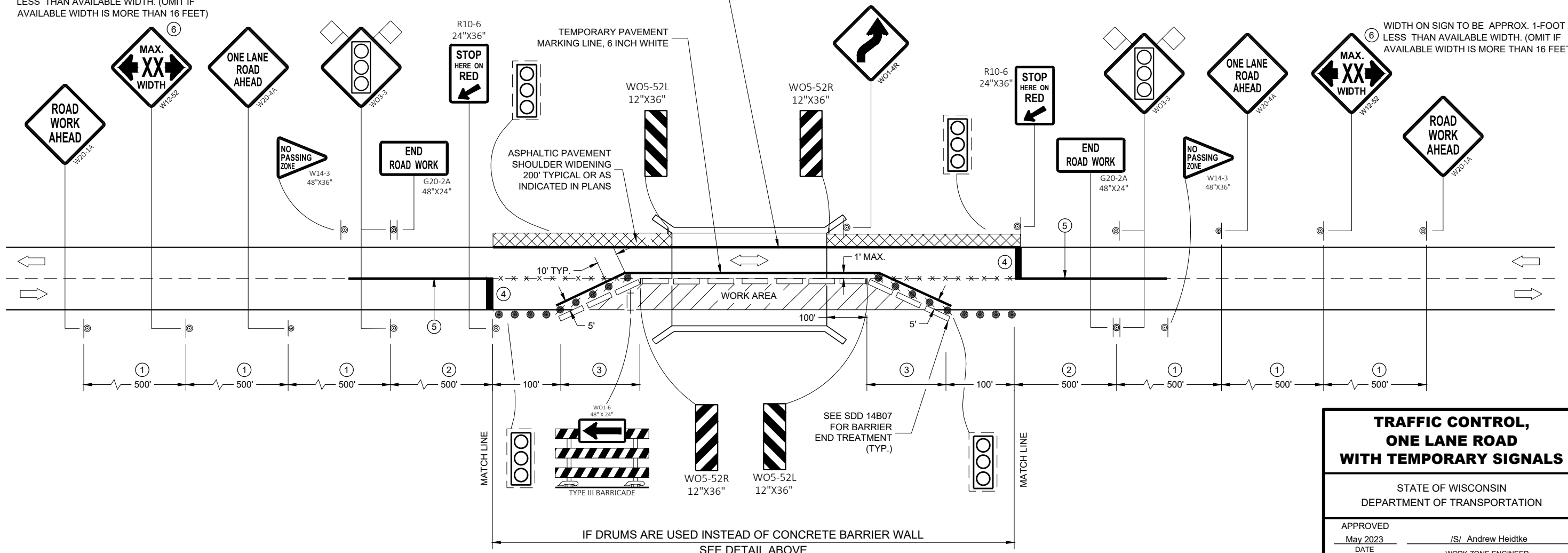
WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)

**GENERAL NOTES**

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..
- THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.
- REMOVE PAVEMENT MARKING AND PLACE TEMPORARY PAVEMENT MARKING LINES IF THE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.
- INSTALL OVERHEAD TEMPORARY SIGNAL HEADS ABOVE THE MIDDLE OF THE TRAVEL LANE THEY ARE CONTROLLING.
- ① 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
  - ② USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
  - ③ DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
  - ④ TEMPORARY PAVEMENT MARKING LINE, 18 INCH WHITE STOP LINE.
  - ⑤ 700 FOOT TEMPORARY PAVEMENT MARKING LINE, 6 INCH DOUBLE YELLOW . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
  - ⑥ SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.



TEMPORARY PAVEMENT MARKING LINE, 6 INCH WHITE (STOPLINE TO STOPLINE). REMOVE EXISTING EDGELINE AND OFFSET THE TEMPORARY EDGELINE IF THE DISTANCE FROM THE EDGELINE TO CONCRETE BARRIER WALL IS LESS THAN 9 FEET.







**TRAFFIC CONTROL,  
ONE LANE ROAD  
WITH TEMPORARY SIGNALS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED \_\_\_\_\_  
DATE May 2023 /S/ Andrew Heidtke  
WORK ZONE ENGINEER

FHWA

**LEGEND**

- V1 WORK VEHICLE
- V2 SHADOW VEHICLE
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  FLASHING ARROW PANEL (CAUTION)
-  WORK AREA
-  DIRECTION OF TRAFFIC

POSTED SPEED PRIOR TO WORK STARTING (MPH)	DECISION SIGHT DISTANCE (D)
0 - 25	550'
30	550'
35	700'
40	700'
45	900'
50	900'
55	1200'

**GENERAL NOTES**

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

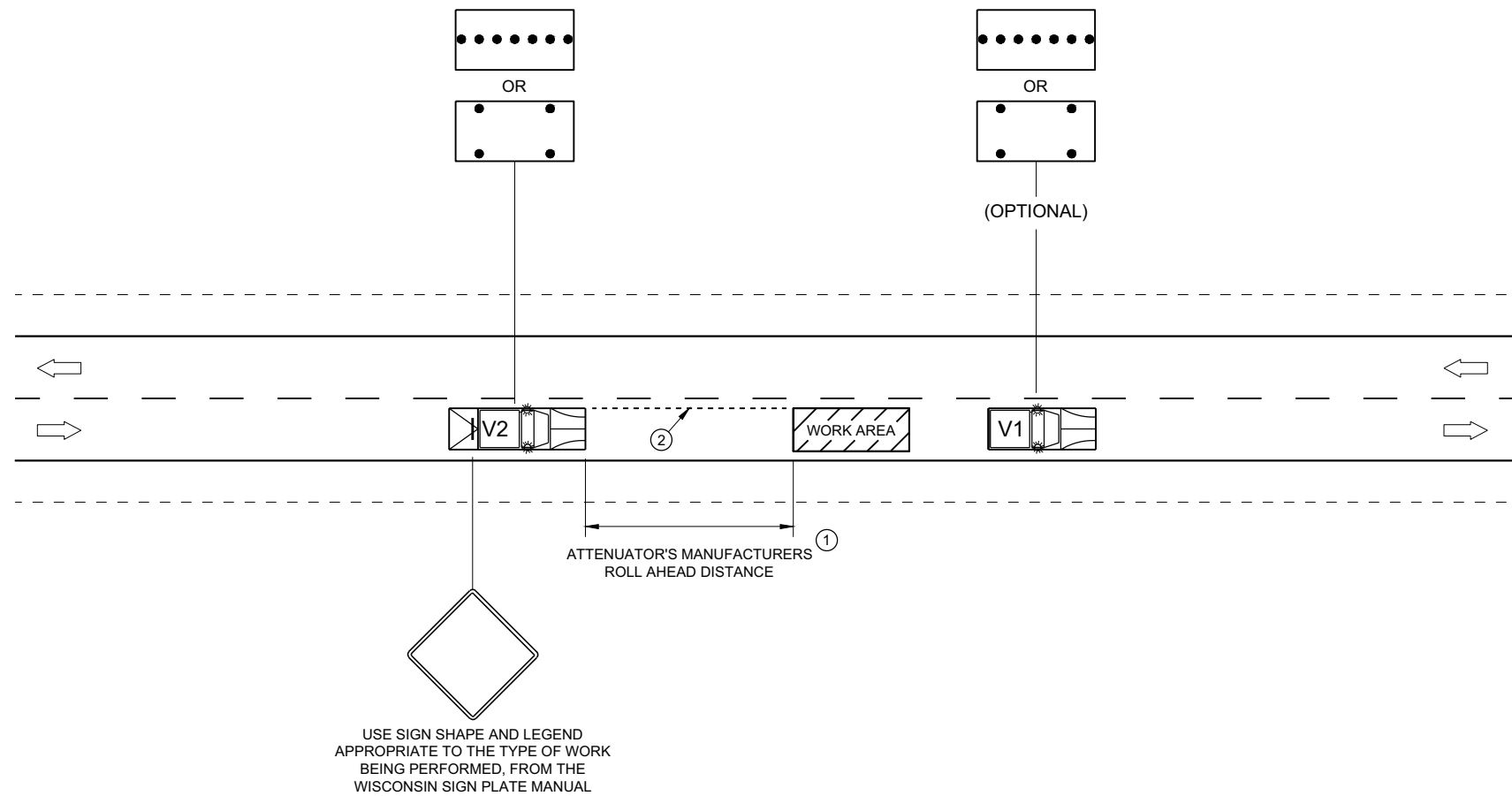
MOBILE IS WORK THAT MOVES CONTINUOUSLY OR MOVES AT LEAST THE DECISION SIGHT DISTANCE EVERY 15 MINUTES.

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

ALL ARROW PANELS SHALL BE REAR FACING, TYPE "B" OR "C", AND DISPLAYING THE FLASHING CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

- ① DISTANCE BETWEEN VEHICLES MAY INCREASE FROM THE ATTENUATOR'S ROLL AHEAD BASED ON TERRAIN, SIGHT DISTANCE, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL OR HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.
- ② ALIGN LEFT SIDE OF SHADOW VEHICLE WITH EDGE OF WORK AREA.



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SDD 15D51 - 01

SDD 15D51 - 01

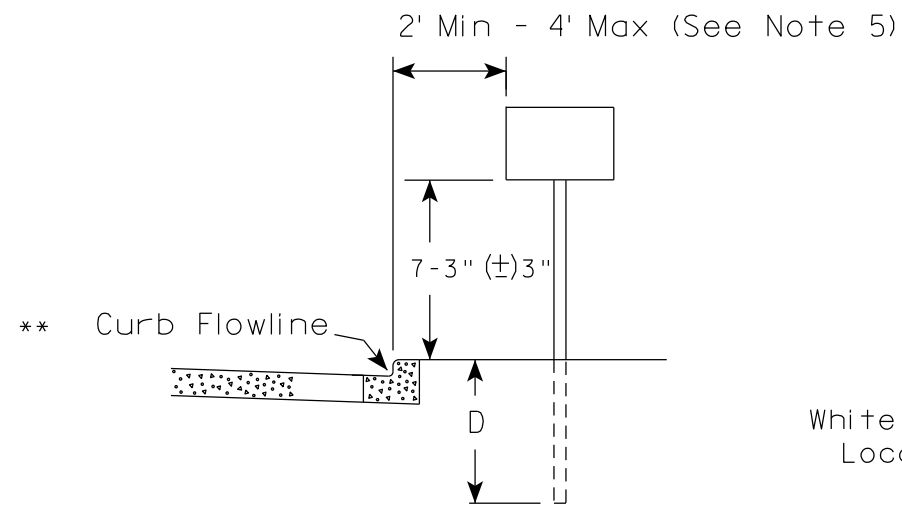
**TRAFFIC CONTROL,  
MOBILE OPERATIONS ON  
AN UNDIVIDED ROADWAY**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2021 DATE /S/ Andrew Heidtke  
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER  
FHWA

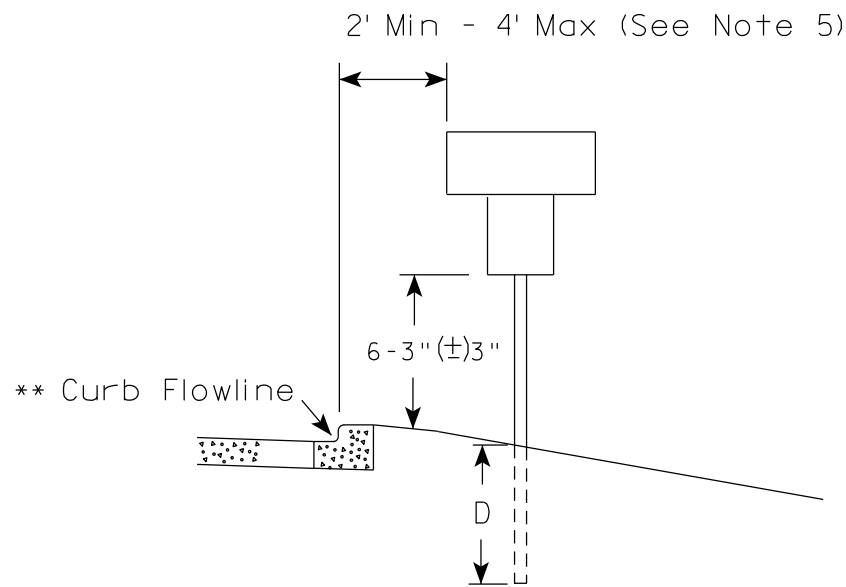
URBAN AREA

RURAL AREA (See Note 2)



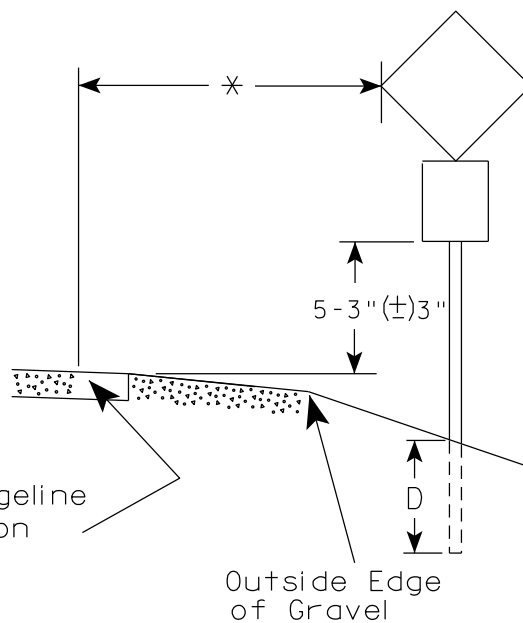
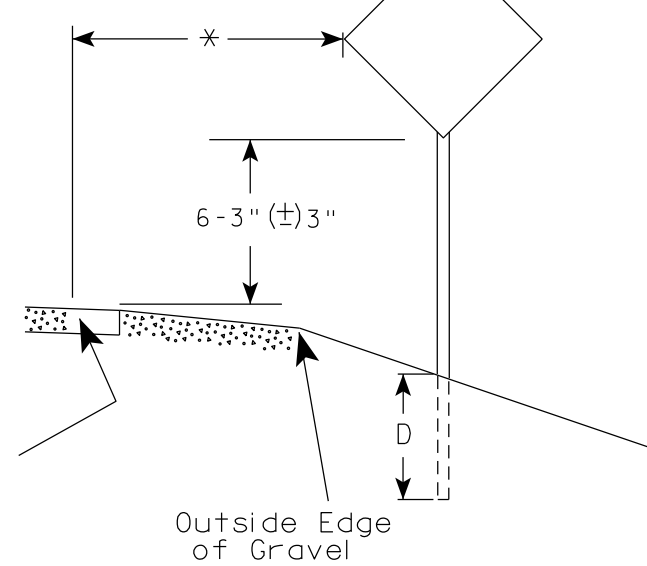
White Edgeline Location

Outside Edge of Gravel



White Edgeline Location

Outside Edge of Gravel



POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

\* \* 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

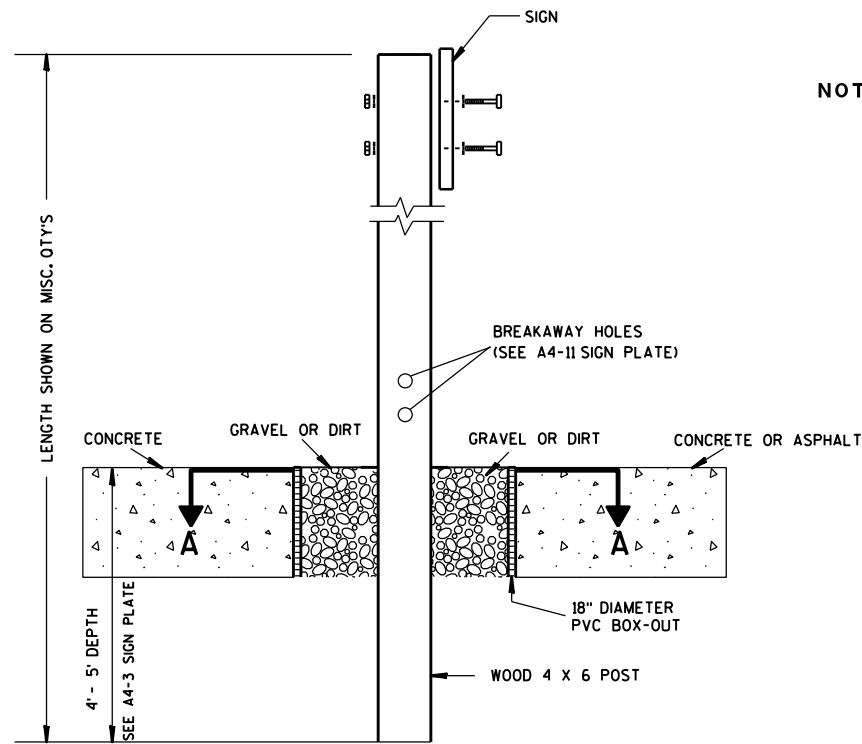
APPROVED

*Matthew R. Raub*  
for State Traffic Engineer

DATE 12/6/23

PLATE NO. A4-3.23

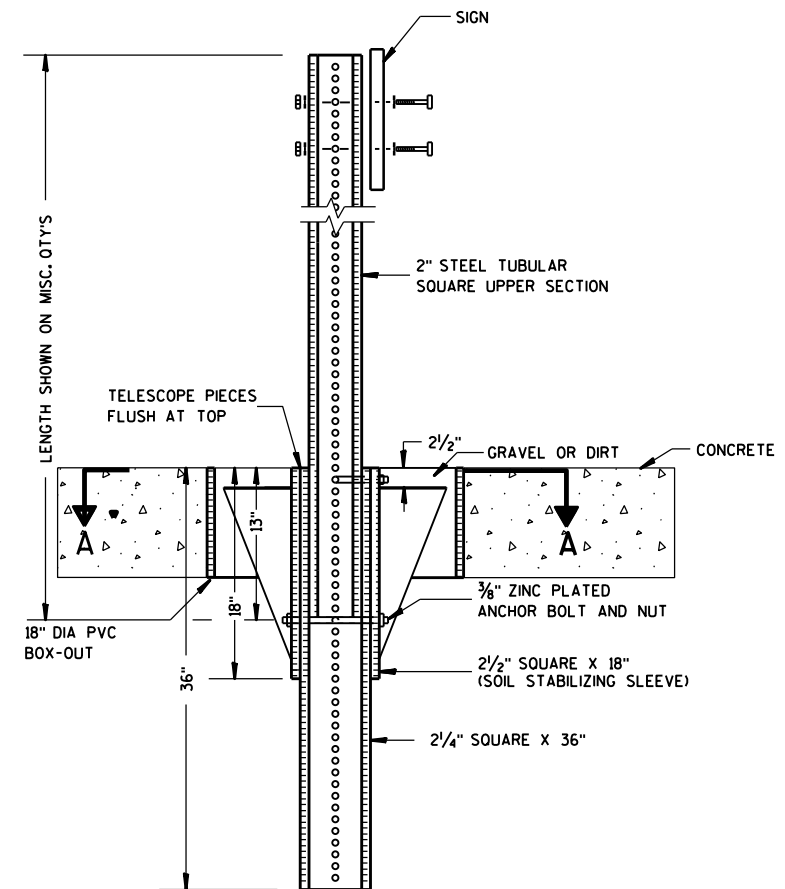




**ELEVATION VIEW**

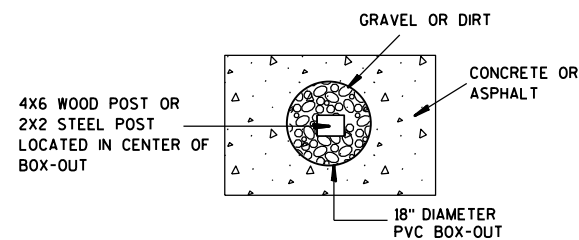
**DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT**

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



**ELEVATION VIEW**

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



**PLAN VIEW**

**FOR NEW CONCRETE/ ASPHALT INSTALLATIONS**

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

GENERAL NOTES

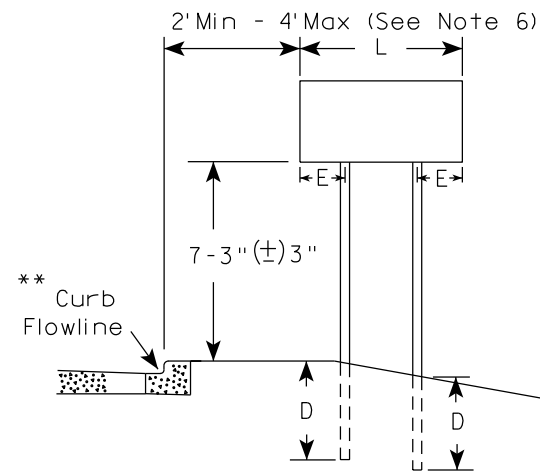
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
2. See tables below for required number of posts.
3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
4. The (±) tolerance for mounting height is 3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

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

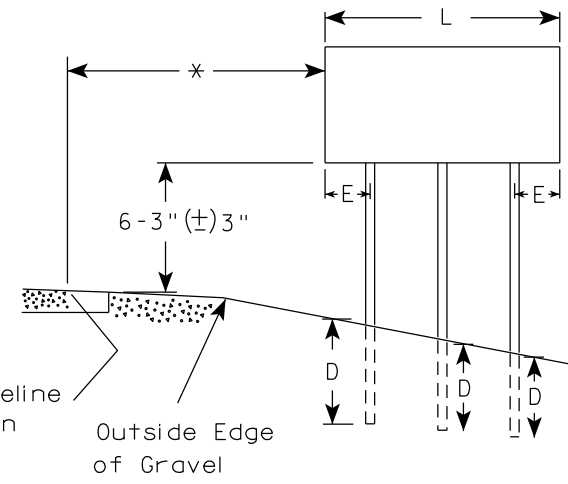
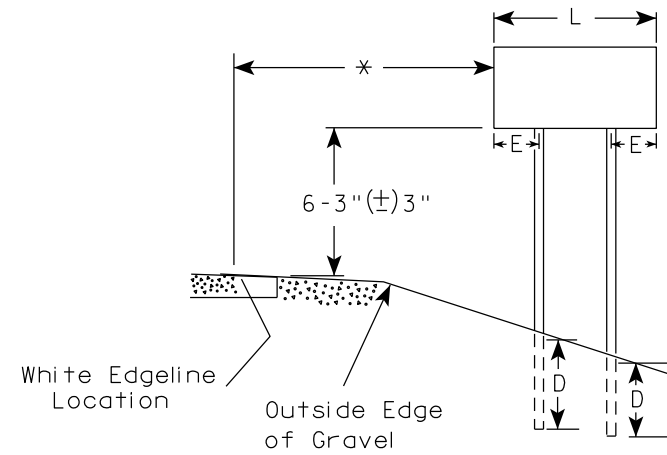
\*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of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

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

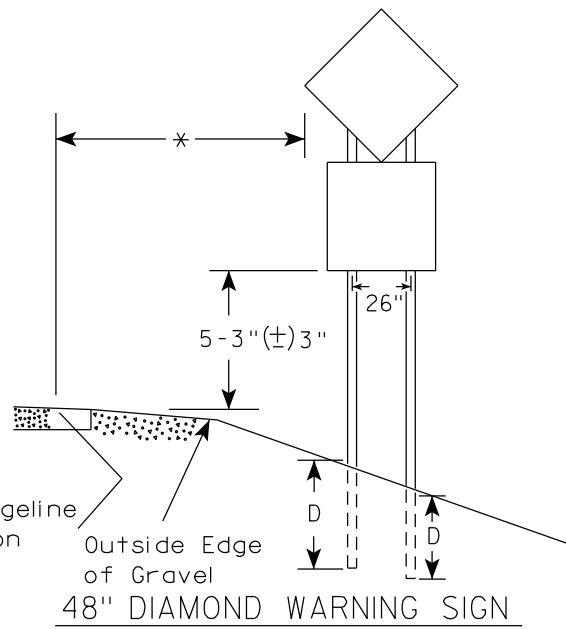
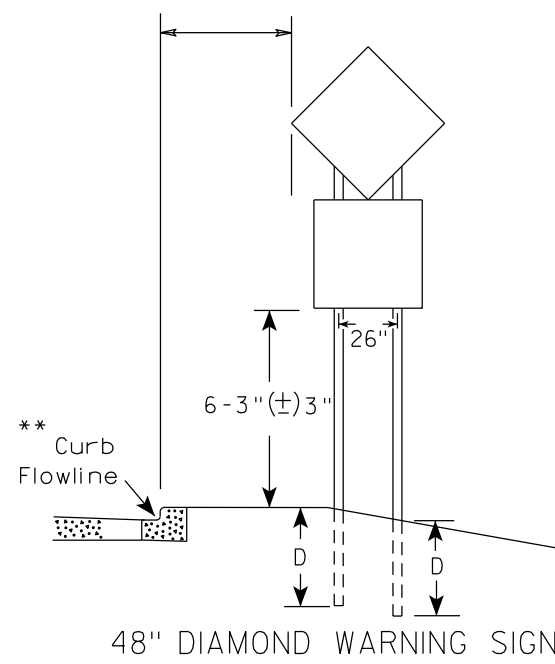
URBAN AREA



RURAL AREA (See Note 3)



URBAN AREA



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

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

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

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

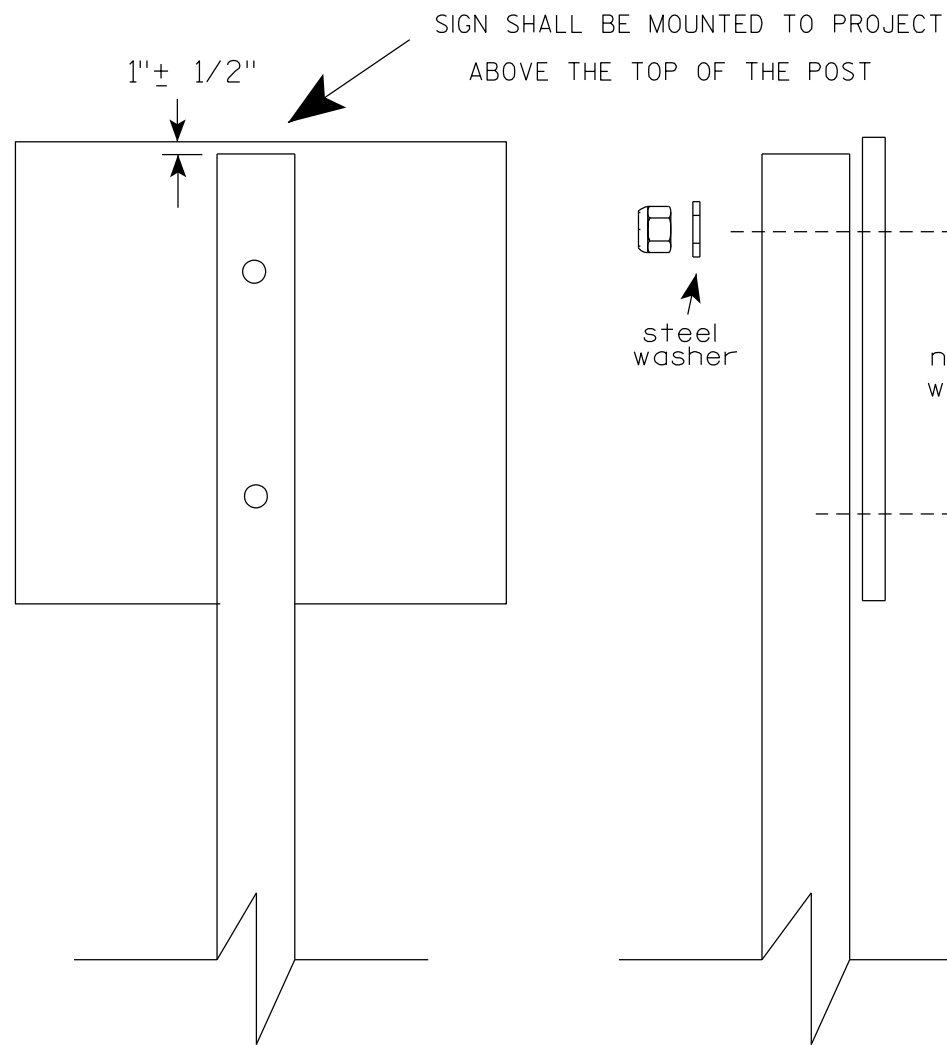
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



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

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

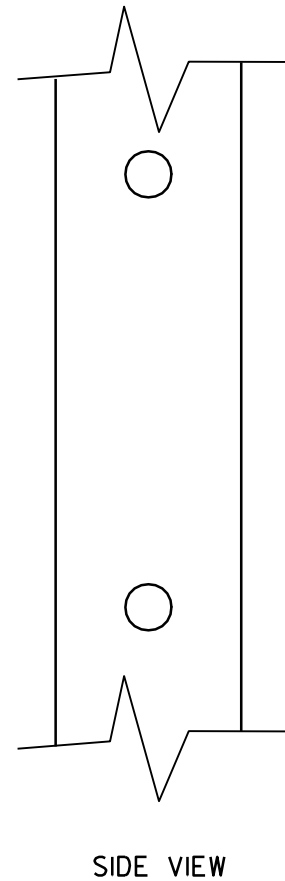
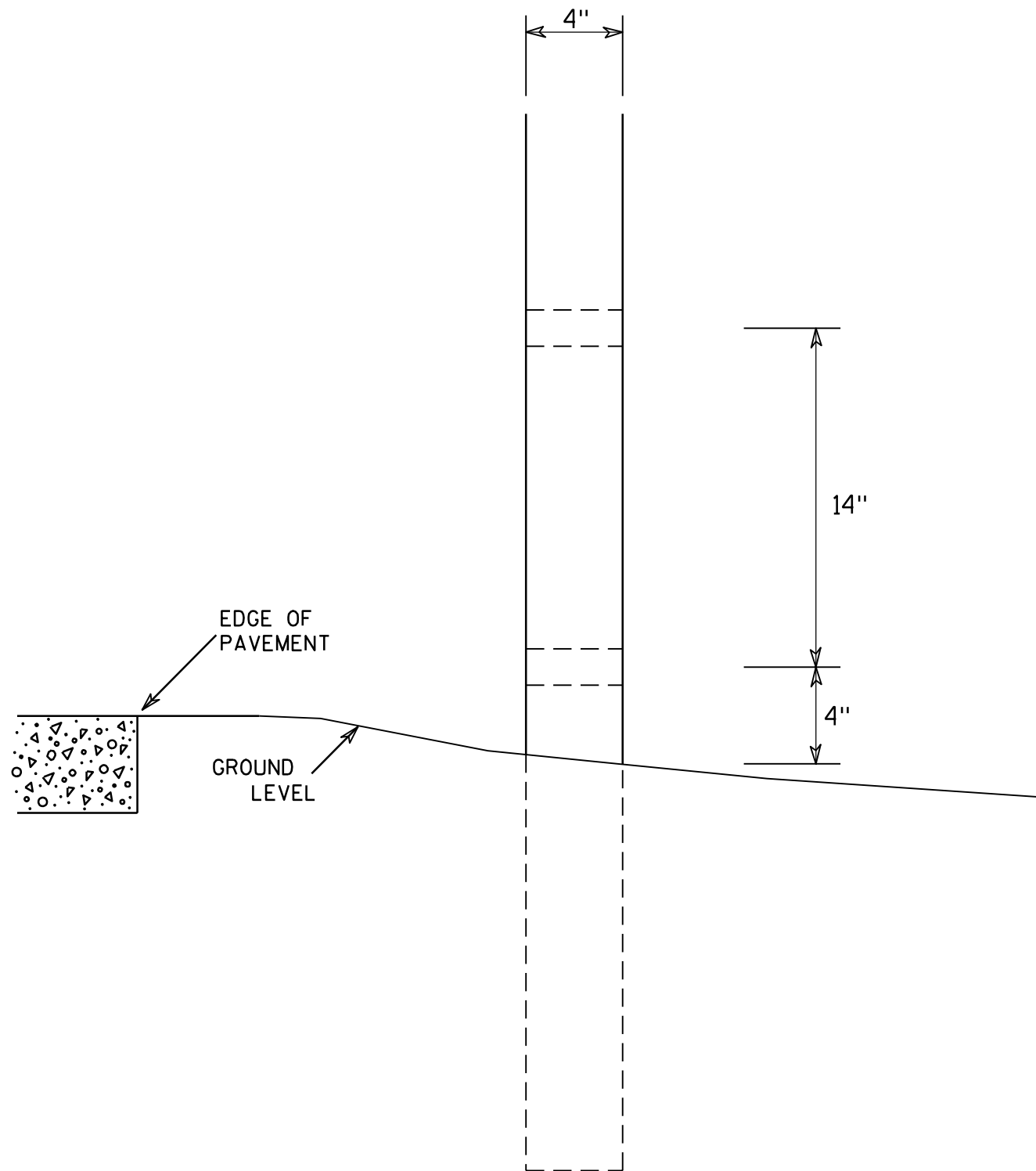
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

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

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





GENERAL NOTES

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

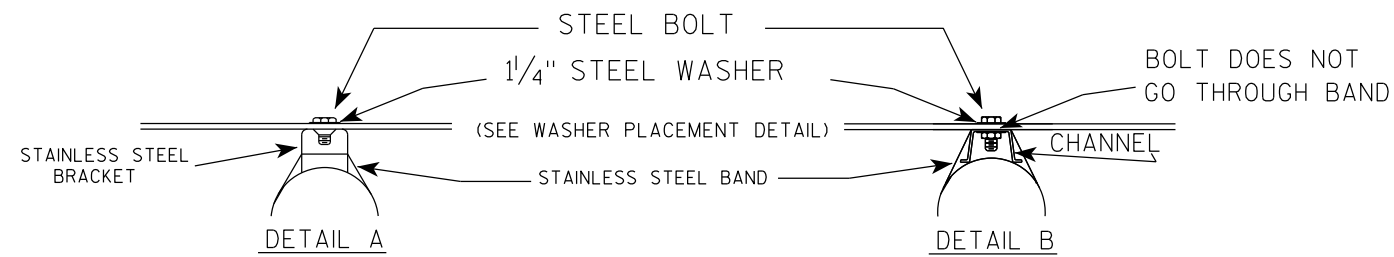
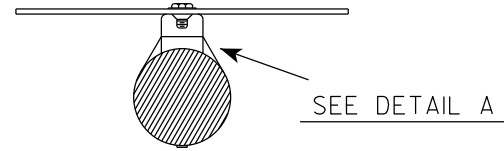
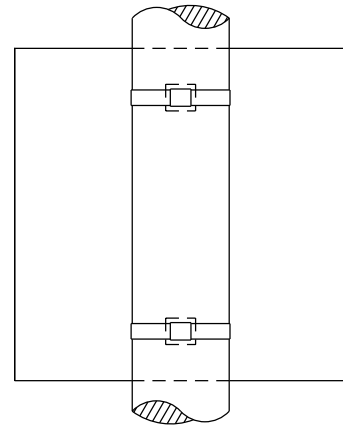
7

7

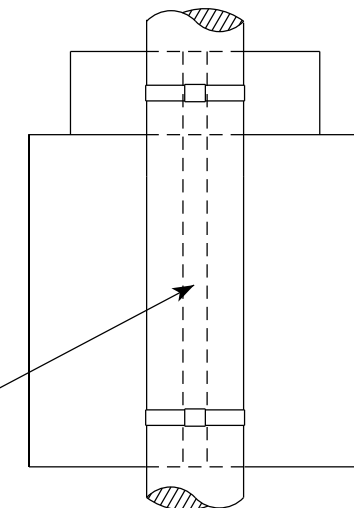
<b>4 X 6 WOOD POST MODIFICATIONS</b>	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE <u>3/27/97</u>	PLATE NO. <u>A4-11.2</u>

# BANDING

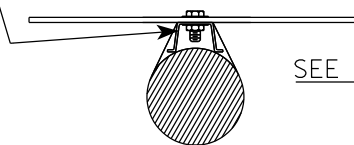
SINGLE SIGN



"J" ASSEMBLY

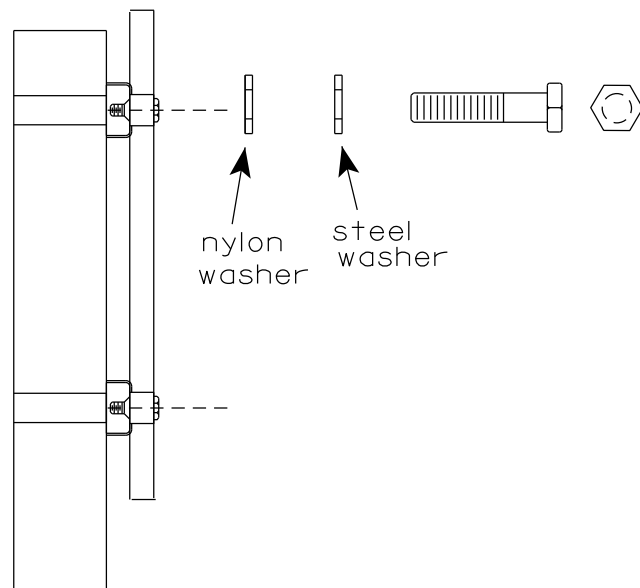


CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET



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

WASHER PLACEMENT



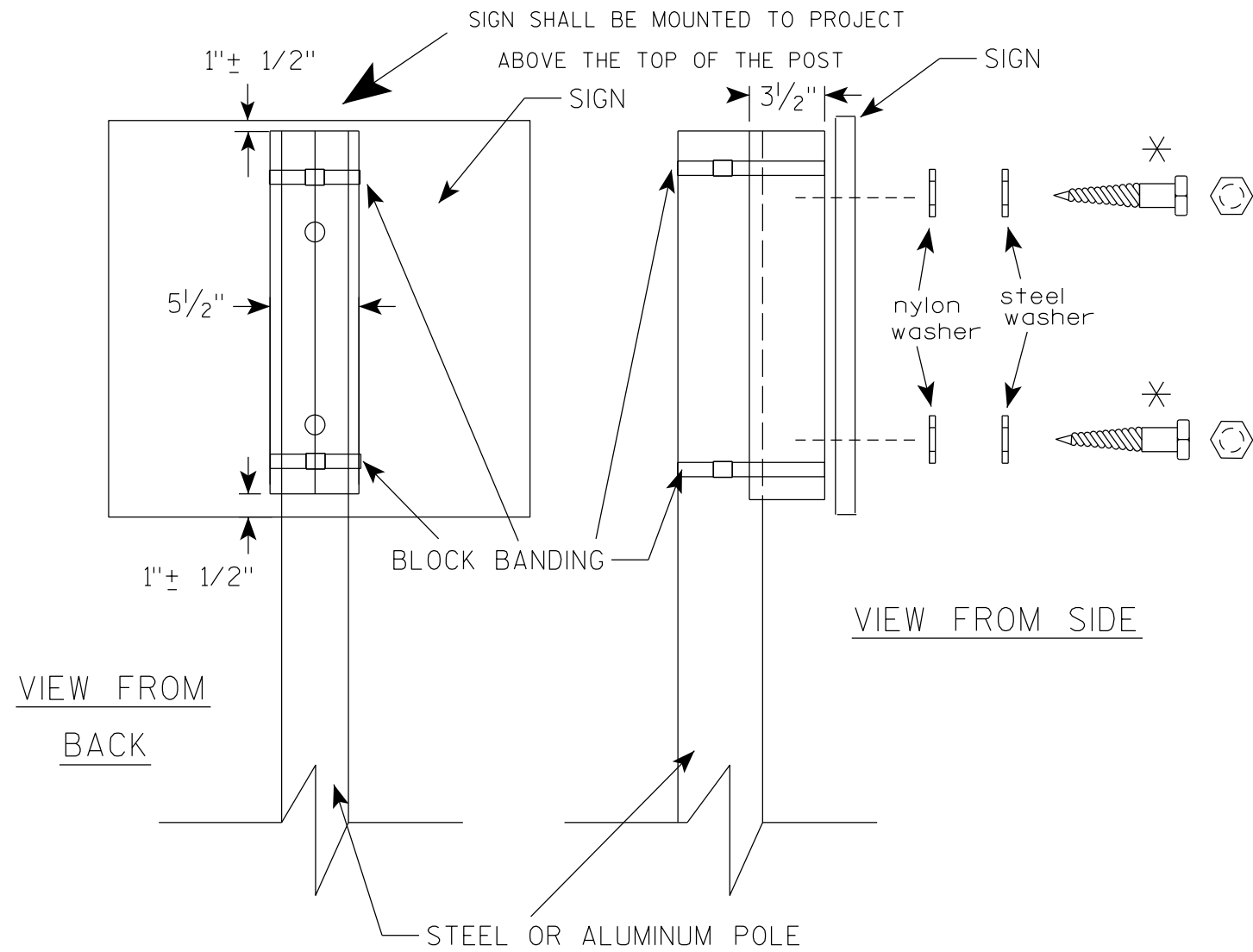
WASHERS (ALL POSTS) -  
 1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
 1-1/4" O.D. X 3/8" I.D. X .080 NYLON  
 FOR ALL TYPE H SIGNS

STANDARD SIGN  
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-9.4

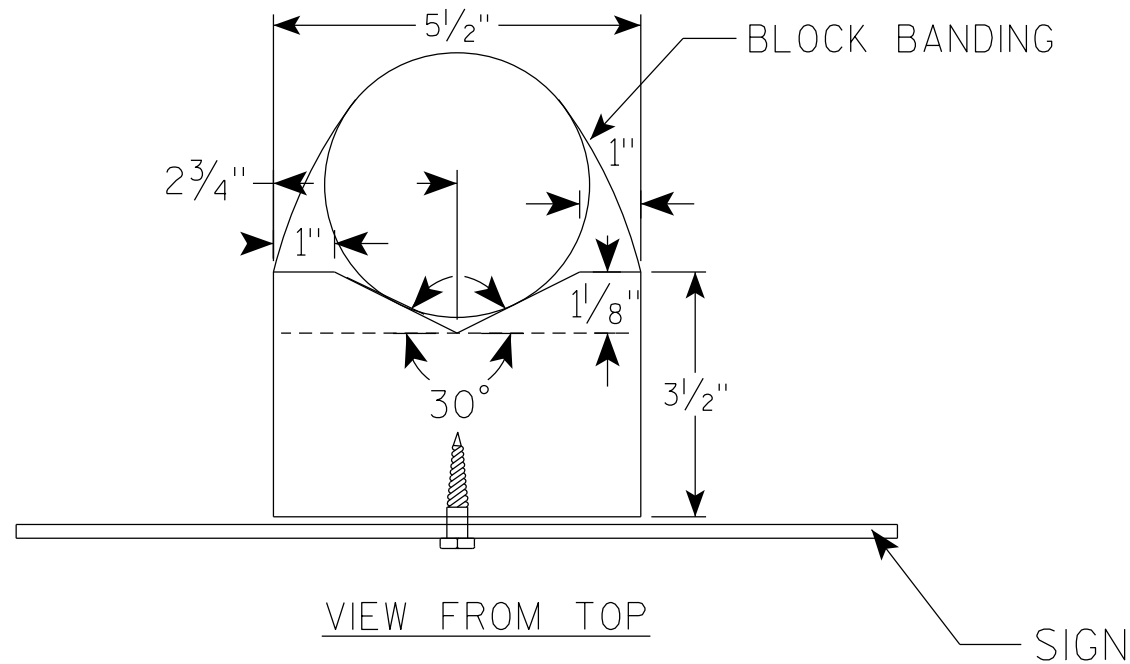


VIEW FROM  
BACK

VIEW FROM SIDE

7

7



VIEW FROM TOP

SIGN

### GENERAL NOTES

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

✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"

BLOCK BANDING DETAIL  
( V-BLOCK OPTION )

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*  
for State Traffic Engineer

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

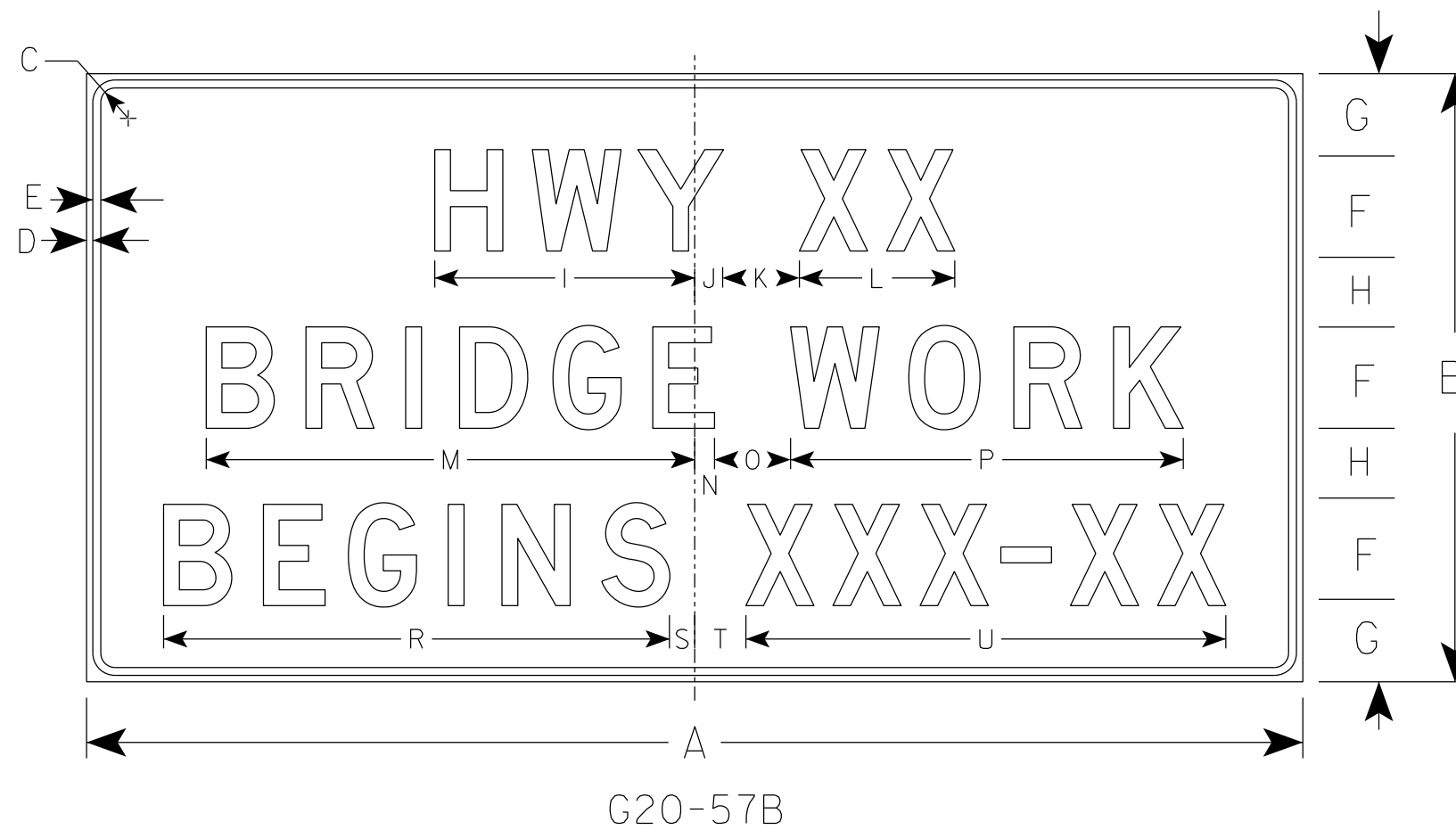
PROJECT NO:

SHEET NO:

E

NOTES

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - D
4. Substitute appropriate numeral and adjust spacing to achieve proper balance.



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																											
2																											
3	72	36	1 1/8	1/2	5/8	6	5	4	15 5/8	1 5/8	5	9 1/4	29 1/8	7/8	5	23 1/4		29 7/8	1 3/4	3 1/4	28 1/2						18.0
4	96	48	2 1/4	3/4	1	8	6 1/2	5 1/2	20 5/8	2 1/4	6	12 1/4	38 1/2	1 1/2	6	31		39 1/4	2	4	37 7/8						32.0
5																											

STANDARD SIGN  
G20-57B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Raub*  
for State Traffic Engineer

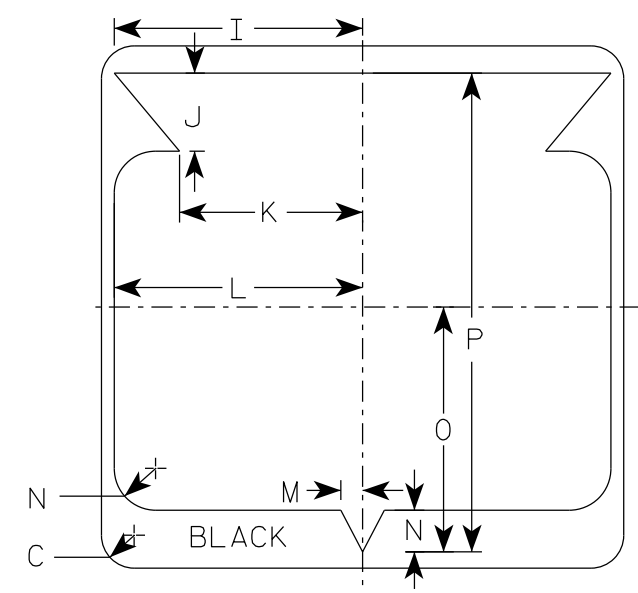
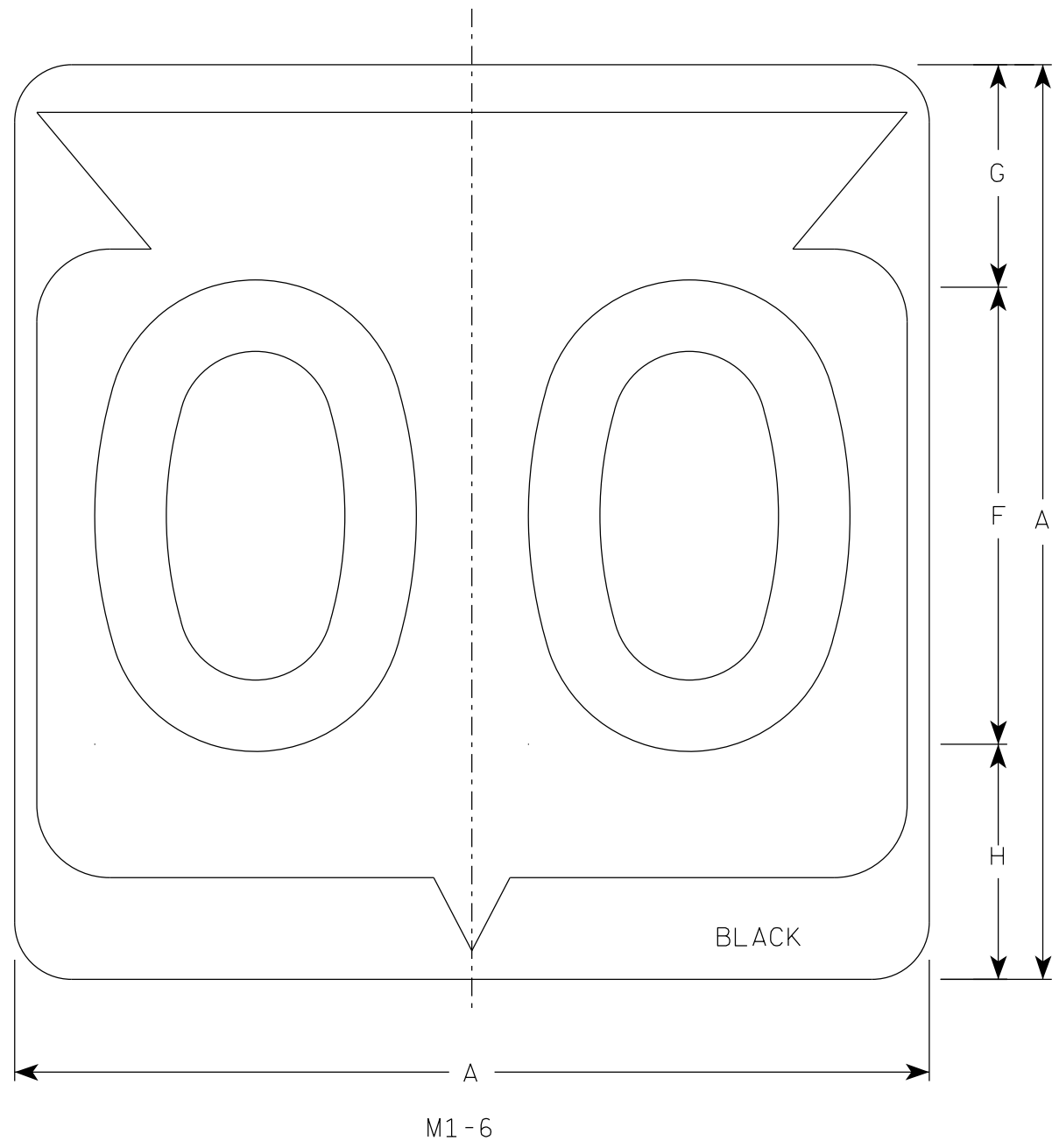
DATE 1/22/19 PLATE NO. G20-57B.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



NOTES

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



7

7

M1-6

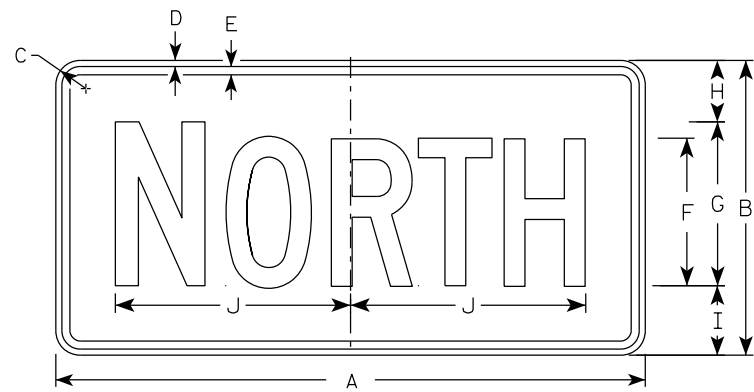
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
2M	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0

STATE ROUTE MARKER  
M1-6 FOR ASSEMBLIES

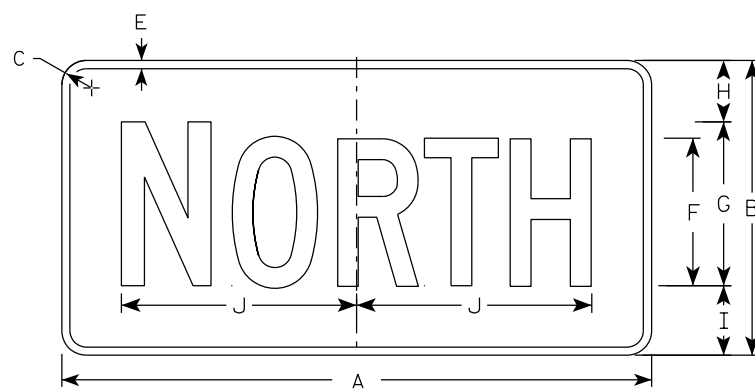
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Raub*  
for State Traffic Engineer

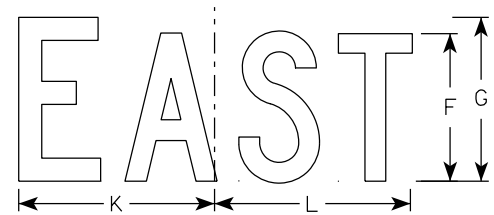
DATE 11/8/2022 PLATE NO. M1-6.11



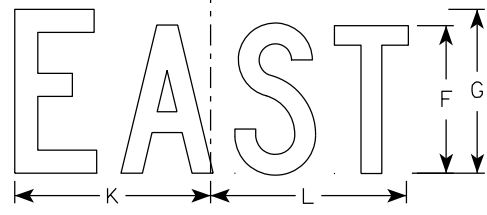
M3-1  
MM3-1  
MP3-1



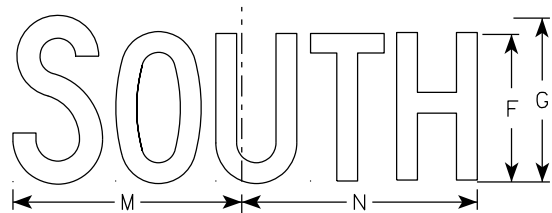
MB3-1  
MK3-1  
MN3-1



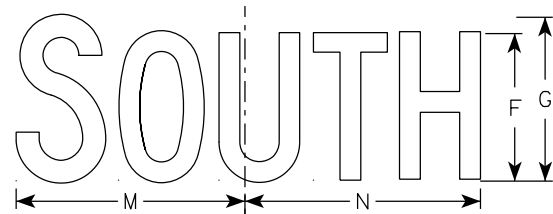
M3-2  
MM3-2  
MP3-2



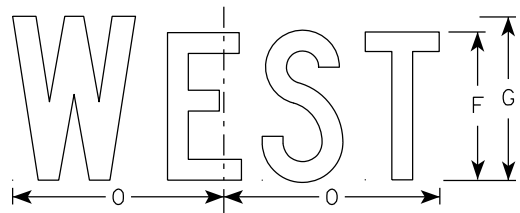
MB3-2  
MK3-2  
MN3-2



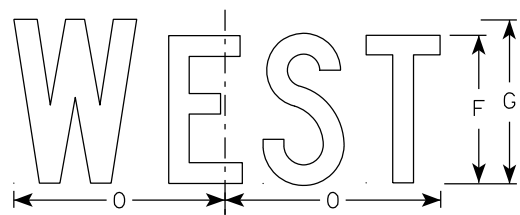
M3-3  
MM3-3  
MP3-3



MB3-3  
MK3-3  
MN3-3



M3-4  
MM3-4  
MP3-4



MB3-4  
MK3-4  
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:  
Background - See note 5  
Message - See note 5
- Message Series - C
- 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.
- M3-1 thru M3-4 Background - White  
Message - Black  
MB3-1 thru MB3-4 Background - Blue  
Message - White  
MK3-1 thru MK3-4 Background - Green  
Message - White  
MM3-1 thru MM3-4 Background - White  
Message - Green  
MN3-1 thru MN3-4 Background - Brown  
Message - White  
MP3-1 thru MP3-4 Background - White  
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

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

STANDARD SIGNS  
M3-1 THRU M3-4  
SERIES

WISCONSIN DEPT OF TRANSPORTATION

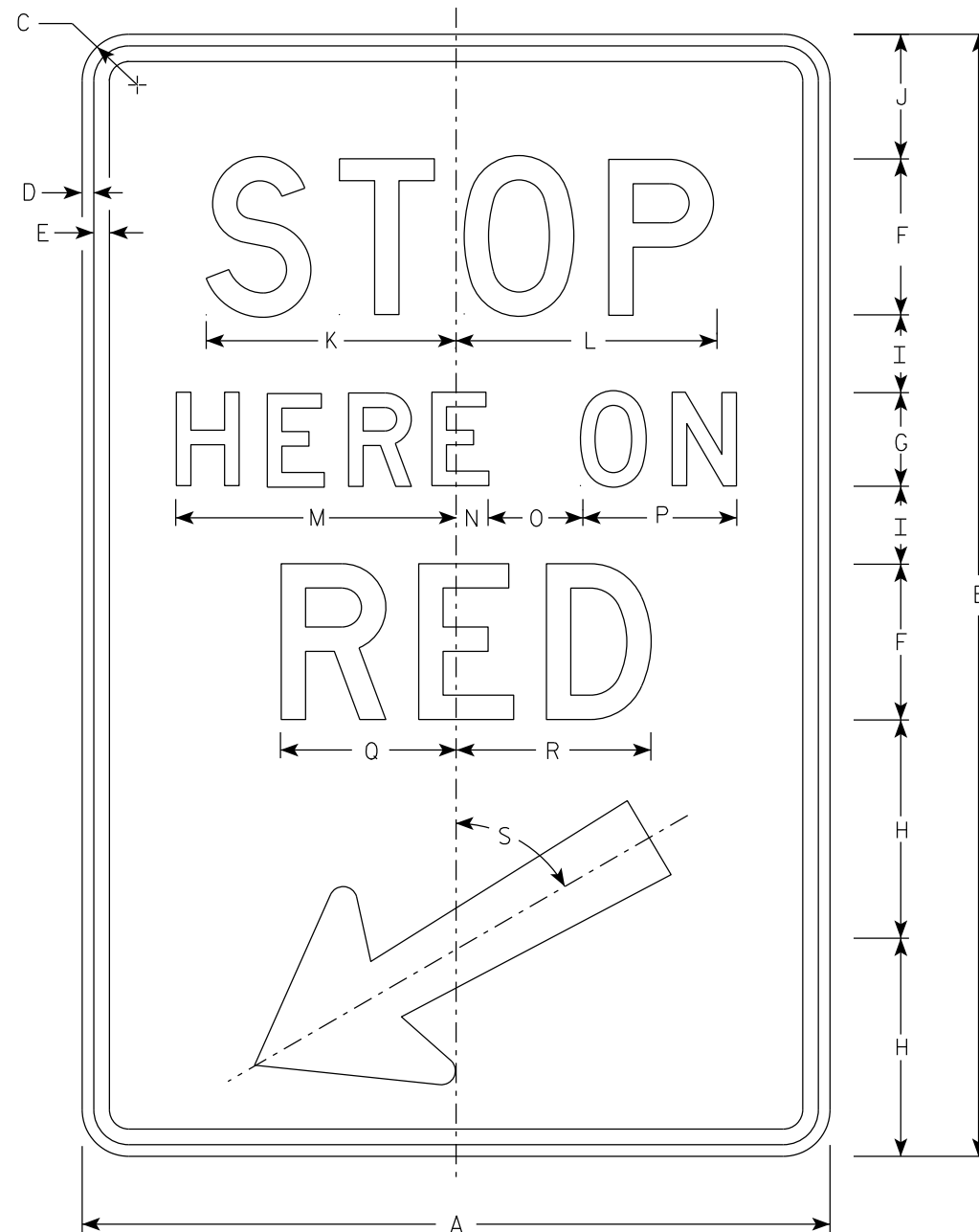
APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 2/8/2023 PLATE NO. M3-1.15

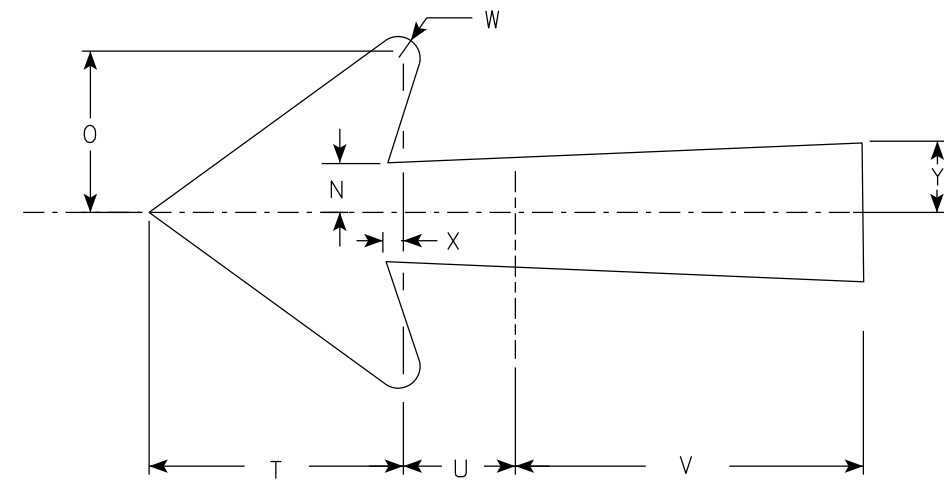
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

NOTES

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



R10-6



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	Areq. sq. ft.
1																											
2S	24	36	1 1/2	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8		6.0
2M	24	36	1 1/2	3/8	1/2	5	3	7	2 1/2	4	8	8 3/8	9	1	3	5	5 5/8	6 1/4	60°	5 1/4	2 1/4	7 1/8	1/2	3/8	1 3/8		6.0
3																											
4																											
5																											

STANDARD SIGN  
R10-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 1/25/24 PLATE NO. R10-6.7

PROJECT NO:

HWY:

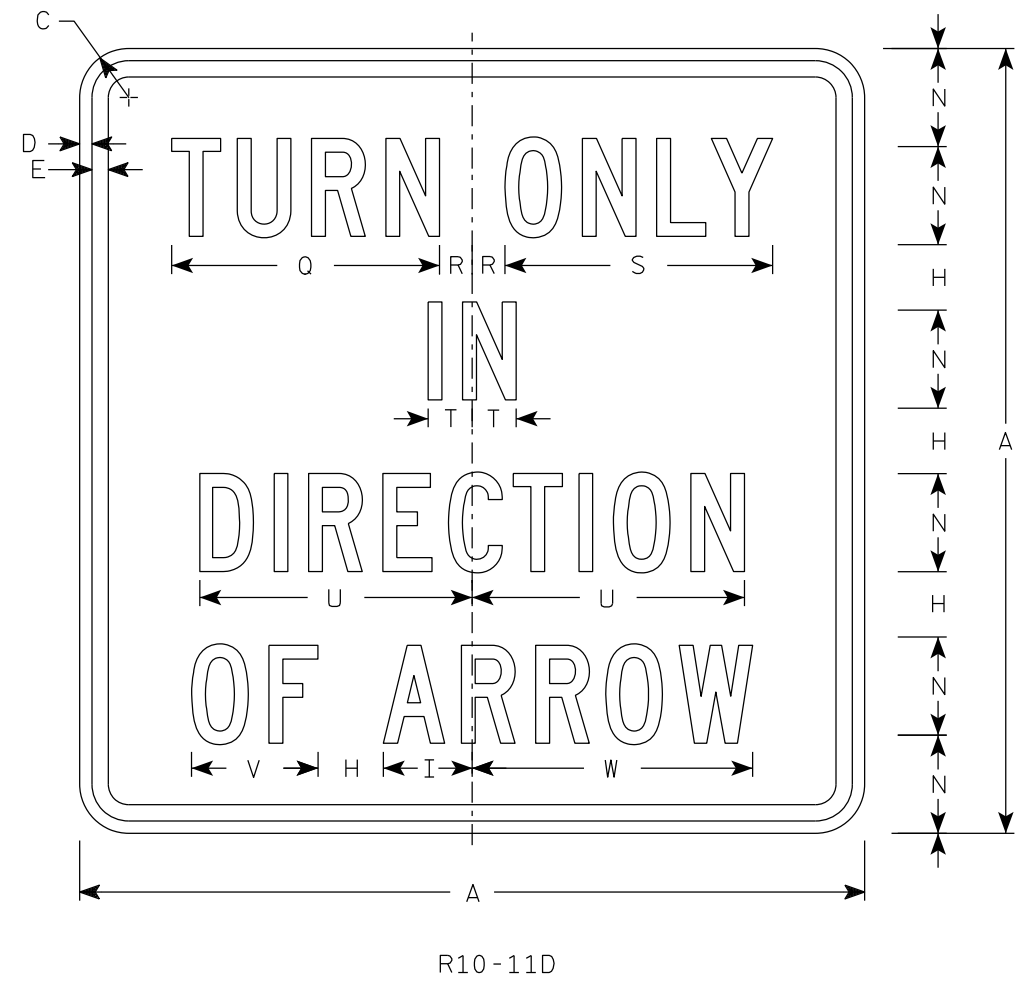
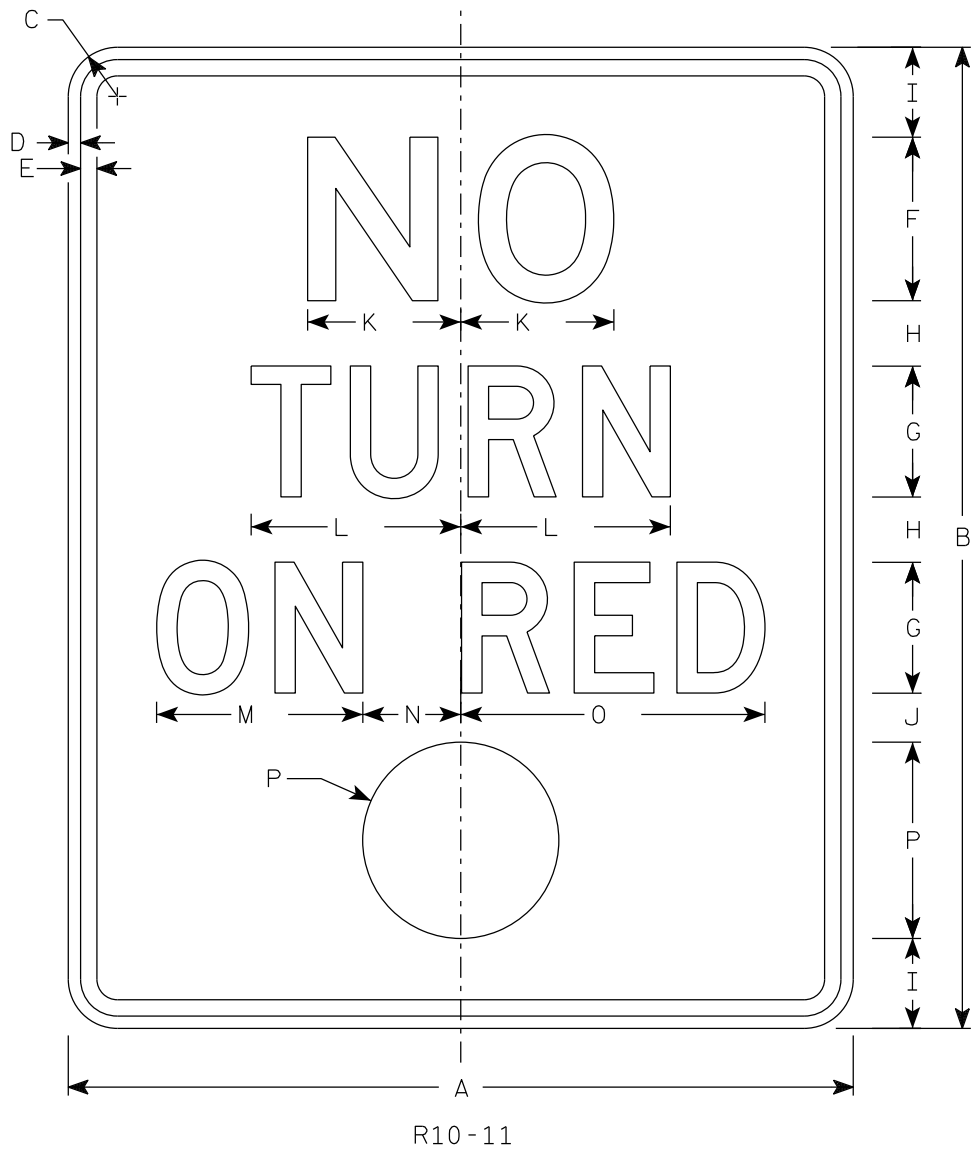
COUNTY:

SHEET NO:

**E**

NOTES

1. Signs are Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - R10-11 - D except line 1 is Series E  
R10-11D - Series C
4. Signs used with Driveway Assistance Device Only



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	30	1 1/2	3/8	1/2	5	4	2	2 3/4	1 1/2	4 5/8	6 3/8	6 1/4	3	9 1/4	6	8 1/4	1	8 1/4	1 3/8	8 3/8	3 7/8	8 5/8			5.0	
2M	24	30	1 1/2	3/8	1/2	5	4	2	2 3/4	1 1/2	4 5/8	6 3/8	6 1/4	3	9 1/4	6	8 1/4	1	8 1/4	1 3/8	8 3/8	3 7/8	8 5/8			5.0	
3																											
4																											
5																											

STANDARD SIGN  
R10-11

WISCONSIN DEPT OF TRANSPORTATION

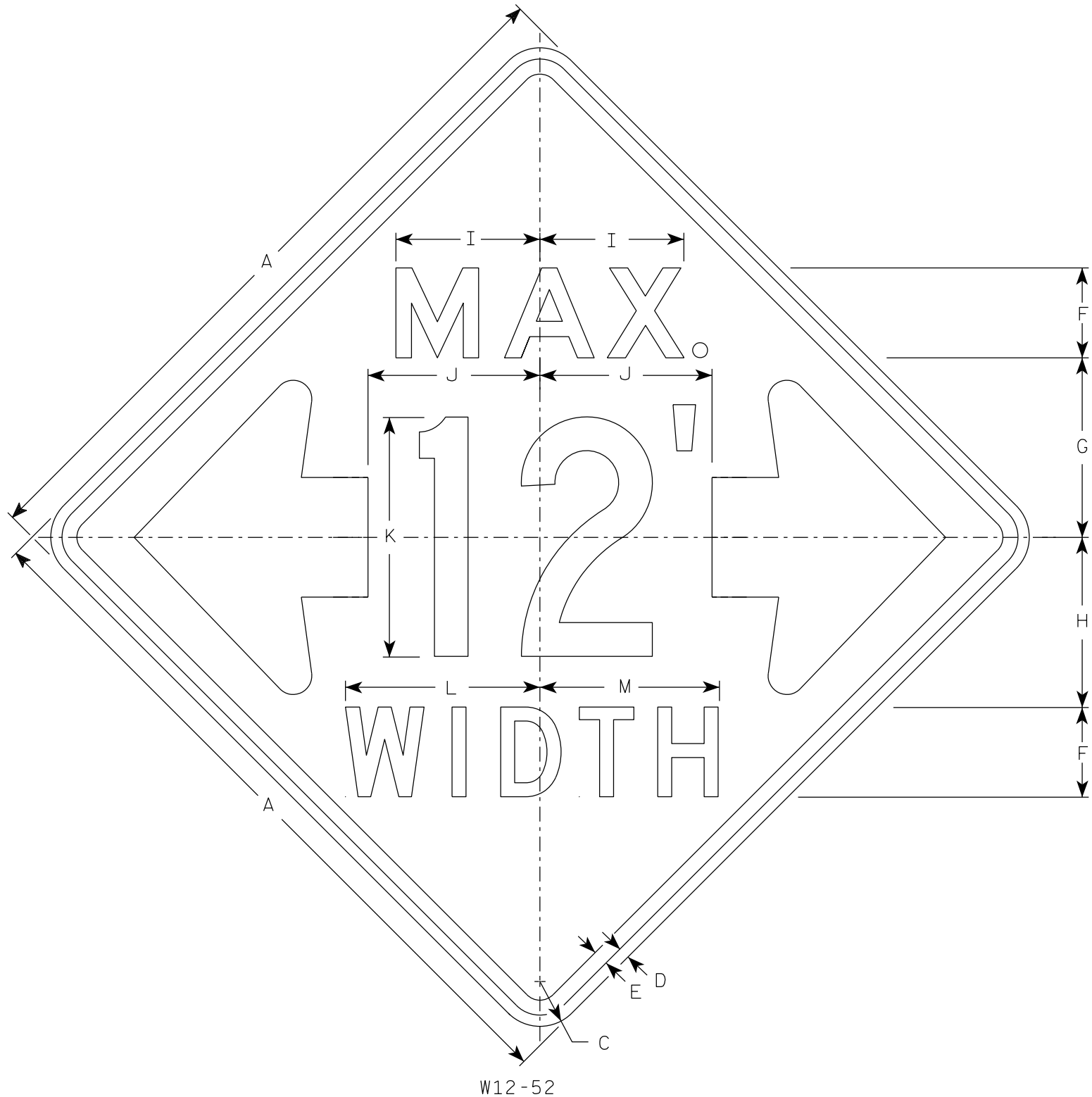
APPROVED *Matthew R Raub*  
For State Traffic Engineer

DATE 11/22/23 PLATE NO. R10-11.1

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**

7

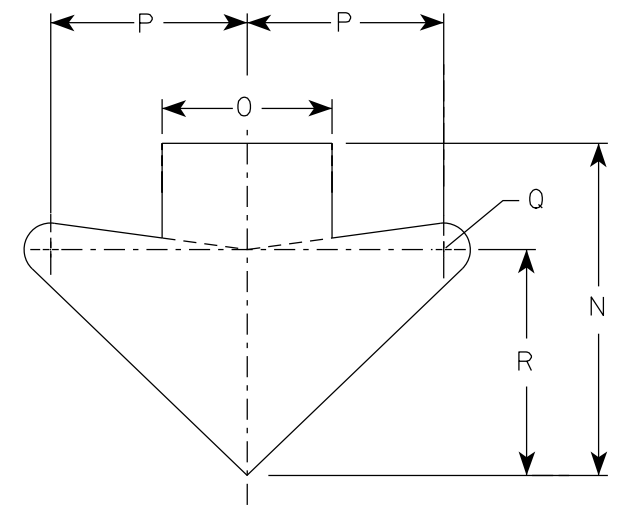
7



W12-52

NOTES

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - See note 5
4. The top line is series E, the numerals are series C, and the bottom line is series D.
5. Substitute appropriate numerals and adjust spacing as required.



ARROW DETAIL

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	48		3	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
2M	48		3	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
3																											
4																											
5																											

STANDARD SIGN  
W12-52

WISCONSIN DEPT OF TRANSPORTATION

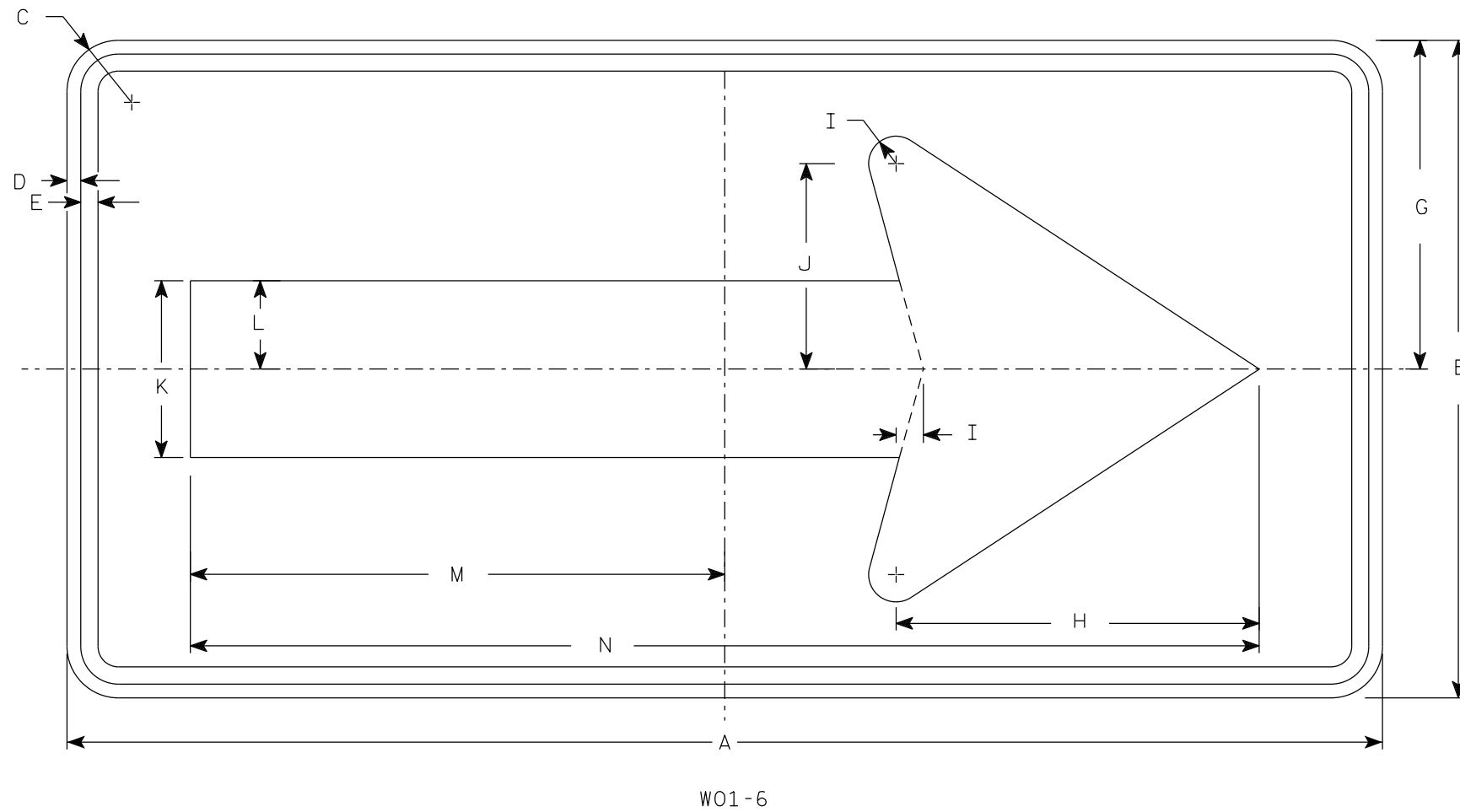
APPROVED *Matthew R. Raub*  
For State Traffic Engineer

DATE 3/10/2024 PLATE NO. W12-52.8

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**

NOTES

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
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.



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	48	24	1 7/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
2M	48	24	1 7/8	1/2	5/8		12	13 1/4	1	7 1/2	6 1/2	3 1/4	19 1/2	39													8.0
3	60	30	1 7/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
4	60	30	1 7/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5
5	60	30	1 7/8	1/2	5/8		15	16 1/4	1 1/4	9 1/4	8	4	24 3/8	48 3/4													12.5

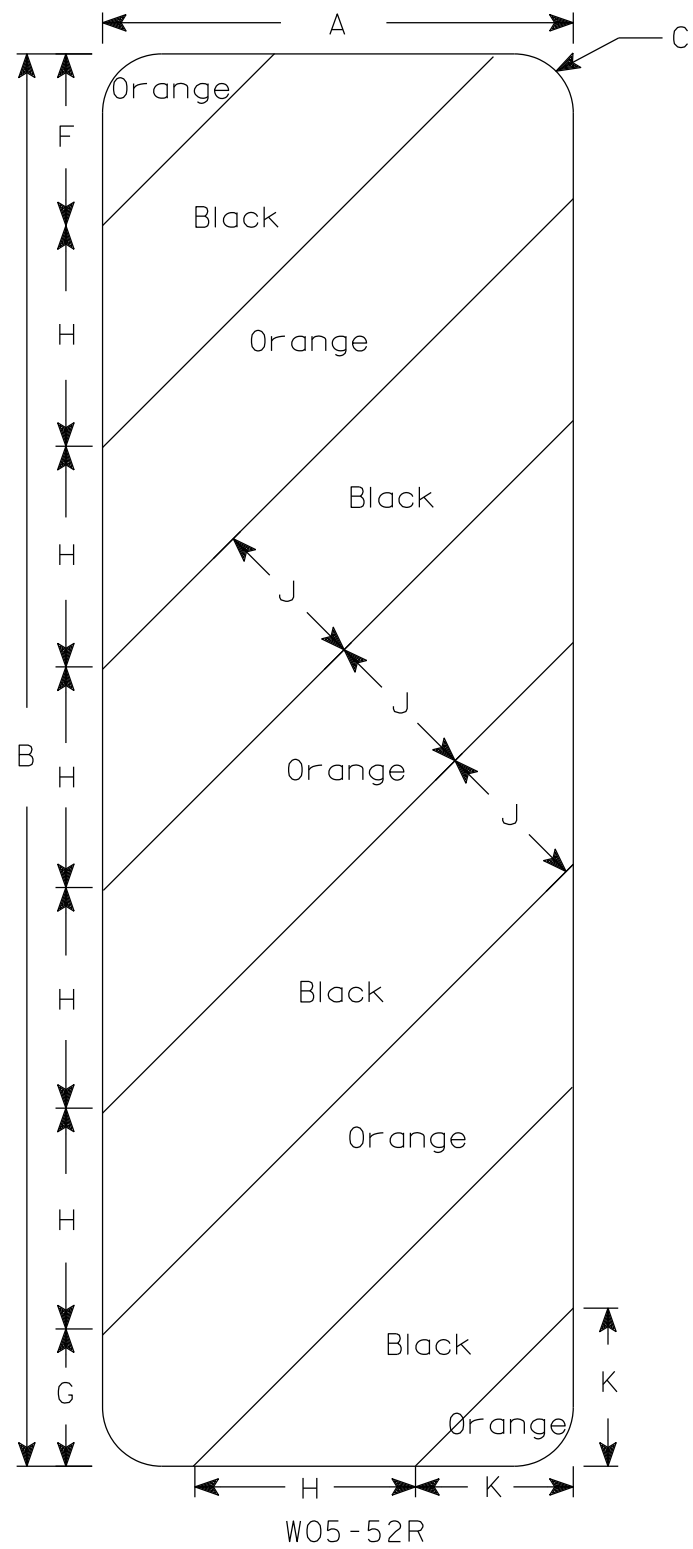
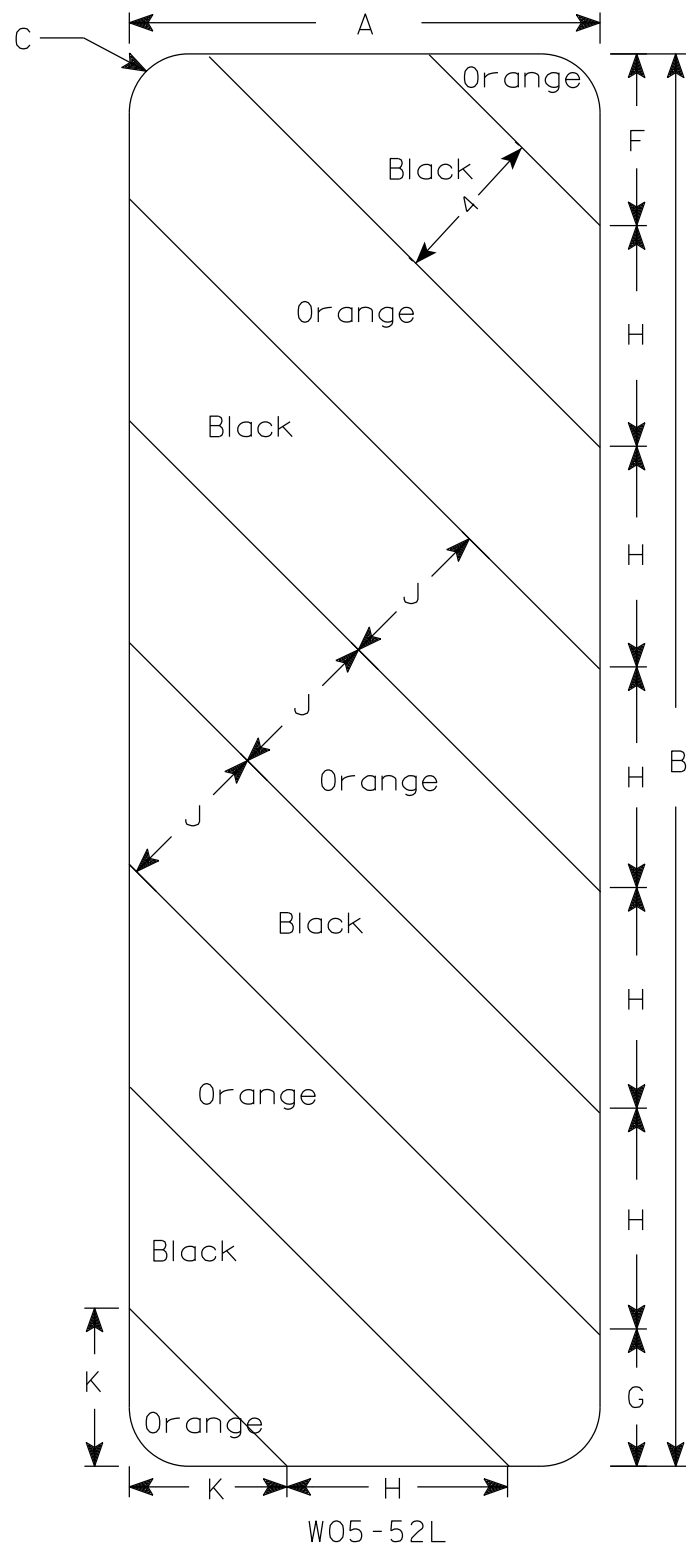
STANDARD SIGN  
W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED  
*Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/24/2024 PLATE NO. W01-6.2

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



NOTES

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

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	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
2M	12	36	1 1/2			4 3/8	3 1/2	5 5/8	45°	4	4																3.0
3	18	54	1 1/2			6	5 1/2	8 1/2	45°	6	6 9/16																6.75
4																											
5																											

STANDARD SIGN  
W05-52L & W05-52R

WISCONSIN DEPT OF TRANSPORTATION

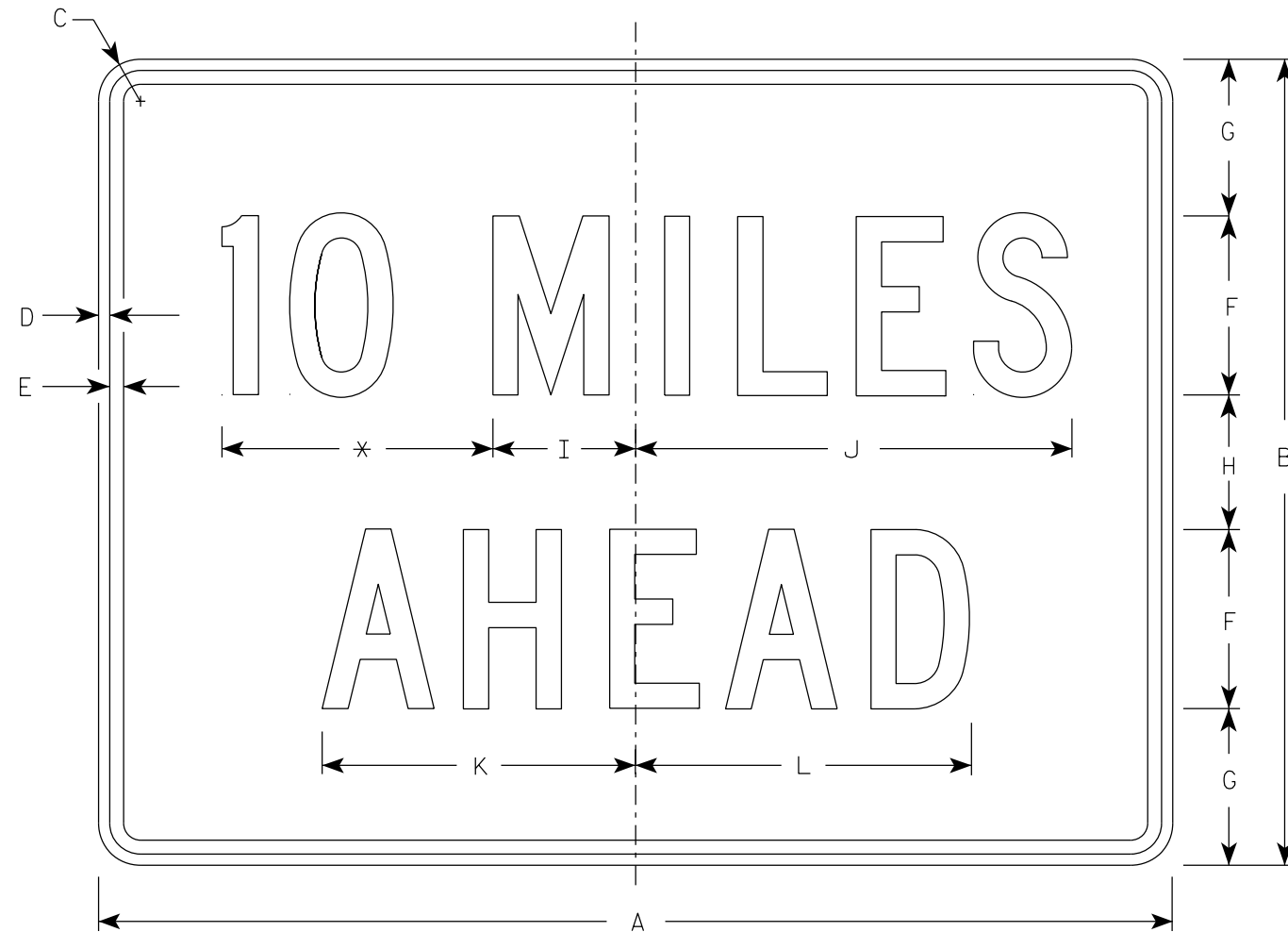
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/13/2024 PLATE NO. W05-52.2

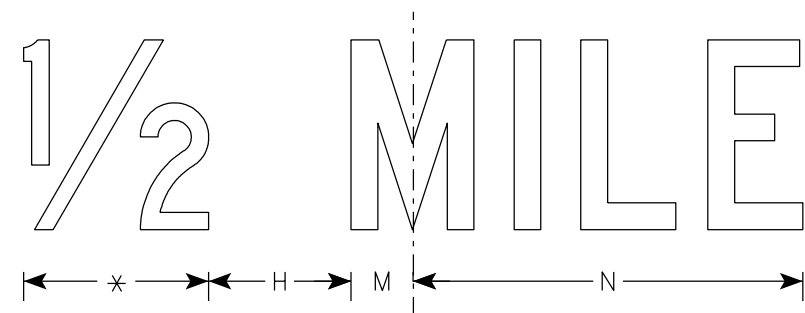
PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: \_\_\_\_\_ **E**

NOTES

1. Sign is Type II - Type F Reflective
2. Color:  
Background - Orange  
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate numerals to the nearest quarter mile and optically adjust spacing to achieve proper balance.



W057-52



\* See note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/2	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
4	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	2 1/4	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

STANDARD SIGN

W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 2/1/2024 PLATE NO. W057-52.3

PROJECT NO: \_\_\_\_\_ HWY: \_\_\_\_\_ COUNTY: \_\_\_\_\_ SHEET NO: **E**



DESIGN DATA

DESIGN LOADING \_\_\_\_\_ H20  
INVENTORY RATING \_\_\_\_\_ HS16  
OPERATING RATING \_\_\_\_\_ HS27  
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) \_\_\_\_\_ 160 KIPS

MATERIAL PROPERTIES

CONCRETE MASONRY  
OVERLAY DECKS & SUPERSTRUCTURE — f'c = 4,000 PSI  
SUBSTRUCTURE — f'c = 3,500 PSI  
HIGH STRENGTH BAR STEEL  
REINFORCEMENT GRADE 60 — fy = 60,000 PSI

TRAFFIC DATA

ADT (2027) = 200  
ADT (2047) = 200  
DESIGN SPEED = 60 MPH

SCOPE OF WORK:

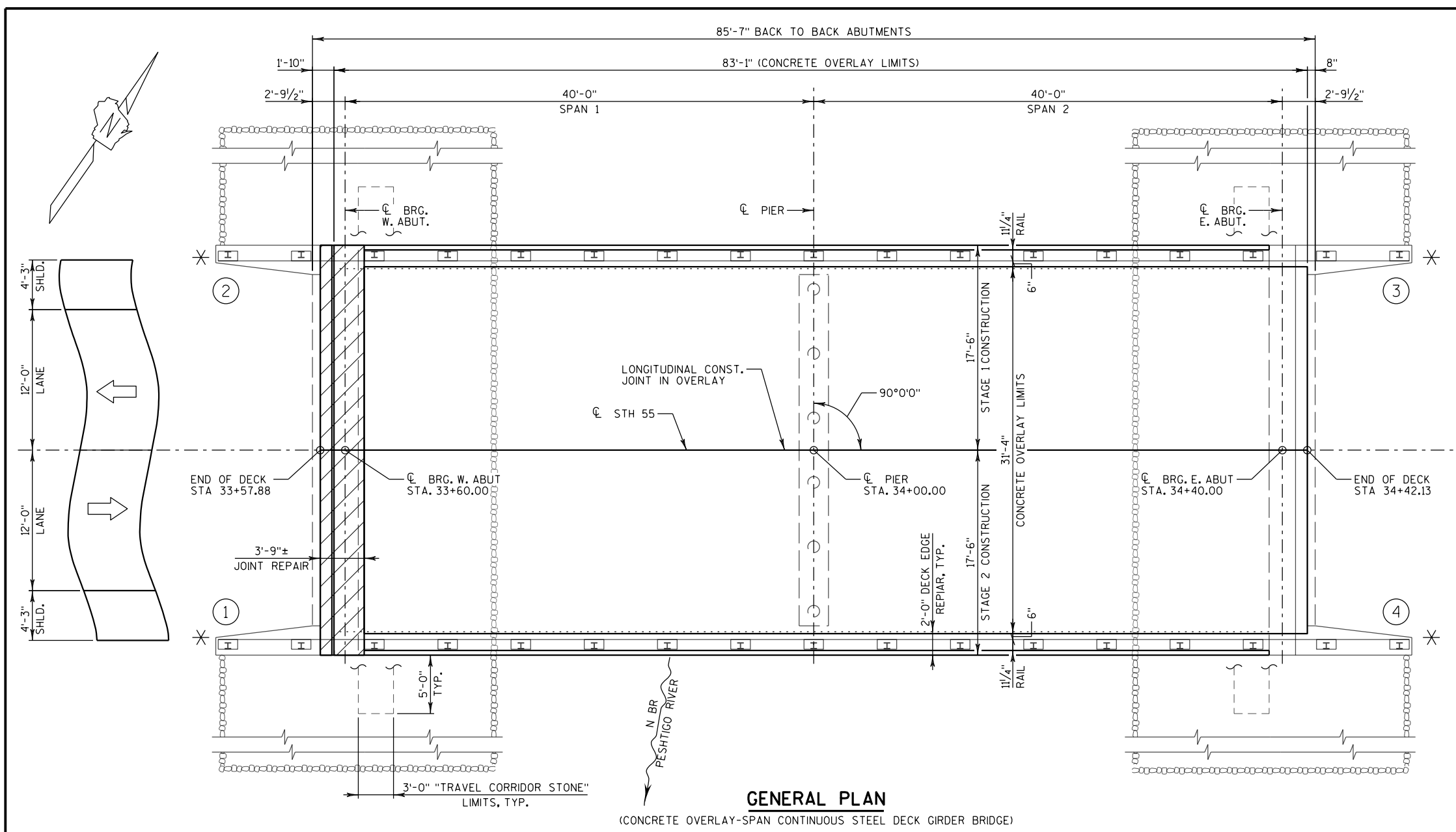
- 1. DECK EDGE REPAIR AND CONCRETE OVERLAY.
- 2. PAINTING OF PILE BENTS AND GIRDER ENDS.
- 3. REHABILITATION OF TYPE W RAILING.
- 4. REPLACEMENT OF BEARINGS AND COMPRESSION JOINT AT WEST ABUTMENT.
- 5. CONCRETE SURFACE REPAIR AT LOCATIONS DESIGNATED BY ENGINEER

LIST OF DRAWINGS

- 1. GENERAL PLAN
- 2. CROSS SECTION & QUANTITIES
- 3. CONSTRUCTION STAGING
- 4. WEST ABUTMENT REMOVAL DETAILS
- 5. WEST ABUTMENT RECONSTRUCT DETAILS
- 6. EXPANSION BEARING DETAILS
- 7. STRIP SEAL EXPANSION JOINT DETAILS
- 8. SUPERSTRUCTURE DETAILS-1
- 9. SUPERSTRUCTURE DETAILS-2
- 10. RAILING TYPE W MODIFIED

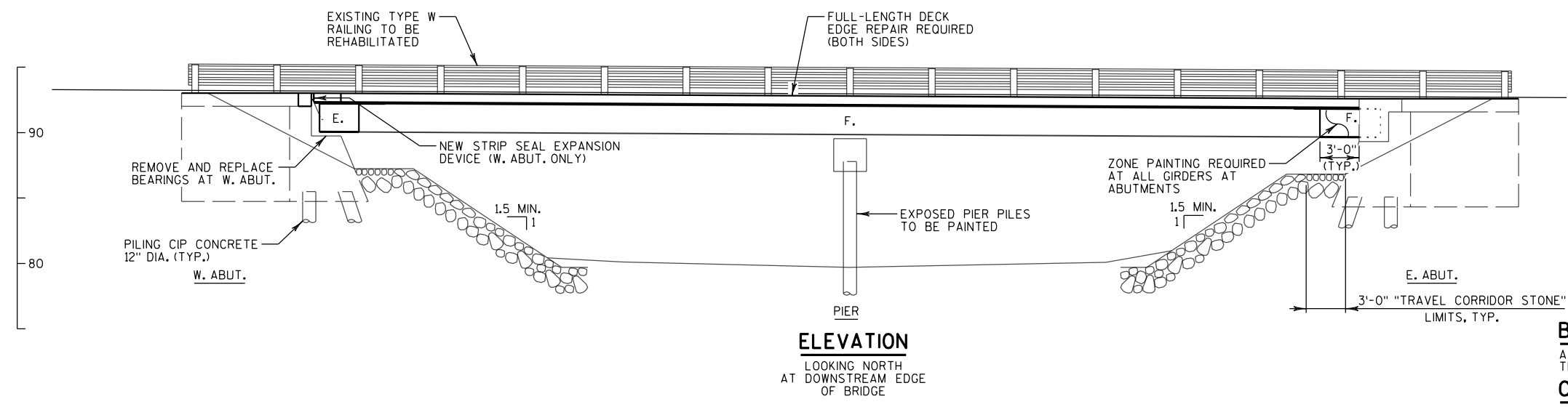
LEGEND

- (X) INDICATES WING NUMBER
- \* MGS THRIE BEAM ATTACHMENT



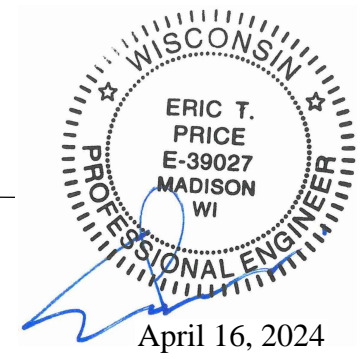
GENERAL PLAN

(CONCRETE OVERLAY-SPAN CONTINUOUS STEEL DECK GIRDER BRIDGE)



ELEVATION

LOOKING NORTH AT DOWNSTREAM EDGE OF BRIDGE



BRIDGE OFFICE CONTACT

AARON BONK, P.E.  
TELEPHONE: (608) 261-0261

CONSULTANT CONTACT

ERIC PRICE, P.E.  
TELEPHONE: (608) 826-6146

NO.	DATE	REVISION	BY
<b>CORRE</b> STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED		SDR 04/17/24	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
<b>STRUCTURE B-21-2</b>			
STH 55 OVER N BR PESHTIGO RIVER			
COUNTY	FOREST	TOWN/VILLAGE	ARGONNE
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	ETP	CK'D.	BH
DRAWN BY	TKB	PLANS CK'D.	ETP
<b>GENERAL PLAN</b>			SHEET 1 OF 10

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEM	UNIT	WEST ABUT.	PIER	EAST ABUT.	SUPER.	TOTALS
2-03 203.0335.01	DEBRIS CONTAINMENT OVER WATERWAY B-21-2	EACH	--	--	--	--	1
502.0100	CONCRETE MASONRY BRIDGES	CY	--	--	--	4	4
502.3101	EXPANSION DEVICE	LF	35	--	--	--	35
502.3200	PROTECTIVE SURFACE TREATMENT	SY	--	--	--	344	344
502.4204	ADHESIVE ANCHORS NO. 4 BAR	EACH	--	--	--	162	162
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	36	--	--	--	36
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	310	--	--	1,070	1,380
505.0904	BAR COUPLERS NO. 4	EACH	--	--	--	4	4
505.0906	BAR COUPLERS NO. 6	EACH	--	--	--	14	14
506.2610	BEARING PADS ELASTOMERIC LAMINATED	EACH	4	--	--	--	4
506.7050.S	REMOVING BEARINGS B-21-2	EACH	4	--	--	--	4
509.0301	PREPARATION DECKS TYPE 1	SY	--	--	--	17	17
509.0302	PREPARATION DECKS TYPE 2	SY	--	--	--	9	9
509.0500	CLEANING DECKS	SY	--	--	--	290	290
509.1000	JOINT REPAIR	SY	--	--	--	15	15
509.1500	CONCRETE SURFACE REPAIR	SF	25	--	15	30	70
509.2000	FULL-DEPTH DECK REPAIR	SY	--	--	--	1	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	--	--	--	27	27
517.3001.S	STRUCTURE OVERCOATING CLEANING AND PRIMING B-21-2	EACH	--	--	--	--	1
517.4001.S	CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-21-2	EACH	--	--	--	--	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	--	--	--	--	1
SPV.0060.01	EMBEDDED GALVANIC ANODES	EACH	--	--	--	106	106
SPV.0090.01	FLASHING STAINLESS STEEL	LF	--	--	--	165	165
SPV.0090.02	RAILING STEEL TYPE W MODIFIED B-21-2	LF	--	--	--	204	204
SPV.0165.01	REPAIR GALVANIZED COATING	SF	--	--	--	34	34
SPV.0165.02	DECK EDGE PREPARATION	SF	--	--	--	340	340
SPV.0195.01	TRAVEL CORRIDOR STONE	TON	10	--	10	--	20

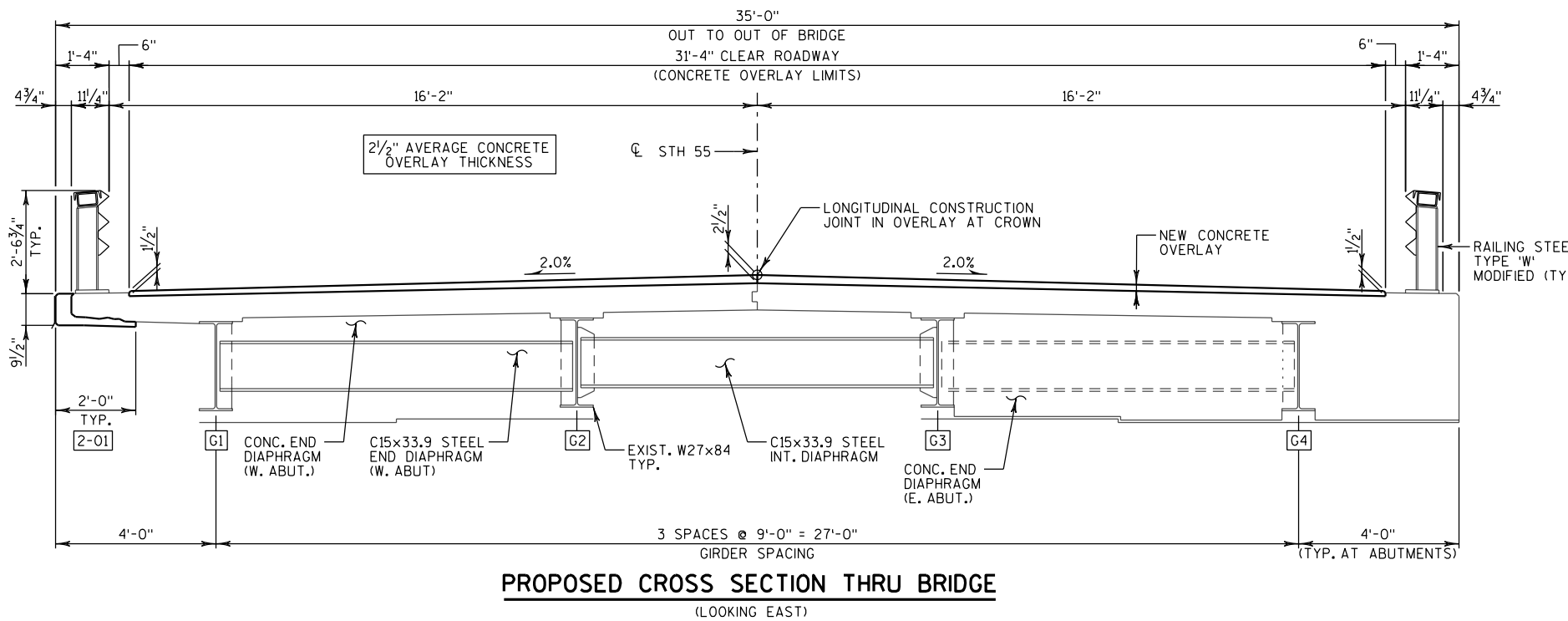
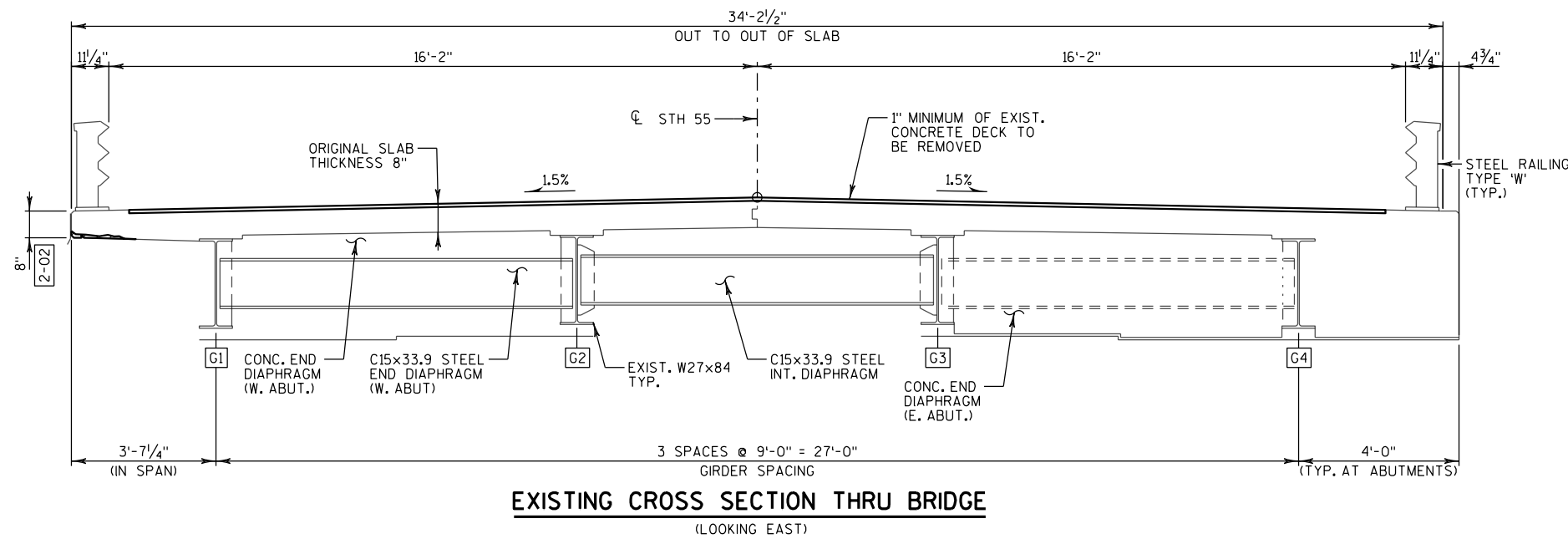
ALL ITEMS ARE CATEGORY 0020

**LEGEND**

- 2-01 SEE SHEET 8 FOR ADDITIONAL INFORMATION.
- 2-02 REMOVAL OF EXISTING FLASHING INCIDENTAL TO "FLASHING STAINLESS STEEL".
- 2-03 DEBRIS CONTAINMENT IS TO BE USED ONLY FOR FULL-DEPTH DECK AND DECK EDGE REPAIRS OVER THE N BRANCH PESHTIGO RIVER. USE OF DEBRIS CONTAINMENT AT OTHER LOCATIONS WILL NOT BE PAID FOR.

**ABBREVIATIONS:**

ABUT.	-	ABUTMENT
BTWN.	-	BETWEEN
B.F.	-	BACK FACE
BOT.	-	BOTTOM
BRG.	-	BEARING
CL.	-	CLEAR
CONST.	-	CONSTRUCTION
DIA.	-	DIAMETER
E.F.	-	EACH FACE
EXIST.	-	EXISTING
F.F.	-	FRONT FACE
HORIZ.	-	HORIZONTAL
JT.	-	JOINT
LONG.	-	LONGITUDINAL
PPT.	-	PARAPET
PROJ.	-	PROJECTION
SPA.	-	SPACED
STD.	-	STANDARD
SYMM.	-	SYMMETRICAL
T&B	-	TOP AND BOTTOM
TRANS.	-	TRANSVERSE
TYP.	-	TYPICAL
VERT.	-	VERTICAL
U.N.O.	-	UNLESS NOTED OTHERWISE



8

**GENERAL NOTES**

THE PROPOSED WORK INCLUDES PLACEMENT OF A CONCRETE OVERLAY, PAINTING OF PILE BENTS & GIRDER ENDS, CONCRETE SURFACE REPAIR, REHABILITATION OF TYPE W RAILING, DECK EDGE REPAIR AND REPLACEMENT OF COMPRESSION JOINT AT WEST ABUTMENT.

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

A MINIMUM OF 1-INCH OF CONCRETE SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "CLEANING DECKS".

ANY EXCAVATION REQUIRED TO COMPLETE THE OVERLAY IS INCIDENTAL TO THE BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

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

THE FIRST DIGIT OF A THREE DIGIT AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFY THE BAR SIZE.

CLEAN, STRAIGHTEN, AND EXTEND EXISTING BAR STEEL REINFORCEMENT 24 BAR DIAMETERS INTO NEW CONSTRUCTION WHERE APPLICABLE.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1/2" DEEP SAW CUT.

"PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2", "FULL-DEPTH DECK REPAIR", AND "CONCRETE SURFACE REPAIR" QUANTITIES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION AND DETERMINATION OF ALL REPAIR LOCATIONS WITH THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER THE BID ITEM FOR "PREPARATION DECKS TYPE 1" AND "PREPARATION DECKS TYPE 2".

MATERIALS, EQUIPMENT, ETC. SHALL NOT BE STOCKPILED/STORED ON THE BRIDGE DECK WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE SURFACE OF THE NEW CONCRETE OVERLAY AND THE TOP AND SIDE OF THE DECK EDGE REPAIR.

THE AVERAGE OVERLAY THICKNESS IS THE MINIMUM CONCRETE OVERLAY THICKNESS PLUS 1/2" TO ACCOUNT FOR VARIATIONS IN THE DECK.

PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM CONCRETE OVERLAY THICKNESS OF 2 1/2" AT THE C. PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. AVERAGE CONCRETE OVERLAY THICKNESS IS 2 1/2". IF EXPECTED AVERAGE CONCRETE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

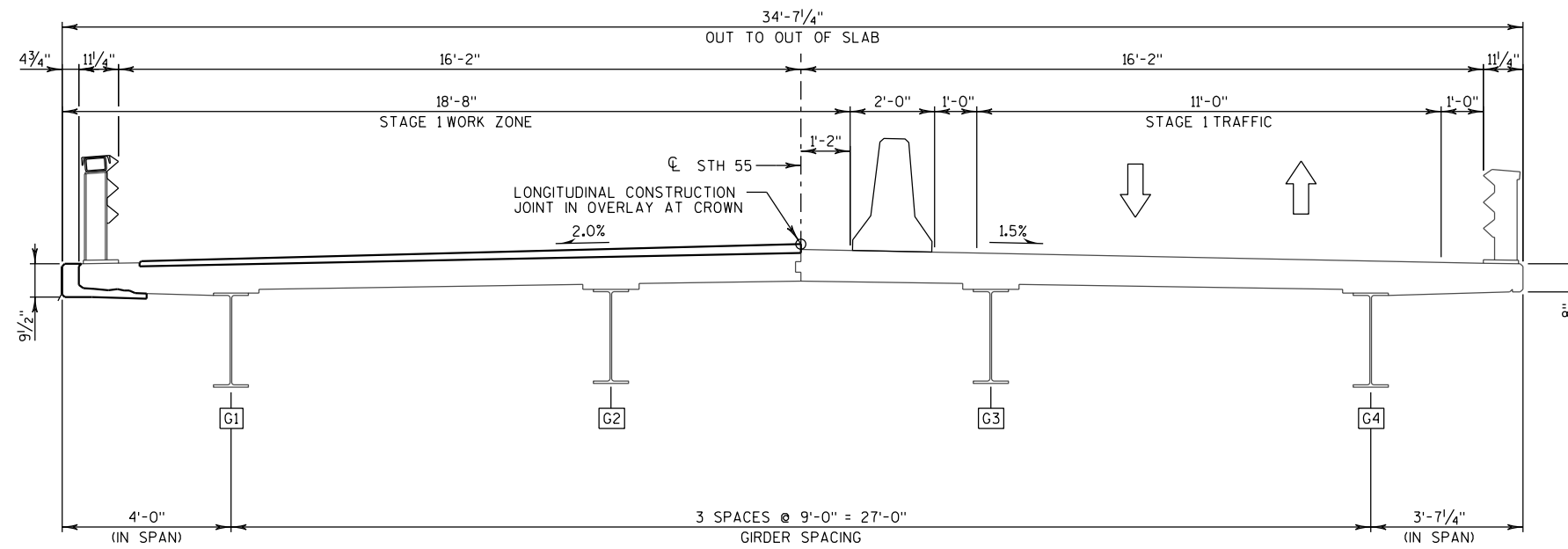
JOINT REPAIR AREAS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

DECK EDGE REPAIR AREAS SHALL BE FILLED WITH "CONCRETE MASONRY BRIDGES".

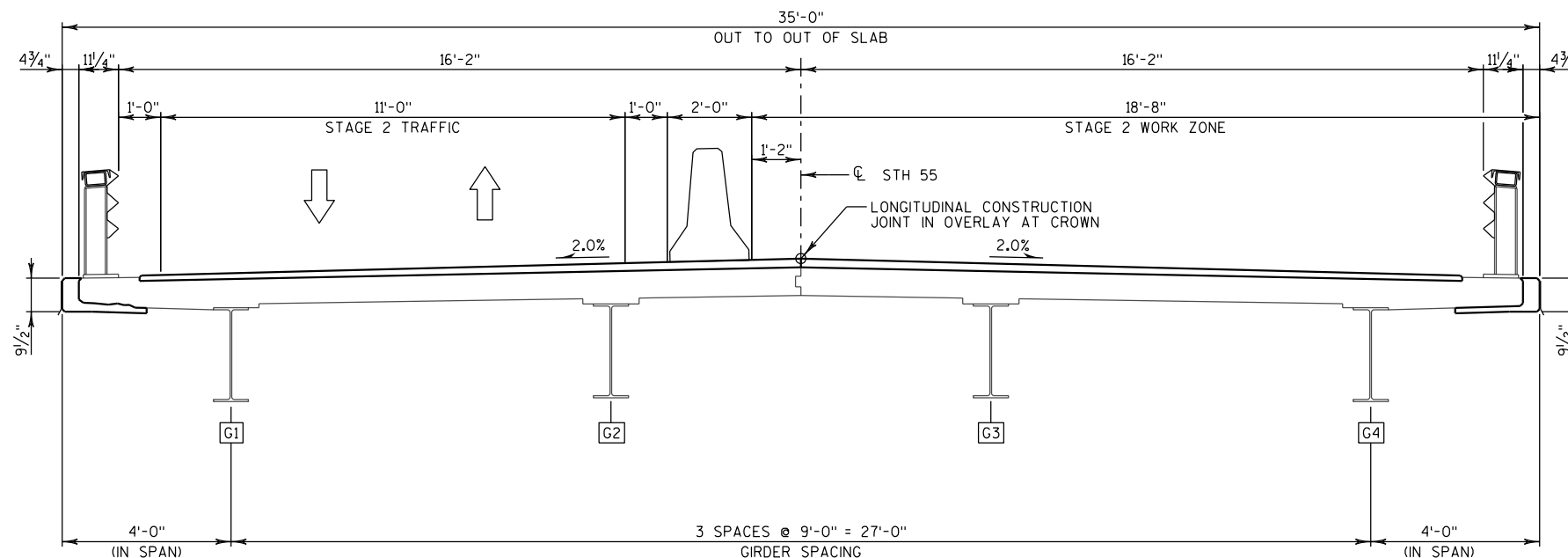
CLEAN AND PAINT ALL EXPOSED STEEL WITHIN 3 FEET OF THE FRONT OF THE ABUTMENTS AND ALL EXPOSED PILES AT THE PIER. THE COLOR OF THE TOPCOAT SHALL BE AMS STANDARD COLOR NO. 26293 (GRAY).

8

NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 10



**STAGE 1 TYPICAL SECTION THRU BRIDGE**  
(LOOKING EAST)



**STAGE 2 TYPICAL SECTION THRU BRIDGE**  
(LOOKING EAST)

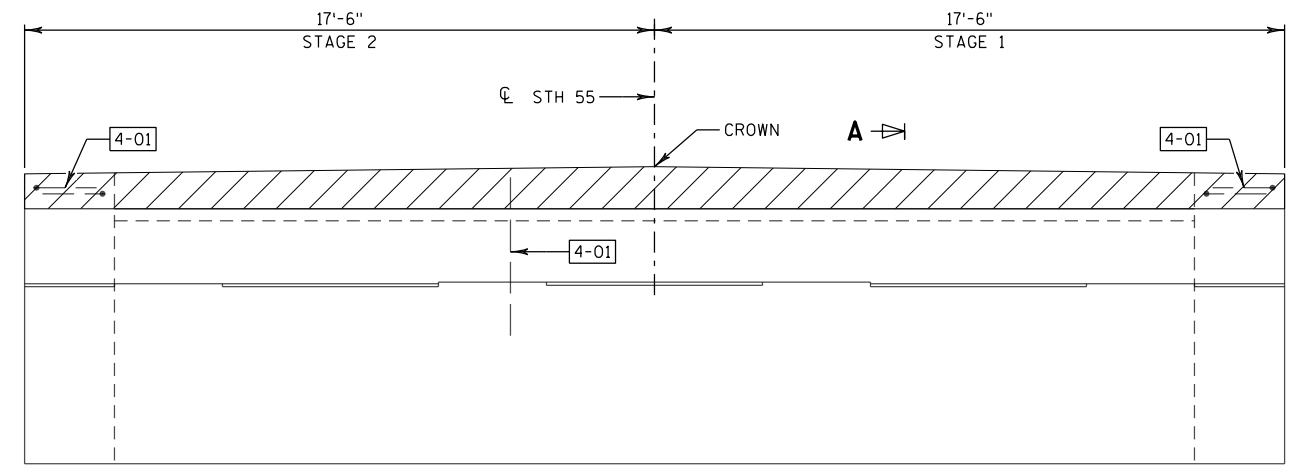
8

8

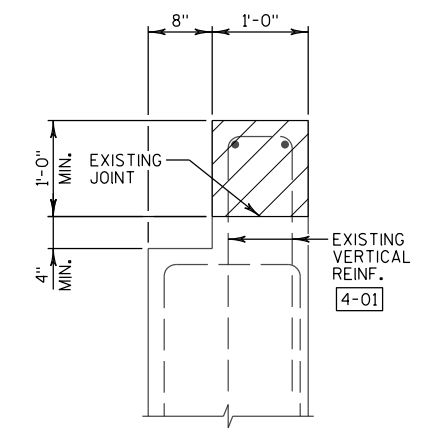
NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>CONSTRUCTION STAGING</b>			SHEET 3 OF 10

**LEGEND**

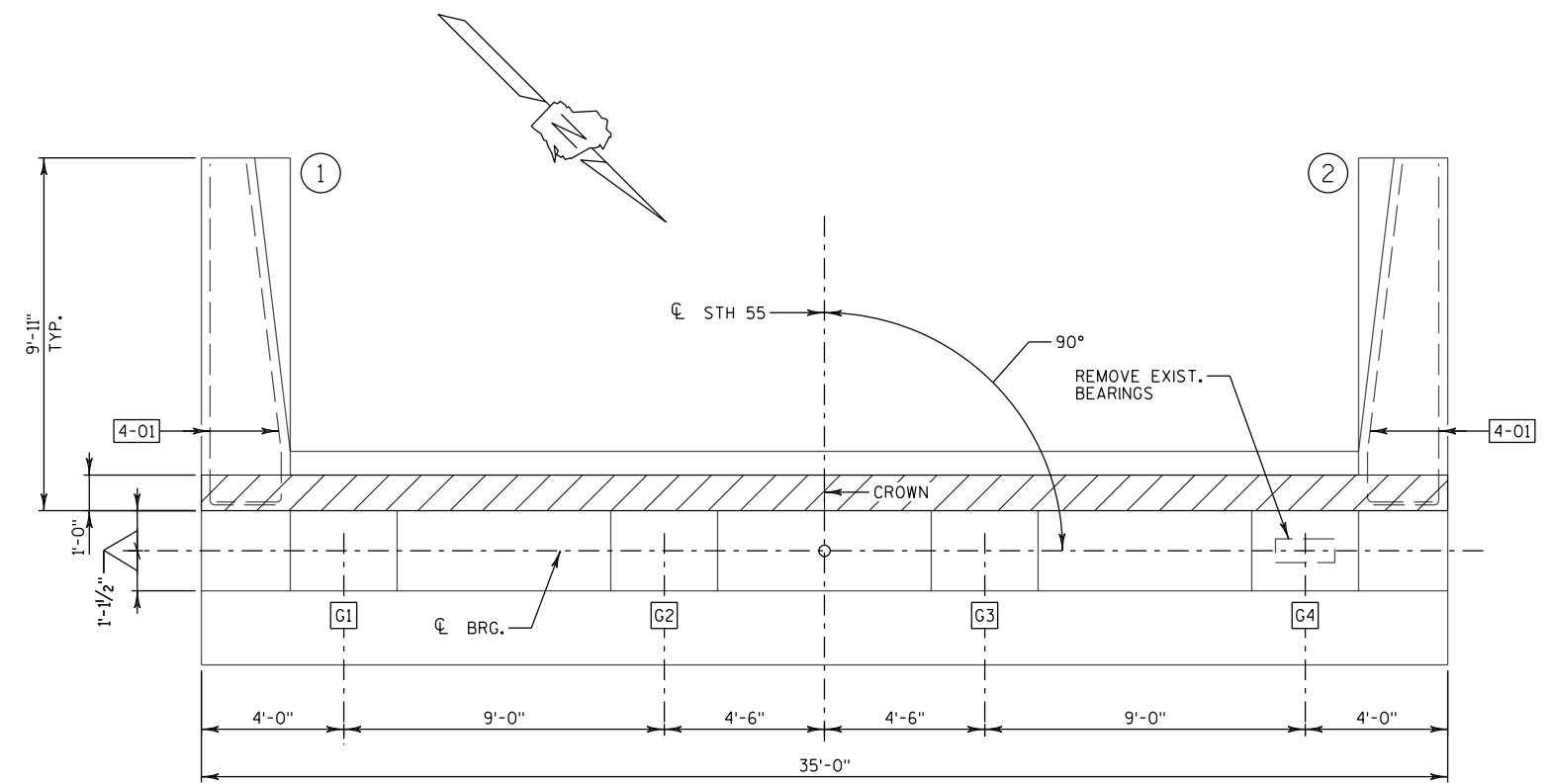
- (X) INDICATES WING NUMBER.
- (PX) INDICATES GIRDER NUMBER.
- [Hatched Box] INDICATES REMOVAL AREA.
- [4-01] PRESERVE & INCORPORATE EXISTING REINFORCEMENT.



**ELEVATION**  
(LOOKING WEST)  
A-A



**SECTION A-A**



**PLAN**

8

8

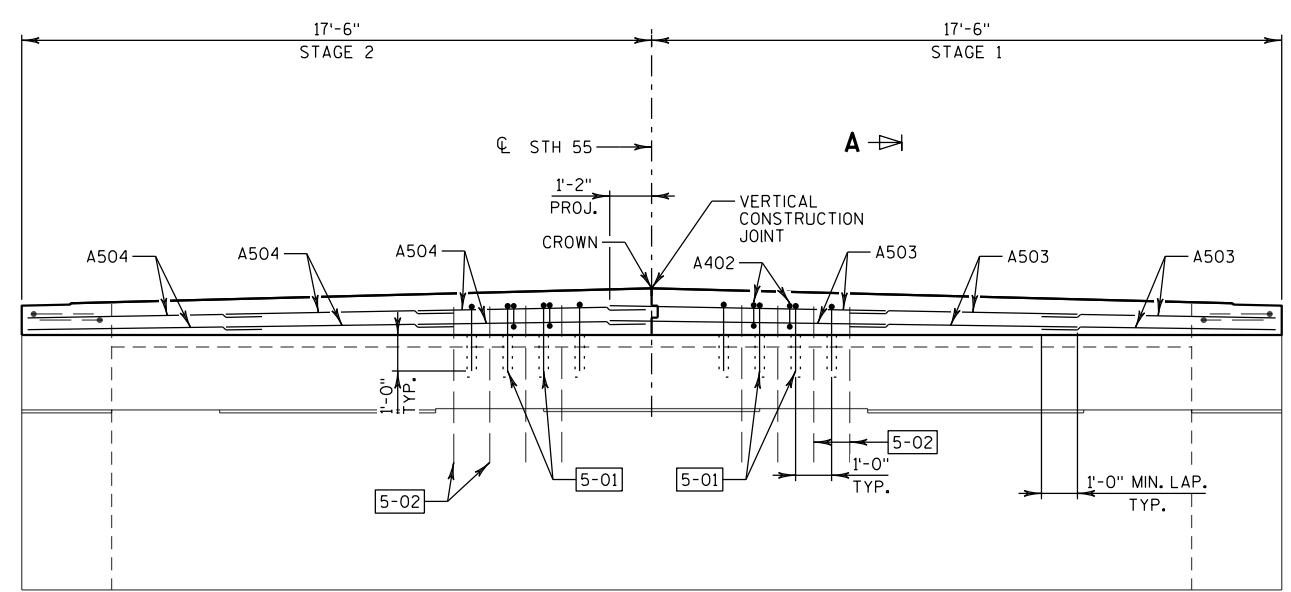
NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>WEST ABUTMENT REMOVAL DETAIL</b>			SHEET 4 OF 10

**BILL OF BARS - WEST ABUTMENT**

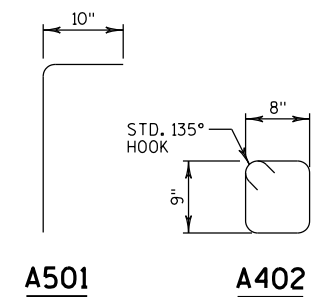
DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

BAR MARK	NO. REQ'D		LENGTH	BENT	LOCATION
	STAGE 1	STAGE 2			
COATED BARS					
					TOTAL WEIGHT = 310 LBS
A501	18	18	2'-8"	X	PAVING BLOCK VERT.
A402	18	18	3'-4"	X	PAVING BLOCK VERT.
A503	9	0	6'-10"		PAVING BLOCK HORIZ.
A504	0	9	6'-6"		PAVING BLOCK HORIZ.

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

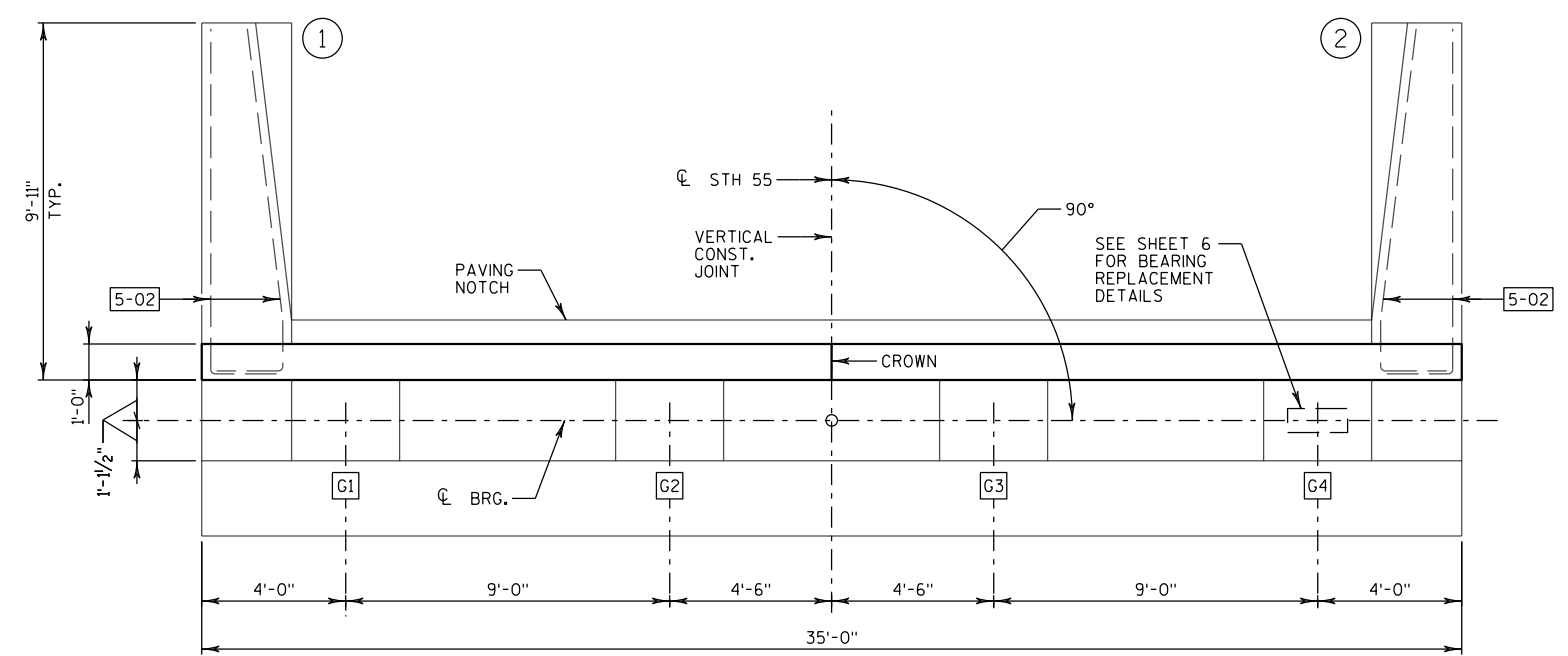


**ELEVATION**  
(LOOKING WEST)

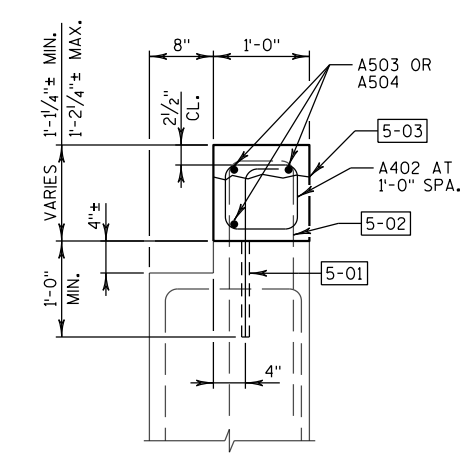


**LEGEND**

- (X) INDICATES WING NUMBER.
- (GX) INDICATES GIRDER NUMBER.
- 5-01 A501 AT 1'-0" SPA. ADHESIVE ANCHORS NO. 5 BAR, EMBED 1'-0" INTO CONCRETE. TURN 10" LEG AS NECESSARY TO FIT.
- 5-02 PRESERVE & INCORPORATE EXISTING REINFORCEMENT.
- 5-03 OPTIONAL CONSTRUCTION JOINT 1' MIN. BELOW EXISTING REINFORCEMENT.



**PLAN**



**SECTION A-A**

NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>WEST ABUTMENT RECONSTRUCT DETAILS</b>			SHEET 5 OF 10

**BEARING NOTES:**

BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 85°F.

ALL MATERIAL USED FOR BEARINGS SHALL BE PAID AT THE UNIT BID PRICE FOR "BEARING PADS ELASTOMERIC LAMINATED". REMOVAL OF THE EXISTING BEARINGS SHALL BE PAID AT THE UNIT BID PRICE FOR "REMOVING BEARINGS B-21-2".

ALL STRUCTURAL STEEL PLATES SHALL BE FLAT ROLLED WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT, AND VERTICAL.

TOP PLATE SHALL CONFORM TO ASTM A709 GRADE 50W OR A588 AND SHALL BE PAINTED IN ACCORDANCE WITH SECTION 506.2.8.1 OF THE STANDARD SPECIFICATION.

REMOVE THE PAINT FROM TOP PLATE SURFACES THAT REQUIRE FIELD WELDING. AFTER WELDING, PROVIDE ONE COAT OF ORGANIC ZINC-RICH PRIMER AND ONE COAT OF HIGH-BUILD BROWN EPOXY PAINT IN ACCORDANCE WITH SECTION 517.3.1.8.2 OF THE STANDARD SPECIFICATIONS. FIELD APPLIED PAINT SHALL EXTEND BEYOND THE DAMAGED PAINTED SURFACES.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

ALL BEARINGS ARE SYMMETRICAL ABOUT C OF GIRDER AND C OF BEARING.

ALL FINISHED SURFACES SHALL BE MACHINE FINISHED BY AN AUTOMATED PROCESS.

USE (2) 1/4"φ X 1'-5" LONG ANCHOR BOLTS PER BEARING ASSEMBLY.

ANCHOR BOLTS SHALL BE THREADED 3". PROVIDE ONE STANDARD WROUGHT WASHER AND ONE HEX NUT PER BOLT. PROJECT ANCHOR BOLTS 3/4" ABOVE TOP OF CONCRETE.

PROVIDE 1/8" BEARING PAD SAME SIZE AS BOTTOM PLATE.

CHAMFER ANCHOR BOLTS PRIOR TO THREADED.

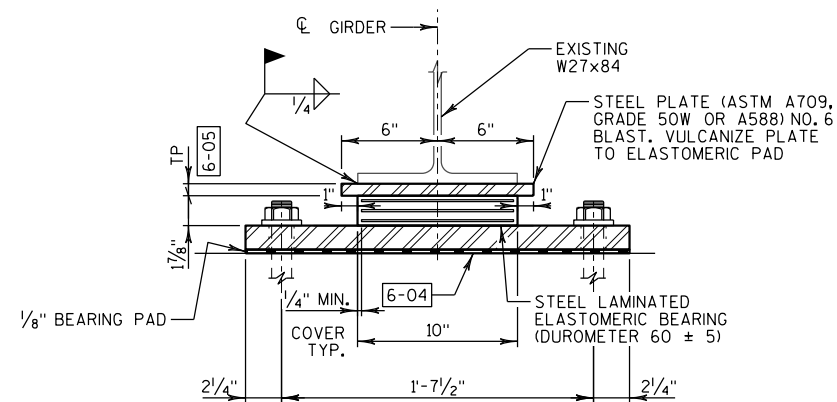
ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM F1554 GRADE 55, OR MATERIAL OF EQUIVALENT YIELD STRENGTH AND ELONGATION.

ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153, CLASS "C".

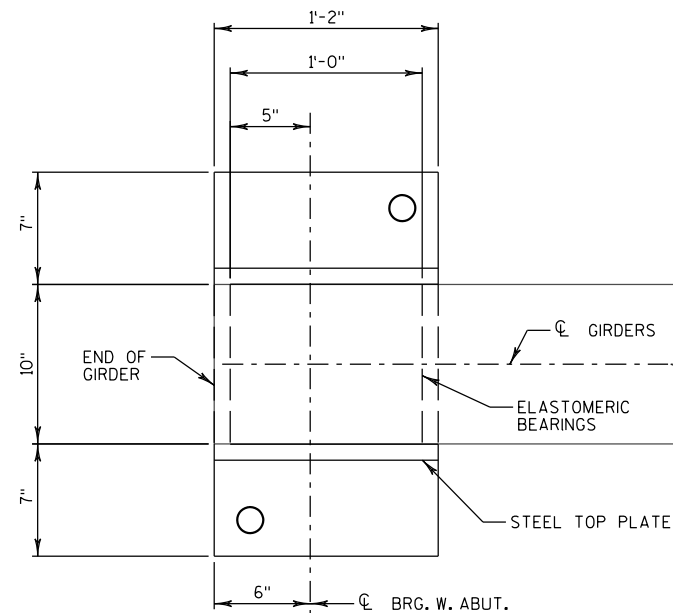
BOTTOM PLATE SHALL BE GALVANIZED.

WELDING PROCEDURES SHALL BE ESTABLISHED BY THE CONTRACTOR TO RESTRICT THE MAXIMUM TEMPERATURE REACHED BY SURFACES IN CONTACT WITH ELASTOMER TO 200°F (93°C). TEMPERATURES SHALL BE CONTROLLED BY TEMPERATURE INDICATING WAX PENCILS OR OTHER SUITABLE MEANS APPROVED BY THE ENGINEER.

NEW ANCHOR BOLTS MAY NEED TO BE INSTALLED THROUGH THE JOINT OPENING.



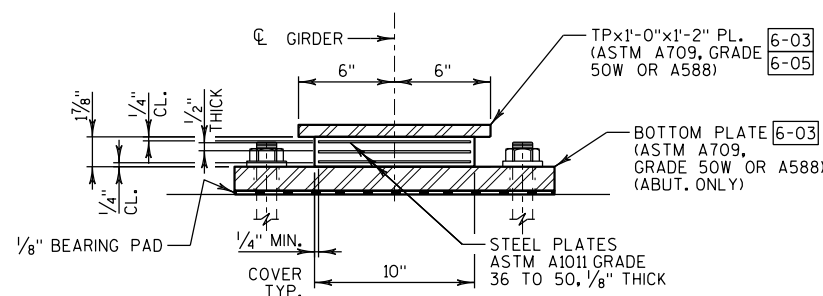
**FRONT ELEVATION**



**PLAN VIEW**

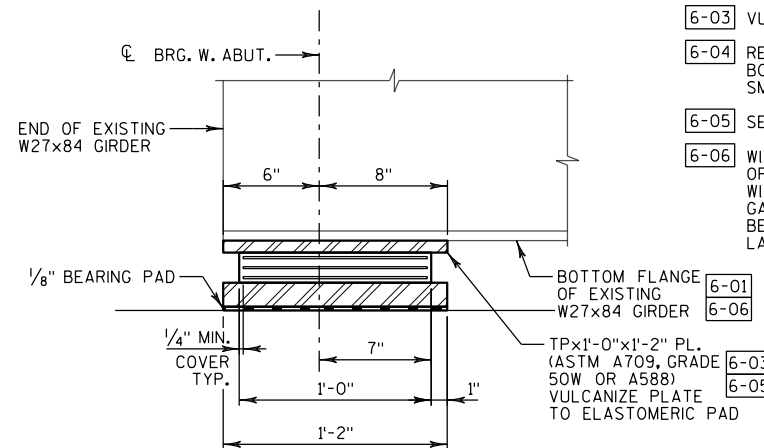
**LEGEND**

- 6-01 WELD STEEL TOP PLATE DIRECTLY TO EXISTING BOTTOM FLANGE. PLATES WELDED TO EXISTING BEAMS THAT ARE PART OF THE EXISTING BEARINGS TO BE REMOVED. GRIND SMOOTH WELD THAT ATTACHED EXISTING BEARING TOP PLATE TO BOTTOM FLANGE.
- 6-02 DRILLED HOLES FOR ANCHOR BOLTS IN BOTTOM PLATE HAVE A DIAMETER OF 3/8" LARGER THAN ANCHOR BOLT.
- 6-03 VULCANIZE TOP AND BOTTOM PLATE TO ELASTOMERIC PAD.
- 6-04 REMOVE EXISTING EXPANSION BEARINGS AND EXISTING ANCHOR BOLTS FLUSH WITH CONCRETE BEARING SURFACE AND GRIND SMOOTH.
- 6-05 SEE TAPERED PLATE DIAGRAM.
- 6-06 WITHIN THE LIMITS OF THE NEW TOP PLATE, THE BOTTOM SIDE OF THE BOTTOM FLANGE SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP3 STANDARDS AND GIVEN 1 COAT OF COLD GALVANIZED PAINT PRIOR TO INSTALLATION OF THE NEW BEARINGS. INCIDENTAL TO "BEARING PADS ELASTOMERIC LAMINATED".



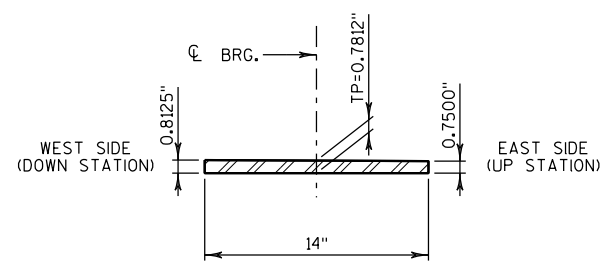
**SECTION THRU ELASTOMERIC BEARING**

(FRONT ELEVATION)

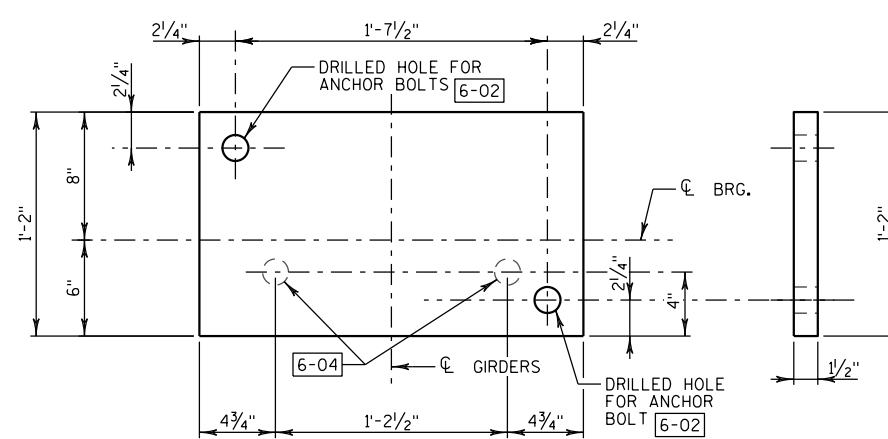


**SECTION THRU ELASTOMERIC BEARING**

(SIDE ELEVATION)



**TAPERED PLATE DIAGRAM**



**BOTTOM PLATE DETAILS**

**GIRDER REACTIONS AT BEARINGS (KIPS)**

LOCATION		C BRG. ABUTMENTS
INTERIOR GIRDER	DL	18.7
	LL	72.7
EXTERIOR GIRDER	DL	19.8
	LL	73.1

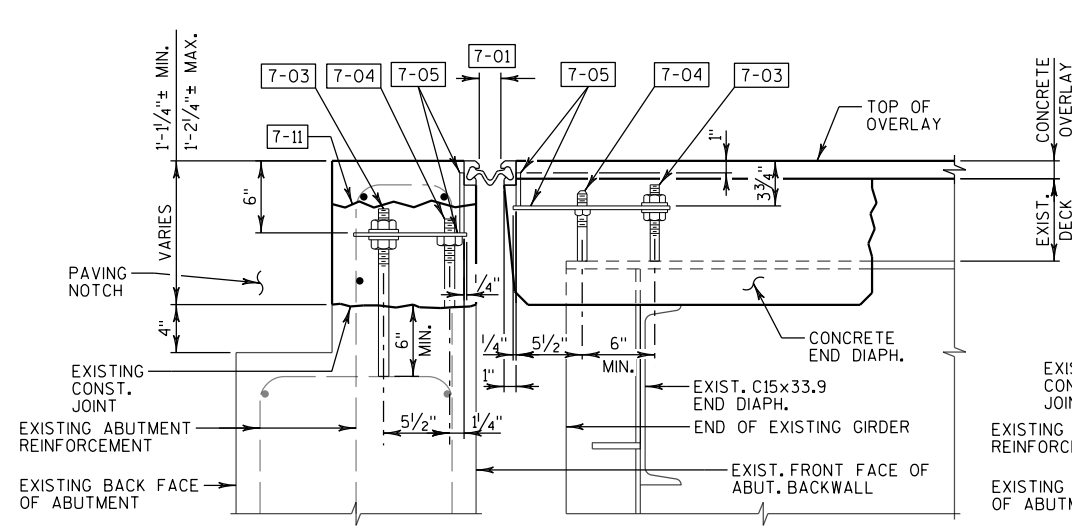
THE THEORETICAL SERVICE LOADS (UNFACTORED) SHOWN IN THE TABLE ABOVE ARE BASED ON THE BRIDGE IN ITS FINAL CONFIGURATION. ADDITIONAL LOAD RESULTING FROM STAGING AND/OR CONTRACTOR OPERATIONS, SUCH AS UNEVEN JACKING OF ADJACENT GIRDERS OR ADJACENT SUBSTRUCTURES UNITS, IS NOT INCLUDED.

THE LL REACTIONS ARE BASED ON HL-93 AND INCLUDE IMPACT.

EXTERIOR GIRDER DEAD LOAD REACTIONS WERE INCREASED 10% TO ACCOUNT FOR VARIABILITY IN COMPOSITE DL DISTRIBUTION METHODS.

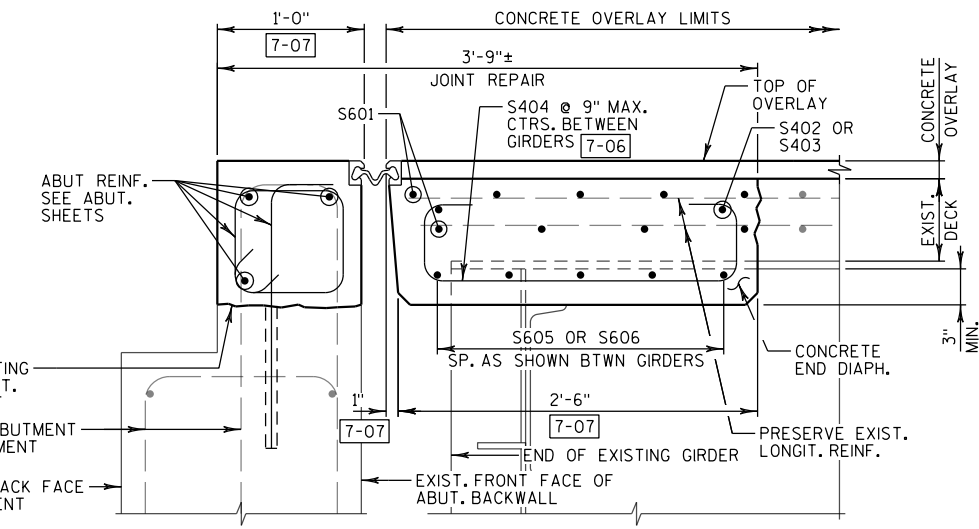
IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ADEQUACY OF THE GIRDER AT THE JACKING LOCATION.

NO.	DATE	REVISION	BY
<b>STRUCTURE B-21-2</b>			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>EXPANSION BEARING DETAILS</b>			SHEET 6 OF 10



**SECTION THRU JOINT AT WEST ABUTMENT**

NORMAL TO  $\phi$  SUBSTRUCTURE



**SECTION THRU JOINT AT WEST ABUTMENT**

NORMAL TO  $\phi$  SUBSTRUCTURE DIAPHRAGM TO EXTEND TO GIRDER WEB (SEE PART TRANSVERSE SECTION AT DIAPHRAGM END FOR TYPICAL EXTENTS)

**LEGEND**

- 7-01 NEOPRENE STRIP SEAL (4-INCH) & STEEL EXTRUSIONS. SET JOINT OPENING AT 1 3/4" (NORMAL TO JOINT).
- 7-02 STUDS 5/8"  $\phi$  x 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS & BEND AS SHOWN AFTER WELDING.
- 7-2A 1/2" THICK ANCHOR PLATE WITH 5/8"  $\phi$  ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PL. TO 7-01 AT 1'-6" CTRS. BETWEEN GIRDERS.
- 7-03 3/4"  $\phi$  THREADED ROD WITH 2 NUTS AND PLATE WASHERS. WELD THREADED ROD TO TOP FLANGE OR ATTACH BY BOLTING THRU FLANGE. ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- 7-04 3/4"  $\phi$  THREADED ROD WITH NUT. TACK WELD NUT TO 7-05.
- 7-05 FABRICATE SUPPORT FROM 3" x 1/2" BAR AS SHOWN OR EQUIVALENT. ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO 7-01. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1 1/2"  $\phi$  HOLE FOR 7-03 & 1"  $\phi$  HOLE FOR 7-04.
- 7-06 BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO  $\phi$  GIRDERS.
- 7-07 DIMENSION IS TAKEN NORMAL TO  $\phi$  ABUTMENT.
- 7-08 NOT USED.
- 7-09 NOT USED.
- 7-10 NOT USED.
- 7-11 OPTIONAL CONSTRUCTION JOINT 1" MIN. BELOW EXISTING REINFORCEMENT.

**NOTES**

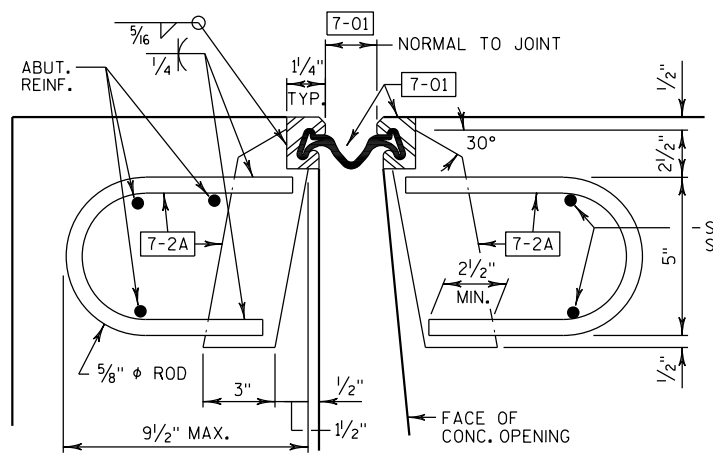
ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, ANCHOR PLATES SHALL BE PROVIDED 3" FROM EACH SIDE OF THE FIELD SPLICE. DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

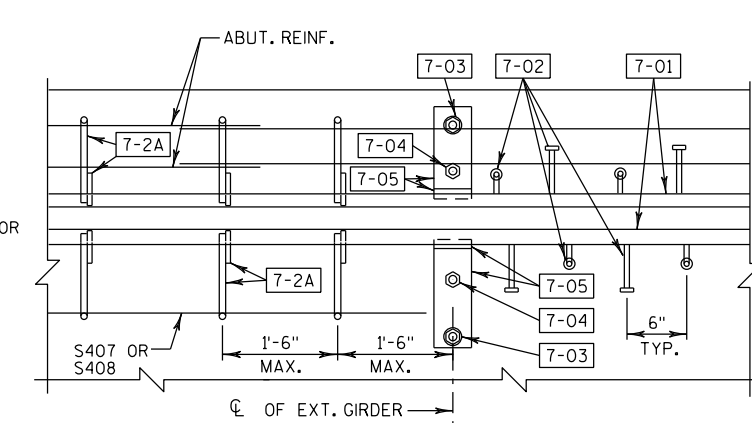
SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED.

ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

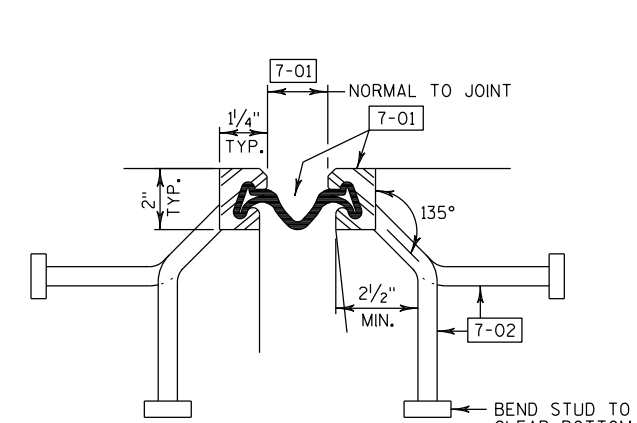


**SECTION THRU JOINT**

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.

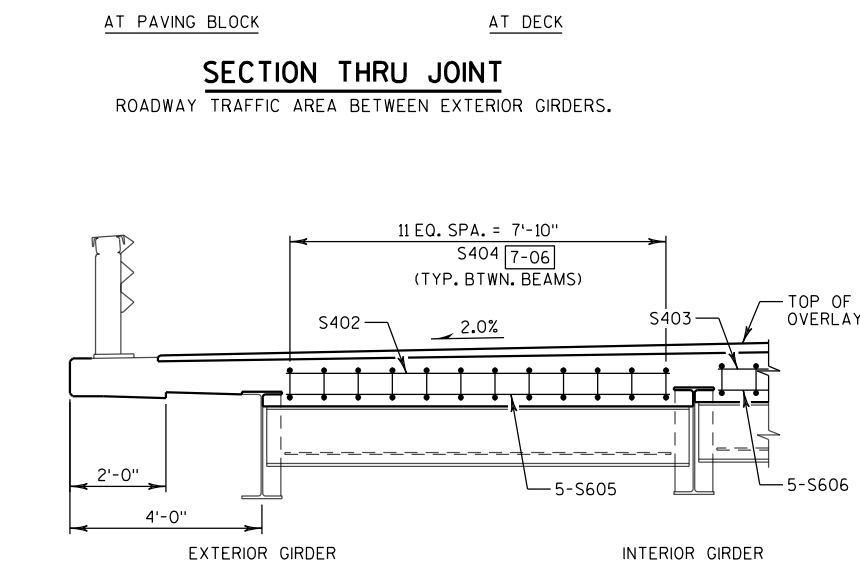


**PART PLAN**



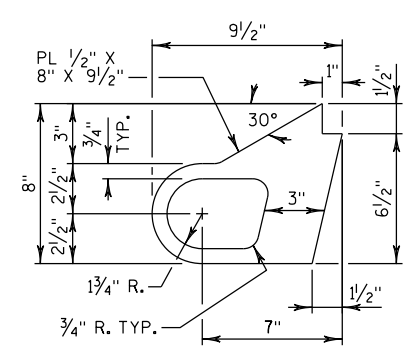
**SECTION THRU JOINT**

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS, MEDIANS AND SIDEWALKS

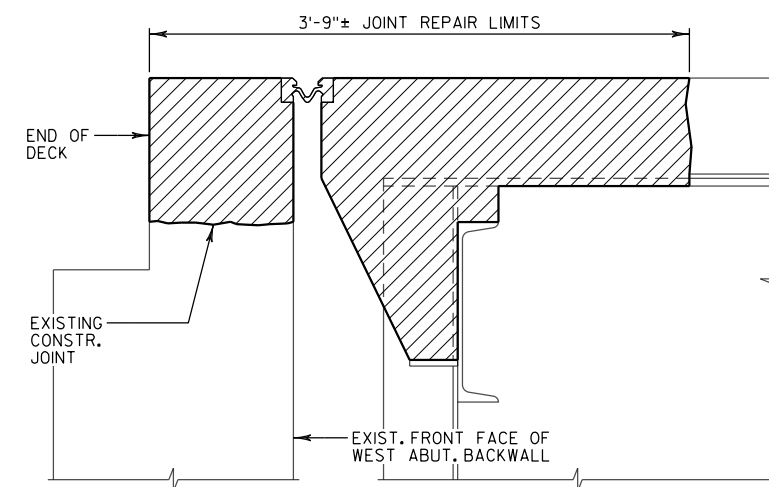


**PART TRANSVERSE SECTION AT DIAPHRAGM**

(DECK REINFORCEMENT NOT SHOWN FOR CLARITY)



**ALTERNATE STRIP SEAL ANCHOR**



**JOINT REPAIR-REMOVAL**

NORMAL TO  $\phi$  SUBSTRUCTURE

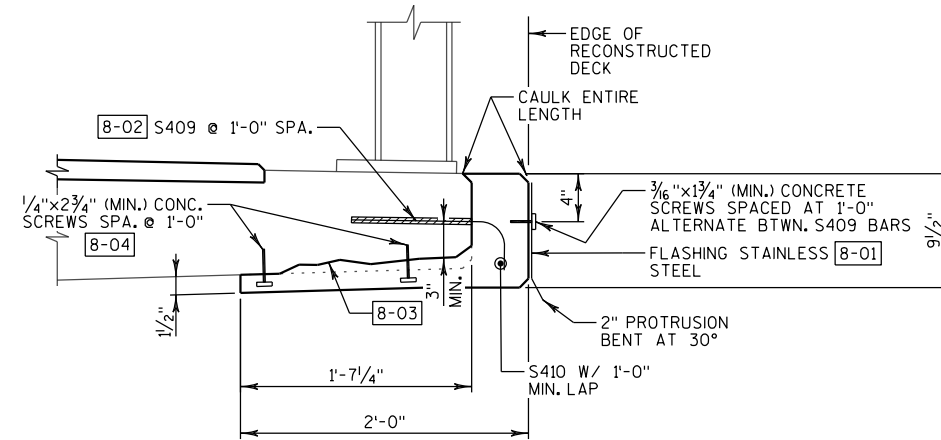
NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY		PLANS CK'D. ETP	
TKB		ETP	
<b>STRIP SEAL EXPANSION JOINT DETAILS</b>			SHEET 7 OF 10

**BILL OF BARS - SUPERSTRUCTURE**

DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR.

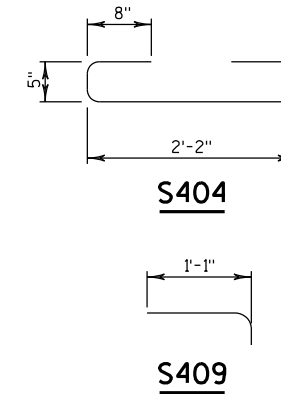
BAR MARK	NO. REQ'D		LENGTH	BENT	LOCATION
	STAGE 1	STAGE 2			
TOTAL WEIGHT = 1,070 LBS					
COATED BARS					
8-06	S601	9	17'-4"		DECK - TOP & BTM TRANS.
	S402	2	7'-10"		DIAPHRAGMS - TOP TRANS.
8-06	S403	2	3'-11"		DIAPHRAGMS - TOP TRANS.
	S404	18	4'-0"	X	DIAPHRAGMS - STIRRUPS VERT.
	S605	5	7'-10"		DIAPHRAGMS - BTM TRANS.
8-06	S606	5	3'-11"		DIAPHRAGMS - BTM TRANS.
	S407	2	8'-7"		DECK - EXPANSION DEVICE TRANS.
8-06	S408	2	4'-3"		DECK - EXPANSION DEVICE TRANS.
	S409	81	1'-4"	X	DECK EDGE REPAIR TRANS.
	S410	11	8'-3"		DECK EDGE REPAIR LONGIT.

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



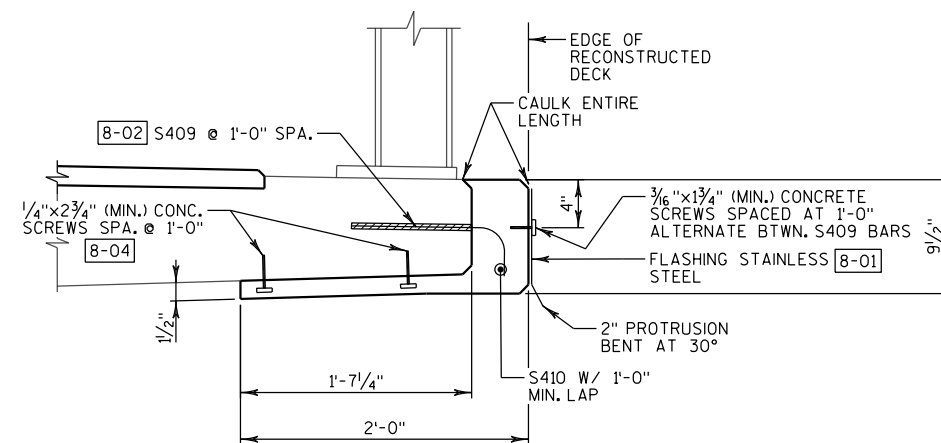
**DECK EDGE REPAIR DETAIL-1** [8-05]

(AT SURFACE REPAIR AREAS)



**LEGEND**

- [8-01] THE BID ITEM "FLASHING STAINLESS STEEL" SHALL INCLUDE REMOVING THE EXISTING FLASHING, PROVIDING AND INSTALLING THE STAINLESS FLASHING, SILICONE CAULK AND 3/16" CONCRETE SCREWS.  
FLASHING TO BE INSTALLED AFTER PROTECTIVE SURFACE TREATMENT APPLICATION. APPLY TREATMENT TO TOP AND SIDE OF REPAIR.  
CONCRETE SCREWS SHALL BE 410 STAINLESS STEEL.  
EXTEND FLASHING TO B.F. OF ABUTMENT DIAPHRAGMS.  
TOP OF FLASHING TO BE GAIN APPROX. 1-INCH BELOW TOP OF DECK/SLAB SURFACE.  
THE FLASHING IS TO BE A CONSTANT HEIGHT BASED ON THE THINNEST SLAB DEPTH OVER THE BRIDGE LENGTH.  
PROVIDE 2" MINIMUM FLASHING OVERLAP. FASTEN WITH 3/16"x2" (MIN.) CONCRETE SCREWS.  
CAULK SHALL BE NON-STAINING, GRAY NON-BITUMINOUS JOINT SEALER.
- [8-02] ADHESIVE ANCHORS NO. 4 BAR. EMBED 10" INTO SOUND CONCRETE.  
DECK EDGE REPAIR AREAS SHALL BE FILLED WITH "CONCRETE MASONRY BRIDGES". REPAIR ENTIRE DECK EDGE FROM CONCRETE JOINT REPAIR LIMITS AT SOUTH ABUTMENT TO FRONT FACE OF DIAPHRAGM AT NORTH ABUTMENT.
- [8-03] REMOVE TO 1" BEHIND REBAR OR SOUND CONCRETE. PAID FOR UNDER "DECK EDGE PREPARATION".
- [8-04] INCIDENTAL TO "CONCRETE MASONRY BRIDGES".
- [8-05] SOUTH DECK EDGE SHOWN. NORTH EDGE SIMILAR.
- [8-06] THESE BARS REQUIRE BAR COUPLERS AT STAGED CONSTRUCTION JOINT.

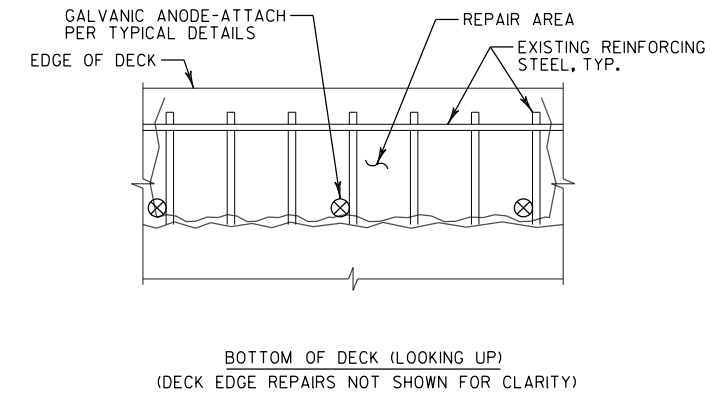


**DECK EDGE REPAIR DETAIL-2** [8-05]

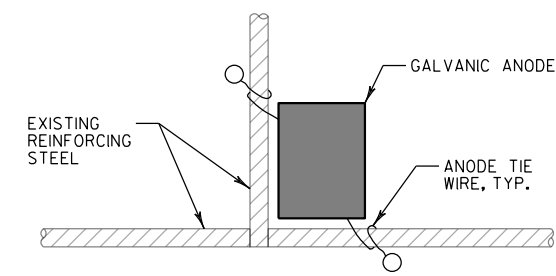
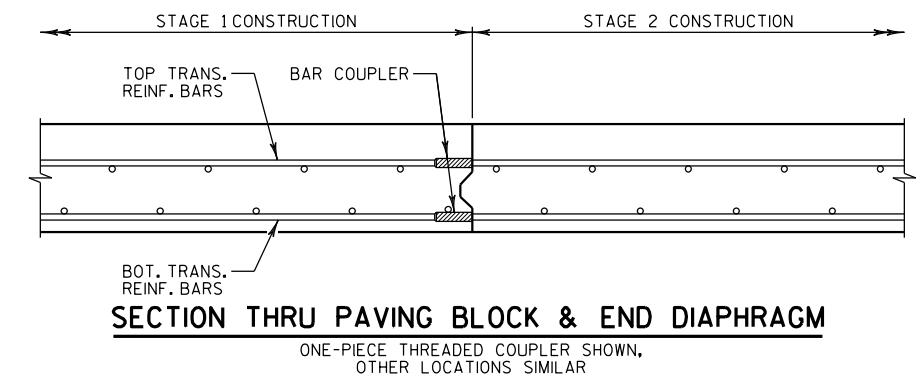
(ALL OTHER AREAS ALONG DECK EDGE REPAIR LIMITS)

NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>SUPERSTRUCTURE DETAILS-1</b>			SHEET 8 OF 10

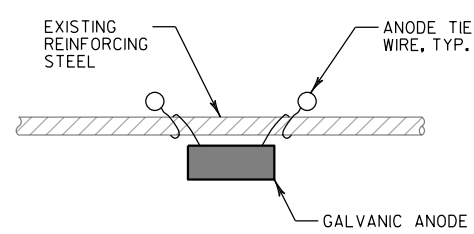




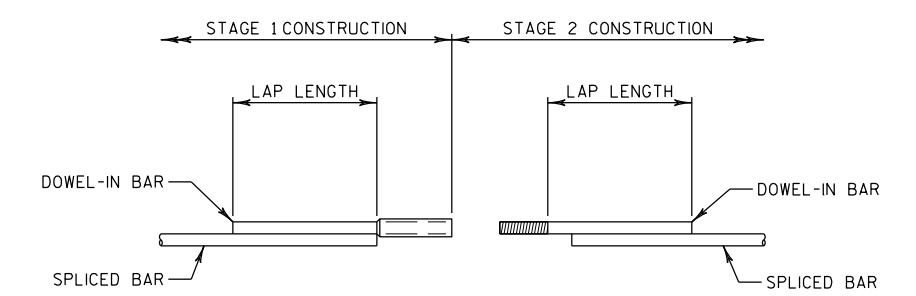
**PARTIAL PLAN TYPICAL CATHODIC PROTECTION REPAIR DETAILS**



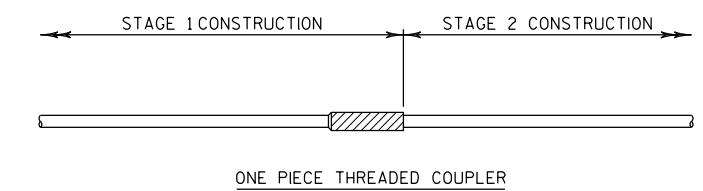
**TYPICAL INSTALLATION AT BAR STEEL INTERSECTION**



**TYPICAL INSTALLATION FOR BAR STEEL**



**DOWEL BAR COUPLER**



**BAR COUPLER ALTERNATIVES**

**COUPLER NOTE**

FOR DOWEL BAR COUPLERS, ALL DOWEL BARS SHALL BE LAPPED AND TIED TO THE REINFORCEMENT BARS.

**CATHODIC PROTECTION REPAIR NOTES**

SEE SPECIAL PROVISIONS "EMBEDDED GALVANIC ANODES" FOR DESCRIPTION, MATERIALS, CONSTRUCTION, MEASUREMENT, AND PAYMENT INFORMATION.

SURFACE REPAIR AREAS WITH CATHODIC PROTECTION ARE BASED ON THE PLANS AND AS DETERMINED BY THE ENGINEER. THE PLAN QUANTITIES FOR THE BID ITEM "EMBEDDED GALVANIC ANODES" IS BASED ON A MAXIMUM SPACING OF 18-INCHES. THE ACTUAL QUANTITY SHALL BE BASED ON THE FIELD CONDITIONS AND AS RECOMMENDED BY THE GALVANIC ANODE SUPPLIER.

SURFACE REPAIRS SHALL BE FILLED WITH REPAIR MATERIALS COMPATIBLE WITH CATHODIC PROTECTION, AS RECOMMENDED BY THE ANODE SUPPLIER.

EXISTING REINFORCING STEEL TO BE COMPLETELY CLEANED OF CORRODED MATERIAL AND CONCRETE TO PROVIDE SUFFICIENT ELECTRICAL CONNECTION AND BOND. CATHODIC PROTECTION PREPARATIONS ARE INCLUDED IN THE BID ITEM "EMBEDDED GALVANIC ANODES".

ANODES NEAREST TO EDGE OF REPAIR TO BE WITHIN 6" OF EDGE.

AFTER PLACEMENT, GALVANIC ANODES SHOULD MAINTAIN A MINIMUM TOP COVER OF 1/2" AND A MINIMUM BOTTOM COVER OF 3/4".

NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY TKB		PLANS CK'D. ETP	
SUPERSTRUCTURE DETAILS-2			SHEET 9 OF 10

**NOTES**

BID ITEM SHALL BE "RAILING STEEL TYPE "W" MODIFIED B-21-2" WHICH SHALL INCLUDE REMOVAL OF EXISTING THRIE BEAM AND ALL MATERIALS AND LABOR NECESSARY TO COMPLETE THE WORK SHOWN.

ALL MATERIALS USED IN FABRICATION SHALL BE MADE FROM MATERIALS CONFORMING TO A.S.T.M. DESIGNATION A709 GRADE 36 UNLESS NOTED OTHERWISE.

SHIM PLATES 6"x1/16"x6" MAY BE USED BETWEEN TOP OF POST AND CHANNEL MEMBER TO ACHIEVE VERTICAL ALIGNMENT.

ALL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION.

PRIOR TO GALVANIZING, ALL STEEL STRUCTURAL TUBE SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS.

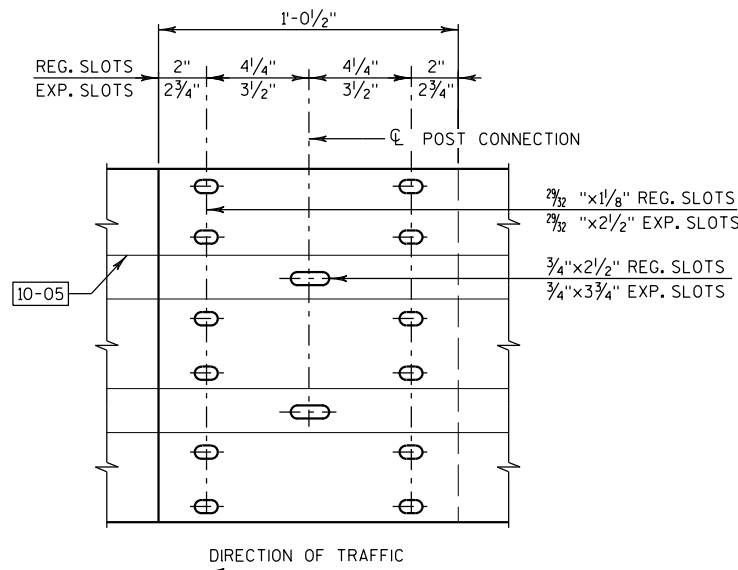
RAIL MEMBERS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC AND THE UPPER RAIL SHALL LAP THE LOWER RAIL.

NEW BOLTS AND REFLECTORS SHALL BE FURNISHED AND USED TO RESET THE STRUCTURAL TUBES AND W-RAIL.

ALL RAIL POST BASE PLATES, INCLUDING THE BOTTOM 2"-3" OF RAIL POSTS, AND EXPOSED ANCHOR BOLTS & NUTS SHALL BE GIVEN A NO. 6 BLAST CLEANING BY S.S.P.C. SPECIFICATIONS AND COATED WITH COLD GALVANIZED PAINT, PAID FOR AT THE UNIT BID PRICE FOR "REPAIR GALVANIZED COATING".

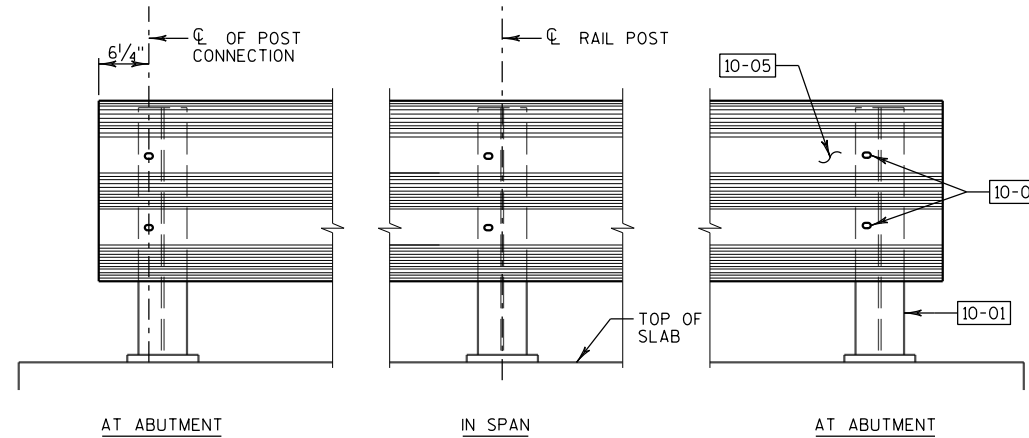
**LEGEND**

- 10-01 EXISTING W6x25. DRILL (2)-3/4" DIA. HOLES FOR BOLT 10-07.
- 10-02 EXISTING C8x11.5 WITH 1/16" DIA. HOLES. ATTACH TO 10-04 WITH BOLTS 10-08.
- 10-03 EXISTING PLATE 1/2"x5 3/4"x6" WITH 1/4" DIA. HOLE FOR BOLTS 10-08.
- 10-04 STRUCTURAL TUBE 6"x4"x3/8" WITH 1/16" DIA. HOLES, 6" LONG. ATTACH TO 10-02 & 10-03 WITH BOLTS 10-08. LOCATE TOP HOLES SO 10-02 DOES NOT INTERFERE WITH PLACEMENT OF 10-05.
- 10-05 NEW THRIE BEAM. ATTACH TO 10-01 WITH BOLTS 10-07.
- 10-06 1 3/4"x3" MOUNTING BOLT WASHER, EIGHT GAGE GALVANIZED.
- 10-07 5/8" DIA. BUTTON HEAD RAIL MOUNTING BOLT WITH ROUND WASHER AND NUT, 2 PER POST.
- 10-08 5/8" DIA. x2" LONG HEX. BOLTS WITH NUT AND TWO WASHERS EACH, 4 REQUIRED PER POST CONNECTION, 8 REQUIRED PER SPLICE CONNECTION.
- 10-09 EXISTING PLATE 1/2"x5 3/4"x1 1/2" WITH 1/4" DIA. HOLES FOR BOLTS 10-08.
- 10-10 NOT USED.
- 10-11 INSTALL (2) 10-04 STRUCTURAL TUBES OR (1) MODIFIED 10-04, 1 1/2" LONG.

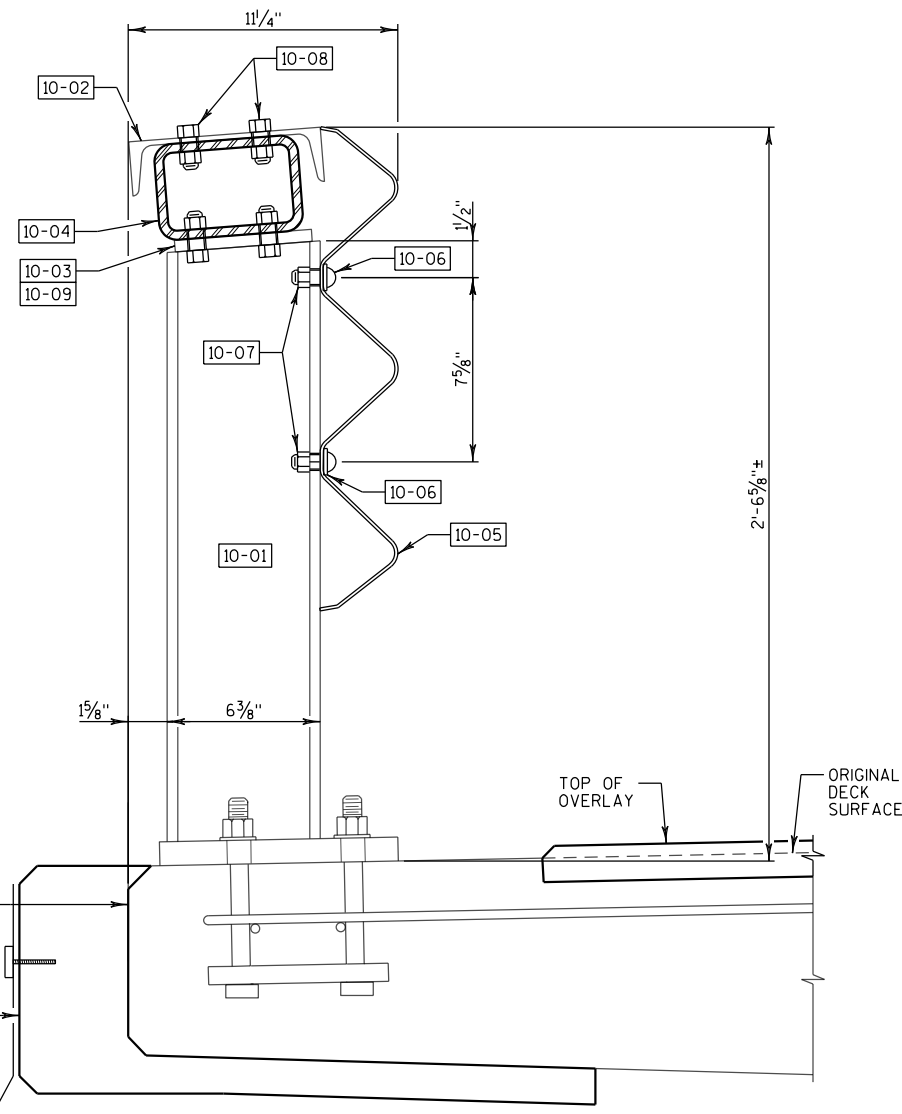


**RAIL MEMBER SPLICE**

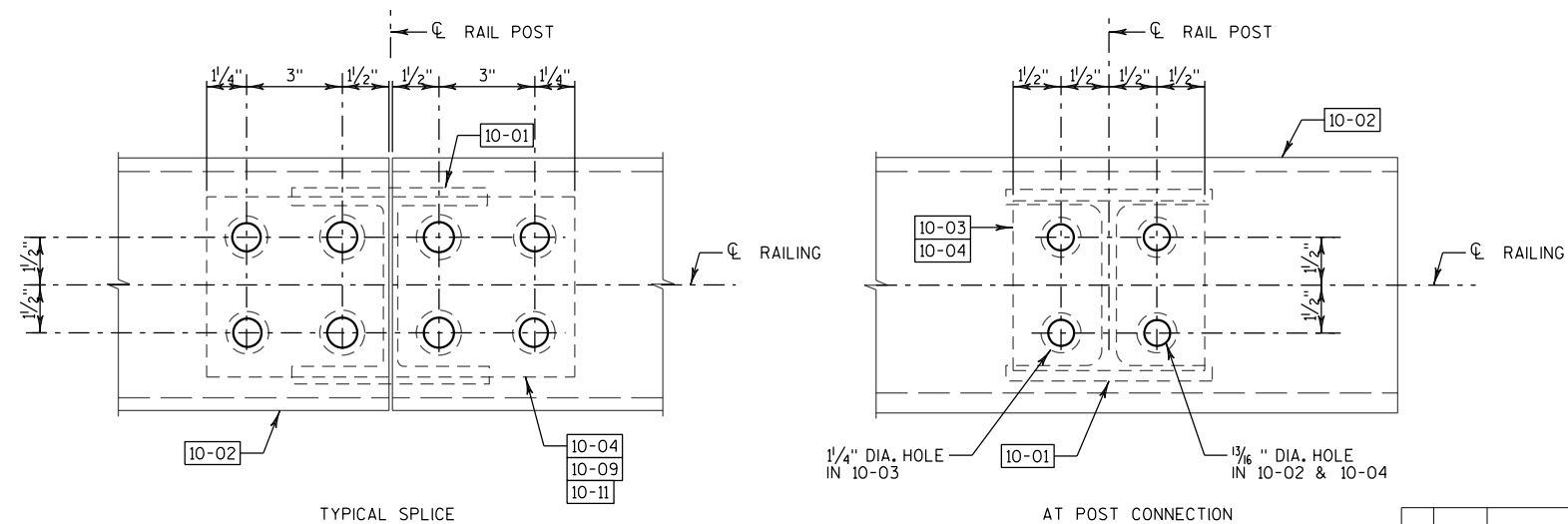
5/8" DIA. BUTTON HEAD OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS



**ELEVATION**

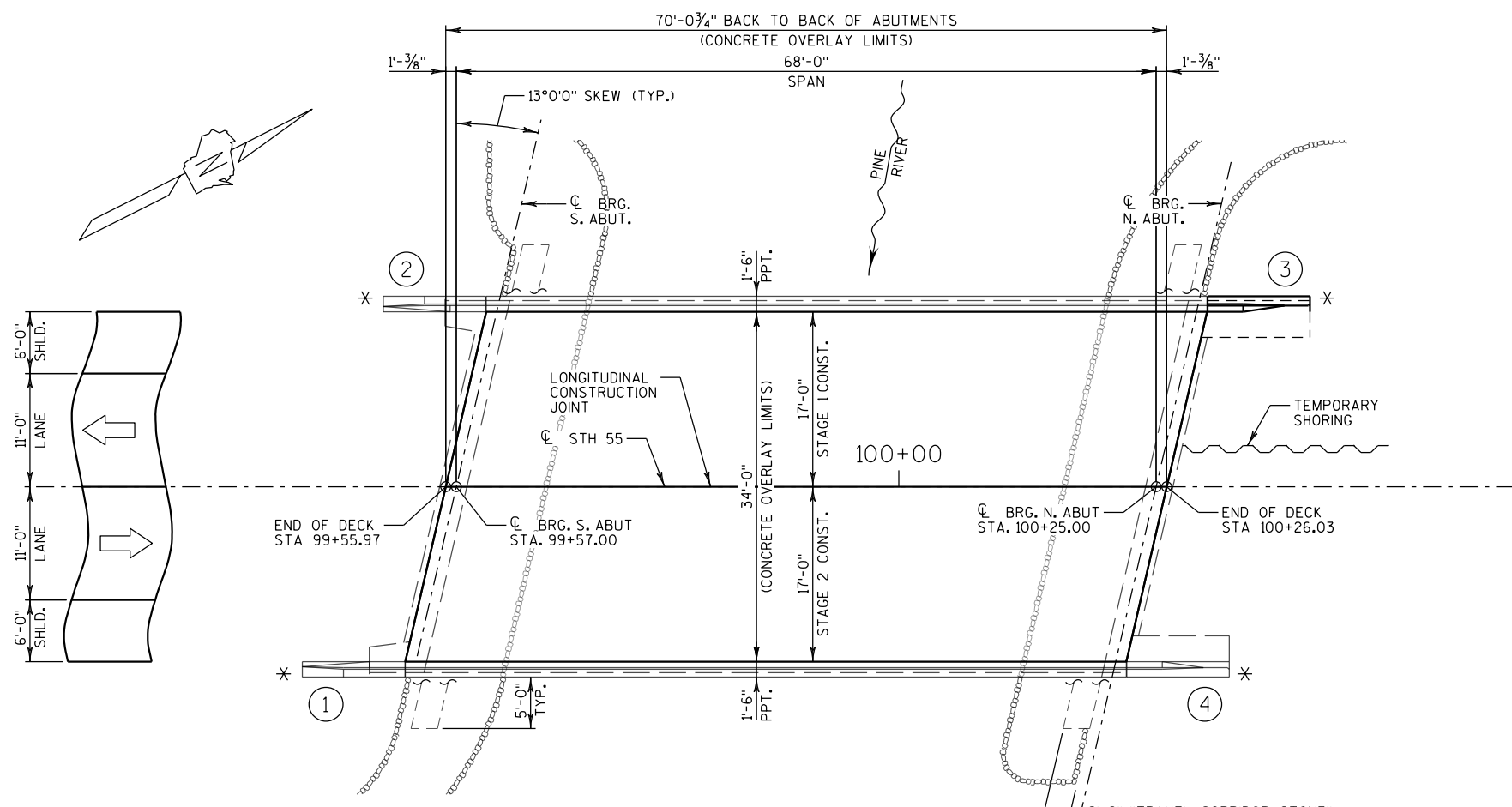


**SECTION THRU RAILING**



**CHANNEL MEMBER DETAILS**

NO.	DATE	REVISION	BY
STRUCTURE B-21-2			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>RAILING TYPE W MODIFIED</b>			SHEET 10 OF 10



**GENERAL PLAN**

(CONCRETE OVERLAY - SINGLE SPAN PRESTRESSED DECK GIRDER BRIDGE)

**DESIGN DATA**

DESIGN LOADING \_\_\_\_\_ HS20  
 INVENTORY RATING \_\_\_\_\_ HS19  
 OPERATING RATING \_\_\_\_\_ HS33  
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) \_\_\_\_\_ 220 KIPS

**MATERIAL PROPERTIES**

CONCRETE MASONRY \_\_\_\_\_  
 OVERLAY DECKS & SUPERSTRUCTURE  $f'_c = 4,000$  PSI  
 SUBSTRUCTURE  $f'_c = 3,500$  PSI  
 HIGH STRENGTH BAR STEEL \_\_\_\_\_  
 REINFORCEMENT GRADE 60  $f_y = 60,000$  PSI

**TRAFFIC DATA**

ADT (2027) = 230  
 ADT (2047) = 250  
 DESIGN SPEED = 60 MPH

**SCOPE OF WORK B-21-8**

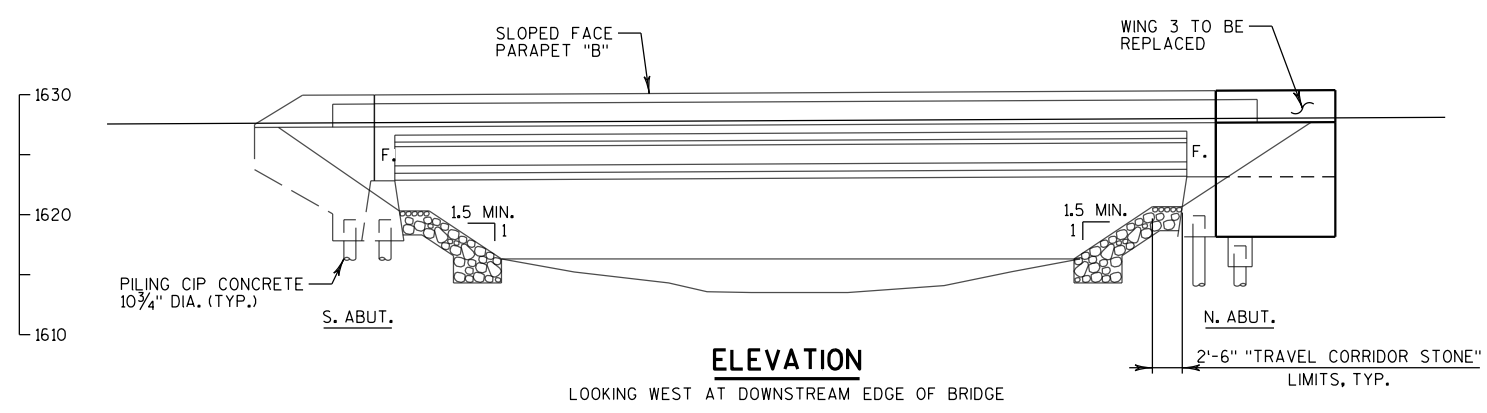
1. REPLACE WING 3.
2. PERFORM DECK PREPARATION AT LOCATIONS DESIGNATED BY ENGINEER.
3. INSTALL CONCRETE MASONRY OVERLAY.
4. PERFORM CONCRETE SURFACE REPAIR AT LOCATIONS DESIGNATED BY ENGINEER.

**LIST OF DRAWINGS**

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. CONSTRUCTION STAGING
4. WINGWALL REMOVALS
5. WINGWALL MODIFICATIONS-1
6. WINGWALL MODIFICATIONS-2
7. SLOPED FACE PARAPET "B"

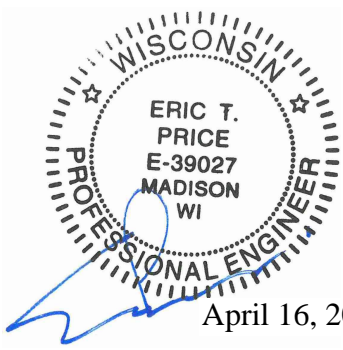
**LEGEND**

- (X) INDICATES WING NUMBER
- \* MGS THRIE BEAM ATTACHMENT



**ELEVATION**

LOOKING WEST AT DOWNSTREAM EDGE OF BRIDGE



**BRIDGE OFFICE CONTACT**

AARON BONK, P.E.  
 TELEPHONE: (608) 261-0261

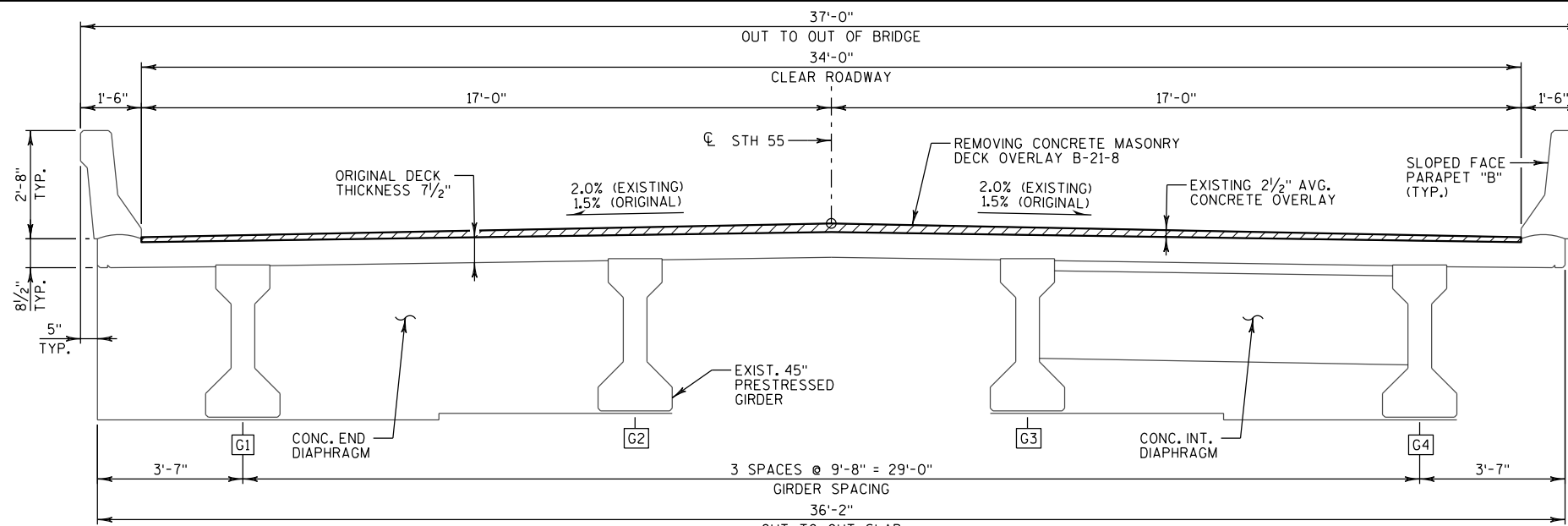
**CONSULTANT CONTACT**

ERIC PRICE, P.E.  
 TELEPHONE: (608) 826-6146

NO.	DATE	REVISION	BY
<b>CORRE</b>			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED		SDR	DATE
CHIEF STRUCTURES DESIGN ENGINEER		04/17/24	
<b>STRUCTURE B-21-8</b>			
STH 55 OVER PINE RIVER			
COUNTY	FOREST	TOWN/VILLAGE	ALVIN
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	ETP	DESIGN CK'D.	BH
DRAWN BY	TKB	PLANS CK'D.	ETP
<b>GENERAL PLAN</b>			SHEET 1 OF 7

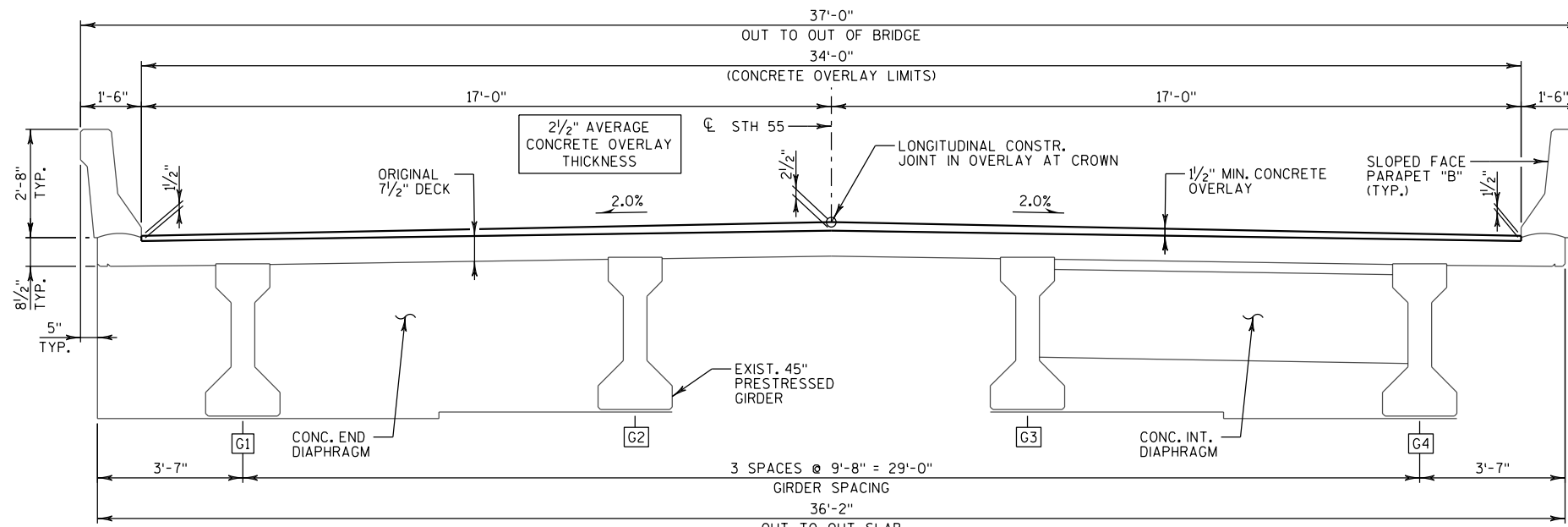
8

8



**EXISTING CROSS SECTION THRU BRIDGE**

(LOOKING NORTH)



**PROPOSED CROSS SECTION THRU BRIDGE**

(LOOKING NORTH)

**TOTAL ESTIMATED QUANTITIES**

BID ITEM NUMBER	BID ITEM	UNIT	SOUTH ABUT.	NORTH ABUT.	SUPER.	TOTALS
203.0220	REMOVING STRUCTURE B-21-8	EACH	-	-	-	1
203.0335.02	DEBRIS CONTAINMENT OVER WATERWAY B-21-8	EACH	-	-	-	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-21-8	EACH	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	-	65	-	65
502.0100	CONCRETE MASONRY BRIDGES	CY	-	10.1	-	10
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	-	265	265
502.3205	PIGMENTED SURFACE SEALER RESEAL	SY	8	4	56	68
502.3210	PIGMENTED SURFACE SEALER	SY	-	4	-	4
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	-	6	-	6
502.4206	ADHESIVE ANCHORS NO. 6 BAR	EACH	-	8	-	8
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	-	910	-	910
509.0301	PREPARATION DECKS TYPE 1	SY	-	-	29	29
509.0302	PREPARATION DECKS TYPE 2	SY	-	-	12	12
509.0505.S	CLEANING DECKS TO REAPPLY CONCRETE MASONRY OVERLAY	SY	-	-	265	265
509.1500	CONCRETE SURFACE REPAIR	SF	10	10	30	50
509.2000	FULL-DEPTH DECK REPAIR	SY	-	-	1	1
509.2500	CONCRETE MASONRY OVERLAY DECKS	CY	-	-	21	21
509.9005.S	REMOVING CONCRETE MASONRY DECK OVERLAY B-21-8	SY	-	-	265	265
511.1200	TEMPORARY SHORING B-21-8	SF	-	120	-	120
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	3	-	3
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-	35	-	35
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	-	-	1	1
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-	10	-	10
SPV.0195.01	TRAVEL CORRIDOR STONE	TON	11	11	-	22
	NON-BID ITEMS					
	FILLER	SIZE				1/2"

ALL ITEMS ARE CATEGORY 0030

**LEGEND**

2-01 DEBRIS CONTAINMENT IS TO BE USED ONLY FOR FULL-DEPTH DECK REPAIRS OVER THE PINE RIVER, USE OF DEBRIS CONTAINMENT AT OTHER LOCATIONS WILL NOT BE PAID FOR.

**ABBREVIATIONS:**

ABUT.	-	ABUTMENT
BTWN.	-	BETWEEN
B.F.	-	BACK FACE
BOT.	-	BOTTOM
BRG.	-	BEARING
CL.	-	CLEAR
CONST.	-	CONSTRUCTION
DIA.	-	DIAMETER
E.F.	-	EACH FACE
EXIST.	-	EXISTING
F.F.	-	FRONT FACE
HORIZ.	-	HORIZONTAL
JT.	-	JOINT
LONG.	-	LONGITUDINAL
PPT.	-	PARAPET
PROJ.	-	PROJECTION
SPA.	-	SPACED
STD.	-	STANDARD
SYMM.	-	SYMMETRICAL
T&B	-	TOP AND BOTTOM
TRANS.	-	TRANSVERSE
TYP.	-	TYPICAL
VERT.	-	VERTICAL
U.N.O.	-	UNLESS NOTED OTHERWISE

**GENERAL NOTES**

THE PROPOSED WORK INCLUDES PLACEMENT OF A CONCRETE OVERLAY, CONCRETE SURFACE REPAIR AND NORTHWEST WINGWALL REPLACEMENT.

DRAWINGS SHALL NOT BE SCALED.

DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.

THE EXISTING CONCRETE MASONRY OVERLAY SHALL BE REMOVED FROM THE ENTIRE BRIDGE DECK UNDER THE BID ITEM "REMOVING CONCRETE MASONRY DECK OVERLAY". A MINIMUM 1-INCH OF EXISTING CONCRETE COVER SHALL BE MAINTAINED.

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

THE FIRST DIGIT OF A THREE DIGIT AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR MARK SIGNIFY THE BAR SIZE.

CLEAN, STRAIGHTEN, AND EXTEND EXISTING BAR STEEL REINFORCEMENT 24 BAR DIAMETERS INTO NEW CONSTRUCTION WHERE APPLICABLE.

ALL CONCRETE REMOVAL NOT COVERED WITH A CONCRETE OVERLAY SHALL BE DEFINED BY A 1/2" DEEP SAW CUT.

"PREPARATION DECKS TYPE 1", "PREPARATION DECKS TYPE 2", "FULL-DEPTH DECK REPAIR", AND "CONCRETE SURFACE REPAIR" QUANTITIES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE THE FIELD IDENTIFICATION AND DETERMINATION OF ALL REPAIR LOCATIONS WITH THE ENGINEER. DECK PREPARATION AND FULL-DEPTH DECK REPAIRS SHALL BE FILLED WITH "CONCRETE MASONRY OVERLAY DECKS".

ALL PREVIOUS PATCHES SHALL BE REMOVED UNDER THE BID ITEM FOR "PREPARATION DECKS TYPE 1" AND "PREPARATION DECKS TYPE 2".

MATERIALS, EQUIPMENT, ETC. SHALL NOT BE STOCKPILED/STORED ON THE BRIDGE DECK WITHOUT PRIOR APPROVAL FROM THE ENGINEER.

PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE ENTIRE SURFACE OF THE NEW CONCRETE OVERLAY.

"PIGMENTED SURFACE SEALER" TO BE APPLIED TO THE RECONSTRUCTED PARAPET ON WING 3. "PIGMENTED SURFACE SEALER RESEAL" SHALL BE APPLIED TO EXISTING PARAPET CONCRETE.

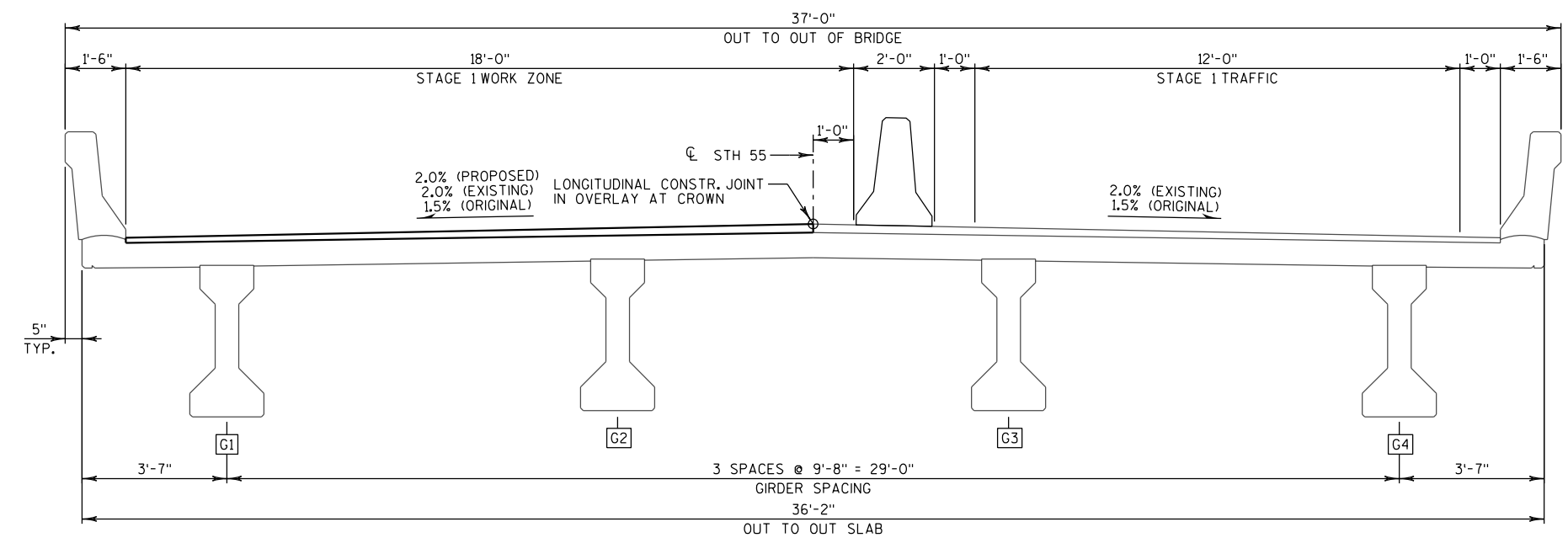
REMOVAL OF WING 3 IS INCLUDED IN THE "REMOVING STRUCTURE" BID ITEM.

THE AVERAGE OVERLAY THICKNESS INCLUDES AN ADDITIONAL 1/2" TO ACCOUNT FOR VARIATIONS IN THE DECK.

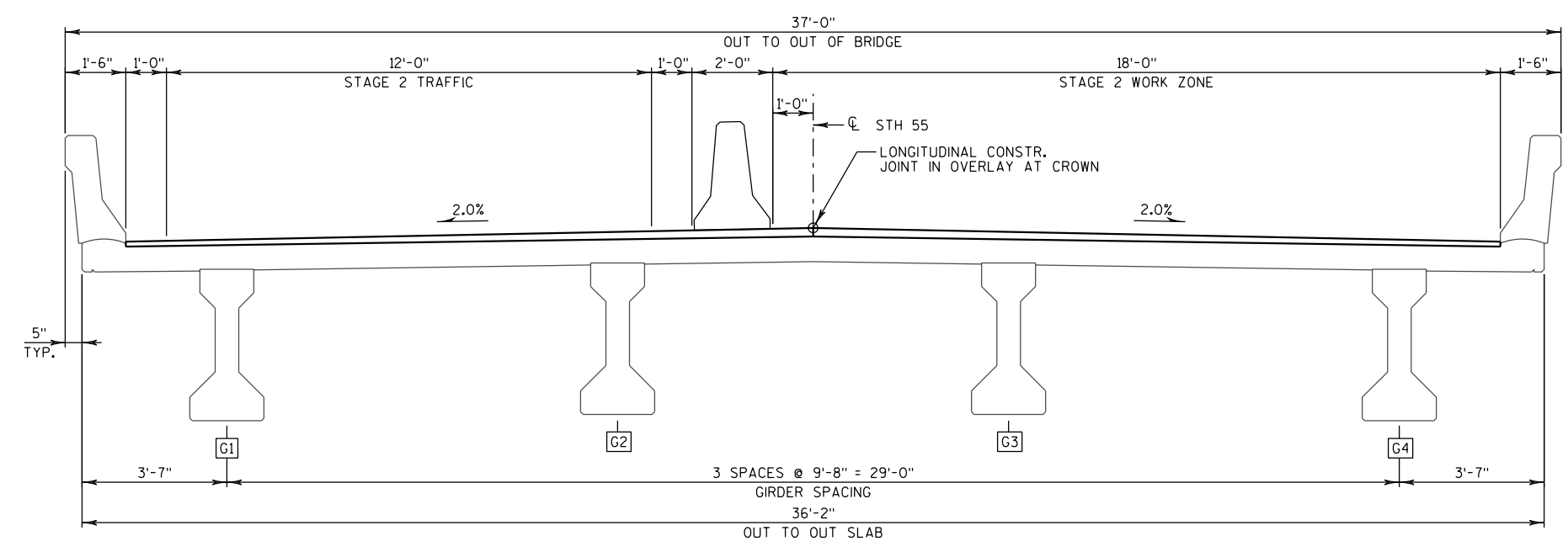
PROFILE GRADE LINE SHALL BE DETERMINED IN THE FIELD BASED ON A MINIMUM CONCRETE OVERLAY THICKNESS OF 2 1/2" AT THE CL PLACED ABOVE THE DECK SURFACE AFTER SURFACE PREPARATION. AVERAGE CONCRETE OVERLAY THICKNESS IS 2 1/2". IF EXPECTED AVERAGE CONCRETE OVERLAY THICKNESS IS EXCEEDED BY MORE THAN 1/2", CONTACT THE STRUCTURES DESIGN SECTION.

SEAL OVERLAY CONSTRUCTION JOINTS ACCORDING TO SECTION 502.3.13.1 OF THE STANDARD SPECIFICATIONS. COST INCIDENTAL TO BID ITEM "CONCRETE MASONRY OVERLAY DECKS".

NO.	DATE	REVISION	BY
STRUCTURE B-21-8			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>CROSS SECTION &amp; QUANTITIES</b>			SHEET 2 OF 7



**STAGE 1 TYPICAL SECTION THRU BRIDGE**  
(LOOKING NORTH)



**STAGE 2 TYPICAL SECTION THRU BRIDGE**  
(LOOKING NORTH)

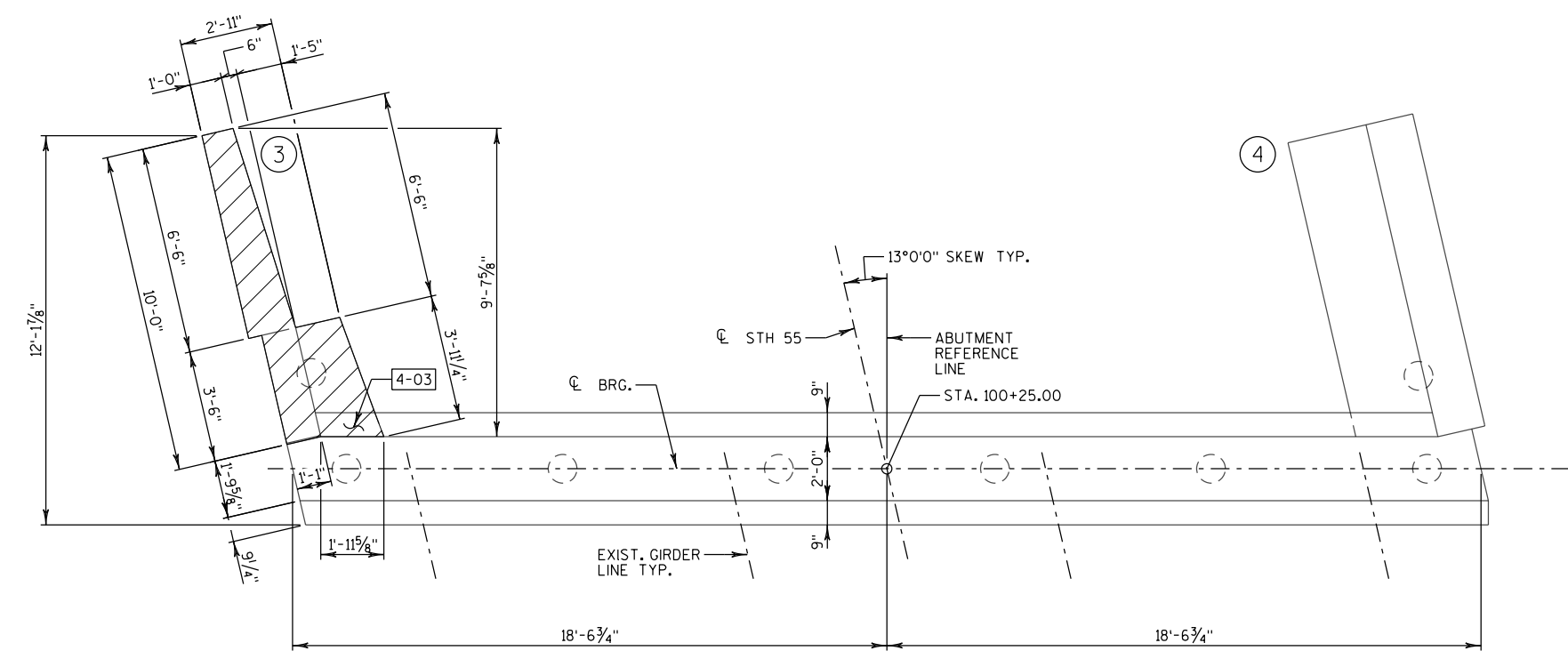
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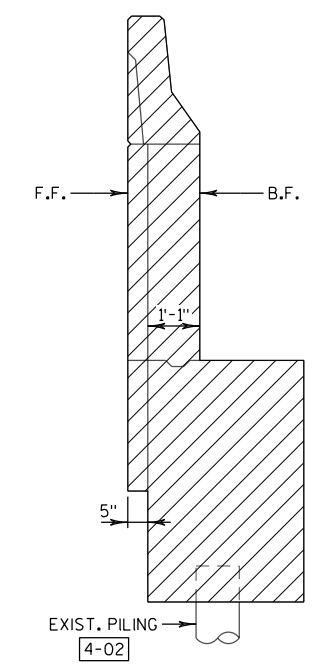
NO.	DATE	REVISION	BY
STRUCTURE B-21-8			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>CONSTRUCTION STAGING</b>			SHEET 3 OF 7

**LEGEND**

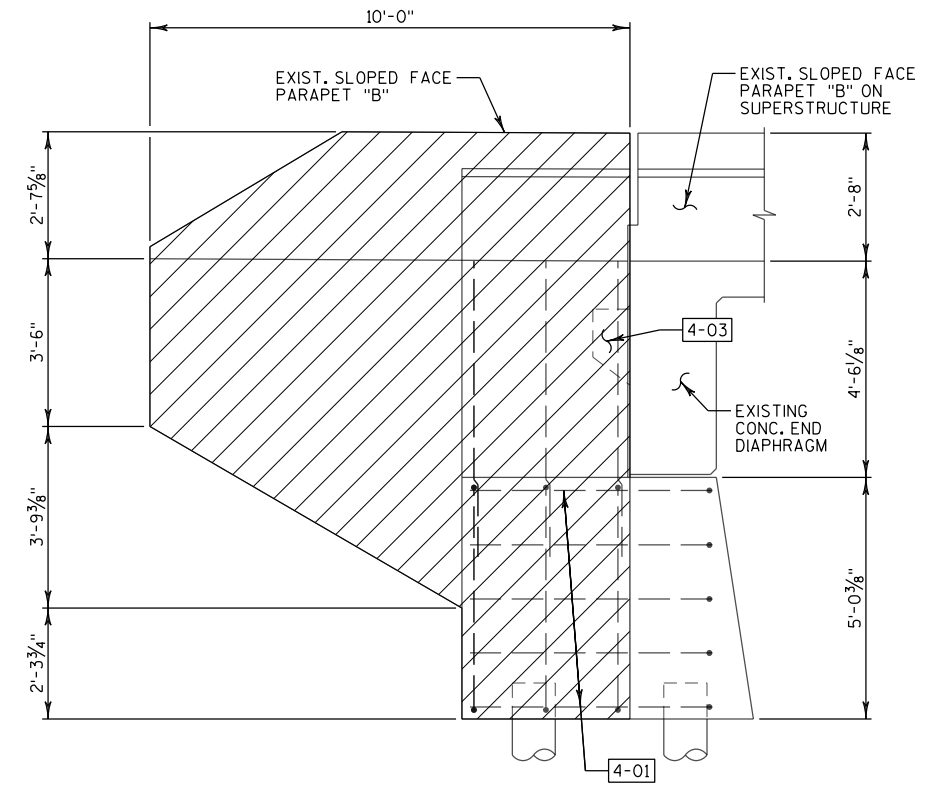
- (X) INDICATES WING NUMBER.
- [Hatched Box] INDICATES REMOVAL AREA.
- 4-01 CLEAN, STRAIGHTEN & INCORPORATE INTO NEW WORK. DO NOT CUT UNLESS CLEARANCE REQUIREMENTS ARE VIOLATED. REPLACE DAMAGED OR CORRODED REINFORCEMENT AS DIRECTED BY THE ENGINEER.
- 4-02 EXISTING PILING TO BE INCORPORATED INTO NEW WORK.
- 4-03 EXISTING PAVING NOTCH IN REMOVAL AREA TO REMAIN.



**EXISTING NORTH ABUTMENT PLAN**



**EXISTING WING 3 SECTION**



**EXISTING WING 3 ELEVATION**

NO.	DATE	REVISION	BY
<b>STRUCTURE B-21-8</b>			
DRAWN BY TKB		PLANS CK'D. ETP	
<b>WINGWALL REMOVALS</b>			SHEET 4 OF 7

8

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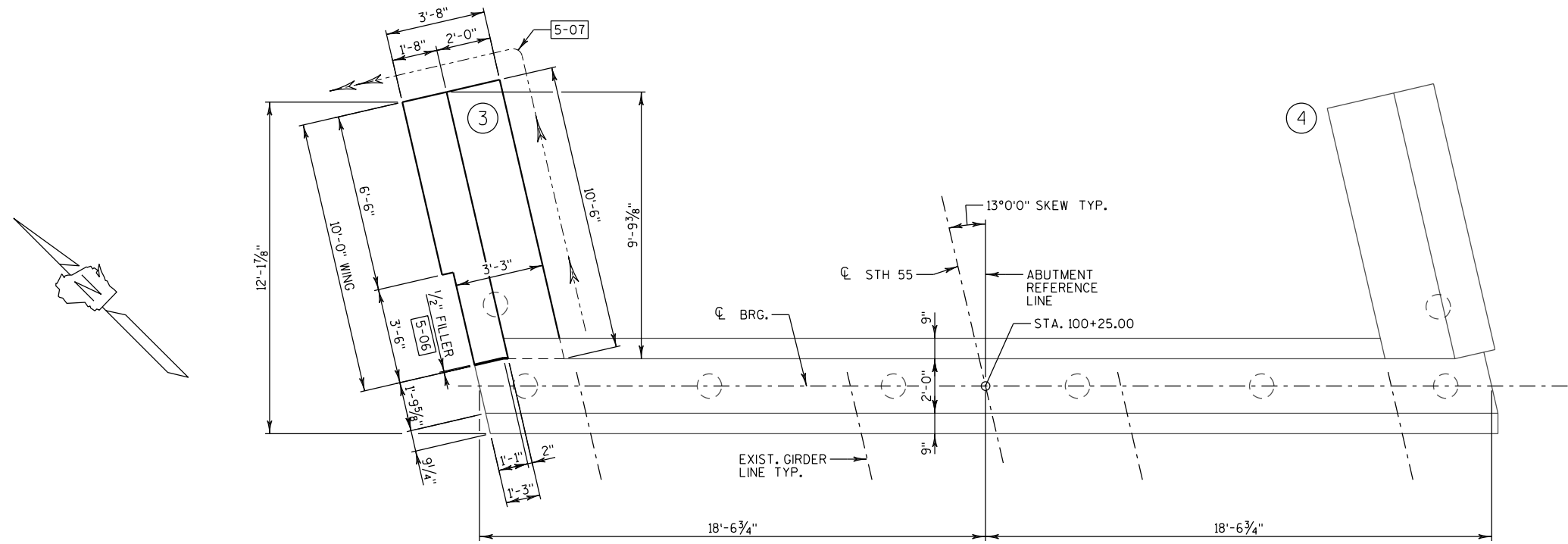
**NOTES**

SEAL ALL HORIZONTAL & VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).

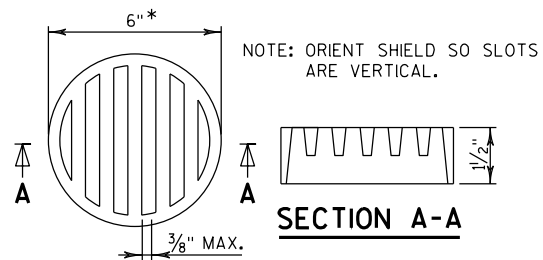
PRESERVE EXISTING REINFORCEMENT & INCORPORATE INTO NEW WORK.

**LEGEND**

- (X) INDICATES WING NUMBER.
- 5-01 BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- 5-02 TEMPORARY BARRIER, SEE ROADWAY PLANS FOR DETAILS AND QUANTITIES. PIN BARRIERS AS REQUIRED ON APPROACHES. DO NOT PIN BARRIER ON BRIDGE DECK.
- 5-03 RESTORE EXISTING SLOPE IN FRONT OF WING. BACKFILL IN FRONT OF THE WING THAT IS NOT EXPLICITLY COVERED BY OTHER ITEMS IS INCIDENTAL TO "EXCAVATION FOR STRUCTURES". PLACE BACKFILL IN FRONT OF WING PRIOR TO PLACING "BACKFILL STRUCTURE TYPE A" BEHIND WING.
- 5-04 THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCTURE TYPE A" REQUIRED DIRECTLY BEHIND WING 3 FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES.
- 5-05 EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE TYPE DF SCHEDULE A SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT FOR THE ENTIRE WING LENGTH.
- 5-06 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- 5-07 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



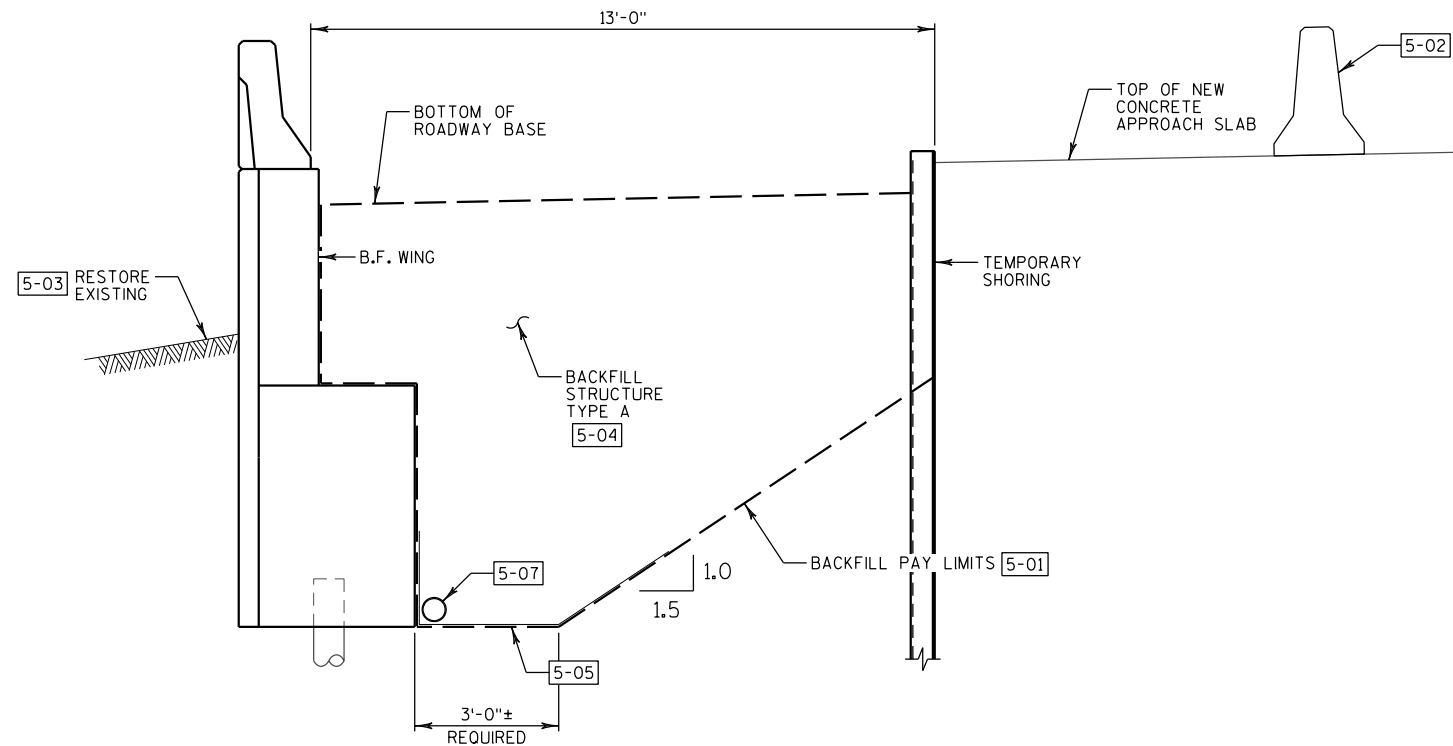
**RECONSTRUCTED NORTH ABUTMENT PLAN**



**RODENT SHIELD DETAIL**

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

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



**TYPICAL FILL SECTION AT WING**

8

8

NO.	DATE	REVISION	BY
STRUCTURE B-21-8			
DRAWN BY TKB		PLANS CK'D. ETP	
WINGWALL MODIFICATIONS-1			SHEET 5 OF 7

BILL OF BARS - WING 3

BAR MARK	NO. REQD	LENGTH	BENT	BAR SERIES	LOCATION
COATED BARS					TOTAL WEIGHT = 710 LBS
A501	5	15'-8"	X		WING FOOTING - STIRRUPS VERT.
A502	7	16'-6"	X		WING FOOTING - STIRRUPS VERT.
A603	6	11'-3"			WING FOOTING - B.F. HORIZ.
A604	1	11'-1"			WING FOOTING - TOP HORIZ.
A605	1	10'-10"			WING FOOTING - TOP HORIZ.
A506	6	6'-3"			WING FOOTING - F.F. HORIZ.
A507	6	6'-2"			WING FOOTING - F.F. HORIZ.
A508	5	13'-4"	X		WING - STIRRUPS VERT.
A509	9	13'-11"	X		WING - STIRRUPS VERT.
A410	6	9'-8"			WING - B.F. HORIZ.
A411	4	4'-9"			WING - F.F. HORIZ.
A412	4	6'-2"			WING - F.F. HORIZ.
A613	1	9'-8"			WING - B.F., TOP HORIZ.
A614	1	5'-5"			WING - F.F., TOP HORIZ.
A615	1	6'-2"			WING - F.F., TOP HORIZ.

THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR

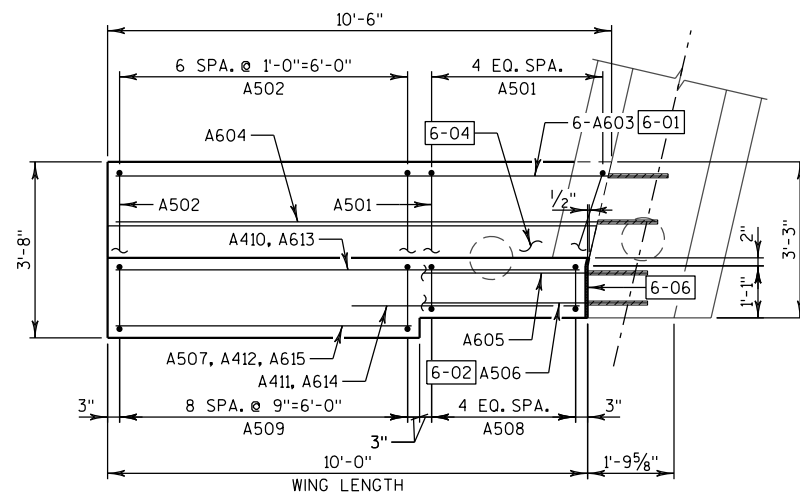
NOTES

SEAL ALL HORIZONTAL & VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.

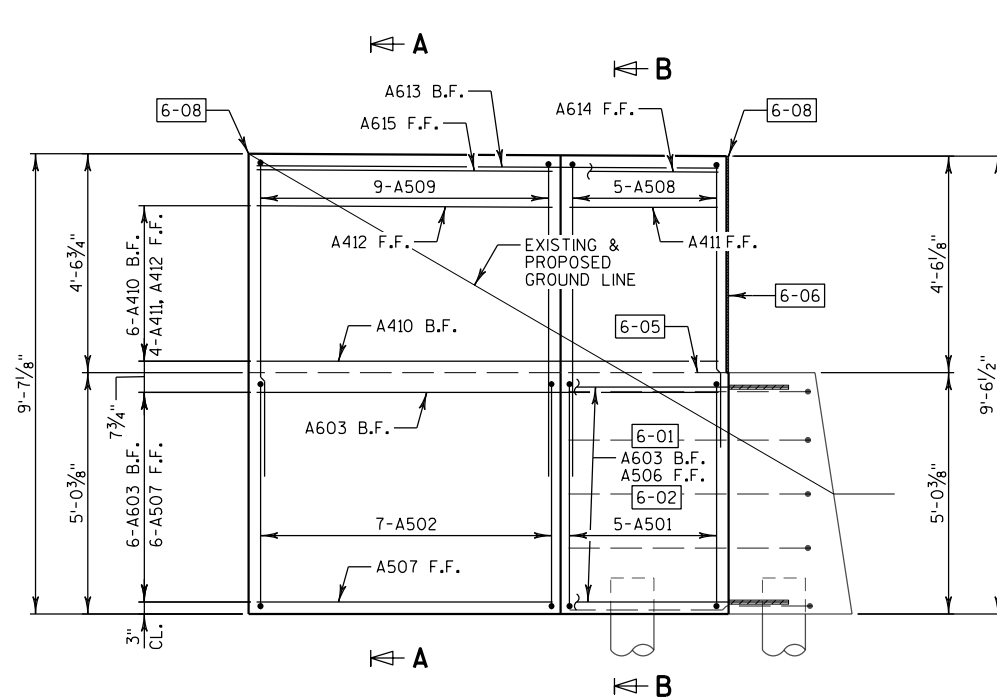
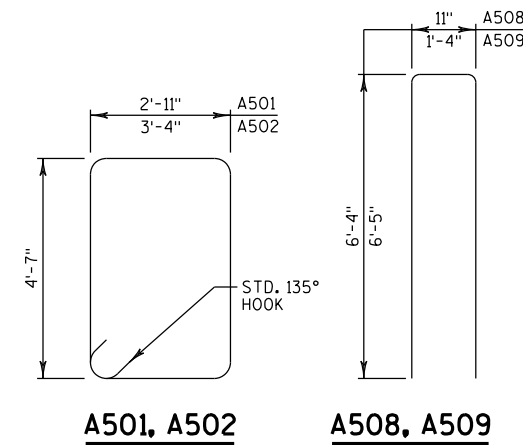
PRESERVE EXISTING REINFORCEMENT & INCORPORATE INTO NEW WORK.

LEGEND

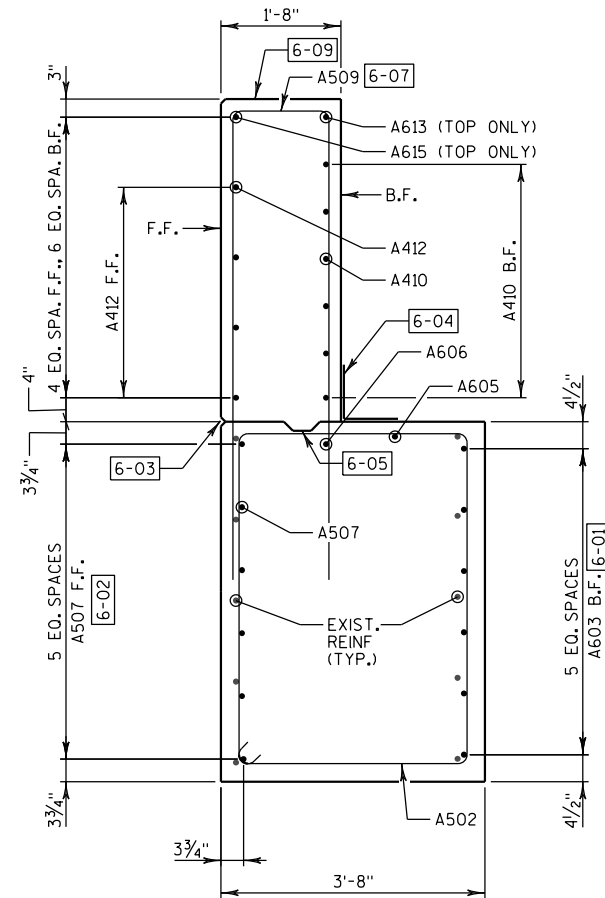
- [6-01] ADHESIVE ANCHORS NO. 6 BAR. EMBED 1'-0" MIN. INCREASE EMBEDMENT IF NECESSARY TO MAINTAIN CLEAR COVER ON OPPOSITE END OF BAR.
- [6-02] ADHESIVE ANCHORS NO. 5 BAR. EMBED 1'-0" MIN.
- [6-03] 3/4" "V" GROOVE ON F.F. WINGWALL.
- [6-04] 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZONTAL AND VERTICAL JOINTS ON BACK FACE.
- [6-05] OPTIONAL CONSTRUCTION JOINT FORMED BY BEVELED 2"x6" KEYWAY WITH MEMBRANE ON BACK FACE.
- [6-06] 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- [6-07] PULL UP TO 2" CLEAR.
- [6-08] MATCH EXISTING ELEVATIONS.
- [6-09] CONSTRUCTION JOINT. STRIKE OFF AS SHOWN.



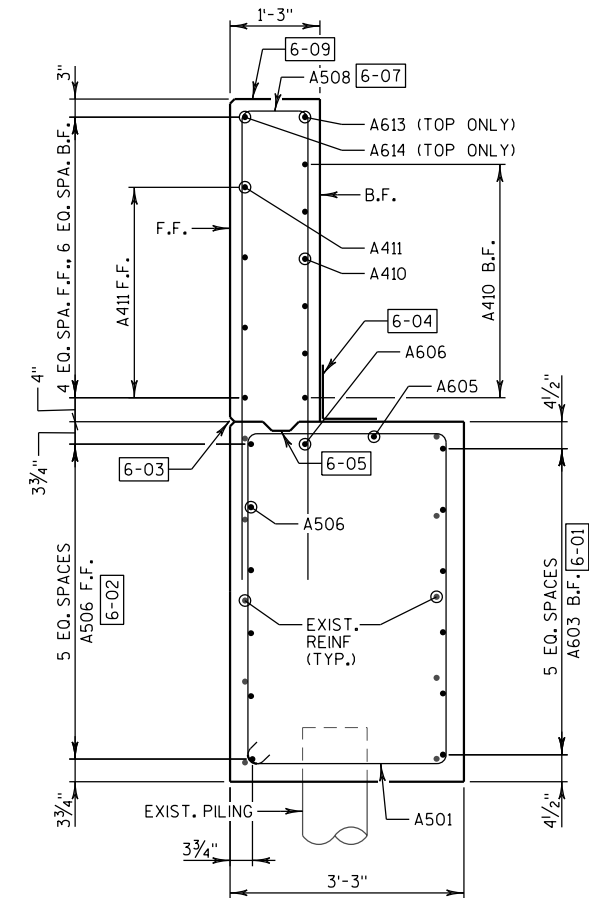
RECONSTRUCTED WING 3 PLAN



RECONSTRUCTED WING 3 ELEVATION



SECTION A-A (WING 3)



SECTION B-B (WING 3)

NO.	DATE	REVISION	BY
STRUCTURE B-21-8			
DRAWN BY TKB		PLANS CK'D. ETP	
WINGWALL MODIFICATIONS-2			SHEET 6 OF 7



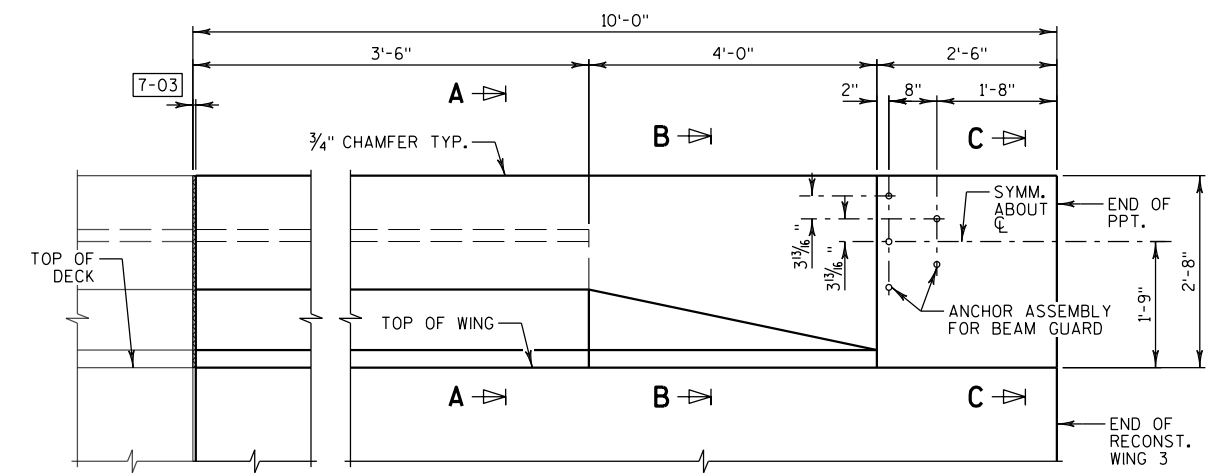
**LEGEND**

- 7-01 T401, T402 & T403 BARS TO BE TIED TO WING STEEL BEFORE WING IS Poured.
- 7-02 CONSTRUCTION JOINT. STRIKE OFF AS SHOWN.
- 7-03 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.)
- 7-04 3/4" 'V' GROOVE IN FRONT FACE OF WING/PARAPET.

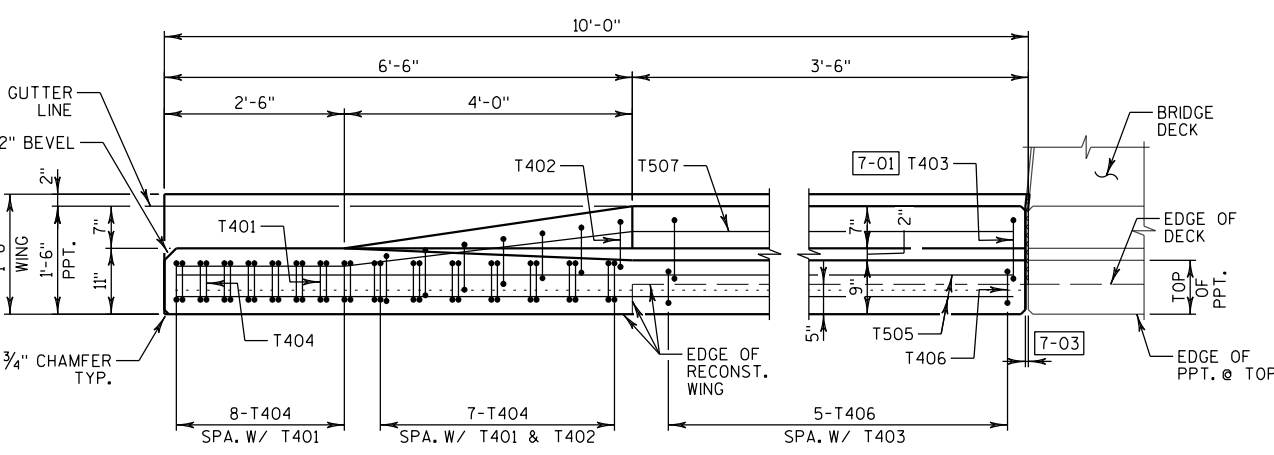
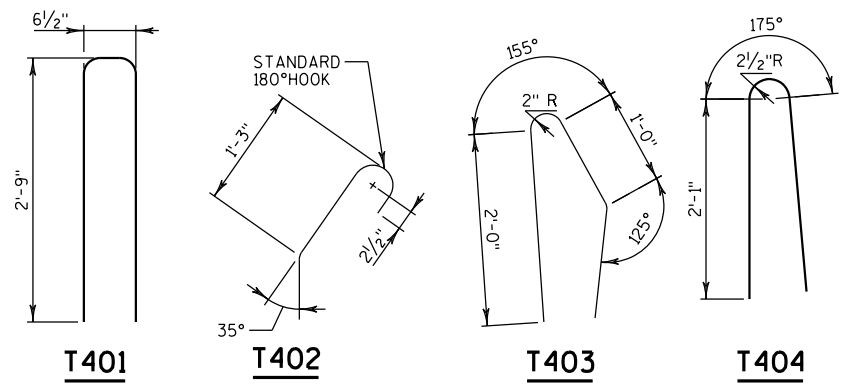
**BILL OF BARS - PARAPET ON WING 3**

BAR MARK	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
COATED BARS					
TOTAL WEIGHT = 200 LBS					
7-01	T401	15	5'-10"	X	WING 3 PARAPET VERT.
7-01	T402	7	3'-1"	X	WING 3 PARAPET VERT.
7-01	T403	5	4'-7"	X	WING 3 PARAPET VERT.
	T404	15	4'-9"	X	WING 3 PARAPET VERT.
	T505	4	9'-8"		WING 3 PARAPET HORIZ.
	T406	5	4'-10"	X	WING 3 PARAPET VERT.
	T507	1	9'-8"	X	WING 3 PARAPET HORIZ.

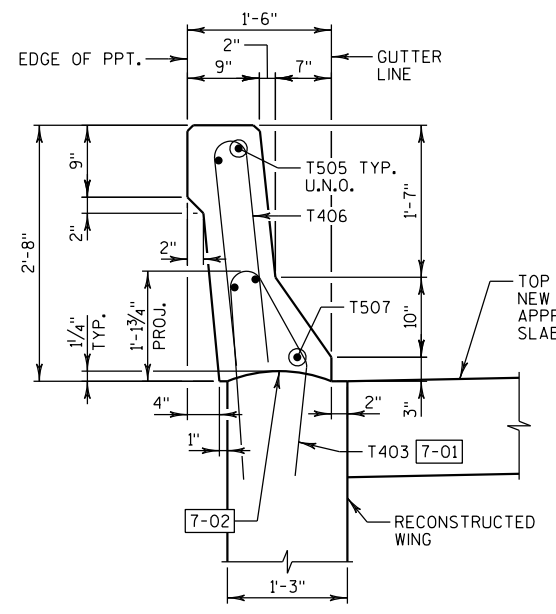
THE FIRST DIGIT OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE. DIMENSIONS IN BENDING DETAILS ARE OUT-TO-OUT OF BAR



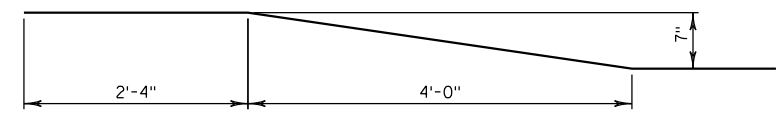
**PARAPET INSIDE ELEVATION**



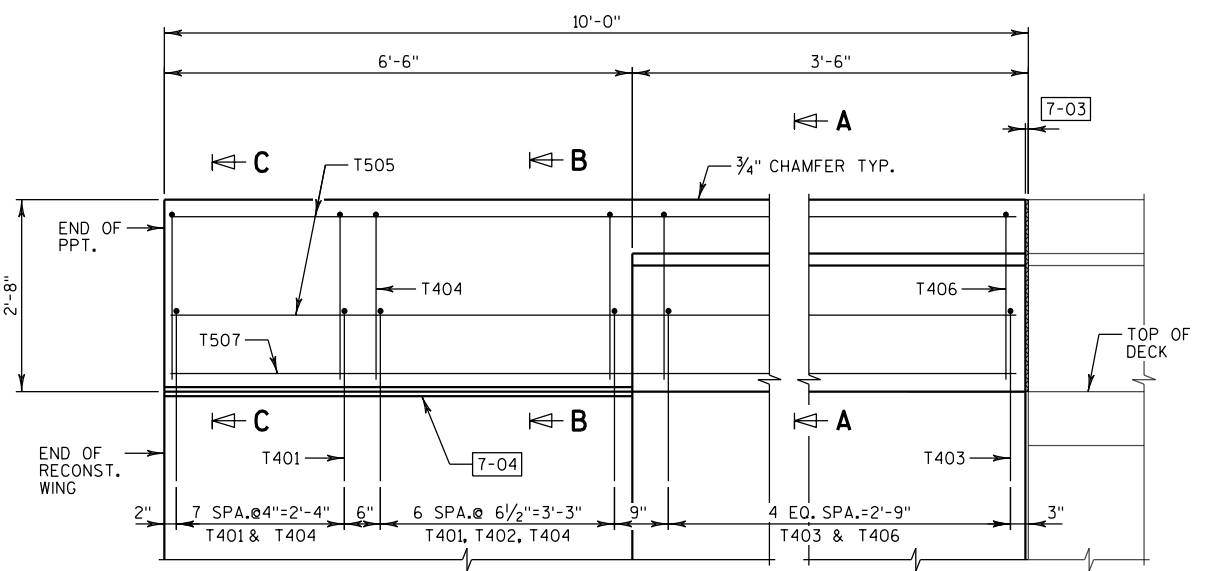
**PARAPET PLAN**



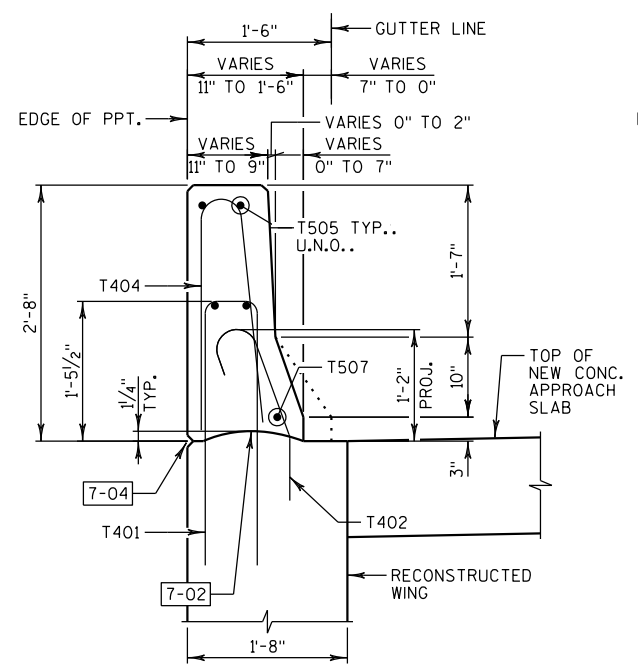
**SECTION A-A**



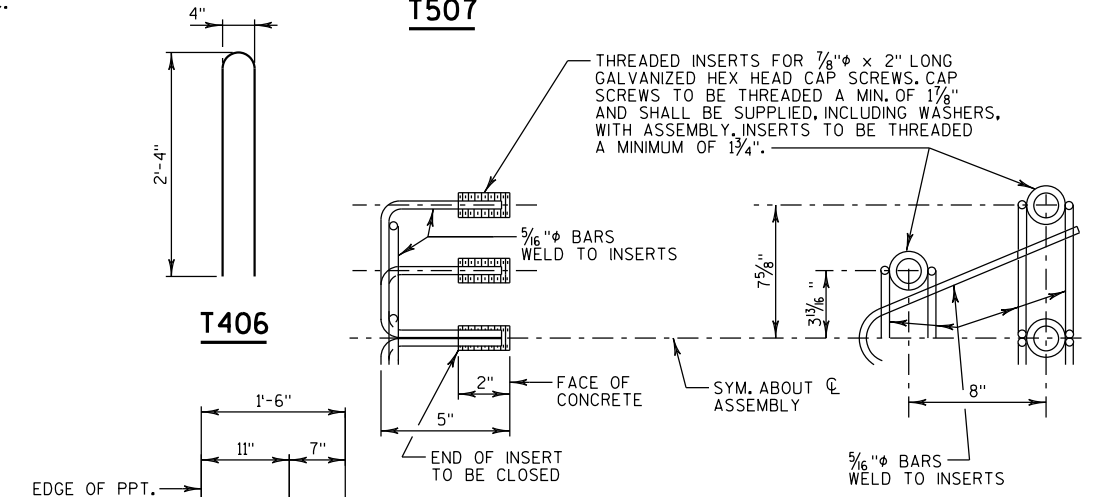
**T507**



**OUTSIDE ELEVATION**



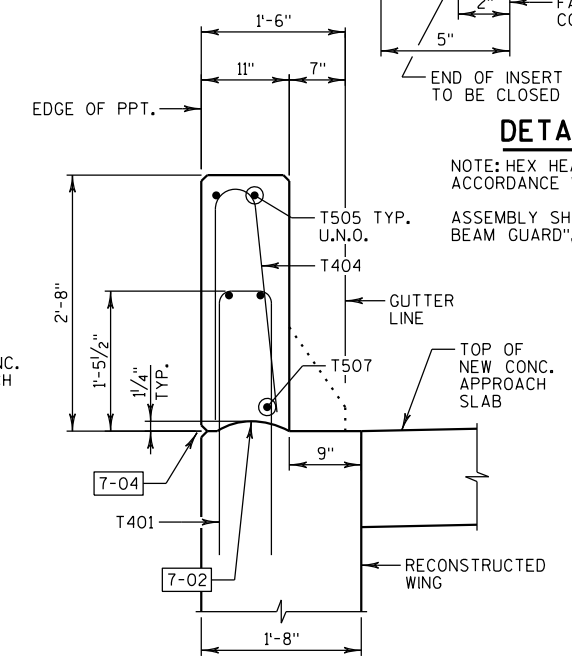
**SECTION B-B**



**DETAIL OF ANCHOR ASSEMBLY**

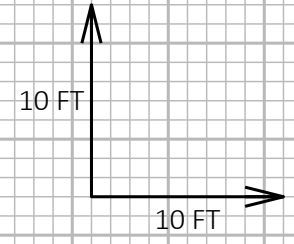
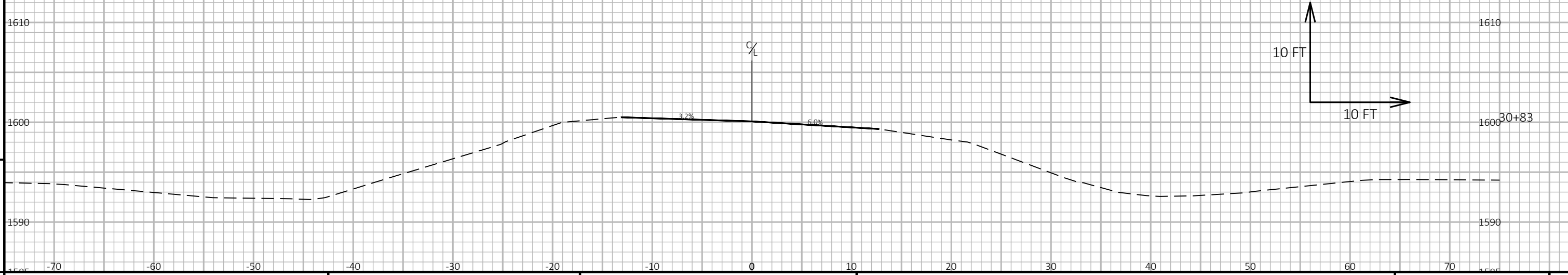
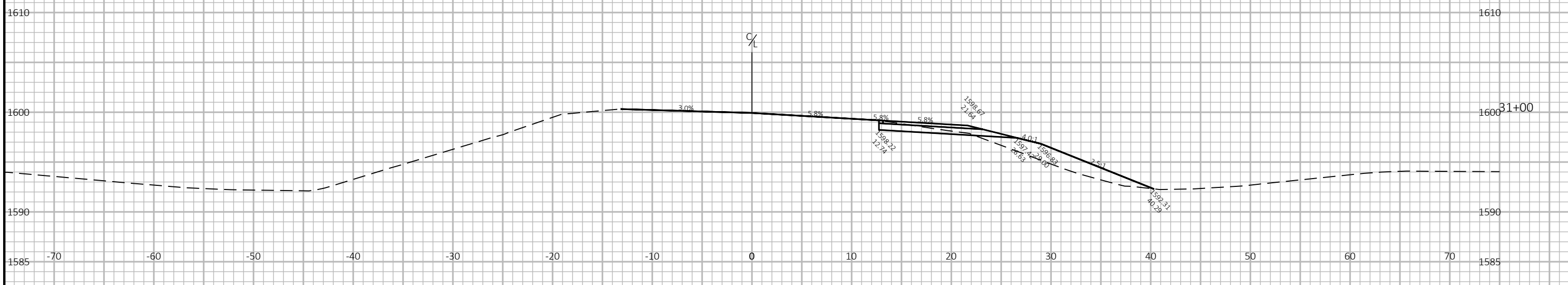
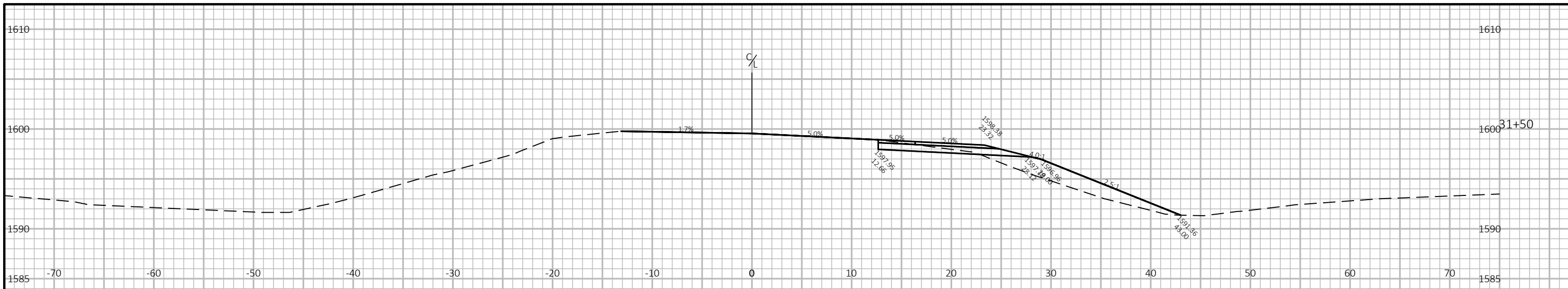
NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232, CLASS C.

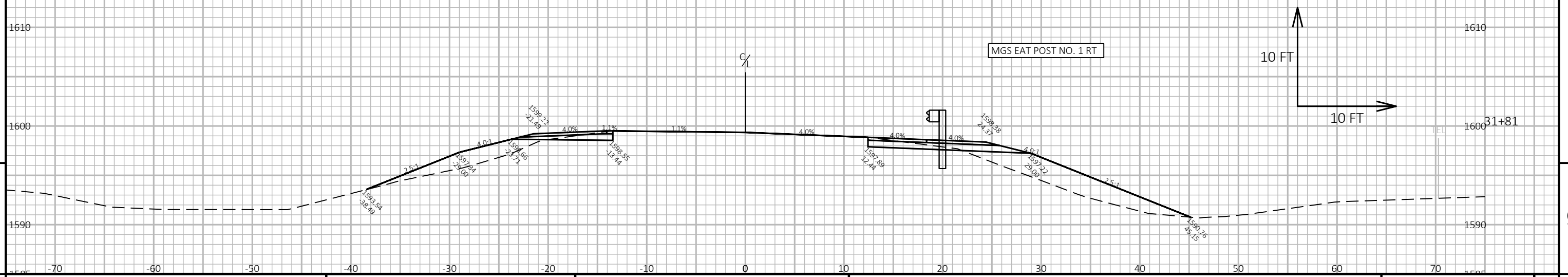
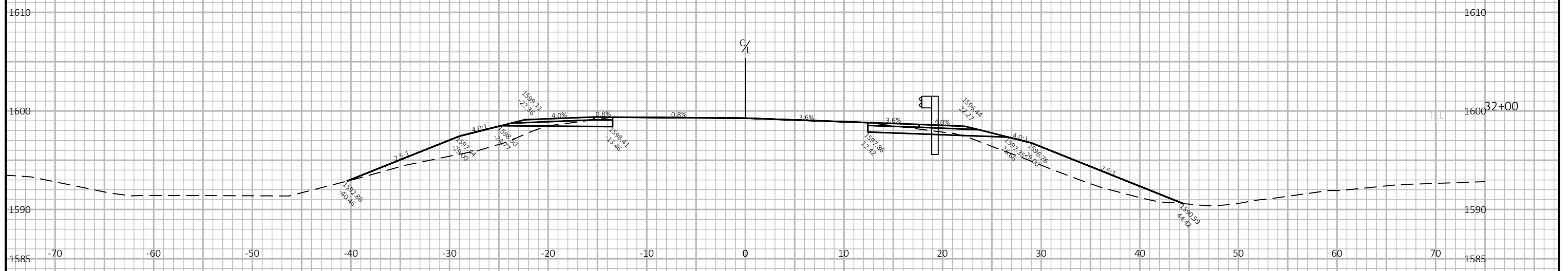
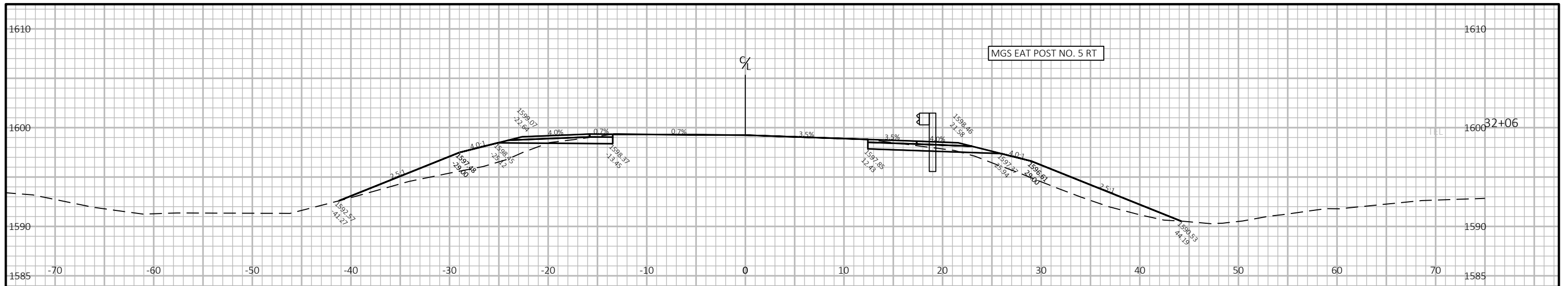
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.



**SECTION C-C**

NO.	DATE	REVISION	BY
STRUCTURE B-21-8			
DRAWN BY TKB		PLANS CK'D. BH	
<b>SLOPED FACE PARAPET "B"</b>			SHEET 7 OF 7



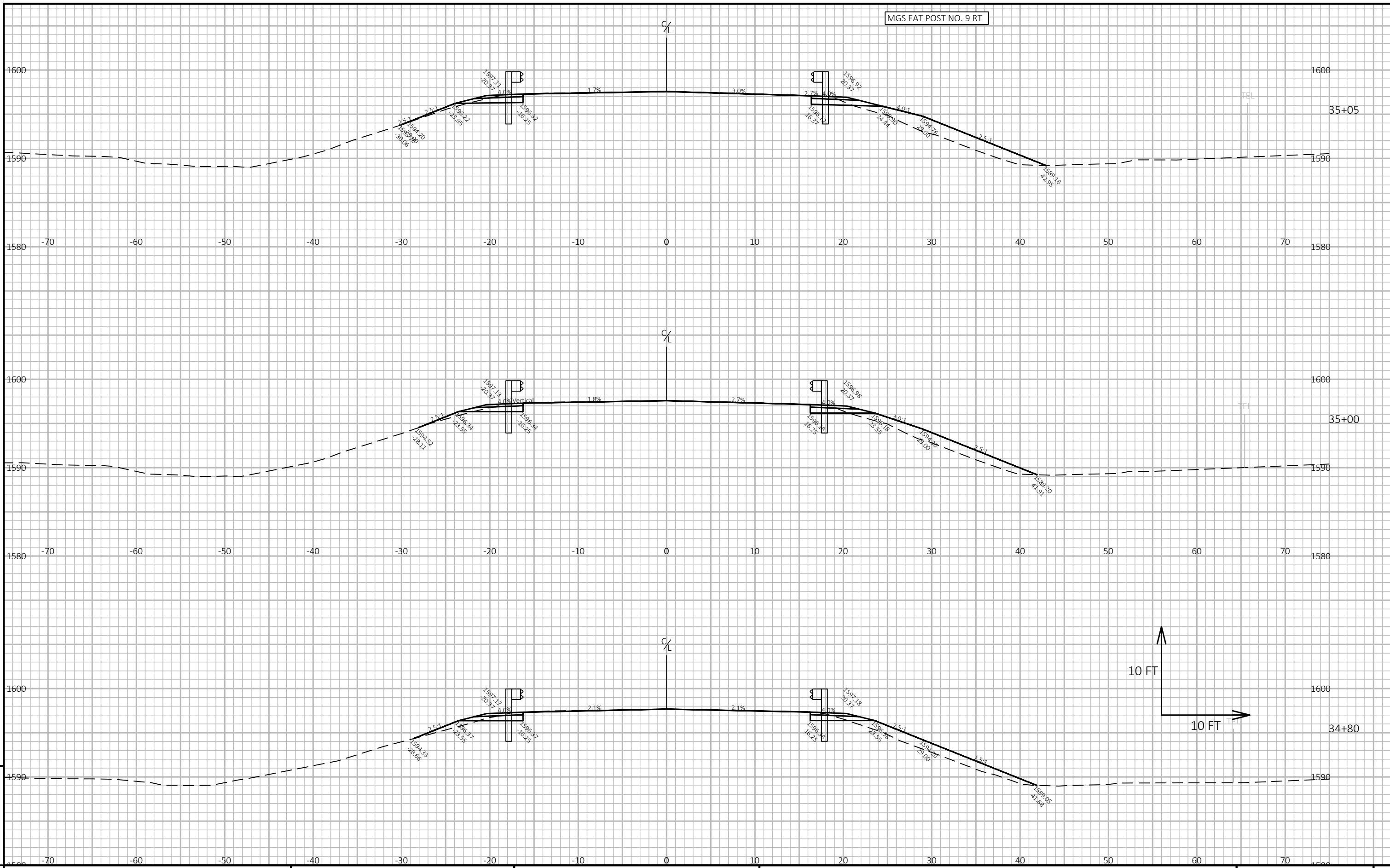


PROJECT NO: 9165-00-70      HWY: STH 55      COUNTY: FOREST      CROSS SECTIONS: STH 55 - B-21-0002      SHEET 9









PROJECT NO: 9165-00-70

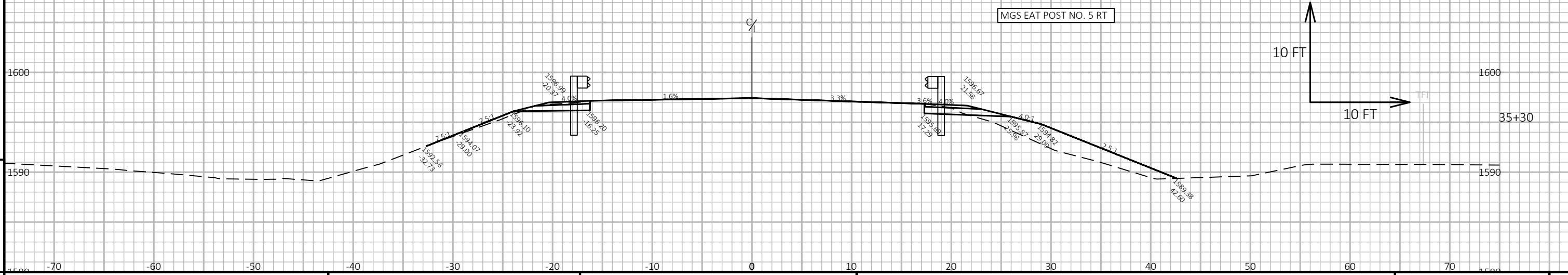
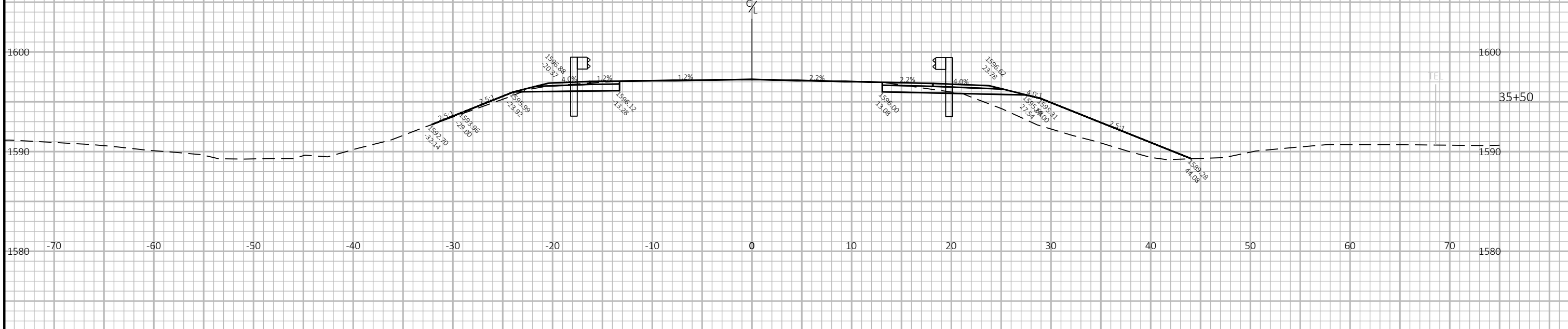
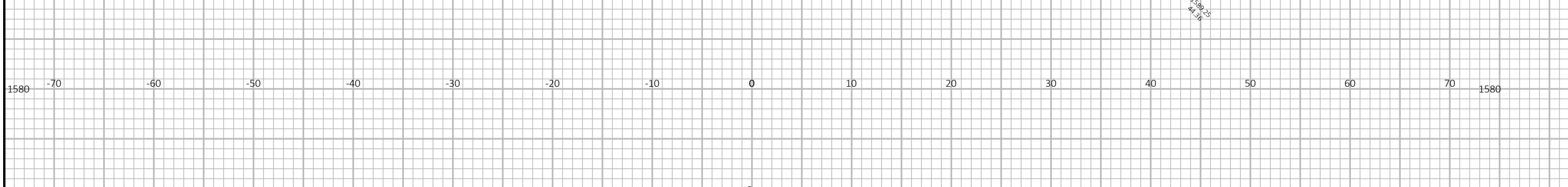
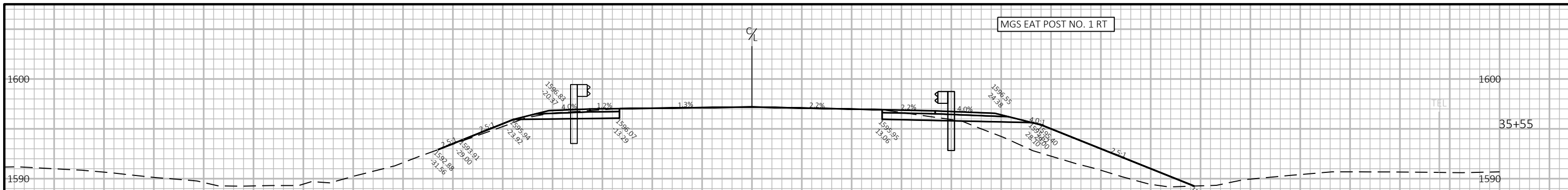
HWY: STH 55

COUNTY: FOREST

CROSS SECTIONS: STH 55 - B-21-0002

SHEET

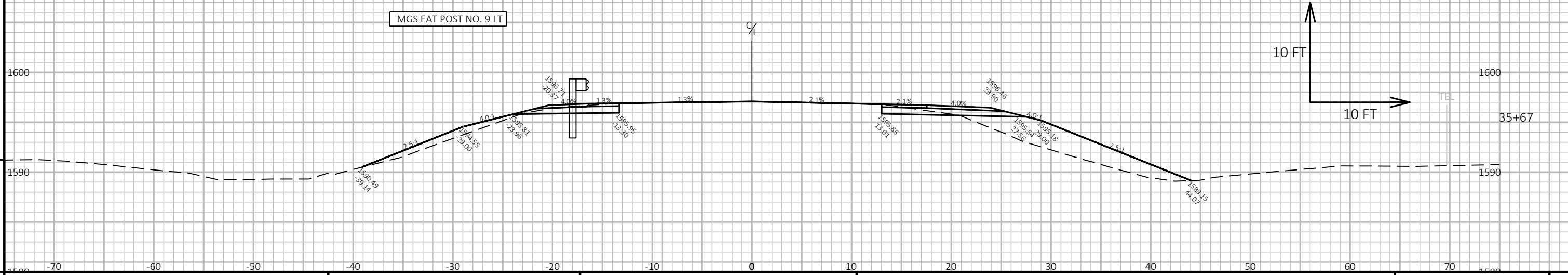
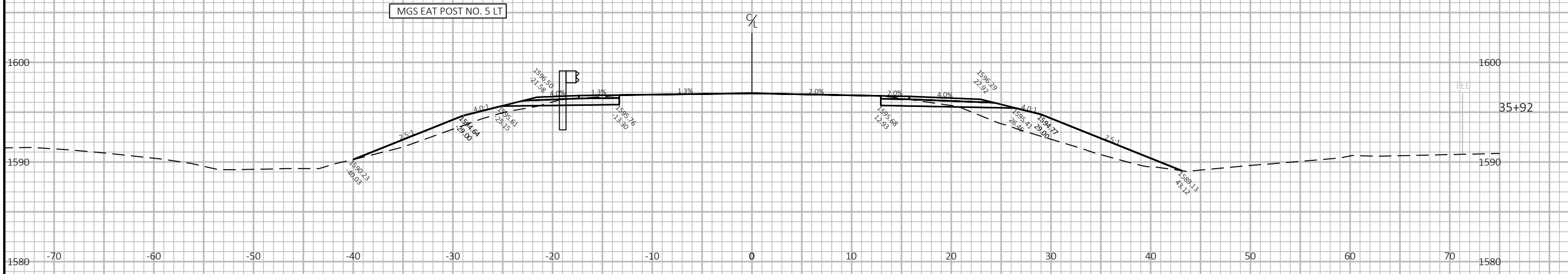
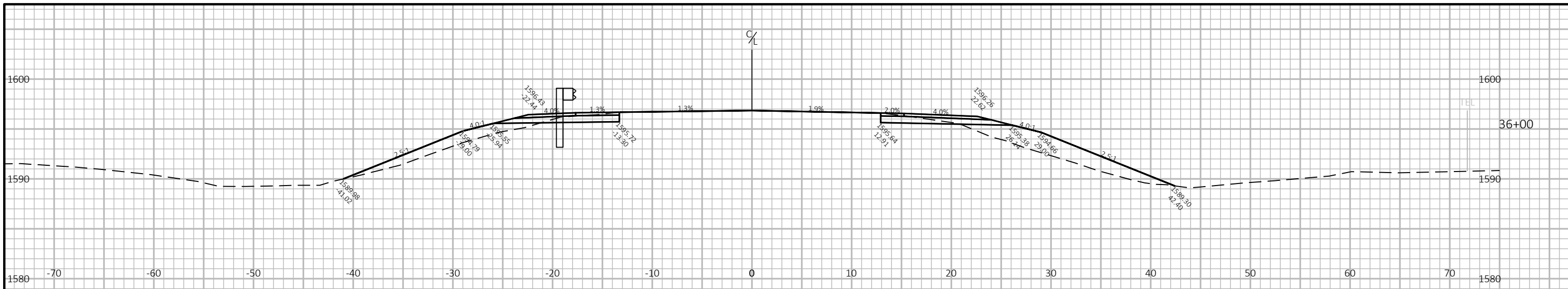
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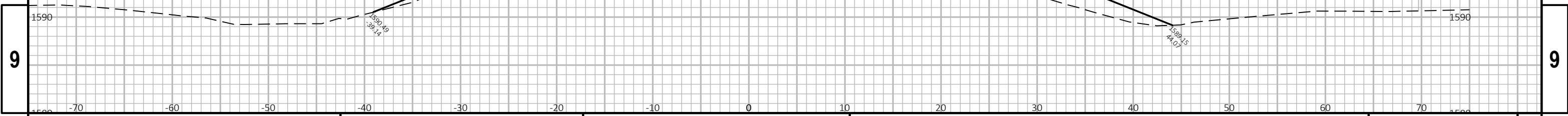
PROJECT NO: 9165-00-70 HWY: STH 55 COUNTY: FOREST CROSS SECTIONS: STH 55 - B-21-0002 SHEET 9

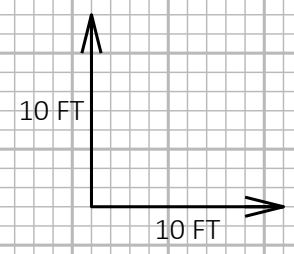
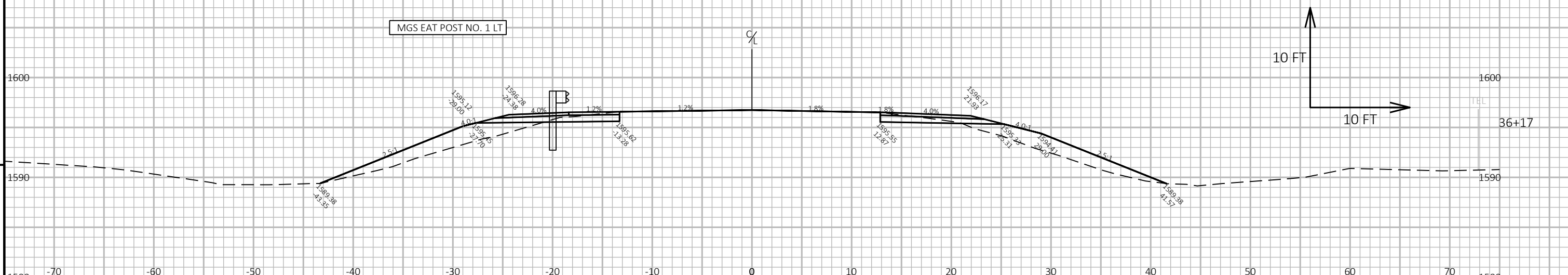
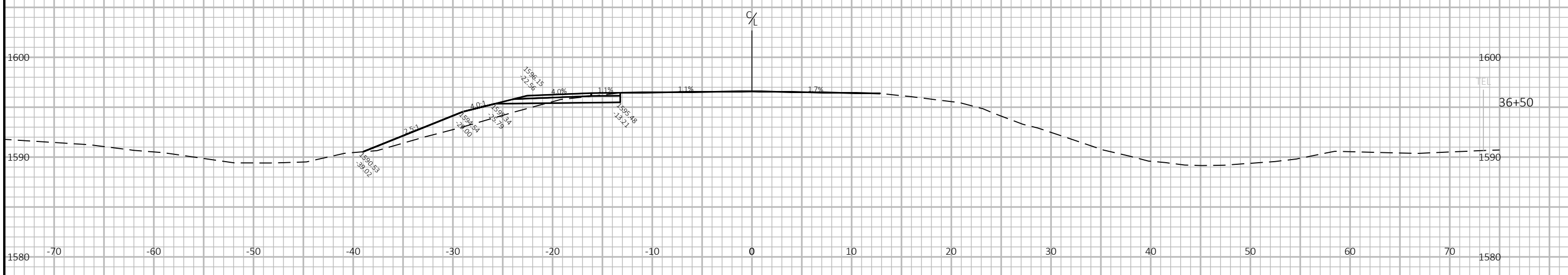
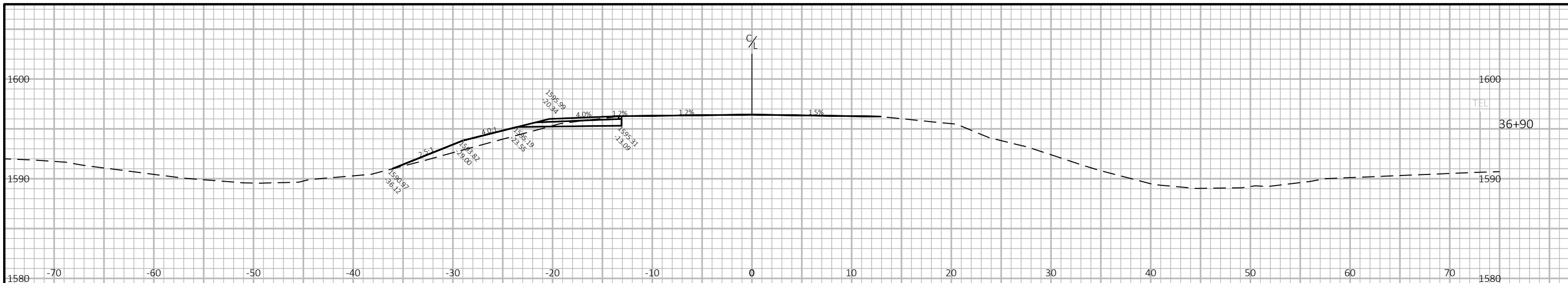
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PROJECT NO: 9165-00-70	HWY: STH 55	COUNTY: FOREST	CROSS SECTIONS: STH 55 - B-21-0002	SHEET
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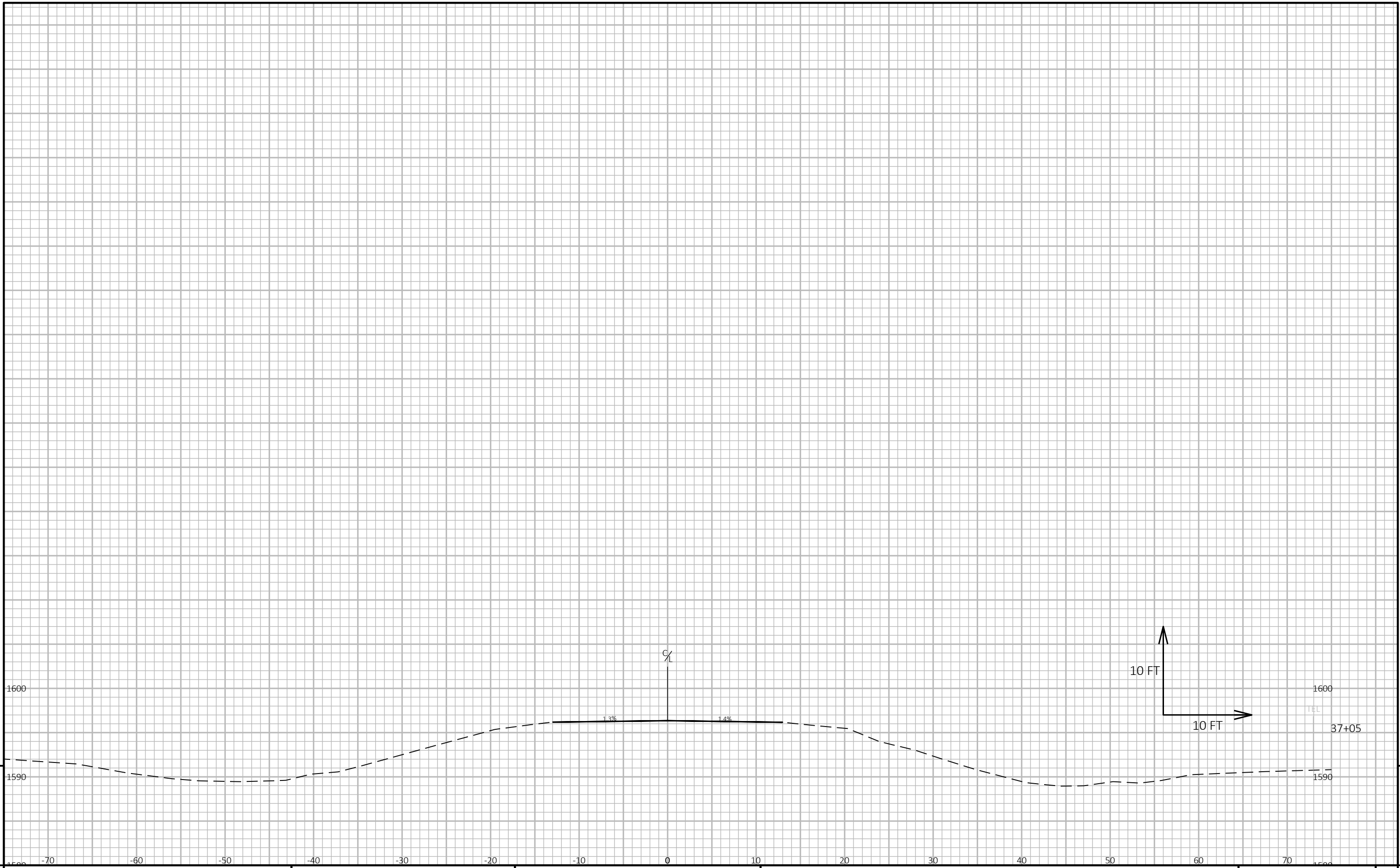
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PROJECT NO: 9165-00-70      HWY: STH 55      COUNTY: FOREST      CROSS SECTIONS: STH 55 - B-21-0002      SHEET      E

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LAYOUT NAME - B-21-0002 - 9



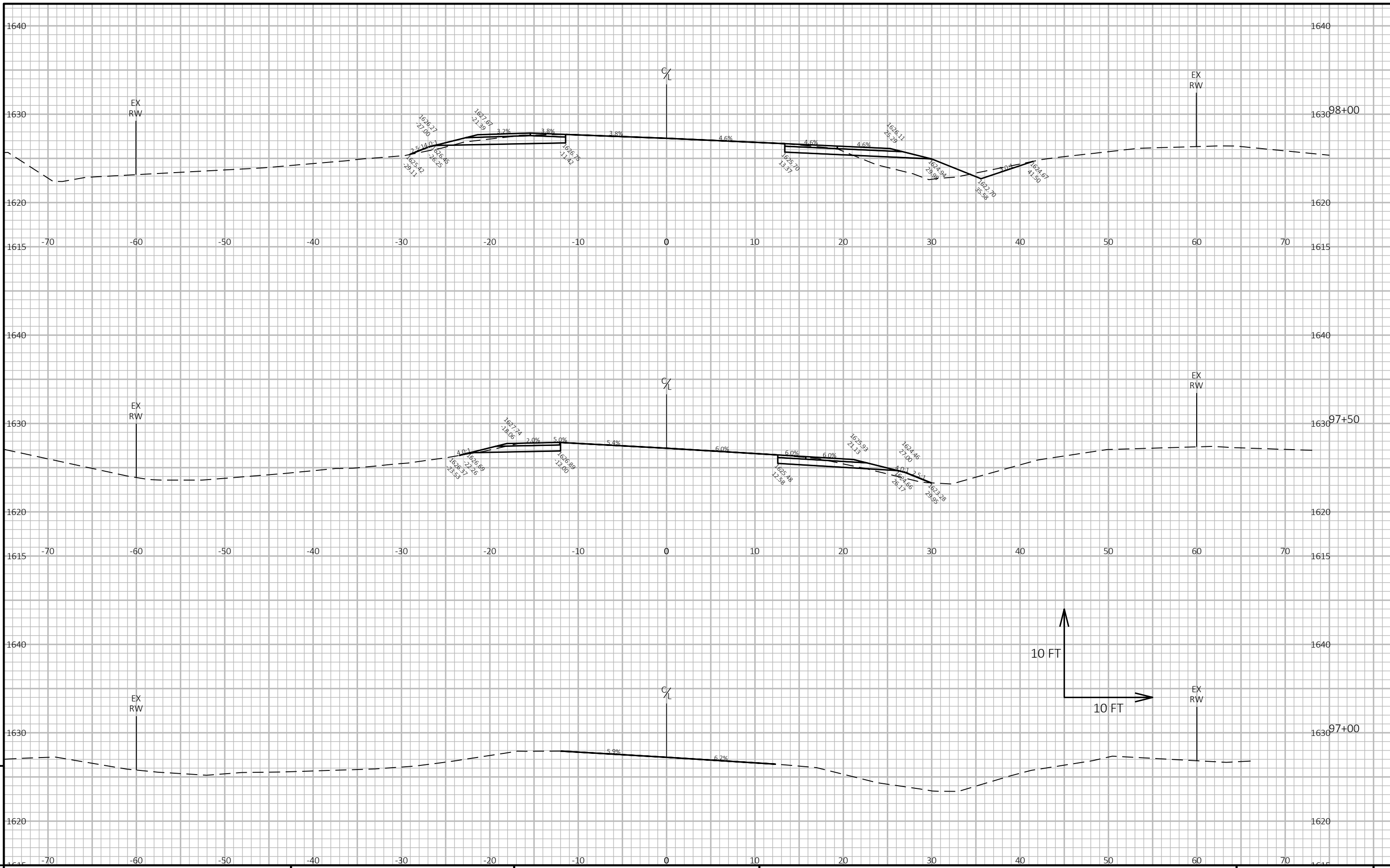
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PROJECT NO: 9165-00-70	HWY: STH 55	COUNTY: FOREST	CROSS SECTIONS: STH 55 - B-21-0002	SHEET	E
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LAYOUT NAME - B-21-0002 - 10



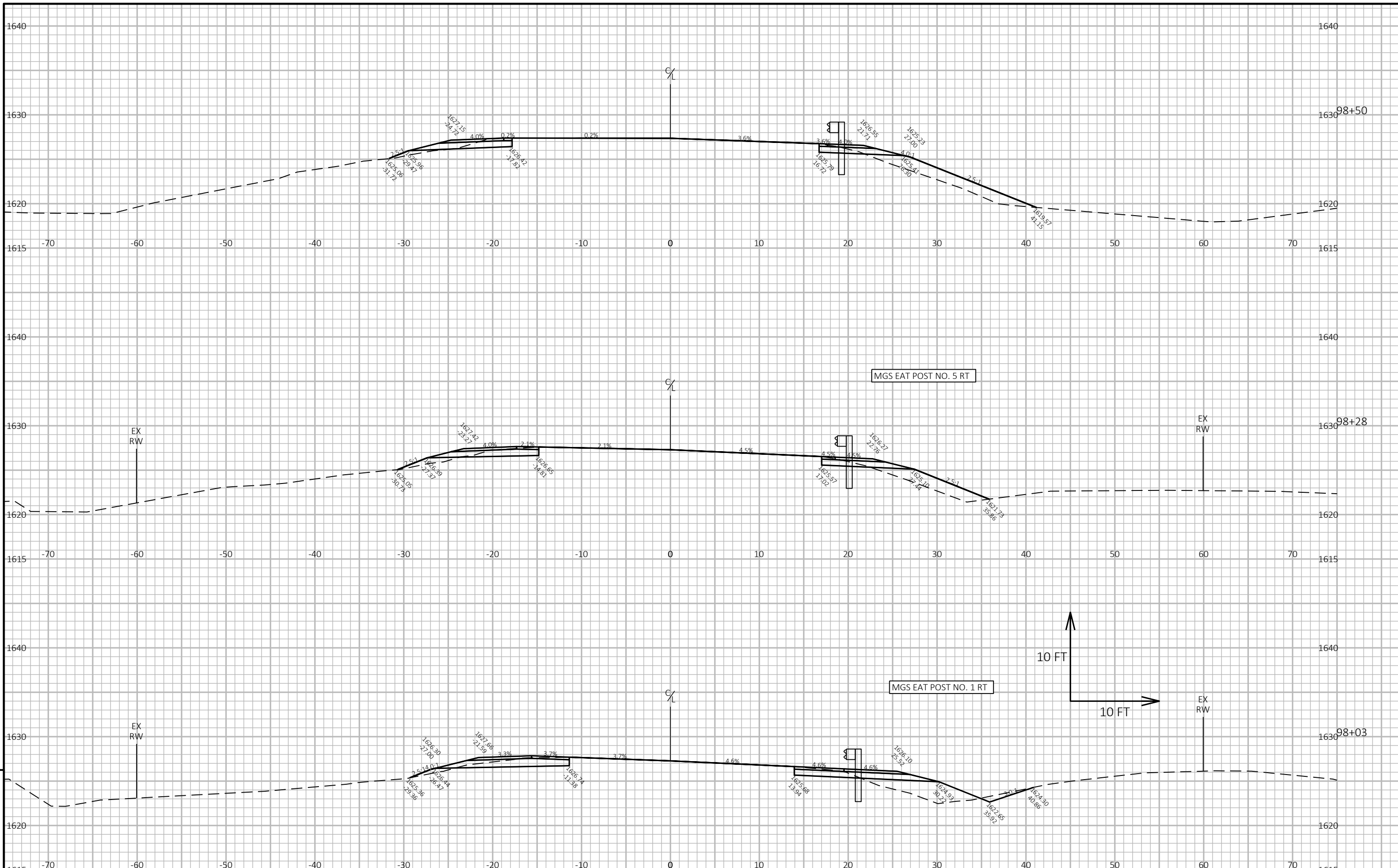
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PROJECT NO: 9165-00-70      HWY: STH 55      COUNTY: FOREST      CROSS SECTIONS: STH 55 - B-21-0008      SHEET      E

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LAYOUT NAME - B-21-0008 - 1



PROJECT NO: 9165-00-70

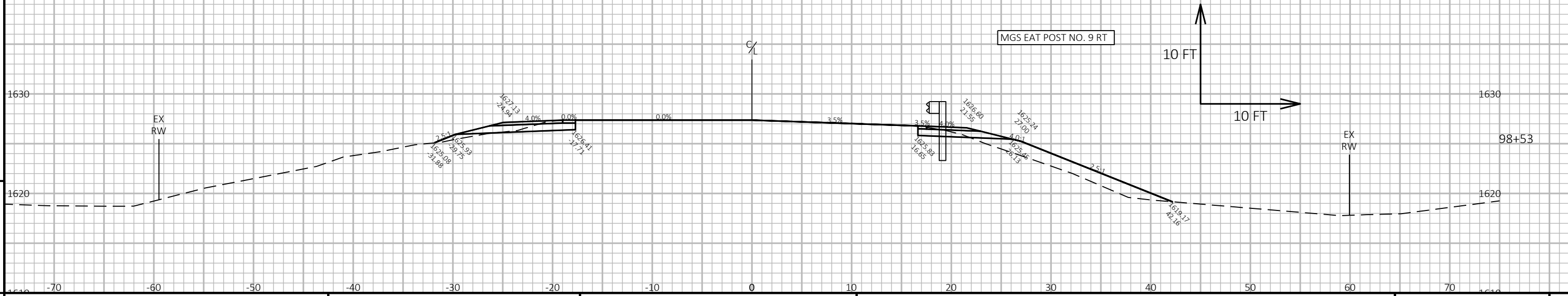
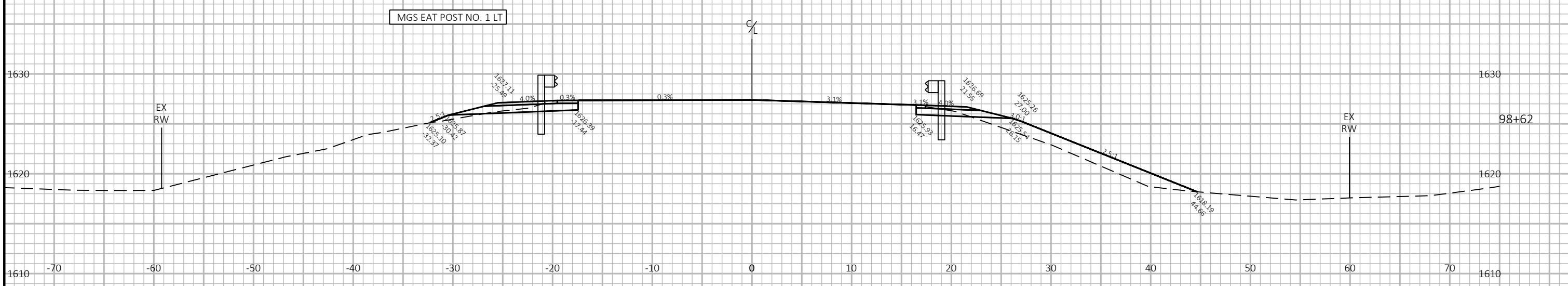
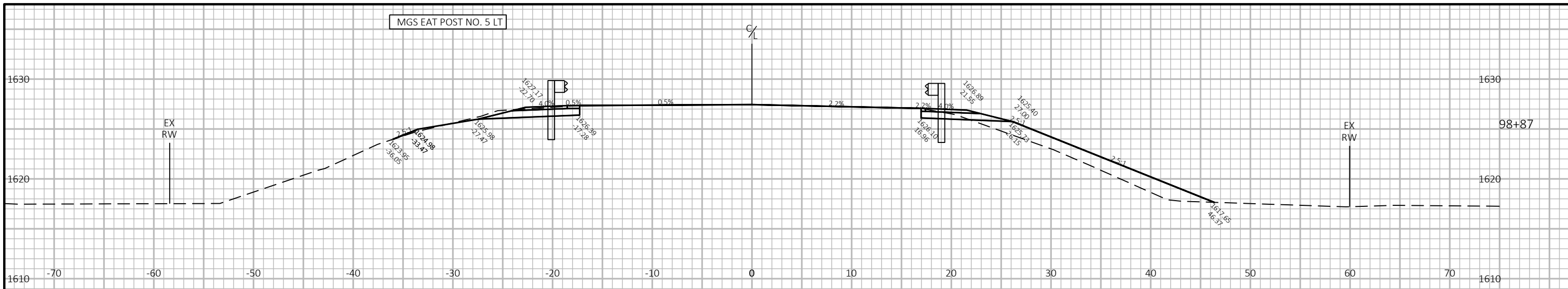
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COUNTY: FOREST

CROSS SECTIONS: STH 55 - B-21-0008

SHEET

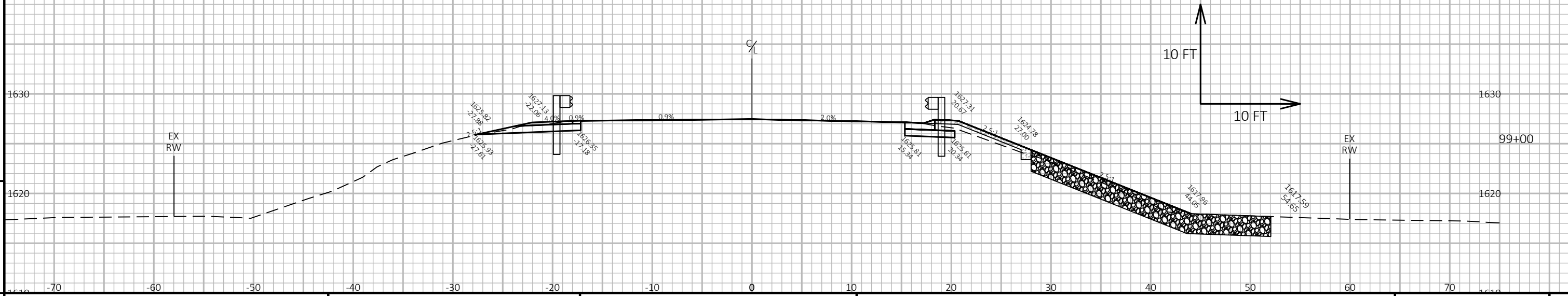
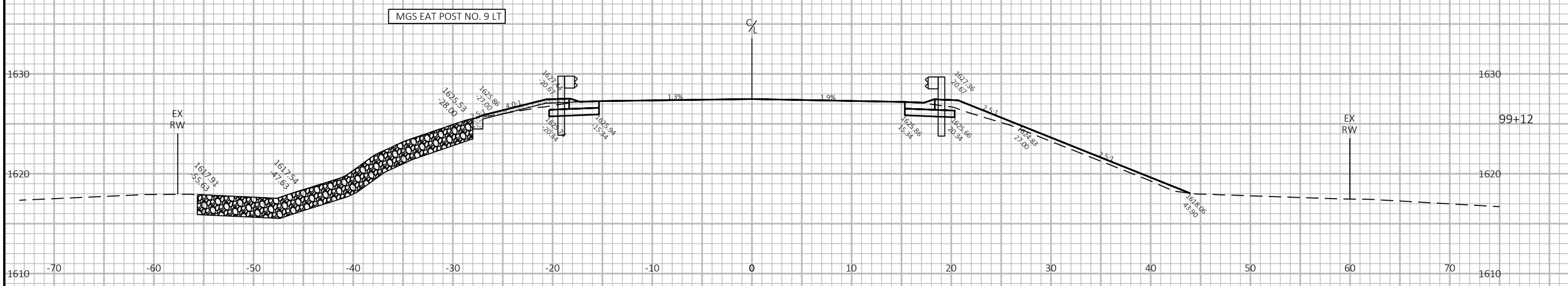
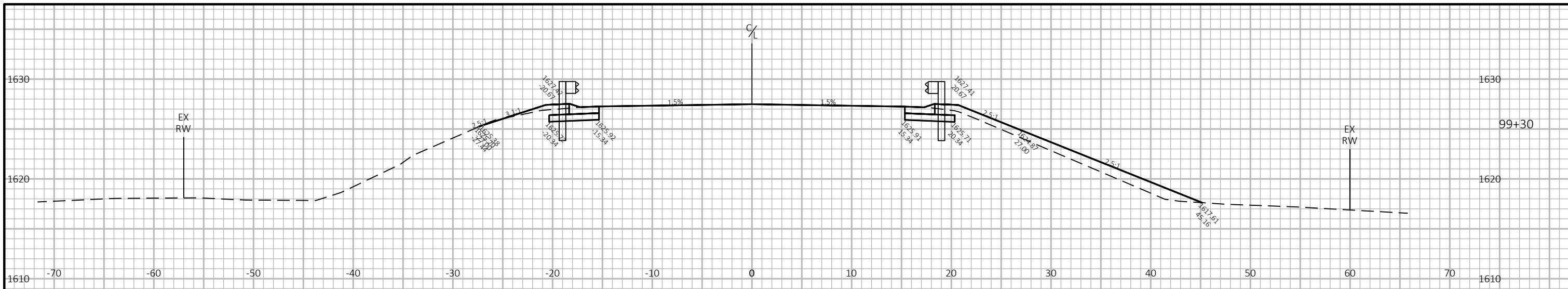
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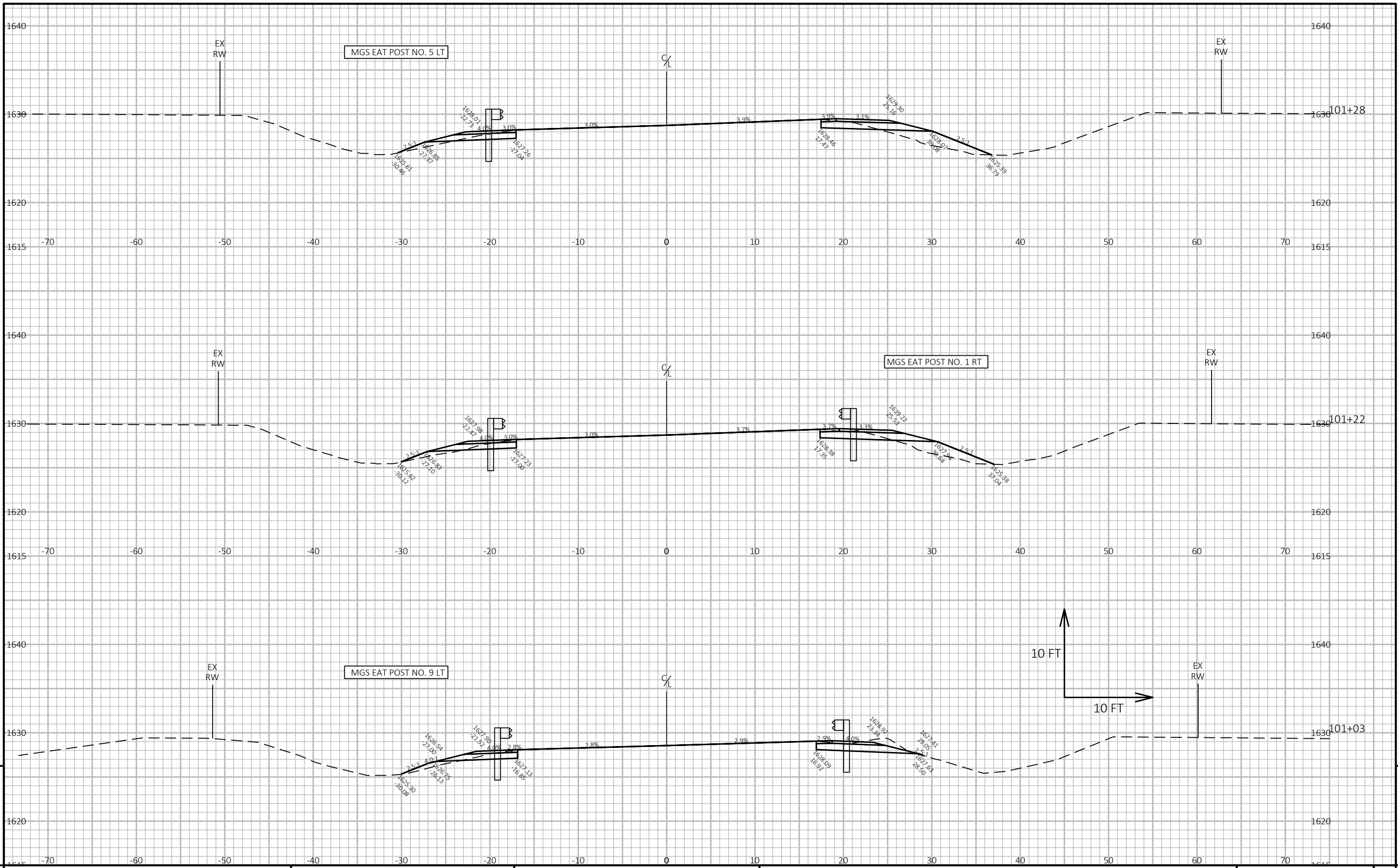


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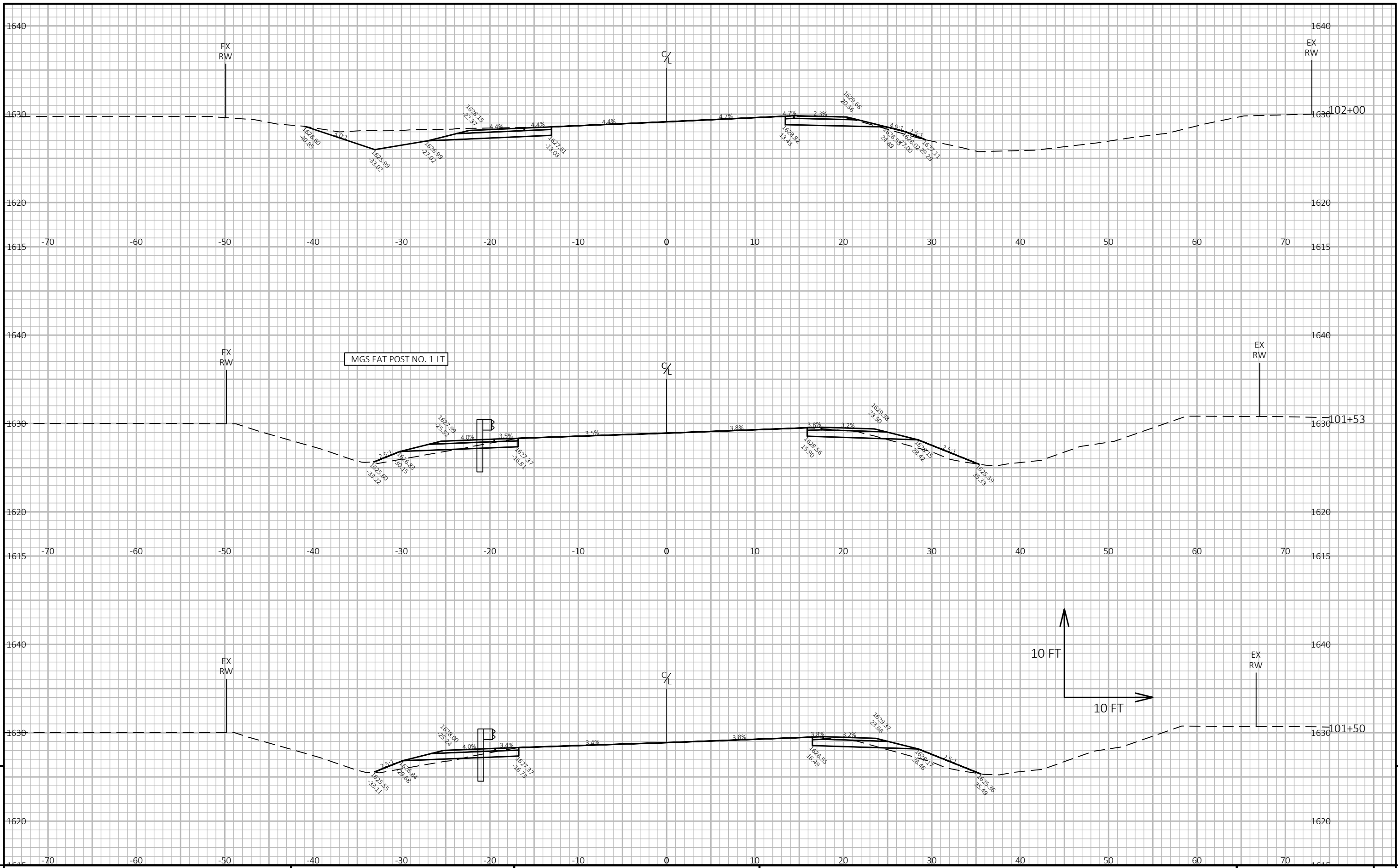








PROJECT NO: 9165-00-70      HWY: STH 55      COUNTY: FOREST      CROSS SECTIONS: STH 55 - B-21-0008      SHEET      E



PROJECT NO: 9165-00-70

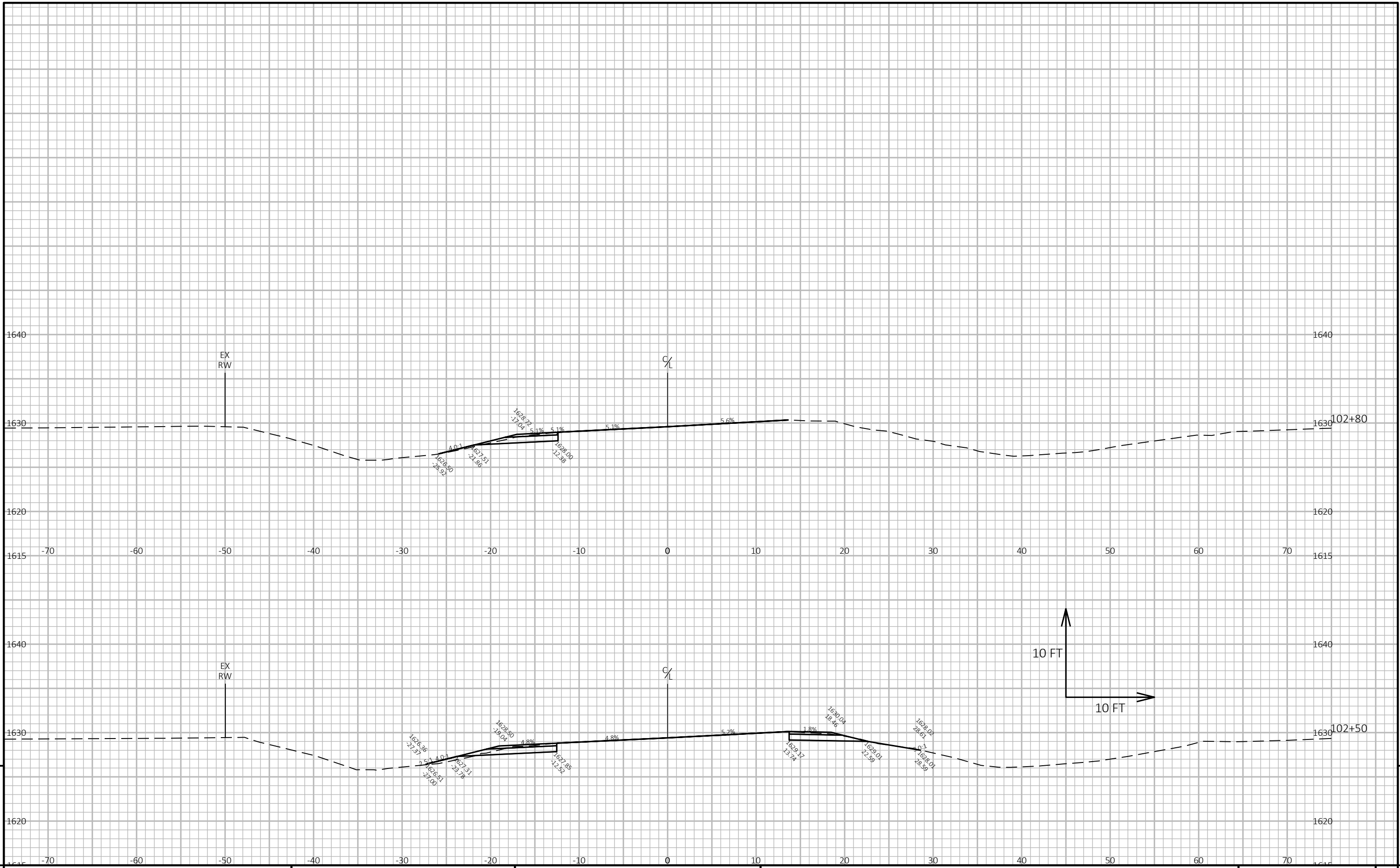
HWY: STH 55

COUNTY: FOREST

CROSS SECTIONS: STH 55 - B-21-0008

SHEET

E



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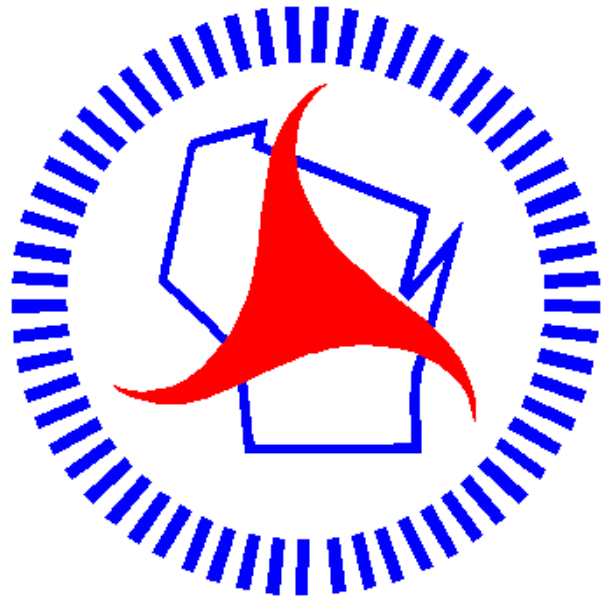
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PROJECT NO: 9165-00-70      HWY: STH 55      COUNTY: FOREST      CROSS SECTIONS: STH 55 - B-21-0008      SHEET      E

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LAYOUT NAME - B-21-0008 - 9

# Notes



## ***Wisconsin Department of Transportation***

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