

MAD
PROJECT ID:
WITH: N/A

1067-02-73

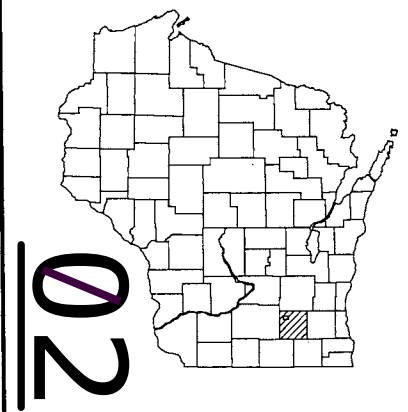
COUNTY:
JEFFERSON

DECEMBER 2023

ORDER OF SHEETS

- Section No. 1 Title
- Section No. 2 Typical Sections and Details
(Includes Erosion Control Plans)
- 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 = 316



STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT MADISON - LAKE MILLS NEWVILLE ROAD BR; ROCK LAKE ROAD BR IH 94 JEFFERSON COUNTY

STATE PROJECT NUMBER 1067-02-73

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1067-02-73	WISC 2024104	1

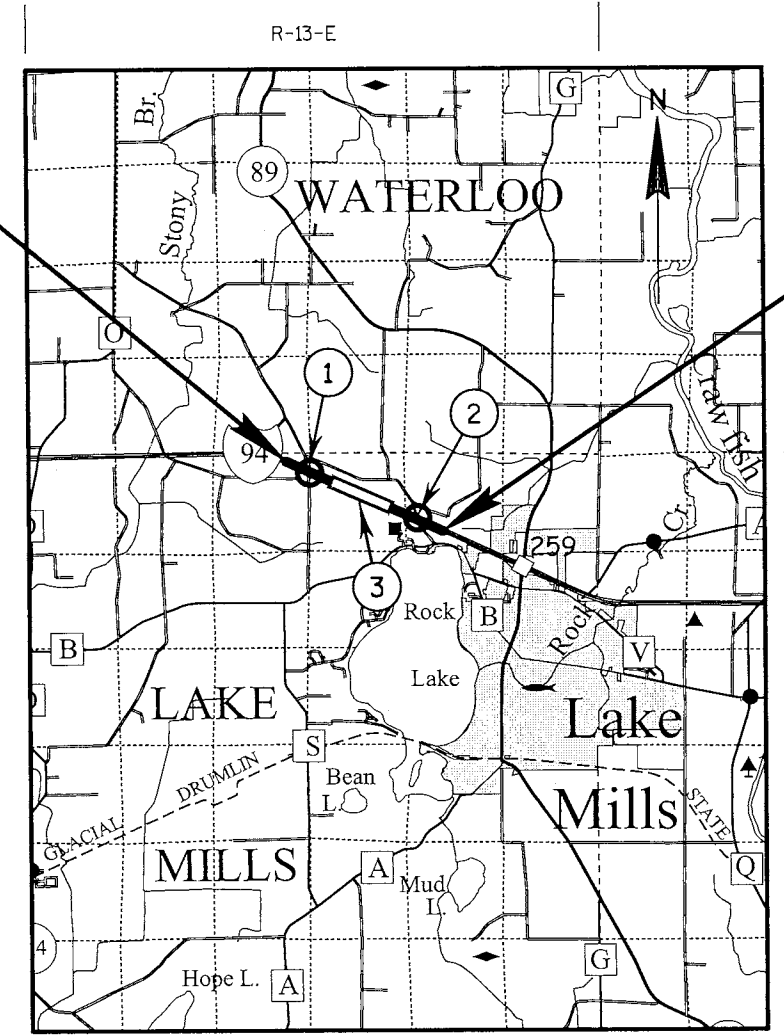
- ① STRUCTURE B-28-184
- ② STRUCTURE B-28-185
- ③ EXCEPTION TO NET CENTERLINE
LENGTH PROJECT 1067-02-73
STA 1072+00'WB' TO STA 1134+60'WB'

DESIGN DESIGNATION

	IH 94	NEWVILLE ROAD	ROCK LAKE ROAD
A.A.D.T. 2021	= 43300	230	590
A.A.D.T. 2041	= 51200	250	650
D.H.V. 2041	= 1445	16	27
D.D.	= 58/42	60/40	60/40
T.	= 10.7%	5.0%	4.0%
DESIGN SPEED	= 70 MPH	50 MPH	50 MPH
ESALS	= 12,000,000		

CONVENTIONAL SYMBOLS

<p>PLAN</p> <ul style="list-style-type: none"> 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 	<p>PROFILE</p> <ul style="list-style-type: none"> GRADE LINE ORIGINAL GROUND MARSH OR ROCK PROFILE (To be noted as such) SPECIAL DITCH GRADE ELEVATION CULVERT (Profile View) UTILITIES ELECTRIC FIBER OPTIC GAS SANITARY SEWER STORM SEWER TELEPHONE WATER UTILITY PEDESTAL POWER POLE TELEPHONE POLE
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BEGIN PROJECT
STA 1069+00.00 'WB'
Y = 596,437.065
X = 816,326.141

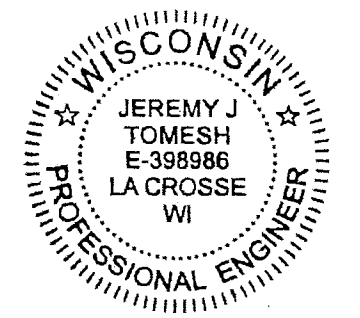
END PROJECT
STA 1137+85.00 'WB'

STATION EQUATIONS:
STA AHEAD 1069+76.82'WB' =
STA BACK 1070+25.39'WB' (+48.57')

LAYOUT
SCALE 0 2 ML.
TOTAL NET LENGTH OF CENTERLINE = 0.128 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, JEFFERSON COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCE MAY BE USED AS GROUND DISTANCES. ELEVATION SHOWN ON THIS PLAN ARE REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD (2012).

ORIGINAL PLANS PREPARED BY



7/27/2023 *Jeremy J. Tomesh*
(Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	SEH
Designer	SEH
Project Manager	JAMIE GRAINGER
Regional Examiner	SW REGION
Regional Supervisor	JUSTIN KUTSCHENREUTER

APPROVED FOR THE DEPARTMENT
DATE: 7/3/23 *Jamie Grainger*
(Signature)

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ORDER OF SHEETS - SECTION 2

GENERAL NOTES
PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
PLAN DETAILS
EROSION CONTROL PLAN
STORM SEWER
TRAFFIC CONTROL
ALIGNMENT DETAILS

UTILITY CONTACT LIST

AT&T LEGACY COMMUNICATIONS -
COMMUNICATION LINE
ATTENTION: KENNETH NINE
110 N MAIN STREET
CULVER, IN 46511
TELEPHONE: 874.842.8830
MOBILE: 874.904.6336
EMAIL: KNINE@JMCEAINC.COM

CHARTER COMMUNICATIONS -
COMMUNICATION LINE
FIELD CONTACT: RON FRASE
N3760 CTH DJ
JUNEAU, WI 53039
TELEPHONE: 920.349.3202 x103
MOBILE: 608.438.9648
EMAIL: RON.FRASE@CHARTER.COM

WE ENERGIES - ELECTRICITY
ATTENTION: ALEX DANTINNE
500 S 116TH STREET
WEST ALLIS, WI 53214
TELEPHONE: 920.621.6903
EMAIL: ALEX.DANTINNE@WE-ENERGIES.COM

ATC MANAGEMENT, INC -
ELECTRICITY
ATTENTION: CHRIS DAILEY
P.O. BOX 48
WAUKESHA, WI 53187
TELEPHONE: 262.506.6884
EMAIL: CDAILEY@ATCLLC.COM



CONSULTANT DESIGN

JEREMY TOMESH
SEH INC.
329 JAY STREET , SUITE 301
LA CROSSE, WI 54601
TELEPHONE: (608) 498-4947
EMAIL: JTOMESH@SEHINC.COM

WISDOT DESIGN

JAMIE GRAINGER, PE
WISCONSIN DEPARTMENT OF
TRANSPORTATION
2101 WRIGHT STREET
MADISON WI 53704
TELEPHONE: (608) 287-0458
EMAIL: JAMIE.GRAINGER@DOT.WI.GOV

DNR AREA LIAISON

SHELLEY NELSON
DEPARTMENT OF NATURAL RESOURCES
3911 FISH HATCHERY ROAD
FITCHBURG, WI 53711-5397
PHONE: (608) 444-2835
EMAIL: SHELLEY.NELSON@WISCONSIN.GOV

STANDARD ABBREVIATIONS

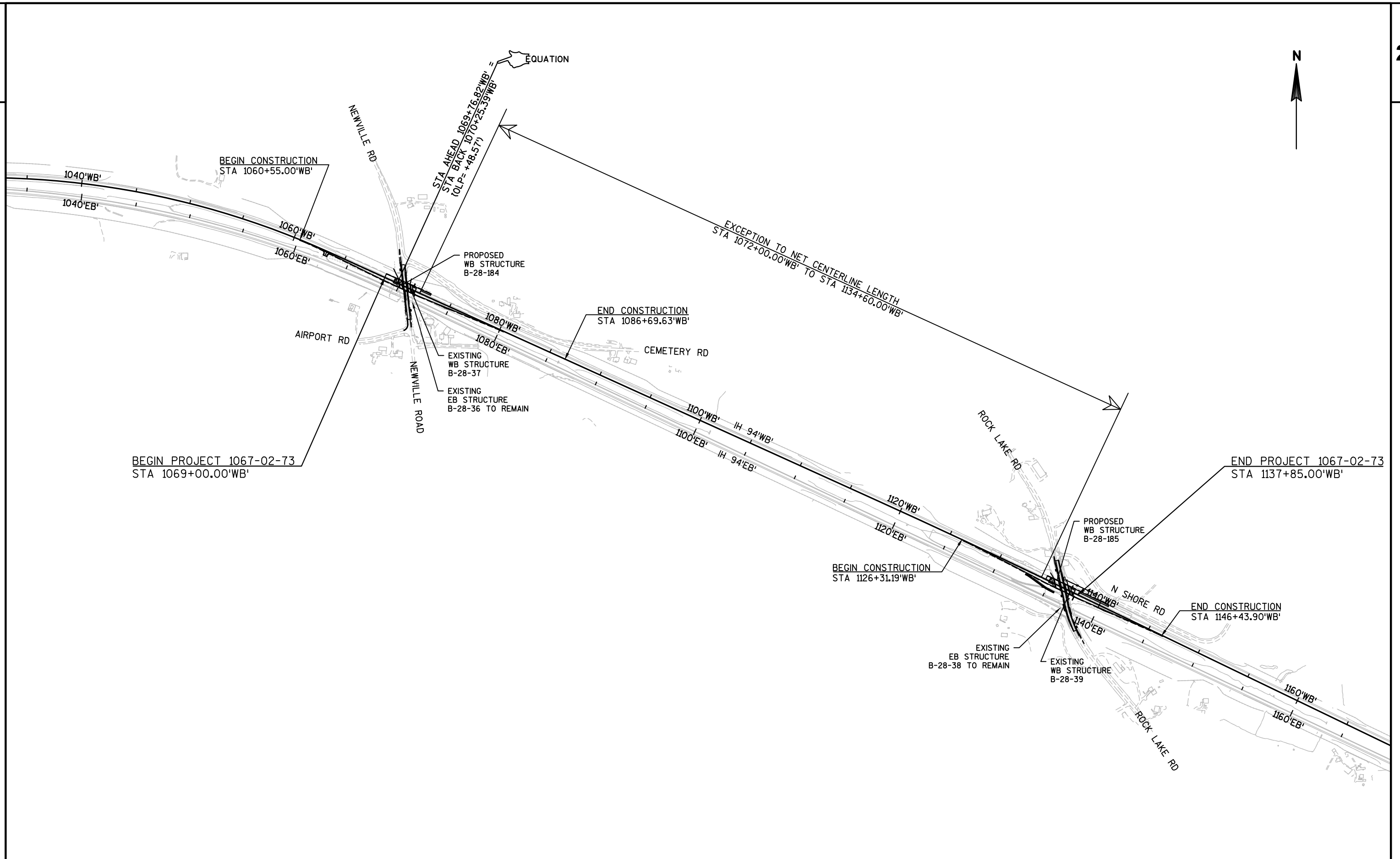
Table with 4 columns: Abbreviation, Description, Abbreviation, Description. Includes terms like ABUT, AC, AGG, AECPRC, AECPCS, ASPH, AVG, ADT, BF, BM, BR, CE, C/L OR CL, etc.

GENERAL NOTES

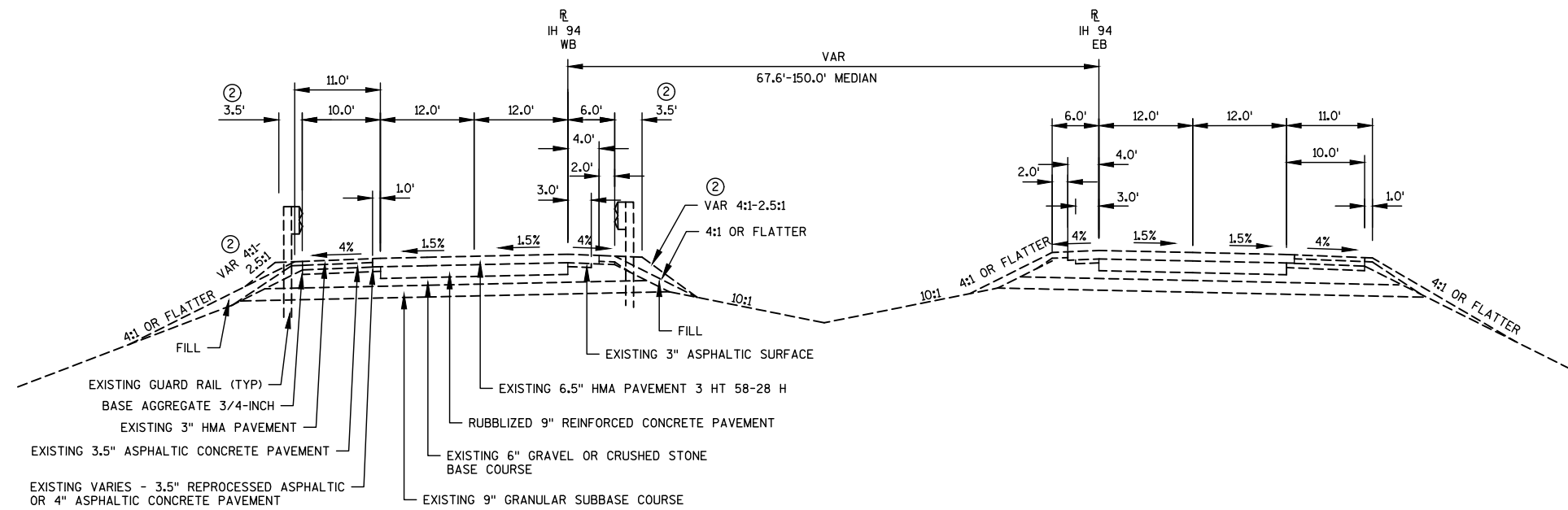
- 1. NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE.
3. THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA.
14. DO NOT APPLY FERTILIZER WITHIN 20-FT OF A WATER BODY OR WETLAND.
15. WHEN THE QUANTITY OF BASE AGGREGATE IS MEASURED FOR PAYMENT BY THE TON OR CUBIC YARD, THE DEPTH OR THICKNESS OF THE LAYER SHOWN ON THE PLANS IS APPROXIMATE AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER.

Table with 4 columns: ITEM CODE, TOTAL PAVEMENT DEPTH (INCH), LAYER DEPTH (INCH), HMA PAVEMENT ITEM. Includes rows for AP01, AP03, AP05, AP08.

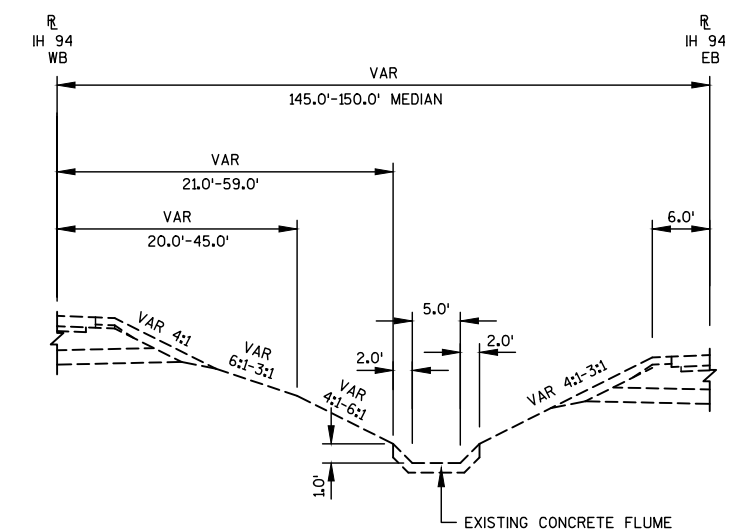
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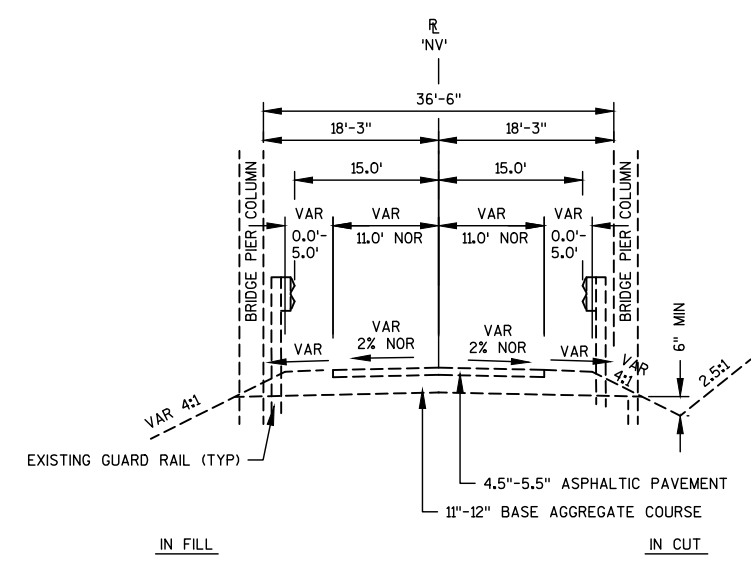
PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	PROJECT OVERVIEW	SHEET E
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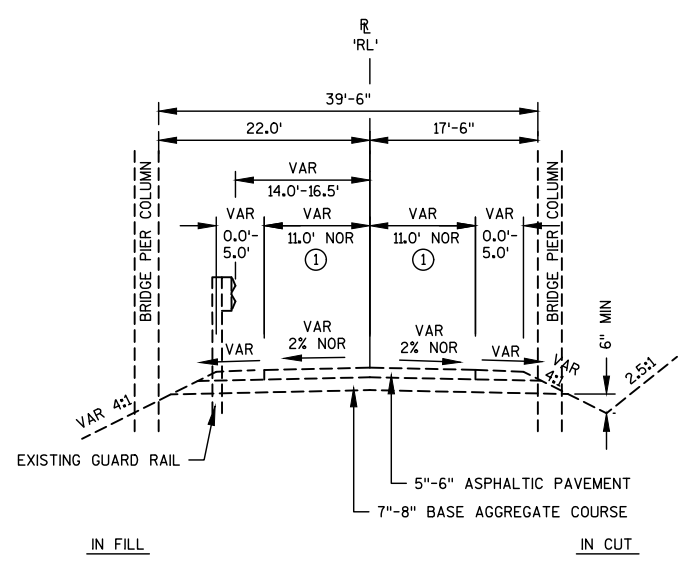
TYPICAL EXISTING SECTION
IH 94



STA 1132+86'WB' TO STA 1135+92'WB' LT



TYPICAL EXISTING SECTION
NEWVILLE ROAD



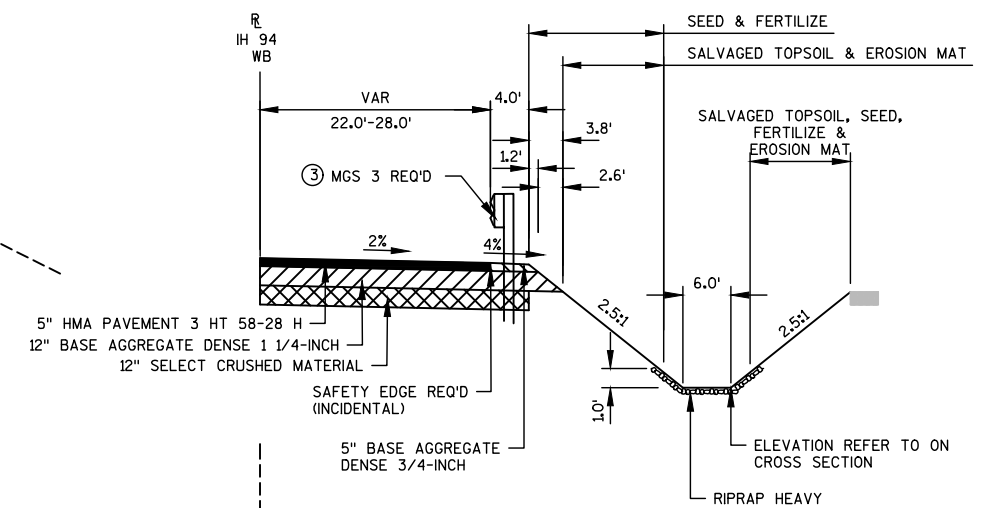
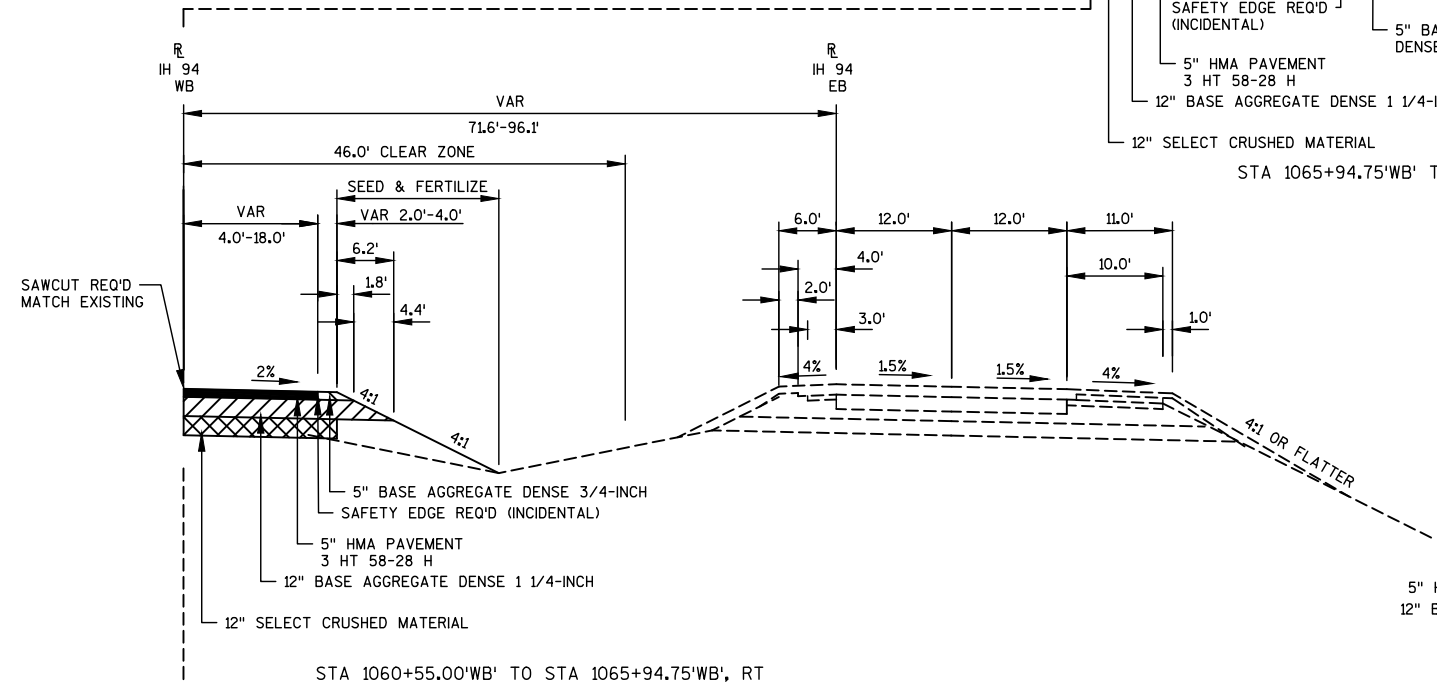
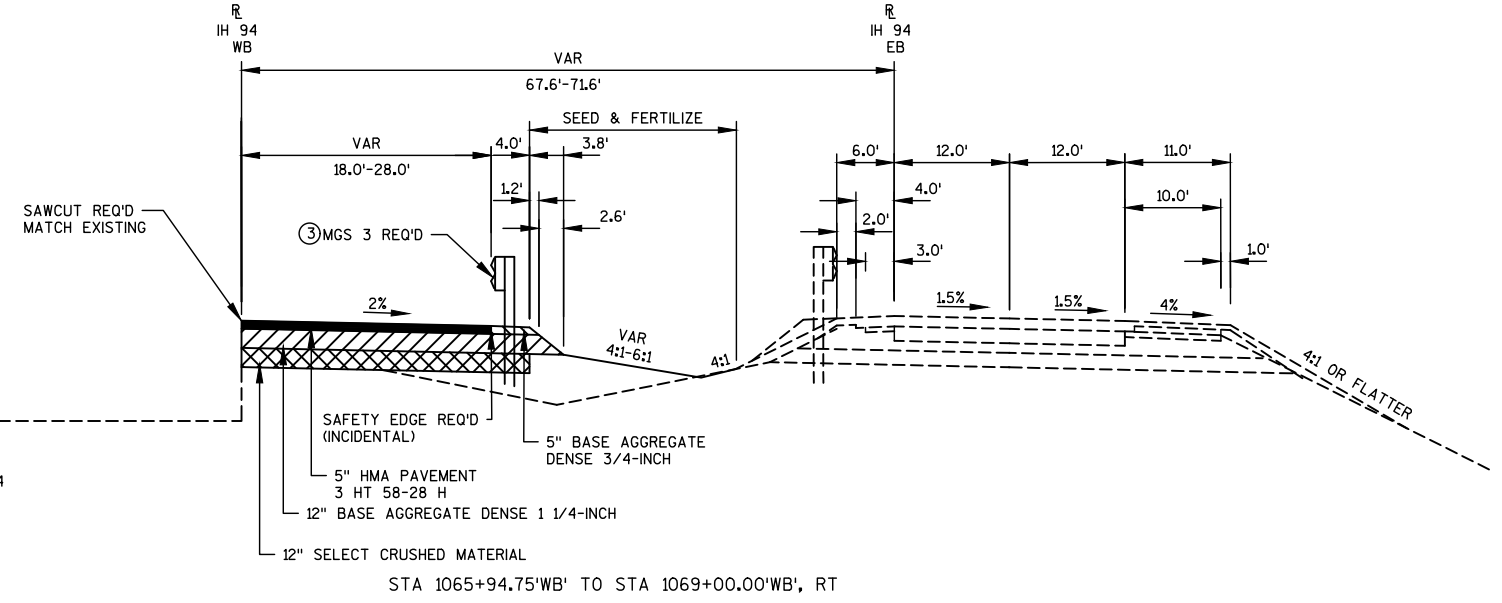
TYPICAL EXISTING SECTION
ROCK LAKE ROAD

- NOTES:
- ① ASPHALT PAVEMENT IS PAVED TO FACE OF BRIDGE PIER COLUMNS BENEATH IH 94.
 - ② DIMENSIONS AND SLOPES ARE REFERENCED TO GUARD RAIL LOCATIONS.

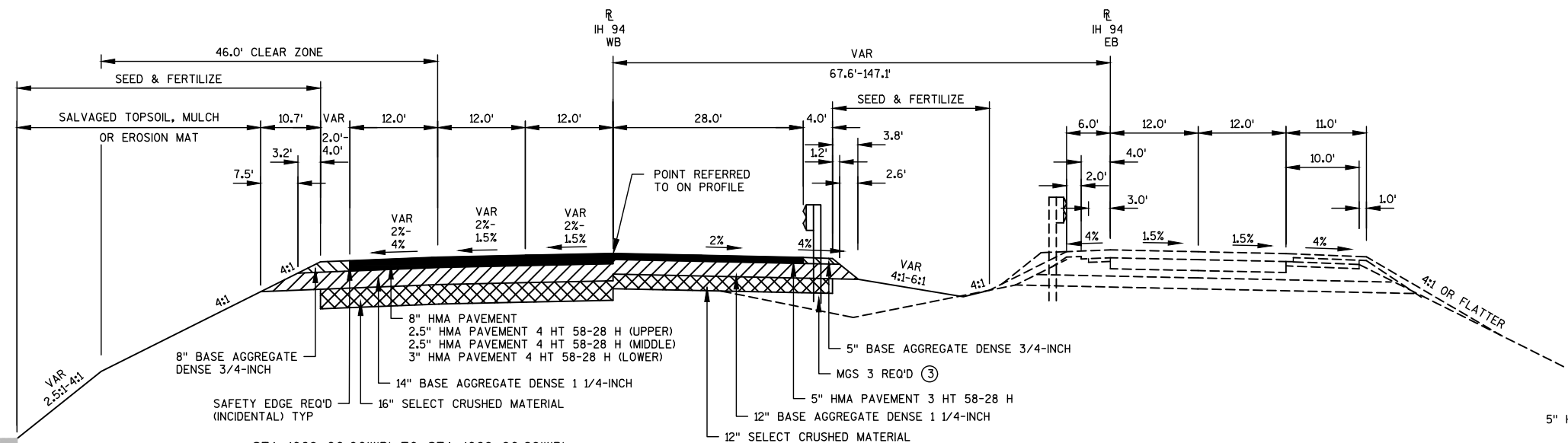
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NOTES:

- ① HMA PAVEMENT AND MGS GUARD RAIL WIDTH VARIES FROM 12.0'-10.0' FROM STA 1072+72.52'WB' TO STA 1072+97.52'WB'
- ② REFER TO SDD 'MIDWEST GUARDRAIL SYSTEM (MGS) TERMINAL FOR SHOULDER HINGE POINT LOCATIONS.
- ③ SEE PLAN SHEETS FOR MGS LOCATIONS
- ④ WIDTH VARIES 4.0'-6.0' STA 1132+50 TO STA 1132+75

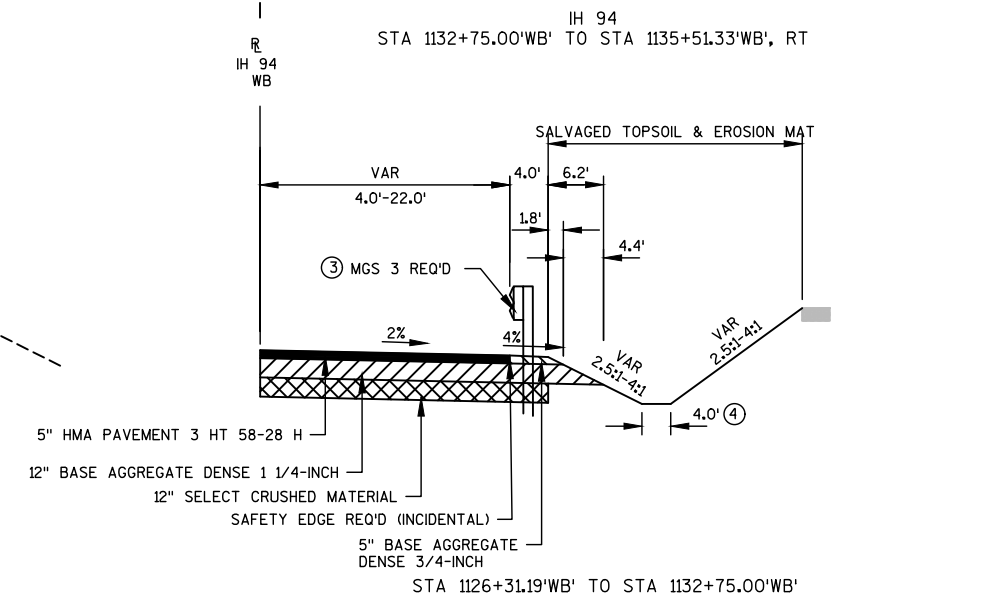


TYPICAL FINISHED SECTION-RIPRAP HEAVY FLUME

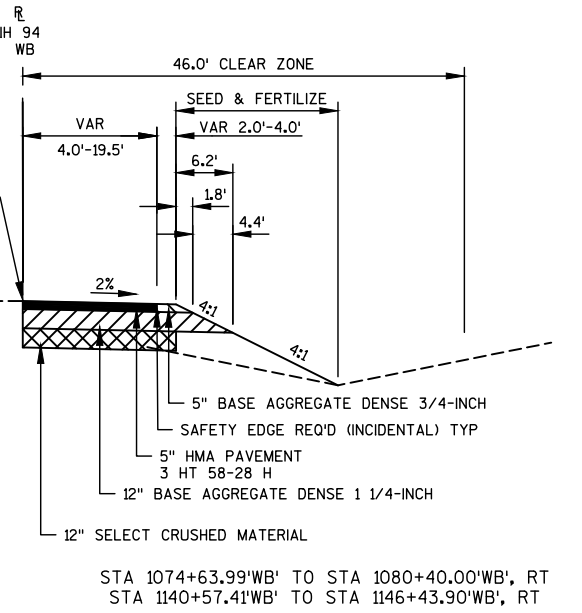
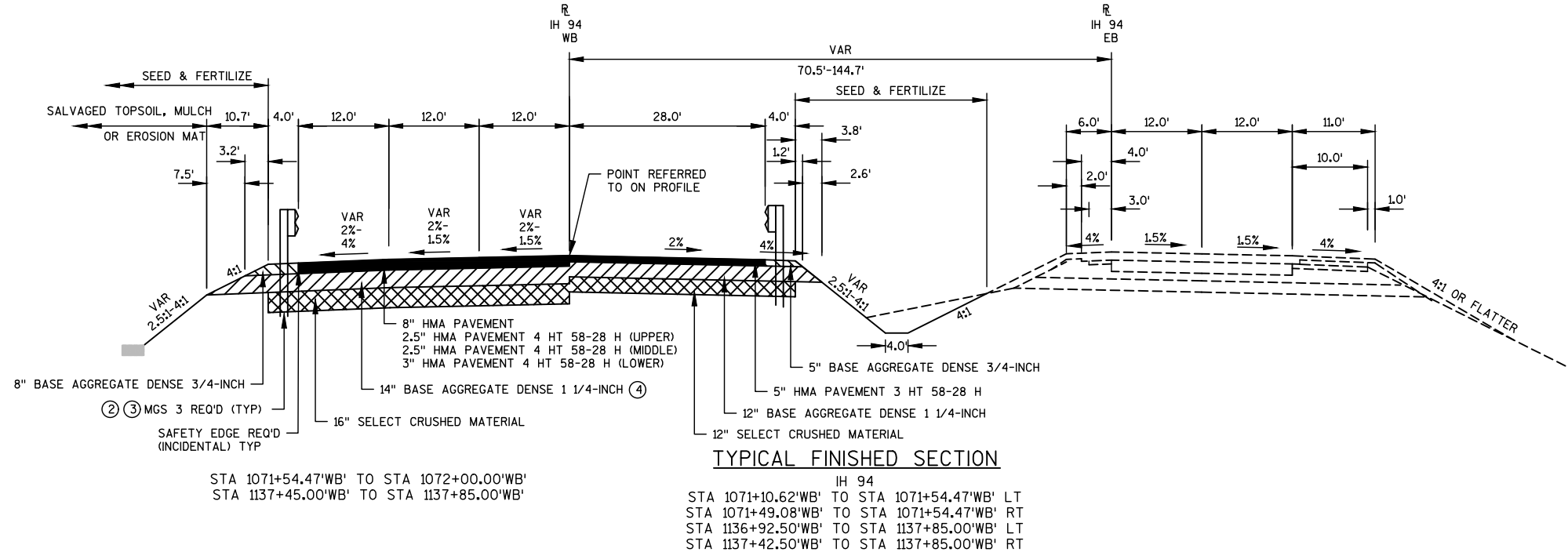
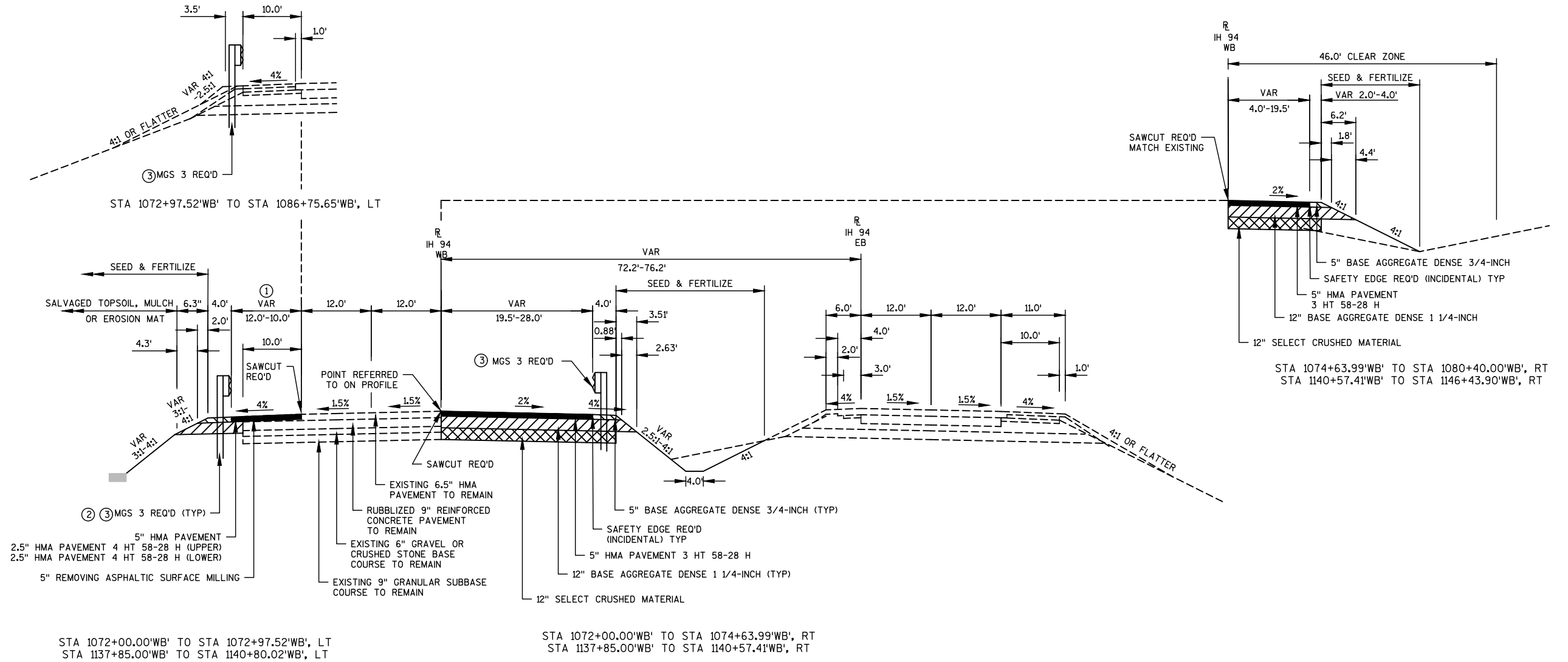


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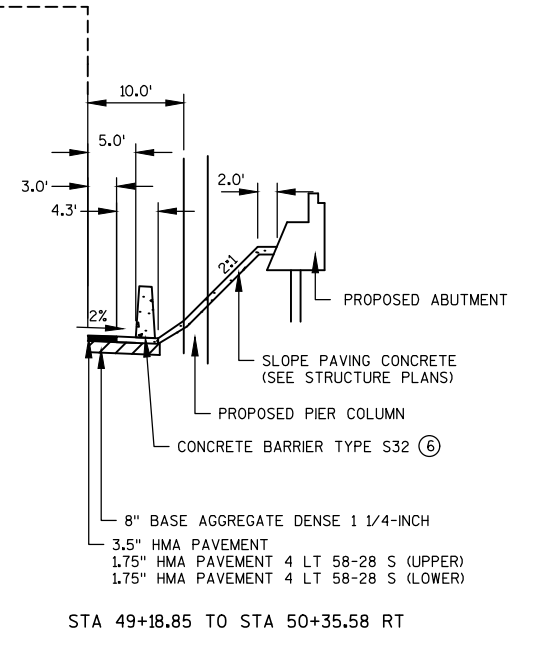
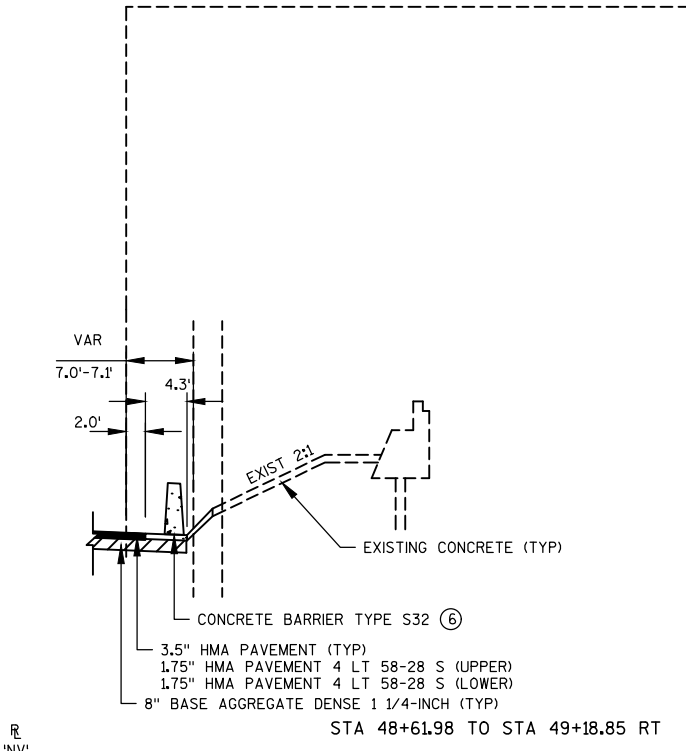
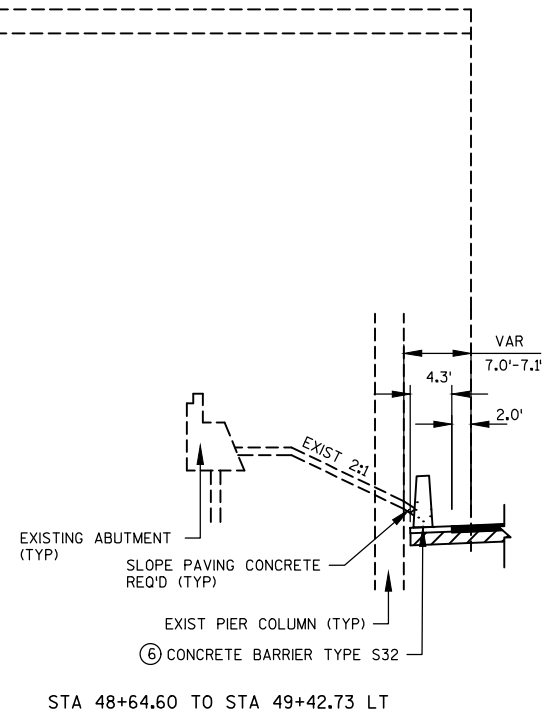
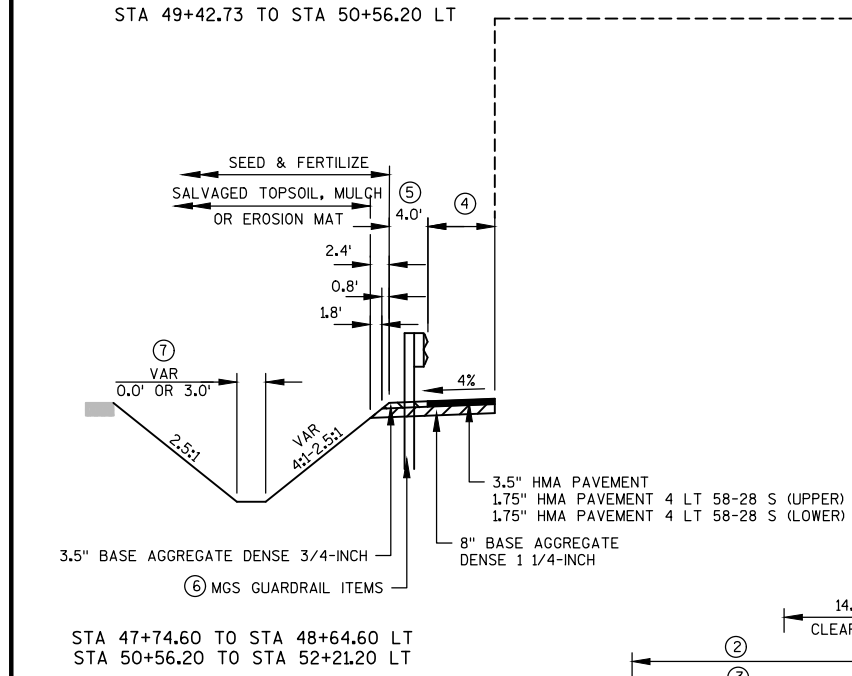
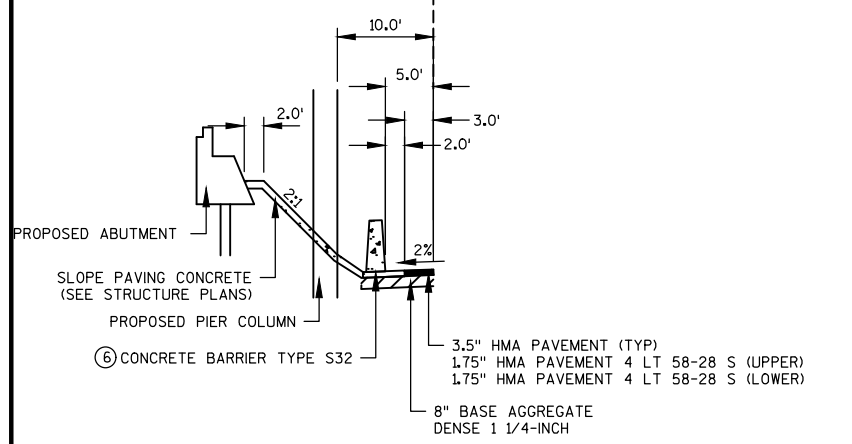
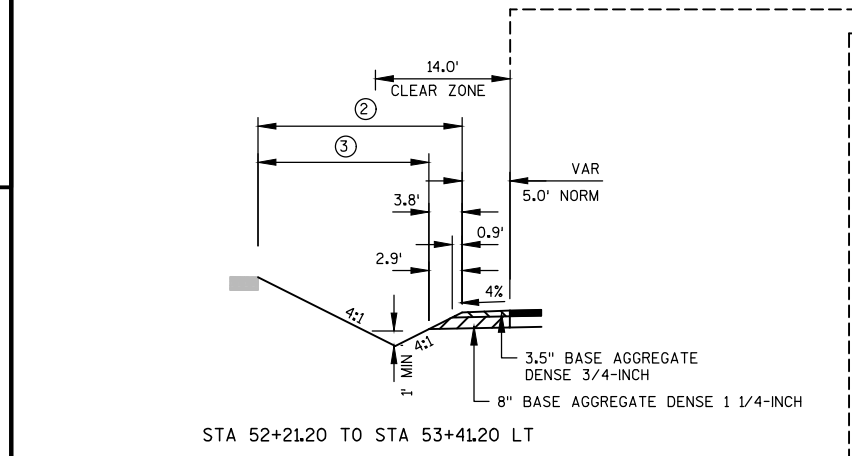
IH 94
 STA 1069+90.29'WB' TO STA 1069+99.28'WB' LT
 STA 1069+90.29'WB' TO STA 1069+89.16'WB' RT
 STA 1134+94.14'WB' TO STA 1135+01.33'WB' LT
 STA 1134+94.14'WB' TO STA 1135+51.33'WB' RT



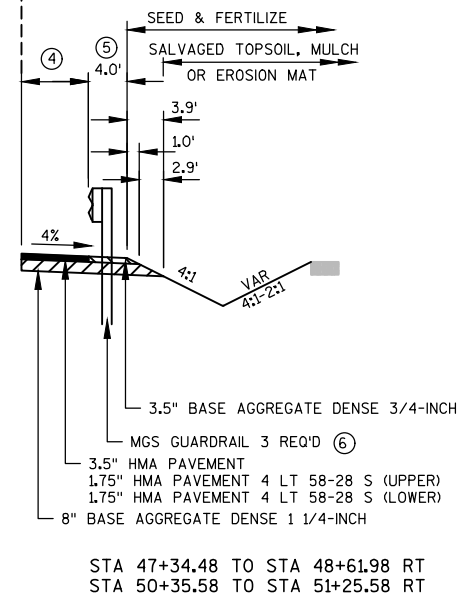
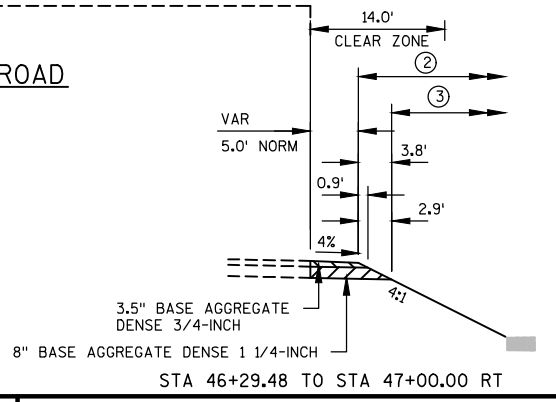
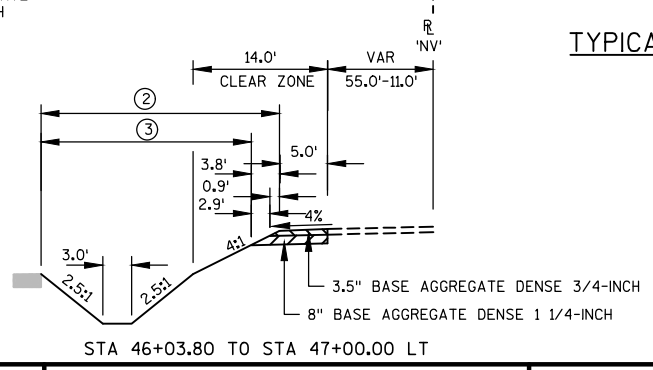
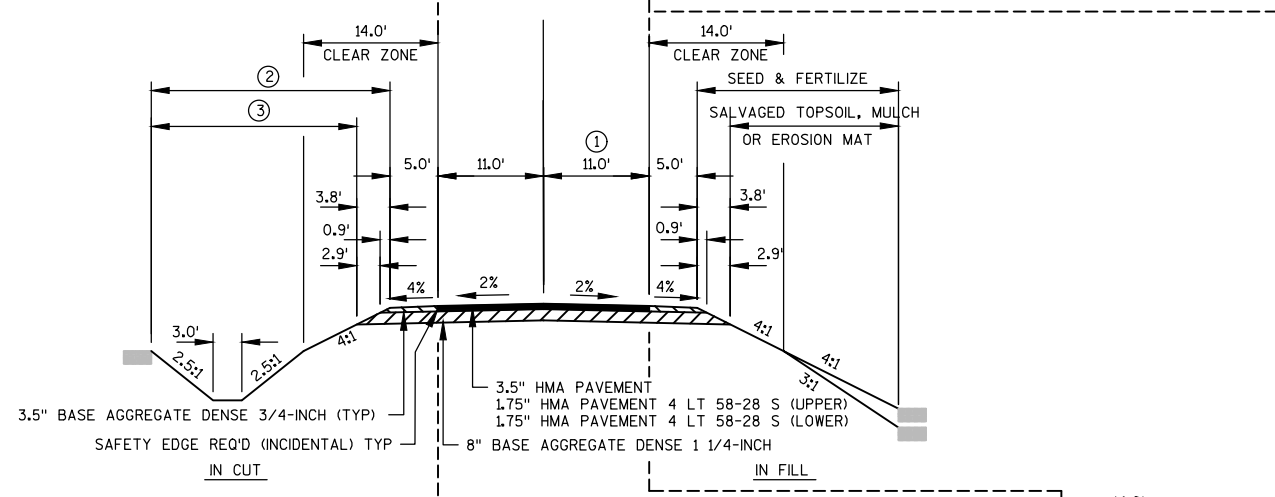
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- NOTES:
- ① HMA PAVEMENT AND MGS GUARD RAIL WIDTH VARIES FROM 12.0'-10.0' FROM STA 1072+72.52'WB' TO STA 1072+97.52'WB'
 - ② REFER TO SDD 'MDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS) FOR SHOULDER HINGE POINT LOCATIONS
 - ③ SEE PLAN SHEETS FOR MGS LOCATIONS
 - ④ BASE AGGREGATE DENSE 1 1/4-INCH VARIES IN DEPTH UNDER CONCRETE APPROACH SLABS
STAGE 1 5"
STAGE 2 10"



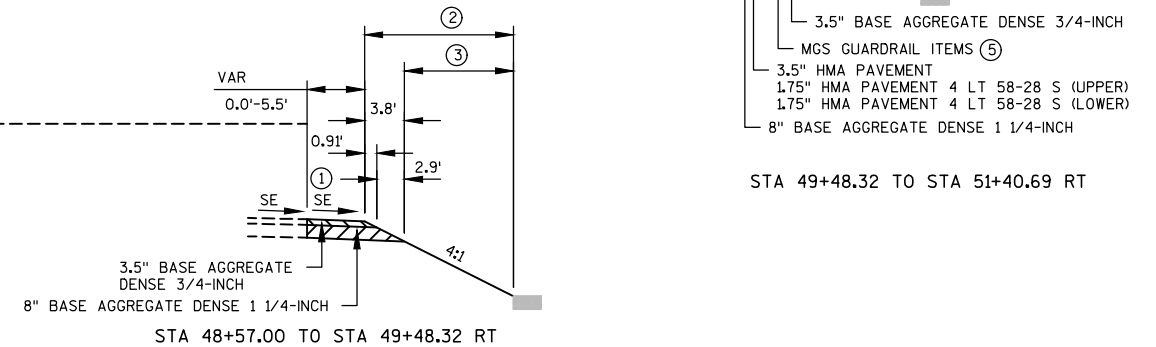
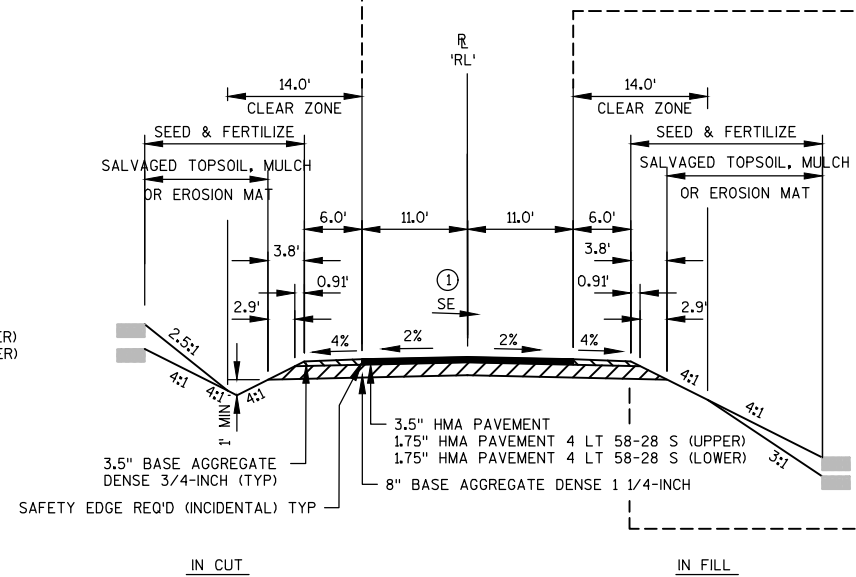
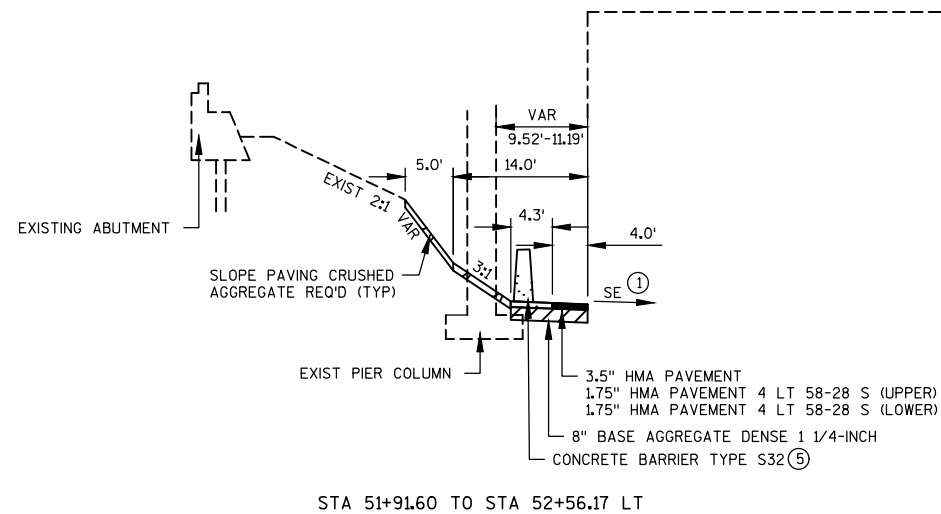
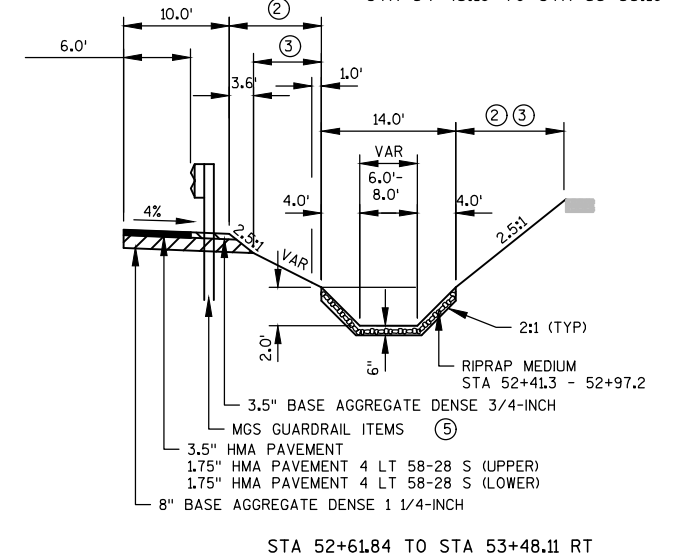
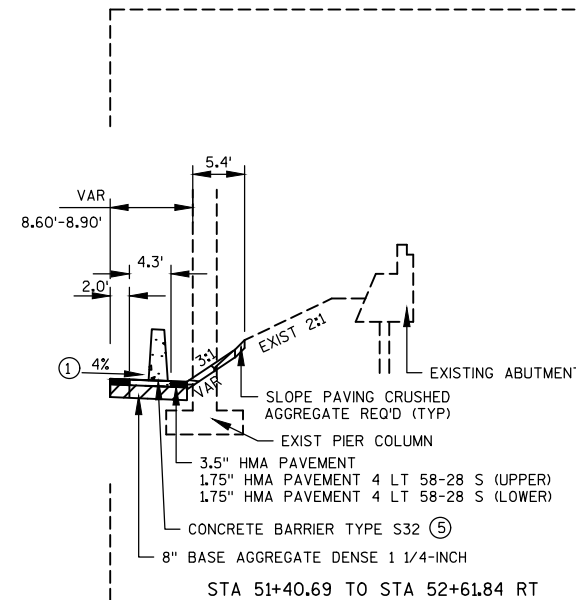
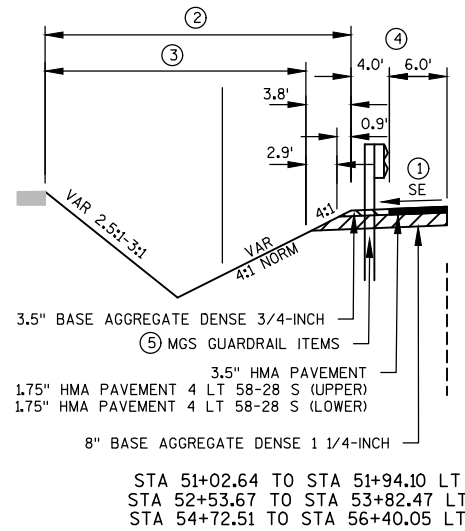
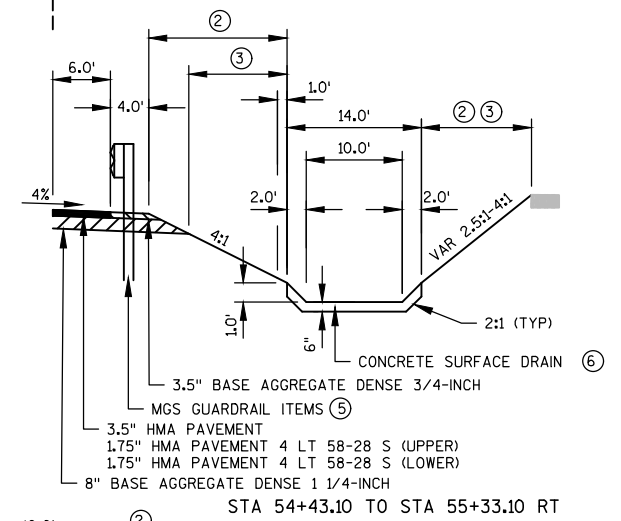
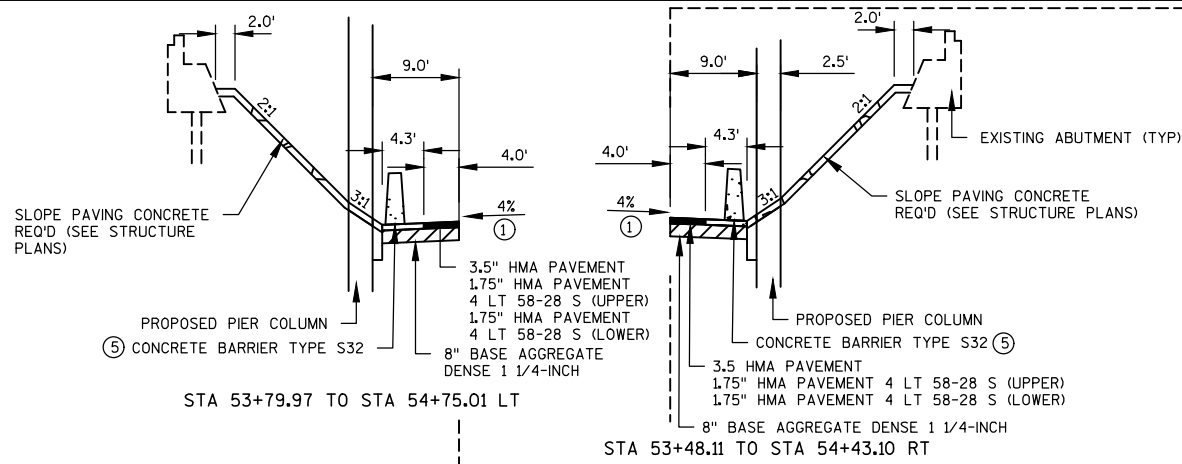
- NOTES:
- ① WIDTH VARIES 11.0'-15.0' STA 51+06.05 TO STA 51+66.05 LT
 - ② SEED AND FERTILIZE
 - ③ SALVAGED TOPSOIL, MULCH OR EROSION MAT
 - ④ WIDTH VARIES 2.0'-4.0' AT EAT LOCATIONS. WIDTH VARIES 5.0'-7.0' STA 50+56.30 TO STA 51+20.70 LT STA 50+48.80 TO STA 51+01.90 RT SEE PLAN SHEETS
 - ⑤ WIDTH VARIES SEE STANDARD DETAILS 'MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)' AND PLAN & PROFILE SHEETS FOR LOCATIONS
 - ⑥ SEE PLAN SHEETS FOR MGS ITEMS AND CONCRETE BARRIER LOCATIONS
 - ⑦ SEE CROSS SECTION FOR FLAT DITCH BOTTOM LOCATIONS

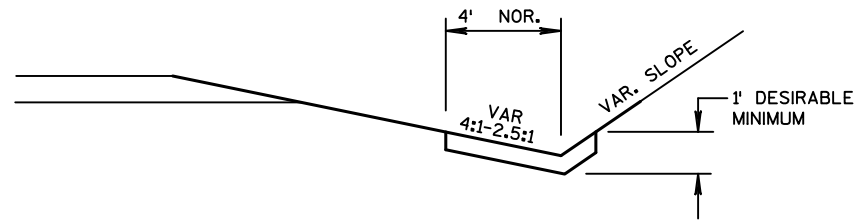


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NOTES:

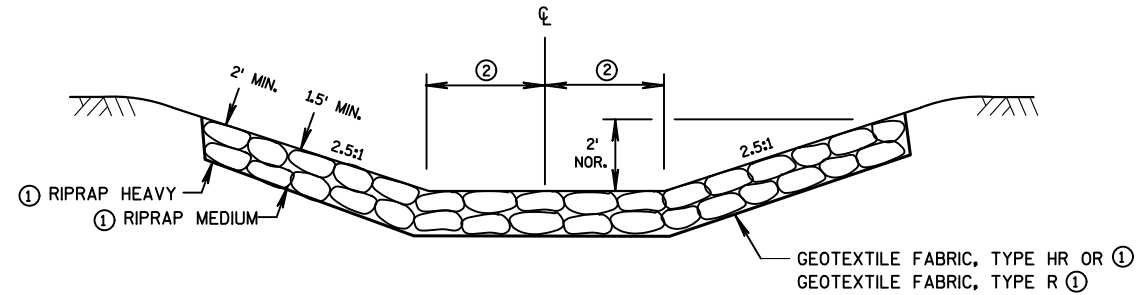
- ① SEE SUPER ELEVATION TABLES
- ② SEED AND FERTILIZE
- ③ SALVAGED TOPSOIL, MULCH OR EROSION MAT
- ④ WIDTH VARIES SEE STANDARD DETAILS 'MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)' AND PLAN & PROFILE SHEETS FOR LOCATIONS
- ⑤ SEE PLAN SHEETS FOR MGS ITEM AND CONCRETE BARRIER LOCATIONS
- ⑥ SEE PLAN SHEETS FOR CONCRETE SURFACE DRAIN LOCATIONS.





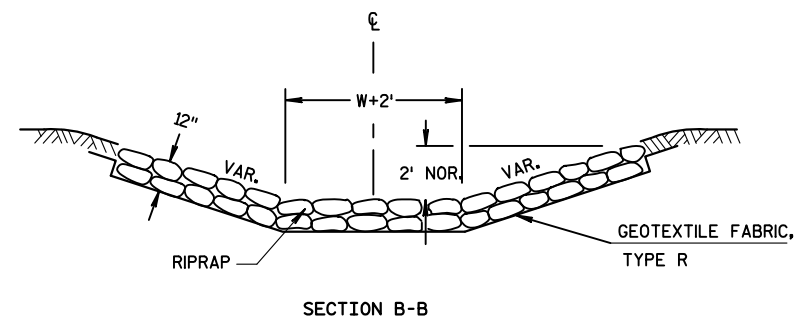
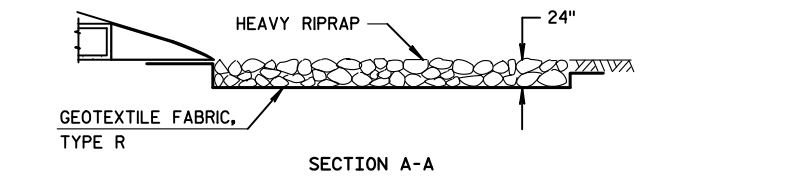
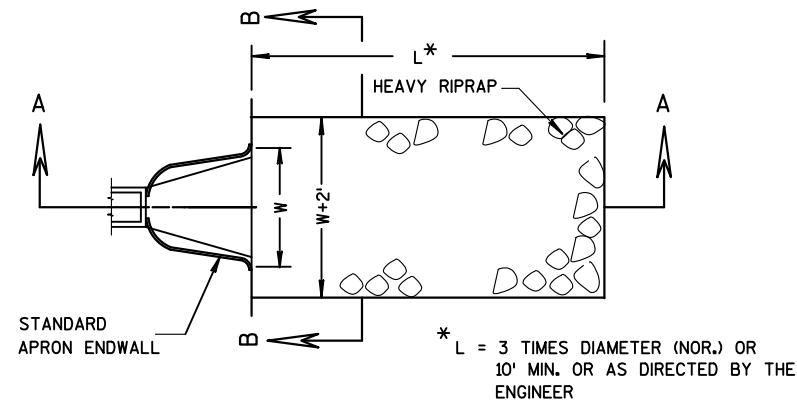
EROSION MAT DETAIL FOR DITCHES

- NOTES
- ① SEE EROSION CONTROL PLAN SHEETS FOR LOCATION OF EROSION CONTROL ITEMS.
 - ② SEE PLAN AND PROFILE SHEETS FOR WIDTHS OF SPECIAL DITCH WITH RIPRAP.



DETAIL FOR SPECIAL DITCH WITH RIPRAP AND GEOTEXTILE FABRIC

IH 94
 STA 1132+75'WB' TO STA 1135+80'WB'
 NEWVILLE ROAD
 STA 48+58'NV' TO STA 48+50'NV' (LT)
 STA 51+30'NV'
 ROCK LAKE ROAD
 STA 53+25'RL' TO STA 53+90'RL' (LT)
 STA 52+41'RL' TO STA 52+97'RL' (RT)

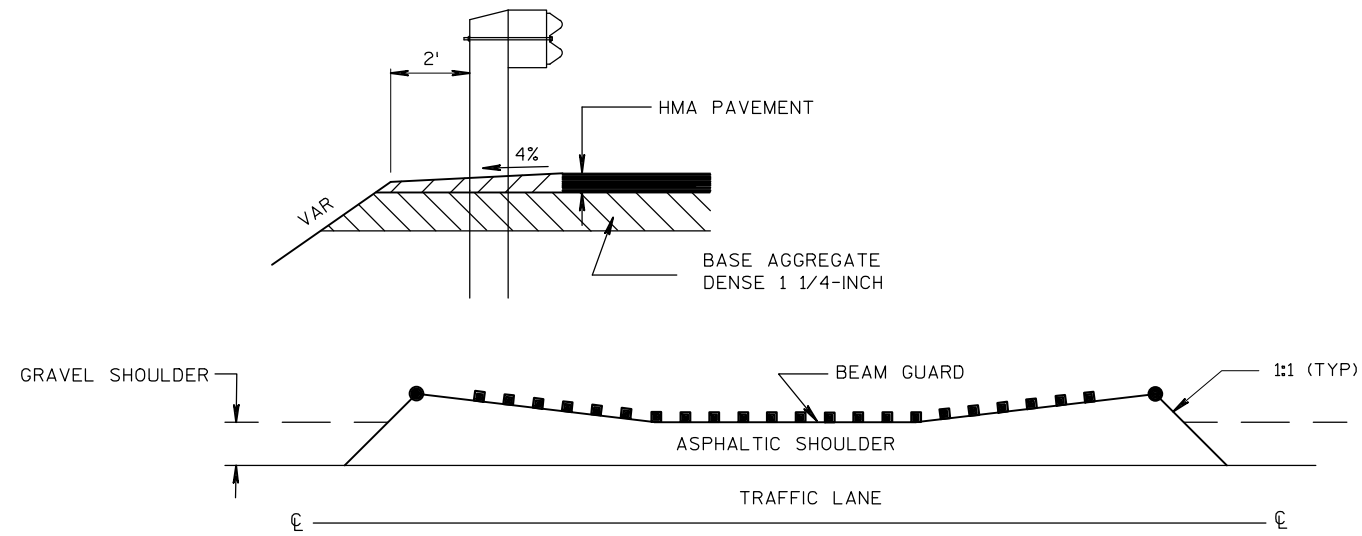


HEAVY RIPRAP AND GEOTEXTILE FABRIC DETAIL
 AT APRON ENDWALLS

RUNOFF COEFFICIENT TABLE

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

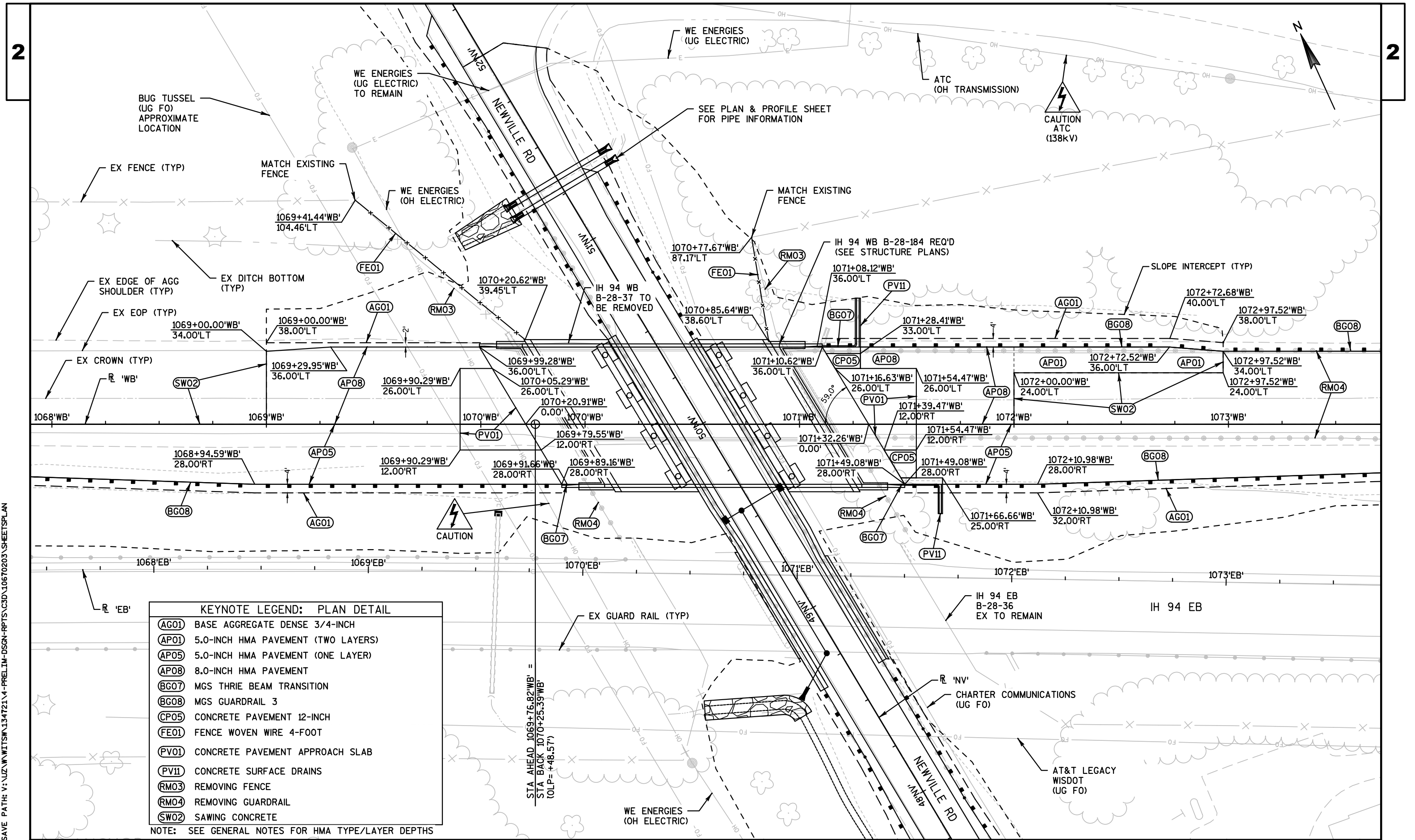
TOTAL PROJECT AREA = 38.55 ACRES
 TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 7.24 ACRES



DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD

NEWVILLE ROAD
ROCK LAKE ROAD

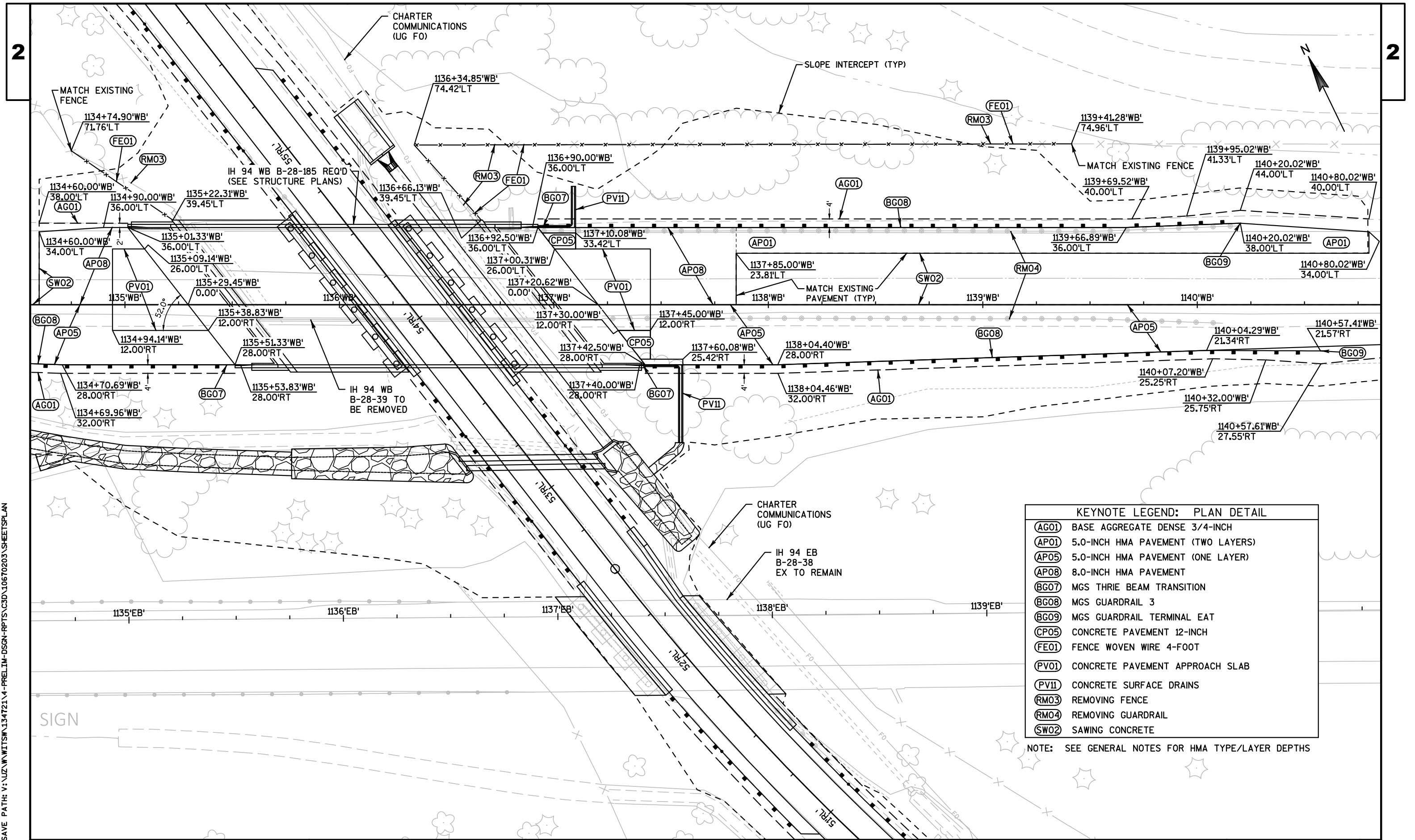
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KEYNOTE LEGEND: PLAN DETAIL

(AG01)	BASE AGGREGATE DENSE 3/4-INCH
(AP01)	5.0-INCH HMA PAVEMENT (TWO LAYERS)
(AP05)	5.0-INCH HMA PAVEMENT (ONE LAYER)
(AP08)	8.0-INCH HMA PAVEMENT
(BG07)	MGS THRIE BEAM TRANSITION
(BG08)	MGS GUARDRAIL 3
(CP05)	CONCRETE PAVEMENT 12-INCH
(FE01)	FENCE WOVEN WIRE 4-FOOT
(PV01)	CONCRETE PAVEMENT APPROACH SLAB
(PV11)	CONCRETE SURFACE DRAINS
(RMO3)	REMOVING FENCE
(RMO4)	REMOVING GUARDRAIL
(SW02)	SAWING CONCRETE

NOTE: SEE GENERAL NOTES FOR HMA TYPE/LAYER DEPTHS

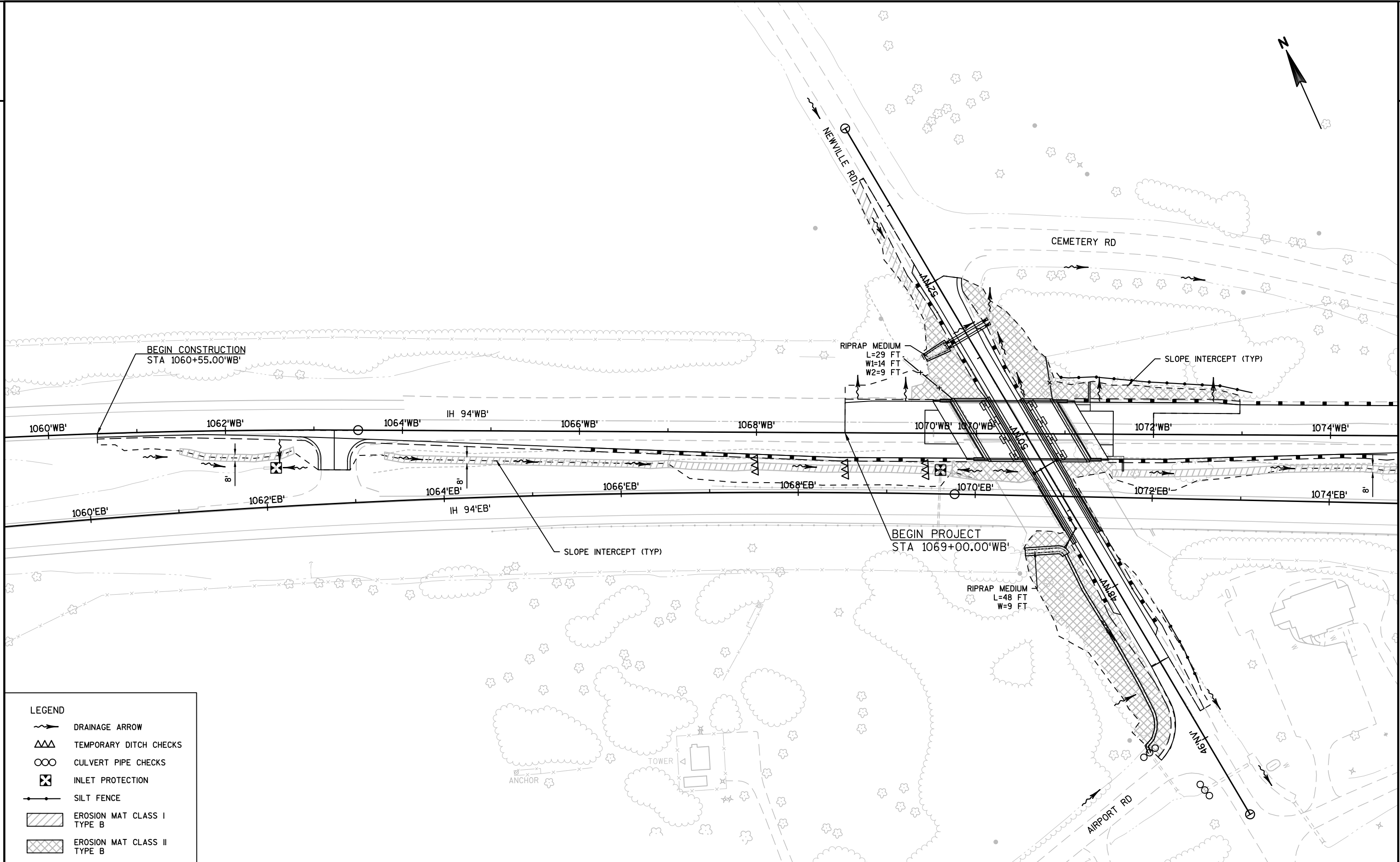


KEYNOTE LEGEND: PLAN DETAIL

(AG01)	BASE AGGREGATE DENSE 3/4-INCH
(AP01)	5.0-INCH HMA PAVEMENT (TWO LAYERS)
(AP05)	5.0-INCH HMA PAVEMENT (ONE LAYER)
(AP08)	8.0-INCH HMA PAVEMENT
(BG07)	MGS THRIE BEAM TRANSITION
(BG08)	MGS GUARDRAIL 3
(BG09)	MGS GUARDRAIL TERMINAL EAT
(CP05)	CONCRETE PAVEMENT 12-INCH
(FE01)	FENCE WOVEN WIRE 4-FOOT
(PV01)	CONCRETE PAVEMENT APPROACH SLAB
(PV11)	CONCRETE SURFACE DRAINS
(RM03)	REMOVING FENCE
(RM04)	REMOVING GUARDRAIL
(SW02)	SAWING CONCRETE

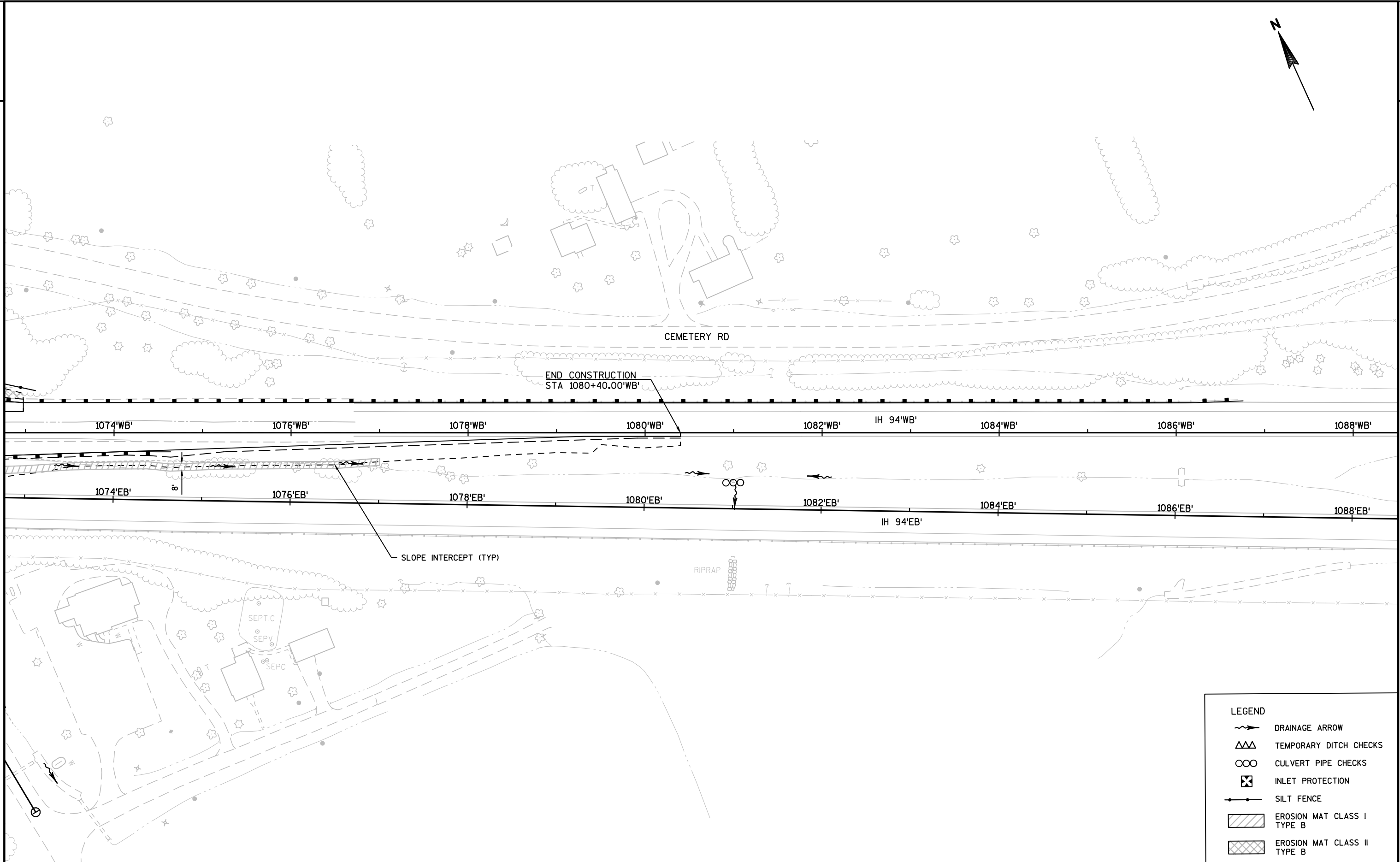
NOTE: SEE GENERAL NOTES FOR HMA TYPE/LAYER DEPTHS

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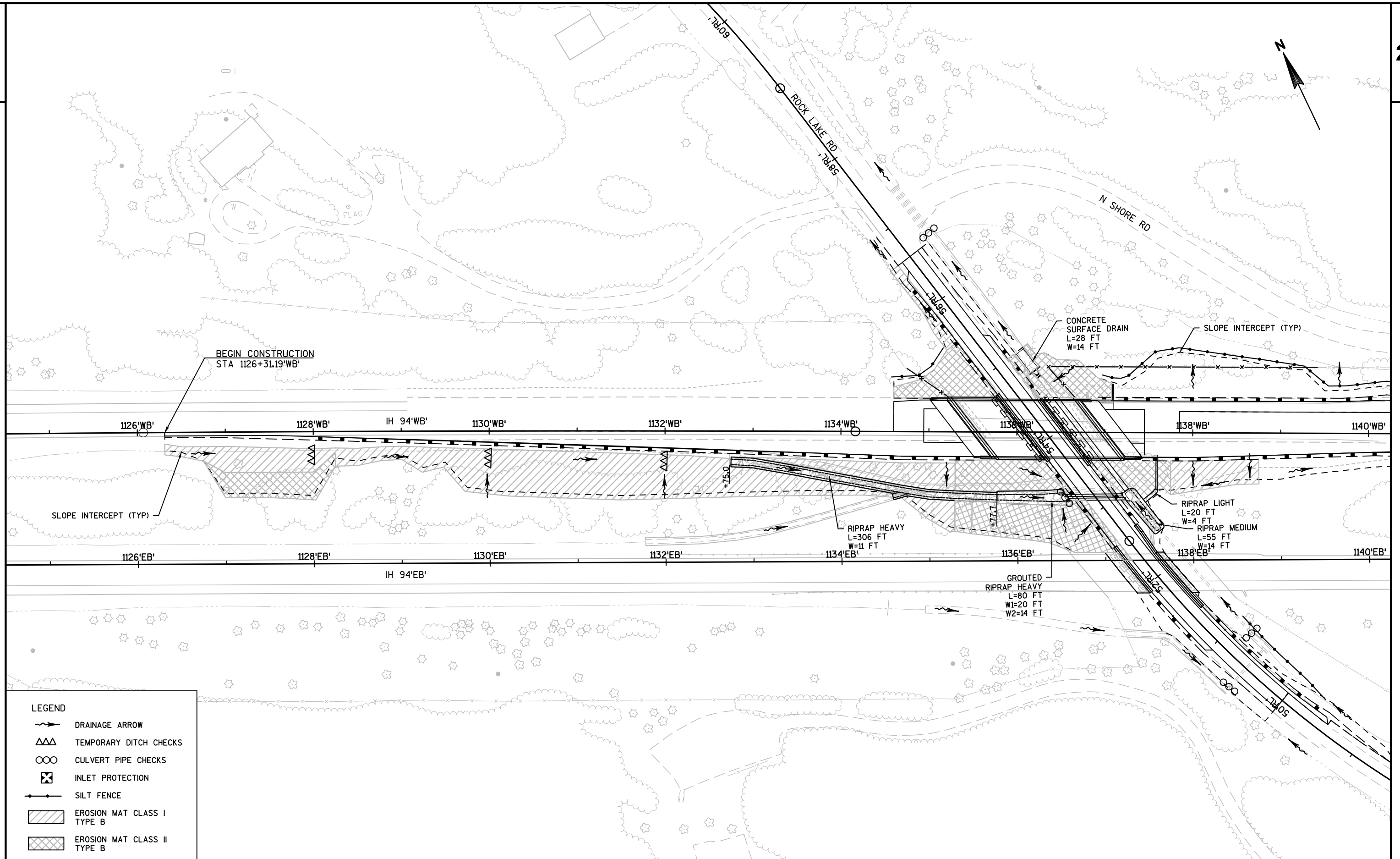


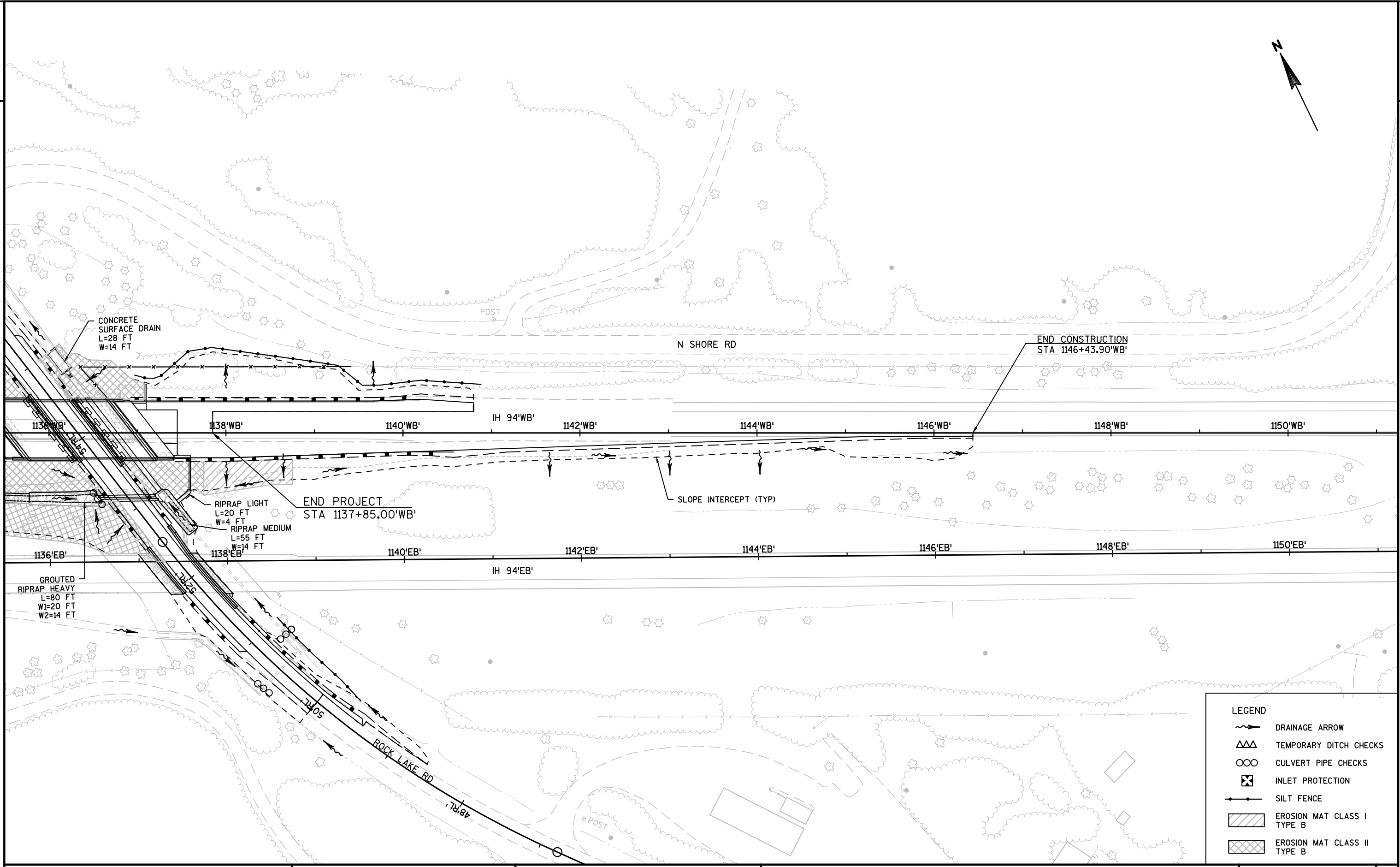
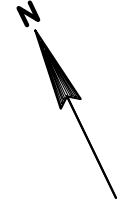
LEGEND

- DRAINAGE ARROW
- TEMPORARY DITCH CHECKS
- CULVERT PIPE CHECKS
- INLET PROTECTION
- SILT FENCE
- EROSION MAT CLASS I TYPE B
- EROSION MAT CLASS II TYPE B

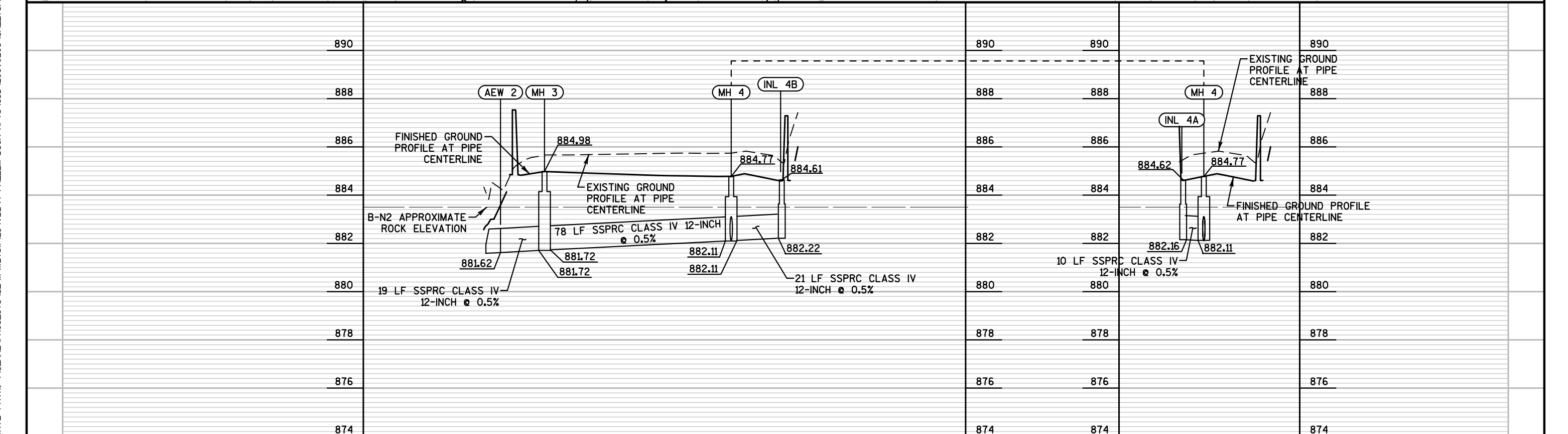
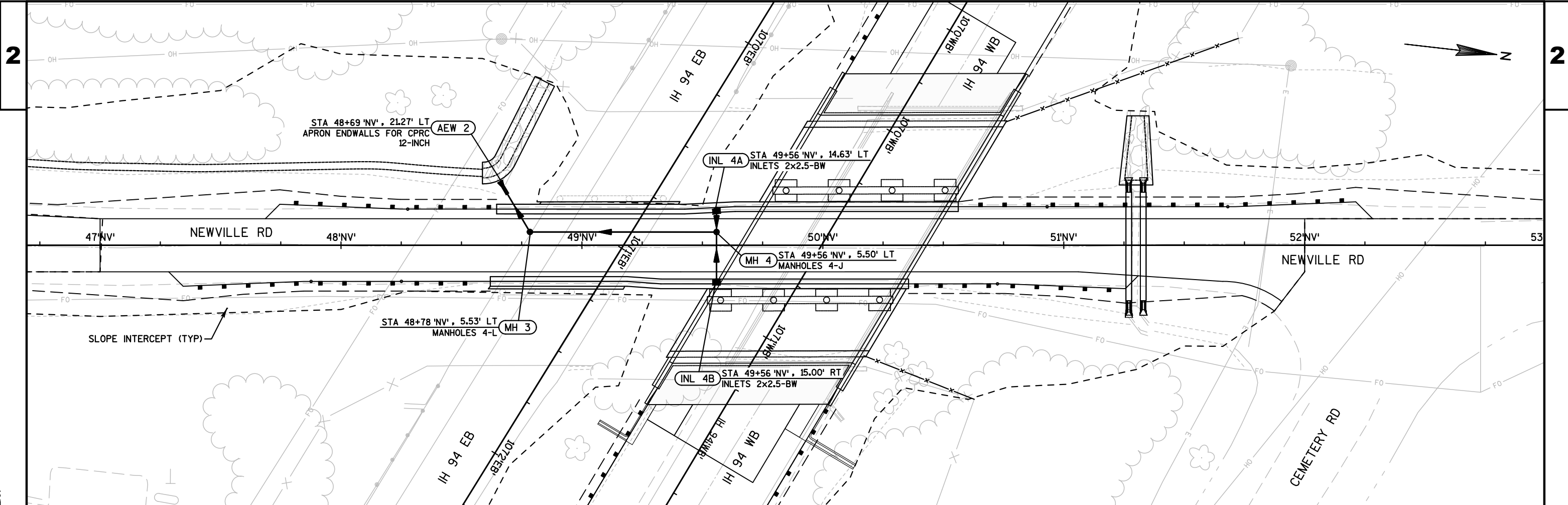


LEGEND	
	DRAINAGE ARROW
	TEMPORARY DITCH CHECKS
	CULVERT PIPE CHECKS
	INLET PROTECTION
	SILT FENCE
	EROSION MAT CLASS I TYPE B
	EROSION MAT CLASS II TYPE B





PROJECT NO:1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	EROSION CONTROL	SHEET	E
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PROJECT NO: 1067-02-73

HWY: IH 94

COUNTY: JEFFERSON

STORM SEWER DETAILS - NEWVILLE RD

SHEET

E

FILE SAVE PATH: \\SEHRL\PROJECTS\UZ\W\WITSW\134721\4-PREL\IM-DSGN-RPTS\C3D\10670203\SHEETS\PLAN

FILE NAME : 022501_SS.DWG

PLOT DATE : 7/29/2023 2:08 PM






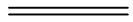



PLOT BY : SEH

LAYOUT NAME : 01

PLOT SCALE : 1 IN = 40.0 FT

WISDOT/CADDS SHEET 42

LEGEND

-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
-  FLASHING ARROW BOARD
-  SIGN ON PERMANENT SUPPORT
-  REMOVING PAVEMENT MARKING
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  PORTABLE CHANGEABLE MESSAGE SIGN

TRAFFIC CONTROL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, 500 FEET DESIRABLE, DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

ANY SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

TRAFFIC CONTROL DEVICES NOT IN USE SHALL BE LAYED DOWN OR REMOVED, TURNING OF DEVICES TO OBSCURE THE MESSAGE WILL NOT BE ALLOWED.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS WITH A MINIMUM 5' MOUNTING HEIGHT.

PLACE ADVANCED WARNING SIGNING ON THE WESTBOUND IH 94 ENTRANCE RAMP FROM STH 89.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 7 CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

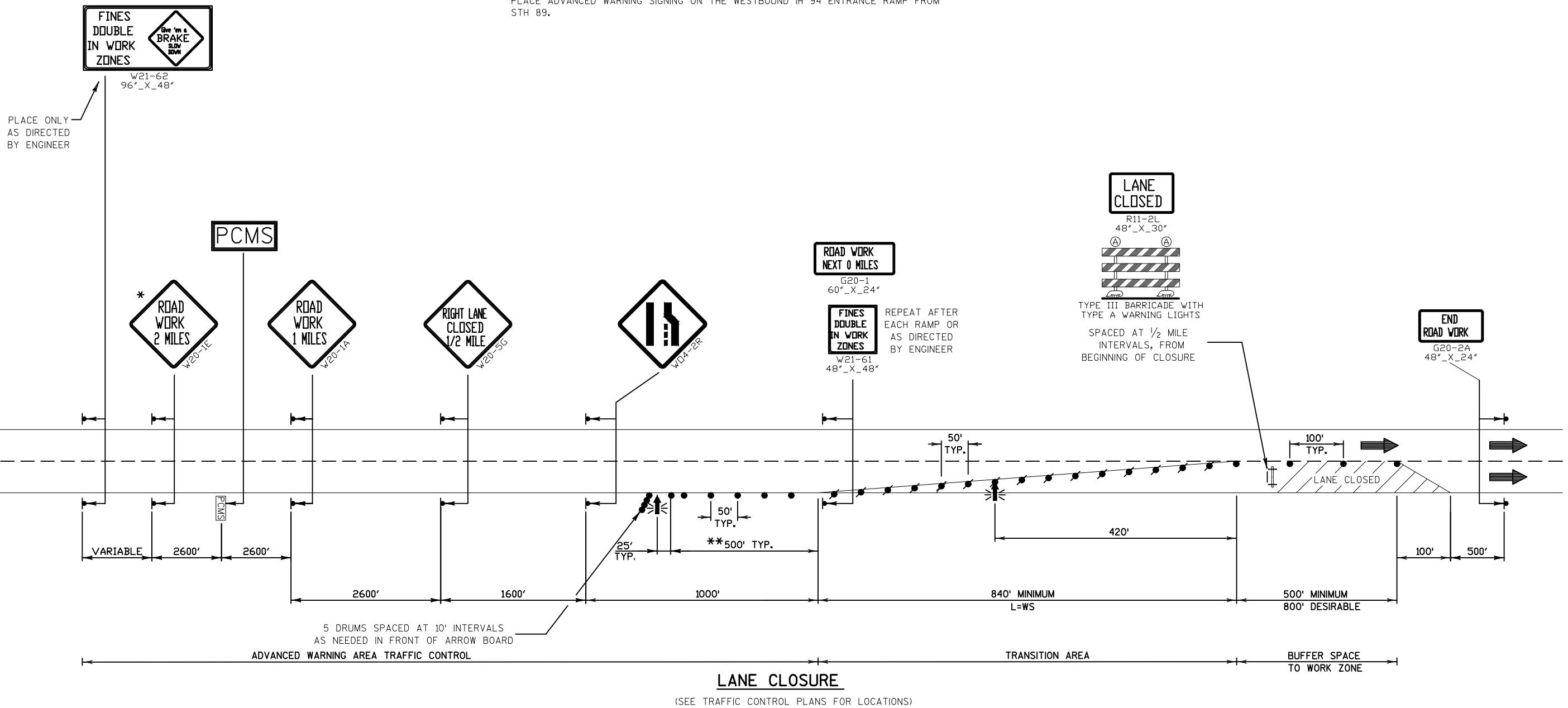
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1/2 MILE ACROSS THE CLOSED LANE TO HELP ENFORCE THE DRUM LINE.

* OPTIONAL - USE WHEN WARRANTED BY ROADWAY GEOMETRICS OR TRAFFIC VOLUMES

** CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS FOR A MINIMUM OF 1500 FEET IN FRONT OF THE DRUMS.

COVERING AND REMOVAL OF MATERIAL COVERING TEMPORARY REGULATORY SPEED LIMIT SIGNS AND EXISTING SPEED LIMIT SIGNS RELATED TO TEMPORARY AND/OR PERIODIC LANE CLOSURES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.



LANE CLOSURE

(SEE TRAFFIC CONTROL PLANS FOR LOCATIONS)

LEGEND

⊙ SIGN ON PERMENENT SUPPORT

➡ DIRECTION OF TRAFFIC



W03-5
48"X48"



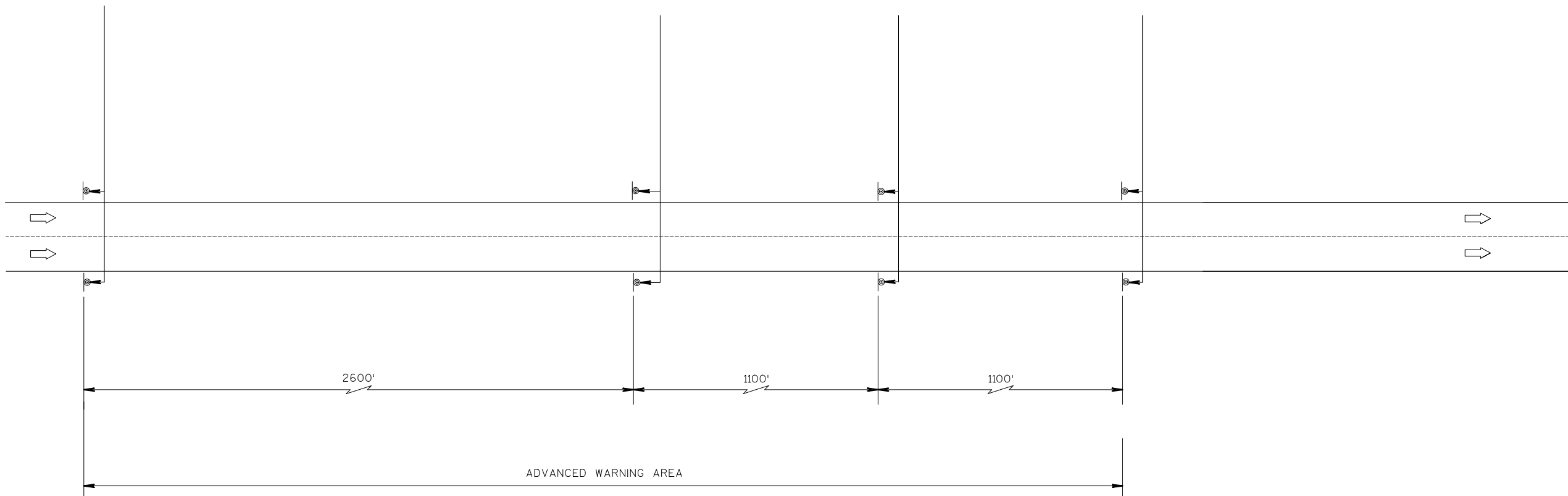
R2-1
48"X60"

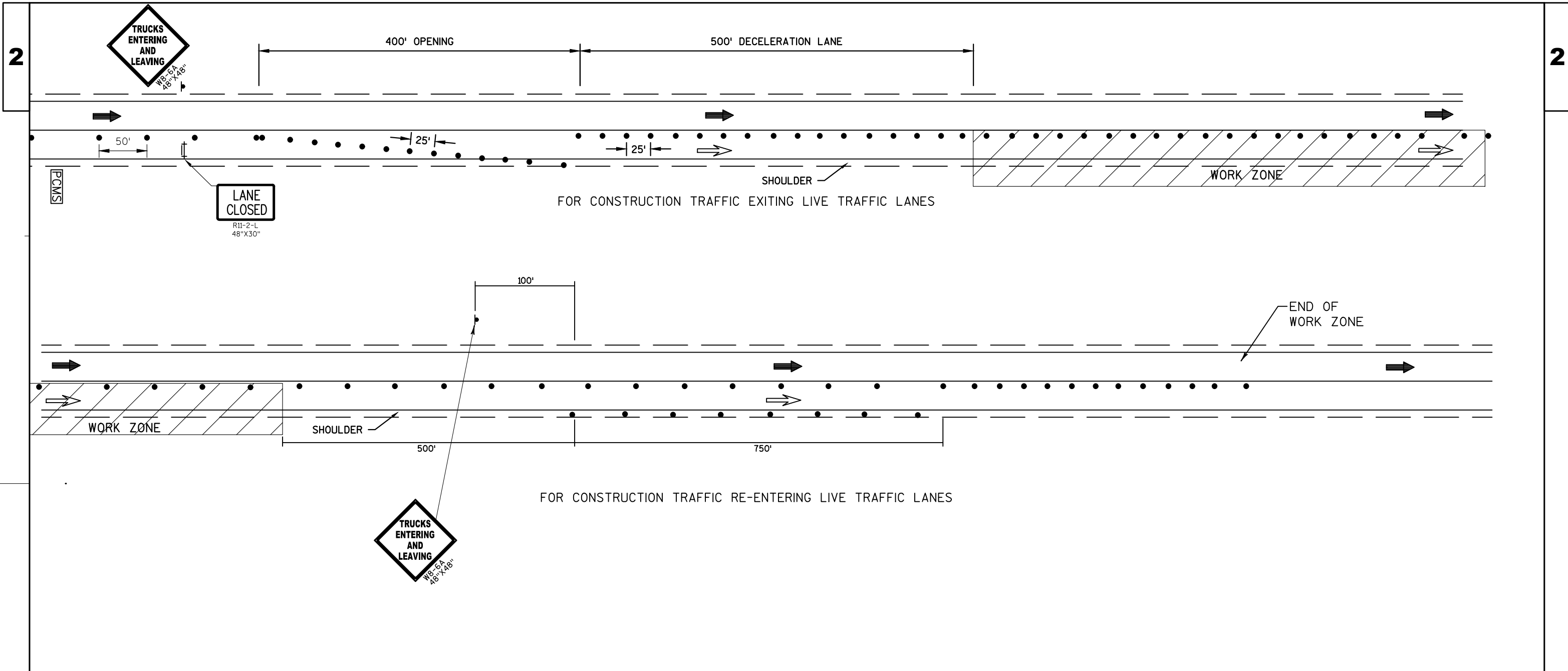


W03-5
48"X48"



R2-1
48"X60"





NOTE:
SPACING AND LOCATIONS OF DEVICES IN THE FIELD
SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER

SEE OTHER TRAFFIC CONTROL DETAILS AND STANDARD
DETAIL DRAWINGS FOR LANE CLOSURE DETAILS

PORTABLE MESSAGE SIGN MESSAGES SHOULD READ:

FRAME 1






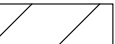

TRUCKS
EXITING
RIGHT

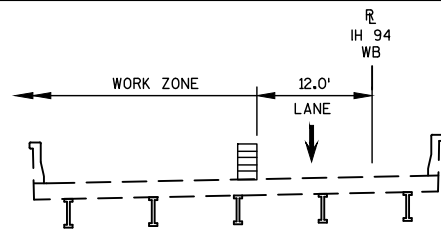
FRAME 2

DO NOT
FOLLOW
TRUCKS

TRAFFIC CONTROL DETAIL FOR CONSTRUCTION ACCESS AT LANE CLOSURES
OFF PEAK HOUR USE ONLY

LEGEND

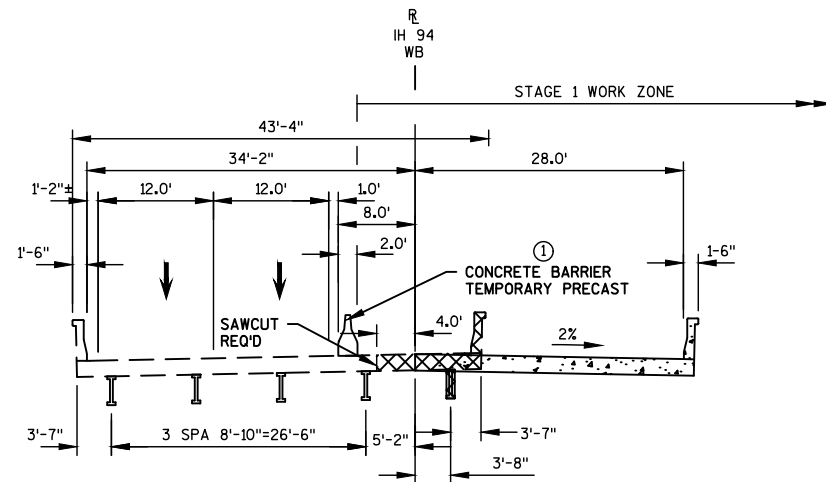
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL SIGN
-  IH 39 TRAFFIC
-  CONSTRUCTION TRAFFIC
-  WORK ZONE
-  PORTABLE CHANGEABLE MESSAGE BOARD



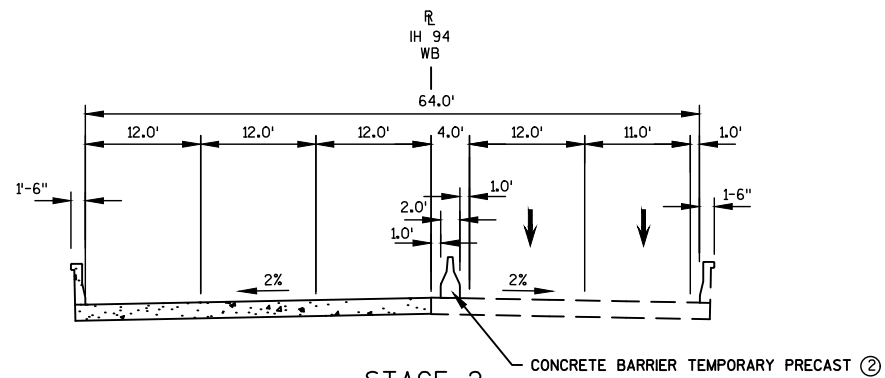
STAGE 1A-OFF PEAK HOURS
 EXISTING STRUCTURE B-28-37 (OVER NEWVILLE RD)
 EXISTING STRUCTURE B-28-39 (OVER ROCK LAKE RD)

- NOTES:
- ① CONCRETE BARRIER TEMPORARY PRECAST TO BE ANCHORED THROUGH ENTIRE THICKNESS OF EXISTING SLAB.
 - ② ANCHOR CONCRETE BARRIER TEMPORARY PRECAST TO NEW SUPERSTRUCTURE UTILIZING REMOVABLE ADHESIVE ANCHOR INSTALLATION.

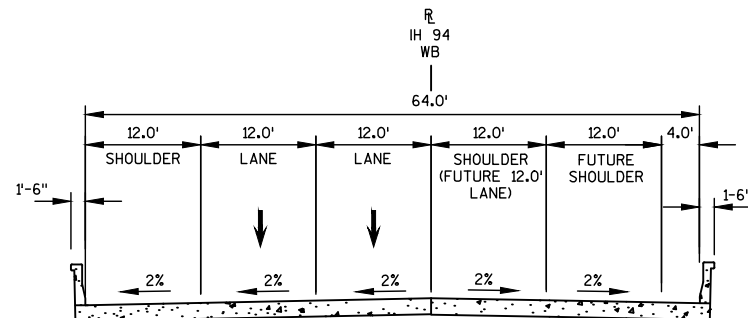
☒ REMOVAL AREA



STAGE 1
 PROPOSED STRUCTURE B-28-184 (OVER NEWVILLE RD)
 PROPOSED STRUCTURE B-28-185 (OVER ROCK LAKE RD)



STAGE 2
 PROPOSED STRUCTURE B-28-184 (OVER NEWVILLE RD)
 PROPOSED STRUCTURE B-28-185 (OVER ROCK LAKE RD)



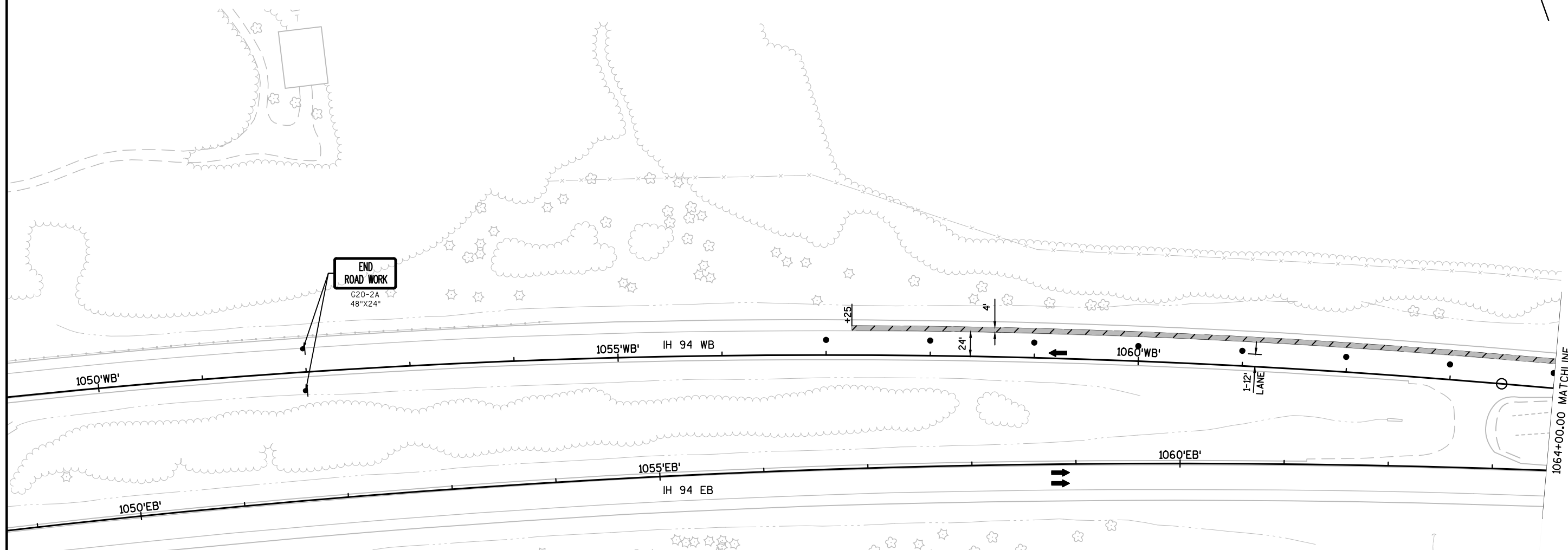
FINISHED TYPICAL SECTION
 PROPOSED STRUCTURE B-28-184 (OVER NEWVILLE RD)
 PROPOSED STRUCTURE B-28-185 (OVER ROCK LAKE RD)

STAGE 1A NOTES:

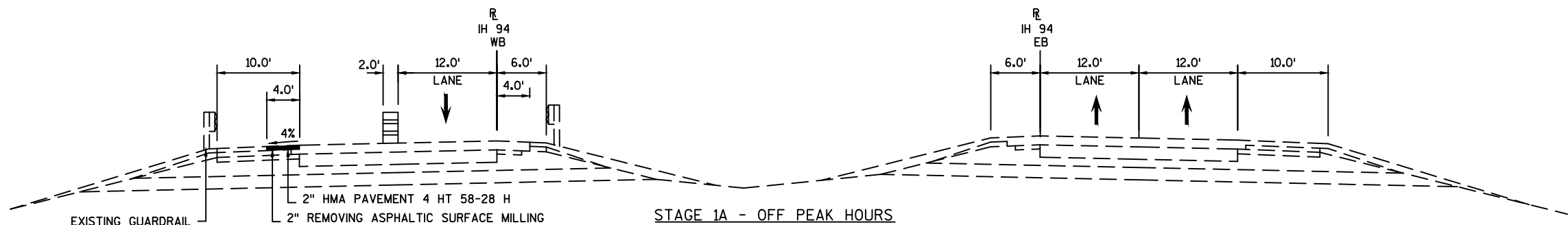
IH 94 EASTBOUND TRAFFIC TO UTILIZE EXISTING TRAFFIC LANES.

MERGE IH 94 WESTBOUND TRAFFIC DOWN TO ONE LANE OF TRAFFIC AND UTILIZE THE INSIDE LANE DURING OFF PEAK HOURS WITH A REDUCED SPEED LIMIT OF 55 MPH.

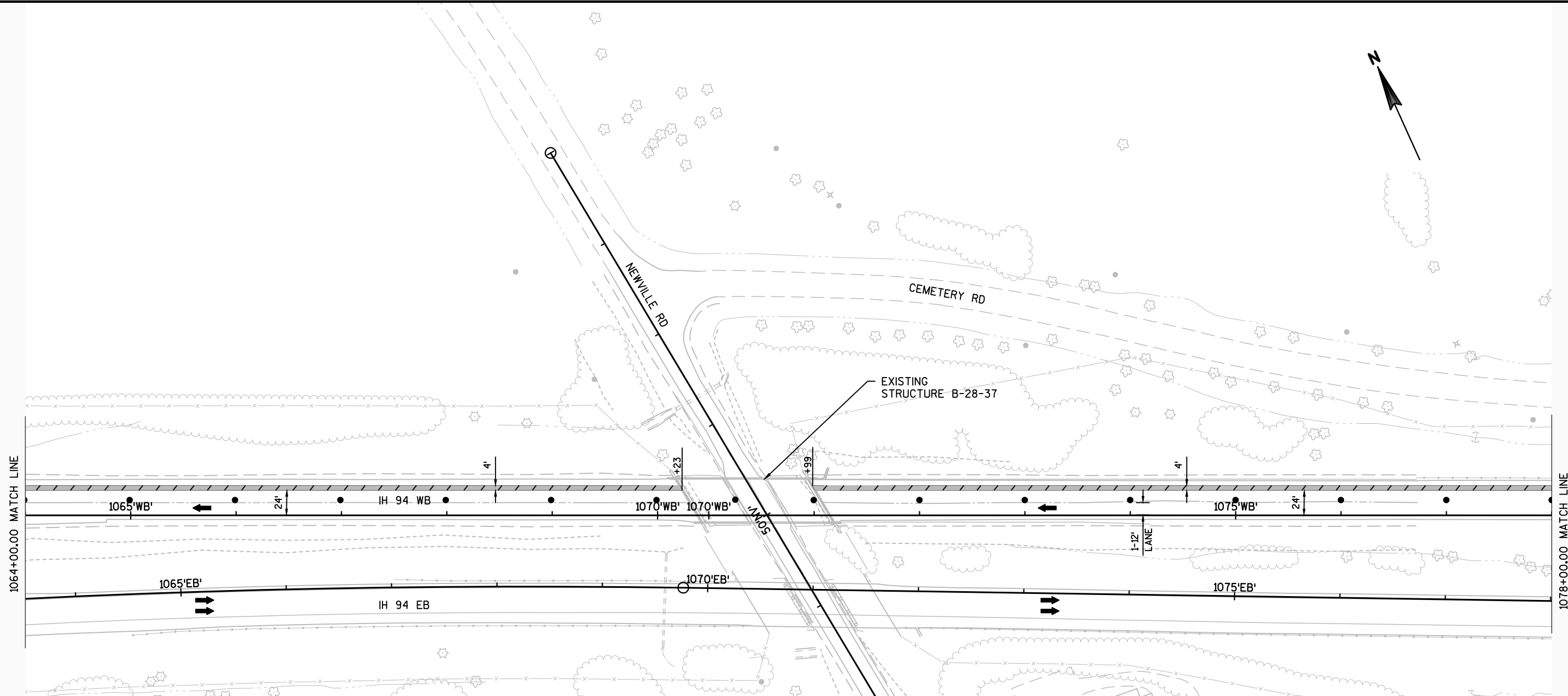
MILL EXISTING OUTSIDE SHOULDER AND REPAVE SHOULDER TO REMOVE RUMBLE STRIPS.



TRAFFIC CONTROL LEGEND	
●	TRAFFIC CONTROL DRUM
●	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
⚡	FLASHING ARROW BOARD
⌄	SIGN ON PERMANENT SUPPORT
⌄	SIGN ON TEMPORARY SUPPORT
▬	CONC. BARRIER TEMP. PRECAST
▬	CRASH CUSHION TEMPORARY
➔	DIRECTION OF TRAFFIC
MB	PORTABLE CHANGEABLE MESSAGE BOARD
⊕/⊖	BARRICADES TYPE III WITH/WITHOUT SIGN
▨	WORK AREA
▩	TEMPORARY PAVEMENT OR HMA PAVEMENT

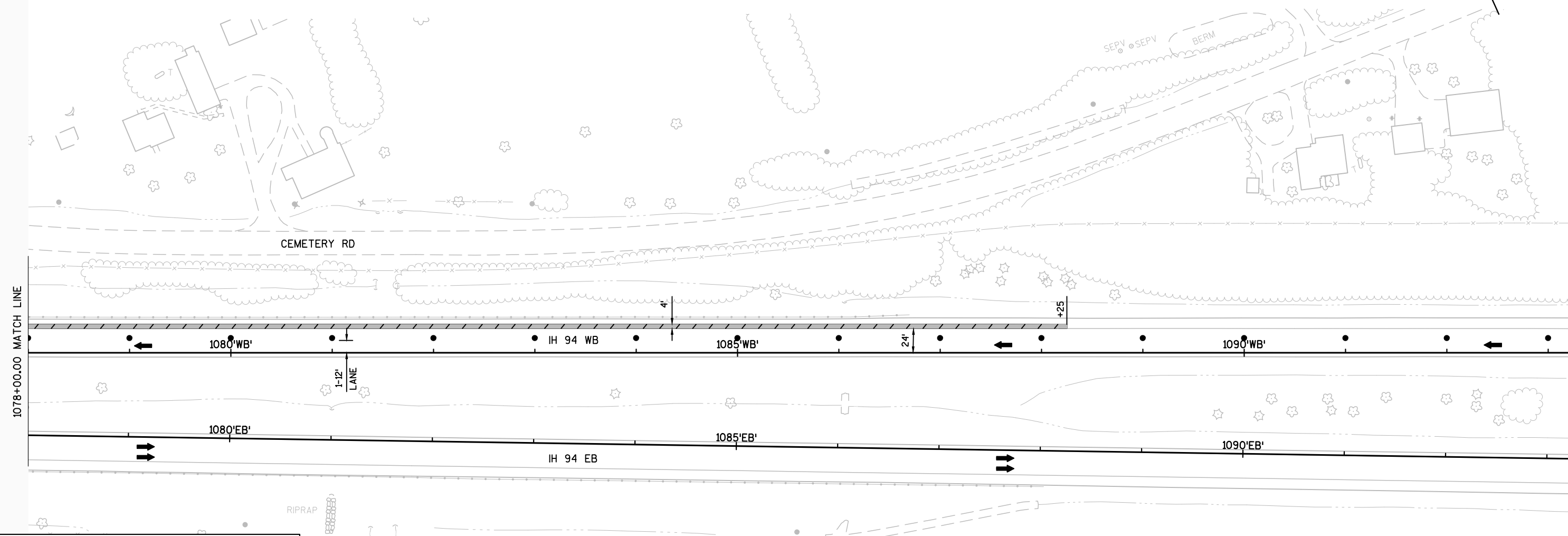
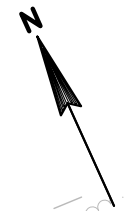


STAGE 1A - OFF PEAK HOURS
 IH 94
 STA 1057+25'WB' TO STA 1070+23'WB'
 STA 1070+99'WB' TO STA 1088+25'WB'
 STA 1122+25'WB' TO STA 1135+37'WB'
 STA 1136+71'WB' TO STA 1154+25'WB'



TRAFFIC CONTROL LEGEND

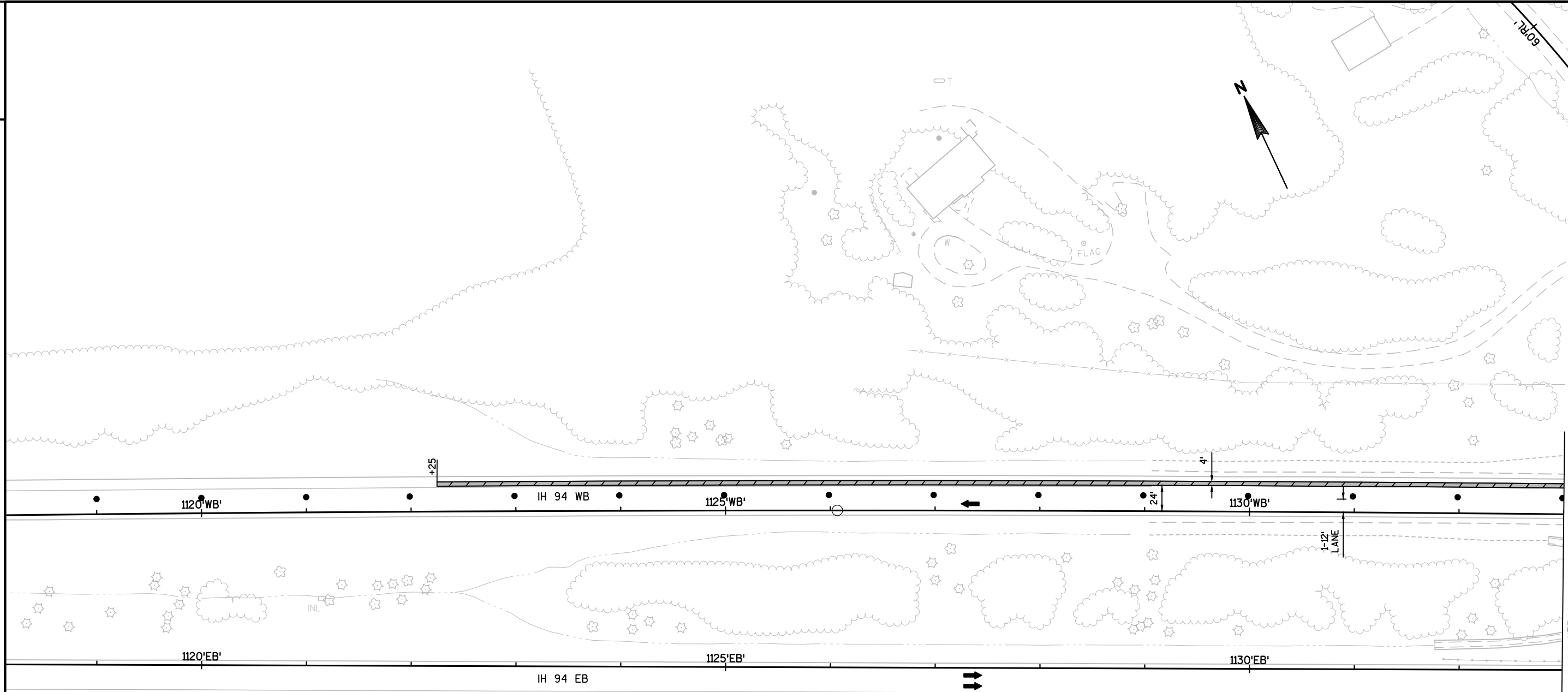
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ▬ SIGN ON TEMPORARY SUPPORT
- ▬ CONC. BARRIER TEMP. PRECAST
- ▬ CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- ME PORTABLE CHANGEABLE MESSAGE BOARD
- ⚡ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT



1078+00.00 MATCH LINE

TRAFFIC CONTROL LEGEND

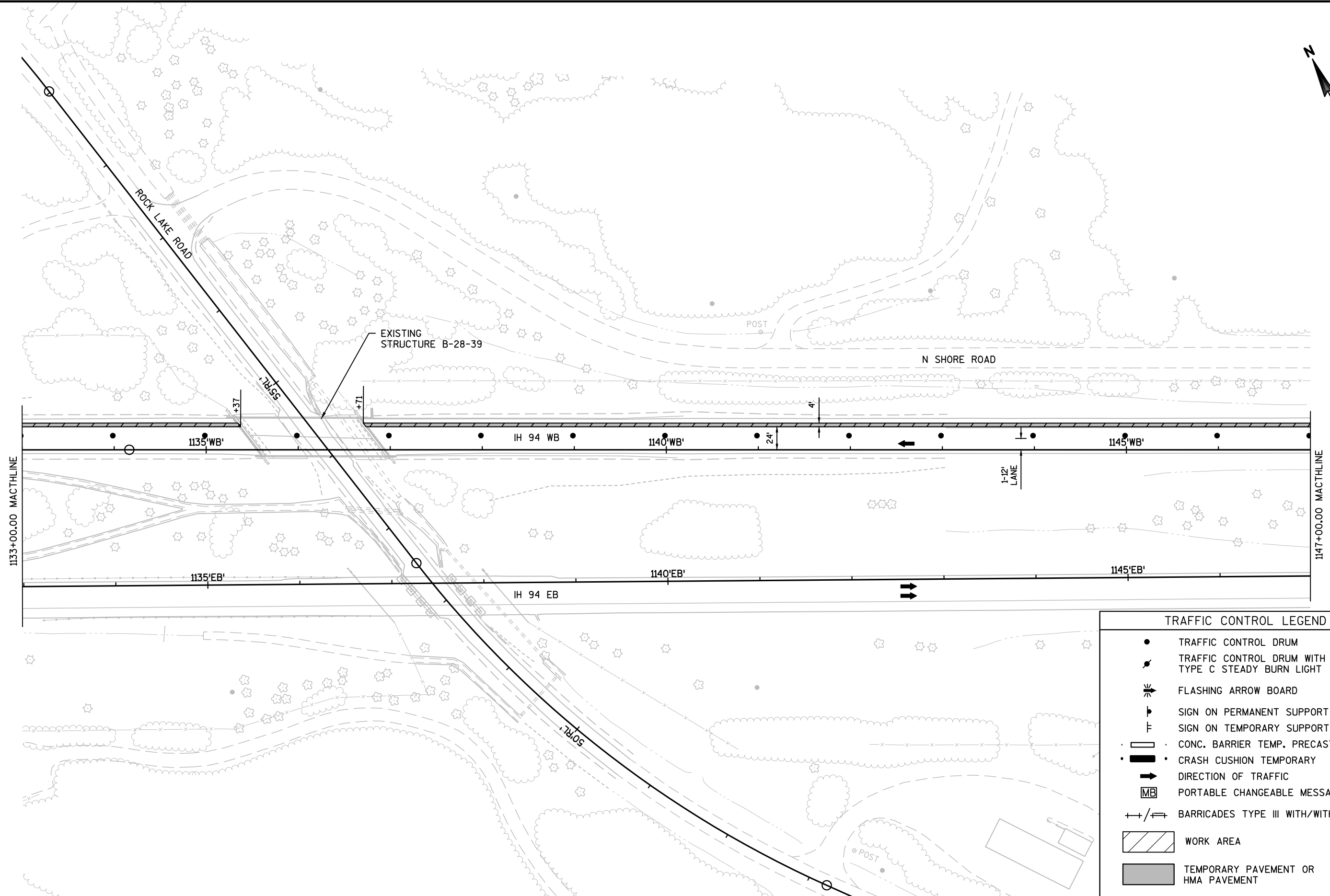
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ⊥ SIGN ON TEMPORARY SUPPORT
- ▭ CONC. BARRIER TEMP. PRECAST
- ▬ CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- ME PORTABLE CHANGEABLE MESSAGE BOARD
- ⊕/⊖ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- TEMPORARY PAVEMENT OR HMA PAVEMENT



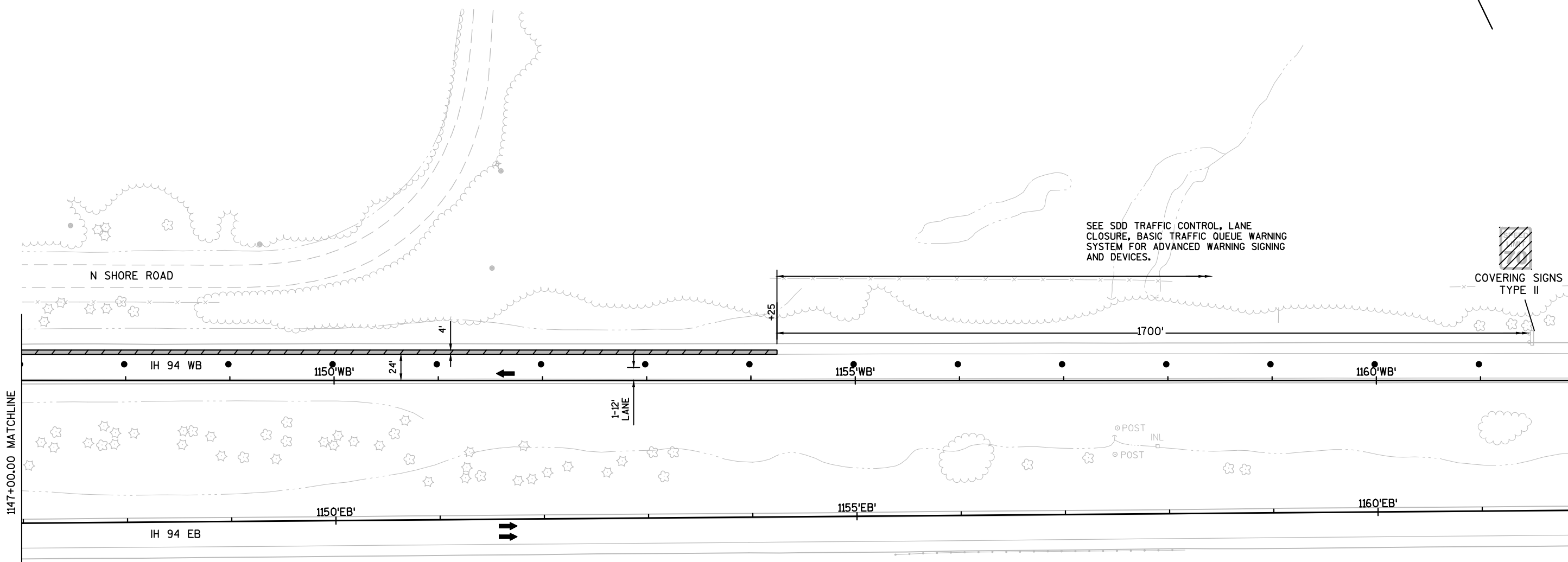
TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ▬ SIGN ON TEMPORARY SUPPORT
- ▬ CONC. BARRIER TEMP. PRECAST
- ▬ CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- ME PORTABLE CHANGEABLE MESSAGE BOARD
- ⊕/⊖ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT





TRAFFIC CONTROL LEGEND	
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	FLASHING ARROW BOARD
	SIGN ON PERMANENT SUPPORT
	SIGN ON TEMPORARY SUPPORT
	CONC. BARRIER TEMP. PRECAST
	CRASH CUSHION TEMPORARY
	DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE BOARD
	BARRICADES TYPE III WITH/WITHOUT SIGN
	WORK AREA
	TEMPORARY PAVEMENT OR HMA PAVEMENT



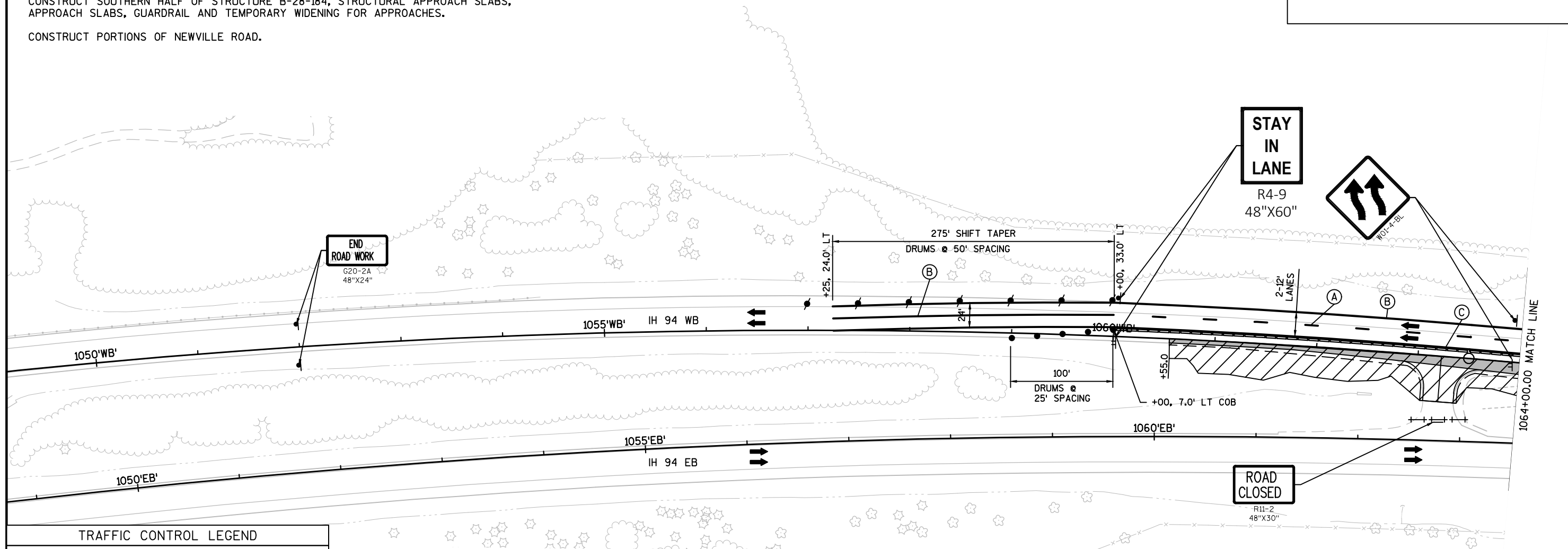
TRAFFIC CONTROL LEGEND	
●	TRAFFIC CONTROL DRUM
●	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
⚡	FLASHING ARROW BOARD
⌵	SIGN ON PERMANENT SUPPORT
⌵	SIGN ON TEMPORARY SUPPORT
▭	CONC. BARRIER TEMP. PRECAST
▭	CRASH CUSHION TEMPORARY
➔	DIRECTION OF TRAFFIC
MB	PORTABLE CHANGEABLE MESSAGE BOARD
⊕/⊖	BARRICADES TYPE III WITH/WITHOUT SIGN
▨	WORK AREA
▭	TEMPORARY PAVEMENT OR HMA PAVEMENT

STAGE 1 NOTES:

- IH 94 EASTBOUND TRAFFIC TO CONTINUE TO UTILIZE EXISTING TRAFFIC LANES.
- CLOSE NEWVILLE ROAD TO THRU TRAFFIC.
- SHIFT IH 94 WESTBOUND TRAFFIC TO UTILIZE EXISTING OUTSIDE SHOULDER AND OUTSIDE TRAFFIC LANE.
- REMOVE SOUTHERN PORTION OF EXISTING BRIDGE B-28-37, PIERS AND ABUTMENTS.
- CONSTRUCT SOUTHERN HALF OF STRUCTURE B-28-184, STRUCTURAL APPROACH SLABS, APPROACH SLABS, GUARDRAIL AND TEMPORARY WIDENING FOR APPROACHES.
- CONSTRUCT PORTIONS OF NEWVILLE ROAD.

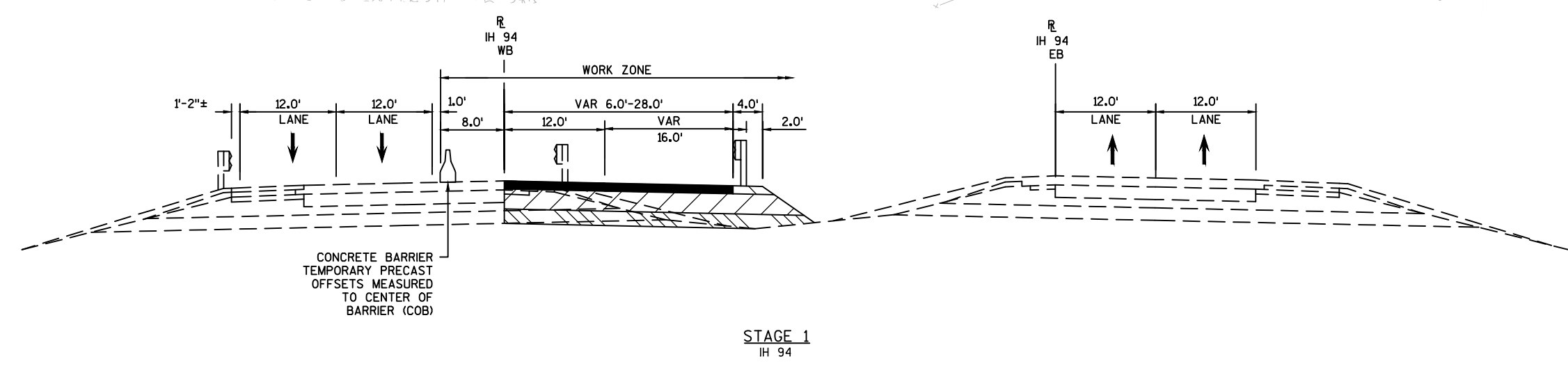
TEMPORARY MARKING LINE LEGEND

- (A) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
- (B) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
- (C) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)

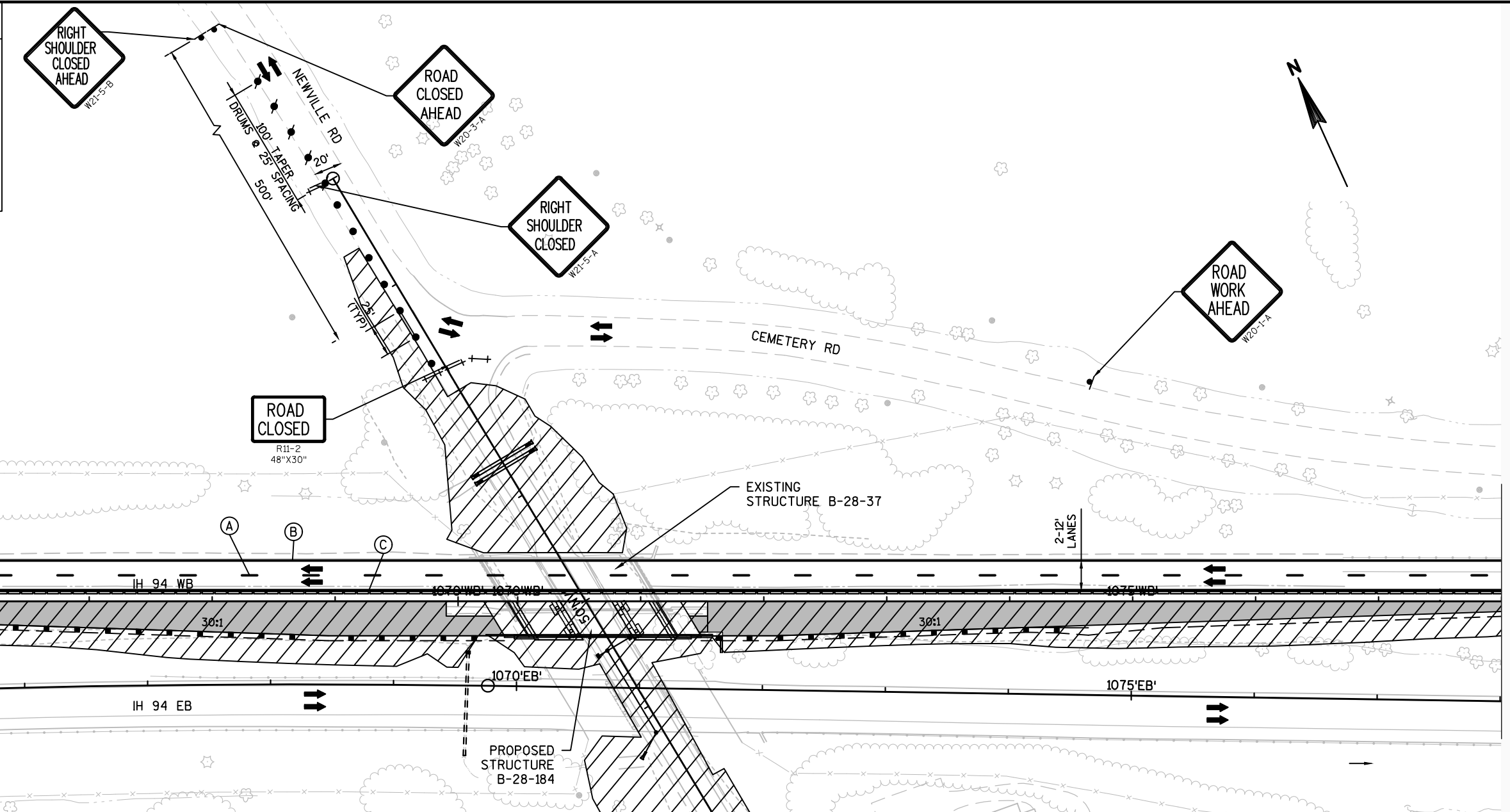


TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ▬ SIGN ON TEMPORARY SUPPORT
- ▬ CONC. BARRIER TEMP. PRECAST
- ▬ CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- ME PORTABLE CHANGEABLE MESSAGE BOARD
- ⚡ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT



TEMPORARY MARKING LINE LEGEND	
(A)	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
(B)	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
(C)	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)



TRAFFIC CONTROL LEGEND	
●	TRAFFIC CONTROL DRUM
●	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
⚡	FLASHING ARROW BOARD
⌋	SIGN ON PERMANENT SUPPORT
F	SIGN ON TEMPORARY SUPPORT
▭	CONC. BARRIER TEMP. PRECAST
■	CRASH CUSHION TEMPORARY
→	DIRECTION OF TRAFFIC
ME	PORTABLE CHANGEABLE MESSAGE BOARD
⊕/⊖	BARRICADES TYPE III WITH/WITHOUT SIGN
▨	WORK AREA
▩	TEMPORARY PAVEMENT OR HMA PAVEMENT

PROJECT NO: 1067-02-73

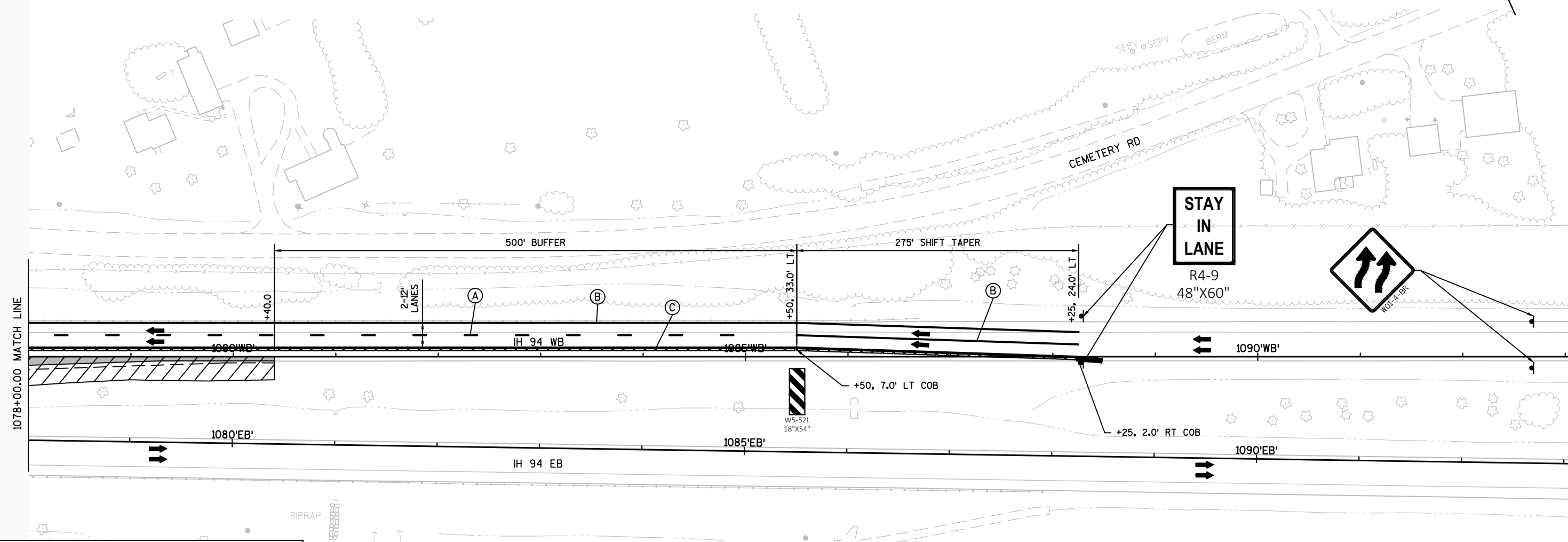
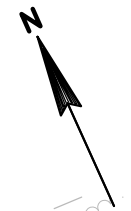
HWY: IH 94

COUNTY: JEFFERSON

TRAFFIC CONTROL - STAGE 1

SHEET

E



TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ▬ SIGN ON TEMPORARY SUPPORT
- ▬ CONC. BARRIER TEMP. PRECAST
- ▬ CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- ME PORTABLE CHANGEABLE MESSAGE BOARD
- ⚡ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT

TEMPORARY MARKING LINE LEGEND

- Ⓐ TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
- Ⓑ TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
- Ⓒ TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)

STAGE 1 NOTES:

IH 94 EASTBOUND TRAFFIC TO CONTINUE TO UTILIZE EXISTING TRAFFIC LANES.

CLOSE ROCK LAKE ROAD TO THRU TRAFFIC.

SHIFT IH 94 WESTBOUND TRAFFIC TO UTILIZE EXISTING OUTSIDE SHOULDER AND OUTSIDE TRAFFIC LANE.

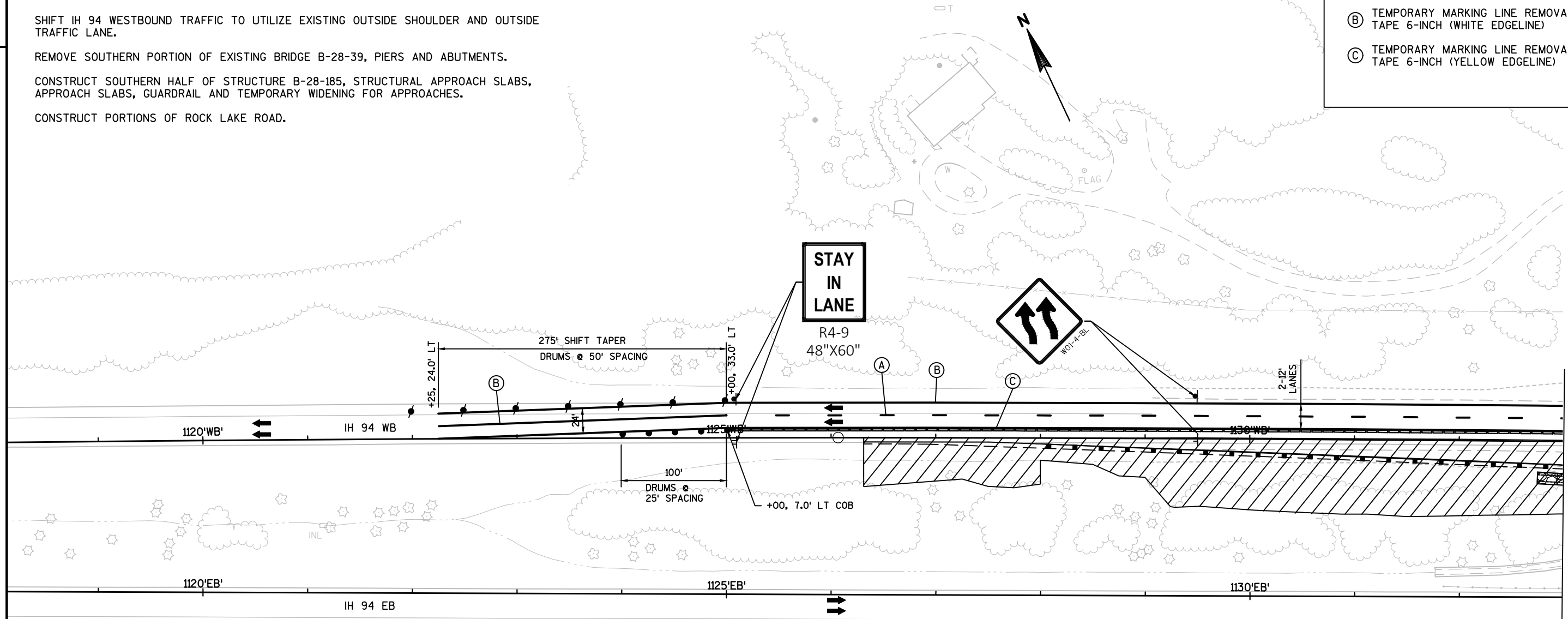
REMOVE SOUTHERN PORTION OF EXISTING BRIDGE B-28-39, PIERS AND ABUTMENTS.

CONSTRUCT SOUTHERN HALF OF STRUCTURE B-28-185, STRUCTURAL APPROACH SLABS, APPROACH SLABS, GUARDRAIL AND TEMPORARY WIDENING FOR APPROACHES.

CONSTRUCT PORTIONS OF ROCK LAKE ROAD.

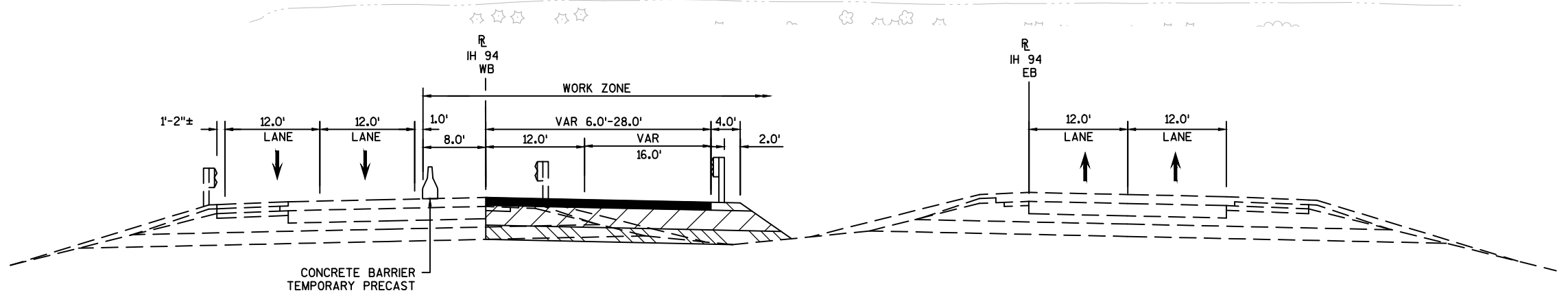
TEMPORARY MARKING LINE LEGEND

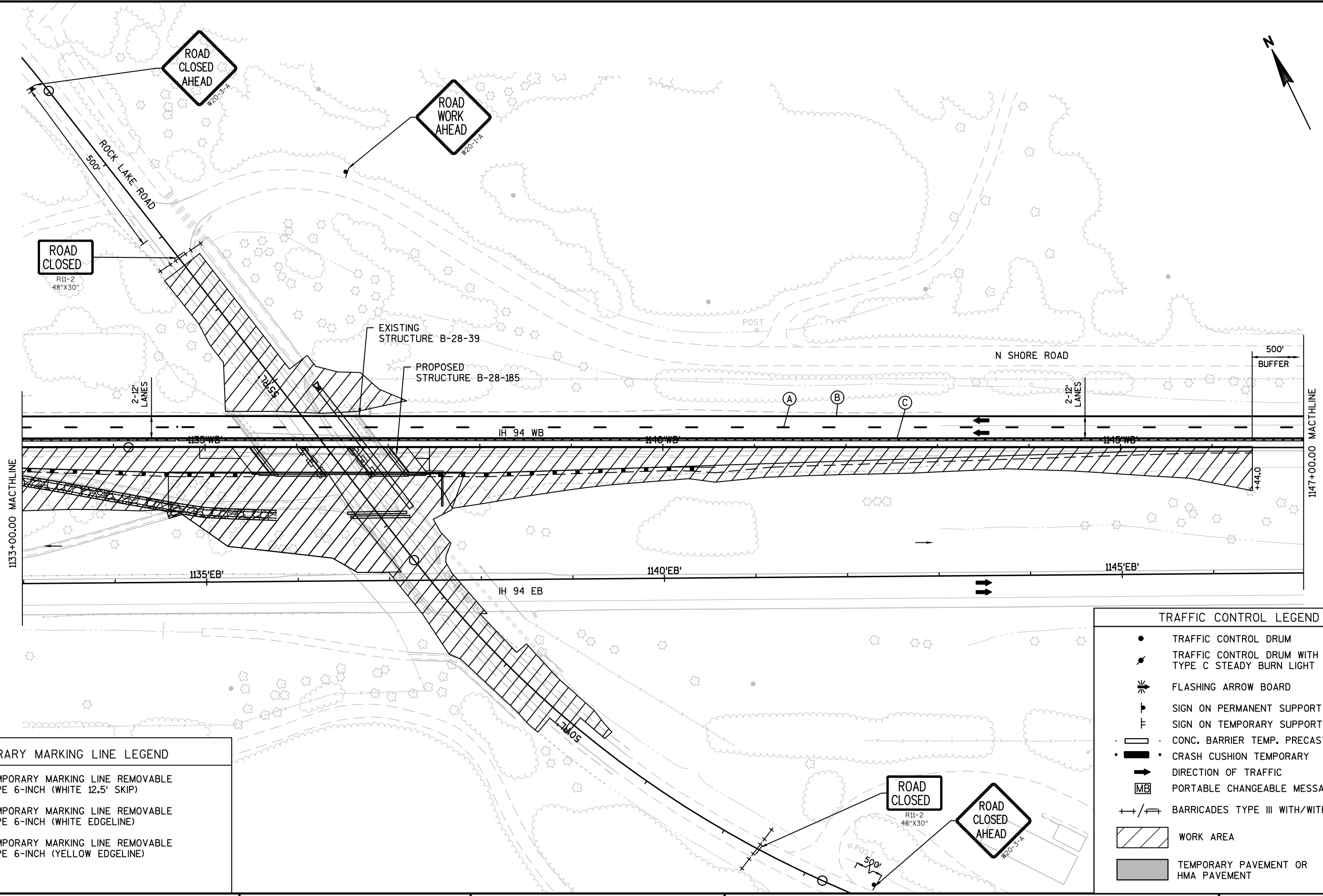
- (A) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
- (B) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
- (C) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)



TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ▬ SIGN ON TEMPORARY SUPPORT
- ▬ CONC. BARRIER TEMP. PRECAST
- ▬ CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- ME PORTABLE CHANGEABLE MESSAGE BOARD
- ±/± BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT





ROAD CLOSED
R11-2
48"X30"

ROAD CLOSED AHEAD
W20-3-A

ROAD WORK AHEAD
W20-1-A

EXISTING STRUCTURE B-28-39

PROPOSED STRUCTURE B-28-185

N SHORE ROAD

500' BUFFER

2-12' LANES

2-12' LANES

1147+00.00 MACTHLINE

1133+00.00 MACTHLINE

IH 94 WB

IH 94 WB

IH 94 WB

IH 94 WB

IH 94 EB

IH 94 EB

IH 94 EB

IH 94 EB

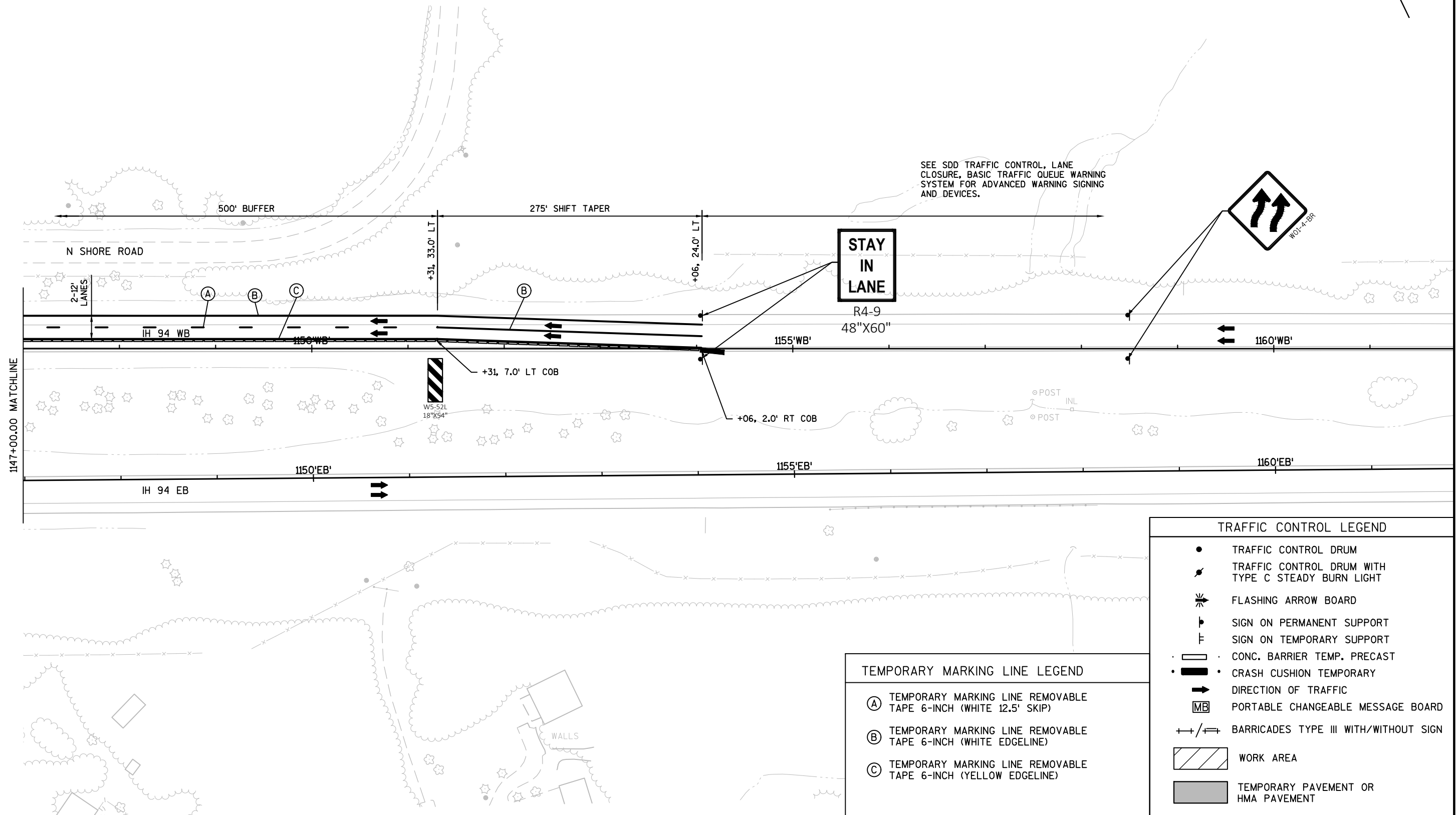
+44.0

TEMPORARY MARKING LINE LEGEND

- (A) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
- (B) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
- (C) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ⚡ SIGN ON PERMANENT SUPPORT
- ⚡ SIGN ON TEMPORARY SUPPORT
- ▭ CONC. BARRIER TEMP. PRECAST
- CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- Ⓜ PORTABLE CHANGEABLE MESSAGE BOARD
- ⚡ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT



SEE SDD TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM FOR ADVANCED WARNING SIGNING AND DEVICES.

STAY IN LANE
R4-9
48"X60"



1147+00.00 MATCHLINE

TEMPORARY MARKING LINE LEGEND

- (A) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
- (B) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
- (C) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)

TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ▬ SIGN ON TEMPORARY SUPPORT
- ▬ CONC. BARRIER TEMP. PRECAST
- CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- ⚡ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT

STAGE 2 NOTES:

IH 94 EASTBOUND TRAFFIC TO CONTINUE TO UTILIZE EXISTING TRAFFIC LANES.

NEWVILLE ROAD TO REMAIN CLOSED TO THRU TRAFFIC.

SHIFT IH 94 WESTBOUND TRAFFIC ONTO THE NEWLY CONSTRUCTED SOUTHERN PORTION OF STRUCTURE B-28-184 AND TEMPORARY WIDENING.

REMOVE REMAINING NORTHERN PORTION OF EXISTING STRUCTURE B-28-37.

CONSTRUCT NORTHERN PORTION OF NEW STRUCTURE B-28-184, STRUCTURAL APPROACH SLABS, APPROACH SLABS, HMA PAVEMENT TRAVEL LANES, HMA SHOULDER WITH RUMBLE STRIPS AND GUARDRAIL.

CONTINUE TO CONSTRUCT NEWVILLE ROAD.

STAGE 3 NOTES:

OPEN NEWVILLE ROAD TO THRU TRAFFIC.

SHIFT IH 94 WESTBOUND TRAFFIC BACK TO THE EXISTING TRAFFIC LANES.

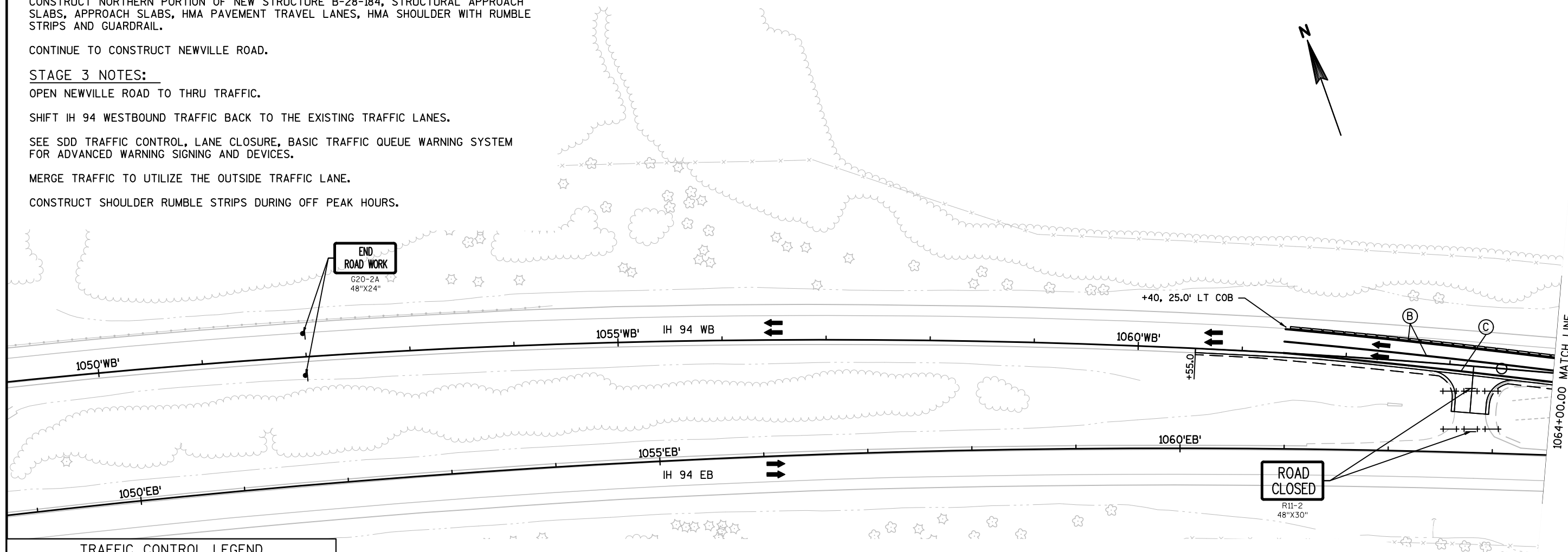
SEE SDD TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM FOR ADVANCED WARNING SIGNING AND DEVICES.

MERGE TRAFFIC TO UTILIZE THE OUTSIDE TRAFFIC LANE.

CONSTRUCT SHOULDER RUMBLE STRIPS DURING OFF PEAK HOURS.

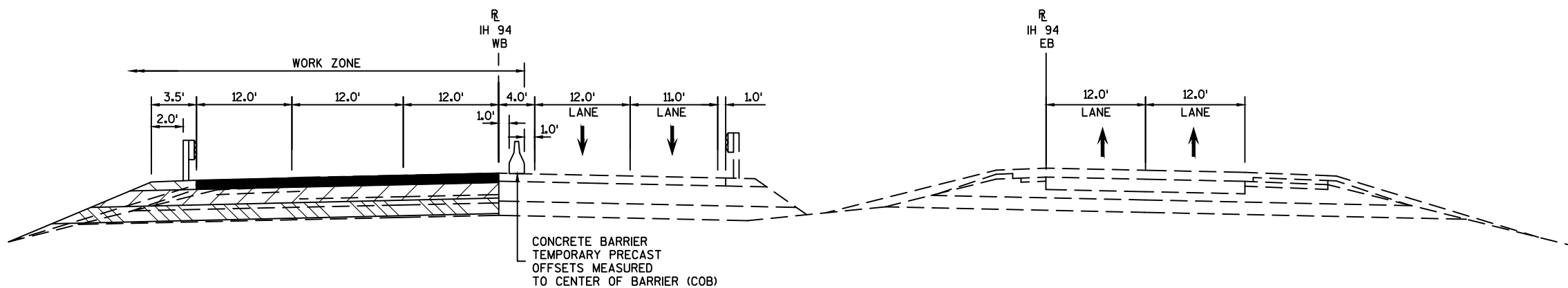
TEMPORARY MARKING LINE LEGEND

- (A) TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
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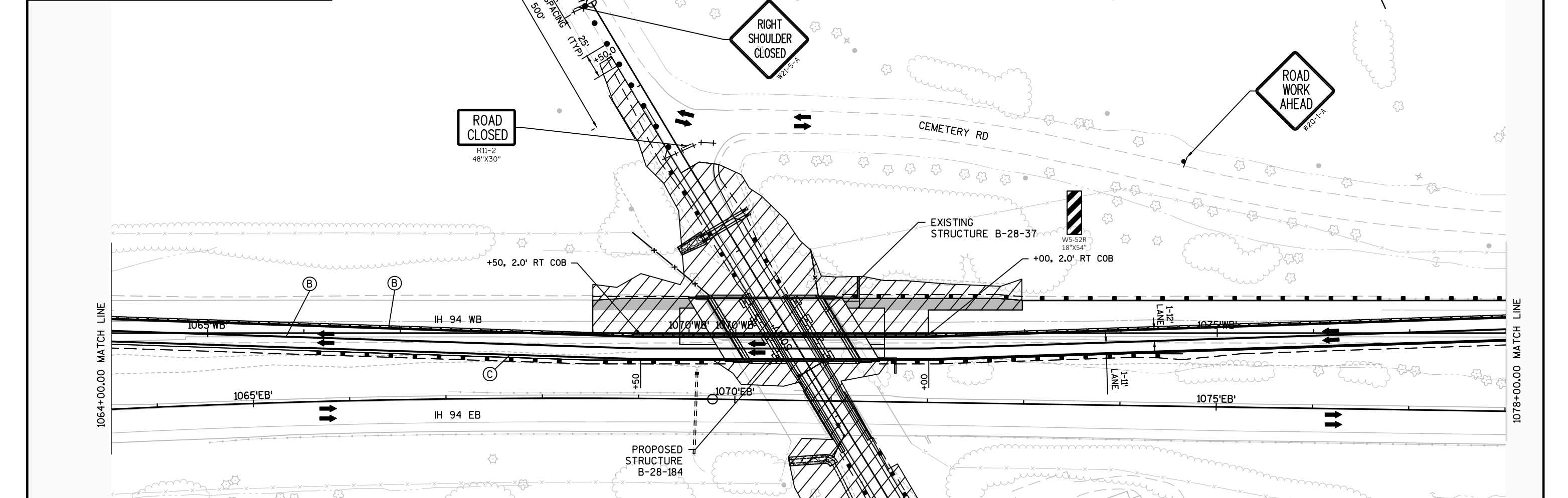


TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
- ▬ SIGN ON TEMPORARY SUPPORT
- ▬ CONC. BARRIER TEMP. PRECAST
- ▬ CRASH CUSHION TEMPORARY
- ➔ DIRECTION OF TRAFFIC
- MB PORTABLE CHANGEABLE MESSAGE BOARD
- ⚡ BARRICADES TYPE III WITH/WITHOUT SIGN
- ▨ WORK AREA
- ▭ TEMPORARY PAVEMENT OR HMA PAVEMENT

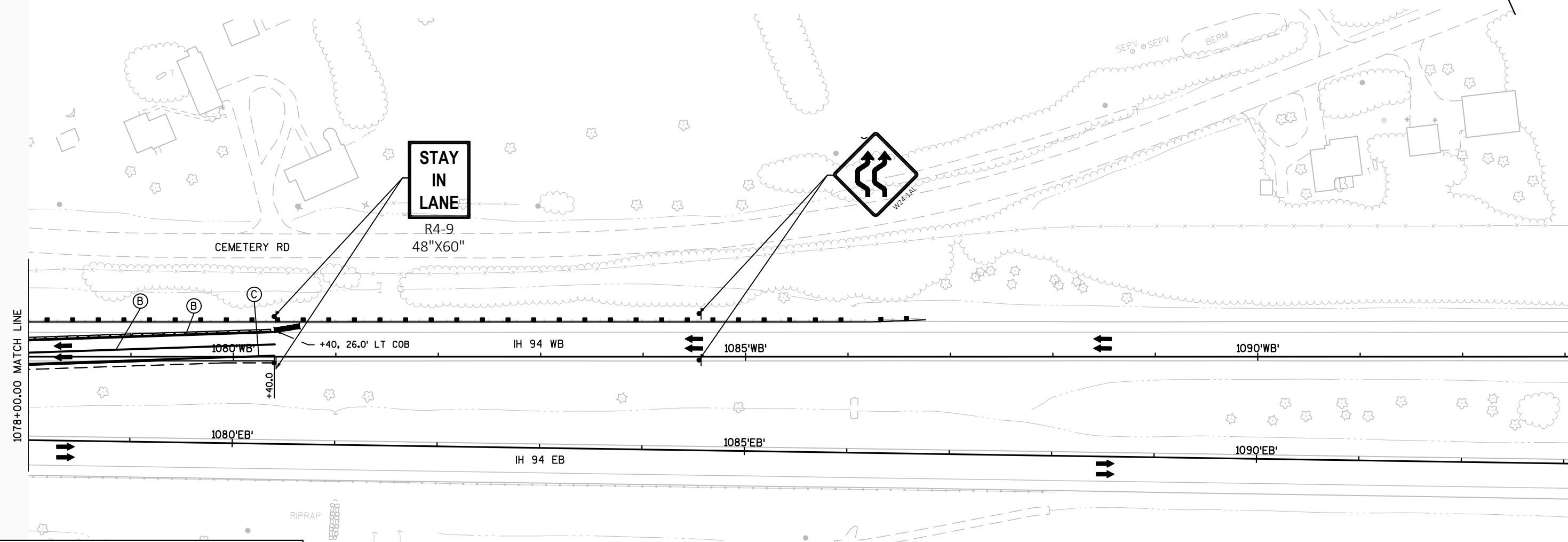
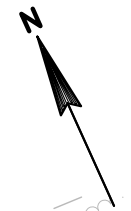


TEMPORARY MARKING LINE LEGEND	
(A)	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
(B)	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
(C)	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)



TRAFFIC CONTROL LEGEND	
●	TRAFFIC CONTROL DRUM
●	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
⚡	FLASHING ARROW BOARD
⌋	SIGN ON PERMANENT SUPPORT
F	SIGN ON TEMPORARY SUPPORT
▬	CONC. BARRIER TEMP. PRECAST
■	CRASH CUSHION TEMPORARY
➔	DIRECTION OF TRAFFIC
ME	PORTABLE CHANGEABLE MESSAGE BOARD
⊕/⊖	BARRICADES TYPE III WITH/WITHOUT SIGN
▨	WORK AREA
■	TEMPORARY PAVEMENT OR HMA PAVEMENT

PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON TRAFFIC CONTROL - STAGE 2 SHEET E



TRAFFIC CONTROL LEGEND	
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
	FLASHING ARROW BOARD
	SIGN ON PERMANENT SUPPORT
	SIGN ON TEMPORARY SUPPORT
	CONC. BARRIER TEMP. PRECAST
	CRASH CUSHION TEMPORARY
	DIRECTION OF TRAFFIC
	PORTABLE CHANGEABLE MESSAGE BOARD
	BARRICADES TYPE III WITH/WITHOUT SIGN
	WORK AREA
	TEMPORARY PAVEMENT OR HMA PAVEMENT

TEMPORARY MARKING LINE LEGEND	
	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE EDGELINE)
	TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (YELLOW EDGELINE)

STAGE 2 NOTES:

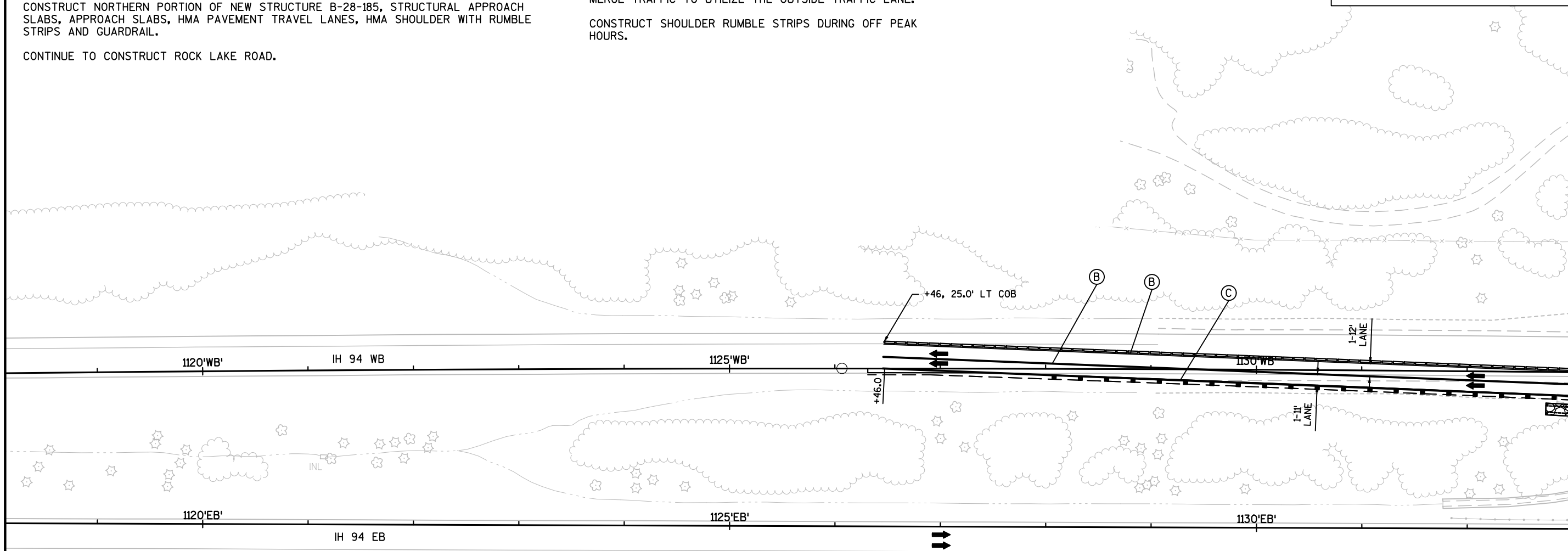
IH 94 EASTBOUND TRAFFIC CONTINUES TO UTILIZE EXISTING TRAFFIC LANES.
 ROCK LAKE ROAD TO REMAIN CLOSED TO THRU TRAFFIC.
 SHIFT IH 94 WESTBOUND TRAFFIC ONTO THE NEWLY CONSTRUCTED SOUTHERN PORTION OF STRUCTURE B-28-185 AND TEMPORARY WIDENING.
 REMOVE REMAINING NORTHERN PORTION OF EXISTING STRUCTURE B-28-39.
 CONSTRUCT NORTHERN PORTION OF NEW STRUCTURE B-28-185, STRUCTURAL APPROACH SLABS, APPROACH SLABS, HMA PAVEMENT TRAVEL LANES, HMA SHOULDER WITH RUMBLE STRIPS AND GUARDRAIL.
 CONTINUE TO CONSTRUCT ROCK LAKE ROAD.

STAGE 3 NOTES:

OPEN ROCK LAKE ROAD TO THRU TRAFFIC.
 SHIFT IH 94 WESTBOUND TRAFFIC BACK TO THE EXISTING TRAFFIC LANES.
 SEE "TRAFFIC CONTROL DETAIL, LANE CLOSURE, ADVANCED WARNING AREA TRAFFIC CONTROL"
 MERGE TRAFFIC TO UTILIZE THE OUTSIDE TRAFFIC LANE.
 CONSTRUCT SHOULDER RUMBLE STRIPS DURING OFF PEAK HOURS.

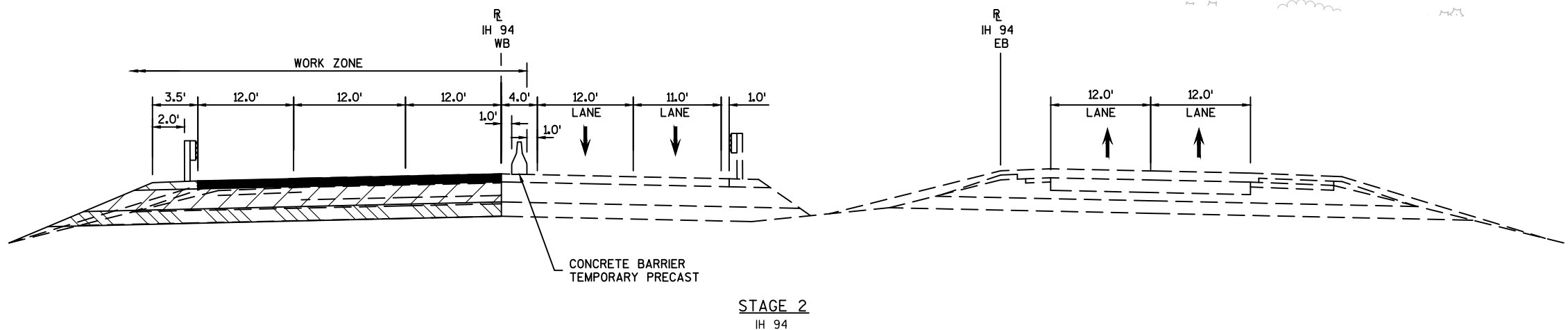
TEMPORARY MARKING LINE LEGEND

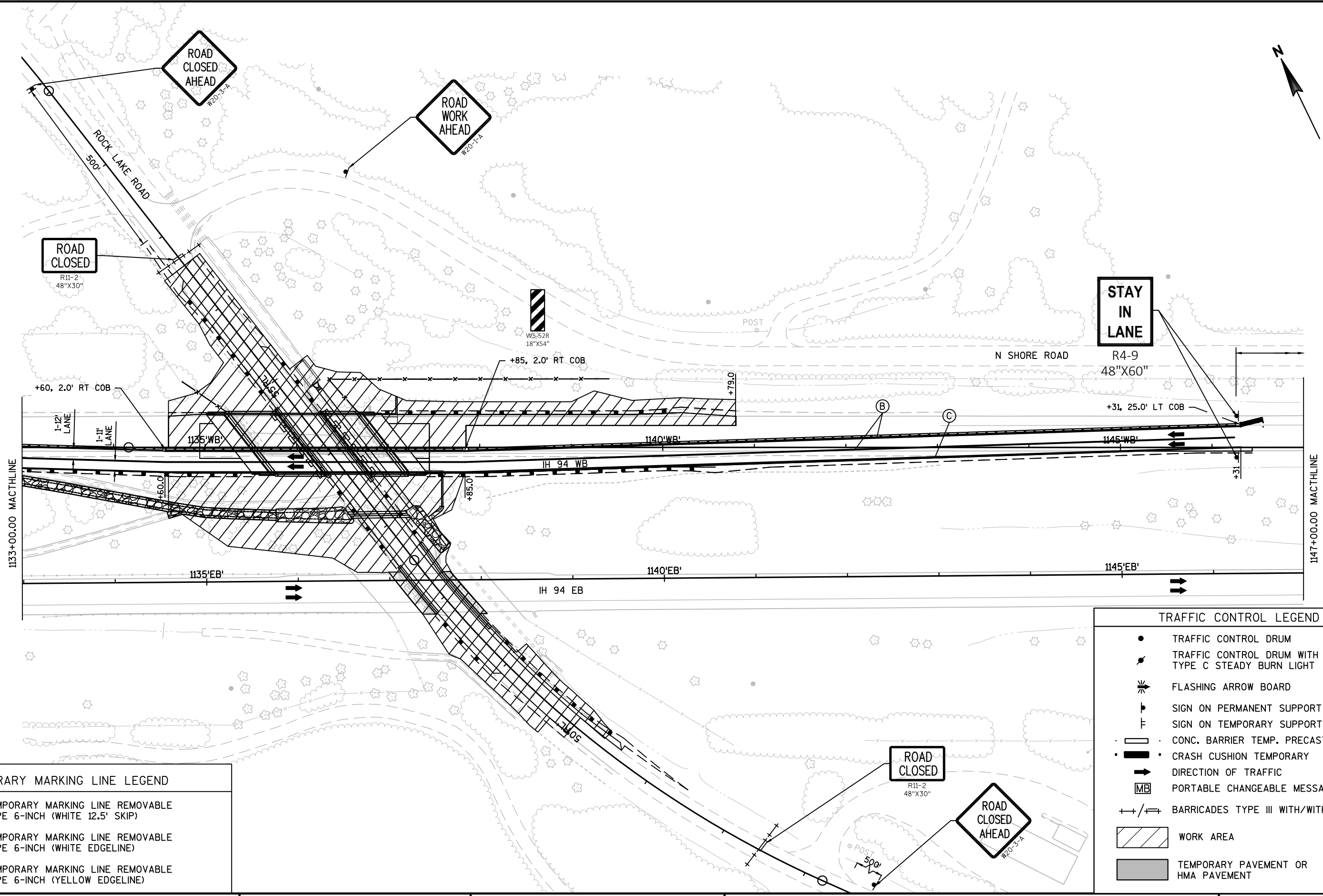
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TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ⚡ FLASHING ARROW BOARD
- ▬ SIGN ON PERMANENT SUPPORT
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- ➡ DIRECTION OF TRAFFIC
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TRAFFIC CONTROL LEGEND

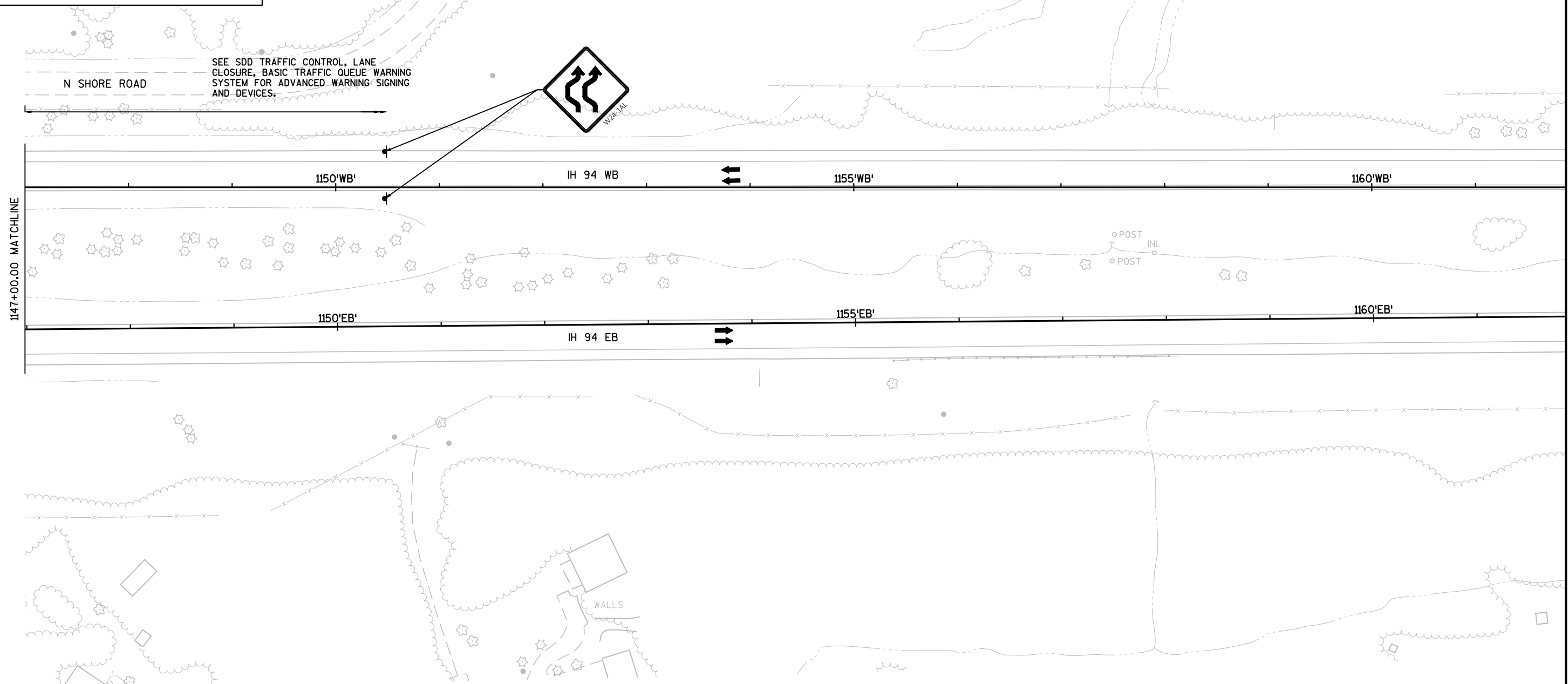
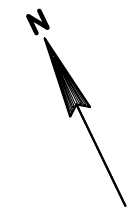
- TRAFFIC CONTROL DRUM
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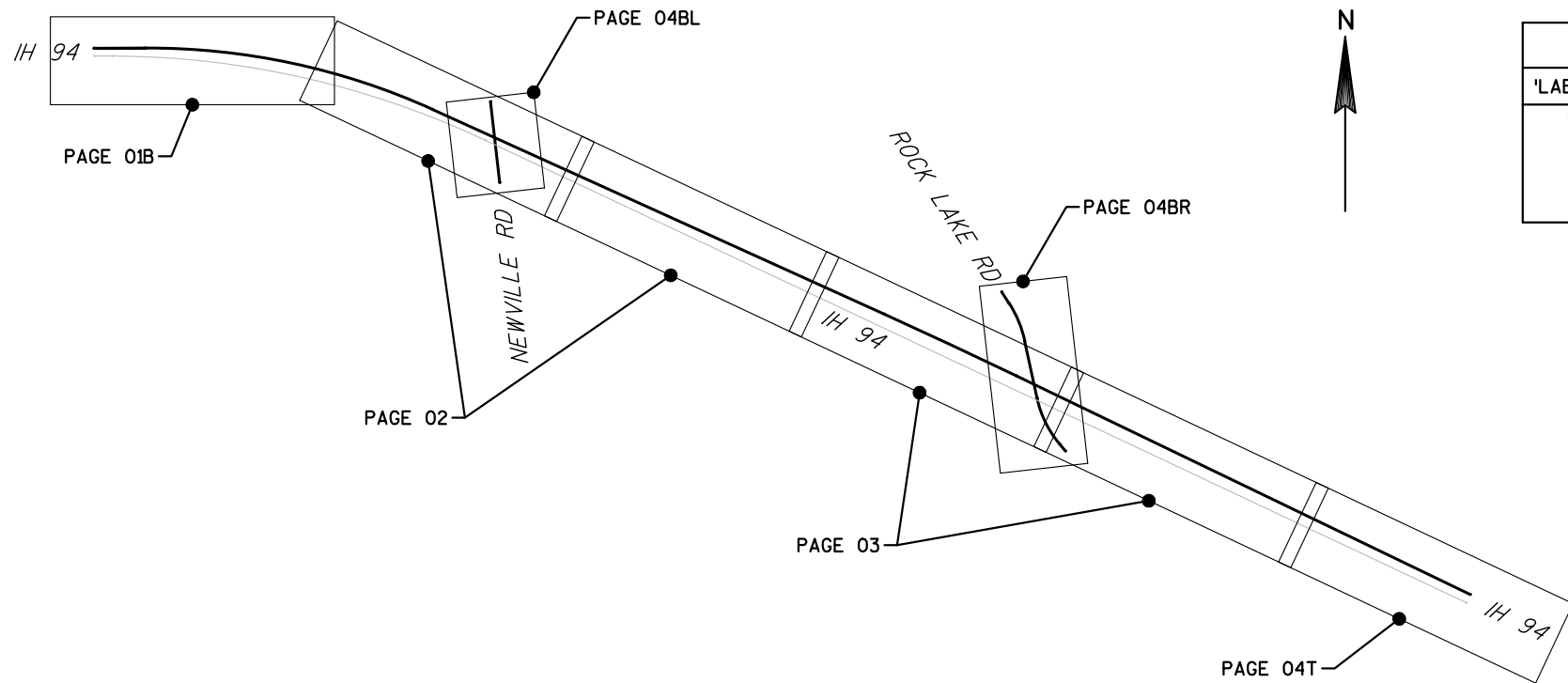
TRAFFIC CONTROL LEGEND

- TRAFFIC CONTROL DRUM
- ☼ TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
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- Ⓐ TEMPORARY MARKING LINE REMOVABLE TAPE 6-INCH (WHITE 12.5' SKIP)
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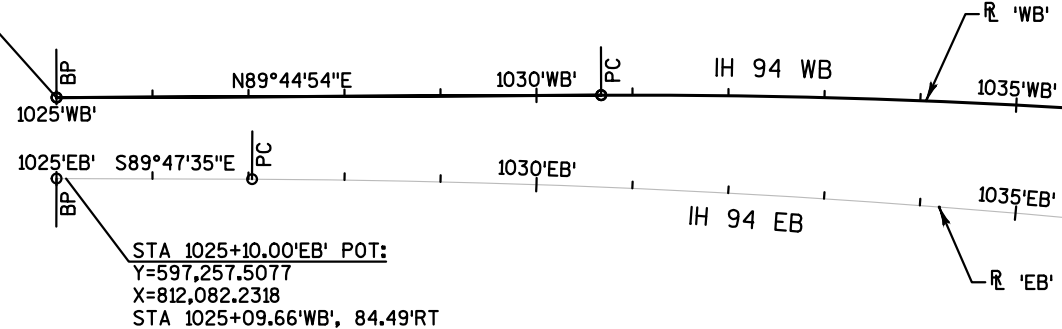




REFERENCE LINE LABEL/MODEL NAME INDEX (PROJECT 1067-02-73)		
'LABEL'	ALIGNMENT MODEL NAME	DESCRIPTION
'WB'	I-94 WB_BEST FIT	PRIMARY PROJECT ALIGNMENT (WEST BOUND IH 94)
'EB'	I-94 EB_ASBUILT	EXISTING EB RL (AS-BUILT, SCALED FROM EXISTING MAPS)
'NV'	NEWVILLE RD	PROPOSED NEWVILLE ROAD UNDERPASS
'RL'	ROCK LAKE RD	PROPOSED ROCK LAKE ROAD UNDERPASS

ALIGNMENT DETAIL SHEET INDEX

STA 1025+00.00'WB' POT:
 Y=597,341.9568
 X=812,072.2019



STA 1025+10.00'EB' POT:
 Y=597,257.5077
 X=812,082.2318
 STA 1025+09.66'WB', 84.49'RT

C1
 PI STA = 1047+34.46'WB'
 Y = 597,351.7713
 X = 814,306.6371
 Δ = 24°37'09"
 D = 0°45'00"
 T = 1,667.02'
 L = 3,282.58'
 R = 7,639.49'
 PC STA = 1030+67.44'WB'
 Y = 597,344.4491
 X = 812,639.6364
 PT STA = 1063+50.02'WB'
 Y = 596,663.9805
 X = 815,825.1524

C21
 PI STA = 1048+74.93'EB'
 Y = 597,248.9700
 X = 814,447.1500
 Δ = 25°02'01"
 D = 0°35'09"
 T = 2,171.18'
 L = 4,273.07'
 R = 9,780.00'
 PC STA = 1027+03.75'EB'
 Y = 597,256.8082
 X = 812,275.9806
 PT STA = 1069+76.82'EB'
 Y = 596,323.1381
 X = 816,411.0424

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 PI STA = 1047+34.46'WB'
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 X = 812,639.6364
 PT STA = 1063+50.02'WB'
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 X = 815,825.1524

BEGIN PROJECT 1067-02-73
 STA 1069+00.00'WB'
 Y=596,437.0648
 X=816,326.1407

STA AHEAD 1069+76.82'WB' =
 STA BACK 1070+25.39'WB'
 IOLP = +48.57'
 Y=596,385.3300
 X=816,440.3614

STA 1070+55.30'WB'
 STA 49+99.49'NV'
 Y=596,352.9513
 X=816,511.8476

**BEGIN EXCEPTION TO
 NET CENTERLINE LENGTH**
 STA 1072+00.00'WB'

STA 1070+98.55'EB'
 STA 49+17.24'NV'
 Y=596,271.2307
 X=816,521.1495

R 'NV' (SEE PAGE
 04 OF 04)

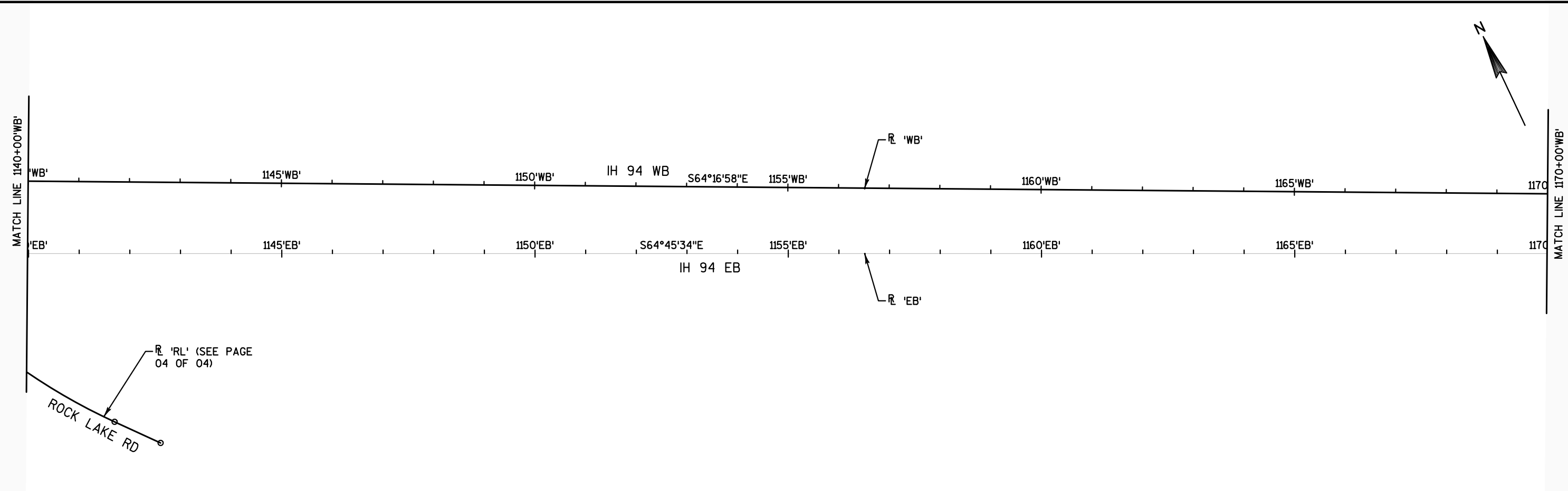
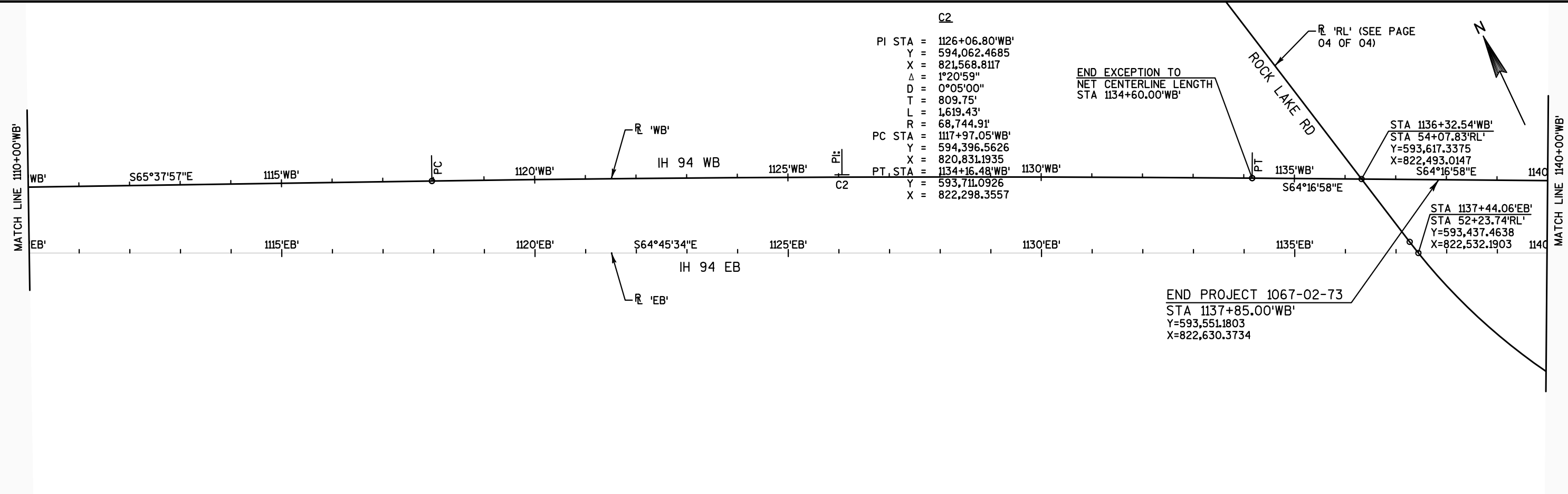
MATCH LINE 1051+00'WB'

MATCH LINE 1080+01'WB'

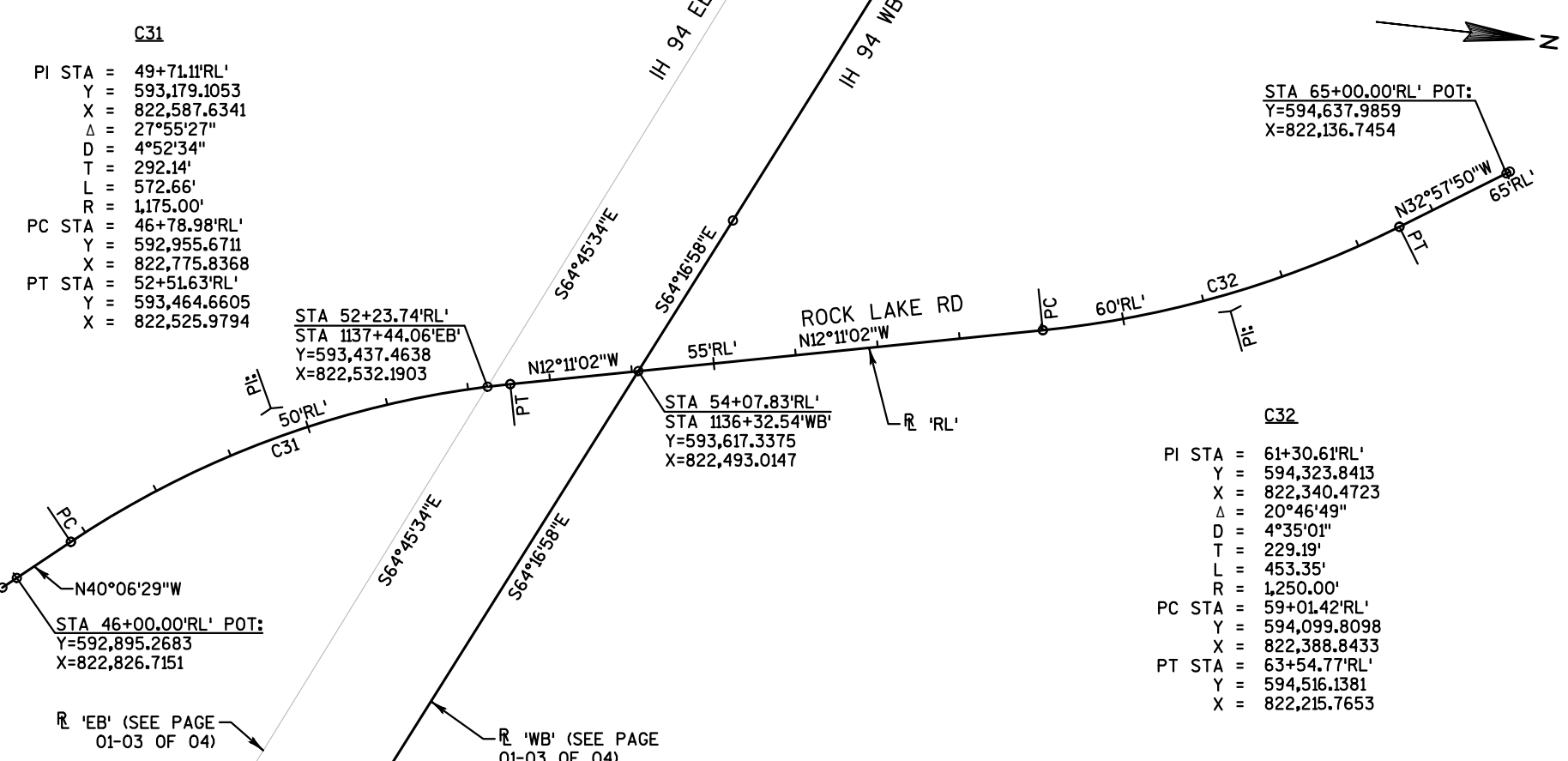
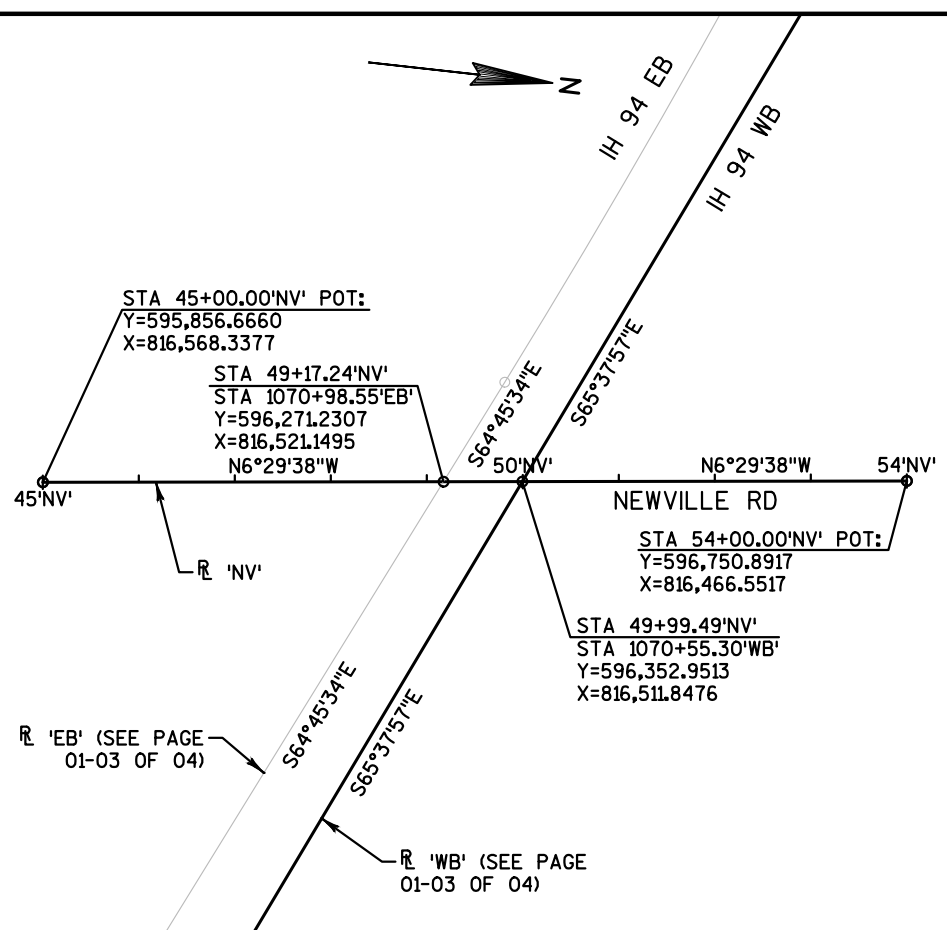
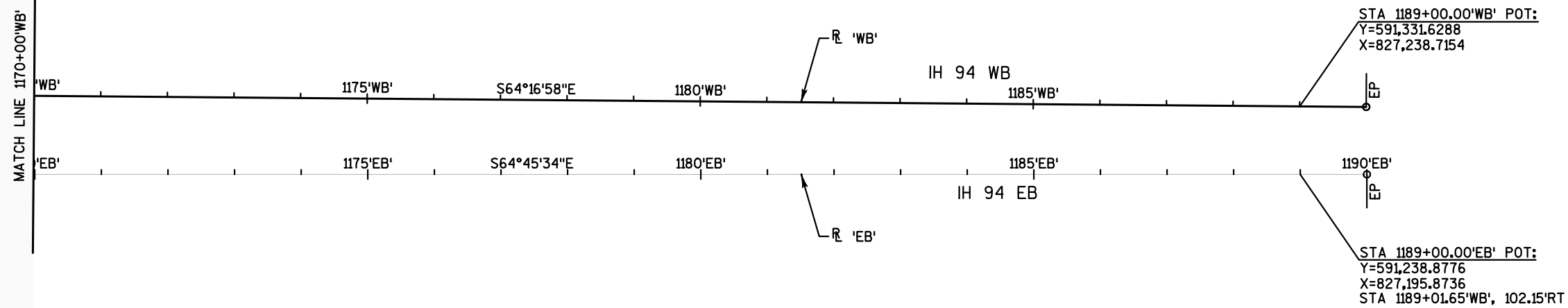
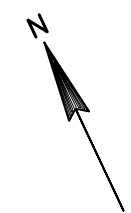
C21
 PI STA = 1048+74.93'EB'
 Y = 597,248.9700
 X = 814,447.1500
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 R = 9,780.00'
 PC STA = 1027+03.75'EB'
 Y = 597,256.8082
 X = 812,275.9806
 PT STA = 1069+76.82'EB'
 Y = 596,323.1381
 X = 816,411.0424

MATCH LINE 1080+01'WB'

MATCH LINE 1110+00'WB'



SAVE FOLDER PATH: \\SEHRL\PROJECTS\UZ\W\WITTSW\134721\4-1-2023\PRELIM-DSGN-RPTS\C3D\10670203\SHEETS\PLAN



Estimate Of Quantities

1067-02-73

Line	Item	Item Description	Unit	Total	Qty
0002	201.0205	Grubbing	STA	25.000	25.000
0004	203.0100	Removing Small Pipe Culverts	EACH	5.000	5.000
0006	203.0211.S	Abatement of Asbestos Containing Material (structure) 01. B-28-37	EACH	1.000	1.000
0008	203.0220	Removing Structure (structure) 01. B-28-37	EACH	1.000	1.000
0010	203.0220	Removing Structure (structure) 02. B-28-39	EACH	1.000	1.000
0012	204.0120	Removing Asphaltic Surface Milling	SY	3,210.000	3,210.000
0014	204.0165	Removing Guardrail	LF	3,165.000	3,165.000
0016	204.0170	Removing Fence	LF	241.000	241.000
0018	204.0180	Removing Delineators and Markers	EACH	6.000	6.000
0020	204.0185	Removing Masonry	CY	117.900	117.900
0022	205.0100	Excavation Common	CY	11,776.000	11,776.000
0024	206.1001	Excavation for Structures Bridges (structure) 01. B-28-184	EACH	1.000	1.000
0026	206.1001	Excavation for Structures Bridges (structure) 02. B-28-185	EACH	1.000	1.000
0028	210.1500	Backfill Structure Type A	TON	845.000	845.000
0030	213.0100	Finishing Roadway (project) 01. 1067-02-73	EACH	1.000	1.000
0032	305.0110	Base Aggregate Dense 3/4-Inch	TON	892.000	892.000
0034	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	11,311.000	11,311.000
0036	312.0110	Select Crushed Material	TON	6,317.000	6,317.000
0038	415.0120	Concrete Pavement 12-Inch	SY	53.000	53.000
0040	415.0410	Concrete Pavement Approach Slab	SY	475.000	475.000
0042	416.0610	Drilled Tie Bars	EACH	5.000	5.000
0044	450.4000	HMA Cold Weather Paving	TON	95.000	95.000
0046	455.0605	Tack Coat	GAL	824.000	824.000
0048	460.2000	Incentive Density HMA Pavement	DOL	2,150.000	2,150.000
0050	460.5224	HMA Pavement 4 LT 58-28 S	TON	758.000	758.000
0052	460.7423	HMA Pavement 3 HT 58-28 H	TON	1,791.000	1,791.000
0054	460.7424	HMA Pavement 4 HT 58-28 H	TON	875.000	875.000
0056	465.0520	Asphaltic Rumble Strips, Shoulder	LF	9,590.000	9,590.000
0058	502.0100	Concrete Masonry Bridges	CY	1,891.000	1,891.000
0060	502.3200	Protective Surface Treatment	SY	2,585.000	2,585.000
0062	502.3210	Pigmented Surface Sealer	SY	358.000	358.000
0064	503.0128	Prestressed Girder Type I 28-Inch	LF	2,395.000	2,395.000
0066	504.0900	Concrete Masonry Endwalls	CY	13.000	13.000
0068	505.0400	Bar Steel Reinforcement HS Structures	LB	45,700.000	45,700.000
0070	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	295,350.000	295,350.000
0072	505.0800.S	Bar Steel Reinforcement HS Stainless Structures	LB	4,600.000	4,600.000
0074	505.0906	Bar Couplers No. 6	EACH	80.000	80.000
0076	505.0907	Bar Couplers No. 7	EACH	8.000	8.000
0078	505.0908	Bar Couplers No. 8	EACH	48.000	48.000
0080	505.0909	Bar Couplers No. 9	EACH	48.000	48.000
0082	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	108.000	108.000
0084	506.4000	Steel Diaphragms (structure) 01. B-28-184	EACH	24.000	24.000
0086	506.4000	Steel Diaphragms (structure) 02. B-28-185	EACH	24.000	24.000
0088	511.1200	Temporary Shoring (structure) 01. B-28-184	SF	454.000	454.000
0090	511.1200	Temporary Shoring (structure) 02. B-28-185	SF	554.000	554.000
0092	516.0500	Rubberized Membrane Waterproofing	SY	88.000	88.000
0094	522.0424	Culvert Pipe Reinforced Concrete Class IV 24-Inch	LF	132.000	132.000
0096	522.1012	Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	EACH	1.000	1.000
0098	522.2334	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-III 34x53-Inch	LF	164.000	164.000
0100	522.2414	Culvert Pipe Reinforced Concrete Horizontal Elliptical Class HE-IV 14x23-Inch	LF	92.000	92.000

Estimate Of Quantities

1067-02-73

Line	Item	Item Description	Unit	Total	Qty
0102	522.2614	Apron Endwalls for Culvert Pipe Reinforced Concrete Horizontal Elliptical 14x23-Inch	EACH	4.000	4.000
0104	550.0020	Pre-Boring Rock or Consolidated Materials	LF	1,020.000	1,020.000
0106	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	3,040.000	3,040.000
0108	602.3010	Concrete Surface Drains	CY	21.500	21.500
0110	603.1132	Concrete Barrier Type S32	LF	742.000	742.000
0112	603.8000	Concrete Barrier Temporary Precast Delivered	LF	5,738.000	5,738.000
0114	603.8125	Concrete Barrier Temporary Precast Installed	LF	9,639.000	9,639.000
0116	603.8505	Anchoring Concrete Barrier Temporary Precast on Bridge Decks	LF	537.000	537.000
0118	604.0400	Slope Paving Concrete	SY	1,495.000	1,495.000
0120	604.0500	Slope Paving Crushed Aggregate	SY	114.000	114.000
0122	606.0100	Riprap Light	CY	5.000	5.000
0124	606.0200	Riprap Medium	CY	110.000	110.000
0126	606.0300	Riprap Heavy	CY	305.000	305.000
0128	606.0700	Grouted Riprap Heavy	CY	110.000	110.000
0130	608.0005	Storm Sewer Rock Excavation	CY	30.000	30.000
0132	608.0412	Storm Sewer Pipe Reinforced Concrete Class IV 12-Inch	LF	125.000	125.000
0134	611.0530	Manhole Covers Type J	EACH	1.000	1.000
0136	611.0545	Manhole Covers Type L	EACH	1.000	1.000
0138	611.0610	Inlet Covers Type BW	EACH	2.000	2.000
0140	611.0642	Inlet Covers Type MS	EACH	2.000	2.000
0142	611.2004	Manholes 4-FT Diameter	EACH	2.000	2.000
0144	611.3225	Inlets 2x2.5-FT	EACH	2.000	2.000
0146	611.3902	Inlets Median 2 Grate	EACH	1.000	1.000
0148	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	650.000	650.000
0150	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	8.000	8.000
0152	614.0905	Crash Cushions Temporary	EACH	4.000	4.000
0154	614.2300	MGS Guardrail 3	LF	3,652.000	3,652.000
0156	614.2500	MGS Thrie Beam Transition	LF	646.800	646.800
0158	614.2610	MGS Guardrail Terminal EAT	EACH	12.000	12.000
0160	614.2620	MGS Guardrail Terminal Type 2	EACH	2.000	2.000
0162	616.0100	Fence Woven Wire (height) 01. 4-Ft	LF	560.000	560.000
0164	618.0100	Maintenance and Repair of Haul Roads (project) 01. 1067-02-73	EACH	1.000	1.000
0166	619.1000	Mobilization	EACH	1.000	1.000
0168	624.0100	Water	MGAL	138.000	138.000
0170	625.0500	Salvaged Topsoil	SY	20,850.000	20,850.000
0172	627.0200	Mulching	SY	19,400.000	19,400.000
0174	628.1504	Silt Fence	LF	1,200.000	1,200.000
0176	628.1520	Silt Fence Maintenance	LF	2,400.000	2,400.000
0178	628.1905	Mobilizations Erosion Control	EACH	9.000	9.000
0180	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0182	628.2004	Erosion Mat Class I Type B	SY	6,560.000	6,560.000
0184	628.2023	Erosion Mat Class II Type B	SY	6,890.000	6,890.000
0186	628.7005	Inlet Protection Type A	EACH	5.000	5.000
0188	628.7020	Inlet Protection Type D	EACH	4.000	4.000
0190	628.7504	Temporary Ditch Checks	LF	230.000	230.000
0192	628.7555	Culvert Pipe Checks	EACH	130.000	130.000
0194	628.7560	Tracking Pads	EACH	2.000	2.000
0196	629.0205	Fertilizer Type A	CWT	15.000	15.000
0198	630.0120	Seeding Mixture No. 20	LB	680.000	680.000
0200	630.0200	Seeding Temporary	LB	680.000	680.000

Estimate Of Quantities

1067-02-73

Line	Item	Item Description	Unit	Total	Qty
0202	630.0500	Seed Water	MGAL	470.000	470.000
0204	633.0100	Delineator Posts Steel	EACH	5.000	5.000
0206	633.0500	Delineator Reflectors	EACH	5.000	5.000
0208	633.5200	Markers Culvert End	EACH	7.000	7.000
0210	638.2102	Moving Signs Type II	EACH	7.000	7.000
0212	642.5201	Field Office Type C	EACH	1.000	1.000
0214	643.0300	Traffic Control Drums	DAY	41,900.000	41,900.000
0216	643.0420	Traffic Control Barricades Type III	DAY	3,500.000	3,500.000
0218	643.0705	Traffic Control Warning Lights Type A	DAY	2,450.000	2,450.000
0220	643.0715	Traffic Control Warning Lights Type C	DAY	7,900.000	7,900.000
0222	643.0800	Traffic Control Arrow Boards	DAY	500.000	500.000
0224	643.0900	Traffic Control Signs	DAY	11,100.000	11,100.000
0226	643.0920	Traffic Control Covering Signs Type II	EACH	1.000	1.000
0228	643.1050	Traffic Control Signs PCMS	DAY	55.000	55.000
0230	643.1205.S	Basic Traffic Queue Warning System	DAY	230.000	230.000
0232	643.3180	Temporary Marking Line Removable Tape 6-Inch	LF	27,584.000	27,584.000
0234	643.5000	Traffic Control	EACH	1.000	1.000
0236	645.0111	Geotextile Type DF Schedule A	SY	296.000	296.000
0238	645.0120	Geotextile Type HR	SY	760.000	760.000
0240	645.0130	Geotextile Type R	SY	355.000	355.000
0242	646.2020	Marking Line Epoxy 6-Inch	LF	14,132.000	14,132.000
0244	646.9012	Marking Removal Line Water Blasting 6-Inch	LF	11,736.000	11,736.000
0246	650.4000	Construction Staking Storm Sewer	EACH	5.000	5.000
0248	650.4500	Construction Staking Subgrade	LF	4,906.000	4,906.000
0250	650.5000	Construction Staking Base	LF	4,906.000	4,906.000
0252	650.6000	Construction Staking Pipe Culverts	EACH	5.000	5.000
0254	650.6501	Construction Staking Structure Layout (structure) 01. B-28-184	EACH	1.000	1.000
0256	650.6501	Construction Staking Structure Layout (structure) 02. B-28-185	EACH	1.000	1.000
0258	650.7000	Construction Staking Concrete Pavement	LF	166.000	166.000
0260	650.7500	Construction Staking Concrete Barrier	LF	742.000	742.000
0262	650.9911	Construction Staking Supplemental Control (project) 01. 1067-02-73	EACH	1.000	1.000
0264	650.9920	Construction Staking Slope Stakes	LF	4,906.000	4,906.000
0266	690.0150	Sawing Asphalt	LF	4,405.000	4,405.000
0268	690.0250	Sawing Concrete	LF	281.000	281.000
0270	715.0502	Incentive Strength Concrete Structures	DOL	11,346.000	11,346.000
0272	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0274	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 1070'WB'+55	EACH	1.000	1.000
0276	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 02. 1136'WB'+33	EACH	1.000	1.000
0278	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,750.000	1,750.000
0280	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,000.000	1,000.000

GRUBBING

CATEGORY	STAGE	STATION - STATION	LOCATION	GRUBBING (STA)	201.0205	
0010	1	1071+00 - 1073+00	IH 94 WB RT	2		
		1074+00 - 1076+00	IH 94 WB RT	2		
		1127+00 - 1137+00	IH 94 WB RT	10		
		1137+00 - 1138+00	IH 94 WB RT	1		
		46+00 - 49+00	NEWVILLE RD, LT	3		
	50+00 - 52+00	NEWVILLE RD, RT & LT	2			
	54+00 - 55+00	ROCK LAKE RD, RT	1			
	STAGE SUBTOTALS				21	
	2	1071+00 - 1073+00	IH 94 WB LT	2		
		1137+00 - 1039+00	IH 94 WB LT	2		
STAGE SUBTOTALS				4		
PROJECT TOTALS				25		

REMOVING SMALL PIPE CULVERTS

CATEGORY	STAGE	STATION	LOCATION	DESCRIPTION	203.0100 (EACH)
0010	1	1070+08'WB'	IH 94, MEDIAN	18" X 6' CPRC	1
		51+30'NV'	NEWVILLE RD, CL	30" X 48' CPCS	1
		53+21'RL'	ROCK LAKE RD, CL	24" X 60' CPCS	1
		53+26'RL'	ROCK LAKE RD, CL	24" X 60' CPCS	1
		53+20'RL' - 54+73'RL'	ROCK LAKE RD, RT	42" X 154' CPCS	1
STAGE SUBTOTALS					5
PROJECT TOTALS					5

REMOVING ASPHALTIC SURFACE MILLING

CATEGORY	STAGE	STATION - STATION	LOCATION	204.0120 (SY)	REMARKS
0010	1A	1057+25 - 1070+23	IH 94 WB, LT	577	REMOVE RUMBLE STRIPS (2")
		1070+99 - 1088+25	IH 94 WB, LT	767	REMOVE RUMBLE STRIPS (2")
		1122+25 - 1135+37	IH 94 WB, LT	583	REMOVE RUMBLE STRIPS (2")
		1136+71 - 1154+25	IH 94 WB, LT	779	REMOVE RUMBLE STRIPS (2")
STAGE SUBTOTALS				2,706	
2		1072+00 - 1072+97	IH 94 WB, LT	177	SHOULDERS (5")
		1137+85 - 1140+80	IH 94 WB, LT	327	SHOULDERS (5")
STAGE SUBTOTALS				504	
PROJECT TOTALS				3,210	

REMOVING FENCE

CATEGORY	STAGE	STATION - STATION	LOCATION	204.0170 (LF)
0010	2	1069+41 - 1070+20	LT	95
		1070+78 - 1070+85	LT	47
		1134+75 - 1135+22	LT	57
		1136+35 - 1136+66	LT	42
STAGE SUBTOTALS				241
PROJECT TOTALS				241

REMOVING DELINEATORS AND MARKERS

CATEGORY	STAGE	STATION	STATION	LOCATION	204.0180 (EACH)
0010	2	1069+00'WB'	1070+20'WB'	SHOULDER	2
		1071+08'WB'	1086+76'WB'	SHOULDER	3
		1136+90'WB'	1140+80'WB'	SHOULDER	1
STAGE SUBTOTALS					6
PROJECT TOTALS					6

REMOVING MASONRY

CATEGORY	STAGE	STATION - STATION	LOCATION	204.0185 (SY)	REMARKS		
0010	1	1132+85 - 1136+45	IH 94 WB, RT	70.7	CONCRETE FLUME MEDIAN		
		48+58 - 48+88	NEWVILLE RD, LT	8.3	CONCRETE FLUME		
		48+82 - 49+41	NEWVILLE RD, LT	0.7	SLOPE PAVING EB BRIDGE		
		48+61 - 49+20	NEWVILLE RD, LT	0.7	SLOPE PAVING EB BRIDGE		
		51+30	NEWVILLE RD, LT & RT	4.3	CONCRETE FLUME		
		52+30 - 53+20	ROCK LAKE RD, RT	7.0	CONCRETE FLUME		
		52+55 - 53+40	ROCK LAKE RD, LT	17.8	CONCRETE FLUME		
		54+44 - 55+00	ROCK LAKE RD, RT	7.1	CONCRETE FLUME		
		STAGE SUBTOTALS				116.7	
		2		1071+02 - 1071+14	IH 94 WB, LT	0.6	C&G/CONCRETE FLUME
1136+75 - 1136+84	IH 94 WB, LT			0.6	C&G/CONCRETE FLUME		
STAGE SUBTOTALS				1.2			
PROJECT TOTALS				117.9			

REMOVING GUARDRAIL

CATEGORY	STAGE	STATION - STATION	LOCATION	204.0165 (LF)		
0010	1	1069+96 - 1070+17	IH 94 WB, MEDIAN	41		
		1071+30 - 1071+50	IH 94 WB, MEDIAN	41		
		1071+22 - 1074+19	IH 94 WB, RT	297		
		1137+03 - 1140+12	IH 94 WB, RT	310		
		48+01 - 50+27	NEWVILLE RD, LT	226		
		48+90 - 51+41	NEWVILLE RD, RT	252		
		51+17 - 51+58	ROCK LAKE RD, RT	40		
		54+73 - 55+13	ROCK LAKE RD, LT	40		
		STAGE SUBTOTALS				1,247
		2		1070+99 - 1086+70	IH 94 WB, LT	1,571
1136+72 - 1140+19	IH 94 WB, LT			347		
STAGE SUBTOTALS				1,918		
PROJECT TOTALS				3,165		

EARTHWORK SUMMARY

CATEGORY	STAGE	STATION	STATION	LOCATION	205.0100 EXCAVATION COMMON (1) CUT (2) (CY)	SALVAGED/ UNUSABLE PAVEMENTS (CY)	AVAILABLE MATERIAL (3) (CY)	FILL (CY)	EXPANDED FILL (1.30) (CY)	MASS ORDINATE +/- (4) (CY)	COMMENTS
0010	1	1060+55 'WB' - 1070+21 'WB'		IH 94 WB MEDIAN SHOULDER	1398	107	1291	422	549	742	
		1071+49 'WB' - 1080+40 'WB'		IH 94 WB MEDIAN SHOULDER	1169	115	1054	312	406	648	
		1126+31 'WB' - 1135+30 'WB'		IH 94 WB MEDIAN SHOULDER	2741	101	2640	750	755	1885	
		1137+42 'WB' - 1146+44 'WB'		IH 94 WB MEDIAN SHOULDER	1106	98	1008	791	1028	-20	
		46+04 'NV' - 47+00 'NV'		NEWVILLE ROAD (DITCH GRADING LT)	125	0	125	4	5	120	
		46+58 'NV' - 53+50 'NV'		NEWVILLE ROAD LT & RT	1730	190	1540	45	59	1482	
		49+65 'RL' - 56+60 'RL'		ROCK LAKE ROAD LT & RT	1723	260	1463	28	36	1427	
STAGE SUBTOTALS:					9992		9121		2838	6283	
	2	1169+00 'WB' - 1070+00 'WB'		IH 94 WB	457	148	309	26	34	275	
		1071+33 'WB' - 1072+97 'WB'		IH 94 WB	796	100	696	10	14	682	
		1134+60 'WB' - 1135+02 'WB'		IH 94 WB	207	64	143	6	8	135	
		1137+45 'WB' - 1140+80 'WB'		IH 94 WB	324	96	228	172	224	4	
STAGE SUBTOTALS:					1784		1376		279	1097	
PROJECT TOTALS					11776						

1) EXCAVATION COMMON = CUT . ITEM NUMBER 205.0100.
 2) CUT VOLUME INCLUDES CONCRETE AND ASPHALTIC SURFACE MATERIAL.
 3) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENTS.
 4) THE MASS ORDINATE IS CALCULATED BY STAGE. A POSITIVE QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE STAGE AND A NEGATIVE QUANTITY INDICATES A SHORTAGE OF MATERIAL WITHIN THE STAGE. STRUCTURE EXCAVATION IS NOT INCLUDED IN THIS CALCULATION.
 MASS ORDINATE = CUT - EXPANDED FILL. THE MASS ORDINATE IS FOR INFORMATION PURPOSES ONLY AS EXCAVATION COMMON AND FILL ARE NOT BALANCED FOR QUANTITY PURPOSES AND DOES NOT GUARANTEE THE QUANTITY OF EXCAVATION COMMON, AND IF IT CAN BE REUSED ON SITE.

BASE AGGREGATE ITEMS

CATEGORY	STAGE	STATION	- STATION	LOCATION	305.0110	305.0120	312.0110	**624.0100
					BASE AGGREGATE DENSE 3/4-INCH (TON)	BASE AGGREGATE DENSE 1 1/4-INCH (TON)	SELECT CRUSHED MATERIAL (TON)	WATER (MGAL)
0010	1	1060+55	- 1069+89	IH 94 WB MEDIAN SHOULDER	139	1,670	1,343	18
		1071+39	- 1080+40	IH 94 WB MEDIAN SHOULDER	135	1,526	1,214	17
		1126+31	- 1135+51	IH 94 WB MEDIAN SHOULDER	55	1,334	1,028	14
		1137+30	- 1146+44	IH 94 WB MEDIAN SHOULDER	136	1,539	1,223	17
STAGE SUBTOTALS					464	6,069	4,809	65
2		1069+00	- 1070+05	IH 94 WB OUTSIDE SHOULDER	14	340	335	4
		1071+12	- 1072+98	IH 94 WB OUTSIDE SHOULDER	43	408	365	5
		1134+60	- 1135+09	IH 94 WB OUTSIDE SHOULDER	7	138	134	1
		1136+95	- 1140+80	IH 94 WB OUTSIDE SHOULDER	96	735	674	8
STAGE SUBTOTALS					160	1,511	1,408	18
UNDISTRIBUTED					-	-	-	26
PROJECT TOTALS					892	10,367	6,317	138

** WATER CONVERSION IS 1 MGAL/100 TON OF BASE AGGREGATE DENSE MATERIAL USE WATER FOR BASE COMPACTION AND DUST CONTROL

ASPHALTIC PAVEMENT ITEMS

CATEGORY	STAGE	STATION	- STATION	LOCATION	LAYER THICKNESS (IN)	455.0605	460.5224	460.7423	460.7424	450.4000
						TACK COAT (GAL)	HMA PAVEMENT 4 LT 58-28 S (TON)	HMA PAVEMENT 3 HT 58-28 H (TON)	HMA PAVEMENT 4 HT 58-28 H (TON)	HMA COLD WEATHER PAVING (TON)
0010	1A	1057+25	- 1070+23	IH 94 WB OUTSIDE SHOULDER	2.00	40	-	-	65	- SINGLE
		1070+89	- 1088+25	IH 94 WB OUTSIDE SHOULDER	2.00	54	-	-	86	- SINGLE
		1122+25	- 1135+37	IH 94 WB OUTSIDE SHOULDER	2.00	41	-	-	65	- SINGLE
		1136+71	- 1154+25	IH 94 WB OUTSIDE SHOULDER	2.00	55	-	-	87	- SINGLE
STAGE SUBTOTALS						189	0	0	303	0
1		1060+55	- 1069+89	IH 94 WB MEDIAN SHOULDER	5.00	85	-	478	-	- SINGLE
		1071+39	- 1080+40	IH 94 WB MEDIAN SHOULDER	5.00	76	-	425	-	- SINGLE
		1126+31	- 1135+51	IH 94 WB MEDIAN SHOULDER	5.00	75	-	419	-	- SINGLE
		1137+30	- 1146+44	IH 94 WB MEDIAN SHOULDER	5.00	76	-	428	-	- SINGLE
		1063+23	MAINTENANCE CROSSOVER, RT		5.00	7	-	42	-	- SINGLE
STAGE SUBTOTALS						320	0	1791	0	0
2		1069+00	- 1070+05	IH 94 WB DRIVING LANES	3.00	19	-	-	62	- LOWER
		1069+00	- 1070+05	IH 94 WB DRIVING LANES	2.50	19	-	-	52	- MIDDLE
		1069+00	- 1070+05	IH 94 WB DRIVING LANES	2.50	-	-	-	52	- UPPER
		1071+12	- 1072+00	IH 94 WB DRIVING LANES	3.00	11	-	-	37	- LOWER
		1071+12	- 1072+00	IH 94 WB DRIVING LANES	2.50	11	-	-	31	- MIDDLE
		1071+12	- 1072+00	IH 94 WB DRIVING LANES	2.50	-	-	-	31	- UPPER
		1072+00	- 1072+98	IH 94 WB OUTSIDE SHOULDER	2.50	6	-	-	18	- LOWER
		1072+00	- 1072+98	IH 94 WB OUTSIDE SHOULDER	2.50	-	-	-	18	- UPPER
		1134+60	- 1135+09	IH 94 WB DRIVING LANES	3.00	7	-	-	24	- LOWER
		1134+60	- 1135+09	IH 94 WB DRIVING LANES	2.50	7	-	-	20	- MIDDLE
		1134+60	- 1135+09	IH 94 WB DRIVING LANES	2.50	-	-	-	20	- UPPER
		1136+95	- 1137+85	IH 94 WB DRIVING LANES	3.00	10	-	-	35	- LOWER
		1136+95	- 1137+85	IH 94 WB DRIVING LANES	2.50	10	-	-	29	- MIDDLE
		1136+95	- 1137+85	IH 94 WB DRIVING LANES	2.50	-	-	-	29	- UPPER
1137+85	- 1140+80	IH 94 WB OUTSIDE SHOULDER	2.50	20	-	-	56	- LOWER		
1137+85	- 1140+80	IH 94 WB OUTSIDE SHOULDER	2.50	-	-	-	56	- UPPER		
STAGE SUBTOTALS						314	758	0	572	95
PROJECT TOTALS						824	758	1791	875	95

CONCRETE PAVEMENT 12-INCH

CATEGORY	STAGE	LOCATION	415.0120 (SY)
0010	1	B-28-184, RT	16
		B-28-185, RT	15
STAGE SUBTOTALS			31
2		B-28-184, LT	11
		B-28-185, LT	11
STAGE SUBTOTALS			22
PROJECT TOTALS			53

CONCRETE SURFACE DRAINS

CATEGORY	STAGE	STATION - STATION	LOCATION	416.0610	602.3010	*645.0130
				DRILLED CONCRETE TIE BARS (EACH)	SURFACE DRAINS (CY)	GEOTEXTILE FABRIC TYPE R (SY)
0010	1	1071+47.28 - 1071+66.66	IH 94 WB, RT	-	2.2	3
		1137+40.48 - 1137+60.08	IH 94 WB, RT	-	3.4	8
STAGE SUBTOTALS				0	5.6	11
2		1071+10.62 - 1071+28.41	IH 94 WB, LT	-	2.4	5
		1136+92.50 - 1137+10.08	IH 94 WB, LT	-	2.4	5
		54+70'RL' - 54+98'RL'	ROCK LAKE RD, RT	5	11.1	44
STAGE SUBTOTALS				5	15.9	54
PROJECT TOTALS				5	21.5	65

*ADDITIONAL QUANTITIES LISTED ELSEWHERE IN PLANS

CONCRETE PAVEMENT APPROACH SLAB

CATEGORY	STAGE	LOCATION	415.0410 (SY)
0010	1	B-28-184, RT	70
		B-28-185, RT	80
STAGE SUBTOTALS			150
2		B-28-184, LT	153
		B-28-185, LT	172
STAGE SUBTOTALS			325
PROJECT TOTALS			475

RUMBLE STRIPS

CATEGORY	STAGE	STATION - STATION	OFFSET	LOCATION	465.0520	COMMENTS		
					ASPHALTIC RUMBLE STRIPS, SHOULDER (LF)			
0010	3	1057+25 - 1069+80	LT	IH 94 WB	1,265	OUTSIDE SHLDR		
		1060+55 - 1069+80	RT	IH 94 WB	980	MEDIAN SHLDR		
		1071+54 - 1088+25	LT	IH 94 WB	1,672	OUTSIDE SHLDR		
		1071+40 - 1080+40	RT	IH 94 WB	900	MEDIAN SHLDR		
		1122+25 - 1134+94	LT	IH 94 WB	1,269	OUTSIDE SHLDR		
		1126+31 - 1135+39	RT	IH 94 WB	908	MEDIAN SHLDR		
		1137+45 - 1154+25	LT	IH 94 WB	1,680	OUTSIDE SHLDR		
		1137+30 - 1146+44	RT	IH 94 WB	916	MEDIAN SHLDR		
		STAGE SUBTOTALS					9,590	
		PROJECT TOTALS					9,590	

CULVERT ITEMS

CATEGORY	STAGE	INLET		ELEV. (FT)	OUTLET		ELEV. (FT)	SLOPE (%)	522.0424	522.2334	522.2414	522.2614	504.0900	*633.5200	650.6000
		STATION	OFFSET		STATION	OFFSET			REINFORCED CONCRETE CLASS IV 24-INCH (LF)	CONCRETE PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-III 34x53-INCH (LF)	CONCRETE PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL CLASS HE-IV 14x23-INCH (LF)	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL 14x23-INCH (EACH)	CONCRETE MASONRY ENDWALLS (CY)	MARKERS CULVERT END (EACH)	CONSTRUCTION STAKING PIPE CULVERTS (EACH)
0010	1	51+27'NV'	22.0' LT	883.36	51+27'NV'	24.0' RT	883.24	0.26%	-	-	46	2	-	1	1
		51+33'NV'	22.0' LT	883.36	51+33'NV'	24.0' RT	883.24	0.26%	-	-	46	2	3	1	1
		53+31'RL'	25.8' LT	855.75	52+92'RL'	25.8' RT	855.42	0.50%	66	-	-	-	5	1	1
		53+37'RL'	25.8' LT	855.75	52+98'RL'	25.8' RT	855.42	0.50%	66	-	-	-	5	1	1
		53+02'RL'	33.0' RT	855.31	54+62'RL'	33.0' RT	854.44	0.53%	-	164	-	-	-	2	1
STAGE SUBTOTALS									132	164	92	4	13	6	5
PROJECT TOTALS									132	164	92	4	13	6	5

*ADDITIONAL QUANTITIES LISTED ELSEWHERE IN PLANS

CONCRETE BARRIER TEMPORARY ITEMS

CATEGORY	STAGE	STATION	-	STATION	LOCATION	603.8000	603.8125	603.8505	614.0905	BACK WIDTH (FT)	SIGN PLATE	CRASH TEST LEVEL	TRAFFIC LOCATION
						CONCRETE BARRIER TEMPORARY DELIVERED (LF)	CONCRETE BARRIER PRECAST INSTALLED (LF)	ANCHORING CONCRETE BARRIER ON BRIDGE DECK (LF)	CRASH CUSHIONS TEMPORARY (EACH)				
0010	1	1060+00'WB'	-	1088+25'WB'	MEDIAN	2825	2825	127	1	2	WO5-58L	TL-3	RT
		1125+00'WB'	-	1154+06'WB'	MEDIAN	2913	2913	139	1	2	WO5-58L	TL-3	RT
STAGE SUBTOTALS						5,738	5,738	266	2				
	2	1061+25'WB'	-	1090+40'WB'	OUTSIDE	-	1913	120	1	2	WO5-58R	TL-3	LT
		1126+46'WB'	-	1146+31'WB'	OUTSIDE	-	1988	151	1	2	WO5-58R	TL-3	LT
STAGE SUBTOTALS						0	3,901	271	2				
PROJECT TOTALS						5,738	9,639	537	4				

SLOPE PAVING

CATEGORY	STAGE	STATION - STATION	LOCATION	604.0400	604.0500	REMARKS
				CONCRETE (SY)	CRUSHED AGGREGATE (SY)	
0010	3	48+64.6 - 49+19.6	RT	30	-	B-28-036
		48+80.0 - 49+38.0	LT	30	-	B-28-036
		51+60.3 - 52+21.8	RT	-	41	B-28-038
		51+91.6 - 52+50.1	LT	-	73	B-28-038
STAGE SUBTOTALS				60	114	
PROJECT TOTALS				60	114	

STORM SEWER PIPE SUMMARY

CATEGORY	STAGE	P-#	INLET / RIM		OUTLET / SUMP		ELEV. (FT)	SLOPE (%)	522.1012	608.0412	*608.0005	*633.5200
			STATION	OFFSET	STATION	OFFSET			APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH (EACH)	STORM SEWER PIPE REINFORCED CONCRETE CLASS IV 12-INCH (LF)	STORM SEWER ROCK EXCAVATION (CY)	MARKERS CULVERT END (EACH)
0010	1	P-3	48+78'NV'	5.5' LT	49+69'NV'	21.3' LT	881.72	0.56%	1	18	3	1
		P-4	49+56'NV'	5.5' LT	48+78'NV'	5.5' LT	882.11	0.51%	-	77	12	-
		P-4A	49+56'NV'	14.6' LT	49+56'NV'	5.5' LT	882.16	0.56%	-	9	2	-
		P-4B	49+56'NV'	15.0' RT	49+56'NV'	5.5' LT	882.22	0.52%	-	21	3	-
STAGE SUBTOTAL									1	125	20	1
PROJECT TOTALS									1	125	20	1

* ADDITIONAL QUANTITIES LISTED ELSEWHERE IN PLANS

STORM SEWER STRUCTURE SUMMARY

CATEGORY	STAGE	STRUCTURE	STATION	OFFSET	RIM ELEVATION	TOP OF STRUCTURE ELEVATION	BOTTOM OF STRUCTURE ELEVATION	DEPTH	611.0642	611.3902	611.0530	611.0545	611.2004	611.0610	611.3225	*608.0005	650.4000
									INLET COVERS TYPE MS	INLETS MEDIAN 2 GRATE	MANHOLE COVERS TYPE J	MANHOLE COVERS TYPE L	MANHOLES 4-FT DIAMETER	INLET COVERS TYPE BW	INLETS 2x2.5-FT	STORM SEWER ROCK EXCAVATION (CY)	CONSTRUCTION STAKING STORM SEWER (EACH)
0010	1	INL 1	1070+08'WB'	41.6' RT	903.60	903.60	900.69	2.91	2	1	-	-	-	-	-	-	1
		MH 3	48+78'NV'	5.5' LT	884.98	884.15	881.55	2.59	-	-	1	1	-	-	-	4	1
		MH 4	49+56'NV'	5.5' LT	884.77	883.53	881.94	1.59	-	-	1	1	-	-	-	4	1
		INL 4A	49+56'NV'	14.6' LT	884.62	883.29	881.99	1.29	-	-	-	-	1	1	1	1	1
		INL 4B	49+56'NV'	15.0' RT	884.61	883.28	882.05	1.22	-	-	-	-	1	1	1	1	1
STAGE SUBTOTALS									2	1	1	1	2	2	2	10	5
PROJECT TOTALS									2	1	1	1	2	2	2	10	5

*ADDITIONAL QUANTITIES LISTED ELSEWHERE IN PLANS
 ** STATIONS AND OFFSETS ARE TO CENTER OF STRUCTURE
 *** DEPTH = RIM ELEVATION - BOTTOM OF STRUCTURE ELEVATION

EROSION CONTROL MOBILIZATION

CATEGORY	STAGE	LOCATION	628.1905	628.1910
			MOBILIZATION EROSION CONTROL (EACH)	MOBILIZATIONS EMERGENCY EROSION CONTROL (EACH)
0010	1A	IH 94 WB OUTSIDE SHLD	1	1
		IH 94 WB MEDIAN SHLD	3	1
		IH 94 WB OUTSIDE SHLD	3	1
STAGE SUBTOTALS			7	3
UNDISTRIBUTED			2	1
PROJECT TOTALS			9	4

EROSION CONTROL ITEMS

CATEGORY	STAGE	STATION - STATION	LOCATION	606.0100	606.0200	606.0300	606.0700	628.1504	628.1520	628.2004	628.2023	628.7005	628.7020	628.7504	628.7555	628.7560	645.0120	*645.0130
				RIPRAP LIGHT (CY)	RIPRAP MEDIUM (CY)	RIPRAP HEAVY (CY)	GROUTED RIPRAP HEAVY (CY)	SILT FENCE MAINTENANCE (LF)	SILT FENCE (LF)	EROSION MAT CLASS I TYPE B (SY)	EROSION MAT CLASS II TYPE B (SY)	INLET PROTECTION TYPE A (EACH)	INLET PROTECTION TYPE D (EACH)	TEMPORARY DITCH CHECKS (LF)	CULVERT PIPE CHECKS (ROCK BAGS) (EACH)	TRACKING PADS (EACH)	GEOTEXTILE TYPE HR (SY)	GEOTEXTILE TYPE R (SY)
0010	-	1060+55 - 1069+89	IH 94 WB MEDIAN SHOULDER	-	-	-	-	-	-	689	214	2	1	90	-	-	-	-
		1071+39 - 1080+40	IH 94 WB MEDIAN SHOULDER	-	-	-	-	-	-	486	112	-	-	-	3	-	-	-
		1126+31 - 1135+51	IH 94 WB MEDIAN SHOULDER	-	-	253	91	-	-	3555	1772	-	-	90	8	-	604	-
		1137+30 - 1146+44	IH 94 WB MEDIAN SHOULDER	3	-	-	-	-	-	354	305	-	-	-	-	-	-	14
-	-	1069+00 - 1070+05	IH 94 WB OUTSIDE SHOULDER	-	-	-	-	-	-	-	309	-	-	-	12	-	-	-
		1071+12 - 1072+98	IH 94 WB OUTSIDE SHOULDER	-	-	-	-	225	450	-	868	-	-	-	15	-	-	-
		1134+60 - 1135+09	IH 94 WB OUTSIDE SHOULDER	-	-	-	-	75	150	-	411	-	-	-	34	-	-	-
		1136+95 - 1140+80	IH 94 WB OUTSIDE SHOULDER	-	-	-	-	415	830	-	328	-	-	-	7	-	-	-
-	-	46+03 - 53+40	NEWVILLE ROAD	-	42	-	-	95	190	232	1414	2	2	-	14	-	-	105
		49+64 - 56+60	ROCK LAKE ROAD	-	47	-	-	135	270	144	-	-	-	-	10	-	-	109
SUBTOTALS				3	88	253	91	945	1890	5460	5734	4	3	180	103	0	604	228
UNDISTRIBUTED				2	22	52	19	255	510	1100	1156	1	1	50	27	2	156	62
PROJECT TOTALS				5	110	305	110	1200	2400	6560	6890	5	4	230	130	2	760	290

*ADDITIONAL QUANTITIES LISTED ELSEWHERE IN PLANS

BARRIER ITEMS

		650.7500				614.2610		614.2620	
		603.1132	CONSTRUCTION	614.2300	614.2500	MGS GUARDRAIL	614.2610	614.2620	
CATEGORY	STAGE	CONCRETE	STAKING	MGS	MGS THRIE BEAM	TERMINAL	TERMINAL		
		TYPE S32	CONCRETE	GUARDRAIL 3	TRANSITION	EAT	TYPE 2		
		(LF)	(LF)	(LF)	(LF)	(EACH)	(EACH)		
0010	1	1065+94.75WB'	- 1069+83.52WB'	RT	-	-	1		
		1069+83.52WB'	- 1069+91.66WB'	RT	-	-	-		
		1071+46.58WB'	- 1071+85.98WB'	RT	-	-	-		
		1071+85.98WB'	- 1074+10.86WB'	RT	-	-	-		
		1074+10.86WB'	- 1074+63.99WB'	RT	-	-	1		
		1137+40.00WB'	- 1137+79.40WB'	RT	-	-	-		
		1137+79.40WB'	- 1140+04.29WB'	RT	-	-	-		
		1140+04.29WB'	- 1140+57.41WB'	RT	-	-	1		
		STAGE SUBTOTAL	0	0	838.5	87.0	2	1	
2		1071+08.12WB'	- 1071+47.52WB'	LT	-	-	-		
		1071+47.52WB'	- 1086+22.52WB'	LT	-	-	-		
		1086+22.52WB'	- 1086+75.65WB'	LT	-	-	1		
		1127+95.85WB'	- 1135+45.68WB'	RT	-	-	-		
		1135+45.68WB'	- 1135+53.83WB'	RT	-	-	-		
		1136+90.00WB'	- 1137+29.39WB'	LT	-	-	-		
		1137+29.39WB'	- 1139+66.89WB'	LT	-	-	-		
		1139+66.89WB'	- 1140+20.02WB'	LT	-	-	1		
		47+74.60NV'	- 48+27.70NV'	LT	-	-	1		
		48+27.70NV'	- 48+67.10NV'	LT	-	-	-		
		48+64.60NV'	- 50+56.20NV'	LT	192	192	-		
		50+53.70NV'	- 50+93.10NV'	LT	-	-	-		
		50+93.10NV'	- 51+68.10NV'	LT	-	-	-		
		51+68.10NV'	- 52+21.20NV'	LT	-	-	1		
		47+34.48NV'	- 47+87.58NV'	RT	-	-	1		
		47+87.58NV'	- 48+25.08NV'	RT	-	-	-		
		48+25.08NV'	- 48+64.48NV'	RT	-	-	-		
		48+61.98NV'	- 50+35.58NV'	RT	174	174	-		
		50+33.06NV'	- 50+72.48NV'	RT	-	-	-		
		50+72.48NV'	- 51+25.58NV'	RT	-	-	1		
		49+48.32RL'	- 50+02.02RL'	RT	-	-	1		
		50+02.02RL'	- 51+03.31RL'	RT	-	-	-		
		51+03.31RL'	- 51+43.19RL'	RT	-	-	-		
		51+40.69RL'	- 52+61.84RL'	RT	121	121	-		
		52+59.34RL'	- 52+98.74RL'	RT	-	-	-		
		52+98.74RL'	- 53+11.21RL'	RT	-	-	-		
		53+11.21RL'	- 53+45.61RL'	RT	-	-	-		
		53+48.11RL'	- 54+43.10RL'	RT	95	95	-		
		54+40.60RL'	- 54+80.00RL'	RT	-	-	-		
		54+80.00RL'	- 55+33.10RL'	RT	-	-	1		
		51+02.64RL'	- 51+55.23RL'	LT	-	-	1		
		51+55.23RL'	- 51+94.10RL'	LT	-	-	-		
		51+91.60RL'	- 52+56.17RL'	LT	65	65	-		
		52+53.67RL'	- 52+93.07RL'	LT	-	-	-		
		52+93.07RL'	- 53+43.07RL'	LT	-	-	-		
		53+43.07RL'	- 53+82.47RL'	LT	-	-	-		
		53+79.97RL'	- 54+75.01RL'	LT	95	95	-		
		54+72.51RL'	- 55+11.91RL'	LT	-	-	-		
		55+11.91RL'	- 55+86.92RL'	LT	-	-	-		
		55+86.92RL'	- 56+40.05RL'	LT	-	-	1		
		STAGE SUBTOTAL	742	742	2813.5	559.8	10	1	
		PROJECT TOTAL	742	742	3652.0	646.8	12	2	

FENCING ITEMS

		616.0100 01			
		FENCE			
		WOVEN WIRE			
		4-FT			
CATEGORY	STAGE	STATION	-	STATION	LOCATION (LF)
0010	-	1069+41	-	1070+20	IH 94 WB, LT 102
		1070+86	-	1070+78	IH 94 WB, LT 48
		1134+75	-	1135+22	IH 94 WB, LT 57
		1136+35	-	1139+40	IH 94 WB, LT 353
					PROJECT TOTALS 560

FINISHING ITEMS

				625.0500	627.0200	629.0205	630.0500	630.0120	630.0200
				SALVAGED	MULCHING	FERTILIZER	SEED	SEEDING	SEEDING
				TOPSOIL		TYPE A	WATER	MIXTURE	TEMPORARY
CATEGORY	STAGE	STATION	LOCATION	(SY)	(SY)	(CWT)	(MGAL)	NO. 20	(LB)
0010	1	1060+55WB'	- 1069+89WB'	IH 94 WB MEDIAN SHOULDER	2022	1922	1.3	45	74
		1071+39WB'	- 1080+40WB'	IH 94 WB MEDIAN SHOULDER	1532	1485	1.0	34	57
		1126+31WB'	- 1135+51WB'	IH 94 WB MEDIAN SHOULDER	5981	5389	3.8	134	172
		1137+30WB'	- 1146+44WB'	IH 94 WB MEDIAN SHOULDER	1866	1792	1.2	42	61
STAGE SUBTOTALS				11401	10569	7.2	256	364	364
2		1069+00WB'	- 1070+05WB'	IH 94 WB OUTSIDE SHOULDER	499	465	0.3	11	15
		1071+12WB'	- 1072+98WB'	IH 94 WB OUTSIDE SHOULDER	306	210	0.2	7	11
		1134+60WB'	- 1135+09WB'	IH 94 WB OUTSIDE SHOULDER	302	256	0.2	7	9
		1136+95WB'	- 1140+80WB'	IH 94 WB OUTSIDE SHOULDER	1433	1397	0.9	32	45
		46+03NV'	- 53+40NV'	NEWVILLE ROAD	2457	2300	1.5	55	79
		49+64RL'	- 56+60RL'	ROCK LAKE ROAD	970	970	0.6	22	39
STAGE SUBTOTALS				5967	5597	3.8	134	198	198
UNDISTRIBUTED				3482	3235	4.1	80	118	118
PROJECT TOTALS				20,850	19,400	15.0	470	680	680

DELINEATORS

				633.0100		633.0500	
				DELINEATOR		DELINEATOR	
				POSTS STEEL		REFLECTORS	
CATEGORY	STAGE	STATION	-	STATION	LOCATION (EACH)	(EACH)	(EACH)
0010	2	1069+00WB'	-	1070+20WB'	SHOULDER	1	1
		1071+08WB'	-	1086+76WB'	SHOULDER	3	3
		1136+90WB'	-	1140+80WB'	SHOULDER	1	1
STAGE SUBTOTAL						5	5
PROJECT TOTAL						5	5

MOVING SIGNS

				638.2102	
				MOVING	
				SIGNS	
				TYPE II	
CATEGORY	STAGE	LOCATION	(EACH)	REMARKS	(EACH)
0010	1	IH 94 WB MEDIAN	1	NO U-TURNS SYMBOL	
		IH 94 WB MEDIAN	1	ENHANCED REFERENCE MARKER	
		IH 94 WB MEDIAN	1	ENHANCED REFERENCE MARKER	
		IH 94 WB MEDIAN	1	ENHANCED REFERENCE MARKER	
		IH 94 WB MEDIAN	1	ENHANCED REFERENCE MARKER	
		AIRPORT RD	1	STREET NAME SIGN	
		NEWVILLE RD	1	ROAD CURVES	
PROJECT TOTALS			7		

TRAFFIC CONTROL

CATEGORY	LOCATION	STAGE	DAYS	643.5000		643.0300		643.0420		643.0705		643.0715		643.0800		643.1050		*643.0900
				TRAFFIC CONTROL EACH	DRUMS EACH	BARRICADES TYPE III EACH	BARRICADES TYPE III (DAYS)	WARNING LIGHTS TYPE A EACH	WARNING LIGHTS TYPE A (DAYS)	WARNING LIGHTS TYPE C EACH	WARNING LIGHTS TYPE C (DAYS)	ARROW BOARDS EACH	ARROW BOARDS (DAYS)	SIGNS PCMS EACH	SIGNS PCMS (DAYS)	SIGNS EACH	SIGNS (DAYS)	
0010	PRIOR TO CONSTRUCTION	-	14	-	-	-	-	-	-	-	-	-	-	-	1	14	-	-
	IH 94	1A	10	-	120	1200	1	10	2	20	24	240	2	20	-	-	30	300
	IH 94	1	100	-	165	16500	1	100	2	200	24	2400	2	200	-	-	30	3000
	NEWVILLE RD CLOSURE	1 & 2	216	-	20	4320	8	1728	4	864	10	2160	-	0	2	14	9	1944
	ROCK LAKE RD CLOSURE	1 & 2	216	-	-	0	6	1296	4	864	-	0	-	0	2	14	5	1080
	IH 94	2	116	-	165	19140	1	116	2	232	24	2784	2	232	-	-	30	3480
	IH 94	3	4	-	120	480	1	4	2	8	24	96	2	8	-	-	30	120
	UNDISTRIBUTED					260		246		262		220		40		13		1176
PROJECT TOTALS				1	41900	3500	3500	2450	7900	500	55	11100						

TRAFFIC CONTROL COVERING SIGNS TYPE II

CATEGORY	LOCATION	STAGE	**643.0920 EACH
0010	IH 94 WB	1A	1
PROJECT TOTALS			1

** NUMBER OF CYCLES = 1

CONSTRUCTION STAKING ITEMS

CATEGORY	STATION	LOCATION	650.4500	650.5000	650.7000	650.9920
			SUBGRADE (LF)	BASE (LF)	PAVEMENT (LF)	CONCRETE SLOPE STAKES (LF)
0010	1060+55'WB' - 1069+90'WB'	IH 94 WB	935	935	38	935
	1071+54'WB' - 1080+40'WB'	IH 94 WB	886	886	38	886
	1126+31'WB' - 1134+60'WB'	IH 94 WB	829	829	45	829
	1137+45'WB' - 1146+44'WB'	IH 94 WB	899	899	45	899
	46+04'NV' - 52+00'NV'	NEWVILLE ROAD	662	662	-	662
	49+65'RL' - 56+60'RL'	ROCK LAKE ROAD	695	695	-	695
PROJECT TOTALS			4906	4906	166	4906

BASIC TRAFFIC QUEUE WARNING SYSTEM
(QWS ITEM 643.1205.S)

CATEGORY	LOCATION	STAGE	PORTABLE BASIC QUEUE	
			FLASHING BEACON SIGNS (FBS)	TRAFFIC SENSORS (PTS)
0010	IH 94 WB	1A	3	3
	IH 94 WB	1	3	3
	IH 94 WB	2	3	3
	IH 94 WB	3	3	3
PROJECT TOTALS			230	230

MARKING ITEMS

CATEGORY	STATION	- STATION	LOCATION	646.2020 MARKING LINE EPOXY 6-INCH	
				WHITE (LF)	YELLOW (LF)
0010	1057+25'WB'	1088+25'WB'	IH 94 WB	3,875	3,100
	1122+25'WB'	1154+06'WB'	IH 94 WB	3,976	3,181
SUB TOTALS				7,851	6,281
PROJECT TOTALS				14,132	

CONSTRUCTION STAKING SUPPLEMENTAL CONTROL

CATEGORY	PROJECT	650.9911 (EACH)
0010	1067-02-73	1

TEMPORARY MARKING ITEMS

CATEGORY	STAGE	STATION	- STATION	LOCATION	643.3180 LINE REMOVABLE TAPE 6-INCH			646.9012 MARKING REMOVAL LINE
					12.5' SKIPS WHITE (LF)	EDGELINE WHITE (LF)	EDGELINE YELLOW (LF)	WATER BLASTING 6-INCH (LF)
0010	1	1057+25'WB'	1060+00'WB'	IH 94 WB	-	550	275	344
		1060+00'WB'	1085+50'WB'	IH 94 WB	638	2,550	2,550	3,188
		1085+50'WB'	1088+25'WB'	IH 94 WB	-	550	275	344
		1122+25'WB'	1125+00'WB'	IH 94 WB	-	550	275	344
		1125+00'WB'	1151+31'WB'	IH 94 WB	658	2,631	2,631	3,289
		1151+31'WB'	1154+06'WB'	IH 94 WB	-	550	275	344
STAGE SUBTOTALS					1,295	7,381	6,281	7,851
0010	2	1061+40'WB'	1080+40'WB'	IH 94 WB	475	3,800	1,900	1,900
		1125+46'WB'	1145+31'WB'	IH 94 WB	496	3,970	1,985	1,985
STAGE SUBTOTALS					971	7,770	3,885	3,885
PROJECT TOTALS					27,584	11,736		

SAWING ITEMS

CATEGORY	STAGE	STATION	STATION	LOCATION	690.0150	690.0250
					SAWING ASPHALT (LF)	SAWING CONCRETE (LF)
0010	1	1060+55'WB'	1080+40'WB'	RL	1863	130
		1063+23'WB'		RT	30	-
		1126+32'WB'	1146+44'WB'	RL	1879	141
		47+00'NV'		LT/RT	22	-
		52+00'NV'		LT/RT	38	-
		50+00'RL'		LT/RT	22	-
		55+00'RL'		RT	-	10
		56+00'RL'		LT/RT	22	-
STAGE TOTALS					3,876	281
0010	2	1069+00'WB'		LT	34	-
		1072+00'WB'	1072+98'WB'	LT	132	-
		1134+60'WB'		LT	34	-
		1137+85'WB'	1140+80'WB'	LT	329	-
STAGE TOTALS					529	0
PROJECT TOTALS					4,405	281

CONSTRUCTION STAKING STRUCTURE LAYOUT

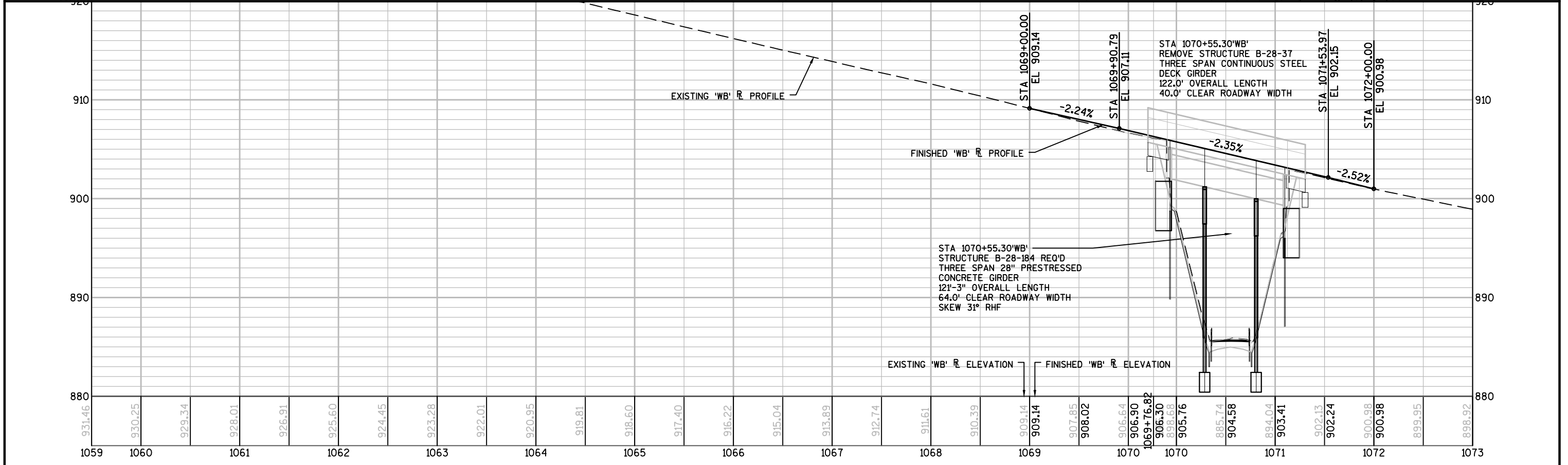
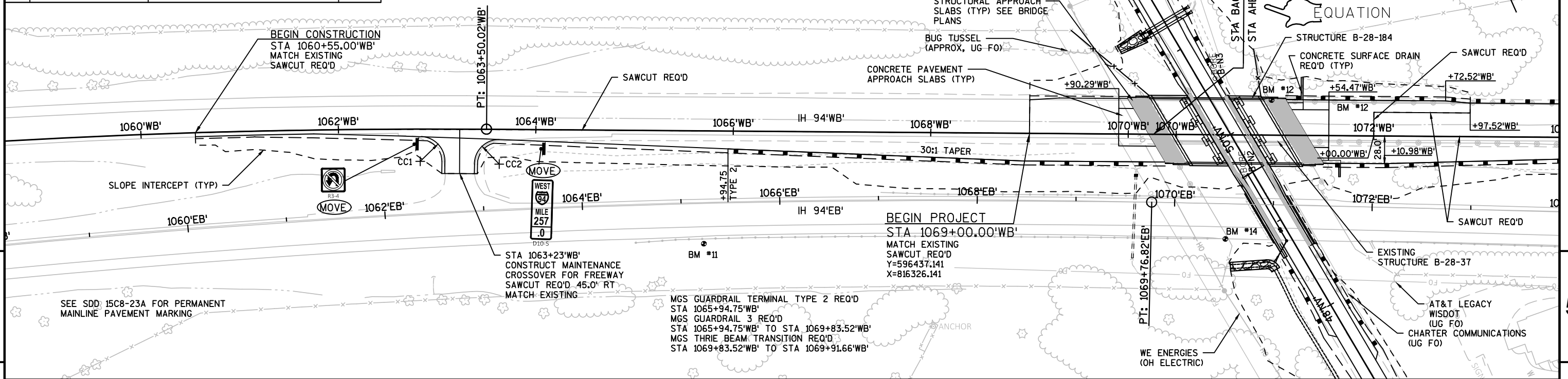
CATEGORY	STRUCTURE	650.6501 (EACH)
0010	01. B-28-184	1
	02. B-28-185	1

INSTALLING AND MAINTAINING BIRD DETERRENT SYSTEM (STATION)

CATEGORY	STATION	999.2000.S (EACH)	REMARKS
0010	01. 1070'WB'+55	1	B-28-184
	02. 1136'WB'+33	1	B-28-185

BENCHMARK TABLE			
NO.	STATION	DESCRIPTION	ELEV.
11	1065+22.09'EB' 41.76' RT	TOP CONC BASE SOLAR POLE SDS-28-0054	917.292
14	1070+52.29'EB' 35.54' RT	DISC BRIDGE B-28-36-64	908.373
12	1070+96.47'WB' 35.40' LT	DISC BRIDGE B-28-37-65	905.601

RADIUS POINT TABLE				
POINT	STATION	OFFSET	RADIUS	COORDINATES
CC1	1062+82.82'WB'	32.6' RT	25.0'	Y=596661.618 X=815750.629
CC2	1063+63.12'WB'	35.3' RT	25.0'	Y=596626.438 X=815822.527



PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON PLAN AND PROFILE - IH 94 SHEET **E**

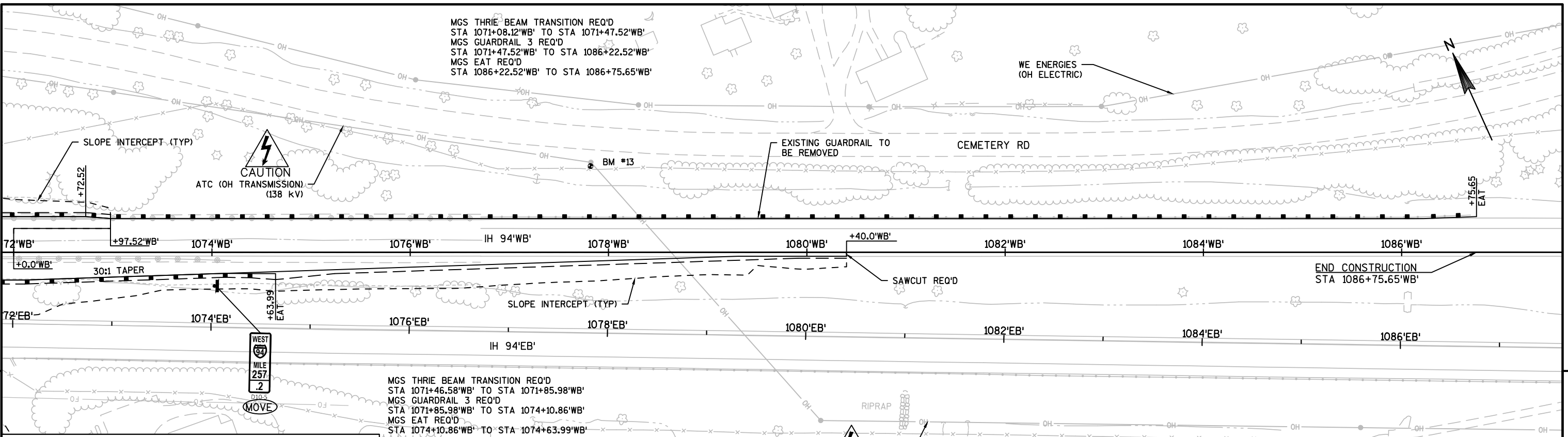
MGS THRIE BEAM TRANSITION REQ'D
 STA 1071+08.12'WB' TO STA 1071+47.52'WB'
 MGS GUARDRAIL 3 REQ'D
 STA 1071+47.52'WB' TO STA 1086+22.52'WB'
 MGS EAT REQ'D
 STA 1086+22.52'WB' TO STA 1086+75.65'WB'

WE ENERGIES
 (OH ELECTRIC)

CAUTION
 ATC (OH TRANSMISSION)
 (138 KV)

EXISTING GUARDRAIL TO
 BE REMOVED

CEMETERY RD



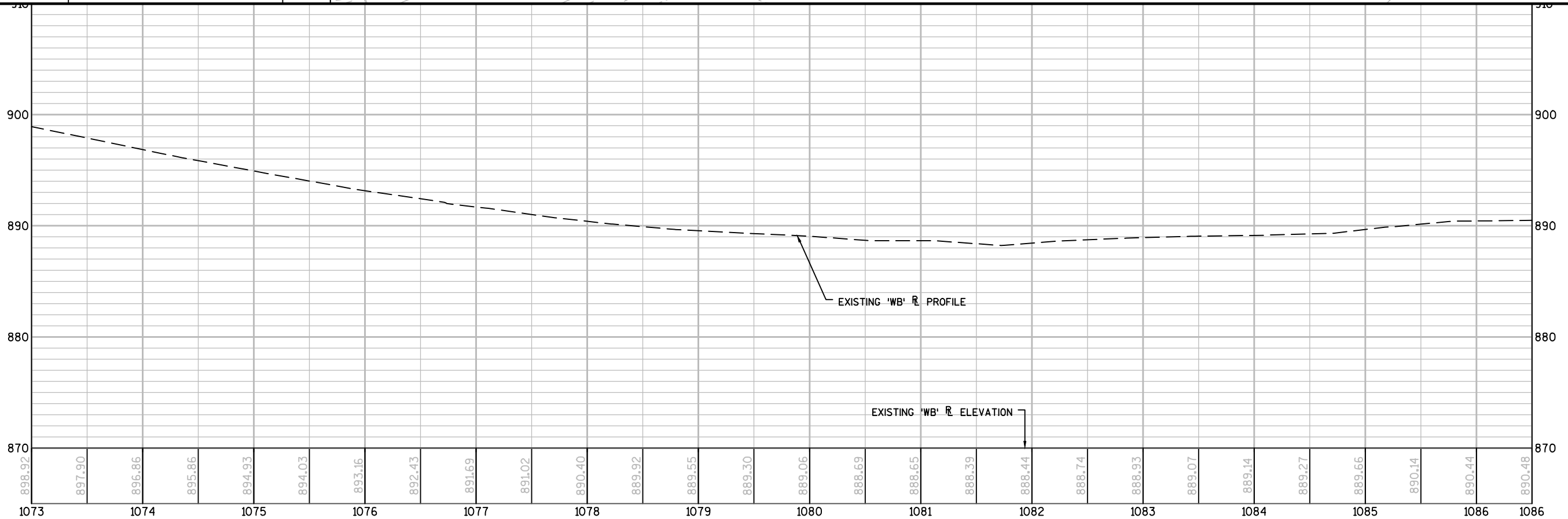
MGS THRIE BEAM TRANSITION REQ'D
 STA 1071+46.58'WB' TO STA 1071+85.98'WB'
 MGS GUARDRAIL 3 REQ'D
 STA 1071+85.98'WB' TO STA 1074+10.86'WB'
 MGS EAT REQ'D
 STA 1074+10.86'WB' TO STA 1074+63.99'WB'

CAUTION
 ATC (OH TRANSMISSION)
 (138 KV)

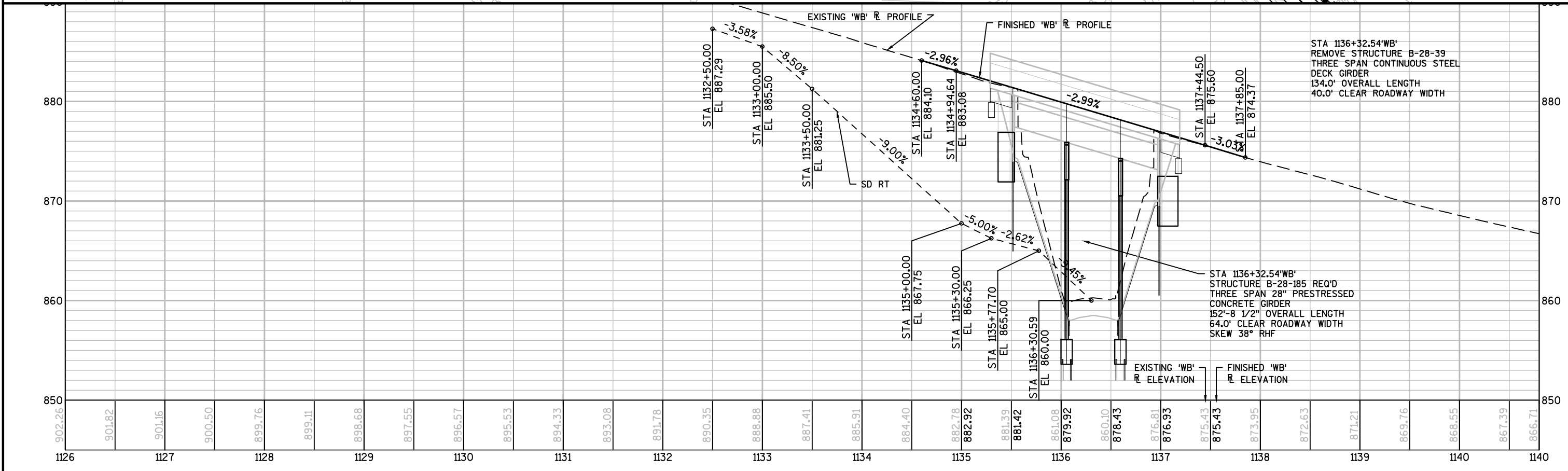
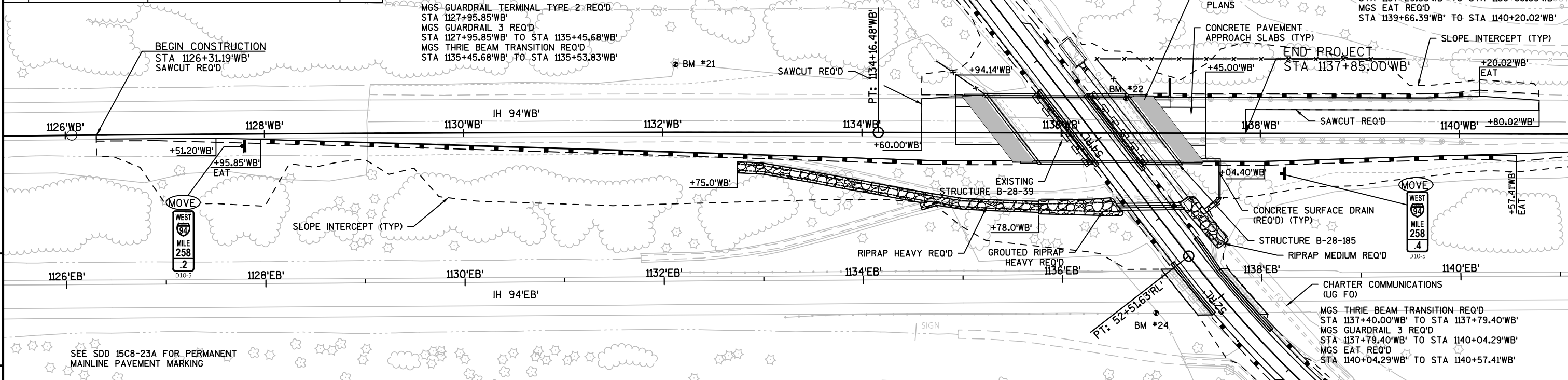
SEE SDD 15C8-23A FOR PERMANENT
 MAINLINE PAVEMENT MARKING

BENCHMARK TABLE

NO.	STATION	DESCRIPTION	ELEV.
13	1077+81.95'WB' 86.75' LT	TOP CORNER BASE STEEL PP STRUCTURE IH 94 700± EAST BRIDGE	884.317

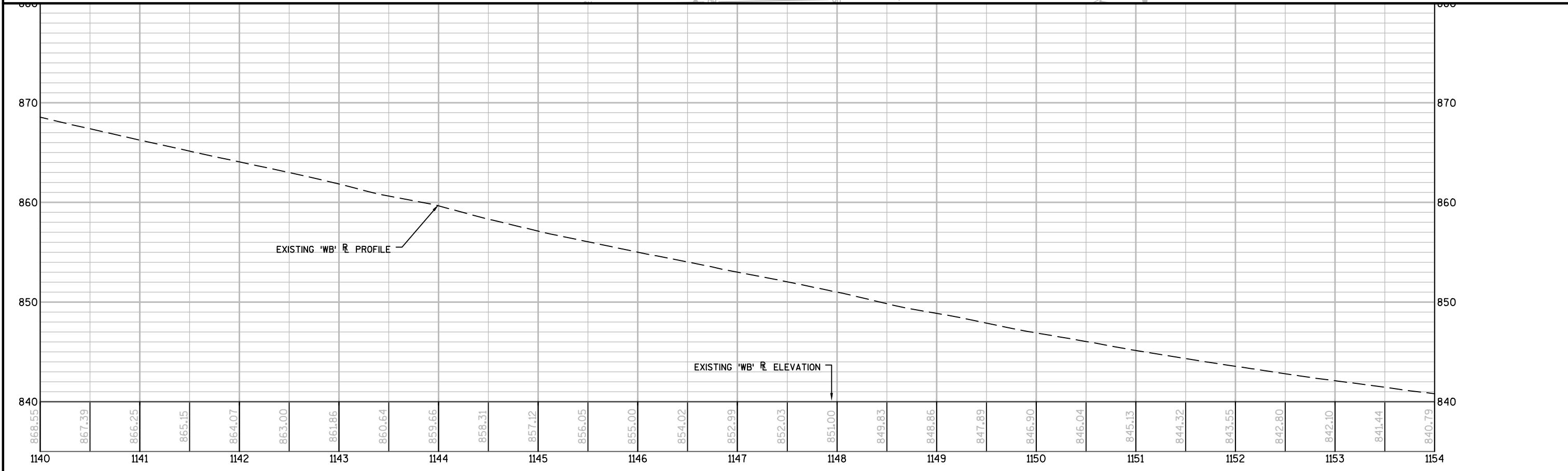
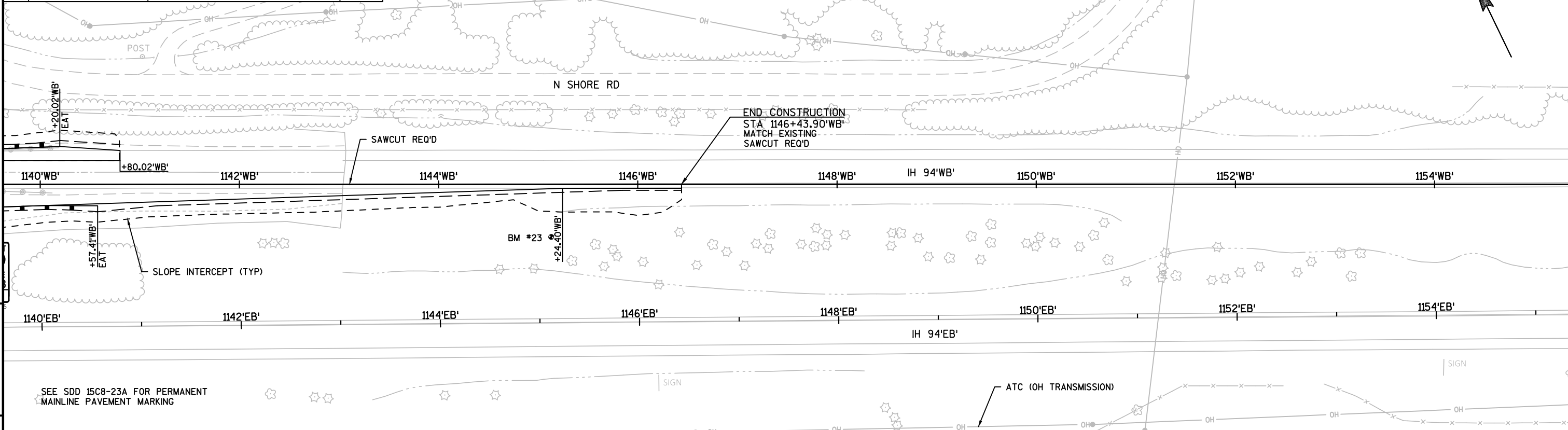


BENCHMARK TABLE			
NO.	STATION	DESCRIPTION	ELEV.
21	1132+12.94'WB' 68.14' LT	3/8" SPK IN 6" CEDAR TREE	891.512
22	1136+69.48'WB' 34.99' LT	DISC BRIDGE B-28-39-65	879.925
24	1136+93.76'EB' 34.97' RT	DISC BRIDGE B-28-38-64	886.611

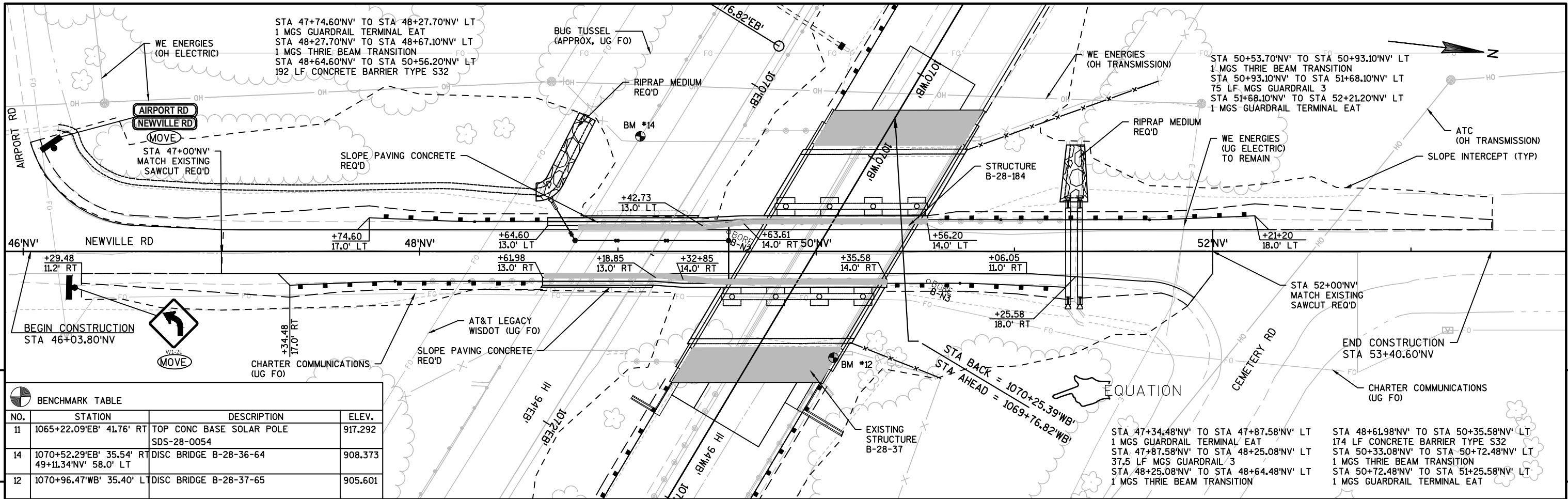


PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON PLAN AND PROFILE - IH 94 SHEET **E**

BENCHMARK TABLE			
NO.	STATION	DESCRIPTION	ELEV.
23	1145+13.12'WB' 52.88' RT	RR SPK IN 20" OAK IH 94 MEDIAN 800'± EAST OF PROJECT BRIDGE	856.279

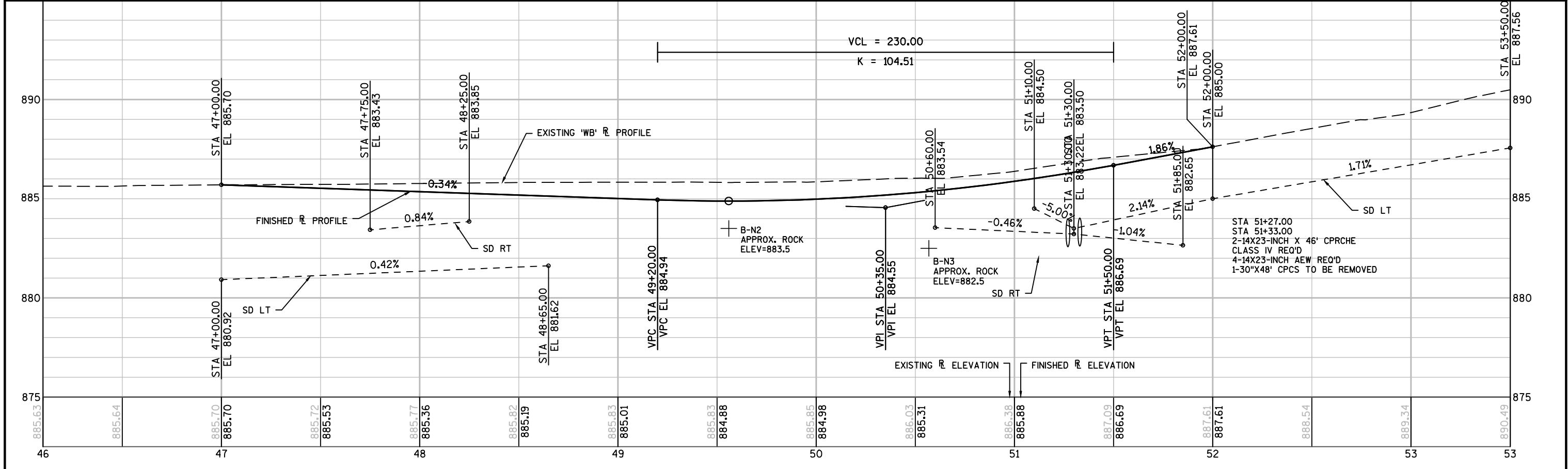


PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON PLAN AND PROFILE - IH 94 SHEET **E**

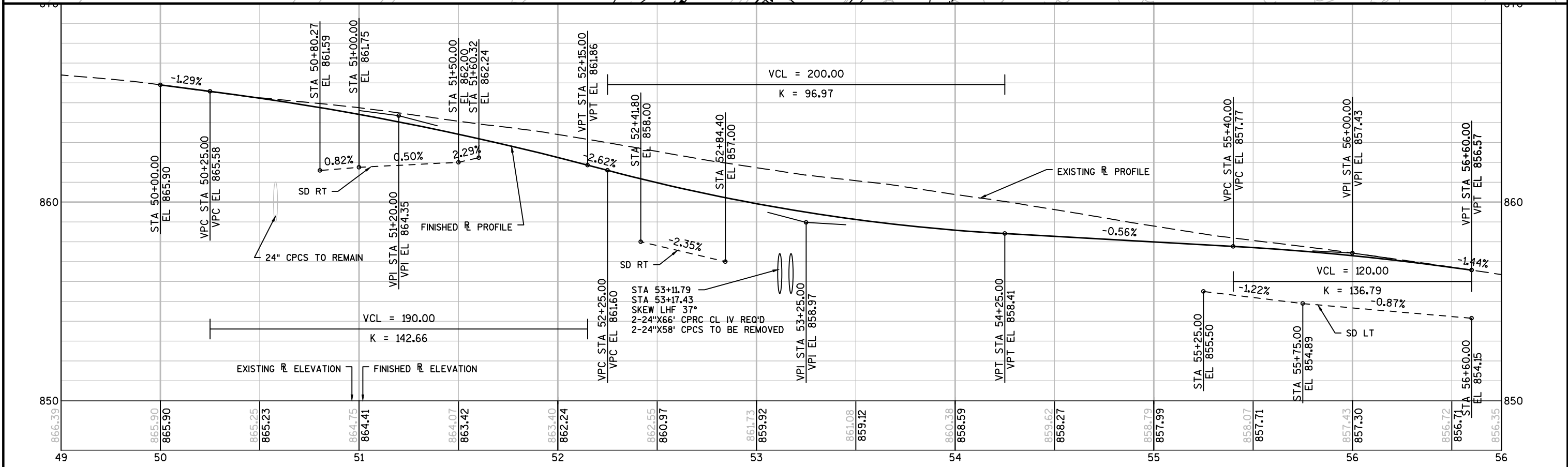
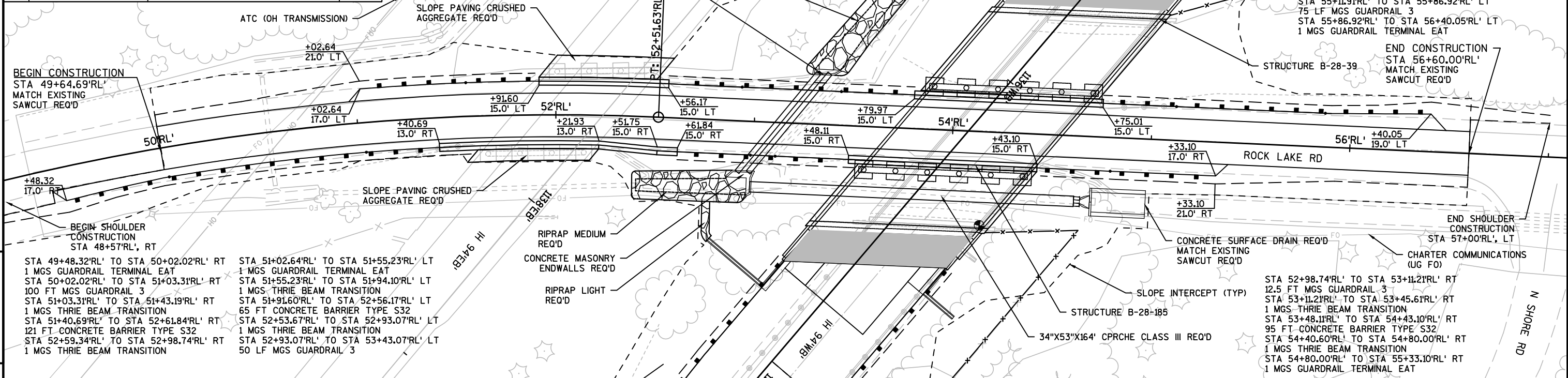


BENCHMARK TABLE

NO.	STATION	DESCRIPTION	ELEV.
11	1065+22.09'EB' 41.76' RT	TOP CONC BASE SOLAR POLE SDS-28-0054	917.292
14	1070+52.29'EB' 35.54' RT 49+11.34'NV' 58.0' LT	DISC BRIDGE B-28-36-64	908.373
12	1070+96.47'WB' 35.40' LT	DISC BRIDGE B-28-37-65	905.601



BENCHMARK TABLE			
NO.	STATION	DESCRIPTION	ELEV.
21	1132+12.94'WB' 68.14' LT	3/8" SPK IN 6" CEDAR TREE	891.512
22	1136+69.48'WB' 34.99' LT	DISC BRIDGE B-28-39-65	879.925
24	1136+93.76'EB' 34.97' RT 52+27.78'RL' 61.12' LT	DISC BRIDGE B-28-38-64	886.611

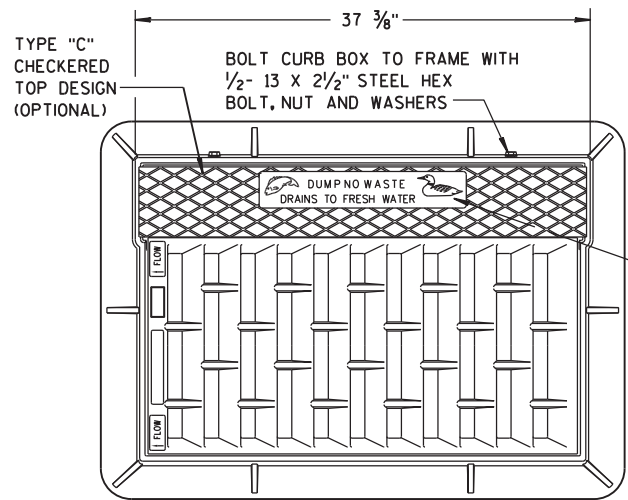


Standard Detail Drawing List

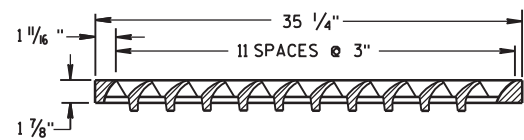
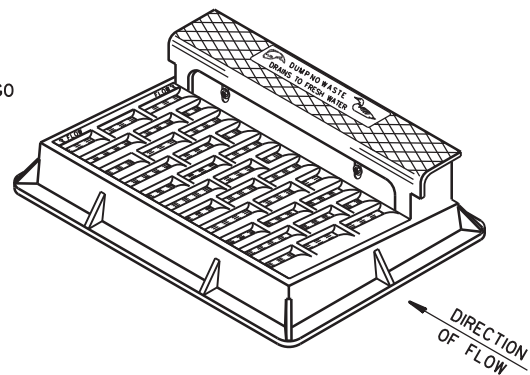
08A05-19A	INLET COVERS TYPE A, H, A-S, H-S & Z
08A05-19B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08A05-19D	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-03	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08C07-02	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08C08-02	INLETS MEDIAN 1 AND 2 GRATE
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
08D03-09A	CONCRETE SURFACE DRAINS DROP INLET TYPE AT STRUCTURES
08D03-09B	CONCRETE SURFACE DRAINS DROP INLET 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
08E14-01	TRACKING PAD
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F02-01	APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE
08F10-02	CONCRETE MASONRY ENDWALLS FOR CULVERT PIPE AND PIPE ARCH
11A01-06	MAINTENANCE CROSSOVER FOR FREEWAYS
13A05-06A	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13A05-06B	SHOULDER RUMBLE STRIPS, DIVIDED ROADWAY
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
13B02-09B	STRUCTURAL APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB
13C01-19	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C11-14A	RURAL DOWELED CONCRETE PAVEMENT
13C11-14B	RURAL DOWELED CONCRETE PAVEMENT
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
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B29-01	SAFETY EDGE
14B32-10A	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10B	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10C	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10D	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10E	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10F	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10G	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B32-10H	CONCRETE BARRIER SINGLE SLOPE (CBSS)
14B33-02A	CONCRETE BARRIER SINGLE SLOPE 32" THRIE BEAM ANCHOR
14B33-02B	CONCRETE BARRIER SINGLE SLOPE 32" THRIE BEAM ANCHOR
14B33-02C	CONCRETE BARRIER SINGLE SLOPE 32" THRIE BEAM ANCHOR
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)

Standard Detail Drawing List

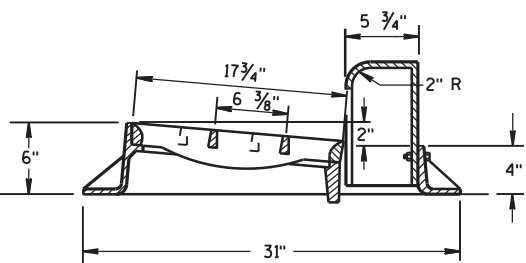
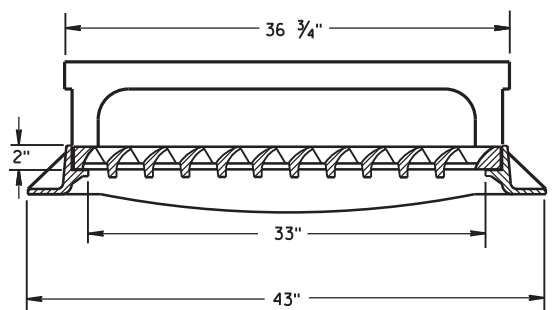
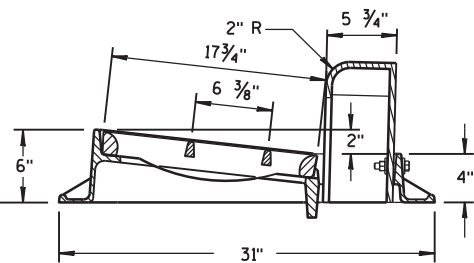
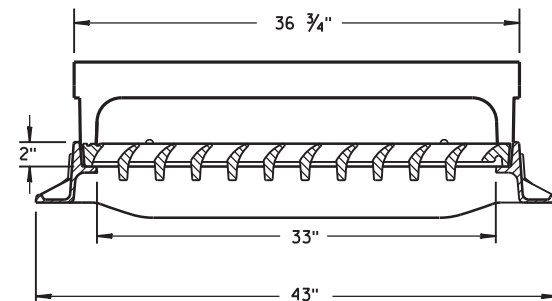
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B47-05A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C11-10A	CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15D12-11B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D12-11D	TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D41-03	TRAFFIC CONTROL, MULTIPLE LANE SHIFT, MULTILANE DIVIDED ROAD
15D47-03B	TRAFFIC CONTROL, INGRESS/EGRESS WITHOUT BARRIER



**NOTE:
GRATE IS REVERSIBLE.**

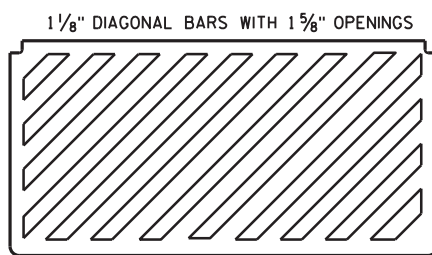


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

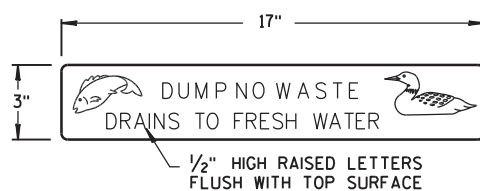


TYPE "H"

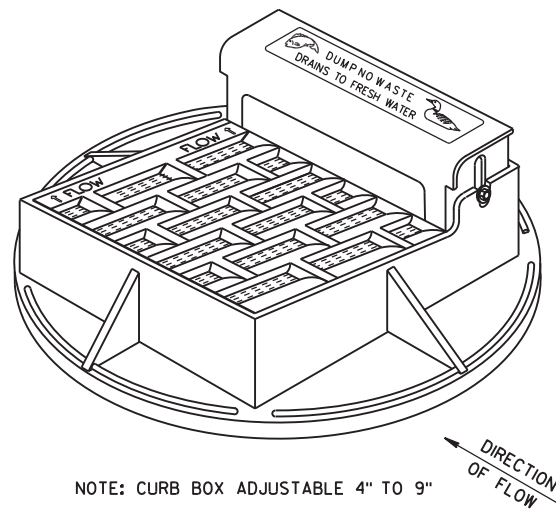
NOTE: EITHER CASTING IS ACCEPTABLE



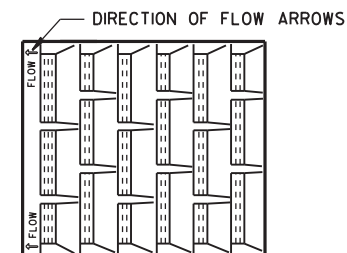
**SPECIAL GRATE FOR
TYPE "H" COVER**
(MEASURES 35 1/4" X 17 3/4" X 2")
(NOTED AS TYPE H-S ON DRAINAGE TABLE)



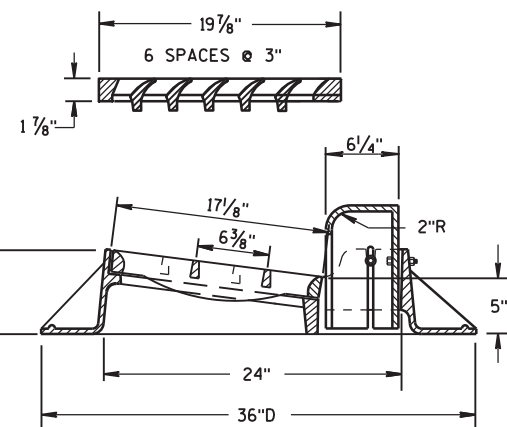
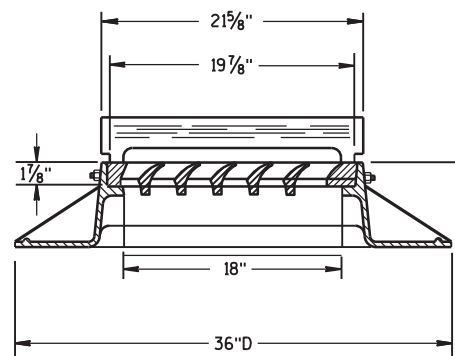
LOGO DETAIL



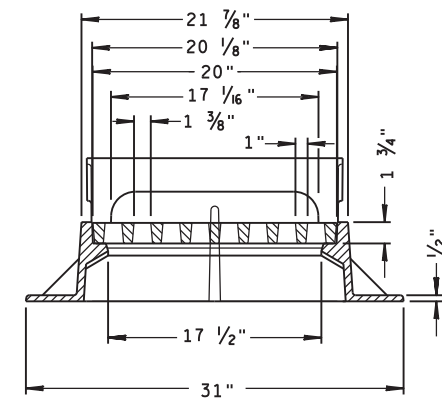
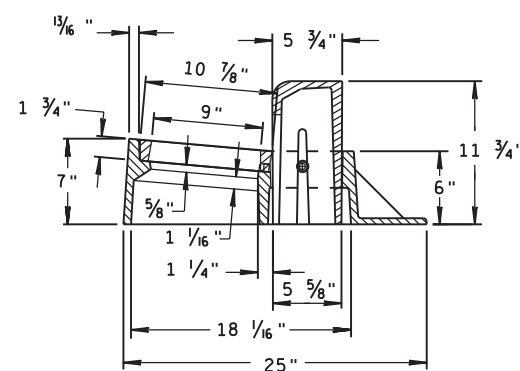
**NOTE:
GRATE IS REVERSIBLE.**



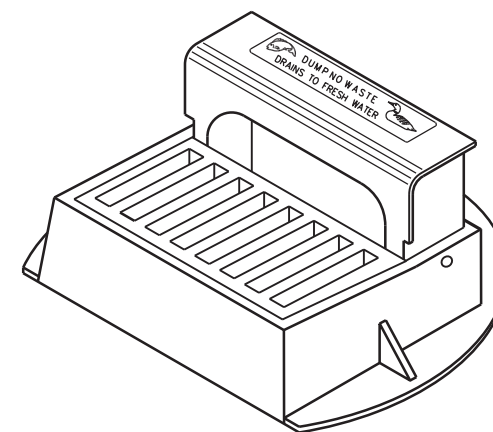
**SPECIAL GRATE FOR
TYPE "A" COVER**
(MEASURES 19 3/4" X 17" X 1 1/8")
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



TYPE "A"



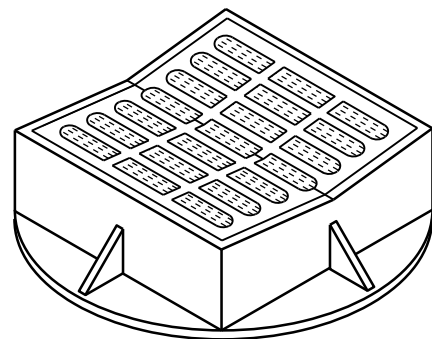
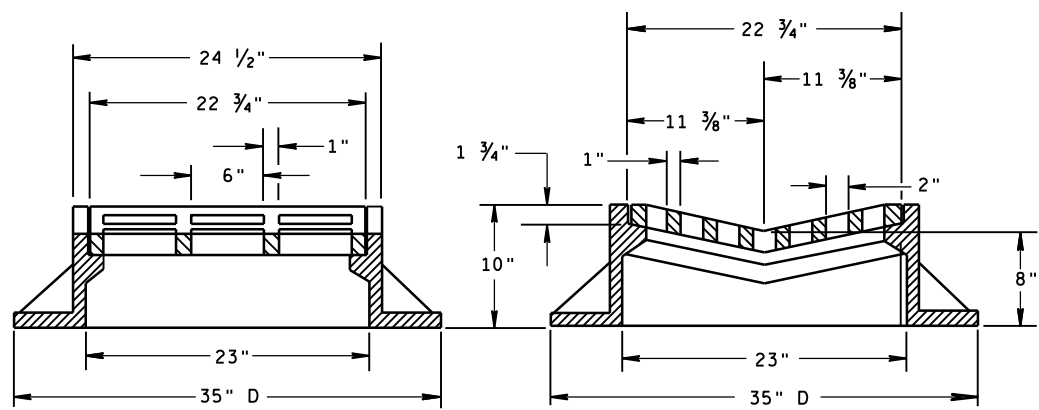
TYPE "Z"



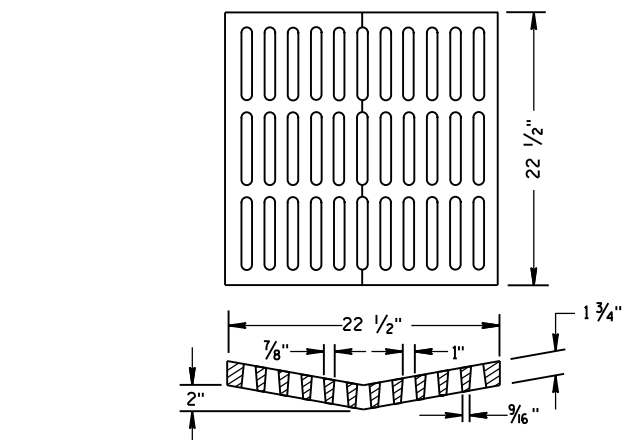
**INLET COVERS
TYPE A, H, A-S, H-S & Z**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: 11-27-13
DATE: /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

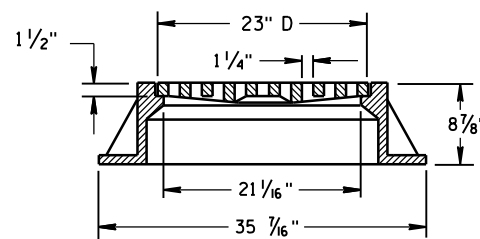
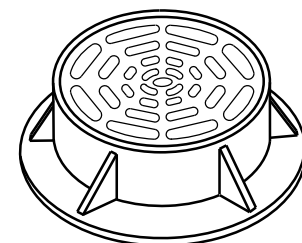
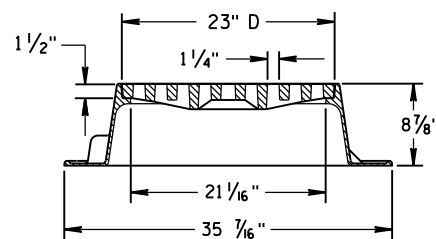
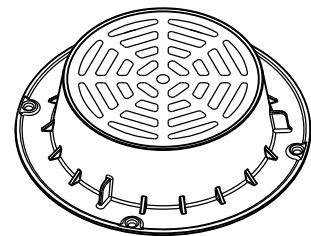


TYPE "B"



ALTERNATIVE GRATE FOR TYPE "B" COVER

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



TYPE "C"

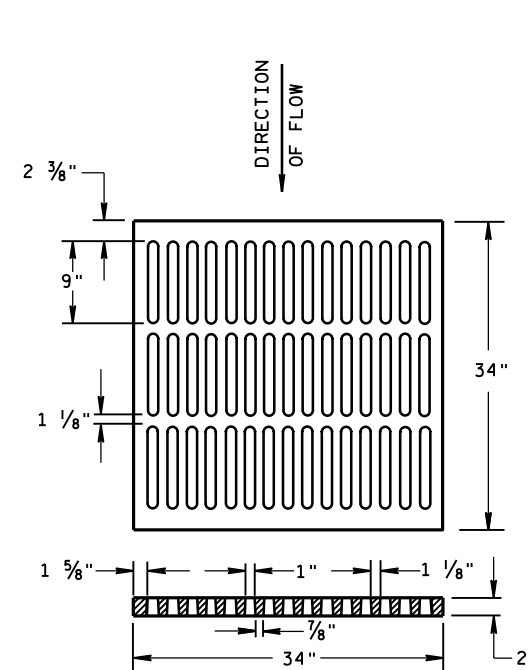
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

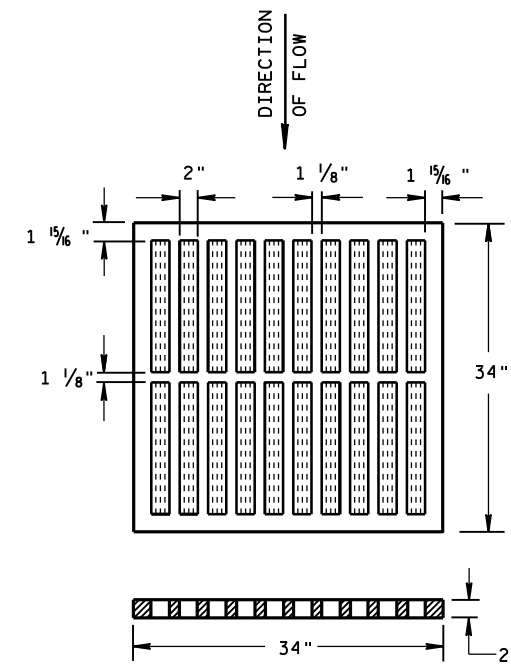
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



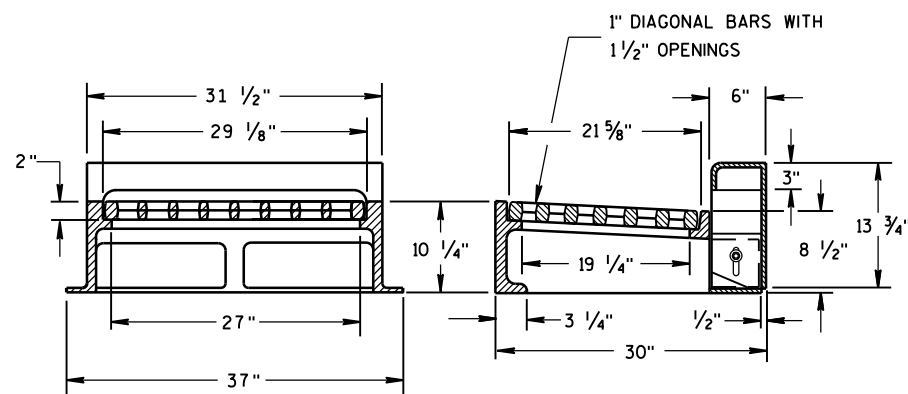
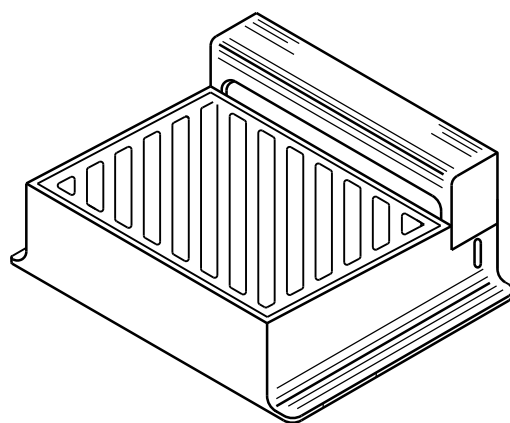
ALTERNATIVE TYPE "MS"

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



TYPE "MS"

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



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

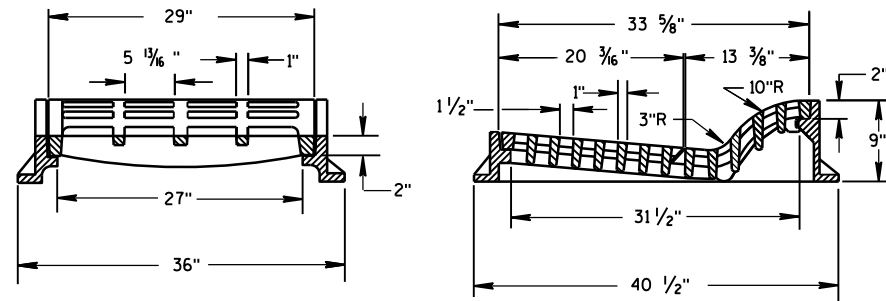
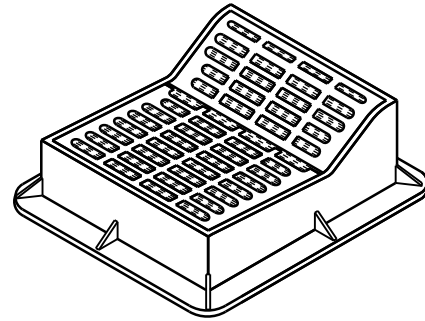
DIAGONAL SLOTS, SHALL BE ORIENTED TO THE DIRECTION OF FLOW AS ILLUSTRATED. GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION OF FLOW

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 11/27/2013 /S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



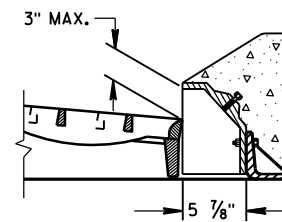
TYPE "F"

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

GENERAL NOTES

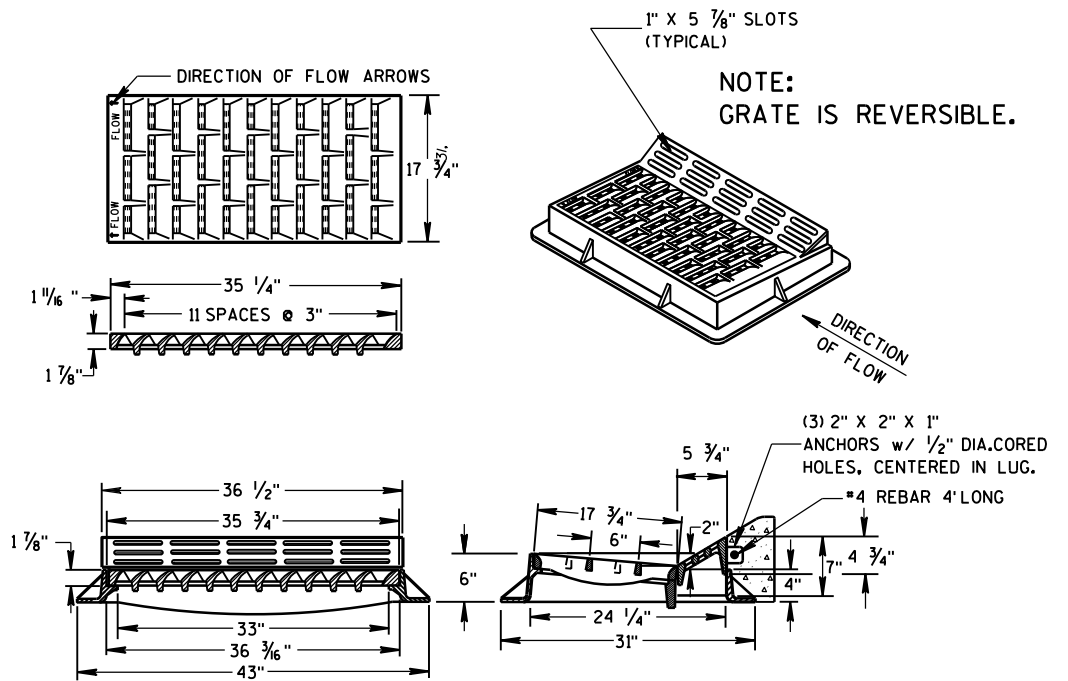
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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.



ALTERNATIVE CURB BOX FOR TYPE "HM" COVER

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



TYPE "HM"

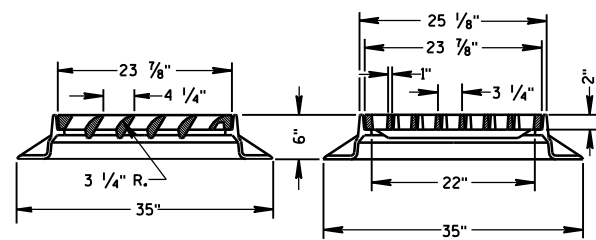
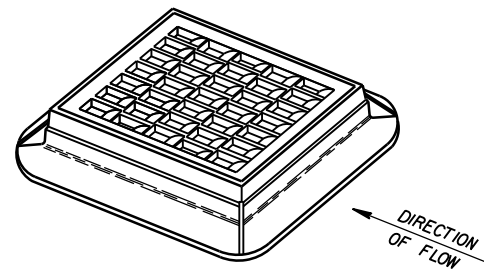
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.

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

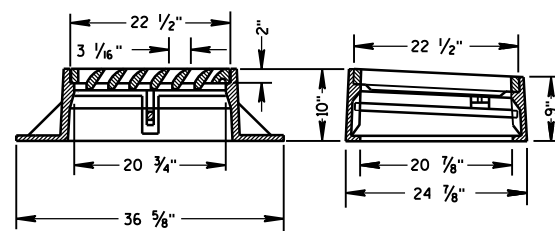
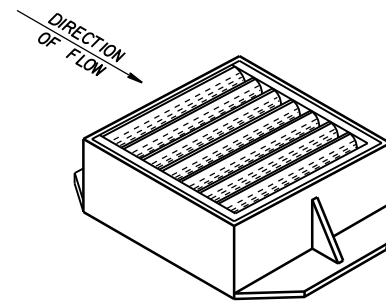
NOTE: SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

6

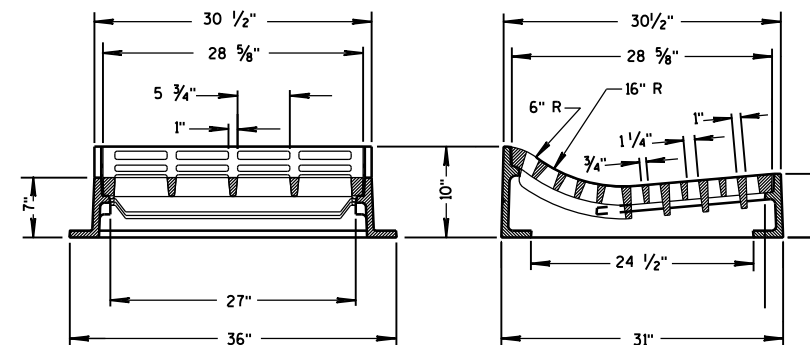
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TYPE "S"

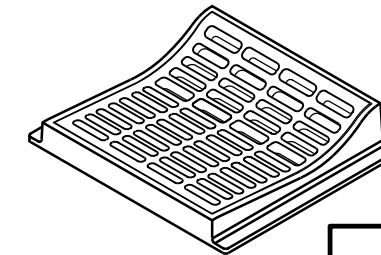


TYPE "V"



TYPE "T"

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



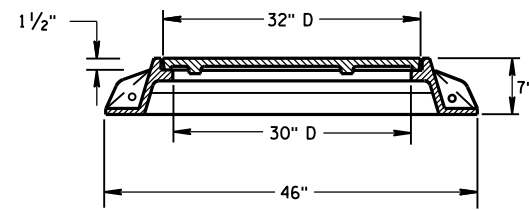
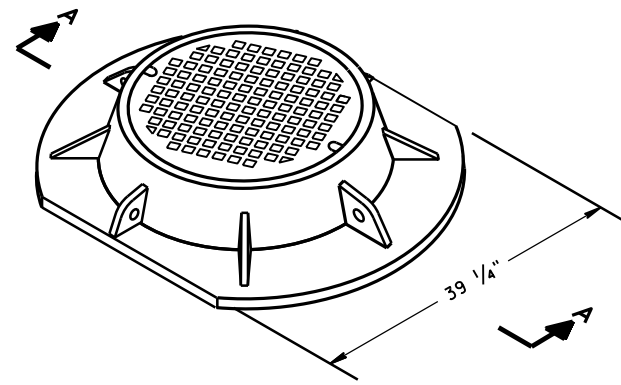
INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-S

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

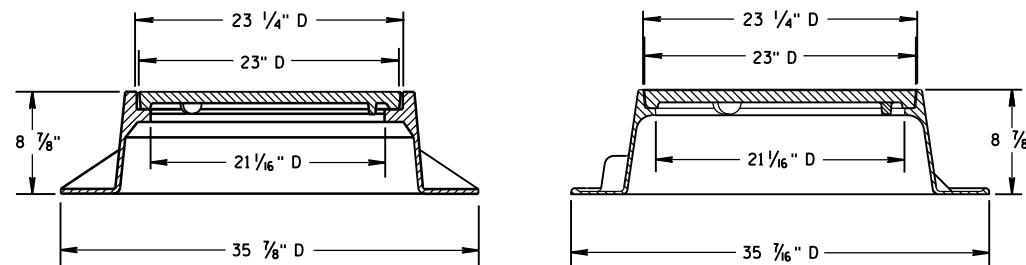
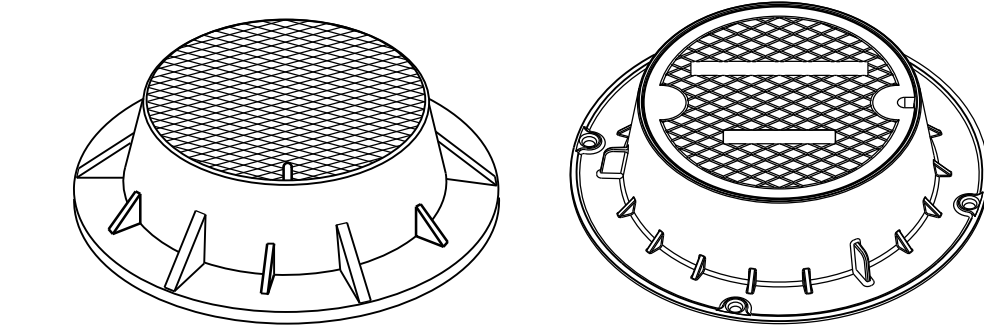
APPROVED
11/27/2013 DATE /s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

S.D.D. 8 A 5-19C

S.D.D. 8 A 5-19C



SECTION A-A
TYPE "K"



TYPE "J"

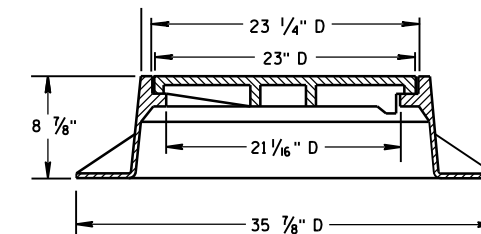
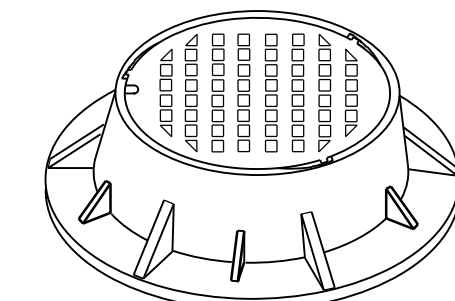
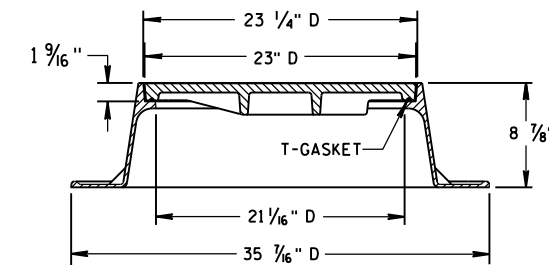
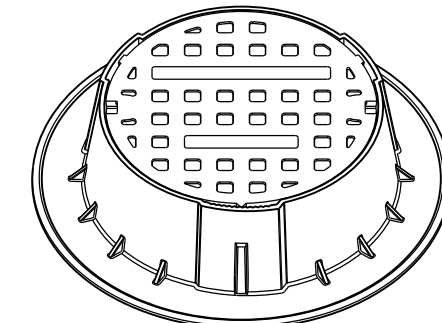
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

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

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



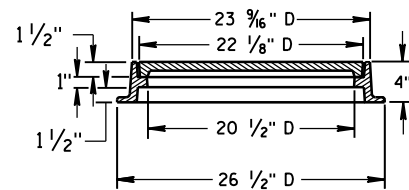
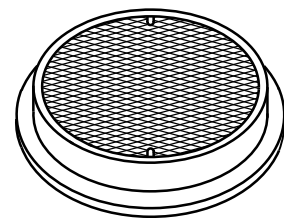
TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

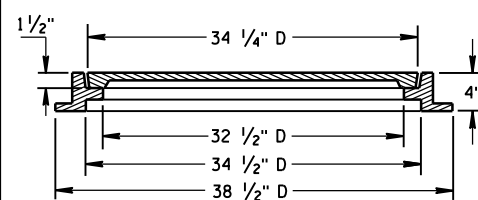
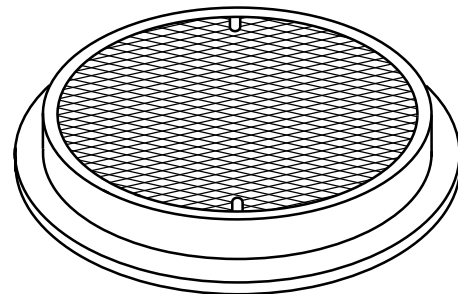
(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

NOTE: EITHER CASTING IS ACCEPTABLE

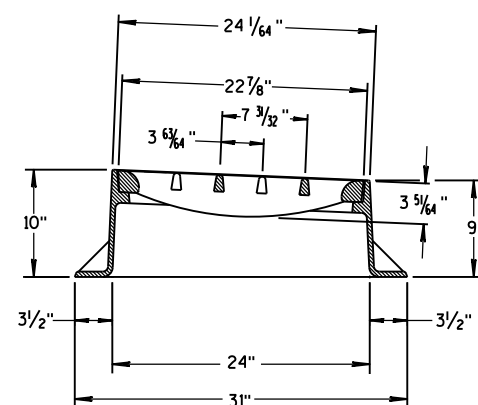
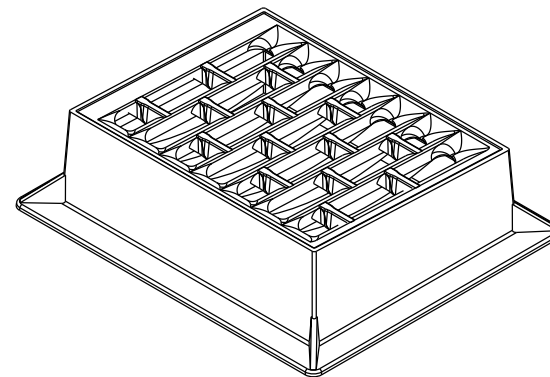
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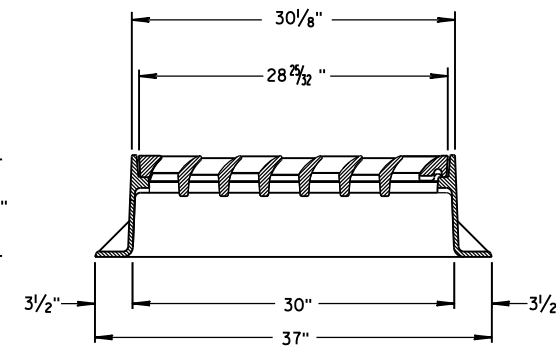
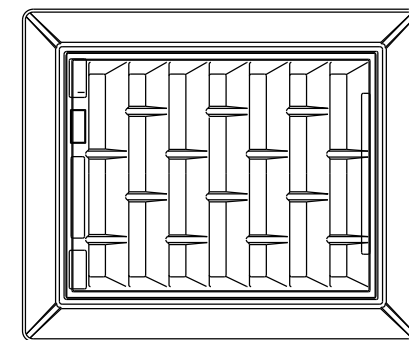
TYPE "L"



TYPE "M"



INLET COVER TYPE "BW"



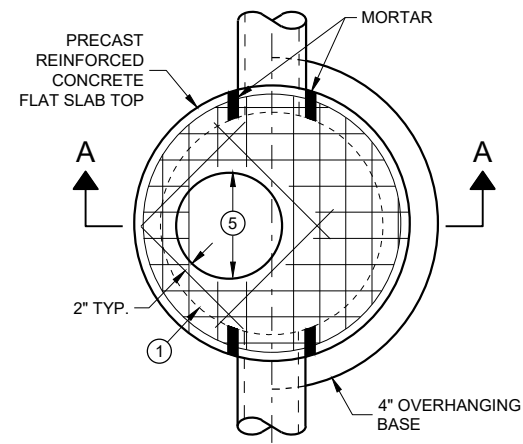
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INLET COVER TYPE BW
MANHOLE COVERS, TYPE K,
J, J-S, L & M

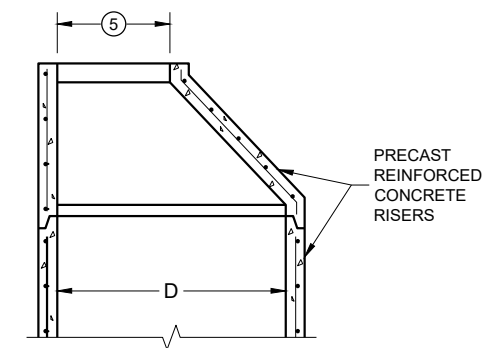
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/27/2013
DATE
FHWA

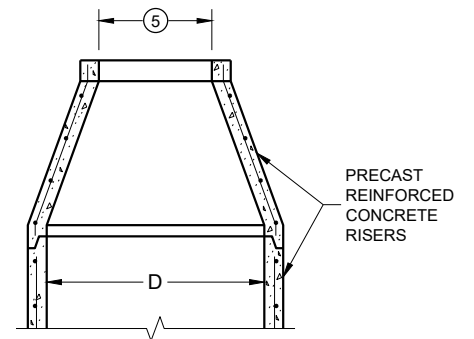
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



**PLAN VIEW
CIRCULAR OPENING**



**OPTIONAL PRECAST
REINFORCED CONCRETE
ECCENTRIC TOP**



**OPTIONAL PRECAST
REINFORCED CONCRETE
CONCENTRIC TOP**

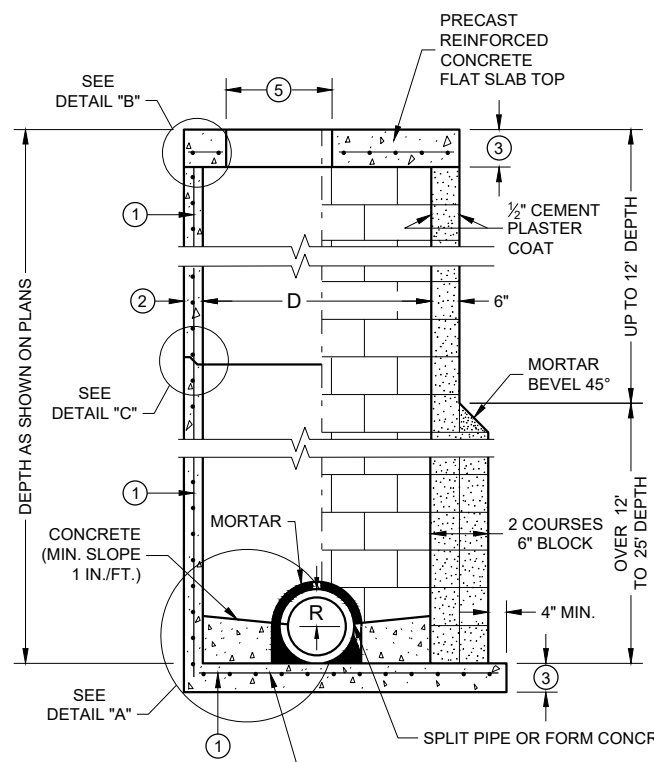
MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE OPENING SIZE (FT.)	C	ALL J'S	K	L	M
2 DIA.	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

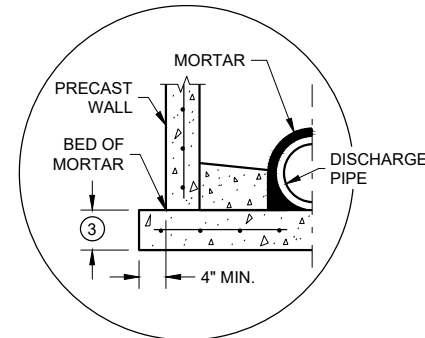
*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES. SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.



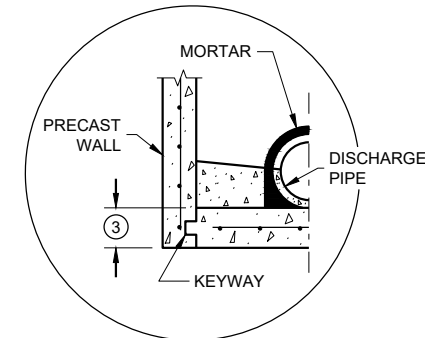
SECTION A - A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ①

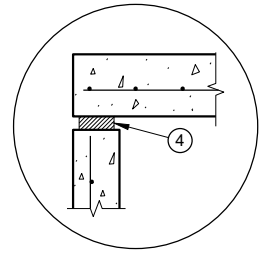


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

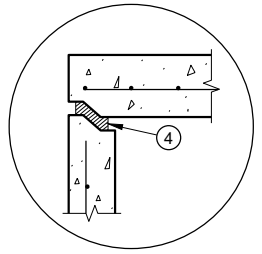


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

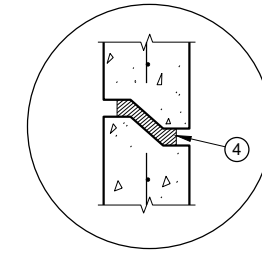
DETAIL "A"



TOP WITH PLAIN END JOINT



TOP WITH TONGUE AND GROOVE JOINT



RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

DETAIL "C"

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

GENERAL NOTES

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

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE 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 USED 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 1/2 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 MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

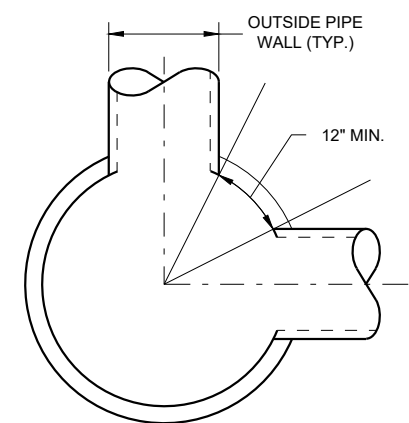
PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

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 FOR PRECAST MANHOLES 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 (TYP.).
- ⑤ SEE MANHOLE COVER OPENING MATRIX.

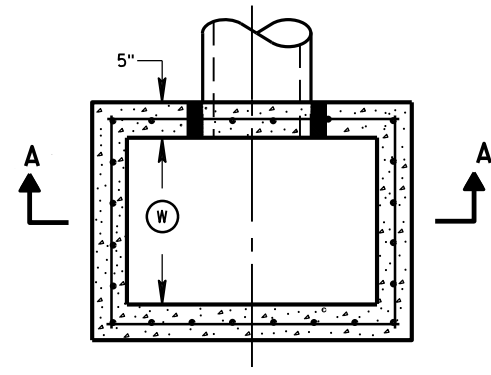


MINIMUM HORIZONTAL PIPE SEPARATION

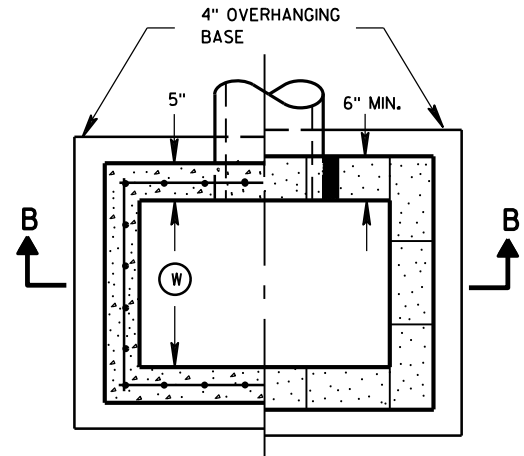
**MANHOLES, 3-FT, 4-FT
5-FT, 6-FT, 7-FT, 8-FT, 9-FT
AND 10-FT DIAMETER**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

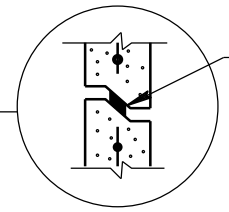
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



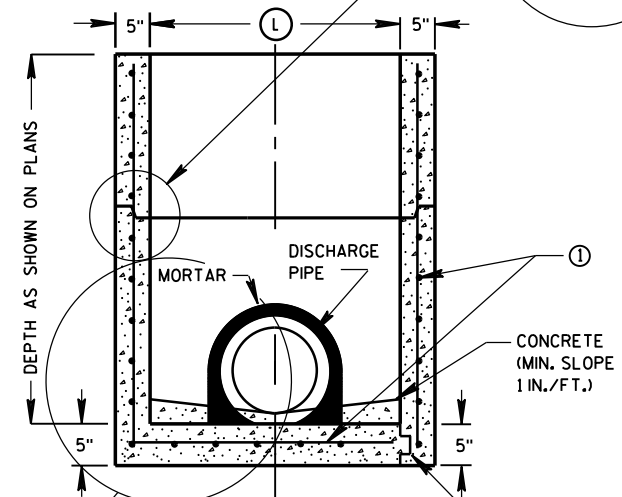
PLAN VIEW



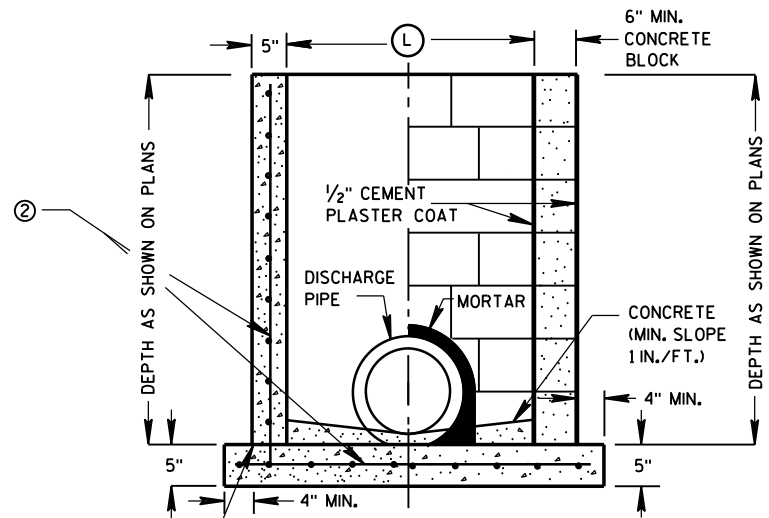
PLAN VIEW



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



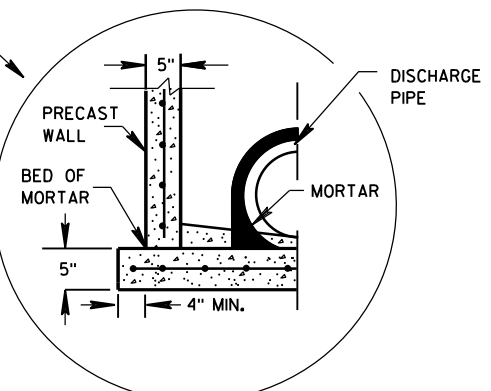
SECTION A-A



SECTION B-B

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE
 PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE
 KEYWAY

CAST-IN-PLACE REINFORCED CONCRETE
 CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ①



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

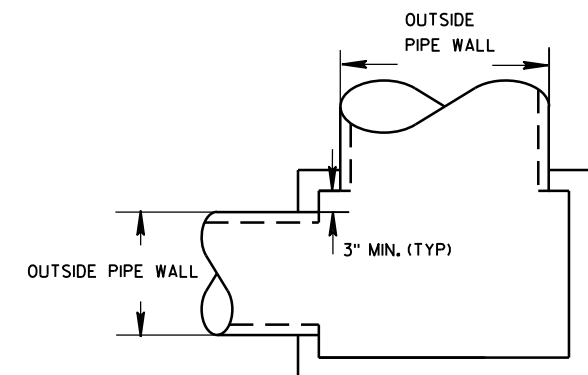
② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE	INLET COVER TYPE		ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH ① (FT)	LENGTH ② (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

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



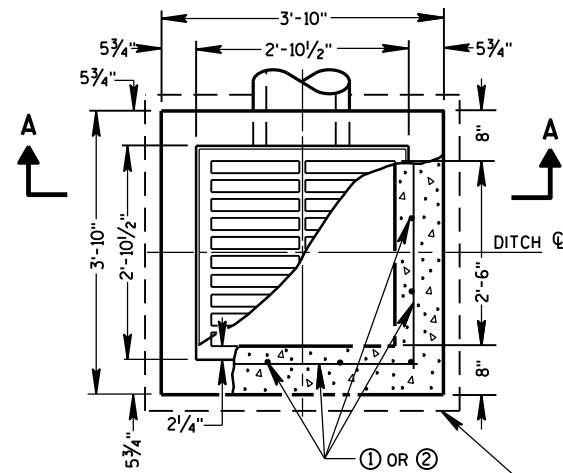
DETAIL "A"

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

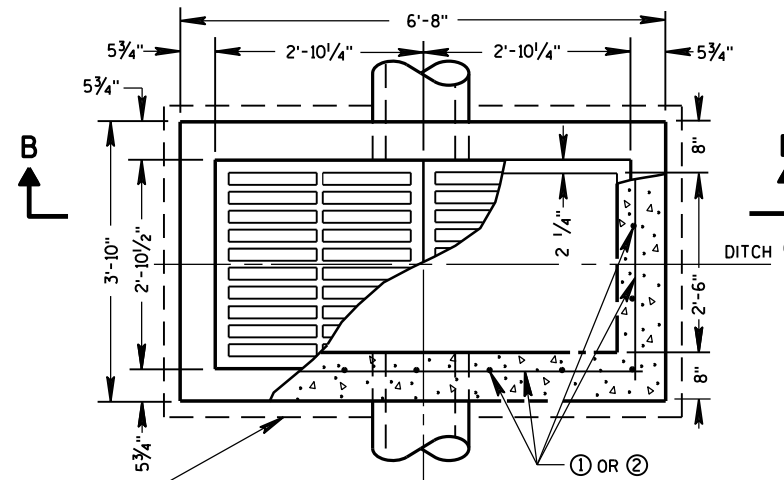
INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 Sept., 2016 /S/ Rodney Taylor
 DATE ROADWAY STANDARDS DEVELOPMENT
 FHWA UNIT SUPERVISOR

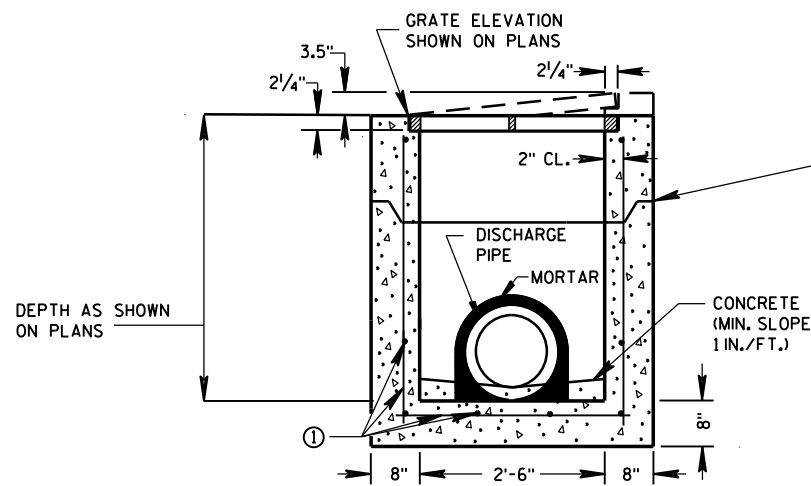


PLAN VIEW

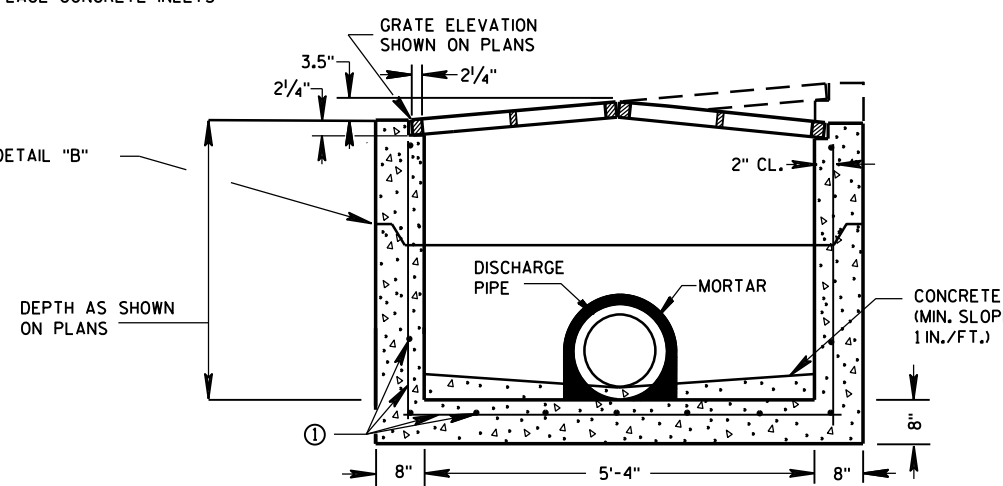


PLAN VIEW

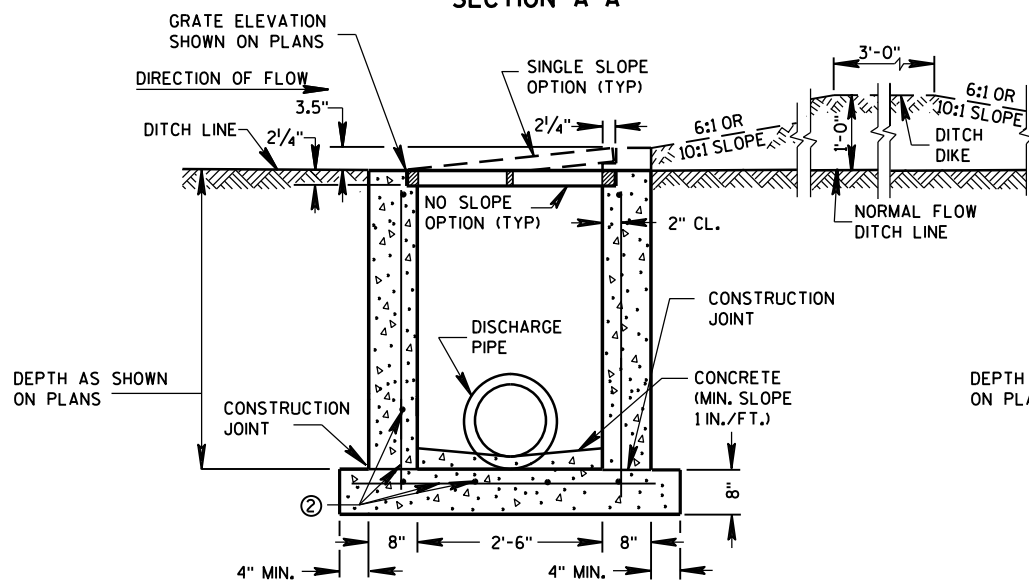
4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS



PRECAST REINFORCED CONCRETE SECTION A-A

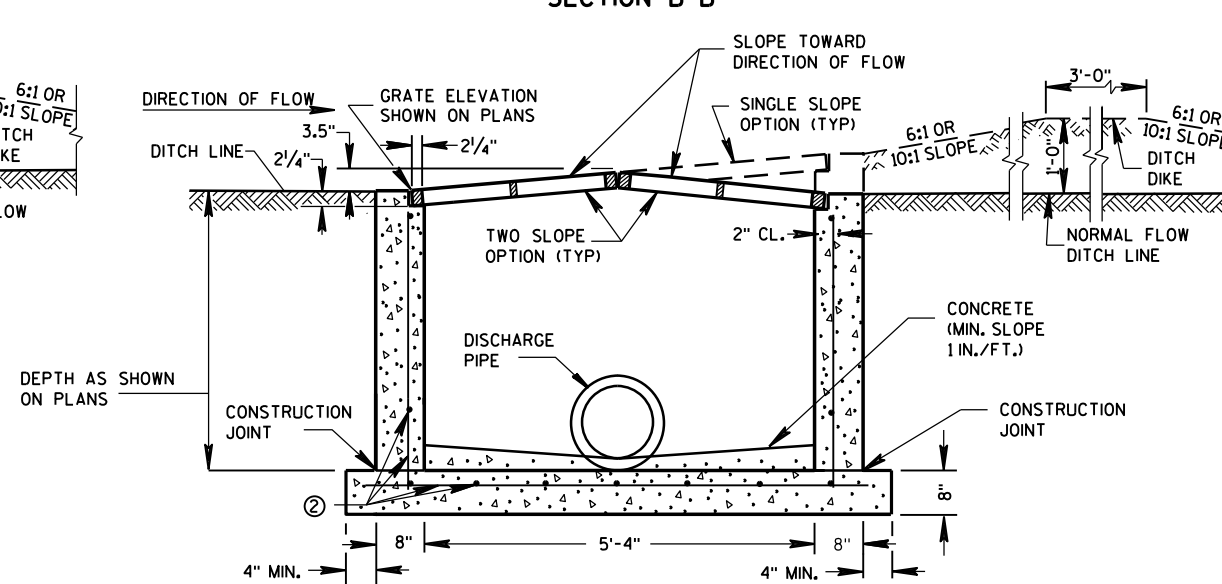


PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A

INLETS MEDIAN 1 GRATE



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 2 GRATE

GENERAL NOTES

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

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

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

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

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

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

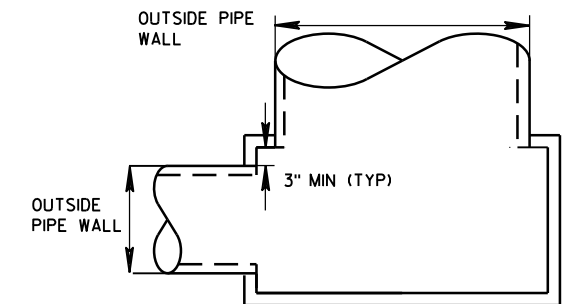
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

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

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

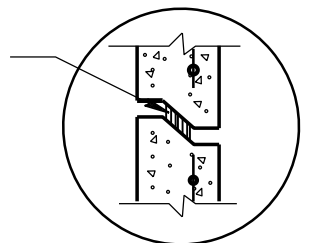
PIPE MATRIX

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



DETAIL "A"

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



DETAIL "B"

INLETS MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept., 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

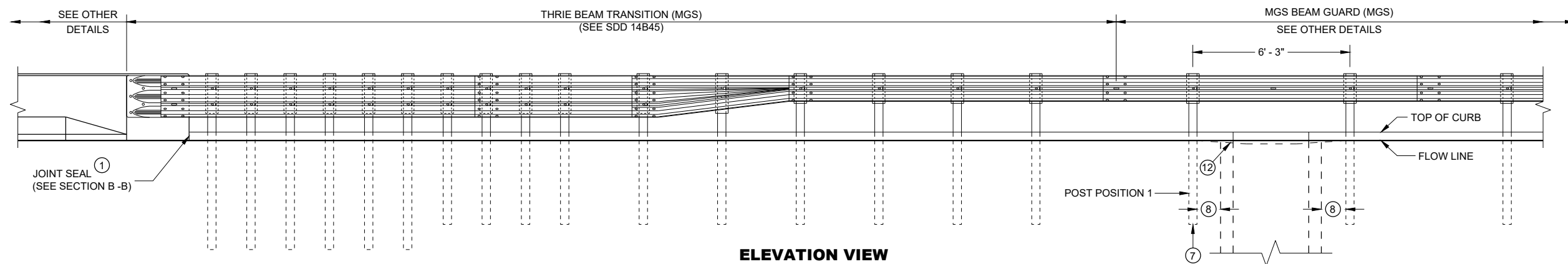
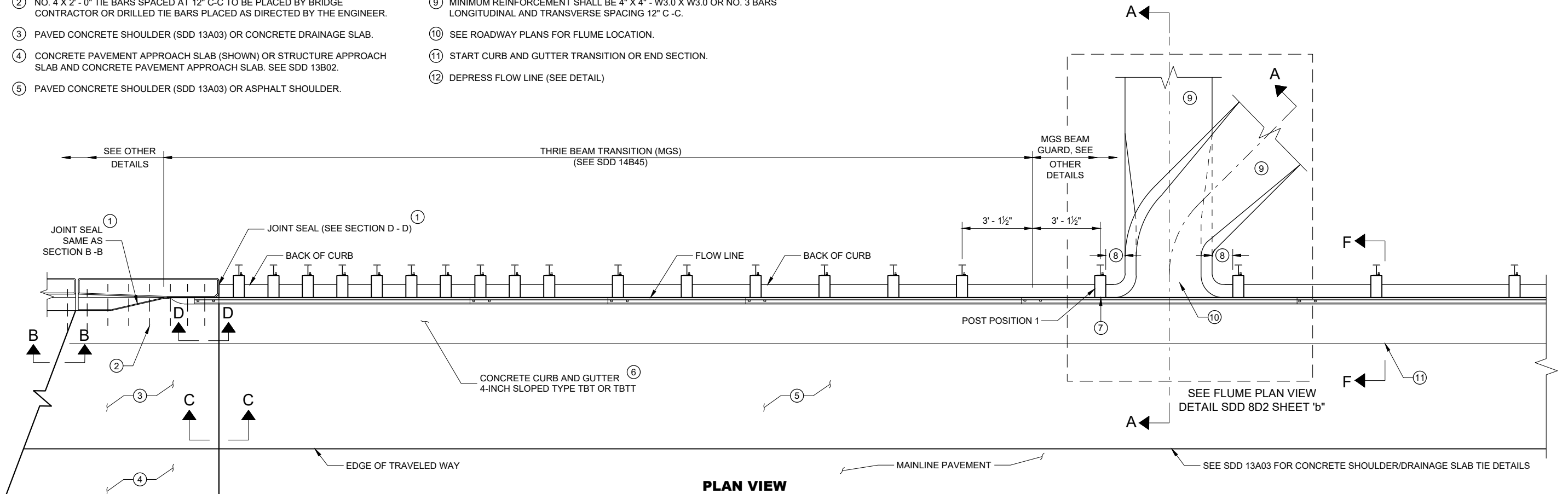
GENERAL NOTES

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

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

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

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



**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

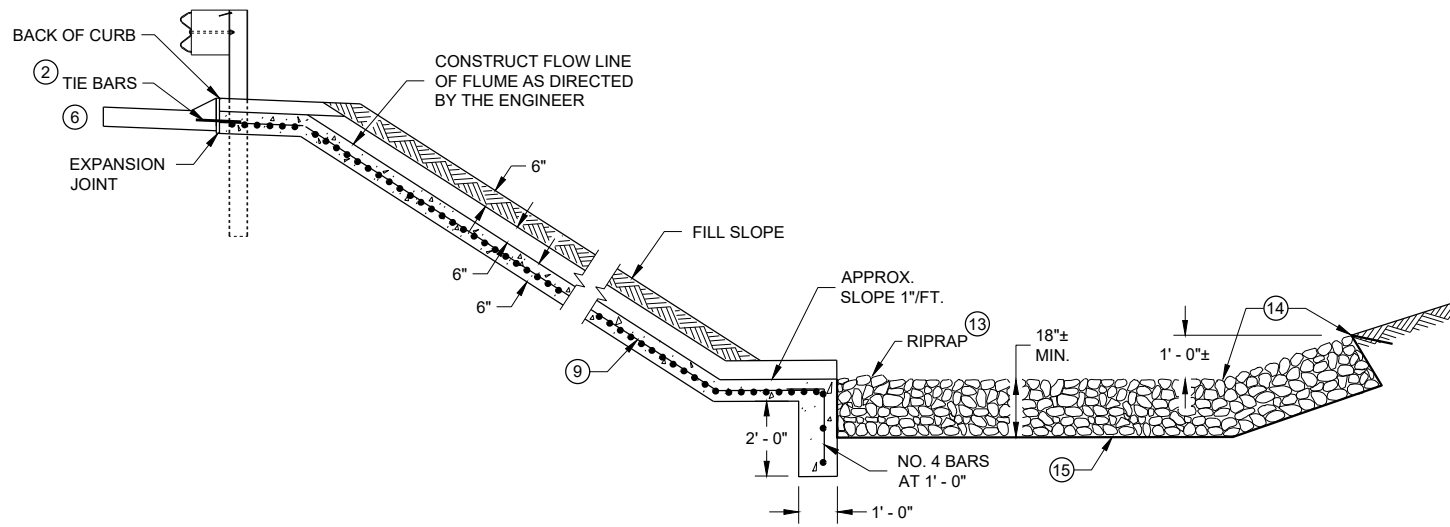
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

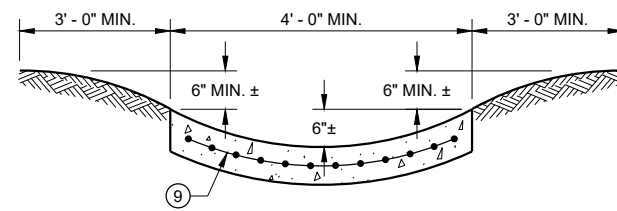
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SDD 08D02 - 08a

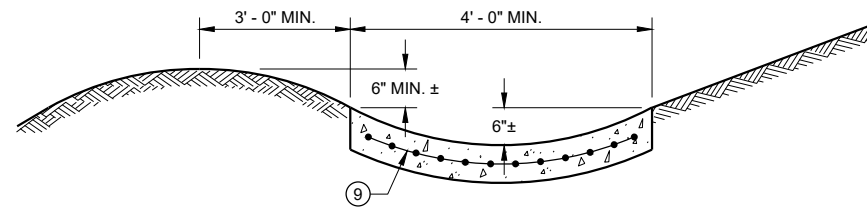
SDD 08D02 - 08a



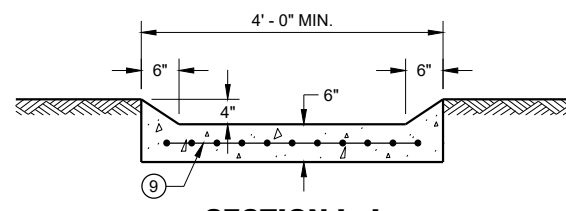
SECTION A - A



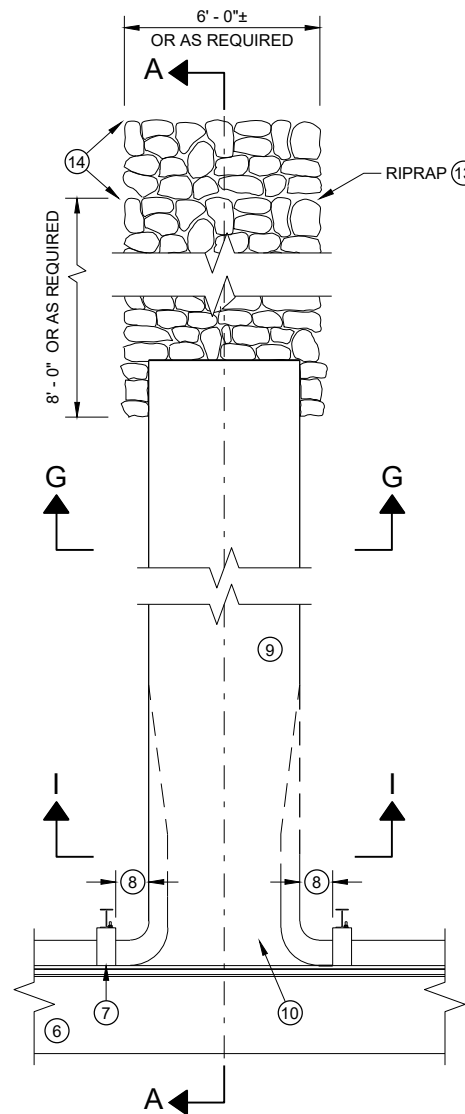
SECTION G - G



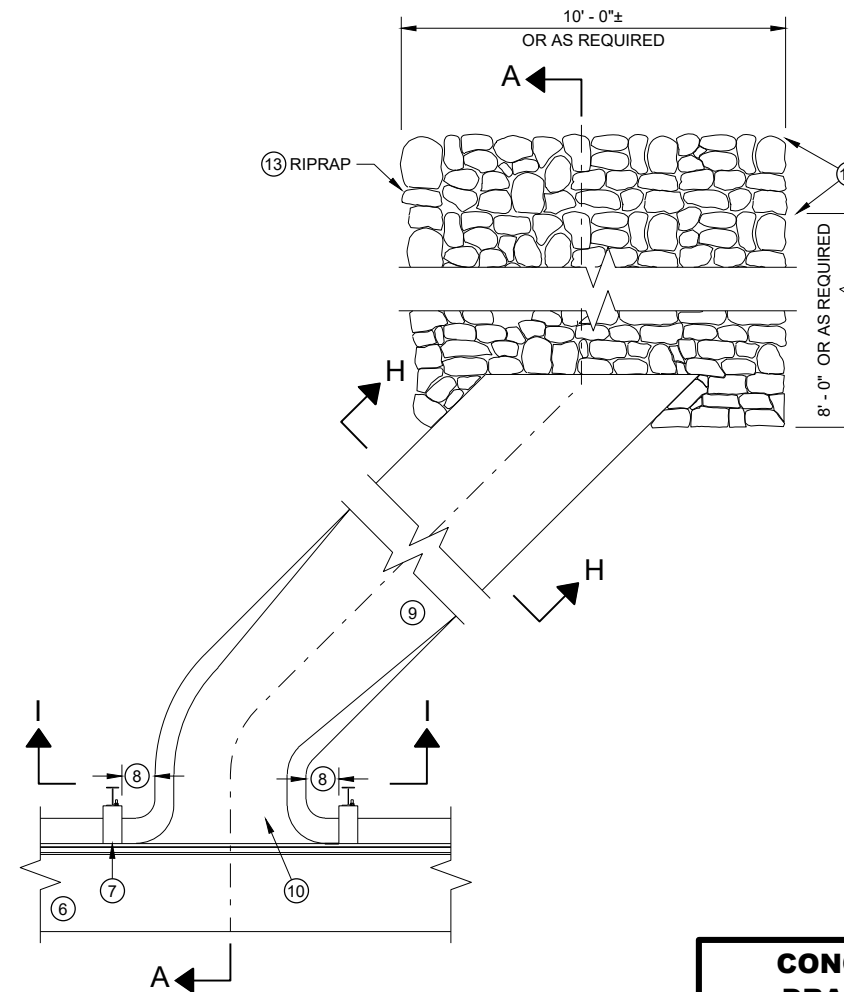
SECTION H - H



SECTION I - I



**PLAN VIEW
PERPENDICULAR FLUME**



**PLAN VIEW
SKEWED FLUME**

GENERAL NOTES

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

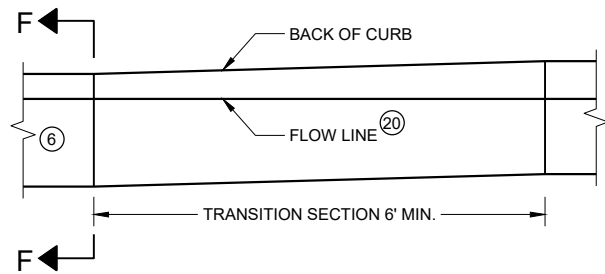
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
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- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

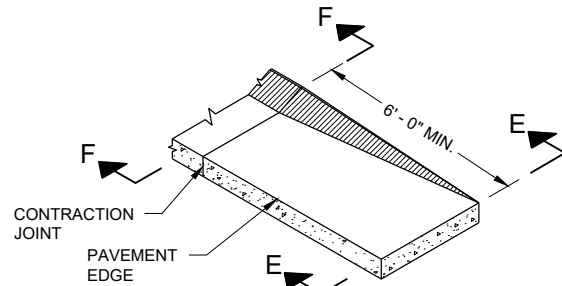
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- ⑩ SEE ROADWAY PLANS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

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

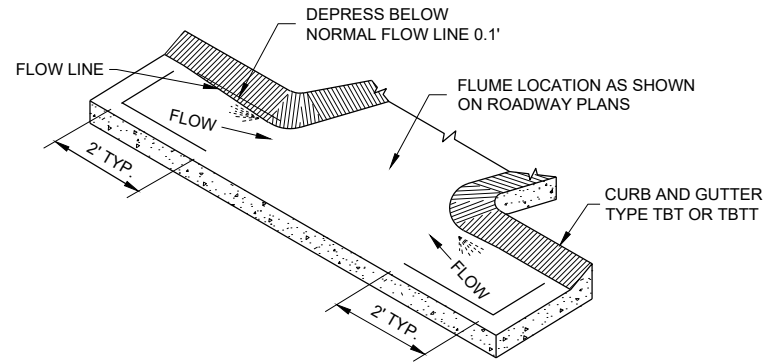
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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



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



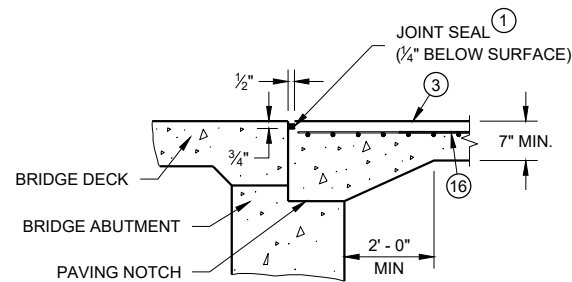
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

GENERAL NOTES

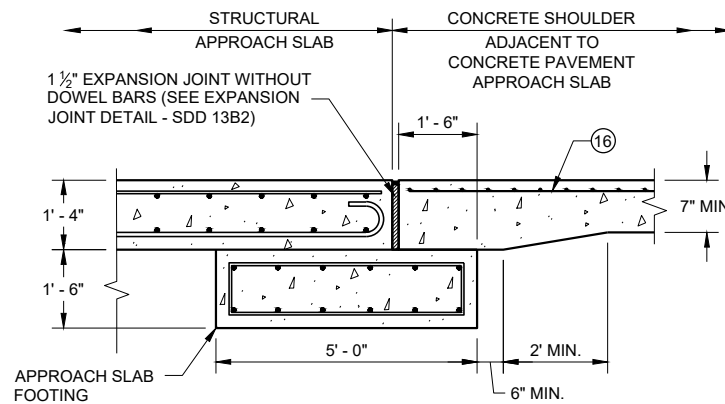
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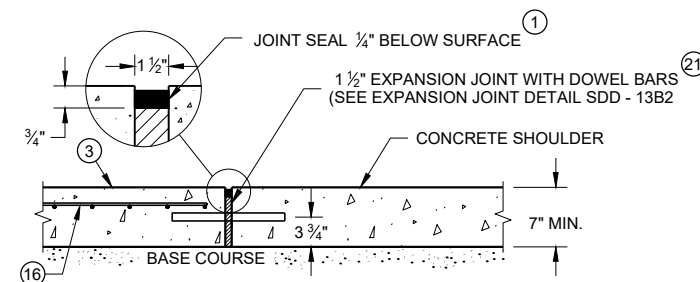
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- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH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



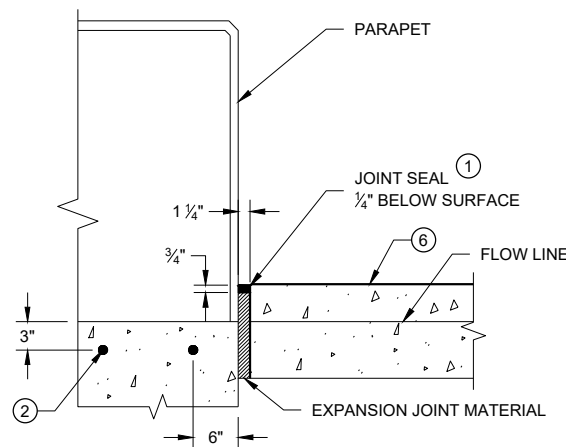
SECTION B-B



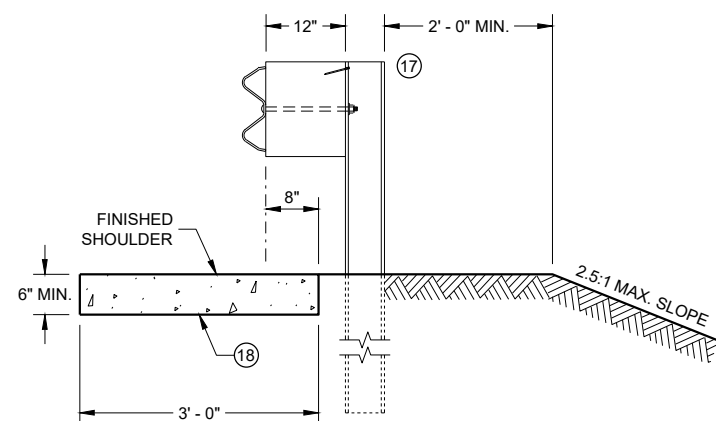
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



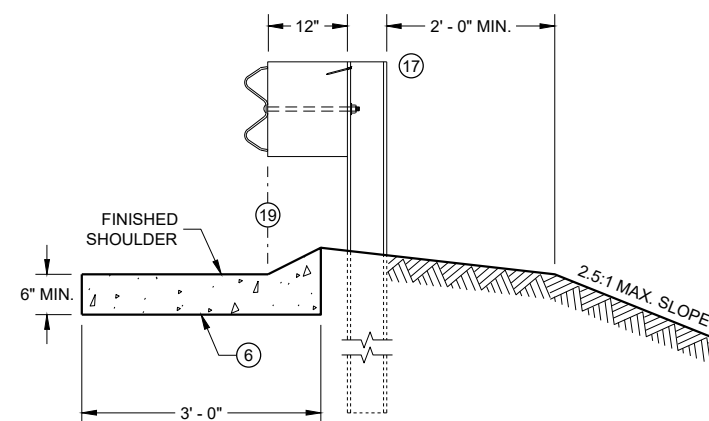
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

6

6

SDD08D02 - 08C

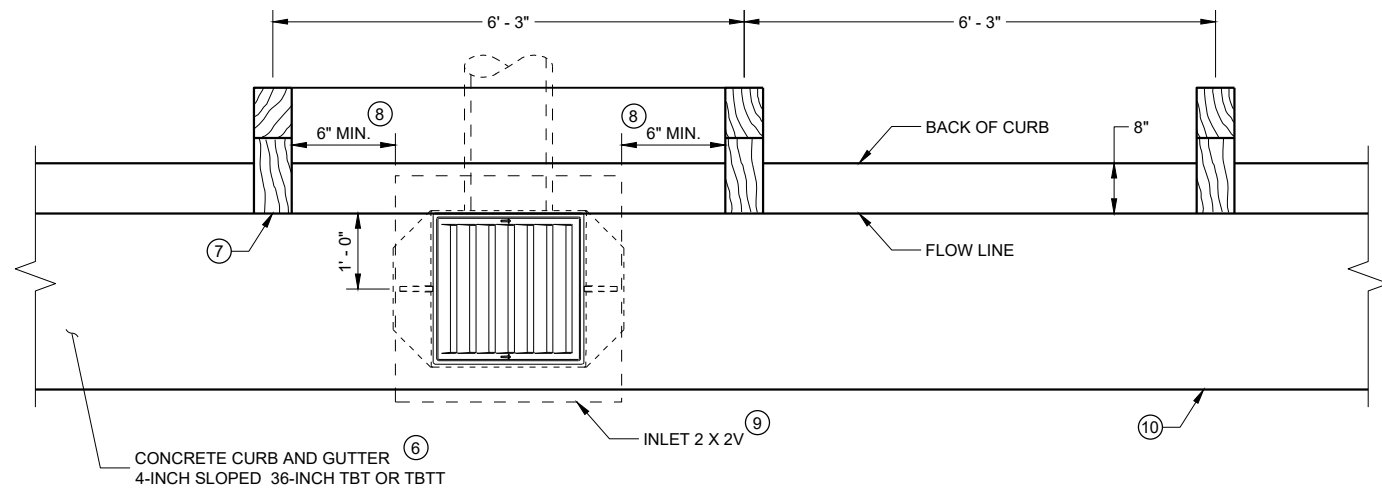
SDD08D02 - 08C

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

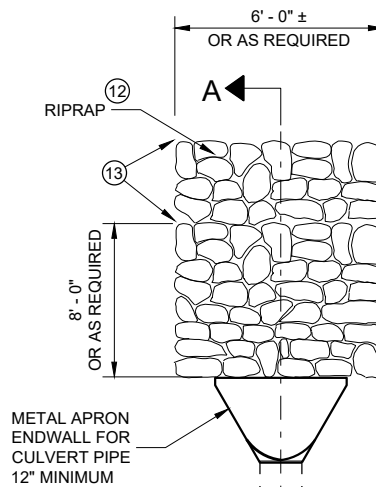
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



INLET PLAN VIEW
(NOTE: RAIL NOT SHOWN FOR CLARITY)



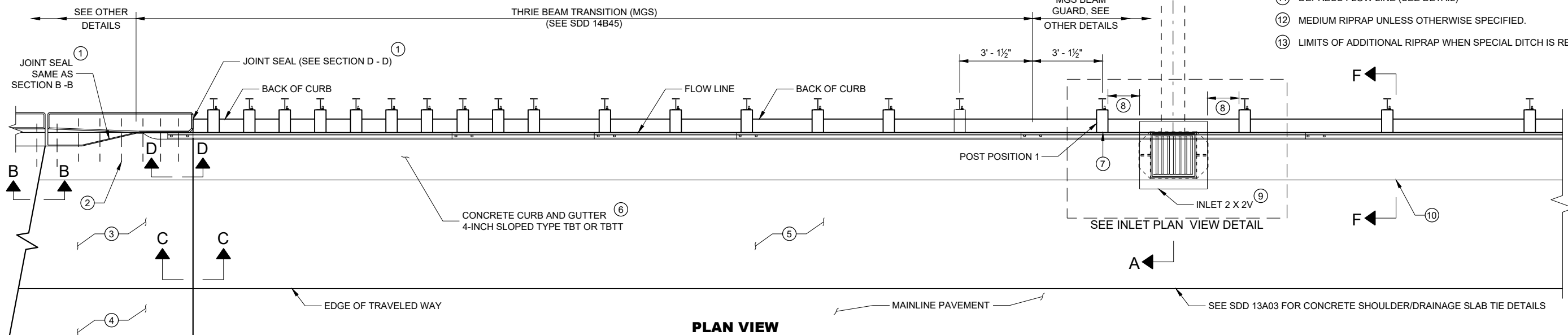
12" MINIMUM CULVERT PIPE
CORRUGATED POLYETHYLENE
OR POLYPROPYLENE AS SPECIFIED

GENERAL NOTES

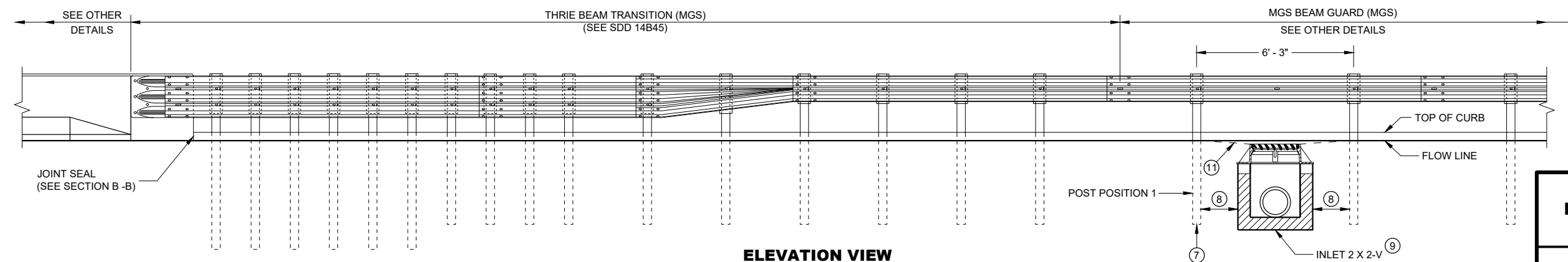
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- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE DRAINAGE STRUCTURE BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER DRAINAGE STRUCTURE BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE WALL OF DRAINAGE STRUCTURE TO POSTS.
- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.



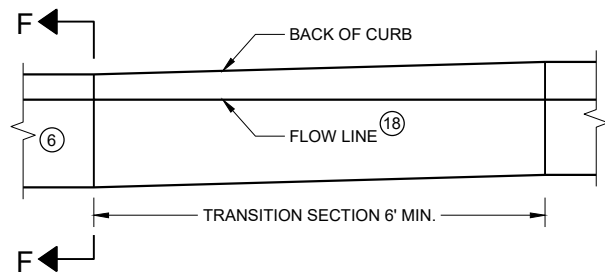
PLAN VIEW



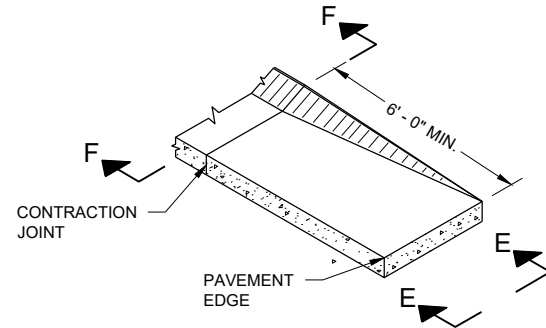
ELEVATION VIEW

**CONCRETE SURFACE
DRAINS DROP INLET TYPE
AT STRUCTURES**

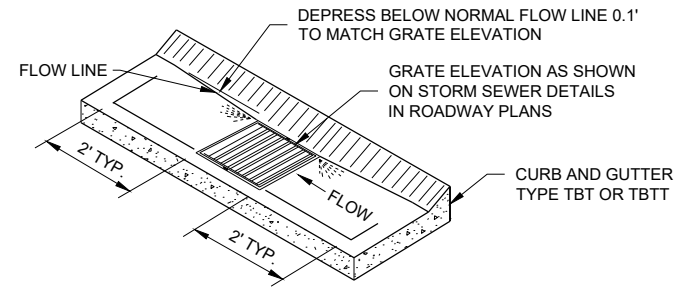
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



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



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



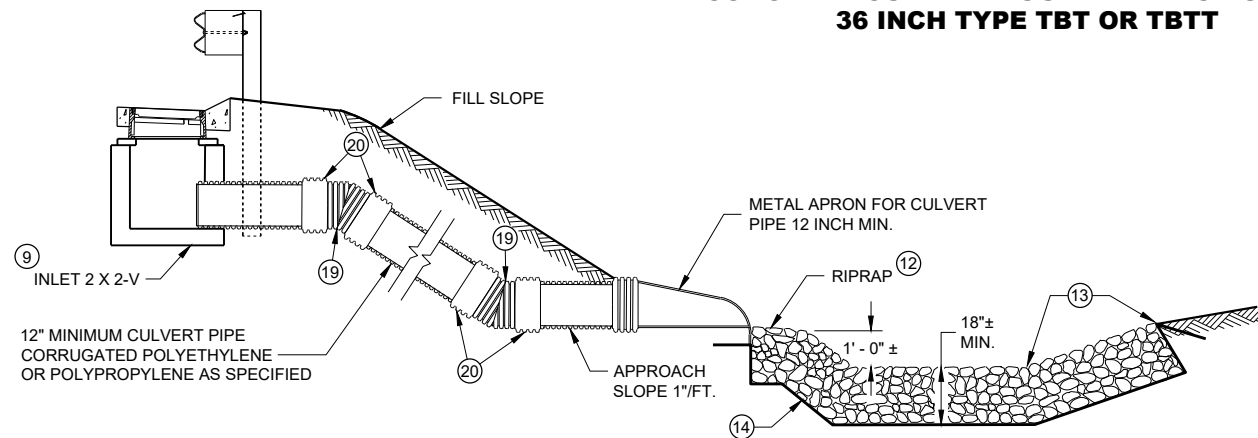
**CURB AND GUTTER FLOW LINE DEPRESSION
AT INLETS CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

GENERAL NOTES

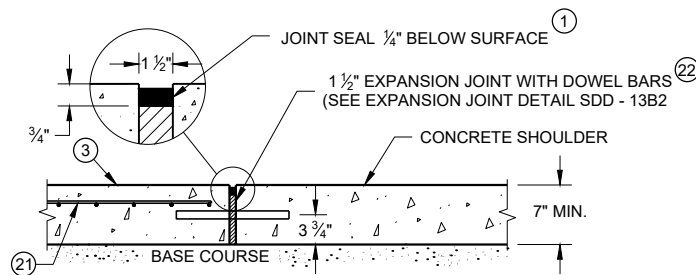
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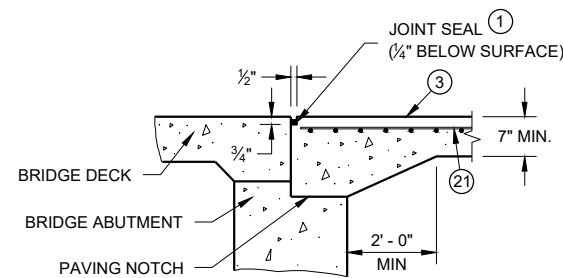
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- ⑨ SEE SDD 08A05 AND 08C07 FOR DETAILS. SEE ROADWAY PLANS FOR LOCATION.
- ⑩ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑪ DEPRESS FLOW LINE (SEE DETAIL)
- ⑫ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑬ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑭ GEOTEXTILE TYPE HR.
- ⑮ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑯ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑰ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑱ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ⑲ MANUFACTURER SUPPLIED BEND.
- ⑳ MANUFACTURER SUPPLIED EXTERNAL MECHANICAL COUPLING OR A MANUFACTURER RECOMMENDED COUPLING WITH A MASTIC IMPREGNATED GEOTEXTILE WRAP AND MECHANICAL FASTENING BANDS.
- ㉑ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C - C.
- ㉒ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



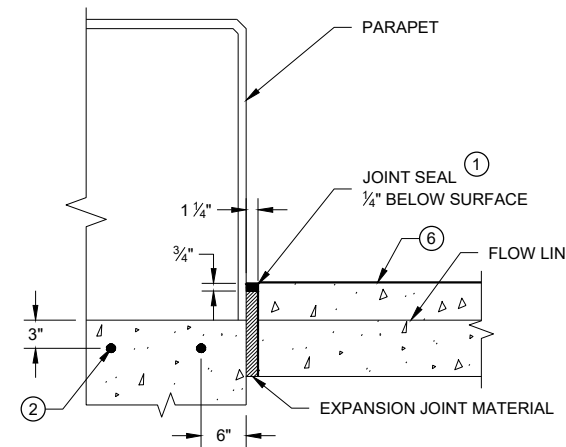
SECTION A - A



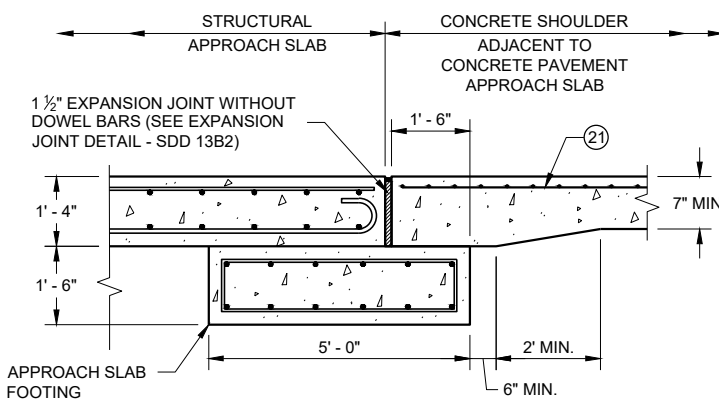
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



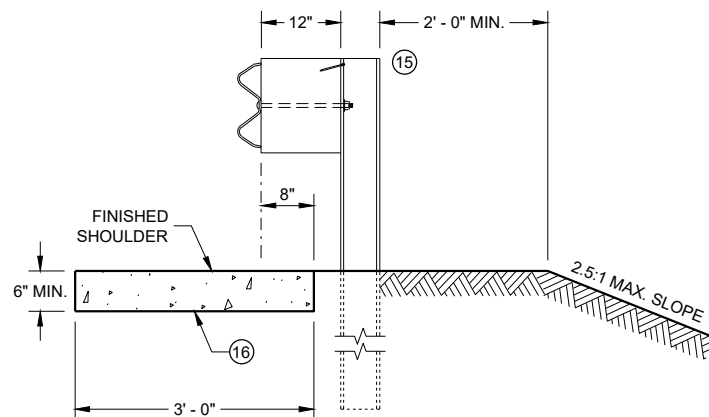
SECTION B - B



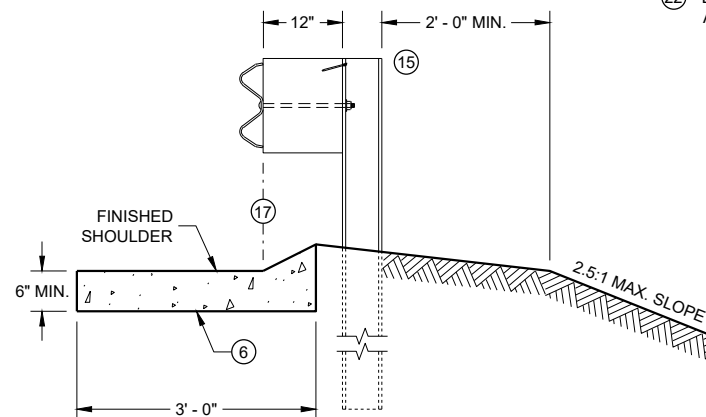
SECTION D - D



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



SECTION E - E



SECTION F - F

6

6

SDD08D03 - 09b

SDD08D03 - 09b

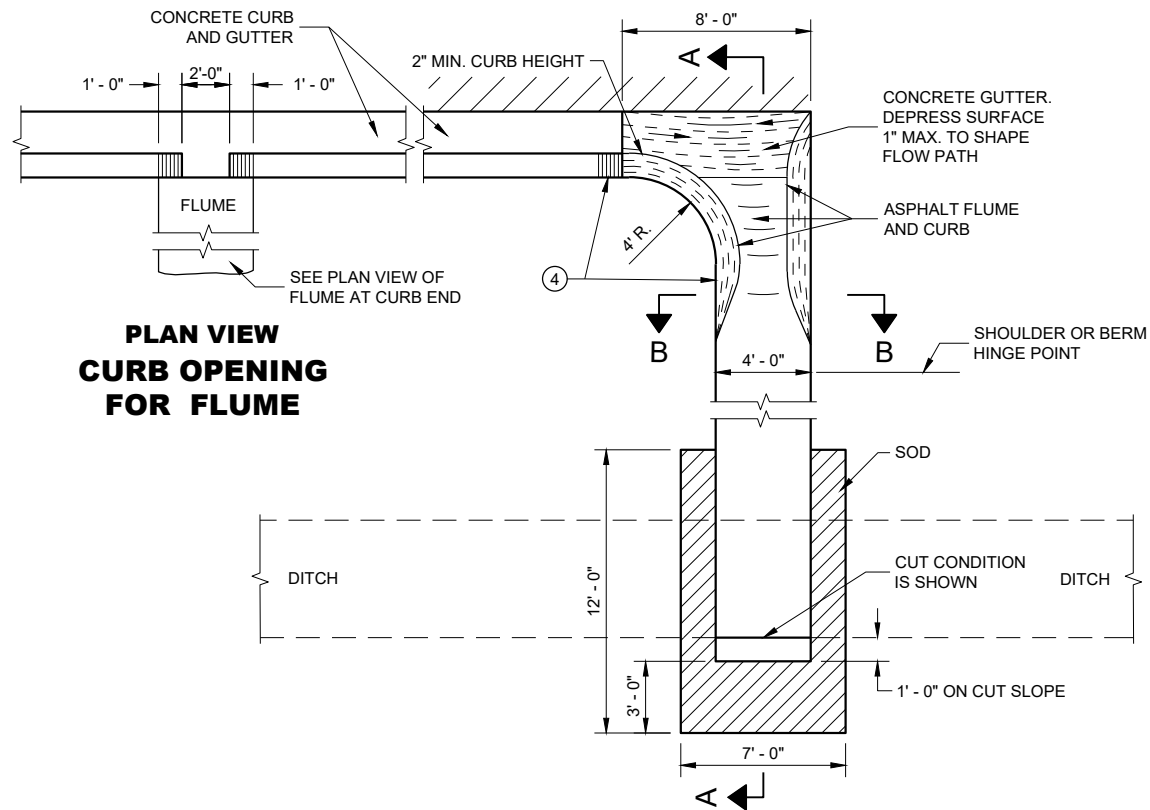
**CONCRETE SURFACE
DRAINS DROP INLET TYPE
AT STRUCTURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

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

ASPHALTIC FLUME



**PLAN VIEW
CURB OPENING
FOR FLUME**

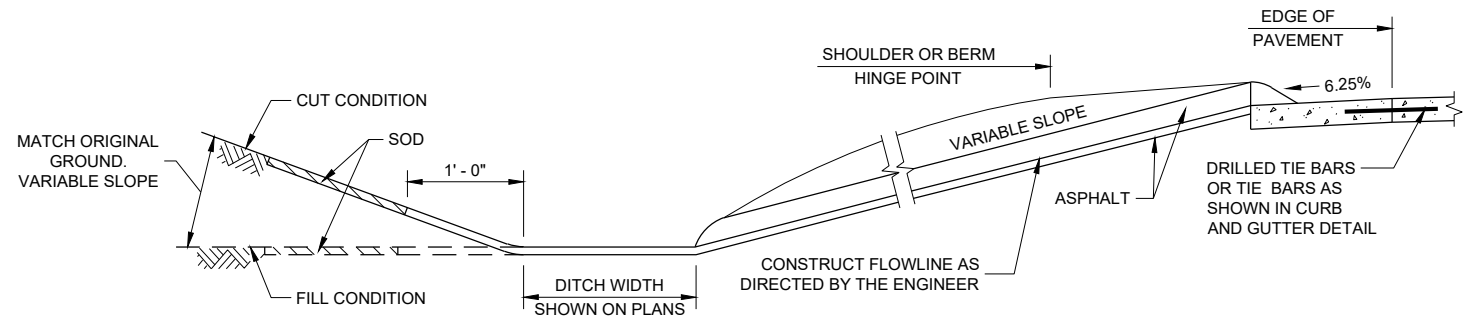
**PLAN VIEW
FLUME AT CURB END**

GENERAL NOTES

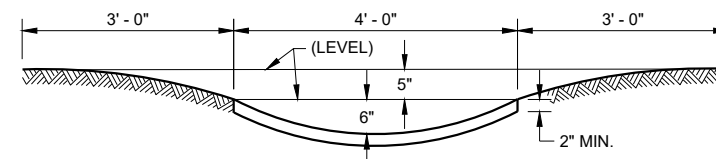
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

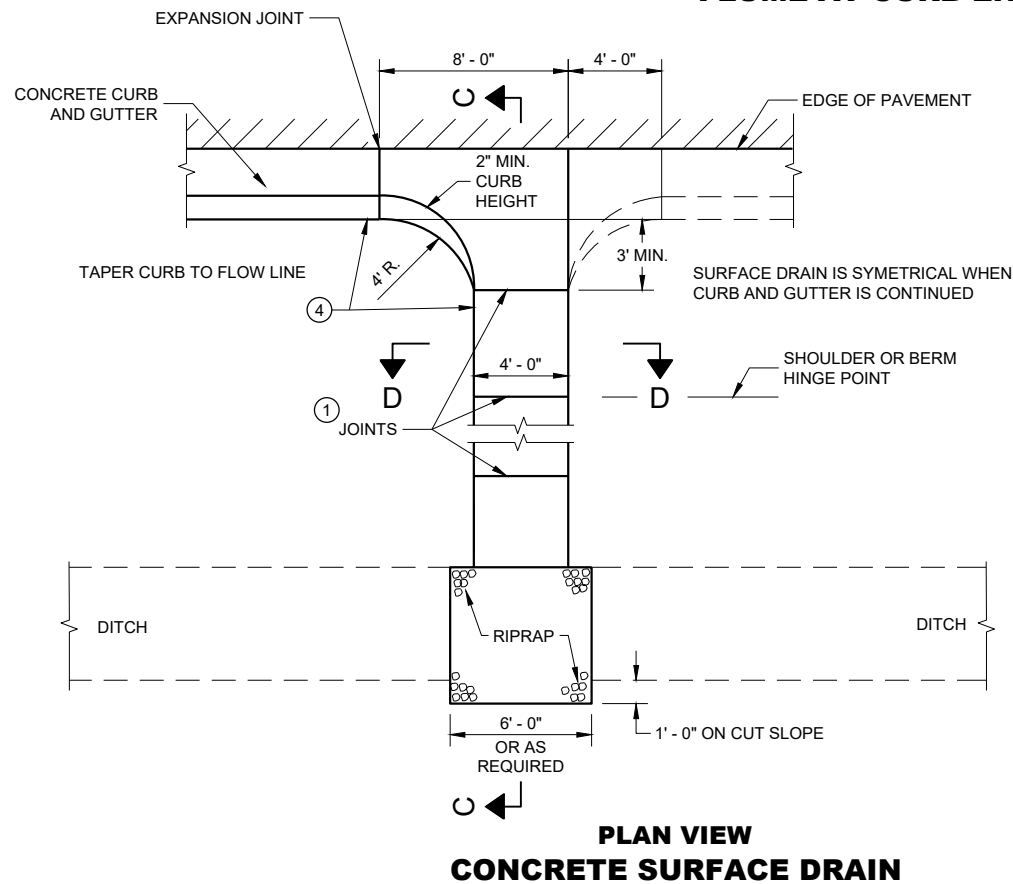
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.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



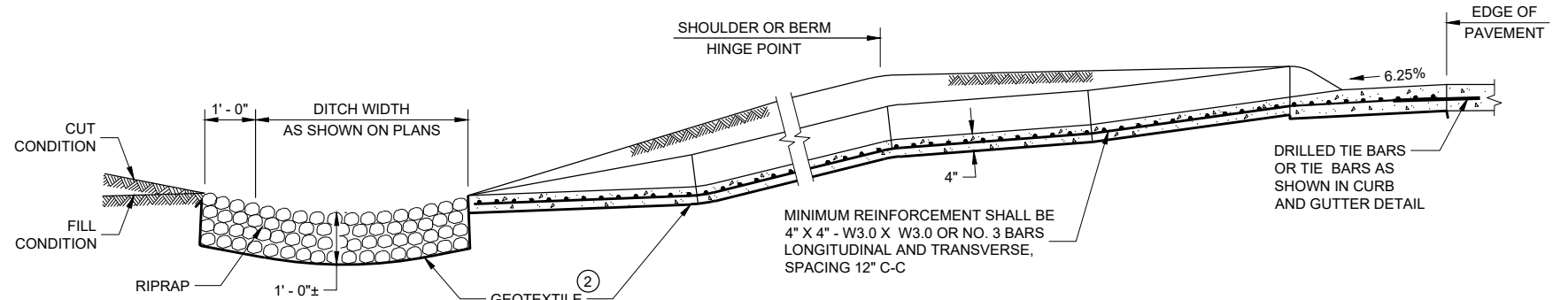
SECTION A - A



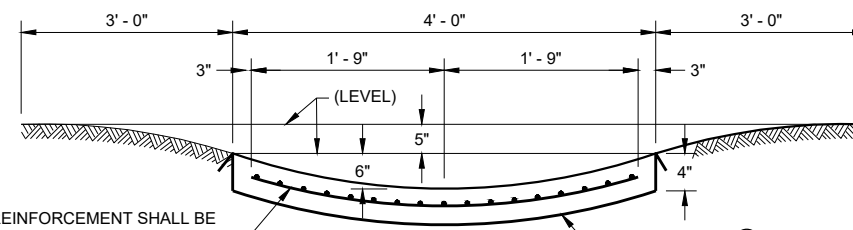
SECTION B - B



**PLAN VIEW
CONCRETE SURFACE DRAIN**



SECTION C - C



SECTION D - D

MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE, SPACING 12" C-C

MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE, SPACING 12" C-C

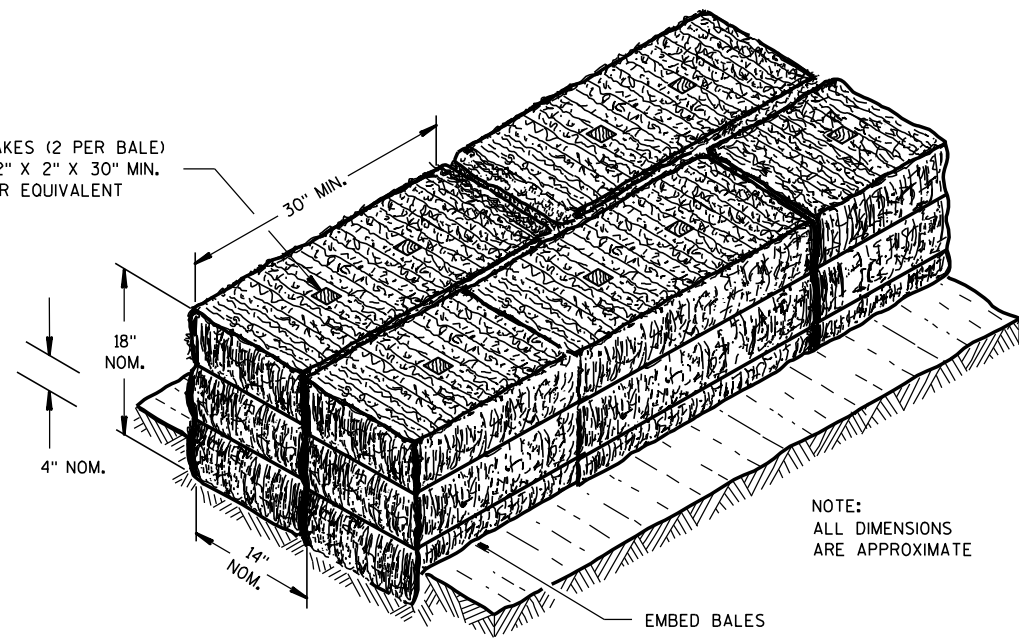
CONCRETE SURFACE DRAINS AND ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

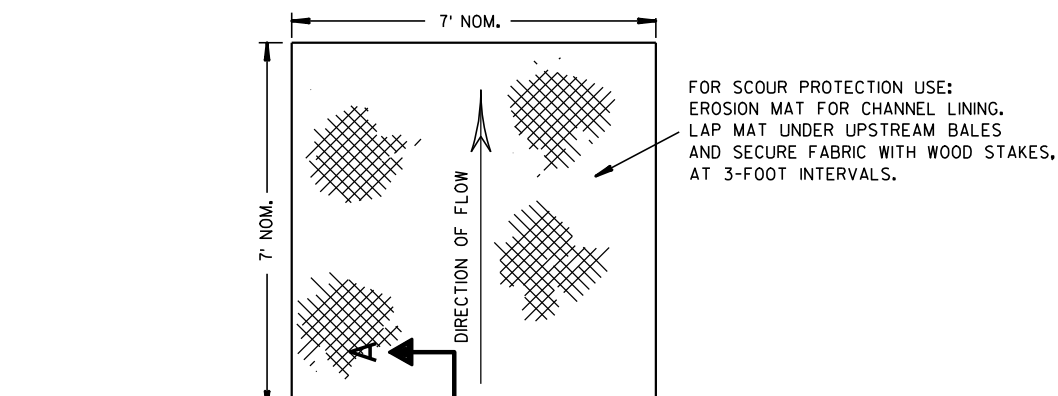
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



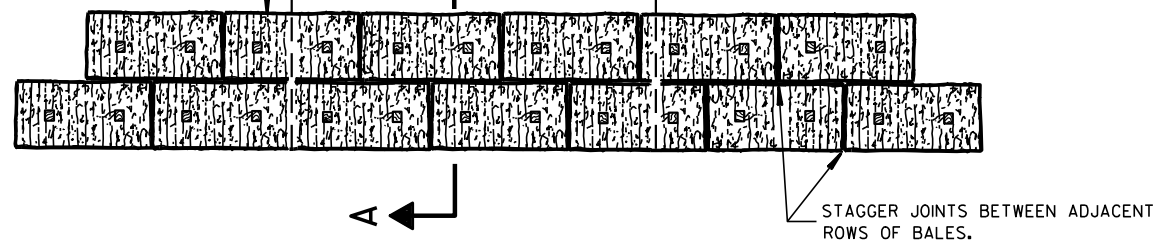
NOTE:
ALL DIMENSIONS
ARE APPROXIMATE

EMBED BALES

SECTION A-A



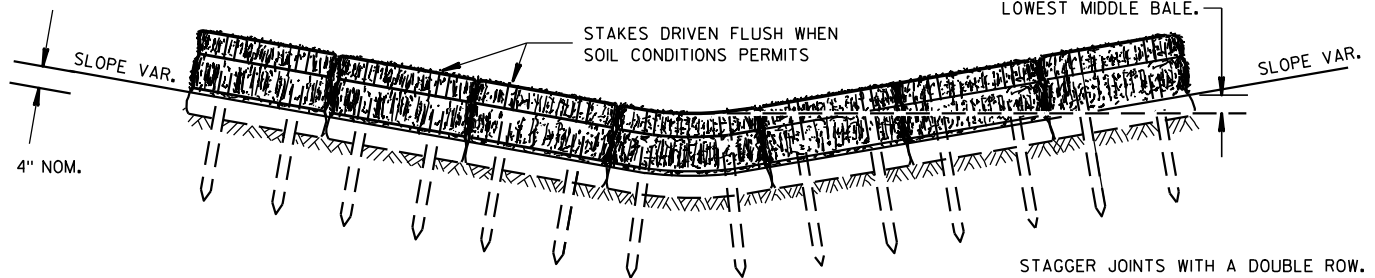
FOR SCOUR PROTECTION USE:
EROSION MAT FOR CHANNEL LINING.
LAP MAT UNDER UPSTREAM BALES
AND SECURE FABRIC WITH WOOD STAKES,
AT 3-FOOT INTERVALS.



STAGGER JOINTS BETWEEN ADJACENT
ROWS OF BALES.

PLAN VIEW

BOTTOM ELEVATION OF END BALE SHALL
BE EQUAL TO OR GREATER THAN TOP OF
LOWEST MIDDLE BALE.



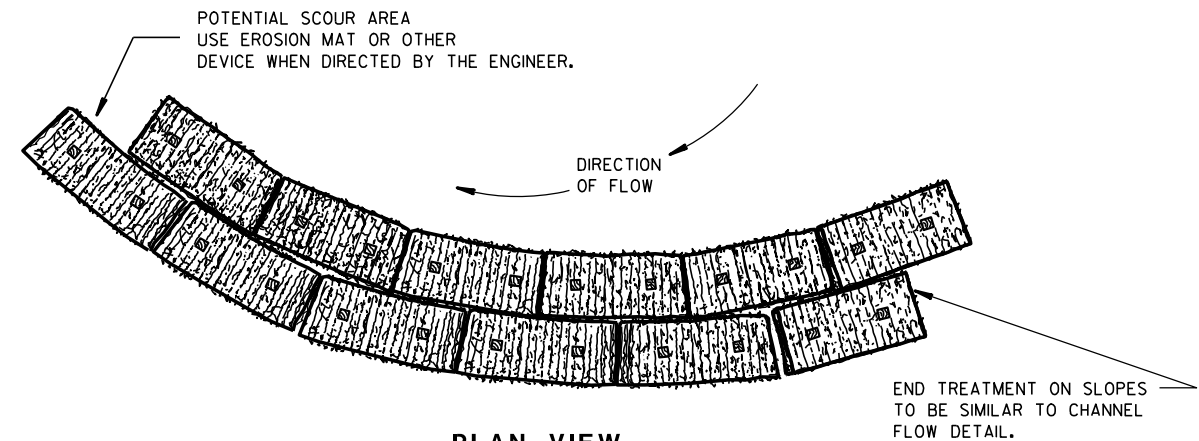
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

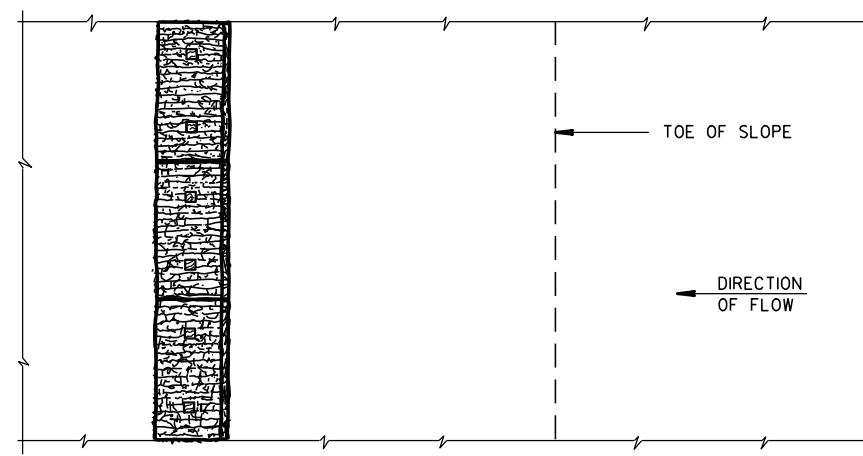
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

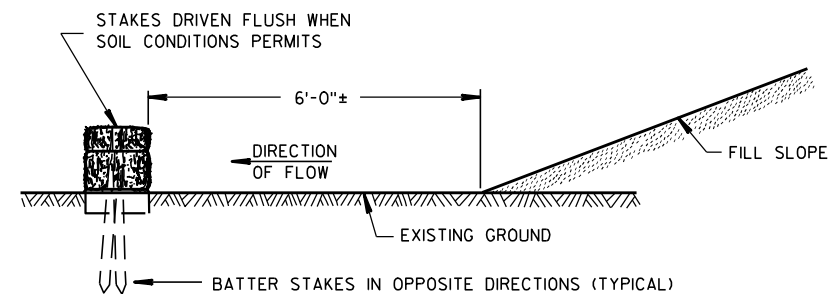


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

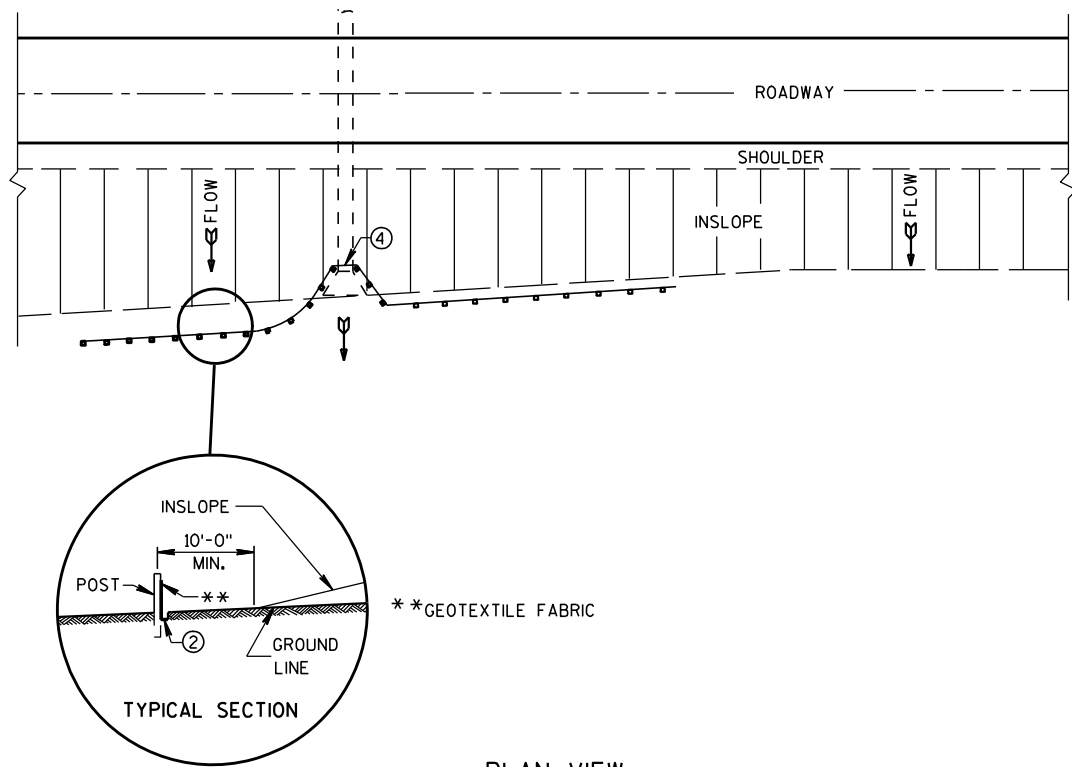
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

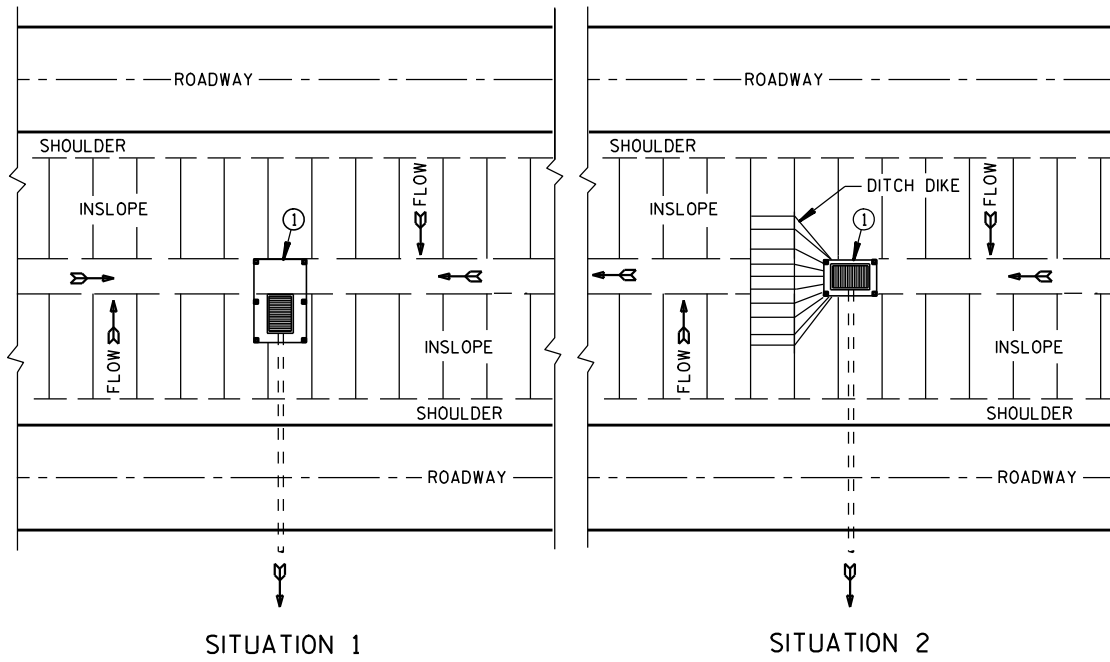
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

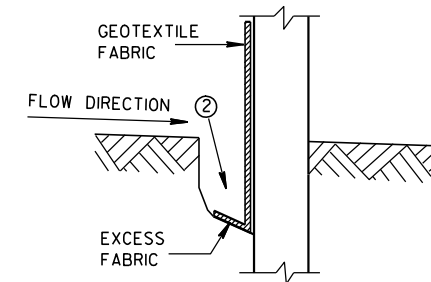


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

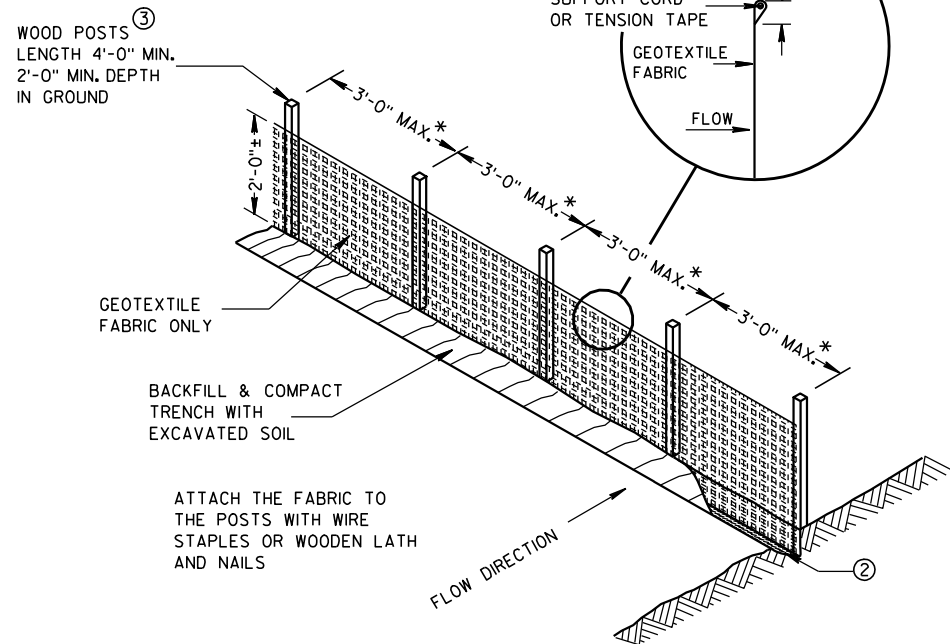
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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



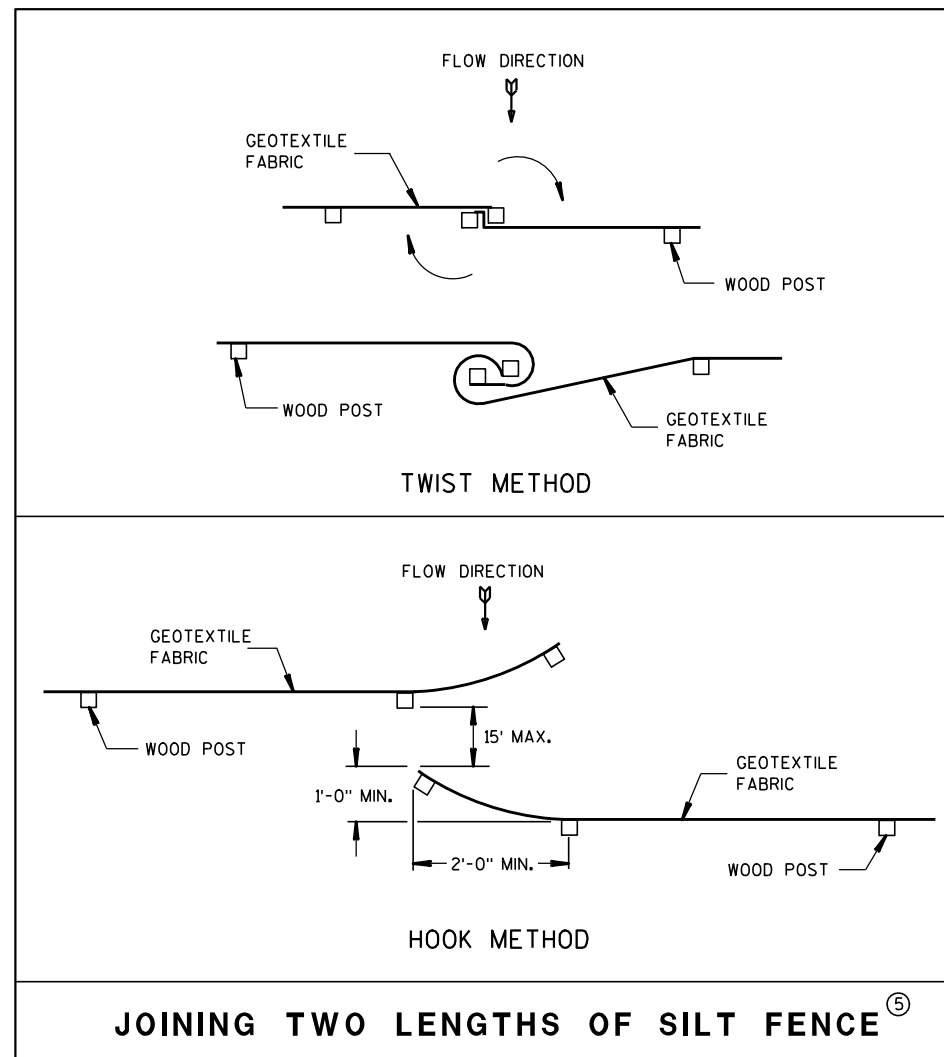
TRENCH DETAIL

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

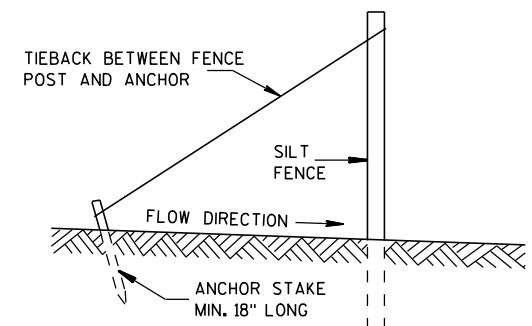


SILT FENCE

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



JOINING TWO LENGTHS OF SILT FENCE ⑤

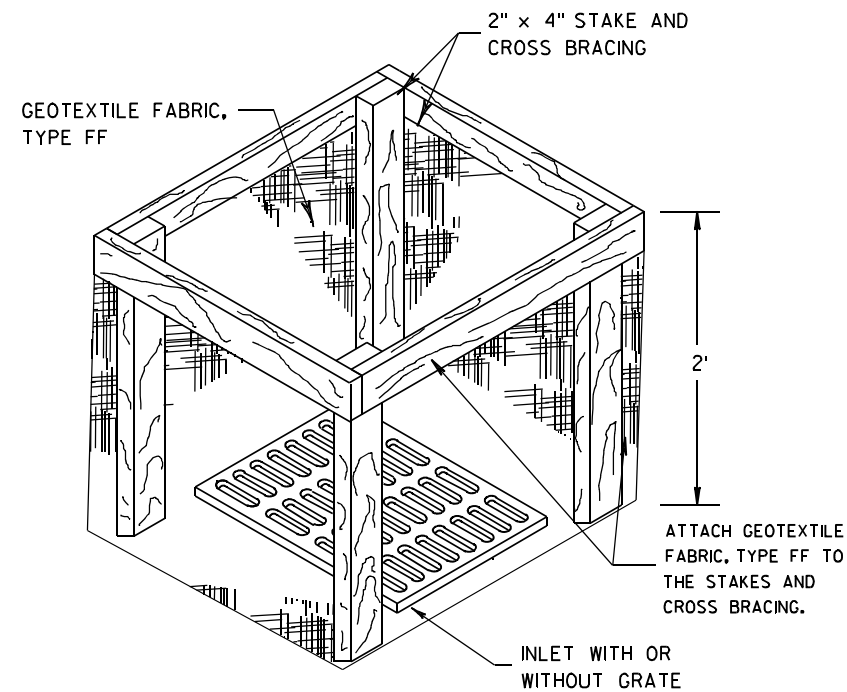
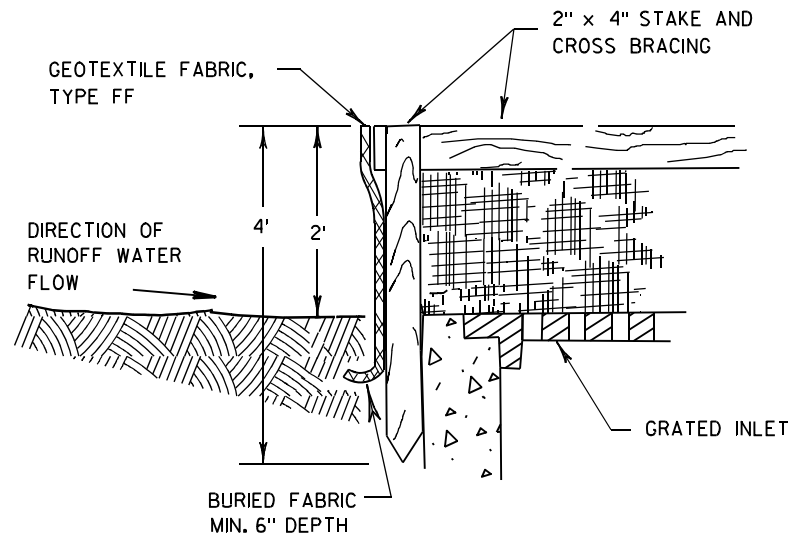


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



INLET PROTECTION, TYPE A

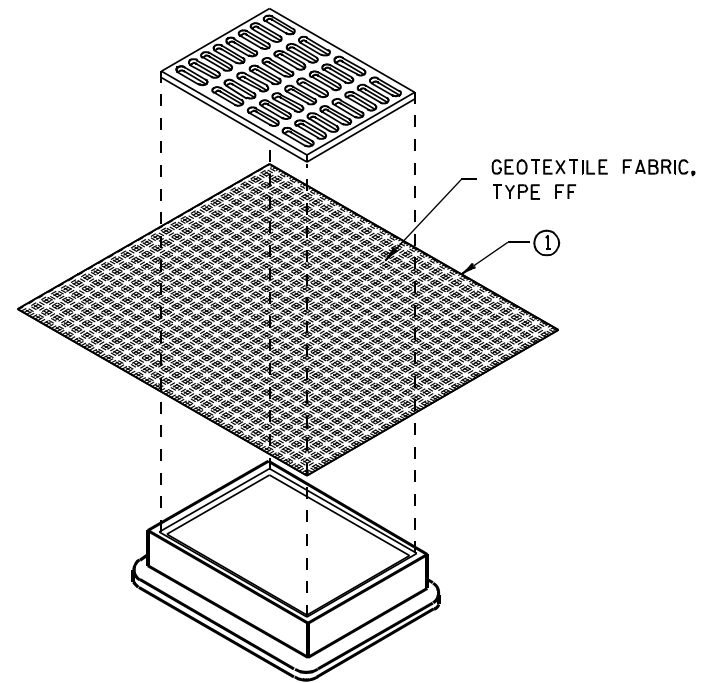
GENERAL NOTES

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.

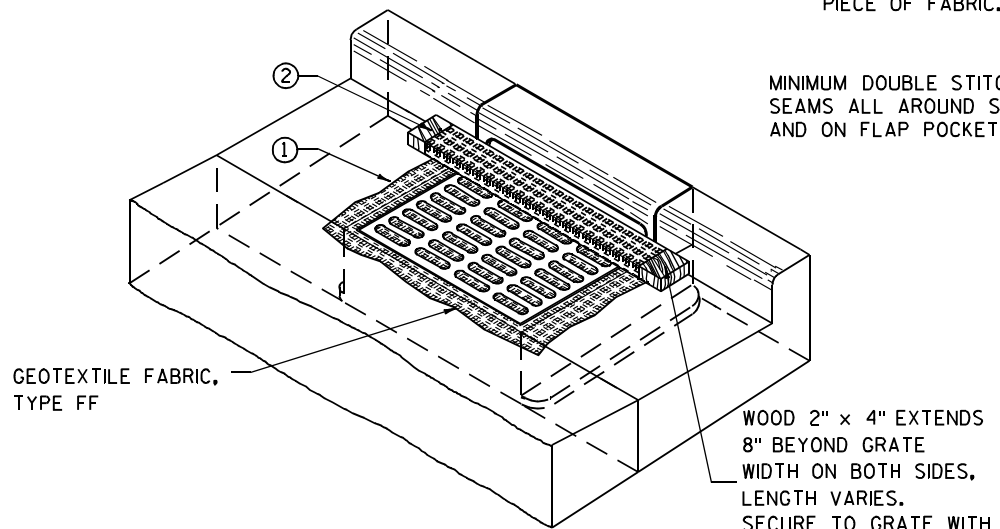
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

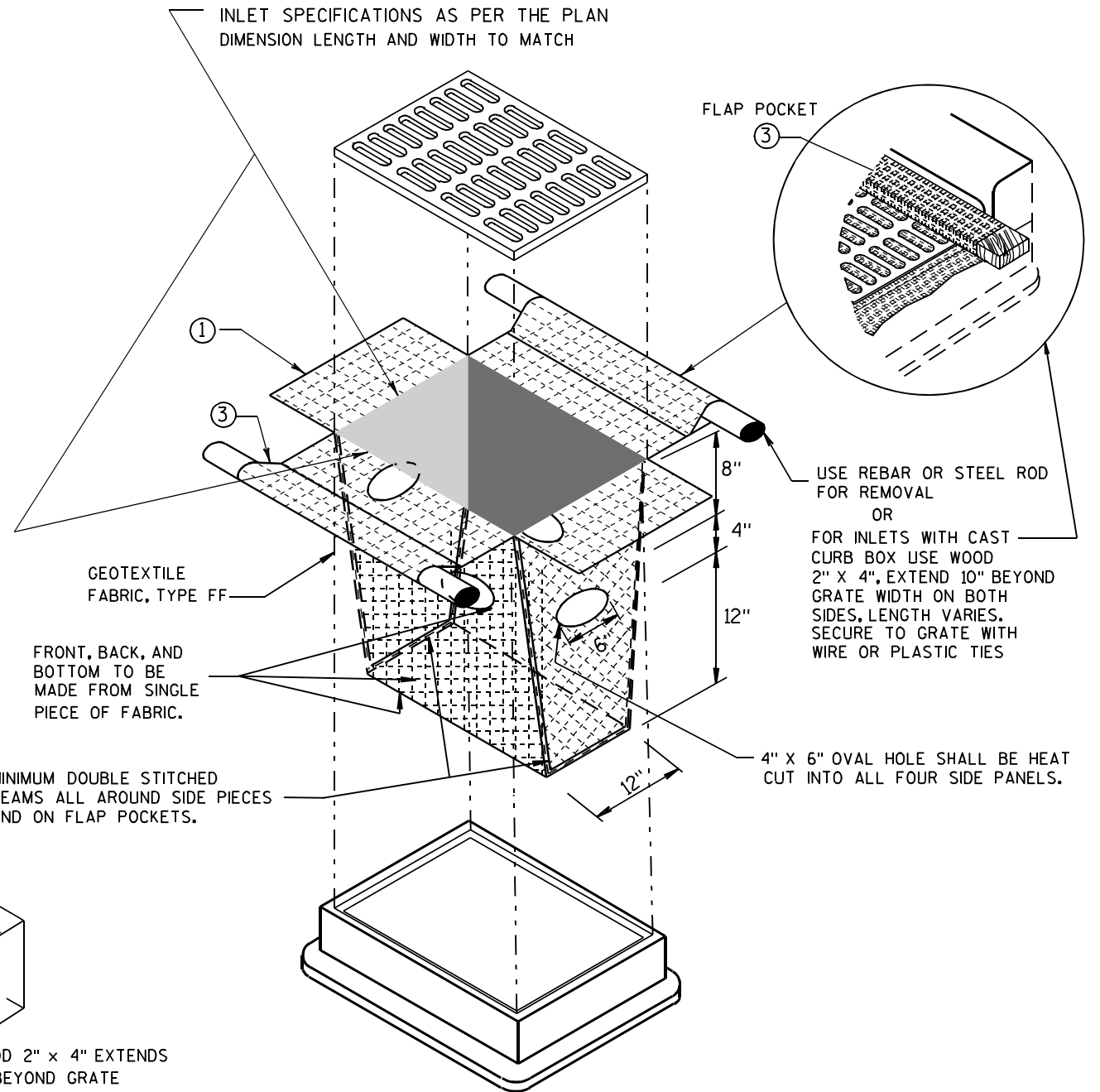
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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 DATE	/s/ Beth Connestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	

GENERAL NOTES

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

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

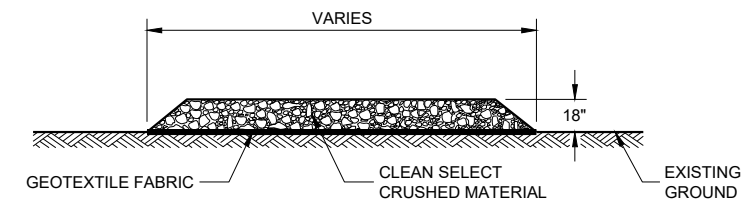
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

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

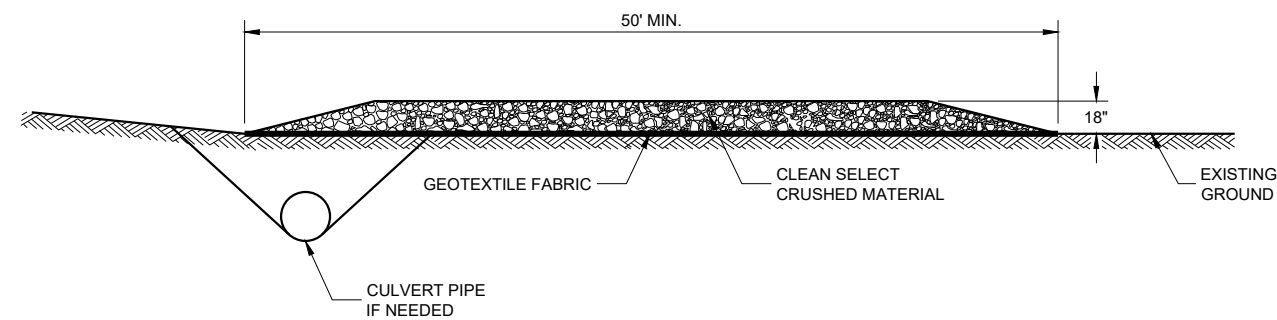
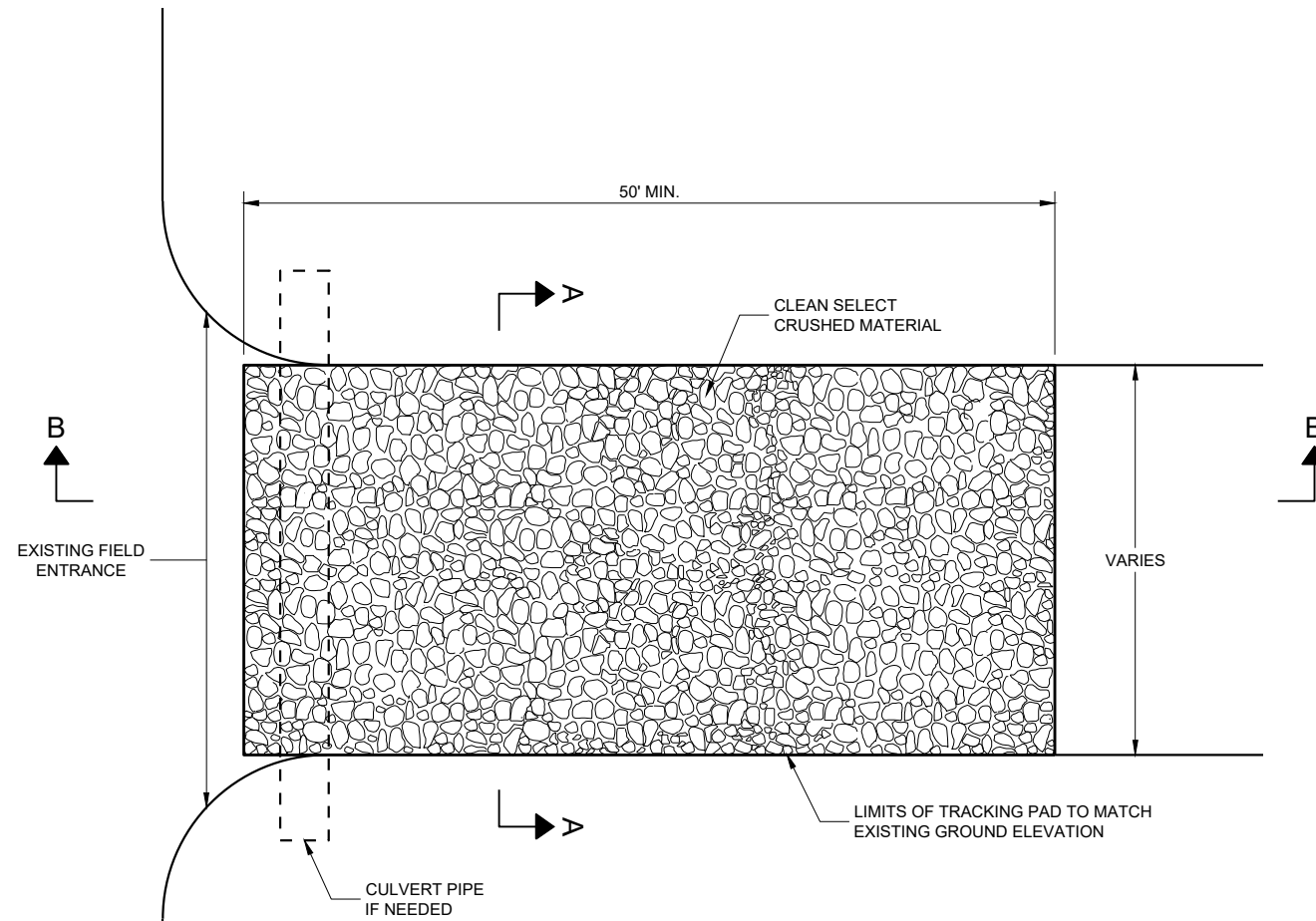
SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

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

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



SECTION A - A



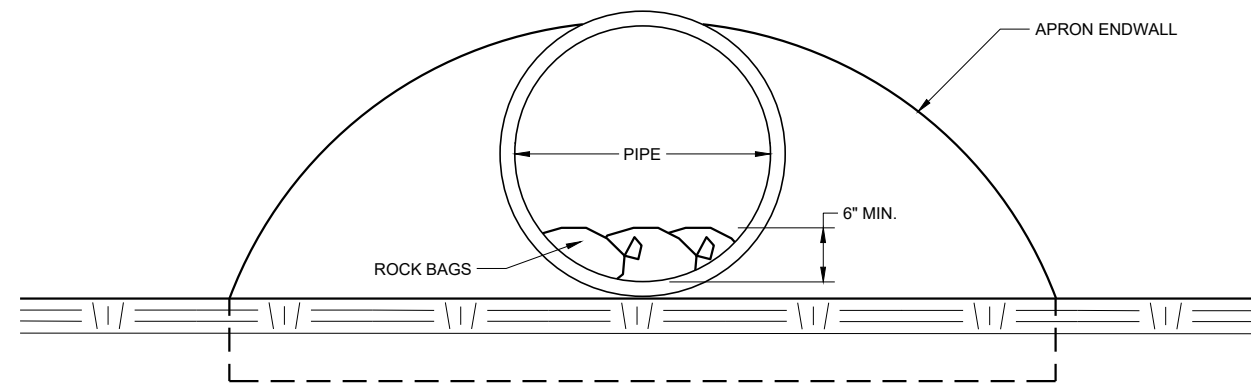
SECTION B - B

TRACKING PAD

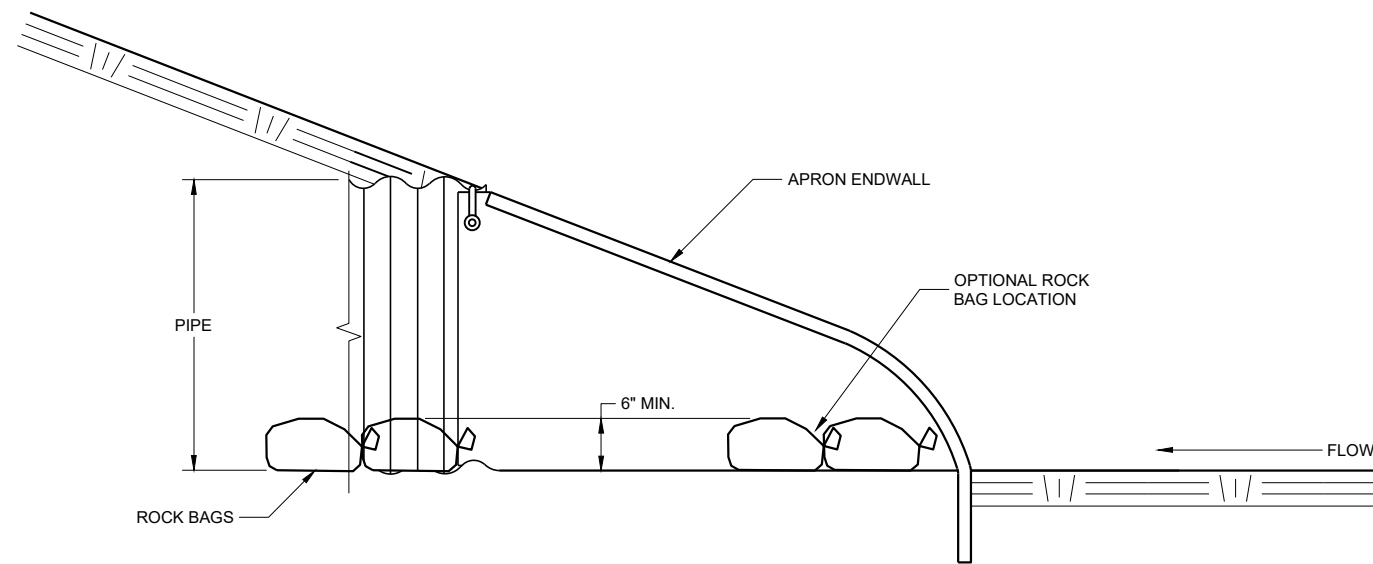
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



END VIEW



SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Daniel Schave
DATE EROSION CONTROL ENGINEER

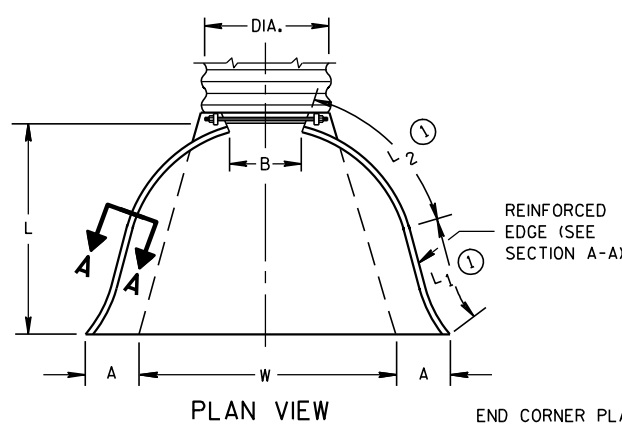
FHWA

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

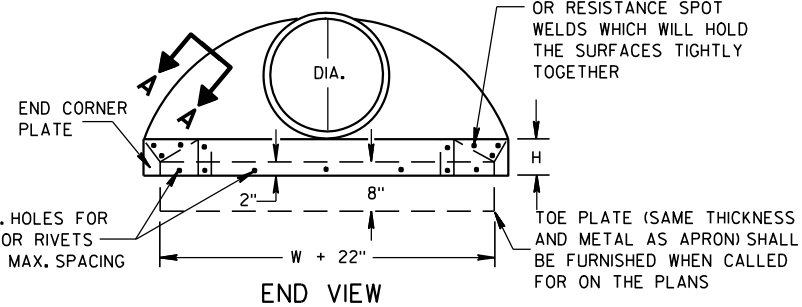
* EXCEPT CENTER PANEL SEE GENERAL NOTES

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

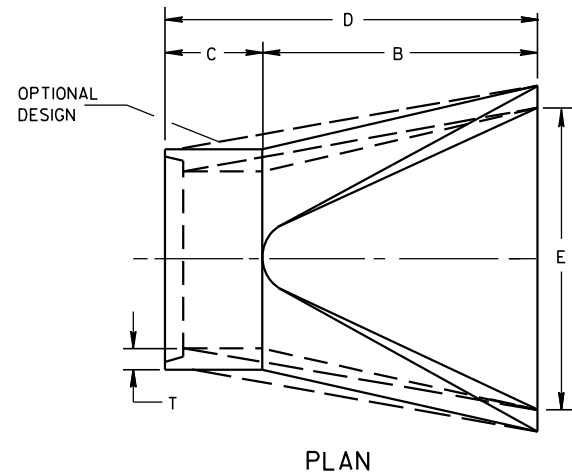
* MINIMUM
** MAXIMUM



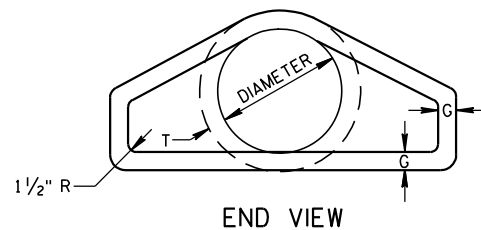
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



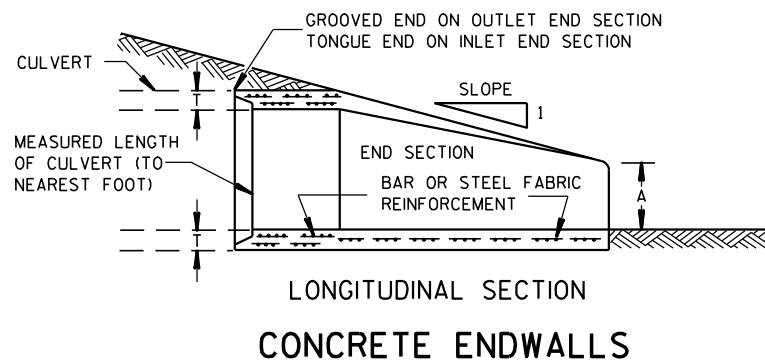
SIDE ELEVATION
METAL ENDWALLS



PLAN

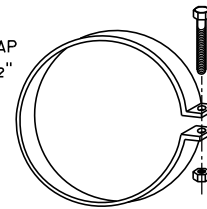


END VIEW

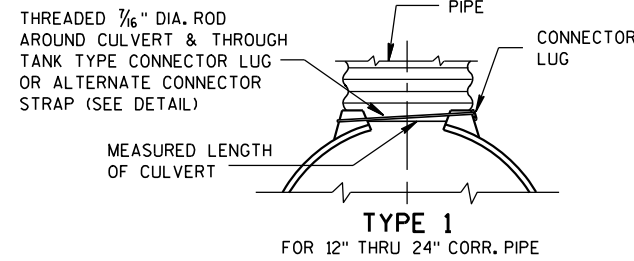


LONGITUDINAL SECTION
CONCRETE ENDWALLS

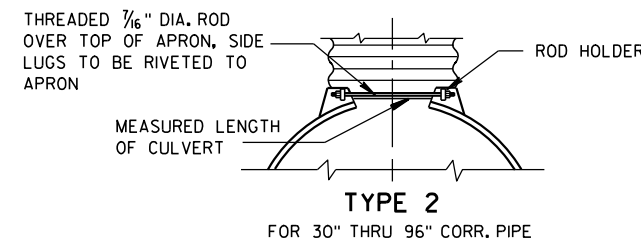
1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



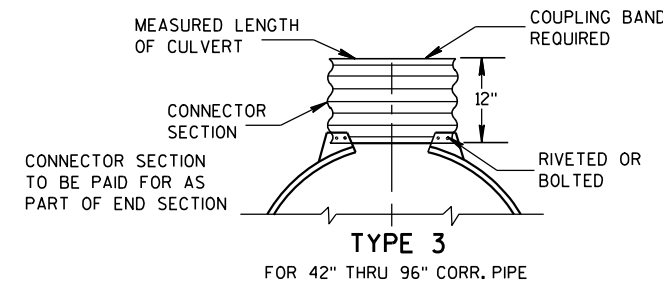
ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



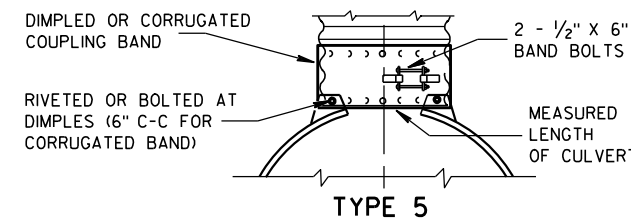
TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE



TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

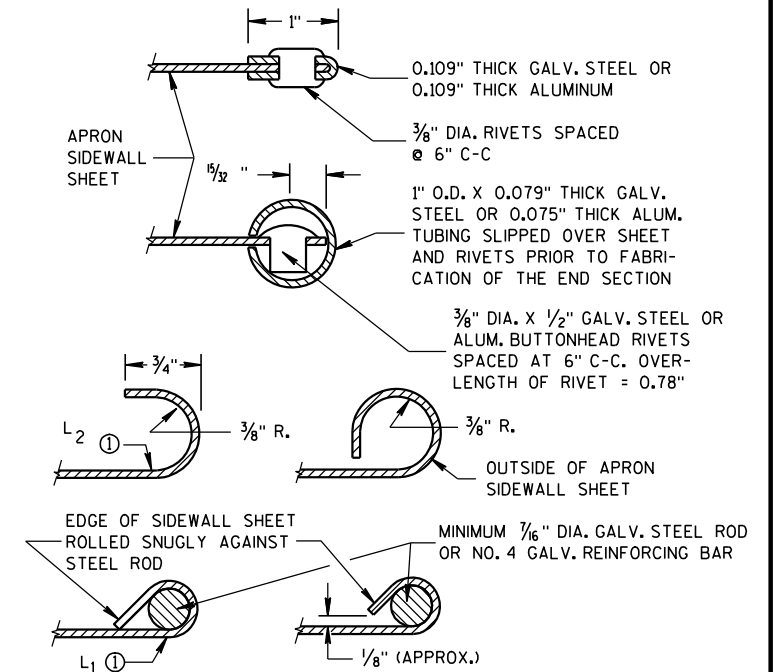
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

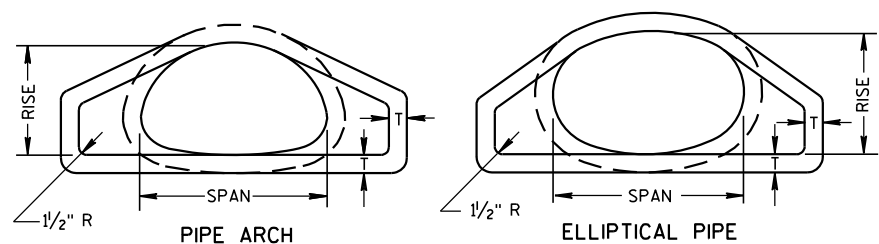
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

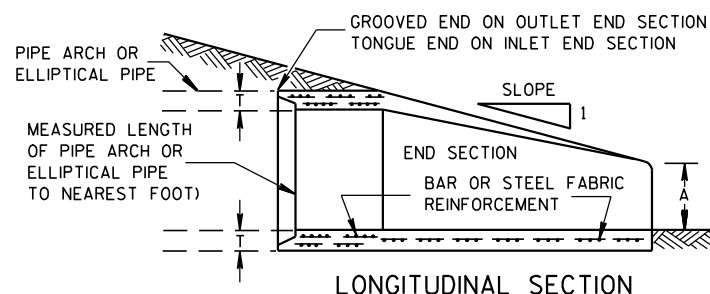
APRON ENDWALLS FOR
CULVERT PIPE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

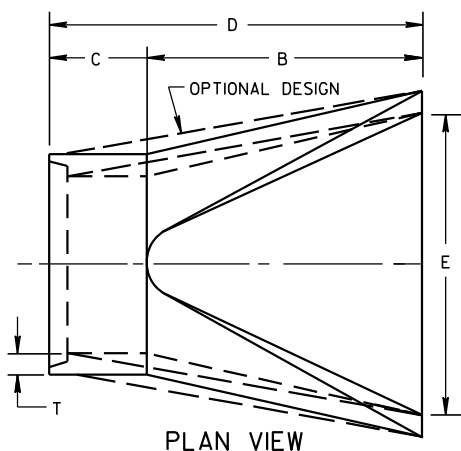


END VIEW



LONGITUDINAL SECTION

CONCRETE ENDWALLS



PLAN VIEW

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.

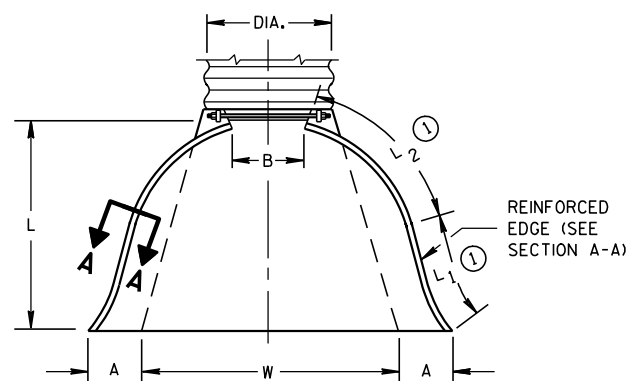
3" X 1" CORRUGATIONS													
EQUIV. DIA. (Inches)	(Inches)		MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE	BODY
	SPAN	RISE	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 (±1")	L2 (±1")	W (±2")		
48	53	41	.109	.105	18	26	12	63	24	72 3/4	90	2 1/2 to 1	2 Pc.
54	60	46	.109	.105	18	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

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	

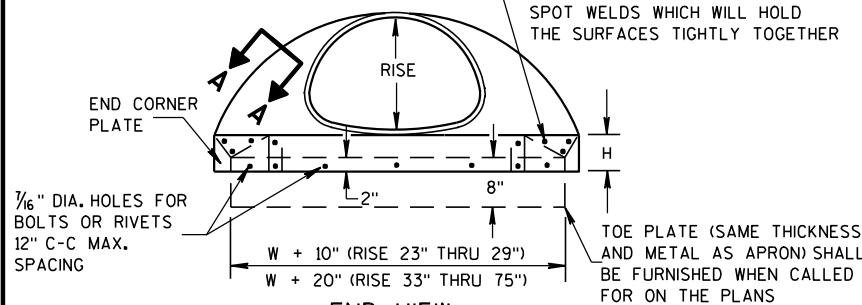
REINFORCED CONCRETE ELLIPTICAL PIPE										
EQUIV. DIA. (Inches)	DIMENSIONS (Inches)									APPROX. SLOPE
	**SPAN	**RISE	T	A	B	C	D	E		
24	30	19	3 1/4	8 1/2	39	33	72	48	3 to 1	
30	38	24	3 3/4	9 1/2	54	18	72	60	3 to 1	
36	45	29	4 1/2	11 1/8	60	24	84	72	2 1/2 to 1	
42	53	34	5	15 3/4	60	36	96	78	2 1/2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

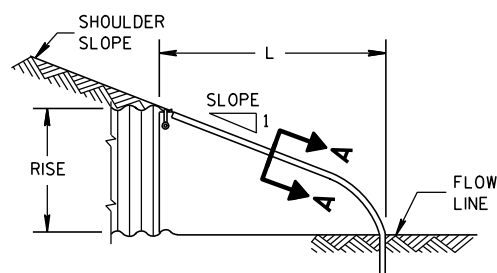


PLAN VIEW

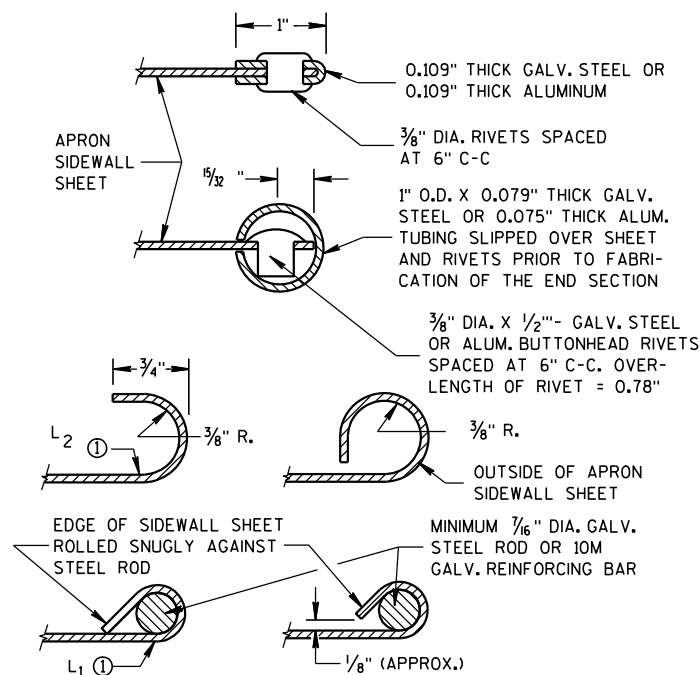
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER



END VIEW



SIDE ELEVATION METAL ENDWALLS

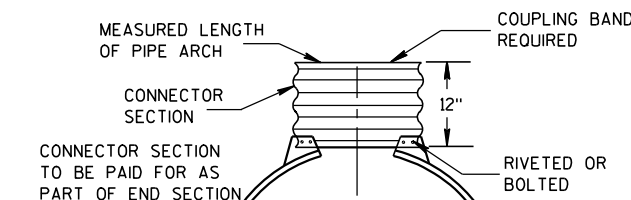


SECTION A-A



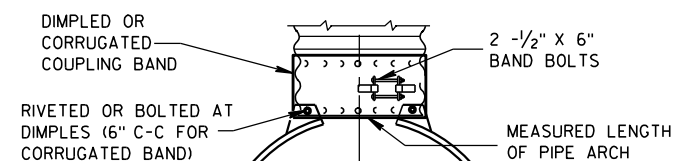
TYPE 2

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



TYPE 3

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



TYPE 5

ALTERNATE FOR: ALL SIZES CORRUGATED PIPE ARCHES

NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL.

CONNECTION 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.

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 inch X 51 inch PIPE ARCH AND LARGER SHALL HAVE 0.109 inch SIDES AND 0.138 inch CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 66 inch X 51 inch PIPE ARCH AND LARGER SHALL HAVE 0.105 inch SIDES AND 0.134 inch 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 inch X 52 inch THROUGH 112 inch X 75 inch 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 inch X 55 inch A 180 degree ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR PIPE ARCH AND ELLIPTICAL PIPE

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

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

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

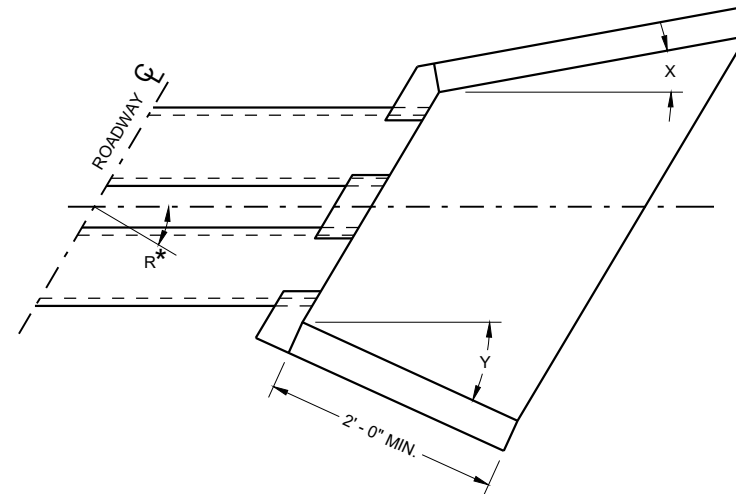
ALL STEEL REINFORCEMENT AND WELDED STEEL WIRE FABRIC SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE NOTED.

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

② THE SPACE BETWEEN PIPES SHALL BE AS FOLLOWS:

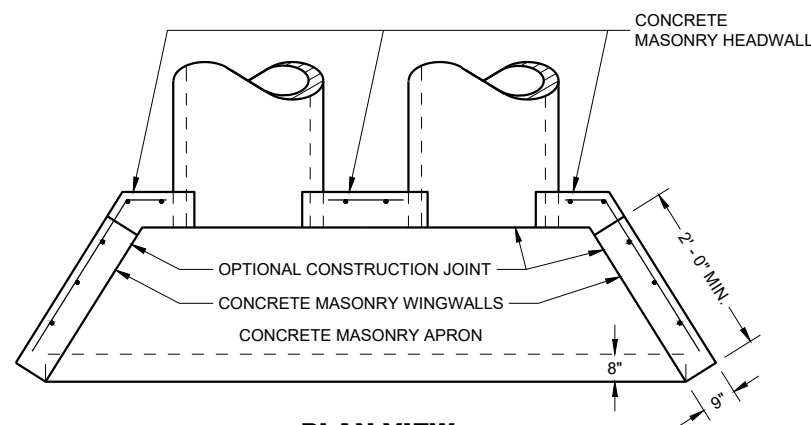
DIAMETER OR SPAN	SPACE
UP TO AND INCLUDING 48"	2' - 0"
OVER 48" TO 72"	1/2 DIA. OR SPAN
OVER 72"	3' - 0"

- ③ LIMITS OF TRENCH BACKFILL
- ④ LIMITS OF FOUNDATION BACKFILL
- ⑤ FOUNDATION AND TRENCH BACKFILL ARE MATERIALS INCLUDED IN PAYMENT FOR CULVERT PIPE, PIPE ARCH, CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPSE OR CONCRETE MASONRY ENDWALLS.
- ⑥ DO NOT PLACE FOUNDATION BACK FILL OR ANY OTHER GRANULAR BACKFILL AROUND OR BELOW CUT OFF WALL. POUR CUT OFF WALL AGAINST NATIVE SOIL
- ⑦ MINIMUM HEIGHT SHALL BE THE GREATER OF 1'- 0" OR 1/4 HEIGHT OF CULVERT PIPE.

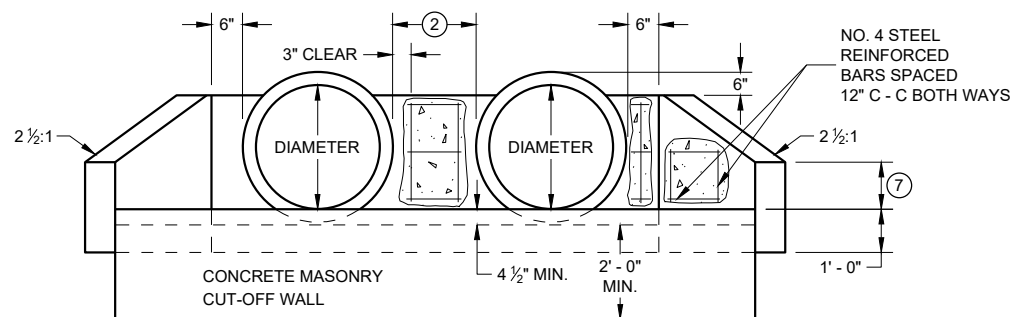


INLET			OUTLET		
R*	X	Y	R*	X	Y
0 - 7°	30°	30°	0 - 15°	15°	15°
8 - 22°	25°	30°	16 - 45°	10°	15°
23 - 37°	20°	30°	46 - 75°	5°	15°
38 - 52°	15°	30°	OVER 75°	0°	15°
53 - 67°	10°	30°			
68 - 82°	5°	30°			
OVER 82°	0°	30°			

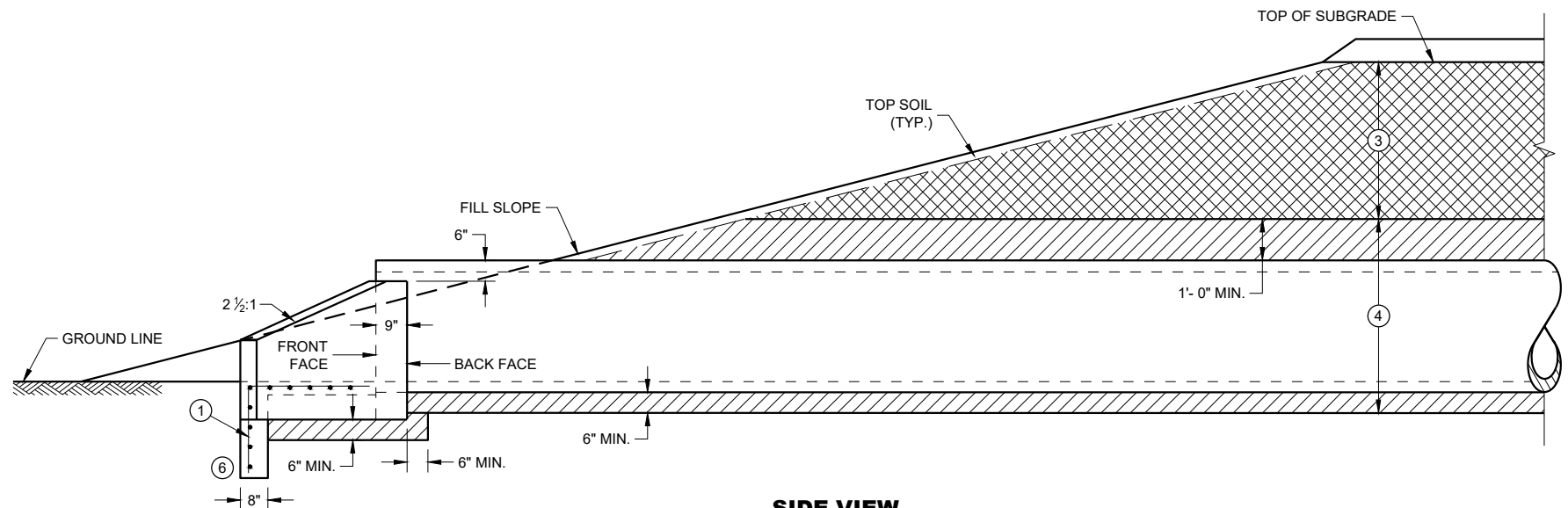
R* = NUMBER OF DEGREES RIGHT OR LEFT HAND FORWARD



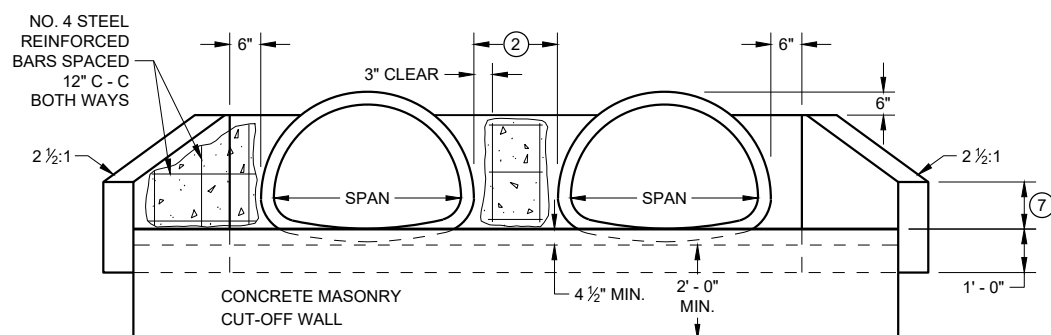
PLAN VIEW



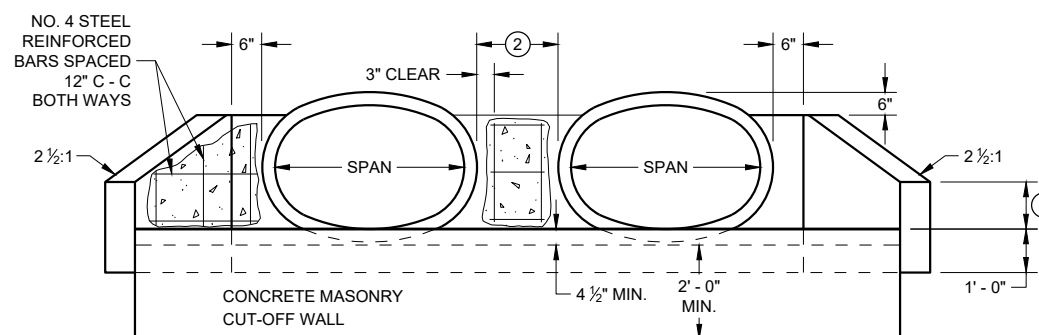
**END VIEW
CIRCULAR PIPE**



**SIDE VIEW
CIRCULAR PIPE, PIPE ARCH OR HORIZONTAL ELLIPSE**



**END VIEW
PIPE ARCH**

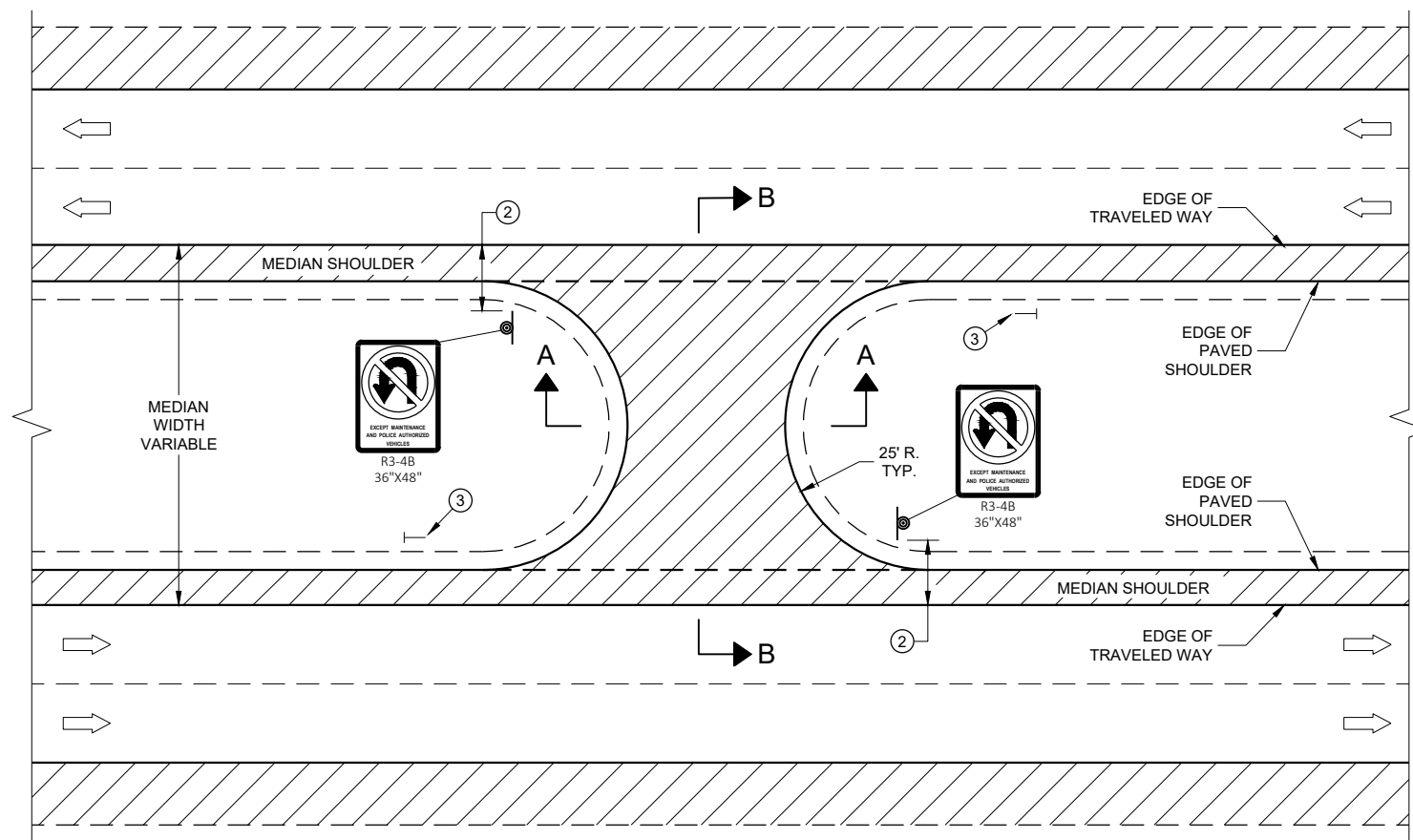


**END VIEW
HORIZONTAL ELLIPSE**

**CONCRETE MASONRY
ENDWALLS FOR CULVERT
PIPE AND PIPE ARCH**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



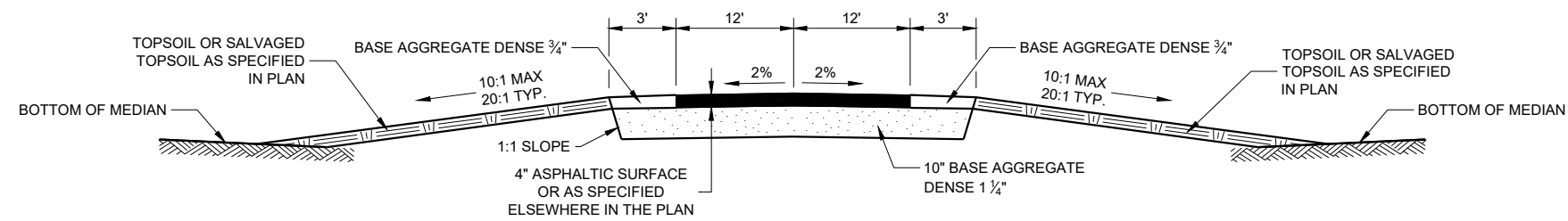
PLAN VIEW

GENERAL NOTES

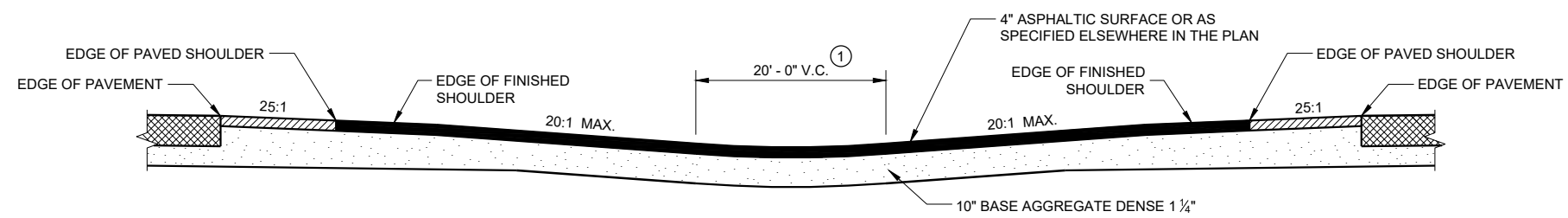
- ① ADJUST VERTICAL CURVE LOCATION LATERALLY TO MAINTAIN 20:1 MAX.
- ② SIGNING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.
- ③ INSTALL DELINEATOR. SEE STANDARD DETAIL DRAWING 15A4.

LEGEND

- SIGN ON PERMANENT SUPPORT
- DELINEATOR
- DIRECTION OF TRAFFIC



SECTION A-A



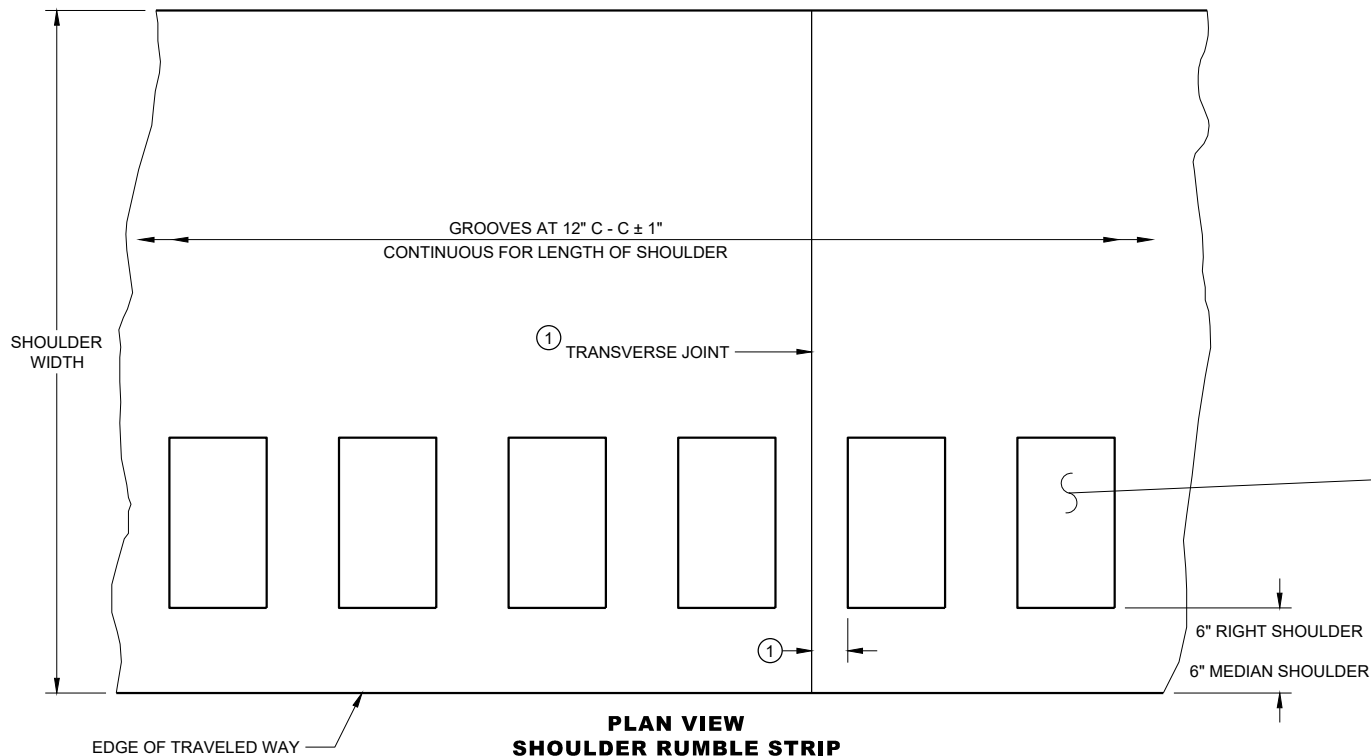
SECTION B-B

MAINTENANCE CROSSOVER FOR FREEWAYS

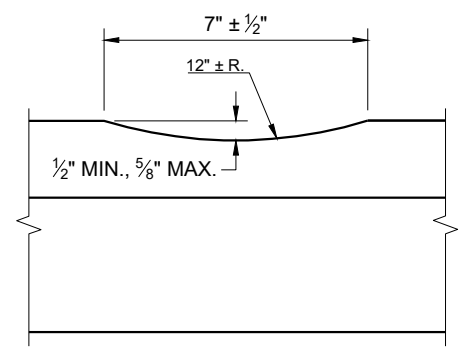
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER

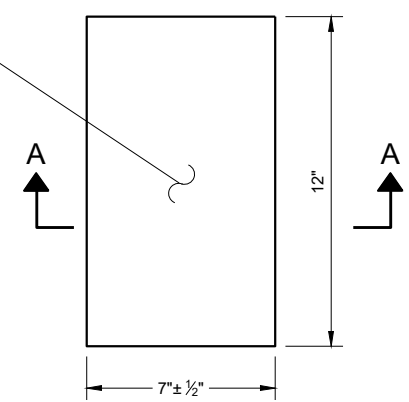
FHWA



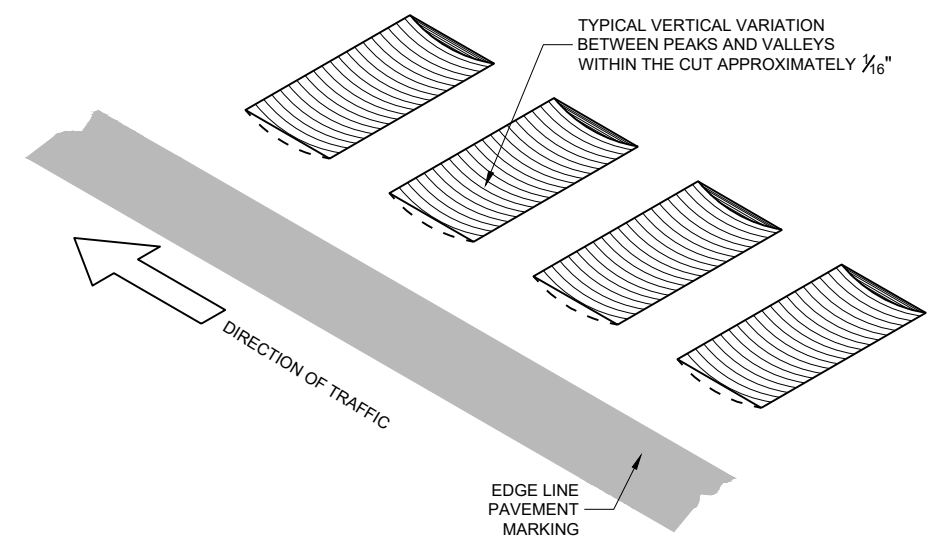
**PLAN VIEW
SHOULDER RUMBLE STRIP**



SECTION A - A



**PLAN VIEW
(SINGLE GROOVE)**



ISOMETRIC

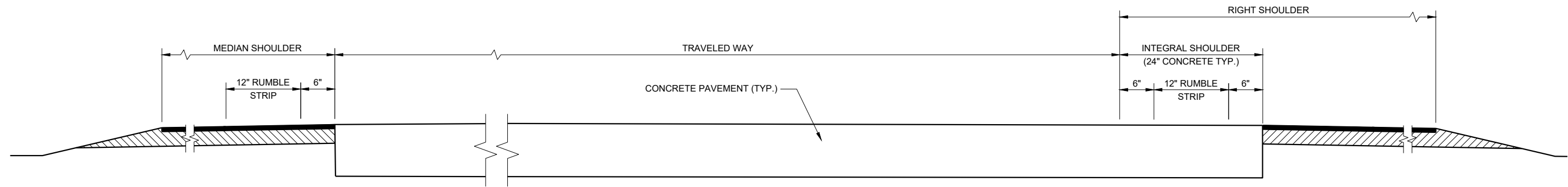
GENERAL NOTES

SDD 13A5, SHEET "b" SHOWS THE LOCATION OF THE RUMBLE STRIPS AT RAMP AND GORE LOCATIONS.

RUMBLE STRIPS ON EXPRESSWAYS:
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

- ① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6 INCHES AWAY FROM TRANSVERSE JOINTS.

PLACEMENT DETAIL FOR RUMBLE STRIP

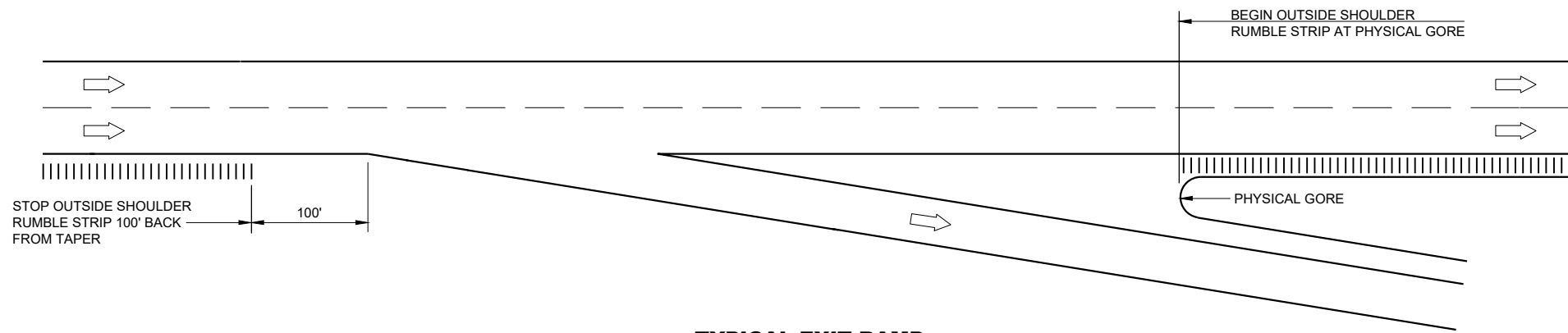


SECTION VIEW

**TYPICAL SHOULDER RUMBLE STRIPS
(ONE ROADWAY IS SHOWN)**

**SHOULDER RUMBLE STRIPS,
DIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



TYPICAL EXIT RAMP

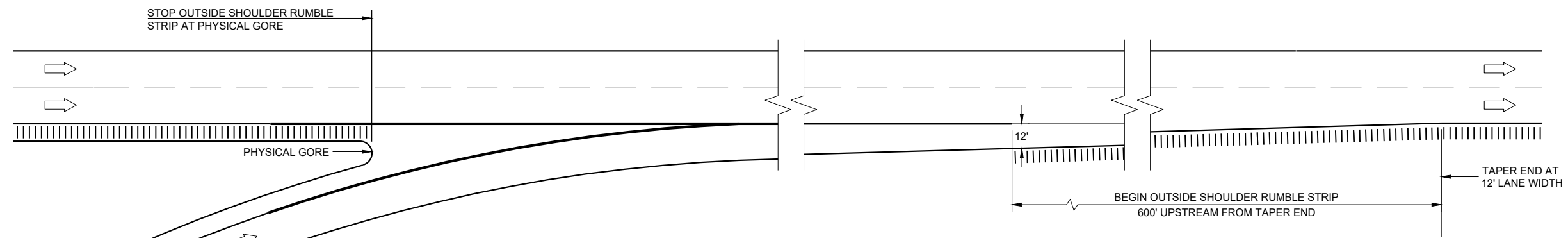
GENERAL NOTES

NO RUMBLE STRIP ON EXIT, DIRECTIONAL OR ENTRANCE RAMP, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

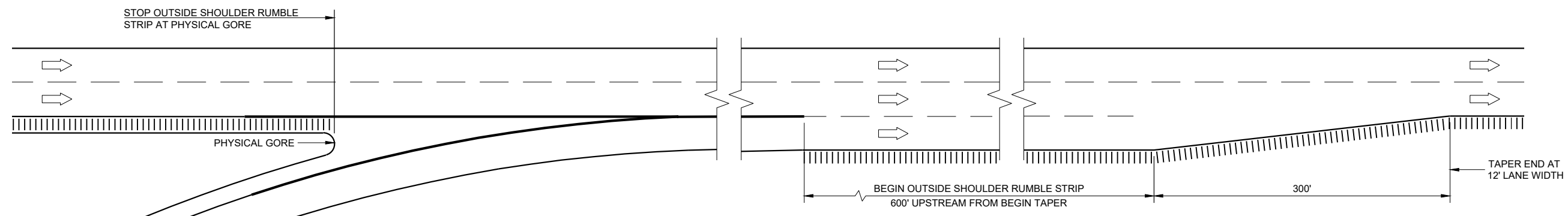
RUMBLE STRIPS ON EXPRESSWAYS:
DO NOT INSTALL SHOULDER RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL AND PRIVATE DRIVEWAYS, ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, 25' IN ADVANCE OF BRIDGE DECKS, 25' IN ADVANCE OF BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSINGS.

LEGEND

➡ DIRECTION OF TRAFFIC



**TYPICAL TAPERED ENTRANCE RAMP
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS**



**TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE SHOULDER RUMBLE STRIP LOCATIONS**

6

6

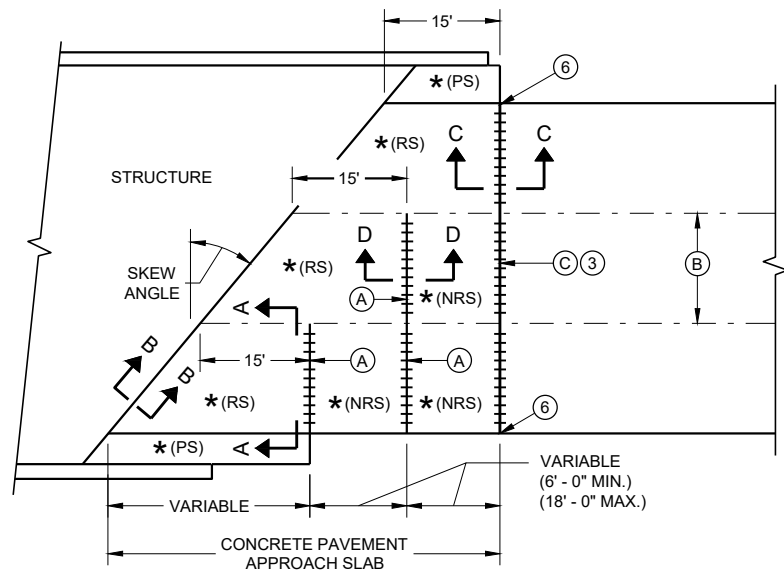
SDD 13A05-06b

SDD 13A05-06b

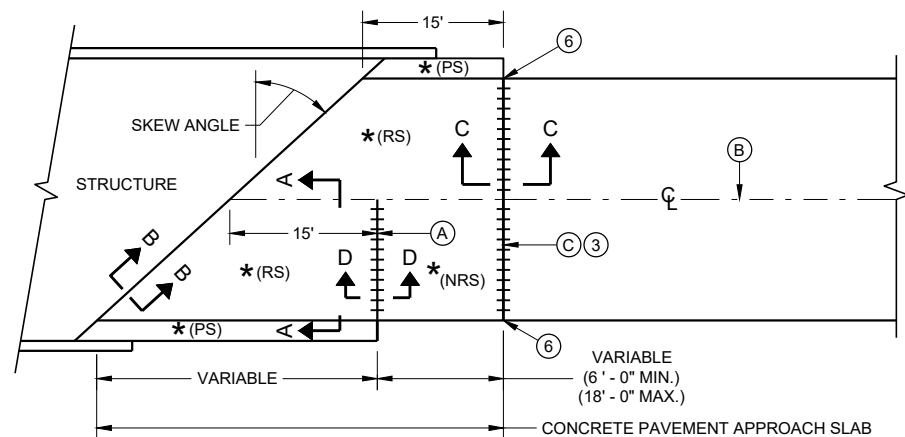
**SHOULDER RUMBLE STRIPS,
DIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

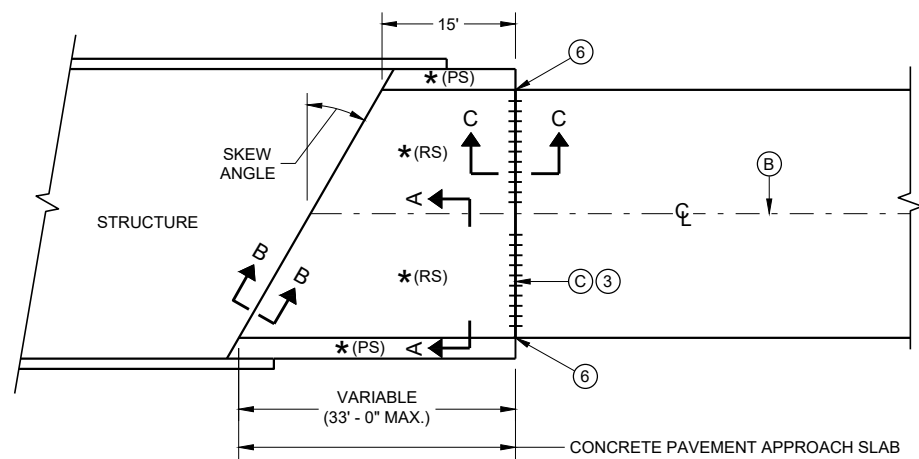
APPROVED
DATE: May 2023 /S/ Rodney Taylor
UNIT SUPERVISOR
FHWA



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

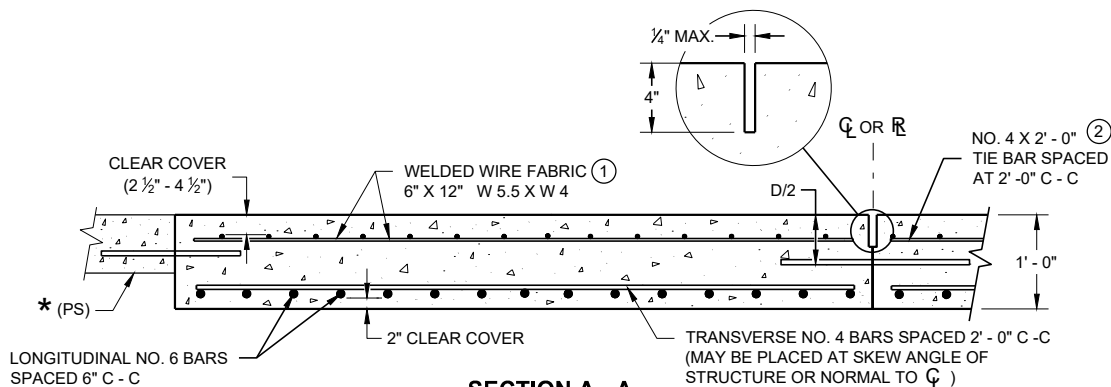


**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**

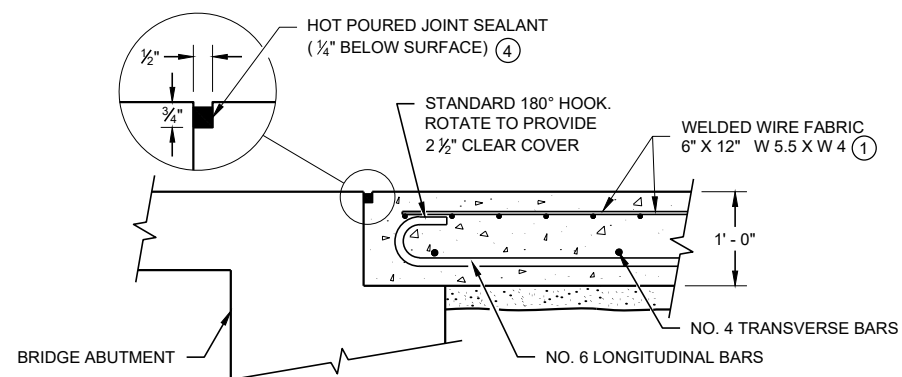


**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**
APPROACH SLAB AND ADJACENT PAVEMENT

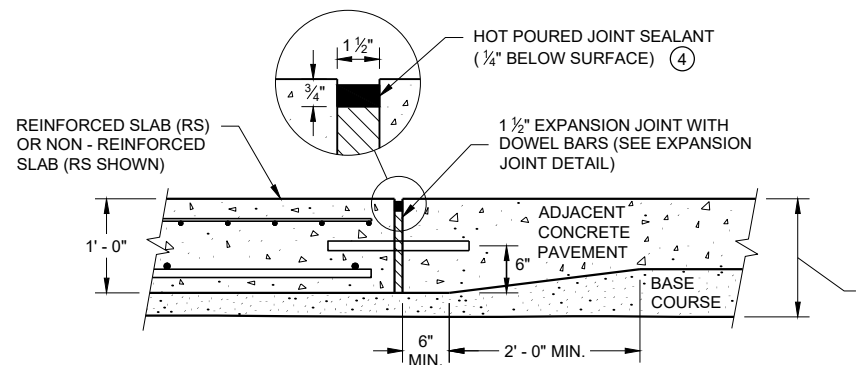
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



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



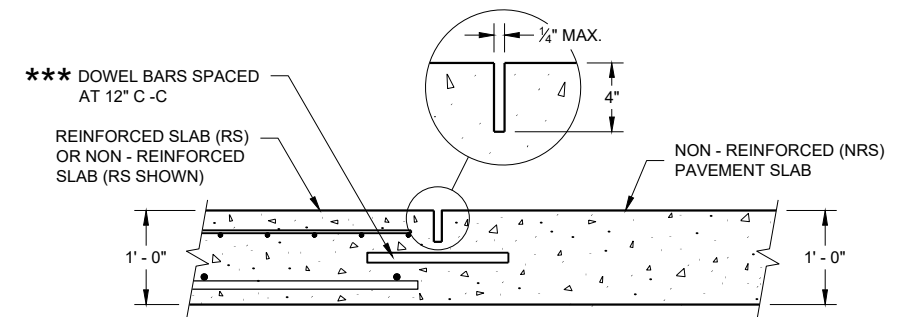
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

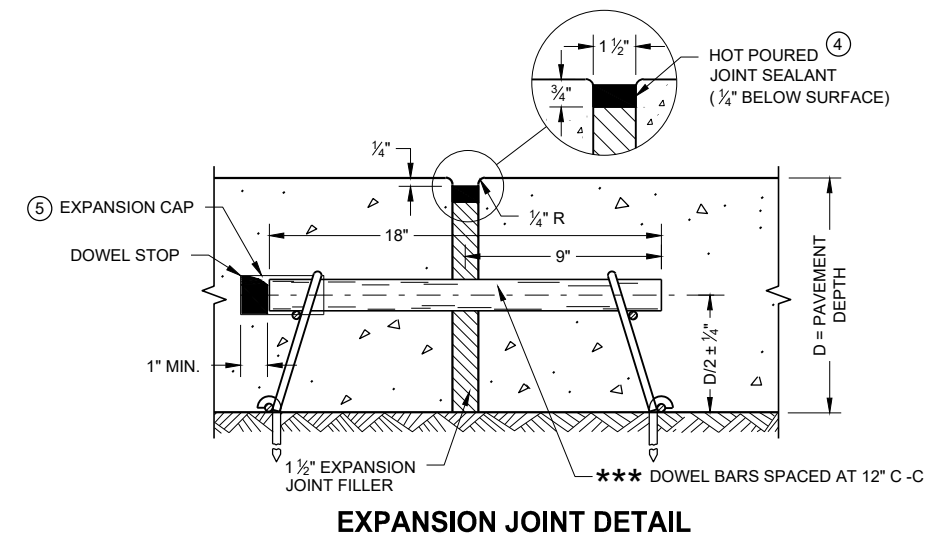
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

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



**SECTION D - D
CONTRACTION JOINT**



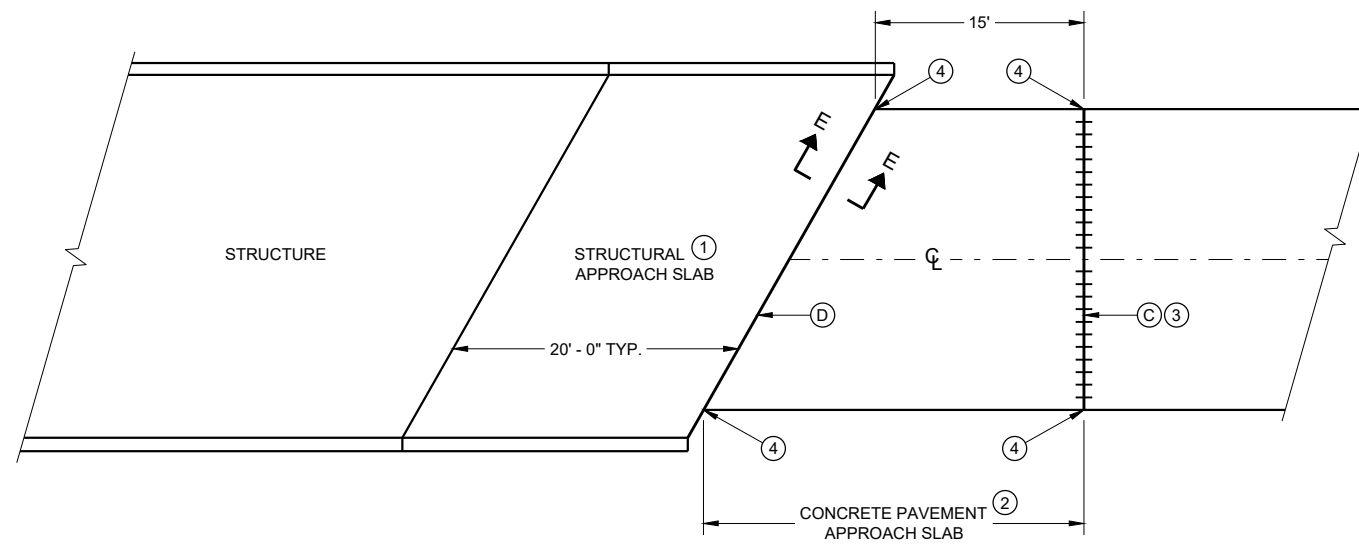
EXPANSION JOINT DETAIL

**CONCRETE PAVEMENT
APPROACH SLAB**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA

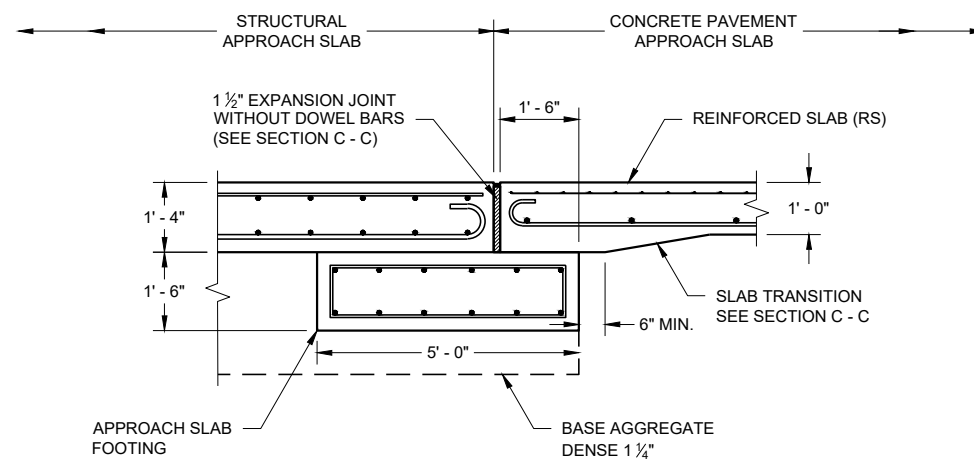


GENERAL NOTES

ALL PROJECTS THAT INVOLVE A STRUCTURAL APPROACH SLAB WILL ALSO HAVE A CONCRETE PAVEMENT APPROACH SLAB.

- ① SEE BRIDGE PLAN.
- ② CONFORM TO SDD 13B02 SHEET A FOR CONCRETE PAVEMENT APPROACH SLAB DETAILS
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- Ⓒ 1½" EXPANSION JOINT WITH DOWEL BARS NORMAL TO CL OR RL .
- Ⓓ 1½" EXPANSION JOINT (NO DOWELS)

BRIDGE APPROACHES

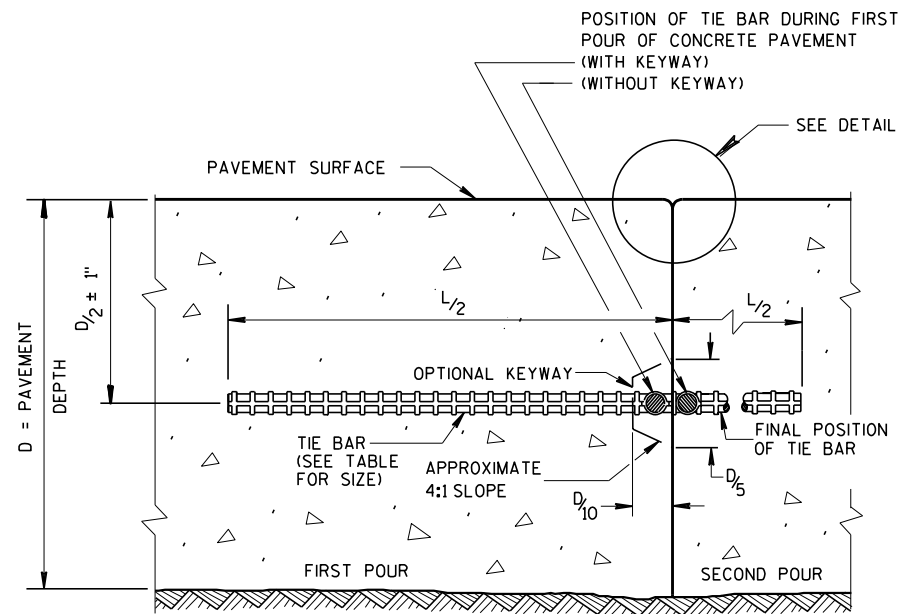


**SECTION E - E
FOOTING DETAIL
STRUCTURAL APPROACH SLAB TO CONCRETE BRIDGE APPROACH**

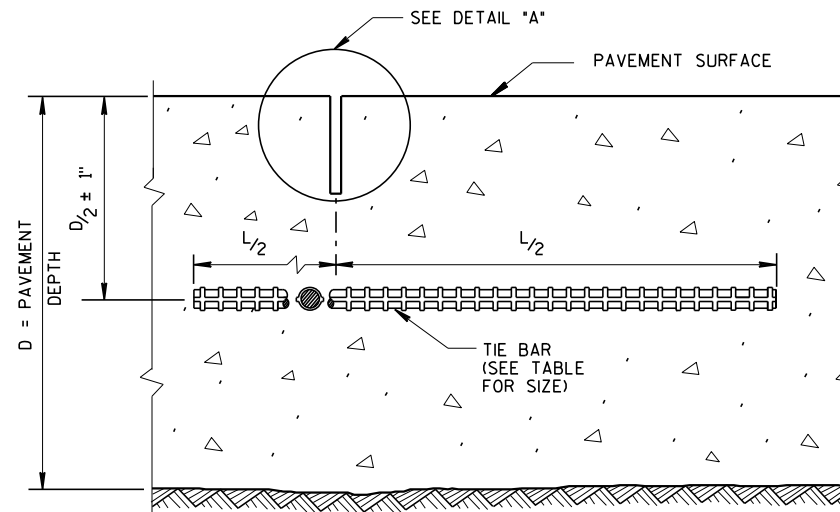
**STRUCTURAL APPROACH SLAB
AND CONCRETE PAVEMENT
APPROACH SLAB**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



CONSTRUCTION JOINT



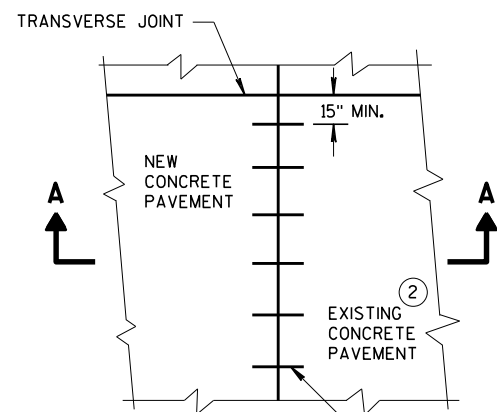
SAWED JOINT

GENERAL NOTES

CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.

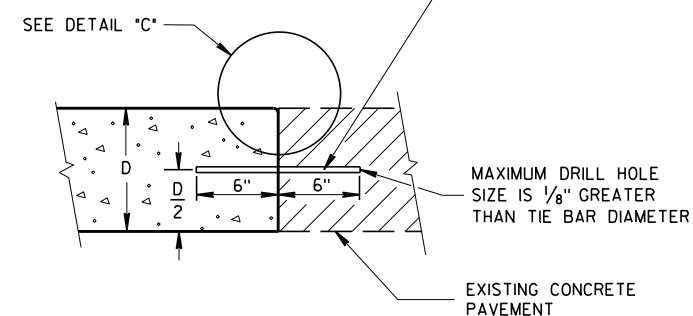
CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

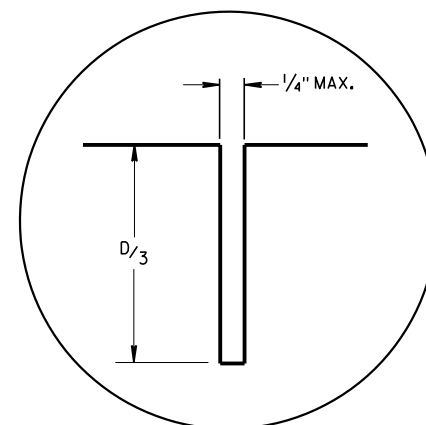


PLAN VIEW

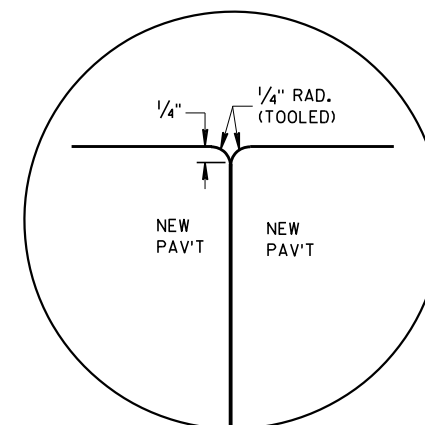
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



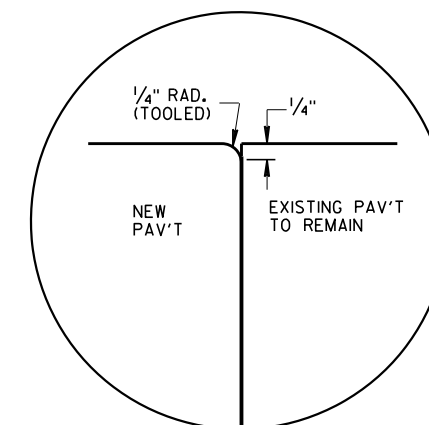
**SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT**



DETAIL "A"



DETAIL "B"



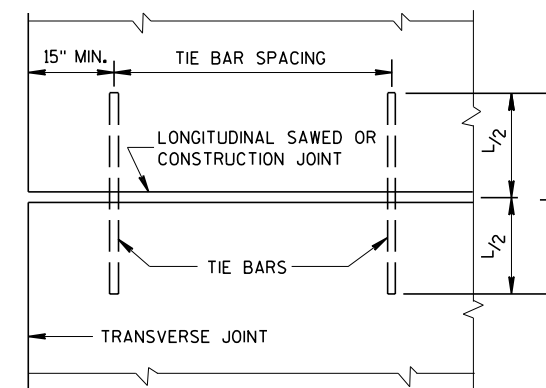
DETAIL "C"

TIE BAR TABLE

PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
≥ 10 1/2"	NO. 5	36"	36"
	NO. 4 *	30"	24" **

* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

** CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.



**PLAN VIEW
SHOWING LOCATION OF TIE BARS**

**CONCRETE PAVEMENT
LONGITUDINAL JOINTS AND TIES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

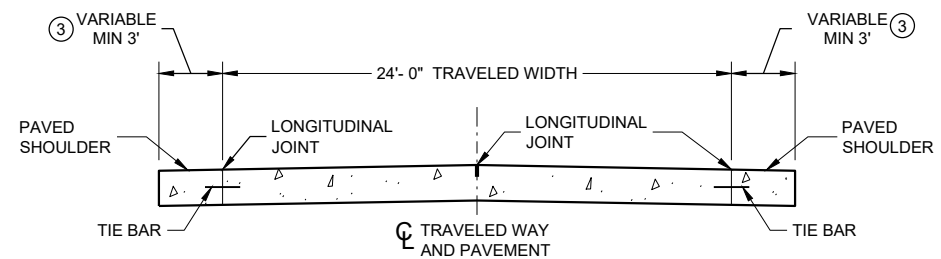
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

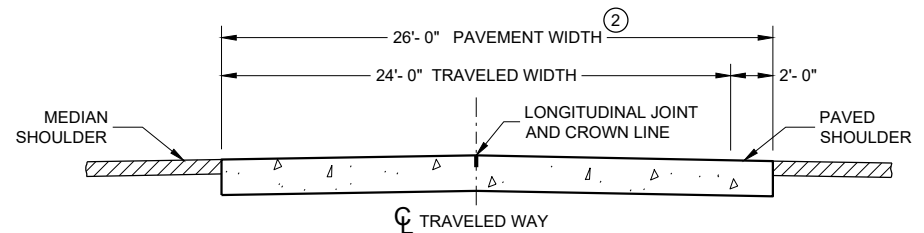
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED "PAVED SHOULDER" AS CONCRETE PAVEMENT.
- ③ SHOULDER WIDTHS LESS THAN 3 FEET SHALL BE PAVED INTEGRAL TO THE MAINLINE CONCRETE PAVEMENT, SEE SECTION B-B.

PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

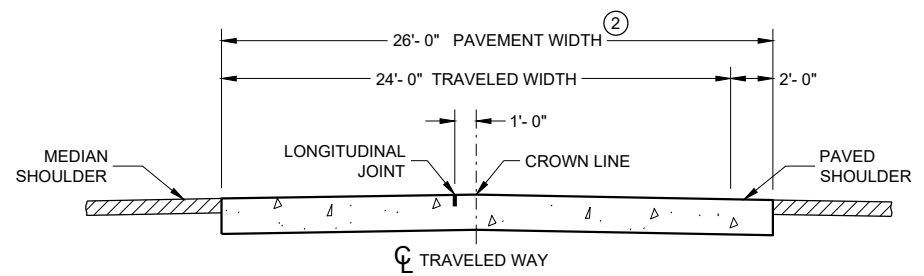
PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8" & ABOVE	1 1/4"	15'



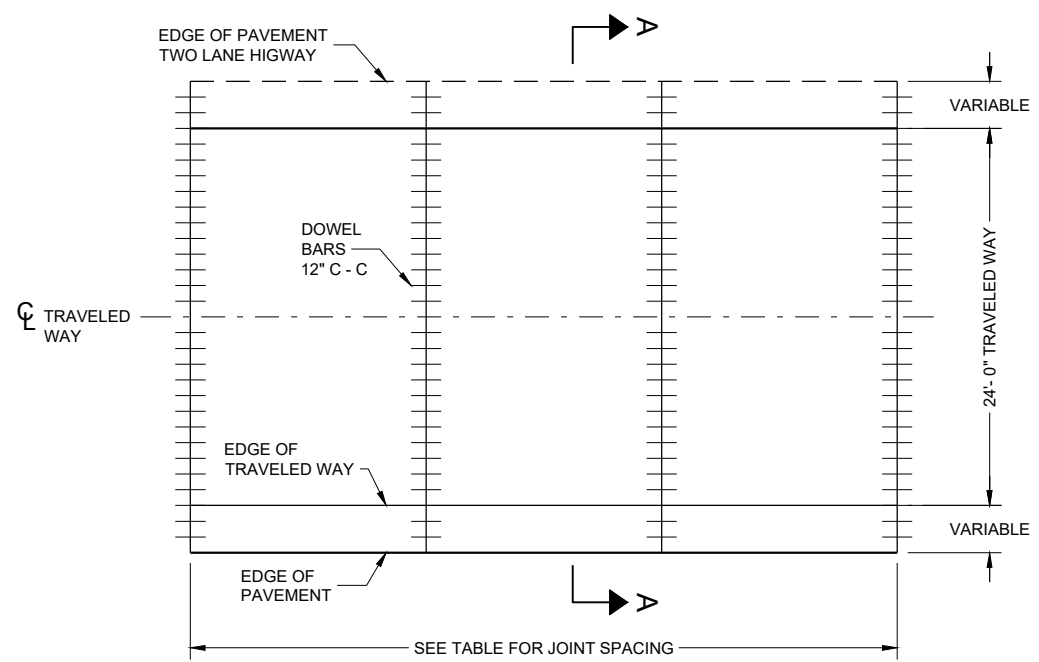
**SECTION A - A
TWO-LANE TWO-WAY HIGHWAY** ①



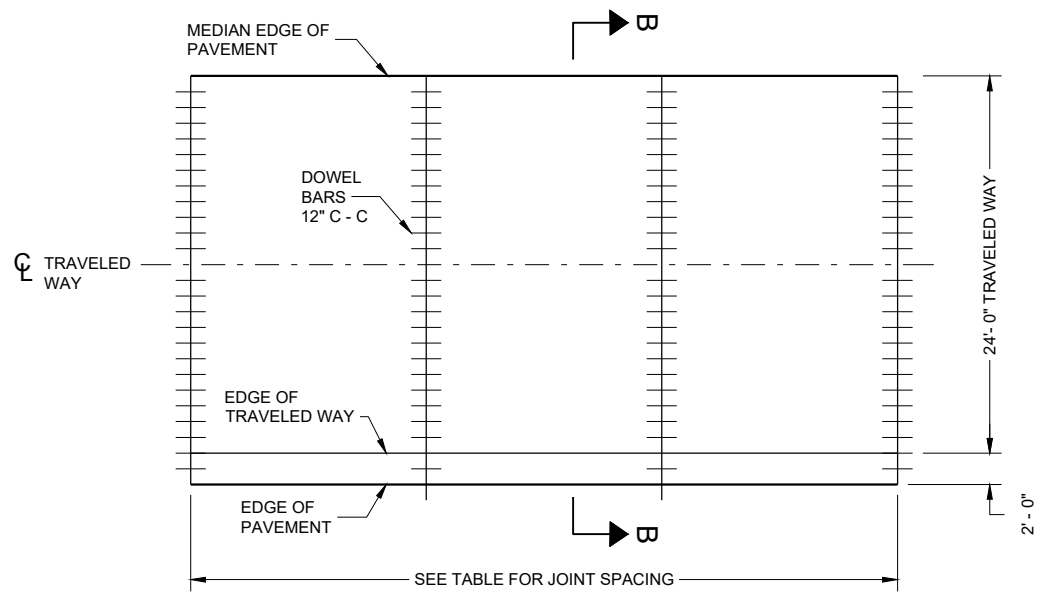
SECTION B - B



**ALTERNATIVE SECTION B - B
DIVIDED HIGHWAY** ①

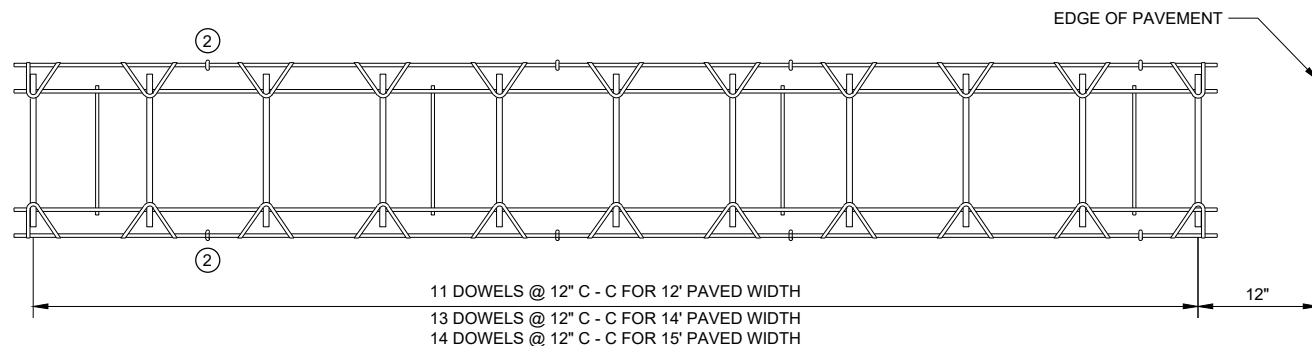


**CONTRACTION JOINT LAYOUT FOR
TWO-LANE TWO-WAY HIGHWAY**

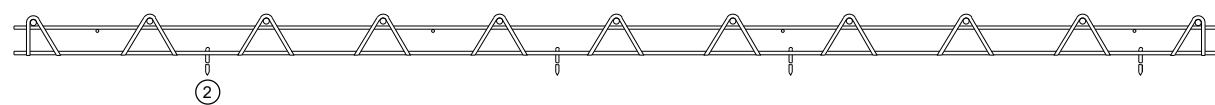


**CONTRACTION JOINT LAYOUT FOR
DIVIDED HIGHWAY**

RURAL DOWELED CONCRETE PAVEMENT
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION



PLAN VIEW

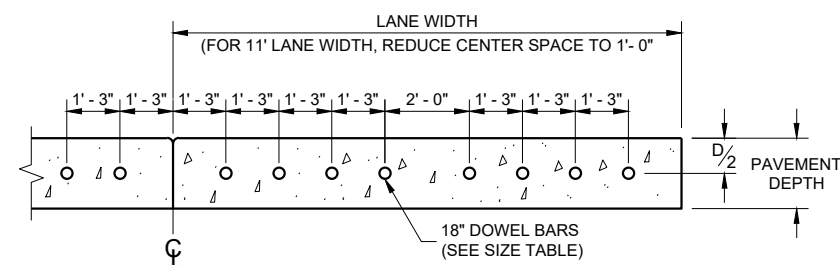


SIDE VIEW
(NORMAL TO CENTERLINE)

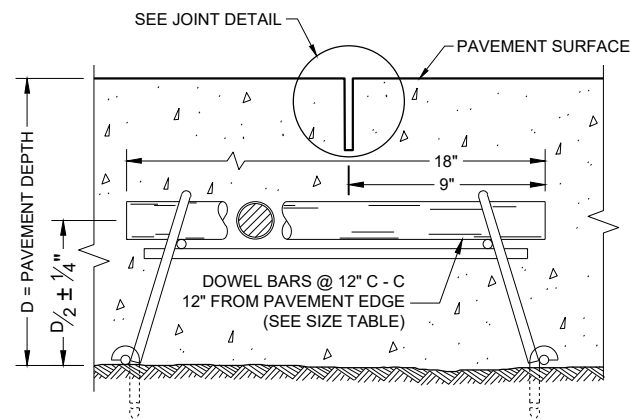
CONTRACTION JOINT DOWEL ASSEMBLY ①

GENERAL NOTES

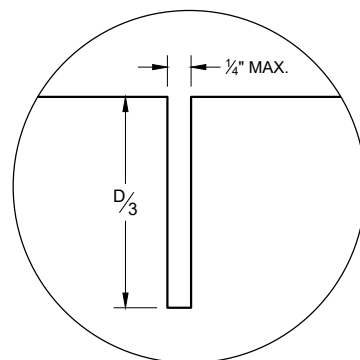
- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4" RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8" GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



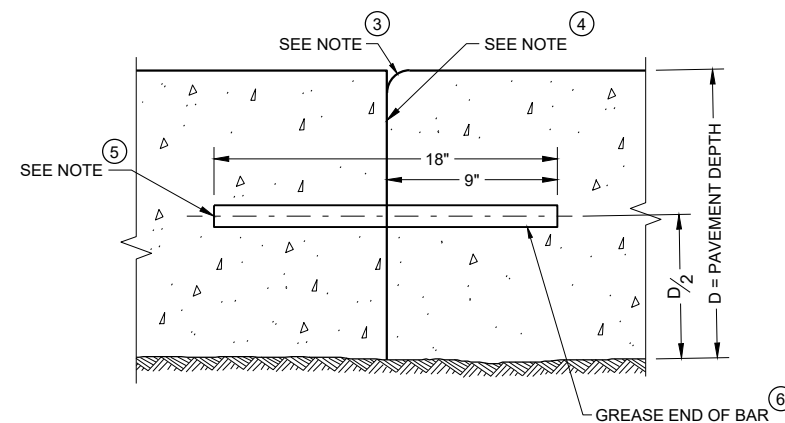
DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



DOWELED CONTRACTION JOINT



JOINT DETAIL



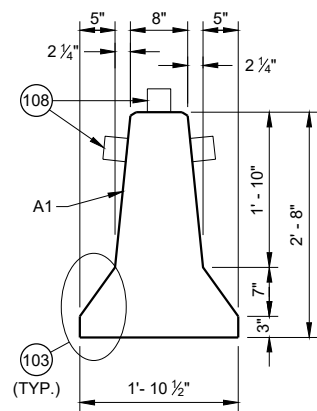
TRANSVERSE CONSTRUCTION JOINT

**RURAL DOWELED
CONCRETE PAVEMENT**

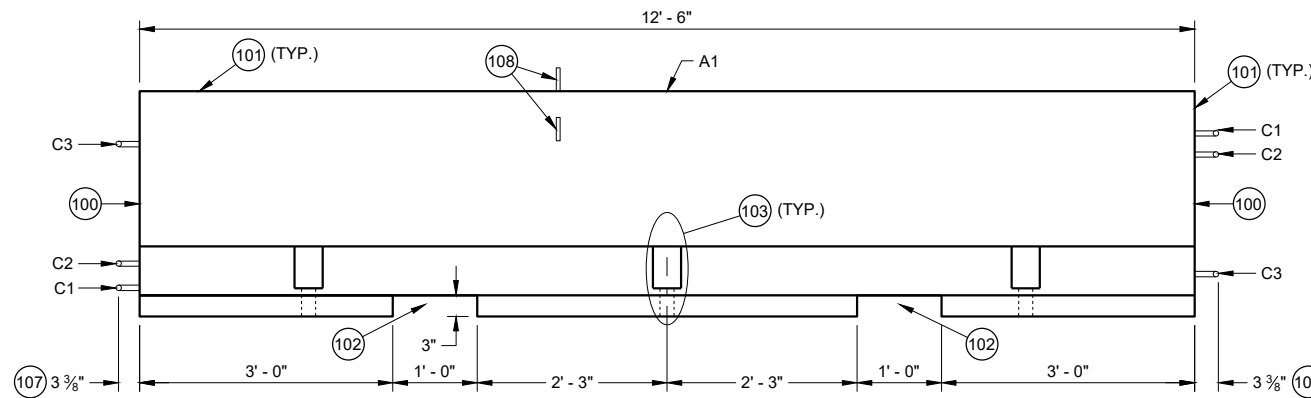
STATE OF WISCONSIN
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APPROVED
November 2022 /S/ Peter Kemp P.E.
DATE PAVEMENT SUPERVISOR

FHWA



CROSS SECTION



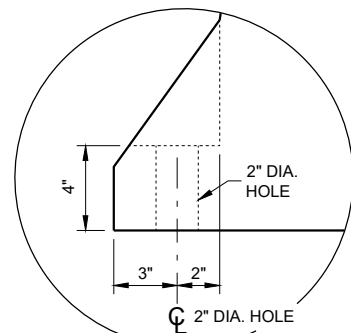
PROFILE VIEW

GENERAL NOTES

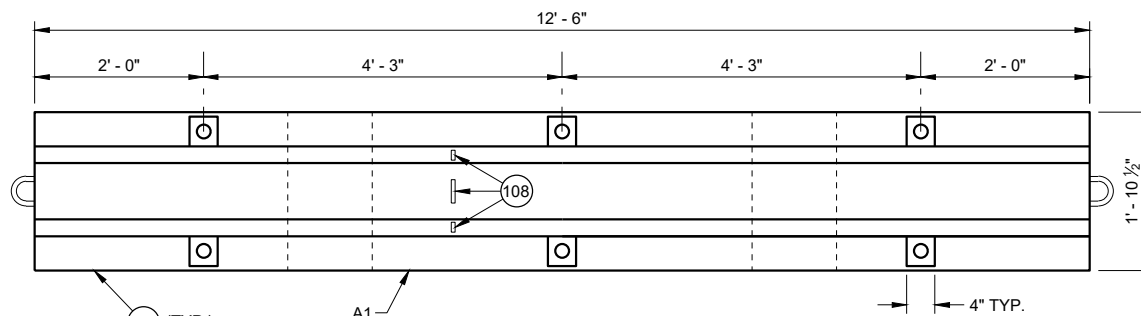
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

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

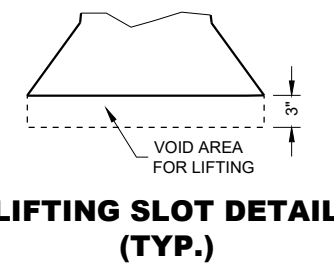
- (100) PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:
A. TYPE OF BARRIER: WI-CBTP
B. MANUFACTURER
C. DATE OF MANUFACTURE (MONTH AND YEAR)
- (101) 1" OPTIONAL CHAMFER
- (102) SEE LIFTING SLOT DETAIL
- (103) SEE ANCHOR BLOCK DETAIL
- (104) 1 3/4" MIN. CLEAR COVER
- (105) 2" MIN. CLEAR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



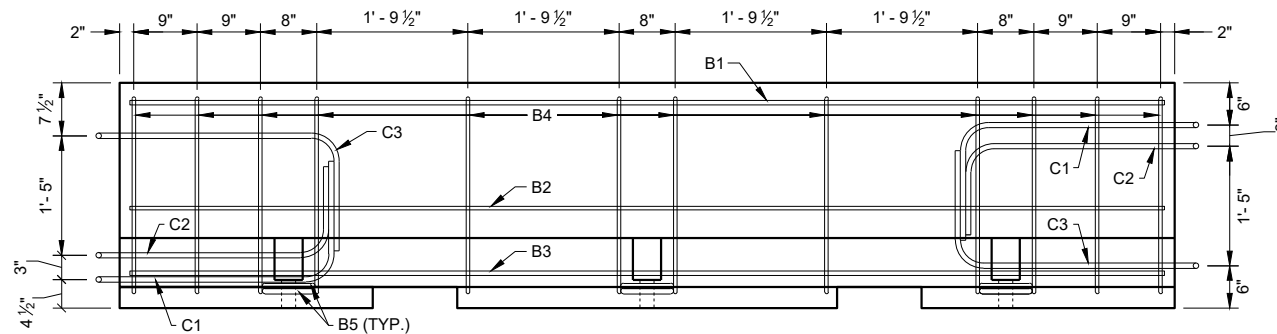
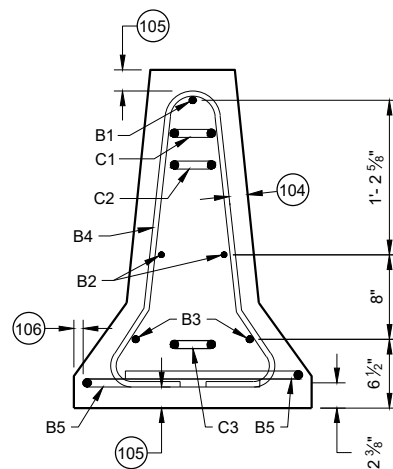
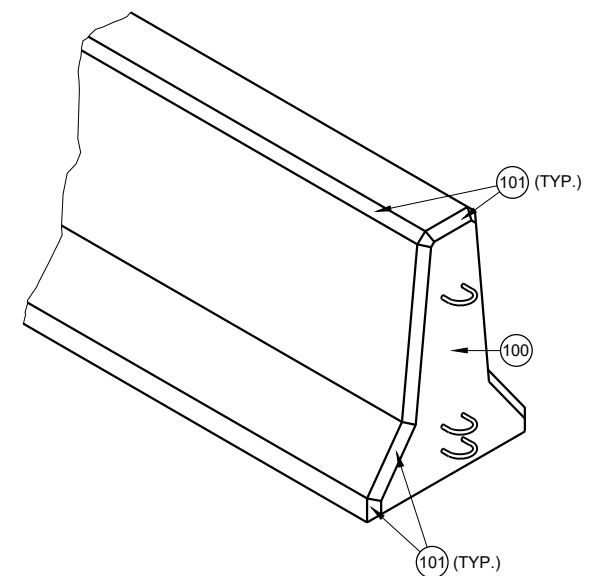
ANCHOR BLOCK DETAIL



**PLAN VIEW
TEMPORARY BARRIER**



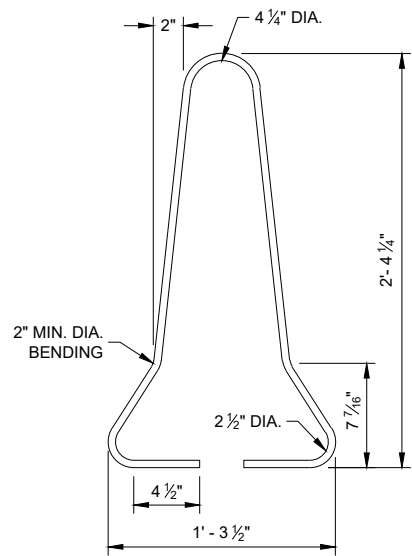
**LIFTING SLOT DETAIL
(TYP.)**



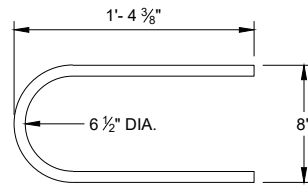
**PROFILE VIEW
TEMPORARY BARRIER REINFORCEMENT**

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

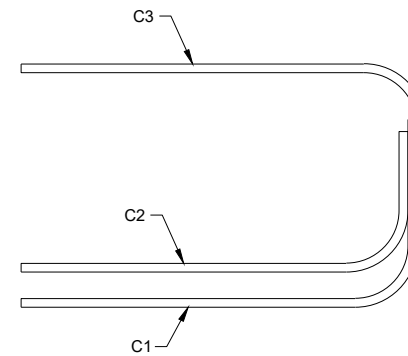
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



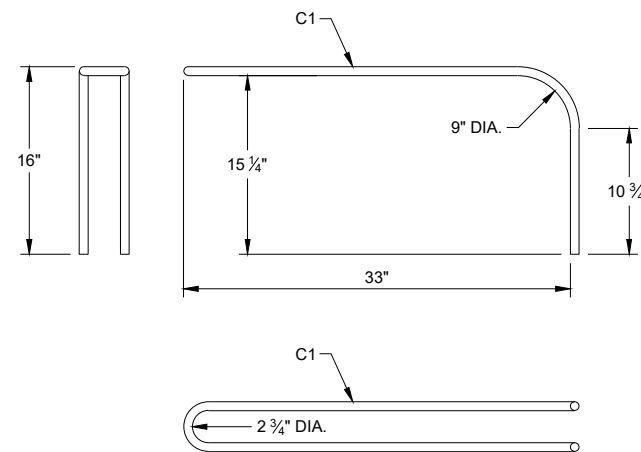
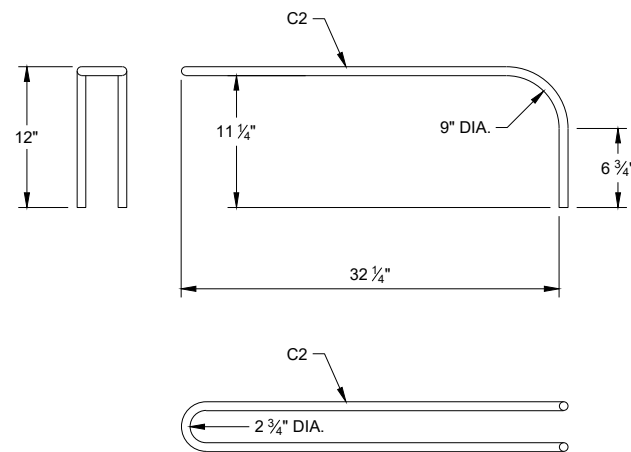
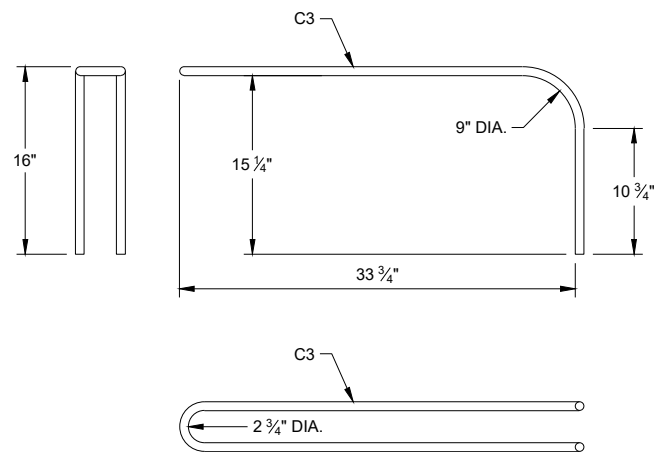
B4 BAR DETAIL



B5 BAR DETAIL



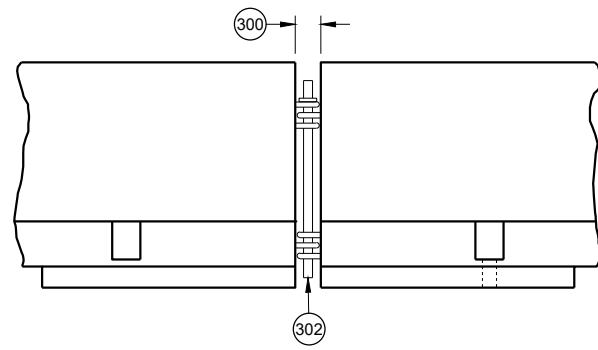
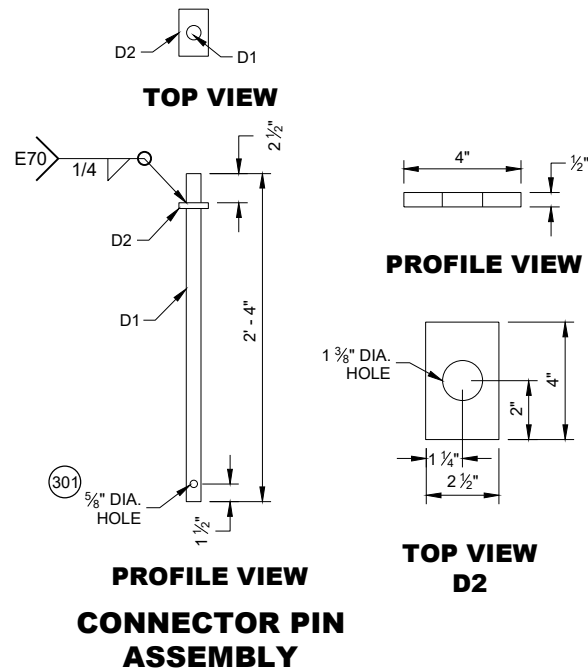
**PROFILE VIEW
LOOP BAR ASSEMBLY**



C BAR DETAILS

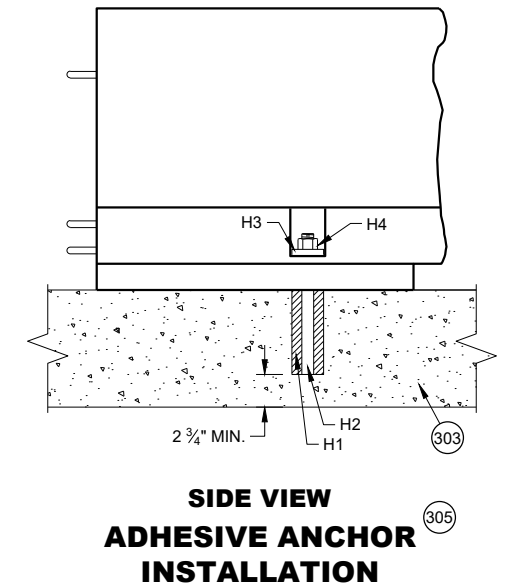
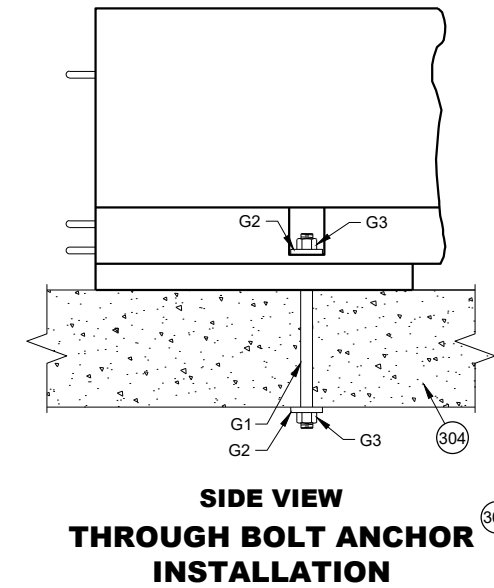
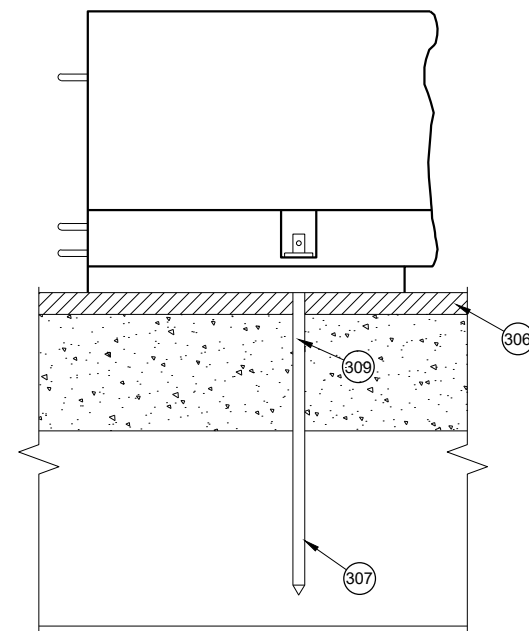
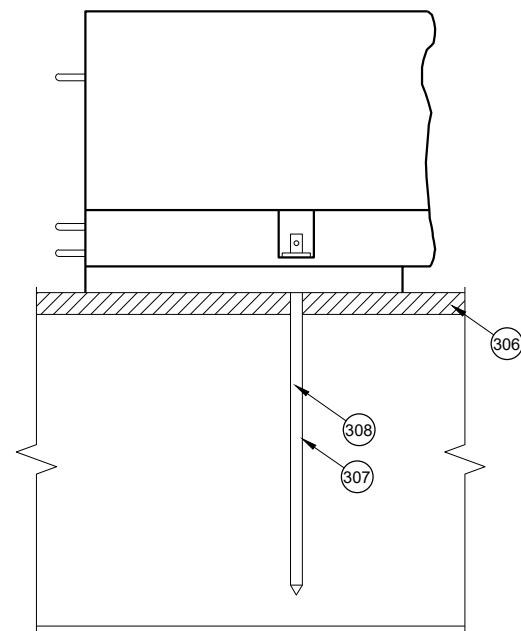
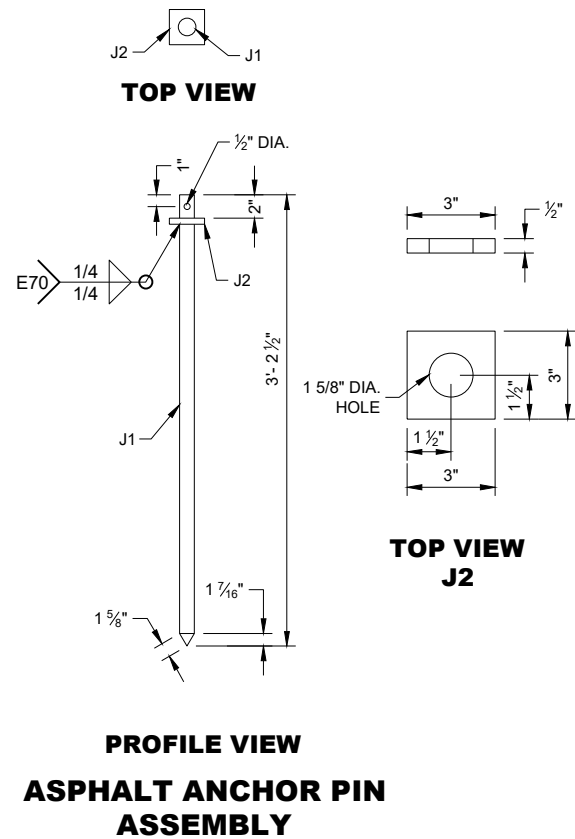
**CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



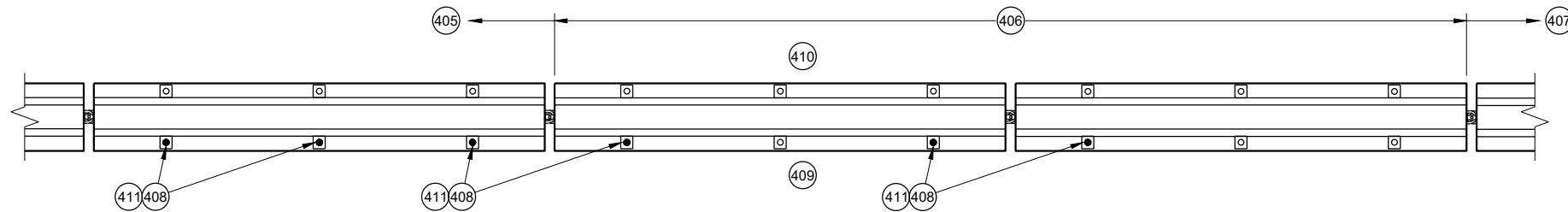
GENERAL NOTES

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

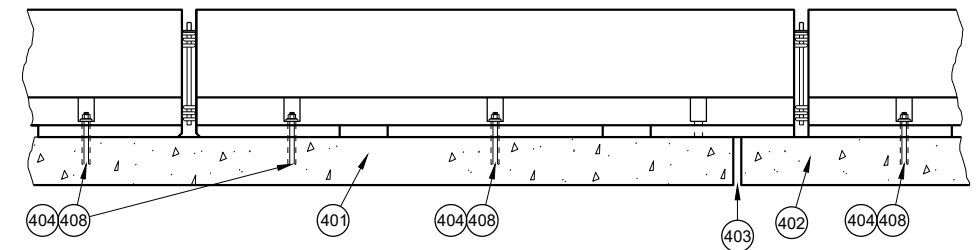


**CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"**

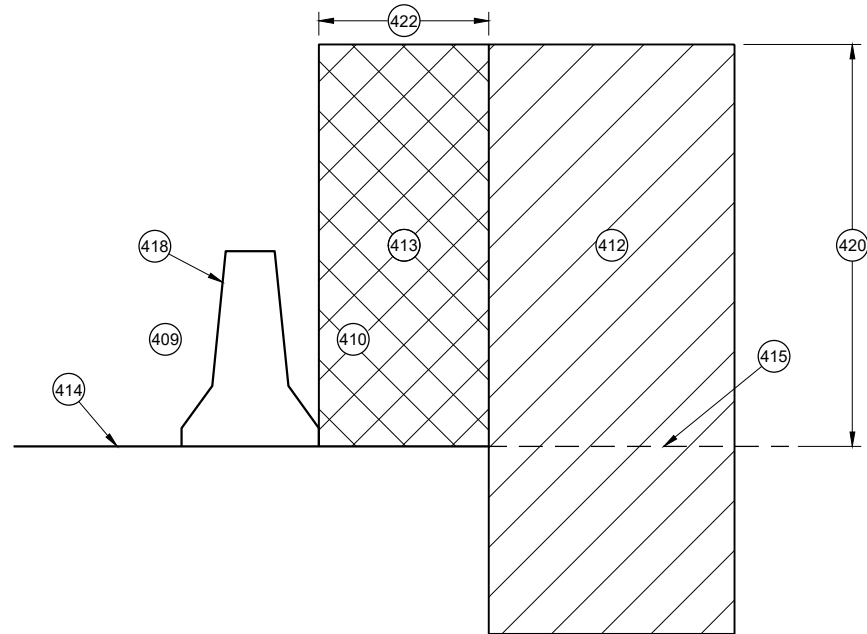
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



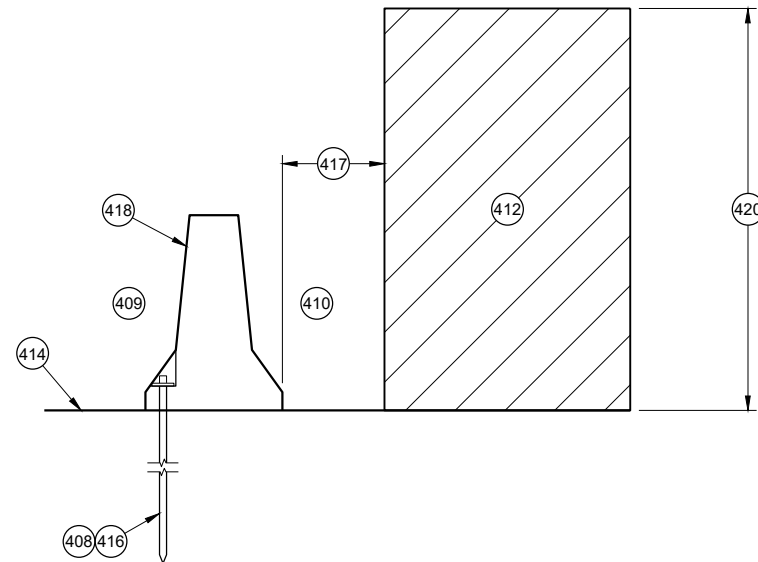
PLAN VIEW
TRANSITION FROM FREE STANDING TO ANCHORED BARRIER



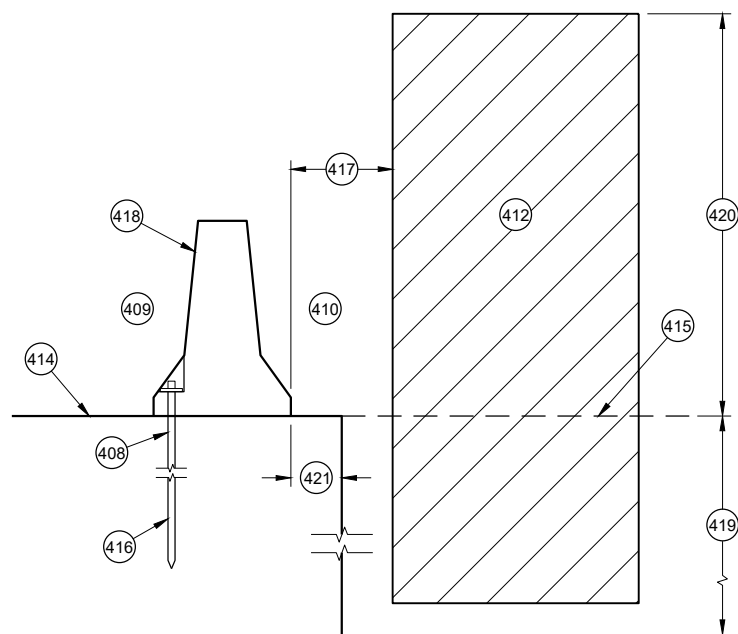
PROFILE VIEW
ANCHORED BARRIER NEAR EXPANSION JOINT



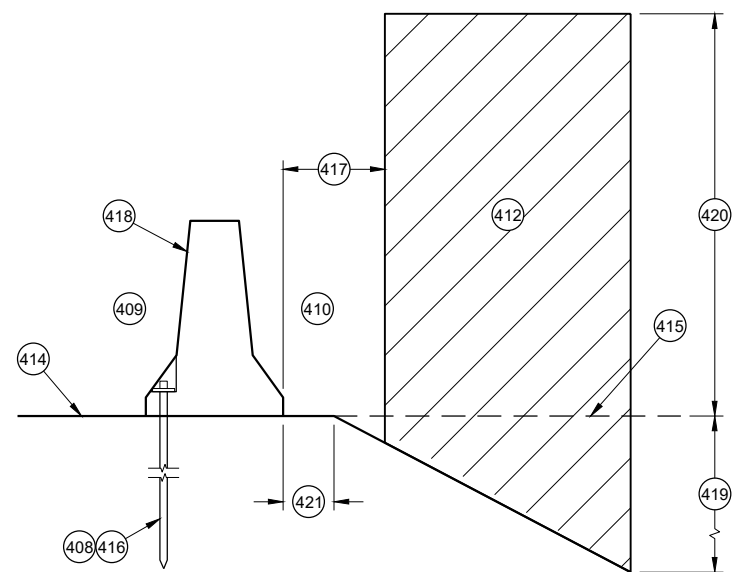
CROSS SECTION
FREE STANDING BARRIER



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

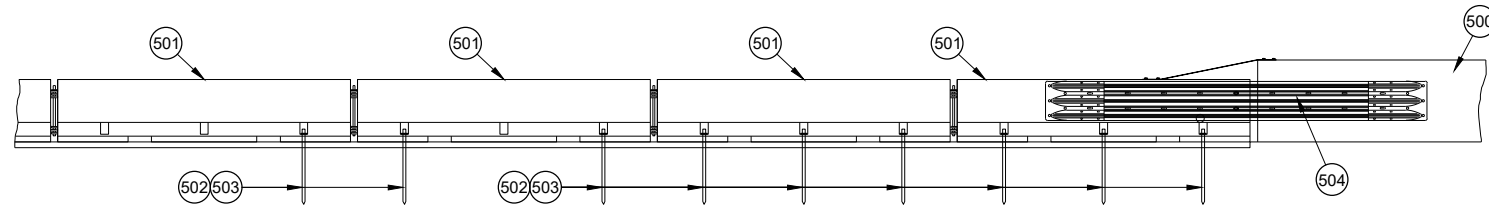
- 400 NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.
- 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"

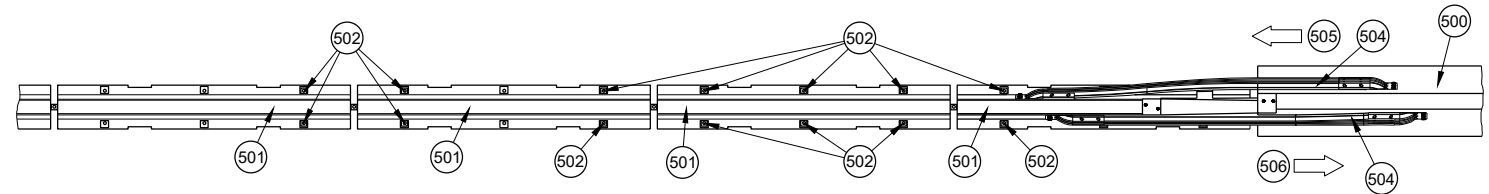
STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

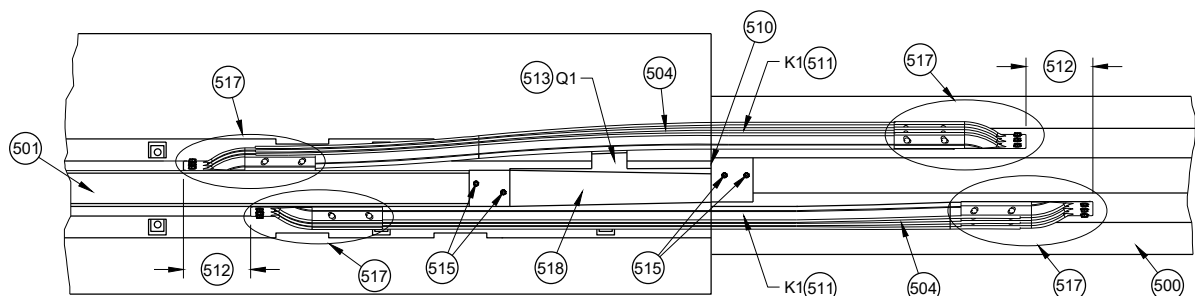
- (500) EXISTING RIGID BARRIERS (VARIES)
- (501) TEMPORARY BARRIER
- (502) SEE OTHER DETAIL ON HOW TO ANCHOR TEMPORARY BARRIER (BARRIER ASPHALT ANCHOR SHOWN).
- (503) ANCHORS ARE REQUIRED ON BOTH SIDE OF THE TEMPORARY BARRIER.
- (504) NESTED RAILS ARE REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR 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



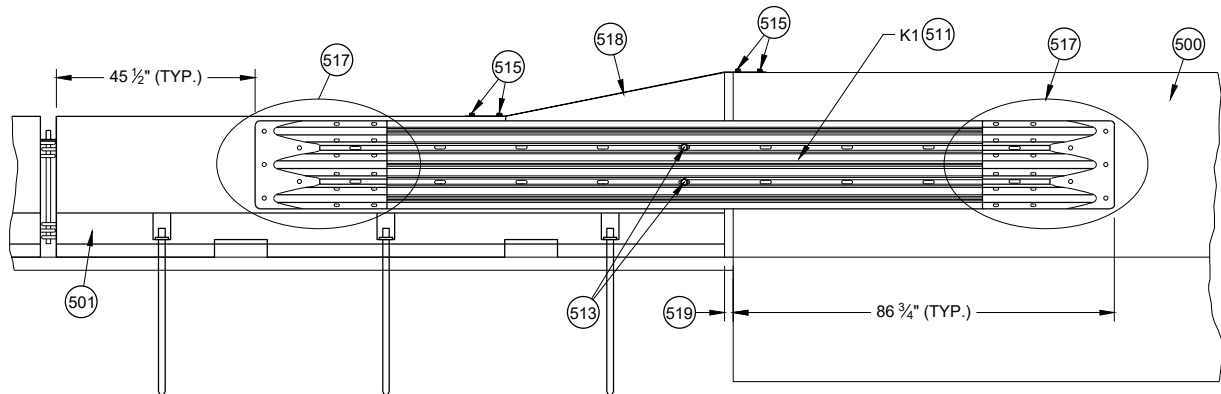
PROFILE VIEW



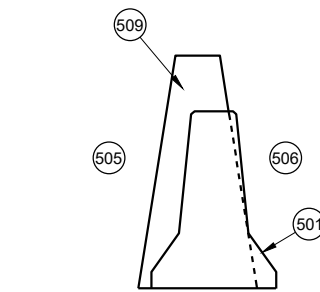
**PLAN VIEW
TRANSITION TO RIGID BARRIER**



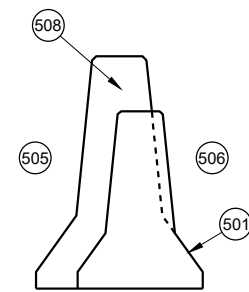
**PLAN DETAIL VIEW
TRANSITION TO RIGID BARRIER**



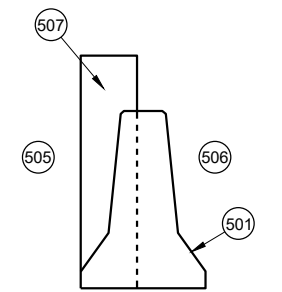
**FRONT DETAIL VIEW
TRANSITION TO RIGID BARRIER**



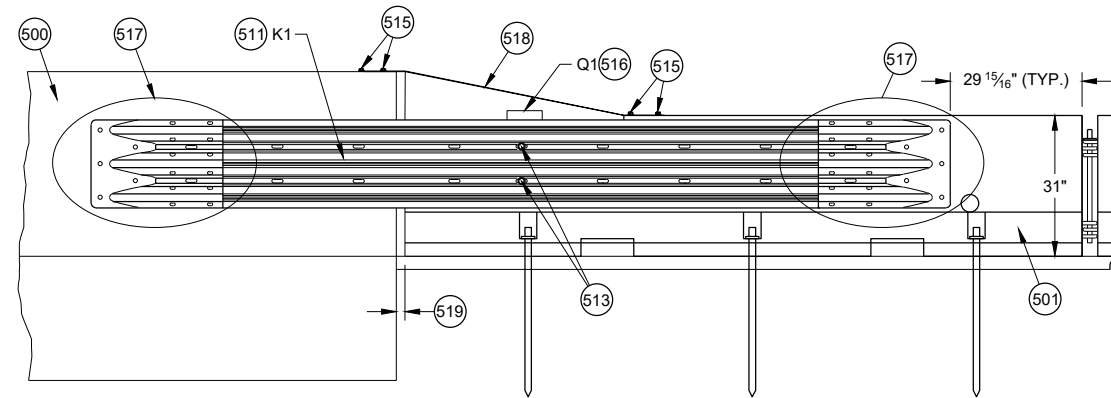
**CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SINGLE SLOPE**



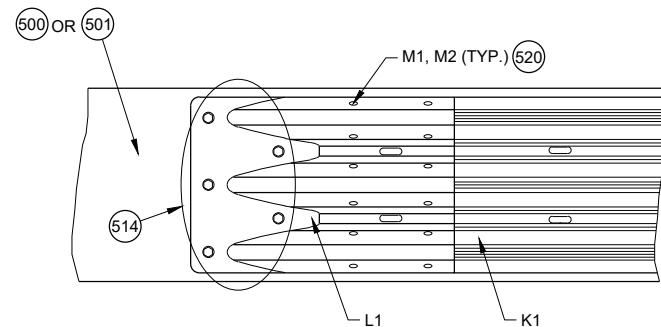
**CROSS SECTION
TEMPORARY BARRIER
PLACEMENT SAFETY SHAPE**



**CROSS SECTION
TEMPORARY BARRIER
PLACEMENT VERTICAL**



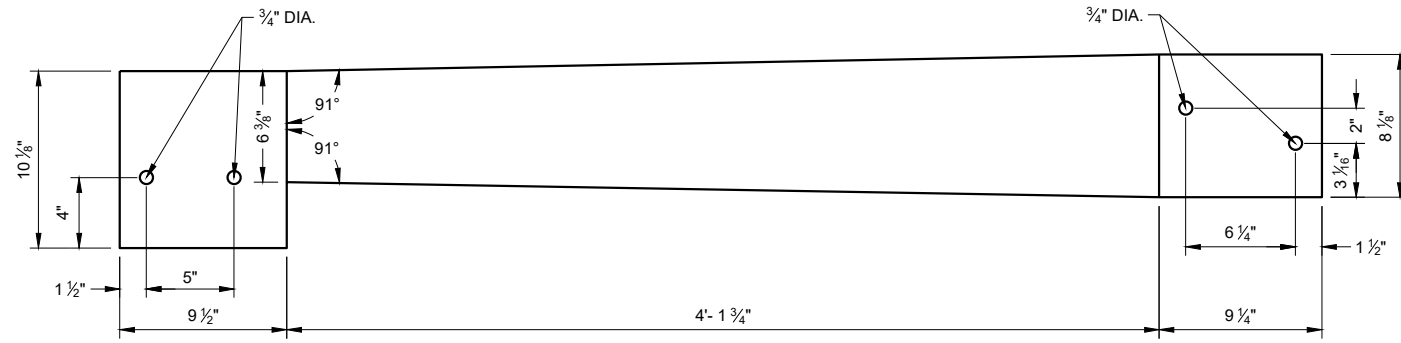
**BACK DETAIL VIEW
TRANSITION TO RIGID BARRIER**



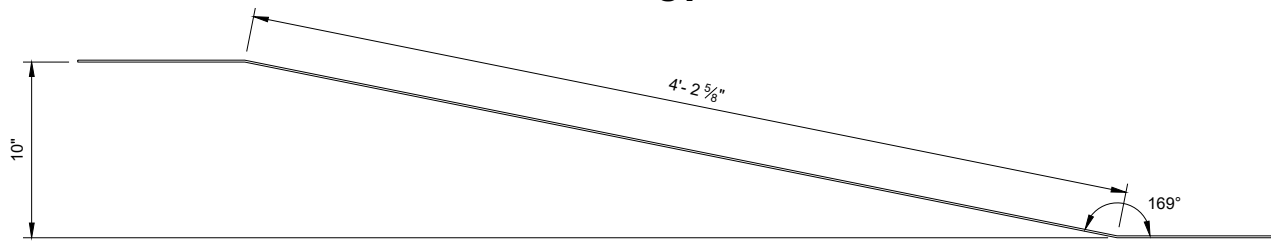
**(517) DETAIL PLAN VIEW
THRIE BEAM RAIL TERMINAL CONNECTOR ASSEMBLY**

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

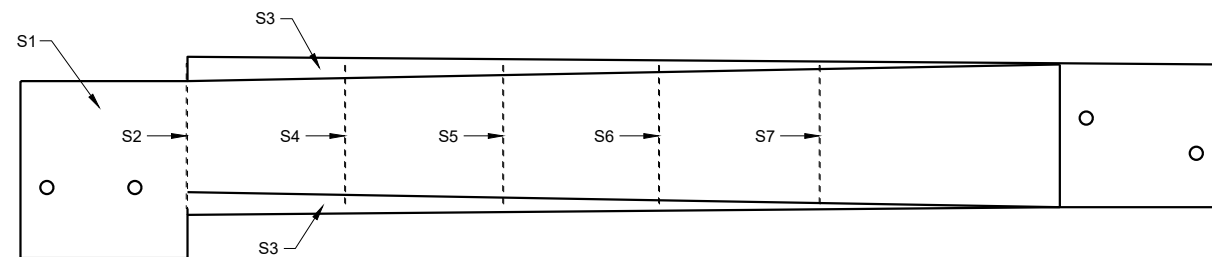
STATE OF WISCONSIN
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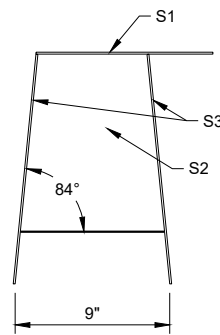
**TOP VIEW
S1**



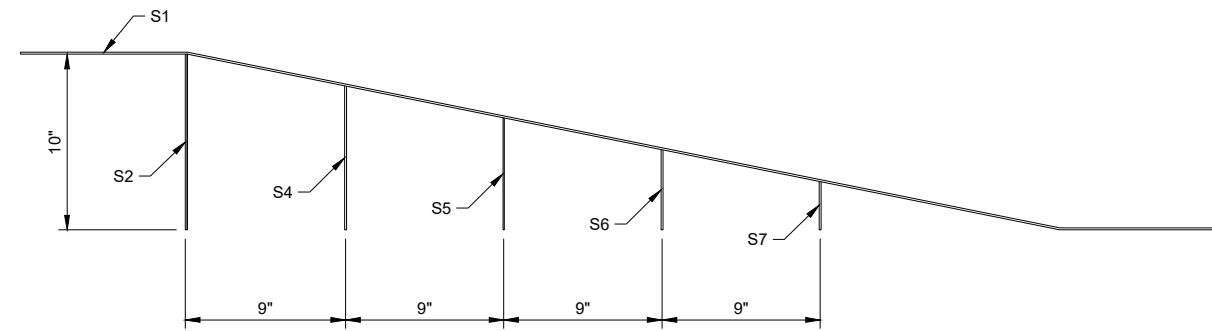
**ELEVATION VIEW
S1**



PLAN VIEW

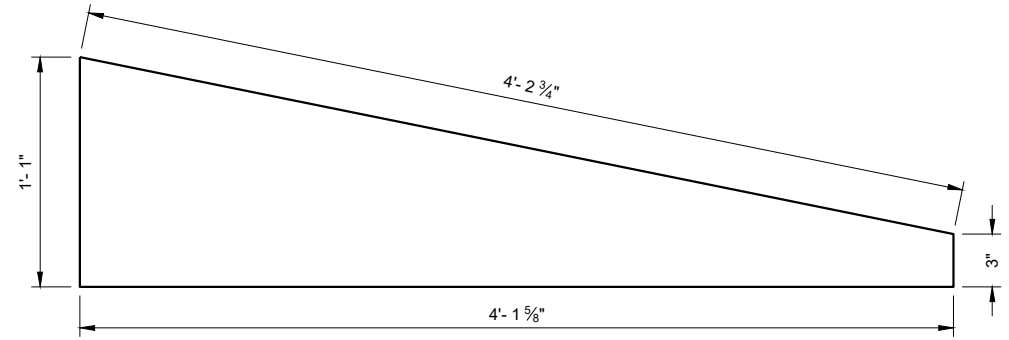


BACK VIEW

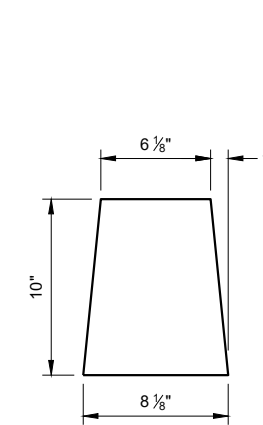


SIDE VIEW (600)

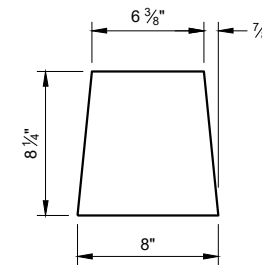
42\"/>



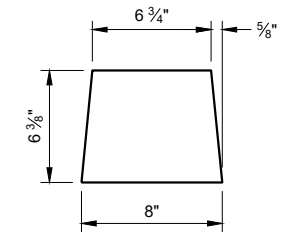
**SIDE VIEW
S3**



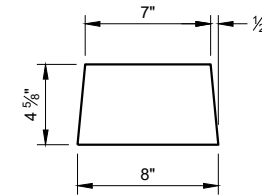
S2



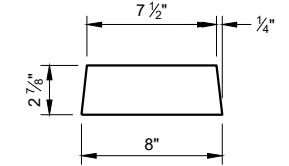
S4



S5



S6



S7

GENERAL NOTES

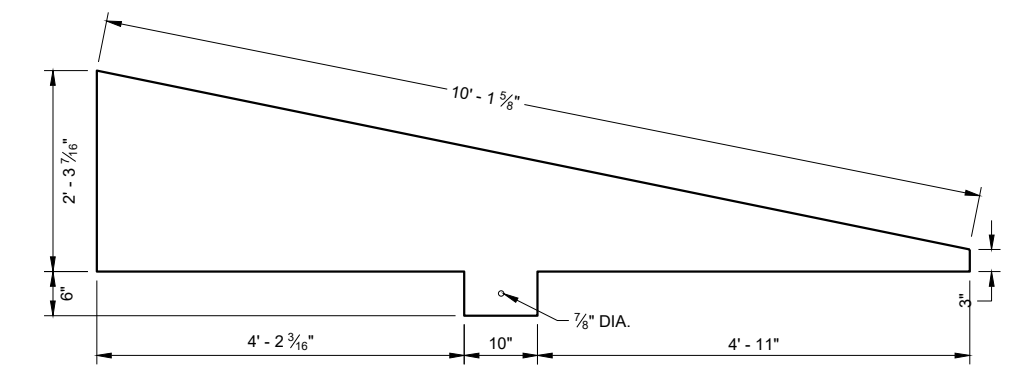
STITCH WELD GUSSET PLATES AND END PLATES ON THREE SIDES

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

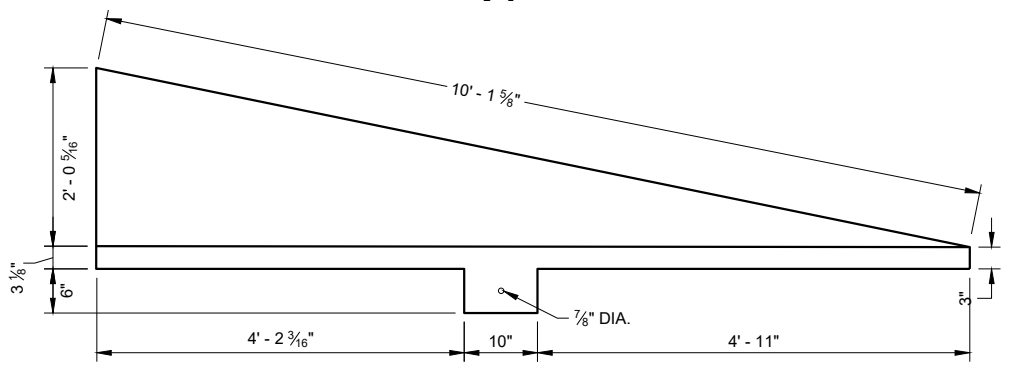
(600) SIDE PLATES (S3) NOT SHOWN FOR CLARITY.

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

STATE OF WISCONSIN
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**SIDE VIEW
T4**



**SIDE VIEW
T3**

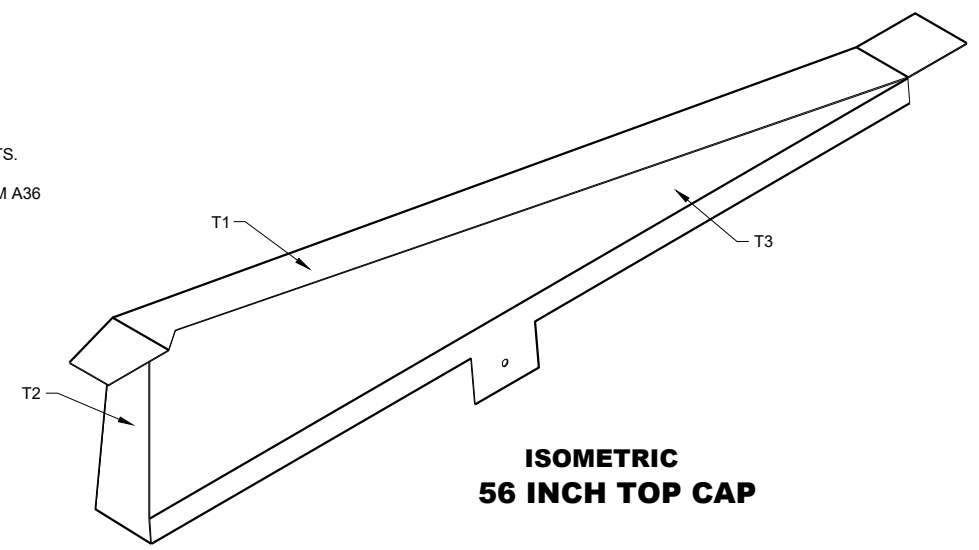
**END
VIEW**

**END
VIEW**

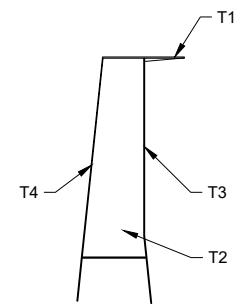
**END
VIEW**

GENERAL NOTES

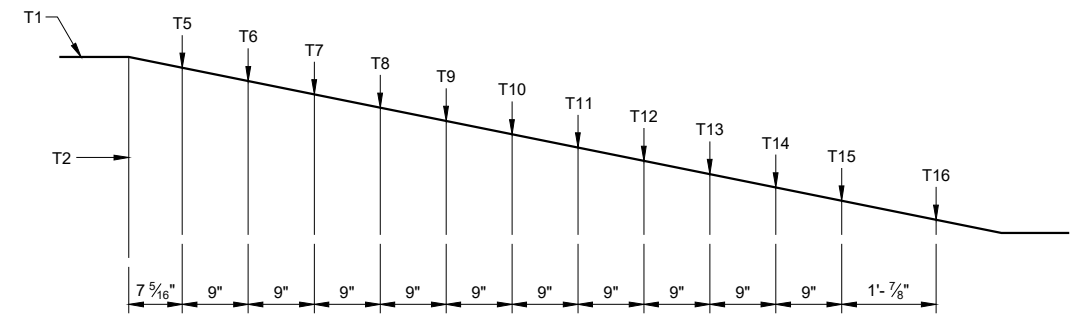
- STITCH WELD GUSSET PLATES AND END PLATES ON THRIE SIDES
- STITCH WELD TWO SIDE PLATES TO TOP PLATE, END PLATE AND GUSSETS.
- SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.
- (700) SIDE PLATES (T3 AND T4) NOT SHOWN FOR CLARITY.



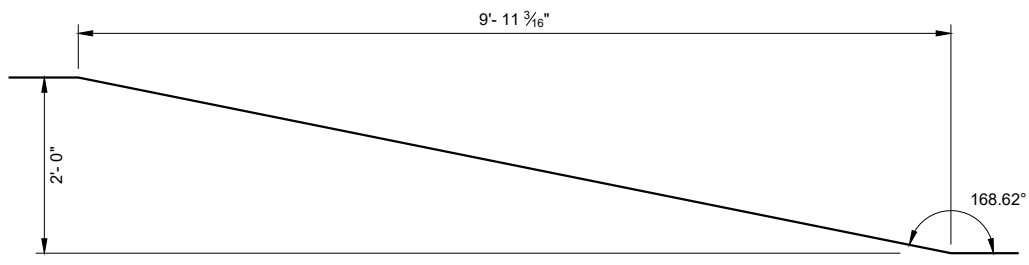
**ISOMETRIC
56 INCH TOP CAP**



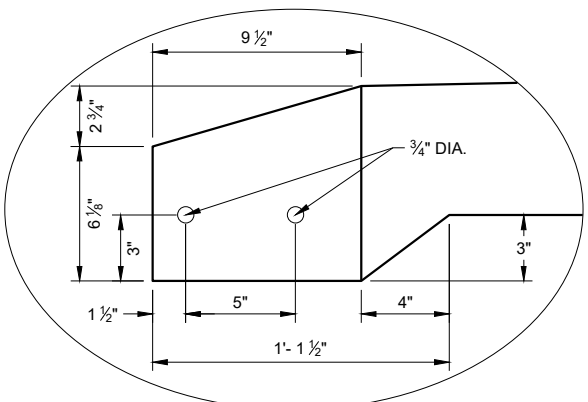
**END VIEW
56 INCH TOP CAP**



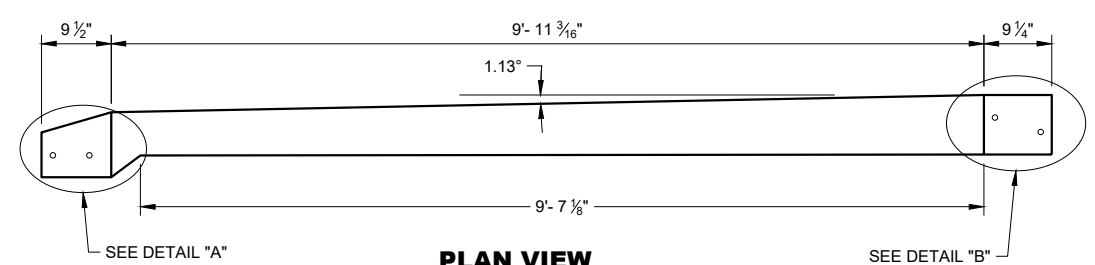
**SIDE VIEW
56 INCH TOP CAP (700)**



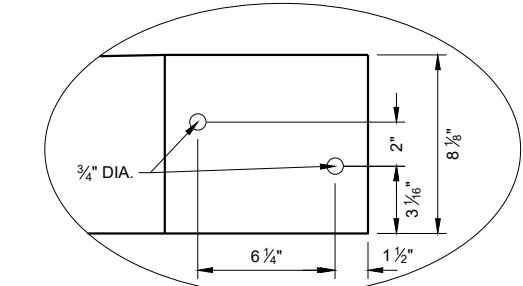
**SIDE VIEW
TOP PLATE T1**



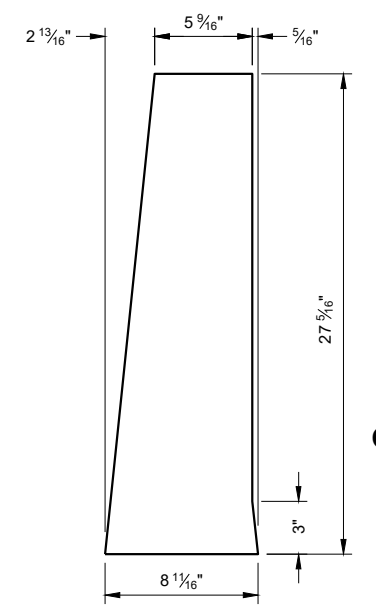
DETAIL "A"



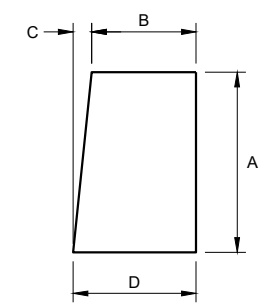
**PLAN VIEW
TOP PLATE T1**



DETAIL "B"



END PLATE T2

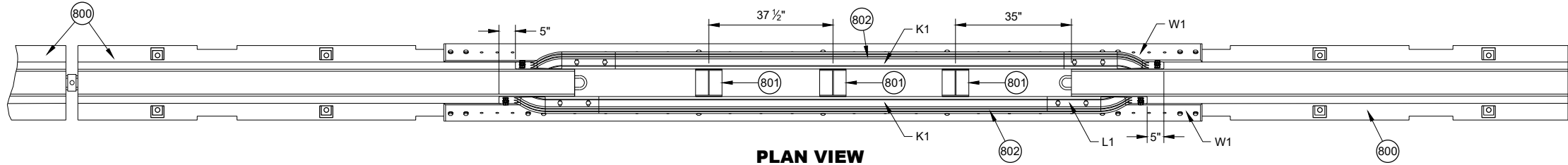
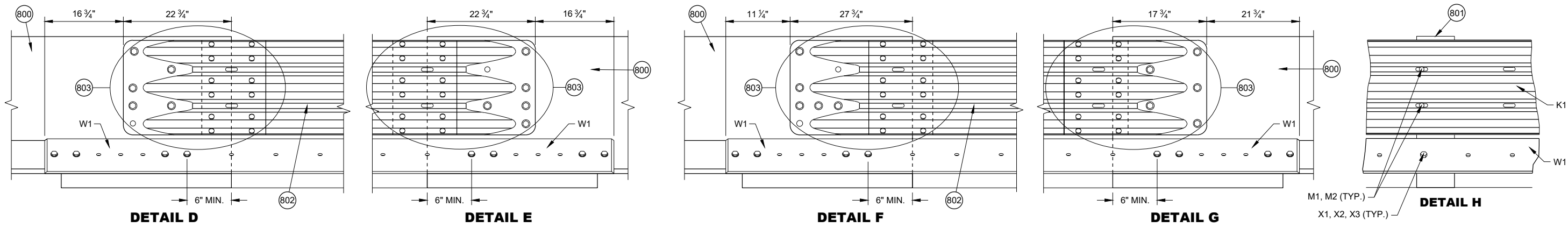


**GUSSET PLATES
T5 - T16**

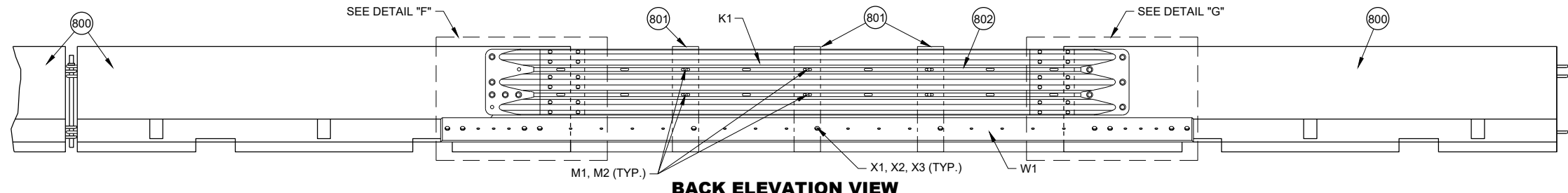
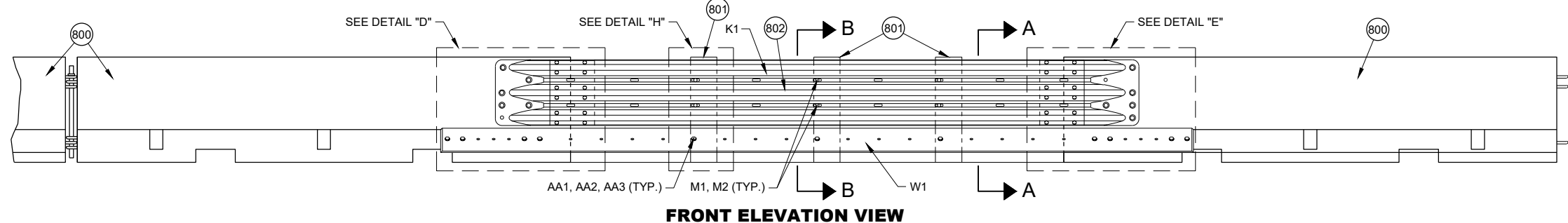
GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
T5	22 13/16"	5 1/16"	2 5/16"	8 1/16"
T6	21"	5 7/8"	2 3/16"	8 1/16"
T7	19 3/16"	6 1/16"	1 13/16"	8 1/16"
T8	17 3/8"	6 1/4"	1 13/16"	8 1/16"
T9	15 9/16"	6 7/16"	1 1/16"	8 1/16"
T10	13 3/4"	6 5/8"	1 7/16"	8 1/16"
T11	11 15/16"	6 13/16"	1 1/4"	8 1/16"
T12	10 1/8"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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



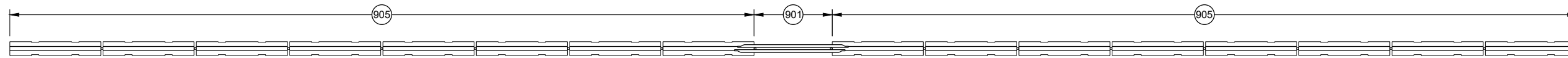
- GENERAL NOTES**
- 800 FREE STANDING TEMPORARY BARRIER
 - 801 GAP STIFFENER ASSEMBLY
 - 802 THRIE BEAMS ARE NESTED ON BOTH SIDES OF THE TEMPORARY BARRIER.
 - 803 SEE THRIE BEAM RAIL TERMINAL CONNECTOR DETAIL



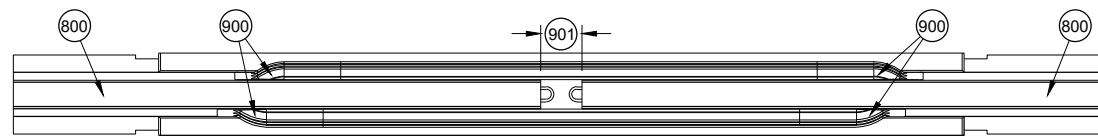
PORTABLE CONCRETE BARRIER GAP THRIE BEAM COVER

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

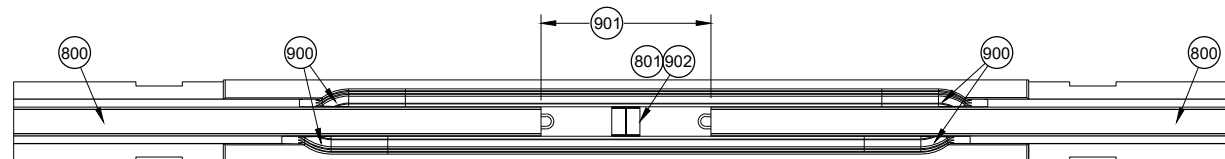
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



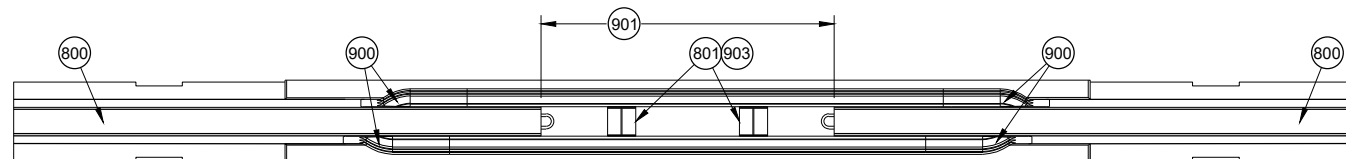
**PLAN VIEW
GAP WITHIN SPACING**



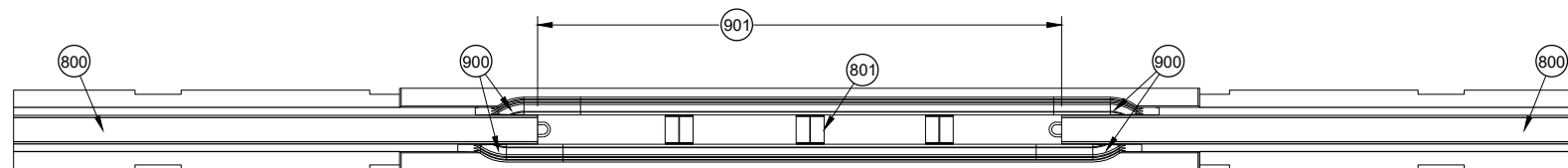
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4" TO 1' MAX. 904**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 1' TO 4' MAX. 904**



**PLAN VIEW
TEMPORARY BARRIER GAP OVER 4' TO 7' MAX. 904**



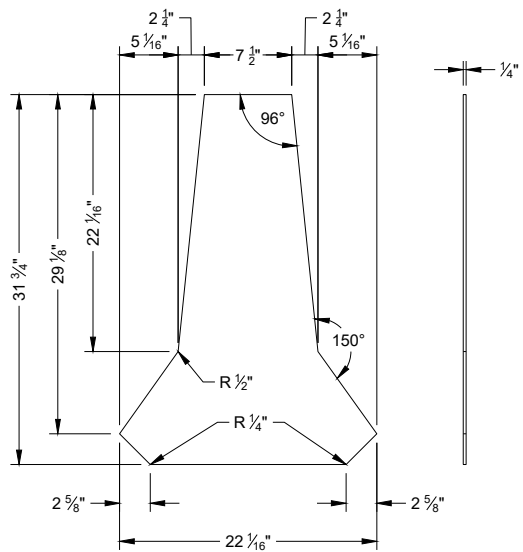
**PLAN VIEW
TEMPORARY BARRIER GAP OVER 7' TO 12.5' MAX. 904**

GENERAL NOTES

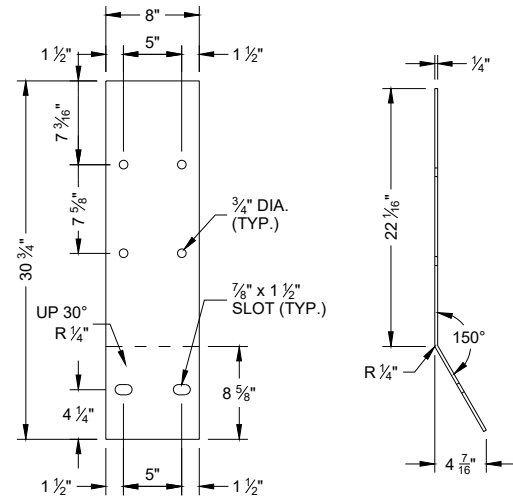
- 900 SEE OTHER DETAILS FOR TEMPORARY GAP HARDWARE (TYP.)
- 901 TEMPORARY BARRIER GAP
- 902 GAP STIFFENER ASSEMBLY CENTERED IN THE GAP.
- 903 GAP STIFFENER ASSEMBLY IS OFFSET 18 3/4" FROM CENTER
- 904 MINIMUM NUMBER OF GAP STIFFENERS SHOWN FOR THE GAP RANGE SHOWN.
- 905 MINIMUM OF 8 CONTINUOUS FREE STANDING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

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

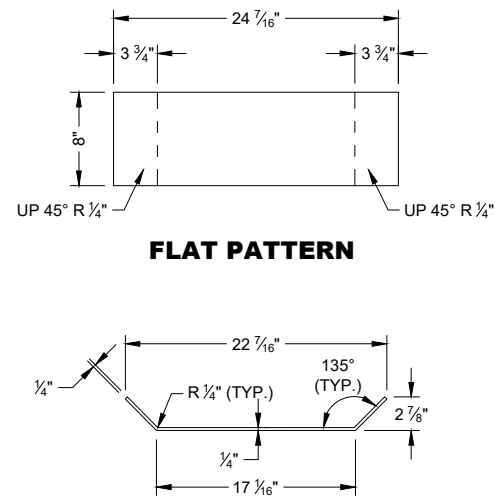
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



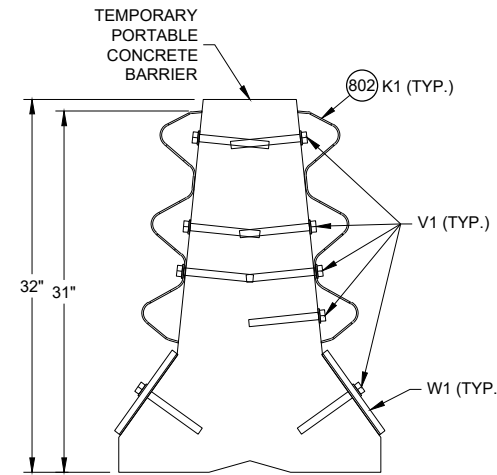
PROFILE VIEW **SIDE VIEW**
STIFFENER ASSEMBLY
CENTER PANEL U1



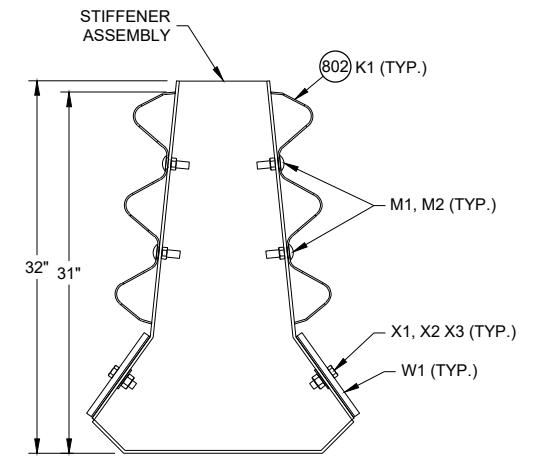
FLAT PATTERN **SIDE VIEW**
STIFFENER ASSEMBLY
SIDE PANEL U2



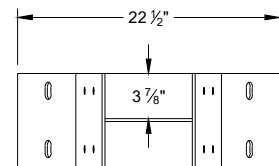
PROFILE VIEW
STIFFENER ASSEMBLY
BOTTOM PANEL U3



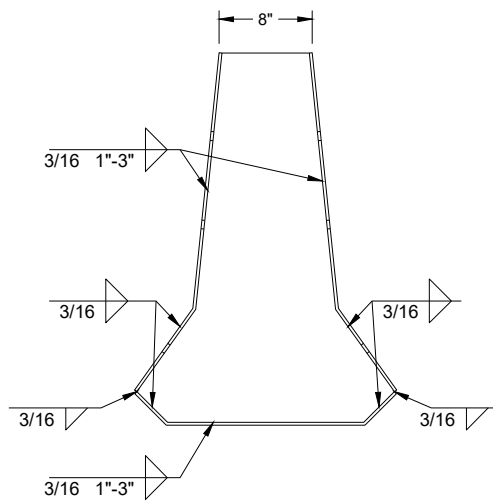
SECTION A - A



SECTION B - B

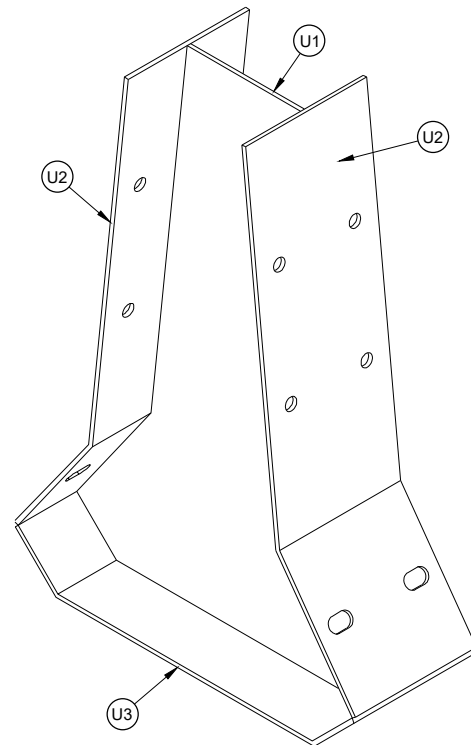


PLAN VIEW

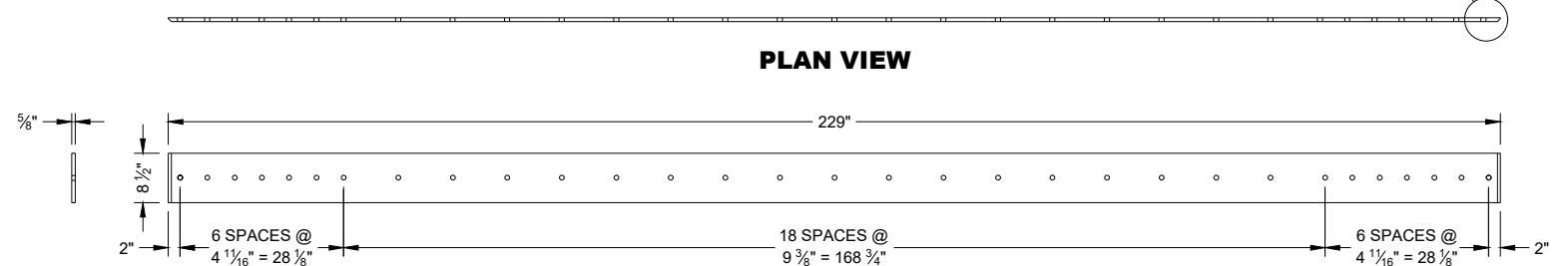
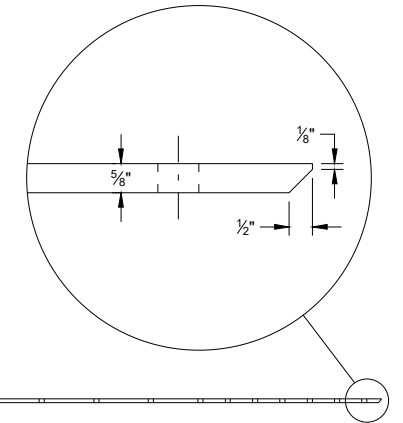


PROFILE VIEW **SIDE VIEW**

GAP STIFFENER ASSEMBLY



ISOMETRIC

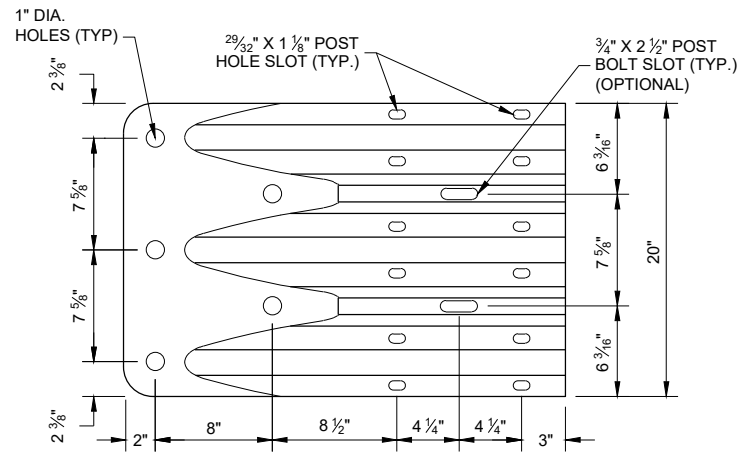


SIDE VIEW

PLAN VIEW
ELEVATION VIEW
W1 TOE PLATE

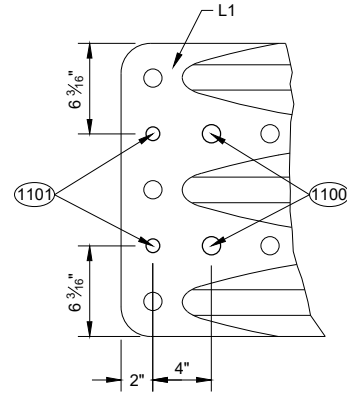
CONCRETE BARRIER
TEMPORARY PRECAST,
12' - 6"

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION



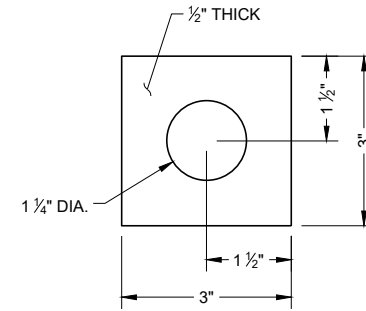
ELEVATION VIEW

**THRIE BEAM
TERMINAL CONNECTOR**



ELEVATION VIEW

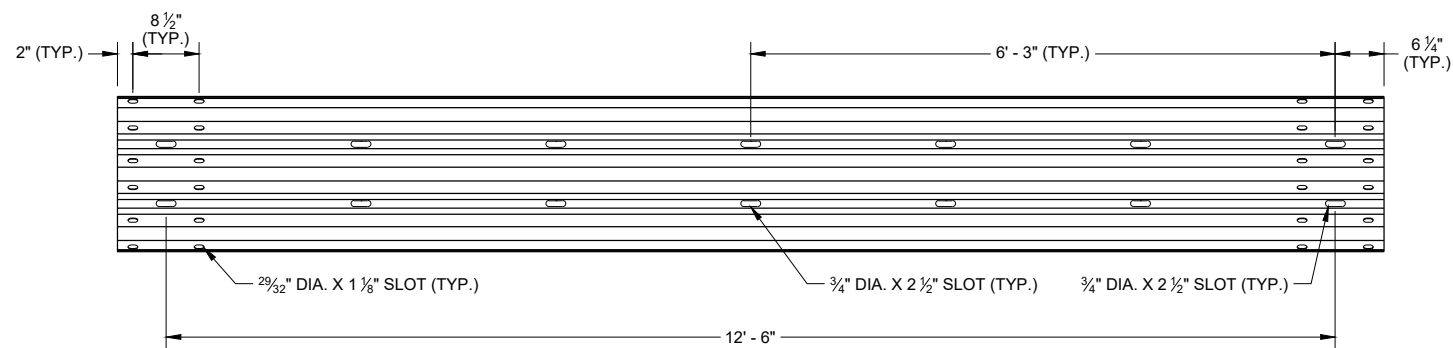
**ADDITIONAL THRIE BEAM
TERMINAL CONNECTOR HOLE DETAIL** (1102)



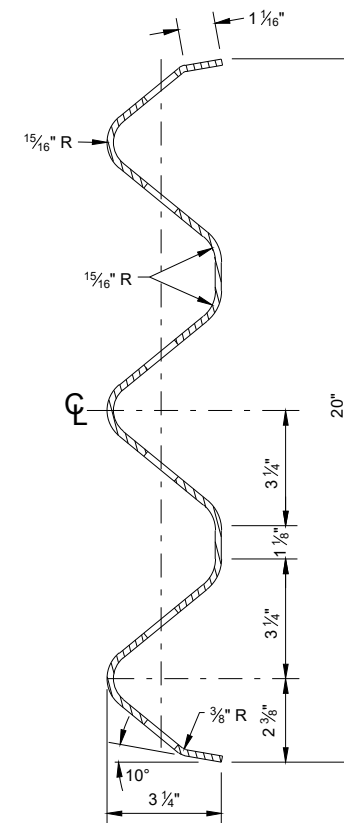
**PLATE WASHER DETAIL
G2, H3**

GENERAL NOTES

- (1100) 1" DIA. HOLE
- (1101) 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.



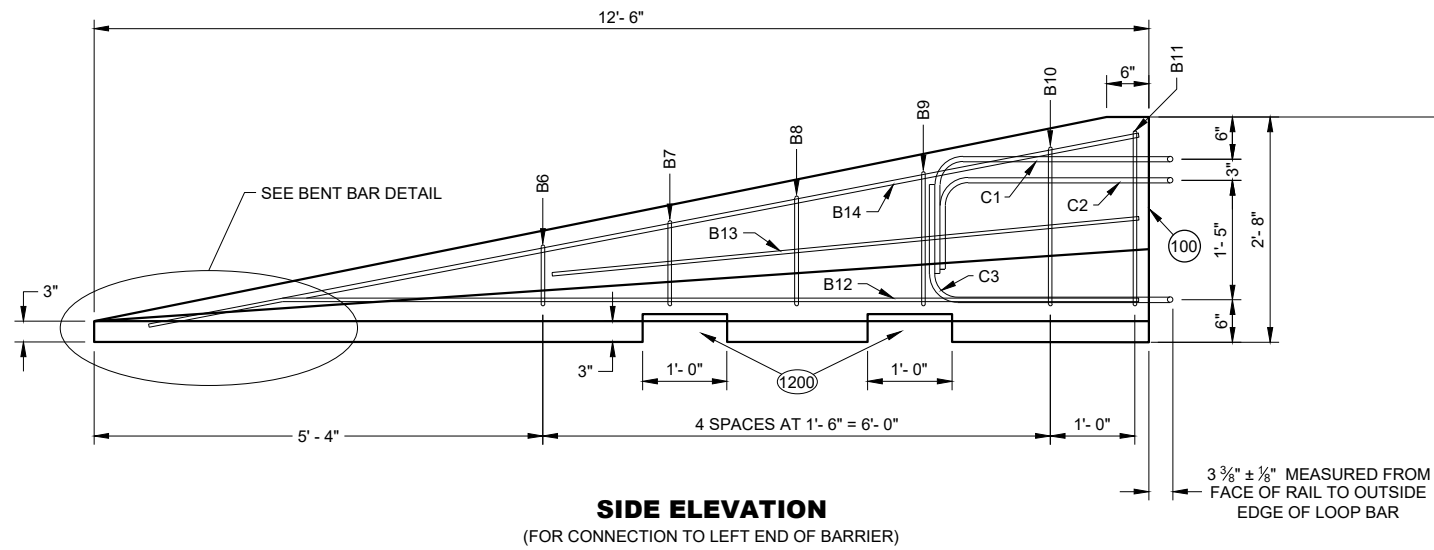
SLOTTED THRIE BEAM RAIL K1



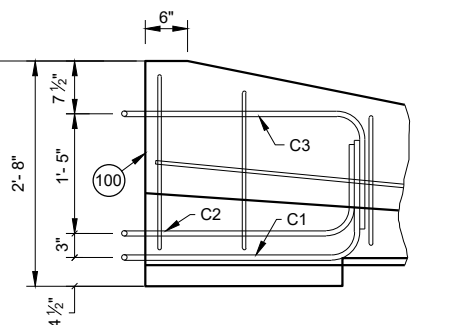
**SECTION THROUGH
BEAM K1**

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



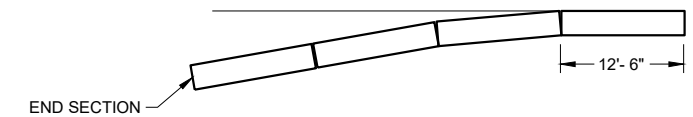
SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



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

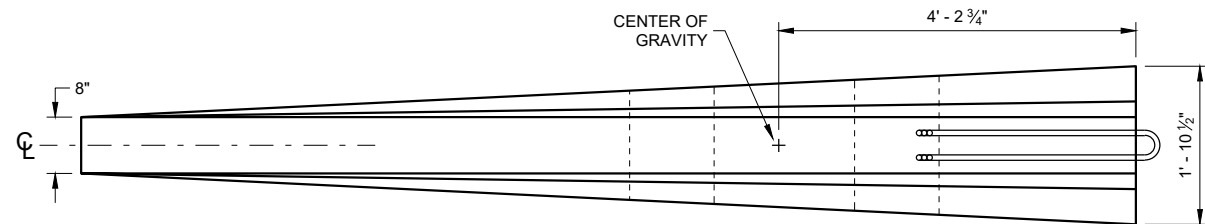
GENERAL NOTES

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

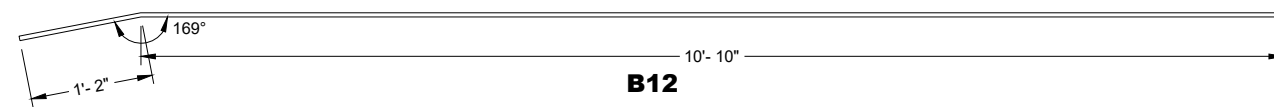


FLARE AT BARRIER END

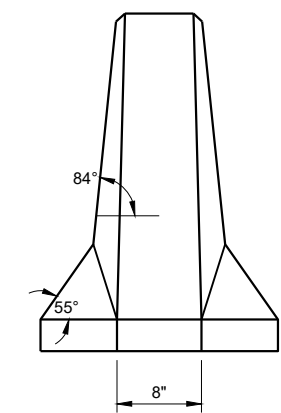
POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1



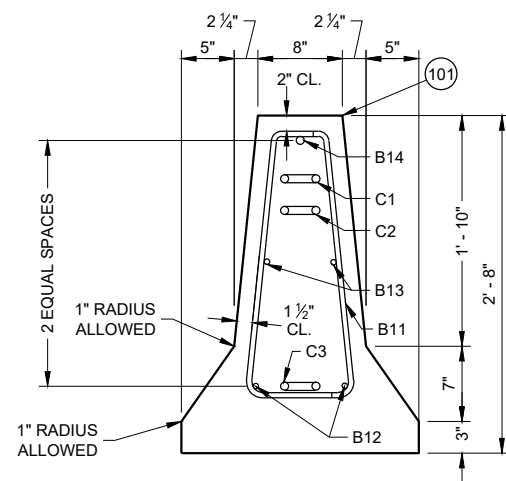
PLAN VIEW



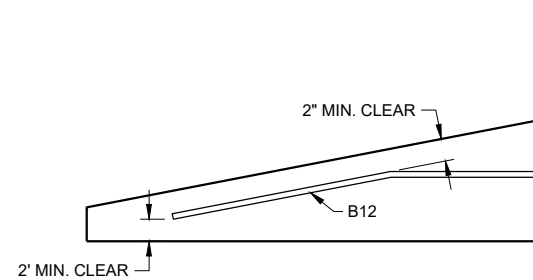
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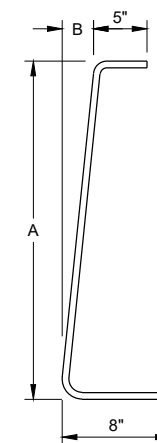
FRONT ELEVATION



END SECTION



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

DETAILS OF BARRIER TAPER SECTION

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	PRECAST TEMPORARY BARRIER - CONCRETE	MIN. = f _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 ½" DIA.
D2	CONNECTION PIN - TOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G1	BOLT THROUGH ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A OR SAE J429 GRADE 2 UNC	1 ½" DIA.
G2	BOLT THROUGH ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
G3	BOLT THROUGH ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
H1	ADHESIVE ANCHOR - ADHESIVE	ICC-ES-AC308 5 ¼" EMBEDMENT WITH A MIN. BOND STRENGTH OF 1,650 PSI. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.	
H2	ADHESIVE ANCHOR - THREADED ROD	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A / SAE J429 GRADE 2 UNC	1 ½" DIA.
H3	ADHESIVE ANCHOR - WASHER, SQUARE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
H4	ADHESIVE ANCHOR - NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
J1	ASPHALT ANCHOR PIN - ROD	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	1 ½" DIA.
J2	ASPHALT ANCHOR PIN - STOP PLATE	ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI	
K1	THRIE BEAM RAIL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE
L1	THRIE BEAM RAIL - TERMINAL	AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER	12 GAUGE

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

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SDD 14B07-16m

SDD 14B07-16m

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

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

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

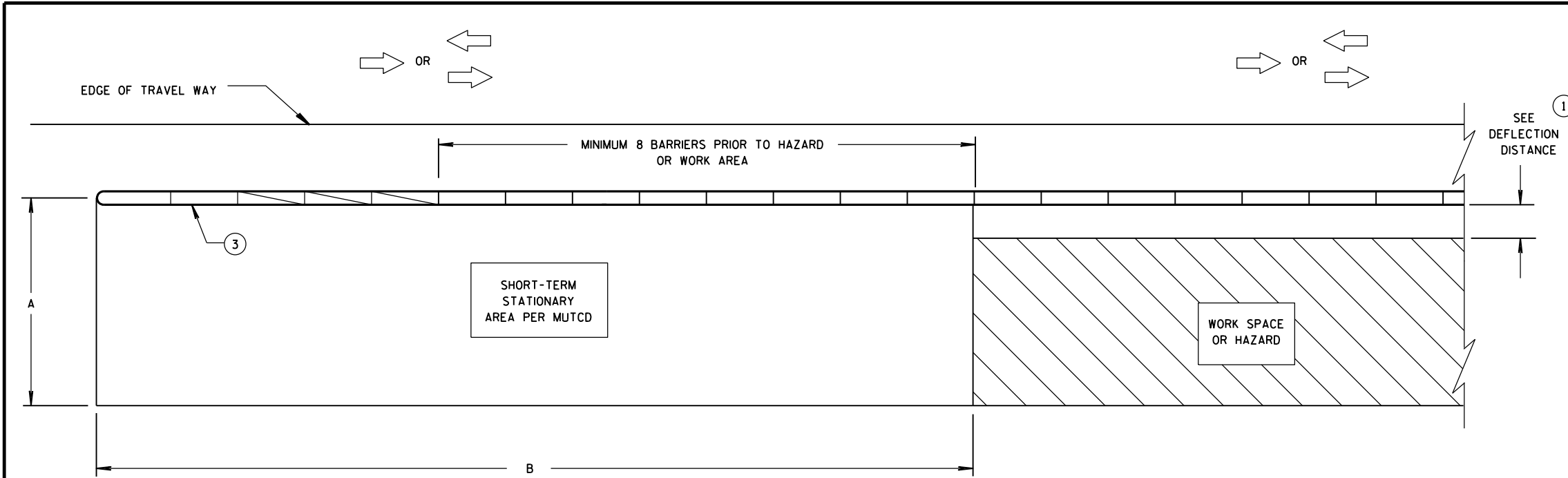
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6

SDD 14B07-16n

SDD 14B07-16n

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



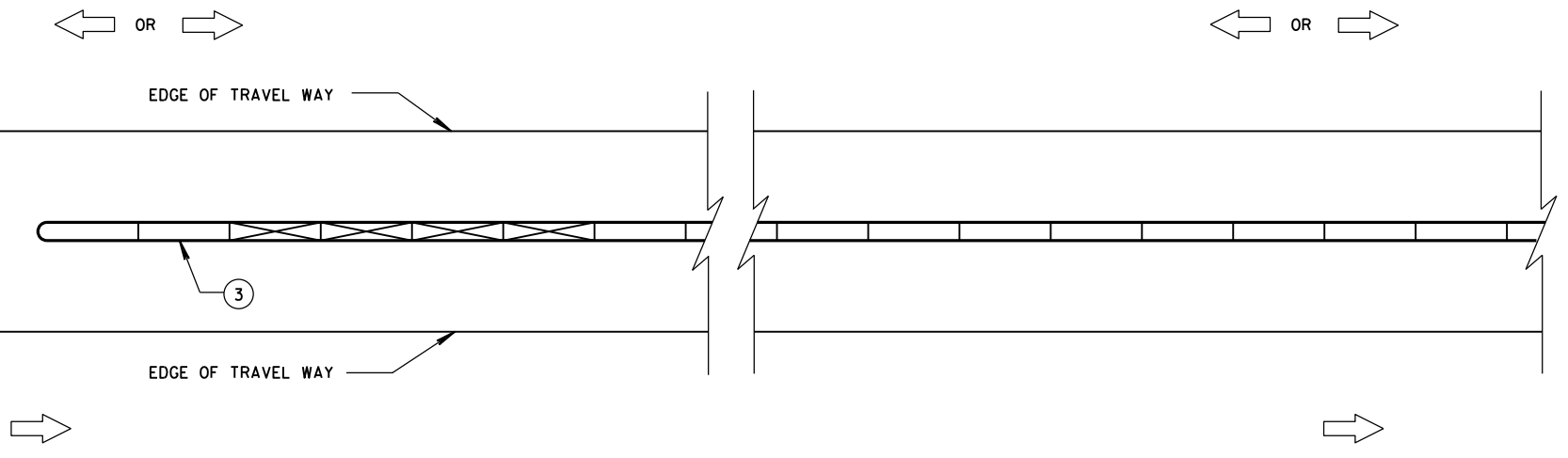
DIMENSION A TABLE ⁽²⁾

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

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

DIMENSION B TABLE ⁽²⁾

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



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

LEGEND

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

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

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

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

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

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

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

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

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

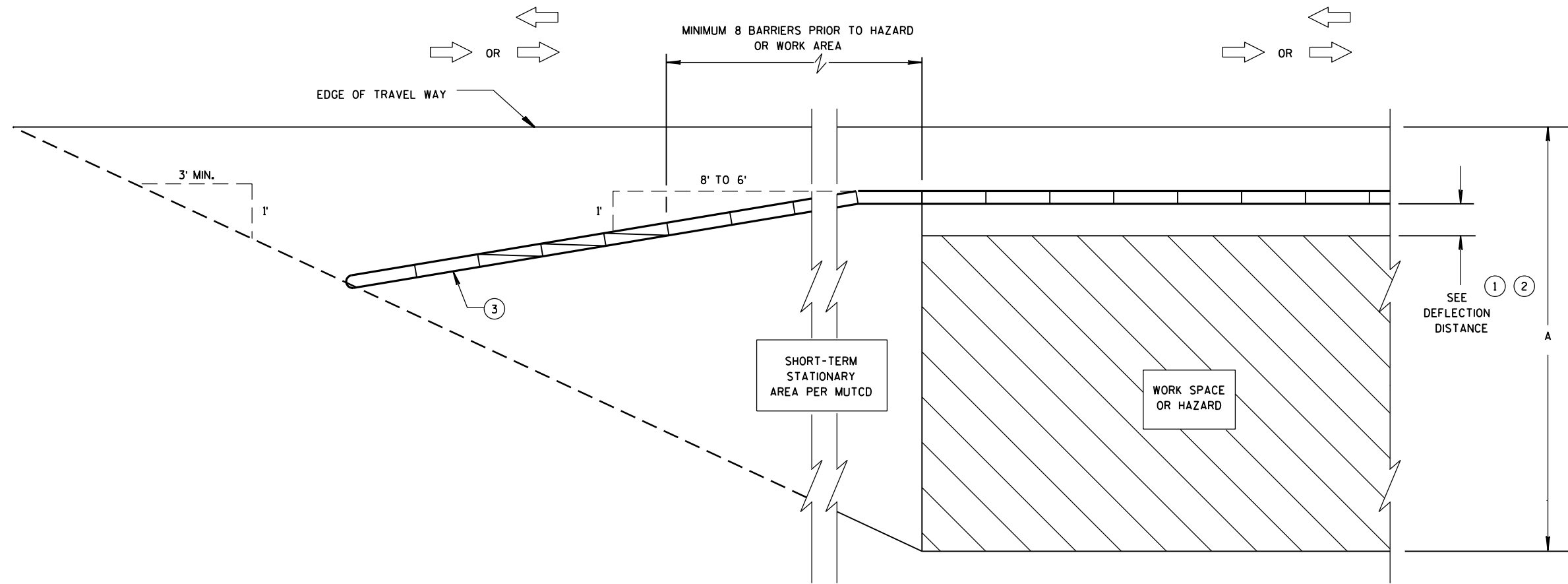
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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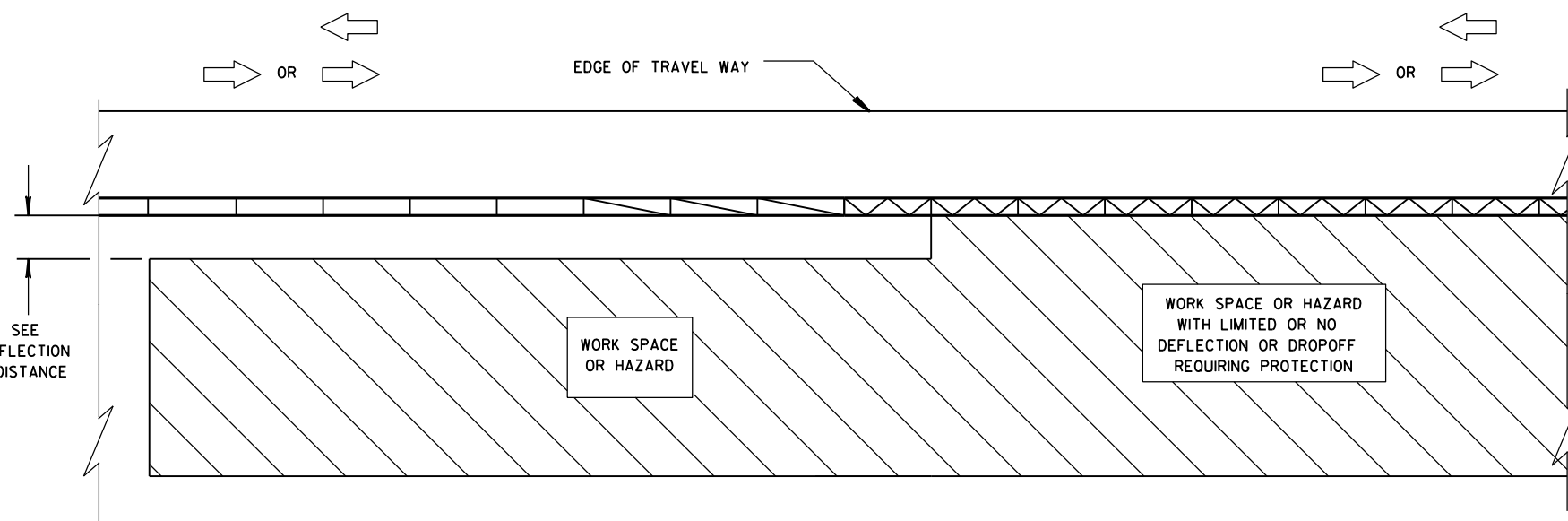
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S.D.D. 14 B 8-2a

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



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



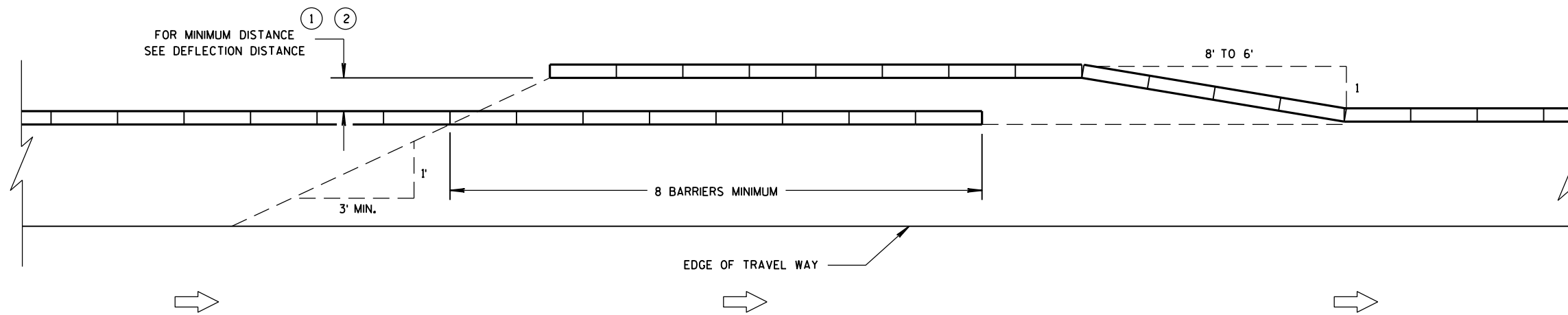
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

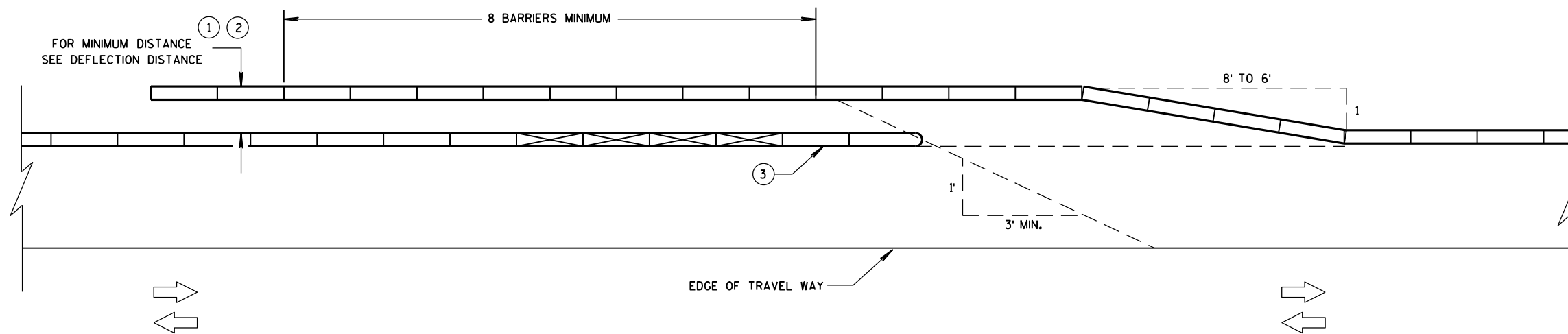
- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

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

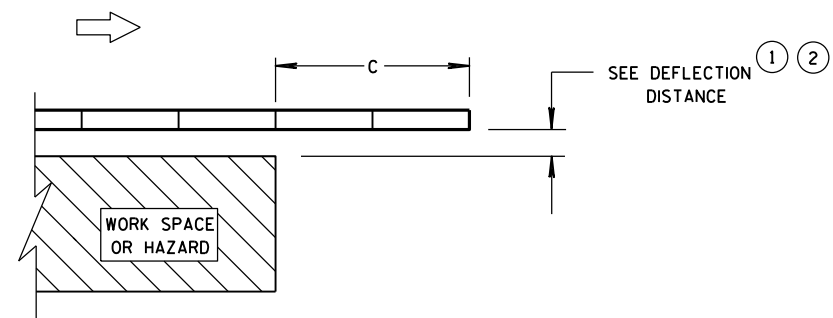
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



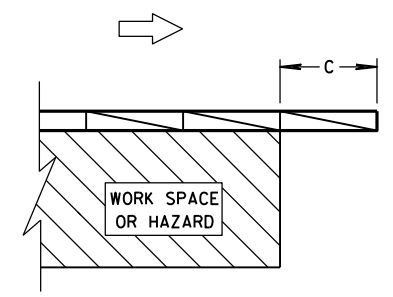
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

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

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

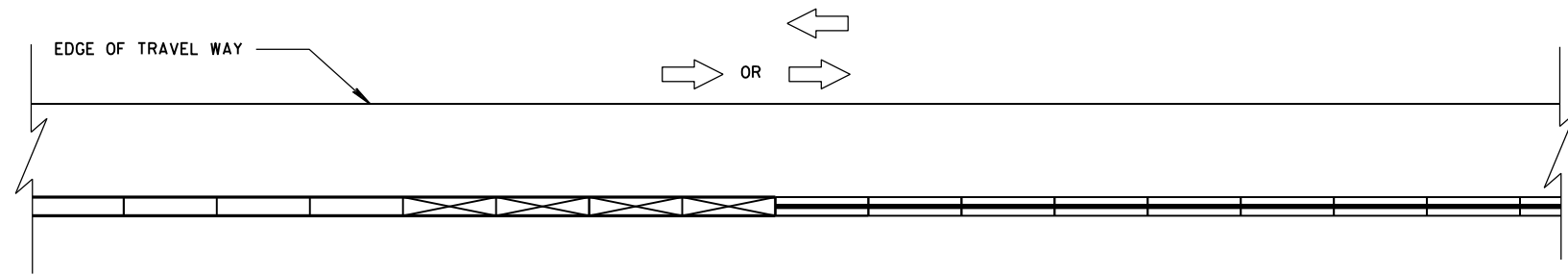
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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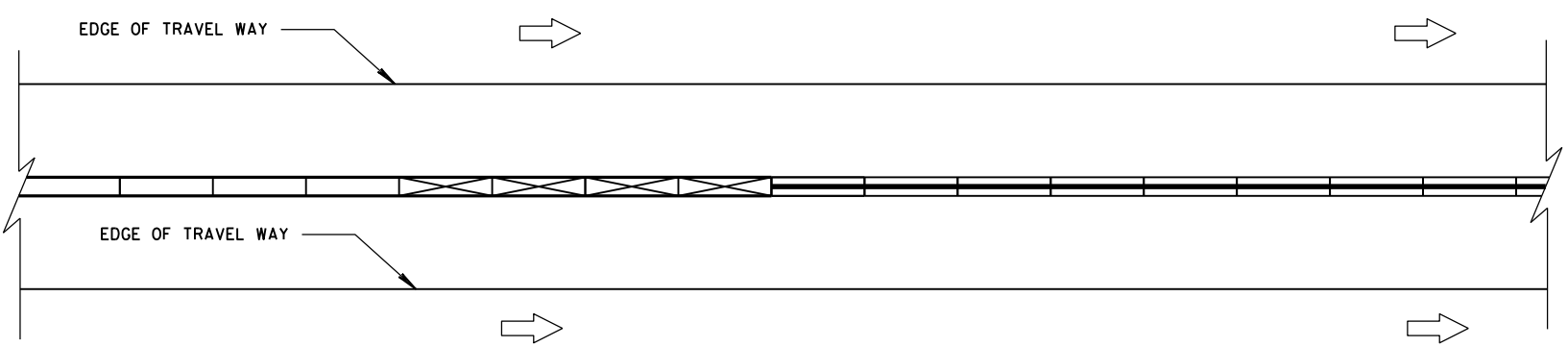
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S.D.D. 14 B 8-2c

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



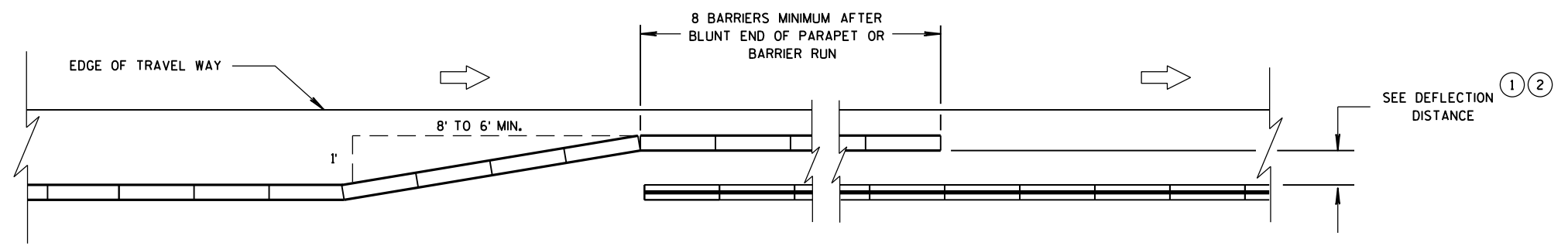
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON ONE SIDE



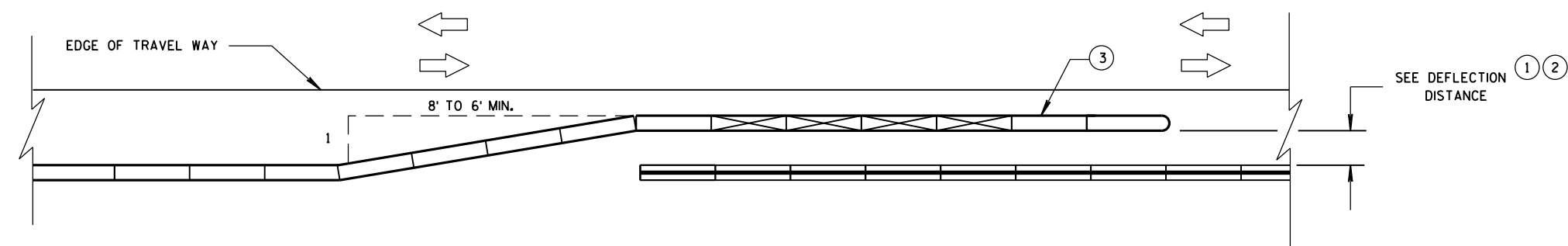
CONNECTING TEMPORARY BARRIER TO PERMANENT CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

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



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER - TWO WAY TRAFFIC

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

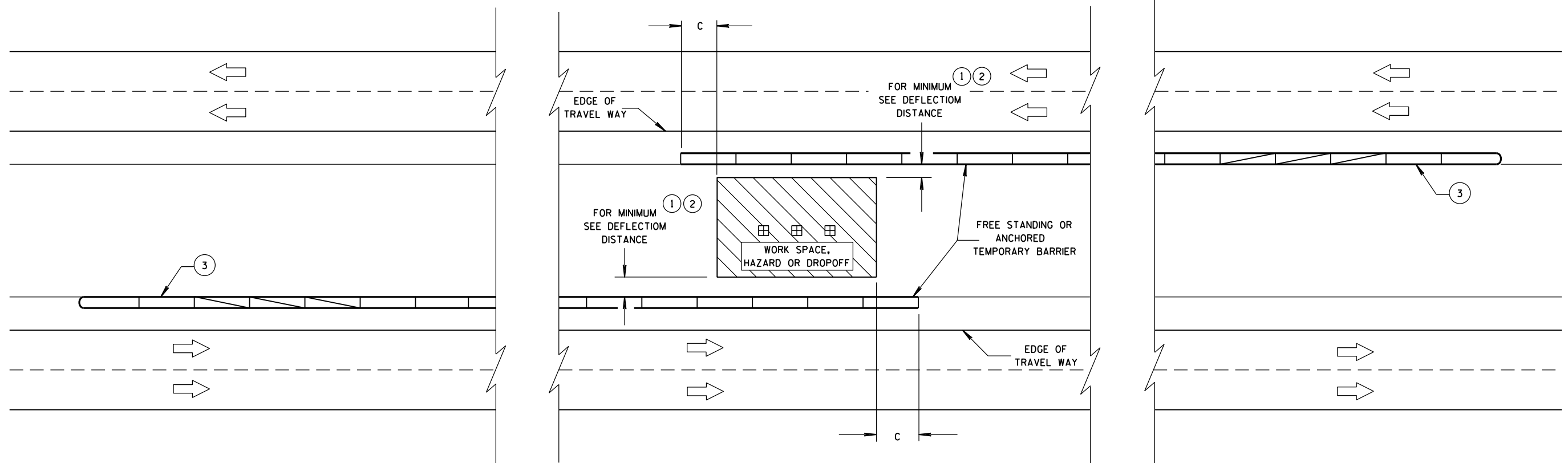
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

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

DIMENSION C TABLE ²

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



6

6

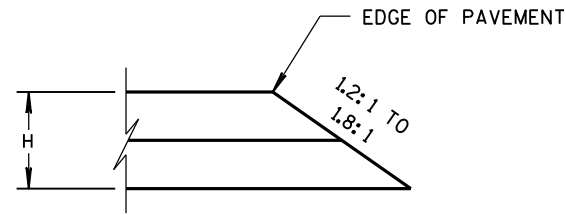
S.D.D. 14 B 8-2e

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

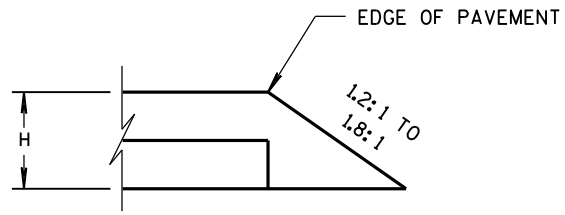
**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

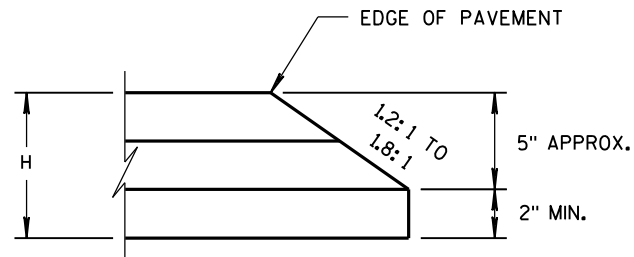
APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA ENGINEER



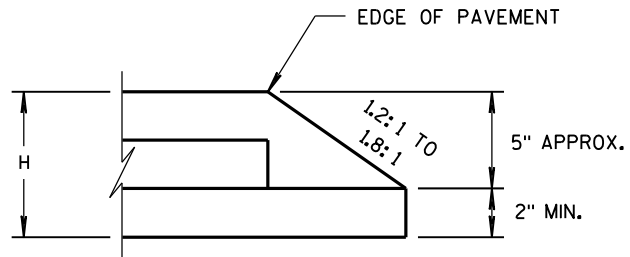
CONSTRUCTED WITH FINAL TWO LAYERS
FOR H 5" OR LESS



CONSTRUCTED WITH FINAL LAYER
FOR H 5" OR LESS

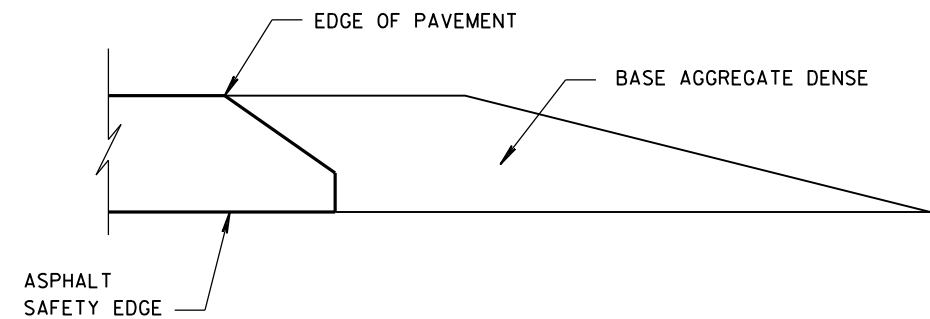


CONSTRUCTED WITH FINAL TWO LAYERS
FOR H GREATER THAN 5"



CONSTRUCTED WITH FINAL LAYER
FOR H GREATER THAN 5"

HMA PAVEMENT AND HMA OVERLAYS



FINISHED SHOULDER AGGREGATE PLACEMENT

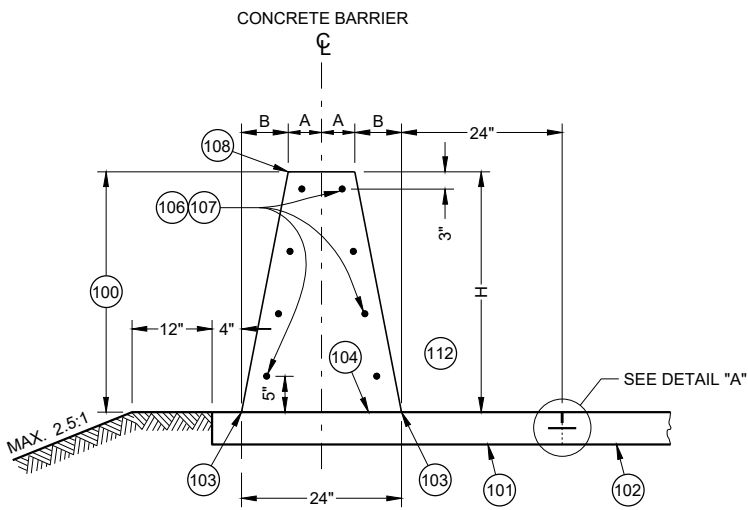
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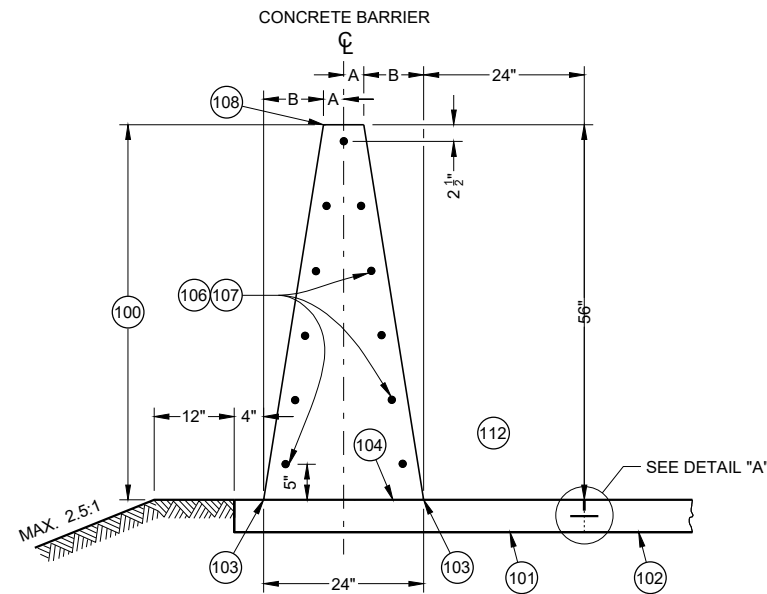
S.D.D. 14 B 29-1

S.D.D. 14 B 29-1

SAFETY EDGE _{SM}	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



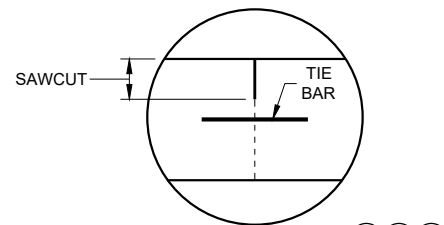
**32 - INCH, 36 - INCH OR 42 - INCH
SINGLE SLOPE CONCRETE BARRIER
(TYPE S32, TYPE S36, TYPE S42)**



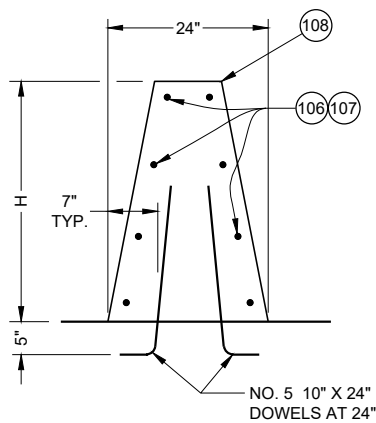
**56 - INCH SINGLE
SLOPE CONCRETE BARRIER
(TYPE S56)**

TABLE "A"

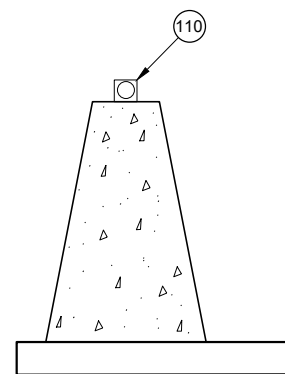
BARRIER HEIGHT H INCHES	A INCHES	B INCHES	NUMBER OF NO. 5 BARS EACH
32	7	5	8
36	6 1/4	5 3/4	8
42	5 1/4	6 3/4	10
56	3	9	11



DETAIL "A"



**SINGLE SLOPE
CONCRETE BARRIER ON BRIDGE
(NON OUTER PARAPET APPLICATION)**



DELINEATION

GENERAL NOTES

WHERE THE CONCRETE BARRIER IS ADDED TO THE FACE OF EXISTING CONCRETE STRUCTURE, MATCH EXISTING WEEP HOLES.

LOCATE EXPANSION JOINTS IN CONCRETE BARRIER SHALL AT ALL DECK AND PRINCIPAL WALL JOINTS. FILL EXPANSION JOINT WITH EXPANSION JOINT MATERIAL. SEAL THE EXPANSION JOINT CONFORMING TO STANDARD SPECIFICATION 415.2.6.

PLACE BARRIER PERPENDICULAR TO SHOULDER GRADE, UNLESS INDICATED IN PLAN.

4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATION 501.

2" CLEAR COVER TYPICAL

ANCHORS ARE REQUIRED AT CONCRETE BARRIER ENDS AND AT INTERRUPTIONS IN CONCRETE BARRIER. ANCHOR MAY BE AS SHOWN IN THIS SDD OR DETAIL SHOWN ON SDD 14B33. ANCHORS INCIDENTAL TO CBSS.

PROVIDE A 1" DEEP CONTRACTION JOINT IN BARRIER PAD AND BARRIER. JOINT IS TO MATCH ADJACENT CONCRETE JOINTS. NO DOWEL BARS ARE REQUIRED FOR BARRIER PAD. IF ADJACENT TO ASPHALT, CONTRACTION JOINT IS REQUIRED EVERY 15'.

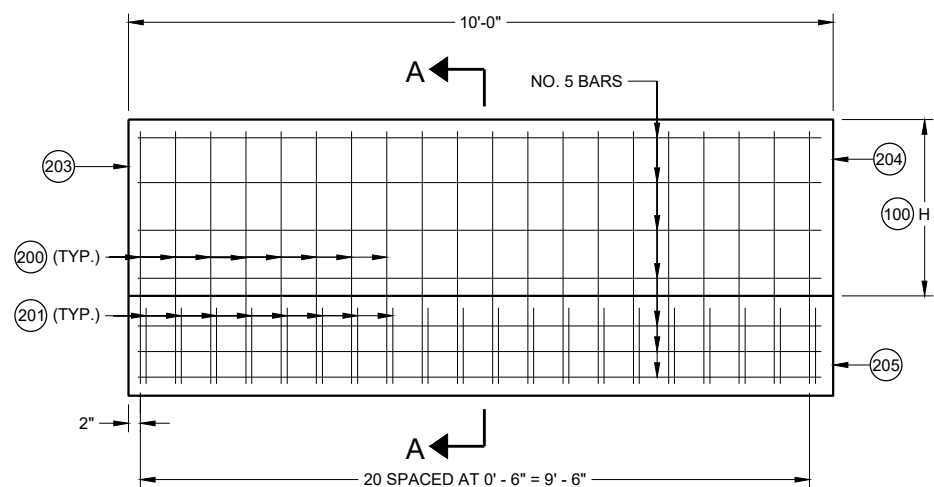
ALL REBAR SHALL BE EPOXY COATED M31 TYPE S. SEE STANDARD SPECIFICATION 505.

CONCRETE BARRIER, UPPER CONCRETE BARRIER, LOWER CONCRETE BARRIER, CONCRETE BARRIER PAD, AND FOOTINGS ARE TERMS USED TO DESCRIBE PARTS OF SINGLE SLOPE CONCRETE BARRIER BID ITEMS. THESE PARTS ARE INCIDENTAL TO THE SINGLE SLOPE CONCRETE BARRIER BID ITEMS.

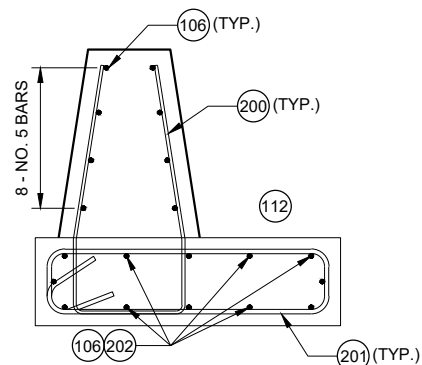
- 100 CONCRETE BARRIER
- 101 CONCRETE BARRIER PAD
- 102 PAVEMENT
- 103 WHERE VERTICAL ROADWAY OFFSET IS GREATER THAN 1 1/2", USE TYPE A SINGLE SLOPE BARRIER.
- 104 OPTIONAL CONSTRUCTION JOINT.
- 105 CONSTRUCTION JOINTS MAY BE ELIMINATED WHEN CONCRETE SHOULDER IS LESS THAN 10'.
- 106 STAGGER LAPPING OF LONGITUDINAL STEEL. MINIMUM OVERLAP OF STEEL IS 2' BARS AT LAPS TO BE FIRMLY TIED OR CONNECTED.
- 107 NO. 5 CONTINUOUS BARS EVENLY SPACED (SEE TABLE "A").
- 108 USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- 109 CONCRETE BARRIER PAD UNDER CBSS MAY BE PLACED SEPARATELY OR PLACED WITH CONCRETE SHOULDER AND SAWED 1/2" DEPTH. CONCRETE BARRIER PAD AND SAWING OF CONCRETE SHOULDER IS INCIDENTAL TO CONCRETE BARRIER BID ITEM. CONCRETE BARRIER PAD MINIMUM DEPTH IS 6", OR EQUAL TO THE DEPTH OF THE CONCRETE SHOULDER.
- 110 SEE SDD 15A04 FOR DELINEATOR DETAILS AND SPACING.
- 111 SEE SDD 13C01 FOR DETAILS TYPING CONCRETE BARRIER TO ADJACENT CONCRETE
- 112 TRAFFIC SIDE

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

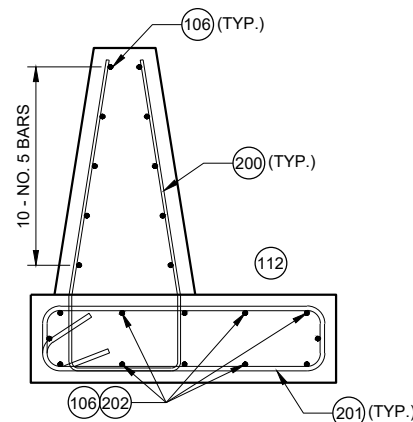
STATE OF WISCONSIN
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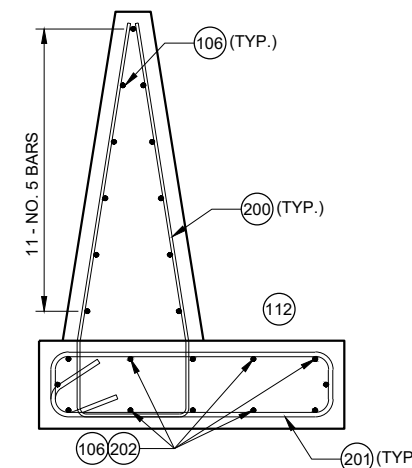
END ANCHOR SINGLE SLOPE CONCRETE BARRIER



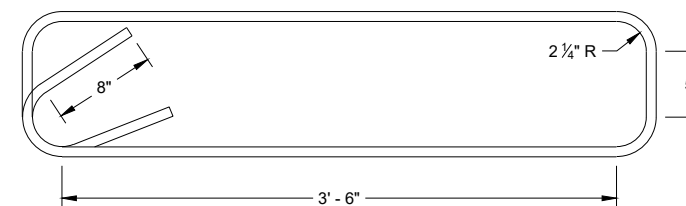
32" AND 36" CBSS



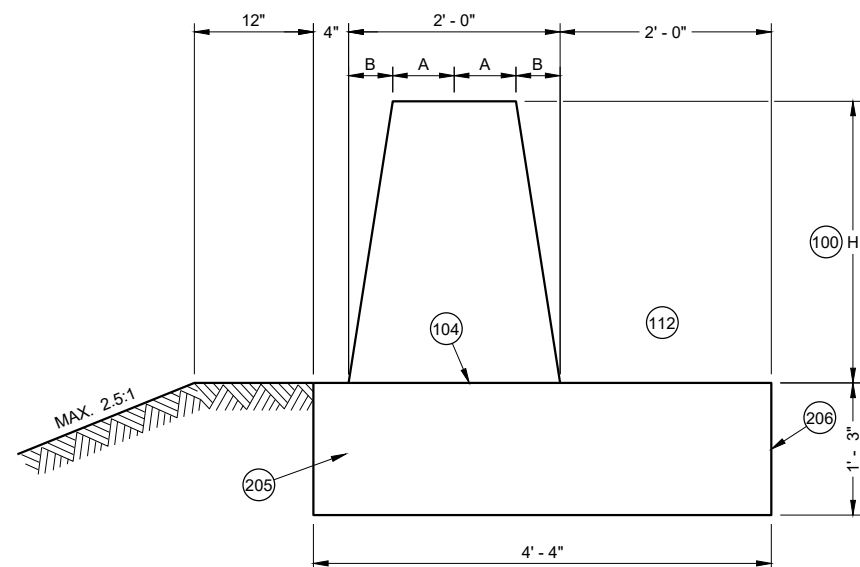
42" CBSS



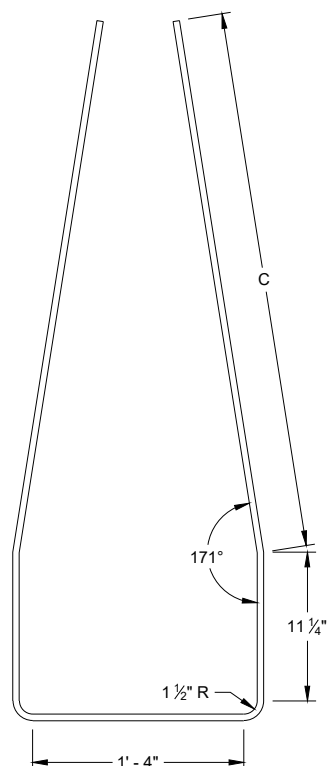
56" CBSS



STIRRUP BAR BENDING DETAIL



SECTION A - A



V1 BAR BENDING DETAIL

TABLE "B"

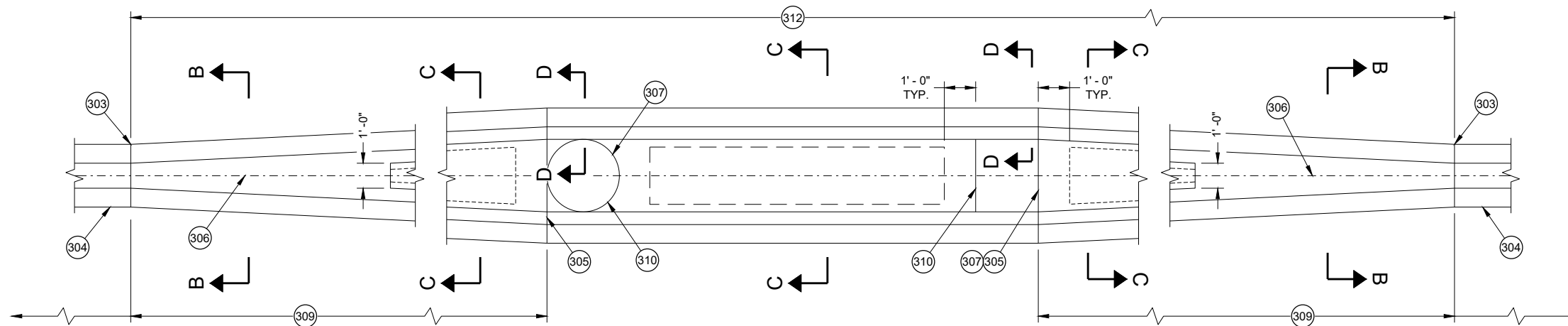
BARRIER HEIGHT H INCHES	C INCHES
32	2' - 6"
36	2' - 11"
42	3' - 4"
56	4' - 6 1/2"

GENERAL NOTES

- (200) V1 BARS ARE NO. 5 BARS. (SEE BAR BENDING DETAIL)
- (201) STIRRUPS ARE NO. 6 BARS. (SEE BAR BENDING DETAIL)
- (202) TWELVE (12) NO. 5 BARS EVENLY SPACED
- (203) END OF INSTALLATION OR EXPANSION JOINT.
- (204) SEE COLD JOINT DETAIL TO CONNECT END ANCHOR SINGLE SLOPE CONCRETE BARRIER TO SINGLE SLOPE CONCRETE BARRIER.
- (205) FOOTING
- (206) DO NOT TIE TO FOOTING TO ADJACENT PAVEMENT.

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

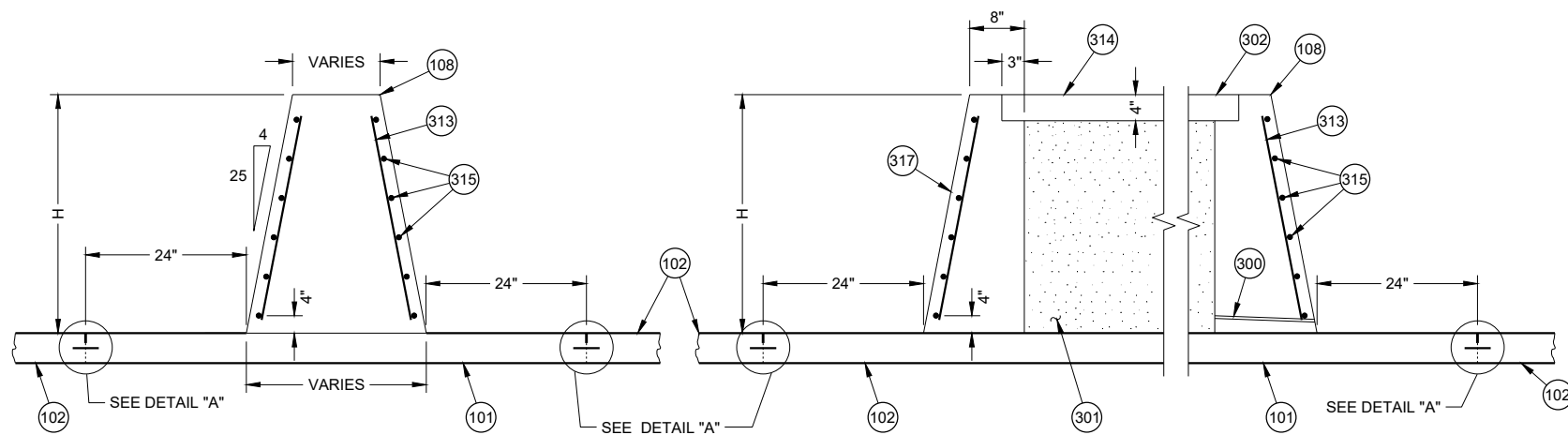
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



**LARGE FIXED OBJECTS PROTECTION
(TYPE S32, TYPE S36, TYPE S42, TYPE S56)**

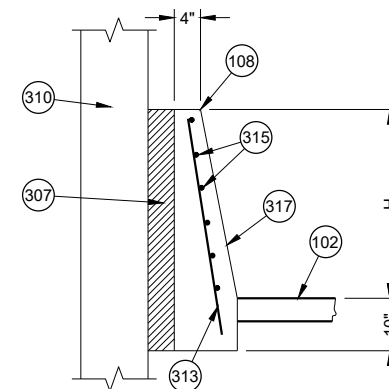
TABLE "C"

BARRIER HEIGHT H INCHES	BAR SIZE	NUMBER OF BARS EACH
32	4	6
36	4	6
42	5	6
56	5	6

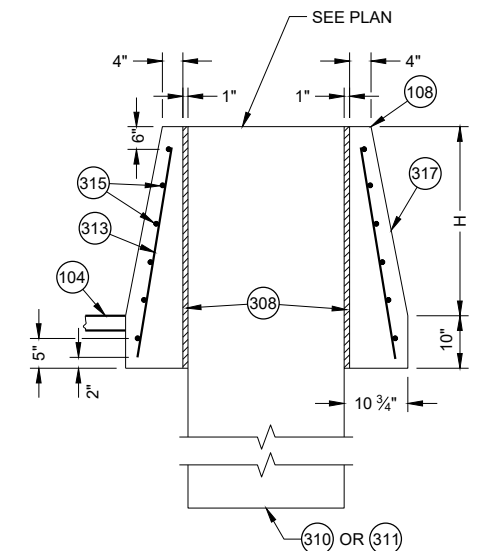


SECTION B - B

SECTION C - C



SECTION D - D

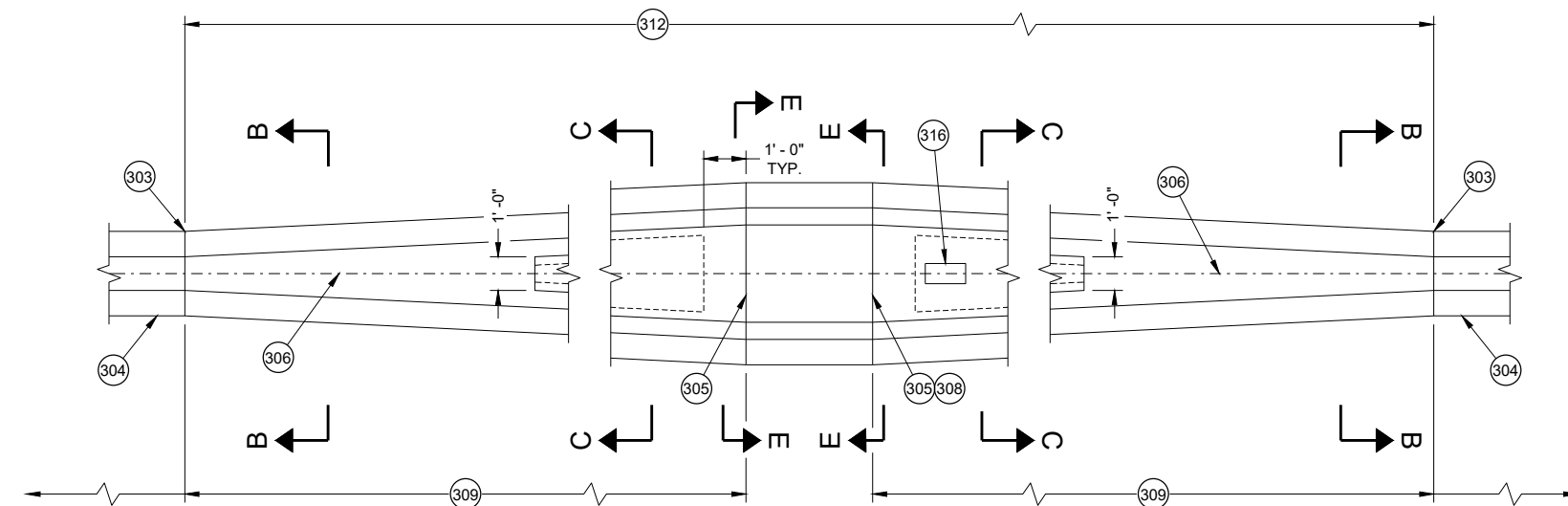


SECTION E - E

GENERAL NOTES

- 300 INSTALL 1 INCH DIAMETER DRAIN PIPE EVERY 20 FEET OF CROSS SECTION B - B. MINIMUM ONE DRAIN CAVITY.
- 301 BETWEEN CONCRETE BARRIER WALLS FILL WITH FOUNDATION BACKFILL.
- 302 LEVEL THE TOP OF CONCRETE BARRIER CAP ACROSS TOP OF BARRIER. ADJUST HEIGHT OF CONCRETE BARRIER WALL ON LOW SIDE OF OFFSET OR SUPERELEVATED ROADWAYS TO PROVIDE LEVEL GRADE ACROSS TOP OF CONCRETE CAP.
- 303 USE COLD JOINTS BETWEEN FIXED OBJECT PROTECTION AND CONCRETE BARRIER ANCHOR.
- 304 INSTALL END ANCHOR SINGLE SLOPE CONCRETE BARRIER.
- 305 SEE COLD JOINT DETAIL
- 306 CENTERLINE OF CONCRETE BARRIER.
- 307 INSTALL 4" EXPANDED POLYSTYRENE BETWEEN COLUMN AND CONCRETE BARRIER.
- 308 INSTALL 1" EXPANDED POLYSTYRENE BETWEEN PEDESTAL AND CONCRETE BARRIER.
- 309 20:1 MIN. TRANSITION.
- 310 COLUMN
- 311 PEDESTAL
- 312 LIMITS OF PAYMENT FOR LARGE FIXED OBJECT PROTECTION (SEE PLAN)
- 313 NO. 4 BARS SPACED 12" CENTER TO CENTER (TYP.)
- 314 USE NO. 3 BAR SPACED 12 INCHES CENTER TO CENTER (PLACED IN EACH DIRECTION) OR EQUIVALENT WIRE MESH.
- 315 SEE TABLE "C" FOR BAR INFORMATION
- 316 ELECTRICAL PULL BOX FOR SIGN FLUSH WITH TOP OF CONCRETE BARRIER.
- 317 VARIABLE SLOPE

**SMALL FIXED OBJECTS PROTECTION
(TYPE S32, TYPE S36, TYPE S42, TYPE S56)**

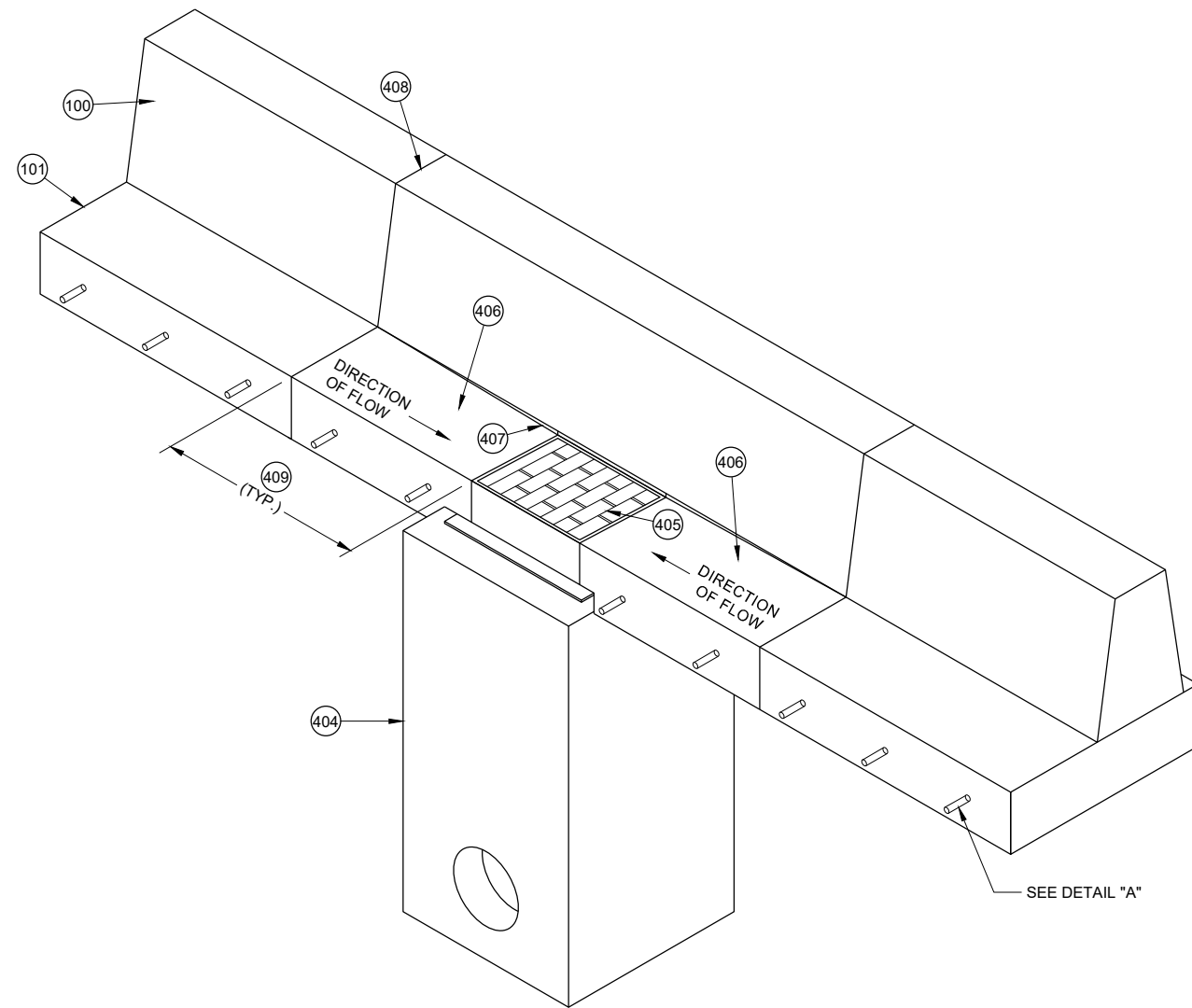


**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

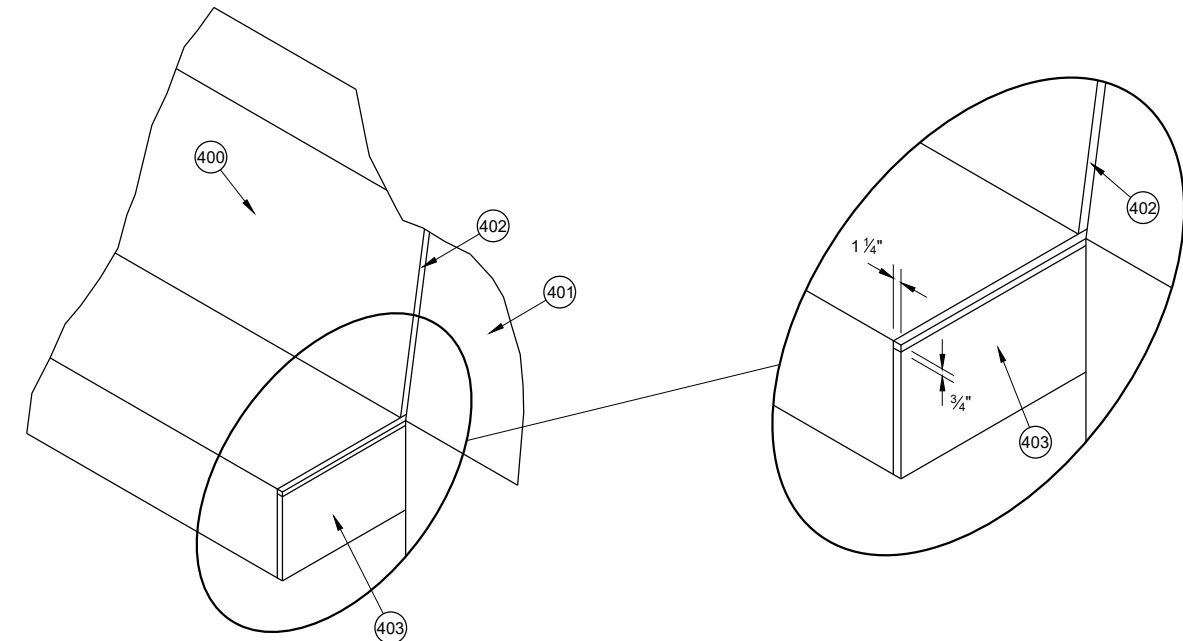
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

- ④00 END ANCHOR SINGLE SLOPE CONCRETE BARRIER.
- ④01 PARAPET, SIGN BRIDGE BASE, LIGHT POLE BASE OR OTHER OBJECT SINGLE SLOPE CONCRETE BARRIER CANNOT TIE INTO.
- ④02 JOINT SEAL CONFORMING TO STANDARD SPECIFICATION 415.2.6
- ④03 EXPANSION JOINT MATERIAL.
- ④04 INLET (SEE PLAN)
- ④05 INLET COVER BW (SEE PLAN)
- ④06 WARP PAN TO MATCH INLET COVER.
- ④07 EXTEND BARRIER SLOPE TO INLET. SEE PLAN FOR THE LENGTH OF EXTENSION.
- ④08 CONTRACTION JOINT.
- ④09 3' (TYP.)



DRAINAGE DETAIL



EXPANSION JOINT DETAIL

6

6

SDD 14B32 - 10d

SDD 14B32 - 10d

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

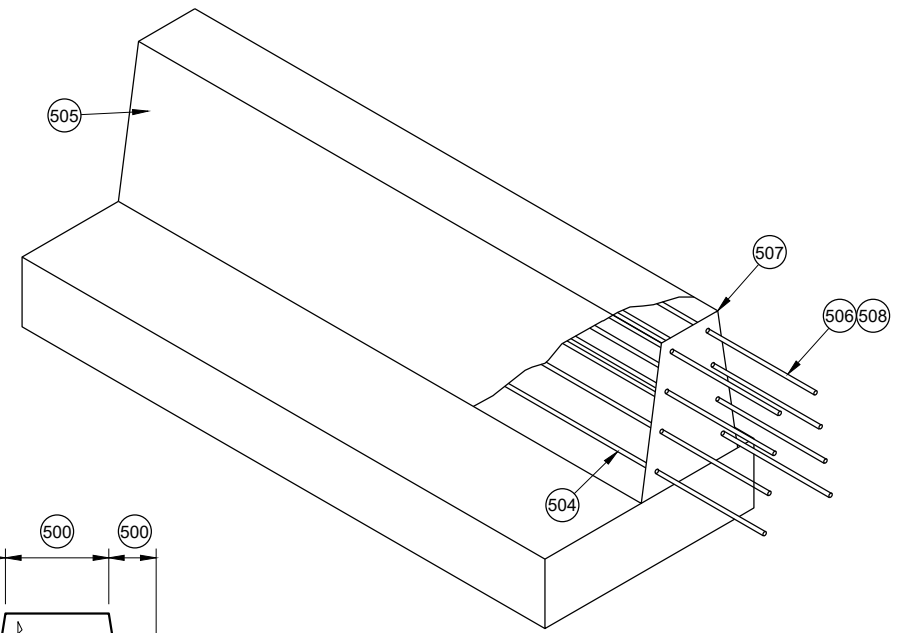
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GENERAL NOTES

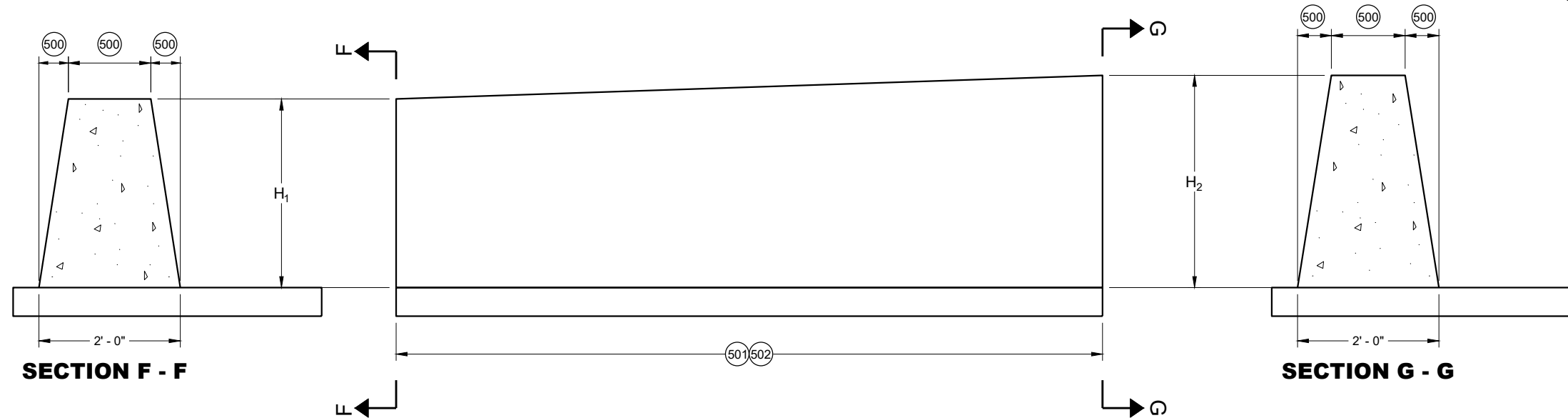
USE COLD JOINT TO CONNECT MULTIPLE HEIGHT TRANSITIONS.

- 500 SEE TABLE "A" FOR DIMENSIONS
- 501 SEE TABLE "D"
- 502 MULTIPLE HEIGHT TRANSITION MAY BE USED IN SEQUENCE TO GET APPROPRIATE HEIGHT.
- 503 COLD JOINT
- 504 BARRIER REBAR (SEE OTHER DETAILS FOR BAR SIZE, QUANTITY AND LOCATION).

- 505 SINGLE SLOPE BARRIER SHOWN. SIMILAR DETAIL CAN BE USED FOR COLD JOINT IN END ANCHORS AND TRANSITIONS.
- 506 NO. 5 REBAR FOR SPLICE. 3' OF SPLICE REBAR IS LAPPED AND TIED TO BARRIER REBAR. EXTEND 3' OF SPLICE REBAR BEYOND END OF POUR. ALL BARS ARE FIRMLY TIED OR CONNECTED. EVERY REBAR IN THE BARRIER SECTION REQUIRES A SPLICE BAR.
- 507 END OF POUR.
- 508 LAP AND TIE 3' OF NEXT POUR'S REBAR TO SPLICE REBAR.



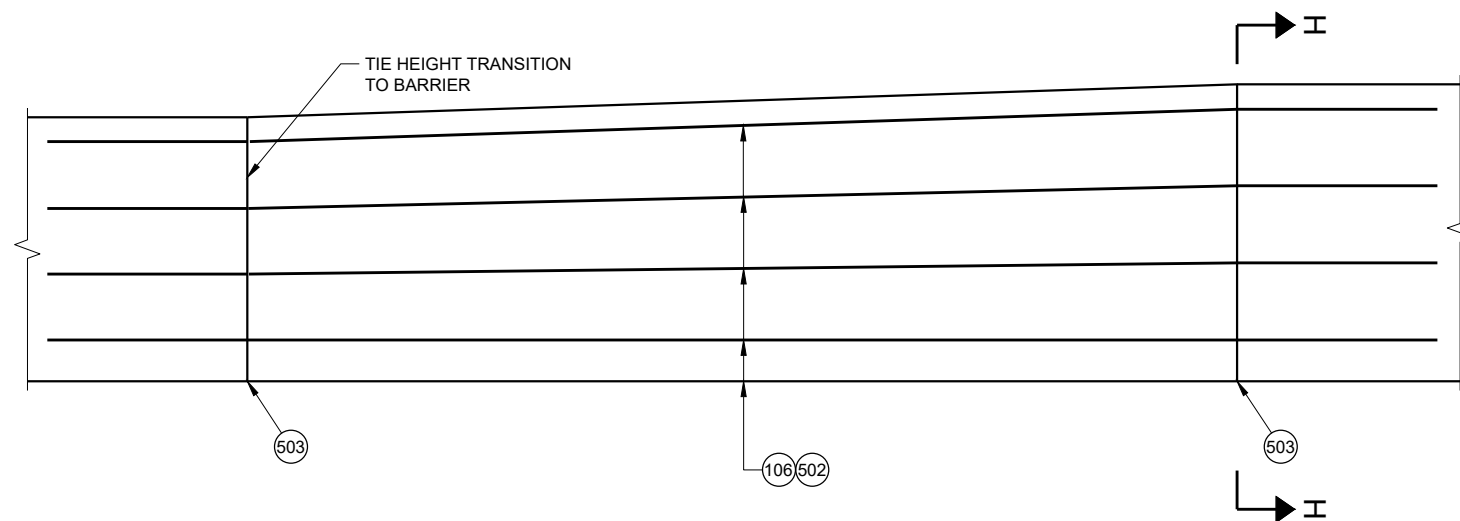
COLD JOINT DETAIL



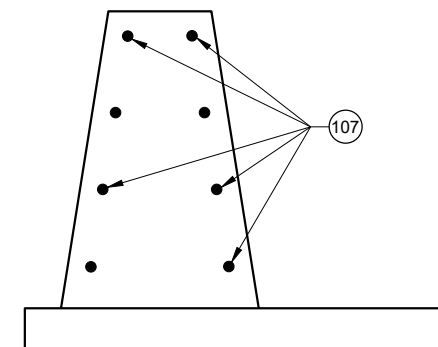
DOUBLE COLD JOINT HEIGHT TRANSITION

TABLE "D"

H ₁	H ₂	L	NUMBER OF NO. 5 BARS
32"	36"	10' - 0"	8
36"	42"	10' - 6"	10
42"	56"	24' - 6"	11



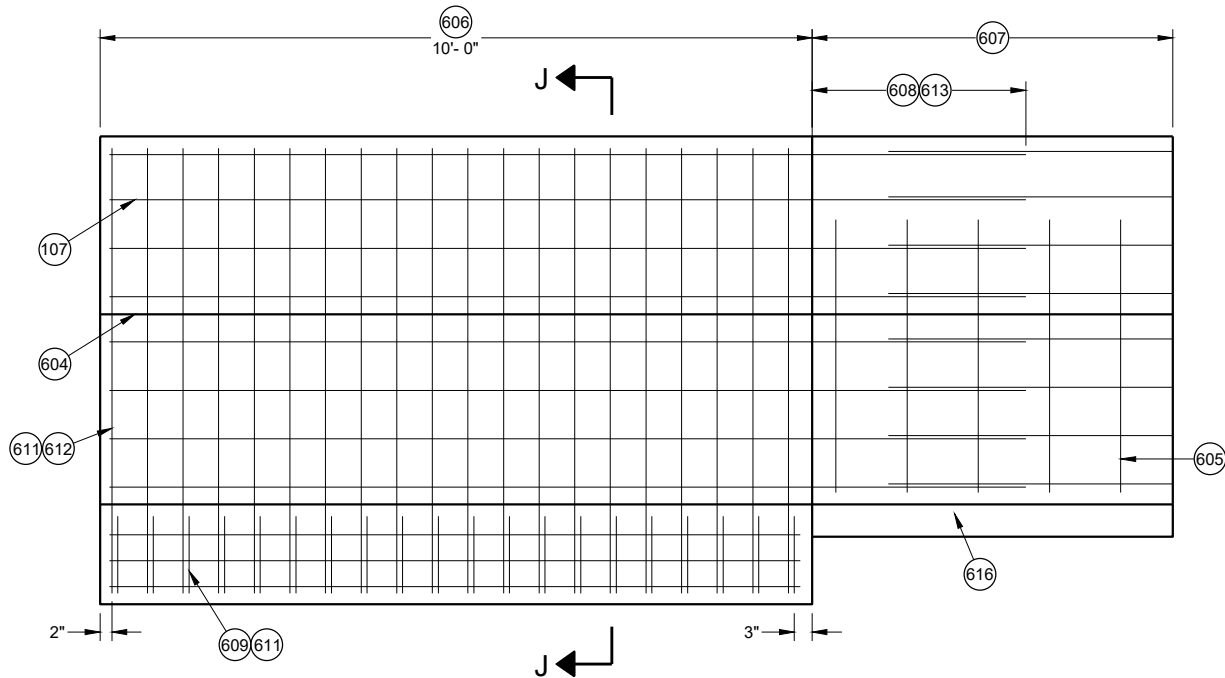
STEEL REINFORCEMENT DETAIL



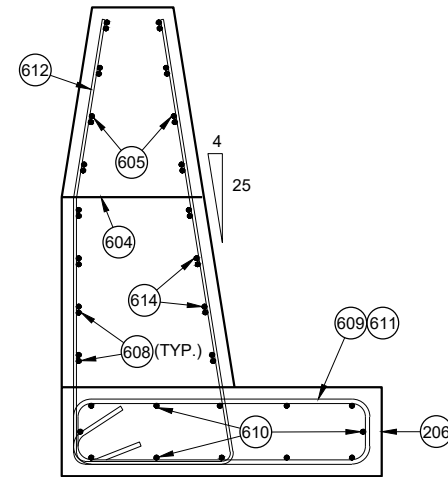
SECTION H - H

**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



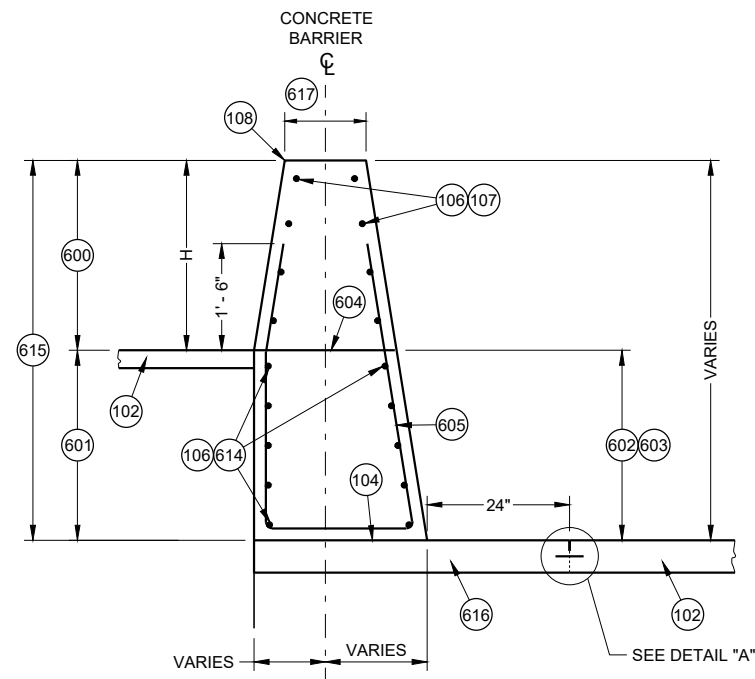
END ANCHOR MEDIAN BARRIER AND RETAINING WALL



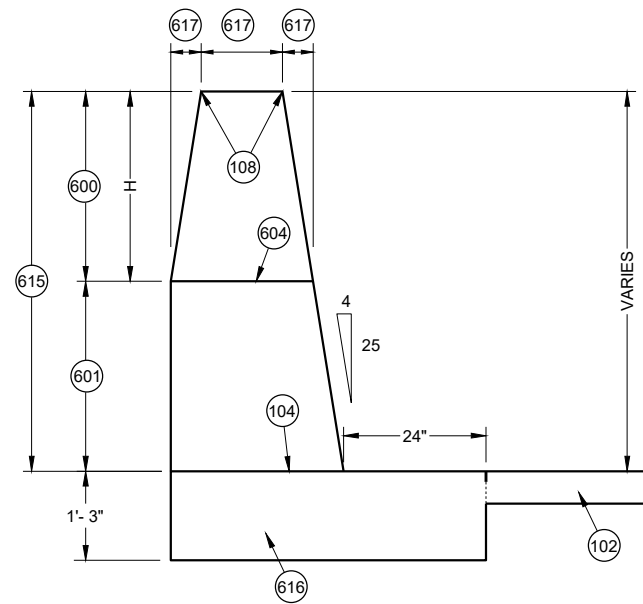
**SECTION J - J
END ANCHOR AND MEDIAN WALL END ANCHOR REINFORCEMENT DETAIL**

GENERAL NOTES

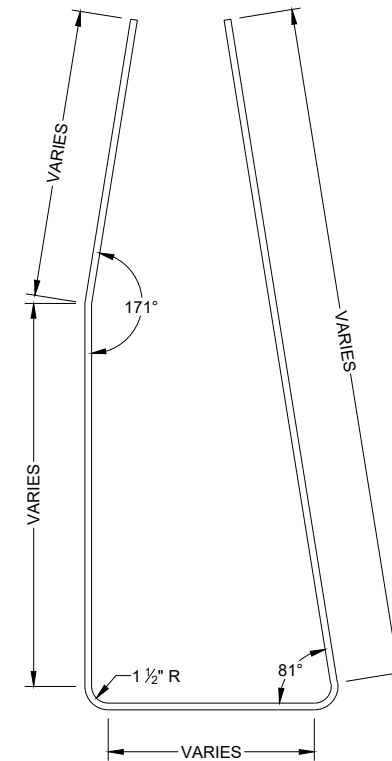
- 600 UPPER CONCRETE BARRIER
- 601 LOWER CONCRETE BARRIER
- 602 MAX HEIGHT 36".
- 603 VERTICAL OFFSET FROM TOP ROADWAY SURFACES
- 604 OPTIONAL CONSTRUCTION JOINT WHEN HEIGHT IS GREATER THAN 1 1/2".
- 605 NO. 4 BARRIER LOOP BARS ARE NOT REQUIRED FOR ROADWAY OFFSETS ARE LESS THAN 1'-0", EXCEPT WHEN USED IN ANCHORS. BARRIER LOOP BARS ARE SPACED 12" CENTER TO CENTER OUTSIDE OF MEDIAN BARRIER AND RETAINING WALL END ANCHOR.
- 606 SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL ANCHOR
- 607 SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL (SEE OTHER DETAILS)
- 608 NO. 5 REBAR 3' OF LAP OF LONGITUDINAL STEEL.
- 609 NO. 6 REBAR END ANCHOR FOOTING LOOP
- 610 TWELVE (12) NO. 5 BARS EVENLY SPACED.
- 611 SS ANCHOR END LOOP AND END ANCHOR FOOTING LOOP ARE SPACED 6" CENTER TO CENTER.
- 612 END ANCHOR LOOP BAR IS NO. 5 REBAR.
- 613 SEE COLD JOINT DETAIL.
- 614 SEE TABLE "E" FOR REQUIRED REBAR
- 615 TOTAL BARRIER HEIGHT (SEE PLAN FOR HEIGHT)
- 616 FOR SOME LOCATIONS, NO PAN IS NEEDED. SEE OTHER DETAILS.
- 617 SEE TABLE "A" FOR DIMENSIONS



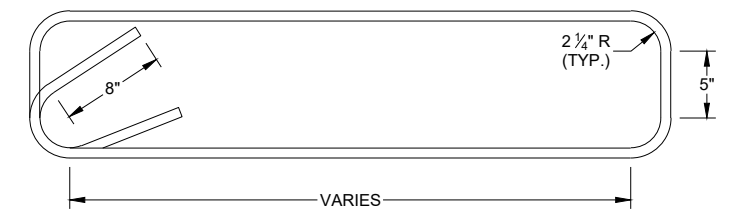
SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL (TYPE S32A, TYPE S36A, TYPE S42A, TYPE S56A) (BETWEEN ADJACENT ROADWAYS)



**SECTION J - J
MEDIAN BARRIER AND RETAINING WALL END ANCHOR DIMENSIONS**



LOOP BAR BENDING DETAIL



END ANCHOR STIRRUP BAR BENDING DETAIL

TABLE "E"

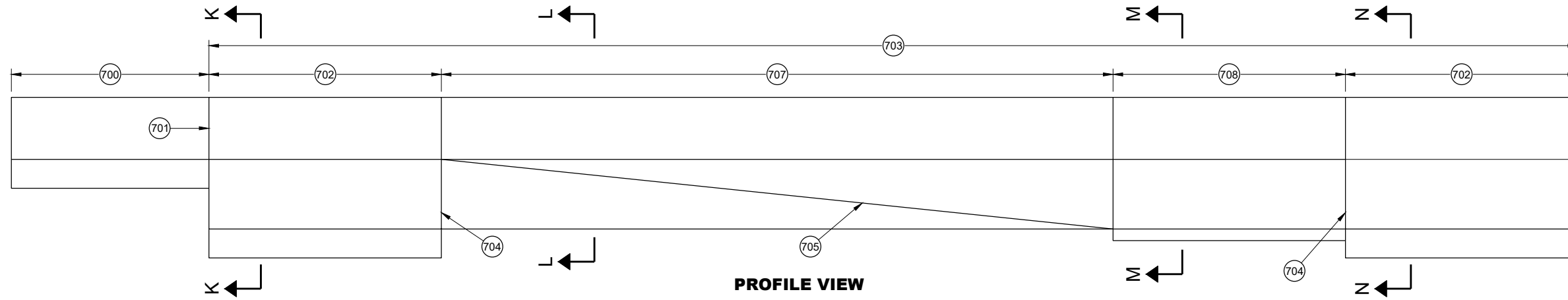
HEIGHT BETWEEN ROADWAY	QUANTITY OF NO. 6 BARS
0 TO 3"	0
GREATER THAN 3" TO 8"	2
GREATER THAN 8" TO 12"	4
GREATER THAN 12" TO 36"	8

CONCRETE BARRIER SINGLE SLOPE (CBSS)

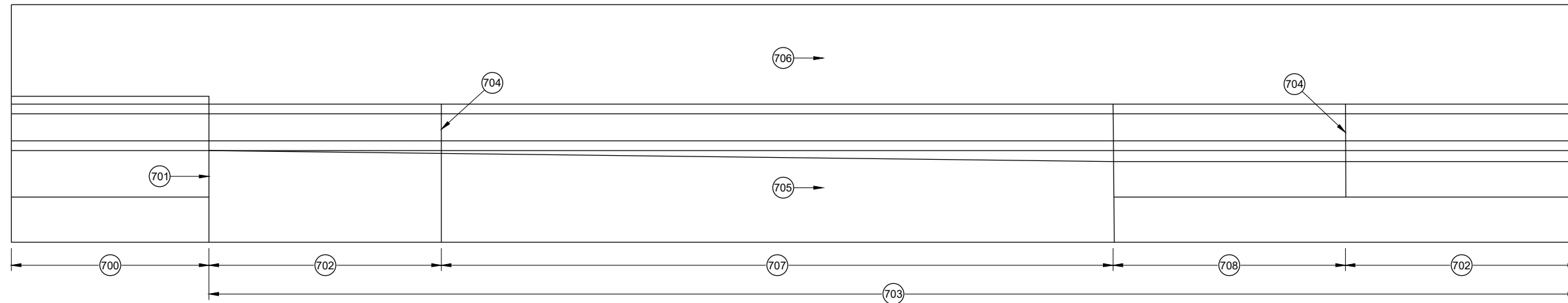
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

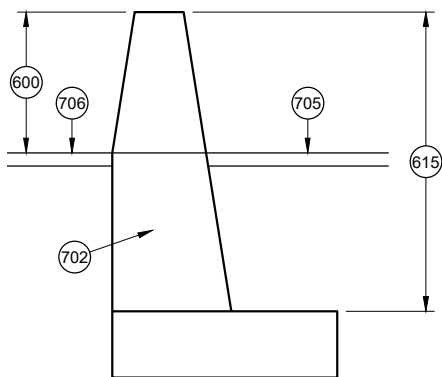
- (700) END ANCHOR SINGLE SLOPE CONCRETE BARRIER
- (701) SEE EXPANSION JOINT DETAIL
- (702) END ANCHOR SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL
- (703) PAY LIMIT FOR SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL
- (704) SEE COLD JOINT DETAIL
- (705) LOW SIDE SHOULDER
- (706) HIGH SIDE SHOULDER
- (707) SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL INSTALLED WITHOUT A PAN.
- (708) SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL INSTALLED WITH A PAN.
- (709) EXCAVATION AND COMPACTION



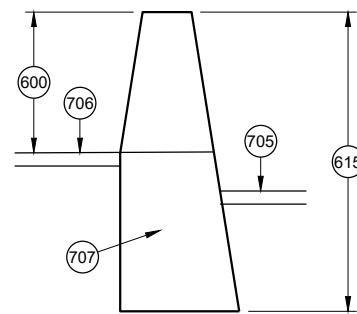
**PROFILE VIEW
SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL**



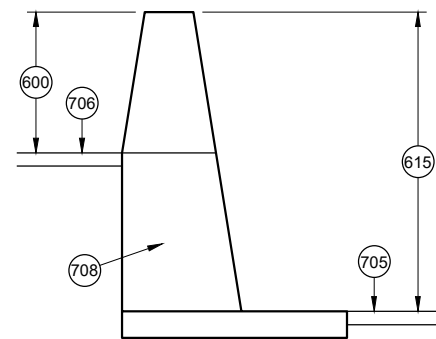
**PLAN VIEW
SINGLE SLOPE CONCRETE BARRIER AND RETAINING WALL**



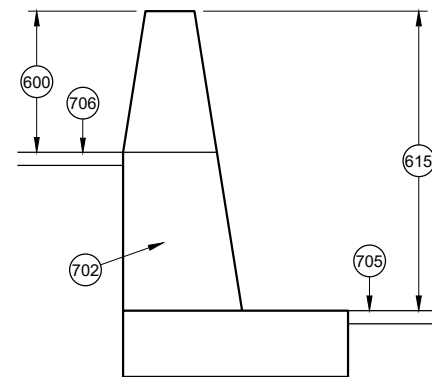
SECTION K - K



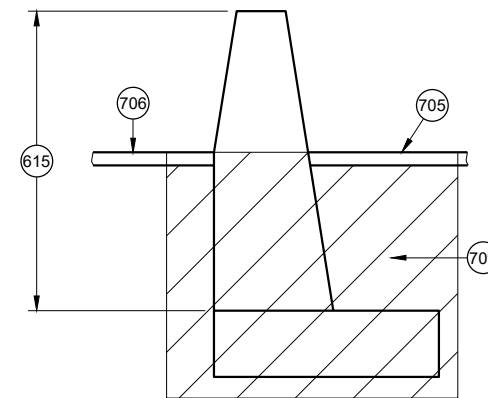
SECTION L - L



SECTION M - M

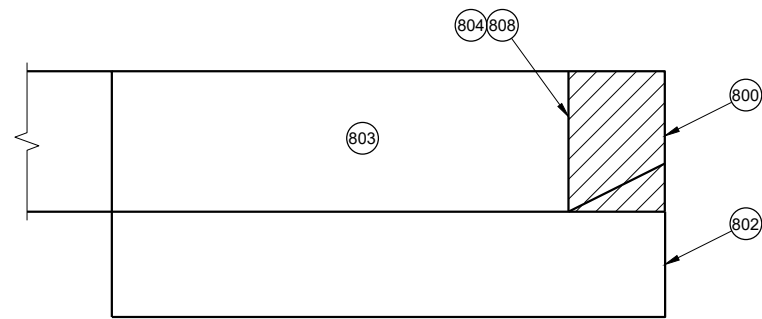


SECTION N - N

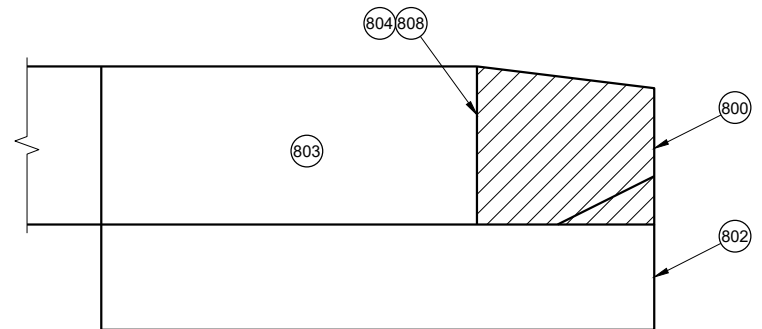


**CONCRETE BARRIER
SINGLE SLOPE (CBSS)**

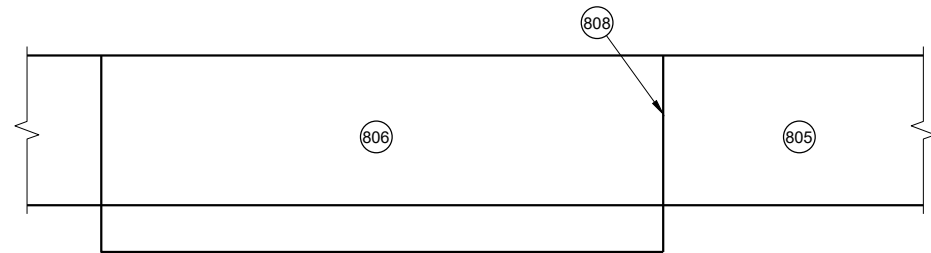
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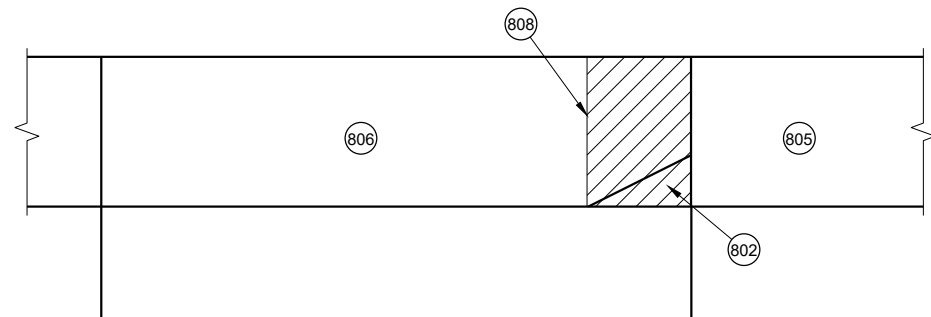
REMOVAL AREA OF 32" CONCRETE THRIE BEAM ANCHORAGE



REMOVAL AREA OF CONCRETE THRIE BEAM ANCHORAGE WITH HEIGHT GREATER THAN 32"



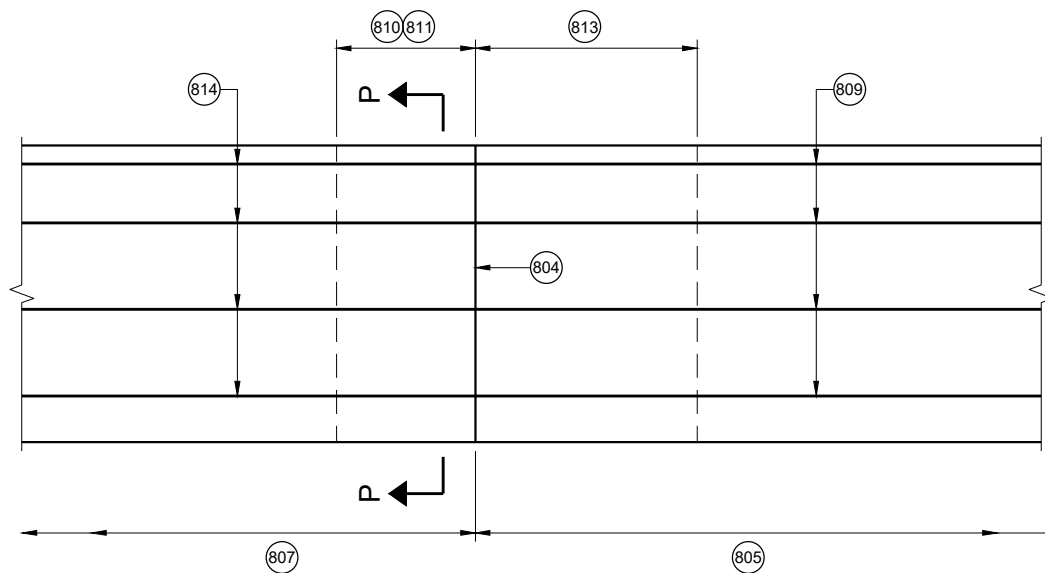
CONCRETE BARRIER EXTENSION NEAR END ANCHORAGE



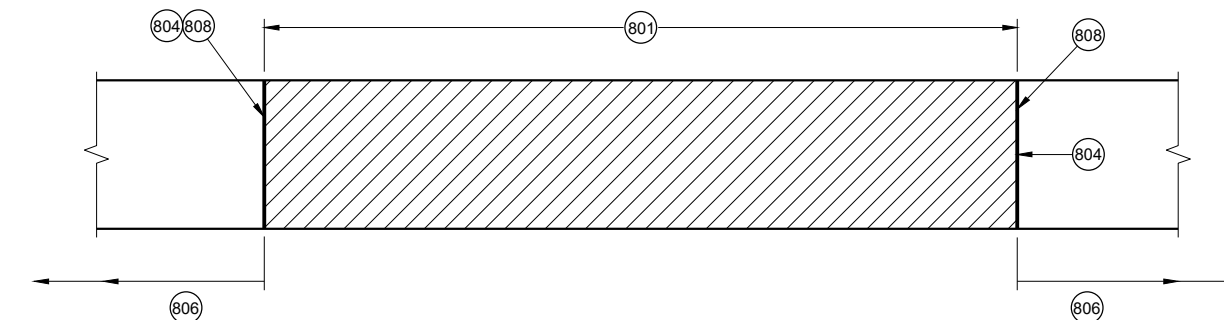
CONCRETE BARRIER EXTENSION NEAR THRIE BEAM TERMINAL

GENERAL NOTES

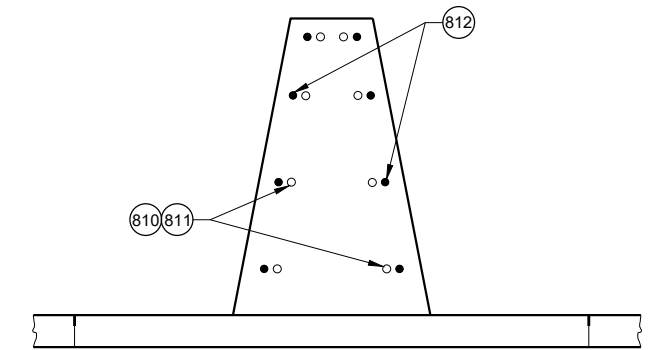
- END ANCHORAGE MAY OR MAY NOT BE PRESENT ON EXISTING BARRIER.
- REMOVE THRIE BEAM ANCHORAGE AS SHOWN.
- 800 AREA OF BARRIER REMOVAL AN NEW CONCRETE AND STEEL IS INSTALLED.
- 801 MINIMUM LENGTH OF REMOVAL IS 15'
- 802 FOOTING BELOW GROUND MAY REMAIN IN PLACE.
- 803 CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.
- 804 SAW CUT
- 805 NEW SINGLE SLOPE CONCRETE BARRIER.
- 806 CONCRETE BARRIE SINGLE SLOPE TO REMAIN.
- 807 SINGLE SLOPE CONCRETE BARRIER OR CONCRETE BARRIER SINGLE SLOPE THRIE BEAM ANCHOR TO REMAIN.
- 808 SEE CONNECTION DETAIL.
- 809 NO. 5 CONTINUOUS BAR.
- 810 3' MIN. DRILL HOLES. USES NO. 5 ADHESIVE ANCHORS.
- 811 THE NUMBER OF DRILL HOLES IS EQUAL TO THE NUMBER OF HORIZONTAL REBAR IN BARRIER. DRILL HOLES ARE TO BE A MINIMUM OF 4" FROM EDGE OF CONCRETE.
- 812 EXISTING REBAR IN EXISTING BARRIER OR END ANCHOR.
- 813 3' BAR OVERLAP
- 814 EXISTING REINFORCEMENT



CONNECTION DETAIL SINGLE SLOPE CONCRETE BARRIER TO NEW SINGLE SLOPE CONCRETE BARRIER



BARRIER REMOVAL AND REPLACEMENT



SECTION P - P

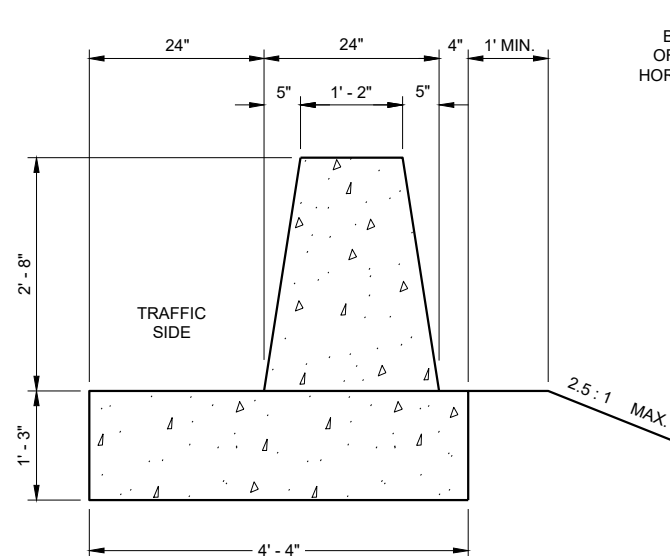
RETROFIT OR REPAIR SINGLE SLOPE CONCRETE BARRIER

CONCRETE BARRIER SINGLE SLOPE (CBSS)

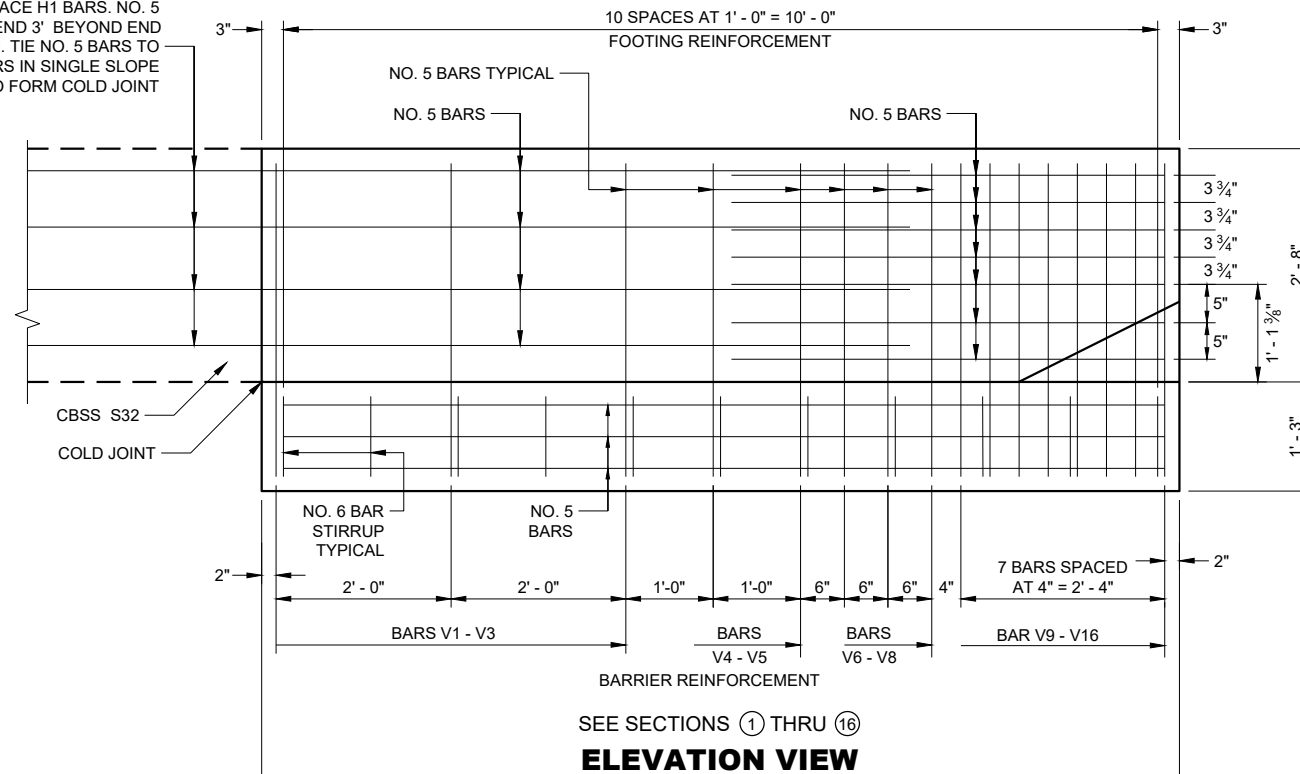
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

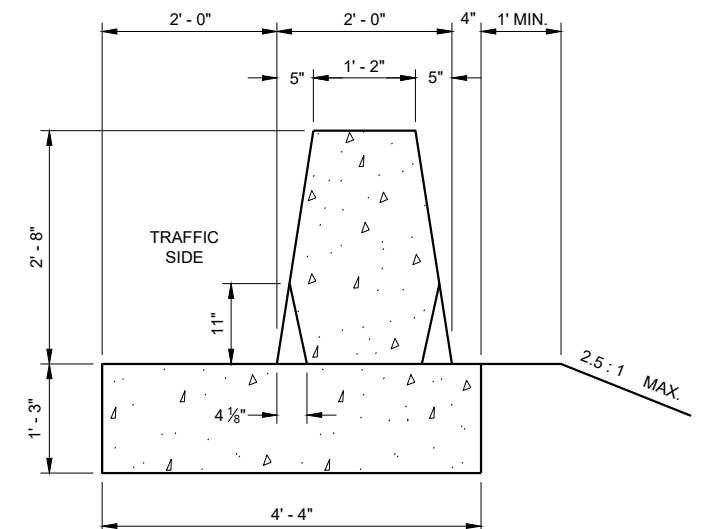
FHWA



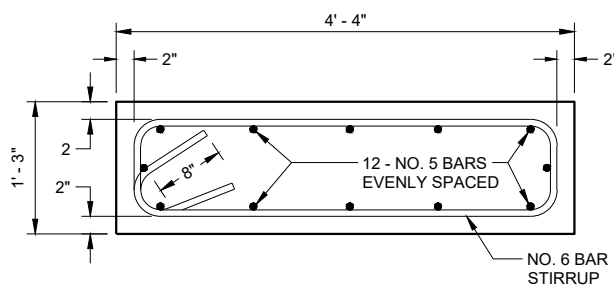
EVENLY SPACE H1 BARS. NO. 5 BARS TO EXTEND 3' BEYOND END OF TRANSITION. TIE NO. 5 BARS TO HORIZONTAL BARS IN SINGLE SLOPE BARRIER TO FORM COLD JOINT



SEE SECTIONS ① THRU ⑯
ELEVATION VIEW



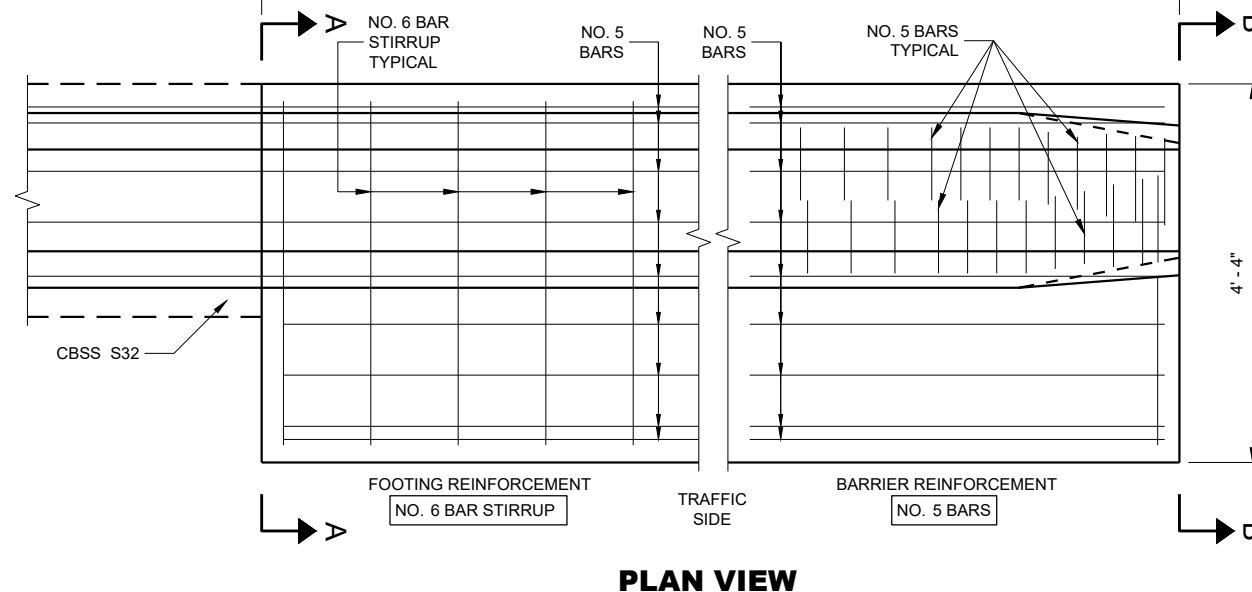
SECTION B - B



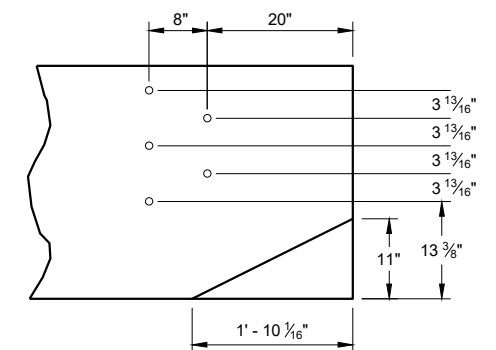
TYPICAL FOOTING

GENERAL NOTES

- CONSTRUCT PER STANDARD SPECIFICATION 603.
- SPLICES OF LONGITUDINAL BARS TO BE 2' LONG AND FIRMLY TIED AND FASTENED TOGETHER UNLESS OTHERWISE NOTED.
- 4000 PSI CONCRETE AIR ENTRAINMENT PER STANDARD SPECIFICATIONS SECTION 501.
- USE 3/4" BEVEL OR 1" RADIUS ON ALL EXPOSED SHARP EDGES UNLESS OTHERWISE NOTED.
- THRIE BEAM ANCHOR INCIDENTAL TO CONCRETE BARRIER ITEM.
- INSTALL SCHEDULE 40 PVC PIPE 1" DIAMETER AT LOCATIONS INDICATED.
- EXTEND PVC PIPE COMPLETELY THROUGH BARRIER.
- CUT ENDS OF PVC PIPE FLUSH WITH FINISHED FACE OF BARRIER.
- THE NUMBER IN BAR DESIGNATION REPRESENTS THE BARS LOCATION.
- 2" CLEAR COVER TYPICAL.



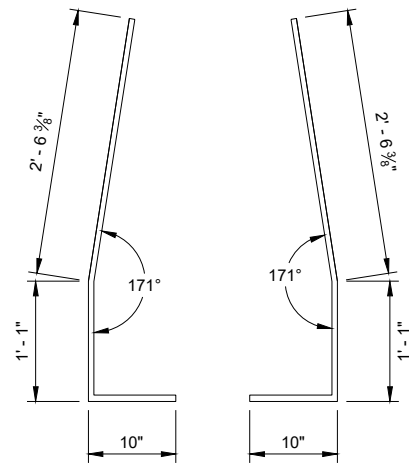
PLAN VIEW



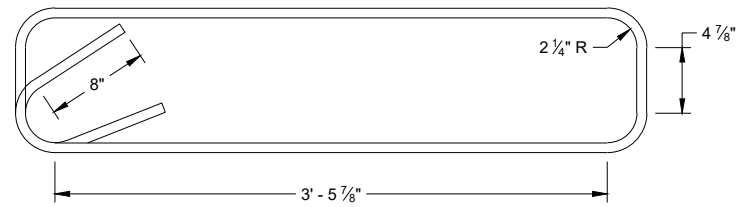
PVC PIPE LOCATIONS

**CONCRETE BARRIER
SINGLE SLOPE 32"
THRIE BEAM ANCHOR**

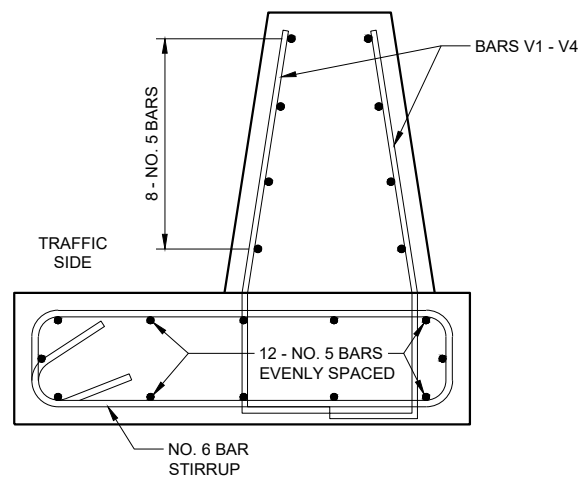
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



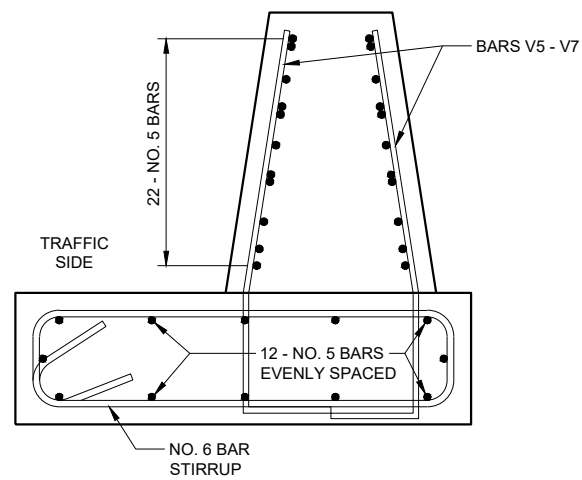
**BAR BENDING DETAIL
BARS 1 - 11**



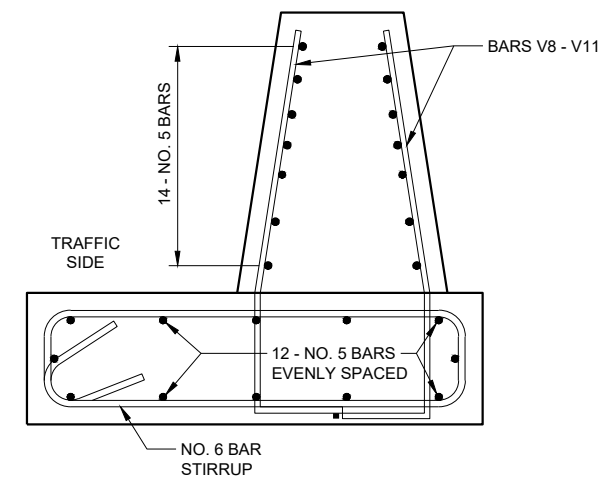
**STIRRUP BAR
BENDING DETAIL**



**BAR DETAIL
SECTIONS 1 - 4**



**BAR DETAIL
SECTIONS 5 - 7**



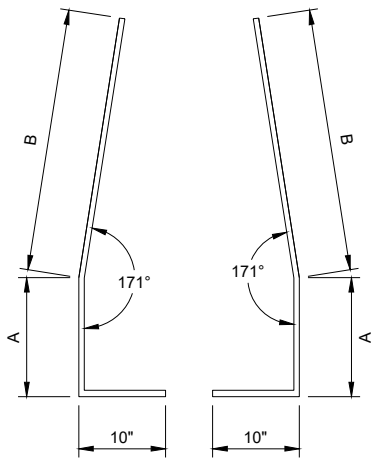
**BAR DETAIL
SECTIONS 8 - 11**

**CONCRETE BARRIER
SINGLE SLOPE 32"
THREE BEAM ANCHOR**

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**BAR CHART
BAR POSITIONS
12 - 13**

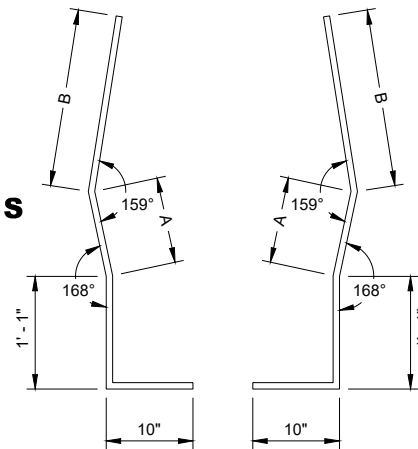
BAR	A	B
V12	1' - 3"	2' - 6"
V13	1' - 8"	2' - 1 1/2"



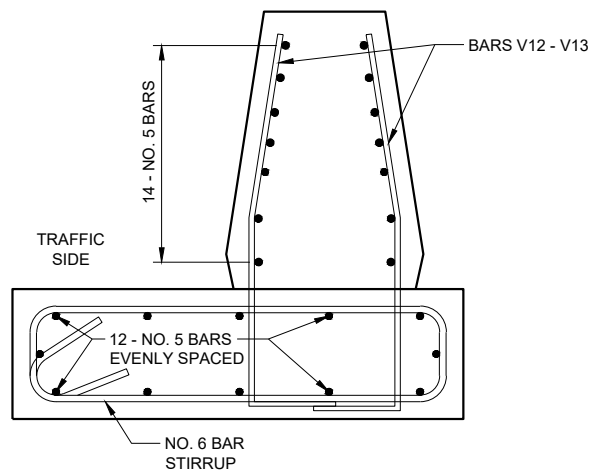
**BAR BENDING DETAIL
SECTIONS V12- V13**

**BAR CHART
BAR POSITIONS
14 - 16**

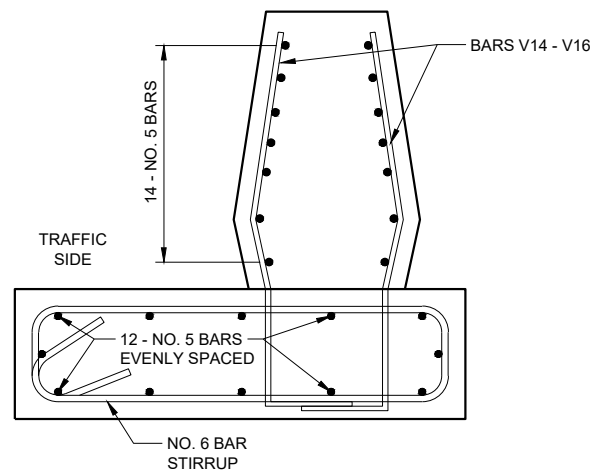
BAR	A	B
V14	6"	2' - 1"
V15	8"	1' - 11"
V16	10"	1' - 8 1/2"



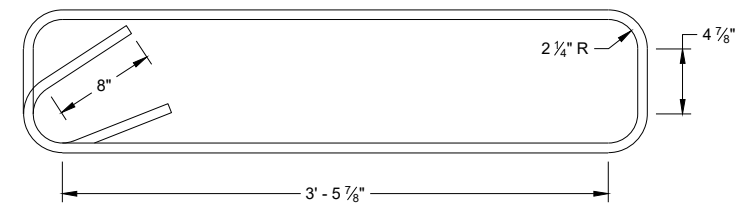
**BAR BENDING DETAIL
SECTIONS V14 - V16**



**BAR DETAIL
SECTIONS 12 - 13**



**BAR DETAIL
SECTIONS 14 - 16**



**STIRRUP BAR
BENDING DETAIL**

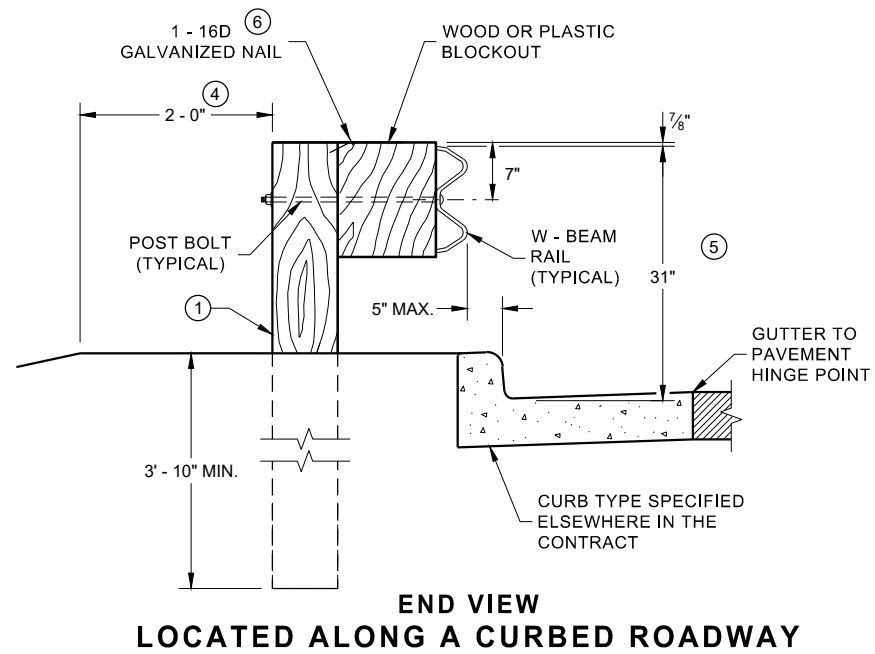
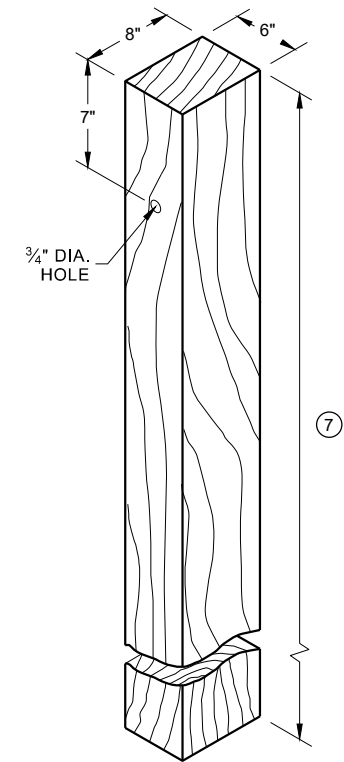
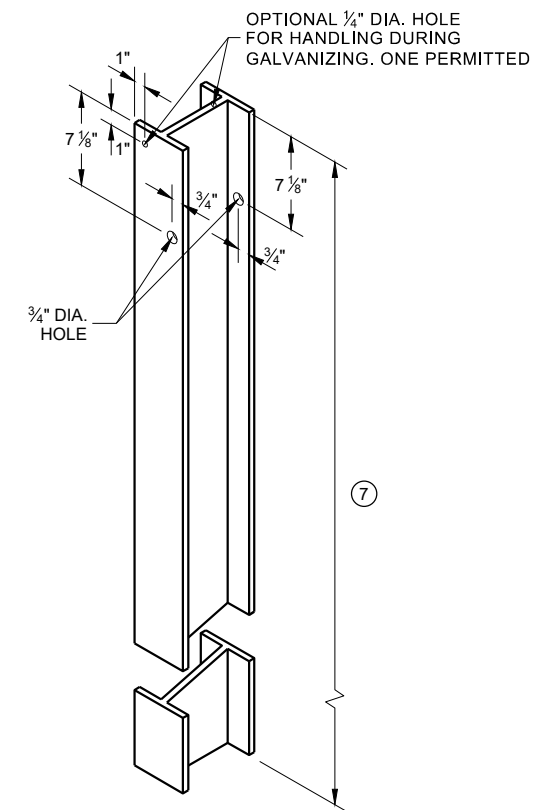
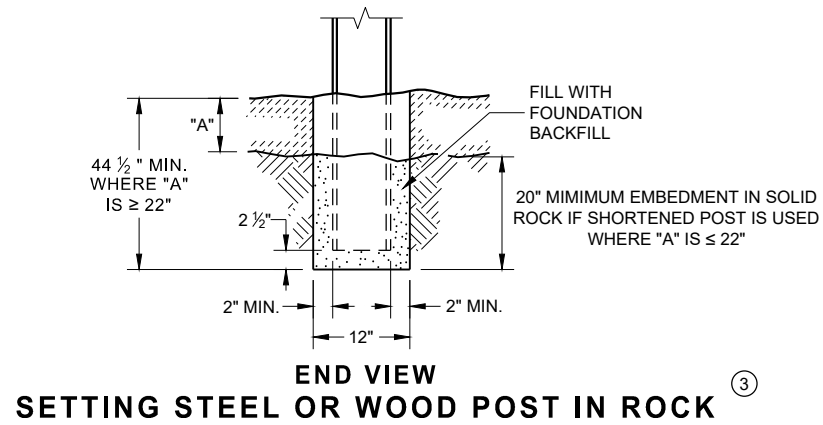
**CONCRETE BARRIER
SINGLE SLOPE 32"
THRIE BEAM ANCHOR**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

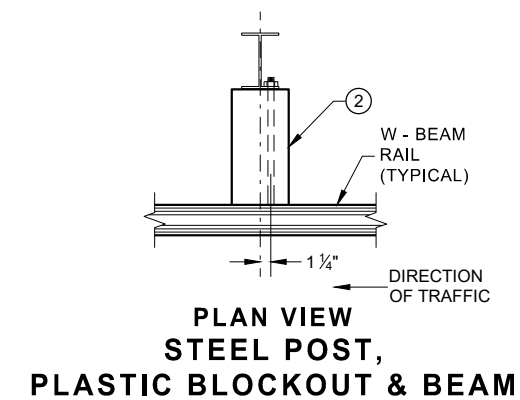
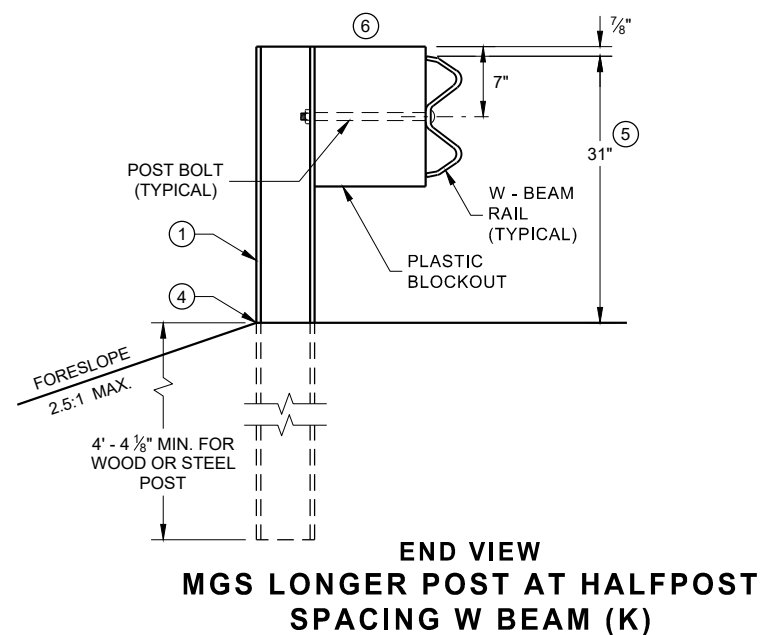
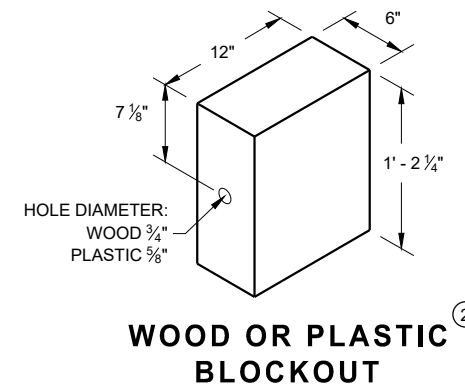
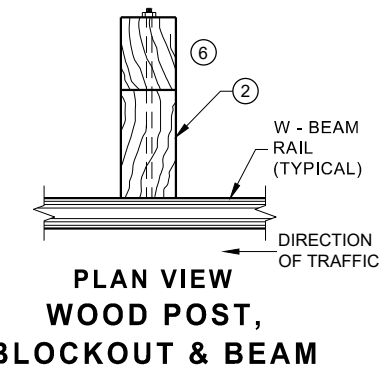
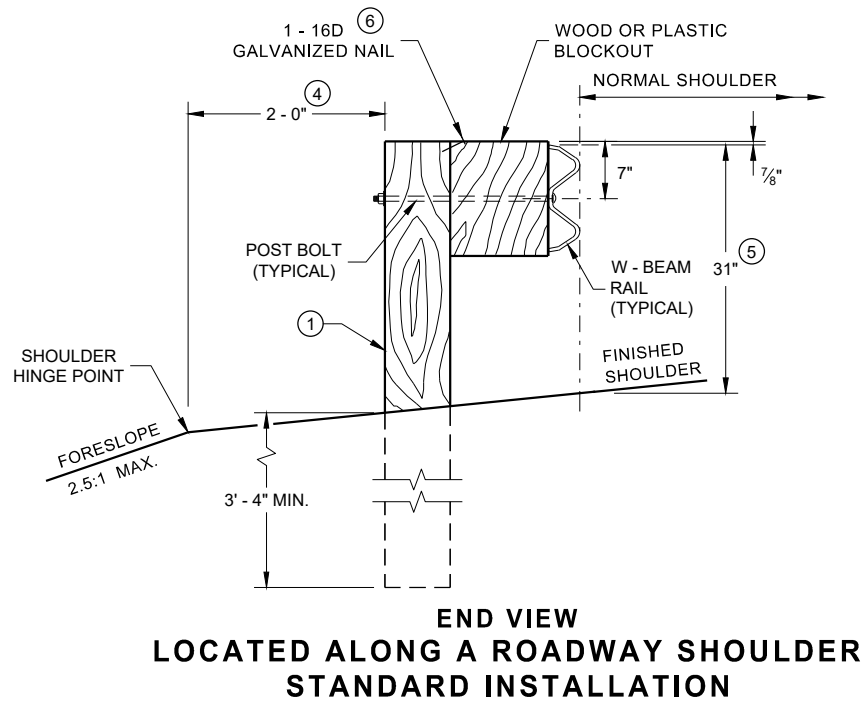
FHWA

- 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 ±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".



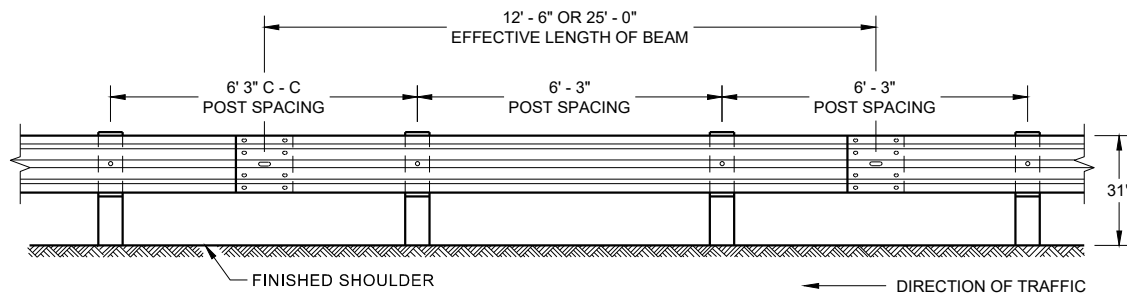
**STEEL POST & HOLE
PUNCHING DETAIL** ①
(W 6 X 9) ①

**WOOD POST
(6" X 8") NOMINAL** ①

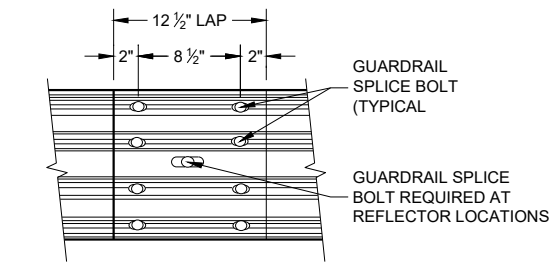


**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
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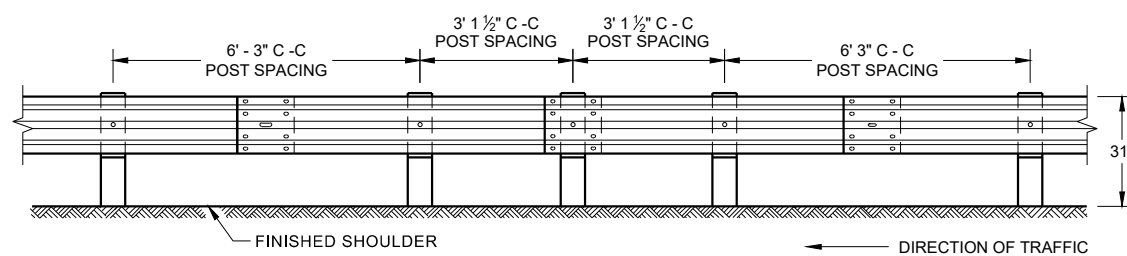
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



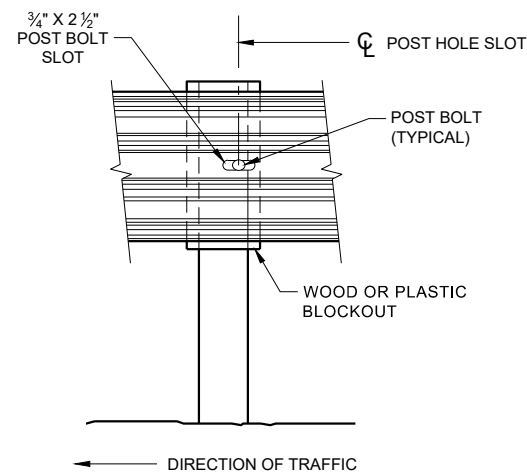
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

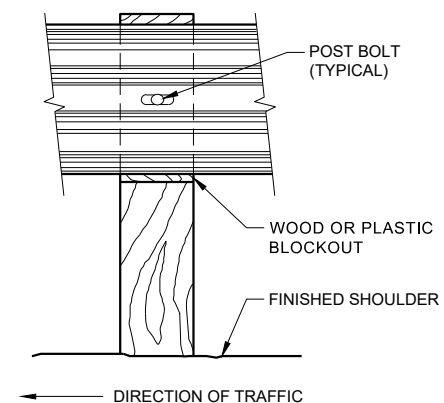
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER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



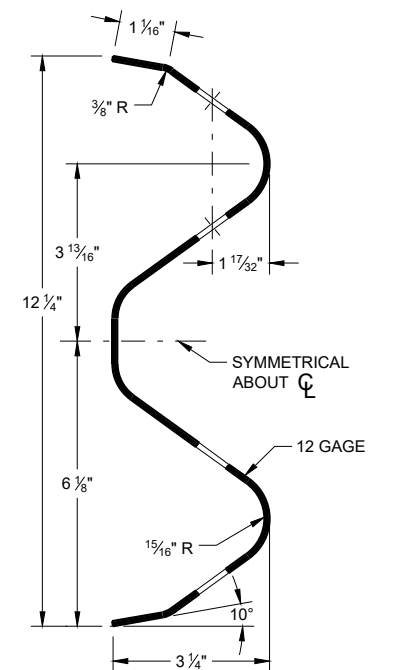
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



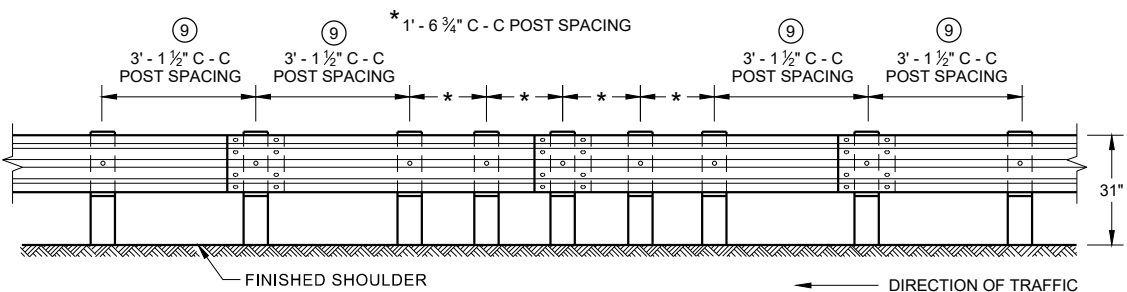
FRONT VIEW AT STEEL POST



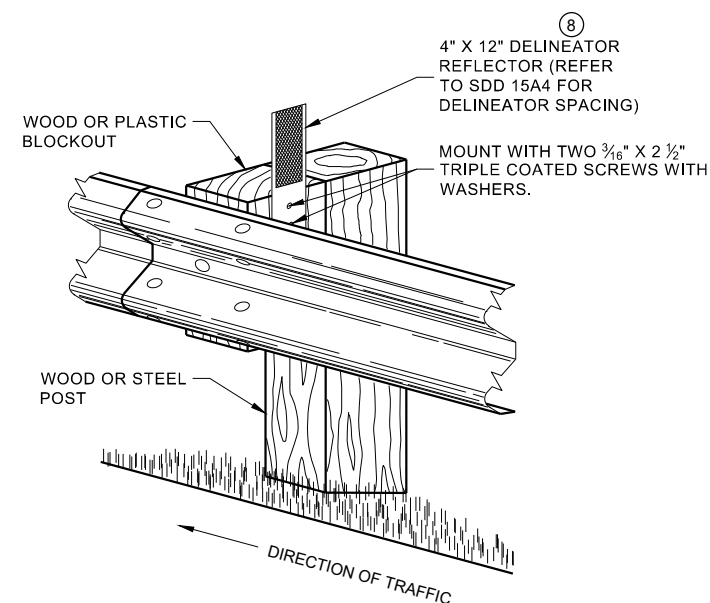
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



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



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

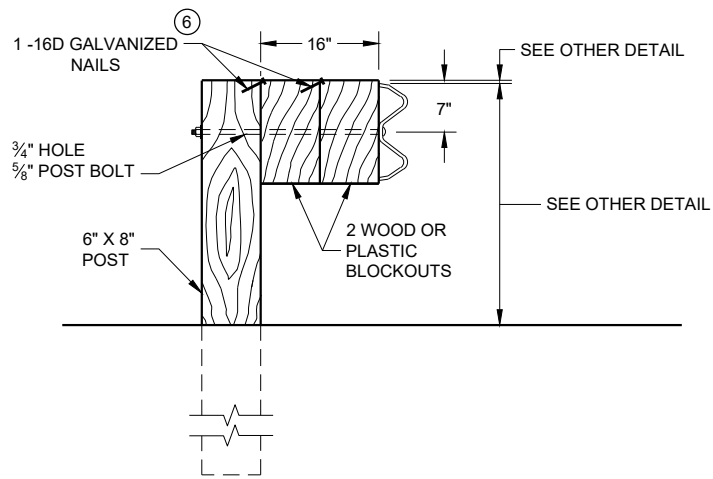
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

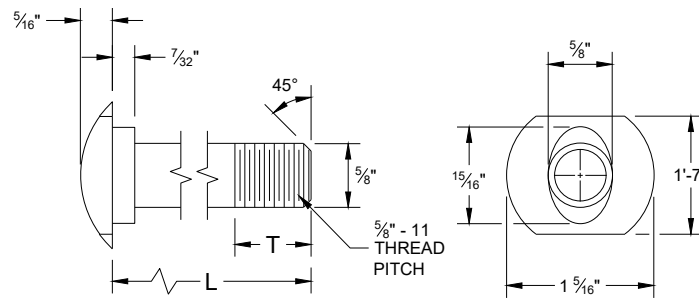


DETAIL FOR 16" BLOCKOUT DEPTH

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

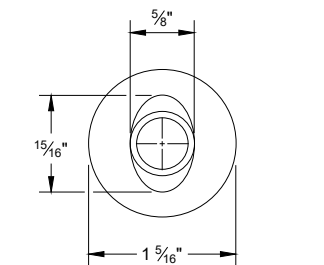
NOTE:

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

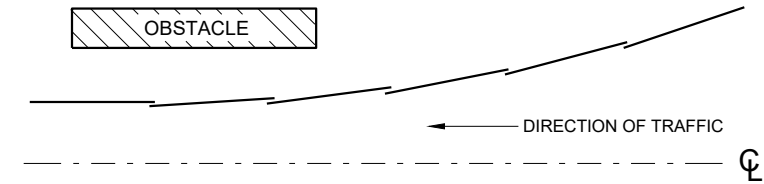


POST BOLT TABLE

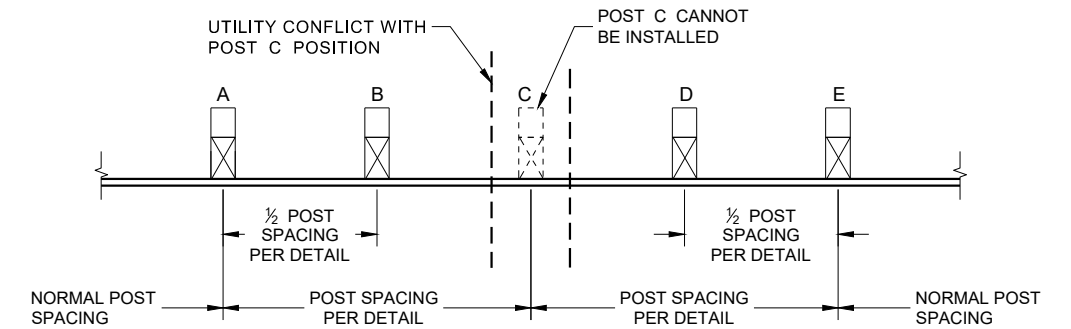
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



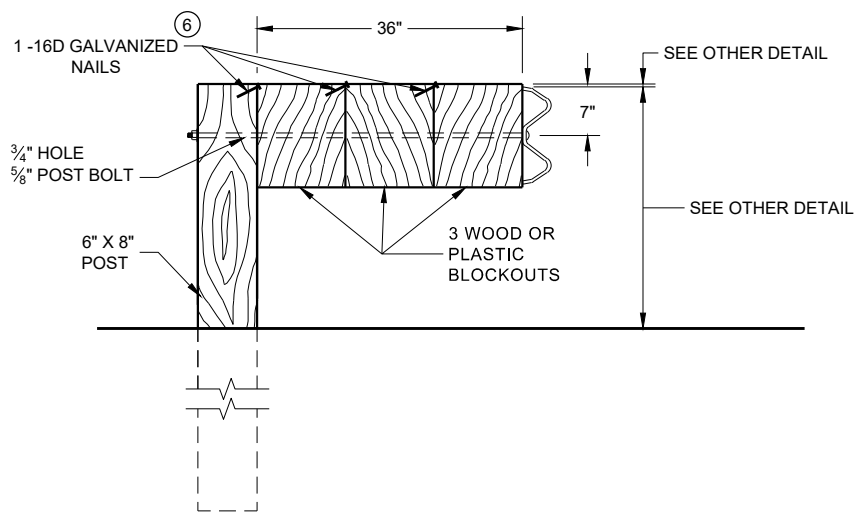
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

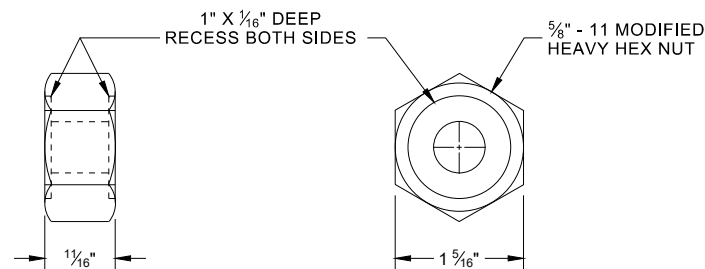


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

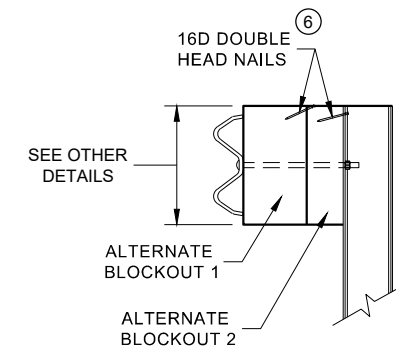


DETAIL FOR 36" BLOCKOUT DEPTH

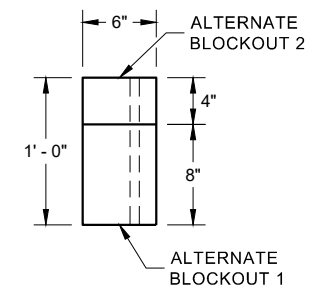
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT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



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



SIDE VIEW



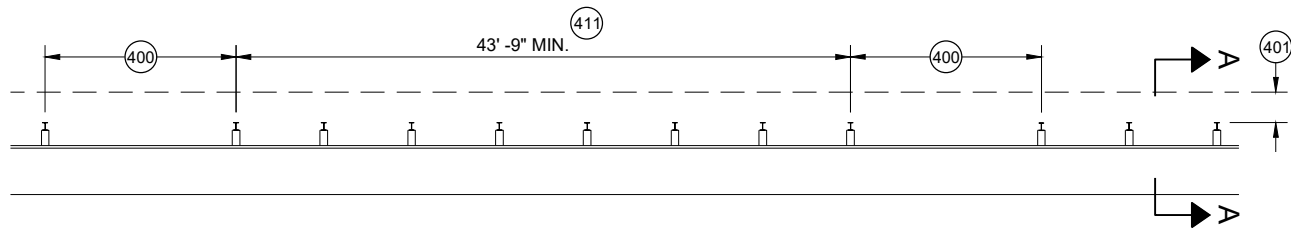
PLAN VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

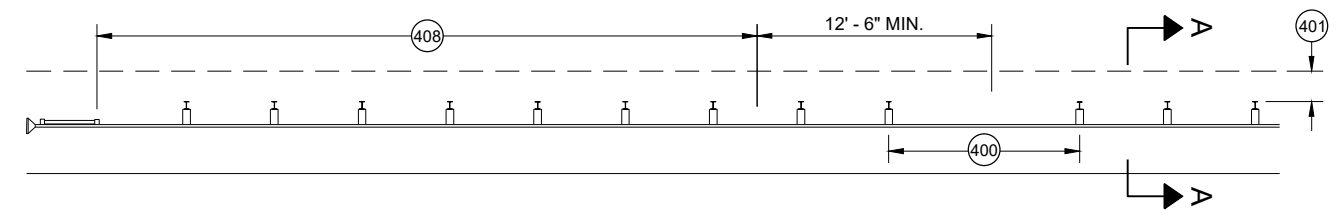
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

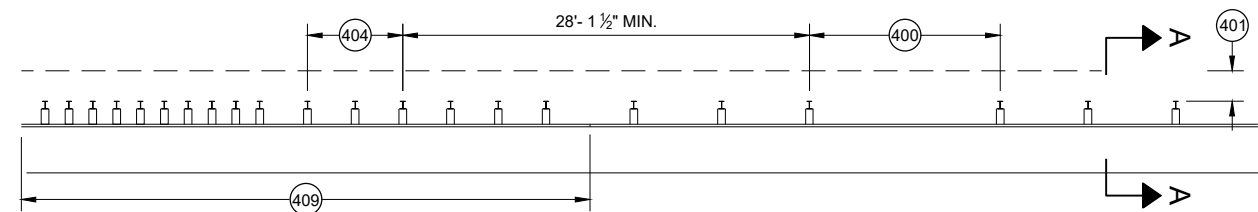
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



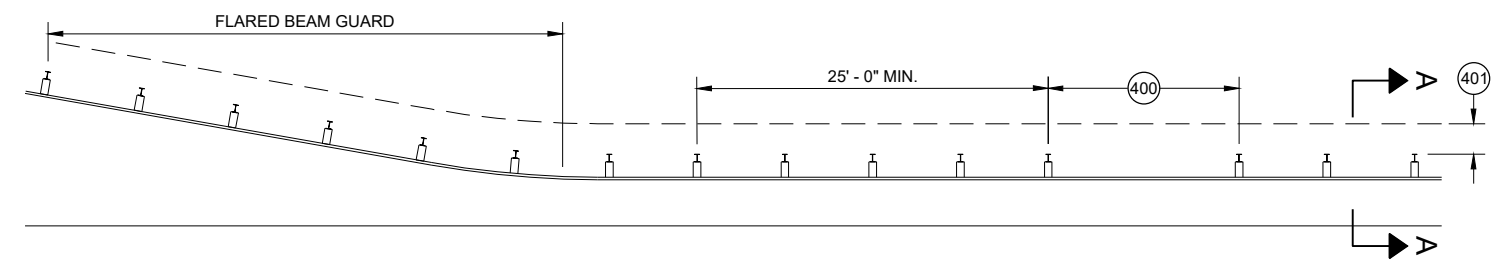
MISSING POST IN MGS GUARDRAIL



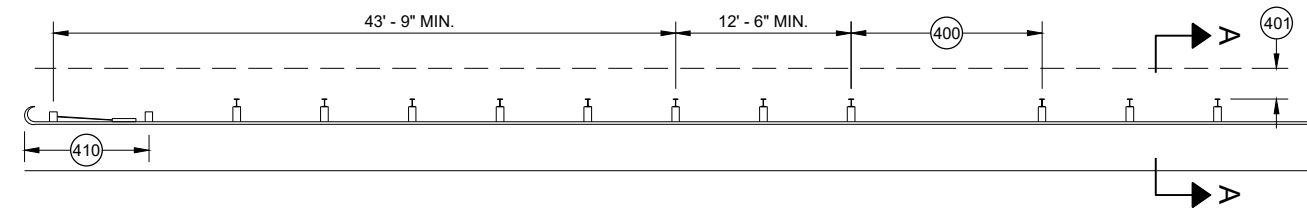
MISSING POST IN MGS GUARDRAIL NEAR EAT



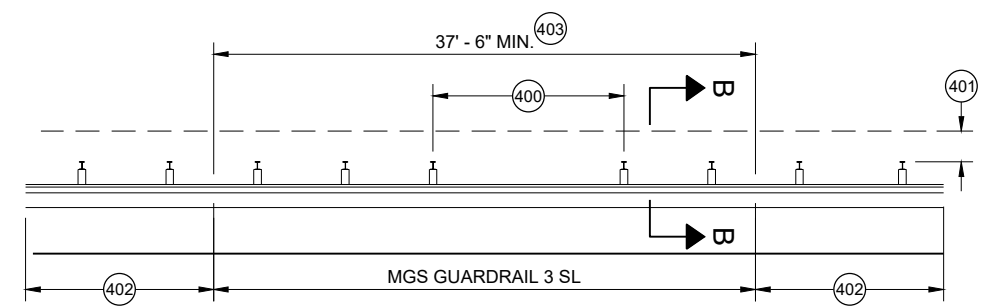
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

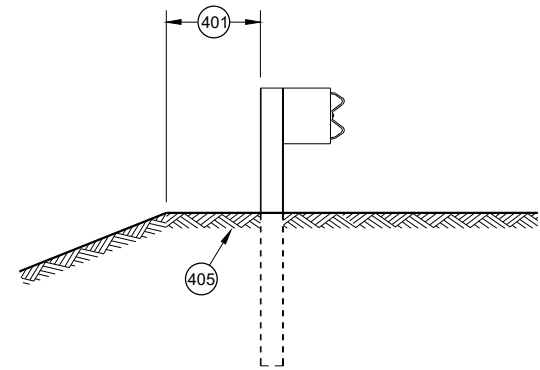


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

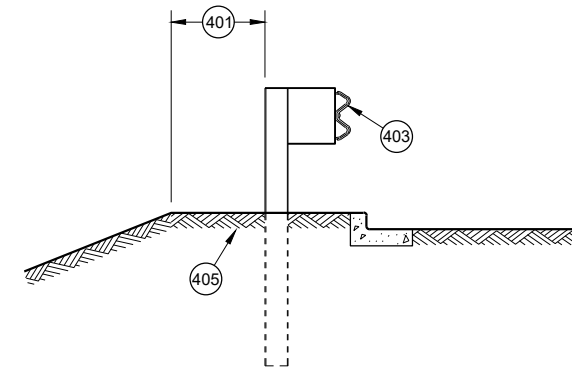


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

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

GENERAL NOTES

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE 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.

SEE SDD 14B42 FOR MORE INFORMATION.

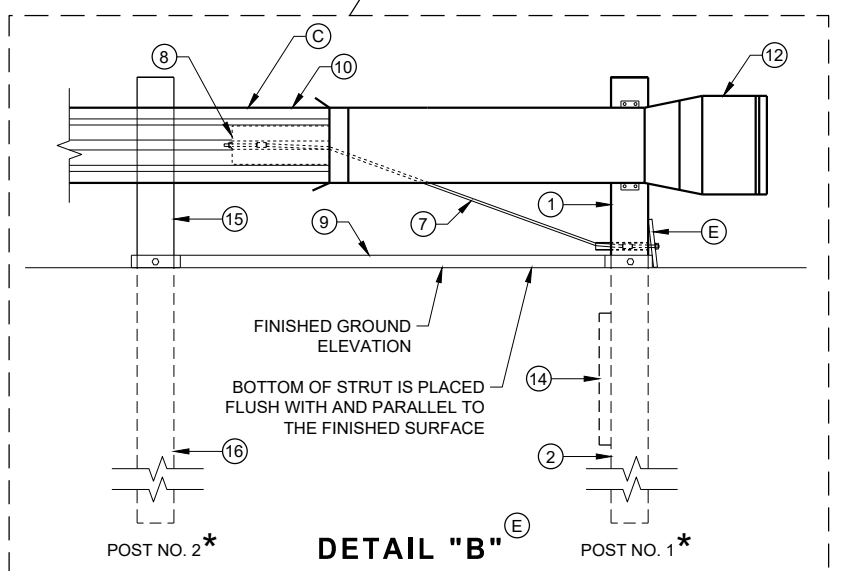
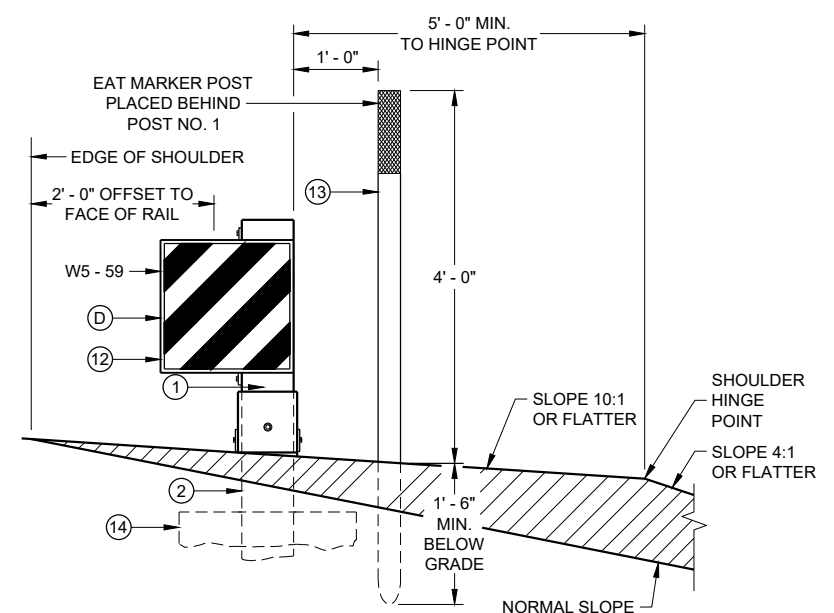
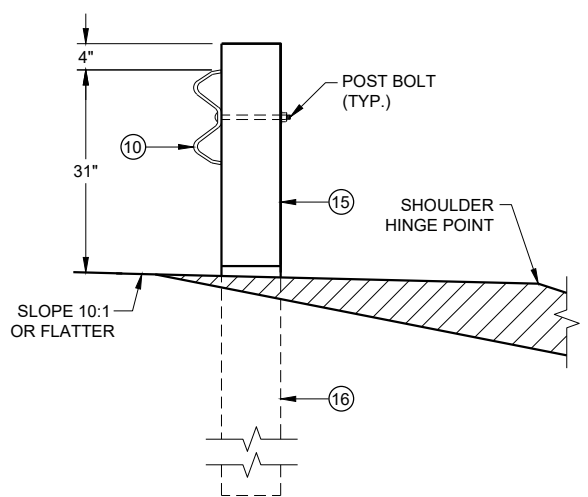
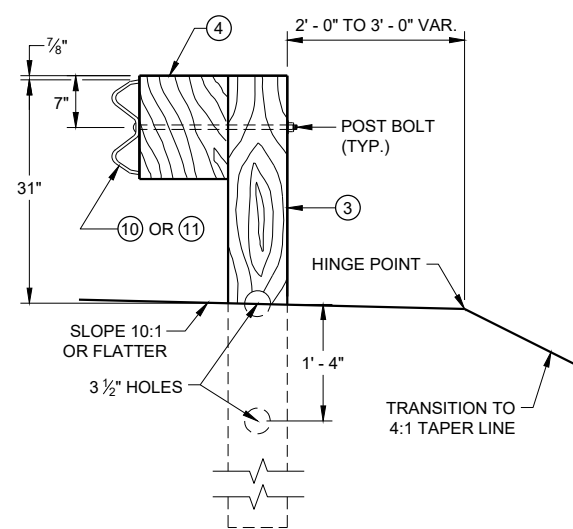
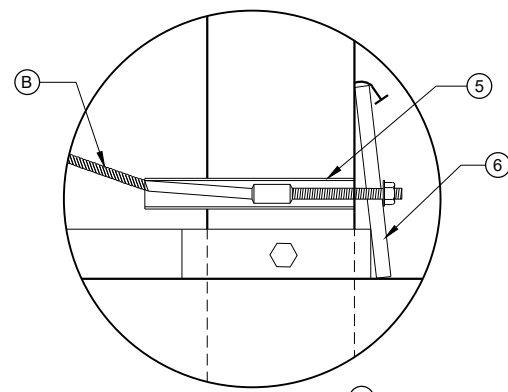
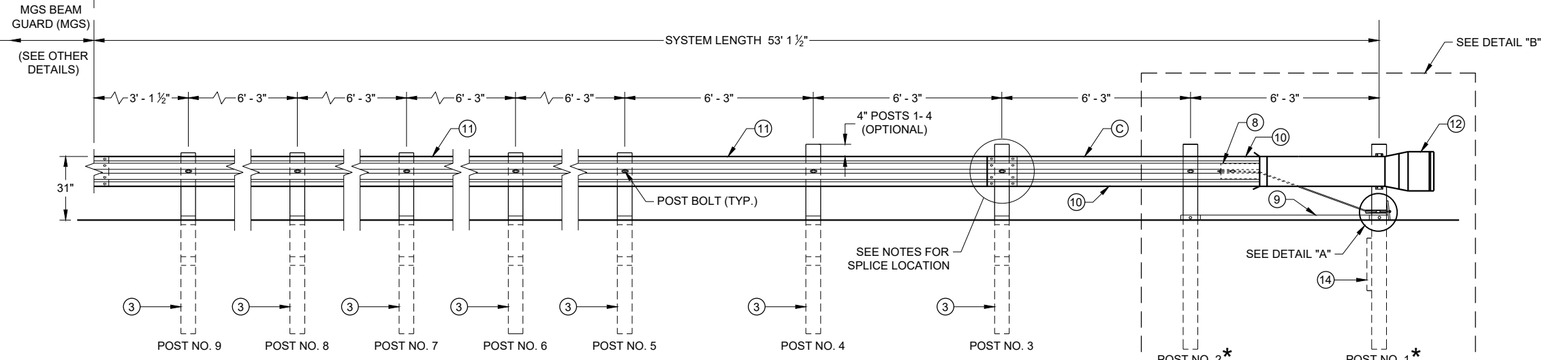
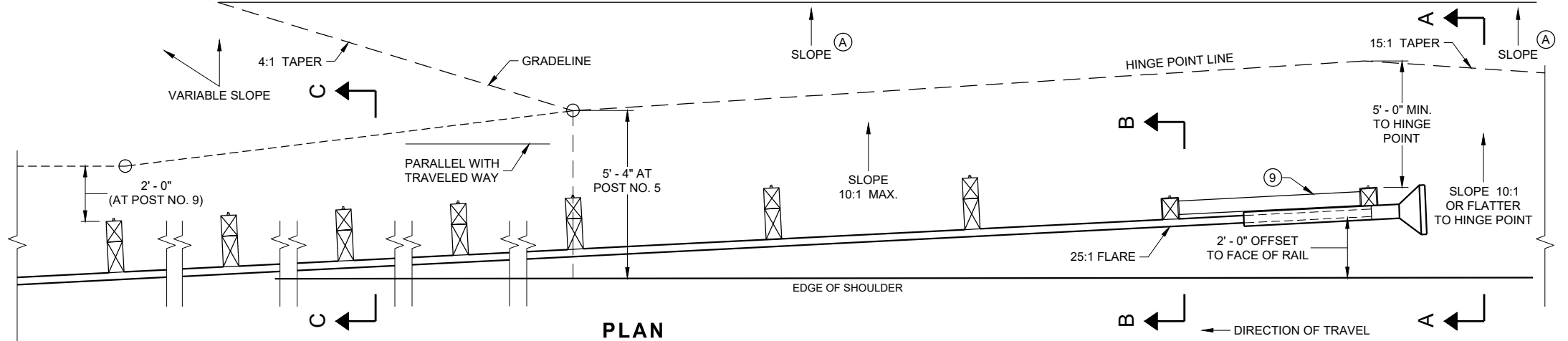
* DO NOT ATTACH BLOCKOUTS TO POST 1 AND 2.

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

SEE MANUFACTURER'S DRAWING FOR SPLICE LOCATION, HARDWARE DIMENSIONS AND INSTALLATION INSTRUCTIONS.

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.

CLEAR ZONE LIMITS, EITHER AS SHOWN ELSEWHERE IN THE PLANS OR, IF NOT SHOWN ELSEWHERE IN THE PLANS, 15 FEET BEYOND THE HINGE POINT LINE



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

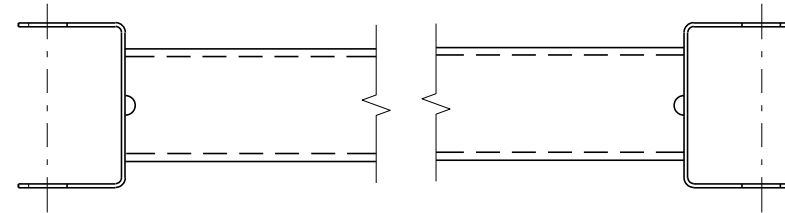
6

SDD 14B44 - 04a

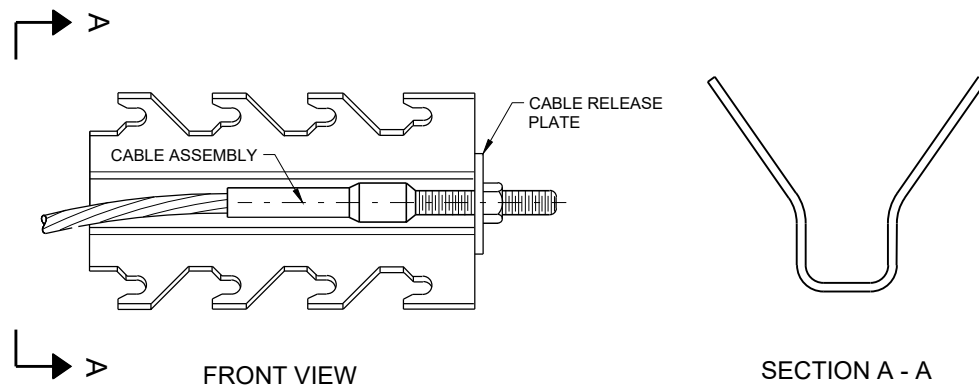
SDD 14B44 - 04a

BILL OF MATERIALS

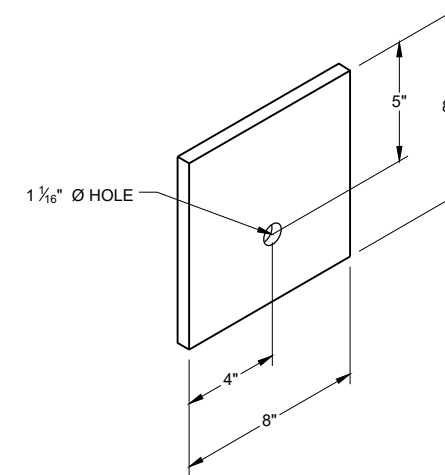
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
①	UPPER POST NO. 1 6" X 6" TUBE
②	LOWER POST NO. 1
③	WOOD CRT
④	WOOD BLOCKOUT
⑤	PIPE SLEEVE
⑥	BEARING PLATE
⑦	BCT CABLE ASSEMBLY
⑧	ANCHOR CABLE BOX
⑨	GROUND STRUT
⑩	PERFORATED W-BEAM RAIL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



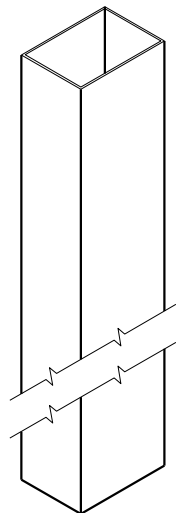
GENERIC GROUND STRUT ⑨ ⑤



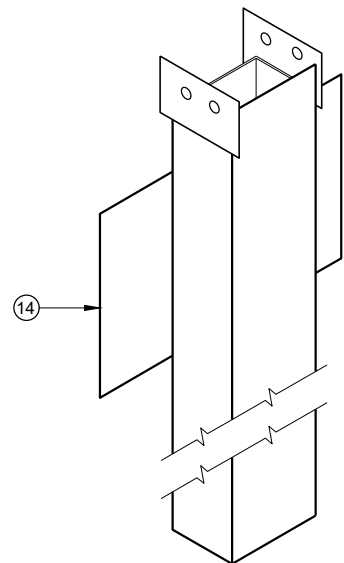
GENERIC ANCHOR CABLE BOX ⑨ ⑤



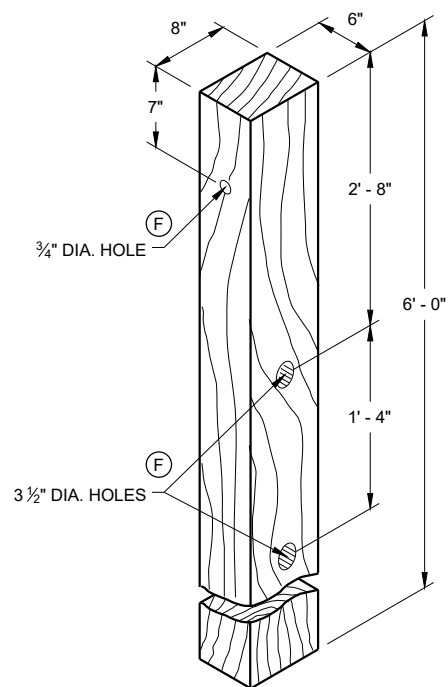
BEARING PLATE ⑥ ⑤



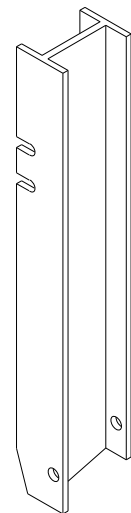
UPPER POST NO. 1 ⁽¹⁾ (E)



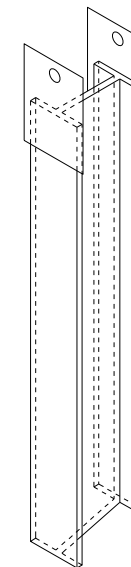
LOWER POST NO. 1 ⁽²⁾ (E)



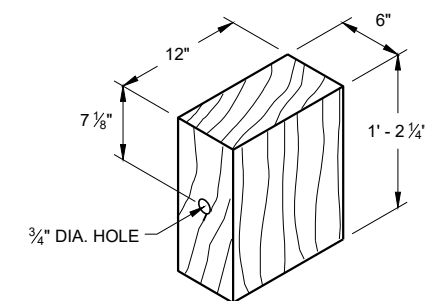
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



UPPER POST NO. 2 ⁽¹⁵⁾ (E)

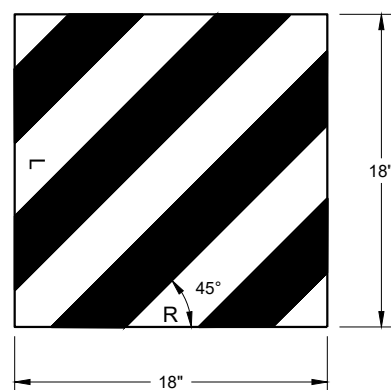


LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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

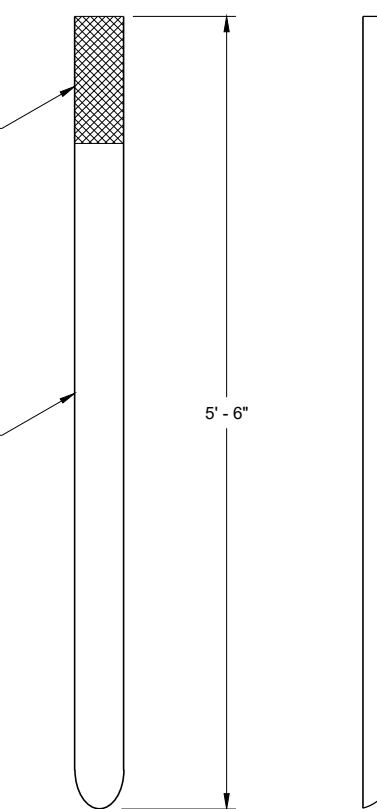
6



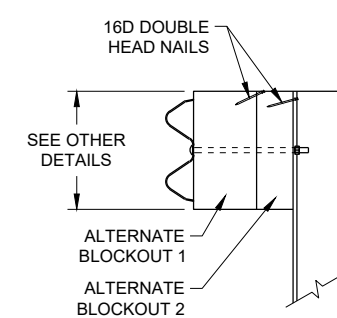
W5 - 59
REFLECTIVE SHEETING DETAIL ^(E)

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

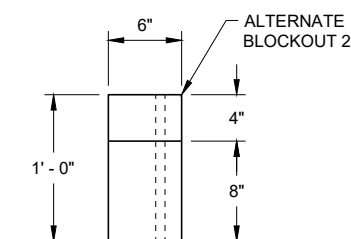
E.A.T. MARKER
POST (YELLOW)



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



SIDE VIEW



TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

6

SDD 14B44 - 04c

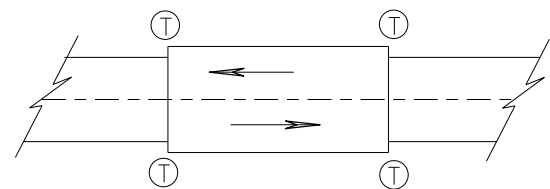
SDD 14B44 - 04c

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

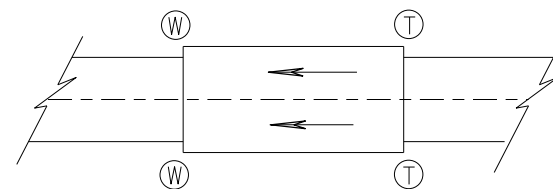
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

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

GENERAL NOTES

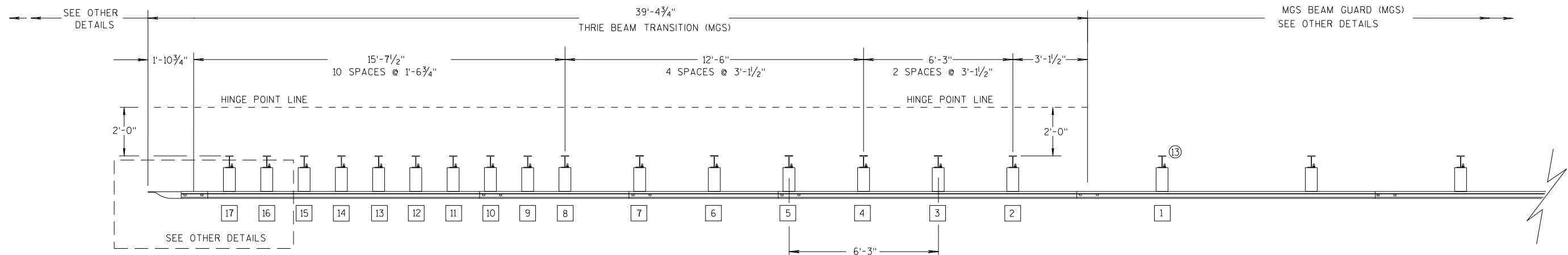
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

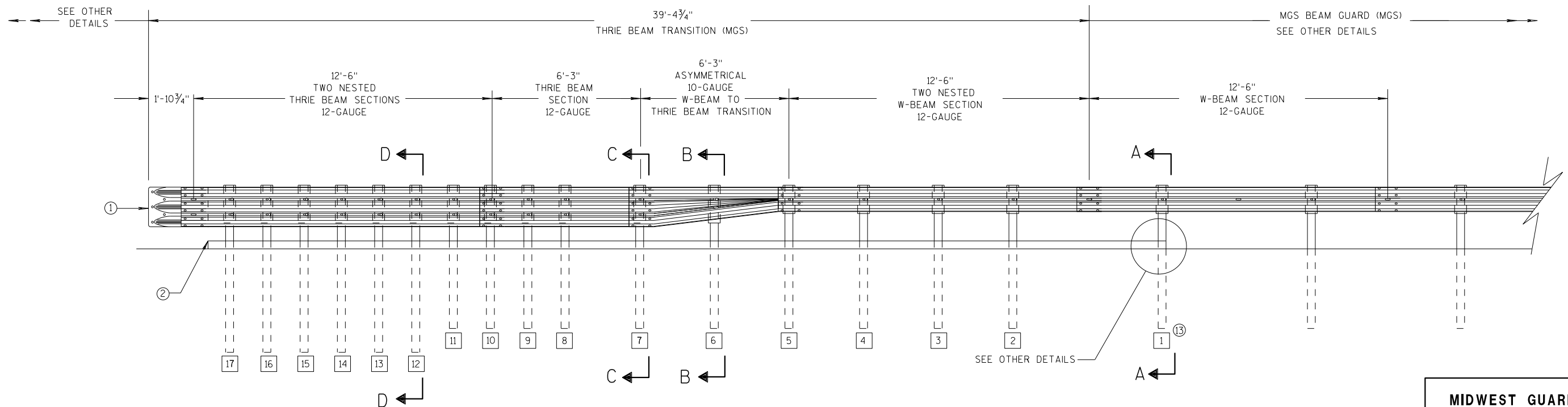
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

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



PLAN VIEW



ELEVATION VIEW

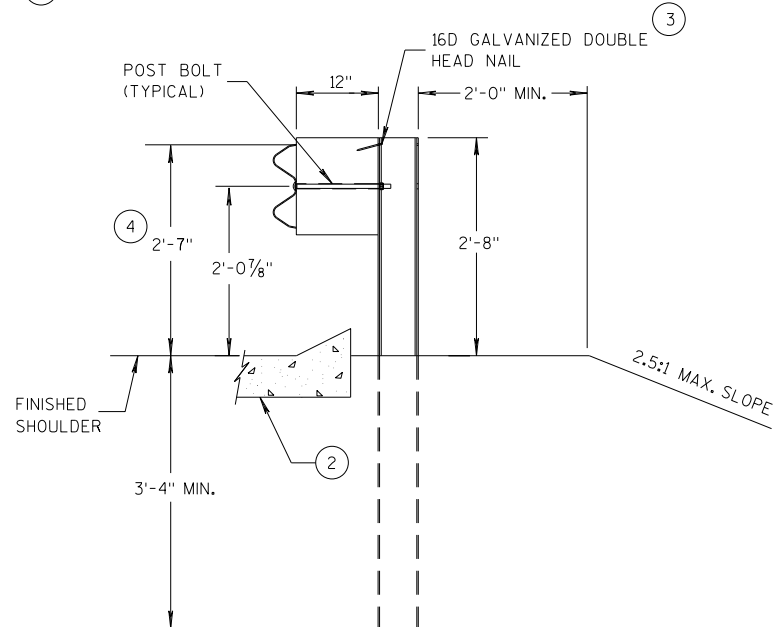
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

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

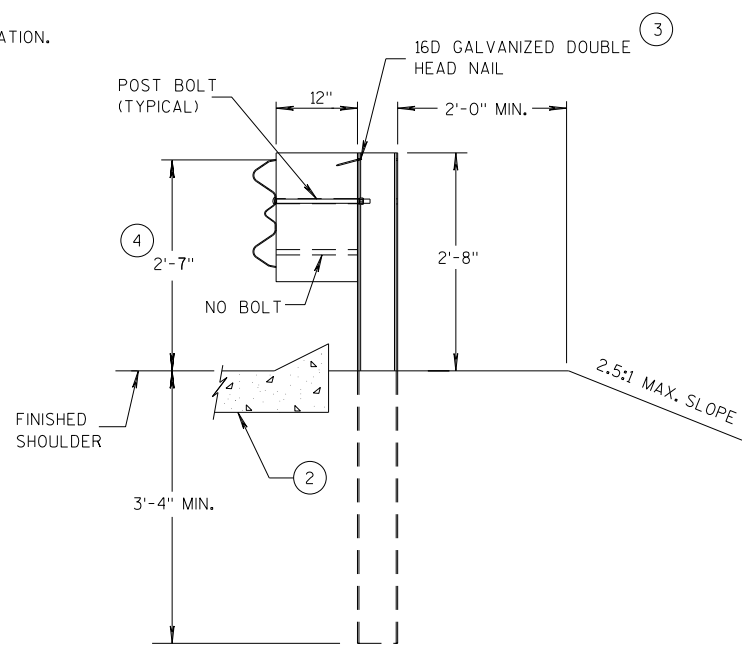
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

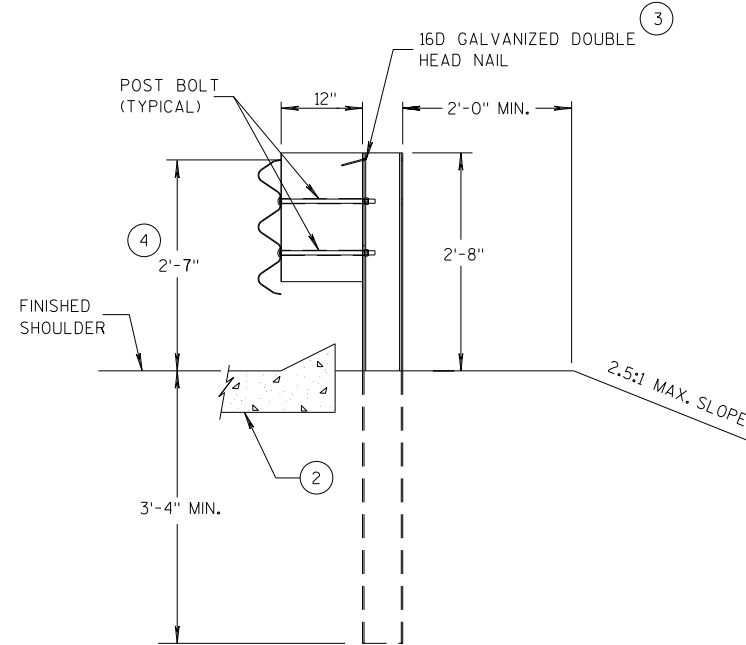
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



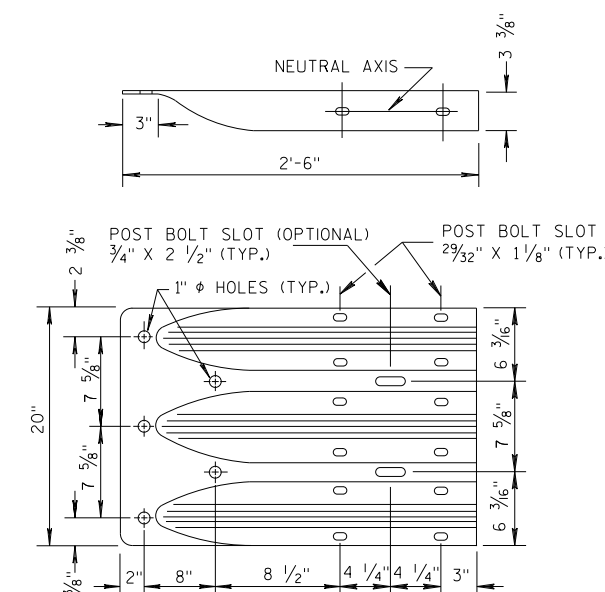
**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



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



**THRIE BEAM
TERMINAL CONNECTOR**

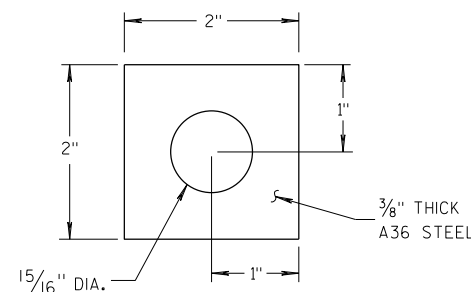
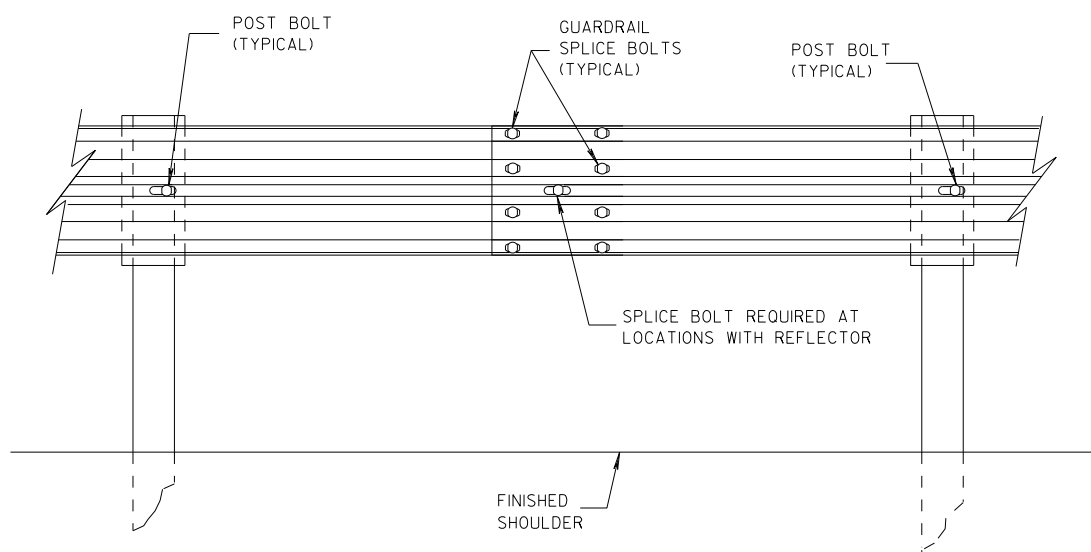
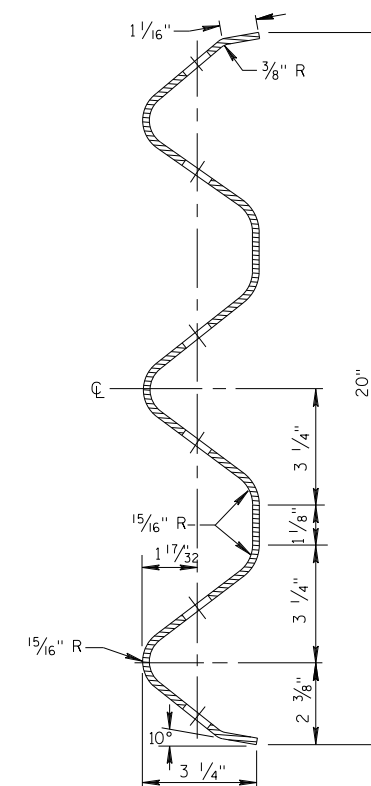


PLATE WASHER DETAIL



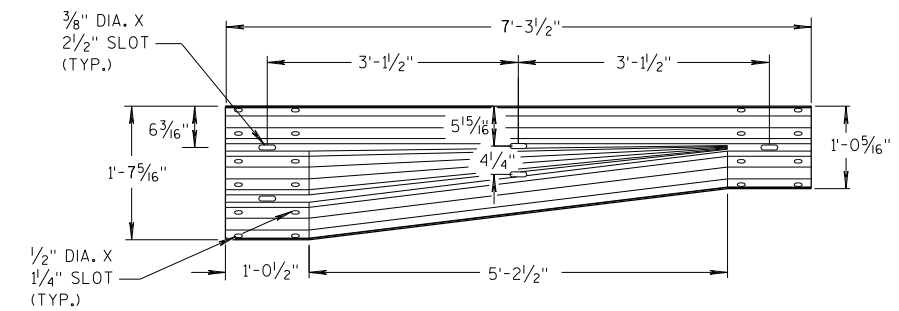
SPLICE DETAIL



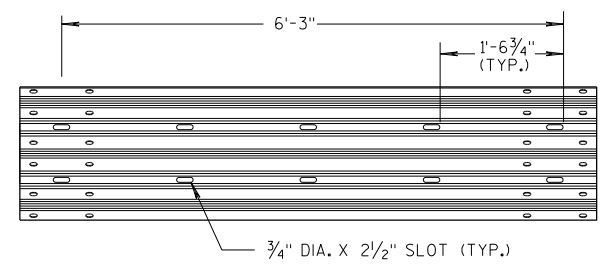
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

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

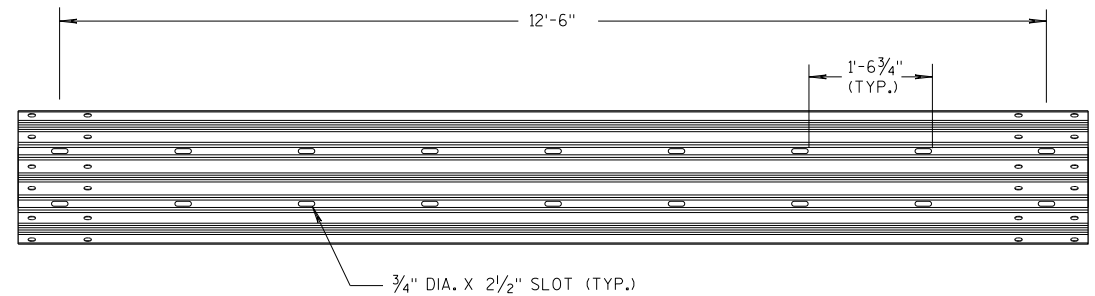
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



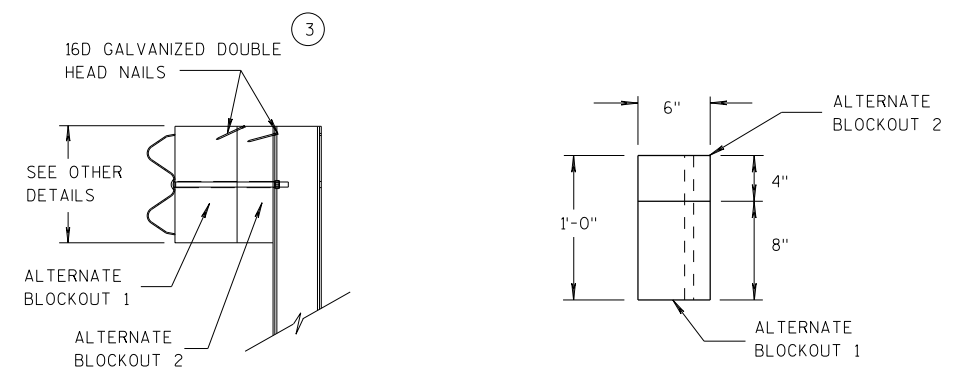
W-BEAM TO THRIE BEAM TRANSITION SECTION



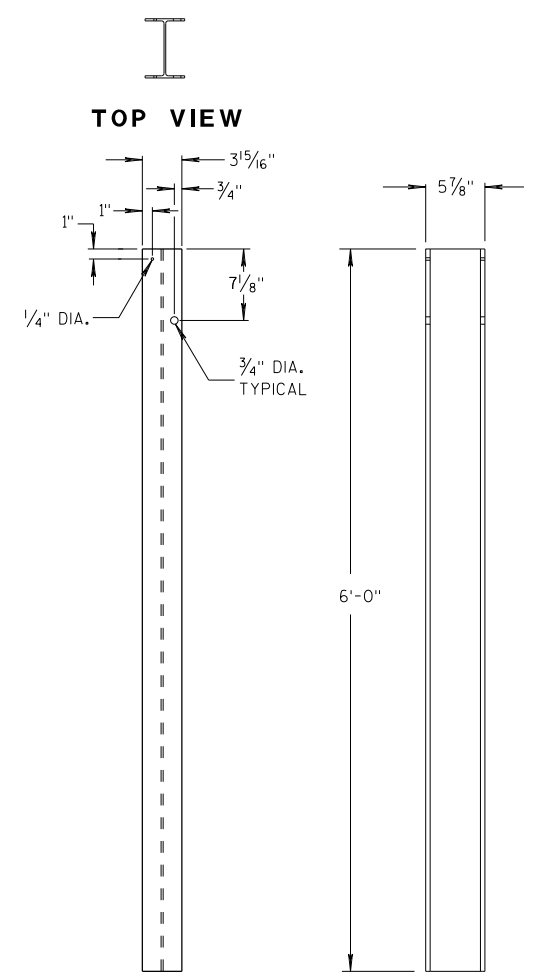
6'-3\"/>



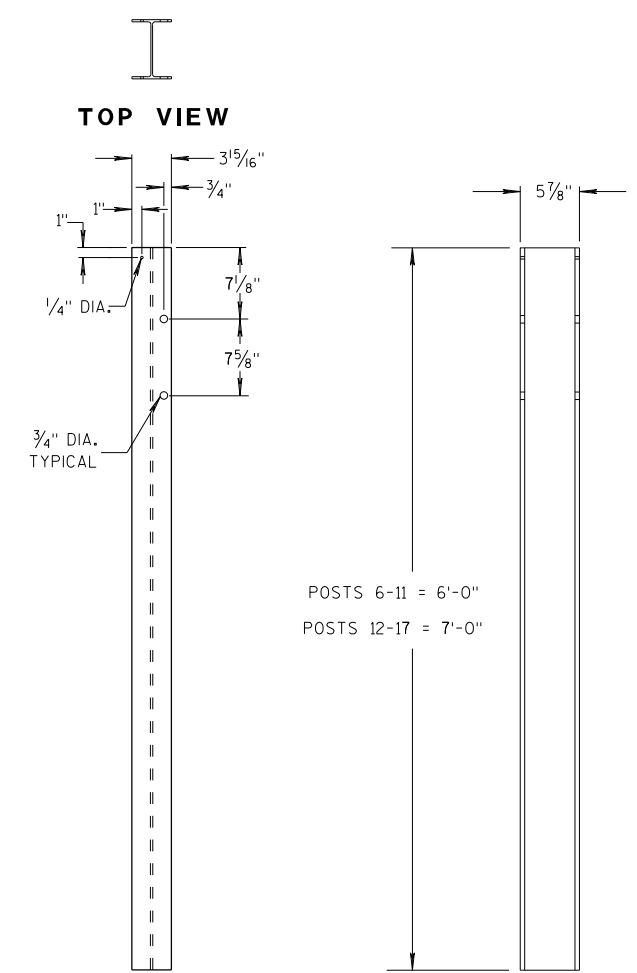
12'-6\"/>



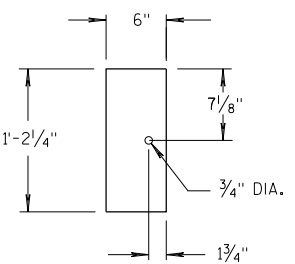
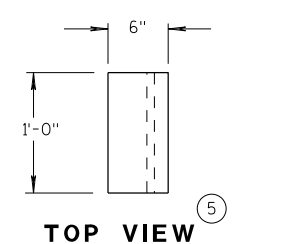
ALTERNATE WOOD BLOCKOUT DETAIL



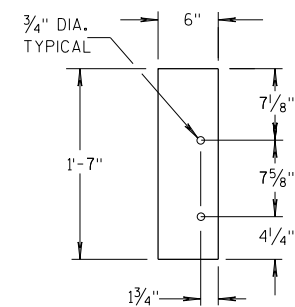
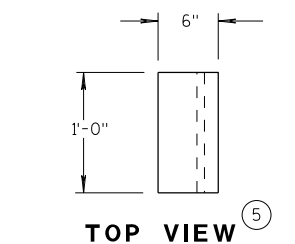
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



BLOCKOUT POSTS 6-17

GENERAL NOTES

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

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

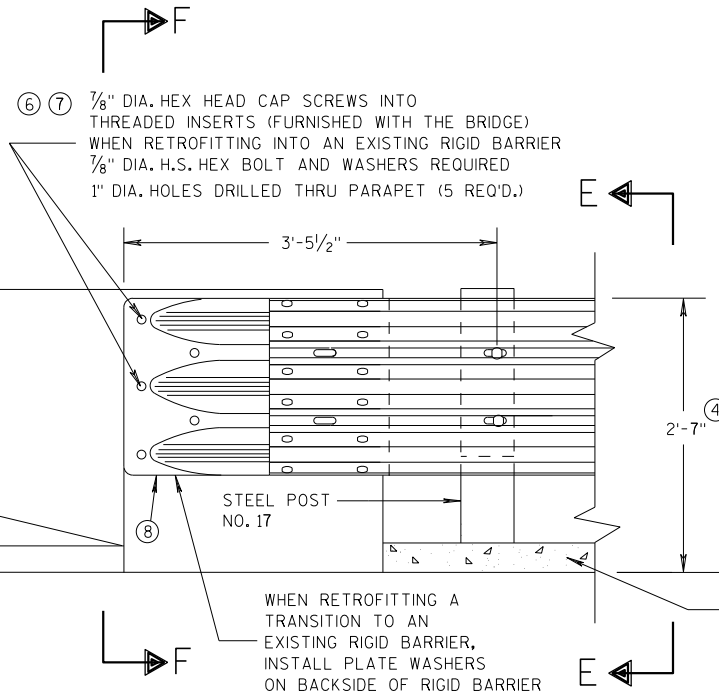
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

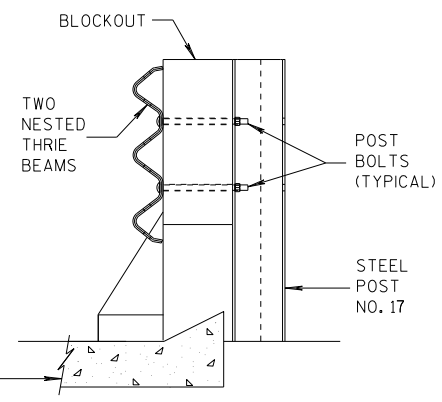
S.D.D. 14 B 45-5c

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



FRONT VIEW

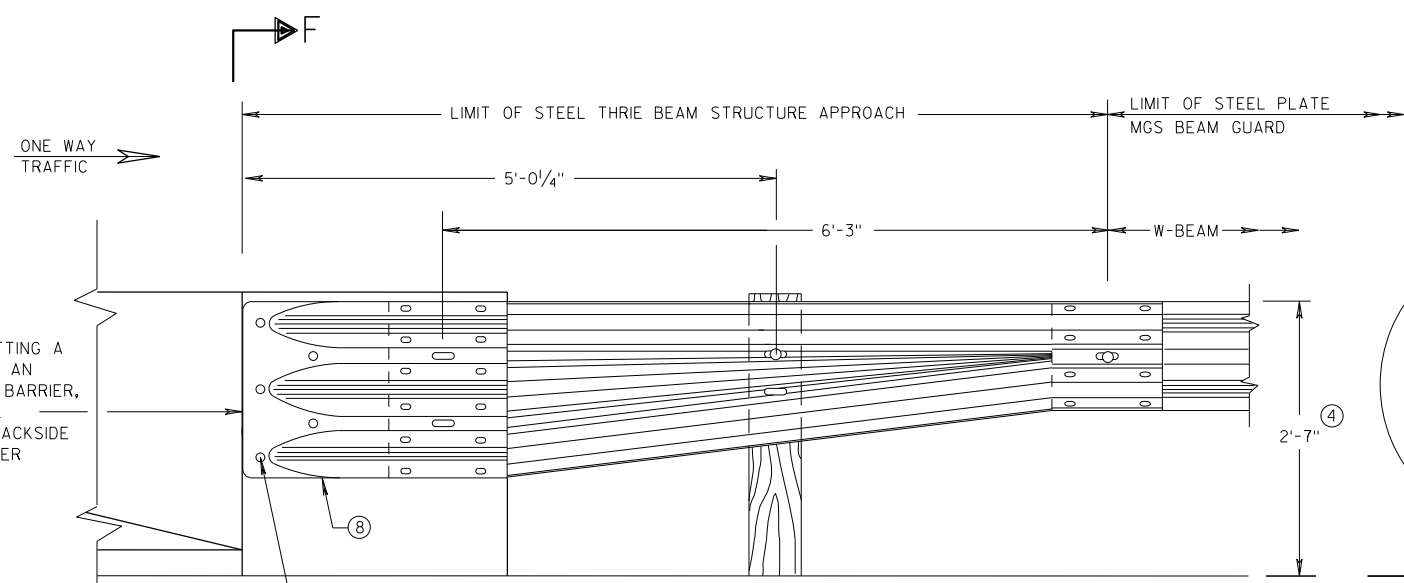
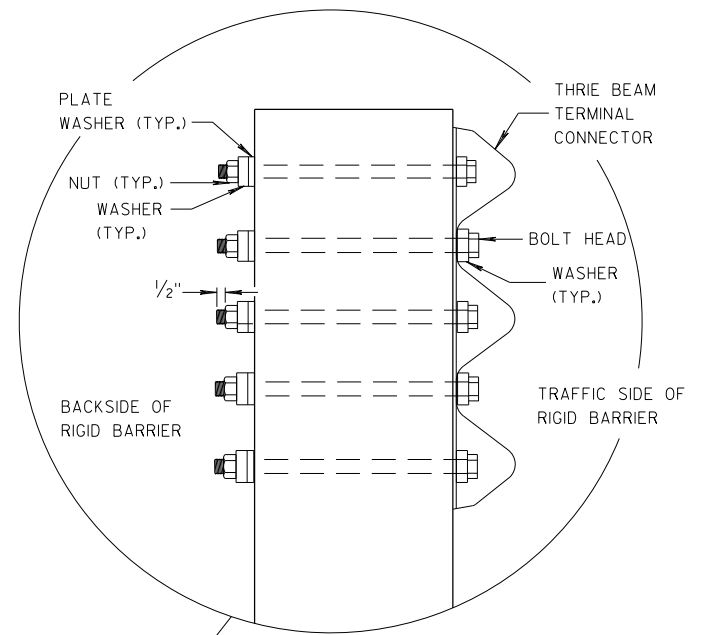
THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS



SECTION E-E

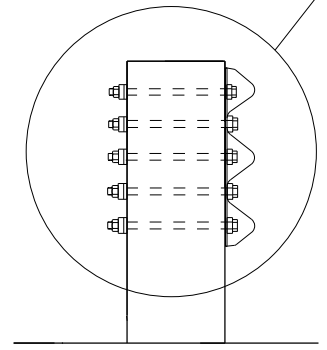
GENERAL NOTES

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

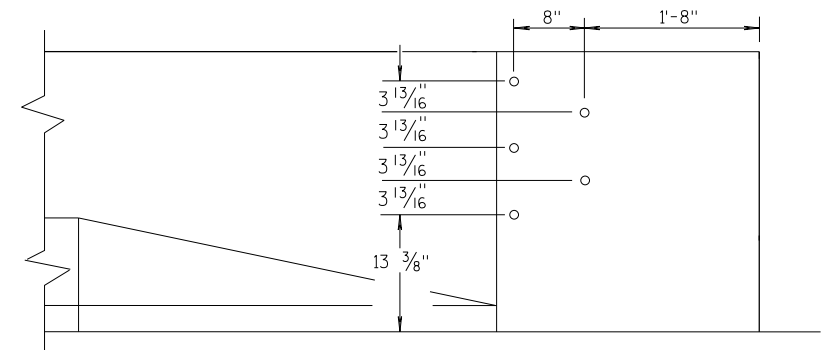


FRONT VIEW

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



SECTION F-F



DRILL HOLE LOCATION

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

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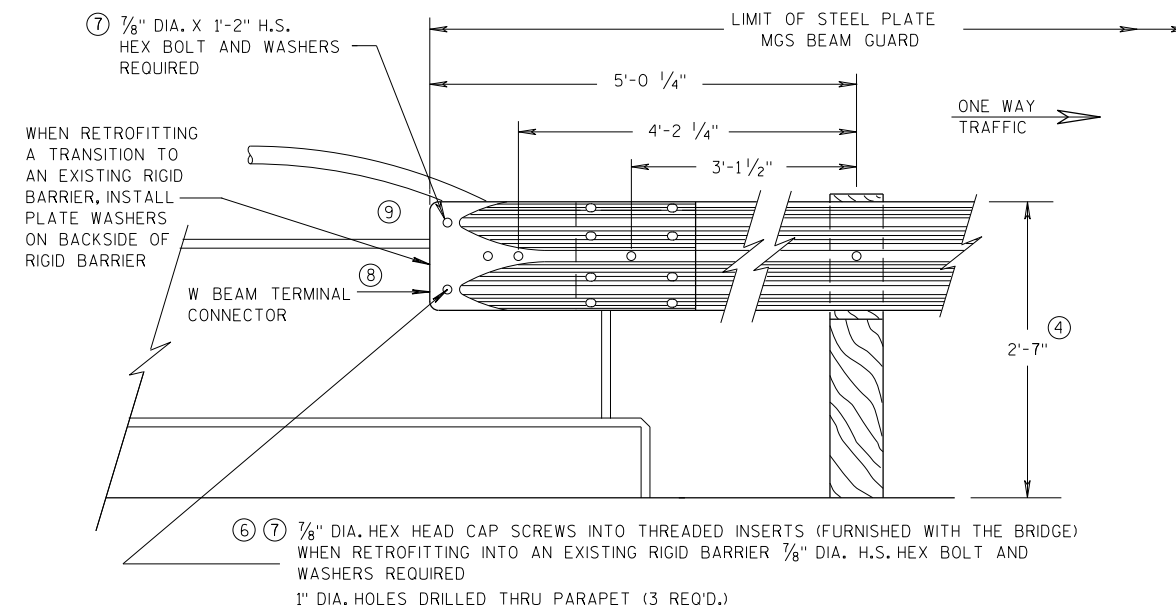
S.D.D. 14 B 45-5d

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

GENERAL NOTES

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

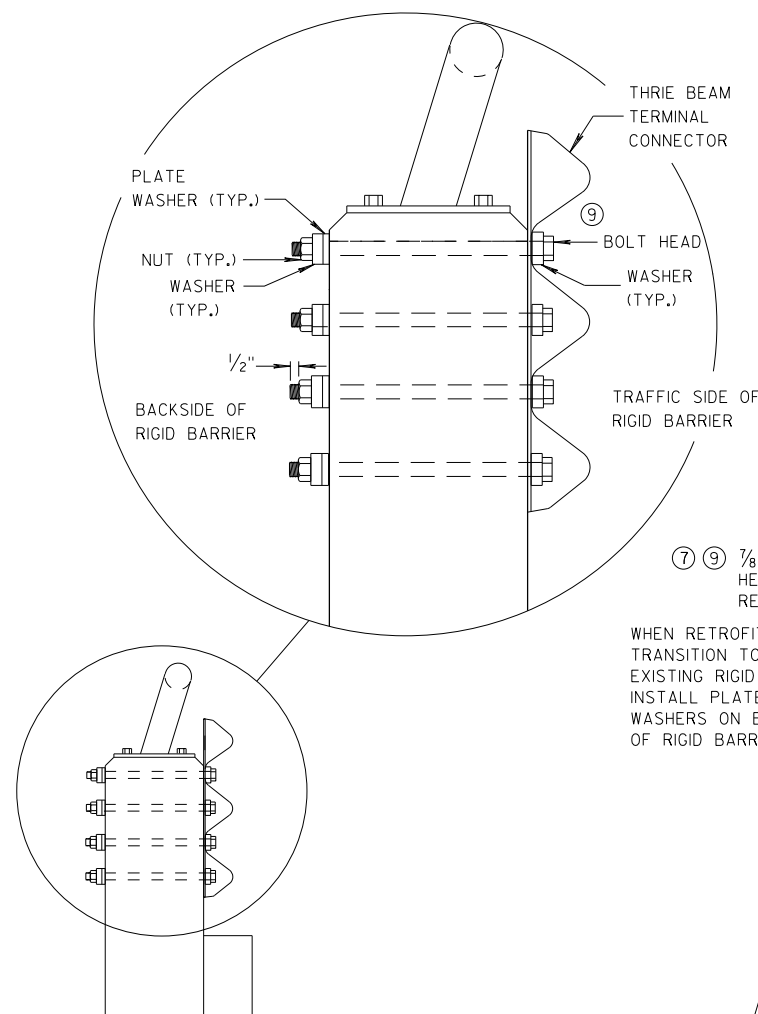
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.



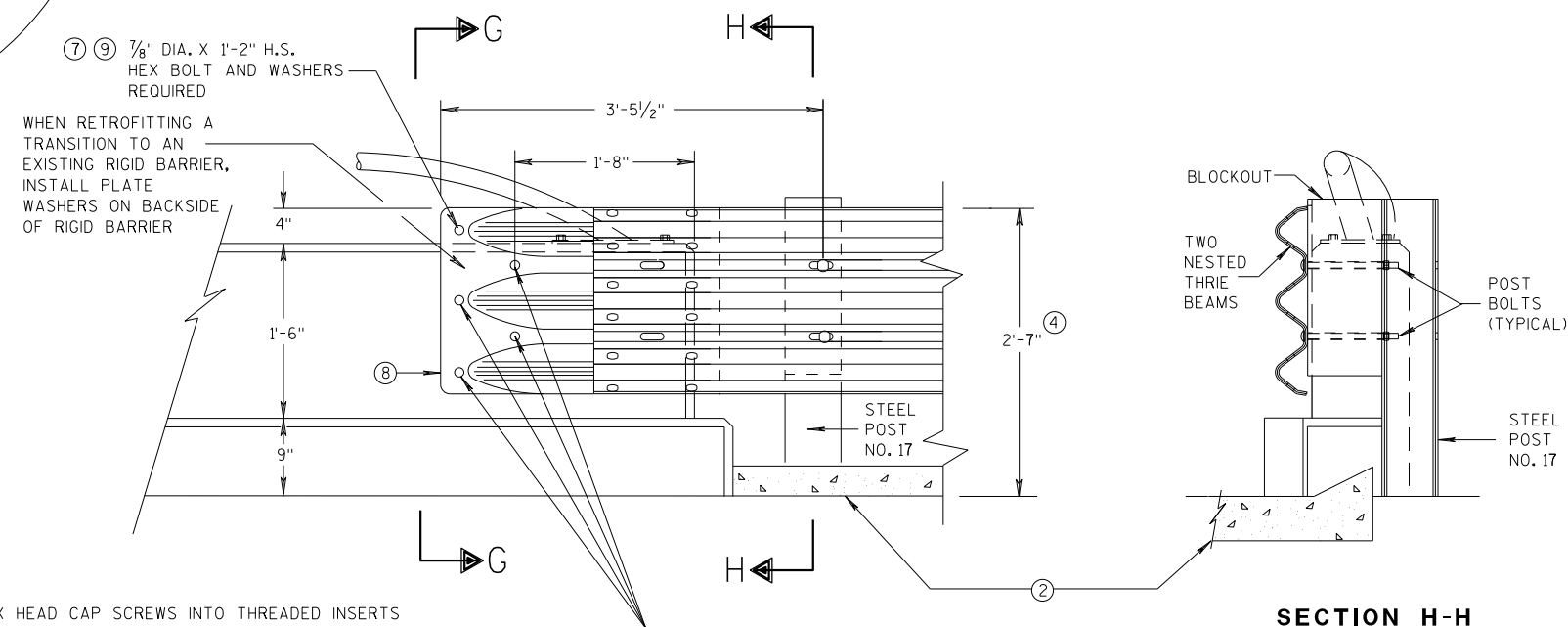
FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET

(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

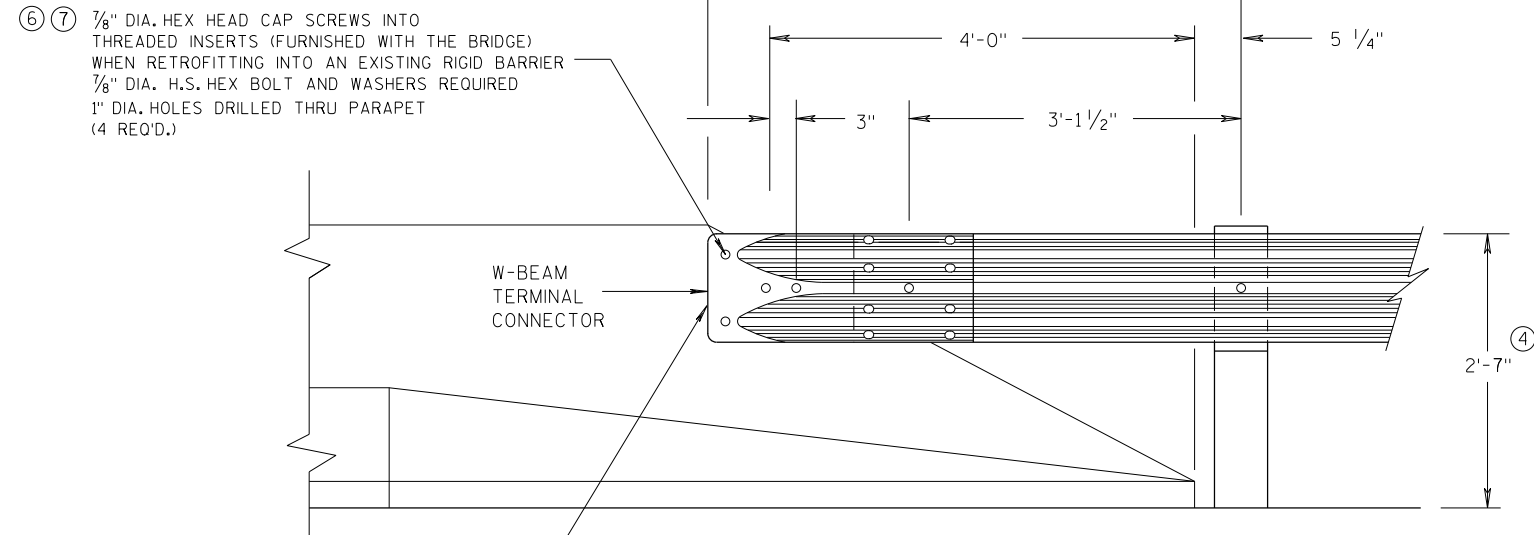
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

ONE WAY
TRAFFIC



FRONT VIEW

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

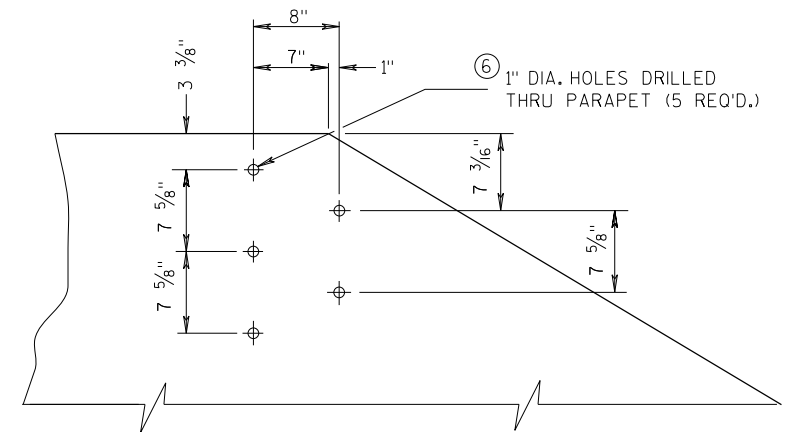
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

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

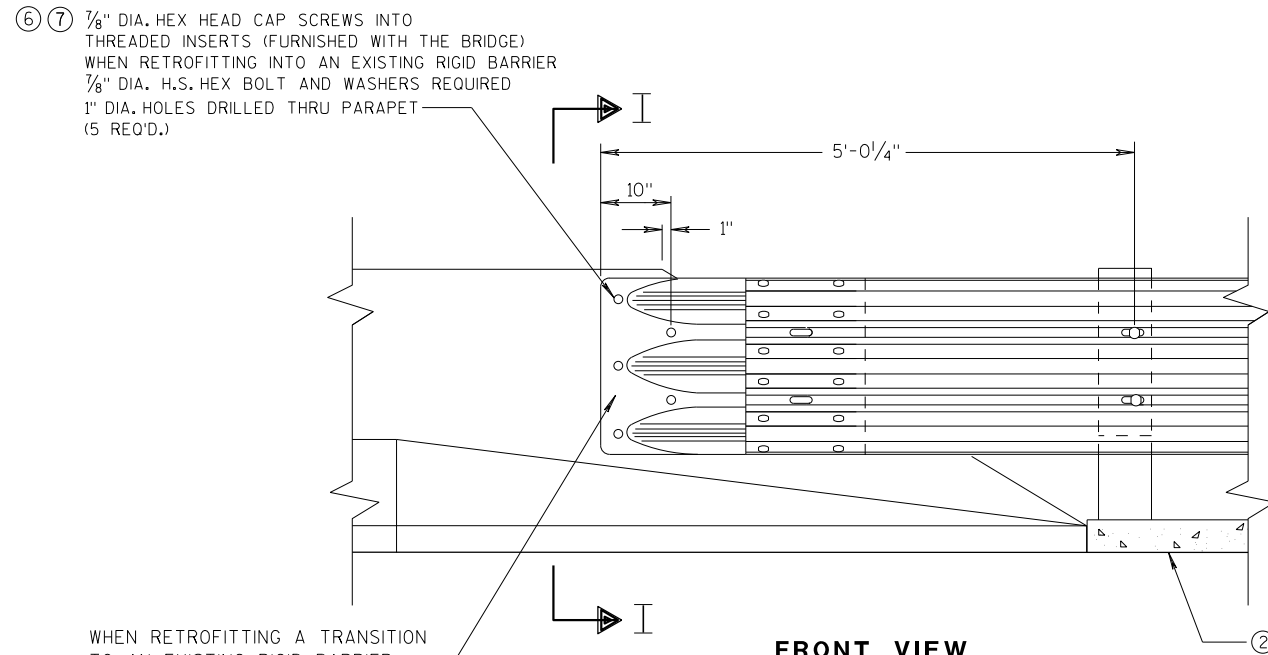
⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(4 REQ'D.)

GENERAL NOTES

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



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

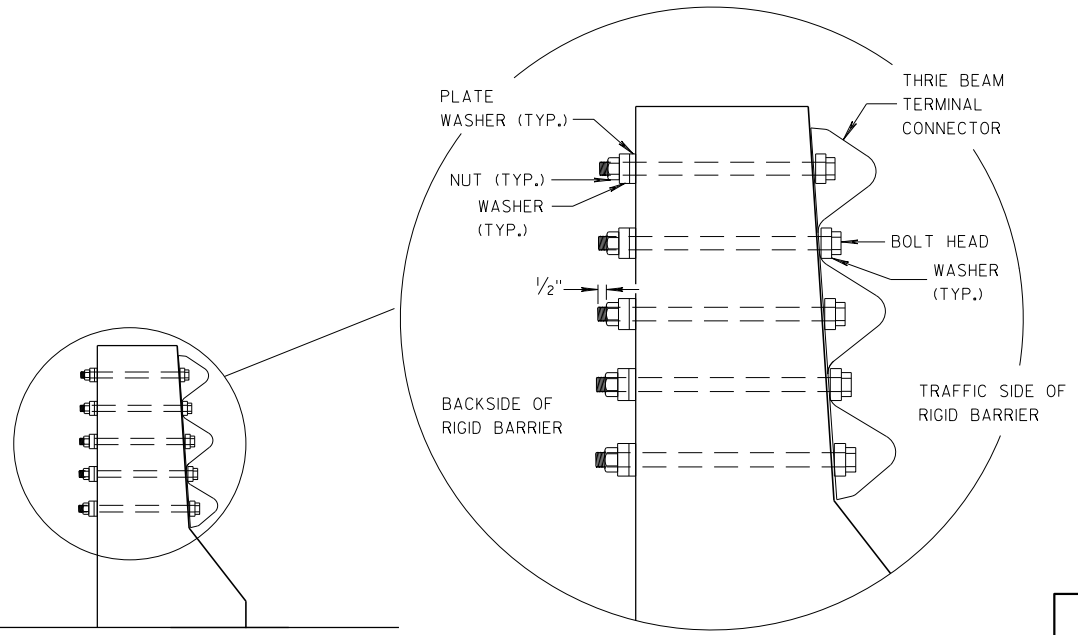


FRONT VIEW

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

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

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

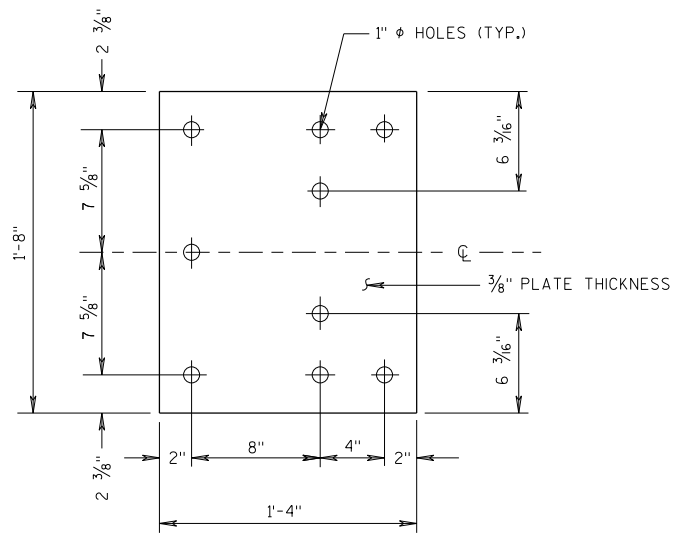


SECTION I-I

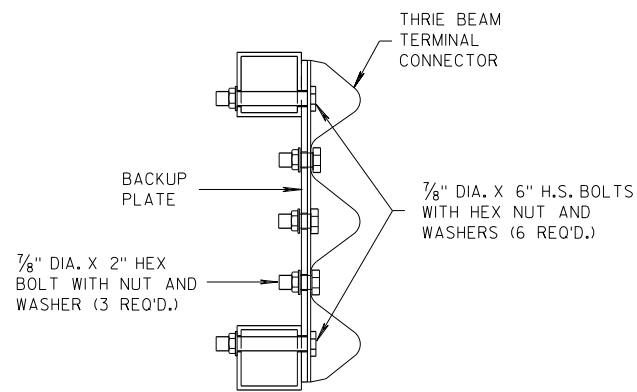
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

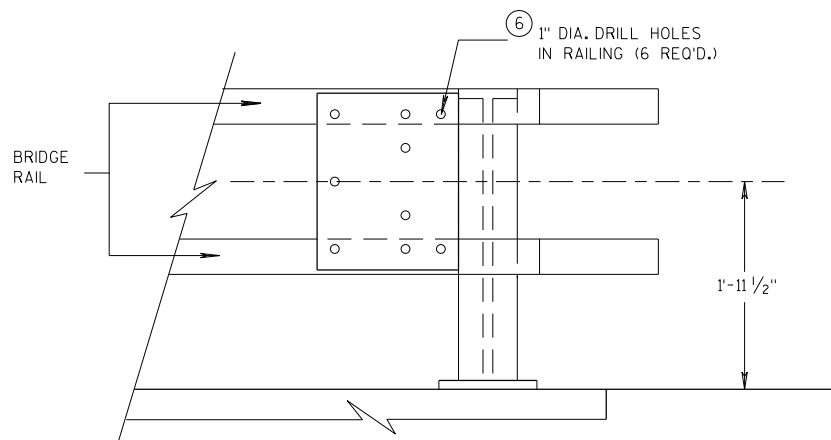
APPROVED
DATE 07/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



BACK-UP PLATE DETAIL



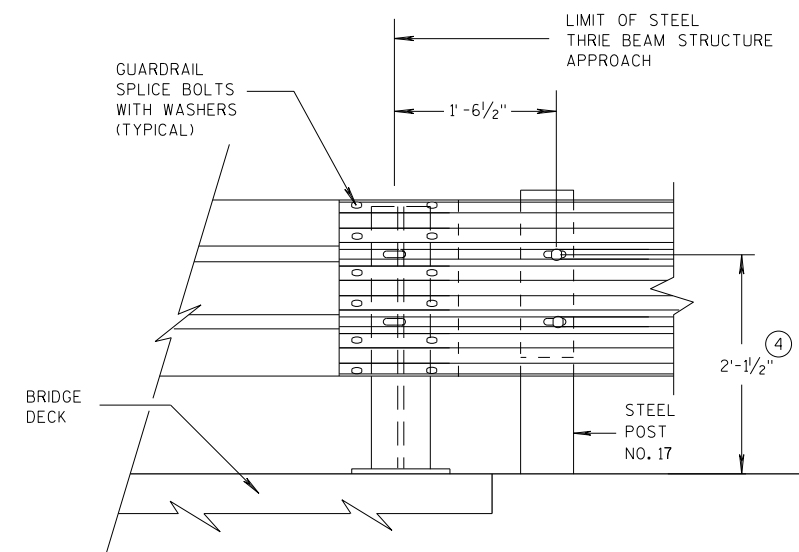
SECTION J-J



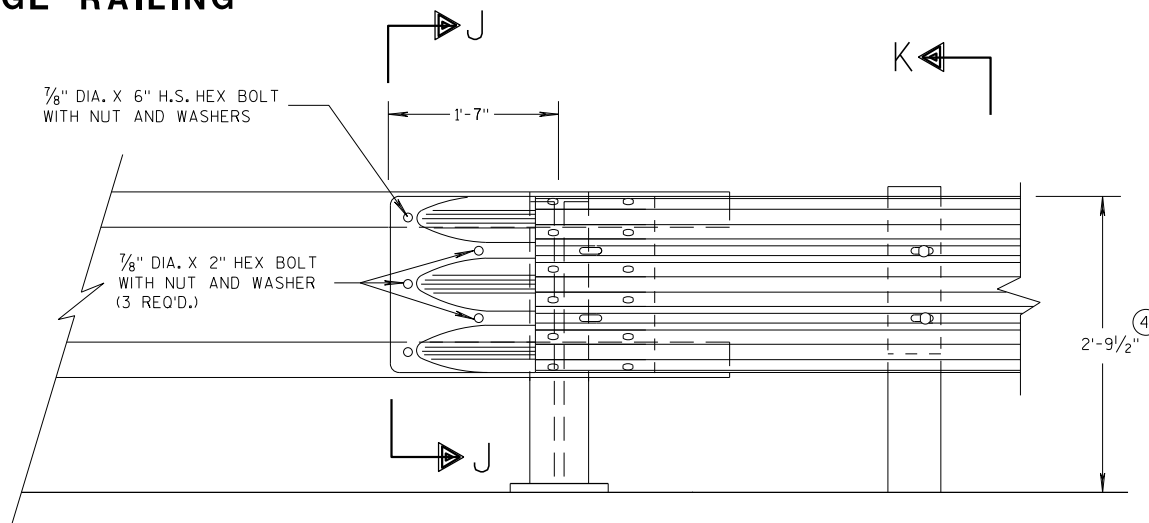
BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

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.

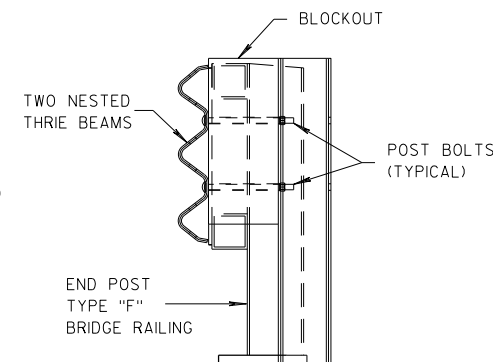


FRONT VIEW THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"



FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

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

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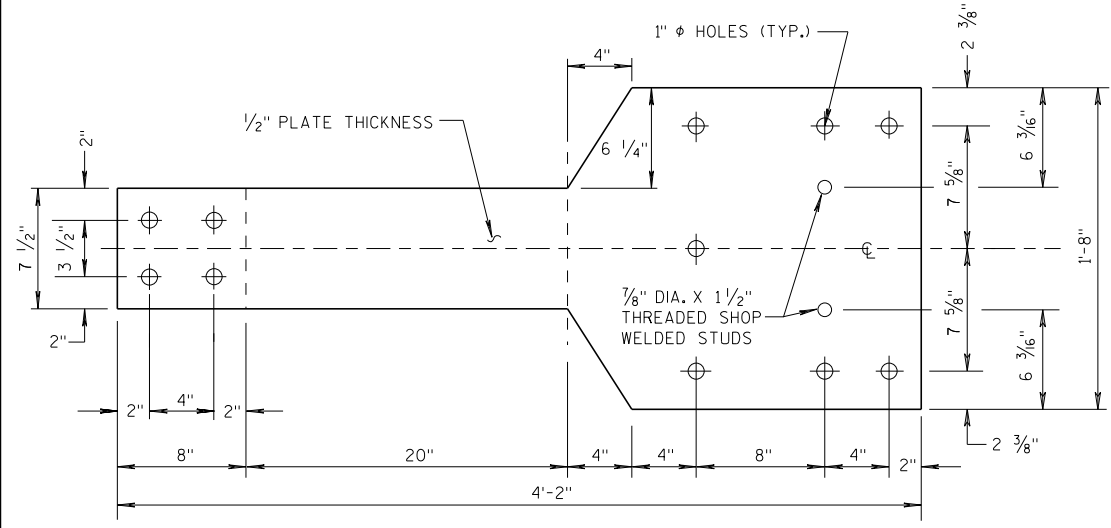
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S.D.D. 14 B 45-59

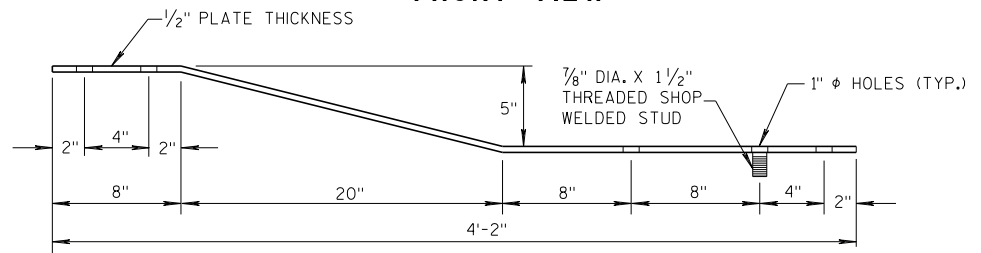
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GENERAL NOTES

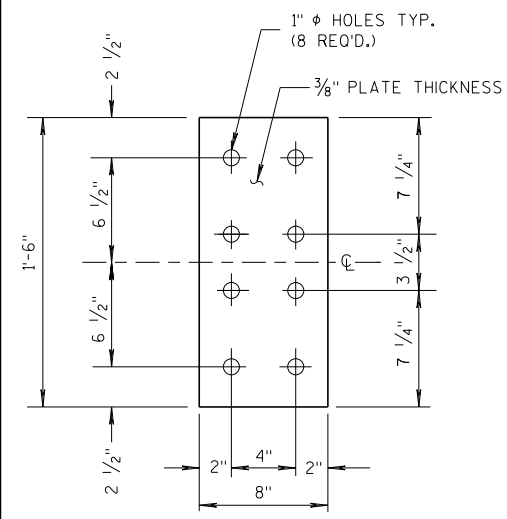
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



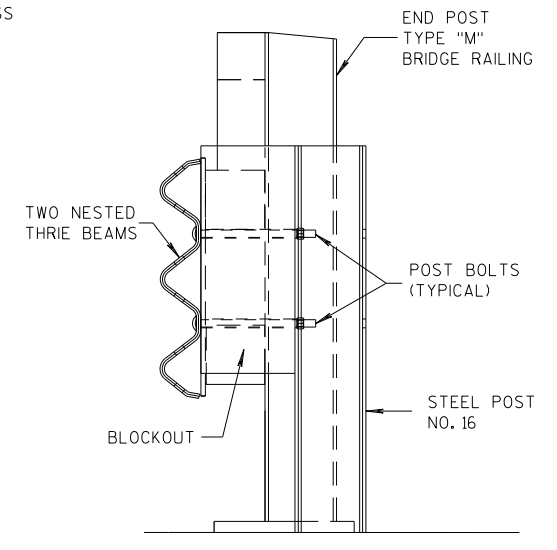
FRONT VIEW



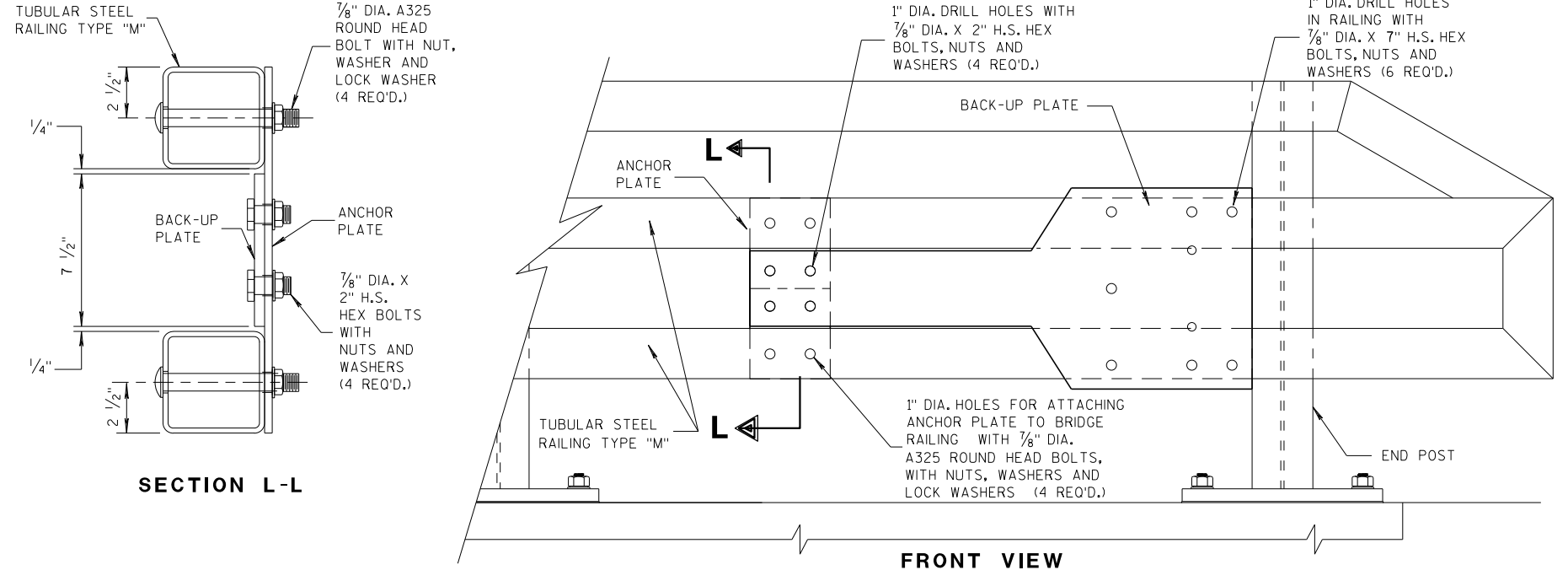
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



**FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"**



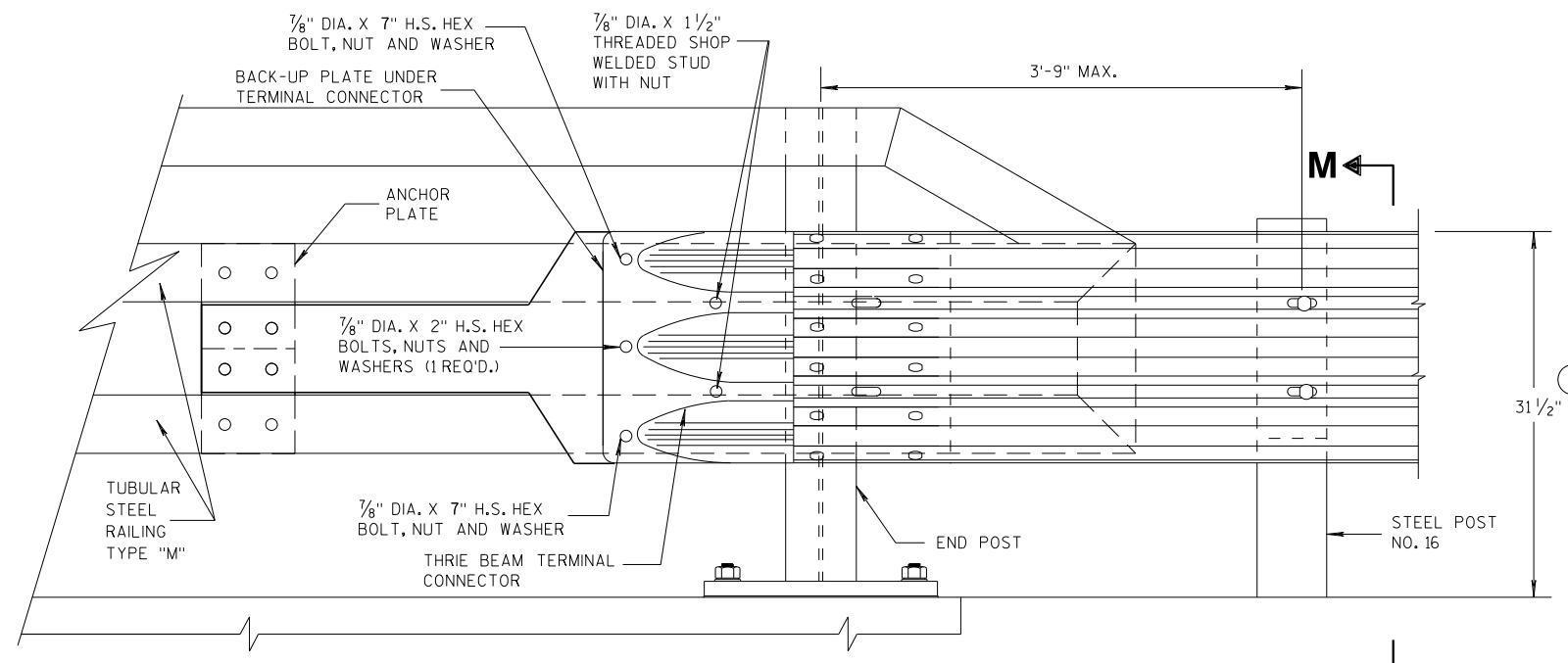
SECTION M-M



SECTION L-L

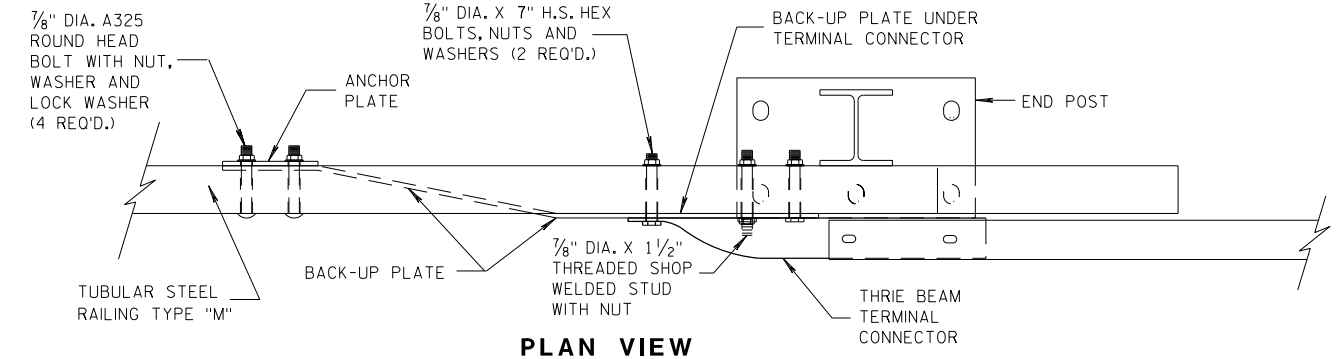
FRONT VIEW

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



FRONT VIEW

M



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

6

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

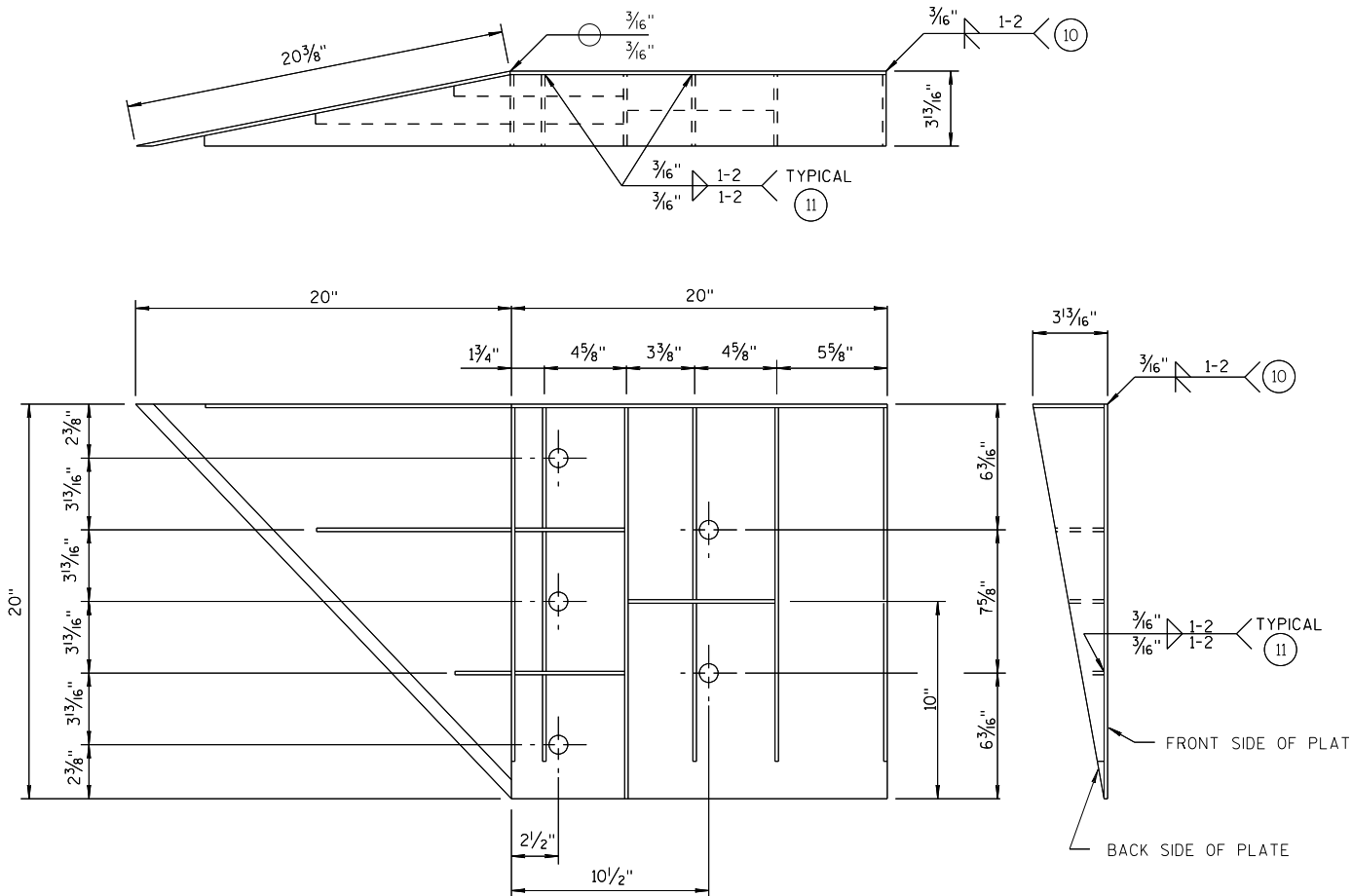
S.D.D. 14 B 45-5h

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

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".



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

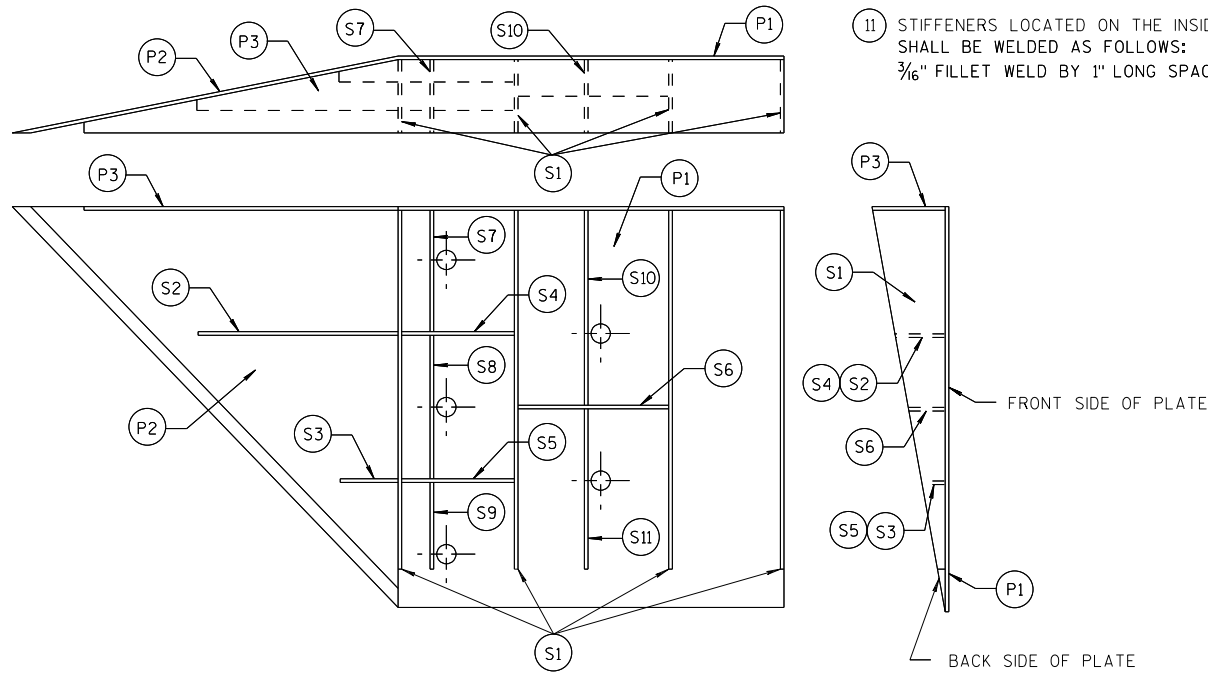


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

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 3/8" 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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

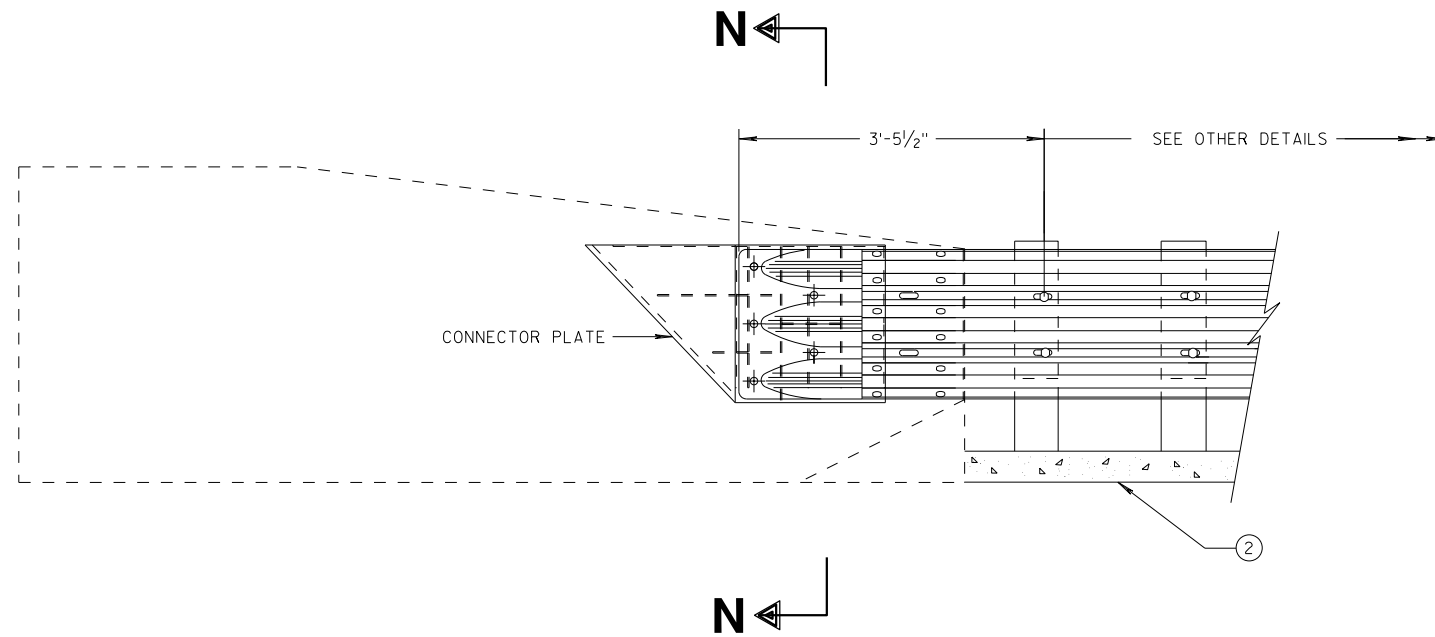
FHWA

GENERAL NOTES

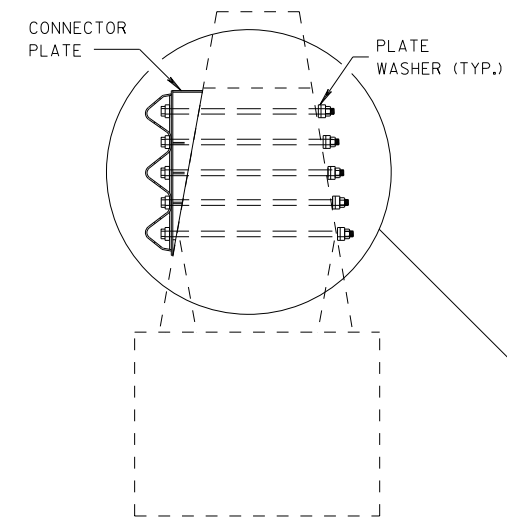
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

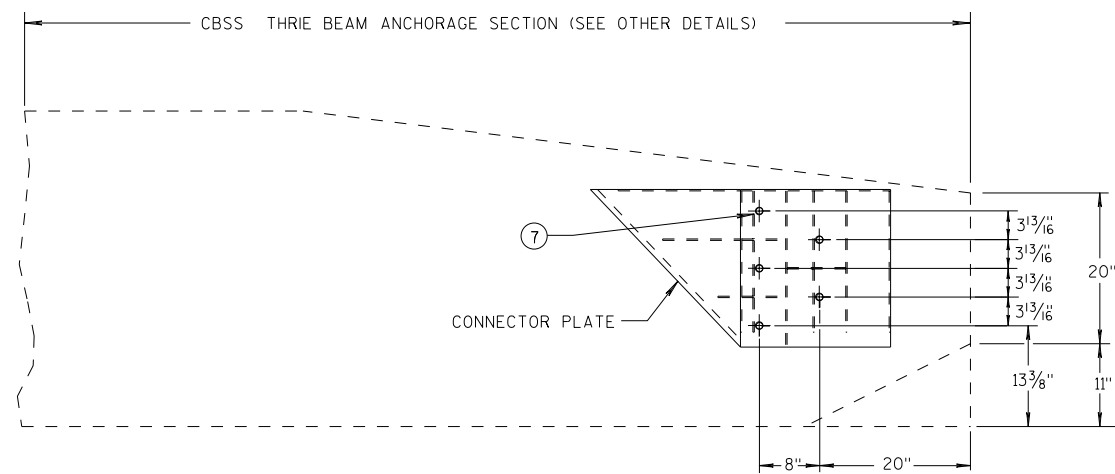
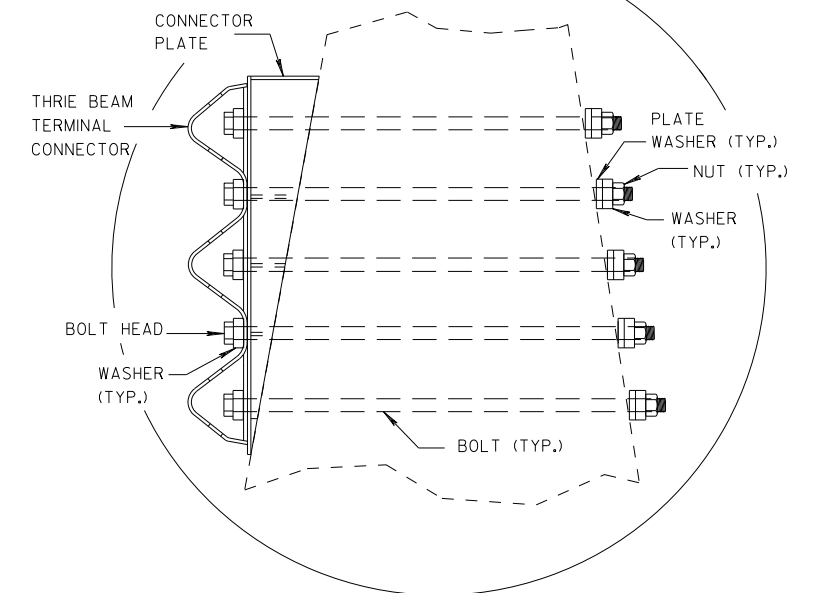
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THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



SECTION N-N

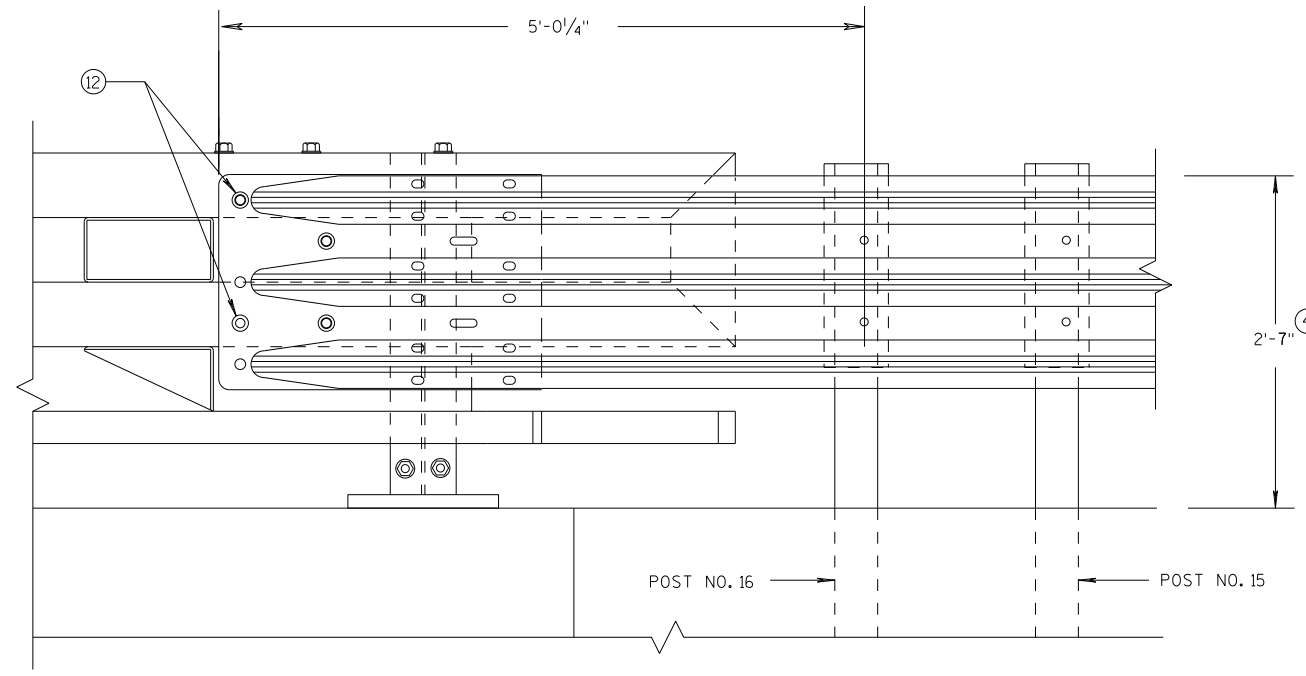


SINGLE SLOPE CONNECTION PLATE PLACEMENT

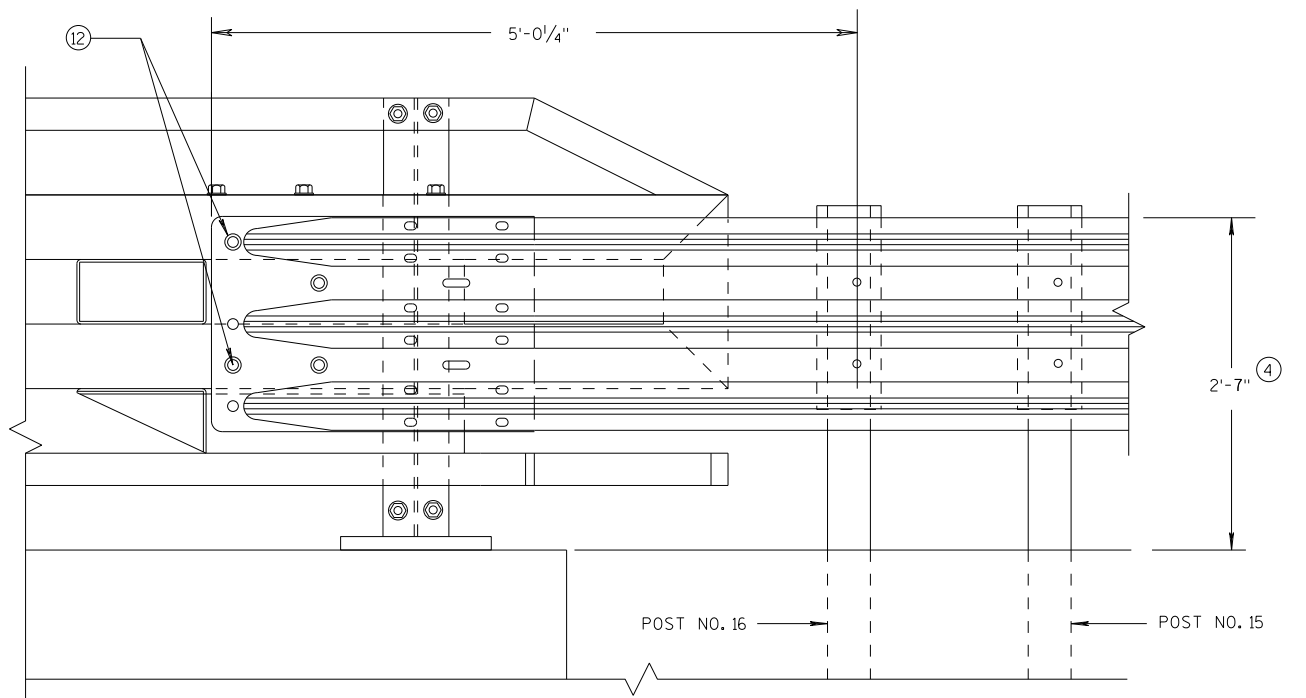
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT**



**ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT**

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS ± 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 1/2-INCH BEYOND NUT.

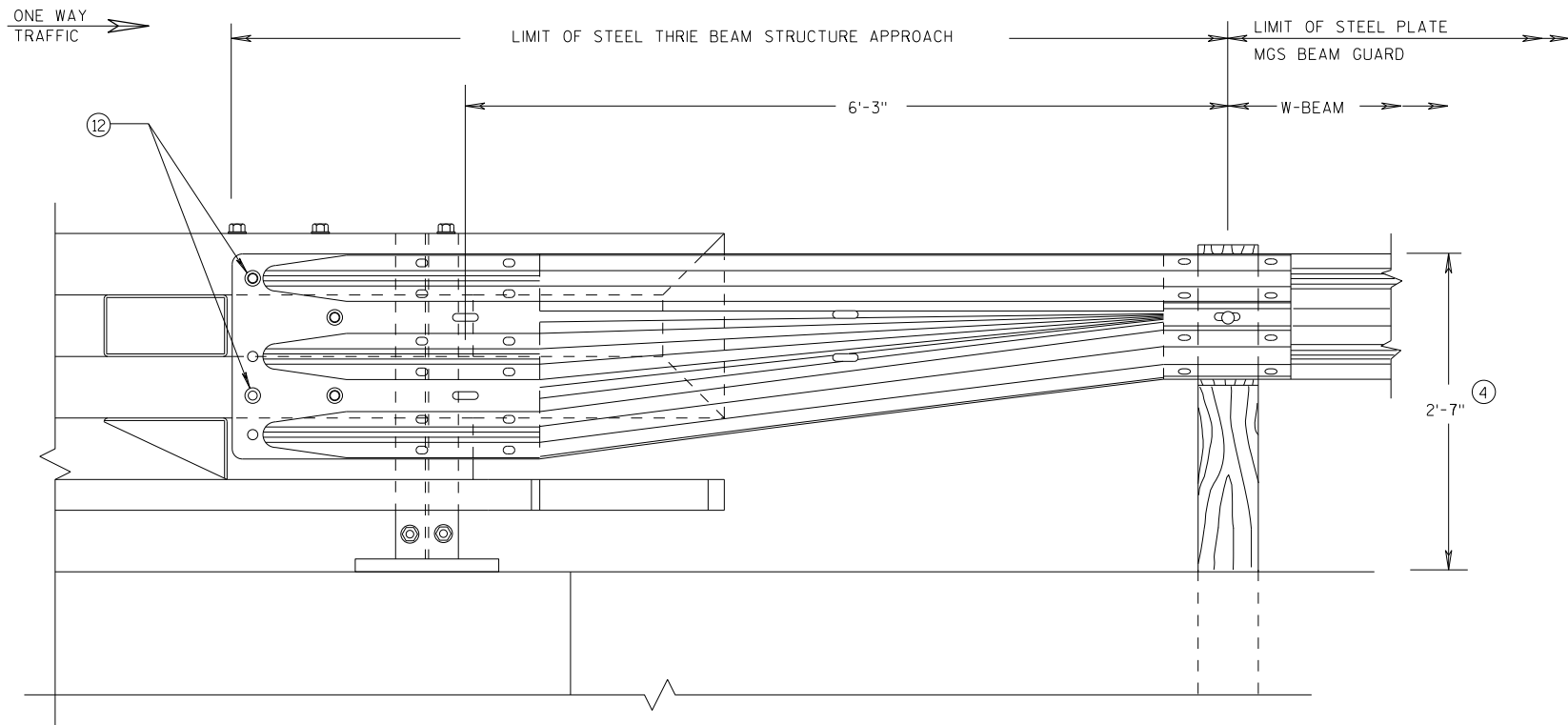
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S.D.D. 14 B 45-5k

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

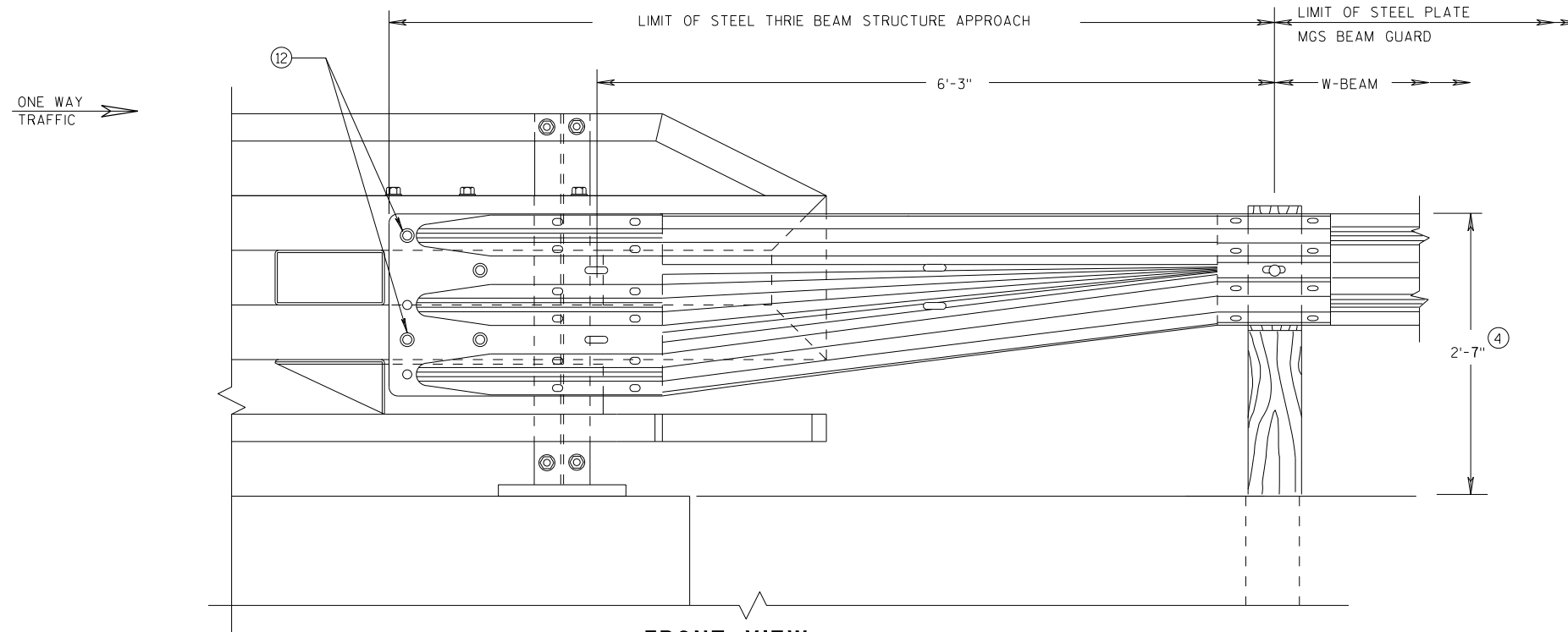
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 7/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



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

GENERAL NOTES

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

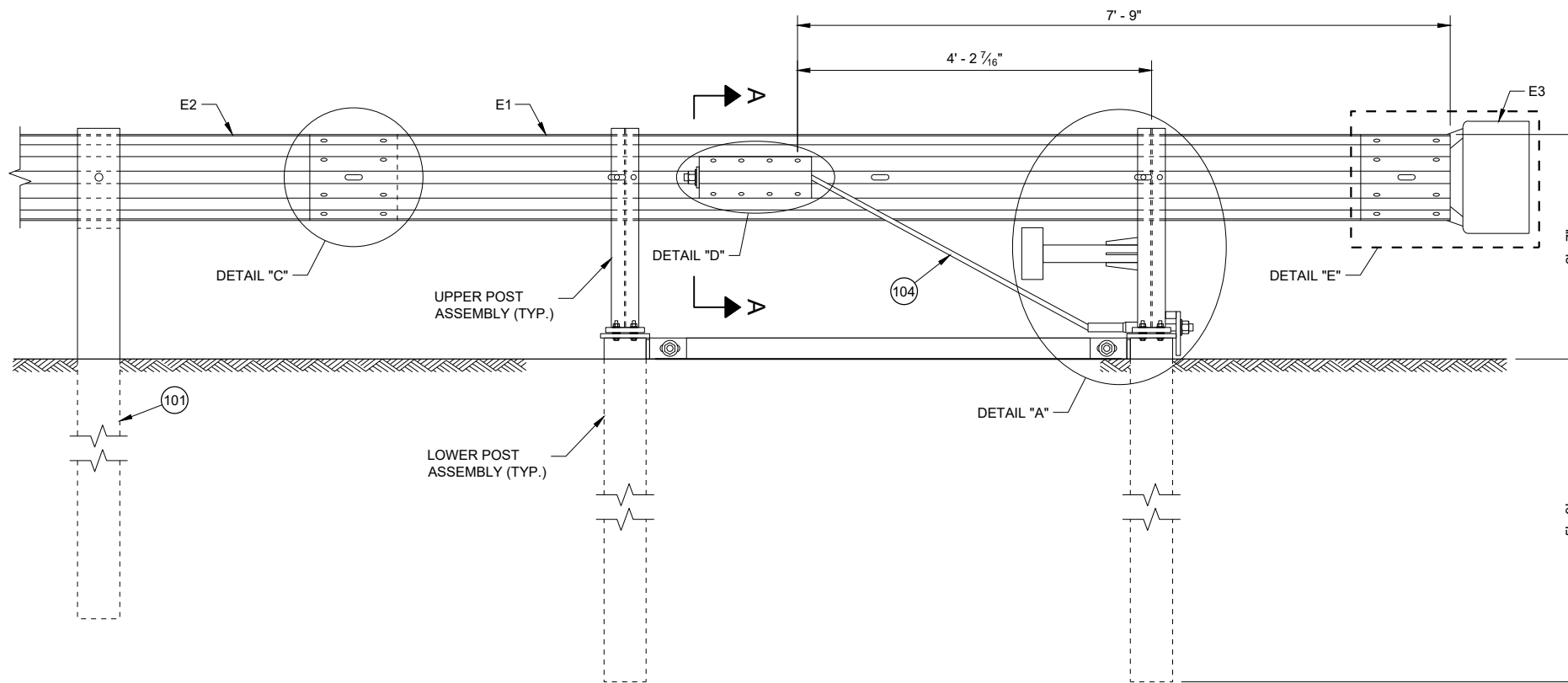


FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

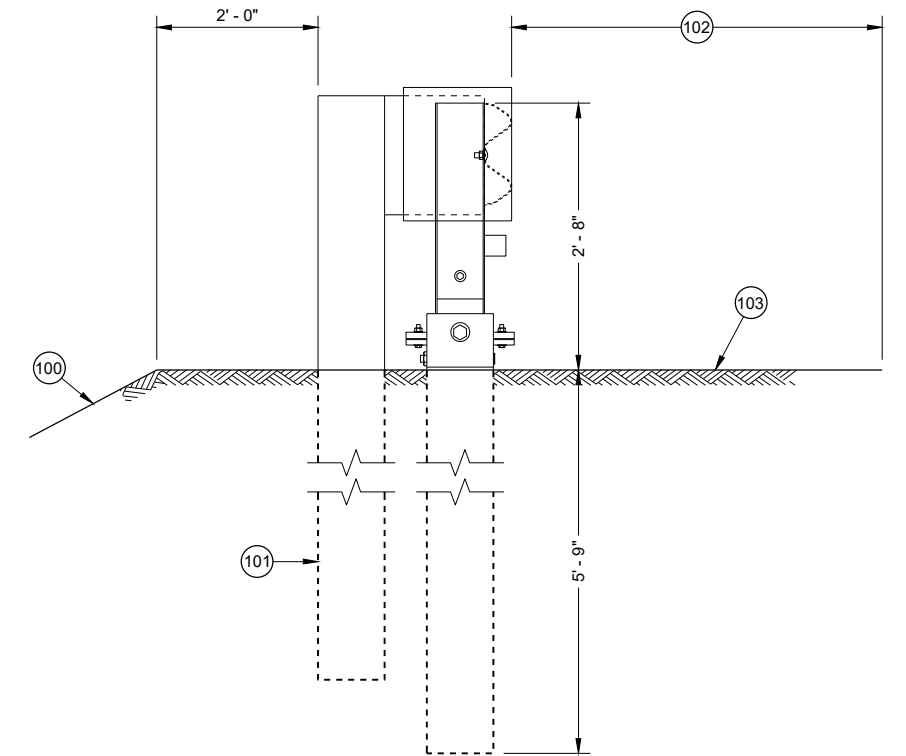
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

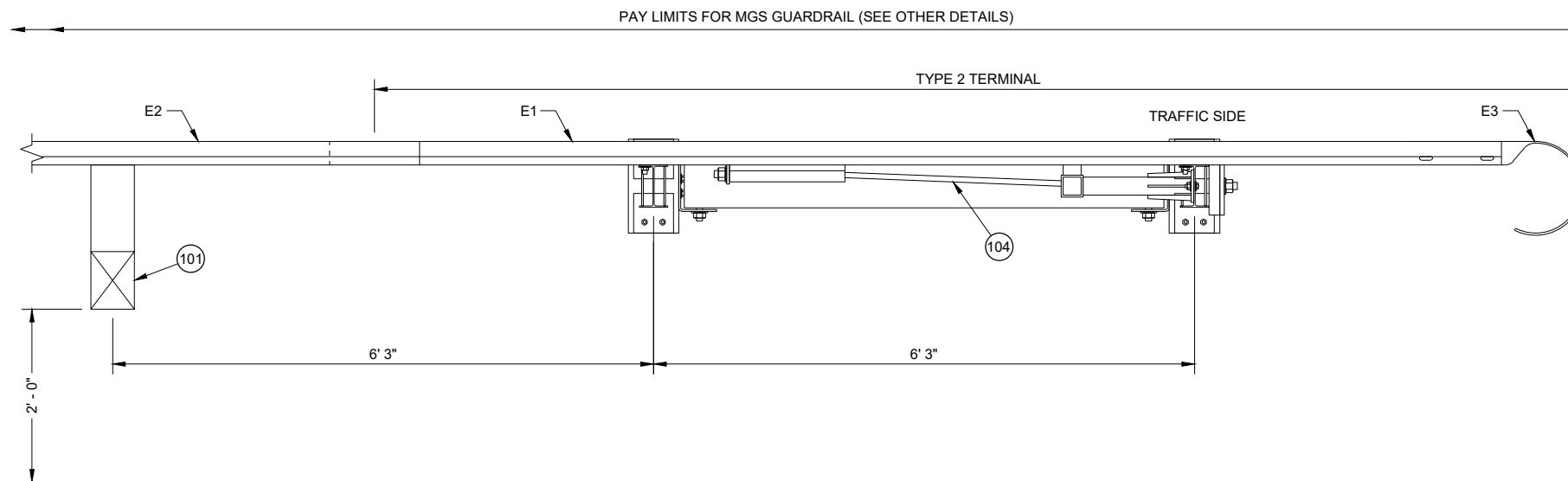
APPROVED
 DATE 7/2018 /S/ Rodney Taylor
 ROADWAY STANDARDS DEVELOPMENT
 UNIT SUPERVISOR
 FHWA



**BACK VIEW
TYPE 2 TERMINAL**



**SIDE VIEW
TYPE 2 TERMINAL**



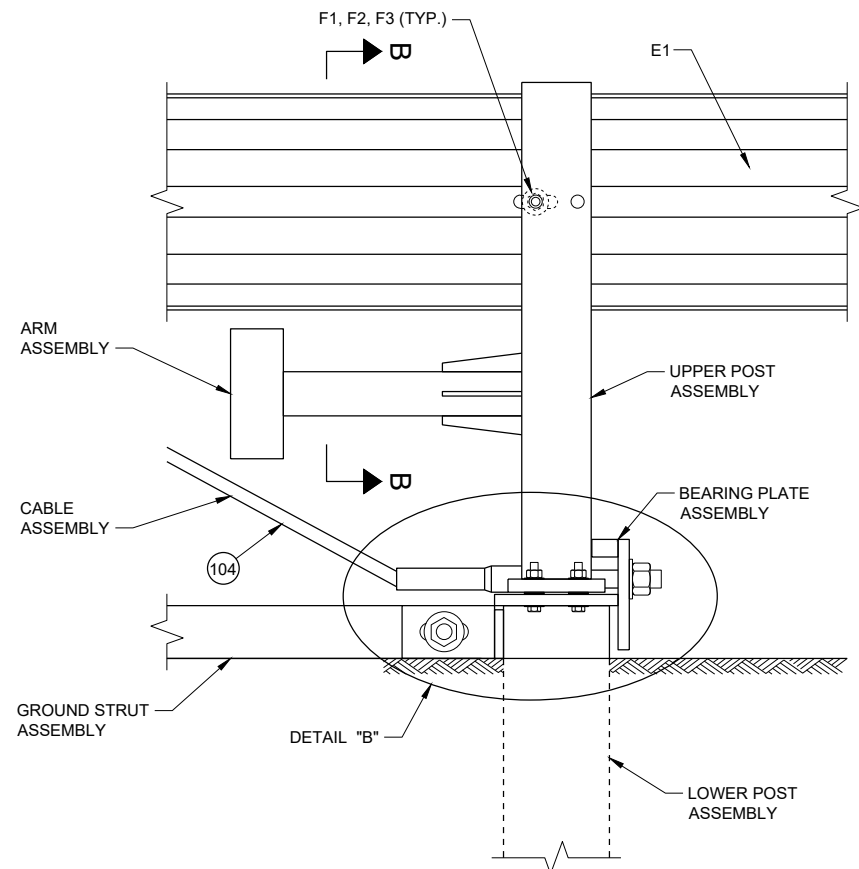
**TOP VIEW
TYPE 2 TERMINAL**

GENERAL NOTES

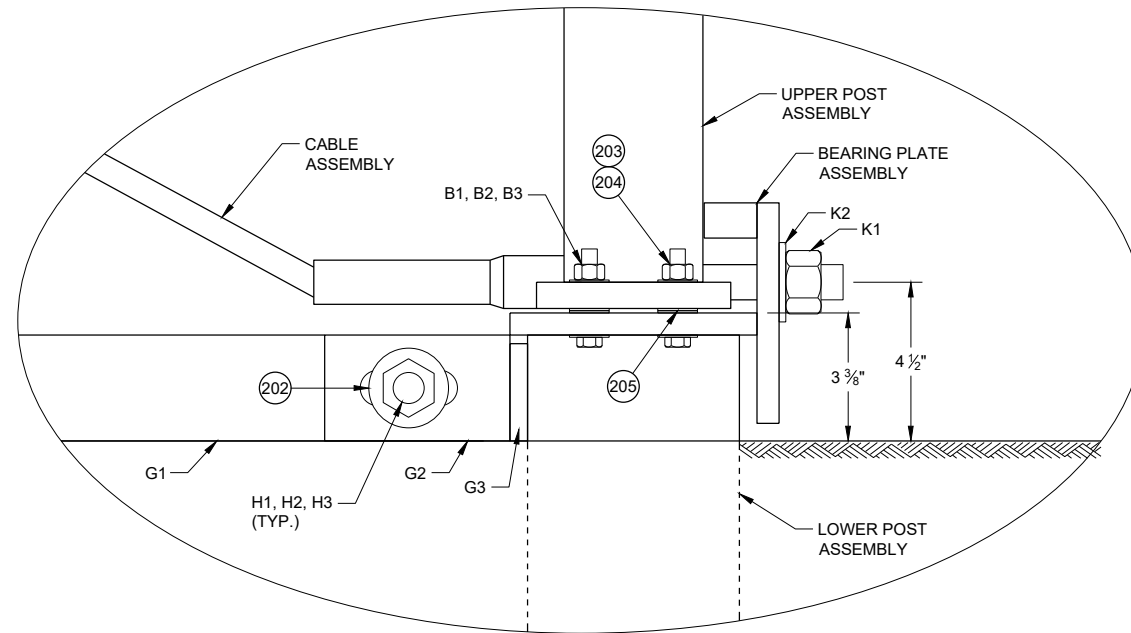
- (100) MAXIMUM SLOPE IS 2.5:1.
- (101) SEE SDD 14B42 FOR MORE INFORMATION.
- (102) SHOULDER
- (103) MAXIMUM SLOPE IS 10:1.
- (104) AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

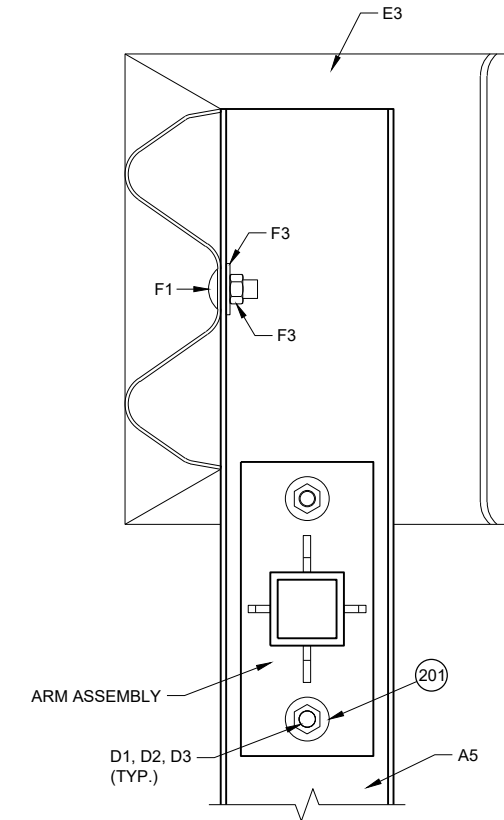
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



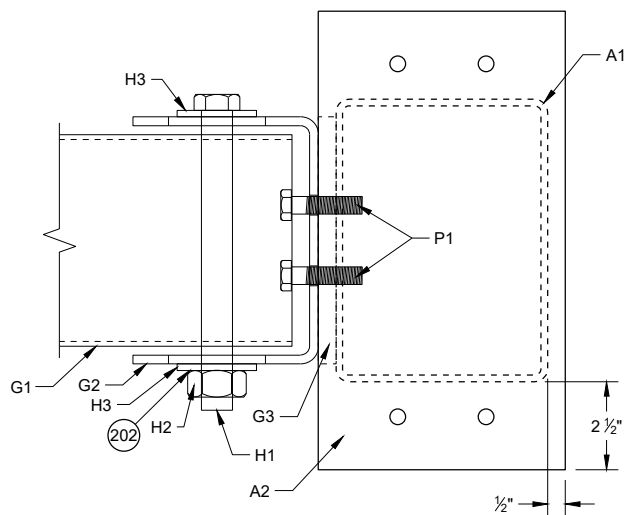
DETAIL "A"



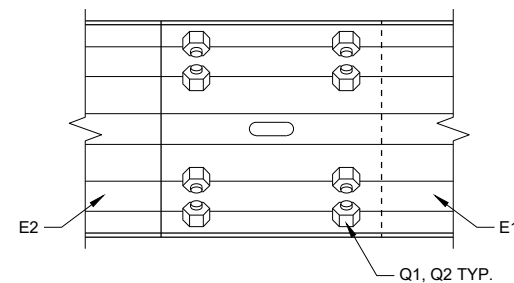
DETAIL "B"



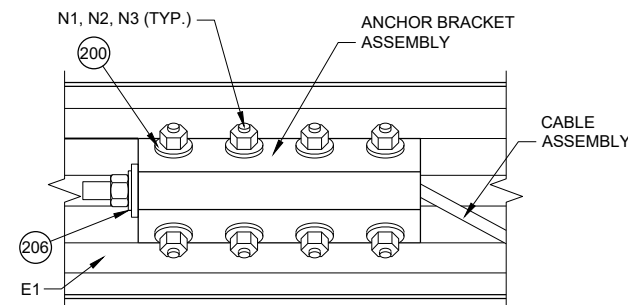
SECTION B - B



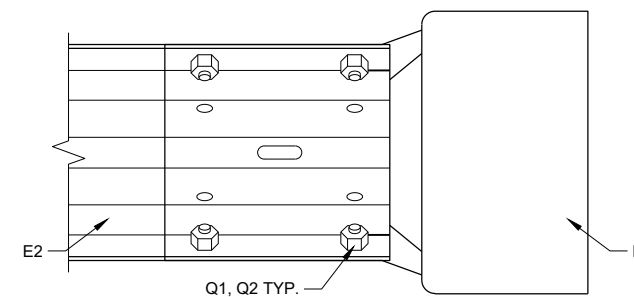
**TOP VIEW
GROUND STRUT
CONNECTION DETAIL**



DETAIL "C"



DETAIL "D"



DETAIL "E"

GENERAL NOTES

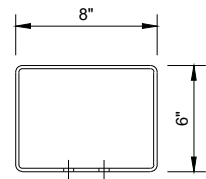
- 200 INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 201 INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- 202 INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- 203 INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- 204 TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- 205 TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- 206 INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

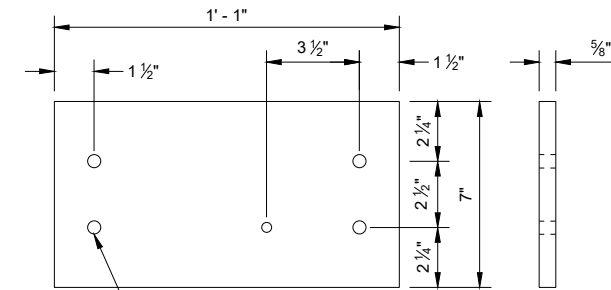
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

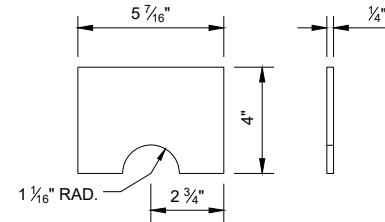
(300) TAP FOR 1/2" AFTER GALVANIZATION



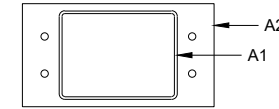
TOP VIEW



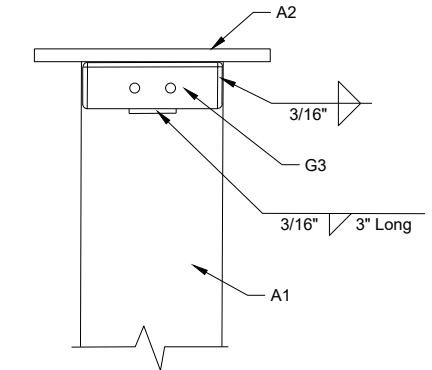
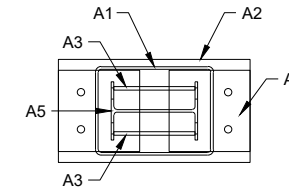
LOWER PLATE (A2)



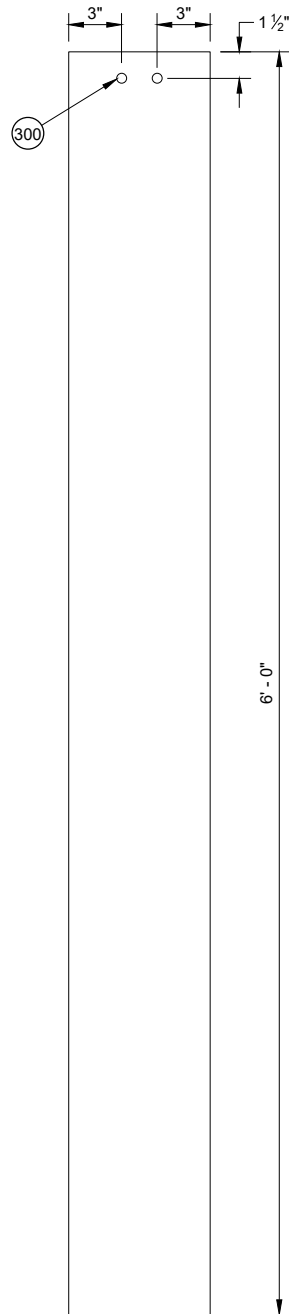
POST GUSSET (A3)



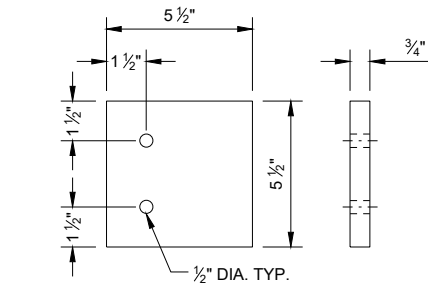
PLAN VIEW



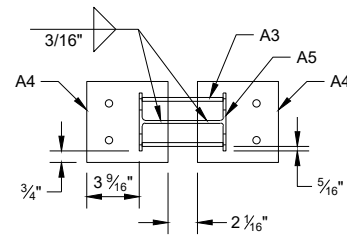
WELDING DETAIL G3 AND A1



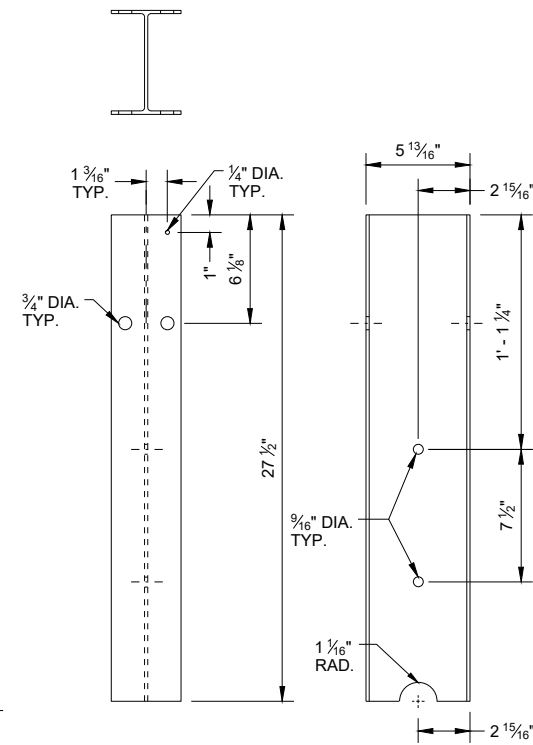
FOUNDATION TUBE (A1)



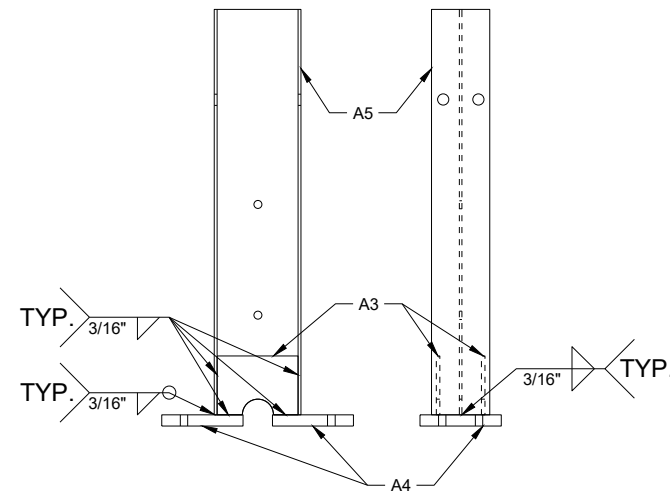
UPPER PLATE (A4)



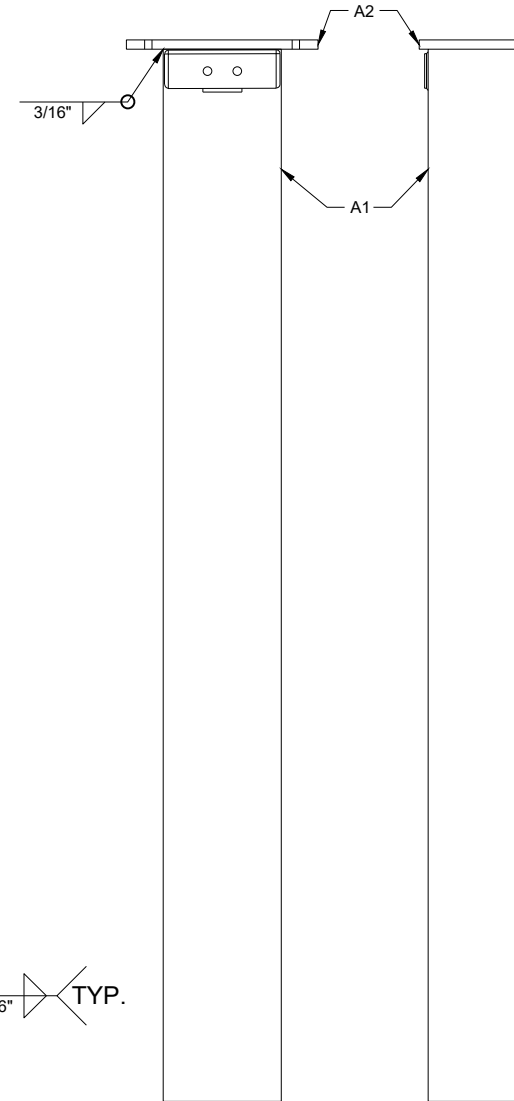
PLAN VIEW



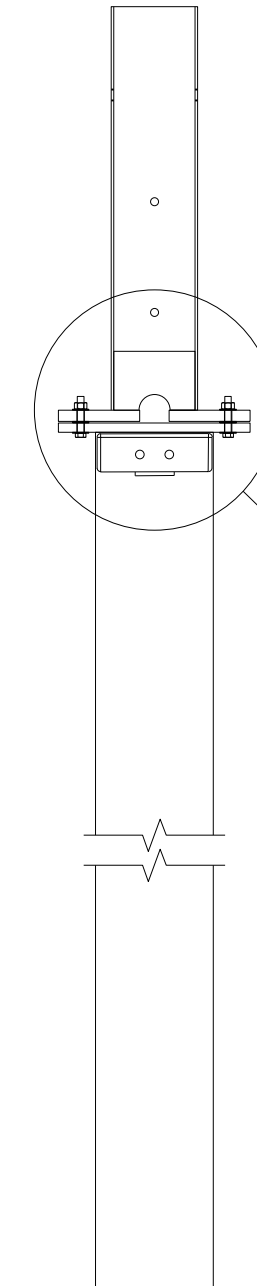
TYPE 2 POST (A5)



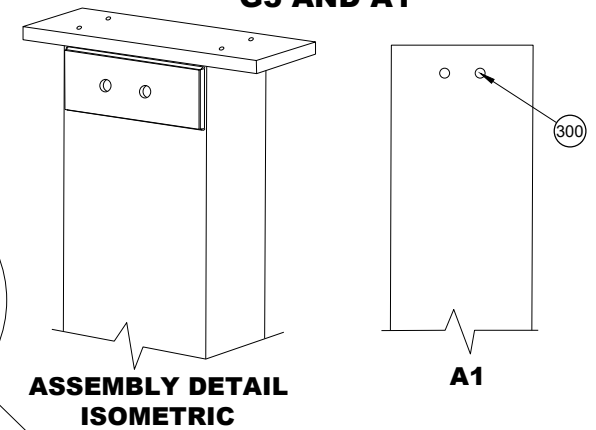
UPPER POST ASSEMBLY



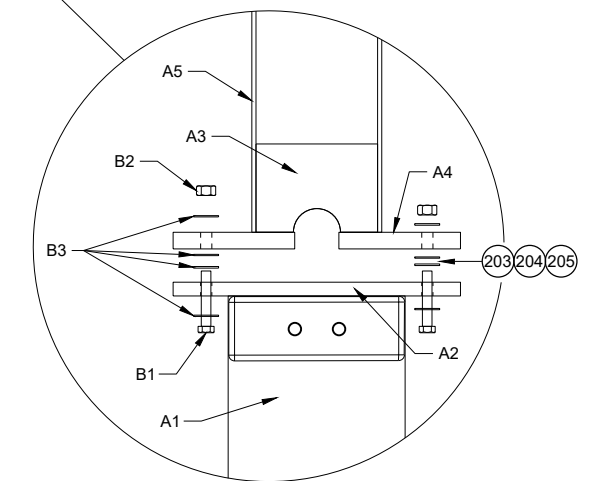
LOWER POST ASSEMBLY



ASSEMBLED POST



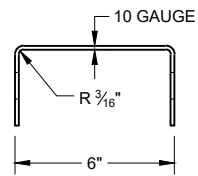
ASSEMBLY DETAIL ISOMETRIC



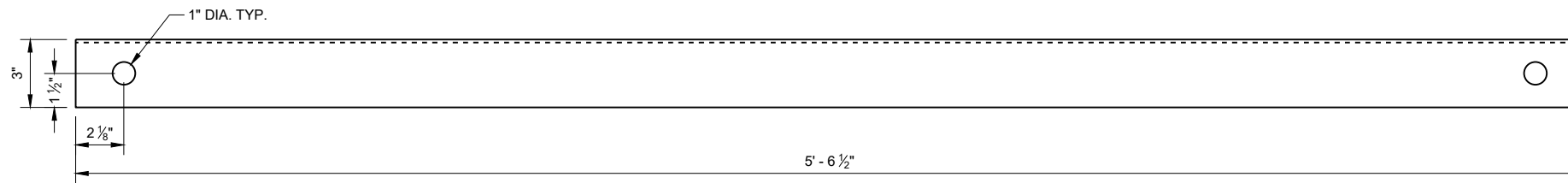
POST CONNECTION DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

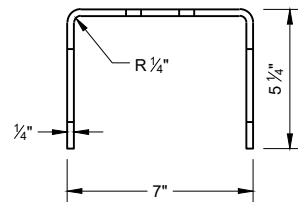


SIDE VIEW

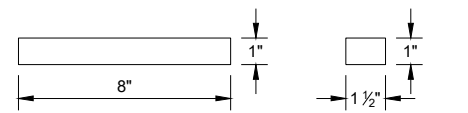


FRONT VIEW

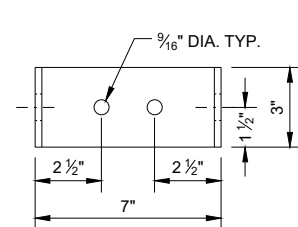
GROUND STRUT CHANNEL (G1)



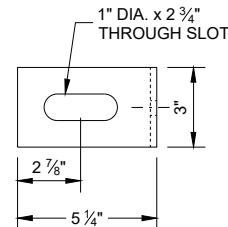
TOP VIEW



BEARING PLATE FLANGE (L2)

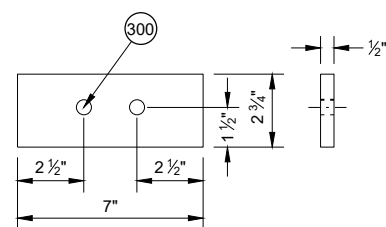


FRONT VIEW

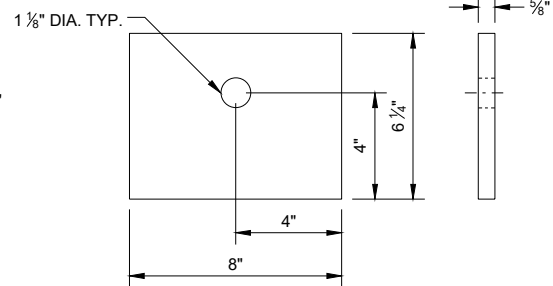


SIDE VIEW

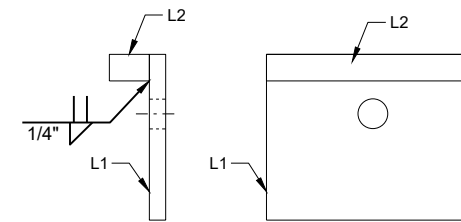
GROUND STRUT CONNECTOR (G2)



GROUND STRUT PLATE (G3)



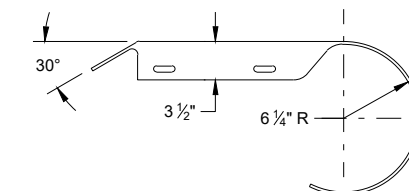
BEARING PLATE (L1)



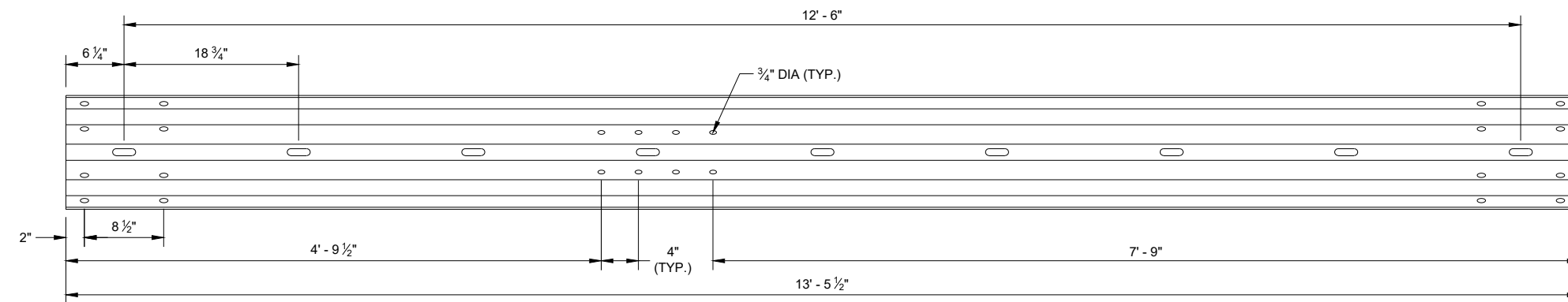
SIDE VIEW

FRONT VIEW

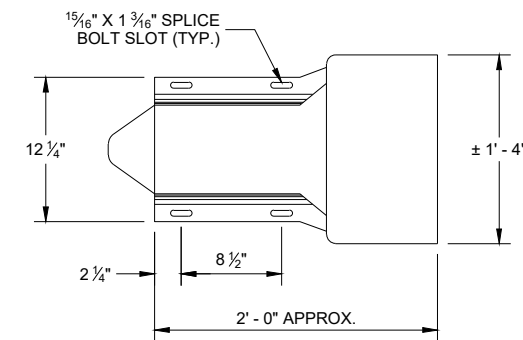
BEARING PLATE ASSEMBLY



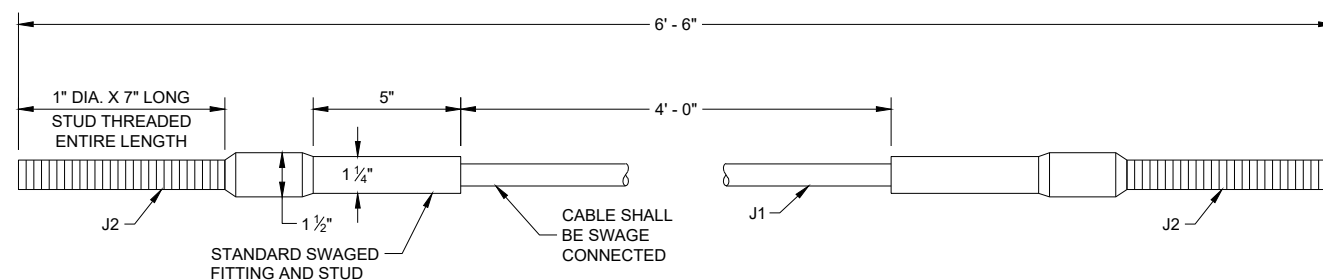
PLAN VIEW



TYPE 2 GUARDRAIL (E1)



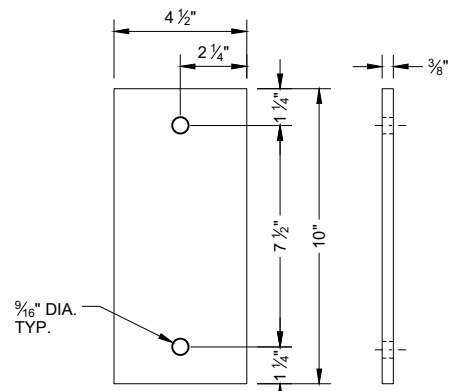
**ELEVATION VIEW
ROUNDED BUFFER END (E3)**



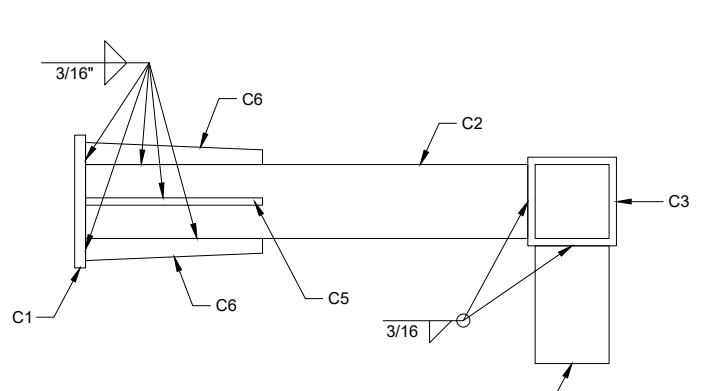
CABLE ASSEMBLY

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

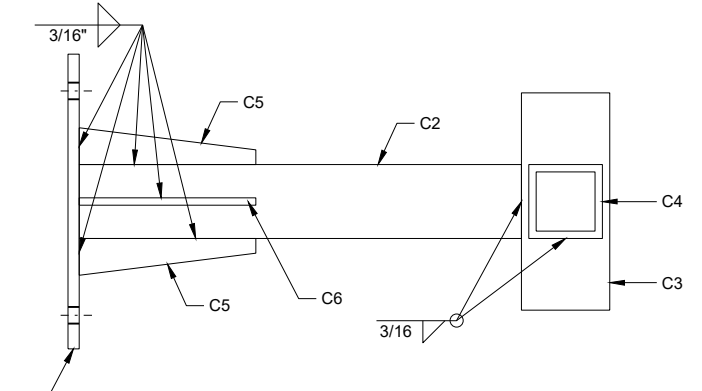
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



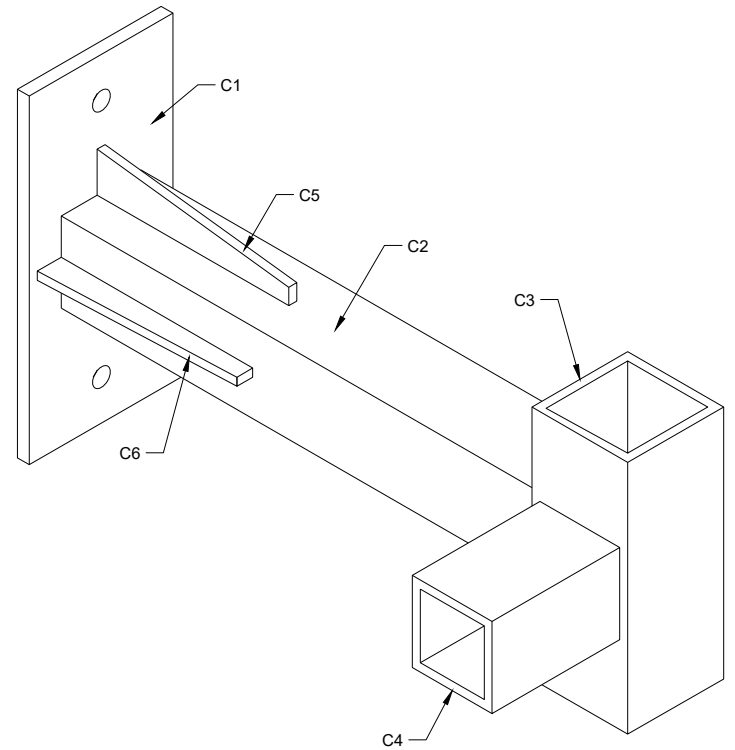
ARM PLATE (C1)



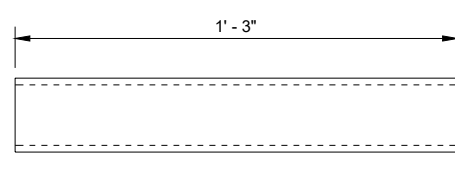
**TOP VIEW
ARM ASSEMBLY**



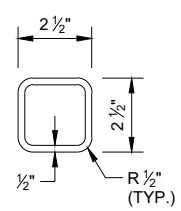
**SIDE VIEW
ARM ASSEMBLY**



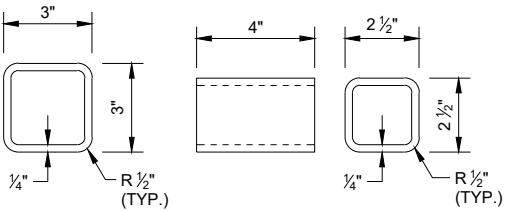
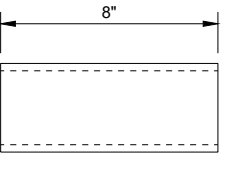
**ISOMETRIC VIEW
ARM ASSEMBLY**



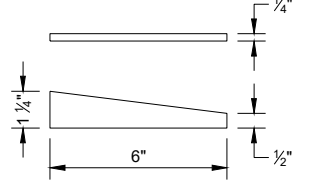
ARM TUBE 1 (C2)



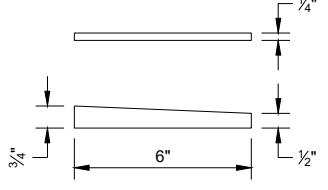
ARM TUBE 2 (C3)



ARM TUBE 3 (C4)

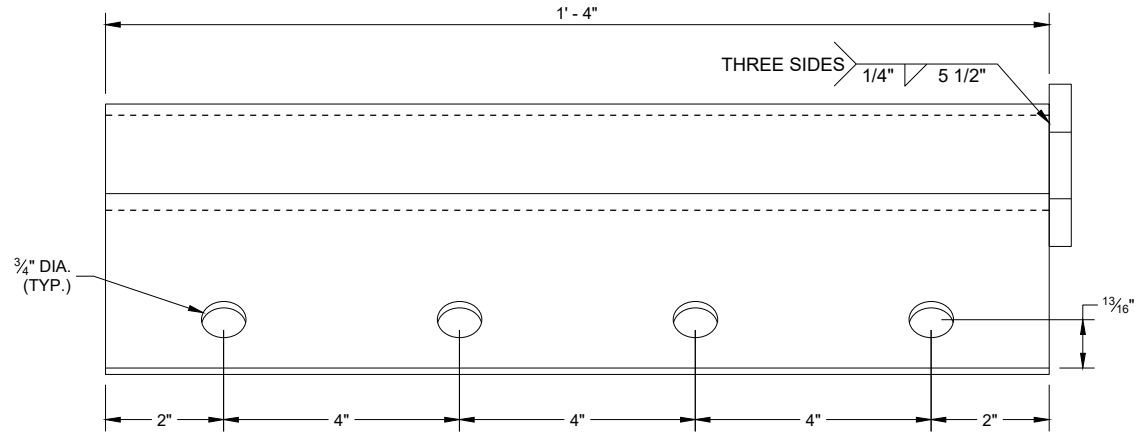


**ARM GUSSET
PLATE 1 (C5)**

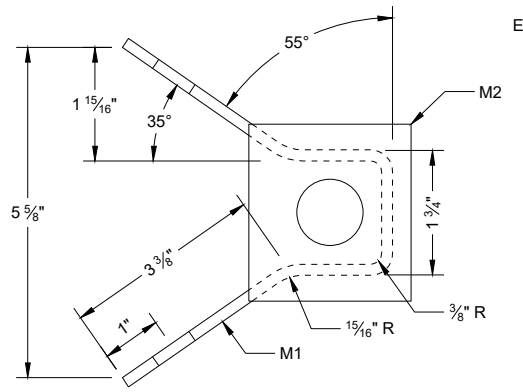
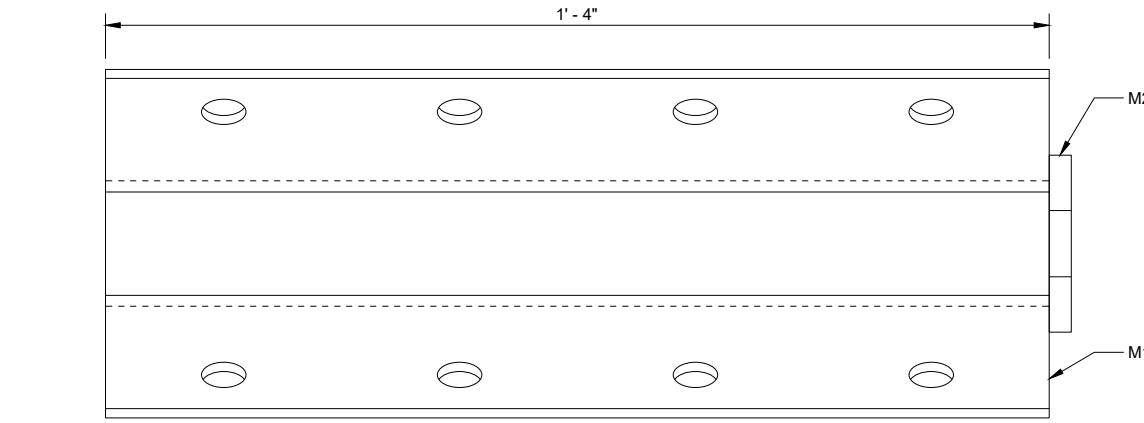


**ARM GUSSET
PLATE 2 (C6)**

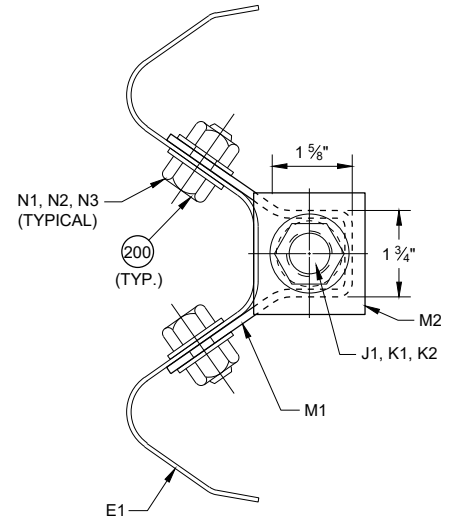
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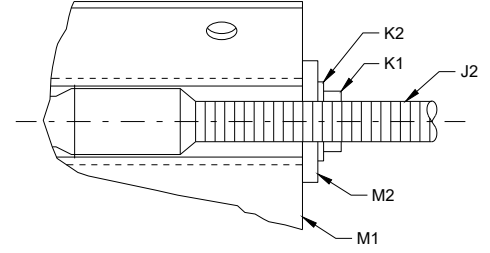
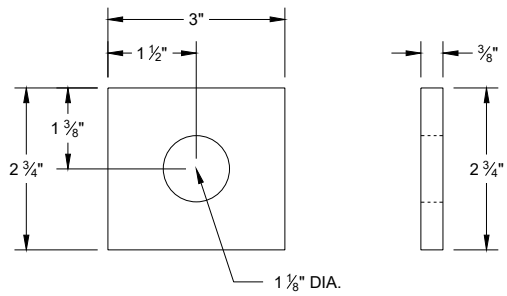
ANCHOR BRACKET (M1, M2)



ANCHOR BRACKET BEARING PLATE (M2)



SECTION A - A



SDD 14B47 - 05e

SDD 14B47 - 05e

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	TYPE 2 FOUNDATION TUBE	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
A2	LOWER 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	5/8" THICKNESS
A3	POST GUSSET	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	1/4" THICKNESS
A4	UPPER 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	3/4" THICKNESS
A5	TYPE 2 POST	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, w6x9 or w6x8.5	
B1	BREAKAWAY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX 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.	7/16" DIA.
B2	BREAKAWAY BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/16" DIA.
B3	BREAKAWAY BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. 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	
C1	ARM ASSEMBLY 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	5/8" THICKNESS
C2	ARM ASSEMBLY TUBE 1	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
C3	ARM ASSEMBLY TUBE 2	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 3" x 3" x 1/4"
C4	ARM ASSEMBLY TUBE 3	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 2 1/2" x 2 1/2" X 1/4"
C5	ARM ASSEMBLY GUSSET 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	1/4" THICKNESS
C6	ARM ASSEMBLY GUSSET 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	1/4" THICKNESS
D1	ARM ASSEMBLY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	1/2" DIA.
D2	ARM ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	1/2" DIA.
D3	ARM ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. 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	1/2" DIA.
E1	TYPE 2 GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E2	BEAM GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E3	BEAM GUARD ROUNDED BUFFER END	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
F1	POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
F2	POST BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
F3	POST BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. 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 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
G1	GROUND STRUT CHANNEL	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	1/2" x 11 3/4" x 10 GAUGE
G2	GROUND STRUT CONNECTOR	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	1/4" THICKNESS
G3	GROUND STRUT 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	1/2" THICKNESS

6

6

SDD 14B47 - 05f

SDD 14B47 - 05f

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2	GROUND STRUT BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/8" DIA.
H3	GROUND STRUT BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
J1	BCT CABLE	AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS	3/4" DIA.
J2	BCT CABLE	UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."	
K1	CABLE ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. 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	1" DIA.
K2	CABLE ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1	1" DIA.
L1	BEARING 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	5/8" THICKNESS
L2	BEARING PLATE FLANGE	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	1" THICKNESS
M1	BEAM GUARD ANCHOR BRACKET	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	
M2	BEAM GUARD ANCHOR 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	3/8" THICKNESS
N1	ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
N2	ANCHOR BRACKET BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
N3	ANCHOR BRACKET BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. 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	
P1	FOUNDATION TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. 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	1/2" DIA.
Q1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
Q2	SPLICE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. 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 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	5/8" DIA.

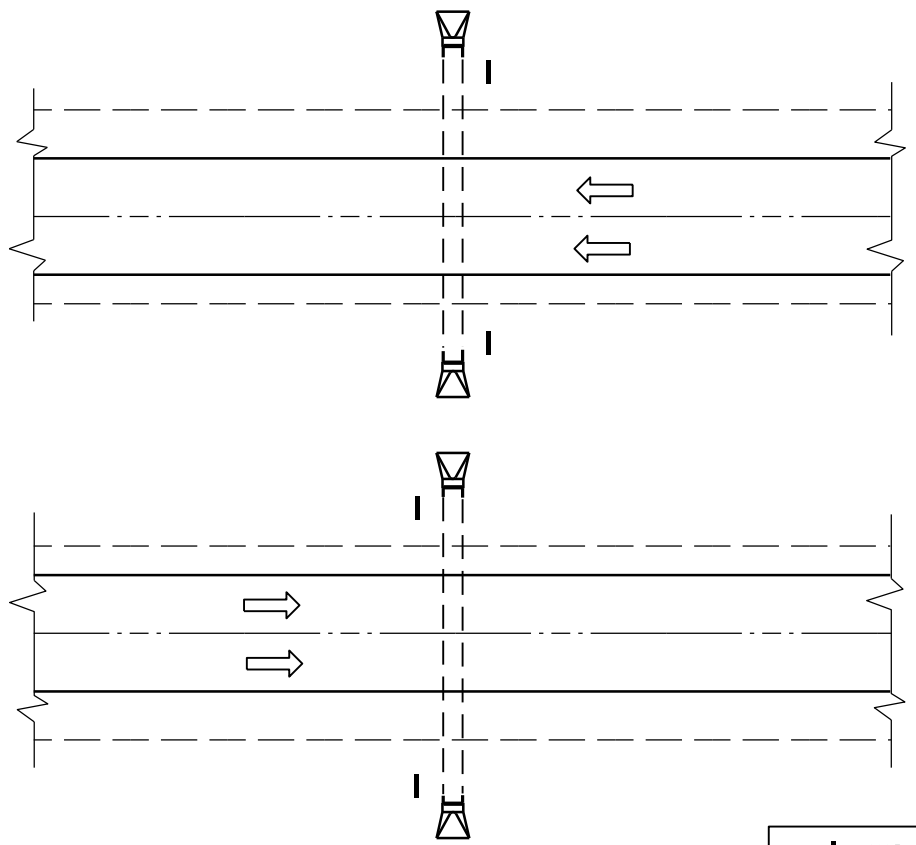
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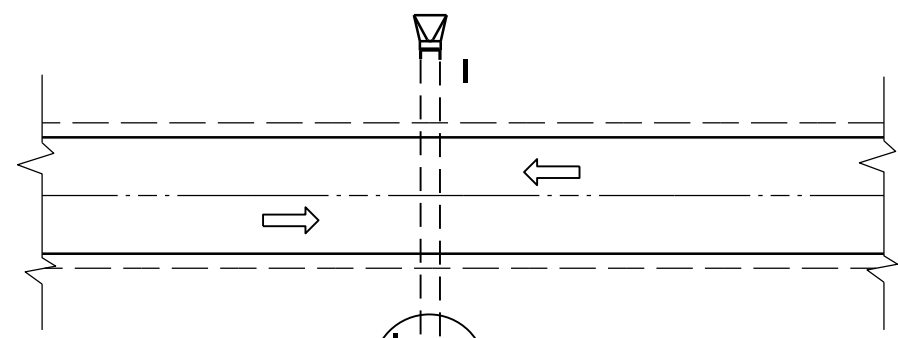
SDD 14B47 - 05g

SDD 14B47 - 05g

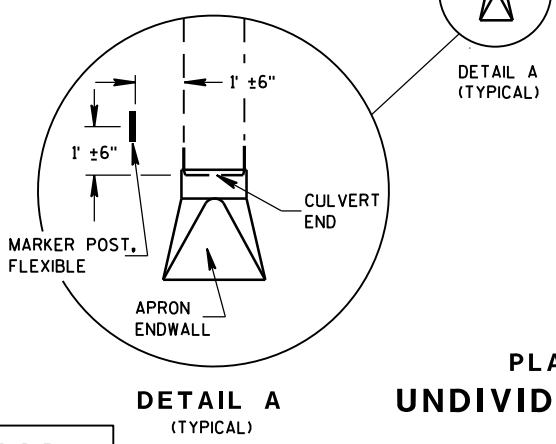
MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVED May 2023 /S/ Rodney Taylor DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER <small>FHWA</small>



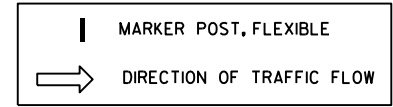
PLAN VIEW
DIVIDED HIGHWAY



PLAN VIEW
UNDIVIDED HIGHWAY

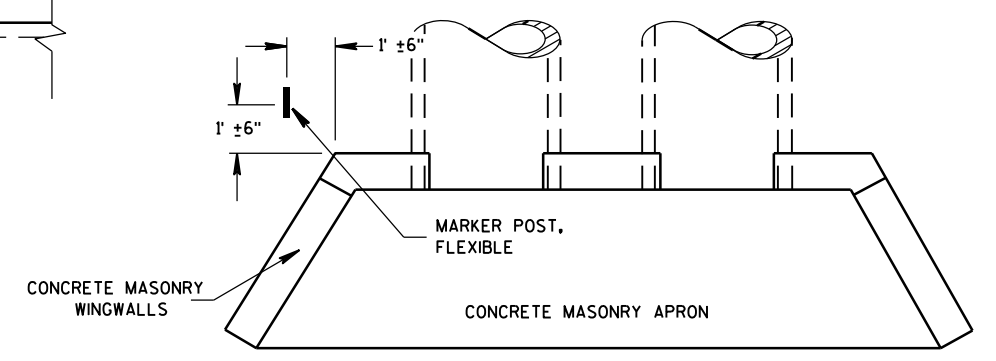


DETAIL A
(TYPICAL)



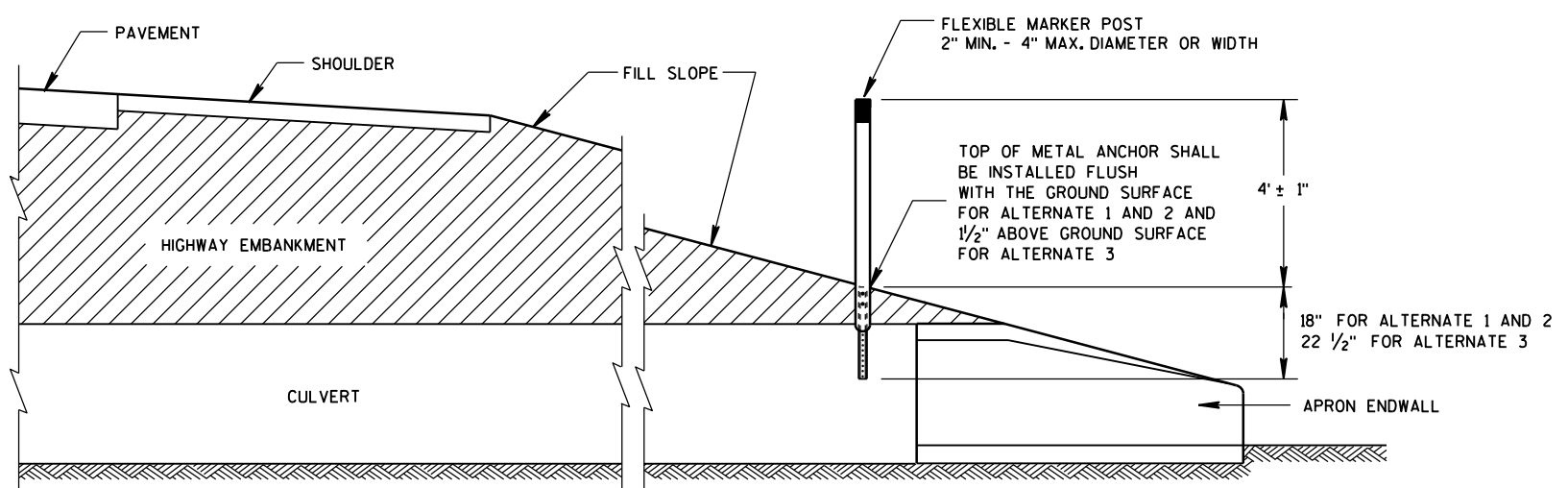
GENERAL NOTES

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



PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST LOCATION



CROSS SECTION
FLEXIBLE MARKER POST

**FLEXIBLE MARKER POST
FOR CULVERT END**

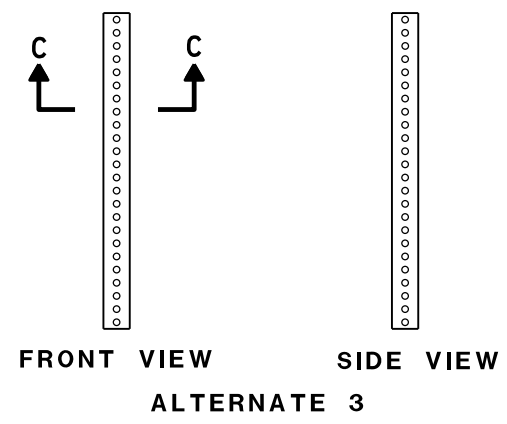
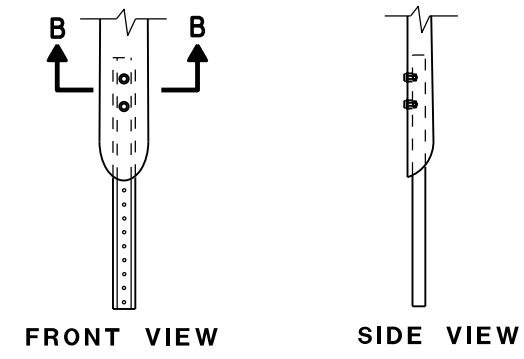
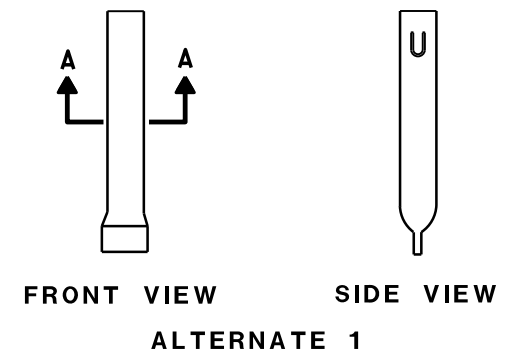
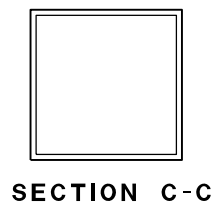
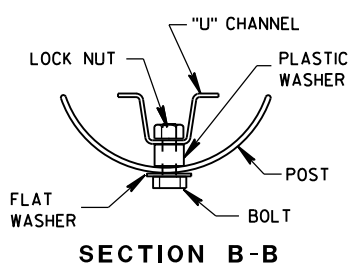
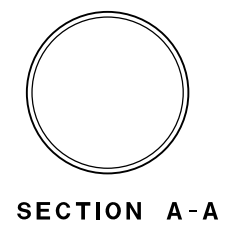
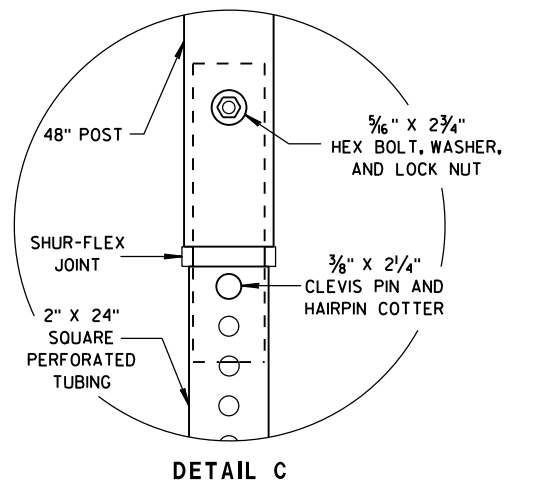
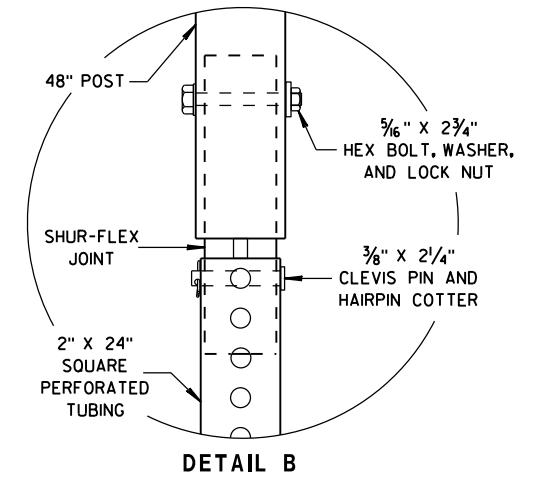
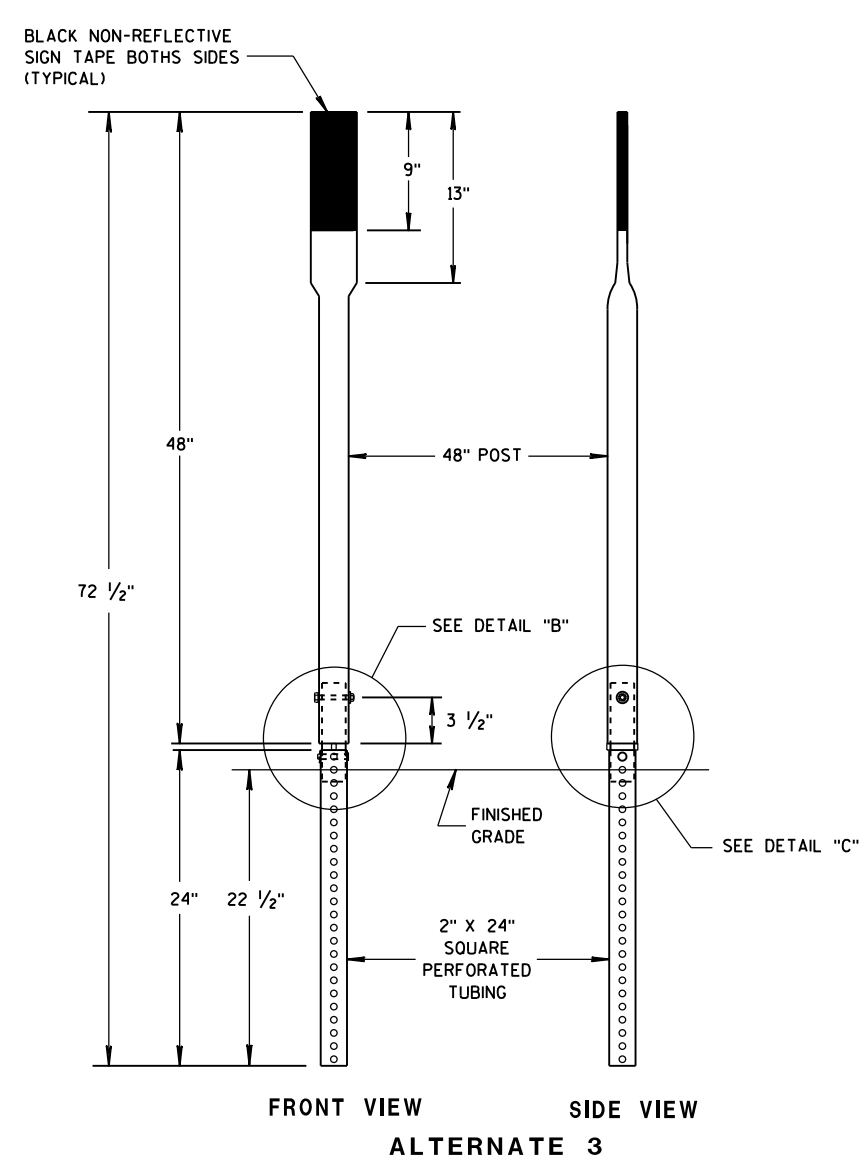
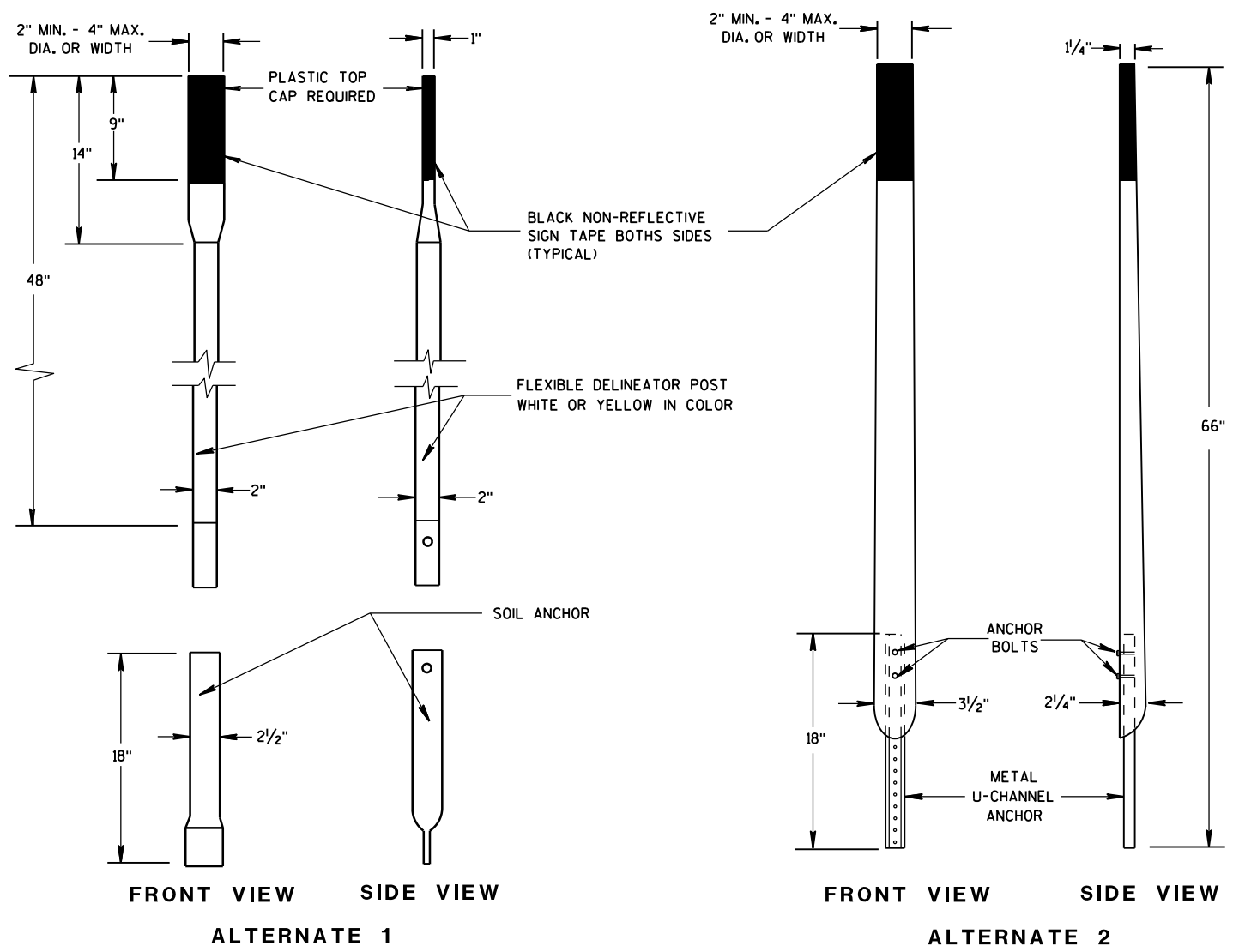
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 15 A 3-2a

S.D.D. 15 A 3-2a

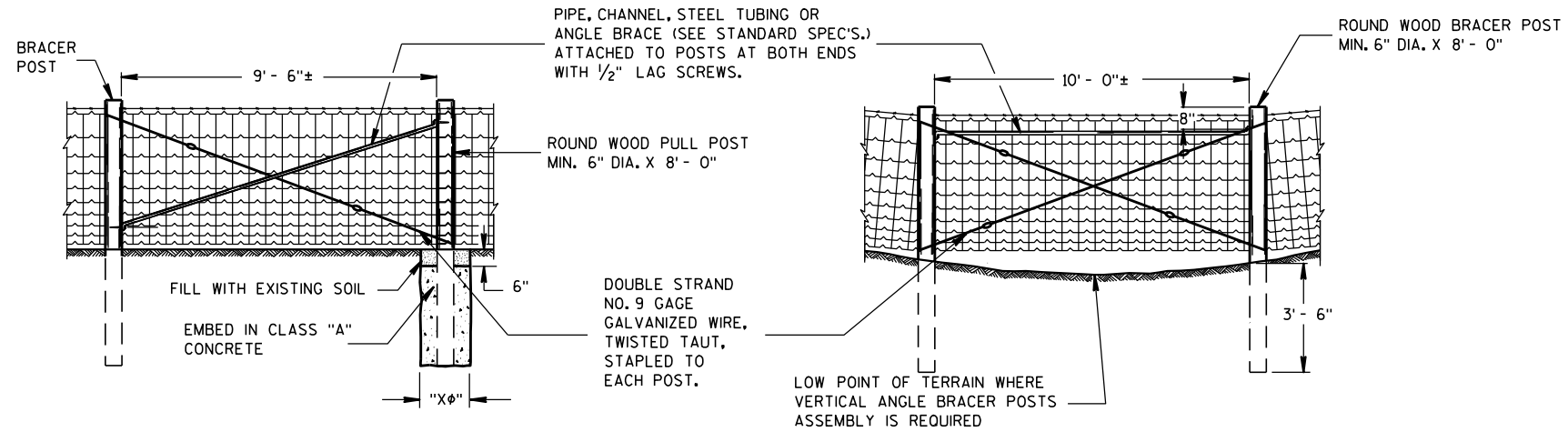


FLEXIBLE MARKER POST ANCHORS

FLEXIBLE MARKER POST FOR CULVERT END	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/1/2012 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY

VERTICAL ANGLE BRACER POSTS ASSEMBLY

GENERAL NOTES

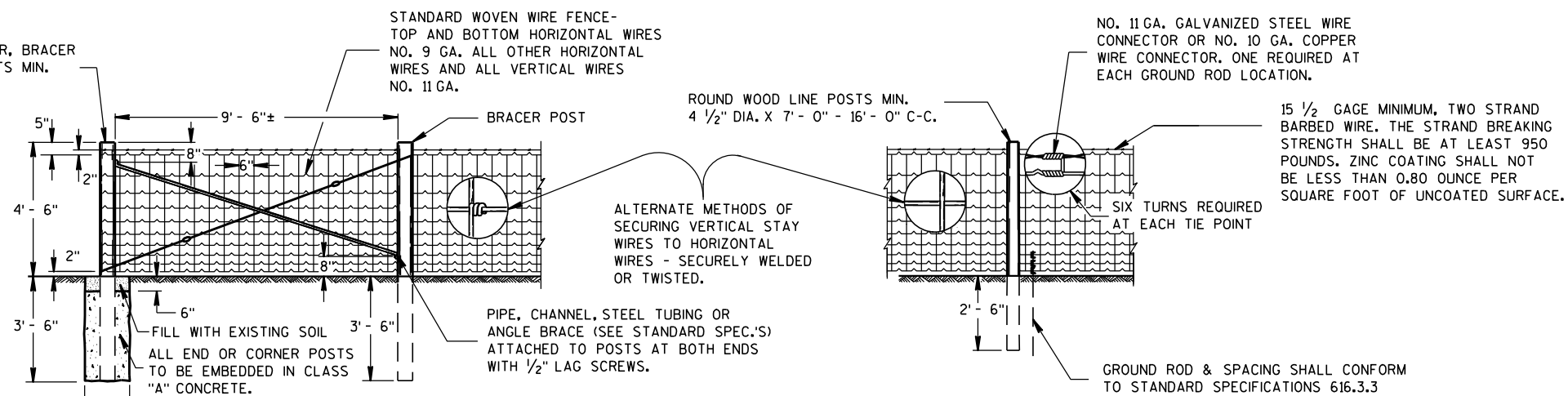
"Xφ" = DIAMETER OF THE POST PLUS 12".

FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.

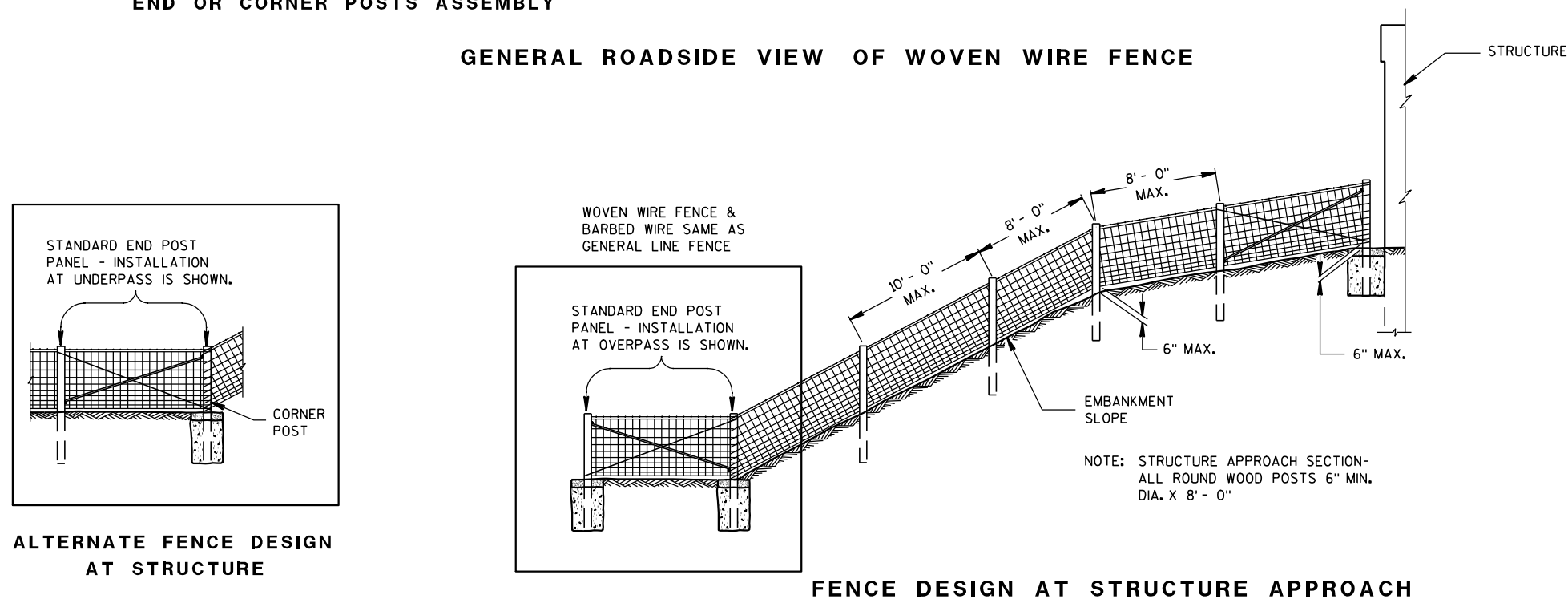
ROUND WOOD END, CORNER, BRACER OR VERTICAL ANGLE POSTS MIN. 6" DIA. X 8' - 0"



END OR CORNER POSTS ASSEMBLY

LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE

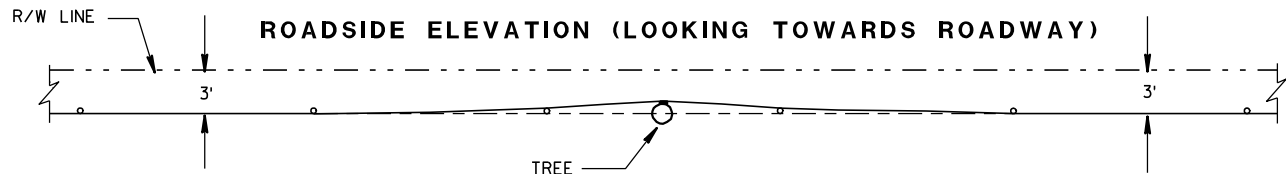
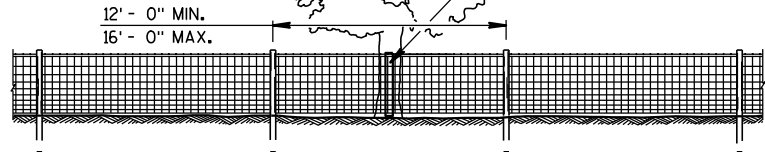
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

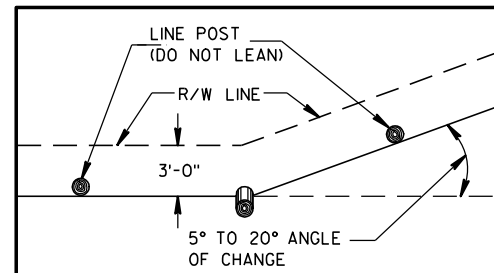
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

NOTE: TREE IN NORMAL FENCE LINE SPECIFICALLY ORDERED BY ENGINEER TO REMAIN IN PLACE.

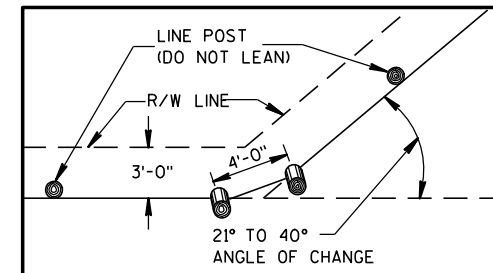
2" X 6" DOUGLAS FIR OR SO. YELLOW PINE PLACED BETWEEN TREE AND WOVEN WIRE FENCE. WOVEN WIRE FENCE AND BARBED WIRE TO BE STAPLED TO 2" X 6" LIKE AS TO LINE POST. 2" X 6" NOT FASTENED TO TREE.



**PLAN VIEW
FENCE DESIGN AT TREES REMAINING
IN NORMAL FENCE LINE**



**PLAN VIEW
SINGLE POST CORNER**

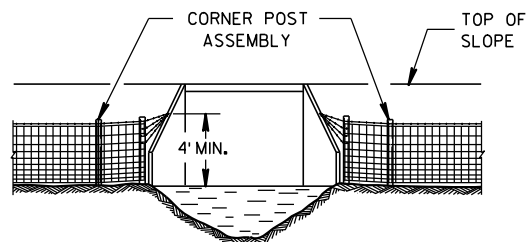


**PLAN VIEW
DOUBLE POST CORNER**

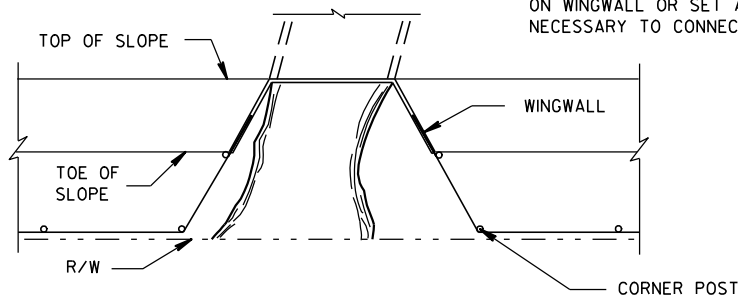
RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

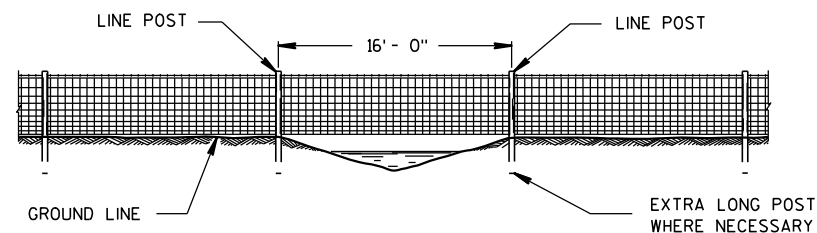
WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



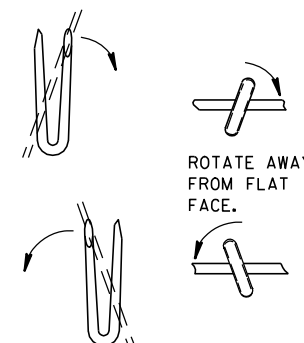
NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



FENCE INSTALLATION TO WINGWALLS

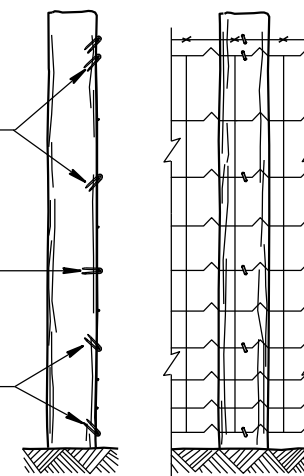


**FENCE CONSTRUCTION OVER STREAM
COURSES OF 15 FT. OR LESS IN WIDTH**

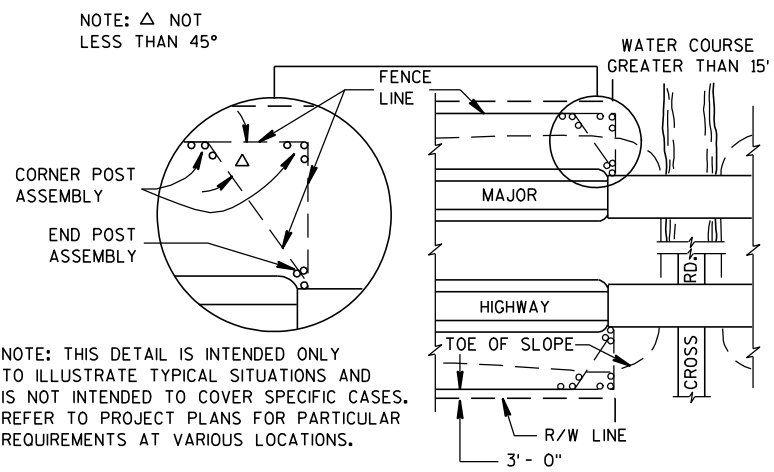


LINE POST

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.

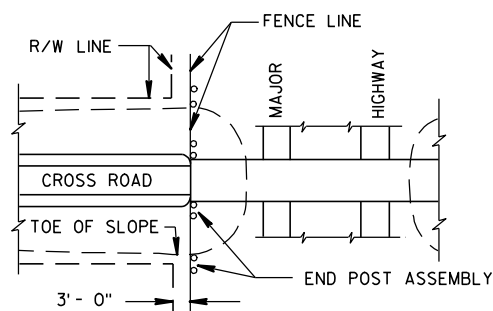


**END ELEVATION FARM SIDE ELEVATION
FENCE MOUNTING DETAIL**



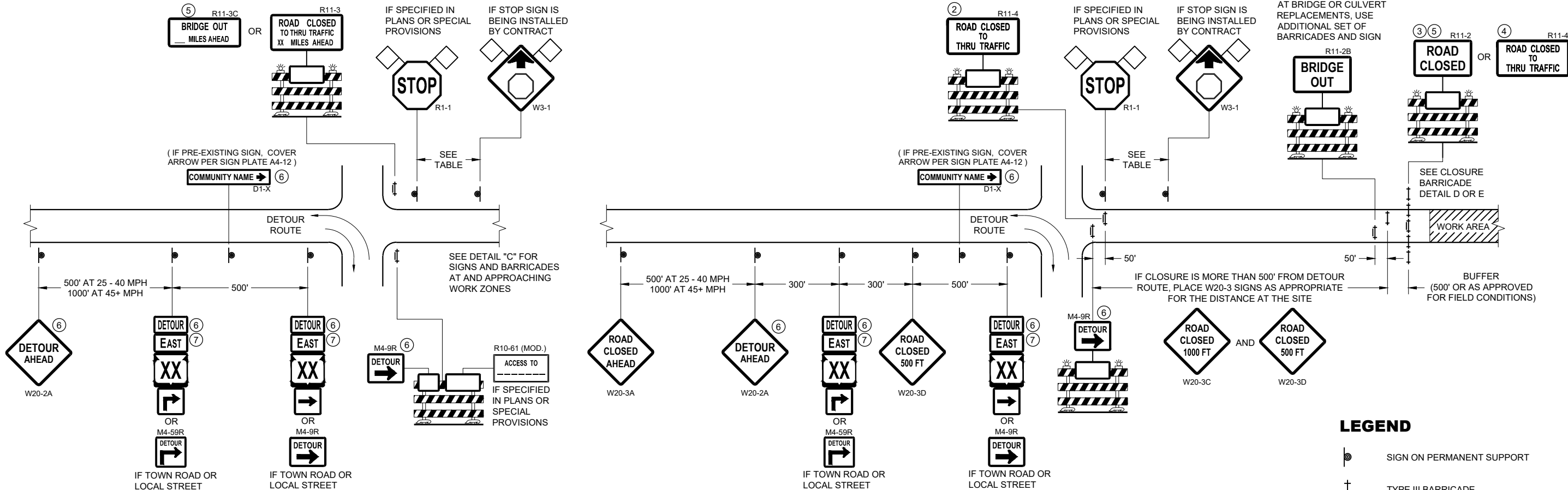
**PLAN VIEW
MAJOR HIGHWAY OVERPASS OR STREAM COURSE
CROSSING OF GREATER THAN 15 FT. IN WIDTH**

FENCE LOCATION AT STRUCTURES



**PLAN VIEW
MAJOR HIGHWAY UNDERPASS**

FENCE WOVEN WIRE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4/4/2008 DATE	/s/ Jerry H. Zogg ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

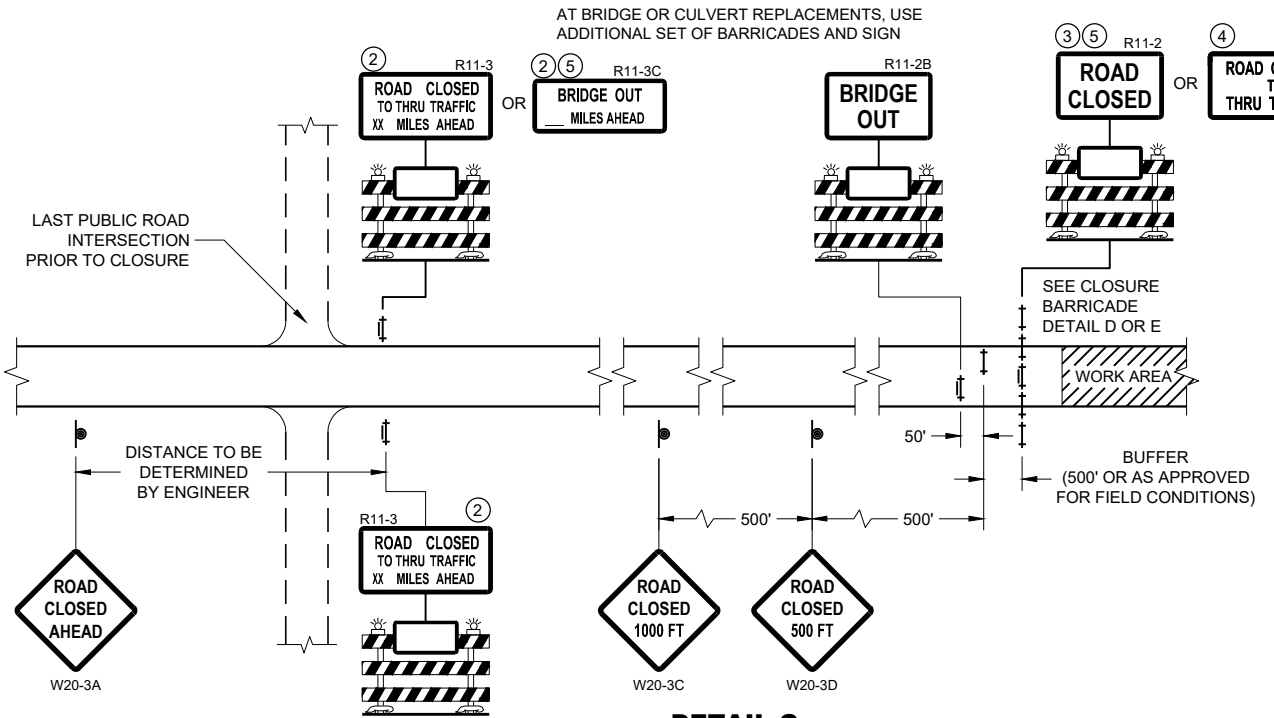
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR M06 - 1

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

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

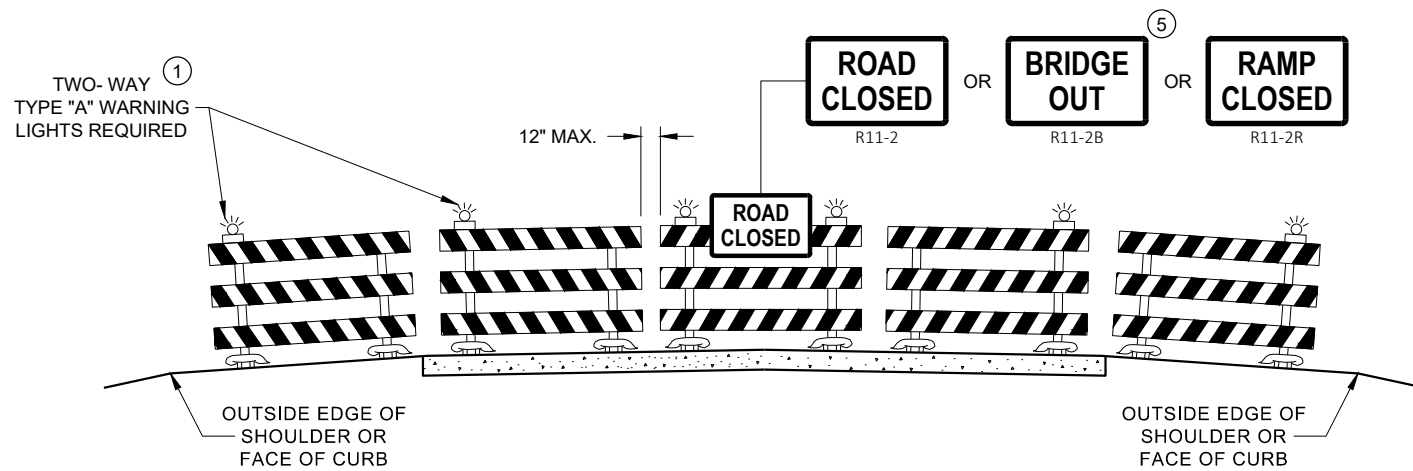


**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

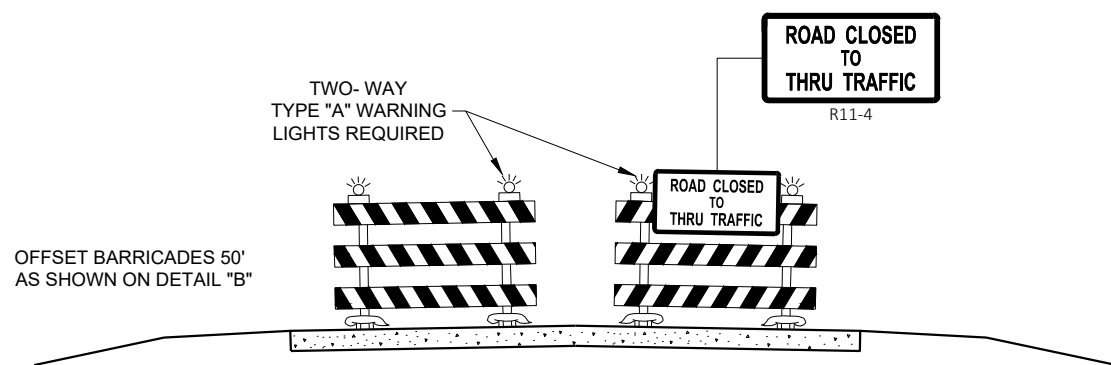
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE DATE WORK ZONE ENGINEER
FHWA



**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.

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

"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:

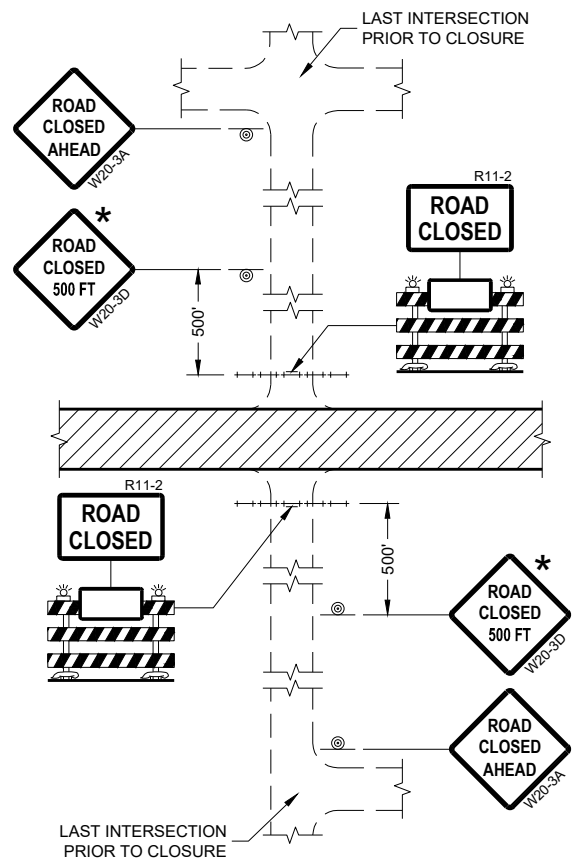
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" 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"

- 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.

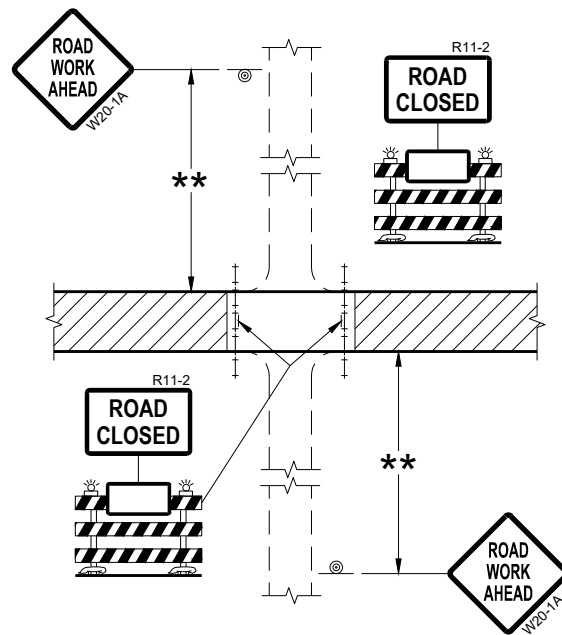
**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

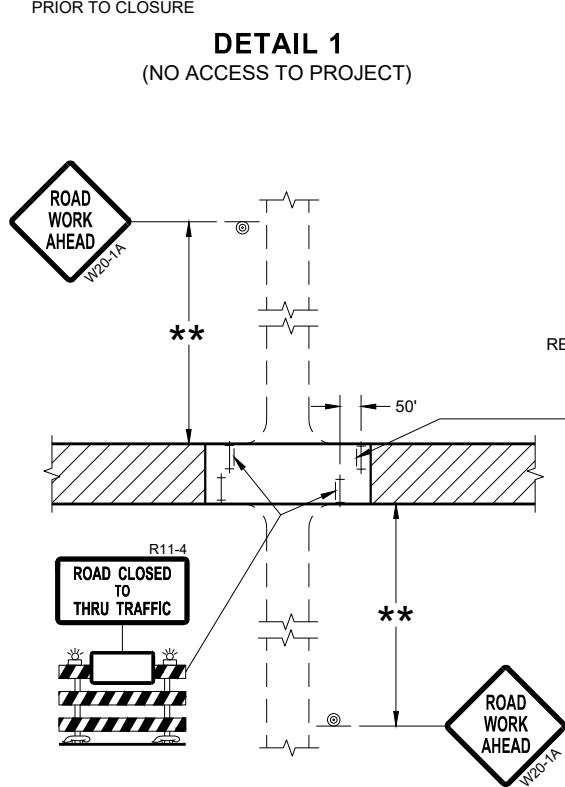
APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



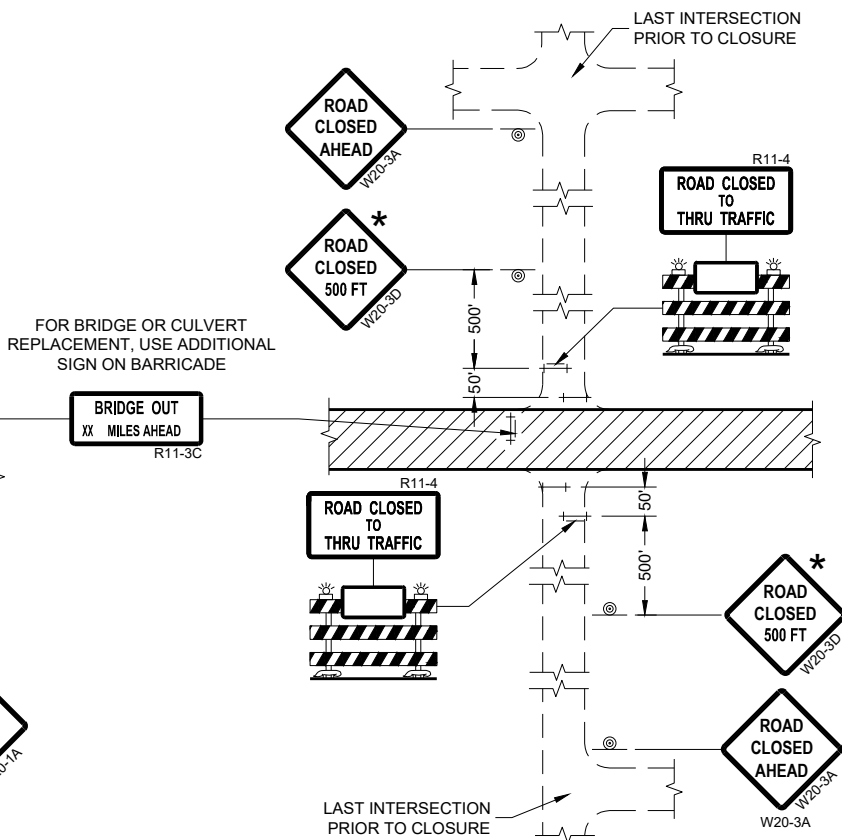
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

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 (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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.

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

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

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

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

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

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

- ⊙ SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- ⚡ TYPE "A" WARNING LIGHT (FLASHING)
- ▨ WORK AREA

**BARRICADES AND SIGNS
FOR
SIDEROAD CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION




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

GENERAL NOTES

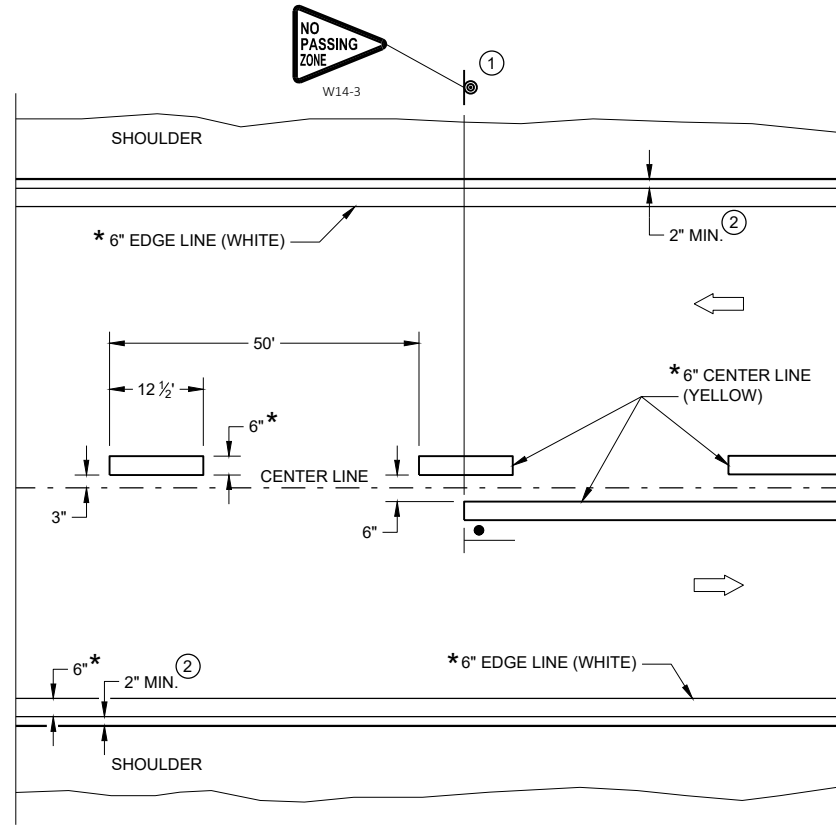
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

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

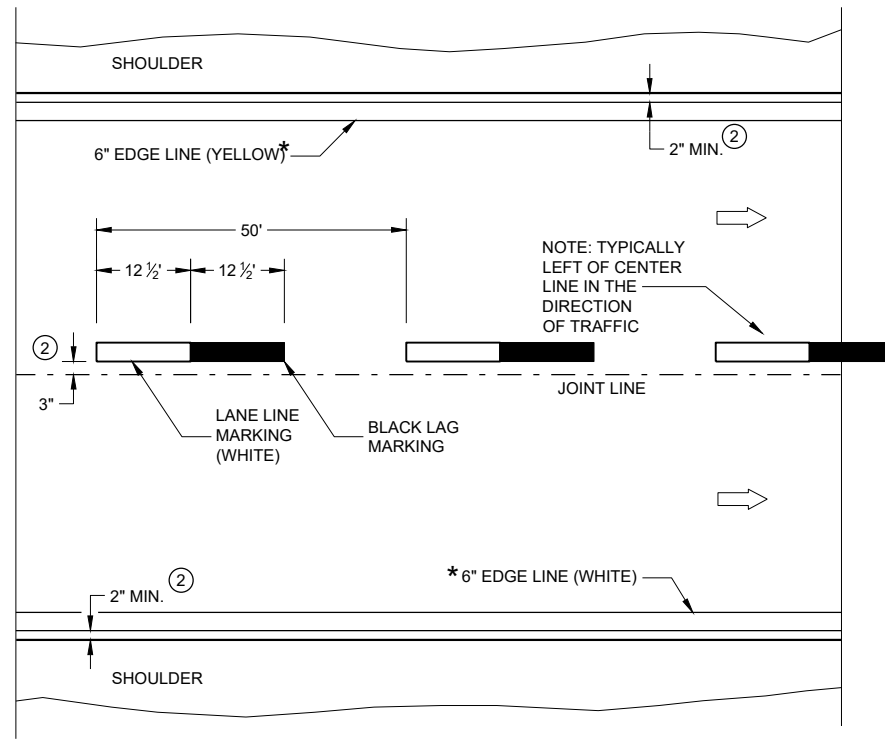
LEGEND

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

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



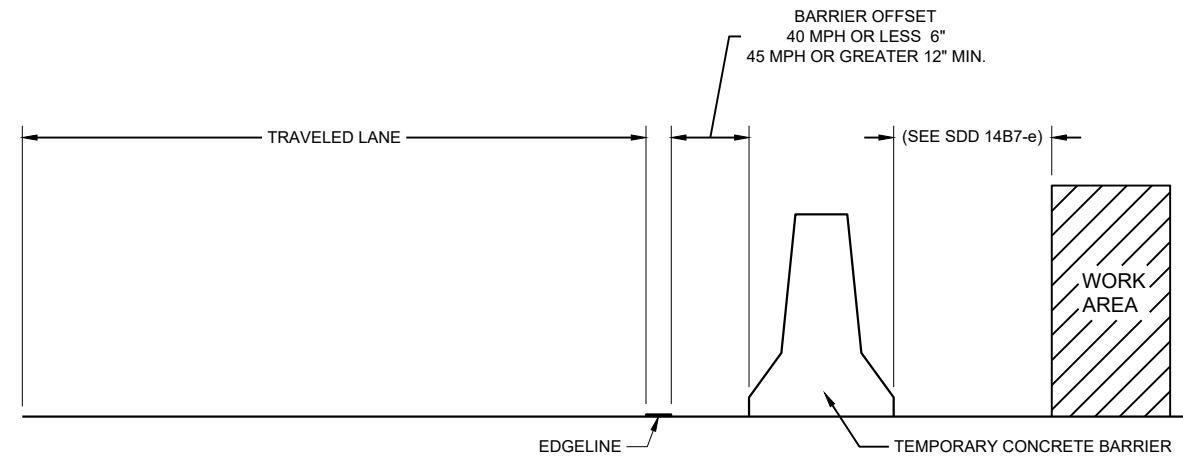
ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



TEMPORARY BARRIER OFFSET FROM EDGE LINE

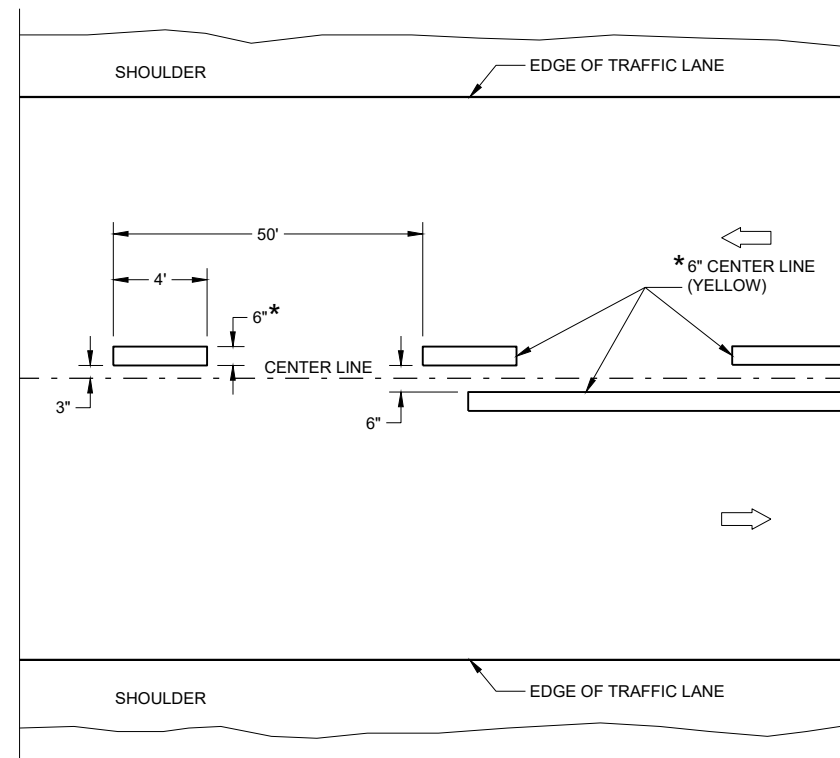
GENERAL NOTES

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

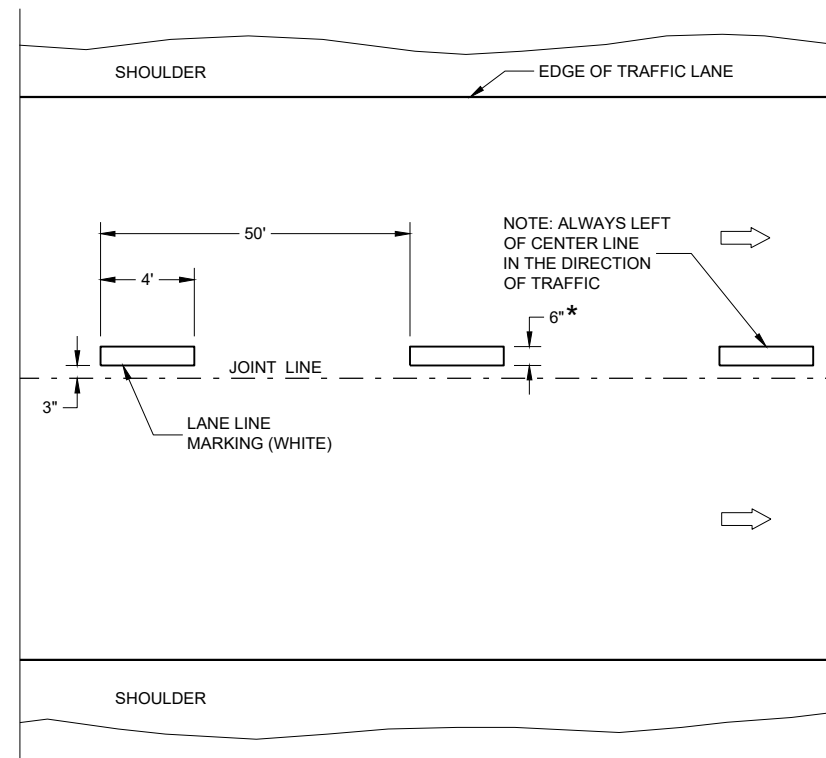
LEGEND

➡ DIRECTION OF TRAFFIC

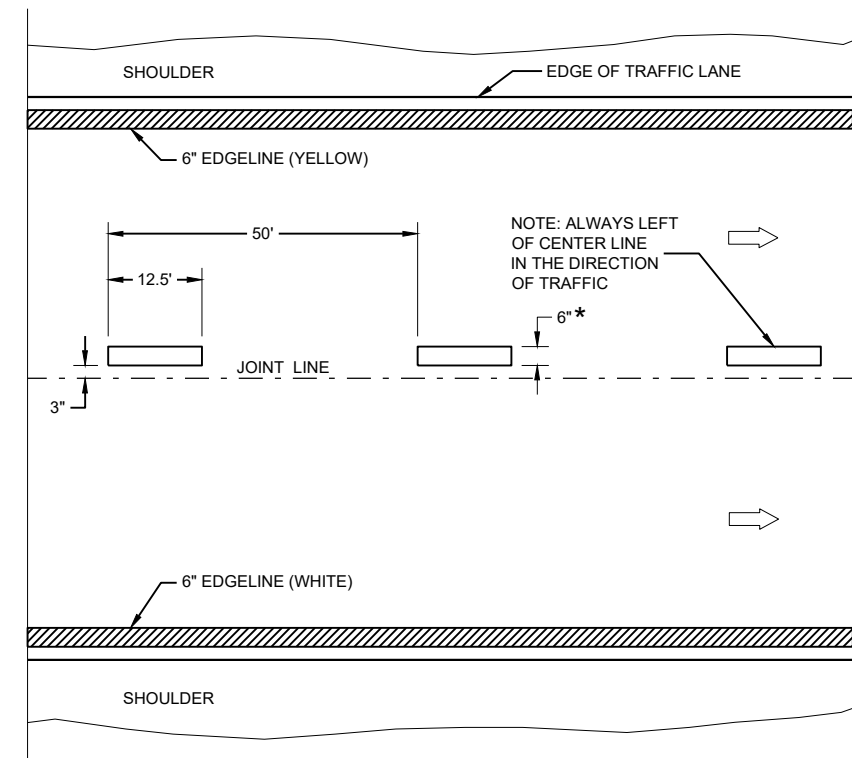
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

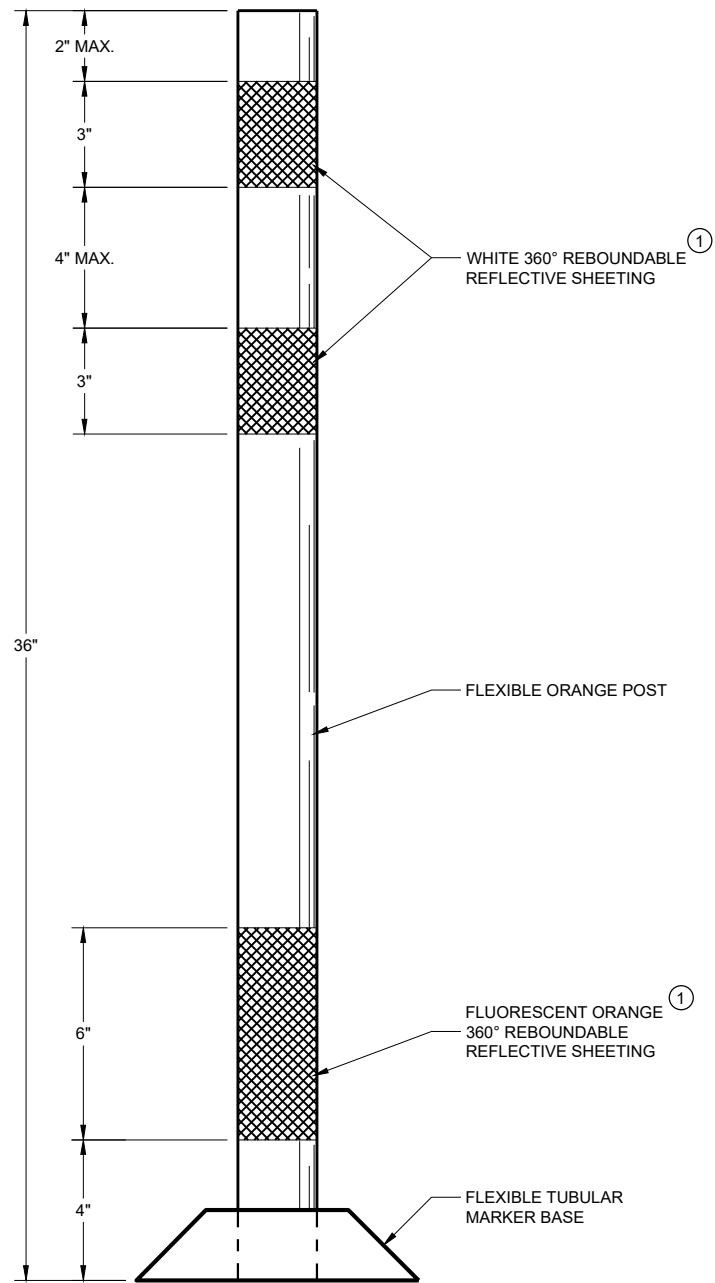
TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



FLEXIBLE TUBULAR MARKER POST WORK ZONE

GENERAL NOTES

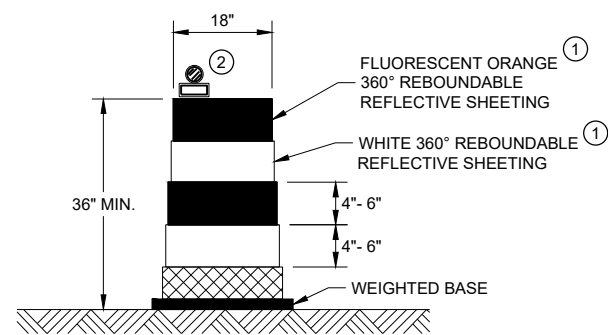
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

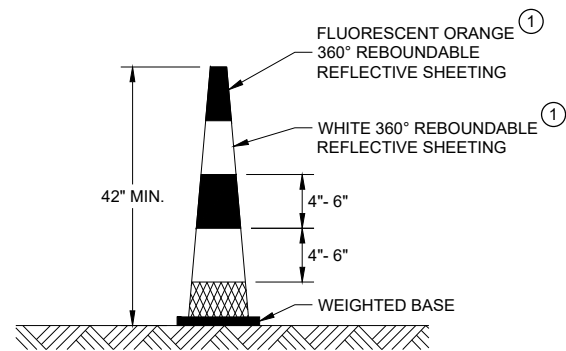
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



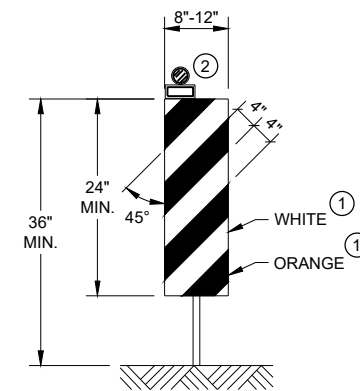
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



42" CONE

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

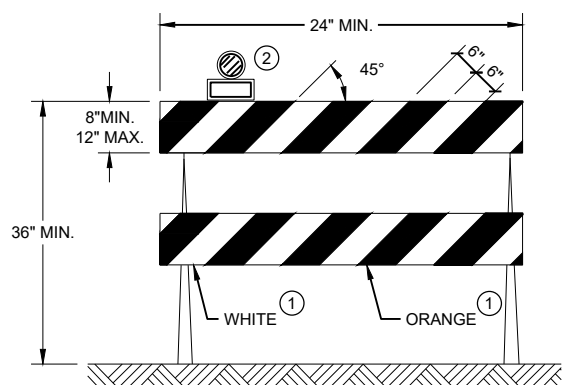


VERTICAL PANEL

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

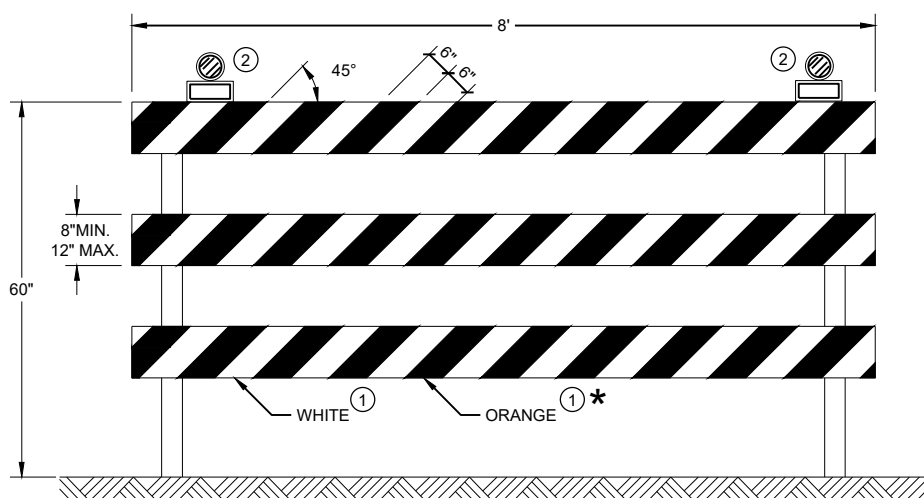
GENERAL NOTES

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



TYPE II BARRICADE

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



TYPE III BARRICADE

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

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

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

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.










WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

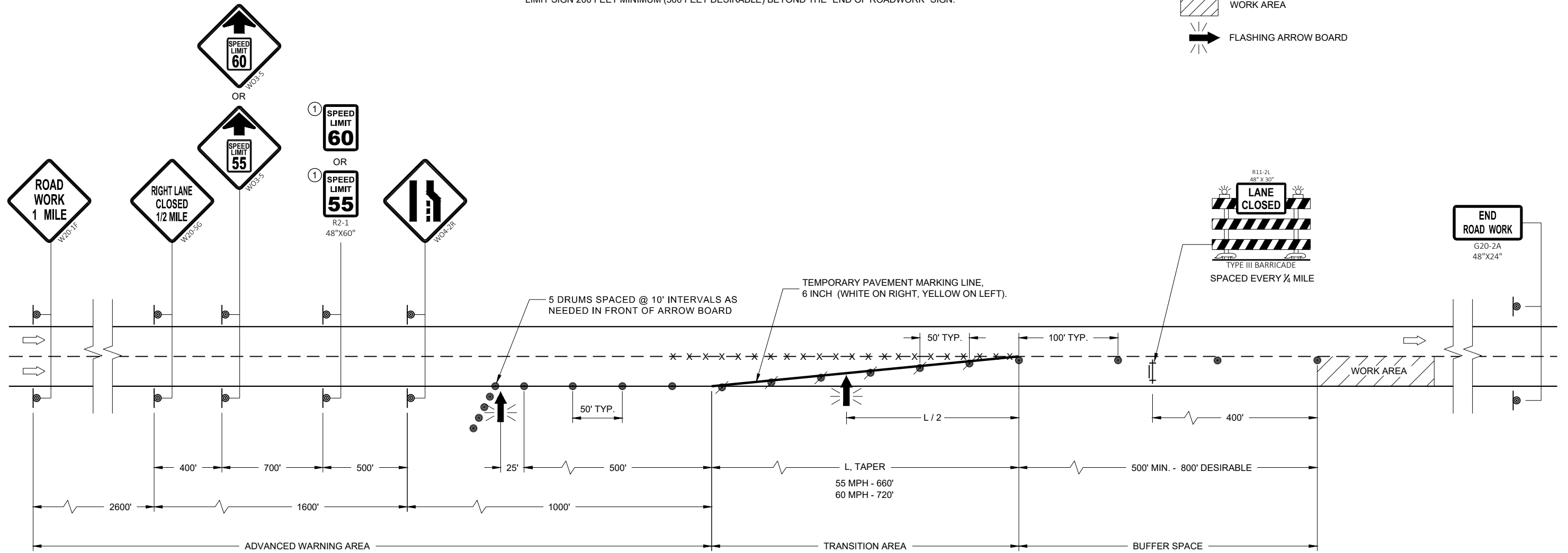
① A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD

6

SDD 15D12 - 11b














6

SDD 15D12 - 11b

TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  TYPE "A" WARNING LIGHT (FLASHING)
-  REMOVING PAVEMENT MARKINGS
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLASHING ARROW BOARD
-  PORTABLE TRAFFIC SENSOR (PTS)
-  FLASHING BEACON SIGN

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

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

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS

AND NIGHTS.
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

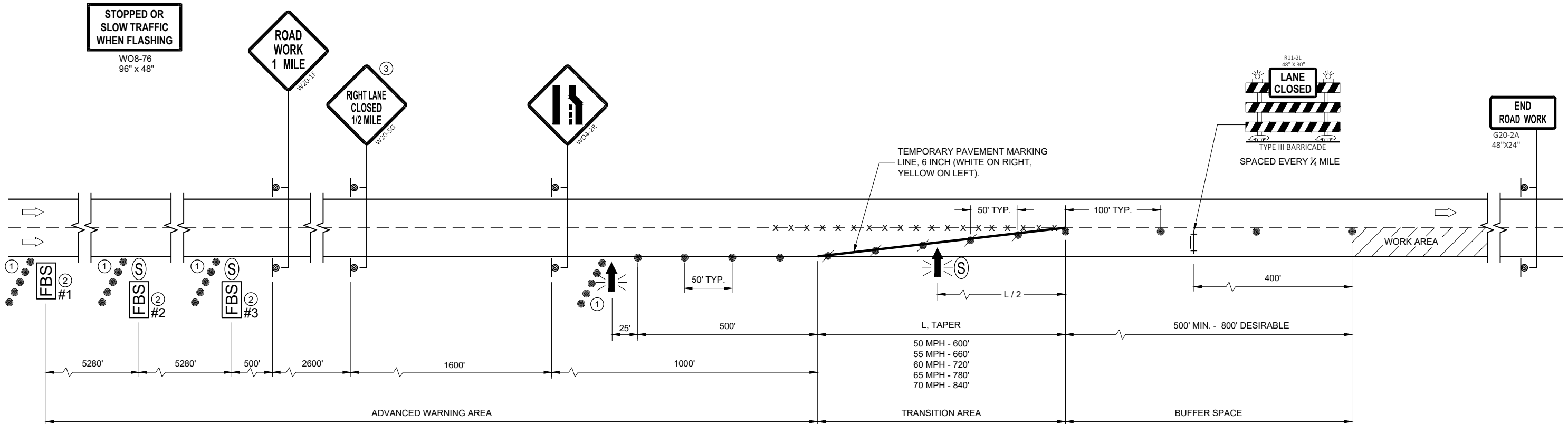
CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

PORTABLE TRAFFIC SENSOR (PTS) MAY BE MOUNTED ON THE FBS, ARROW BOARD OR OTHER TRAILER DEVICES.

- ① 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.
- ② IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE FBS ON BOTH SIDES OF THE ROADWAY.
- ③ IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN.

6

6



SDD 15D12 - 11d

SDD 15D12 - 11d

TRAFFIC CONTROL, LANE CLOSURE, BASIC TRAFFIC QUEUE WARNING SYSTEM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Erin Schwark
DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

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

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

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

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

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

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

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.

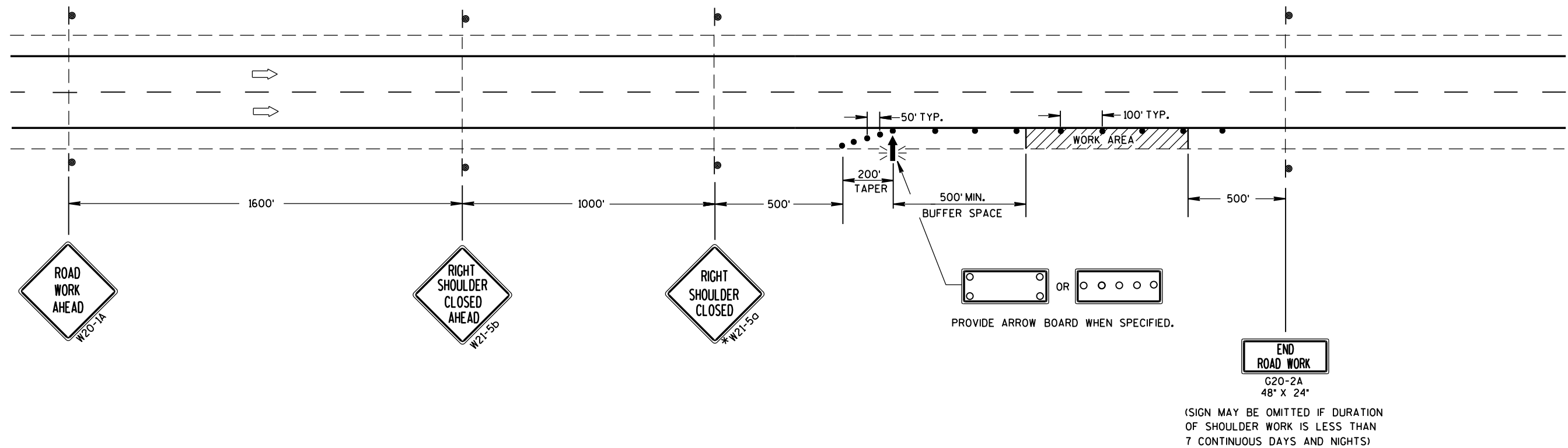
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A 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.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-50 SIGN MAY BE OMITTED.

LEGEND







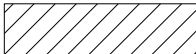
- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡ FLASHING ARROW BOARD
- ▨ WORK AREA




(SIGN MAY BE OMITTED IF DURATION OF SHOULDER WORK IS LESS THAN 7 CONTINUOUS DAYS AND NIGHTS)


TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/s/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

LEGEND

-  TYPE III BARRICADE WITH ATTACHED SIGN
-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  CONCRETE BARRIER TEMPORARY PRECAST
-  TYPE "A" WARNING LIGHT (FLASHING)
-  WORK AREA




LOCATED
3000 FEET BEYOND THE
"ROAD WORK 1 MILE"
(W20-1F) SIGN




R2-1
48"x60"

OR



LOCATED
700 FEET BEYOND THE
W03-5 SIGN



(BLACK AND WHITE)
LOCATED
700 FEET BEYOND THE
W03-5 SIGN

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 3 MILES.

GENERAL NOTES

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

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIRABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT RIGHT - REVERSE FOR SHIFTING LEFT.

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

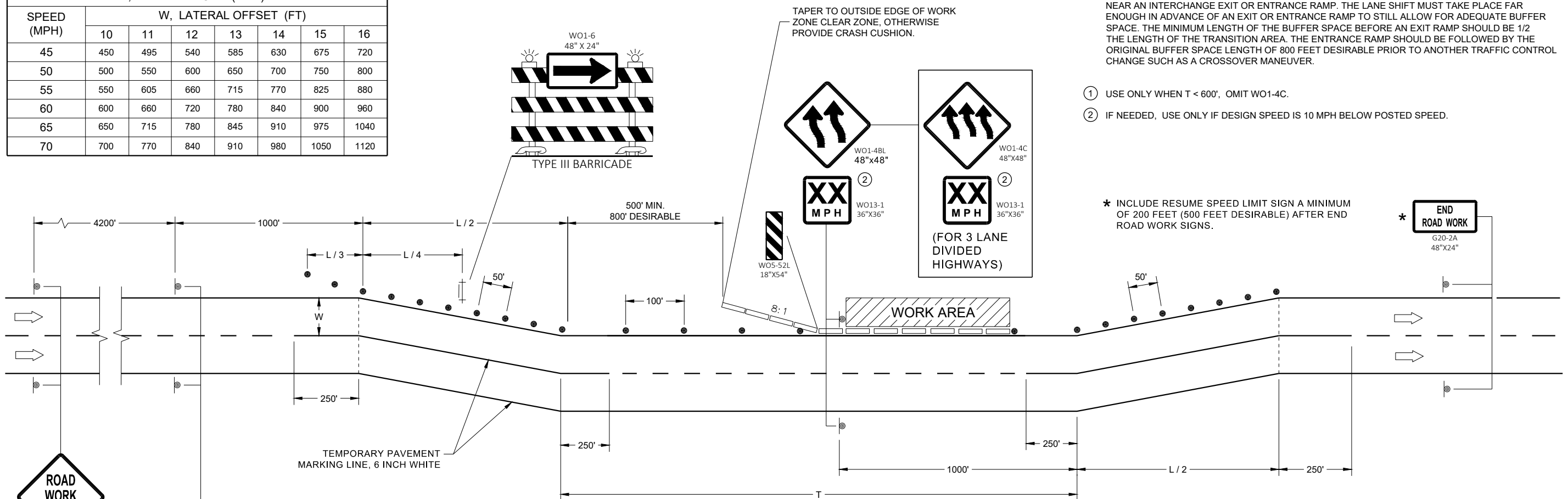
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.


ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

- ① USE ONLY WHEN T < 600', OMIT W01-4C.
- ② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.


* INCLUDE RESUME SPEED LIMIT SIGN A MINIMUM OF 200 FEET (500 FEET DESIRABLE) AFTER END ROAD WORK SIGNS.

SPEED (MPH)	L, TAPER LENGTH (MPH)						
	W, LATERAL OFFSET (FT)						
	10	11	12	13	14	15	16
45	450	495	540	585	630	675	720
50	500	550	600	650	700	750	800
55	550	605	660	715	770	825	880
60	600	660	720	780	840	900	960
65	650	715	780	845	910	975	1040
70	700	770	840	910	980	1050	1120



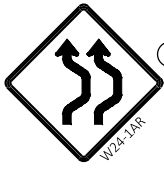


W20-1F




W01-4BR
48"x48"

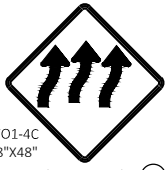
OR



W24-1AR

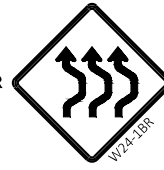


W013-1
36"x36"




W01-4C
48"x48"

OR



W24-1BR



W013-1
36"x36"

(FOR 3 LANE DIVIDED HIGHWAYS)

**TRAFFIC CONTROL
MULTIPLE LANE SHIFT
MULTILANE DIVIDED ROAD**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED _____
DATE May 2023 /S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND








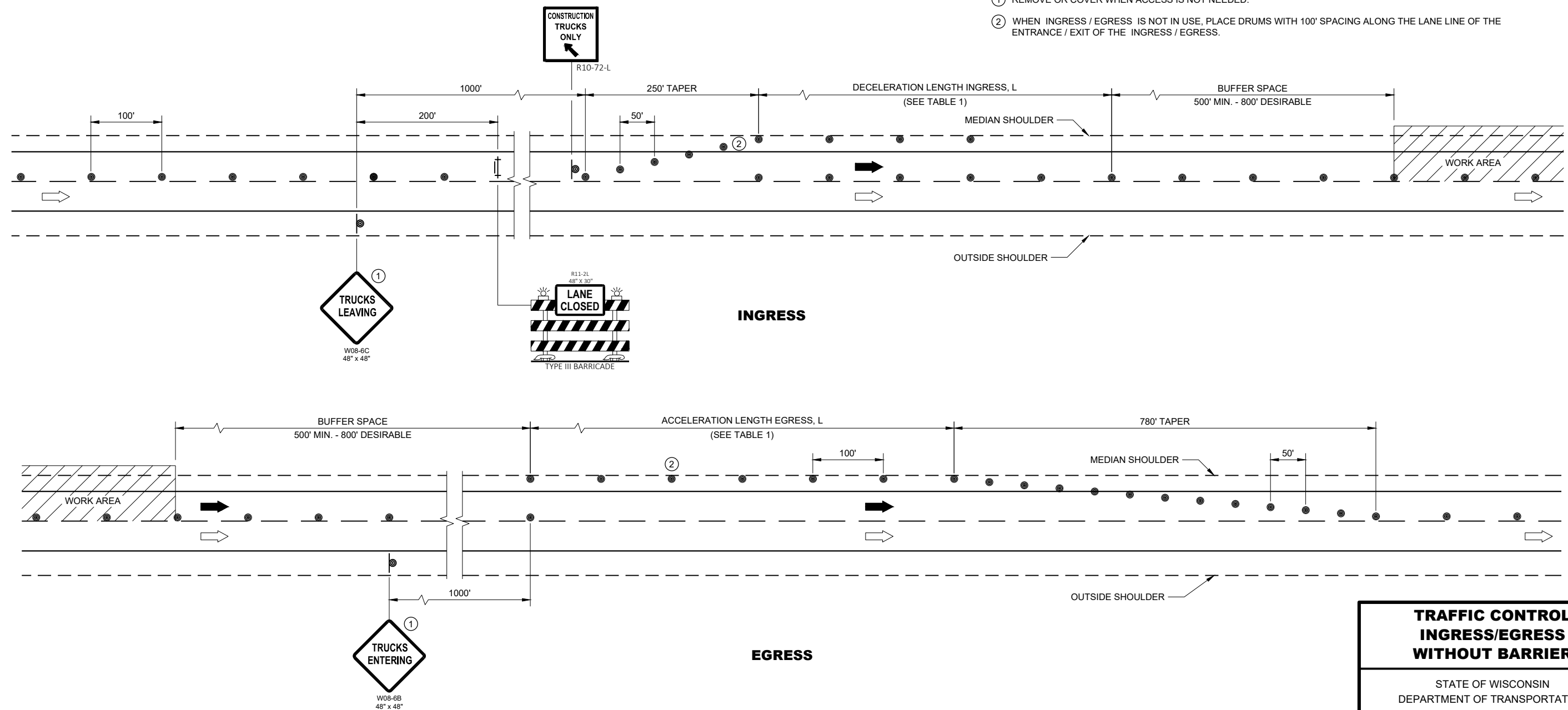
-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC
-  CONSTRUCTION TRAFFIC
-  WORK AREA

TABLE 1

S (MPH)	INGRESS, L	EGRESS, L
50	435'	720'
55	480'	960'
60	530'	1200'
65	570'	1410'
70	615'	1620'

LEGEND

- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.
- "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. NO WARNING LIGHTS SHALL BE WORKING ON COVERED OR "DOWNED" SIGNS.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- WORK ZONE INGRESS/EGRESS LOCATIONS SHALL BE APPROVED BY THE ENGINEER. LOCATIONS FOR WORK ZONE ACCESS TO/FROM THE FREEWAY SHALL NOT BE USED FOR INGRESS AND EGRESS AT THE SAME TIME.
- THIS ACCESS DETAIL IS TYPICAL FOR LEFT LANE ACCESS, FOR RIGHT LANE ACCESS, REVERSE THE TRAFFIC CONTROL
- TEMPORARY SUPPORTS MAY BE USED IF PLACED BEHIND TEMPORARY BARRIER WALL
- TRUCKS SHALL USE FLASHING YELLOW BEACON WHEN ENTERING AND EXITING LIVE TRAFFIC.
- ① REMOVE OR COVER WHEN ACCESS IS NOT NEEDED.
 - ② WHEN INGRESS / EGRESS IS NOT IN USE, PLACE DRUMS WITH 100' SPACING ALONG THE LANE LINE OF THE ENTRANCE / EXIT OF THE INGRESS / EGRESS.



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SDD 15D47-03b

SDD 15D47-03b

TRAFFIC CONTROL INGRESS/EGRESS WITHOUT BARRIER	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

DESIGN DATA

LIVE LOAD:
DESIGN LOADING: HL-93
INVENTORY RATING FACTOR: RF = 1.20
OPERATING RATING FACTOR: RF = 1.56
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 230 KIPS
STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF
INVENTORY AND OPERATING RATINGS DO NOT INCLUDE FUTURE WEARING SURFACE.

MATERIAL PROPERTIES:
CONCRETE MASONRY - SUPERSTRUCTURE f'c = 4,000 psi
- ALL OTHER (GRADE A) f'c = 3,500 psi
HIGH STRENGTH BAR STEEL REINFORCEMENT
AASHTO GRADE 60 fy = 60,000 psi
28" PRESTRESSED GIRDER
CONCRETE MASONRY f'c = 7,000 psi
STRANDS, 0.5" DIA ULTIMATE fy = 270,000 psi
STEEL DIAPHRAGMS fy = 36,000 psi

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 12X53 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. ESTIMATED 15 FEET LONG AT EACH ABUTMENT.

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

PRE-BORING IS REQUIRED AT EACH ABUTMENT LOCATION. PRE-BORING SHALL BE PERFORMED TO APPROXIMATE ELEVATION OF 886 AT WEST ABUTMENT AND 884 AT THE EAST ABUTMENT. IT IS RECOMMENDED THAT THE CONTRACTOR REVIEW THE SOILS REPORT FOR ADDITIONAL INFORMATION ON GEOTECHNICAL RELATED CONCERNS AT THIS SITE PERTAINING TO SUBSTRUCTURE SUPPORT AND STRUCTURE EXCAVATION.

WHEN PILING IS FIRMLY SEATED ON ROCK IN PREBORED HOLES, PILE DRIVING TO REFUSAL IS NOT REQUIRED OR RECOMMENDED, TO AVOID DRIVING OVERSTRESS AND DAMAGE.

PIERS TO BE SUPPORTED ON SPREAD FOOTINGS. PIERS WITH SPREAD FOOTINGS TO BE SUPPORTED ON SOUND ROCK WITH A REQUIRED FACTORED BEARING RESISTANCE OF 7,800 PSF. A GEOTECHNICAL ENGINEER, WITH THREE DAYS NOTICE, WILL DETERMINE THE FACTORED BEARING RESISTANCE BY VISUAL INSPECTION PRIOR TO CONSTRUCTION OF THE PIER FOOTING.

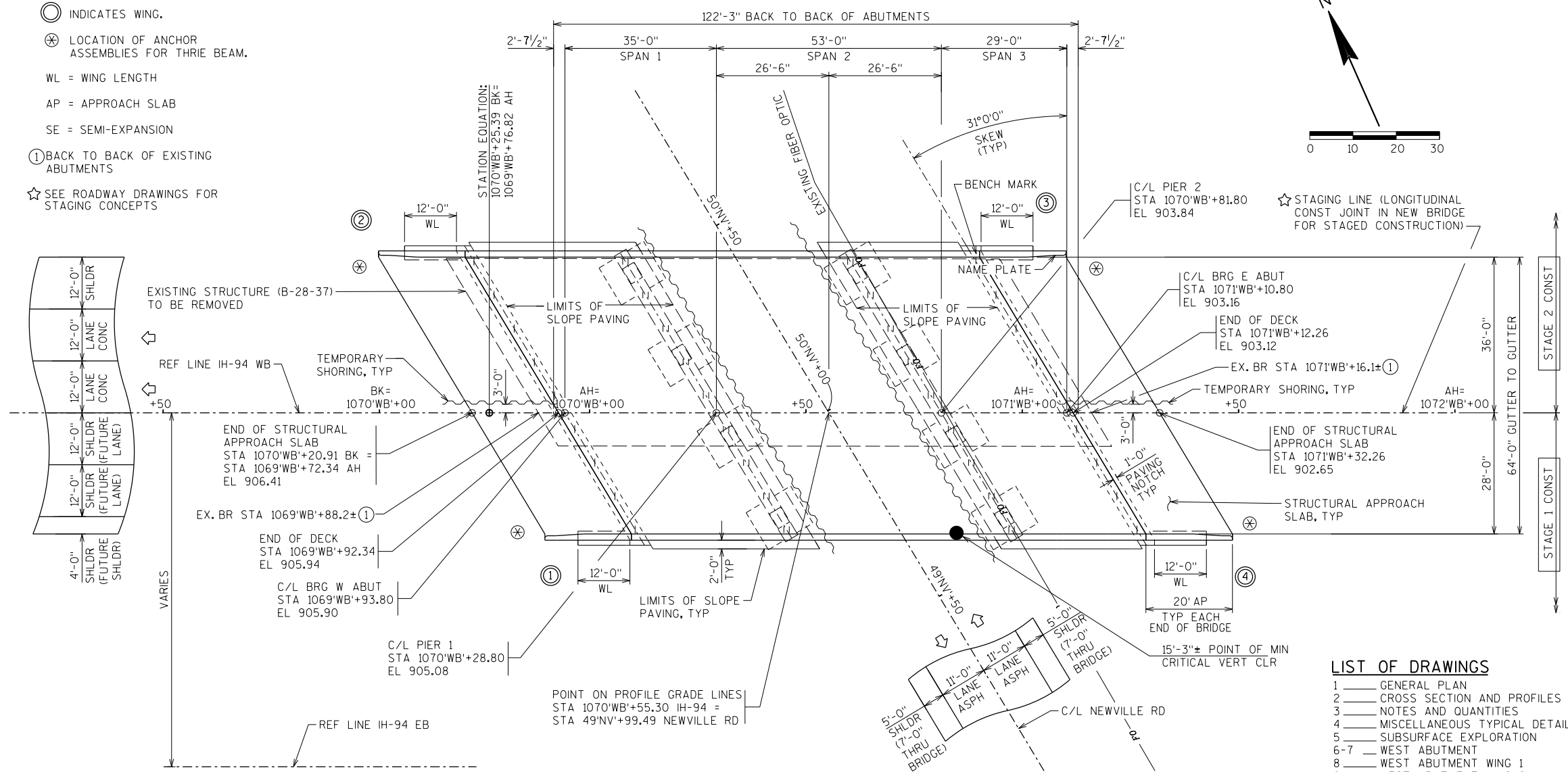
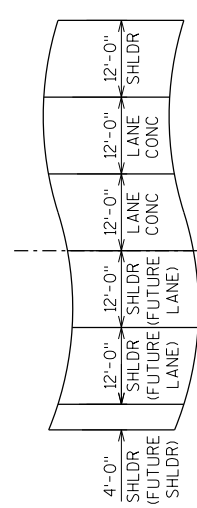
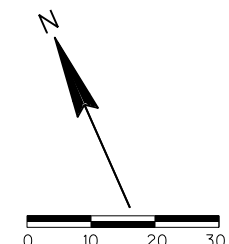
TRAFFIC DATA

Table with columns for I-94 and NEWVILLE RD, listing ADT (2021), ADT (2041), DHV (2041), DD, T, DESIGN SPEED, and ESALS.

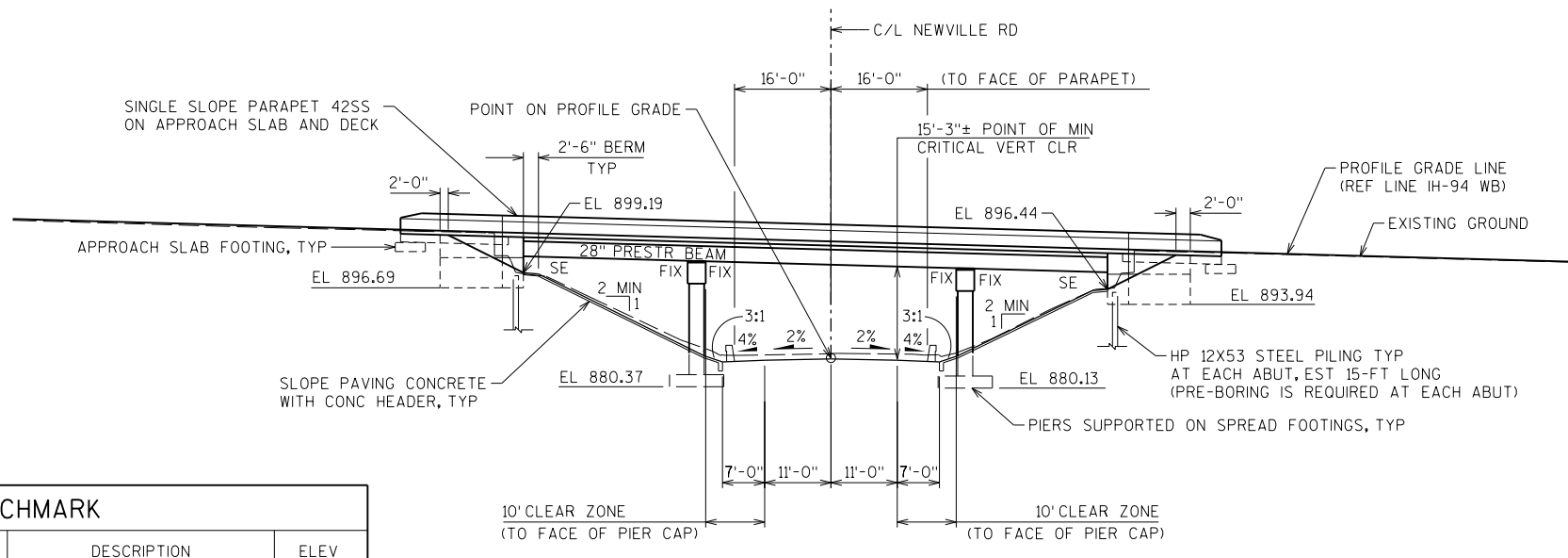
LIST OF DRAWINGS

- 1 GENERAL PLAN
2 CROSS SECTION AND PROFILES
3 NOTES AND QUANTITIES
4 MISCELLANEOUS TYPICAL DETAILS
5 SUBSURFACE EXPLORATION
6-7 WEST ABUTMENT
8 WEST ABUTMENT WING 1
9 WEST ABUTMENT WING 2
10-11 EAST ABUTMENT
12 EAST ABUTMENT WING 3
13 EAST ABUTMENT WING 4
14 WEST AND EAST ABUTMENT DETAILS
15 ALTERNATE CONSTRUCTION JOINT
16 PIER 1 & 2 STAGE 1
17 PIER 1 & 2 STAGE 2
18 PIER 1 & 2 STAGE 2
19 PIER 1 & 2 STAGE 2 CAP ELEVATIONS
20-21 PIER 1 & 2 DETAILS
22 28" PRESTRESSED GIRDER DETAILS
23 STEEL DIAPHRAGM
24-25 SUPERSTRUCTURE
26-29 SUPERSTRUCTURE DETAILS
30 SUPERSTRUCTURE REINFORCEMENT
31 SUPERSTRUCTURE DECK ELEVATION TABLE
32-33 STRUCTURAL APPROACH SLABS
34 SINGLE SLOPE PARAPET 42SS
35 STRUCTURAL APPROACH SLABS & 42SS REINF.
36 SLOPE PAVING (CONCRETE CAST-IN-PLACE)
37 BRIDGE TRAFFIC STAGING CONCEPT

- INDICATES WING.
LOCATION OF ANCHOR ASSEMBLIES FOR THRIE BEAM.
WL = WING LENGTH
AP = APPROACH SLAB
SE = SEMI-EXPANSION
BACK TO BACK OF EXISTING ABUTMENTS
SEE ROADWAY DRAWINGS FOR STAGING CONCEPTS

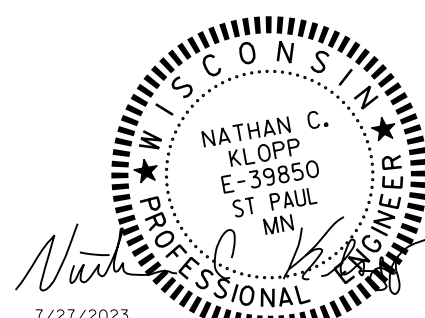


PLAN
THREE SPAN - 28" PRESTRESSED CONCRETE GIRDER BRIDGE



ELEVATION
(NORMAL TO C/L NEWVILLE RD)

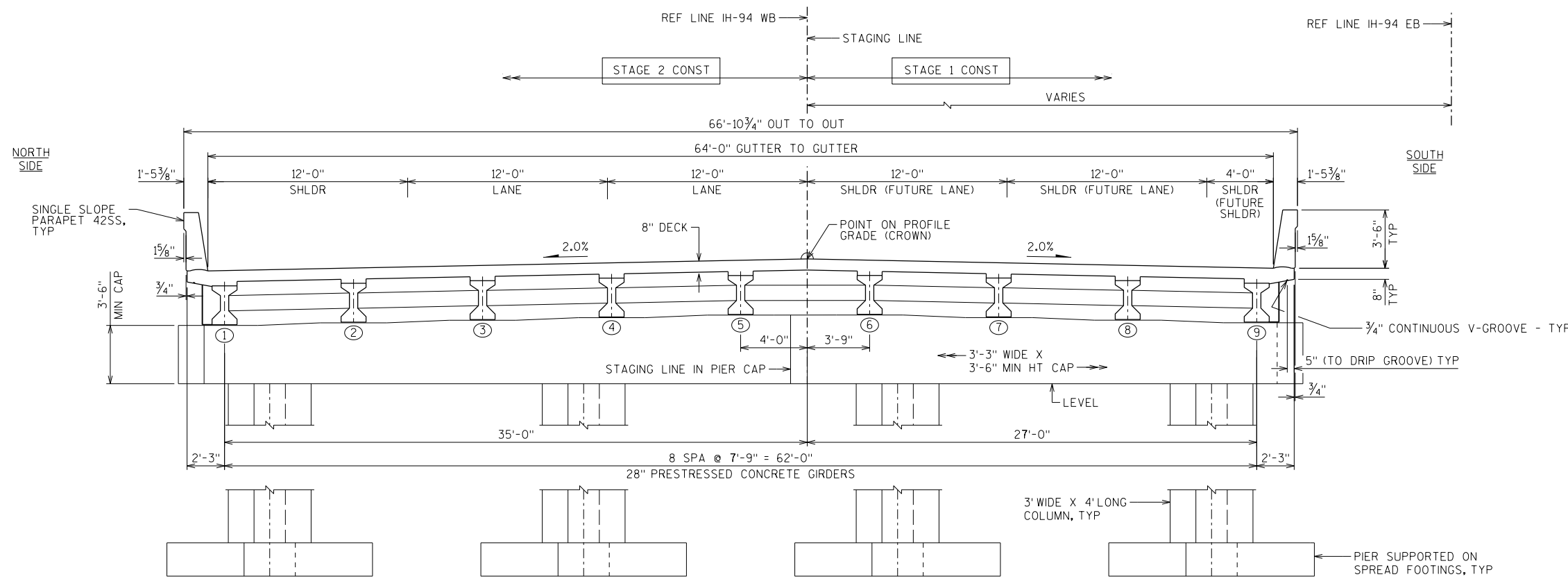
BENCHMARK table with columns: NO, STATION, DESCRIPTION, ELEV.
11 1065+22.09'EB' 41.76' RT TOP CONC BASE SOLAR POLE SDS-28-0054 EL 917.29
14 1070+52.29'EB' 35.54' RT DISC BRIDGE B-28-36-64 EL 908.37
12 1070+96.47'WB' 35.40' LT DISC BRIDGE B-28-37-65 EL 905.60



SEH CONTACT: CHRIS BLUM, PE, 608.620.6192
WISDOT BRIDGE OFFICE CONTACT: AARON BONK, PE, 608.261.0261

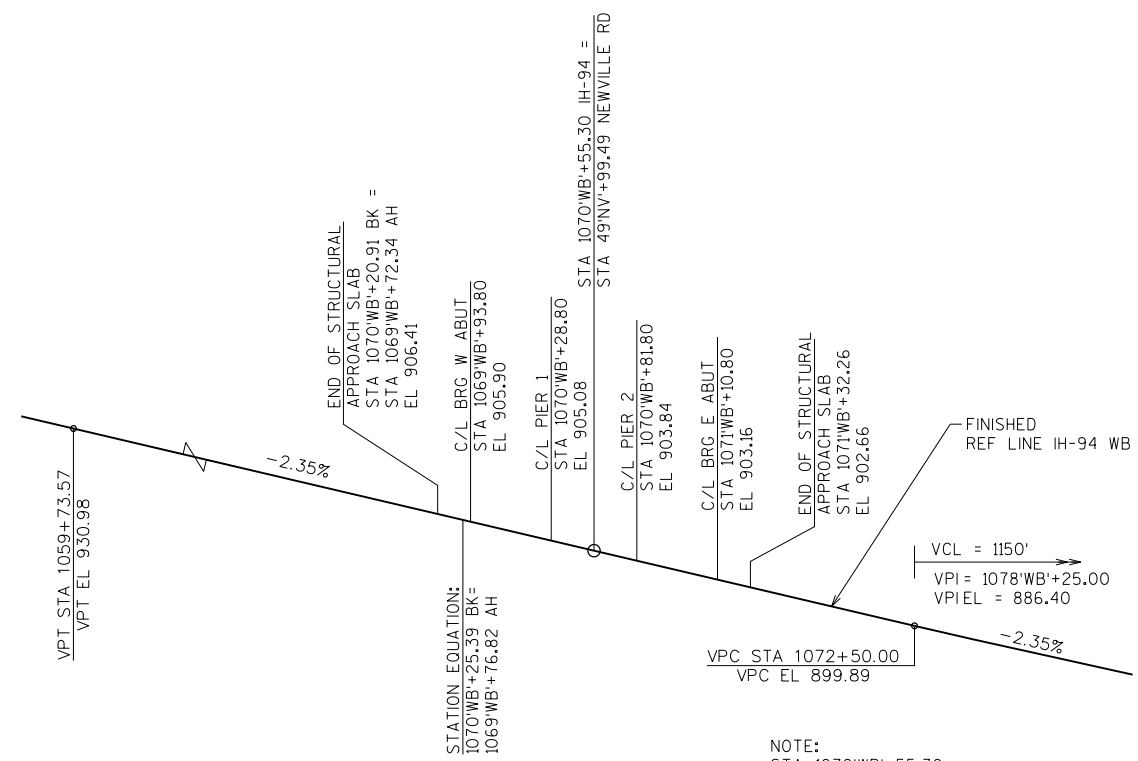
Project information block including revision table, company logo (SEH), project name (STRUCTURE B-28-184), location (JEFFERSON COUNTY, LAKE MILLS), design specifications, and sheet number (SHEET 1 OF 37).

PLOT TIME: 9:01:33 AM
PLOT DATE: 7/28/2023
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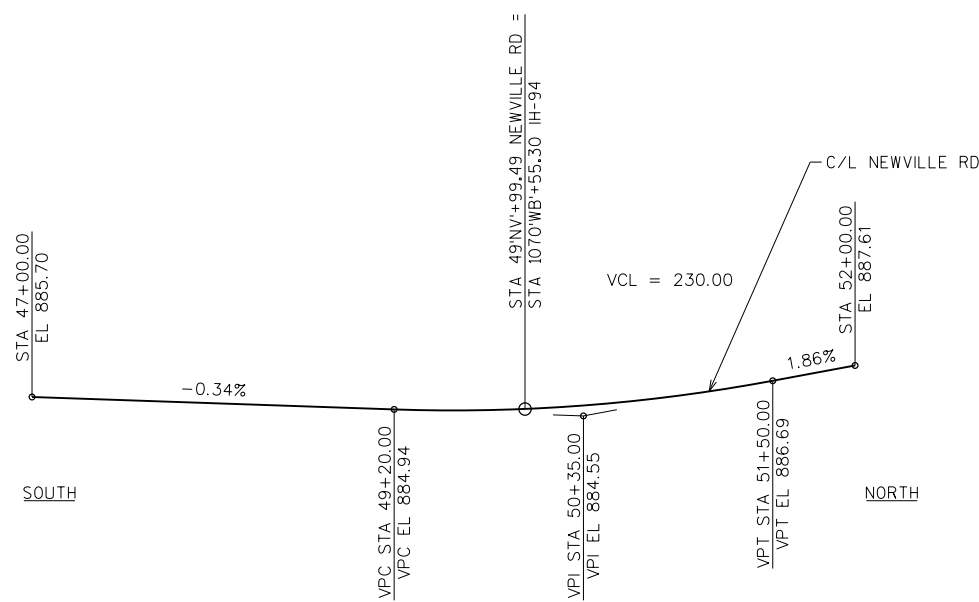
CROSS SECTION THRU BRIDGE

(LOOKING EAST)
(SHOWING PIER)



PROFILE GRADE LINE
(IH-94 WB)

NOTE:
 STA 1070'WB'+55.30
 REMOVE EXISTING STRUCTURE (B-28-37)
 A THREE-SPAN CONTINUOUS STEEL DECK GIRDER
 BRIDGE 128.0' LONG X 43.3' WIDE.



PROFILE GRADE LINE
(NEWVILLE ROAD)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
CROSS SECTION AND PROFILES			SHEET 2 OF 37

PLOT TIME: 12:19:28 PM

PLOT DATE: 6/27/2022

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TOTAL ESTIMATED QUANTITIES - B-28-184

STATE PROJECT NUMBER

1067-02-73

BID ITEM NUMBER	BID ITEMS	UNIT	STAGE 1								STAGE 2								TOTALS
			WEST STRUCTURAL APPROACH SLAB	WEST ABUT	EAST ABUT	EAST STRUCTURAL APPROACH SLAB	PIER 1	PIER 2	SUPER	STAGE 1 TOTALS	WEST STRUCTURAL APPROACH SLAB	WEST ABUT	EAST ABUT	EAST STRUCTURAL APPROACH SLAB	PIER 1	PIER 2	SUPER	STAGE 2 TOTALS	
① 203.0220	REMOVING STRUCTURE B-28-37	EA	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	0.5	1	
203.0211.S	ABATEMENT OF ASBESTOS CONTAINING MATERIAL B-28-37	EA	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	0.5	1	
① 206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-28-184	EA	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	0.5	1	
② 210.1500	BACKFILL STRUCTURE TYPE A	TON	-	93	70	-	-	-	163	-	120	100	-	-	-	-	220	383	
② 305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	104	-	-	104	-	-	208	132	-	-	132	-	-	-	264	472	
502.0100	CONCRETE MASONRY BRIDGES	CY	41	35	35	41	52	51	143	52	44	44	52	57	56	177	482	880	
⑤ 502.3200	PROTECTIVE SURFACE TREATMENT	SY	63	-	-	63	-	-	390	516	80	-	80	-	-	503	663	1179	
502.3210	PIGMENTED SURFACE SEALER	SY	11	-	-	11	-	-	60	82	11	-	11	-	-	60	82	164	
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	-	-	-	-	-	-	470	470	-	-	-	-	-	588	588	1058	
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-	2620	2590	-	1720	1720	1500	10,150	-	3290	3310	-	1720	1720	1740	11,780	21,930
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	8350	800	840	8350	8570	8360	29,180	64,450	9,890	860	820	9,890	9,270	9,060	34,590	74,380	138,830
505.0800.S	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB	505	-	-	505	-	-	-	1010	645	-	-	645	-	-	-	1290	2,300
505.0906	BAR COUPLERS No. 6	EA	-	18	18	-	4	4	-	44	-	-	-	-	-	-	-	-	44
505.0908	BAR COUPLERS No. 8	EA	12	-	-	12	-	-	-	24	-	-	-	-	-	-	-	-	24
505.0909	BAR COUPLERS No. 9	EA	-	-	-	-	12	12	-	24	-	-	-	-	-	-	-	-	24
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EA	-	4	4	-	8	8	-	24	-	5	5	-	10	10	-	30	54
506.4000	STEEL DIAPHRAGMS B-28-184	EA	-	-	-	-	-	-	9	9	-	-	-	-	-	-	15	15	24
④ 511.1200	TEMPORARY SHORING B-28-184	SF	-	-	-	-	-	-	274	274	-	-	-	-	-	-	180	180	454
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	9	9	-	-	-	-	18	-	12	12	-	-	-	-	24	42
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	-	50	50	-	-	-	-	100	-	60	60	-	-	-	-	120	220
550.1120	PILING STEEL HP 12-INCH x 53 LB	LF	-	75	75	-	-	-	-	150	-	90	90	-	-	-	-	180	330
604.0400	SLOPE PAVING CONCRETE	SY	-	155	131	-	-	-	-	286	-	194	164	-	-	-	-	358	644
③ 612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-	76	76	-	-	-	-	152	-	86	86	-	-	-	-	172	324
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EA	1	-	-	1	-	-	-	2	1	-	-	1	-	-	-	2	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-	31	31	-	-	-	-	62	-	40	40	-	-	-	-	80	142
NON-BID ITEMS																			
	FILLER	SIZE	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	1/2 & 3/4
	NAMEPLATE	EACH	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	1

QUANTITIES NOTES

- ① PROTECT ITEMS TO REMAIN. COORDINATE ITEM COST WITH STAGE 2 CONSTRUCTION.
- ② A FACTOR OF 2.0 WAS USED TO CONVERT CU YDS TO TONS.
- ③ INCLUDES RODENT SHEILD FOR PIPE UNDERDRAIN.
- ④ BASED ON A SQUARE FOOT OF EXPOSED SHEET PILE SURFACE BETWEEN THE UPPER AND LOWER GRADES. ITEM INCLUDES REMOVAL OF SHEETS DURING STAGE 2 CONSTRUCTION.
- ⑤ INCLUDES COVERAGE OF THE PAVING LEDGE AREA.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

FOR EXISTING STRUCTURE DESCRIPTION SEE 'PROFILE GRADE LINE' ON SHEET 2.

REFER TO ROADWAY DRAWINGS FOR EXISTING UTILITY LOCATIONS.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NAVD 88 (2007) DATUM.

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

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

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153 TYPE 1, 2, OR 3 OR AASHTO DESIGNATION M213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENTS DETAILS.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

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

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

THE QUANTITY FOR BACKFILL STRUCTURE TYPE A, BID ITEM 210.1500 IS CALCULATED BASED ON THE BACKFILL STRUCTURE LIMITS DETAILS SHOWN ON THIS SHEET 4.

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

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

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

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

APPLY A PROTECTIVE SURFACE TREATMENT TO TOP OF BRIDGE DECK, TOP OF APPROACH SLABS AND TOP OF APPROACH SLAB NOTCH. APPLY PIGMENTED SURFACE SEALER TO TOP AND INSIDE FACES OF PARAPET INCLUDING PARAPET LOCATED ON THE STRUCTURAL APPROACH SLAB. PER THE STANDARD SPECIFICATIONS AND THE SUPERSTRUCTURE DETAILS SHEET.

PRE-BORING REQUIRED AT BOTH ABUTMENTS. OBTAIN 10-FOOT MINIMUM PILE LENGTH BELOW SUBSTRUCTURE.

IT IS RECOMMENDED THAT THE CONTRACTOR REVIEW THE SOILS REPORT FOR ADDITIONAL INFORMATION ON GEOTECHNICAL RELATED CONCERNS AT THIS SITE PERTAINING TO SUBSTRUCTURE SUPPORT AND STRUCTURE EXCAVATION. REPORT IS AVAILABLE AT THE WISDOT SW REGION OFFICE.

PLOT TIME: 12:59:28 PM

PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\117\sw\1347215-f\final-dsgn\51-drawings\20-struct\B-28-184\dgn\b28184g3.dgn

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
		DRAWN BY DLF	PLANS CKD. NCK
NOTES AND QUANTITIES			SHEET 3 OF 37

BAR COUPLER NOTES

SPECIFIC INFORMATION REGARDING THE COUPLER IS COVERED BY THE BID ITEM "BAR COUPLERS (SIZE)". AND NOT LIMITED TO THESE BAR COUPLER NOTES AND BRIDGE MANUAL STANDARD DRAWING 40.11.

STEEL COUPLER ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR COUPLERS SHALL BE OF MINIMUM 60 KSI YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR COUPLERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

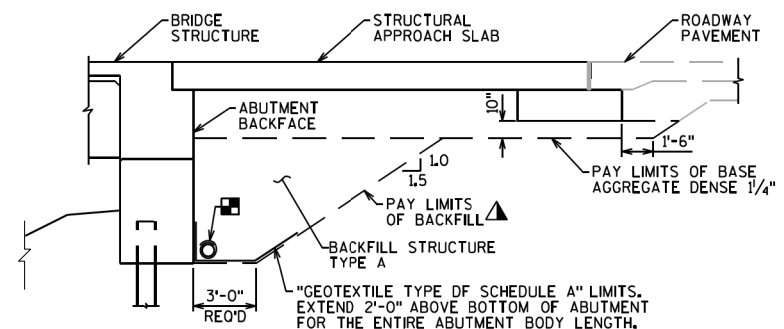
FOR DOWEL BAR COUPLERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE COUPLER BARS.

COUPLER ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS OF REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

MINIMUM CAPACITY = 1.25 X f_y X AREA OF SPLICED REINFORCEMENT BAR.

WHERE f_y = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS.



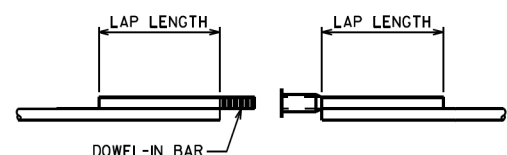
BACKFILL STRUCTURE LIMITS

TYPICAL SECTION THRU ABUTMENT

(A1 ABUTMENT WITH STRUCTURAL APPROACH)

A FACTOR OF 2.0 WAS USED TO CONVERT CU YDS TO TONS

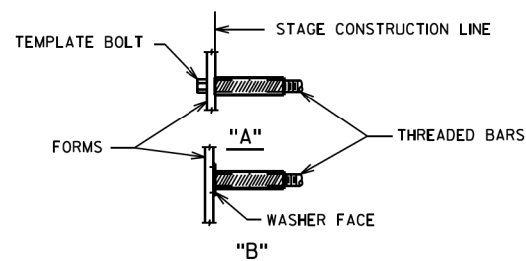
PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE.



DOWEL BAR COUPLER

ONE PIECE THREADED COUPLER

COUPLER ALTERNATIVES



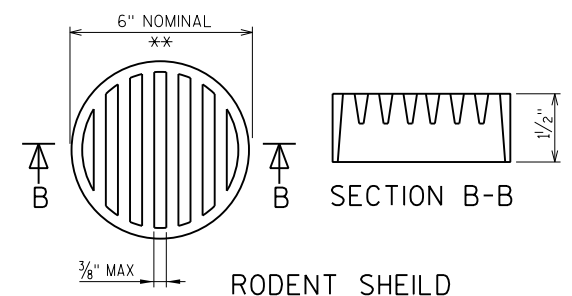
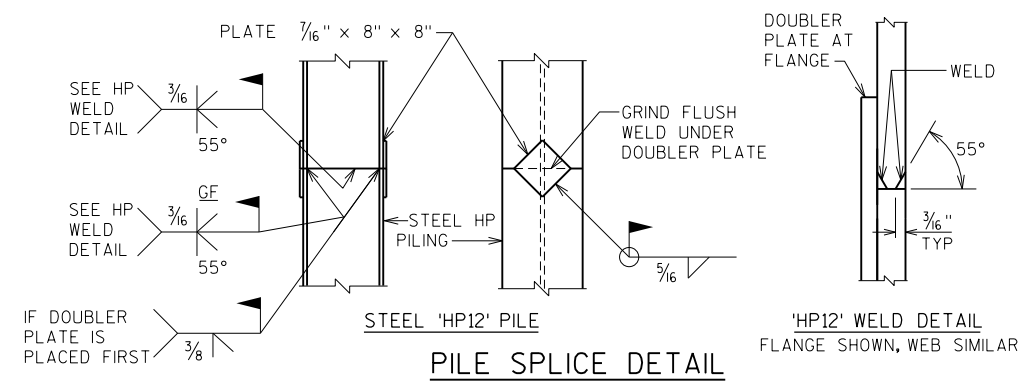
INSTALLATION AND SETTING METHODS

"A" SET COUPLER BY MEANS OF A TEMPLATE BOLT
 "B" SET COUPLER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

DOWEL BAR COUPLER LAP LENGTHS

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	$f'_c = 3500$	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	$f'_c = 4000$	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	$f'_c = 3500$	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	$f'_c = 4000$	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

BAR LENGTH COMPUTED TO ϕ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.



RODENT SHIELD

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

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.

PLOT TIME: 12:09:29 PM

PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\W\sw\13472\5-f\inc\dsgh\51-dr\awings\20-struct\B-28-184\dgn\b28184g3.dgn

8

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
MISCELLANEOUS TYPICAL DETAILS			SHEET 4 OF 37

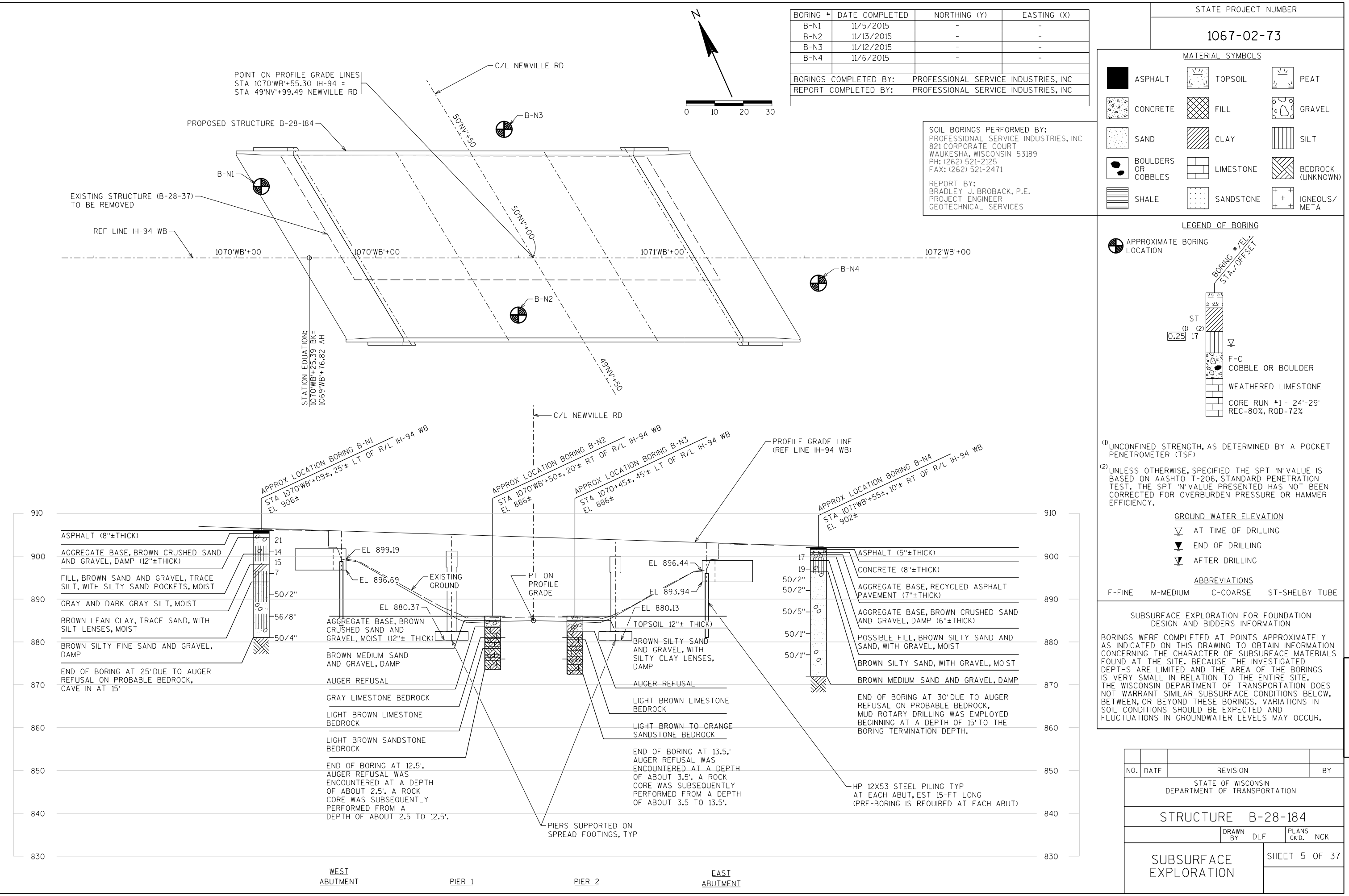
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PLOT DATE: 6/27/2022

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BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-N1	11/5/2015	-	-
B-N2	11/13/2015	-	-
B-N3	11/12/2015	-	-
B-N4	11/6/2015	-	-

BORINGS COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC
 REPORT COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC

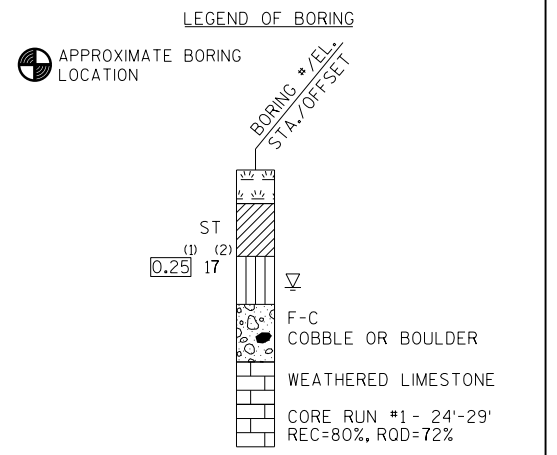
STATE PROJECT NUMBER
1067-02-73

MATERIAL SYMBOLS

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

SOIL BORINGS PERFORMED BY:
 PROFESSIONAL SERVICE INDUSTRIES, INC
 821 CORPORATE COURT
 WAUKESHA, WISCONSIN 53189
 PH: (262) 521-2125
 FAX: (262) 521-2471

REPORT BY:
 BRADLEY J. BROBACK, P.E.
 PROJECT ENGINEER
 GEOTECHNICAL SERVICES



(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

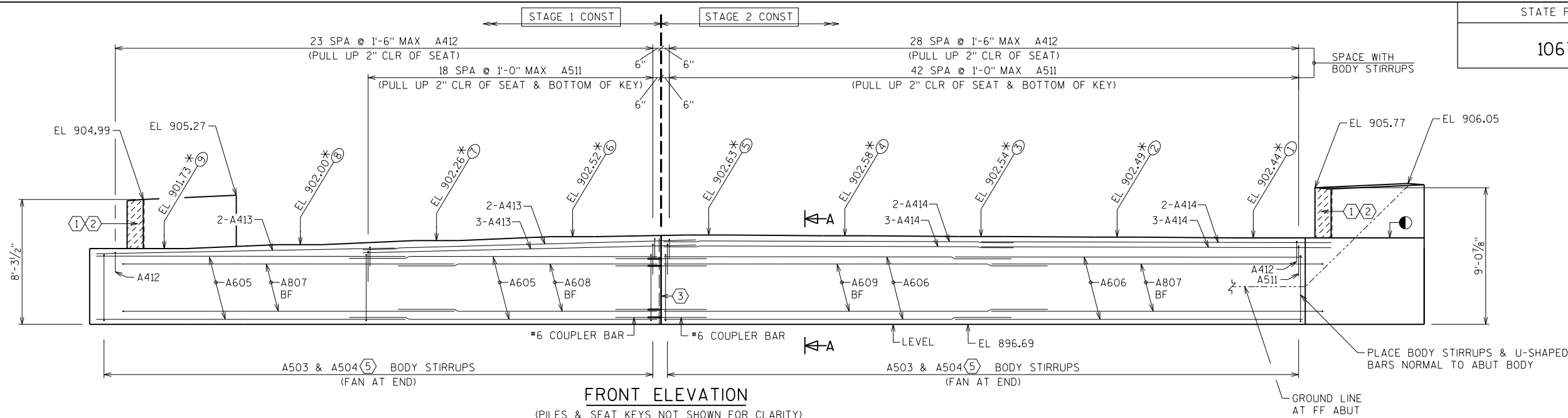
ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

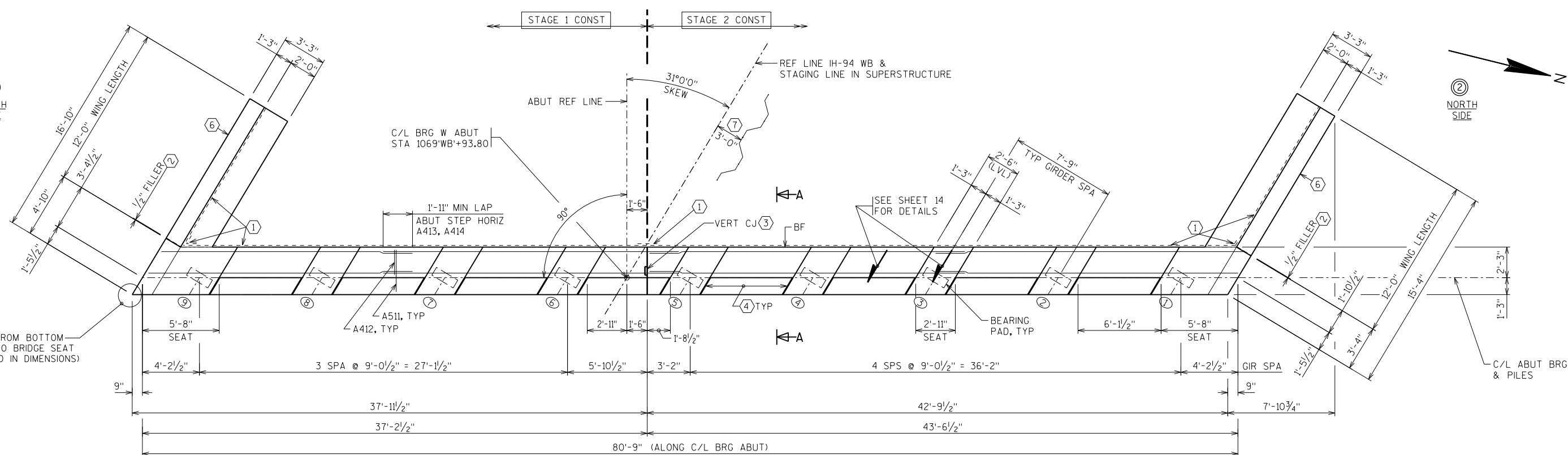
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT 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-28-184			
DRAWN BY: DLF		PLANS CKD: NCK	
SUBSURFACE EXPLORATION			SHEET 5 OF 37



FRONT ELEVATION

(PILES & SEAT KEYS NOT SHOWN FOR CLARITY)



PLAN

LEGEND

- * ELEVATIONS AND DIMENSIONS TAKEN ALONG C/L OF BRG & PILES WEST ABUTMENT.
- ① 18\"/>

- ⊙ OPTIONAL CONST JOINT FORMED BY BEVELED 2\"/>

- ⊙ INDICATES WING NUMBER.
- INDICATES GIRDER LINE.

- SEAT SLOPE DIRECTION MEASURED ALONG C/L GIRDER
- W ABUT = WEST ABUTMENT
- E ABUT = EAST ABUTMENT
- BAR MARKS 'A' = WEST ABUT BARS
- BAR MARKS 'B' = EAST ABUT BARS
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- T = TOP
- B = BOTTOM
- EXIST = EXISTING
- BETW = BETWEEN
- LVL = LEVEL
- UN = UNLESS NOTED OTHERWISE

ABUTMENT NOTES

DIMENSIONS ARE MEASURED ALONG C/L ABUT BRG UNLESS NOTED OTHERWISE.

SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF 1/2\"/>

FOR TYPICAL ABUTMENT SECTION A-A SEE SHEET 14.

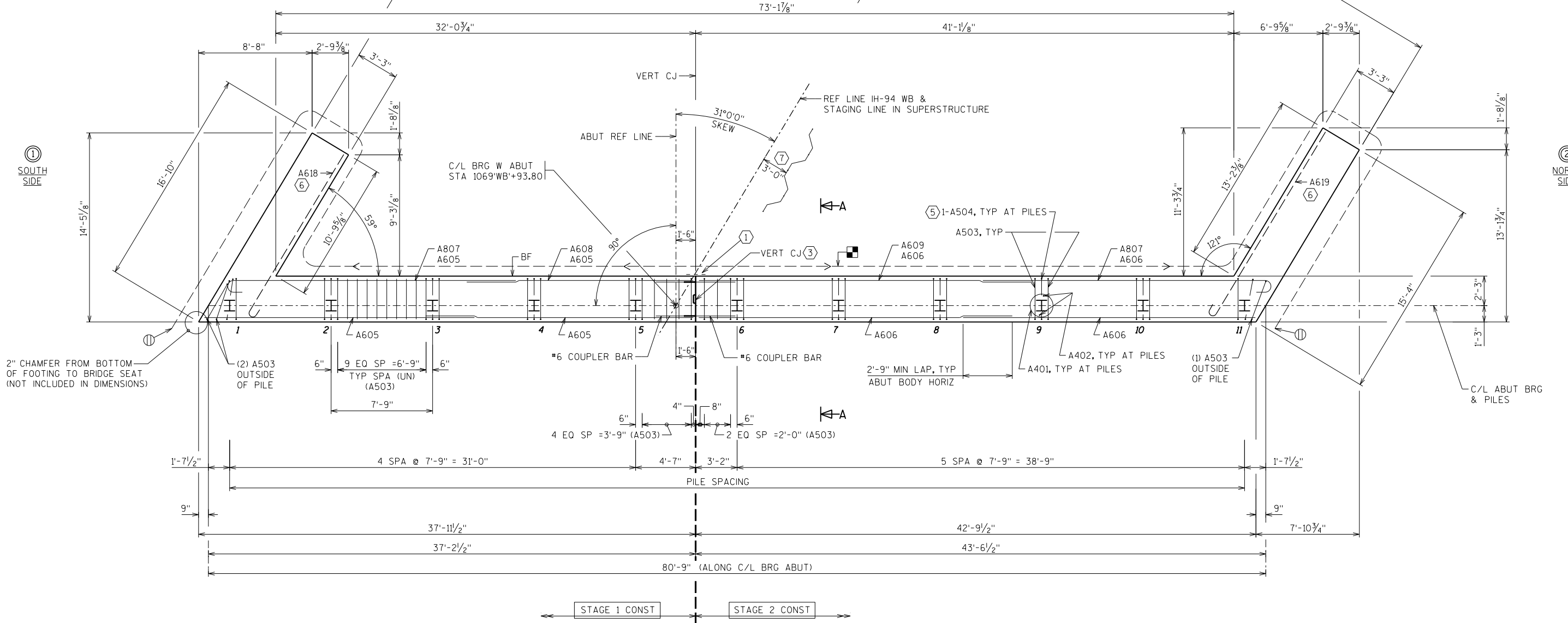
FOR PILE SPLICE DETAIL SEE SHEET 4.

FOR BEARING PAD DETAIL SEE SUPERSTRUCTURE SHEETS.

COST OF #6 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 6.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
WEST ABUTMENT			SHEET 6 OF 37

STATIONING
DIRECTION



NOTES

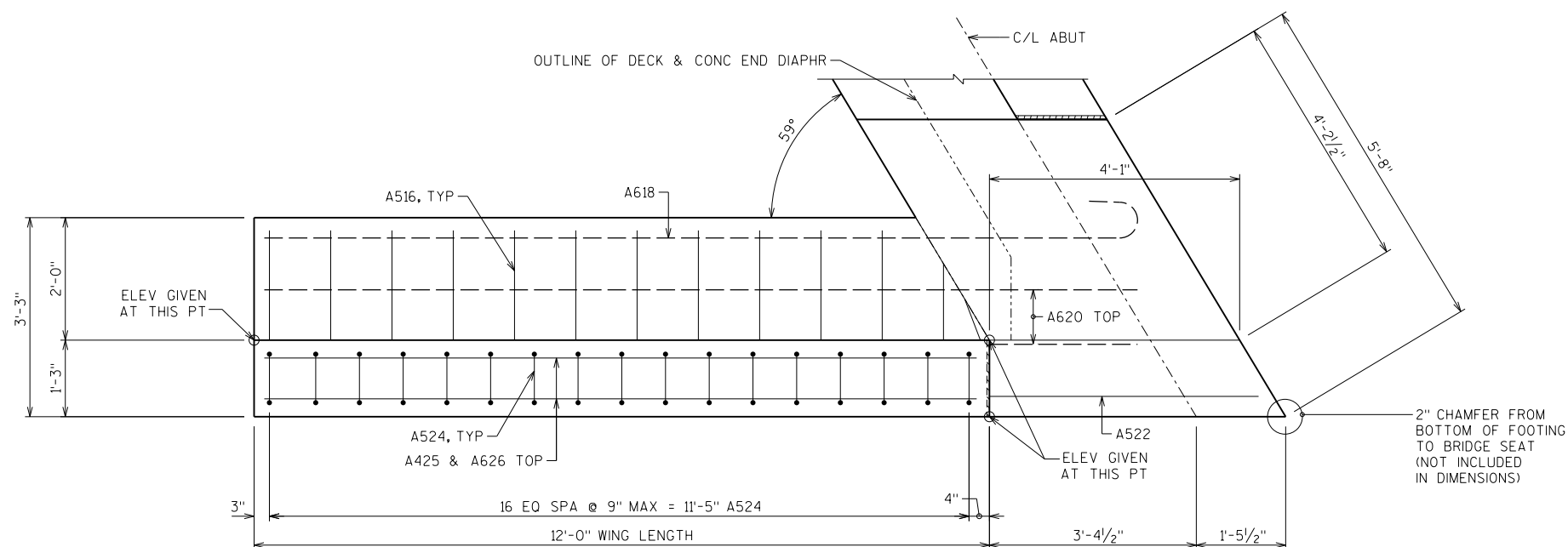
SEE SHEET 6 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
WEST ABUTMENT			SHEET 7 OF 37

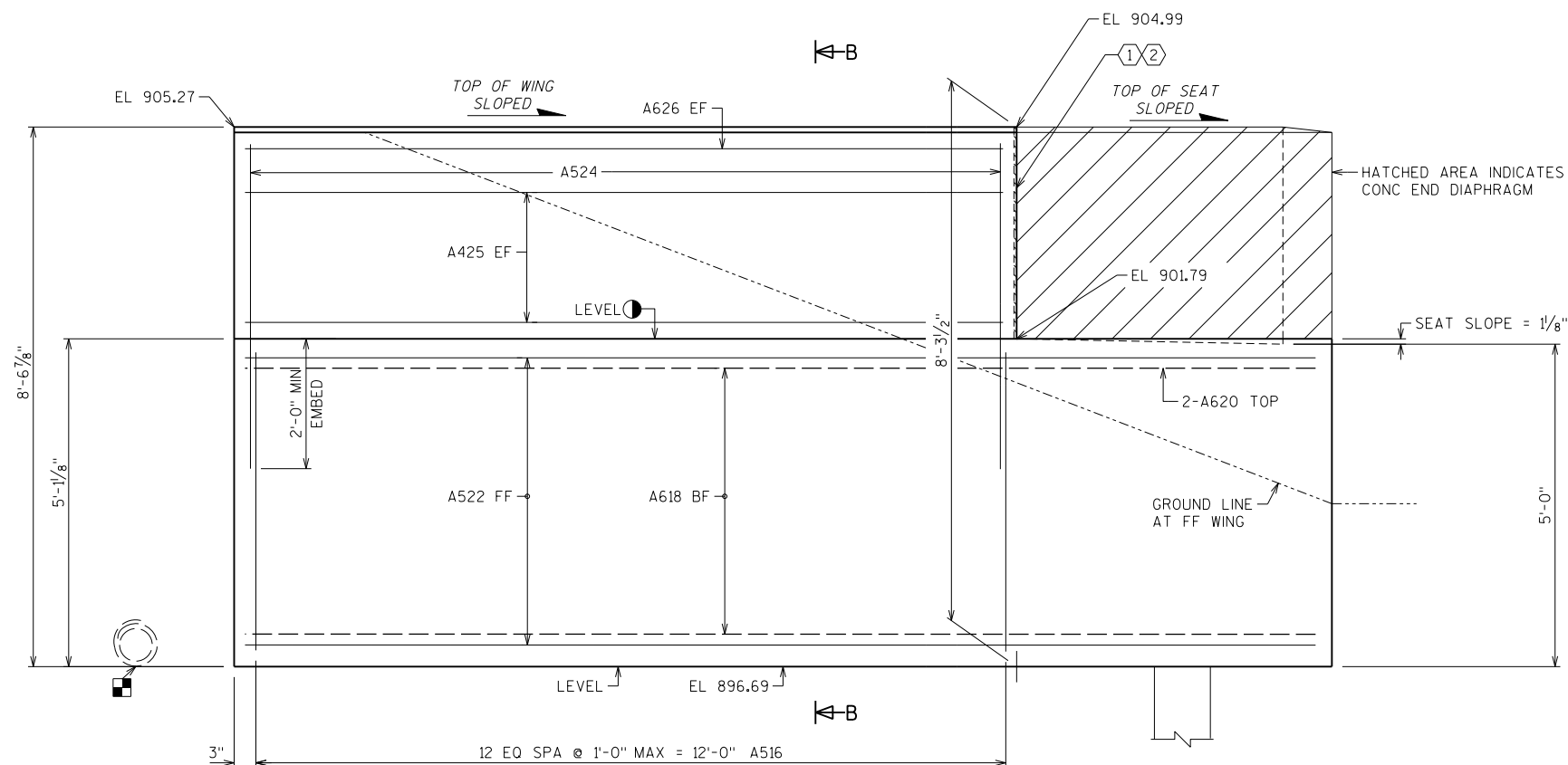
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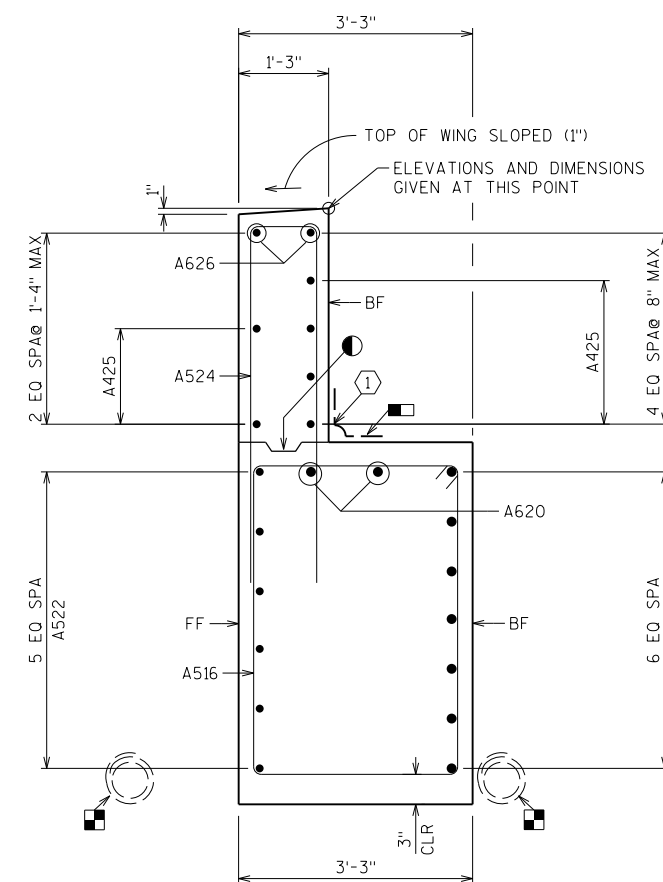
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WING 1 - PLAN



WING 1 - ELEVATION



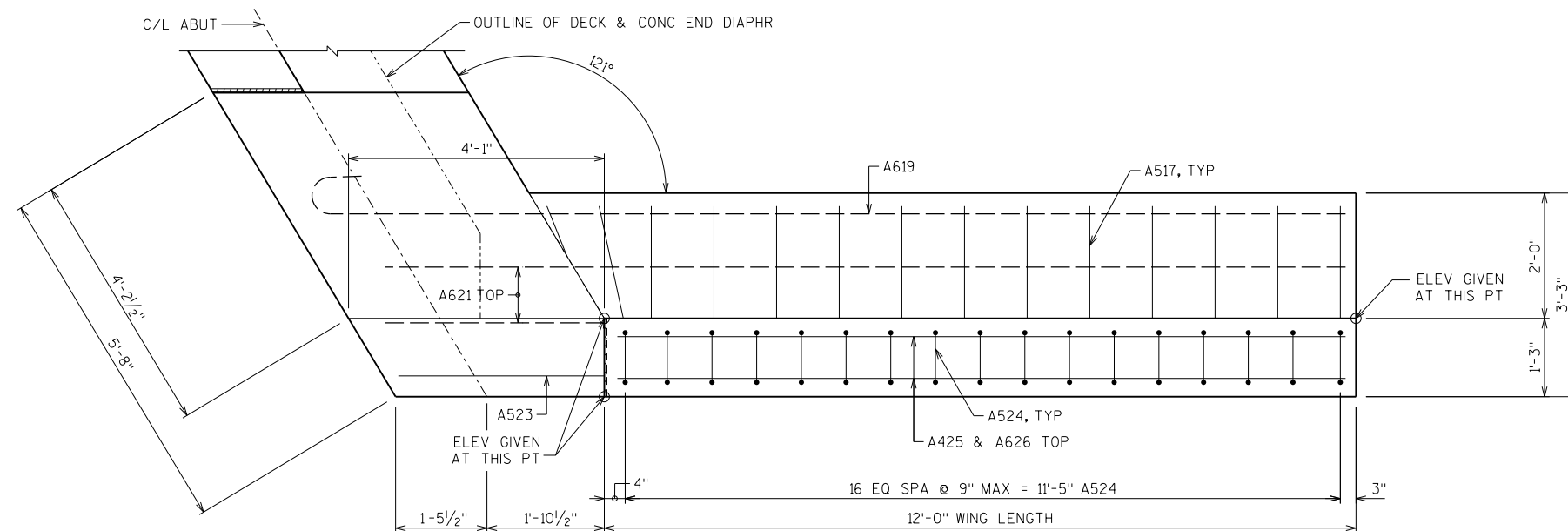
SECTION B-B

NOTES

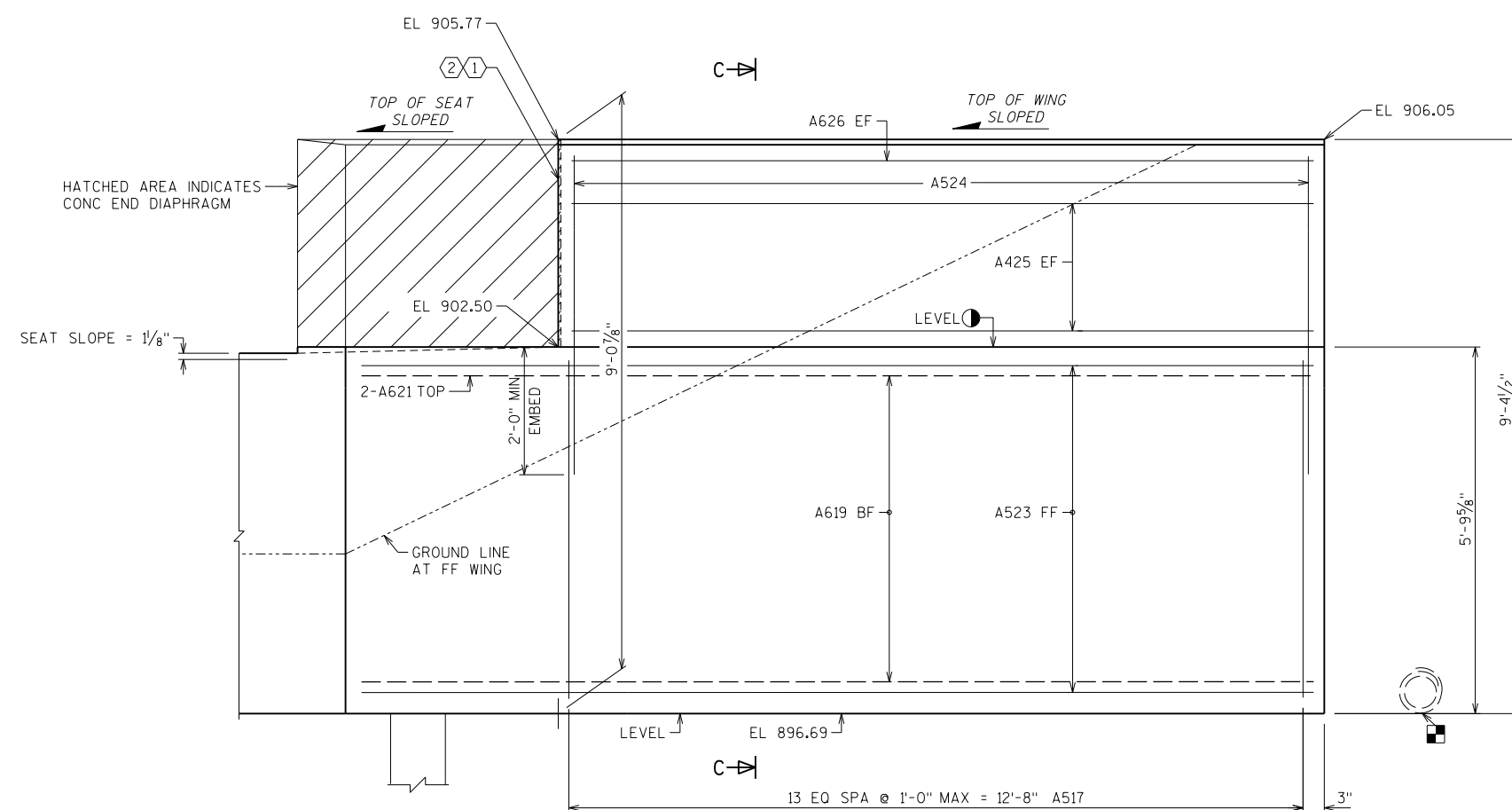
SEE SHEET 6 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
WEST ABUTMENT WING 1			SHEET 8 OF 37

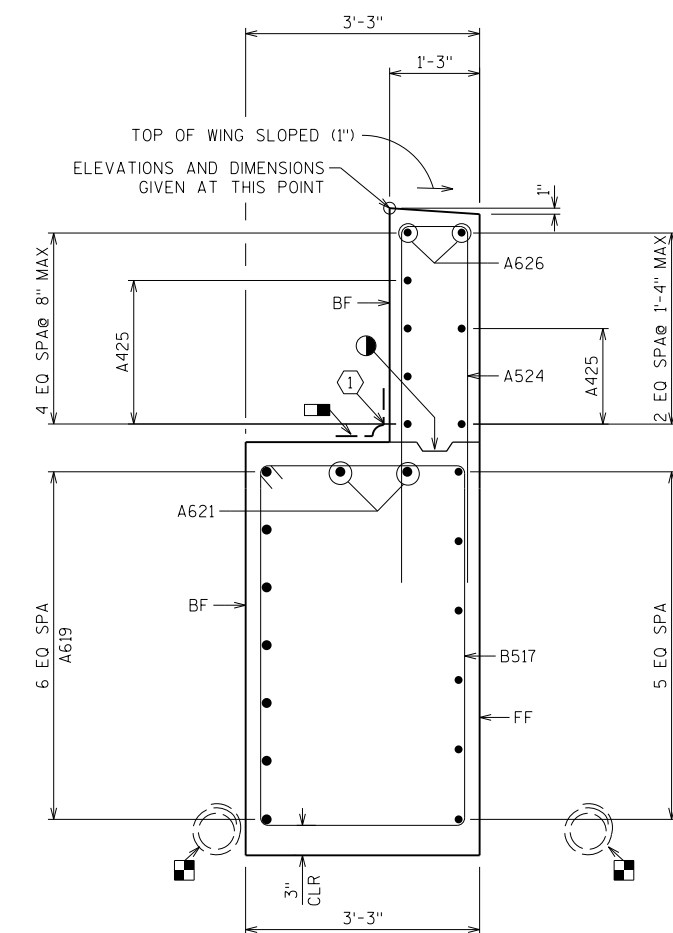
STAGE 1



WING 2 - PLAN



WING 2 - ELEVATION



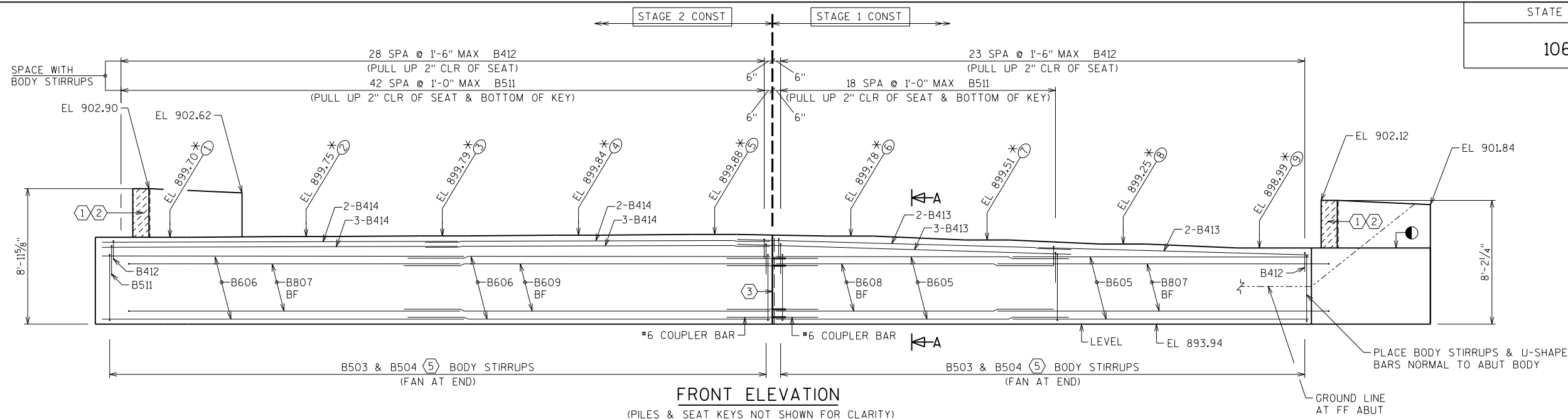
SECTION C-C

NOTES

SEE SHEET 6 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

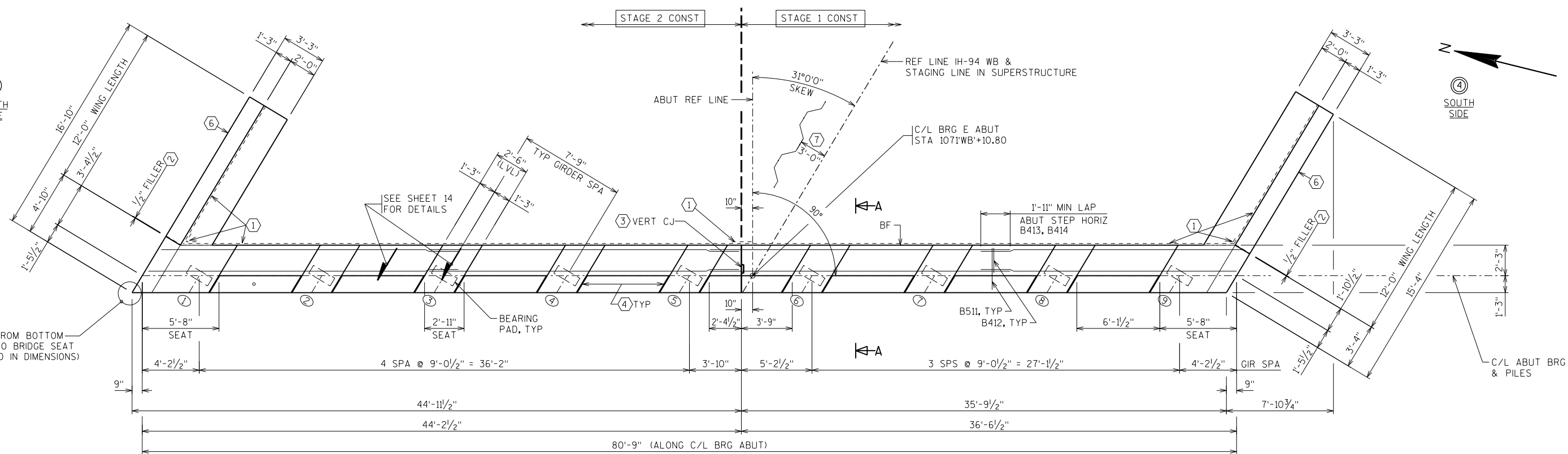
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
WEST ABUTMENT WING 2			SHEET 9 OF 37

STAGE 2



FRONT ELEVATION

(PILES & SEAT KEYS NOT SHOWN FOR CLARITY)



PLAN

LEGEND

- * ELEVATIONS AND DIMENSIONS TAKEN ALONG C/L OF BRG & PILES EAST ABUTMENT.
- ① 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ & VERT JOINTS ON BACKFACE.
- ② 1/2" FILLER & SEALER EXTEND FROM BEAM SEAT TO TOP OF WING. INCLUDED IN WING LENGTH.
- ③ VERTICAL CONST JT KEYWAY FORMED BY A SURFACED BEVELED 2"x8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST JT DETAILS SEE SHEET 15.
- ④ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- ⑤ USE 1-B504 AT EACH PILE.
- ⑥ SEE WING DETAILS SHEET FOR WING PLANS AND REINF.
- ⑦ TEMPORARY SHORING, SEE BRIDGE TRAFFIC STAGING PLANS.

- ⊙ OPTIONAL CONST JOINT FORMED BY BEVELED 2"x6" (V-GROOVE ON FRONT FACE IF JOINT IS USED).
- ▣ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING HORIZ IN THIS AREA ON LEVEL PORTION.
- ⊗ 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"
- ▣ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE.
- ⊕ ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN, SEE DETAIL ON SHEET 4. DISCHARGE WRAPPED PIPE UNDERDRAIN WELL OUTSIDE LIMITS OF THE STRUCTURE

- ⊙ INDICATES WING NUMBER.
- INDICATES GIRDER LINE.
- SEAT SLOPE DIRECTION MEASURED ALONG C/L GIRDER
- W ABUT = WEST ABUTMENT
- E ABUT = EAST ABUTMENT
- BAR MARKS 'A' = WEST ABUT BARS
- BAR MARKS 'B' = EAST ABUT BARS
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- T = TOP
- B = BOTTOM
- EXIST = EXISTING
- BETW = BETWEEN
- LVL = LEVEL
- UN = UNLESS NOTED OTHERWISE

ABUTMENT NOTES

DIMENSIONS ARE MEASURED ALONG C/L ABUT BRG UNLESS NOTED OTHERWISE.

SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE). FILLER INCLUDED IN WING LENGTH.

FOR TYPICAL ABUTMENT SECTION A-A SEE SHEET 14.

FOR PILE SPLICE DETAIL SEE SHEET 4.

FOR BEARING PAD DETAIL SEE SUPERSTRUCTURE SHEETS.

COST OF #6 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 6.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
EAST ABUTMENT			SHEET 10 OF 37

PLOT TIME: 12:09:45 PM

PLOT DATE: 6/27/2022

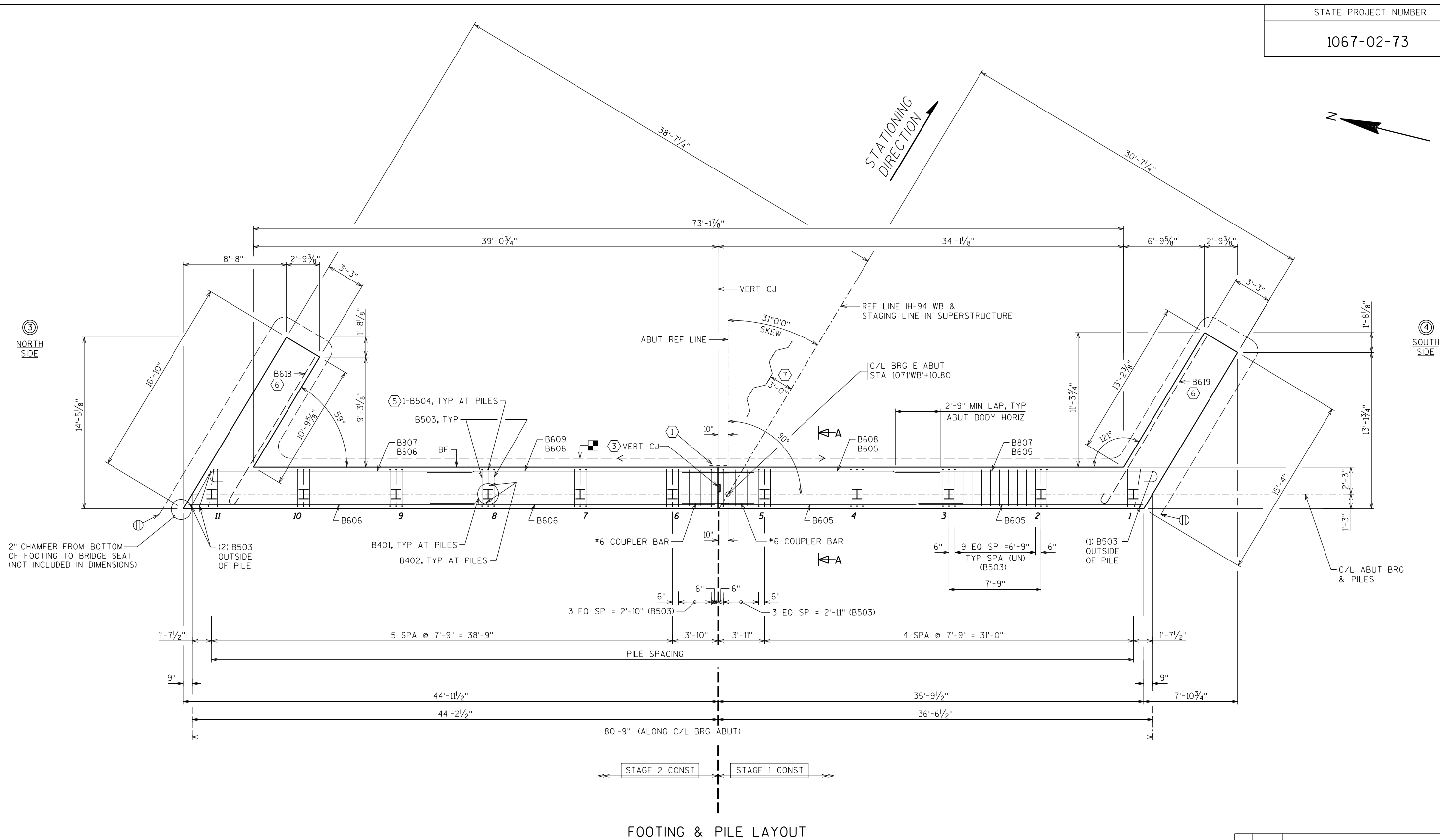
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STATIONING
DIRECTION

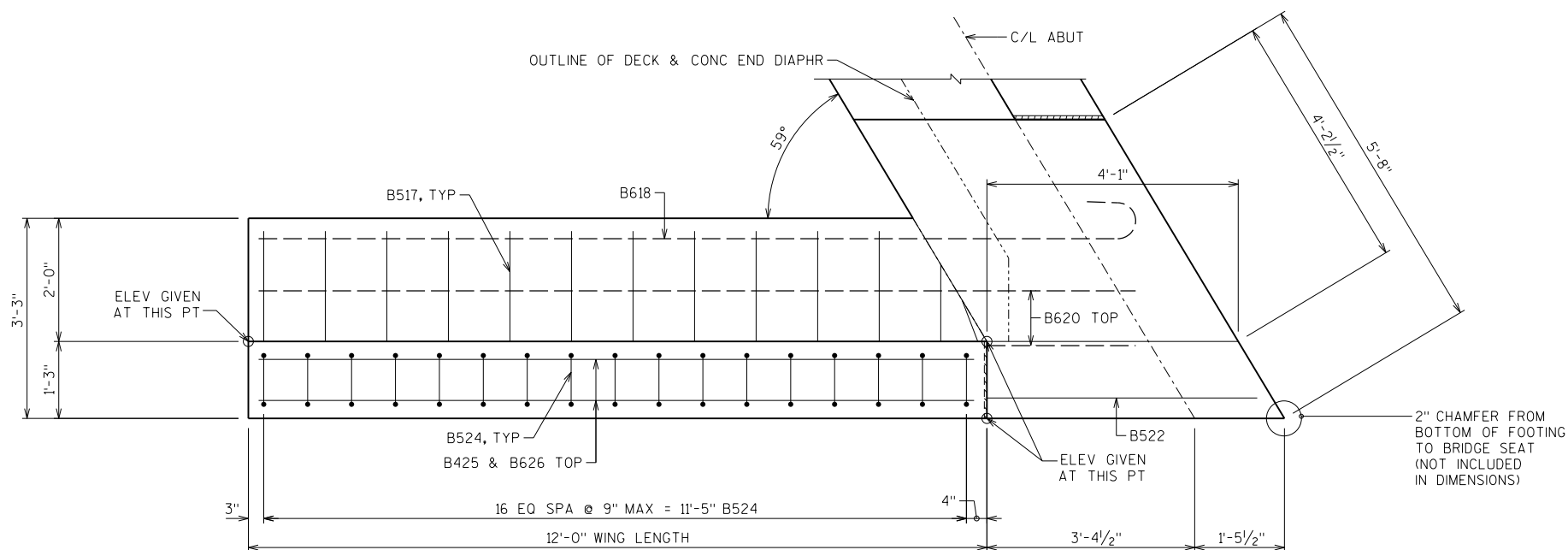


FOOTING & PILE LAYOUT

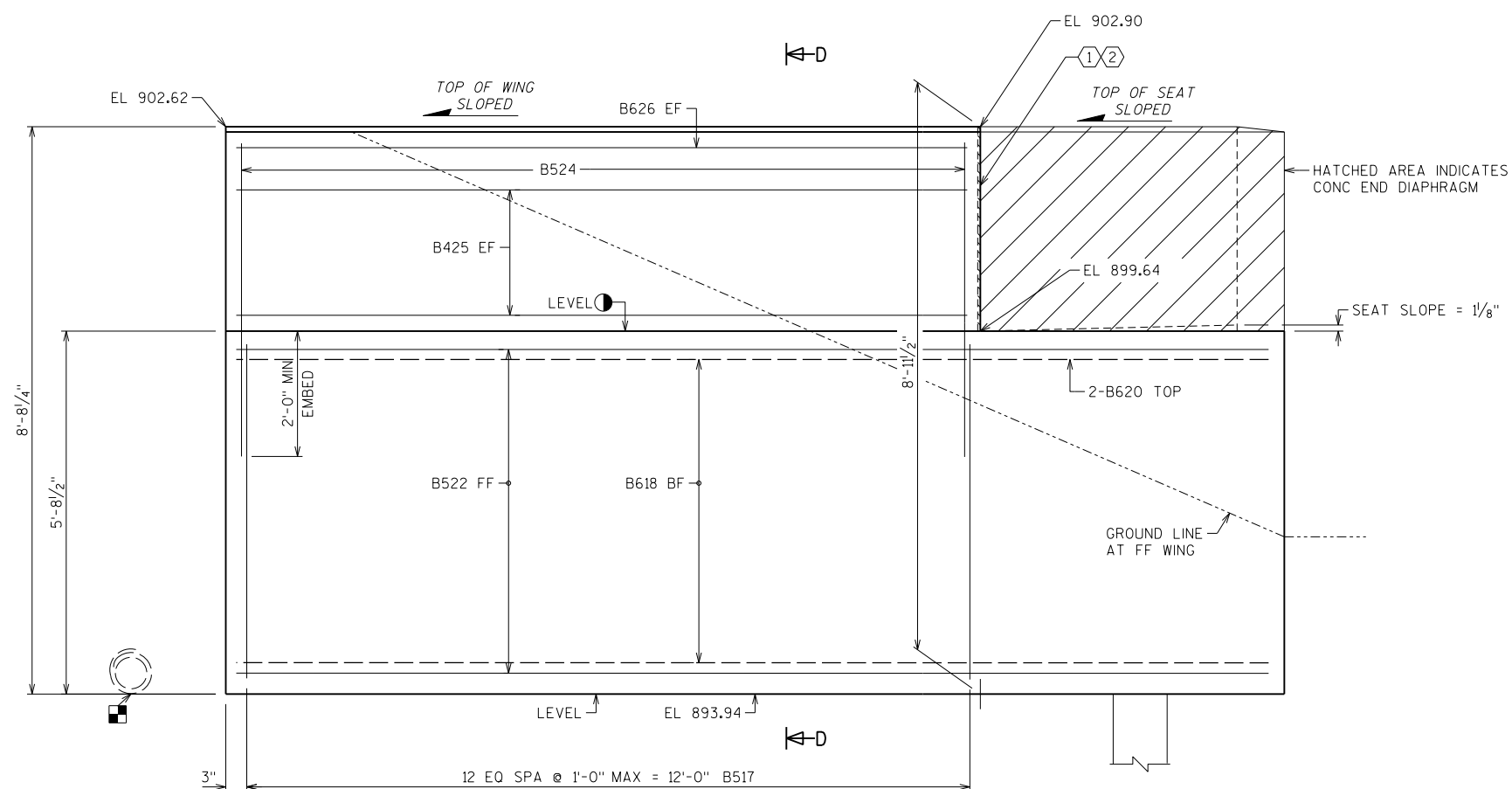
NOTES

SEE SHEET 10 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

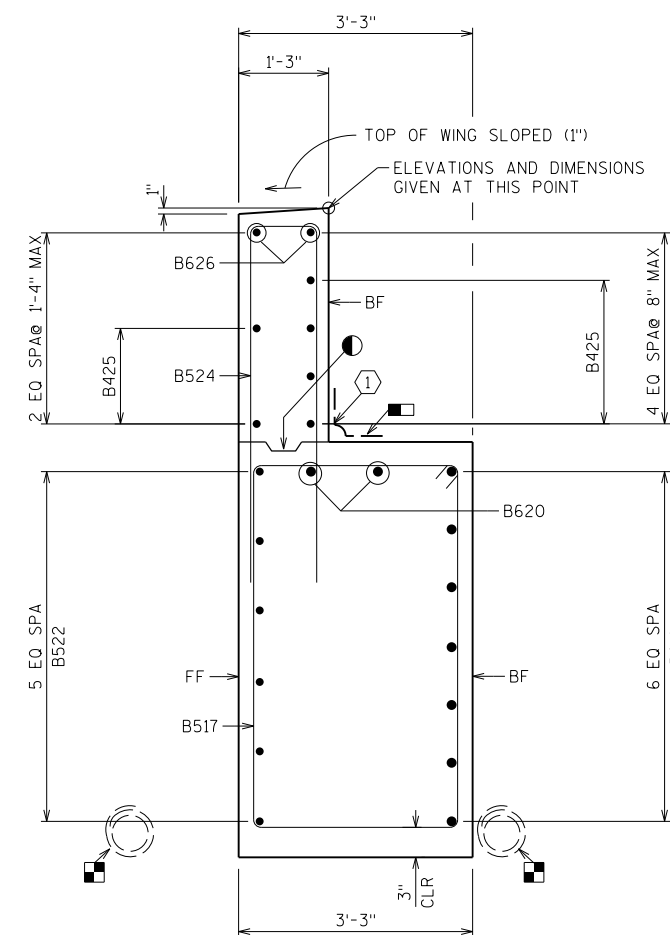
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
EAST ABUTMENT			SHEET 11 OF 37



WING 3 - PLAN



WING 3 - ELEVATION



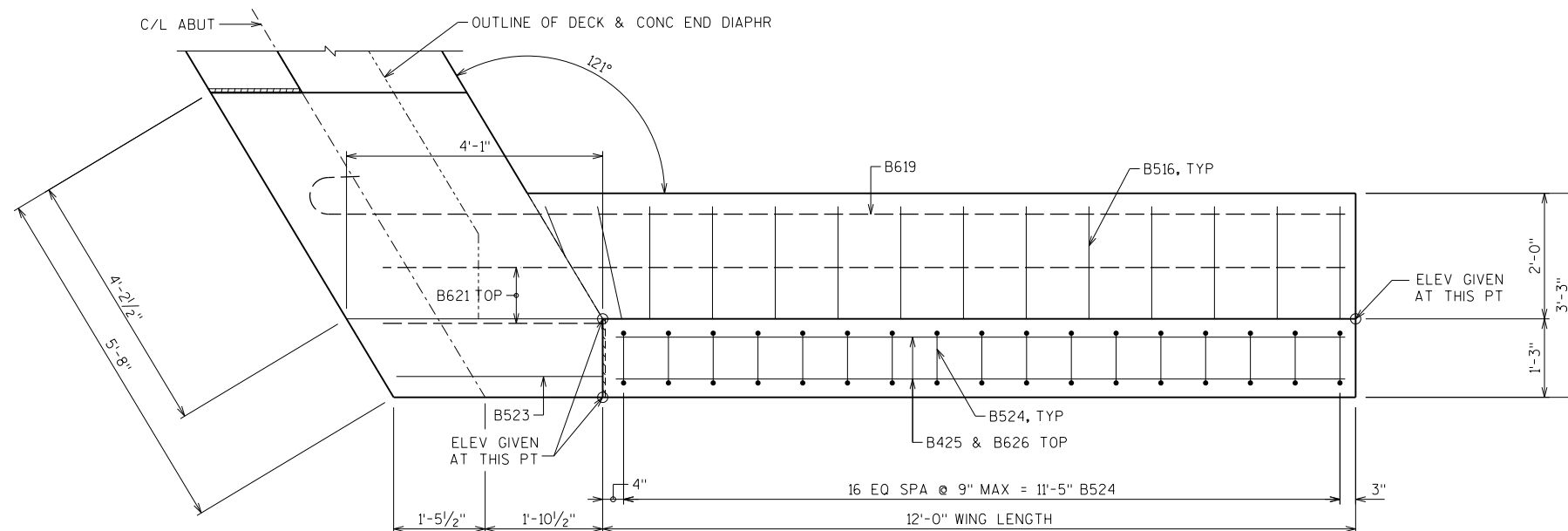
SECTION D-D

NOTES

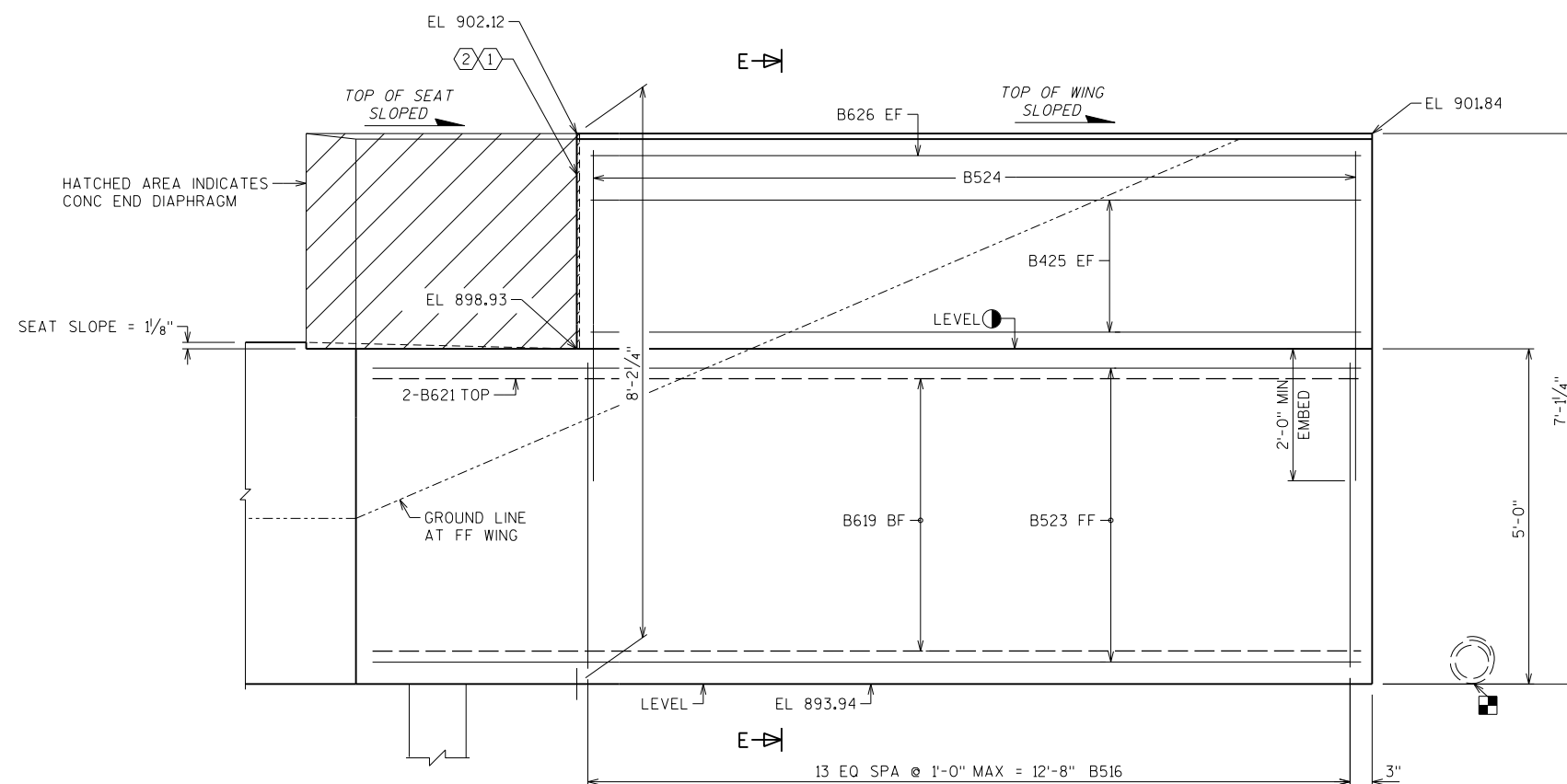
SEE SHEET 10 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
EAST ABUTMENT WING 3			SHEET 12 OF 37

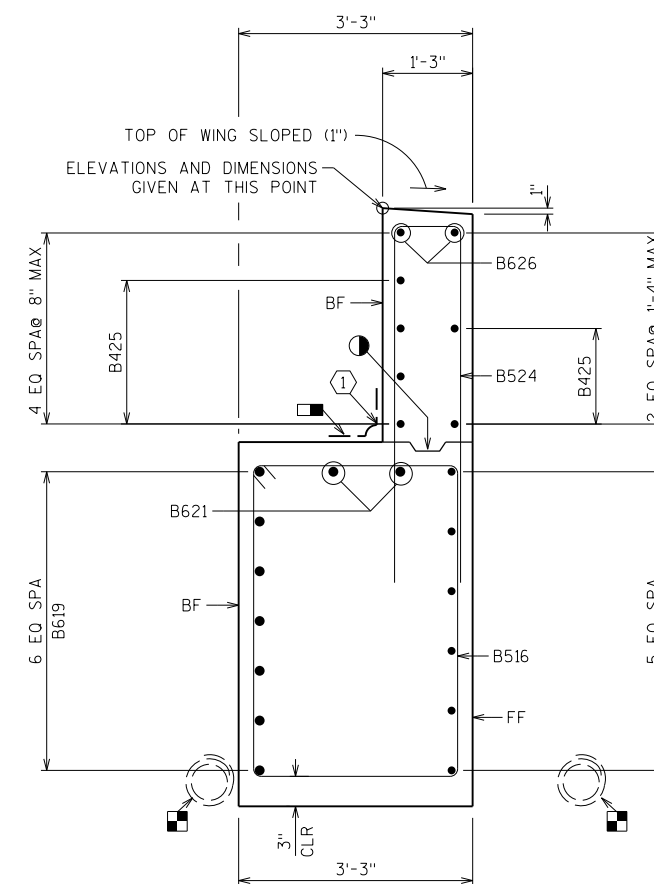
STAGE 2



WING 4 - PLAN



WING 4 - ELEVATION



SECTION E-E

NOTES

SEE SHEET 10 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
EAST ABUTMENT WING 4			SHEET 13 OF 37

STAGE 1

PLOT TIME: 12:59:47 PM

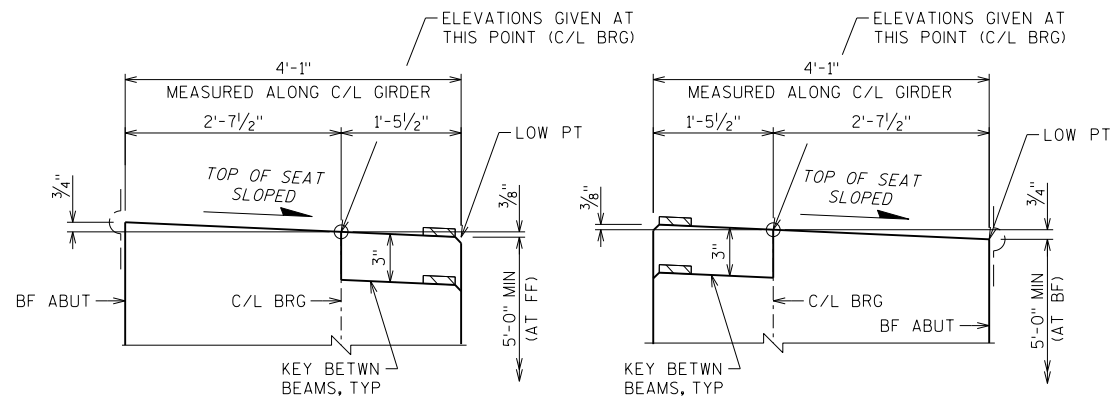
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NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

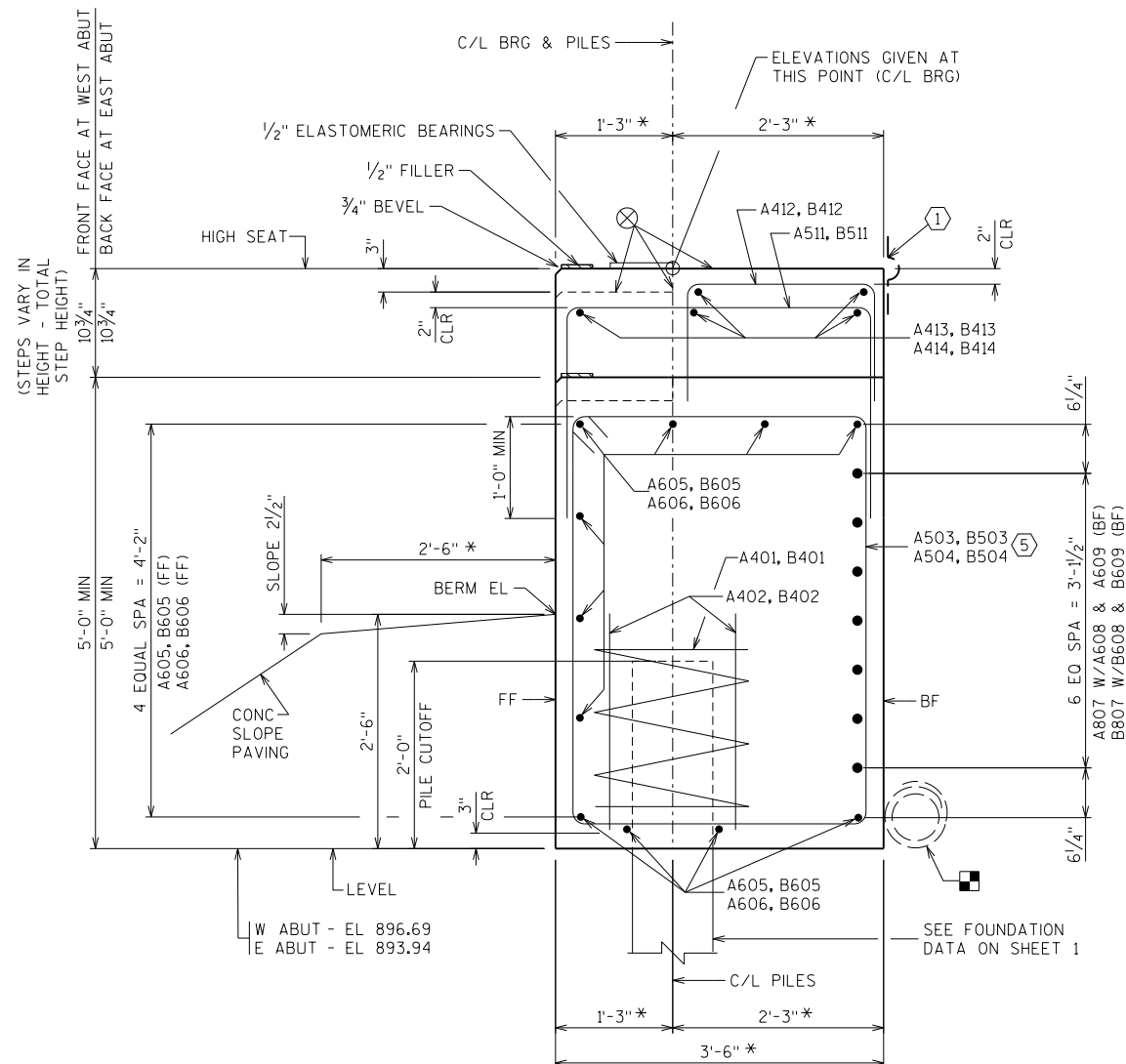


SEAT SLOPE DETAIL
WEST ABUT

SEAT SLOPE DETAIL
EAST ABUT

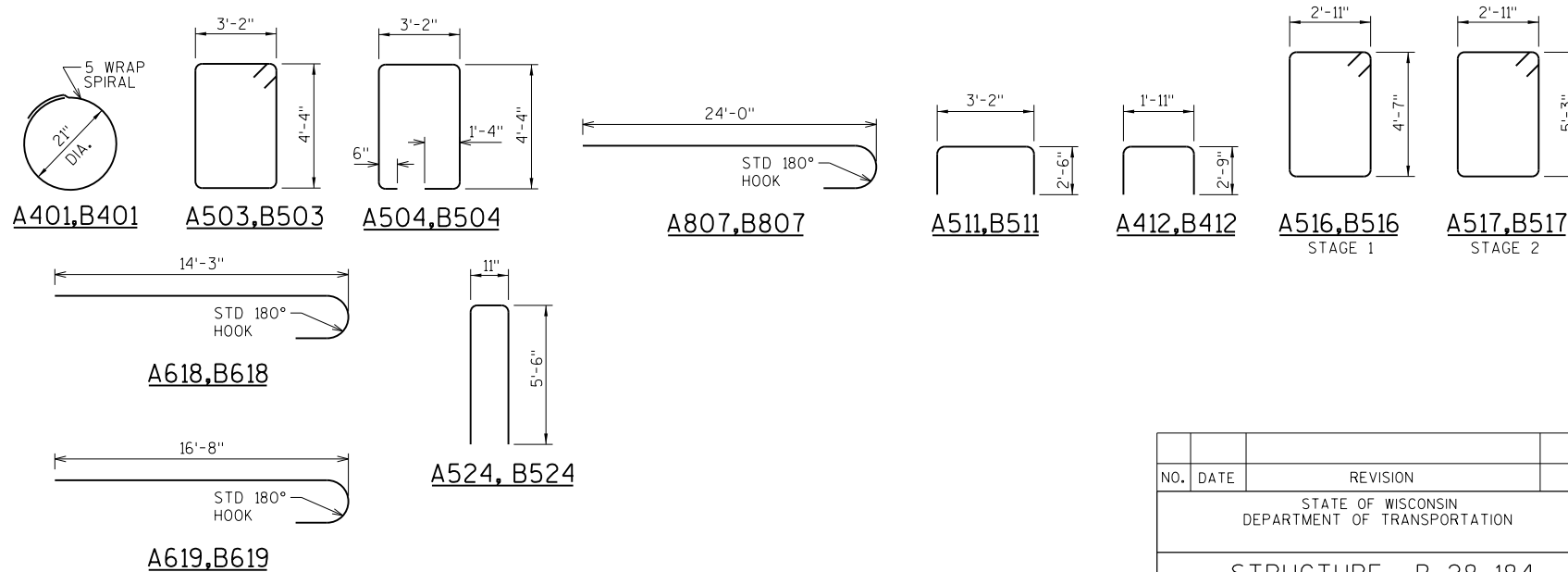
BILL OF BARS WEST ABUTMENT									
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2	
A401		5	28 - 0		X	BODY AT PILES	X		
"		6	28 - 0		X	BODY AT PILES		X	
A402		10	2 - 3			BODY AT PILES	X		
"		12	2 - 3			BODY AT PILES		X	
A503		47	15 - 8		X	BODY STIRRUP	X		
"		54	15 - 8		X	BODY STIRRUP		X	
A504		5	13 - 2		X	BODY STIRRUP	X		
"		6	13 - 2		X	BODY STIRRUP		X	
A605		22	20 - 6			BODY HORIZ	X		
A606		22	24 - 4			BODY HORIZ		X	
A807		7	24 - 11		X	BODY HORIZ BF	X		
"		7	24 - 11		X	BODY HORIZ BF		X	
A608		7	15 - 9			BODY HORIZ BF	X		
A609		7	25 - 10			BODY HORIZ BF		X	
NOT USED									
A511		19	7 - 11		X	SEAT TIE	X		
"		43	7 - 11		X	SEAT TIE		X	
A412		24	7 - 3		X	KEY TIE	X		
"		29	7 - 3		X	KEY TIE		X	
A413		7	20 - 0			SEAT/KEY HORIZ	X		
A414		10	23 - 3			SEAT/KEY HORIZ		X	
NOT USED									
A516	X	13	15 - 8		X	WING 1 STIRRUP	X		
A517	X	14	17 - 0		X	WING 2 STIRRUP		X	
A618	X	7	14 - 11		X	WING 1 BF	X		
A619	X	7	17 - 6		X	WING 2 BF		X	
A620	X	2	14 - 3			WING 1 TOP	X		
A621	X	2	15 - 4			WING 2 TOP		X	
A522	X	6	16 - 2			WING 1 FF	X		
A523	X	6	14 - 11			WING 2 FF		X	
A524	X	17	11 - 8		X	WING 1 VERT	X		
"	X	17	11 - 8		X	WING 2 VERT		X	
A425	X	6	11 - 7			WING 1 HORIZ	X		
"	X	6	11 - 7			WING 2 HORIZ		X	
A626	X	2	11 - 7			WING 1 HORIZ TOP	X		
"	X	2	11 - 7			WING 2 HORIZ TOP		X	

BILL OF BARS EAST ABUTMENT									
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2	
B401		5	28 - 0		X	BODY AT PILES	X		
"		6	28 - 0		X	BODY AT PILES		X	
B402		10	2 - 3			BODY AT PILES	X		
"		12	2 - 3			BODY AT PILES		X	
B503		45	15 - 8		X	BODY STIRRUP	X		
"		56	15 - 8		X	BODY STIRRUP		X	
B504		5	13 - 2		X	BODY STIRRUP	X		
"		6	13 - 2		X	BODY STIRRUP		X	
B605		22	20 - 6			BODY HORIZ	X		
B606		22	24 - 4			BODY HORIZ		X	
B807		7	24 - 11		X	BODY HORIZ BF	X		
"		7	24 - 11		X	BODY HORIZ BF		X	
B608		7	15 - 9			BODY HORIZ BF	X		
B609		7	24 - 10			BODY HORIZ BF		X	
NOT USED									
B511		19	7 - 11		X	SEAT TIE	X		
"		43	7 - 11		X	SEAT TIE		X	
B412		24	7 - 3		X	KEY TIE	X		
"		29	7 - 3		X	KEY TIE		X	
B413		7	20 - 0			SEAT/KEY HORIZ	X		
B414		10	23 - 3			SEAT/KEY HORIZ		X	
NOT USED									
B516	X	14	15 - 8		X	WING 4 STIRRUP	X		
B517	X	13	17 - 0		X	WING 3 STIRRUP		X	
B618	X	7	14 - 11		X	WING 3 BF		X	
B619	X	7	17 - 6		X	WING 4 BF	X		
B620	X	2	14 - 3			WING 3 TOP	X		
B621	X	2	15 - 4			WING 4 TOP		X	
B522	X	6	16 - 2			WING 3 FF	X		
B523	X	6	14 - 11			WING 4 FF		X	
B524	X	17	11 - 8		X	WING 3 VERT	X		
"	X	17	11 - 8		X	WING 4 VERT		X	
B425	X	6	11 - 7			WING 3 HORIZ	X		
"	X	6	11 - 7			WING 4 HORIZ		X	
B626	X	2	11 - 7			WING 3 HORIZ TOP	X		
"	X	2	11 - 7			WING 4 HORIZ TOP		X	



SECTION A-A
TYPICAL SECTION THRU BODY

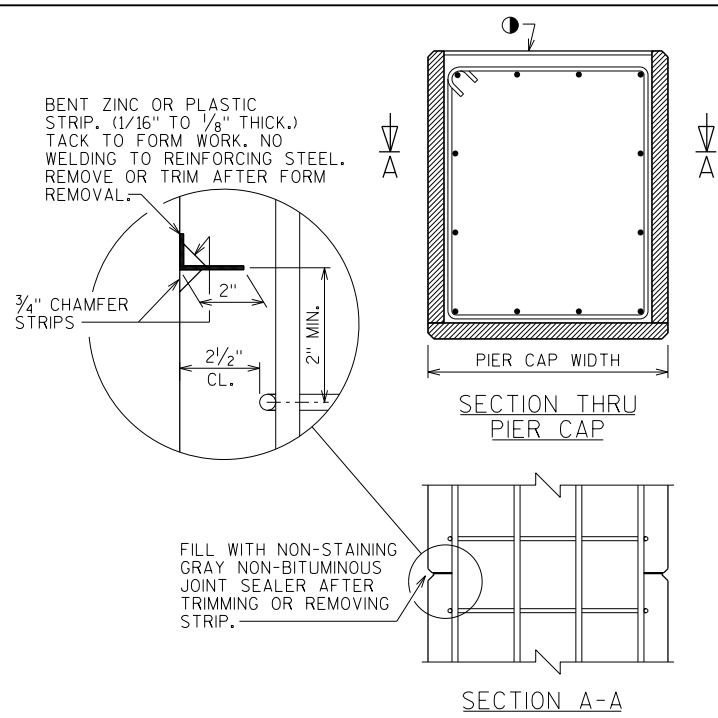
* DIMENSIONS ARE TAKEN NORMAL TO
C/L SUBSTRUCTURE UNITS



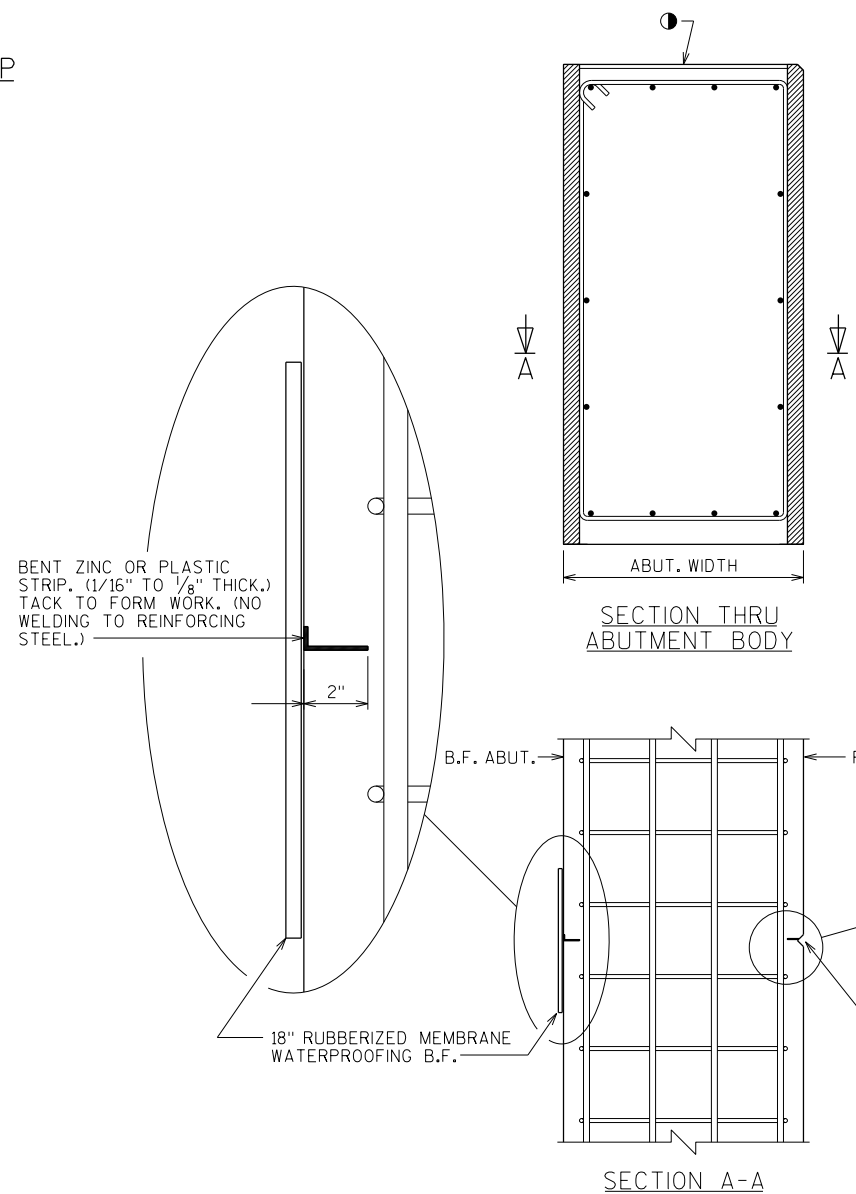
NOTES

SEE SHEET 6 & 10 FOR LEGEND AND ABUTMENT NOTES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CK'D. NCK	
WEST AND EAST ABUTMENT DETAILS			SHEET 14 OF 37



ALTERNATE CONSTRUCTION JOINT AT PIER CAP



ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

NOTES

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SAW CUTTING JOINT IS NOT ALLOWED.

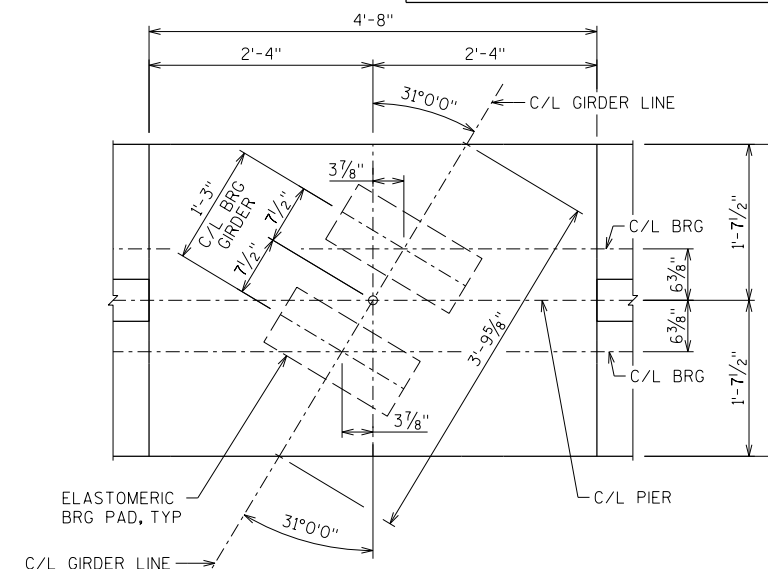
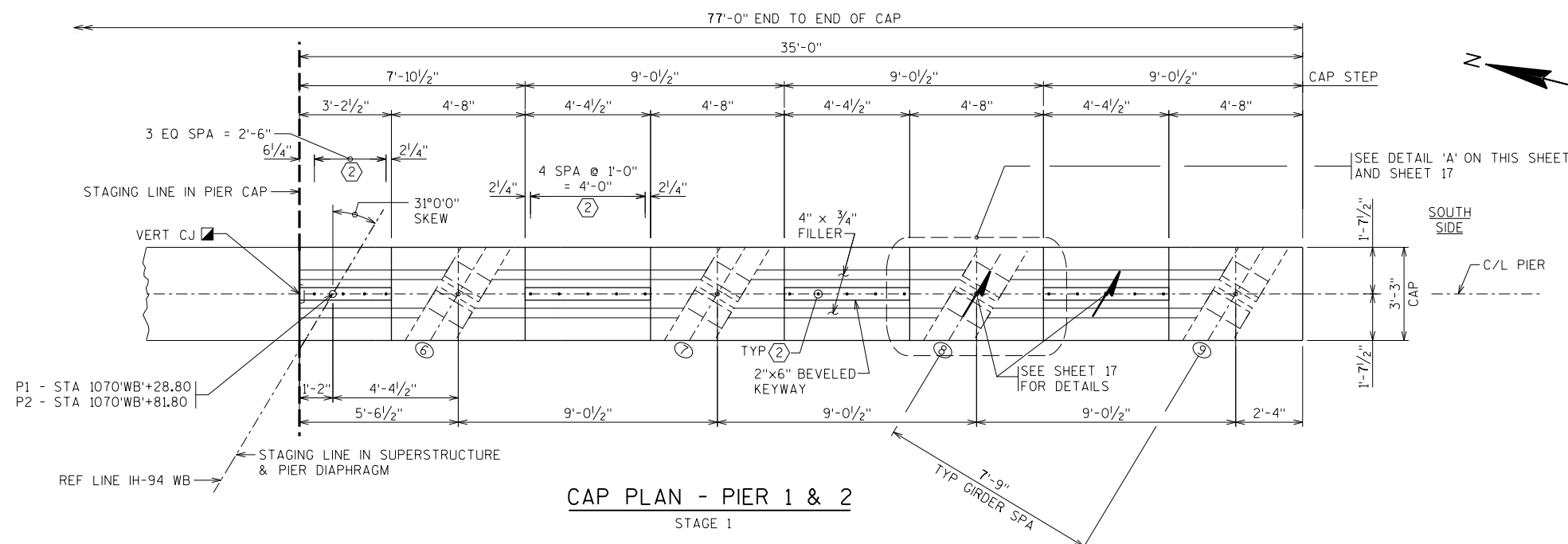
● USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
ALTERNATE CONSTRUCTION JOINT			SHEET 15 OF 37

PLOT TIME: 12:59:48 PM

PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\W\1347215-final-dsgn\5i-drawings\20-struct\B-28-184\B-28-184altjoint.dgn



DETAIL A
TYPICAL GIRDER SEAT LAYOUT

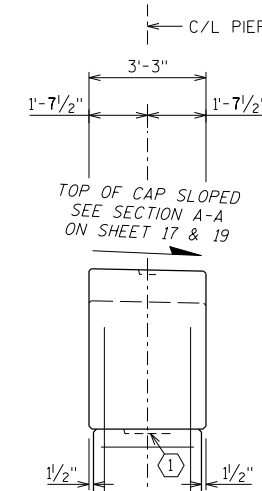
PIER NOTES & LEGEND

- TEMPORARY SHORING NOT SHOWN FOR CLARITY.
- SEE SHEET 20 FOR SECTION A-A, B-B, C-C & D-D.
- ① 1'-3" SQUARE X 2" DEEP HORIZ CONST JOINT FORMED BY BEVELED KEYWAY.
- ② P520, N520 DOWEL BARS @ 12" MAX. SPACING - MAY BE PLACED AFTER CONC IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- VERTICAL CONST JOINT KEYWAY FORMED BY A BEVELED 2 X 8.
- INDICATES NEW GIRDER LINE ELEVATION TAKEN AT C/L PIER AND C/L GIRDER.
- ↔ SEAT SLOPE DIRECTION MEASURED ALONG C/L GIRDER.

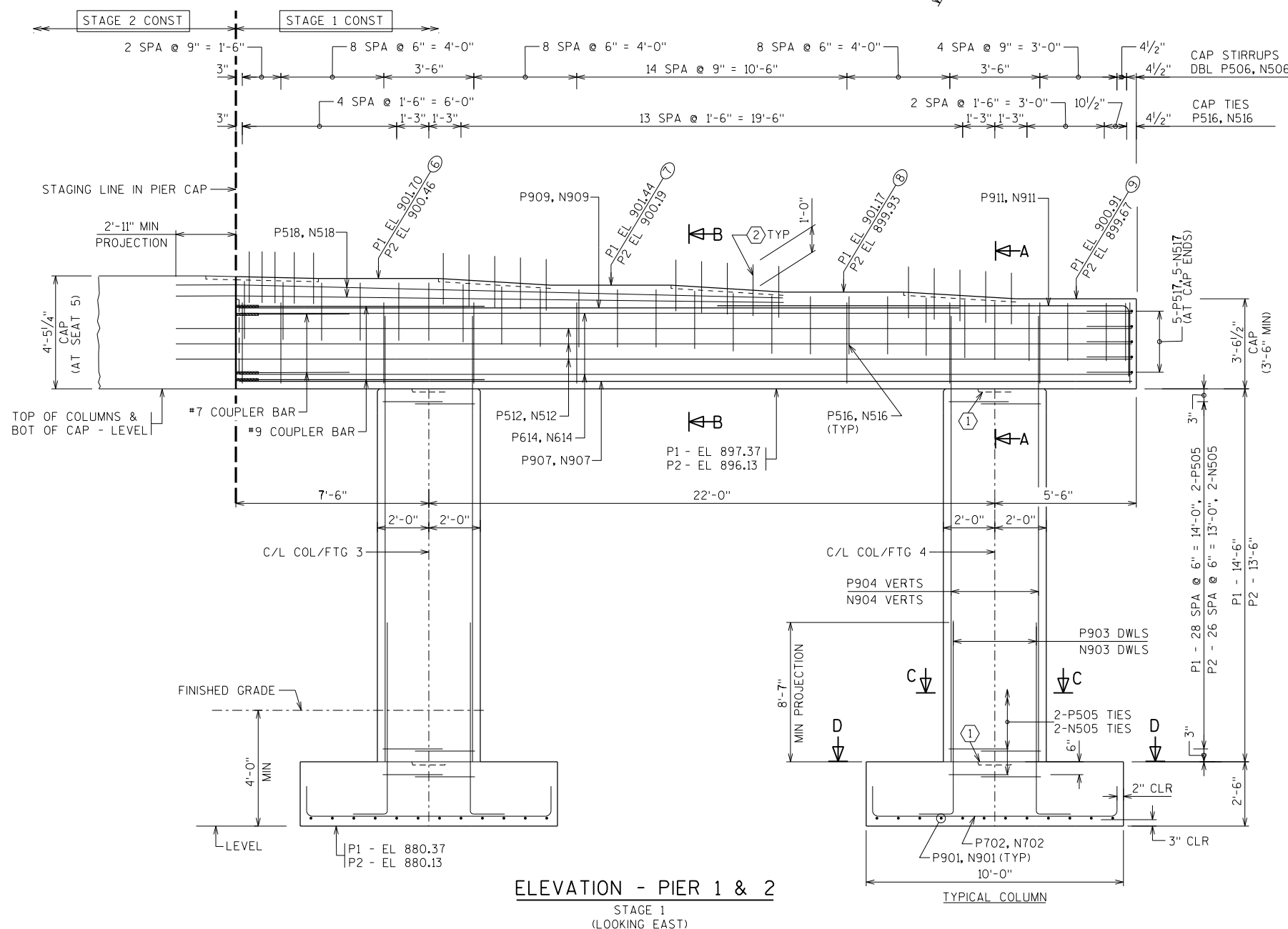
COST OF #6 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 6.

COST OF #9 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 9.

- P1 = PIER 1
- P2 = PIER 2
- BAR MARKS 'P' = PIER 1 BARS
- BAR MARKS 'N' = PIER 2 BARS
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- T = TOP
- B = BOTTOM
- EXIST = EXISTING
- BETW = BETWEEN



TYP END SECTION/ELEV
(TYP AT STAGE 1 & STAGE 2)



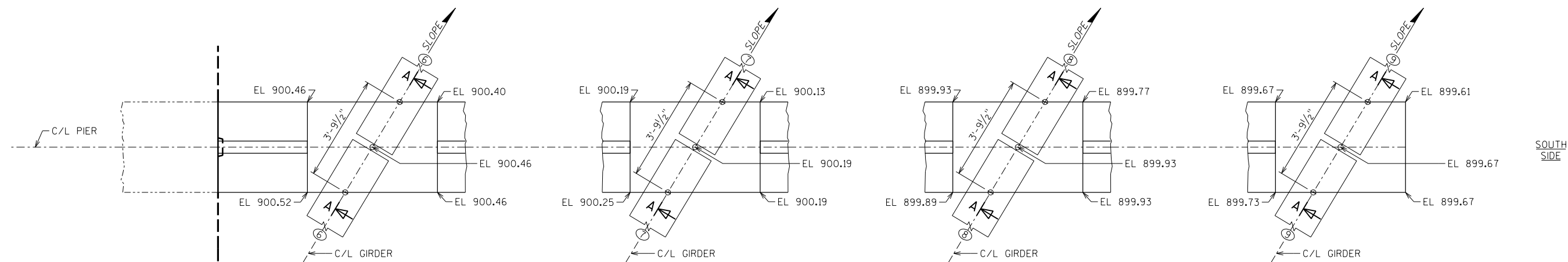
ELEVATION - PIER 1 & 2
STAGE 1
(LOOKING EAST)

PLOT TIME: 12:05:50 PM

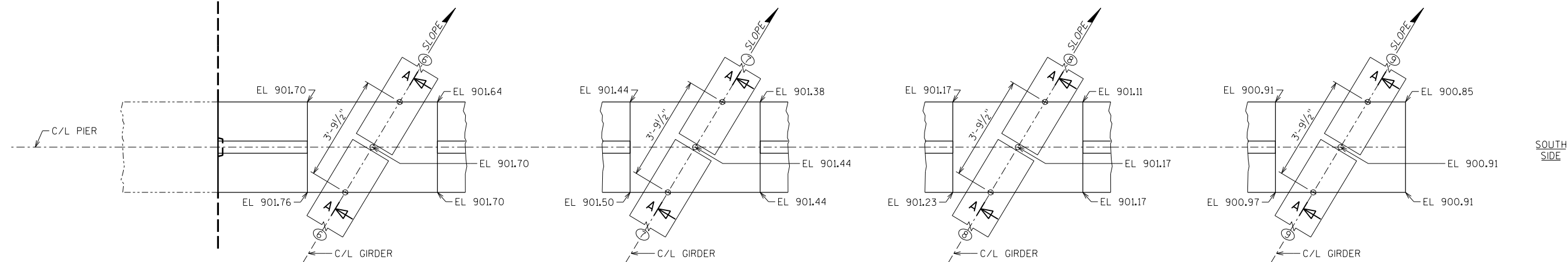
PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\WIT\sw\13472\15-final-dsgn\51-dr-awings\20-struct\B-28-184\B-28-184.dgn

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
PIER 1 & 2 STAGE 1			SHEET 16 OF 37



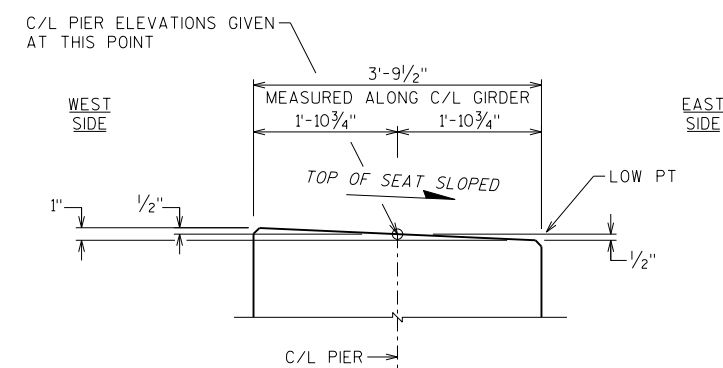
PIER 2
STAGE 1



PIER 1
STAGE 1

NOTES

SEE SHEET 16 FOR PIER NOTES & LEGEND.



SECTION A-A
SEAT SLOPE DETAIL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 STAGE 1 CAP ELEVATIONS			SHEET 17 OF 37



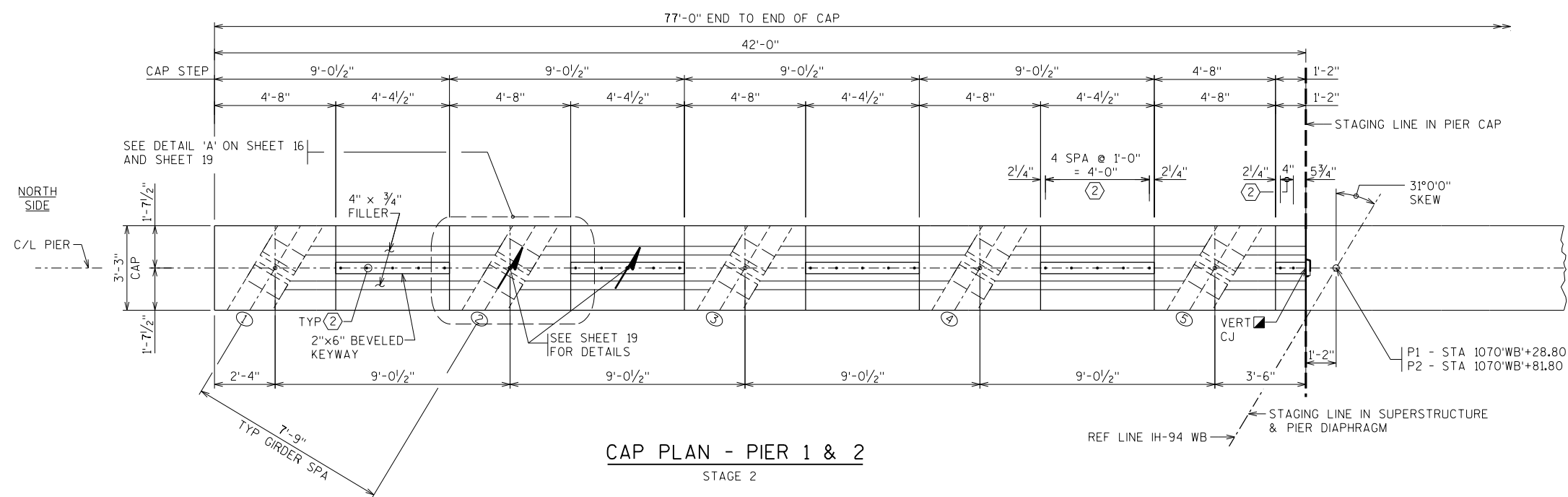
PLOT TIME: 12:05:51PM

PLOT DATE: 6/27/2022

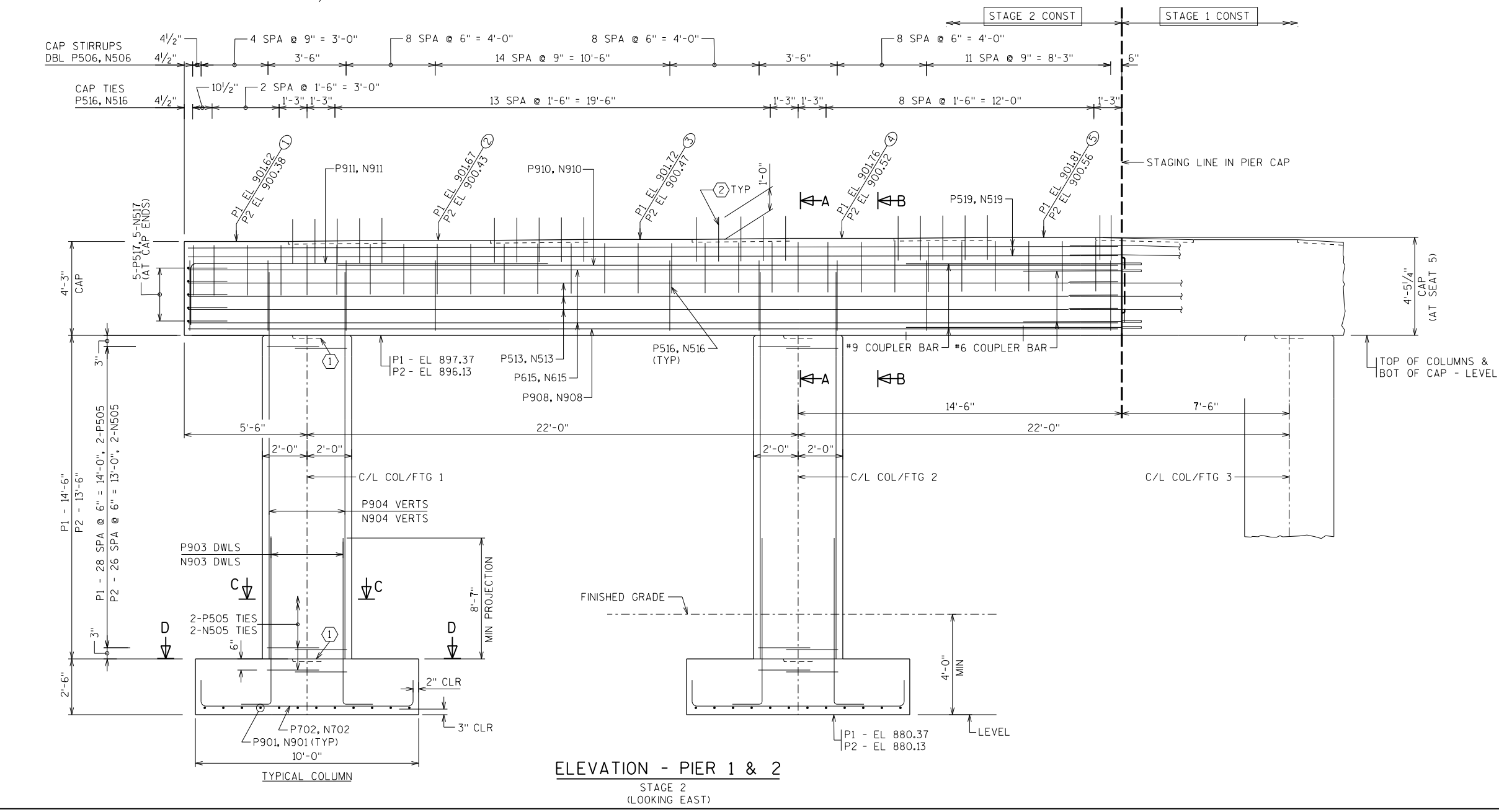
FILE NAME: S:\UZ\W\W\1347215-f\final-dsgn\5i-drawings\20-Struct\B-28-184\dgn\b28184p1.dgn

8

8



CAP PLAN - PIER 1 & 2
STAGE 2

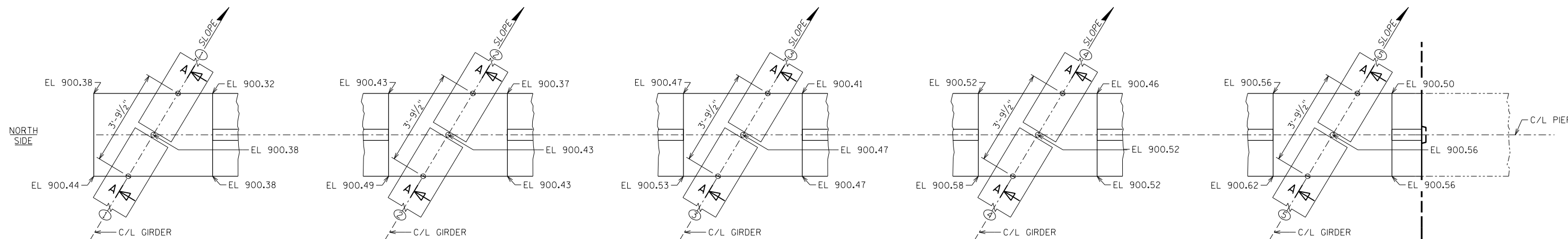


ELEVATION - PIER 1 & 2
STAGE 2
(LOOKING EAST)

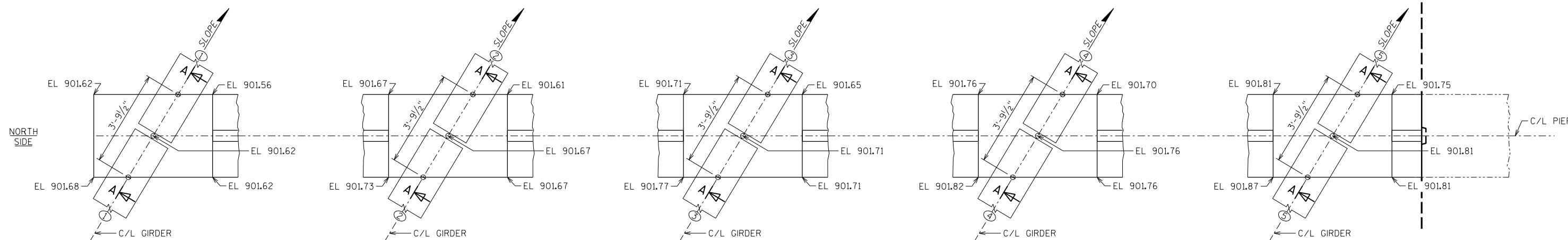
NOTES

- SEE SHEET 16 FOR PIER NOTES & LEGEND.
- SEE SHEET 20 FOR SECTION A-A, B-B, C-C & D-D.

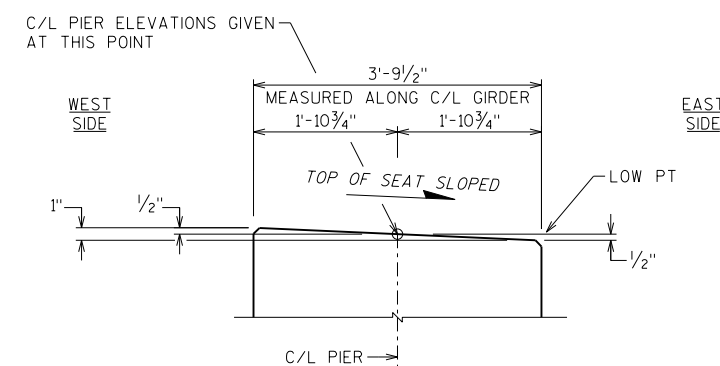
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 STAGE 2			SHEET 18 OF 37



PIER 2
STAGE 2



PIER 1
STAGE 2



SECTION A-A
SEAT SLOPE DETAIL

NOTES

SEE SHEET 16 FOR PIER NOTES & LEGEND.

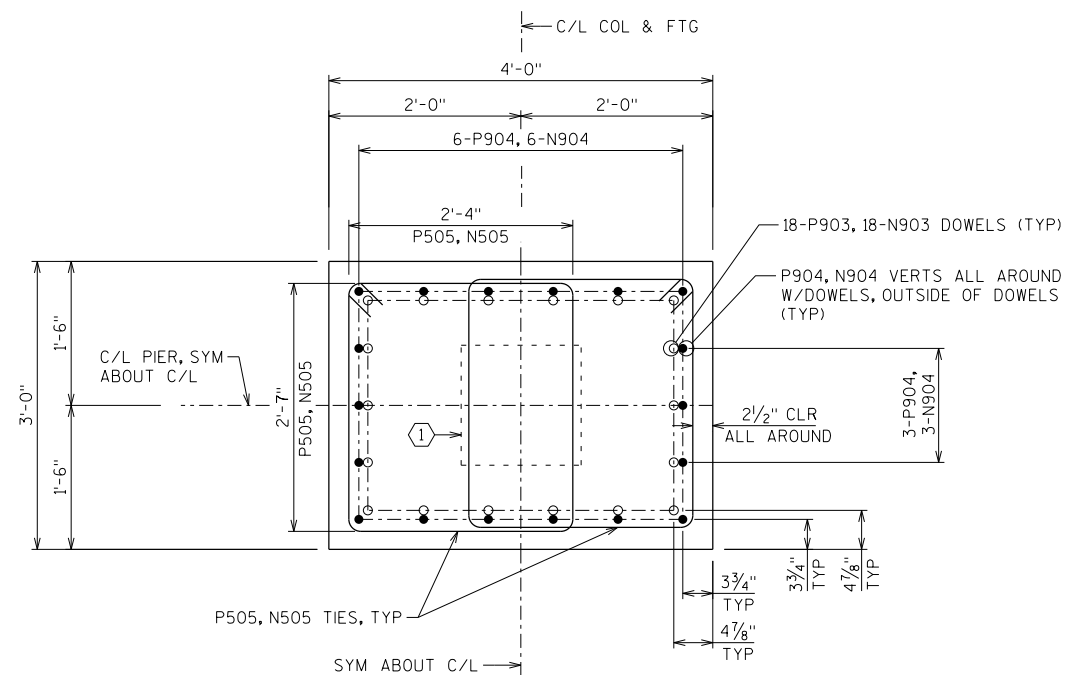
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 STAGE 2 CAP ELEVATIONS			SHEET 19 OF 37

NOTES

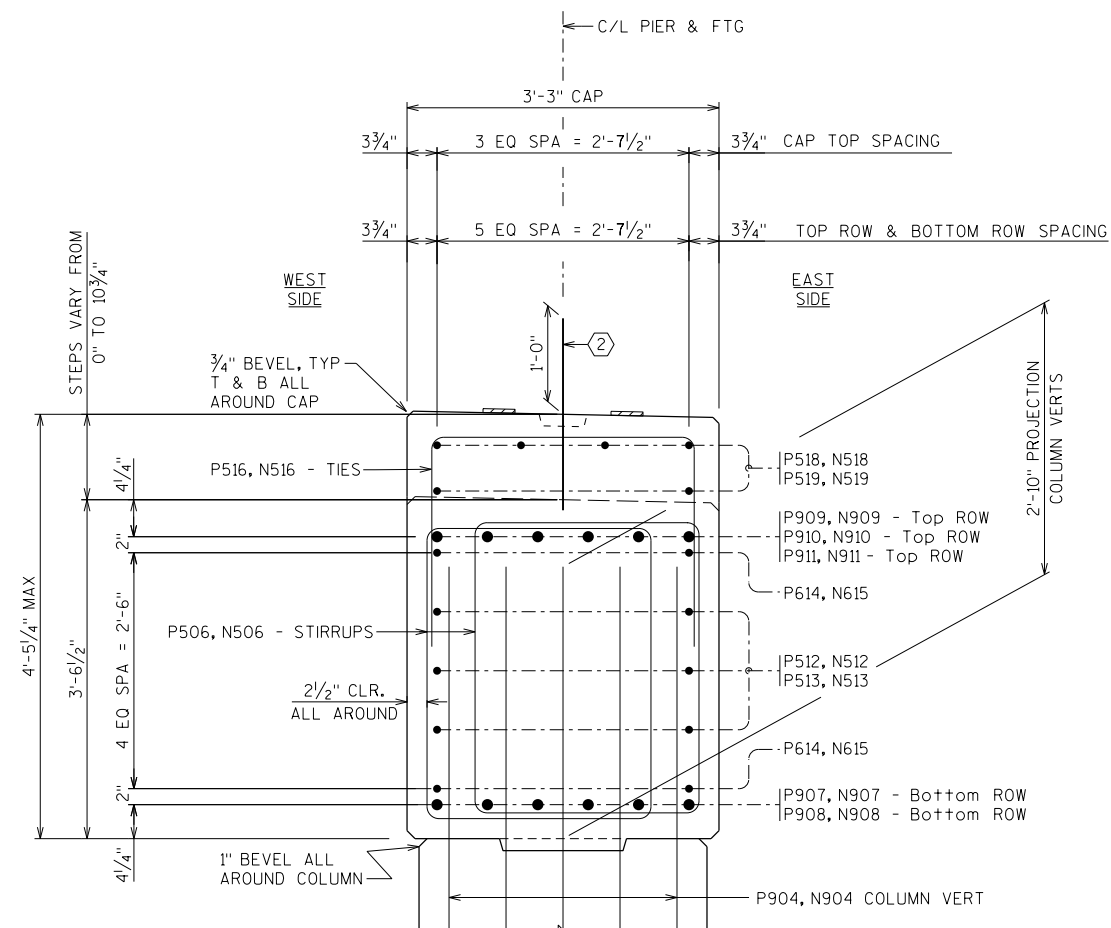
SEE SHEET 16 FOR PIER NOTES & LEGEND.

▲ PROVIDE AT LEAST ONE 5" MINIMUM CLEARANCE GAP BETWEEN REINFORCING BARS FOR CONCRETE PLACEMENT BY TREMIE AND FOR VIBRATION

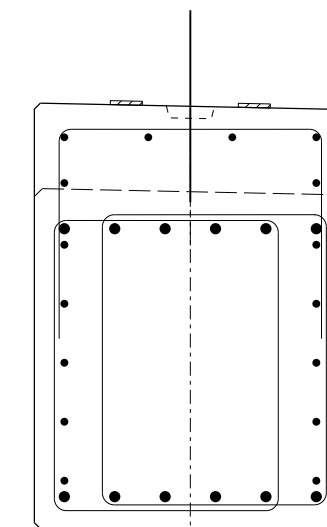
NOTE: THIS SECTION SIMILAR TO SECTION A-A



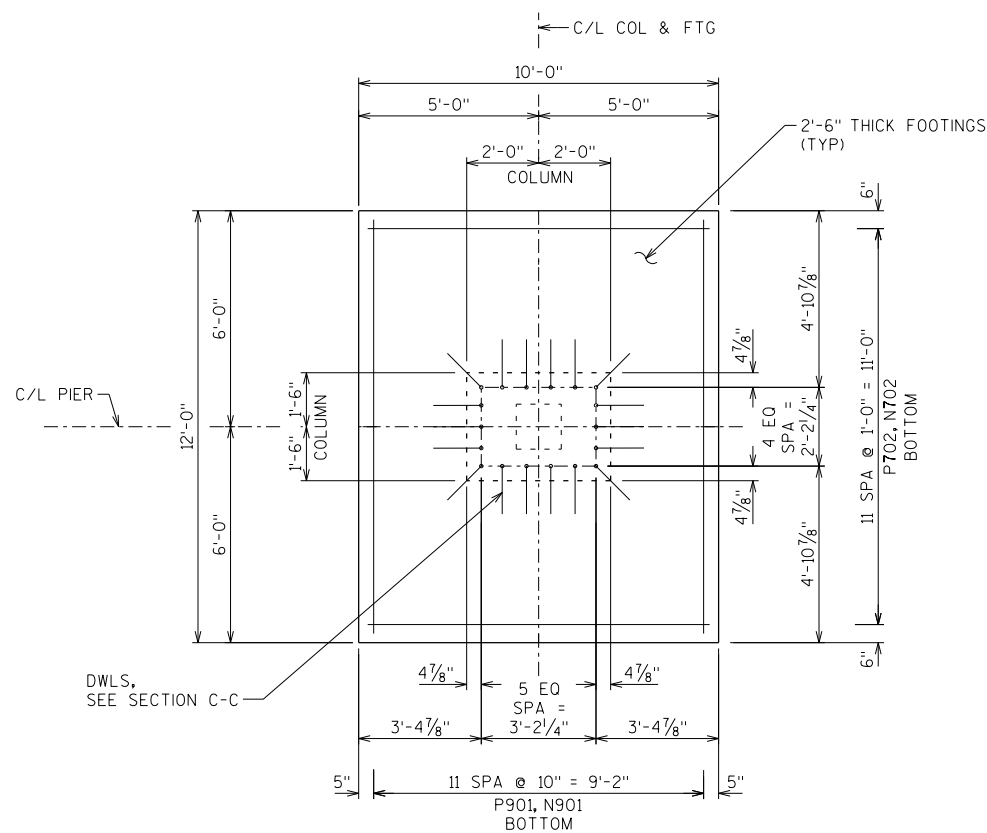
**SECTION C-C
TYPICAL COLUMN**



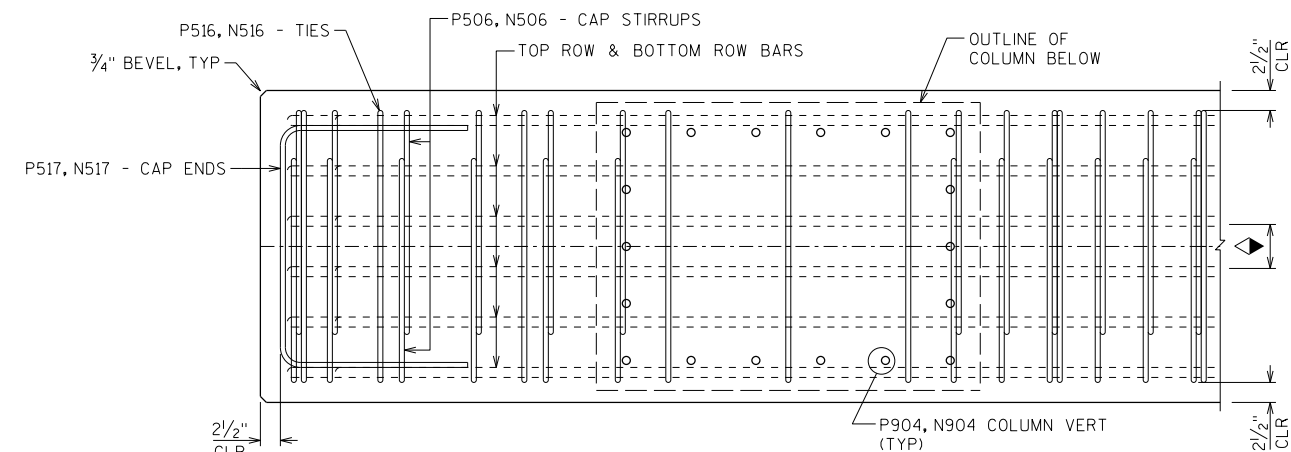
**SECTION A-A
AT COLUMNS**



**SECTION B-B
IN SPAN**



**SECTION D-D
TYPICAL FOOTING PLAN**

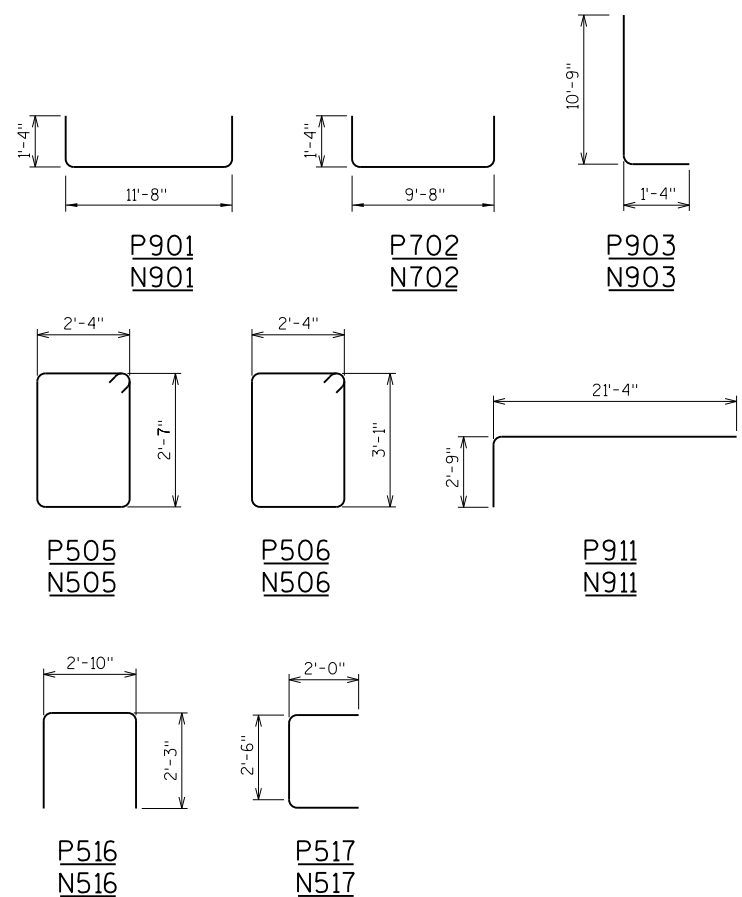


**PARTIAL CAP PLAN
TYPICAL
(SHOWN AT CAP ENDS & COLUMN)**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 DETAILS			SHEET 20 OF 37

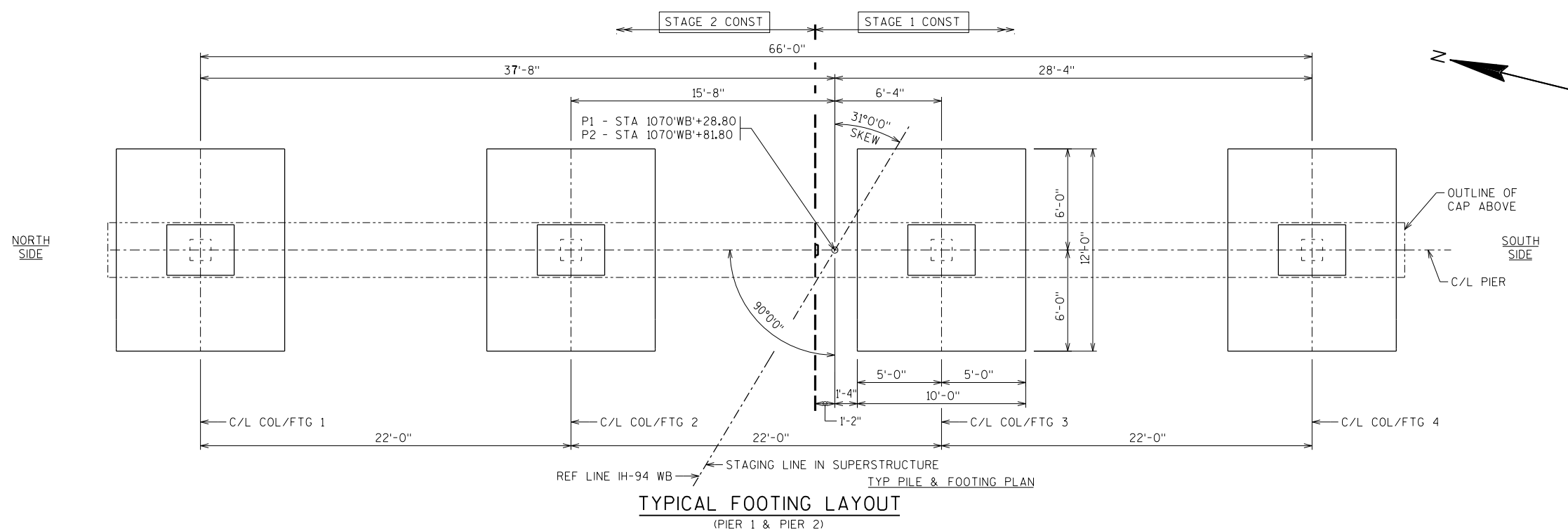
NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

BAR COUPLER NOTE:
SEE MISCELLANEOUS TYPICAL DETAILS SHEET FOR MORE INFORMATION.



BILL OF BARS						PIER 1		
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
P901		24	13 - 10		X	FTG B	X	
"		24	13 - 10		X	FTG B		X
P702		24	12 - 0		X	FTG B	X	
"		24	12 - 0		X	FTG B		X
P903	X	36	11 - 10		X	FTG DOWEL	X	
"	X	36	11 - 10		X	FTG DOWEL		X
P904	X	36	17 - 3			COL VERT	X	
"	X	36	17 - 3			COL VERT		X
P505	X	120	10 - 6		X	COL HOOP	X	
"	X	120	10 - 6		X	COL HOOP		X
P506	X	96	11 - 6		X	CAP STIRRUPS	X	
"	X	114	11 - 6		X	CAP STIRRUPS		X
P907	X	6	34 - 9			CAP HORIZ - Bottom Row	X	
P908	X	6	41 - 9			CAP HORIZ - Bottom Row		X
P909	X	6	23 - 9			CAP HORIZ -Top Row	X	
P910	X	6	30 - 6			CAP HORIZ -Top Row		X
P911	X	6	23 - 10		X	CAP HORIZ -Top Row	X	
"	X	6	23 - 10		X	CAP HORIZ -Top Row		X
P512	X	6	37 - 7			CAP HORIZ - Sides	X	
P513	X	6	41 - 8			CAP HORIZ - Sides		X
P614	X	4	34 - 8			CAP HORIZ - Sides	X	
P615	X	4	41 - 8			CAP HORIZ - Sides		X
P516	X	25	7 - 1		X	CAP TIE	X	
"	X	29	7 - 1		X	CAP TIE		X
P517	X	5	6 - 3		X	CAP ENDS	X	
"	X	5	6 - 3		X	CAP ENDS		X
P518	X	6	26 - 9			CAP TOP	X	
P519	X	6	41 - 9			CAP TOP		X
P520	X	19	2 - 0			DIAPHRAGM DOWEL	X	
"	X	22	2 - 0			DIAPHRAGM DOWEL		X
P921	X	12	10 - 0			COUPLER BAR		X
P622	X	4	4 - 10			COUPLER BAR		X

BILL OF BARS						PIER 2		
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
N901		24	13 - 10		X	FTG B	X	
"		24	13 - 10		X	FTG B		X
N702		24	12 - 0		X	FTG B	X	
"		24	12 - 0		X	FTG B		X
N903	X	36	11 - 10		X	FTG DOWEL	X	
"	X	36	11 - 10		X	FTG DOWEL		X
N904	X	36	16 - 3			COL VERT	X	
"	X	36	16 - 3			COL VERT		X
N505	X	112	10 - 6		X	COL HOOP	X	
"	X	112	10 - 6		X	COL HOOP		X
N506	X	96	11 - 6		X	CAP STIRRUPS	X	
"	X	114	11 - 6		X	CAP STIRRUPS		X
N907	X	6	34 - 9			CAP HORIZ - Bottom Row	X	
N908	X	6	41 - 9			CAP HORIZ - Bottom Row		X
N909	X	6	23 - 9			CAP HORIZ -Top Row	X	
N910	X	6	30 - 6			CAP HORIZ -Top Row		X
N911	X	6	23 - 10		X	CAP HORIZ -Top Row	X	
"	X	6	23 - 10		X	CAP HORIZ -Top Row		X
N512	X	6	37 - 7			CAP HORIZ - Sides	X	
N513	X	6	41 - 8			CAP HORIZ - Sides		X
N614	X	4	34 - 8			CAP HORIZ - Sides	X	
N615	X	4	41 - 8			CAP HORIZ - Sides		X
N516	X	25	7 - 1		X	CAP TIE	X	
"	X	29	7 - 1		X	CAP TIE		X
N517	X	5	6 - 3		X	CAP ENDS	X	
"	X	5	6 - 3		X	CAP ENDS		X
N518	X	6	26 - 9			CAP TOP	X	
N519	X	6	41 - 9			CAP TOP		X
N520	X	19	2 - 0			DIAPHRAGM DOWEL	X	
"	X	22	2 - 0			DIAPHRAGM DOWEL		X
N921	X	12	10 - 0			COUPLER BAR		X
N622	X	4	4 - 10			COUPLER BAR		X



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 DETAILS			SHEET 21 OF 37

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" 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. 503.3.3 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.

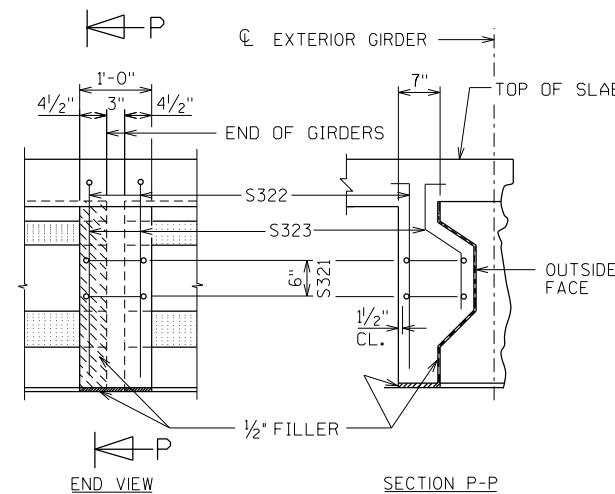
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

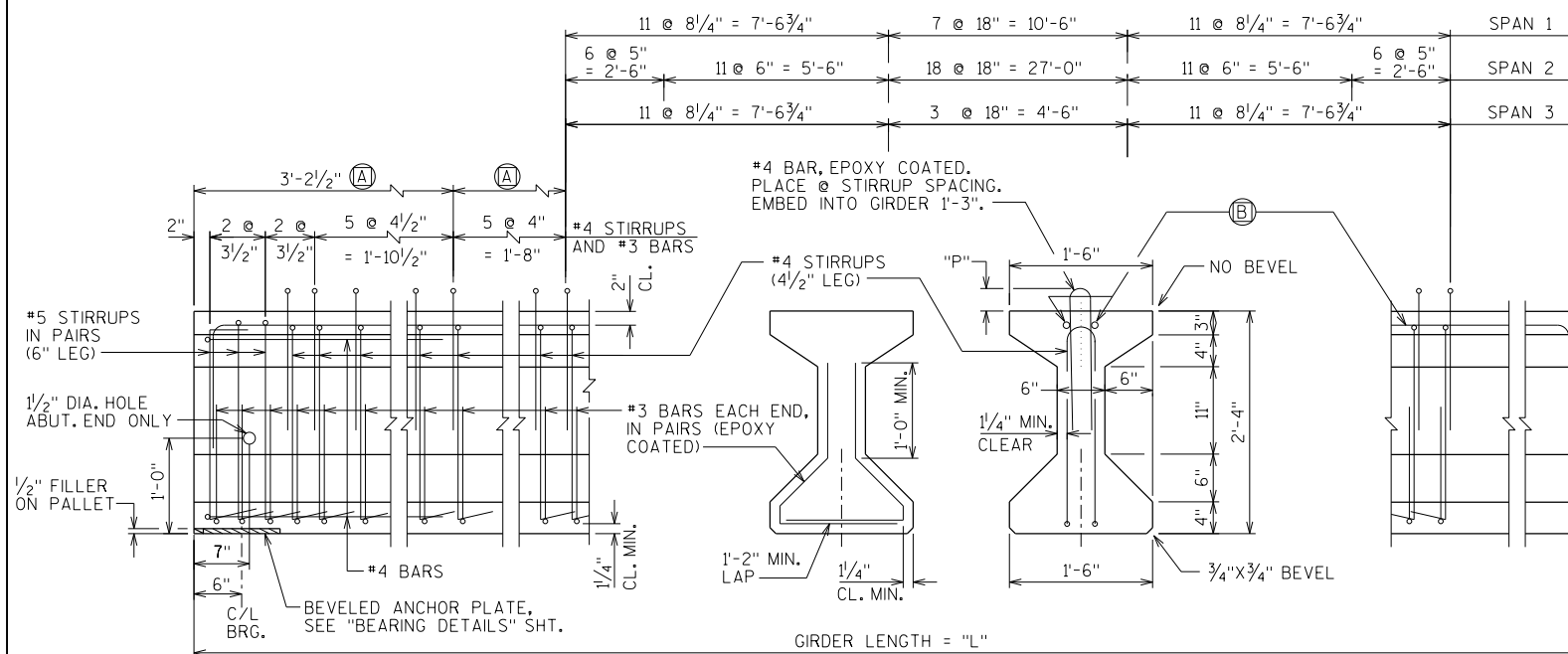
PRESTRESSING STRANDS SHALL BE (0.5" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

BEND EACH END OF #4 STIRRUPS 4 1/2" AND #5 STIRRUPS 6".

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

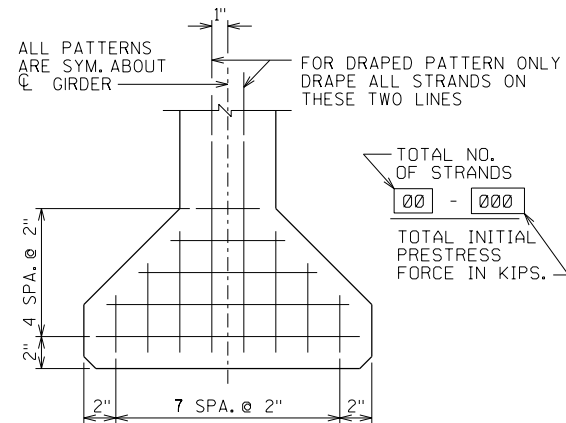


PILASTER DETAILS AT PIERS

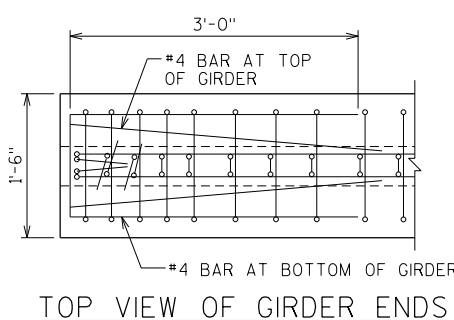


SIDE VIEW & TYPICAL SECTION IN SPAN (A) DETAIL TYP. AT EACH END

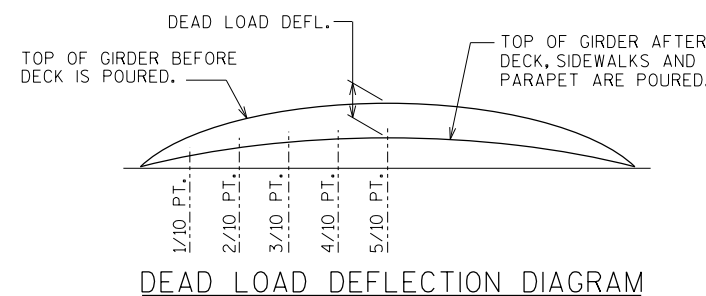
(B) 2-#6 ALL BEAMS BEND DOWN 16 BAR DIA. AT ENDS



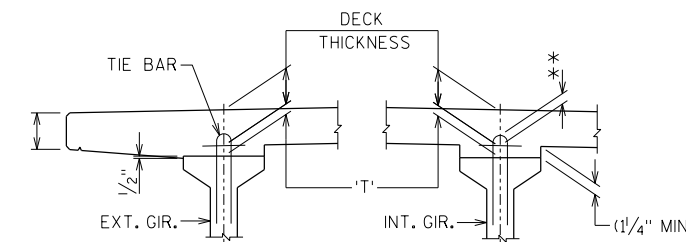
TYP. STRAND PATTERN



TOP VIEW OF GIRDER ENDS



DEAD LOAD DEFLECTION DIAGRAM



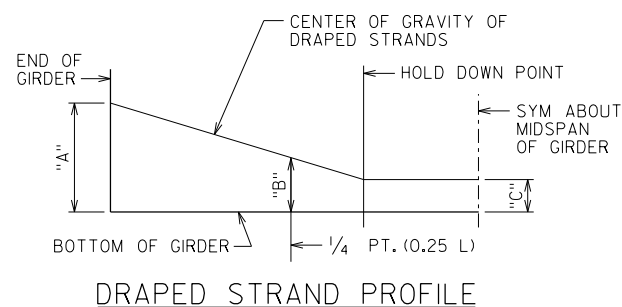
DECK HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN 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. AT CL. 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 2 1/2" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DRAPED STRAND PROFILE

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

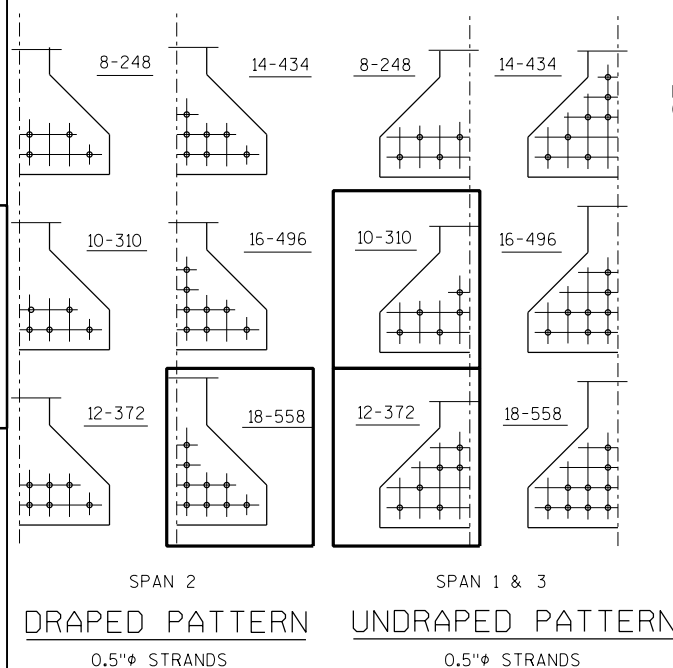
SPAN	CAMBER (IN.) *
1	5/8"
2	1 1/2"
3	3/8"

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

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

GIRDER DATA

SPAN	GIRDER	GIRDER LENGTH "L" (FEET)	DEAD LOAD DEF. (IN.)								CONC. STRGTH. F'c (P.S.I.)	"P" (IN.)			DIA. OF STRAND (IN.)	DRAPED PATTERN (IN.)					UNDRAPED PATTERN			
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10		9/10	TOTAL NO. OF STRANDS	F'ci (P.S.I.) *		"C"			TOTAL NO. OF STRANDS	F'ci (P.S.I.) *				
			1ST 1/3 OF GIRDER	MID 1/3 OF GIRDER	END 1/3 OF GIRDER	"A"	"B" MIN.	"B" MAX.	"C"															
1	ALL	35.375	0	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	0	6,500	6	6	6	0.5	-	-	-	-	-	12	5,500
2	ALL	52.750	1/4	1/2	5/8	3/4	3/4	3/4	5/8	1/2	1/4	7,000	6	6	6	0.5	18	6,000	23	9.5	12.5	5	-	-
3	ALL	29.375	0	0	0	1/8	1/8	1/8	0	0	0	6,500	6	6	6	0.5	-	-	-	-	-	10	5,500	



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
28" PRESTRESSED GIRDER DETAILS		SHEET 22 OF 37	

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-28-184", EACH.

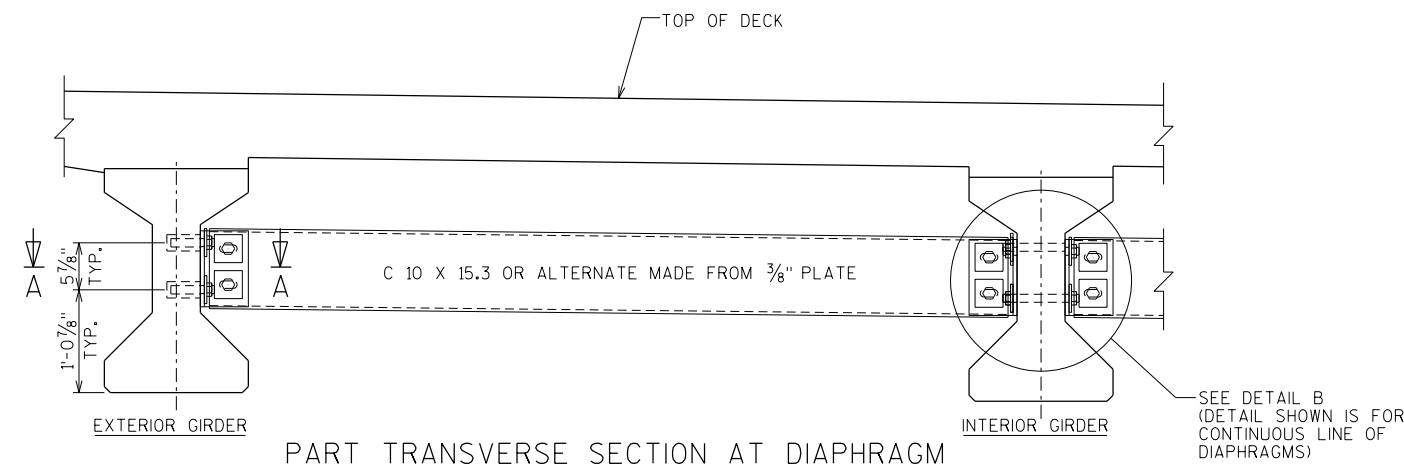
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

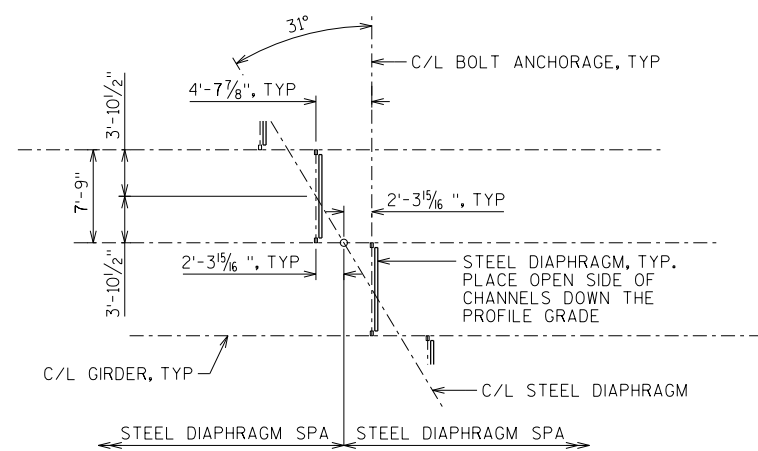
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

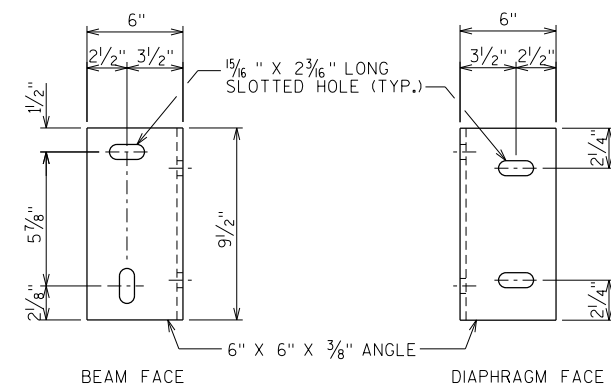
SEE SHEET 24 FOR THE LOCATION OF INSERT/HOLE FROM END OF GIRDER.



PART TRANSVERSE SECTION AT DIAPHRAGM

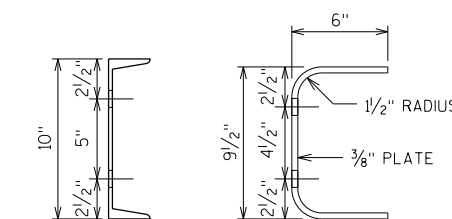


PARTIAL PLAN DIAPHRAGM LAYOUT

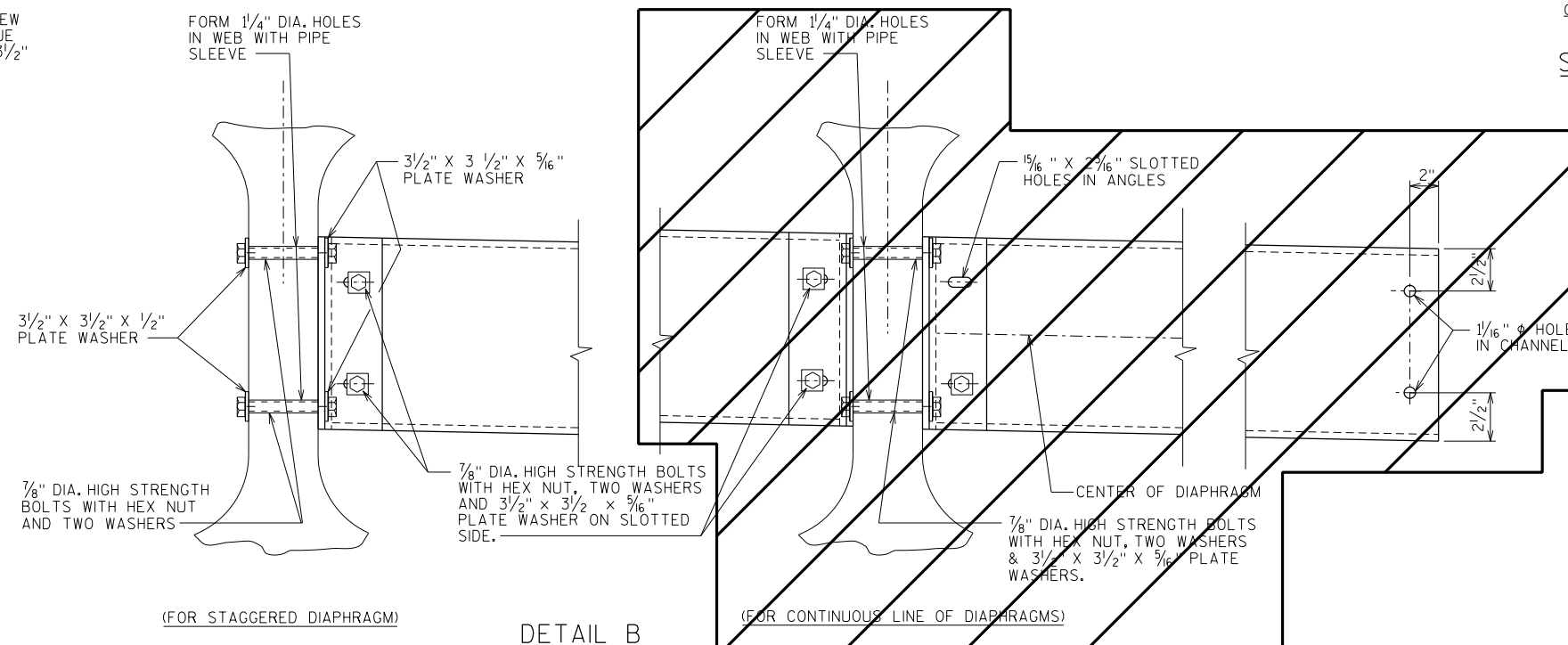
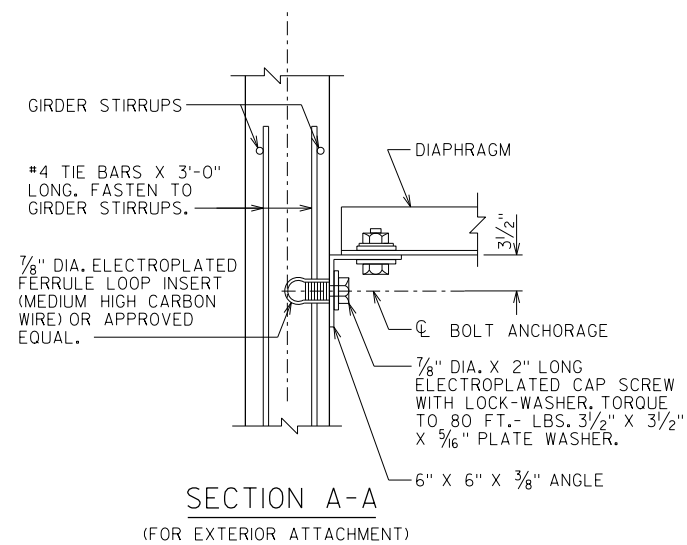


DIAPHRAGM SUPPORT

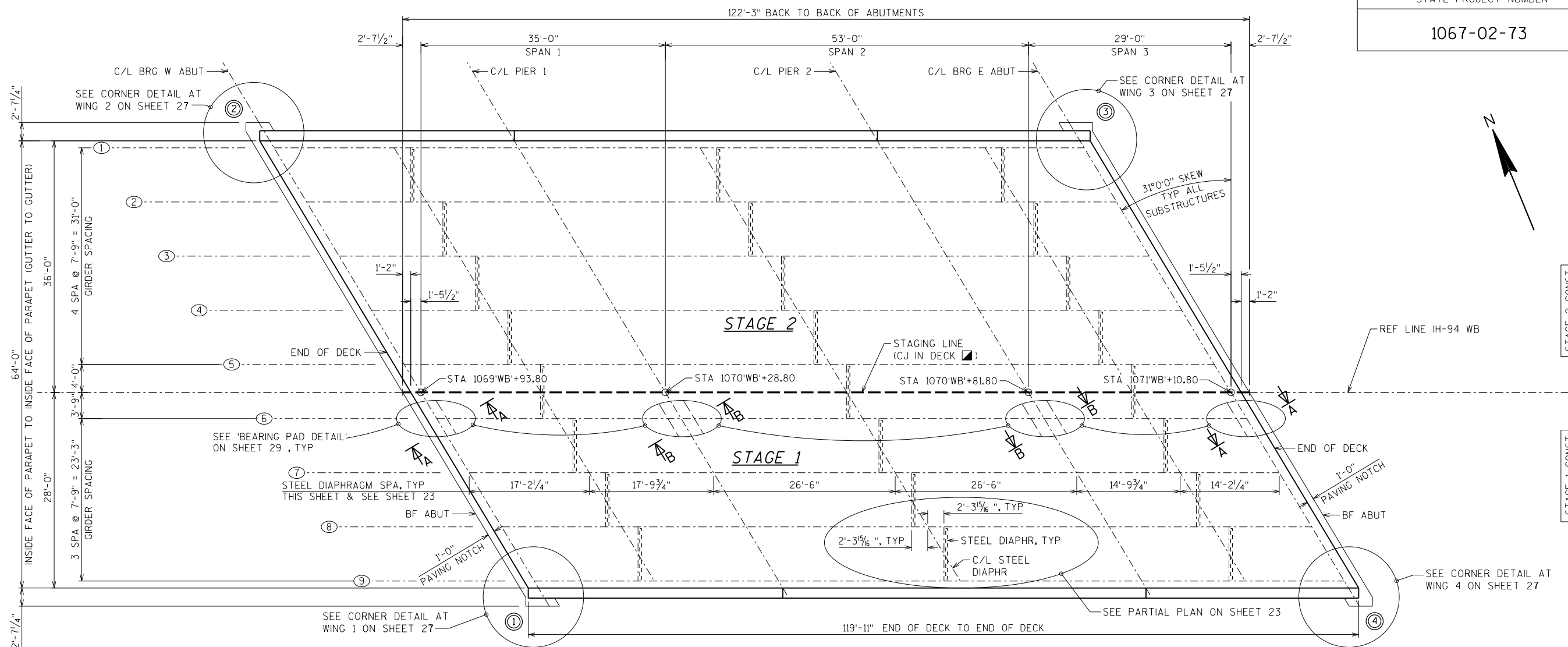
* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



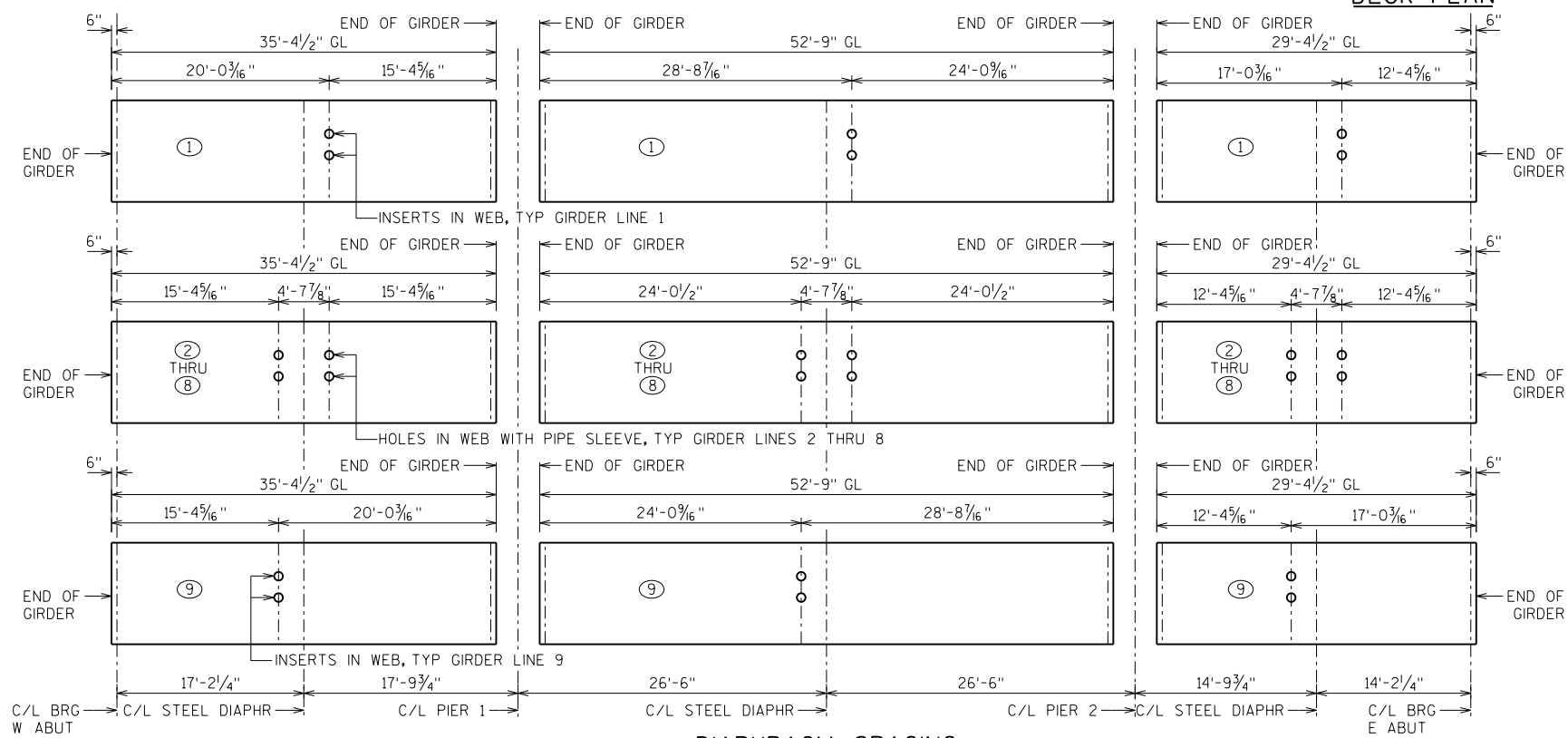
SECTION THRU DIAPHRAGM



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
STEEL DIAPHRAGM			SHEET 23 OF 37



DECK PLAN



DIAPHRAGM SPACING

SUPERSTRUCTURE NOTES:

BOTTOM TRANSVERSE BAR STEEL SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS WITH A CENTER TO CENTER SPACING NOT TO EXCEED 4'-0". ONE LINE OF CONTINUOUS BAR CHAIRS SHALL BE PLACED NEAR EACH EDGE OF SLAB TO SUPPORT THE END OF THE BOTTOM TRANSVERSE BAR STEEL.

TOP LONGITUDINAL BAR STEEL SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS IN TRANSVERSE DIRECTION ON 4'-0" CENTERS.

NOTES

SEE SHEET 29 FOR SECTION A-A & B-B.

CONST JOINT KEYWAY FORMED BY A BEVELED 2" x 1/2".

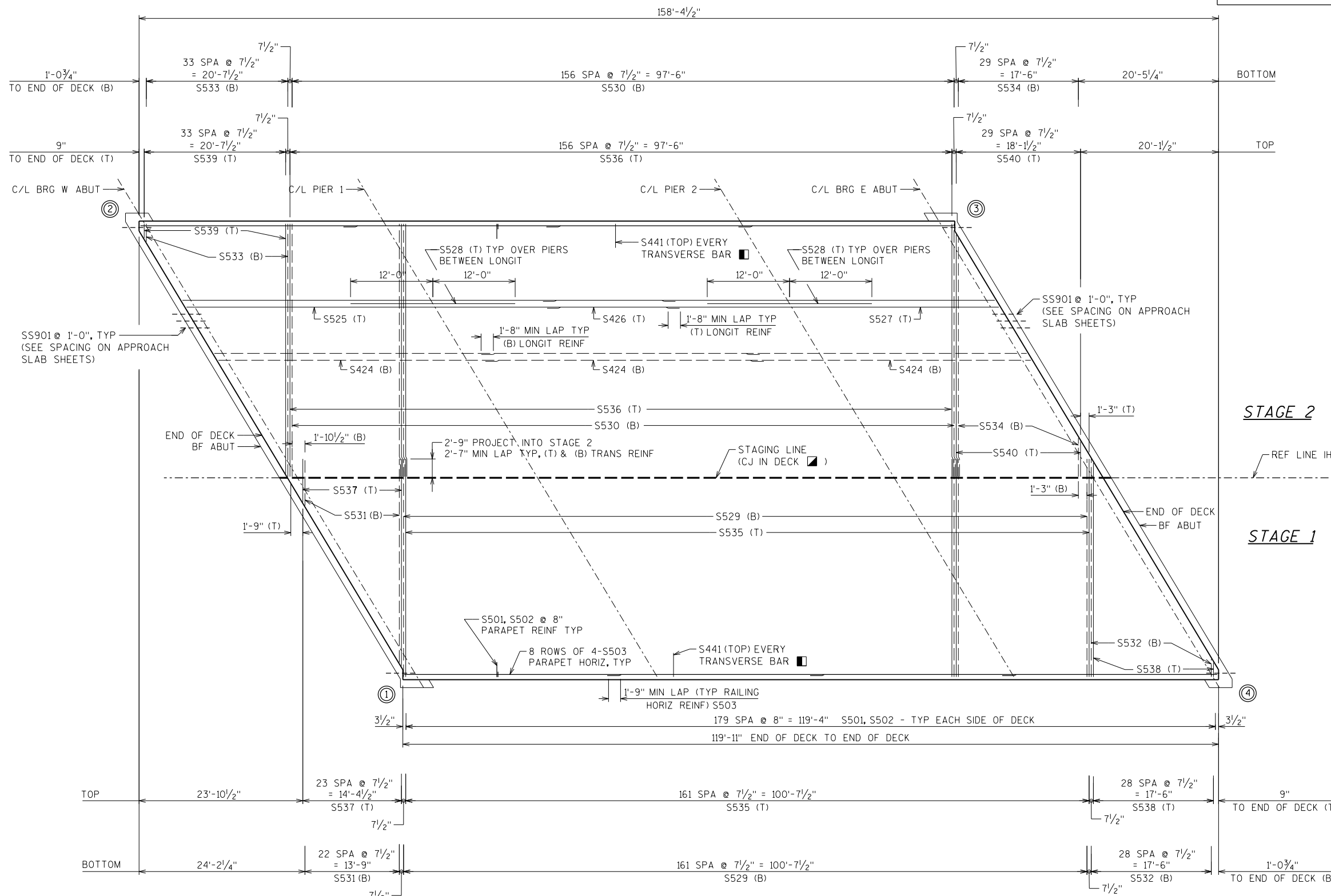
INDICATES NEW GIRDER LINE.

GL = GIRDER LENGTH, SEE GIRDER DETAILS

INDICATES WING

EXIST = EXISTING
 FF = FRONT FACE
 BF = BACK FACE
 EF = EACH FACE
 (T) = TOP
 (B) = BOTTOM

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE			SHEET 24 OF 37



**DECK PLAN
SHOWING REINFORCEMENT**

— INDICATES TOP BAR REINFORCEMENT
 - - - INDICATES BOTTOM BAR REINFORCEMENT

EXIST = EXISTING
 FF = FRONT FACE
 BF = BACK FACE
 EF = EACH FACE
 (T) = TOP
 (B) = BOTTOM
 (C) INDICATES WING

NOTES
 SEE SHEET 27 FOR ABUT DIAPH REINFORCEMENT.
 SEE SHEET 28 FOR PIER DIAPH REINFORCEMENT.
 SEE SHEET 30 FOR BILL OF BARS.
 [] CONST JOINT KEYWAY FORMED BY A BEVELED 2" x 1/2".
 [] PLACE S441 BETWEEN EVERY TRANSVERSE BAR. TIE TO TOP MAT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
SUPERSTRUCTURE			SHEET 25 OF 37

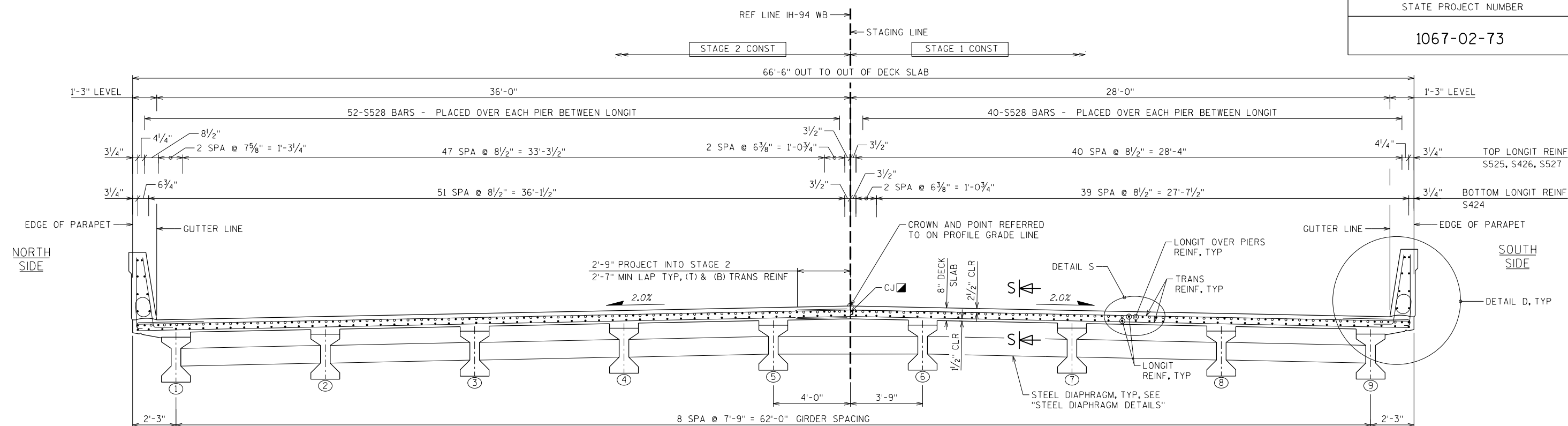
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PLOT DATE: 6/27/2022

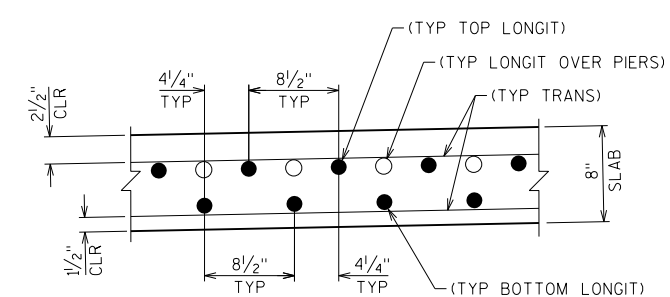
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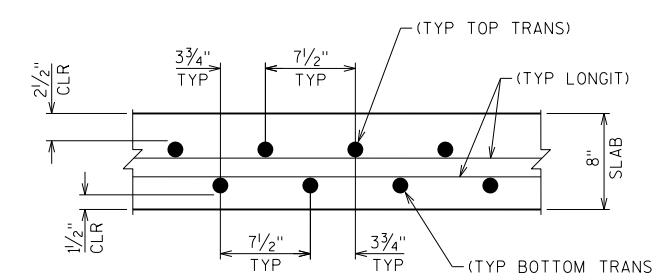
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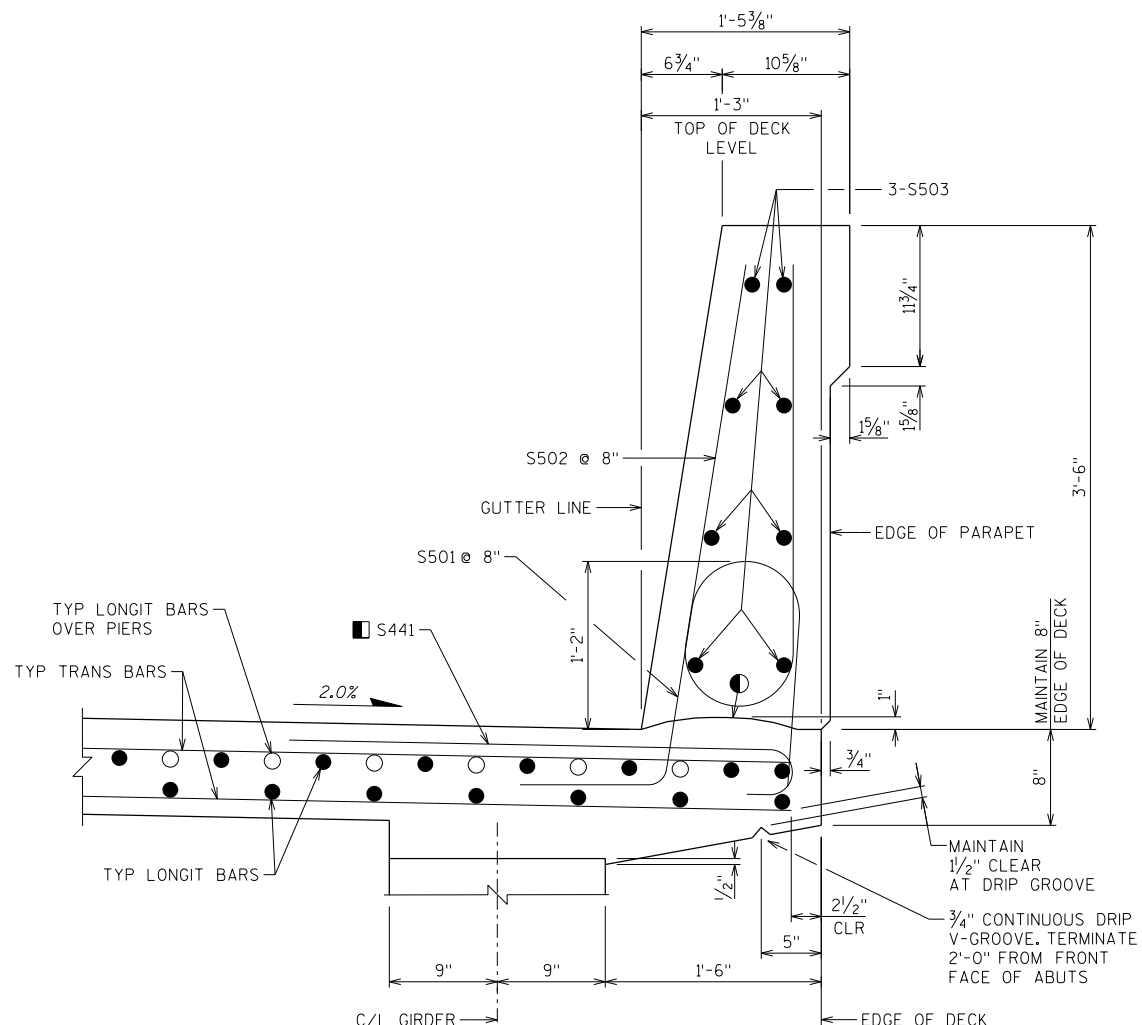
TYPICAL CROSS SECTION THRU DECK
(LOOKING EAST)



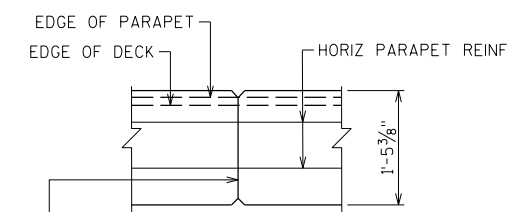
DETAIL S
(TYP LONGIT BAR SPACING UNLESS OTHERWISE NOTED)



SECTION S-S
(TYP TRANS BAR SPACING UNLESS OTHERWISE NOTED)



DETAIL D
TYPICAL SECTION THRU PARAPET ON BRIDGE



OPTIONAL CJ IN PARAPET

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

NOTES

- ① MINIMUM JOINT SPACING 80'-0".
- REFER TO SHEET 30 FOR BILL OF BARS.
- SEE SHEET 37 FOR STAGING CONCEPT.
- ▣ CONST JOINT KEYWAY FORMED BY A BEVELED 2" x 1/2".
- PLACE S541 BETWEEN EVERY TRANSVERSE BAR. TIE TO TOP MAT.
- CONSTRUCTION JOINT. STRIKE OFF AS SHOWN.
- INDICATES NEW GIRDER LINE.
- EXIST = EXISTING
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- (T) = TOP
- (B) = BOTTOM

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 26 OF 37

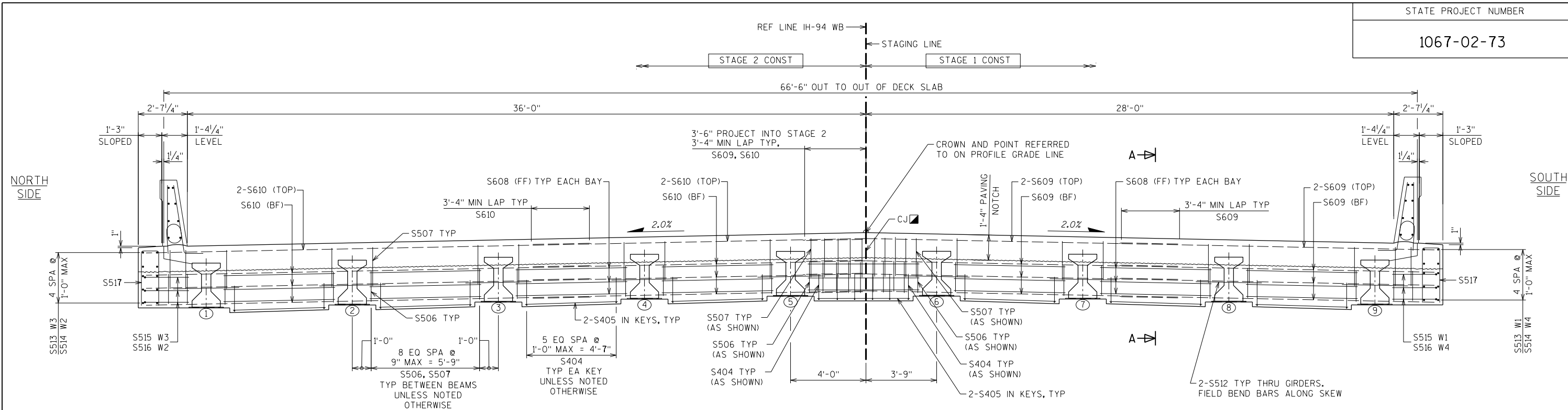
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PLOT DATE: 6/27/2022

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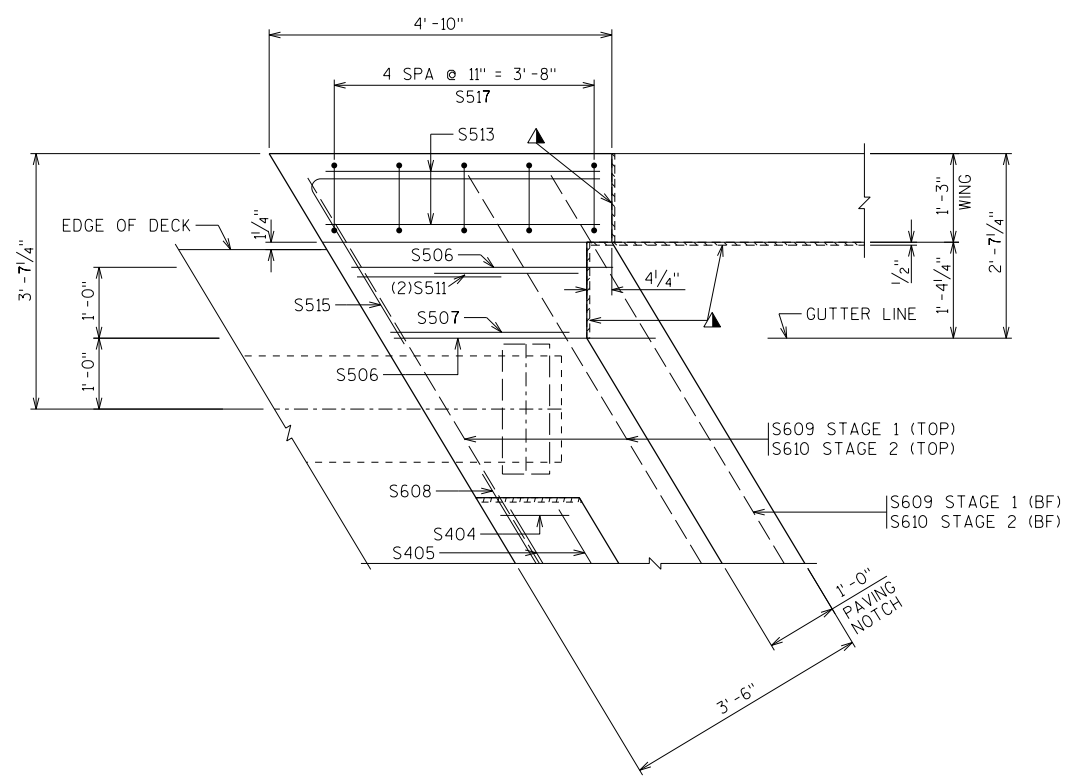
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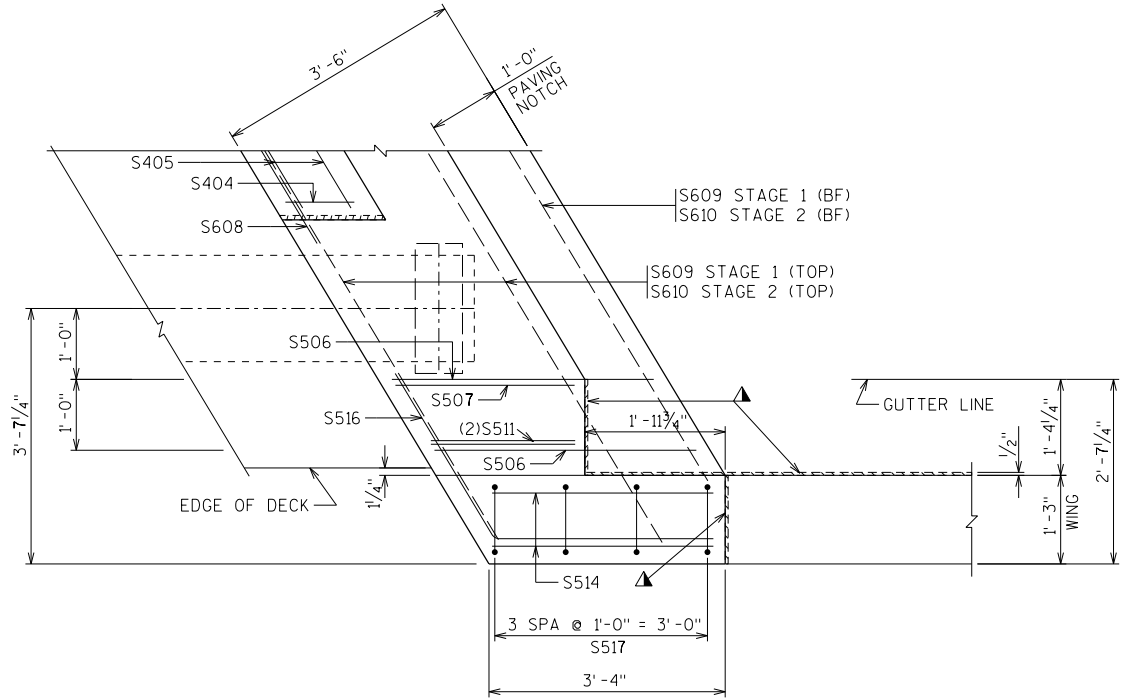


TYP TRANSVERSE SECTION AT ABUT DIAPH

SHOWING REINFORCEMENT LOOKING PARALLEL TO GIRDERS
 EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR
 UNLESS OTHERWISE SHOWN OR NOTED.



PLAN - CORNER AT WING 1 & 3



PLAN - CORNER AT WING 2 & 4

- EXIST = EXISTING
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- (T) = TOP
- (B) = BOTTOM

NOTES

- REFER TO SHEET 29 FOR SECTION A-A.
- REFER TO SHEET 30 FOR BILL OF BARS.
- SEE SHEET 37 FOR STAGING CONCEPT.
- CONST JOINT KEYWAY FORMED BY A BEVELED 2 X 4.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 27 OF 37

PLOT TIME: 12:55:57 PM

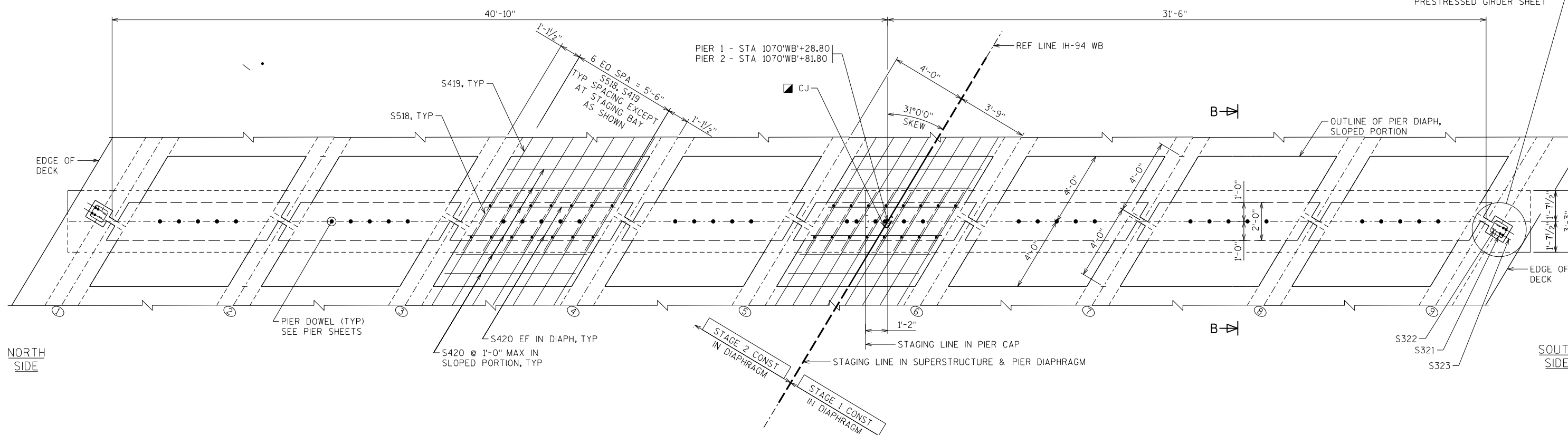
PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\W\13472\5-f\final-dsgn\5i-drawings\20-Struct\B-28-184\dgn\b28184ss3-4.dgn

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PILASTER - SEE DETAILS ON PRESTRESSED GIRDER SHEET



PIER DIAPHRAGM PLAN

PIER 1 SHOWN, PIER 2 IS SIMILAR UNLESS OTHERWISE SHOWN OR NOTED.

PLOT TIME: 12:55:57 PM

PLOT DATE: 6/27/2022

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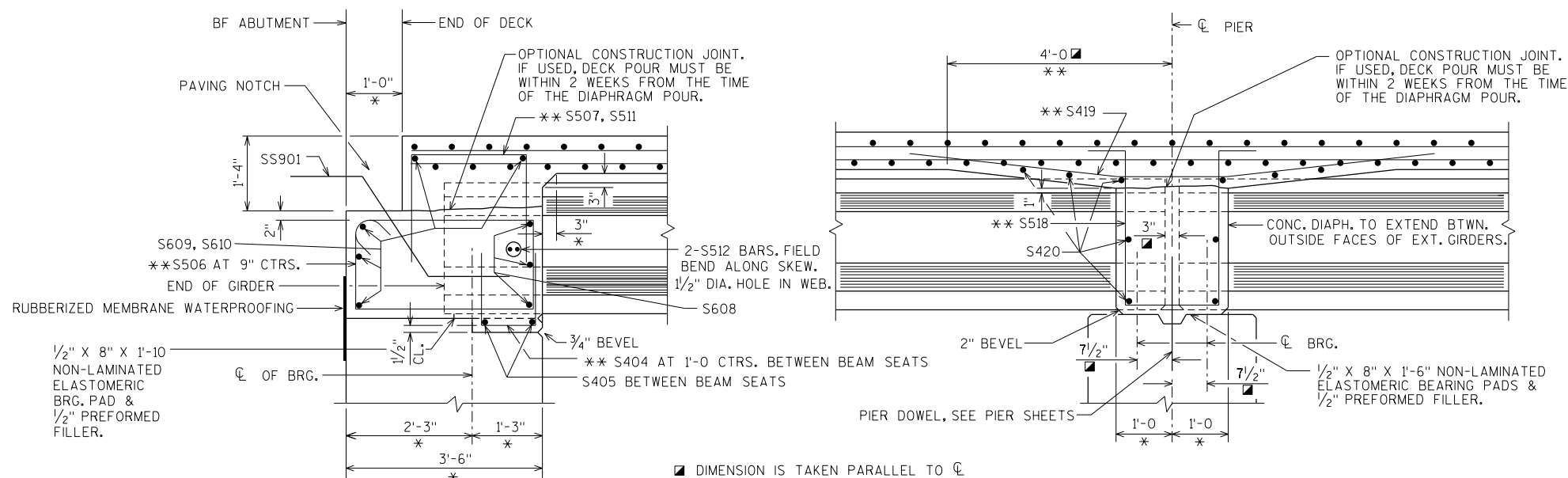
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EXIST = EXISTING
 FF = FRONT FACE
 BF = BACK FACE
 EF = EACH FACE
 (T) = TOP
 (B) = BOTTOM

NOTES

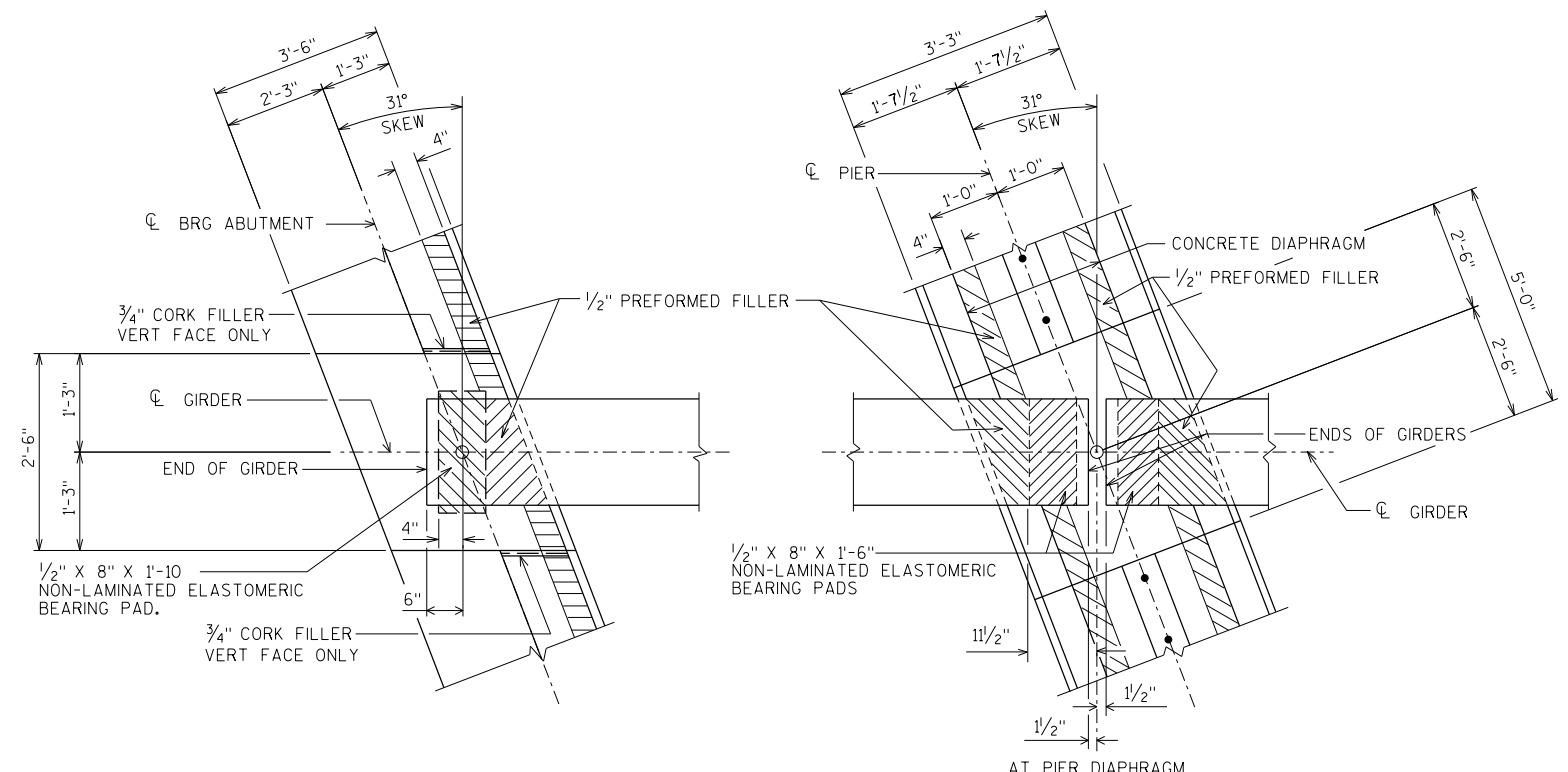
REFER TO SHEET 29 FOR SECTION B-B.
 REFER TO SHEET 30 FOR BILL OF BARS.
 SEE SHEET 37 FOR STAGING CONCEPT.
 ■ CONST JOINT KEYWAY FORMED BY A BEVELED 2 X 4.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 28 OF 37



■ DIMENSION IS TAKEN PARALLEL TO CL GIRDERS.
 * DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNITS.
 ** BARS PLACED PARALLEL TO GIRDERS SPACING PERPENDICULAR TO CL GIRDERS.

PART LONGIT. SECTION



NOTES

SEE SHEET 30 FOR BILL OF BARS.
 ▲ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER, (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 29 OF 37

PLOT TIME: 12:55:58 PM

PLOT DATE: 6/27/2022

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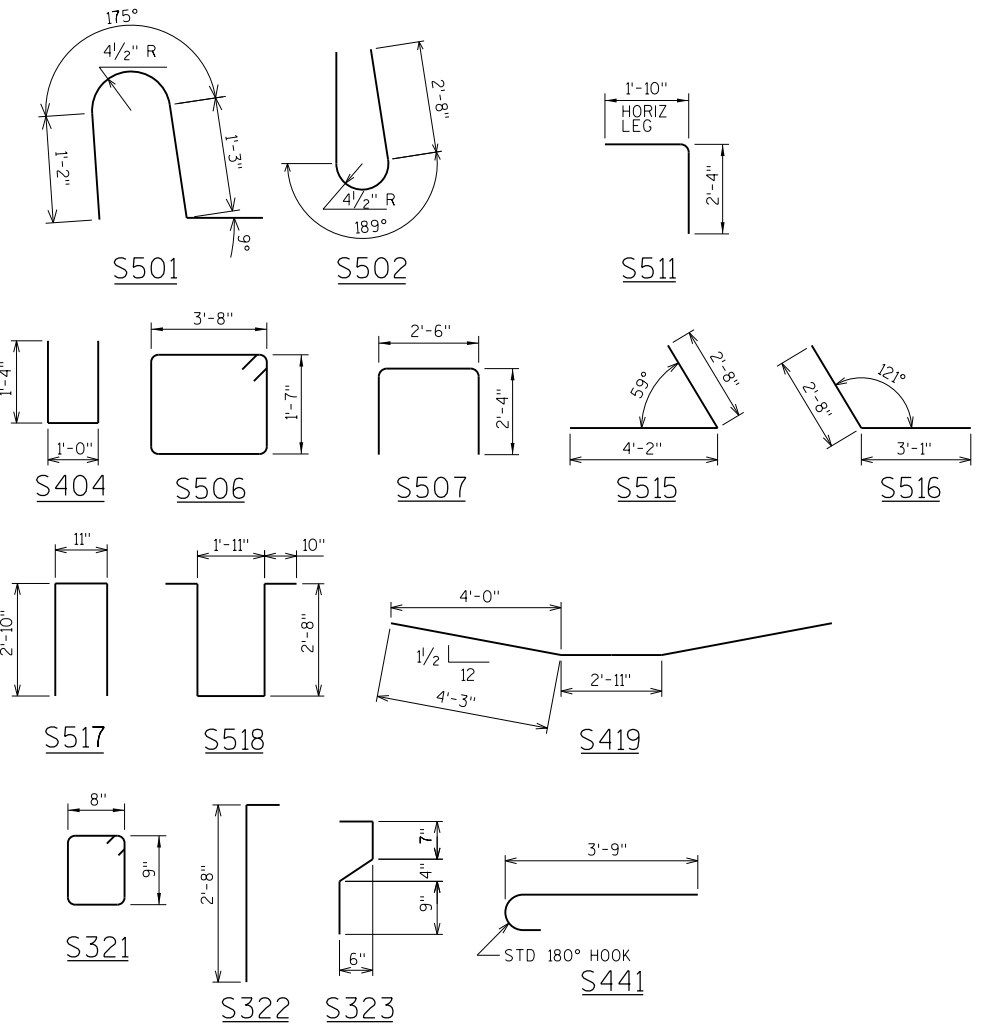
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BILL OF BARS SUPERSTRUCTURE

BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
S501	X	180	4 - 5		X	PARAPET VERT	X	
"	X	180	4 - 5		X	PARAPET VERT		X
S502	X	180	6 - 8		X	PARAPET VERT	X	
"	X	180	6 - 8		X	PARAPET VERT		X
S503	X	32	31 - 4			PARAPET HORIZ	X	
"	X	32	31 - 4			PARAPET HORIZ		X
S404		42	3 - 6		X	ABUT DIAPH KEY VERT	X	
"		54	3 - 6		X	ABUT DIAPH KEY VERT		X
S405		16	5 - 9			ABUT DIAPH KEY HORIZ	X	
"		16	5 - 9			ABUT DIAPH KEY HORIZ		X
S506		70	11 - 2		X	ABUT DIAPH STIRRUP	X	
"		86	11 - 2		X	ABUT DIAPH STIRRUP		X
S507	X	68	6 - 11		X	ABUT DIAPH STIRRUP TIE	X	
"	X	84	6 - 11		X	ABUT DIAPH STIRRUP TIE		X
S608		24	7 - 0			ABUT DIAPH FF	X	
"		24	7 - 0			ABUT DIAPH FF		X
S609	X	20	21 - 5			ABUT DIAPH BF & TOP	X	
S610	X	20	24 - 3			ABUT DIAPH BF & TOP		X
S511	X	4	4 - 1		X	ABUT DIAPH STIRRUP TIE	X	
"	X	4	4 - 1		X	ABUT DIAPH STIRRUP TIE		X
S512		16	6 - 0			ABUT DIAPH THRU GIRDERS	X	
"		20	6 - 0			ABUT DIAPH THRU GIRDERS		X
S513		10	3 - 10			ABUT DIAPH COR	X	
"		10	3 - 10			ABUT DIAPH COR		X
S514		10	3 - 2			ABUT DIAPH COR	X	
"		10	3 - 2			ABUT DIAPH COR		X
S515		3	6 - 9		X	ABUT DIAPH COR	X	
"		3	6 - 9		X	ABUT DIAPH COR		X
S516		3	5 - 8		X	ABUT DIAPH COR	X	
"		3	5 - 8		X	ABUT DIAPH COR		X
S517		9	6 - 4		X	ABUT DIAPH COR	X	
"		9	6 - 4		X	ABUT DIAPH COR		X
S518	X	50	8 - 5		X	PIER DIAPH STIRRUP	X	
"	X	64	8 - 5		X	PIER DIAPH STIRRUP		X
S419	X	50	11 - 5		X	PIER DIAPH TIE	X	
"	X	64	11 - 5		X	PIER DIAPH TIE		X
S420	X	80	7 - 0			PIER DIAPH HORIZ	X	
"	X	80	7 - 0			PIER DIAPH HORIZ		X
S321	X	4	3 - 3		X	PIER PILASTER	X	
"	X	4	3 - 3		X	PIER PILASTER		X
S322	X	4	3 - 2		X	PIER PILASTER	X	
"	X	4	3 - 2		X	PIER PILASTER		X
S323	X	4	2 - 6		X	PIER PILASTER	X	
"	X	4	2 - 6		X	PIER PILASTER		X
S424	X	126	41 - 0			DECK LONGIT B	X	
"	X	159	41 - 0			DECK LONGIT B		X
S525	X	42	54 - 3			DECK LONGIT T SPAN 1	X	
"	X	54	54 - 3			DECK LONGIT T SPAN 1		X
S426	X	42	19 - 4			DECK LONGIT T SPAN 2	X	
"	X	54	19 - 4			DECK LONGIT T SPAN 2		X
S527	X	42	48 - 3			DECK LONGIT T SPAN 3	X	
"	X	54	48 - 3			DECK LONGIT T SPAN 3		X
S528	X	80	24 - 0			DECK LONGIT OVER PIERS	X	
"	X	104	24 - 0			DECK LONGIT OVER PIERS		X
S529	X	162	31 - 10			DECK TRANS B	X	
S530	X	157	36 - 10			DECK TRANS B		X
S531	X	23	18 - 9		▲	DECK TRANS B	X	
S532	X	29	17 - 1		▲	DECK TRANS B	X	
S533	X	34	19 - 8		▲	DECK TRANS B		X
S534	X	30	20 - 8		▲	DECK TRANS B		X
S535	X	162	31 - 10			DECK TRANS T	X	
S536	X	157	36 - 10			DECK TRANS T		X
S537	X	24	18 - 3		▲	DECK TRANS T	X	
S538	X	29	16 - 8		▲	DECK TRANS T	X	
S539	X	34	19 - 3		▲	DECK TRANS T		X
S540	X	30	20 - 2		▲	DECK TRANS T		X
S441	X	190	4 - 2		X	DECK TRANS T AT EDGE	X	
"	X	190	4 - 2		X	DECK TRANS T AT EDGE		X

NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

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



STATE PROJECT NUMBER
1067-02-73

BAR MARK	NO. REQ'D.	LENGTH	BENT	LOCATION	STG 1	STG 2
S531	1 SERIES OF 23	6'-9" TO 30'-9"		DECK SLAB TRANS (B)	X	
S532	1 SERIES OF 29	2'-7" TO 31'-8"		DECK SLAB TRANS (B)	X	
S533	1 SERIES OF 34	2'-7" TO 36'-9"		DECK SLAB TRANS (B)		X
S534	1 SERIES OF 30	5'-7" TO 35'-9"		DECK SLAB TRANS (B)		X
S537	1 SERIES OF 24	6'-3" TO 30'-3"		DECK SLAB TRANS (T)	X	
S538	1 SERIES OF 29	2'-1" TO 31'-3"		DECK SLAB TRANS (T)	X	
S539	1 SERIES OF 34	2'-1" TO 36'-5"		DECK SLAB TRANS (T)		X
S540	1 SERIES OF 30	5'-1" TO 35'-3"		DECK SLAB TRANS (T)		X

BUNDLE AND TAG EACH SERIES SEPARATELY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE REINFORCEMENT			SHEET 30 OF 37

8

8

FINAL TOP OF DECK ELEVATIONS
B-28-184

	SPAN 1 (35'-0")										SPAN 2 (53'-0")										SPAN 3 (29'-0")										
	C/L BRG W ABUT	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	C/L PIER 1	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	C/L PIER 2	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	C/L BRG E ABUT
N EDGE OF DECK	905.69	905.61	905.52	905.44	905.36	905.28	905.20	905.11	905.03	904.95	904.87	904.74	904.62	904.49	904.37	904.25	904.12	904.00	903.87	903.75	903.62	903.56	903.49	903.42	903.35	903.28	903.22	903.15	903.08	903.01	902.94
GIRDER 1	905.69	905.61	905.53	905.45	905.37	905.28	905.20	905.12	905.04	904.96	904.87	904.75	904.62	904.50	904.38	904.25	904.13	904.00	903.88	903.75	903.63	903.56	903.49	903.43	903.36	903.29	903.22	903.15	903.09	903.02	902.95
GIRDER 2	905.74	905.66	905.58	905.49	905.41	905.33	905.25	905.17	905.08	905.00	904.92	904.79	904.67	904.55	904.42	904.30	904.17	904.05	903.92	903.80	903.68	903.61	903.54	903.47	903.40	903.34	903.27	903.20	903.13	903.06	902.99
GIRDER 3	905.79	905.70	905.62	905.54	905.46	905.38	905.29	905.21	905.13	905.05	904.96	904.84	904.72	904.59	904.47	904.34	904.22	904.09	903.97	903.85	903.72	903.65	903.59	903.52	903.45	903.38	903.31	903.24	903.18	903.11	903.04
GIRDER 4	905.83	905.75	905.67	905.59	905.50	905.42	905.34	905.26	905.17	905.09	905.01	904.89	904.76	904.64	904.51	904.39	904.26	904.14	904.02	903.89	903.77	903.70	903.63	903.56	903.49	903.43	903.36	903.29	903.22	903.15	903.09
GIRDER 5	905.88	905.80	905.71	905.63	905.55	905.47	905.38	905.30	905.22	905.14	905.06	904.93	904.81	904.68	904.56	904.43	904.31	904.19	904.06	903.94	903.81	903.74	903.68	903.61	903.54	903.47	903.40	903.34	903.27	903.20	903.13
PROFILE GRADE LINE (CROWN) RL IH-94 WB	905.90	905.82	905.74	905.65	905.57	905.49	905.41	905.33	905.24	905.16	905.08	904.96	904.83	904.71	904.58	904.46	904.33	904.21	904.08	903.96	903.84	903.77	903.70	903.63	903.56	903.50	903.43	903.36	903.29	903.22	903.16
GIRDER 6	905.77	905.69	905.61	905.53	905.44	905.36	905.28	905.20	905.12	905.03	904.95	904.83	904.70	904.58	904.45	904.33	904.21	904.08	903.96	903.83	903.71	903.64	903.57	903.50	903.44	903.37	903.30	903.23	903.16	903.10	903.03
GIRDER 7	905.51	905.43	905.34	905.26	905.18	905.10	905.02	904.93	904.85	904.77	904.69	904.56	904.44	904.31	904.19	904.07	903.94	903.82	903.69	903.57	903.44	903.38	903.31	903.24	903.17	903.10	903.04	902.97	902.90	902.83	902.76
GIRDER 8	905.24	905.16	905.08	905.00	904.92	904.83	904.75	904.67	904.59	904.51	904.42	904.30	904.17	904.05	903.93	903.80	903.68	903.55	903.43	903.30	903.18	903.11	903.04	902.98	902.91	902.84	902.77	902.70	902.64	902.57	902.50
GIRDER 9	904.98	904.90	904.82	904.73	904.65	904.57	904.49	904.41	904.32	904.24	904.16	904.03	903.91	903.79	903.66	903.54	903.41	903.29	903.16	903.04	902.92	902.85	902.78	902.71	902.64	902.58	902.51	902.44	902.37	902.30	902.24
S EDGE OF DECK	904.95	904.86	904.78	904.70	904.62	904.54	904.45	904.37	904.29	904.21	904.12	904.00	903.88	903.75	903.63	903.50	903.38	903.25	903.13	903.01	902.88	902.81	902.75	902.68	902.61	902.54	902.47	902.41	902.34	902.27	902.20

PLOT TIME: 12:55:59 PM

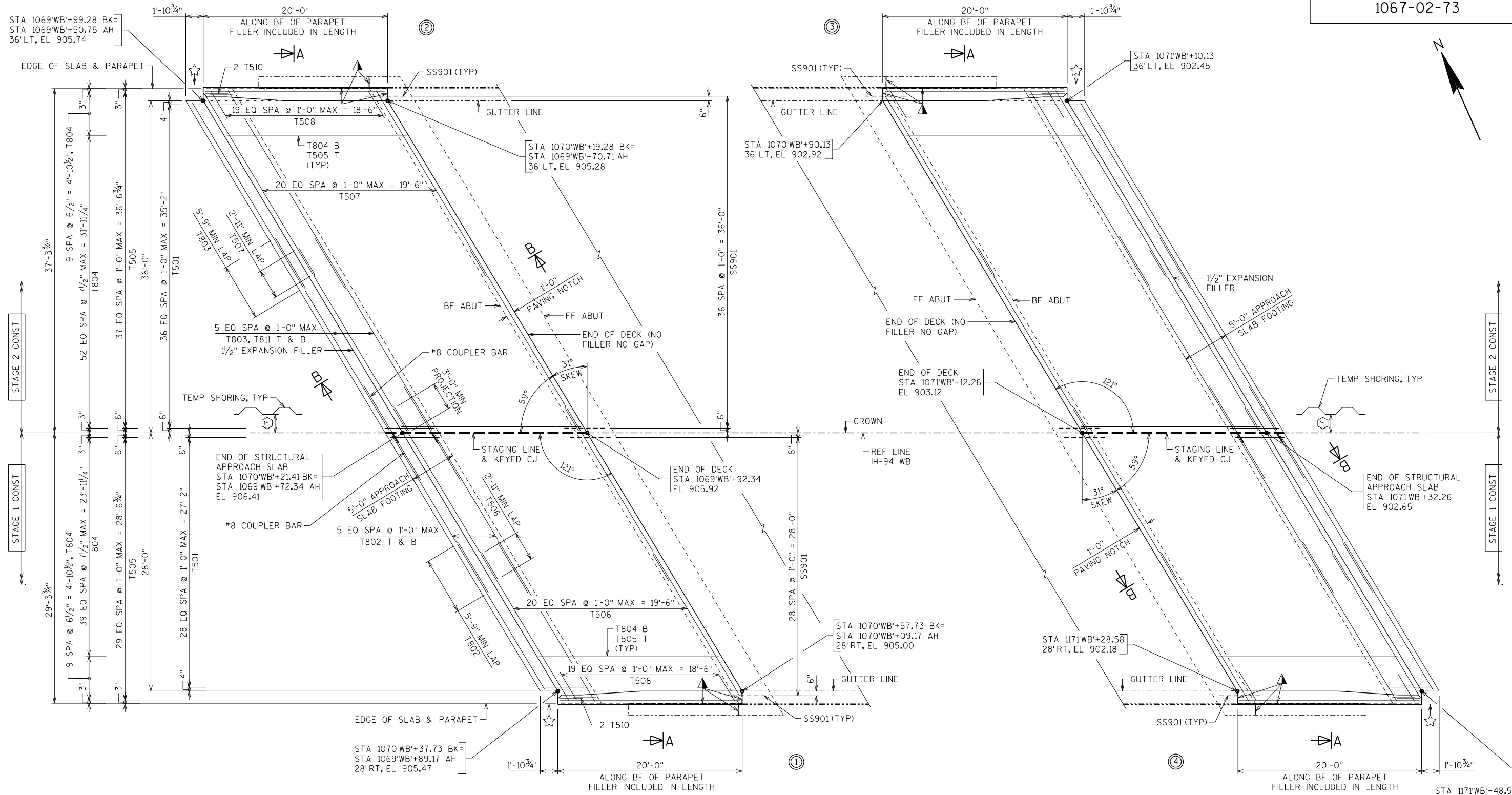
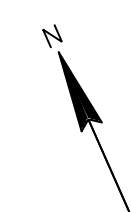
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
SUPERSTRUCTURE DECK ELEVATION TABLE			SHEET 31 OF 37



WEST PLAN

STRUCTURAL APPROACH SLAB PLANS

NOTE: WEST PLAN IS SIMILAR TO EAST PLAN UNLESS OTHER SHOWN OR NOTED

EAST PLAN

LEGEND

- ☆ NOTCH APPROACH SLAB FOOTING TO ALLOW FOR THREE BEAM POST INSTALLATION, (ADJUST BAR STEEL LAP AS NECESSARY).
- ▲ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES WITH 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).
- ⑦ SEE BRIDGE TRAFFIC STAGING PLANS.

NOTES

- SEE SHEET 33 FOR SECTION A-A & B-B.
- ALL TRANSVERSE STEEL TO BE LAID PARALLEL TO C/L BRG ABUT UNLESS OTHERWISE NOTED.
- ALL MEASUREMENTS ARE MADE PARALLEL OR PERPENDICULAR TO REFERENCE LINE UNLESS OTHERWISE NOTED.
- THIS SHEET IS TO BE USED IN CONJUNCTION WITH THE ROADWAY DRAWINGS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		DLF	PLANS CKD. NCK
STRUCTURAL APPROACH SLABS			SHEET 32 OF 37

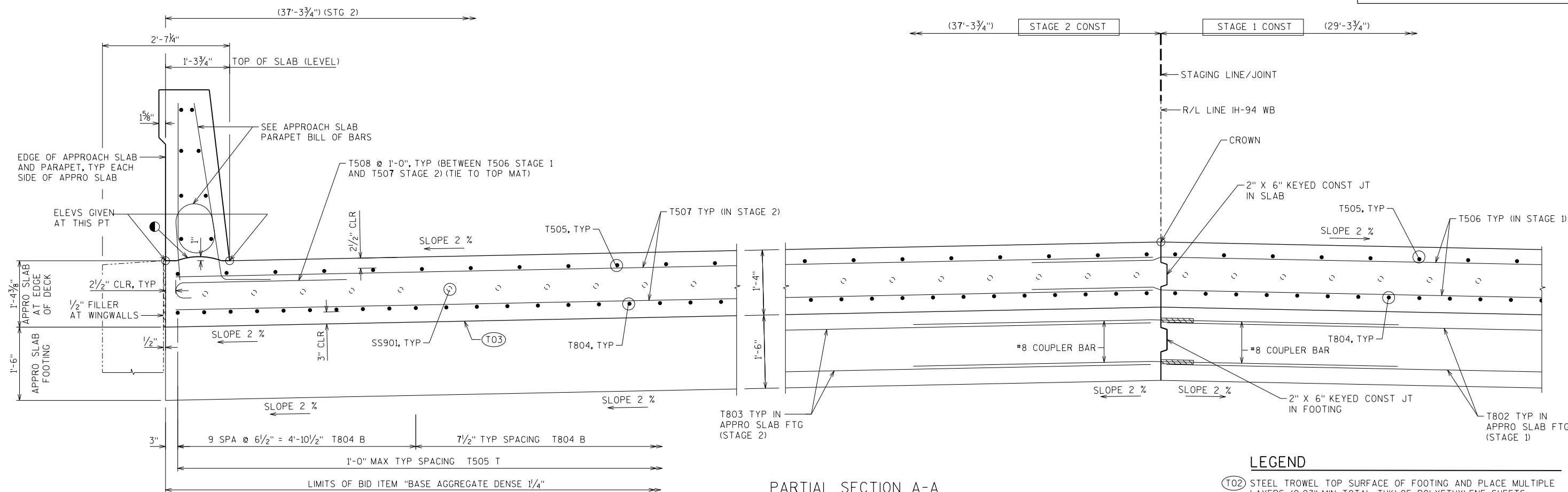
PLOT TIME: 12:59:59 PM

PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\W\17sw\13472\5-f\final-dsgn\5i-df\awings\20-struct\B-28-184\dgn\b28184-app1.dgn

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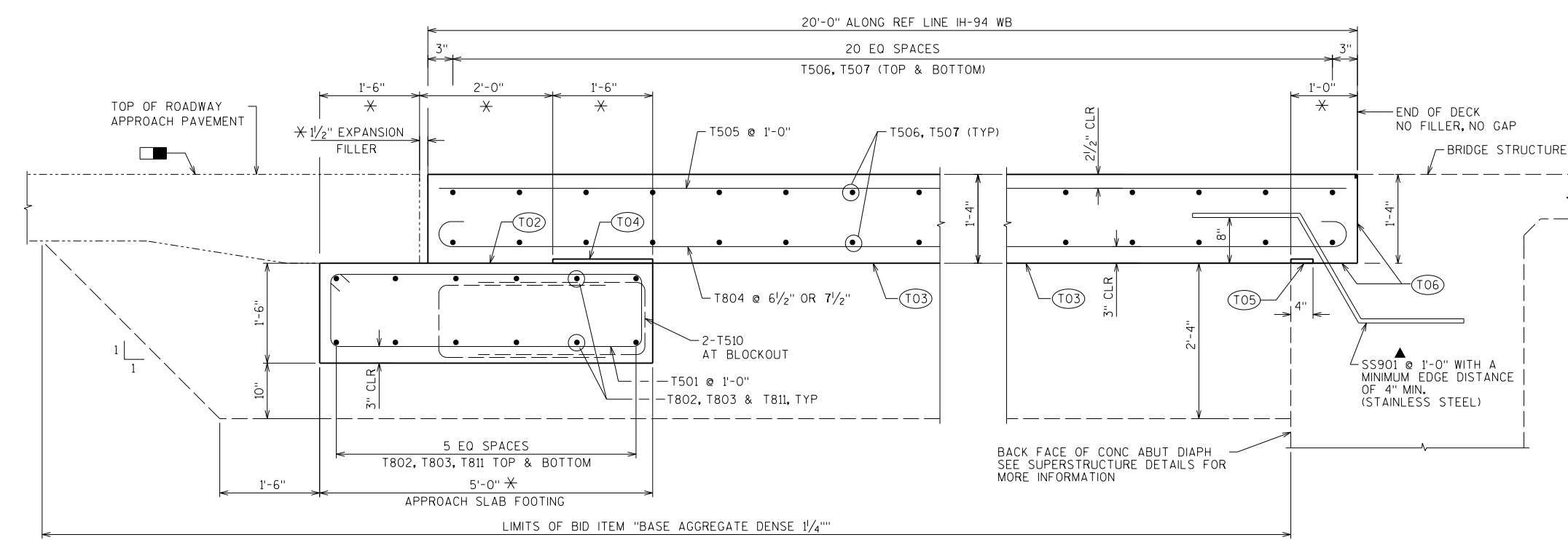


PARTIAL SECTION A-A

(TYPICAL AT STAGE 1 AND STAGE 2 UNLESS NOTED OTHERWISE)

LEGEND

- (T02) STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN TOTAL THK) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.
 - (T03) PLACE MULTIPLE LAYERS (0.03" MIN TOTAL THK) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
 - (T04) 3/4" PREFORMED JOINT FILLER ACCORDING TO STD SPEC 502.2.7 (1'-6" WIDE X FTG LENGTH).
 - (T05) 3/4" PREFORMED JOINT FILLER ACCORDING TO STD SPEC 502.2.7 (4" WIDE X PAVING NOTCH LENGTH).
 - (T06) APPLY PROTECTIVE SURFACE TREATMENT TO PAVING NOTCH, AND VERTICAL SURFACE OF PARAPET PRIOR TO PLACING CONCRETE APPROACH SLAB.
- PREFORMED JOINT FILLER AND POLYETHYLENE SHEETS ARE INCLUDED IN THE BID ITEM "CONCRETE MASONRY BRIDGES".
- COST OF #8 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 8.
- CONCRETE PAVEMENT APPROACH ROADWAY. SEE ROADWAY DRAWINGS FOR DETAILS.
 - * MEASURED PERPENDICULAR TO THE ABUTMENT.
 - ▲ THE BID ITEM FOR SS901 BARS SHALL BE STANDARD SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES"
 - CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH. LEVEL UNDER PARAPET SIMILAR TO BRIDGE DECK.



SECTION B-B

(TYPICAL AT STAGE 1 AND STAGE 2)

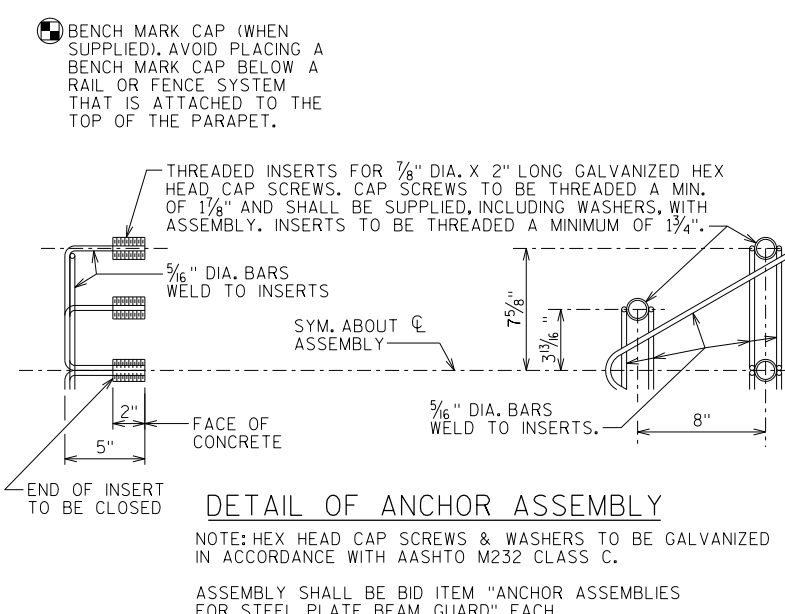
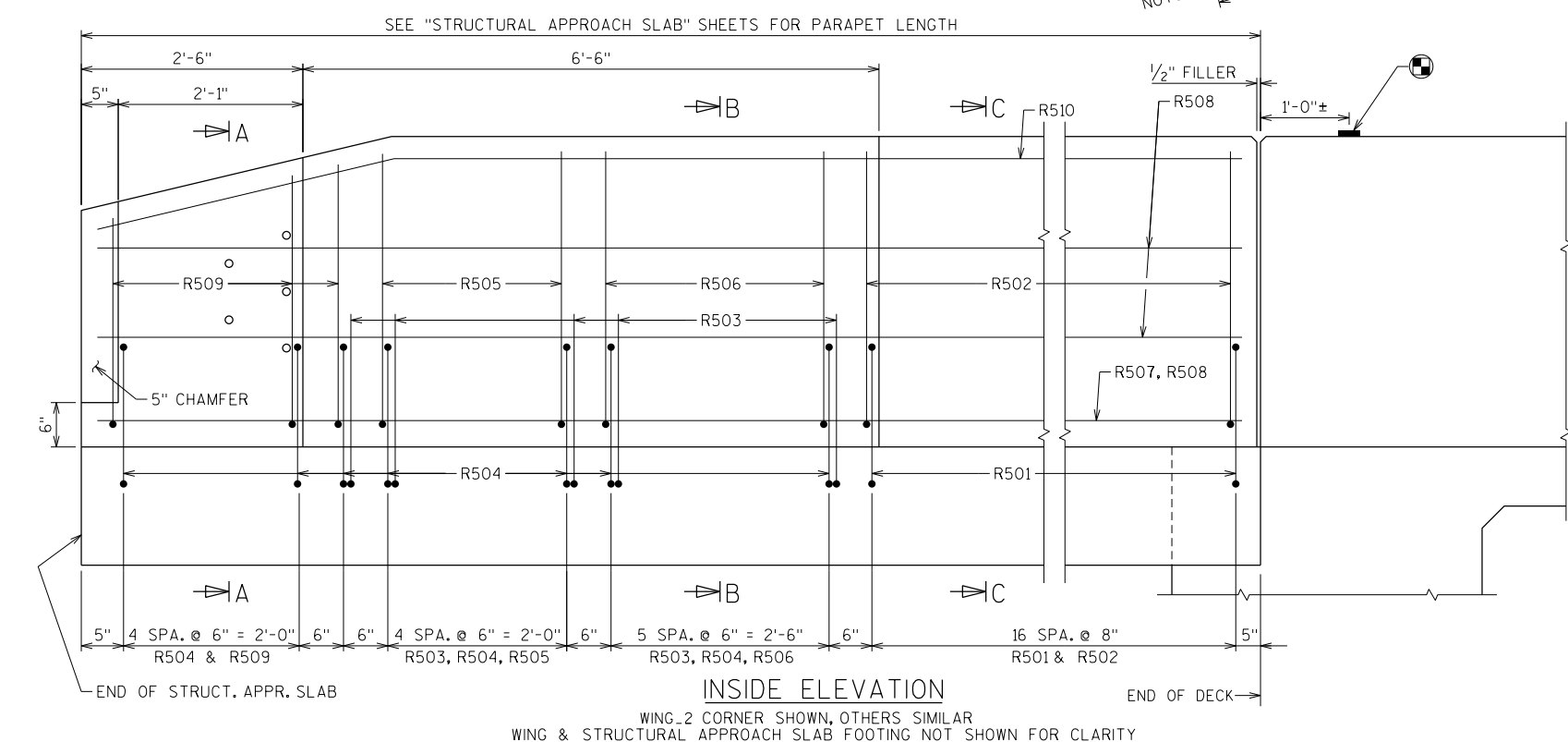
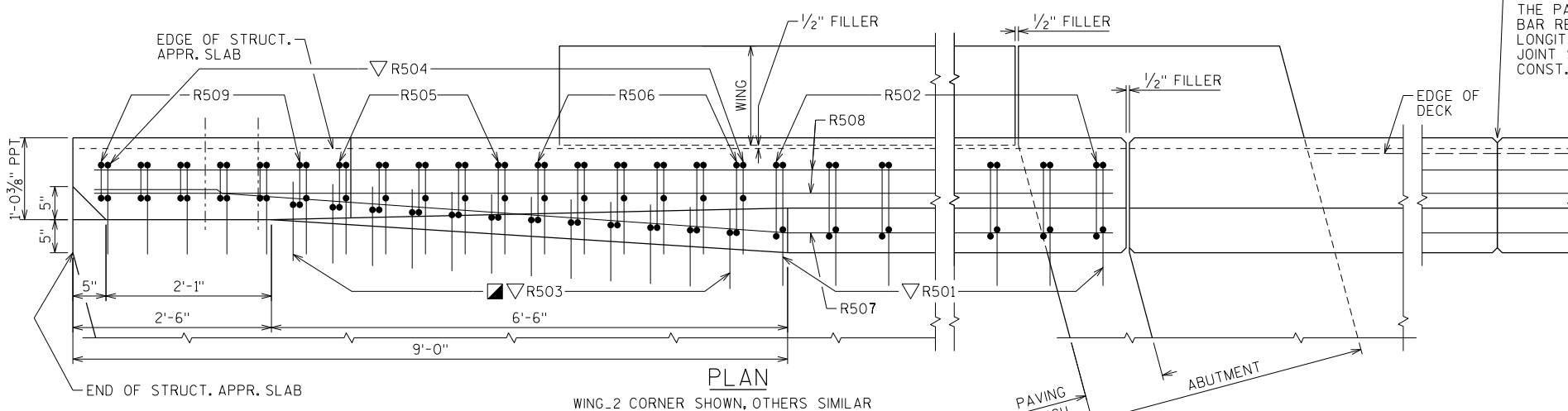
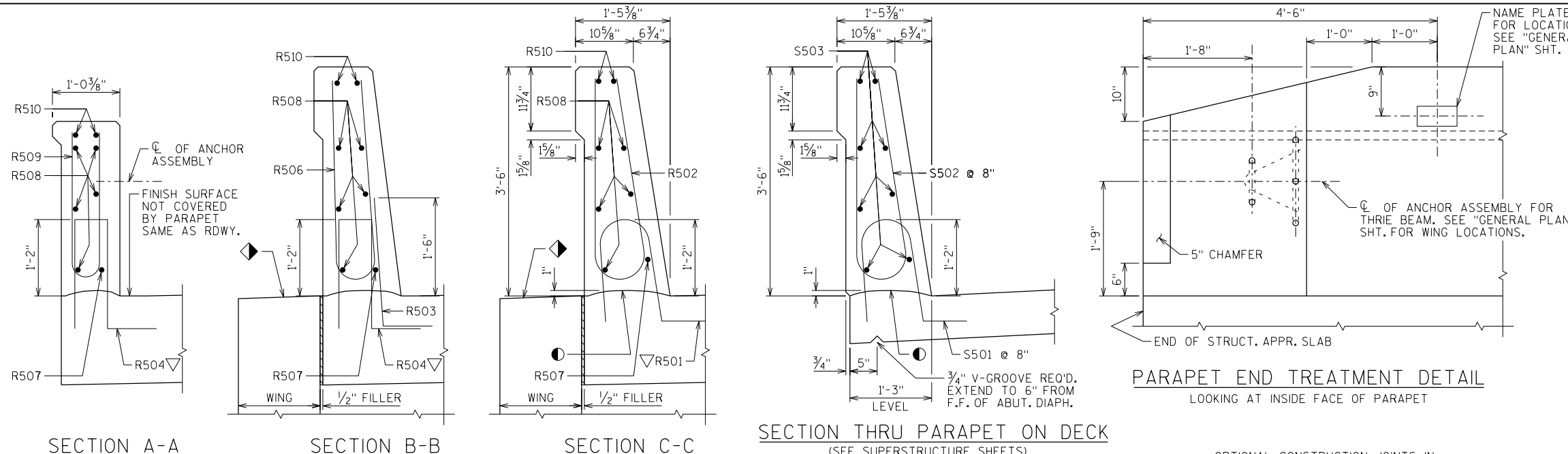
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY		PLANS CKD.	
DLF		NCK	
STRUCTURAL APPROACH SLABS			SHEET 33 OF 37

PLOT TIME: 12:20:00 PM
 PLOT DATE: 6/27/2022
 FILE NAME: S:\UZ\W\1171sw\1347215-f\final-dsgn\5i-drawings\20-Struct\B-28-184.dgn\28184app2.dgn

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NOTE:
SEE SHEET 35 FOR BILL OF BARS.



- CONST. JOINT - STRIKE OFF AS SHOWN
- ◊ SLOPE FOR DRAINAGE, SEE ABUTMENTS SHEETS.
- USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ R501, R503, AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS Poured.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SINGLE SLOPE PARAPET 42SS			SHEET 34 OF 37

PLOT TIME: 12:20:01PM

PLOT DATE: 6/27/2022

FILE NAME: S:\UZ\W\WIT\sw\13472\15-f\incl-dsgr\151-dr\awings\20-struct\B-28-184\dgn\b28184app42ss.dgn

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NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

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

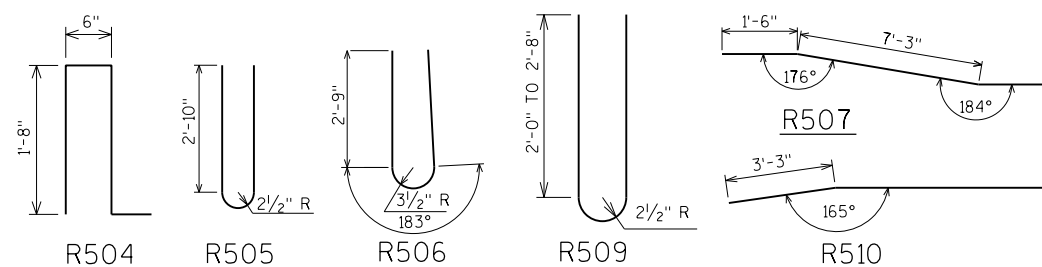
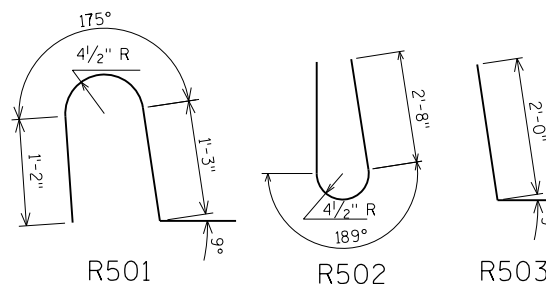
BAR COUPLER NOTE:
SEE MISCELLANEOUS TYPICAL DETAILS SHEET FOR MORE INFORMATION.

BILL OF BARS							SINGLE SLOPE PARAPET 42SS		
BAR MARK	COAT	WEST APPRO SLAB	EAST APPRO SLAB	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
R501	X	17	17	4 - 5		X	PARAPET VERT AT APPROACH SLAB	X	
"	X	17	17	4 - 5		X	PARAPET VERT AT APPROACH SLAB		X
R502	X	17	17	6 - 8		X	PARAPET VERT AT APPROACH SLAB	X	
"	X	17	17	6 - 8		X	PARAPET VERT AT APPROACH SLAB		X
R503	X	12	12	2 - 9		X	PARAPET VERT AT APPROACH SLAB	X	
"	X	12	12	2 - 9		X	PARAPET VERT AT APPROACH SLAB		X
R504	X	17	17	4 - 4		X	PARAPET VERT AT APPROACH SLAB	X	
"	X	17	17	4 - 4		X	PARAPET VERT AT APPROACH SLAB		X
R505	X	5	5	6 - 5		X	PARAPET VERT AT APPROACH SLAB	X	
"	X	5	5	6 - 5		X	PARAPET VERT AT APPROACH SLAB		X
R506	X	6	6	6 - 6		X	PARAPET VERT AT APPROACH SLAB	X	
"	X	6	6	6 - 6		X	PARAPET VERT AT APPROACH SLAB		X
R507	X	1	1	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB	X	
"	X	1	1	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB		X
R508	X	5	5	19 - 6			PARAPET HORIZ AT APPROACH SLAB	X	
"	X	5	5	19 - 6			PARAPET HORIZ AT APPROACH SLAB		X
R509	X	6	6	5 - 5	▲	X	PARAPET VERT AT APPROACH SLAB	X	
"	X	6	6	5 - 5	▲	X	PARAPET VERT AT APPROACH SLAB		X
R510	X	2	2	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB	X	
"	X	2	2	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB		X

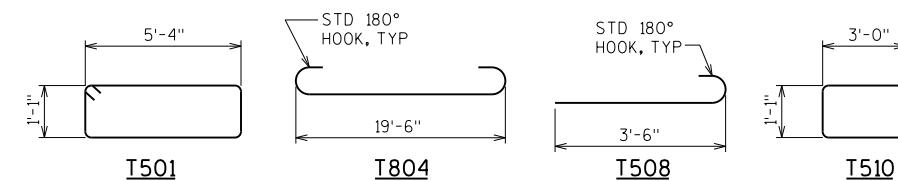
BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



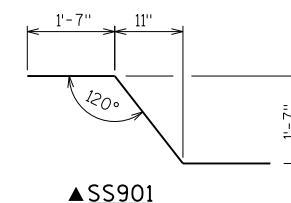
BILL OF BARS							STRUCTURAL APPROACH SLABS		
BAR MARK	COAT	WEST APPRO SLAB	EAST APPRO SLAB	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
T501	X	29		13 - 6		X	FTG STIRRUP	X	
"	X		29	13 - 6		X	FTG STIRRUP		X
"	X	37		13 - 6		X	FTG STIRRUP		X
"	X		37	13 - 6		X	FTG STIRRUP		X
T802	X	24		22 - 9			FTG TRANS - TOP & BOTTOM	X	
"	X		24	22 - 9			FTG TRANS - TOP & BOTTOM	X	
T803	X	24		27 - 6			FTG TRANS - TOP & BOTTOM		X
"	X		24	27 - 6			FTG TRANS - TOP & BOTTOM		X
T804	X	48		21 - 4	X		SLAB LONGIT - BOTTOM	X	
"	X		48	21 - 4	X		SLAB LONGIT - BOTTOM	X	
"	X	60		21 - 4	X		SLAB LONGIT - BOTTOM		X
"	X		60	21 - 4	X		SLAB LONGIT - BOTTOM		X
T505	X	30		19 - 6			SLAB LONGIT - TOP	X	
"	X		30	19 - 6			SLAB LONGIT - TOP	X	
"	X	38		19 - 6			SLAB LONGIT - TOP		X
"	X		38	19 - 6			SLAB LONGIT - TOP		X
T506	X	84		21 - 6			SLAB TRANS - TOP & BOTTOM	X	
"	X		84	21 - 6			SLAB TRANS - TOP & BOTTOM	X	
T507	X	84		24 - 8			SLAB TRANS - TOP & BOTTOM		X
"	X		84	24 - 8			SLAB TRANS - TOP & BOTTOM		X
T508	X	20		4 - 1	X		SLAB TRANS - AT PARAPET	X	
"	X		20	4 - 1	X		SLAB TRANS - AT PARAPET	X	
"	X	20		4 - 1	X		SLAB TRANS - AT PARAPET		X
"	X		20	4 - 1	X		SLAB TRANS - AT PARAPET		X
NOT USED									
NOT USED									
T510	X	2		6 - 10	X		FTG STIRRUP AT BLOCKOUT	X	
"	X		2	6 - 10	X		FTG STIRRUP AT BLOCKOUT	X	
"	X	2		6 - 10	X		FTG STIRRUP AT BLOCKOUT		X
"	X		2	6 - 10	X		FTG STIRRUP AT BLOCKOUT		X



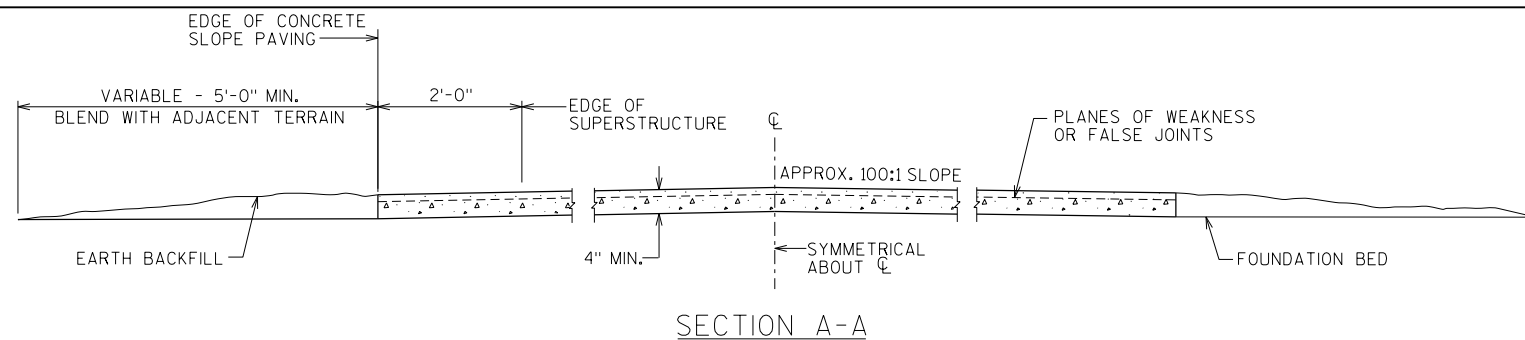
BILL OF BARS							STAINLESS STEEL		
BAR MARK	COAT	WEST APPRO SLAB	EAST APPRO SLAB	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
▲ SS901	SS	29		5 - 0		X	ABUT DIAPH TO APPROACH SLAB	X	
▲ "	SS		29	5 - 0		X	ABUT DIAPH TO APPROACH SLAB		X
▲ "	SS	37		5 - 0		X	ABUT DIAPH TO APPROACH SLAB		X
▲ "	SS		37	5 - 0		X	ABUT DIAPH TO APPROACH SLAB		X

SS = STAINLESS STEEL BARS

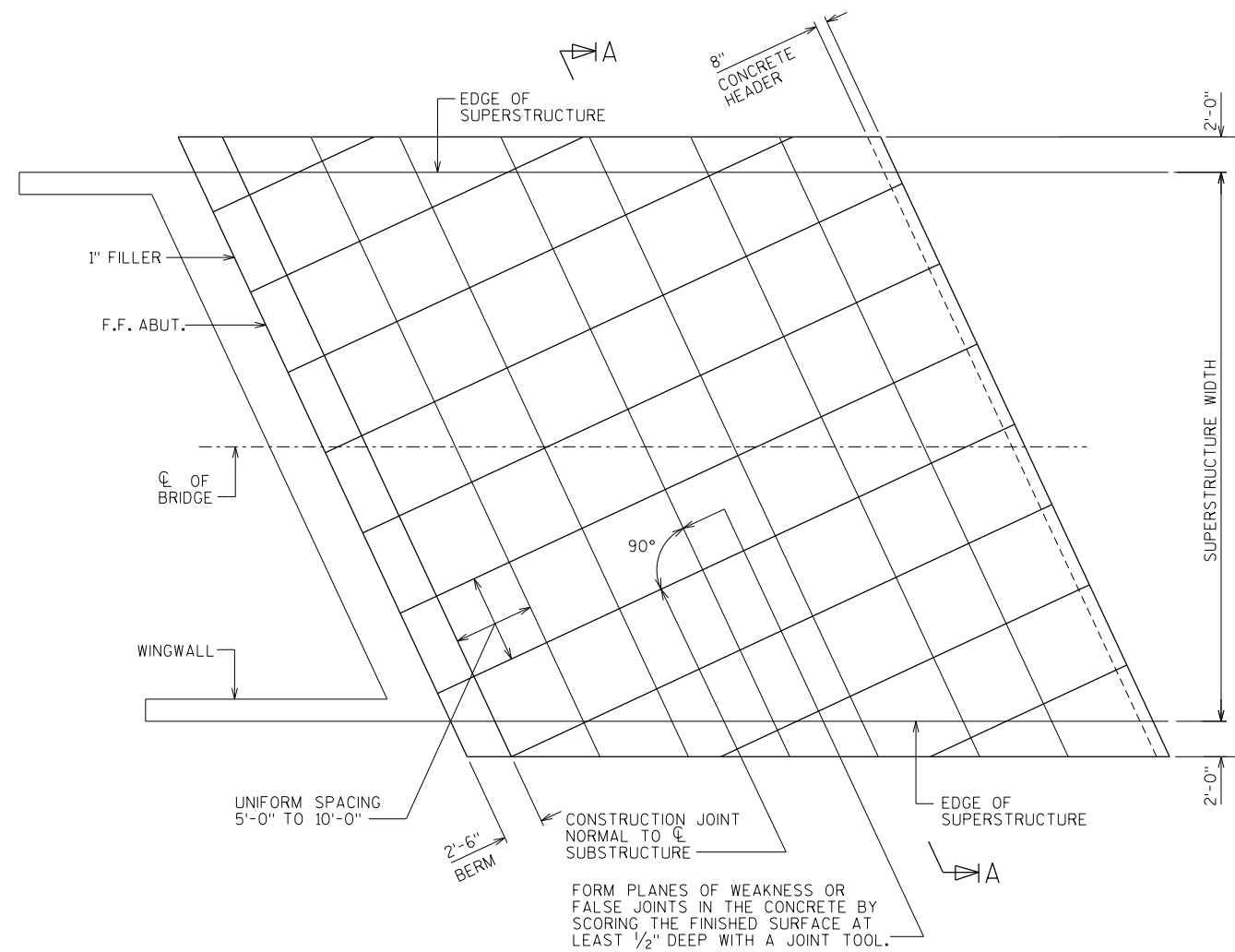
▲ THE BID ITEM FOR SS901 BARS SHALL BE STANDARD SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES"



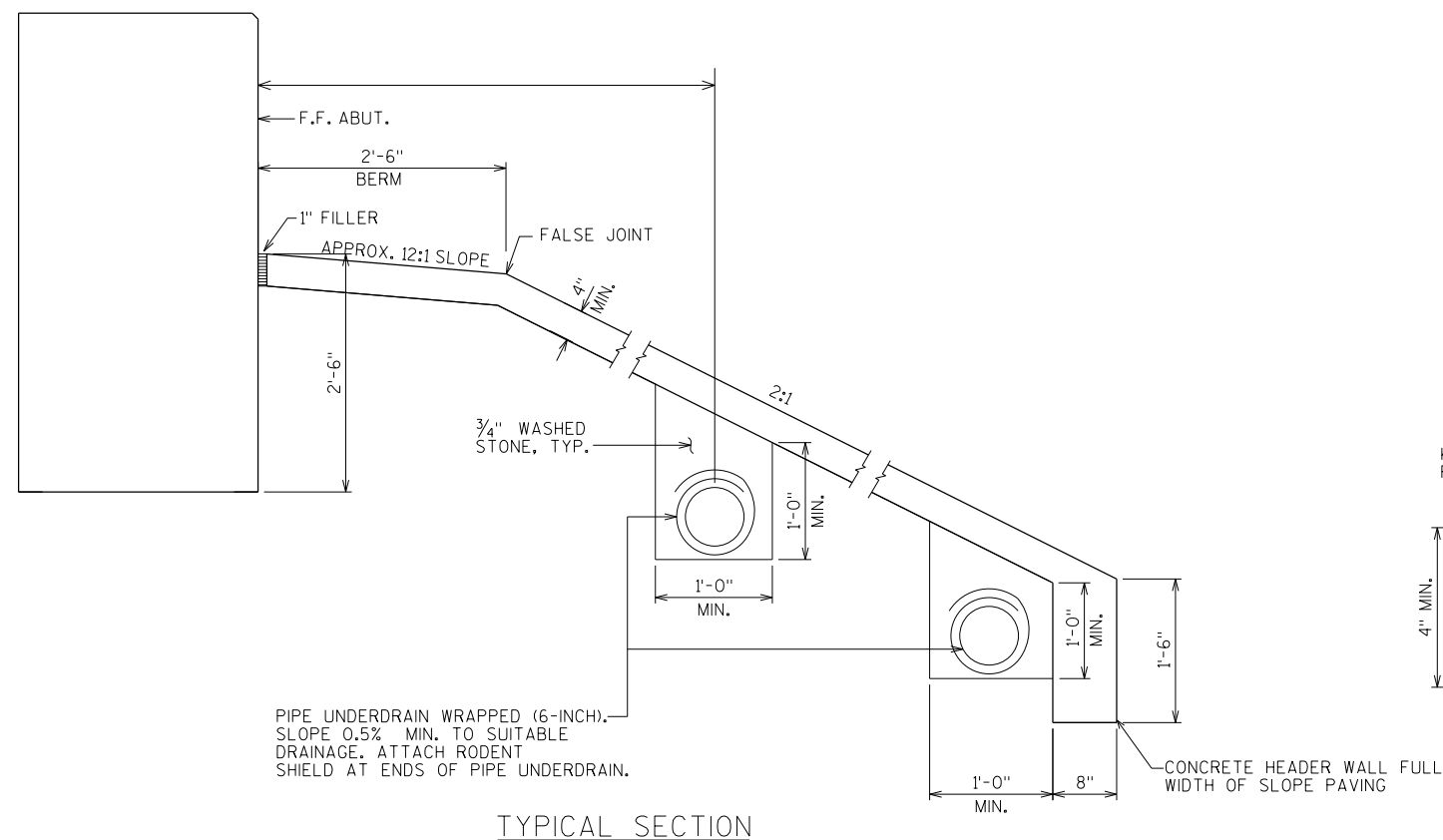
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
STRUCTURAL APPROACH SLABS AND 42SS REINFORCEMENT			SHEET 35 OF 37



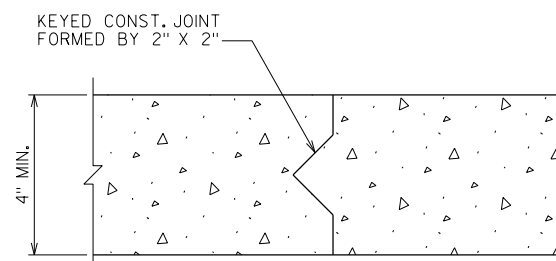
SECTION A-A



PLAN



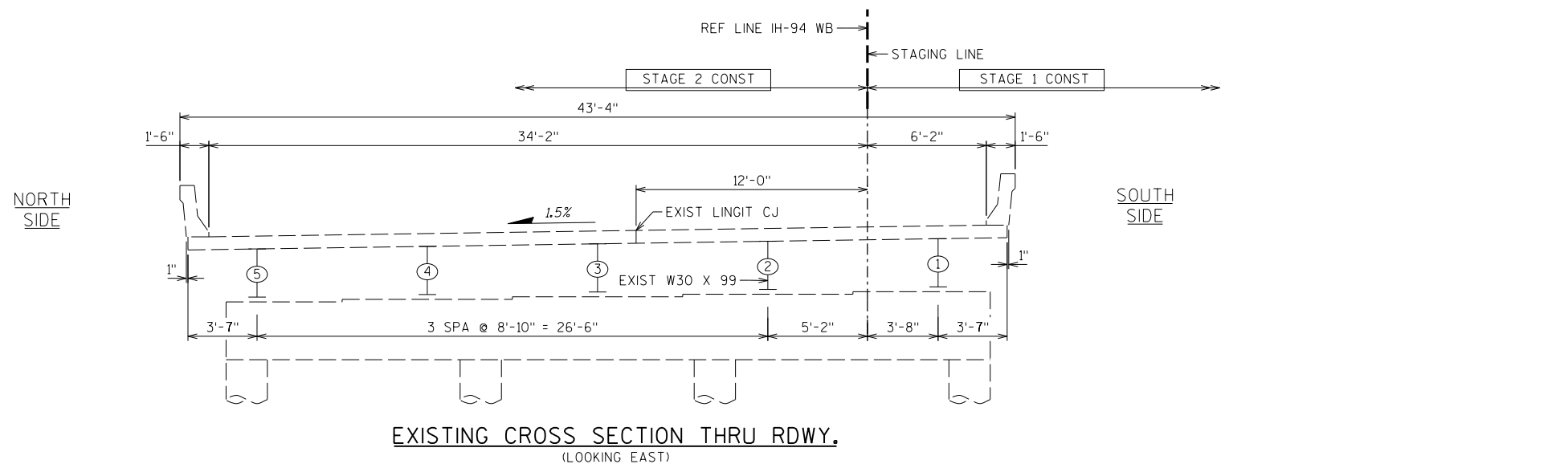
TYPICAL SECTION



CONSTRUCTION JOINT

NOTE
 BID ITEM SHALL BE "SLOPE PAVING CONCRETE"

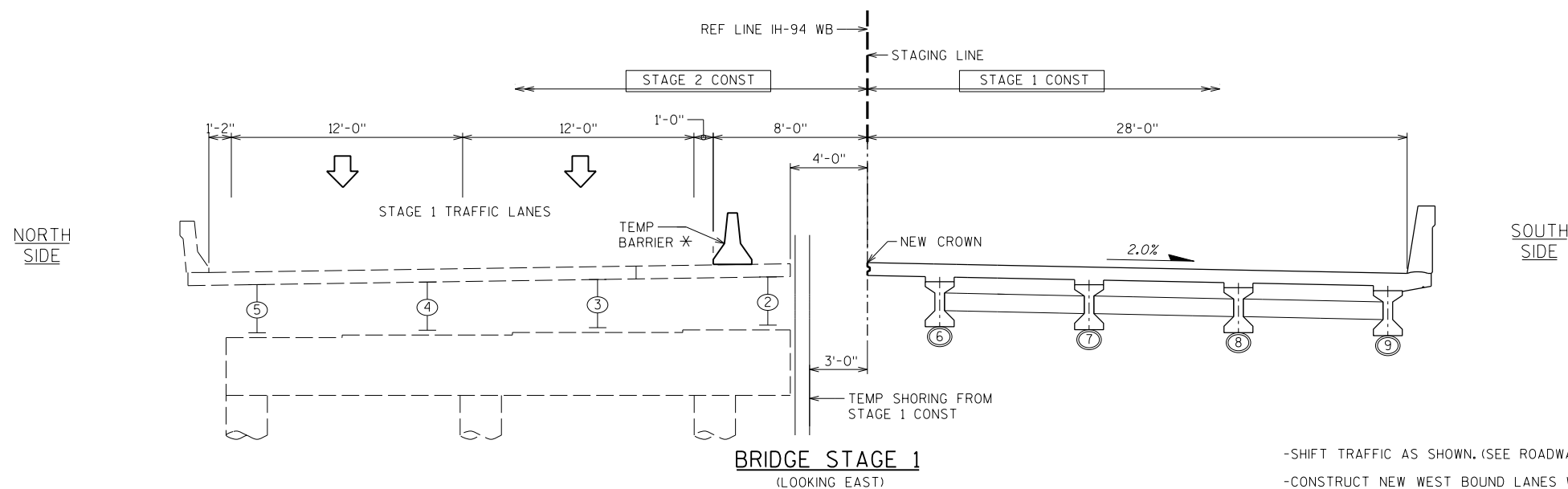
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
SLOPE PAVING (CONCRETE CAST-IN-PLACE)			SHEET 36 OF 37



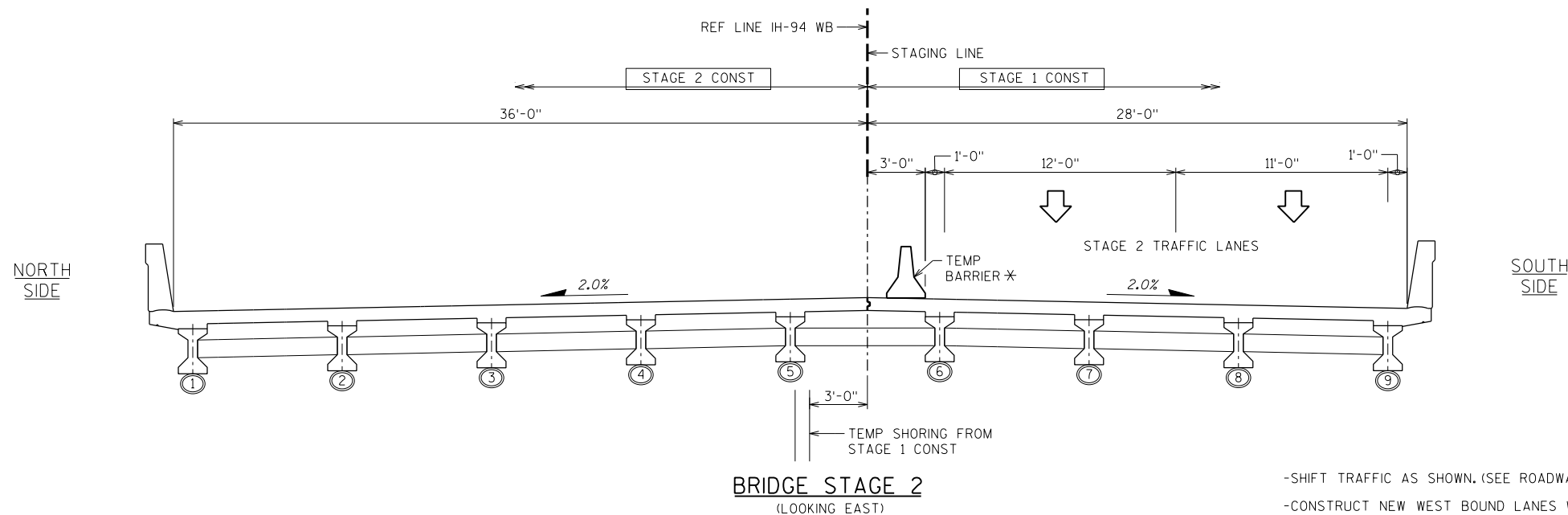
LEGEND

- INDICATES EXISTING GIRDER LINE
- ⊙ INDICATES NEW GIRDER LINE
- ⚠ INDICATES TEMPORARY BARRIER. SEE WISCONSIN (FDM) MANUAL FOR ANCHORING REQUIREMENTS.
- * SHALL BE ANCHORED TO DECK.

NOTE:
COORDINATE BRIDGE STAGING WITH
THE ROADWAY STAGING.



-SHIFT TRAFFIC AS SHOWN. (SEE ROADWAY DRAWINGS)
-CONSTRUCT NEW WEST BOUND LANES WIDENING.



-SHIFT TRAFFIC AS SHOWN. (SEE ROADWAY DRAWINGS)
-CONSTRUCT NEW WEST BOUND LANES WIDENING.

PLOT TIME: 12:20:03 PM

PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\W\17sw\13472\5-f\final-dsgn\5i-drawings\20-Struct\B-28-184\dgn\b28184staging.dgn

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-184			
DRAWN BY DLF		PLANS CKD. NCK	
BRIDGE TRAFFIC STAGING CONCEPT			SHEET 37 OF 37

DESIGN DATA

LIVE LOAD:
 DESIGN LOADING: HL-93
 INVENTORY RATING FACTOR: RF = 1.21
 OPERATING RATING FACTOR: RF = 1.57
 WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 240 KIPS
 STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 PSF
 INVENTORY AND OPERATING RATINGS DO NOT INCLUDE FUTURE WEARING SURFACE.

MATERIAL PROPERTIES:
 CONCRETE MASONRY - SUPERSTRUCTURE f'c = 4,000 psi
 - ALL OTHER (GRADE A) f'c = 3,500 psi
 HIGH STRENGTH BAR STEEL REINFORCEMENT
 AASHTO GRADE 60 fy = 60,000 psi
 28" PRESTRESSED GIRDER
 CONCRETE MASONRY f'c = 7,500 psi
 STRANDS, 0.5" DIA ULTIMATE
 TENSILE STRENGTH fy = 270,000 psi
 STEEL DIAPHRAGMS fy = 36,000 psi

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 12X53 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. EST. 35'-FT LONG AT WEST ABUT. & 30'-FT LONG AT EAST ABUT.

PIERS TO BE SUPPORTED ON HP 12X53 STEEL PILING WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS* PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC EQUATION. EST. 45'-FT LONG AT EACH PIER.

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

PILES AT PIERS REQUIRE PREBORING FOR 20'-FT, EACH PILE. PRE-BORING THROUGH THE RELATIVELY THIN DENSE TO VERY DENSE LAYER IS ANTICIPATED AT THE PIER LOCATIONS. PRE-BORING SHALL BE PERFORMED TO APPROXIMATE ELEVATION 830±.

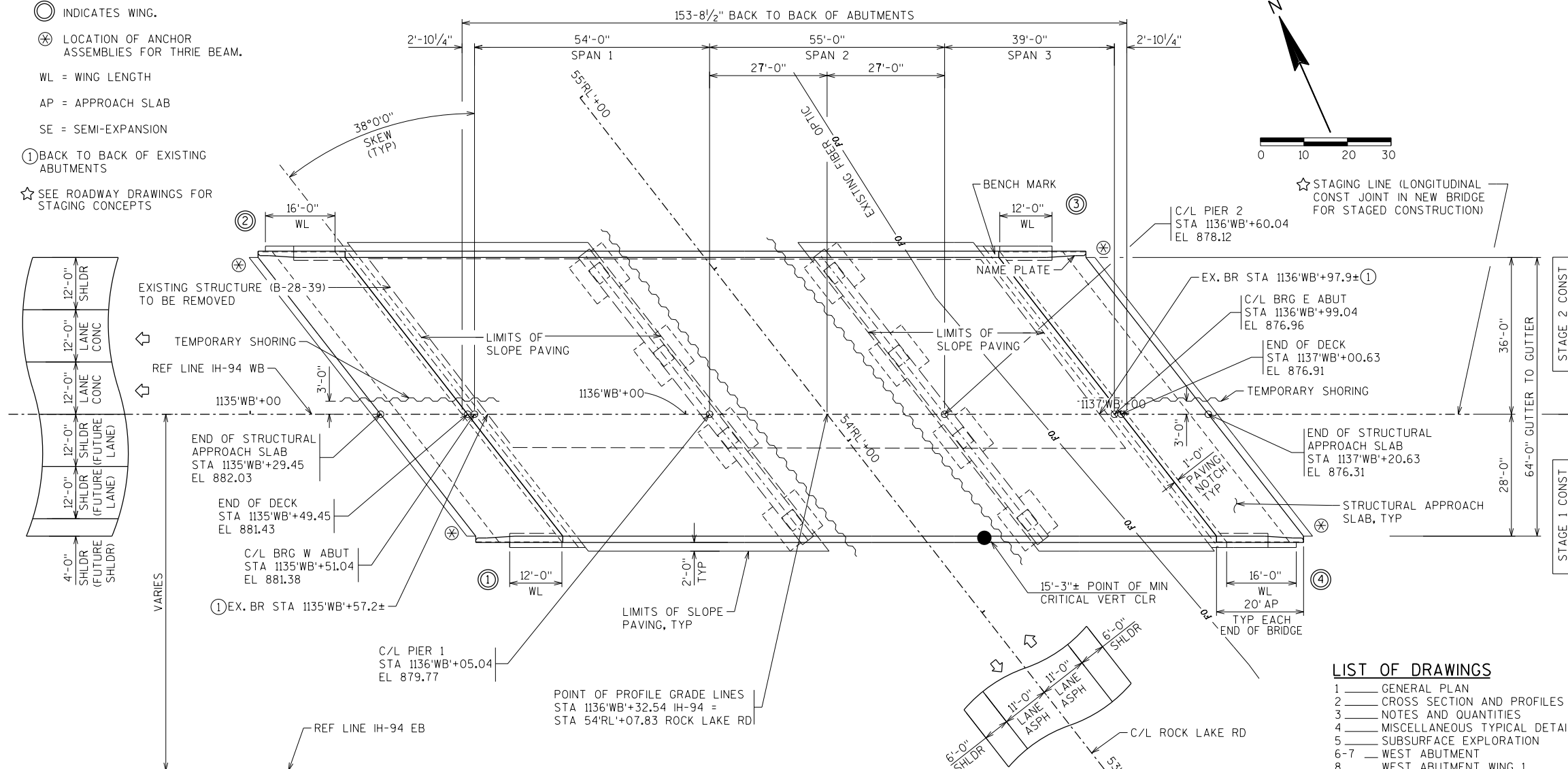
TRAFFIC DATA

IH-94		ROCK LAKE RD	
ADT (2021)	= 43300	ADT (2021)	= 590
ADT (2041)	= 51200	ADT (2041)	= 650
DHV (2041)	= 1445	DHV (2041)	= 27
DD	= 58/42	DD	= 60/40
T	= 10.7 %	T	= 4.0 %
DESIGN SPEED	= 75 MPH	DESIGN SPEED	= 50 MPH
ESALS	= 21,000,000		

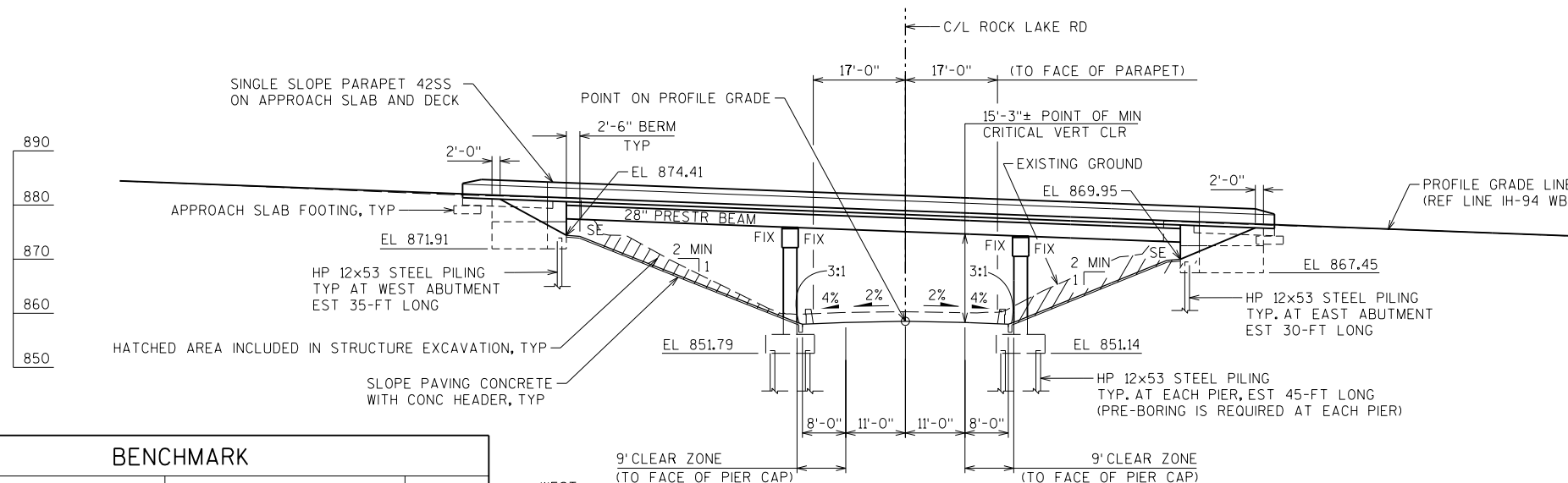
LIST OF DRAWINGS

- GENERAL PLAN
- CROSS SECTION AND PROFILES
- NOTES AND QUANTITIES
- MISCELLANEOUS TYPICAL DETAILS
- SUBSURFACE EXPLORATION
- WEST ABUTMENT
- WEST ABUTMENT WING 1
- WEST ABUTMENT WING 2
- EAST ABUTMENT
- EAST ABUTMENT WING 3
- EAST ABUTMENT WING 4
- WEST AND EAST ABUTMENT DETAILS
- ALTERNATE CONSTRUCTION JOINT
- PIER 1 & 2 STAGE 1
- PIER 1 & 2 STAGE 1 CAP ELEVATIONS
- PIER 1 & 2 STAGE 2
- PIER 1 & 2 STAGE 2 CAP ELEVATIONS
- PIER 1 & 2 DETAILS
- 28" PRESTRESSED GIRDER DETAILS
- STEEL DIAPHRAGM
- SUPERSTRUCTURE
- SUPERSTRUCTURE DECK ELEVATION TABLE
- SUPERSTRUCTURE REINFORCEMENT
- STRUCTURAL APPROACH SLABS
- SINGLE SLOPE PARAPET 42SS
- STRUCTURAL APPROACH SLABS & 42SS REINF.
- SLOPE PAVING (CONCRETE CAST-IN-PLACE)
- BRIDGE TRAFFIC STAGING CONCEPT

- ⊙ INDICATES WING.
- ⊗ LOCATION OF ANCHOR ASSEMBLIES FOR THRE BEAM.
- WL = WING LENGTH
- AP = APPROACH SLAB
- SE = SEMI-EXPANSION
- ① BACK TO BACK OF EXISTING ABUTMENTS
- ☆ SEE ROADWAY DRAWINGS FOR STAGING CONCEPTS



PLAN
 THREE SPAN - 28" PRESTRESSED CONCRETE GIRDER BRIDGE

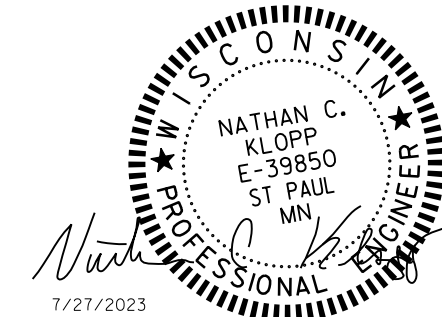


ELEVATION

(NORMAL TO C/L ROCK LAKE RD)

BENCHMARK

NO	STATION	DESCRIPTION	ELEV
21	1132+12.94'WB' 68.14'LT	3/8" SPK IN 6" CEDAR TREE	EL 891.51
22	1136+69.48'WB' 34.99'LT	DISC BRIDGE B-28-39-65	EL 879.93
24	1136+93.76'EB' 34.97'RT	DISC BRIDGE B-28-38-64	EL 886.61



7/27/2023

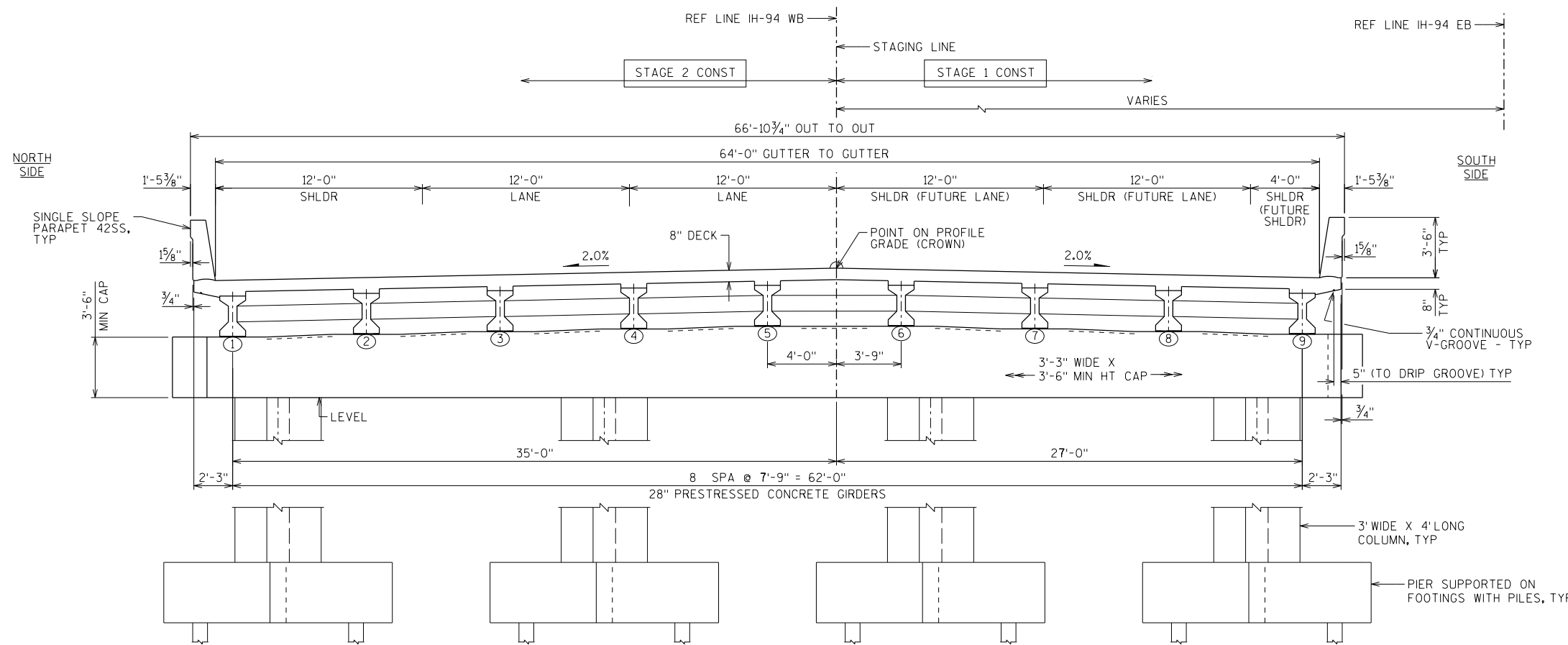
SEH CONTACT: CHRIS BLUM, PE, 608.620.6192
 WISDOT BRIDGE OFFICE CONTACT: AARON BONK, PE, 608.261.0261

NO.	DATE	REVISION	BY
 SHORT ELLIOTT HENDRICKSON INC.			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED		SDR	DATE
		07/28/23	
STRUCTURE B-28-185			
IH-94 WB OVER ROCK LAKE ROAD			
COUNTY	JEFFERSON	TOWN/CITY/VILLAGE	LAKE MILLS
DESIGN SPEC.			
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS			
DESIGNED BY	NCK	DESIGN CK'D.	MHD
DRAWN BY	DLF	PLANS CK'D.	NCK
GENERAL PLAN			SHEET 1 OF 37

PLOT TIME: 5:41:43 PM

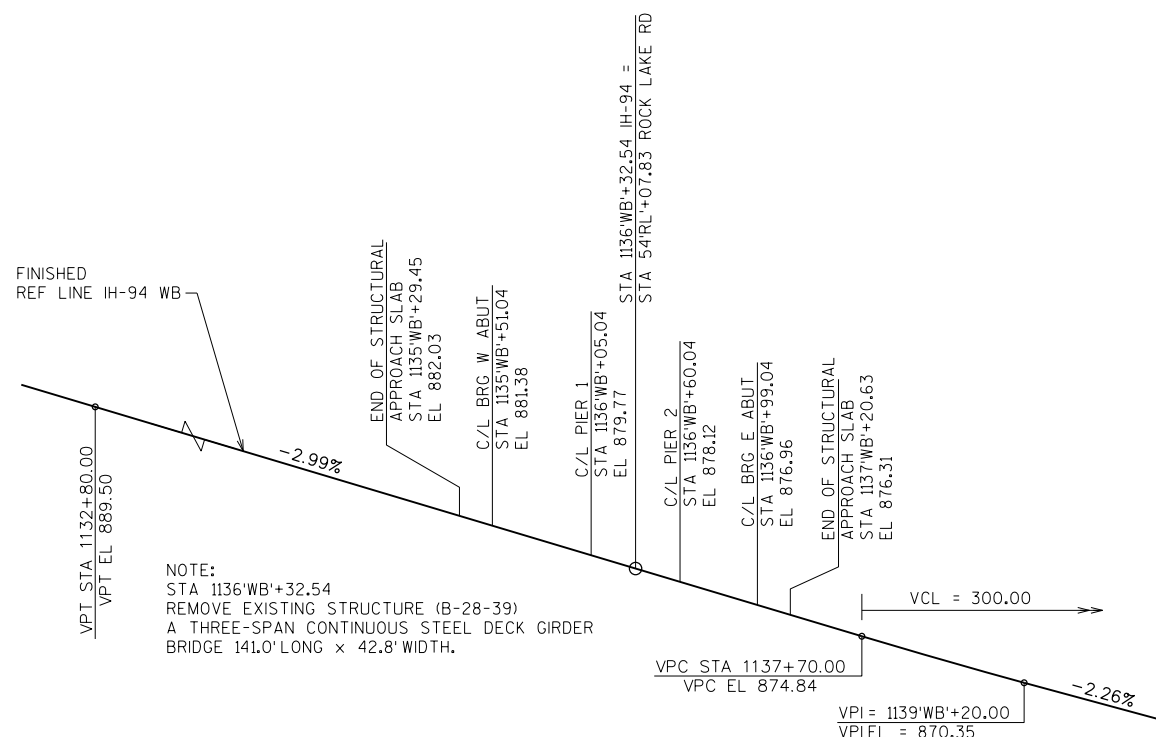
PLOT DATE: 7/27/2023

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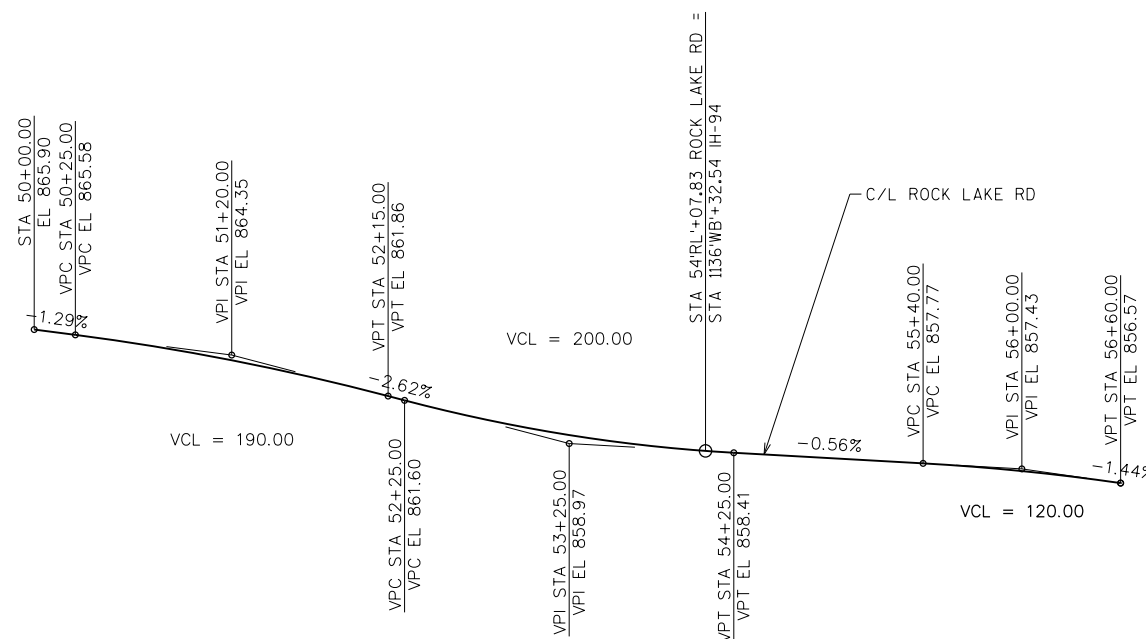


CROSS SECTION THRU BRIDGE

(LOOKING EAST)
(SHOWING PIER)



NOTE:
STA 1136'WB'+32.54
REMOVE EXISTING STRUCTURE (B-28-39)
A THREE-SPAN CONTINUOUS STEEL DECK GIRDER
BRIDGE 141.0' LONG x 42.8' WIDTH.



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY: DLF		PLANS CK'D: NCK	
CROSS SECTION AND PROFILES			SHEET 2 OF 37

TOTAL ESTIMATED QUANTITIES - B-28-185

STATE PROJECT NUMBER

1067-02-73

BID ITEM NUMBER	BID ITEMS	UNIT	STAGE 1								STAGE 2								TOTALS	
			WEST STRUCTURAL APPROACH SLAB	WEST ABUT	EAST ABUT	EAST STRUCTURAL APPROACH SLAB	PIER 1	PIER 2	SUPER	STAGE 1 TOTALS	WEST STRUCTURAL APPROACH SLAB	WEST ABUT	EAST ABUT	EAST STRUCTURAL APPROACH SLAB	PIER 1	PIER 2	SUPER	STAGE 2 TOTALS		
① 203.0220	REMOVING STRUCTURE B-28-39	EA	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	0.5	1
① 206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-28-185	EA	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	0.5	1	
② 210.1500	BACKFILL STRUCTURE TYPE A	TON	-	101	101	-	-	-	-	202	-	130	130	-	-	-	-	260	462	
② 305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	104	-	-	104	-	-	-	208	132	-	-	132	-	-	-	264	472	
502.0100	CONCRETE MASONRY BRIDGES	CY	42	38	38	42	61	60	175	456	53	49	49	53	68	67	216	555	1011	
⑤ 502.3200	PROTECTIVE SURFACE TREATMENT	SY	63	-	-	63	-	-	490	616	80	-	-	80	-	-	630	790	1406	
502.3210	PIGMENTED SURFACE SEALER	SY	11	-	-	11	-	-	75	97	11	-	-	11	-	-	75	97	194	
503.0128	PRESTRESSED GIRDER TYPE I 28-INCH	LF	-	-	-	-	-	-	594	594	-	-	-	-	-	-	743	743	1337	
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-	2980	2960	-	1860	1860	1550	11,210	-	3470	3540	-	1860	1860	1830	12,560	23,770	
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	8440	810	860	8440	9680	9470	35,300	73,000	9550	990	860	9550	10,400	10,190	41,980	83,520	156,520	
505.0800.S.	BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES	LB	505	-	-	505	-	-	-	1010	645	-	-	645	-	-	-	1290	2300	
505.0906	BAR COUPLERS No. 6	EA	-	18	18	-	-	-	-	36	-	-	-	-	-	-	-	-	36	
505.0907	BAR COUPLERS No. 7	EA	-	-	-	-	4	4	-	8	-	-	-	-	-	-	-	-	8	
505.0908	BAR COUPLERS No. 8	EA	12	-	-	12	-	-	-	24	-	-	-	-	-	-	-	-	24	
505.0909	BAR COUPLERS No. 9	EA	-	-	-	-	12	12	-	24	-	-	-	-	-	-	-	-	24	
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EA	-	4	4	-	8	8	-	24	-	5	5	-	10	10	-	30	54	
506.4000	STEEL DIAPHRAGMS B-28-185	EA	-	-	-	-	-	-	9	9	-	-	-	-	-	-	15	15	24	
④ 511.1200	TEMPORARY SHORING B-28-185	SF	-	-	-	-	-	-	374	374	-	-	-	-	-	-	180	180	554	
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-	10	10	-	-	-	-	20	-	13	13	-	-	-	-	26	46	
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIALS	LF	-	-	-	-	200	200	-	400	-	-	-	-	200	200	-	400	800	
550.1120	PILING STEEL HP 12-INCH x 53 LB	LF	-	210	210	-	450	450	-	1320	-	280	210	-	450	450	-	1390	2710	
604.0400	SLOPE PAVING CONCRETE	SY	-	214	158	-	-	-	-	372	-	241	178	-	-	-	-	419	791	
③ 612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-	78	78	-	-	-	-	156	-	85	85	-	-	-	-	170	326	
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EA	1	-	-	1	-	-	-	2	1	-	-	1	-	-	-	2	4	
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-	34	34	-	-	-	-	68	-	43	43	-	-	-	-	86	154	
NON-BID ITEMS																				
	FILLER	SIZE	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	1/2 & 3/4	
	NAMEPLATE	EACH	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	1	

QUANTITIES NOTES

- ① PROTECT ITEMS TO REMAIN. COORDINATE ITEM COST WITH STAGE 2 CONSTRUCTION.
- ② A FACTOR OF 2.0 WAS USED TO CONVERT CU YDS TO TONS.
- ③ INCLUDES RODENT SHEILD FOR PIPE UNDERDRAIN.
- ④ BASED ON A SQUARE FOOT OF EXPOSED SHEET PILE SURFACE BETWEEN THE UPPER AND LOWER GRADES. ITEM INCLUDES REMOVAL OF SHEETS DURING STAGE 2 CONSTRUCTION.
- ⑤ INCLUDES COVERAGE OF THE PAVING LEDGE AREA.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

FOR EXISTING STRUCTURE DESCRIPTION SEE 'PROFILE GRADE LINE' ON SHEET 2.

REFER TO ROADWAY DRAWINGS FOR EXISTING UTILITY LOCATIONS.

ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.

ALL STATIONS AND ELEVATIONS ARE IN FEET. ELEVATIONS ARE REFERENCED TO THE NAVD 88 (2007) DATUM.

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

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

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M153 TYPE 1, 2, OR 3 OR AASHTO DESIGNATION M213.

THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON THE GENERAL PLAN SHEET AND IN THE ABUTMENTS DETAILS.

THE EXISTING GROUNDLINE SHALL BE THE UPPER LIMITS OF EXCAVATION FOR STRUCTURES.

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

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

THE QUANTITY FOR BACKFILL STRUCTURE TYPE A, BID ITEM 210.1500 IS CALCULATED BASED ON THE BACKFILL STRUCTURE LIMITS DETAILS SHOWN ON THIS SHEET 4.

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

THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE PRESTRESSED GIRDER DETAILS SHEET.

BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.

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

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

APPLY A PROTECTIVE SURFACE TREATMENT TO TOP OF BRIDGE DECK, TOP OF APPROACH SLABS AND TOP OF APPROACH SLAB NOTCH. APPLY PIGMENTED SURFACE SEALER TO TOP AND INSIDE FACES OF PARAPET INCLUDING PARAPET LOCATED ON THE STRUCTURAL APPROACH SLAB. PER THE STANDARD SPECIFICATIONS AND THE SUPERSTRUCTURE DETAILS SHEET.

PRE-BORING REQUIRED AT BOTH PIERS. OBTAIN 10-FOOT MINIMUM PILE LENGTH BELOW SUBSTRUCTURE.

IT IS RECOMMENDED THAT THE CONTRACTOR REVIEW THE SOILS REPORT FOR ADDITIONAL INFORMATION ON GEOTECHNICAL RELATED CONCERNS AT THIS SITE PERTAINING TO SUBSTRUCTURE SUPPORT AND STRUCTURE EXCAVATION. REPORT IS AVAILABLE AT THE WISDOT SW REGION OFFICE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CKD. NCK
NOTES AND QUANTITIES			SHEET 3 OF 37

PLOT TIME: 6:27:40 AM

PLOT DATE: 11/3/2022

FILE NAME : S:\UZ\W\Wit\sw\1347215-f\final-dsgn\51-drawings\20-struct\B-28-185\dgn\b28185g3.dgn

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BAR COUPLER NOTES

SPECIFIC INFORMATION REGARDING THE COUPLER IS COVERED BY THE BID ITEM "BAR COUPLERS (SIZE)". AND NOT LIMITED TO THESE BAR COUPLER NOTES AND BRIDGE MANUAL STANDARD DRAWING 40.11.

STEEL COUPLER ASSEMBLY SHALL BE AN APPROVED TYPE AND SHALL DEVELOP IN TENSION AT LEAST 125% OF THE YIELD STRENGTH OF THE SPLICED REINFORCEMENT BARS.

DOWEL BAR COUPLERS SHALL BE OF MINIMUM 60 KSI YIELD STRENGTH, AND HAVE TENSILE STRENGTH AREA EQUAL OR GREATER THAN THAT OF THE LAPPED REINFORCEMENT BARS.

DOWEL BAR COUPLERS SHALL MEET THE DEFORMATION REQUIREMENTS FOR STANDARD ASTM DEFORMED REINFORCING BARS.

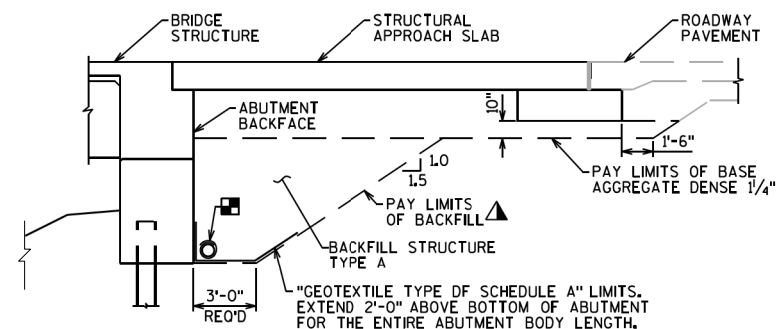
FOR DOWEL BAR COUPLERS, ALL REINFORCEMENT BARS SHALL BE LAPPED AND TIED TO THE COUPLER BARS.

COUPLER ASSEMBLY IN THE SLAB SHALL BE EPOXY COATED IN ACCORDANCE WITH THE REQUIREMENTS OF REINFORCEMENT BARS.

OTHER SYSTEMS OF SIMILAR DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL. APPROVAL SHALL BE BASED ON CERTIFIED TEST RESULTS FROM AN APPROVED TESTING LABORATORY THAT THE PROPOSED SPLICER (COUPLER) ASSEMBLY SATISFIES THE FOLLOWING REQUIREMENT:

MINIMUM CAPACITY = 1.25 X f_y X AREA OF SPLICED REINFORCEMENT BAR.

WHERE f_y = YIELD STRENGTH OF SPLICED REINFORCEMENT BARS.



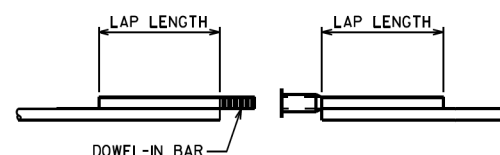
BACKFILL STRUCTURE LIMITS

TYPICAL SECTION THRU ABUTMENT

(A1 ABUTMENT WITH STRUCTURAL APPROACH)

A FACTOR OF 2.0 WAS USED TO CONVERT CU YDS TO TONS

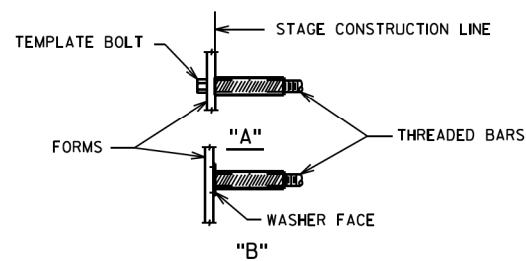
PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE.



DOWEL BAR COUPLER

ONE PIECE THREADED COUPLER

COUPLER ALTERNATIVES



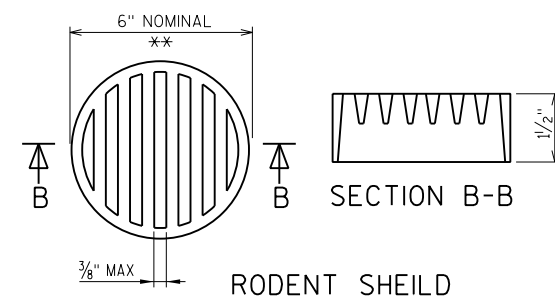
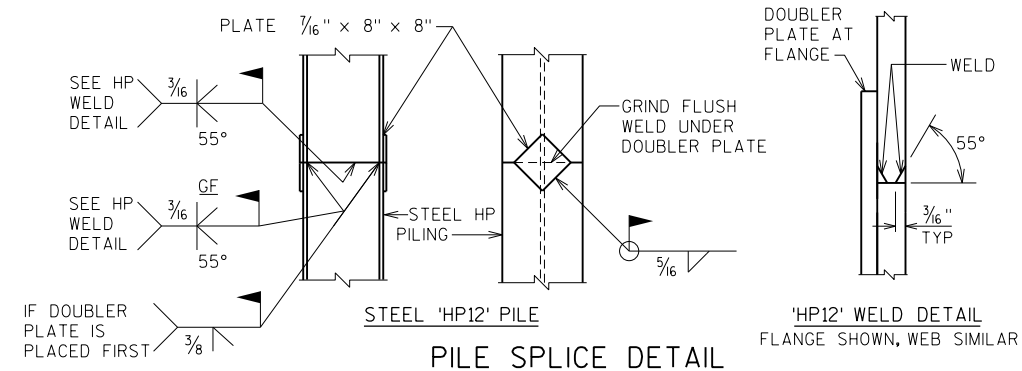
INSTALLATION AND SETTING METHODS

"A" SET COUPLER BY MEANS OF A TEMPLATE BOLT
 "B" SET COUPLER BY NAILING TO WOOD FORMS OR CEMENTING TO STEEL FORMS.

DOWEL BAR COUPLER LAP LENGTHS

CONCRETE UNDER BAR	BAR SIZE	4	5	6	7	8	9	10	11
12" OR LESS	$f'_c = 3500$	1'-8"	2'-8"	3'-2"	4'-3"	5'-6"	7'-0"	8'-9"	10'-11"
	$f'_c = 4000$	1'-8"	2'-8"	3'-2"	4'-0"	5'-2"	6'-6"	8'-3"	10'-2"
MORE THAN 12"	$f'_c = 3500$	2'-3"	2'-11"	3'-6"	4'-8"	6'-1"	7'-10"	9'-10"	12'-1"
	$f'_c = 4000$	2'-3"	2'-11"	3'-6"	4'-5"	5'-8"	7'-4"	9'-2"	11'-4"

BAR LENGTH COMPUTED TO ϕ LONGIT. JOINT AND SHALL BE MODIFIED IF REQ'D. TO BAR COUPLER MANUFACTURER RECOMMENDATIONS. PAY BASED ON BARS AS DETAILED.



RODENT SHIELD

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

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.

PLOT TIME: 12:32:54 PM

PLOT DATE: 6/27/2022

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
MISCELLANEOUS TYPICAL DETAILS			SHEET 4 OF 37

PLOT TIME: 12:33:08 PM

PLOT DATE: 6/27/2022

FILE NAME: S:\U2\W\1171\sw\13472\15-f\final-dsgn\51-dr\awings\20-struct\B-28-185\185-b28185b1.dgn

STATE PROJECT NUMBER

1067-02-73

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
B-RL1	11/3/2015	-	-
B-RL2	11/4/2015	-	-
B-RL3	11/5/2015	-	-
B-RL4	11/6/2015	-	-

BORINGS COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC
 REPORT COMPLETED BY: PROFESSIONAL SERVICE INDUSTRIES, INC

SOIL BORINGS PERFORMED BY:
 PROFESSIONAL SERVICE INDUSTRIES, INC
 821 CORPORATE COURT
 WAUKESHA, WISCONSIN 53189
 PH: (262) 521-2125
 FAX: (262) 521-2471

REPORT BY:
 BRADLEY J. BROBACK, P.E.
 PROJECT ENGINEER
 GEOTECHNICAL SERVICES

MATERIAL SYMBOLS

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

LEGEND OF BORING

APPROXIMATE BORING LOCATION

W/ = WITH
 BRN = BROWN
 MOT = MOTTLED
 GRVL = GRAVEL

ST (1) 0.25 (2) 17

F-C COBBLE OR BOULDER
 WEATHERED LIMESTONE
 CORE RUN #1 - 24'-29'
 REC=80%, ROD=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

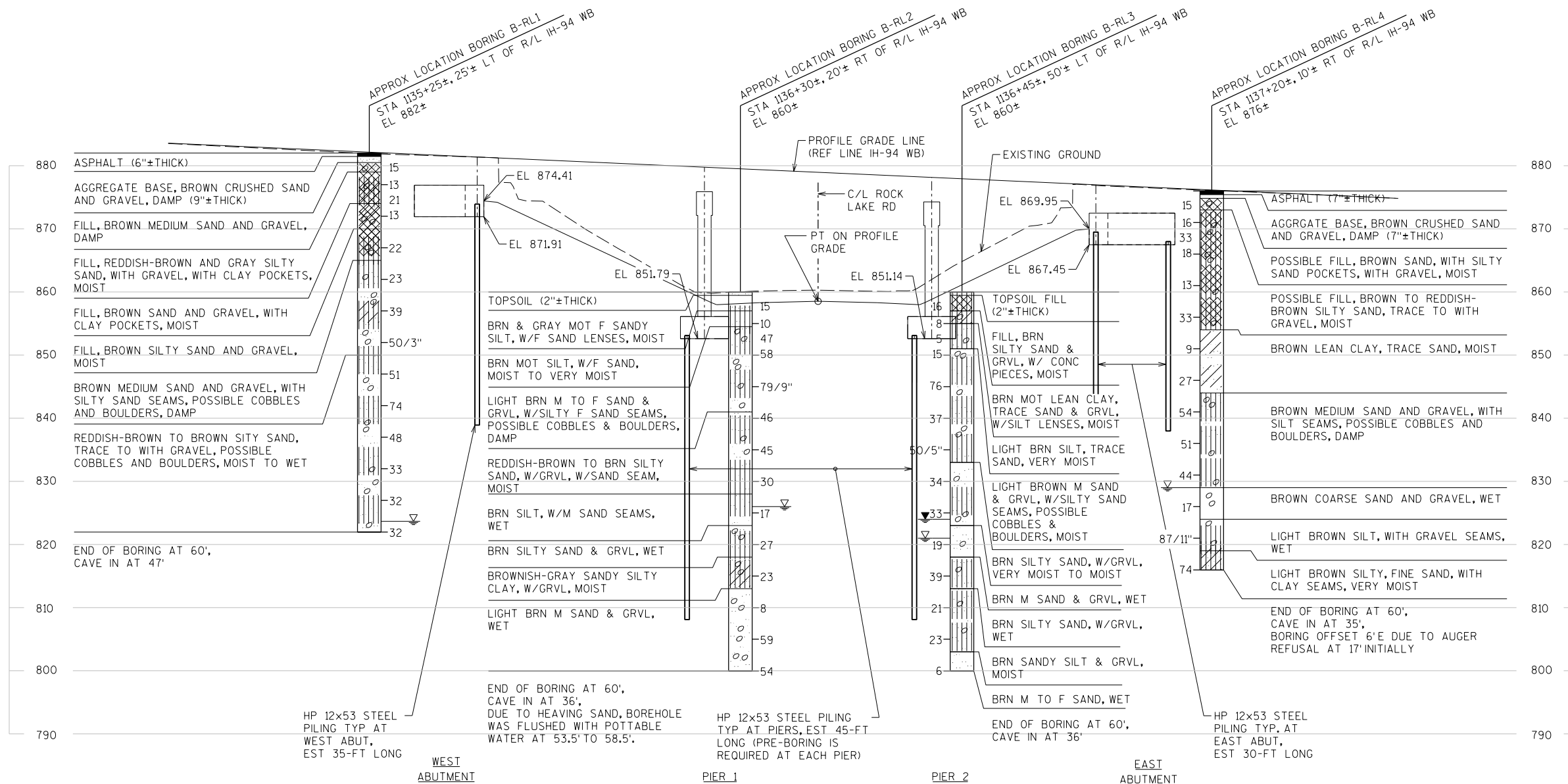
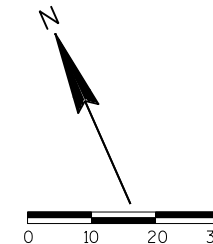
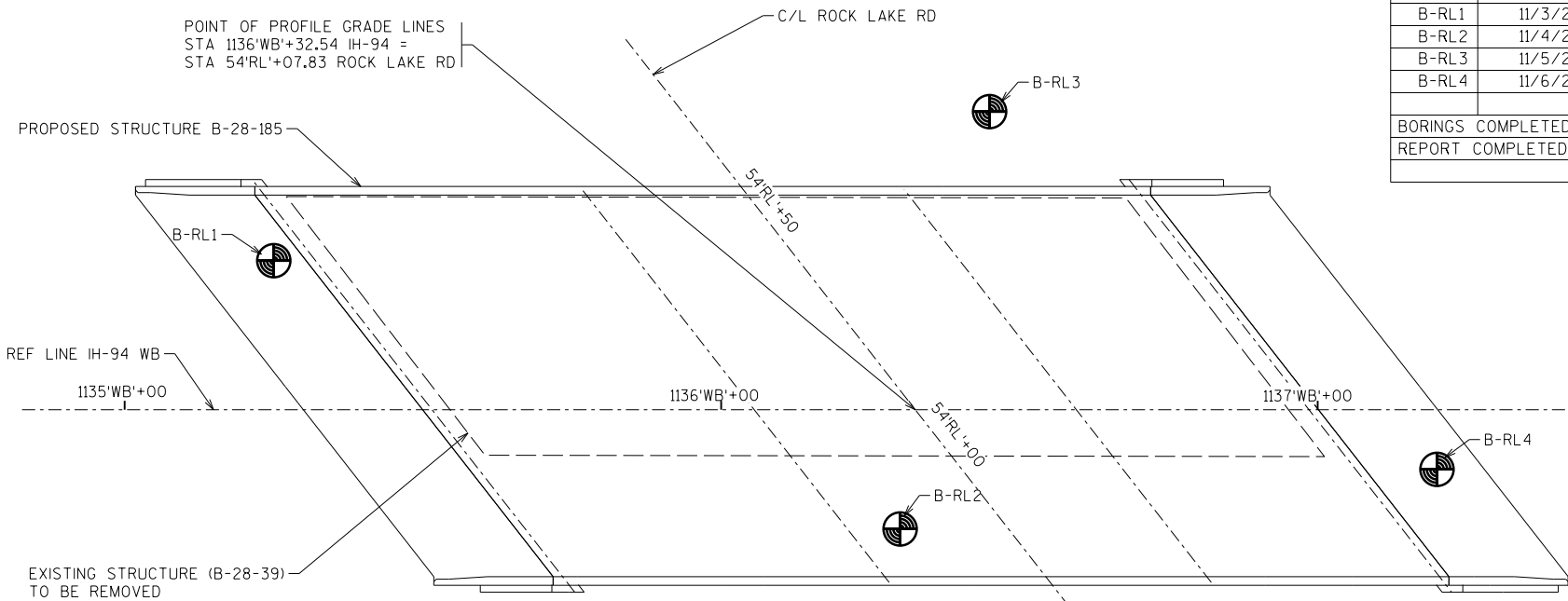
ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

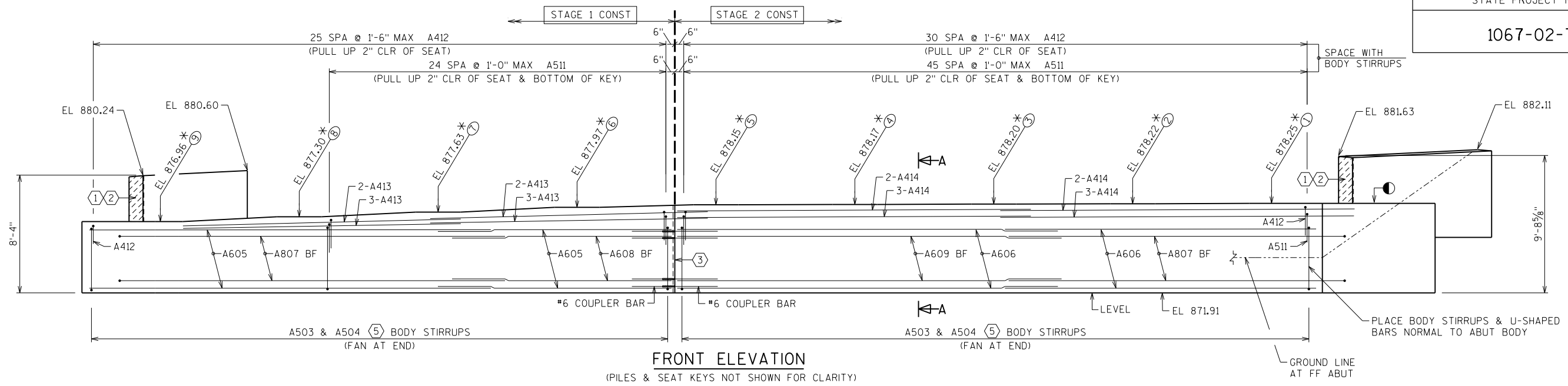
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT 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-28-185			
DRAWN BY: DLF		PLANS CKD: NCK	
SUBSURFACE EXPLORATION			SHEET 5 OF 37

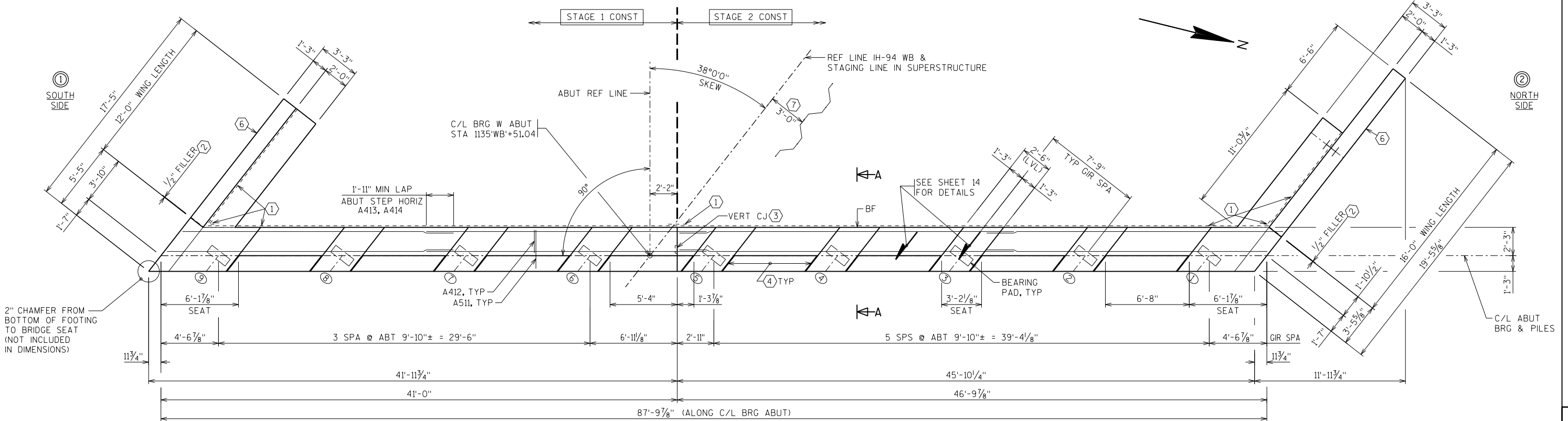


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FRONT ELEVATION
(PILES & SEAT KEYS NOT SHOWN FOR CLARITY)



PLAN

LEGEND

- * ELEVATIONS AND DIMENSIONS TAKEN ALONG C/L OF BRG & PILES WEST ABUTMENT.
- ① 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ & VERT JOINTS ON BACKFACE.
- ② 1/2" FILLER & SEALER EXTEND FROM BEAM SEAT TO TOP OF WING. INCLUDED IN WING LENGTH.
- ③ VERTICAL CONST JT KEYWAY FORMED BY A SURFACED BEVELED 2"x8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST JT DETAILS SEE SHEET 15.
- ④ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- ⑤ USE 1-A504 AT EACH PILE.
- ⑥ SEE WING DETAILS SHEET FOR WING PLANS AND REINF.
- ⑦ SEE BRIDGE TRAFFIC STAGING PLANS.
- INDICATES WING NUMBER.
- INDICATES GIRDER LINE.
- SEAT SLOPE DIRECTION MEASURED ALONG C/L GIRDER
- W ABUT = WEST ABUTMENT
E ABUT = EAST ABUTMENT
- BAR MARKS 'A' = WEST ABUT BARS
BAR MARKS 'B' = EAST ABUT BARS
- FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE
T = TOP
B = BOTTOM
EXIST = EXISTING
BETW = BETWEEN
LVL = LEVEL
UN = UNLESS NOTED OTHERWISE
- OPTIONAL CONST JOINT FORMED BY BEVELED 2"x6" (V-GROOVE ON FRONT FACE IF JOINT IS USED).
- ▣ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING HORIZ IN THIS AREA ON LEVEL PORTION.
- ⊗ 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"
- ▣ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE.
- Ⓜ ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN, SEE DETAIL ON SHEET 4. DISCHARGE WRAPPED PIPE UNDERRAIN WELL OUTSIDE LIMITS OF THE STRUCTURE

ABUTMENT NOTES

DIMENSIONS ARE MEASURED ALONG C/L ABUT BRG UNLESS NOTED OTHERWISE.

SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE). FILLER INCLUDED IN WING LENGTH.

FOR TYPICAL ABUTMENT SECTION A-A SEE SHEET 14.

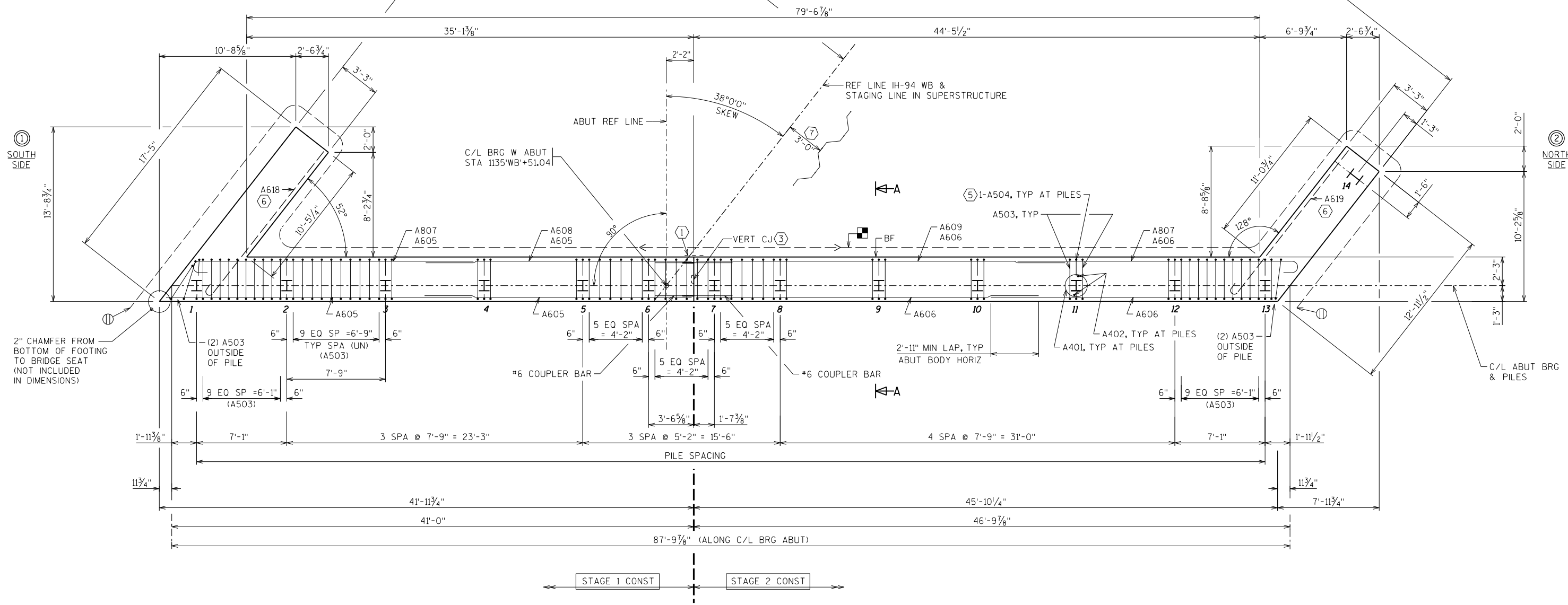
FOR PILE SPLICE DETAIL SEE SHEET 4.

FOR BEARING PAD DETAIL SEE SUPERSTRUCTURE SHEETS.

COST OF #6 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 6.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CKD. NCK
WEST ABUTMENT			SHEET 6 OF 37

STATIONING
DIRECTION



FOOTING & PILE LAYOUT

NOTES

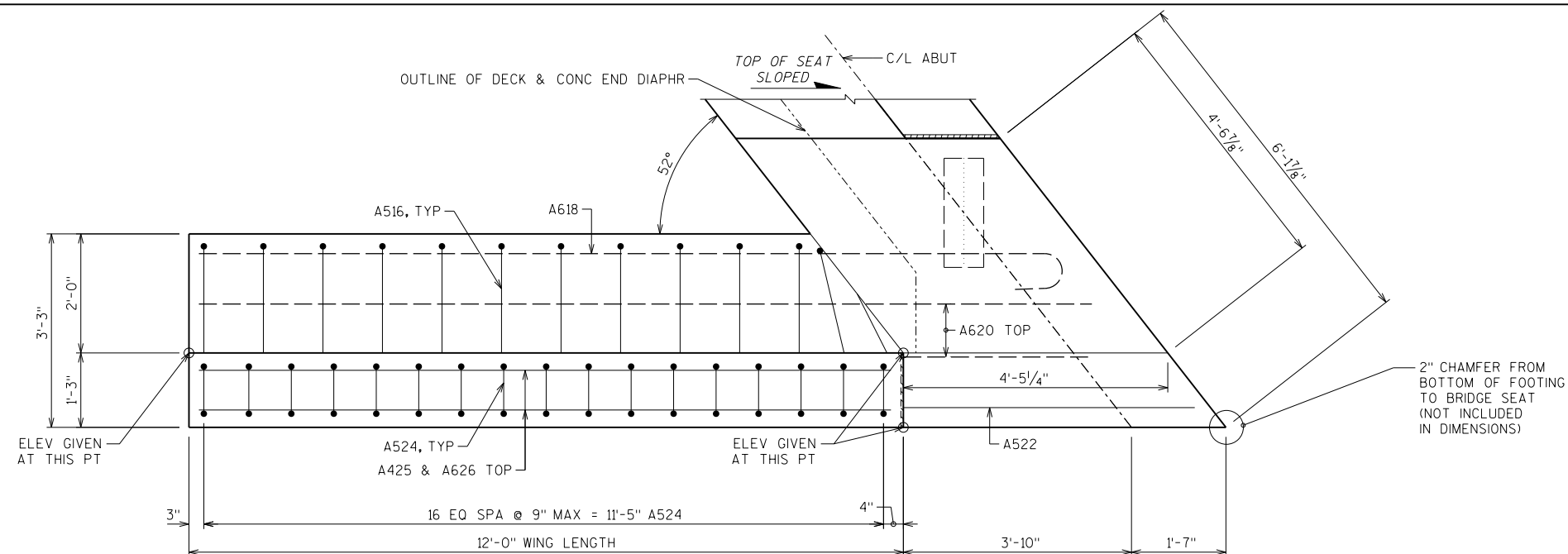
SEE SHEET 6 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
WEST ABUTMENT			SHEET 7 OF 37

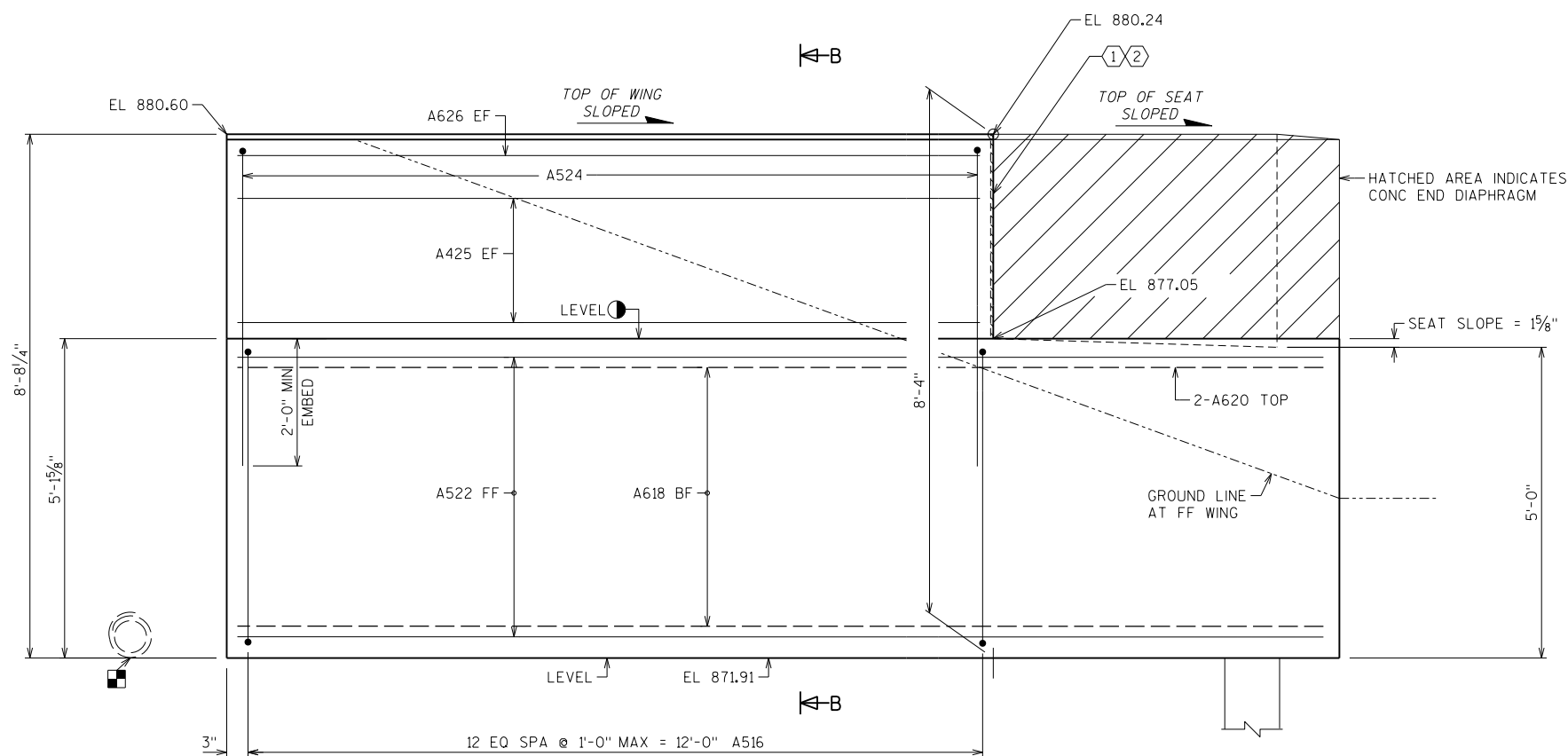
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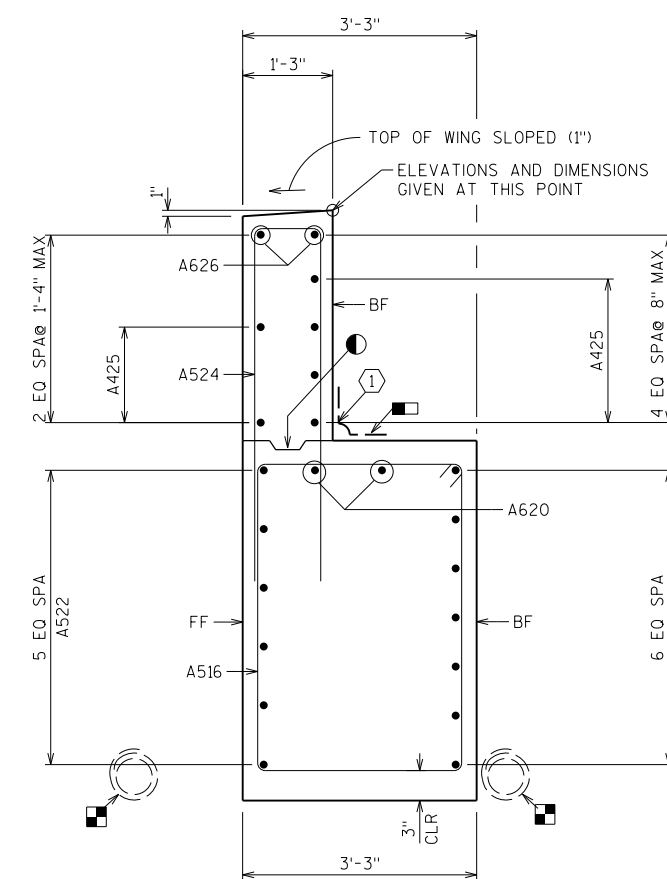
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WING 1 - PLAN



WING 1 - ELEVATION



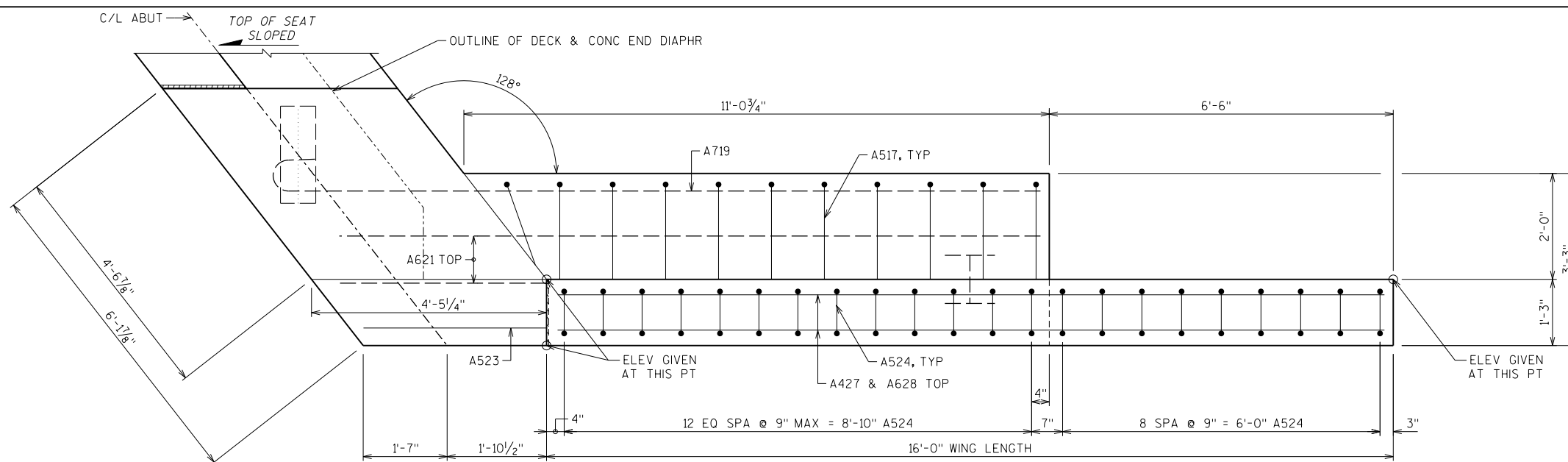
SECTION B-B

NOTES

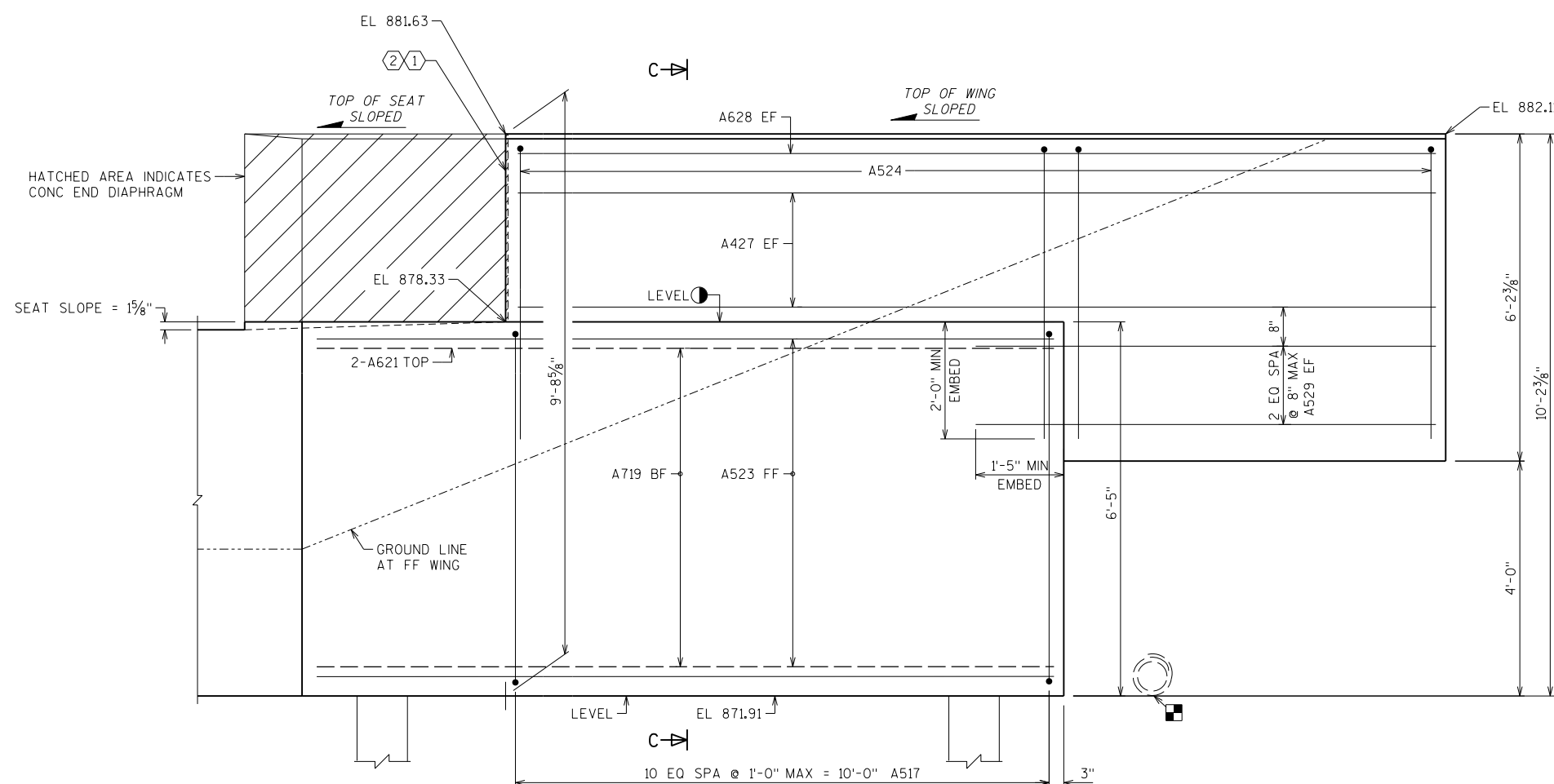
SEE SHEET 6 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
WEST ABUTMENT WING 1			SHEET 8 OF 37

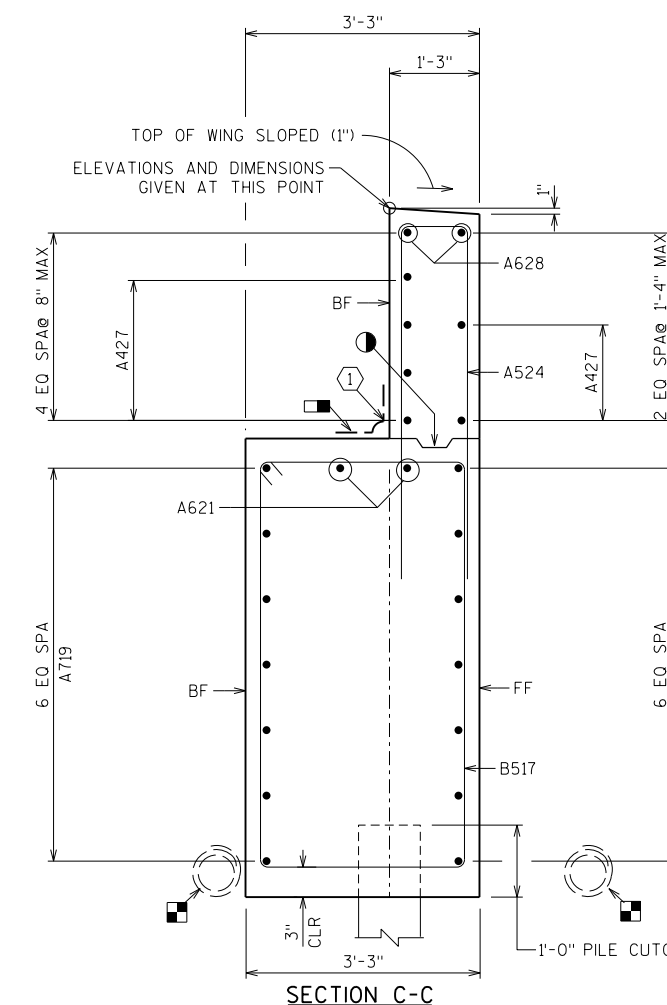
STAGE 1



WING 2 - PLAN



WING 2 - ELEVATION



SECTION C-C

NOTES

SEE SHEET 6 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

PLOT TIME: 12:33:11PM

PLOT DATE: 6/27/2022

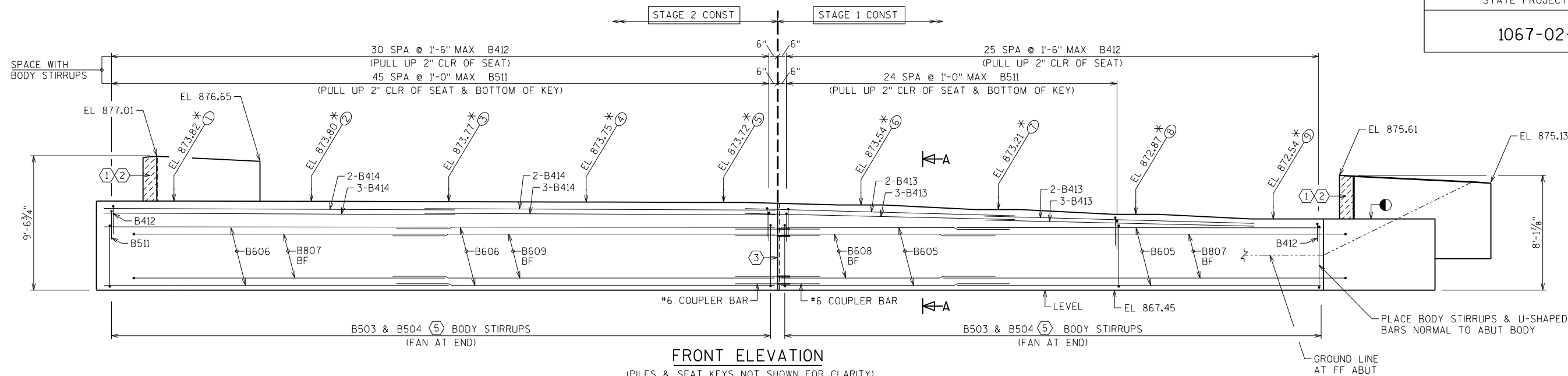
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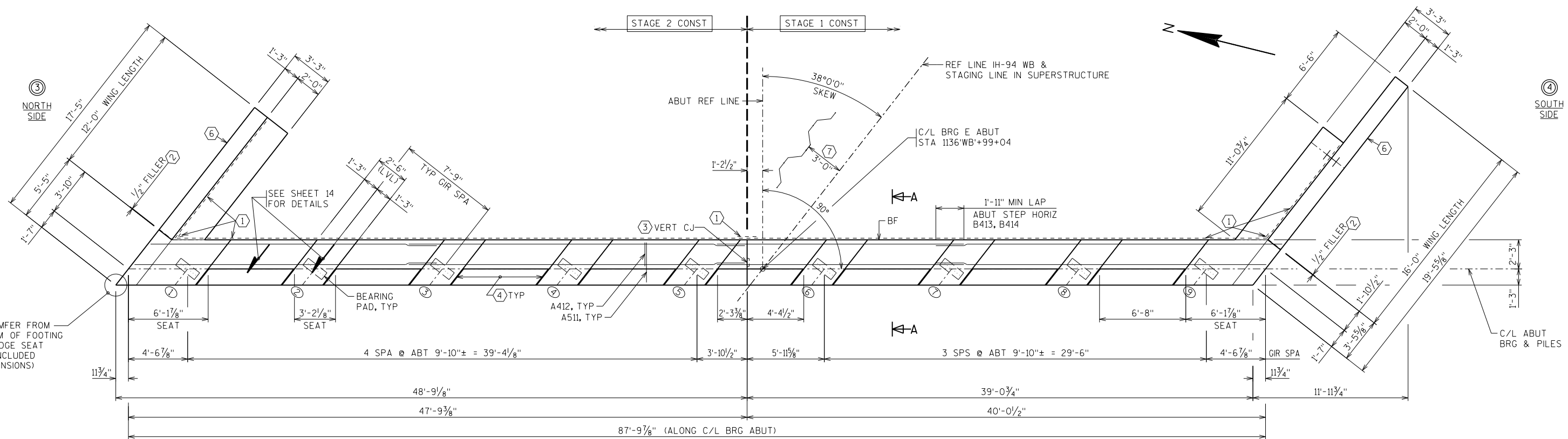
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CKD. NCK
WEST ABUTMENT WING 2			SHEET 9 OF 37

STAGE 2



FRONT ELEVATION
(PILES & SEAT KEYS NOT SHOWN FOR CLARITY)



PLAN

LEGEND

- * ELEVATIONS AND DIMENSIONS TAKEN ALONG C/L OF BRG & PILES EAST ABUTMENT.
- ① 18" RUBBERIZED MEMBRANE WATERPROOFING. SEAL ALL HORIZ & VERT JOINTS ON BACKFACE.
- ② 1/2" FILLER & SEALER EXTEND FROM BEAM SEAT TO TOP OF WING. INCLUDED IN WING LENGTH.
- ③ VERTICAL CONST JT KEYWAY FORMED BY A SURFACED BEVELED 2"x8". BEVEL EXPOSED EDGES 3/4". FOR ALTERNATE CONST JT DETAILS SEE SHEET 15.
- ④ 3/4" CORK FILLER ON VERTICAL BEAM SEAT FACES THAT RUN PARALLEL WITH GIRDER.
- ⑤ USE 1-B504 AT EACH PILE.
- ⑥ SEE WING DETAILS SHEET FOR WING PLANS AND REINF.
- ⑦ SEE BRIDGE TRAFFIC STAGING PLANS.
- ⊙ INDICATES WING NUMBER.
- INDICATES GIRDER LINE.
- SEAT SLOPE DIRECTION MEASURED ALONG C/L GIRDER
- W ABUT = WEST ABUTMENT
E ABUT = EAST ABUTMENT
- BAR MARKS 'A' = WEST ABUT BARS
BAR MARKS 'B' = EAST ABUT BARS
- FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE
T = TOP
B = BOTTOM
EXIST = EXISTING
BETW = BETWEEN
LVL = LEVEL
UN = UNLESS NOTED OTHERWISE
- ⊙ OPTIONAL CONST JOINT FORMED BY BEVELED 2"x6" (V-GROOVE ON FRONT FACE IF JOINT IS USED).
- ▣ PLACE BOTTOM HALF OF RUBBERIZED MEMBRANE WATERPROOFING HORIZ IN THIS AREA ON LEVEL PORTION.
- ⊗ 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"
- ▣ PIPE UNDERDRAIN WRAPPED (6-INCH) SLOPE 0.5% MIN TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE.
- ⊙ ATTACH RODENT SHIELD AT END OF PIPE UNDERDRAIN, SEE DETAIL ON SHEET 4. DISCHARGE WRAPPED PIPE UNDERDRAIN WELL OUTSIDE LIMITS OF THE STRUCTURE

ABUTMENT NOTES

DIMENSIONS ARE MEASURED ALONG C/L ABUT BRG UNLESS NOTED OTHERWISE.

SEAL ALL EXPOSED HORIZ. AND VERTICAL SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-ASPHALTIC JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE). FILLER INCLUDED IN WING LENGTH.

FOR TYPICAL ABUTMENT SECTION A-A SEE SHEET 14.

FOR PILE SPLICE DETAIL SEE SHEET 4.

FOR BEARING PAD DETAIL SEE SUPERSTRUCTURE SHEETS.

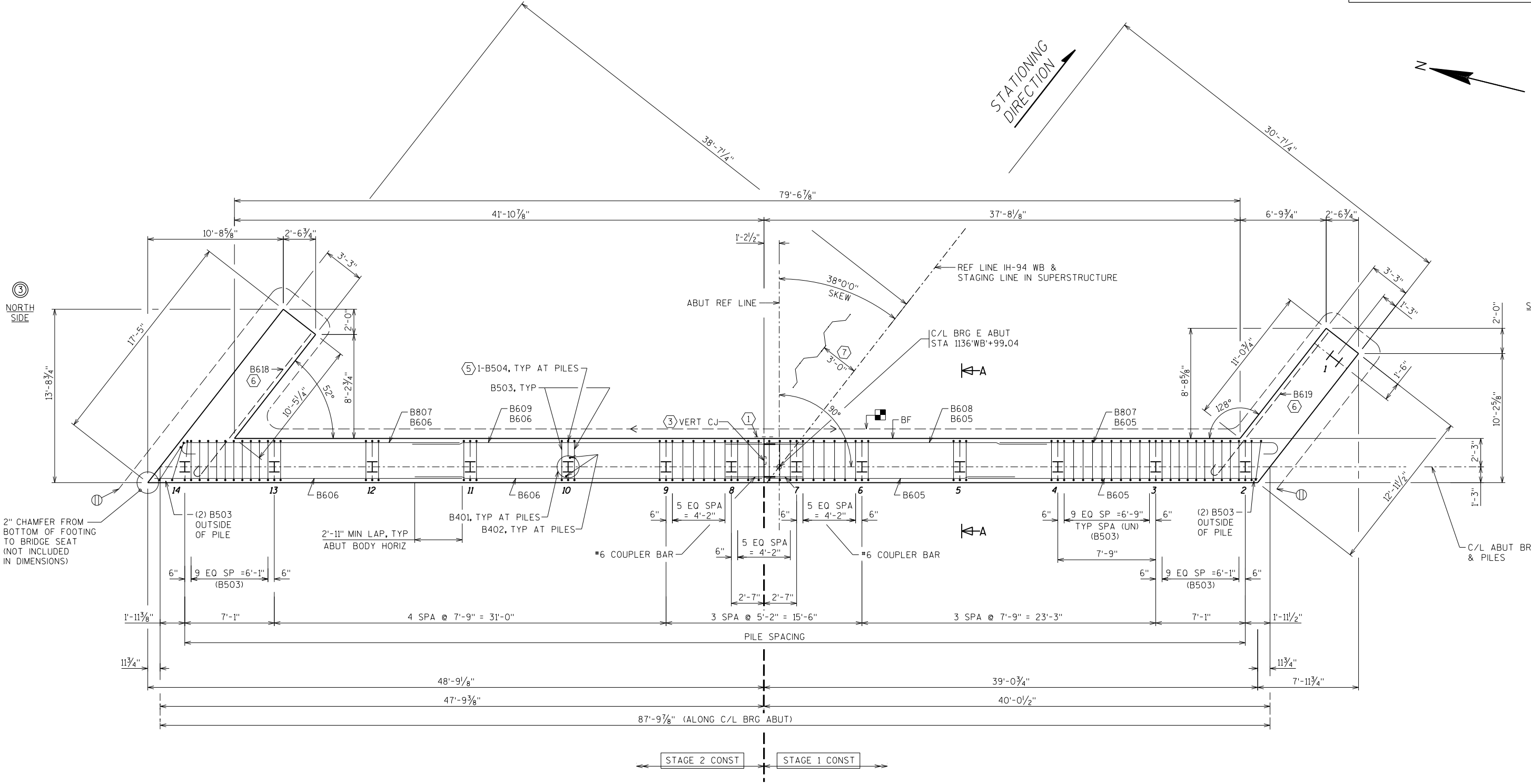
COST OF #6 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 6.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
EAST ABUTMENT			SHEET 10 OF 37

FILE NAME : S:\UZ\W\WIT\sw\1347215-f\final-dsgn\51-df\awings\20-Struct\B-28-185-185-dgn\28185a12345678.dgn
 PLOT DATE: 6/27/2022
 PLOT TIME: 12:33:11 PM

8

8



FOOTING & PILE LAYOUT

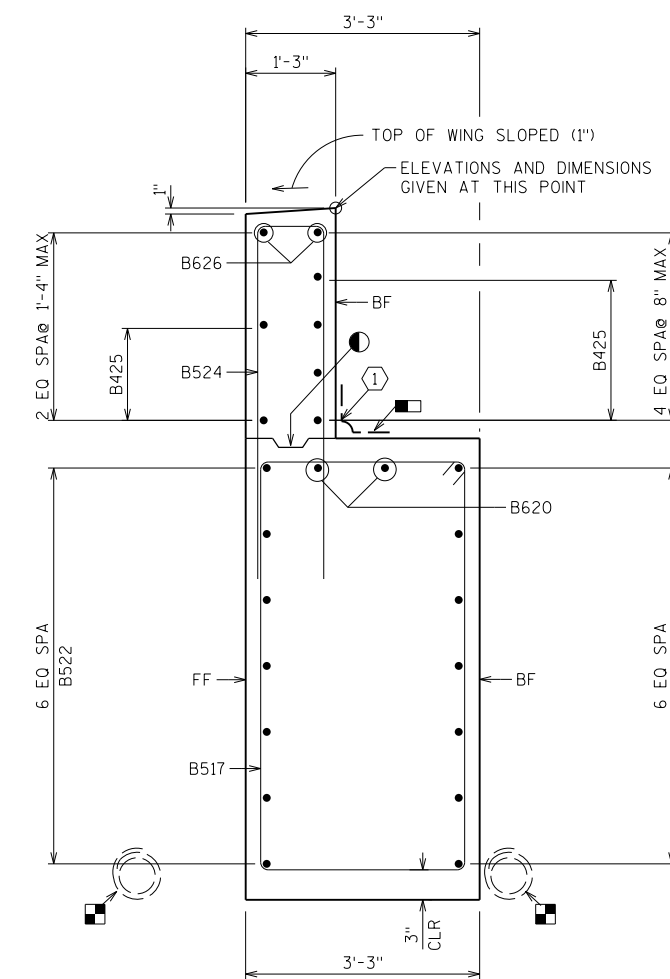
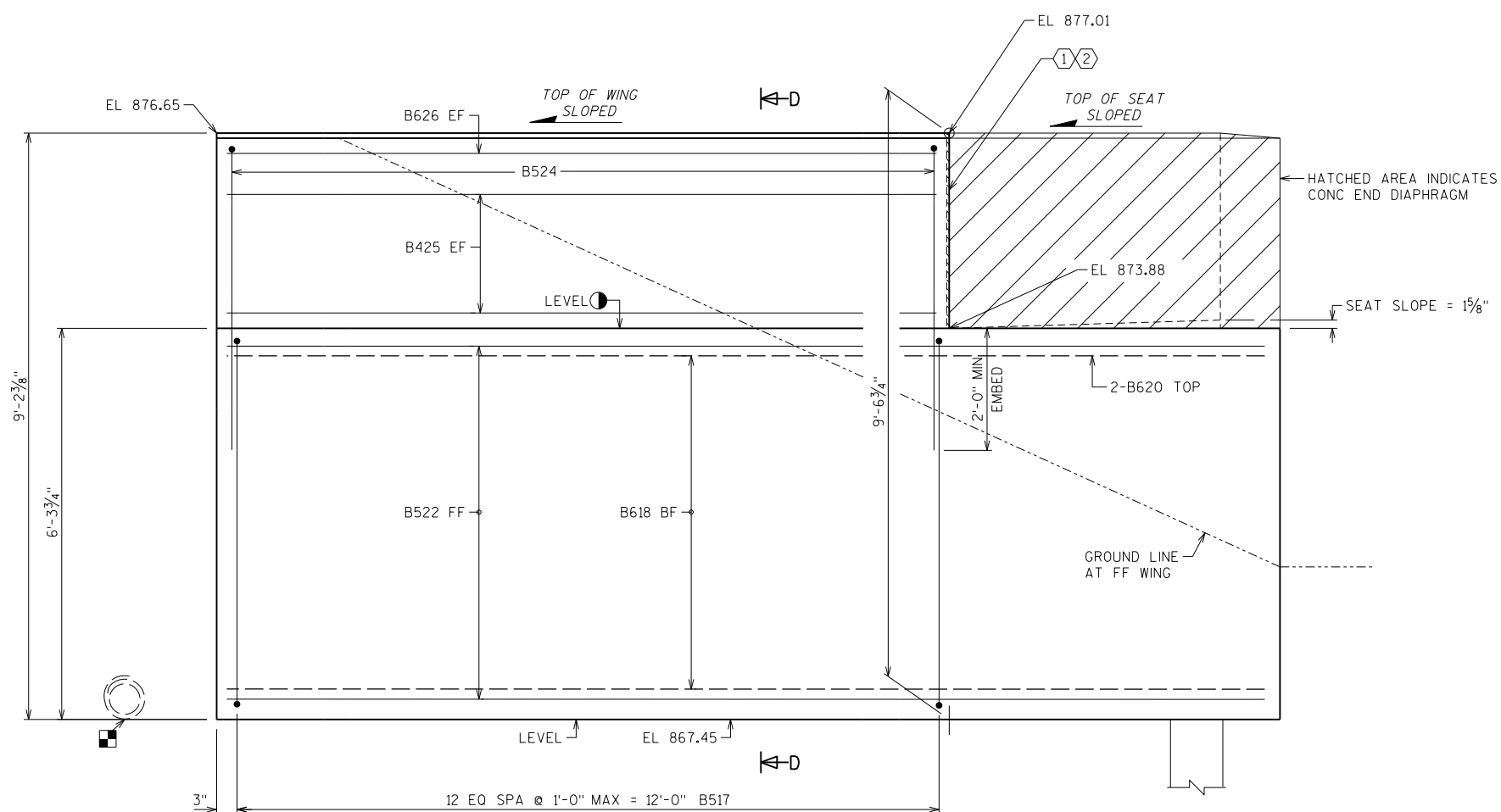
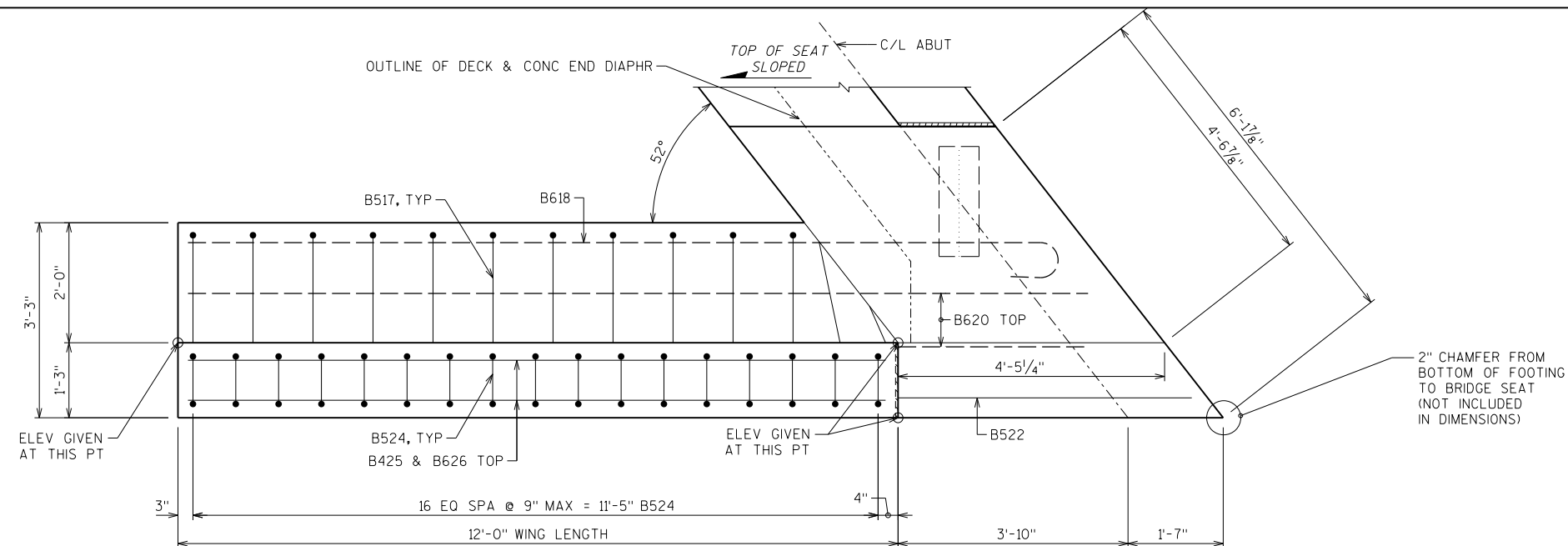
NOTES

SEE SHEET 10 FOR LEGEND AND ABUTMENT NOTES.
 SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CK'D. NCK	
EAST ABUTMENT			SHEET 11 OF 37

8

8

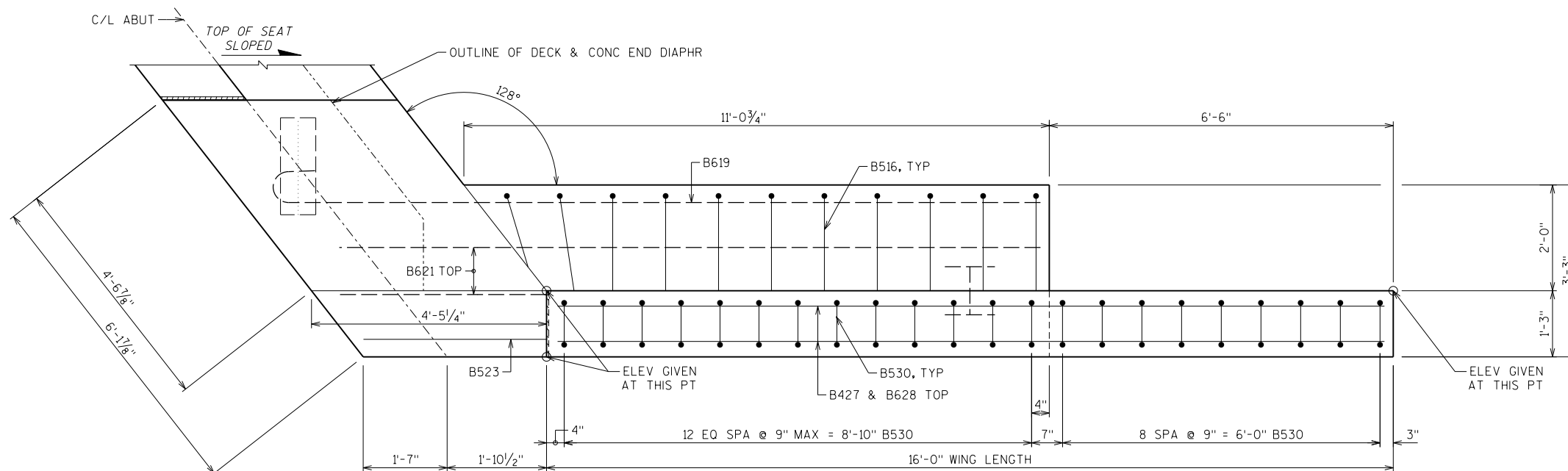


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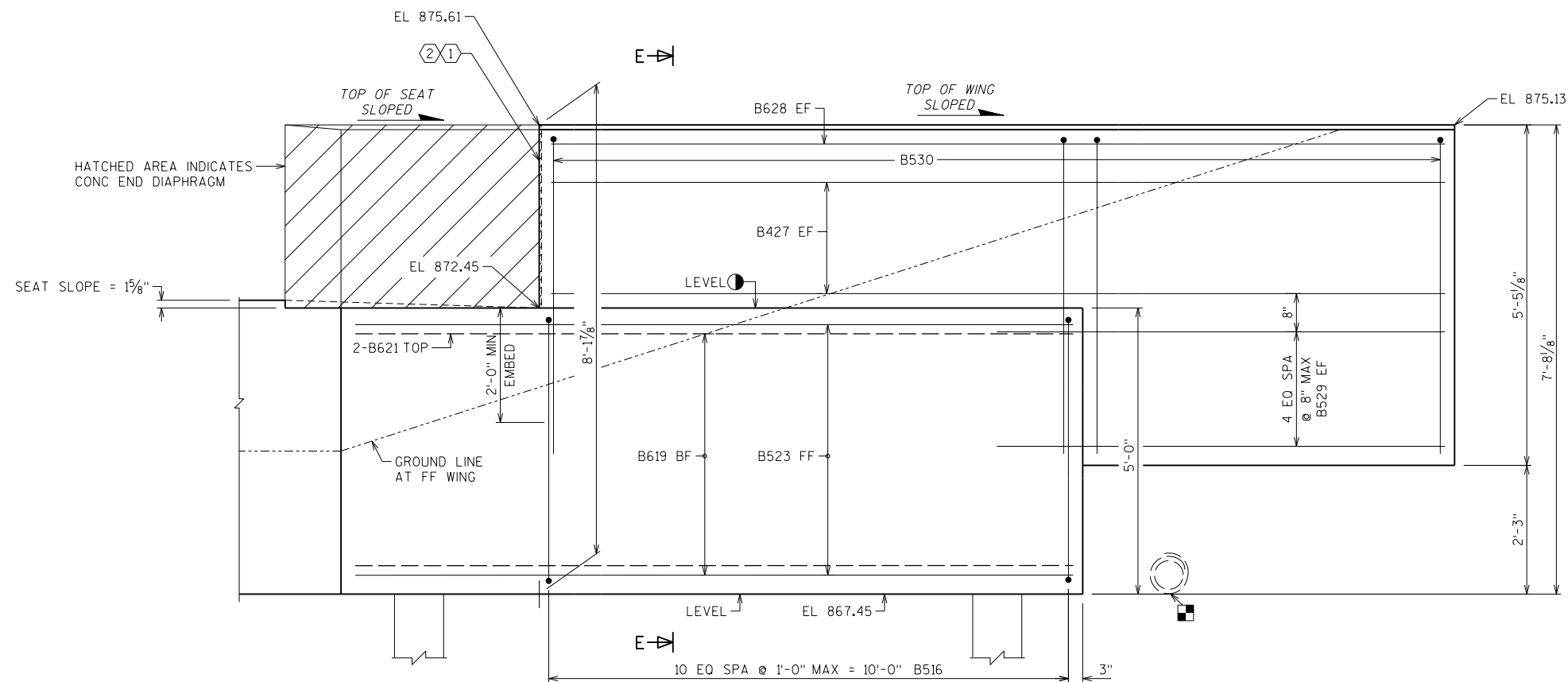
SEE SHEET 10 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CK'D. NCK
EAST ABUTMENT WING 3			SHEET 12 OF 37

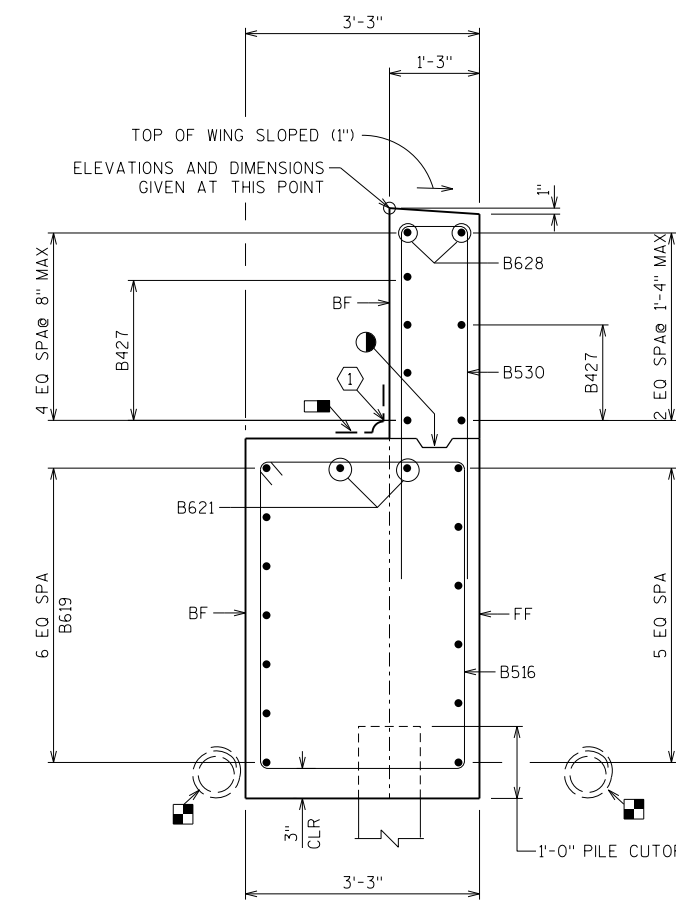
STAGE 2



WING 4 - PLAN



WING 4 - ELEVATION



SECTION E-E

NOTES

SEE SHEET 10 FOR LEGEND AND ABUTMENT NOTES.
SEE SHEET 14 FOR BILL OF BARS.

PLOT TIME: 12:33:13 PM

PLOT DATE: 6/27/2022

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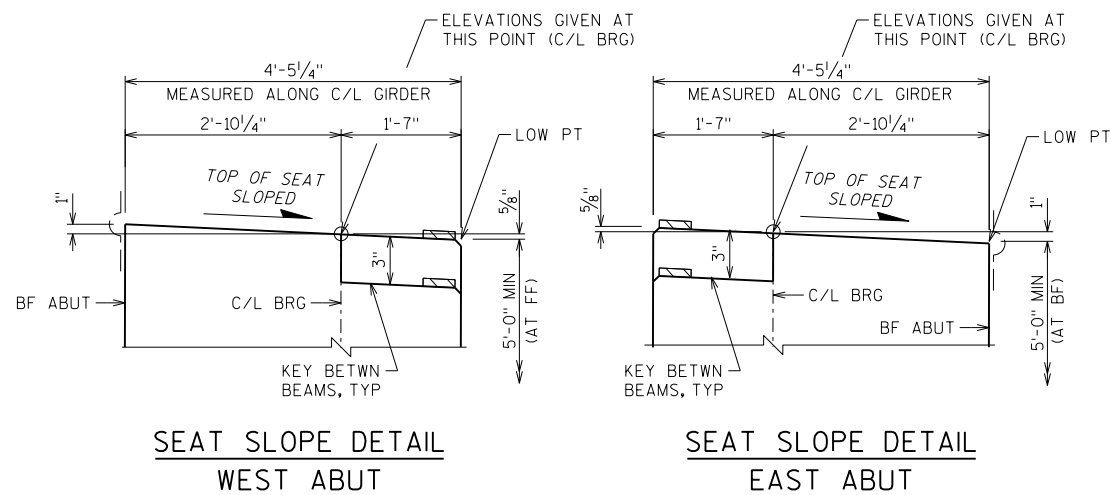
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CKD. NCK
EAST ABUTMENT WING 4			SHEET 13 OF 37

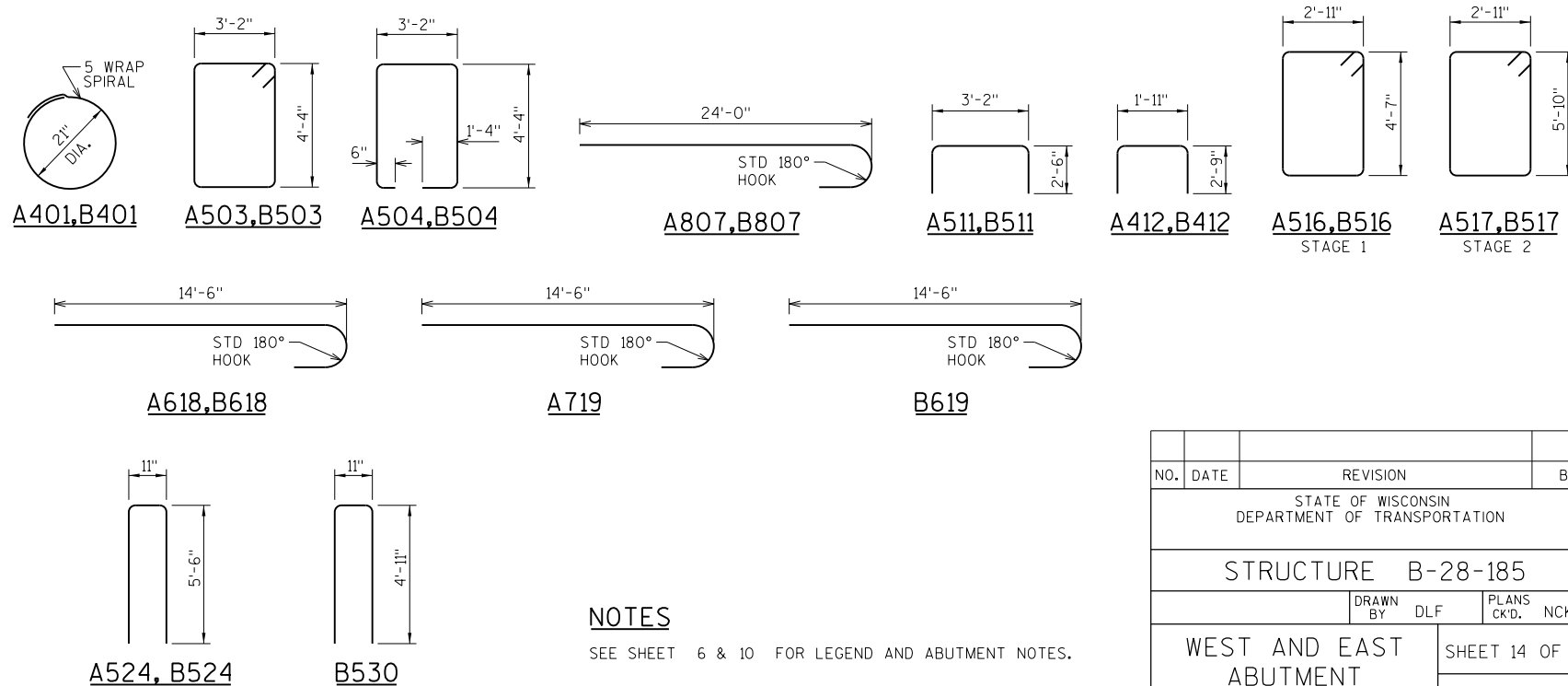
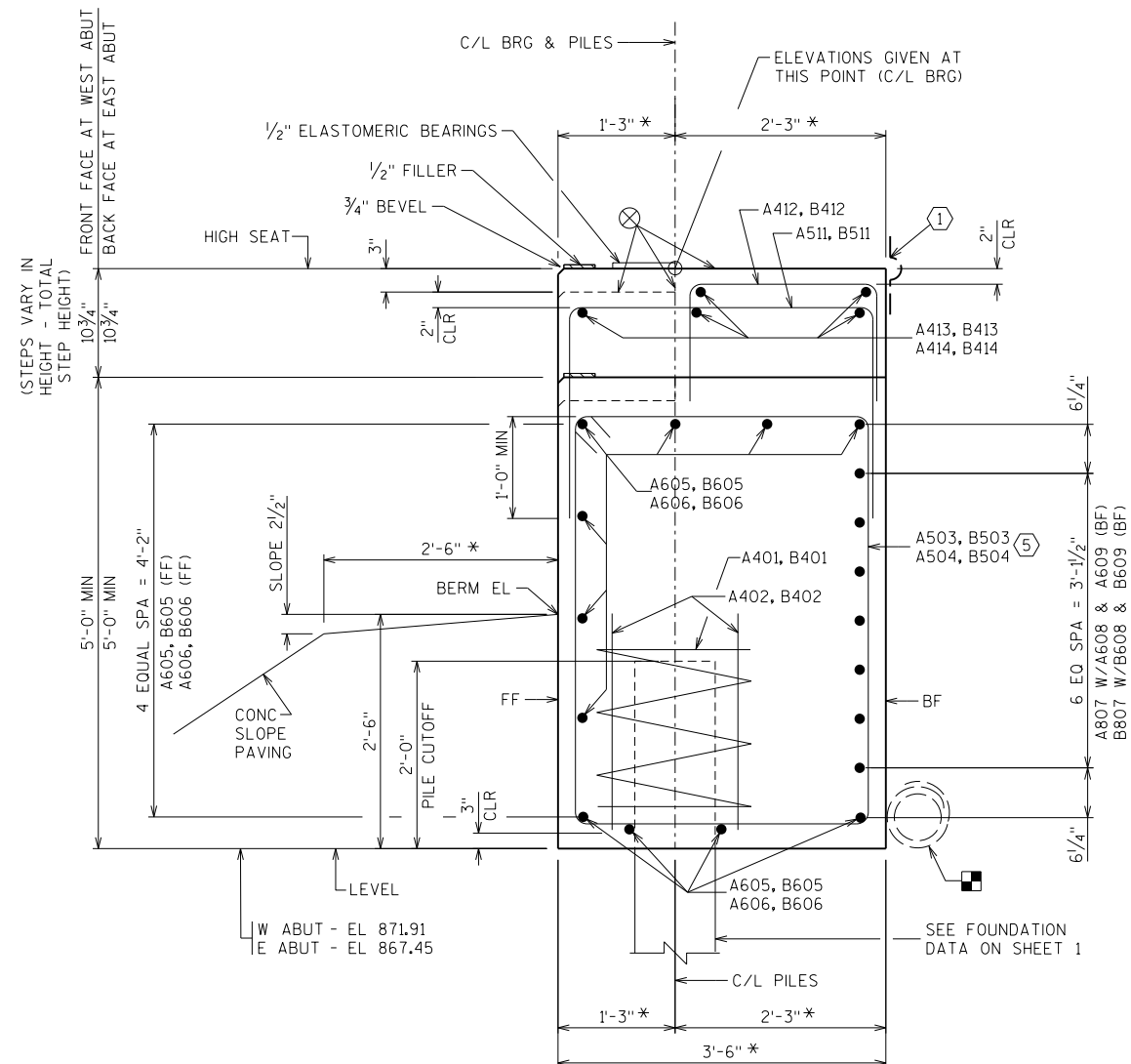
STAGE 1

NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.



BILL OF BARS WEST ABUTMENT									
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2	
A401		6	28 - 0		X	BODY AT PILES	X		
"		7	28 - 0		X	BODY AT PILES		X	
A402		12	2 - 3			BODY AT PILES	X		
"		14	2 - 3			BODY AT PILES		X	
A503		52	15 - 8		X	BODY STIRRUP	X		
"		60	15 - 8		X	BODY STIRRUP		X	
A504		6	13 - 2		X	BODY STIRRUP	X		
"		7	13 - 2		X	BODY STIRRUP		X	
A605		22	22 - 4			BODY HORIZ	X		
A606		22	24 - 6			BODY HORIZ		X	
A807		7	24 - 11		X	BODY HORIZ BF	X		
"		7	24 - 11		X	BODY HORIZ BF		X	
A608		7	21 - 8			BODY HORIZ BF	X		
A609		7	25 - 4			BODY HORIZ BF		X	
NOT USED									
A511		25	7 - 11		X	SEAT TIE	X		
"		46	7 - 11		X	SEAT TIE		X	
A412		26	7 - 3		X	KEY TIE	X		
"		31	7 - 3		X	KEY TIE		X	
A413		10	22 - 10			SEAT/KEY HORIZ	X		
A414		10	24 - 9			SEAT/KEY HORIZ		X	
NOT USED									
A516	X	13	15 - 8		X	WING 1 STIRRUP	X		
A517	X	11	18 - 2		X	WING 2 STIRRUP		X	
A618	X	7	15 - 2		X	WING 1 BF	X		
A719	X	7	15 - 4		X	WING 2 BF		X	
A620	X	2	15 - 0			WING 1 TOP	X		
A621	X	2	13 - 3			WING 2 TOP		X	
A522	X	6	16 - 10			WING 1 FF	X		
A523	X	7	12 - 6			WING 2 FF		X	
A524	X	17	11 - 8		X	WING 1 VERT	X		
"	X	22	11 - 8		X	WING 2 VERT		X	
A425	X	6	11 - 7			WING 1 HORIZ	X		
A626	X	2	11 - 7			WING 1 HORIZ TOP	X		
A427	X	6	15 - 7			WING 2 HORIZ		X	
A628	X	2	15 - 7			WING 2 HORIZ TOP		X	
A529	X	6	8 - 0			WING 2 HORIZ OVERHANG		X	

BILL OF BARS EAST ABUTMENT									
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2	
B401		6	28 - 0		X	BODY AT PILES	X		
"		7	28 - 0		X	BODY AT PILES		X	
B402		12	2 - 3			BODY AT PILES	X		
"		14	2 - 3			BODY AT PILES		X	
B503		51	15 - 8		X	BODY STIRRUP	X		
"		61	15 - 8		X	BODY STIRRUP		X	
B504		6	13 - 2		X	BODY STIRRUP	X		
"		7	13 - 2		X	BODY STIRRUP		X	
B605		22	22 - 4			BODY HORIZ	X		
B606		22	25 - 9			BODY HORIZ		X	
B807		7	24 - 11		X	BODY HORIZ BF	X		
"		7	24 - 11		X	BODY HORIZ BF		X	
B608		7	21 - 0			BODY HORIZ BF	X		
B609		7	26 - 0			BODY HORIZ BF		X	
NOT USED									
B511		25	7 - 11		X	SEAT TIE	X		
"		46	7 - 11		X	SEAT TIE		X	
B412		26	7 - 3		X	KEY TIE	X		
"		31	7 - 3		X	KEY TIE		X	
B413		10	23 - 2			SEAT/KEY HORIZ	X		
B414		10	25 - 6			SEAT/KEY HORIZ		X	
NOT USED									
B516	X	11	15 - 8		X	WING 4 STIRRUP	X		
B517	X	13	18 - 2		X	WING 3 STIRRUP		X	
B618	X	7	15 - 2		X	WING 3 BF		X	
B619	X	7	15 - 2		X	WING 4 BF	X		
B620	X	2	15 - 0			WING 3 TOP		X	
B621	X	2	13 - 3			WING 4 TOP	X		
B522	X	7	16 - 10			WING 3 FF		X	
B523	X	6	12 - 6			WING 4 FF	X		
B524	X	17	11 - 8		X	WING 3 VERT	X		
B425	X	6	11 - 7			WING 3 HORIZ		X	
B626	X	2	11 - 7			WING 3 HORIZ TOP		X	
B427	X	6	15 - 7			WING 4 HORIZ		X	
B628	X	2	15 - 7			WING 4 HORIZ TOP		X	
B529	X	6	8 - 0			WING 4 HORIZ OVERHANG	X		
B530	X	22	10 - 6		X	WING 4 VERT		X	



NOTES

SEE SHEET 6 & 10 FOR LEGEND AND ABUTMENT NOTES.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CK'D. NCK	
WEST AND EAST ABUTMENT DETAILS			SHEET 14 OF 37

PLOT TIME: 12:33:14 PM

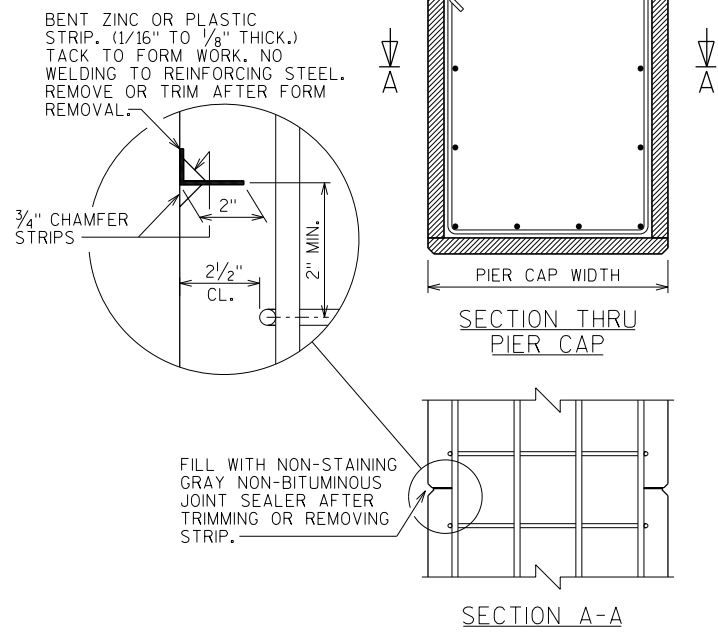
PLOT DATE: 6/27/2022

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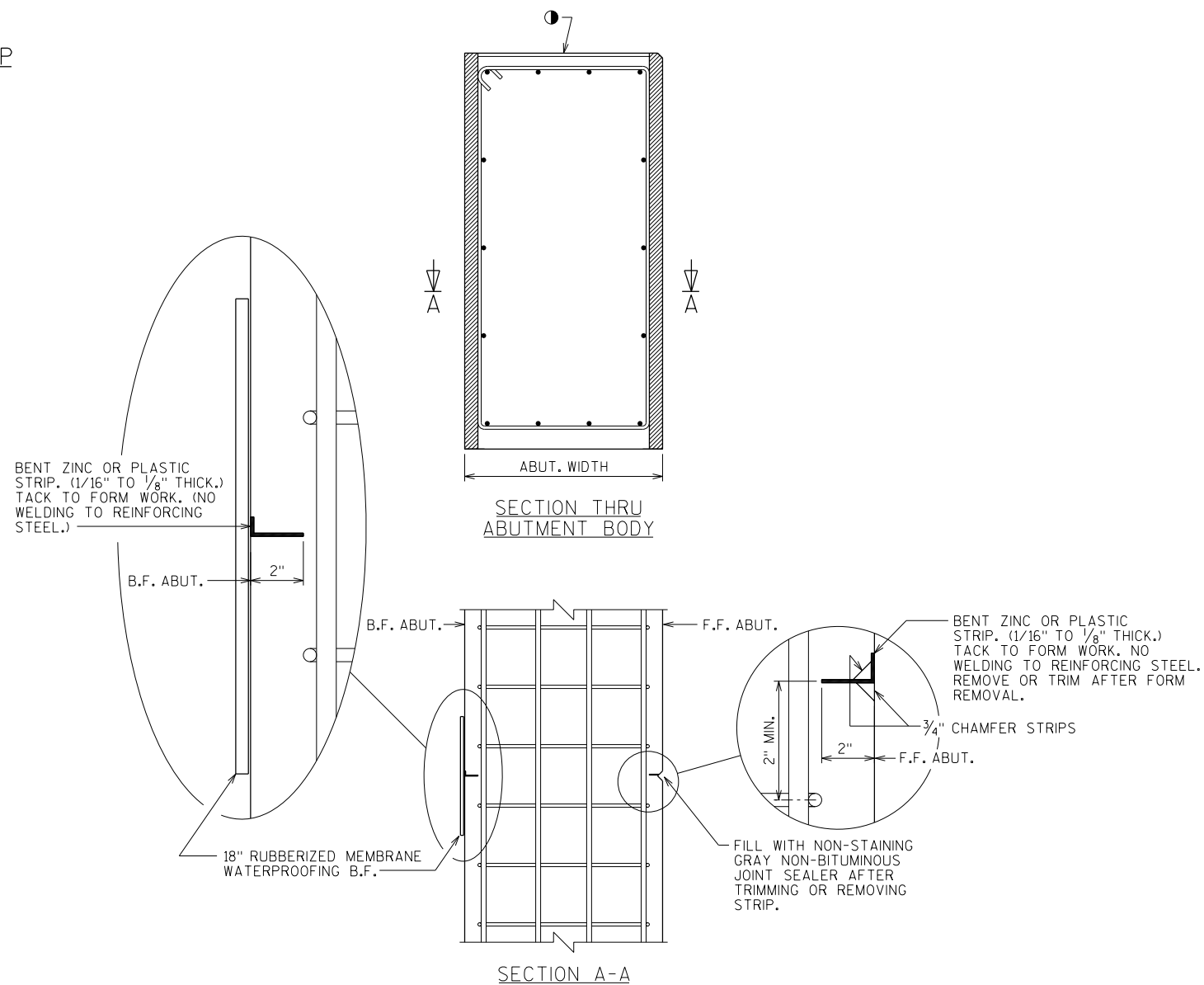
8

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* DIMENSIONS ARE TAKEN NORMAL TO C/L SUBSTRUCTURE UNITS



ALTERNATE CONSTRUCTION JOINT AT PIER CAP



ALTERNATE CONSTRUCTION JOINT AT ABUTMENT

NOTES

PARTIAL ZINC OR PLASTIC BULKHEAD MAY BE USED AS ALTERNATE CONSTRUCTION JOINT, WITH THE PERMISSION OF THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

VERTICAL CONSTRUCTION JOINT KEYWAY IS NOT REQUIRED WHEN USING ALTERNATE CONSTRUCTION JOINT.

CARE IS TO BE USED IN CASTING CONCRETE AROUND BULKHEAD TO PREVENT DISLOCATION OR MISALIGNMENT OF THE BULKHEAD.

SAW CUTTING JOINT IS NOT ALLOWED.

● USE A JOINT TOOL TO CONSTRUCT A CONTRACTION JOINT APPROXIMATELY 1/2" DEEP.

PLOT TIME: 12:33:45 PM

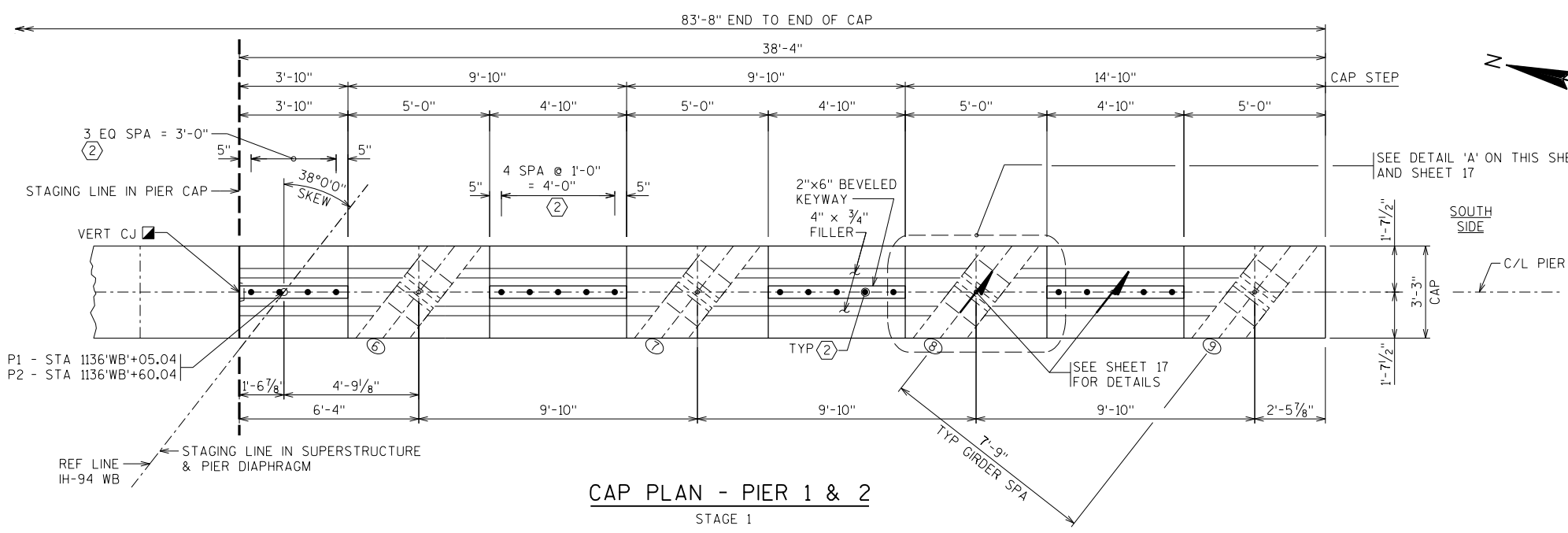
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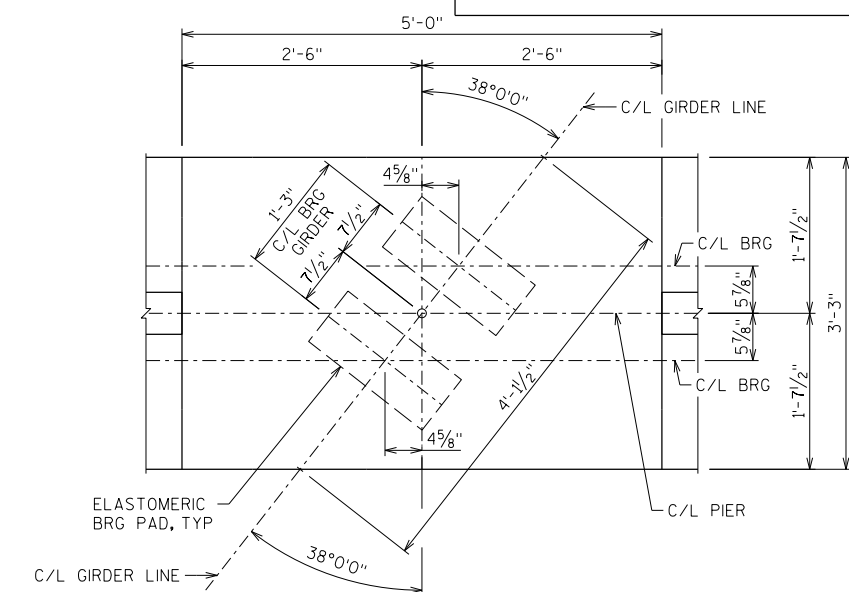
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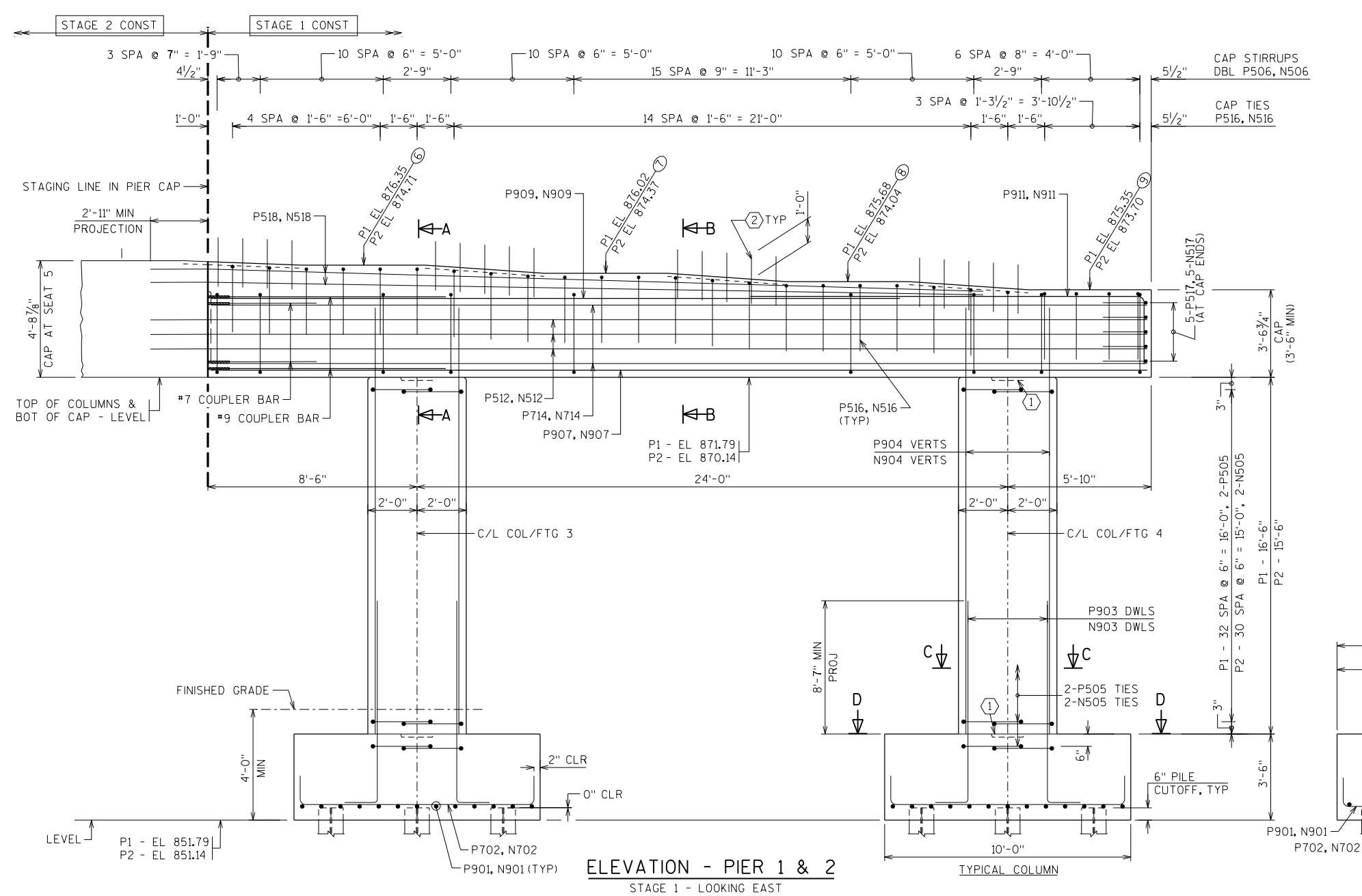
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CKD. NCK
ALTERNATE CONSTRUCTION JOINT			SHEET 15 OF 37



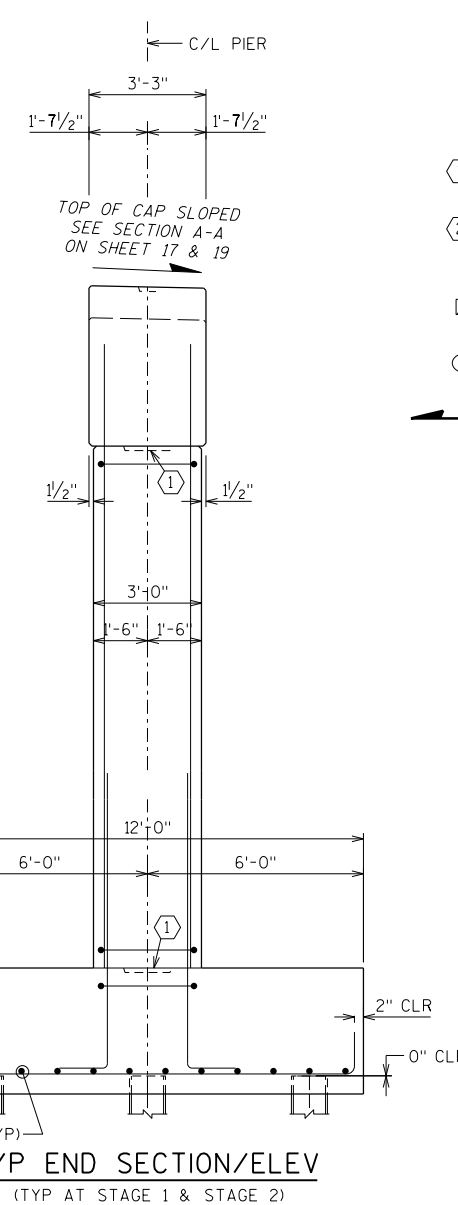
CAP PLAN - PIER 1 & 2
STAGE 1



DETAIL A
TYPICAL GIRDER SEAT LAYOUT



ELEVATION - PIER 1 & 2
STAGE 1 - LOOKING EAST



TYP END SECTION/ELEV
(TYP AT STAGE 1 & STAGE 2)

PIER NOTES & LEGEND

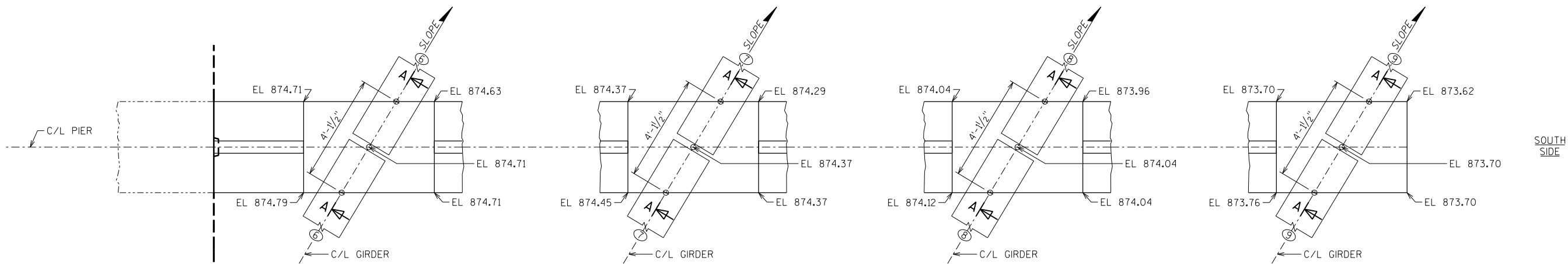
- TEMPORARY SHORING NOT SHOWN FOR CLARITY.
- SEE SHEET 20 FOR SECTION A-A, B-B, C-C & D-D.
- ① 1'-3" SQUARE X 2" DEEP HORIZ CONST JOINT FORMED BY BEVELED KEYWAY.
- ② P520, N520 DOWEL BARS @ 12" MAX. SPACING - MAY BE PLACED AFTER CONC IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- ▣ VERTICAL CONST JOINT KEYWAY FORMED BY A BEVELED 2 X 8.
- INDICATES NEW GIRDER LINE ELEVATION TAKEN AT C/L PIER AND C/L GIRDER.
- ➔ SEAT SLOPE DIRECTION MEASURED ALONG C/L GIRDER.
- COST OF #7 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 7.
- COST OF #9 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 9.
- P1 = PIER 1
P2 = PIER 2
BAR MARKS 'P' = PIER 1 BARS
BAR MARKS 'N' = PIER 2 BARS
FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE
T = TOP
B = BOTTOM
EXIST = EXISTING
BETW = BETWEEN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 STAGE 1			SHEET 16 OF 37

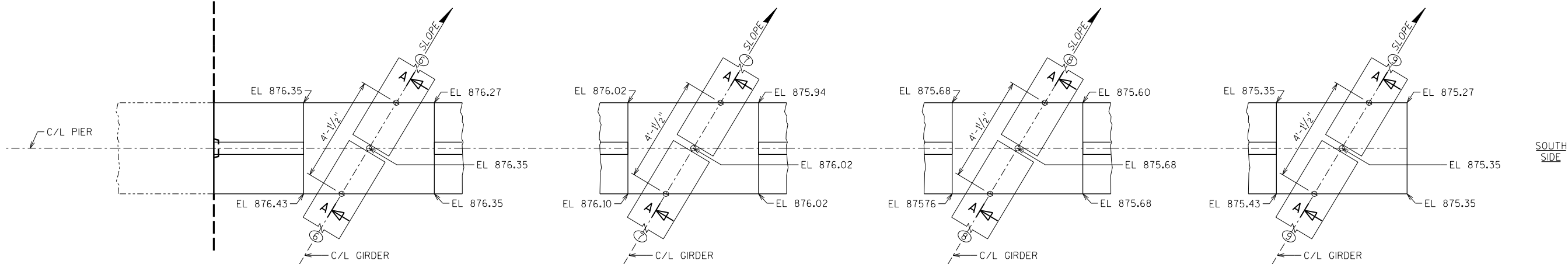
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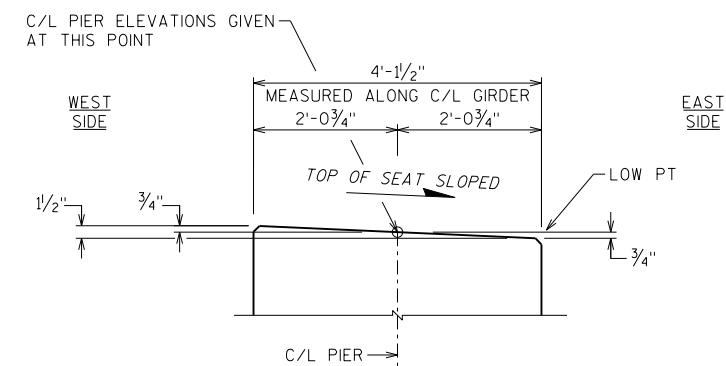
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PIER 2
STAGE 1



PIER 1
STAGE 1

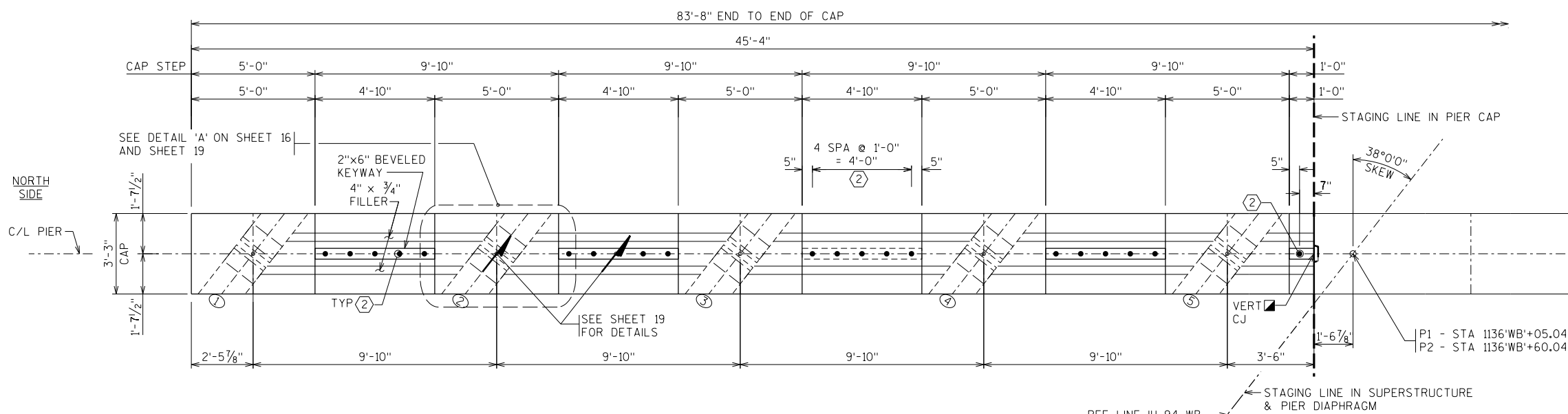


SECTION A-A
SEAT SLOPE DETAIL

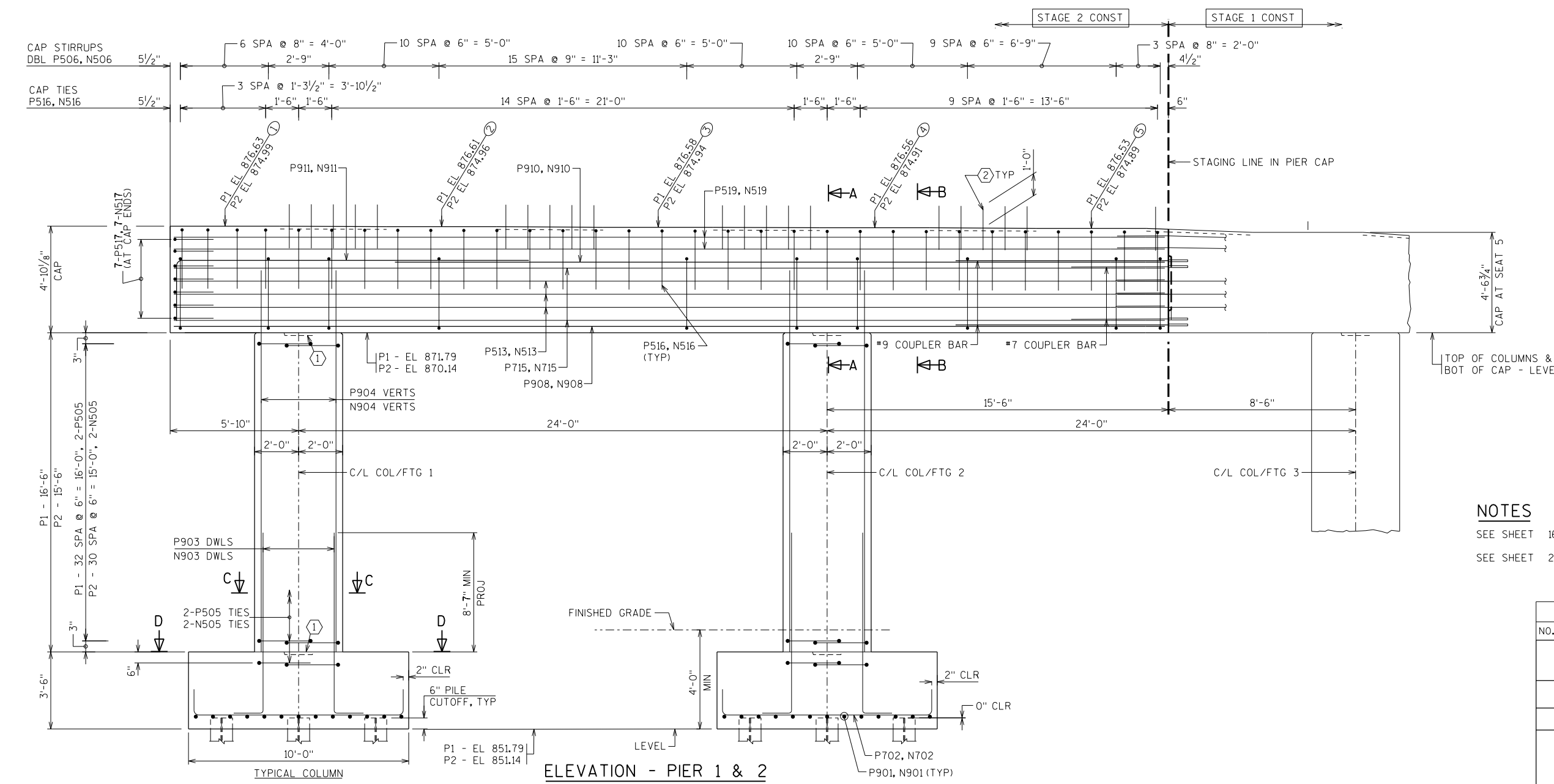
NOTES

SEE SHEET 16 FOR PIER NOTES & LEGEND.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 STAGE 1 CAP ELEVATIONS			SHEET 17 OF 37



CAP PLAN - PIER 1 & 2
STAGE 2



NOTES

- SEE SHEET 16 FOR PIER NOTES & LEGEND.
- SEE SHEET 20 FOR SECTION A-A, B-B, C-C & D-D.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 STAGE 2			SHEET 18 OF 37

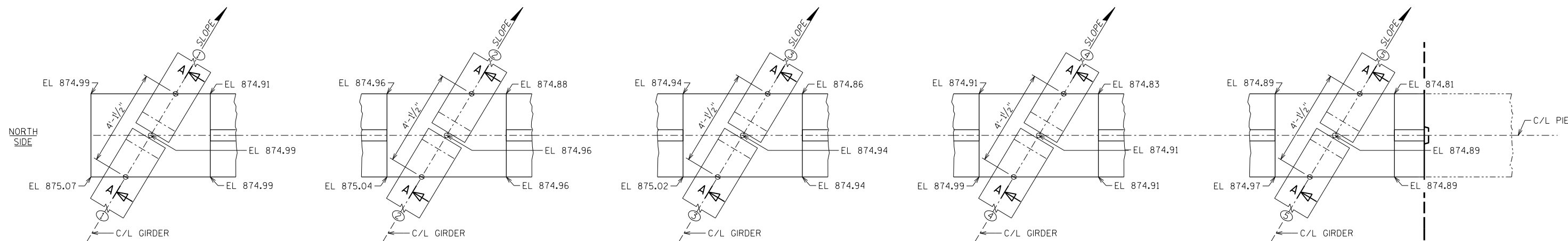
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PLOT DATE: 6/27/2022

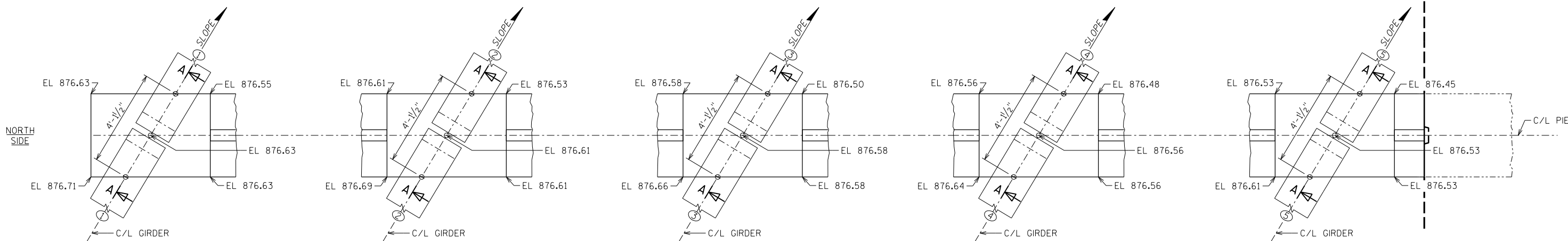
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8

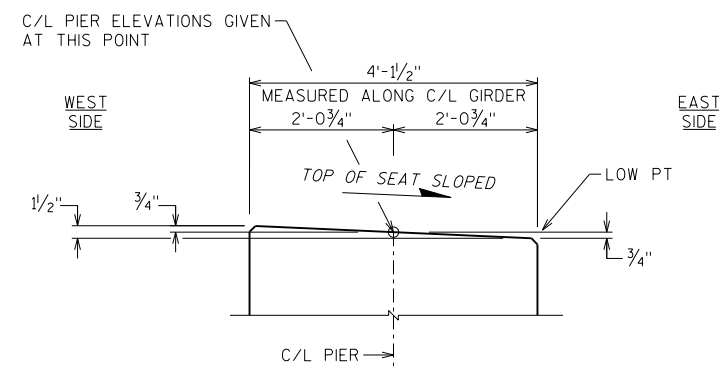
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PIER 2
STAGE 2



PIER 1
STAGE 2



SECTION A-A
SEAT SLOPE DETAIL

NOTES

SEE SHEET 16 FOR PIER NOTES & LEGEND.

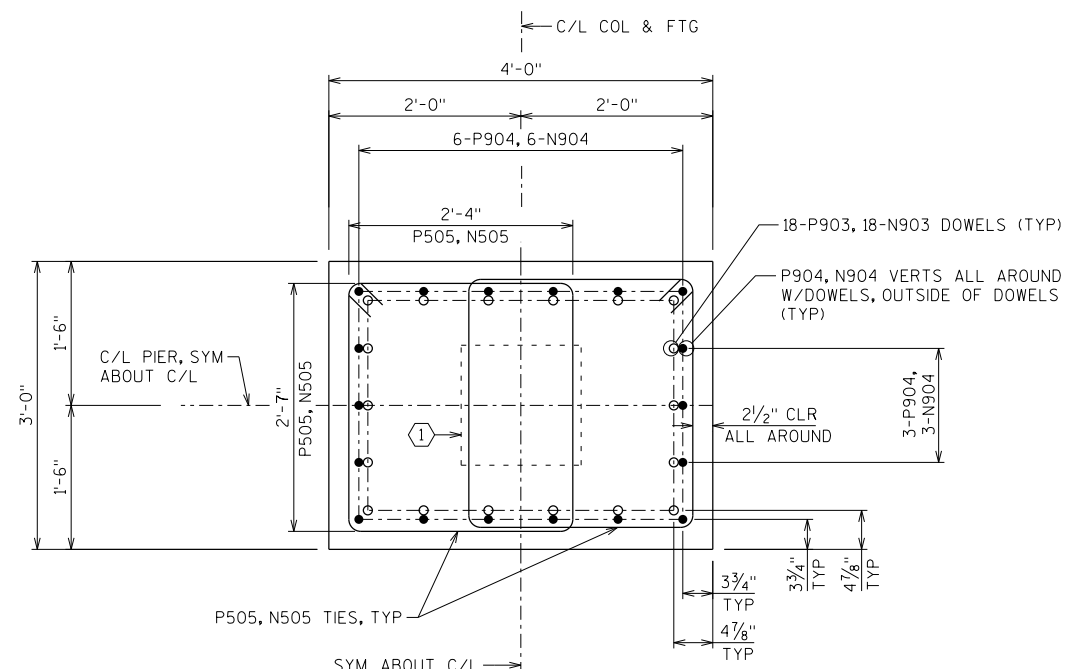
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 STAGE 2 CAP ELEVATIONS			SHEET 19 OF 37

NOTES

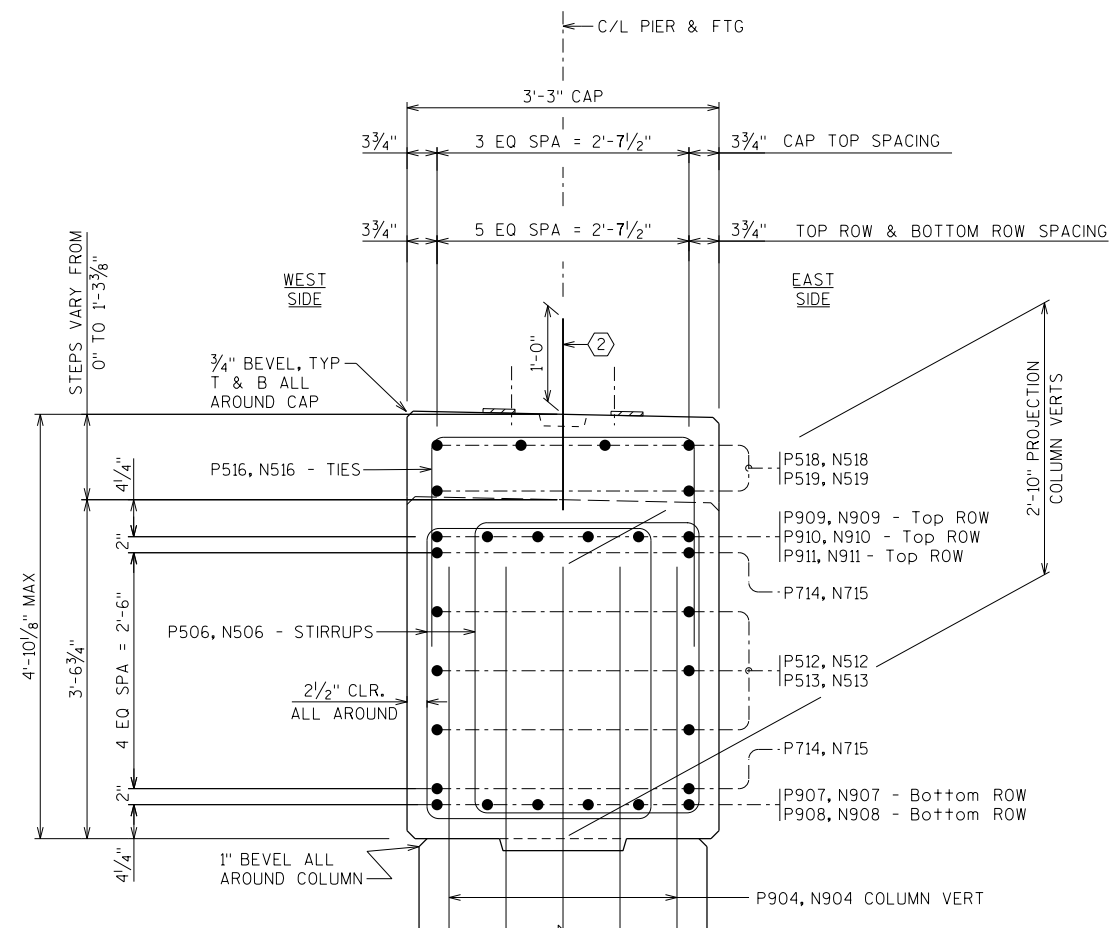
SEE SHEET 16 FOR PIER NOTES & LEGEND.

▲ PROVIDE AT LEAST ONE 5" MINIMUM CLEARANCE GAP BETWEEN REINFORCING BARS FOR CONCRETE PLACEMENT BY TREMIE AND FOR VIBRATION

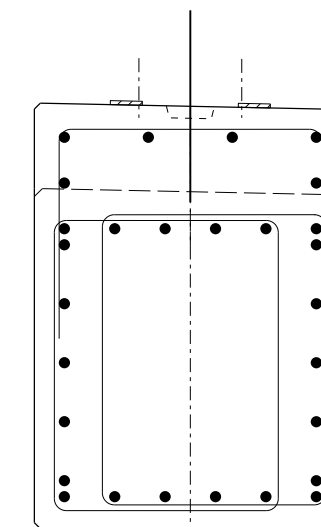
NOTE: THIS SECTION SIMILAR TO SECTION A-A



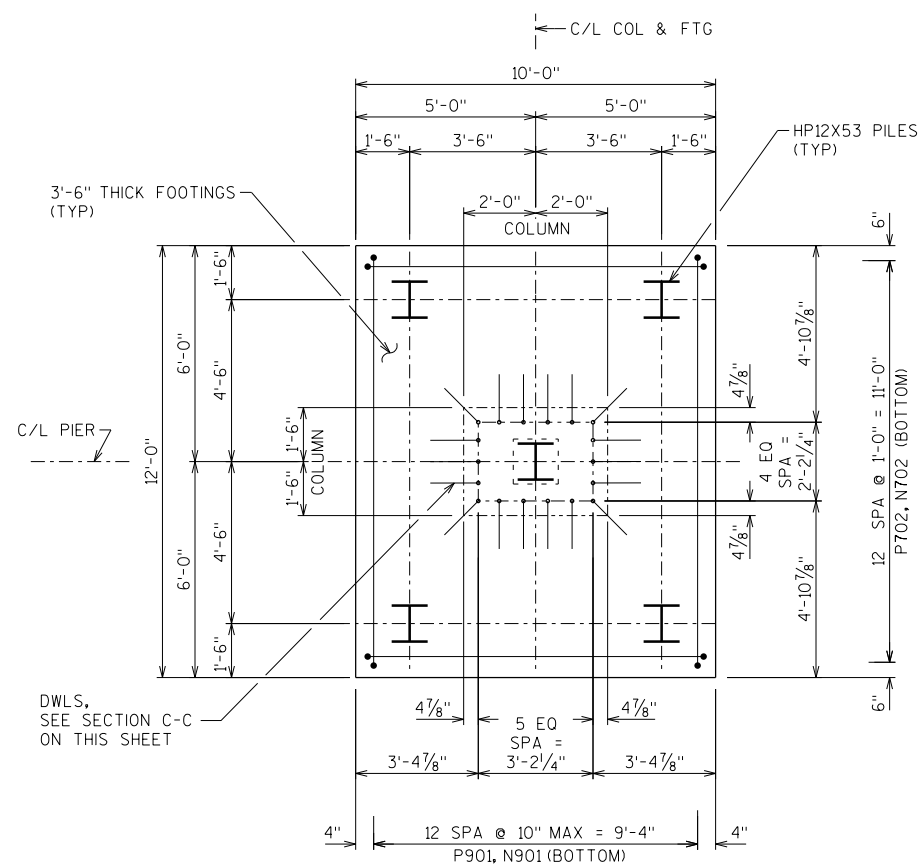
**SECTION C-C
TYPICAL COLUMN**



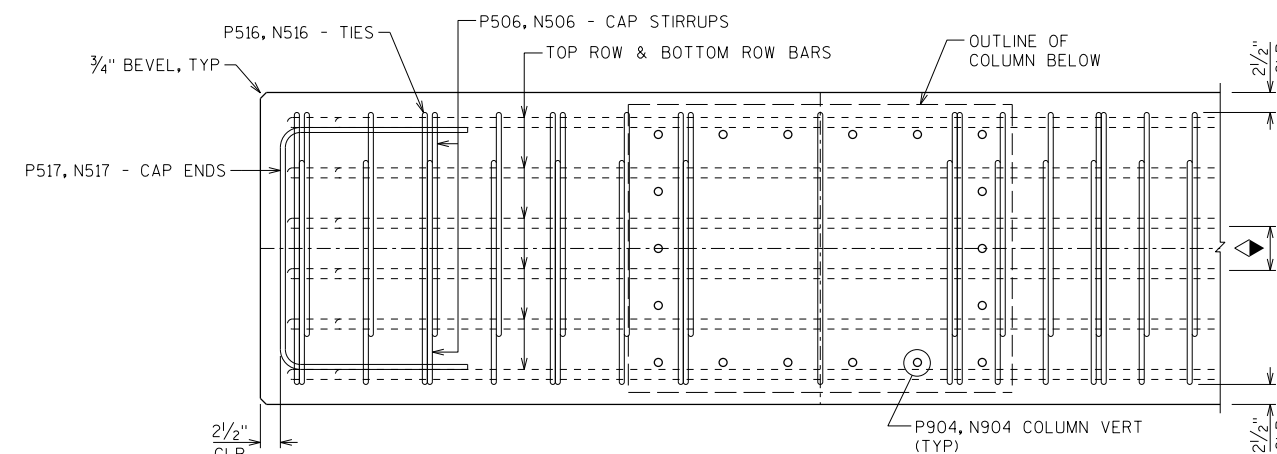
**SECTION A-A
AT COLUMNS**



**SECTION B-B
IN SPAN**



**SECTION D-D
TYPICAL PILE AND FOOTING PLAN**

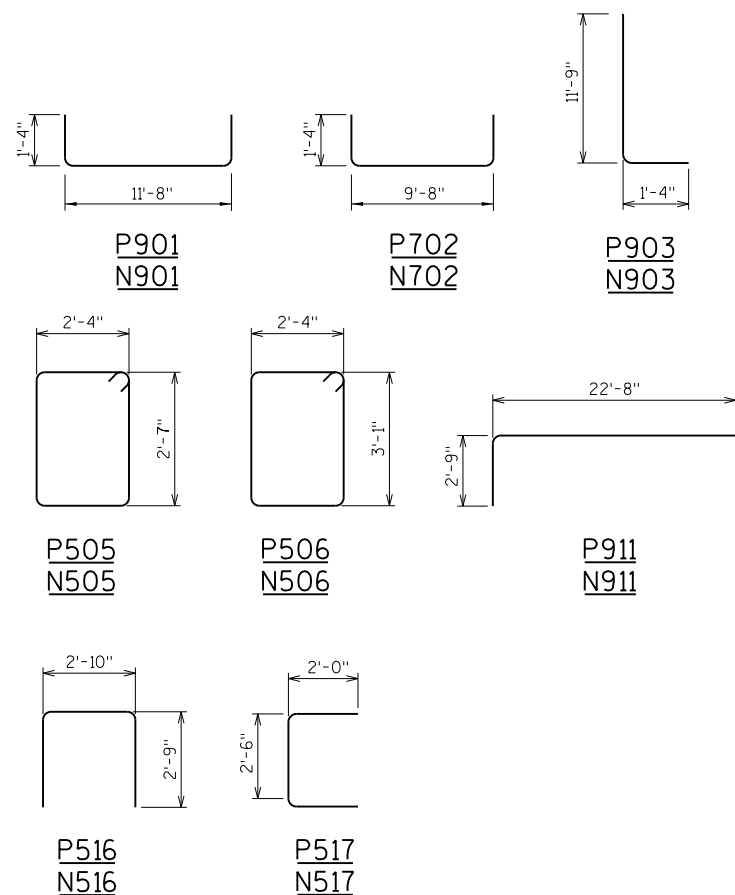


**PARTIAL CAP PLAN
TYPICAL
(SHOWN AT CAP ENDS & COLUMN)**

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 DETAILS			SHEET 20 OF 37

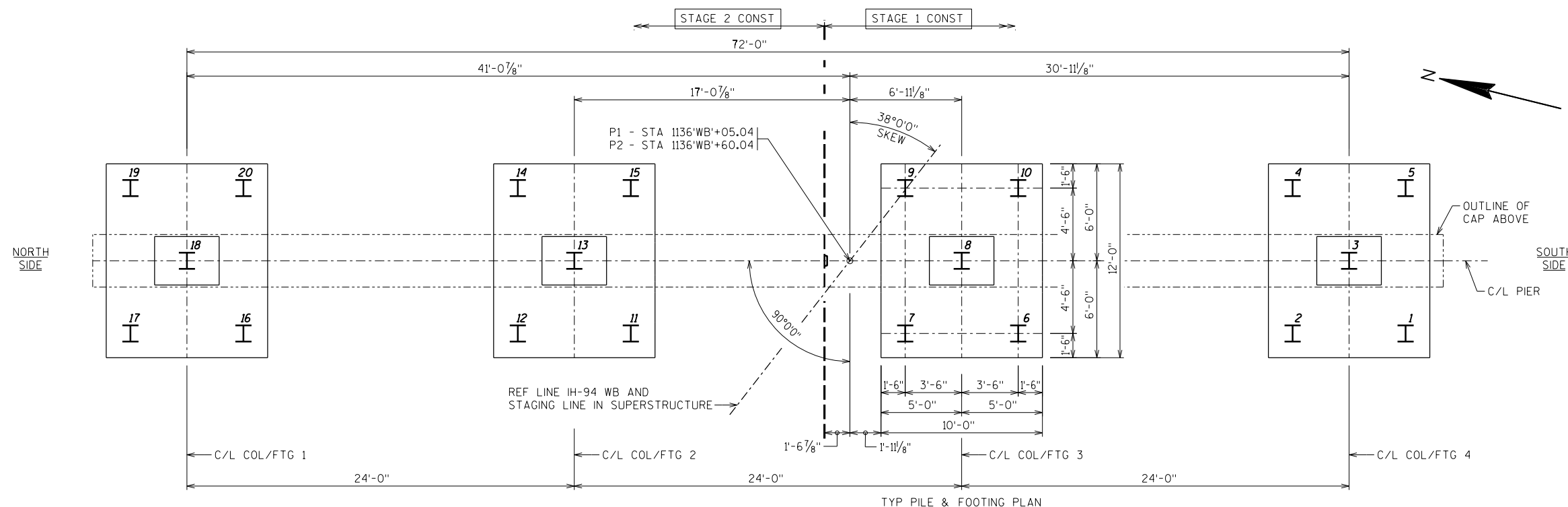
NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

BAR COUPLER NOTE:
SEE MISCELLANEOUS TYPICAL DETAILS SHEET FOR MORE INFORMATION.



BILL OF BARS						PIER 1		
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
P901		26	13 - 10		X	FTG B	X	
"		26	13 - 10		X	FTG B		X
P702		26	12 - 0		X	FTG B	X	
"		26	12 - 0		X	FTG B		X
P903	X	36	12 - 10		X	FTG DOWEL	X	
"	X	36	12 - 10		X	FTG DOWEL		X
P904	X	36	19 - 4			COL VERT	X	
"	X	36	19 - 4			COL VERT		X
P505	X	136	10 - 6		X	COL HOOP	X	
"	X	136	10 - 6		X	COL HOOP		X
P506	X	114	11 - 6		X	CAP STIRRUPS	X	
"	X	132	11 - 6		X	CAP STIRRUPS		X
P907	X	6	38 - 2			CAP HORIZ - Bottom Row	X	
P908	X	6	45 - 0			CAP HORIZ - Bottom Row		X
P909	X	6	25 - 8			CAP HORIZ -Top Row	X	
P910	X	6	32 - 8			CAP HORIZ -Top Row		X
P911	X	6	25 - 2		X	CAP HORIZ -Top Row	X	
"	X	6	25 - 2		X	CAP HORIZ -Top Row		X
P512	X	6	41 - 0			CAP HORIZ - Sides	X	
P513	X	6	45 - 6			CAP HORIZ - Sides		X
P714	X	4	38 - 2			CAP HORIZ - Sides	X	
P715	X	4	45 - 0			CAP HORIZ - Sides		X
P516	X	26	8 - 1		X	CAP TIE	X	
"	X	31	8 - 1		X	CAP TIE		X
P517	X	5	6 - 3		X	CAP ENDS	X	
"	X	7	6 - 3		X	CAP ENDS		X
P518	X	6	34 - 0			CAP TOP	X	
P519	X	6	45 - 6			CAP TOP		X
P520	X	19	2 - 0			DIAPHRAGM DOWEL	X	
"	X	21	2 - 0			DIAPHRAGM DOWEL		X

BILL OF BARS						PIER 2		
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
N901		26	13 - 10		X	FTG B	X	
"		26	13 - 10		X	FTG B		X
N702		26	12 - 0		X	FTG B	X	
"		26	12 - 0		X	FTG B		X
N903	X	36	12 - 10		X	FTG DOWEL	X	
"	X	36	12 - 10		X	FTG DOWEL		X
N904	X	36	18 - 4			COL VERT	X	
"	X	36	18 - 4			COL VERT		X
N505	X	128	10 - 6		X	COL HOOP	X	
"	X	128	10 - 6		X	COL HOOP		X
N506	X	114	11 - 6		X	CAP STIRRUPS	X	
"	X	132	11 - 6		X	CAP STIRRUPS		X
N907	X	6	38 - 2			CAP HORIZ - Bottom Row	X	
N908	X	6	45 - 0			CAP HORIZ - Bottom Row		X
N909	X	6	25 - 8			CAP HORIZ -Top Row	X	
N910	X	6	32 - 8			CAP HORIZ -Top Row		X
N911	X	6	25 - 2		X	CAP HORIZ -Top Row	X	
"	X	6	25 - 2		X	CAP HORIZ -Top Row		X
N512	X	6	41 - 0			CAP HORIZ - Sides	X	
N513	X	6	45 - 6			CAP HORIZ - Sides		X
N714	X	4	38 - 2			CAP HORIZ - Sides	X	
N715	X	4	45 - 0			CAP HORIZ - Sides		X
N516	X	26	8 - 1		X	CAP TIE	X	
"	X	31	8 - 1		X	CAP TIE		X
N517	X	5	6 - 3		X	CAP ENDS	X	
"	X	7	6 - 3		X	CAP ENDS		X
N518	X	6	34 - 0			CAP TOP	X	
N519	X	6	45 - 6			CAP TOP		X
N520	X	19	2 - 0			DIAPHRAGM DOWEL	X	
"	X	21	2 - 0			DIAPHRAGM DOWEL		X



TYPICAL PILE AND FOOTING LAYOUT
(PIER 1 & PIER 2)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
PIER 1 & 2 DETAILS			SHEET 21 OF 37

NOTES

TOP OF GIRDER TO BE ROUGH FLOATED AND BROOMED TRANSVERSELY, EXCEPT THE OUTSIDE 2" OF GIRDER, WHICH SHALL RECEIVE A SMOOTH FINISH. AN APPROVED CONCRETE SEALER SHALL BE APPLIED TO ALL SMOOTH SURFACES INCLUDING THE OUTSIDE 2" 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. 503.3.3 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.

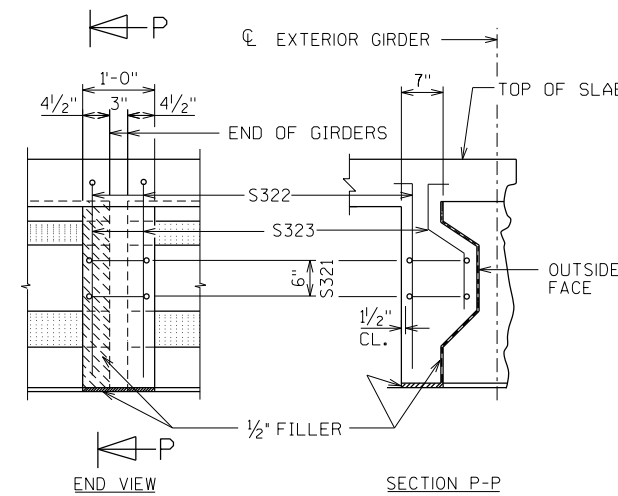
SPACING SHOWN FOR #4 STIRRUPS IS FOR GRADE 60 REINFORCEMENT.

AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWF) ASTM A1064 MAY BE SUBSTITUTED FOR THE STIRRUP REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.

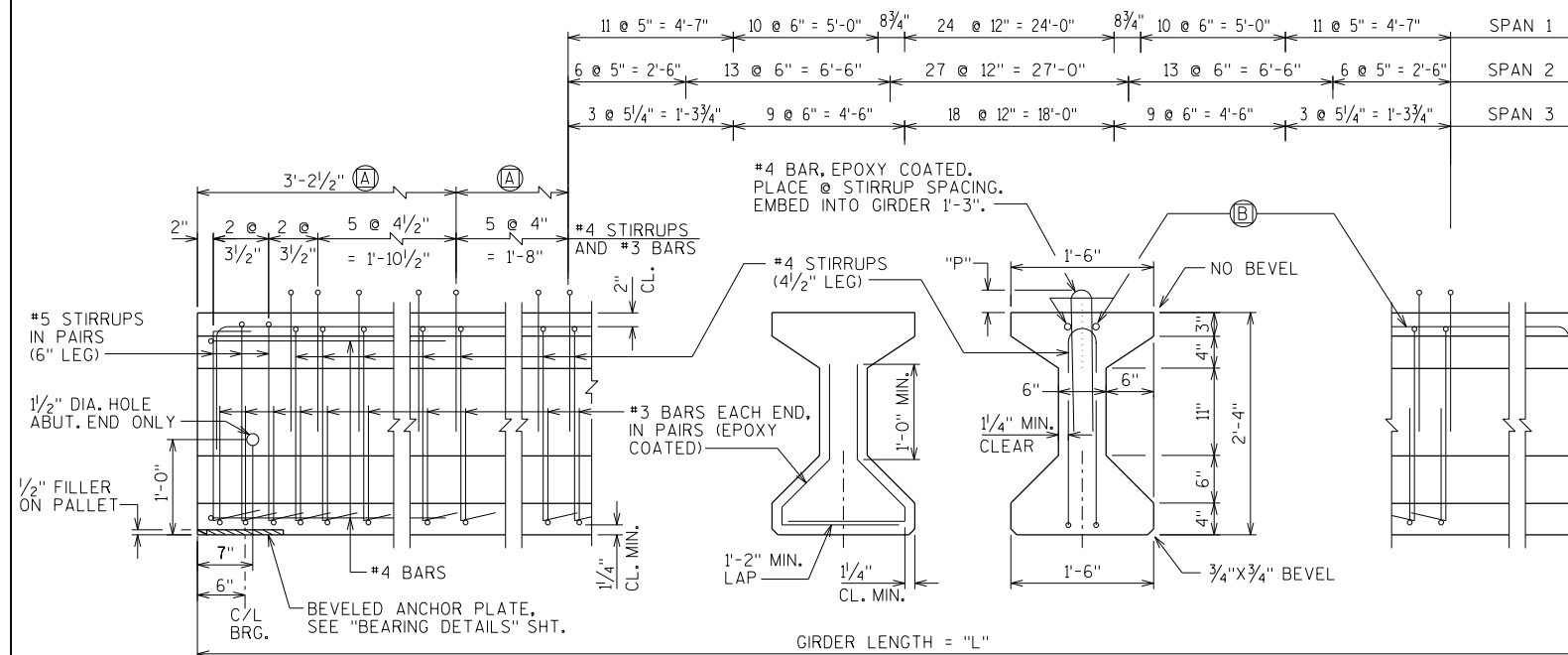
PRESTRESSING STRANDS SHALL BE (0.5" DIA.)-7 WIRE LOW-RELAXATION STRANDS WITH AN ULTIMATE STRENGTH OF 270,000 PSI.

BEND EACH END OF #4 STIRRUPS 4 1/2" AND #5 STIRRUPS 6".

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

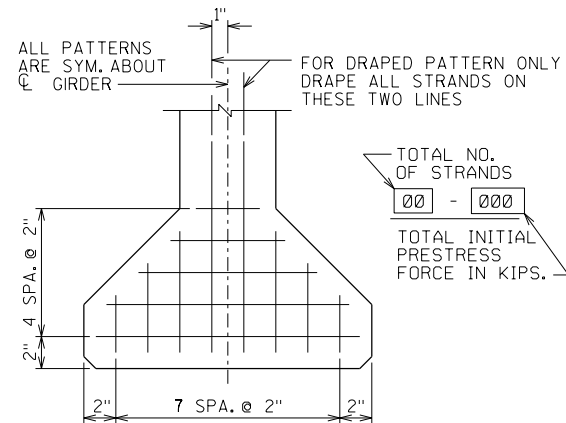


PILASTER DETAILS AT PIERS

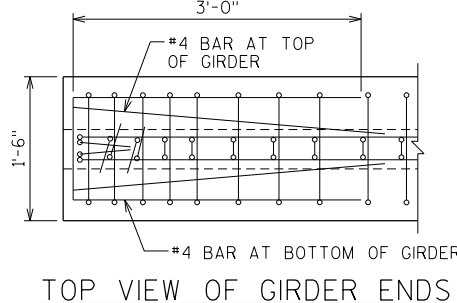


SIDE VIEW & TYPICAL SECTION IN SPAN

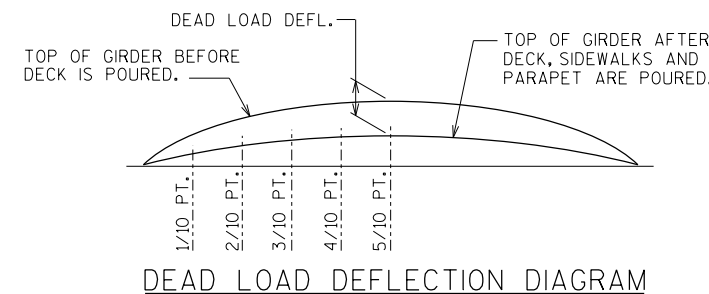
- (A) DETAIL TYP. AT EACH END
- (B) 2-#6 ALL BEAMS BEND DOWN 16 BAR DIA. AT ENDS



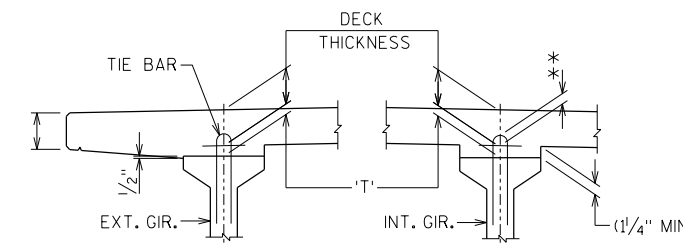
TYP. STRAND PATTERN



TOP VIEW OF GIRDER ENDS



DEAD LOAD DEFLECTION DIAGRAM



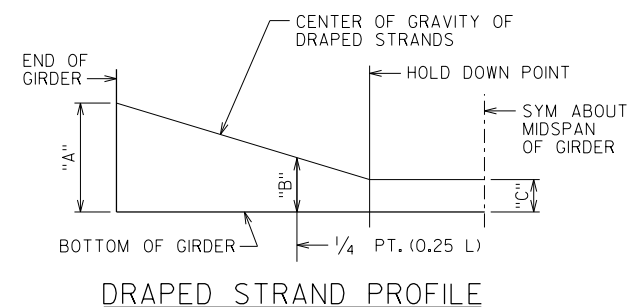
DECK HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN 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 2 1/4" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".



DRAPED STRAND PROFILE

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

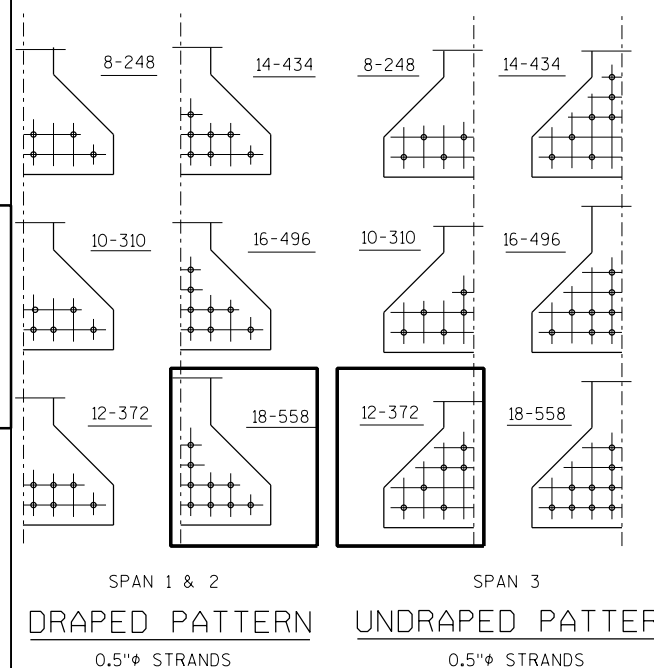
SPAN	CAMBER (IN.) *
1	1 1/2"
2	1 1/2"
3	5/8"

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

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

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 (IN.)				UNDRAPED PATTERN				
			1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10		9/10	10/10	1ST 1/3 OF GIRDER		MID 1/3 OF GIRDER	END 1/3 OF GIRDER	TOTAL NO. OF STRANDS	F'ci (P.S.I.) *	TOTAL NO. OF STRANDS	F'ci (P.S.I.) *			
1	ALL	54.375	1/4	1/2	3/4	7/8	7/8	7/8	3/4	1/2	1/4	7,500	6	6	6	0.5	18	6,500	23	9.5	12.5	5	-	-
2	ALL	54.750	1/4	1/2	3/4	7/8	7/8	7/8	3/4	1/2	1/4	7,500	6	6	6	0.5	18	6,500	23	9.5	12.5	5	-	-
3	ALL	39.375	1/8	1/8	1/4	1/4	1/4	1/4	1/4	1/8	1/8	7,500	6	6	6	0.5	-	-	-	-	-	-	12	6,500



DRAPED PATTERN UNDRAPED PATTERN

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
28" PRESTRESSED GIRDER DETAILS		SHEET 22 OF 37	

NOTES

ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-28-185", EACH.

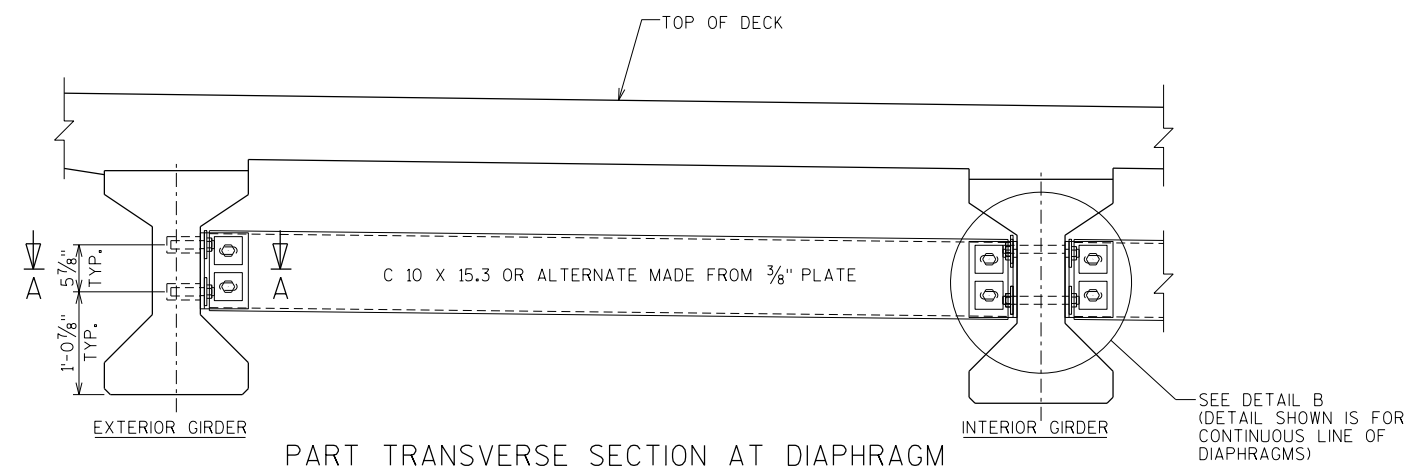
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

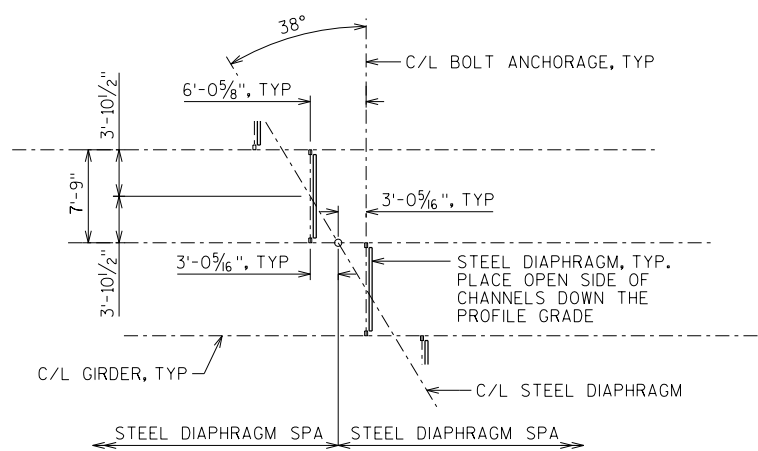
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

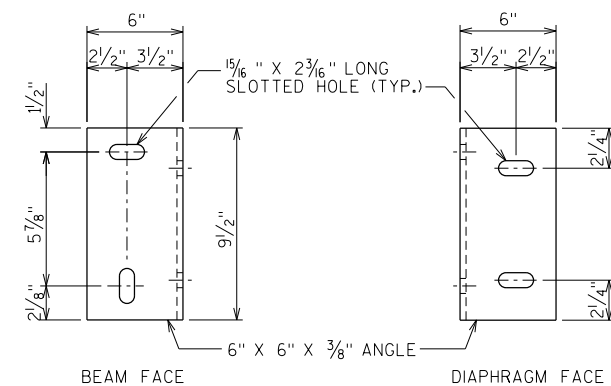
SEE SHEET 24 FOR INSERT LOCATION FROM END OF GIRDERS.



PART TRANSVERSE SECTION AT DIAPHRAGM

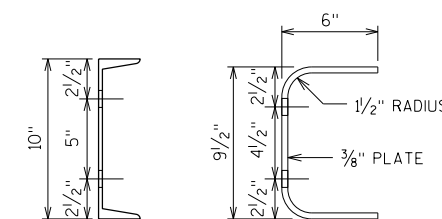


PARTIAL PLAN DIAPHRAGM LAYOUT



DIAPHRAGM SUPPORT

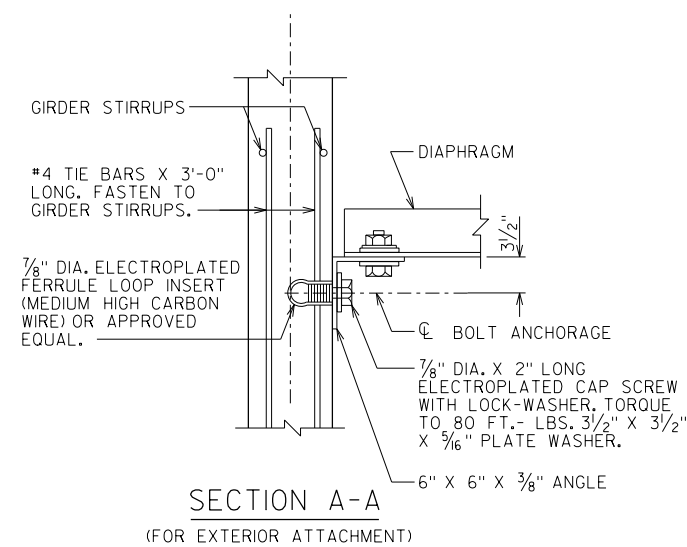
* 2 1/2" FOR ALTERNATE PLATE DIAPHRAGM



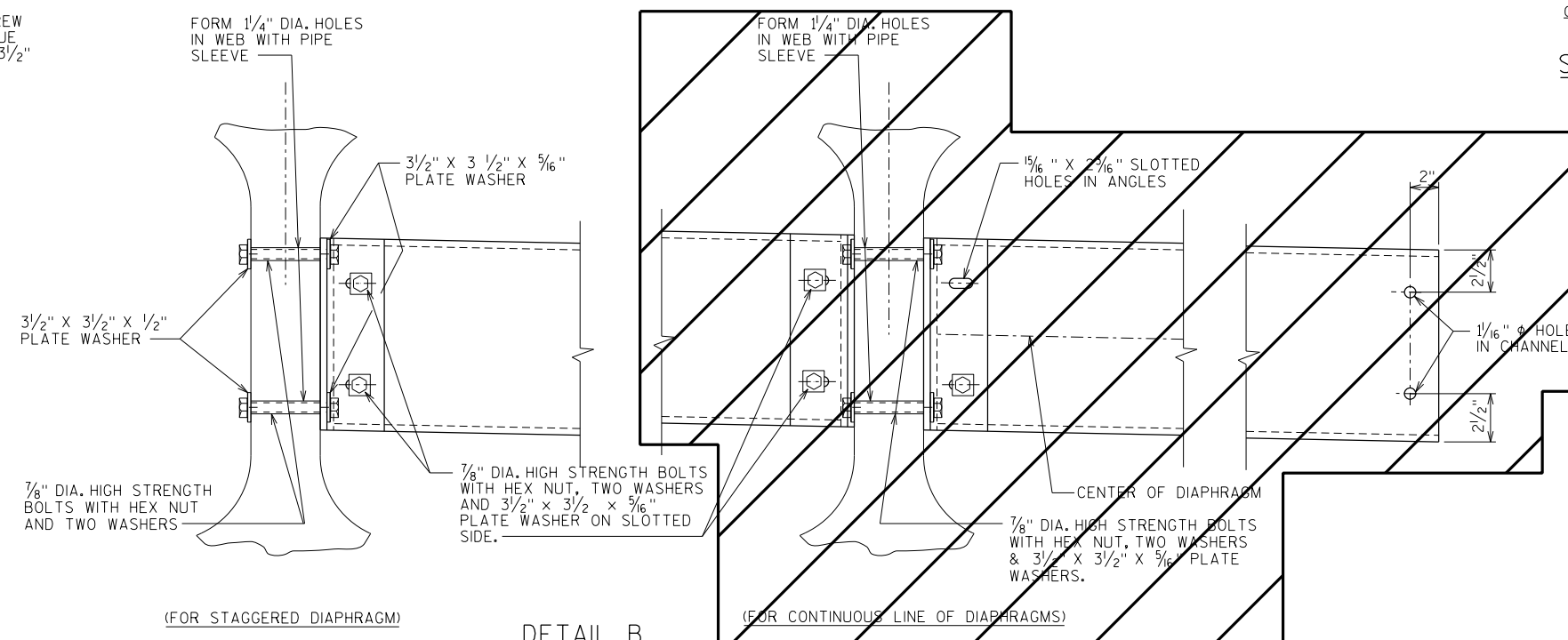
C10X15.3

ALTERNATE DIAPHRAGM

SECTION THRU DIAPHRAGM



**SECTION A-A
(FOR EXTERIOR ATTACHMENT)**

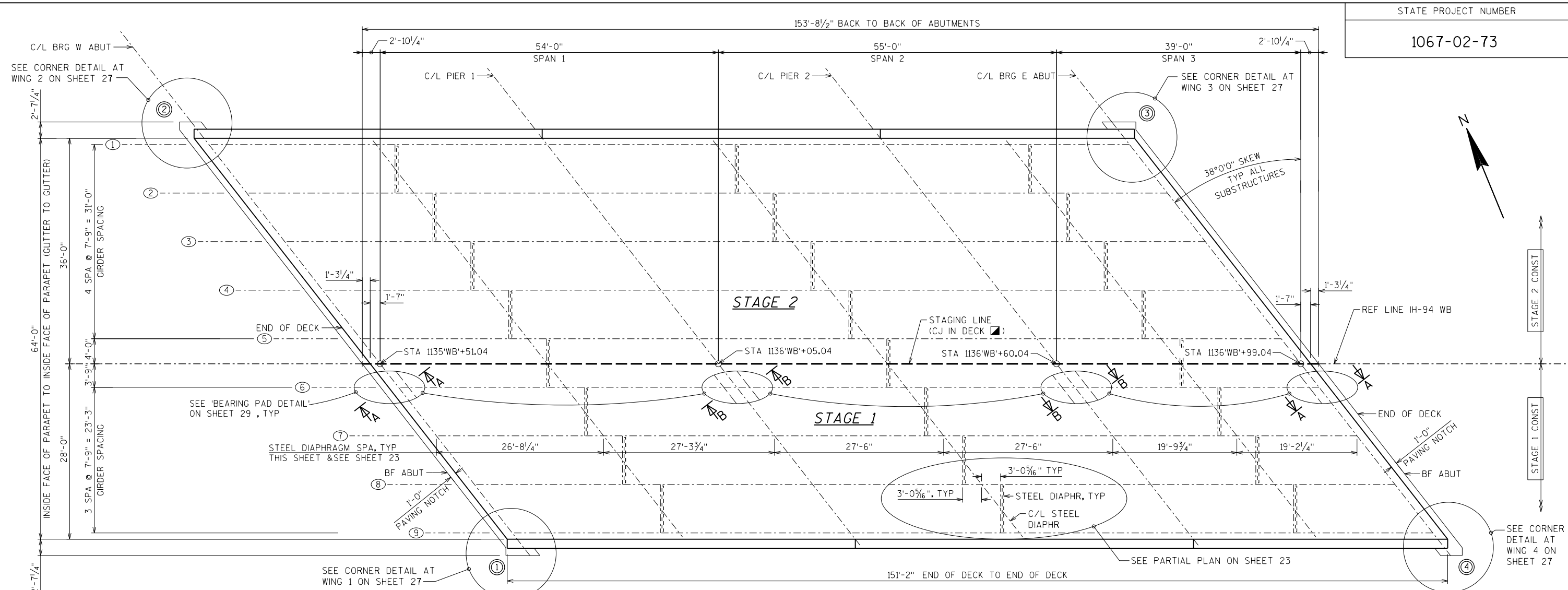


DETAIL B

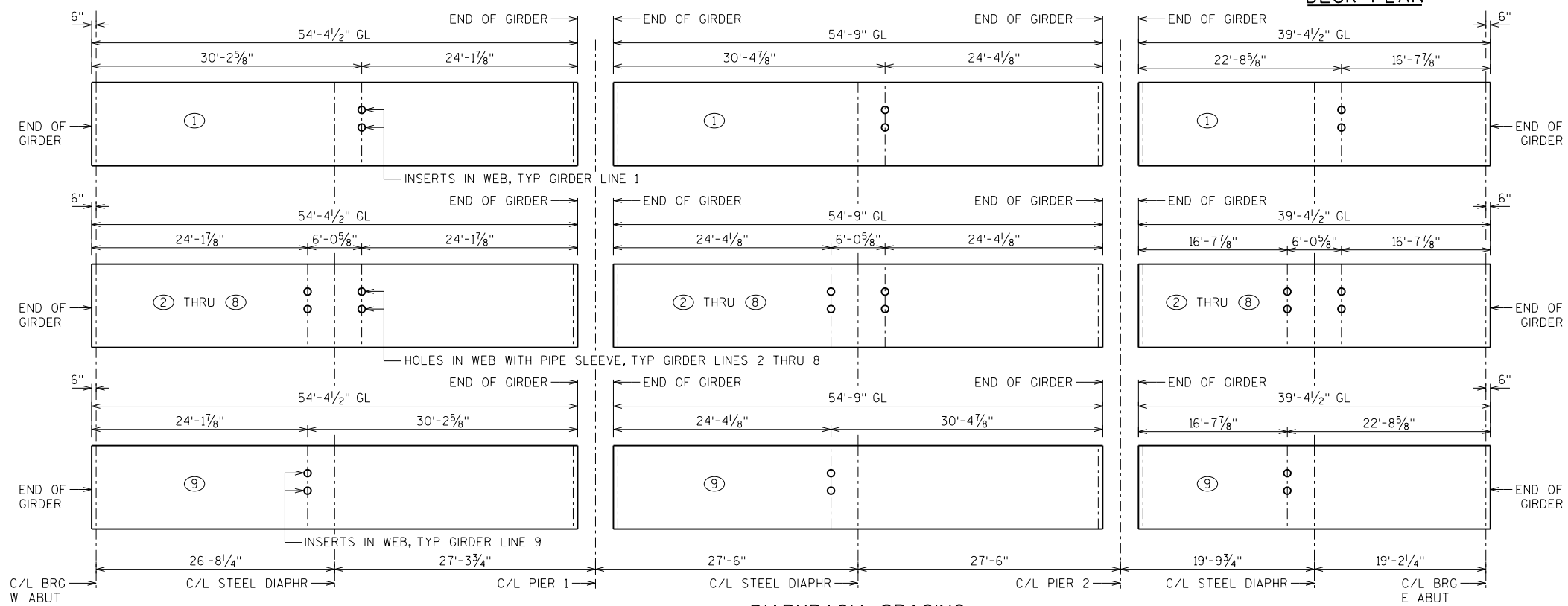
(FOR STAGGERED DIAPHRAGM)

(FOR CONTINUOUS LINE OF DIAPHRAGMS)

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
STEEL DIAPHRAGM			SHEET 23 OF 37



DECK PLAN



DIAPHRAGM SPACING

SUPERSTRUCTURE NOTES:

BOTTOM TRANSVERSE BAR STEEL SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS WITH A CENTER TO CENTER SPACING NOT TO EXCEED 4'-0". ONE LINE OF CONTINUOUS BAR CHAIRS SHALL BE PLACED NEAR EACH EDGE OF SLAB TO SUPPORT THE END OF THE BOTTOM TRANSVERSE BAR STEEL.

TOP LONGITUDINAL BAR STEEL SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS IN TRANSVERSE DIRECTION ON 4'-0" CENTERS.

NOTES

- SEE SHEET 29 FOR SECTION A-A & B-B.
- CONST JOINT KEYWAY FORMED BY A BEVELED 2" x 1/2".
- INDICATES NEW GIRDER LINE.
- GL = GIRDER LENGTH, SEE GIRDER DETAILS
- ⊙ INDICATES WING
- EXIST = EXISTING
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- (T) = TOP
- (B) = BOTTOM

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE			SHEET 24 OF 37

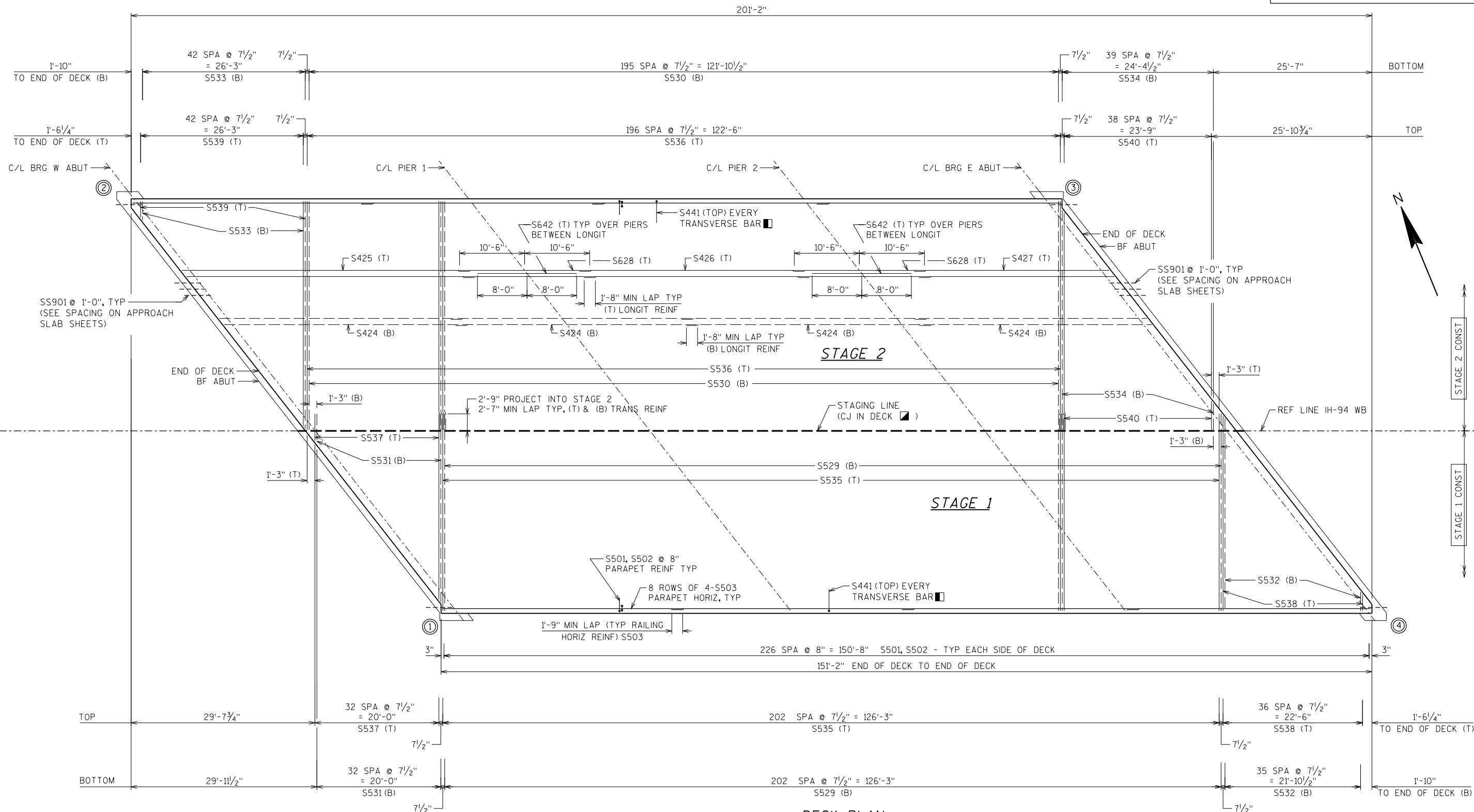
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PLOT DATE: 6/27/2022

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**DECK PLAN
SHOWING REINFORCEMENT**

— INDICATES TOP BAR REINFORCEMENT
 - - - - - INDICATES BOTTOM BAR REINFORCEMENT

⊙ INDICATES WING
 EXIST = EXISTING
 FF = FRONT FACE
 BF = BACK FACE
 EF = EACH FACE
 (T) = TOP
 (B) = BOTTOM

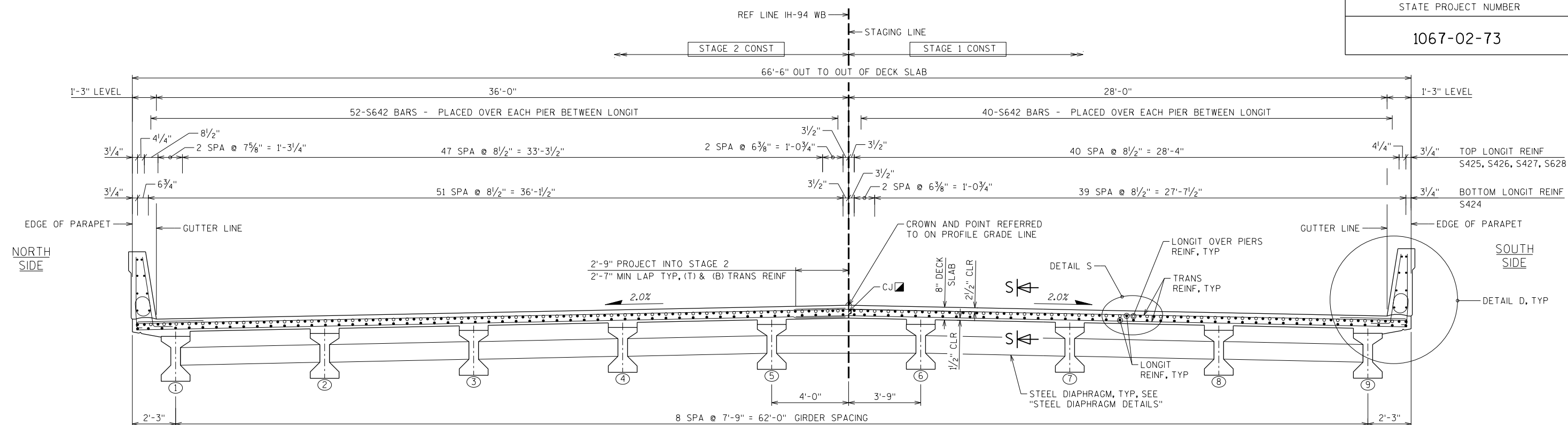
- NOTES**
- SEE SHEET 27 FOR ABUT DIAPH REINFORCEMENT.
 - SEE SHEET 28 FOR PIER DIAPH REINFORCEMENT.
 - SEE SHEET 30 FOR BILL OF BARS.
 - ▣ CONST JOINT KEYWAY FORMED BY A BEVELED 2" X 1/2".
 - ▣ PLACE S441 BETWEEN EVERY TRANSVERSE BAR. TIE TO TOP MAT.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE			SHEET 25 OF 37

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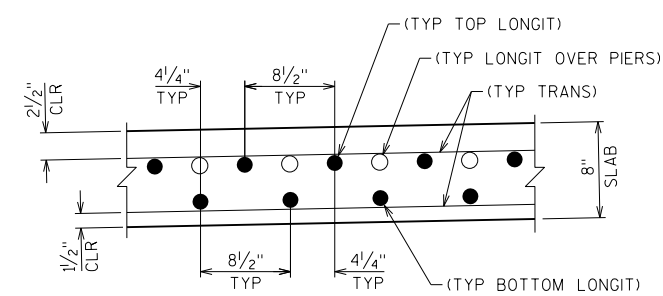
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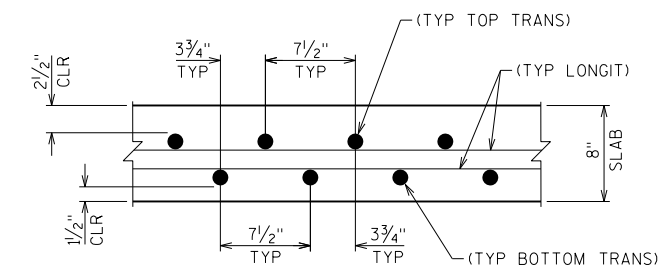


TYPICAL CROSS SECTION THRU DECK

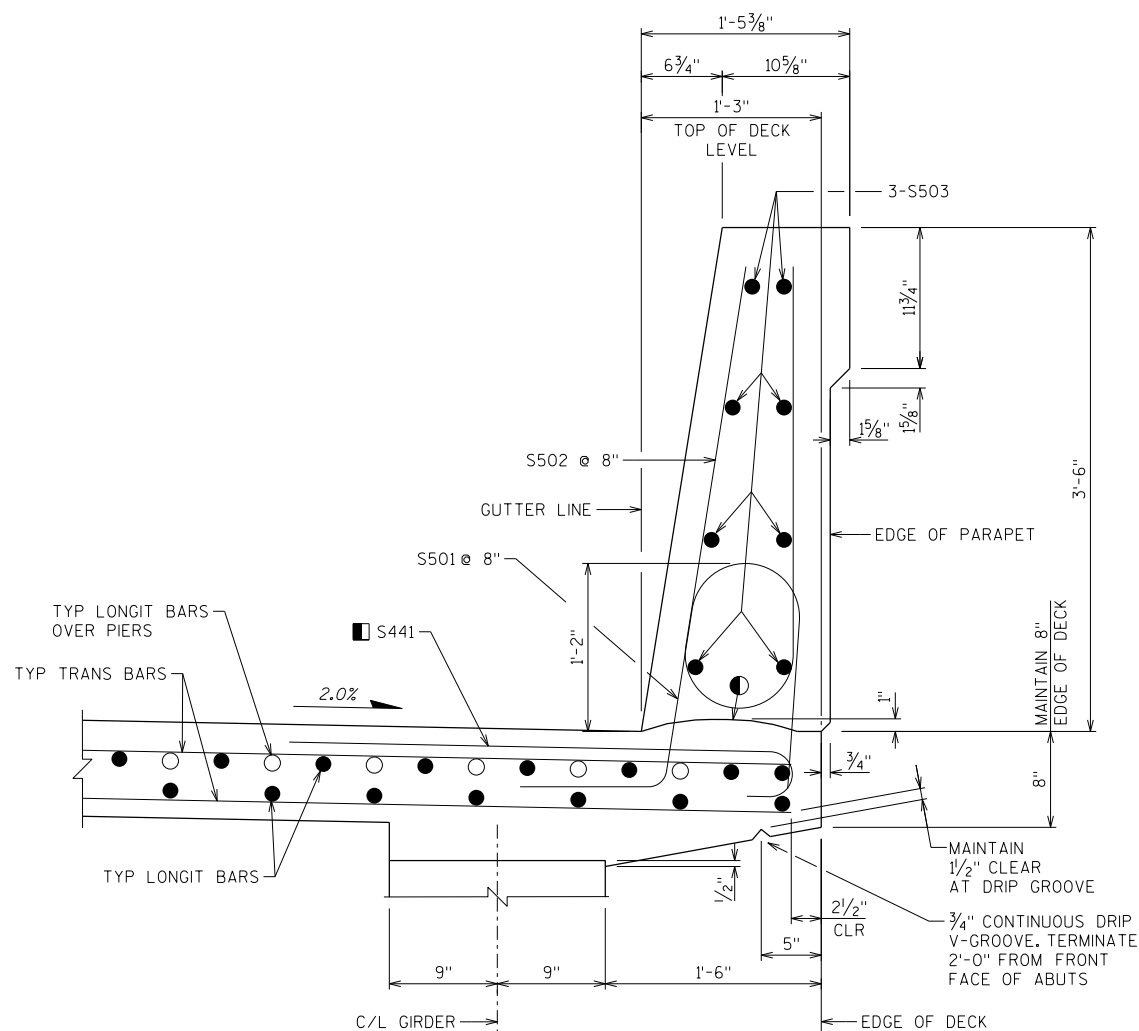
(LOOKING EAST)



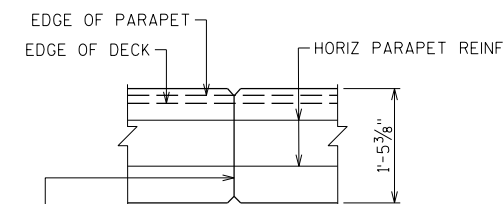
DETAIL S
(TYP LONGIT BAR SPACING UNLESS OTHERWISE NOTED)



SECTION S-S
(TYP TRANS BAR SPACING UNLESS OTHERWISE NOTED)



DETAIL D
TYPICAL SECTION THRU PARAPET ON BRIDGE



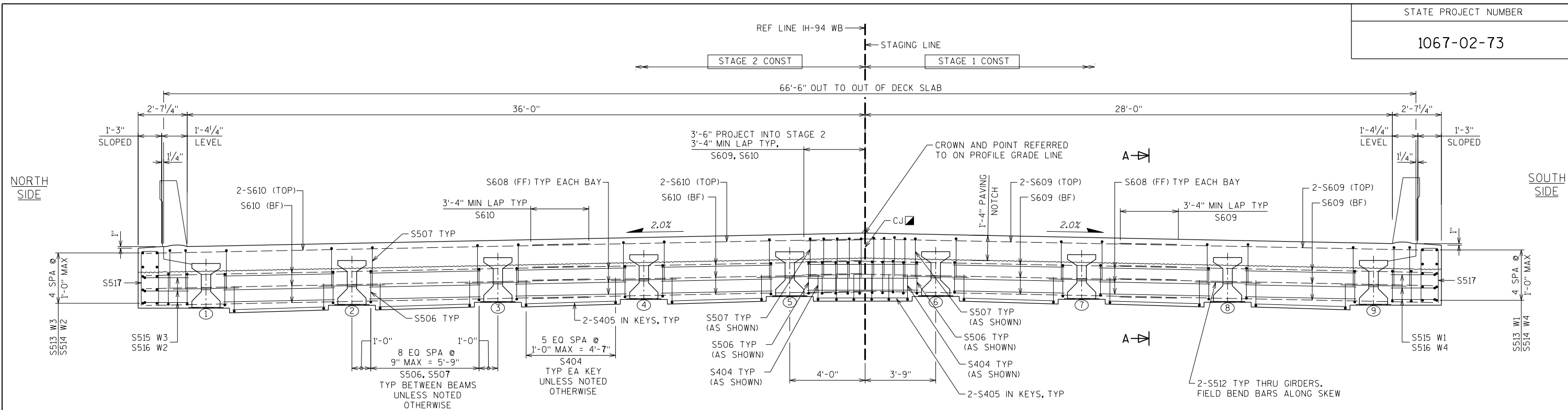
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU THE JOINT. LAP LONGIT. BARS A MIN. OF 1'-9". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE. MIN. JOINT SPACING OF 80'-0". SEE NOTE ①

OPTIONAL PLAN
CJ IN PARAPET

NOTES

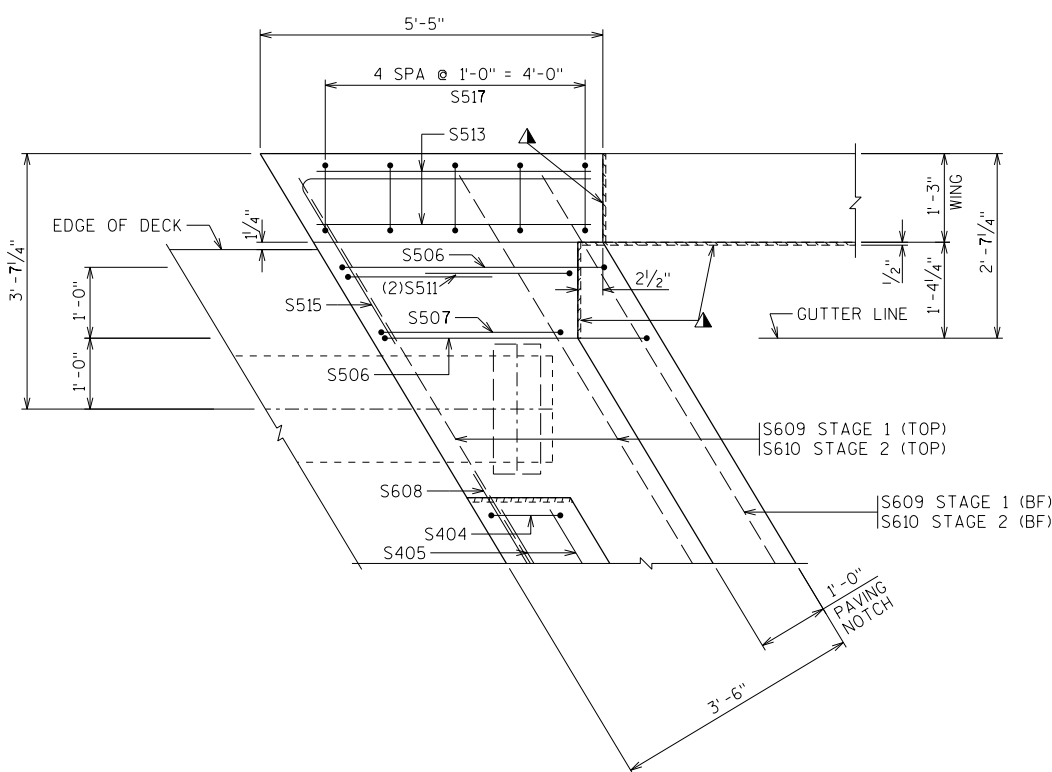
- ① MINIMUM JOINT SPACING 80'-0".
- REFER TO SHEET 30 FOR BILL OF BARS.
- SEE SHEET 37 FOR STAGING CONCEPT.
- ▣ CONST JOINT KEYWAY FORMED BY A BEVELED 2" x 1/2".
- PLACE S541 BETWEEN EVERY TRANSVERSE BAR. TIE TO TOP MAT.
- CONSTRUCTION JOINT. STRIKE OFF AS SHOWN.
- INDICATES NEW GIRDER LINE.
- EXIST = EXISTING
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- (T) = TOP
- (B) = BOTTOM

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 26 OF 37

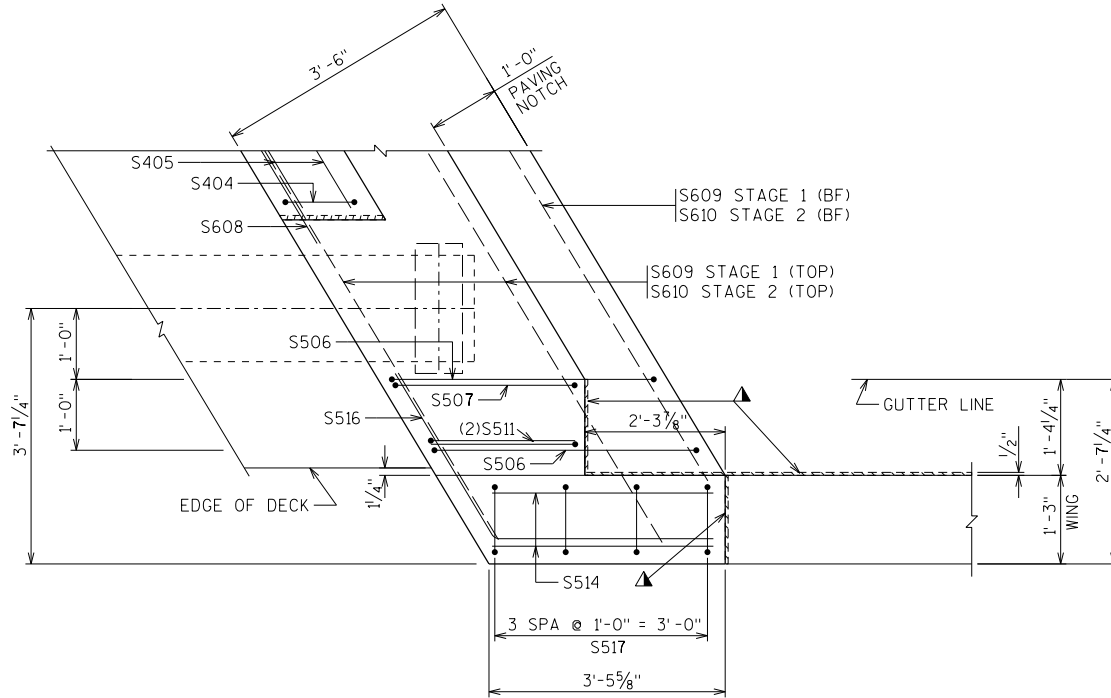


TYP TRANSVERSE SECTION AT ABUT DIAPH

SHOWING REINFORCEMENT LOOKING PARALLEL TO GIRDERS
 EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR
 UNLESS OTHERWISE SHOWN OR NOTED.



PLAN - CORNER AT WING 1 & 3



PLAN - CORNER AT WING 2 & 4

- EXIST = EXISTING
- FF = FRONT FACE
- BF = BACK FACE
- EF = EACH FACE
- (T) = TOP
- (B) = BOTTOM

NOTES

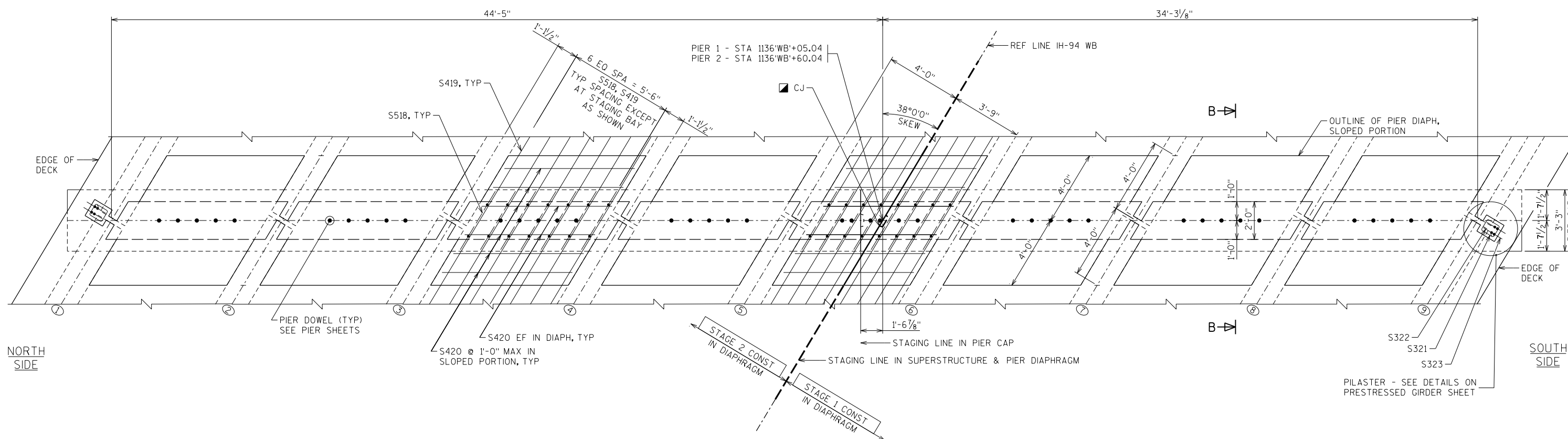
- REFER TO SHEET 29 FOR SECTION A-A.
- REFER TO SHEET 30 FOR BILL OF BARS.
- SEE SHEET 37 FOR STAGING CONCEPT.
- CONST JOINT KEYWAY FORMED BY A BEVELED 2 X 4.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 27 OF 37

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 PLOT DATE: 6/27/2022
 PLOT TIME: 12:33:25 PM

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PIER DIAPHRAGM PLAN

PIER 1 SHOWN, PIER 2 IS SIMILAR
UNLESS OTHERWISE SHOWN OR NOTED.

PLOT TIME: 12:33:25 PM

PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\W\sw\13472\5-final-dsgn\5i-drawings\20-Struct\B-28-185\B5\dgn\b28185ss3-4.dgn

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EXIST = EXISTING

FF = FRONT FACE
BF = BACK FACE
EF = EACH FACE

(T) = TOP
(B) = BOTTOM

NOTES

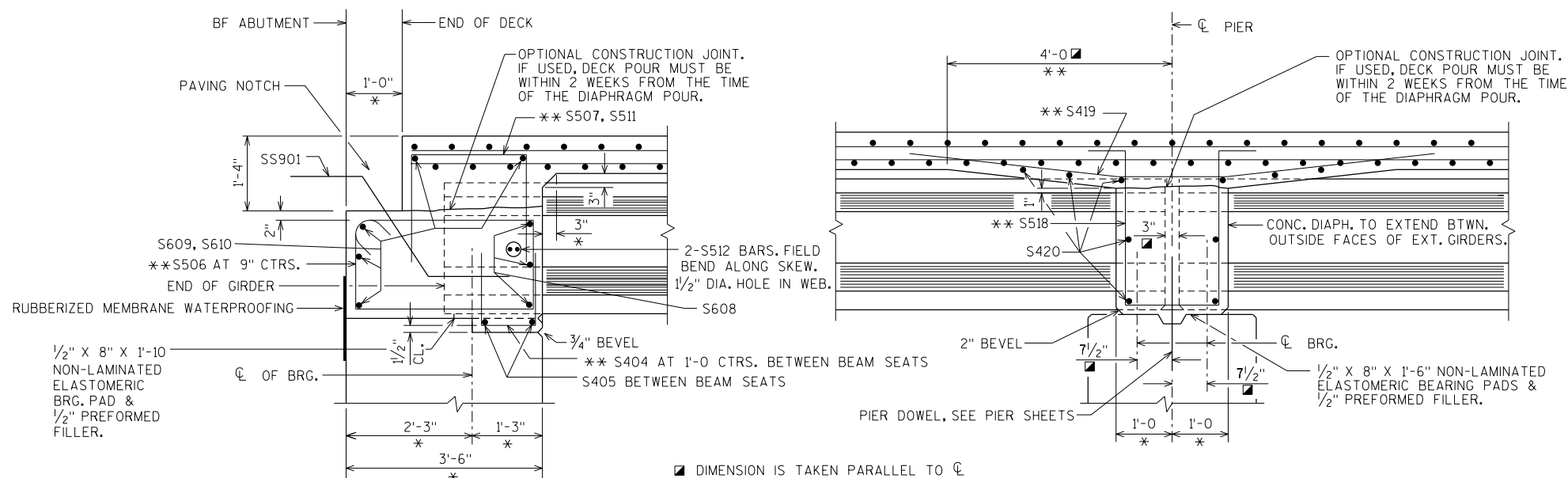
REFER TO SHEET 29 FOR SECTION B-B.

REFER TO SHEET 30 FOR BILL OF BARS.

SEE SHEET 37 FOR STAGING CONCEPT.

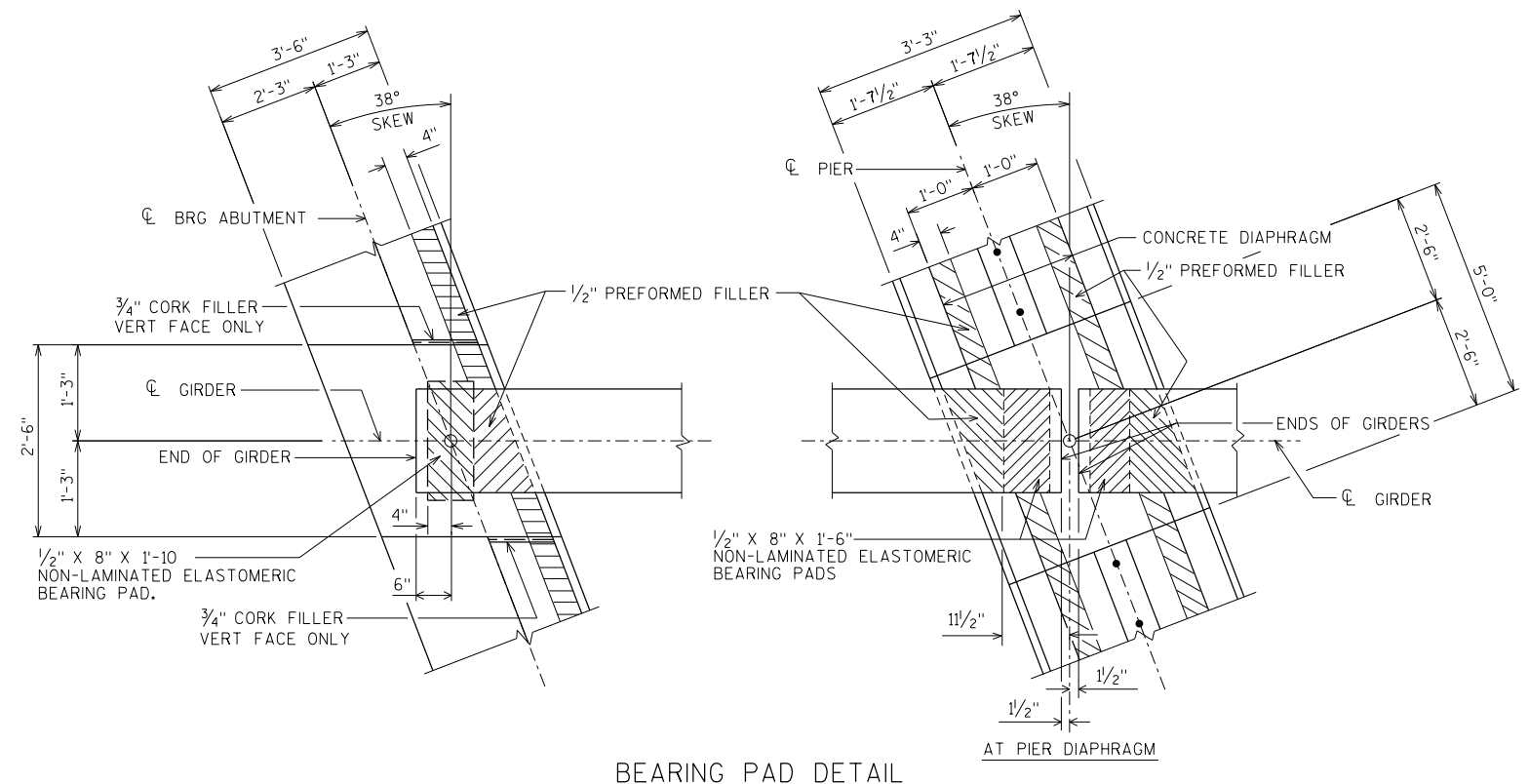
■ CONST JOINT KEYWAY FORMED BY A BEVELED 2 X 4.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CK'D. NCK
SUPERSTRUCTURE DETAILS			SHEET 28 OF 37



- DIMENSION IS TAKEN PARALLEL TO CL GIRDERS.
- * DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNITS.
- ** BARS PLACED PARALLEL TO GIRDERS SPACING PERPENDICULAR TO CL GIRDERS.

PART LONGIT. SECTION



NOTES
SEE SHEET 30 FOR BILL OF BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE DETAILS			SHEET 29 OF 37

PLOT TIME: 12:33:26 PM
 PLOT DATE: 6/27/2022
 FILE NAME: S:\UZ\W\117155-f\final-dsgn\51-drawings\20-struct\B-28-185\B5\dgn\b28185ss5.dgn

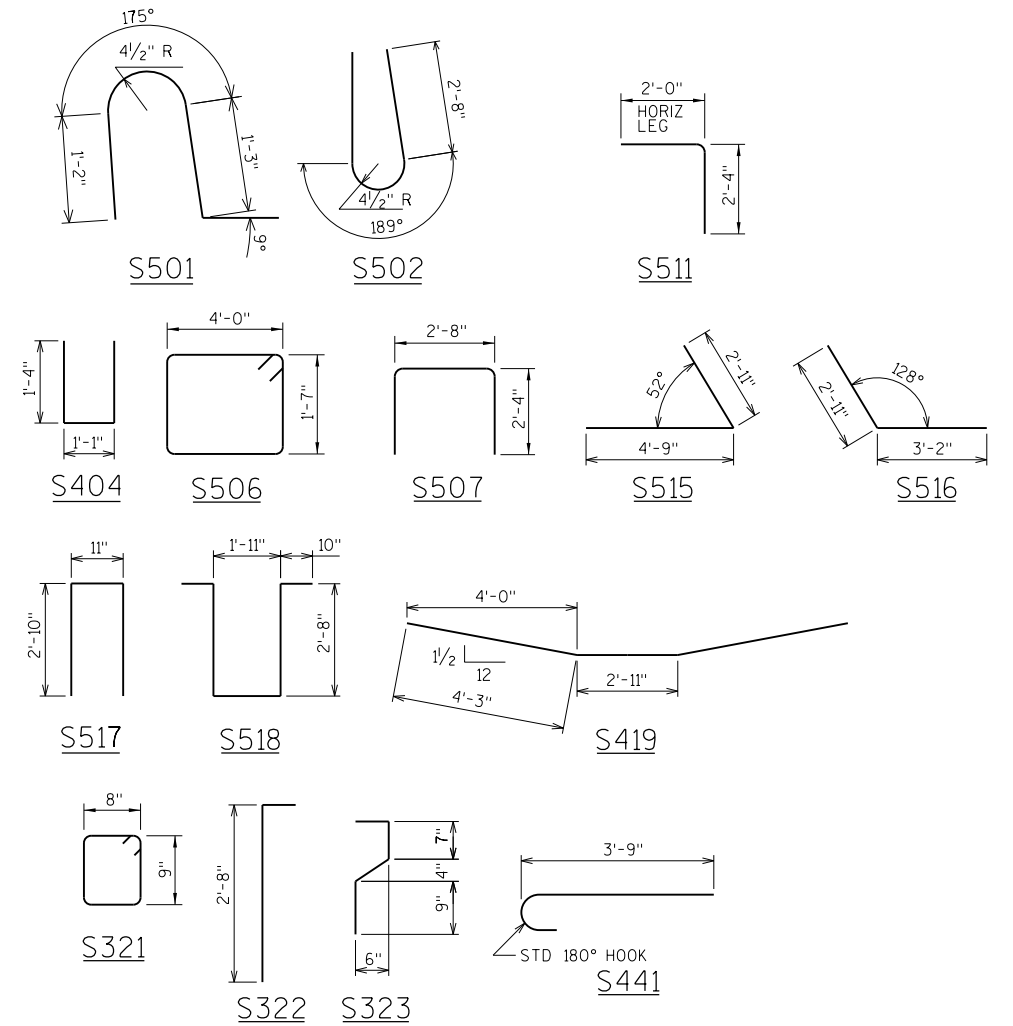
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BILL OF BARS						SUPERSTRUCTURE		
BAR MARK	COAT	NO. REQ'D.	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2
S501	X	227	4 - 5		X	PARAPET VERT	X	
"	X	227	4 - 5		X	PARAPET VERT		X
S502	X	227	6 - 8		X	PARAPET VERT	X	
"	X	227	6 - 8		X	PARAPET VERT		X
S503	X	32	39 - 0			PARAPET HORIZ	X	
"	X	32	39 - 0			PARAPET HORIZ		X
S404		42	3 - 7		X	ABUT DIAPH KEY VERT	X	
"		54	3 - 7		X	ABUT DIAPH KEY VERT		X
S405		16	6 - 0			ABUT DIAPH KEY HORIZ	X	
"		16	6 - 0			ABUT DIAPH KEY HORIZ		X
S506		68	11 - 10		X	ABUT DIAPH STIRRUP	X	
"		86	11 - 10		X	ABUT DIAPH STIRRUP		X
S507	X	68	7 - 1		X	ABUT DIAPH STIRRUP TIE	X	
"	X	86	7 - 1		X	ABUT DIAPH STIRRUP TIE		X
S608		24	7 - 5			ABUT DIAPH FF	X	
"		24	7 - 5			ABUT DIAPH FF		X
S609	X	20	21 - 6			ABUT DIAPH BF & TOP	X	
S610	X	20	24 - 9			ABUT DIAPH BF & TOP		X
S511	X	4	4 - 1			ABUT DIAPH STIRRUP TIE	X	
"	X	4	4 - 1			ABUT DIAPH STIRRUP TIE		X
S512		16	6 - 0			ABUT DIAPH THRU GIRDERS	X	
"		20	6 - 0			ABUT DIAPH THRU GIRDERS		X
S513		10	4 - 2			ABUT DIAPH COR	X	
"		10	4 - 2			ABUT DIAPH COR		X
S514		10	3 - 2			ABUT DIAPH COR	X	
"		10	3 - 2			ABUT DIAPH COR		X
S515		3	7 - 6		X	ABUT DIAPH COR	X	
"		3	7 - 6		X	ABUT DIAPH COR		X
S516		3	5 - 11		X	ABUT DIAPH COR	X	
"		3	5 - 11		X	ABUT DIAPH COR		X
S517		9	6 - 4		X	ABUT DIAPH COR	X	
"		9	6 - 4		X	ABUT DIAPH COR		X
S518	X	50	8 - 5		X	PIER DIAPH STIRRUP	X	
"	X	64	8 - 5		X	PIER DIAPH STIRRUP		X
S419	X	50	11 - 5		X	PIER DIAPH TIE	X	
"	X	64	11 - 5		X	PIER DIAPH TIE		X
S420	X	80	7 - 6			PIER DIAPH HORIZ	X	
"	X	80	7 - 6			PIER DIAPH HORIZ		X
S321	X	4	3 - 3		X	PIER PILASTER	X	
"	X	4	3 - 3		X	PIER PILASTER		X
S322	X	4	3 - 2		X	PIER PILASTER	X	
"	X	4	3 - 2		X	PIER PILASTER		X
S323	X	4	2 - 5		X	PIER PILASTER	X	
"	X	4	2 - 5		X	PIER PILASTER		X
S424	X	168	39 - 0			DECK LONGIT B	X	
"	X	212	39 - 0			DECK LONGIT B		X
S425	X	42	47 - 9			DECK LONGIT T SPAN 1	X	
"	X	54	47 - 9			DECK LONGIT T SPAN 1		X
S426	X	42	39 - 4			DECK LONGIT T SPAN 2	X	
"	X	54	39 - 4			DECK LONGIT T SPAN 2		X
S427	X	42	32 - 6			DECK LONGIT T SPAN 3	X	
"	X	54	32 - 6			DECK LONGIT T SPAN 3		X
S628	X	84	21 - 0			DECK LONGIT OVER PIERS	X	
"	X	108	21 - 0			DECK LONGIT OVER PIERS		X
S529	X	203	31 - 10			DECK TRANS B	X	
S530	X	196	36 - 11			DECK TRANS B		X
S531	X	33	17 - 9		▲	DECK TRANS B	X	
S532	X	36	17 - 4		▲	DECK TRANS B	X	
S533	X	43	19 - 11		▲	DECK TRANS B		X
S534	X	40	18 - 5		▲	DECK TRANS B		X
S535	X	203	31 - 10			DECK TRANS T	X	
S536	X	197	36 - 11			DECK TRANS T		X
S537	X	33	17 - 5		▲	DECK TRANS T	X	
S538	X	37	17 - 4		▲	DECK TRANS T	X	
S539	X	43	19 - 6		▲	DECK TRANS T		X
S540	X	39	18 - 5		▲	DECK TRANS T		X
S441	X	239	4 - 2		X	DECK TRANS T AT EDGE	X	
"	X	239	4 - 2		X	DECK TRANS T AT EDGE		X
S642	X	80	16 - 0			DECK LONGIT OVER PIERS	X	
"	X	104	16 - 0			DECK LONGIT OVER PIERS		X

NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

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



STATE PROJECT NUMBER
1067-02-73

BAR SERIES TABLE		SUPERSTRUCTURE				
BAR MARK	NO. REQ'D.	LENGTH	BENT	LOCATION	STG 1	STG 2
S531	1 SERIES OF 33	5'-0" TO 30'-7"		DECK SLAB TRANS (B)	X	
S532	1 SERIES OF 36	3'-4" TO 31'-4"		DECK SLAB TRANS (B)	X	
S533	1 SERIES OF 43	3'-1" TO 36'-8"		DECK SLAB TRANS (B)		X
S534	1 SERIES OF 40	4'-3" TO 32'-7"		DECK SLAB TRANS (B)		X
S537	1 SERIES OF 33	4'-8" TO 30'-2"		DECK SLAB TRANS (T)	X	
S538	1 SERIES OF 37	3'-1" TO 31'-8"		DECK SLAB TRANS (T)	X	
S539	1 SERIES OF 43	2'-8" TO 36'-3"		DECK SLAB TRANS (T)		X
S540	1 SERIES OF 39	4'-8" TO 32'-2"		DECK SLAB TRANS (T)		X

BUNDLE AND TAG EACH SERIES SEPARATELY

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SUPERSTRUCTURE REINFORCEMENT			SHEET 30 OF 37

8

8

FINAL TOP OF DECK ELEVATIONS
B-28-185

	SPAN 1 (54'-0")										SPAN 2 (55'-0")										SPAN 3 (39'-0")						C/L BRG E ABUT				
	C/L BRG W ABUT	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	C/L PIER 1	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT	0.6 PT	0.7 PT	0.8 PT	0.9 PT	C/L PIER 2	0.1 PT	0.2 PT	0.3 PT	0.4 PT	0.5 PT		0.6 PT	0.7 PT	0.8 PT	0.9 PT
N EDGE OF DECK	881.50	881.34	881.18	881.02	880.86	880.70	880.53	880.37	880.21	880.05	879.89	879.72	879.56	879.39	879.23	879.07	878.90	878.74	878.57	878.41	878.24	878.13	878.01	877.89	877.78	877.66	877.54	877.43	877.31	877.19	877.08
GIRDER 1	881.50	881.34	881.18	881.02	880.85	880.69	880.53	880.37	880.21	880.05	879.88	879.72	879.56	879.39	879.23	879.06	878.90	878.73	878.57	878.40	878.24	878.12	878.01	877.89	877.77	877.66	877.54	877.42	877.31	877.19	877.07
GIRDER 2	881.47	881.31	881.15	880.99	880.83	880.67	880.50	880.34	880.18	880.02	879.86	879.69	879.53	879.37	879.20	879.04	878.87	878.71	878.54	878.38	878.21	878.10	877.98	877.86	877.75	877.63	877.51	877.40	877.28	877.16	877.05
GIRDER 3	881.45	881.29	881.12	880.96	880.80	880.64	880.48	880.32	880.16	879.99	879.83	879.67	879.50	879.34	879.18	879.01	878.85	878.68	878.52	878.35	878.19	878.07	877.96	877.84	877.72	877.61	877.49	877.37	877.26	877.14	877.02
GIRDER 4	881.42	881.26	881.10	880.94	880.78	880.61	880.45	880.29	880.13	879.97	879.81	879.64	879.48	879.31	879.15	878.98	878.82	878.66	878.49	878.33	878.16	878.05	877.93	877.81	877.70	877.58	877.46	877.35	877.23	877.11	877.00
GIRDER 5	881.40	881.23	881.07	880.91	880.75	880.59	880.43	880.27	880.10	879.94	879.78	879.62	879.45	879.29	879.12	878.96	878.79	878.63	878.47	878.30	878.14	878.02	877.90	877.79	877.67	877.55	877.44	877.32	877.20	877.09	876.97
PROFILE GRADE LINE (CROWN) RL IH-94 WB	881.38	881.22	881.06	880.90	880.74	880.57	880.41	880.25	880.09	879.93	879.77	879.60	879.44	879.27	879.11	878.95	878.78	878.62	878.45	878.29	878.12	878.01	877.89	877.77	877.66	877.54	877.42	877.31	877.19	877.07	876.96
GIRDER 6	881.22	881.06	880.90	880.73	880.57	880.41	880.25	880.09	879.93	879.77	879.60	879.44	879.28	879.11	878.95	878.78	878.62	878.45	878.29	878.12	877.96	877.84	877.73	877.61	877.49	877.38	877.26	877.14	877.03	876.91	876.79
GIRDER 7	880.88	880.72	880.56	880.40	880.24	880.08	879.91	879.75	879.59	879.43	879.27	879.10	878.94	878.78	878.61	878.45	878.28	878.12	877.95	877.79	877.62	877.51	877.39	877.27	877.16	877.04	876.92	876.81	876.69	876.57	876.46
GIRDER 8	880.55	880.39	880.22	880.06	879.90	879.74	879.58	879.42	879.26	879.09	878.93	878.77	878.60	878.44	878.27	878.11	877.95	877.78	877.62	877.45	877.29	877.17	877.05	876.94	876.82	876.71	876.59	876.47	876.36	876.24	876.12
GIRDER 9	880.21	880.05	879.89	879.73	879.57	879.40	879.24	879.08	878.92	878.76	878.60	878.43	878.27	878.10	877.94	877.77	877.61	877.45	877.28	877.12	876.95	876.84	876.72	876.60	876.49	876.37	876.25	876.14	876.02	875.90	875.79
S EDGE OF DECK	880.17	880.01	879.84	879.68	879.52	879.36	879.20	879.04	878.88	878.71	878.55	878.39	878.22	878.06	877.90	877.73	877.57	877.40	877.24	877.07	876.91	876.79	876.68	876.56	876.44	876.33	876.21	876.09	875.98	875.86	875.74

PLOT TIME: 12:33:27 PM

PLOT DATE: 6/27/2022

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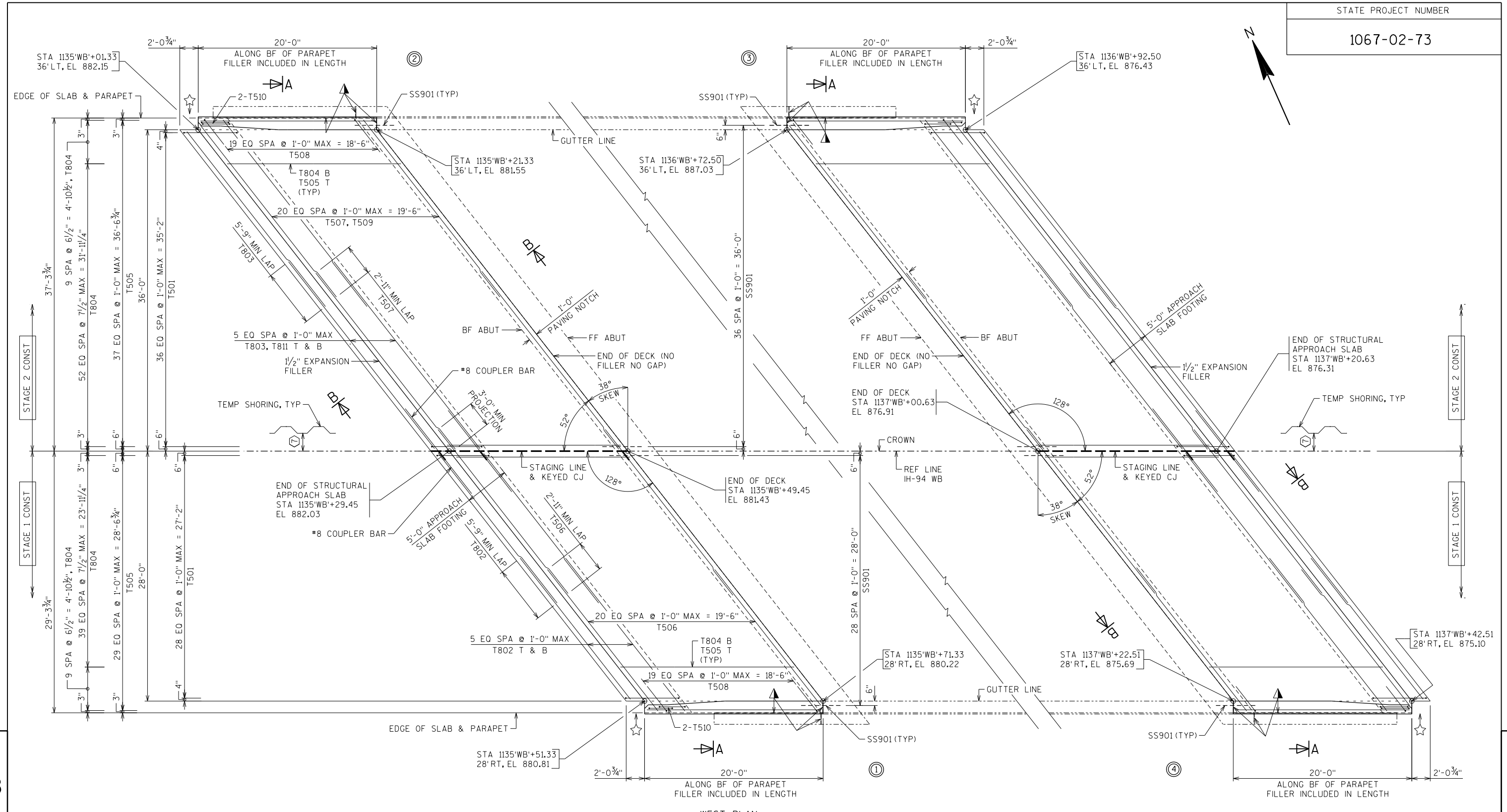
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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CK'D. NCK
SUPERSTRUCTURE DECK ELEVATION TABLE			SHEET 31 OF 37



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PLOT DATE: 6/27/2022
PLOT TIME: 12:33:27 PM



WEST PLAN

STRUCTURAL APPROACH SLAB PLANS

NOTE: WEST PLAN IS SIMILAR TO EAST PLAN UNLESS OTHERWISE SHOWN OR NOTED

EAST PLAN

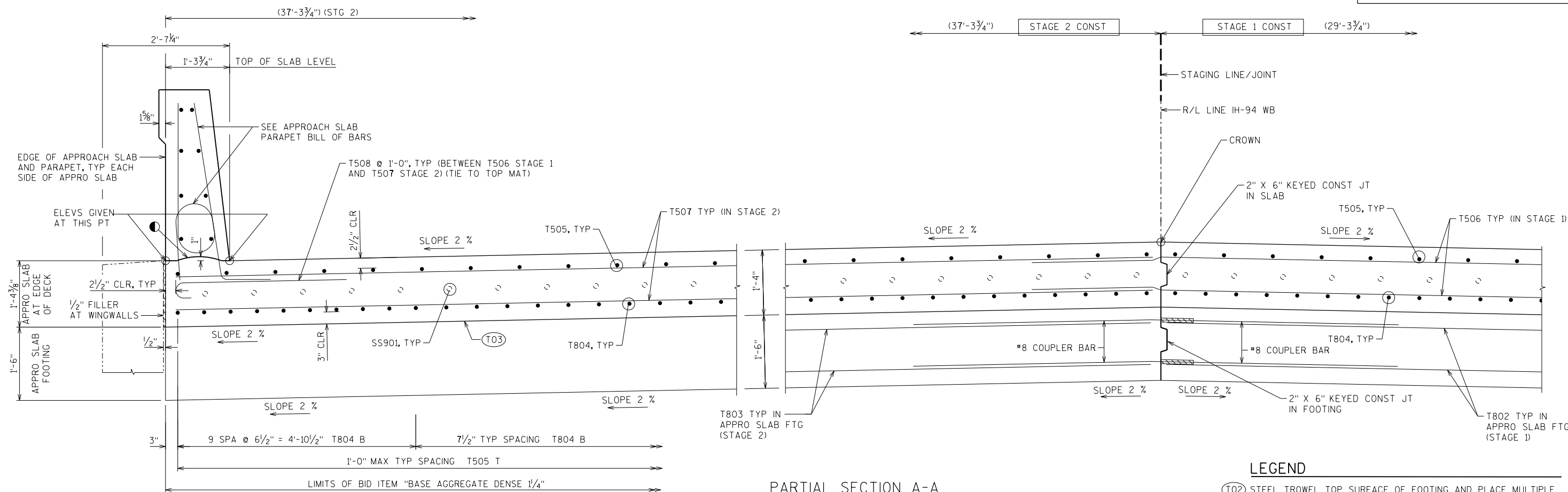
LEGEND

- ☆ NOTCH APPROACH SLAB FOOTING TO ALLOW FOR THRIE BEAM POST INSTALLATION, (ADJUST BAR STEEL LAP AS NECESSARY).
- ▲ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACES WITH 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE).
- ⑦ SEE BRIDGE TRAFFIC STAGING PLANS.

NOTES

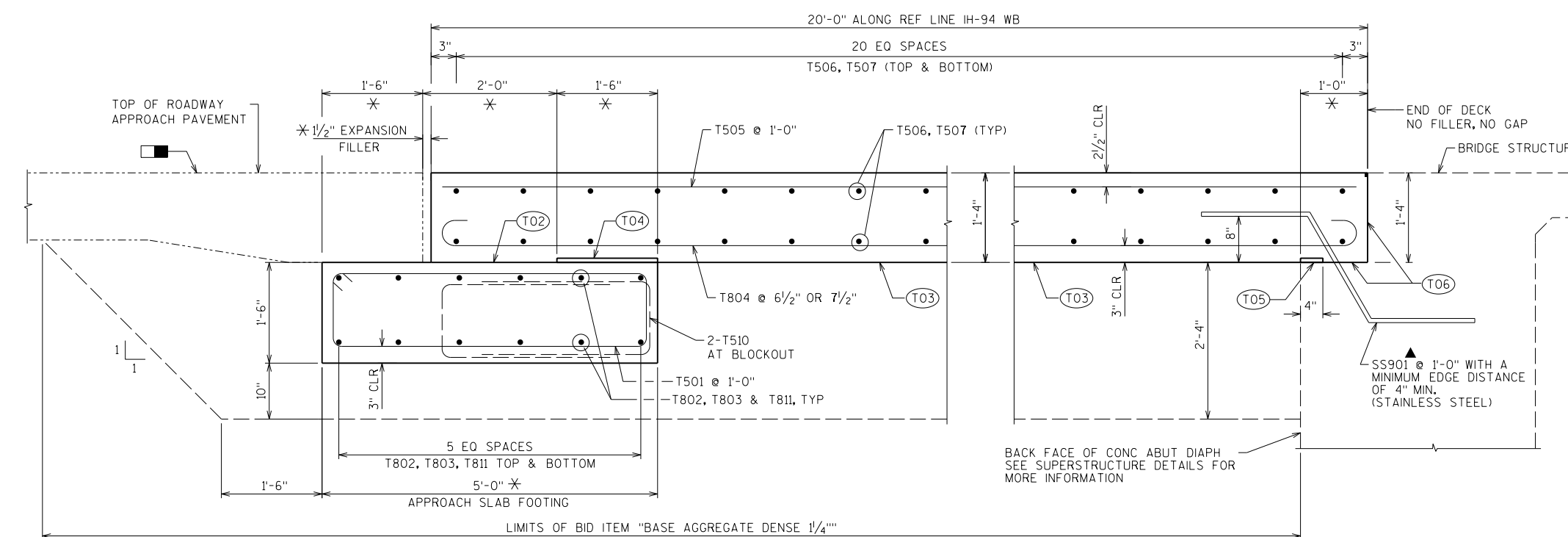
- SEE SHEET 33 FOR SECTION A-A & B-B.
- ALL TRANSVERSE STEEL TO BE LAID PARALLEL TO C/L BRG ABUT UNLESS OTHERWISE NOTED.
- ALL MEASUREMENTS ARE MADE PARALLEL OR PERPENDICULAR TO REFERENCE LINE UNLESS OTHERWISE NOTED.
- THIS SHEET IS TO BE USED IN CONJUNCTION WITH THE ROADWAY DRAWINGS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY		DLF	PLANS CKD. NCK
STRUCTURAL APPROACH SLABS			SHEET 32 OF 37



PARTIAL SECTION A-A

(TYPICAL AT STAGE 1 AND STAGE 2 UNLESS NOTED OTHERWISE)



SECTION B-B

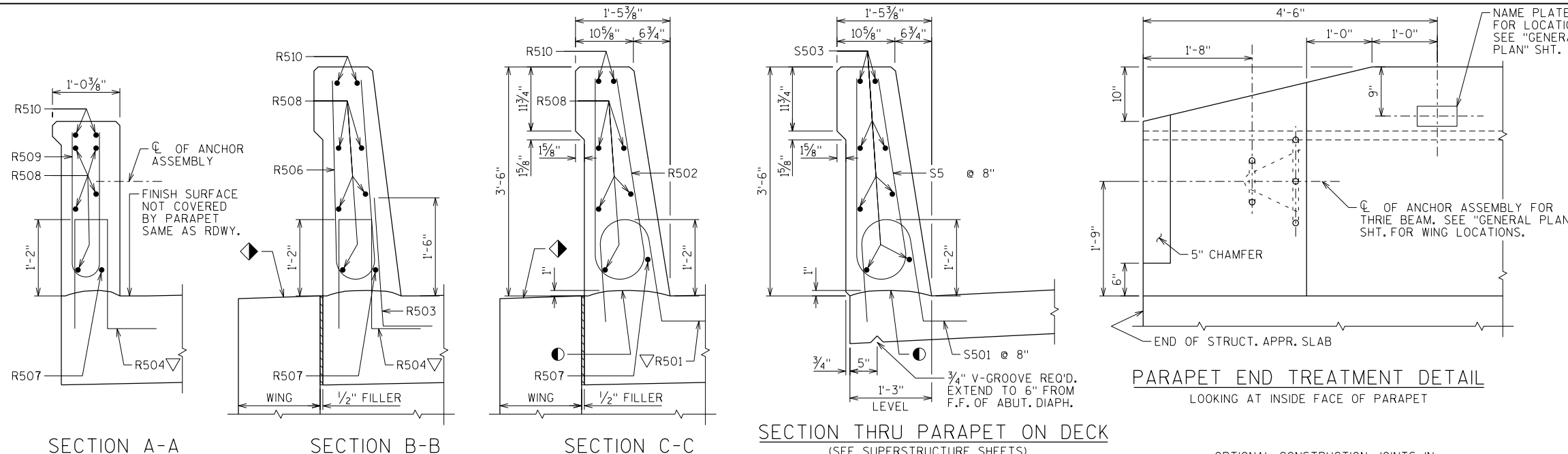
(TYPICAL AT STAGE 1 AND STAGE 2)

LEGEND

- (T02) STEEL TROWEL TOP SURFACE OF FOOTING AND PLACE MULTIPLE LAYERS (0.03" MIN TOTAL THK) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF FOOTING.
 - (T03) PLACE MULTIPLE LAYERS (0.03" MIN TOTAL THK) OF POLYETHYLENE SHEETS OVER THE ENTIRE TOP OF SUBGRADE BENEATH SLAB.
 - (T04) 3/4" PREFORMED JOINT FILLER ACCORDING TO STD SPEC 502.2.7 (1'-6" WIDE x FTG LENGTH).
 - (T05) 3/4" PREFORMED JOINT FILLER ACCORDING TO STD SPEC 502.2.7 (4" WIDE x PAVING NOTCH LENGTH).
 - (T06) APPLY PROTECTIVE SURFACE TREATMENT TO PAVING NOTCH, AND VERTICAL SURFACE OF PARAPET PRIOR TO PLACING CONCRETE APPROACH SLAB.
- PREFORMED JOINT FILLER AND POLYETHYLENE SHEETS ARE INCLUDED IN THE BID ITEM "CONCRETE MASONRY BRIDGES".
- COST OF #8 COUPLER BARS INCLUDED IN THE COST OF BAR COUPLERS NO. 8.
- CONCRETE PAVEMENT APPROACH ROADWAY. SEE ROADWAY DRAWINGS FOR DETAILS.
 - * MEASURED PERPENDICULAR TO THE ABUTMENT.
 - ▲ THE BID ITEM FOR SS901 BARS SHALL BE STANDARD SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES"
 - CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH. LEVEL UNDER PARAPET SIMILAR TO BRIDGE DECK.

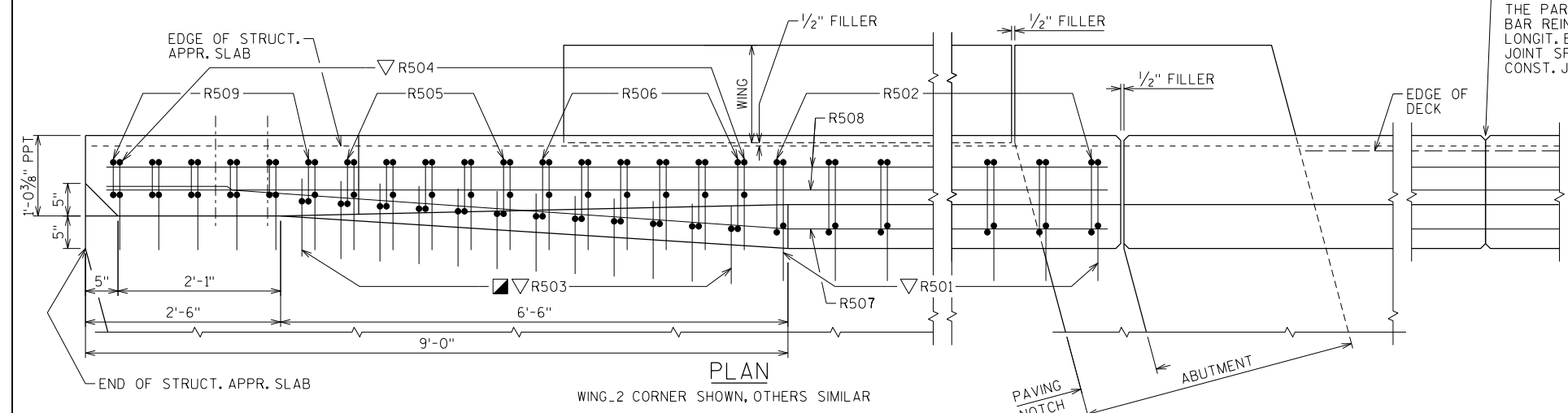
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
STRUCTURAL APPROACH SLABS			SHEET 33 OF 37

NOTE:
SEE SHEET 35 FOR BILL OF BARS.

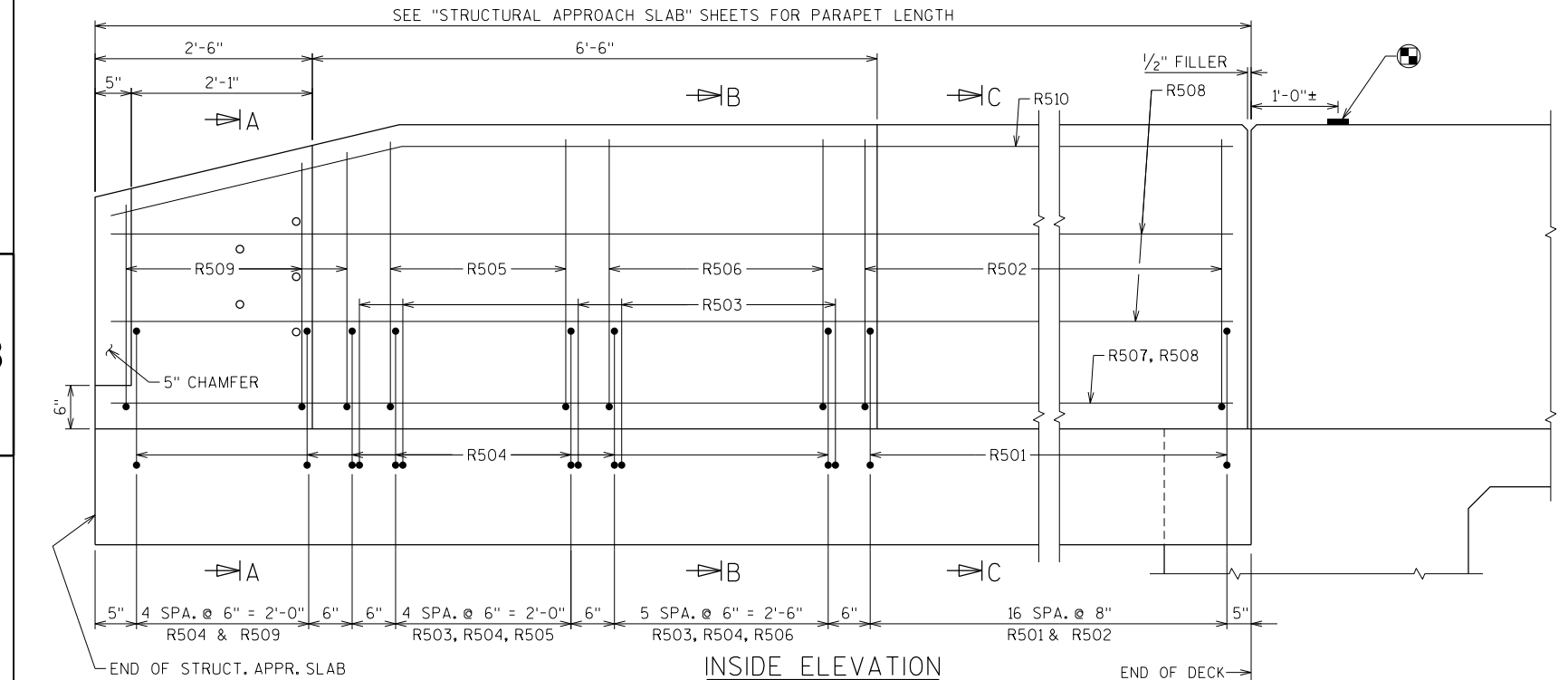


PARAPET END TREATMENT DETAIL
LOOKING AT INSIDE FACE OF PARAPET

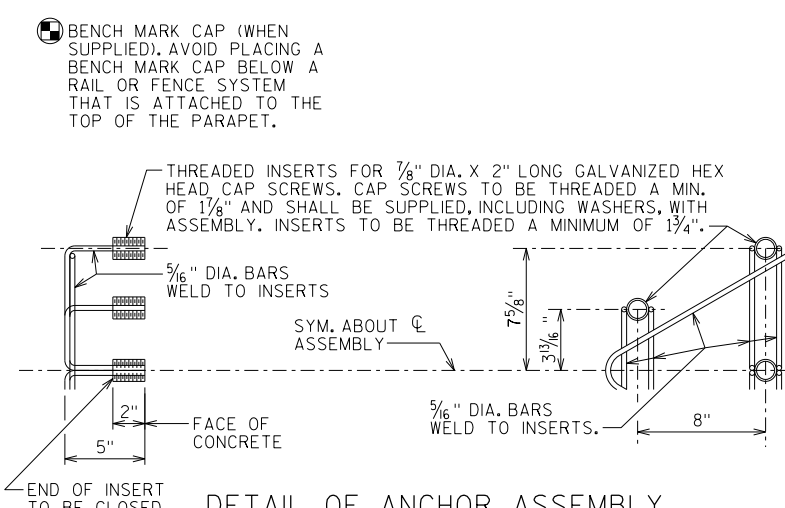
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED, RUN BAR REINF. THRU THE JOINT, LAP LONGIT. BARS A MIN. OF 1'-9", MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.



PLAN
WING 2 CORNER SHOWN, OTHERS SIMILAR



INSIDE ELEVATION
WING 2 CORNER SHOWN, OTHERS SIMILAR
WING & STRUCTURAL APPROACH SLAB FOOTING NOT SHOWN FOR CLARITY



DETAIL OF ANCHOR ASSEMBLY
NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C.
ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

- CONST. JOINT - STRIKE OFF AS SHOWN
- ◊ SLOPE FOR DRAINAGE, SEE ABUTMENTS SHEETS.
- USE CARE TO PLACE R503 BARS CORRECTLY ALONG TRANSITION OF PARAPET.
- ▽ R501, R503, AND R504 BARS TO BE TIED TO STRUCTURAL APPROACH SLAB STEEL BEFORE STRUCTURAL APPROACH SLAB IS Poured.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SINGLE SLOPE PARAPET 42SS			SHEET 34 OF 37

PLOT TIME: 12:33:29 PM

PLOT DATE: 6/27/2022

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NOTE:
DIMENSIONS IN BENDING DETAILS ARE OUT TO OUT.

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

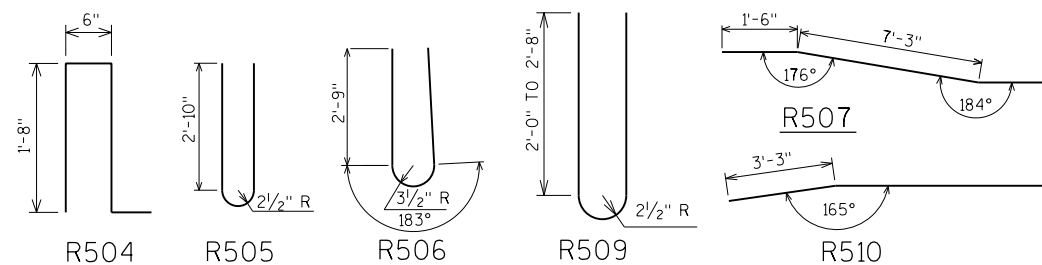
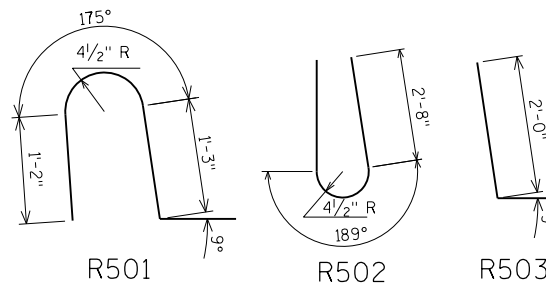
BAR COUPLER NOTE:
SEE MISCELLANEOUS TYPICAL DETAILS SHEET FOR MORE INFORMATION.

BILL OF BARS							SINGLE SLOPE PARAPET 42SS			
BAR MARK	COAT	WEST APPRO SLAB	EAST APPRO SLAB	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2	
R501	X	17	17	4 - 5		X	PARAPET VERT AT APPROACH SLAB	X		
"	X	17	17	4 - 5		X	PARAPET VERT AT APPROACH SLAB		X	
R502	X	17	17	6 - 8		X	PARAPET VERT AT APPROACH SLAB	X		
"	X	17	17	6 - 8		X	PARAPET VERT AT APPROACH SLAB		X	
R503	X	12	12	2 - 9		X	PARAPET VERT AT APPROACH SLAB	X		
"	X	12	12	2 - 9		X	PARAPET VERT AT APPROACH SLAB		X	
R504	X	17	17	4 - 4		X	PARAPET VERT AT APPROACH SLAB	X		
"	X	17	17	4 - 4		X	PARAPET VERT AT APPROACH SLAB		X	
R505	X	5	5	6 - 5		X	PARAPET VERT AT APPROACH SLAB	X		
"	X	5	5	6 - 5		X	PARAPET VERT AT APPROACH SLAB		X	
R506	X	6	6	6 - 6		X	PARAPET VERT AT APPROACH SLAB	X		
"	X	6	6	6 - 6		X	PARAPET VERT AT APPROACH SLAB		X	
R507	X	1	1	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB	X		
"	X	1	1	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB		X	
R508	X	5	5	19 - 6			PARAPET HORIZ AT APPROACH SLAB	X		
"	X	5	5	19 - 6			PARAPET HORIZ AT APPROACH SLAB		X	
R509	X	6	6	5 - 5	▲	X	PARAPET VERT AT APPROACH SLAB	X		
"	X	6	6	5 - 5	▲	X	PARAPET VERT AT APPROACH SLAB		X	
R510	X	2	2	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB	X		
"	X	2	2	19 - 6		X	PARAPET HORIZ AT APPROACH SLAB		X	

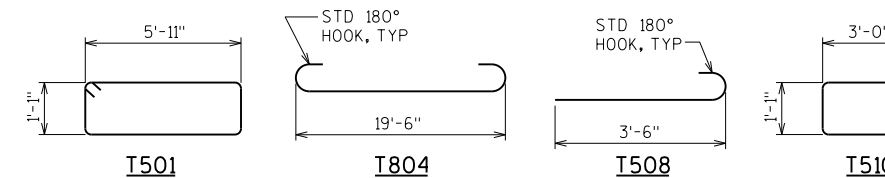
BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



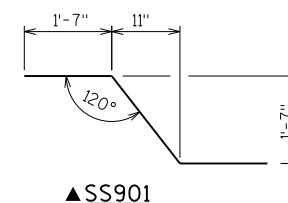
BILL OF BARS							STRUCTURAL APPROACH SLABS			
BAR MARK	COAT	WEST APPRO SLAB	EAST APPRO SLAB	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2	
T501	X	29		14 - 8		X	FTG STIRRUP	X		
"	X		29	14 - 8		X	FTG STIRRUP		X	
"	X	37		14 - 8		X	FTG STIRRUP		X	
"	X		37	14 - 8		X	FTG STIRRUP		X	
T802	X	24		22 - 4			FTG TRANS - TOP & BOTTOM	X		
"	X		24	22 - 4			FTG TRANS - TOP & BOTTOM	X		
T803	X	24		25 - 9			FTG TRANS - TOP & BOTTOM		X	
"	X		24	25 - 9			FTG TRANS - TOP & BOTTOM		X	
T804	X	49		21 - 4		X	SLAB LONGIT - BOTTOM	X		
"	X		49	21 - 4		X	SLAB LONGIT - BOTTOM	X		
"	X	62		21 - 4		X	SLAB LONGIT - BOTTOM		X	
"	X		62	21 - 4		X	SLAB LONGIT - BOTTOM		X	
T505	X	30		19 - 6			SLAB LONGIT - TOP	X		
"	X		30	19 - 6			SLAB LONGIT - TOP	X		
"	X	38		19 - 6			SLAB LONGIT - TOP		X	
"	X		38	19 - 6			SLAB LONGIT - TOP		X	
T506	X	84		21 - 9			SLAB TRANS - TOP & BOTTOM	X		
"	X		84	21 - 9			SLAB TRANS - TOP & BOTTOM	X		
T507	X	84		20 - 3			SLAB TRANS - TOP & BOTTOM		X	
"	X		84	20 - 3			SLAB TRANS - TOP & BOTTOM		X	
T508	X	20		4 - 1		X	SLAB TRANS - AT PARAPET	X		
"	X		20	4 - 1		X	SLAB TRANS - AT PARAPET	X		
"	X	20		4 - 1		X	SLAB TRANS - AT PARAPET		X	
"	X		20	4 - 1		X	SLAB TRANS - AT PARAPET		X	
NOT USED										
NOT USED										
T510	X	2		6 - 10		X	FTG STIRRUP AT BLOCKOUT	X		
"	X		2	6 - 10		X	FTG STIRRUP AT BLOCKOUT	X		
"	X	2		6 - 10		X	FTG STIRRUP AT BLOCKOUT		X	
"	X		2	6 - 10		X	FTG STIRRUP AT BLOCKOUT		X	



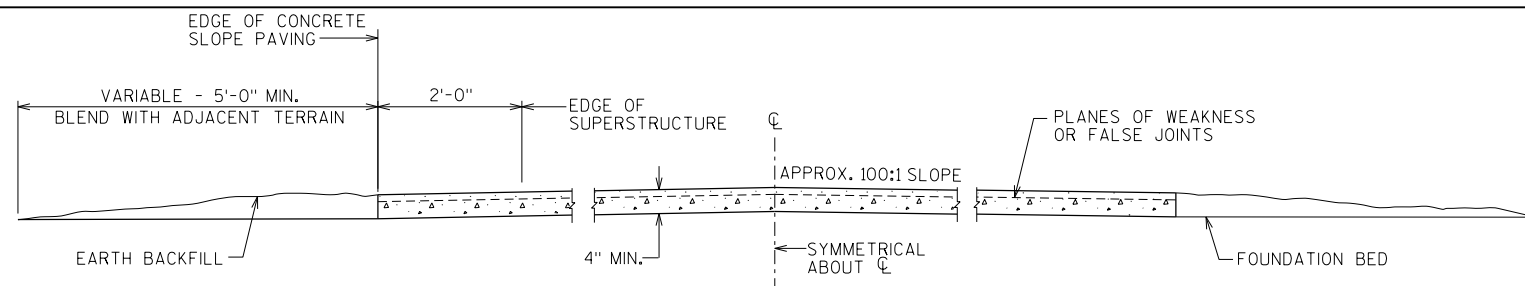
BILL OF BARS							STAINLESS STEEL			
BAR MARK	COAT	WEST APPRO SLAB	EAST APPRO SLAB	LENGTH (FT-IN)	BAR SERIES	BENT	LOCATION	STG 1	STG 2	
▲ SS901	SS	29		5 - 0		X	ABUT DIAPH TO APPROACH SLAB	X		
▲ "	SS		29	5 - 0		X	ABUT DIAPH TO APPROACH SLAB	X		
▲ "	SS	37		5 - 0		X	ABUT DIAPH TO APPROACH SLAB		X	
▲ "	SS		37	5 - 0		X	ABUT DIAPH TO APPROACH SLAB		X	

SS = STAINLESS STEEL BARS

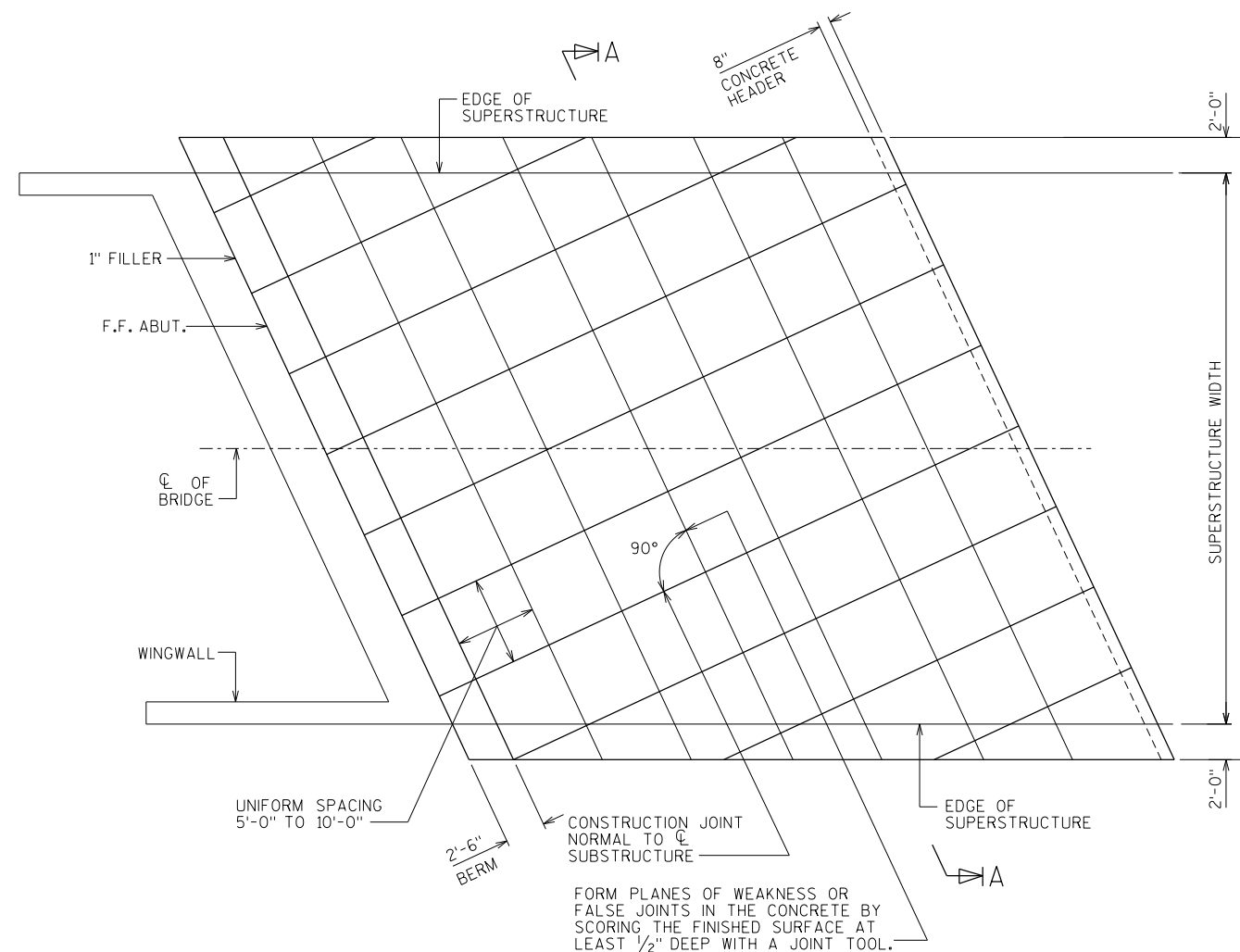
▲ THE BID ITEM FOR SS901 BARS SHALL BE STANDARD SPECIAL PROVISION "BAR STEEL REINFORCEMENT HS STAINLESS STRUCTURES"



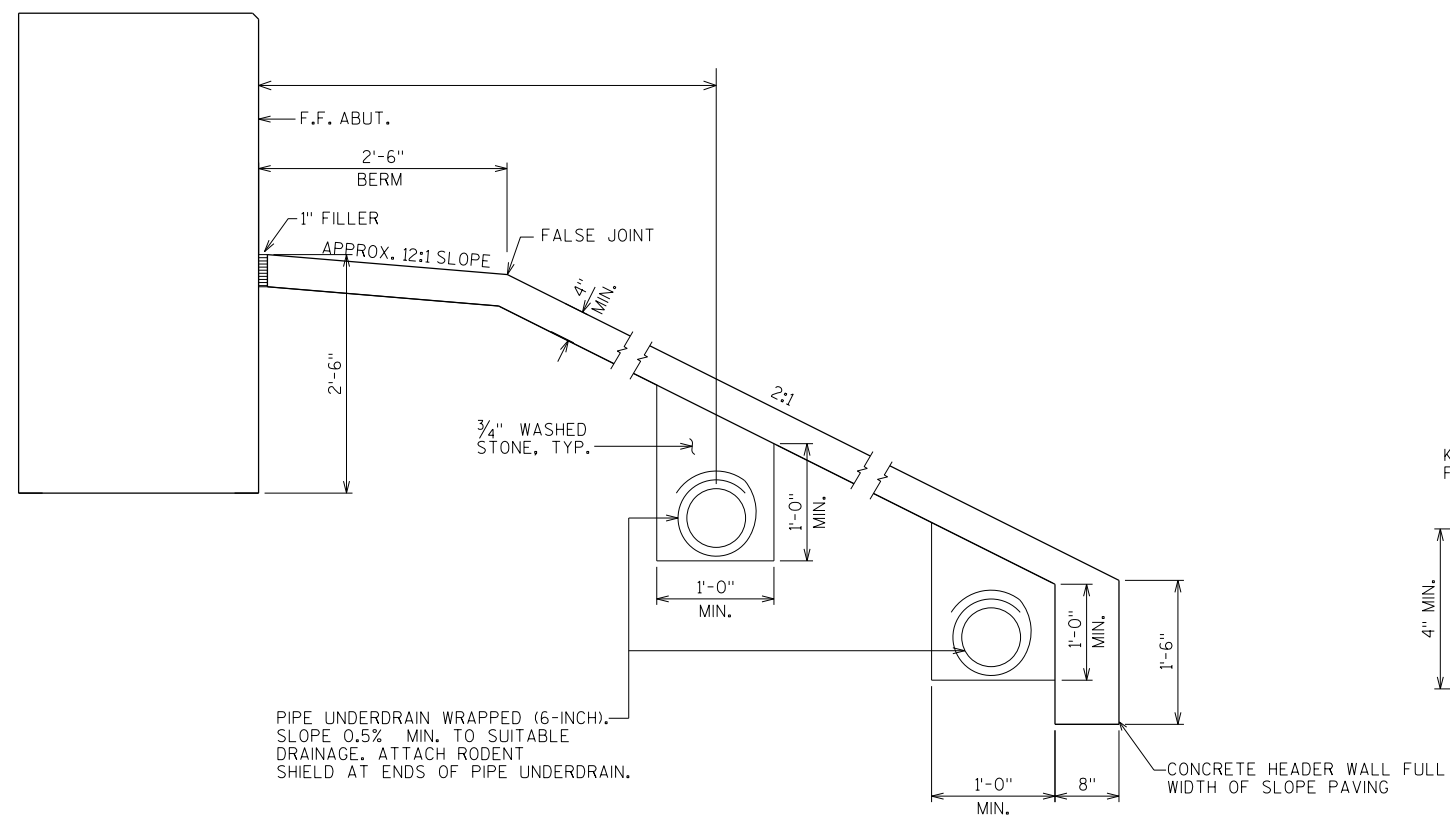
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
STRUCTURAL APPROACH SLABS AND 42SS REINFORCEMENT			SHEET 35 OF 37



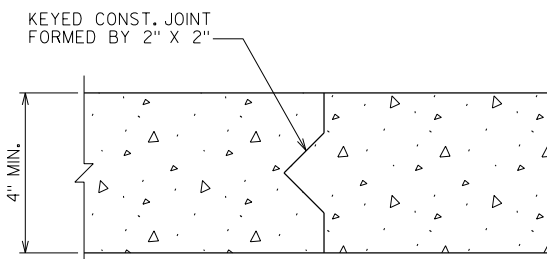
SECTION A-A



PLAN



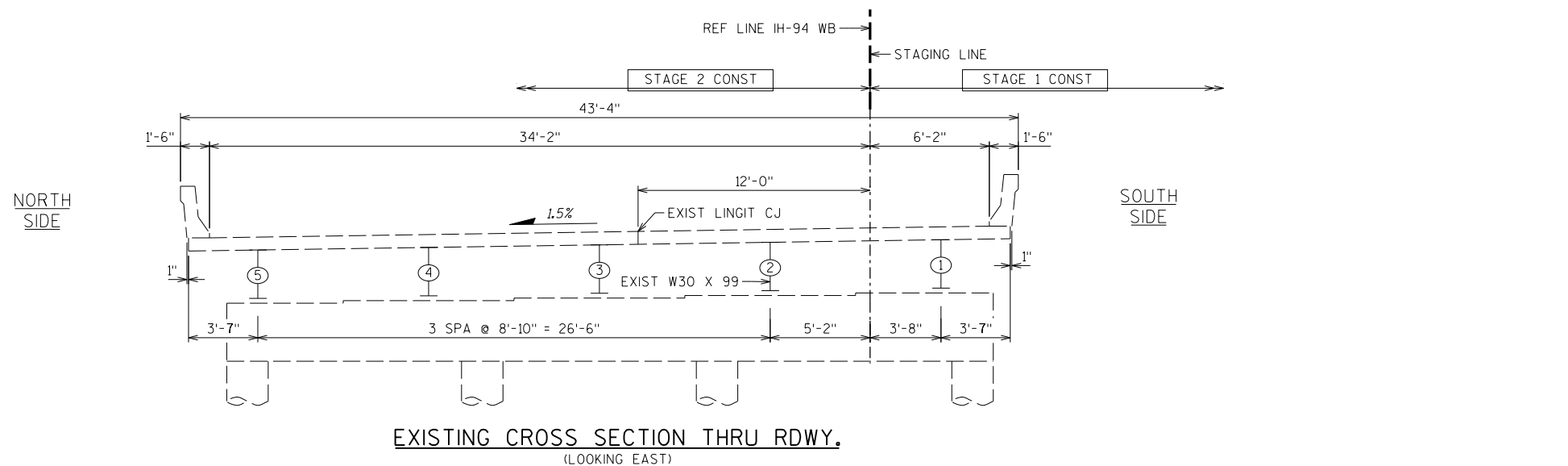
TYPICAL SECTION



CONSTRUCTION JOINT

NOTE
 BID ITEM SHALL BE "SLOPE PAVING CONCRETE"

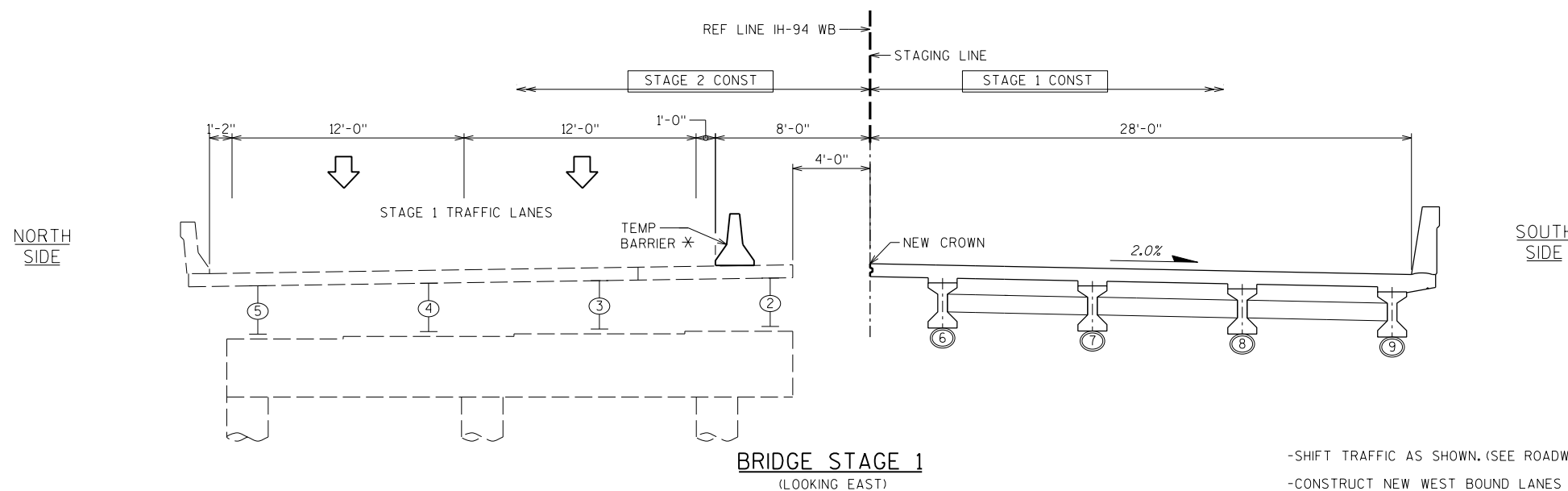
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
SLOPE PAVING (CONCRETE CAST-IN-PLACE)			SHEET 36 OF 37



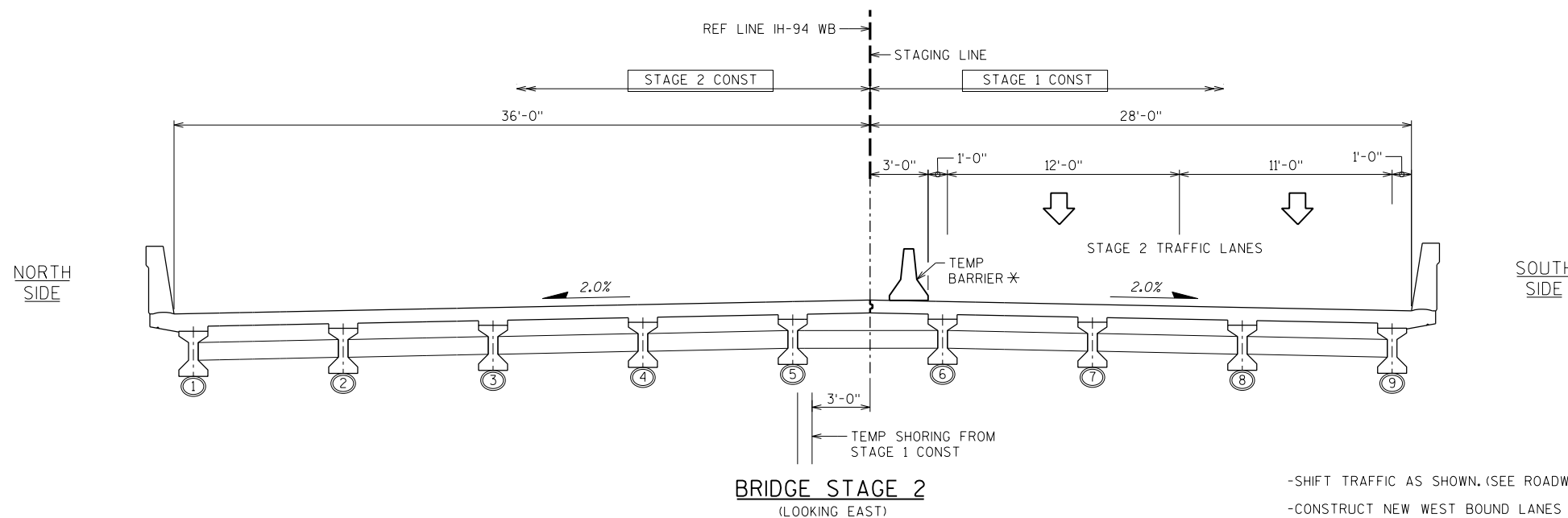
LEGEND

- INDICATES EXISTING GIRDER LINE
- ⊙ INDICATES NEW GIRDER LINE
- ⚠ INDICATES TEMPORARY BARRIER. SEE WISCONSIN (FDM) MANUAL FOR ANCHORING REQUIREMENTS.
- * SHALL BE ANCHORED TO DECK.

NOTE:
COORDINATE BRIDGE STAGING WITH THE ROADWAY STAGING.



-SHIFT TRAFFIC AS SHOWN. (SEE ROADWAY DRAWINGS)
-CONSTRUCT NEW WEST BOUND LANES WIDENING.



-SHIFT TRAFFIC AS SHOWN. (SEE ROADWAY DRAWINGS)
-CONSTRUCT NEW WEST BOUND LANES WIDENING.

PLOT TIME: 12:33:30 PM

PLOT DATE: 6/27/2022

FILE NAME : S:\UZ\W\W\17sw\13472\5-final-dsgn\5i-drawings\20-Struct\B-28-185\dgn\b28185staging.dgn

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-28-185			
DRAWN BY DLF		PLANS CKD. NCK	
BRIDGE TRAFFIC STAGING CONCEPT			SHEET 37 OF 37

PROJECT ID 1067-02-73
 STAGE 1 - IH 94 WB AT NEWVILLE ROAD

STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Fill	
1060+55 AH	106055	0.00	16.53	0.02	0	0	0	0	0
1061+00	106100	44.91	19.25	0.00	30	0	30	0	30
1061+50	106150	50.00	20.01	0.24	36	0	66	0	66
1062+00	106200	50.00	21.74	7.62	39	7	105	8	97
1062+50	106250	50.00	22.32	10.79	41	17	146	25	121
1063+00	106300	50.00	43.62	0.00	61	10	207	35	172
1063+50	106350	50.00	36.37	0.00	74	0	281	35	246
1064+00	106400	50.00	31.03	15.37	62	14	343	49	294
1064+50	106450	50.00	30.16	17.37	57	30	400	79	321
1065+00	106500	50.00	31.15	16.29	57	31	457	110	346
1065+50	106550	50.00	31.56	19.05	58	33	515	143	372
1065+95	106595	45.25	31.39	18.84	53	32	567	175	393
1066+00	106600	4.75	31.33	18.61	6	3	573	178	395
1066+50	106650	50.00	31.66	15.54	58	32	631	210	422
1067+00	106700	50.00	31.34	16.59	58	30	690	239	450
1067+50	106750	50.00	58.76	12.87	83	27	773	267	506
1068+00	106800	50.00	72.70	5.06	122	17	895	283	611
1068+50	106850	50.00	75.59	8.72	137	13	1032	296	736
1069+00	106900	50.00	68.13	11.69	133	19	1165	315	850
1069+50	106950	50.00	48.28	19.17	108	29	1273	344	929
1070+00	107000	50.00	49.75	37.71	91	53	1364	396	967
1070+08	107008	8.31	46.92	38.23	15	12	1378	408	971
1070+21 BK	107021	13.10	33.14	20.72	19	14	1398	422	976
1071+49 AH	107149	0.00	58.14	0.00	0	0	1398	422	976
1072+00	107200	51.42	79.55	0.00	131	0	1529	422	1107
1072+50	107250	50.00	52.83	3.29	123	3	1652	425	1226
1073+00	107300	50.00	39.90	9.60	86	12	1737	437	1300
1073+50	107350	50.00	38.90	10.95	73	19	1810	456	1354
1074+00	107400	50.00	44.79	10.63	77	20	1888	476	1412
1074+10	107410	10.36	44.95	10.54	17	4	1905	480	1425
1074+36	107436	25.14	43.08	10.66	41	10	1946	490	1456
1074+50	107450	14.50	40.20	12.23	22	6	1968	496	1472
1074+63	107463	13.49	37.68	14.85	19	7	1988	503	1485
1075+00	107500	36.51	32.20	19.80	47	23	2035	526	1509
1075+50	107550	50.00	31.69	21.12	59	38	2094	564	1530
1076+00	107600	50.00	33.13	20.92	60	39	2154	603	1551
1076+50	107650	50.00	29.11	21.67	58	39	2212	643	1569
1077+00	107700	50.00	28.16	15.98	53	35	2265	678	1587
1077+50	107750	50.00	28.04	10.75	52	25	2317	702	1615
1078+00	107800	50.00	26.68	7.80	51	17	2368	719	1648
1078+50	107850	50.00	25.05	2.55	48	10	2416	729	1687
1079+00	107900	50.00	22.15	1.40	44	4	2459	733	1727
1079+50	107950	50.00	20.63	0.00	40	1	2499	734	1765
1080+00	108000	50.00	20.10	0.00	38	0	2537	734	1803
1080+40 BK	108040	40.00	21.09	0.00	31	0	2567	734	1833
COLUMN TOTALS					2567	734			

PROJECT ID 1067-02-73
 STAGE 1 - IH 94 WB AT ROCK LAKE ROAD

STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Fill	
1126+31	AH 112631	0.00	24.75	0.00	0	0	0	0	0
1126+50	112650	18.81	25.71	0.00	18	0	18	0	18
1127+00	112700	50.00	75.21	0.85	93	1	111	1	110
1127+50	112750	50.00	86.99	0.10	150	1	261	2	260
1128+00	112800	50.00	103.20	0.00	176	0	437	2	436
1128+50	112850	50.00	36.70	0.00	130	0	567	2	565
1129+00	112900	50.00	34.47	0.00	66	0	633	2	631
1129+50	112950	50.00	44.40	0.00	73	0	706	2	704
1130+00	113000	50.00	88.40	0.07	123	0	829	2	827
1130+50	113050	50.00	93.30	0.38	168	0	997	2	995
1131+00	113100	50.00	126.58	1.05	204	1	1201	4	1197
1131+50	113150	50.00	135.98	1.42	243	2	1444	6	1438
1132+00	113200	50.00	116.76	3.15	234	4	1678	10	1668
1132+50	113250	50.00	114.61	3.02	214	6	1892	16	1876
1133+00	113300	50.00	111.78	7.39	210	10	2102	25	2076
1133+50	113350	50.00	95.94	29.11	192	34	2294	59	2235
1134+00	113400	50.00	67.93	63.37	152	86	2446	145	2301
1134+50	113450	50.00	44.54	117.92	104	168	2550	313	2237
1134+60	113460	10.00	40.88	129.52	16	46	2566	359	2207
1135+00	113500	40.00	67.47	156.16	80	212	2646	570	2076
1135+30	BK 113530	29.95	104.74	176.32	96	184	2741	755	1987
1137+42	AH 113742	0.00	33.21	149.54	0	0	2741	755	1987
1137+50	113750	8.00	33.35	127.89	10	41	2751	796	1956
1137+85	113785	35.00	31.60	130.22	42	167	2793	963	1830
1138+00	113800	15.00	30.53	114.17	17	68	2811	1031	1780
1138+50	113850	50.00	36.29	94.79	62	193	2872	1224	1648
1139+00	113900	50.00	40.18	45.86	71	130	2943	1355	1589
1139+50	113950	50.00	48.25	19.98	82	61	3025	1416	1610
1140+00	114000	50.00	42.12	13.02	84	31	3109	1446	1663
1140+07	114007	6.89	40.98	12.04	11	3	3119	1449	1670
1140+32	114032	24.61	38.01	9.81	36	10	3155	1459	1696
1140+50	114050	18.50	37.86	9.26	26	7	3181	1466	1716
1140+57	114057	6.91	37.81	9.02	10	2	3191	1468	1723
1141+00	114100	43.09	37.07	7.10	60	13	3251	1481	1770
1141+50	114150	50.00	37.76	4.54	69	11	3320	1492	1828
1142+00	114200	50.00	36.76	5.16	69	9	3389	1501	1888
1142+50	114250	50.00	33.57	8.06	65	12	3454	1513	1941
1143+00	114300	50.00	31.92	5.63	61	13	3515	1526	1989
1143+50	114350	50.00	25.98	4.19	54	9	3568	1535	2034
1144+00	114400	50.00	24.02	3.85	46	7	3615	1542	2073
1144+50	114450	50.00	25.87	0.14	46	4	3661	1546	2115
1145+00	114500	50.00	26.66	0.00	49	0	3710	1546	2164
1145+50	114550	50.00	27.18	0.00	50	0	3759	1546	2213
1146+00	114600	50.00	25.61	0.00	49	0	3808	1546	2262
1146+44	114644	43.93	21.88	0.00	39	0	3847	1546	2301
COLUMN TOTALS					3847	1546			

PROJECT ID 1067-02-73
STAGE 2 - IH 94 WB AT NEWVILLE ROAD

STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Fill	
1069+00 AH	106900	0.00	128.07	0.58	0	0	0	0	0
1069+50	106950	49.60	124.77	4.69	232	5	232	5	227
1069+91	106991	40.79	119.80	14.91	185	15	417	20	397
1070+00 BK	107000	8.99	119.46	22.94	40	6	457	26	431
1071+33 AH	107133	0.00	127.65	9.76	0	0	457	26	431
1071+50	107150	17.00	130.82	4.35	81	4	538	30	508
1072+00	107200	50.00	74.21	1.42	190	5	728	36	692
1072+50	107250	50.00	14.82	1.68	82	3	810	39	772
1072+97 BK	107297	47.02	14.96	0.00	26	1	836	40	796
COLUMN TOTALS					836	40			

PROJECT ID 1067-02-73
STAGE 2 - IH 94 WB AT ROCK LAKE ROAD

STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Fill	
1134+60 AH	113460	0.00	135.40	0.92	0	0	0	0	0
1135+00	113500	40.00	131.40	6.24	198	5	198	5	192
1135+02 BK	113502	1.83	131.01	6.00	9	0	207	6	201
1137+45 AH	113745	0.00	129.39	31.67	0	0	207	6	201
1137+50	113750	5.49	129.16	34.73	26	7	233	12	220
1137+85	113785	35.01	72.55	55.86	131	59	364	71	292
1138+00	113800	14.99	15.58	48.38	24	29	388	100	288
1138+50	113850	0.00	15.25	42.09	0	0	388	100	288
1139+00	113900	50.00	15.59	18.38	29	56	417	156	260
1139+50	113950	50.00	16.56	0.78	30	18	446	174	272
1139+70	113970	19.51	17.67	0.24	12	0	459	174	284
1139+95	113995	25.00	19.02	0.20	17	0	476	174	301
1140+00	114000	5.49	19.03	0.43	4	0	480	175	305
1140+20	114020	19.52	19.11	1.53	14	1	493	175	318
1140+50	114050	30.48	16.87	1.44	20	2	514	177	337
1140+80 BK	114080	29.50	15.22	0.00	18	1	531	178	354
COLUMN TOTALS					531	178			

PROJECT ID 1067-02-73
STAGE 1 - NEWVILLE ROAD

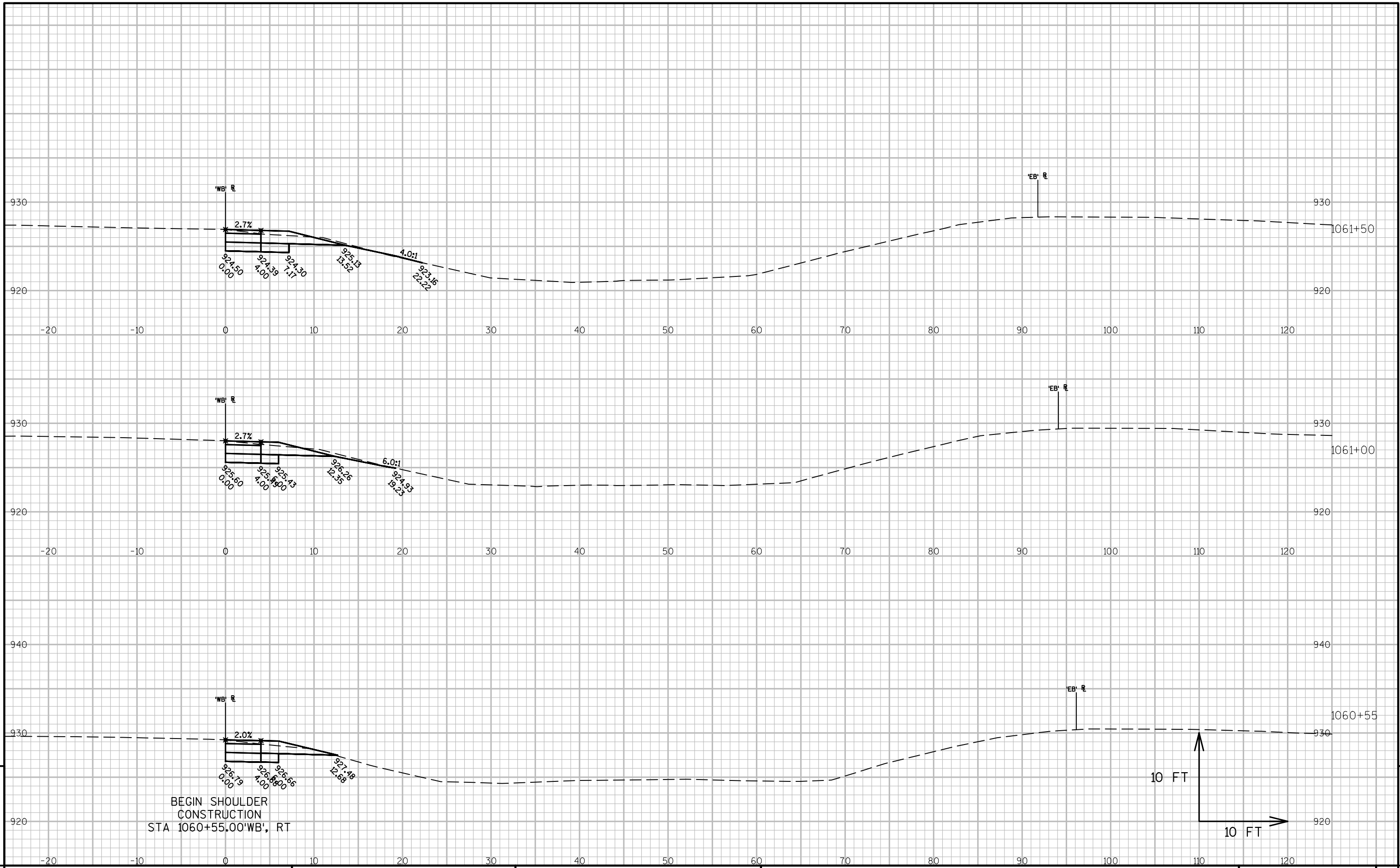
STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Fill	
46+58	AH 4658	0.00	47.30	2.17	0	0	0	0	0
47+00	4700	41.68	83.61	1.45	101	3	101	3	98
47+33	4733	33.34	96.97	0.12	112	1	213	4	209
47+50	4750	16.66	105.21	0.00	62	0	275	4	271
47+59	4759	8.52	110.77	0.00	34	0	309	4	305
47+83	4783	24.82	138.85	0.00	115	0	424	4	420
48+00	4800	16.66	181.06	0.16	99	0	522	4	519
48+15	4815	14.60	192.87	0.90	101	0	624	4	619
48+40	4840	25.18	199.95	0.00	183	0	807	5	802
48+50	4850	10.21	224.71	0.00	80	0	887	5	882
48+65	4865	14.60	51.84	0.49	75	0	962	5	957
49+00	4900	35.40	54.61	0.57	70	1	1032	5	1026
49+50	4950	50.00	68.08	0.00	114	1	1145	6	1139
50+00	5000	50.00	71.75	0.00	129	0	1275	6	1269
50+50	5050	50.00	63.54	0.10	125	0	1400	6	1394
50+52	5052	1.91	63.25	0.04	4	0	1404	6	1398
50+77	5077	25.00	71.09	0.00	62	0	1467	6	1461
51+00	5100	23.09	58.58	4.18	55	2	1522	8	1514
51+02	5102	1.91	58.30	4.81	4	0	1526	8	1518
51+27	5127	25.09	56.15	21.88	53	12	1579	21	1559
51+33	5133	6.00	54.84	20.73	12	5	1592	25	1566
51+50	5150	17.00	54.88	2.02	35	7	1626	32	1594
51+71	5171	20.67	24.32	0.00	30	1	1657	33	1623
51+96	5196	24.98	19.25	1.46	20	1	1677	34	1643
52+00	5200	4.35	18.89	2.43	3	0	1680	34	1646
52+21	5221	20.67	7.49	4.65	10	3	1690	37	1653
52+50	5250	29.33	9.51	2.95	9	4	1699	41	1658
53+00	5300	50.00	7.50	0.46	16	3	1715	44	1671
53+50	BK 5350	50.00	8.91	0.00	15	0	1730	45	1685

COLUMN TOTALS 1730 45

PROJECT ID 1067-02-73
 STAGE 1 - ROCK LAKE ROAD

STATION	Real Station	Distance	AREA (SF)		Incremental Vol (CY) (Unadjusted)		Cumulative Vol (CY)		Mass Ordinate
			Cut	Fill	Cut	Fill	Cut	Fill	
49+65	AH 4965	0.00	6.16	0.61	0	0	0	0	0
50+00	5000	35.20	5.39	2.07	8	2	8	2	6
50+27	5027	26.54	30.40	8.64	18	5	25	7	18
50+50	5050	23.46	32.16	7.96	27	7	52	14	38
50+52	5052	1.99	32.74	4.35	2	0	55	15	40
50+77	5077	25.35	37.28	3.84	33	4	88	19	69
51+00	5100	22.66	40.70	0.08	33	2	120	20	100
51+50	5150	50.00	54.30	1.31	88	1	208	21	187
52+00	5200	50.00	77.14	0.10	122	1	330	23	307
52+48	5248	47.59	91.27	0.00	148	0	478	23	456
52+50	5250	2.41	93.07	0.00	8	0	487	23	464
52+73	5273	22.61	88.01	0.00	76	0	562	23	540
52+95	5295	22.39	92.79	3.50	75	1	637	24	613
52+98	5298	2.76	92.77	4.43	9	0	647	25	622
53+34	5334	36.24	106.95	0.00	134	3	781	28	753
53+50	5350	16.00	98.03	0.00	61	0	842	28	814
54+00	5400	50.00	122.74	0.00	204	0	1046	28	1018
54+50	5450	50.00	88.70	0.00	196	0	1242	28	1214
54+75	5475	25.00	126.52	0.00	100	0	1341	28	1314
55+00	5500	25.00	75.43	0.00	93	0	1435	28	1407
55+50	5550	50.00	52.50	0.00	118	0	1553	28	1526
56+00	5600	50.00	40.21	0.38	86	0	1639	28	1611
56+50	5650	50.00	35.85	0.00	70	0	1710	28	1681
56+60	BK 5660	10.00	36.55	0.00	13	0	1723	28	1695

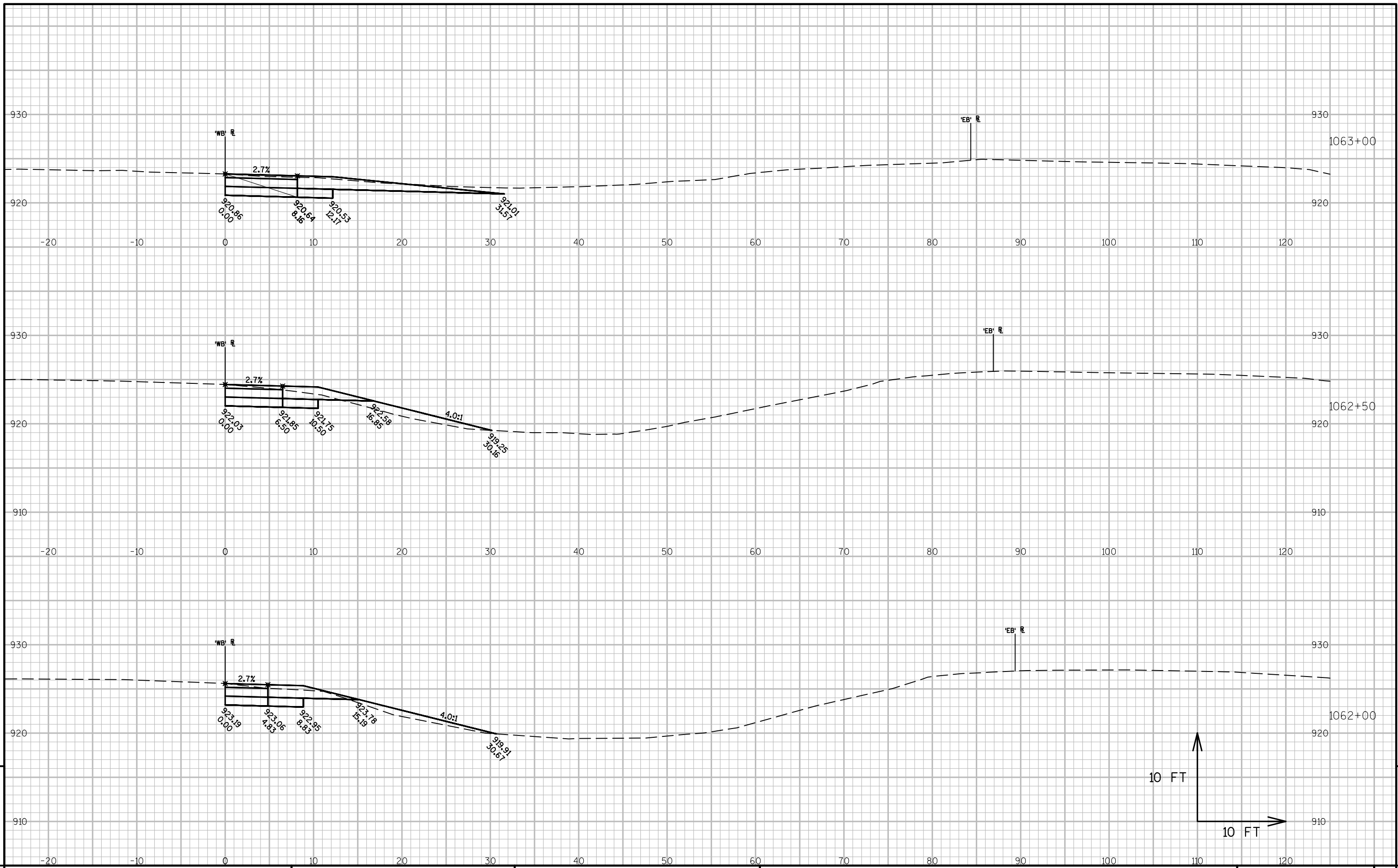
COLUMN TOTALS 1723 28



PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

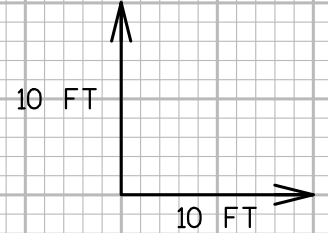
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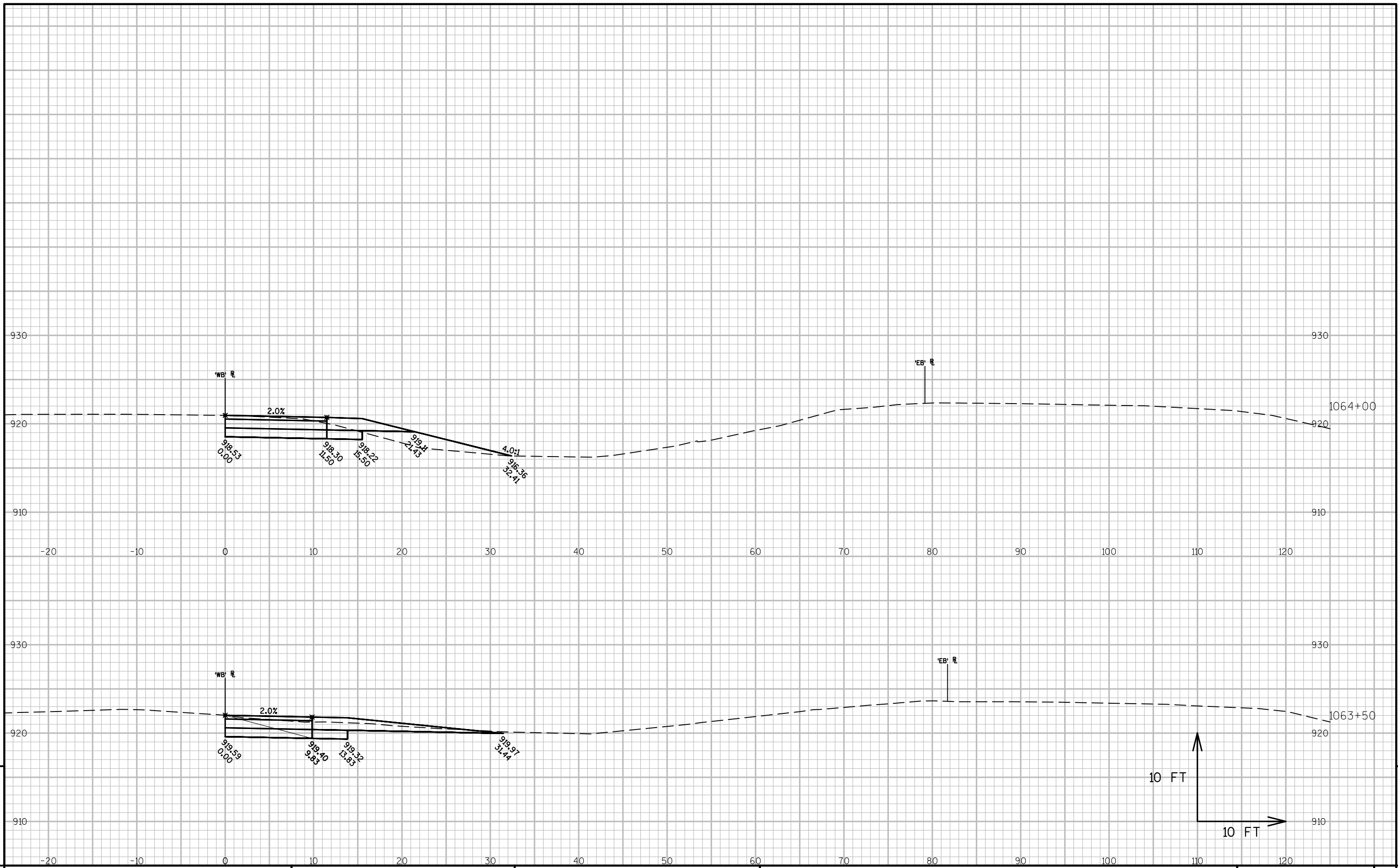


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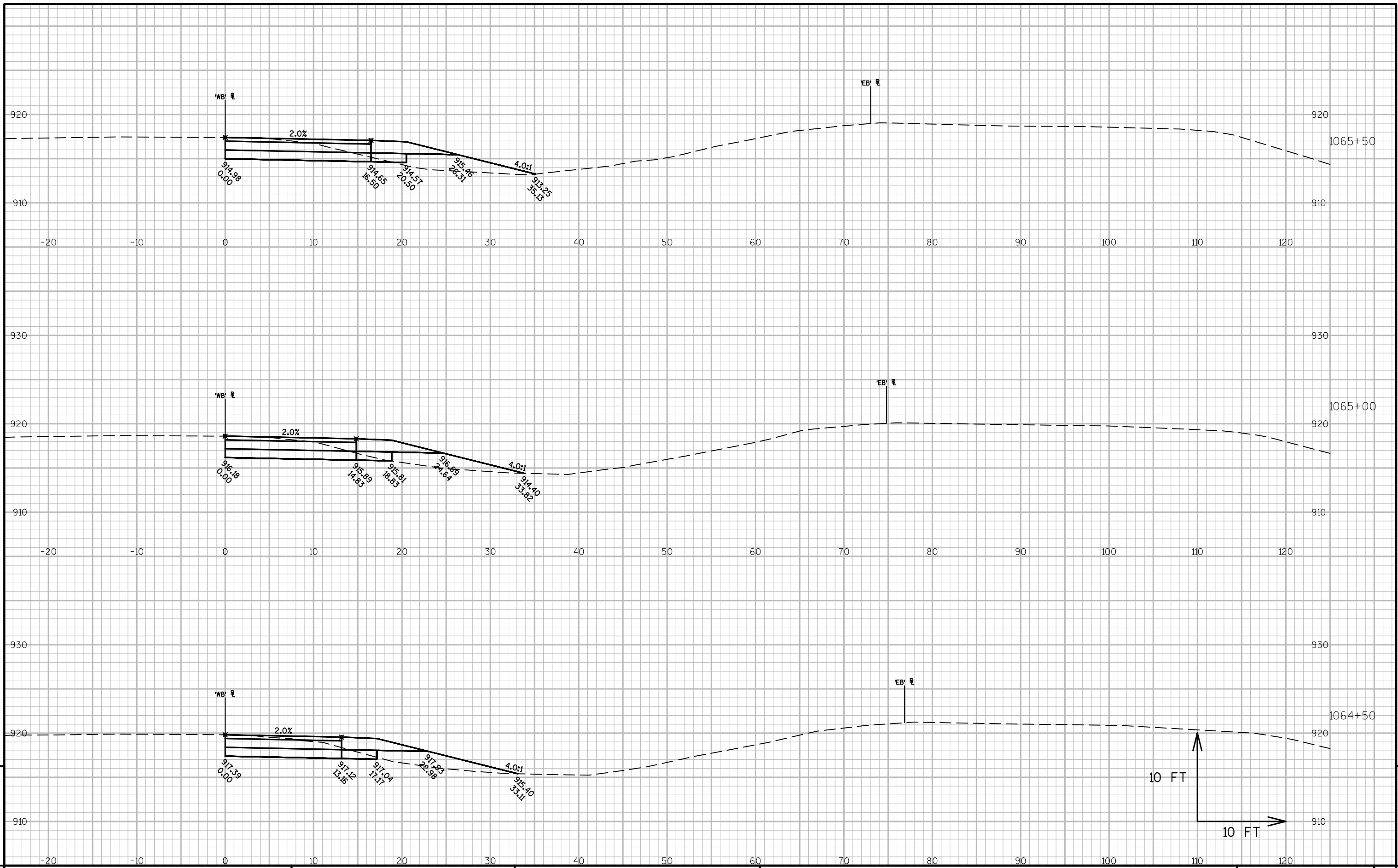
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



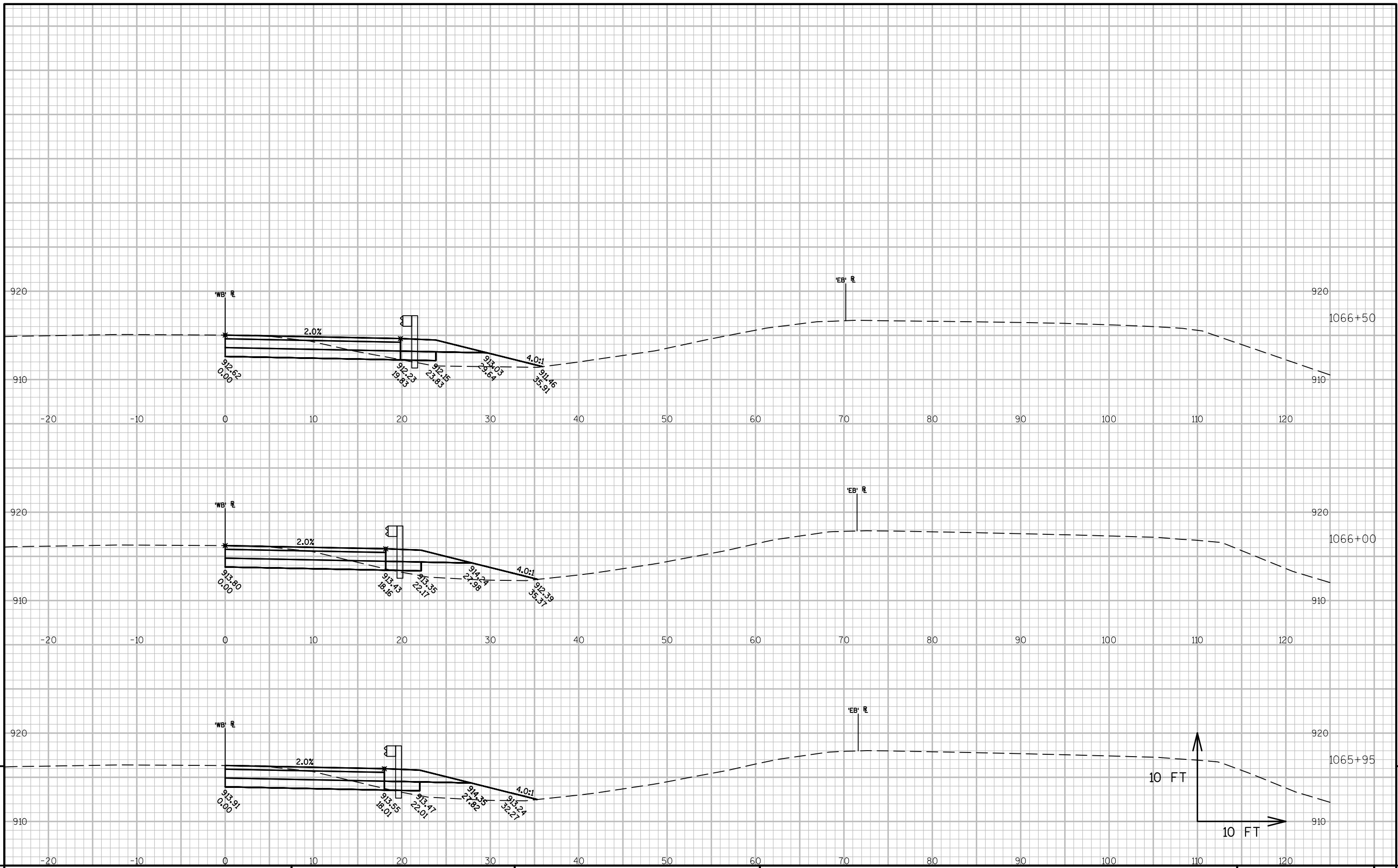
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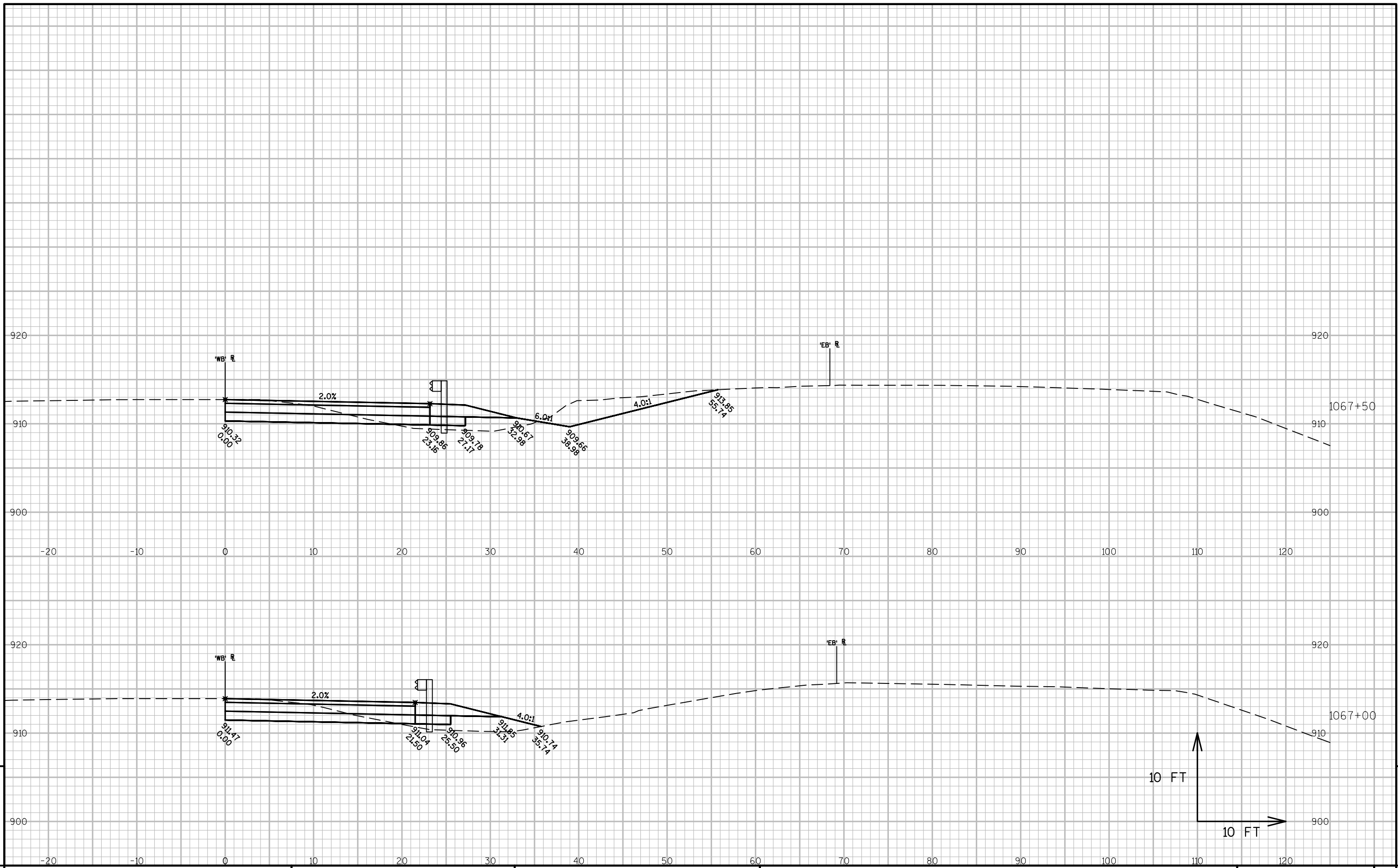
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



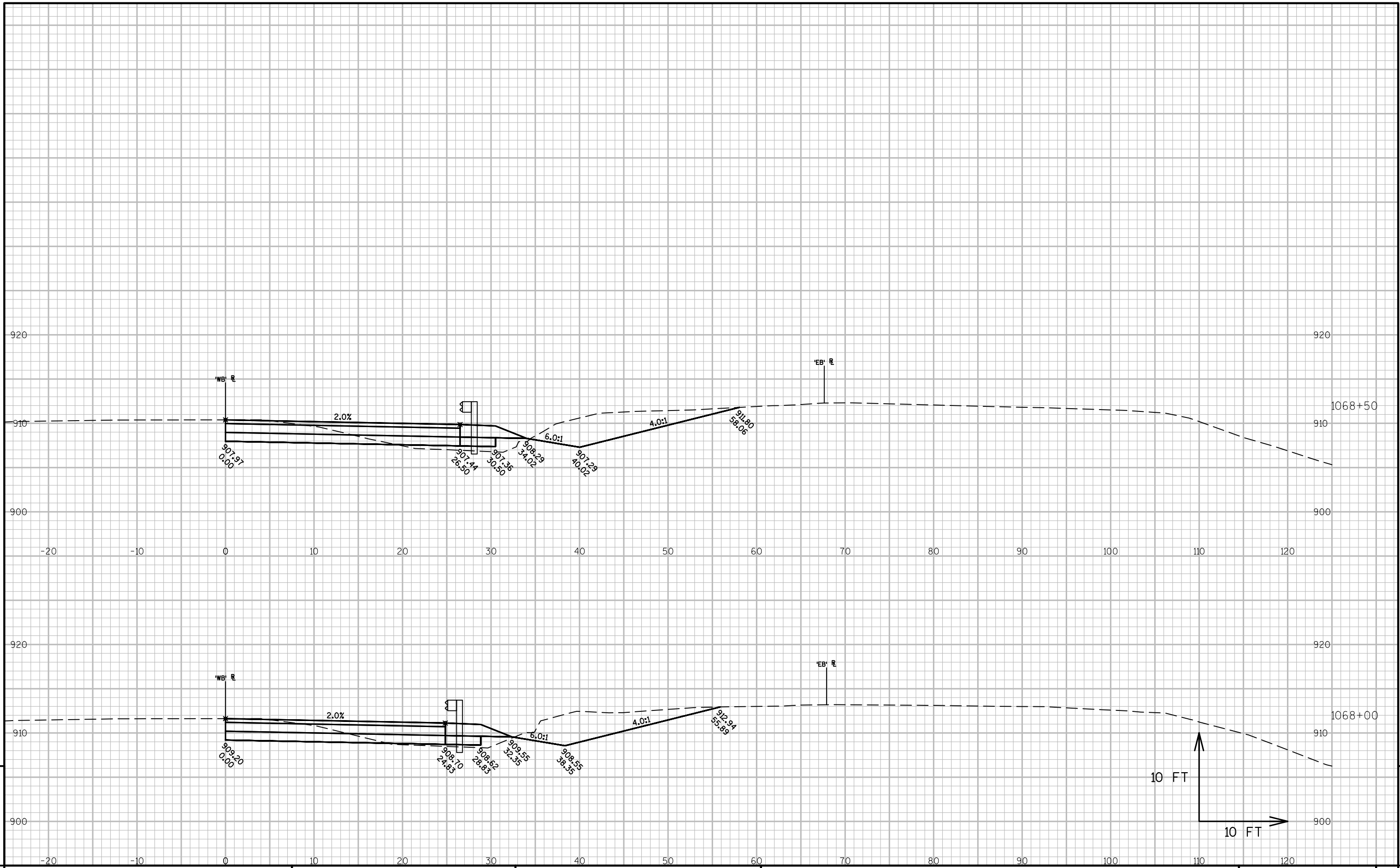
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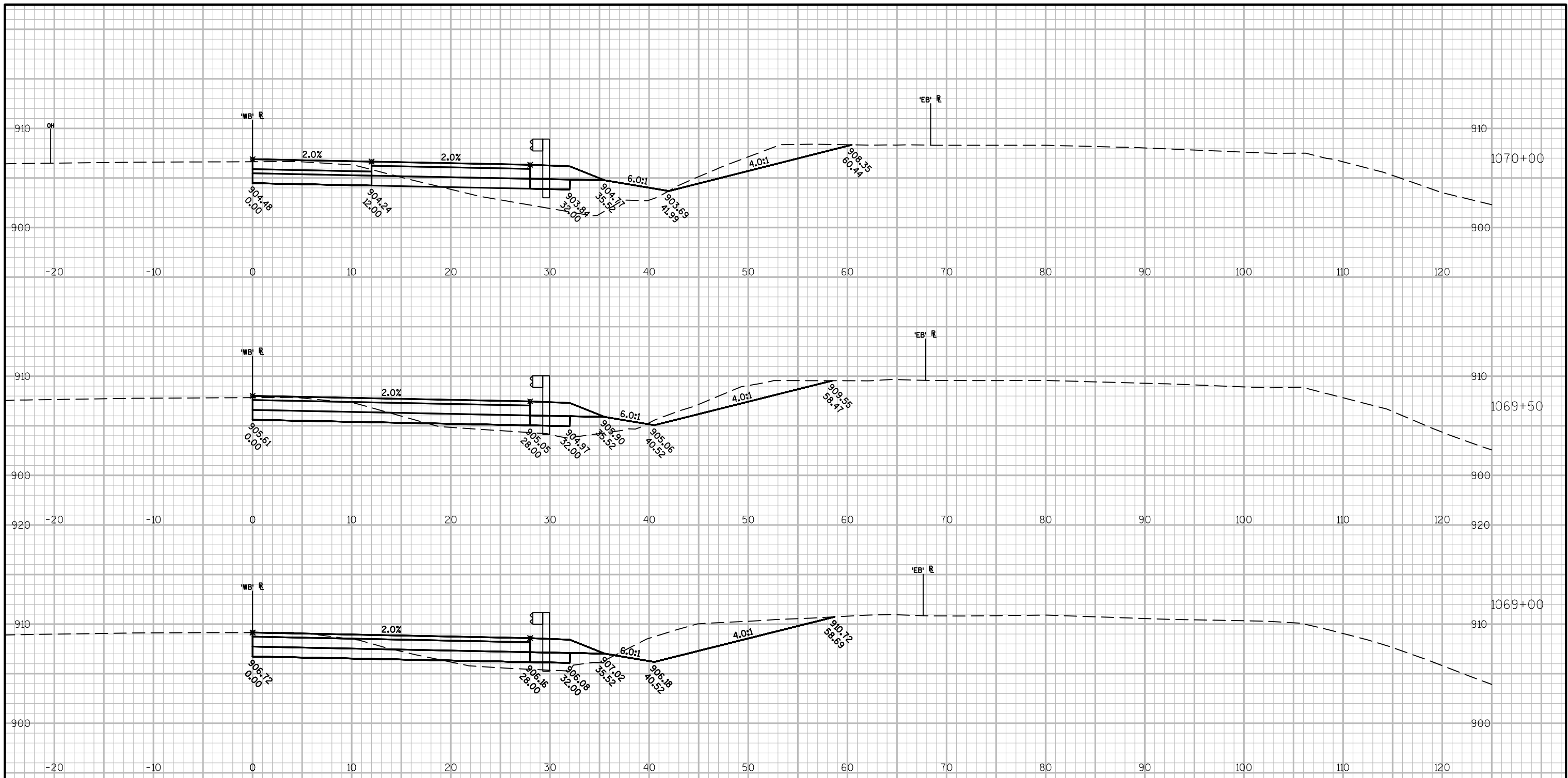
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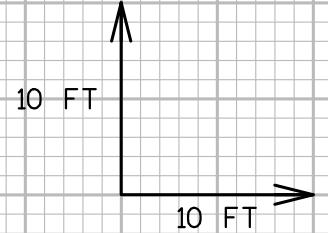
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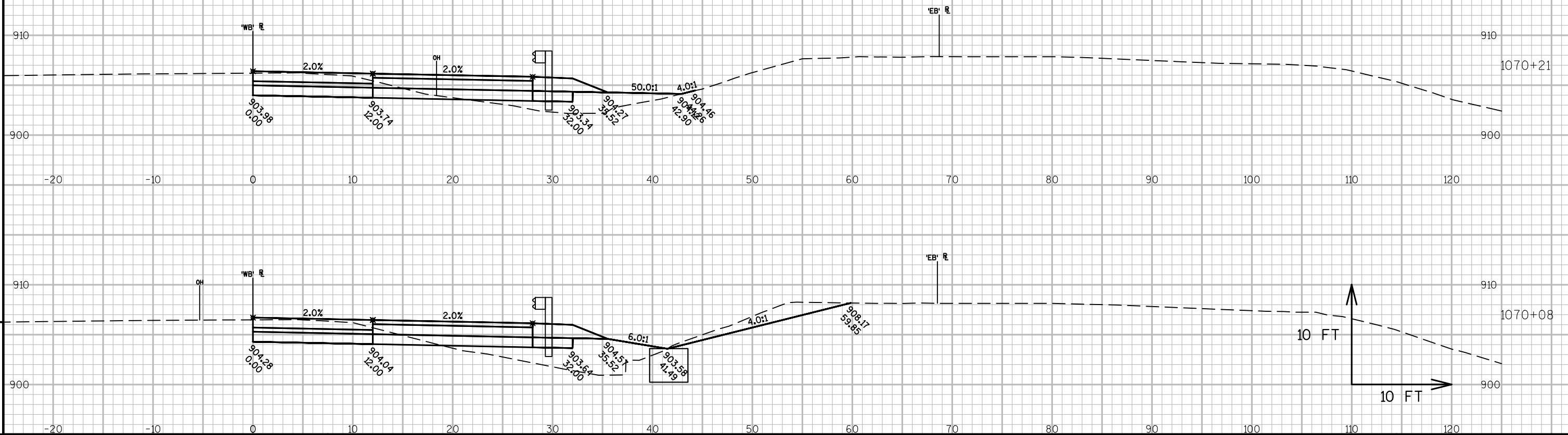
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



BEGIN PROJECT
STA 1069+00.00'WB'



PROPOSED
STRUCTURE B-28-184



PROJECT NO: 1067-02-73

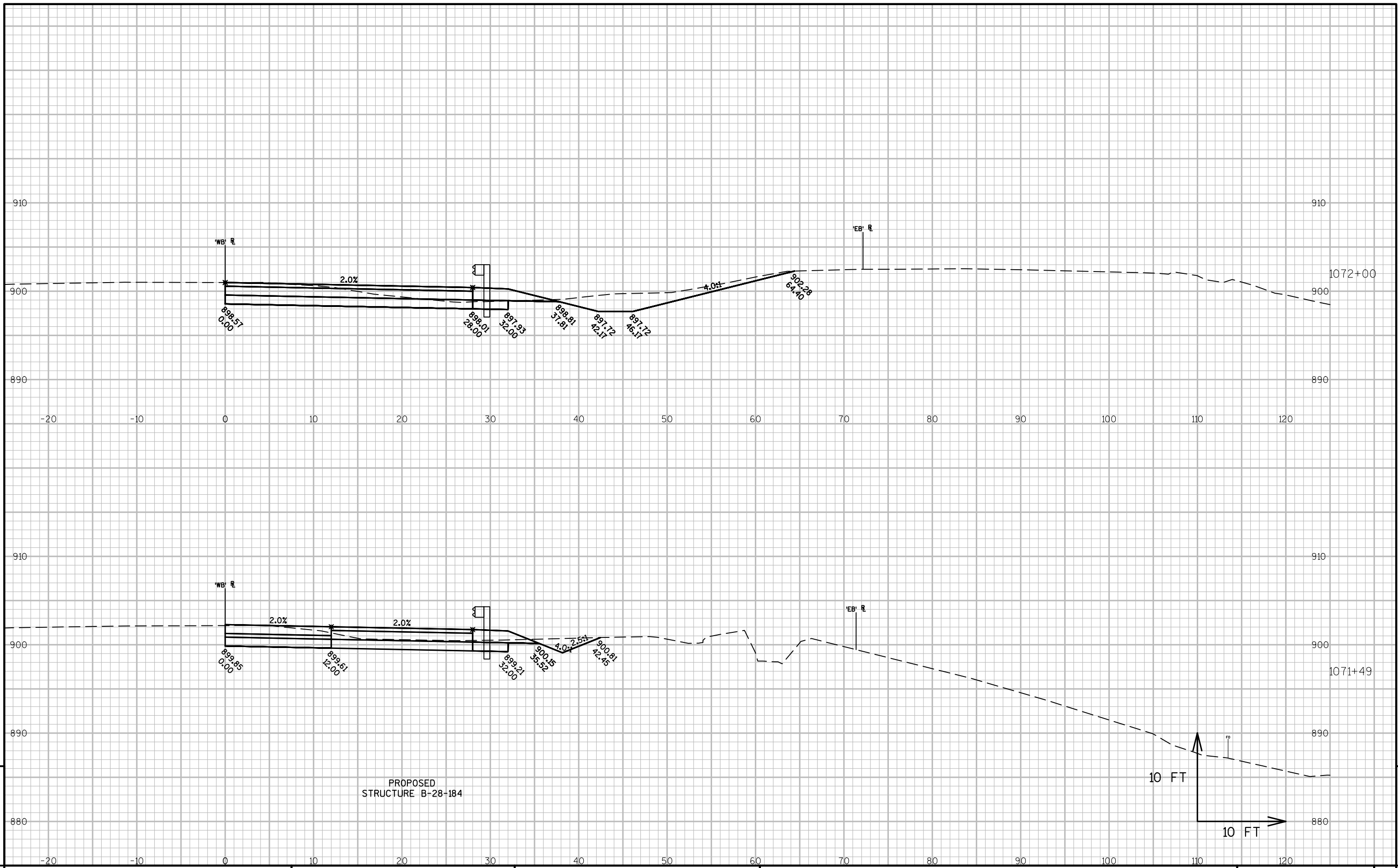
HWY: IH 94

COUNTY: JEFFERSON

CROSS SECTIONS: IH 94 STAGE 1

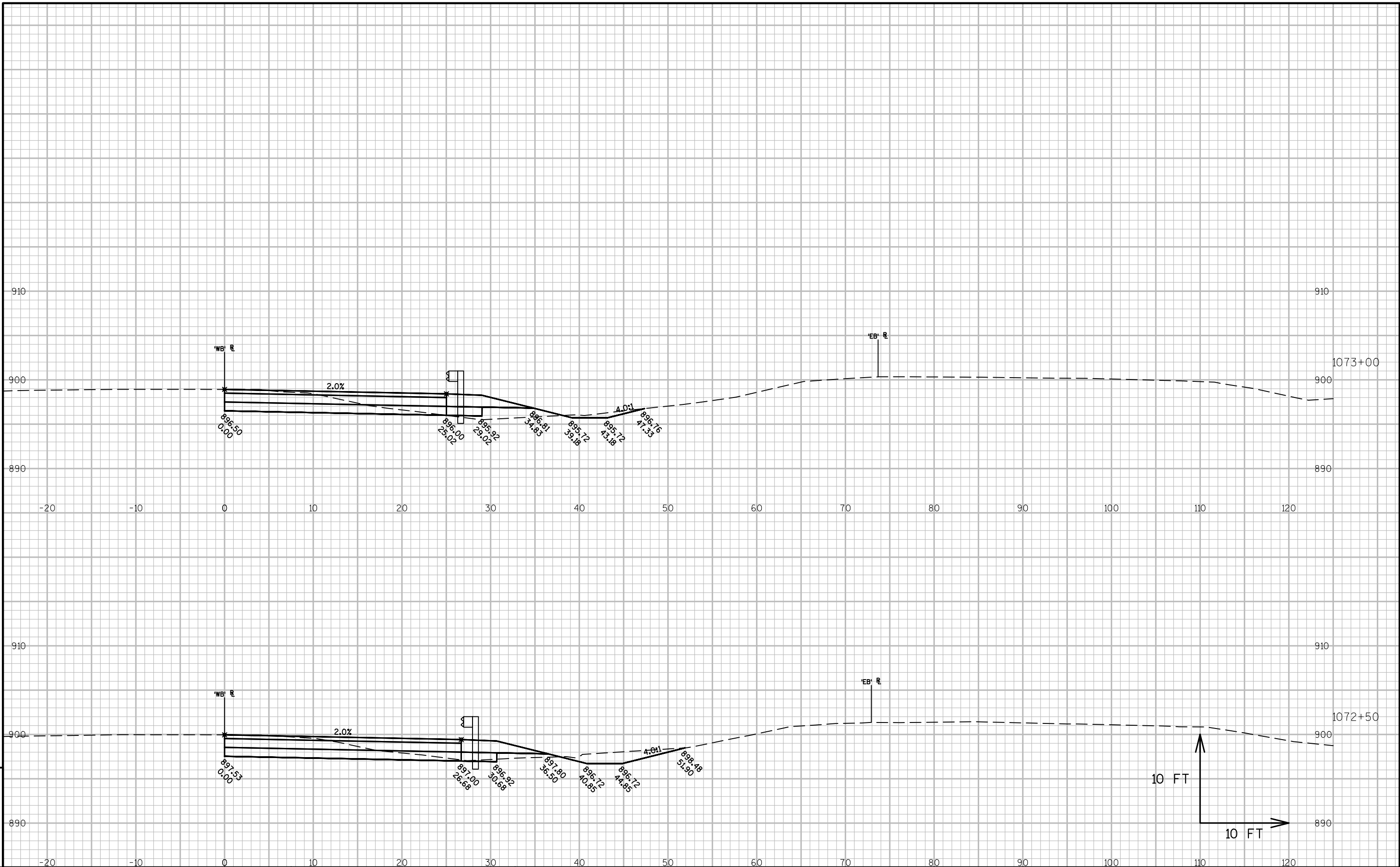
SHEET

E



9

9



PROJECT NO: 1067-02-73

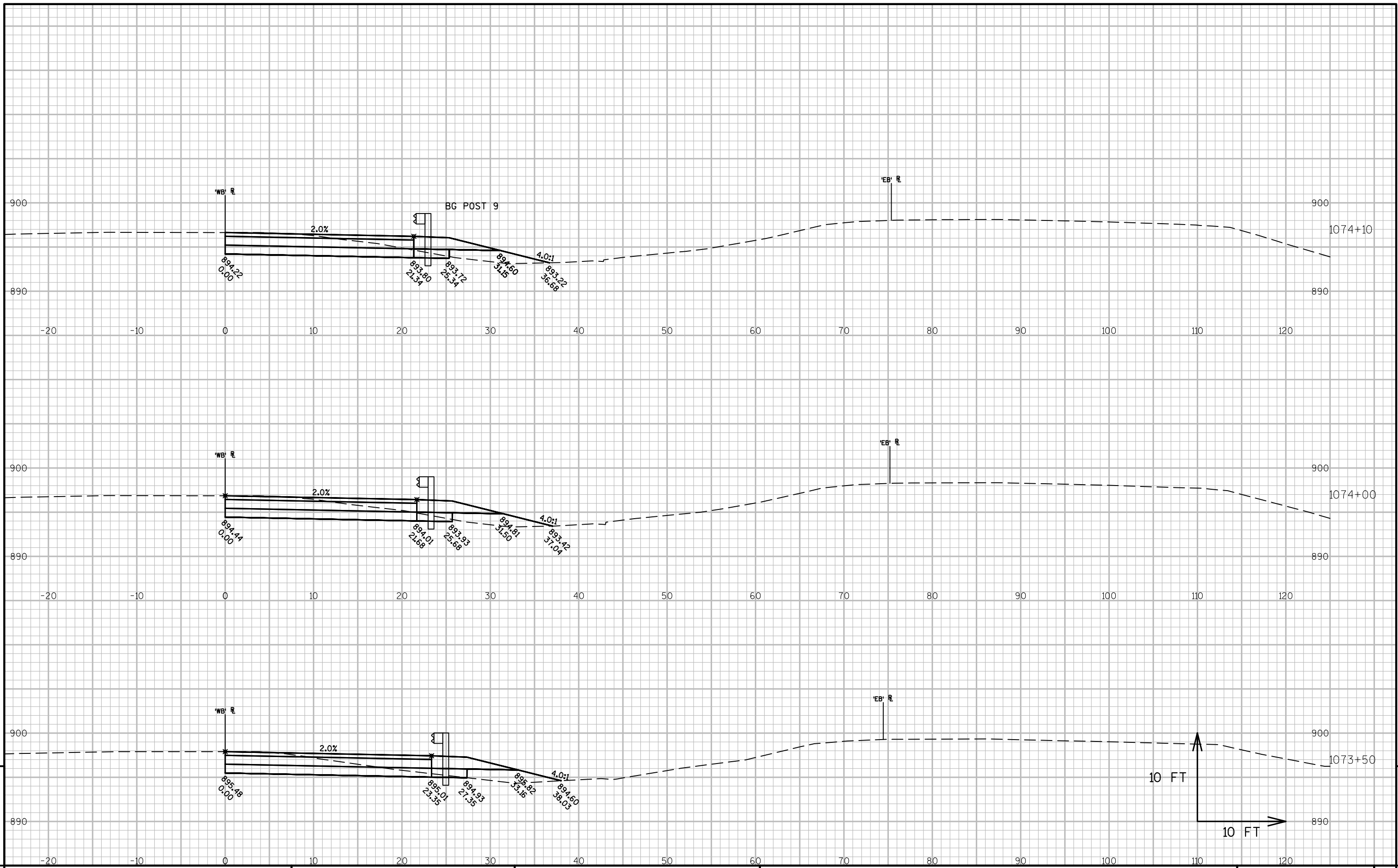
HWY: IH 94

COUNTY: JEFFERSON

CROSS SECTIONS: IH 94 STAGE 1

SHEET

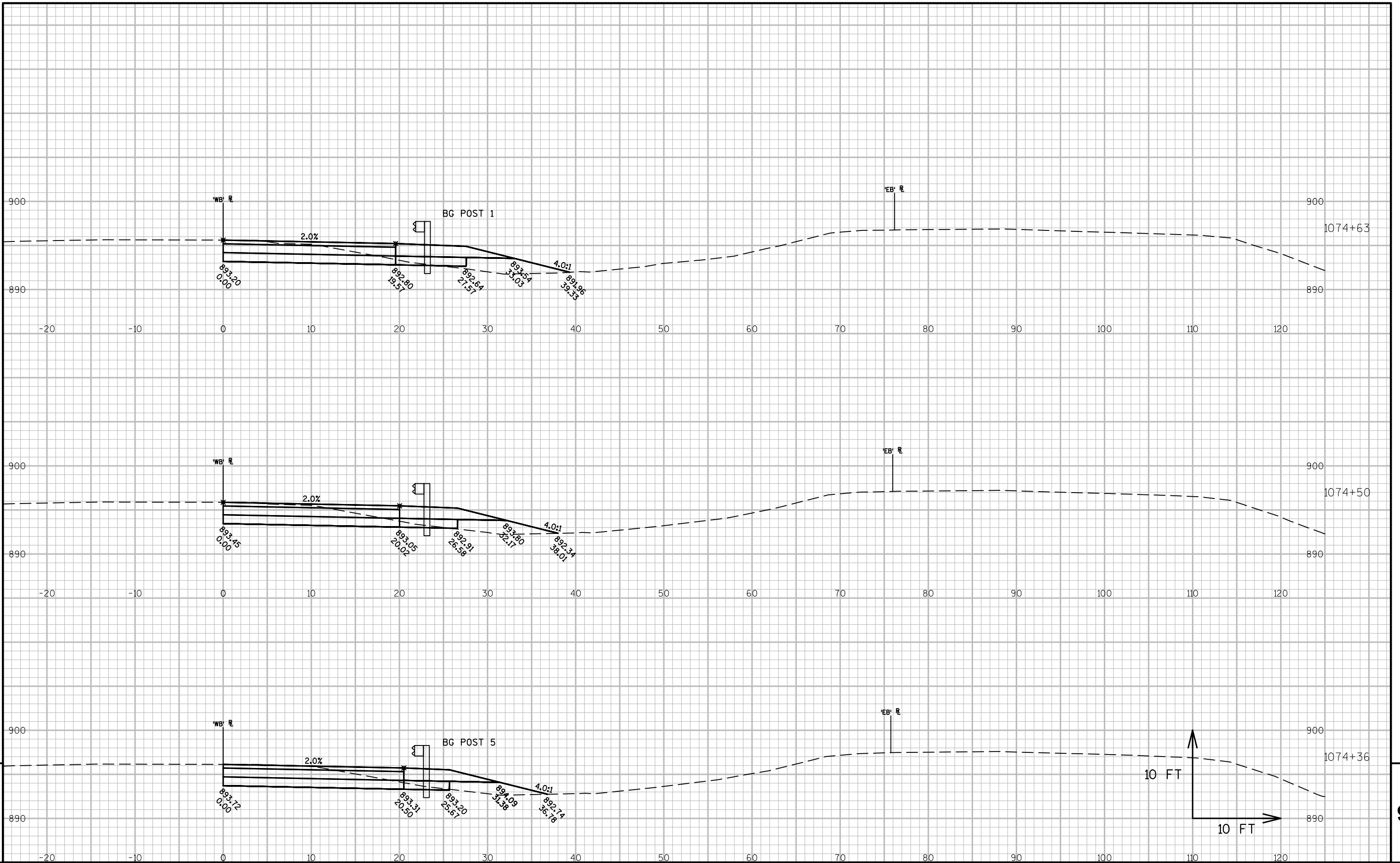
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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

9

9



PROJECT NO: 1067-02-73

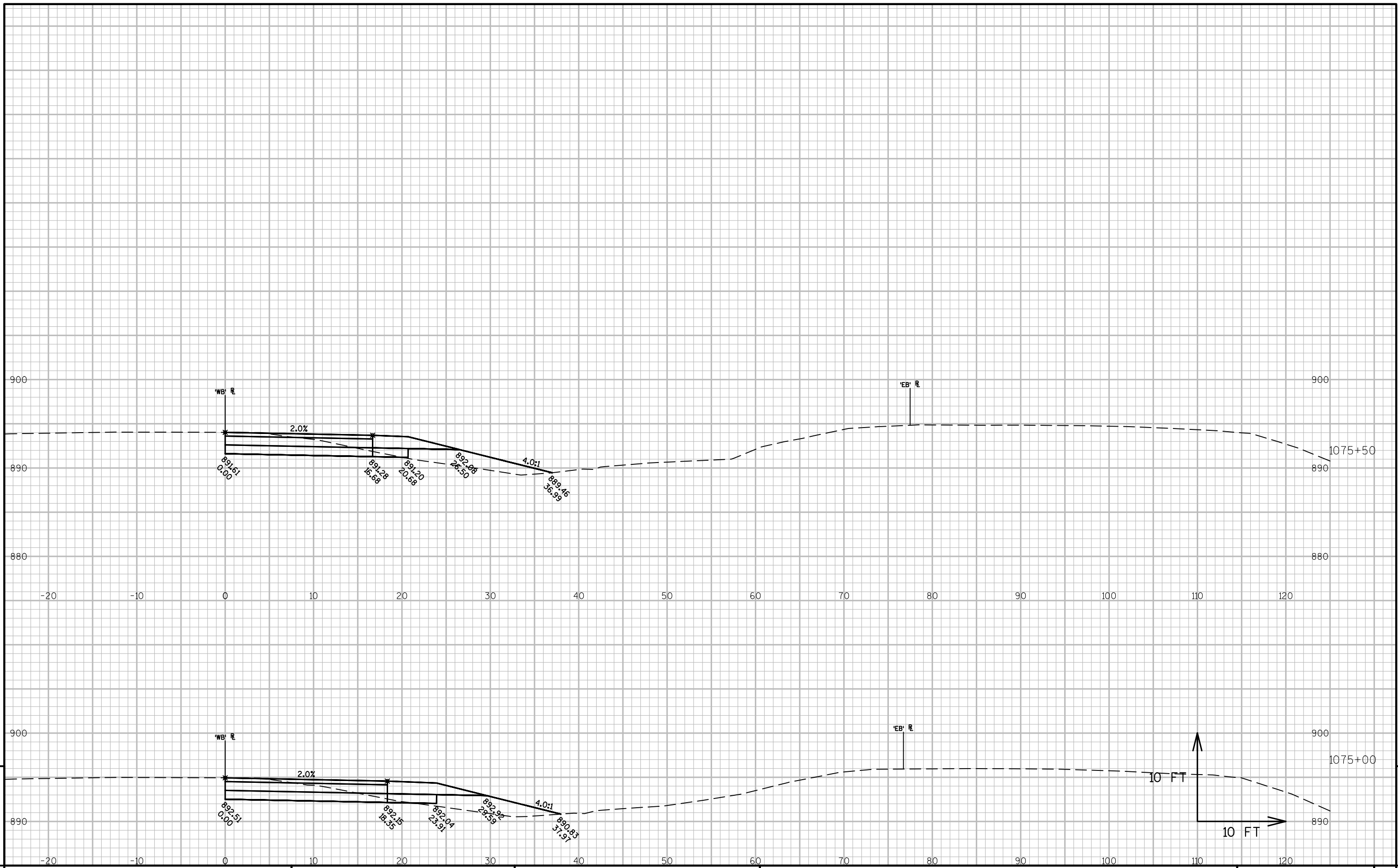
HWY: IH 94

COUNTY: JEFFERSON

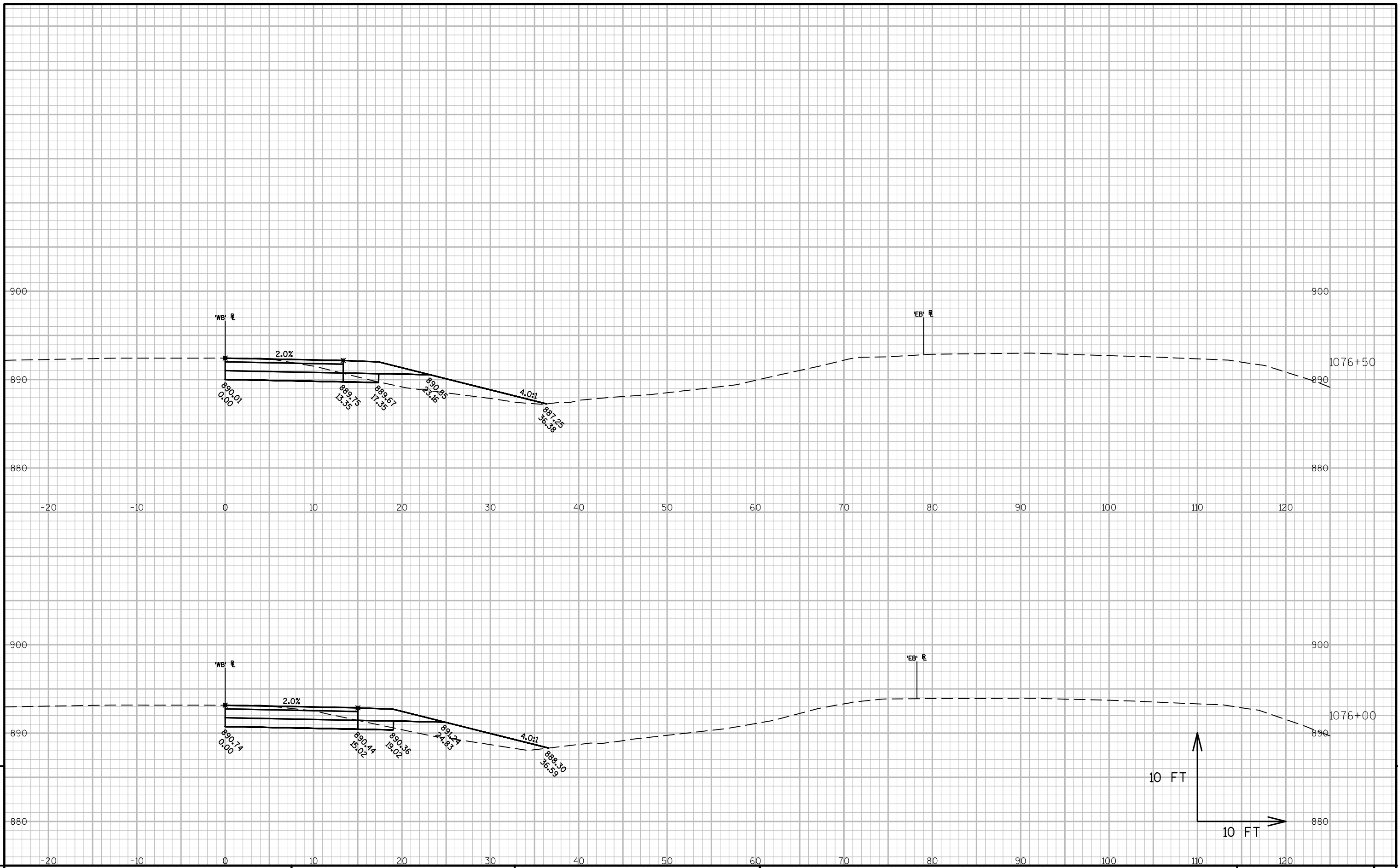
CROSS SECTIONS: IH 94 STAGE 1

SHEET

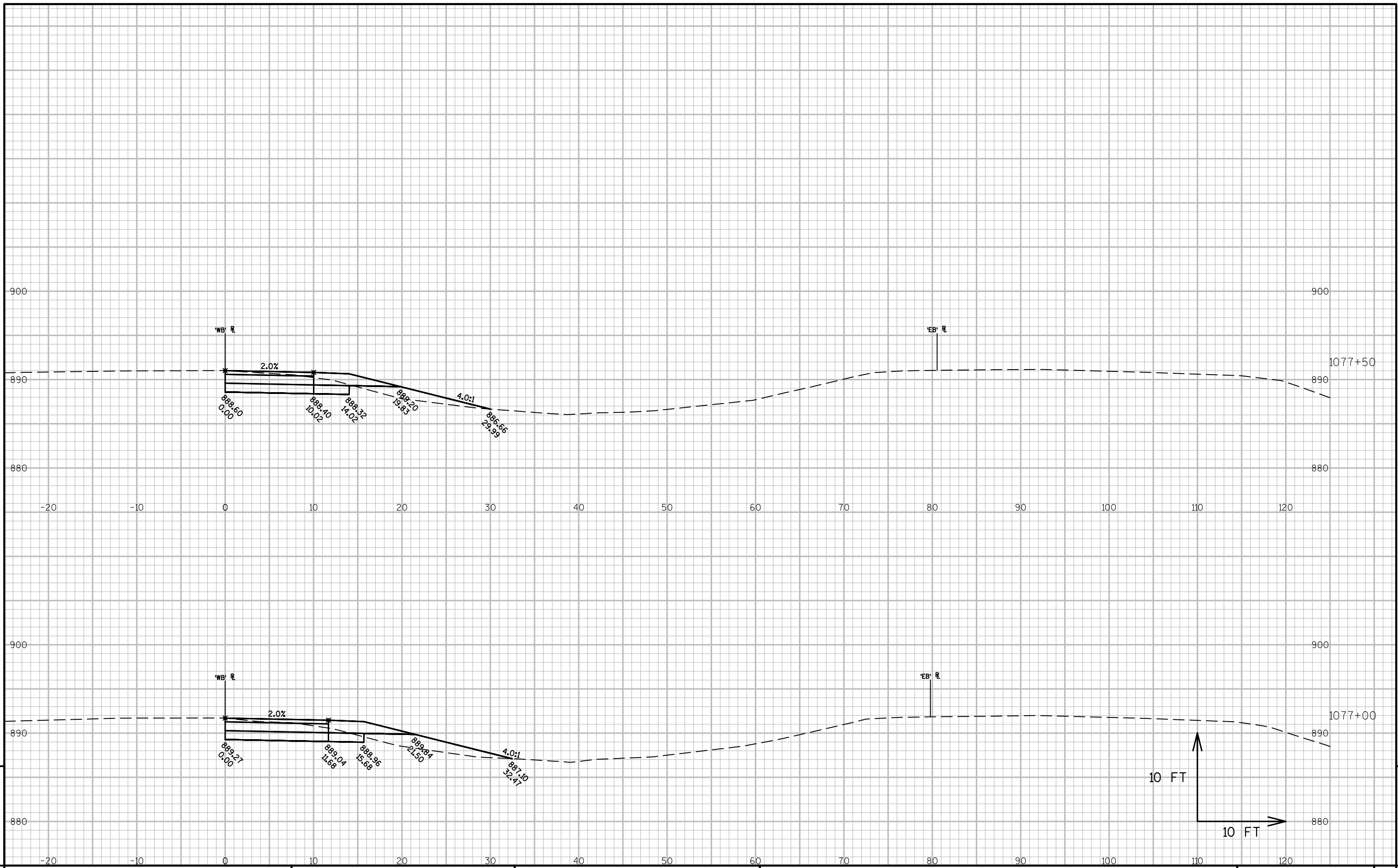
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PROJECT NO: 1067-02-73 | HWY: IH 94 | COUNTY: JEFFERSON | CROSS SECTIONS: IH 94 STAGE 1 | SHEET | E



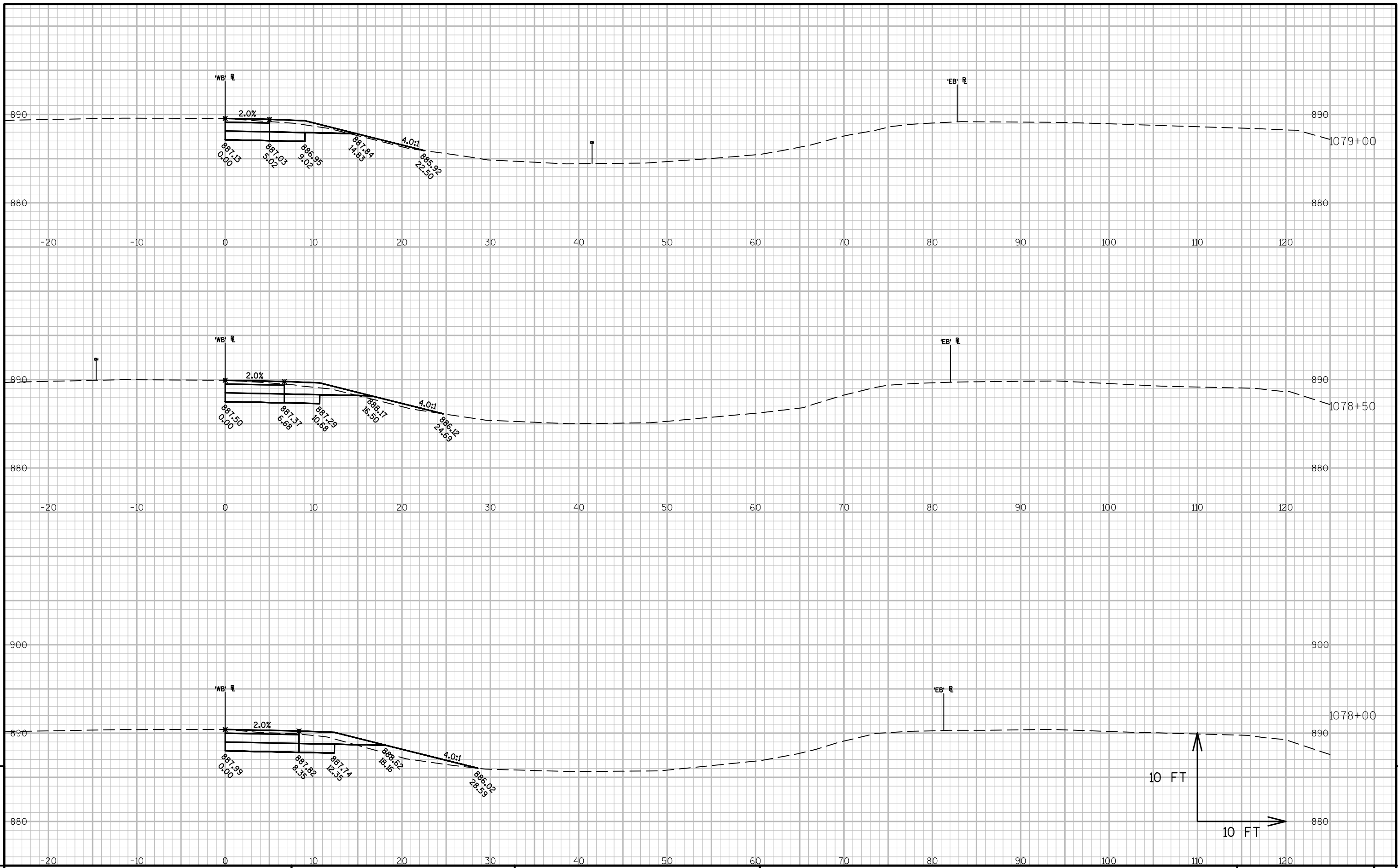
PROJECT NO: 1067-02-73 | HWY: IH 94 | COUNTY: JEFFERSON | CROSS SECTIONS: IH 94 STAGE 1 | SHEET | E



9

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PROJECT NO: 1067-02-73 | HWY: IH 94 | COUNTY: JEFFERSON | CROSS SECTIONS: IH 94 STAGE 1 | SHEET | E

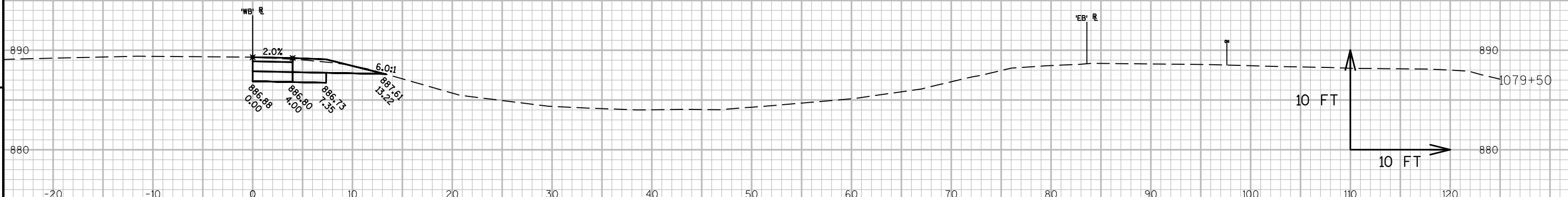
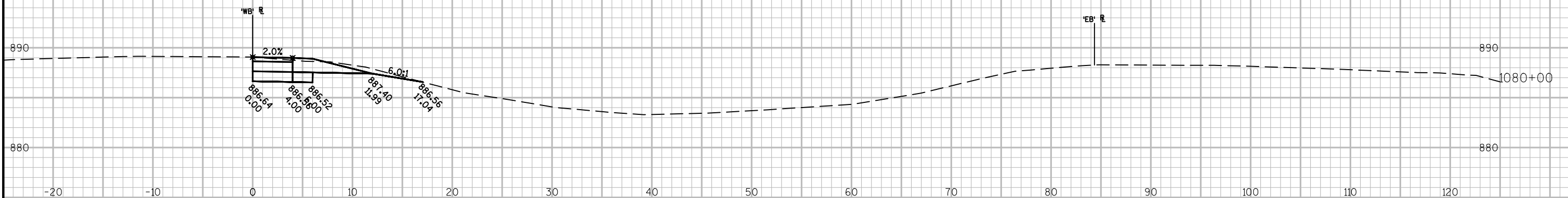
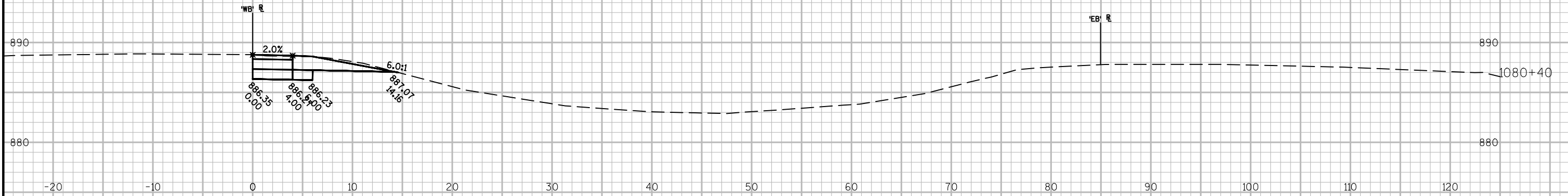


PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

9

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END CONSTRUCTION
STA 1080+40.00'WB', RT



PROJECT NO: 1067-02-73

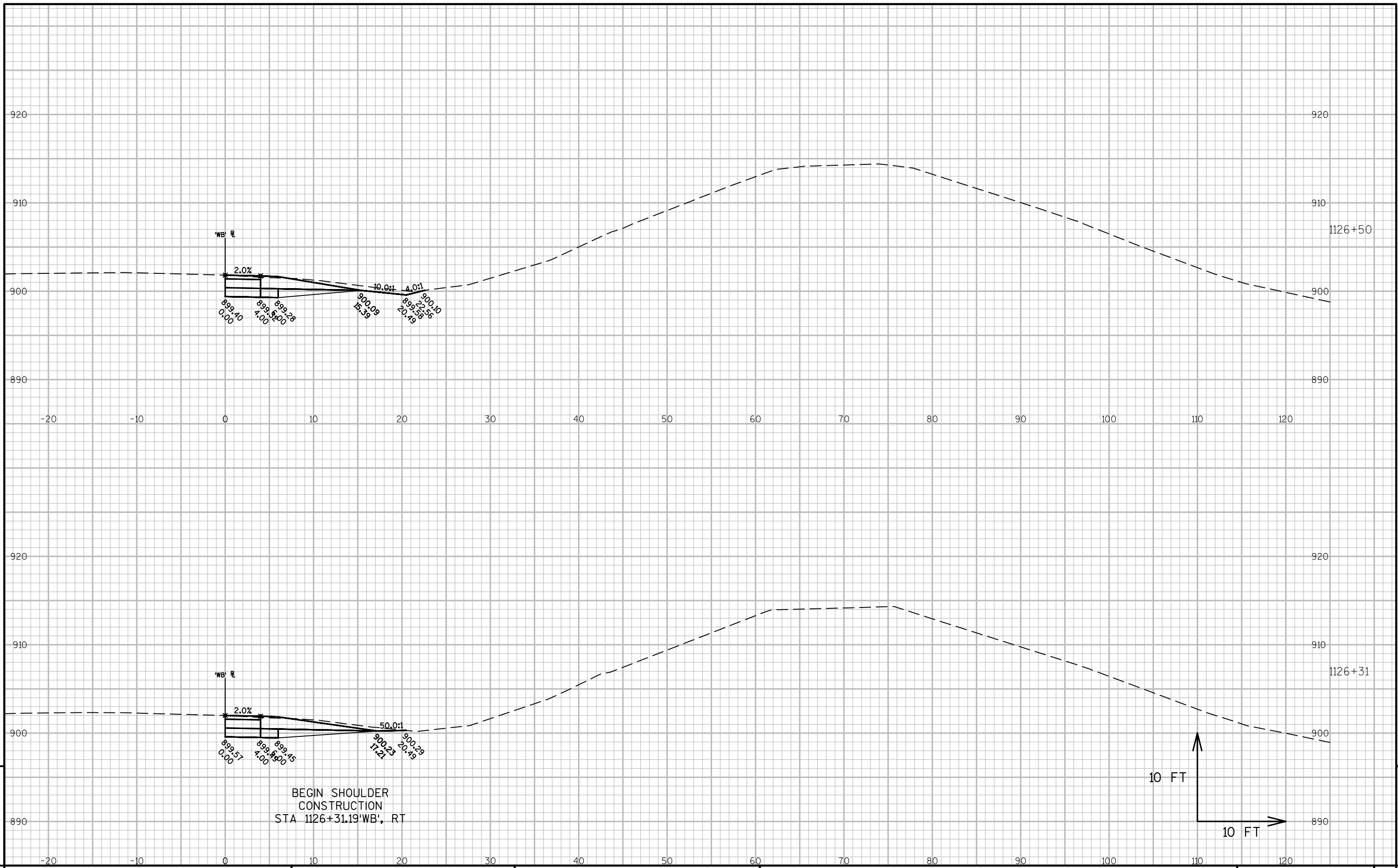
HWY: IH 94

COUNTY: JEFFERSON

CROSS SECTIONS: IH 94 STAGE 1

SHEET

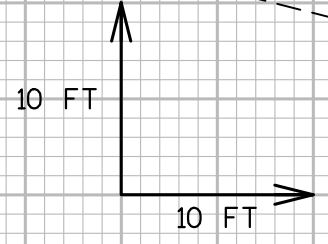
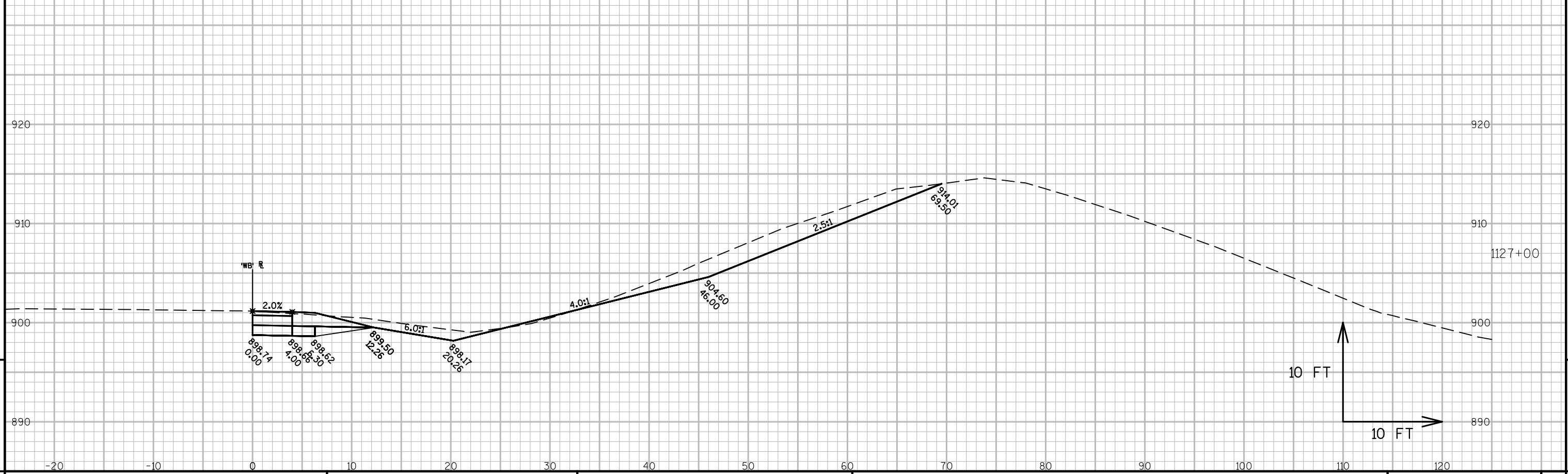
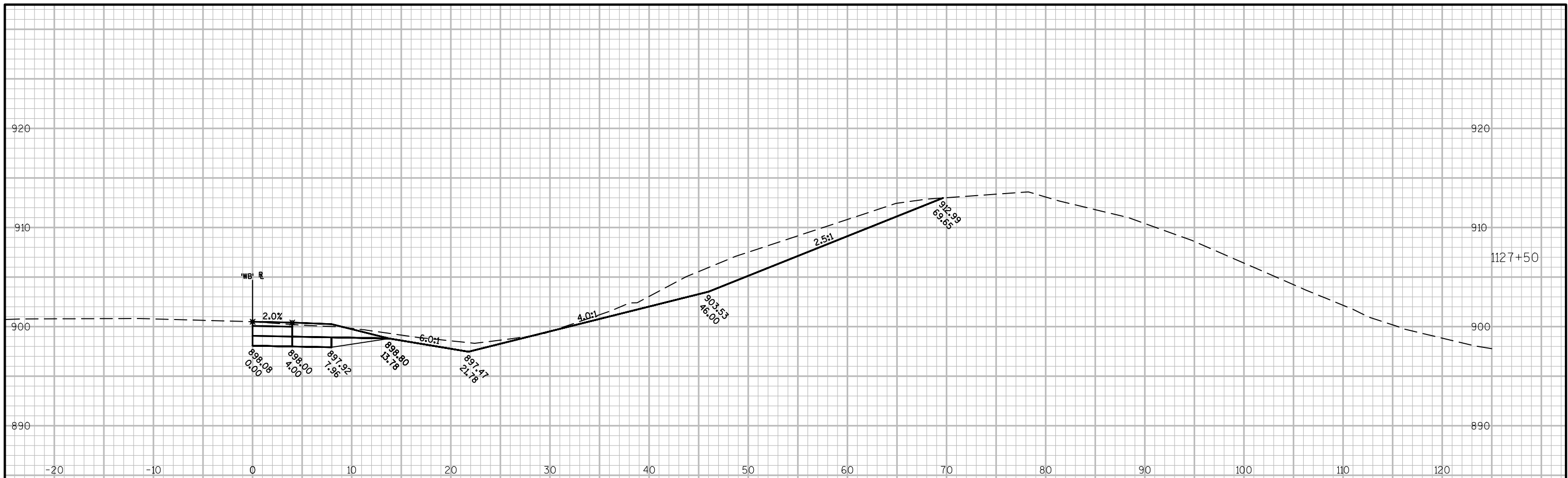
E



BEGIN SHOULDER
CONSTRUCTION
STA 1126+31.19'WB', RT

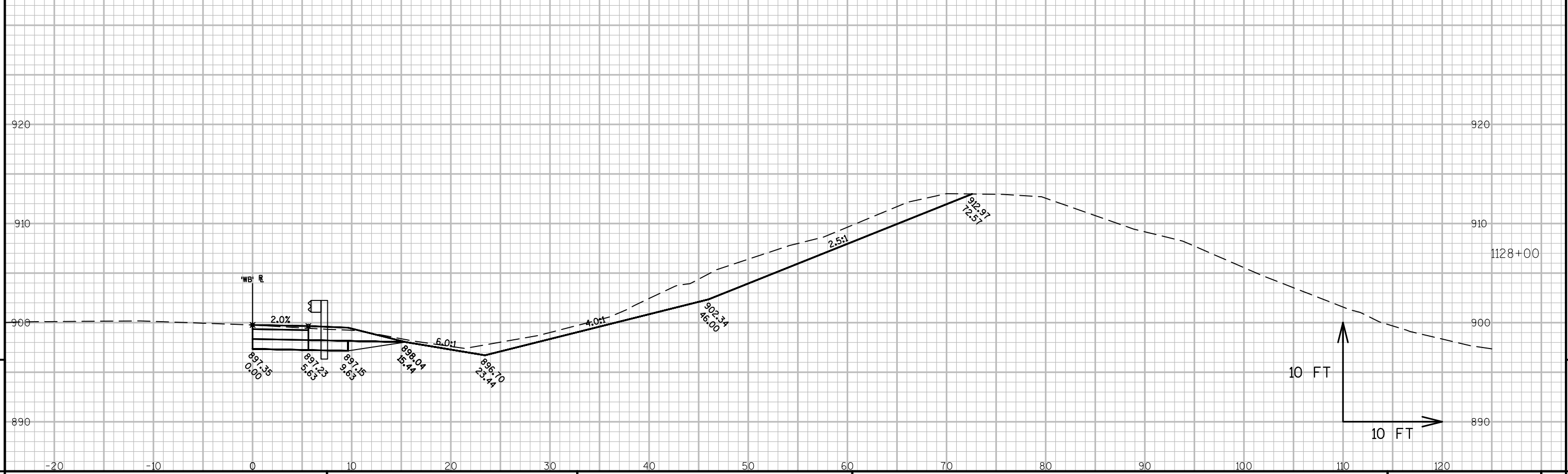
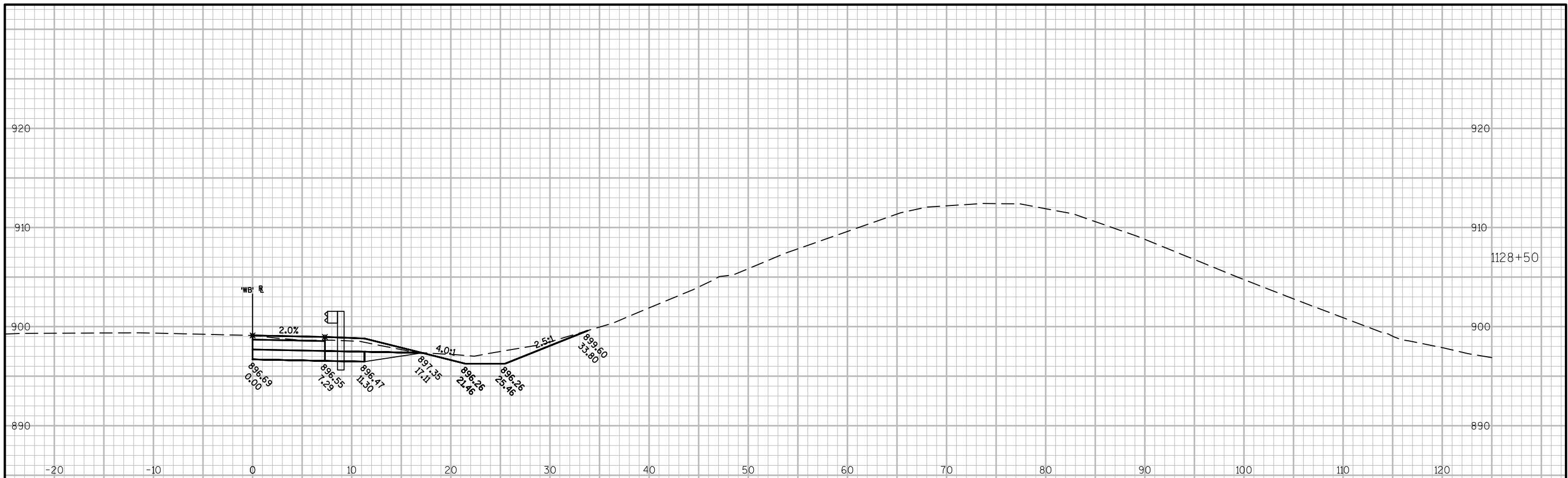
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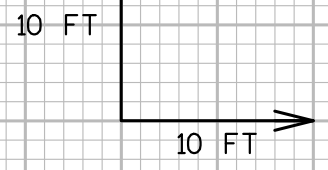
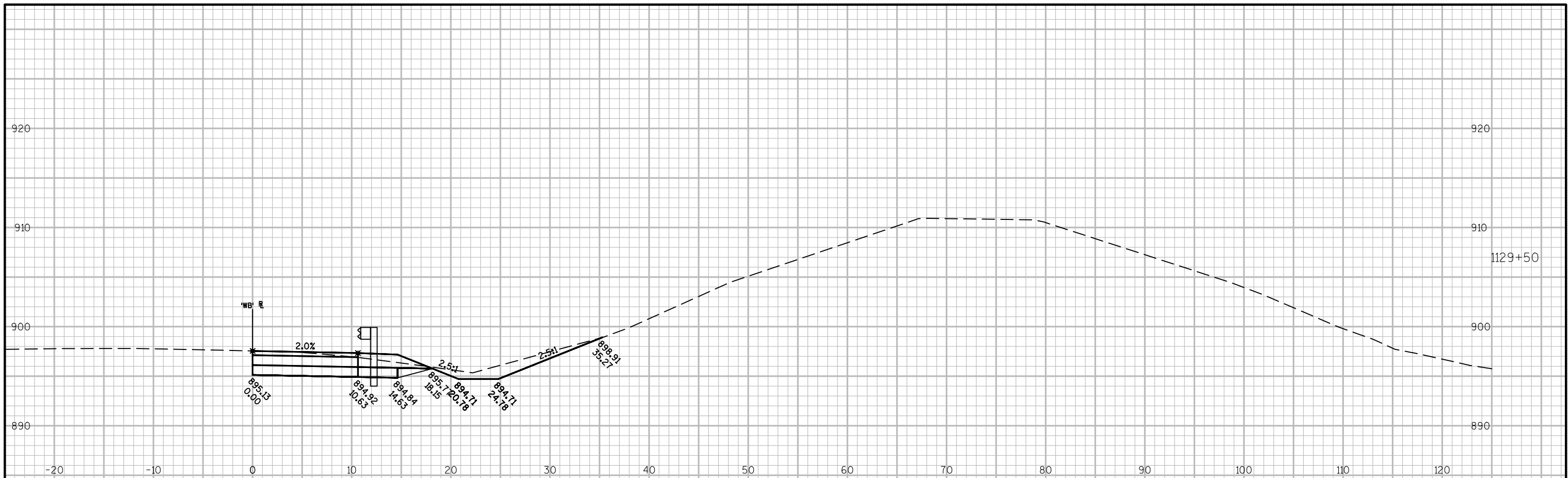
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

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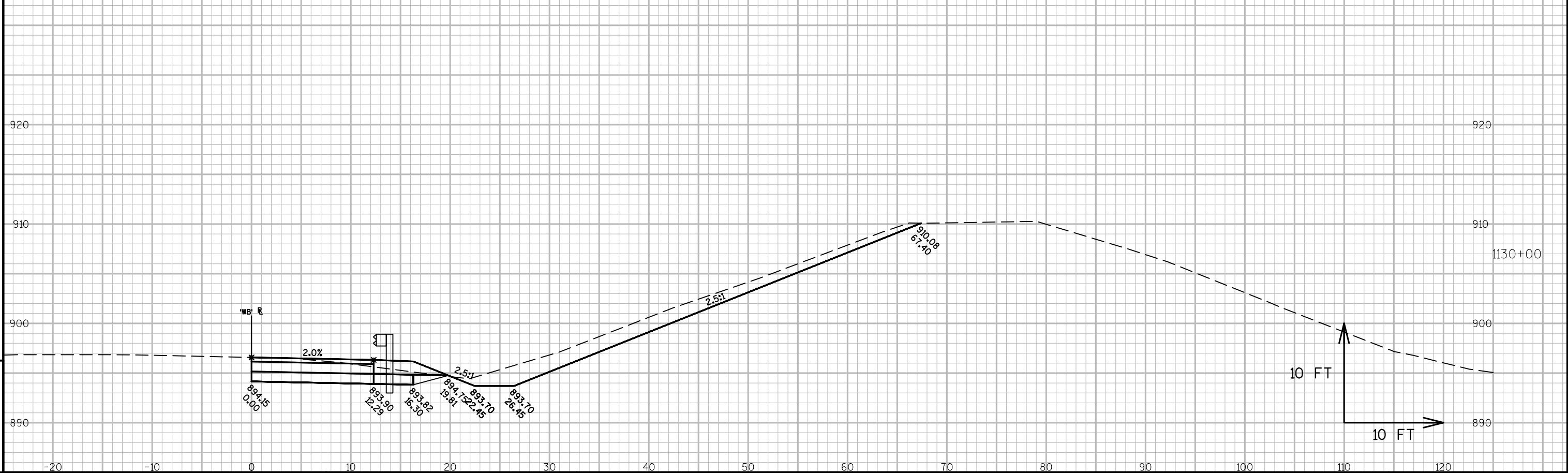
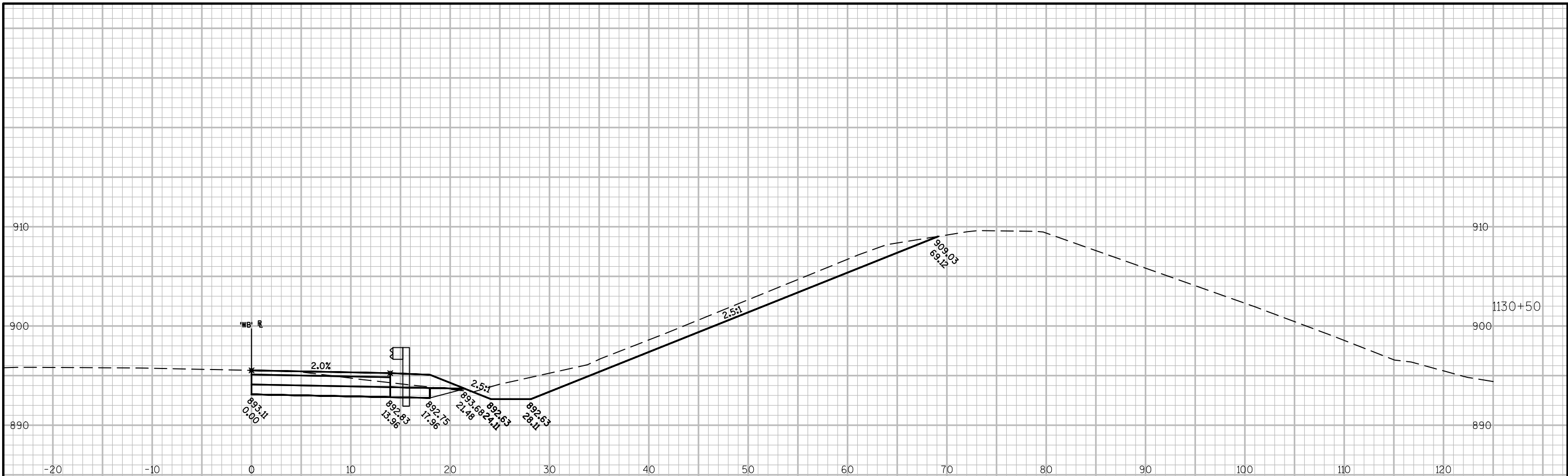
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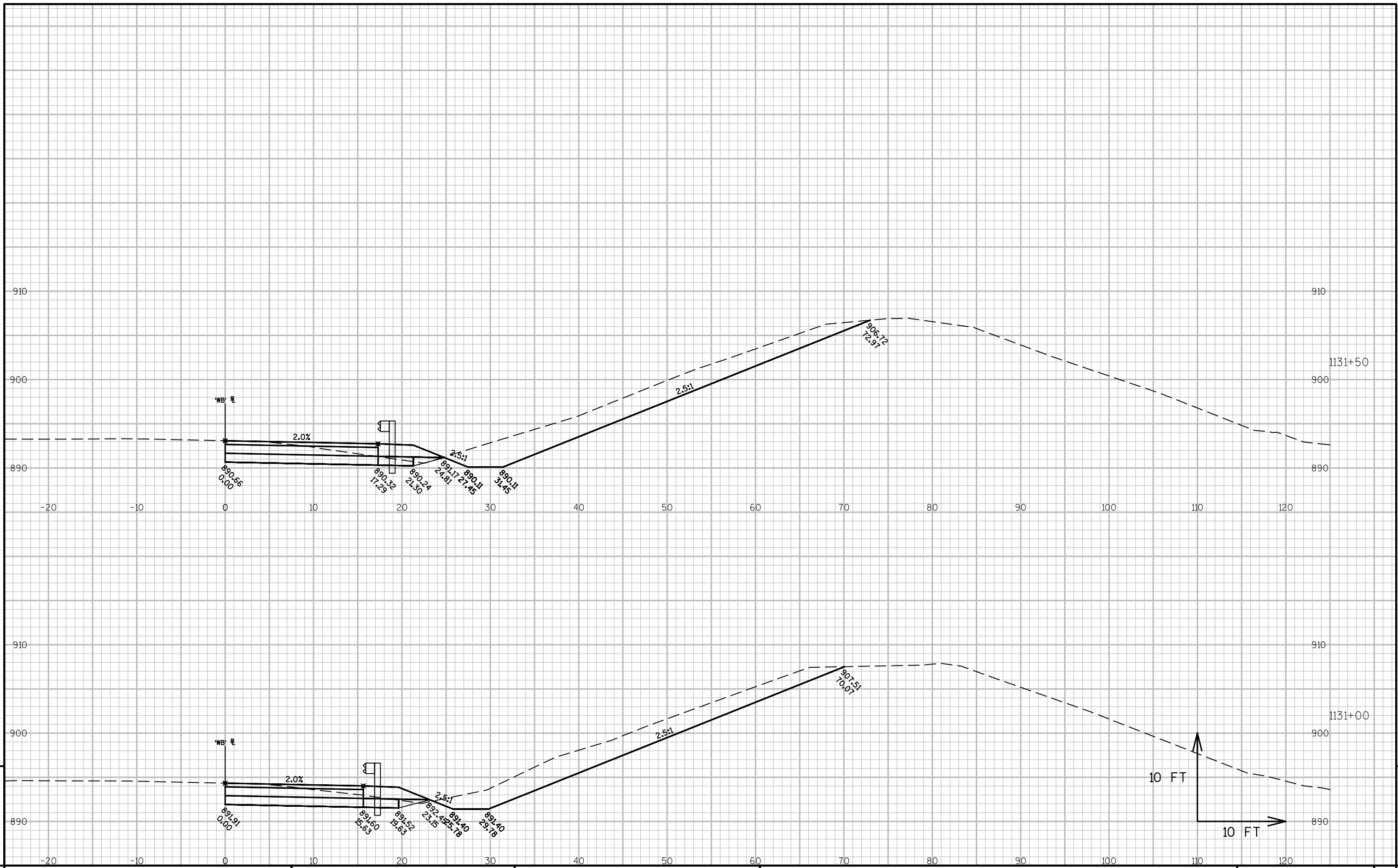
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

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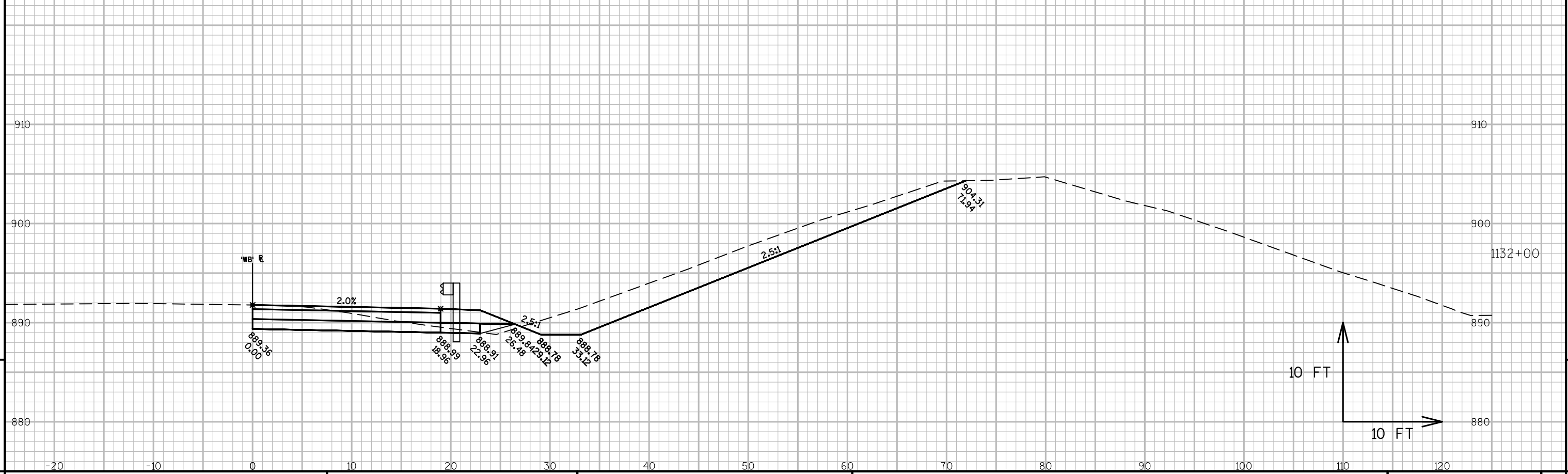
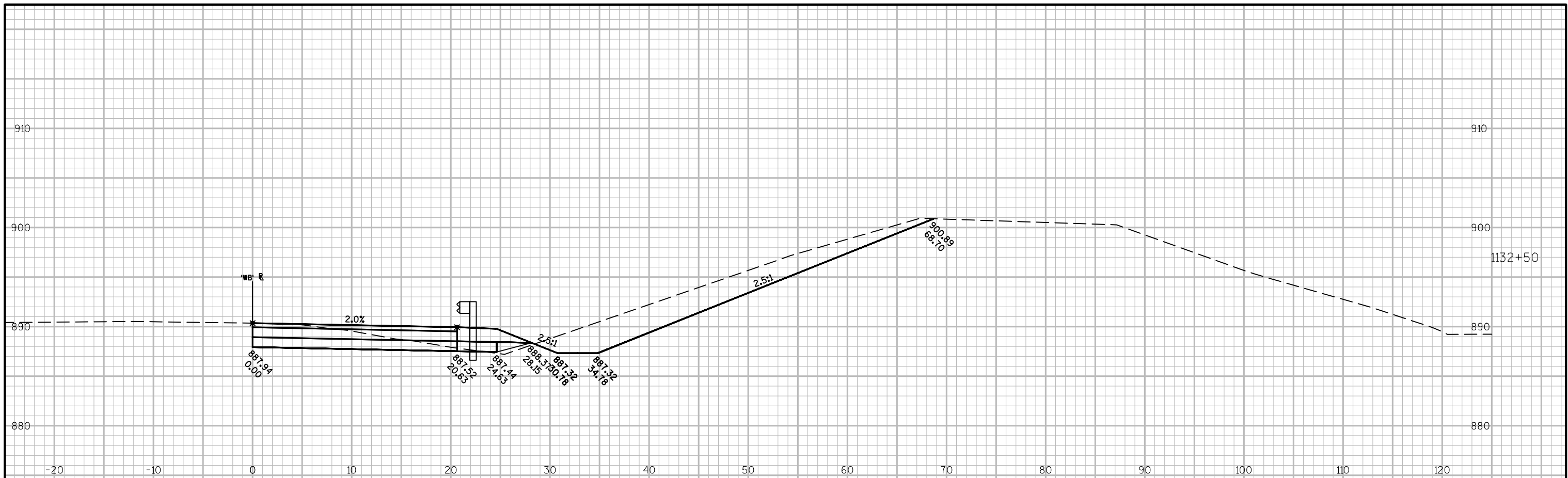
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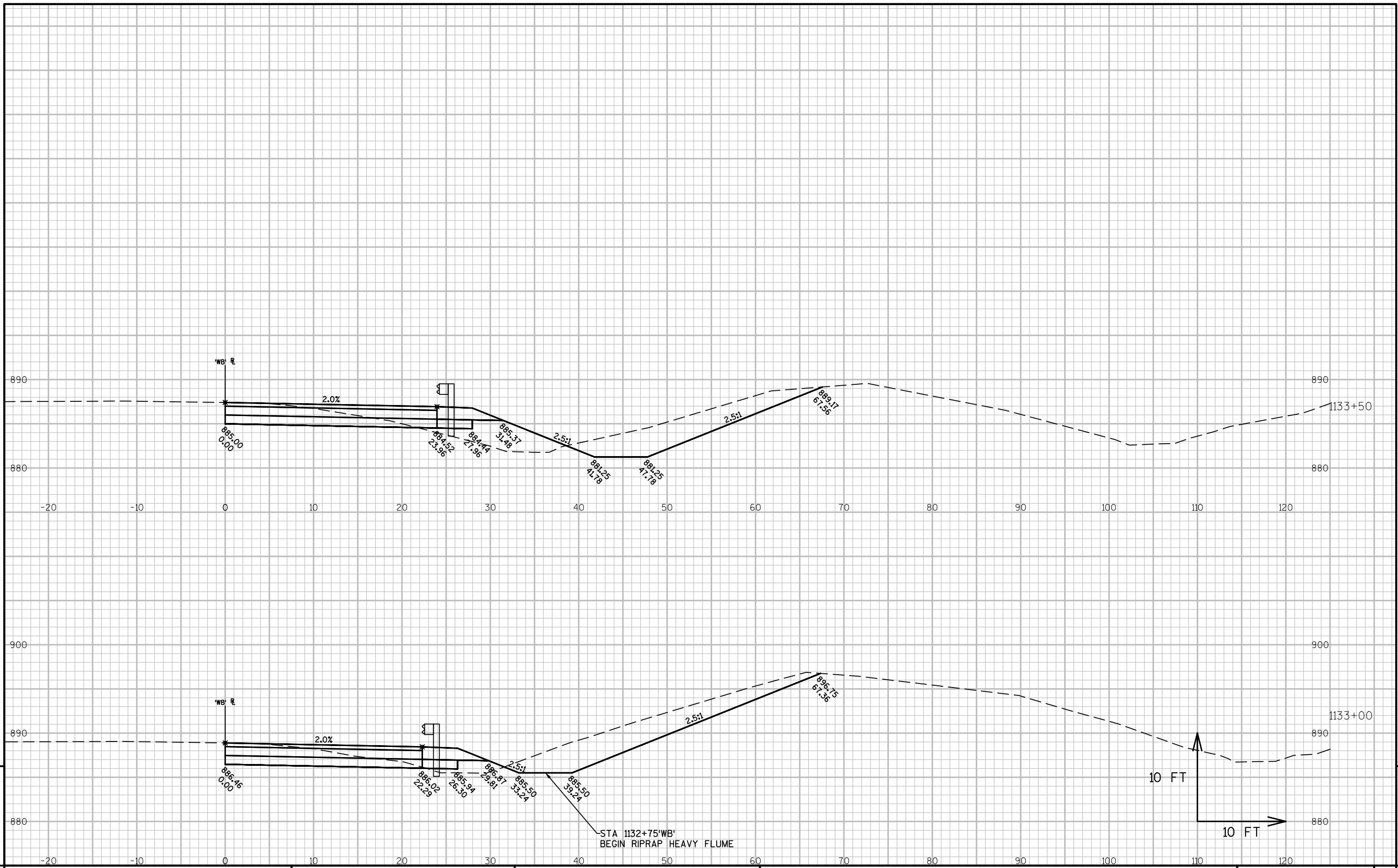
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



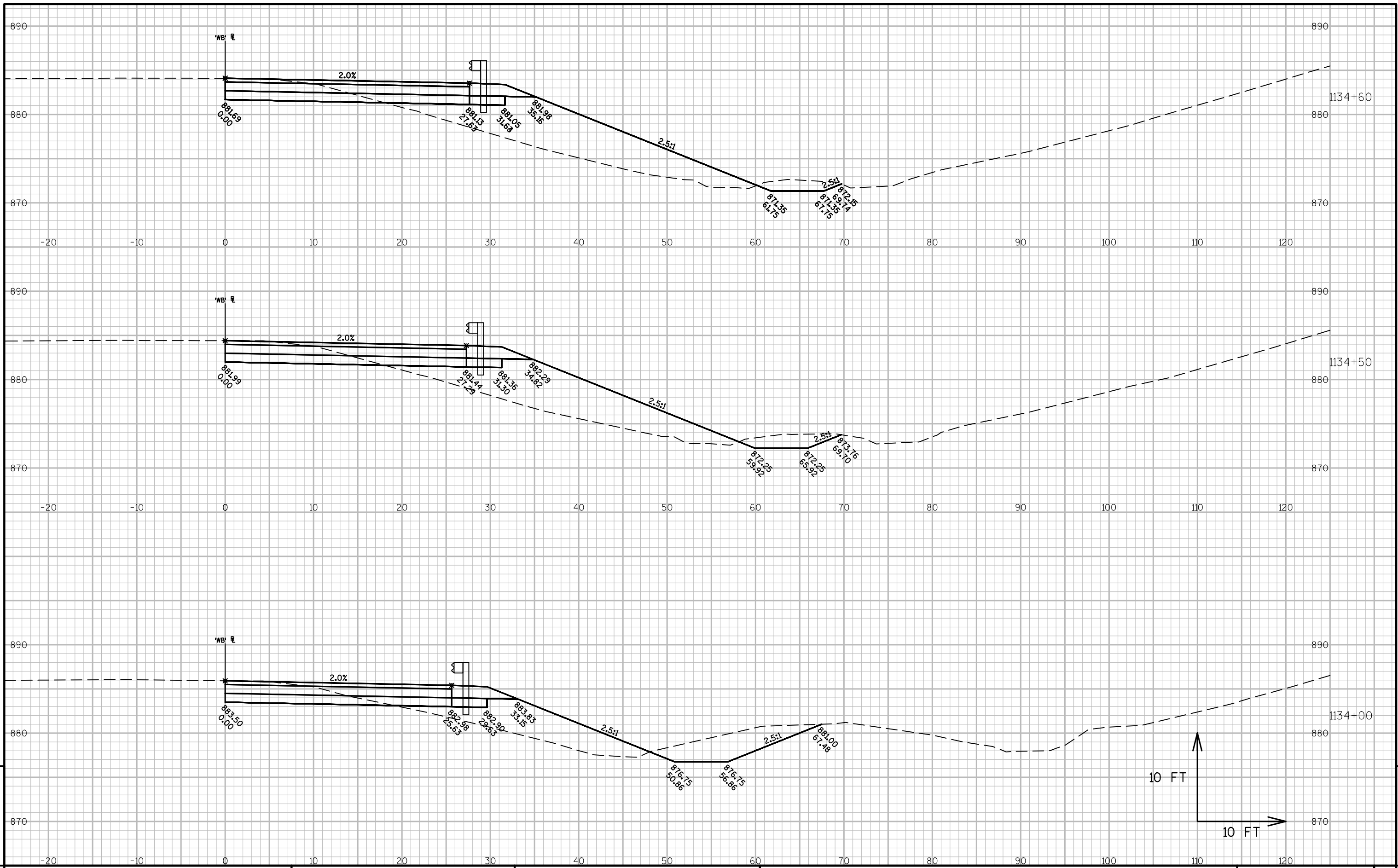
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

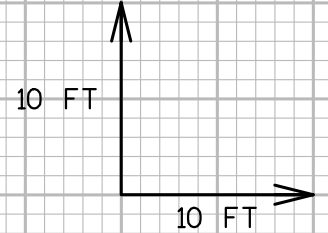
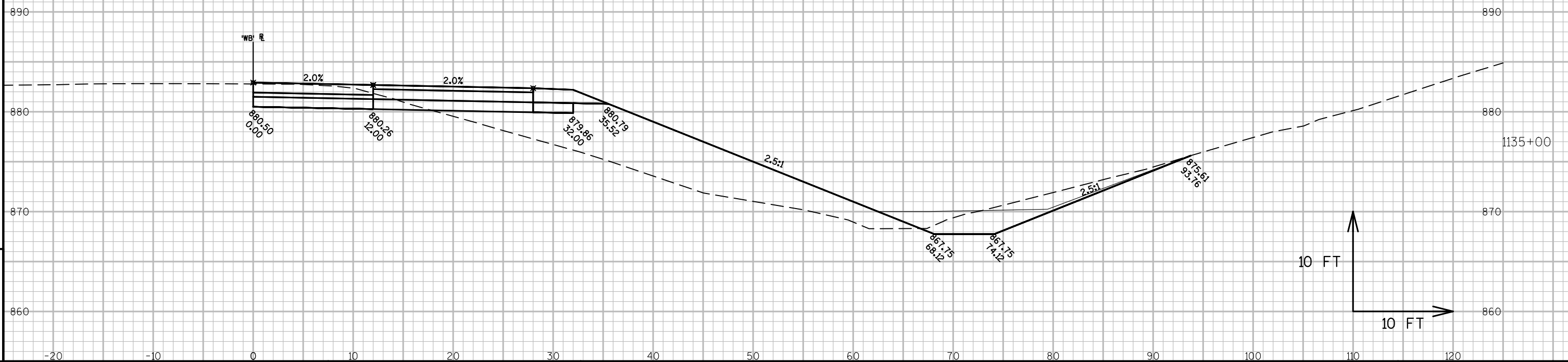
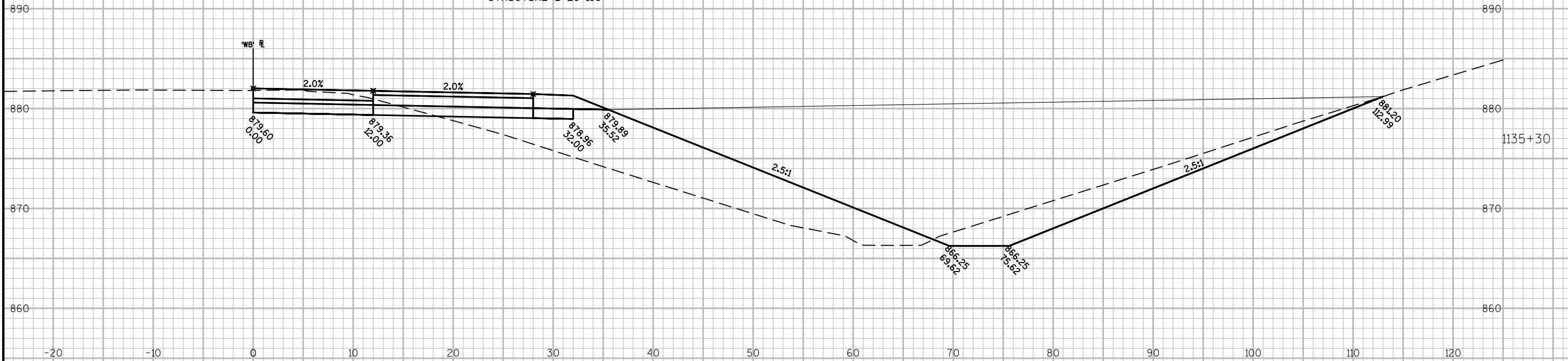


PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

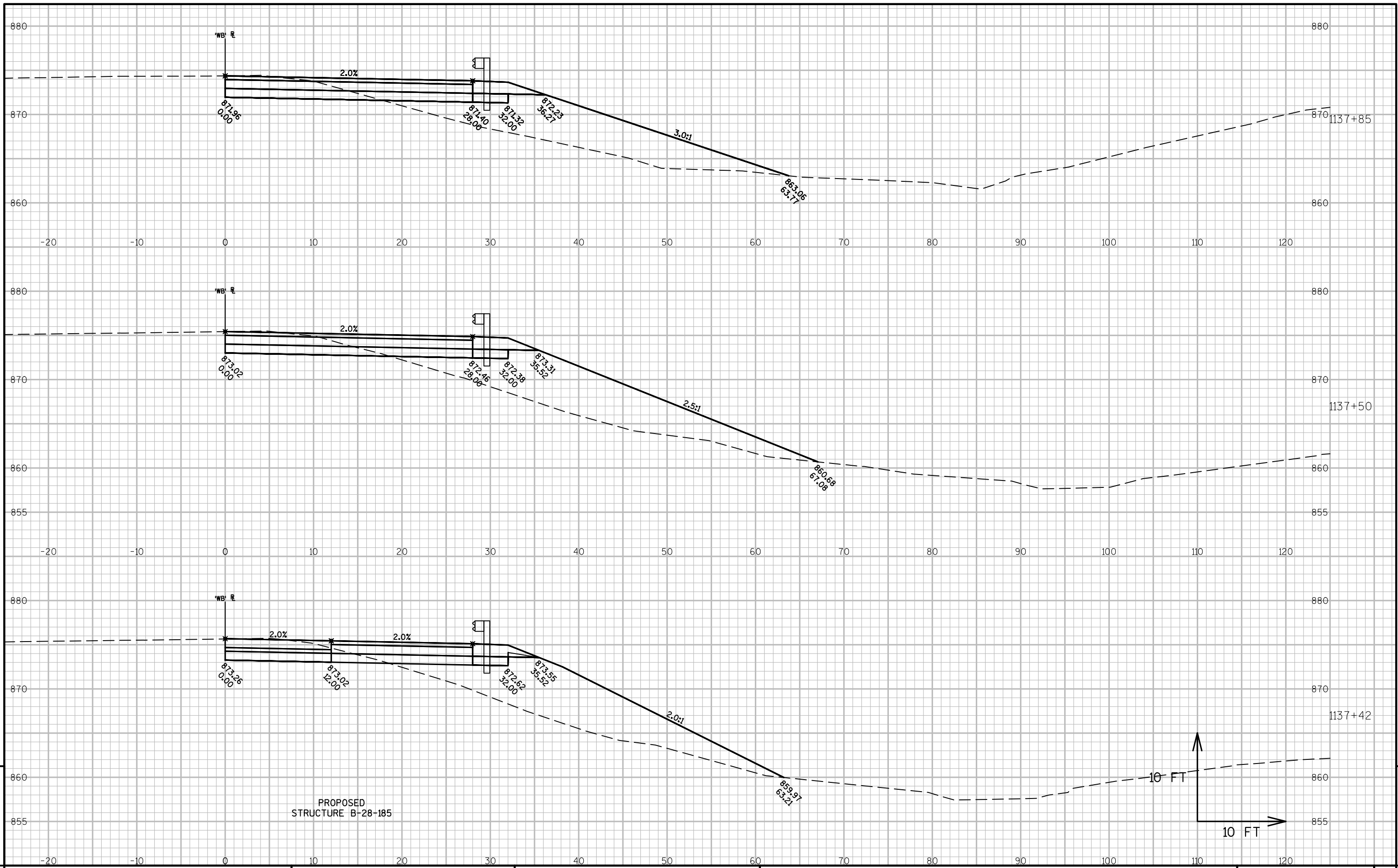


PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

PROPOSED
STRUCTURE B-28-185



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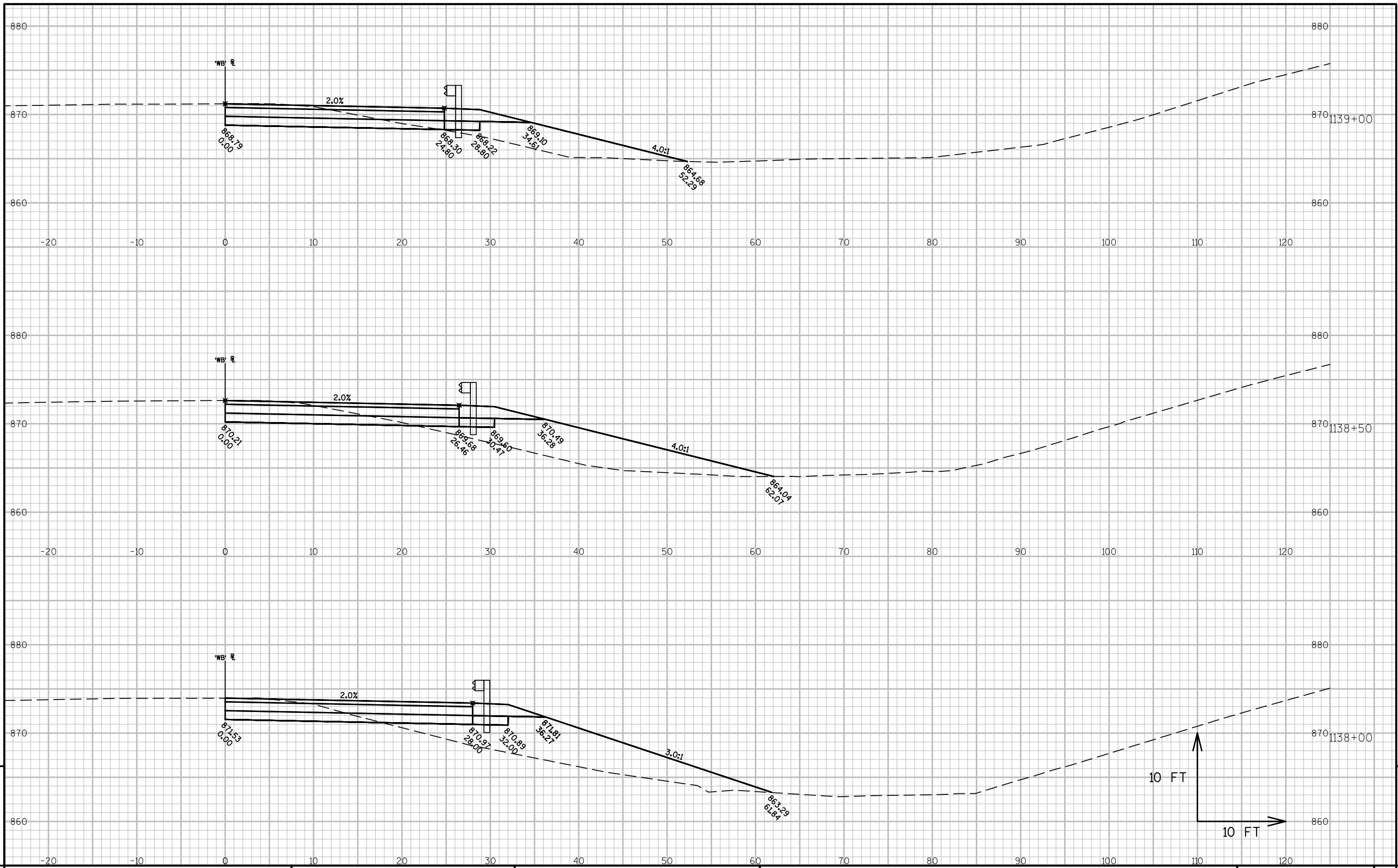
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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E

FILE NAME : \\SEHRL\PROJECTS\UZ\W\WITSW\134721\4-PRELIM-DSGN-RPTS\C3D\10670203\SHEETSPLAN\090200 XS ROCK_RT_2.DWG PLOT DATE : 7/30/2023 6:58 AM PLOT BY : DEAN STODOLA PLOT NAME : PLOT SCALE : 1 IN:10 FT WISDOT/CADD SHEET 49

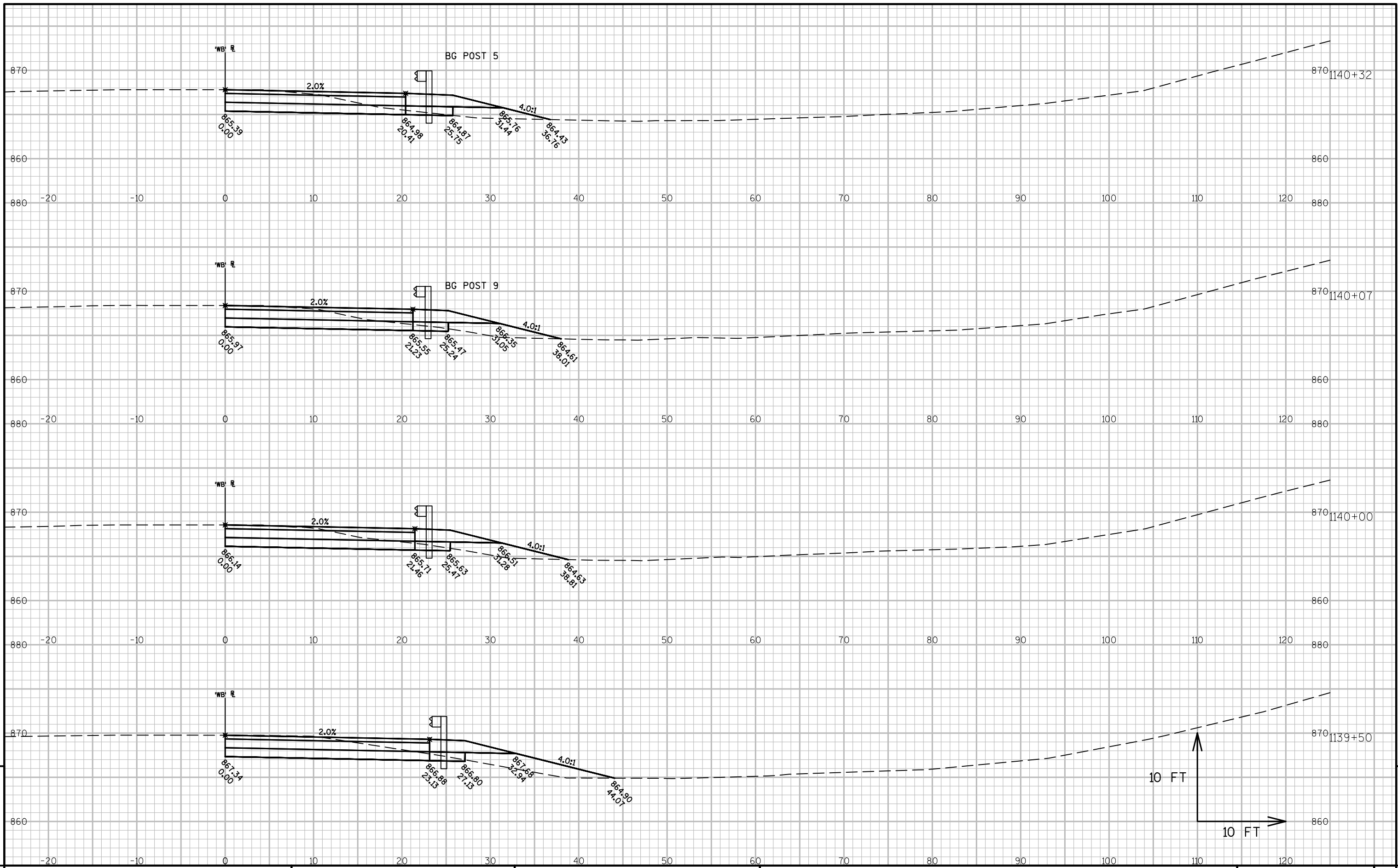
LAYOUT NAME - SECTION SHEET - (30)



9

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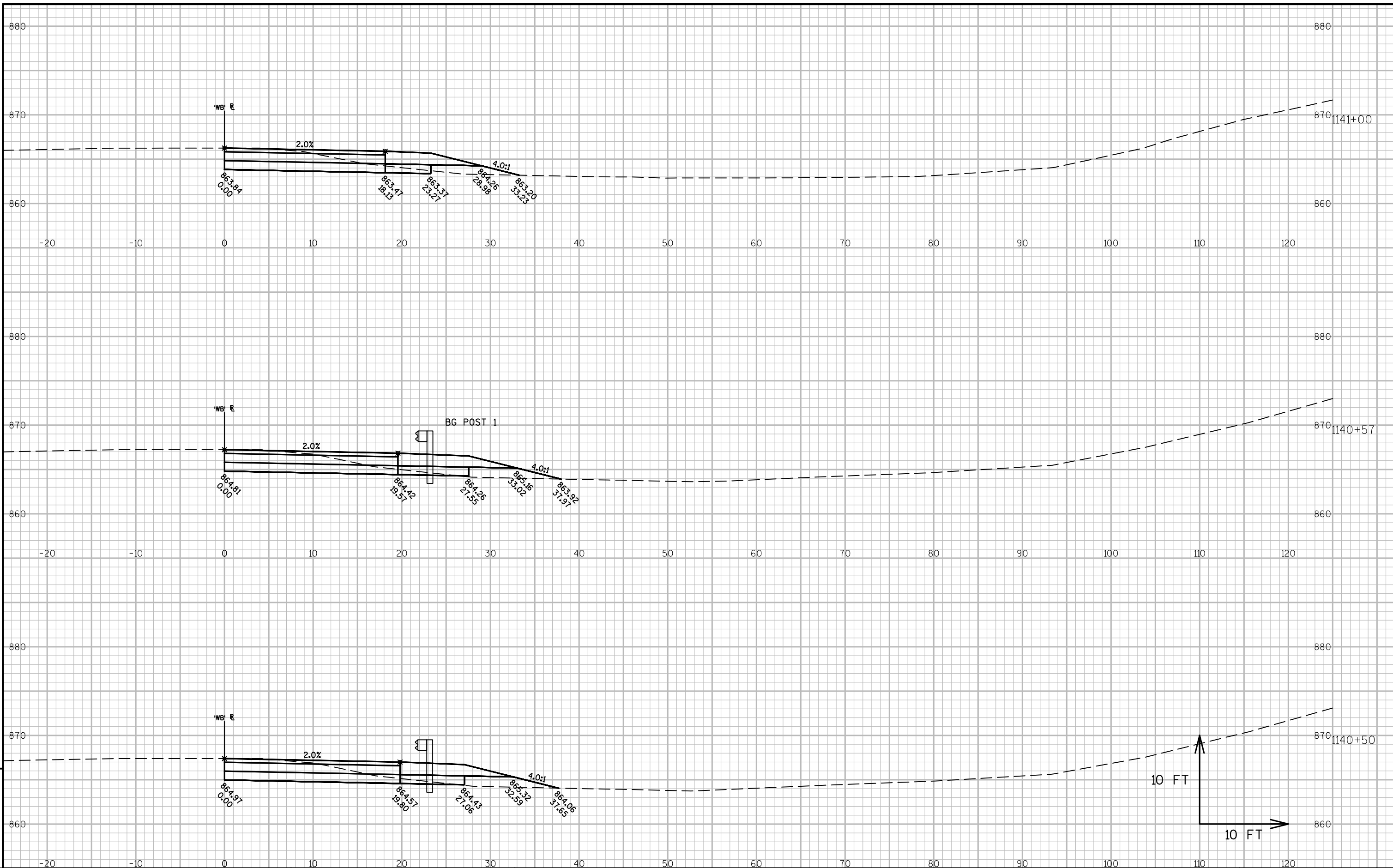
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



PROJECT NO: 1067-02-73

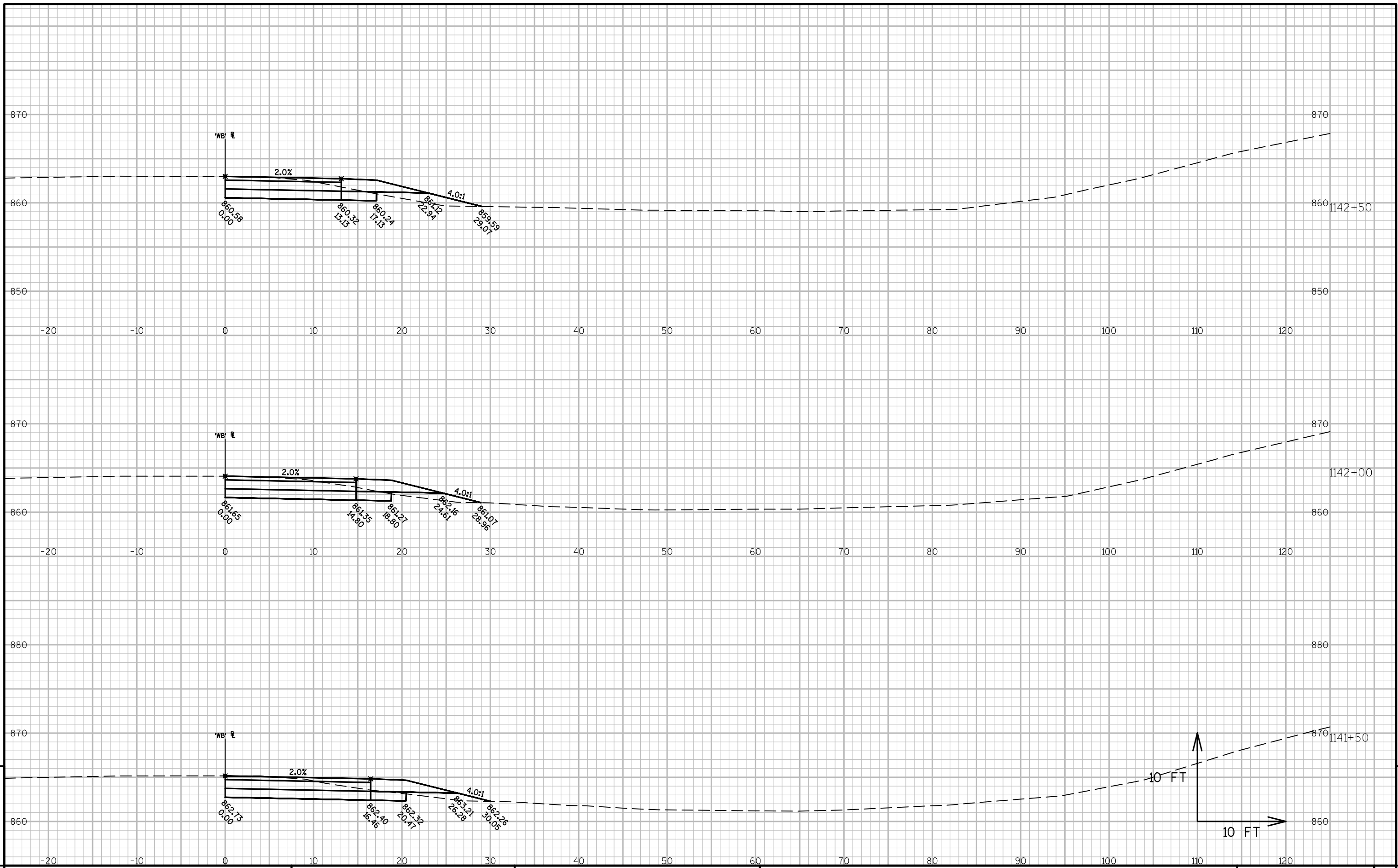
HWY: IH 94

COUNTY: JEFFERSON

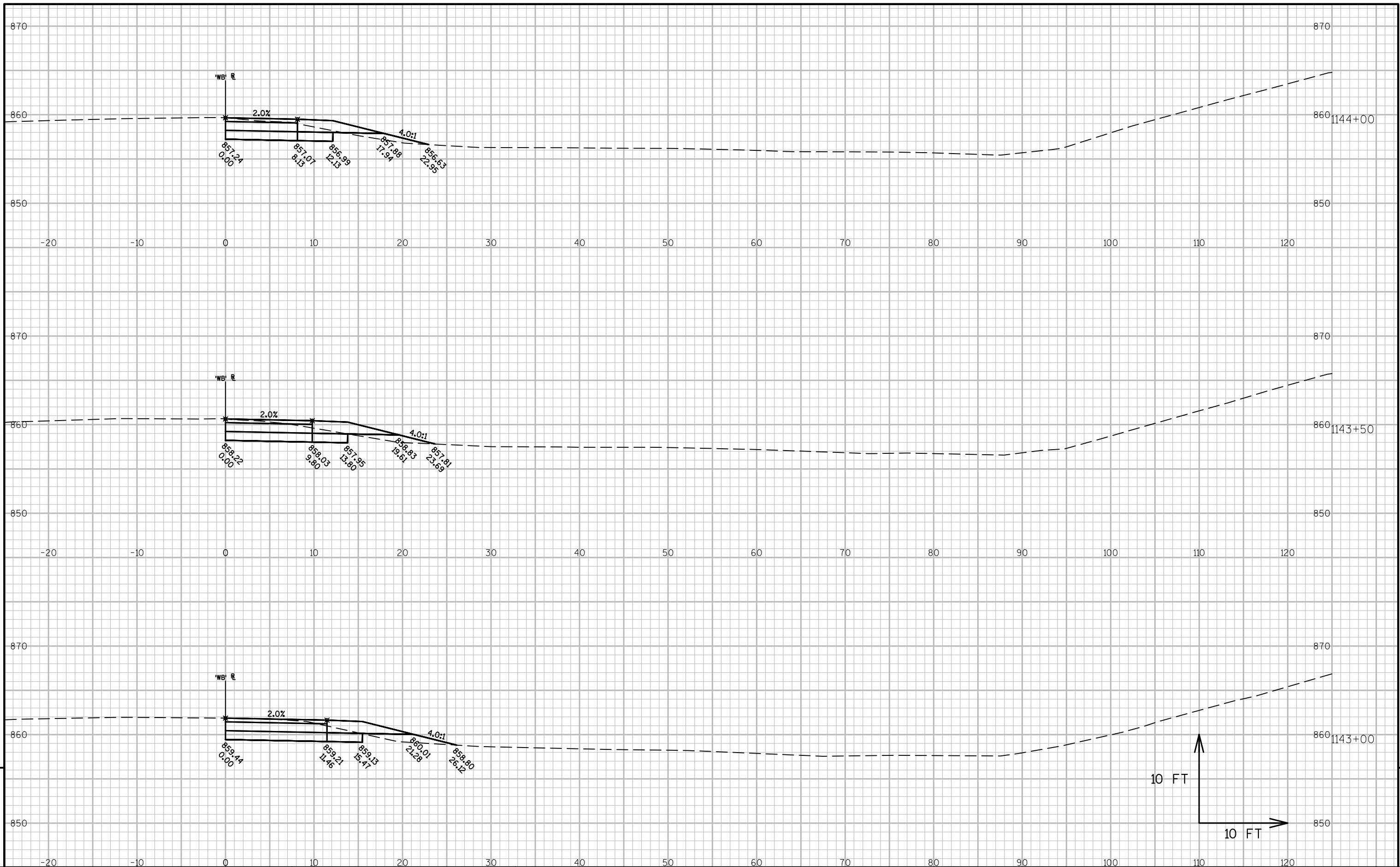
CROSS SECTIONS: IH 94 STAGE 1

SHEET

E



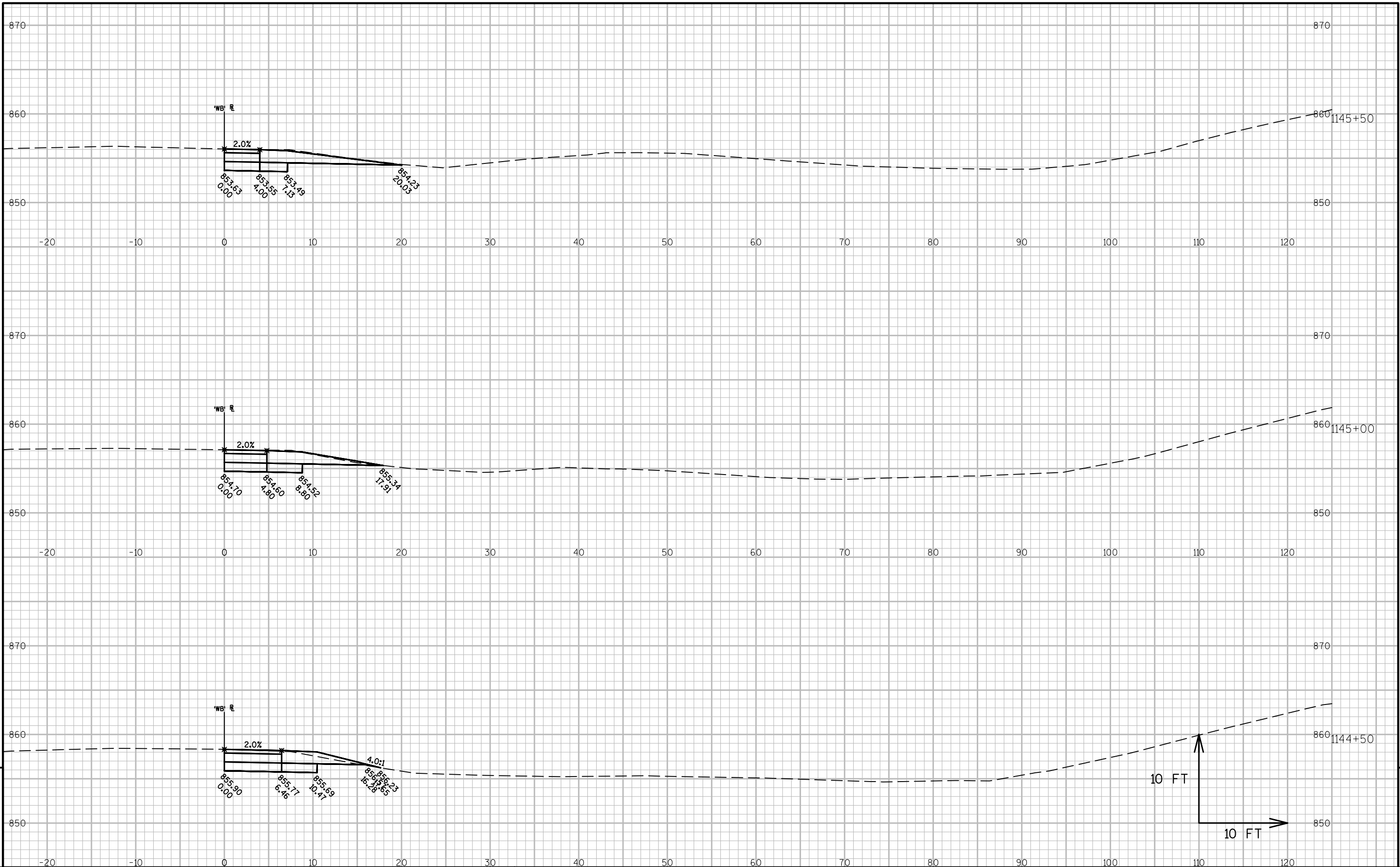
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



9

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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 1 SHEET E



PROJECT NO: 1067-02-73

HWY: IH 94

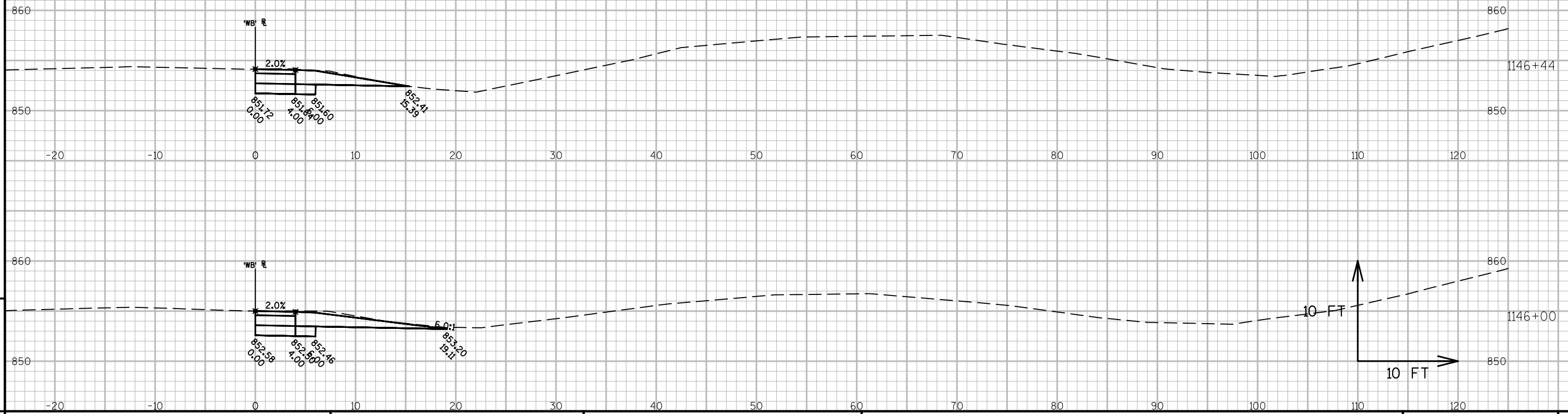
COUNTY: JEFFERSON

CROSS SECTIONS: IH 94 STAGE 1

SHEET

E

END SHOULDER
CONSTRUCTION
STA 1146+43.90'WB'



PROJECT NO: 1067-02-73

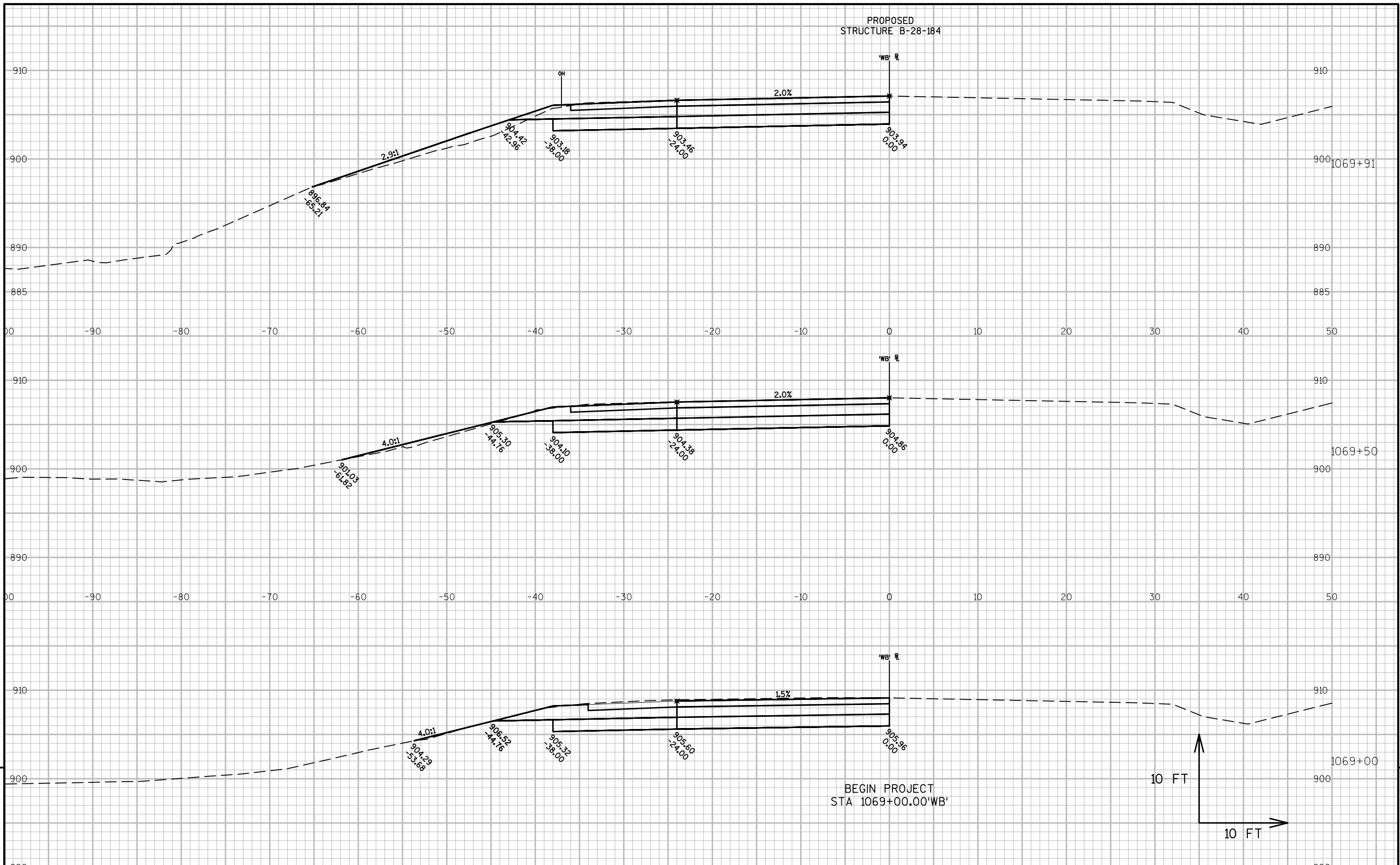
HWY: IH 94

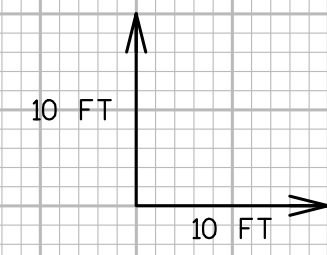
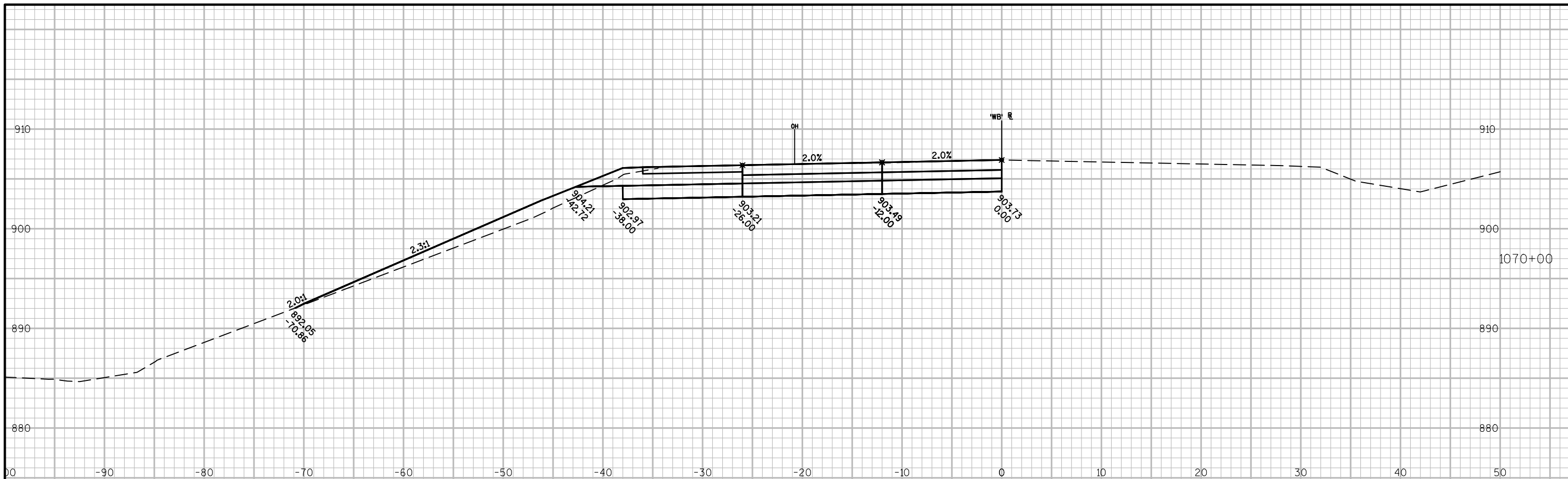
COUNTY: JEFFERSON

CROSS SECTIONS: IH 94 STAGE 1

SHEET

E

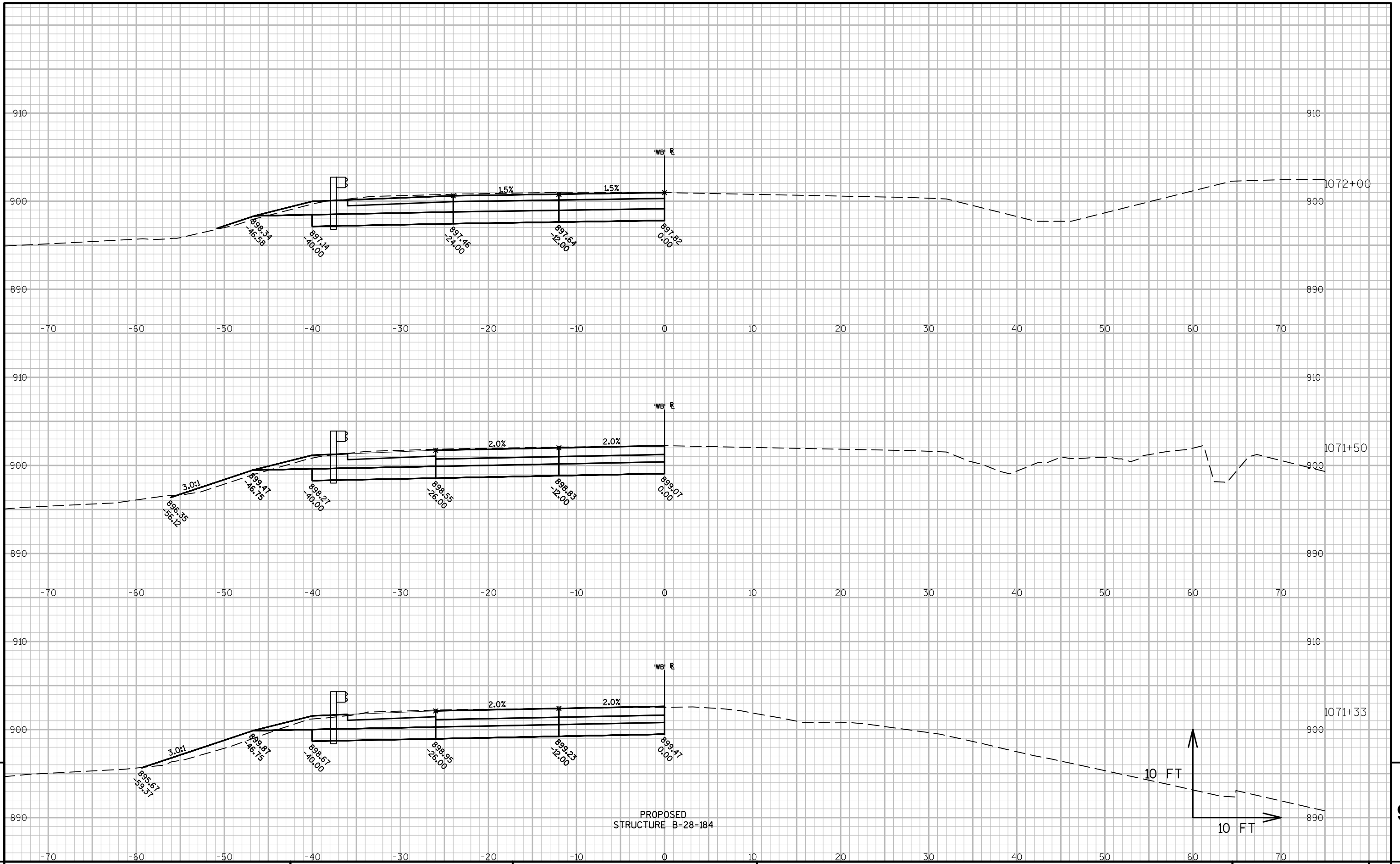


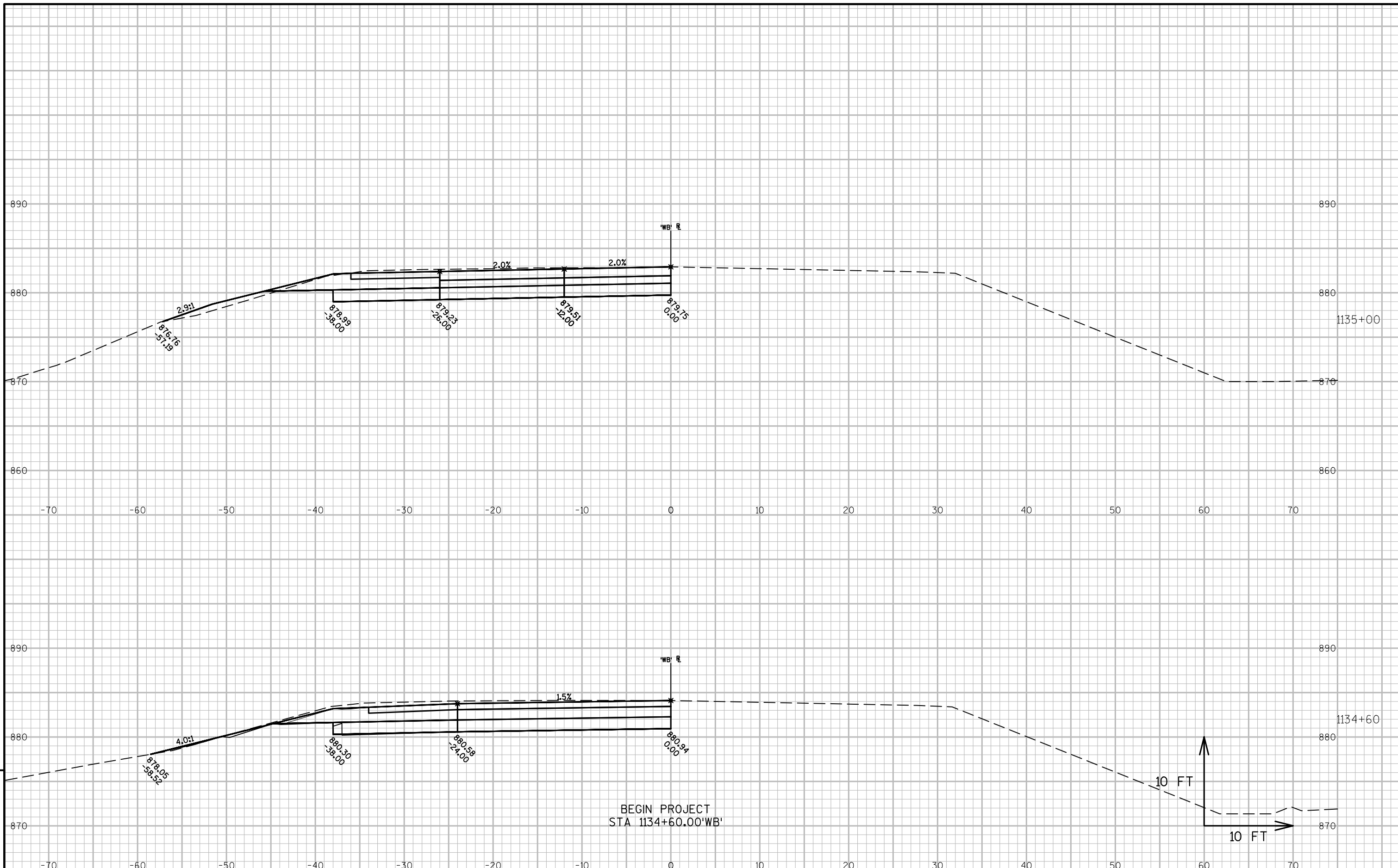


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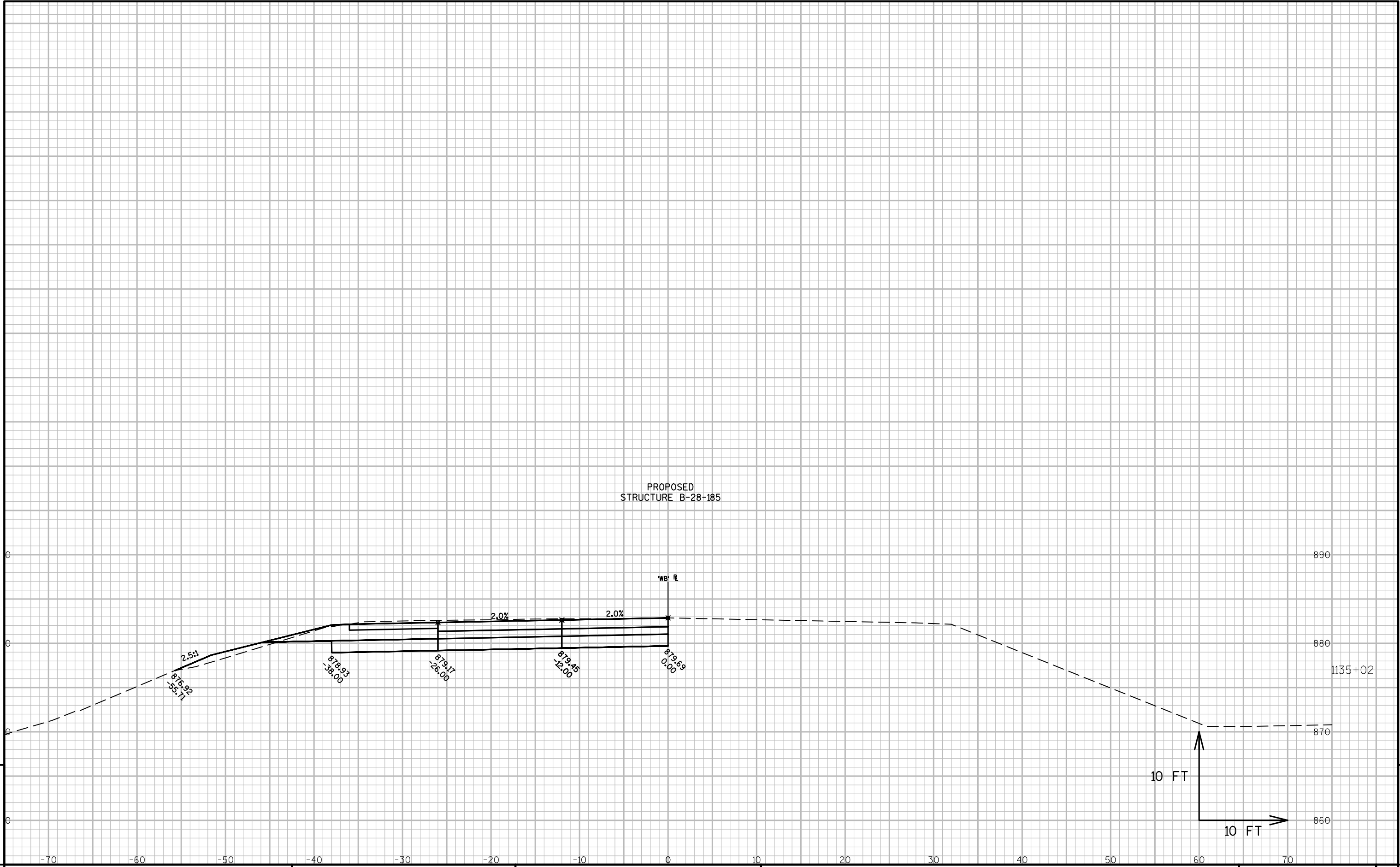
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PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: IH 94 STAGE 2	SHEET	E
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PROJECT NO: 1067-02-73 | HWY: IH 94 | COUNTY: JEFFERSON | CROSS SECTIONS: IH 94 STAGE 2 | SHEET | E



PROPOSED
STRUCTURE B-28-185

'WB' R

2.0%

2.0%

2.5:1

876.92
-55.71

878.93
-38.00

879.17
-26.00

879.45
-12.00

879.69
0.00

890

880

1135+02

870

860

10 FT

10 FT

-70

-60

-50

-40

-30

-20

-10

0

10

20

30

40

50

60

70

PROJECT NO: 1067-02-73

HWY: IH 94

COUNTY: JEFFERSON

CROSS SECTIONS: IH 94 STAGE 2

SHEET

E

FILE NAME : \\SEHRL\PROJECTS\UZ\W\WITSW\134721\4-PRELIM-DSGN-RPTS\C3D\10670203\SHEETSPLAN\090200 XS ROCK_LT_1.DWG

PLOT DATE : 7/30/2023 7:07 AM

PLOT BY : DEAN STODOLA

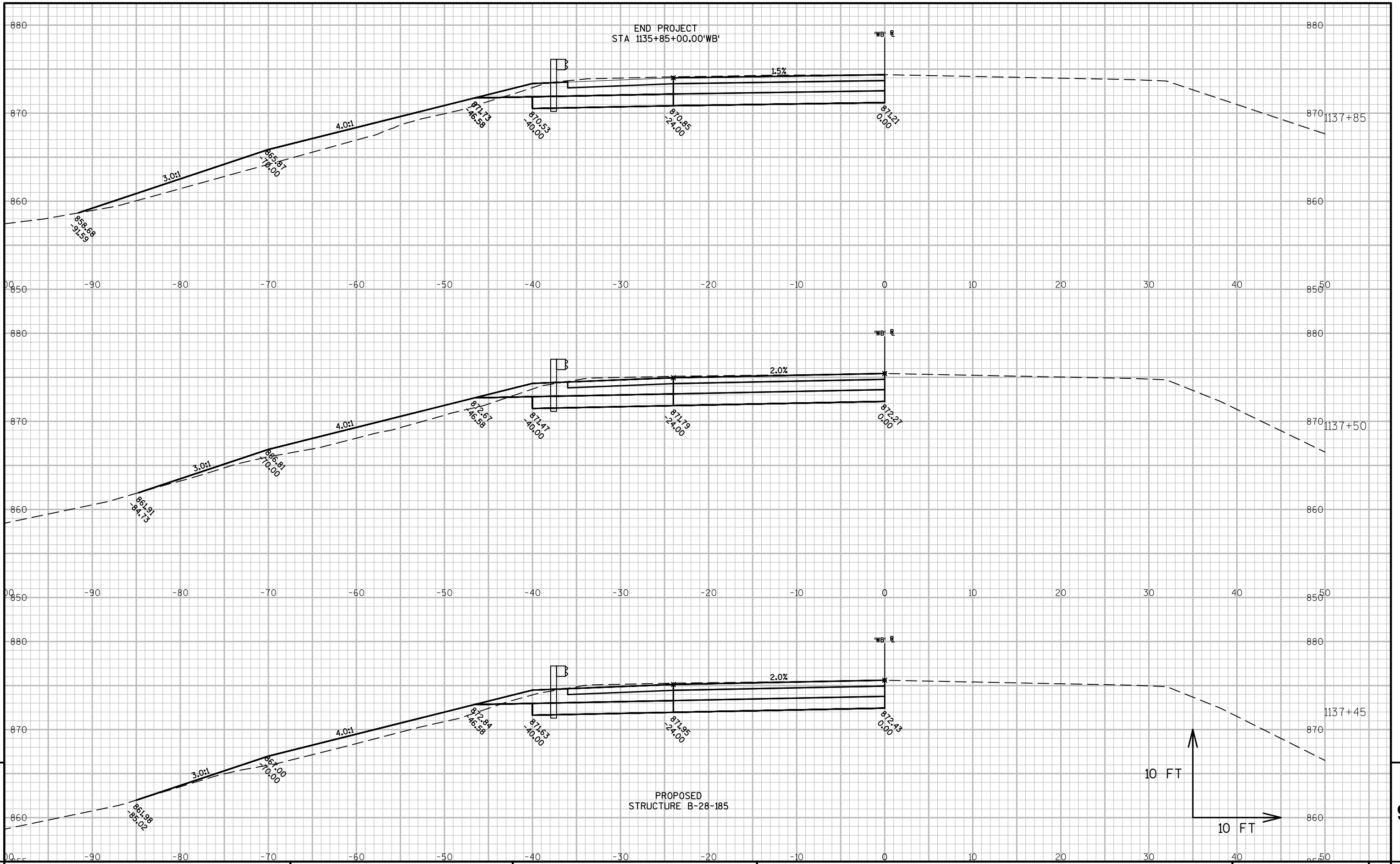
PLOT NAME :

PLOT SCALE : 1 IN:10 FT

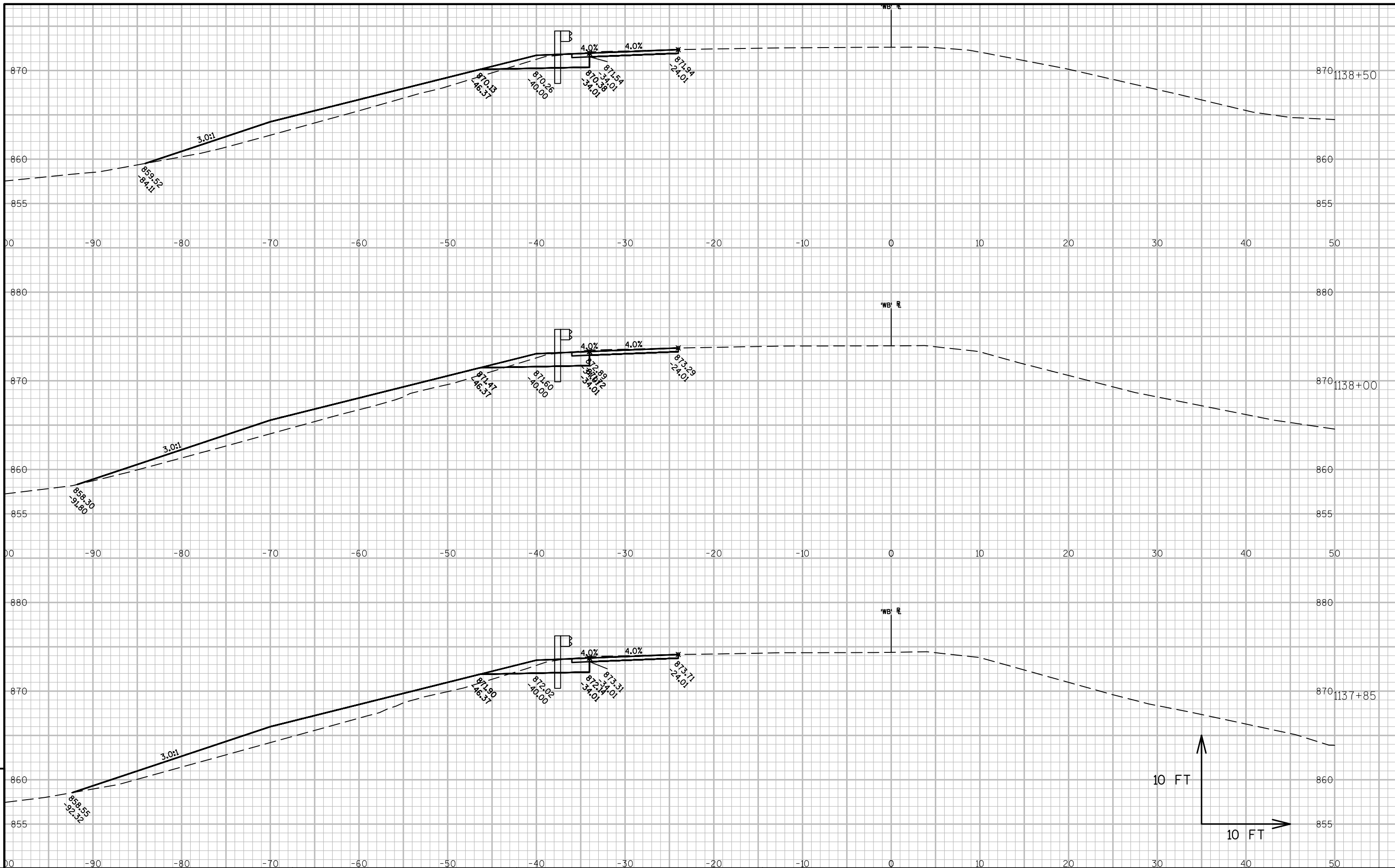
WISDOT/CADD SHEET 49

9

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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 2 SHEET E



PROJECT NO: 1067-02-73

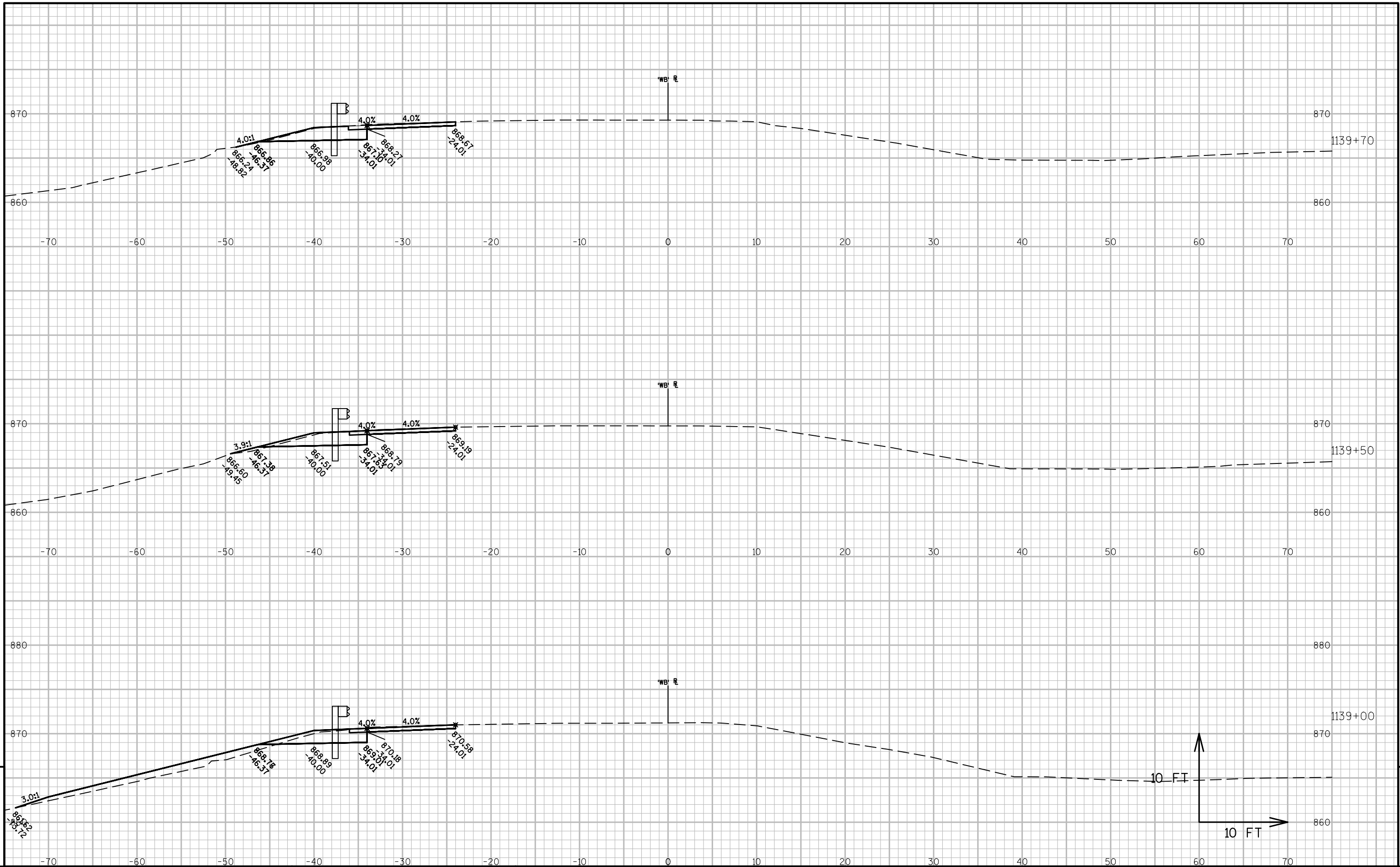
HWY: IH 94

COUNTY: JEFFERSON

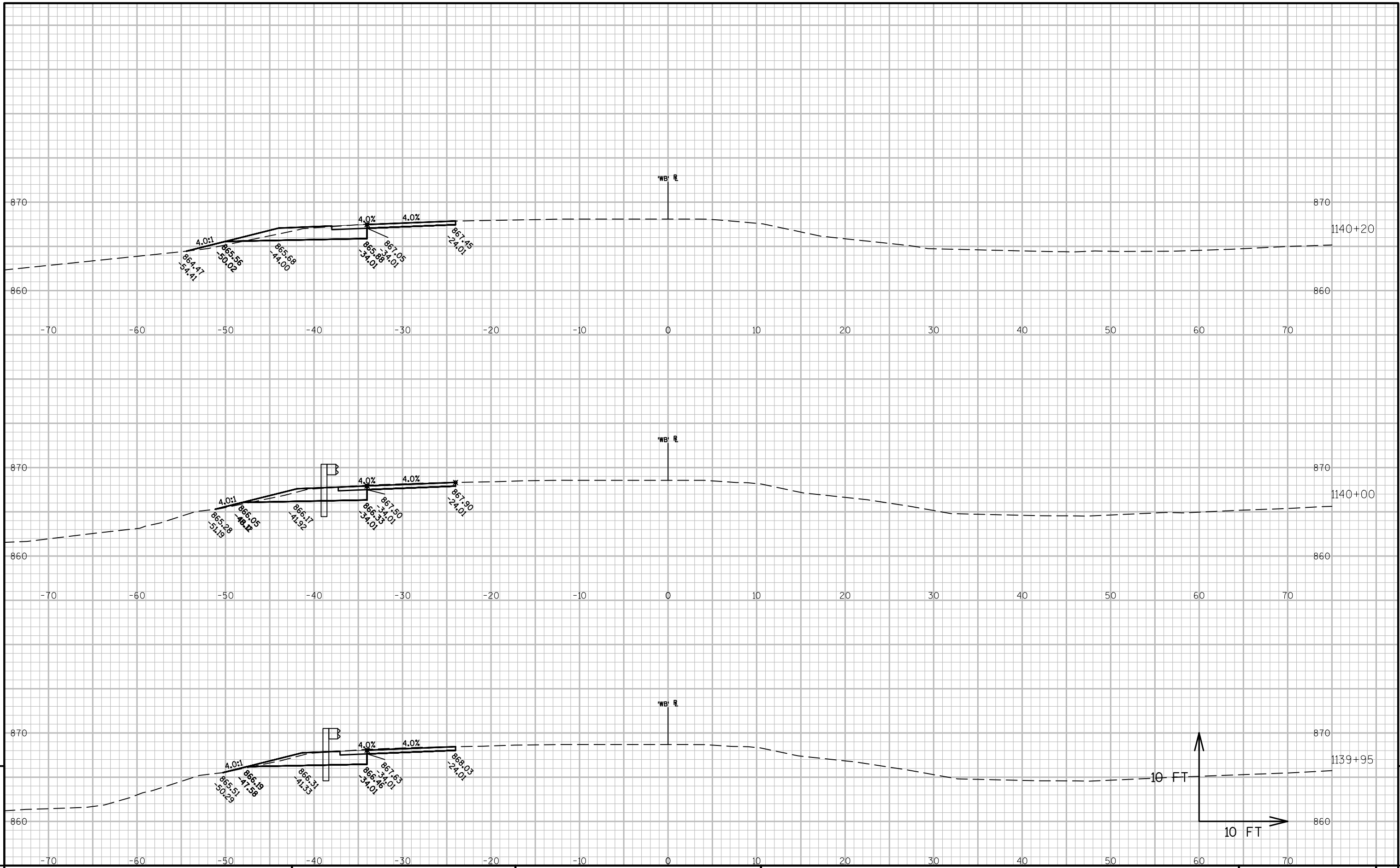
CROSS SECTIONS: IH 94 STAGE 2

SHEET

E

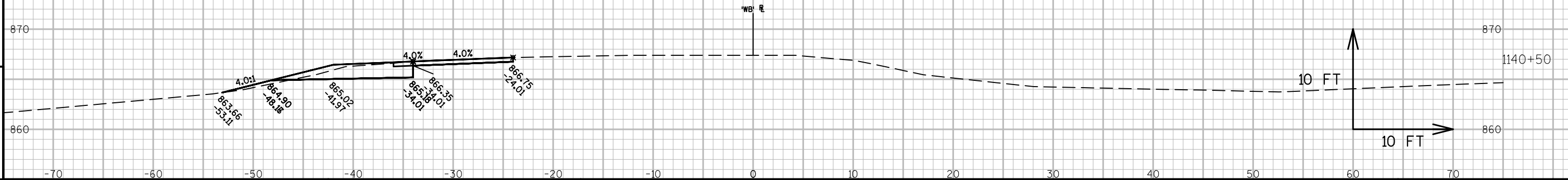
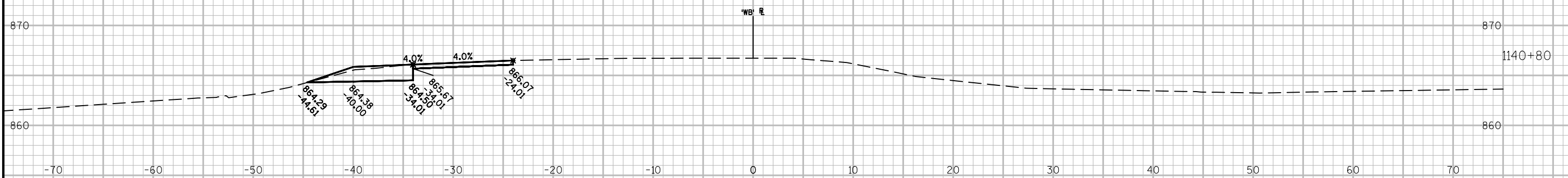


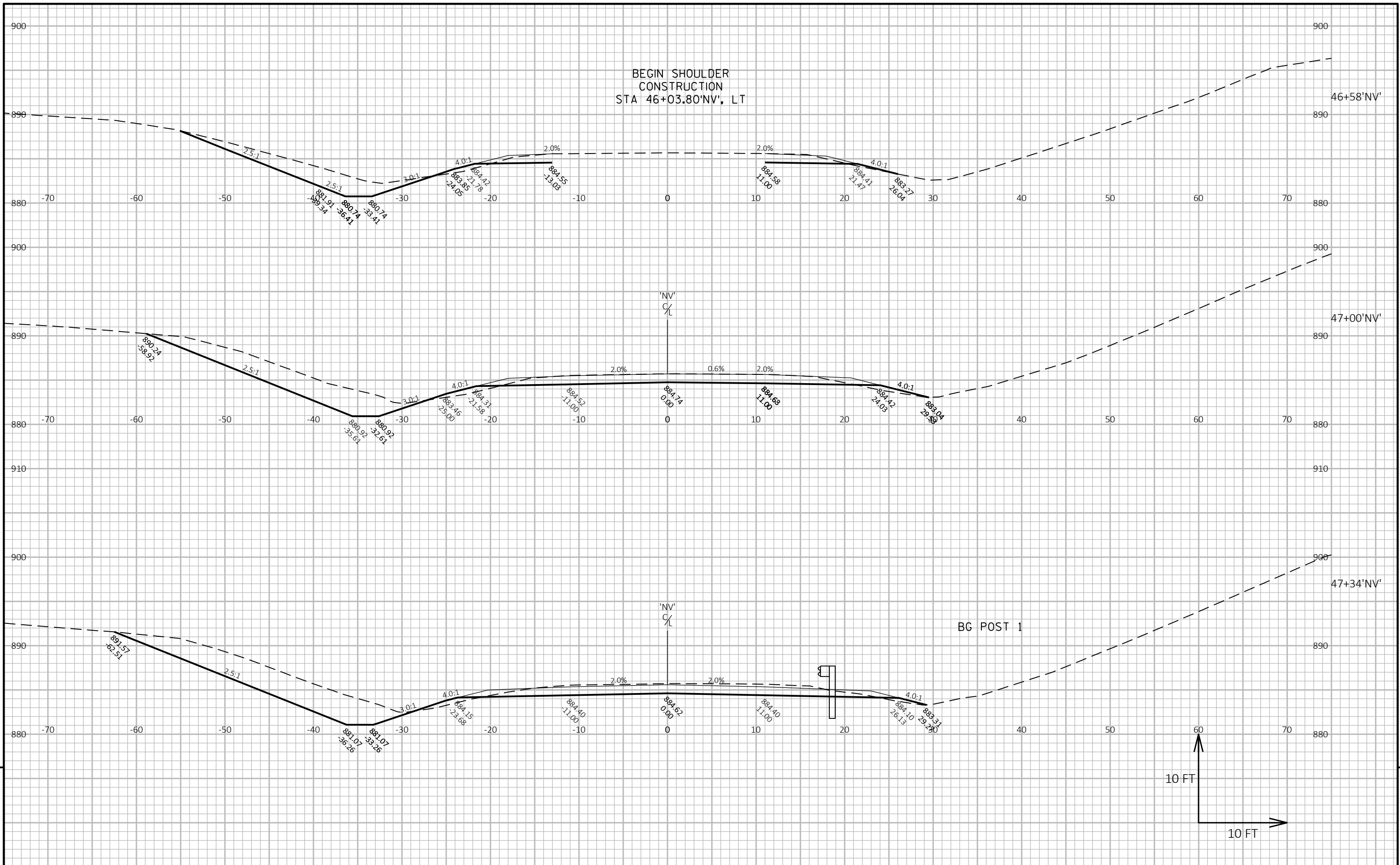
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 2 SHEET E



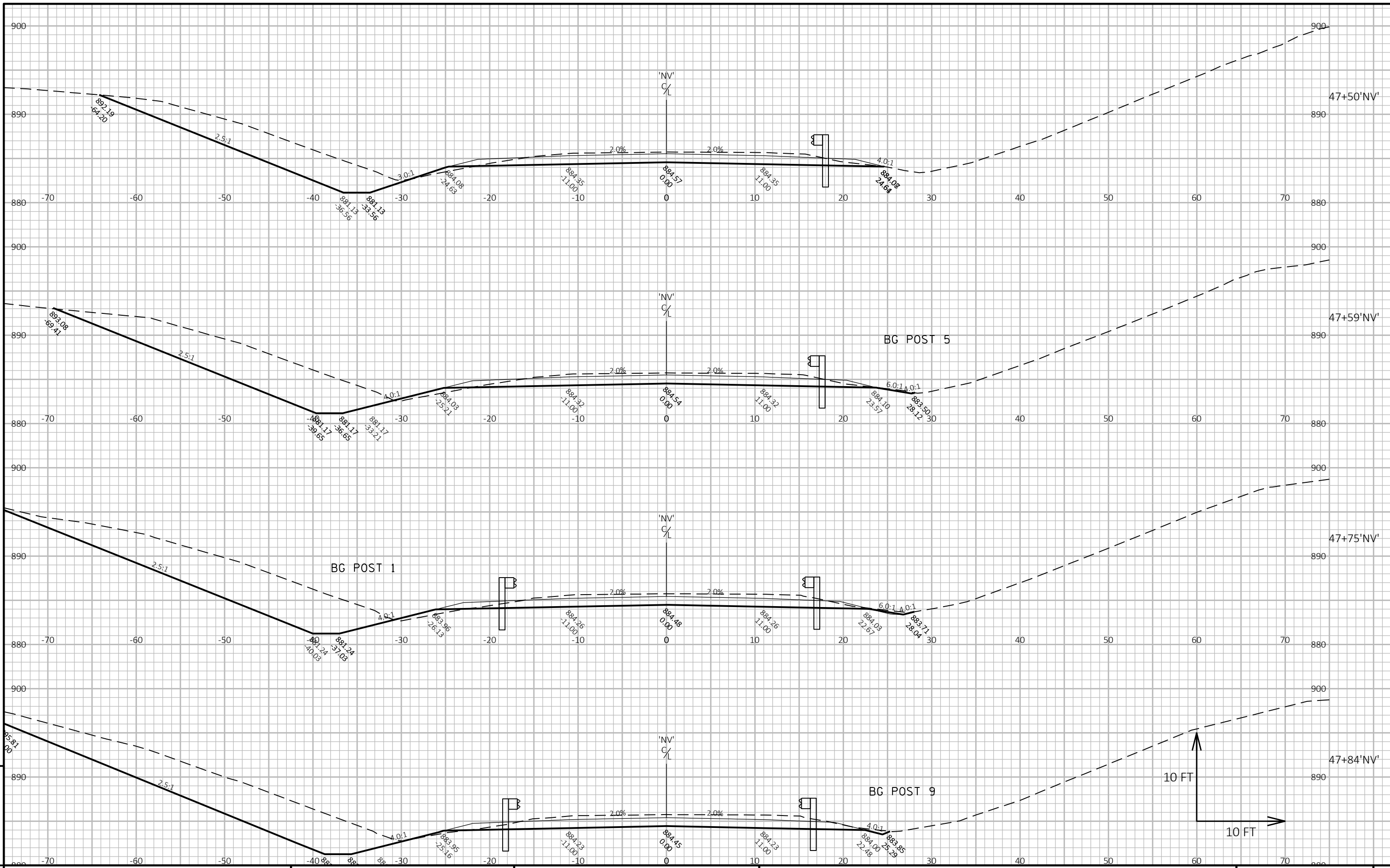
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: IH 94 STAGE 2 SHEET E

END SHOULDER
CONSTRUCTION
STA 1140+79.52, LT

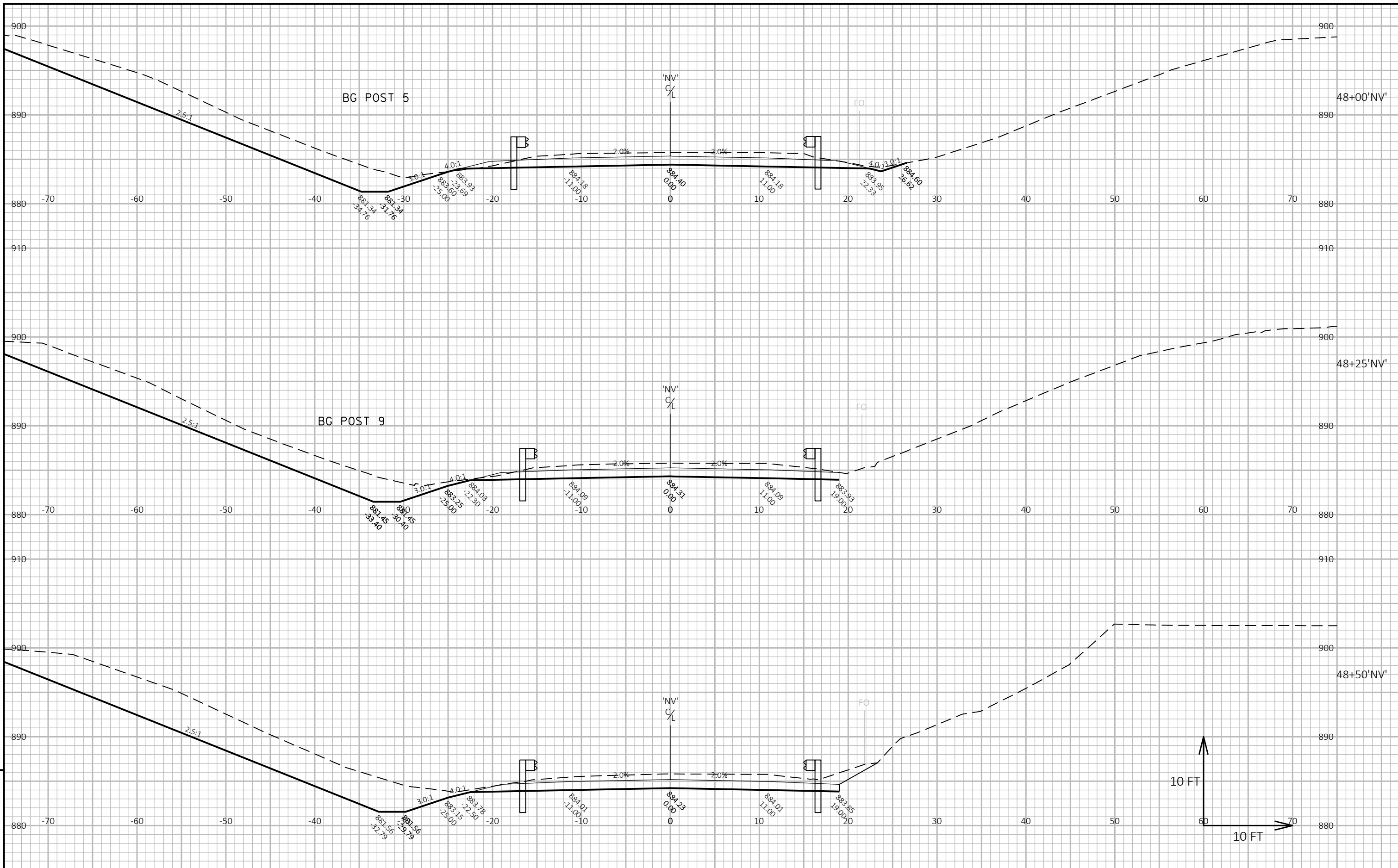




PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: NEWVILLE ROAD	SHEET	9
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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: NEWVILLE ROAD SHEET E



PROJECT NO: 1067-02-73

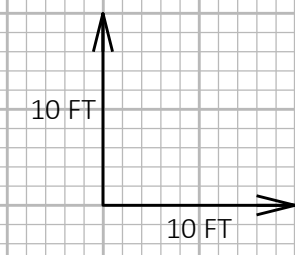
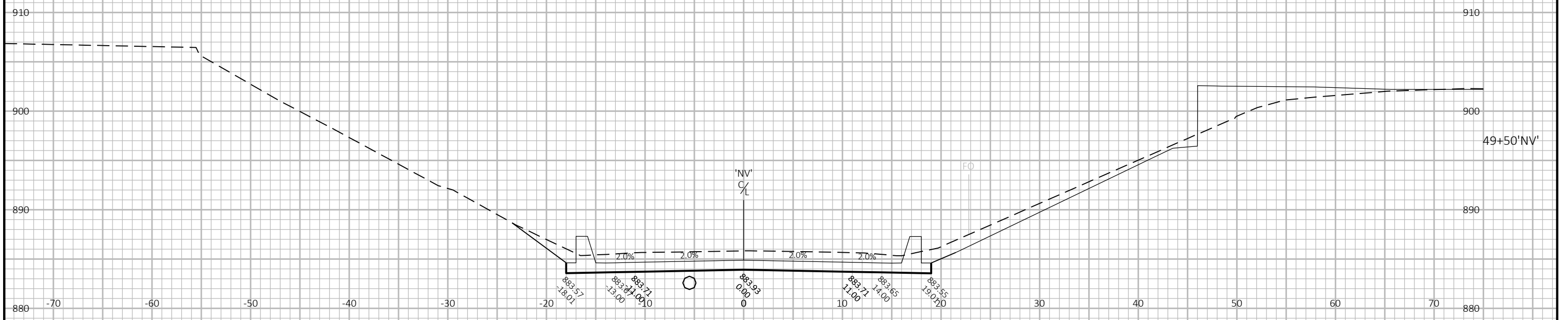
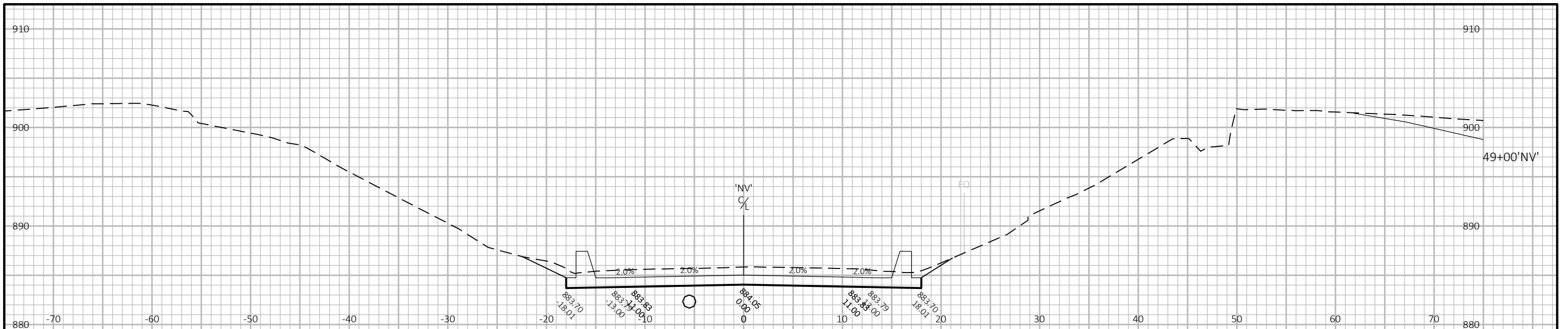
HWY: IH 94

COUNTY: JEFFERSON

CROSS SECTIONS: NEWVILLE ROAD

SHEET

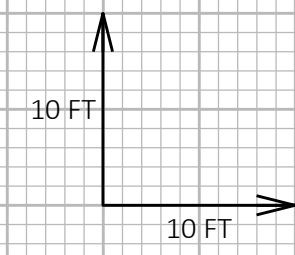
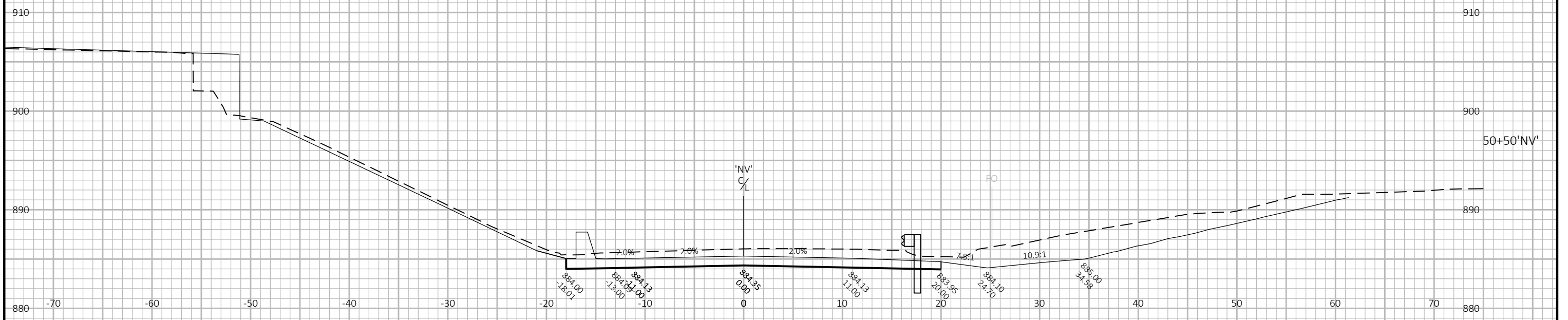
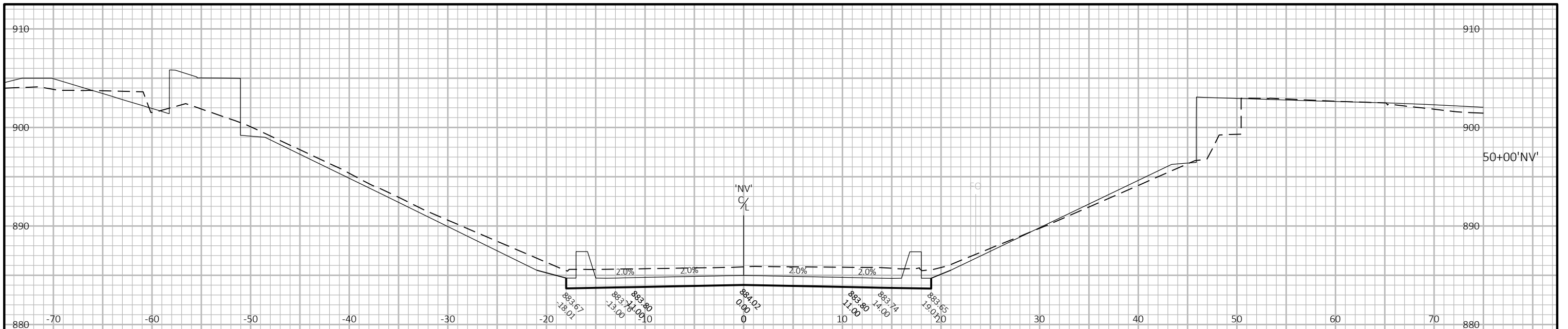
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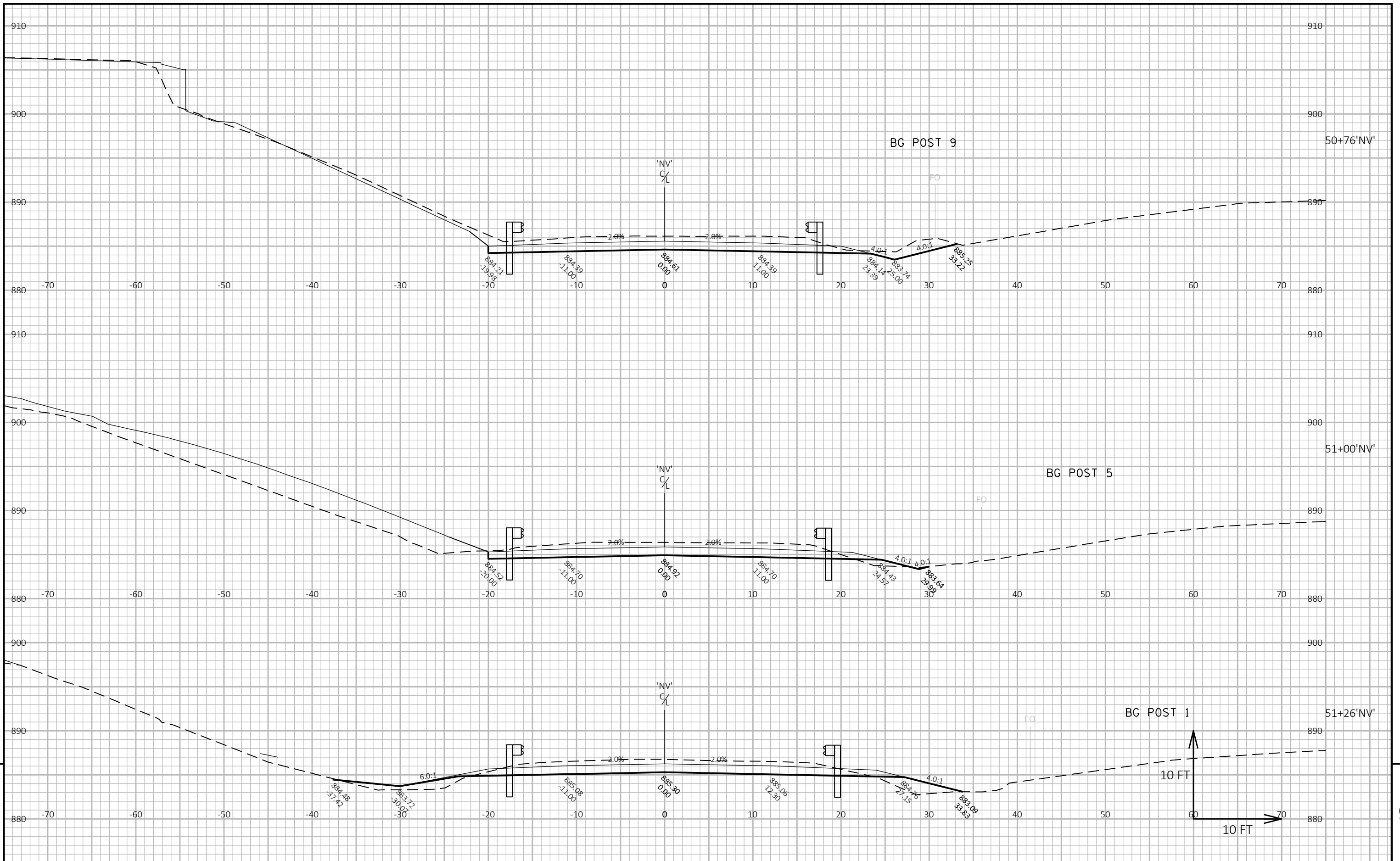
PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: NEWVILLE ROAD	SHEET	E
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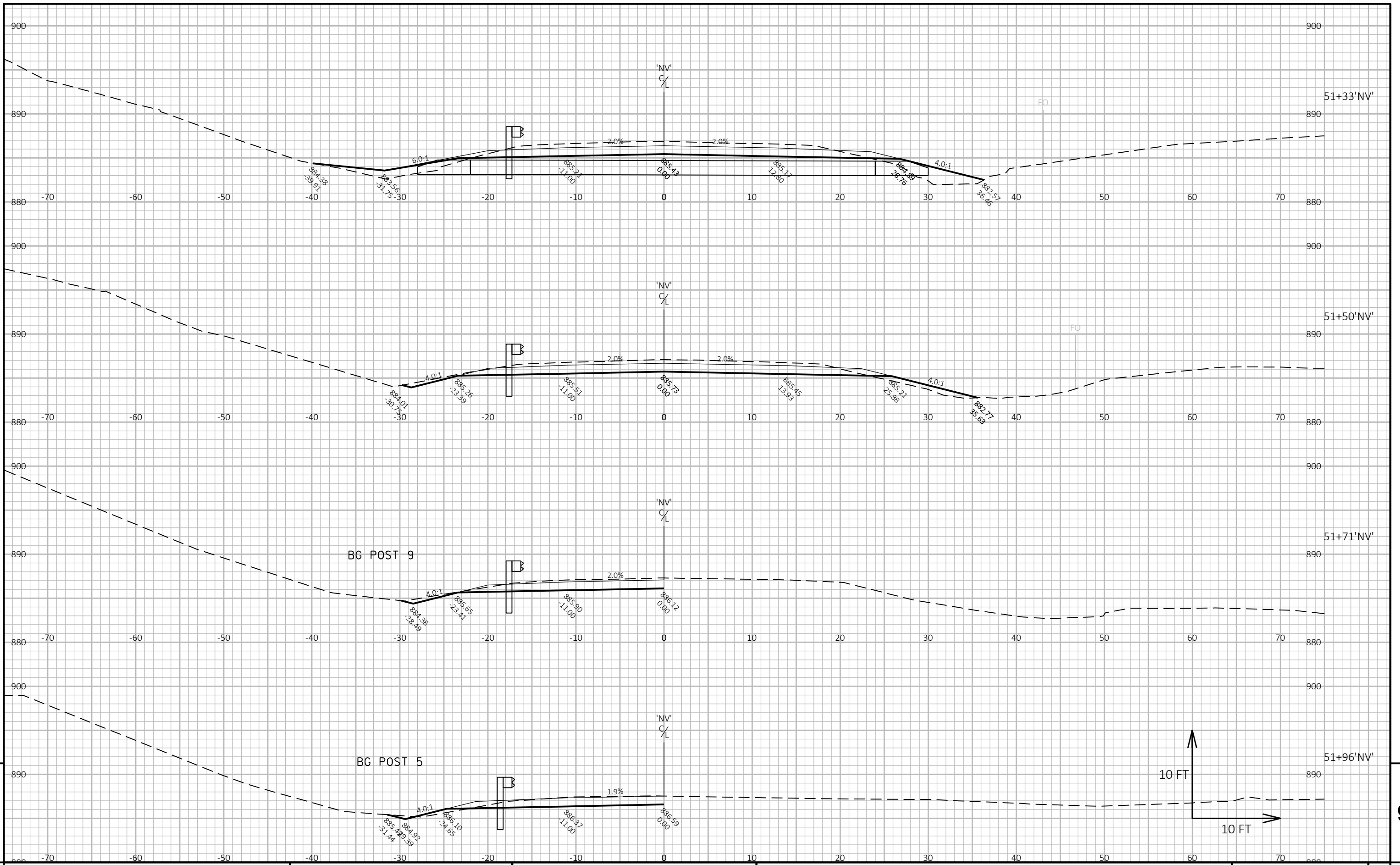
PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: NEWVILLE ROAD	SHEET	E
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PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: NEWVILLE ROAD	SHEET	E
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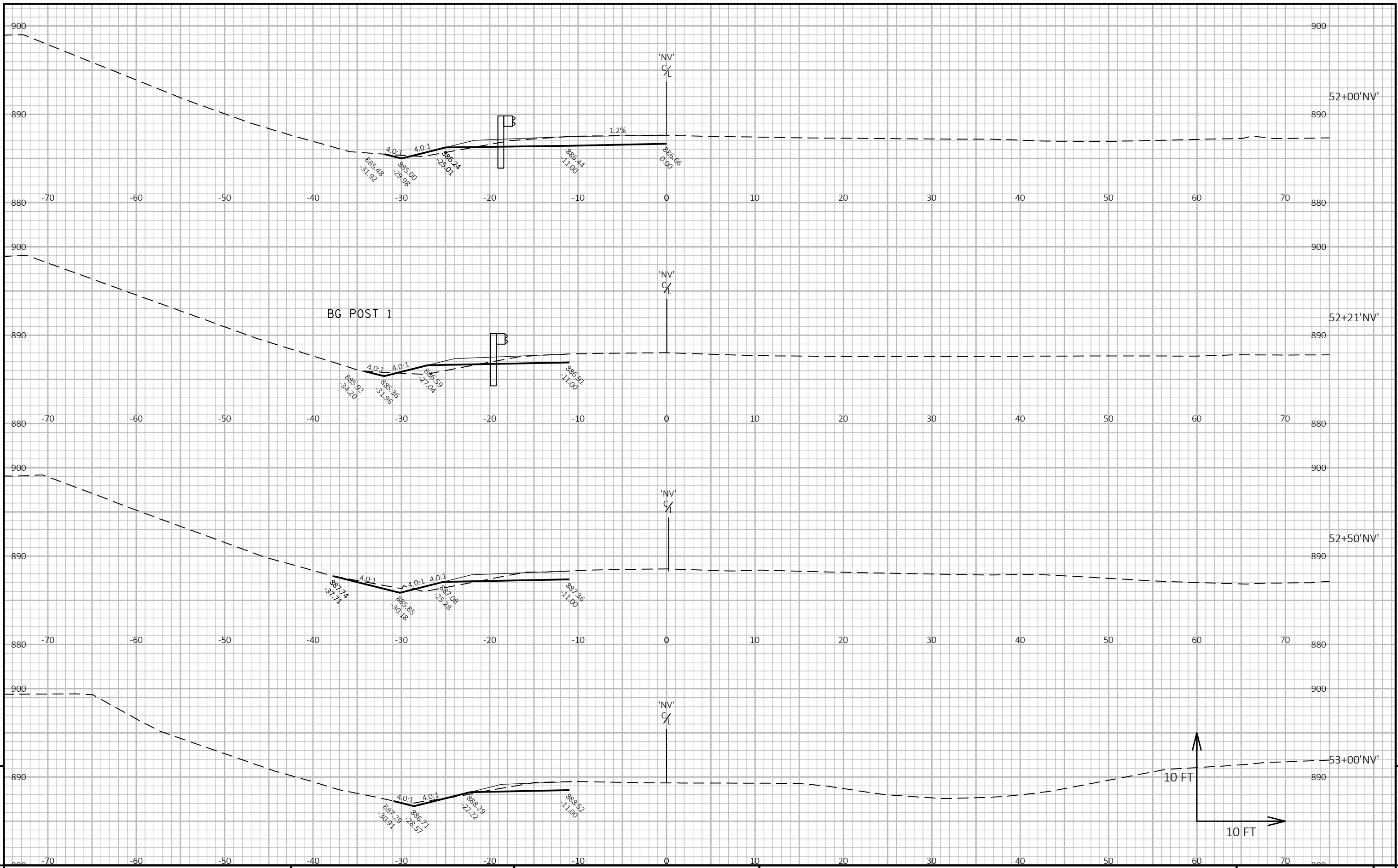
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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: NEWVILLE ROAD SHEET E

FILE NAME: V:\UZ\W\WITSW\134721\4-PRELIM-DSGN-RPTS\C3D\10670203\SHEETPLAN\090200 XS NEWVILLE.DWG PLOT DATE: 7/29/2023 1:29 PM PLOT BY: DEAN STODOLA PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 7



PROJECT NO: 1067-02-73

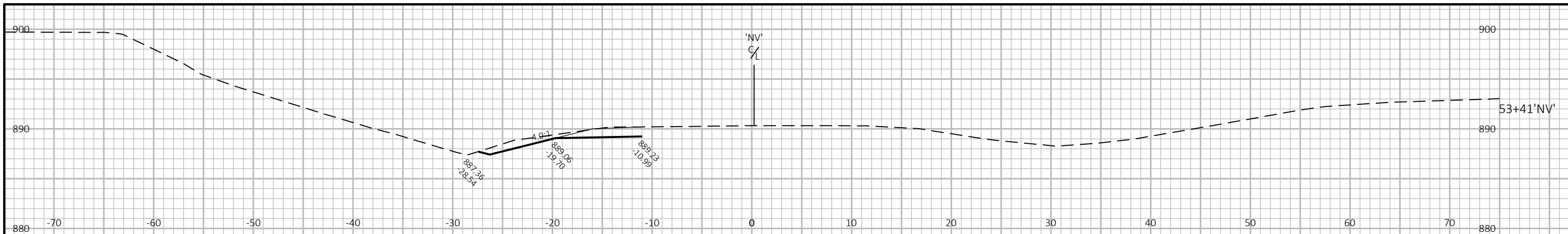
HWY: IH 94

COUNTY: JEFFERSON

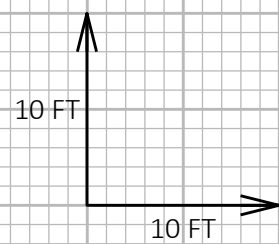
CROSS SECTIONS: NEWVILLE ROAD

SHEET

E



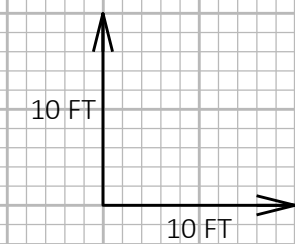
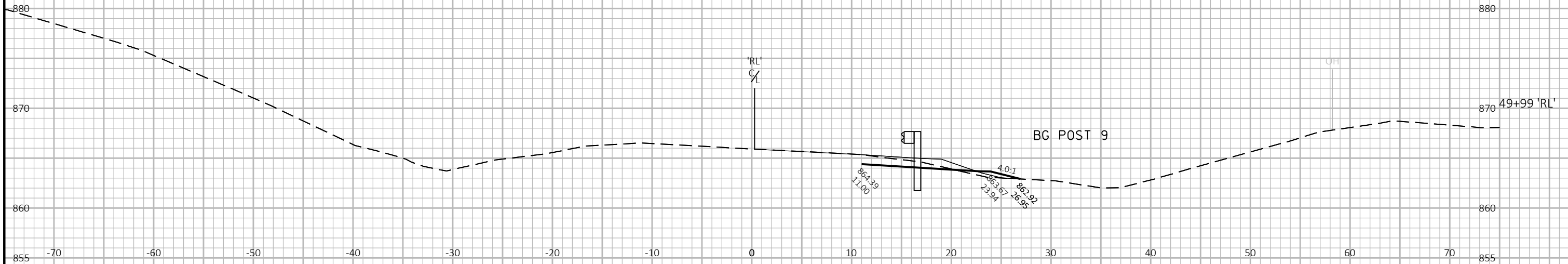
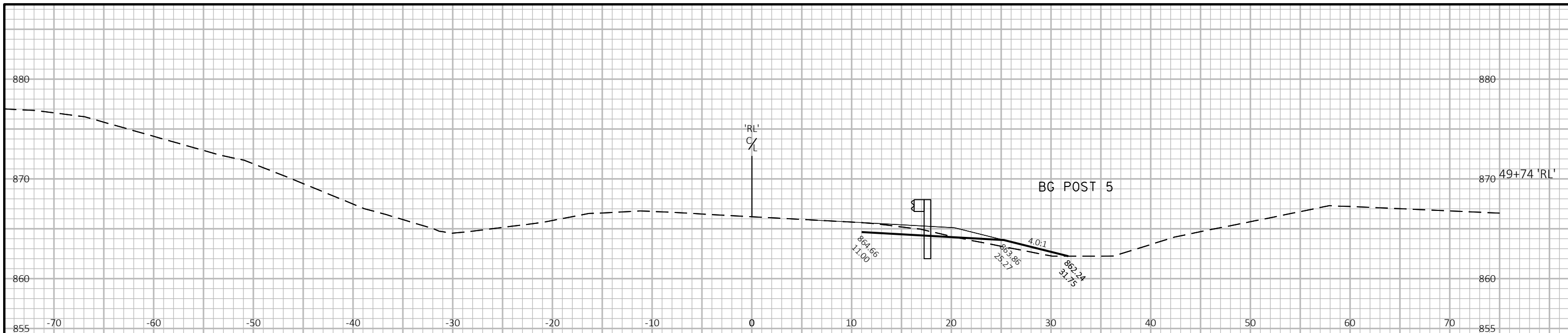
END SHOULDER
CONSTRUCTION
STA 53+50.00'NV, LT



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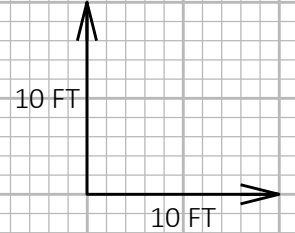
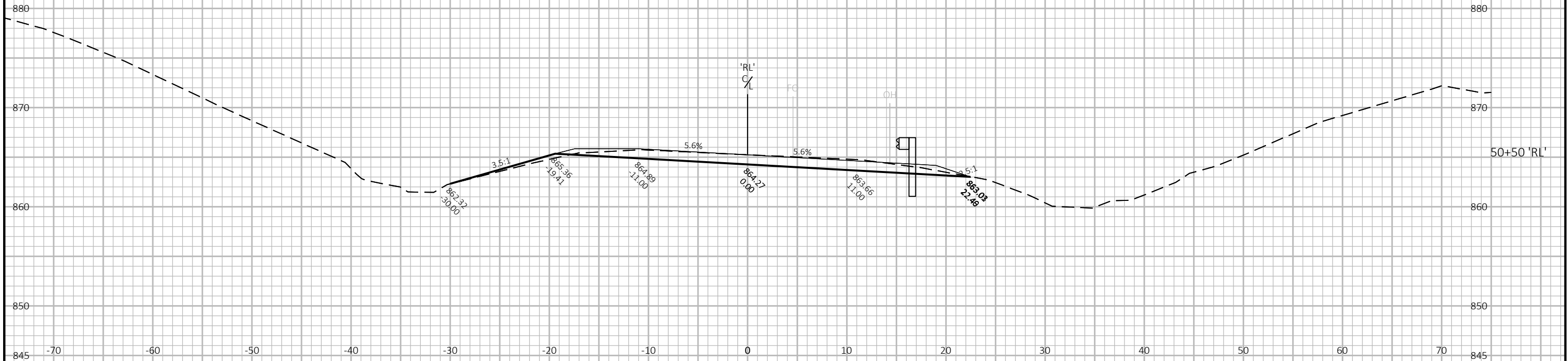
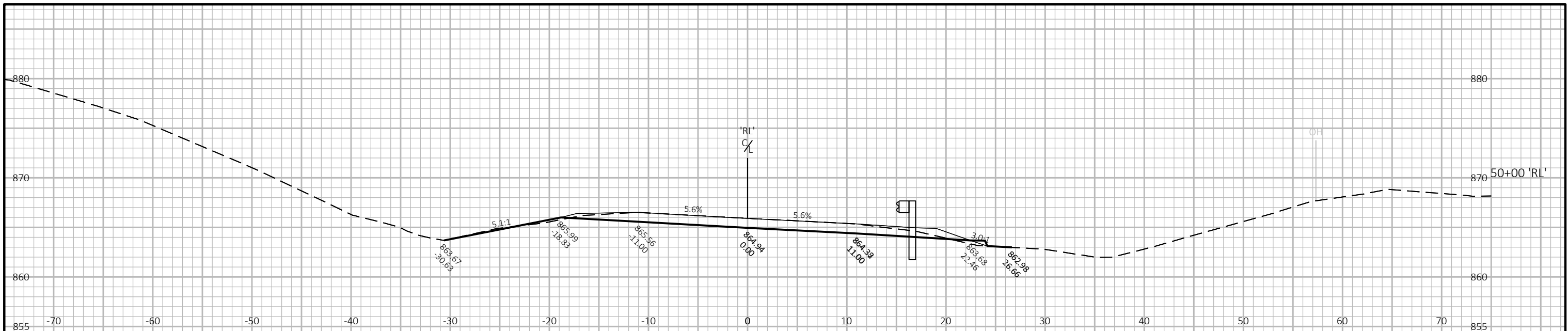
PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: NEWVILLE ROAD	SHEET	E
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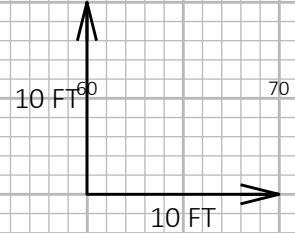
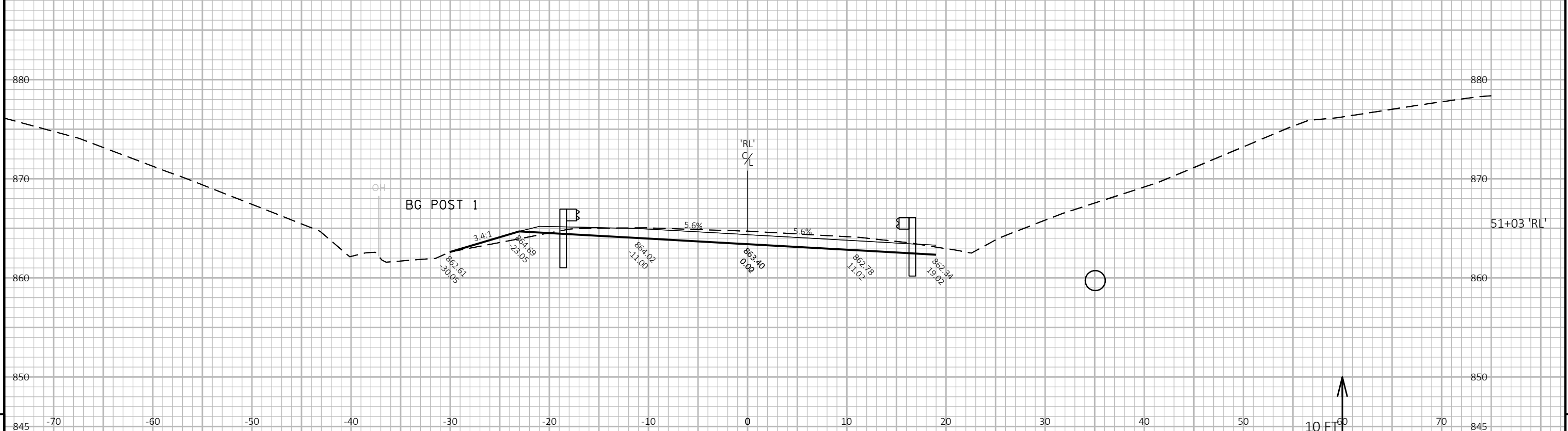
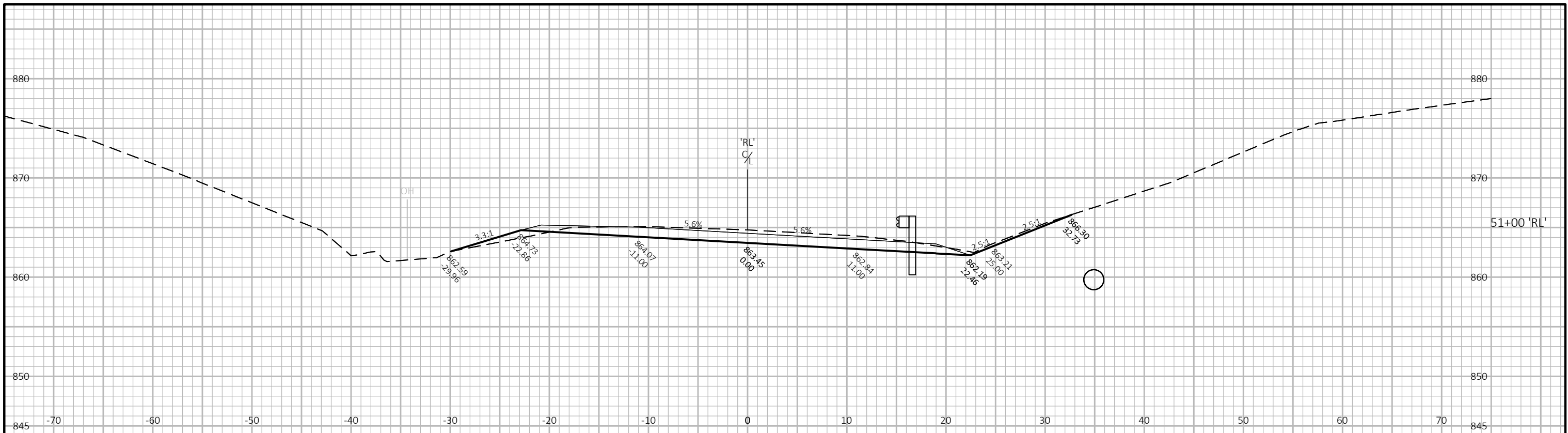
PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: ROCK LAKE ROAD	SHEET	E
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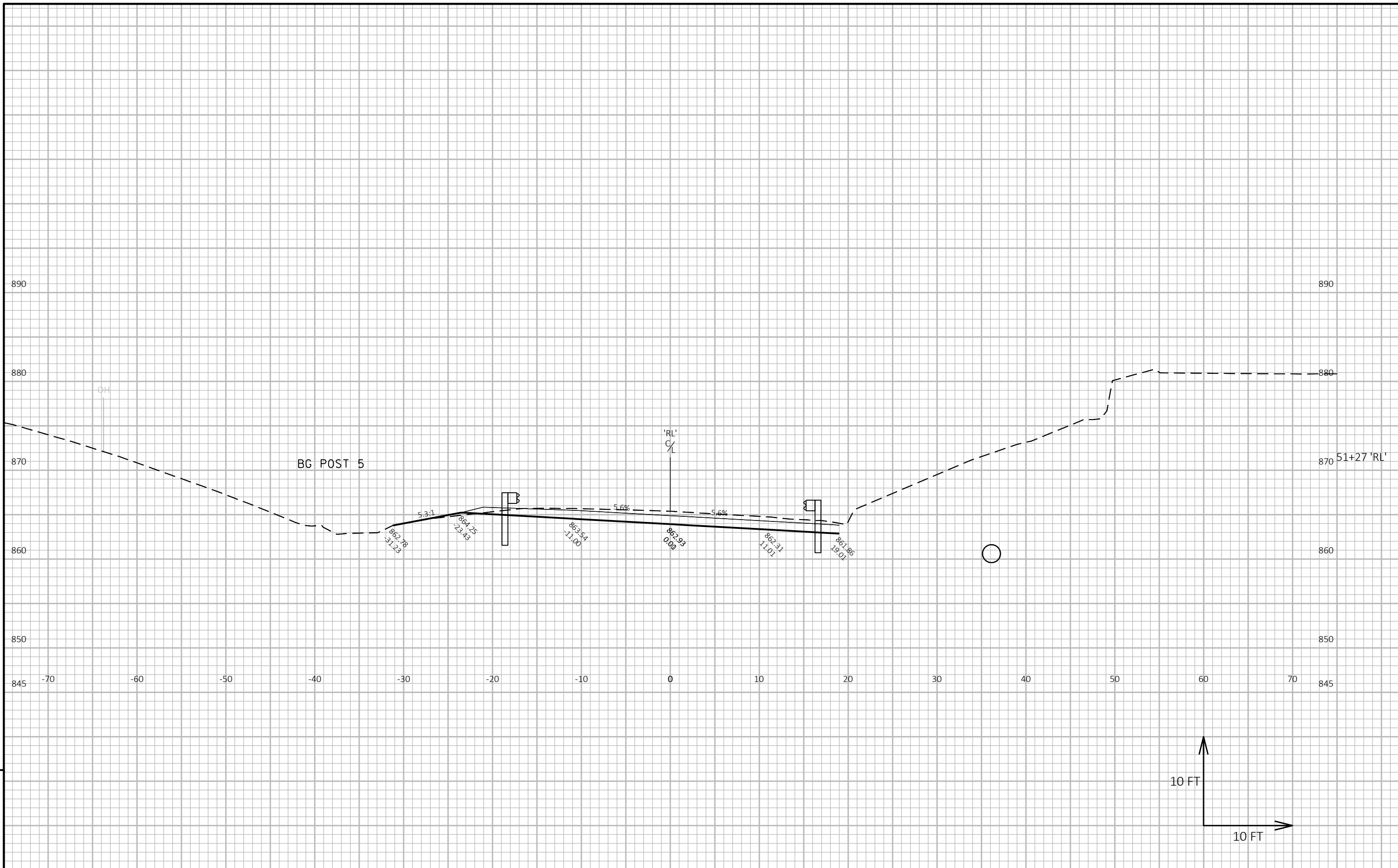


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PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: ROCK LAKE ROAD	SHEET	E
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PROJECT NO: 1067-02-73

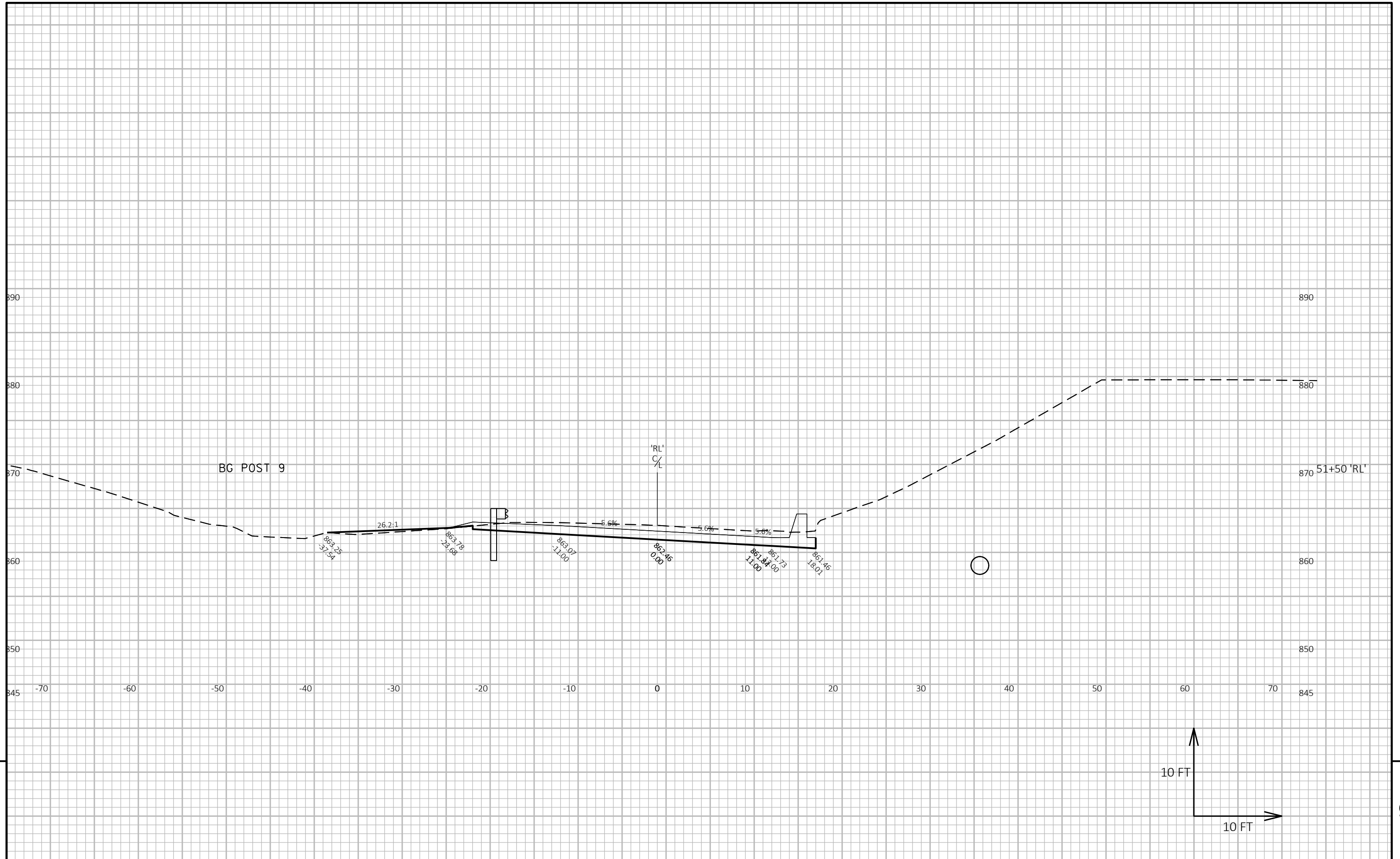
HWY: IH 94

COUNTY: JEFFERSON

CROSS SECTIONS: ROCK LAKE ROAD

SHEET

E



PROJECT NO: 1067-02-73

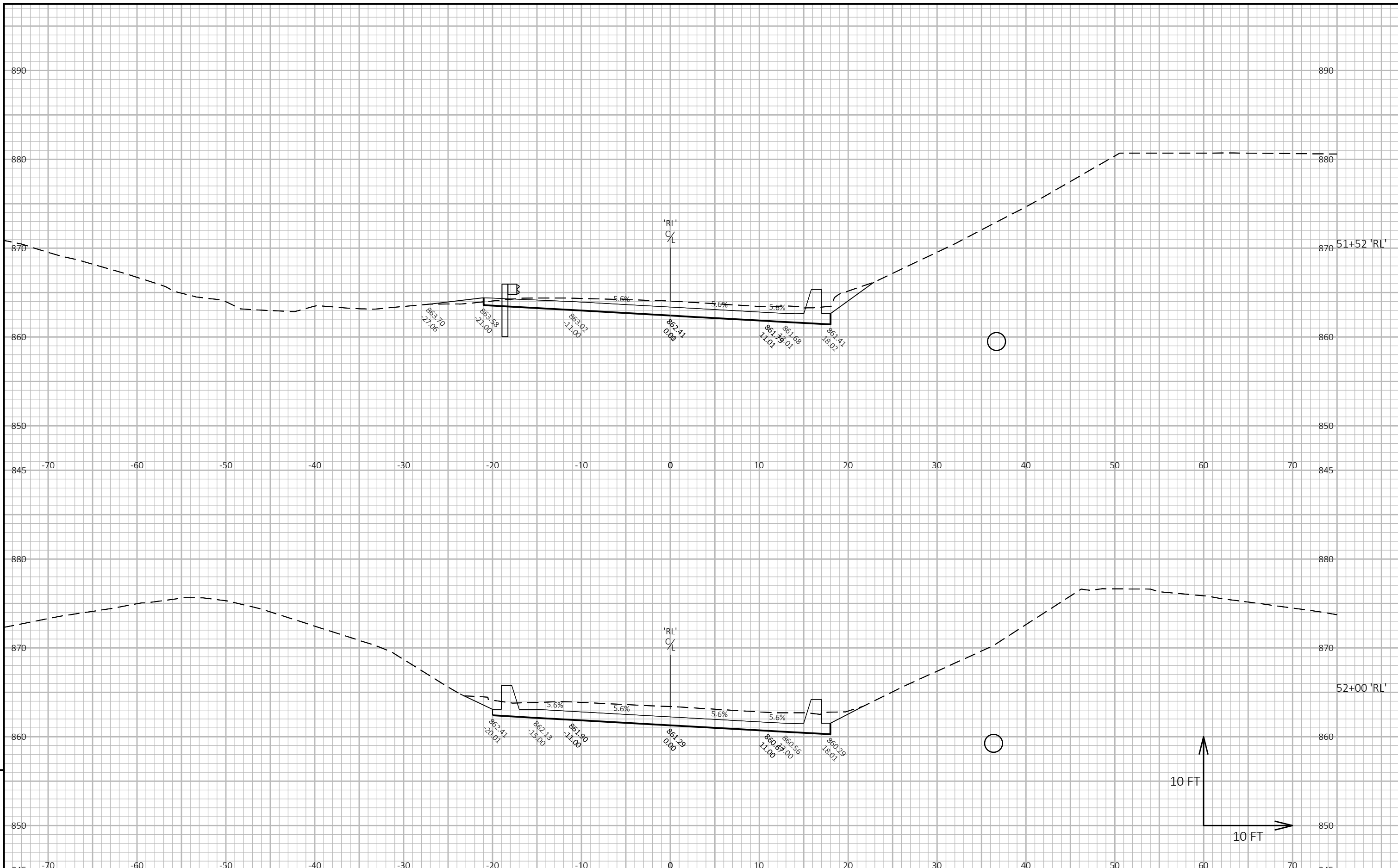
HWY: IH 94

COUNTY: JEFFERSON

CROSS SECTIONS: ROCK LAKE ROAD

SHEET

E



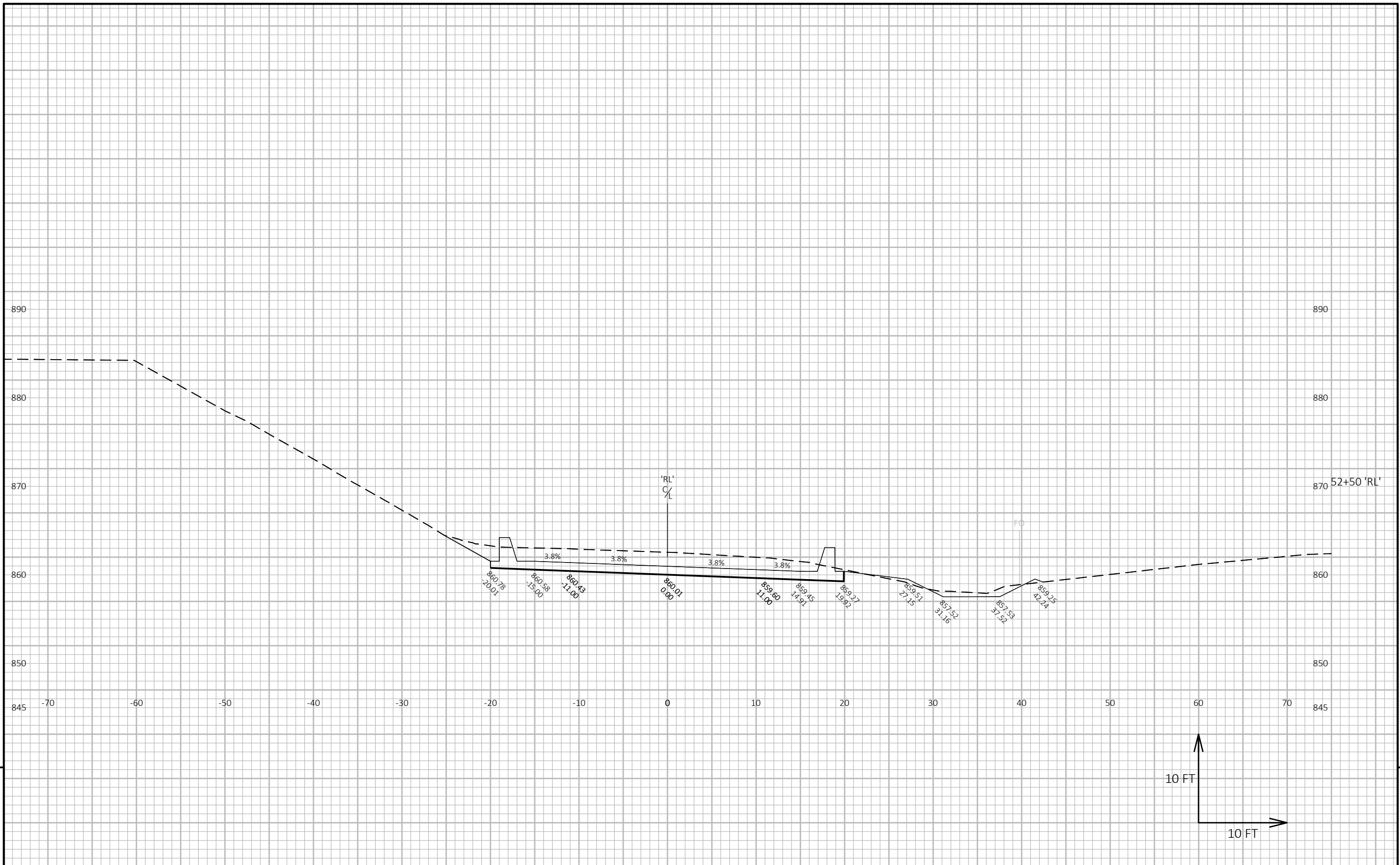
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PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: ROCK LAKE ROAD	SHEET	E
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FILE NAME : V:\UZ\W\WITSW\134721\4-PRELIM-DSGN-RPTS\C3D\10670203\SHEETSPLAN\090200 XS ROCK.DWG PLOT DATE : 7/29/2023 1:30 PM PLOT BY : DEAN STODOLA PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 07



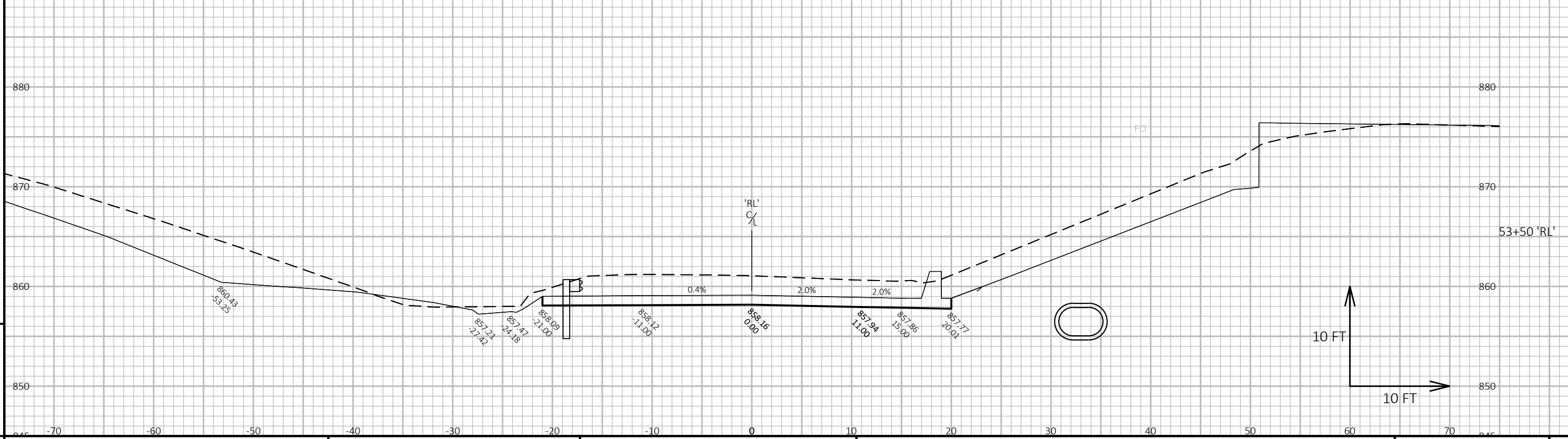
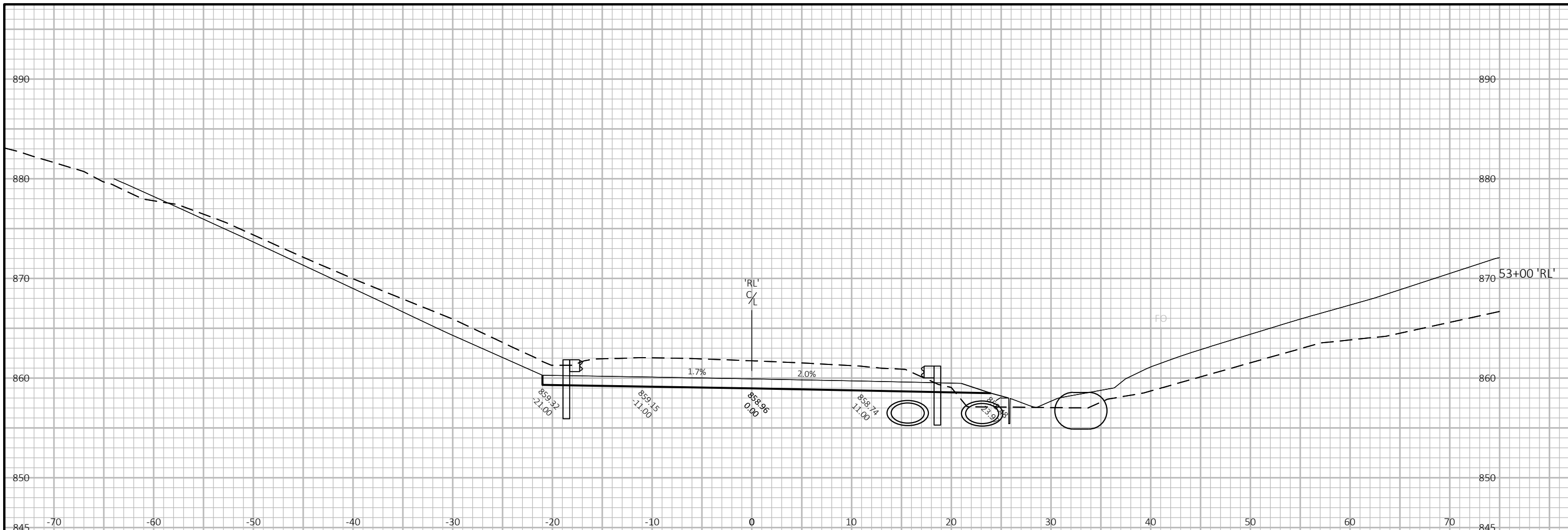
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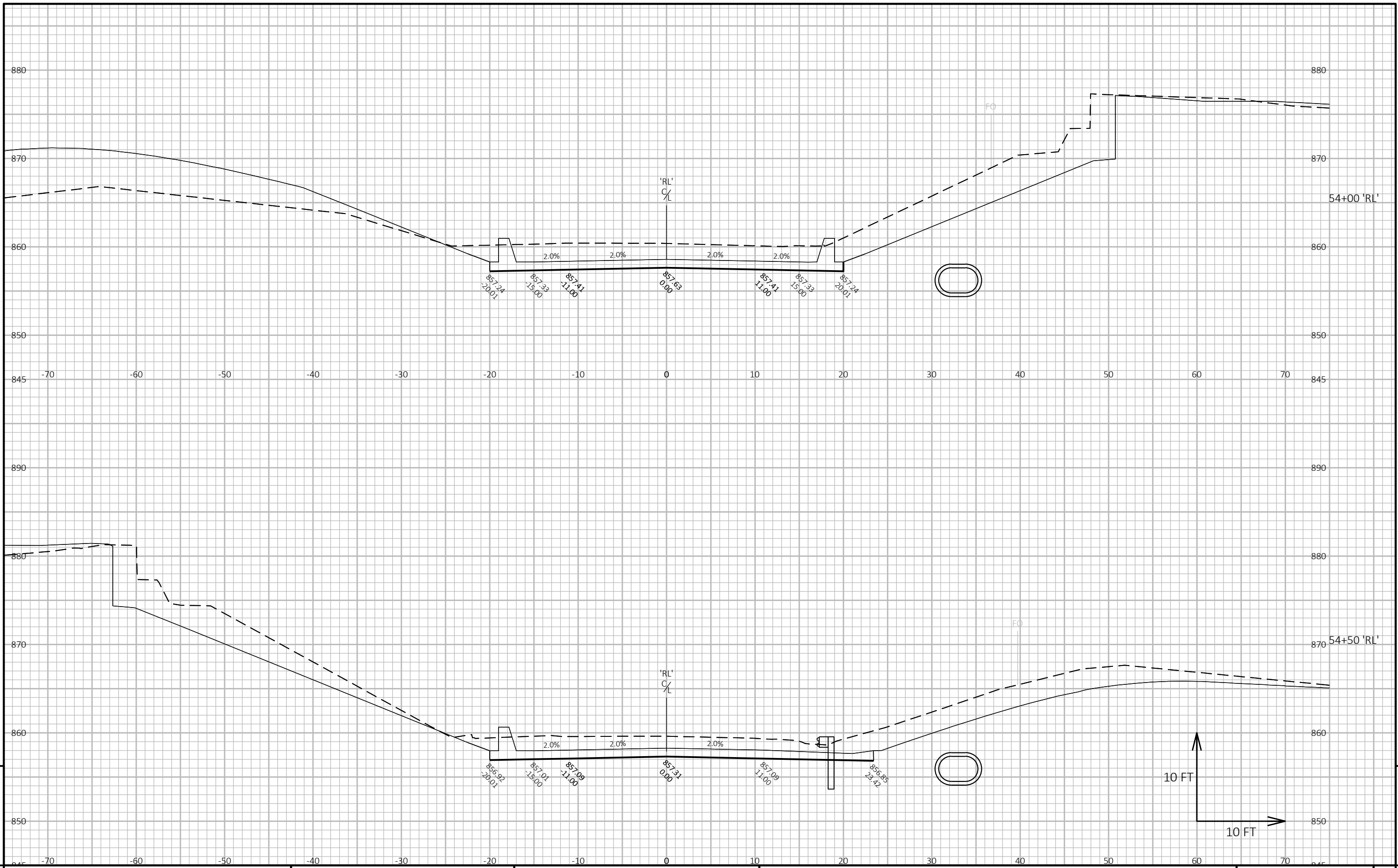
PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: ROCK LAKE ROAD SHEET E

FILE NAME: V:\UZ\W\WITSW\134721\4-PRELIM-DSGN-RPTS\C3D\10670203\SHEETSP\AN\090200 XS ROCK.DWG PLOT DATE: 7/29/2023 1:31 PM PLOT BY: DEAN STODOLA PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

LAYOUT NAME - 08



PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: ROCK LAKE ROAD SHEET 9



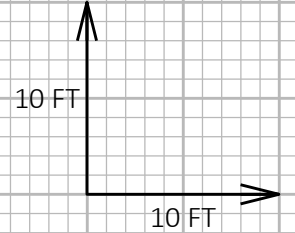
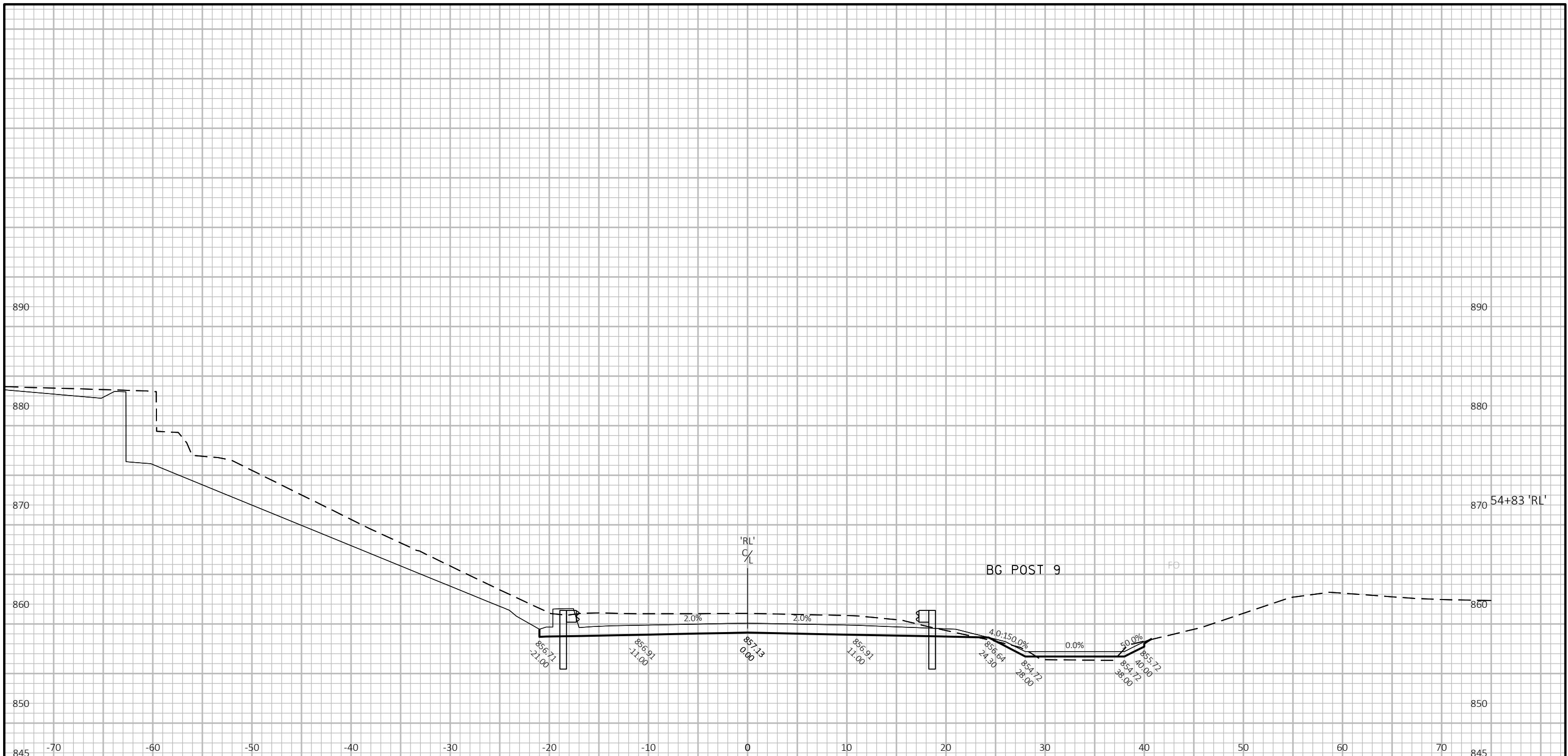
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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: ROCK LAKE ROAD SHEET E

FILE NAME: V:\UZ\W\WITSW\134721\4-PRELIM-DSGN-RPTS\C3D\10670203\SHEETSP\AN\090200 XS ROCK.DWG PLOT DATE: 7/29/2023 1:31 PM PLOT BY: DEAN STODOLA PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

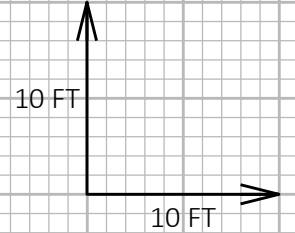
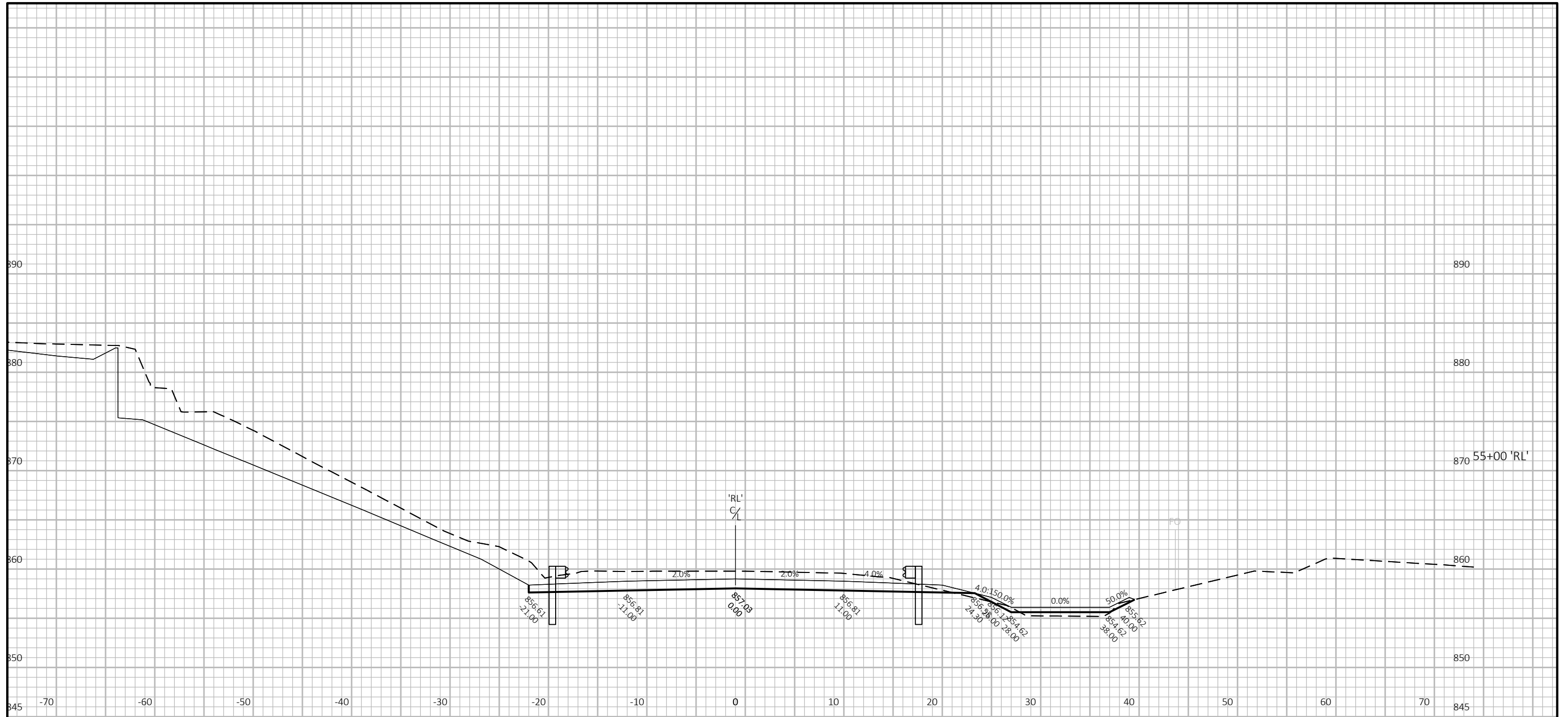
LAYOUT NAME - 10



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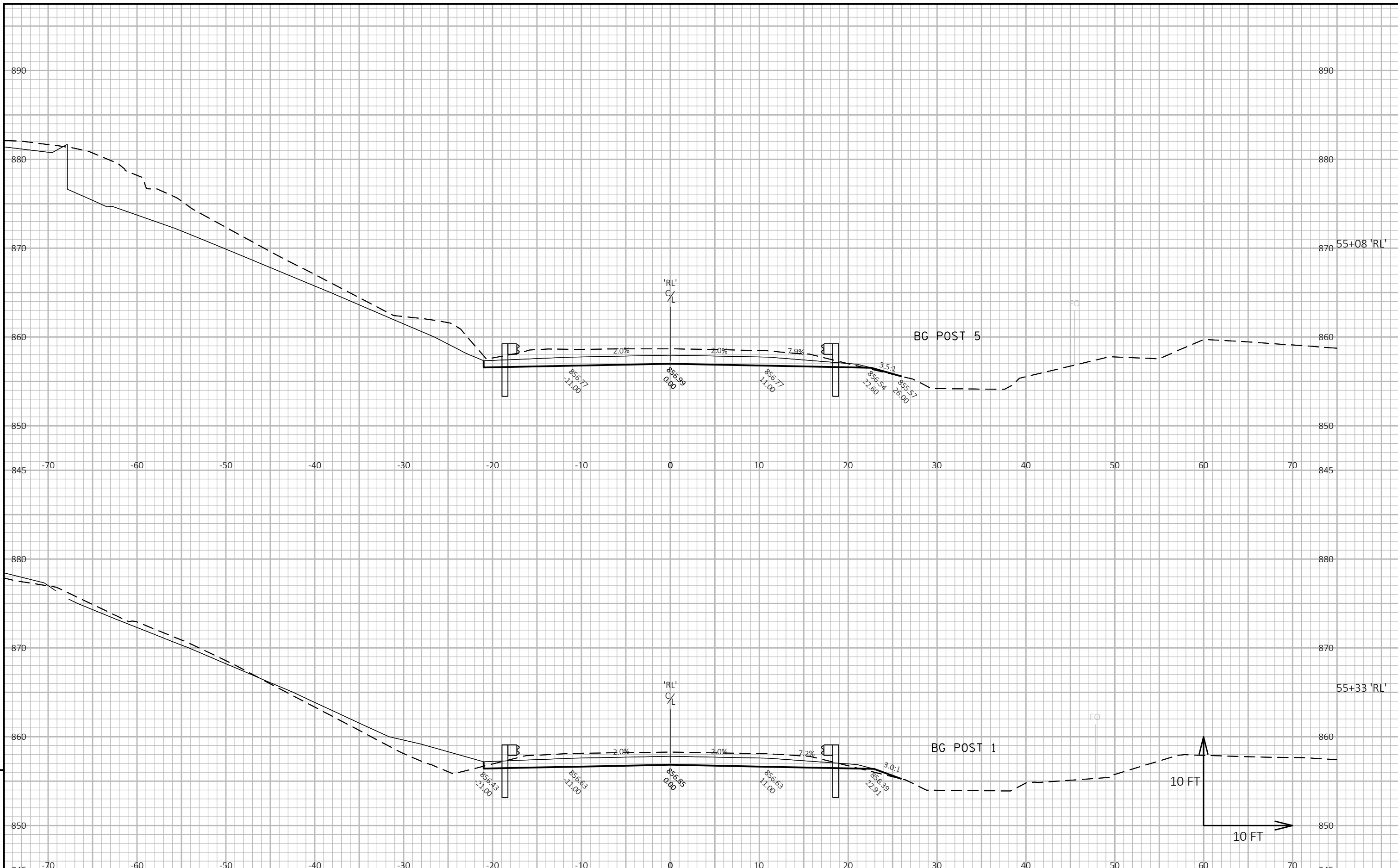
PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: ROCK LAKE ROAD	SHEET	E
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PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: ROCK LAKE ROAD	SHEET	E
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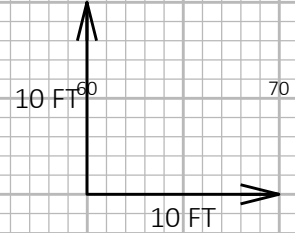
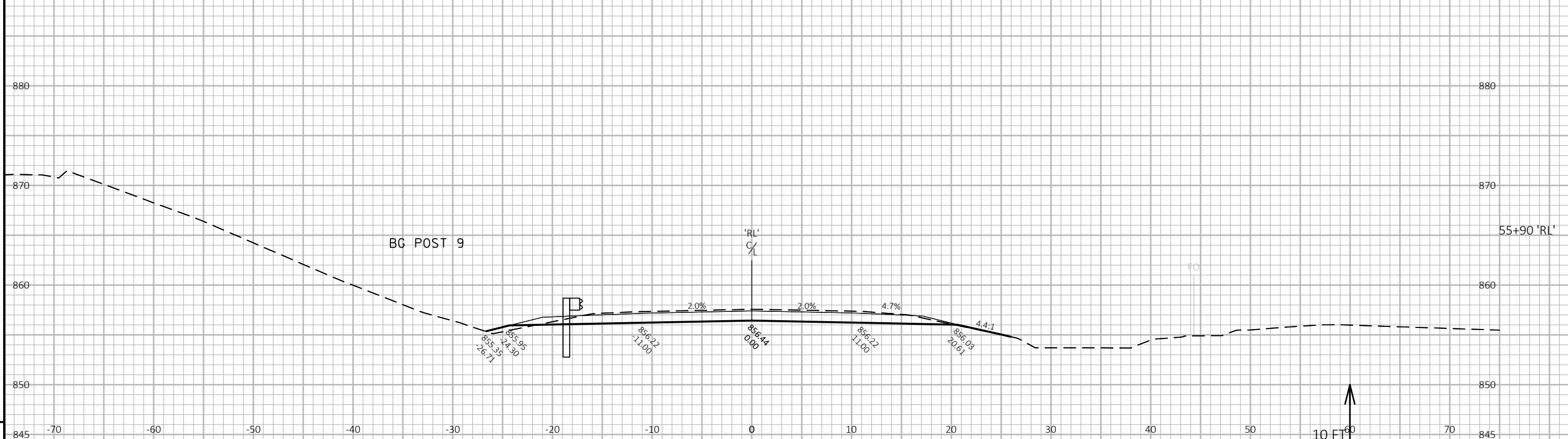
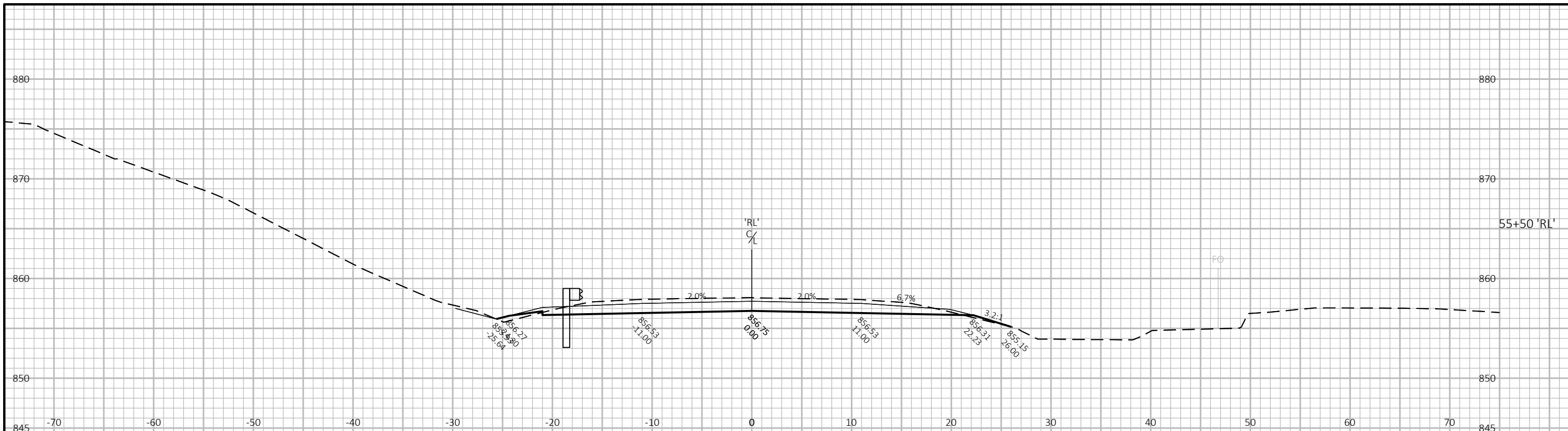
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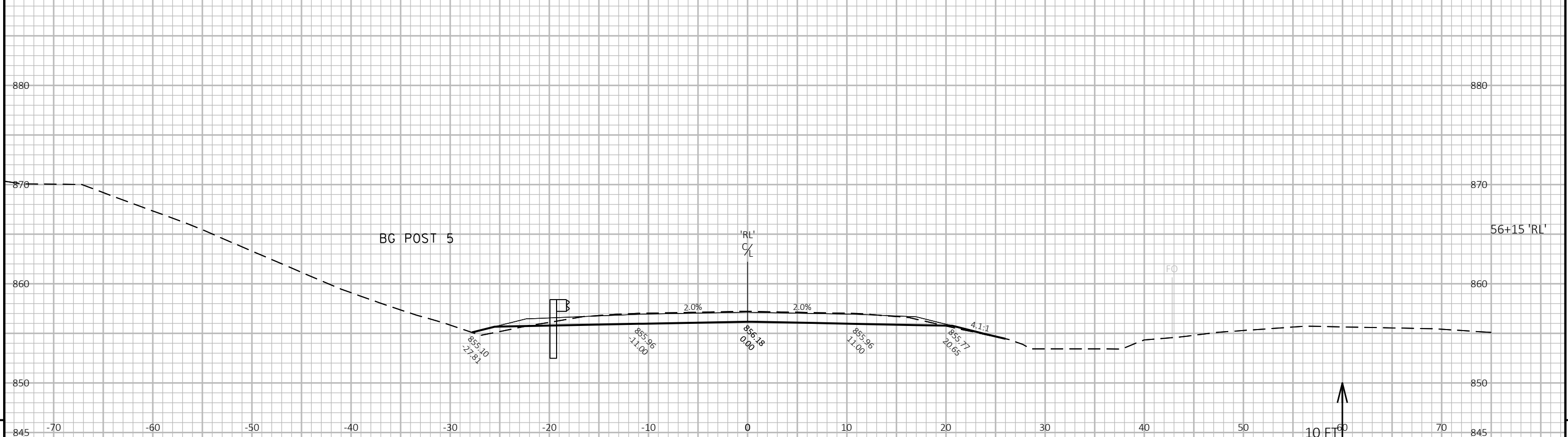
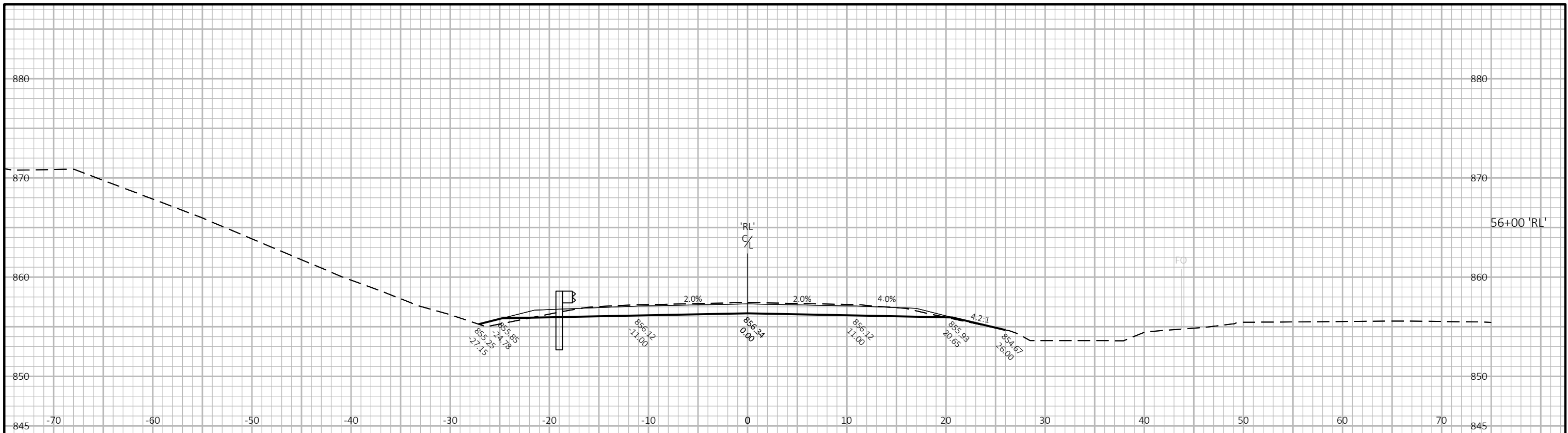
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PROJECT NO: 1067-02-73 HWY: IH 94 COUNTY: JEFFERSON CROSS SECTIONS: ROCK LAKE ROAD SHEET E

FILE NAME: V:\UZ\W\WITSW\134721\4-PRELIM-DSGN-RPTS\C3D\10670203\SHEETSPLAN\090200 XS ROCK.DWG PLOT DATE: 7/29/2023 1:31 PM PLOT BY: DEAN STODOLA PLOT NAME: PLOT SCALE: 1 IN:10 FT HORZ. / 1 IN:10 FT VERT. WISDOT/CADD SHEET 49

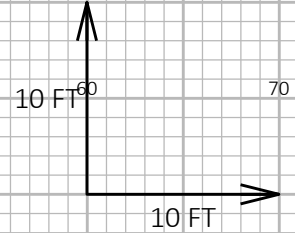
LAYOUT NAME - 13



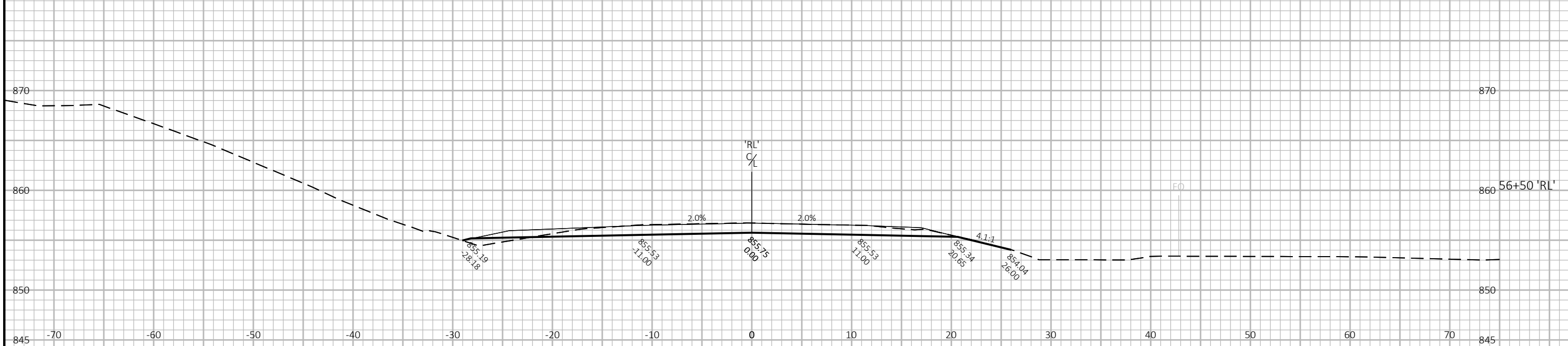
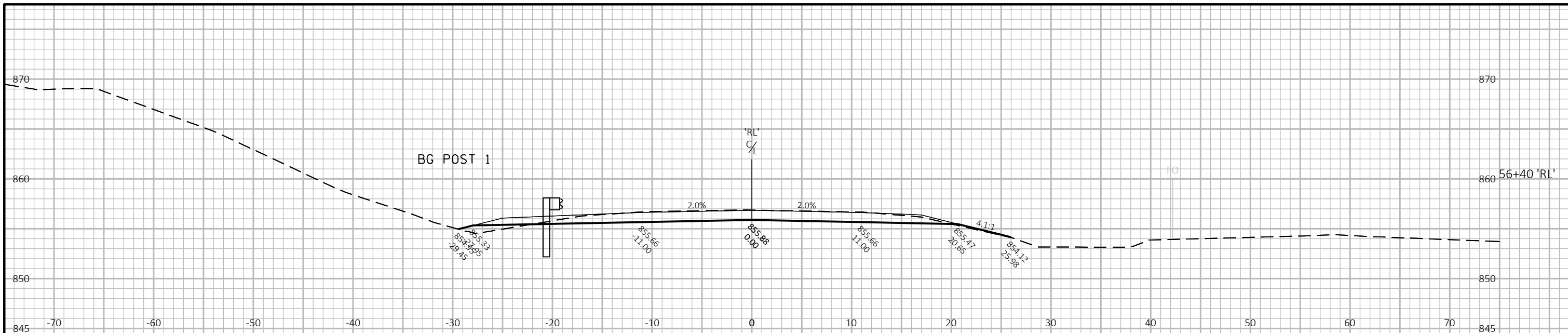


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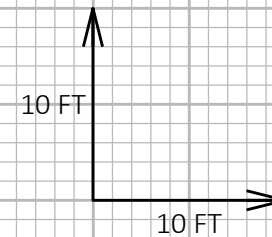
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PROJECT NO: 1067-02-73	HWY: IH 94	COUNTY: JEFFERSON	CROSS SECTIONS: ROCK LAKE ROAD	SHEET	E
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END SHOULDER
CONSTRUCTION
STA 57+00.00'RL', LT



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PROJECT NO: 1067-02-73

HWY: IH 94

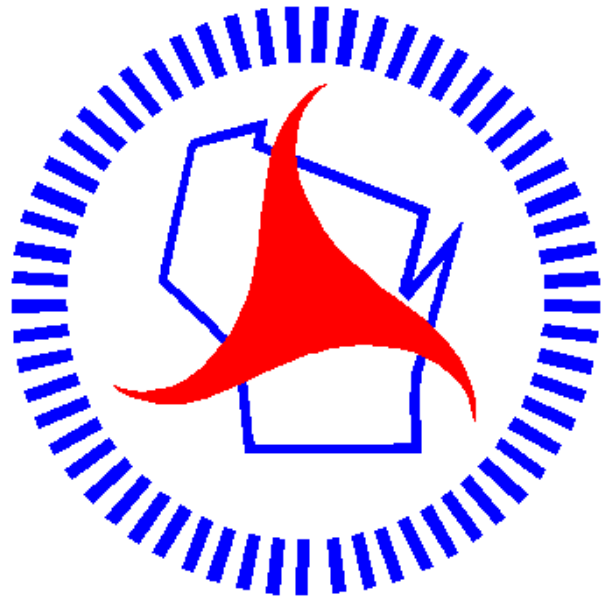
COUNTY: JEFFERSON

CROSS SECTIONS: ROCK LAKE ROAD

SHEET

E

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>