

RHI
PROJECT ID:
WITH: N/A

9140-12-81

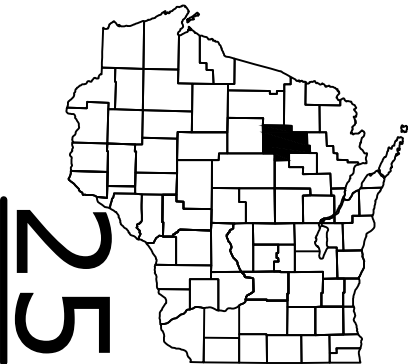
COUNTY:
LANGLADE

SEPTEMBER 2026

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	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 = 202



DESIGN DESIGNATION

A.A.D.T.	2027	=	2380
A.A.D.T.	2047	=	2520
D.H.V.		=	405
D.D.		=	60/40
T.		=	16.50%
DESIGN SPEED		=	60
ESALS		=	730,000

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
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	
COMMUNICATION	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

ANTIGO - LANGLADE

WOLF RIVER BRIDGE B-34-0061

STH 64

LANGLADE COUNTY

STATE PROJECT NUMBER
9140-12-81

BEGIN PROJECT

STA 484+58
Y=359695.069
X=742439.412

BEGIN PROJECT

STA 337+25
Y=358573.188
X=727892.780

STRUCTURE B-34-61

STA 340+13 - STA 341+84

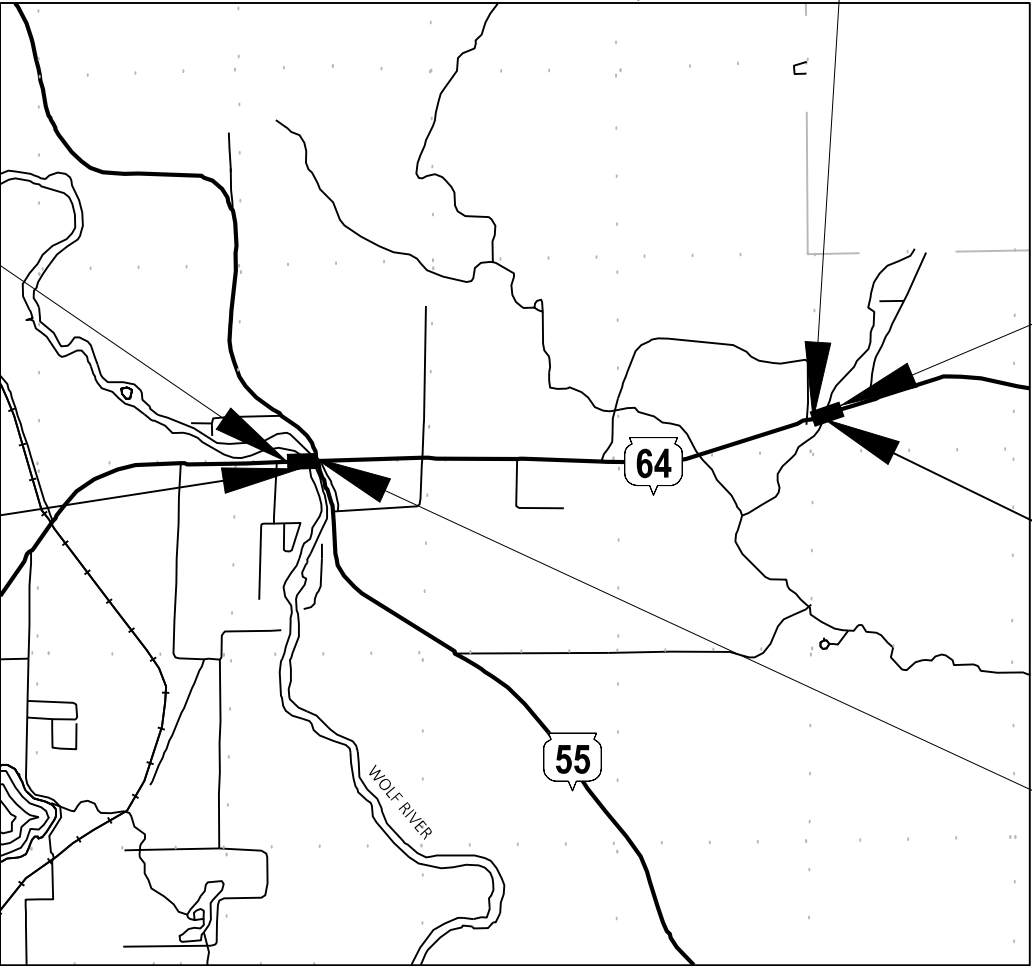
END PROJECT

STA 485+92

STRUCTURE B-34-24

END PROJECT

STA 343+85



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.168 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), LANGLADE 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 (1991). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 18

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
9140-12-81	WISC 2026427	1

ORIGINAL PLANS PREPARED BY

Mead & Hunt

Mead and Hunt, Inc.
1702 Lawrence Dr
De Pere, WI. 54115
phone: (920) 496-0500
meadhunt.com



DATE: 4/15/2026
(Professional Engineer Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	MEAD & HUNT, INC.
Designer	MEAD & HUNT, INC.
Project Manager	MARIJEAN HOPPE, PE
Regional Examiner	FRED SCHUNKE, PE
Regional Supervisor	DANIEL ERVA, PE

APPROVED FOR THE DEPARTMENT
DATE: 4/20/2026
(Signature)

E

UTILITIES CONTACTS

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SPECTRUM
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GAS
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WISDOT PROJECT MANAGER

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CONSULTANT PROJECT MANAGER

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WISCONSIN DNR LIAISON

WENDY HENNIGES
WISCONSIN DNR NORTHERN REGION
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RHINELANDER, WI 54501
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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.

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

RIGHT OF WAY INFORMATION SHOWN ON THE PLANS IS APPROXIMATE.

CURVE DATA IS BASED ON THE RADIUS DEFINITION.

RADIUS DIMENSIONS FOR THE CURB AND GUTTER ARE TO THE FLANGE LINE UNLESS OTHERWISE NOTED.

CURB AND GUTTER PLAN GRADES ARE AT THE FLANGE LINE UNLESS OTHERWISE NOTED.

PRIOR TO PLACEMENT OF BEAM GUARD THE SHOULDERS SHALL BE IN PLACE, SHAPED AND COMPACTED.

BEARINGS SHOWN ON THE PLAN ARE GROUND BEARINGS TO THE NEAREST SECOND.

RUNOFF COEFFICIENT TABLE

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

TOTAL PROJECT AREA = 3.71 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.19 ACRES

DIGGERSHOTLINE

Dial 811 or (800)242-8511

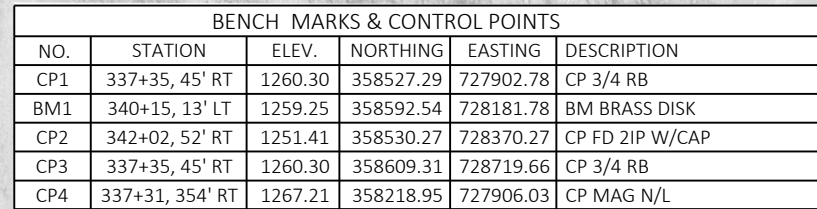
www.DiggersHotline.com

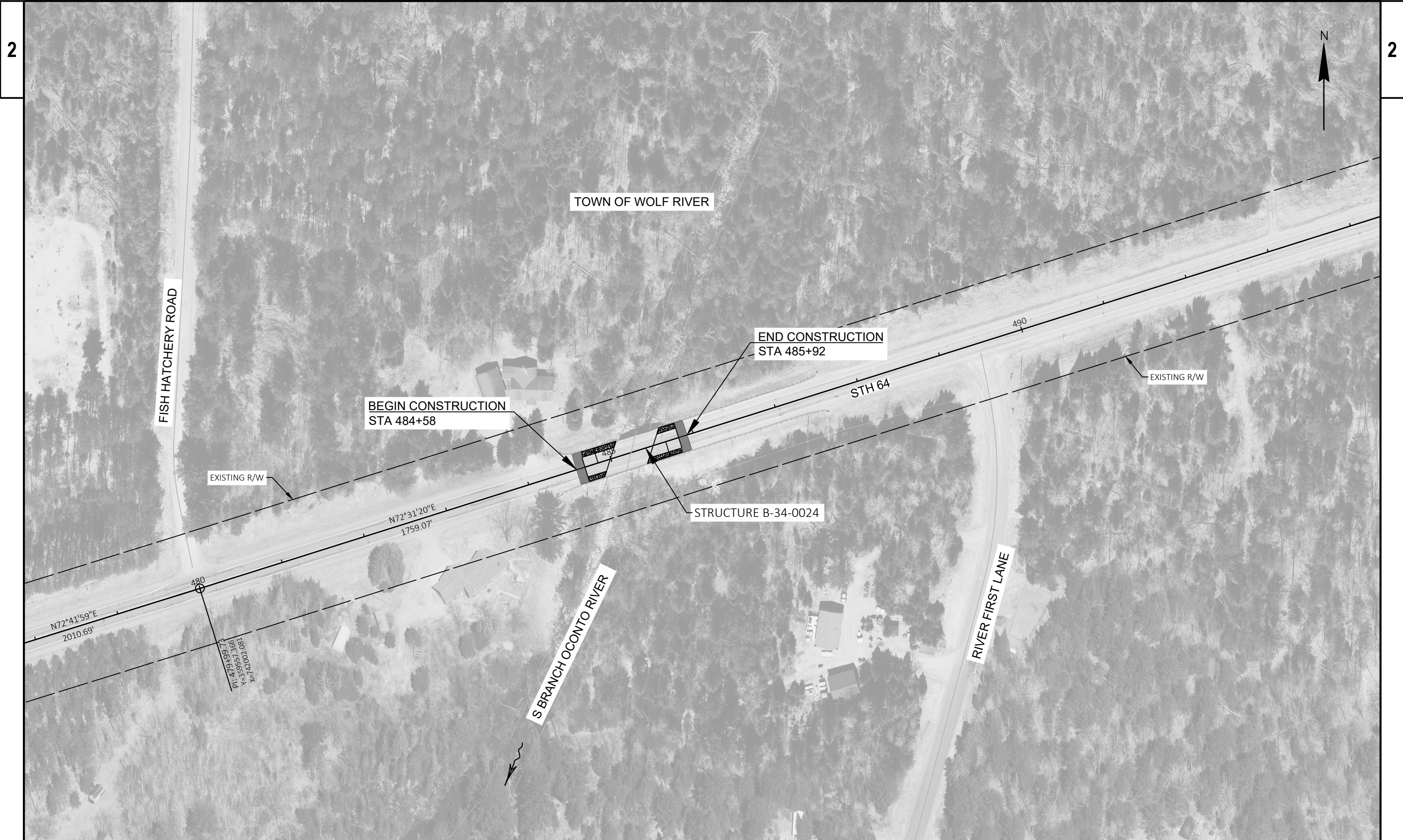
ORDER OF SECTION 2 DETAIL SHEETS

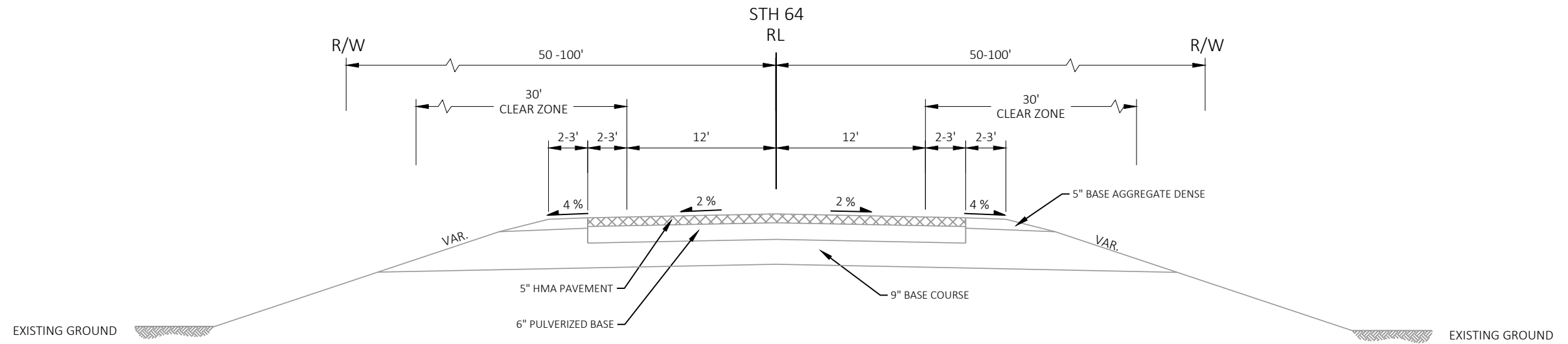
- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- INTERSECTION DETAILS
- REMOVAL DETAILS
- EROSION CONTROL
- STORM SEWER PLAN
- PERMANENT SIGNING & PAVEMENT MARKING
- TRAFFIC CONTROL

ABUT ABUTMENT
AC ACRE
AGG AGGREGATE
AH AHEAD
ANGLE
AADT ANNUAL AVERAGE DAILY TRAFFIC
AE APRON ENDWALL
ASPH ASPHALTIC
BK BACK
BC BACK OF CURB
BAD BASE AGGREGATE DENSE
BL OR B/L BASE LINE
BM BENCH MARK
CB CATCH BASIN
CL OR C/L CENTER LINE
Δ CENTRAL ANGLE OR DELTA
CE COMMERCIAL ENTRANCE
CONC CONCRETE
CSW CONCRETE SIDEWALK
CONST CONSTRUCTION
CP CONTROL POINT
CO COUNTY
CTH COUNTY TRUCK HIGHWAY
CY CUBIC YARD
CP CULVERT PIPE
CPCA CULVERT PIPE CORRUGATED ALUMINUM
CPCPE CULVERT PIPE CORRUGATED POLYETHYLENE
CPCPP CULVERT PIPE CORRUGATED POLYPROPYLENE
CPCS CULVERT PIPE CORRUGATED STEEL
CPCSAC CULVERT PIPE CORRUGATED STEEL ALUMINUM COATED
CPCSPC CULVERT PIPE CORRUGATED STEEL POLYMER COATED
CPRC CULVERT PIPE REINFORCED CONCRETE
CPRCHE CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CPS CULVERT PIPE SALVAGED
CPT CULVERT PIPE TEMPORARY
C & G CURB AND GUTTER
D DEGREE OF CURVE
DHV DESIGN HOUR VOLUME
DIA DIAMETER
DD DIRECTIONAL DISTRIBUTION
DE DRAINAGE EASEMENT
DWY DRIVEWAY
EA EACH
EB EASTBOUND
EL OR ELEV ELEVATION
EMB EMBANKMENT
EW ENDWALL
EAT ENERGY ABSORBING TERMINAL
ESALS EQUIVALENT SINGLE AXLE LOADS
EXC EXCAVATION
EBS EXCAVATION BELOW SUBGRADE
EXIST EXISTING
FERT FERTILIZER
FE FIELD ENTRANCE
FL OR F/L FLOW LINE
FT FOOT
FTMS FREEWAY TRAFFIC MANAGEMENT SYSTEM
HES HIGH EARLY STRENGTH
HE HIGHWAY EASEMENT
CWT HUNDRED WEIGHT
IN DIA INCH DIAMETER
INL INLET
ID INSIDE DIAMETER
INTERS INTERSECTION
IH INTERSTATE HIGHWAY
INV INVERT
JT JOINT
LT LEFT

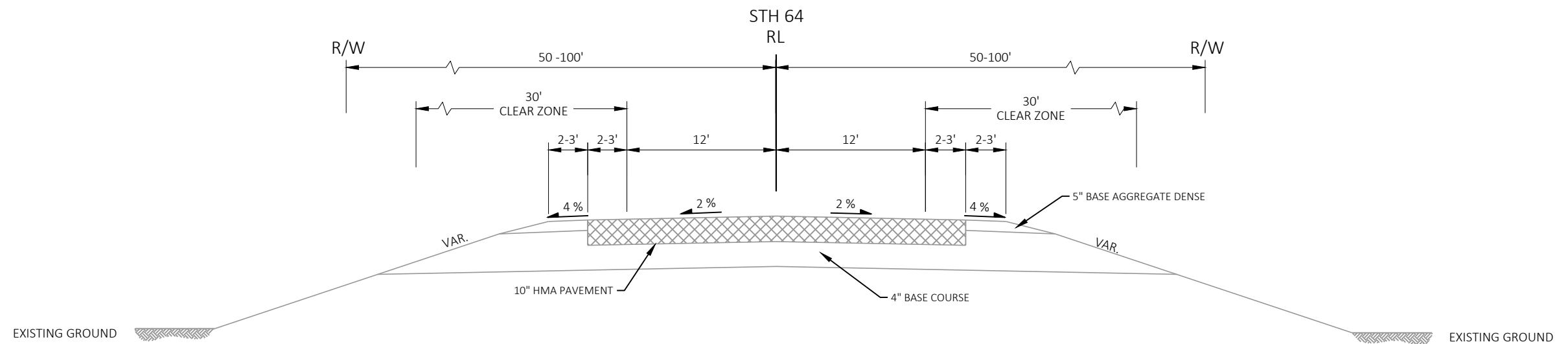
LHF LEFT HAND FORWARD
L LENGTH OF CURVE
LF LINEAR FOOT
LC LONG CHORD OF CURVE
LS LUMP SUM
MGAL ONE THOUSAND GALLONS
MH MANHOLE
ML OR M/L MATCH LINE
NOM NOMINAL
NC NORMAL CROWN
NB NORTHBOUND
NO NUMBER
OD OUTSIDE DIAMETER
PACS PIPE ARCH CORRUGATED STEEL
PAVT PAVEMENT
PLE PERMANENT LIMITED EASEMENT
PC POINT OF CURVATURE
PI POINT OF INTERSECTION
PT POINT OF TANGENCY
PCC PORTLAND CEMENT CONCRETE
LB POUND
PSI POUNDS PER SQUARE INCH
PE PRIVATE ENTRANCE
PROJ PROJECT
PL PROPERTY LINE
PRW PROPOSED RIGHT OF WAY
R RADIUS
RL OR R/L REFERENCE LINE
REQD REQUIRED
RT RIGHT
RHF RIGHT HAND FORWARD
R/W RIGHT OF WAY
RD ROAD
RDWY ROADWAY
SHLDR SHOULDER
SW SIDEWALK
SB SOUTHBOUND
SPECS SPECIFICATIONS
SF SQUARE FEET
SY SQUARE YARD
SDD STANDARD DETAIL DRAWINGS
STH STATE TRUNK HIGHWAY
STA STATION
SSPC STORM SEWER PIPE COMPOSITE
SSCPE STORM SEWER PIPE CORRUGATED POLYETHYLENE
SSCPP STORM SEWER PIPE CORRUGATED POLYPROPYLENE
SSPNRC STORM SEWER PIPE NON-REINFORCED CONCRETE
SSPRC STORM SEWER PIPE REINFORCED CONCRETE
SSPRC STORM SEWER PIPE REINFORCED CONCRETE
SSPRCHE STORM SEWER PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
SE SUPERELEVATION
SL OR S/L SURVEY LINE
TEMP TEMPORARY
TI TEMPORARY INTEREST
TLE TEMPORARY LIMITED EASEMENT
TC TOP OF CURB
TL OR T/L TRANSIT LINE
T TRUCKS (PERCENT OF)
TYP TYPICAL
USH UNITED STATES HIGHWAY
VAR VARIABLE
VC VERTICAL CURVE
VPC VERTICAL POINT OF CURVATURE
VPI VERTICAL POINT OF INTERSECTION
VPT VERTICAL POINT OF TANGENCY
W WEST
WB WESTBOUND



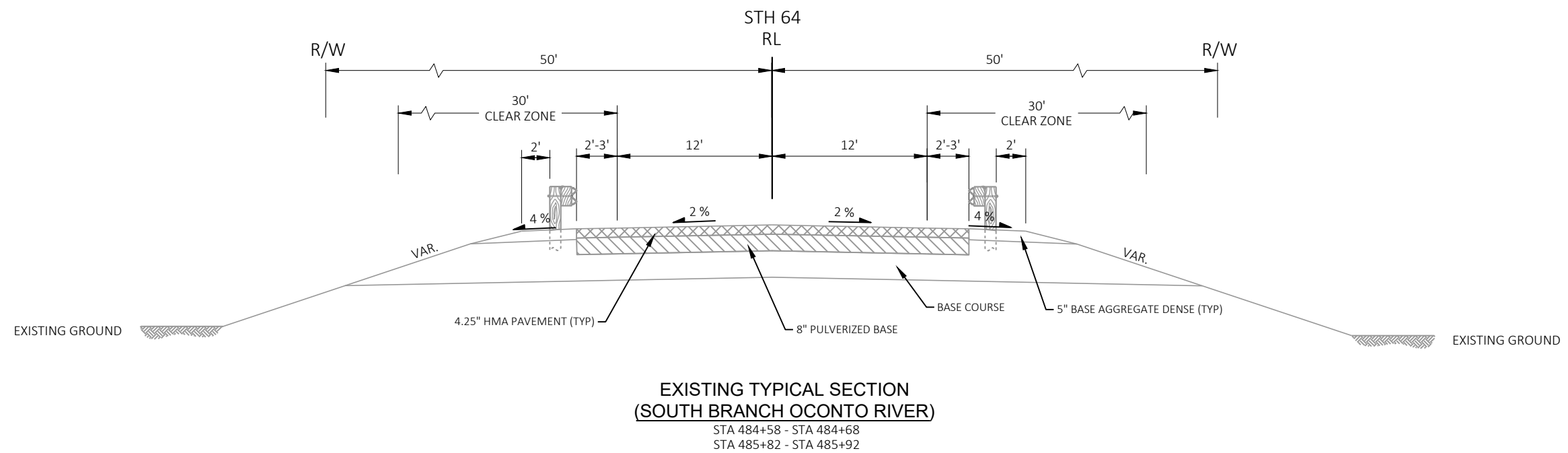
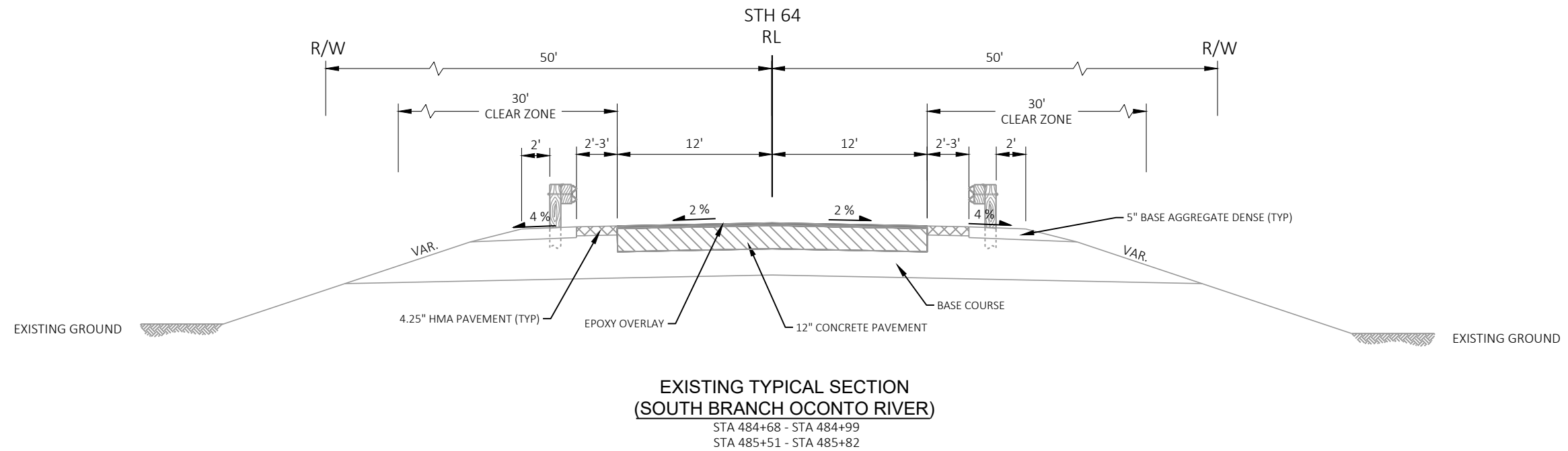


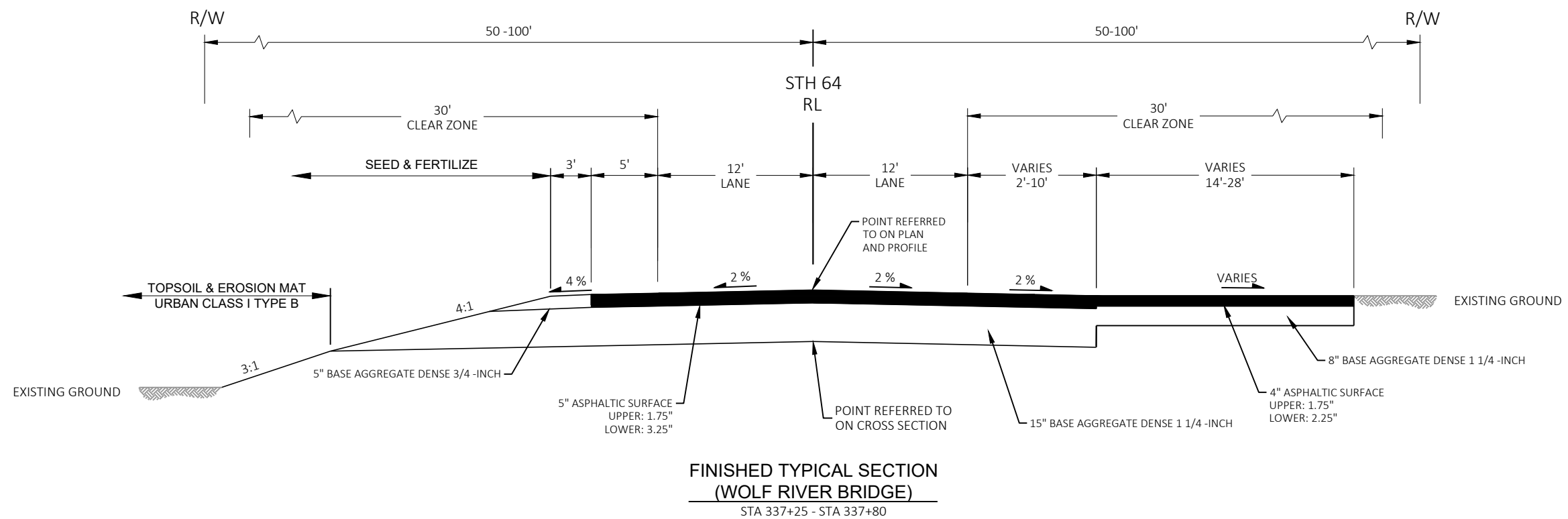
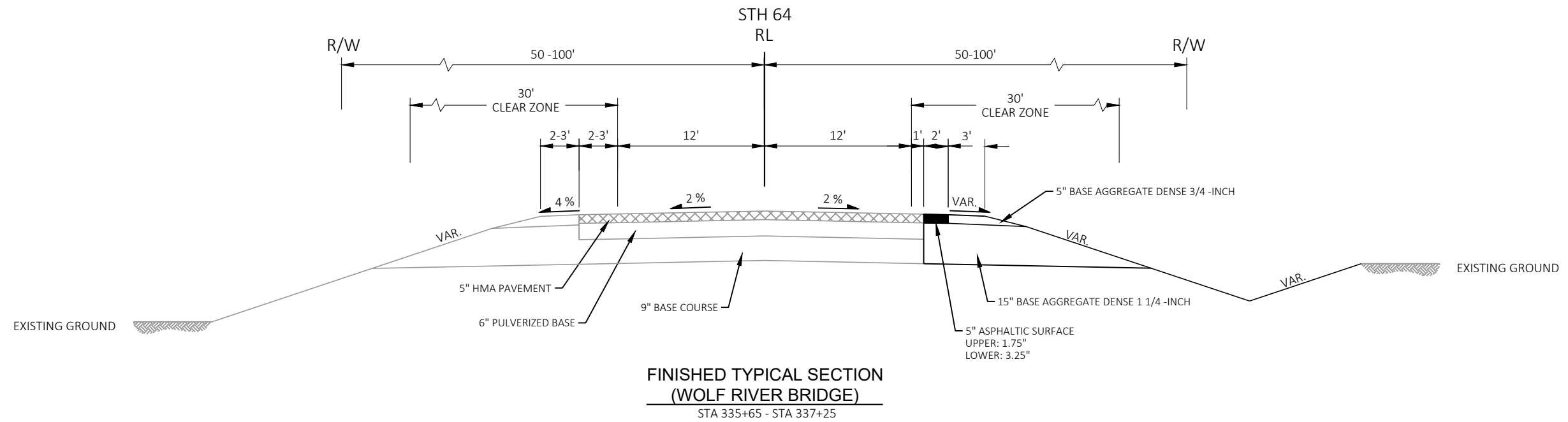


EXISTING TYPICAL SECTION
(WOLF RIVER BRIDGE)
STA 335+65 - STA 340+07

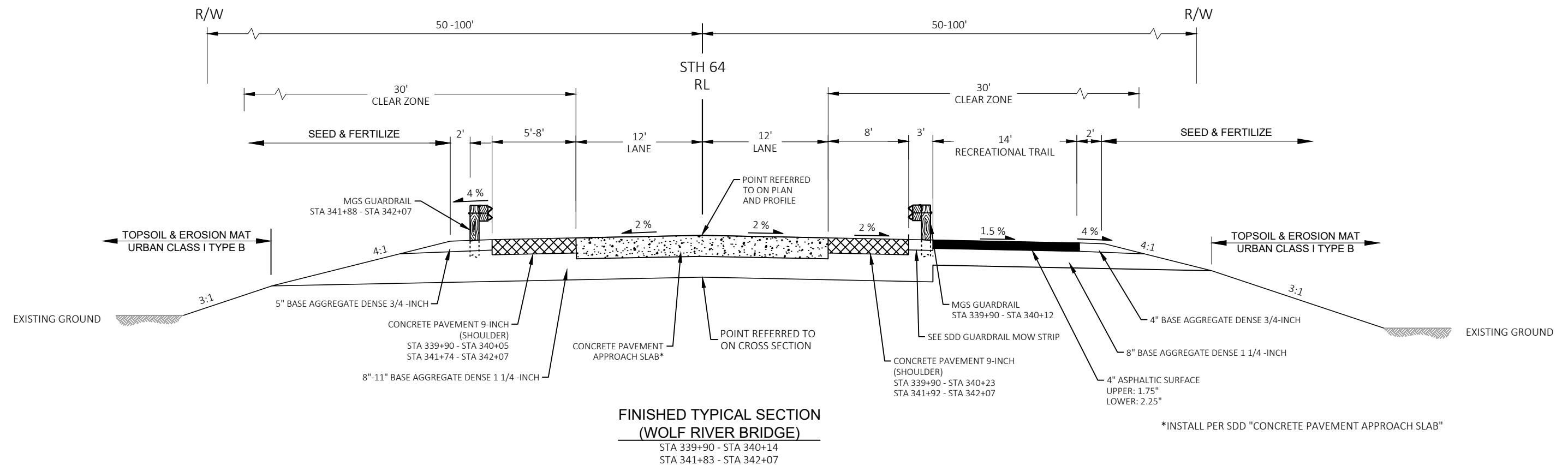
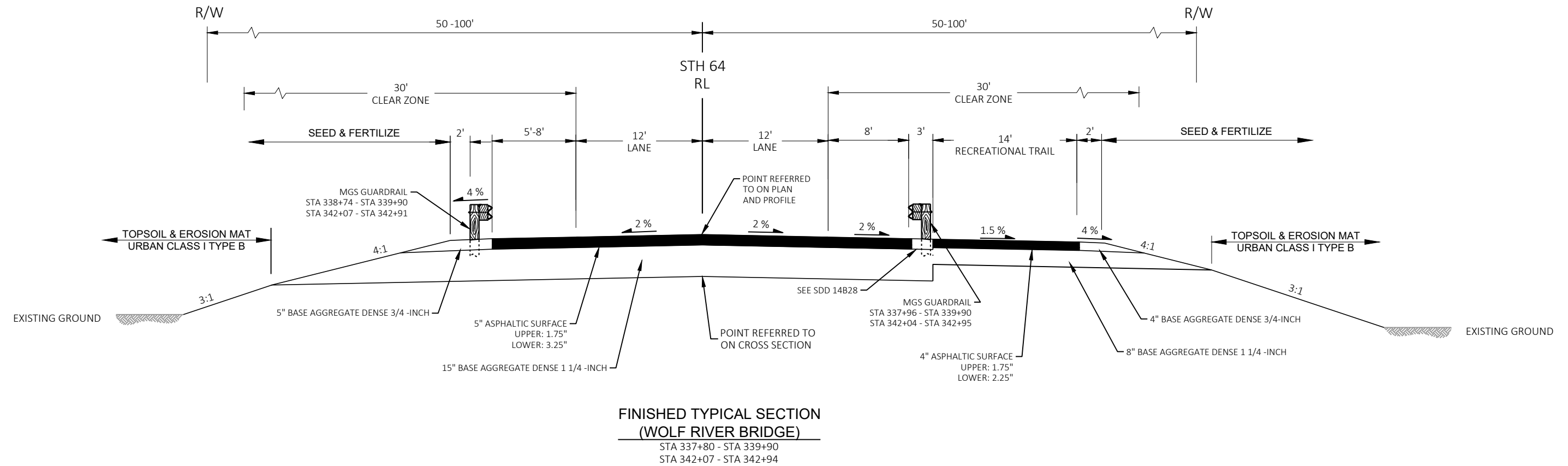


EXISTING TYPICAL SECTION
(WOLF RIVER BRIDGE)
STA 341+93 - STA 343+73



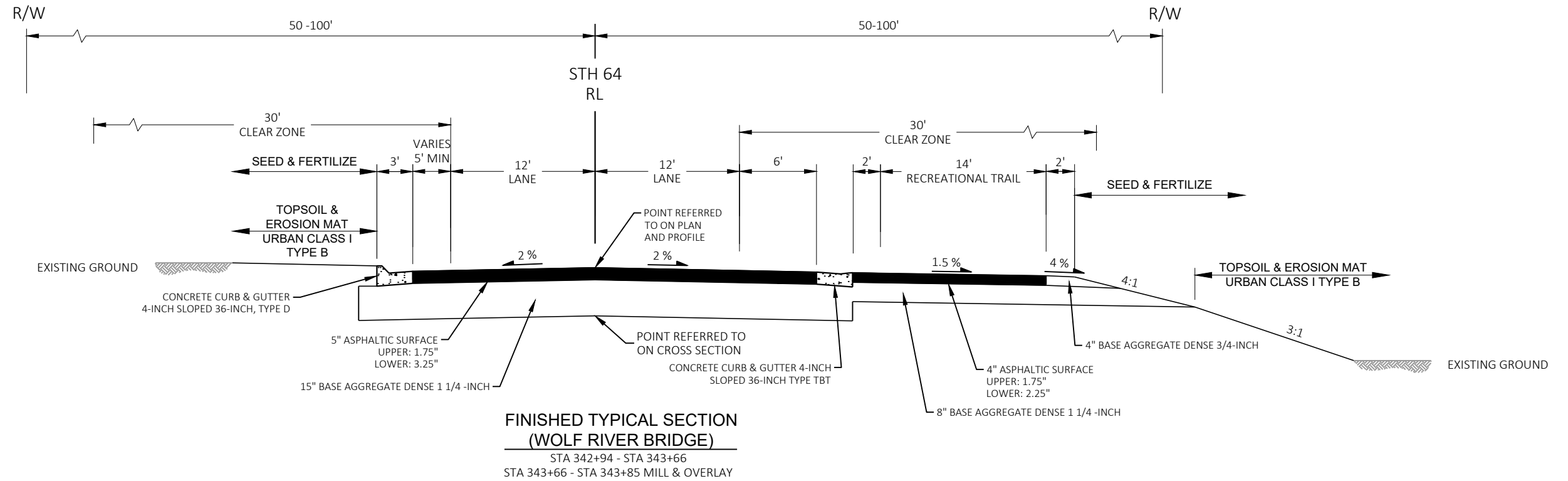


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PROJECT NO:	9140-12-81
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HWY: STH 64

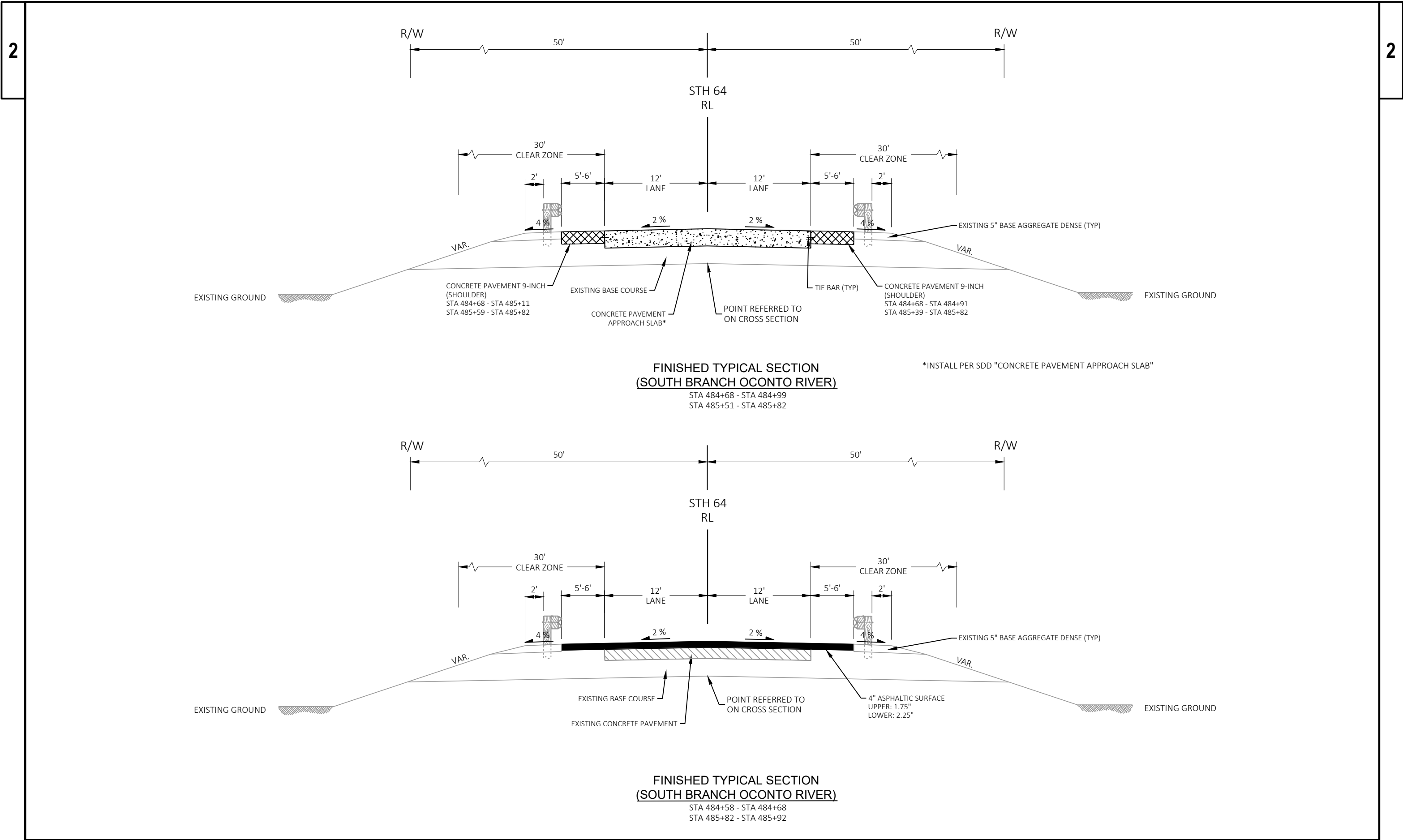
COUNTY: LANGLADE

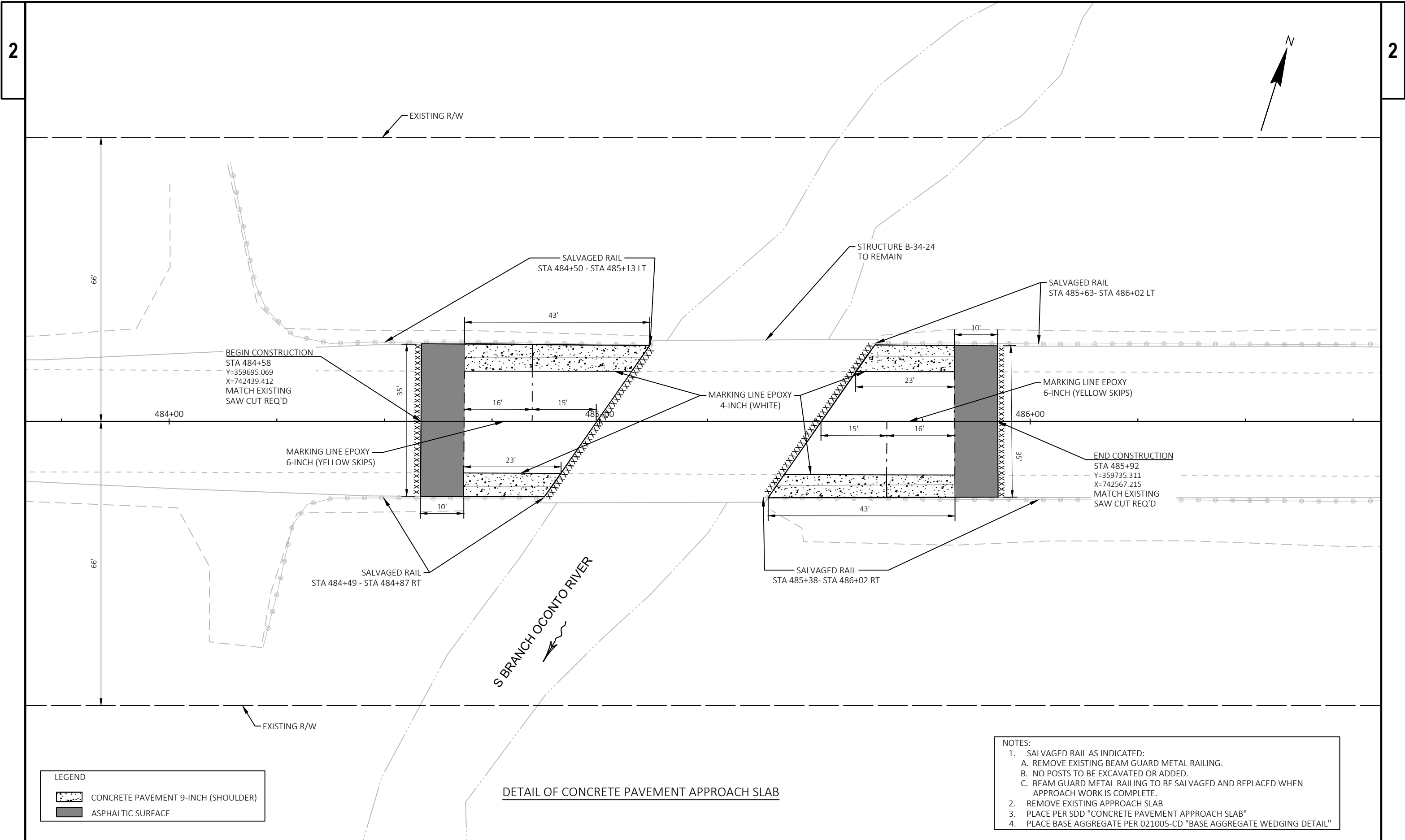
FINISHED TYPICAL SECTIONS

SHEET

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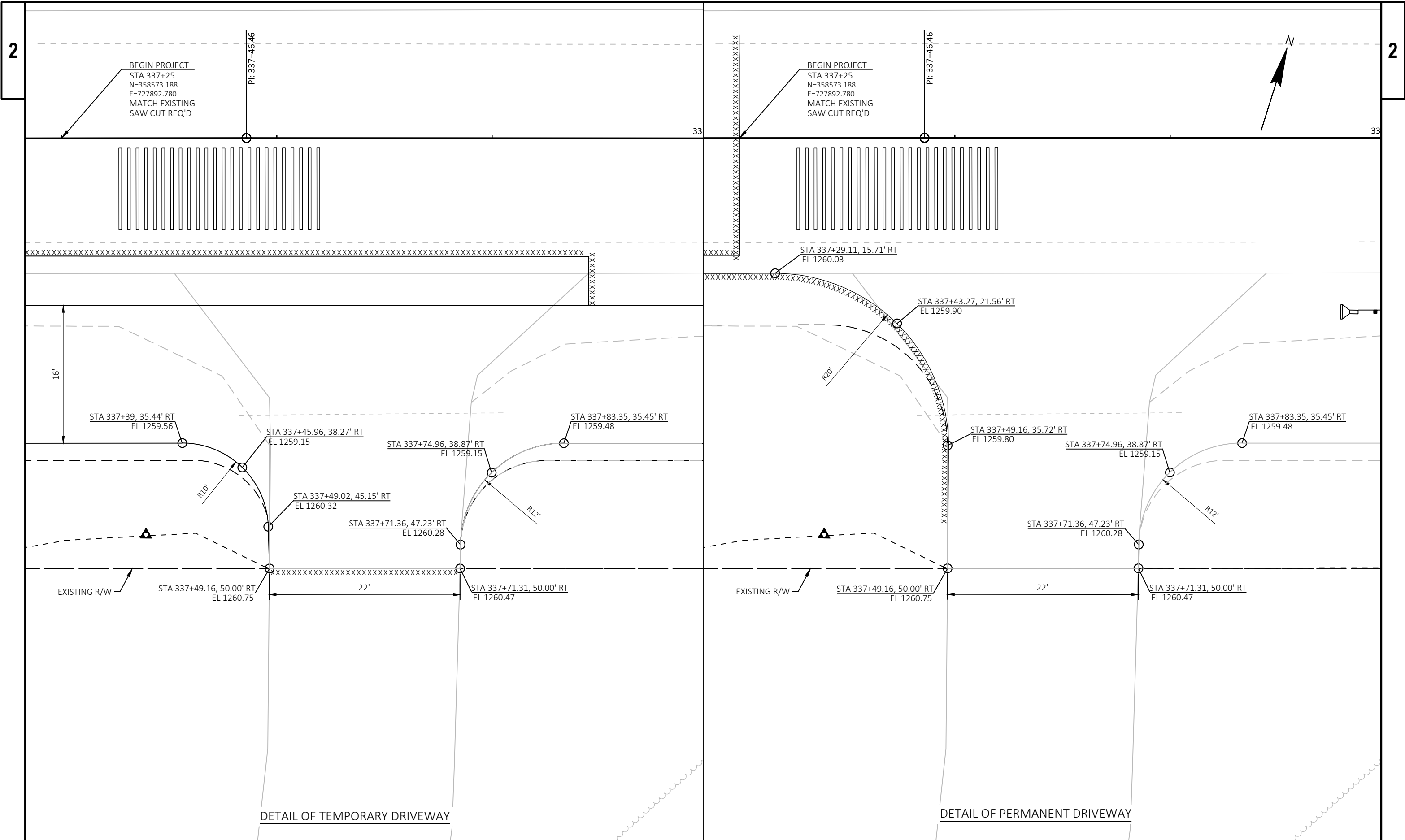
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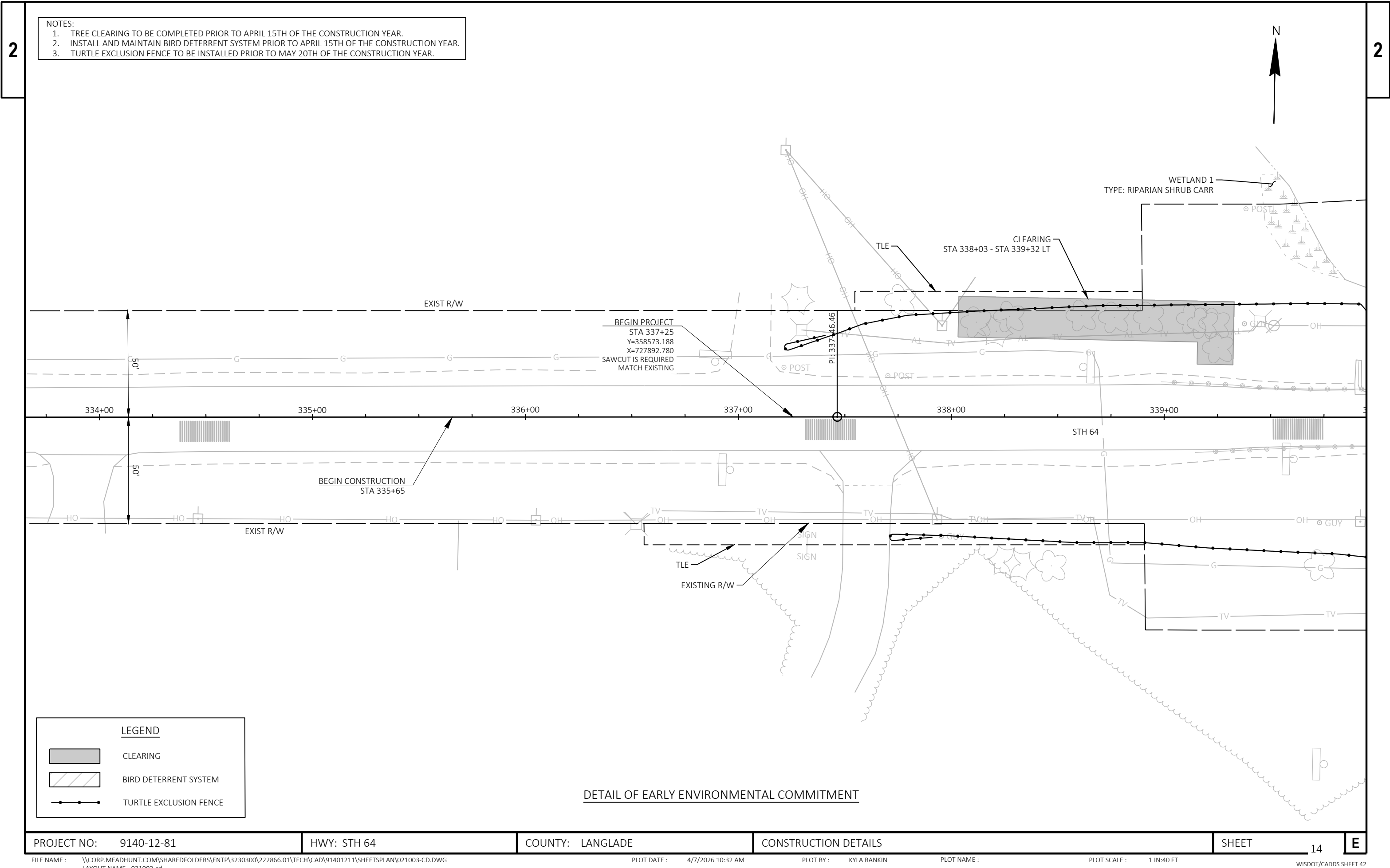




DETAIL OF CONCRETE PAVEMENT APPROACH SLAB

- NOTES:
- SALVAGED RAIL AS INDICATED:
 - REMOVE EXISTING BEAM GUARD METAL RAILING.
 - NO POSTS TO BE EXCAVATED OR ADDED.
 - BEAM GUARD METAL RAILING TO BE SALVAGED AND REPLACED WHEN APPROACH WORK IS COMPLETE.
 - REMOVE EXISTING APPROACH SLAB
 - PLACE PER SDD "CONCRETE PAVEMENT APPROACH SLAB"
 - PLACE BASE AGGREGATE PER 021005-CD "BASE AGGREGATE WEDGING DETAIL"



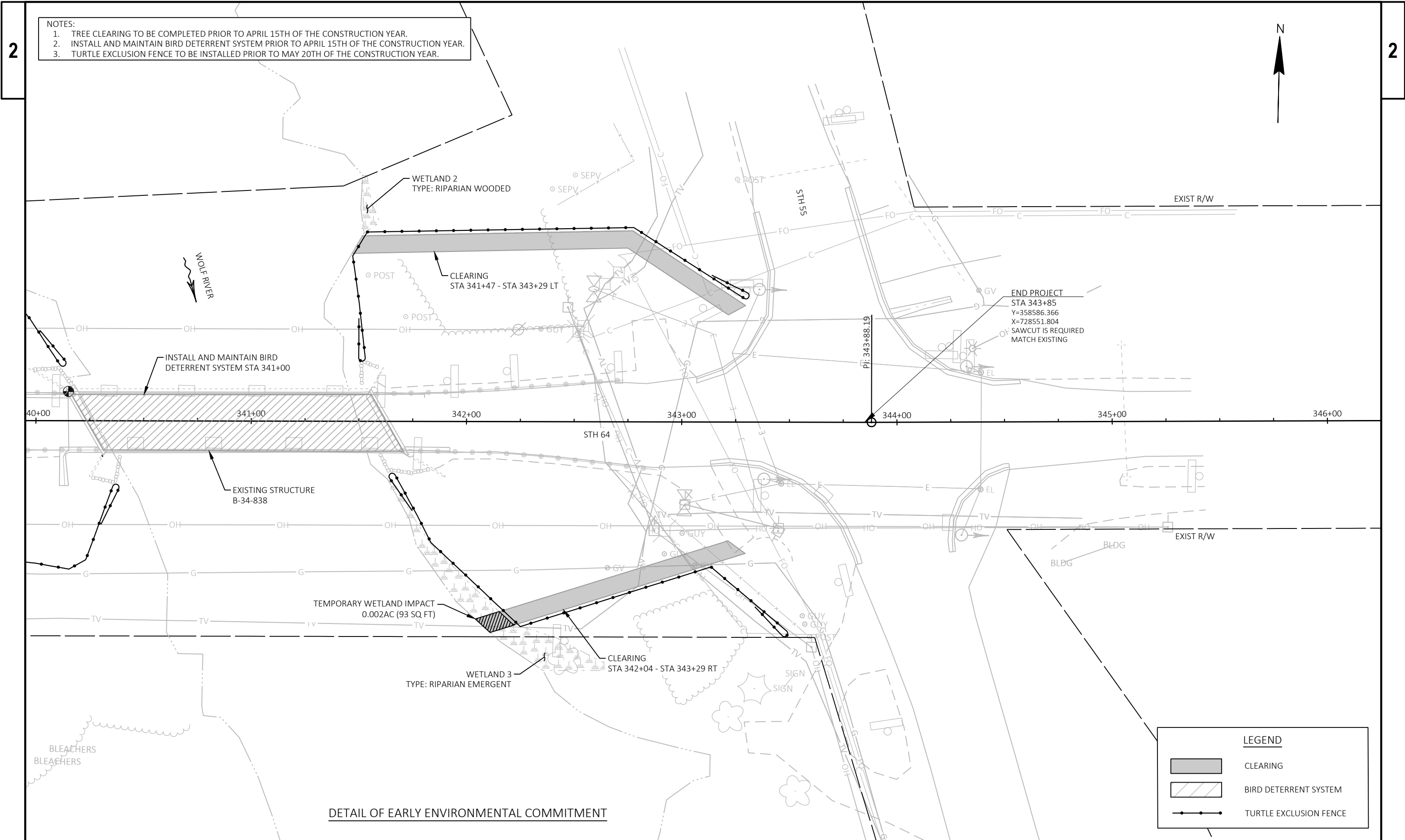


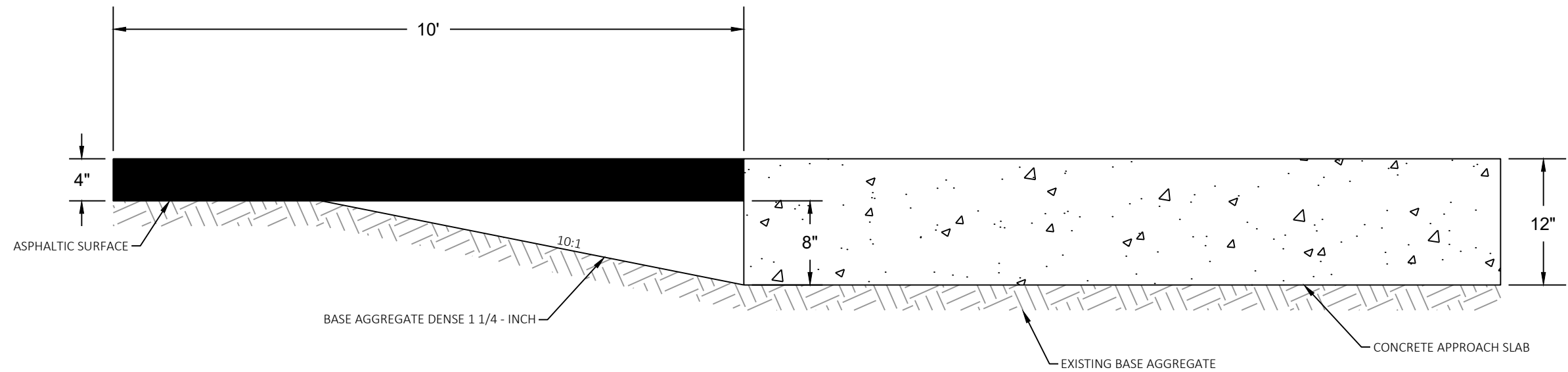
- NOTES:
- 1. TREE CLEARING TO BE COMPLETED PRIOR TO APRIL 15TH OF THE CONSTRUCTION YEAR.
 - 2. INSTALL AND MAINTAIN BIRD DETERRENT SYSTEM PRIOR TO APRIL 15TH OF THE CONSTRUCTION YEAR.
 - 3. TURTLE EXCLUSION FENCE TO BE INSTALLED PRIOR TO MAY 20TH OF THE CONSTRUCTION YEAR.

LEGEND

- CLEARING
- BIRD DETERRENT SYSTEM
- TURTLE EXCLUSION FENCE

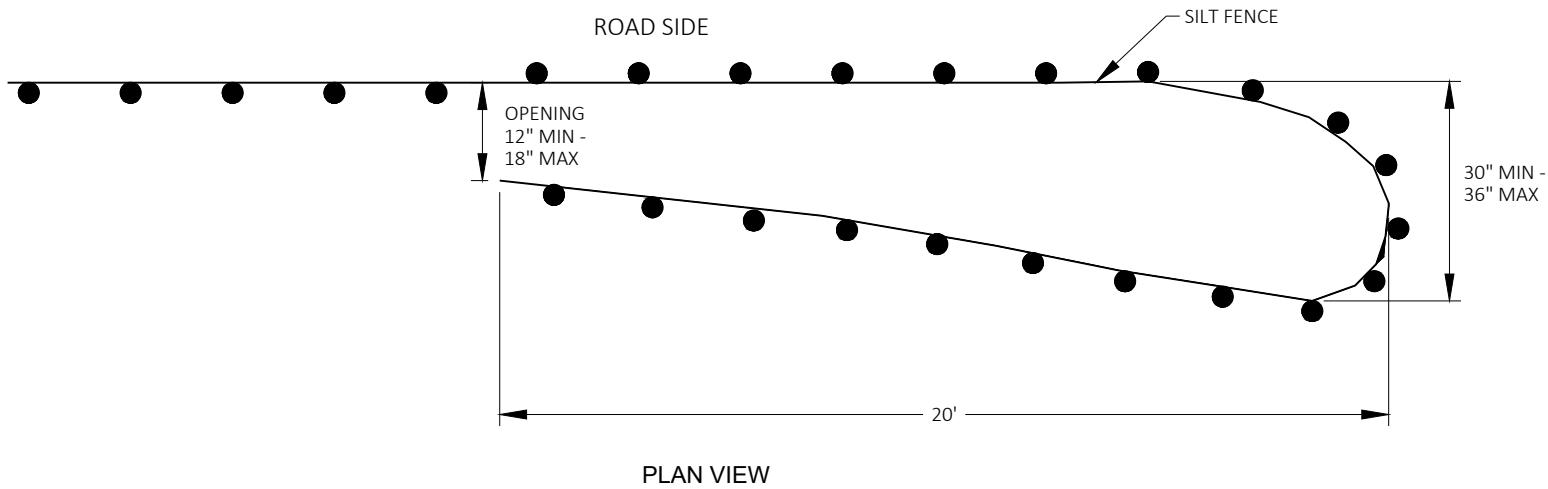
DETAIL OF EARLY ENVIRONMENTAL COMMITMENT





PROFILE VIEW

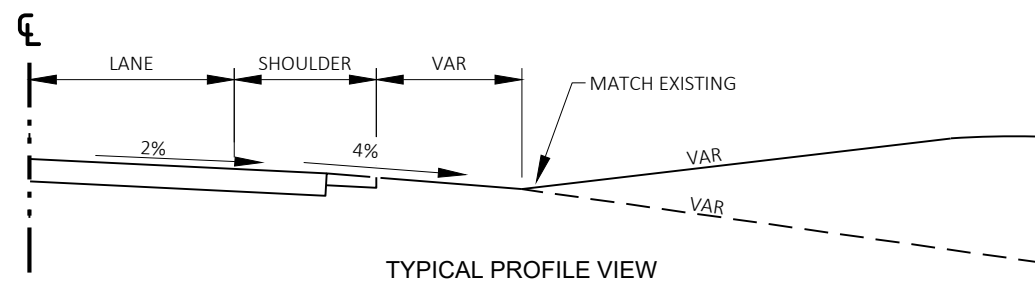
BASE AGGREGATE WEDGING DETAIL



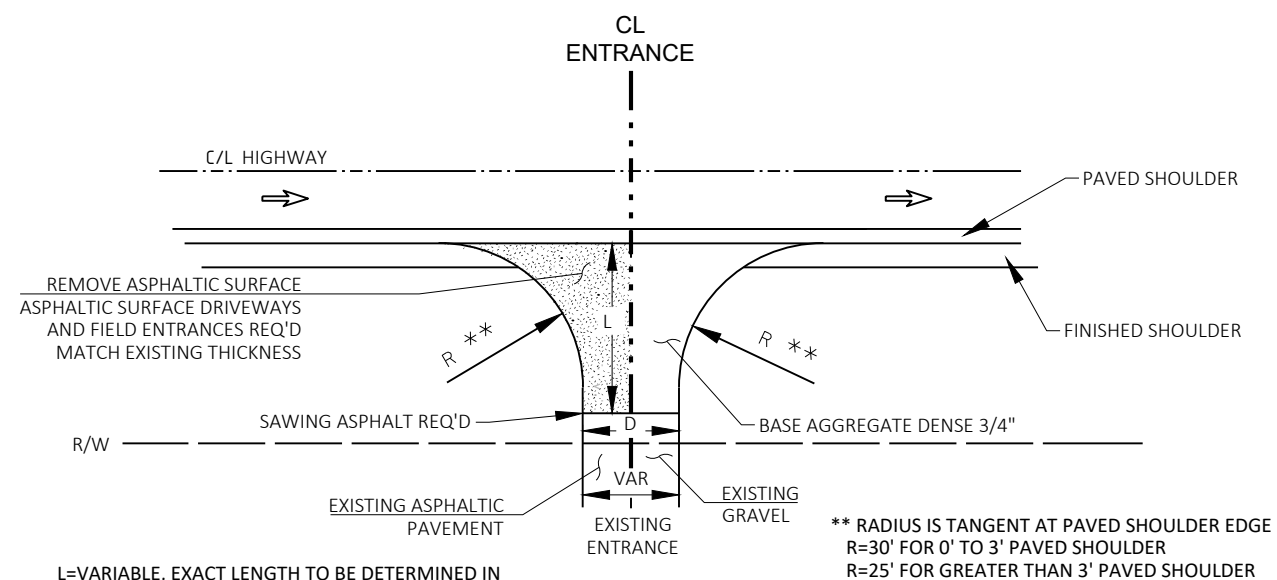
TEMPORARY SMALL ANIMAL TURN-AROUND

GENERAL NOTES:
SILT FENCE POSTS FOR THE TURN-AROUND SHOULD BE ON THE OUTSIDE OF THE
TURN-AROUND AND TRENCHED IN ACCORDING TO SILT FENCE REQUIREMENTS.

SEE SDD 8E9 FOR ADDITIONAL INSTALLATION REQUIREMENTS.



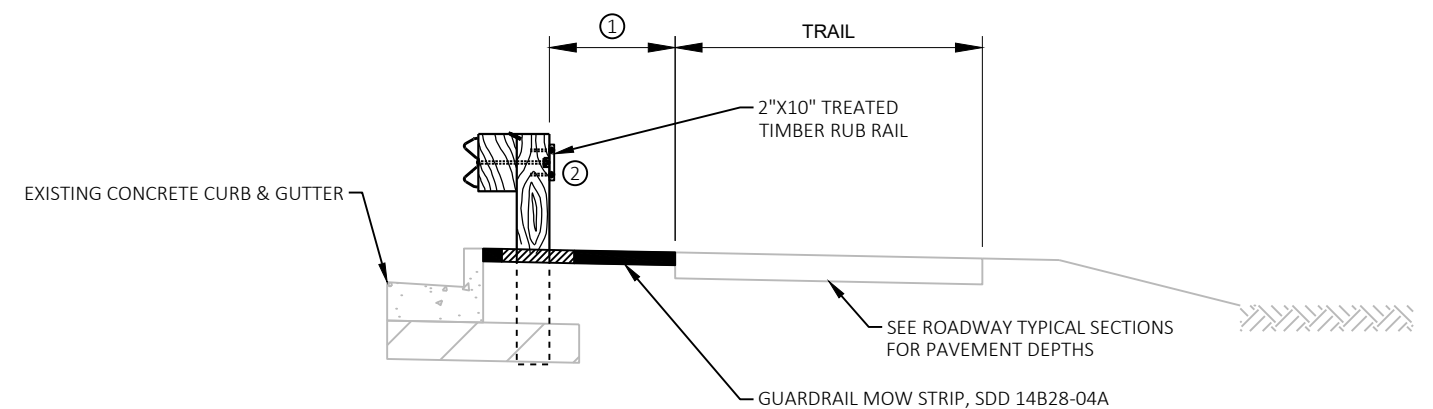
TYPICAL PROFILE VIEW



L=VARIABLE, EXACT LENGTH TO BE DETERMINED IN THE FIELD BY THE ENGINEER

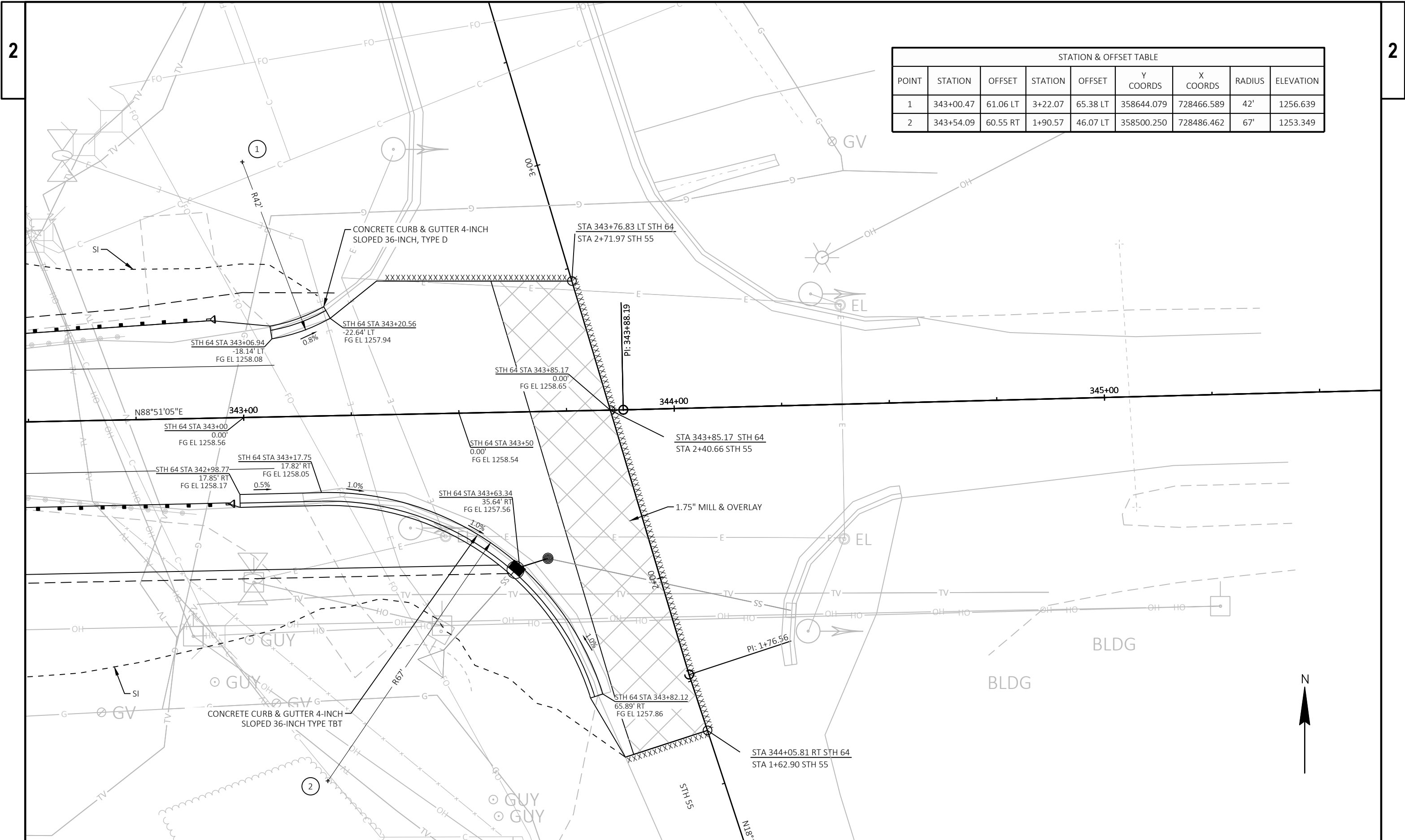
D=DRIVEWAY WIDTH
D=20'TYP(PE & FE) (16'MIN-24'MAX)
D=28'TYP(CE & FARM ENT) (24'MIN-35'MAX)

PLAN VIEW

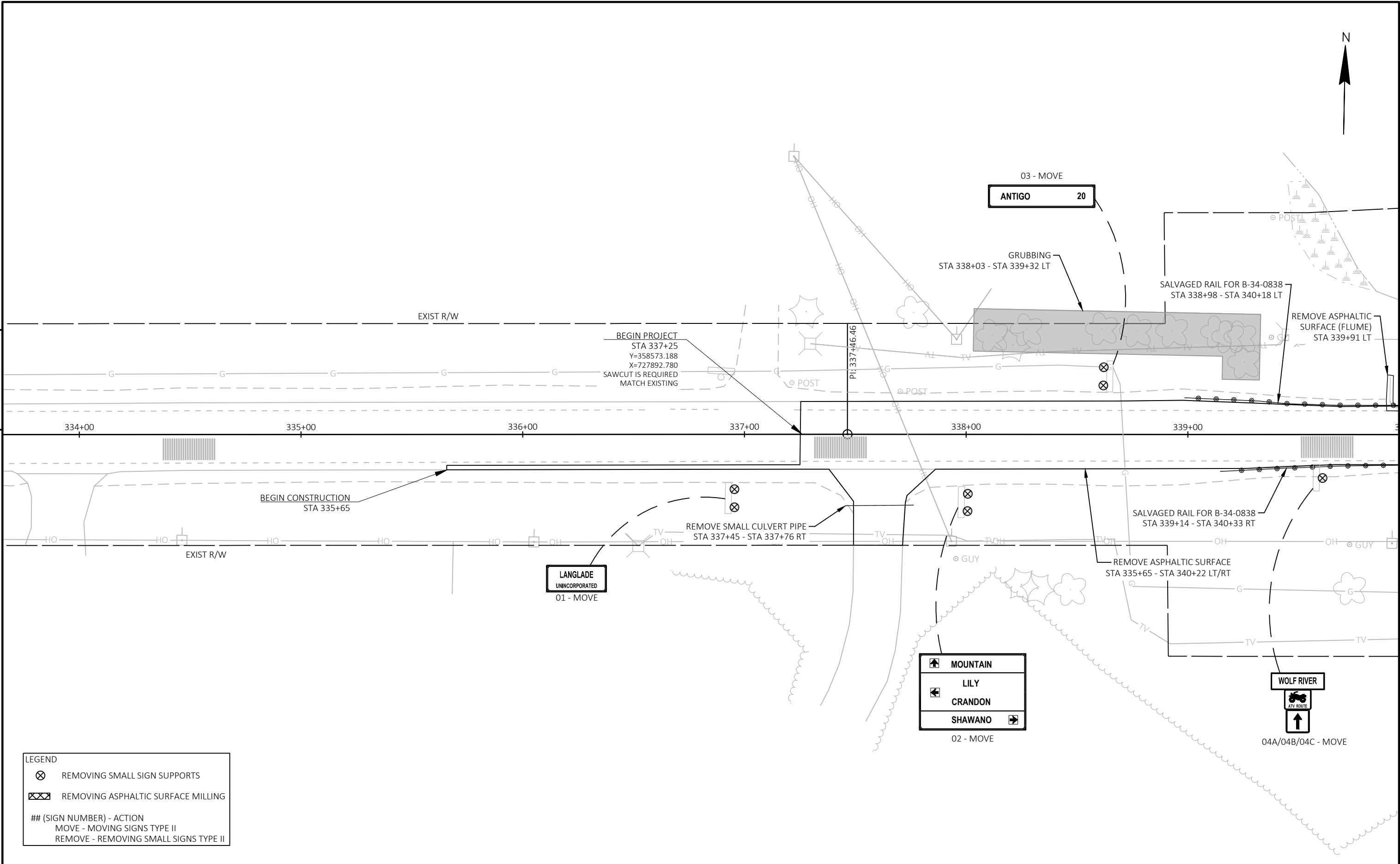
RURAL DRIVEWAY INTERSECTIONTREATED TIMBER RUB RAIL AT GUARDRAIL

STA 337+96 TO STA 340+12
STA 341+88 TO STA 342+95

- ① WHEN DISTANCE FROM BACK OF GUARDRAIL POST TO SIDEWALK IS 2-FOOT OR LESS INSTALL 2\"X10\" TREATED TIMBER RUB RAIL. DO NOT INSTALL ON ENERGY ABSORBING TERMINALS.
- ② ATTACH TREATED TIMBER RUB RAIL TO WOOD GUARDRAIL POSTS WITH TWO 1/2\"X6\" LAG BOLTS AND 1/2\" FLAT WASHERS PER GUARDRAIL POST. ALL FASTENERS SHALL BE HOT DIP GALVANIZED. SPACE LAG BOLTS AT LEAST 2 INCHES FROM GUARDRAIL BOLT. ALL CARRIAGE BOLTS AND LAG SCREWS THAT ARE ADJACENT TO THE SIDEWALK SHALL BE COUNTERSUNK SUCH THAT BOLTS AND NUTS ARE NOT PROTRUDING FROM TREATED TIMBER RUB RAIL
- ③ ITEM INCLUDED IN STRUCTURE PLANS AND QUANTITIES



STATION & OFFSET TABLE								
POINT	STATION	OFFSET	STATION	OFFSET	Y COORDS	X COORDS	RADIUS	ELEVATION
1	343+00.47	61.06 LT	3+22.07	65.38 LT	358644.079	728466.589	42'	1256.639
2	343+54.09	60.55 RT	1+90.57	46.07 LT	358500.250	728486.462	67'	1253.349



LEGEND

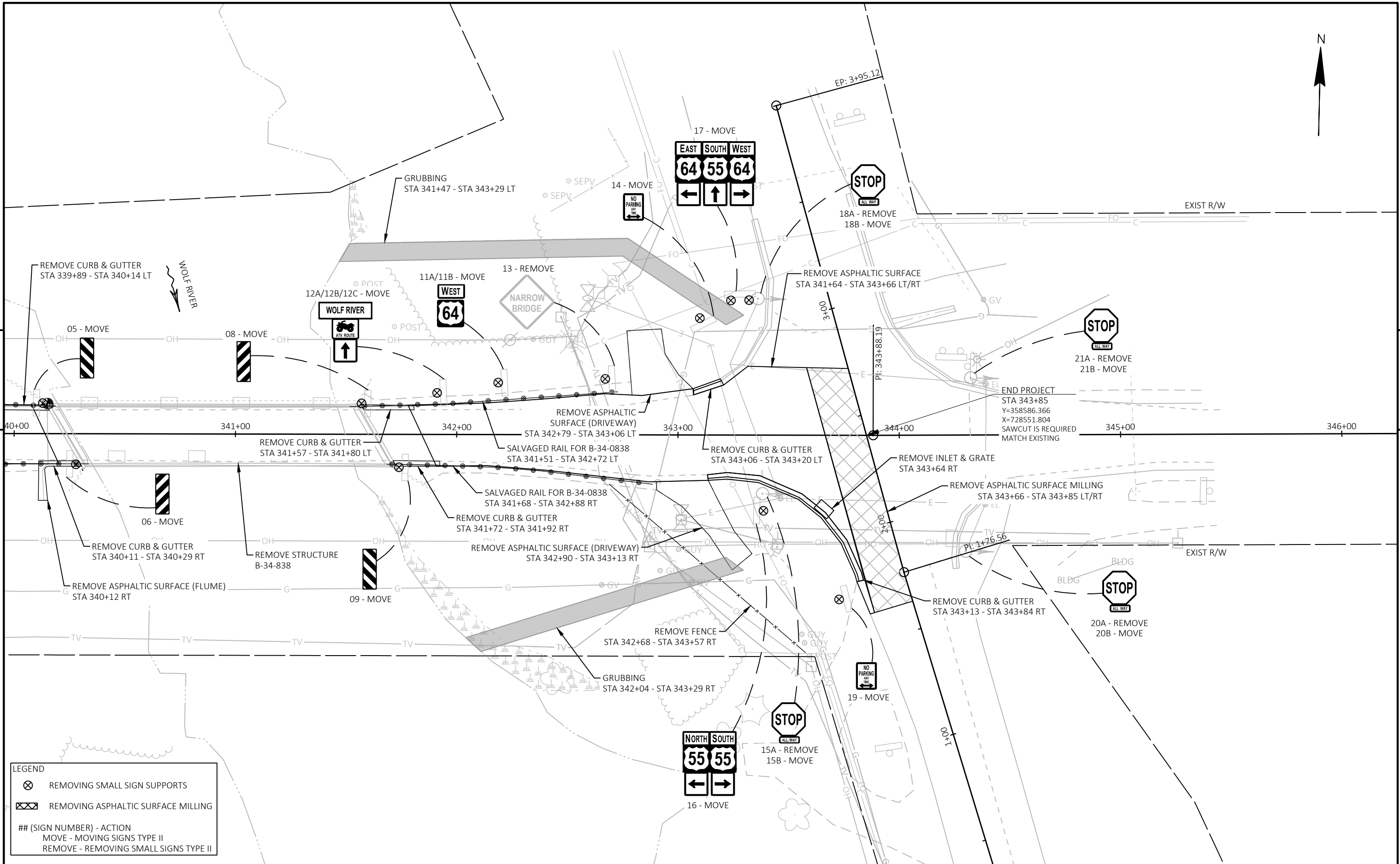
REMOVING SMALL SIGN SUPPORTS

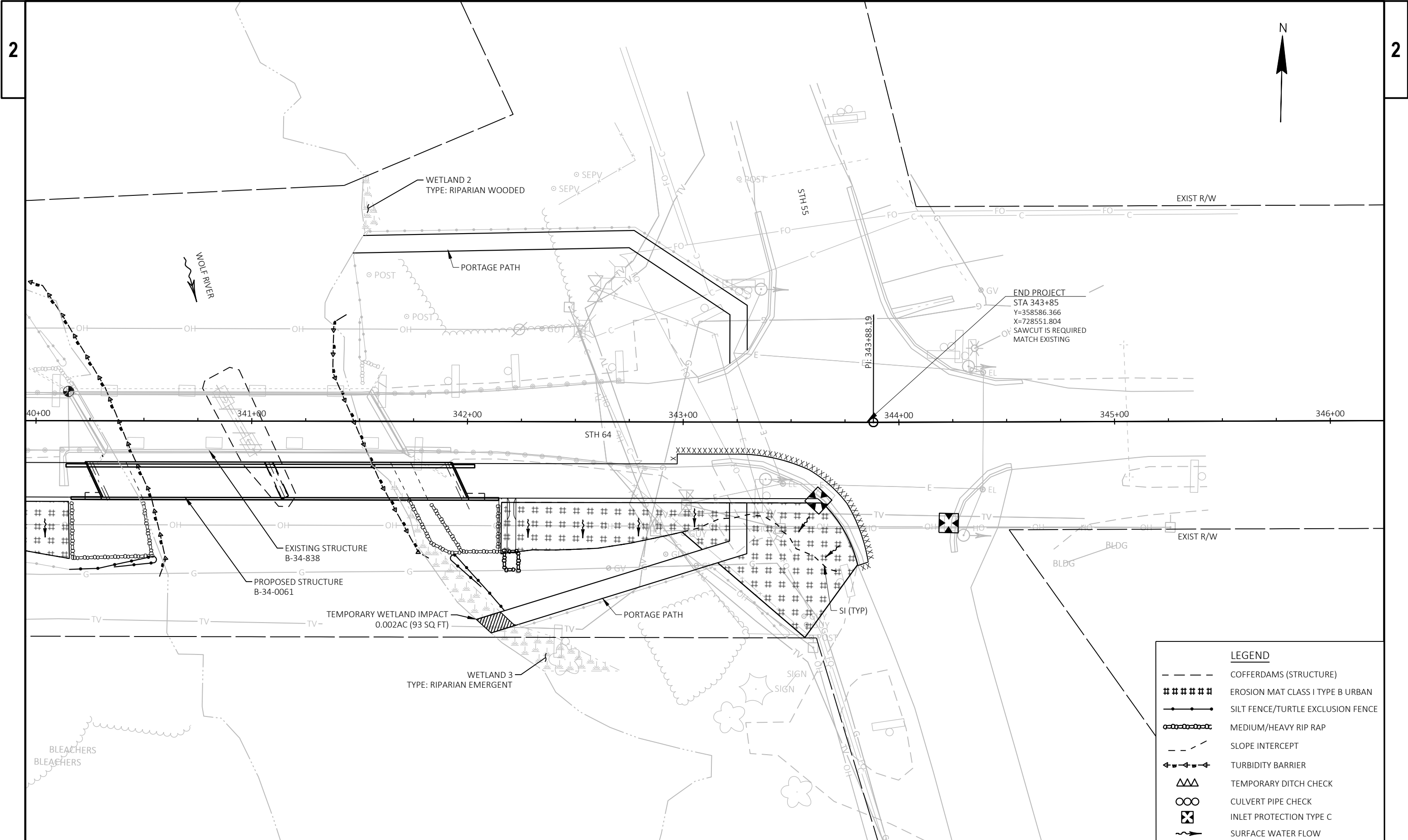
REMOVING ASPHALTIC SURFACE MILLING

(SIGN NUMBER) - ACTION

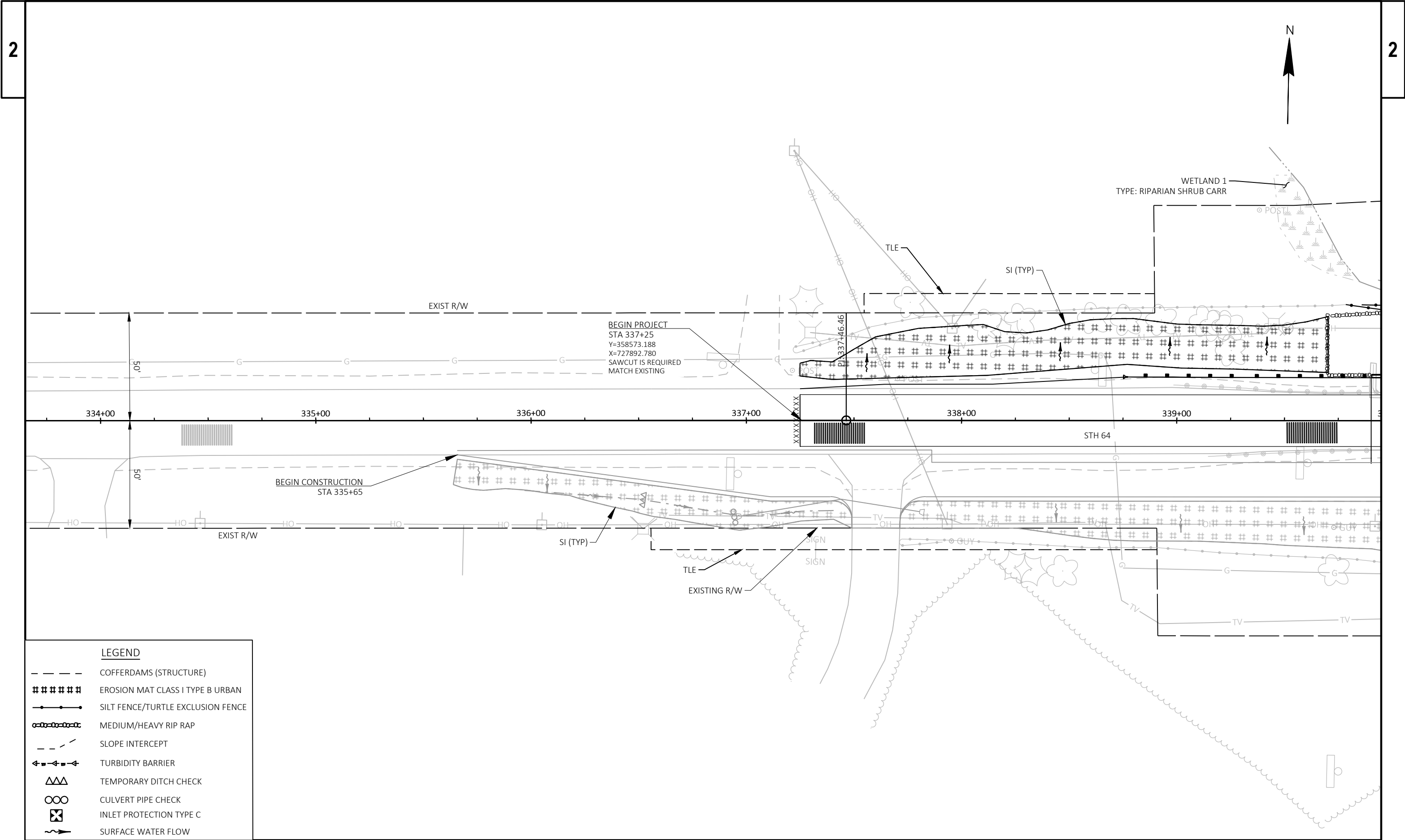
MOVE - MOVING SIGNS TYPE II

REMOVE - REMOVING SMALL SIGNS TYPE II



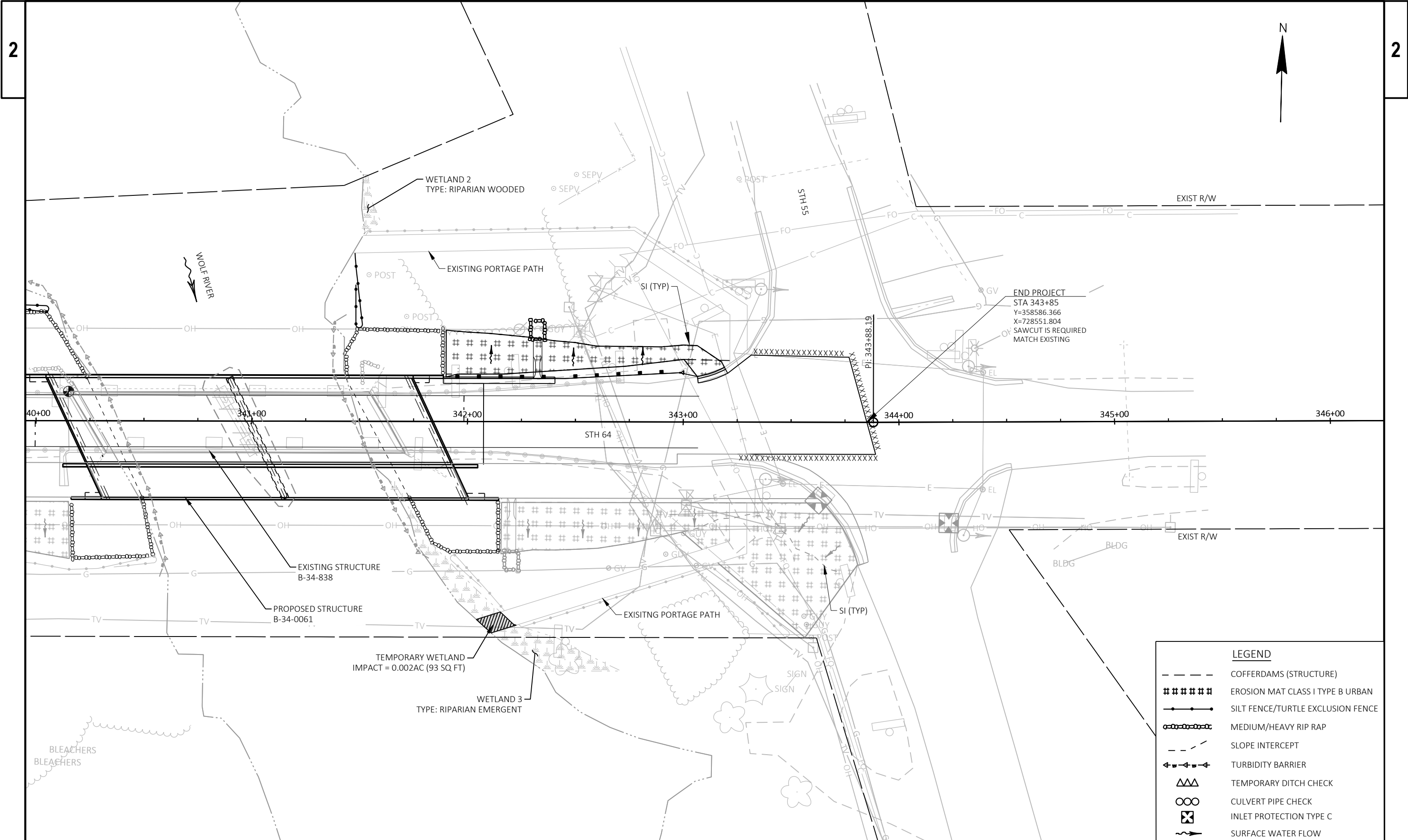


LEGEND	
	COFFERDAMS (STRUCTURE)
	EROSION MAT CLASS I TYPE B URBAN
	SILT FENCE/TURTLE EXCLUSION FENCE
	MEDIUM/HEAVY RIP RAP
	SLOPE INTERCEPT
	TURBIDITY BARRIER
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	INLET PROTECTION TYPE C
	SURFACE WATER FLOW

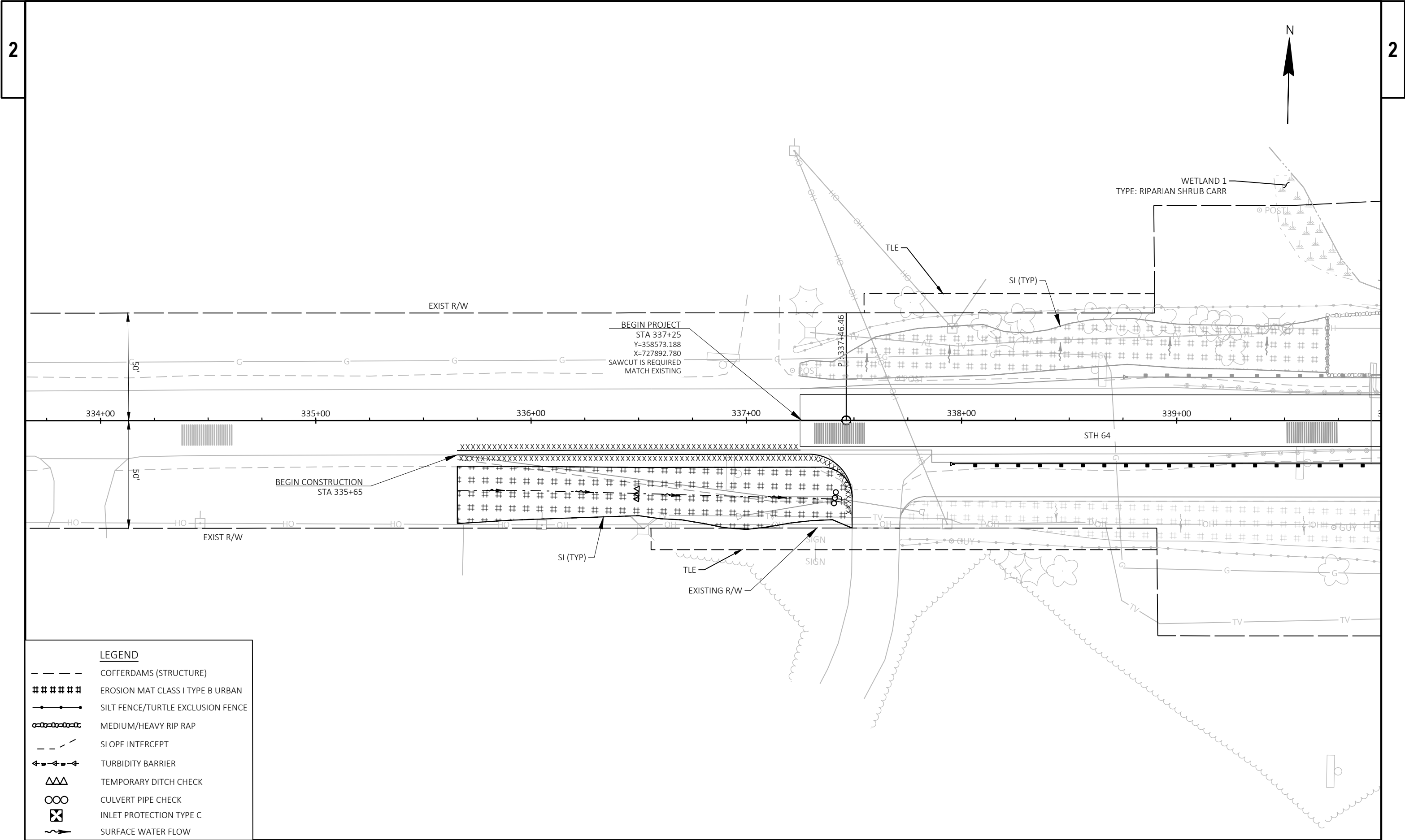


LEGEND

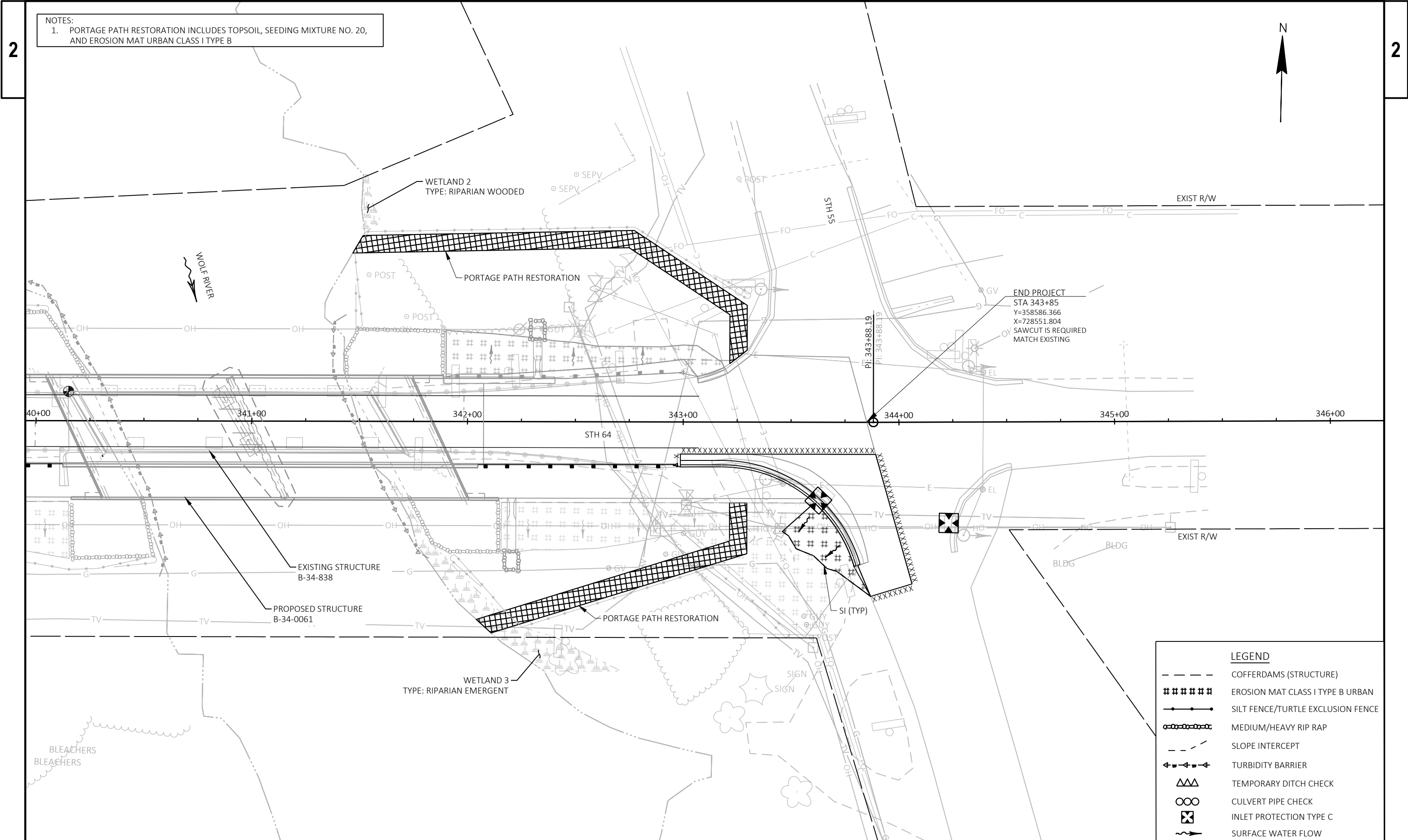
- COFFERDAMS (STRUCTURE)
- ##### EROSION MAT CLASS I TYPE B URBAN
- SILT FENCE/TURTLE EXCLUSION FENCE
- ⚡ MEDIUM/HEAVY RIP RAP
- - - SLOPE INTERCEPT
- ←←← TURBIDITY BARRIER
- △△△ TEMPORARY DITCH CHECK
- CULVERT PIPE CHECK
- ⊗ INLET PROTECTION TYPE C
- SURFACE WATER FLOW



LEGEND	
	COFFERDAMS (STRUCTURE)
	EROSION MAT CLASS I TYPE B URBAN
	SILT FENCE/TURTLE EXCLUSION FENCE
	MEDIUM/HEAVY RIP RAP
	SLOPE INTERCEPT
	TURBIDITY BARRIER
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	INLET PROTECTION TYPE C
	SURFACE WATER FLOW

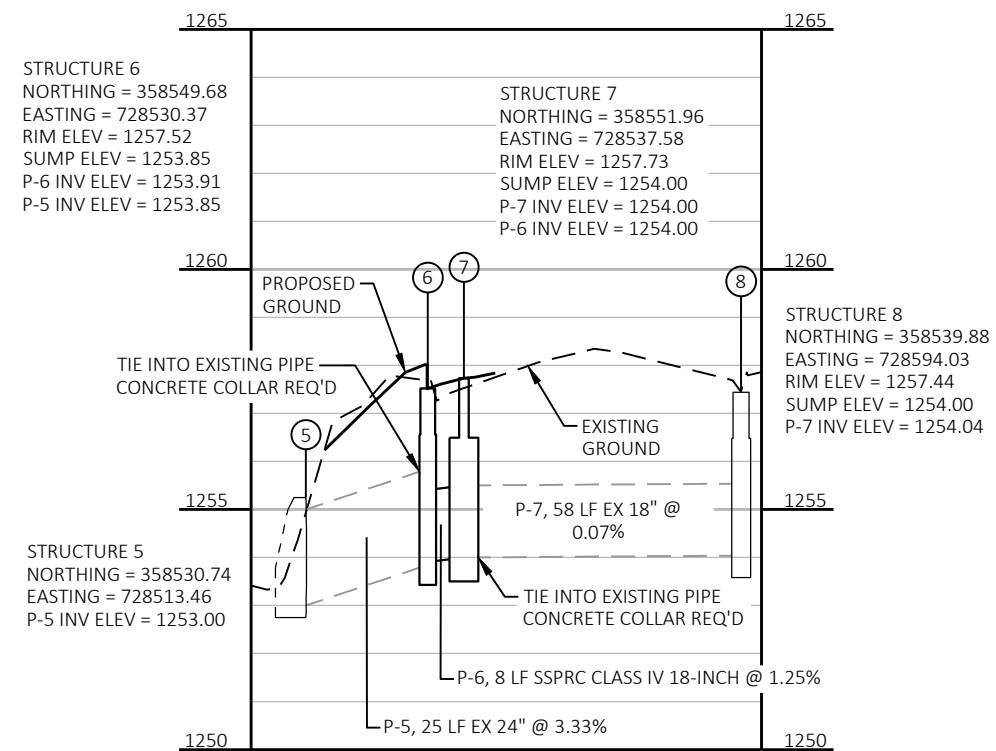
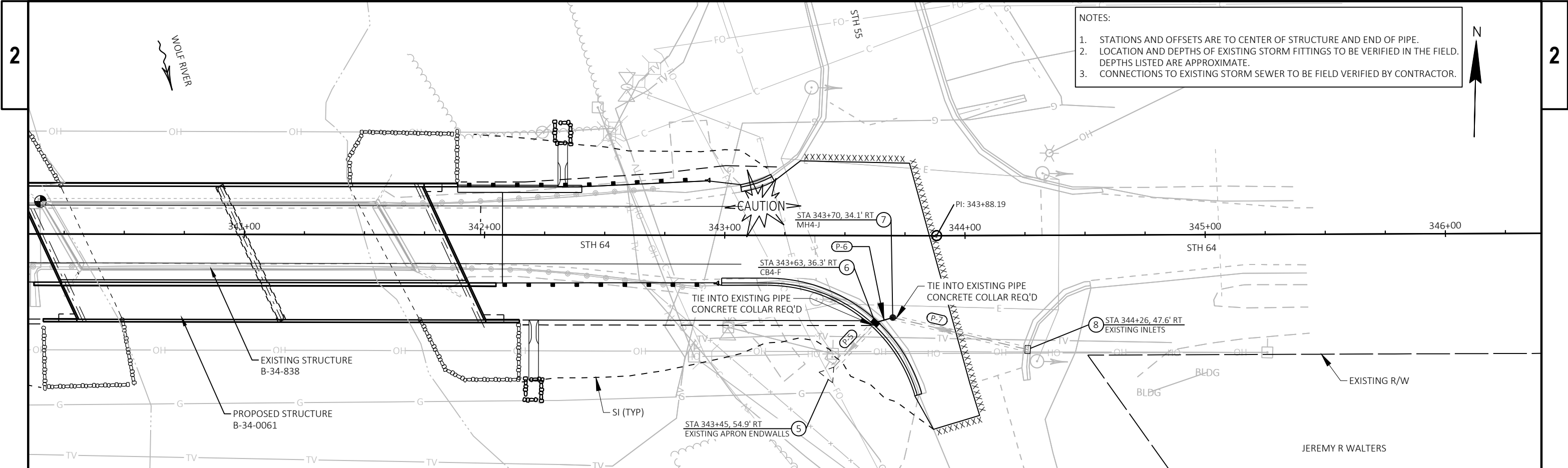


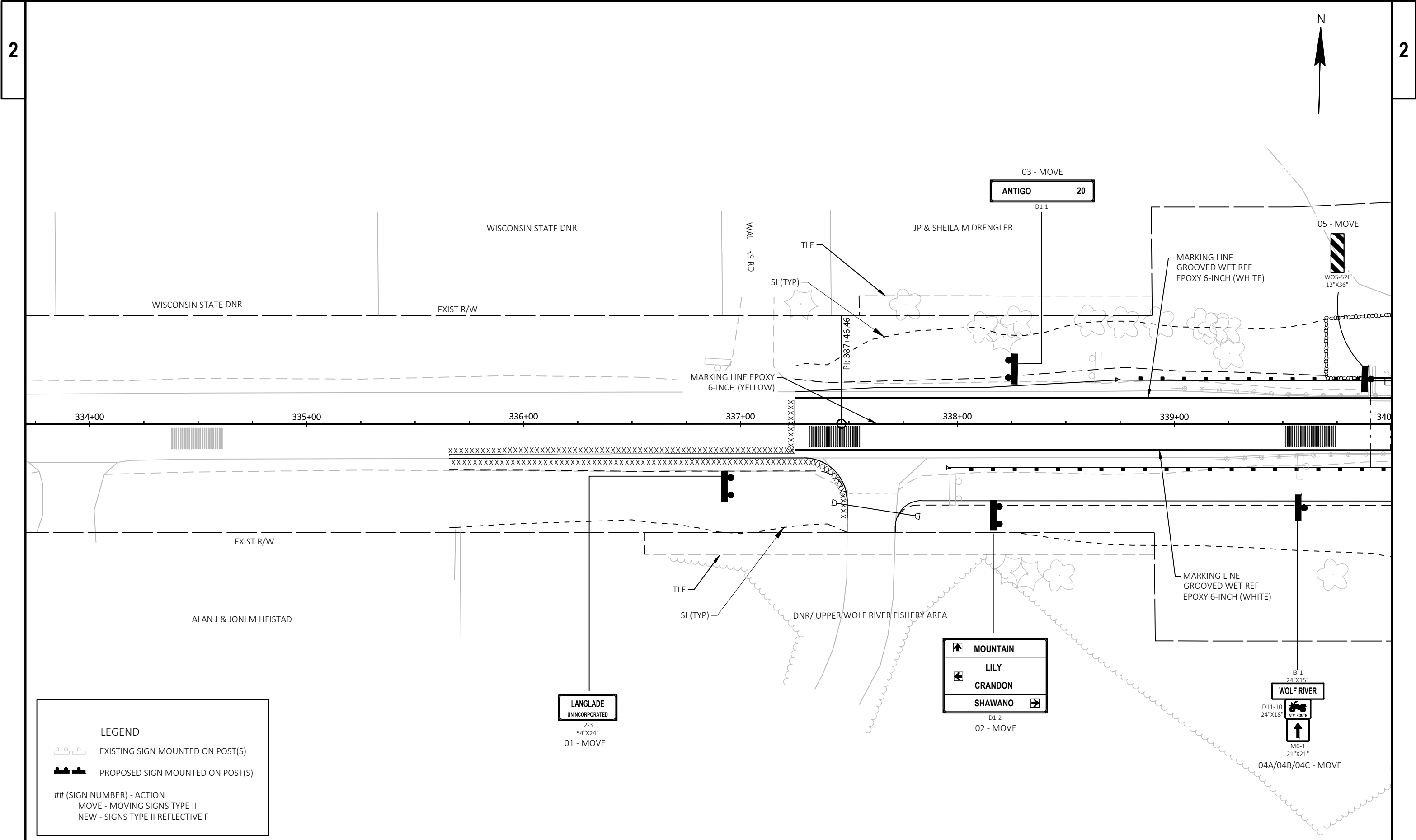
LEGEND	
---	COFFERDAMS (STRUCTURE)
#####	EROSION MAT CLASS I TYPE B URBAN
—●—●—●—	SILT FENCE/TURTLE EXCLUSION FENCE
—○—○—○—	MEDIUM/HEAVY RIP RAP
- - -	SLOPE INTERCEPT
←-←-←-←	TURBIDITY BARRIER
△△△	TEMPORARY DITCH CHECK
○○○	CULVERT PIPE CHECK
⊗	INLET PROTECTION TYPE C
~>	SURFACE WATER FLOW



NOTES:
1. PORTAGE PATH RESTORATION INCLUDES TOPSOIL, SEEDING MIXTURE NO. 20,
AND EROSION MAT URBAN CLASS I TYPE B

LEGEND	
	COFFERDAMS (STRUCTURE)
	EROSION MAT CLASS I TYPE B URBAN
	SILT FENCE/TURTLE EXCLUSION FENCE
	MEDIUM/HEAVY RIP RAP
	SLOPE INTERCEPT
	TURBIDITY BARRIER
	TEMPORARY DITCH CHECK
	CULVERT PIPE CHECK
	INLET PROTECTION TYPE C
	SURFACE WATER FLOW





LEGEND

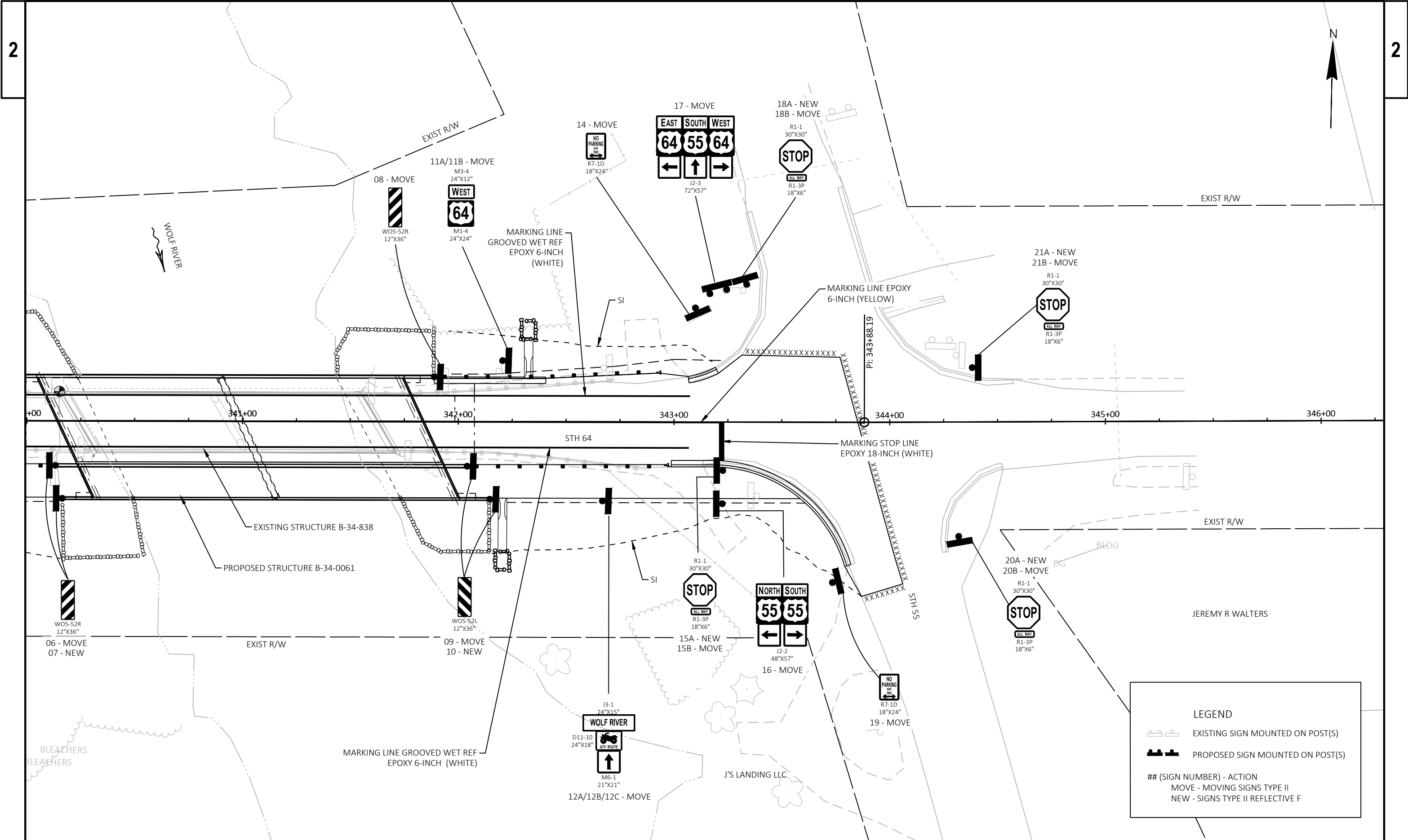
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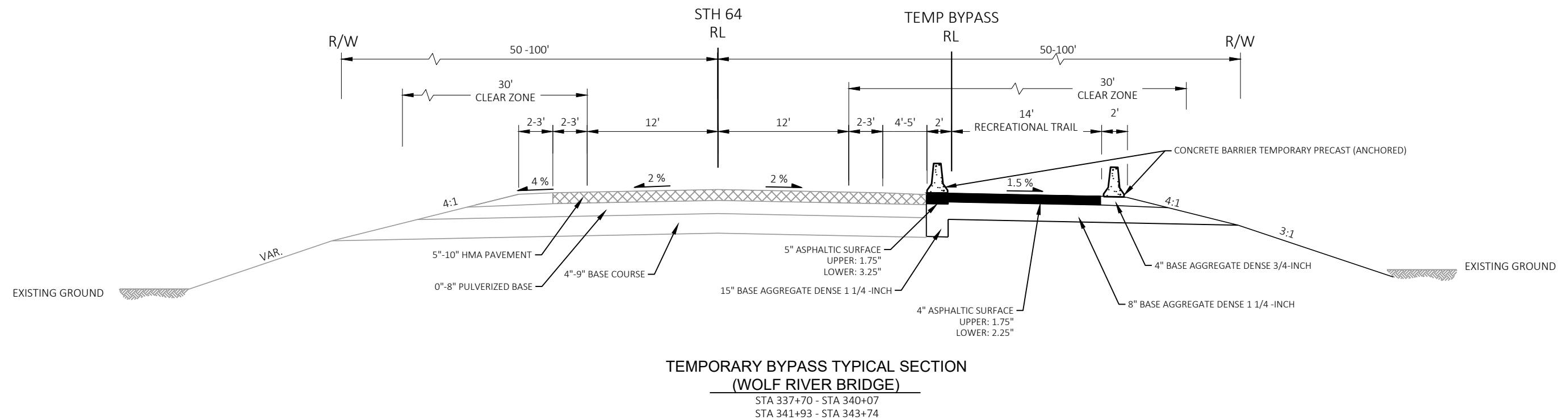
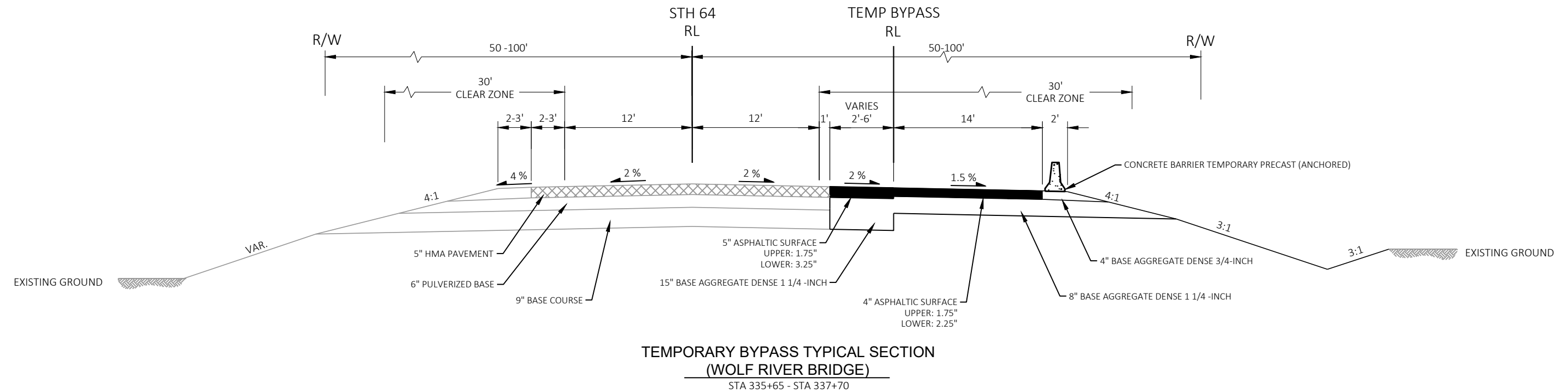
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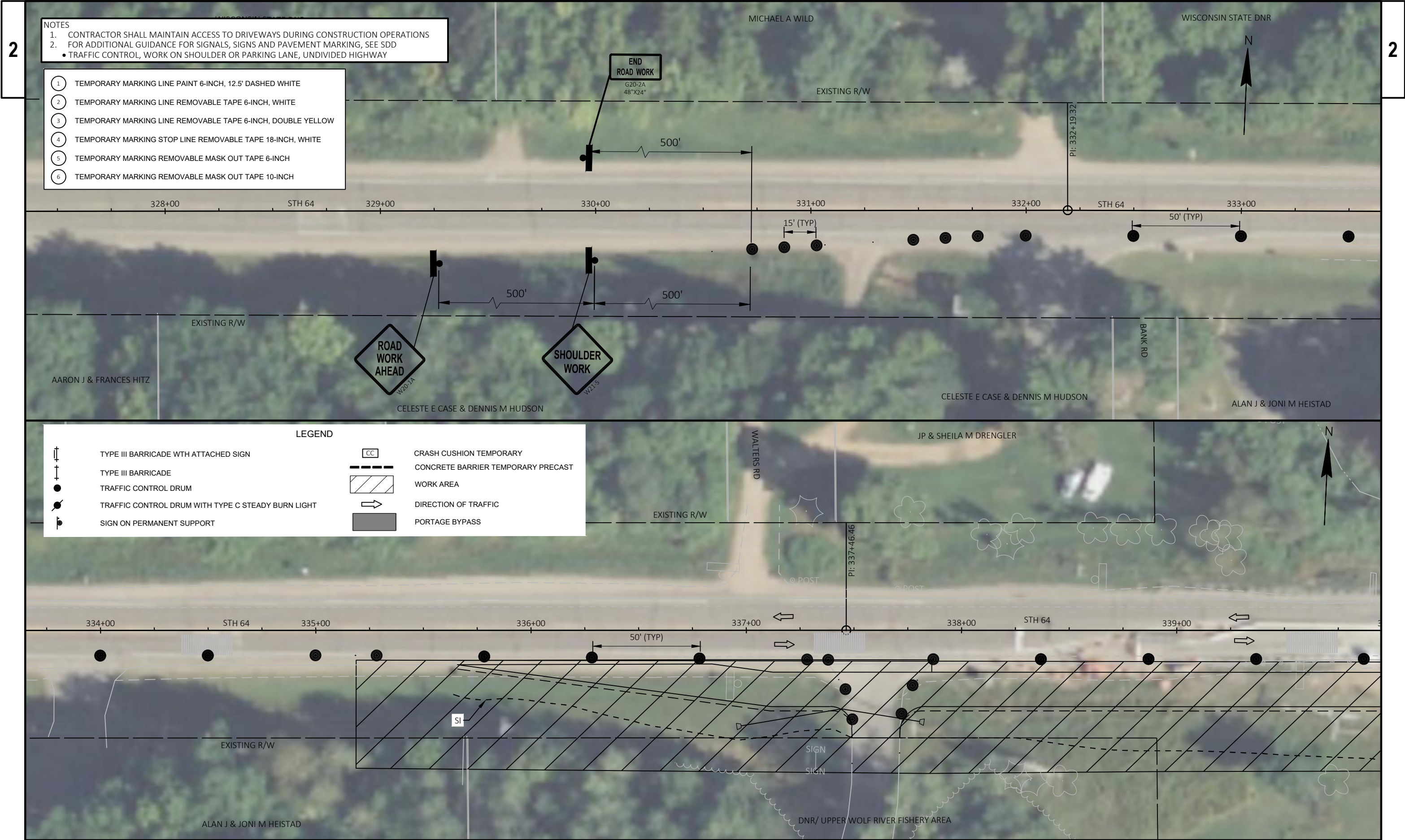
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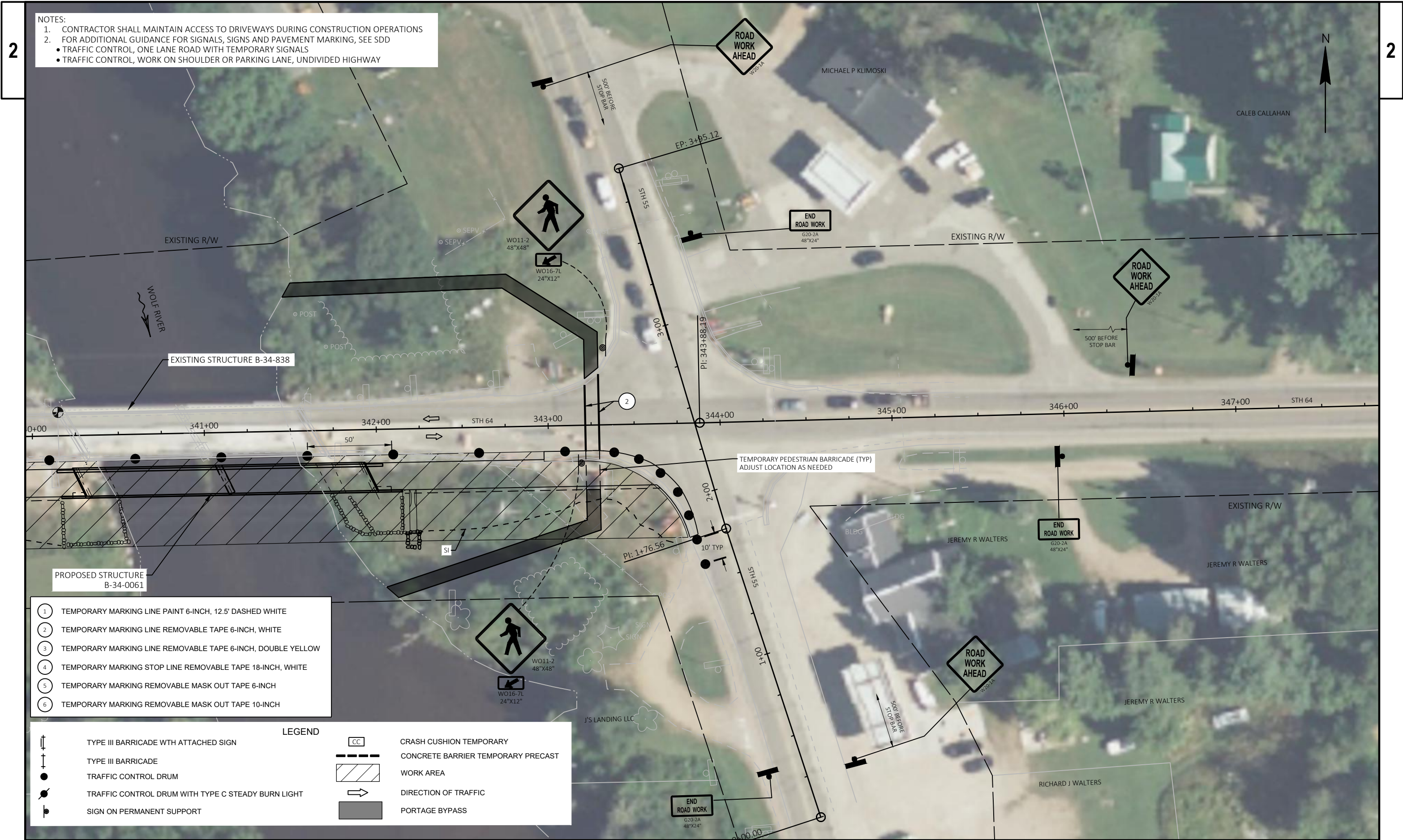
MOVE - MOVING SIGNS TYPE II

NEW - SIGNS TYPE II REFLECTIVE F

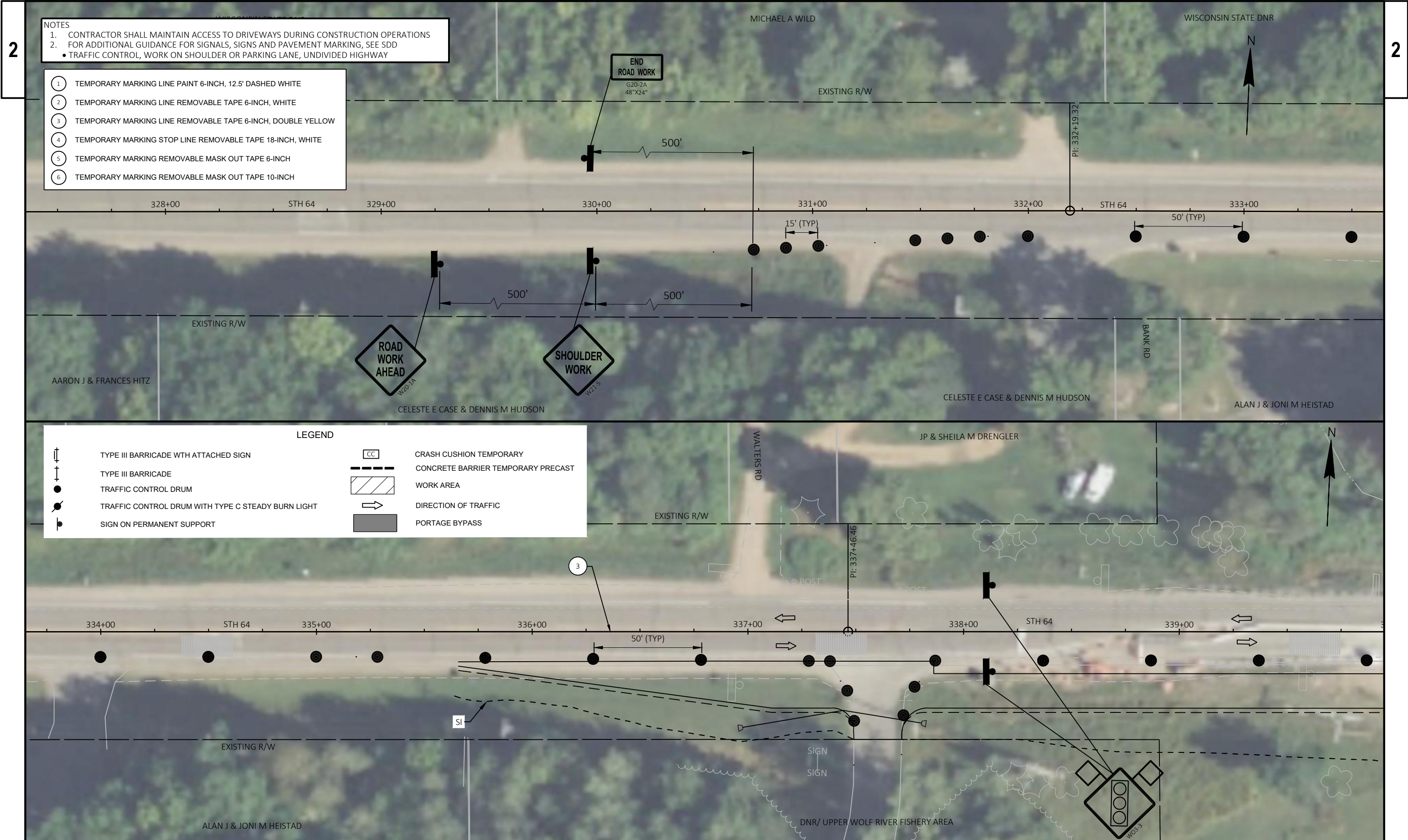


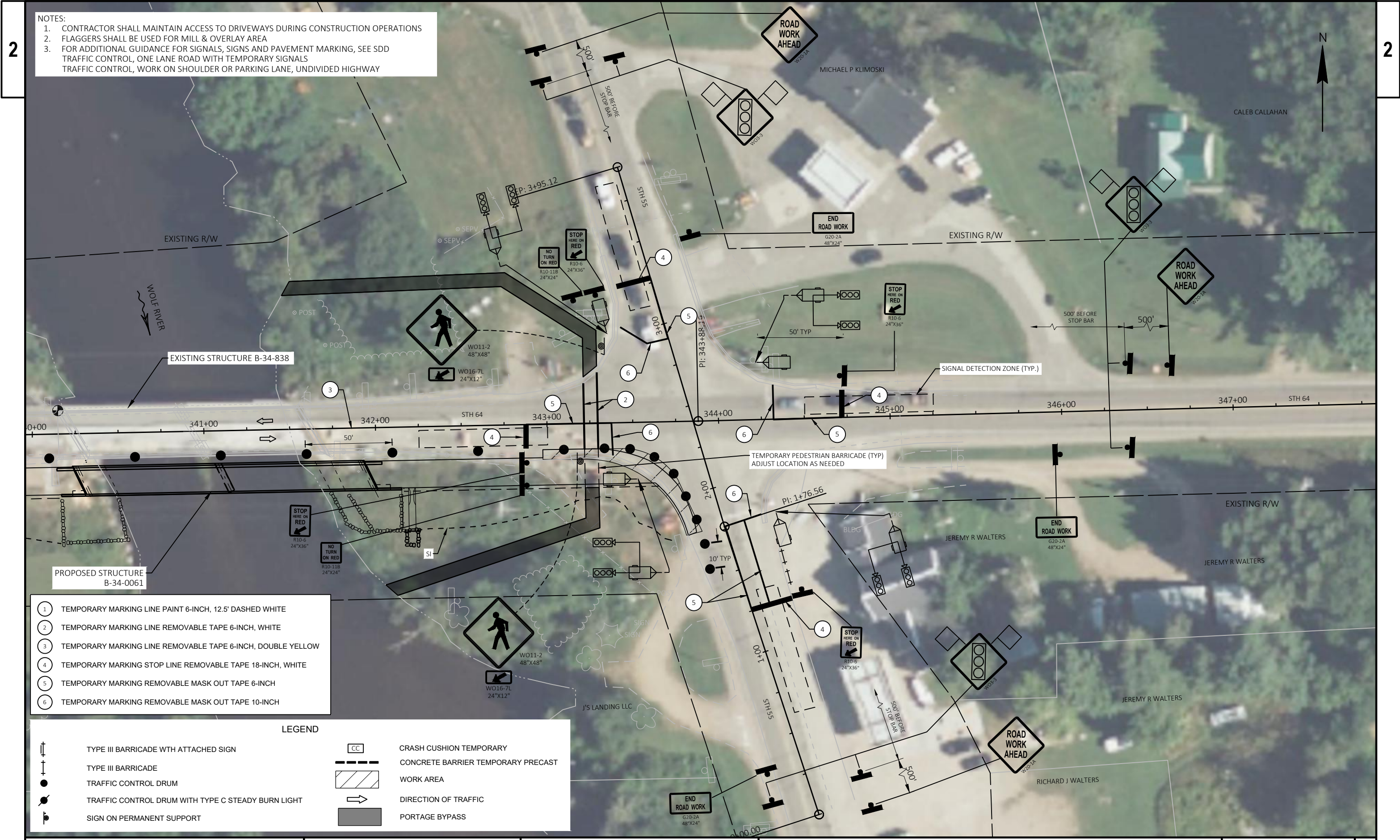






- NOTES:
1. CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION OPERATIONS
 2. FOR ADDITIONAL GUIDANCE FOR SIGNALS, SIGNS AND PAVEMENT MARKING, SEE SDD
 - TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
 - TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED HIGHWAY
- LEGEND
- | | |
|---|---|
| 1 | TEMPORARY MARKING LINE PAINT 6-INCH, 12.5' DASHED WHITE |
| 2 | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH, WHITE |
| 3 | TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH, DOUBLE YELLOW |
| 4 | TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH, WHITE |
| 5 | TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH |
| 6 | TEMPORARY MARKING REMOVABLE MASK OUT TAPE 10-INCH |
- | | | | |
|--|--|--|------------------------------------|
| | TYPE III BARRICADE WITH ATTACHED SIGN | | CRASH CUSHION TEMPORARY |
| | TYPE III BARRICADE | | CONCRETE BARRIER TEMPORARY PRECAST |
| | TRAFFIC CONTROL DRUM | | WORK AREA |
| | TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT | | DIRECTION OF TRAFFIC |
| | SIGN ON PERMANENT SUPPORT | | PORTAGE BYPASS |

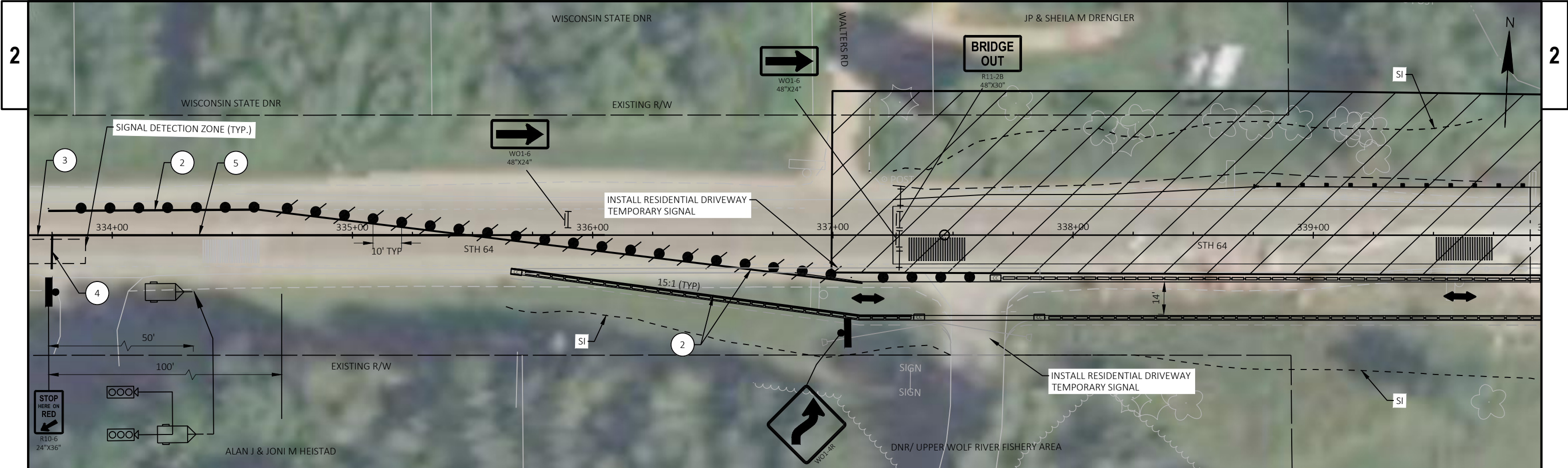




- NOTES:
1. CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION OPERATIONS
 2. FLAGGERS SHALL BE USED FOR MILL & OVERLAY AREA
 3. FOR ADDITIONAL GUIDANCE FOR SIGNALS, SIGNS AND PAVEMENT MARKING, SEE SDD
- TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED HIGHWAY

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- 5 TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH
- 6 TEMPORARY MARKING REMOVABLE MASK OUT TAPE 10-INCH

LEGEND			
	TYPE III BARRICADE WITH ATTACHED SIGN		CRASH CUSHION TEMPORARY
	TYPE III BARRICADE		CONCRETE BARRIER TEMPORARY PRECAST
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	SIGN ON PERMANENT SUPPORT		PORTAGE BYPASS



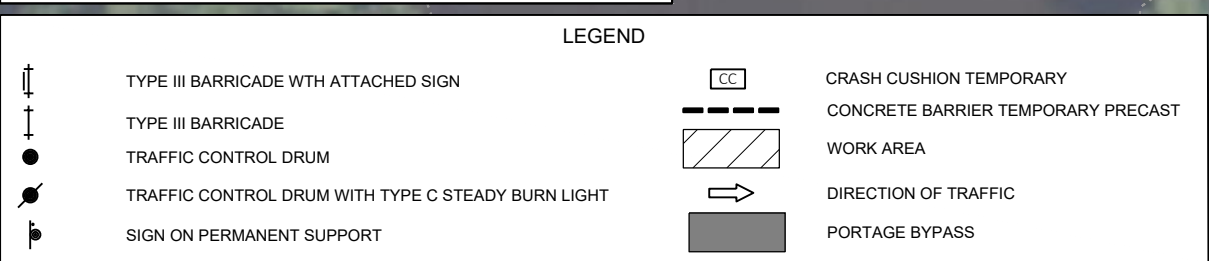
LEGEND

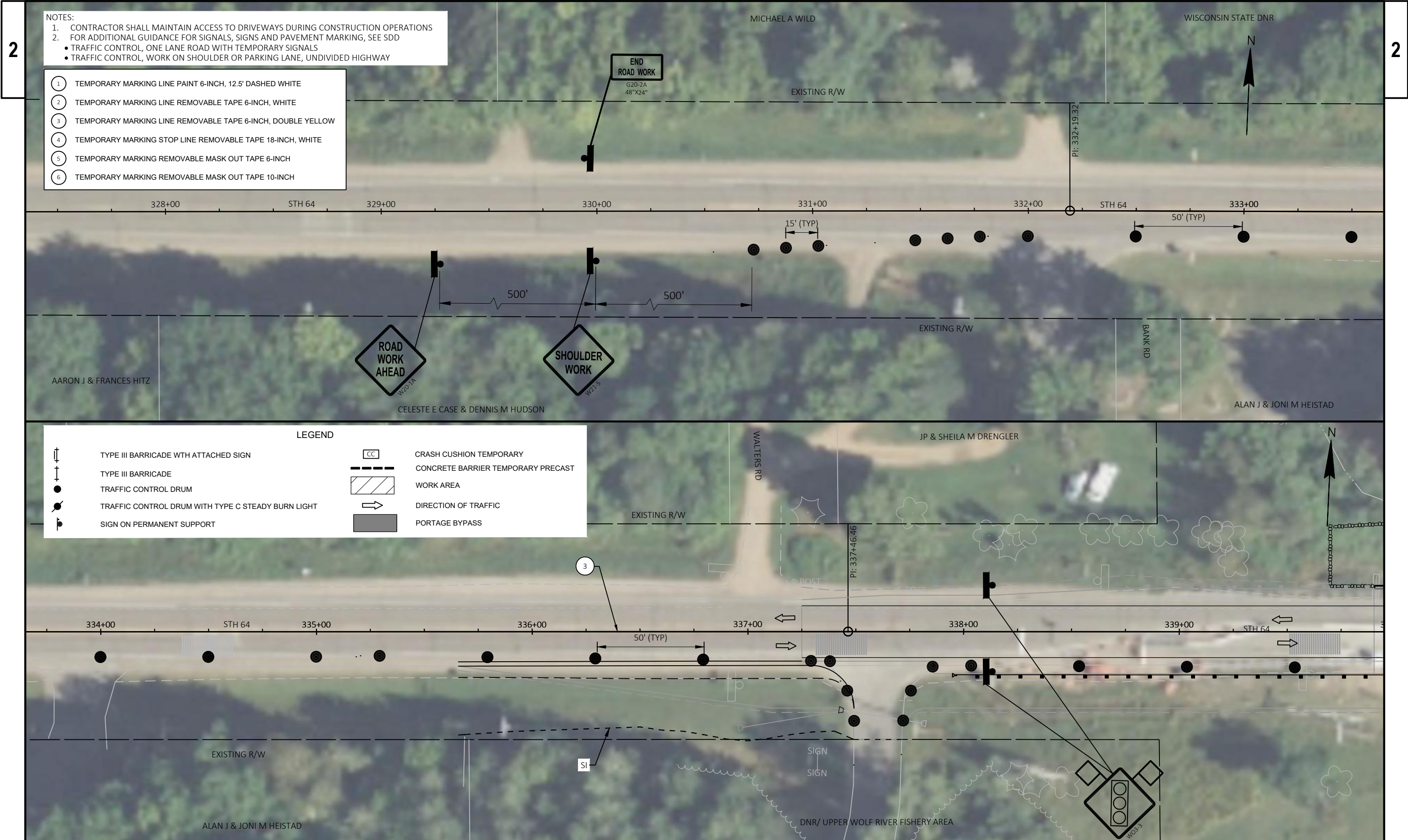
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	TYPE III BARRICADE		CONCRETE BARRIER TEMPORARY PRECAST
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	SIGN ON PERMANENT SUPPORT		PORTAGE BYPASS

- | | |
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| 6 | TEMPORARY MARKING REMOVABLE MASK OUT TAPE 10-INCH |

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- CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION OPERATIONS
 - FOR ADDITIONAL GUIDANCE FOR SIGNALS, SIGNS AND PAVEMENT MARKING, SEE SDD
 - TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS

1. CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION OPERATIONS
2. FOR ADDITIONAL GUIDANCE FOR SIGNALS, SIGNS AND PAVEMENT MARKING, SEE SDD TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS





NOTES:
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• TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS
• TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED HIGHWAY

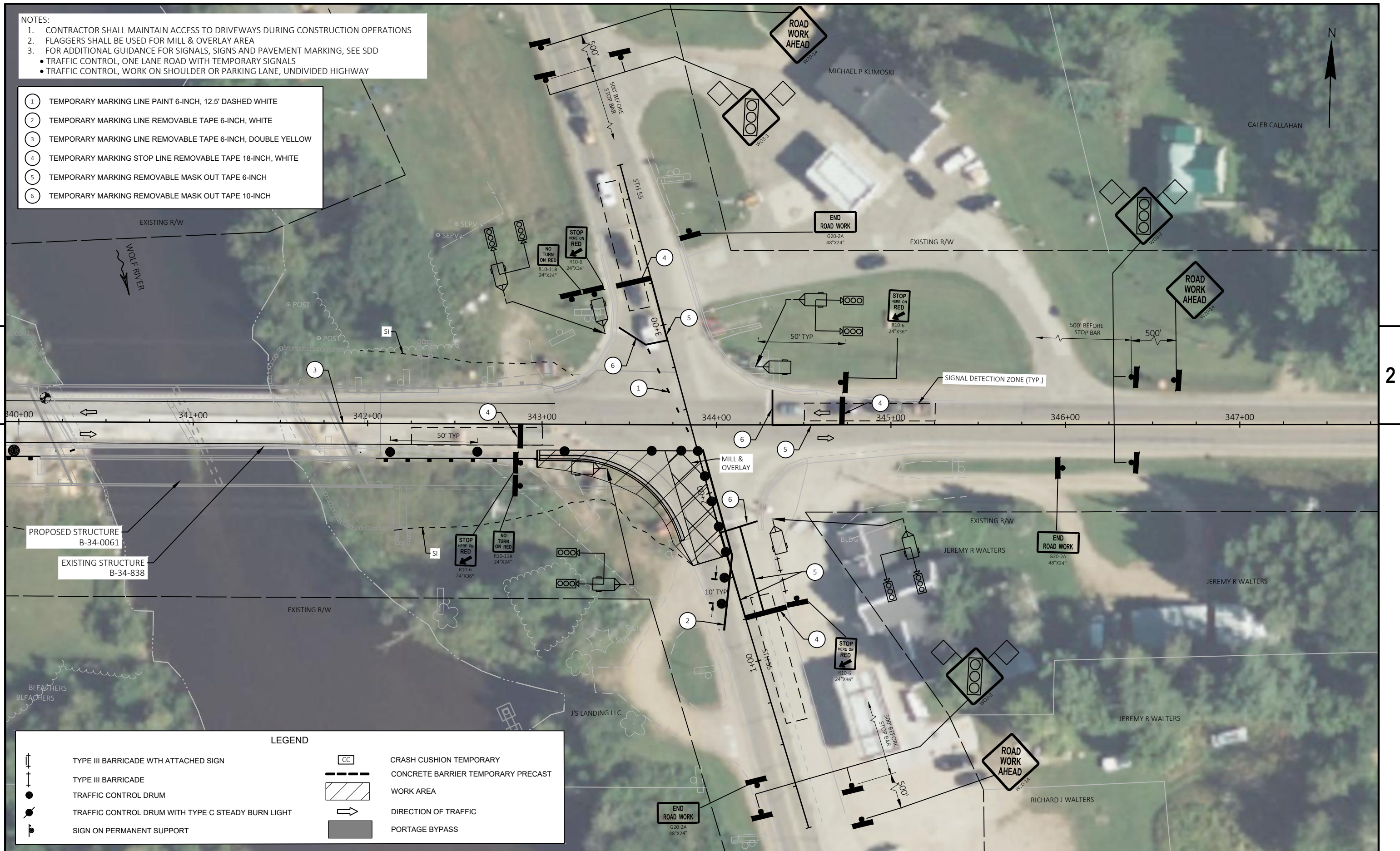
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- 6 TEMPORARY MARKING REMOVABLE MASK OUT TAPE 10-INCH

LEGEND

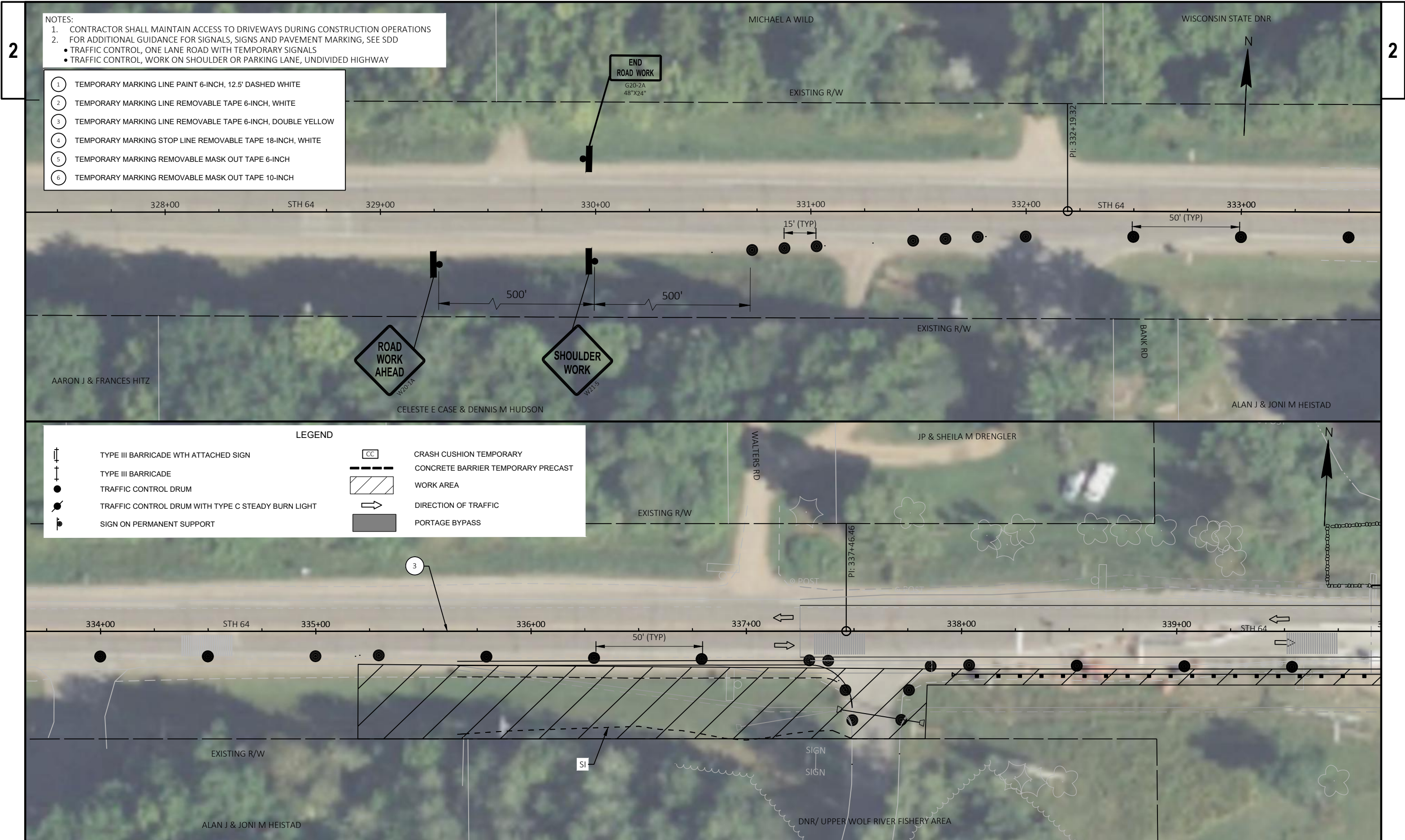
	TYPE III BARRICADE WITH ATTACHED SIGN		CRASH CUSHION TEMPORARY
	TYPE III BARRICADE		CONCRETE BARRIER TEMPORARY PRECAST
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	SIGN ON PERMANENT SUPPORT		PORTAGE BYPASS

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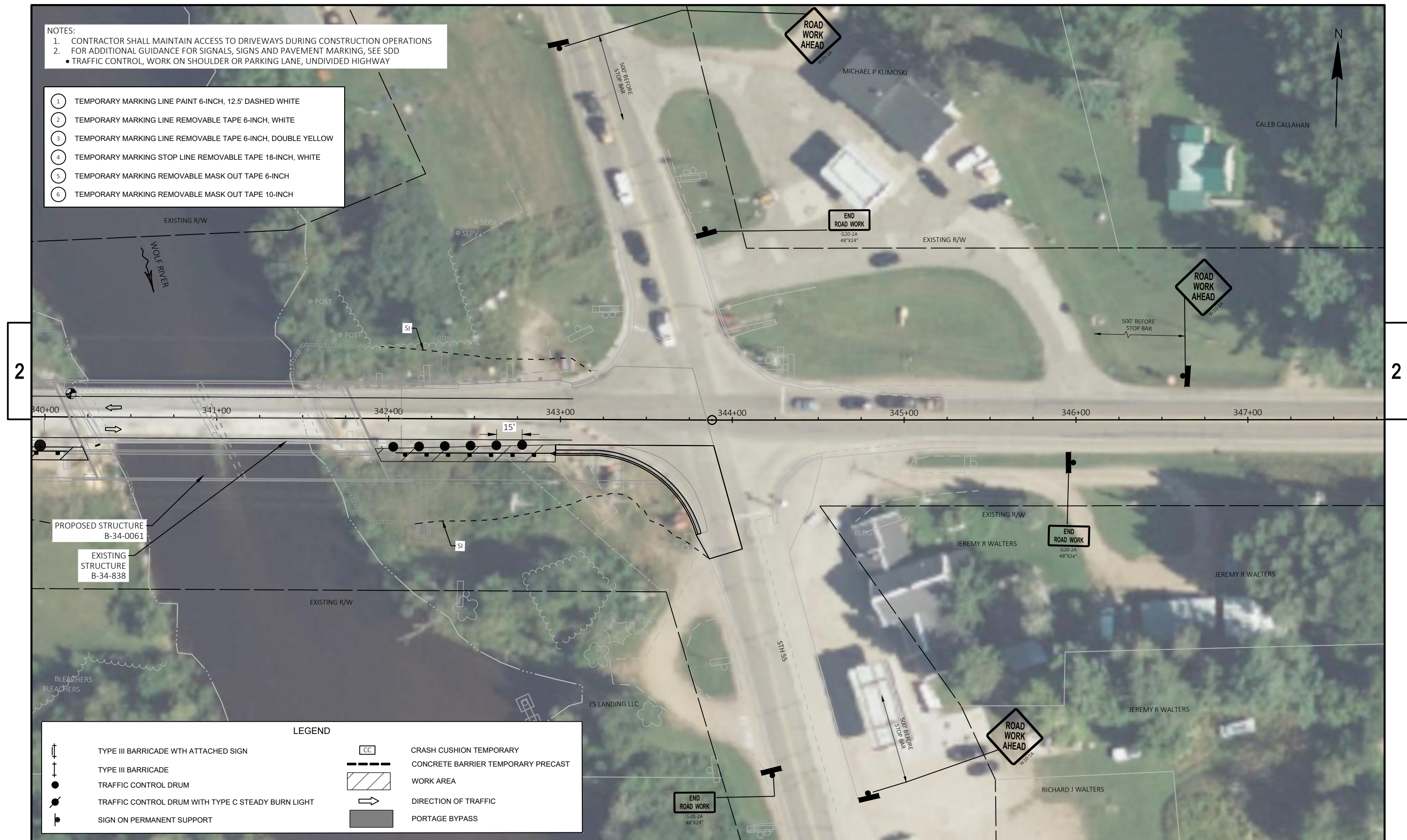


LEGEND			
	TYPE III BARRICADE WITH ATTACHED SIGN		CRASH CUSHION TEMPORARY
	TYPE III BARRICADE		CONCRETE BARRIER TEMPORARY PRECAST
	TRAFFIC CONTROL DRUM		WORK AREA
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT		DIRECTION OF TRAFFIC
	SIGN ON PERMANENT SUPPORT		PORTAGE BYPASS



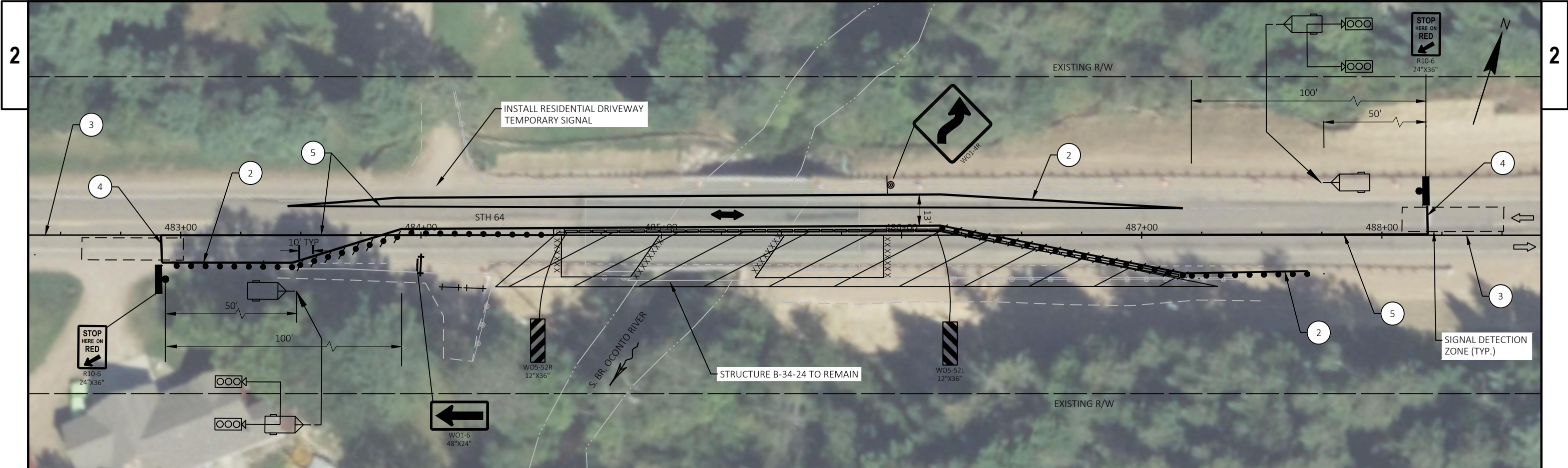
1. CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION OPERATIONS
2. FOR ADDITIONAL GUIDANCE FOR SIGNALS, SIGNS AND PAVEMENT MARKING, SEE SDD
 - TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED HIGHWAY

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| 6 | TEMPORARY MARKING REMOVABLE MASK OUT TAPE 10-INCH |



41

E

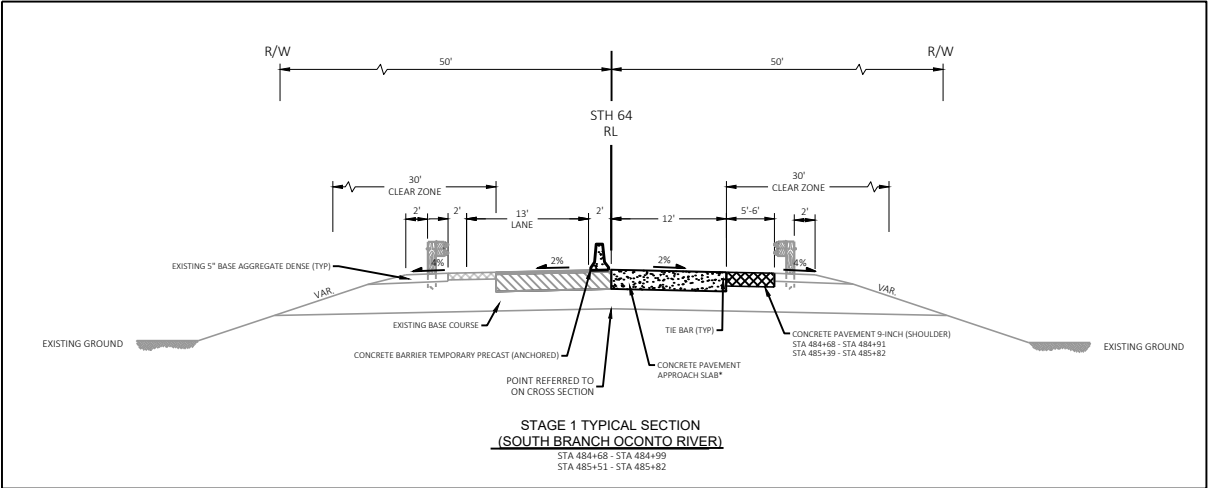


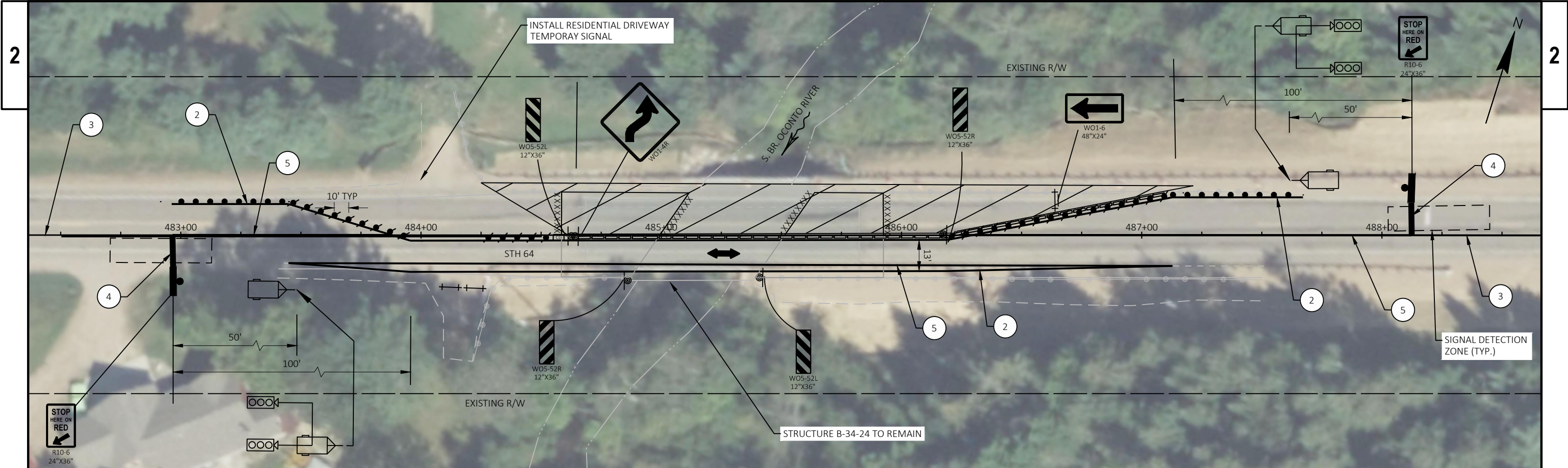
LEGEND

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

- | | |
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- NOTES:
- CONTRACTOR SHALL MAINTAIN ACCESS TO ACTIVE DRIVEWAYS DURING CONSTRUCTION OPERATIONS
 - FOR ADDITIONAL GUIDANCE FOR SIGNALS, SIGNS AND PAVEMENT MARKING, SEE SDD
 - BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
 - TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS



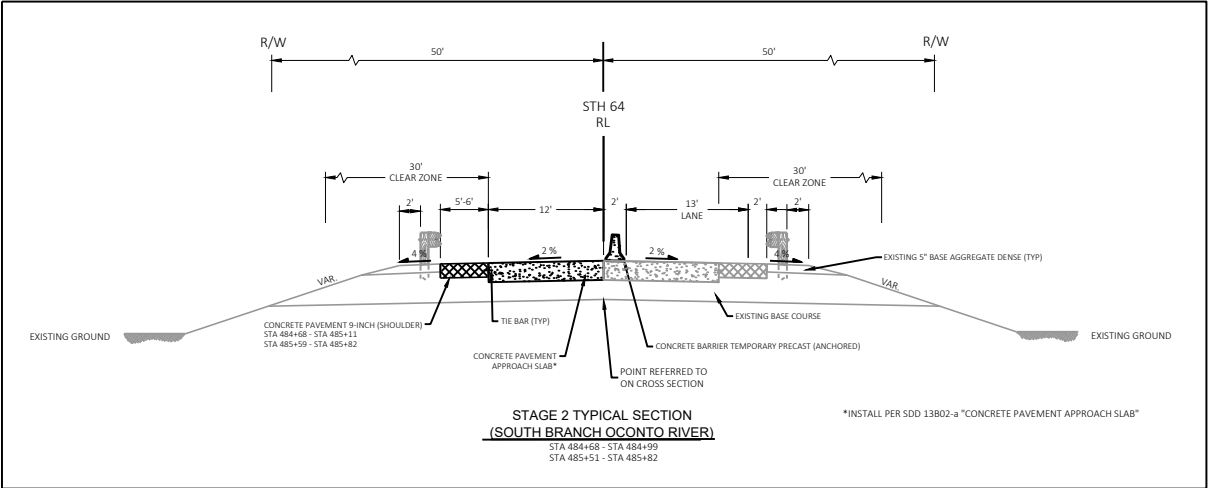


LEGEND

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

- | | |
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- NOTES:
- CONTRACTOR SHALL MAINTAIN ACCESS TO ACTIVE DRIVEWAYS DURING CONSTRUCTION OPERATIONS
 - FOR ADDITIONAL GUIDANCE FOR SIGNALS, SIGNS AND PAVEMENT MARKING, SEE SDD
 - BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
 - TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS



STAGE 1B						
	PHASE 1 			PHASE 2 		
EB STH 64 SIGNALS	G	Y	R	R	R	R
WB STH 64 SIGNALS	G	Y	R	R	R	R
NB STH 55 SIGNALS	R	R	R	G	Y	R
SB STH 55 SIGNALS	R	R	R	G	Y	R
DURATION (S)	-	4	3	-	4	3
MINIMUM GREEN TIME (S)	10	-	-	10	-	-
MAXIMUM GREEN TIME (S)	40	-	-	40	-	-
EXTENSION TIME (S/VEH)	3	-	-	3	-	-

- NOTES:
- 1. PHASE 2 WILL ACTIVATE ONLY WHEN CALLED.
 - 2. PHASE 1 WILL REST IN GREEN AND PHASE 2 WILL REST IN RED WHEN NO DEMAND IS PRESENT.

TEMPORARY TRAFFIC SIGNALS - SIGNAL TIMING - B-34-0061

STAGE 2											
	PHASE 1 			PHASE 2 				PHASE 3 			
EB STH 64 SIGNALS	G	Y	R	R	R	R		R	R	R	R
WB STH 64 SIGNALS	R	R	R	G	Y	R		R	R	R	R
NB STH 55 SIGNALS	R	R	R	R	R	R		G	Y	R	
SB STH 55 SIGNALS	R	R	R	R	R	R		G	Y	R	
DURATION (S)	-	4	40	-	4	40	3***	-	4	40*	3**
MINIMUM GREEN TIME (S)	10	-	-	10	-	-		10	-	-	
MAXIMUM GREEN TIME (S)	40	-	-	40	-	-		40	-	-	
EXTENSION TIME (S/VEH)	3	-	-	3	-	-		3	-	-	

- * CLEARANCE TO PHASE 1
** CLEARANCE TO PHASE 2
*** CLEARANCE TO PHASE 3
- NOTES:
- 1. THE CONTRACTOR SHALL MONITOR TRAFFIC AND INCREASE THE ALL RED TIME IF VEHICLES FAIL TO CLEAR THE WORK ZONE DURING THE ALL RED TIME.
 - 2. PHASE 1, PHASE 2 AND PHASE 3 WILL EACH ACTIVATE ONLY WHEN CALLED.
 - 3. PHASE 1, PHASE 2 AND PHASE 3 WILL EACH REST IN RED WHEN NO DEMAND IS PRESENT.

TEMPORARY TRAFFIC SIGNALS - SIGNAL TIMING - B-34-0061

STAGE 3A									
	PHASE 1 			PHASE 2 			PHASE 3 		
EB STH 64 SIGNALS	G	Y	R	R	R	R	R	R	R
WB STH 64 SIGNALS	G	Y	R	R	R	R	R	R	R
NB STH 55 SIGNALS	R	R	R	G	Y	R	R	R	R
SB STH 55 SIGNALS	R	R	R	R	R	R	G	Y	R
DURATION (S)	-	4	3	-	4	3	-	4	3
MINIMUM GREEN TIME (S)	10	-	-	10	-	-	10	-	-
MAXIMUM GREEN TIME (S)	40	-	-	40	-	-	40	-	-
EXTENSION TIME (S/VEH)	3	-	-	3	-	-	3	-	-

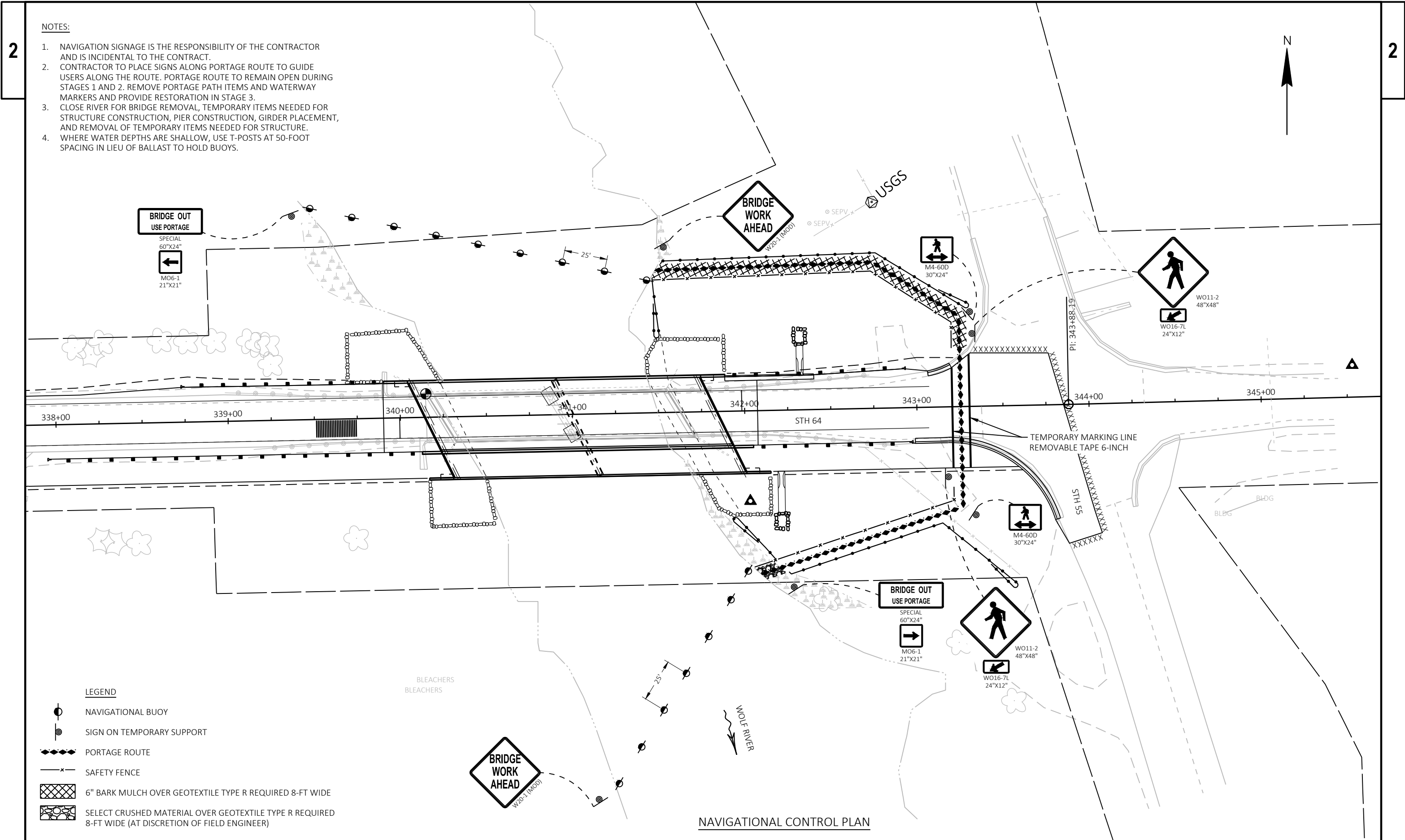
- NOTES:
- 1. PHASE 2 AND PHASE 3 WILL EACH ACTIVATE ONLY WHEN CALLED.
 - 2. PHASE 1 WILL REST IN GREEN. PHASE 2 AND PHASE 3 WILL REST IN RED WHEN NO DEMAND IS PRESENT.

TEMPORARY TRAFFIC SIGNALS - SIGNAL TIMING - B-34-0061

STAGES 1 & 2						
	PHASE 1 			PHASE 2 		
EB STH 64 SIGNALS	G	Y	R	R	R	R
WB STH 64 SIGNALS	R	R	R	G	Y	R
DURATION (S)	-	4	35	-	4	35
MINIMUM GREEN TIME (S)	10	-	-	10	-	-
MAXIMUM GREEN TIME (S)	40	-	-	40	-	-
EXTENSION TIME (S/VEH)	3	-	-	3	-	-

- NOTES:
- 1. THE CONTRACTOR SHALL MONITOR TRAFFIC AND INCREASE THE ALL RED TIME IF VEHICLES FAIL TO CLEAR THE WORK ZONE DURING THE ALL RED TIME.

TEMPORARY TRAFFIC SIGNALS - SIGNAL TIMING - B-34-0024



Estimate Of Quantities

9140-12-81

Line	Item	Item Description	Unit	Total	Qty
0002	201.0105	Clearing	STA	3.000	3.000
0004	201.0205	Grubbing	STA	3.000	3.000
0006	203.0100	Removing Small Pipe Culverts	EACH	2.000	2.000
0008	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-34-0838	EACH	1.000	1.000
0010	204.0100	Removing Concrete Pavement	SY	210.000	210.000
0012	204.0110	Removing Asphaltic Surface	SY	2,020.000	2,020.000
0014	204.0120	Removing Asphaltic Surface Milling	SY	230.000	230.000
0016	204.0150	Removing Curb & Gutter	LF	192.000	192.000
0018	204.0170	Removing Fence	LF	120.000	120.000
0020	204.0195	Removing Concrete Bases	EACH	4.000	4.000
0022	204.0220	Removing Inlets	EACH	1.000	1.000
0024	204.0245	Removing Storm Sewer (size) 01. 18-Inch	LF	4.000	4.000
0026	205.0100	Excavation Common	CY	260.000	260.000
0028	206.1001	Excavation for Structures Bridges (structure) 01. B-34-0061	EACH	1.000	1.000
0030	206.5001	Cofferdams (structure) 01. B-34-0061	EACH	1.000	1.000
0032	208.0100	Borrow	CY	995.000	995.000
0034	210.1500	Backfill Structure Type A	TON	730.000	730.000
0036	305.0110	Base Aggregate Dense 3/4-Inch	TON	120.000	120.000
0038	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	2,734.000	2,734.000
0040	415.0090	Concrete Pavement 9-Inch	SY	167.000	167.000
0042	415.0410	Concrete Pavement Approach Slab	SY	295.000	295.000
0044	455.0605	Tack Coat	GAL	205.000	205.000
0046	465.0105	Asphaltic Surface	TON	760.000	760.000
0048	465.0125	Asphaltic Surface Temporary	TON	8.000	8.000
0050	465.0315	Asphaltic Flumes	SY	19.000	19.000
0052	465.0580	Asphaltic Rumble Strips, Transverse	SY	17.000	17.000
0054	502.0100	Concrete Masonry Bridges	CY	623.000	623.000
0056	502.3200	Protective Surface Treatment	SY	751.000	751.000
0058	502.3210	Pigmented Surface Sealer	SY	350.000	350.000
0060	503.0137	Prestressed Girder Type I 36W-Inch	LF	1,168.000	1,168.000
0062	505.0400	Bar Steel Reinforcement HS Structures	LB	14,240.000	14,240.000
0064	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	88,340.000	88,340.000
0066	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	28.000	28.000
0068	506.4000	Steel Diaphragms (structure) 01. B-34-0061	EACH	24.000	24.000
0070	507.0200	Treated Lumber and Timber	MBM	2.000	2.000
0072	509.5100.S	Polymer Overlay	SY	266.000	266.000
0074	511.1200	Temporary Shoring (structure) 01. B-34-0061	SF	733.000	733.000
0076	513.7011	Railing Steel Type C2	LF	198.000	198.000
0078	516.0500	Rubberized Membrane Waterproofing	SY	30.000	30.000
0080	521.1705	Apron Endwalls for Pipe Arch Sloped Side Drains Steel 21x15-Inch 4 to 1	EACH	3.000	3.000
0082	521.3721	Pipe Arch Corrugated Steel 21x15-Inch	LF	84.000	84.000
0084	550.0010	Pre-Boring Unconsolidated Materials	LF	738.000	738.000
0086	550.1120	Piling Steel HP 12-Inch x 53 Lb	LF	1,535.000	1,535.000
0088	601.0553	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D	LF	14.000	14.000
0090	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	156.000	156.000
0092	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,050.000	1,050.000
0094	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,300.000	1,300.000
0096	603.8500	Anchoring Concrete Barrier Temporary Precast	LF	1,300.000	1,300.000
0098	606.0200	Riprap Medium	CY	6.000	6.000

Estimate Of Quantities

9140-12-81

Line	Item	Item Description	Unit	Total	Qty
0100	606.0300	Riprap Heavy	CY	528.000	528.000
0102	608.0418	Storm Sewer Pipe Reinforced Concrete Class IV 18-Inch	LF	8.000	8.000
0104	611.0530	Manhole Covers Type J	EACH	1.000	1.000
0106	611.0615	Inlet Covers Type F	EACH	1.000	1.000
0108	611.1004	Catch Basins 4-FT Diameter	EACH	1.000	1.000
0110	611.2004	Manholes 4-FT Diameter	EACH	1.000	1.000
0112	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	206.000	206.000
0114	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0116	614.0396	Guardrail Mow Strip Asphalt	SY	102.000	102.000
0118	614.0905	Crash Cushions Temporary	EACH	7.000	7.000
0120	614.0920	Salvaged Rail	LF	686.000	686.000
0122	614.2300	MGS Guardrail 3	LF	163.000	163.000
0124	614.2500	MGS Thrie Beam Transition	LF	156.000	156.000
0126	614.2610	MGS Guardrail Terminal EAT	EACH	4.000	4.000
0128	619.1000	Mobilization	EACH	1.000	1.000
0130	625.0100	Topsoil	SY	2,310.000	2,310.000
0132	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0134	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0136	628.2008	Erosion Mat Urban Class I Type B	SY	2,320.000	2,320.000
0138	628.6005	Turbidity Barriers	SY	350.000	350.000
0140	628.7015	Inlet Protection Type C	EACH	2.000	2.000
0142	628.7504	Temporary Ditch Checks	LF	36.000	36.000
0144	628.7555	Culvert Pipe Checks	EACH	6.000	6.000
0146	629.0210	Fertilizer Type B	CWT	1.400	1.400
0148	630.0120	Seeding Mixture No. 20	LB	104.000	104.000
0150	634.0614	Posts Wood 4x6-Inch x 14-FT	EACH	21.000	21.000
0152	637.2230	Signs Type II Reflective F	SF	26.700	26.700
0154	638.2102	Moving Signs Type II	EACH	23.000	23.000
0156	638.2602	Removing Signs Type II	EACH	5.000	5.000
0158	638.3000	Removing Small Sign Supports	EACH	17.000	17.000
0160	642.5201	Field Office Type C	EACH	1.000	1.000
0162	643.0300	Traffic Control Drums	DAY	7,616.000	7,616.000
0164	643.0420	Traffic Control Barricades Type III	DAY	1,217.000	1,217.000
0166	643.0715	Traffic Control Warning Lights Type C	DAY	2,624.000	2,624.000
0168	643.0900	Traffic Control Signs	DAY	6,723.000	6,723.000
0170	643.3165	Temporary Marking Line Paint 6-Inch	LF	50.000	50.000
0172	643.3180	Temporary Marking Line Removable Tape 6-Inch	LF	10,219.000	10,219.000
0174	643.3850	Temporary Marking Stop Line Removable Tape 18-Inch	LF	153.000	153.000
0176	643.3960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	1,465.000	1,465.000
0178	643.3970	Temporary Marking Removable Mask Out Tape 10-Inch	LF	190.000	190.000
0180	643.5000	Traffic Control	EACH	1.000	1.000
0182	644.1810	Temporary Pedestrian Barricade	LF	44.000	44.000
0184	645.0111	Geotextile Type DF Schedule A	SY	160.000	160.000
0186	645.0120	Geotextile Type HR	SY	800.000	800.000
0188	645.0130	Geotextile Type R	SY	195.000	195.000
0190	646.2020	Marking Line Epoxy 6-Inch	LF	1,462.000	1,462.000
0192	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	1,164.000	1,164.000
0194	646.6120	Marking Stop Line Epoxy 18-Inch	LF	18.000	18.000
0196	650.4000	Construction Staking Storm Sewer	EACH	2.000	2.000

Estimate Of Quantities

9140-12-81

Line	Item	Item Description	Unit	Total	Qty
0198	650.4500	Construction Staking Subgrade	LF	650.000	650.000
0200	650.5000	Construction Staking Base	LF	650.000	650.000
0202	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	170.000	170.000
0204	650.6000	Construction Staking Pipe Culverts	EACH	2.000	2.000
0206	650.6501	Construction Staking Structure Layout (structure) 01. B-34-0061	EACH	1.000	1.000
0208	650.7000	Construction Staking Concrete Pavement	LF	125.000	125.000
0210	650.9911	Construction Staking Supplemental Control (project) 01. 9140-12-81	EACH	1.000	1.000
0212	650.9920	Construction Staking Slope Stakes	LF	650.000	650.000
0214	661.0101	Temporary Traffic Signals for Bridges (structure) 01. B-34-0061	EACH	1.000	1.000
0216	661.0101	Temporary Traffic Signals for Bridges (structure) 02. B-34-0024	EACH	1.000	1.000
0218	690.0150	Sawing Asphalt	LF	1,082.000	1,082.000
0220	690.0250	Sawing Concrete	LF	86.000	86.000
0222	715.0502	Incentive Strength Concrete Structures	DOL	3,738.000	3,738.000
0224	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0226	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 341+00	EACH	1.000	1.000
0228	999.2100.S	Installing and Maintaining Climbing Turtle Exclusion Fence	LF	1,260.000	1,260.000
0230	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,000.000	2,000.000
0232	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,260.000	1,260.000
0234	SPV.0045	Special 01. Residential Driveway Traffic Signal System	DAY	226.000	226.000
0236	SPV.0045	Special 02. Waterway Buoys	DAY	2,064.000	2,064.000
0238	SPV.0060	Special 01. Temporary Vehicle Detection	EACH	2.000	2.000
0240	SPV.0060	Special 02. Install State-Supplied Solar Flashing Beacon	EACH	4.000	4.000
0242	SPV.0060	Special 03. Remove Existing Flashing Beacon	EACH	4.000	4.000
0244	SPV.0060	Special 04. Temporary Portage Path	EACH	1.000	1.000
0246	SPV.0060	Special 05. Pipe Joint Collar External Rubber 18-Inch	EACH	1.000	1.000
0248	SPV.0195	Special 01. Infill Riprap B-34-0061	TON	287.000	287.000

CLEARING & GRUBBING

CATEGORY	STATION	TO	STATION	LOCATION	201.0105 CLEARING STA	201.0205 GRUBBING STA
0010	338+03	-	339+32	LT	1	1
0010	341+47	-	343+29	LT/RT	2	2
TOTAL 0010					3	3

REMOVING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	203.0100 REMOVING SMALL PIPE CULVERTS EACH	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0110 REMOVING ASPHALTIC SURFACE SY	204.0120 REMOVING ASPHALTIC SURFACE MILLING SY	204.0150 REMOVING CURB & GUTTER LF	204.0170 REMOVING FENCE LF	204.0220 REMOVING INLETS EACH	204.0245.01 REMOVING STORM SEWER (SIZE) (01. 18- INCH) LF	REMARKS
0010	337+25	-	343+66	RT/LT	-	-	1,900	-	-	-	-	-	STAGE 3
0010	343+66	-	343+85	RT/LT	-	-	-	230	-	-	-	-	
0010	336+97	-	337+44	RT	1	-	-	-	-	-	-	-	
0010	337+45	-	337+76	RT	1	-	-	-	-	-	-	-	
0010	339+89	-	340+14	LT	-	-	-	-	26	-	-	-	
0010	340+11	-	340+29	RT	-	-	-	-	18	-	-	-	
0010	341+57	-	341+80	LT	-	-	-	-	24	-	-	-	
0010	341+72	-	341+92	RT	-	-	-	-	20	-	-	-	
0010	342+68	-	343+57	RT	-	-	-	-	-	120	-	-	
0010	343+06	-	343+20	LT	-	-	-	-	14	-	-	-	
0010	343+13	-	343+85	RT	-	-	-	-	90	-	1	4	
TOTAL 0010					2	0	1,900	230	192	120	1	4	
0040	484+58	-	485+11	RT/LT		105	60						
0040	485+39	-	485+92	RT/LT	-	105	60	-	-	-	-	-	
TOTAL 0040					0	210	120	0	0	0	0	0	
PROJECT TOTAL					2	210	2020	230	192	120	1	4	

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EARTHWORK

CATEGORY	LOCATION	205.0100	208.0100	REMARKS
		EXCAVATION COMMON CY	BORROW CY	
0010	STAGE 1	120	675	SEE EARTHWORK SUMMARY AND DATA
0010	STAGE 2	60	320	SEE EARTHWORK SUMMARY AND DATA
0010	STAGE 3	80	-	SEE EARTHWORK SUMMARY AND DATA
TOTAL 0010		260	995	

EARTHWORK SUMMARY AND DATA

STATION	TO	STATION	CUT FROM EW DATA (1.00) CY	FILL FROM EW DATA (1.00) CY	UNUSABLE PAVEMENT MATERIAL CY	EXPANDED FILL (1.25) CY	MASS ORDINATE CY	BORROW CY	EXCAVATION COMMON CY
			CY	CY	CY	CY	CY	CY	CY
35+65.47	-	40+29.82	186	399	80	499	-393	393	106
42+00.00	-	43+57.96	27	235	13	294	-280	280	14
STAGE 1 TOTAL			213	634	93	793	-673	673	120
337+25.00	-	340+20.98	440	212	494	265	-319	319	-54
341+74.79	-	343+64.09	387	71	275	89	23	0	112
STAGE 2 TOTAL			827	283	769	354	-296	319	58
335+65.73	-	337+80.60	296	30	244	38	14	0	52
342+86.98	-	343+84.49	58	0	31	0	27	0	27
STAGE 3 TOTAL			354	30	275	38	41	0	79
PROJECT TOTAL			1394	947	1137	1185	-928	992	257

NOTES:
UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT
UNSUABLE PAVEMENT MATERIAL INCLUDES EXISTING ASPHALTIC PAVEMENT & CONCRETE PAVEMENT
EXCAVATION COMMON = CUT - UNUSABLE PAVEMENT MATERIAL

CONCRETE PAVEMENT

CATEGORY	STATION	TO	STATION	LOCATION	415.0090	415.0410
					CONCRETE PAVEMENT 9- INCH SY	CONCRETE PAVEMENT APPROACH SLAB SY
0010	339+90	-	340+23	LT/RT	43	65
0010	341+74	-	342+07	LT/RT	44	65
TOTAL 0010					87	130
0040	484+68	-	485+11	LT/RT	41	81
0040	485+39	-	485+82	LT/RT	39	84
TOTAL 0040					80	165
PROJECT TOTAL					167	295

BASE AGGREGATE DENSE

CATEGORY	STATION	TO	STATION	LOCATION	305.0110	305.0120
					BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4- INCH TON
0010	335+65	-	340+14	LT/RT	85	1,530
0010	341+83	-	343+66	LT/RT	35	930
TOTAL 0010					120	2,460
0030	337+80	-	340+14	RT	-	165
0030	341+83	-	343+66	RT	-	105
TOTAL 0030					0	270
0040	484+58	-	484+68	LT/RT	-	2
0040	485+82	-	485+92	LT/RT	-	2
TOTAL 0040					0	4
PROJECT TOTAL					120	2734

ASPHALTIC ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	455.0605	465.0105	465.0125	465.0315	465.0580
					TACK COAT GAL	ASPHALTIC SURFACE TON	ASPHALTIC SURFACE TEMPORARY TON	ASPHALTIC FLUMES SY	ASPHALTIC RUMBLE STRIPS, TRANSVERSE SY
0010	335+65	-	340+14	LT/RT	95	365	-	-	17
0010	341+83	-	343+66	LT/RT	60	235	8	19	-
TOTAL 0010					155	600	8	19	17
0030	337+80	-	340+14	LT/RT	30	85	-	-	-
0030	341+83	-	343+66	LT/RT	20	55	-	-	-
TOTAL 0030					50	140	0	0	0
0040	484+58	-	484+68	LT/RT	-	10	-	-	-
0040	485+82	-	485+92	LT/RT	-	10	-	-	-
TOTAL 0040					0	20	0	0	0
PROJECT TOTAL					205	760	8	19	17

PROJECT NO: 9140-12-81

HWY: STH 64

COUNTY: LANGLADE

MISCELLANEOUS QUANTITIES

SHEET

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CULVERTS

					521.1705 APRON ENDWALLS FOR PIPE ARCH SLOPED SIDE DRAINS STEEL 21X15-INCH 4	521.3721 PIPE ARCH CORRUGATED STEEL 21X15-	SPV.0060.05 SPECIAL (05. PIPE JOINT COLLAR EXTERNAL RUBBER 18-
CATEGORY	STATION	TO	STATION	LOCATION	TO 1 EACH	INCH LF	INCH) EACH
0010	336+97	-	337+80	RT	2	84	1
0010	337+44	-	337+80	RT	1	-	-
TOTAL 0010					3	84	1

RIPRAP

					606.0200 RIPRAP MEDIUM	* 645.0120 GEOTEXTILE TYPE HR
CATEGORY	STATION	TO	STATION	LOCATION	CY	SY
0010	342+29	-	342+35	LT	3	5
0010	342+17	-	342+23	RT	3	5
TOTAL 0010					6	10

* ADDITIONAL QUANTITIES ELSEWHERE

GUARDRAIL

					614.0396 GUARDRAIL MOW STRIP ASPHALT	614.2300 MGS GUARDRAIL 3	614.2500 MGS THRIE BEAM TRANSITION	614.2610 MGS GUARDRAIL TERMINAL EAT
CATEGORY	STATION	TO	STATION	LOCATION	SY	LF	LF	EACH
0010	338+74	-	339+90	LT	-	25	39	1
0010	341+88	-	342+91	LT	-	13	39	1
0010	337+96	-	340+12	RT	72	125	39	1
0010	342+04	-	342+95	RT	30	-	39	1
TOTAL 0010					102	163	156	4

CONCRETE CURB & GUTTER

					601.0553 CONCRETE CURB & GUTTER 4- INCH SLOPED 36- INCH TYPE D	601.0588 CONCRETE CURB & GUTTER 4- INCH SLOPED 36- INCH TYPE TBT
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF
0010	341+88	-	342+40	LT	-	52
0010	343+06	-	343+20	LT	14	-
0010	342+97	-	343+85	RT	-	104
TOTAL 0010					14	156

STORM SEWER

					608.0418 STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 18-INCH	611.0530 MANHOLE COVERS TYPE J	611.0615 INLET COVERS TYPE F	611.1004 CATCH BASINS 4- FT DIAMETER	611.2004 MANHOLES 4-FT DIAMETER
CATEGORY	STATION	TO	STATION	LOCATION	LF	EACH	EACH	EACH	EACH
0010	343+63	-	343+66	RT	8	1	1	1	1
TOTAL 0010					8	1	1	1	1

SALVAGED RAIL

					614.0920 SALVAGED RAIL
CATEGORY	STATION	TO	STATION	LOCATION	LF
0010	338+98	-	340+18	LT	120
0010	339+14	-	340+33	RT	120
0010	341+51	-	342+72	LT	120
0010	341+68	-	342+88	RT	120
TOTAL 0010					480
0040	484+49	-	484+87	RT	39
0040	484+50	-	485+13	LT	64
0040	485+38	-	486+02	RT	64
0040	485+63	-	486+02	LT	39
TOTAL 0040					206
PROJECT TOTAL					686

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PROJECT NO: 9140-12-81

HWY: STH 64

COUNTY: LANGLADE

MISCELLANEOUS QUANTITIES

SHEET

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MOBILIZATION		
CATEGORY	LOCATION	619.1000 MOBILIZATION EACH
0010	PROJECT 9140-12-81	1
TOTAL 0010		1

LANDSCAPING ITEMS								
CATEGORY	STATION	TO	STATION	LOCATION	625.0100 TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIXTURE NO. 20 LB	REMARKS
0010	335+65	-	343+81	RT	1,020	0.6	46	STAGE 1
0010	337+25	-	343+19	LT	710	0.4	32	STAGE 2
0010	355+65	-	343+81	RT	580	0.4	26	STAGE 3
TOTAL 0010					2,310	1.4	104	

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MOBILIZATION EROSION CONTROL			
CATEGORY	LOCATION	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	PROJECT 9140-12-81	3	3
TOTAL 0010		3	3

EROSION CONTROL								
CATEGORY	STATION	TO	STATION	LOCATION	628.2008 EROSION MAT URBAN CLASS I TYPE B SY	628.7504 TEMPORARY DITCH CHECKS LF	628.7555 CULVERT PIPE CHECKS EACH	REMARKS
0010	335+65	-	340+15	RT	730	14	3	STAGE 1
0010	342+15	-	343+85	RT	295	-	-	STAGE 1
0010	337+25	-	339+70	LT	540	-	-	STAGE 2
0010	341+90	-	343+19	LT	170	-	-	STAGE 2
0010	335+65	-	340+15	RT	515	22	3	STAGE 3
0010	342+15	-	343+85	RT	70	-	-	STAGE 3
TOTAL 0010					2,320	36	6	

TURBIDITY BARRIERS						
CATEGORY	STATION	TO	STATION	LOCATION	628.6005 TURBIDITY BARRIERS SY	REMARKS
0010	339+93	-	340+57	WOLF RIVER	195	STAGE 1 & 2
0010	341+37	-	341+82	WOLF RIVER	155	STAGE 1 & 2
TOTAL 0010					350	

INLET PROTECTION			
CATEGORY	STATION	LOCATION	628.7015 INLET PROTECTION TYPE C EACH
0010	343+62	RT	1
0010	344+22	RT	1
TOTAL 0010			2

FIELD OFFICE		
CATEGORY	LOCATION	642.5201 FIELD OFFICE TYPE C EACH
0010	PROJECT 9140-12-81	1
TOTAL 0010		1

SIGNING											
CATEGORY	LOCATION	SIGN #	SIGN CODE	SIGN SIZE	204.0195	634.0614	637.2230	638.2102	638.2602	638.3000	REMARKS
					REMOVING CONCRETE BASES EACH	POSTS WOOD 4X6-INCH X 14- FT EACH	SIGNS TYPE II REFLECTIVE F SF	MOVING SIGNS TYPE II EACH	REMOVING SIGNS TYPE II EACH	REMOVING SMALL SIGN SUPPORTS EACH	
0010	STH 64	1	I2-3	54"X24"	-	1	-	1	-	1	LANGLADE / UNINCORPORATED
0010	STH 64	2	D1-2	X30"	-	1	-	1	-	1	DESTINATION SIGN
0010	STH 64	3	D1-2	X54"	-	1	-	1	-	1	DESTINATION SIGN
0010	STH 64	4A	I3-1	24"X15"	-	1	-	1	-	1	WOLF RIVER SIGN
0010	STH 64	4B	D11-10	24"X18"	-	-	-	1	-	-	ATV ROUTE
0010	STH 64	4C	M6-1	21"X21"	-	-	-	1	-	-	DIRECTIONAL ARROW
0010	STH 64	5	W5-52L	12"X36"	-	1	-	1	-	1	CLEARANCE STRIPER DOWN LEFT
0010	STH 64	6	W5-52R	12"X36"	-	1	-	1	-	1	CLEARANCE STRIPER DOWN RIGHT
0010	STH 64	7	W5-52R	12"X36"	-	1	3.00	-	-	1	CLEARANCE STRIPER DOWN RIGHT
0010	STH 64	8	W5-52R	12"X36"	-	1	-	1	-	1	CLEARANCE STRIPER DOWN RIGHT
0010	STH 64	9	W5-52L	12"X36"	-	1	-	1	-	1	CLEARANCE STRIPER DOWN LEFT
0010	STH 64	10	W5-52L	12"X36"	-	1	3.00	-	-	1	CLEARANCE STRIPER DOWN LEFT
0010	STH 64	11A	M3-4	24"X12"	-	1	-	1	-	1	STH ROUTE SIGN
0010	STH 64	11B	M1-4	24"X24"	-	-	-	1	-	-	STH ROUTE SIGN
0010	STH 64	12A	I3-1	24"X15"	-	1	-	1	-	1	WOLF RIVER SIGN
0010	STH 64	12B	D11-10	24"X18"	-	-	-	1	-	-	ATV ROUTE
0010	STH 64	12C	M6-1	21"X21"	-	-	-	1	-	-	DIRECTIONAL ARROW
0010	STH 64	13	W5-2	36"X36"	-	1	-	-	1	1	NARROW BRIDGE
0010	STH 64	14	R7-1D	18"X24"	-	1	-	1	-	1	NO PARKING ANYTIME
0010	STH 64	15A	R1-1	30"X30"	1	1	5.18	-	1	-	STOP SIGN
0010	STH 64	15B	R1-3P	18"X6"	-	-	-	1	-	-	ALL WAY
0010	STH 64	16	J2-2	48"X57"	-	1	-	1	-	1	STH ROUTE SIGN
0010	STH 55	17	J2-3	72"X57"	-	1	-	1	-	1	STH ROUTE SIGN
0010	STH 55	18A	R1-1	30"X30"	1	1	5.18	-	1	-	STOP SIGN
0010	STH 55	18B	R1-3P	18"X6"	-	-	-	1	-	-	ALL WAY
0010	STH 55	19	R7-1D	18"24"	-	1	-	1	-	1	NO PARKING ANYTIME
0010	STH 55	20A	R1-1	30"X30"	1	1	5.18	-	1	-	STOP SIGN
0010	STH 55	20B	R1-3P	18"X6"	-	-	-	1	-	-	ALL WAY
0010	STH 64	21A	R1-1	30"X30"	1	1	5.18	-	1	-	STOP SIGN
0010	STH 64	21B	R1-3P	18"X6"	-	-	-	1	-	-	ALL WAY
					4	21	26.7	23	5	17	

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TRAFFIC CONTROL																
CATEGORY	LOCATION	DAYS	603.8000 CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	603.8125 CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF	603.8500 ANCHORING CONCRETE BARRIER TEMPORARY PRECAST LF	614.0905 CRASH CUSHIONS TEMPORARY EACH	643.0300 TRAFFIC CONTROL DRUMS DAY	643.0420 TRAFFIC CONTROL BARRICADES TYPE III DAY	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C DAY	643.0900 TRAFFIC CONTROL SIGNS DAY	643.5000 TRAFFIC CONTROL EACH	644.1810 TEMPORARY PEDESTRIAN BARRICADE LF	SPV.0045.01 SPECIAL (01. RESIDENTIAL DRIVEWAY TRAFFIC SIGNAL SYSTEM) DAY	SPV.0045.02 SPECIAL (02. WATERWAY BUOYS) DAY	SPV.0060.01 SPECIAL (01. TEMPORARY VEHICLE DETECTION) EACH	REMARKS
0010	STH 64	44	-	-	-	-	1,848	88	-	1,144	-	44	-	-	-	STAGE 1
0010	STH 64	85	790	790	790	6	3,570	935	1,700	3,145	-	44	170	-	-	STAGE 2
0010	STH 64	13	-	-	-	-	546	26	-	338	-	-	-	-	-	STAGE 3
0010	STH 64	142	-	-	-	-	-	-	-	-	1	-	-	-	1	STAGE 1, 2 & 3
0010	WOLF RIVER	129	-	-	-	-	-	-	-	1,032	-	-	-	2,064	-	STAGE 1 & 2
TOTAL 0010			790	790	790	6	5,964	1,049	1,700	5,659	1	44	170	2,064	1	
0040	STH 64	28	250	250	250	-	868	84	420	504	-	-	28	-	-	STAGE 1
0040	STH 64	28	260	260	260	-	784	84	504	560	-	-	28	-	-	STAGE 2
0040	STH 64	56	-	-	-	1	-	-	-	-	-	-	-	-	1	STAGE 1 & 2
TOTAL 0040			260	510	510	1	1,652	168	924	1,064	0	0	56	0	1	
PROJECT TOTAL			1050	1300	1300	7	7616	1217	2624	6723	1	44	226	2064	2	

3

TEMPORARY MARKING										
CATEGORY	STATION	TO	STATION	LOCATION	643.3165 TEMPORARY MARKING LINE PAINT 6-INCH LF	643.3180 TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH LF	643.3850 TEMPORARY MARKING STOP LINE REMOVABLE TAPE 18-INCH LF	643.3960 TEMPORARY MARKING REMOVABLE MASK OUT TAPE 6-INCH LF	643.3970 TEMPORARY MARKING REMOVABLE MASK OUT TAPE 10-INCH LF	REMARKS
0010	355+87	-	342+87	CL	-	1,400	-	-	-	DOUBLE YELLOW CENTERLINE, STAGE 1B
0010	342+87	-	343+37	LT/RT	-	83	15	50	40	STAGE 1B
0010	343+43	-	344+71	LT/RT	-	-	60	165	150	STAGE 1B, 2, & 3A
0010	326+75	-	333+75	CL	-	1,400	-	-	-	DOUBLE YELLOW CENTERLINE, STAGE 2
0010	333+75	-	344+71	LT/RT	30	833	15	175	-	STAGE 2
0010	335+87	-	342+87	CL	-	1,400	-	-	-	DOUBLE YELLOW CENTERLINE, STAGE 3A
0010	342+87	-	343+89	LT/RT	20	503	15	50	-	STAGE 3A
TOTAL 0010					50	5,619	105	440	190	
0040	482+91	-	488+19	LT/RT	-	900	24	370	-	STAGE 1
0040	482+96	-	488+12	LT/RT	-	900	24	375	-	STAGE 2
0040	475+91	-	495+19	CL	-	2,800	-	280	-	STAGE 1 & 2
TOTAL 0040					0	4,600	48	1,025	0	
PROJECT TOTAL					50	10219	153	1465	190	

3

3

MARKING								
646.2020 646.2040 646.6120								
MARKING LINE MARKING LINE MARKING STOP								
MARKING LINE GROOVED WET MARKING STOP								
EPOXY 6-INCH REF EPOXY 6- LINE EPOXY 18-								
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	LF	REMARKS
0010	337+25	-	343+07	LT/RT	-	1,164	-	WHITE EDGELINE
0010	337+25	-	343+22	CL	1,194	-	-	DOUBLE YELLOW CENTERLINE
0010		343+22		RT	-	-	18	
TOTAL 0010					1,194	1,164	18	
0040	484+58	-	484+91	RT	33	-	-	WHITE EDGELINE
0040	484+58	-	484+99	CL	51	-	-	YELLOW CENTERLINE, SOLID LT 12.5' SKIP 37.5' GAP
0040	484+58	-	485+07	LT	50	-	-	WHITE EDGELINE
0040	485+42	-	485+92	RT	50	-	-	WHITE EDGELINE
0040	485+51	-	485+92	CL	51	-	-	YELLOW CENTERLINE, SOLID LT 12.5' SKIP 37.5' GAP
0040	485+59	-	485+92	LT	33	-	-	WHITE EDGELINE
TOTAL 0040					268	0	0	
PROJECT TOTAL					1462	1164	18	

CONSTRUCTION STAKING												
650.4000 650.4500 650.5000 650.5500 650.6000 650.6501.01 650.7000 650.9911.01 650.9920												
CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION												
STAKING STORM STAKING CONSTRUCTION STAKING CURB CONSTRUCTION STAKING CONSTRUCTION CONSTRUCTION												
SEWER SUBGRADE STAKING BASE GUTTER AND STAKING PIPE LAYOUT CONCRETE SUPPLEMENTAL												
(PROJECT) (01. CONTROL STAKING SLOPE												
CATEGORY	STATION	TO	STATION	LOCATION	EACH	LF	LF	LF	EACH	EACH	LF	LF
0010	335+65	-	343+85	LT/RT	2	650	650	170	2	1	60	650
TOTAL 0010					2	650	650	170	2	1	60	650
0040	484+68	-	485+82	LT/RT	-	-	-	-	-	-	65	-
TOTAL 0040					0	0	0	0	0	0	65	0
PROJECT TOTAL					2	650	650	170	2	1	125	650

3

TEMPORARY TRAFFIC SIGNALS

		661.0101.01	661.0101.02
		TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) (01. B-34-0061)	TEMPORARY TRAFFIC SIGNALS FOR BRIDGES (STRUCTURE) (01. B-34-0024)
CATEGORY	LOCATION	EACH	EACH
0010	STH 64 / STH 55	1	-
TOTAL 0010		1	0
0040	STH 64	-	1
TOTAL 0040		0	1
PROJECT TOTAL		1	1

SAWING PAVEMENT

		690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF		
CATEGORY	STATION	TO	STATION	LOCATION	REMARKS
0010	335+65	-	337+80	RT	STAGE 1
0010	342+86	-	343+85	RT	STAGE 1
0010	337+25	-	337+25	LT/RT	STAGE 2
0010	343+25	-	343+89	LT/RT	STAGE 2
0010	335+65	-	337+49	RT	STAGE 3
0010	342+98	-	344+05	RT	STAGE 3
TOTAL 0010		1,012	0		
0040	484+66	-	484+66	LT/RT	-
0040	484+87	-	485+11	LT/RT	43
0040	485+39	-	485+63	LT/RT	43
0040	485+84	-	485+84	LT/RT	-
TOTAL 0040		70	86		
PROJECT TOTAL		1082	86		

3

EARLY ENVIRONMENTAL

					999.2000.S.01 INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STATION) (01. 341+00)	999.2100.S INSTALLING AND MAINTAINING CLIMBING TURTLE EXCLUSION FENCE
CATEGORY	STATION	TO	STATION	LOCATION	EACH	LF
0010	337+21	-	340+13	LT	-	350
0010	337+71	-	340+37	RT	-	335
0010	340+37	-	341+47	WOLF RIVER	1	-
0010	341+47	-	343+30	LT	-	295
0010	341+64	-	343+56	RT	-	280
TOTAL 0010					1	1,260

FLASHING BEACON

		SPV.0060.02	SPV.0060.03
		SPECIAL (02. INSTALL STATE- SUPPLIED SOLAR FLASHING BEACON) EACH	SPECIAL (03. REMOVE EXISTING FLASHING BEACON) EACH
CATEGORY	LOCATION	EACH	EACH
0010	PROJECT 9140-12-81	4	4
TOTAL 0010		4	4

TEMPORARY PORTAGE PATH

					645.0130	SPV.0060.04
					GEOTEXTILE TYPE	SPECIAL (04.
					R	TEMPORARY
CATEGORY	STATION	TO	STATION	LOCATION	SY	PORTAGE PATH) EACH
0010	341+47	-	343+29	LT/RT	195	1
TOTAL 0010					195	1

PROJECT NO: 9140-12-81

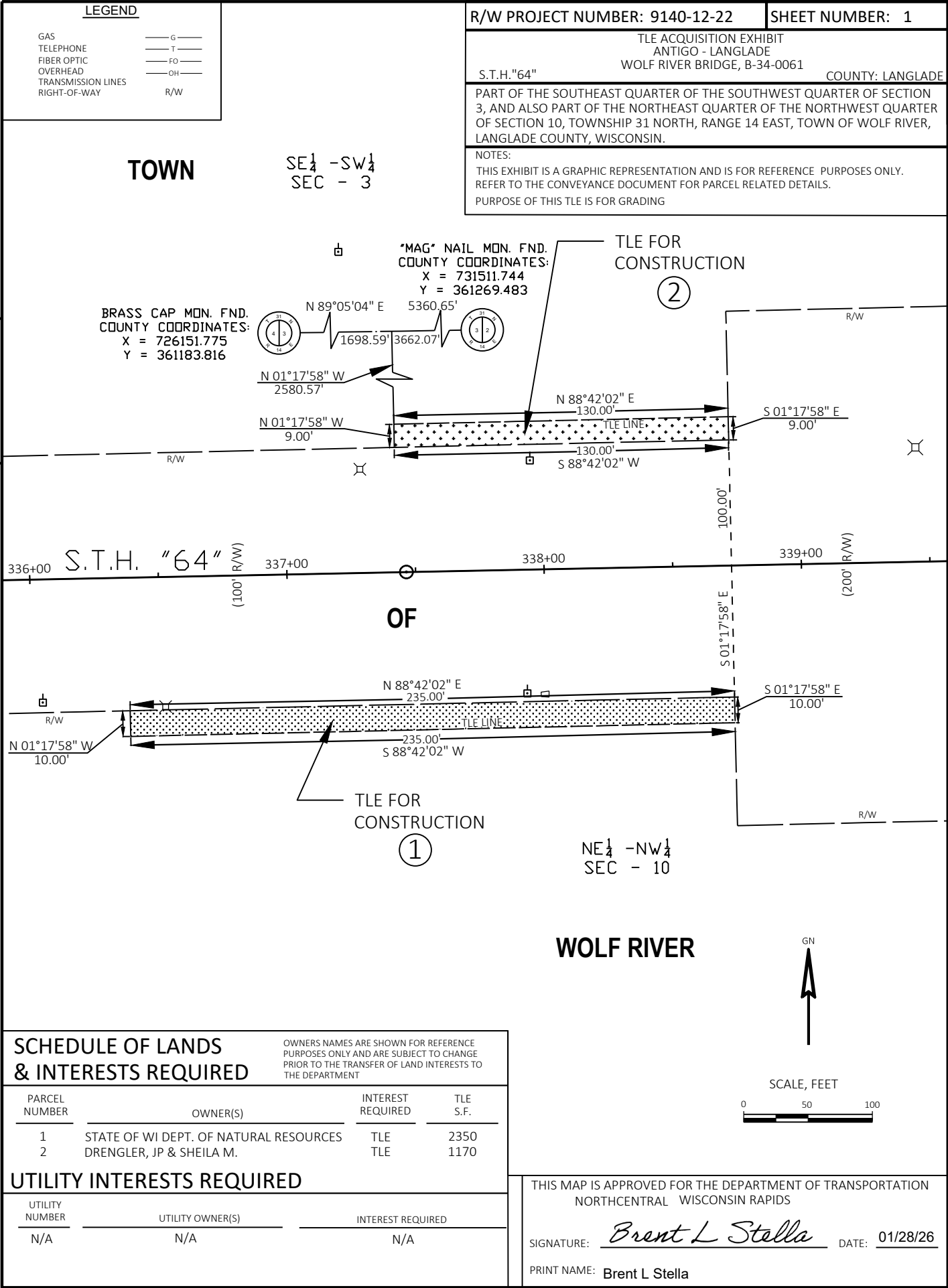
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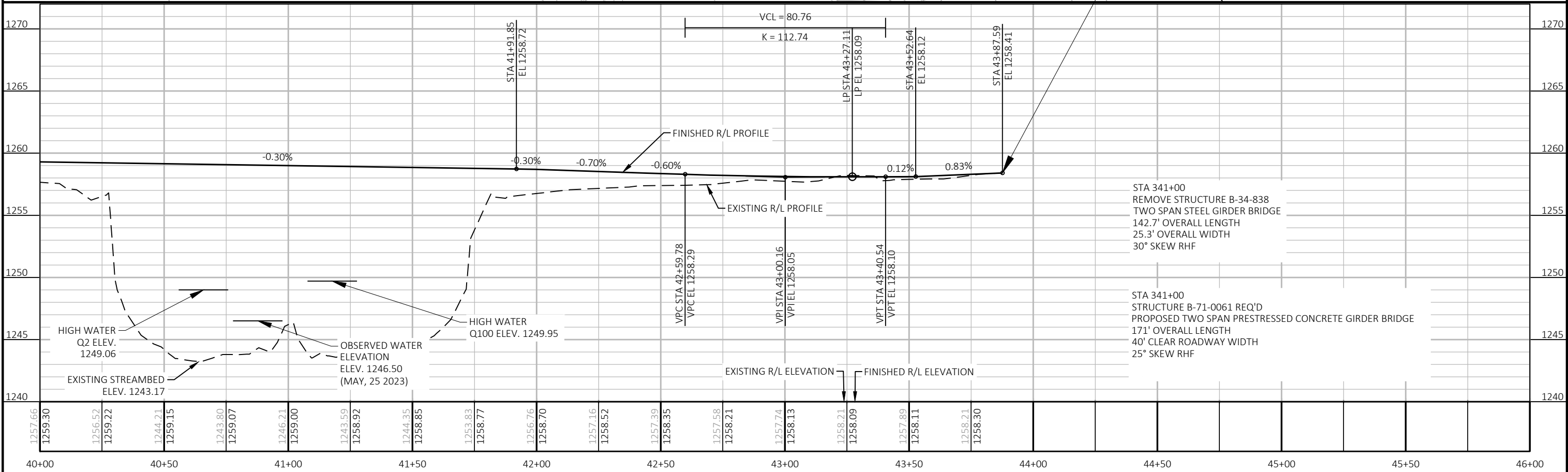
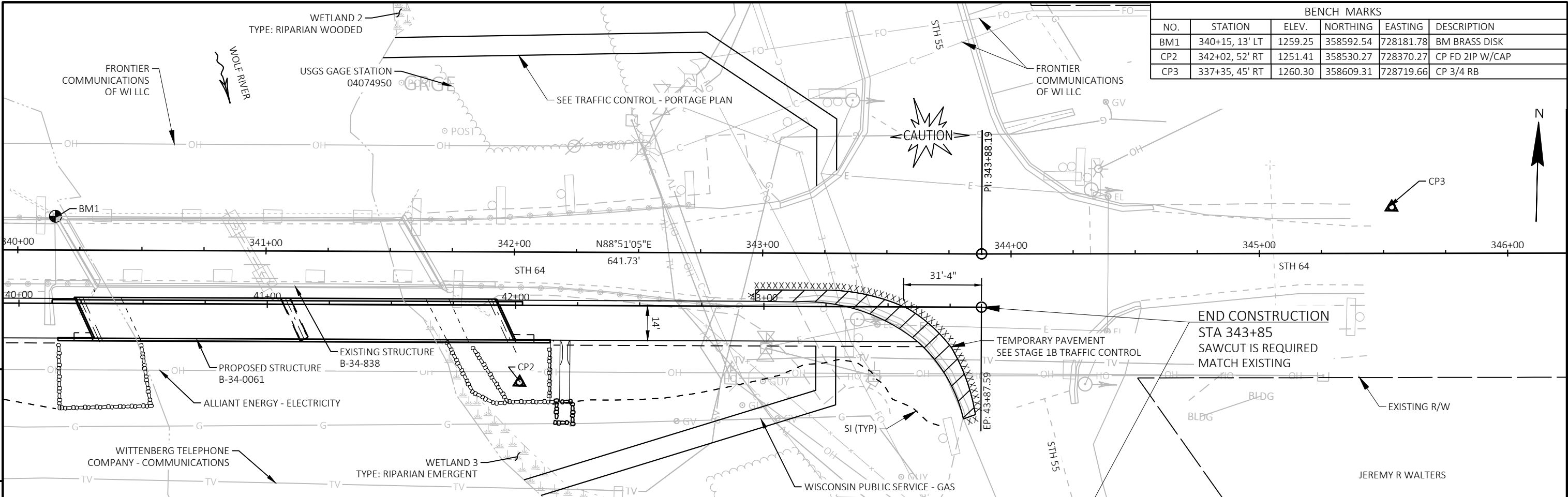
COUNTY: LANGLADE

MISCELLANEOUS QUANTITIES

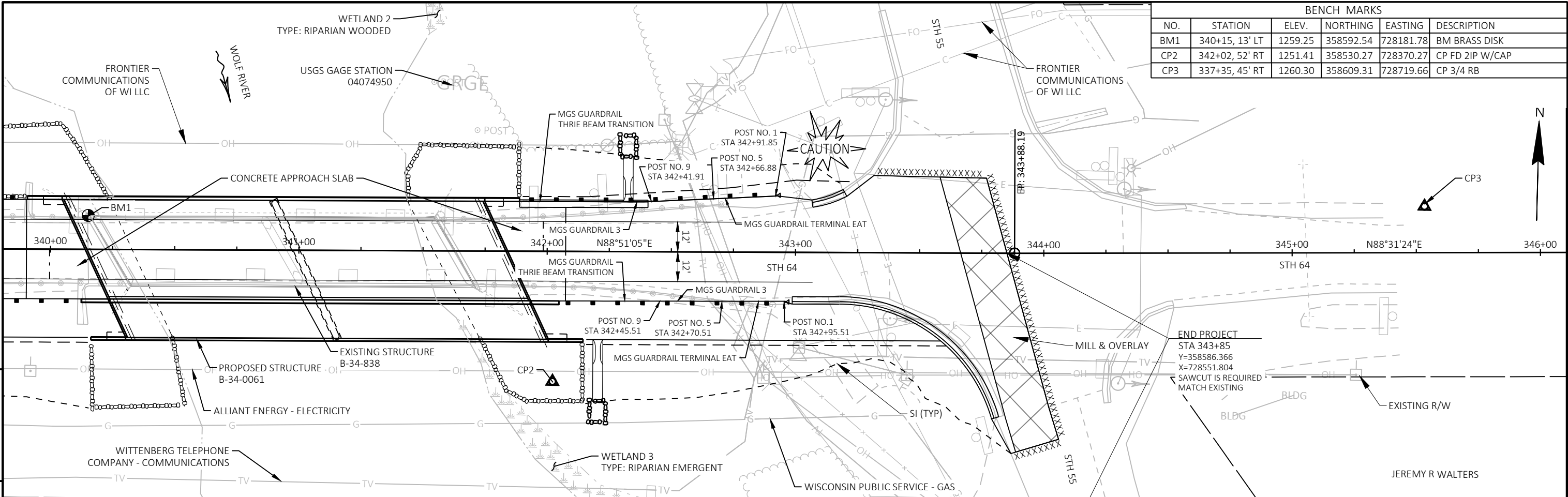
SHEET

E

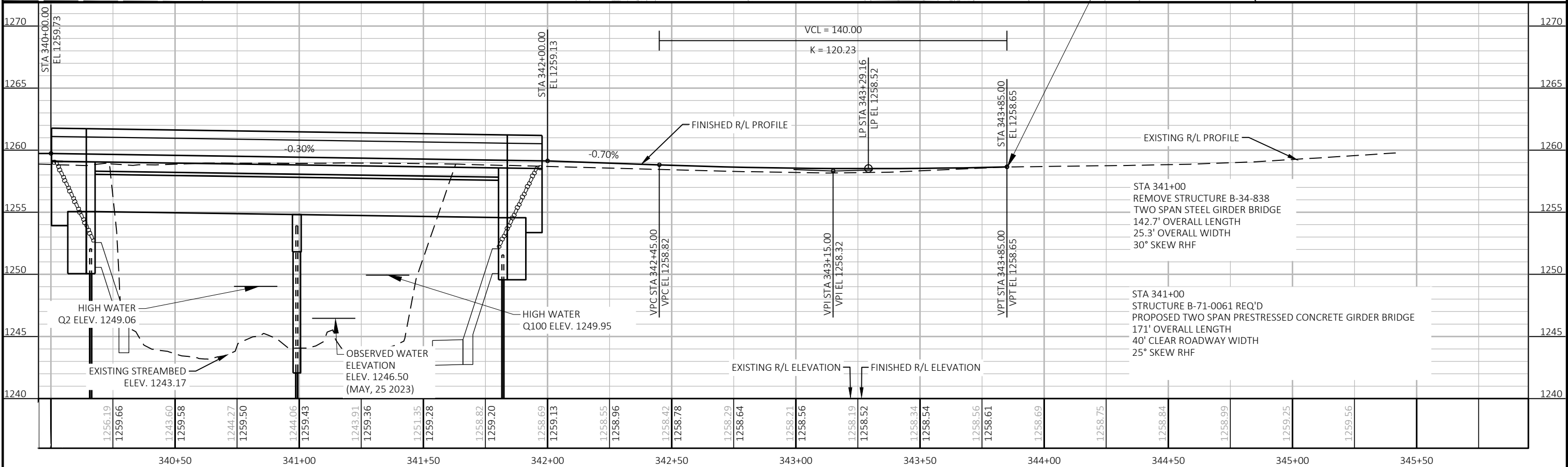




PROJECT NO:	9140-12-81	HWY:	STH 64	COUNTY:	LANGLADE	PLAN AND PROFILE:	PLAN & PROFILE - TEMPORARY	SHEET	60	E
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BENCH MARKS					
NO.	STATION	ELEV.	NORTHING	EASTING	DESCRIPTION
BM1	340+15, 13' LT	1259.25	358592.54	728181.78	BM BRASS DISK
CP2	342+02, 52' RT	1251.41	358530.27	728370.27	CP FD 2IP W/CAP
CP3	337+35, 45' RT	1260.30	358609.31	728719.66	CP 3/4 RB



Standard Detail Drawing List

08A05-22C	INLET COVERS TYPE F, HM, HM-S, S, T, HM-GJ & HM-GJ-S
08A05-22E	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08A08-03	CATCH BASINS 3-FT, 4-FT, 5-FT AND 6-FT DIAMETER
08B09-04	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08D01-24A	CONCRETE CURB & GUTTER
08D01-24B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
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
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09G02-05C	BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION
12A03-10	NAME PLATE (STRUCTURES)
13A08-02	TRANSVERSE RUMBLE STRIPS, ASPHALTIC
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"
14B07-16E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16J	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16K	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-16L	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
14B28-04A	GUARDRAIL MOW STRIP
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14D01-01	TURTLE EXCLUSION FENCE CLIMBING TURTLE
15C02-10B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-10F	ADVANCED WIDTH RESTRICTION SIGNING
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C11-11B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C12-09B	TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE
15C33-05	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D28-05	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

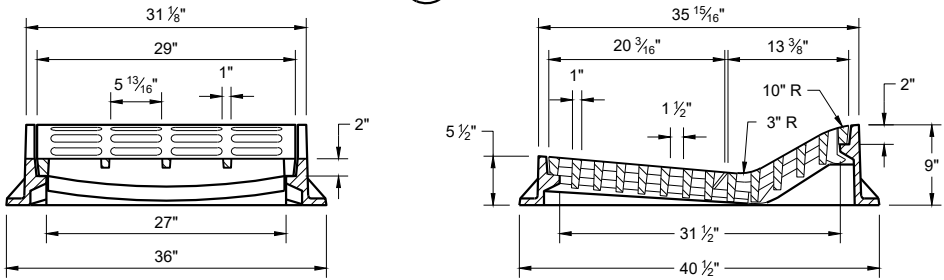
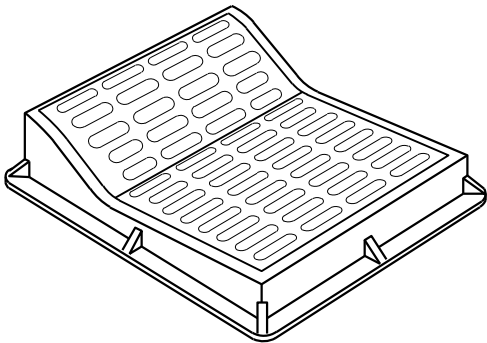
Standard Detail Drawing List

15D30-12L	TRAFFIC CONTROL, PEDESTRIAN ACCOMMODATION
15D33-10B	TRAFFIC CONTROL, ONE LANE ROAD WITH TEMP. SIGNALS AND RDT'S DEVICE
15D51-02	TRAFFIC CONTROL, MOBILE OPERATIONS ON AN UNDIVIDED ROADWAY

GENERAL NOTES

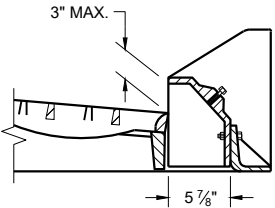
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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



TYPE "F"

USE WITH TYPES "A" AND "D" CONCRETE CURB AND GUTTER, 36"

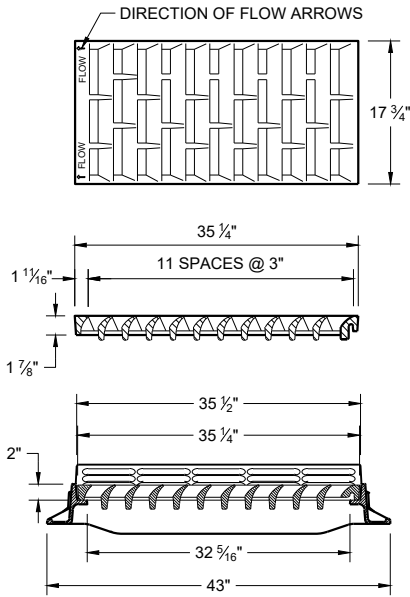


ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER

USE WITH TYPES "G" AND "J" CONCRETE CURB AND GUTTER, 30 INCH
NOTED AS TYP "HM-GJ" ON DRAINAGE TABLE

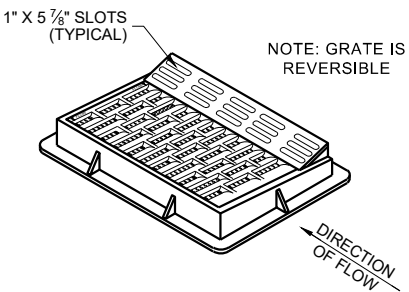
NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

NOTED AS TYPE HM-GJ-S ON THE DRAINAGE TABLE.

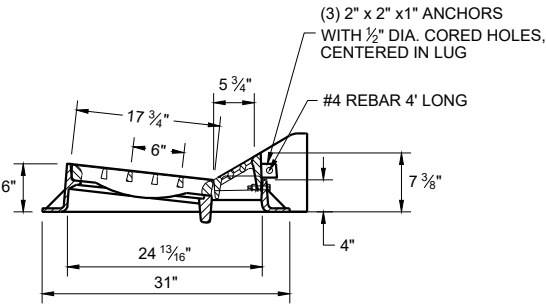


TYPE "HM"

USE WITH TYPES "A" AND "D" CONCRETE CURB AND GUTTER, 36"

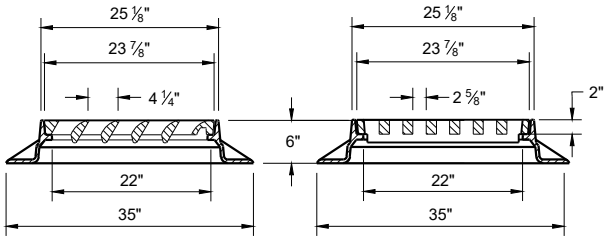
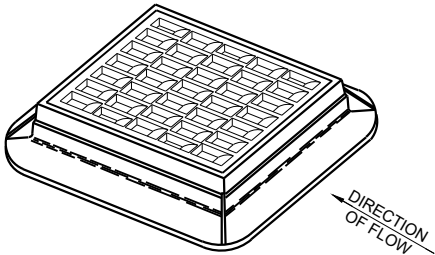


NOTE: GRATE IS REVERSIBLE

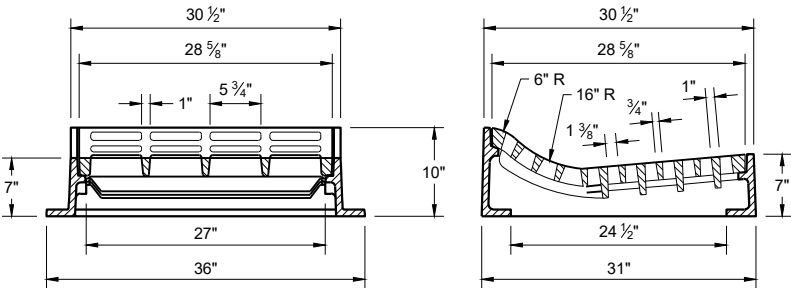
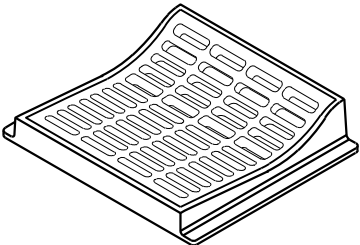


NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

NOTED AS TYPE HM-GJ-S ON THE DRAINAGE TABLE.



TYPE "S"



TYPE "T"

USE WITH TYPES "R" AND "T" CONCRETE CURB AND GUTTER, 36"

INLET COVERS
TYPES F, HM, HM-S, S, T,
HM-GJ AND HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

February 2025
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

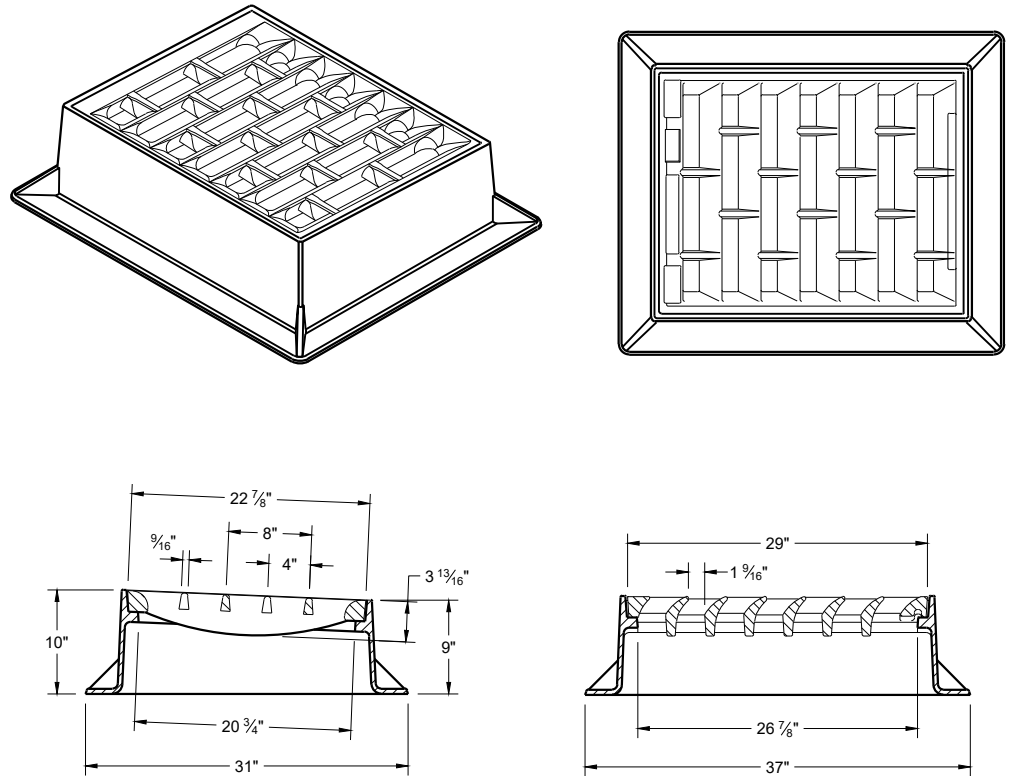
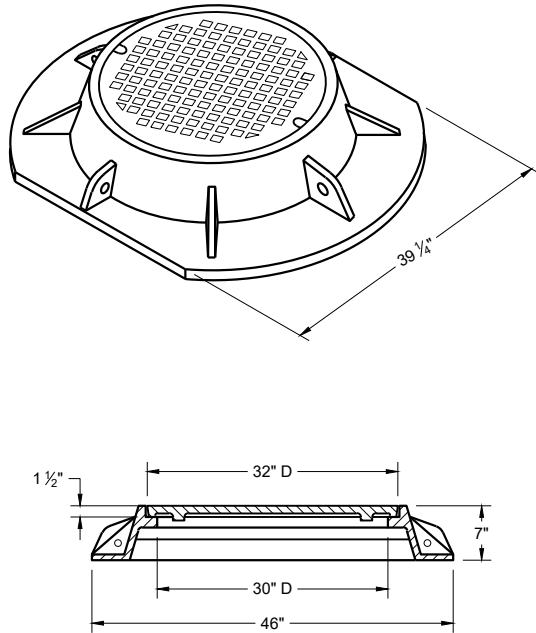
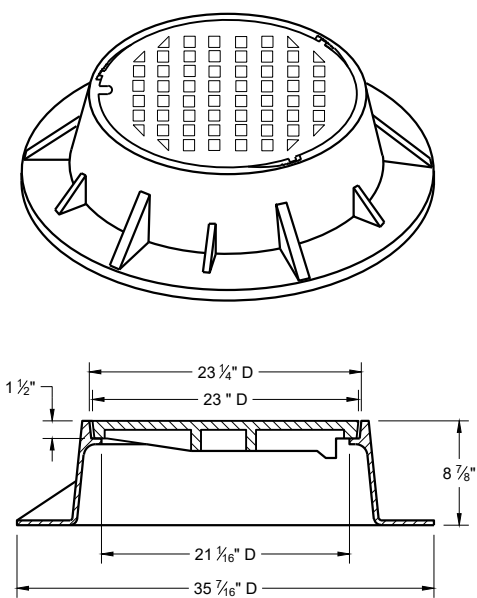
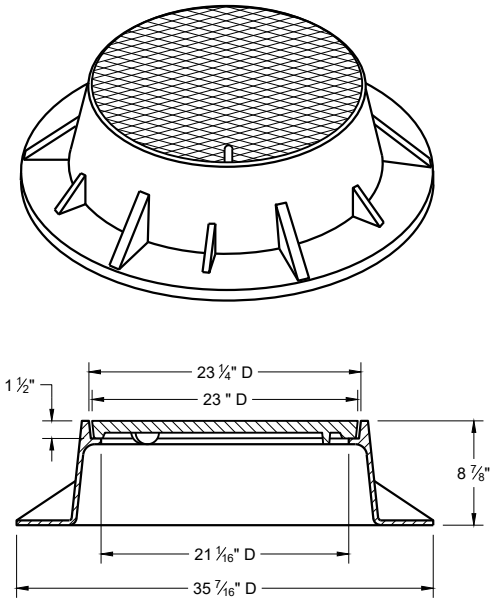
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GENERAL NOTES

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

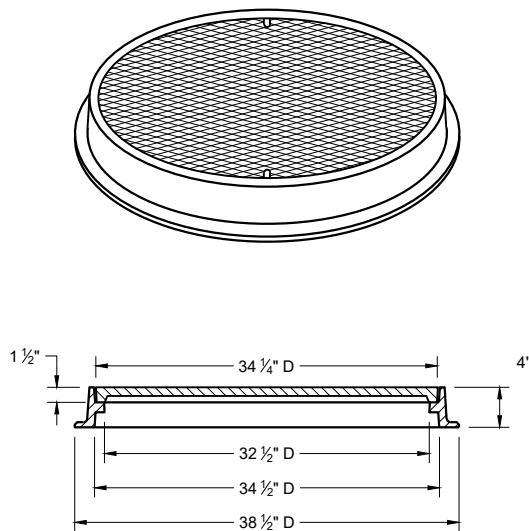
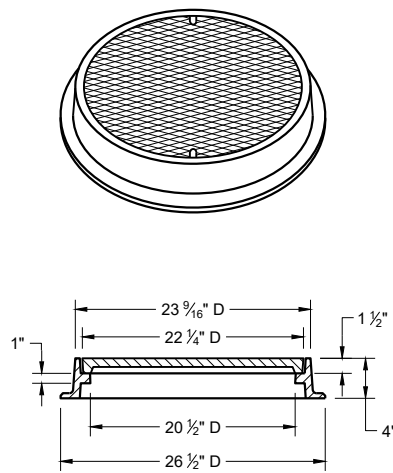
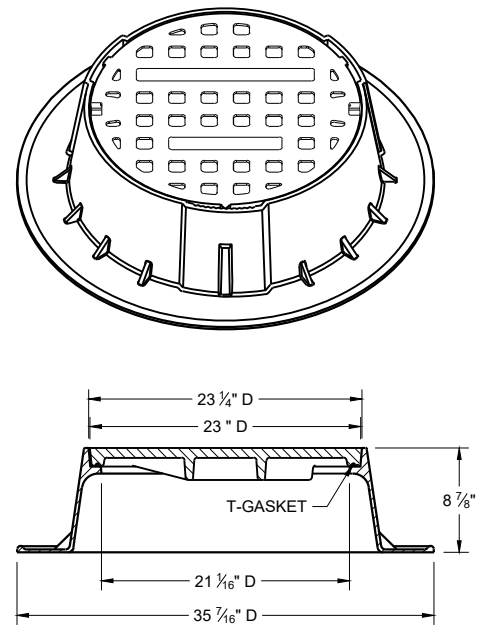
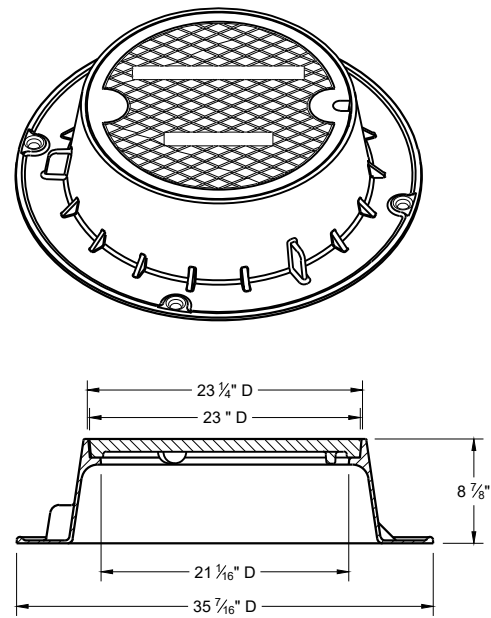
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



TYPE "K"

INLET COVER TYPE "BW"



TYPE "J"

TYPE "J" SPECIAL

TYPE "L"

TYPE "M"

NOTE: EITHER CASTING IS ACCEPTABLE

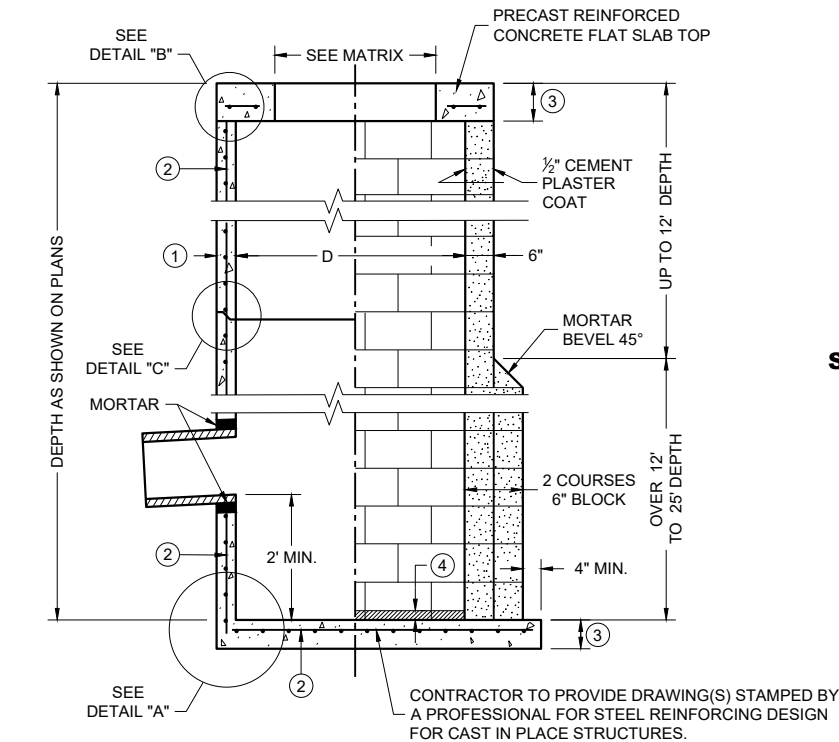
TYPE "B" NON-ROCKING SELF-SEAL LID
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

NOTE: EITHER CASTING IS ACCEPTABLE

INLET COVERS TYPES BW
MANHOLE COVERS TYPES K,
J, J-S, L, AND M

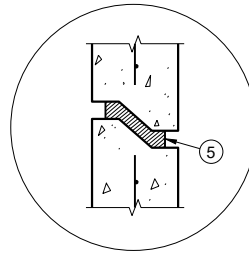
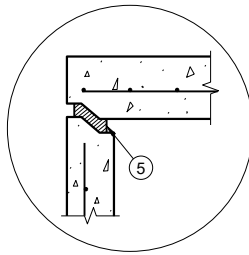
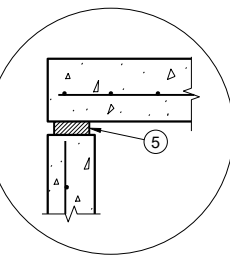
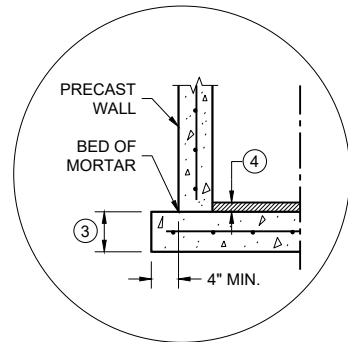
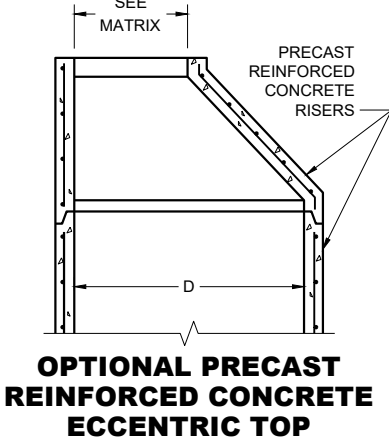
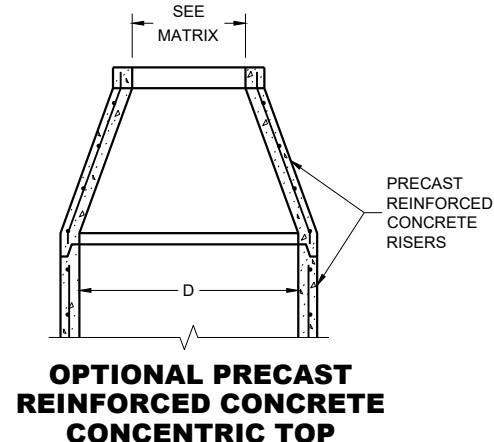
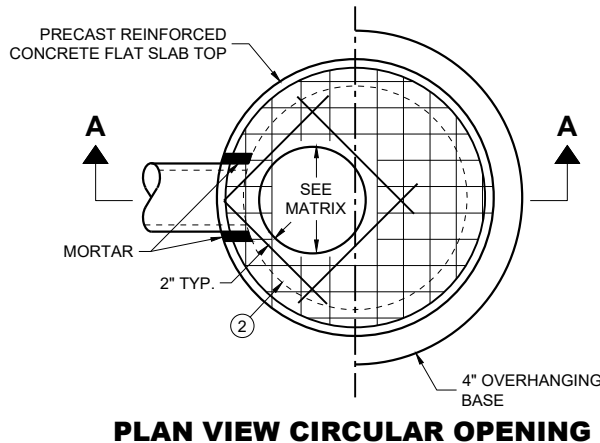
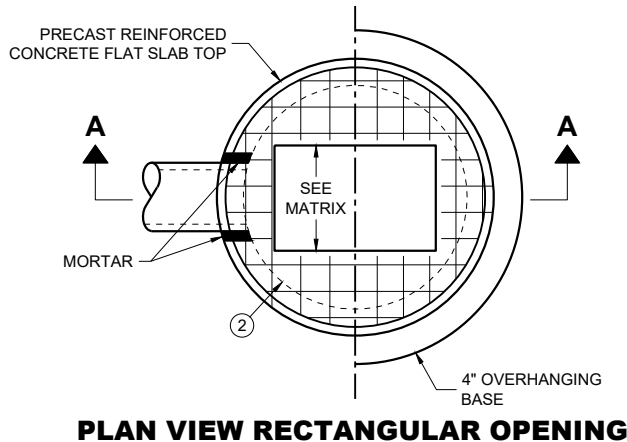
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ②

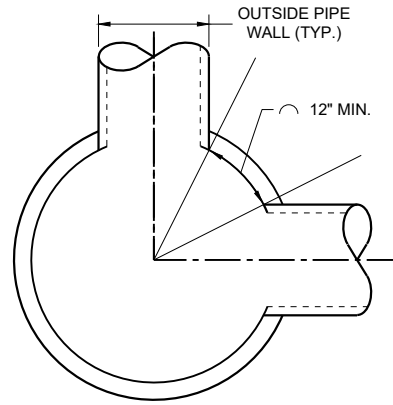
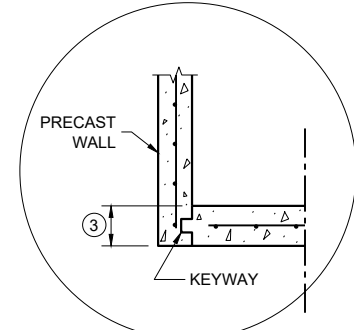


DETAIL "B"

DETAIL "C"

**CATCH BASINS
3-FT, 4-FT, 5-FT AND 6-FT DIAMETER**

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	30



MINIMUM HORIZONTAL PIPE SEPARATION

COVER MATRIX

CATCH BASIN SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V V-B	VV-B	WM	Z
	OPENING SIZE (FT.)												
3-FT	2 X 2	X	X					X		X			
	2 DIA.				X								X
4-FT TO 6-FT	2 X 2	X	X					X		X			
	2 X 2.5			X				X	X	X		X	
	2 DIA.				X								X
	2 X 3					X							
	2.5 X 3					X							
	2 X 3.5*										X*		

* REQUIRES 5-FT DIAMETER OR LARGER STRUCTURE

PIPE MATRIX

GENERAL NOTES

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

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

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

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

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

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USE ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½ INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

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

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

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

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

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

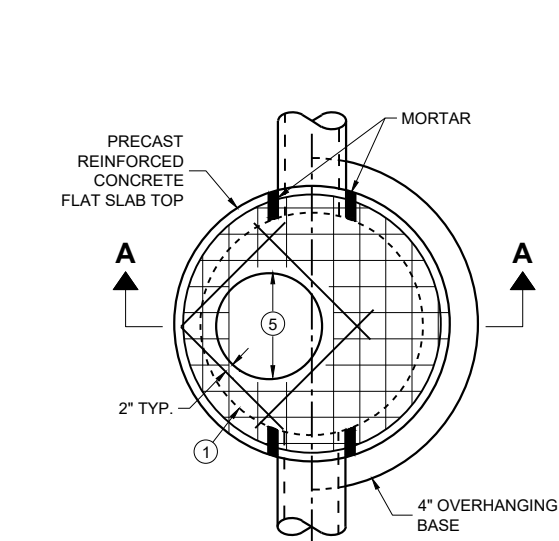
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT AND 7 INCHES FOR 6-FT DIAMETER PRECAST CATCH BASINS.
- ② FOR PRECAST CATCH BASINS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".
- ④ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2' SUMP MEASURED FROM TOP OF KEY.
- ⑤ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFROMING TO ASTM C443.

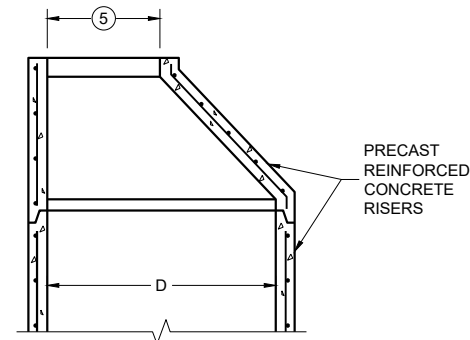
**CATCH BASINS, 3-FT.
4-FT., 5 FT., AND
6-FT. DIAMETER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

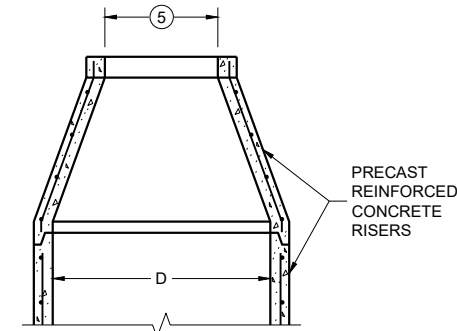
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DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA



PLAN VIEW
CIRCULAR OPENING



OPTIONAL PRECAST
REINFORCED CONCRETE
ECCENTRIC TOP



OPTIONAL PRECAST
REINFORCED CONCRETE
CONCENTRIC TOP

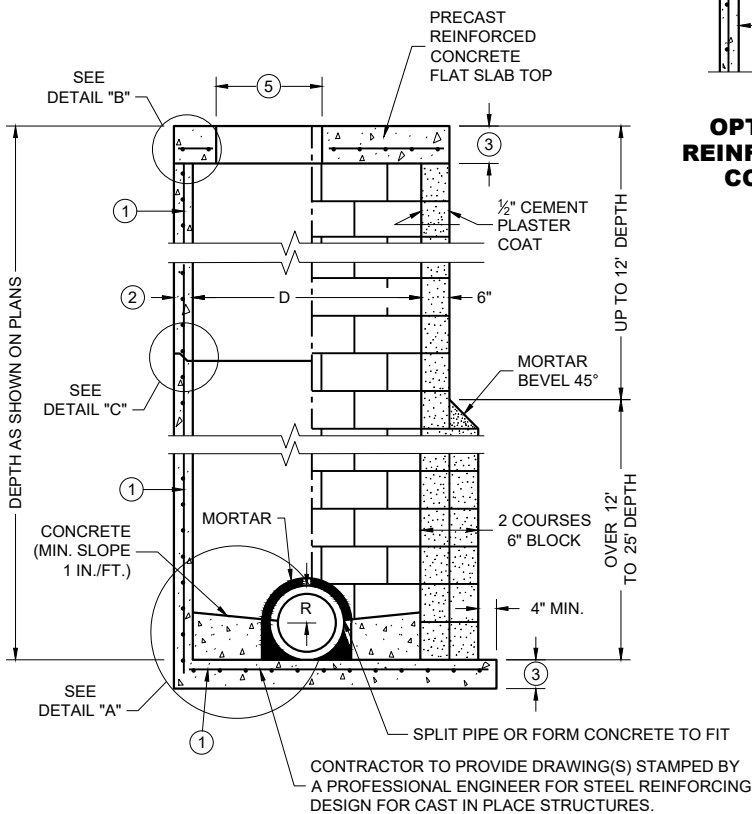
MANHOLE COVER OPENING MATRIX

MANHOLE COVER OPENING SIZE (FT.)	MANHOLE COVER TYPE	C	ALL JS	K	L	M
2 DIA.	5	X	X		X	
3 DIA.				X		X

PIPE MATRIX

MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES		MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
	180° SEPARATION (IN)	90° SEPARATION (IN)		
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36/42 *	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES.
SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.

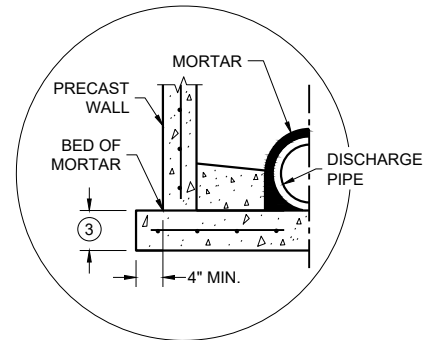


SECTION A - A

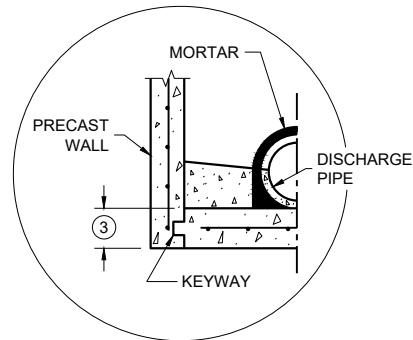
PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE

1

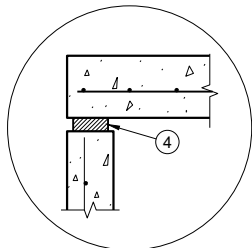


SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

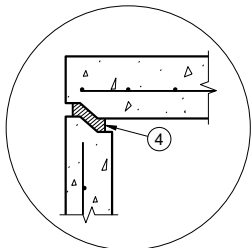


PRECAST REINFORCED CONCRETE
WITH INTEGRAL BASE OPTION

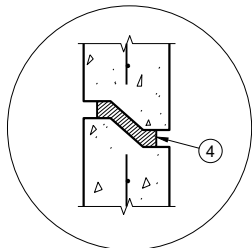
DETAIL "A"



TOP WITH PLAIN
END JOINT



TOP WITH TONGUE
AND GROOVE JOINT



RISER WITH TONGUE
AND GROOVE JOINT

DETAIL "B"

DETAIL "C"

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.

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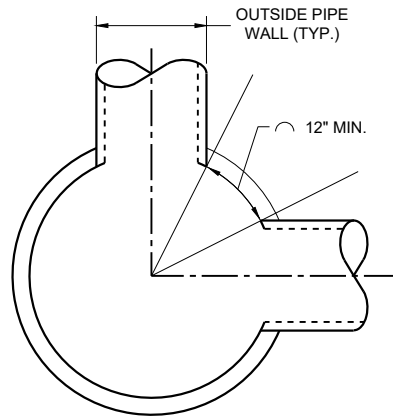
PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

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

- 1 FOR PRECAST MANHOLES AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- 2 SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES
- 3 SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.
- 4 JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.
- 5 SEE MANHOLE COVER OPENING MATRIX.



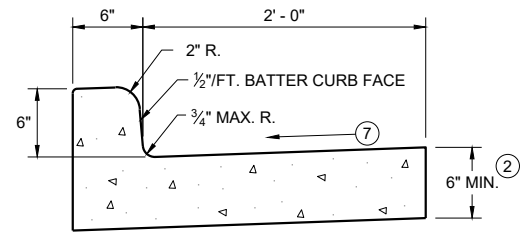
MINIMUM HORIZONTAL
PIPE SEPARATION

DETAIL "D"

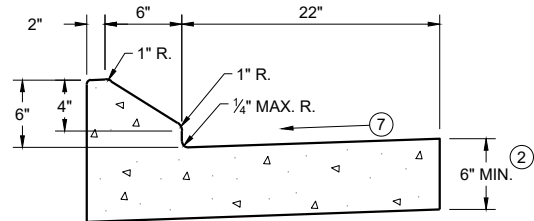
MANHOLES, 3-FT, 4-FT
5-FT, 6-FT, 7-FT, 8-FT, 9-FT
AND 10-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

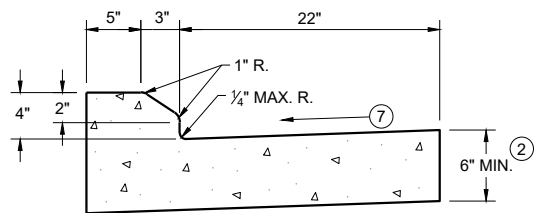
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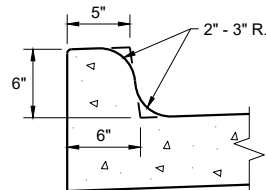
TYPES A^① & D



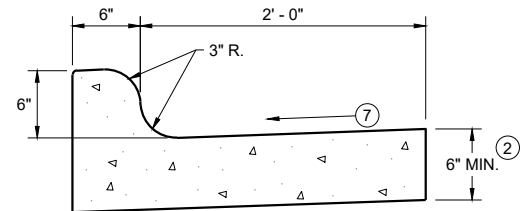
6" SLOPED CURB TYPES G^① & J



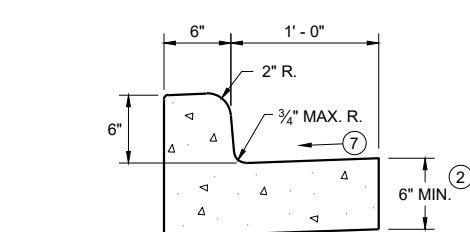
4" SLOPED CURB TYPES G^① & J



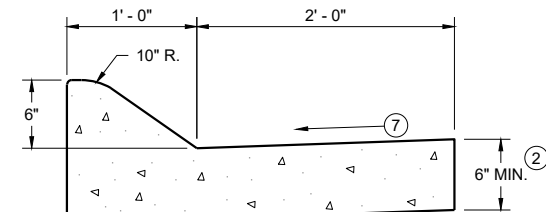
TYPES K^① & L
(OPTIONAL CURB SHAPE)



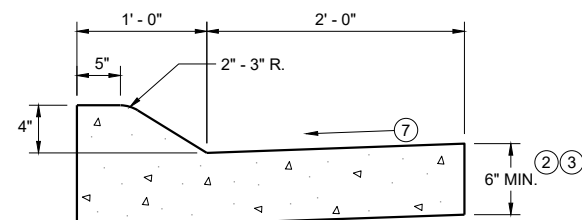
TYPES K^① & L
CONCRETE CURB AND GUTTER 30"



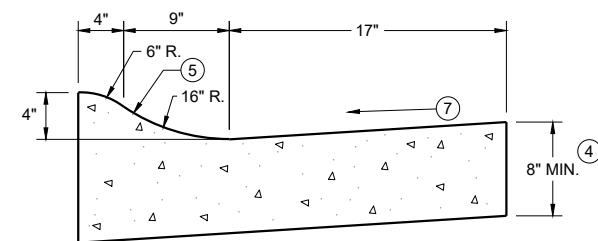
TYPES A^① & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

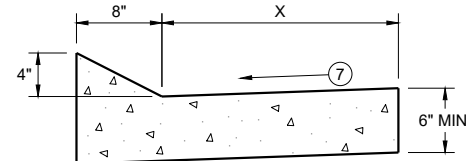


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T
CONCRETE CURB AND GUTTER 30"

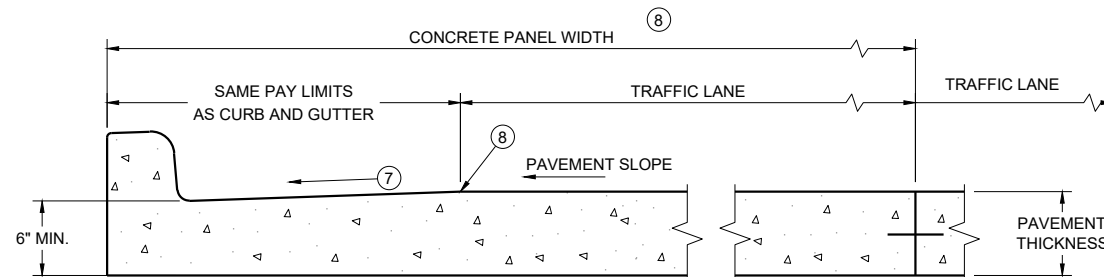
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT^①
CONCRETE CURB AND GUTTER

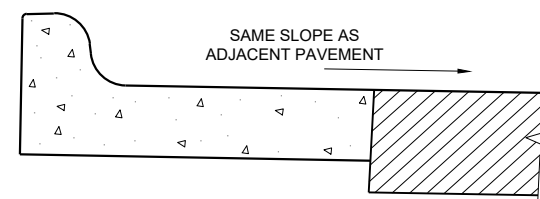
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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

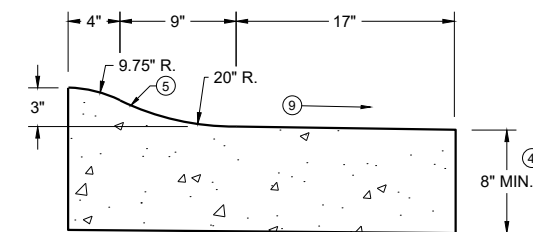


PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



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



3" SLOPED CURB TYPES R^① & T

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

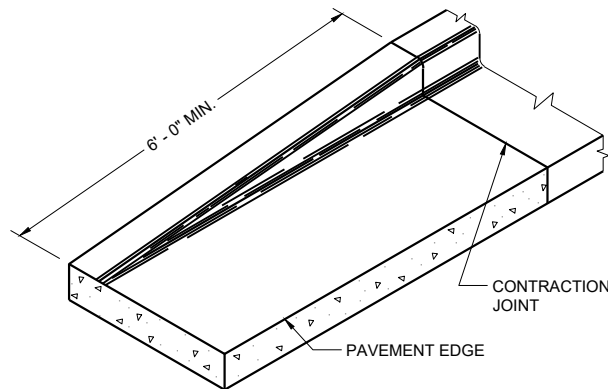
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

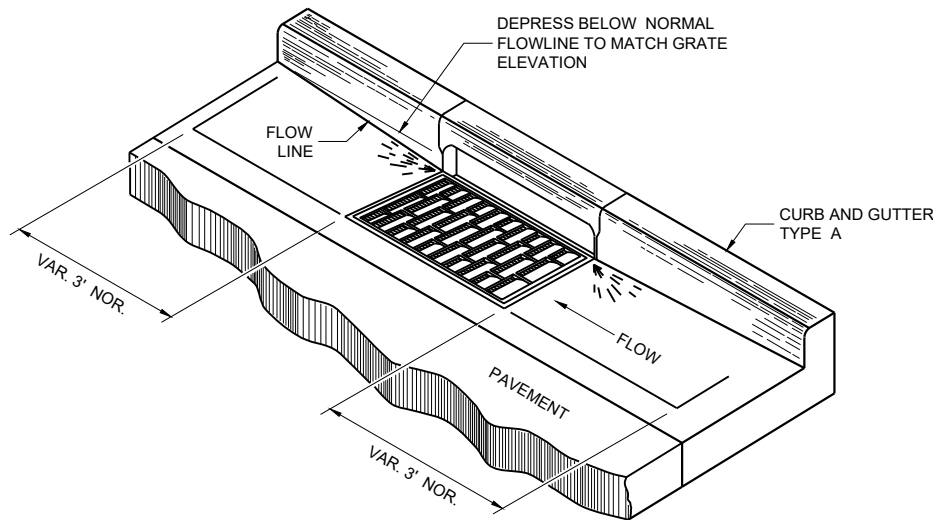
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ SLOPE TO BE REVERSE SLOPE MATCHING THE SLOPE OF THE PAVEMENT AND THE CIRCULATORY ROADWAY

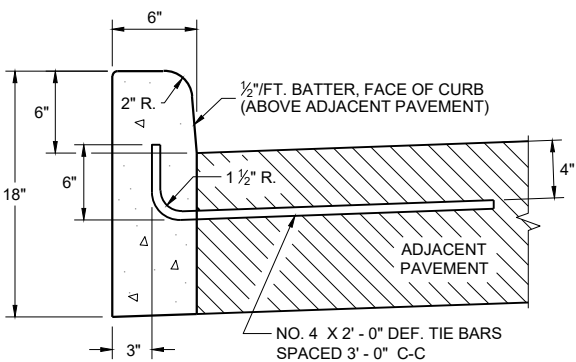


END SECTION CURB AND GUTTER

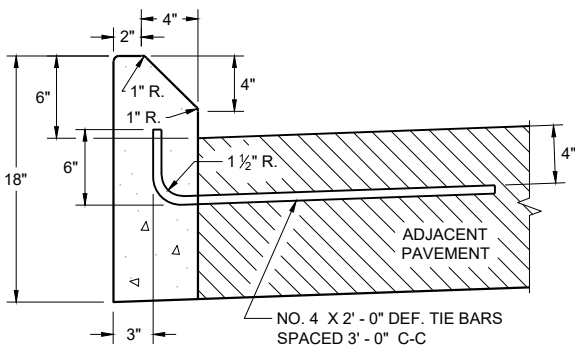


DETAIL OF CURB AND GUTTER AT INLETS

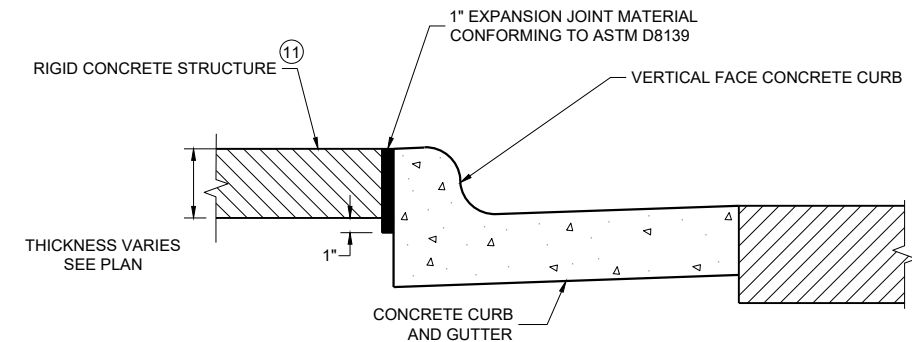
(TYPICAL H INLET COVER SHOWN)



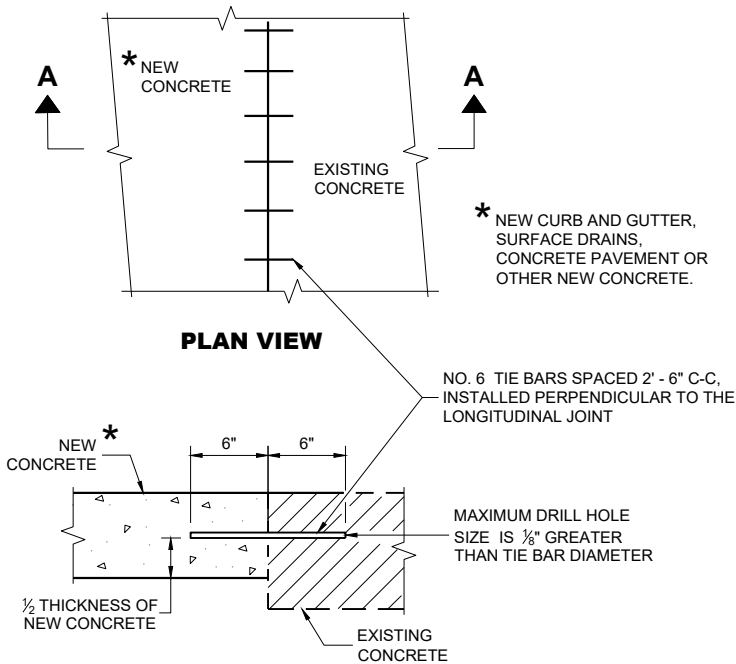
TYPES A^① & D



TYPES G^① & J
CONCRETE CURB



EXPANSION JOINT DETAIL FOR VERTICAL CURB ABUTTING A RIGID STRUCTURE^⑪



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

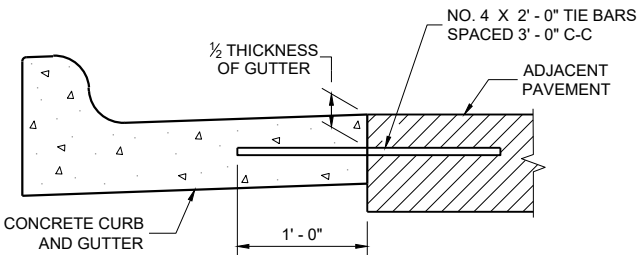
GENERAL NOTES

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

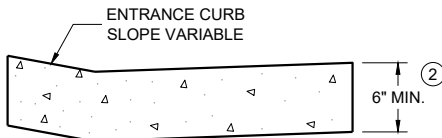
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑩ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.
- ⑪ PLACE 1" THICK EXPANSION JOINT MATERIAL BETWEEN VERTICAL FACE CURB TYPES EXTENDING FROM THE TOP OF CURB TO 1 INCH BELOW THE ADJOINING CONCRETE SURFACE. RIGID CONCRETE STRUCTURES INCLUDE RAISED CONCRETE MEDIANS, CONCRETE SAFETY ISLANDS, SPLITTER ISLANDS, OR LOCATIONS IDENTIFIED ON THE PLANS.



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑩
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2025
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

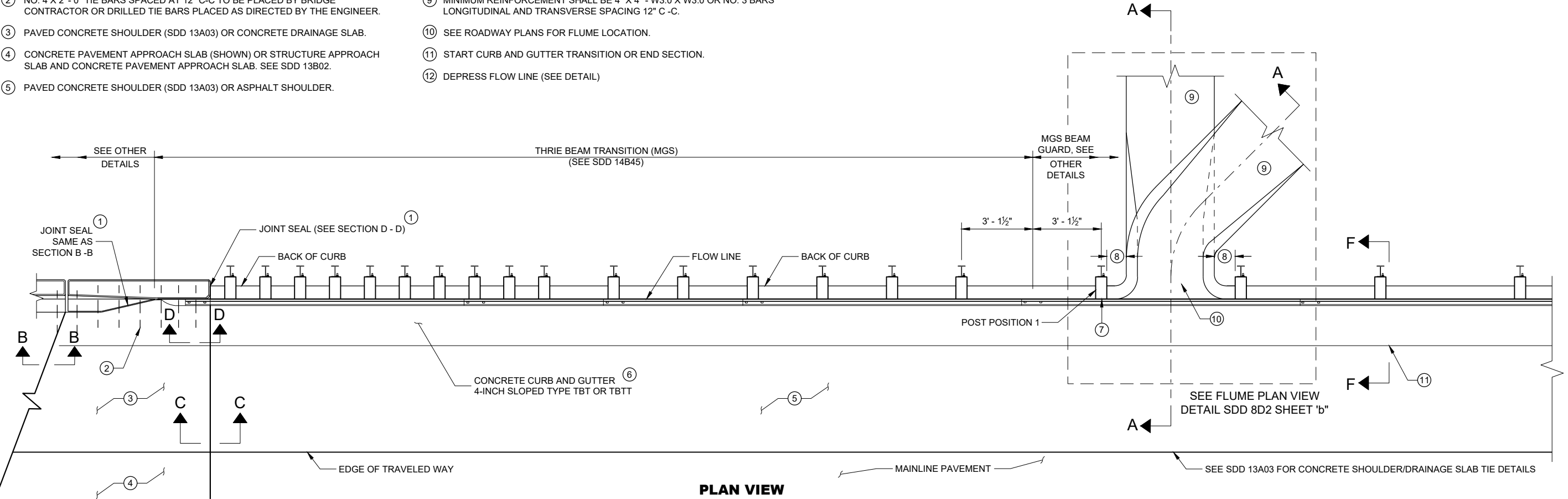
GENERAL NOTES

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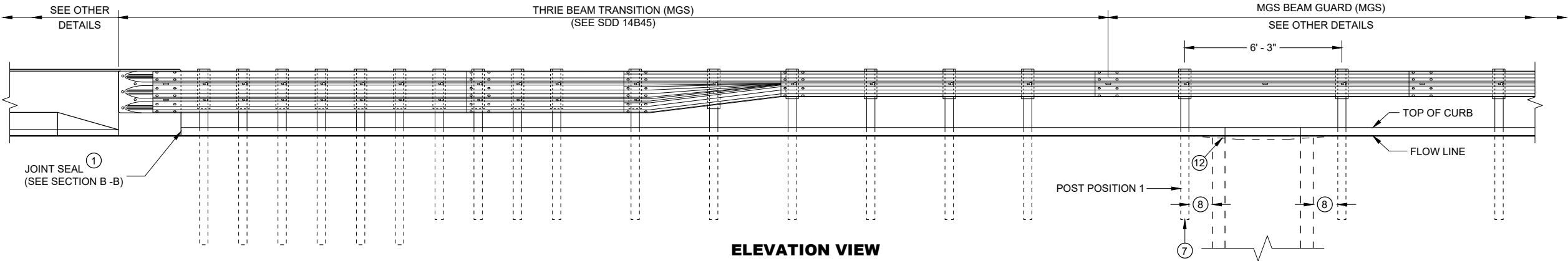
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- 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)



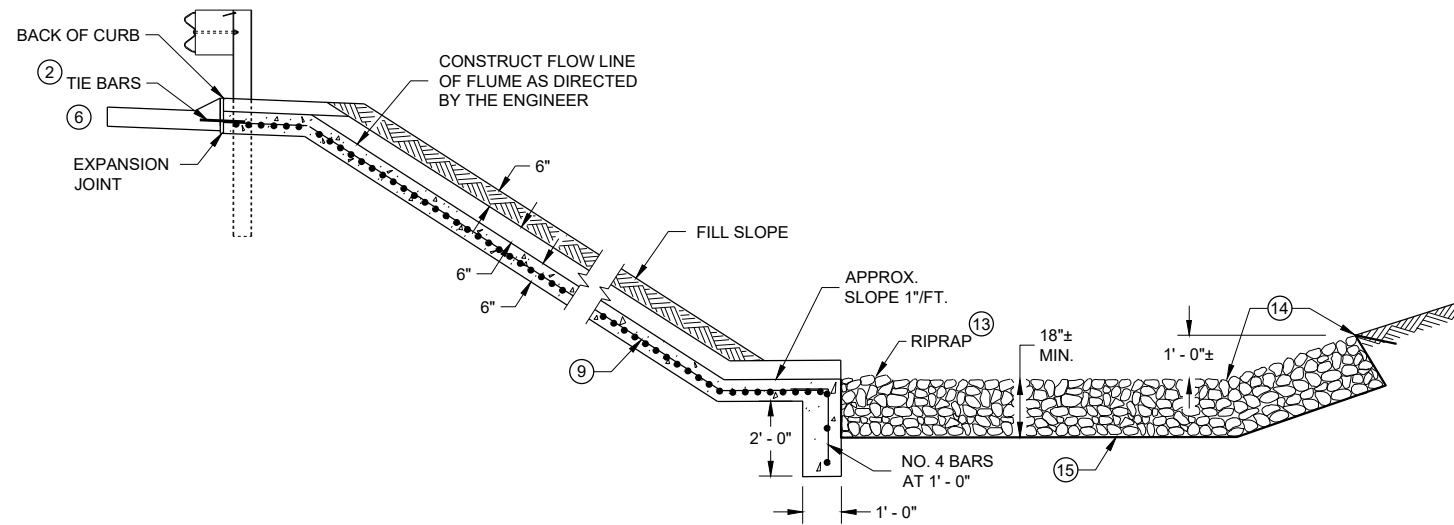
PLAN VIEW



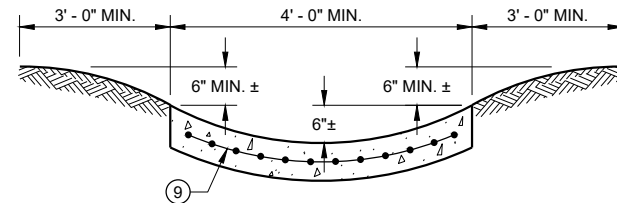
ELEVATION VIEW

CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES

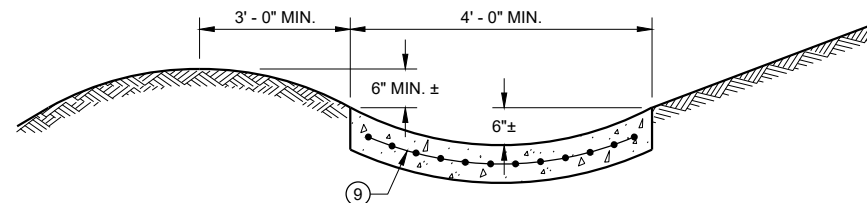
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



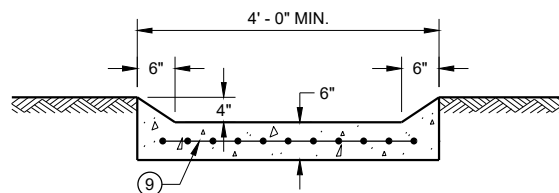
SECTION A - A



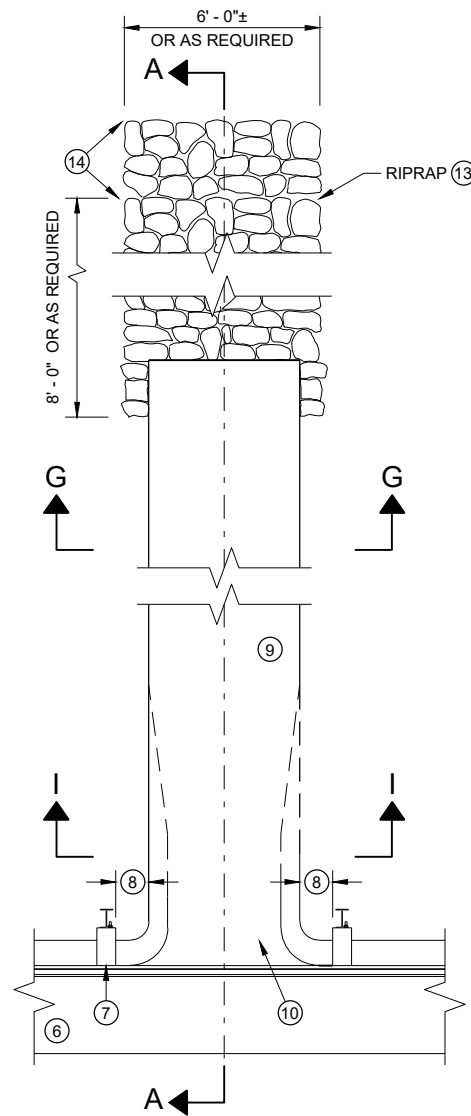
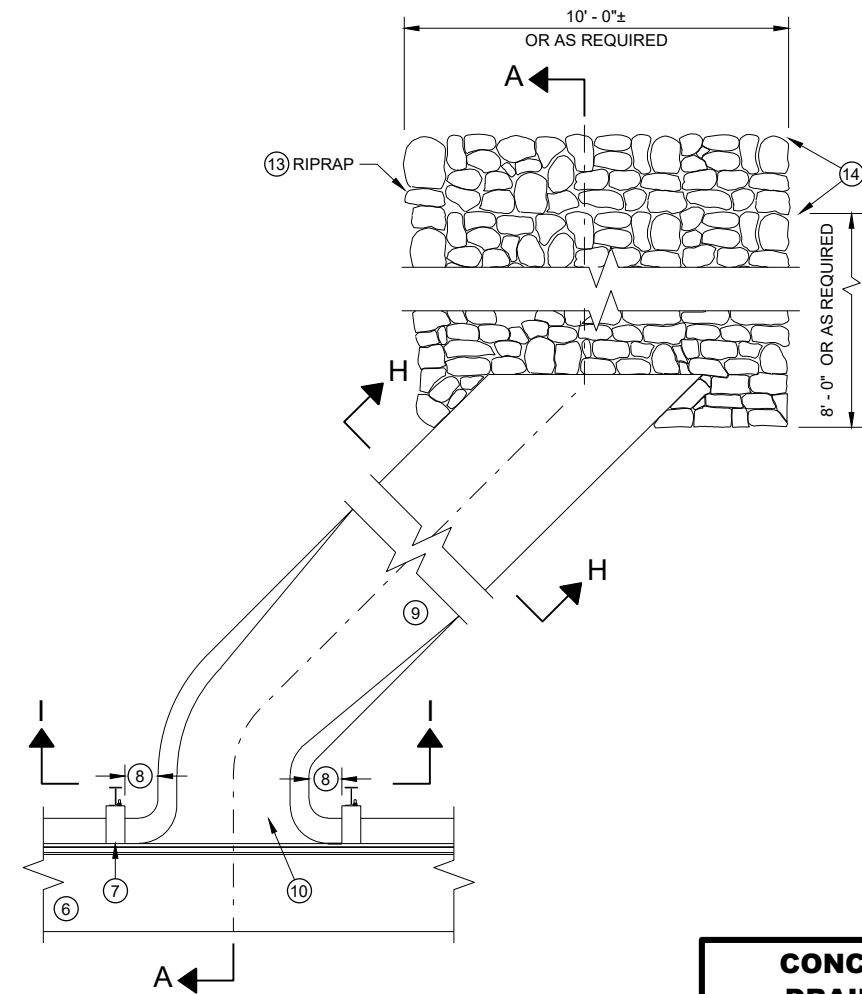
SECTION G - G



SECTION H - H



SECTION I - I

PLAN VIEW
PERPENDICULAR FLUMEPLAN 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.

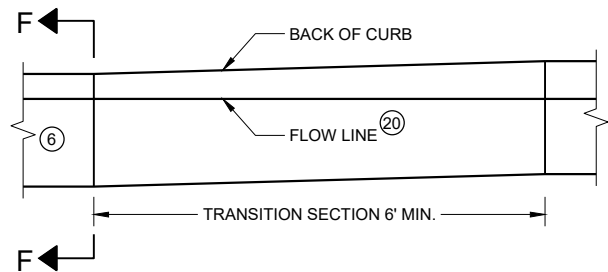
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
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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 TBT. USE TYPE TBT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

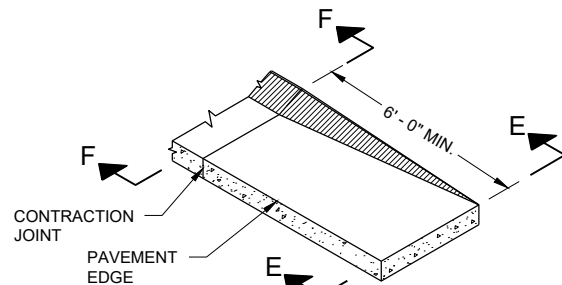
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ⑩ SEE ROADWAY 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.

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

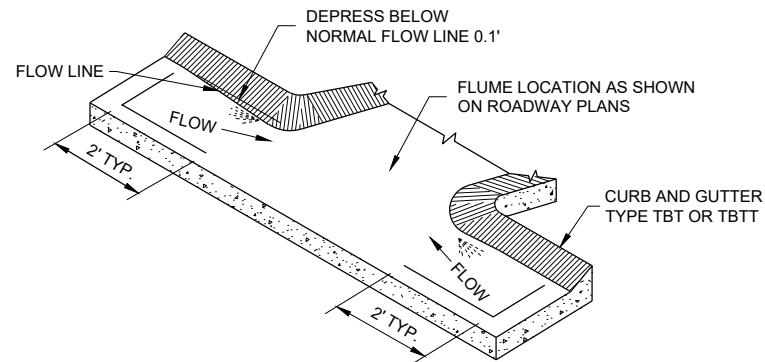
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 72



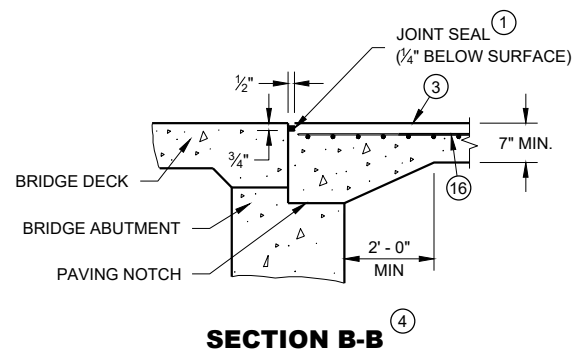
**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



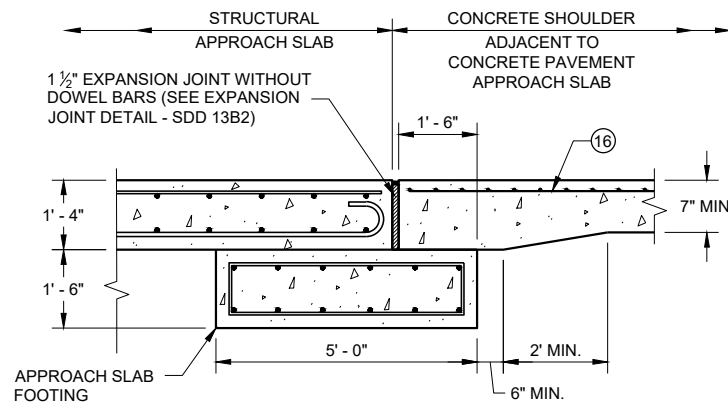
**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



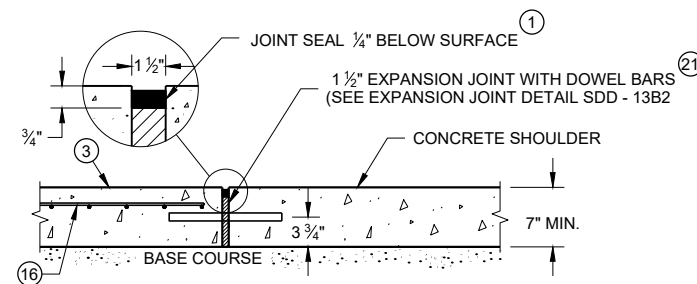
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**



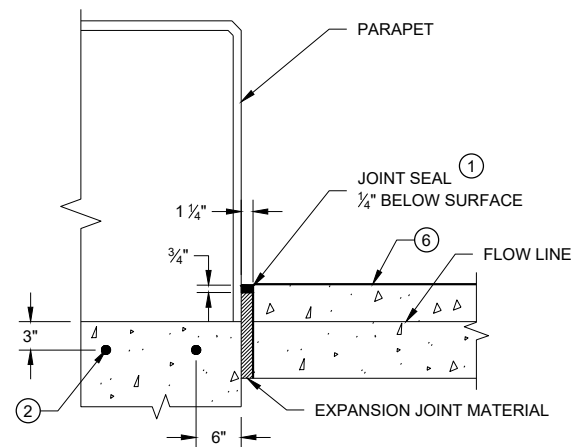
SECTION B-B



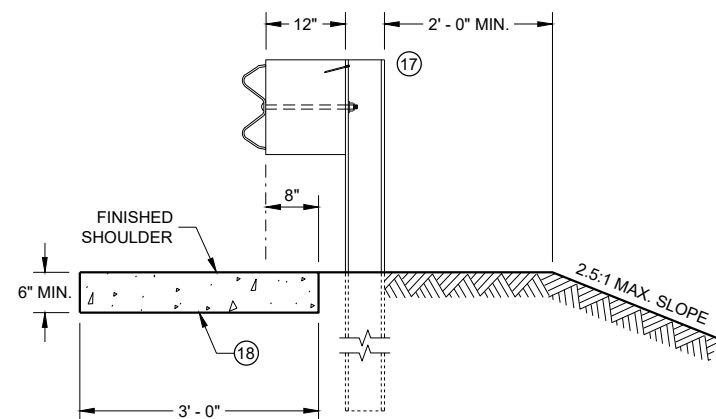
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



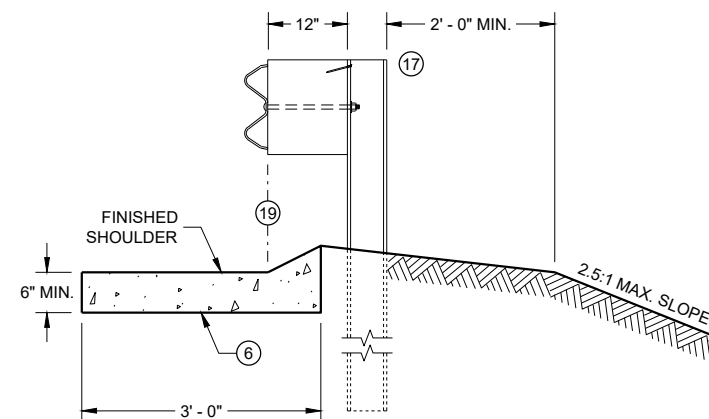
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

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.

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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.
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- 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.
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- 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.

CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2023

DATE

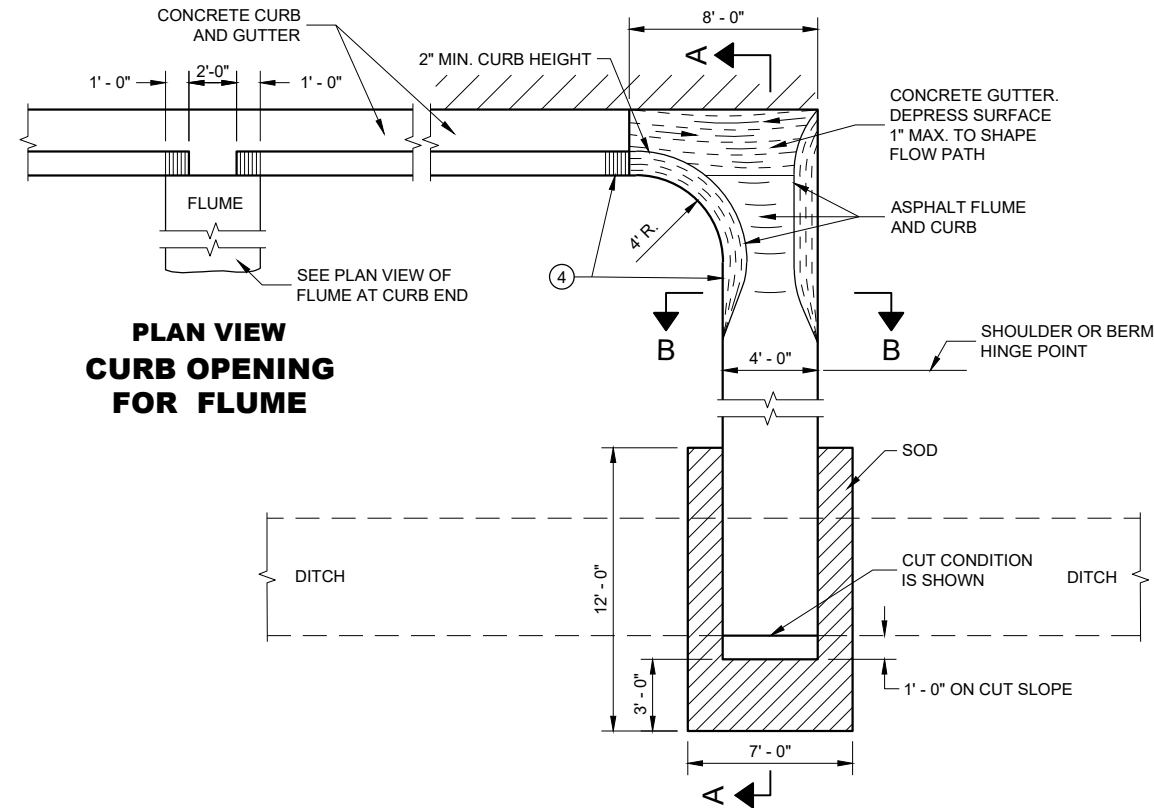
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

73

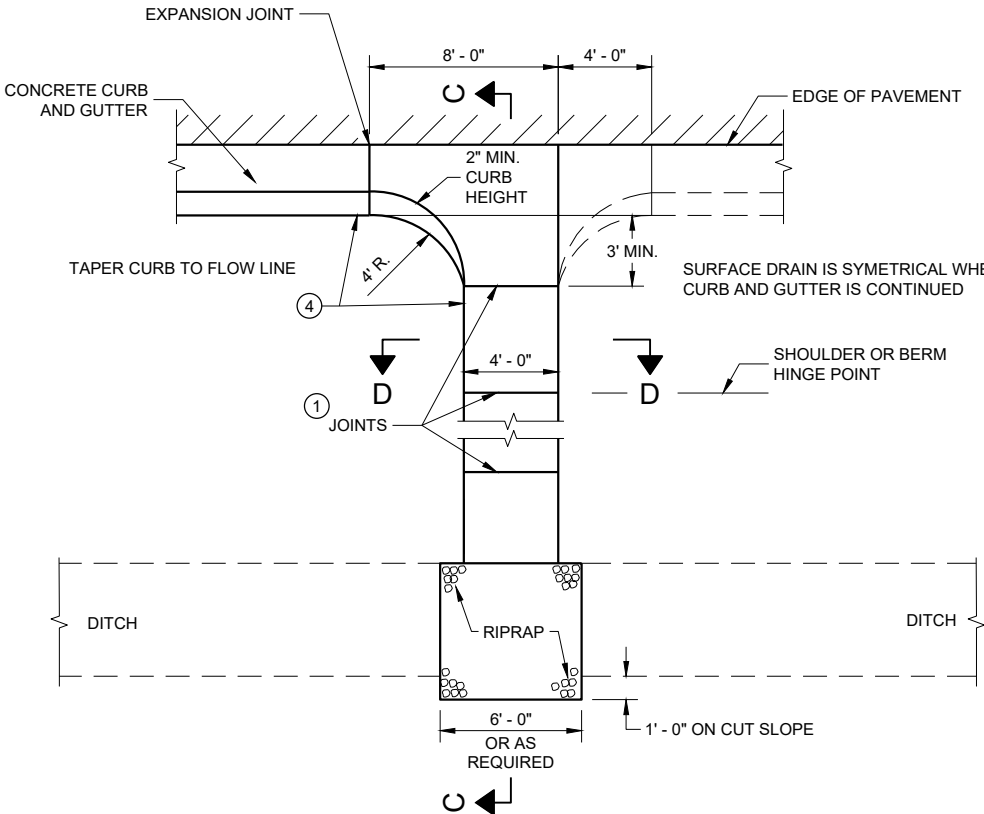
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



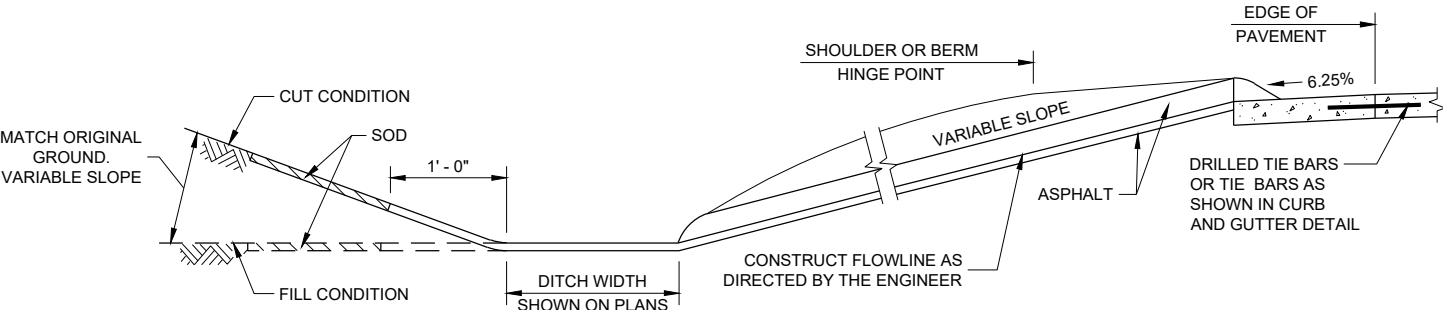
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

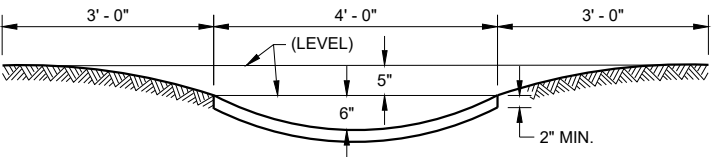
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

4" X 4" - W3.0 X W3.0 CONCRETE REINFORCEMENT SHALL BE IN ACCORDANCE WITH AASHTO SPECIFICATION M55.

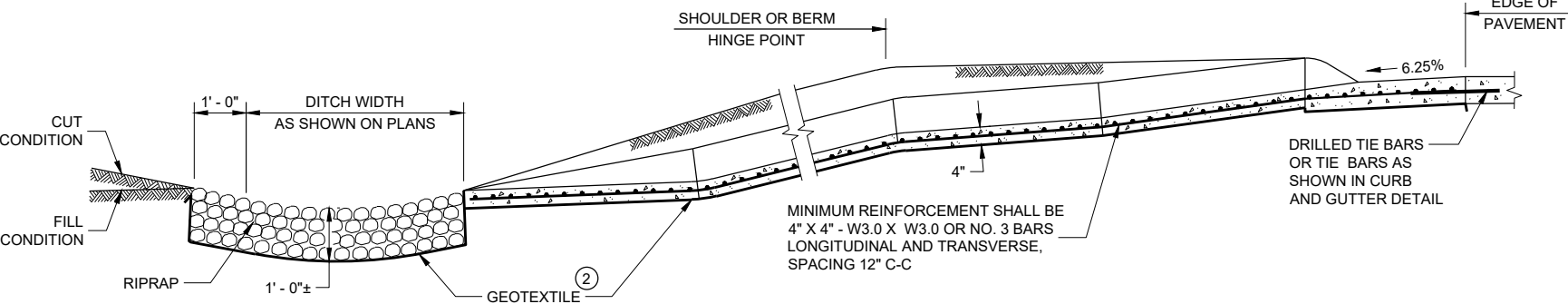
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.
- ④ ANGLE OF FLUME IN RELATION TO BACK OF CURB TO BE CONSTRUCTED PER THE PLAN DETAILS OR AS DIRECTED BY THE ENGINEER. ANGLE OF FLUME MAY BE OTHER THAN 90 DEGREES AS SHOWN.



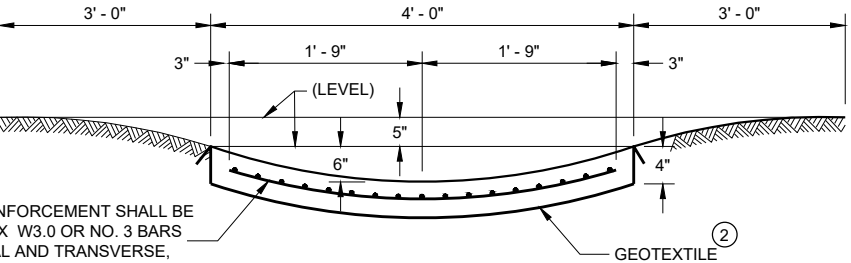
SECTION A - A



SECTION B - B



SECTION C - C



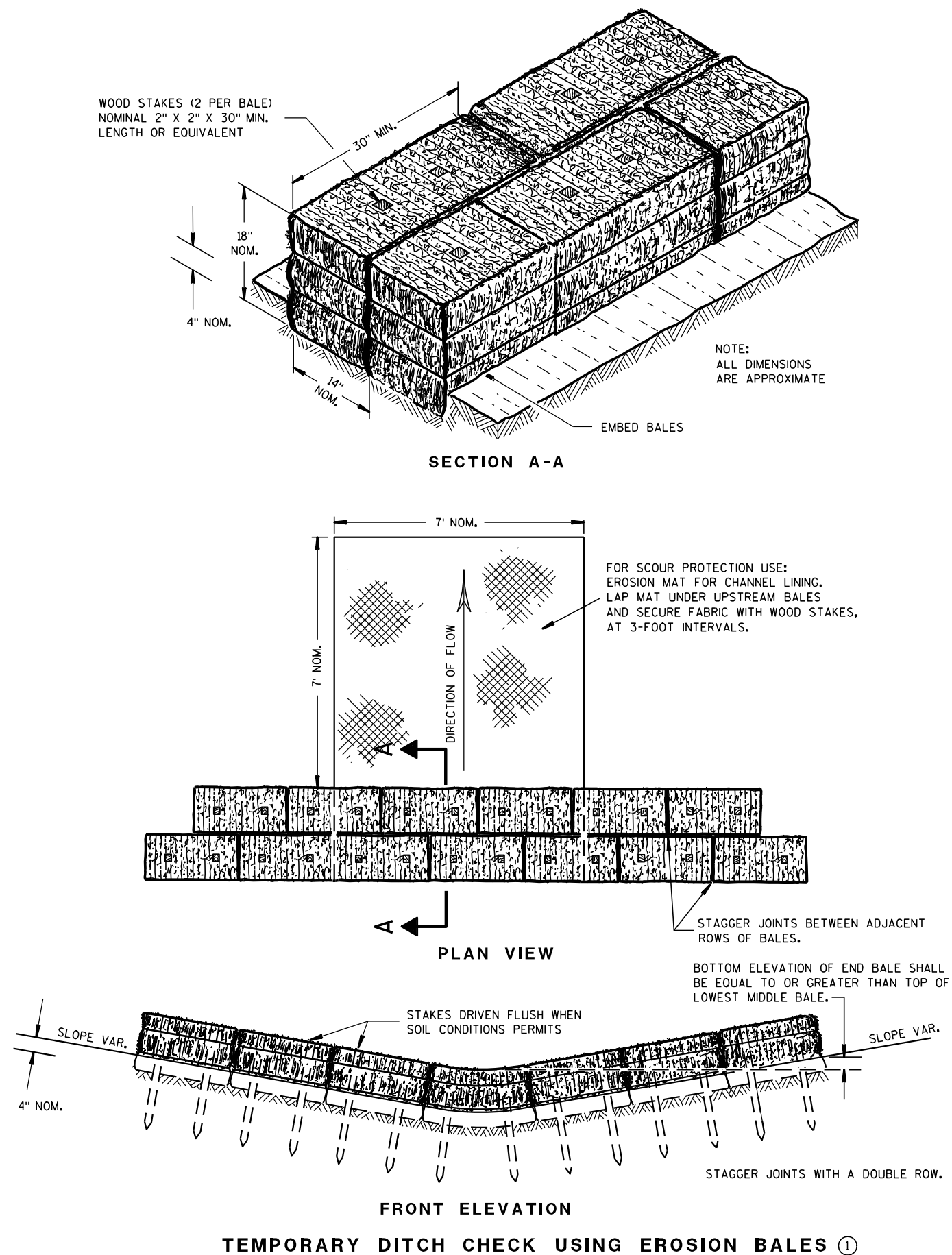
SECTION D - D

CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER
74

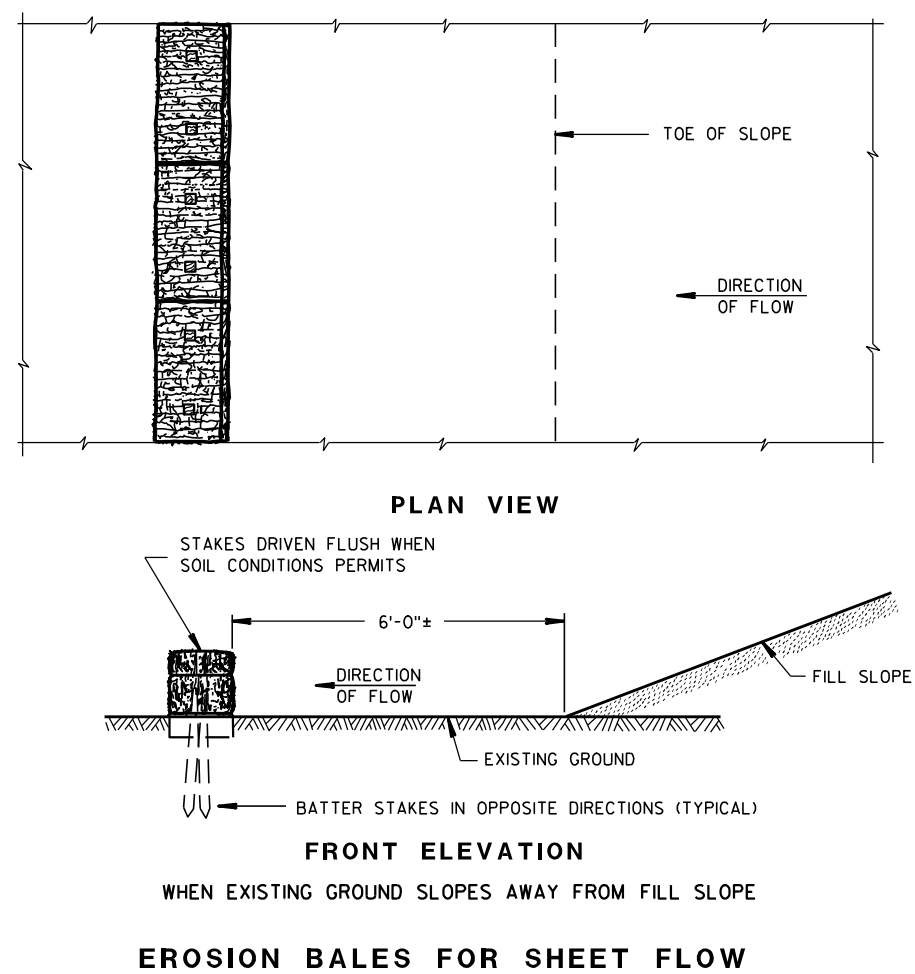
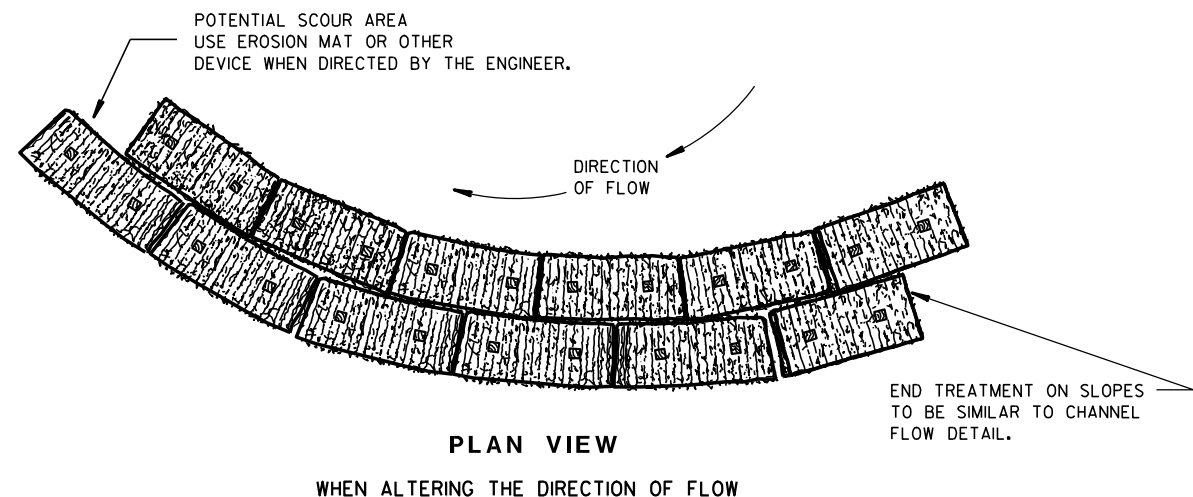
FHWA



GENERAL NOTES

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

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

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

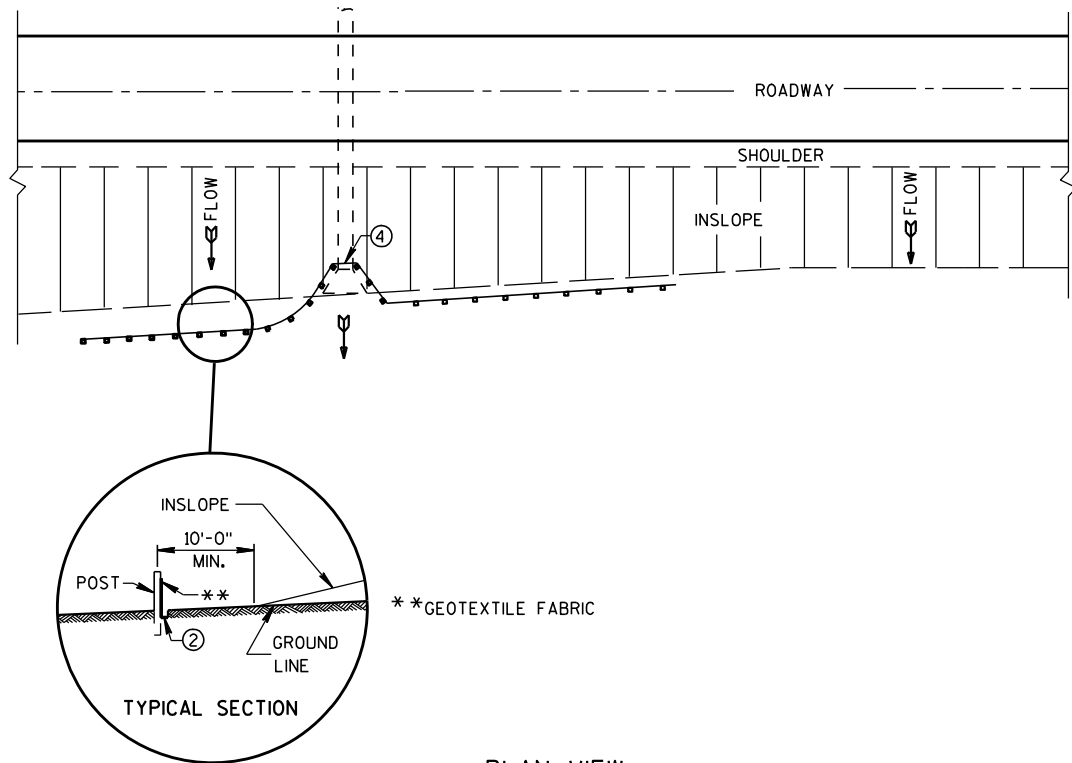
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

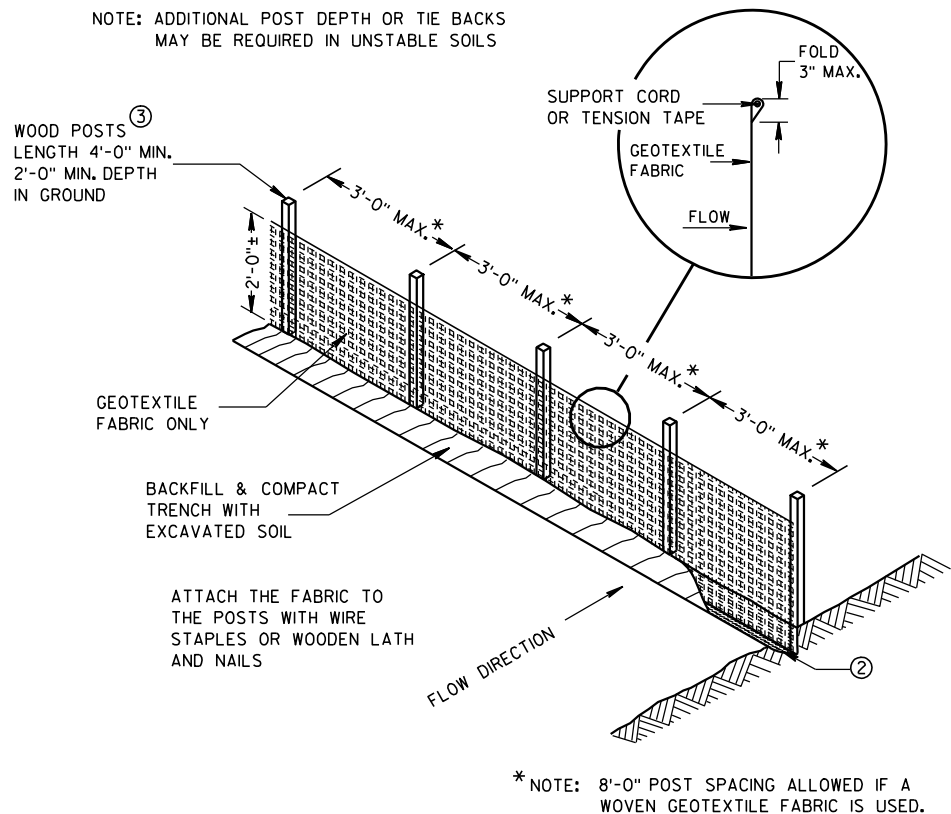
6/04/02
DATE/S/ Beth Connolly
CHIEF ROADWAY DEVELOPER

ENGINEER

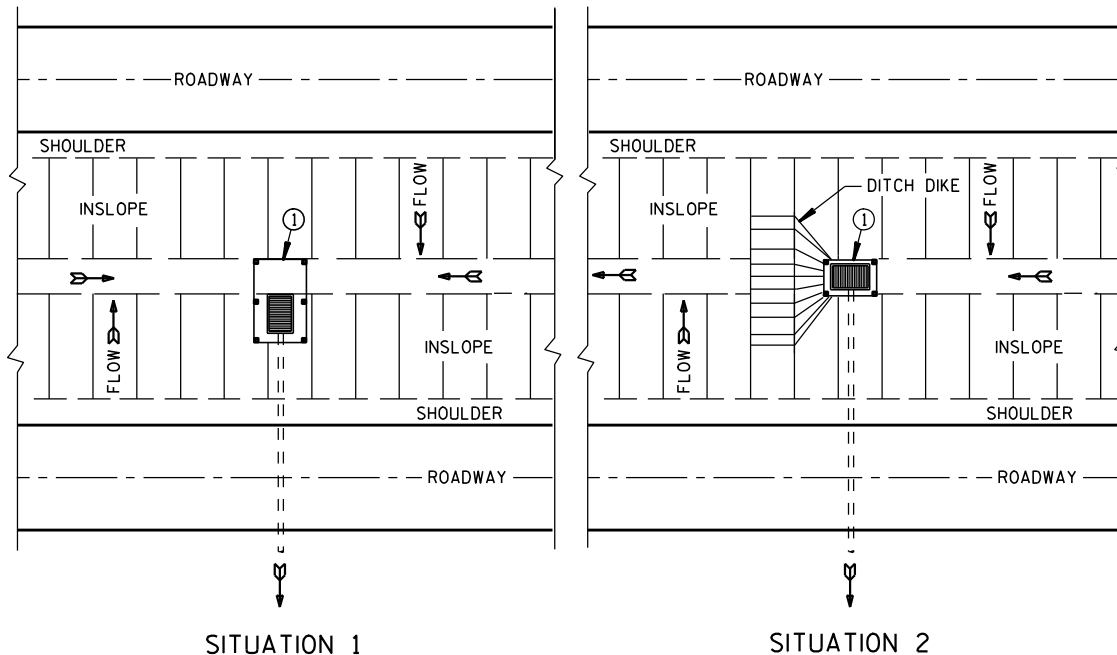
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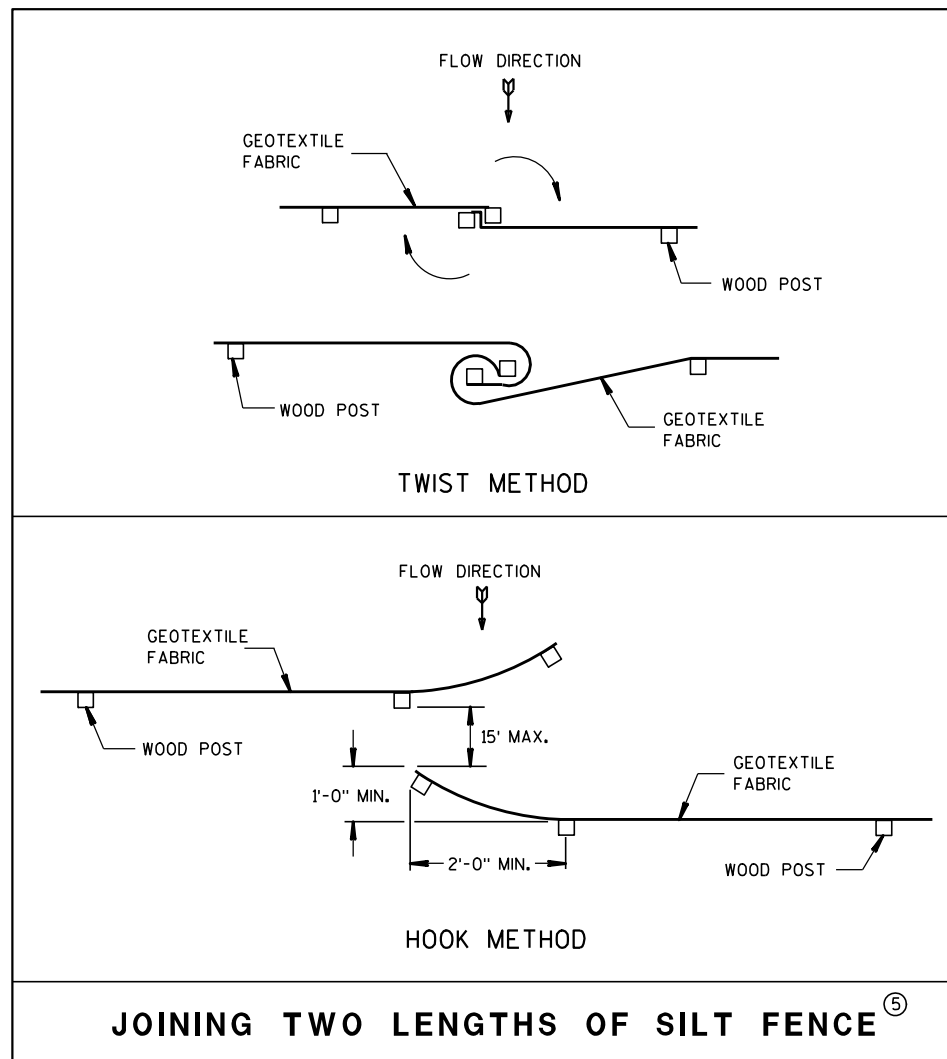
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

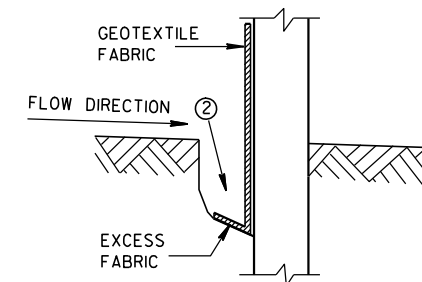


JOINING TWO LENGTHS OF SILT FENCE^⑤

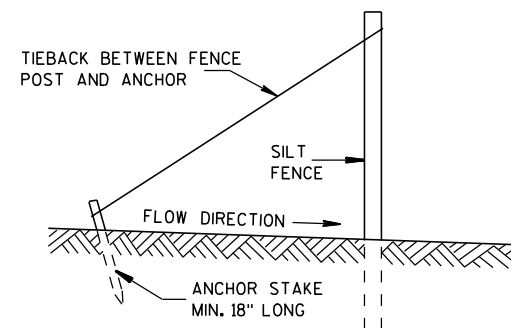
GENERAL NOTES

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

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

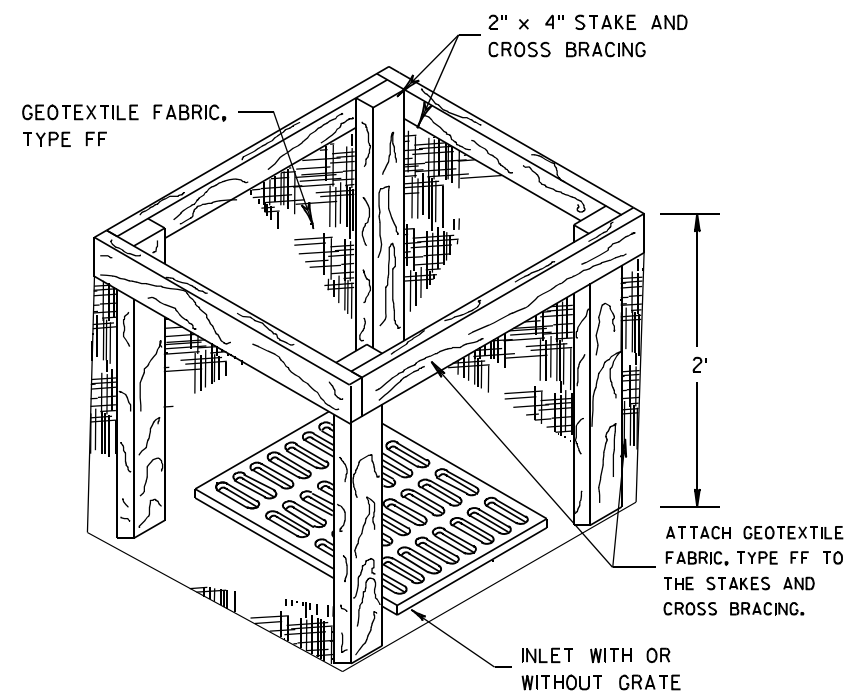
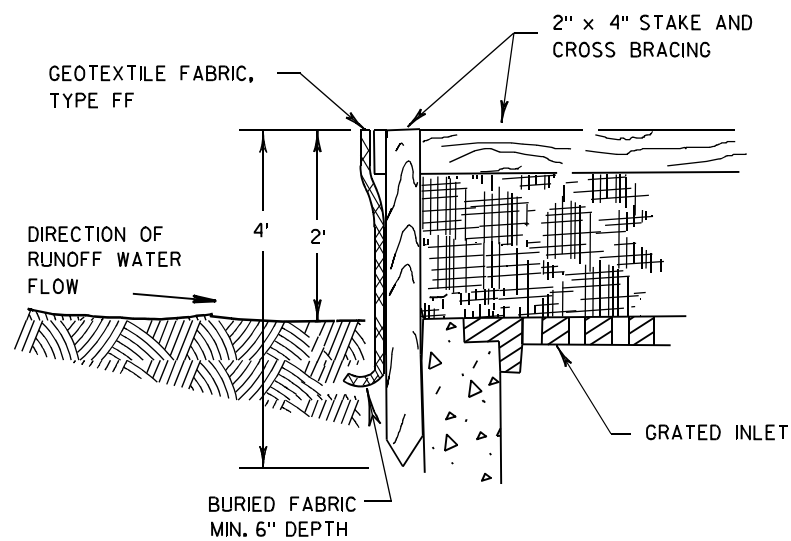


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Conn CHIEF ROADWAY DEVELOPER 76 ENGINEER
FHWA	



INLET PROTECTION, TYPE A

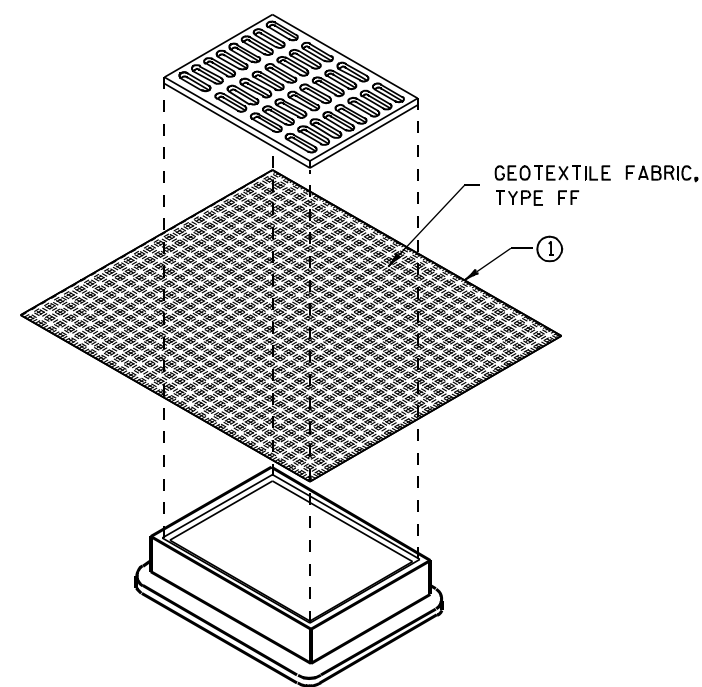
GENERAL NOTES

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

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

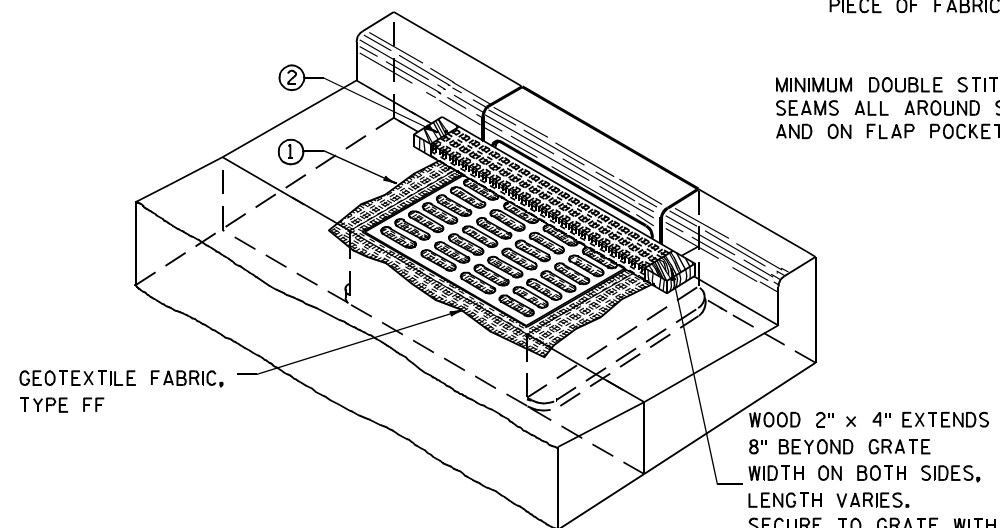
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

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



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

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

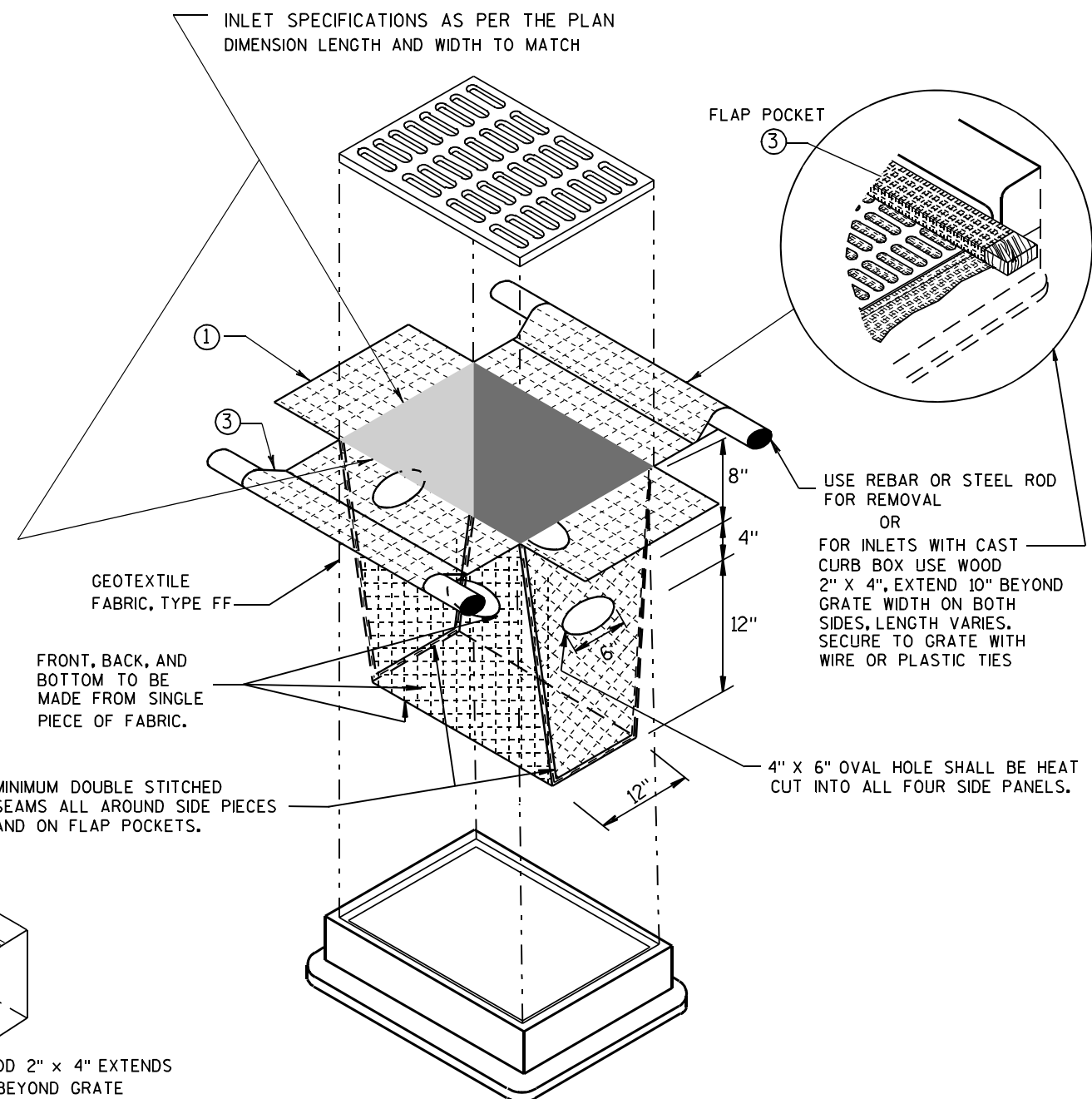
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



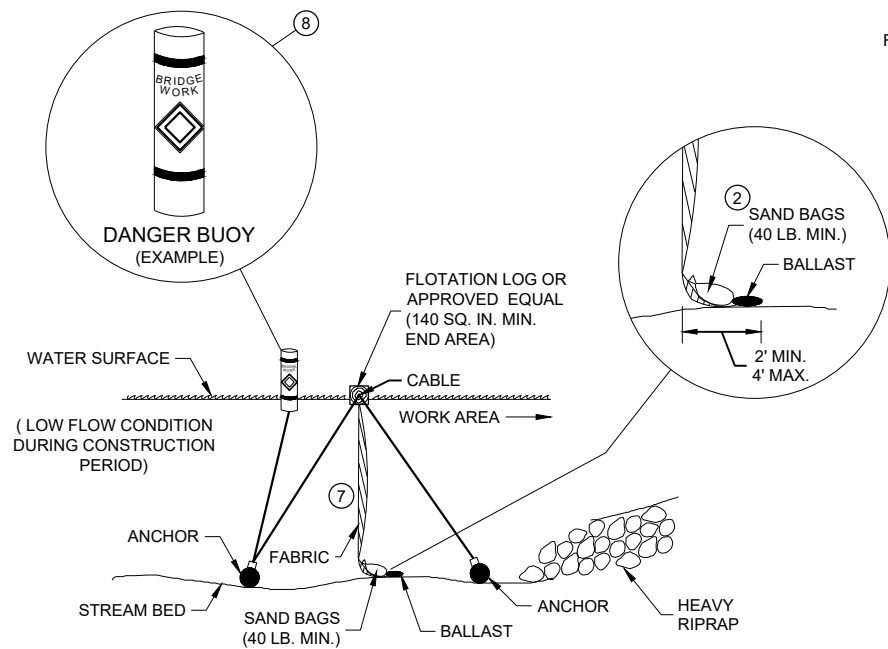
INLET PROTECTION, TYPE D

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

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

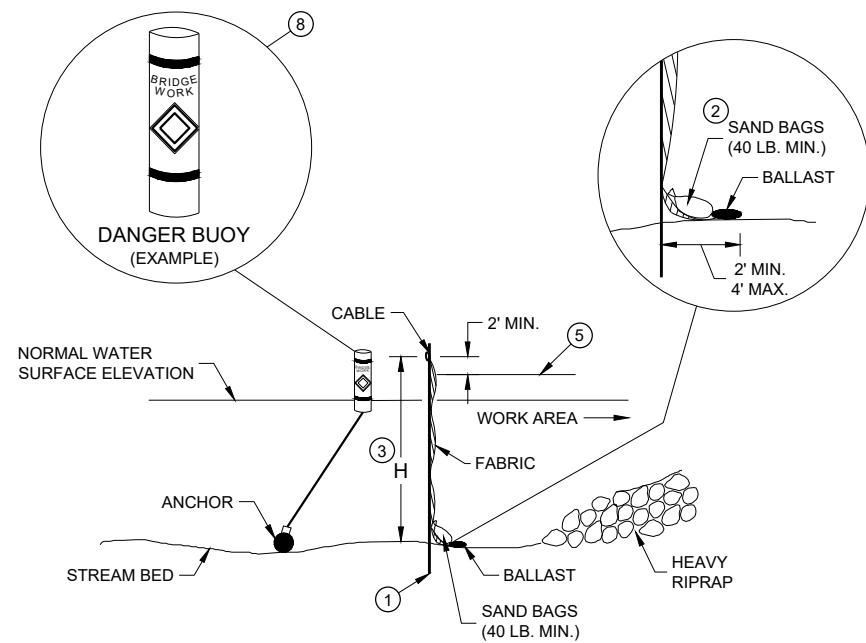
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02 /S/ Beth Connolly
DATE 77
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER



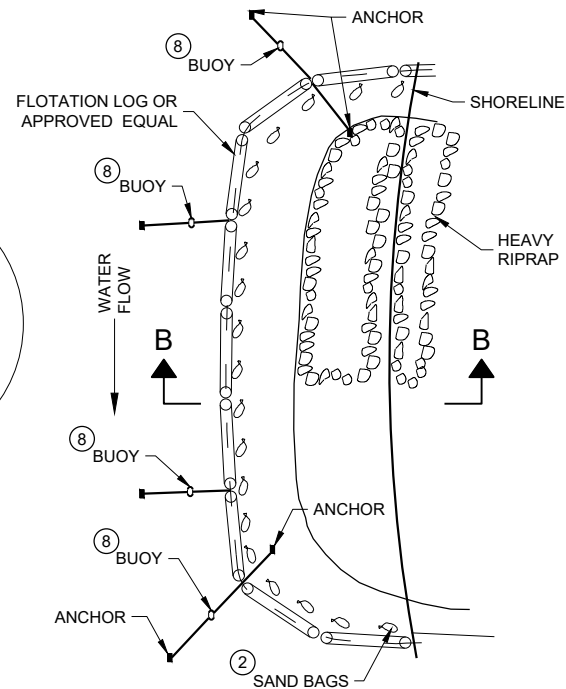
SECTION B - B

TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6

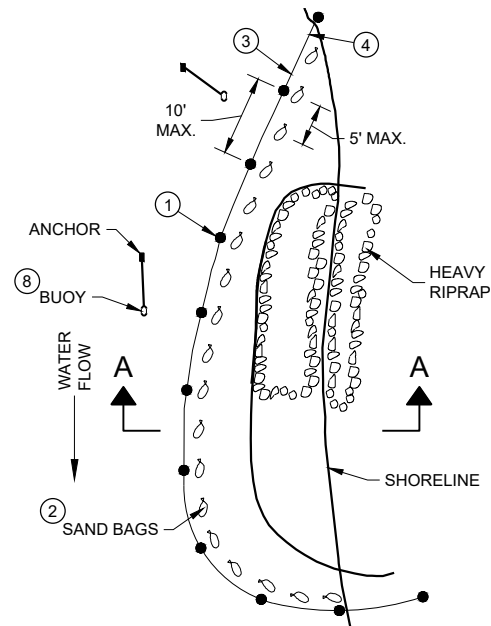


SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



PLAN VIEW

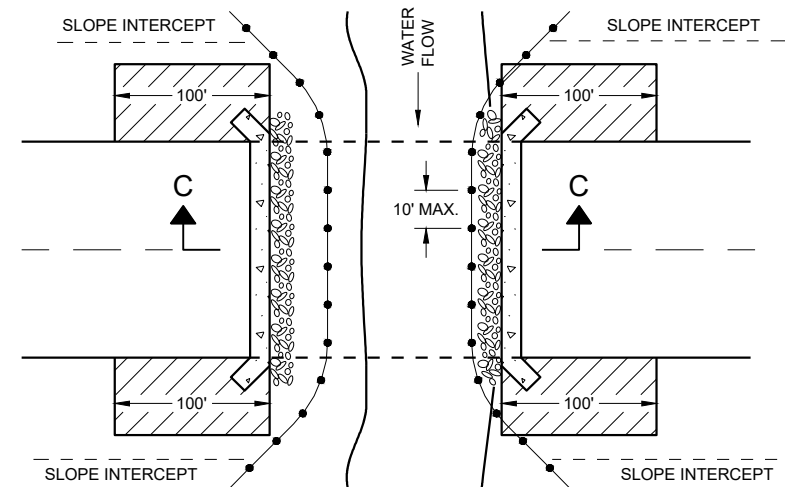
TURBIDITY BARRIER PLACEMENT DETAILS

GENERAL NOTES

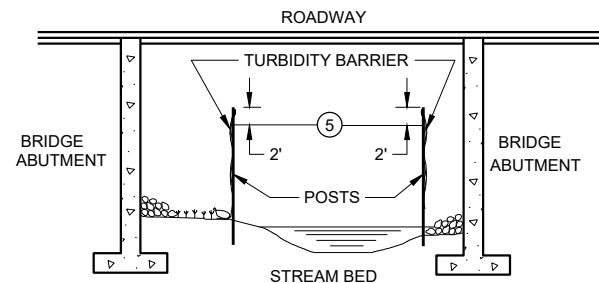
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

- 1 DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- 2 SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- 3 WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- 4 IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- 5 ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- 6 FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- 7 ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- 8 USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



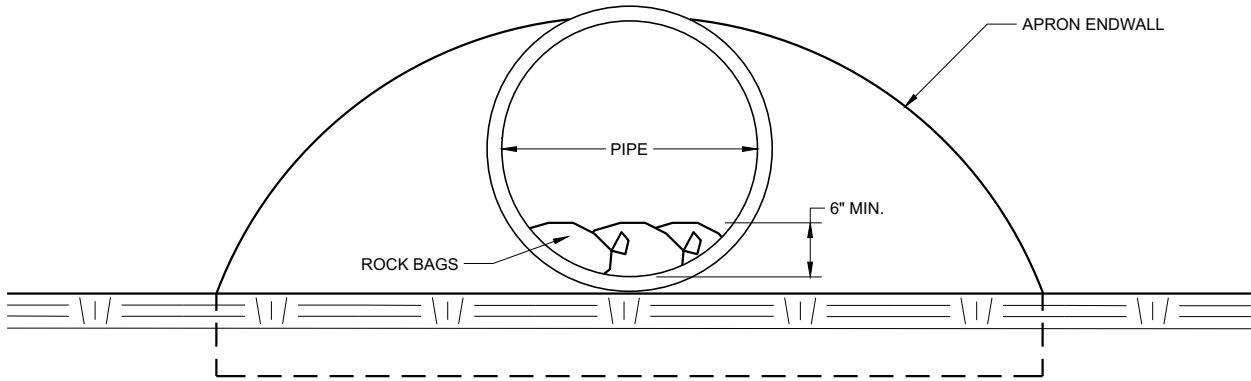
SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

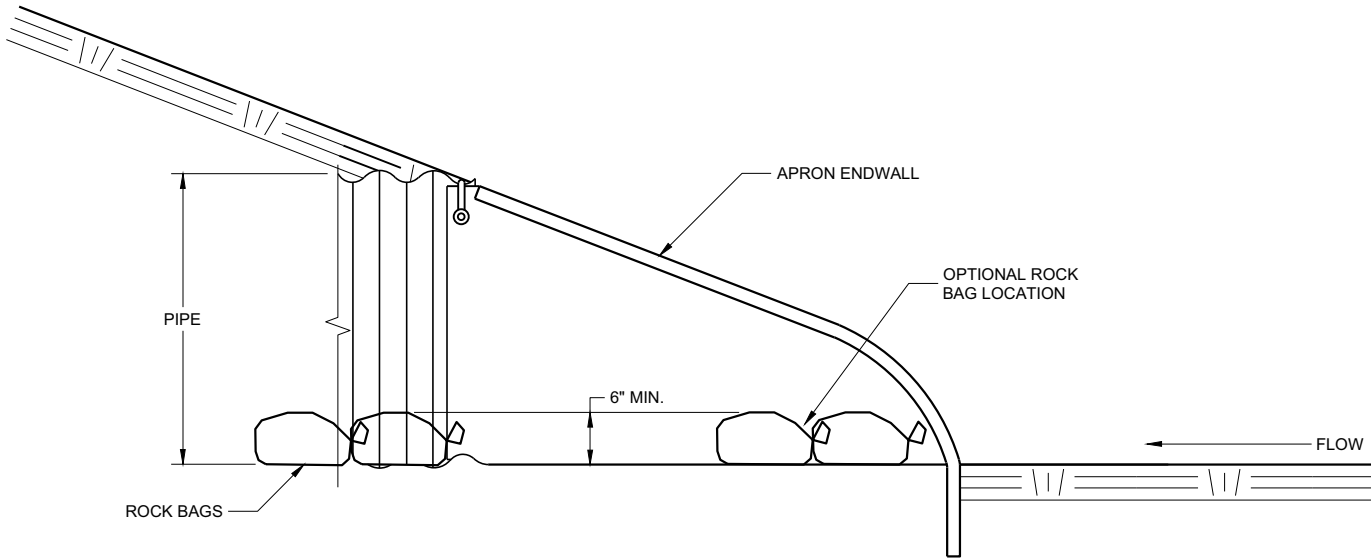
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/4/02 DATE /S/ Beth Cannestra
DATE CHIEF ROADWAY DEVELOPER
FHWA ENGINEER 78



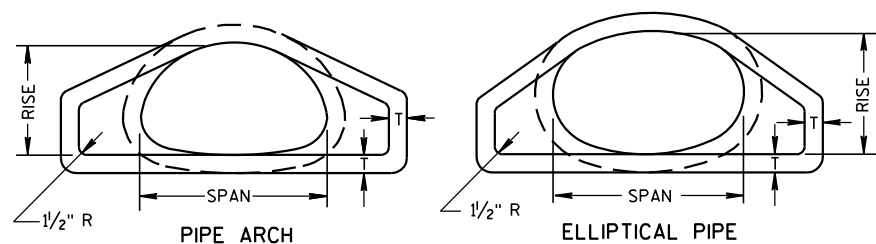
END VIEW



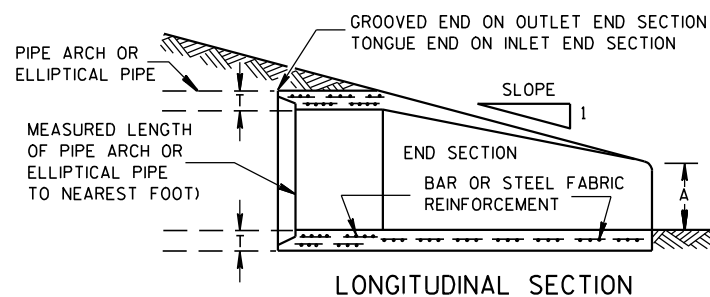
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGI	79
FHWA		

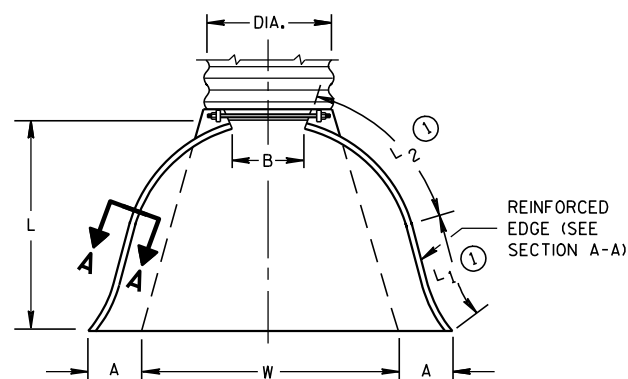


END VIEW



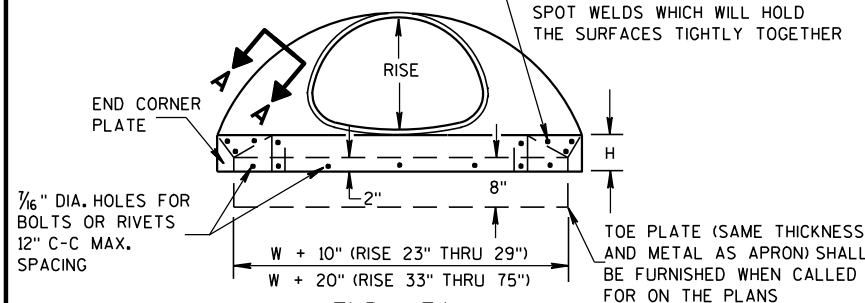
LONGITUDINAL SECTION

CONCRETE ENDWALLS

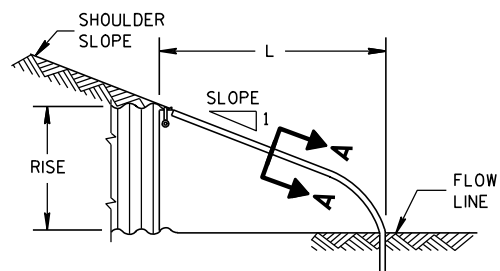
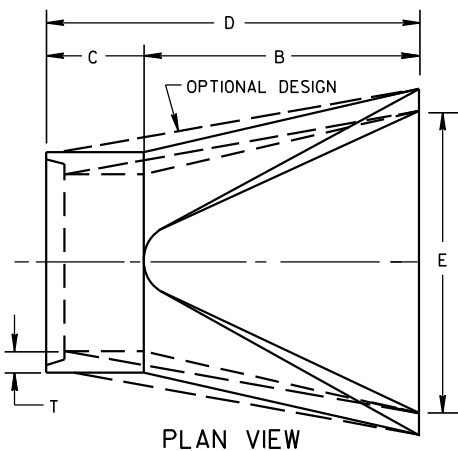


PLAN VIEW

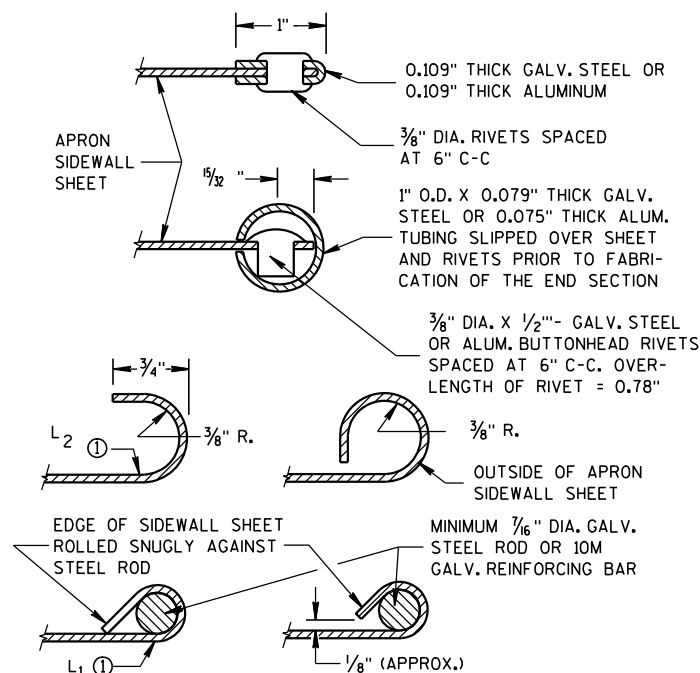
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW

SIDE ELEVATION
METAL ENDWALLS

PLAN VIEW



SECTION A-A

2- 2 2/3" X 1/2" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
15	17	13	.064	.060	7	9	6	19	14	16	30	2 1/2 to 1	1 Pc.
18	21	15	.064	.060	7	10	6	23	14	19 3/8	36	2 1/2 to 1	1 Pc.
21	24	18	.064	.060	8	12	6	28	18	21 3/4	42	2 1/2 to 1	1 Pc.
24	28	20	.064	.060	9	14	6	32	18	27 1/2	48	2 1/2 to 1	1 Pc.
30	35	24	.079	.075	10	16	6	39	18	37 5/8	60	2 1/2 to 1	1 Pc.
36	42	29	.079	.075	12	18	8	46	24	45 3/8	75	2 1/2 to 1	1 Pc.
42	49	33	.109	.105	13	21	9	53	24	54 3/4	85	2 1/2 to 1	2 Pc.
48	57	38	.109	.105	18	26	12	63	24	68	90	2 1/2 to 1	3 Pc.
54	64	43	.109	.105	18	30	12	70	24	72 3/4	102	2 1/4 to 1	3 Pc.
60	71	47	.109*	.105*	18	33	12	77	30	82 1/4	114	2 1/4 to 1	3 Pc.
66	77	52	.109*	.105*	18	36	12	77	—	—	126	2 to 1	3 Pc.
72	83	57	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.

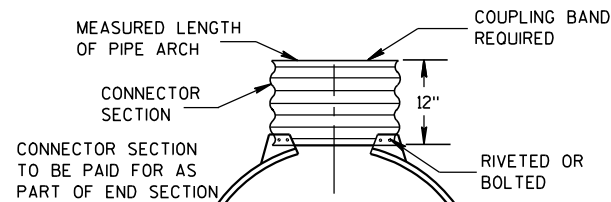
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	30	12	70	30	82 1/4	102	2 to 1	2 Pc.
60	66	51	.109*	.105*	18	33	12	77	—	—	114	1 1/2 to 1	3 Pc.
66	73	55	.109*	.105*	18	36	12	77	—	—	126	1 1/2 to 1	3 Pc.
72	81	59	.109*	.105*	18	39	12	77	—	—	138	2 to 1	3 Pc.
78	87	63	.109*	.105*	22	38	12	77	—	—	148	1 1/2 to 1	3 Pc.
84	95	67	.109*	.105*	22	34	12	77	—	—	162	1 1/2 to 1	3 Pc.
90	103	71	.109*	.105*	22	38	12	77	—	—	174	1 1/2 to 1	3 Pc.
96	112	75	.109*	.105*	24	40	12	77	—	—	174	1 1/2 to 1	3 Pc.

NOTE: ALL SPLICES TO BE LAP RIVETED OR BOLTED.

* EXCEPT CENTER PANEL
SEE GENERAL NOTES

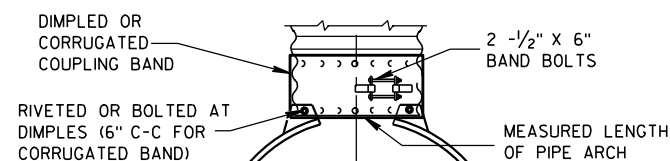
TYPE 2

FOR 17" X 13" THRU 112" X 75" PIPE ARCH



TYPE 3

FOR 64" X 43" THRU 112" X 75" PIPE ARCH



TYPE 5

ALTERNATE FOR:
ALL SIZES CORRUGATED PIPE ARCHESNOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL,
AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION DETAILS

REINFORCED CONCRETE PIPE ARCH

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	29	18	3	8 1/2	39	33	72	48	3 to 1
30	36	22	3 1/2	9 1/2	50	46	96	60	3 to 1
36	44	27	4	11 1/8	60	36	96	72	3 to 1
42	51	31	4 1/2	15 1/8	60	36	96	78	3 to 1
48	58	36	5	21	60	36	96	84	3 to 1
54	65	40	5 1/2	25 1/2	60	36	96	90	3 to 1
60	73	45	6	31	60	36	96	96	3 to 1
72	88	54	7	31	60	39	99	120	2 to 1
84	102	62	8	28 1/2	83	19	102	144	2 to 1

REINFORCED CONCRETE ELLIPTICAL PIPE

EQUIV. DIA. (Inches)	DIMENSIONS (Inches)								APPROX. SLOPE
	** SPAN	** RISE	T	A	B	C	D	E	
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1
42	53	34	5	15 1/4	60	36	96	78	2 1/2 to 1
48	60	38	5 1/2	21	60	36	96	84	2 1/2 to 1
54	68	43	6	25 1/2	60	36	96	90	2 1/2 to 1
60	76	48	6 1/2	30	60	36	96	96	2 1/2 to 1

**NOMINAL SIZE

GENERAL NOTES

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

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

ALL THREE PIECE STEEL APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66" X 51" PIPE ARCH AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE ARCH PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 77" X 52" THROUGH 112" X 75" APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

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

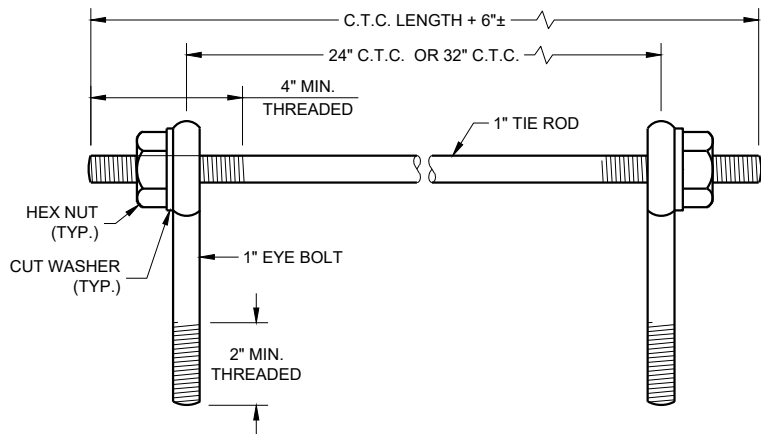
① FOR PIPE ARCH SIZES UP TO 73" X 55" A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR
PIPE ARCH AND
ELLIPTICAL PIPESTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

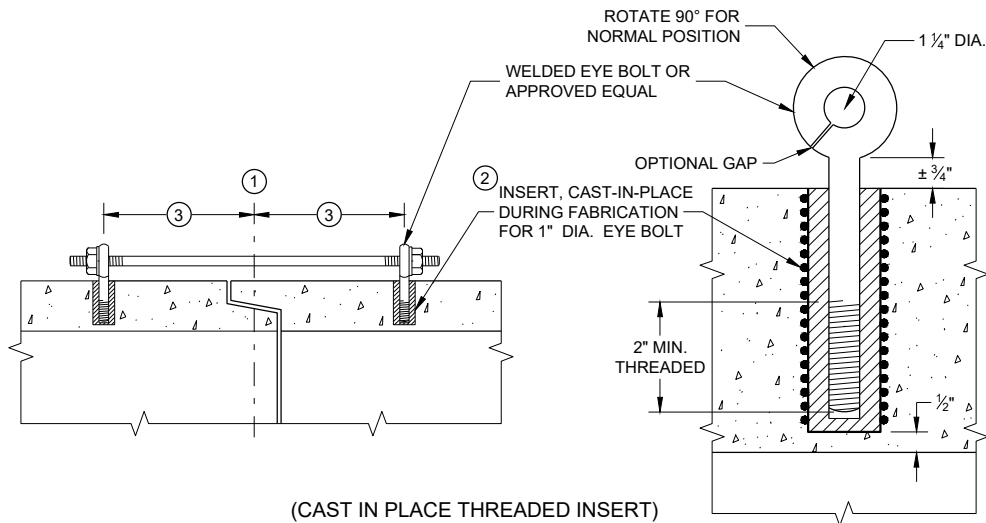
11/30/94
DATE/S/ Rory L. Rhin...
CHIEF ROADWAY DEVELOP... ENGINEER

FHWA



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)
LONGITUDINAL SECTIONS

GENERAL NOTES

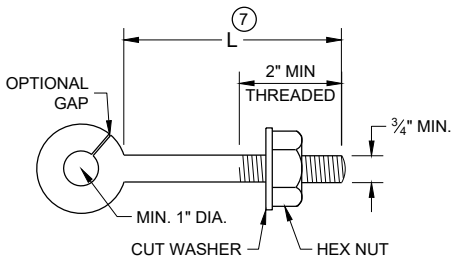
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

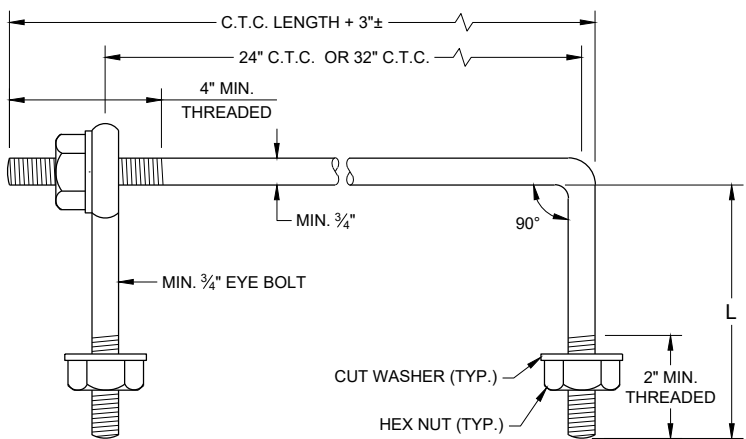
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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

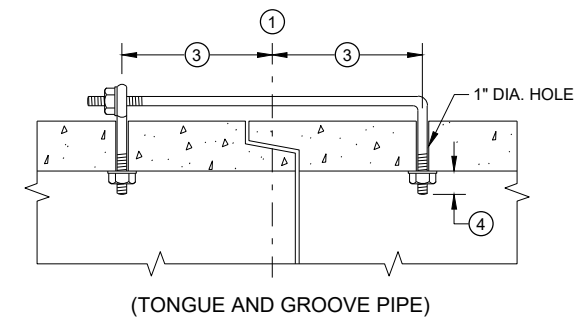


EYE BOLT 7

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



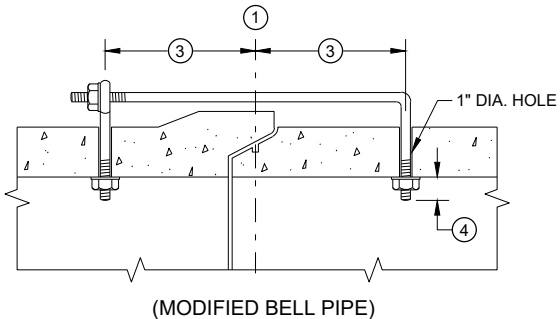
EYE BOLT AND TIE ROD



LONGITUDINAL SECTION

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

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

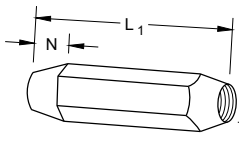


(MODIFIED BELL PIPE)

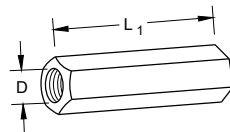
ADJUSTABLE TIE ROD TABLE

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

DIMENSIONS SHOWN ARE IN INCHES

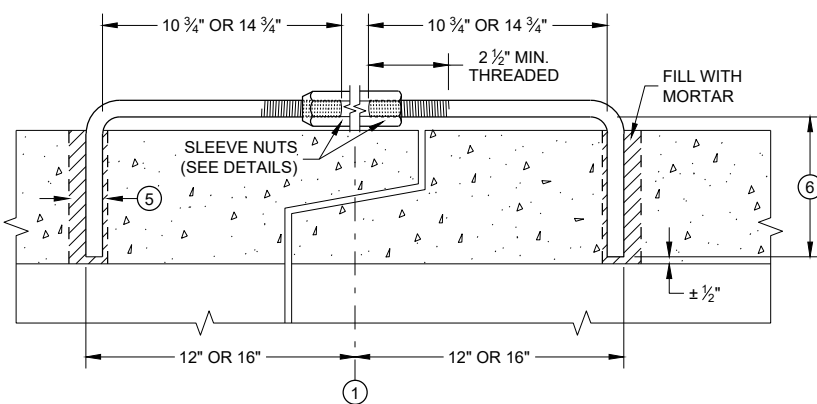


TAPERED



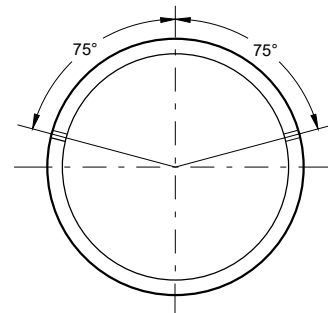
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



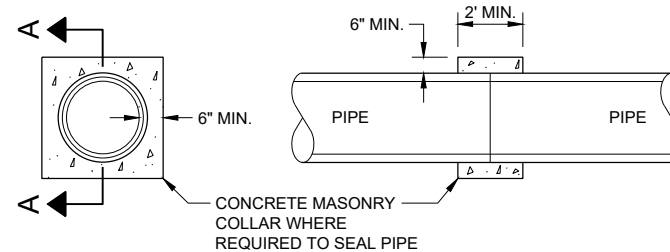
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



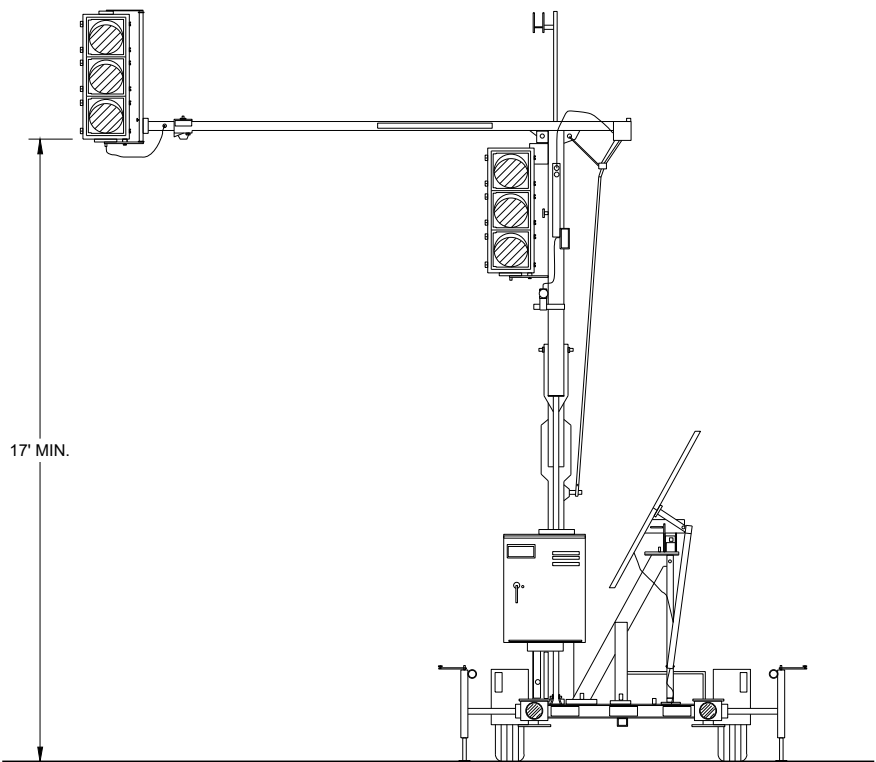
SECTION A - A

CONCRETE COLLAR DETAIL

JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 81
FHWA

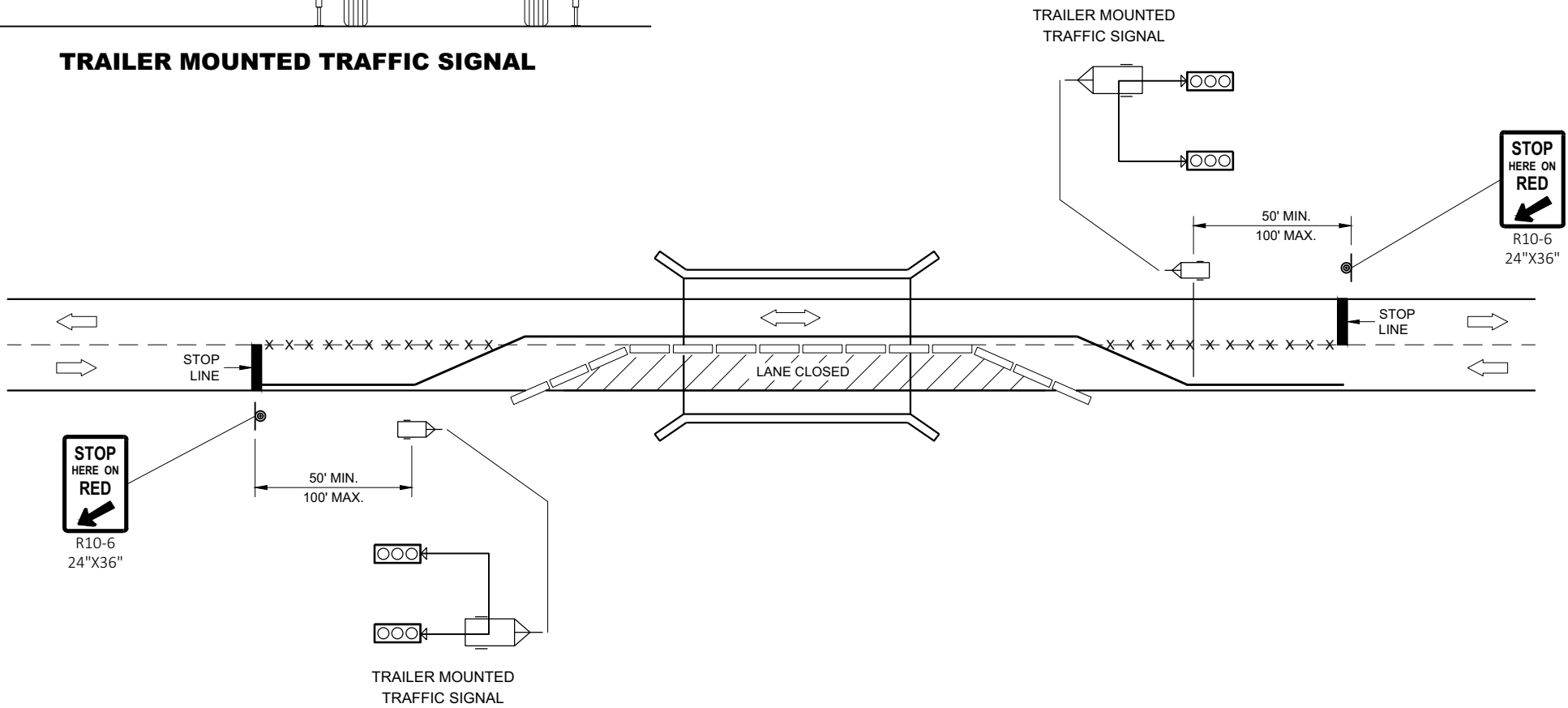


TRAILER MOUNTED TRAFFIC SIGNAL

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

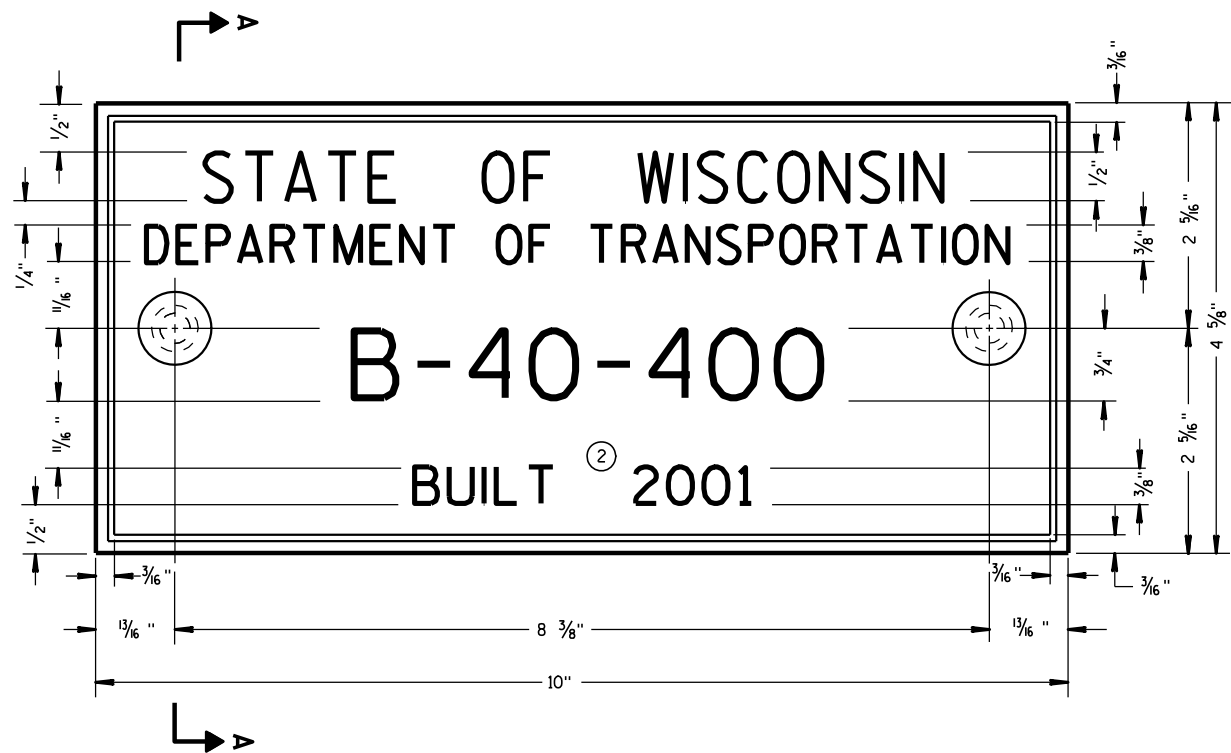
LEGEND

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

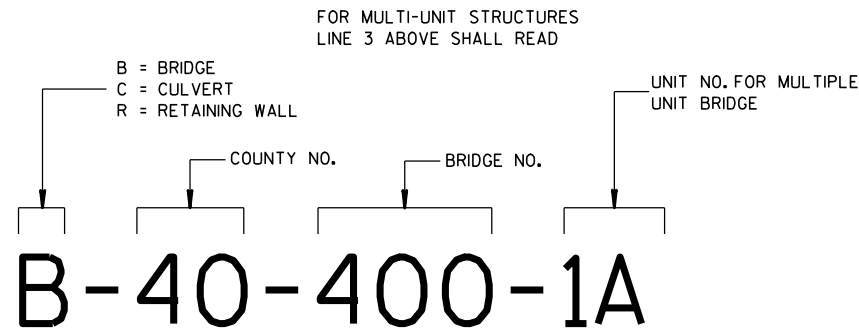
BRIDGE TEMPORARY TRAFFIC SIGNAL INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2015
DATE
/S/ Ahmet Demerbilek
ROADWAY STANDARDS DEVELOPMENT ENGINEER 82
FHWA



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



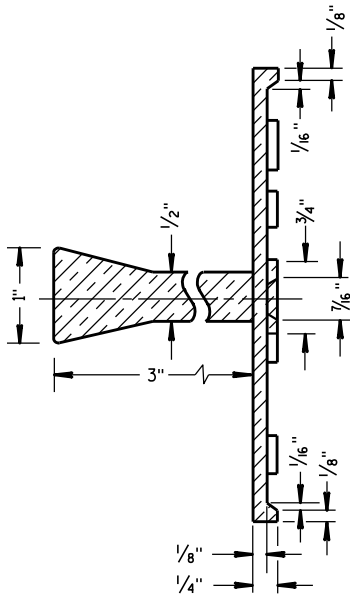
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

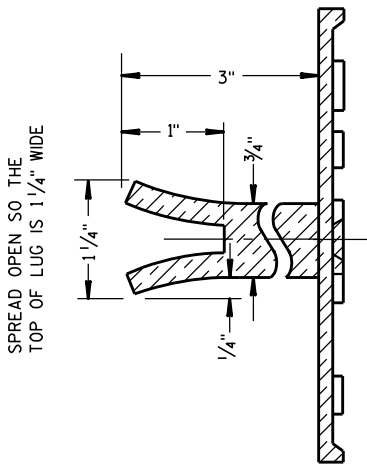
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

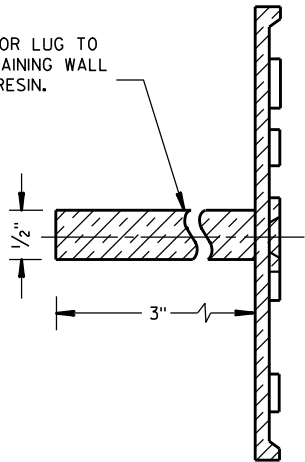


SECTION A-A



ALTERNATE LUG

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



ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

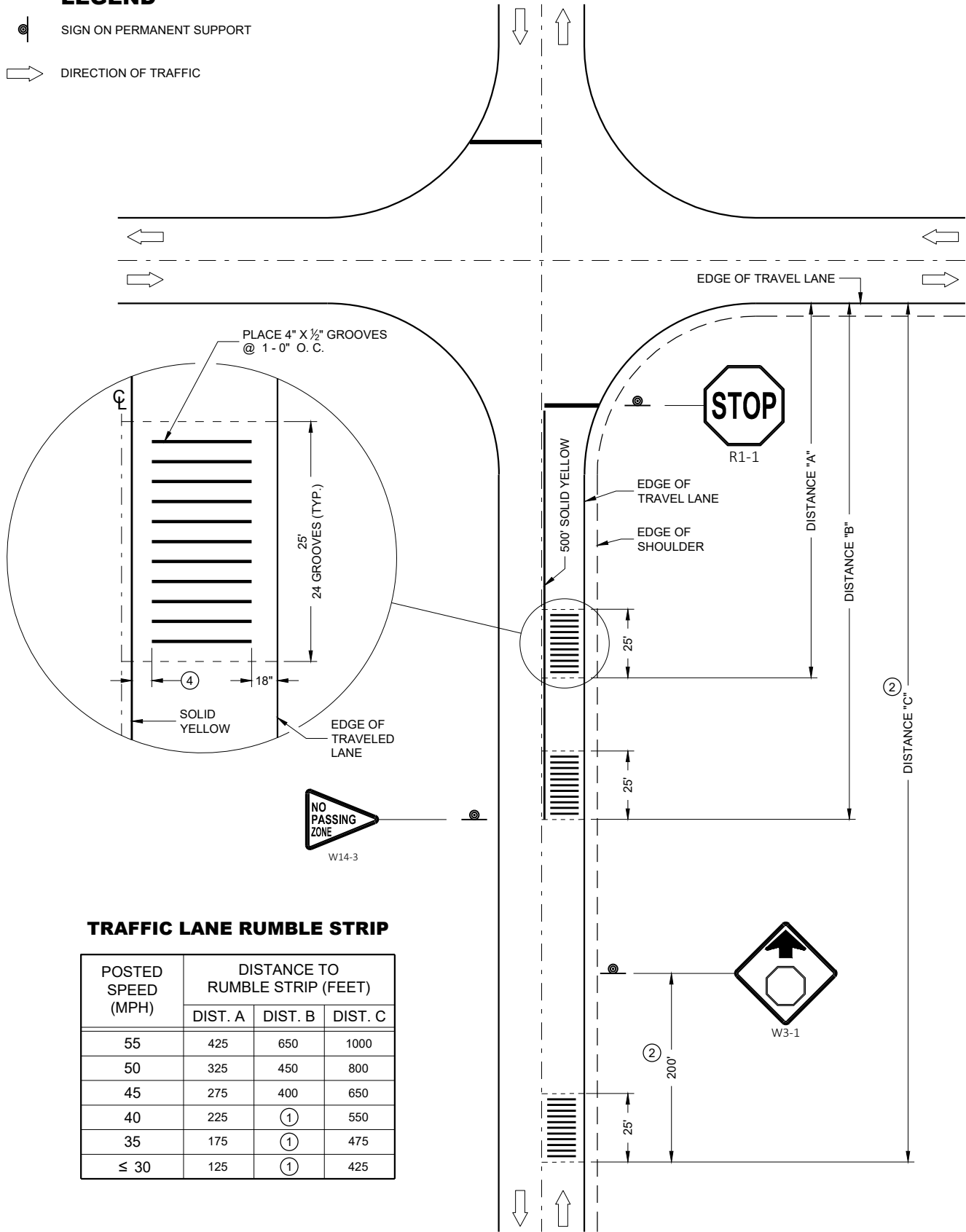
NAME PLATE
(STRUCTURES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 3/26/10
/S/ Scot Beck
CHIEF STRUCTURAL DEVELOPER
83
JEER
FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC



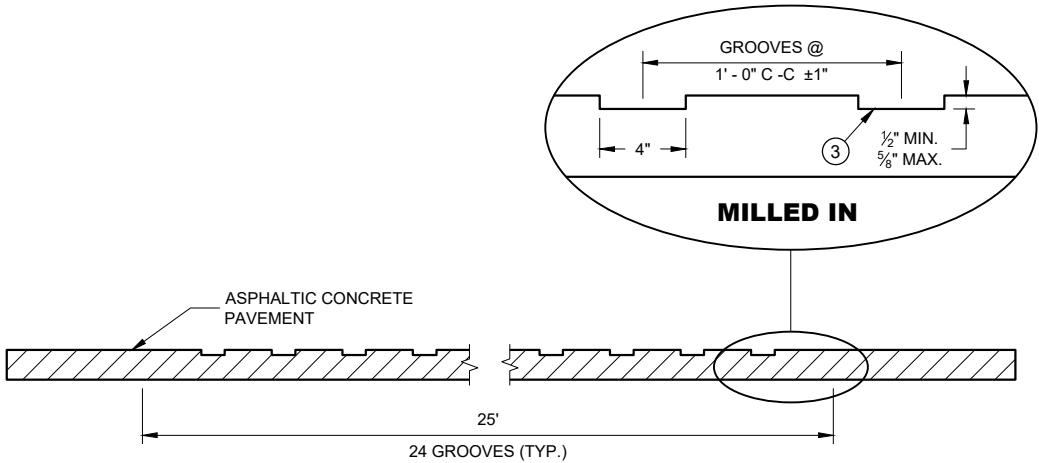
TRAFFIC LANE RUMBLE STRIP

POSTED SPEED (MPH)	DISTANCE TO RUMBLE STRIP (FEET)		
	DIST. A	DIST. B	DIST. C
55	425	650	1000
50	325	450	800
45	275	400	650
40	225	①	550
35	175	①	475
≤ 30	125	①	425

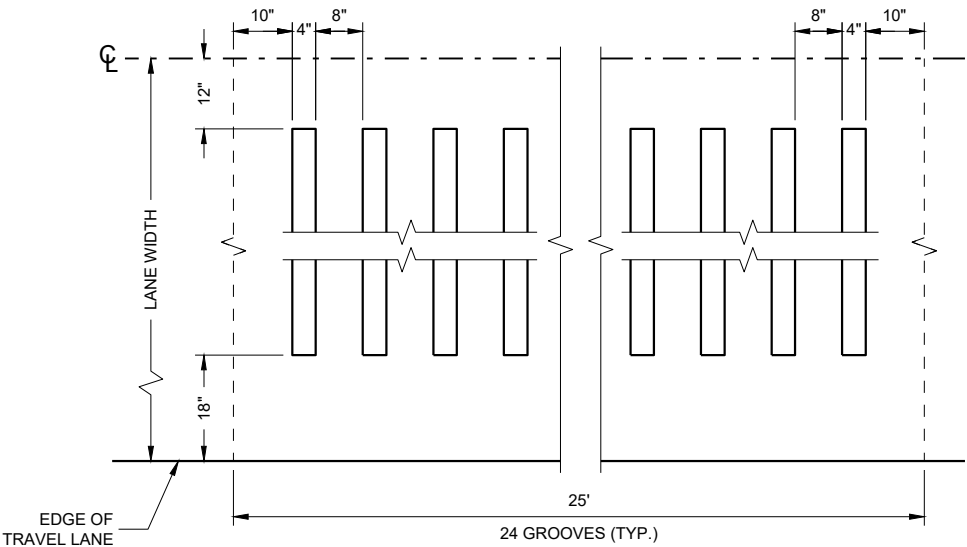
RUMBLE STRIP LOCATION

GENERAL NOTES

- CONTRACTOR SHALL CONFIRM RUMBLE STRIP LOCATION WITH THE ENGINEER PRIOR TO INSTALLATION. THE ENGINEER MAY MODIFY THE RUMBLE STRIP LOCATION AS FIELD CONDITIONS DICTATE.
- WHEN ASPHALTIC PAVEMENT IS NEW IN THE RUMBLE AREA, THE CONTRACTOR SHALL ALLOW THE PAVEMENT TO CURE A MINIMUM OF 7 DAYS PRIOR TO RUMBLE INSTALLATION.
- PAVEMENT MARKING AND SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDE ELSEWHERE IN THE CONTRACT.
- ① ELIMINATE THE MIDDLE SET OF RUMBLE STRIPS.
 - ② LOCATE RUMBLE STRIP 200 FEET IN ADVANCE OF W3-1 SIGN AS SHOWN. IF W3-1 IS NOT IN PLACE, USE DISTANCE "C".
 - ③ TYPICAL VERTICAL VARIATION BETWEEN PEAKS AND VALLEYS WITHIN THE CUT APPROXIMATELY $\frac{1}{16}$ ".
 - ④ 12 INCH CLEAR BETWEEN THE SOLID YELLOW LINE AND THE EDGE OF THE RUMBLE.



ELEVATION VIEW



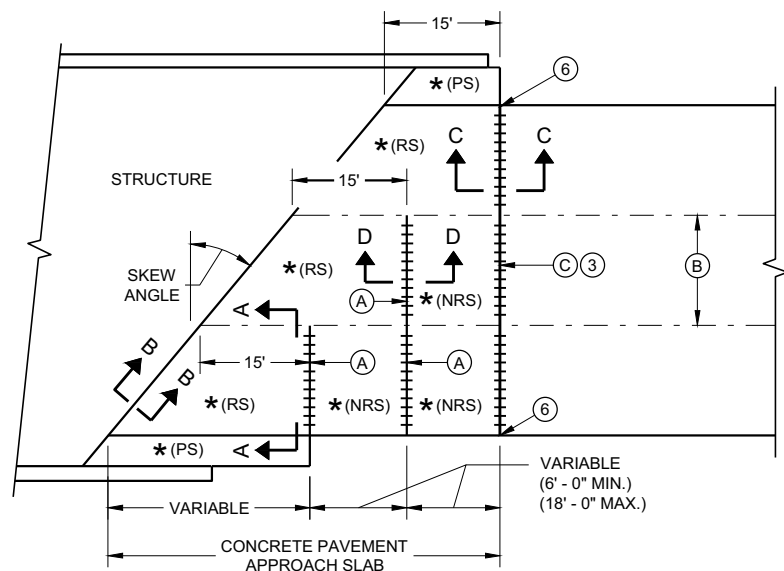
PLAN VIEW

ASPHALTIC PAVEMENT MILLED IN

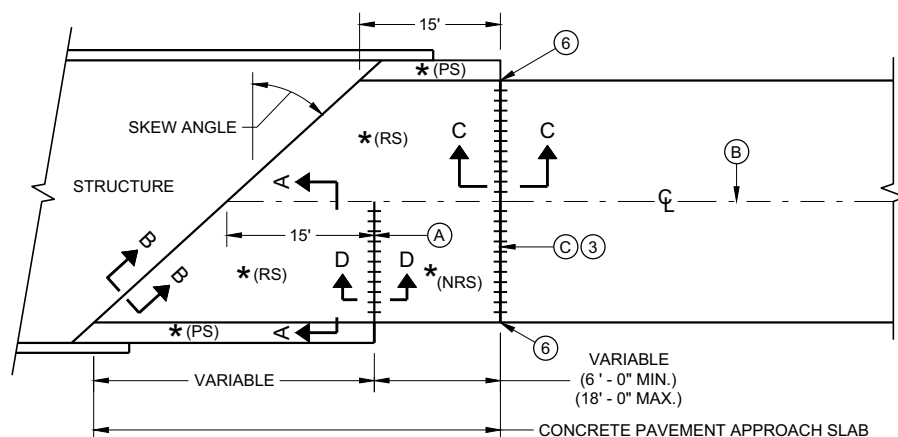
TRANSVERSE RUMBLE STRIPS, ASPHALTIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

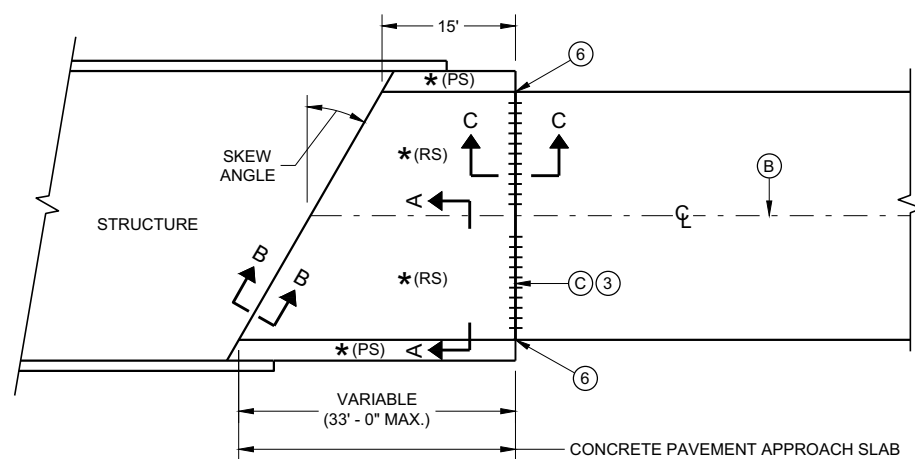
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY DESIGN STAFF UNIT SUPERVISOR 84
FHWA



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



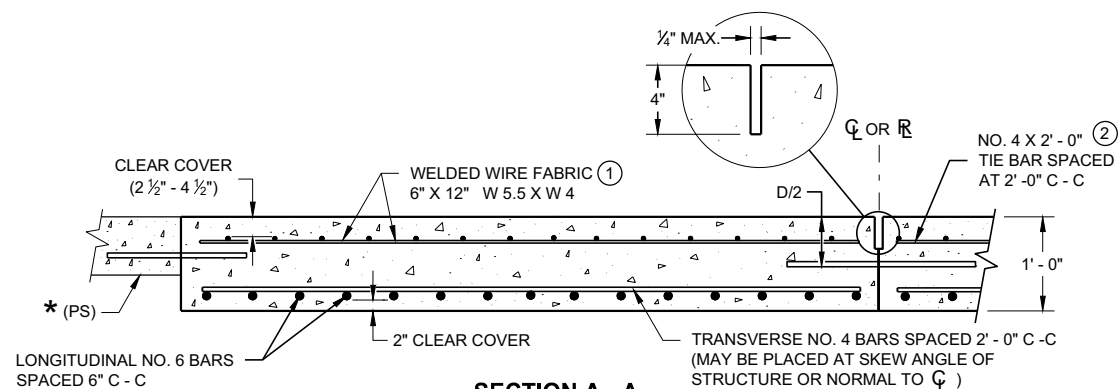
**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**



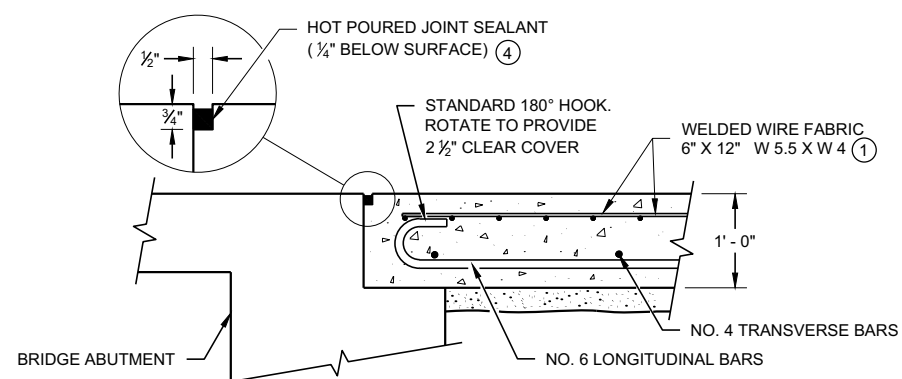
**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**

APPROACH SLAB AND ADJACENT PAVEMENT

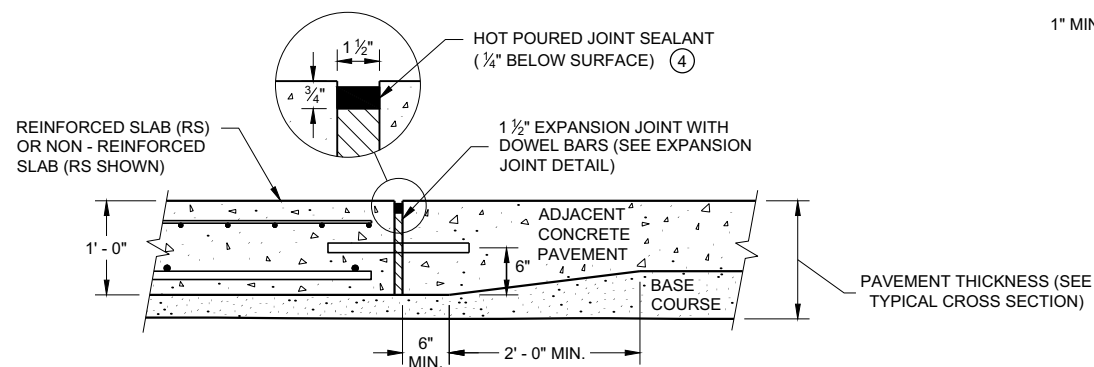
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



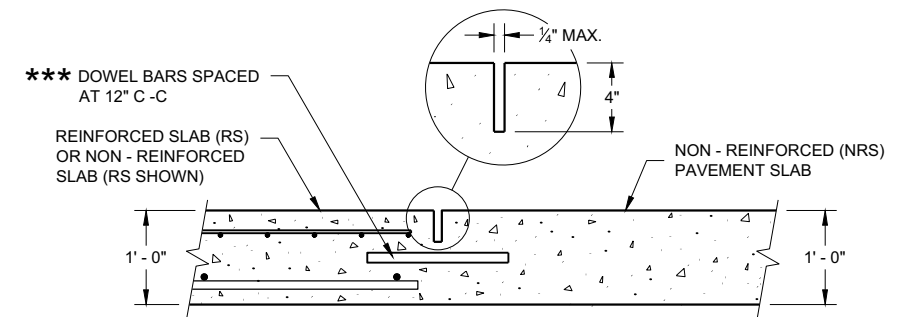
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

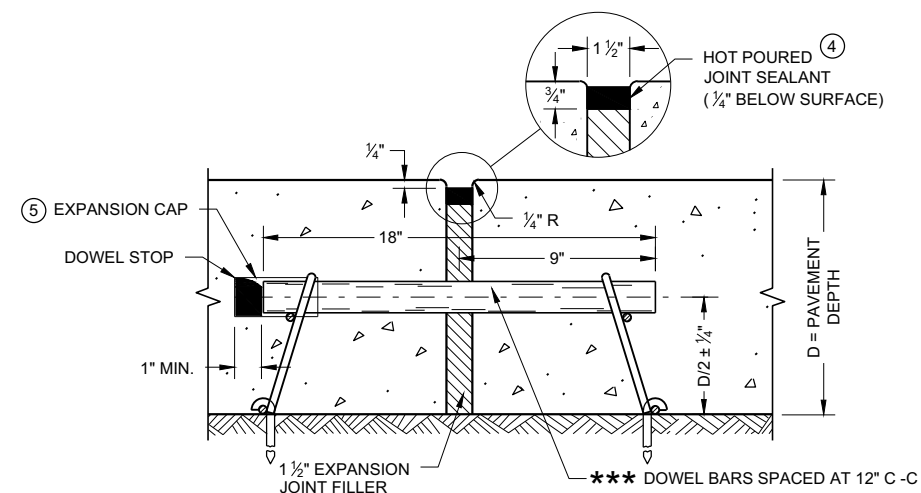
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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 $\mathcal{C}$ OR $\mathcal{R}$.
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO $\mathcal{C}$ OR $\mathcal{R}$.



**SECTION D - D
CONTRACTION JOINT**



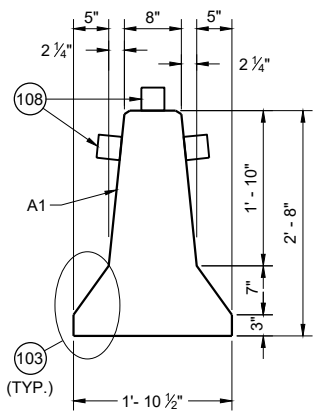
EXPANSION JOINT DETAIL

CONCRETE PAVEMENT APPROACH SLAB

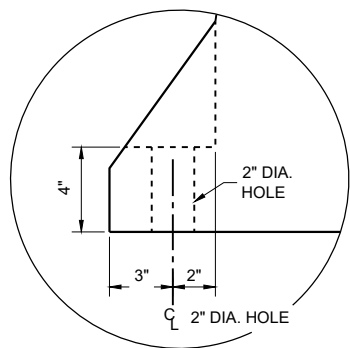
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR 85

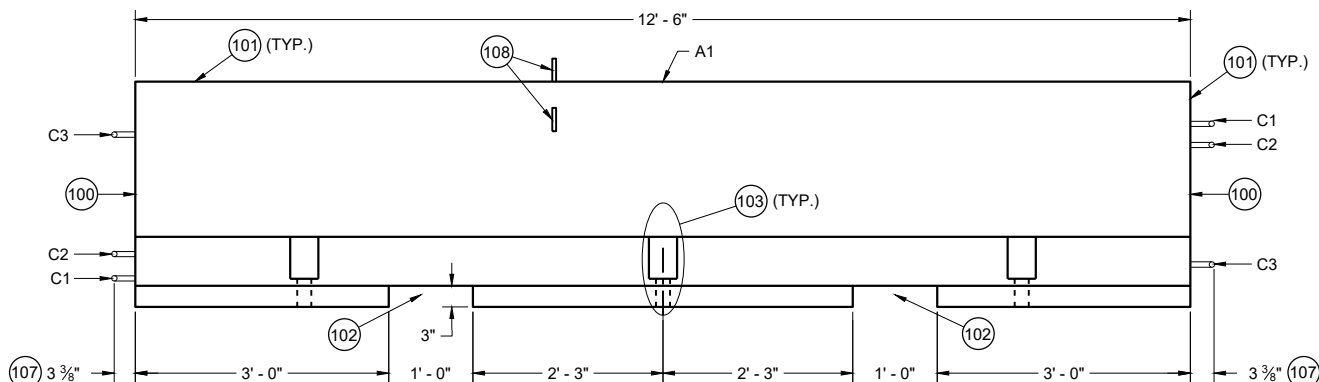
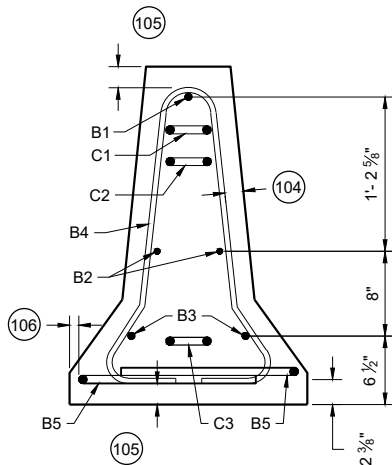
FHWA



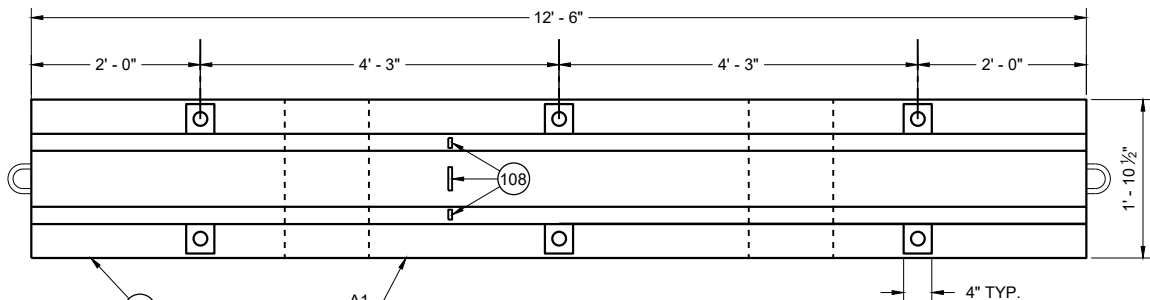
CROSS SECTION



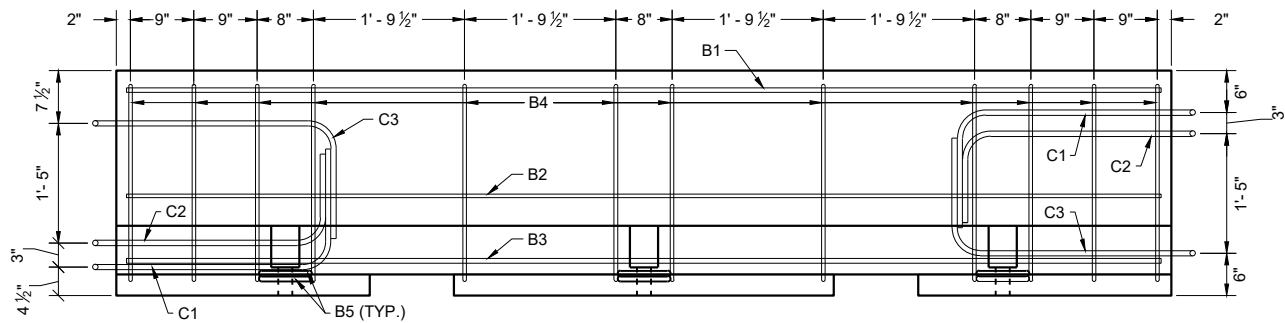
ANCHOR BLOCK
DETAIL



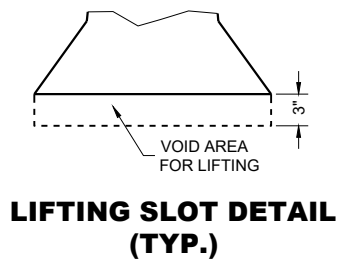
PROFILE VIEW



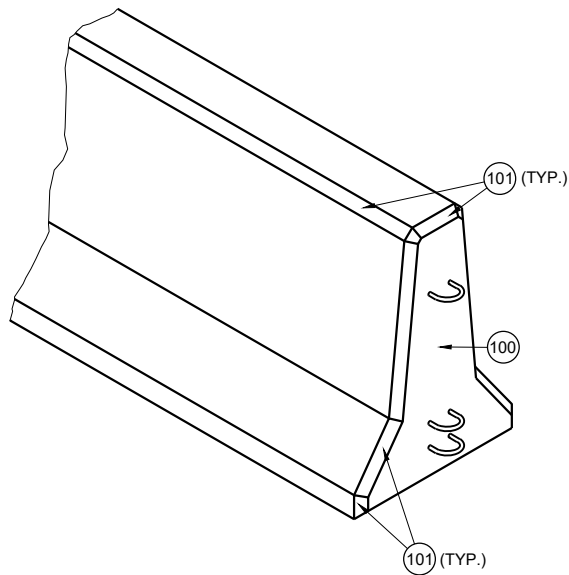
PLAN VIEW
TEMPORARY BARRIER



PROFILE VIEW
TEMPORARY BARRIER REINFORCEMENT



LIFTING SLOT DETAIL
(TYP.)



GENERAL NOTES

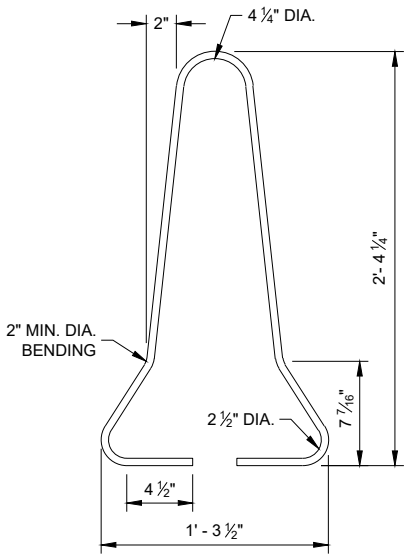
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

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

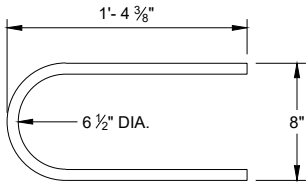
- 100 PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:
 - A. TYPE OF BARRIER: WI-CBTP
 - B. MANUFACTURER
 - C. DATE OF MANUFACTURE (MONTH AND YEAR)
- 101 1" OPTIONAL CHAMFER
- 102 SEE LIFTING SLOT DETAIL
- 103 SEE ANCHOR BLOCK DETAIL
- 104 1 3/4" MIN. CLEAR COVER
- 105 2" MIN. CLEAR 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 TOP 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.

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

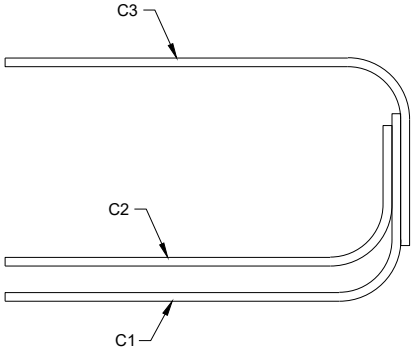
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



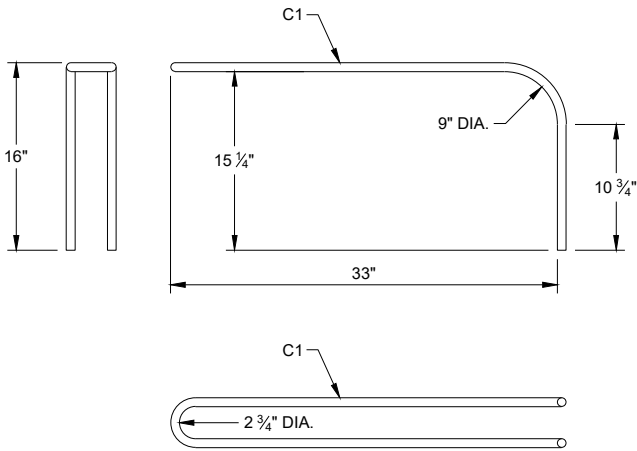
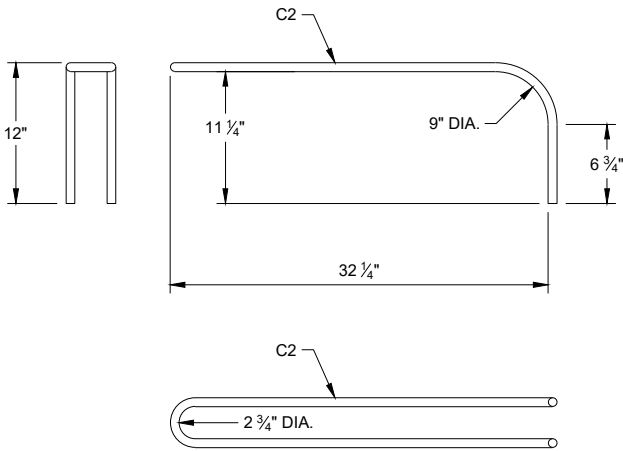
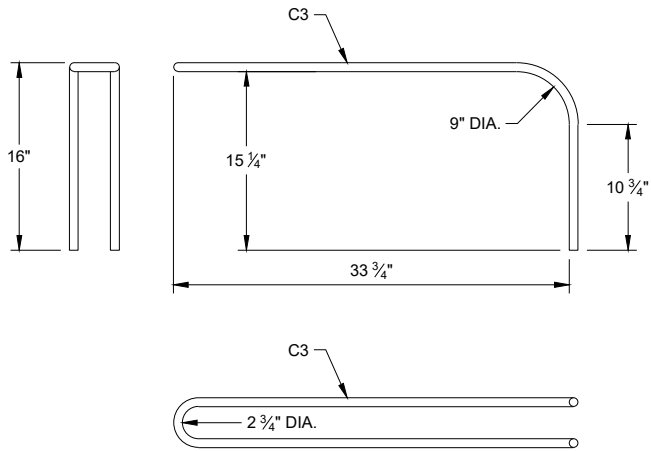
B4 BAR DETAIL



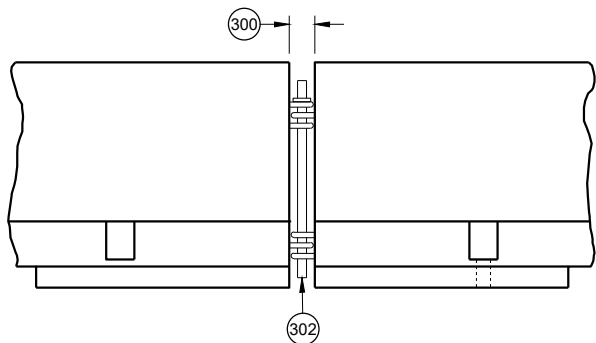
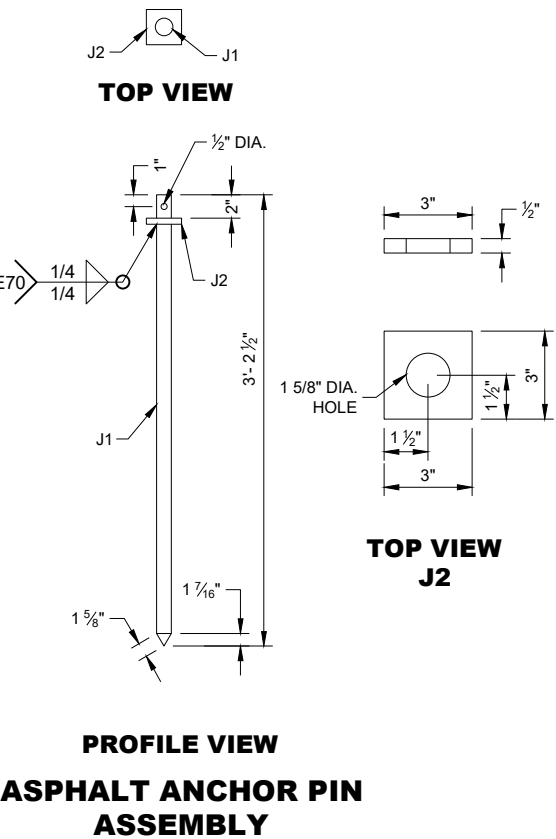
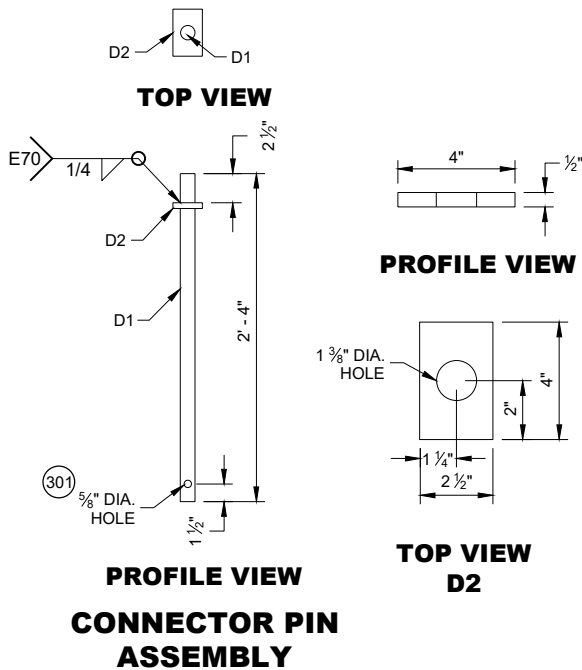
B5 BAR DETAIL



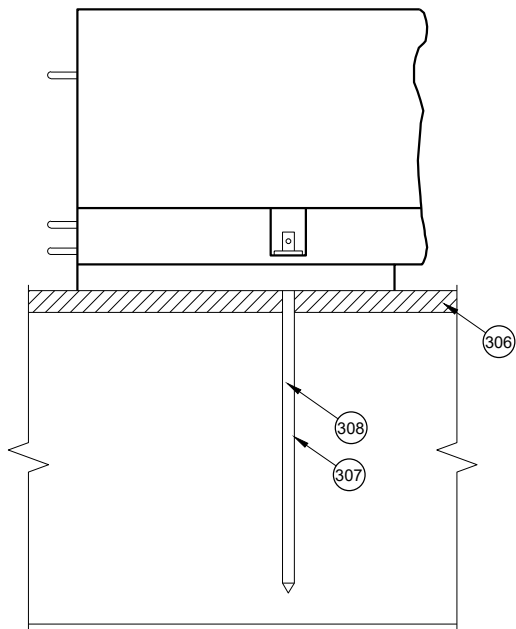
PROFILE VIEW
LOOP BAR ASSEMBLY



C BAR DETAILS

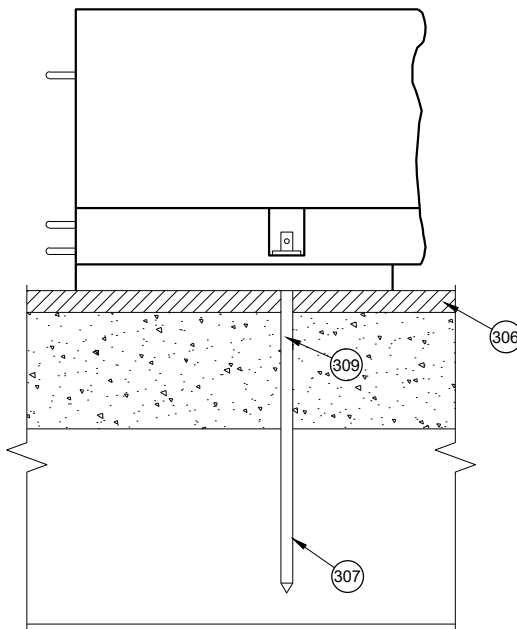


CONNECTING TEMPORARY BARRIER SECTIONS



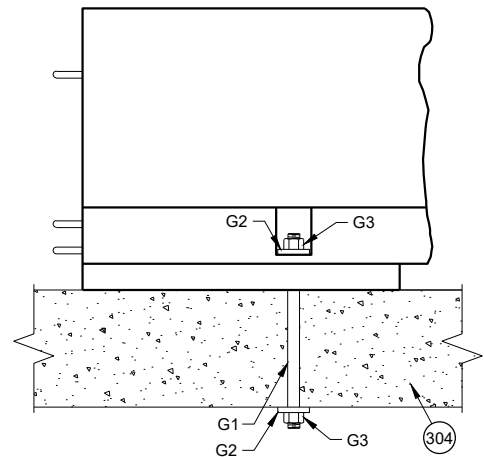
SIDE VIEW

ASPHALT ANCHOR INSTALLATION THROUGH ASPHALT PAVEMENT



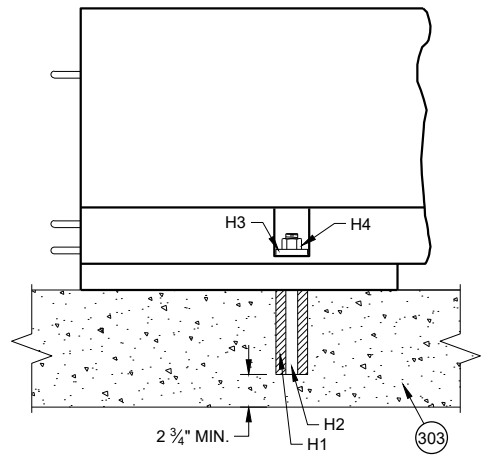
SIDE VIEW

ASPHALT ANCHOR INSTALLATION THROUGH ASPHALT OVERLAY ON TOP OF CONCRETE PAVEMENT



SIDE VIEW

THROUGH BOLT ANCHOR INSTALLATION



SIDE VIEW

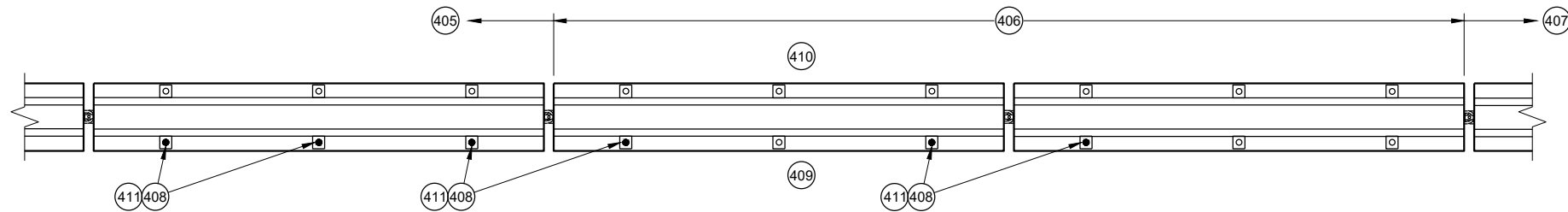
ADHESIVE ANCHOR INSTALLATION

GENERAL NOTES

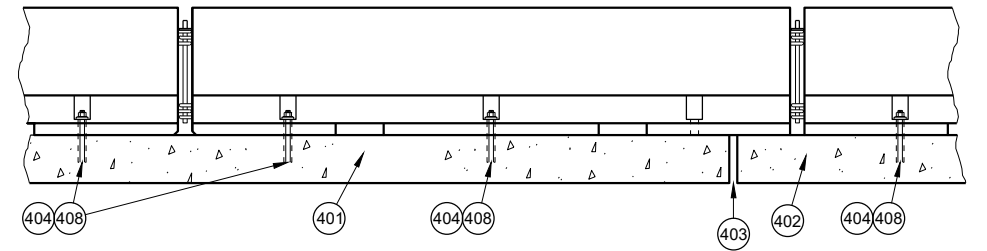
- (300) SET WITH 3 5/8" WOOD BLOCK.
- (301) HOLE IS OPTIONAL.
- (302) CONNECTOR PIN ASSEMBLY.
- (303) CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.
- (304) CONCRETE DECK.
- (305) DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
- (306) MINIMUM OF 2" OF ASPHALT.
- (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.

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

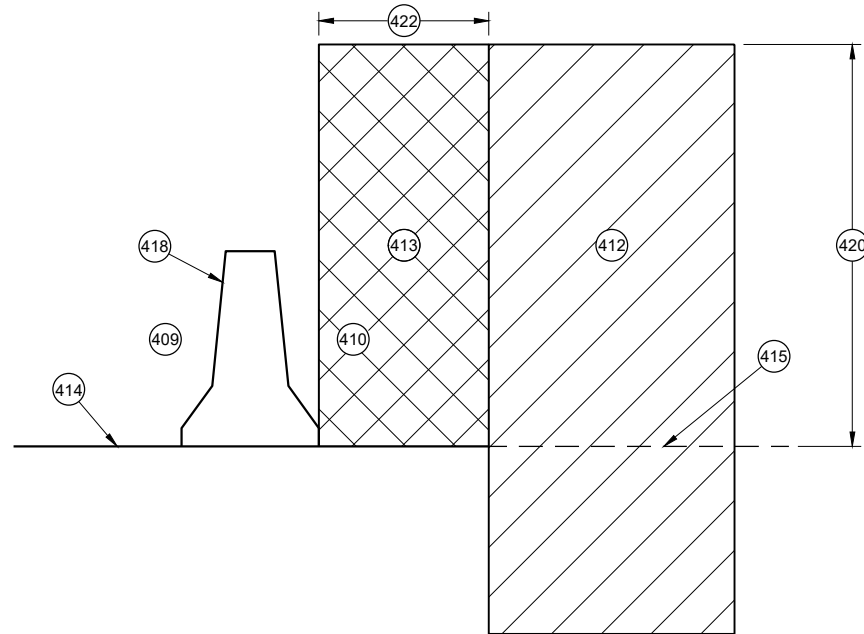
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



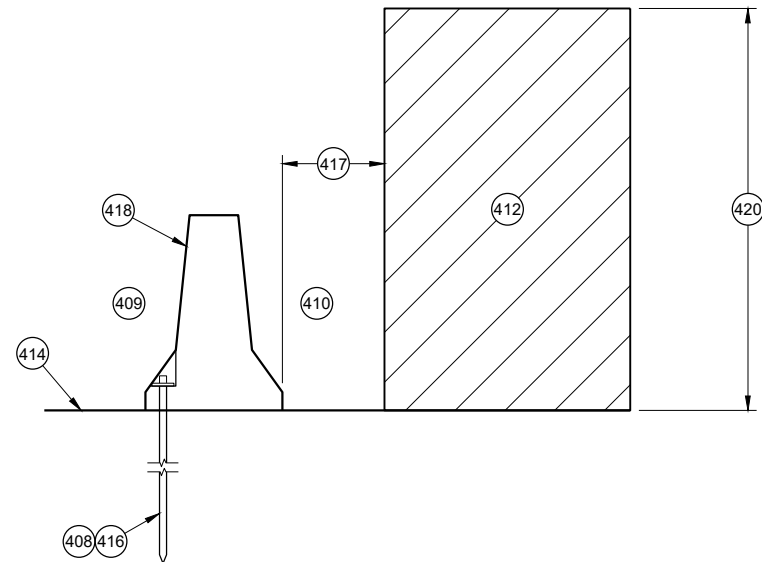
PLAN VIEW
TRANSITION FROM FREE STANDING TO ANCHORED BARRIER



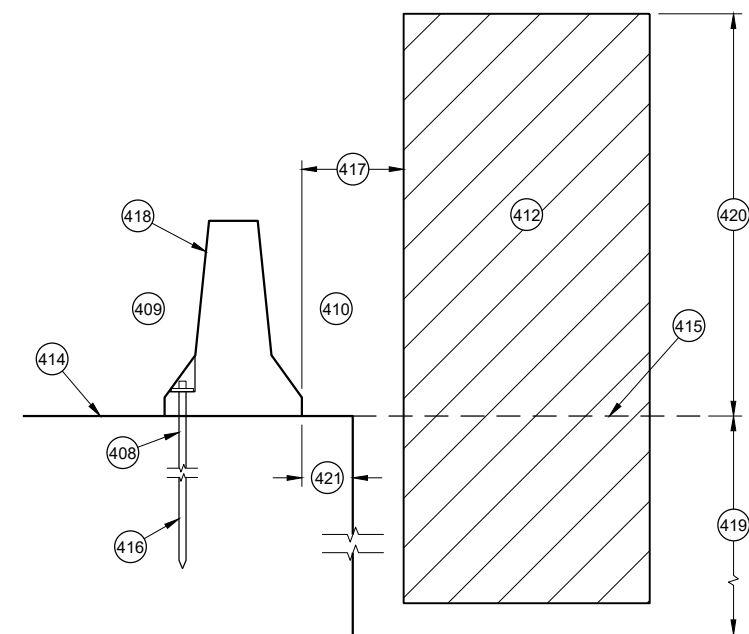
PROFILE VIEW
ANCHORED BARRIER NEAR EXPANSION JOINT



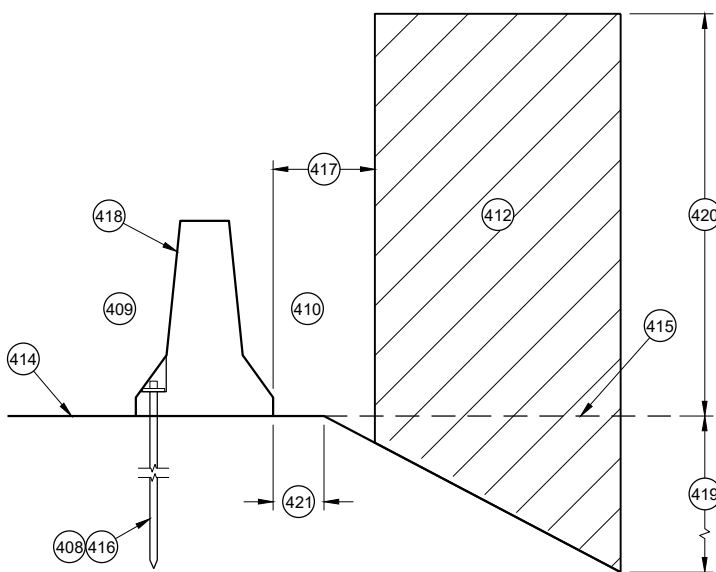
CROSS SECTION
FREE STANDING BARRIER



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

GENERAL NOTES

- 500 EXISTING RIGID BARRIERS (VARIES)

501 TEMPORARY BARRIER

502 SEE OTHER DETAIL ON HOW TO ANCHOR TEMPORARY BARRIER (BARRIER ASPHALT ANCHOR SHOWN).

503 ANCHORS ARE REQUIRED ON BOTH SIDE OF THE TEMPORARY BARRIER.

504 NESTED RAILS ARE REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS.

505 TRAFFIC TRAVELS FROM PERMANENT BARRIER TO TEMPORARY BARRIER.
- 506 TRAFFIC TRAVELS FROM TEMPORARY BARRIER TO PERMANENT BARRIER.

507 VERTICAL BARRIER

508 SAFETY SHAPE BARRIER

509 SINGLE SLOPE BARRIER

510 CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF RIGID BARRIER.

511 BENT THRIE BEAM TO FIT.

512 THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
- 513 TWO (2) P1, P2 AND P3 ARE REQUIRED

514 FIVE (5) N1, N2 AND N3 ARE REQUIRED

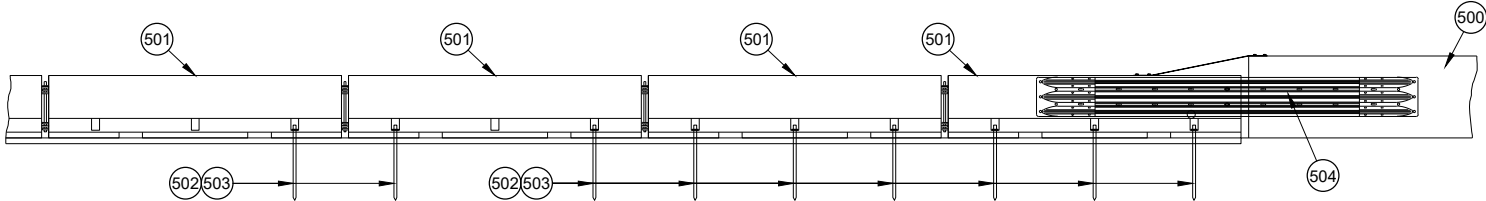
515 TWO (2) R1, R2 AND R3 ARE REQUIRED

516 CUT WOOD BLOCK TO FIT.

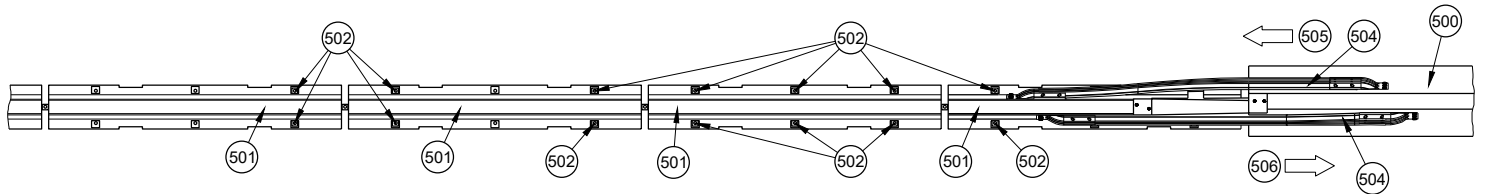
517 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL ASSEMBLY.

518 CAP ASSEMBLY

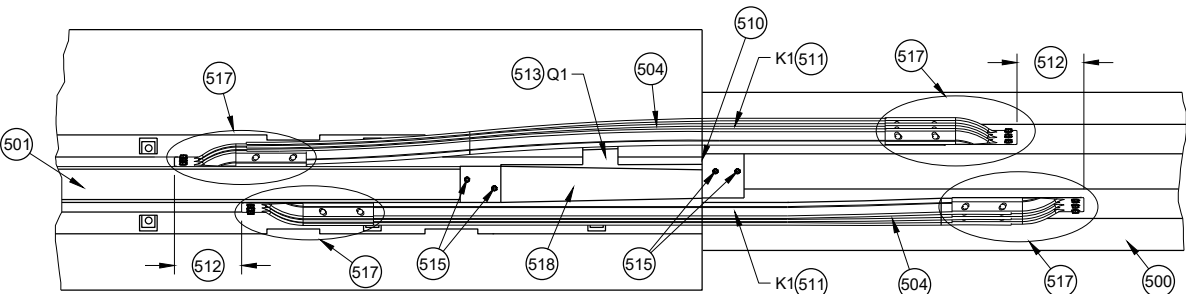
519 4" MAX. GAP BETWEEN TEMPORARY BARRIER AND RIGID BARRIER.
- 520 ALL TWELVE SPLICE HOLES REQUIRE M1 AND M2



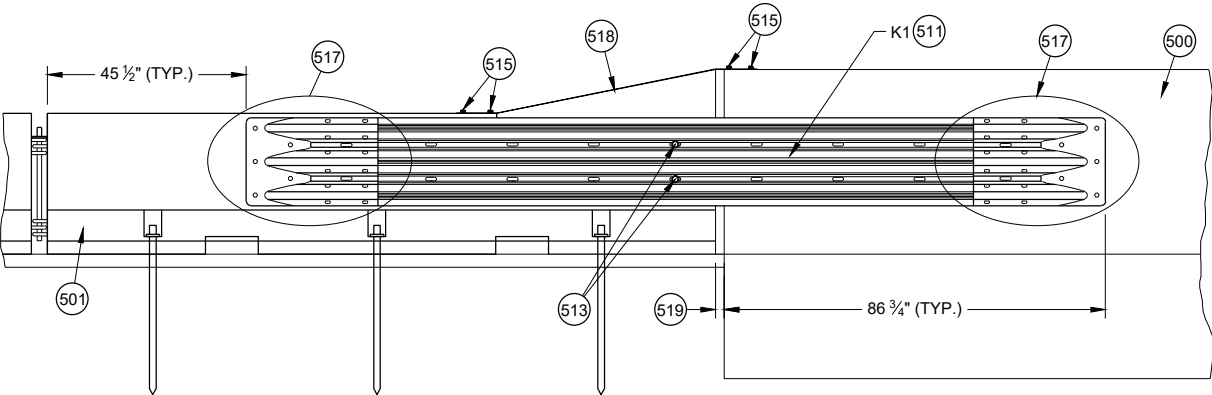
PROFILE VIEW



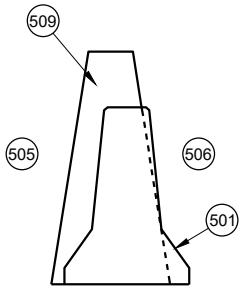
PLAN VIEW
TRANSITION TO RIGID BARRIER



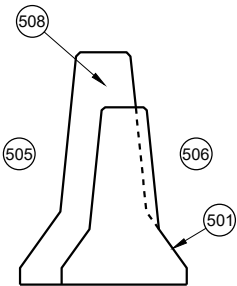
PLAN DETAIL VIEW
TRANSITION TO RIGID BARRIER



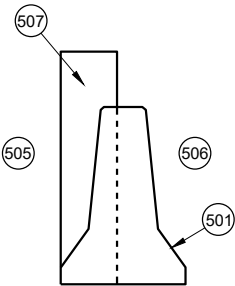
FRONT DETAIL VIEW
TRANSITION TO RIGID BARRIER



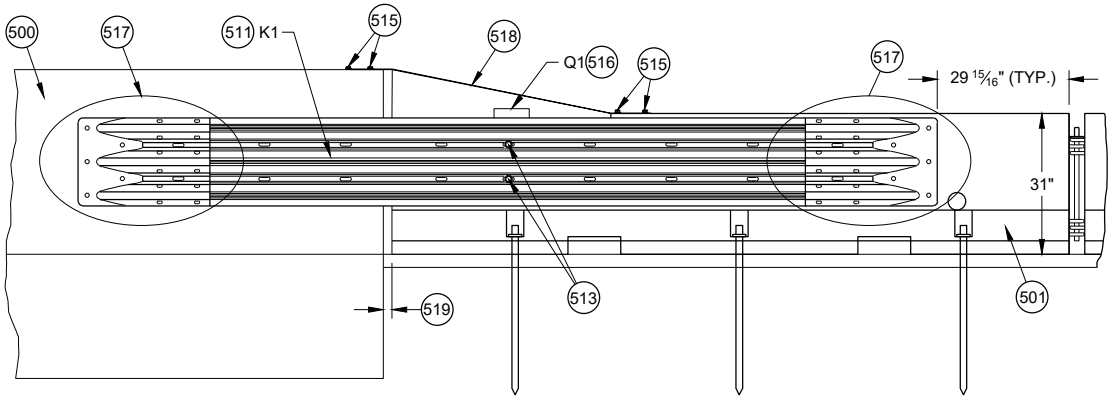
CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SINGLE SLOPE



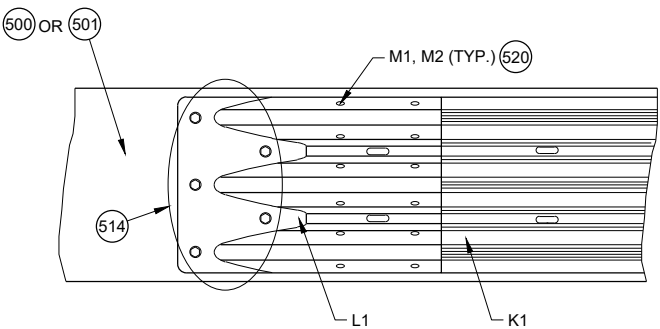
CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SAFETY SHAPE



CROSS SECTION
TEMPORARY BARRIER
PLACEMENT VERTICAL



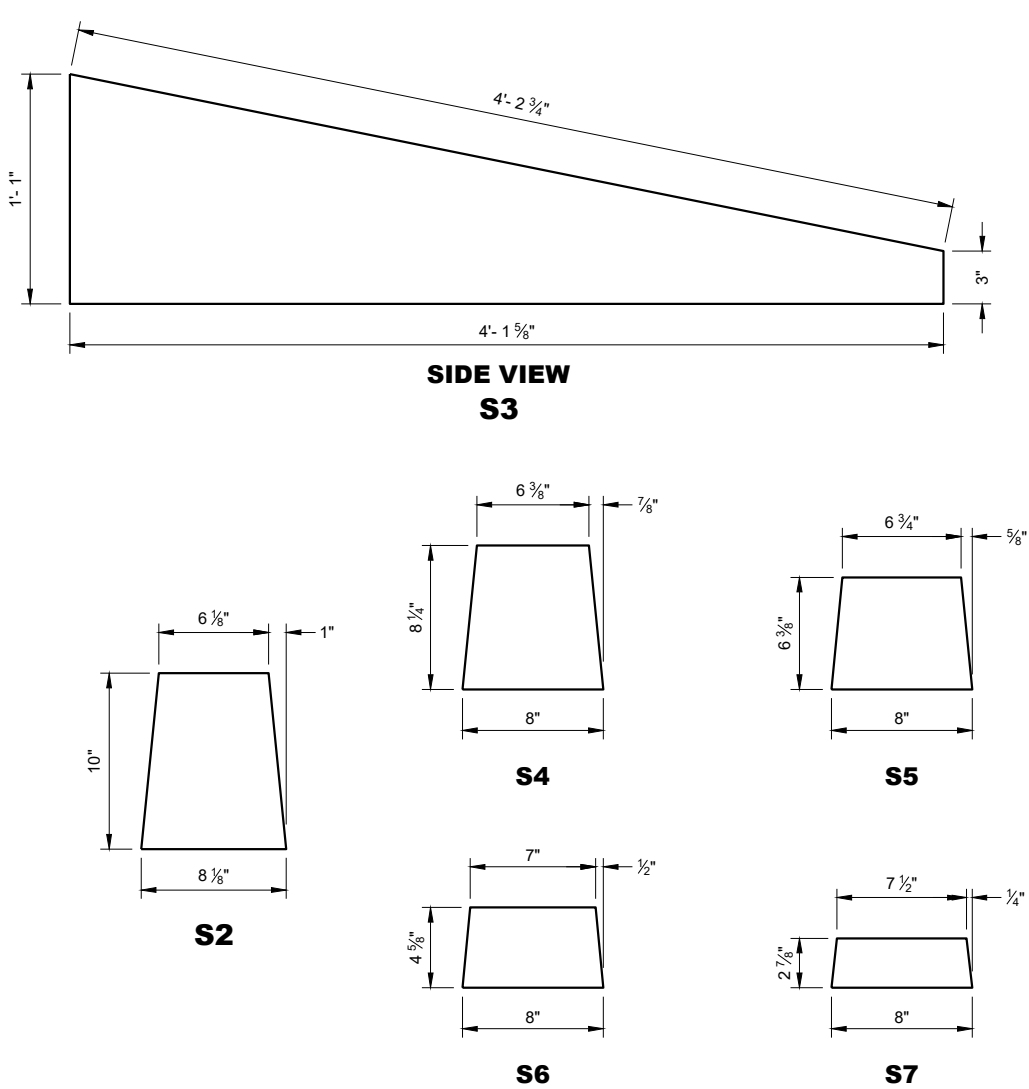
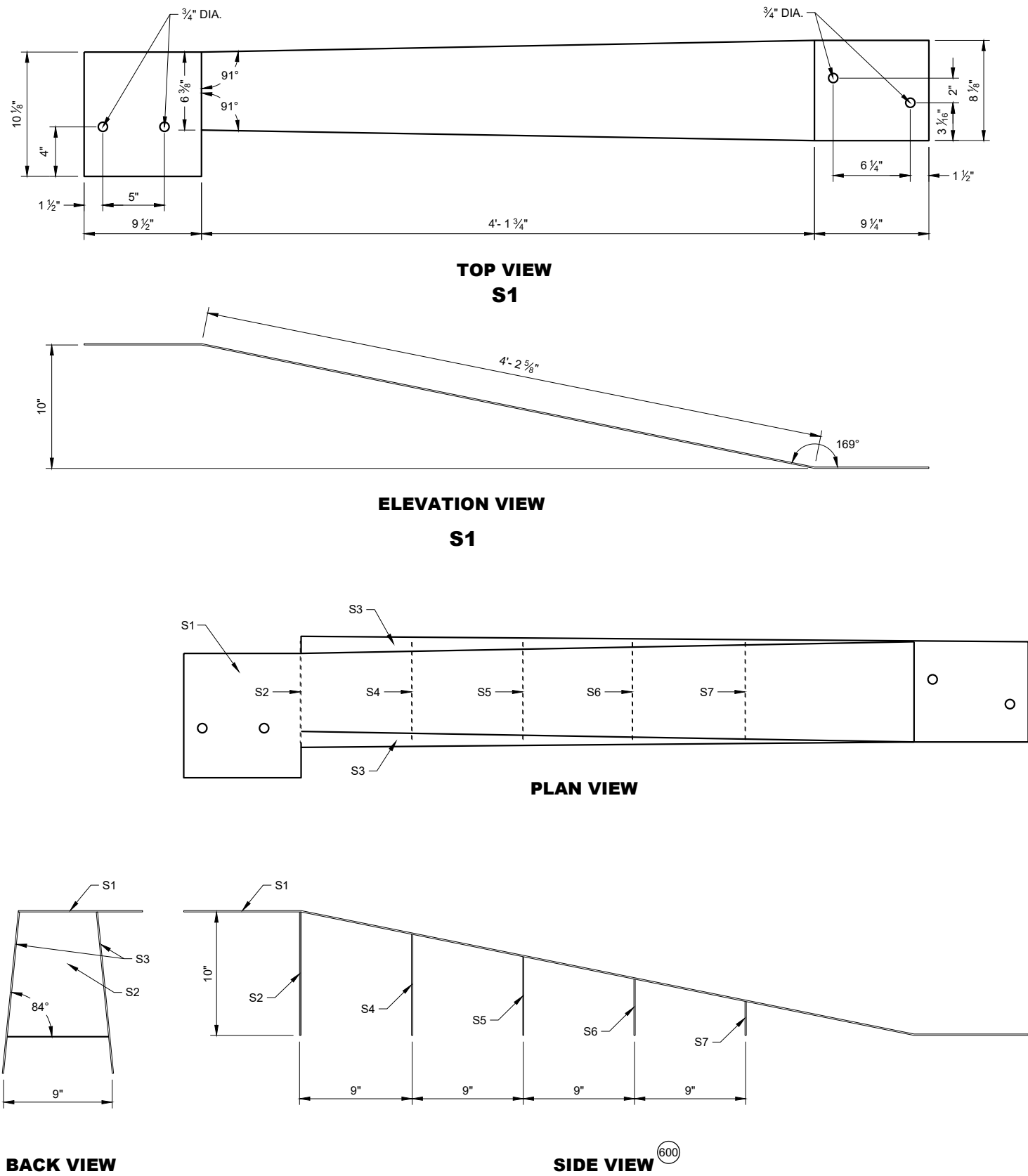
BACK DETAIL VIEW
TRANSITION TO RIGID BARRIER



517 DETAIL PLAN VIEW
THRIE BEAM RAIL TERMINAL CONNECTOR ASSEMBLY

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

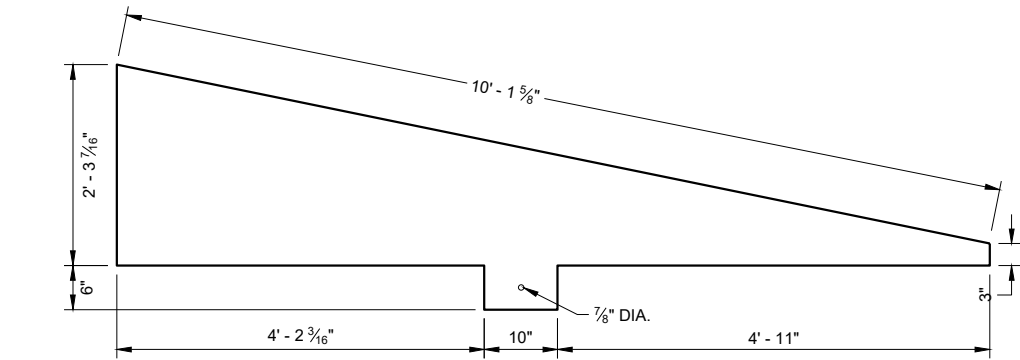
STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

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

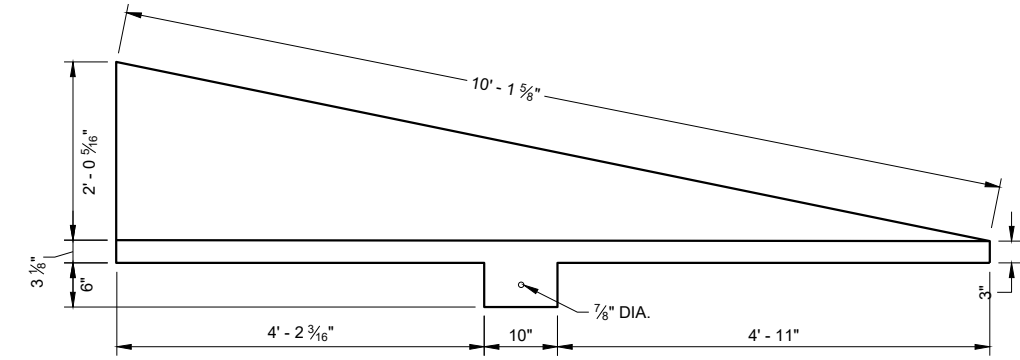
600 SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

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

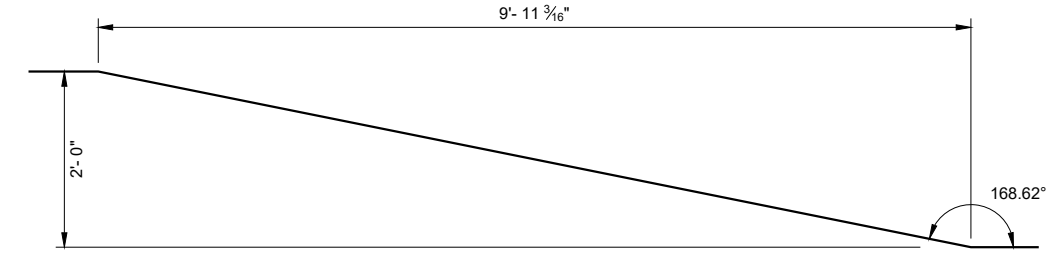
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



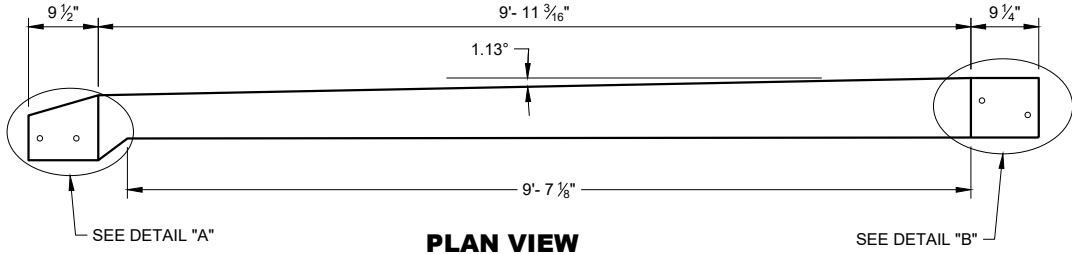
SIDE VIEW
T4



SIDE VIEW
T3



SIDE VIEW
TOP PLATE T1



PLAN VIEW
TOP PLATE T1

END
VIEW

END
VIEW

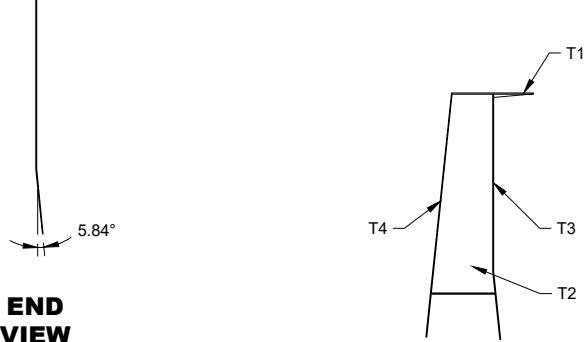
GENERAL NOTES

STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES

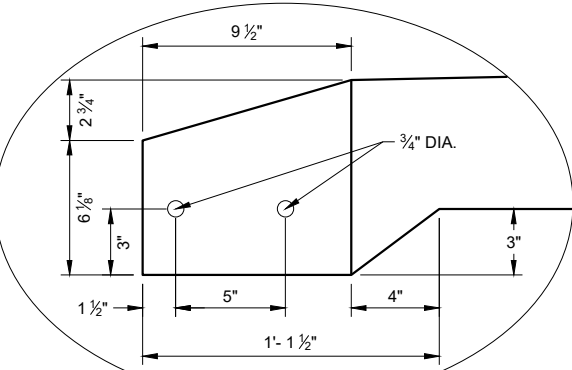
STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.

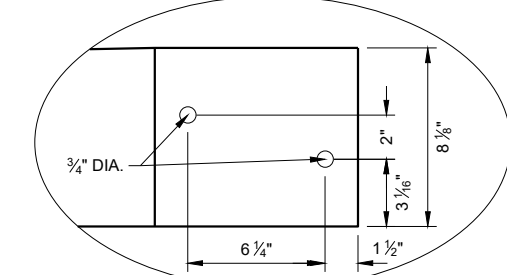
(700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.



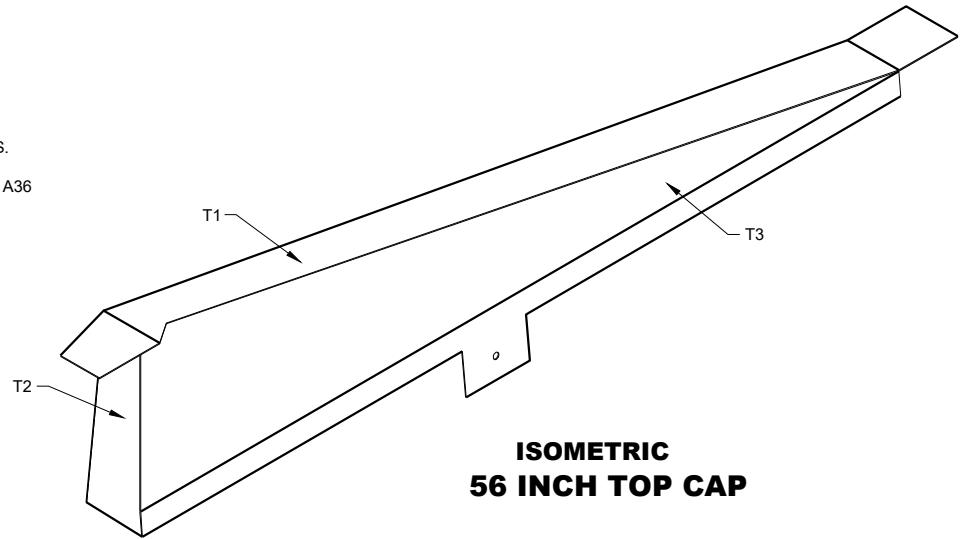
END VIEW
56 INCH TOP CAP



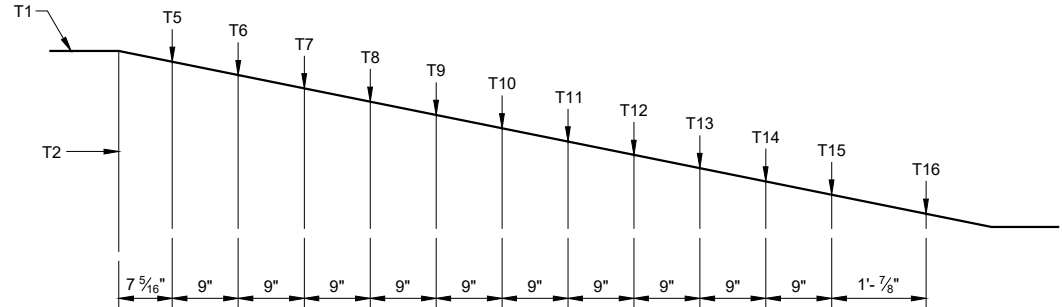
DETAIL "A"



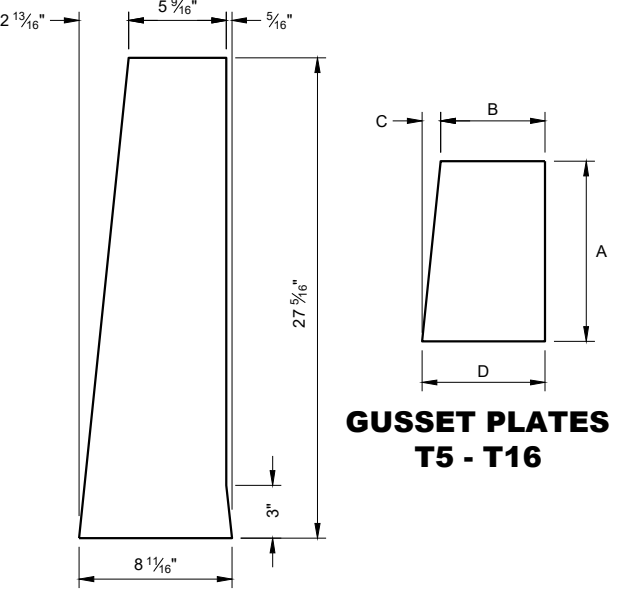
DETAIL "B"



ISOMETRIC
56 INCH TOP CAP



SIDE VIEW
56 INCH TOP CAP (700)



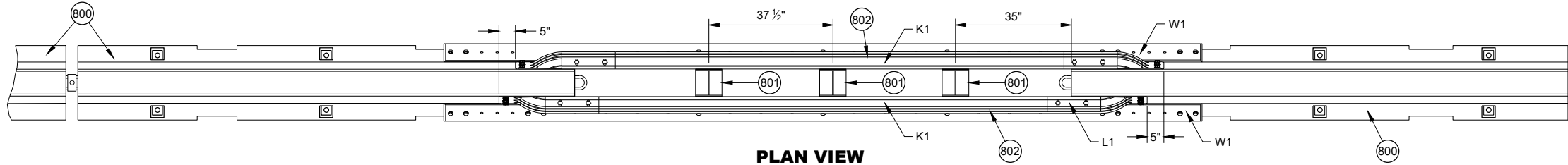
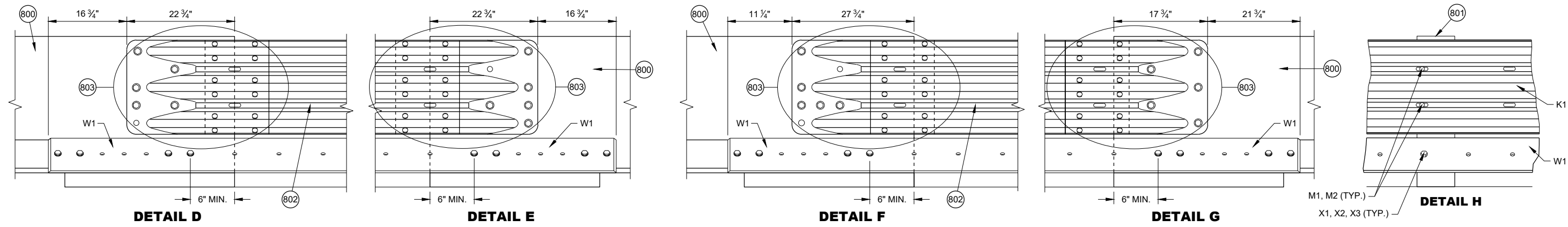
END PLATE T2

GUSSET PLATES
T5 - T16

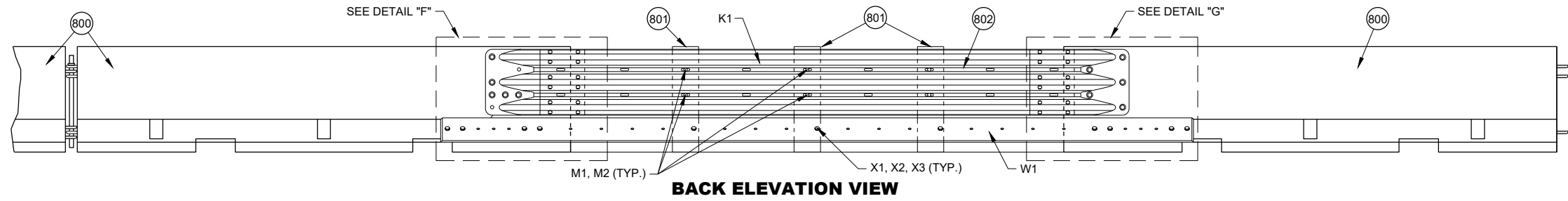
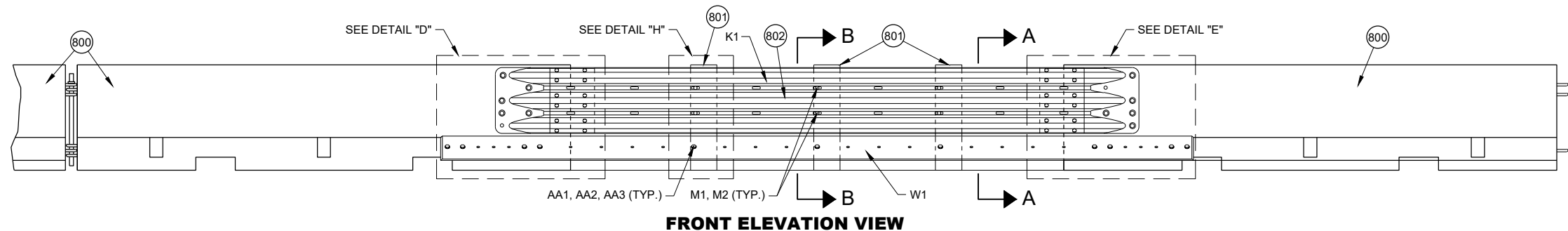
GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/16"	1 15/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 9/16"	6 5/16"	1 9/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"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

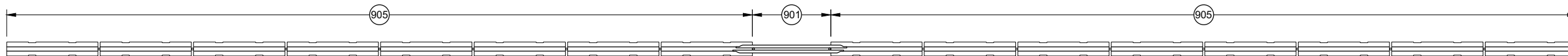


- GENERAL NOTES**
- 800 FREE STANDING TEMPORARY BARRIER
 - 801 GAP STIFFENER ASSEMBLY
 - 802 THRIE BEAMS ARE NESTED ON BOTH SIDES OF THE TEMPORARY BARRIER.
 - 803 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL

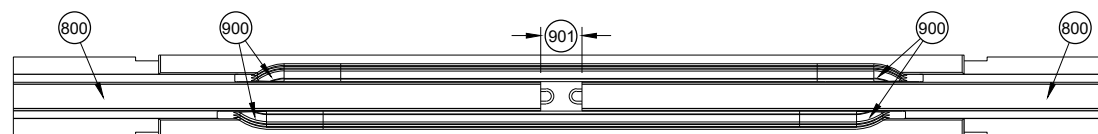


PORTABLE CONCRETE BARRIER GAP THRIE BEAM COVER

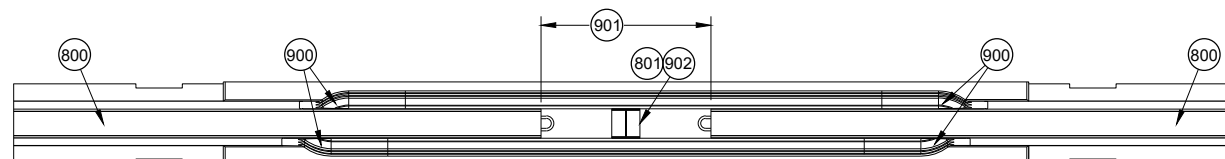
CONCRETE BARRIER TEMPORARY PRECAST, 12' - 6"
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



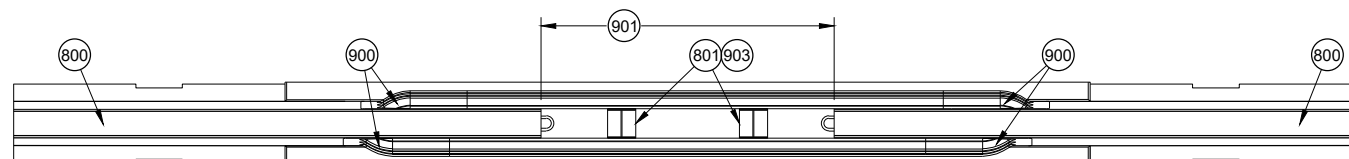
**PLAN VIEW
GAP WITHIN SPACING**



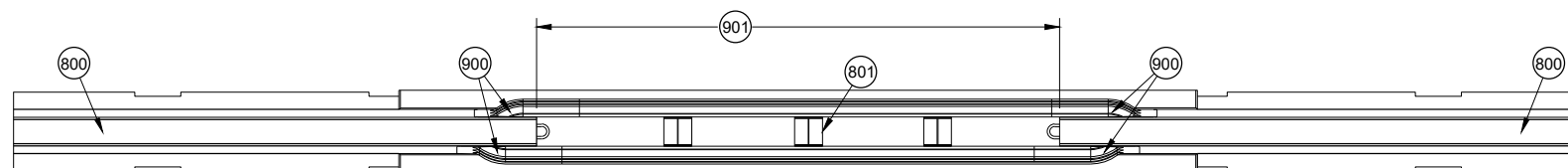
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4" TO 1' MAX.**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 1' TO 4' MAX.**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4' TO 7' MAX.**



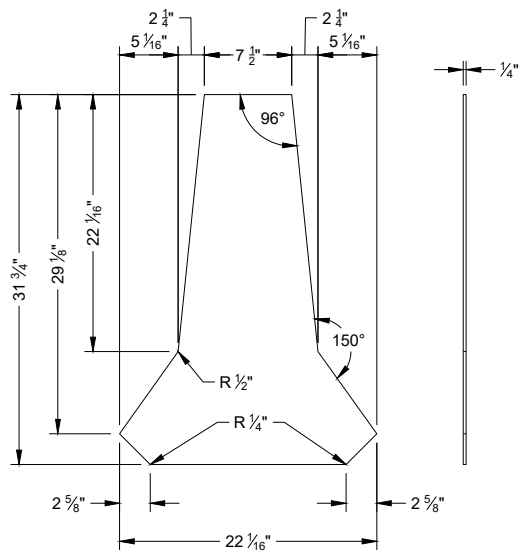
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 7' TO 12.5' MAX.**

GENERAL NOTES

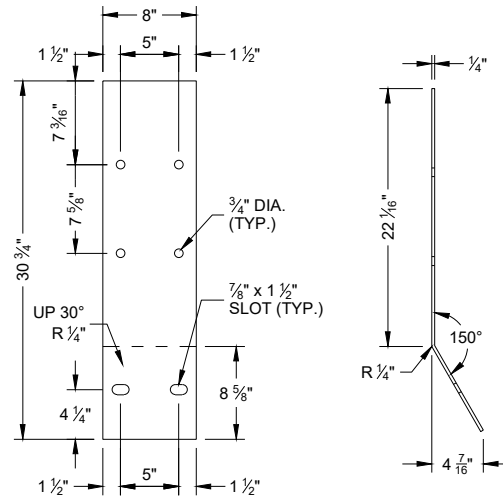
- 900 SEE OTHER DETAILS FOR TEMPORARY GAP HARDWARE (TYP.)
- 901 TEMPORARY BARRIER GAP
- 902 GAP STIFFENER ASSEMBLY CENTERED IN THE GAP.
- 903 GAP STIFFENER ASSEMBLY IS OFFSET 18 3/4" FROM CENTER
- 904 MINIMUM NUMBER OF GAP STIFFENERS SHOWN FOR THE GAP RANGE SHOWN.
- 905 MINIMUM OF 8 CONTINUOUS FREE STANDING TEMPORARY BARRIERS

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

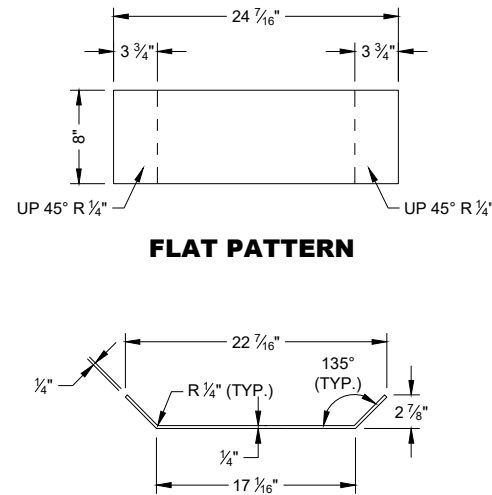
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



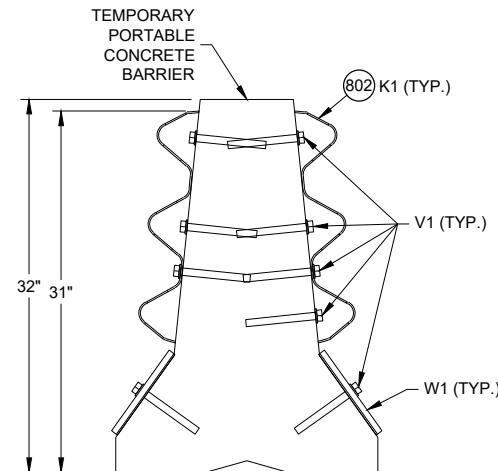
PROFILE VIEW
STIFFENER ASSEMBLY
CENTER PANEL U1



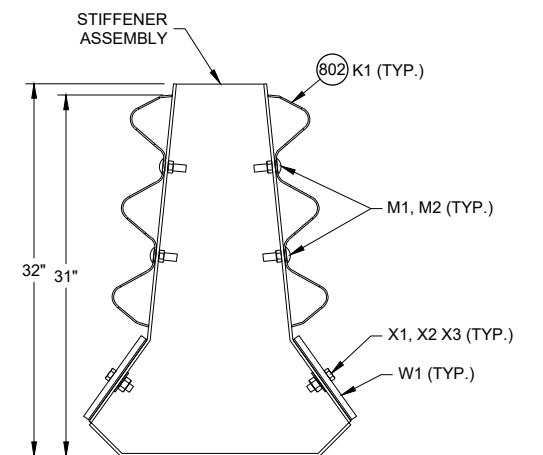
FLAT PATTERN
STIFFENER ASSEMBLY
SIDE PANEL U2



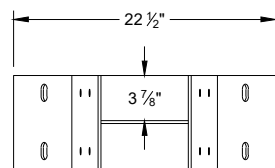
FLAT PATTERN
STIFFENER ASSEMBLY
BOTTOM PANEL U3



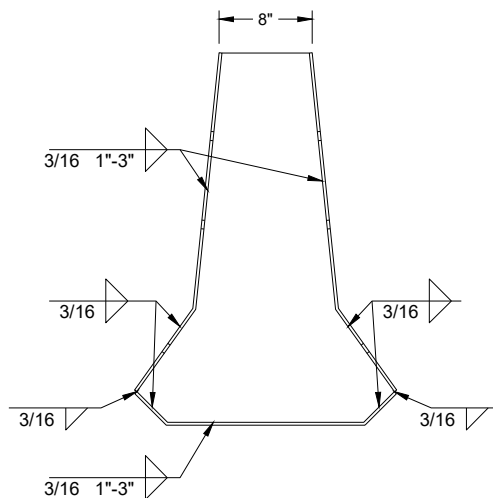
SECTION A - A



SECTION B - B

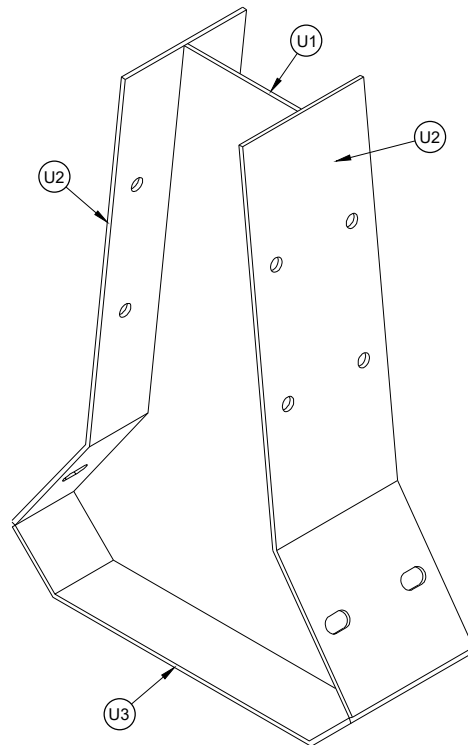


PLAN VIEW



PROFILE VIEW
SIDE VIEW

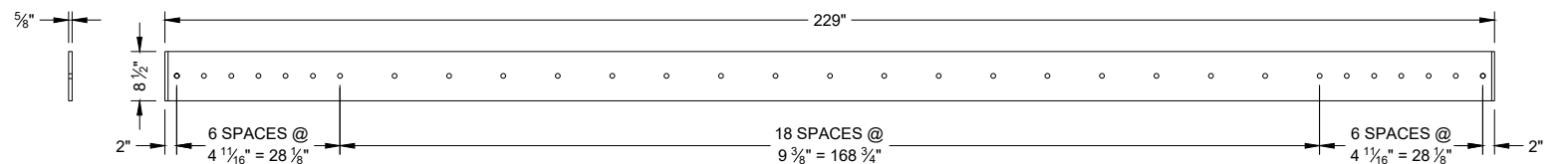
GAP STIFFENER ASSEMBLY



ISOMETRIC

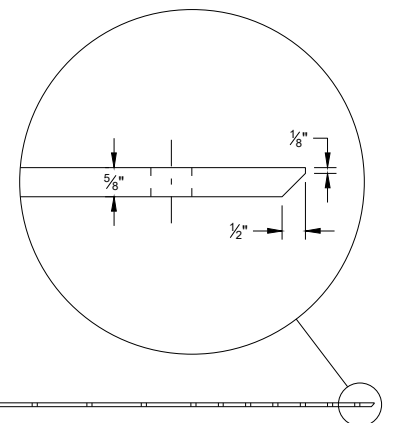


PLAN VIEW



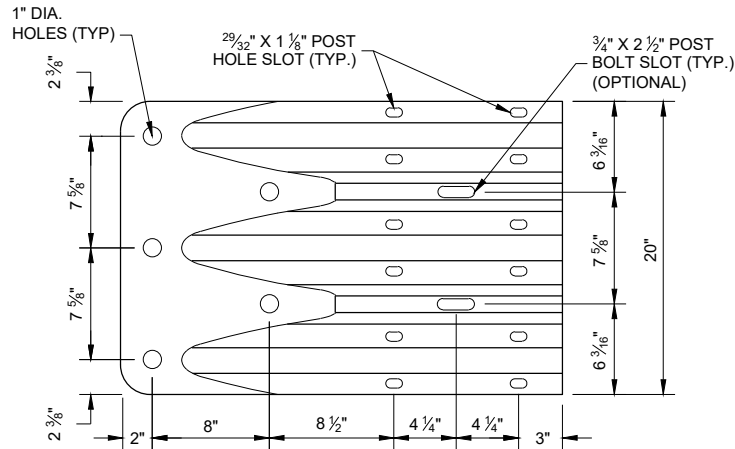
SIDE VIEW

ELEVATION VIEW
W1 TOE PLATE



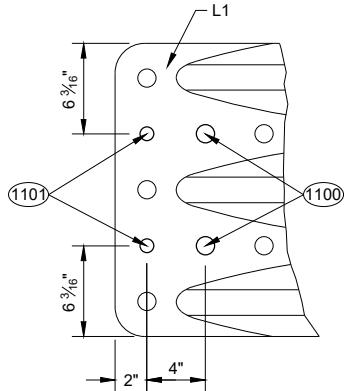
CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



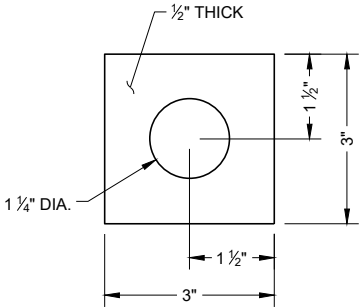
ELEVATION VIEW

**THRIE BEAM
TERMINAL CONNECTOR**



ELEVATION VIEW

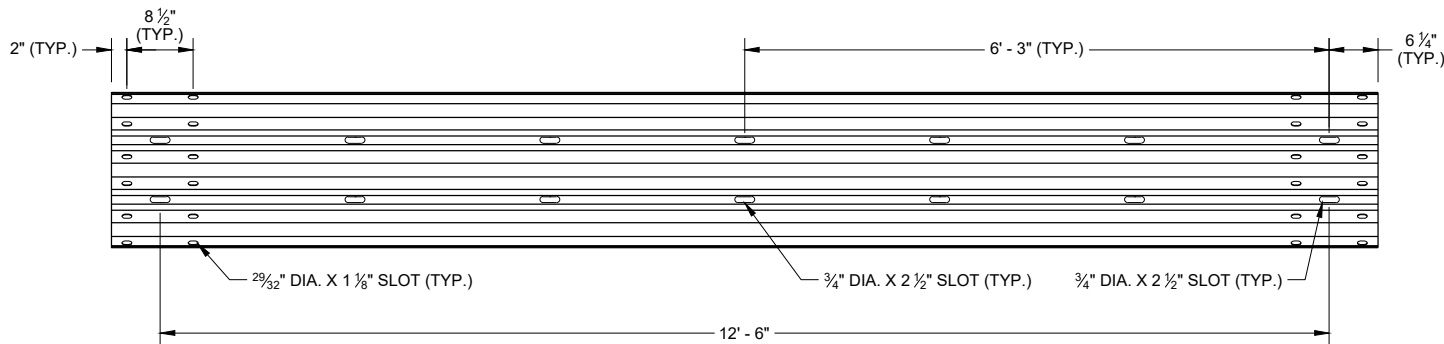
**ADDITIONAL THRIE BEAM
TERMINAL CONNECTOR HOLE DETAIL**



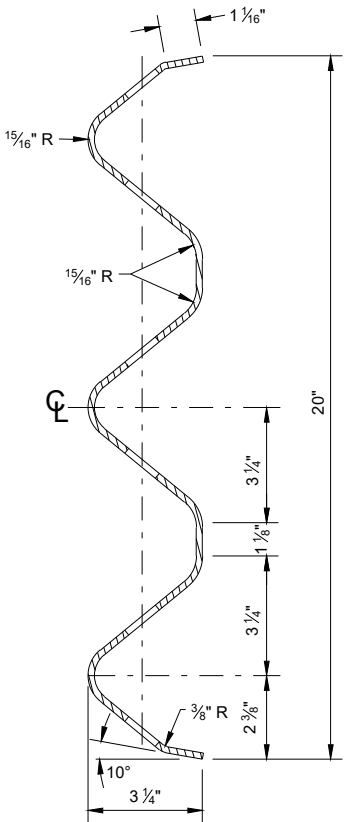
**PLATE WASHER DETAIL
G2, H3**

GENERAL NOTES

- (1100) 1" DIA. HOLE
- (1101) $\frac{3}{4}"$ DIA. HOLE
- (1102) PROVIDE HOLES IN THRIE BEAM TERMINAL CONNECTOR TO LIMIT STEEL REINFORCEMENT OR LOOP BAR CONFLICT. CONTRACTOR MAY FIELD DRILL ADDITIONAL HOLE OR PROVIDE THRIE BEAM TERMINAL CONNECTOR WITH ADDITIONAL HOLES FROM SUPPLIER.



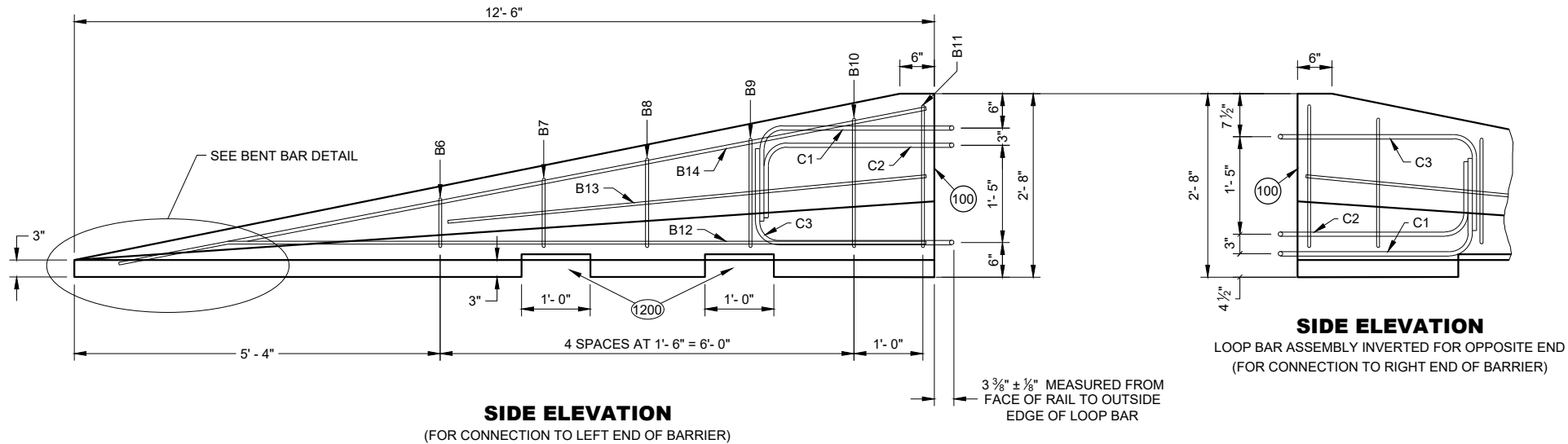
SLOTTED THRIE BEAM RAIL K1



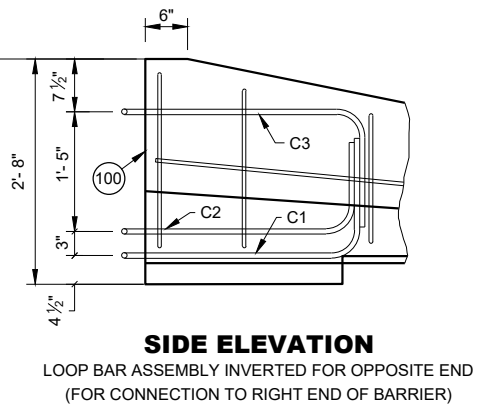
**SECTION THROUGH
BEAM K1**

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

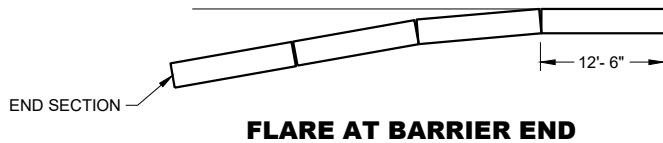


SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



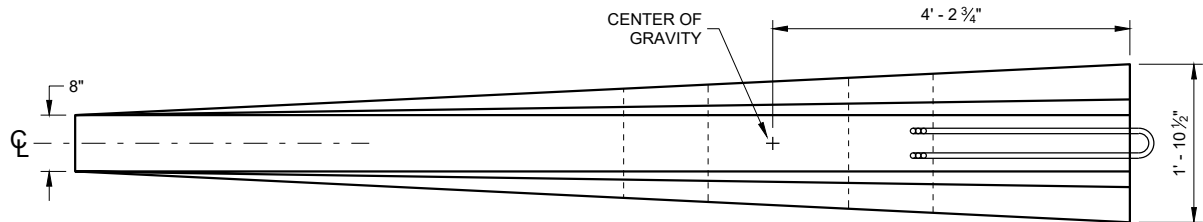
SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED FOR OPPOSITE END
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES
(1200) SEE LIFTING SLOT DETAIL. LOCATION OF LIFTING SLOTS DETERMINED BY CONTRACTOR.

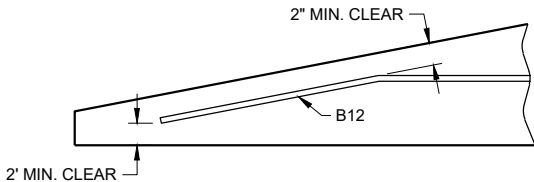
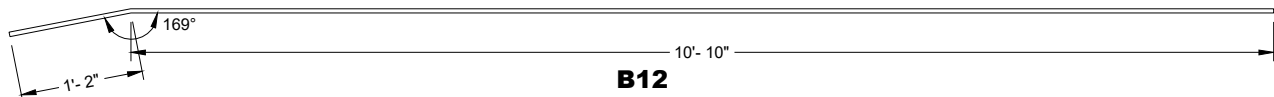


FLARE AT BARRIER END

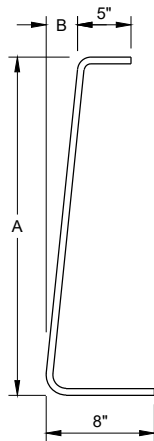
POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1



PLAN VIEW

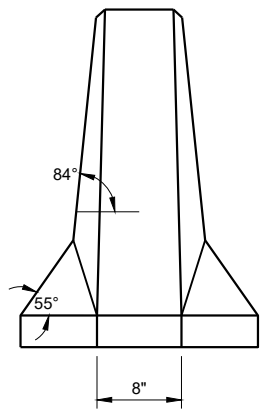


BENT BAR DETAIL

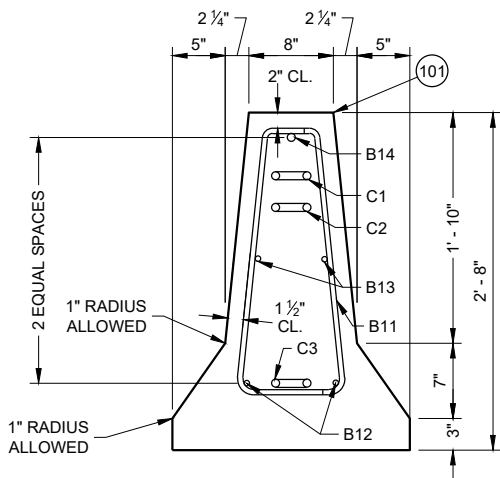


BAR	A	B
B6	10"	1"
B7	1'- 1"	1 1/4"
B8	1'- 5"	1 5/8"
B9	1'- 8"	1 7/8"
B10	2'- 0 1/2"	2 3/8"
B11	2'- 3"	2 3/4"

B BARS
2 OF EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY



FRONT ELEVATION



END SECTION

DETAILS OF BARRIER TAPER SECTION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

SDD 14B07-16m

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	PRECAST TEMPORARY BARRIER - CONCRETE	MIN. = f'c 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 ¼" 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 ⅝" 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 ⅝" 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	⅝" 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	⅝" 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

SDD 14B07-16m

CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTA198

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

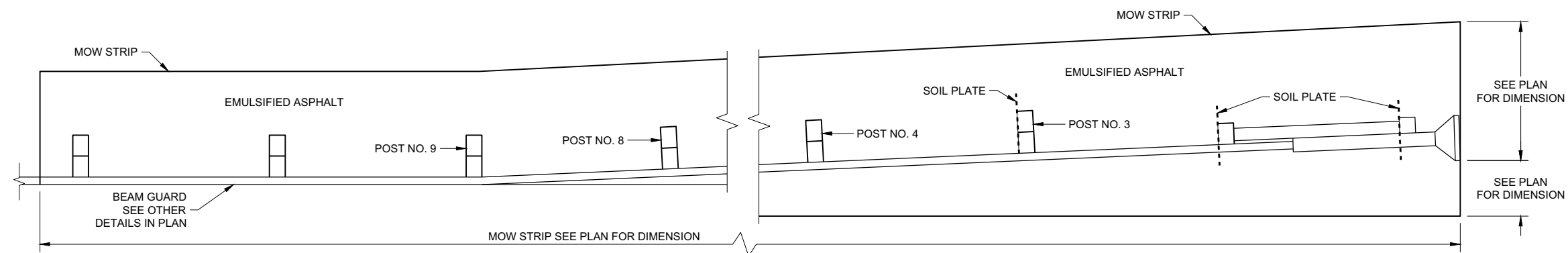
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
T1	CAP 56-INCH TOP PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI	12 GAUGE
T2	CAP 56-INCH END PLATE	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	

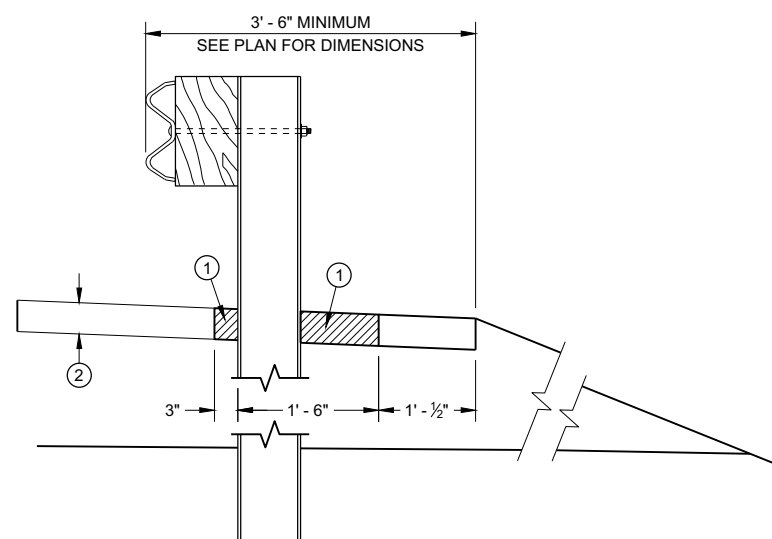
CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

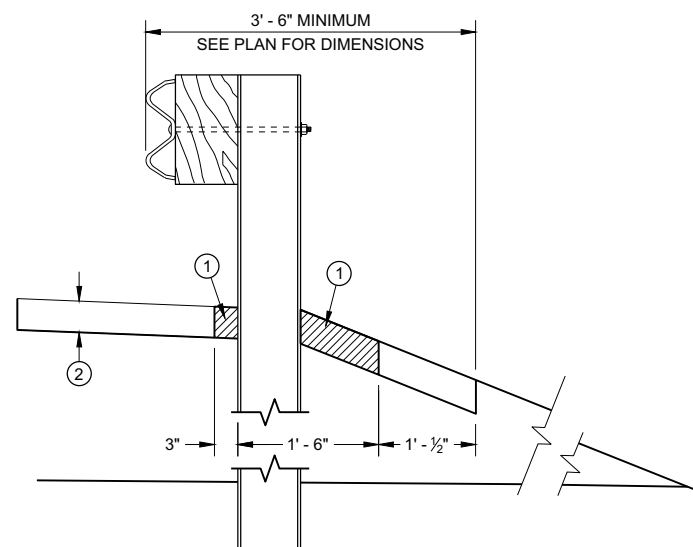
APPROVED
February 2023
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER 99
FHWA



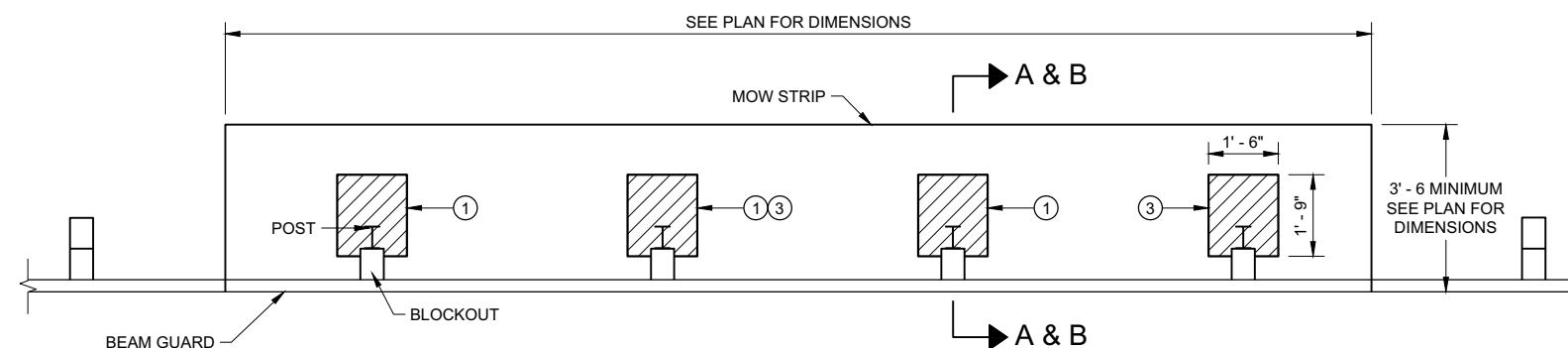
PLAN VIEW
MOW STRIP LAYOUT FOR ENERGY ABSORBING TERMINAL



SECTION A - A

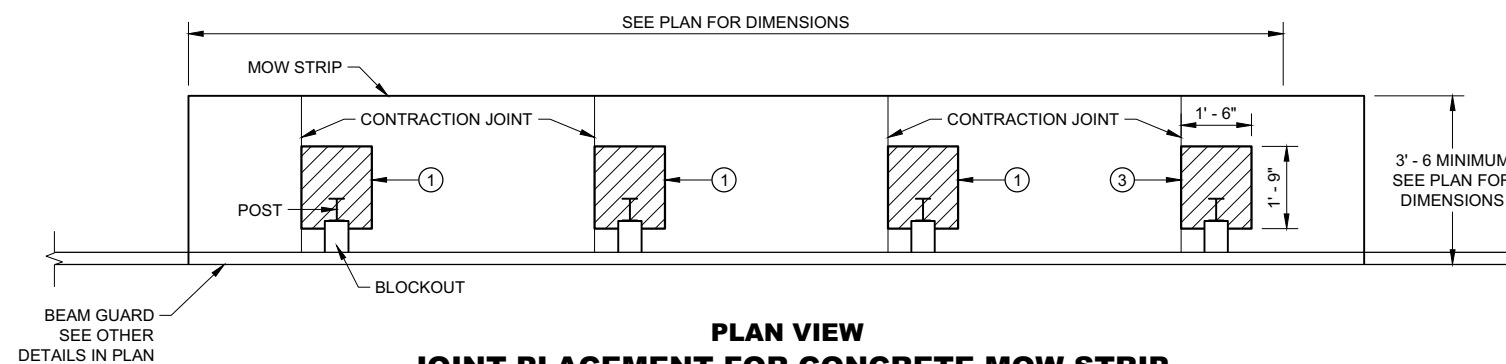
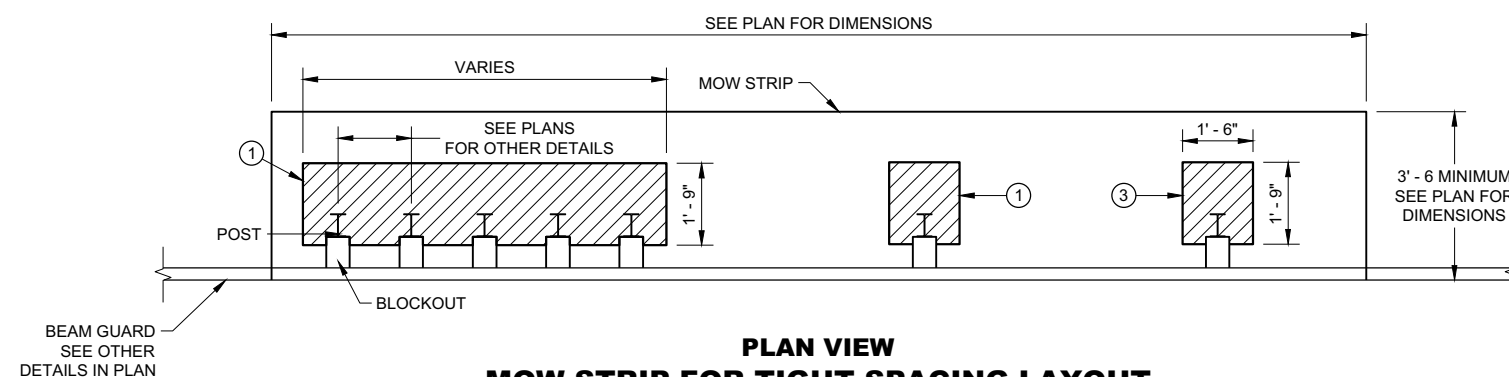


SECTION B - B



PLAN VIEW A & B

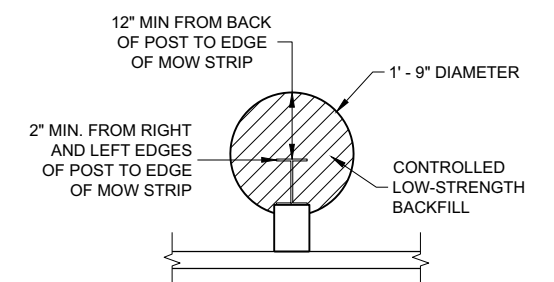
MOW STRIP FOR TYPICAL BLOCKOUT LAYOUT



GENERAL NOTES

ONLY USE STEEL POSTS IN CONCRETE AND ASPHALT
MOW STRIPS.

- ① CONTROLLED LOW-STRENGTH BACKFILL OR EMULSIFIED ASPHALT.
- ② DEPTH OF MOW STRIP:
ASPHALT - 4"
CONCRETE - 4"
EMULSIFIED ASPHALT - 1" OR LESS
- ③ FOR EMULSIFIED ASPHALT, MOW STRIP STRIP LEAVE OUTS NOT REQUIRED. (TYPICAL FOR ALL POSTS)

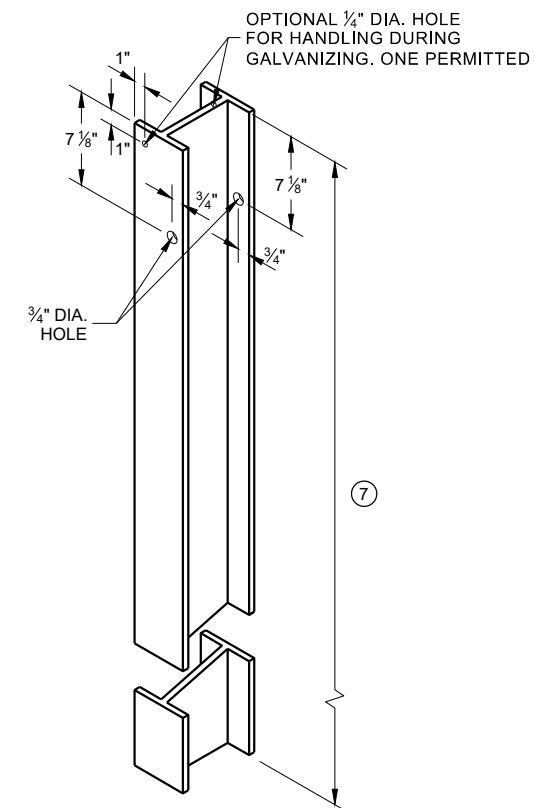
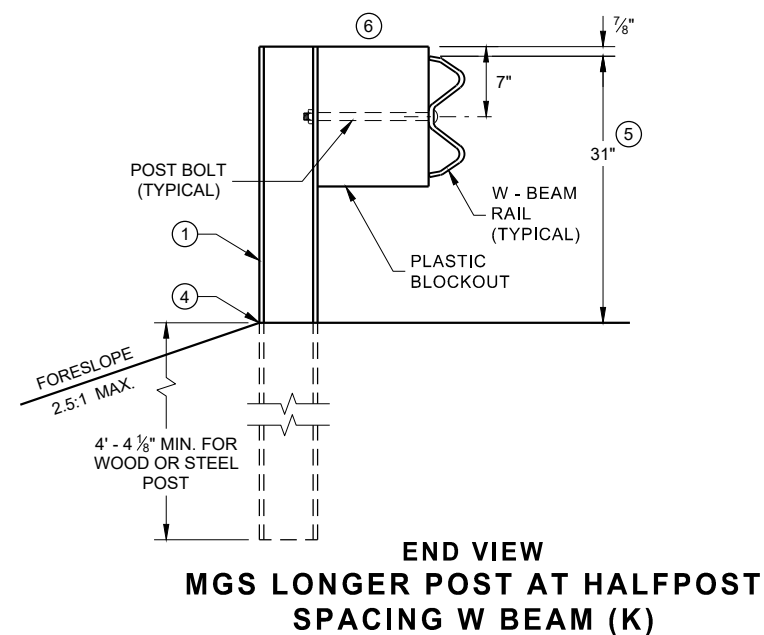
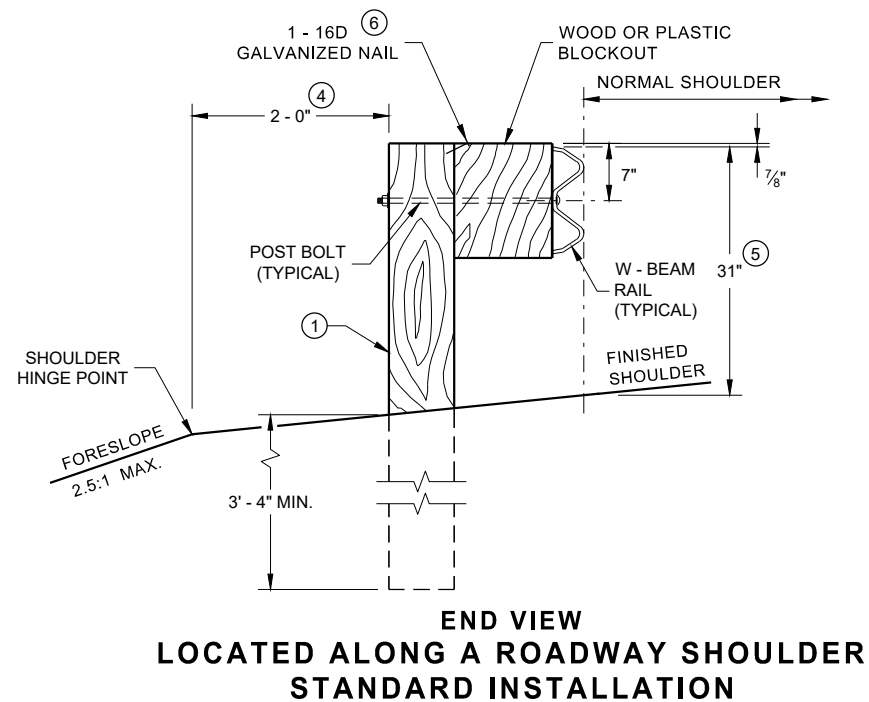
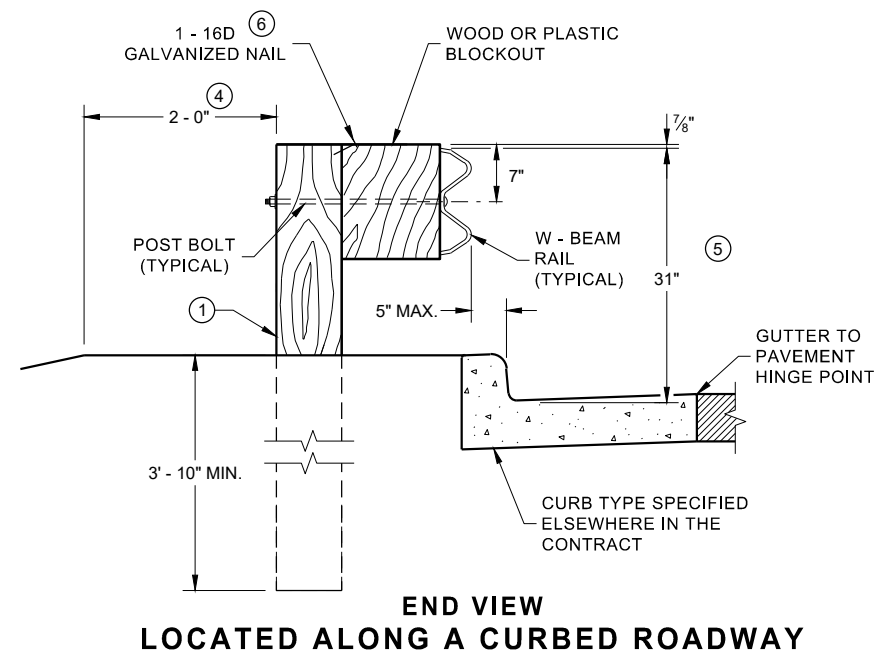
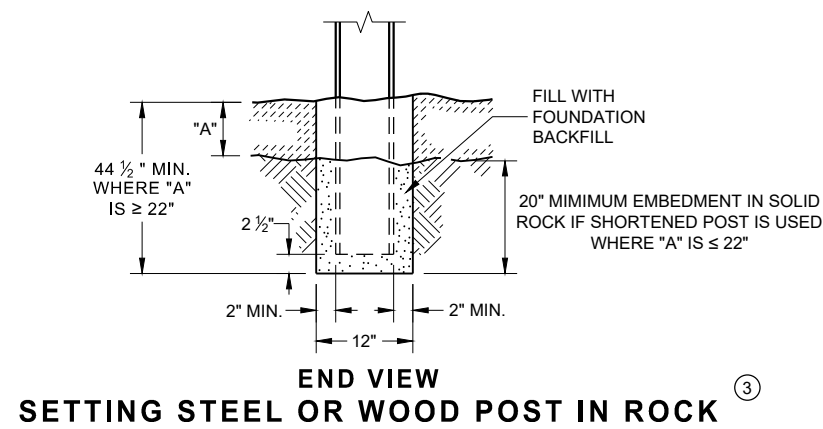


ALTERNATIVE HMA MOW STRIP DESIGN

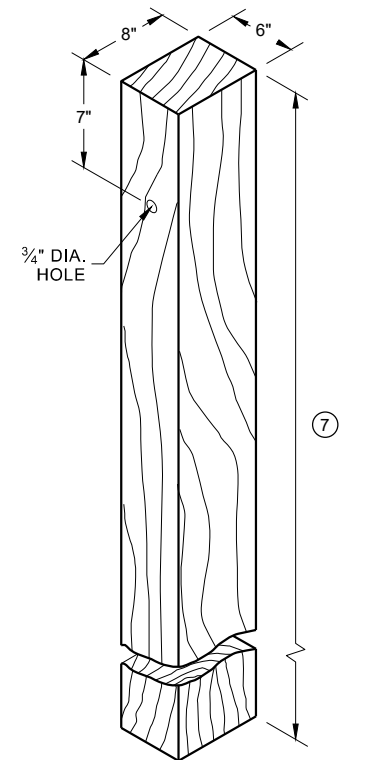
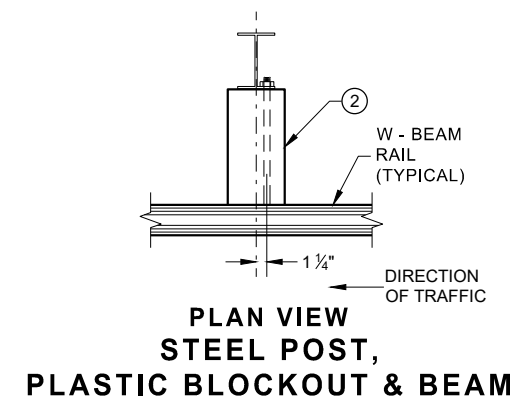
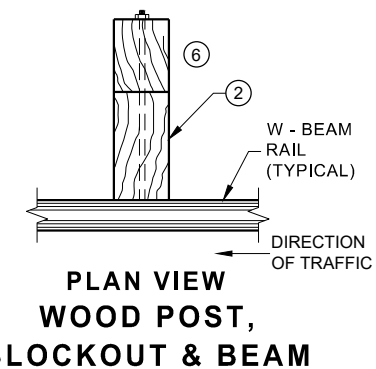
GUARDRAIL MOW STRIP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 101

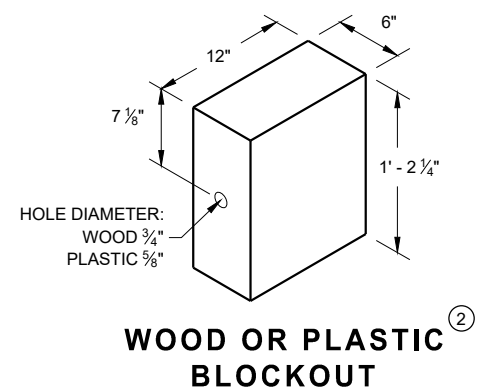
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL. 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".



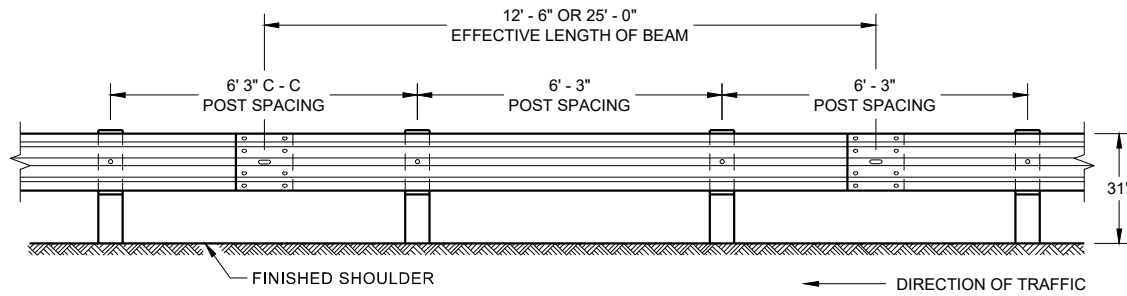
**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**



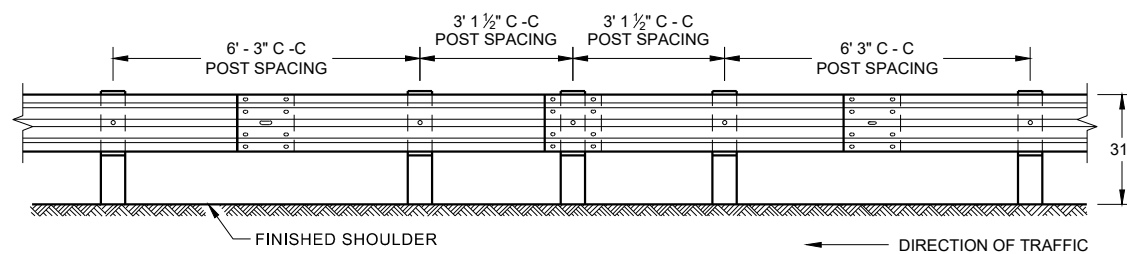
WOOD POST (6" X 8") NOMINAL ⁽¹⁾



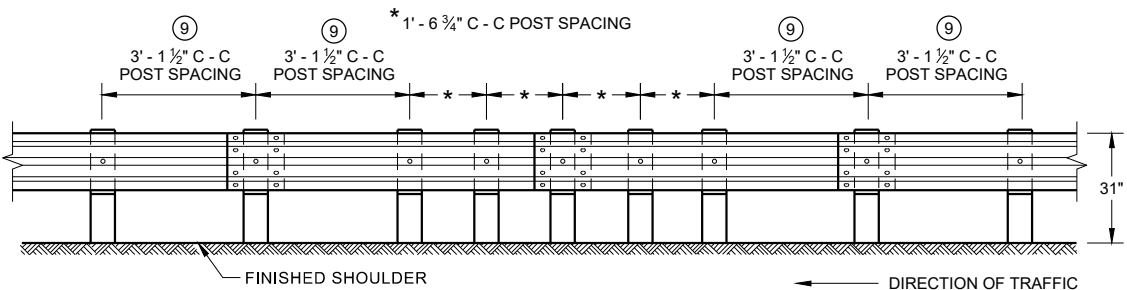
**WOOD OR PLASTIC
BLOCKOUT**



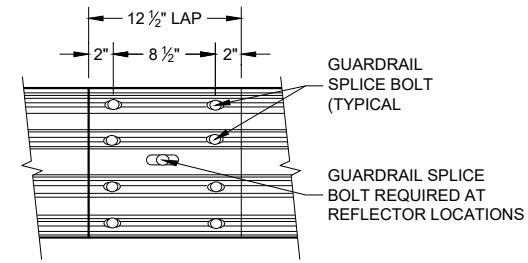
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



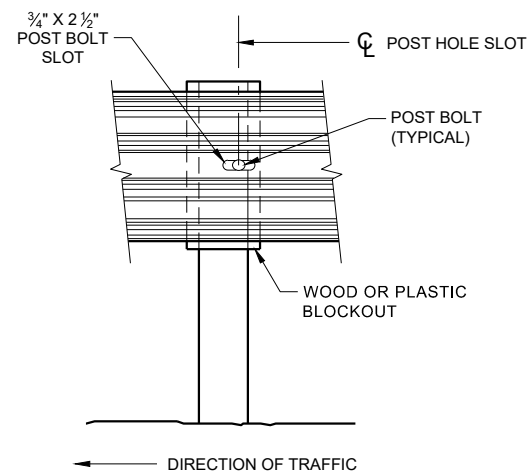
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



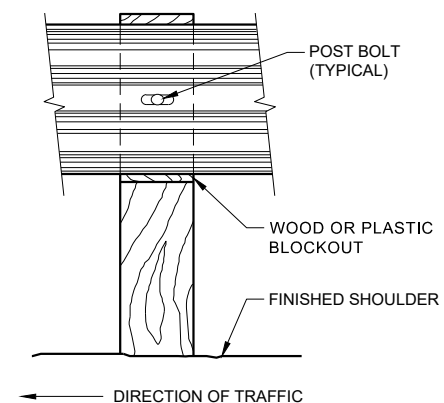
**FRONT VIEW
QUARTER POST SPACING (QS)**



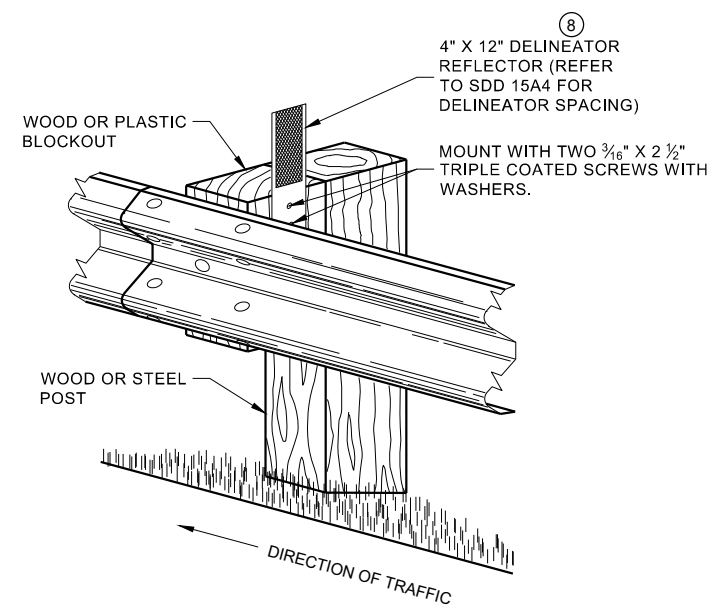
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



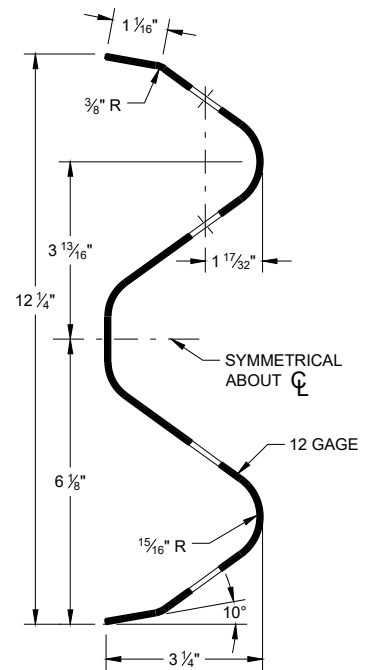
FRONT VIEW AT WOOD POST



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

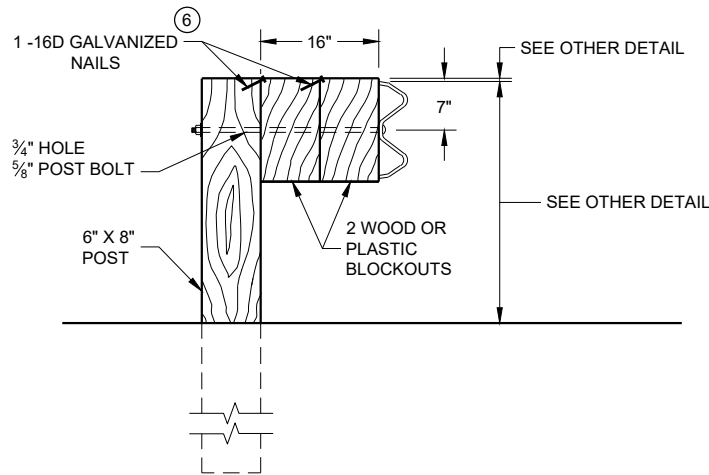
- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/8" DIAMETER 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.



SECTION THRU W-BEAM RAIL

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

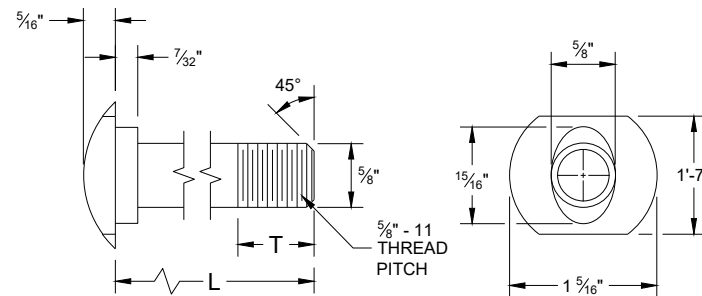
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 103



DETAIL FOR 16" BLOCKOUT DEPTH

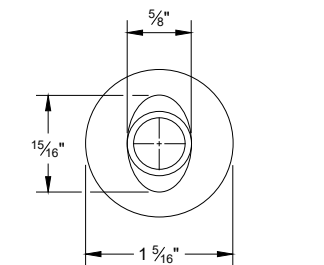
IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

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

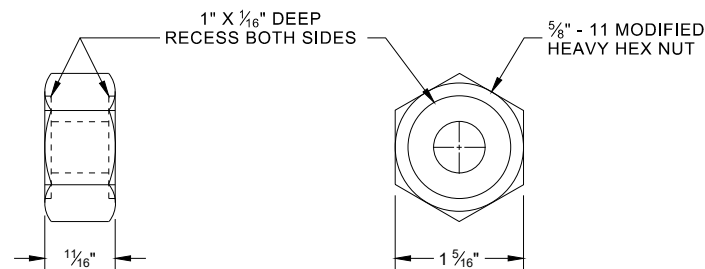


POST BOLT TABLE

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

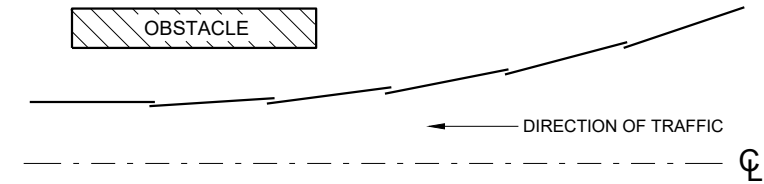


ALTERNATE BOLT HEAD

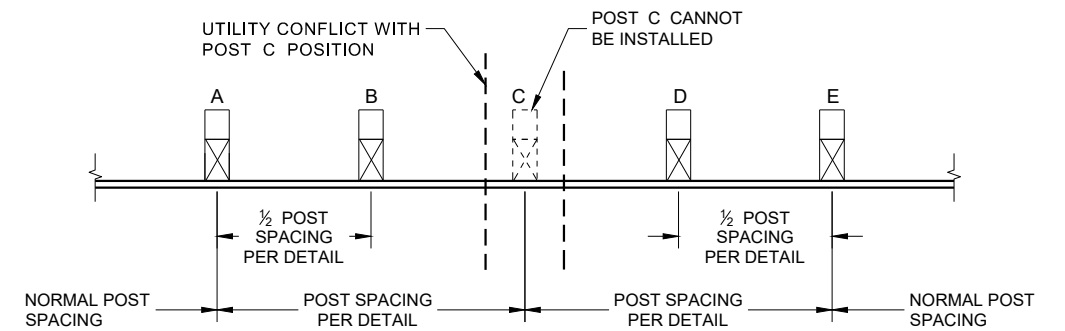


POST BOLT, SPLICE BOLT
AND RECESS NUT

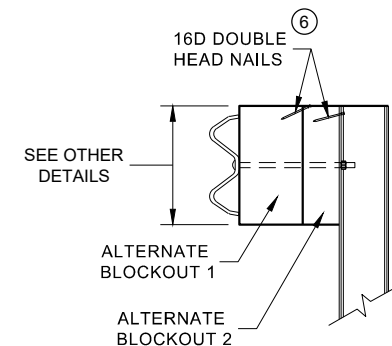
- 6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.



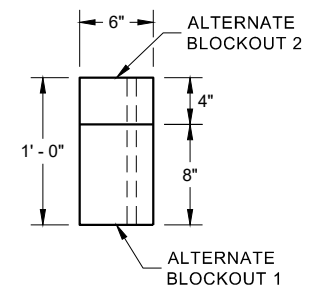
PLAN VIEW
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION



SIDE VIEW



PLAN VIEW

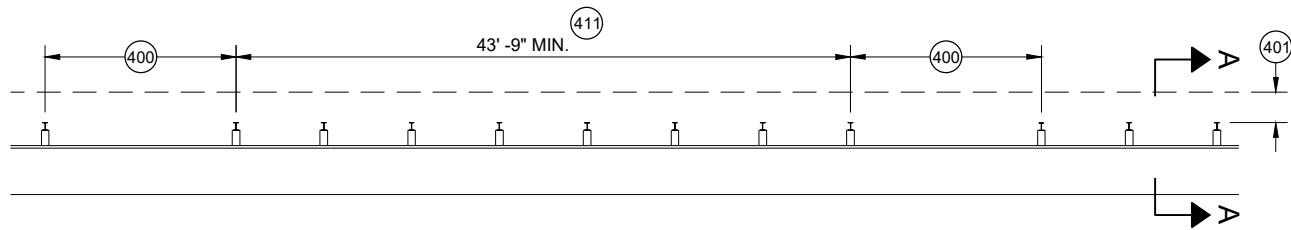
ALTERNATE WOOD
BLOCKOUT DETAIL

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.

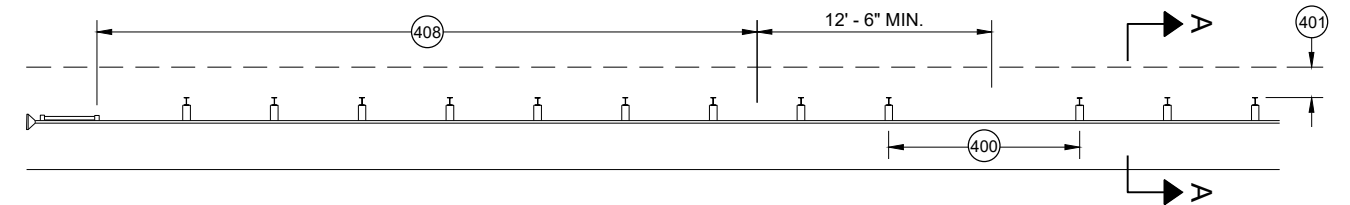
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

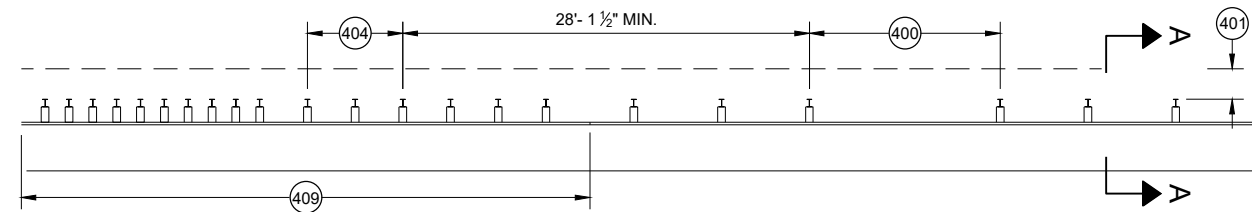
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 104



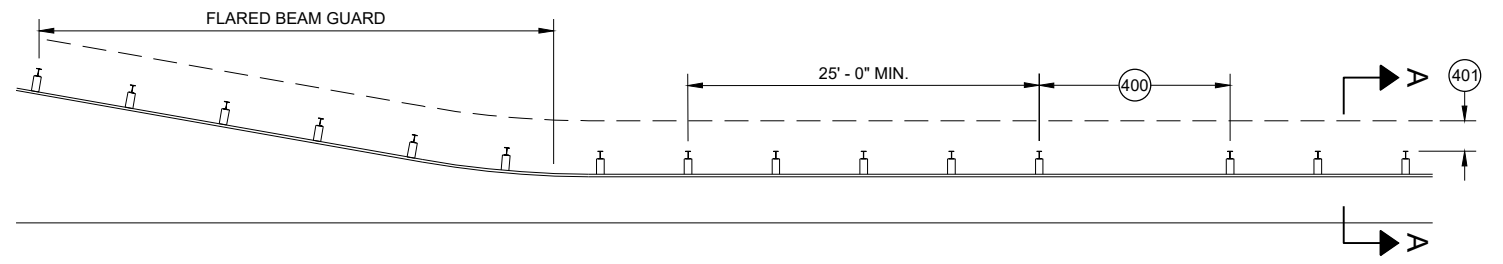
MISSING POST IN MGS GUARDRAIL



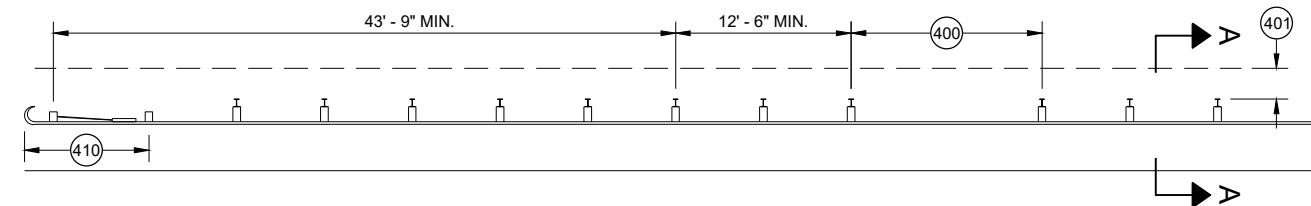
MISSING POST IN MGS GUARDRAIL NEAR EAT



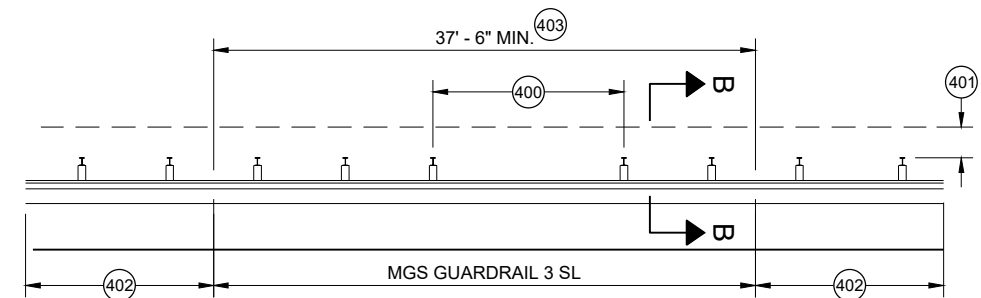
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

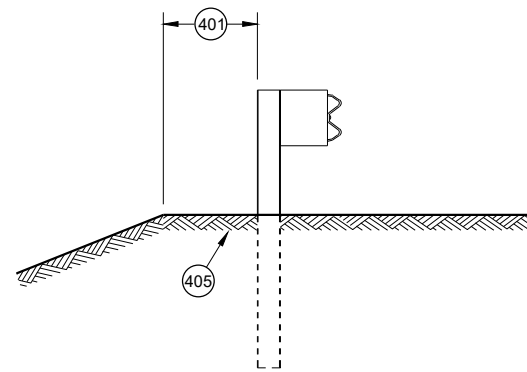


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

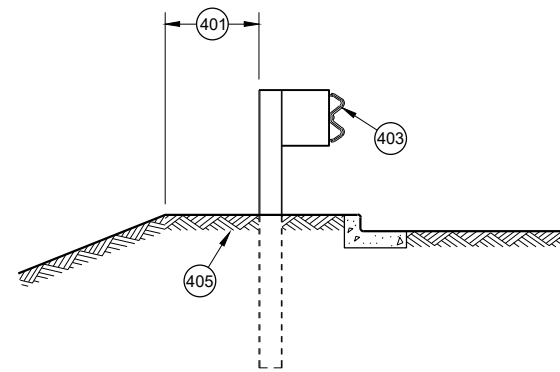


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	105

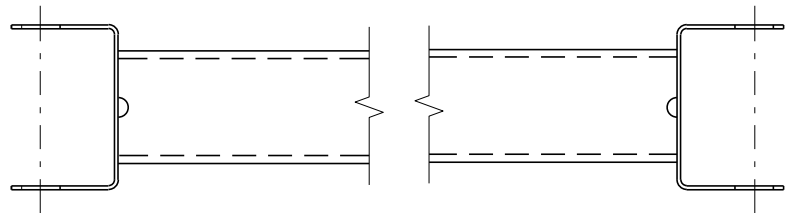
- A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE UP TO A MAXIMUM OF 2" ABOVE GROUND LINE. WOOD BLOCKS ON POSTS NUMBERED 3 THROUGH 9 MAY BE ADJUSTED UP TO 3" ABOVE THE TOP OF POST.

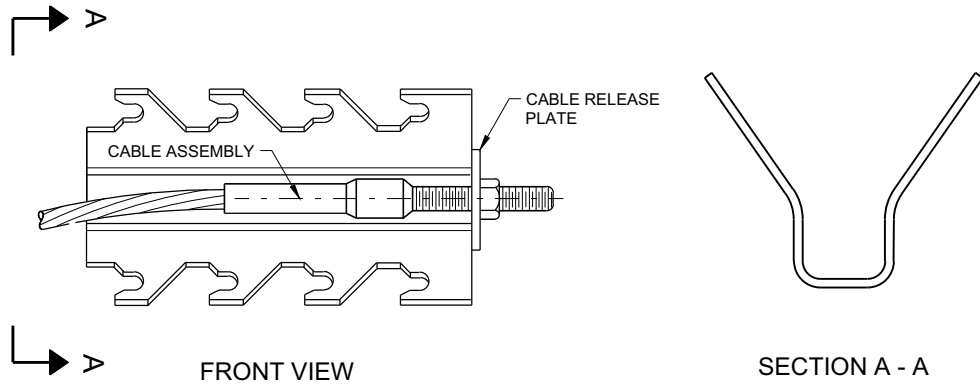


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 106

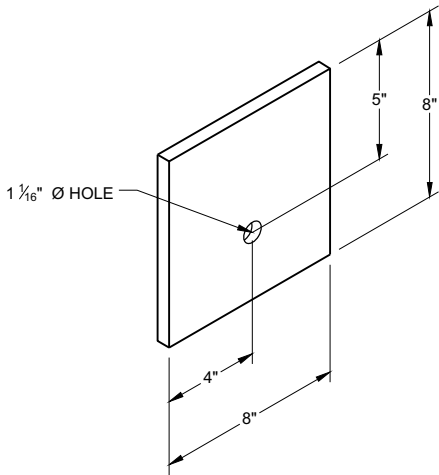


GENERIC GROUND STRUT⁹ ^E

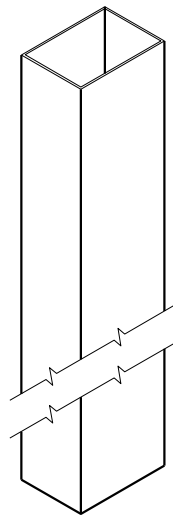
BILL OF MATERIALS	
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED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



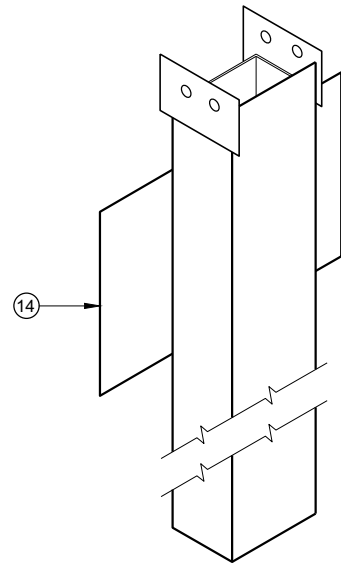
GENERIC ANCHOR CABLE BOX⁹ ^E



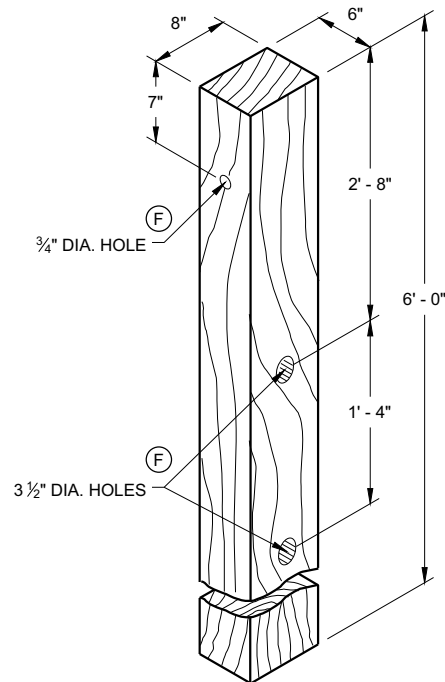
BEARING PLATE⁶ ^E



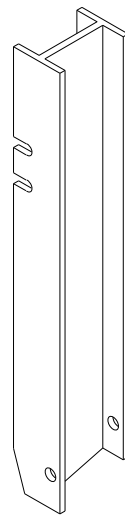
UPPER POST NO. 1 ⁽¹⁾ (E)



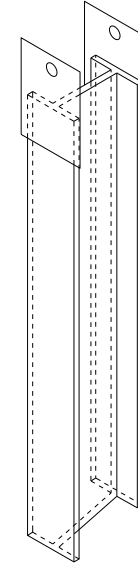
LOWER POST NO. 1 ⁽²⁾ (E)



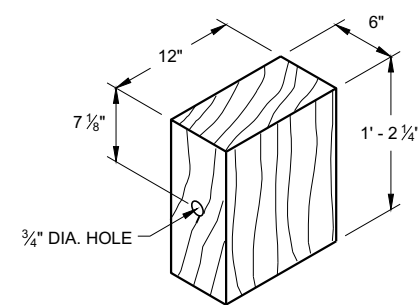
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



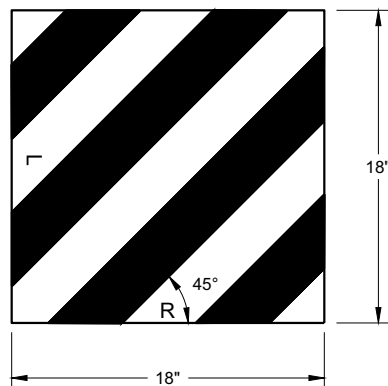
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



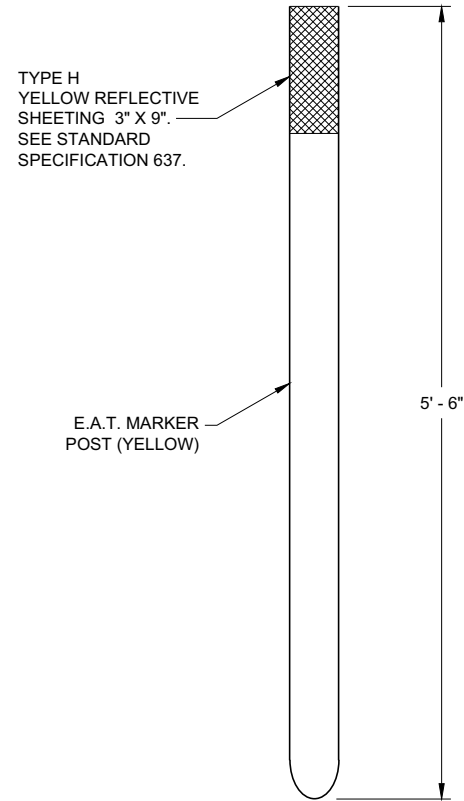
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



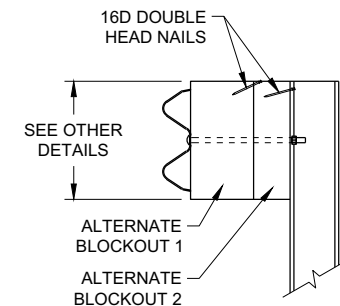
WOOD BLOCKOUT ⁽⁴⁾
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



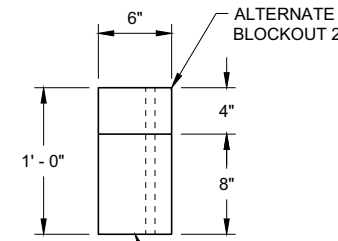
REFLECTIVE SHEETING DETAIL ^(E)



E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



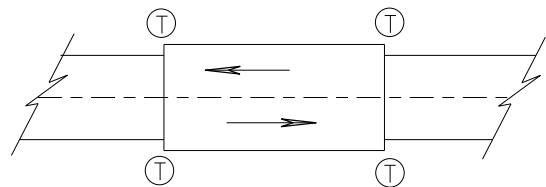
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

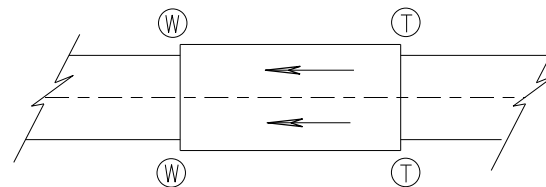
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
108
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

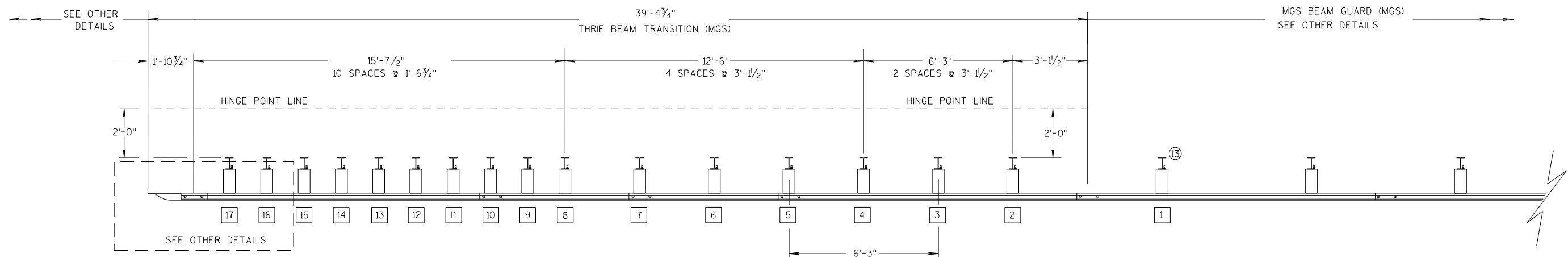
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

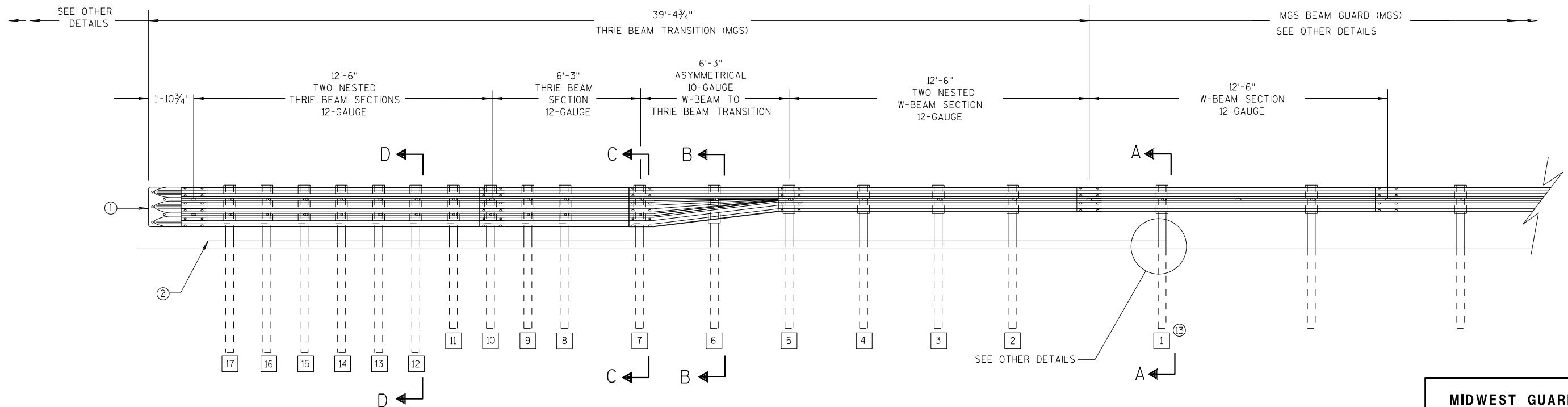
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

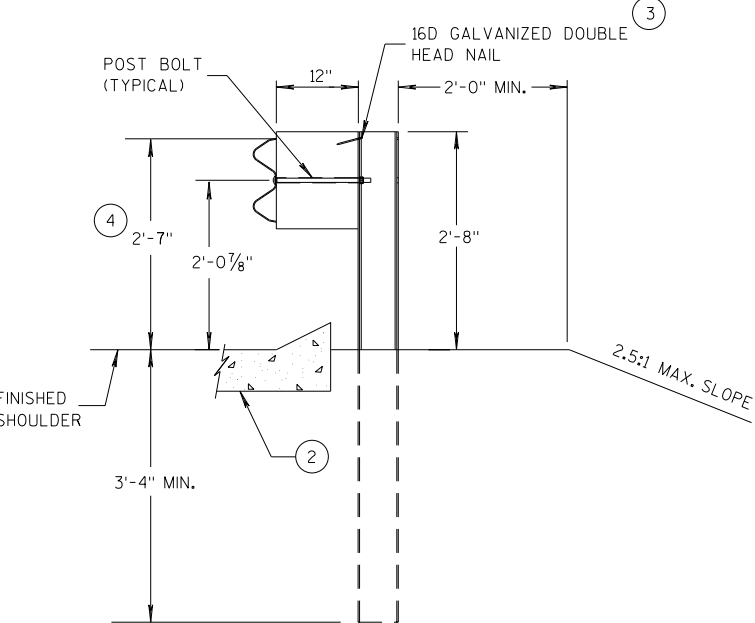
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

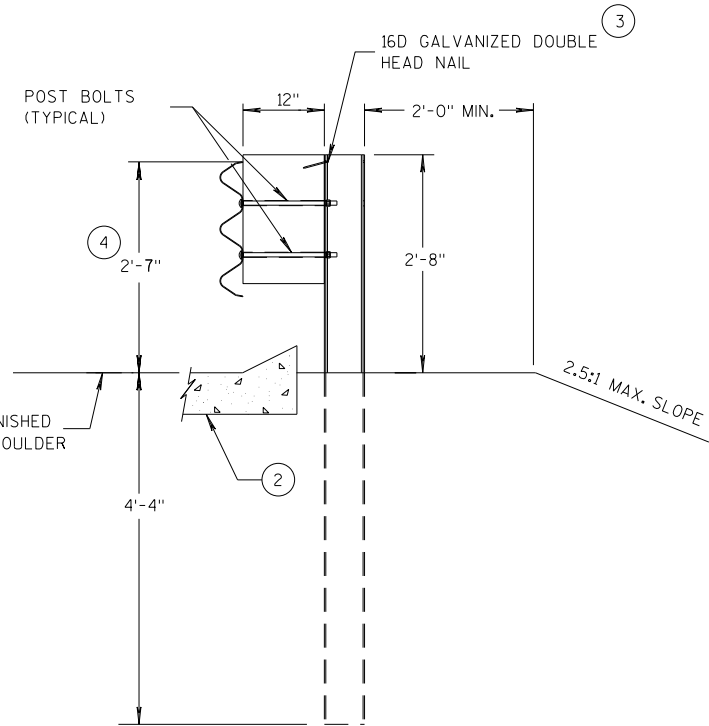
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 109

GENERAL NOTES

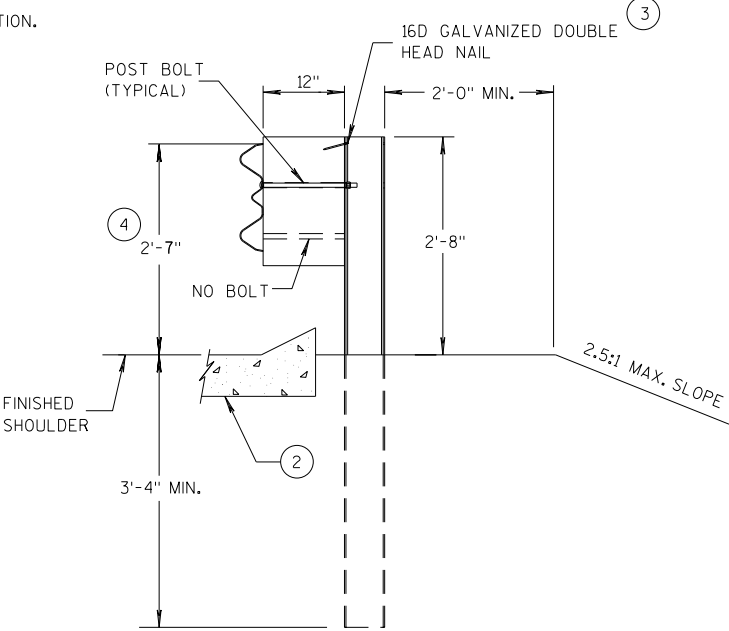
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm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



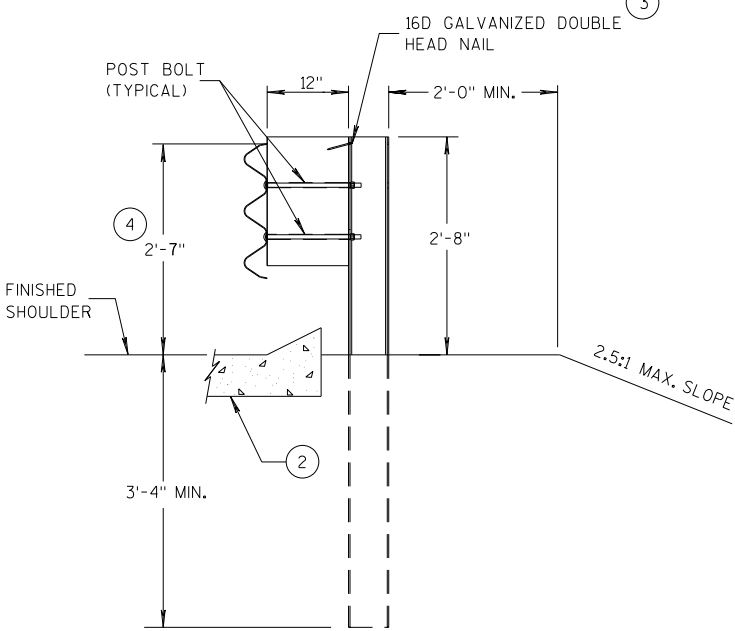
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

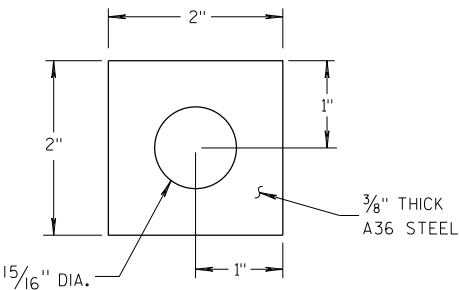
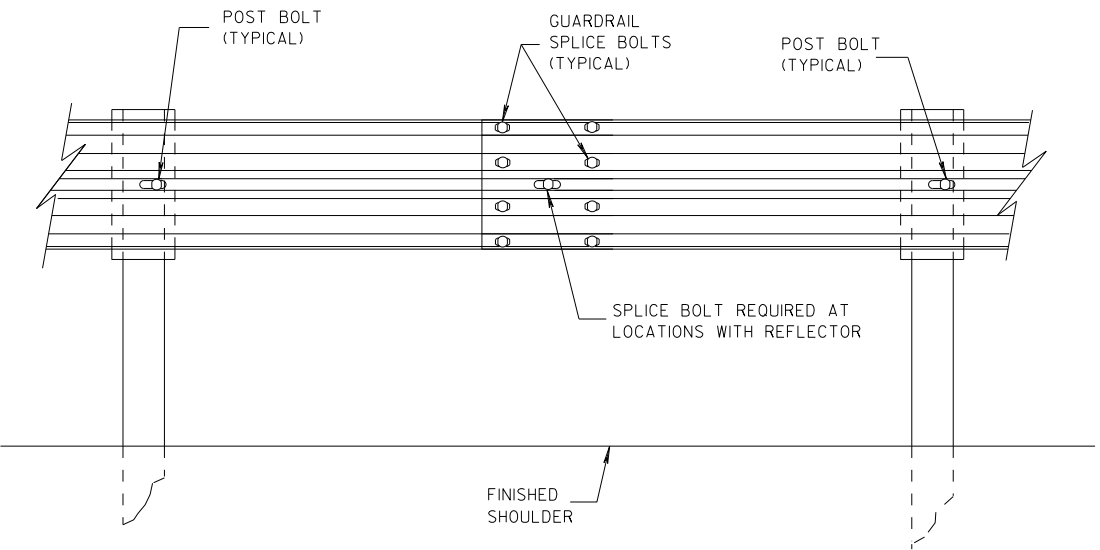
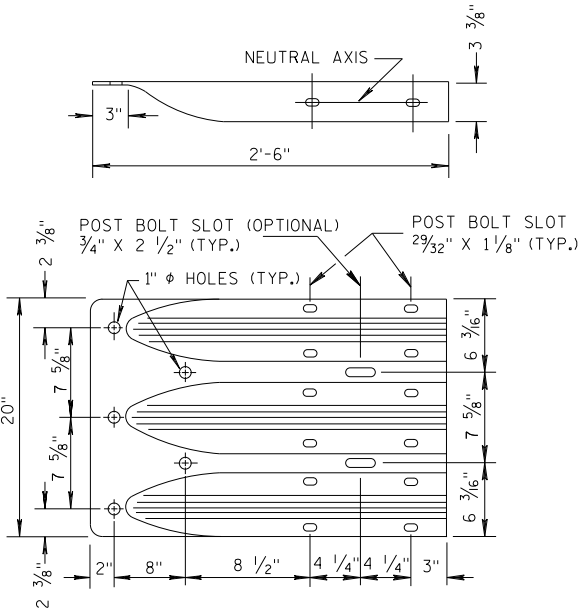


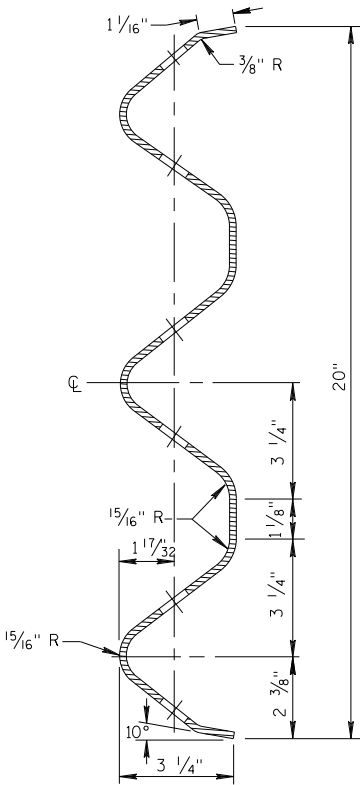
PLATE WASHER DETAIL



SPlice DETAIL



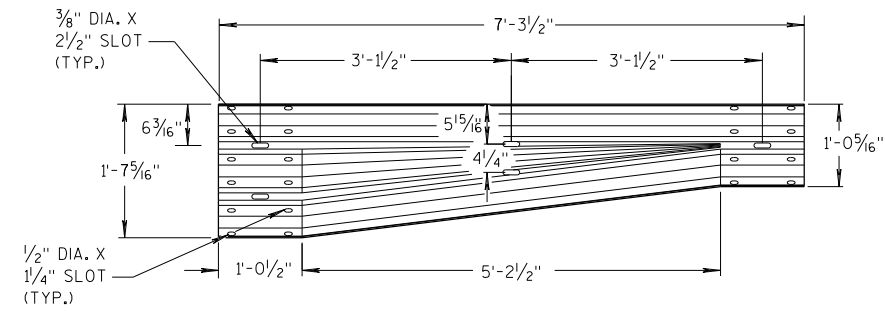
THRIE BEAM
TERMINAL CONNECTOR



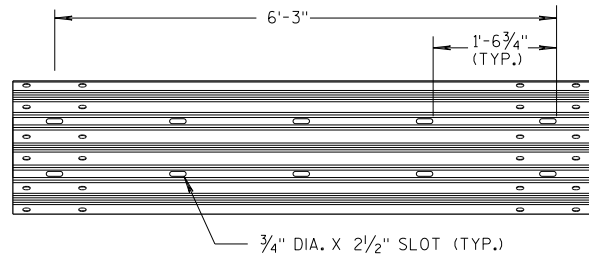
SECTION THRU THRIE
BEAM RAIL ELEMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

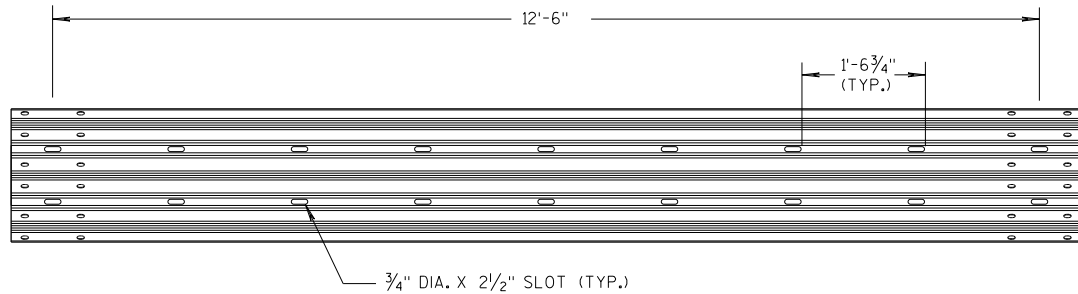
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



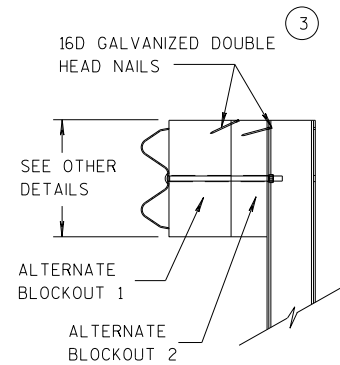
W-BEAM TO THRIE BEAM TRANSITION SECTION



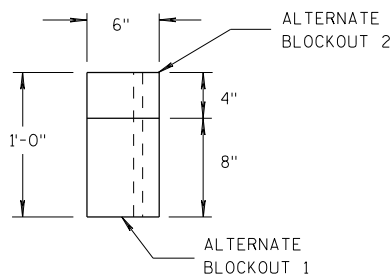
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

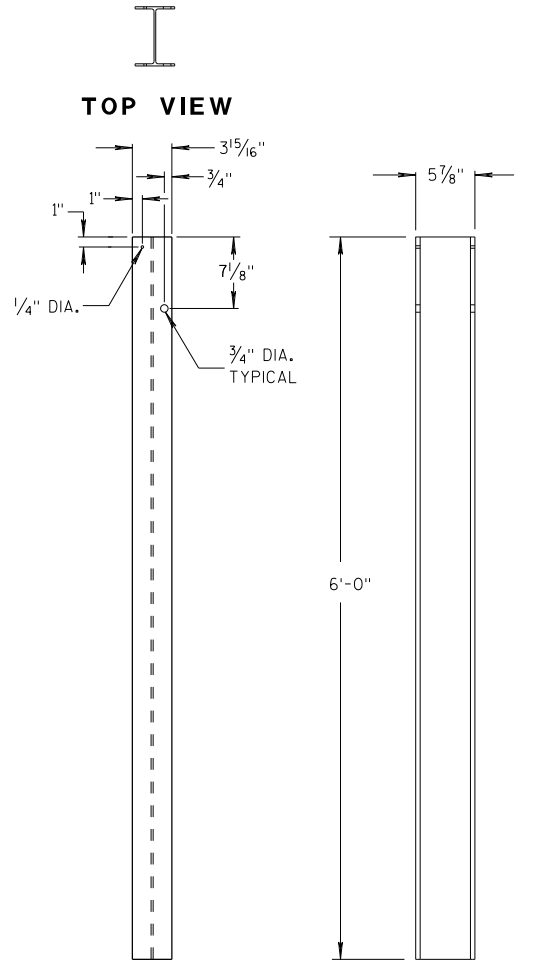


SIDE VIEW



TOP VIEW

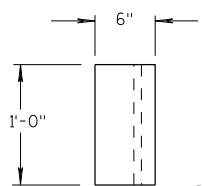
ALTERNATE WOOD BLOCKOUT DETAIL



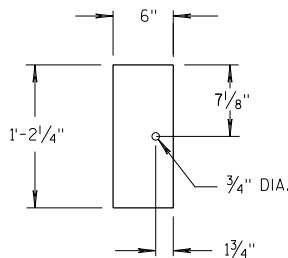
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

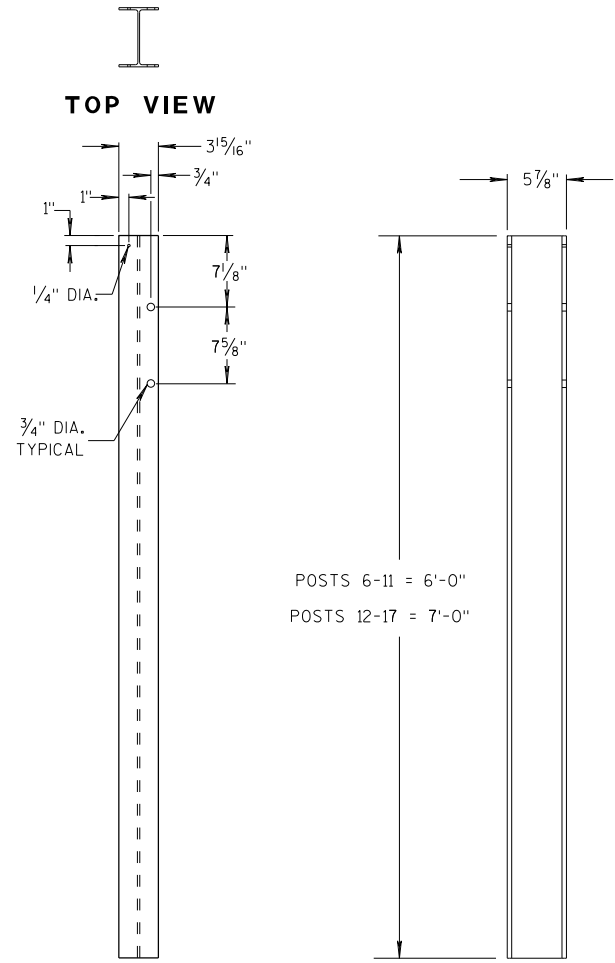


TOP VIEW



FRONT VIEW

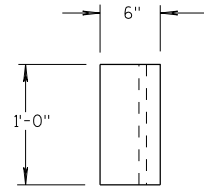
BLOCKOUT POSTS 1-5



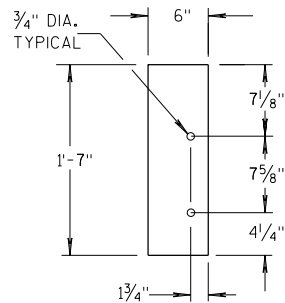
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

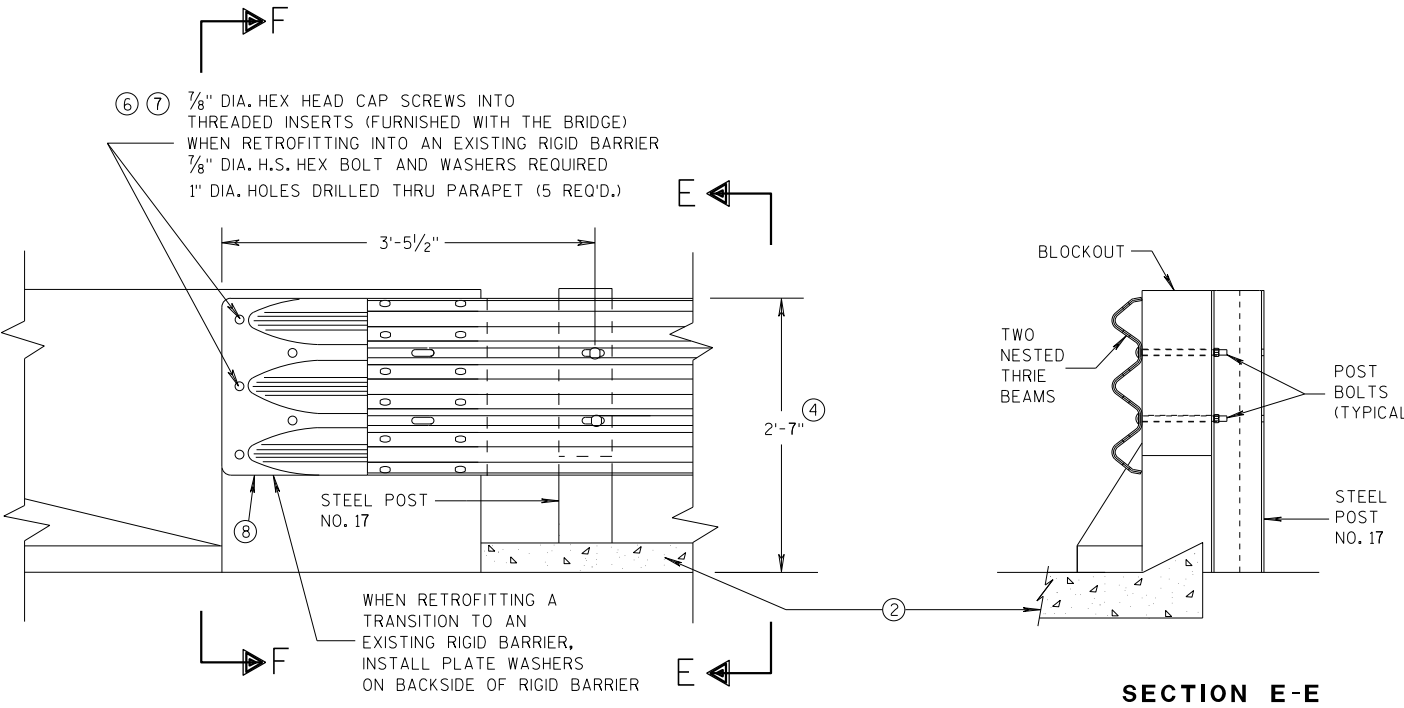
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

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

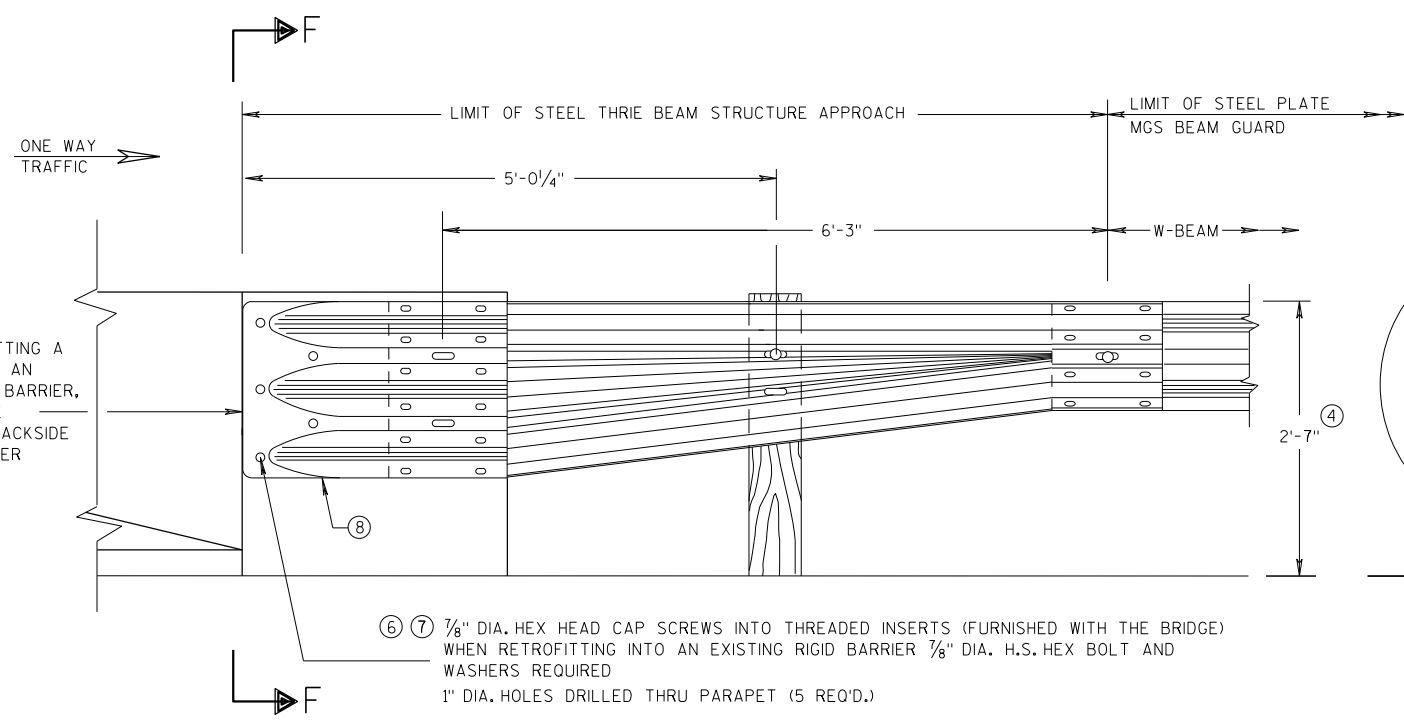
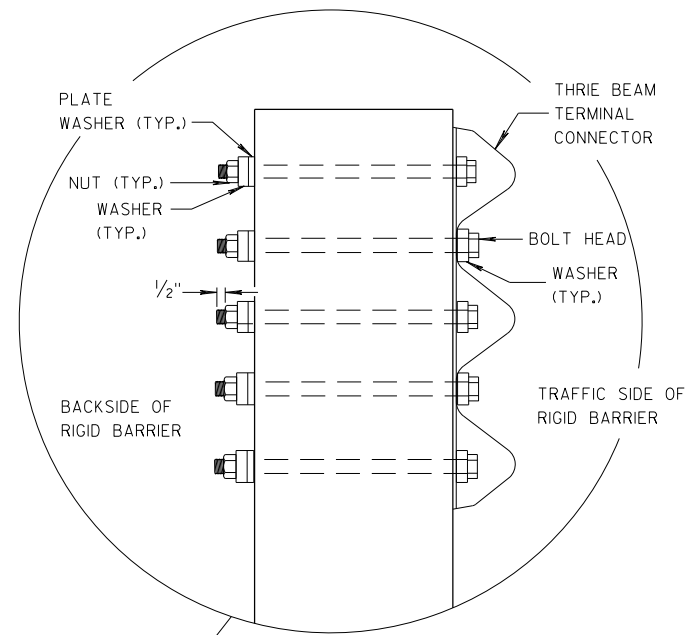
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 111

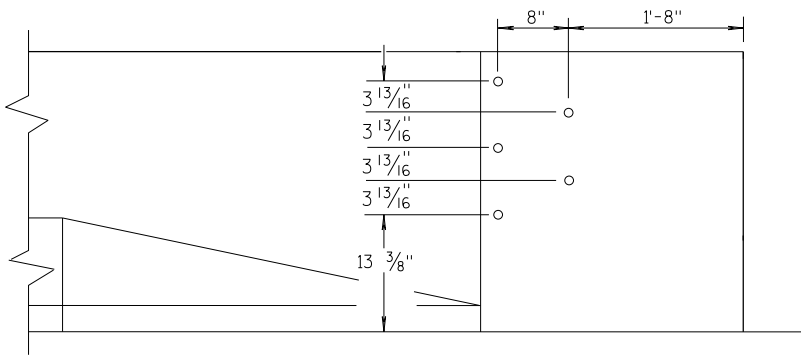


GENERAL NOTES

- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



SECTION F-F



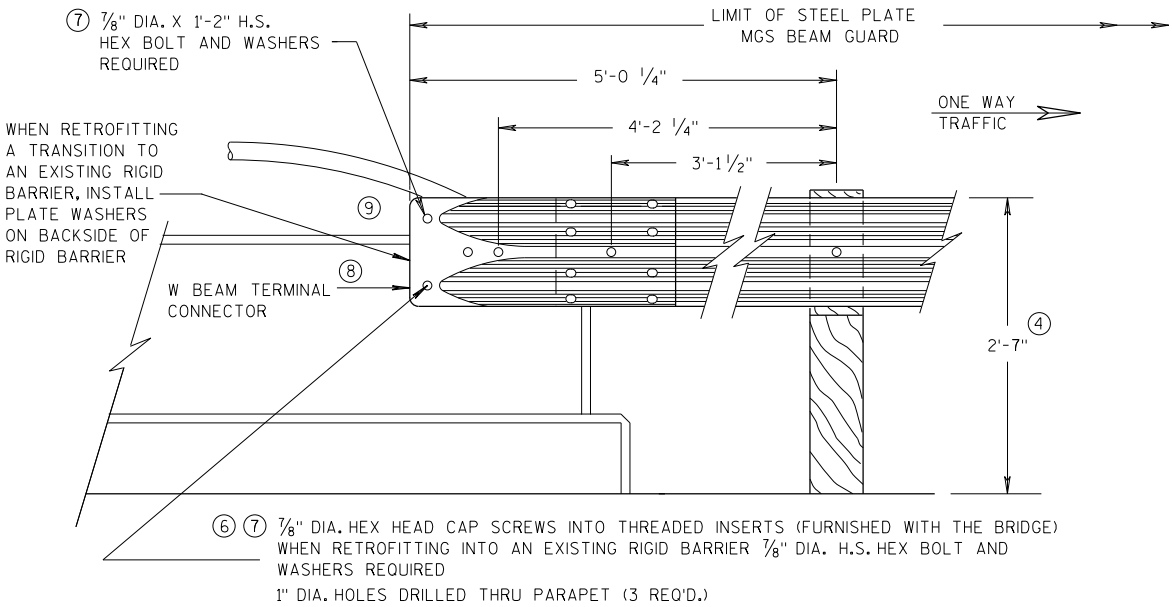
DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR		
FHWA	112	NT	

GENERAL NOTES

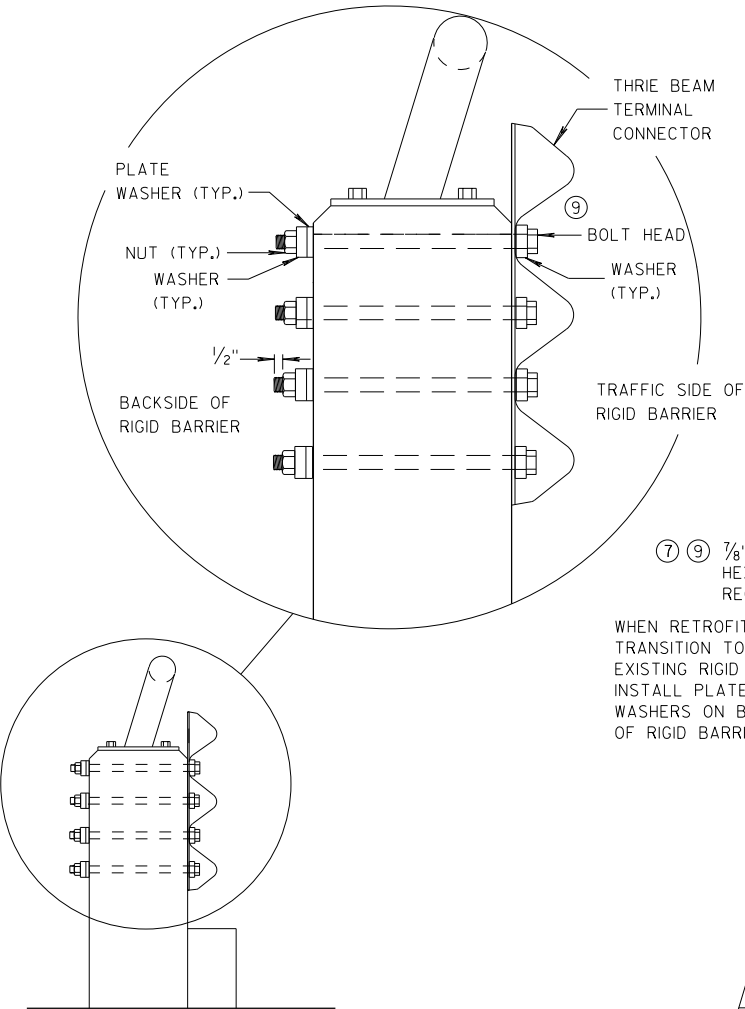
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{32}"$ THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 $\frac{1}{2}"$.
- BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

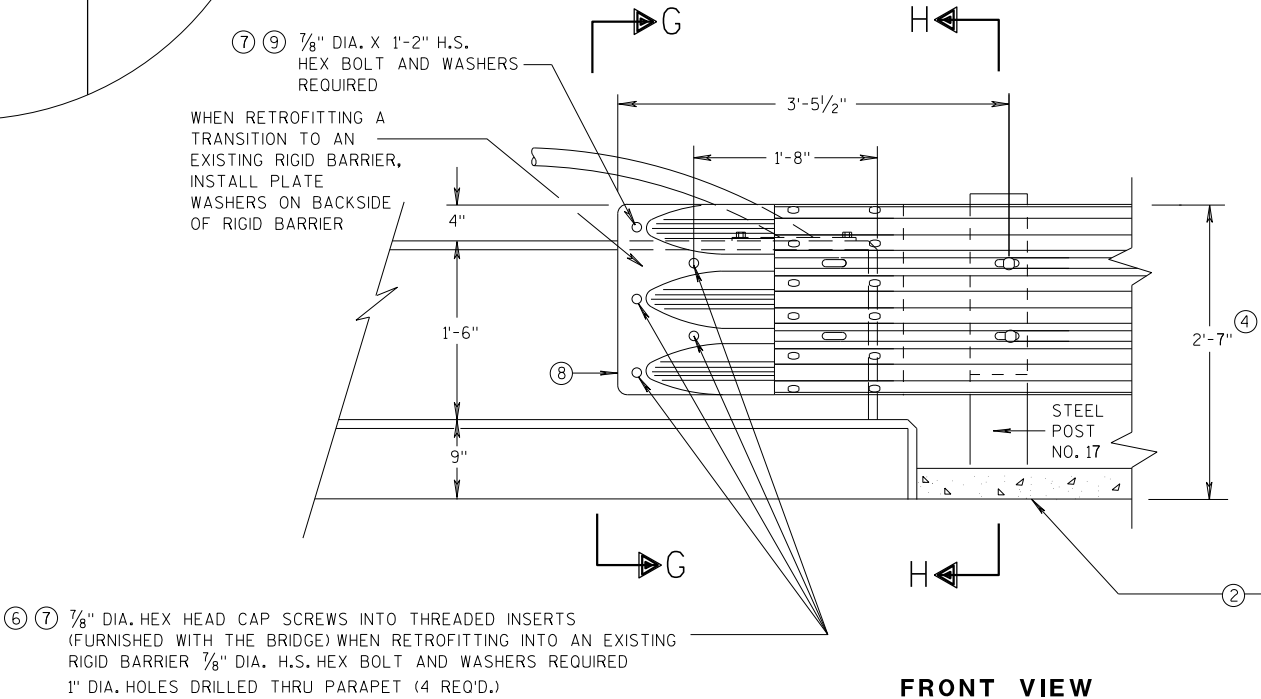


FRONT VIEW

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

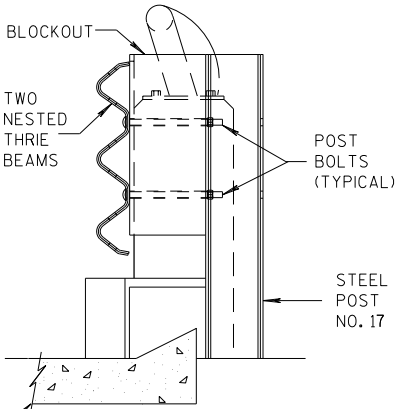


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

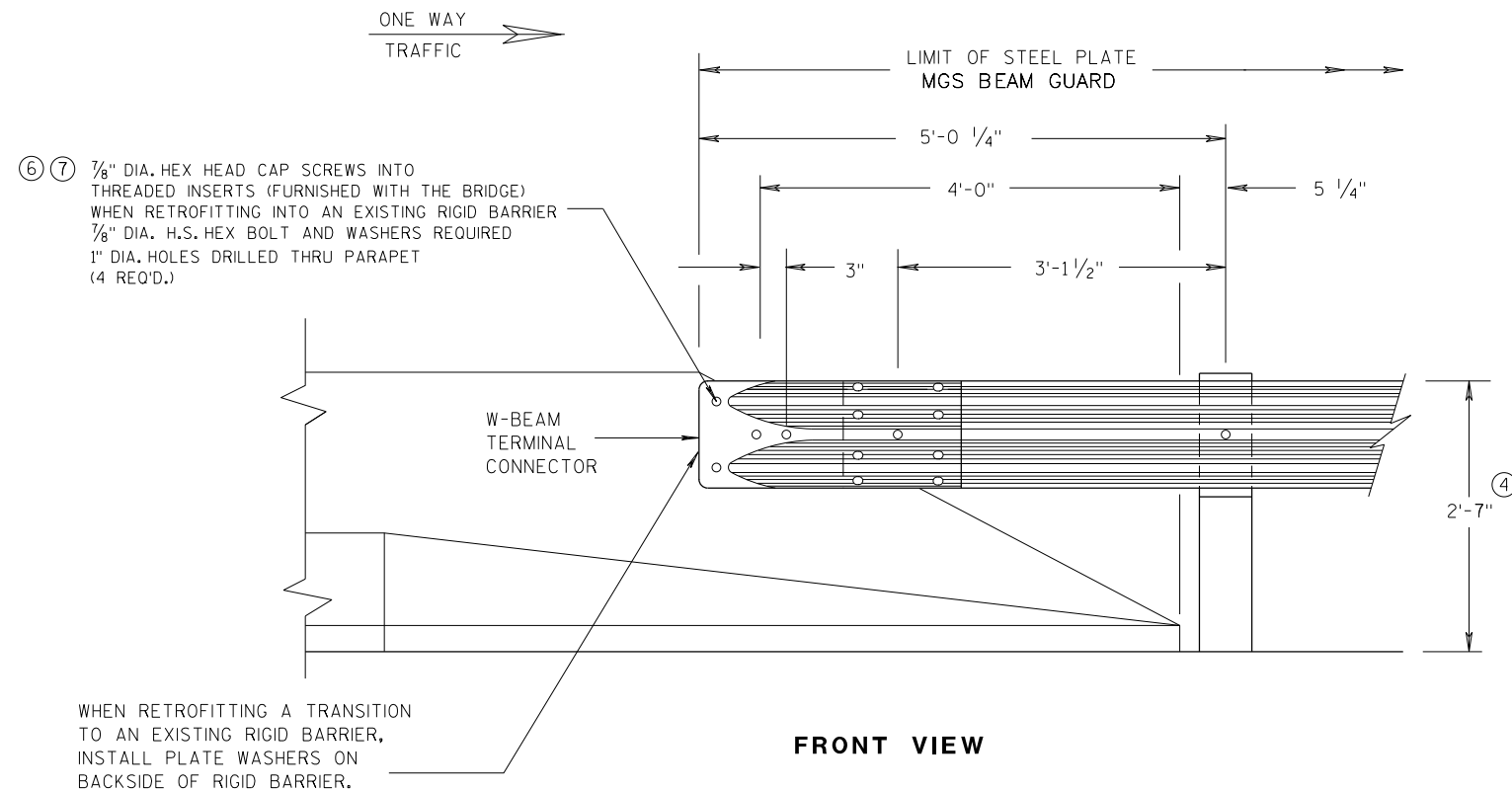


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

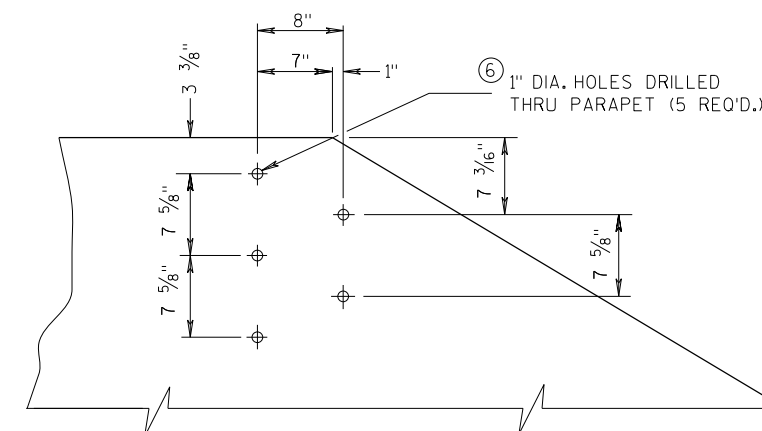
APPROVED
07/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
113
FHWA



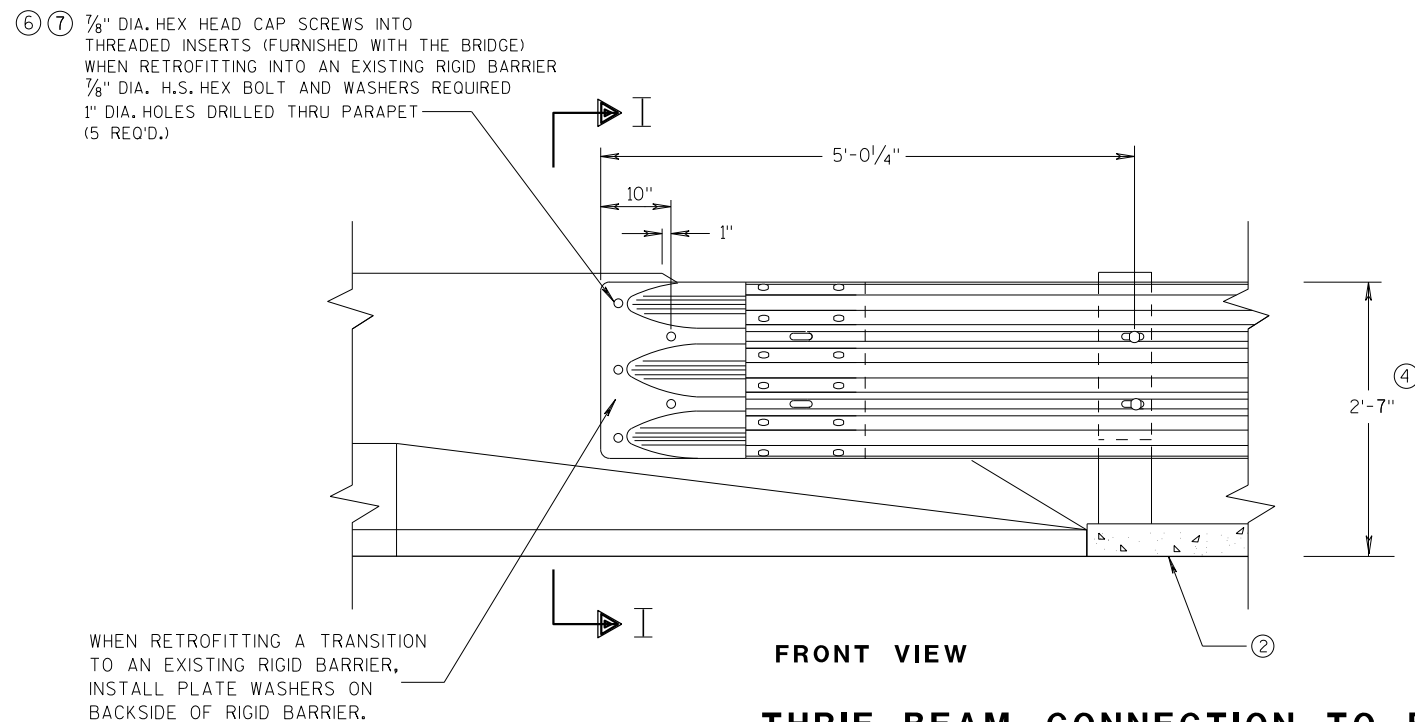
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

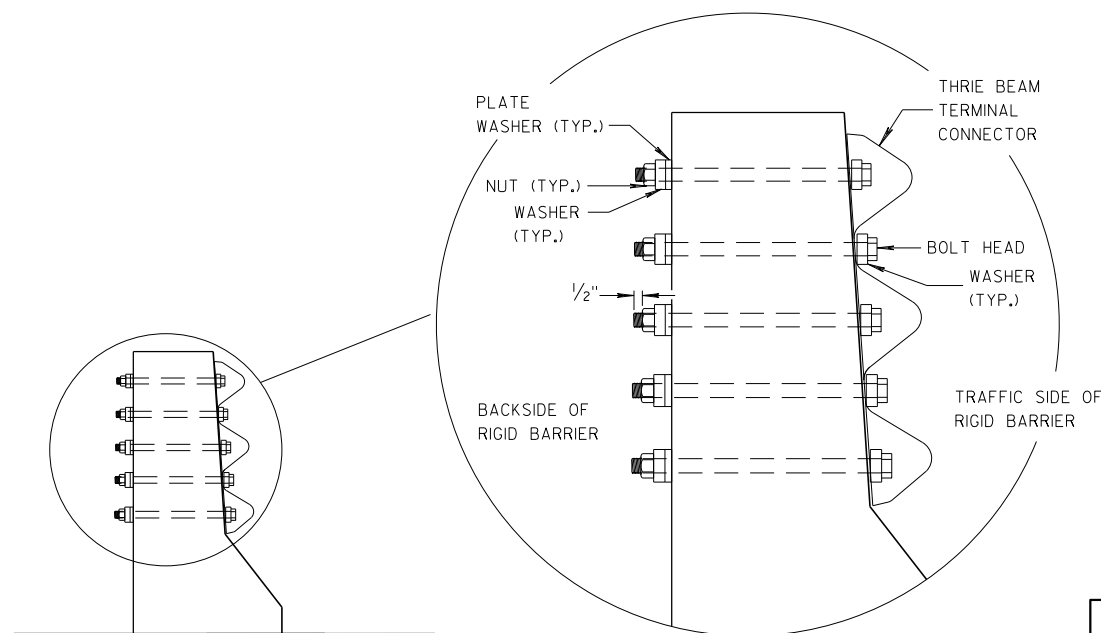
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH 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**



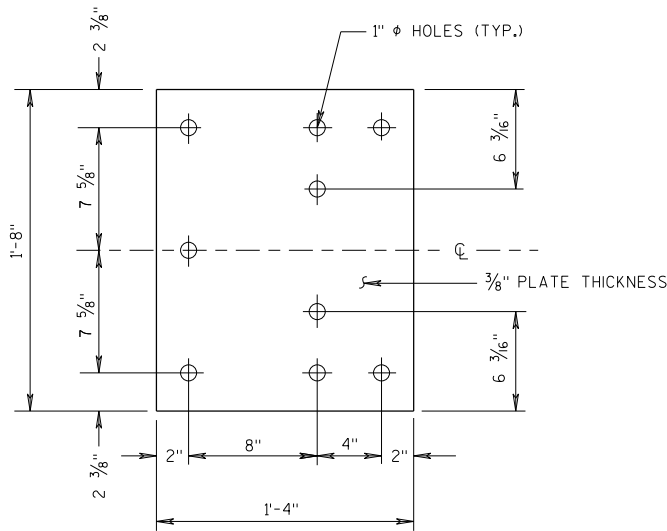
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



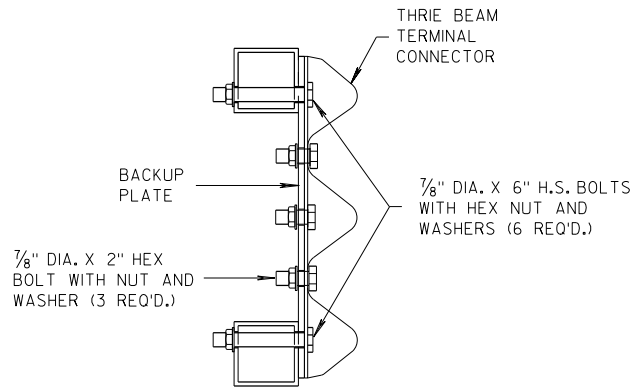
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

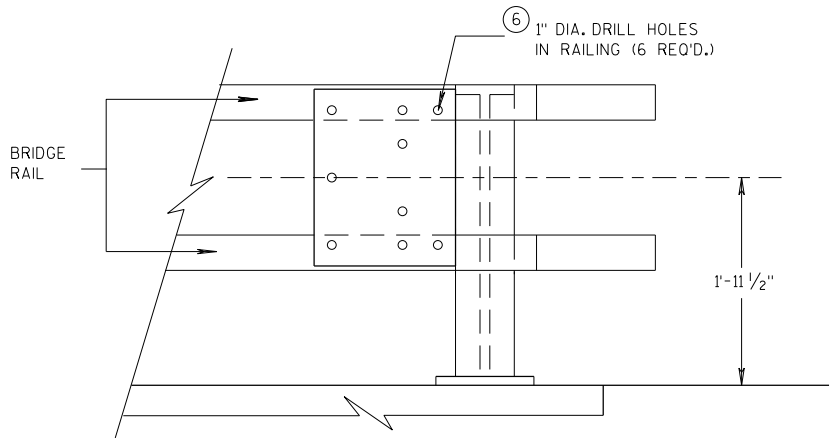
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR 114
FHWA



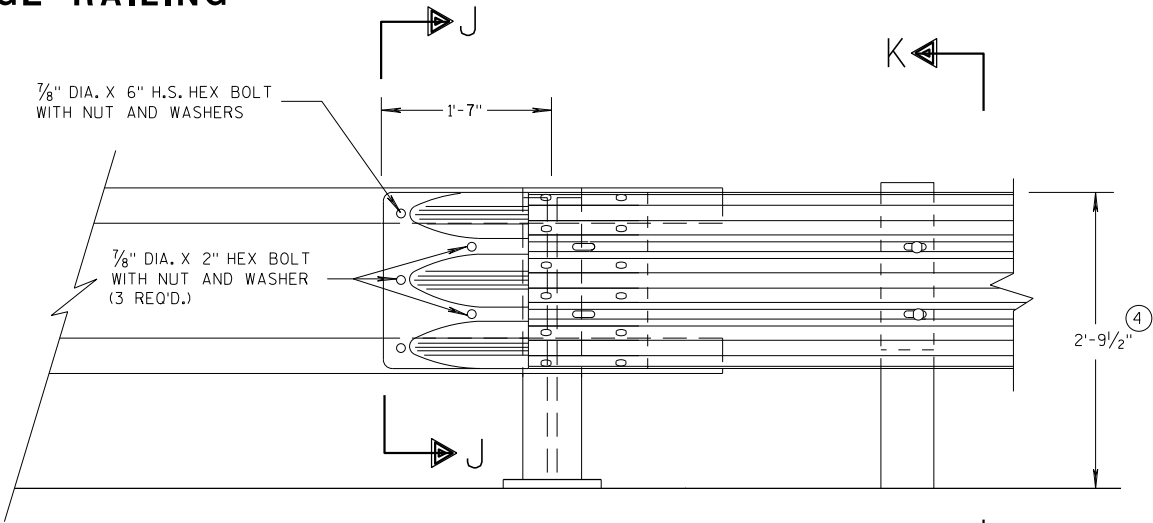
BACK-UP PLATE DETAIL



SECTION J-J

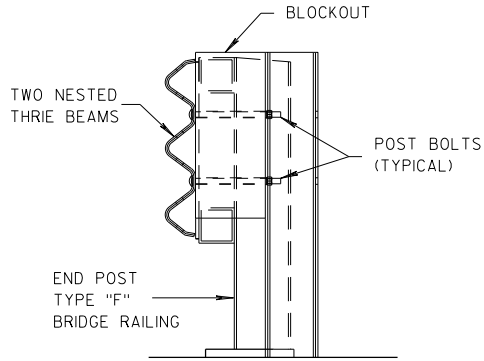


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

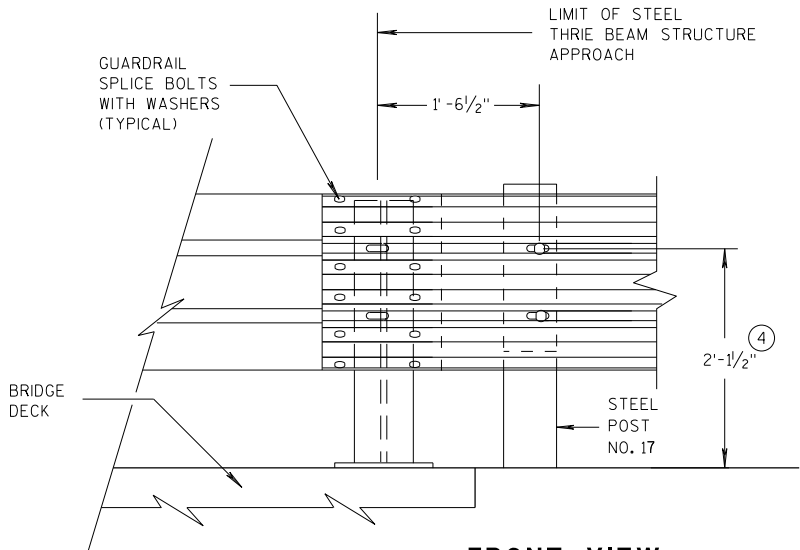
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

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



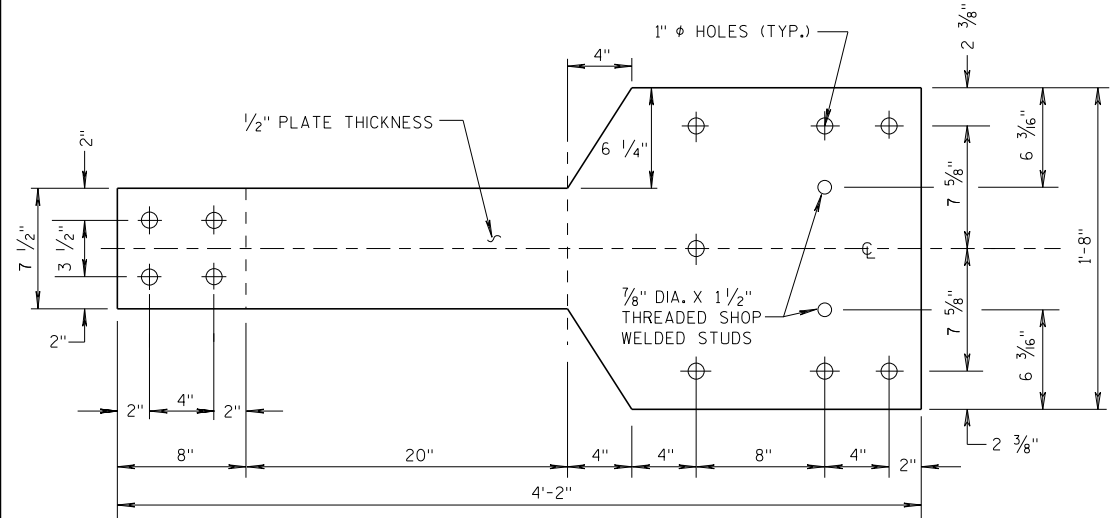
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

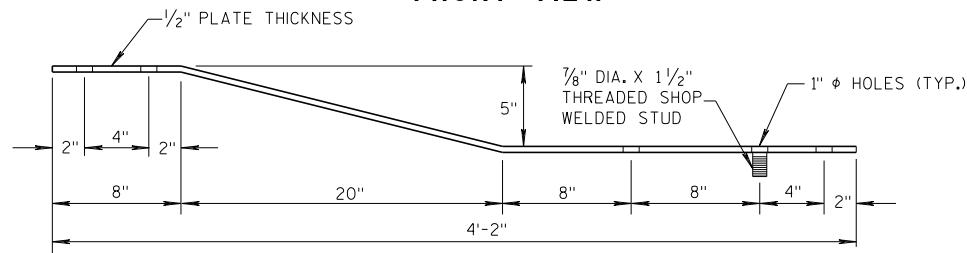
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor 115 ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

GENERAL NOTES

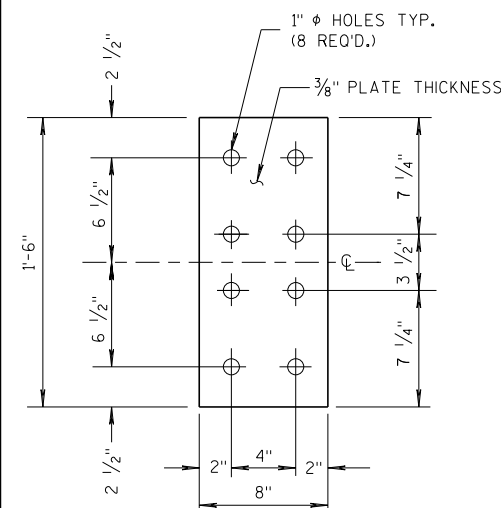
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



FRONT VIEW

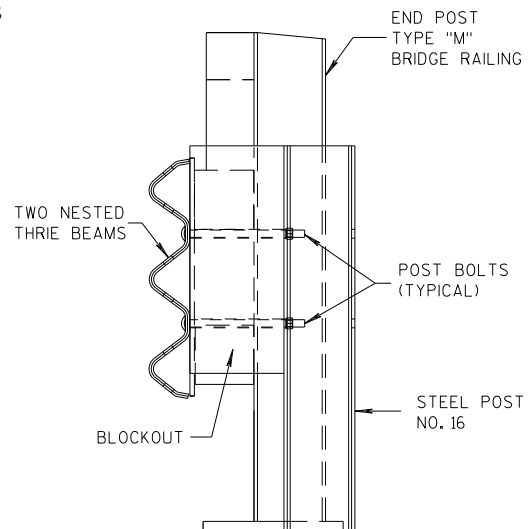


PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"

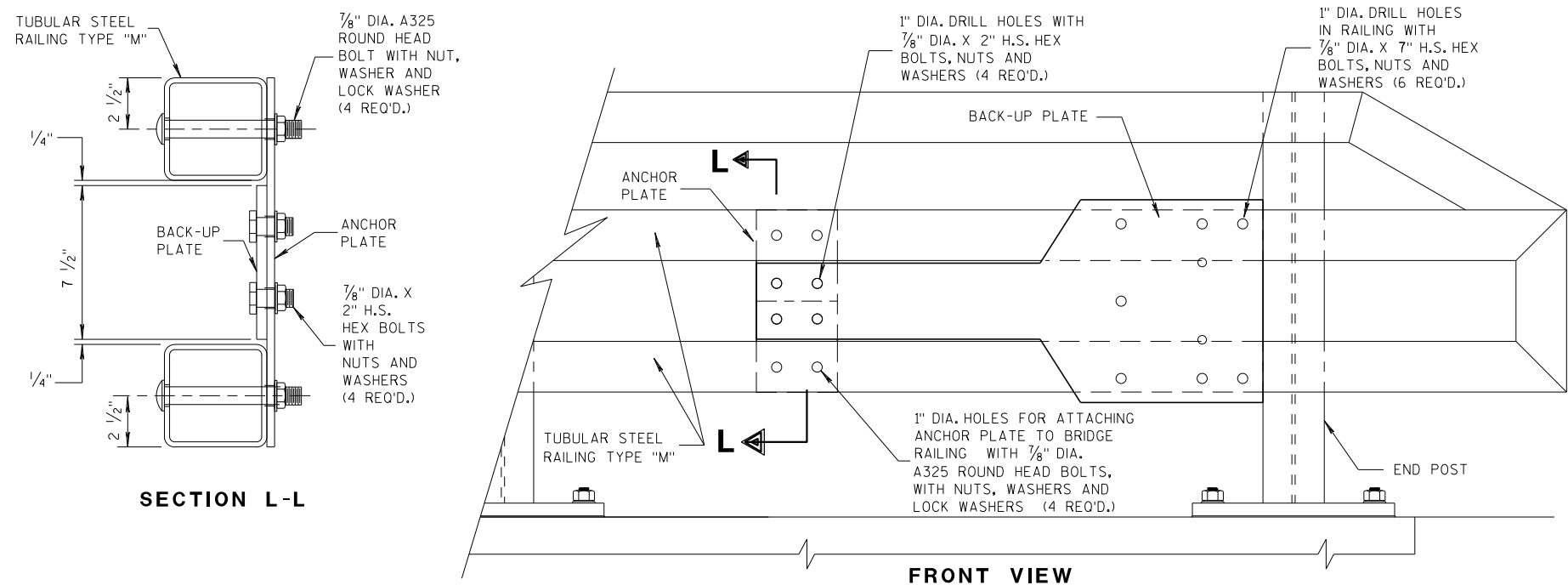


FRONT VIEW

ANCHOR
PLATE DETAIL,
TYPE "M"



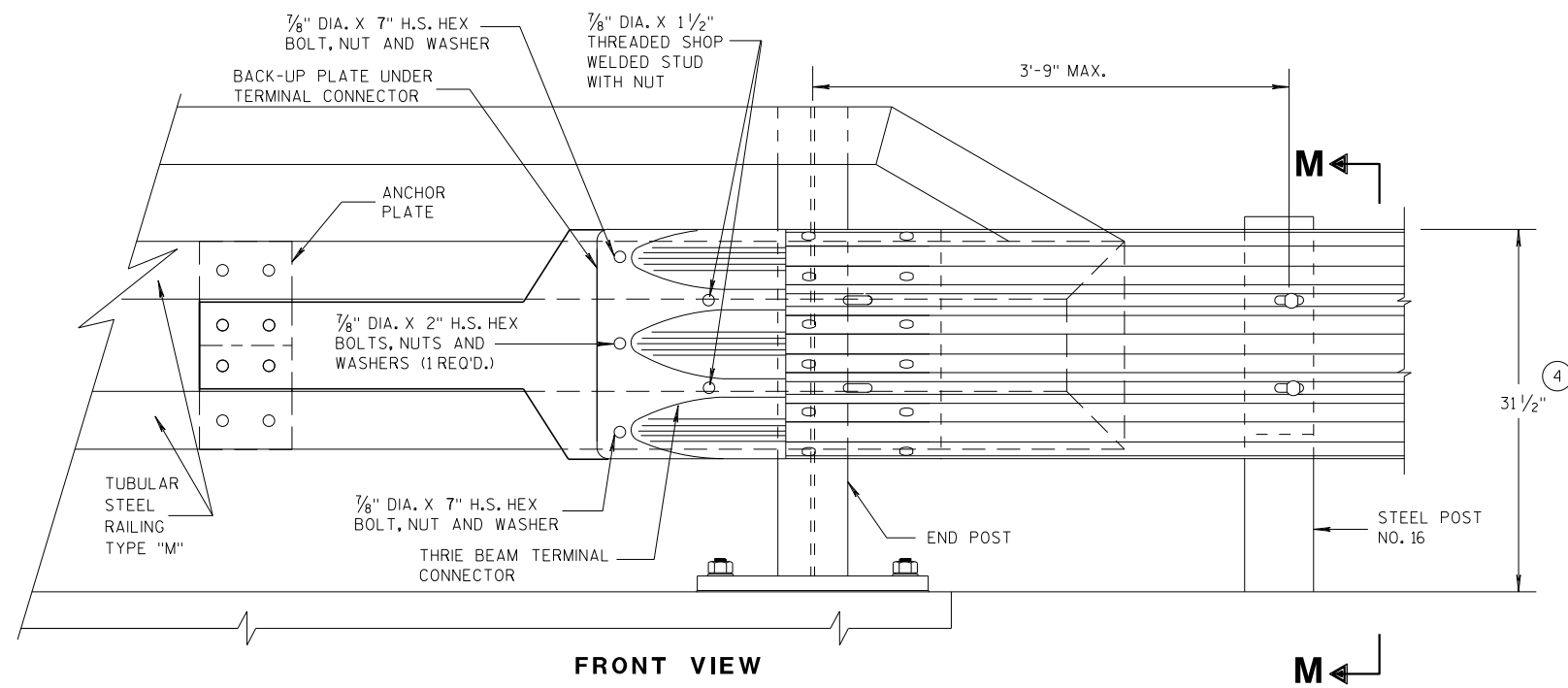
SECTION M-M



SECTION L-L

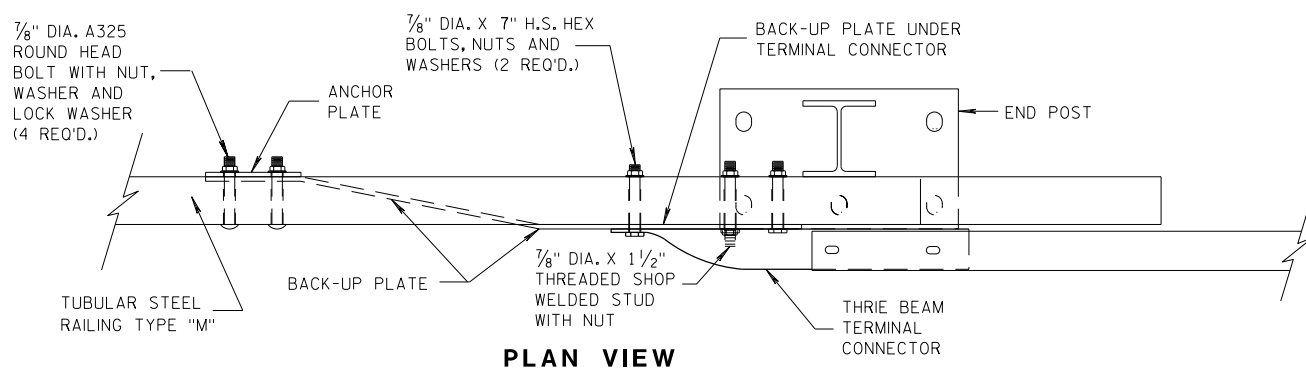
FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW

M



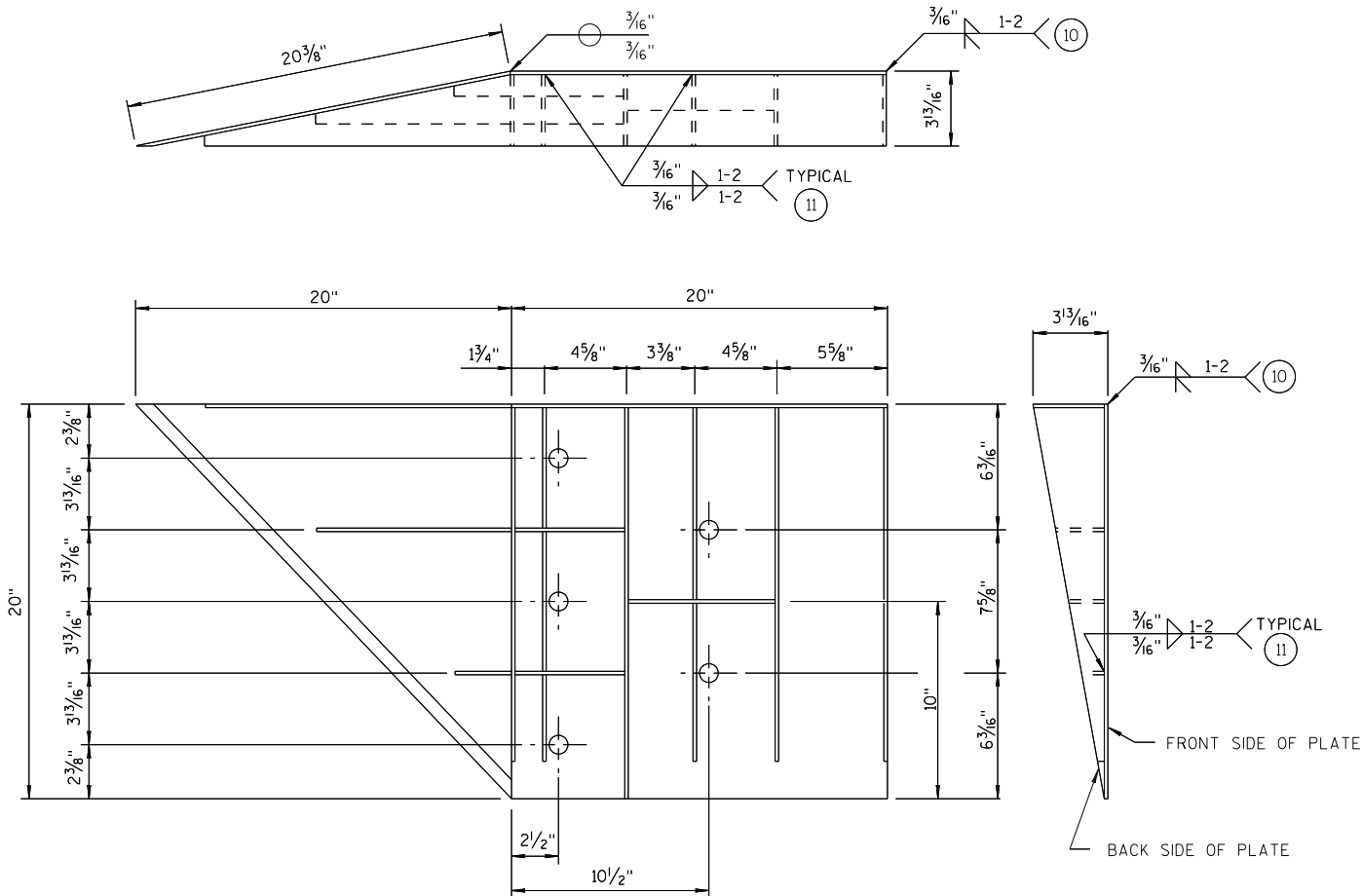
PLAN VIEW

THREE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

MIDWEST GUARDRAIL SYSTEM
THREE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
116
FHWA



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

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

SINGLE SLOPE CONNECTION PLATE

GENERAL NOTES

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

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

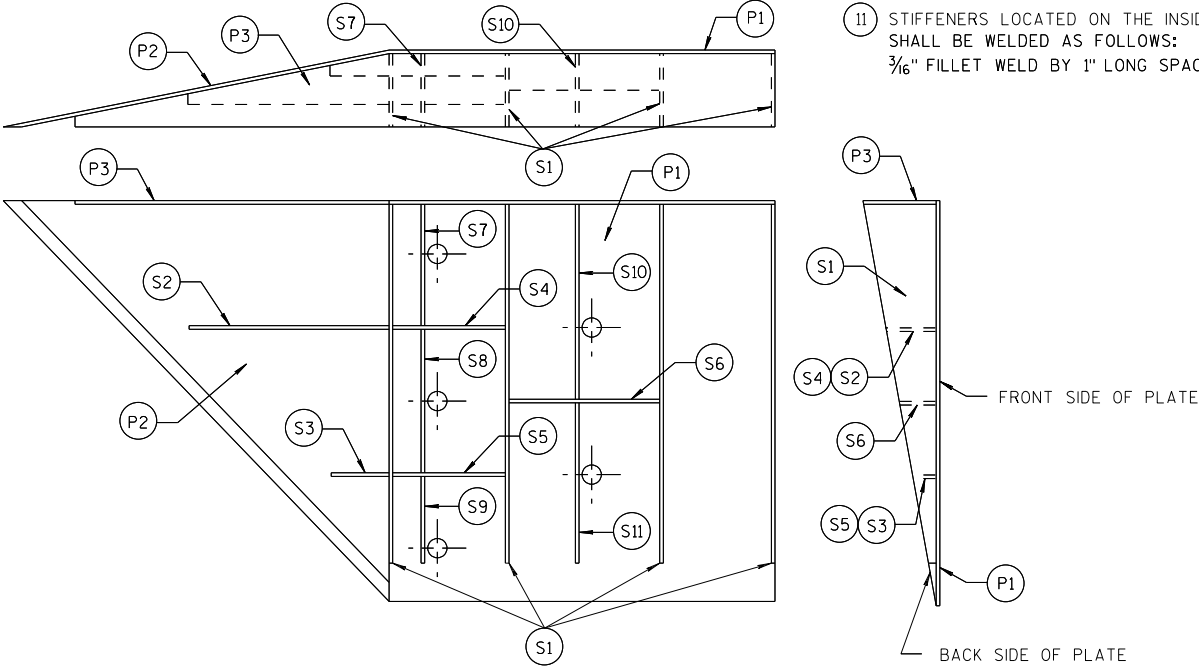


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

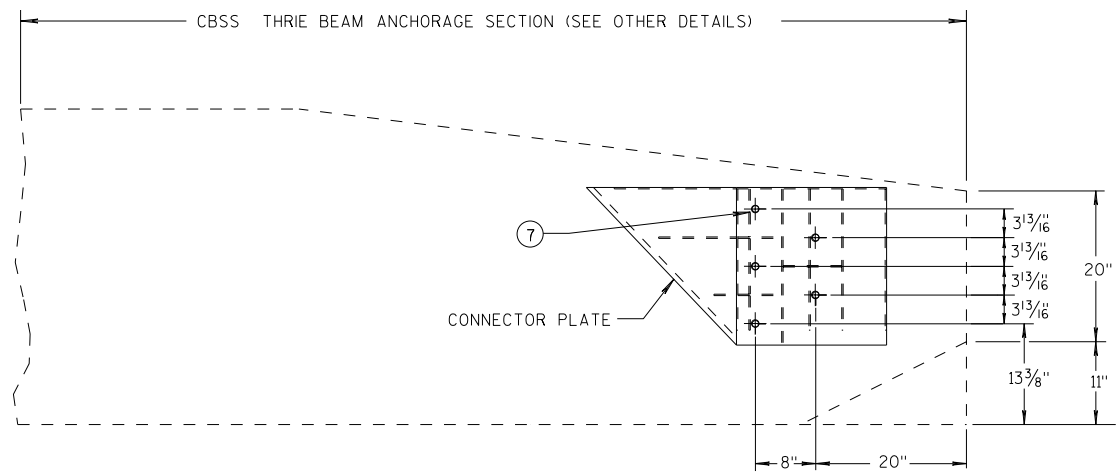
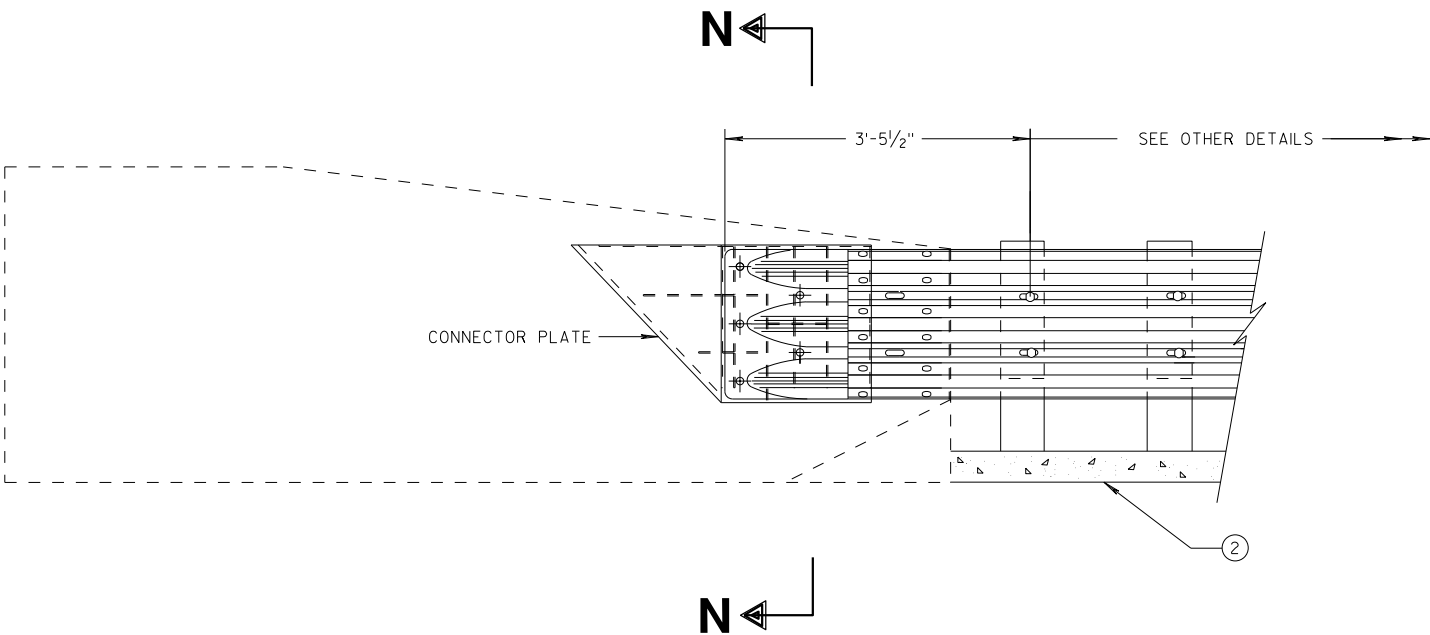
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
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THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



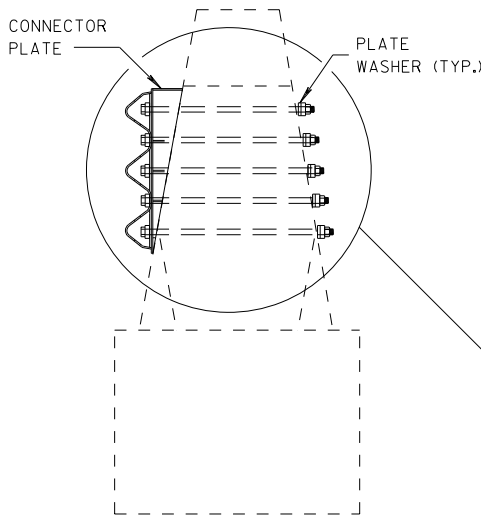
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

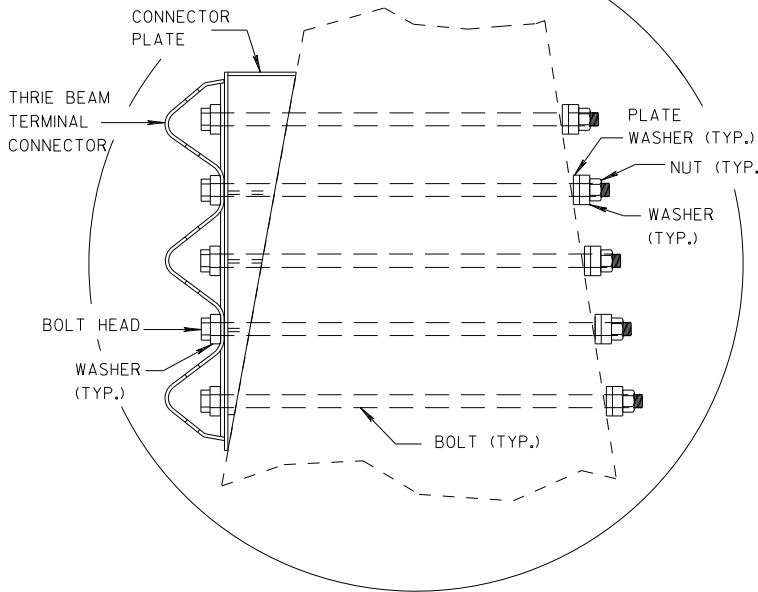
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

(7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



SECTION N-N



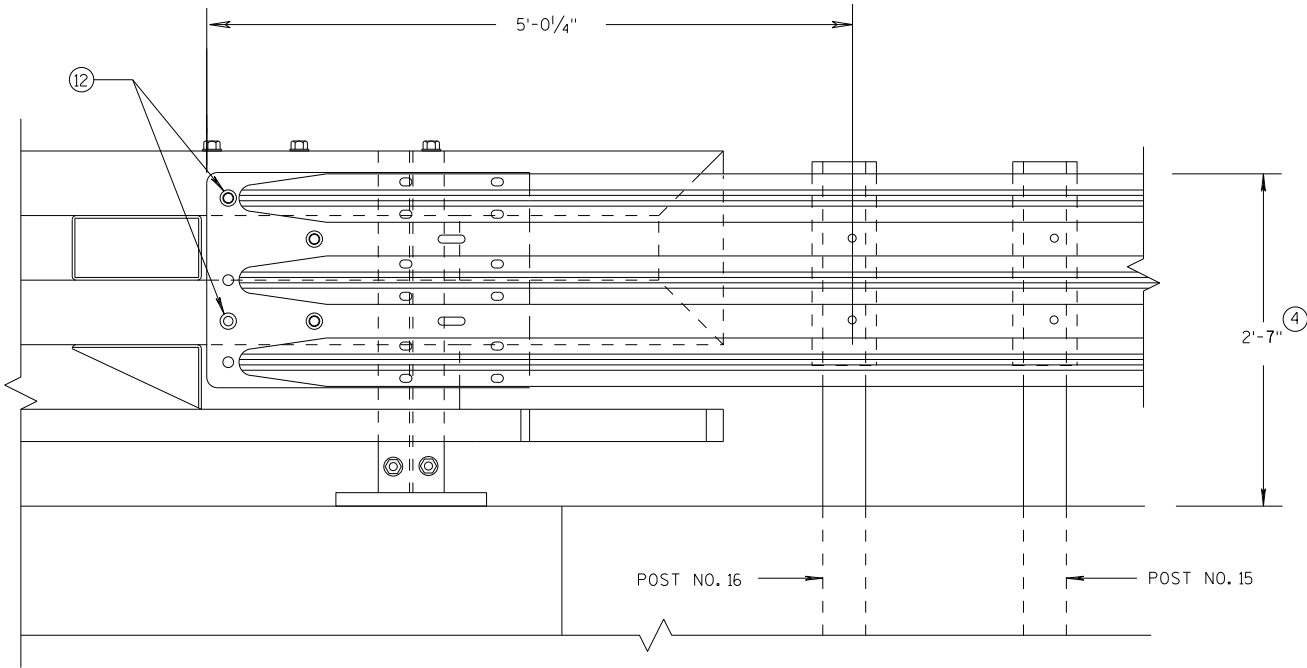
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

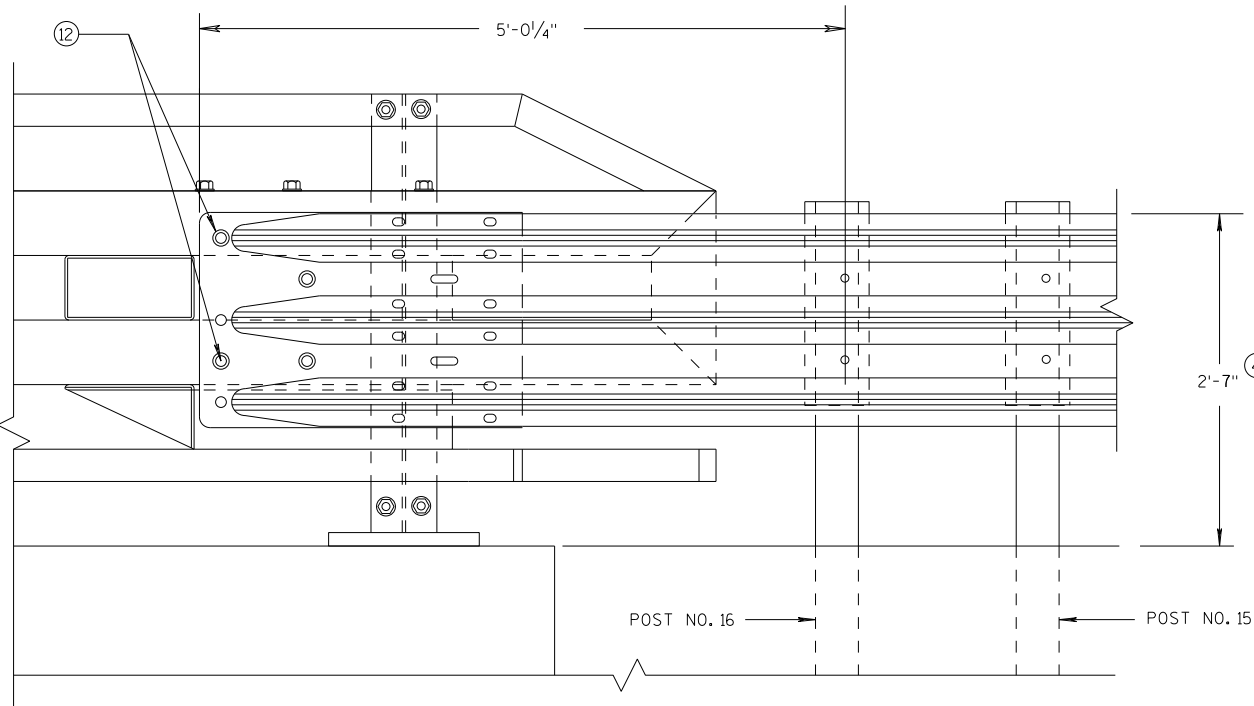
APPROVED
7/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DISTRICT UNIT SUPERVISOR 118
FHWA

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

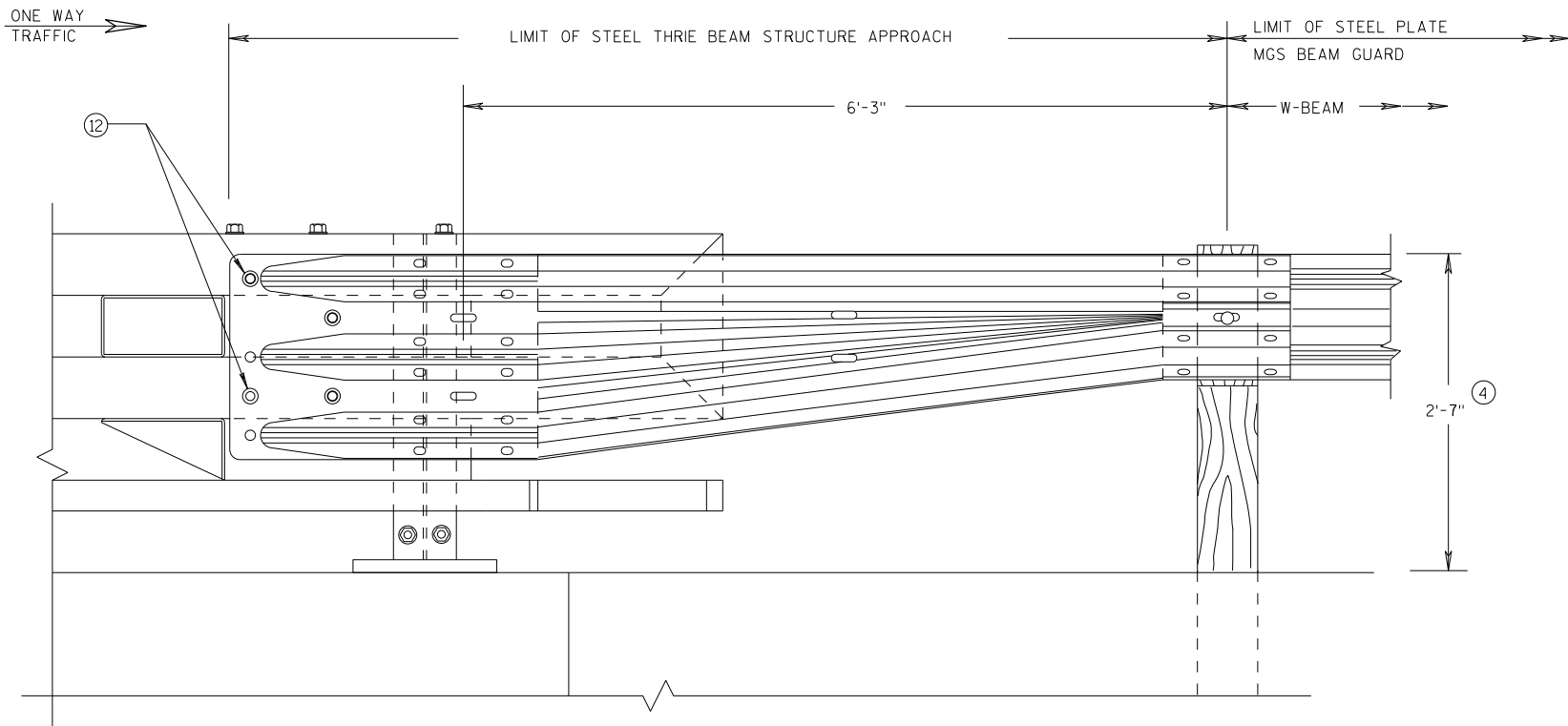


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/2018 /S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR 119 NT
FHWA



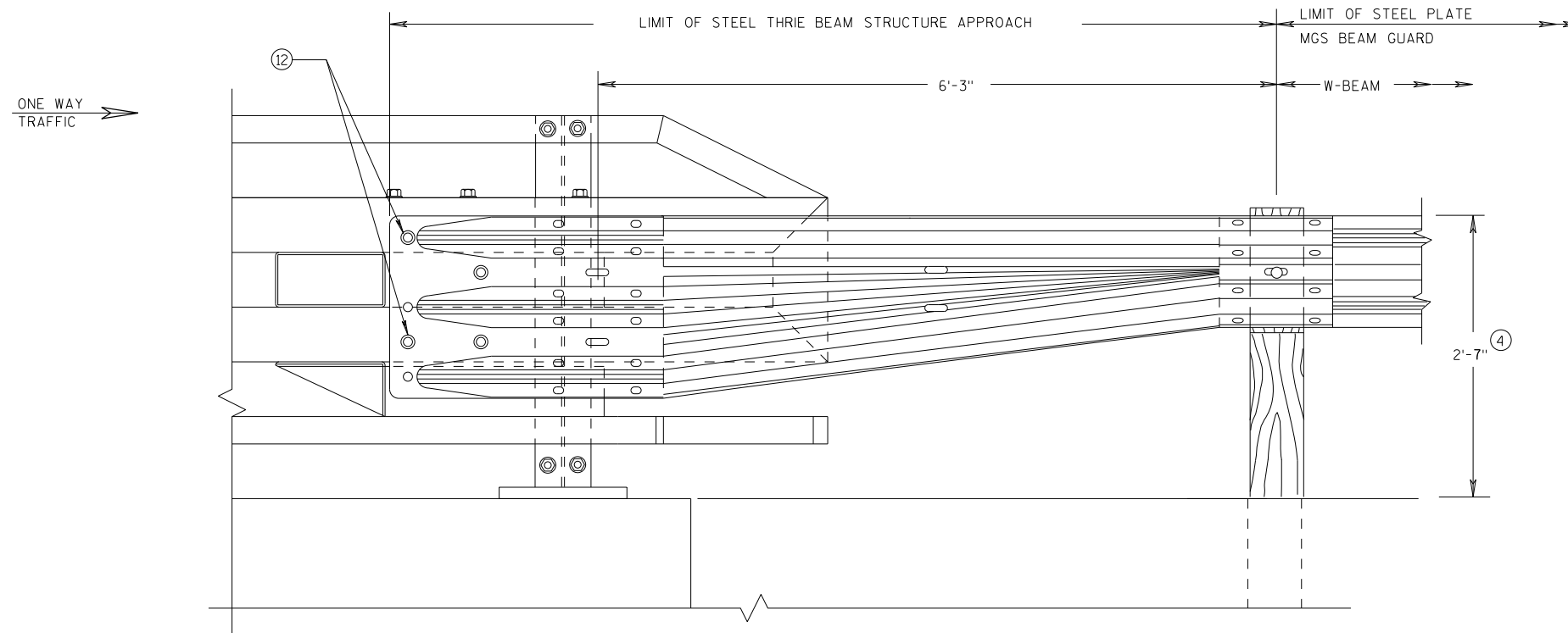
GENERAL NOTES

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FRONT VIEW

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



FRONT VIEW

W BEAM TRANSITION AND CONNECTION TO BRIDGE RAILING TYPE "NY4" (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

7/2018

DATE

FHWA

/S/ Rodney Taylor

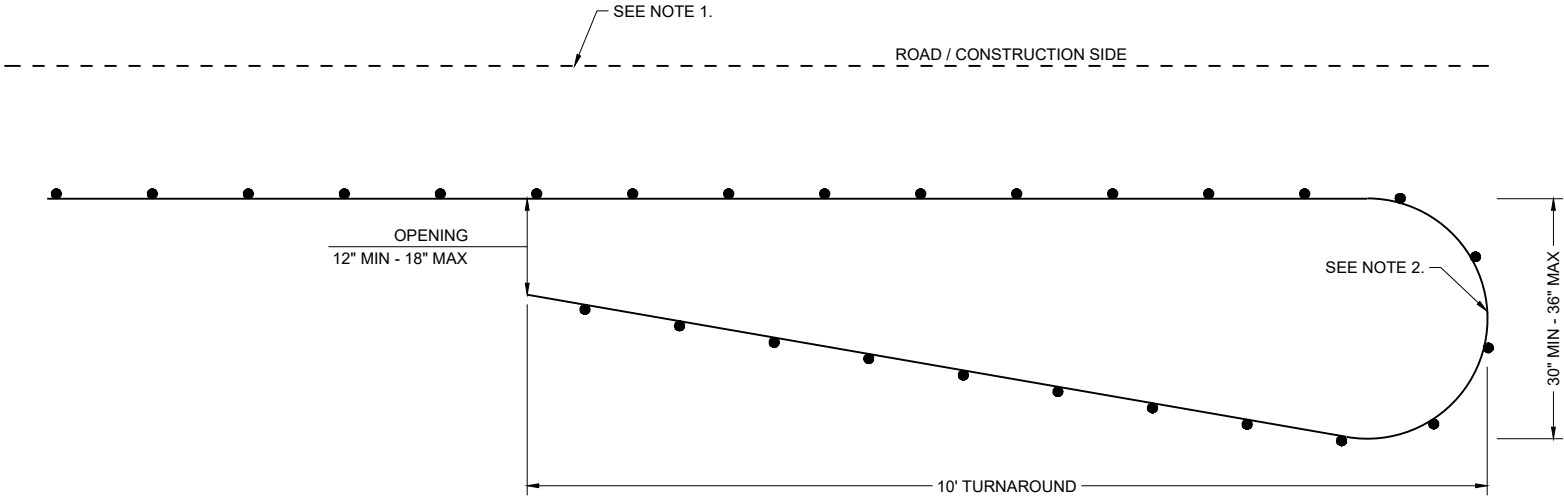
ROADWAY STANDARDS C 120

UNIT SUPERVISOR

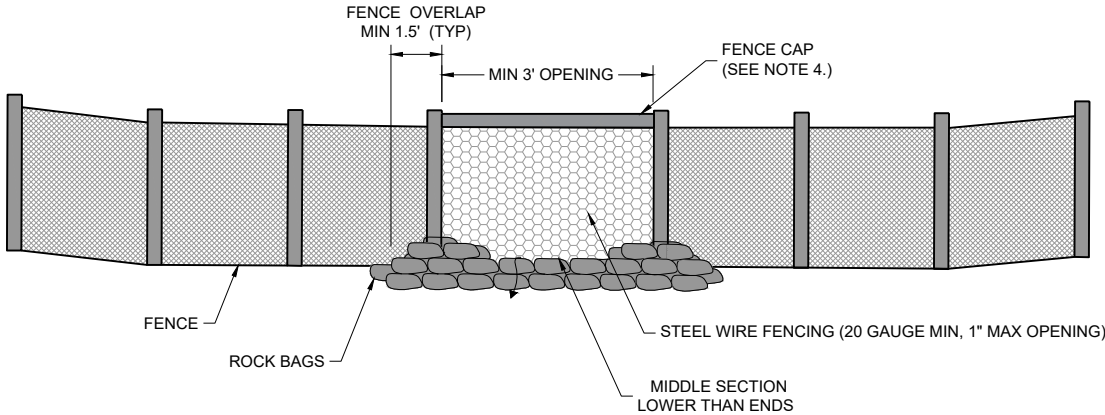
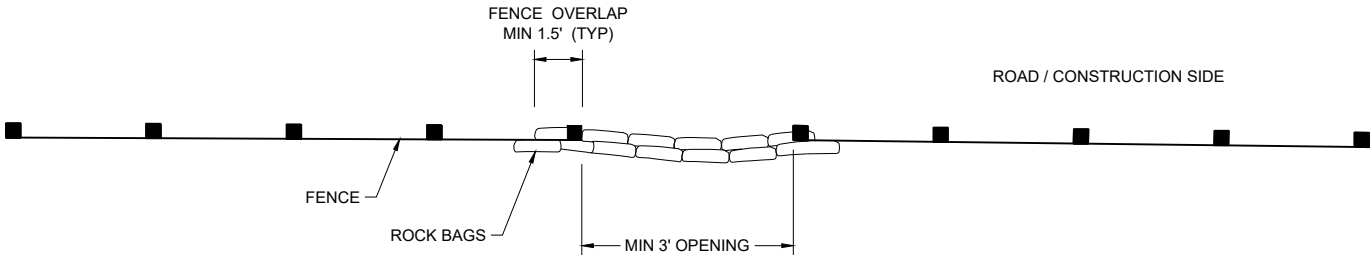
S.D.D. 14 B 45-5L

GENERAL NOTES:

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

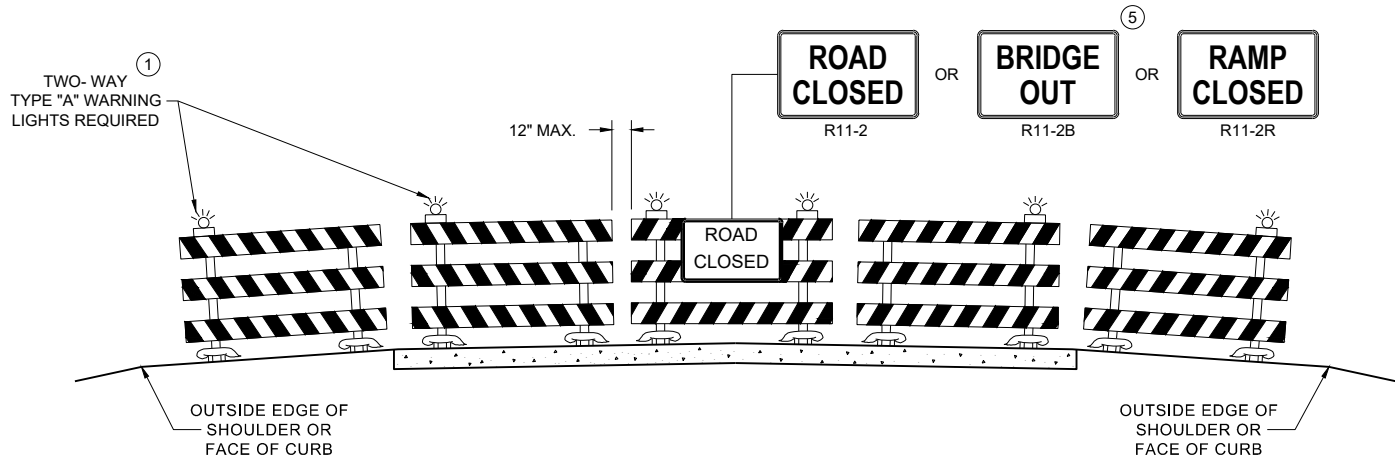


PLAN VIEW
CLIMBING TURTLE EXCLUSION FENCE DETAIL

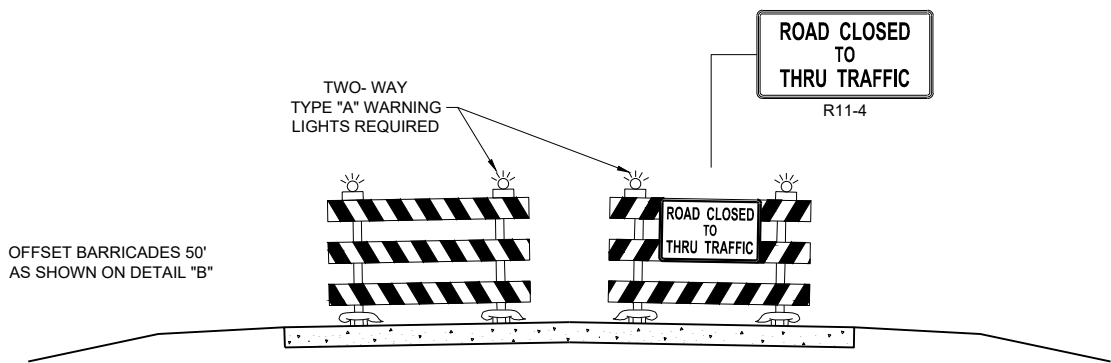


FRONT VIEW
CLIMBING TURTLE FENCE RELIEF DETAIL

TURTLE EXCLUSION FENCE CLIMBING TURTLE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED AUGUST 2025 DATE	/S/ ALYSSA BARRETTE CHIEF STATEWIDE ENVIRONMENTAL SERVICES BUREAU OF TECHNICAL SER
FHWA 121	



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

PARTIAL NUMBERS ON SIGNS SHALL BE DISPLAYED AS A WHOLE NUMBER(AS NEEDED) FOLLOWED BY A FRACTION. SIGNS SHALL NOT DISPLAY NUMBERS IN DECIMAL FORM.

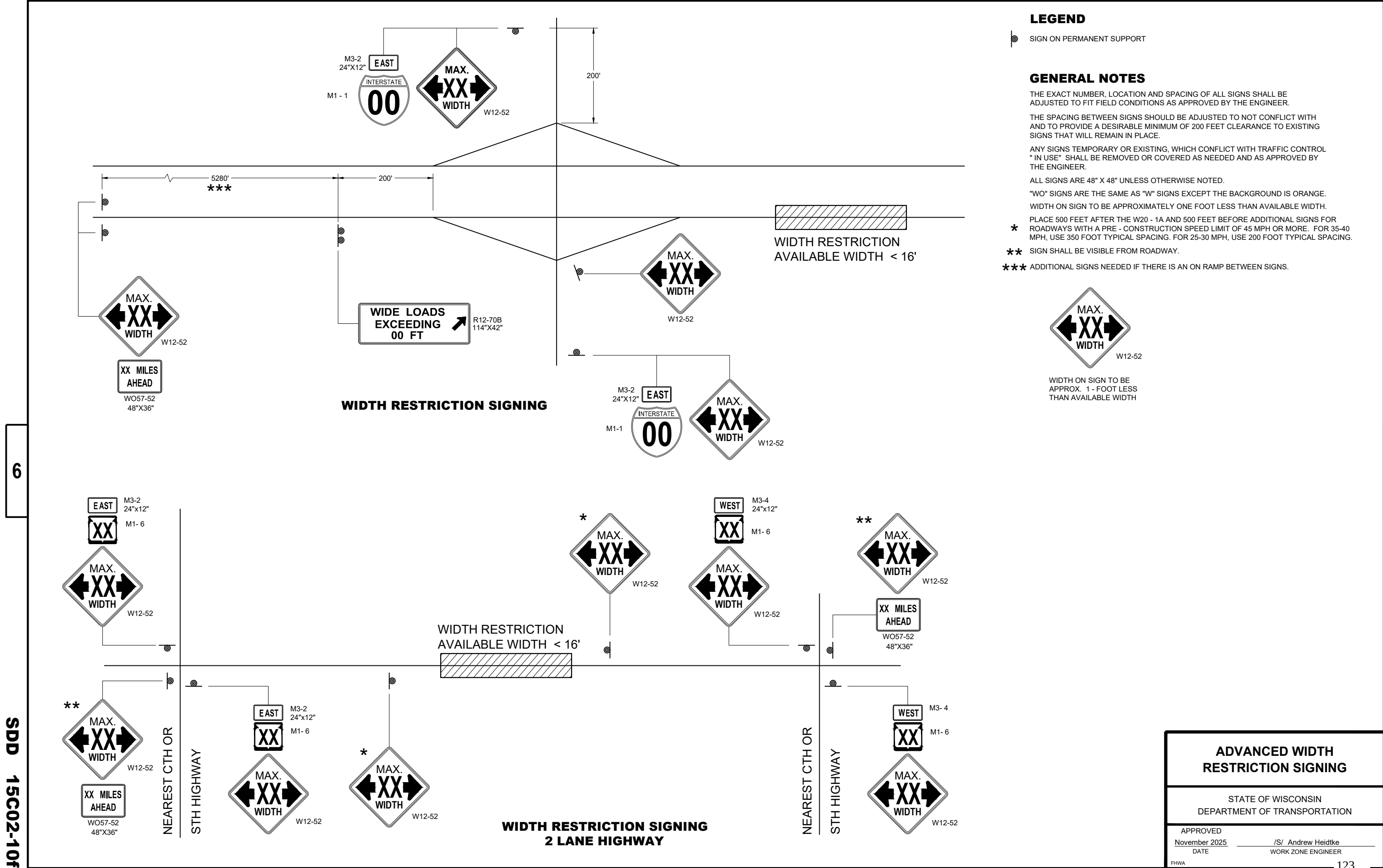
"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11 - 2 SHALL BE 48" X 30"
R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
M4 - 9 SHALL BE 30" X 24"
M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
R1 - 1 SHALL BE 36" X 36"

SIGNS PLACED ON TYPE III BARRICADES THAT ARE SIZES OTHER THAN 48"X30" SHALL HAVE A CORRUGATED POLYPROPYLENE OR POLYETHYLENE PLASTIC SIGN BASE.

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

BARRICADES AND SIGNS FOR VARIOUS CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2025 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
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.

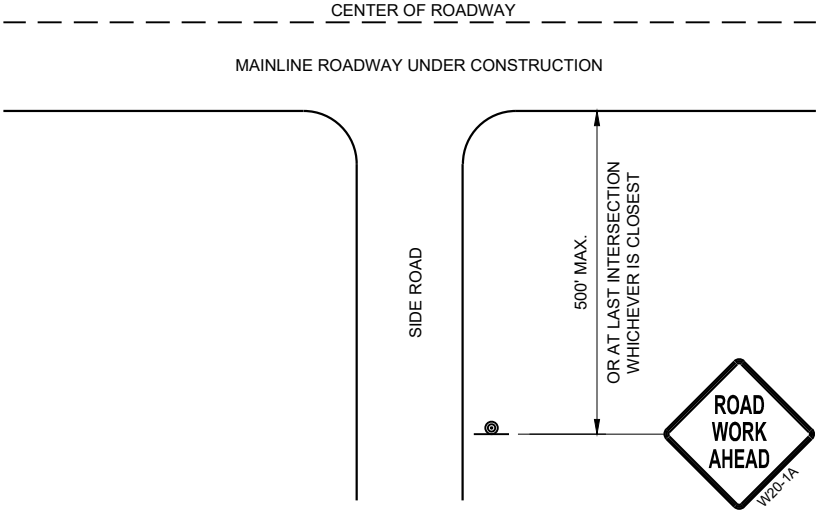
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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.

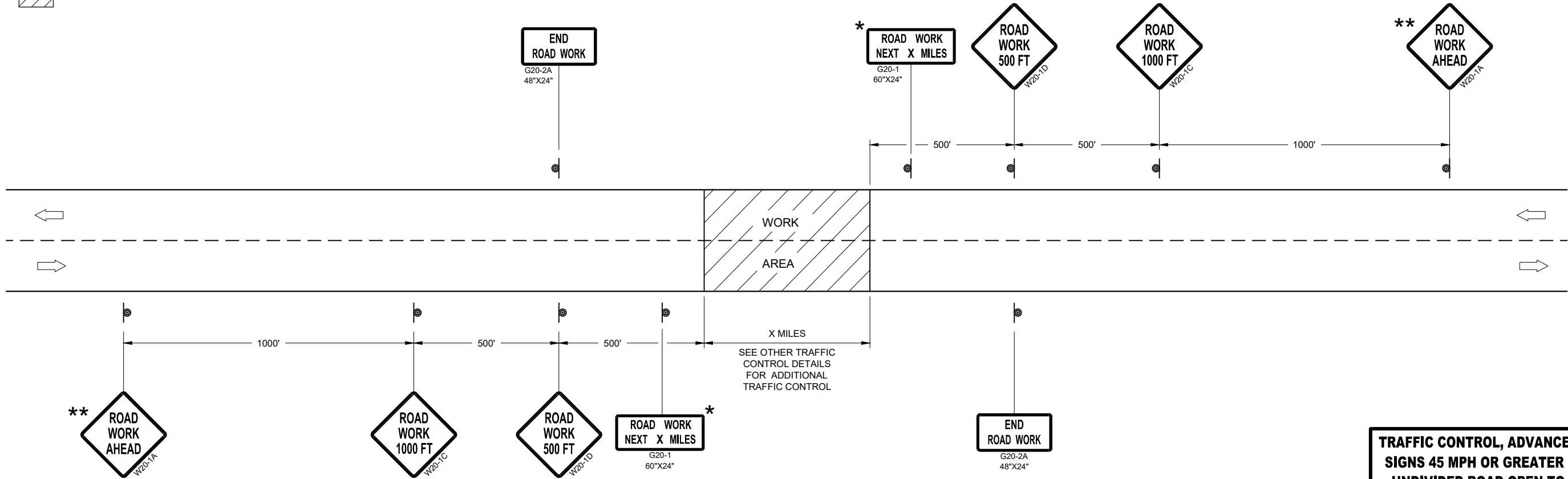
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

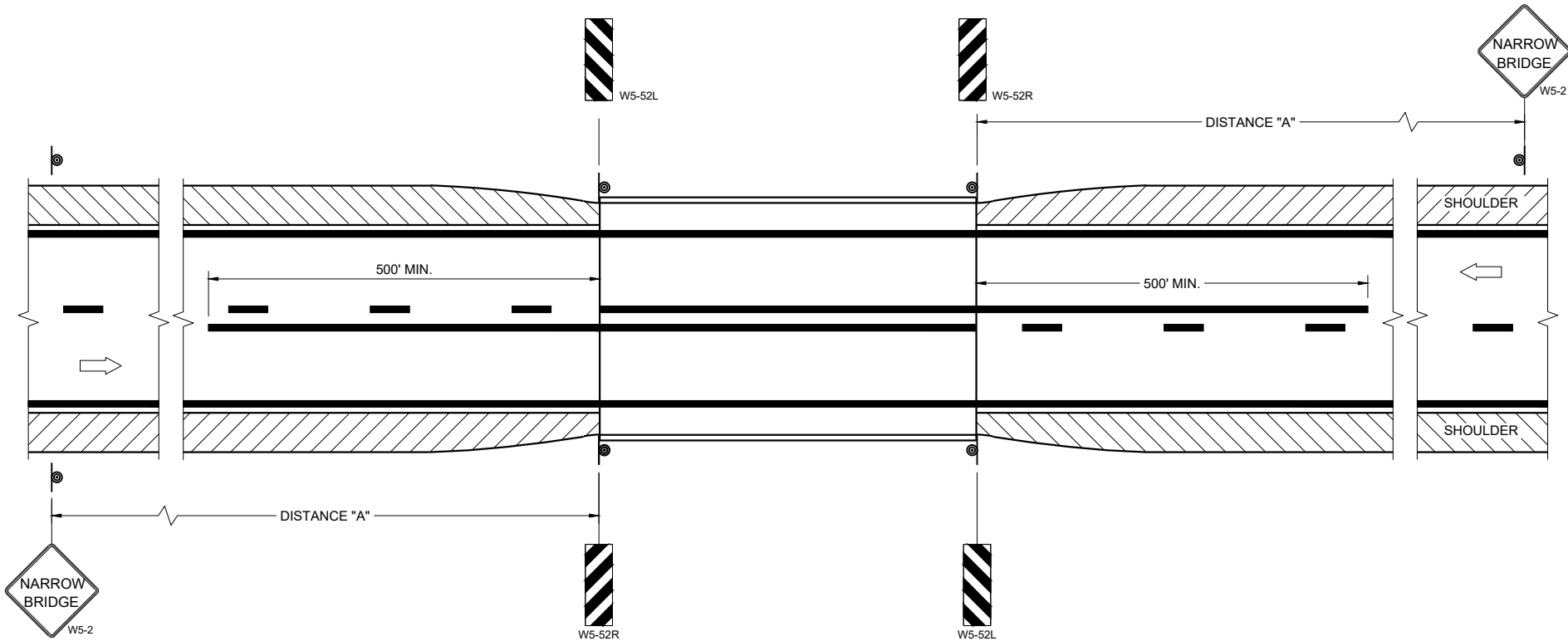


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

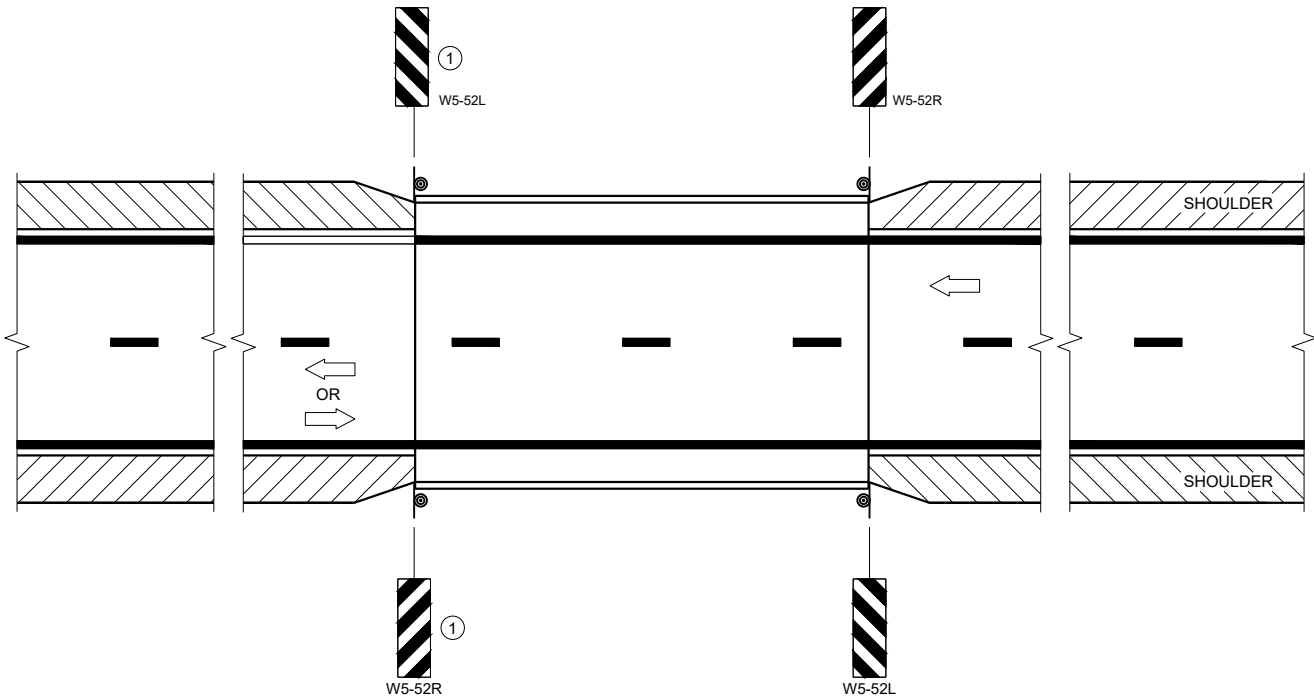
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 124
FHWA



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

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

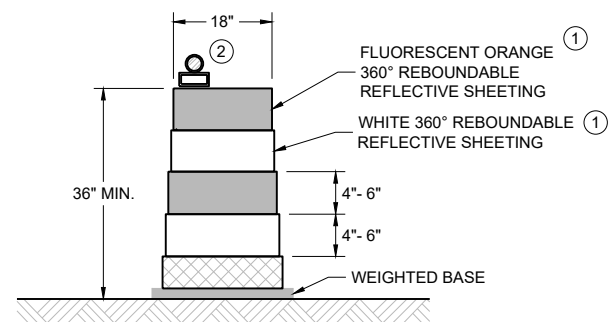
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

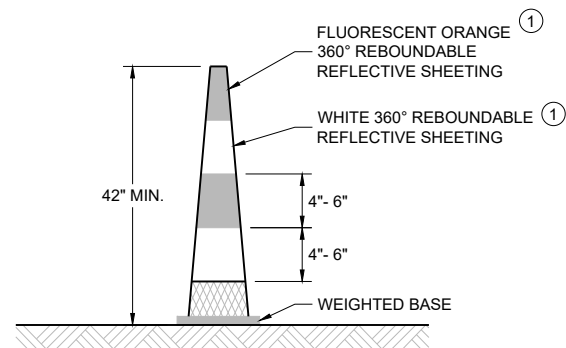
APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA 125

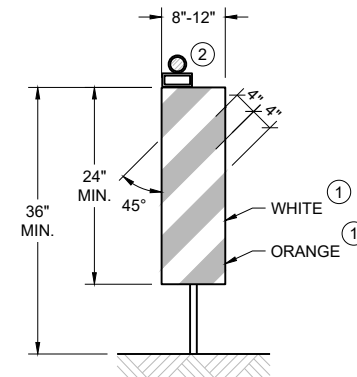
**DRUM**

BALLAST WIDTHS
RANGE FROM 24"-36"

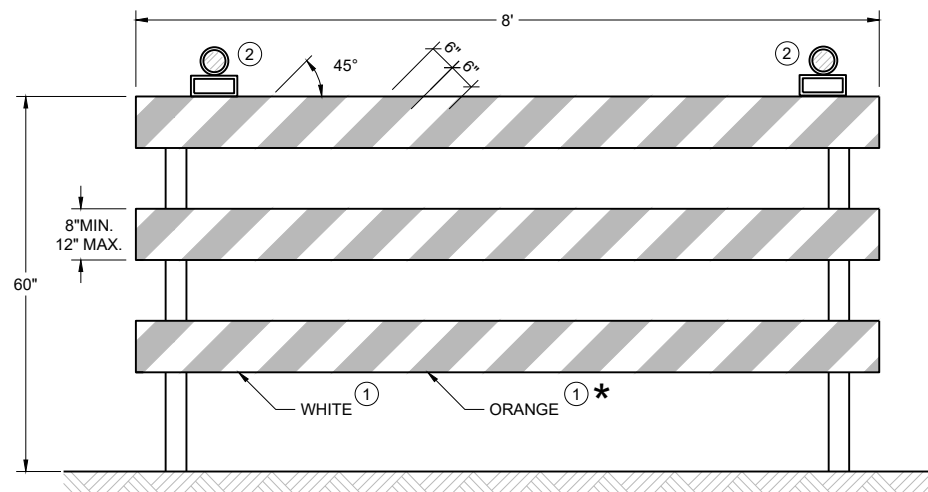
**42" CONE**

DO NOT USE IN TAPERS
 $\frac{1}{2}$ SPACING OF DRUMS

BALLAST WIDTHS
RANGE FROM 14"-20"

**VERTICAL PANEL**

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

**TYPE III BARRICADE**

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2026 /S/ Andrew Heidtke
DATE 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

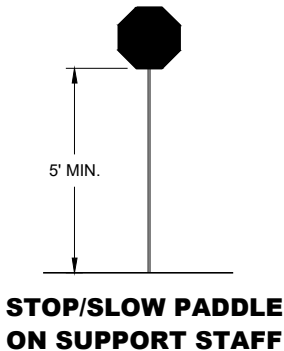
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- 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.

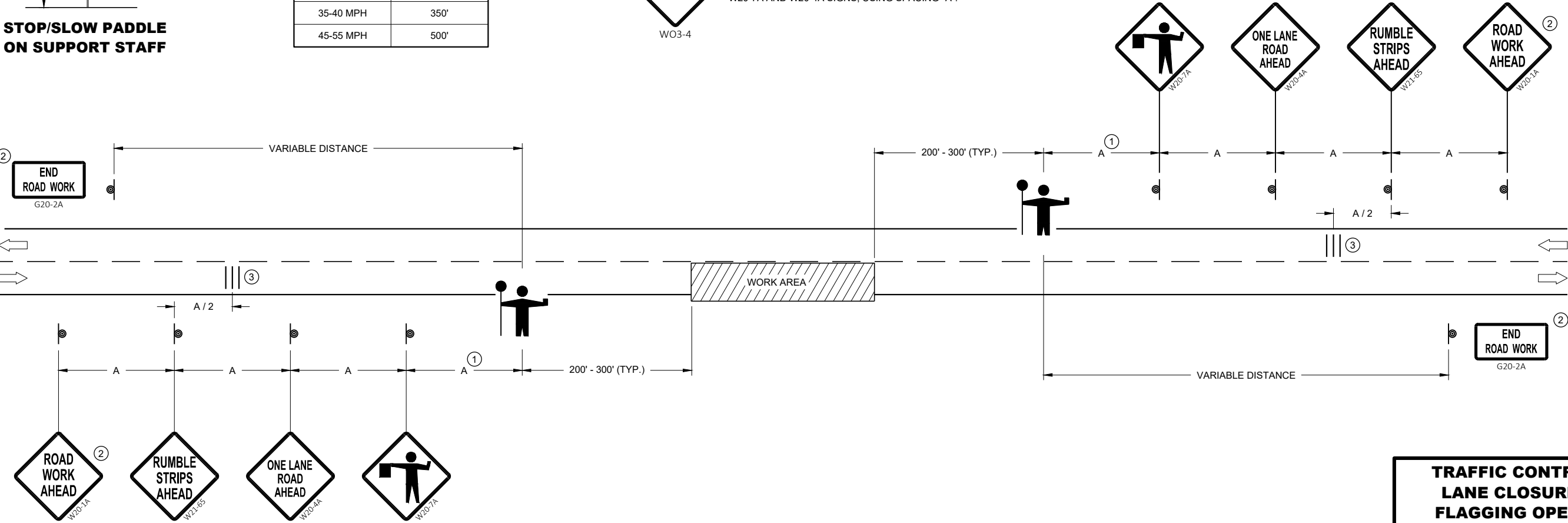


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

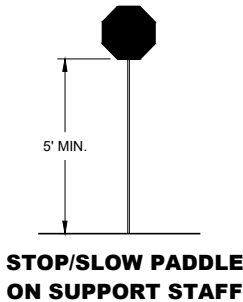


USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 127
FHWA	

- **GENERAL NOTES**
SIGN ON PERMANENT SUPPORT
- 
TRAFFIC CONTROL CONE 42-INCH
- 
TRAFFIC CONTROL DRUM
- 
TEMPORARY PORTABLE RUMBLE STRIP ARRAY
- 
DIRECTION OF TRAFFIC
- 
WORK AREA
- 
AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)



- 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.

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

- FLAGGING**
IF THE AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) STOPS WORKING, 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.

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.
- ①

SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- ②

IF FLAGGERS ARE PHYSICALLY NEEDED TO FLAG, REPLACE WO3-4 SIGNS WITH W20-7A SIGNS.

TEMPORARY PORTABLE RUMBLE STRIPS
UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

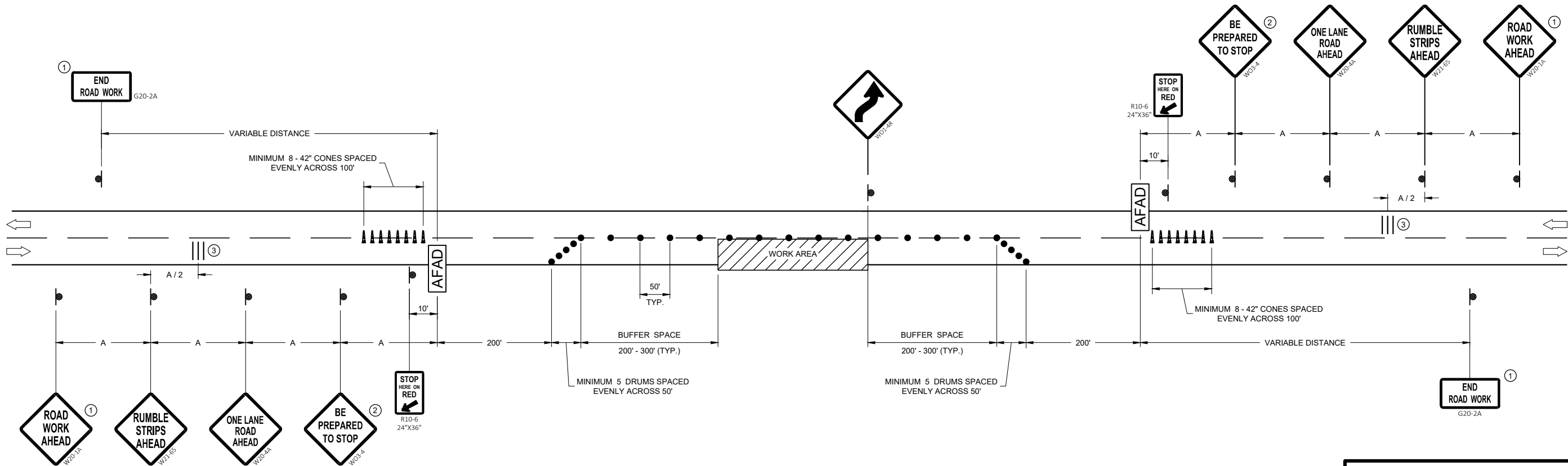
ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.

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.

③

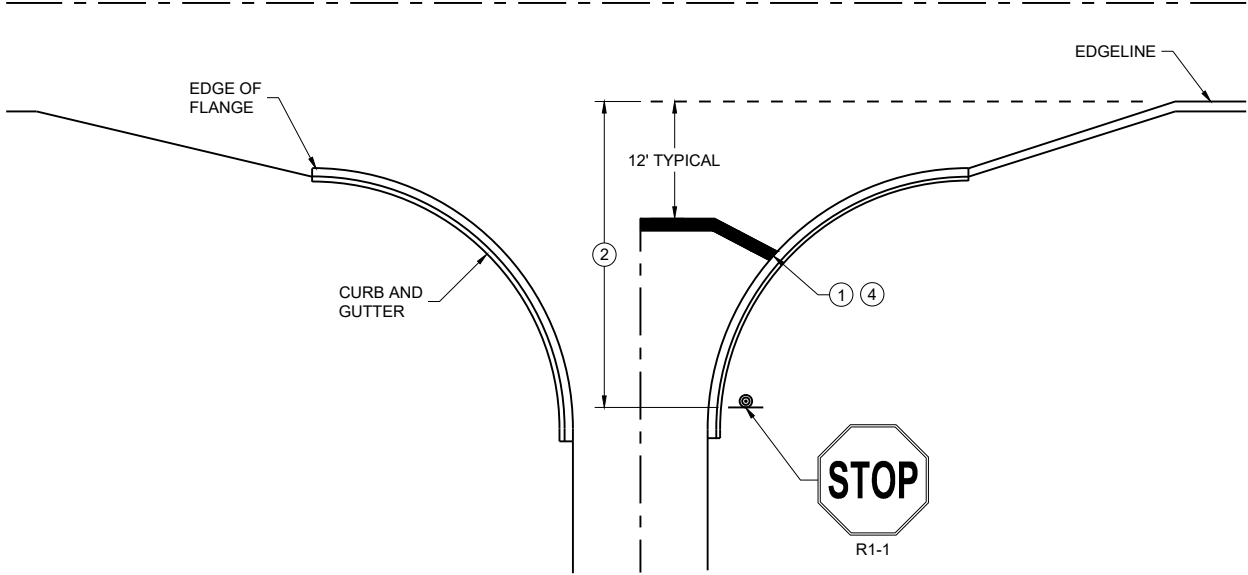
EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSELY AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER.



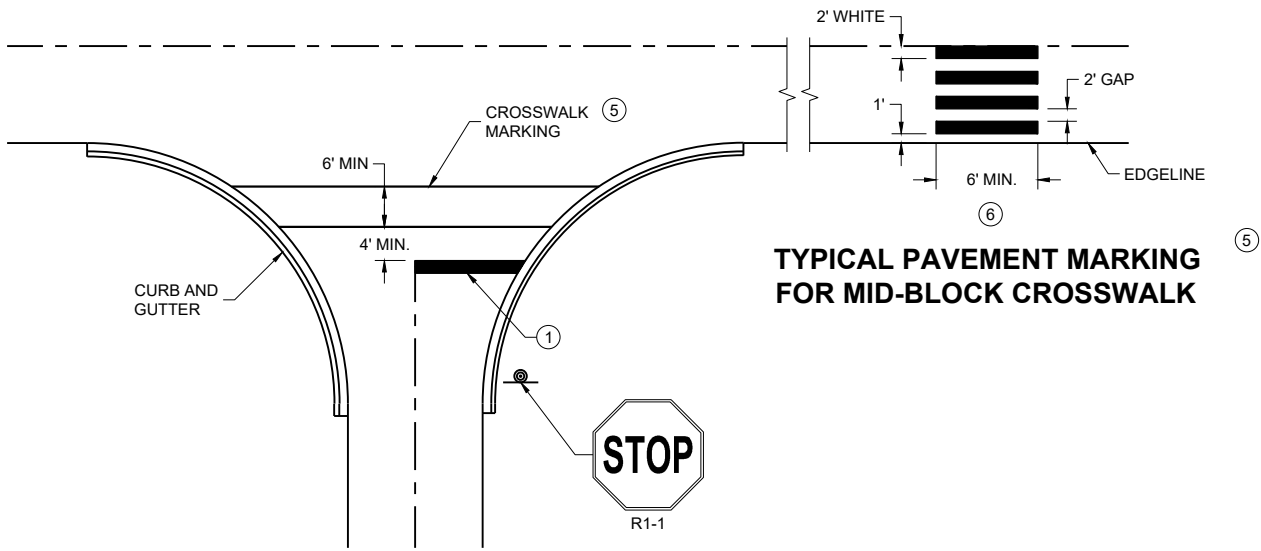
**TRAFFIC CONTROL, LANE
CLOSURE WITH AUTOMATED
FLAGGER ASSISTANCE DEVICE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

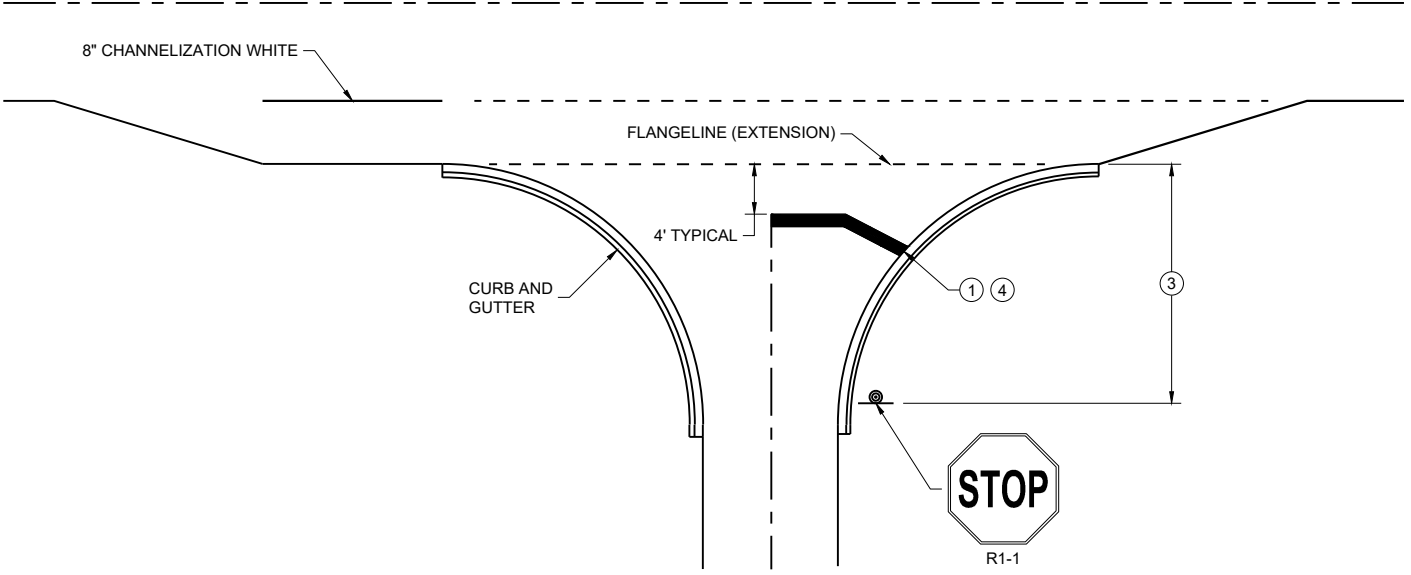
APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 128
FHWA



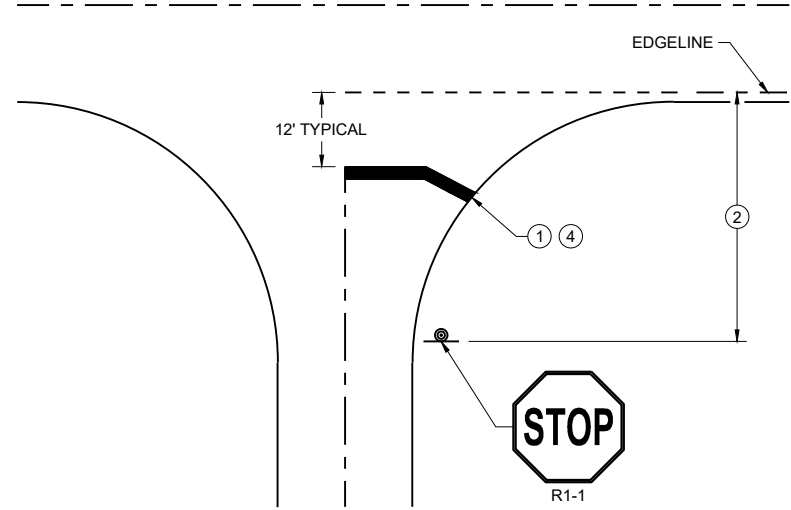
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR
SIDE ROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDE ROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES.
- ⑥ POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

STOP LINE AND CROSSWALK
PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2024 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING
ENGINEER
FHWA

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

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

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

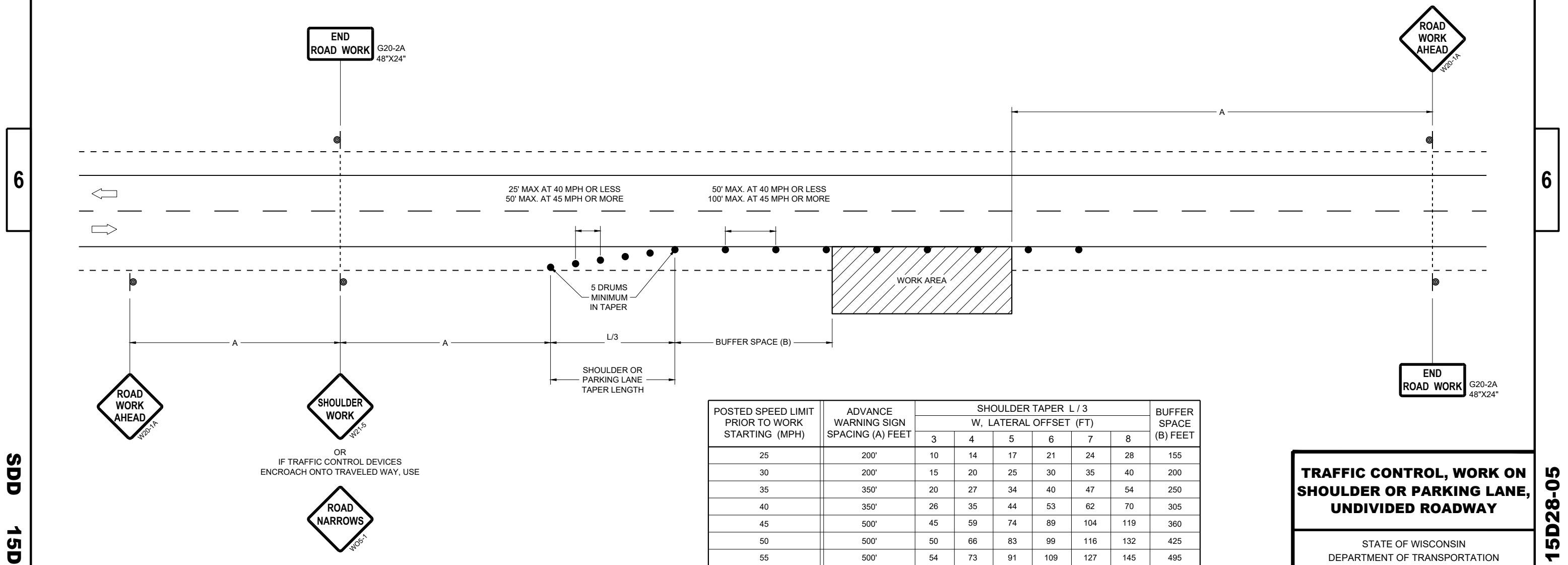
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

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

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

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



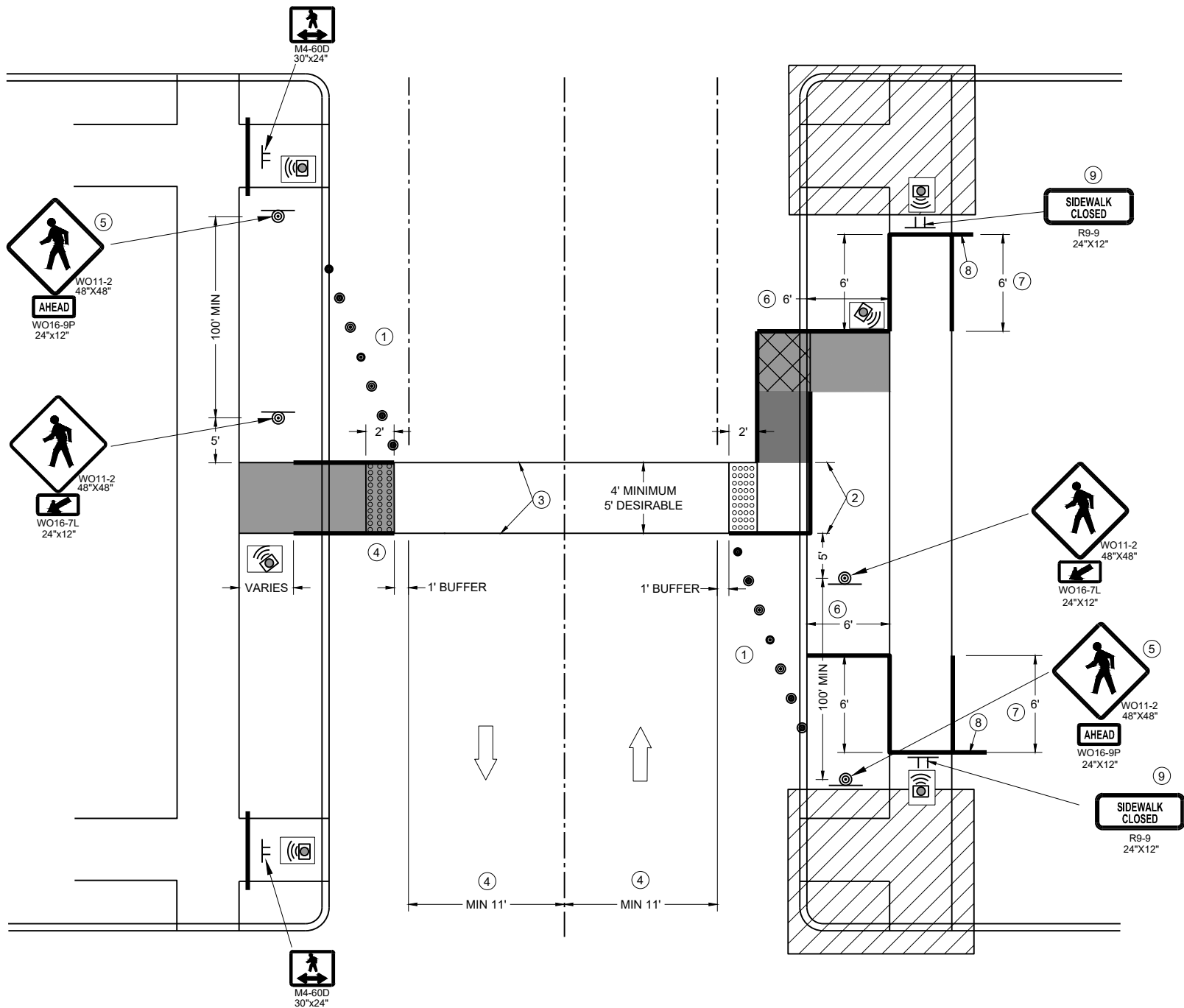
POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	155
30	200'	15	20	25	30	35	40	200
35	350'	20	27	34	40	47	54	250
40	350'	26	35	44	53	62	70	305
45	500'	45	59	74	89	104	119	360
50	500'	50	66	83	99	116	132	425
55	500'	54	73	91	109	127	145	495

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025
DATE

/S/ ANDREW HEIDTKE
STATEWIDE WORK ZONE TRAFFIC
SAFETY ENGINEER



TEMPORARY PEDESTRIAN CROSSING

GENERAL NOTES

TYPICAL TEMPORARY PEDESTRIAN BARRICADE PANEL IS 6 FEET LONG.
SEE OTHER PEDESTRIAN ACCOMMODATION DETAILS FOR SIGNING AND DEVICES FOR DIFFERENT PEDESTRIAN FACILITIES CLOSURES.

WHEN THE TEMPORARY PEDESTRIAN ACCESS ROUTE RUNS PARALLEL ON THE ROADWAY SURFACE, THE MAXIMUM CROSS SLOPE WILL MATCH THE EXISTING ROADWAY CROSS SLOPE.

- 1 SHOULDER OR LANE CLOSURE ADVANCED WARNING AND PROPER BUFFER SPACE REQUIRED.
- 2 4 FEET MINIMUM, 5 FEET DESIRABLE.
- 3 WHITE 6" TEMPORARY PAVEMENT MARKING.
- 4 IF MINIMUM LANE WIDTHS CAN'T BE ATTAINED, PERPENDICULAR CURB RAMP MAY NEED TO BE UTILIZED.
- 5 IF MINIMUM 100' SPACING FROM THE MID-BLOCK CROSSING CANNOT BE ATTAINED BEFORE THE INTERSECTION, REMOVE THIS SIGN ASSEMBLY.
- 6 IF TERRACE IS LESS THAN 6 FEET WIDE, OMIT TEMPORARY PEDESTRIAN BARRICADE FROM THE SIDEWALK TO THE CURB.
- 7 PLACE BARRICADE CLOSURE SO THAT THE TEMPORARY PEDESTRIAN BARRICADE END IS AT THE LAST OPEN SIDEWALK ACCESS TO RESIDENCES OR BUSINESSES BEFORE THE SIDEWALK CLOSURE.
- 8 IF TEMPORARY PEDESTRIAN BARRICADE PANEL IS WIDER THAN THE SIDEWALK WIDTH, THE PORTION OF THE EXCESS PANEL SHOULD EXTEND INTO THE TERRACE.
- 9 MOUNTING HEIGHT OF 5 FEET FROM THE SURFACE TO THE BOTTOM OF THE SIGN.

LEGEND

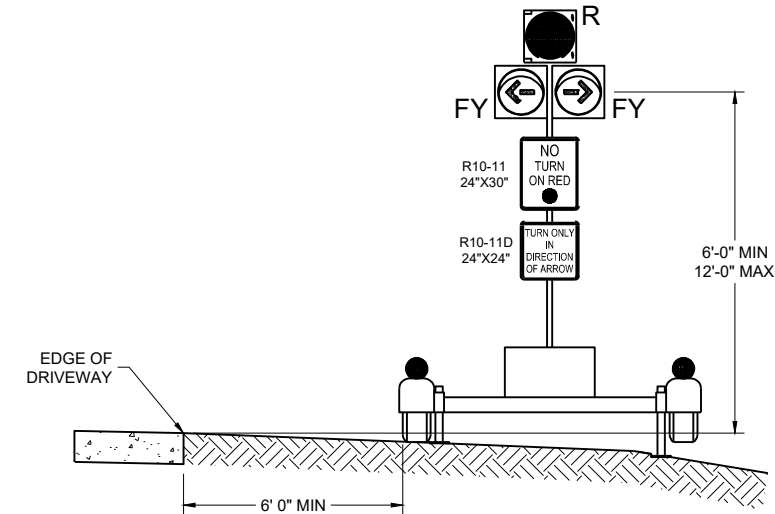
- TRAFFIC CONTROL DRUM
- SIGN ON TEMPORARY SUPPORT
- TEMPORARY CURB RAMP
- TEMPORARY DETECTABLE WARNING FIELD
- TEMPORARY PEDESTRIAN SURFACE "A"
- TEMPORARY PEDESTRIAN SURFACE "B"
- WORK AREA
- TEMPORARY PEDESTRIAN BARRICADE
- DIRECTION OF TRAFFIC
- TEMPORARY AUDIBLE MESSAGE DEVICE (EXACT PLACEMENT BASED UPON FIELD CONDITIONS)

TRAFFIC CONTROL,
PEDESTRIAN ACCOMMODATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



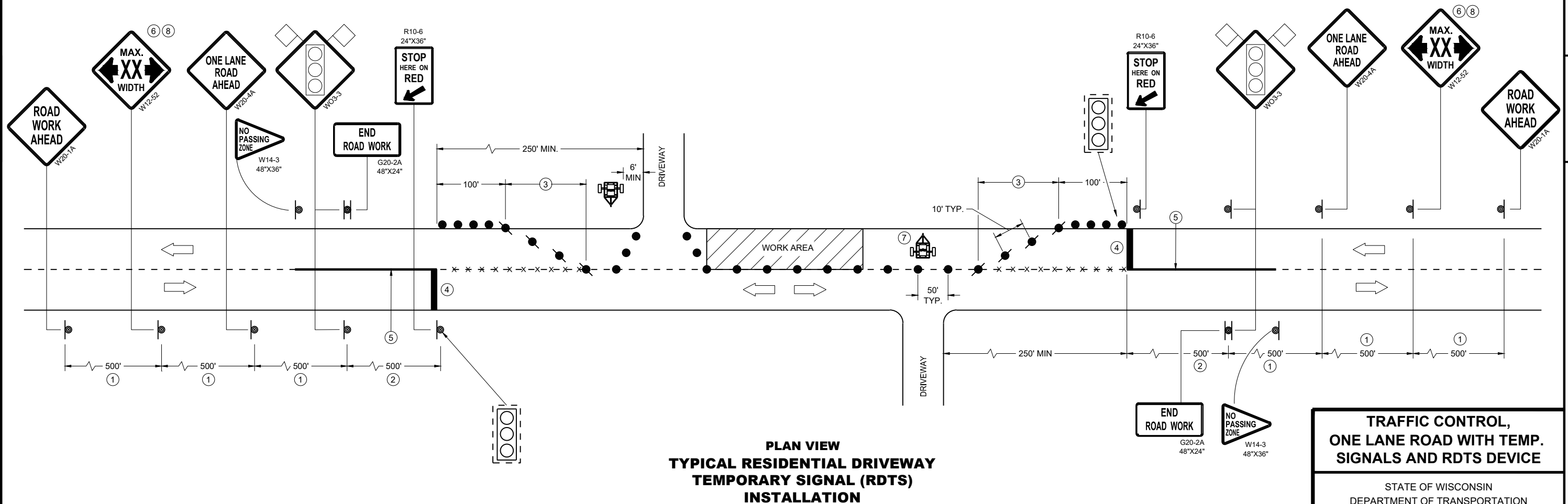
**ELEVATION VIEW
RDTS 3 HEAD DEVICE**

LEGEND	
	TRAFFIC FLOW
SR	STEADY RED
FY	FLASHING YELLOW
	TRAFFIC CONTROL DRUM
	DIRECTION OF TRAFFIC TEMPORARY SIGNAL.
	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	FLAGS, 16" X 16" MIN. (ORANGE)
	REMOVING PAVEMENT MARKING
	RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL

GENERAL NOTES

EACH RESIDENTIAL DRIVEWAY TEMPORARY SIGNAL (RDTS) MUST HAVE ONE SIGNAL HEAD CONSISTING OF 3 LED INDICATIONS AS FOLLOWS; ONE 12 INCH DIAMETER STEADY RED BALL INDICATION CENTERED OVER ONE 12 INCH DIAMETER YELLOW FLASHING LEFT ARROW AND ONE 12 INCH DIAMETER YELLOW FLASHING RIGHT ARROW.

- 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
- USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
- DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
- TEMPORARY PAVEMENT MARKING LINE, 18 INCH WHITE STOP LINE.
- 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.
- SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.
- PLACEMENT OF RDTS ACROSS THE DRIVEWAY MAY BE USED IF SPACE EXISTS AND DOES NOT INTERFERE WITH THE WORK OPERATIONS
- WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)



TRAFFIC CONTROL, ONE LANE ROAD WITH TEMP. SIGNALS AND RDTS DEVICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2025 /S/ Andrew Heidtke
DATE ROADWAY STANDARDS DEVELOPMENT 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.

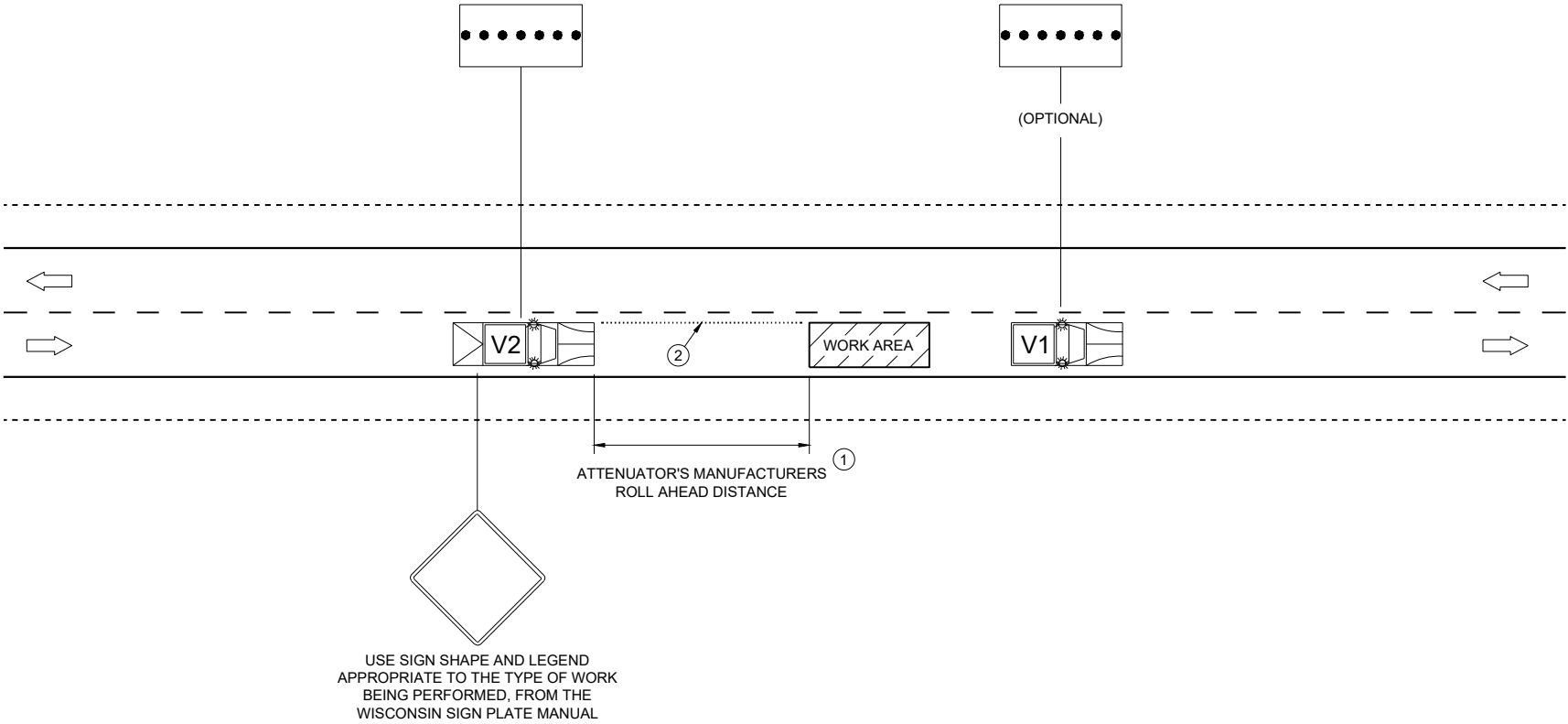
USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

WORKERS SHALL NOT PERFORM WORK FROM ANY SHADOW OR PROTECTION VEHICLES.

- 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.



TRAFFIC CONTROL,
MOBILE OPERATIONS ON
AN UNDIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

November 2025

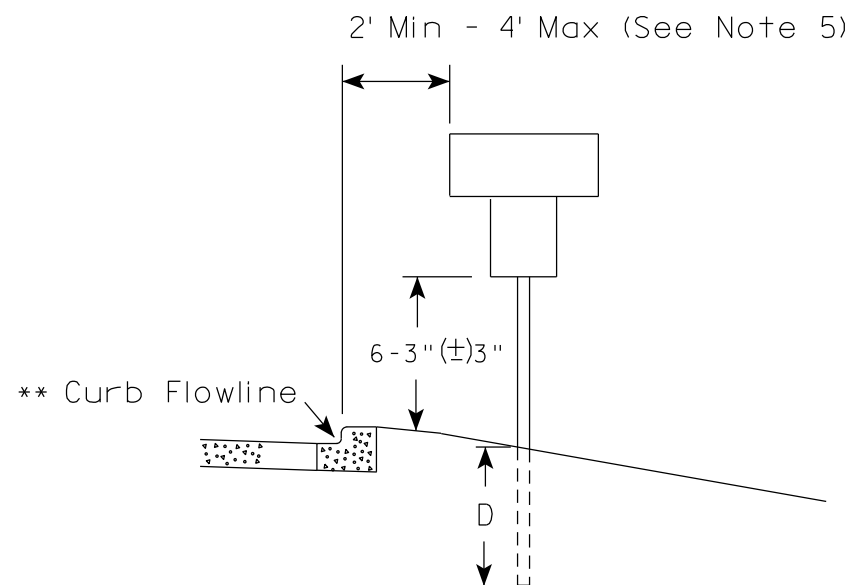
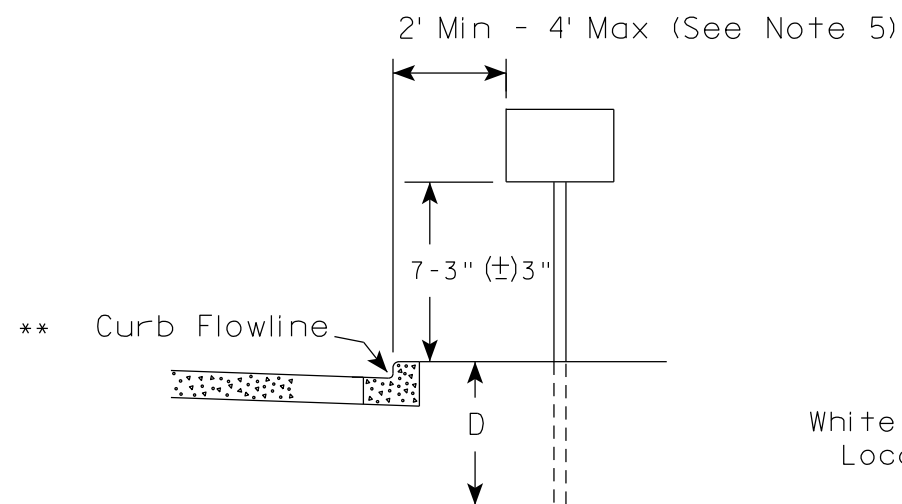
DATE

/S/ Andrew Heidtke

STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

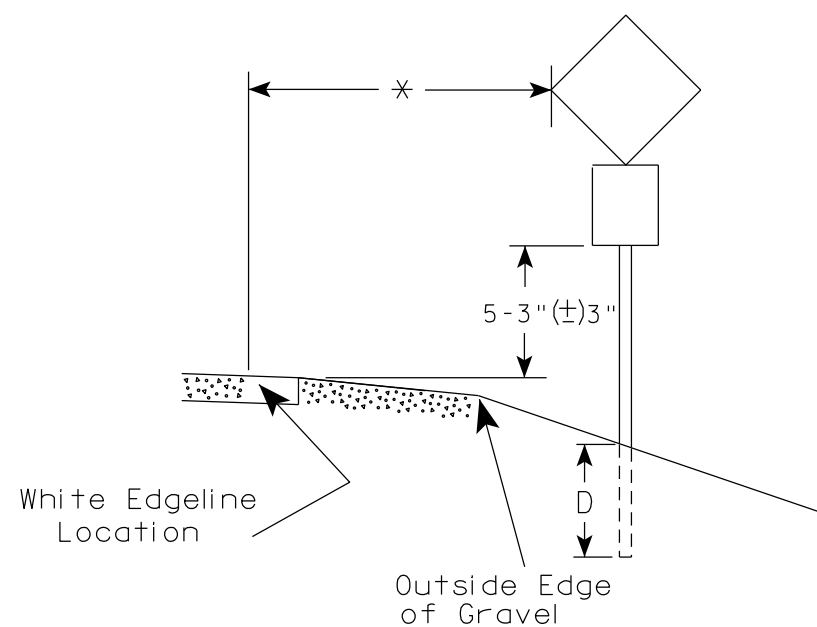
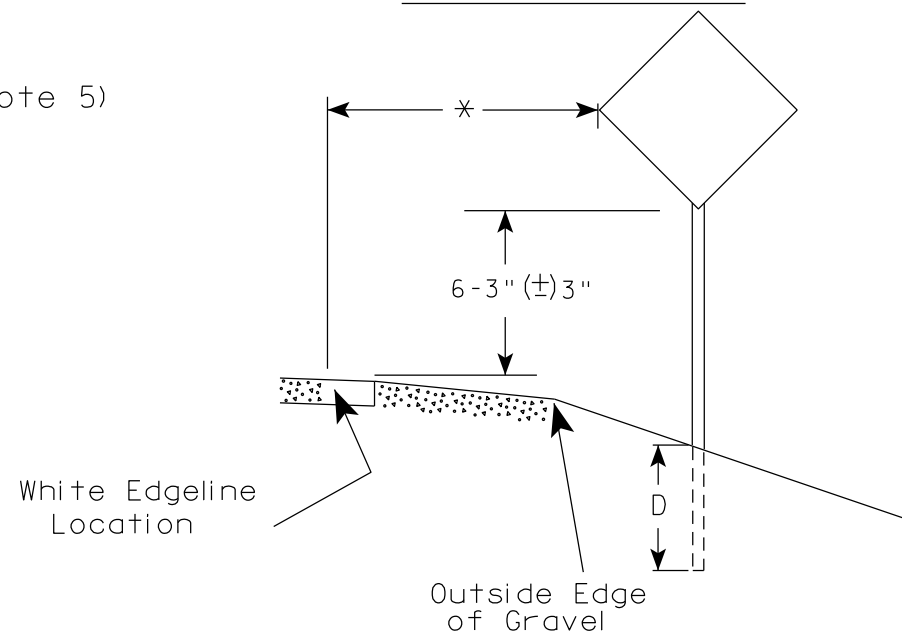
FHWA

URBAN AREA



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

RURAL AREA (See Note 2)



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

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.

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 12/6/23

PLATE NO. A4-3.23

PROJECT NO:

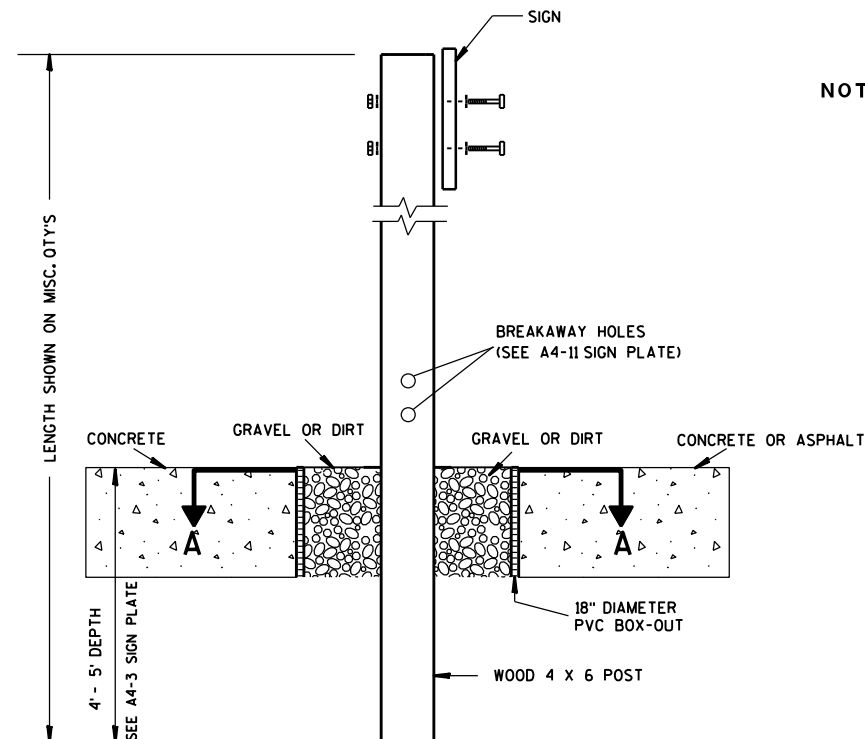
HWY:

COUNTY:

SHEET NO:

134

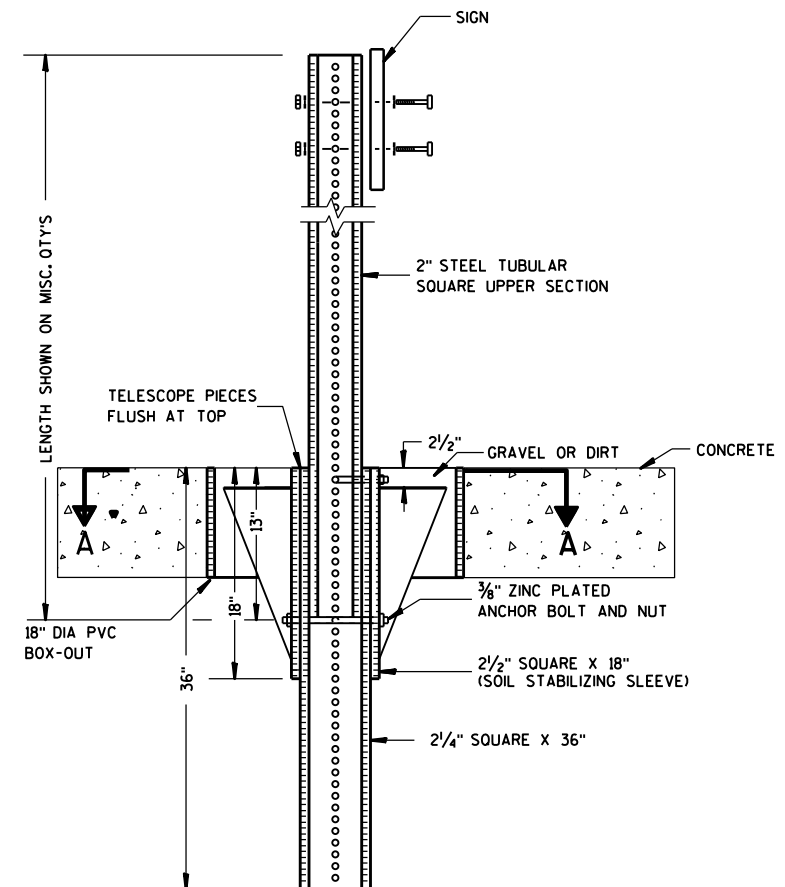
E



ELEVATION VIEW

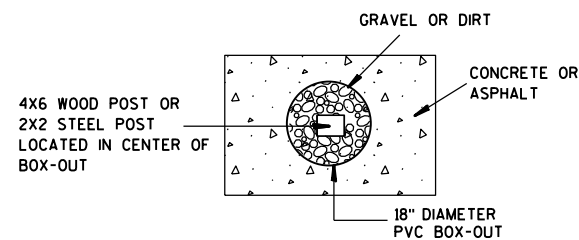
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

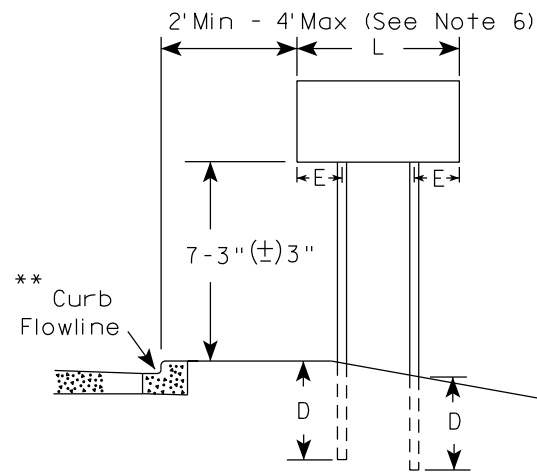
**SIGN POST
BOX-OUTS
A4-3B**

WISCONSIN DEPT OF TRANSPORTATION

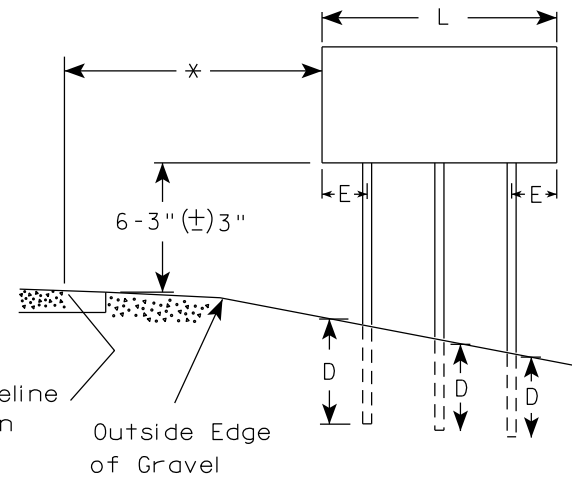
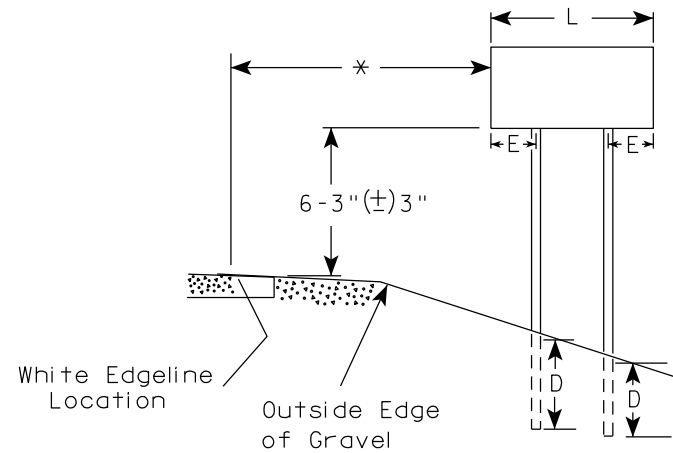
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 135 A4-3B.1

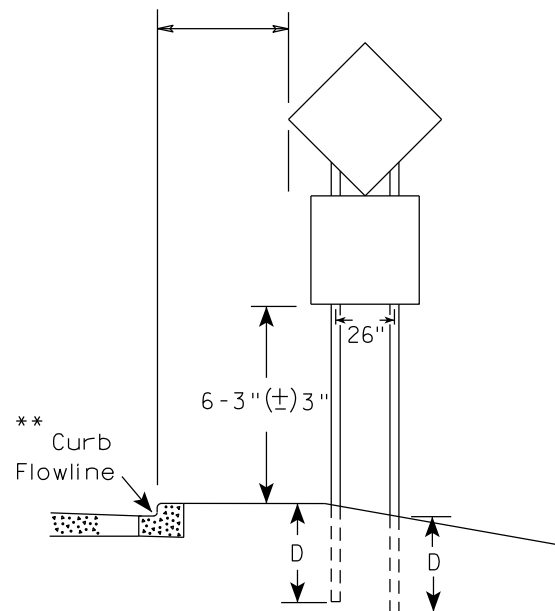
URBAN AREA



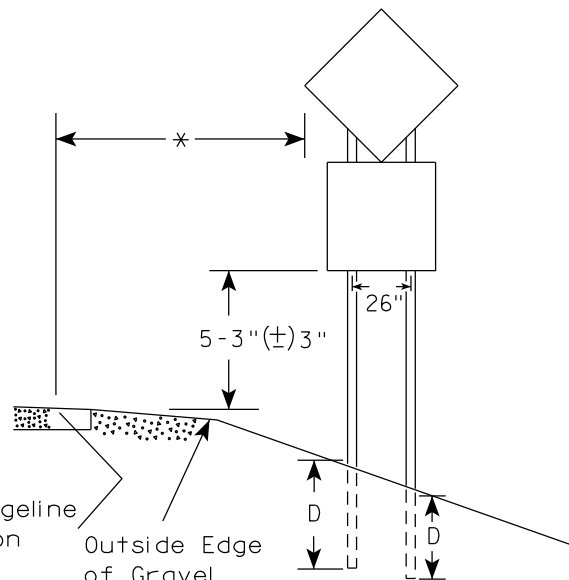
RURAL AREA (See Note 3)



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



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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.

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

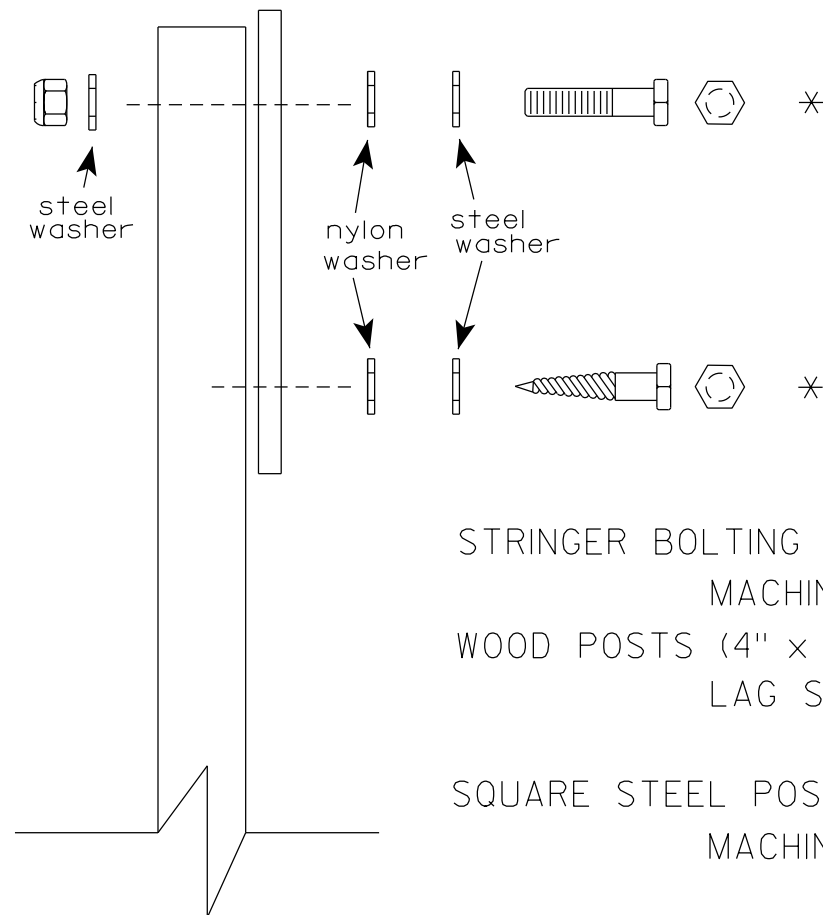
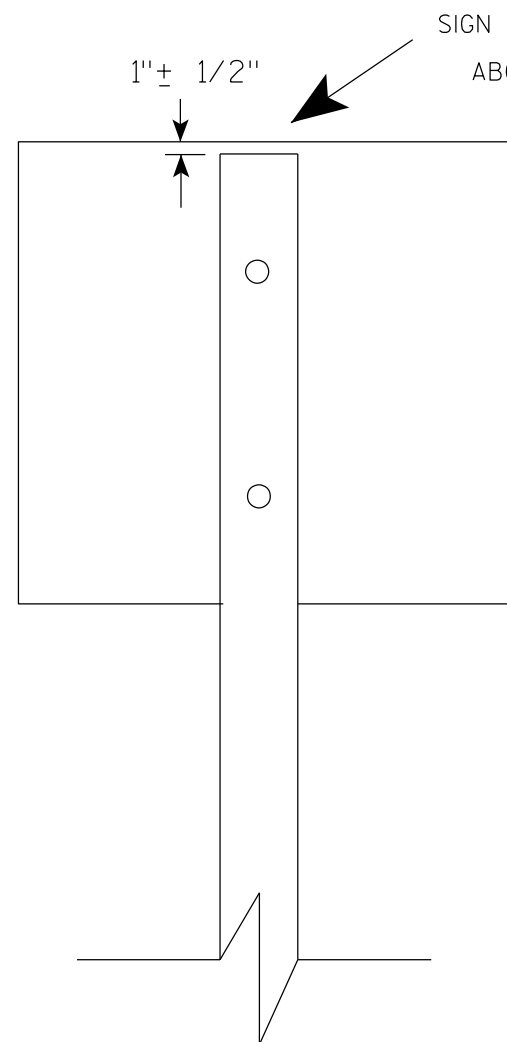
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 136

E



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

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

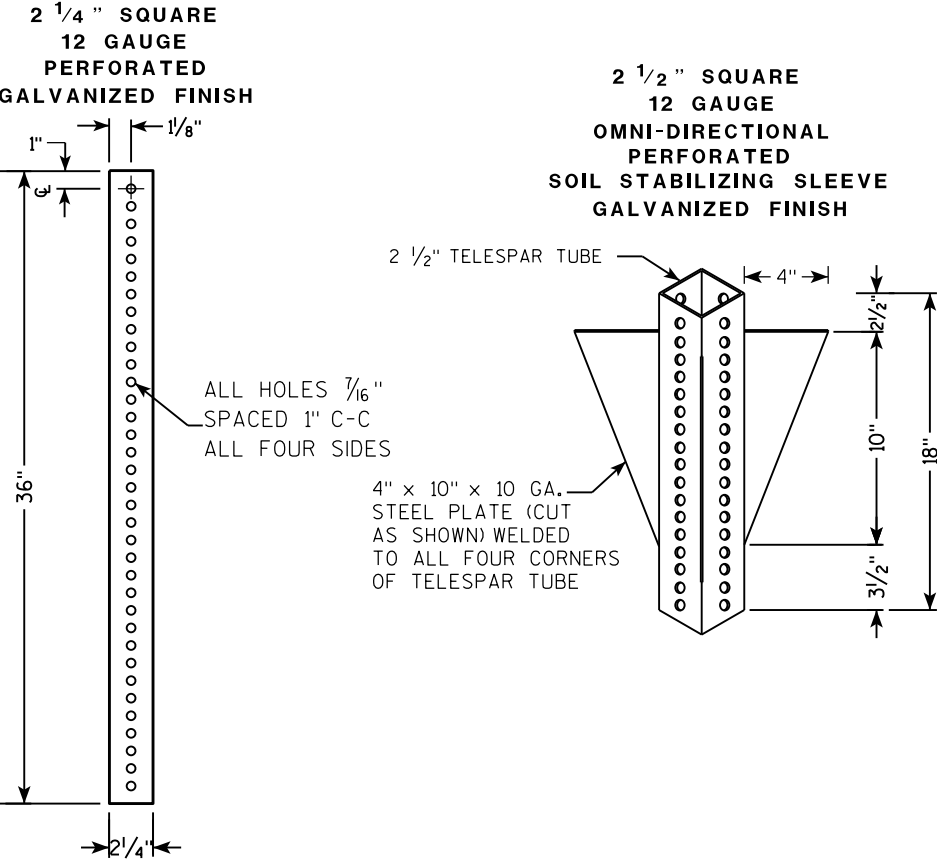
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

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

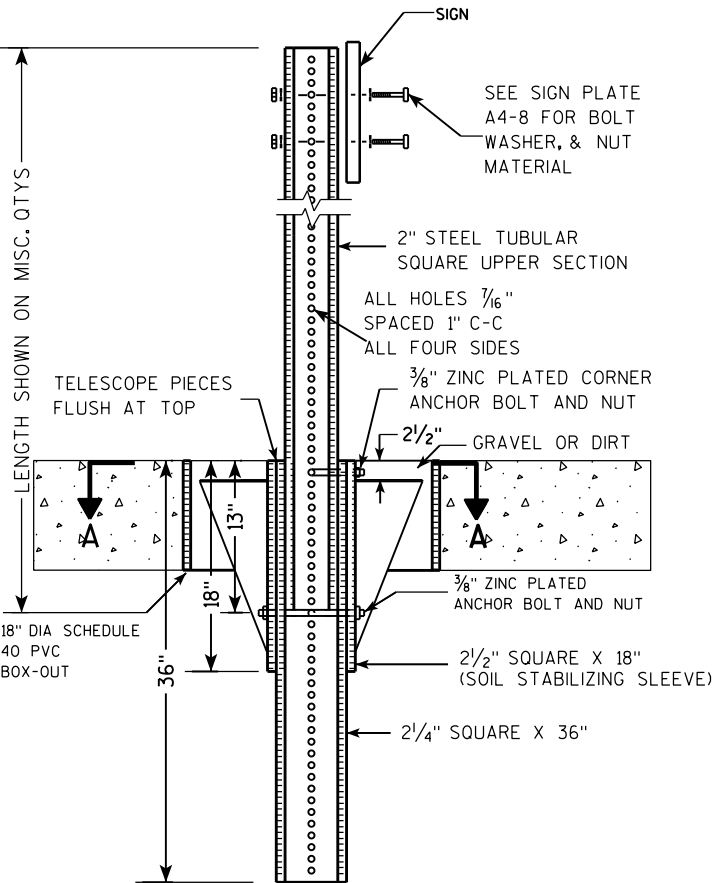
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

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

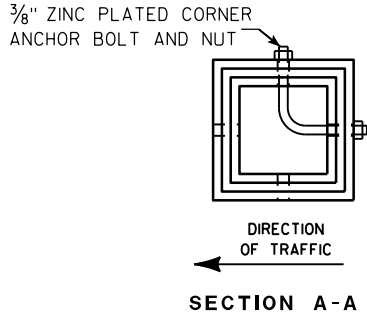
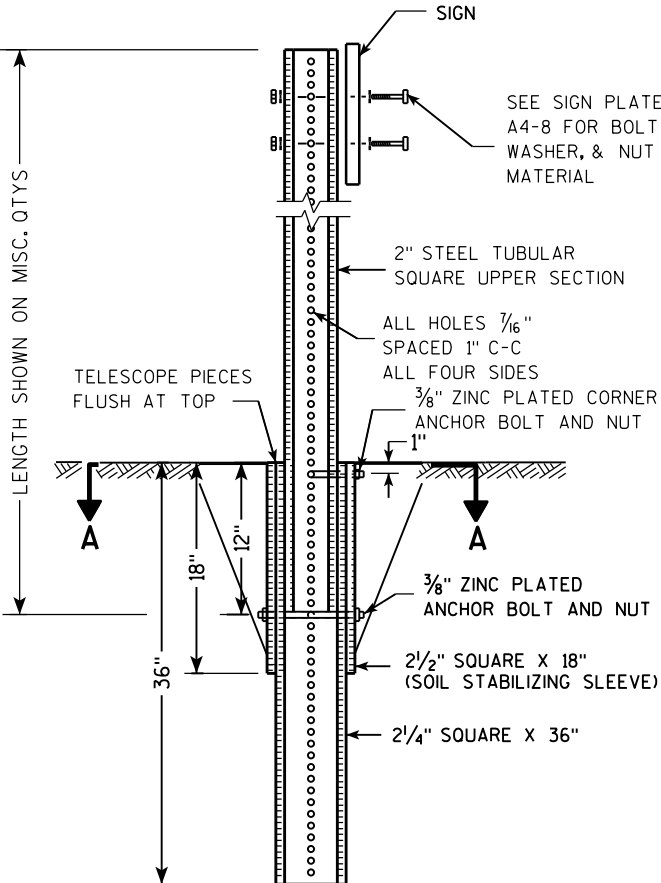
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



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

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

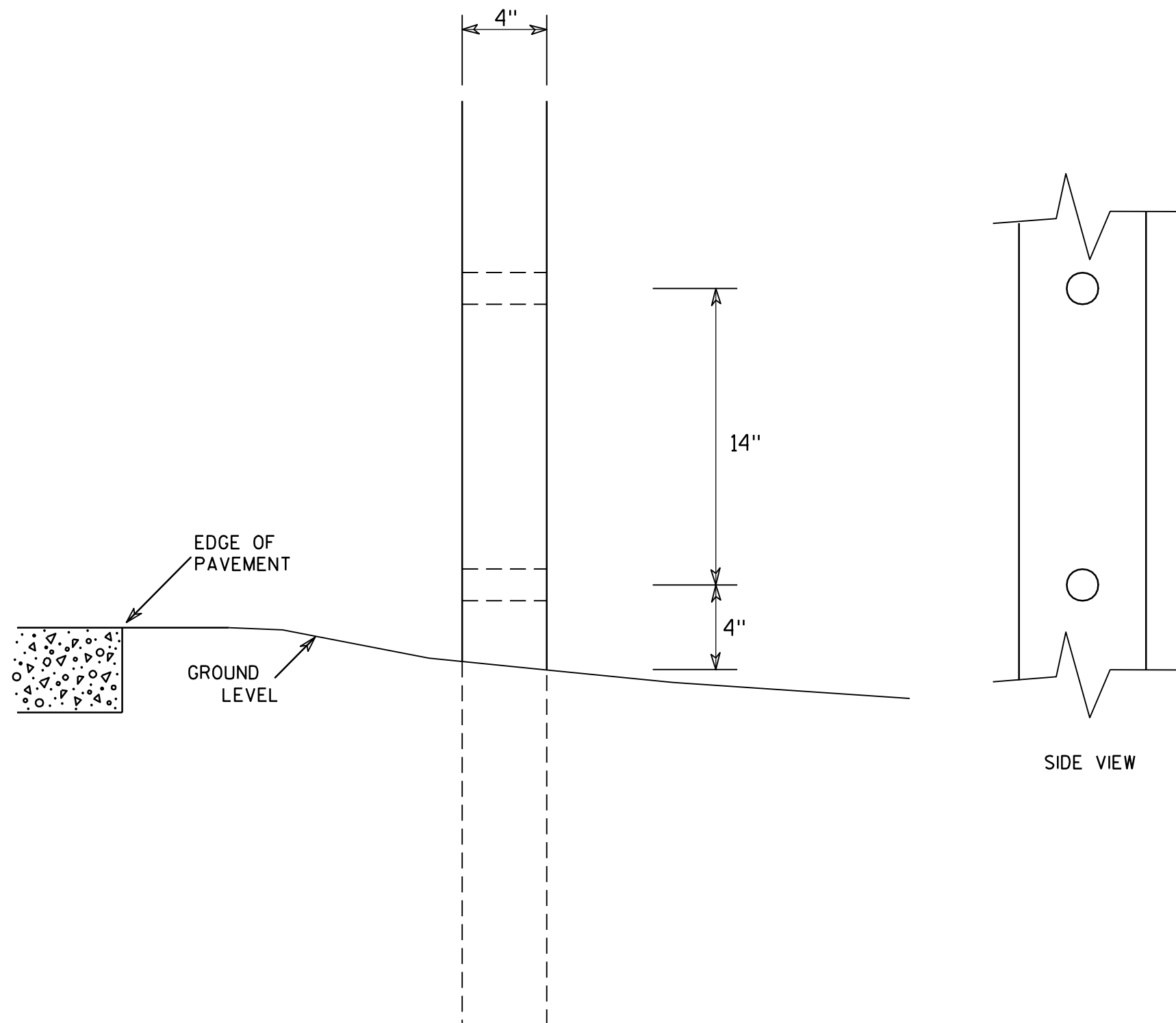
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 138 14-9.9

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

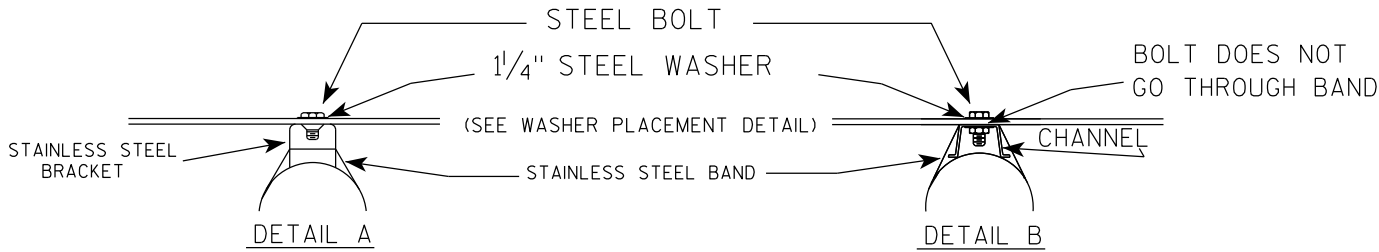
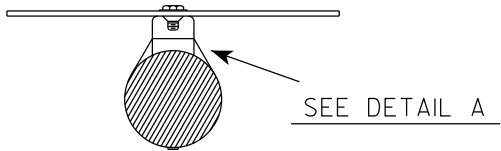
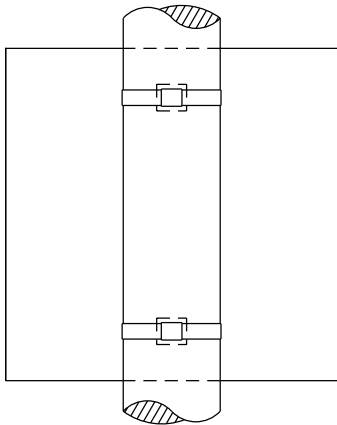
COUNTY:

SHEET NO: 139

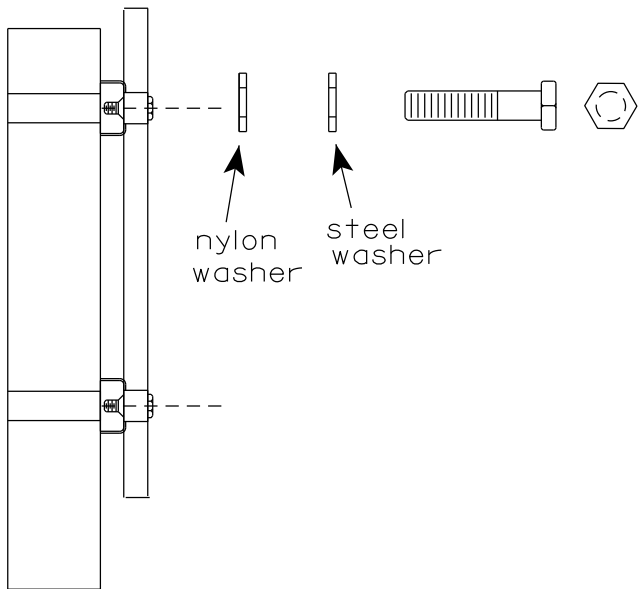
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

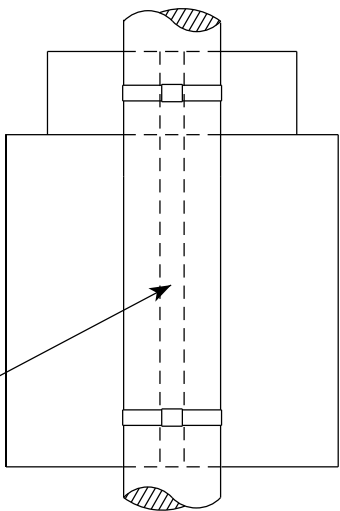


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

GENERAL NOTES

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

"J" ASSEMBLY



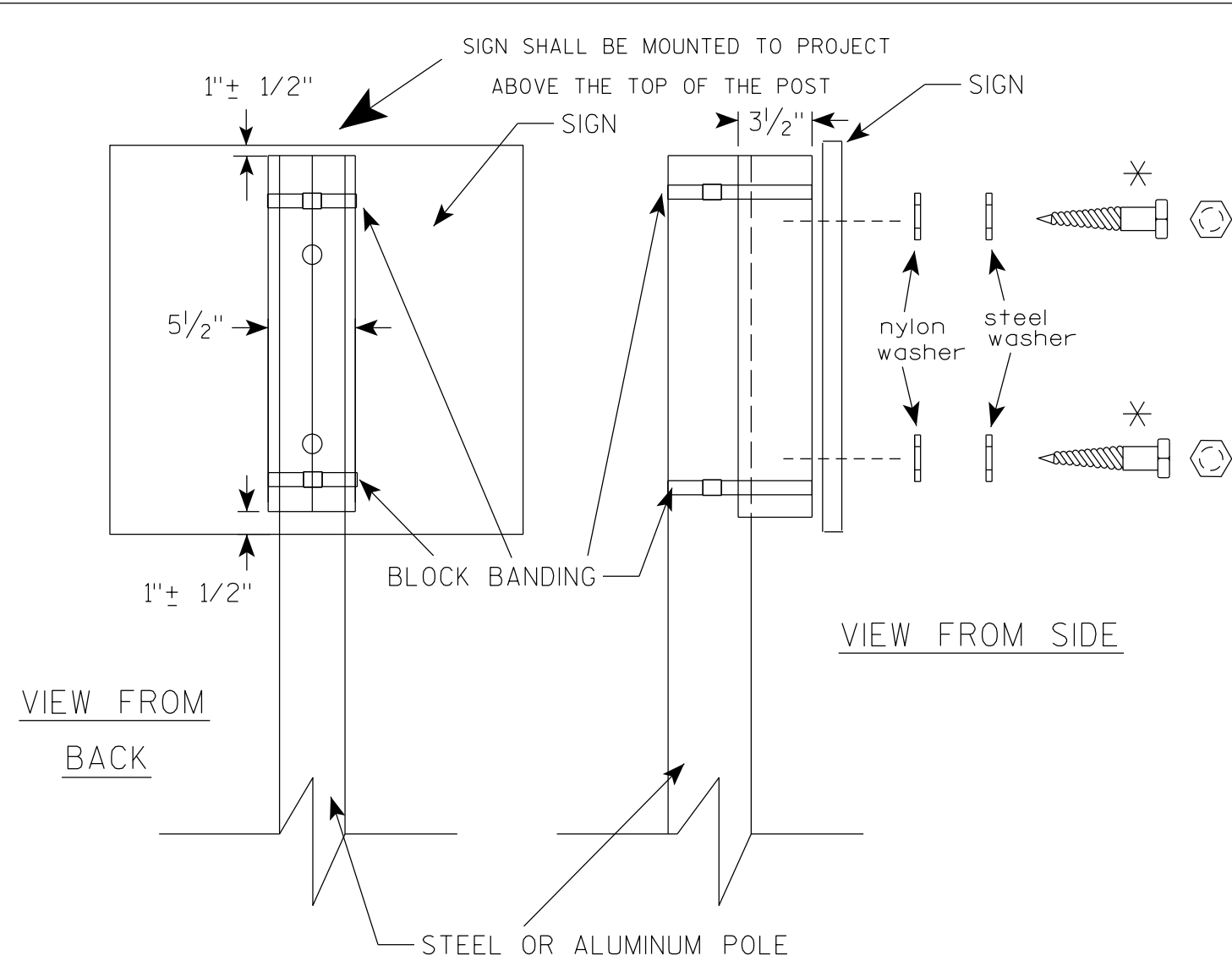
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

SEE DETAIL B

STANDARD SIGN
SIGN BANDING DETAILS

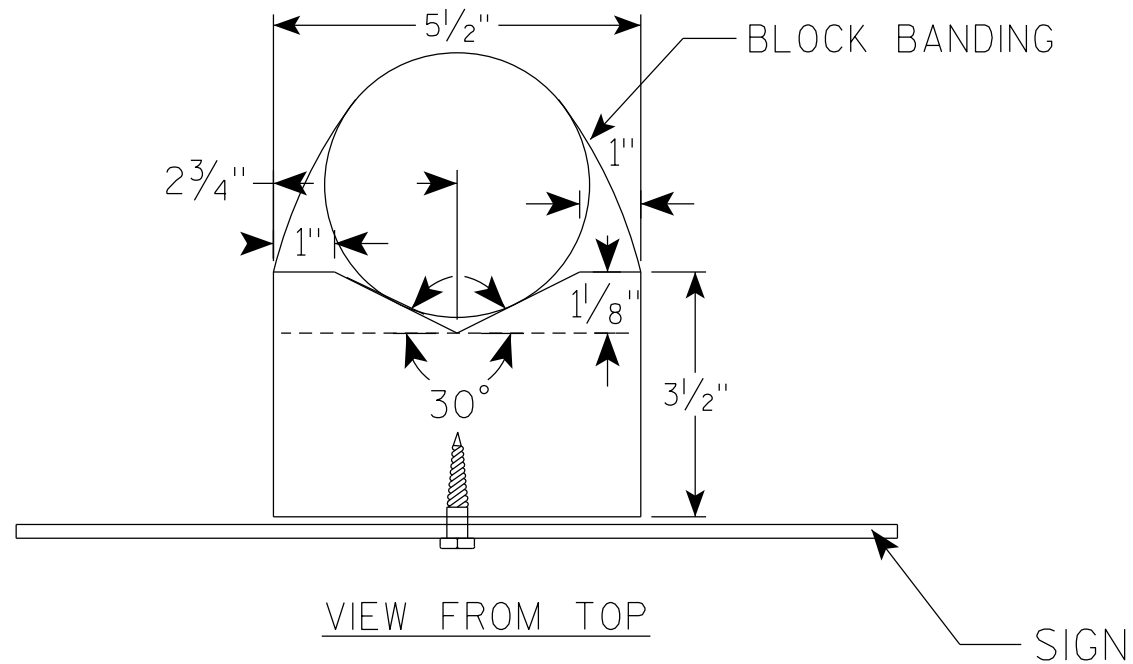
WISCONSIN DEPT OF TRANSPORTATION

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



VIEW FROM
BACK

VIEW FROM SIDE



VIEW FROM TOP

GENERAL NOTES

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

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

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

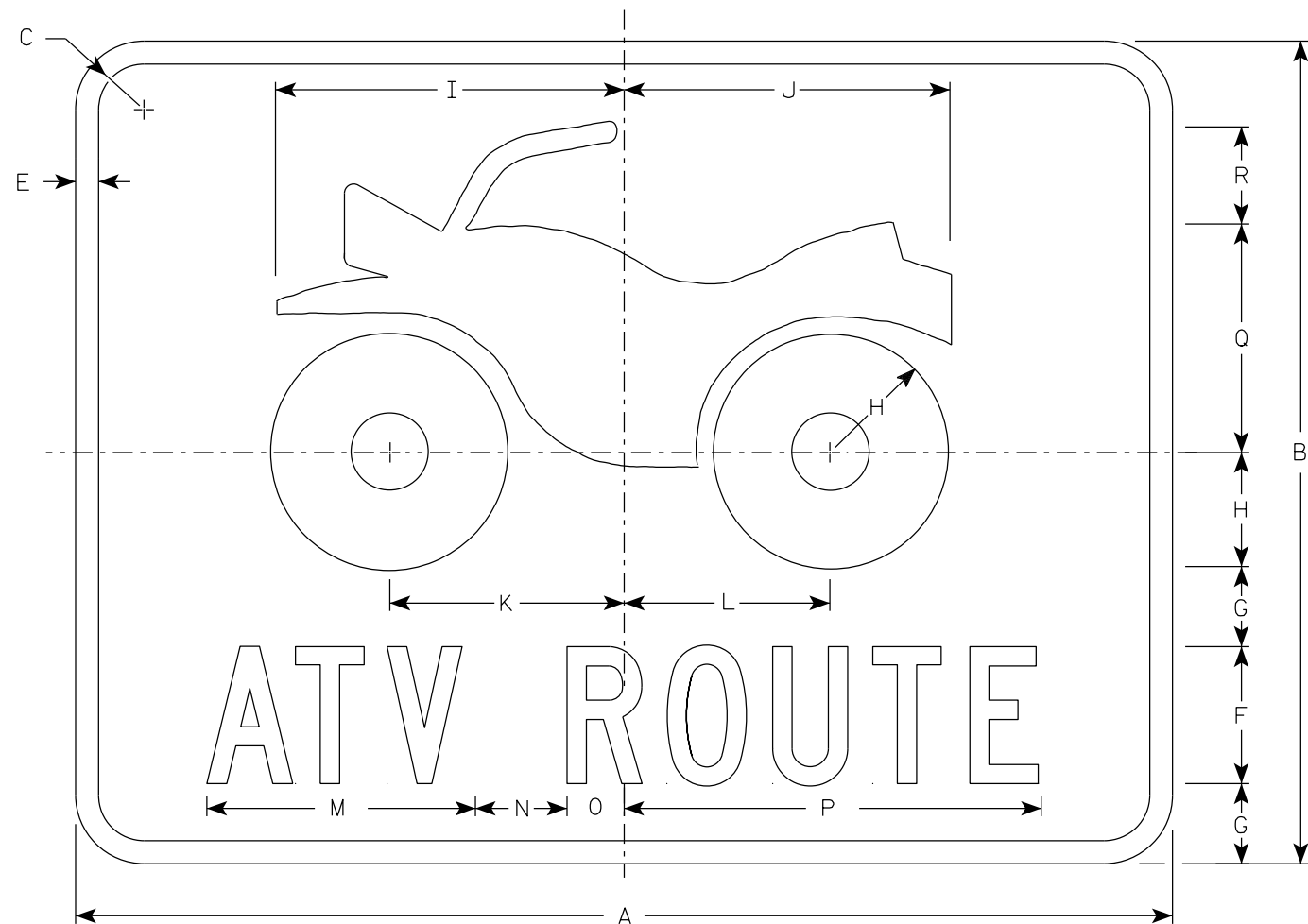
DATE 4/19/2022 PLATE NO. A5-10.3

PROJECT NO:

SHEET NO: 141

E

7



D11-10

NOTES

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

7

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

STANDARD SIGN

D11-10

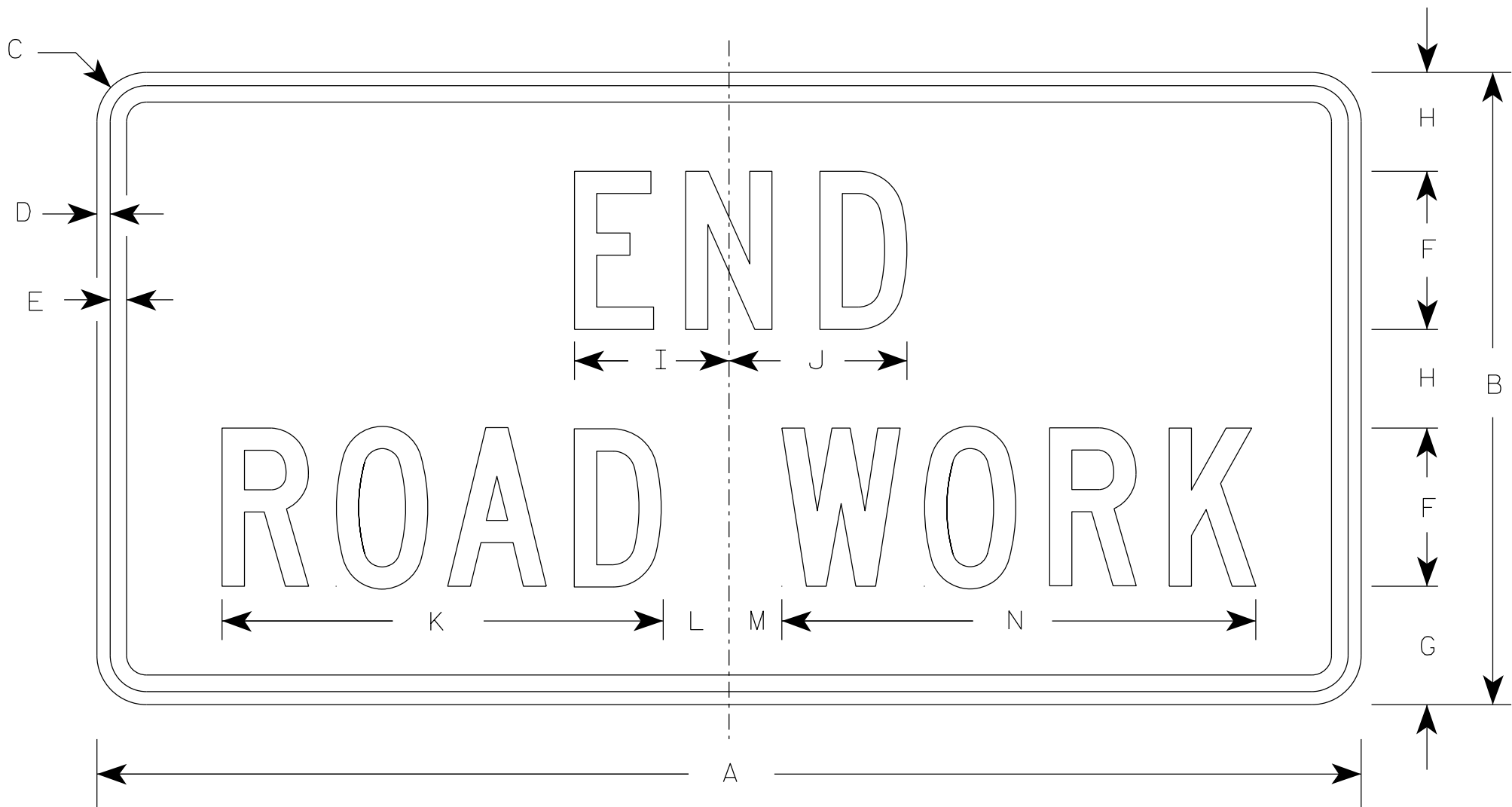
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew P. Rauch*
for State Traffic Engineer

DATE 1/25/2023 PLATE NO. D11-10.6

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.



G20-2A

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

STANDARD SIGN

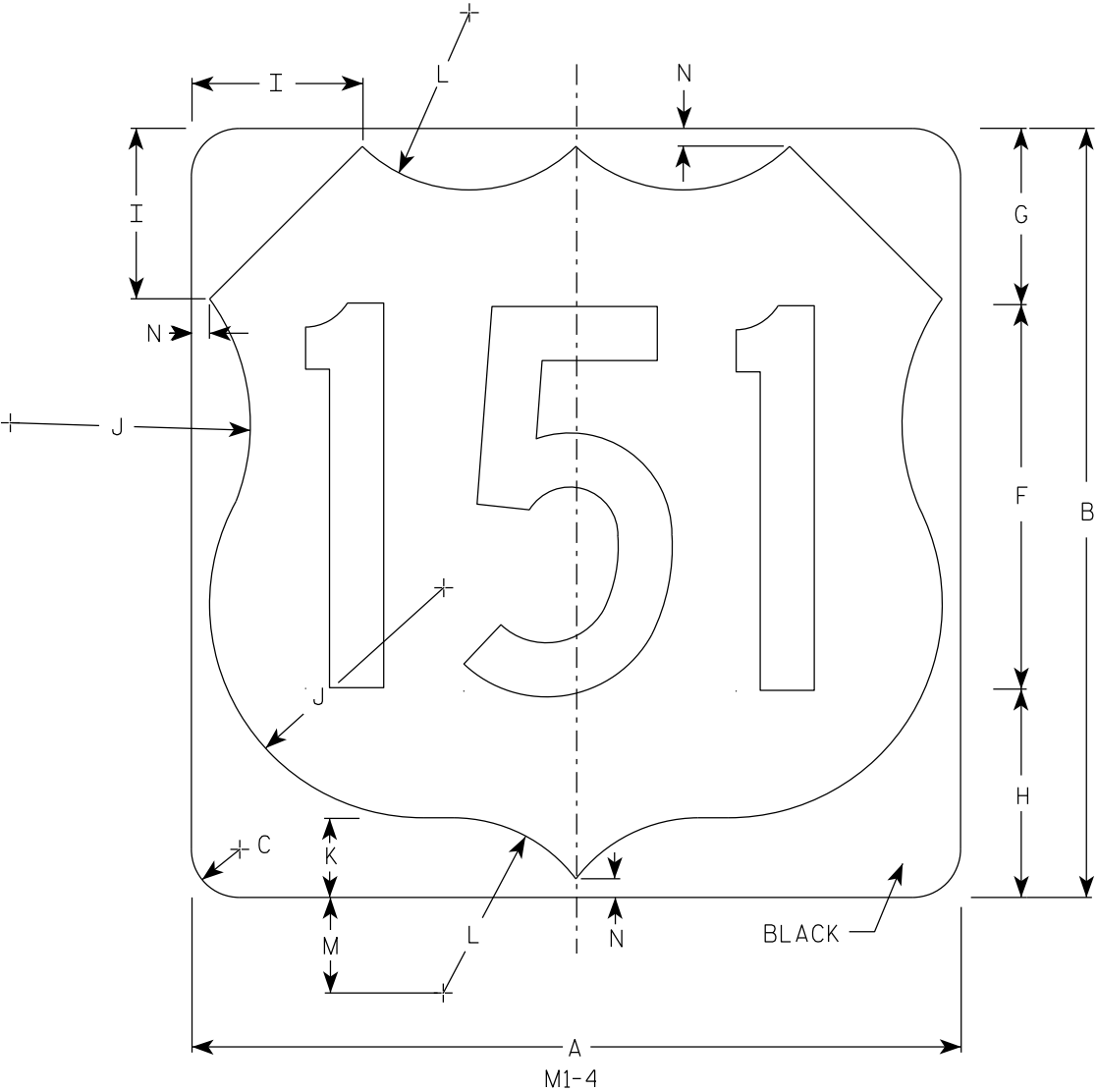
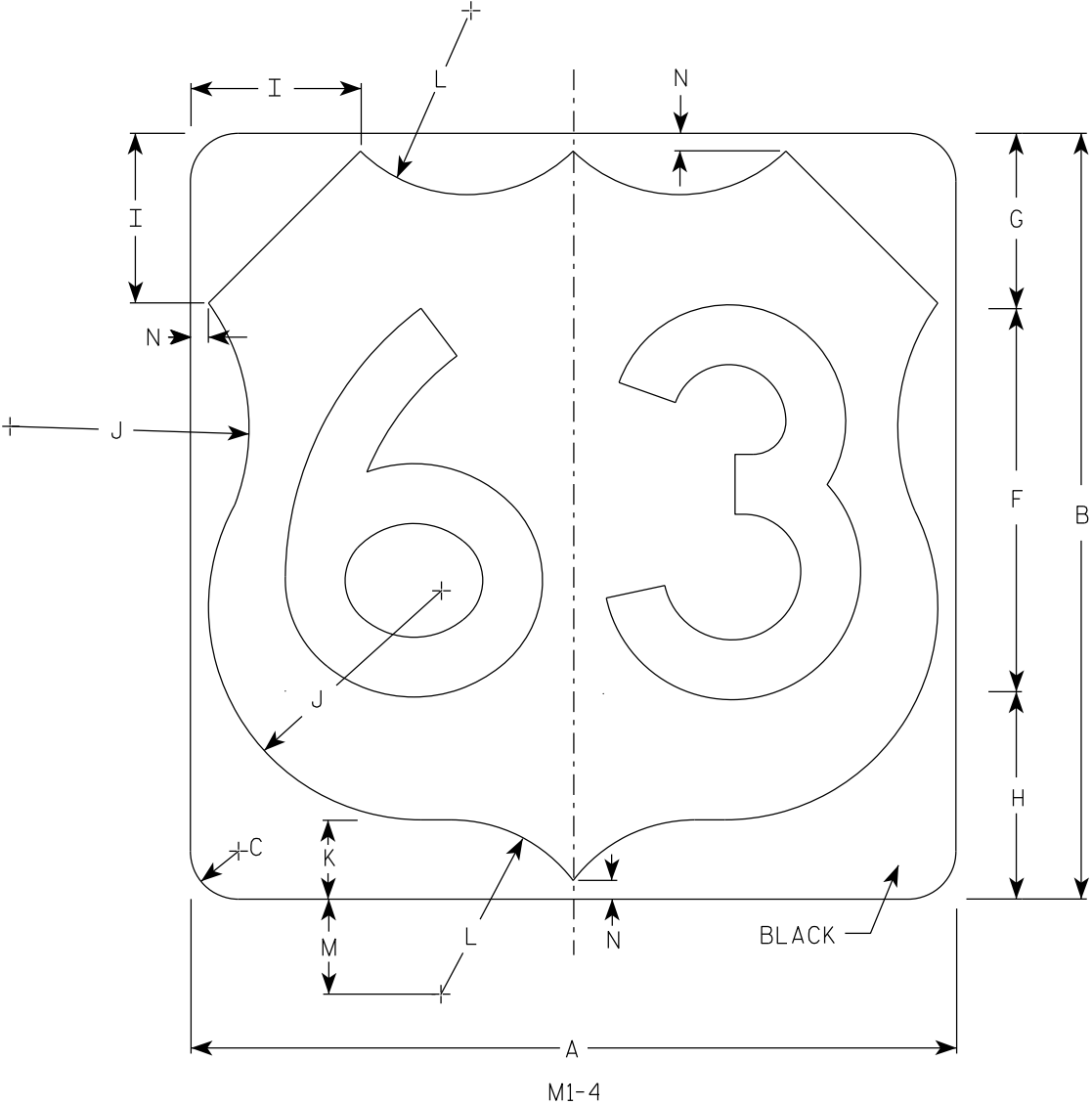
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-2A.10

7



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

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	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
2M	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0

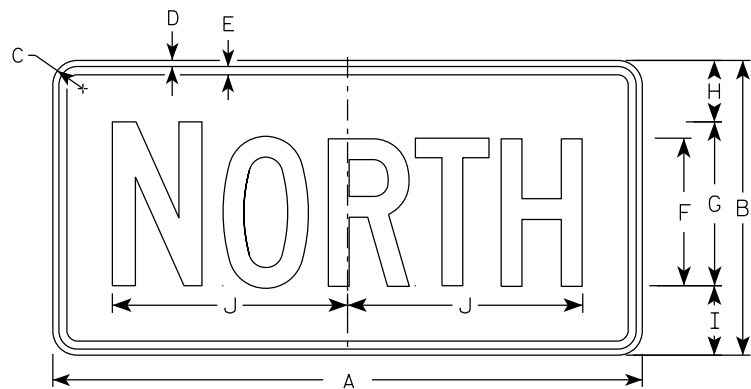
USH MARKER
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

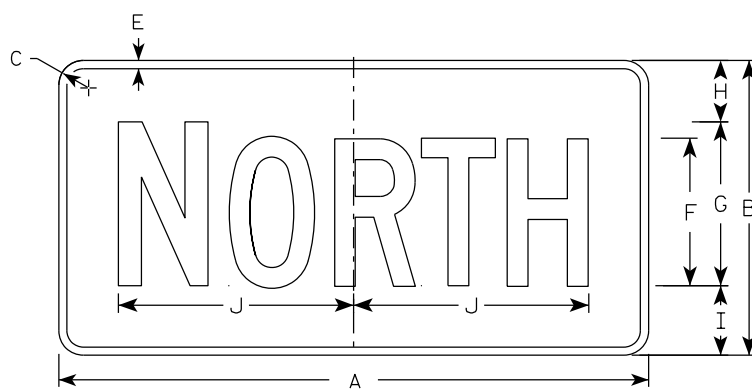
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 12/20/22 PLATE NO. M1-4.11

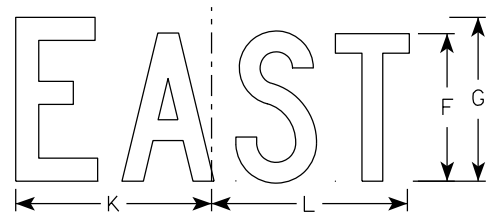
7



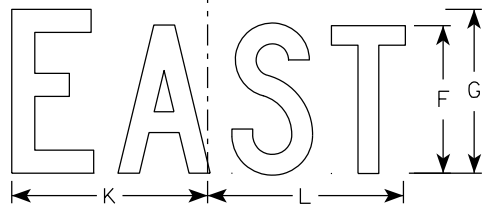
M3-1
MM3-1
MP3-1



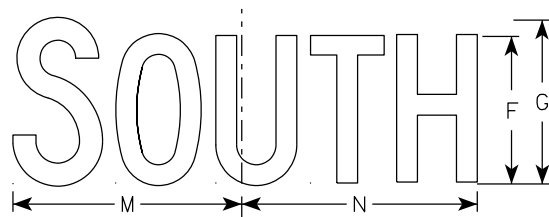
MB3-1
MK3-1
MN3-1



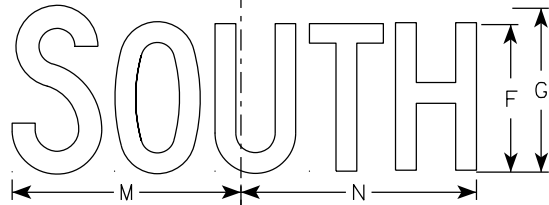
M3-2
MM3-2
MP3-2



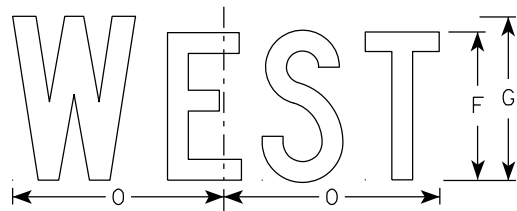
MB3-2
MK3-2
MN3-2



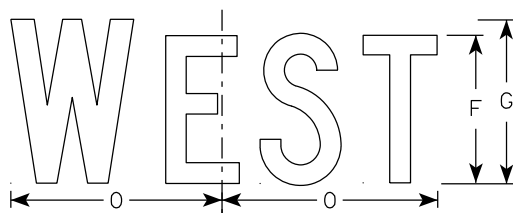
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

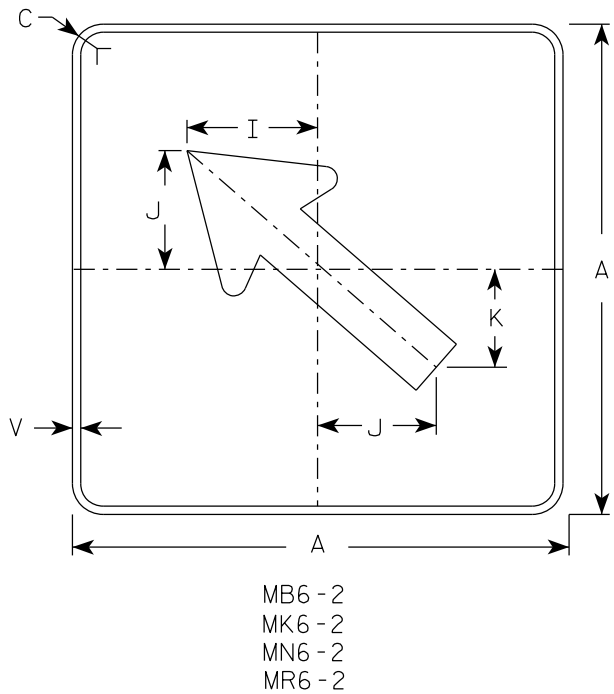
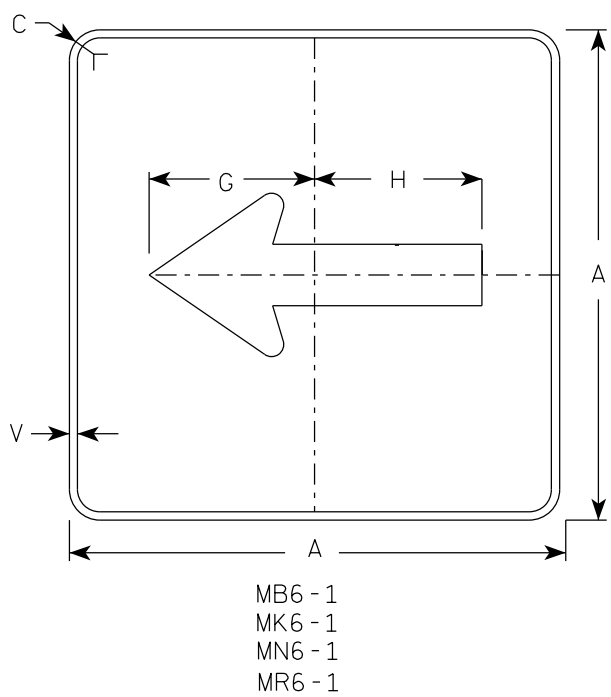
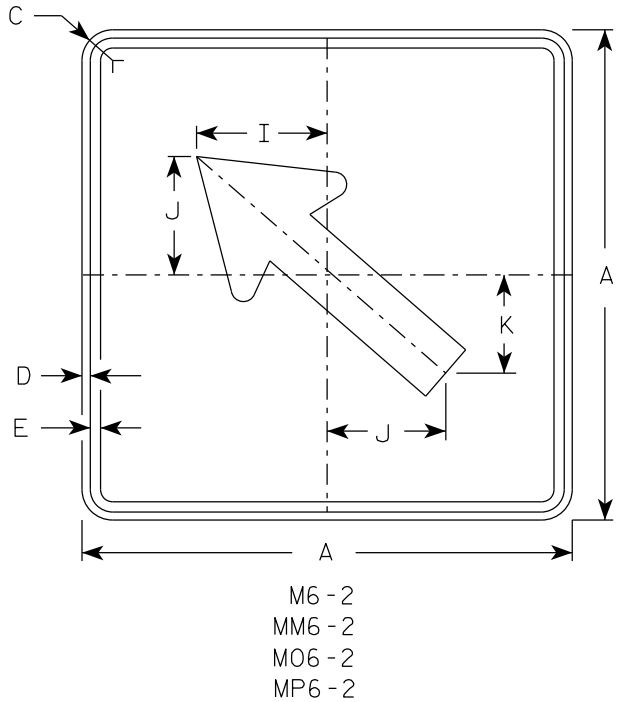
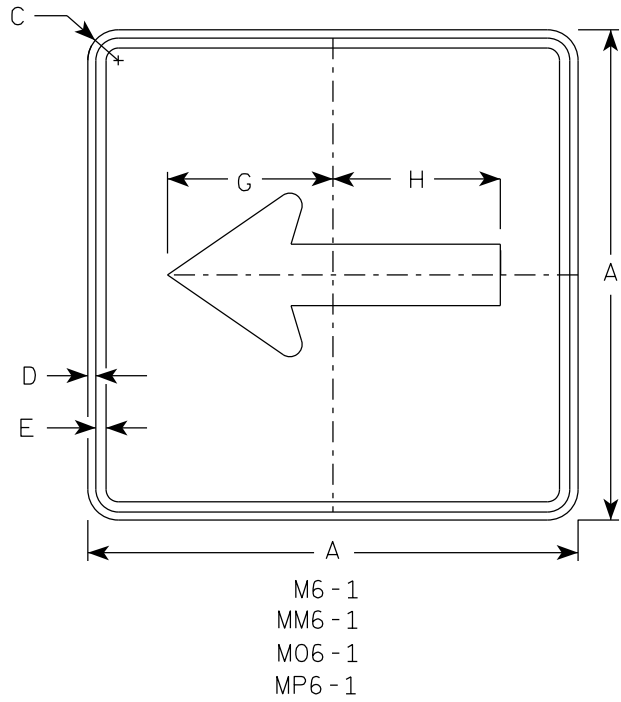
- All Signs Type II - Type H Reflective
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 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

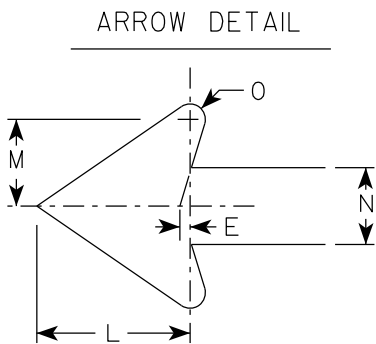
7

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

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 145	E
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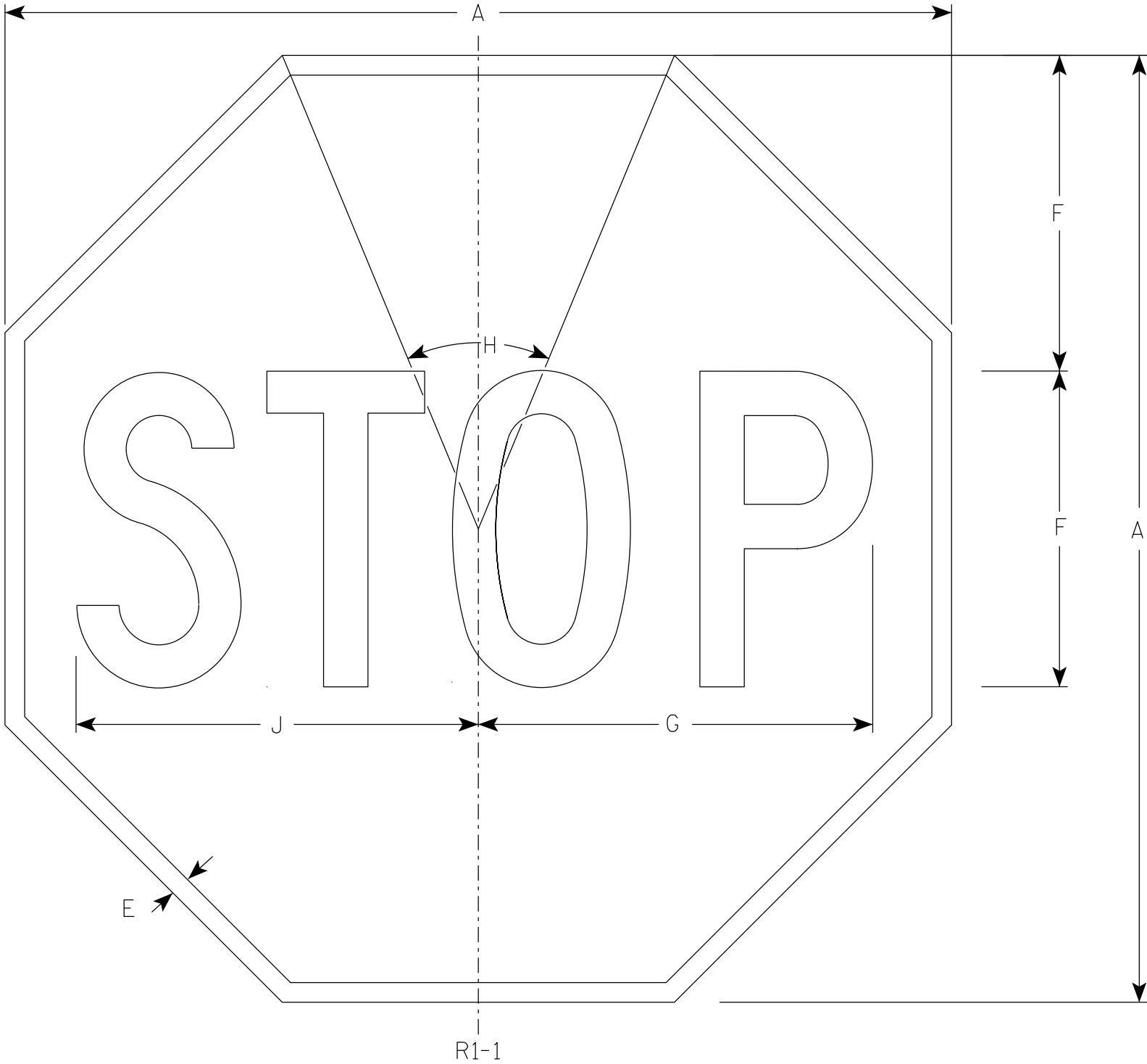


- NOTES**
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



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

7



NOTES

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

7

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

STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

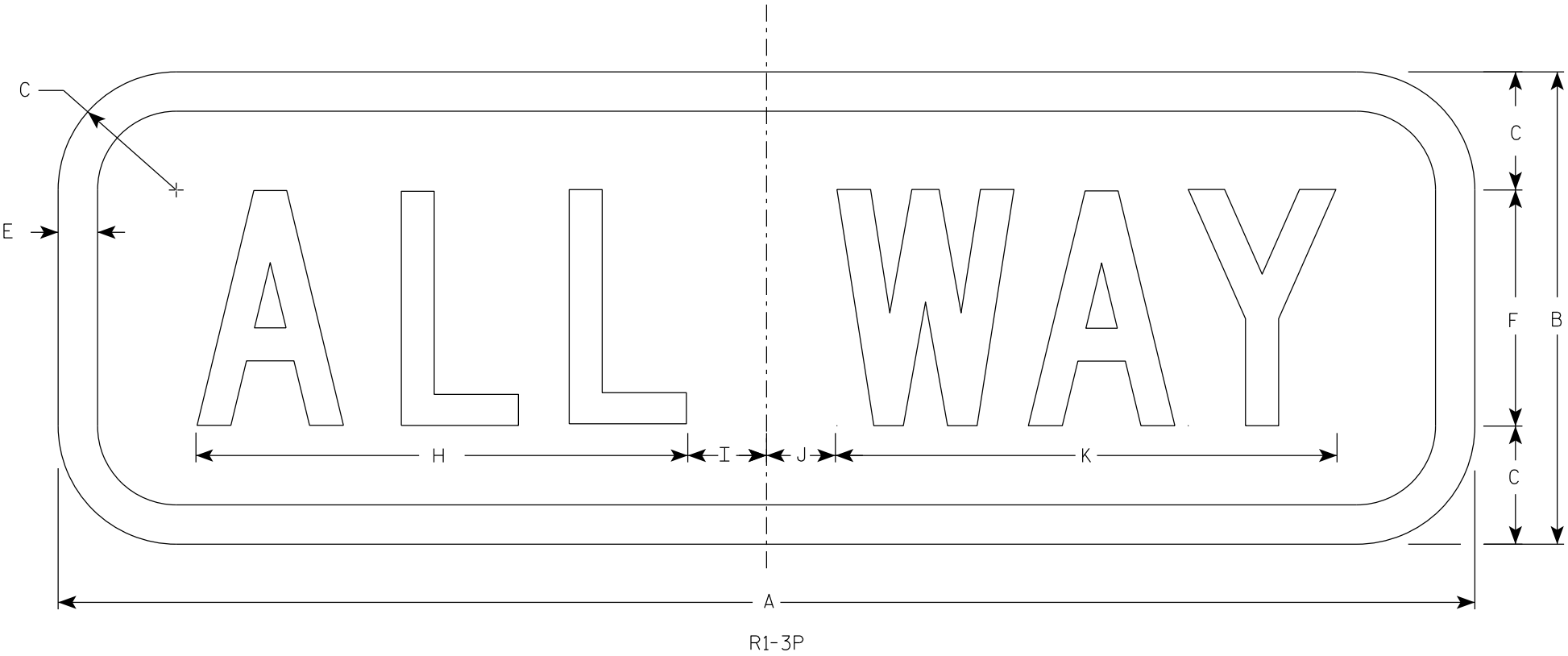
DATE 7/9/2025 PLATE NO. R1-1.14

7

7

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - Red
 - Message - White
- 3. Message Series - C
- 4. For 30"x30" R1-1 use 18"x6" R1-3P sign
- For 36"x36" R1-1 use 30"x12" R1-3P sign
- For 48"x48" R1-1 use 30"x12" R1-3P sign



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

STANDARD SIGN

R1-3P

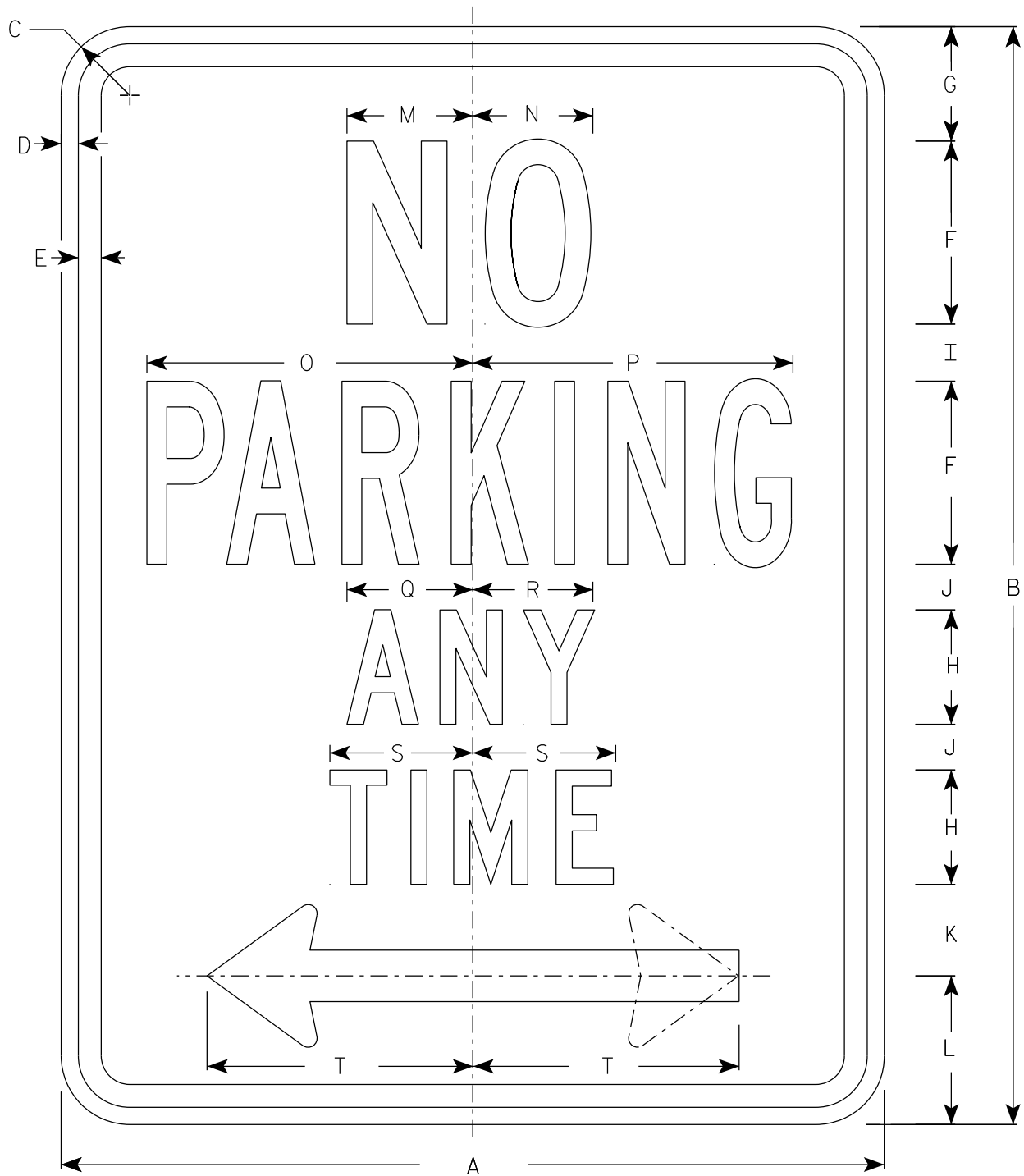
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/9/2025 PLATE NO. R1-3P.5

SHEET NO: 148

E

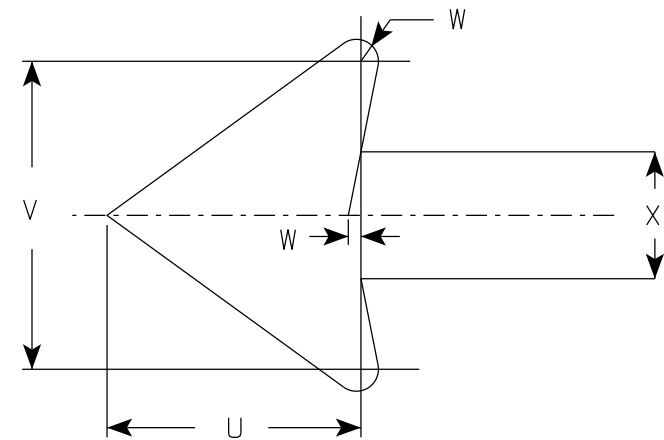


R7-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Red
3. Message Series - See Note 4
4. Lines 1, 3 and 4 are series C, line 2 is series B.
5. R7-1D (double arrow)
R7-1L (left arrow)
R7-1R (right arrow)

ARROW DETAIL



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

STANDARD SIGN
R7-1

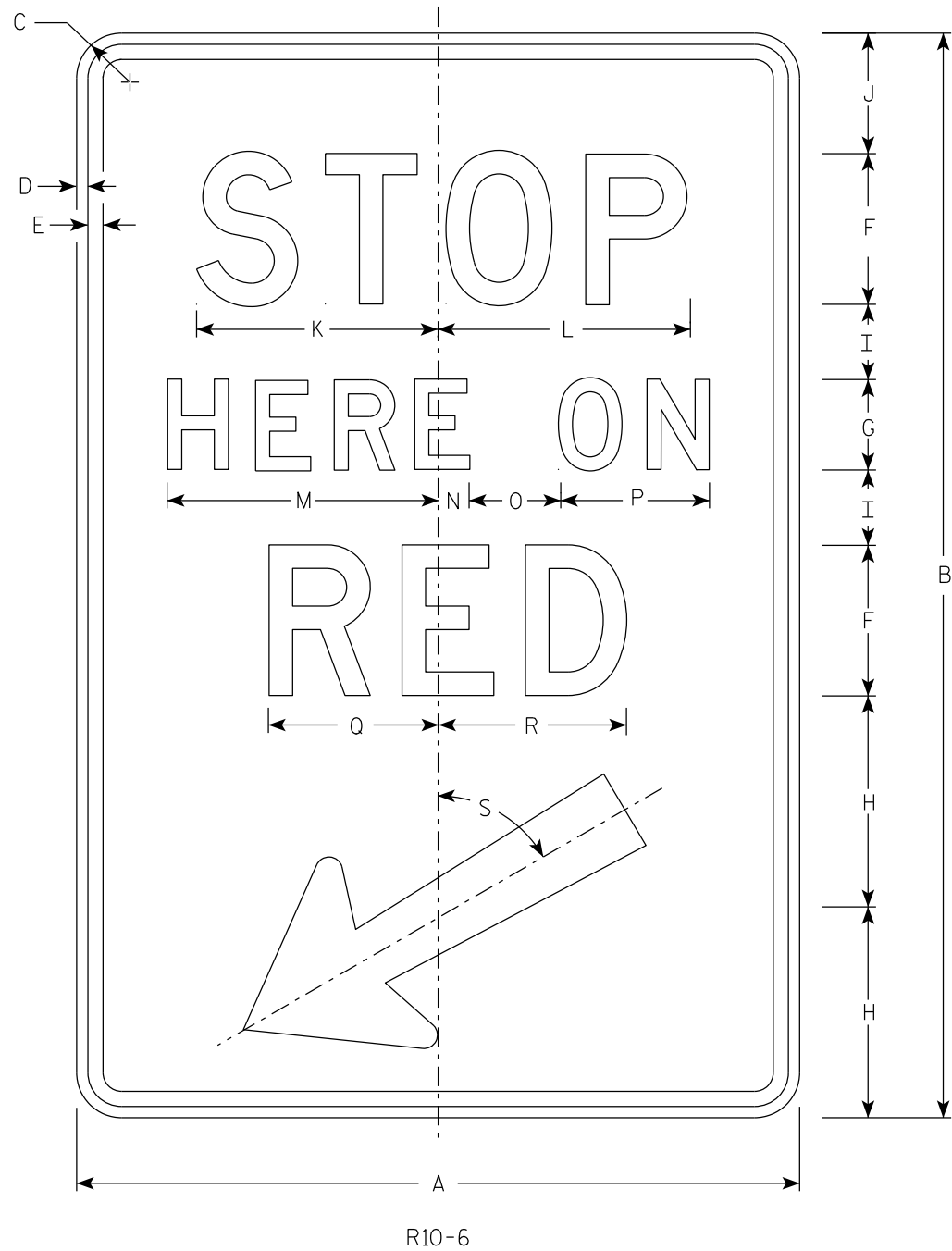
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 10/26/23 PLATE NO. R7-1.11

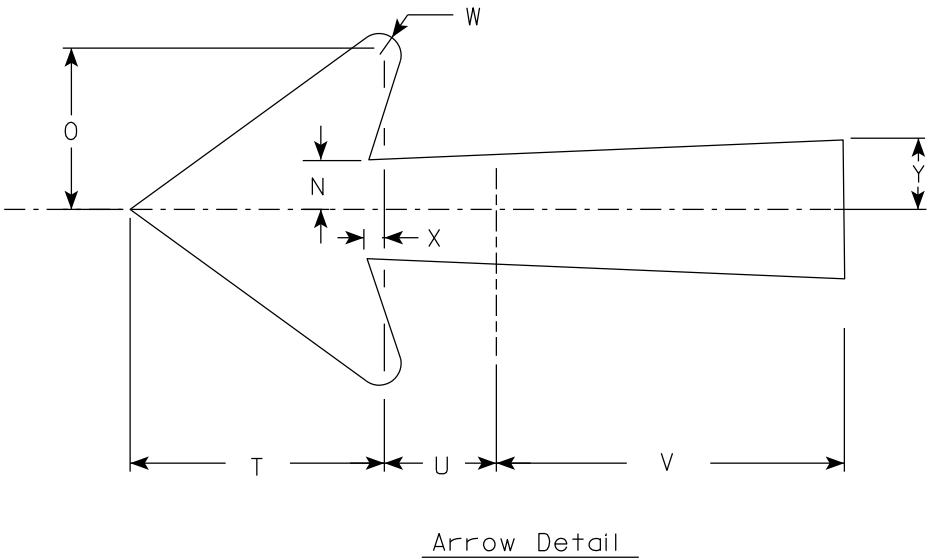
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 149	E
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7



NOTES

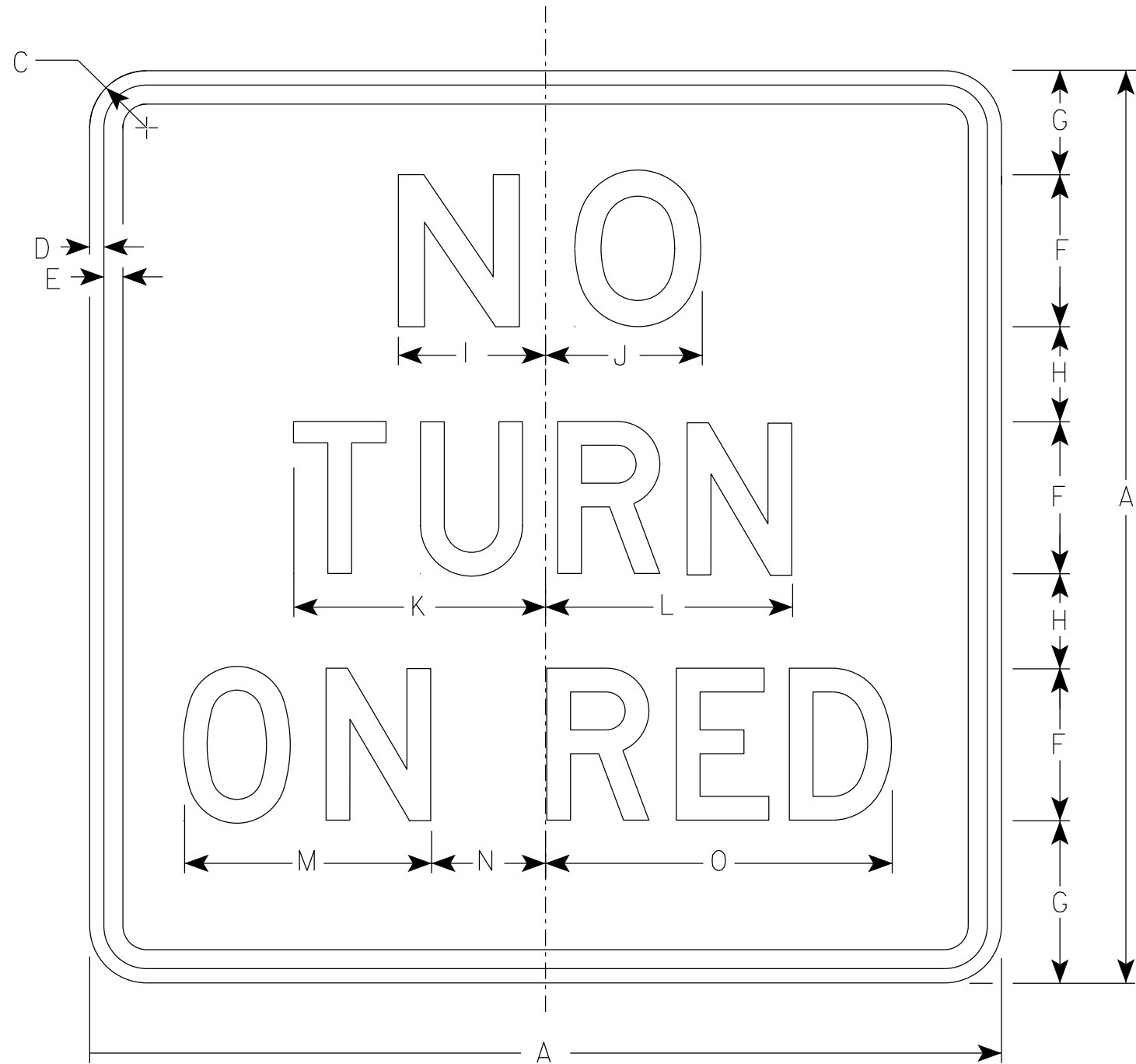
- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - D



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	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																											

7



R10-11B

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
Background - White
Message - Black
- 3. Message Series - Line 1 is Series E.
Lines 2 and 3 are Series D.

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	18		1 1/2	3/8	3/8	3	2 3/4	1 3/4	3	3 1/8	5	4 7/8	5 1/4	1 7/8	7 1/8												2.25
2S	24		1 1/2	3/8	1/2	4	3 1/2	2 1/2	3 7/8	4 1/8	6 5/8	6 1/2	6 1/2	3	9 1/8												4.0
2M	24		1 1/2	3/8	1/2	4	3 1/2	2 1/2	3 7/8	4 1/8	6 5/8	6 1/2	6 1/2	3	9 1/8												4.0
3	30		1 7/8	1/2	5/8	5	4 1/2	3	4 7/8	5 1/4	8 1/4	8 1/8	7 3/4	4 1/8	11 7/8												6.25
4																											
5																											

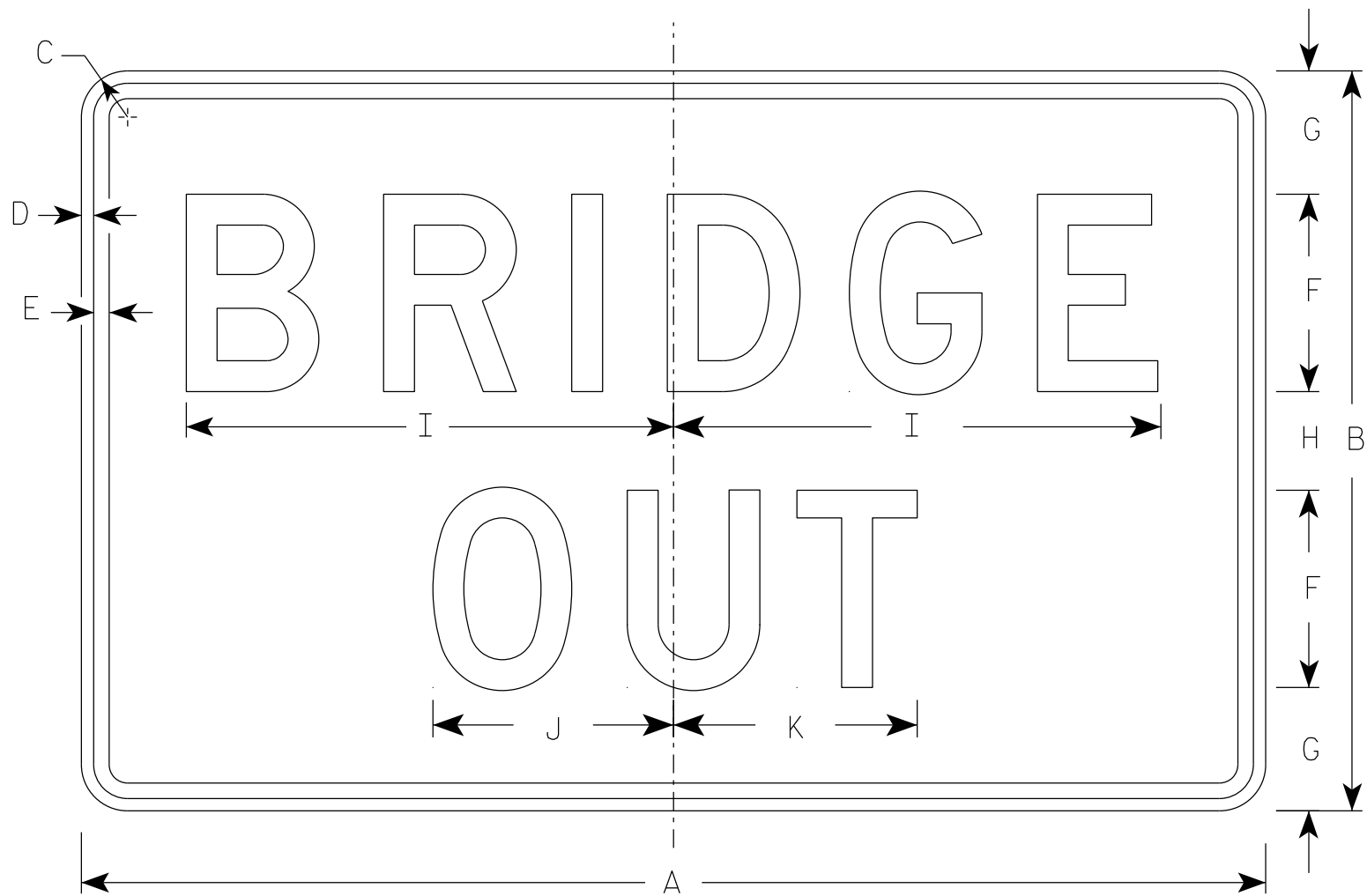
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 151

E

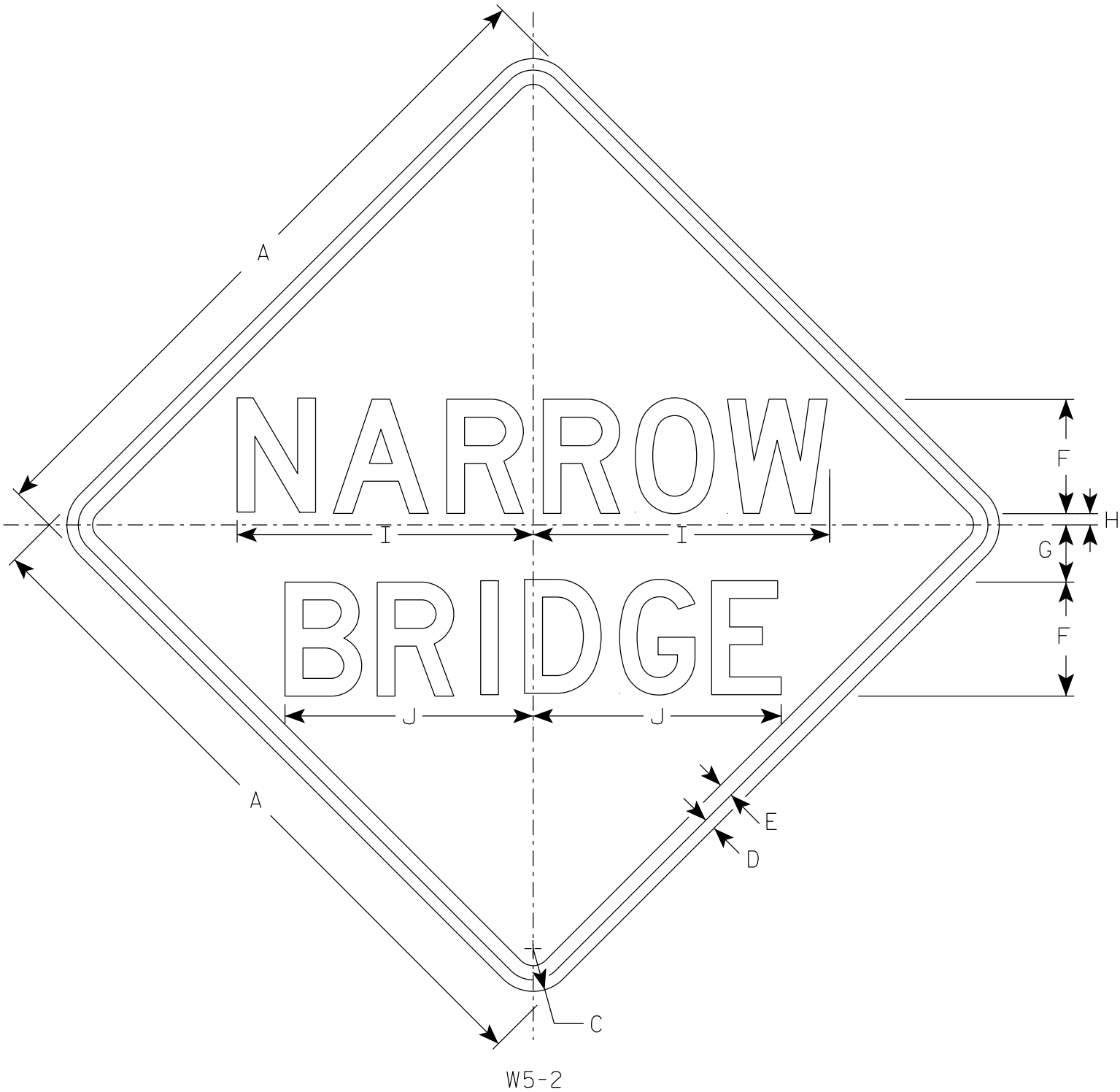


R11-2B

NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:
 - Background - White
 - Message - Black
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 7/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0



NOTES

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

7

7

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

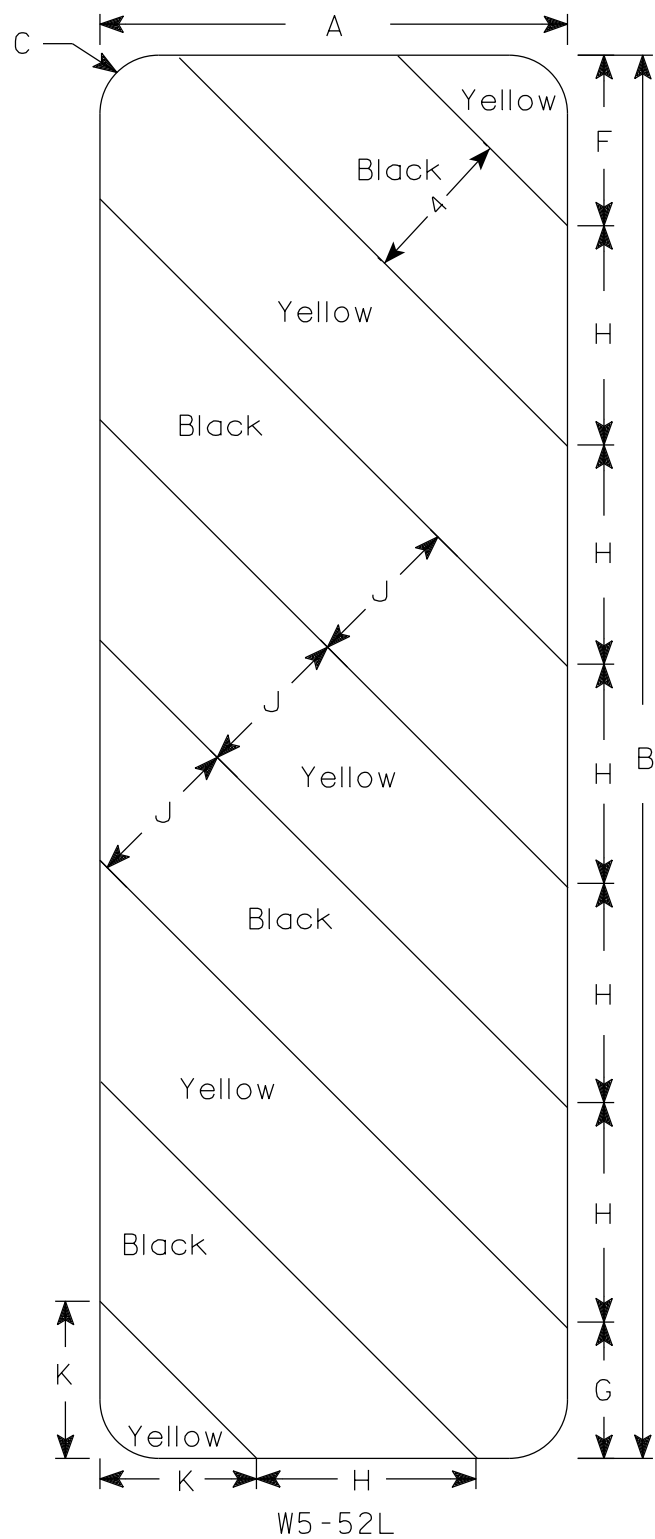
STANDARD SIGN

W5-2

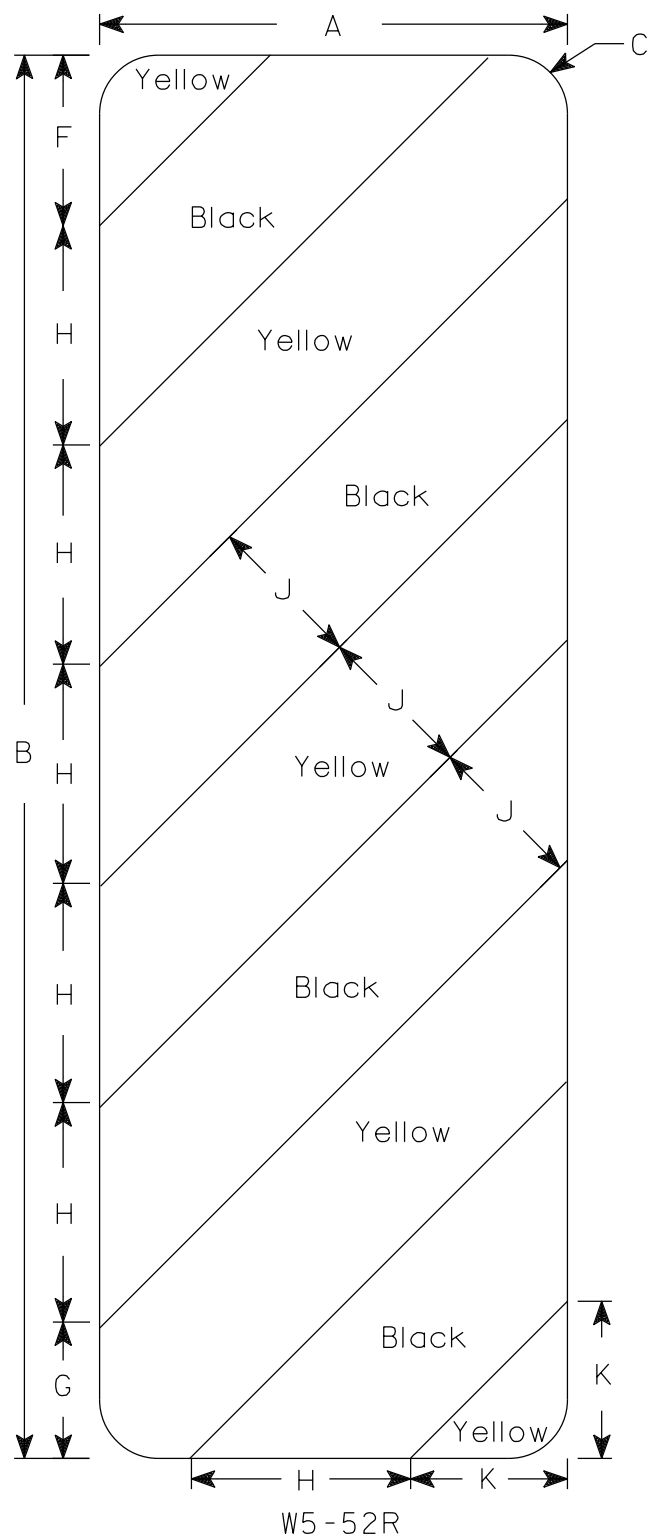
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 9/5/2023 PLATE NO. W5-2.9



W5-52L



W5-52R

NOTES

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

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

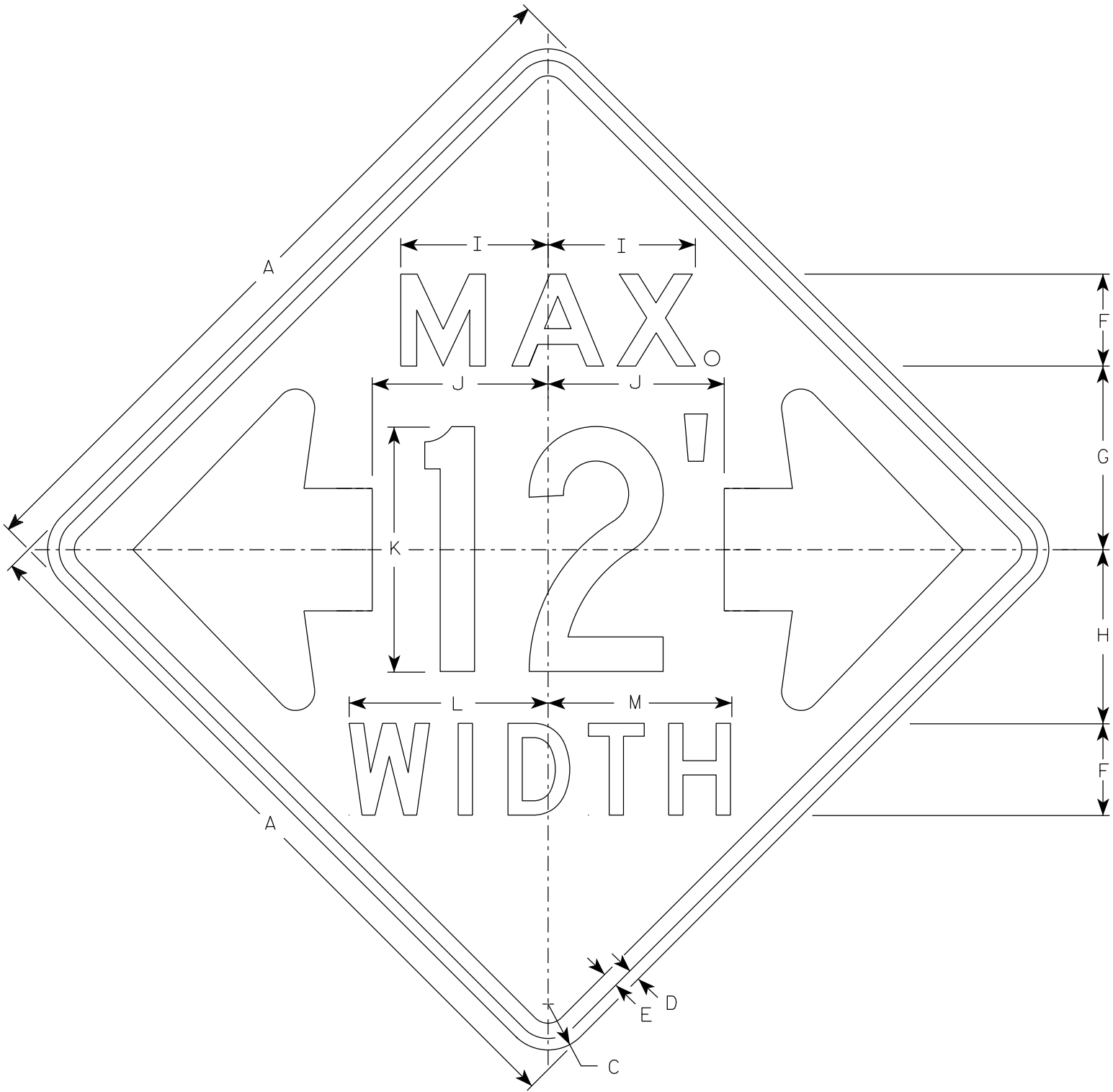
STANDARD SIGN

W5-52L & W5-52R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

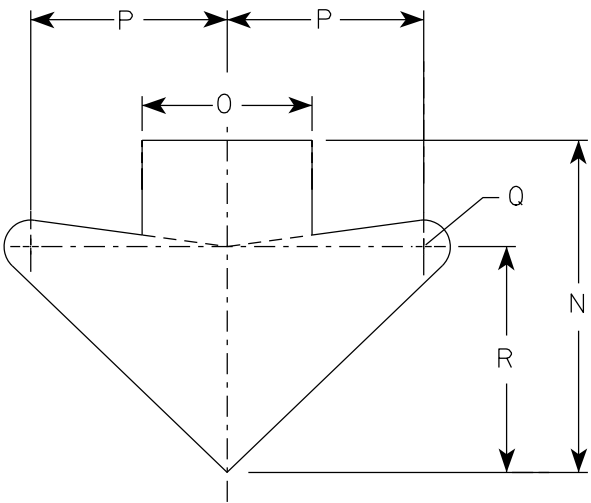
DATE 3/4/2024 PLATE NO. W5-52.10



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

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	¾	1	6	12	11 ⅜	9 ⅝	11 ½	16	13	12	15 ⅝	8	9 ¼	1 ¼	10 ⅝									16.0
2M	48		3	¾	1	6	12	11 ⅜	9 ⅝	11 ½	16	13	12	15 ⅝	8	9 ¼	1 ¼	10 ⅝									16.0
3																											
4																											
5																											

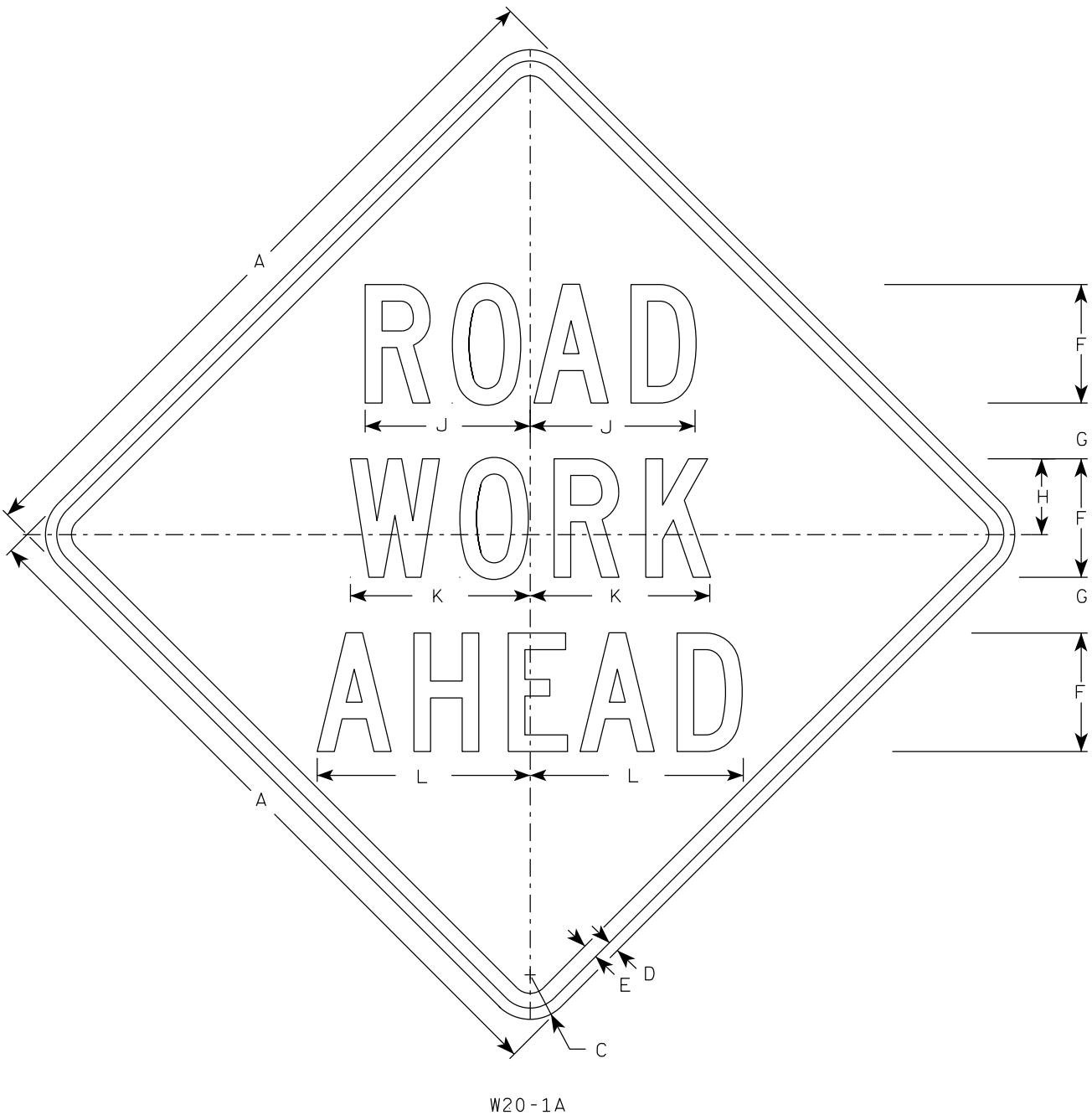
STANDARD SIGN

W12-52

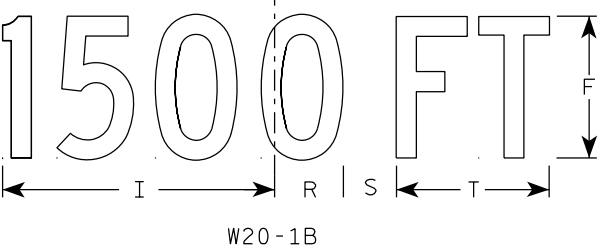
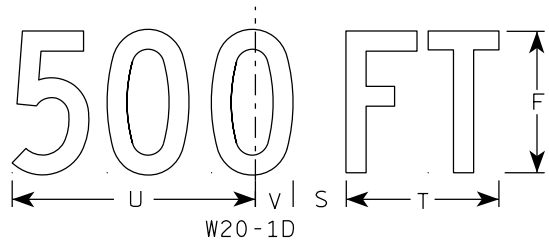
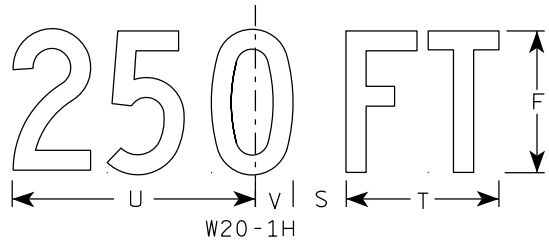
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

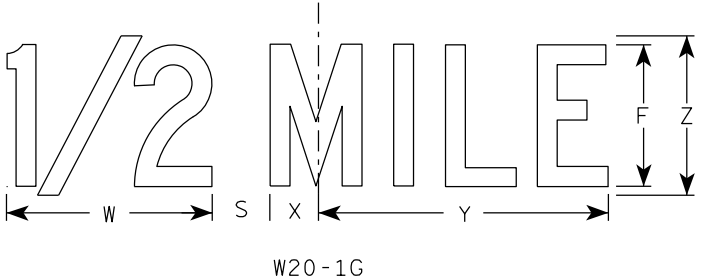


W20-1A

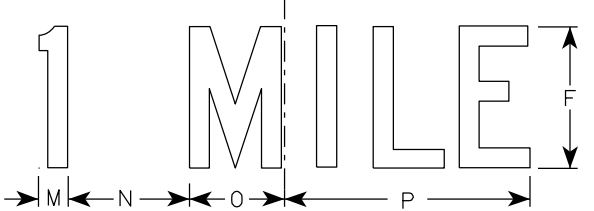


W20-1B

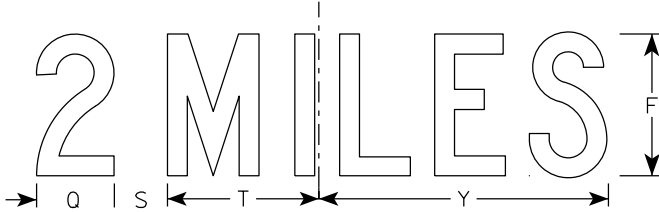
- NOTES
1. Sign is Type II - Type F Reflective
 2. Color:
Background - Orange
Message - Black
 3. Message Series - C
 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



W20-1G



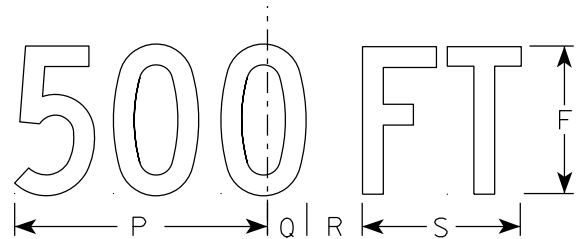
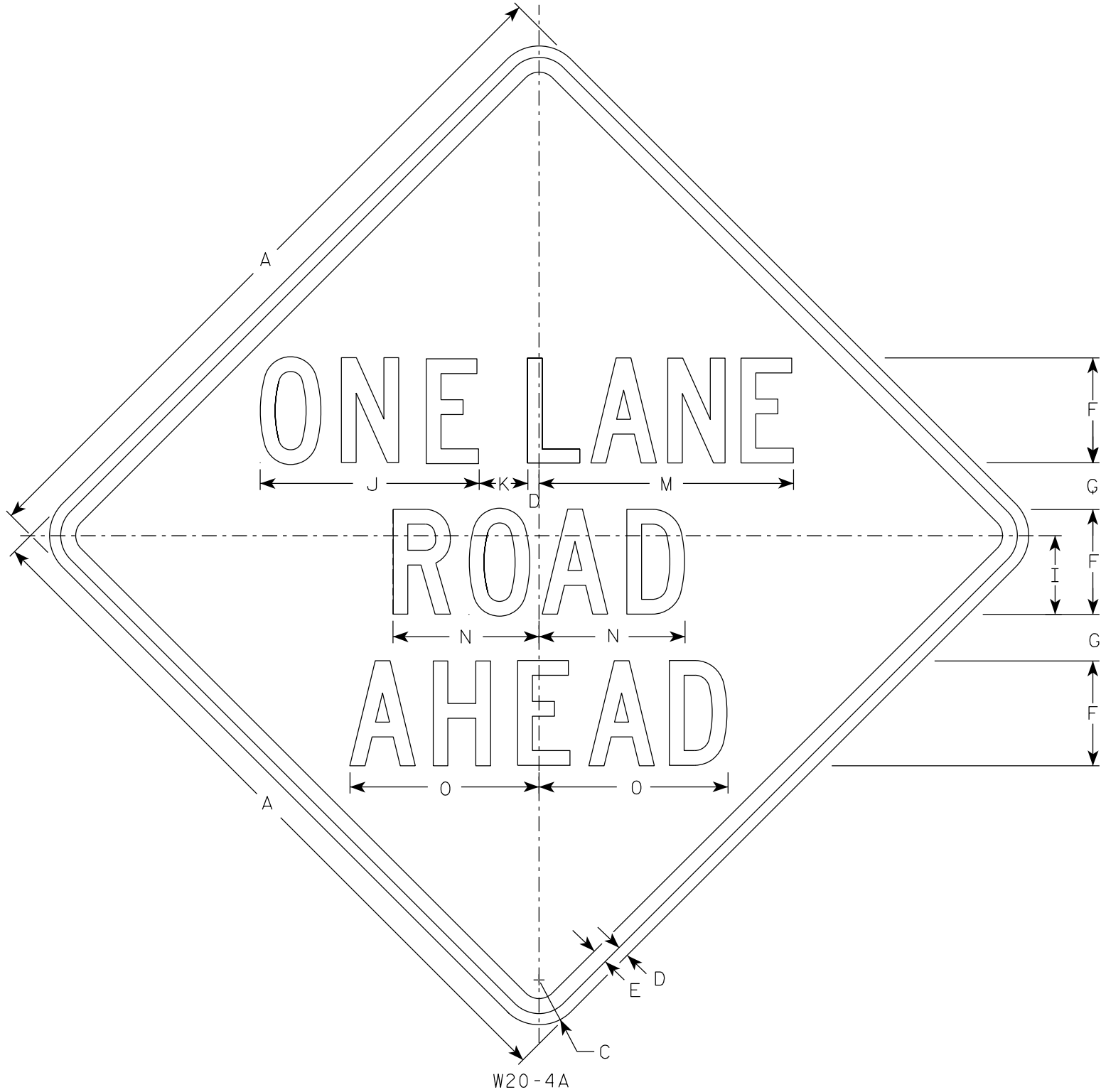
W20-1F



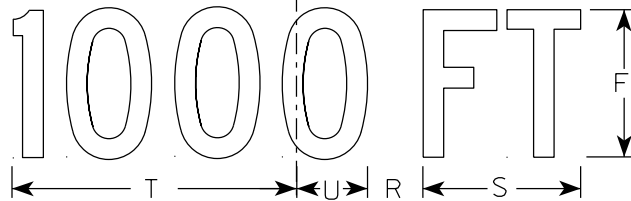
W20-1E

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		2 1/4	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

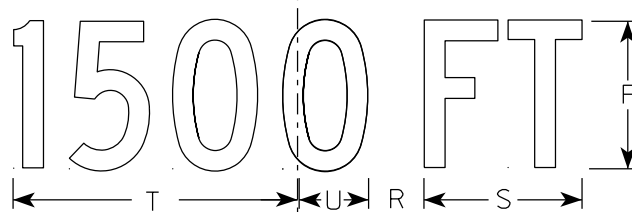
7



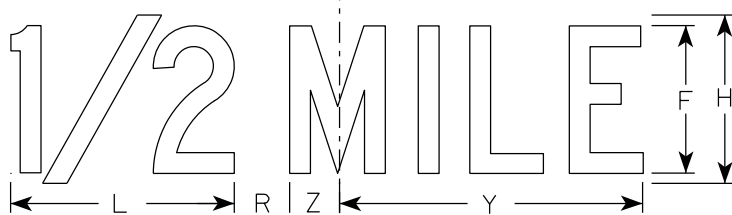
W20-4D



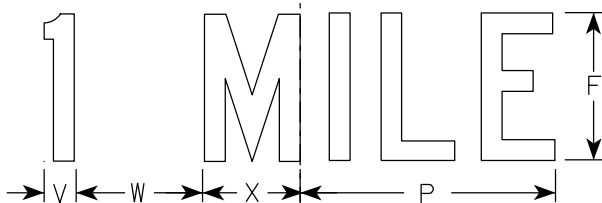
W20-4C



W20-4B



W20-4G



W20-4F

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.

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		2 1/4	5/8	3/4	5	2 3/8	6	3 3/4	10 3/8	2 3/8	8	13 1/2	7	8 7/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		3	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
3	48		3	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
4	48		3	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0
5	48		3	3/4	1	7	3 1/8	8	5 1/4	14 5/8	3 1/4	10 5/8	17 3/4	9 3/4	12 5/8	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	14 3/8	2 3/8	16.0

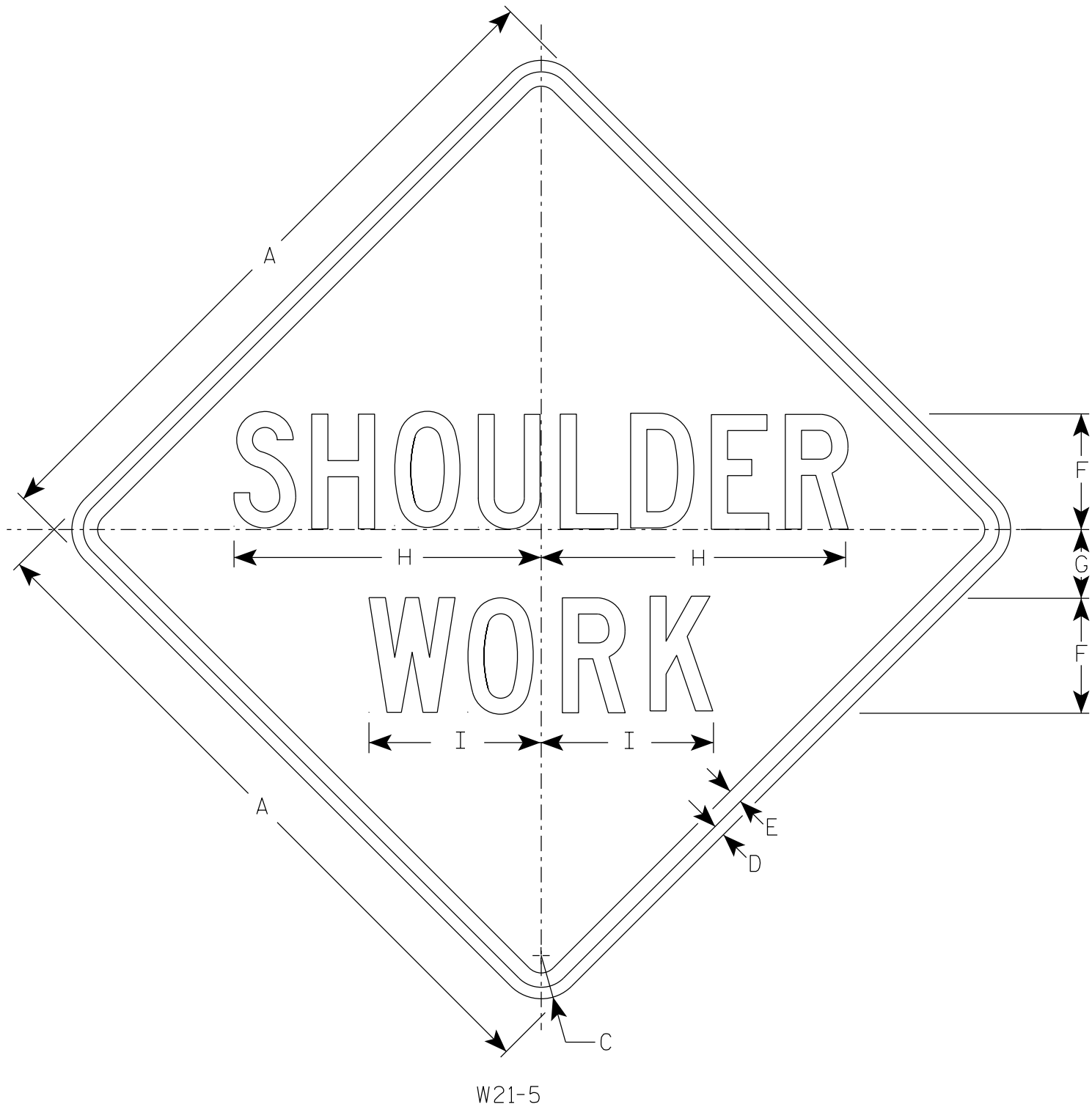
STANDARD SIGN
W20-4A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-4.10

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	3 1/2	16	9																		9.0
2S	48		3	3/4	1	8	5	21 3/8	11 1/4																		16.0
2M	48		3	3/4	1	8	5	21 3/8	11 1/4																		16.0
3	48		3	3/4	1	8	5	21 3/8	11 1/4																		16.0
4	48		3	3/4	1	8	5	21 3/8	11 1/4																		16.0
5	48		3	3/4	1	8	5	21 3/8	11 1/4																		16.0

STANDARD SIGN

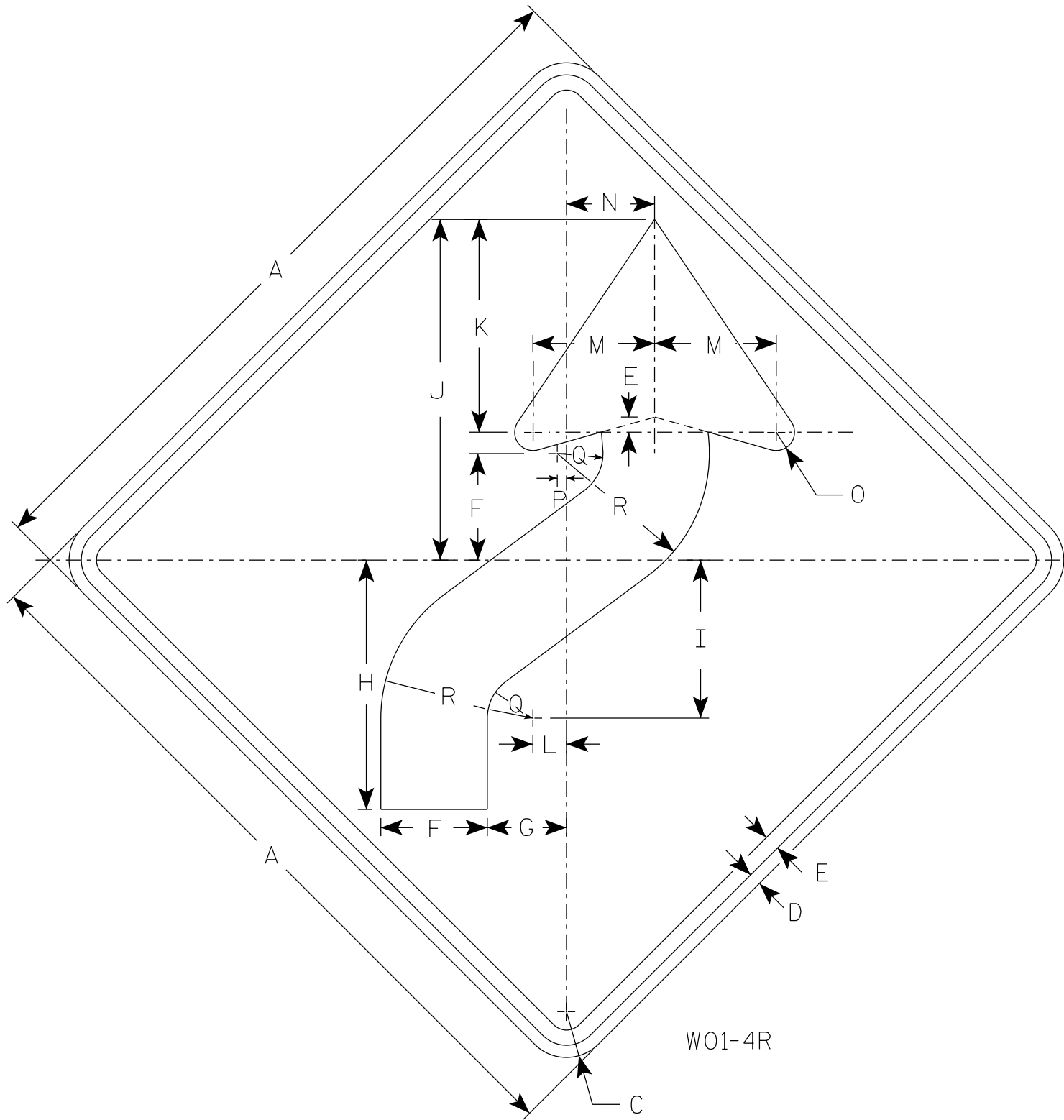
W21-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 1/11/2024 PLATE NO. W21-5.7

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 158	E
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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.
- 4. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

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		2 1/4	5/8	3/4	5 1/4	4	12 3/8	7 7/8	16 7/8	10 1/2	1 5/8	6	4 1/2	1	1/2	2 1/4	7 1/2									9.0
2S	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
2M	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
3	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
4	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0
5	48		3	3/4	1	7	5 1/4	16 1/2	10 1/2	22 1/2	14	2 1/4	8	6	1 1/4	5/8	3	10									16.0

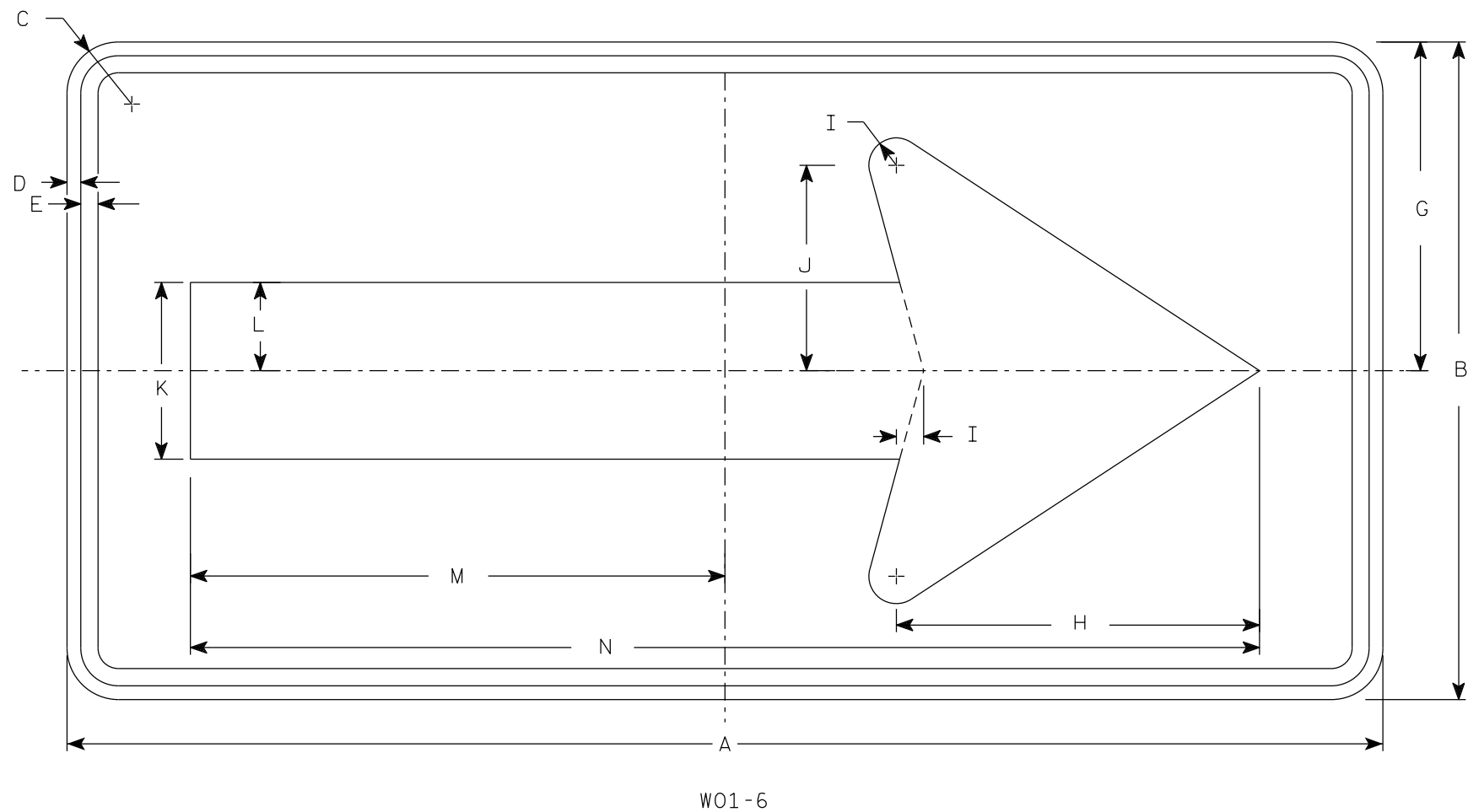
STANDARD SIGN
W01-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/24/2024 PLATE NO. W01-4.2

7



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

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

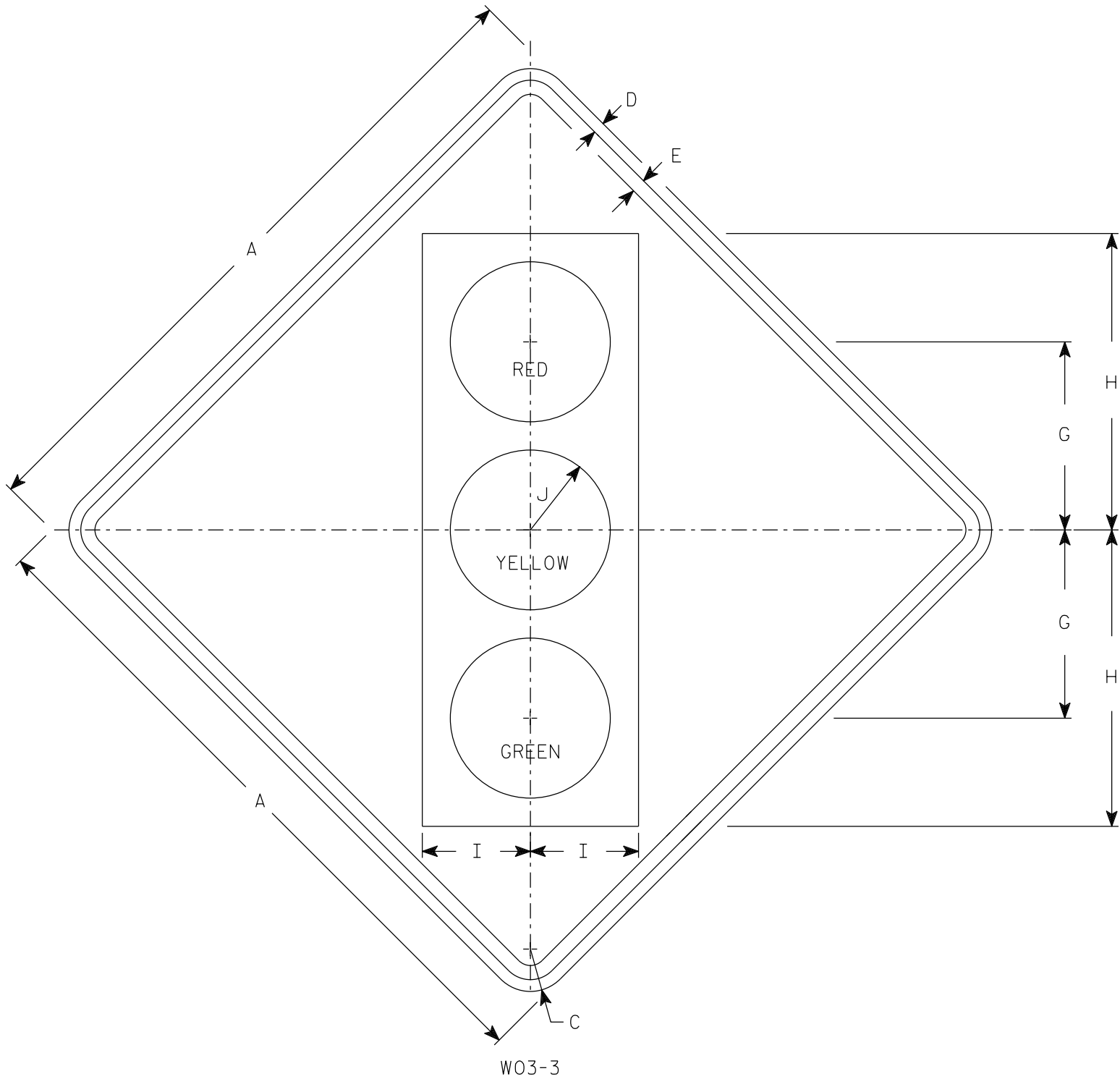
Matthew R. Rauch

for State Traffic Engineer

DATE 1/24/2024

PLATE NO. W01-6.2

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - See Note 4
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. Symbol and border are non-reflective black.
 - Top circle - Type H Reflectorized Red
 - Center circle - Same as background
 - Bottom circle - Type H Reflectorized Green

7

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

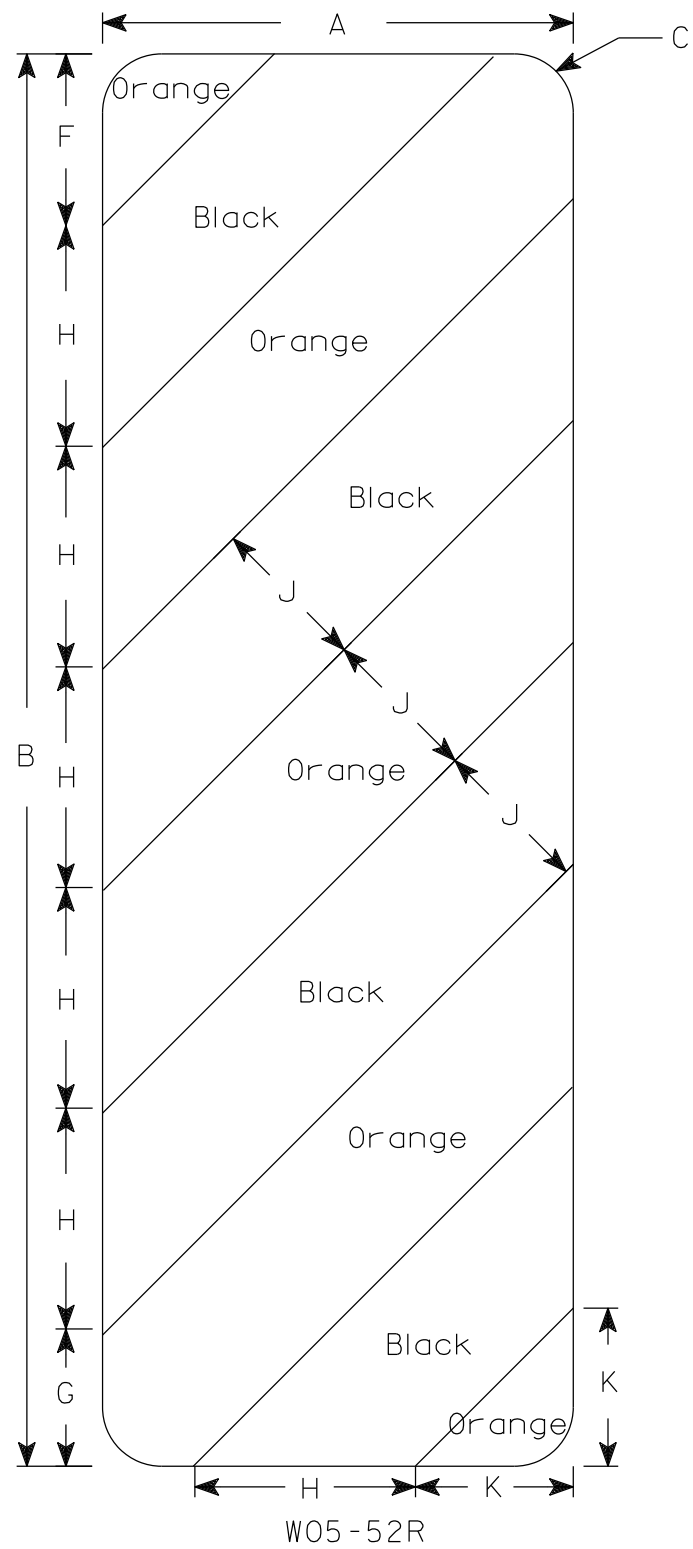
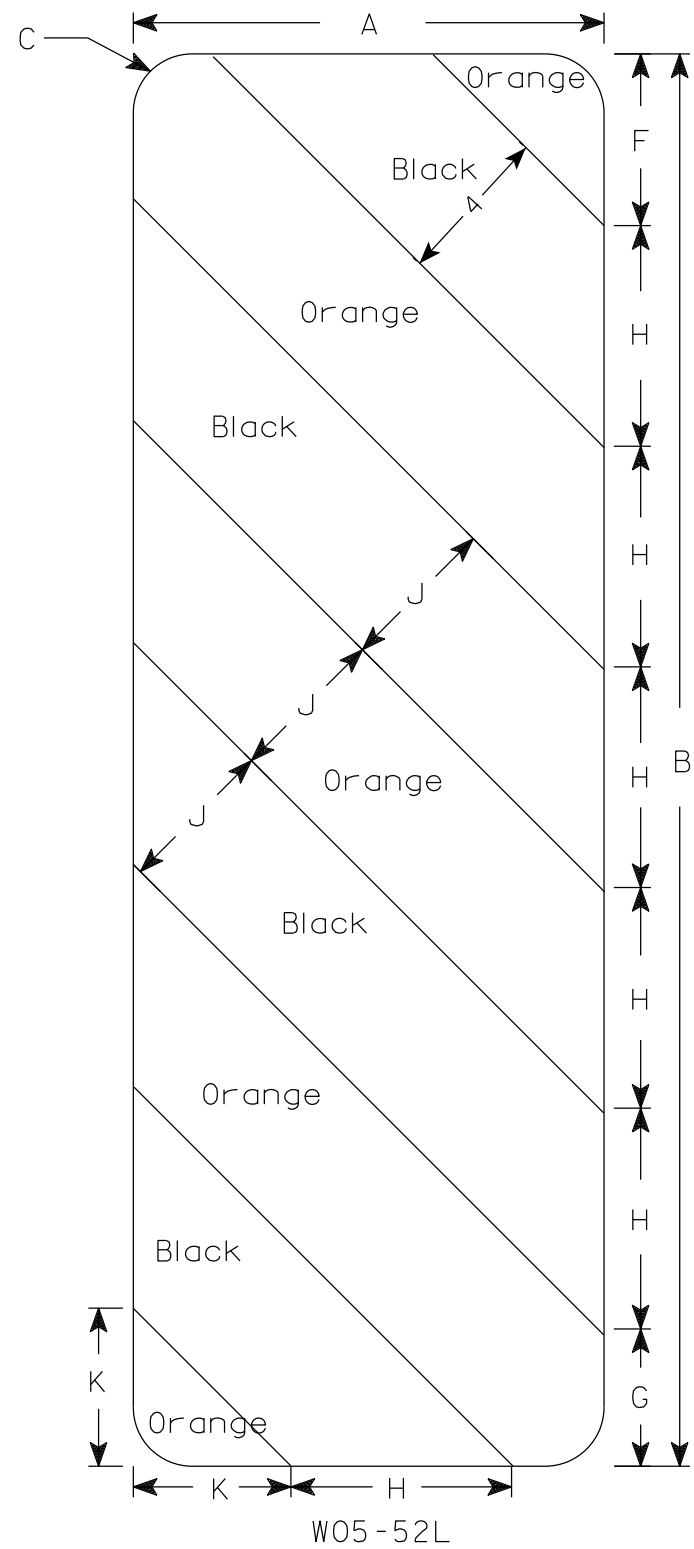
STANDARD SIGN
W03-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 1/24/2024 PLATE NO. W03-3.2

7



NOTES

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

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																											

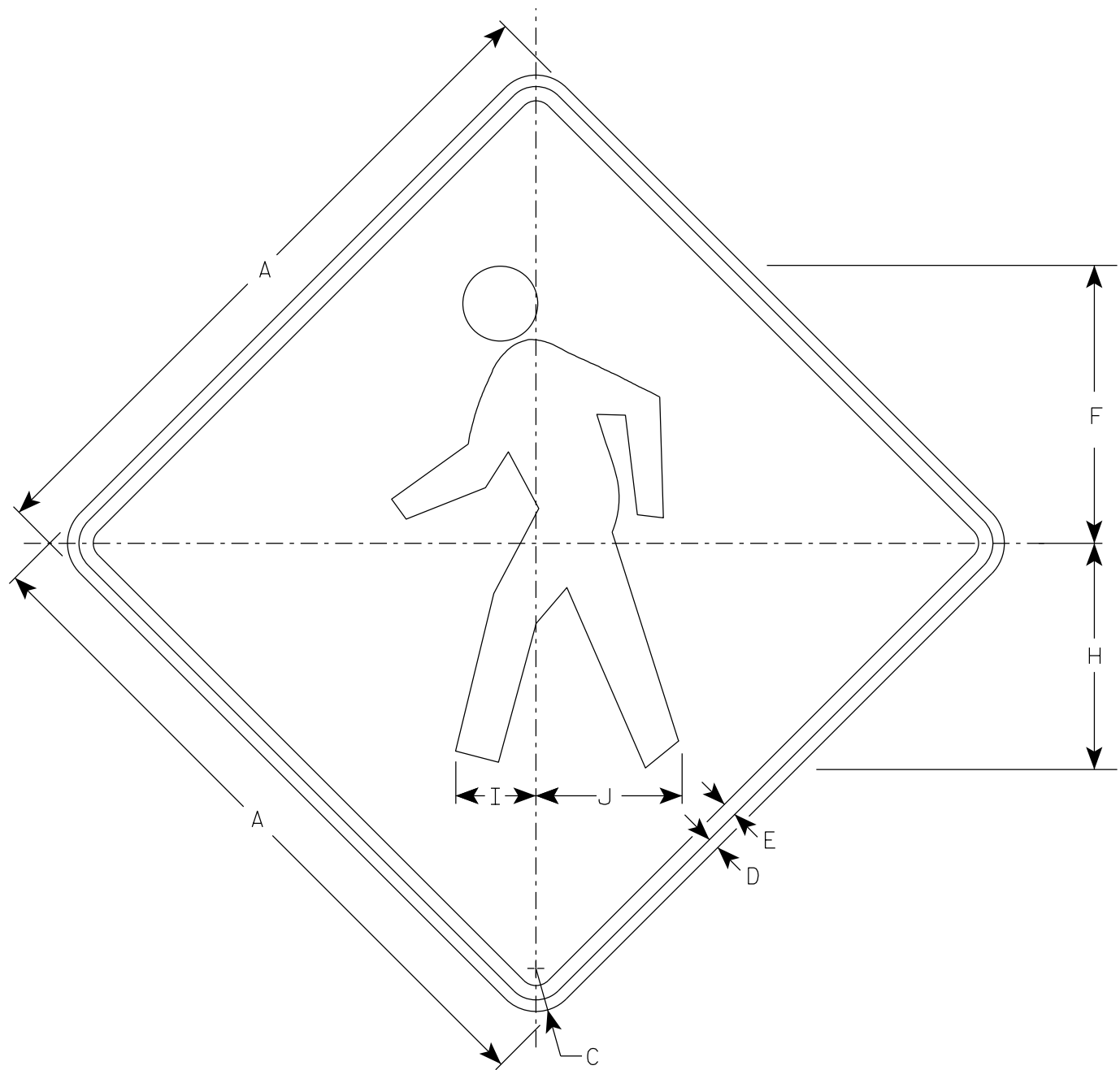
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 162

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.

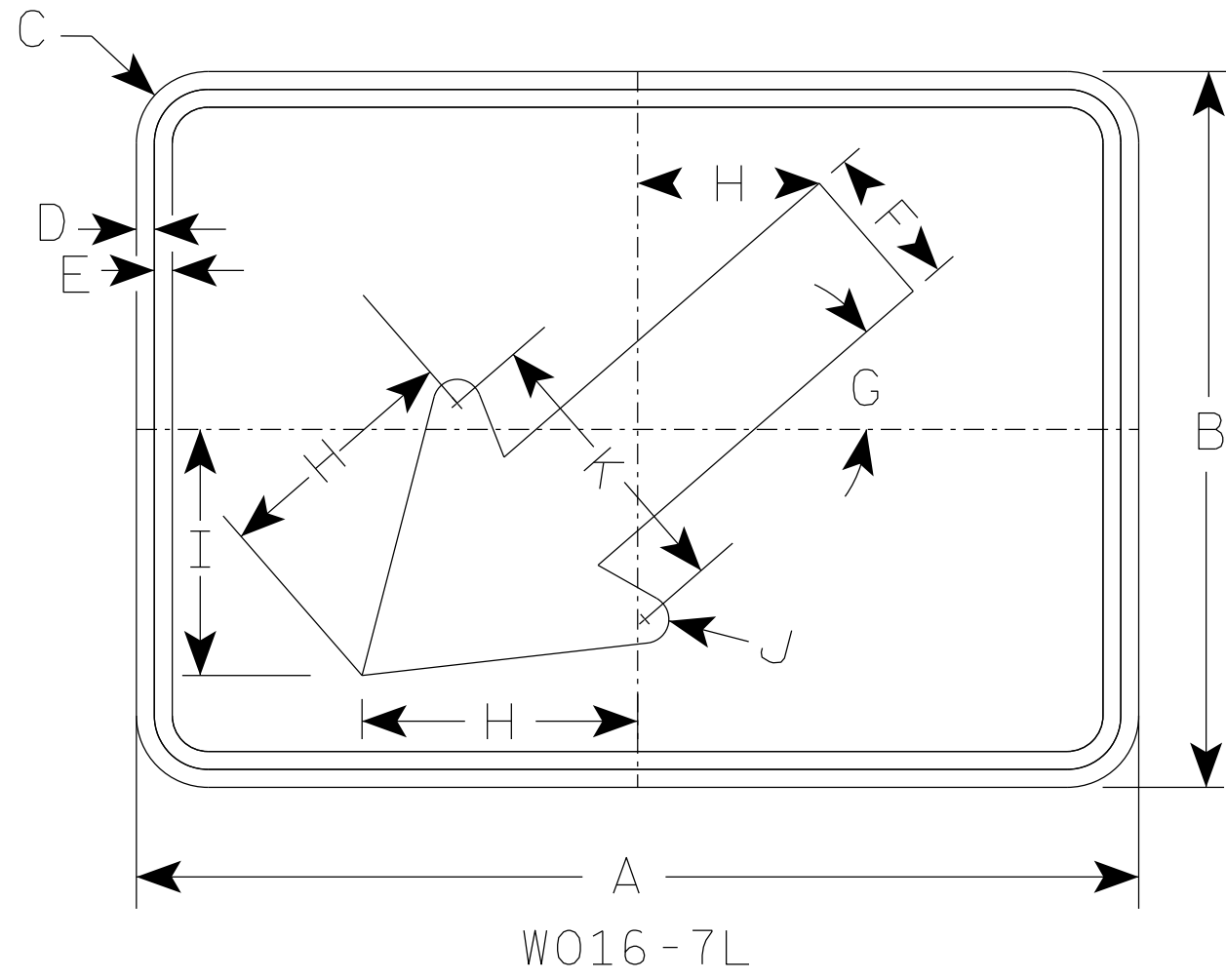
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	14 1/2		11 7/8	4 1/4	7 5/8																	9.0
2S	48		3	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
2M	48		3	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
3	48		3	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
4	48		3	3/4	1	19 3/8		15 3/4	5 5/8	10 1/4																	16.0
5																											

STANDARD SIGN
W011-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/1/2024 PLATE NO. W011-2.2



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. W016-7R is the same as W016-7L except the arrow is reversed along the vertical centerline.

* For 36" x 36" Warning Signs, use 30" x 21" W016-7L signs.
* For 48" x 48" Warning Signs, use 42" x 24" W016-7L signs.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21	15	1 1/2	3/8	3/8	3	41°	5 1/4	5 1/8	1/2	6																2.19
2M	30	21	1 1/2	3/8	1/2	4 1/2	41°	8 5/8	7 3/4	5/8	9 1/4																4.38
3	30	21	1 1/2	3/8	1/2	4 1/2	41°	8 5/8	7 3/4	5/8	9 1/4																4.38
4	42	24	1 7/8	1/2	5/8	6	41°	10 1/4	9 1/8	1	12																7.0
5																											

STANDARD SIGN

W016-7

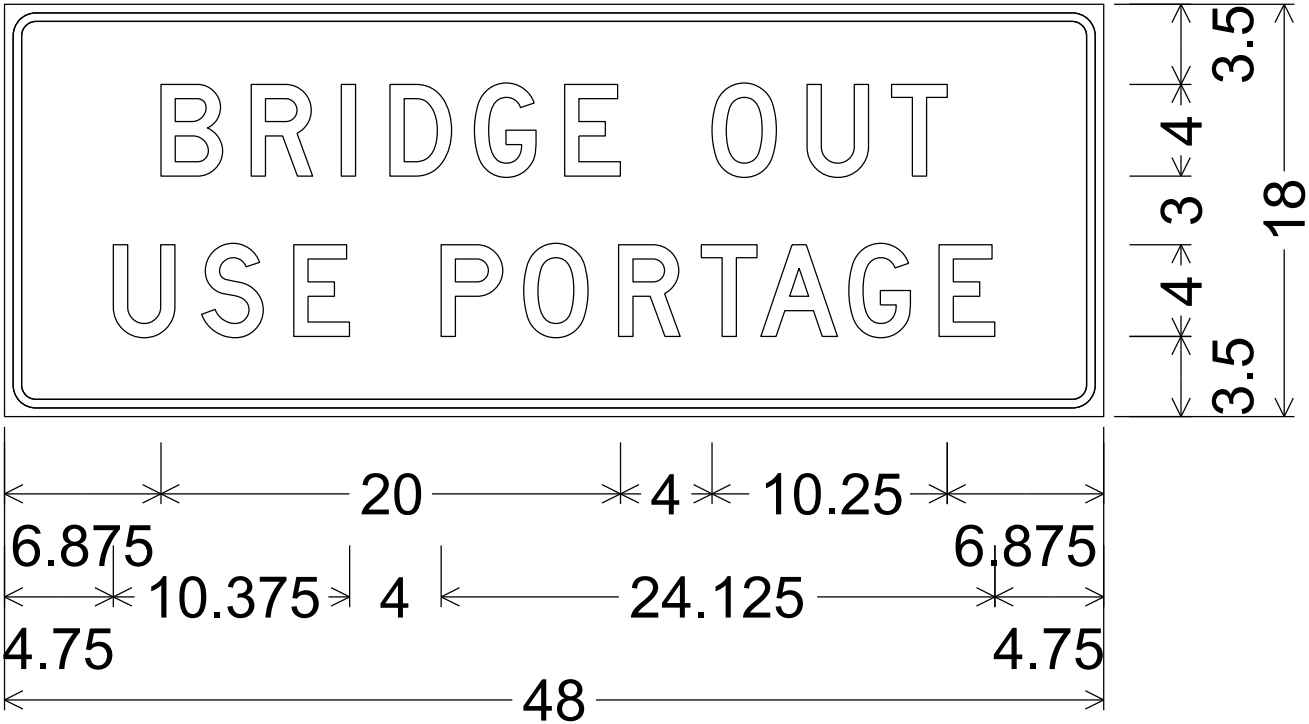
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 4/30/26 PLATE NO. W016-7.4

NOTES

- 1. Fixed Message Sign Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - D



1.375" Radius, 0.375" Border, 0.375" Indent

7

7

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE ¾" UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES B-34-61" SHALL BE THE EXISTING GROUNDLINE.

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

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

THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.

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

PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK SURFACE AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT DIAPHRAGMS.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE OUTSIDE PARAPETS, INCLUDING PARAPETS ON WINGS. PIGMENTED SURFACE SEALER TO BE APPLIED TO ALL EXPOSED FACES OF THE SEPARATION PARAPET BETWEEN THE ROADWAY AND TRAIL.

POLYMER OVERLAY TO BE APPLIED TO THE RECREATIONAL TRAIL.

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

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE "36W PRESTRESSED GIRDER DETAILS 2" SHEET.

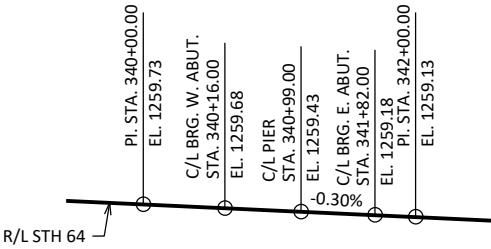
THE EXISTING STREAM BED SHALL BE USED AS THE UPPER LIMITS OF EXCAVATION AT THE PIER.

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

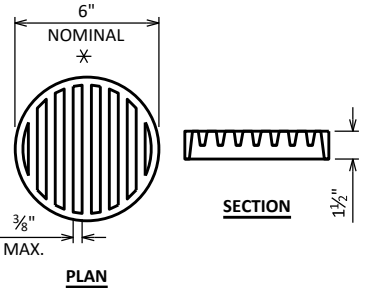
A COFFERDAM IS TO BE USED FOR REMOVAL OF EXISTING PIER AND PLACEMENT OF NEW PIER.

CROSS SECTION THRU ROADWAY

LOOKING UPSTATION



PROFILE GRADE LINE

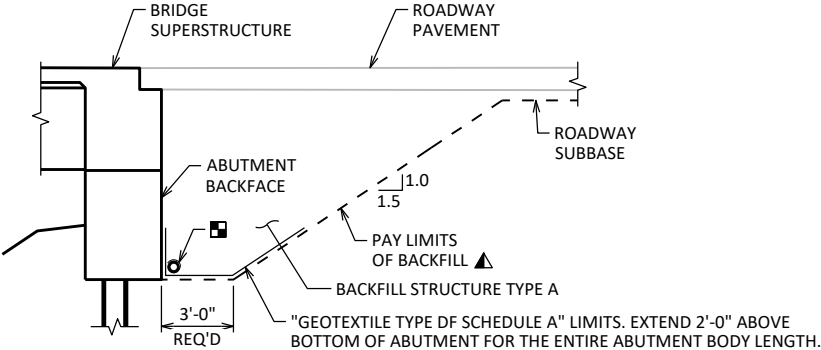


RODENT SHIELD DETAIL

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

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

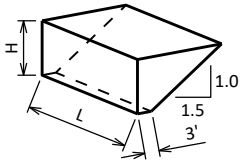
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



TYPICAL SECTION THRU ABUTMENT

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

■ PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.



ABUTMENT BACKFILL DIAGRAM

L = OUT TO OUT OF ABUTMENT BODY INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$
 $V_{CY} = V_{CF}(EF)/27$
 $V_{TON} = V_{CY}(2.0)$

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		MJB	PLANS CK'D RCP
CROSS SECTION & QUANTITIES		SHEET 2 167	

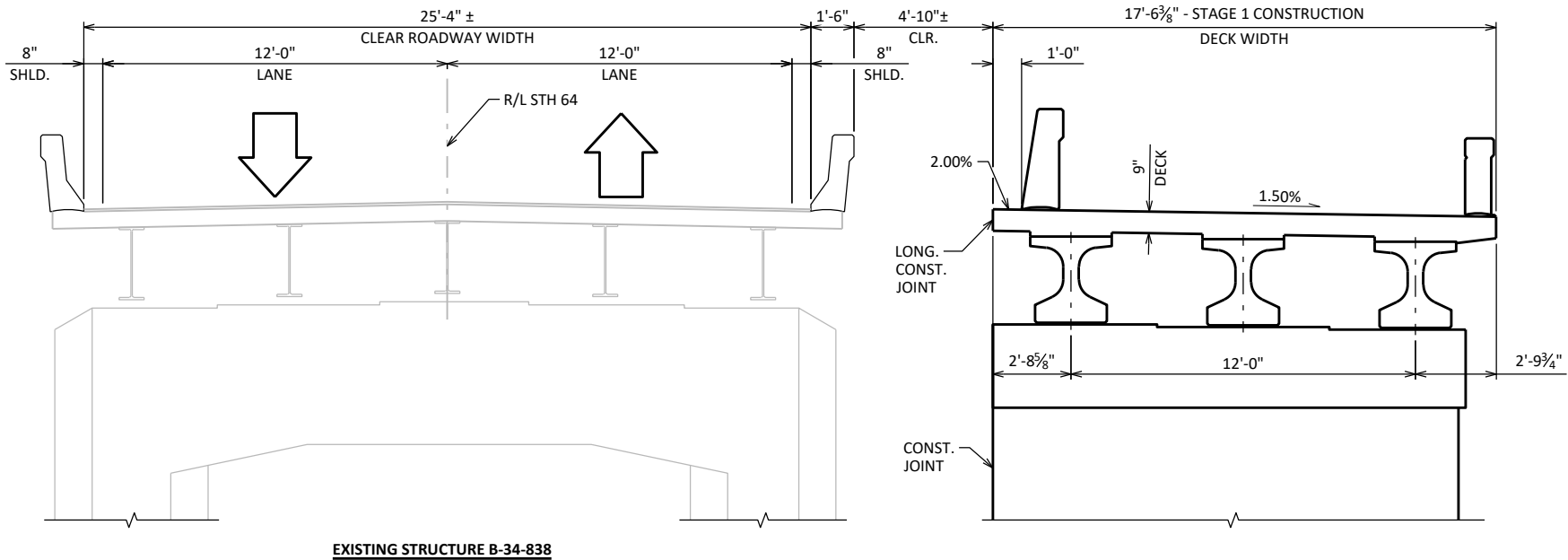
SCALE = 6.0

BENCH MARK

NO.	STATION	DESCRIPTION	ELEV.
CP1	337+35, 45' RT	CP 3/4 RB	1260.30
BM1	340+15, 13' LT	BM BRASS DISK	1259.25
CP2	342+02, 52' RT	CP FD 2IP W/CAP	1251.41

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER	WEST ABUT.	PIER	EAST ABUT.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-34-838	EACH	----	----	----	----	1
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-34-61	EACH	----	----	----	----	1
206.5001	COFFERDAMS B-34-61	EACH	----	----	----	----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	----	365	----	365	730
502.0100	CONCRETE MASONRY BRIDGES	CY	417.0	61.5	82.9	61.4	623
502.3200	PROTECTIVE SURFACE TREATMENT	SY	751	----	----	----	751
502.3210	PIGMENTED SURFACE SEALER	SY	304	23	----	23	350
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	1168	----	----	----	1168
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	----	4880	4480	4880	14240
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	84350	1960	70	1960	88340
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	28	----	----	----	28
506.4000	STEEL DIAPHRAGMS B-34-61	EACH	24	----	----	----	24
507.0200	TREATED LUMBER AND TIMBER	MBM	2	----	----	----	2
509.5100.S	POLYMER OVERLAY	SY	266	----	----	----	266
511.1200	TEMPORARY SHORING B-34-61	SF	----	341	----	392	733
513.7093	RAILING STEEL TYPE 3T	LF	198	----	----	----	198
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	----	15	----	15	30
550.0010	PRE-BORING UNCONSOLIDATED MATERIALS	LF	----	330	408	----	738
550.1120	PIILING STEEL HP 12-INCH X 53 LB	LF	----	440	765	330	1535
606.0300	RIPRAP HEAVY	CY	----	261	----	267	528
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	----	103	----	103	206
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	----	2	----	2	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	----	80	----	80	160
645.0120	GEOTEXTILE TYPE HR	SY	----	390	----	400	790
SPV.0195.01	INFILL RIPRAP B-34-61	TON	----	142	----	145	287
NON-BID ITEMS							
	FILLER	SIZE	----	----	----	----	1/2", 3/4"



STAGE 1 CONSTRUCTION SECTION

LOOKING UPSTATION

STAGE 1

TRAFFIC MAINTAINED ON EXISTING STH 64 BRIDGE B-34-838 IN CURRENT TRAFFIC PATTERN.

TEMPORARY SHORING B-34-61 WILL START FROM BACK OF EXISTING ABUTMENTS AND RUN PARALLEL TO R/L STH 64 FOR EXCAVATION AND CONSTRUCTION OF STAGE 1 ABUTMENTS.

PARTIAL REMOVAL OF THE SOUTH WINGWALLS REQUIRED FOR THE EXISTING BRIDGE B-34-838. REMAINDER OF EXISTING STRUCTURE TO BE UNAFFECTED BY STAGE 1 CONSTRUCTION WORK.

RAILING STEEL TYPE 3T TO BE INSTALLED AFTER TRAFFIC IS MOVED TO FINAL CONFIGURATION.

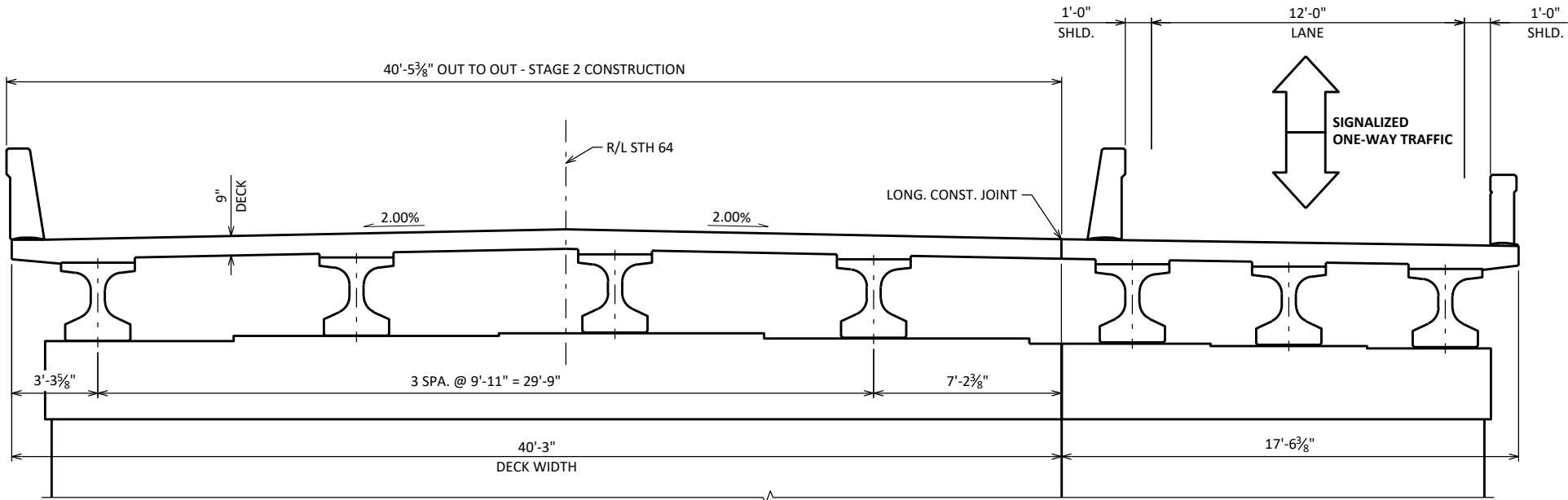
STAGE 2

TRAFFIC WILL BE CONTROLLED USING A SIGNALIZED CONTROL AT EACH END TO ALTERNATE TRAFFIC DIRECTIONS TRAVELING ON THE STAGE 1 CONSTRUCTION OF THE NEW BRIDGE WHICH WILL LATER BE THE RECREATIONAL TRAIL.

TEMPORARY SHORING B-34-61 WILL START FROM BACK OF STAGE 1 ABUTMENTS AND RUN PARALLEL TO R/L STH 64 FOR EXCAVATION AND CONSTRUCTION OF STAGE 2 ABUTMENTS.

FULL REMOVAL OF THE EXISTING BRIDGE B-34-838 WILL OCCUR AT BEGINNING OF STAGE 2.

RAILING STEEL TYPE 3T TO BE INSTALLED AFTER TRAFFIC IS MOVED TO FINAL CONFIGURATION.

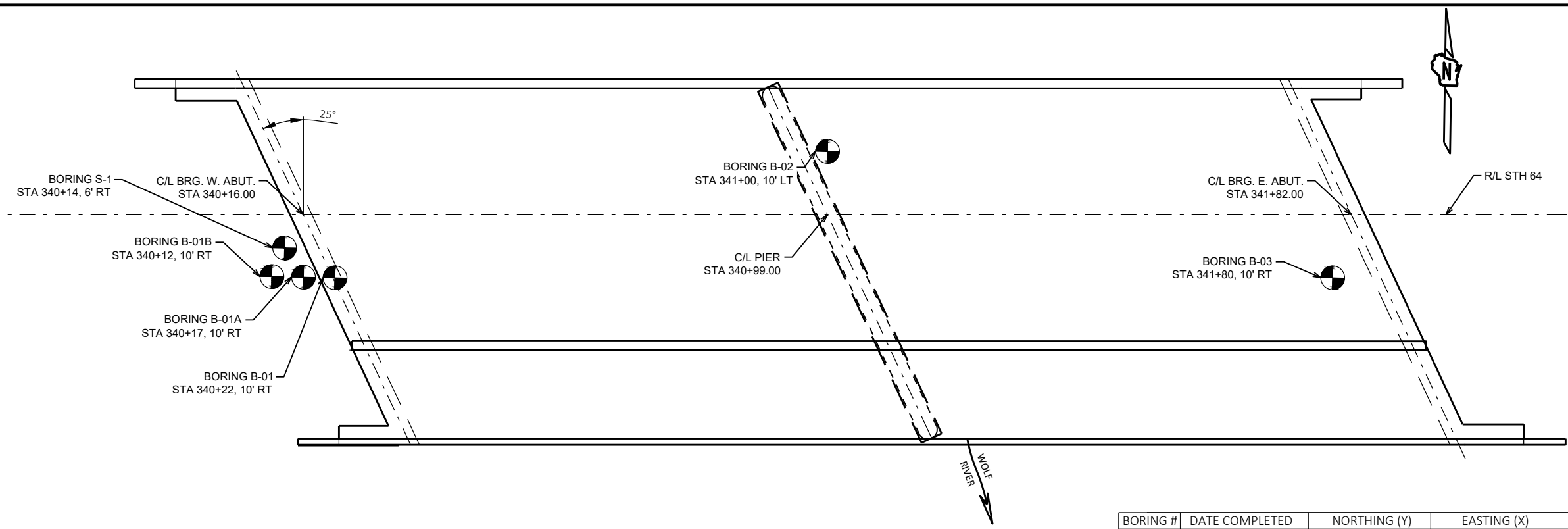


STAGE 2 CONSTRUCTION SECTION

LOOKING UPSTATION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		PLANS CK'D	RCP
CONSTRUCTION STAGING		SHEET 3	168

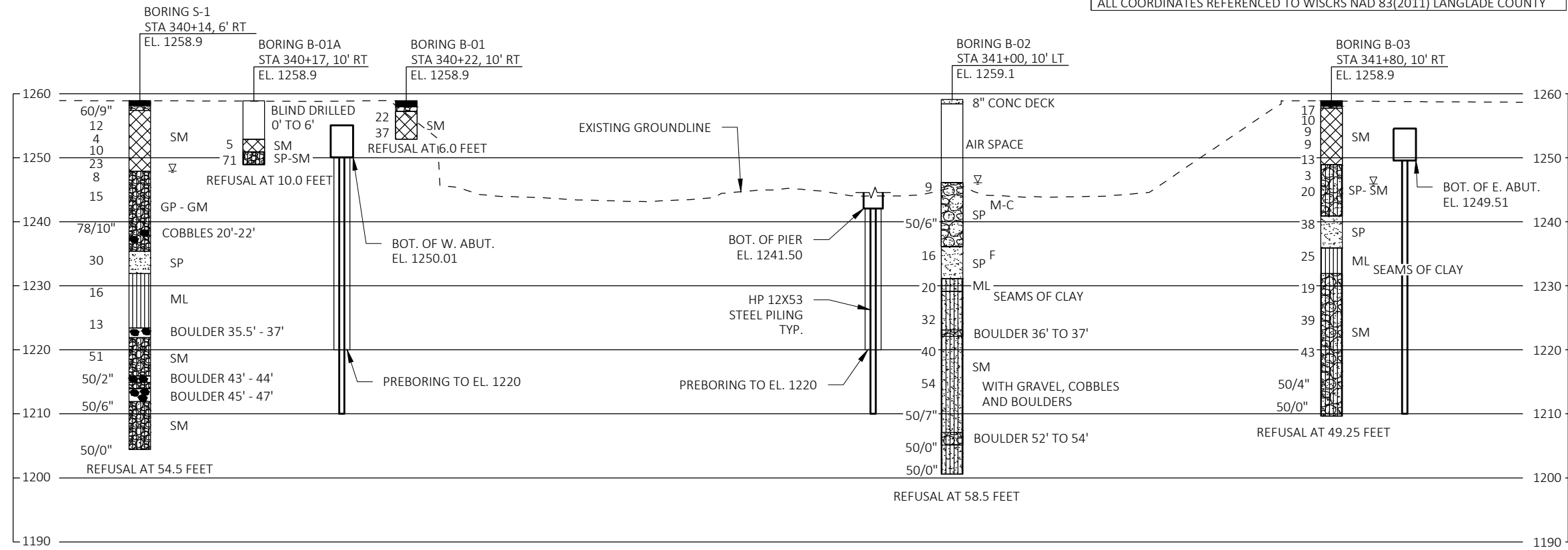
SCALE = 6.0



BORING B-01B NOT SHOWN AS THERE IS NO INFORMATION FROM THE LOG. BLIND DRILLED WITH REFUSAL AT 9'

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-01	NOVEMBER 6, 2023	358570.7	728195.2
B-01A	NOVEMBER 6, 2023	358570	728190
B-01B	NOVEMBER 6, 2023	358570	728185
B-02	NOVEMBER 8, 2023	358592.2	728272.8
B-03	NOVEMBER 7, 2023	358573.8	728353.2
S-1	NOVEMBER 24, 2025	358573.7	728180.1

BORINGS COMPLETED BY: ECS MIDWEST, LLC
REPORT COMPLETED BY: ECS MIDWEST, LLC
ALL COORDINATES REFERENCED TO WISCRS NAD 83(2011) LANGLADE COUNTY



STATE PROJECT NUMBER
9140-12-81

MATERIAL SYMBOLS

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

LEGEND OF BORING

BORING #/EL.
STA./OFFSET

ST
(1) 0.25
(2) 17

F-C
COBBLE OR BOULDER

WEATHERED LIMESTONE

CORE RUN #1 - 24'-29'
REC=80%, RQD=72%

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

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

GROUND WATER ELEVATION

▽	AT TIME OF DRILLING
▼	END OF DRILLING
▼	AFTER DRILLING

ABBREVIATIONS

F-FINE	M-MEDIUM	C-COARSE	ST-SHELBY TUBE
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SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

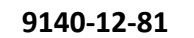
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT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

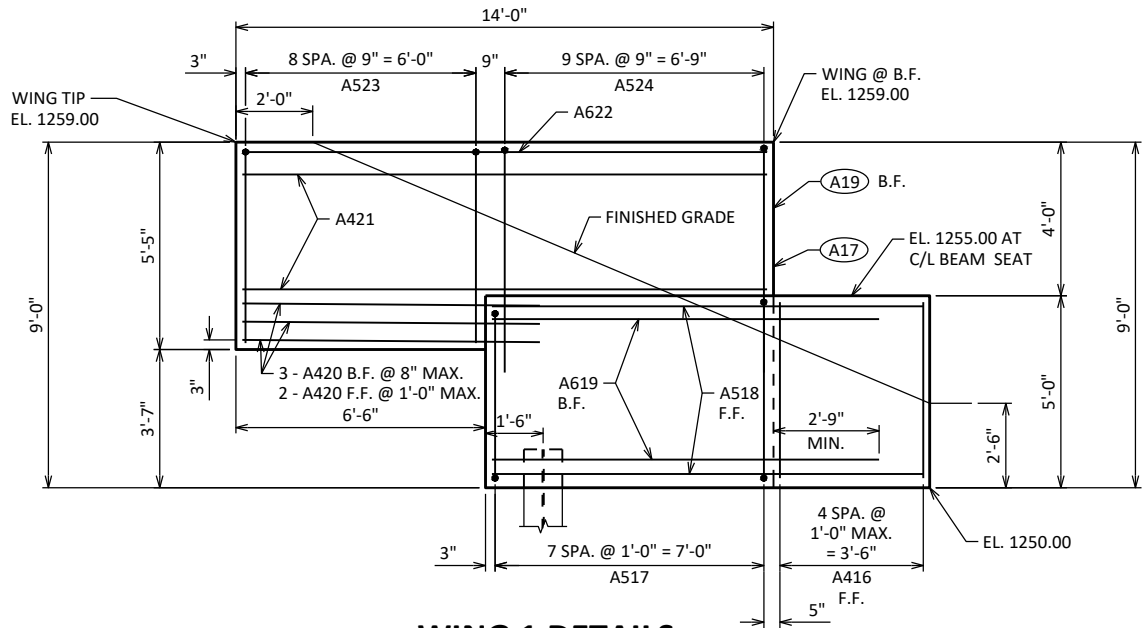
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			

STRUCTURE B-34-61			
DRAWN BY		MJB	PLANS CK'D RCP

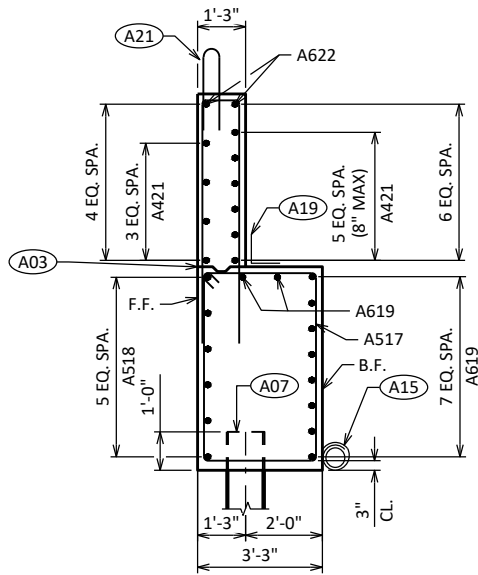
SUBSURFACE EXPLORATION	SHEET 4
	169

SCALE =20.0

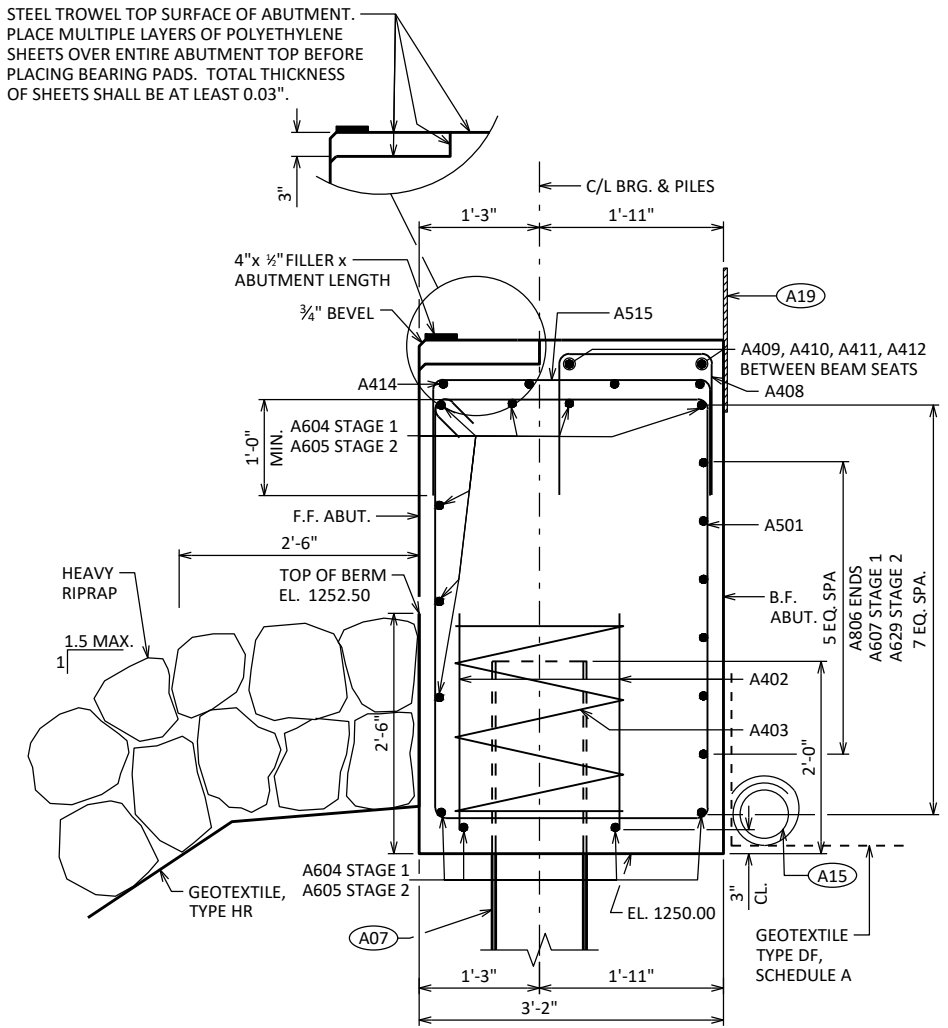




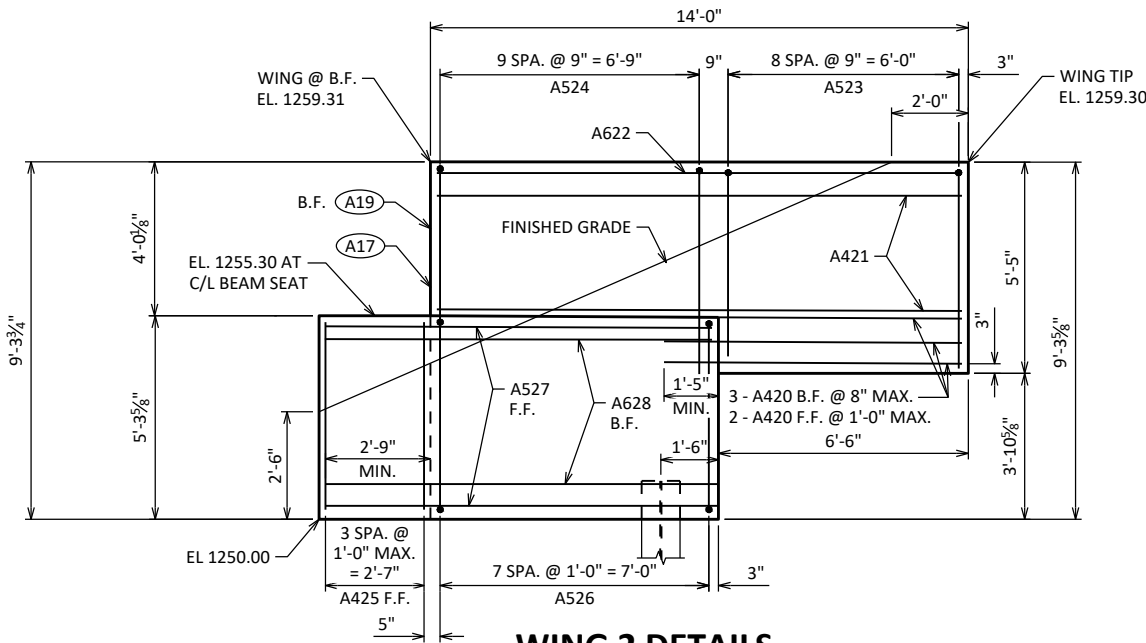
WING 1 DETAILS



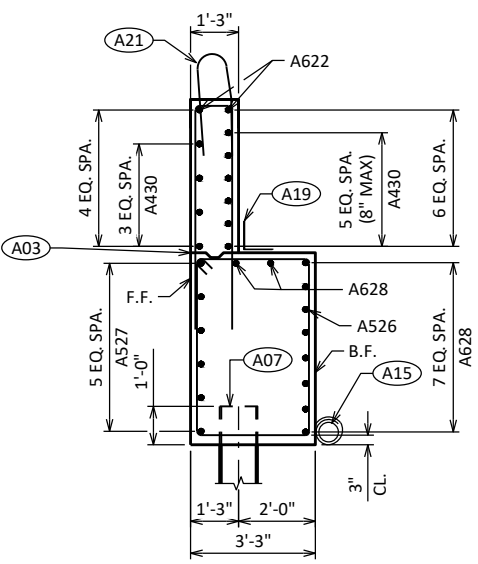
WING 1 SECTION



SECTION THRU BODY



WING 2 DETAILS



WING 2 SECTION

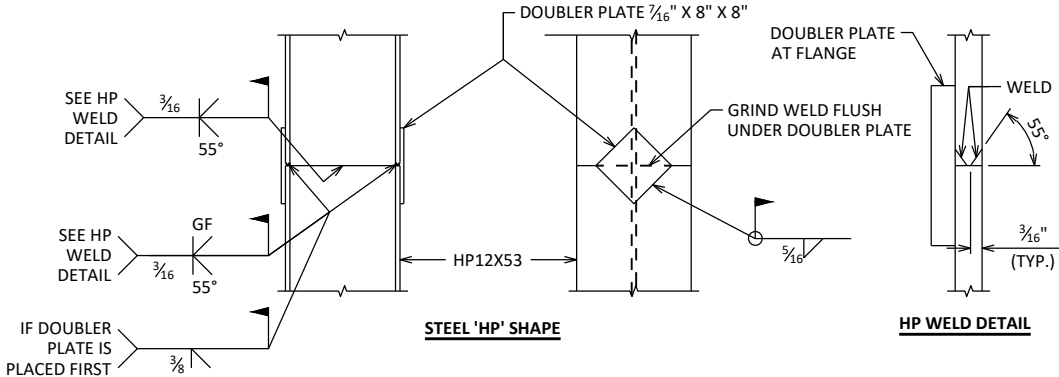
- OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 40'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE. PREBORE TO EL. 1220.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- 3/4" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 3/4" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- FOR PPT. BARS & DIMENSIONS SEE PARAPET SHEET.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
WEST ABUTMENT DETAILS		SHEET 6 171	

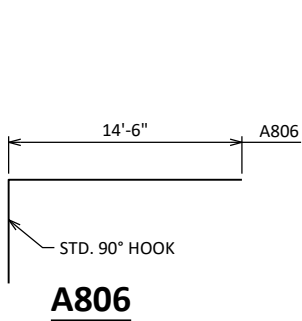
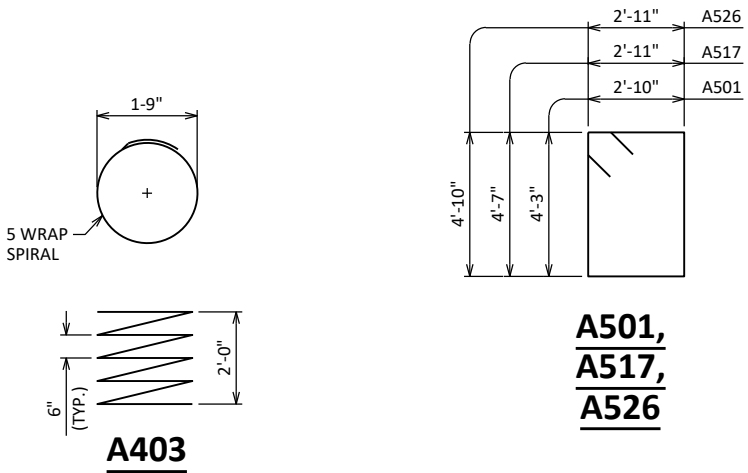
BILL OF BARS

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

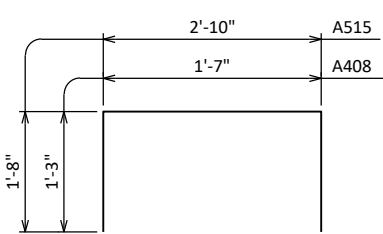
BAR MARK	COAT	NO. REQ'D.		LENGTH	BENT	BAR SERIES	LOCATION
		STAGE 1	STAGE 2				
A501		20	47	15'-0"	X		BODY STIRRUPS
A402		6	12	2'-3"			BODY PILES - 2 PER PILE
A403		3	6	28'-0"	X		BODY PILES - 1 PER PILE
A604		11		21'-5"			BODY - HORIZ. - TOP, BOT. & F.F. STAGE 1
A605			11	44'-0"			BODY - HORIZ. - TOP, BOT. & F.F. STAGE 2
A806		6	6	15'-8"	X		BODY - HORIZ. - B.F. - AT ENDS
A607			6	8'-10"			BODY - HORIZ. - B.F. - MIDDLE STAGE 1
A408		7	19	3'-11"	X		BODY - VERT. - TOP - BTWN. BEAM SEATS
A409		4		4'-9"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 1
A410			6	9'-1"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 2
A411		2		3'-8"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 1
A412			2	6'-10"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 2
A513		20	20	8'-2"	X		BODY - VERT. - AT JOINT AND WING CORNERS
A414			4	33'-3"			BODY - HORIZ. - TOP - SUPPLEMENTAL STAGE 2
A515			34	5'-11"	X		BODY - VERT. - TOP - SUPPLEMENTAL STAGE 2
A416		5		4'-7"			WING 1 - VERT. - END OF ABUTMENT - F.F. STAGE 1
A517		8		15'-8"	X		WING 1 - STIRRUP - LOWER WING STAGE 1
A518		6		11'-1"			WING 1 - HORIZ. - F.F. - LOWER WING STAGE 1
A619		10		8'-9"			WING 1 - HORIZ. - B.F. - LOWER WING STAGE 1
A420		5	5	7'-9"			WINGS - HORIZ.
A421	X	10	10	13'-7"			WINGS - HORIZ. - UPPER WING
A622	X	2	2	13'-7"			WINGS - HORIZ. - UPPER WING - TOP
A523	X	9	9	10'-10"	X		WINGS - HORIZ. - VERT. - UPPER WING
A524	X	10	10	12'-4"	X		WINGS - HORIZ. - VERT. - UPPER WING
A425			4	4'-10"			WING 2 - VERT. - END OF ABUTMENT - F.F. STAGE 2
A526			8	16'-2"	X		WING 2 - STIRRUP - LOWER WING STAGE 2
A527			6	10'-0"			WING 2 - HORIZ. - F.F. - LOWER WING STAGE 2
A628			10	10'-7"			WING 2 - HORIZ. - B.F. - LOWER WING STAGE 2
A629			6	31'-8"			BODY - HORIZ. - B.F. MIDDLE STAGE 2
A430		2		4'-8"			BODY - VERT. - AT BUMP OUT STAGE 1
A431		8		3'-7"	X		BODY - STIRRUP - AT BUMP OUT STAGE 1



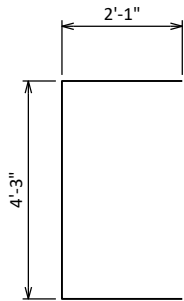
'HP' PILE DETAILS



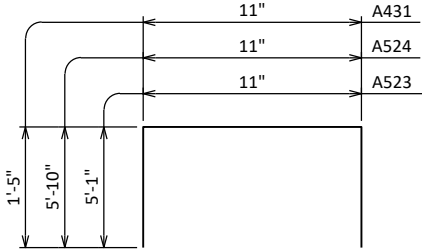
A806



A408,
A515

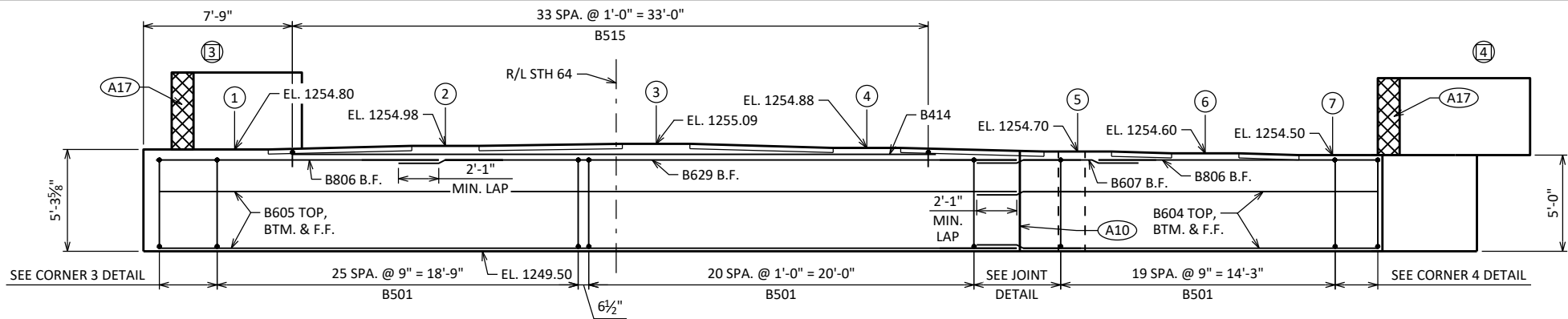


A513



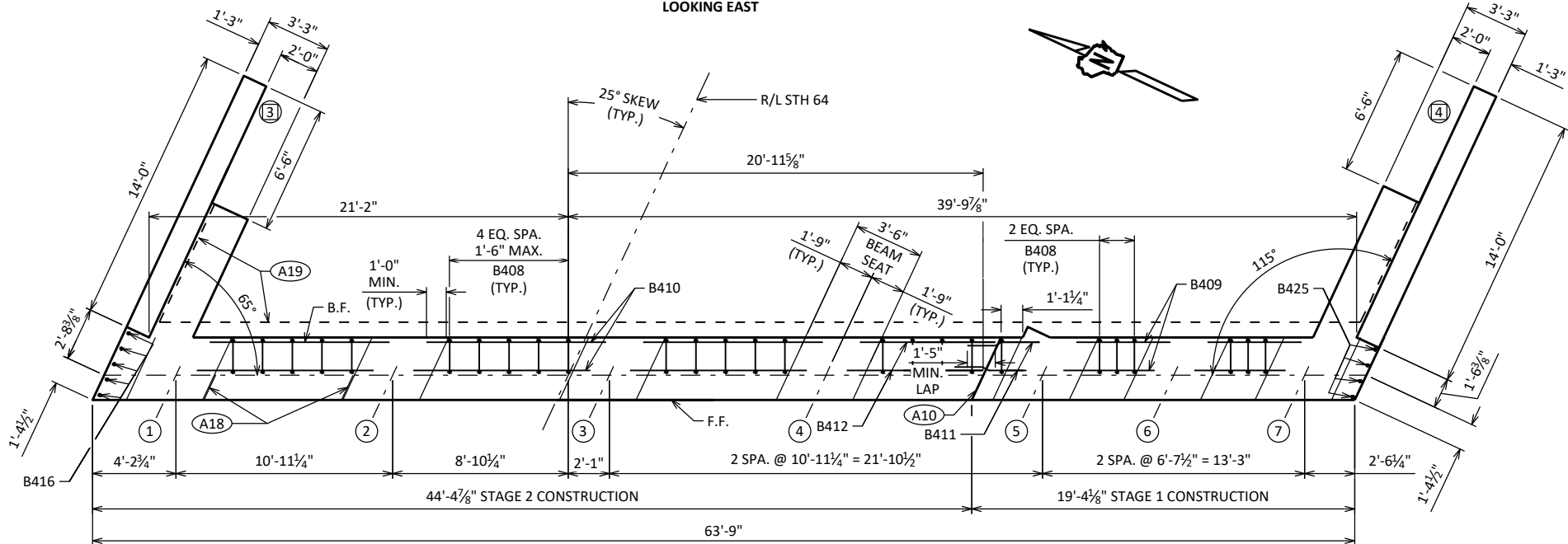
A523,
A524,
A431

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		PLANS CK'D	MJB
WEST ABUTMENT DETAILS 2		SHEET 7 172	

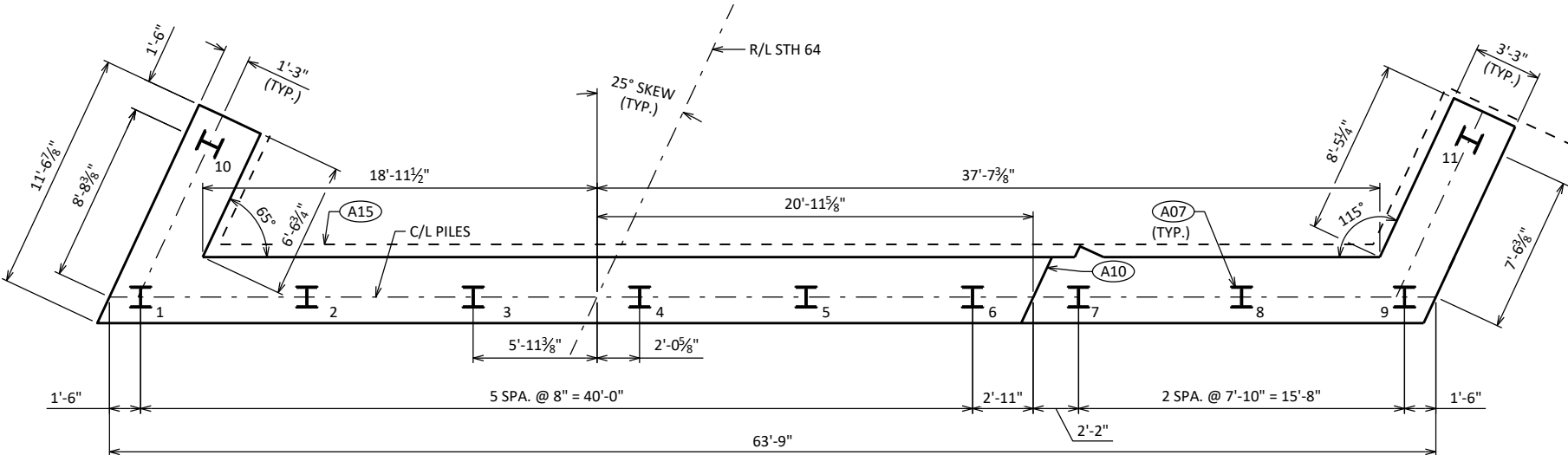


ELEVATION

LOOKING EAST



PLAN

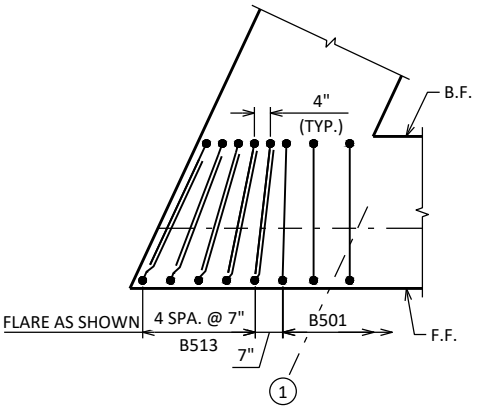


PILE PLAN

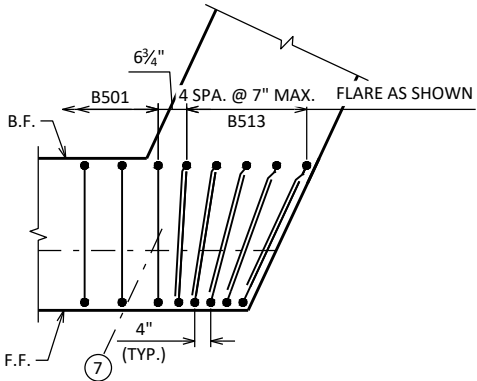
(#) INDICATES WING NUMBER

STATE PROJECT NUMBER

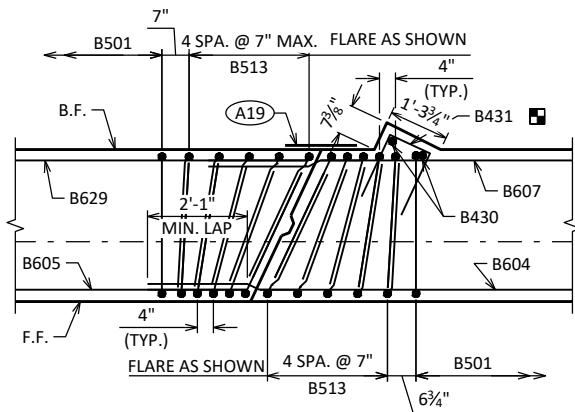
9140-12-81



CORNER 3 DETAIL



CORNER 4 DETAIL



JOINT DETAIL

TIE TO B.F. ABUTMENT BARS

- A07 SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE.
- A10 KEYED VERT. CONST. JOINT - FORMED BY BEVELED 2 X 8.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A18 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
EAST ABUTMENT		SHEET 8 173	

WING 3 DETAILS

The diagram illustrates the structural layout of Wing 3, showing the relationship between various beams, slabs, and ground levels. Key dimensions and labels include:

- Overall Dimensions:**
 - Width: 14'-0"
 - Height: 9'-2 1/2"
- Horizontal Layout:**
 - 8 SPA. @ 9" = 6'-0" (B523)
 - 9" gap
 - 9 SPA. @ 9" = 6'-9" (B524)
 - 3" gap
 - 7 SPA. @ 1'-0" = 7'-0" (B517)
 - 3" gap
- Vertical Layout:**
 - 5'-4 1/2"
 - 3'-10"
 - 4'-0 7/8"
 - 5'-3 5/8"
 - 2'-6"
- Structural Elements and Levels:**
 - WING TIP:** EL. 1258.71
 - B421:** Beam label
 - B622:** Beam label
 - B619 B.F.:** Beam label
 - B518 F.F.:** Beam label
 - B416 F.F.:** Beam label
 - 3 - B420 B.F. @ 8" MAX. / 2 - B420 F.F. @ 1'-0" MAX.:** Slab reinforcement details
 - FINISHED GRADE:** Indicated by a diagonal line
 - WING @ B.F.:** EL. 1258.81
 - (A19) B.F.:** Beam label
 - (A17) EL. 1254.80 AT C/L BEAM SEAT:** Elevation at beam seat
 - EL. 1249.50:** Elevation at bottom right
- Other Notes:**
 - 2'-0" dimension
 - 2'-9" MIN. dimension
 - 5" dimension at bottom right

[illegible]

STEEL TROWEL TOP SURFACE OF ABUTMENT.
PLACE MULTIPLE LAYERS OF POLYETHYLENE
SHEETS OVER ENTIRE ABUTMENT TOP BEFORE
PLACING BEARING PADS. TOTAL THICKNESS
OF SHEETS SHALL BE AT LEAST 0.03".

3"

4"x 1/2" FILLER x
ABUTMENT LENGTH

3/4" BEVEL

B515

B414

1'-0" MIN.

B604 STAGE 1
B605 STAGE 2

F.F. ABUT.

2'-6"

TOP OF BERM
EL. 1252.00

HEAVY RIPRAP

1.5 MAX.

1

2'-6"

GEOTEXTILE,
TYPE HR

B604 STAGE 1
B605 STAGE 2

A07

1'-3"

1'-11"

3'-2"

EL. 1249.50

C/L BRG. & PILES

A19

B409, B410, B411, B412
BETWEEN BEAM SEATS
B408

B501

B.F. ABUT.

5 EQ. SPA

B806 ENDS
B607 STAGE 1
B629 STAGE 2
7 EQ. SPA.

B402

B403

2'-0"

3"

A15

GEOTEXTILE
TYPE DF,
SCHEDULE A

SECTION THRU BODY

WING 4 DETAILS

WING 4 SECTION

The diagram illustrates a cross-section of a building wing, showing a central corridor and two side rooms. Key dimensions and labels include:

- Overall Width:** 3'-3" (divided into 1'-3" and 2'-0").
- Overall Height:** 7'-0" (divided into 4'-0" and 3'-0").
- Room Dimensions:**
 - Top Room: 5 EQ. SPA. (8" MAX) x 6'-0" (B430).
 - Bottom Room: 5 EQ. SPA. x 6'-0" (B430).
 - Central Corridor: 1'-0" wide.
- Labels:**
 - A01:** Top left corner.
 - A02:** Top right corner.
 - A03:** Bottom left corner.
 - A04:** Bottom right corner.
 - A05:** Top left room.
 - A06:** Top right room.
 - A07:** Bottom left room.
 - A08:** Bottom right room.
 - A09:** Central corridor.
 - A10:** Top left wall.
 - A11:** Top right wall.
 - A12:** Bottom left wall.
 - A13:** Bottom right wall.
 - A14:** Central corridor wall.
 - A15:** Top left door.
 - A16:** Top right door.
 - A17:** Bottom left door.
 - A18:** Bottom right door.
 - A19:** Central corridor door.
 - A20:** Top left window.
 - A21:** Top right window.
 - A22:** Bottom left window.
 - A23:** Bottom right window.
 - A24:** Central corridor window.
 - A25:** Top left wall.
 - A26:** Top right wall.
 - A27:** Bottom left wall.
 - A28:** Bottom right wall.
 - A29:** Central corridor wall.
 - A30:** Top left door.
 - A31:** Top right door.
 - A32:** Bottom left door.
 - A33:** Bottom right door.
 - A34:** Central corridor door.
 - A35:** Top left window.
 - A36:** Top right window.
 - A37:** Bottom left window.
 - A38:** Bottom right window.
 - A39:** Central corridor window.
 - A40:** Top left wall.
 - A41:** Top right wall.
 - A42:** Bottom left wall.
 - A43:** Bottom right wall.
 - A44:** Central corridor wall.
 - A45:** Top left door.
 - A46:** Top right door.
 - A47:** Bottom left door.
 - A48:** Bottom right door.
 - A49:** Central corridor door.
 - A50:** Top left window.
 - A51:** Top right window.
 - A52:** Bottom left window.
 - A53:** Bottom right window.
 - A54:** Central corridor window.
 - A55:** Top left wall.
 - A56:** Top right wall.
 - A57:** Bottom left wall.
 - A58:** Bottom right wall.
 - A59:** Central corridor wall.
 - A60:** Top left door.
 - A61:** Top right door.
 - A62:** Bottom left door.
 - A63:** Bottom right door.
 - A64:** Central corridor door.
 - A65:** Top left window.
 - A66:** Top right window.
 - A67:** Bottom left window.
 - A68:** Bottom right window.
 - A69:** Central corridor window.
 - A70:** Top left wall.
 - A71:** Top right wall.
 - A72:** Bottom left wall.
 - A73:** Bottom right wall.
 - A74:** Central corridor wall.
 - A75:** Top left door.
 - A76:** Top right door.
 - A77:** Bottom left door.
 - A78:** Bottom right door.
 - A79:** Central corridor door.
 - A80:** Top left window.
 - A81:** Top right window.
 - A82:** Bottom left window.
 - A83:** Bottom right window.
 - A84:** Central corridor window.
 - A85:** Top left wall.
 - A86:** Top right wall.
 - A87:** Bottom left wall.
 - A88:** Bottom right wall.
 - A89:** Central corridor wall.
 - A90:** Top left door.
 - A91:** Top right door.
 - A92:** Bottom left door.
 - A93:** Bottom right door.
 - A94:** Central corridor door.
 - A95:** Top left window.
 - A96:** Top right window.
 - A97:** Bottom left window.
 - A98:** Bottom right window.
 - A99:** Central corridor window.
 - A100:** Top left wall.
 - A101:** Top right wall.
 - A102:** Bottom left wall.
 - A103:** Bottom right wall.
 - A104:** Central corridor wall.
 - A105:** Top left door.
 - A106:** Top right door.
 - A107:** Bottom left door.
 - A108:** Bottom right door.
 - A109:** Central corridor door.
 - A110:** Top left window.
 - A111:** Top right window.
 - A112:** Bottom left window.
 - A113:** Bottom right window.
 - A114:** Central corridor window.
 - A115:** Top left wall.
 - A116:** Top right wall.
 - A117:** Bottom left wall.
 - A118:** Bottom right wall.
 - A119:** Central corridor wall.
 - A120:** Top left door.
 - A121:** Top right door.
 - A122:** Bottom left door.
 - A123:** Bottom right door.
 - A124:** Central corridor door.
 - A125:** Top left window.
 - A126:** Top right window.
 - A127:** Bottom left window.
 - A128:** Bottom right window.
 - A129:** Central corridor window.
 - A130:** Top left wall.
 - A131:** Top right wall.
 - A132:** Bottom left wall.
 - A133:** Bottom right wall.
 - A134:** Central corridor wall.
 - A135:** Top left door.
 - A136:** Top right door.
 - A137:** Bottom left door.
 - A138:** Bottom right door.
 - A139:** Central corridor door.
 - A140:** Top left window.
 - A141:** Top right window.
 - A142:** Bottom left window.
 - A143:** Bottom right window.
 - A144:** Central corridor window.
 - A145:** Top left wall.
 - A146:** Top right wall.
 - A147:** Bottom left wall.
 - A148:** Bottom right wall.
 - A149:** Central corridor wall.
 - A150:** Top left door.
 - A151:** Top right door.
 - A152:** Bottom left door.
 - A153:** Bottom right door.
 - A154:** Central corridor door.
 - A155:** Top left window.
 - A156:** Top right window.
 - A157:** Bottom left window.
 - A158:** Bottom right window.
 - A159:** Central corridor window.
 - A160:** Top left wall.
 - A161:** Top right wall.
 - A162:** Bottom left wall.
 - A163:** Bottom right wall.
 - A164:** Central corridor wall.
 - A165:** Top left door.
 - A166:** Top right door.
 - A167:** Bottom left door.
 - A168:** Bottom right door.
 - A169:** Central corridor door.
 - A170:** Top left window.
 - A171:** Top right window.
 - A172:** Bottom left window.
 - A173:** Bottom right window.
 - A174:** Central corridor window.
 - A175:** Top left wall.
 - A176:** Top right wall.
 - A177:** Bottom left wall.
 - A178:** Bottom right wall.
 - A179:** Central corridor wall.
 - A180:** Top left door.
 - A181:** Top right door.
 - A182:** Bottom left door.
 - A183:** Bottom right door.
 - A184:** Central corridor door.
 - A185:** Top left window.
 - A186:** Top right window.
 - A187:** Bottom left window.
 - A188:** Bottom right window.
 - A189:** Central corridor window.
 - A190:** Top left wall.
 - A191:** Top right wall.
 - A192:** Bottom left wall.
 - A193:** Bottom right wall.
 - A194:** Central corridor wall.
 - A195:** Top left door.
 - A196:** Top right door.
 - A197:** Bottom left door.
 - A198:** Bottom right door.
 - A199:** Central corridor door.
 - A200:** Top left window.
 - A201:** Top right window.
 - A202:** Bottom left window.
 - A203:** Bottom right window.
 - A204:** Central corridor window.
 - A205:** Top left wall.
 - A206:** Top right wall.
 - A207:** Bottom left wall.
 - A208:** Bottom right wall.
 - A209:** Central corridor wall.
 - A210:** Top left door.
 - A211:** Top right door.
 - A212:** Bottom left door.
 - A213:** Bottom right door.
 - A214:** Central corridor door.
 - A215:** Top left window.
 - A216:** Top right window.
 - A217:** Bottom left window.
 - A218:** Bottom right window.
 - A219:** Central corridor window.
 - A220:** Top left wall.
 - A221:** Top right wall.
 - A222:** Bottom left wall.
 - A223:** Bottom right wall.
 - A224:** Central corridor wall.
 - A225:** Top left door.
 - A226:** Top right door.
 - A227:** Bottom left door.
 - A228:** Bottom right door.
 - A229:** Central corridor door.
 - A230:** Top left window.
 - A231:** Top right window.
 - A232:** Bottom left window.
 - A233**

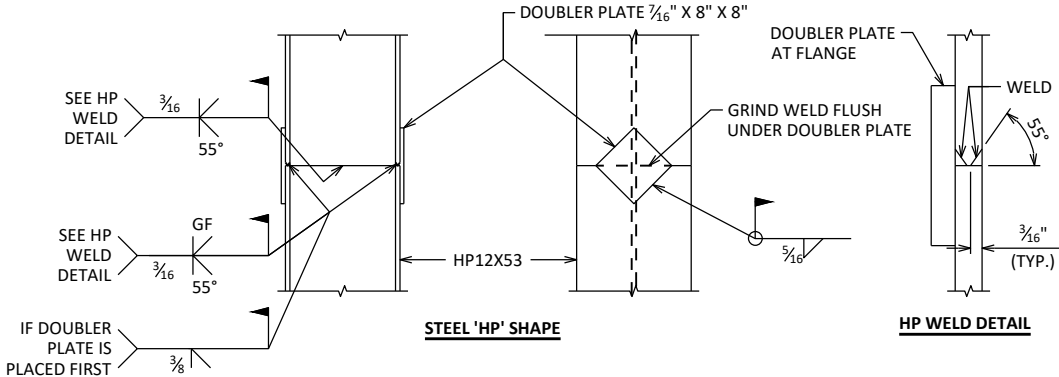
- A03 OPTIONAL CONSTANT JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & ¾" "V" GROOVE @ F.F. IF JOINT IS USED).
- A07 SUPPORT ABUTMENT ON HP 12 x 53 STEEL PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 190 TONS PER PILE.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 ½" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF ½" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD ⅝" BELOW SURFACE OF CONCRETE) EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A21 FOR PPT. BARS & DIMENSIONS SEE PARAPET SHEET.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
EAST ABUTMENT DETAILS		SHEET 9 — 174 —	

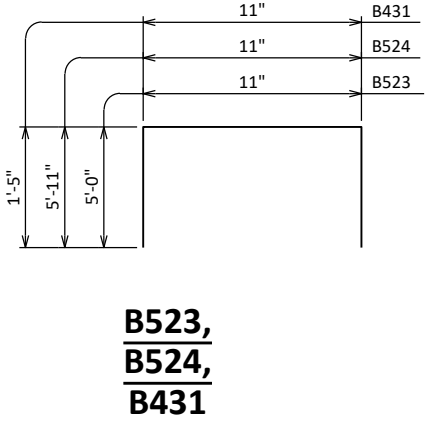
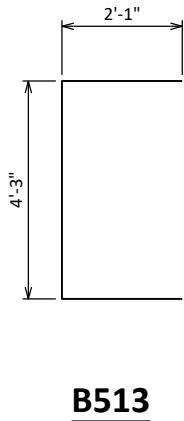
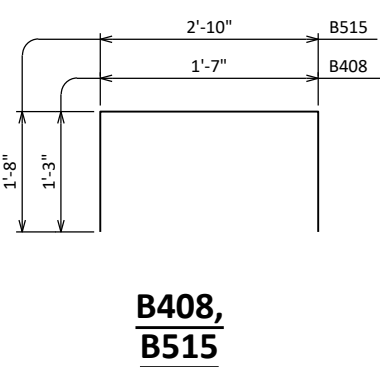
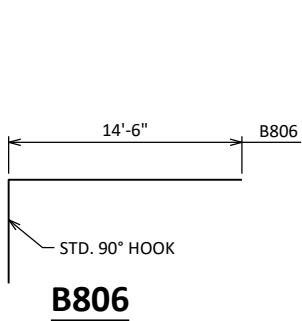
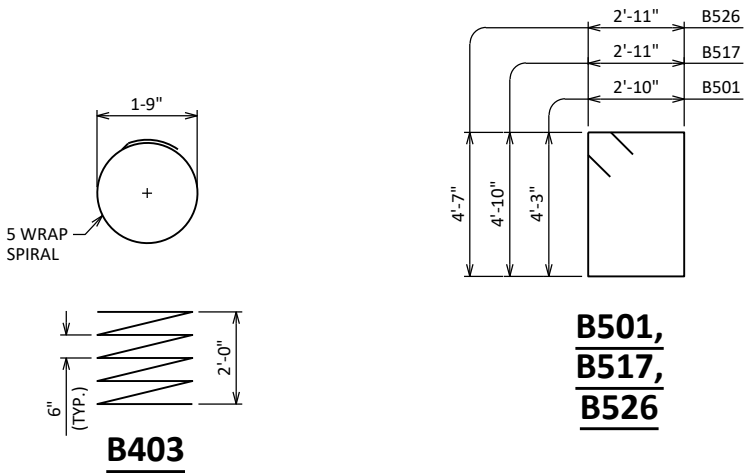
BILL OF BARS

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

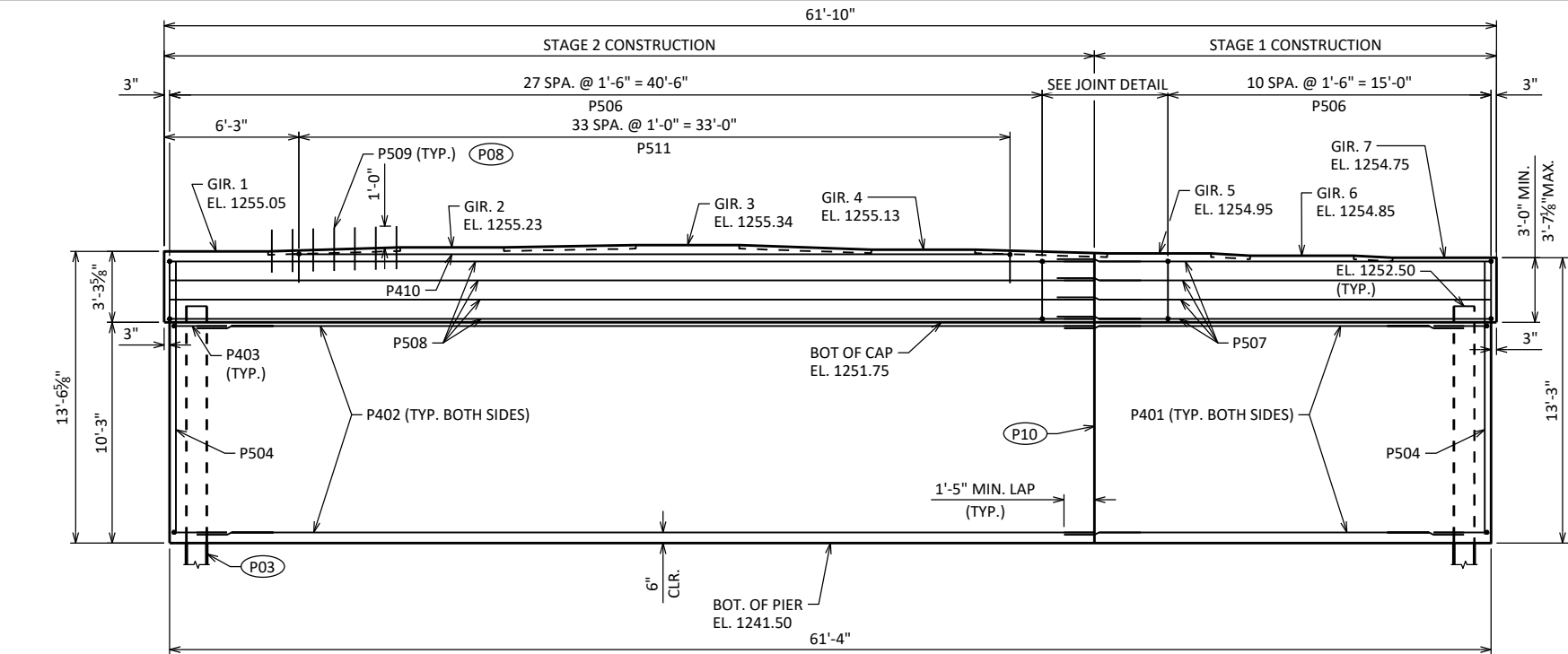
BAR MARK	COAT	NO. REQ'D.		LENGTH	BENT	BAR SERIES	LOCATION
		STAGE 1	STAGE 2				
B501		20	47	15'-0"	X		BODY STIRRUPS
B402		6	12	2'-3"			BODY PILES - 2 PER PILE
B403		3	6	28'-0"	X		BODY PILES - 1 PER PILE
B604		11		21'-5"			BODY - HORIZ. - TOP, BOT. & F.F. STAGE 1
B605			11	44'-0"			BODY - HORIZ. - TOP, BOT. & F.F. STAGE 2
B806		6	6	15'-8"	X		BODY - HORIZ. - B.F. - AT ENDS
B607			6	8'-10"			BODY - HORIZ. - B.F. - MIDDLE STAGE 1
B408		7	19	3'-11'	X		BODY - VERT. - TOP - BTWN. BEAM SEATS
B409		4		4'-9"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 1
B410			6	9'-1"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 2
B411		2		3'-8"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 1
B412			2	6'-10"			BODY - HORIZ. - TOP - BTWN. BEAM SEATS STAGE 2
B513		20	20	8'-2"	X		BODY - VERT. - AT JOINT AND WING CORNERS
B414			4	33'-3"			BODY - HORIZ. - TOP - SUPPLEMENTAL STAGE 2
B515			34	5'-11"	X		BODY - VERT. - TOP - SUPPLEMENTAL STAGE 2
B416			5	4'-10"			WING 3 - VERT. - END OF ABUTMENT - F.F. STAGE 2
B517			8	16'-2"	X		WING 3 - STIRRUP - LOWER WING STAGE 2
B518			6	11'-1"			WING 3 - HORIZ. - F.F. - LOWER WING STAGE 2
B619			10	8'-9"			WING 3 - HORIZ. - B.F. - LOWER WING STAGE 2
B420		5	5	7'-9"			WINGS - HORIZ.
B421	X	10	10	13'-7"			WINGS - HORIZ. - UPPER WING
B622	X	2	2	13'-7"			WINGS - HORIZ. - UPPER WING - TOP
B523	X	9	9	10'-8"	X		WINGS - HORIZ. - VERT. - UPPER WING
B524	X	10	10	12'-6"	X		WINGS - HORIZ. - VERT. - UPPER WING
B425		4		4'-7"			WING 4 - VERT. - END OF ABUTMENT - F.F. STAGE 1
B526		8		15'-8"	X		WING 4 - STIRRUP - LOWER WING STAGE 1
B527		6		10'-0"			WING 4 - HORIZ. - F.F. - LOWER WING STAGE 1
B628		10		10'-7"			WING 4 - HORIZ. - B.F. - LOWER WING STAGE 1
B629			6	31'-8"			BODY - HORIZ. - B.F. MIDDLE STAGE 2
B430		2		4'-8"			BODY - VERT. - AT BUMP OUT STAGE 1
B431		8		3'-7"	X		BODY - STIRRUP - AT BUMP OUT STAGE 1



'HP' PILE DETAILS

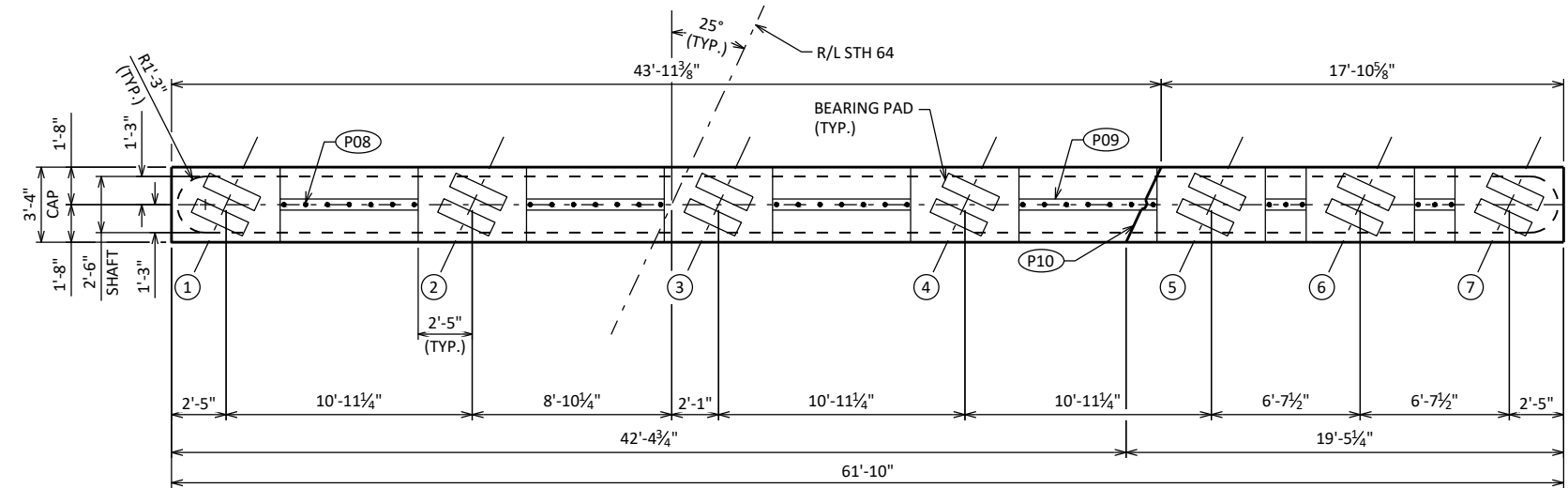


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY JLA		PLANS CK'D MJB	
EAST ABUTMENT DETAILS 2		SHEET 10 175	

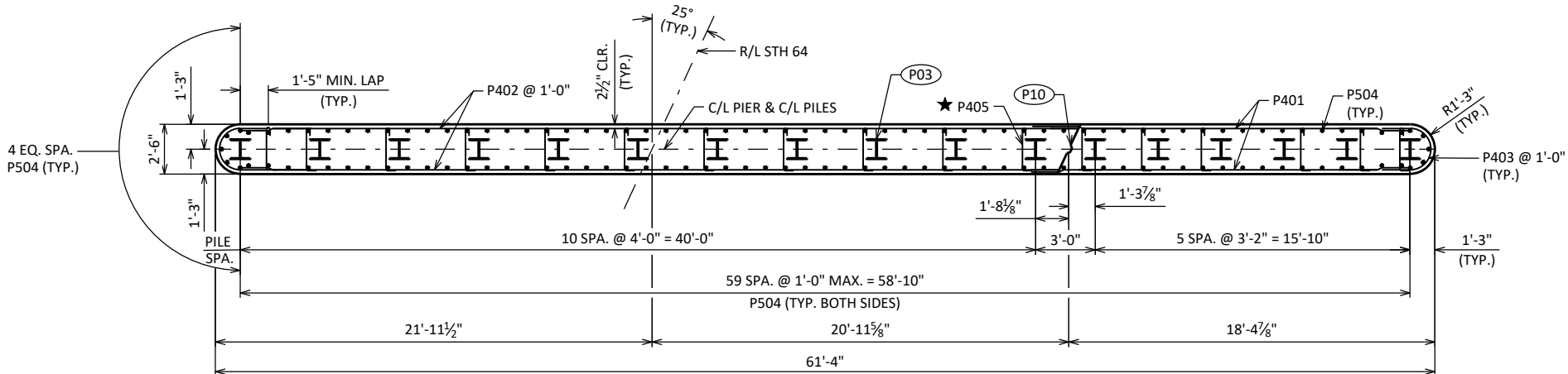


ELEVATION

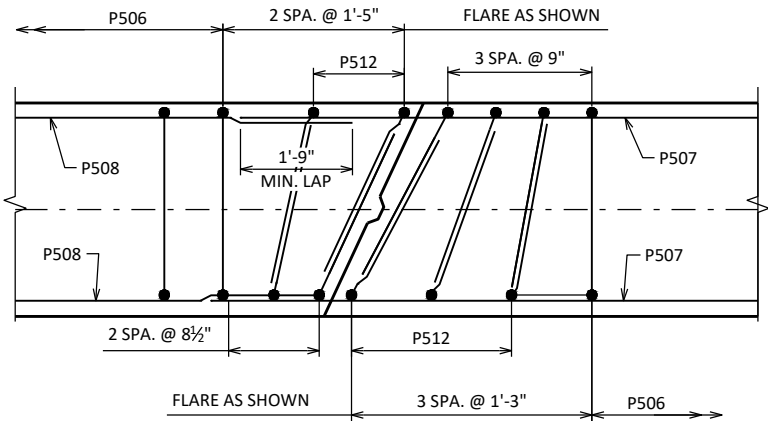
(LOOKING EAST)



PLAN



PILE PLAN



JOINT DETAIL

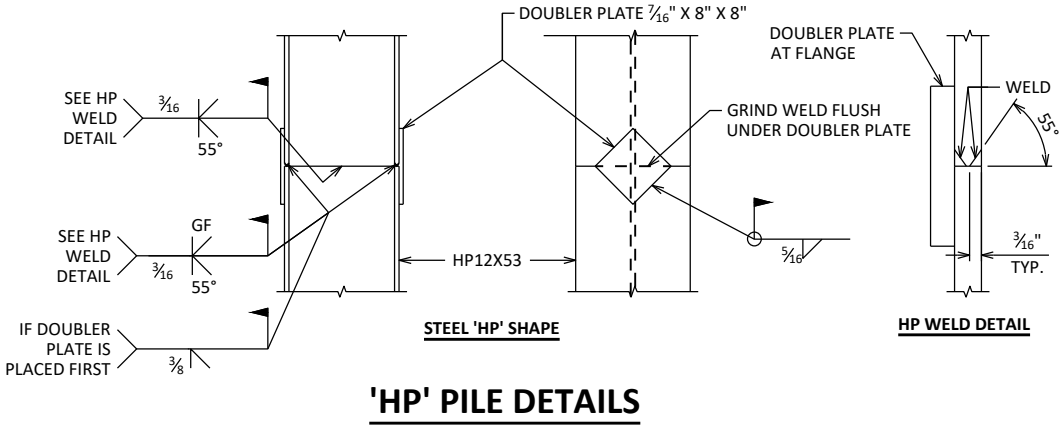
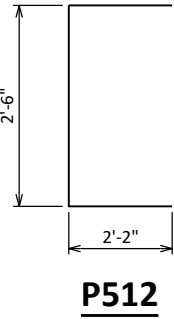
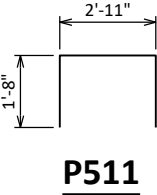
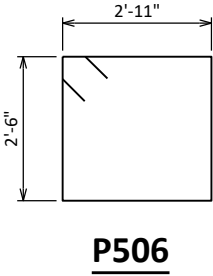
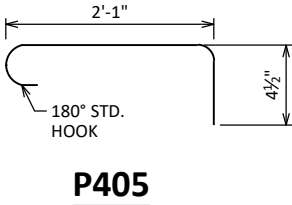
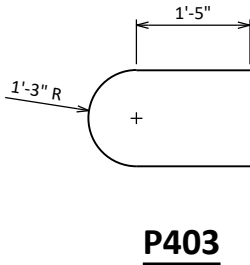
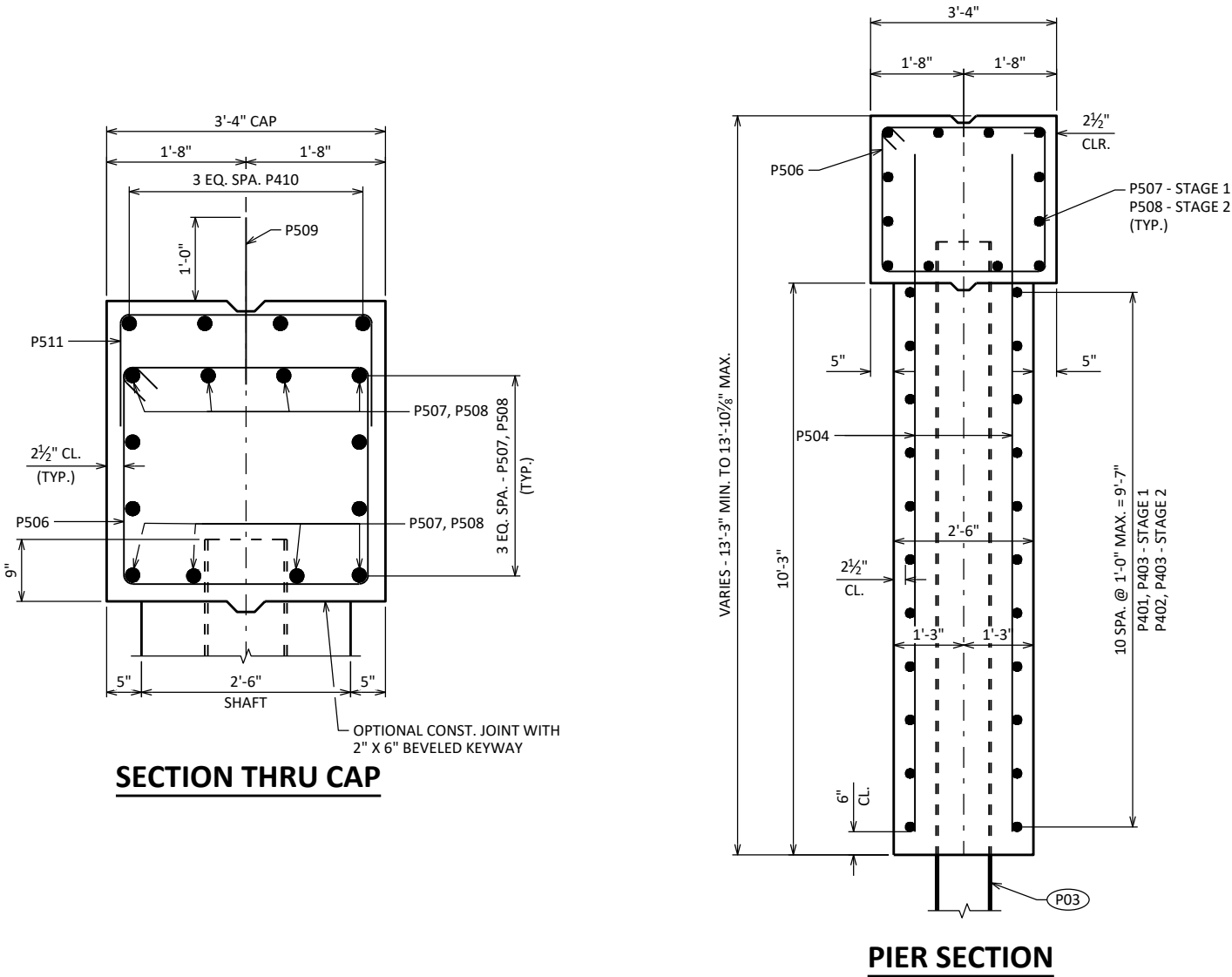
- ★ PLACE ADJACENT TO EACH PILE AS SHOWN. TIE TO VERT. NO. 5 BARS, VERTICALLY SPACED AT 1'-0" TO MATCH NO. 4 HORIZONTAL BARS. ALTERNATE THE POSITION OF THE 90° AND 180° HOOKS AT EACH VERTICAL LAYER OF TIES.
- P03 SUPPORT PIER ON HP 12 x 53 STEEL PILING, ESTIMATED 45'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE. PREBORE TO EL. 1220.
- P08 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- P09 KEYED CONST. JOINT-FORMED BY BEVELED 2 x 6 BETWEEN BEAM SEATS.
- P10 VERT. CONST. JOINT FORMED BY BEVELED 2 x 8.
- # REPRESENTS GIRDER NUMBER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
PIER		SHEET 11 176	

BILL OF BARS

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

BAR MARK	COAT	NO. REQ'D.		LENGTH	BENT	BAR SERIES	LOCATION
		STAGE 1	STAGE 2				
P401		22		19'-3"			SHAFT - HORIZ. STAGE 1
P402			22	41'-0"			SHAFT - HORIZ. STAGE 2
P403		11	11	6'-10"	X		SHAFT - HORIZ. - ENDS
P504		38	82	12'-3"			SHAFT/CAP - VERT.
P405		66	121	3'-0"	X		SHAFT - HORIZ. TIE BAR
P506		11	28	11'-6"	X		CAP - VERT. STIRRUPS
P507		12		21'-3"			CAP - HORIZ. STAGE 1
P508			12	42'-0"			CAP - HORIZ. STAGE 2
P509	X	7	27	2'-0"			CAP - VERT. TOP DOWELS
P410			2	33'-4"			CAP - SUPPLEMENTAL REIN. HORIZ. STAGE 2
P511			34	6'-0"	X		CAP - SUPPLEMENTAL REIN. VERT. STAGE 2
P512		6	4	6'-7"	X		CAP - VERT. AT JOINT



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		PLANS CK'D	BY
JLA		MJB	
PIER DETAILS		SHEET 12	
		177	

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 8" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 8" OF THE TOP FLANGE.

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

THE GIRDERS SHALL BE PROVIDED WITH A SUITABLE LIFTING DEVICE FOR HANDLING AND ERECTING THE GIRDERS. SEE SECT. 503.3.4 OF STANDARD SPECIFICATIONS FOR GUIDANCE.

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

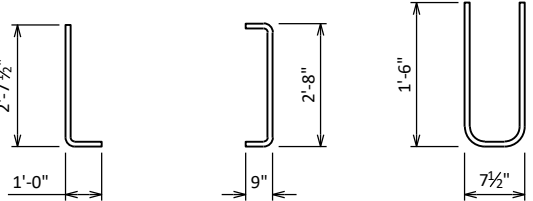
ALL GIRDERS SHALL BE CAST FULL LENGTH AS SHOWN.

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

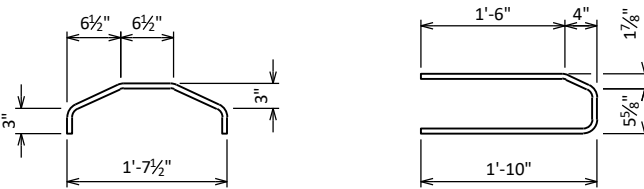
AN EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DESIGN SECTION. IF USED, WWF SUBSTITUTION DETAILS SHALL BE SUBMITTED ELECTRONICALLY TO THE WISDOT FABRICATION LIBRARY AND ACCEPTED PRIOR TO SHOP DRAWING SUBMITTAL.

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

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



#6 BAR 2 @ EACH END
#6 BAR 8 @ EACH END
#5 BAR 1 @ EACH END



#3 BAR 3 @ EACH END (EPOXY COATED)
#3 BAR 23 PAIRS EACH END (EPOXY COATED)

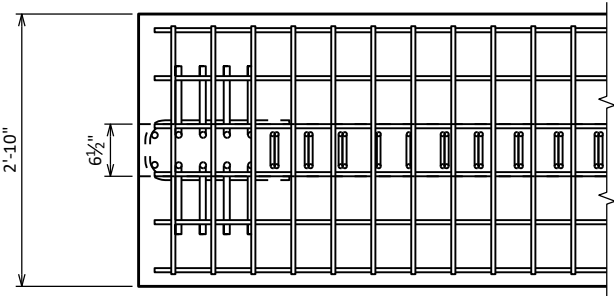
SIDE VIEW & TYPICAL SECTION IN SPAN

- (A) DETAIL TYP. AT EACH END
- (B) 6 #4 BARS, FULL LENGTH, MIN. LAP = 1'-11"

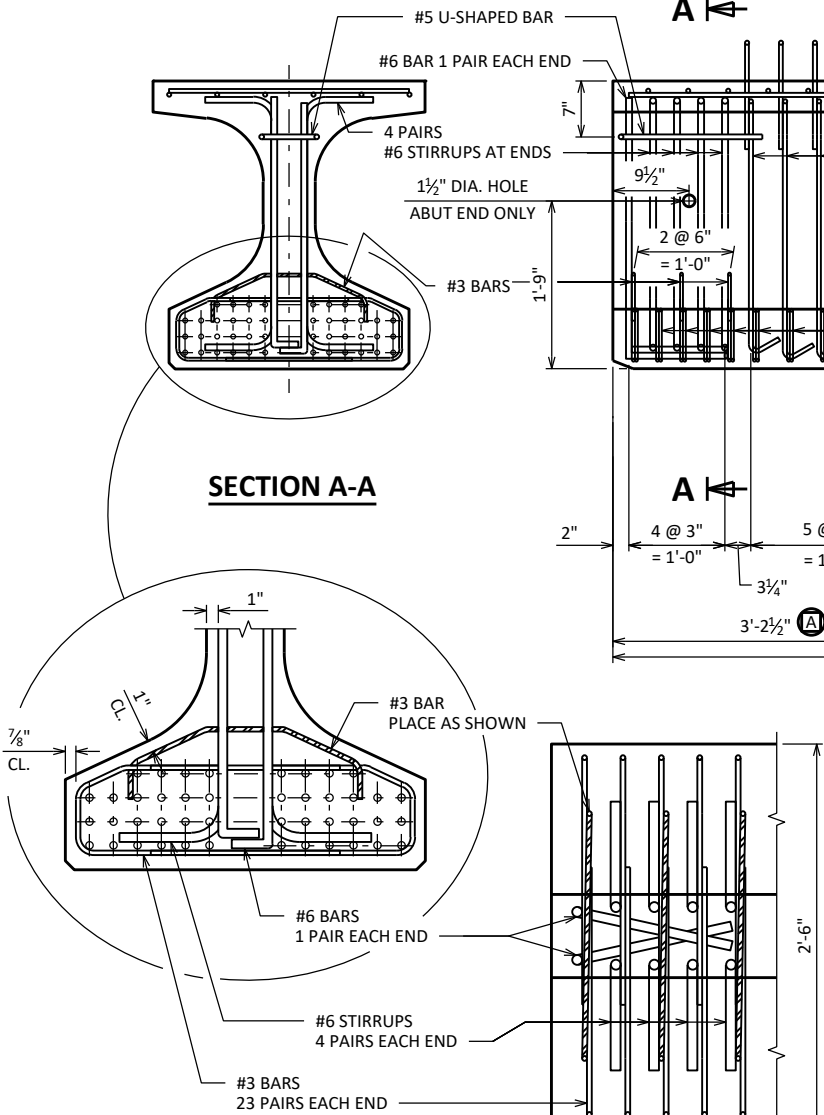
* MINIMUM CYLINDER STRENGTH OF CONCRETE @ TIME OF TRANSFER OF PRESTRESS FORCE.

GIRDER DATA

GIRDER DATA																								
SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEFL. (IN.)									CONC. STRGTH. f _c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN						UNDRAPED PATTERN	
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10		1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER		TOTAL NO. OF STRANDS	f _{ci} (P.S.I.) ✱	(IN.)				TOTAL NO. OF STRANDS	f _{ci} (P.S.I.) ✱
																			"A"	"B" MIN.	"B" MAX.	"C"		
1	1	83.375	0.5	1.1	1.5	1.7	1.8	1.7	1.5	1.1	0.5	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		
1	2 TO 4	83.375	0.6	1.2	1.7	2.0	2.1	2.0	1.7	1.2	0.6	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		
1	5 & 7	83.375	0.4	0.8	1.2	1.3	1.4	1.3	1.1	0.8	0.4	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		
1	6	83.375	0.4	0.8	1.1	1.3	1.4	1.3	1.1	0.8	0.4	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		
2	1	83.375	0.5	1.1	1.5	1.7	1.8	1.7	1.5	1.1	0.5	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		
2	2 TO 4	83.375	0.6	1.2	1.7	2.0	2.1	2.0	1.7	1.2	0.6	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		
2	5 & 7	83.375	0.4	0.8	1.1	1.3	1.4	1.3	1.2	0.8	0.4	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		
2	6	83.375	0.4	0.8	1.1	1.3	1.4	1.3	1.1	0.8	0.4	8000	7	7	7	0.6	32	6800	31	11.5	14.5	5		



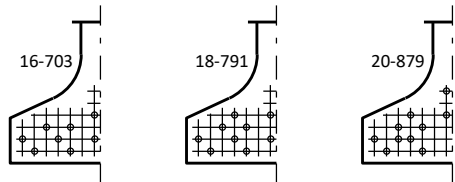
TOP FLANGE



SECTION A-A

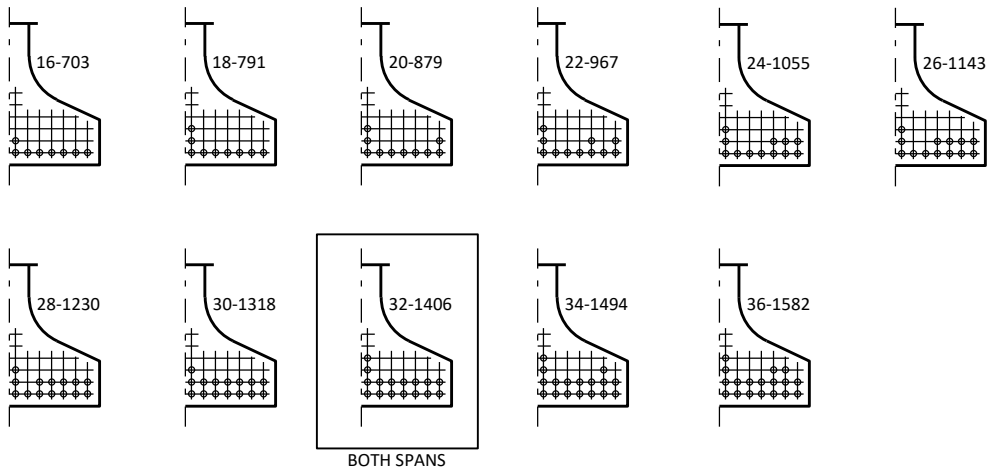
BOTTOM FLANGE

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
36W" PRESTRESSED GIRDER DETAILS		SHEET 13 178	



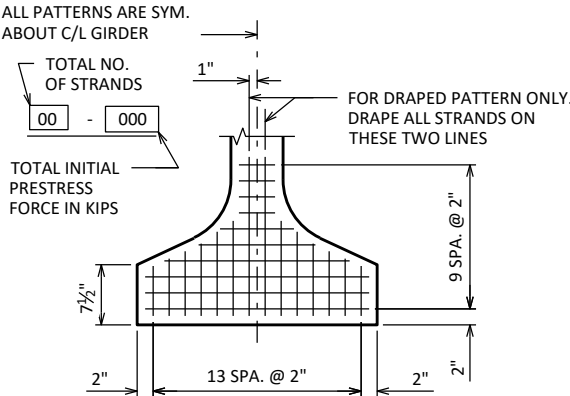
STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY
TO AVOID DRAPING OF STRANDS

0.6" DIA. STRANDS

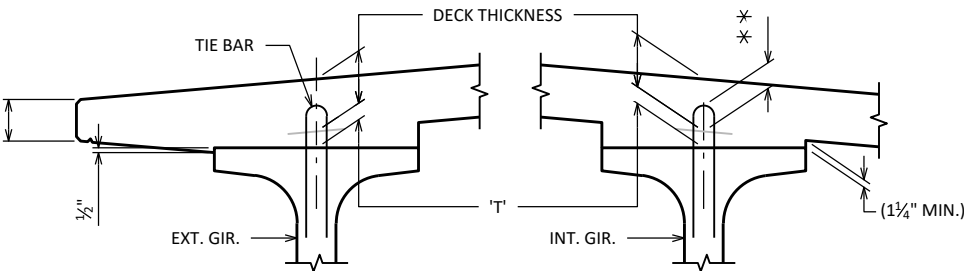


ARRANGEMENT AT C/L SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" DIA. STRANDS



TYP. STRAND PATTERN



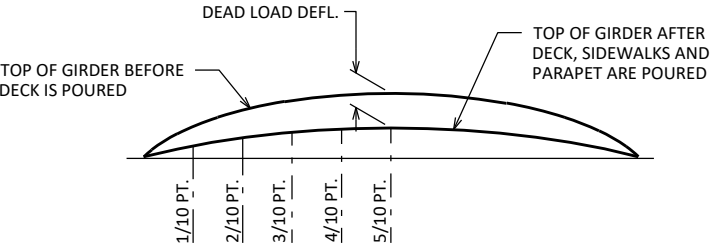
DECK HAUNCH DETAIL

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

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

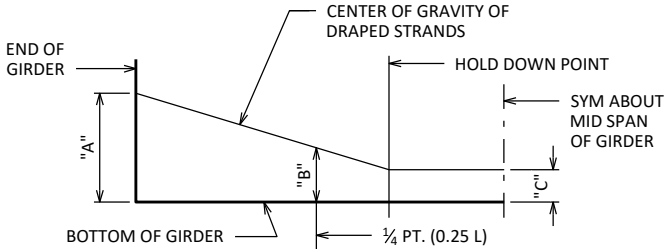
- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

NOTE: AN AVERAGE HAUNCH ('T') OF 3.5" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES" FOR STAGE 1 AND AN AVERAGE HAUNCH ('T') OF 3.1" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES" FOR STAGE 2.



DEAD LOAD DEFLECTION DIAGRAM

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



DRAPED STRAND PROFILE

SPAN	CAMBER (IN.) *
1	3.226
2	3.226

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

THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

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STRUCTURE B-34-61			
	DRAWN BY	JLA	PLANS CK'D MJB
36W" PRESTRESSED GIRDER DETAILS 2		SHEET 14 179	

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-34-61", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

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

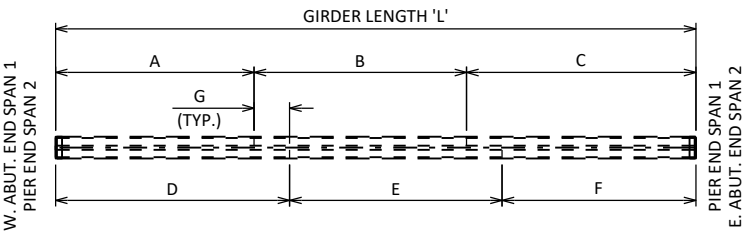
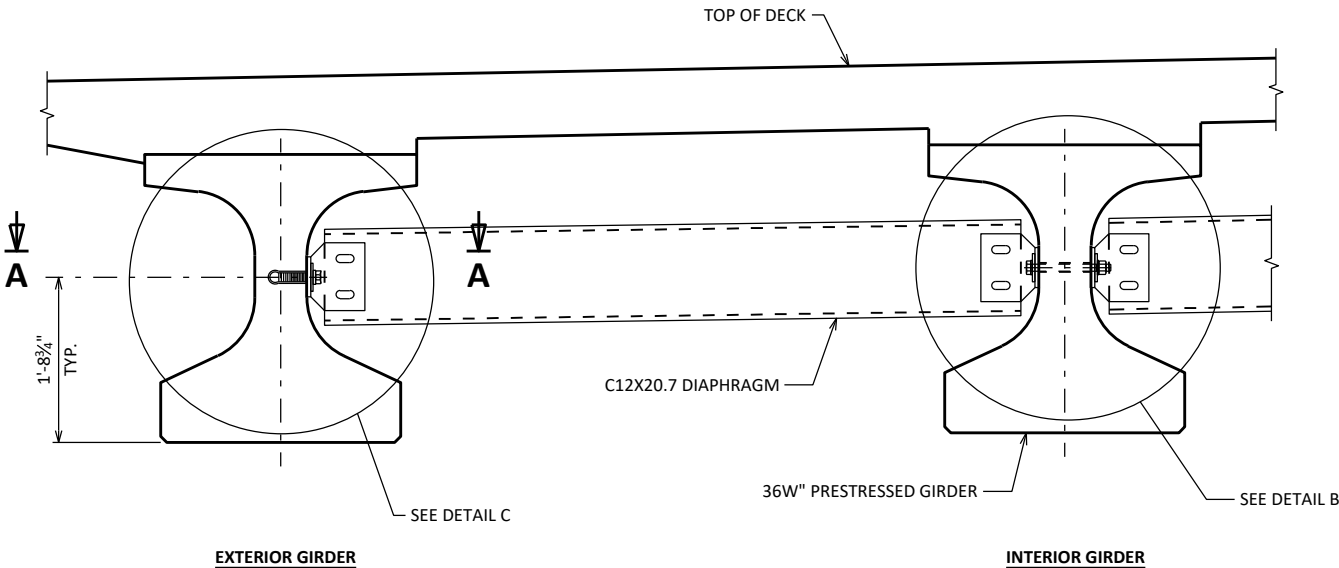
STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS ¼ TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

7/8" DIA. HIGH STRENGTH BOLT WITH HEX NUT, TWO WASHERS AND TWO 3 1/2" SQUARE X 5/16" PLATE WASHERS, TYP.

7/8" DIA. HIGH STRENGTH BOLT WITH HEX NUT, TWO WASHERS AND TWO 3 1/2" SQUARE X 5/16" PLATE WASHERS, TYP.

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

PART TRANSVERSE SECTION AT DIAPHRAGM

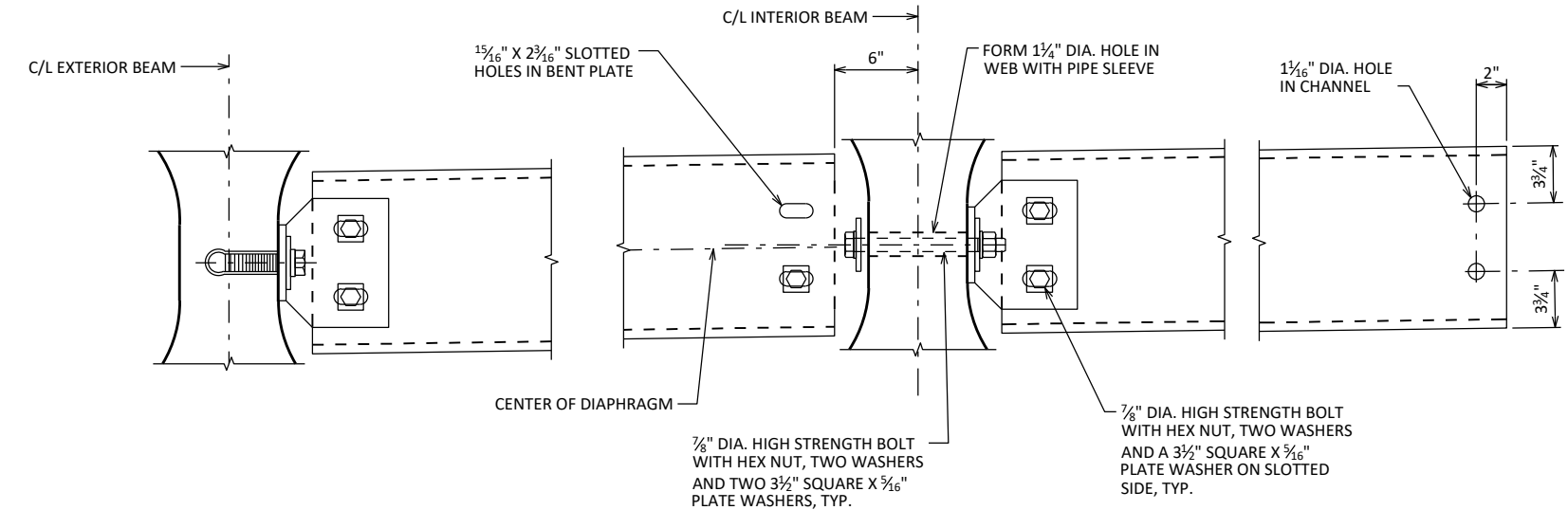


DIAPHRAGM SPACING

LOCATION	A	B	C	D	E	F	G
GIRDER 1, SPAN 1	---	---	---	30'-5 3/4"	27'-8"	25'-2 3/4"	---
GIRDER 1, SPAN 2	---	---	---	29'-10 1/4"	27'-8"	25'-10 1/4"	---
GIRDER 2-4, SPAN 1	25'-10 1/4"	27'-8"	29'-10 1/4"	30'-5 3/4"	27'-8"	25'-2 3/4"	4'-7 1/2"
GIRDER 2-4, SPAN 2	25'-2 3/4"	27'-8"	30'-5 3/4"	29'-10 1/4"	27'-8"	25'-10 1/4"	4'-7 1/2"
GIRDER 5, SPAN 1	25'-10 1/4"	27'-8"	29'-10 1/4"	29'-6 3/4"	27'-8"	26'-1 3/4"	3'-8 1/2"
GIRDER 5, SPAN 2	25'-2 3/4"	27'-8"	30'-5 3/4"	28'-11 1/4"	27'-8"	26'-9 1/4"	3'-8 1/2"
GIRDER 6, SPAN 1	26'-9 1/4"	27'-8"	28'-11 1/4"	29'-6 3/4"	27'-8"	26'-1 3/4"	2'-9 5/8"
GIRDER 6, SPAN 2	26'-1 3/4"	27'-8"	29'-6 3/4"	28'-11 1/4"	27'-8"	26'-9 1/4"	2'-9 5/8"
GIRDER 7, SPAN 1	26'-9 1/4"	27'-8"	28'-11 1/4"	---	---	---	---
GIRDER 7, SPAN 2	26'-1 3/4"	27'-8"	29'-6 3/4"	---	---	---	---

DETAIL C

DETAIL B



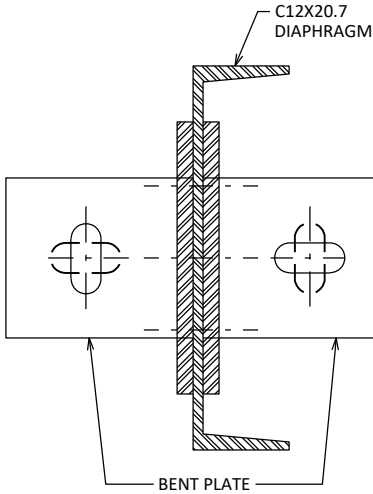
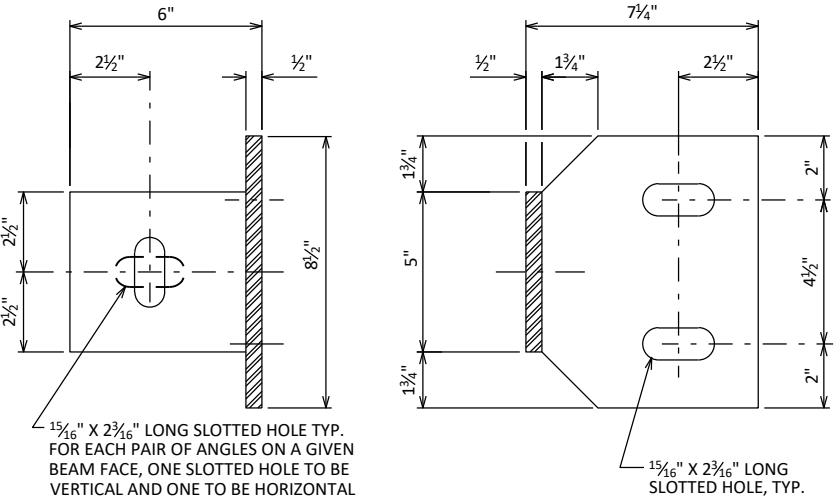
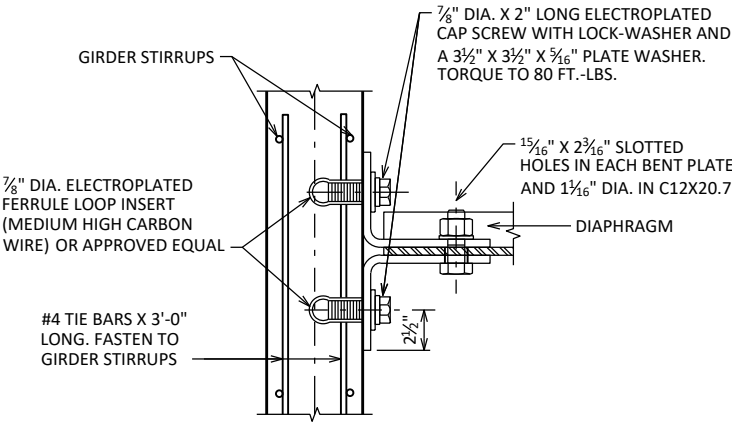
SECTION A-A

(FOR EXTERIOR ATTACHMENT)

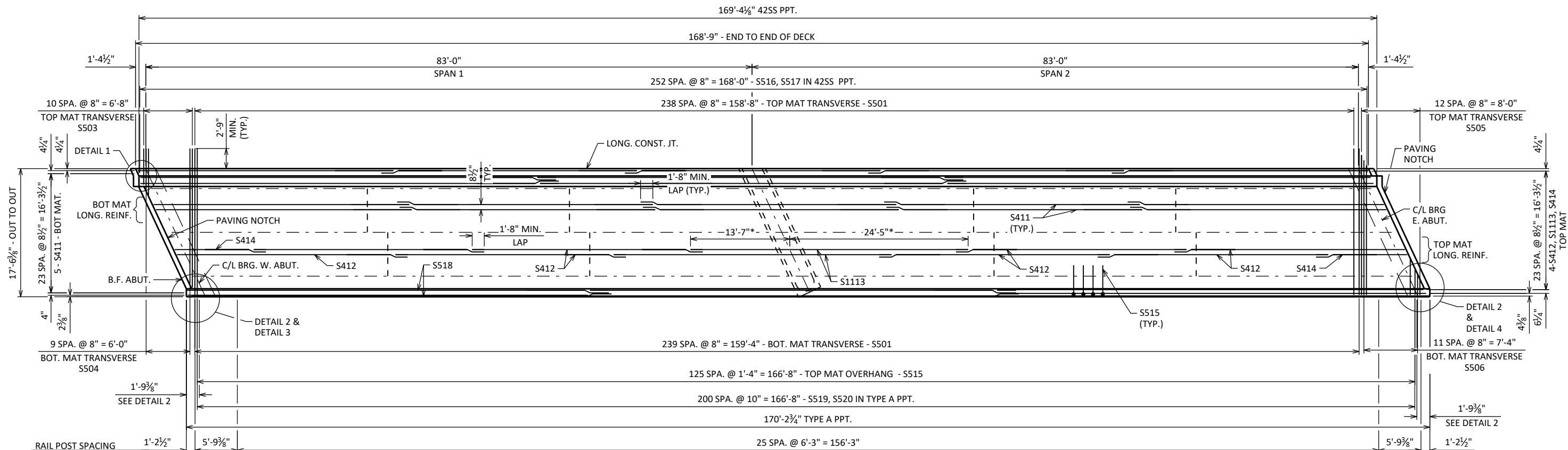
BEAM FACE

DIAPHRAGM FACE

ATTACHMENT TO CHANNEL

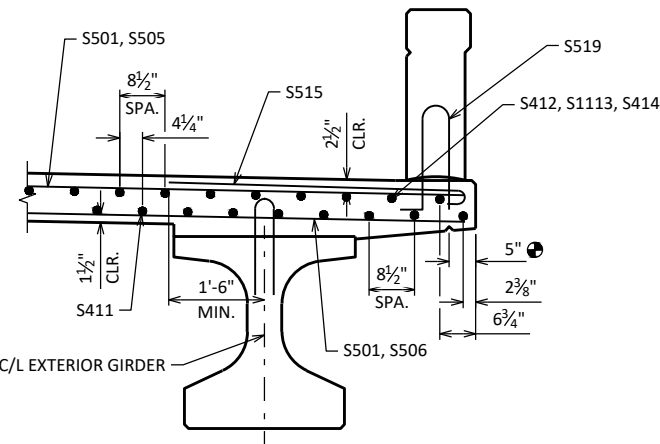


NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY JLA		PLANS CK'D MJB	
STEEL DIAPHRAGM		SHEET 15	180



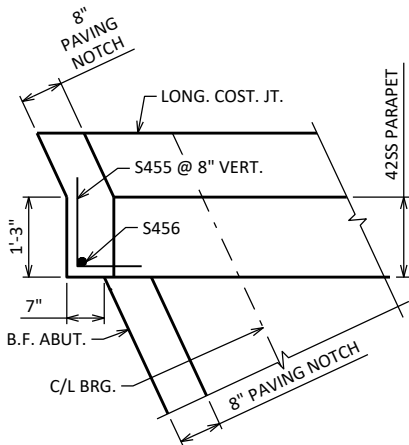
PLAN - STAGE 1 CONSTRUCTION

* ALTERNATE S1113 BARS



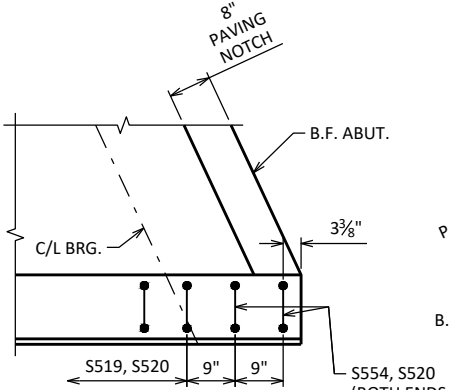
EDGE OF DECK DETAIL

3/4" V-GROOVE. EXTEND V-GROOVE TO 6" FROM F.F. OF ABUT. DIAPHRAGM



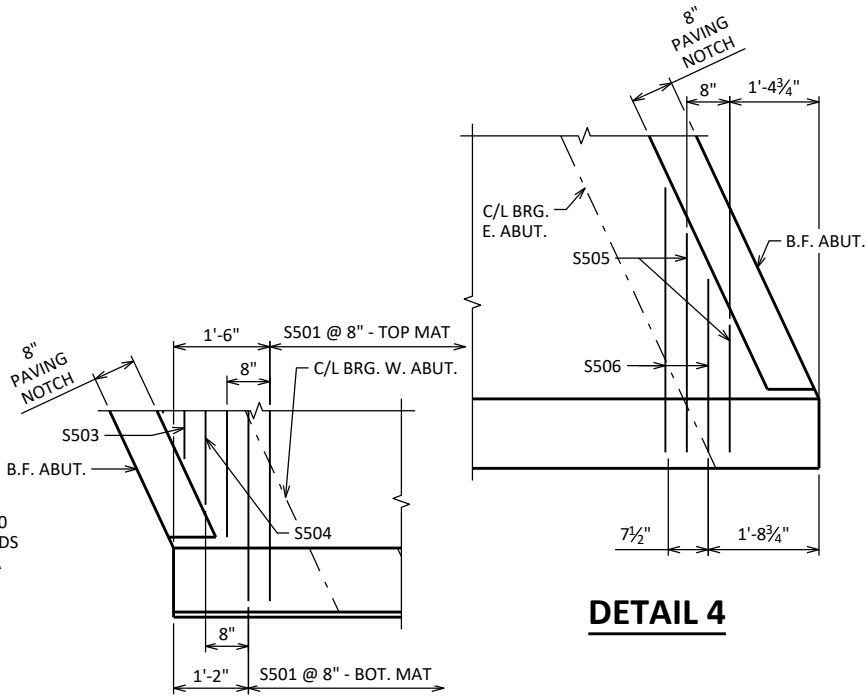
DETAIL 1

(SIMILAR AT EAST END)

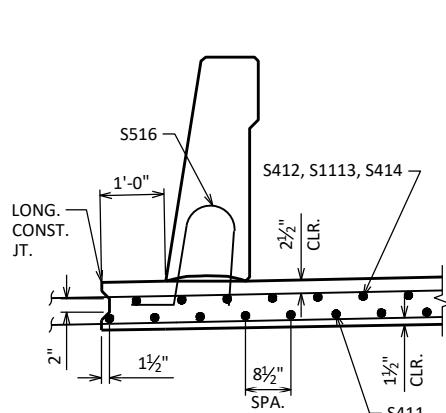


DETAIL 2

(PARAPET REINFORCING)

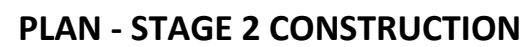


DETAIL 4



SECTION AT JOINT

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
SUPERSTRUCTURE PLAN STAGE 1		SHEET 16 181	

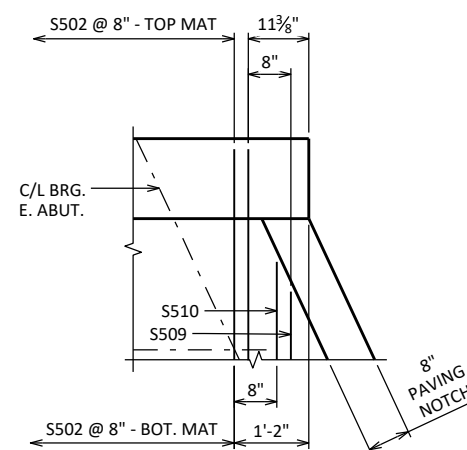
[illegible]

EDGE OF DECK DETAIL

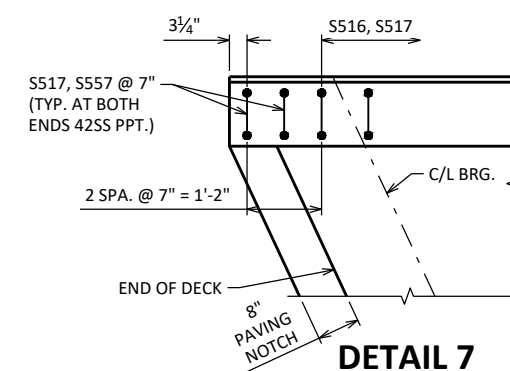
Technical drawing of a bridge deck cross-section. The drawing shows a rectangular deck with a sloped bottom edge. Key dimensions and components are labeled:

- Top width dimensions: $1'-3\frac{3}{8}"$ and $8"$.
- Bottom width dimensions: $1'-7\frac{3}{8}"$ and $8"$.
- Internal vertical dimensions: $S507$ and $S508$.
- Bottom sloped edge: $8"$ PAVING NOTCH.
- Bottom sloped edge label: C/L BRG. W. ABUT.

DETAIL 5



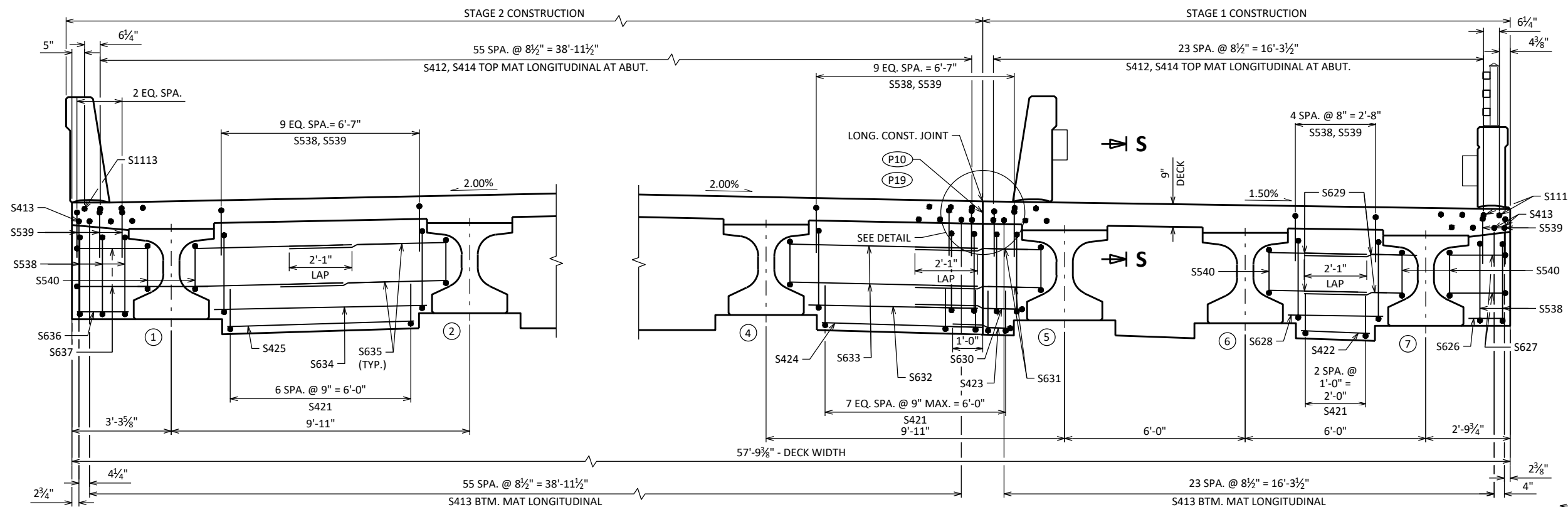
DETAIL 6



DETAIL 7

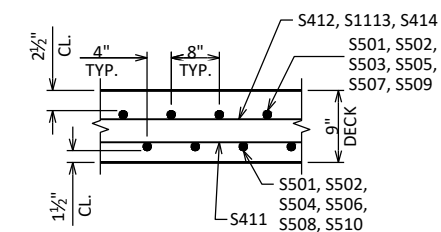
(PARAPET REINFORCING)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-34-61	
		DRAWN BY	PLANS CK'D
		JLA	MJB
SUPERSTRUCTURE PLAN STAGE 2		SHEET 17	
		182	

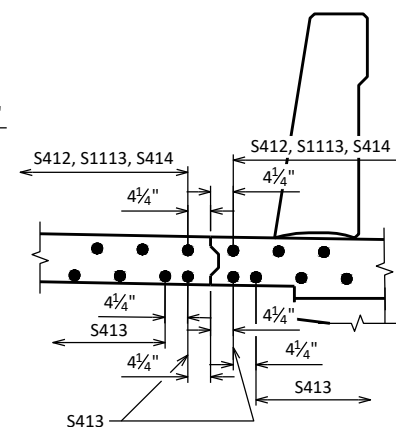


CROSS SECTION THRU SUPERSTRUCTURE - AT ABUTMENT

LOOKING EAST

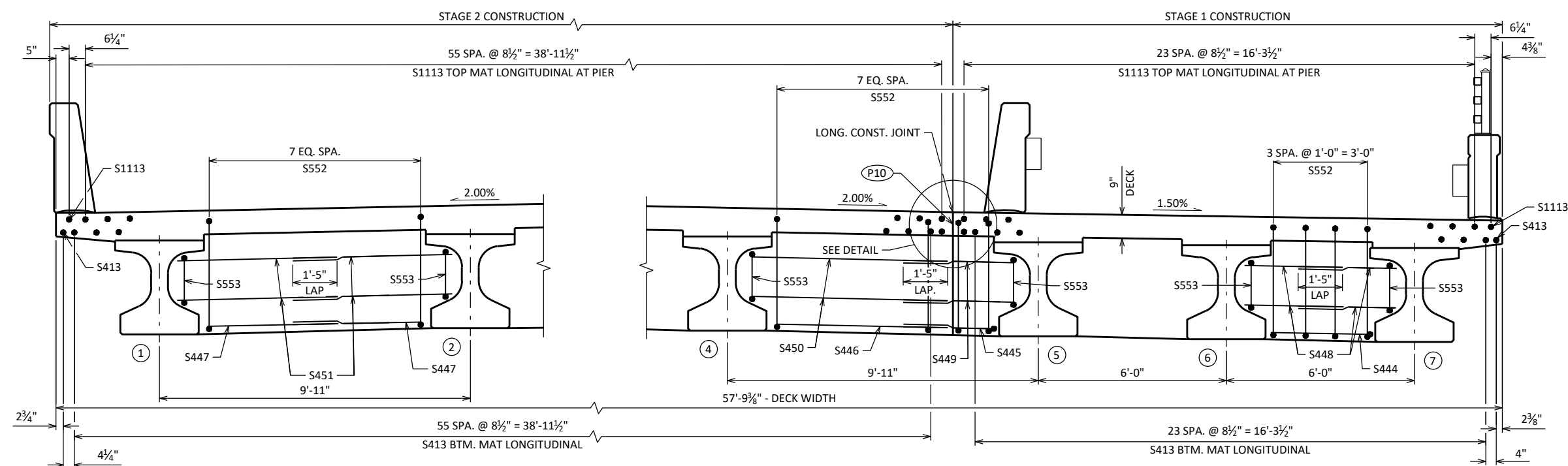


SECTION S-S



DECK SECTION AT JOINT

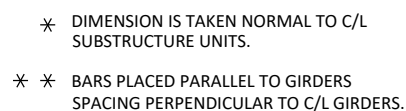
- | | |
|-----|--|
| P10 | VERT. CONST. JOINT FORMED BY BEVELED 2 x 8. |
| P19 | 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ON BACKFACE |
| # | GIRDER NUMBER |



CROSS SECTION THRU SUPERSTRUCTURE - AT PIER

LOOKING EAST

NO.	DATE	REVISION			BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION					
STRUCTURE B-34-61					
		DRAWN BY	JLA	PLANS CK'D	MJB
SUPERSTRUCTURE DETAILS			SHEET 18 _____ 183 _____		



AT ABUTMENTS



AT PIER



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-34-61	
		DRAWN BY	PLANS CK'D
		JLA	MJB
SUPERSTRUCTURE DETAILS 2		SHEET 19	
		184	

BILL OF BARS

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

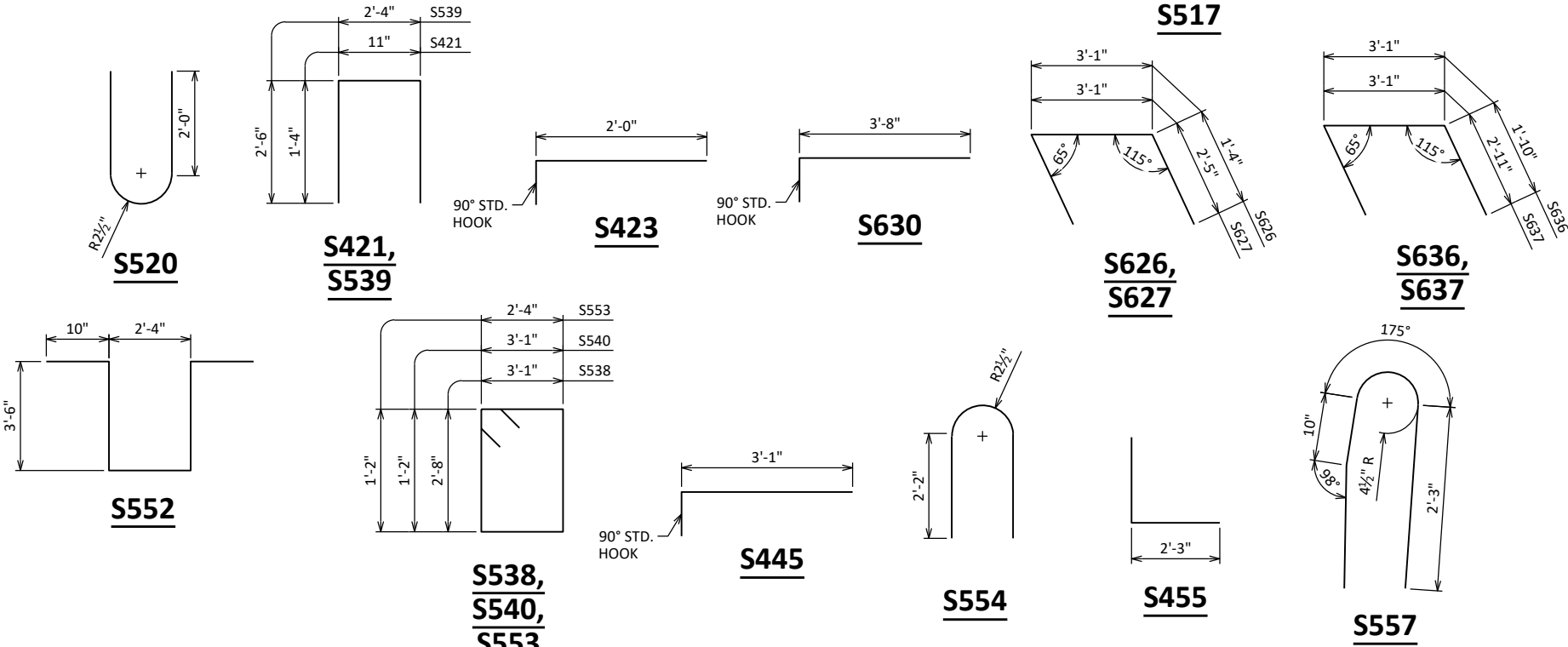
BAR MARK	COAT	NO. REQ'D.		LENGTH	BENT	BAR SERIES	LOCATION	
		STAGE 1	STAGE 2					
S501	X	479		20'-2"			DECK - TRANSVERSE - TOP & BOTTOM	STAGE 1
S502	X		451	39'-11"			DECK - TRANSVERSE - TOP & BOTTOM	STAGE 2
S503	X	11		11'-9"		▲	DECK - TRANSVERSE - TOP	STAGE 1
S504	X	10		11'-9"		▲	DECK - TRANSVERSE - BOTTOM	STAGE 1
S505	X	13		10'-10"		▲	DECK - TRANSVERSE - TOP	STAGE 1
S506	X	12		10'-9"		▲	DECK - TRANSVERSE - BOTTOM	STAGE 1
S507	X		27	20'-5"		▲	DECK - TRANSVERSE - TOP	STAGE 2
S508	X		27	21'-1"		▲	DECK - TRANSVERSE - BOTTOM	STAGE 2
S509	X		25	20'-3"		▲	DECK - TRANSVERSE - TOP	STAGE 2
S510	X		25	21'-0"		▲	DECK - TRANSVERSE - BOTTOM	STAGE 2
S411	X	130	290	35'-1"			DECK - LONGITUDINAL - BOTTOM	
S412	X	100	228	31'-8"			DECK - LONGITUDINAL - TOP	
S1113	X	25	57	38'-0"			DECK - LONGITUDINAL - TOP AT PIER	
S414	X	25	57	11'-1"			DECK - LONGITUINAL - TOP	
S515	X	126	126	5'-3"	X		DECK- OVERHANG	
S516	X	253	251	4'-5"	X		42SS PPT. - VERT.	
S517	X	255	255	6'-8"	X		42SS PPT. - VERT.	
S518	X	80	40	35'-6"			PPT. - HORIZ.	
S519	X	201		4'-4"	X		TYPE A PPT. - VERT.	
S520	X	205		4'-9"	X		TYPE A PPT. - VERT.	
S421	X	16	54	3'-5"	X		ABUT. DIAPH. - VERT. - BTWN. SEATS	
S422	X	8		2'-3"			ABUT. DIAPH. - HORIZ. - BTWN. SEATS	STAGE 1
S423	X	4		2'-7"	X		ABUT. DIAPH. - HORIZ. - BTWN. SEATS AT JOINT	STAGE 1
S424	X		4	5'-6"			ABUT. DIAPH. - HORIZ. - BTWN. SEATS AT JOINT	STAGE 2
S425	X		12	6'-8"			ABUT. DIAPH. - HORIZ. - BTWN. SEATS	STAGE 2
S626	X	2		5'-5"	X		ABUT. DIAPH. - HORIZ. - ENDS	STAGE 1
S627	X	4		7'-7"	X		ABUT DIAPH. - HORIZ. - ENDS	STAGE 1
S628	X	4		3'-5"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS	STAGE 1
S629	X	16		3'-3"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS	STAGE 1
S630	X	2		4'-6"	X		ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS AT JOINT	STAGE 1
S631	X	4		4'-10"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS AT JOINT	STAGE 1
S632	X		2	6'-2"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS AT JOINT	STAGE 2
S633	X		4	7'-3"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS AT JOINT	STAGE 2
S634	X		6	7'-9"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS	STAGE 2
S635	X		2	6'-0"			ABUT. DIAPH. - HORIZ. - BTWN. GIRDERS	STAGE 2
S636	X		4	6'-5"	X		ABUT. DIAPH. - HORIZ. - ENDS	STAGE 2
S637	X		4	8'-7"	X		ABUT. DIAPH. - HORIZ. - ENDS	STAGE 2
S538	X	28	82	12'-2"	X		ABUT. DIAPH. - VERT. STIRRUP BTWN. GIRDERS	
S539	X	28	82	7'-1"	X		ABUT. DIAPH. - VERT. - DECK	
S540	X	12	16	9'-2"	X		ABUT. DIAPH. - VERT. - STIRRUPS UNDER FLANGES	
S541	X	12	16	6'-0"			ABUT. DIAPH. - HORIZ. - THRU GIRDERS	
S642	X	10		20'-10"			ABUT. DIAPH. - HORIZ. - B.F.	STAGE 1
S643	X		10	43'-10"			ABUT. DIAPH. - HORIZ. - B.F.	STAGE 2
S444	X	4		3'-5"			PIER DIAPH. - HORIZ.	STAGE 1
S445	X	2		3'-8"	X		PIER DIAPH. - HORIZ. - AT JOINT	STAGE 1
S446	X		2	5'-8"			PIER DIAPH. - HORIZ. - AT JOINT	STAGE 2
S447	X		12	4'-8"			PIER DIAPH. - HORIZ.	STAGE 2
S448	X	16		3'-7"			PIER DIAPH. - HORIZ.	STAGE 1
S449	X	4		4'-2"			PIER DIAPH. - HORIZ. - AT JOINT	STAGE 1
S450	X		4	7'-3"			PIER DIAPH. - HORIZ. - AT JOINT	STAGE 2
S451	X		24	5'-9"			PIER DIAPH. - HORIZ.	STAGE 2
S552	X	10	30	10'-6"	X		PIER DIAPH. - VERT. - BTWN. GIRDERS	
S553	X	5	7	7'-8"	X		PIER DIAPH. - VERT. - STIRRUP UNDER FLANGES	
S554	X	4		5'-0"	X		TYPE. A PPT. - VERT. - AT ENDS	STAGE 1
S455	X	10		3'-9"	X		ABUT. DIAPH. - HORIZ. - AT PPT. BUMP OUT	STAGE 1
S456	X	2		2'-8"			ABUT. DIAPH. - VERT. - AT PPT. BUMP OUT	STAGE 1
S557	X	2	4	5'-10"	X		42SS PPT. - VERT. - AT ENDS	

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

BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

BAR MARK	NO. REQ'D.	LENGTH
S503	1 SERIES OF 11	4'-7" TO 18'-11"
S504	1 SERIES OF 10	5'-4" TO 18'-2"
S505	1 SERIES OF 13	2'-4" TO 19'-4"
S506	1 SERIES OF 12	2'-10" TO 18'-7"
S507	1 SERIES OF 27	1'-10" TO 39'-0"
S508	1 SERIES OF 27	2'-6" TO 39'-8"
S509	1 SERIES OF 25	3'-1" TO 37'-5"
S510	1 SERIES OF 25	3'-10" TO 38'-1"



TOP OF DECK ELEVATIONS

LOCATION	C/L W. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L PIER 1	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L E. ABUT.
L. EOD	1259.31	1259.29	1259.26	1259.24	1259.21	1259.19	1259.16	1259.14	1259.11	1259.09	1259.06	1259.04	1259.01	1258.99	1258.96	1258.94	1258.91	1258.89	1258.86	1258.84	1258.81
GIRDER 1	1259.35	1259.32	1259.30	1259.27	1259.25	1259.22	1259.20	1259.17	1259.15	1259.12	1259.10	1259.07	1259.05	1259.02	1259.00	1258.97	1258.95	1258.92	1258.90	1258.88	1258.85
GIRDER 2	1259.53	1259.51	1259.48	1259.46	1259.43	1259.41	1259.38	1259.36	1259.33	1259.31	1259.28	1259.26	1259.23	1259.21	1259.18	1259.16	1259.13	1259.11	1259.08	1259.06	1259.03
R/L STH 64	1259.68	1259.66	1259.63	1259.61	1259.58	1259.56	1259.53	1259.51	1259.48	1259.46	1259.43	1259.41	1259.38	1259.36	1259.33	1259.31	1259.28	1259.26	1259.23	1259.21	1259.18
GIRDER 3	1259.64	1259.62	1259.59	1259.57	1259.54	1259.52	1259.49	1259.47	1259.44	1259.42	1259.39	1259.37	1259.34	1259.32	1259.29	1259.27	1259.24	1259.22	1259.19	1259.17	1259.14
GIRDER 4	1259.43	1259.40	1259.38	1259.35	1259.33	1259.31	1259.28	1259.26	1259.23	1259.21	1259.18	1259.16	1259.13	1259.11	1259.08	1259.06	1259.03	1259.01	1258.98	1258.96	1258.93
CONST. JOINT	1259.28	1259.25	1259.23	1259.20	1259.18	1259.15	1259.13	1259.10	1259.08	1259.05	1259.03	1259.00	1258.98	1258.95	1258.93	1258.90	1258.88	1258.85	1258.83	1258.80	1258.78
GUTTER LINE	1259.25	1259.23	1259.20	1259.18	1259.15	1259.13	1259.10	1259.08	1259.05	1259.03	1259.01	1258.98	1258.96	1258.93	1258.91	1258.88	1258.86	1258.83	1258.81	1258.78	1258.76
GIRDER 5	1259.25	1259.22	1259.20	1259.17	1259.15	1259.12	1259.10	1259.07	1259.05	1259.02	1259.00	1258.97	1258.95	1258.92	1258.90	1258.87	1258.85	1258.82	1258.80	1258.77	1258.75
GIRDER 6	1259.15	1259.12	1259.10	1259.07	1259.05	1259.02	1259.00	1258.97	1258.95	1258.92	1258.90	1258.87	1258.85	1258.82	1258.80	1258.77	1258.75	1258.72	1258.70	1258.67	1258.65
GIRDER 7	1259.05	1259.02	1259.00	1258.97	1258.95	1258.92	1258.90	1258.87	1258.85	1258.82	1258.80	1258.78	1258.75	1258.73	1258.70	1258.68	1258.65	1258.63	1258.60	1258.58	1258.55
R. EOD	1259.02	1259.00	1258.97	1258.95	1258.92	1258.90	1258.87	1258.85	1258.82	1258.80	1258.77	1258.75	1258.72	1258.70	1258.67	1258.65	1258.63	1258.60	1258.58	1258.55	1258.53

STATE PROJECT NUMBER			
9140-12-81			

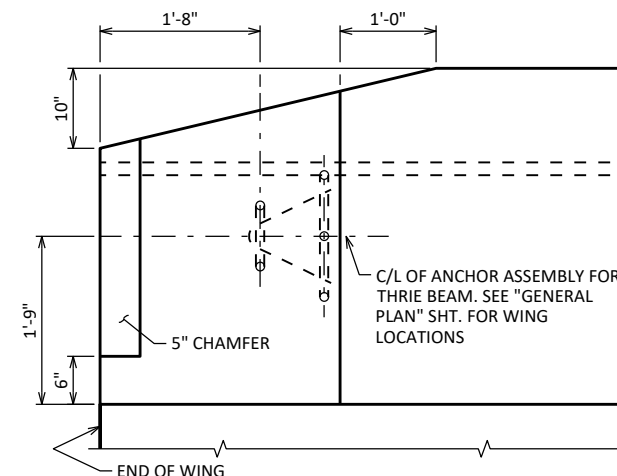
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
		DRAWN BY JLA	PLANS CK'D MJB
SUPERSTRUCTURE DETAILS 3		SHEET 20	
		185	

FOR WING PARAPETS

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

BUNDLE AND TAG EACH SERIES SEPARATELY.

LOOKING AT INSIDE FACE OF PARAPET

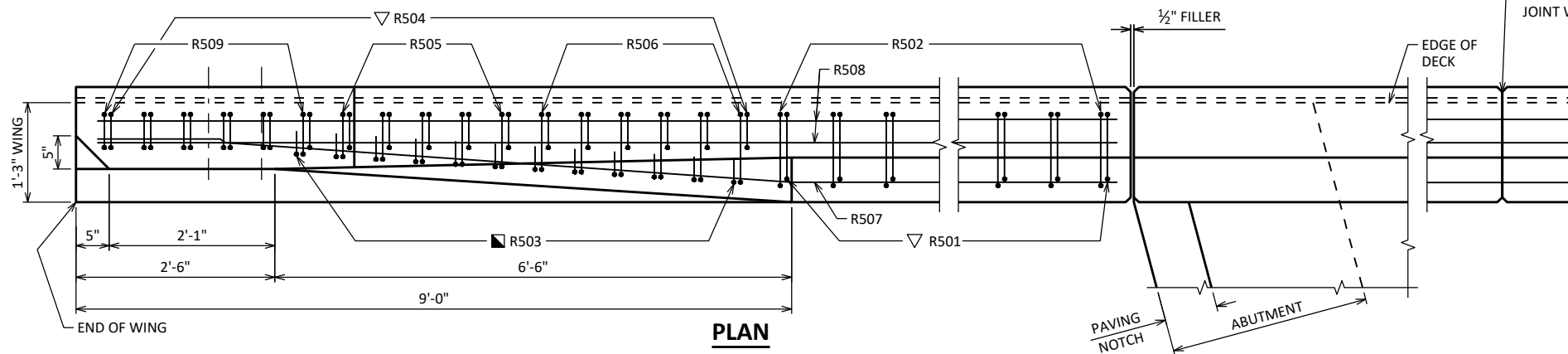


LOOKING AT INSIDE FACE OF PARAPET

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

BUNDLE AND TAG EACH SERIES SEPARATELY.

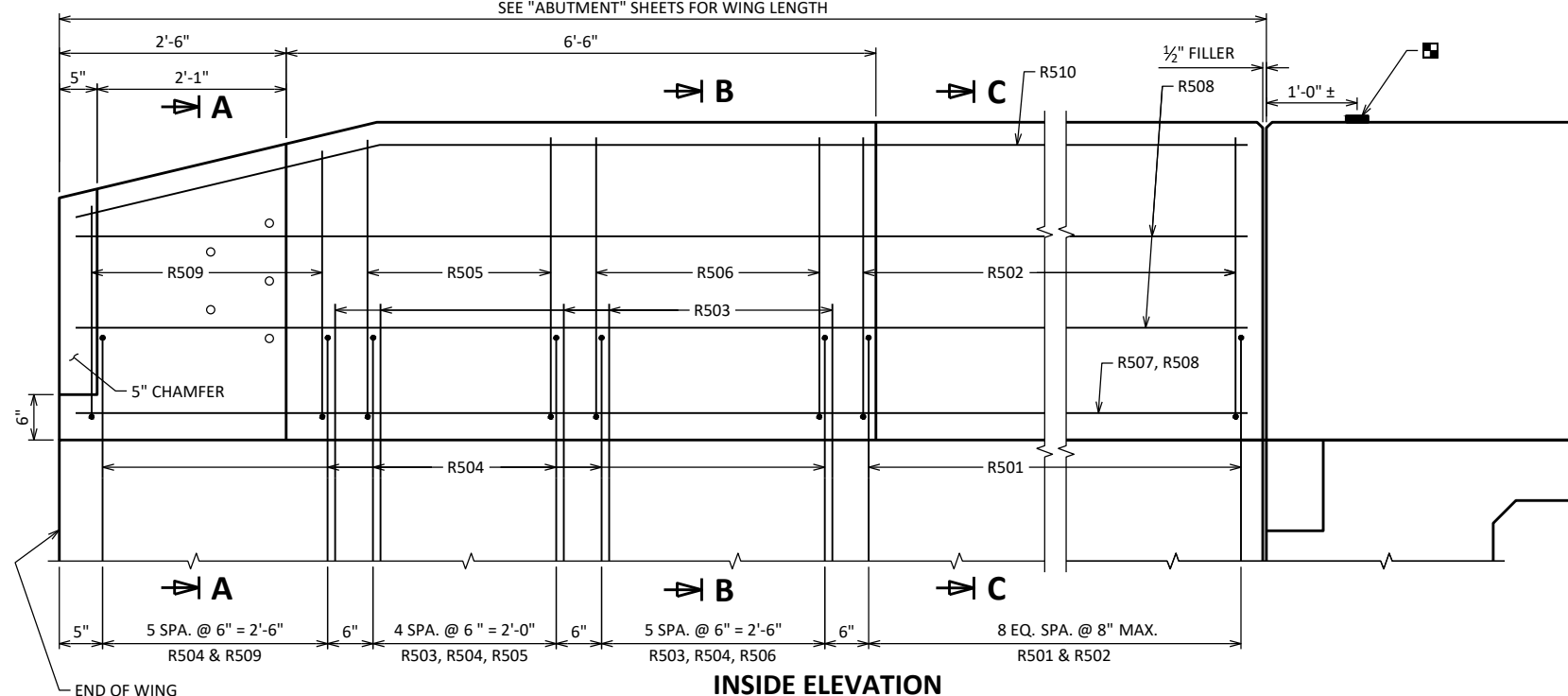
SECTION THRU PARAPET ON DECK



PLAN

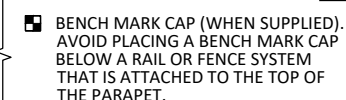
NW CORNER SHOWN, OTHERS SIMILAR

SEE "ABUTMENT" SHEETS FOR WING LENGTH

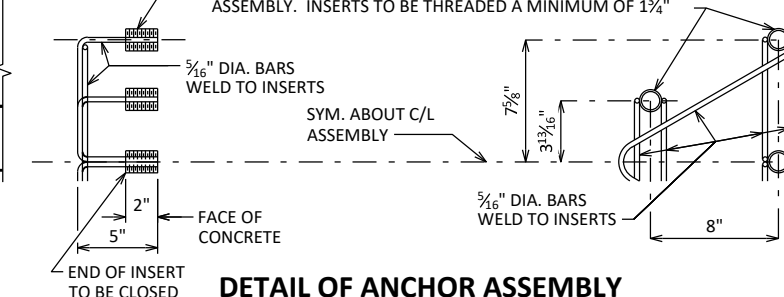


INSIDE ELEVATION

NW CORNER SHOWN, OTHERS SIMILAR



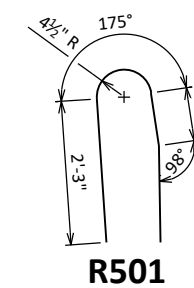
THREADED INSERTS FOR 7/8" DIA. X 2" LONG GALVANIZED HEX HEAD CAP SCREWS. CAP SCREWS TO BE THREADED A MIN. OF 1 7/8" AND SHALL BE SUPPLIED, INCLUDING WASHERS, WITH ASSEMBLY. INSERTS TO BE THREADED A MINIMUM OF 1 3/4"



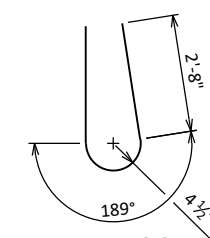
DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED
IN ACCORDANCE WITH ASTM F2329.

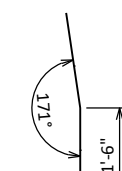
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.



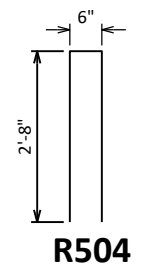
R501



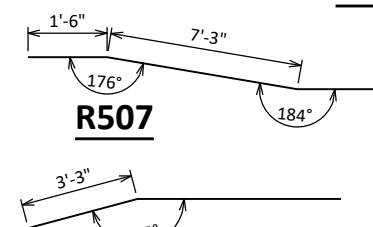
R502



R503

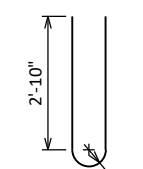


R504

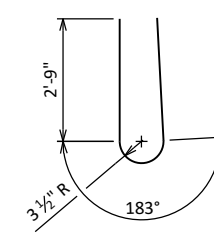


R507

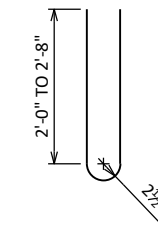
R510



R505



R506



R509

- CONST. JOINT - STRIKE OFF AS SHOWN
- R503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.

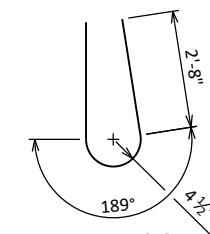
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-34-61	
	DRAWN BY	JLA	PLANS CK'D MJB
SINGLE SLOPE PARAPET 42SS		SHEET 21 186	

FOR FOOTING PARAPETS

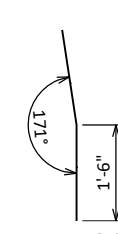
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BUNDLE AND TAG EACH SERIES SEPARATELY.

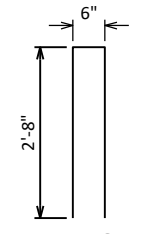
U501



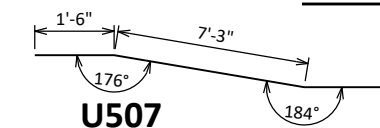
U502



U503



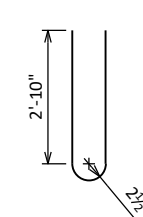
U504



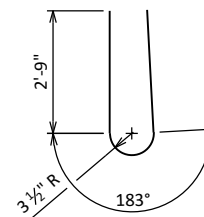
U507



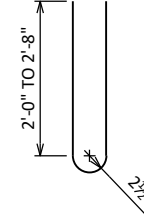
U510



U505



U506

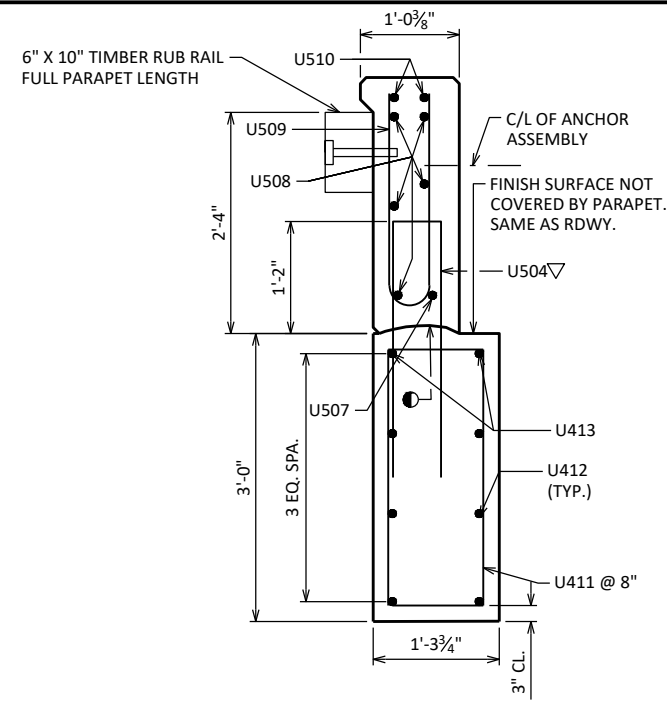


U509

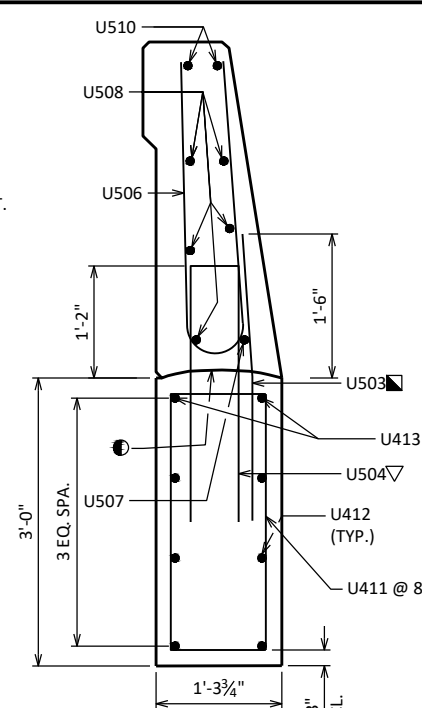
- CONST. JOINT - STRIKE OFF AS SHOWN
 - U503 BARS MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. USE CARE TO PLACE U503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
 - ▽ U501 AND U504 BARS TO BE TIED TO FOOTING STEEL BEFORE FOOTING IS POURED.
- SEE SHEET 21 FOR ANCHORAGE ASSEMBLY DETAIL.
- SEE SHEET 23 FOR TIMBER RUB RAIL DETAILS.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

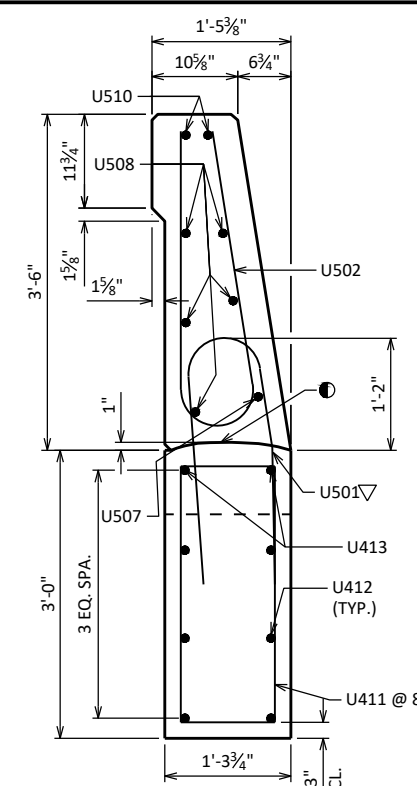
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
SINGLE SLOPE PARAPET 42SS (MODIFIED)		SHEET 22	
		187	



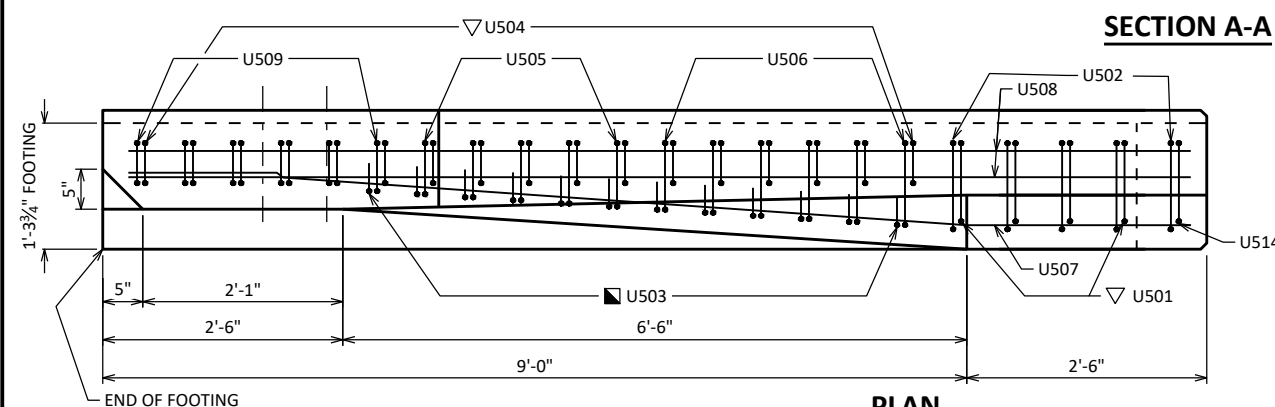
SECTION A-A



SECTION B-B
RUB RAIL NOT SHOWN

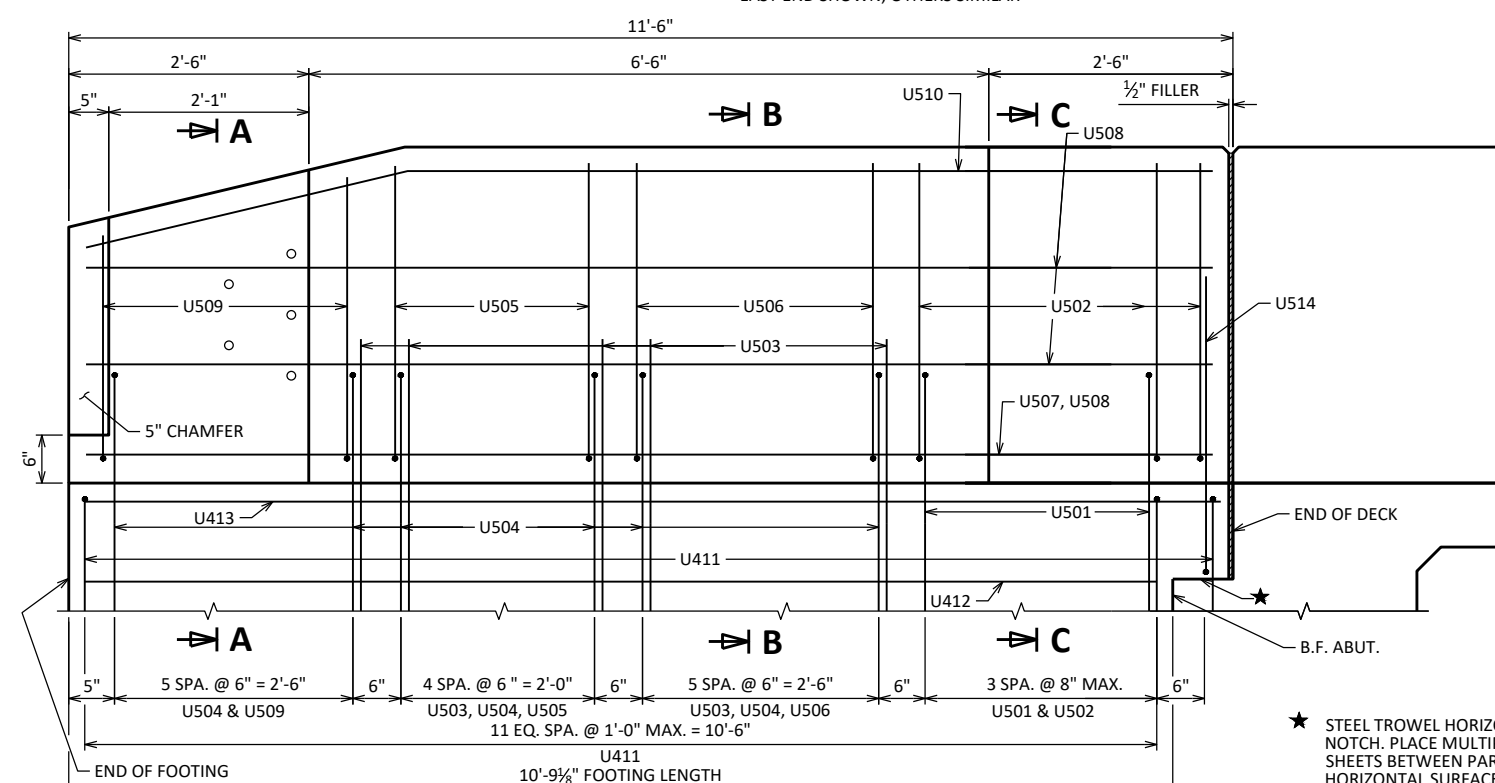


SECTION C-C
RUB RAIL NOT SHOWN



PLAN

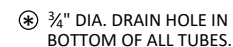
EAST END SHOWN, OTHERS SIMILAR



INSIDE ELEVATION

EAST END SHOWN, OTHERS SIMILAR

★ STEEL TROWEL HORIZONTAL SURFACE OF PAVING NOTCH. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS BETWEEN PARAPET FOOTING AND HORIZONTAL SURFACE OF PAVING NOTCH. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03"



Technical drawing of a fence post and rail assembly, showing a cross-section and a plan view with dimensions and callouts.

Cross-Section View (Left):

- Post diameter: 3"
- Top cap: 5", 6"
- Post body: 6 1/2", 7 1/4", 2", 7 1/4", 6"
- Base: 3 1/2", 2 3/8" CL., 1' 2", 1' 6" MIN.
- Labels: C/L POST, ④, ⑤, ⑥, ①, ③, ②, T503 (TYP.), * T502, * T501

Plan View (Right):

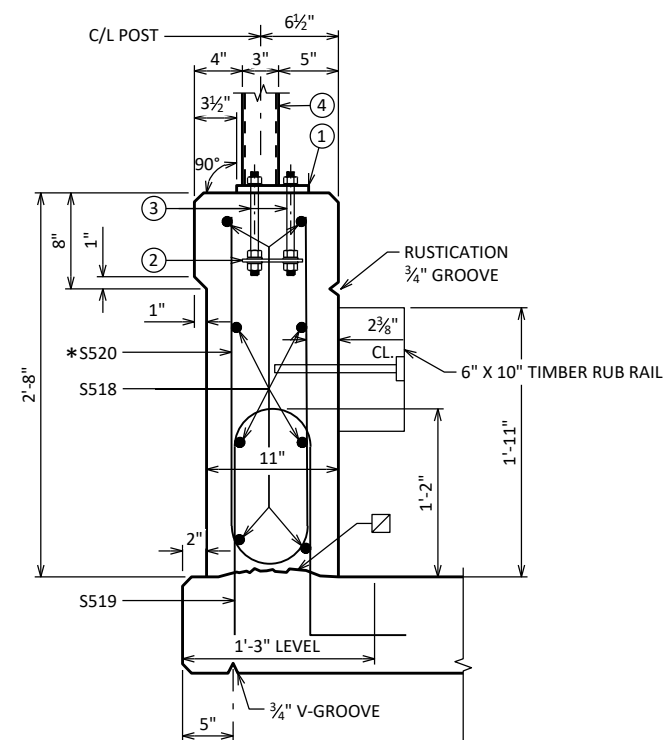
- Overall width: 2' 8"
- Post spacing: 2 SPA. @ 5'-11 1/2" POST SPACING
- Post diameter: 1 1/2" TYP.
- Post body: 4 1/4", 4 1/4", 4 1/2"
- Post cap: 2" (1' 10" x 2'-0")
- Post cap: 2'-3" (1'-0" x 1'-3")
- Post cap: CAST IRON CAP WITH 2 SET SCREWS PER POST (OR EQUAL)
- Post cap: ④
- Post body: ⑤
- Post body: C/L POST
- Post body: ⑥
- Post body: ①
- Post body: NAME PLATE, FOR LOCATION SEE "GENERAL PLAN" SHT.
- Post body: RUSTICATION ☆ 3/4" GROOVE
- Post body: T503
- Post body: 9 SPA. @ 5" = 3'-9" - T501, T502
- Post body: 10"
- Post body: 11 SPA. @ 10" MAX. = 8'-11" - T501, T502
- Post body: 9"
- Post body: 9"
- Post body: 204 SPA. @ 10" MAX. - S519, S520
- Post body: S520, S519, S554, S518

* ADJUST LOCATIONS OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING.

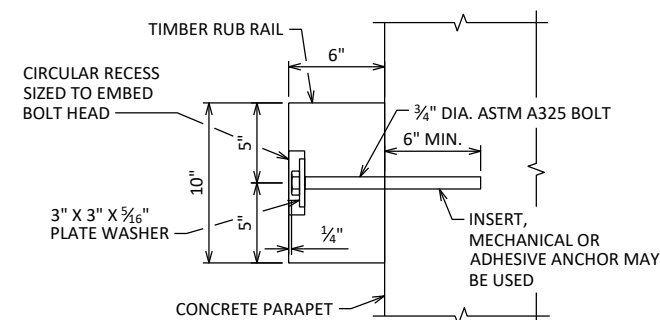
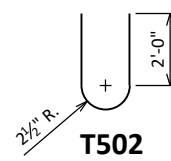
☆ END ¾" GROOVE 3" FROM NAME PLATE OR BEAM GUARD (IF NAME PLATE IS NOT PRESENT). OTHERWISE RUN TO END OF PARAPET.

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

BAR MARK	COAT	W. ABUT.	E. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
T501	X	22	22	6'-0"	X		PARAPET VERT.
T502	X	22	22	4'-9"	X		PARAPET VERT.
T503	X	8	8	13'-7"			PARAPET HORIZ.



T501



SPACE RUB RAIL ANCHORS AT 5'-0" MAXIMUM CENTERS. ADJUST ANCHORAGES TO CLEAR PARAPET REINFORCEMENT.

PROVIDE BREAK IN RUB RAIL AT PARAPET FILLER JOINTS.

HARDWARE, ANCHORS, AND INSTALLATION TO BE INCIDENTAL TO BID ITEM " TREATED LUMBER AND TIMBER".

☒ HORIZ. CONST. JOINT-STRIKE OFF AS SHOWN AND LEAVE ROUGH.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE		B-34-61	
		DRAWN BY	PLANS CK'D
		JLA	MJB
COMBINATION RAILING TYPE "3T"		SHEET 23	
		188	

LEGEND

- 1

BASE PLATE 3/8" X 6" X 10" WITH 3/4" X 1 1/2" SLOTTED HOLES FOR THR'D RODS NO. 3. WELD TO NO. 4 AS SHOWN. SLOTS PARALLEL TO LONG SIDE OF PLATE.
- 2

1/4" X 5" X 9" ANCHOR PLATE (GALVANIZED) WITH 1 1/16" DIA. HOLES FOR THR'D. RODS NO. 3.
- 3

5/8" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. ☆
- 4

STRUCTURAL TUBING 3" X 3" X 3/16" POSTS, PLACE VERTICAL. WELD TO NO. 1, AND USE 1" DIA. HOLES (FRONT AND BACK) FOR BOLT NO. 6.
- 5

STRUCTURAL TUBING 3" X 3" X 3/16" RAILS, WITH 1 1/16" DIA. HOLES (FRONT AND BACK) FOR BOLT NO. 6. BOLT TO NO. 4.
- 6

5/8" DIA. A325 SLOTTED ROUND HEAD BOLT WITH HEX NUT, 3/16" X 1 1/2" X 1 1/2" WASHER, AND LOCK WASHER.
- 9

RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. PROVIDE "SLIDING FIT".
- 10

RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.) (1'-4" @ STRIP SEAL EXP. JTS.)
- 12

1/2" DIA. STAINLESS STEEL BOLT WITH NUT AND LOCKWASHER.
- ☆

ALTERNATIVE ANCHORAGE: 4 EQUIVALENT STAINLESS STEEL CONCRETE ADHESIVE ANCHORS 5/8"-INCH. EMBED 7" IN CONCRETE. ADHESIVE ANCHORS SHALL CONFORM TO SECTIONS 502.2.12 AND 502.3.14 OF THE STANDARD SPECIFICATIONS.

RAILING NOTES

BID ITEM SHALL BE "RAILING STEEL TYPE 3T", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.

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

ENDS OF STRUCTURAL TUBING SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.

ALL PLATES, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.

ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.

CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.

STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATE NO. 1, WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.

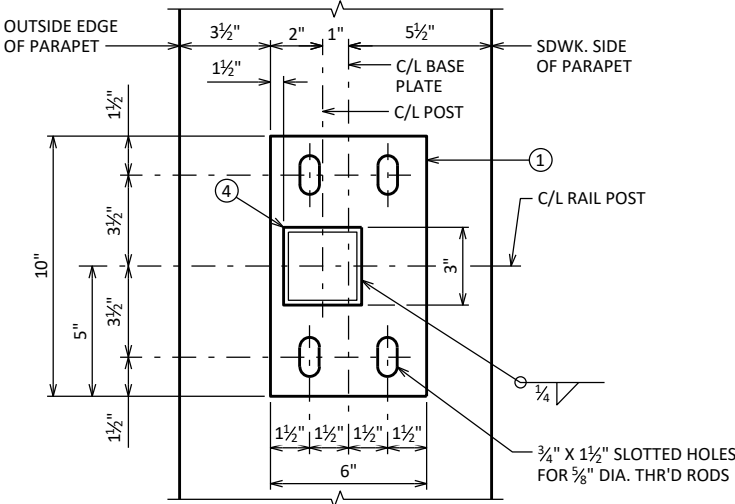
CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.

ALL JOINTS IN CONCRETE PARAPET ARE TO BE VERTICAL.

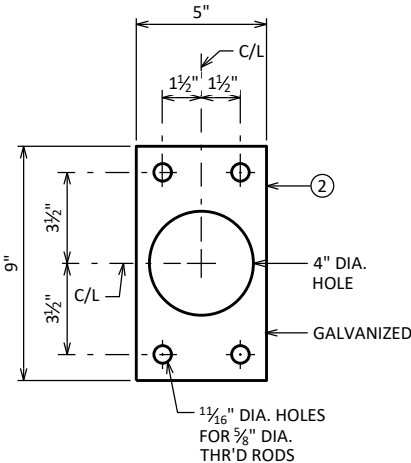
ALL MATERIAL (EXCEPT NO. 3 & 12) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS.

VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.

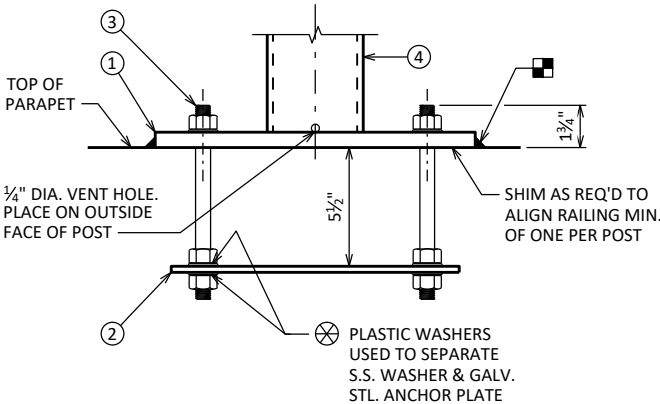
RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.



TYPICAL RAIL POST BASE PLATE

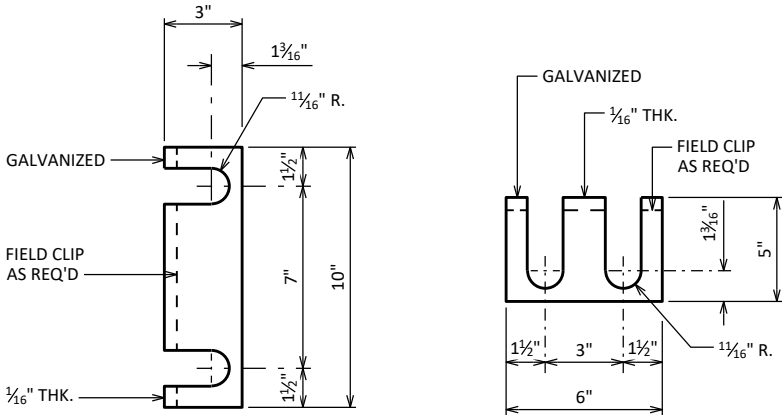


ANCHOR PLATE



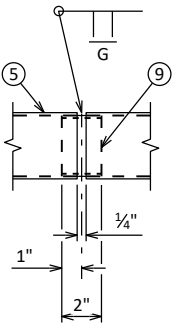
ANCHORAGE FOR RAIL POSTS

☆ NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.



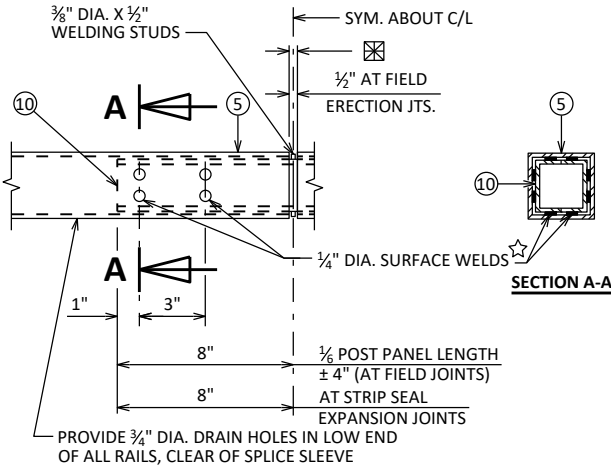
RAIL POST SHIM DETAIL

(2 SETS PER POST)



SHOP RAIL SPLICE DETAIL

(LOCATION MUST BE SHOWN ON SHOP DRAWINGS)



FIELD ERECTION JOINT DETAIL

☆ MIN. 3/8" FLAT SURFACE DIA. PUNCHINGS OR STUDS MAY BE USED AS AN ALTERNATE.

RDWY. OPENING OR 2 1/2" MIN. FOR STRIP SEAL EXP. JOINT AND 1/2" OPENING FOR A1 ABUTMENTS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-34-61			
DRAWN BY		JLA	PLANS CK'D MJB
COMBINATION RAILING TYPE "3T" DETAILS		SHEET 24 189	

DIVISION - STAGE 1

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)					
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	EXPANDED FILL	MASS ORDNATE	SALVAGED/UNUSABLE PAVEMENT MATERIAL	
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.00	1.25	NOTE 8		
35+65.47	3565.47	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	
35+65.74	3565.74	0.27	11.39	2.67	0.00	0	0	0	0	0	0	0	0	
35+75.00	3575.00	9.26	11.35	3.36	0.00	4	1	0	4	0	0	3	1	
36+00.00	3600.00	25.00	11.22	3.30	0.00	10	3	0	14	0	0	10	4	
36+25.00	3625.00	25.00	12.48	3.24	0.53	11	3	0	25	0	0	18	7	
36+50.00	3650.00	25.00	17.25	3.19	0.90	14	3	1	39	1	1	28	10	
36+75.00	3675.00	25.00	27.15	3.13	1.56	21	3	1	60	2	3	45	13	
36+98.33	3698.33	23.33	33.55	3.16	3.05	26	3	2	86	4	5	65	16	
37+00.00	3700.00	1.67	34.13	3.16	3.07	2	0	0	88	4	5	67	16	
37+11.58	3711.58	11.58	26.94	3.17	2.90	13	1	1	101	5	6	78	17	
37+24.83	3724.83	13.25	20.89	3.20	2.58	12	2	1	113	6	8	87	19	
37+25.00	3725.00	0.17	20.84	3.20	2.59	0	0	0	113	6	8	87	19	
37+48.56	3748.56	23.56	30.33	27.36	0.00	22	13	1	135	7	9	94	32	
37+50.00	3750.00	1.44	30.21	60.42	0.00	2	2	0	137	7	9	94	34	
37+75.00	3775.00	25.00	16.24	19.60	2.24	22	37	1	159	8	10	78	71	
38+00.00	3800.00	25.00	4.81	0.00	22.84	10	9	12	169	20	25	64	80	
38+25.00	3825.00	25.00	4.02	0.00	31.84	4	0	25	173	45	56	37	80	
38+50.00	3850.00	25.00	4.00	0.00	32.10	4	0	30	177	75	94	3	80	
38+75.00	3875.00	25.00	2.82	0.00	34.39	3	0	31	180	106	133	-33	80	
39+00.00	3900.00	25.00	1.66	0.00	35.98	2	0	33	182	139	174	-72	80	
39+25.00	3925.00	25.00	1.57	0.00	41.38	1	0	36	183	175	219	-116	80	
39+50.00	3950.00	25.00	1.27	0.00	49.98	1	0	42	184	217	271	-167	80	
39+75.00	3975.00	25.00	1.00	0.00	61.19	1	0	51	185	268	335	-230	80	
40+00.00	4000.00	25.00	0.43	0.00	101.32	1	0	75	186	343	429	-323	80	
40+29.82	4029.82	29.82	0.00	0.00	0.00	0	0	56	186	399	499	-393	80	
42+00.00	4200.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	
42+25.00	4225.00	25.00	1.09	0.00	89.04	1	0	41	1	41	51	-50	0	
42+50.00	4250.00	25.00	1.84	0.00	75.20	1	0	76	2	117	146	-144	0	
42+75.00	4275.00	25.00	2.80	0.00	60.11	2	0	63	4	180	225	-221	0	
43+00.00	4300.00	25.00	2.73	6.77	27.42	3	3	41	7	221	276	-272	3	
43+25.00	4325.00	25.00	12.18	2.68	1.42	7	4	13	14	234	293	-286	7	
43+50.00	4350.00	25.00	12.39	5.23	0.00	11	4	1	25	235	294	-280	11	
43+57.96	4357.96	7.96	0.06	8.12	0.00	2	2	0	27	235	294	-280	13	

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDNATE	IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDNATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDNATE	IF MARSH AND EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDNATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION - STAGE 2

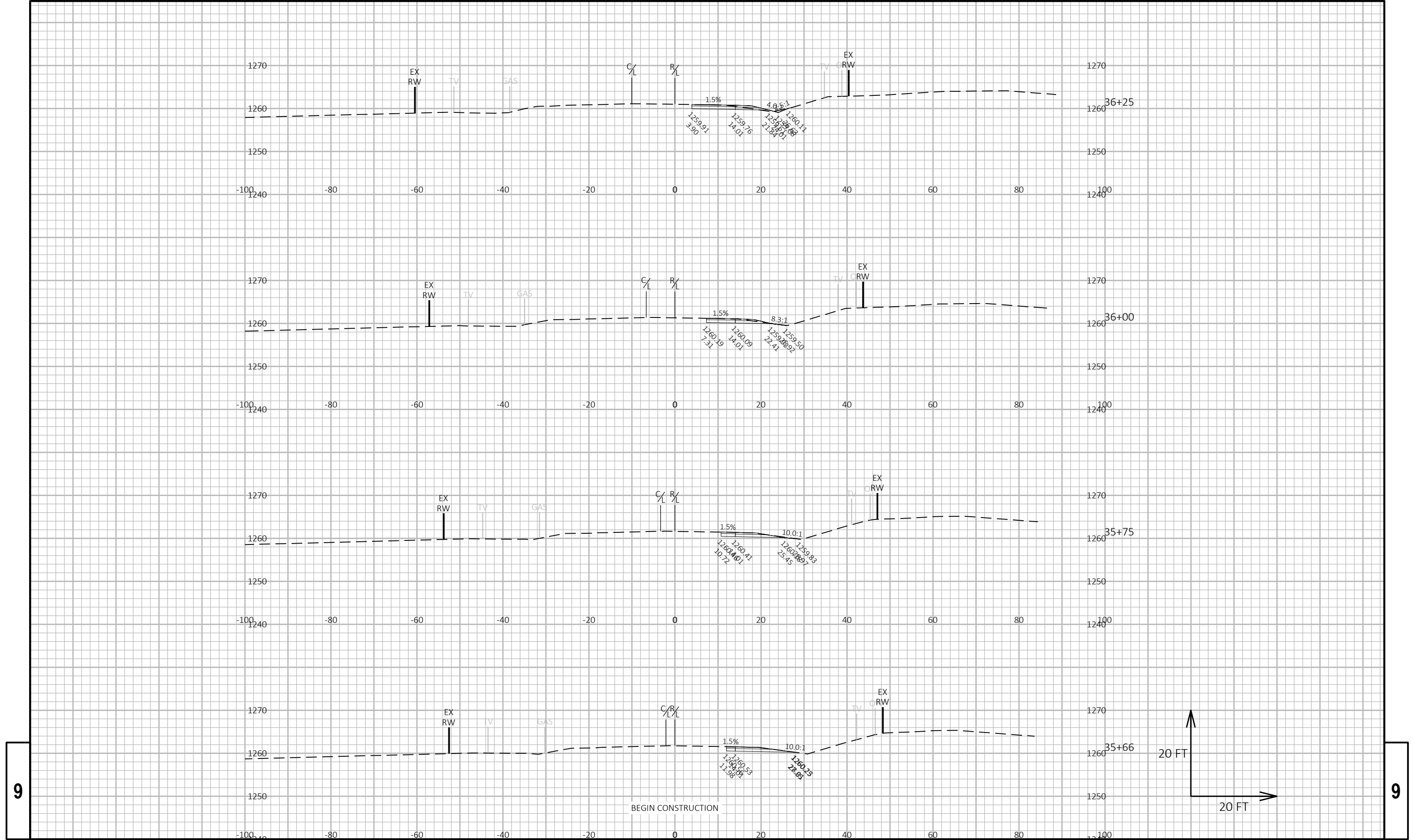
STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	EXPANDED FILL	MASS ORDINATE	SALVAGED/UNUSABLE PAVEMENT MATERIAL
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.00	1.25	NOTE 8	
337+25.00	33725.00	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0
337+46.46	33746.46	21.46	56.76	47.56	1.14	23	19	0	23	0	0	4	19
337+50.00	33750.00	3.54	56.07	47.57	2.27	7	6	0	30	0	0	5	25
337+75.00	33775.00	25.00	51.40	47.64	15.54	50	44	8	80	8	10	1	69
338+00.00	33800.00	25.00	56.05	50.98	17.93	50	46	15	130	23	29	-14	115
338+25.00	33825.00	25.00	52.05	50.95	16.06	50	47	16	180	39	49	-31	162
338+50.00	33850.00	25.00	47.71	50.92	29.26	46	47	21	226	60	75	-58	209
338+75.00	33875.00	25.00	42.06	51.01	43.33	42	47	34	268	94	118	-106	256
339+00.00	33900.00	25.00	36.25	51.17	34.09	36	47	36	304	130	163	-162	303
339+25.00	33925.00	25.00	34.83	49.46	32.72	33	47	31	337	161	201	-214	350
339+50.00	33950.00	25.00	32.45	46.10	36.35	31	44	32	368	193	241	-267	394
339+75.00	33975.00	25.00	31.69	43.81	0.24	30	42	17	398	210	263	-301	436
340+00.00	34000.00	25.00	30.93	44.06	2.26	29	41	1	427	211	264	-314	477
340+20.98	34020.98	20.98	2.42	0.00	0.22	13	17	1	440	212	265	-319	494
341+74.79	34174.79	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0
342+00.00	34200.00	25.21	45.89	32.74	40.47	21	15	19	21	19	24	-18	15
342+25.00	34225.00	25.00	48.85	35.04	29.72	44	31	32	65	51	64	-45	46
342+50.00	34250.00	25.00	54.43	39.95	6.46	48	35	17	113	68	85	-53	81
342+75.00	34275.00	25.00	65.96	44.45	0.00	56	39	3	169	71	89	-40	120
343+00.00	34300.00	25.00	68.94	47.62	0.00	62	43	0	231	71	89	-21	163
343+25.00	34325.00	25.00	62.78	48.04	0.00	61	44	0	292	71	89	-4	207
343+50.00	34350.00	25.00	72.37	53.17	0.00	63	47	0	355	71	89	12	254
343+64.09	34364.09	14.09	51.25	26.93	0.00	32	21	0	387	71	89	23	275

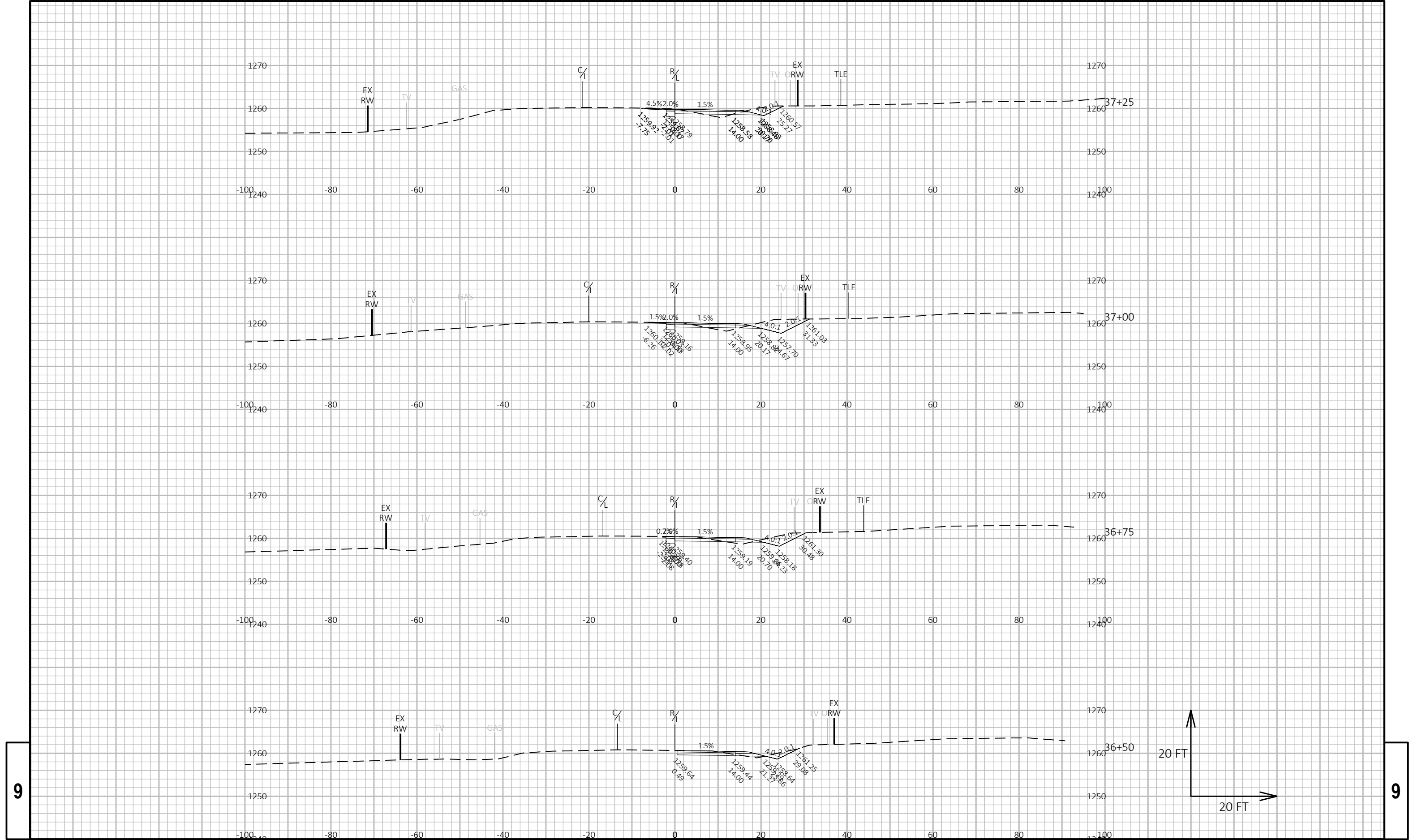
NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]

DIVISION - STAGE 3

STATION	REAL STATION	DISTANCE	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)				
			CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	EXPANDED FILL	MASS ORDINATE	SALVAGED/UNUSABLE PAVEMENT MATERIAL
						NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.00	1.00	1.25	NOTE 8
335+65.73	33565.73	0.00	39.09	3.34	0.00	0	0	0	0	0	0	0	0
335+75.00	33575.00	9.27	36.01	5.45	0.00	13	2	0	13	0	0	11	2
336+00.00	33600.00	25.00	30.34	11.25	0.00	31	8	0	44	0	0	34	10
336+25.00	33625.00	25.00	32.34	17.27	0.06	29	13	0	73	0	0	50	23
336+50.00	33650.00	25.00	35.47	24.20	4.60	31	19	2	104	2	3	60	42
336+75.00	33675.00	25.00	39.33	34.12	9.99	35	27	7	139	9	11	59	69
337+00.00	33700.00	25.00	43.28	46.07	11.96	38	37	10	177	19	24	47	106
337+25.00	33725.00	25.00	39.71	48.43	4.86	38	44	8	215	27	34	31	150
337+46.46	33746.46	21.46	44.89	37.37	0.34	34	34	2	249	29	36	29	184
337+50.00	33750.00	3.54	42.23	58.90	0.00	6	6	0	255	29	36	29	190
337+75.00	33775.00	25.00	33.69	41.04	1.26	35	46	1	290	30	38	17	236
337+80.60	33780.60	5.60	23.08	36.31	1.56	6	8	0	296	30	38	15	244
342+86.98	34286.98	0.00	6.49	7.39	0.00	0	0	0	0	0	0	0	0
343+00.00	34300.00	13.02	6.91	6.97	0.00	3	3	0	3	0	0	0	3
343+25.00	34325.00	25.00	9.88	2.71	0.00	8	4	0	11	0	0	4	7
343+50.00	34350.00	25.00	22.25	10.52	0.01	15	6	0	26	0	0	13	13
343+75.00	34375.00	25.00	33.15	18.07	0.58	26	13	0	52	0	0	26	26
343+84.49	34384.49	9.49	0.00	12.31	0.00	6	5	0	58	0	0	27	31

NOTES:	
1 - CUT	CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL
2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL	THIS DOES NOT SHOW UP IN CROSS SECTIONS
3 - FILL	DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME
8 - MASS ORDINATE	IF MARSH OR EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH COMMON OR BORROW: [(CUT - SALVAGED PAVT - EXPANDED MARSH EXC - EXPANDED EBS) - ((FILL - EXPANDED ROCK) * FILL FACTOR)]
8 - MASS ORDINATE	IF MARSH AND EBS TO BE BACKFILLED WITH GRANULAR: [CUT - SALVAGED PAVT - ((FILL - EXPANDED ROCK) * FILL FACTOR)]





PROJECT NO: 9140-12-81

HWY: STH 64

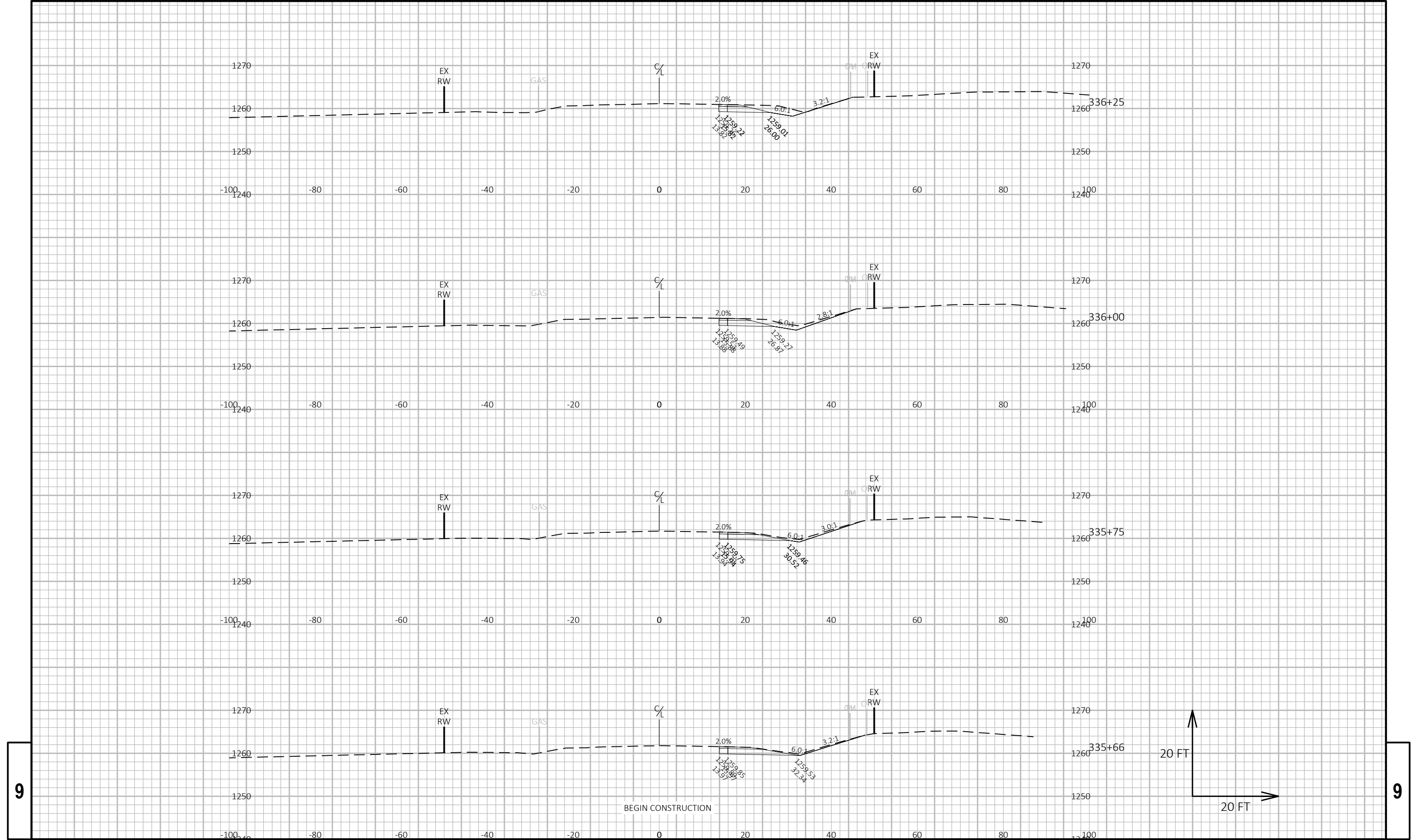
COUNTY: LANGLADE

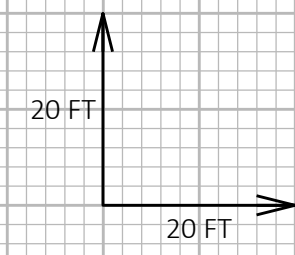
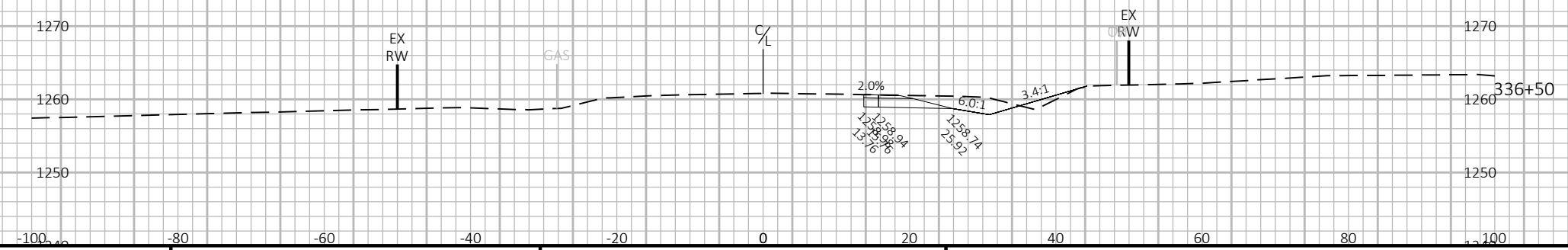
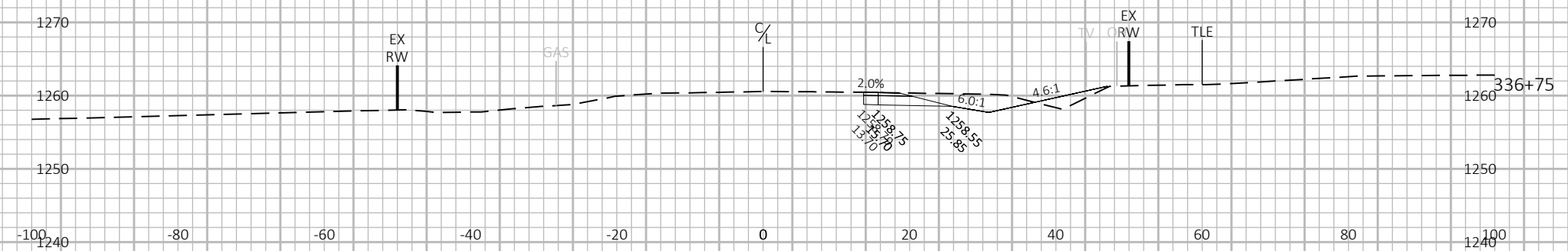
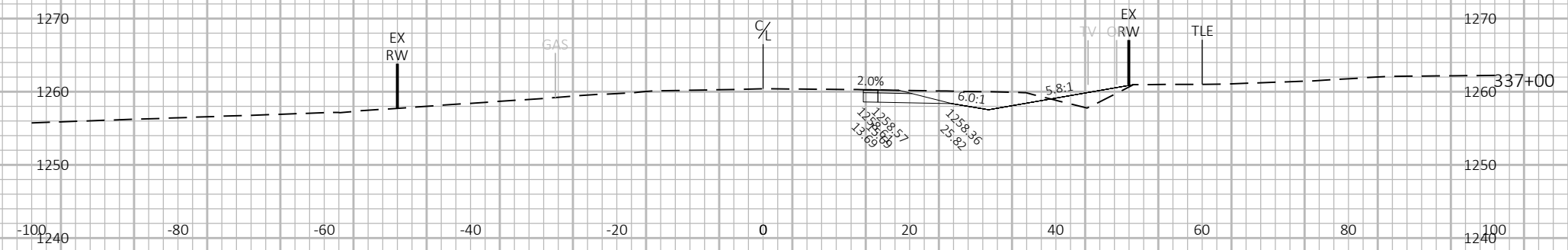
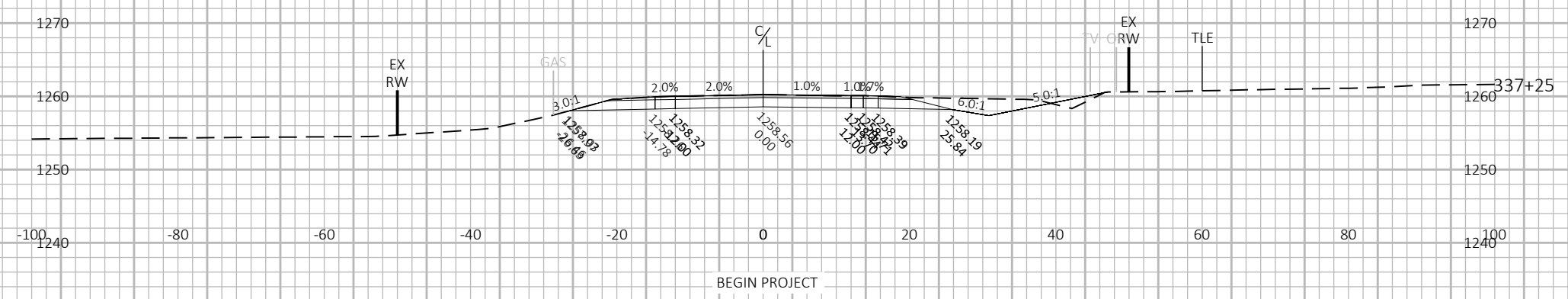
CROSS SECTIONS: TEMPORARY BYPASS OVER WOLF RIVER

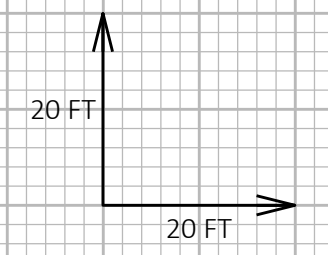
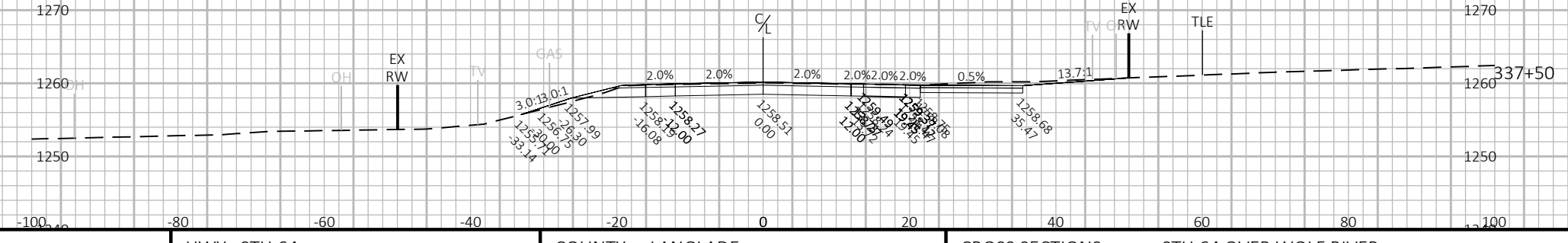
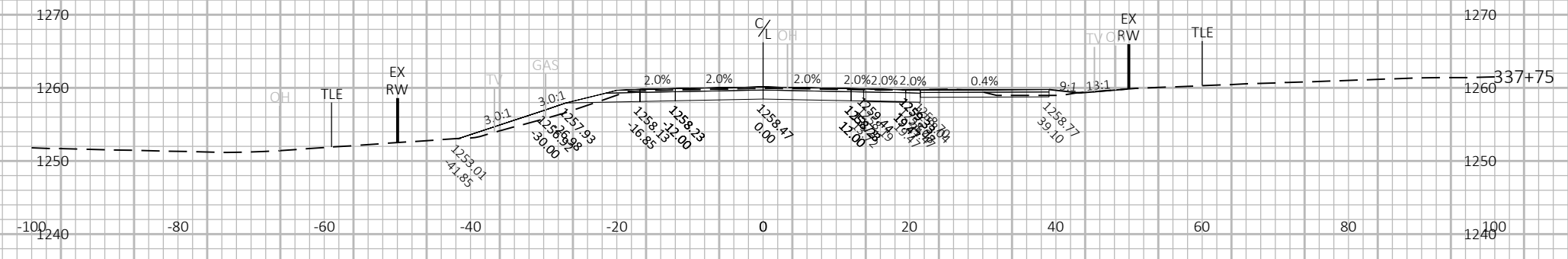
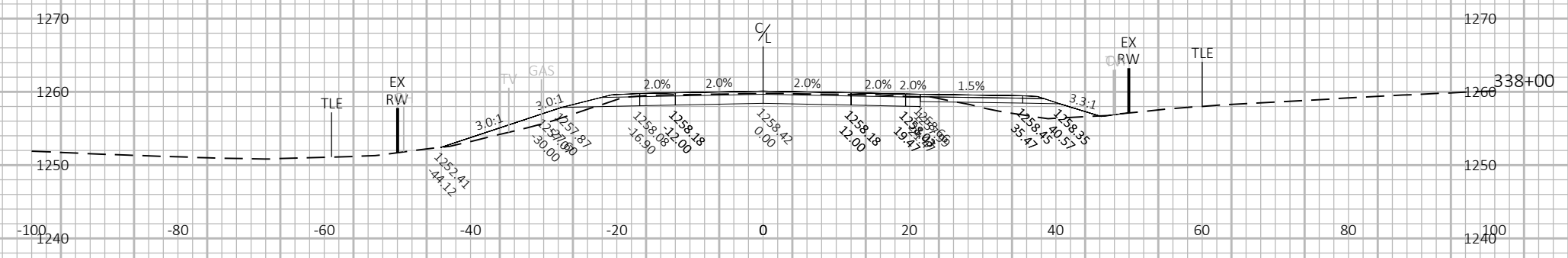
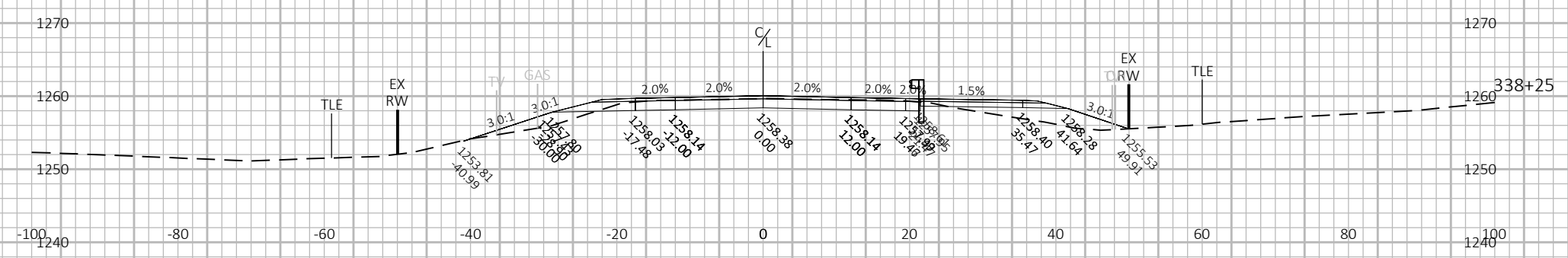
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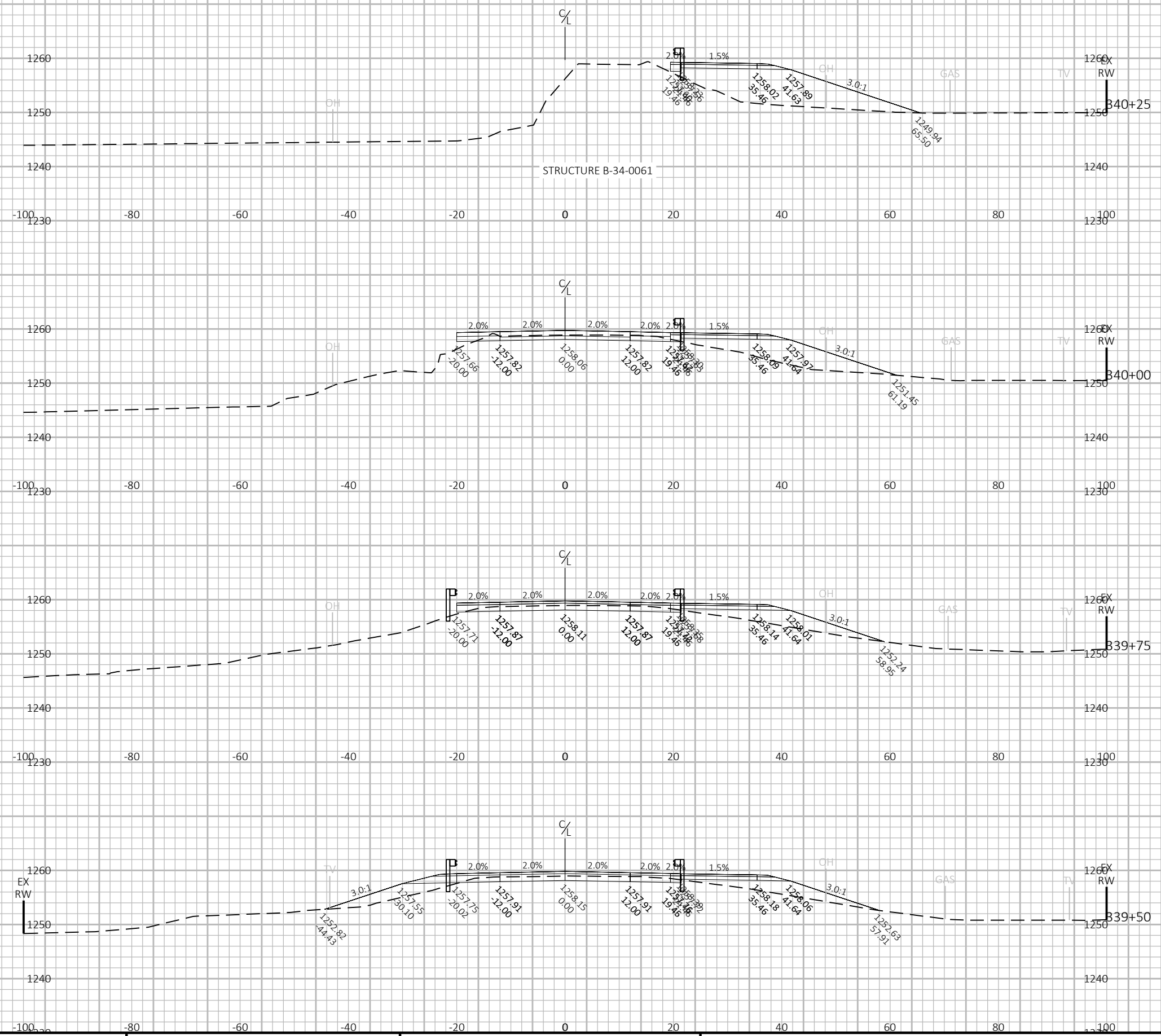
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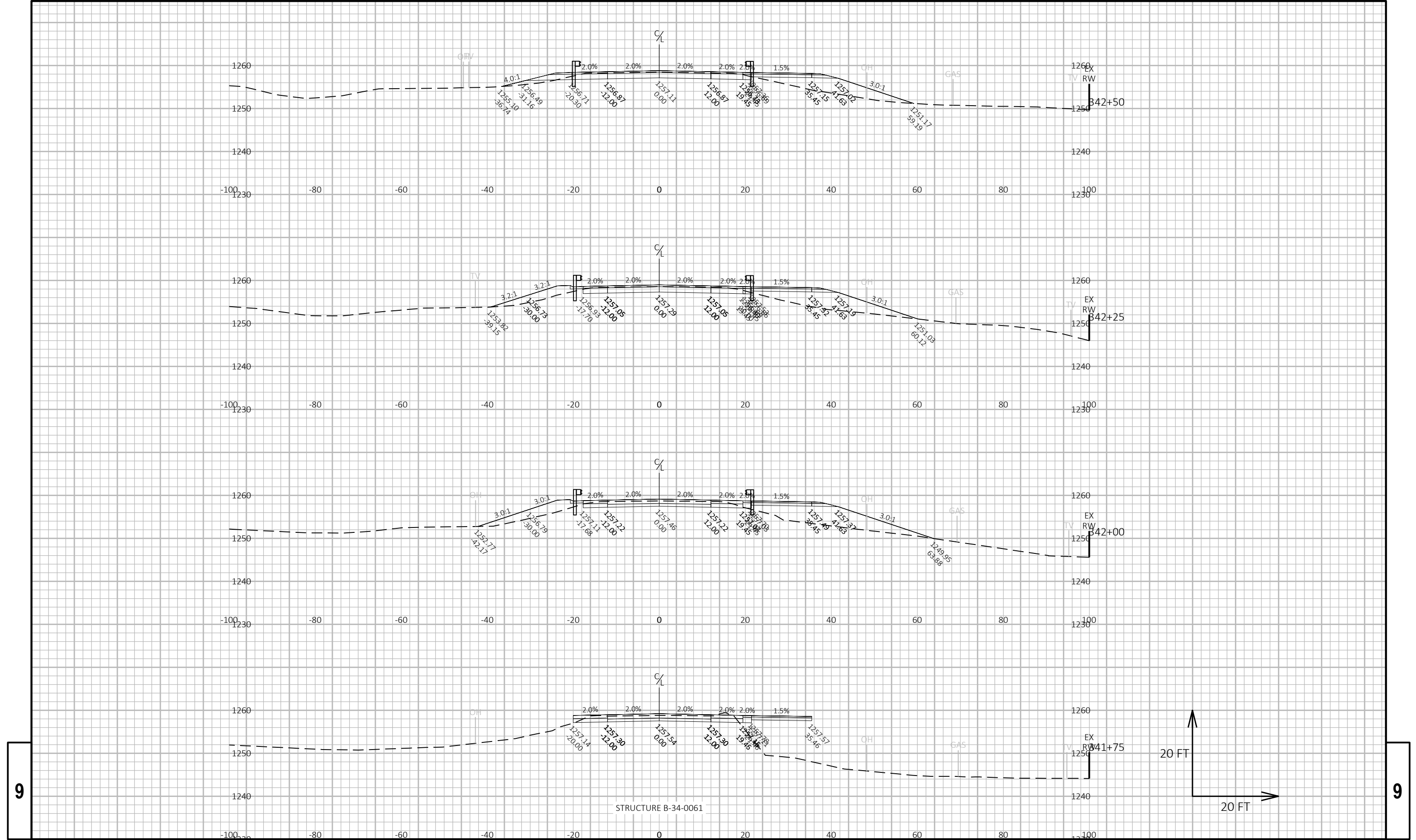


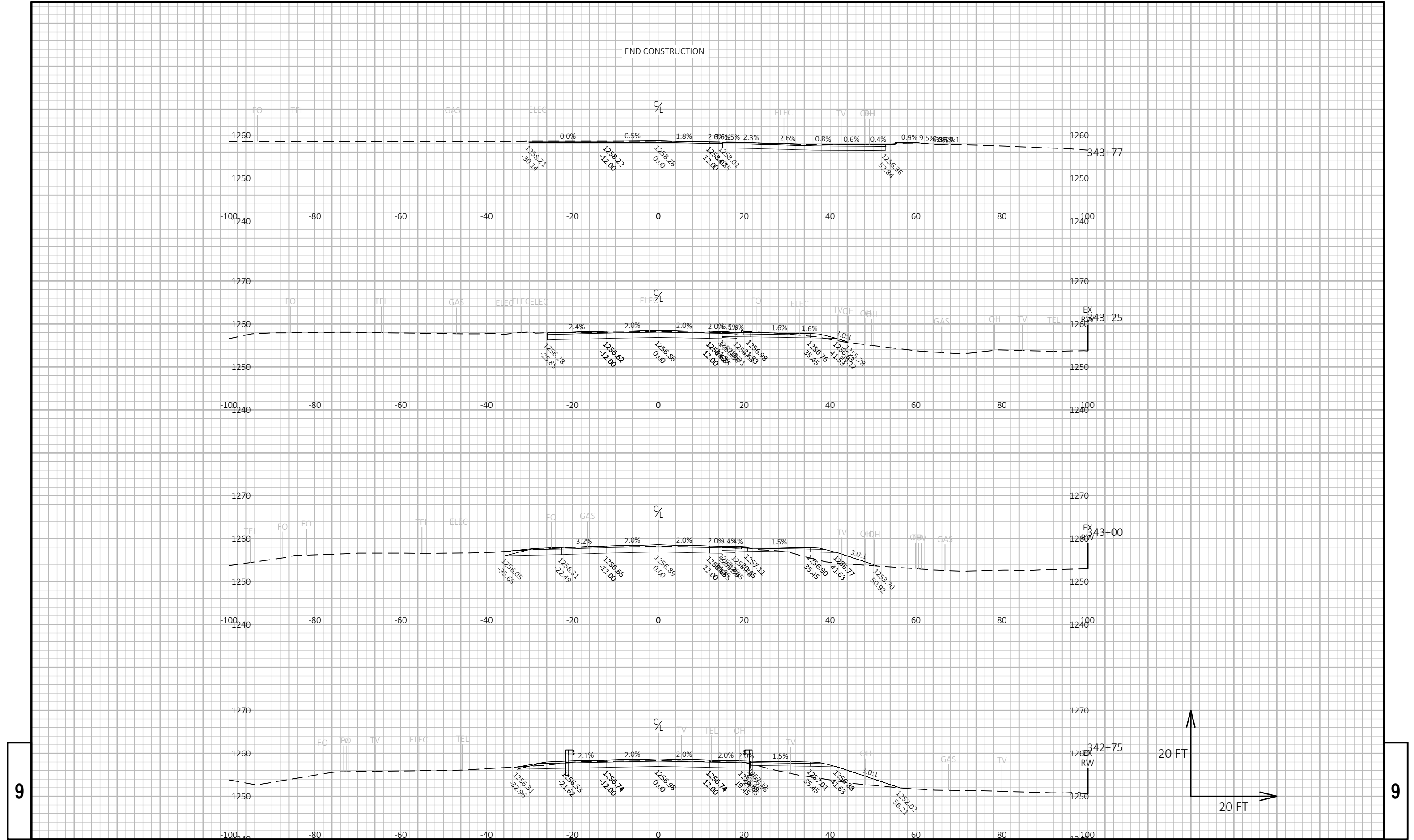




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9





PROJECT NO: 9140-12-81

HWY: STH 64

COUNTY: LANGLADE

CROSS SECTIONS: STH 64 OVER WOLF RIVER

SHEET

201

E

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LAYOUT NAME - 090209-xs

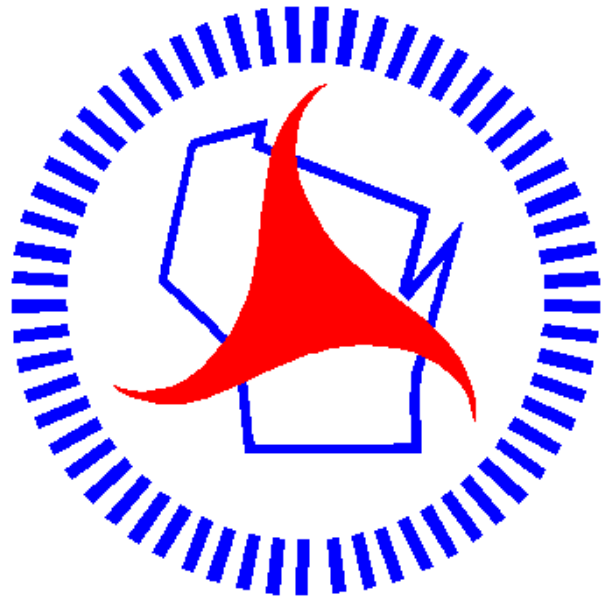
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PLOT BY : KYLA RANKIN

PLOT NAME :

PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT.

WISDOT/CADDs SHEET 49



Wisconsin Department of Transportation

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