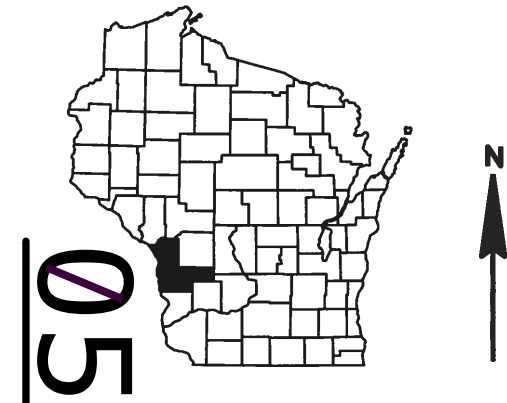


LAX MAY 2025
PROJECT ID: 5820-01-68
WITH: N/A
COUNTY: LA CROSSE/VERNON

ORDER OF SHEETS		
Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections
TOTAL SHEETS = 362		



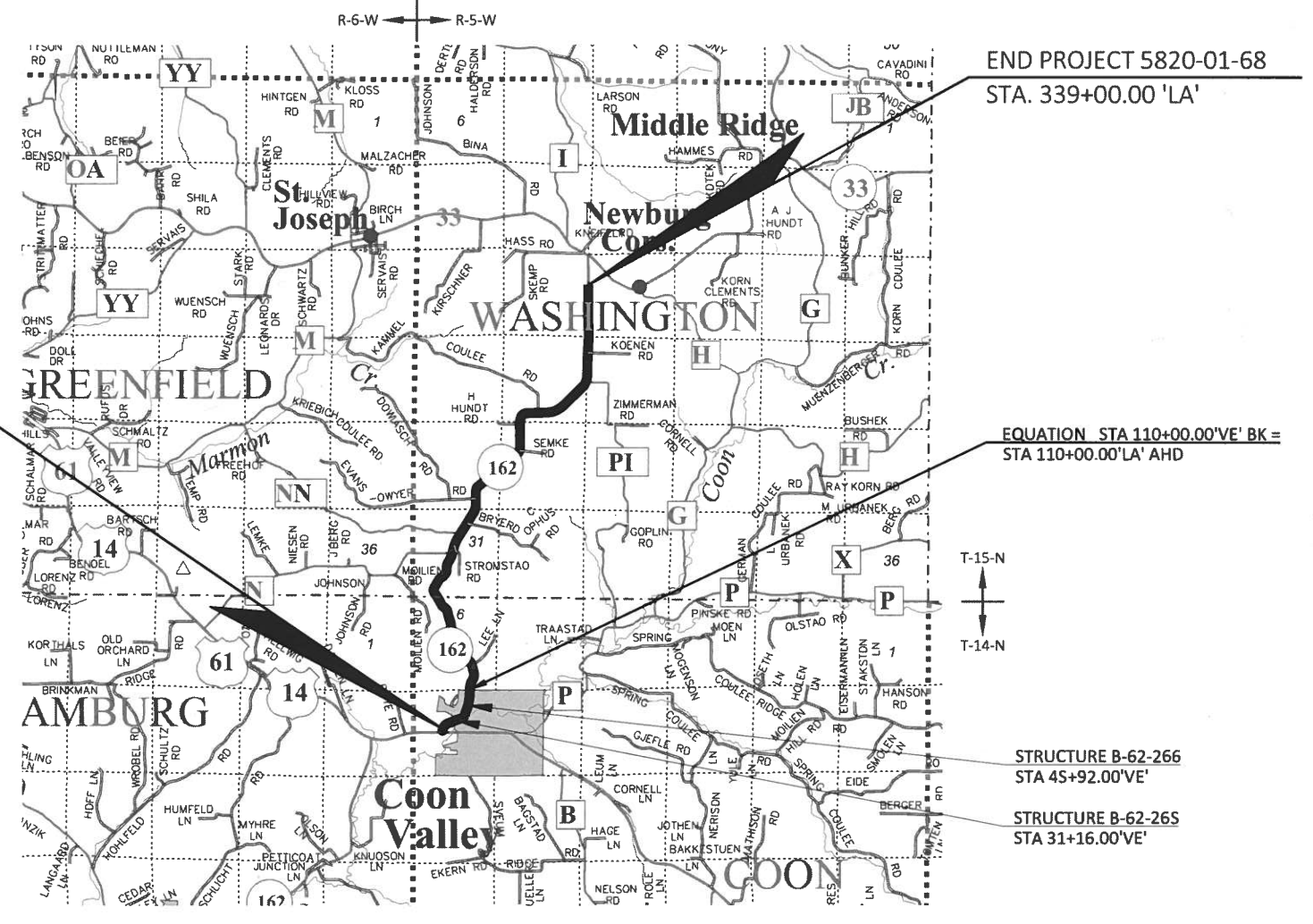
DESIGN DESIGNATION		
A.A.D.T.	2027	= 660
A.A.D.T.	2047	= 750
D.H.V.		= 75
D.D.		= 50/50
T.		= 25.6%
DESIGN SPEED		= 60
ESALS		= 360,000

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT
COON VALLEY - BANGOR
USH 14 TO STH 33/B-62-265,-266
STH 162
LA CROSSE & VERNON COUNTIES

STATE PROJECT NUMBER
5820-01-68



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 6.198 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WICRS), LA CROSSE/VERNON COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
5820-01-68	WISC 2025530	1

ORIGINAL PLANS PREPARED BY

Mead & Hunt

WISCONSIN

JAY P. WHEATON
E-36779
LA CROSSE, WI

PROFESSIONAL ENGINEER

DATE: 4/16/2024

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	MEAD & HUNT/WISDOT
Designer	MEAD & HUNT
Project Manager	JOHN BANTER
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	JOHN BANTER

APPROVED FOR THE DEPARTMENT

DATE: 4/28/2024

(Signature)

E

GENERAL NOTES

WHEN THE QUANTITY OF BASE AGGREGATE OR ASPHALTIC SURFACE 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.

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

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

THE LOCATION OF ALL DRIVEWAYS WE BE DETERMINED BY THE ENGINEER.

THE EXACT LOCATION OF THE EROSION CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD.

SILT FENCE IS TO BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND IN PLACE PRIOR TO BRIDGE REMOVALS. SILT FENCE IN WETLAND AREAS SHALL BE PLACED AT THE SLOPE INTERCEPT TO PREVENT DISTURBANCE OF WETLANDS.

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

A VERTICAL SAWCUT SHALL BE MADE THROUGH EXISTING PAVEMENTS AT REMOVAL LIMITS.

APPLY TACK COAT AT A RATE OF 0.07 GAL/SY TO MILLED SURFACES AND 0.05 GAL/SY BETWEEN LAYERS OF HMA PAVEMENT.

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

THE CONTRACTOR'S PAVING OPERATIONS SHALL BE CONSISTENT WITH THE PLAN TYPICAL SECTIONS AND CONSTRUCTED TO PREVENT HMA LONGITUDINAL JOINTS FROM BEING LOCATED WITHIN A DRIVING, TURNING, PASSING OR PARKING LANE.

TEMPORARY STORAGE OF ANY EXCAVATED MATERIALS WILL NOT BE PERMITTED IN THE WETLANDS.

WETLANDS ARE PRESENT WITHIN THE PROJECT LIMITS. DO NOT OPERATE EQUIPMENT OUTSIDE THE SLOPE INTERCEPTS.

STANDARD ABBREVIATIONS

ADT	AVERAGE DAILY TRAFFIC	M/L	MAINLINE
AGG	AGGREGATE	NO	NUMBER
ASPH	ASPHALTIC	PE	PRIVATE ENTRANCE
BM	BENCH MARK	PI	POINT OF INTERSECTION
BOC	BACK OF CURB	PL	PROPERTY LINE
C&G	CURB AND GUTTER	PP	POWER POLE
CE	COMMERCIAL ENTRANCE	QTY	QUANTITY
CL	CENTERLINE	RHF	RIGHT-HAND FORWARD
COR	CORNER	RT	RIGHT
CWT	HUNDREDWEIGHT	R/L	REFERENCE LINE
CY	CUBIC YARD	R/W	RIGHT-OF-WAY
DHV	DESIGN HOURLY VOLUME	SF	SQUARE FOOT
DWY	DRIVEWAY	SHLDR	SHOULDER
EL	ELEVATION	SS	STORM SEWER
EX	EXISTING	STA	STATION
EXC	EXCAVATION	SY	SQUARE YARD
FT	FOOT	T	TRUCKS (PERCENT OF)
FTG	FOOTING	TEL	TELEPHONE
HYD	HYDRANT	TLE	TEMPORARY LIMITED EASEMENT
INV	INVERT	TYP	TYPICAL
LB	POUND	UG	UNDERGROUND CABLE
LF	LINEAR FOOT	VAR	VARIABLE
LHF	LEFT-HAND FORWARD	VC	VERTICAL CURVE
LS	LUMP SUM	VPC	VERTICAL POINT OF CURVE
LT	LEFT	VPI	VERTICAL POINT OF INTERSECTION
Mgal	MEGAGALLON	VPT	VERTICAL POINT OF TANGENCY

CONTACTS

WISDOT SOUTHWEST REGION OFFICE

MR. JOHN BANTER
WISCONSIN PROJECT MANAGER
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601
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EMAIL: JOHN.BAINTER@DOT.WI.GOV

DNR CONTACT

MS. KAREN KALVELAGE
DNR WEST CENTRAL REGION
3550 MORMON COULEE ROAD
LA CROSSE, WI 54601-6768
PHONE: (608) 785-9115
EMAIL: KAREN.KALVELAGE@WISCONSIN.GOV

CONSULTANT CONTACT

MEAD & HUNT, INC.
750 N. THIRD STREET
LA CROSSE, WI 54601
ATTN: MR. JAY WHEATON, P.E.
PHONE: (608) 784-6040
EMAIL: JAY.WHEATON@MEADHUNT.COM

UTILITIES

BANGOR MUNICIPAL UTILITY - ELECTRICITY

MR. PATRICK REILLEY
106 15TH AVENUE NORTH
BANGOR, WI 54614
PHONE: (608) 486-2151, EX 2
EMAIL: PREILLEY@VILLAGEOFBANGOR.COM

COON VALLEY MUNICIPAL WATER UTILITY - WATER & SANITARY

MR. JOHN LANGAARD
P.O. BOX 129
COON VALLEY, WI 54623-0129
PHONE: (608) 452-3887
EMAIL: JOHNLM@MWT.NET

MIDWEST NATURAL GAS, INC. - GAS/PETROLEUM

MR. NICK MEIER
3600 STATE HIGHWAY 157
P.O. BOX 429
LA CROSSE, WI 54602-0429
PHONE: (608) 781-1011
NICKM@MIDWESTNATURALGAS.COM

COON VALLEY FARMERS TELEPHONE CO - COMMUNICATION LINE

MR. BRAD PETERS
105 CENTRAL AVENUE
COON VALLEY, WI 54623
PHONE: (608) 452-3101
EMAIL: BRADLEY.PETERS@COONVALLEYTEL.COM

MEDIACOM WISCONSIN LLC - COMMUNICATION LINE

MR. ERIC LARSON
1504 2ND ST SE
BOX 110
WASECA, MN 56093
ELARSON@MEDIACOMCC.COM

XCEL ENERGY - ELECTRICITY

MR. ALEX WEBBER
3215 COMMERCE STREET
LA CROSSE, WI 54603
PHONE: (608) 789-3630
EMAIL: ALEX.C.WEBBER@XCELENERGY.COM

NORTHERN NATURAL GAS - GAS

MR. PHIL CURRY
5557 COUNTY RD D
PLATTEVILLE, WI 53818
PHONE: (402) 530-2801
PHILLIP.CURRY@NNGCO.COM

ORDER OF SECTION 2 SHEETS

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

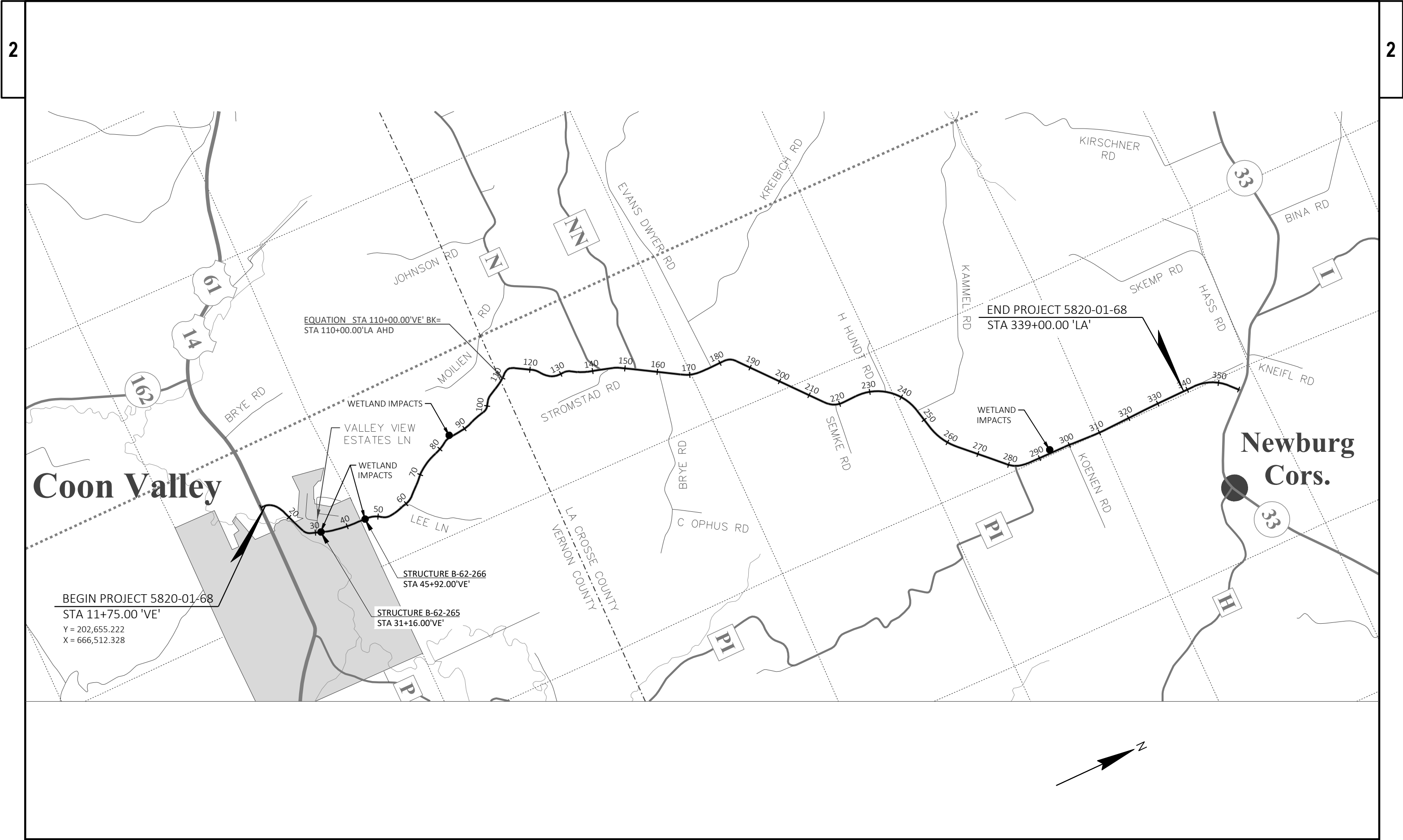
DIGGERSHOTLINE

Dial 811 or (800)242-8511

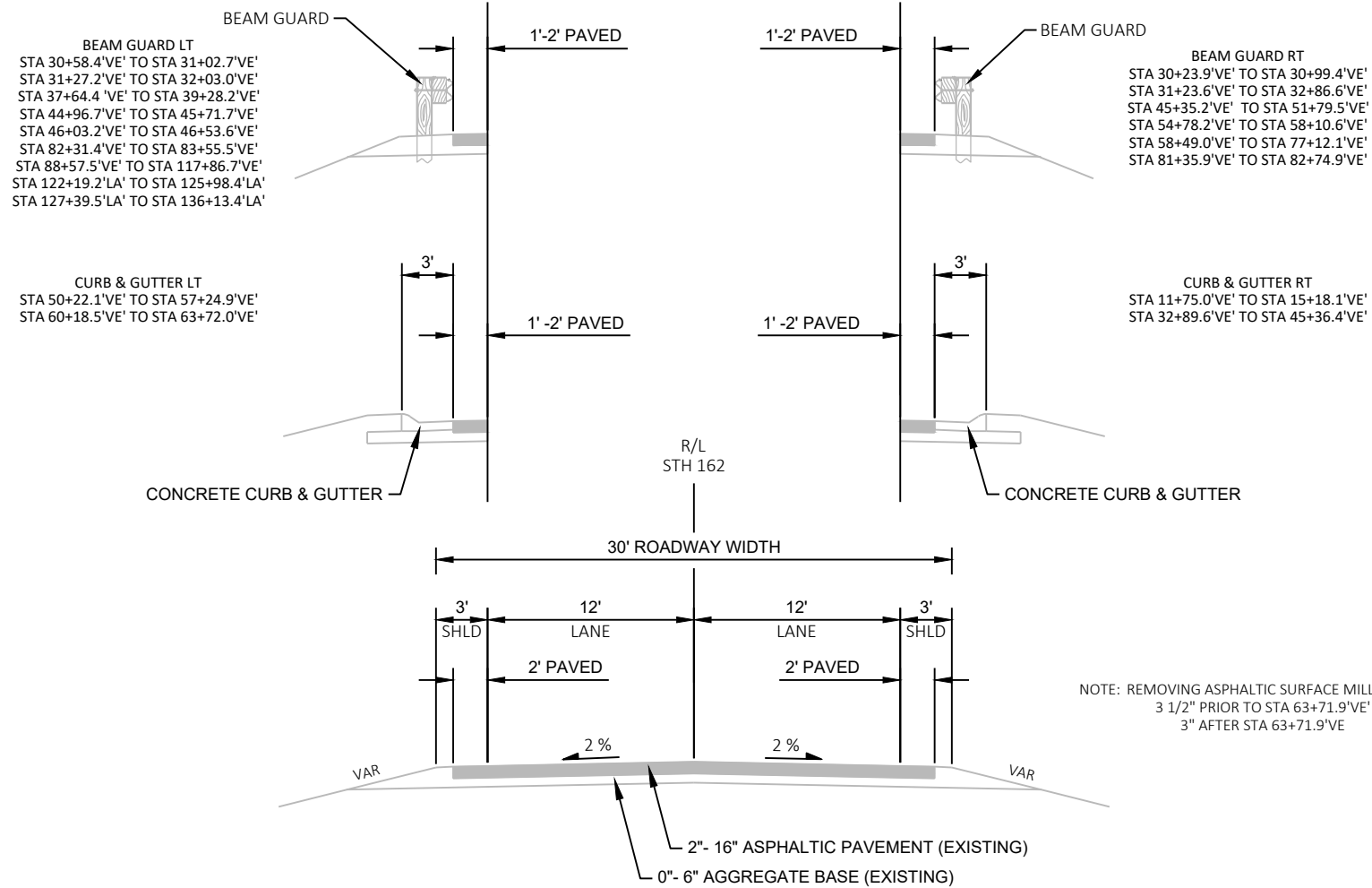
www.DiggersHotline.com

BORING SUMMARY							
BORING NUMBER	LOG MILE	OFFSET	EXISTING ASPHALT DEPTH	BASE AGGREGATE	SECOND ASPHALT LAYER	SUBGRADE TYPE	COMMENTS
	0.00						USH 14
B-1	0.04	3' RT	12"	-	-	SILT	
B-2	0.26	9' RT	2"	5"	10"	SILT	
B-3	0.50	6' RT	7.75"	-	-	SAND	
B-4	0.67	12' RT	16"	-	-	SILT	
	0.91						LEE LANE
B-5	0.92	3' LT	3.75"	3.75"	8.5"	SILT	
B-6	1.28	9' LT	4.75"	3.75"	9.5"	CLAY	
B-7	1.48	6' LT	3.5"	5"	11.5"	CLAY	
B-8	1.73	12' LT	3.5"	6"	16.5"	CLAY	
B-9	2.00	3' RT	2"	5"	9"	SAND	
B-10	2.25	9' RT	3.25"	3.75"	14"	CLAY	
	2.51						CTH N
B-11	2.55	6' RT	2.75"	4.75"	16.5"	CLAY	
B-12	2.80	12' RT	3.75"	4.25"	13"	SAND	
B-13	3.05	3' LT	3.5"	3.75"	17.75"	SAND	
B-14	3.36	9' LT	6"	5"	12"	CLAY	
B-15	3.68	6' LT	3.5"	6"	11.5"	CLAY	
	3.97						SEMKE ROAD
B-16	4.01	12' LT	3"	6.5"	6.5"	CLAY	
B-17	4.29	3' RT	3.25"	26.75"	-	CLAY	
	4.49						CTH PI
B-18	4.60	9' RT	4"	17"	-	CLAY	
B-19	4.91	6' RT	7.25"	4.75"	-	CLAY	
B-20	5.16	12' RT	9"	9"	-	CLAY	
	5.19						
B-21	5.41	3' LT	10"	7"	-	CLAY	
B-22	5.64	9' LT	9.5"	8.5"	-	CLAY	
B-23	5.86	6' LT	9.25"	3.75"	-	CLAY	
B-24	6.06	12' LT	9.25"	4.75"	-	CLAY	
B-25	6.26	6' RT	8.5"	8.5"	-	CLAY	
	6.59						STH 33

SUPERELEVATION REPORT FOR '162-VERNON'				
	RATE (FT/FT)			
	LEFT OF CROWNLIN		RIGHT OF CROWNLIN	
STATION	LEFT SHOULDER	LEFT LANE	RIGHT LANE	RIGHT SHOULDER
45+50.00	0.02	0.02	-0.02	-0.04
46+32.00	0.02	0.02	-0.02	-0.04
46+69.13	0.04	0.04	-0.04	-0.04
47+04.41	0.059	0.059	-0.059	-0.059
47+75.00	0.059	0.059	-0.059	-0.059
48+00.00	0.059	0.059	-0.059	-0.059

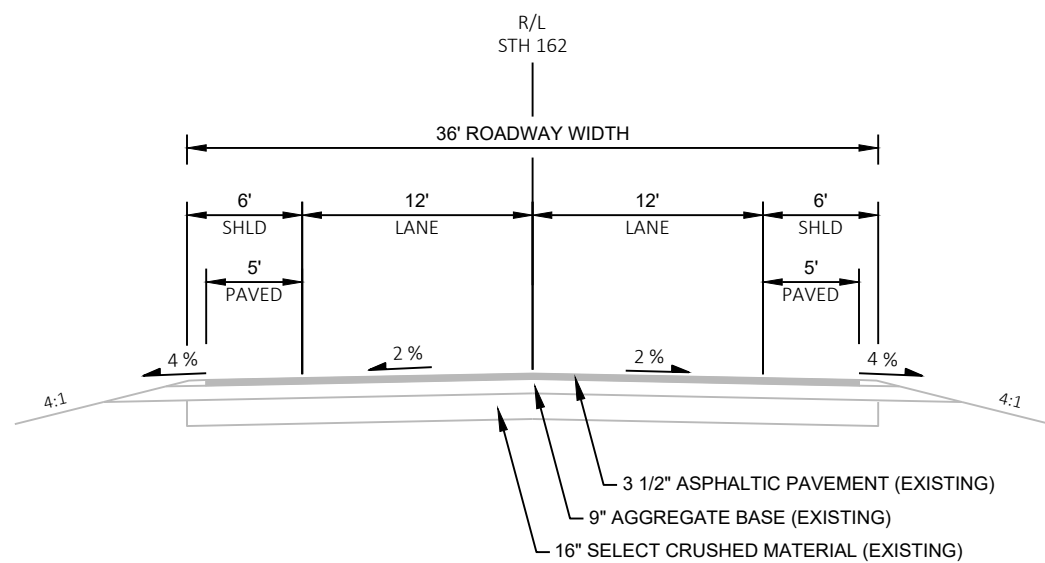


PROJECT NO: 5820-01-68	HWY: STH 162	COUNTY: LA CROSSE/VERNON	PROJECT OVERVIEW	SHEET 4	E
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EXISTING TYPICAL SECTION

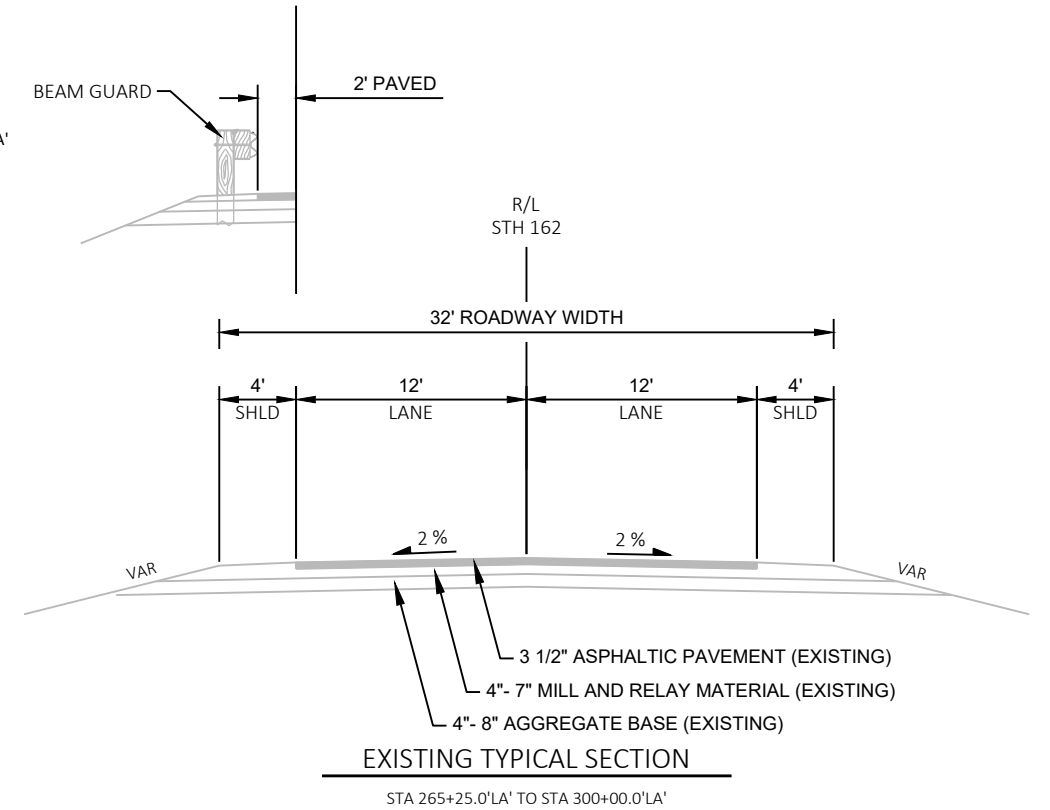
STA 11+75.0'VE' TO STA 224+75.0'LA'



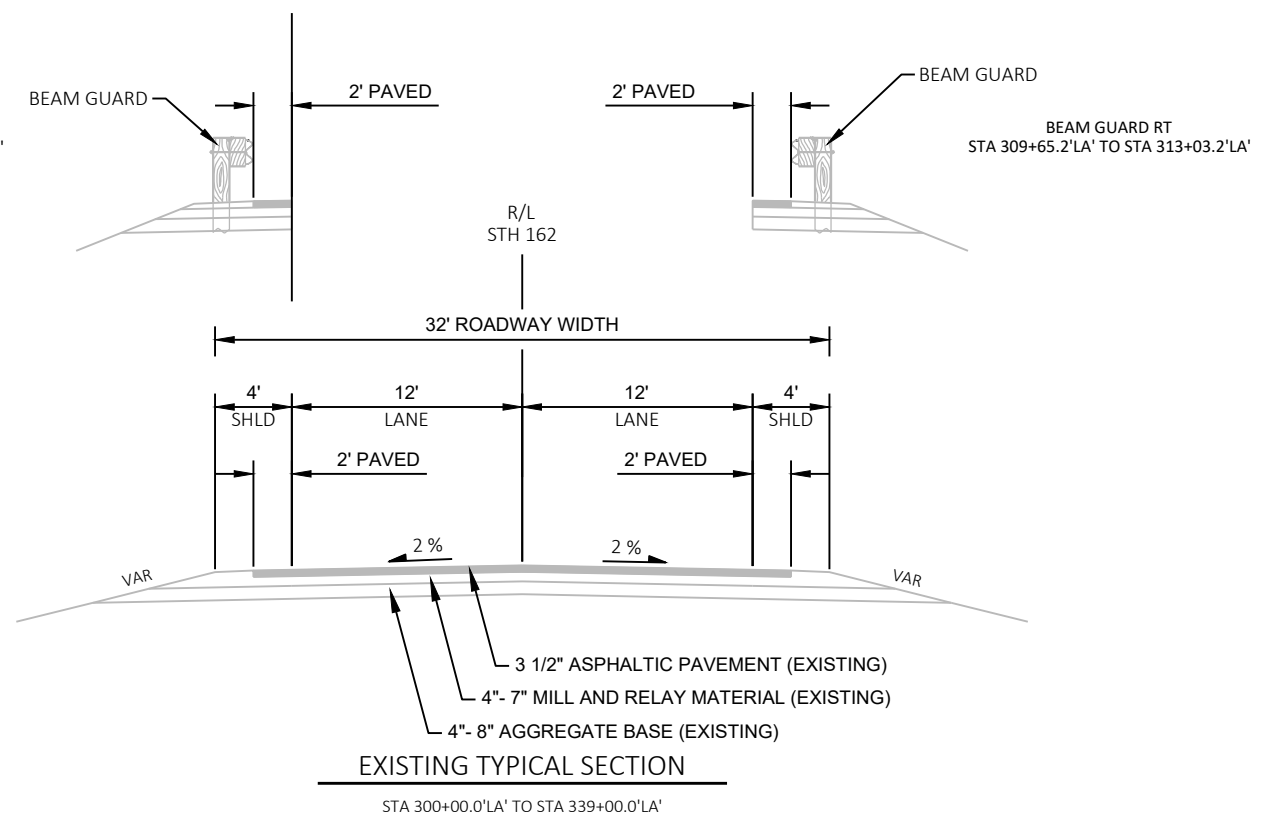
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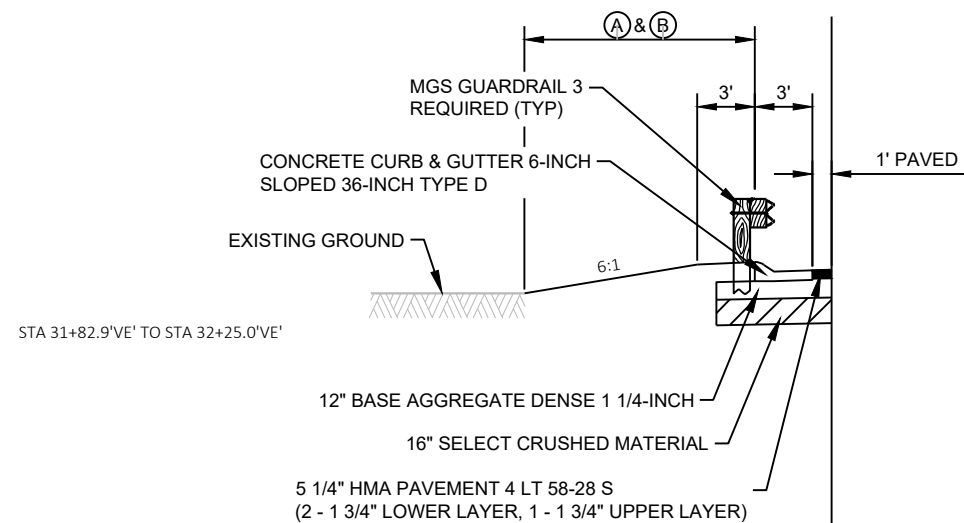
STA 224+50.0'LA' TO STA 265+25.0'LA'

BEAM GUARD LT
STA 290+52.4'LA' TO STA 294+15.3'LA'

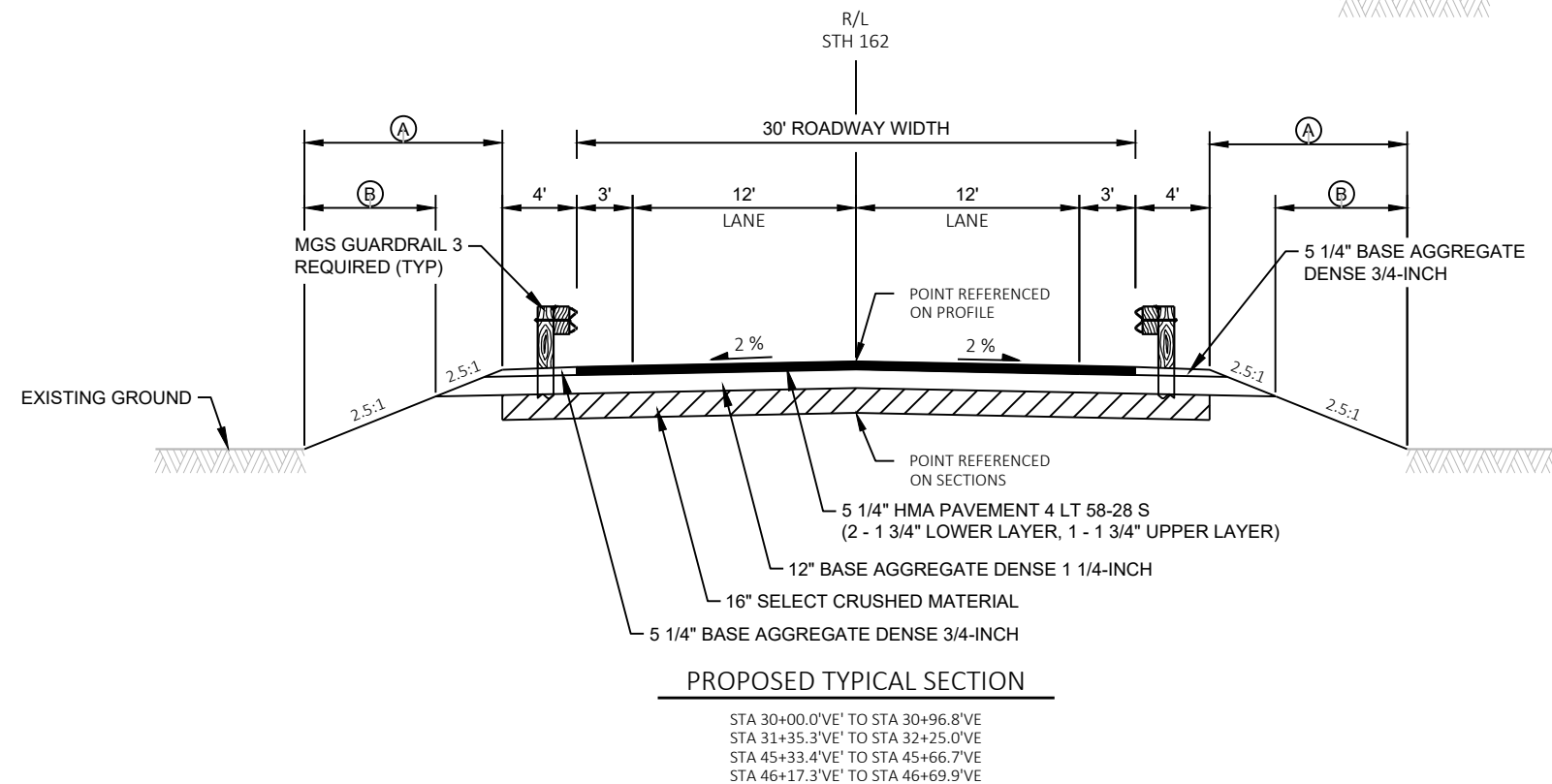
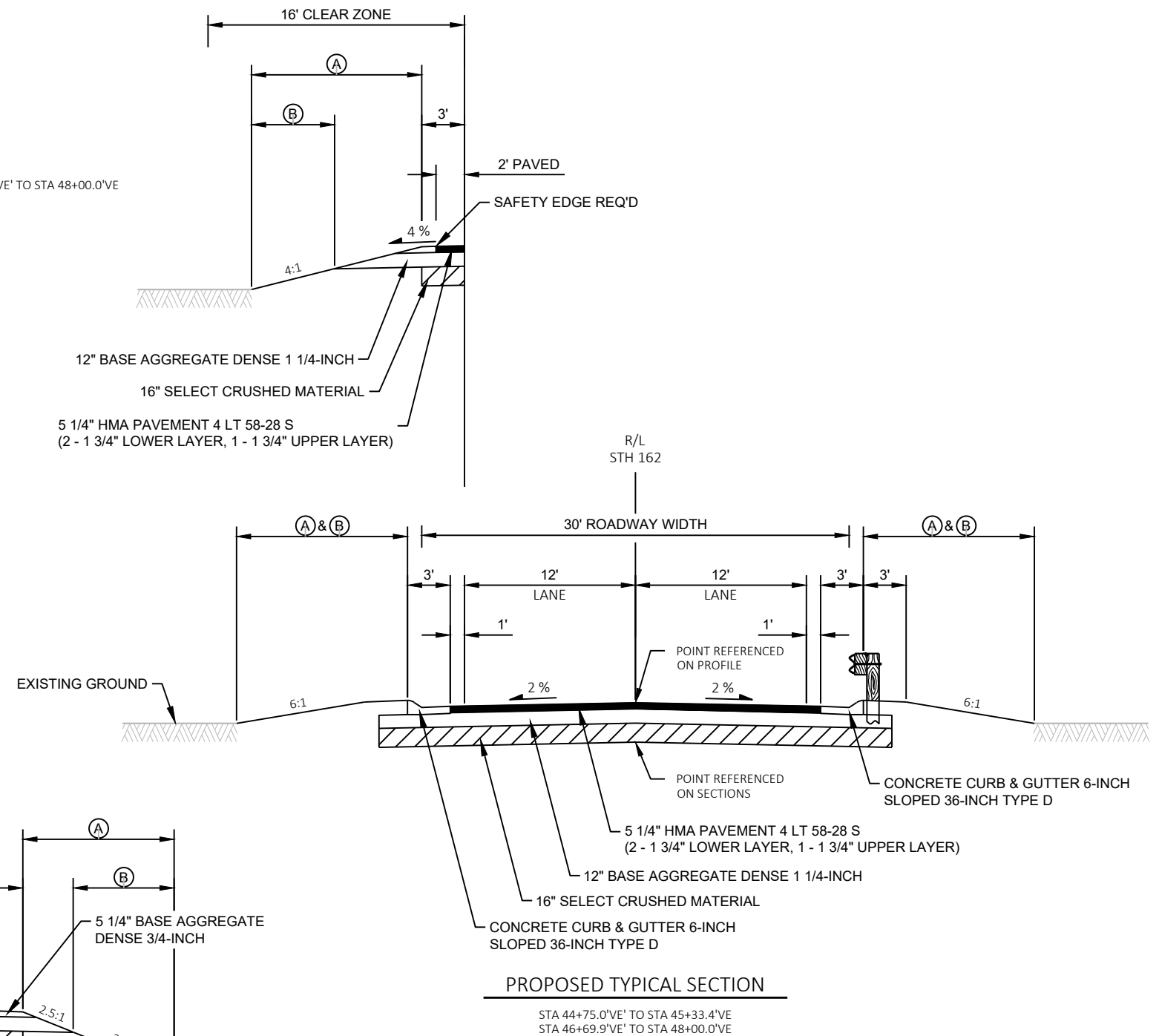


BEAM GUARD LT
STA 308+21.9'LA' TO STA 313+11.3'LA'

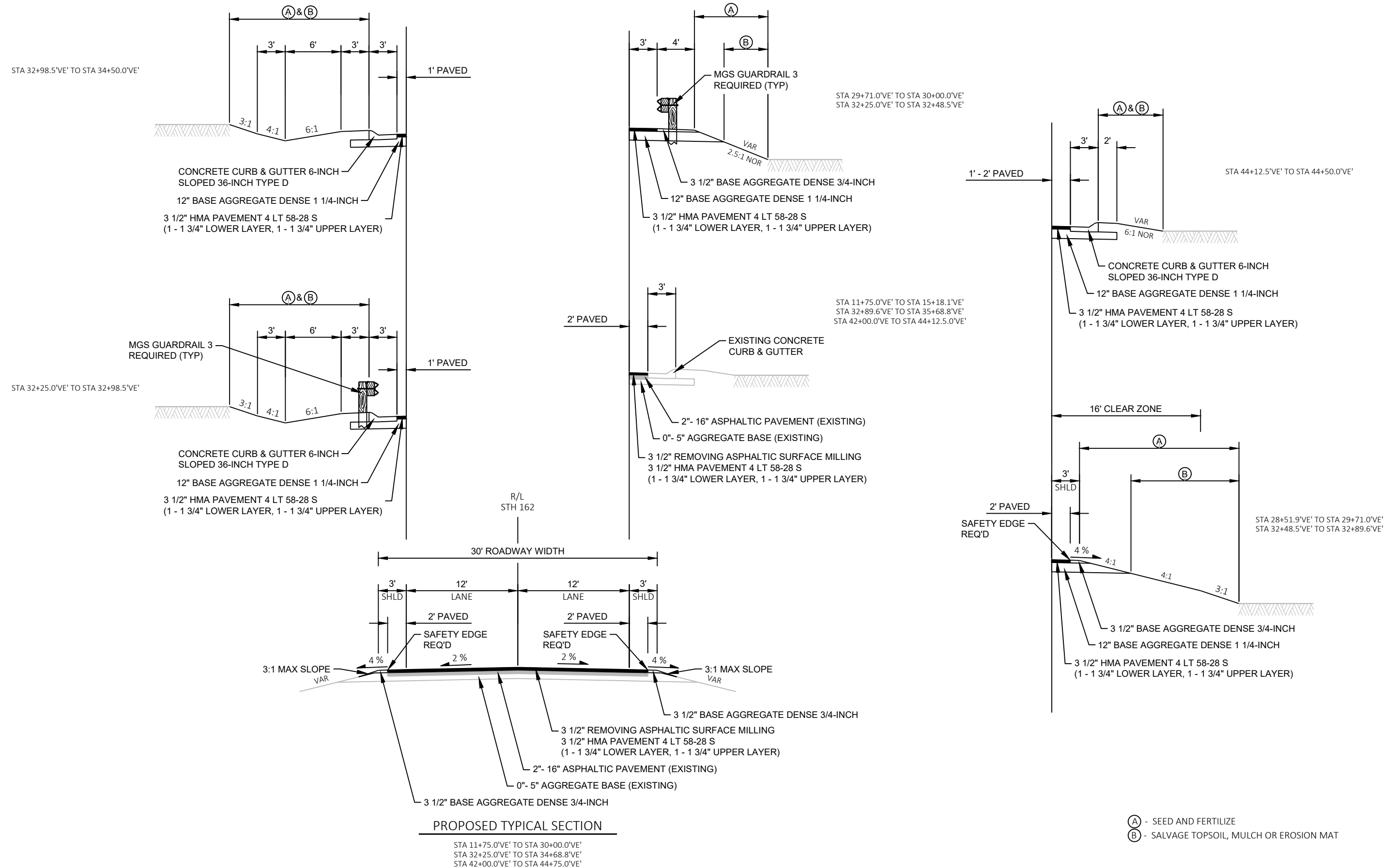


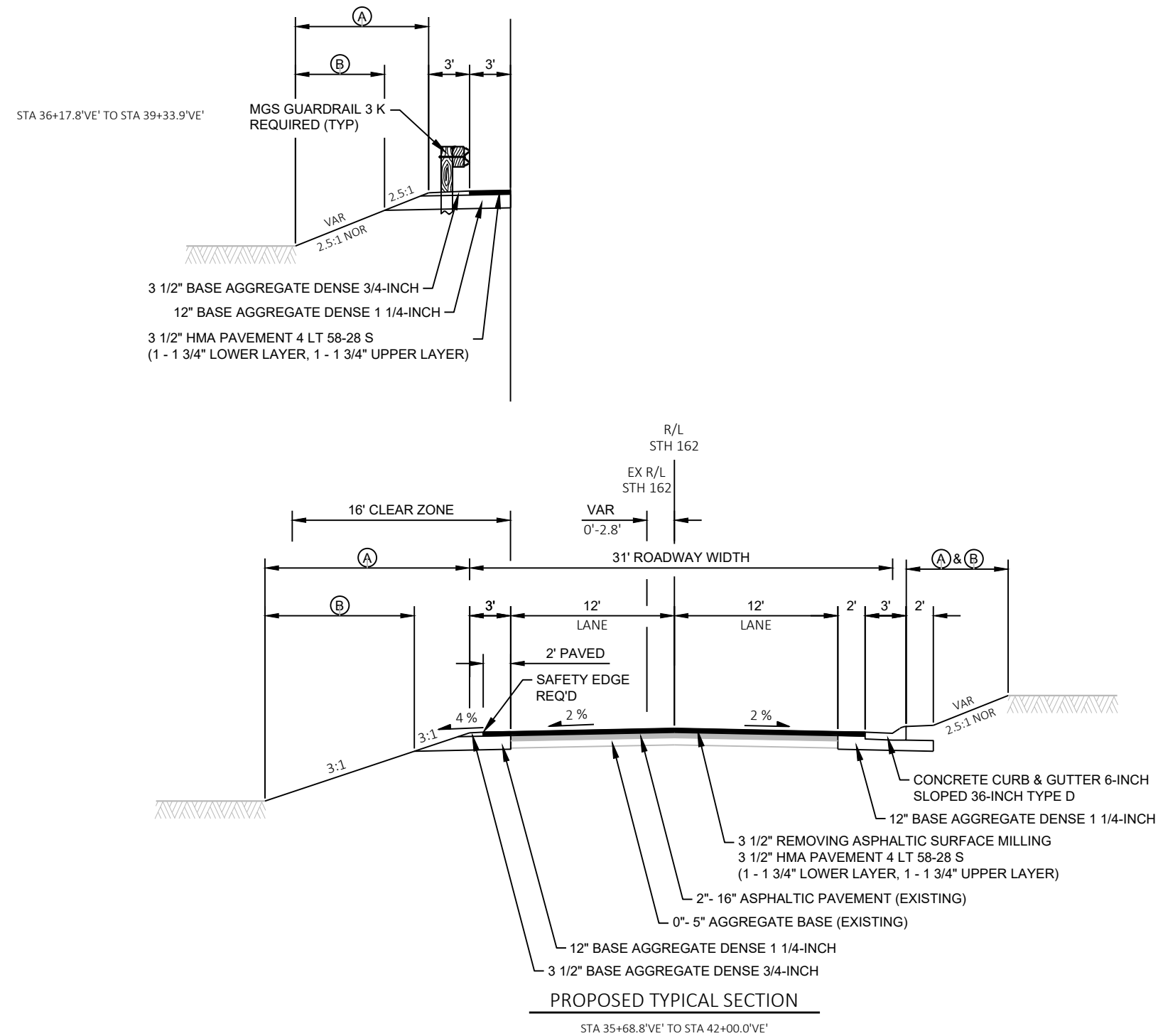


STA 46+69.9'VE' TO STA 48+00.0'VE

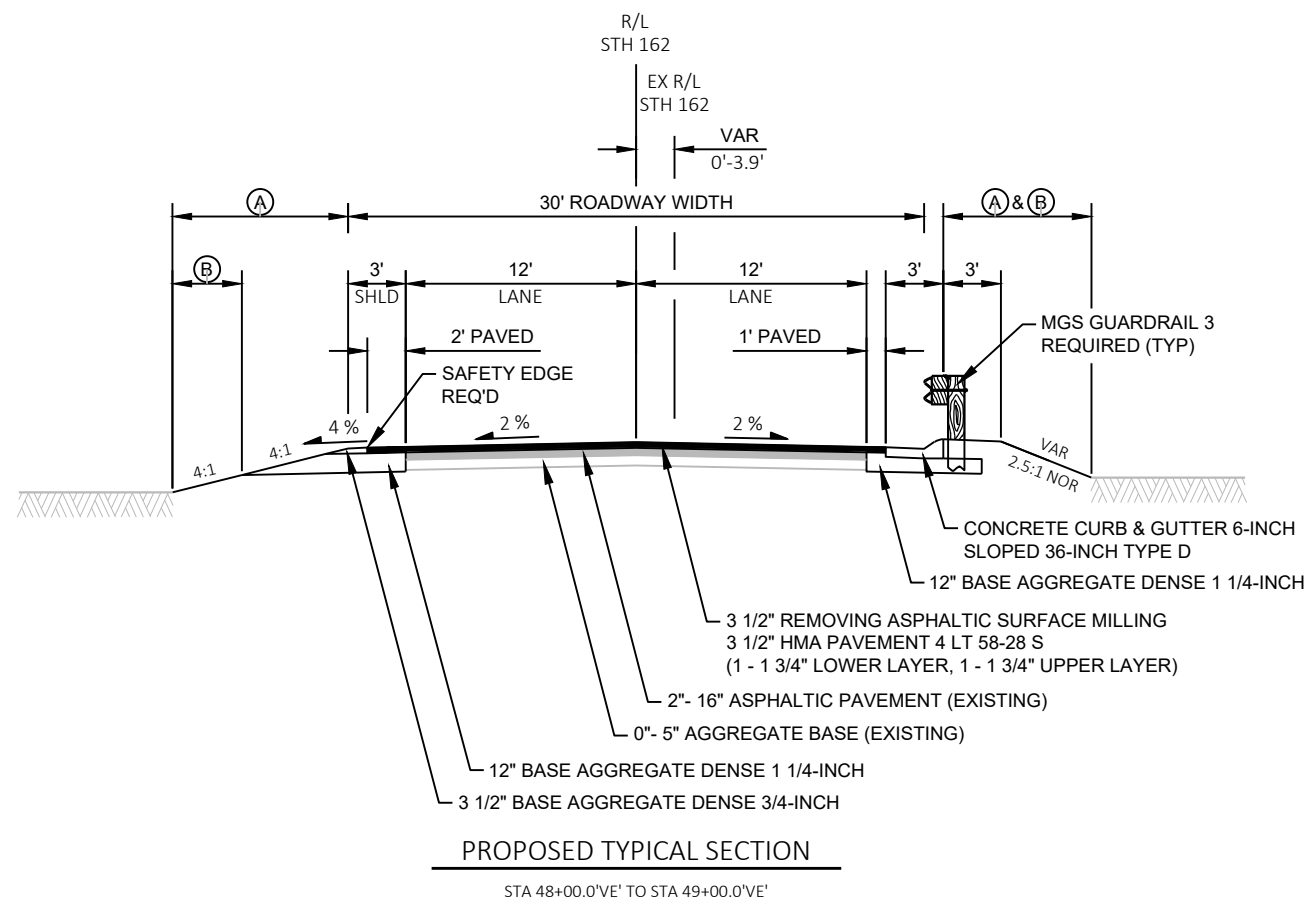


- (A) - SEED AND FERTILIZE
(B) - SALVAGE TOPSOIL, MULCH OR EROSION MAT



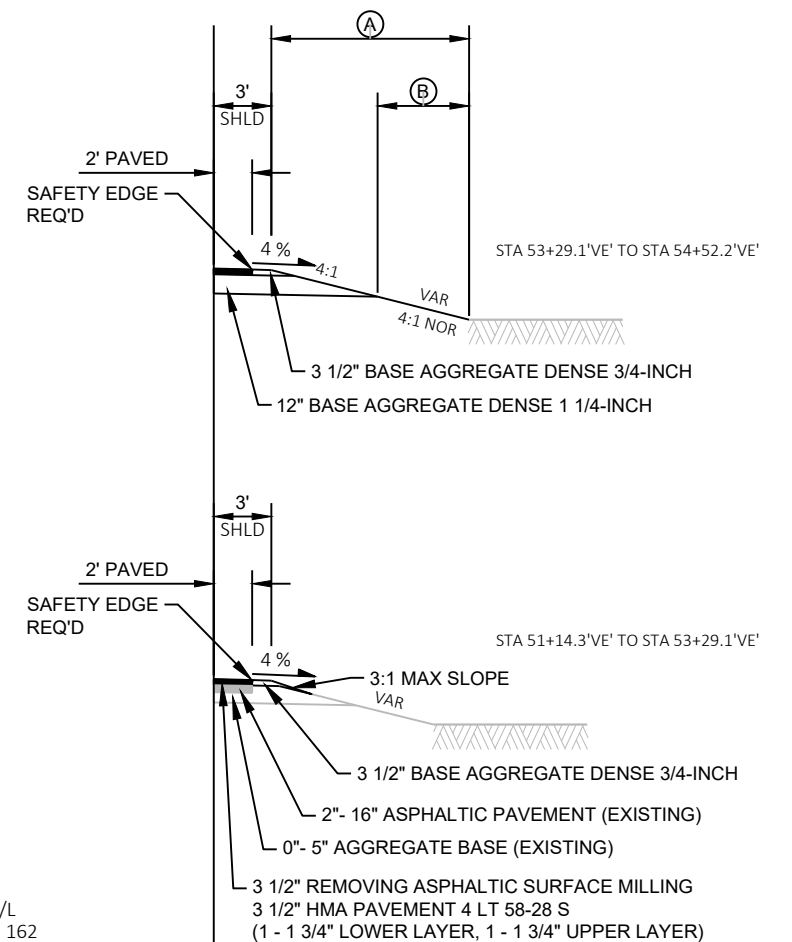
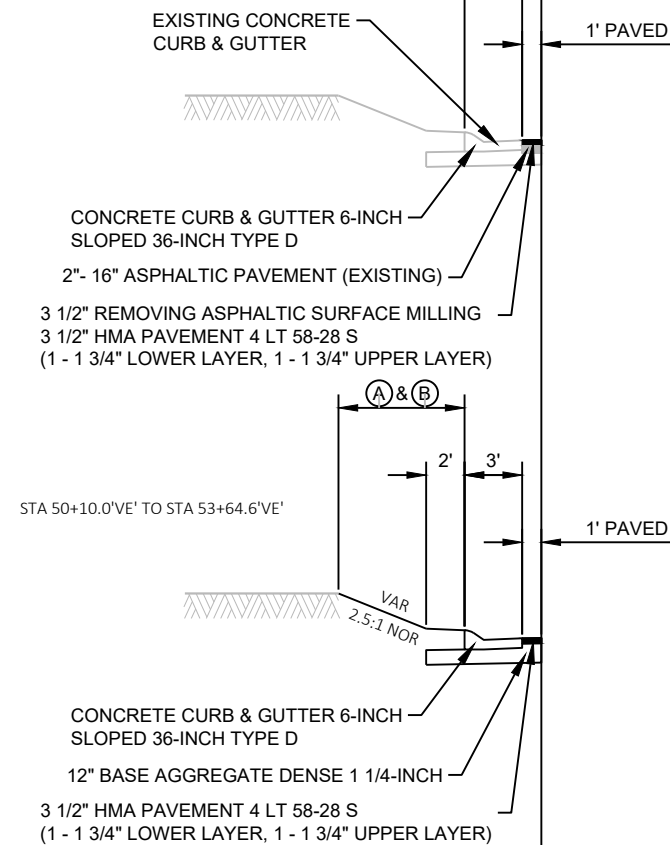


(A) - SEED AND FERTILIZE
(B) - SALVAGE TOPSOIL, MULCH OR EROSION MAT

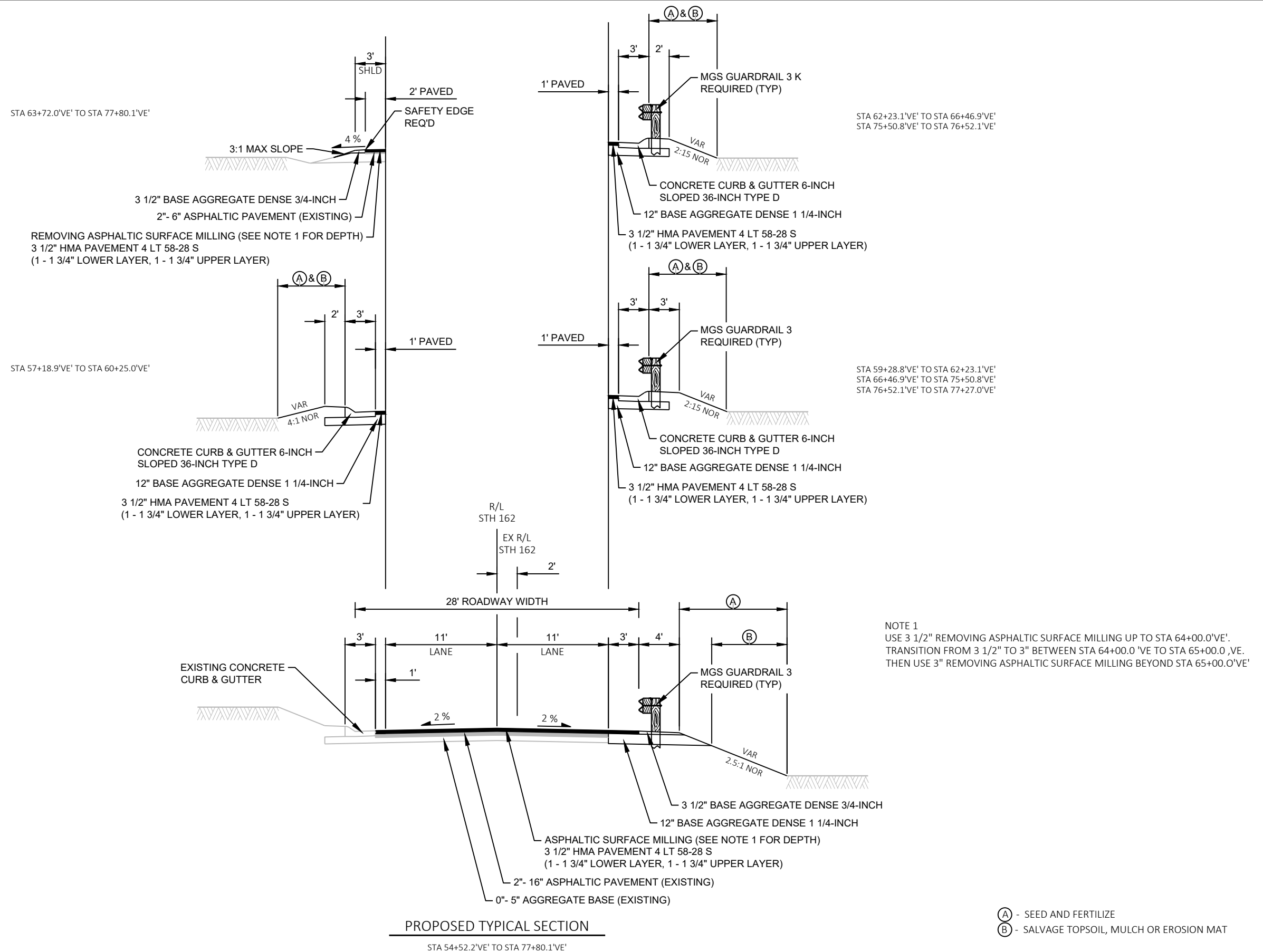


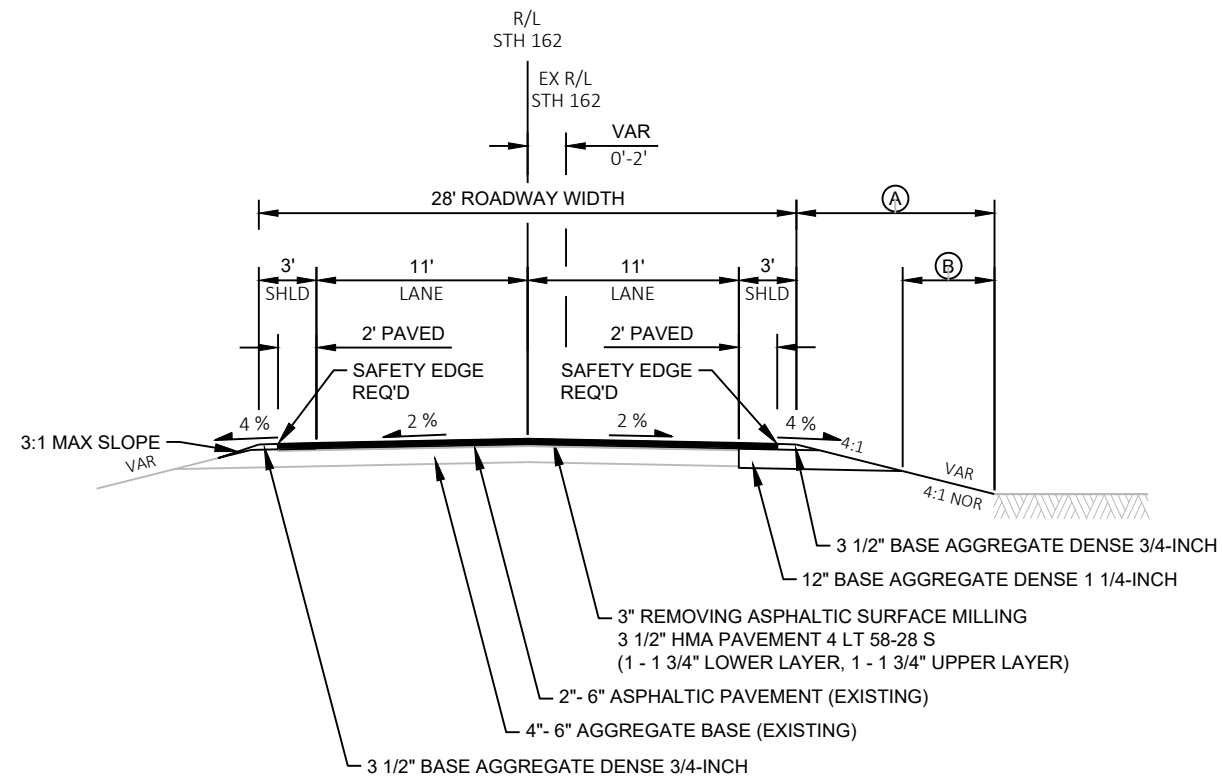
NOTE: STA 49+00.0'VE' TO STA 49+50.0'VE' TRANSITION
FROM A 12' LANE TO A 11' LANE

STA 53+64.6'VE' TO STA 54+52.2'VE'



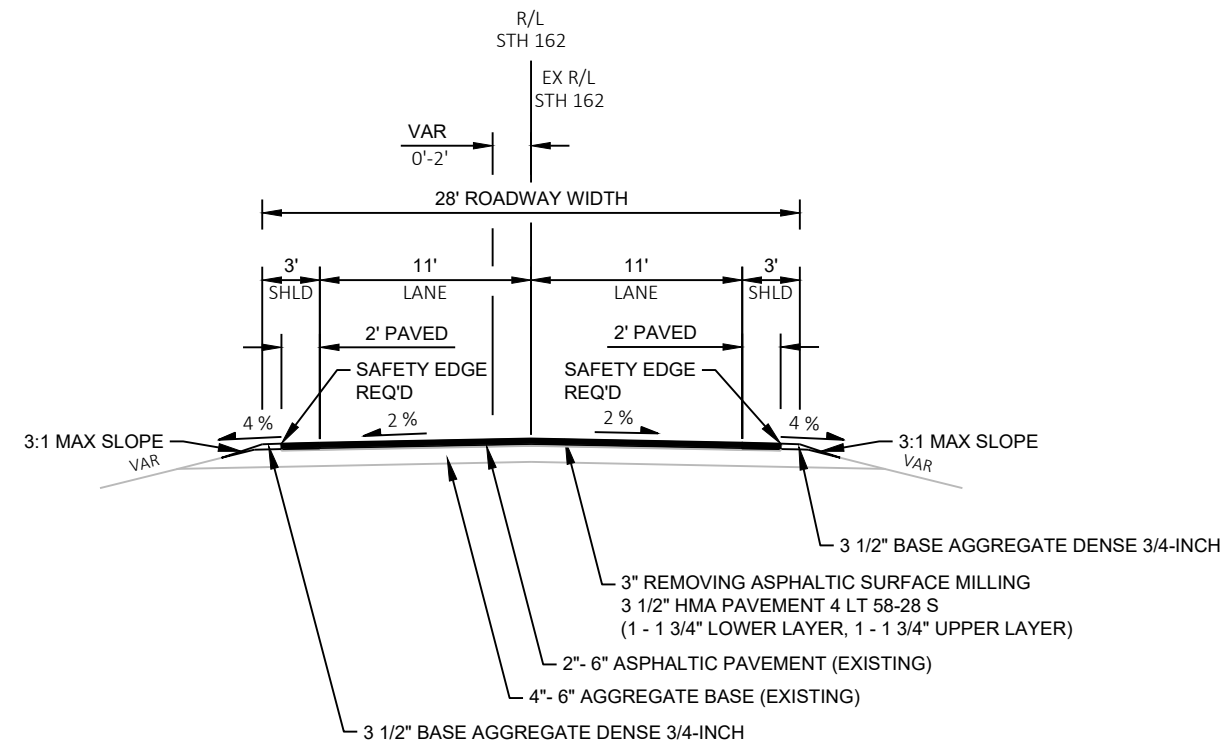
(A) - SEED AND FERTILIZE
(B) - SALVAGE TOPSOIL, MULCH OR EROSION MAT





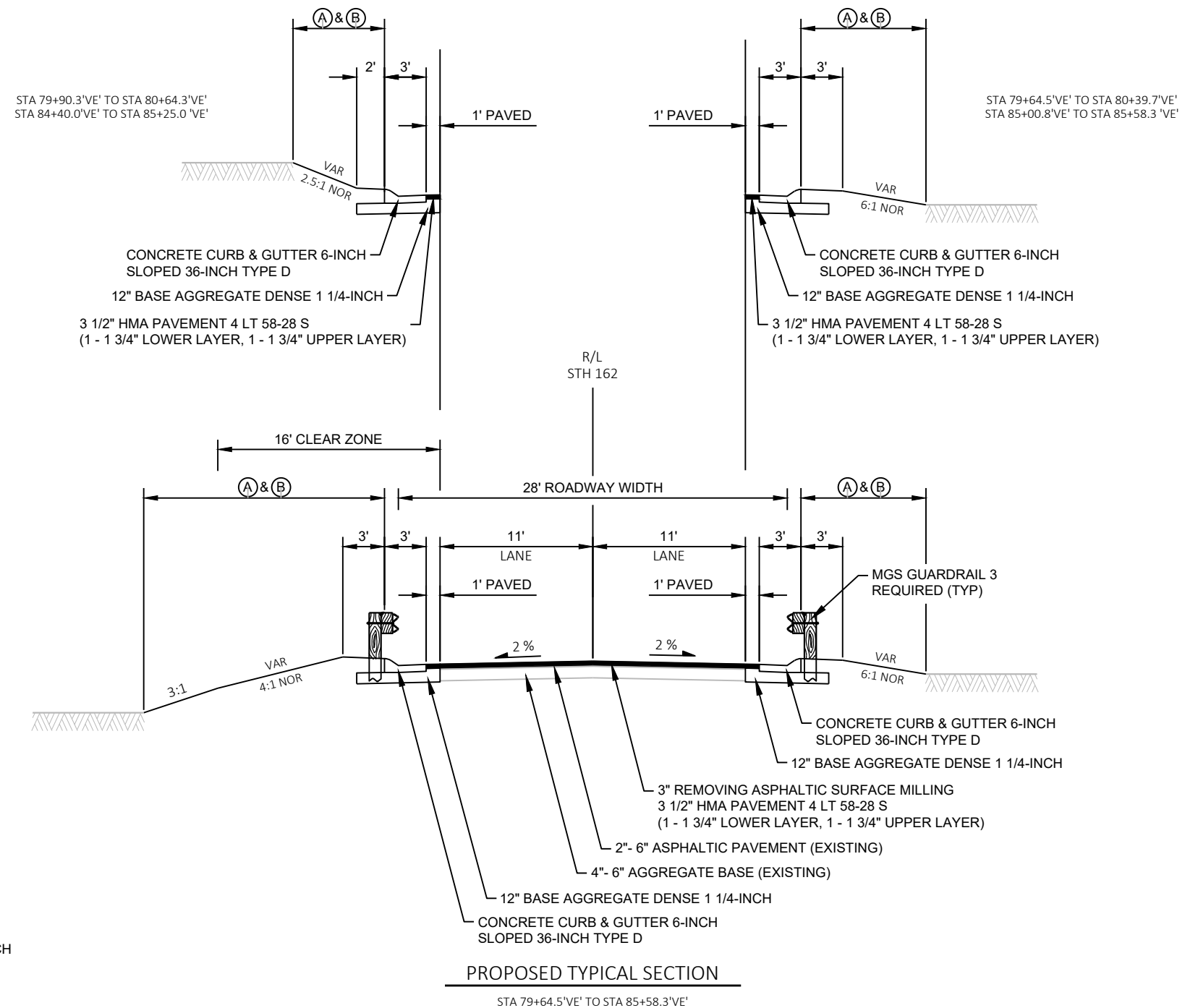
PROPOSED TYPICAL SECTION

STA 77+80.1'VE' TO STA 79+64.5'VE'



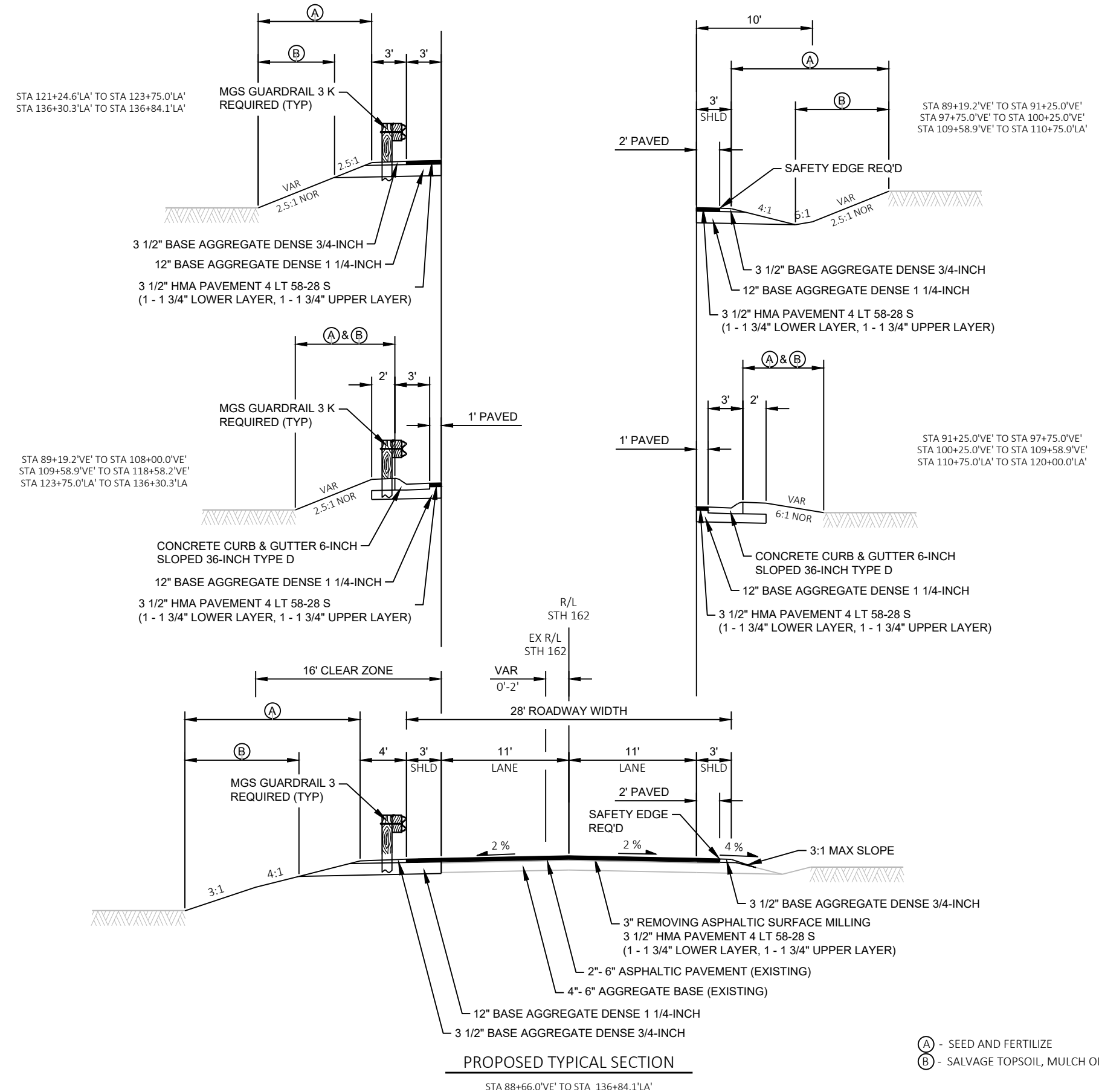
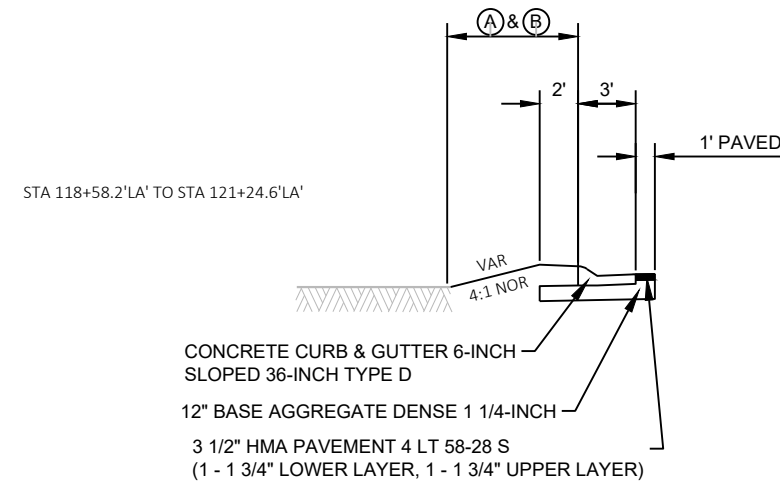
PROPOSED TYPICAL SECTION

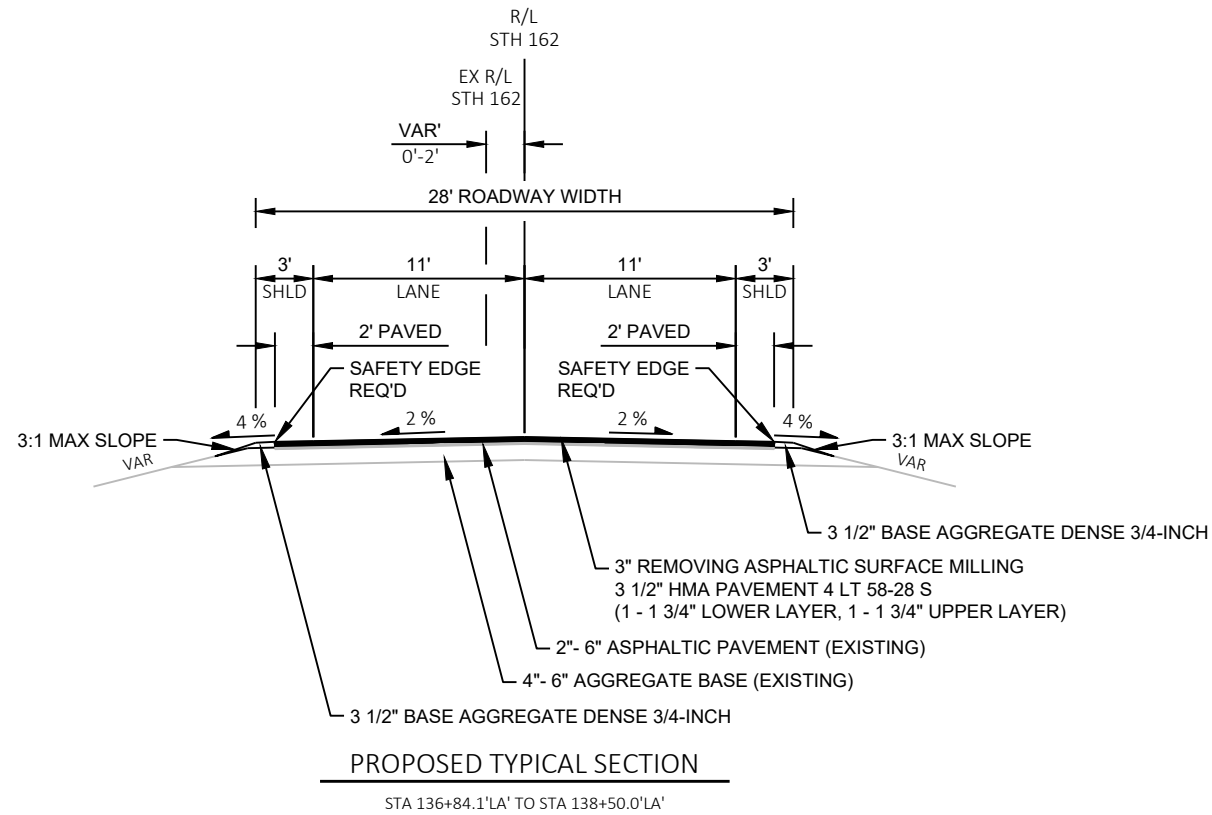
STA 85+58.3'VE' TO STA 88+66.0'VE'



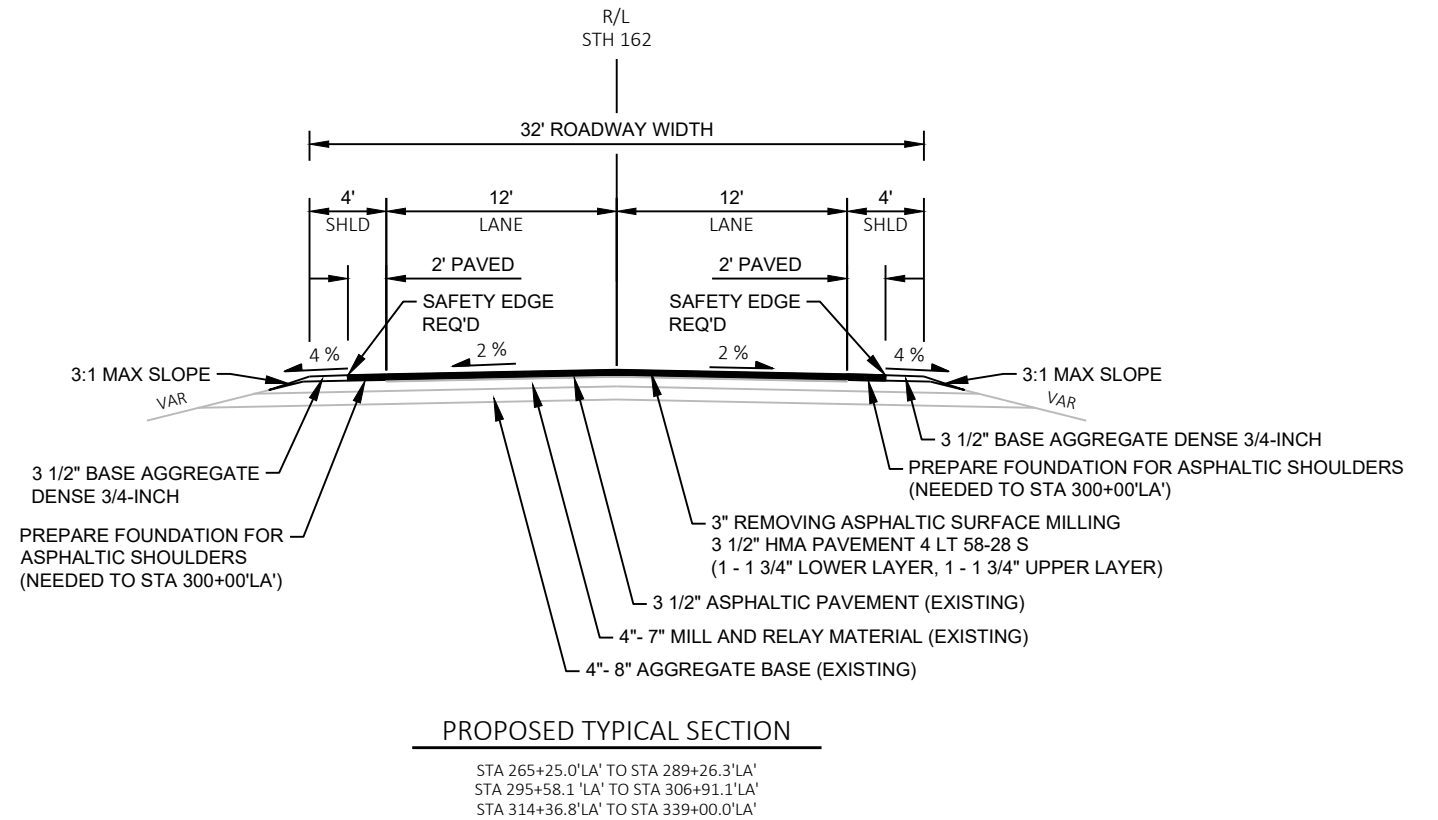
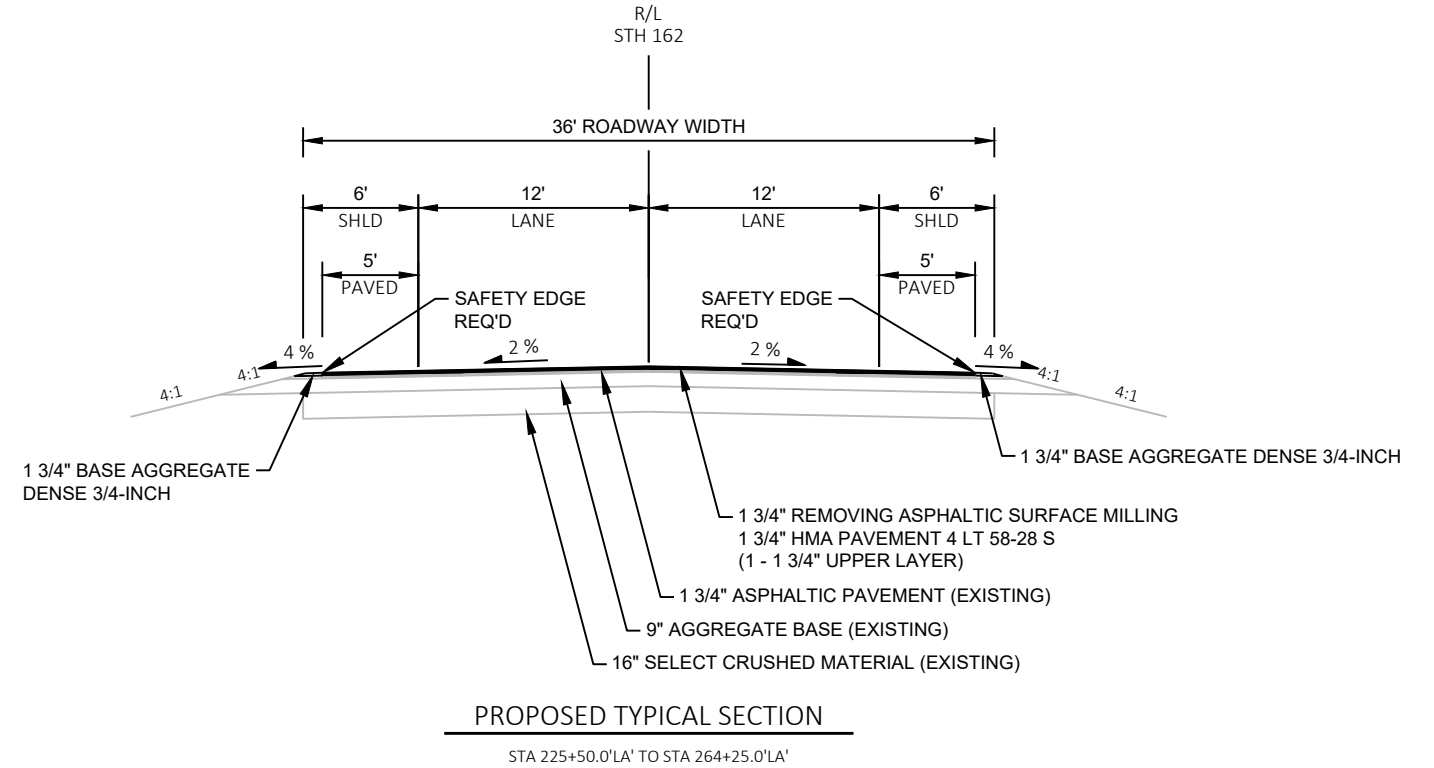
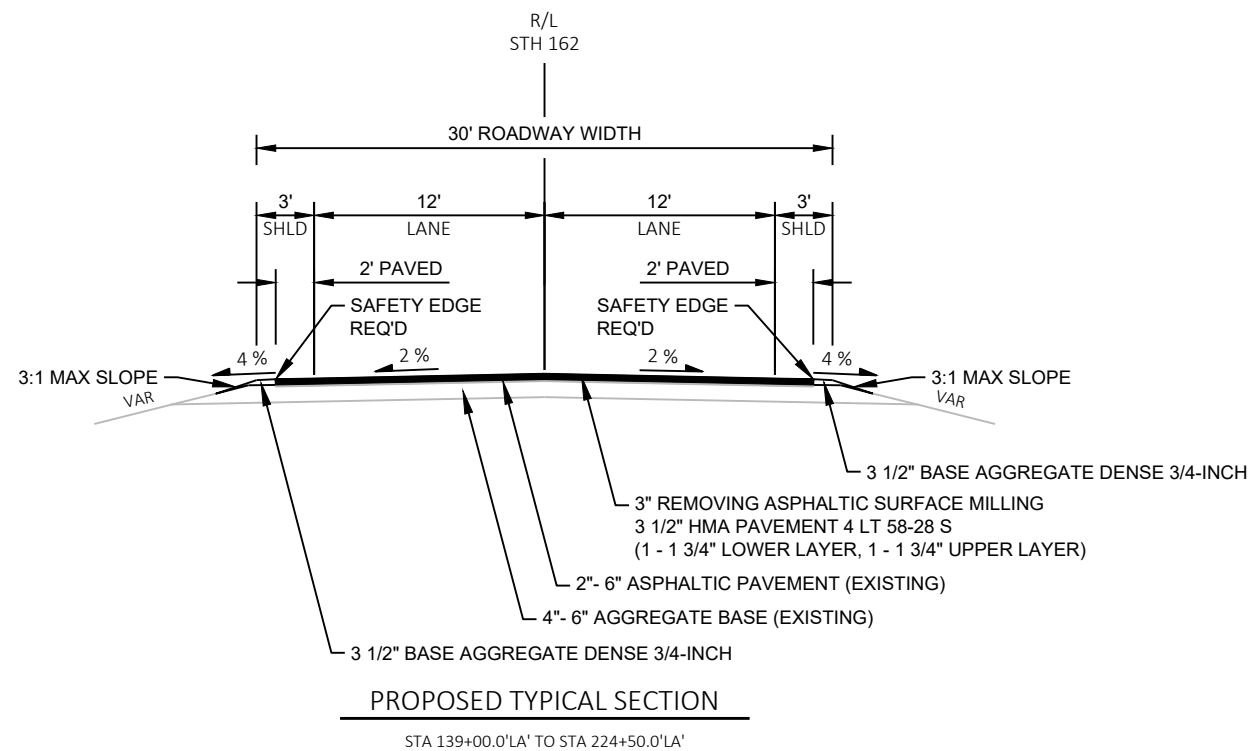
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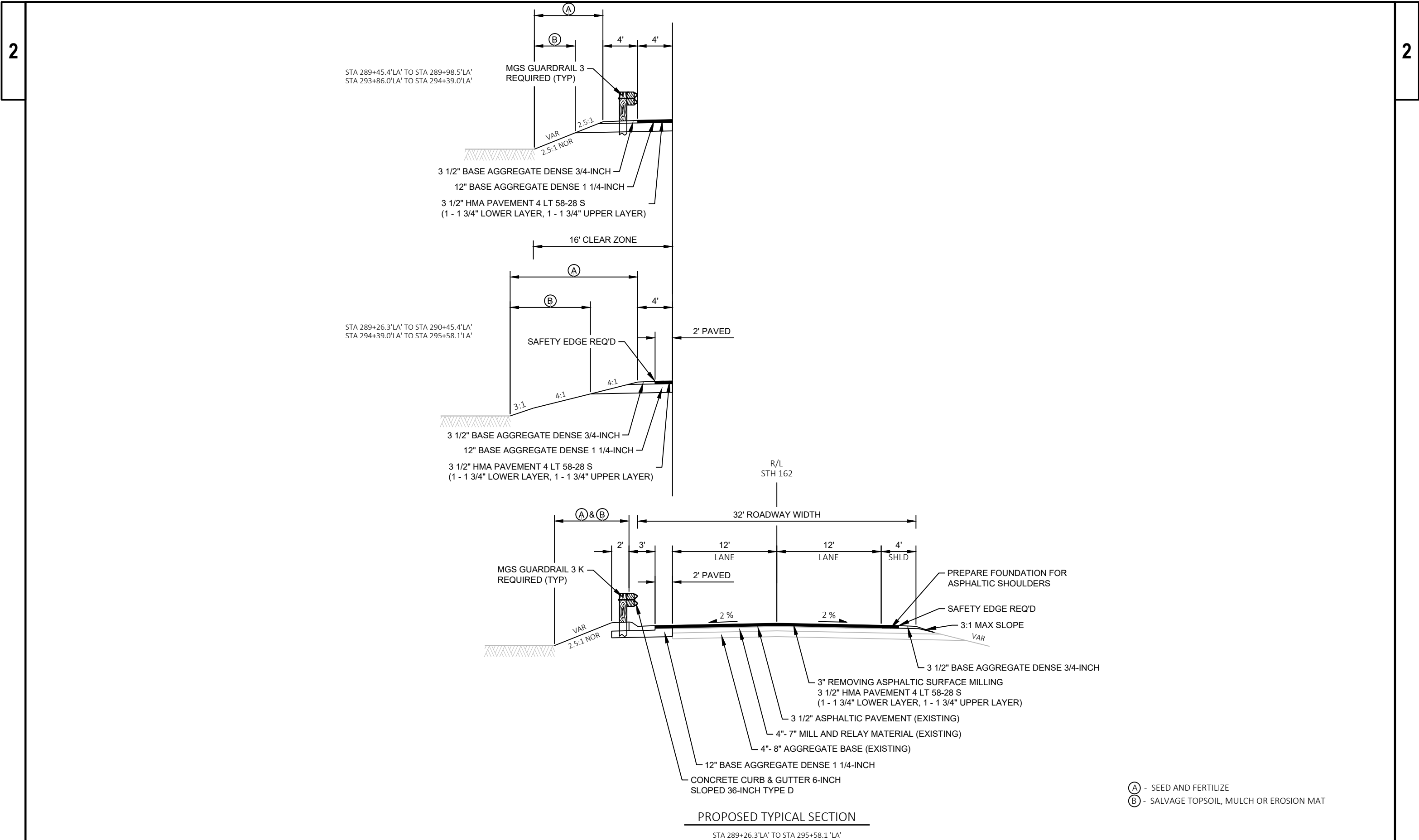
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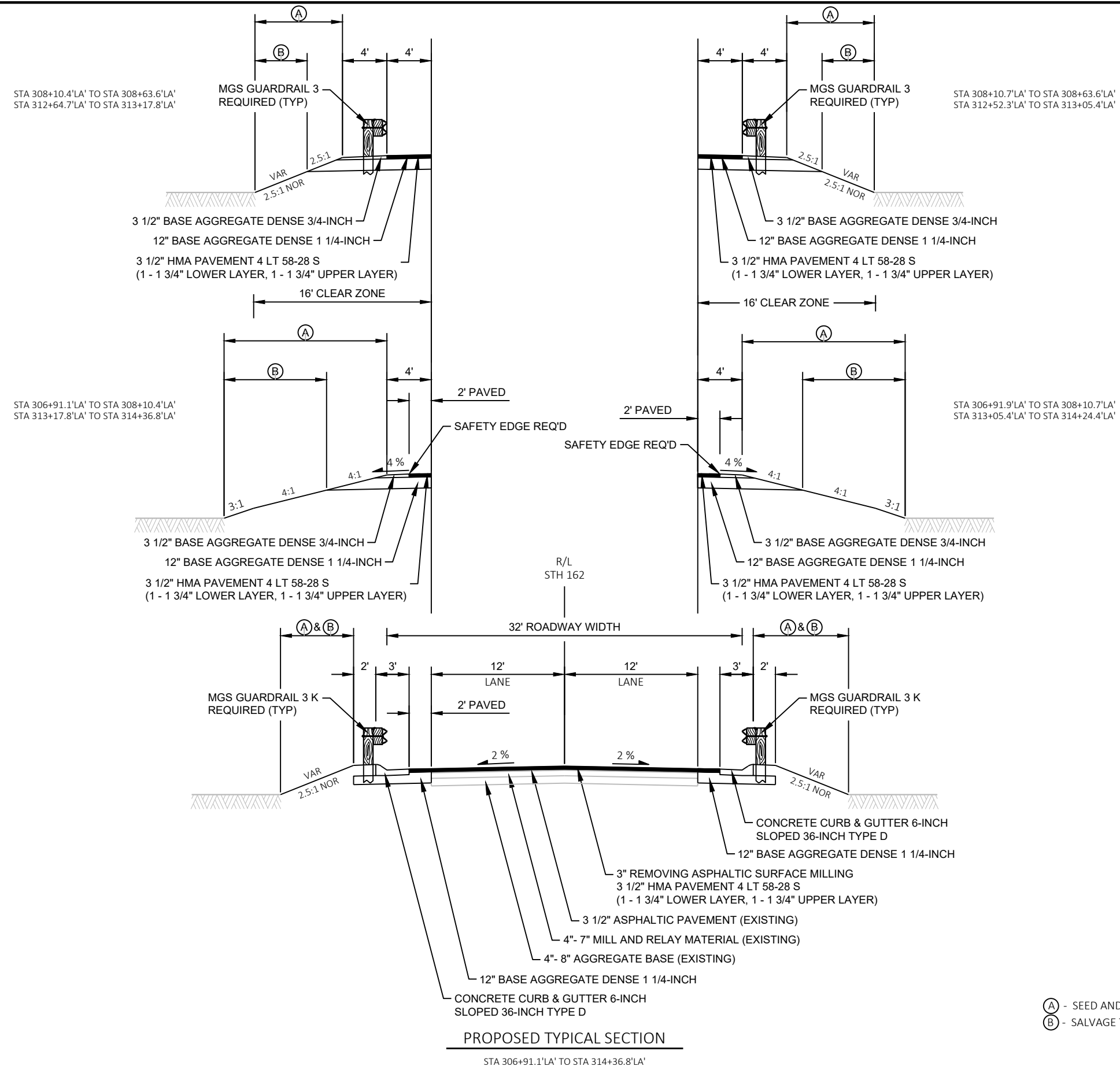


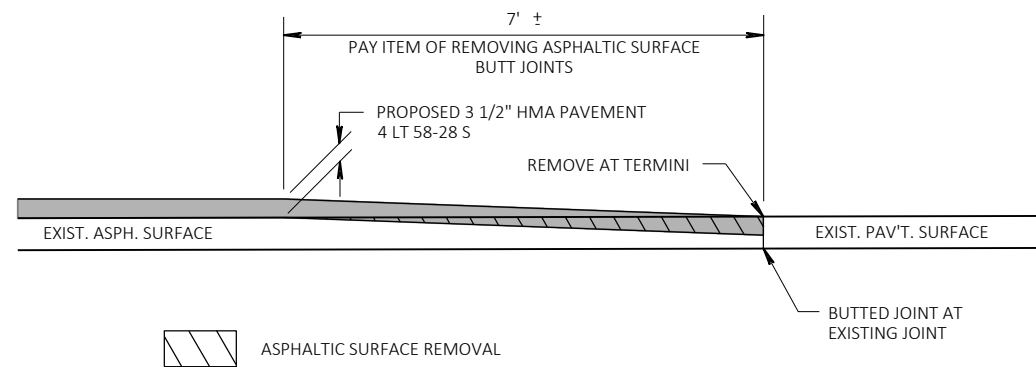


NOTE: STA 138+50.0'LA' TO STA 139+00.0'LA' TRANSITION
FROM A 11' LANE TO A 12' LANE

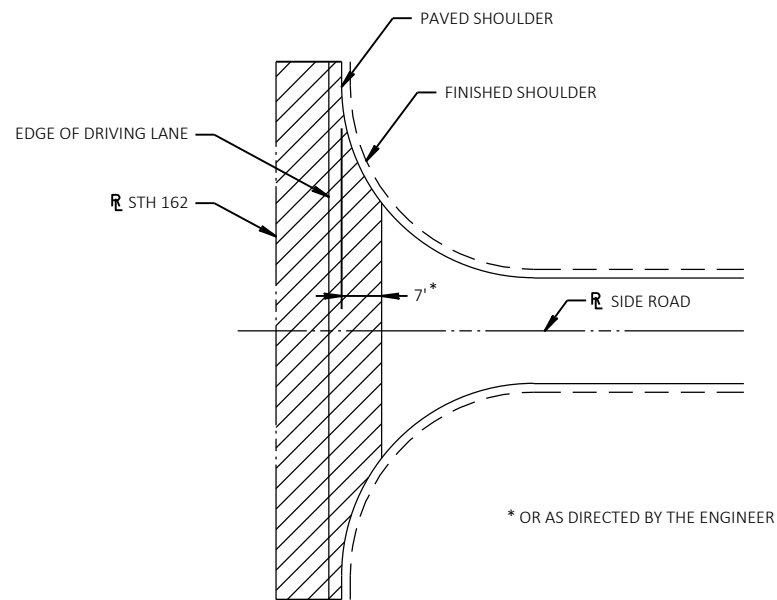




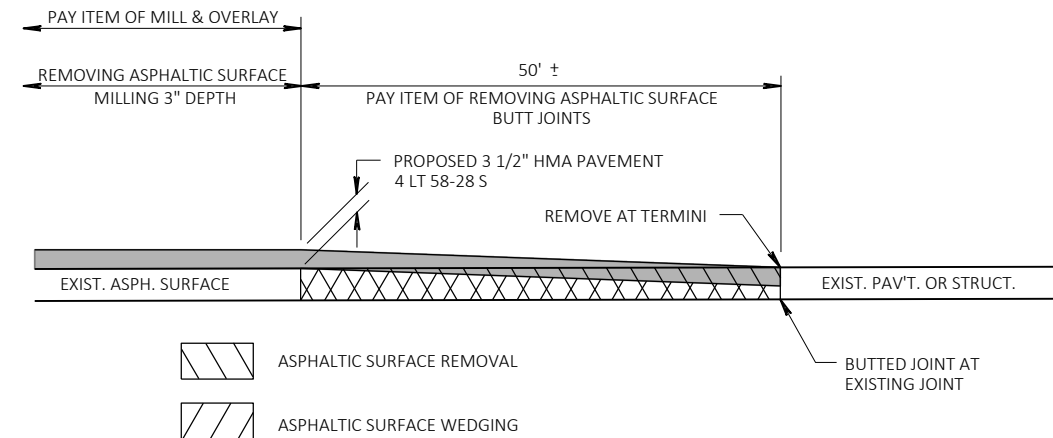




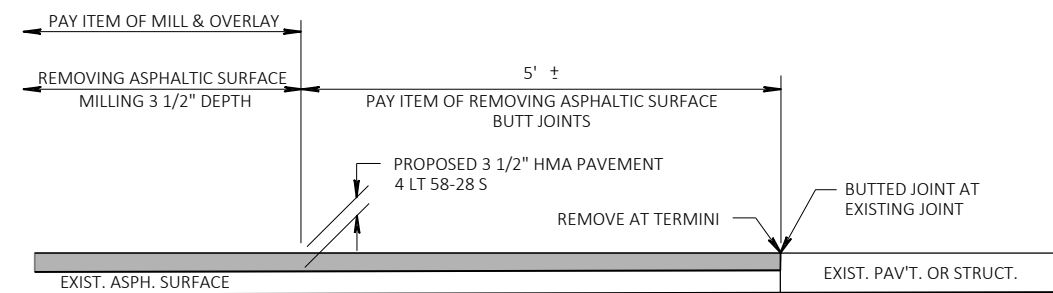
PROFILE VIEW



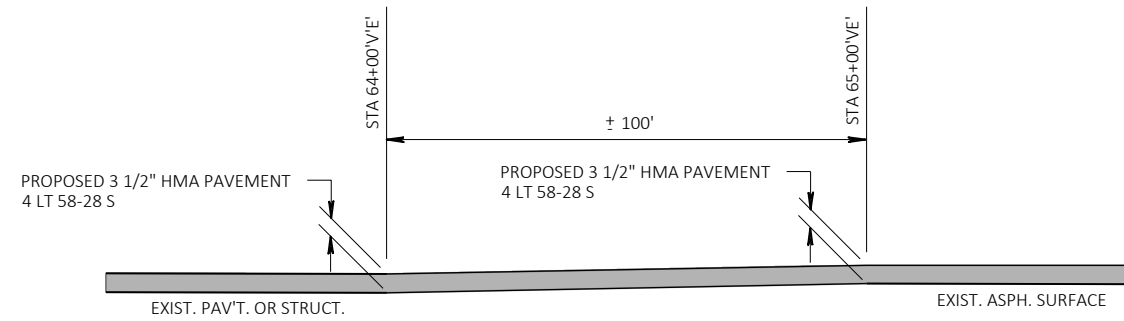
PLAN VIEW

INTERSECTION JOINT TRANSITION DETAILMAINLINE REMOVING ASPHALTIC SURFACE BUTT JOINT DETAIL

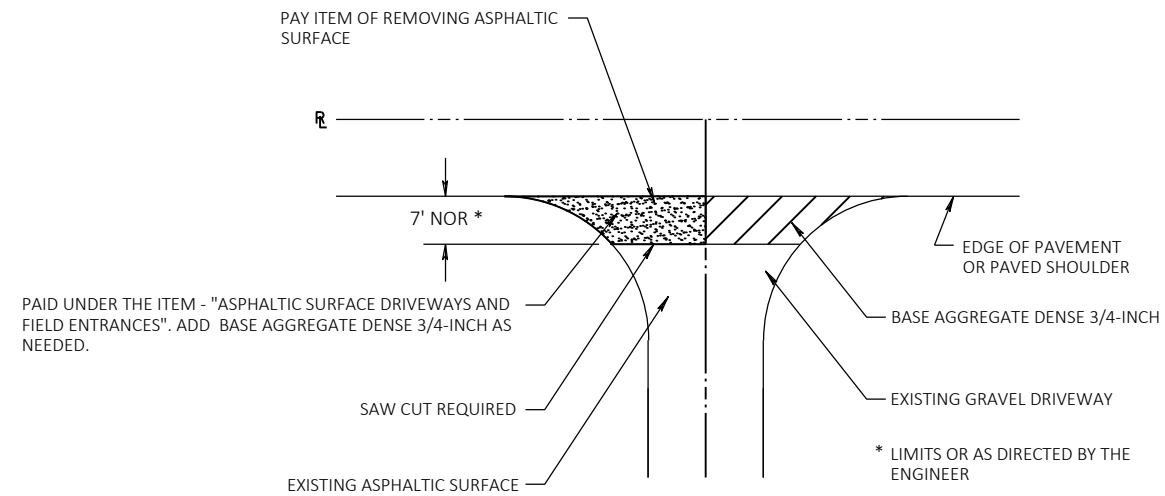
STA 338+50'LA' TO STA 339+00'LA'

MAINLINE REMOVING ASPHALTIC SURFACE BUTT JOINT DETAIL

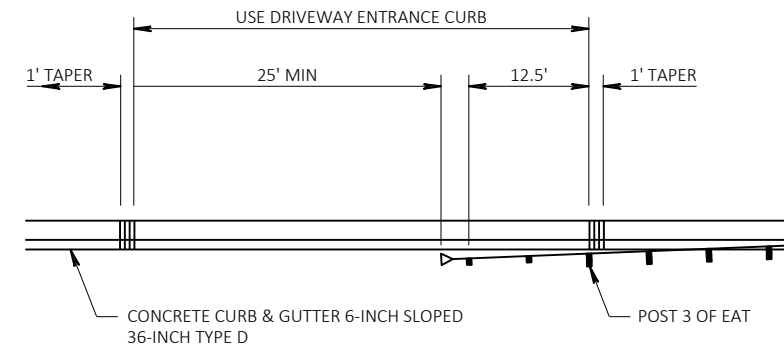
STA 11+75'VE' TO STA 11+80'VE'

MILL 3 1/2" TO STA 64+00'VE' AND TRANSITION TO
MILL 3" AT STA 65+00'VE'MILLING TRANSITION DETAIL

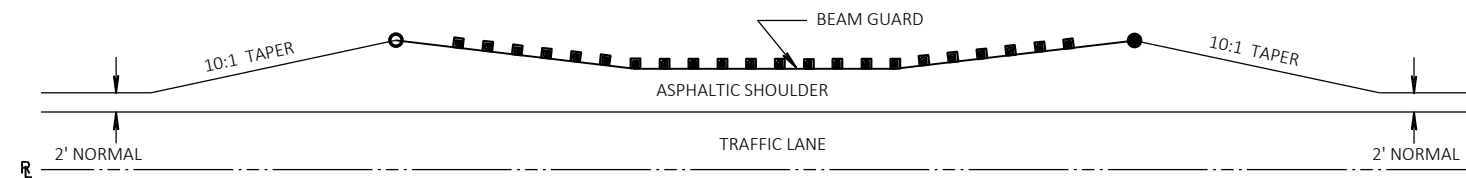
(END OF EXISTING CURB & GUTTER)



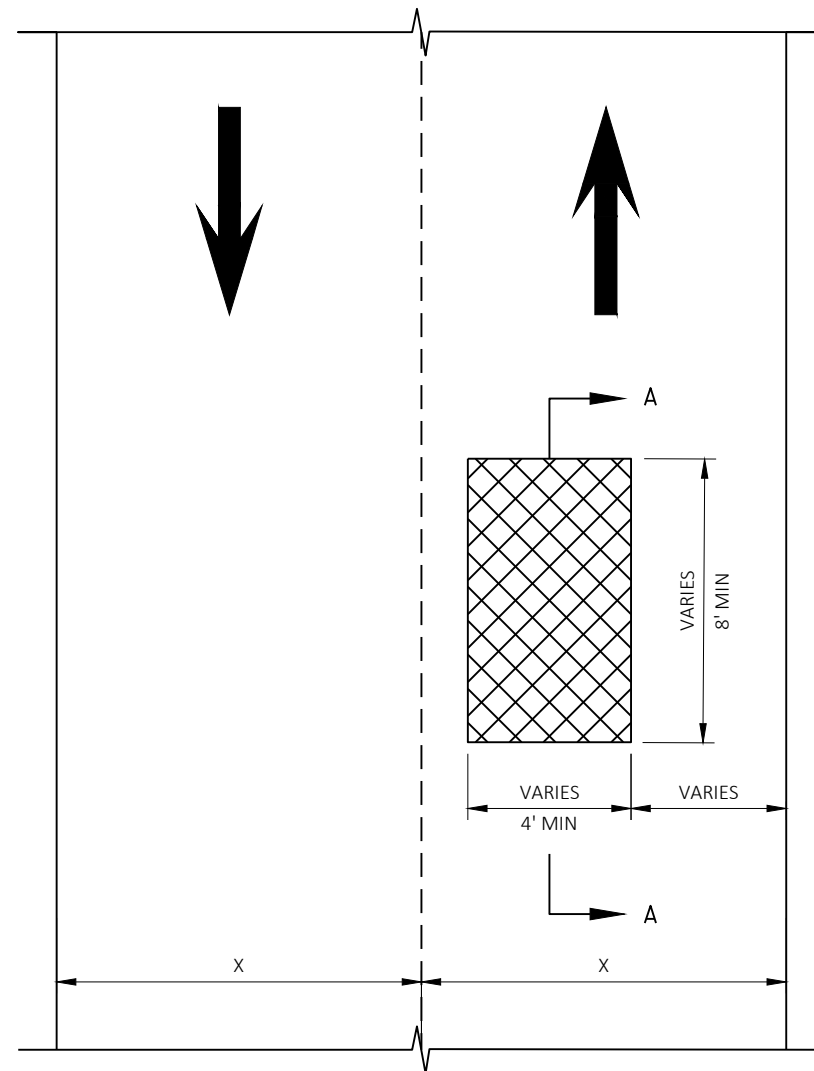
RURAL DRIVEWAY DETAIL



CURB & GUTTER AT EAT'S DETAIL



DETAIL FOR ASPHALTIC SHOULDER AT BEAM GUARD



PLAN VIEW

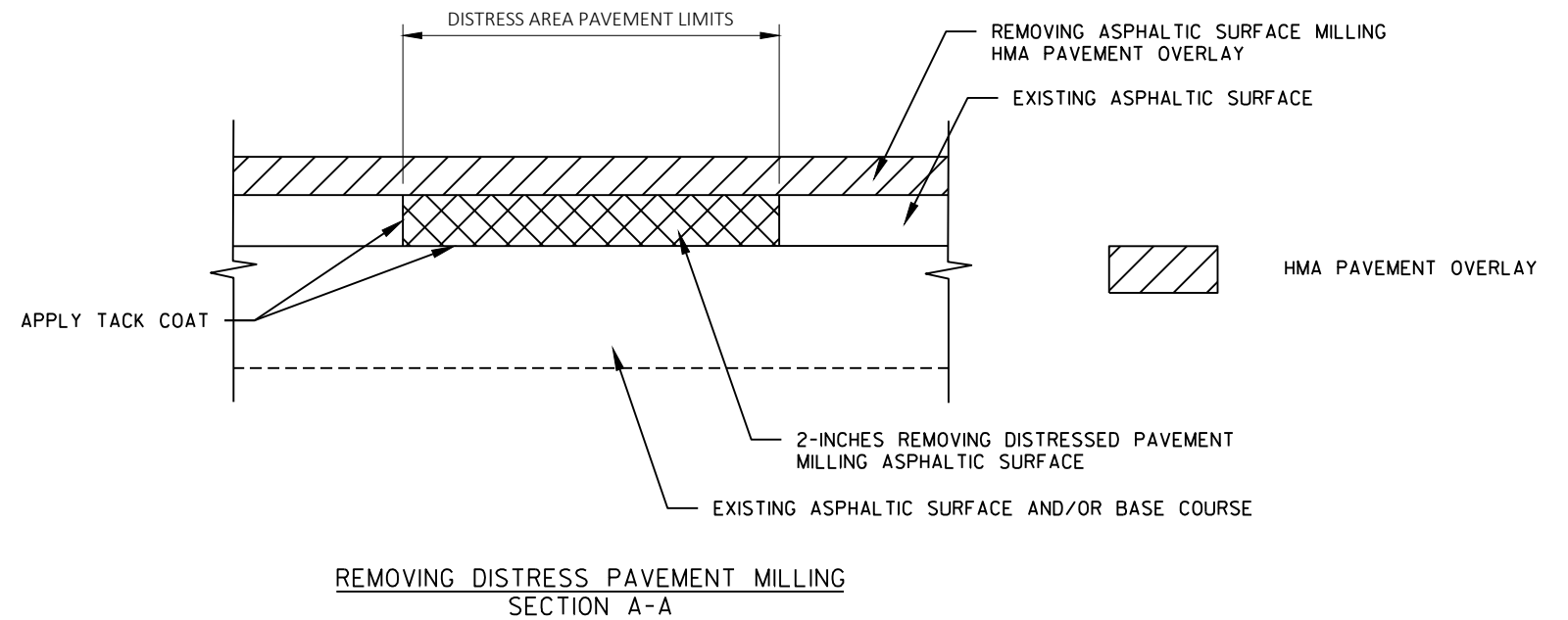
EXACT LOCATION AND LIMITS OF REMOVING
DISTRESSED PAVEMENT MILLING TO BE
DETERMINED BY THE ENGINEER IN THE FIELD



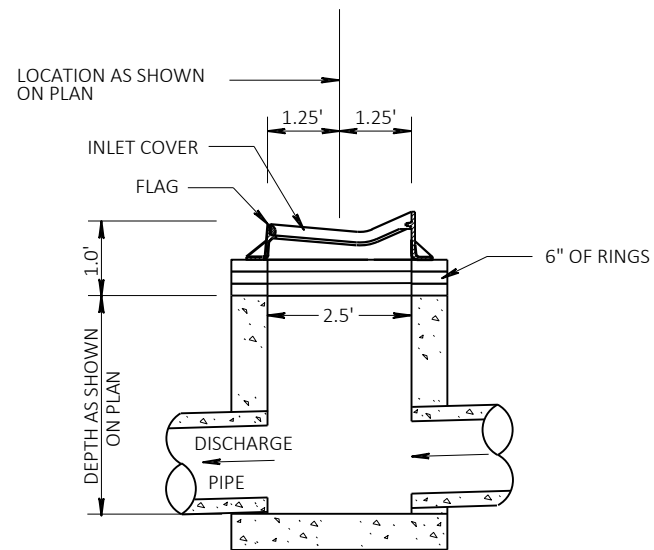
REMOVING DISTRESSED PAVEMENT MILLING
AND REPLACE WITH EXTRA DEPTH HMA
PAVEMENT



TRAVEL DIRECTION

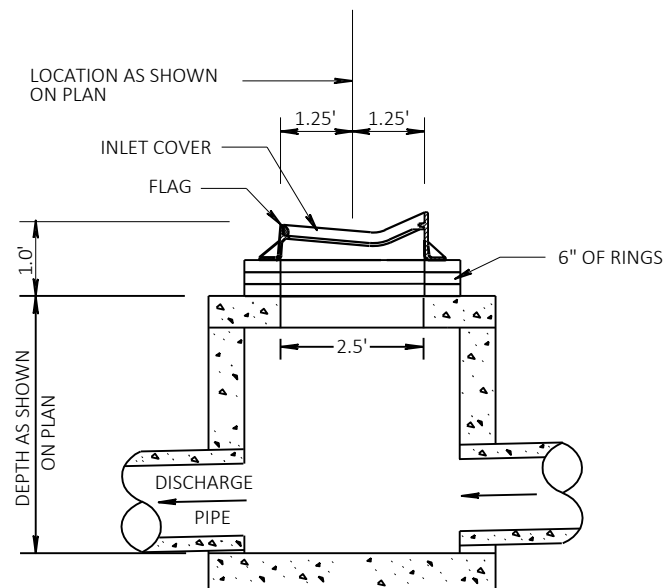


REMOVING DISTRESS PAVEMENT MILLING
SECTION A-A



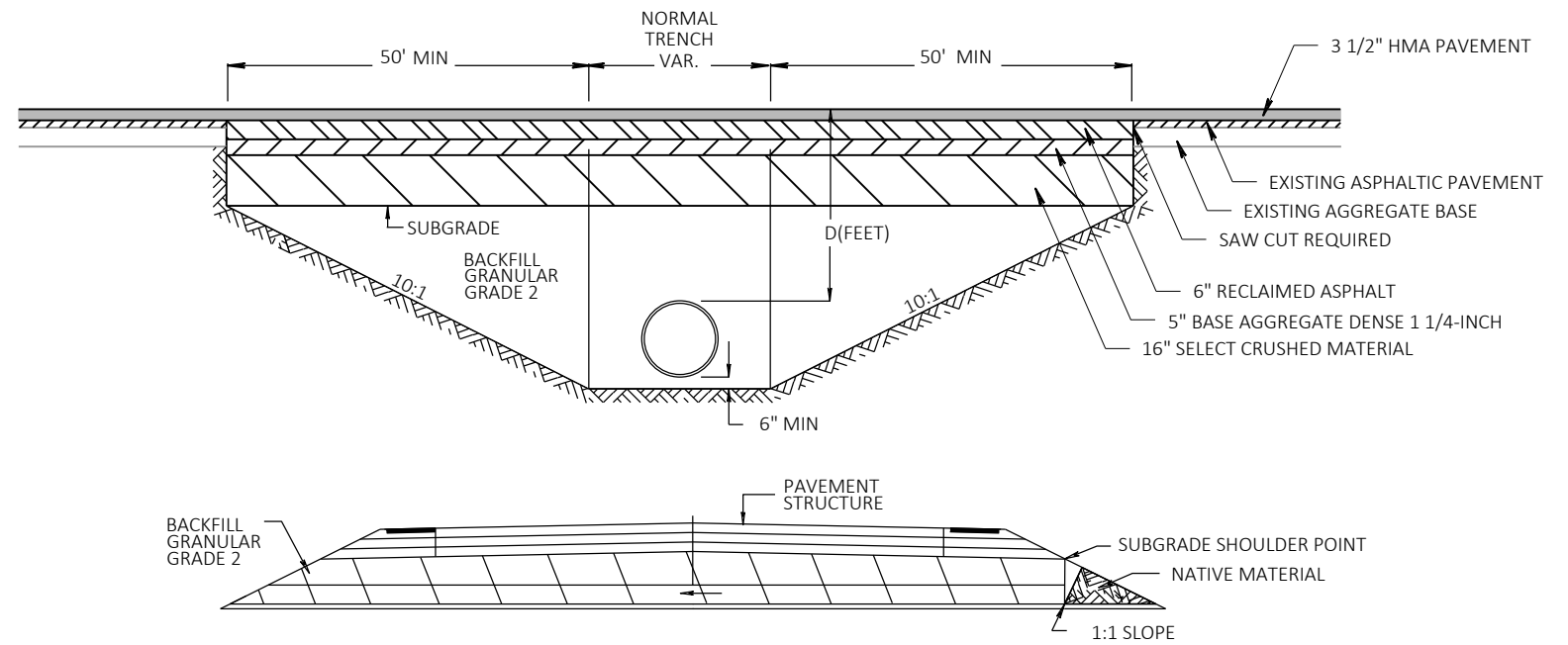
NOTE: DETAILS NOT SHOWN SHALL CONFORM TO
STANDARD DETAIL DRAWING FOR INLET 2.5X3-FT

INLET 2.5X3-FT

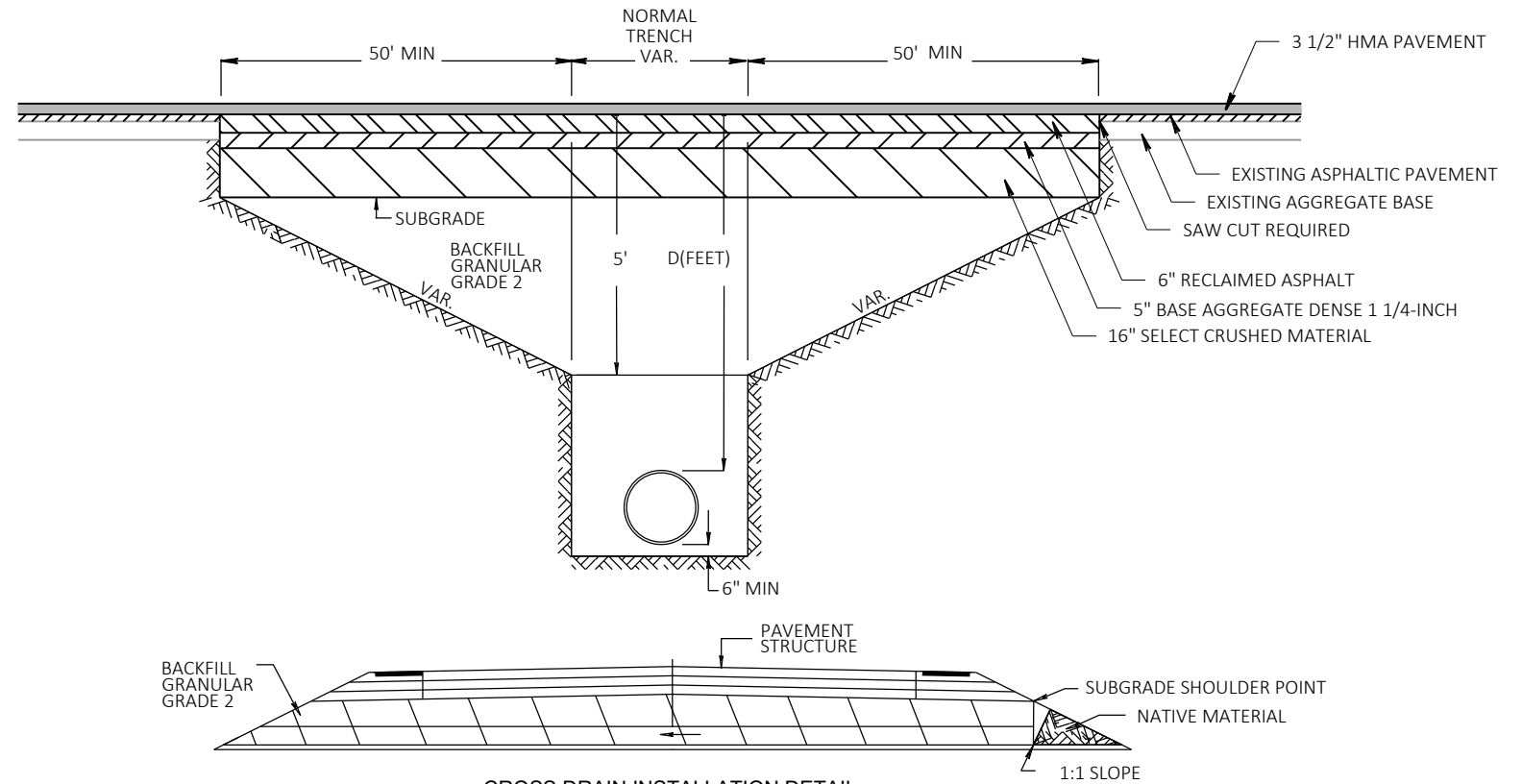


NOTE: DETAILS NOT SHOWN SHALL CONFORM TO
STANDARD DETAIL DRAWING FOR INLETS 4-FT DIAMETER

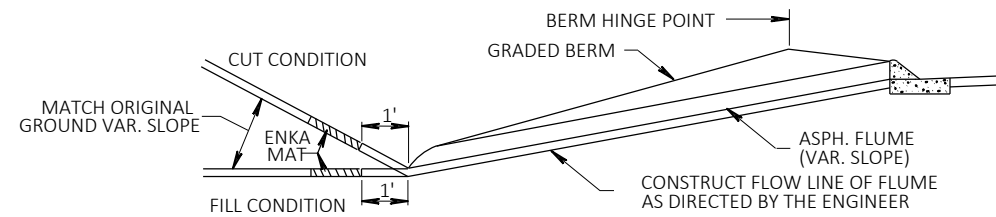
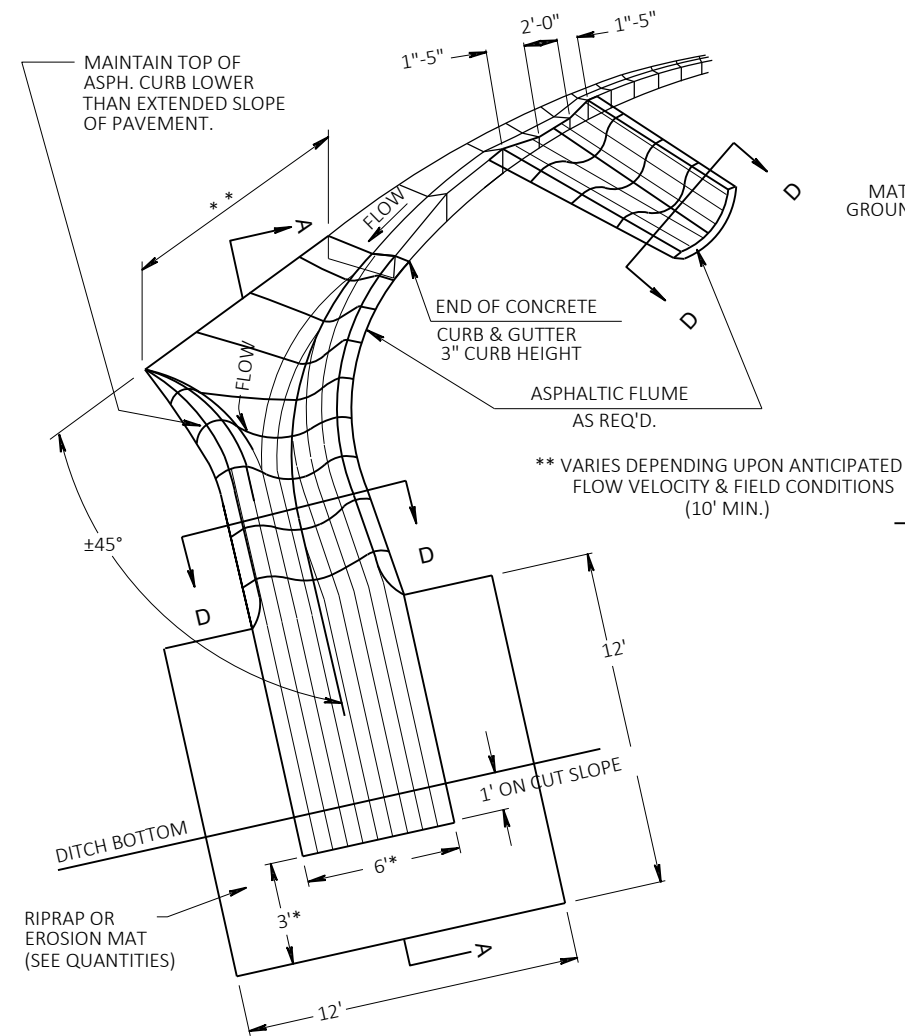
INLETS 4-FT AND 5-FT DIA



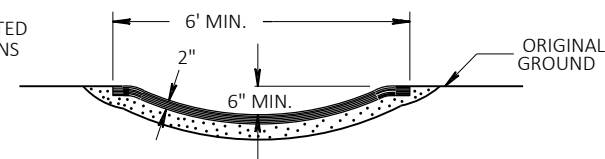
CROSS DRAIN INSTALLATION DETAIL
FOR $D \leq 5'$



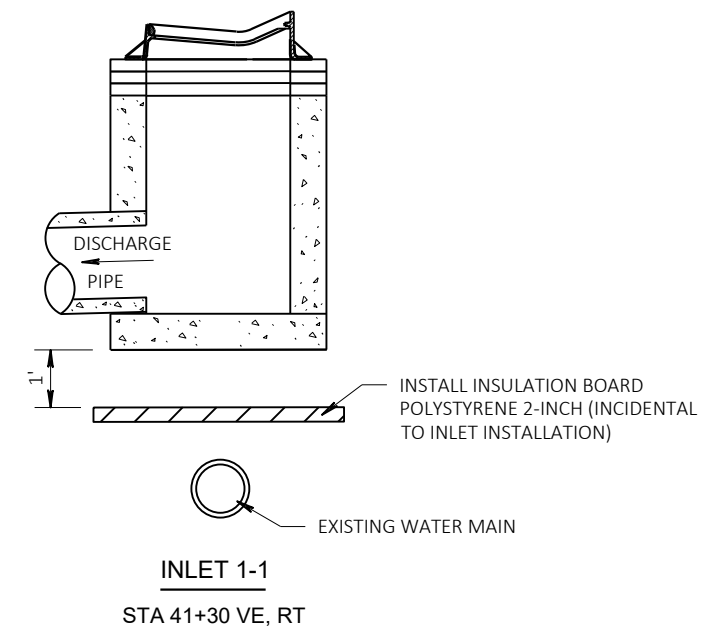
CROSS DRAIN INSTALLATION DETAIL
FOR $D \geq 5'$

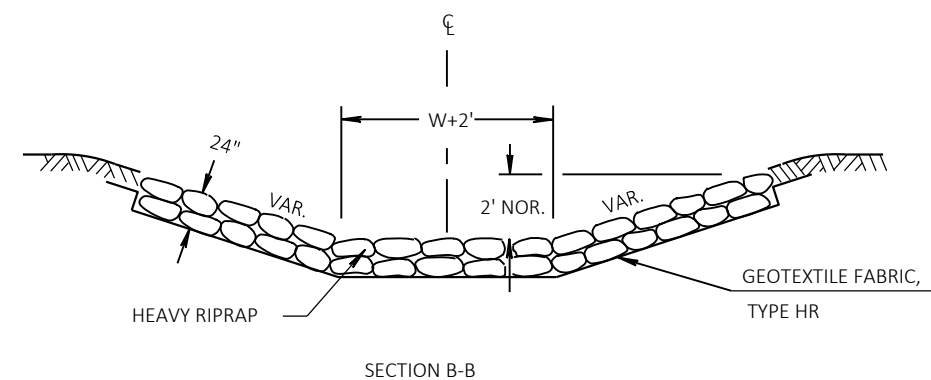
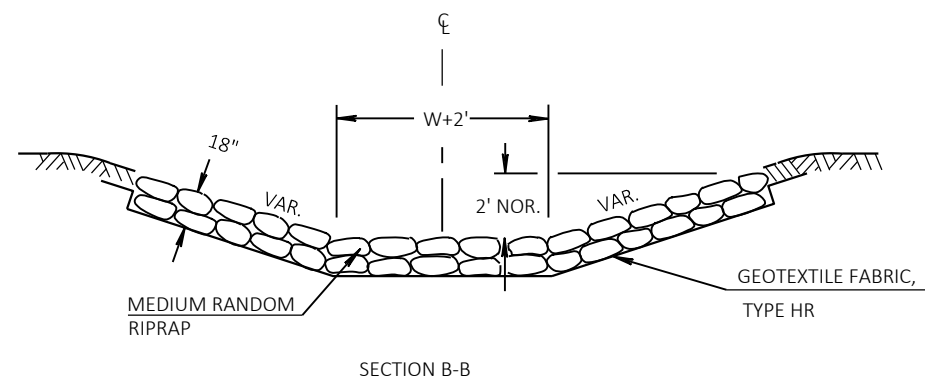
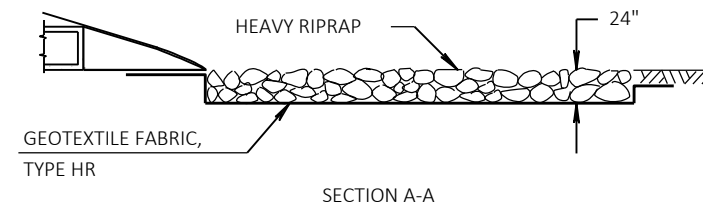
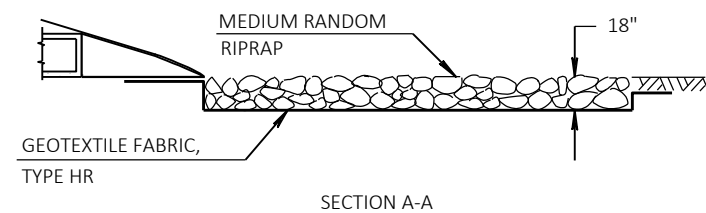
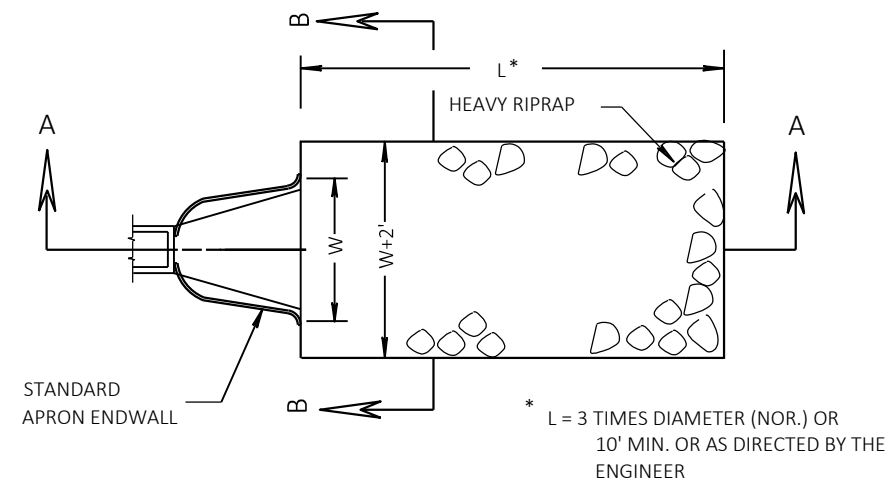
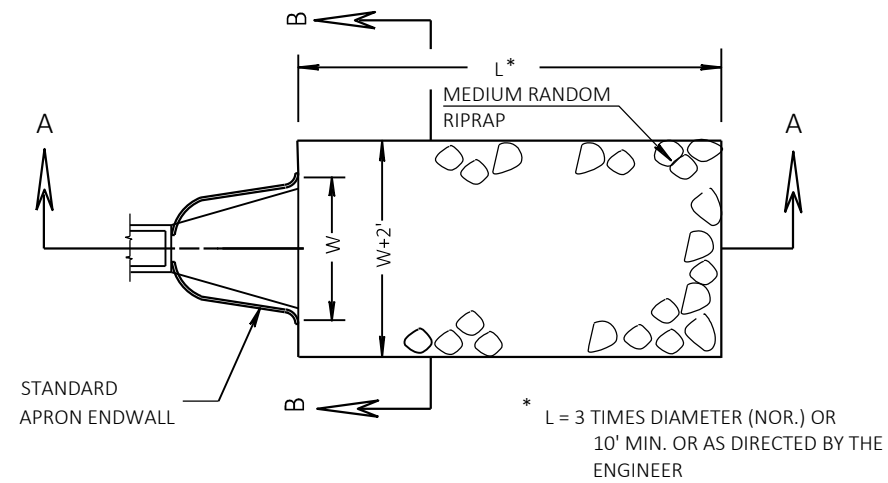


SECTION A-A



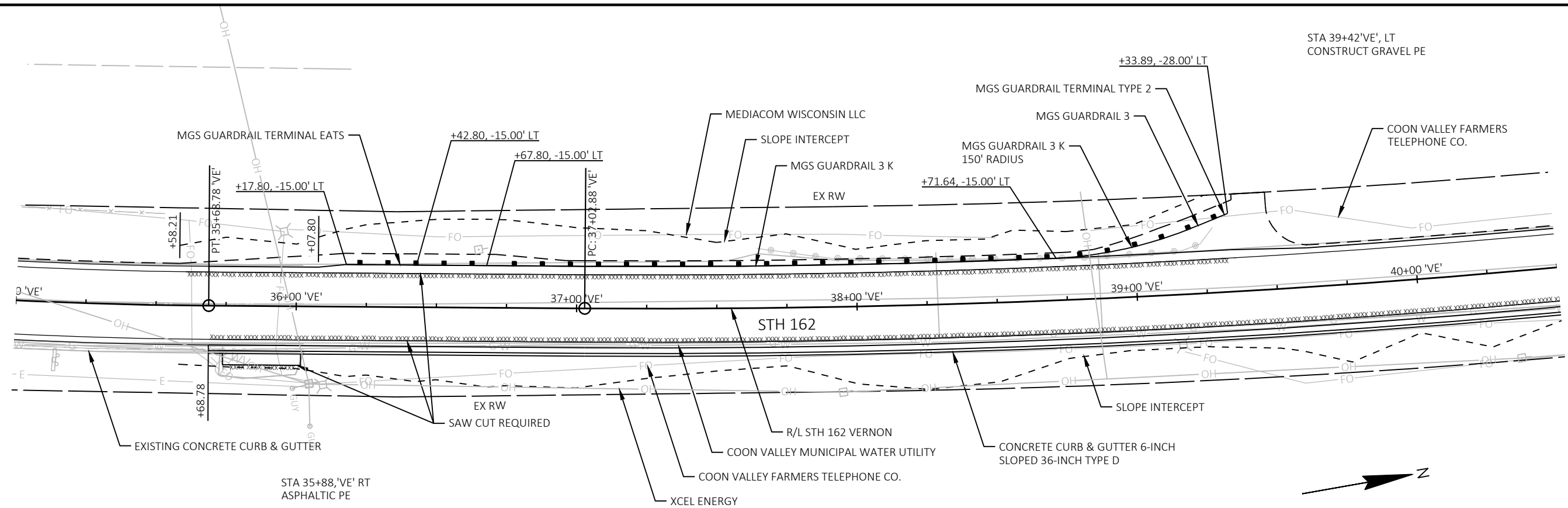
SECTION D-D

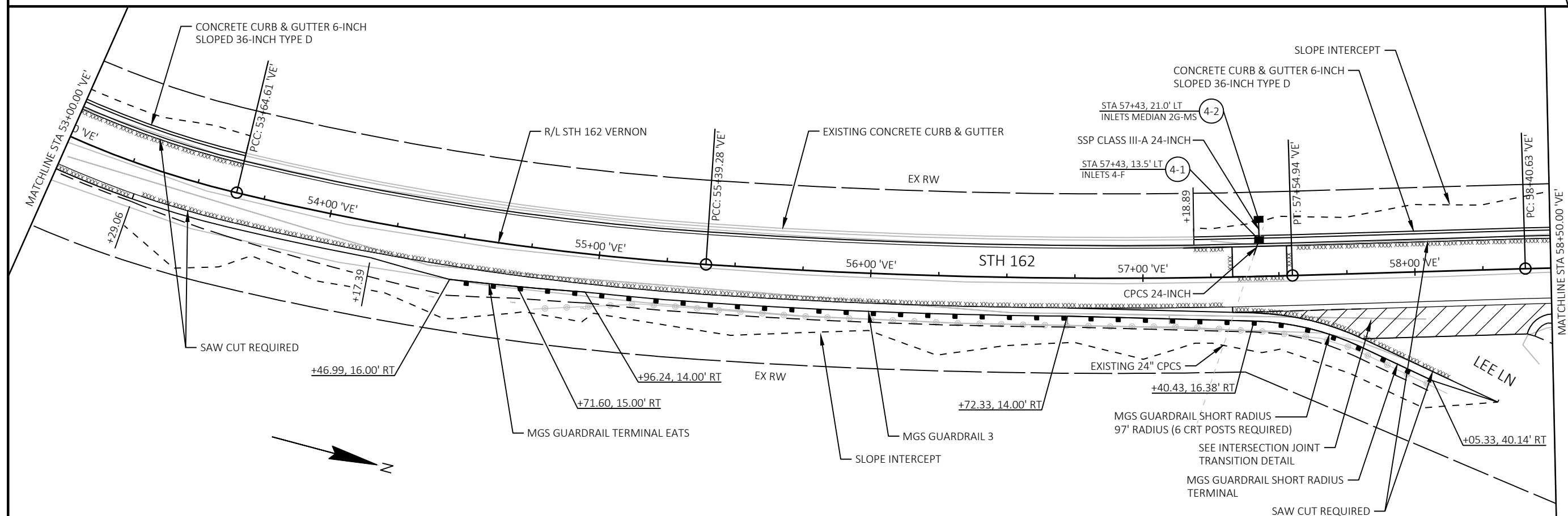
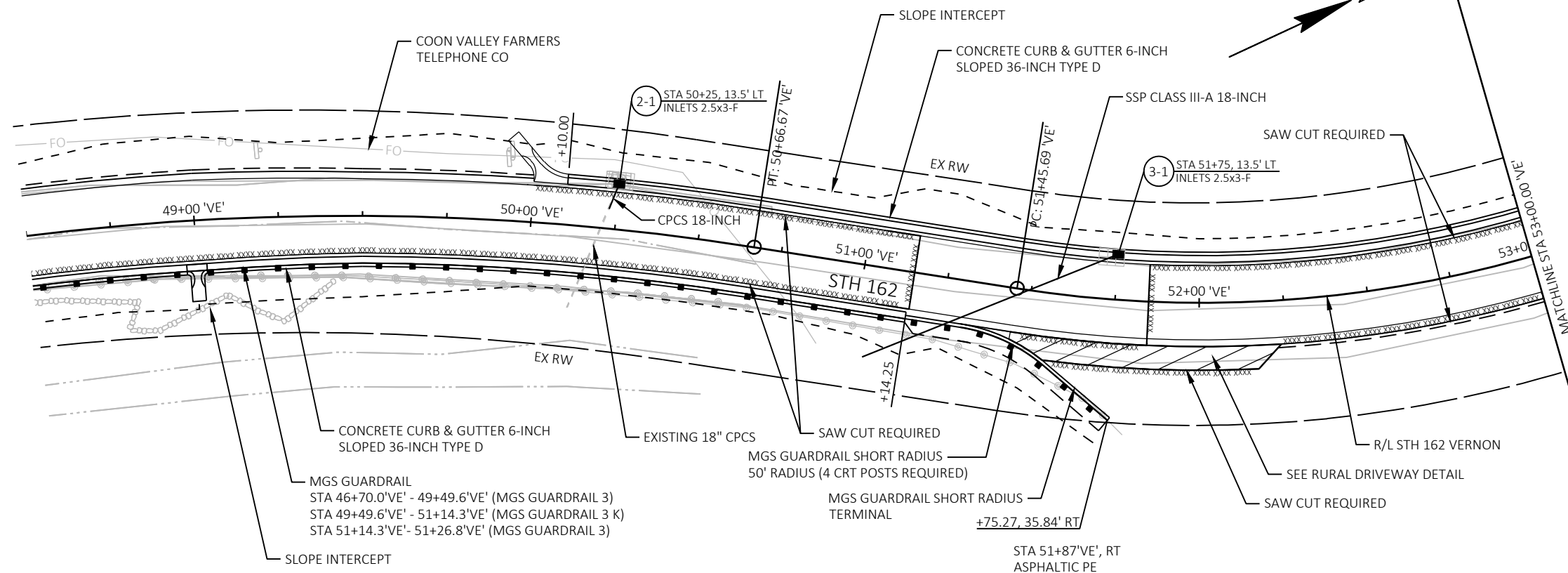
ASPHALTIC FLUME DETAIL

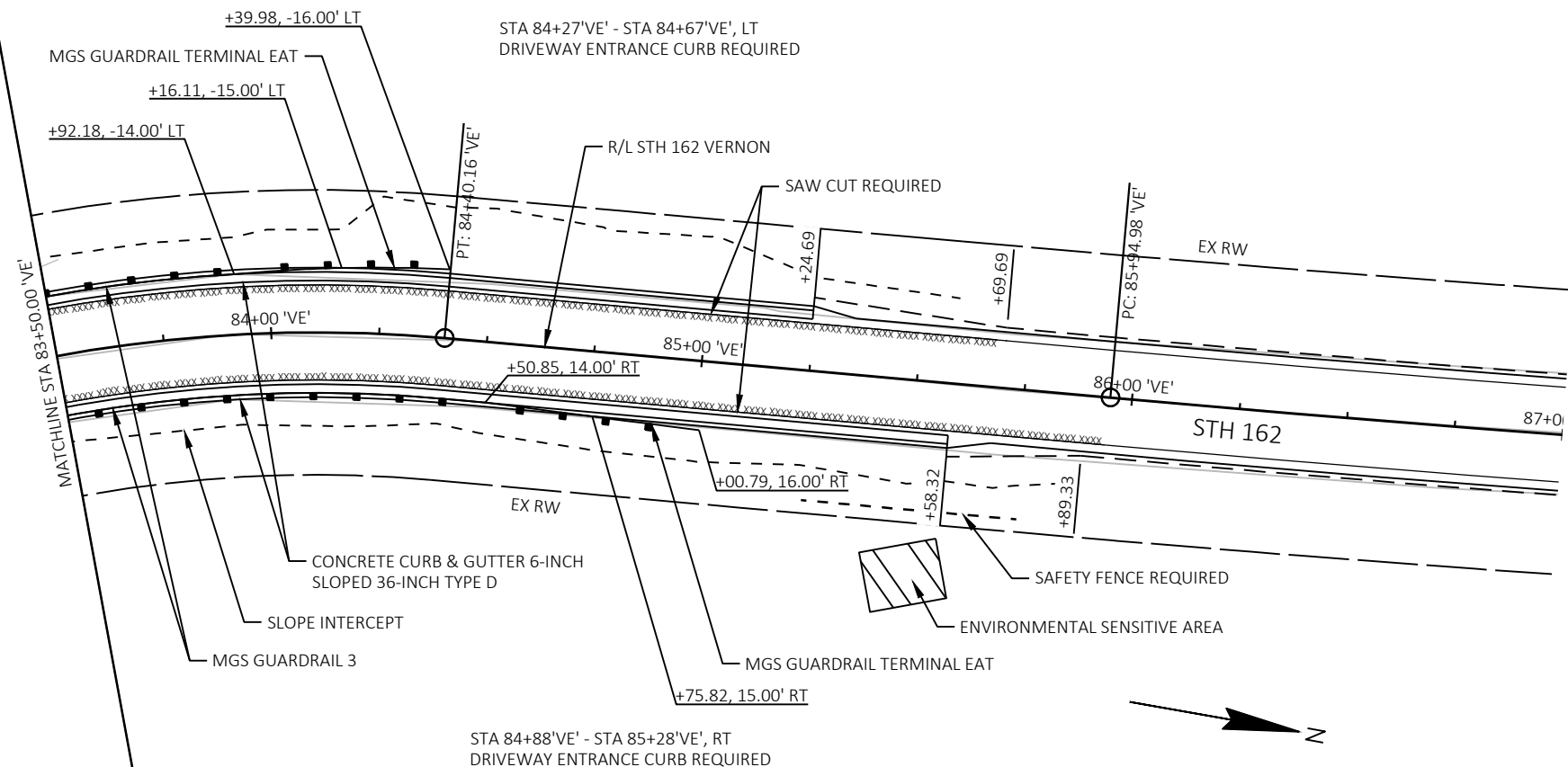
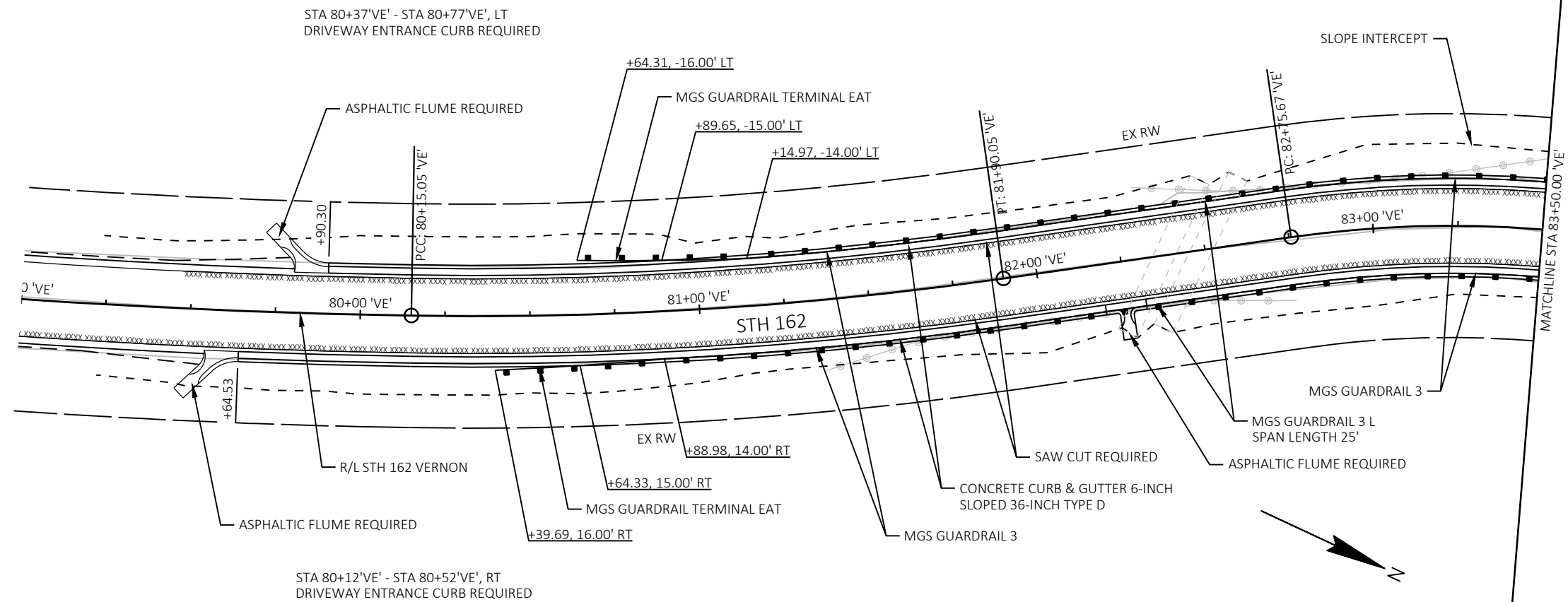


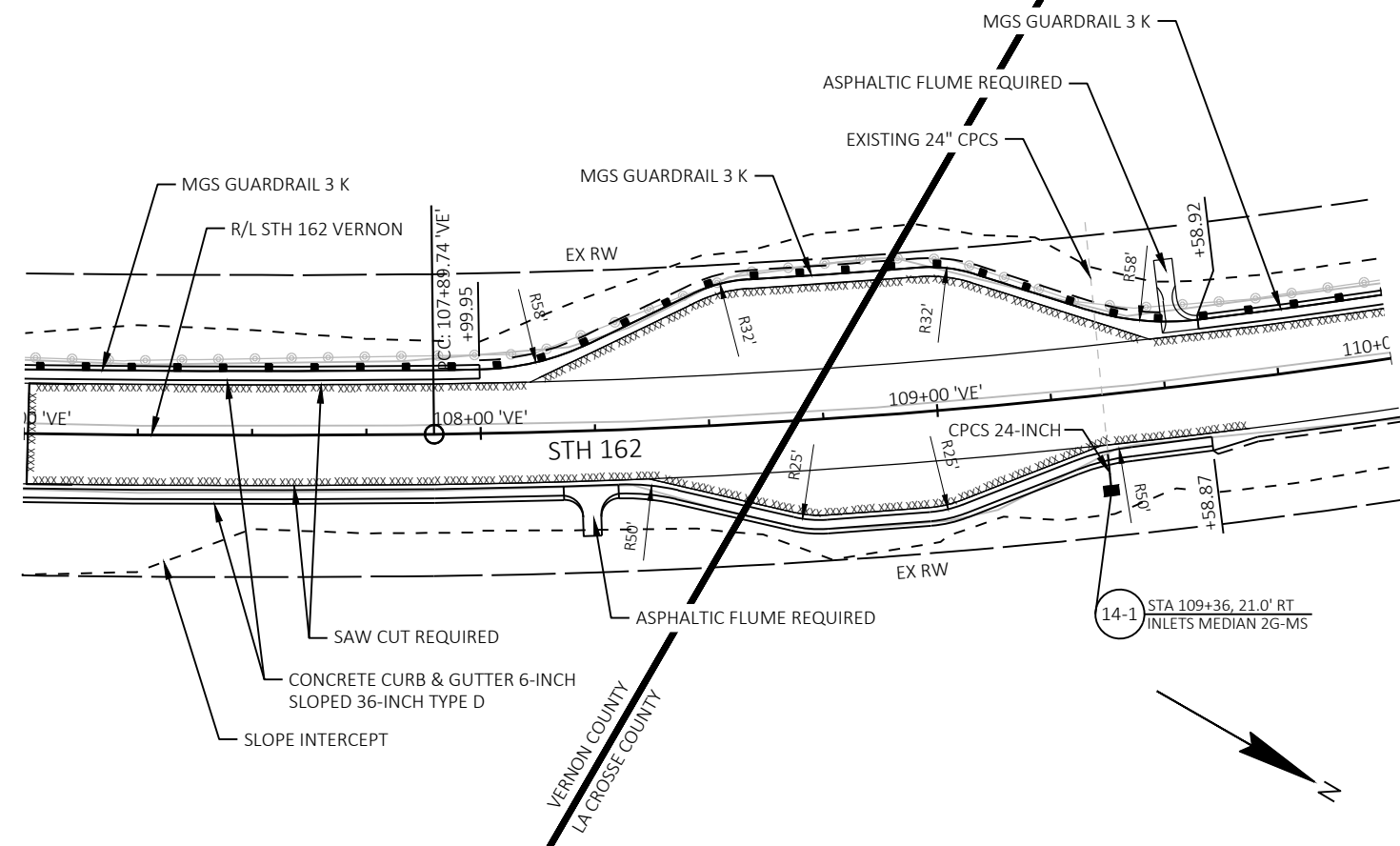
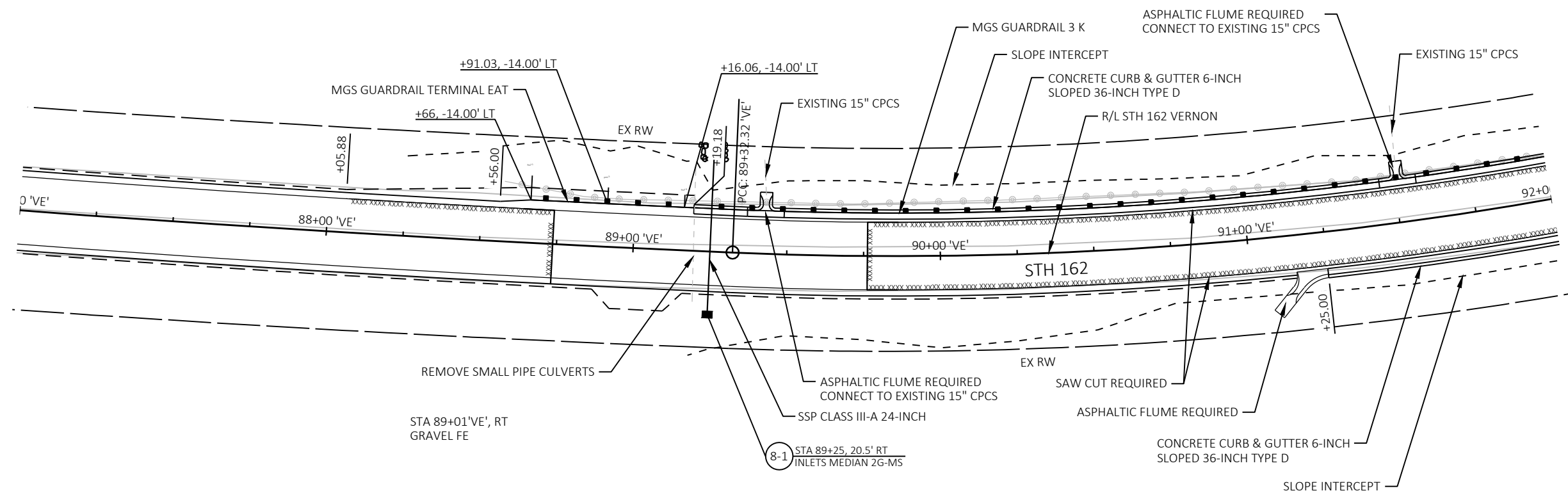
MEDIUM RANDOM RIPRAP AND GEOTEXTILE FABRIC DETAIL
AT APRON ENDWALL

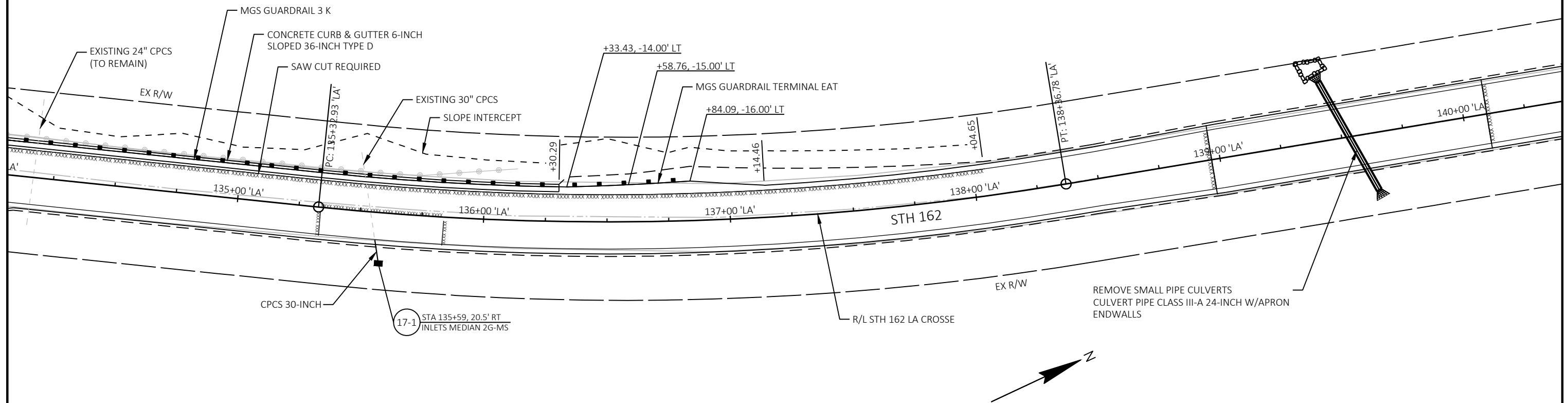
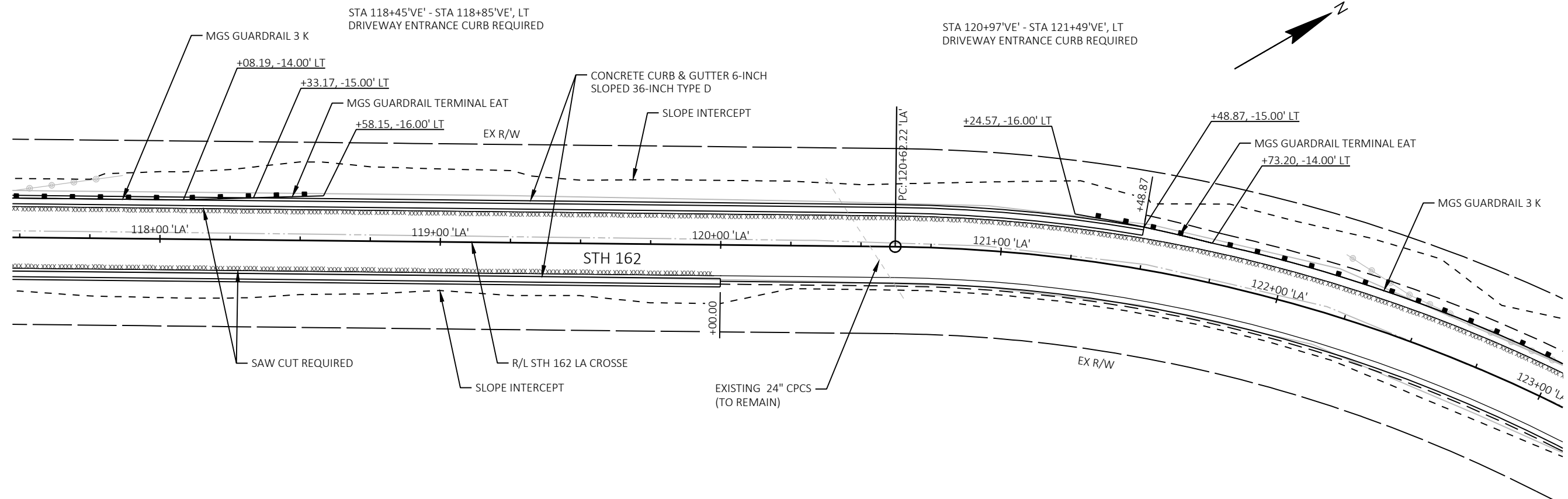
SOD, HEAVY RIPRAP AND GEOTEXTILE FABRIC DETAIL
AT APRON ENDWALLS

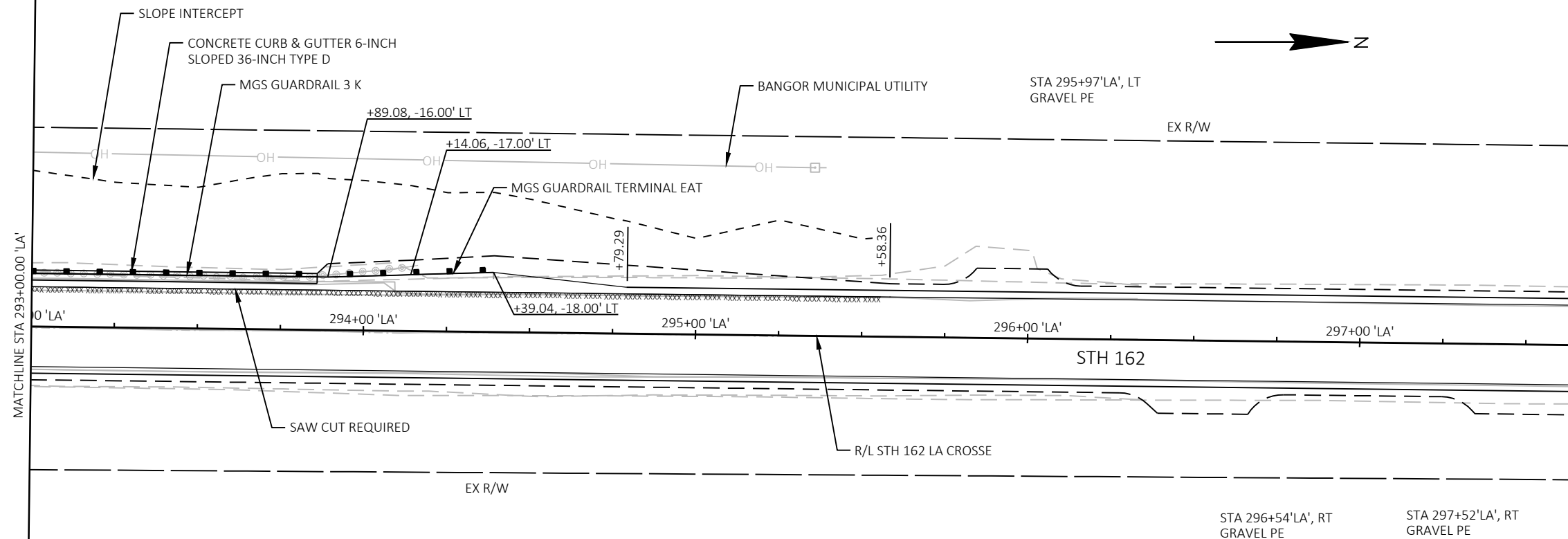
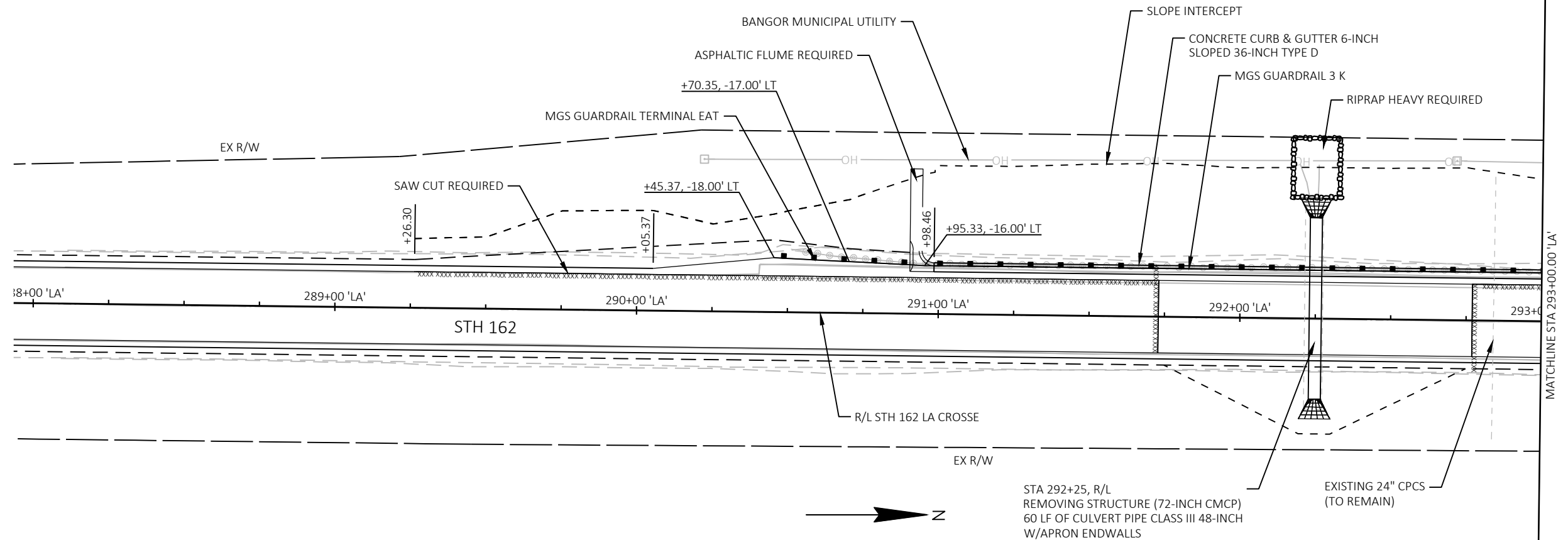


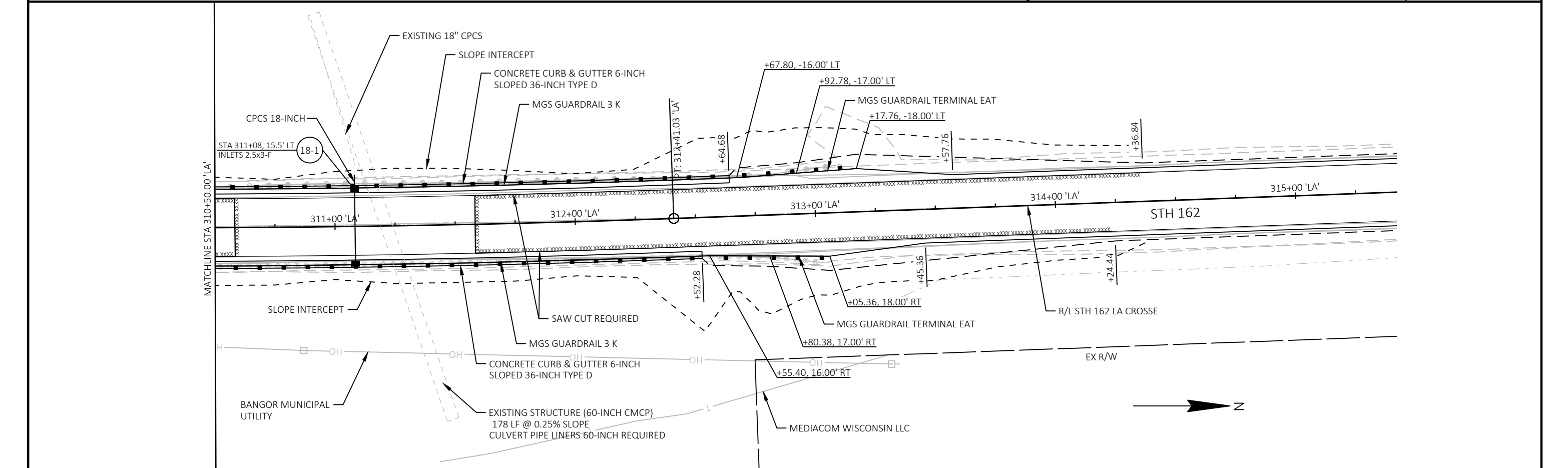
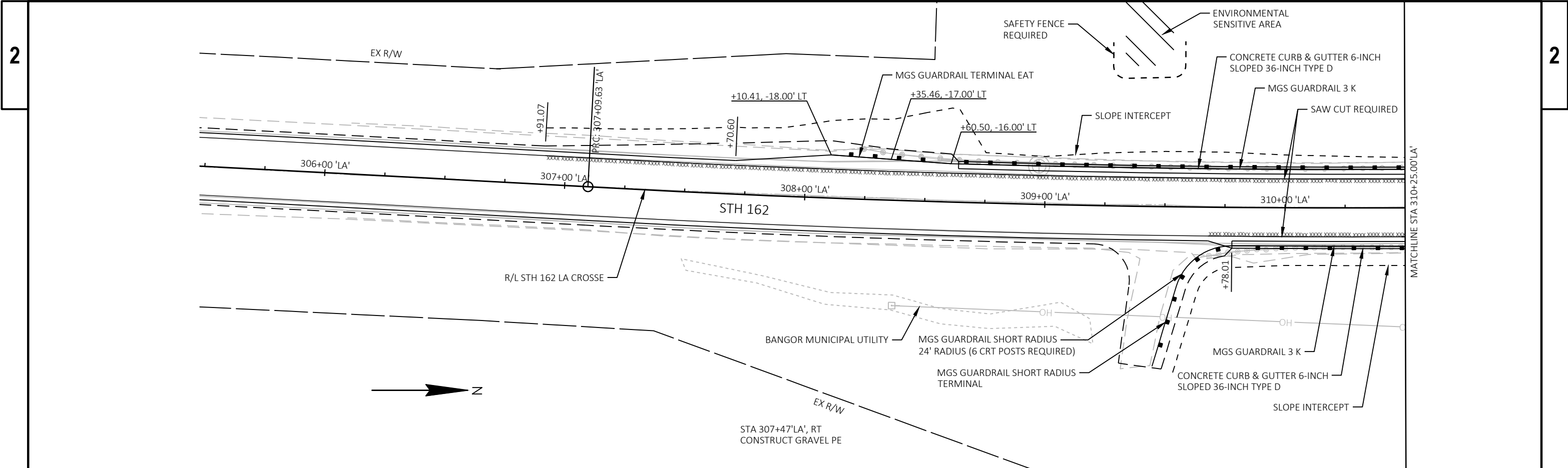




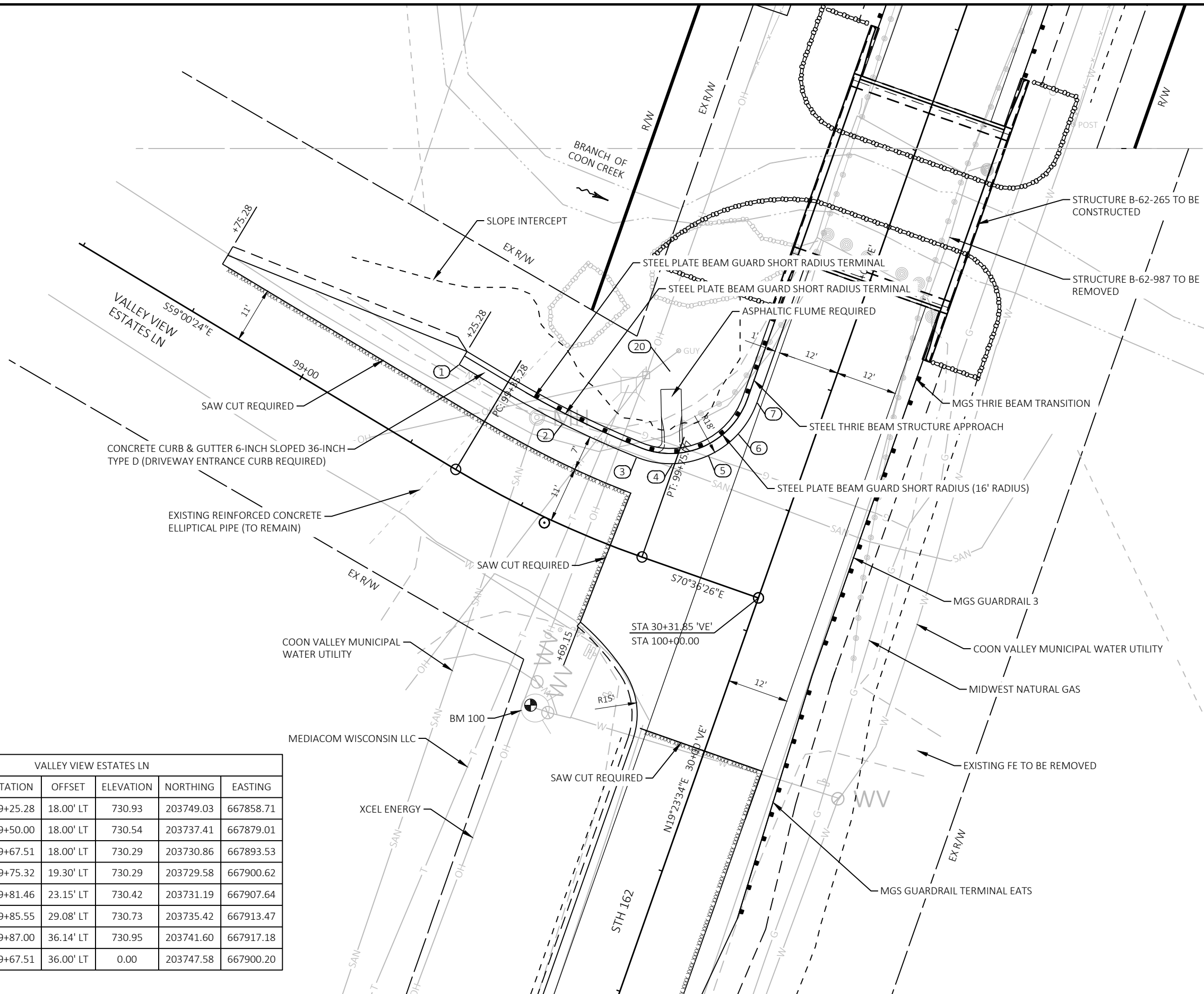


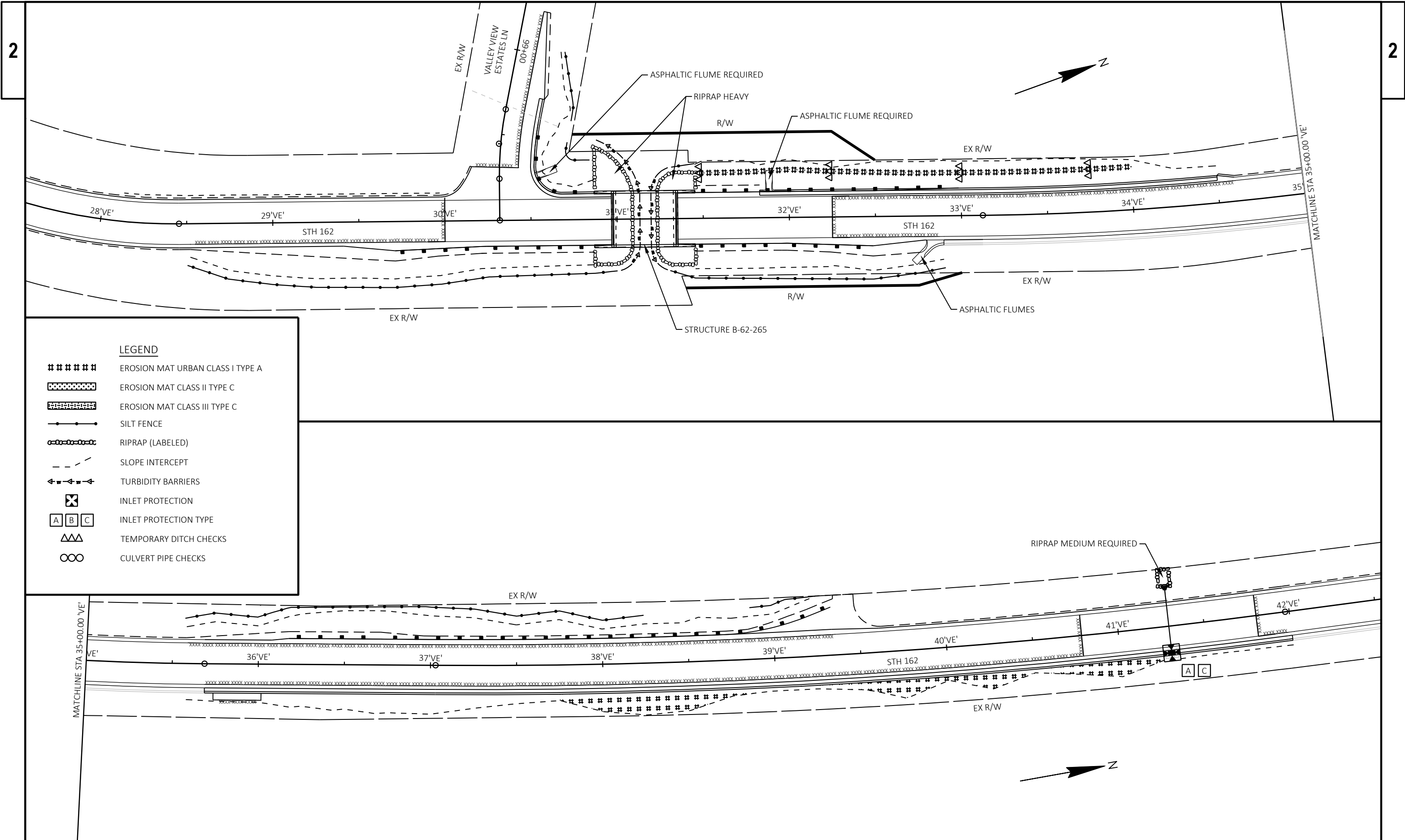


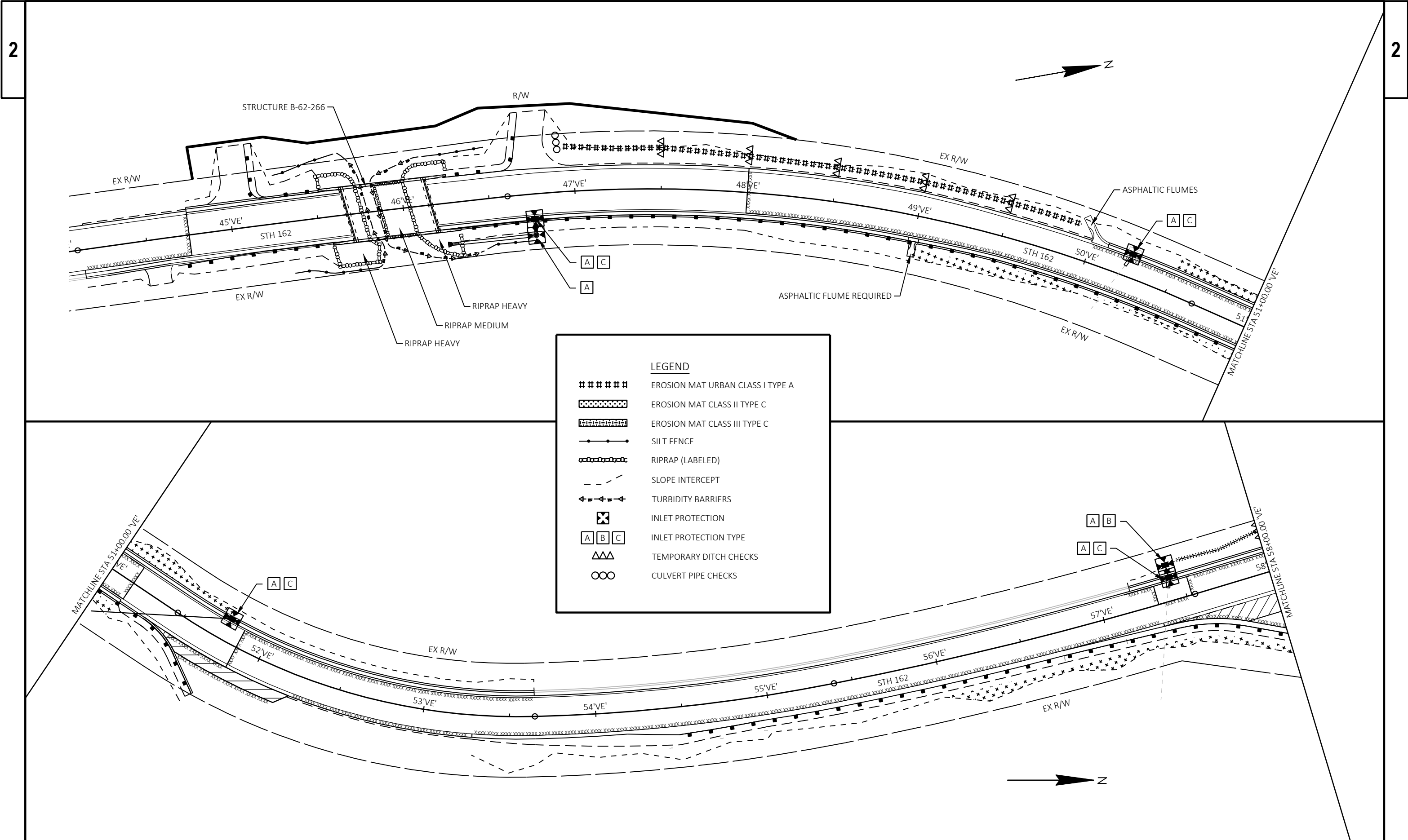


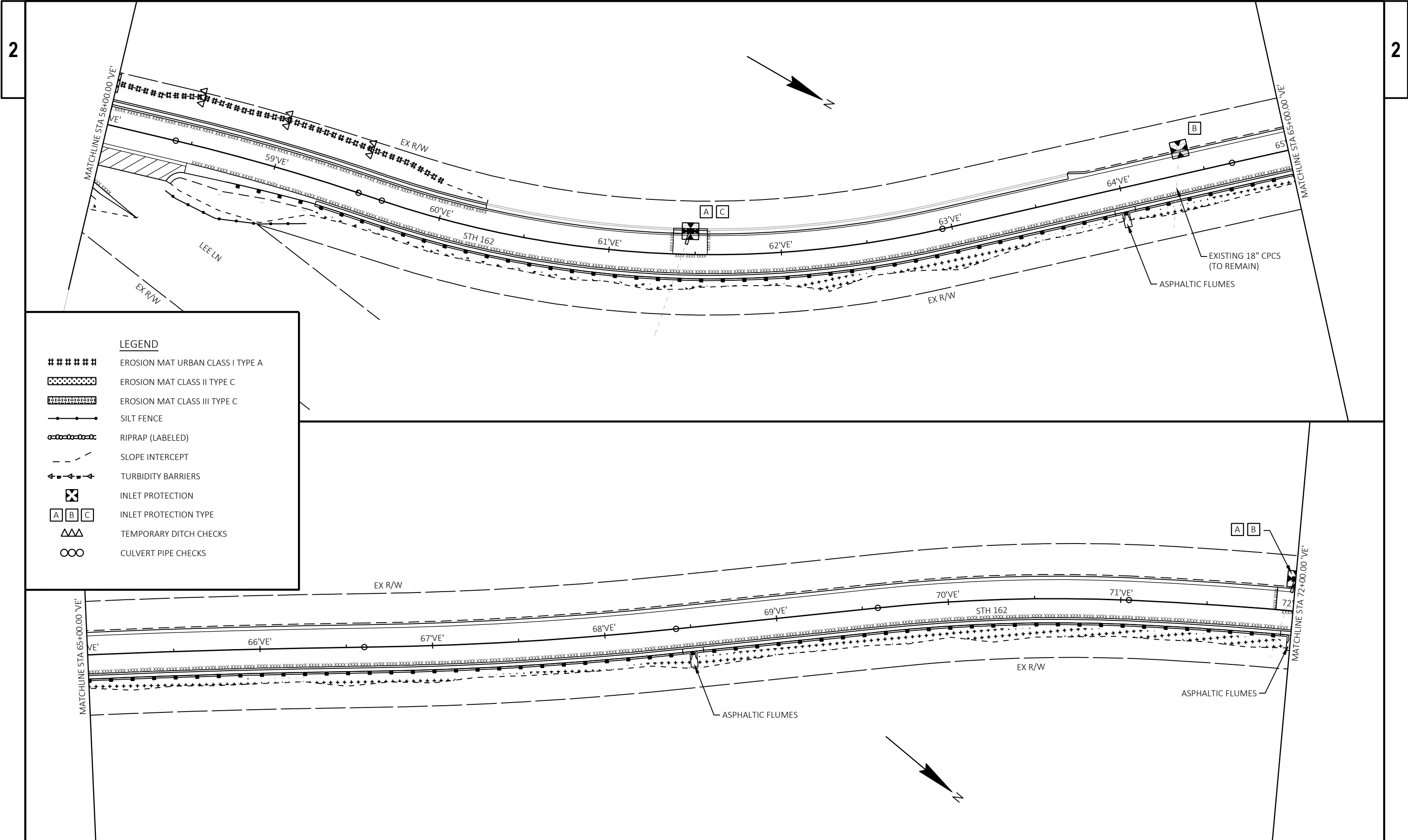


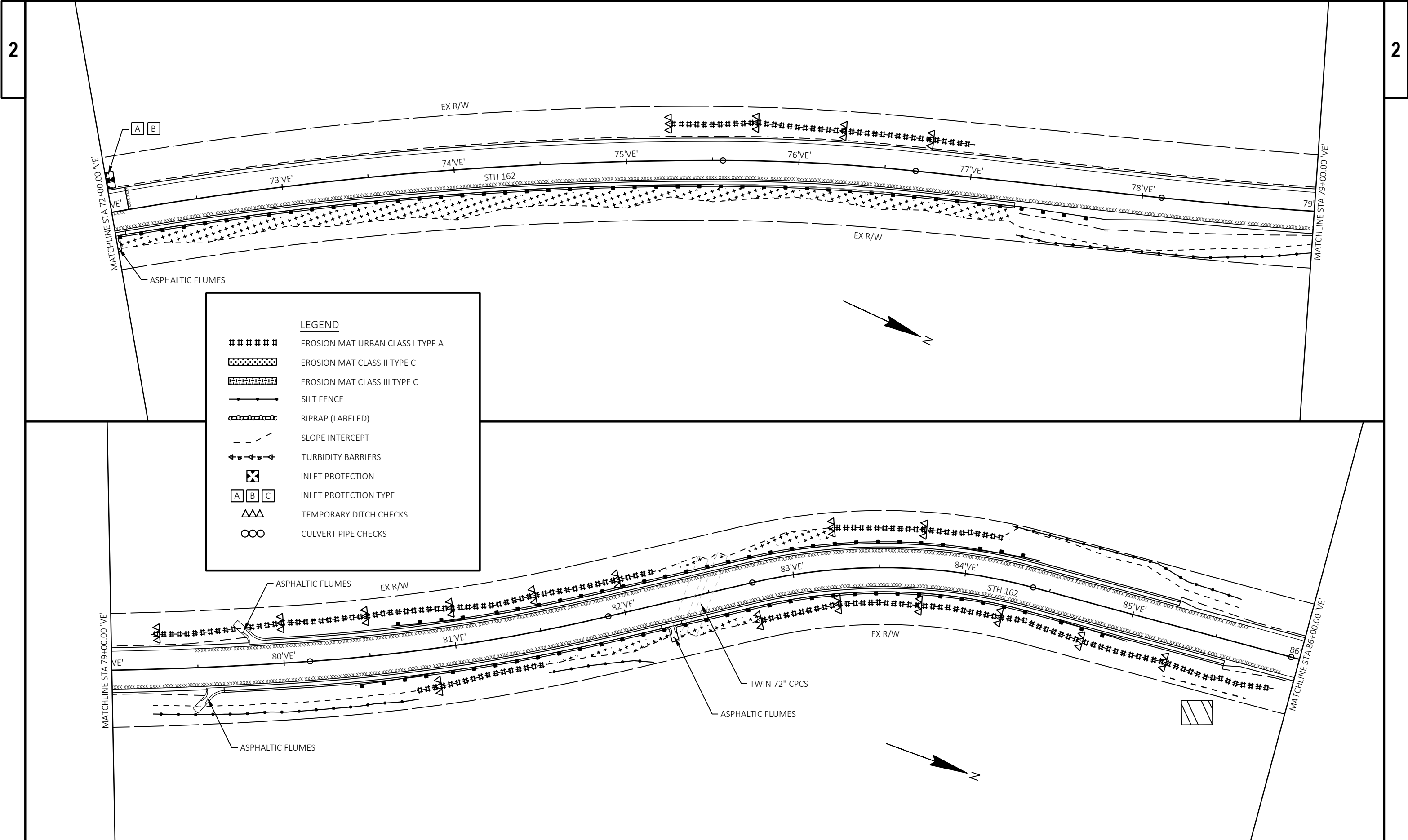
VALLEY VIEW ESTATES LN					
POINT NUMBER	STATION	OFFSET	ELEVATION	NORTHING	EASTING
1	99+25.28	18.00' LT	730.93	203749.03	667858.71
2	99+50.00	18.00' LT	730.54	203737.41	667879.01
3	99+67.51	18.00' LT	730.29	203730.86	667893.53
4	99+75.32	19.30' LT	730.29	203729.58	667900.62
5	99+81.46	23.15' LT	730.42	203731.19	667907.64
6	99+85.55	29.08' LT	730.73	203735.42	667913.47
7	99+87.00	36.14' LT	730.95	203741.60	667917.18
20	99+67.51	36.00' LT	0.00	203747.58	667900.20





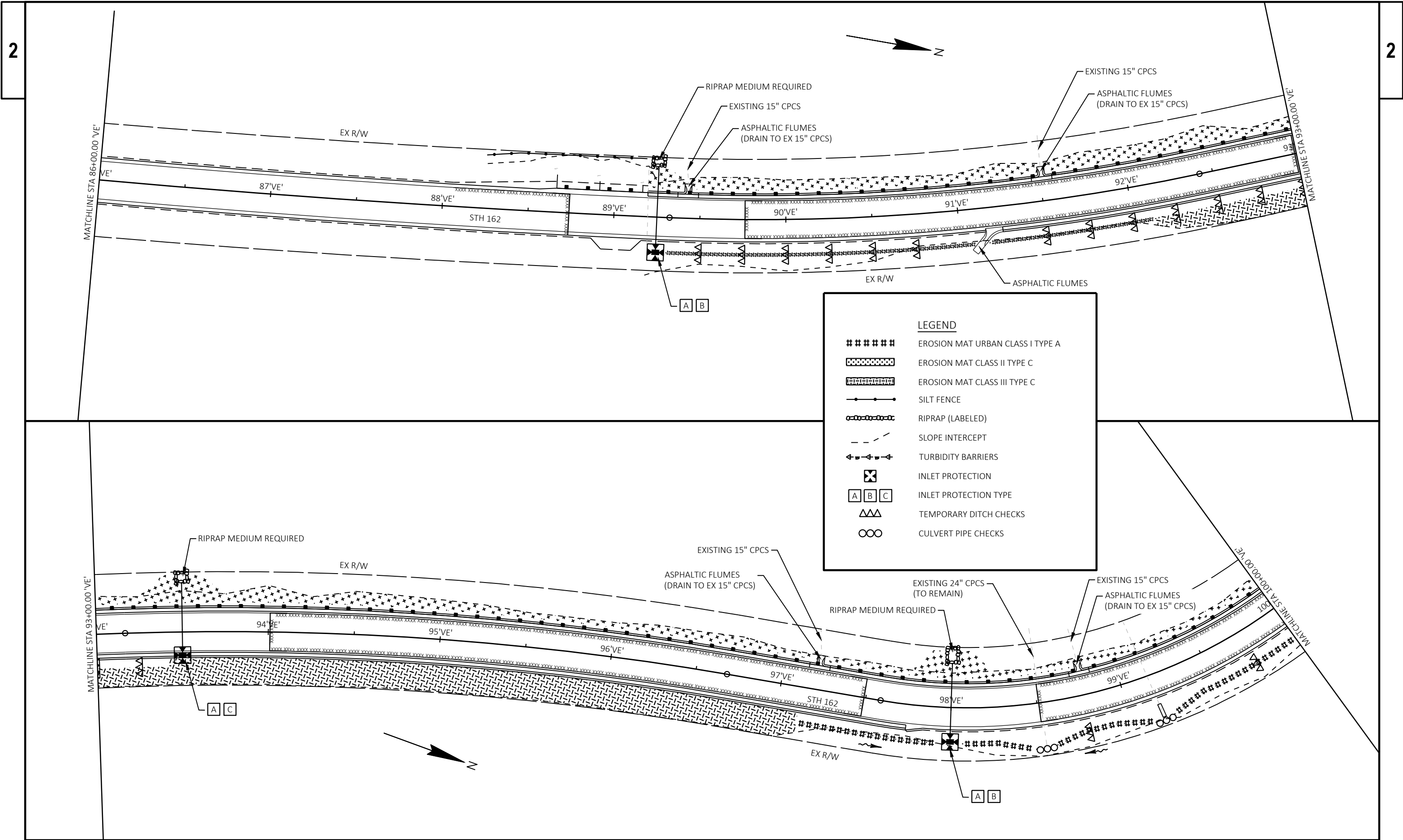


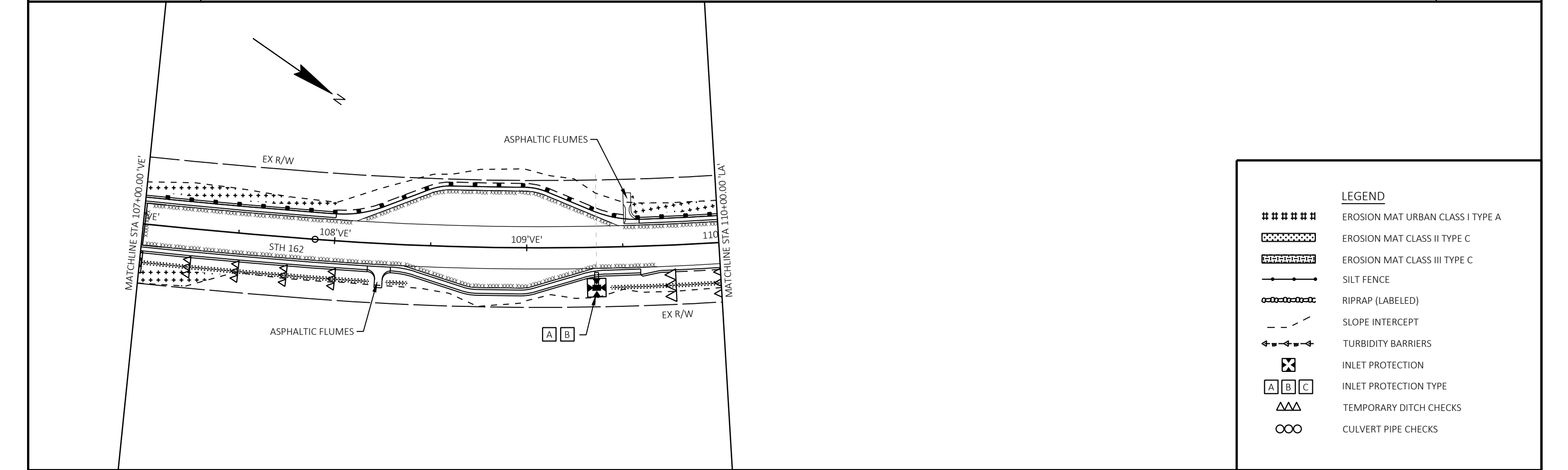
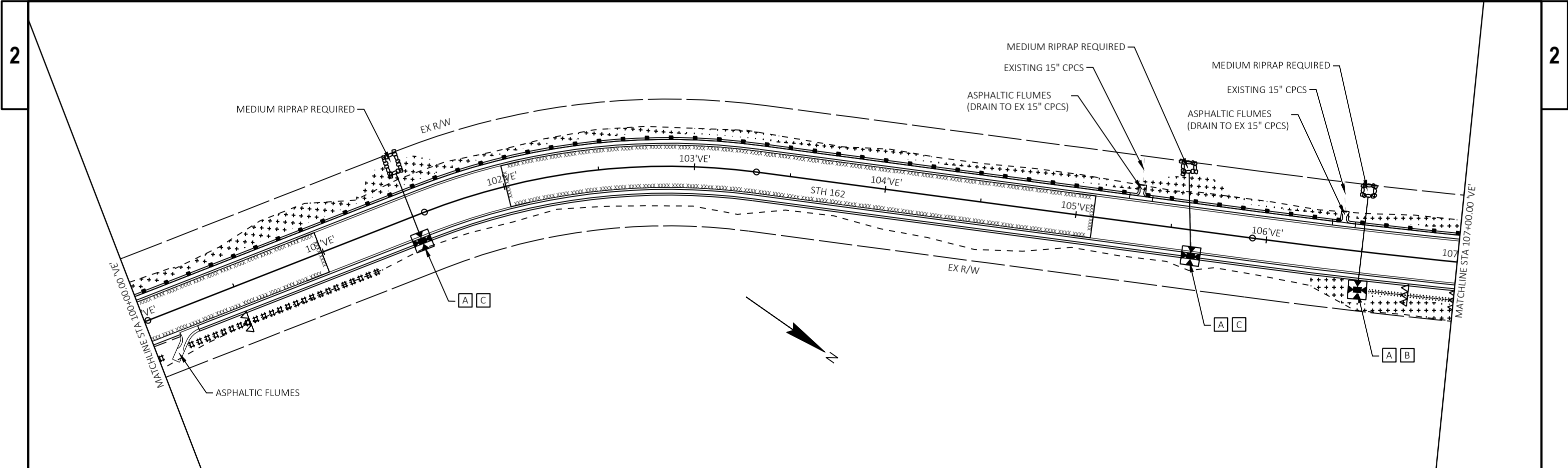




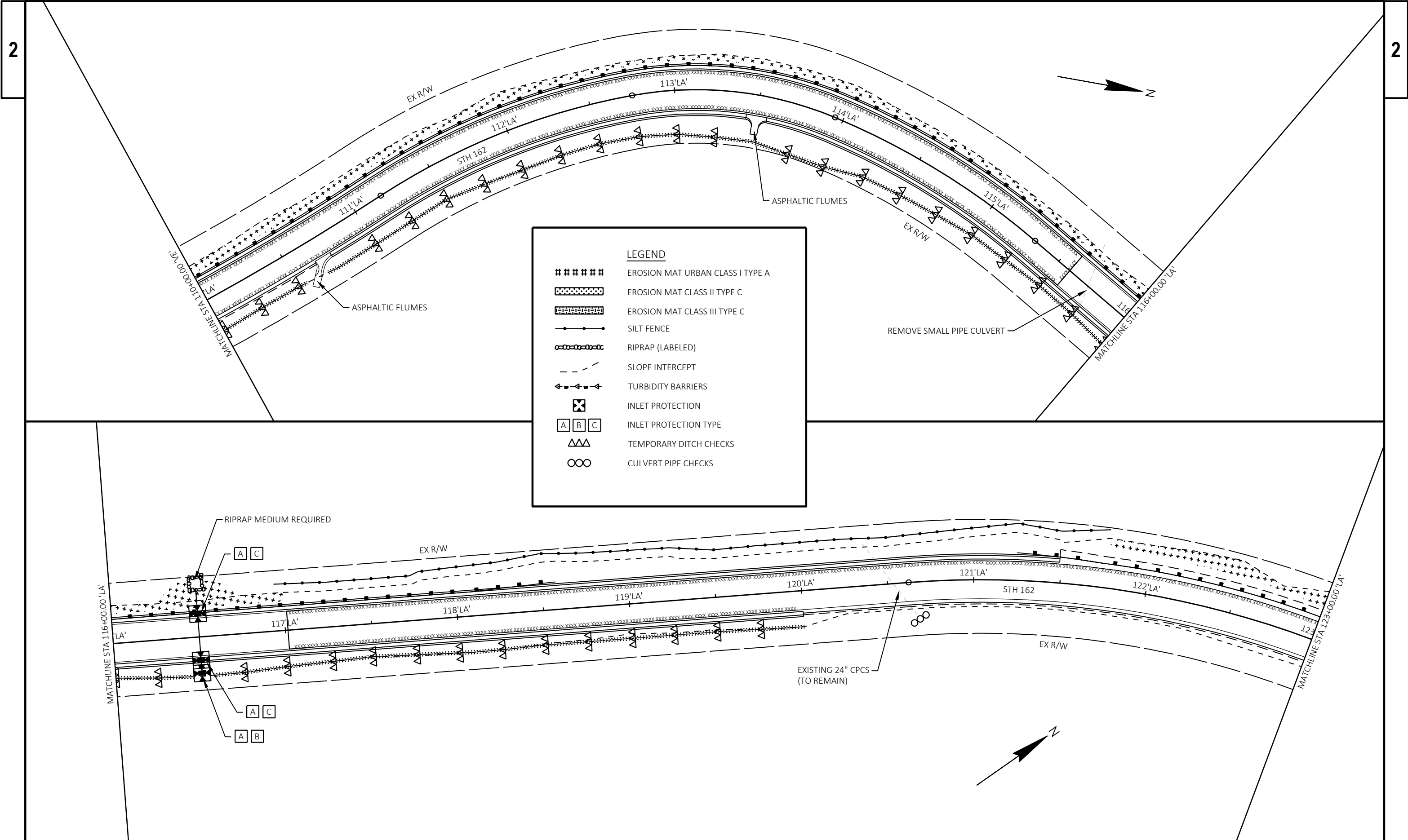
LEGEND

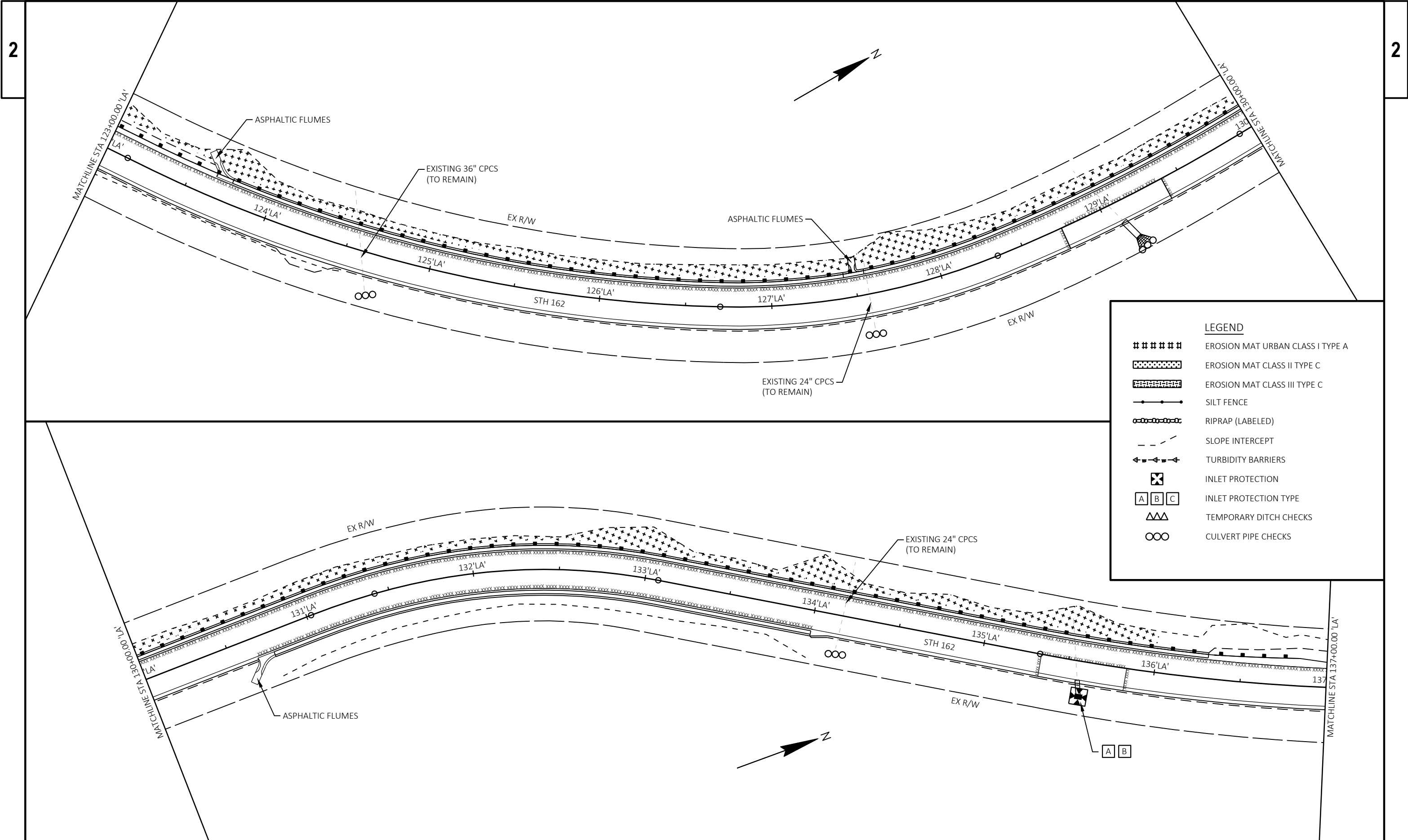
- ##### EROSION MAT URBAN CLASS I TYPE A
- ##### EROSION MAT CLASS II TYPE C
- ##### EROSION MAT CLASS III TYPE C
- SILT FENCE
- RIPRAP (LABELED)
- SLOPE INTERCEPT
- TURBIDITY BARRIERS
- ⊗ INLET PROTECTION
- [A] [B] [C] INLET PROTECTION TYPE
- ΔΔΔ TEMPORARY DITCH CHECKS
- CULVERT PIPE CHECKS

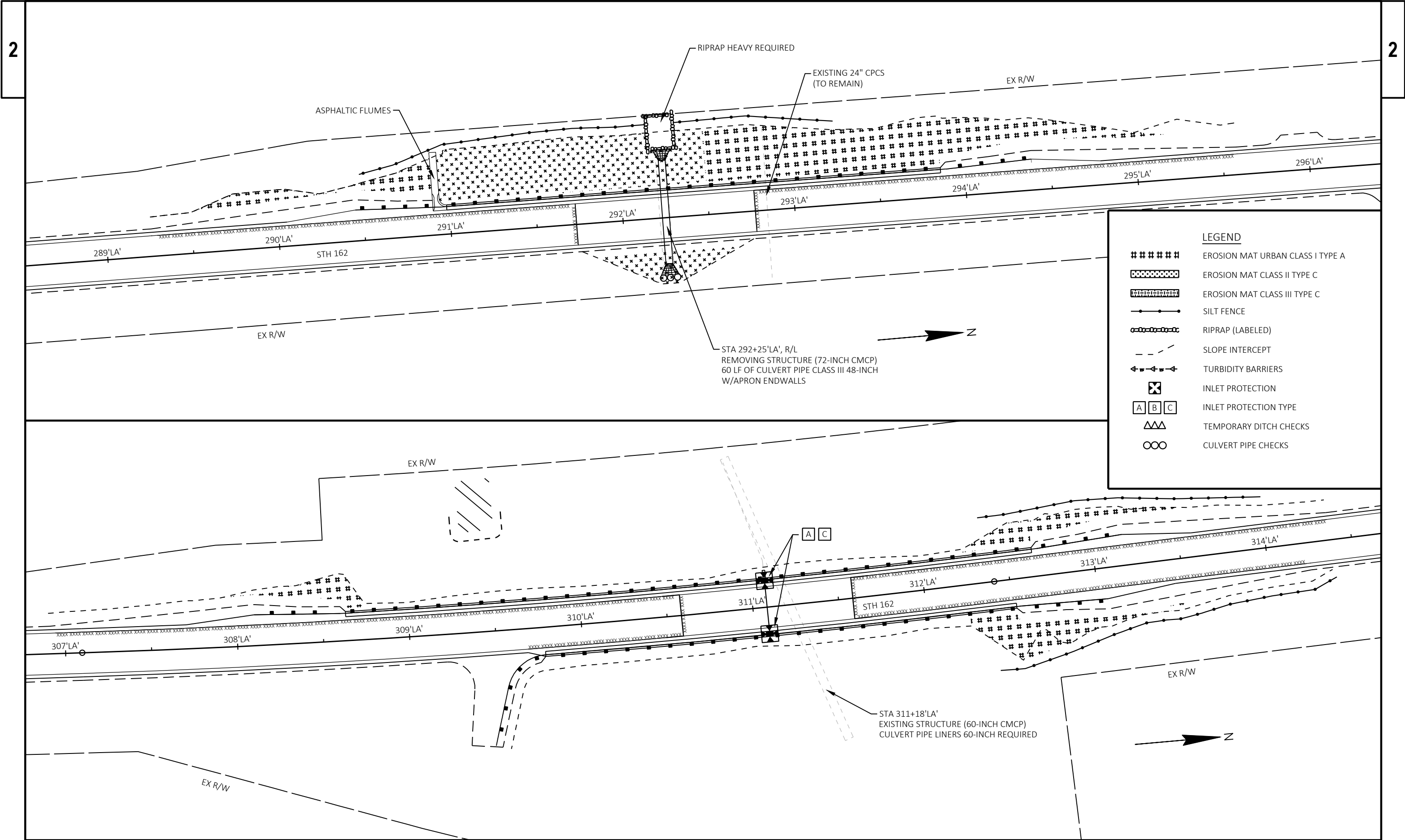


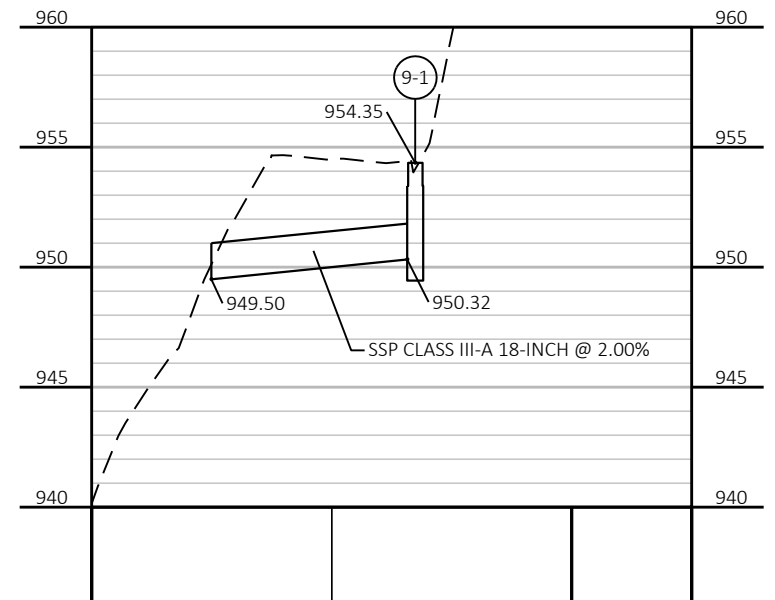
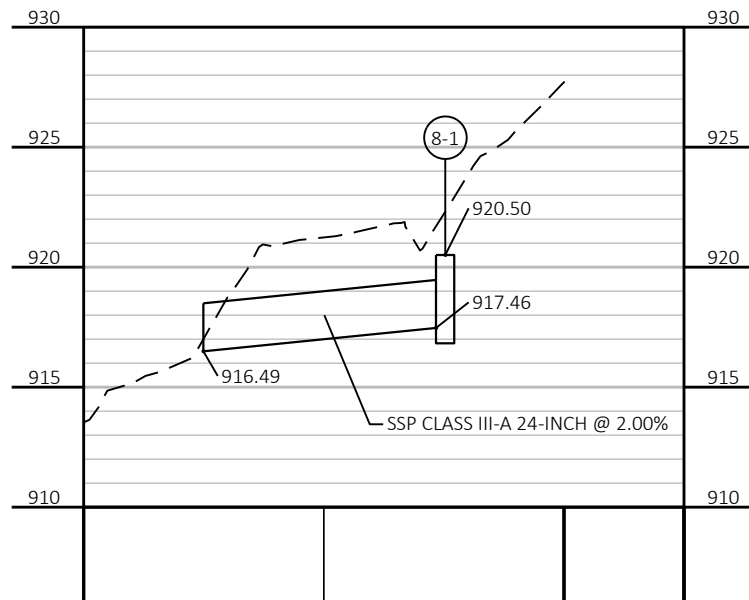
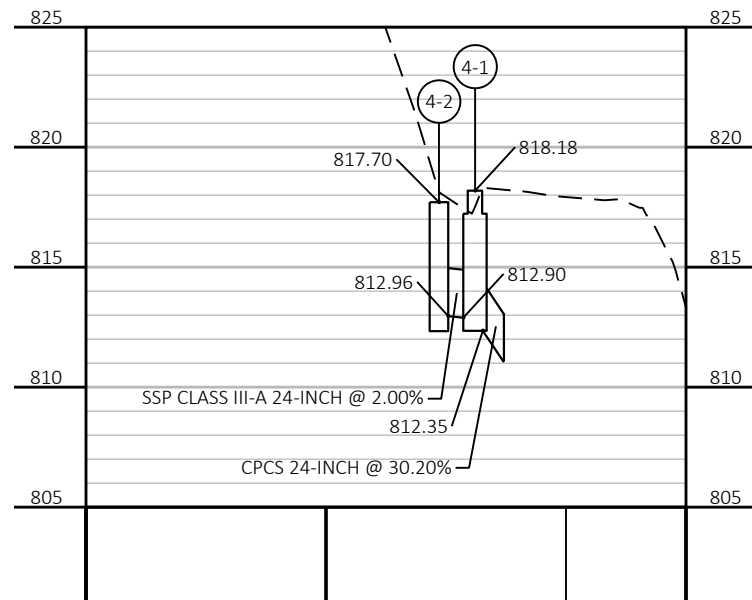
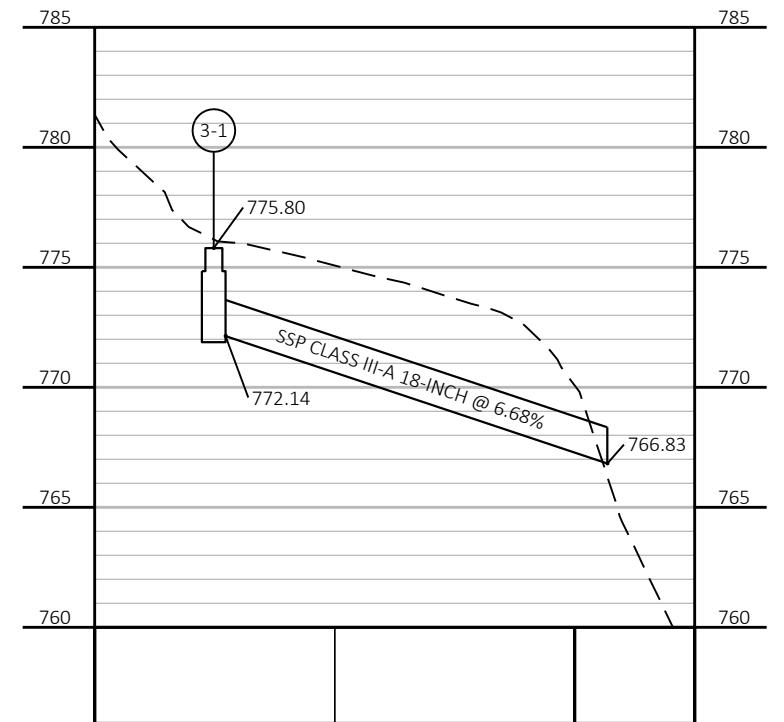
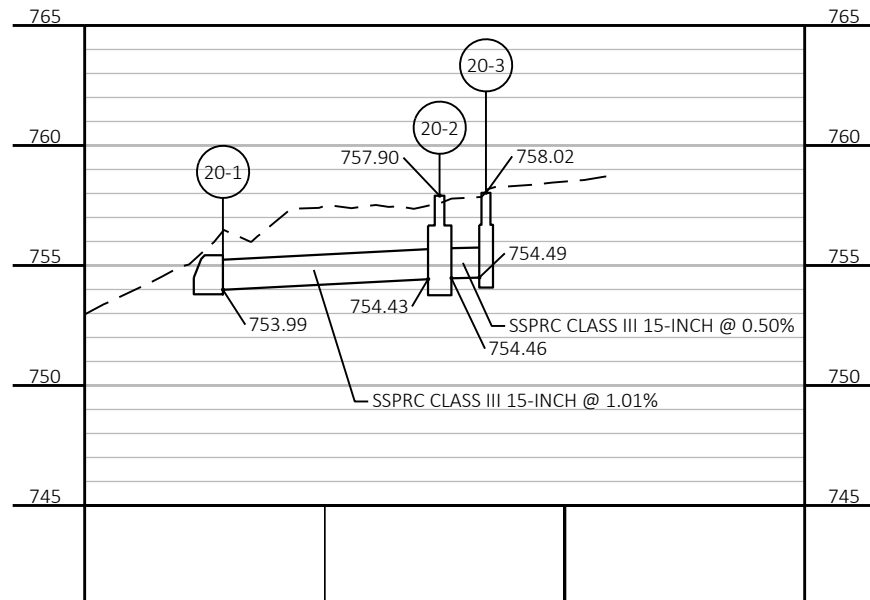
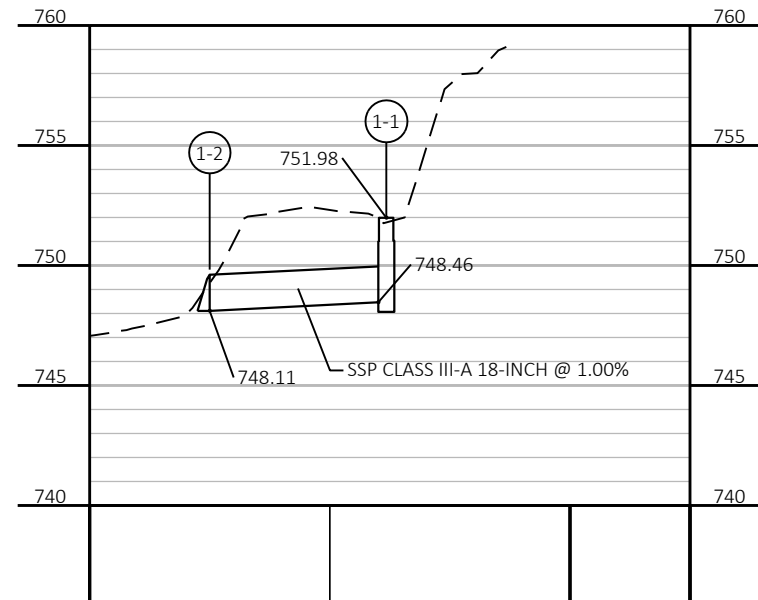


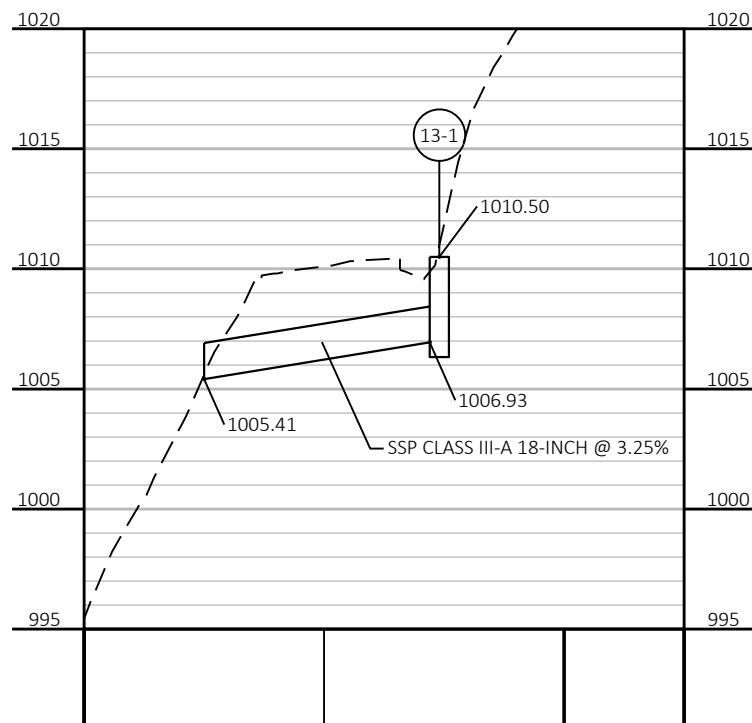
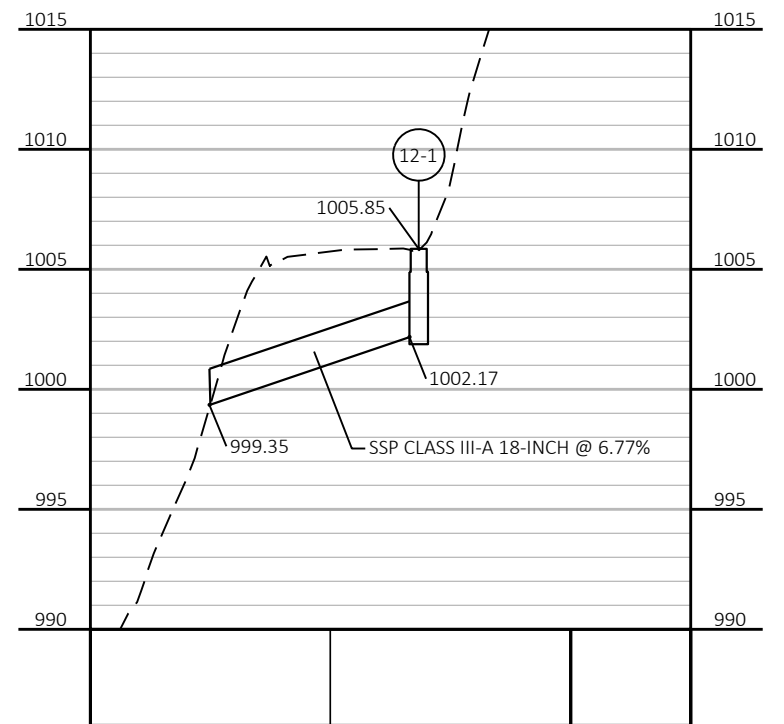
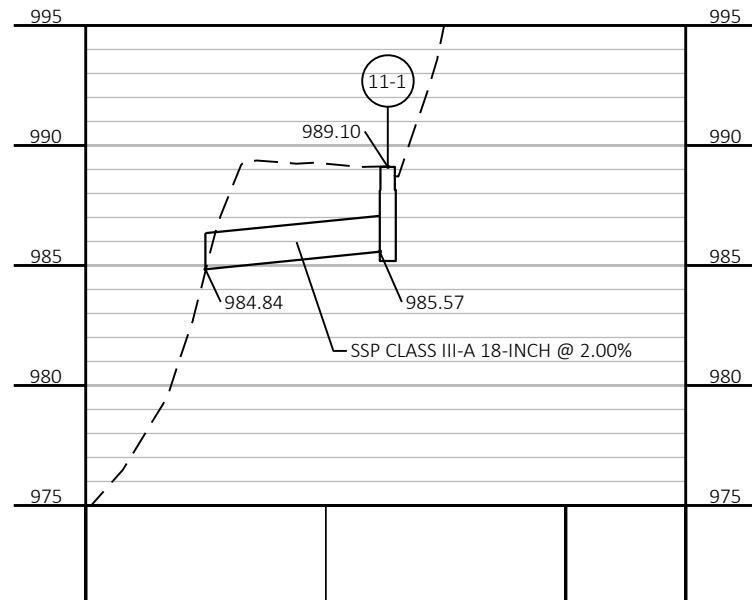
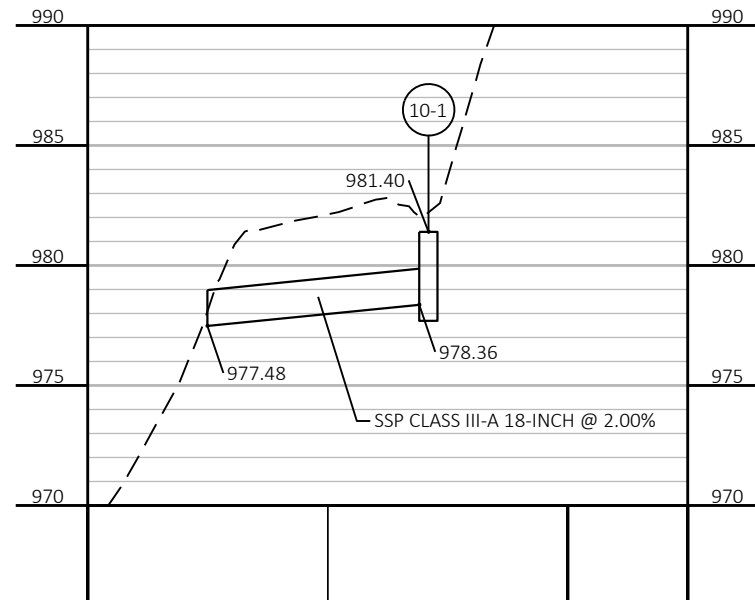
LEGEND	
#####	EROSION MAT URBAN CLASS I TYPE A
	EROSION MAT CLASS II TYPE C
	EROSION MAT CLASS III TYPE C
—●—●—●—	SILT FENCE
-o-o-o-o-	RIPRAP (LABELED)
- - -	SLOPE INTERCEPT
←- - - →	TURBIDITY BARRIERS
⊗	INLET PROTECTION
[A][B][C]	INLET PROTECTION TYPE
△△△	TEMPORARY DITCH CHECKS
○○○	CULVERT PIPE CHECKS

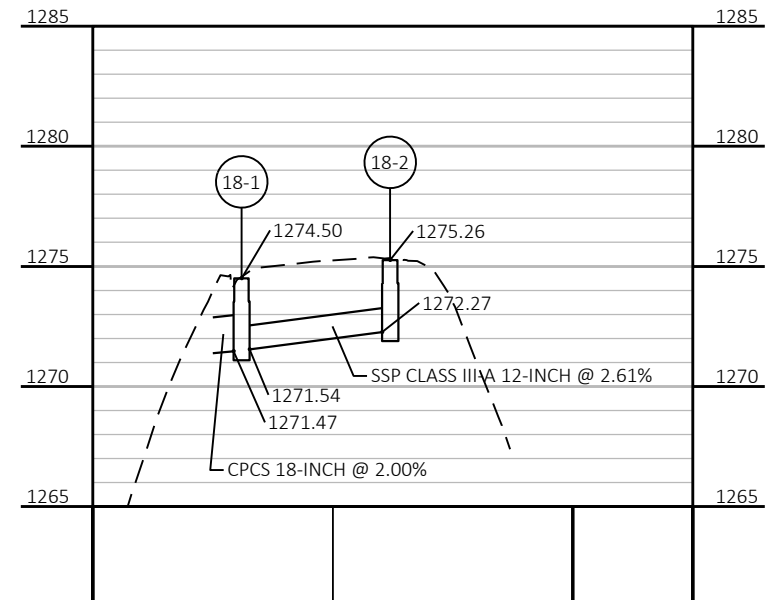
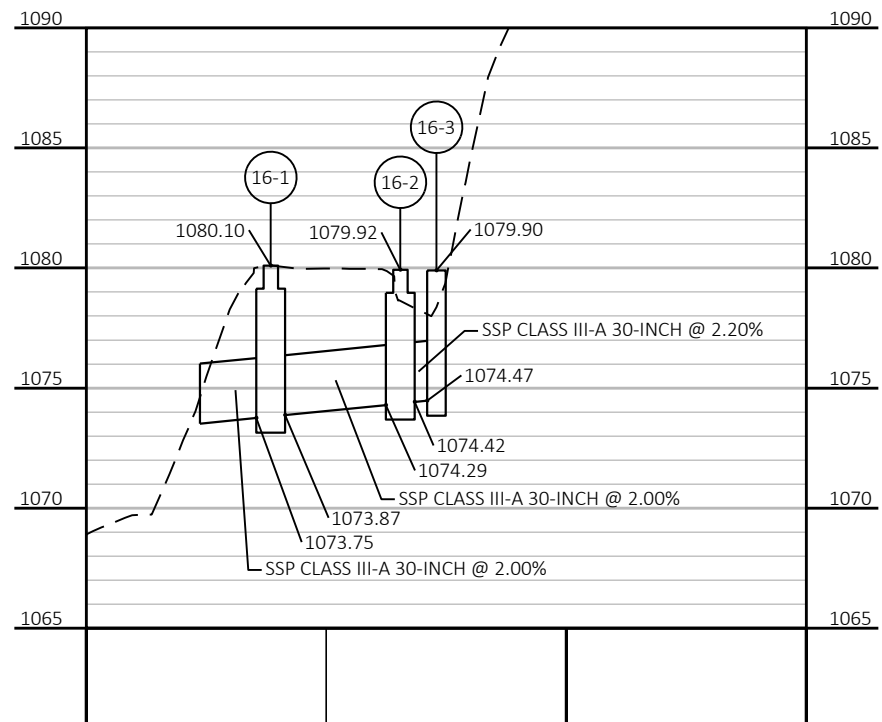


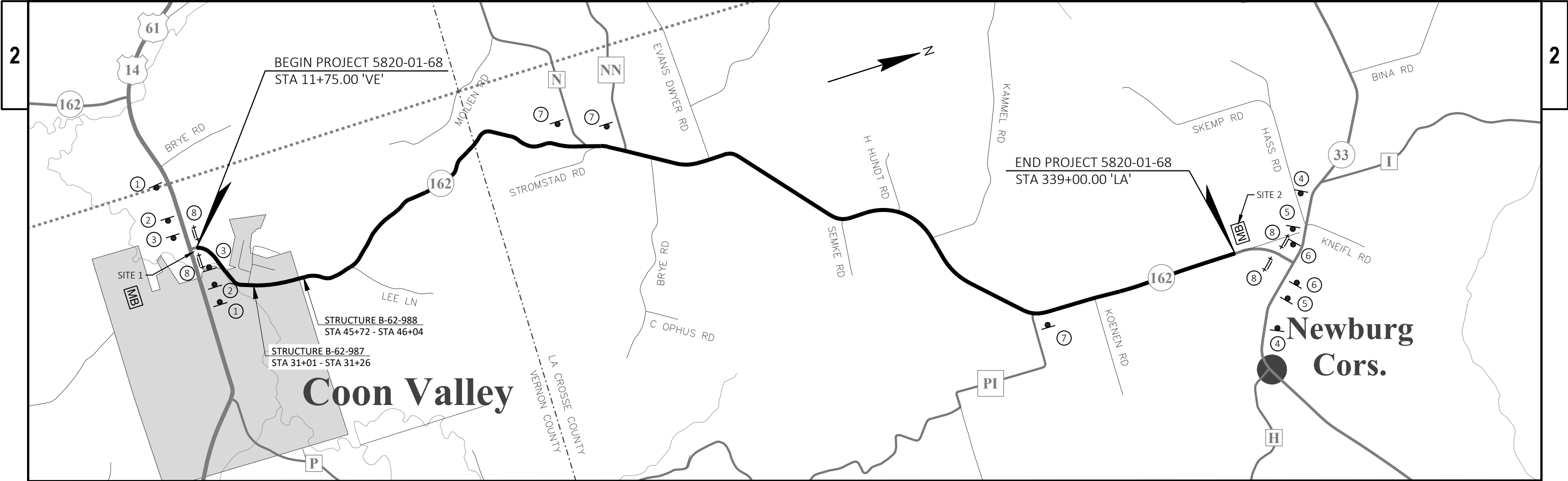












NOTES:

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

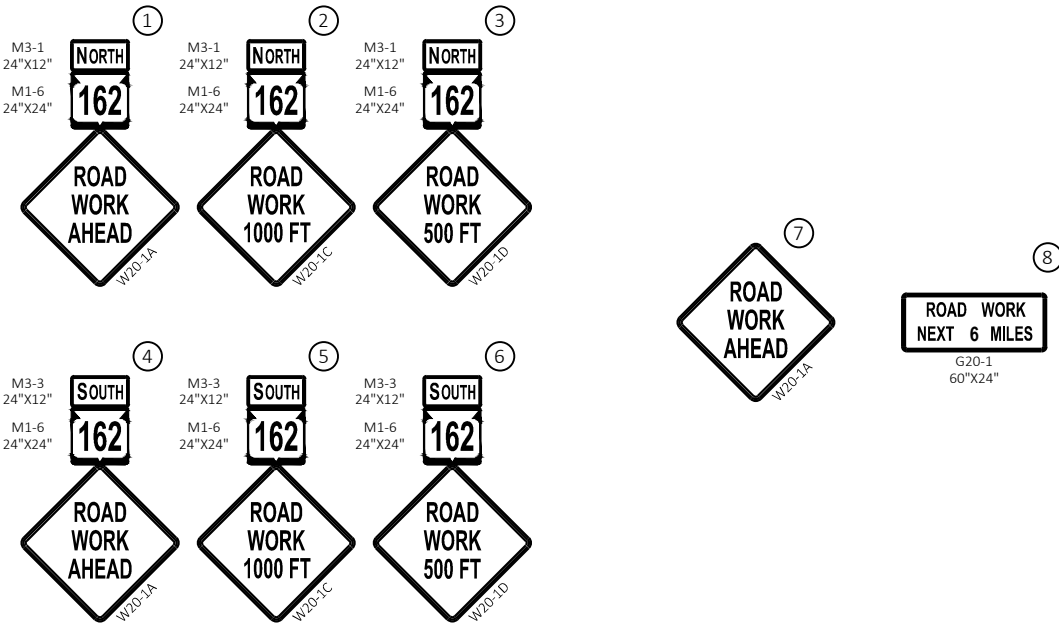
ALL SIGNS ARE 48"X48" UNLESS NOTED.

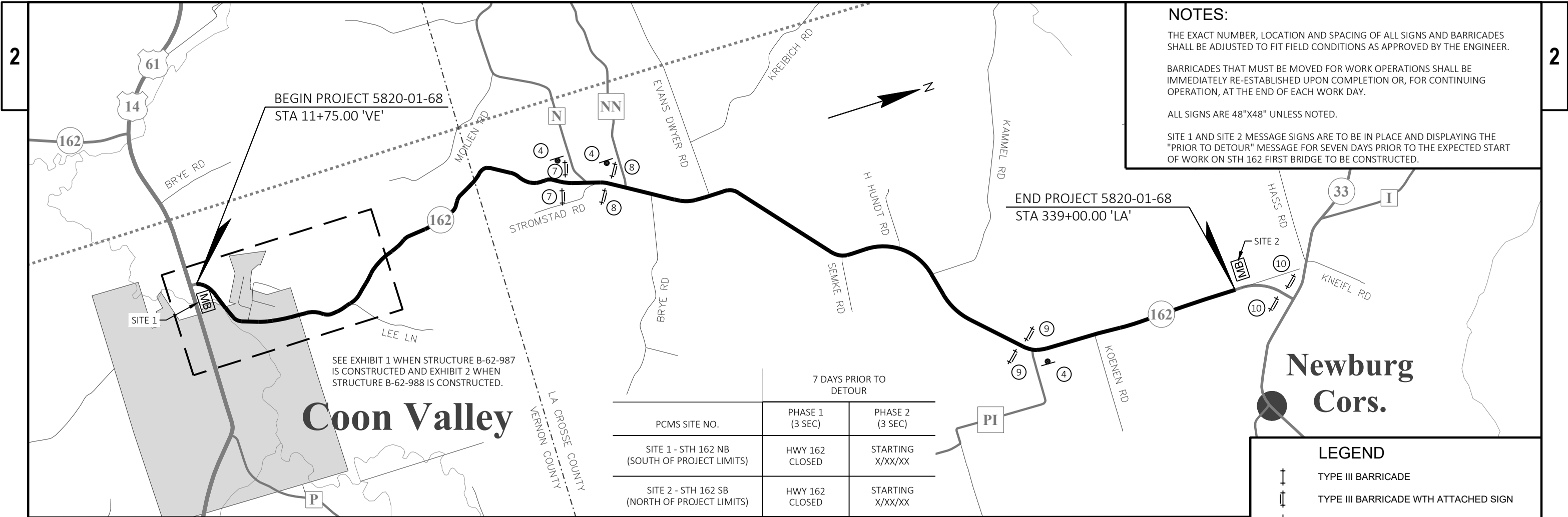
SITE 1 AND SITE 2 MESSAGE SIGNS ARE TO BE IN PLACE AND DISPLAYING THE "PRIOR TO CONSTRUCTION" MESSAGE FOR SEVEN DAYS PRIOR TO THE EXPECTED START OF WORK ON STH 162.

PCMS SITE NO.	7 DAYS PRIOR TO CONSTRUCTION
SITE 1 - STH 162 NB (SOUTH OF PROJECT LIMITS)	ROADWORK STARTING X/XX/XX
SITE 2 - STH 162 SB (NORTH OF PROJECT LIMITS)	ROADWORK STARTING X/XX/XX

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- PROPOSED SIGN
- PORTABLE CHANGEABLE MESSAGE BOARD





MB

1

ROAD
CLOSED
AHEAD

W20-3A

2

ROAD
CLOSED
1000 FT

W20-3C

3

ROAD
CLOSED
500 FT

W20-3D

4

ROAD
WORK
AHEAD

W20-7A

5

BRIDGE
OUT

R11-2B
48"X30"

6

BRIDGE OUT
1/2 MILES AHEAD

R11-3C
60"X24"

7

BRIDGE OUT
134 MILES AHEAD

R11-3C
60"X24"

8

BRIDGE OUT
2 MILES AHEAD

R11-3C
60"X24"

9

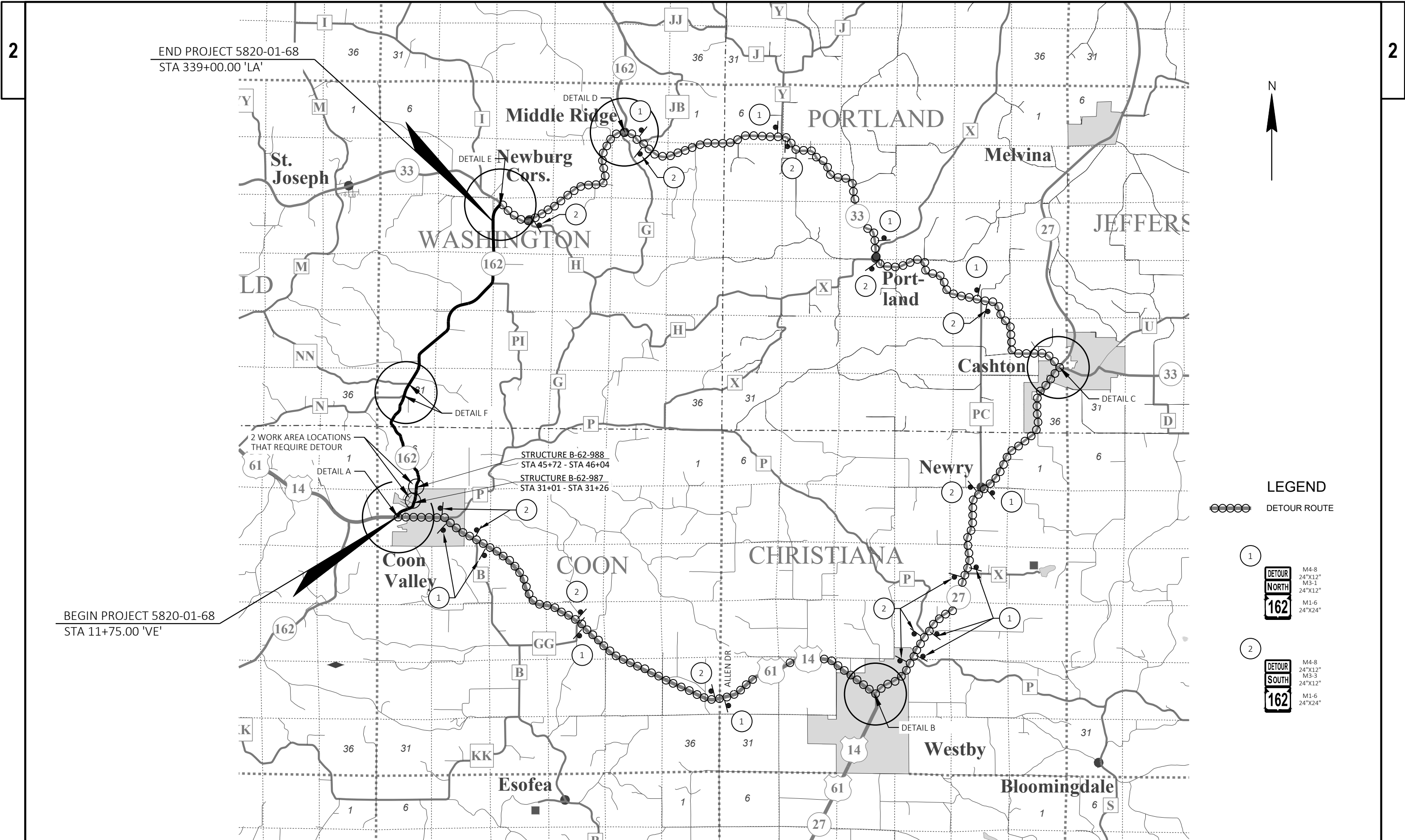
BRIDGE OUT
4 MILES AHEAD

R11-3C
60"X24"

10

BRIDGE OUT
6 MILES AHEAD

R11-3C
60"X24"



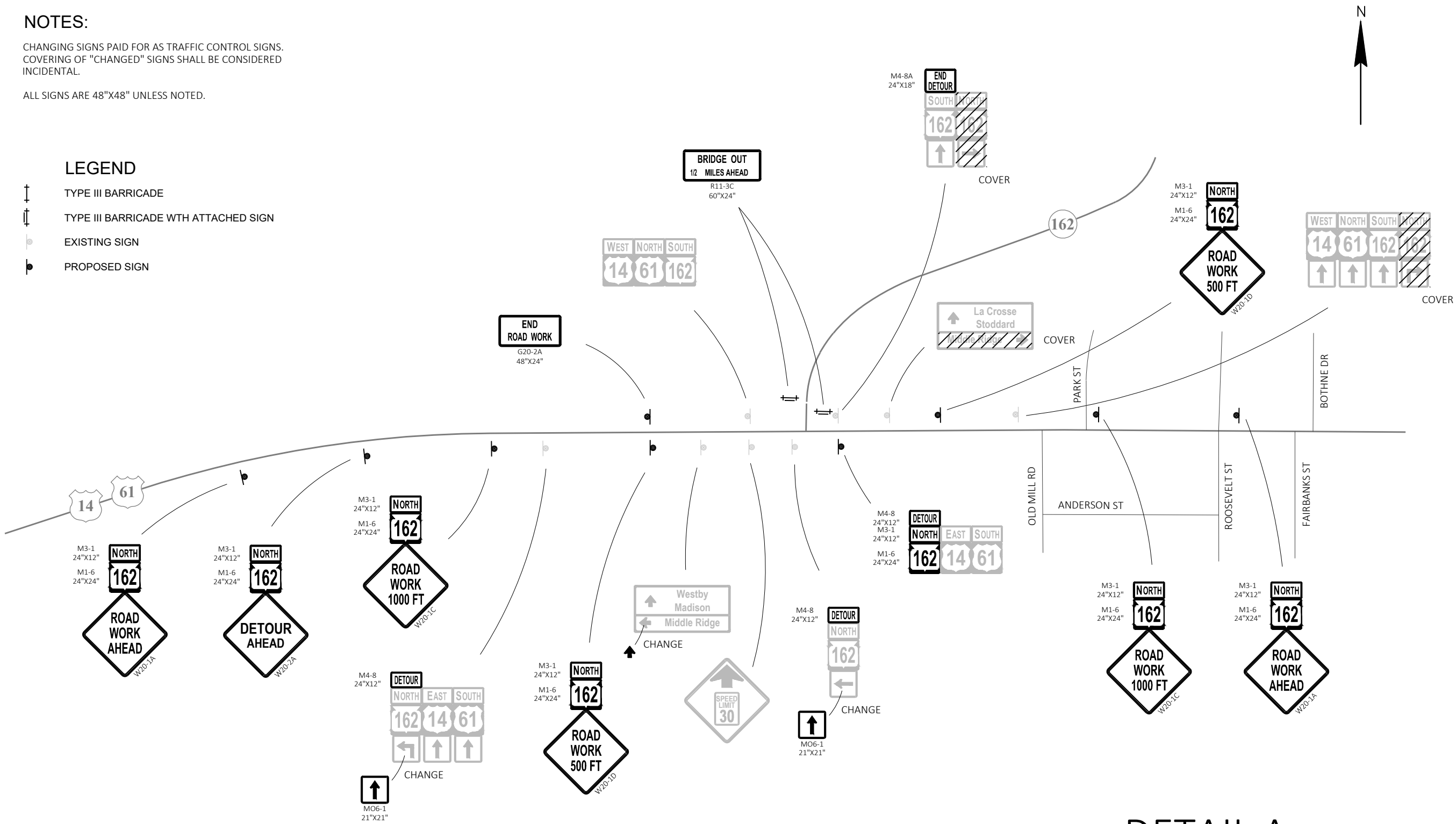
NOTES:

CHANGING SIGNS PAID FOR AS TRAFFIC CONTROL SIGNS.
COVERING OF "CHANGED" SIGNS SHALL BE CONSIDERED INCIDENTAL.

ALL SIGNS ARE 48"X48" UNLESS NOTED.

LEGEND

- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- EXISTING SIGN
- PROPOSED SIGN



DETAIL A

NOTES:

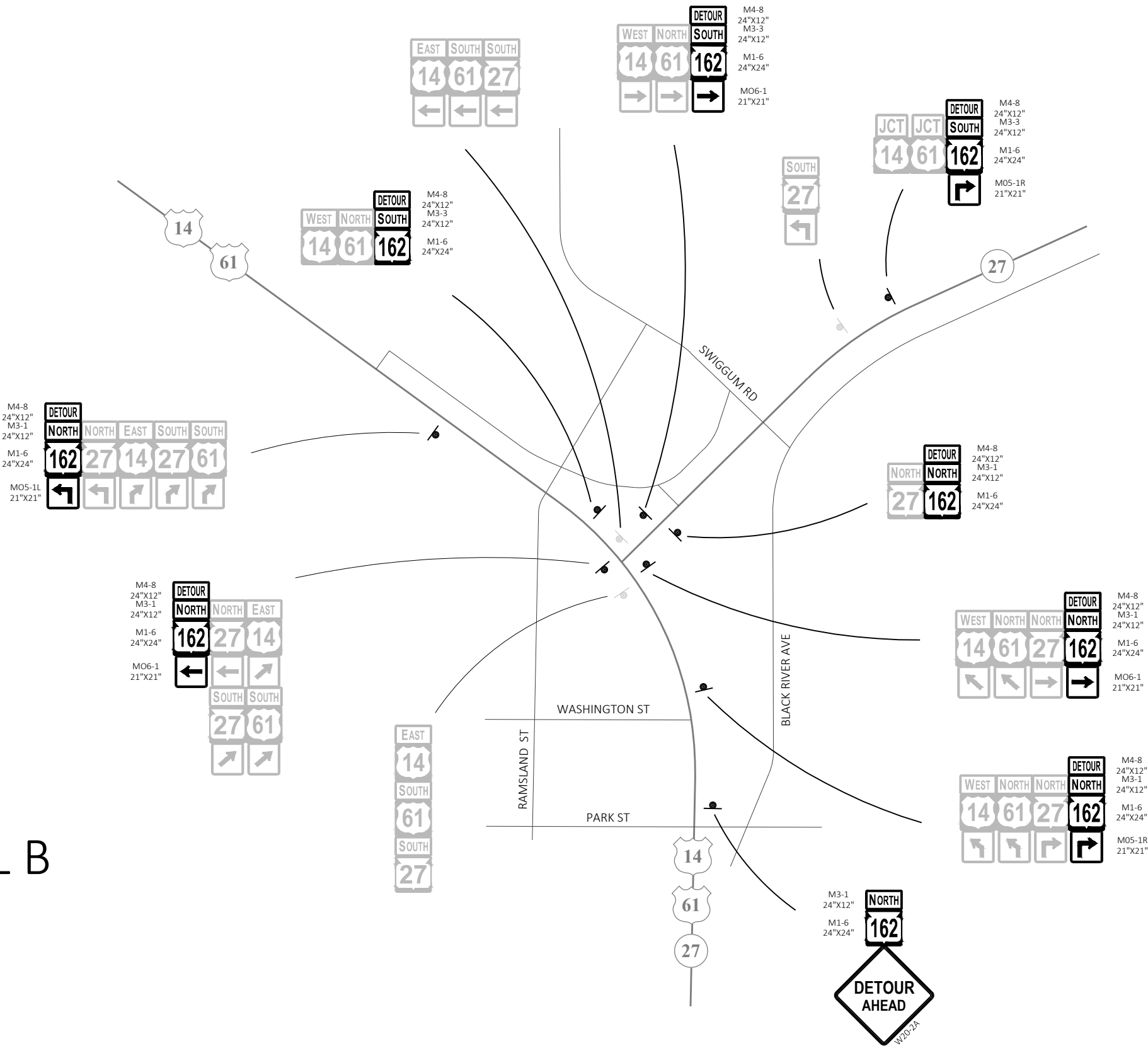
CHANGING SIGNS PAID FOR AS TRAFFIC CONTROL SIGNS.
COVERING OF "CHANGED" SIGNS SHALL BE CONSIDERED
INCIDENTAL.

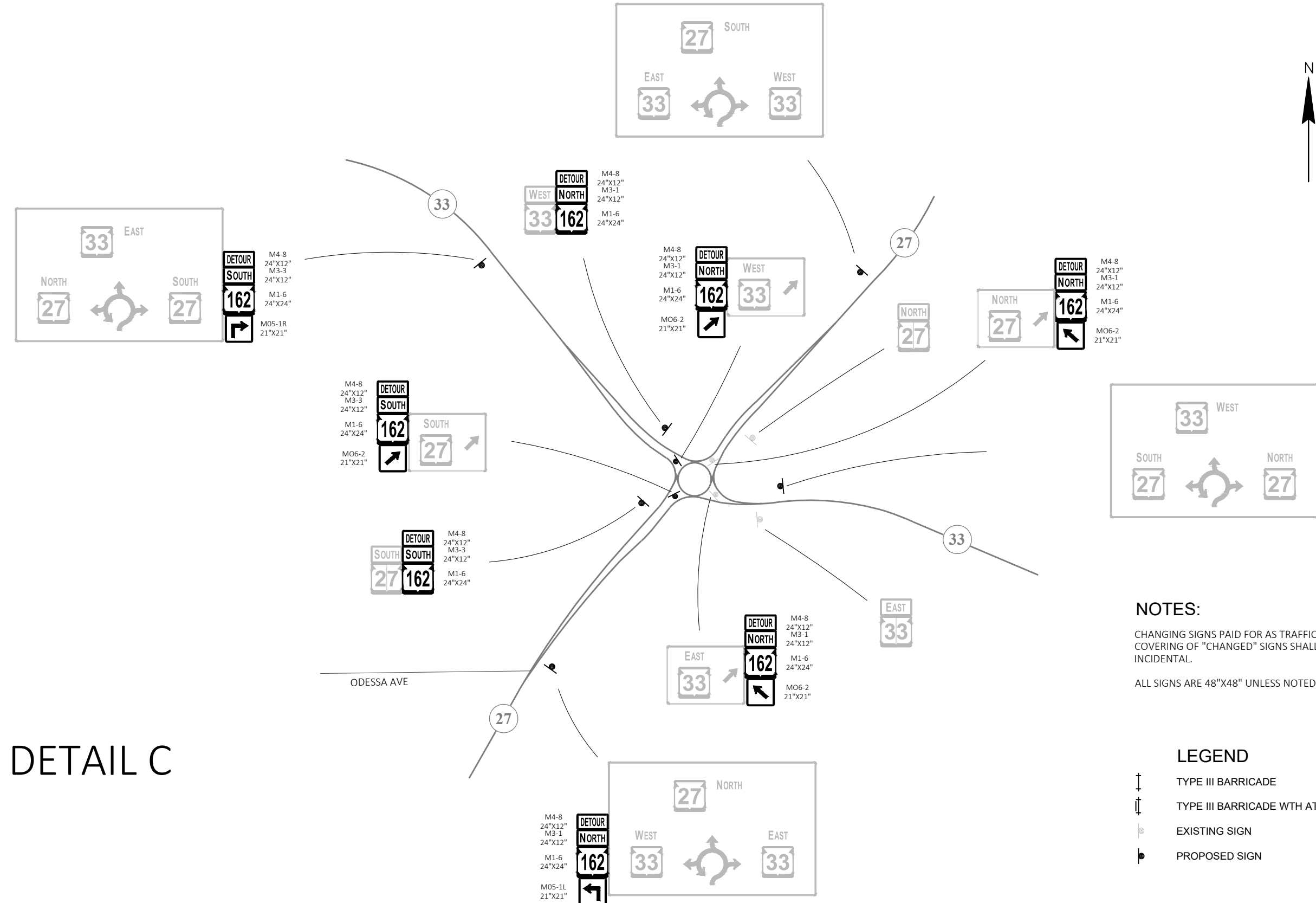
ALL SIGNS ARE 48"X48" UNLESS NOTED.

LEGEND

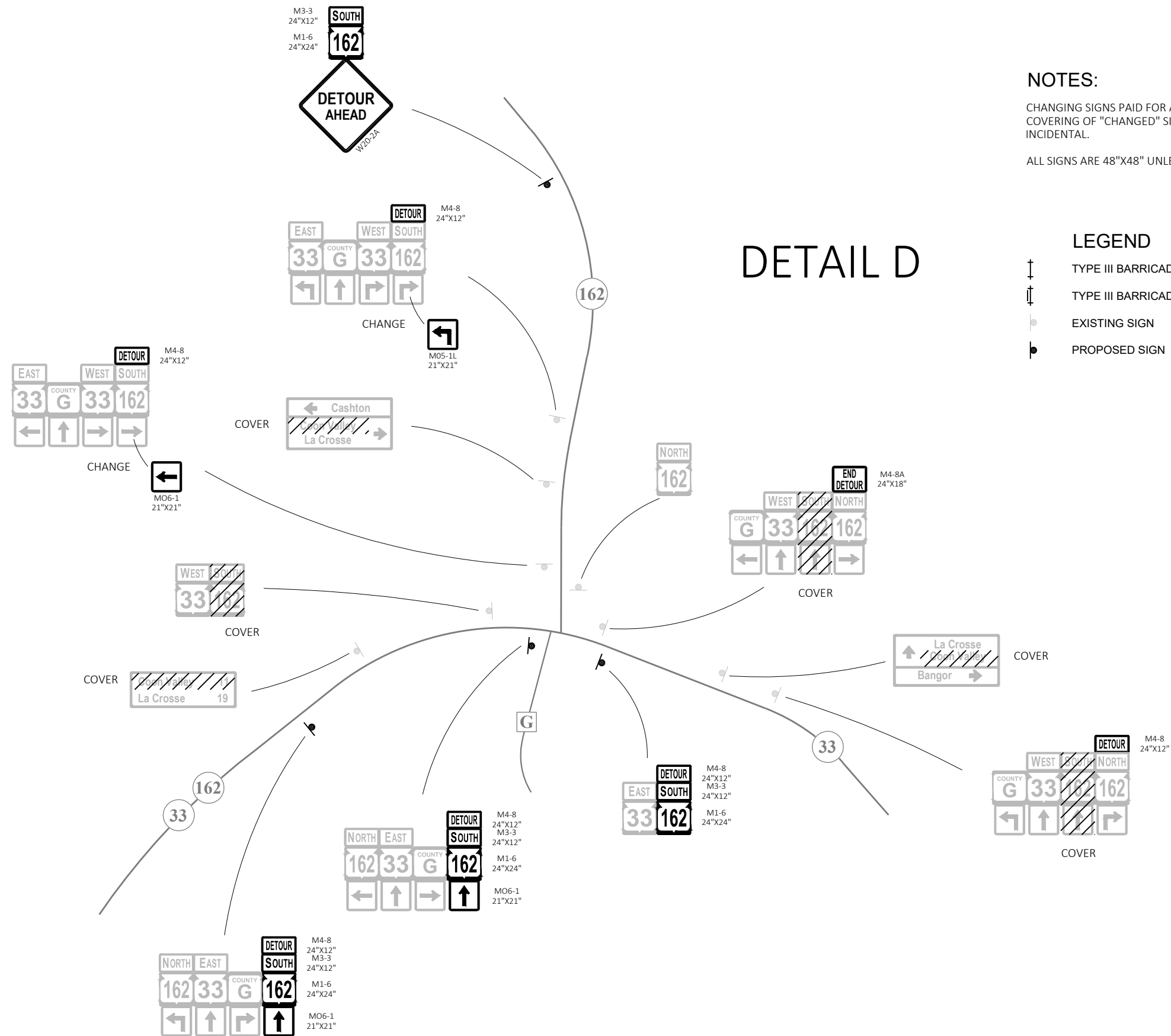
- TYPE III BARRICADE
- TYPE III BARRICADE WTH ATTACHED SIGN
- EXISTING SIGN
- PROPOSED SIGN

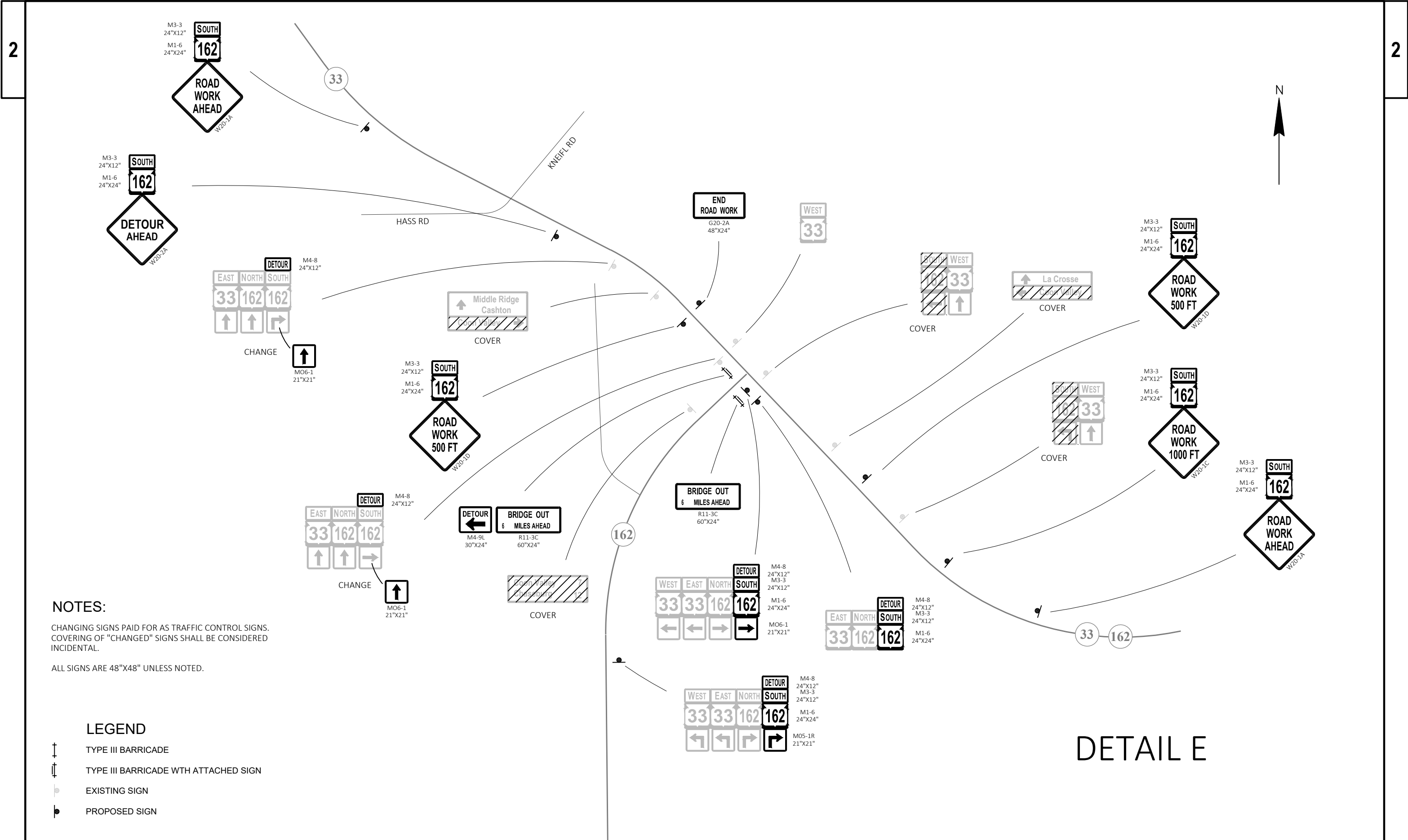
DETAIL B





DETAIL C





NOTES:

CHANGING SIGNS PAID FOR AS TRAFFIC CONTROL SIGNS.
COVERING OF "CHANGED" SIGNS SHALL BE CONSIDERED INCIDENTAL.

ALL SIGNS ARE 48"X48" UNLESS NOTED.

- LEGEND**
- TYPE III BARRICADE
 - TYPE III BARRICADE WTH ATTACHED SIGN
 - EXISTING SIGN
 - PROPOSED SIGN

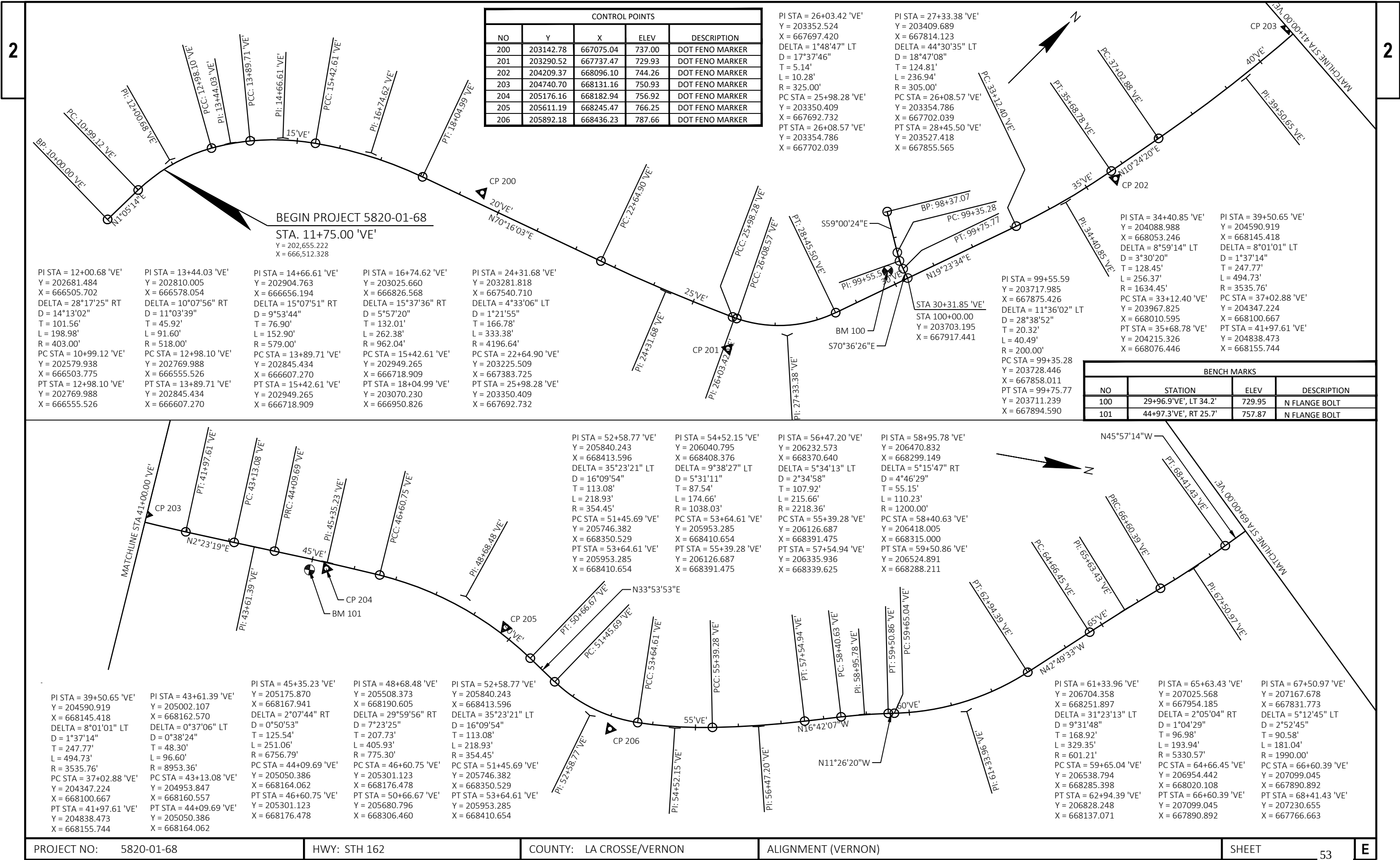
DETAIL E

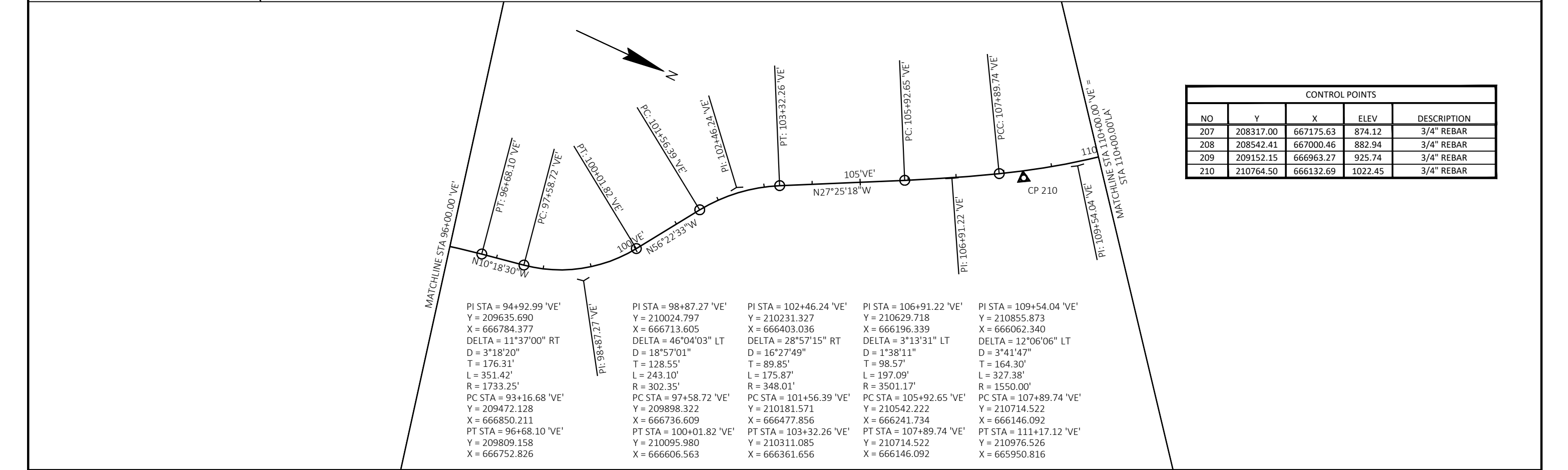
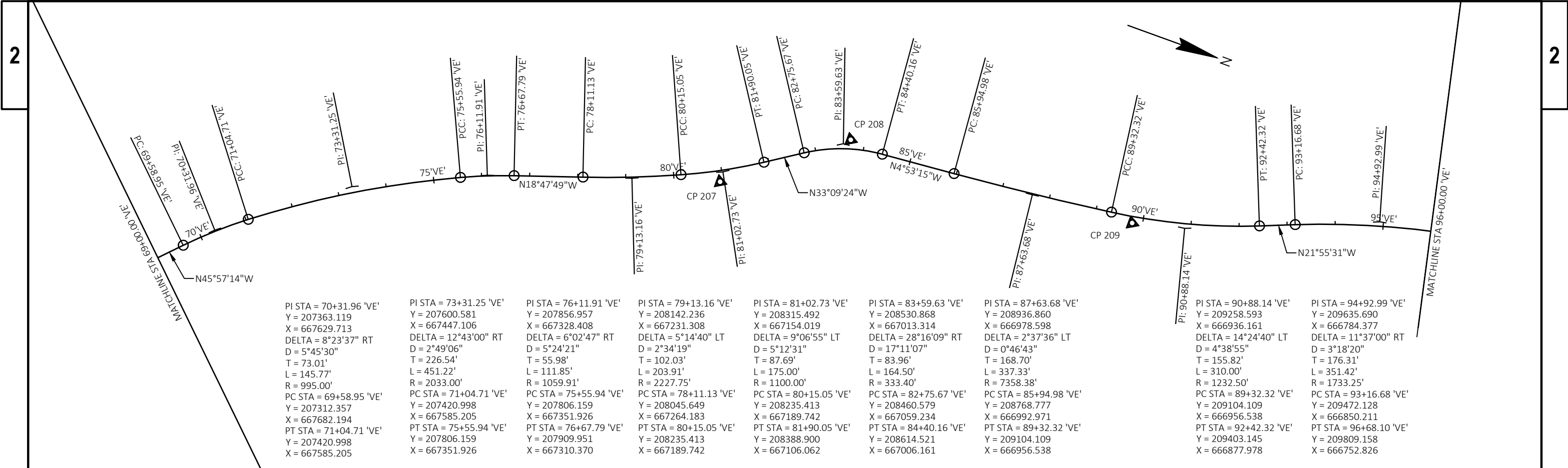


CHANGING SIGNS PAID FOR AS TRAFFIC CONTROL SIGNS.
COVERING OF "CHANGED" SIGNS SHALL BE CONSIDERED
INCIDENTAL.

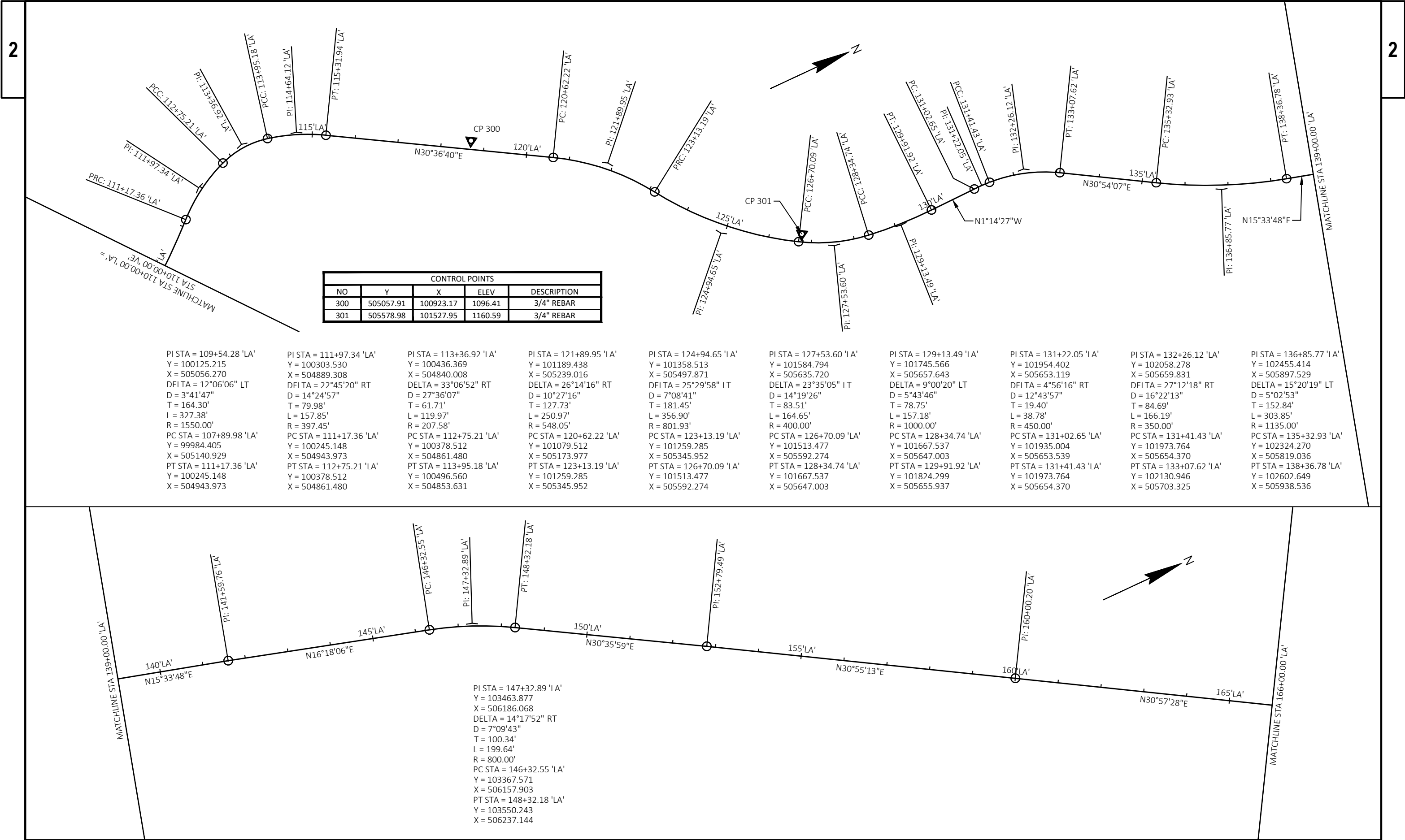
LEGEND

- | | |
|---|---------------------------------------|
|  | TYPE III BARRICADE |
|  | TYPE III BARRICADE WITH ATTACHED SIGN |
|  | EXISTING SIGN |
|  | PROPOSED SIGN |





CONTROL POINTS				
NO	Y	X	ELEV	DESCRIPTION
207	208317.00	667175.63	874.12	3/4" REBAR
208	208542.41	667000.46	882.94	3/4" REBAR
209	209152.15	666963.27	925.74	3/4" REBAR
210	210764.50	666132.69	1022.45	3/4" REBAR



CONTROL POINTS				
NO	Y	X	ELEV	DESCRIPTION
300	505057.91	100923.17	1096.41	3/4" REBAR
301	505578.98	101527.95	1160.59	3/4" REBAR

PI STA = 109+54.28 'LA'
Y = 100125.215
X = 505056.270
DELTA = 12°06'06" LT
D = 3°41'47"
T = 164.30'
L = 327.38'
R = 1550.00'
PC STA = 107+89.98 'LA'
Y = 99984.405
X = 505140.929
PT STA = 111+17.36 'LA'
Y = 100245.148
X = 504943.973

PI STA = 111+97.34 'LA'
Y = 100303.530
X = 504889.308
DELTA = 22°45'20" RT
D = 14°24'57"
T = 79.98'
L = 157.85'
R = 397.45'
PC STA = 111+17.36 'LA'
Y = 100245.148
X = 504943.973
PT STA = 112+75.21 'LA'
Y = 100378.512
X = 504861.480

PI STA = 113+36.92 'LA'
Y = 100436.369
X = 504840.008
DELTA = 33°06'52" RT
D = 27°36'07"
T = 61.71'
L = 119.97'
R = 207.58'
PC STA = 112+75.21 'LA'
Y = 100378.512
X = 504861.480
PT STA = 113+95.18 'LA'
Y = 100496.560
X = 504853.631

PI STA = 121+89.95 'LA'
Y = 101189.438
X = 505239.016
DELTA = 26°14'16" RT
D = 10°27'16"
T = 127.73'
L = 250.97'
R = 548.05'
PC STA = 120+62.22 'LA'
Y = 101079.512
X = 505173.977
PT STA = 123+13.19 'LA'
Y = 101259.285
X = 505345.952

PI STA = 124+94.65 'LA'
Y = 101358.513
X = 505497.871
DELTA = 25°29'58" LT
D = 7°08'41"
T = 181.45'
L = 356.90'
R = 801.93'
PC STA = 123+13.19 'LA'
Y = 101259.285
X = 505345.952
PT STA = 126+70.09 'LA'
Y = 101513.477
X = 505592.274

PI STA = 127+53.60 'LA'
Y = 101584.794
X = 505635.720
DELTA = 23°35'05" LT
D = 14°19'26"
T = 83.51'
L = 164.65'
R = 400.00'
PC STA = 126+70.09 'LA'
Y = 101513.477
X = 505592.274
PT STA = 128+34.74 'LA'
Y = 101667.537
X = 505647.003

PI STA = 129+13.49 'LA'
Y = 101745.566
X = 505657.643
DELTA = 9°00'20" LT
D = 5°43'46"
T = 78.75'
L = 157.18'
R = 1000.00'
PC STA = 128+34.74 'LA'
Y = 101667.537
X = 505647.003
PT STA = 129+91.92 'LA'
Y = 101824.299
X = 505655.937

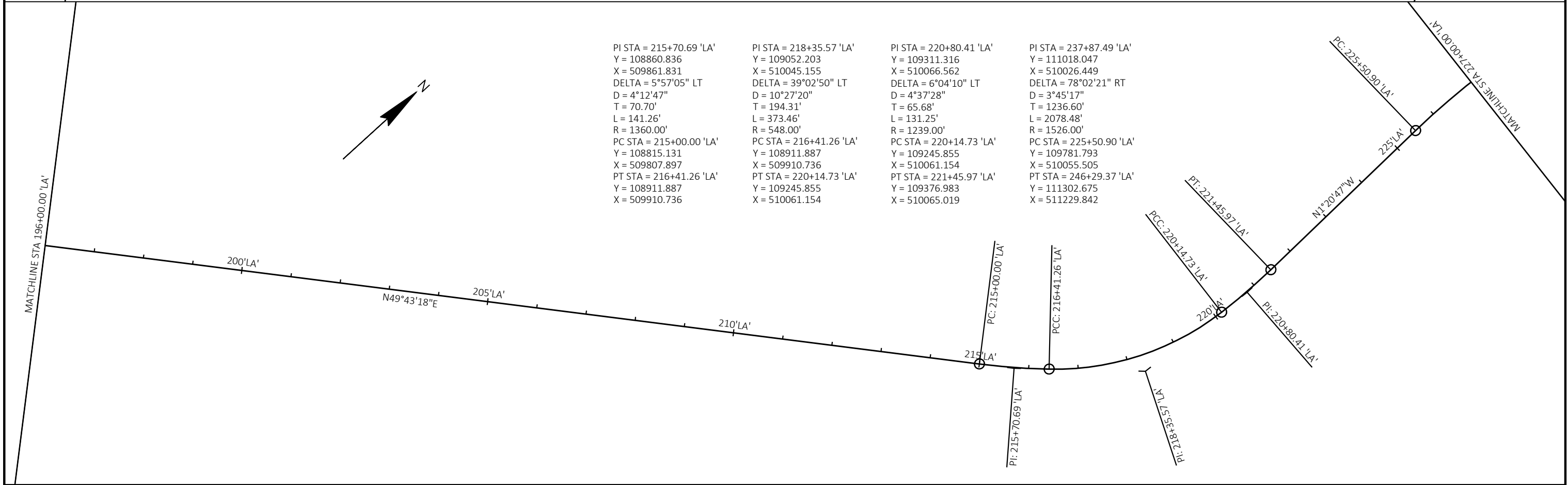
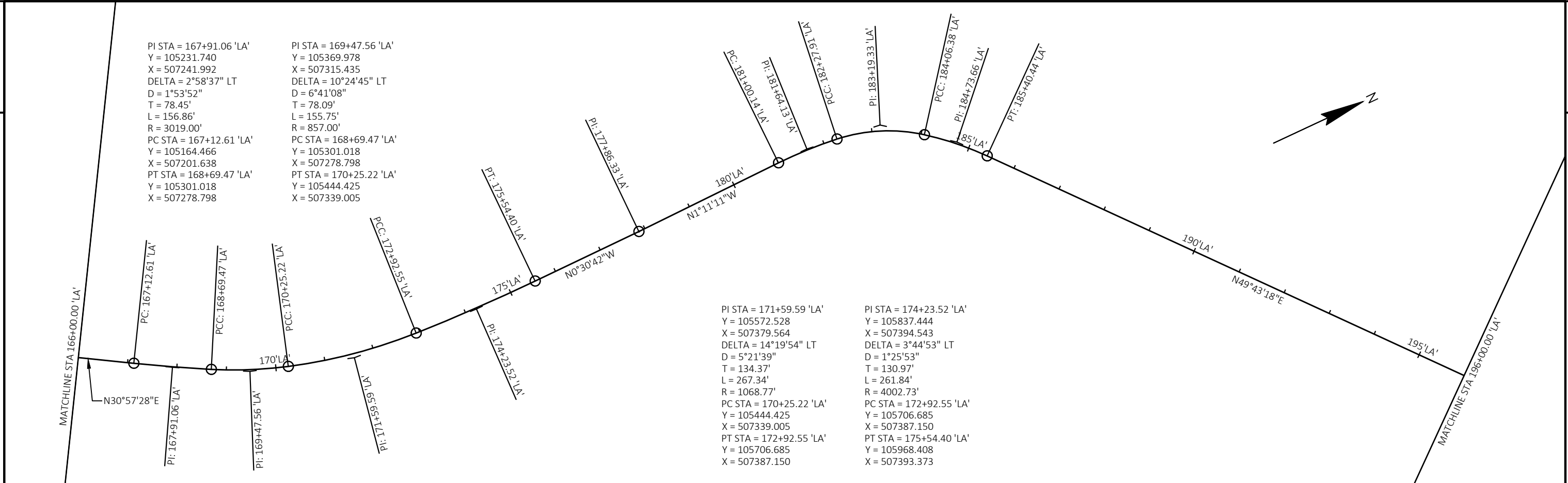
PI STA = 131+22.05 'LA'
Y = 101954.402
X = 505653.119
DELTA = 4°56'16" RT
D = 12°43'57"
T = 19.40'
L = 38.78'
R = 450.00'
PC STA = 131+02.65 'LA'
Y = 101935.004
X = 505653.539
PT STA = 131+41.43 'LA'
Y = 101973.764
X = 505654.370

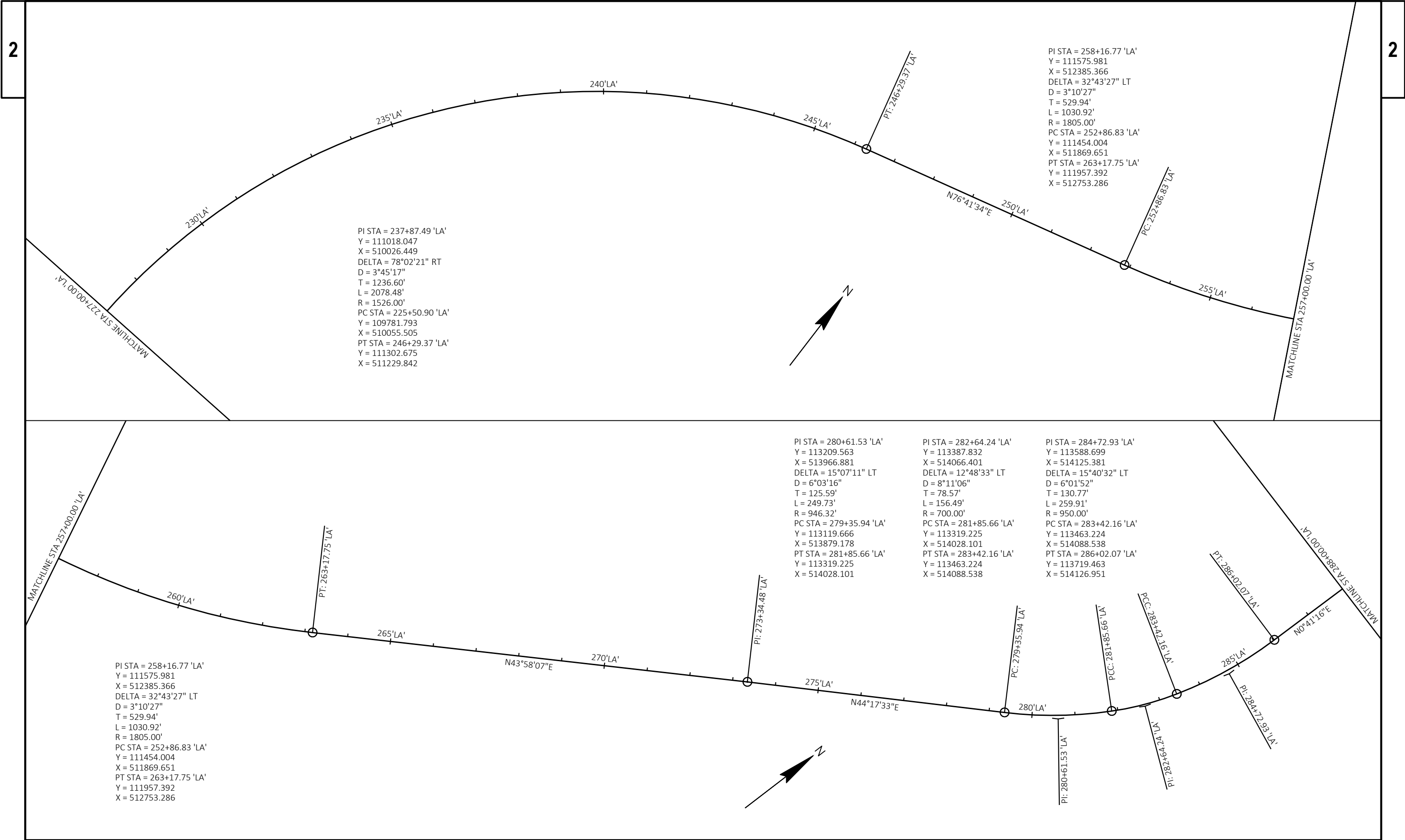
PI STA = 132+26.12 'LA'
Y = 102058.278
X = 505659.831
DELTA = 27°12'18" RT
D = 16°22'13"
T = 84.69'
L = 166.19'
R = 350.00'
PC STA = 131+41.43 'LA'
Y = 101973.764
X = 505654.370
PT STA = 133+07.62 'LA'
Y = 102130.946
X = 505703.325

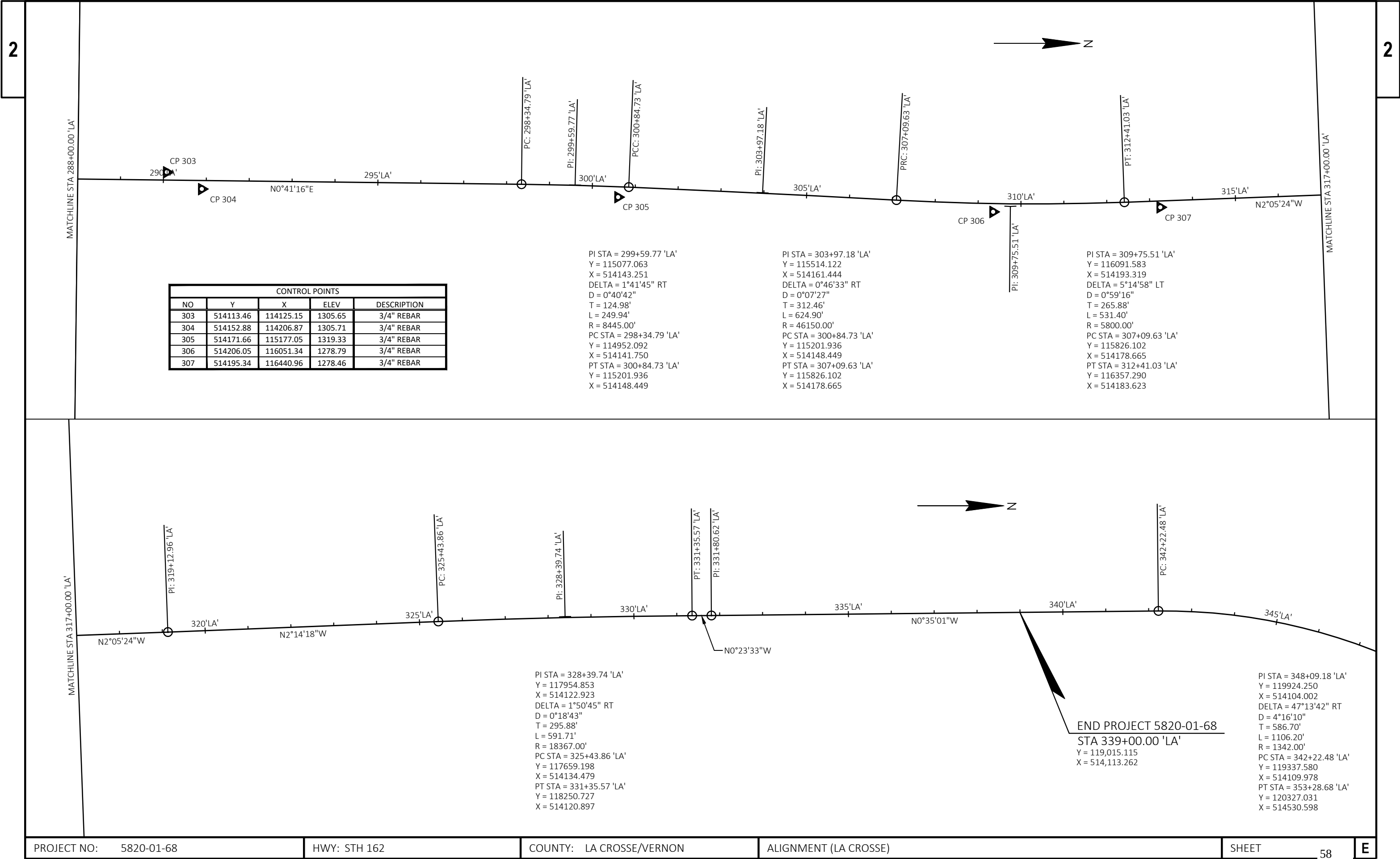
PI STA = 136+85.77 'LA'
Y = 102455.414
X = 505897.529
DELTA = 15°20'19" LT
D = 5°02'53"
T = 152.84'
L = 303.85'
R = 1135.00'
PC STA = 135+32.93 'LA'
Y = 102324.270
X = 505819.036
PT STA = 138+36.78 'LA'
Y = 102602.649
X = 505938.536

2

2







CONTROL POINTS				
NO	Y	X	ELEV	DESCRIPTION
303	514113.46	114125.15	1305.65	3/4" REBAR
304	514152.88	114206.87	1305.71	3/4" REBAR
305	514171.66	115177.05	1319.33	3/4" REBAR
306	514206.05	116051.34	1278.79	3/4" REBAR
307	514195.34	116440.96	1278.46	3/4" REBAR

PI STA = 299+59.77 'LA'
Y = 115077.063
X = 514143.251
DELTA = 1°41'45" RT
D = 0°40'42"
T = 124.98'
L = 249.94'
R = 8445.00'
PC STA = 298+34.79 'LA'
Y = 114952.092
X = 514141.750
PT STA = 300+84.73 'LA'
Y = 115201.936
X = 514148.449

PI STA = 303+97.18 'LA'
Y = 115514.122
X = 514161.444
DELTA = 0°46'33" RT
D = 0°07'27"
T = 312.46'
L = 624.90'
R = 46150.00'
PC STA = 300+84.73 'LA'
Y = 115201.936
X = 514148.449
PT STA = 307+09.63 'LA'
Y = 115826.102
X = 514178.665

PI STA = 309+75.51 'LA'
Y = 116091.583
X = 514193.319
DELTA = 5°14'58" LT
D = 0°59'16"
T = 265.88'
L = 531.40'
R = 5800.00'
PC STA = 307+09.63 'LA'
Y = 115826.102
X = 514178.665
PT STA = 312+41.03 'LA'
Y = 116357.290
X = 514183.623

END PROJECT 5820-01-68
STA 339+00.00 'LA'
Y = 119,015.115
X = 514,113.262

PI STA = 348+09.18 'LA'
Y = 119924.250
X = 514104.002
DELTA = 47°13'42" RT
D = 4°16'10"
T = 586.70'
L = 1106.20'
R = 1342.00'
PC STA = 342+22.48 'LA'
Y = 119337.580
X = 514109.978
PT STA = 353+28.68 'LA'
Y = 120327.031
X = 514530.598

Estimate Of Quantities

5820-01-68

Line	Item	Item Description	Unit	Total	Qty
0002	201.0210	Grubbing	SY	1,100.000	1,100.000
0004	203.0100	Removing Small Pipe Culverts	EACH	7.000	7.000
0006	203.0220	Removing Structure (structure) 01. 72-Inch CMCP, Sta. 292+25	EACH	1.000	1.000
0008	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 01. B-62-987	EACH	1.000	1.000
0010	203.0260	Removing Structure Over Waterway Minimal Debris (structure) 02. B-62-988	EACH	1.000	1.000
0012	204.0110	Removing Asphaltic Surface	SY	92.000	92.000
0014	204.0115	Removing Asphaltic Surface Butt Joints	SY	821.000	821.000
0016	204.0120	Removing Asphaltic Surface Milling	SY	101,294.000	101,294.000
0018	204.0150	Removing Curb & Gutter	LF	1,128.000	1,128.000
0020	204.0165	Removing Guardrail	LF	9,138.000	9,138.000
0022	204.0220	Removing Inlets	EACH	4.000	4.000
0024	204.0245	Removing Storm Sewer (size) 01. 18-Inch	LF	60.000	60.000
0026	204.0245	Removing Storm Sewer (size) 02. 24-Inch	LF	20.000	20.000
0028	204.0245	Removing Storm Sewer (size) 03. 30-Inch	LF	6.000	6.000
0030	205.0100	Excavation Common	CY	7,209.000	7,209.000
0032	205.0505.S	Excavation, Hauling, and Disposal of Creosote Contaminated Soil and Management of Contaminated Groundwater	TON	196.000	196.000
0034	206.1001	Excavation for Structures Bridges (structure) 01. B-62-265	EACH	1.000	1.000
0036	206.1001	Excavation for Structures Bridges (structure) 02. B-62-266	EACH	1.000	1.000
0038	209.2500	Backfill Granular Grade 2	TON	4,800.000	4,800.000
0040	210.1500	Backfill Structure Type A	TON	577.000	577.000
0042	211.0101	Prepare Foundation for Asphaltic Paving (project) 01. 5820-01-68	EACH	1.000	1.000
0044	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	67.000	67.000
0046	213.0100	Finishing Roadway (project) 01. 5820-01-68	EACH	1.000	1.000
0048	305.0110	Base Aggregate Dense 3/4-Inch	TON	2,163.000	2,163.000
0050	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	11,600.000	11,600.000
0052	312.0110	Select Crushed Material	TON	6,600.000	6,600.000
0054	455.0605	Tack Coat	GAL	11,649.000	11,649.000
0056	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	1.000	1.000
0058	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	1.000	1.000
0060	460.2005	Incentive Density PWL HMA Pavement	DOL	6,470.000	6,470.000
0062	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	6,490.000	6,490.000
0064	460.2010	Incentive Air Voids HMA Pavement	DOL	18,951.000	18,951.000
0066	460.5224	HMA Pavement 4 LT 58-28 S	TON	18,951.000	18,951.000
0068	465.0105	Asphaltic Surface	TON	310.000	310.000
0070	465.0110	Asphaltic Surface Patching	TON	1,200.000	1,200.000
0072	465.0120	Asphaltic Surface Driveways and Field Entrances	TON	20.000	20.000
0074	465.0315	Asphaltic Flumes	SY	260.000	260.000
0076	502.0100	Concrete Masonry Bridges	CY	416.000	416.000
0078	502.3200	Protective Surface Treatment	SY	314.000	314.000
0080	502.3210	Pigmented Surface Sealer	SY	131.000	131.000
0082	505.0400	Bar Steel Reinforcement HS Structures	LB	7,850.000	7,850.000
0084	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	54,070.000	54,070.000
0086	516.0500	Rubberized Membrane Waterproofing	SY	36.000	36.000
0088	520.1018	Apron Endwalls for Culvert Pipe 18-Inch	EACH	4.000	4.000
0090	520.1024	Apron Endwalls for Culvert Pipe 24-Inch	EACH	4.000	4.000
0092	520.1042	Apron Endwalls for Culvert Pipe 42-Inch	EACH	1.000	1.000
0094	520.1048	Apron Endwalls for Culvert Pipe 48-Inch	EACH	2.000	2.000
0096	520.3148	Culvert Pipe Class III 48-Inch	LF	60.000	60.000

Estimate Of Quantities

5820-01-68

Line	Item	Item Description	Unit	Total	Qty
0098	520.3318	Culvert Pipe Class III-A 18-Inch	LF	72.000	72.000
0100	520.3324	Culvert Pipe Class III-A 24-Inch	LF	94.000	94.000
0102	520.8000	Concrete Collars for Pipe	EACH	9.000	9.000
0104	520.8700	Cleaning Culvert Pipes	EACH	1.000	1.000
0106	520.9700.S	Culvert Pipe Liners (size) 01. 60-Inch	LF	178.000	178.000
0108	520.9750.S	Cleaning Culvert Pipes for Liner Verification	EACH	1.000	1.000
0110	521.3118	Culvert Pipe Corrugated Steel 18-Inch	LF	30.000	30.000
0112	521.3124	Culvert Pipe Corrugated Steel 24-Inch	LF	22.000	22.000
0114	521.3130	Culvert Pipe Corrugated Steel 30-Inch	LF	10.000	10.000
0116	521.3142	Culvert Pipe Corrugated Steel 42-Inch	LF	12.000	12.000
0118	550.0020	Pre-Boring Rock or Consolidated Materials	LF	84.000	84.000
0120	550.0500	Pile Points	EACH	14.000	14.000
0122	550.2108	Piling CIP Concrete 10 3/4 X 0.50-Inch	LF	760.000	760.000
0124	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	13,374.000	13,374.000
0126	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	102.000	102.000
0128	606.0200	Riprap Medium	CY	33.000	33.000
0130	606.0300	Riprap Heavy	CY	340.000	340.000
0132	608.0315	Storm Sewer Pipe Reinforced Concrete Class III 15-Inch	LF	56.000	56.000
0134	608.3012	Storm Sewer Pipe Class III-A 12-Inch	LF	31.000	31.000
0136	608.3018	Storm Sewer Pipe Class III-A 18-Inch	LF	342.000	342.000
0138	608.3024	Storm Sewer Pipe Class III-A 24-Inch	LF	57.000	57.000
0140	608.3030	Storm Sewer Pipe Class III-A 30-Inch	LF	48.000	48.000
0142	611.0530	Manhole Covers Type J	EACH	1.000	1.000
0144	611.0615	Inlet Covers Type F	EACH	12.000	12.000
0146	611.0642	Inlet Covers Type MS	EACH	14.000	14.000
0148	611.0654	Inlet Covers Type V	EACH	1.000	1.000
0150	611.2004	Manholes 4-FT Diameter	EACH	1.000	1.000
0152	611.3004	Inlets 4-FT Diameter	EACH	1.000	1.000
0154	611.3220	Inlets 2x2-FT	EACH	1.000	1.000
0156	611.3253	Inlets 2.5x3-FT	EACH	9.000	9.000
0158	611.3901	Inlets Median 1 Grate	EACH	2.000	2.000
0160	611.3902	Inlets Median 2 Grate	EACH	6.000	6.000
0162	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	262.000	262.000
0164	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	8.000	8.000
0166	614.0200	Steel Thrie Beam Structure Approach	LF	62.100	62.100
0168	614.0305	Steel Plate Beam Guard Class A	LF	25.000	25.000
0170	614.0345	Steel Plate Beam Guard Short Radius	LF	87.500	87.500
0172	614.0390	Steel Plate Beam Guard Short Radius Terminal	EACH	3.000	3.000
0174	614.2300	MGS Guardrail 3	LF	2,350.000	2,350.000
0176	614.2330	MGS Guardrail 3 K	LF	6,262.500	6,262.500
0178	614.2340	MGS Guardrail 3 L	LF	225.000	225.000
0180	614.2350	MGS Guardrail Short Radius	LF	100.000	100.000
0182	614.2500	MGS Thrie Beam Transition	LF	197.000	197.000
0184	614.2610	MGS Guardrail Terminal EAT	EACH	21.000	21.000
0186	614.2620	MGS Guardrail Terminal Type 2	EACH	1.000	1.000
0188	614.2630	MGS Guardrail Short Radius Terminal	EACH	3.000	3.000
0190	616.0700.S	Fence Safety	LF	250.000	250.000
0192	618.0100	Maintenance and Repair of Haul Roads (project) 01. 5820-01-68	EACH	1.000	1.000
0194	619.1000	Mobilization	EACH	1.000	1.000

Estimate Of Quantities

5820-01-68

Line	Item	Item Description	Unit	Total	Qty
0196	624.0100	Water	MGAL	140.000	140.000
0198	625.0500	Salvaged Topsoil	SY	17,900.000	17,900.000
0200	627.0200	Mulching	SY	6,000.000	6,000.000
0202	628.1504	Silt Fence	LF	3,500.000	3,500.000
0204	628.1520	Silt Fence Maintenance	LF	7,000.000	7,000.000
0206	628.1905	Mobilizations Erosion Control	EACH	8.000	8.000
0208	628.1910	Mobilizations Emergency Erosion Control	EACH	4.000	4.000
0210	628.2006	Erosion Mat Urban Class I Type A	SY	3,574.000	3,574.000
0212	628.2027	Erosion Mat Class II Type C	SY	4,973.000	4,973.000
0214	628.2037	Erosion Mat Class III Type C	SY	2,401.000	2,401.000
0216	628.6005	Turbidity Barriers	SY	250.000	250.000
0218	628.7005	Inlet Protection Type A	EACH	21.000	21.000
0220	628.7010	Inlet Protection Type B	EACH	9.000	9.000
0222	628.7015	Inlet Protection Type C	EACH	12.000	12.000
0224	628.7504	Temporary Ditch Checks	LF	800.000	800.000
0226	628.7555	Culvert Pipe Checks	EACH	41.000	41.000
0228	629.0210	Fertilizer Type B	CWT	12.000	12.000
0230	630.0130	Seeding Mixture No. 30	LB	315.000	315.000
0232	630.0140	Seeding Mixture No. 40	LB	8.000	8.000
0234	630.0200	Seeding Temporary	LB	473.000	473.000
0236	630.0500	Seed Water	MGAL	401.000	401.000
0238	633.5200	Markers Culvert End	EACH	26.000	26.000
0240	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	30.000	30.000
0242	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	17.000	17.000
0244	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	6.000	6.000
0246	638.2102	Moving Signs Type II	EACH	54.000	54.000
0248	638.2602	Removing Signs Type II	EACH	11.000	11.000
0250	638.3000	Removing Small Sign Supports	EACH	64.000	64.000
0252	638.4000	Moving Small Sign Supports	EACH	1.000	1.000
0254	642.5201	Field Office Type C	EACH	1.000	1.000
0256	643.0300	Traffic Control Drums	DAY	39,600.000	39,600.000
0258	643.0420	Traffic Control Barricades Type III	DAY	2,900.000	2,900.000
0260	643.0705	Traffic Control Warning Lights Type A	DAY	5,800.000	5,800.000
0262	643.0900	Traffic Control Signs	DAY	31,960.000	31,960.000
0264	643.0920	Traffic Control Covering Signs Type II	EACH	14.000	14.000
0266	643.1050	Traffic Control Signs PCMS	DAY	28.000	28.000
0268	643.3165	Temporary Marking Line Paint 6-Inch	LF	185,750.000	185,750.000
0270	643.5000	Traffic Control	EACH	1.000	1.000
0272	645.0111	Geotextile Type DF Schedule A	SY	134.000	134.000
0274	645.0120	Geotextile Type HR	SY	815.000	815.000
0276	646.2040	Marking Line Grooved Wet Ref Epoxy 6-Inch	LF	130,050.000	130,050.000
0278	646.6466	Cold Weather Marking Epoxy 6-Inch	LF	65,025.000	65,025.000
0280	648.0100	Locating No-Passing Zones	MI	6.200	6.200
0282	650.4000	Construction Staking Storm Sewer	EACH	32.000	32.000
0284	650.4500	Construction Staking Subgrade	LF	550.000	550.000
0286	650.5000	Construction Staking Base	LF	550.000	550.000
0288	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	13,476.000	13,476.000
0290	650.6000	Construction Staking Pipe Culverts	EACH	5.000	5.000
0292	650.6501	Construction Staking Structure Layout (structure) 01. B-62-265	EACH	1.000	1.000

Estimate Of Quantities

5820-01-68					
Line	Item	Item Description	Unit	Total	Qty
0294	650.6501	Construction Staking Structure Layout (structure) 02. B-62-266	EACH	1.000	1.000
0296	650.8000	Construction Staking Resurfacing Reference	LF	32,175.000	32,175.000
0298	650.9911	Construction Staking Supplemental Control (project) 01. 5820-01-68	EACH	1.000	1.000
0300	650.9920	Construction Staking Slope Stakes	LF	11,770.000	11,770.000
0302	690.0150	Sawing Asphalt	LF	16,155.000	16,155.000
0304	690.0250	Sawing Concrete	LF	24.000	24.000
0306	715.0502	Incentive Strength Concrete Structures	DOL	2,496.000	2,496.000
0308	740.0440	Incentive IRI Ride	DOL	21,730.000	21,730.000
0310	999.2005.S	Maintaining Bird Deterrent System (station) 01. 31+13	EACH	1.000	1.000
0312	999.2005.S	Maintaining Bird Deterrent System (station) 02. 45+88	EACH	1.000	1.000
0314	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	300.000	300.000
0316	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
0318	SPV.0055	Special 01. Incentive Density PWL HMA Pavement	DOL	5,530.000	5,530.000
0320	SPV.0055	Special 02. Incentive Density HMA Pavement Longitudinal Joints	DOL	5,680.000	5,680.000
0322	SPV.0060	Special 01. Verify Landmark Reference Monuments	EACH	2.000	2.000
0324	SPV.0060	Special 02. Inlets 5-FT Diameter	EACH	2.000	2.000
0326	SPV.0090	Special 01. Remove Existing Timber Piling	LF	48.000	48.000
0328	SPV.0180	Special 01. Removing Distressed Pavement Milling	SY	2,700.000	2,700.000
0330	SPV.0195	Special 01. Reclaimed Asphalt	TON	1,700.000	1,700.000

GRUBBING

				201.0210 GRUBBING
STATION	TO	STATION	LOCATION	SY
30+65 VE	-	30+85 VE	LT	22
31+20 VE	-	31+30 VE	LT	11
46+00 VE	-	46+25 VE	LT	28
50+60 VE	-	51+10 VE	LT	28
92+00 VE	-	97+00 VE	RT	444
98+00 VE	-	100+25 VE	RT	125
106+50 VE	-	107+50 VE	RT	89
139+40 LA	-	139+60 LA	LT	22
291+50 LA	-	293+00 LA	LT	200
UNDISTRIBUTED				131
ITEM TOTALS				1100

CLEARING DONE BY OTHERS.

203.XXXX REMOVALS

		203.0100 REMOVING SMALL PIPE CULVERTS	203.0220 REMOVING STRUCTURE 01. STA. 292+25	REMARKS
STATION	LOCATION	EACH	EACH	
46+72 VE	LT	1	-	DWY
51+75 VE	ML	1	-	
89+20 VE	ML	1	-	
115+73 LA	ML	1	-	
139+53 LA	ML	1	-	
154+15 LA	ML	1	-	
215+21 LA	ML	1	-	
292+25 LA	ML	-	1	
ITEM TOTALS		7	1	

REMOVING CURB & GUTTER

				204.0150 REMOVING CURB & GUTTER
STATION	TO	STATION	LOCATION	LF
35+69 VE	-	42+00 VE	RT	631
44+12 VE	-	45+37 VE	RT	125
50+25 VE	-	53+65 VE	LT	340
58+18 VE	-	58+24 VE	LT	6
60+19 VE	-	60+25 VE	LT	6
61+37 VE	-	61+57 VE	LT	20
ITEM TOTAL				1128

204.0110
REMOVING
ASPHALTIC
SURFACE

STATION	LOCATION	SY	REMARKS
37+75 VE	RT	14	DWY
51+87 VE	RT	62	DWY
146+60 LA	RT	16	DWY
ITEM TOTAL		92	

REMOVING ASPHALTIC SURFACE BUTT JOINTS

				204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS	REMARKS
STATION	TO	STATION	LOCATION	SY	
11+75 VE	-	11+80 VE	ML	16	BOP
57+60 VE	-	58+45 VE	RT	104	LEE LN
141+64 LA	-	142+67 LA	LT	80	CTH N
144+25 LA	-	144+65 LA	RT	31	STROMSTAD RD
152+59 LA	-	153+31 LA	LT	56	CTH NN
160+35 LA	-	160+73 LA	RT	30	BRYE RD
176+84 LA	-	177+20 LA	LT	28	EVANS DWYER RD
218+47 LA	-	218+98 LA	RT	40	SEMKE RD
232+70 LA	-	234+50 LA	LT	95	H HUNDT RD
244+80 LA	-	246+65 LA	LT	100	KAMMEL RD
282+24 LA	-	282+97 LA	RT	57	CTH PI
300+32 LA	-	300+70 LA	RT	30	KOENEN RD
338+50 LA	-	339+00 LA	ML	156	EOP
ITEM TOTAL				821	

REMOVING ASPHALTIC SURFACE MILLING

				204.0120 REMOVING ASPHALTIC SURFACE MILLING	SPV.0180.01 REMOVING DISTRESSED PAVEMENT MILLING
STATION	TO	STATION	LOCATION	SY	SY
11+80 VE	-	30+00 VE	ML	5,662	-
32+25 VE	-	44+75 VE	ML	3,889	-
48+00 VE	-	224+50 LA	ML	54,911	-
224+50 LA	-	265+25 LA	ML	15,394	-
265+25 LA	-	300+00 LA	ML	9,460	-
300+00 LA	-	338+50 LA	ML	11,978	-
UNDISTRIBUTED				-	2,700
ITEM TOTAL				101,294	2,700

EARTHWORK SUMMARY

FROM TO STATION		LOCATION	205.0100 EXCAVATION COMMON CUT (1)	SALVAGED/ UNUSABLE PAVEMENT MATERIAL	AVAILABLE MATERIAL (2)	UNEXPANDED FILL	EXPANDED FILL (FACTOR 1.25)	MASS ORDINATE +/- (3)	WASTE
28+52	-	34+50	STH 162	824	94	730	105	131	599
35+58	-	42+35	STH 162	363	26	337	96	120	217
44+12	-	48+00	STH 162	917	119	798	23	29	769
48+00	-	51+75	STH 162	178	8	170	47	59	111
53+29	-	78+99	STH 162	999	187	812	244	305	507
79+23	-	85+89	STH 162	353	53	300	148	185	115
88+06	-	110+00	STH 162	1,755	156	1,599	185	231	1,368
110+00	-	138+05	STH 162	1,156	171	985	380	475	510
289+26	-	295+58	STH 162	247	16	231	487	609	-378
306+90	-	314+37	STH 162	417	29	388	88	110	278
7,209								TOTAL	4,096

- (1) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED
- (2) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL
- (3) THE MASS ORDINATE + OR - QUANTITY CALCULATED. PLUS QUANTITY INDICATES AS EXCESS OF MATERIAL.
MINUS INDICATES A SHORTAGE OF MATERIAL.

TOTAL WASTE 4,096

REMOVING GUARDRAIL

204.0165 REMOVING GUARDRAIL				
STATION	TO	STATION	LOCATION	LF
30+24 VE	-	30+99 VE	RT	75
30+58 VE	-	31+03 VE	LT	51
31+27 VE	-	32+03 VE	LT	76
31+24 VE	-	32+87 VE	RT	163
37+64 VE	-	39+31 VE	LT	167
44+97 VE	-	45+72 VE	LT	75
45+34 VE	-	45+72 VE	RT	38
46+03 VE	-	46+54 VE	LT	51
46+03 VE	-	51+80 VE	RT	577
54+78 VE	-	58+10 VE	RT	341
58+50 VE	-	77+14 VE	RT	1,864
81+36 VE	-	82+75 VE	RT	141
82+31 VE	-	83+56 VE	LT	128
88+59 VE	-	117+90 LA	LT	2,944
122+19 LA	-	125+98 LA	LT	379
127+39 LA	-	136+13 LA	LT	876
290+52 LA	-	294+15 LA	LT	363
308+21 LA	-	313+11 LA	LT	490
309+65 LA	-	313+03 LA	RT	339
ITEM TOTAL				9,138

REMOVING STORM SEWER

204.0220 REMOVING INLETS					
204.0245 REMOVING STORM SEWER (SIZE) 01. 18-INCH					
204.0245 REMOVING STORM SEWER (SIZE) 02. 24-INCH					
204.0245 REMOVING STORM SEWER (SIZE) 03. 30-INCH					
STATION	LOCATION	EACH	LF	LF	LF
41+30 VE	ML	1	38	-	-
50+25 VE	LT	1	8	-	-
57+43 VE	LT	-	-	12	-
61+47 VE	LT	1	8	-	-
72+00 VE	LT	-	6	-	-
109+36 LA	RT	1	-	8	-
135+59 LA	RT	-	-	-	6
ITEM TOTALS		4	60	20	6

PREPARE FOUNDATION

211.0101 PREPARE FOUNDATION FOR ASPHALTIC PAVING (PROJECT) 01. 5820-01-68				
211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS				
STATION	TO	STATION	LOCATION	STA
			5820-01-68	-
265+25 LA	-	290+52 LA	LT	26
265+25 LA	-	300+00 LA	RT	35
294+15 LA	-	300+00 LA	LT	6
ITEM TOTALS			1	67

BACKFILL & RECLAIMED ASPHALT

209.2500 BACKFILL GRANULAR GRADE 2				SPV.0195.01 RECLAIMED ASPHALT	
STATION	TO	STATION	LOCATION	TON	TON
40+78 VE	-	41+81 VE	ML	244	107
50+15 VE	-	50+35 VE	LT	28	10
51+15 VE	-	51+85 VE	ML	213	73
57+33 VE	-	57+53 VE	LT	48	10
61+37 VE	-	61+57 VE	LT	34	10
71+90 VE	-	72+10 VE	LT	11	10
88+74 VE	-	89+76 VE	ML	247	106
92+99 VE	-	94+01 VE	ML	249	106
97+49 VE	-	98+51 VE	ML	229	106
100+99 VE	-	102+01 VE	ML	222	106
105+09 VE	-	107+01 VE	ML	411	199
115+98 LA	-	117+01 LA	ML	350	107
128+75 LA	-	129+40 LA	RT	152	34
135+39 LA	-	135+79 LA	RT	72	21
138+96 LA	-	140+10 LA	ML	389	118
153+64 LA	-	154+66 LA	ML	299	106
214+70 LA	-	215+73 LA	ML	251	107
291+72 LA	-	292+77 LA	ML	791	113
310+58 LA	-	311+58 LA	ML	129	141
UNDISTRIBUTED				432	111
ITEM TOTALS				4800	1700

3/4-INCH BAD

305.0110 BASE AGGREGATE DENSE 3/4-INCH				624.0100* WATER	
STATION	TO	STATION	LOCATION	TON	MGAL
11+75 VE	-	30+00 VE	LT	42	0.4
31+35 VE	-	31+83 VE	LT	6	0.1
34+50 VE	-	35+60 VE	LT	3	0.0
35+60 VE	-	39+60 VE	LT	49	0.5
39+60 VE	-	44+00 VE	LT	10	0.1
44+00 VE	-	44+75 VE	LT	9	0.1
46+15 VE	-	47+75 VE	LT	20	0.2
47+75 VE	-	50+00 VE	LT	5	0.1
63+72 VE	-	79+90 VE	LT	37	0.4
85+25 VE	-	88+05 VE	LT	6	0.1
88+05 VE	-	89+19 VE	LT	14	0.1
108+00 VE	-	109+59 LA	LT	20	0.2
121+50 LA	-	123+75 LA	LT	28	0.3
136+30 LA	-	138+00 LA	LT	21	0.2
138+00 LA	-	224+50 LA	LT	200	2.0
225+50 LA	-	264+25 LA	LT	94	1.0
265+25 LA	-	289+26 LA	LT	89	0.9
289+26 LA	-	290+99 LA	LT	21	0.2
293+86 LA	-	295+58 LA	LT	21	0.2
295+58 LA	-	306+91 LA	LT	42	0.4
306+91 LA	-	307+64 LA	LT	9	0.1
312+65 LA	-	314+39 LA	LT	21	0.2
314+39 LA	-	339+00 LA	LT	91	0.9
15+18 LA	-	28+10 LA	RT	30	0.3
28+10 LA	-	30+96 LA	RT	35	0.4
31+35 LA	-	32+90 LA	RT	19	0.2
51+14 LA	-	51+76 LA	RT	8	0.1
51+76 LA	-	53+30 LA	RT	4	0.0
53+30 LA	-	58+10 LA	RT	59	0.6
58+40 LA	-	59+29 LA	RT	11	0.1
77+27 LA	-	79+65 LA	RT	29	0.3
85+58 LA	-	91+25 LA	RT	13	0.1
97+25 LA	-	100+25 LA	RT	7	0.1
109+59 LA	-	110+75 LA	RT	3	0.0
120+00 LA	-	130+75 LA	RT	25	0.2
134+00 LA	-	224+50 LA	RT	209	2.1
225+50 LA	-	264+25 LA	RT	94	1.0
265+25 LA	-	309+77 LA	RT	165	1.6
312+52 LA	-	314+24 LA	RT	21	0.2
314+24 LA	-	339+00 LA	RT	92	0.9
DRIVEWAYS				480	4.8
ITEM TOTALS				2163	22

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLAN.

455.0605 TACK COAT		460.0105.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS		460.0110.S HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY		460.5224 HMA PAVEMENT 4 LT 58-28 S		465.0105 ASPHALTIC SURFACE	
STATION	TO	STATION	LOCATION	GAL	EACH	EACH	TON	TON	REMARKS
11+75 VE	-	30+00 VE	ML	399	-	-	572	-	BINDER, 1.75"
30+00 VE	-	32+25 VE	ML	47	-	-	148	-	BINDER, 3.5"
32+25 VE	-	44+75 VE	ML	275	-	-	389	-	BINDER, 1.75"
44+75 VE	-	48+00 VE	ML	54	-	-	165	-	BINDER, 3.5"
48+00 VE	-	138+75 LA	ML	1,769	-	-	2,508	-	BINDER, 1.75"
138+75 LA	-	224+50 LA	ML	1,862	-	-	2,688	-	BINDER, 1.75"
265+25 LA	-	339+00 LA	ML	1,617	-	-	2,323	-	BINDER, 1.75"
11+75 VE	-	30+00 VE	ML	285	-	-	562	-	SURFACE, 1.75"
30+00 VE	-	32+25 VE	ML	33	-	-	75	-	SURFACE, 1.75"
32+25 VE	-	44+75 VE	ML	196	-	-	386	-	SURFACE, 1.75"
44+75 VE	-	48+00 VE	ML	38	-	-	82	-	SURFACE, 1.75"
48+00 VE	-	138+75 LA	ML	1,264	-	-	2,490	-	SURFACE, 1.75"
138+75 LA	-	224+50 LA	ML	1,330	-	-	2,640	-	SURFACE, 1.75"
224+50 LA	-	265+25 LA	ML	1,078	-	-	1,520	-	SURFACE, 1.75"
265+25 LA	-	339+00 LA	ML	1,155	-	-	2,283	-	SURFACE, 1.75"
11+75 VE	-	339+00 LA	INTERSECTIONS	58	-	-	120	-	BINDER/SURFACE 3.5"
11+75 VE	-	339+00 LA	CL	-	1	1	-	-	
UNDISTRIBUTED				190	-	-	-	310	FOR DISTRESSED PAVEMENT MILLING LOCATIONS
ITEM TOTALS				11,649	1	1	18,951	310	

SELECT CRUSH & 1 1/4-INCH BAD

				305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	312.0110 SELECT CRUSHED MATERIAL	624.0100* WATER	REMARKS
STATION	TO	STATION	LOCATION	TON	TON	MGAL	
28+10 VE	-	30+00 VE	RT	120	-	1.2	BRIDGE
30+00 VE	-	30+97 VE	ML	302	345	3	
31+33 VE	-	32+25 VE	ML	286	327	2.9	
32+25 VE	-	34+50 VE	LT	100	-	1	
32+25 VE	-	32+90 VE	RT	63	-	0.6	
35+58 VE	-	39+34 VE	LT	167	-	1.7	CULVERT
35+68 VE	-	40+78 VE	RT	264	-	2.6	
40+78 VE	-	41+81 VE	ML	145	386	1.5	
41+81 VE	-	42+00 VE	RT	10	-	0.1	
44+12 VE	-	44+75 VE	RT	33	-	0.3	
44+75 VE	-	45+70 VE	ML	253	320	3.2	BRIDGE
46+03 VE	-	48+00 VE	ML	525	664	6.6	BRIDGE
48+00 VE	-	50+10 VE	LT	86	-	0.9	
48+00 VE	-	51+85 VE	RT	171	-	1.7	
50+10 VE	-	50+15 VE	LT	2	-	0.01	
50+15 VE	-	50+35 VE	LT	13	-	0.1	
50+35 VE	-	51+15 VE	LT	36	-	0.4	
51+15 VE	-	51+85 VE	ML	176	223	1.8	INLET
51+85 VE	-	53+65 VE	LT	80	-	0.8	
53+29 VE	-	57+85 VE	RT	338	-	3.4	
57+19 VE	-	60+25 VE	LT	136	-	1.4	
61+37 VE	-	61+57 VE	LT	13	-	0.1	
58+40 VE	-	59+28 VE	RT	72	-	0.7	INLET
59+28 VE	-	77+27 VE	RT	800	-	8	
71+90 VE	-	72+10 VE	LT	13	-	0.1	
74+00 VE	-	77+00 VE	LT	111	-	1.1	
77+27 VE	-	79+64 VE	RT	158	-	1.6	
79+23 VE	-	79+90 VE	LT	30	-	0.3	
79+64 VE	-	85+89 VE	RT	278	-	2.8	
79+90 VE	-	85+70 VE	LT	258	-	2.6	
88+06 VE	-	88+74 VE	LT	30	-	0.3	
88+74 VE	-	89+76 VE	ML	128	325	1.3	
89+76 VE	-	92+99 VE	LT	144	-	1.4	CULVERT
89+76 VE	-	92+99 VE	RT	144	-	1.4	
92+99 VE	-	94+01 VE	ML	128	325	1.3	
94+01 VE	-	97+49 VE	LT	155	-	1.6	
94+01 VE	-	97+49 VE	RT	155	-	1.6	
97+49 VE	-	98+51 VE	ML	128	325	1.3	CULVERT
98+51 VE	-	100+99 VE	LT	110	-	1.1	
98+51 VE	-	100+99 VE	RT	110	-	1.1	
ITEM SUBTOTALS				6,268	3,240	65	

				305.0120 BASE AGGREGATE DENSE 1 1/4-INCH	312.0110 SELECT CRUSHED MATERIAL	624.0100* WATER	REMARKS
STATION	TO	STATION	LOCATION	TON	TON	MGAL	
100+99 VE	-	102+01 VE	ML	128	325	1.3	CULVERT
102+01 VE	-	105+09 VE	LT	137	-	1.4	CULVERT
102+01 VE	-	105+09 VE	RT	137	-	1.4	
105+09 VE	-	107+01 VE	ML	242	611	2.4	
107+01 VE	-	115+98 LA	LT	399	-	4	
107+01 VE	-	115+98 LA	RT	399	-	4	
115+98 LA	-	117+01 LA	ML	130	328	1.3	CULVERT
117+01 LA	-	138+05 LA	LT	935	-	9.4	CULVERT EXTENSION
117+01 LA	-	120+00 LA	RT	133	-	1.3	
128+75 LA	-	129+40 LA	RT	82	103	0.8	
130+75 LA	-	134+00 LA	RT	144	-	1.4	
135+39 LA	-	135+79 LA	RT	25	64	0.3	
136+30 LA	-	138+05 LA	LT	156	-	1.6	CULVERT
138+96 LA	-	140+10 LA	ML	144	363	1.4	
153+64 LA	-	154+66 LA	ML	128	325	1.3	
214+70 LA	-	215+73 LA	ML	130	328	1.3	
289+26 LA	-	290+98 LA	LT	153	-	1.5	
290+98 LA	-	291+72 LA	LT	38	-	0.4	CULVERT
291+72 LA	-	292+77 LA	ML	132	334	1.3	
292+77 LA	-	293+86 LA	LT	57	-	0.6	
293+86 LA	-	295+58 LA	LT	166	-	1.7	
306+91 LA	-	308+64 LA	LT	103	-	1	
308+64 LA	-	310+58 LA	LT	101	-	1	STORM
310+58 LA	-	311+58 LA	ML	141	356	1.4	
311+58 LA	-	312+65 LA	LT	55	-	0.6	
312+65 LA	-	314+37 LA	LT	127	-	1.3	
309+75 LA	-	310+58 LA	RT	43	-	0.4	
311+58 LA	-	312+52 LA	RT	49	-	0.5	
312+52 LA	-	314+24 LA	RT	191	-	1.9	
UNDISTRIBUTED				529	223	5.3	
ITEM SUBTOTALS				5,332	3,360	54	
ITEM SUBTOTALS (FIRST COLUMN)				6,268	3,240	65	
ITEM TOTALS				11,600	6,600	118	

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLAN.

ASPHALTIC SURFACE PATCHING, DRIVEWAYS, AND FIELD ENTRANCES

				465.0110	465.0120	
				ASPHALTIC	ASPHALTIC	
				SURFACE	SURFACE	
				PATCHING	DRIVEWAYS	
					AND FIELD	
					ENTRANCES	
STATION	TO	STATION	LOCATION	TON	TON	REMARKS
		35+75 VE	RT	-	3	DWY
40+78 VE	-	41+81 VE	ML	36	-	CULVERT
50+15 VE	-	50+35 VE	LT	3	-	INLET
51+15 VE	-	51+85 VE	ML	24	-	CULVERT
		51+87 VE	RT	-	12	DWY
57+33 VE	-	57+53 VE	LT	3	-	INLET
61+37 VE	-	61+57 VE	LT	3	-	INLET
71+90 VE	-	72+10 VE	LT	3	-	INLET
88+74 VE	-	89+76 VE	ML	36	-	CULVERT
92+99 VE	-	94+01 VE	ML	36	-	CULVERT
97+49 VE	-	98+51 VE	ML	36	-	CULVERT
100+99 VE	-	102+01 VE	ML	36	-	CULVERT
105+09 VE	-	107+01 VE	ML	67	-	CULVERT
115+98 LA	-	117+01 LA	ML	36	-	CULVERT
128+75 LA	-	129+40 LA	RT	11	-	CULVERT
135+49 LA	-	135+69 LA	RT	8	-	INLET
138+96 LA	-	140+10 LA	ML	40	-	CULVERT
		146+60 LA	RT	-	5	DWY
153+64 LA	-	154+66 LA	ML	36	-	CULVERT
214+70 LA	-	215+73 LA	ML	36	-	CULVERT
291+72 LA	-	292+77 LA	ML	36	-	CULVERT
11+75 VE	-	339+00 LA		334	-	CURB & GUTTER
UNDISTRIBUTED				380	-	
ITEM TOTALS				1200	20	

STATION	TO	STATION	LOCATION	LAYER/USE	UNDERLAYING SURFACE	BID ITEM	QUANTITY (TONS)	LAYER THICKNESS	QUALITY MANAGEMENT PROGRAM TO BE USED FOR:	
									MIXTURE ACCEPTANCE	DENSITY ACCEPTANCE
11+75 VE - 30+00 VE 32+25 VE - 34+68 VE 35+68 VE - 44+75 VE 48+00 VE - 49+00 VE 139+00 LA - 224+50 LA 265+25 LA - 339+00 LA			12' DRIVING LANE	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	4994	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	460.2005 INCENTIVE DENSITY PWL HMA PAVEMENT
			SHOULDER	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	950	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			INTERSECTIONS/ SIDEROADS	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	48	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			12' DRIVING LANE	LOWER LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	4992	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	SPV 0055.01 INCENTIVE DENSITY PWL HMA PAVEMENT
			SHOULDER	LOWER LAYER	BASE AGGREGATE	4 LT 58-28 S	951	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			INTERSECTIONS/ SIDEROADS	LOWER LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	48	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
30+00 VE - 30+96 VE 31+35 VE - 32+25 VE 44+75 VE - 45+66 VE 46+17 VE - 48+00 VE			12' DRIVING LANE	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	120	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	460.2005 INCENTIVE DENSITY PWL HMA PAVEMENT
			SHOULDER	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	36	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			INTERSECTIONS/ SIDEROADS	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	6	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			12' DRIVING LANE	MIDDLE LAYER	4 LT 58-28 S	4 LT 58-28 S	120	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	SPV 0055.01 INCENTIVE DENSITY PWL HMA PAVEMENT
			SHOULDER	MIDDLE LAYER	4 LT 58-28 S	4 LT 58-28 S	36	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			12' DRIVING LANE	LOWER LAYER	BASE AGGREGATE	4 LT 58-28 S	120	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			SHOULDER	LOWER LAYER	BASE AGGREGATE	4 LT 58-28 S	37	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			INTERSECTIONS/ SIDEROADS	LOWER LAYER	BASE AGGREGATE	4 LT 58-28 S	6	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
49+50 VE - 138+50 LA			11' DRIVING LANE	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	2156	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	460.2005 INCENTIVE DENSITY PWL HMA PAVEMENT
			SHOULDER	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	313	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			INTERSECTIONS/ SIDEROADS	UPPER LAYER	4 LT 58-28 S	4 LT 58-28 S	6	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			11' DRIVING LANE	LOWER LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	2156	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	SPV 0055.01 INCENTIVE DENSITY PWL HMA PAVEMENT
			SHOULDER	LOWER LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	330	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
			INTERSECTIONS/ SIDEROADS	LOWER LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	6	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.
224+50 LA - 265+25 LA			12' DRIVING LANE	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	1065	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	460.2005 INCENTIVE DENSITY PWL HMA PAVEMENT
			SHOULDER	UPPER LAYER	MILLED EXISTING HMA SURFACE	4 LT 58-28 S	455	1-3/4"	460.2010 INCENTIVE AIR VOIDS HMA PAVEMENT (PWL)	ACCEPTANCE TESTING BY THE DEPARTMENT. NOT ELIGIBLE FOR INCENTIVE.

3

ASPHALTIC FLUMES		
STATION	LOCATION	SY
30+53 VE	LT	6
31+88 VE	LT	6
32+90 VE	RT	6
49+00 VE	RT	10
50+09 VE	LT	10
64+00 VE	RT	10
68+50 VE	RT	10
72+00 VE	RT	10
79+65 VE	RT	10
79+90 VE	LT	10
82+25 VE	RT	10
89+43 VE	LT	6
91+25 VE	RT	10
91+50 VE	LT	6
97+20 VE	LT	6
98+78 VE	LT	6
100+25 VE	RT	10
105+33 VE	LT	6
106+39 VE	LT	6
108+24 VE	RT	10
109+53 LA	LT	10
110+75 LA	RT	10
113+50 LA	RT	10
123+75 LA	LT	10
127+50 LA	LT	10
130+75 LA	RT	10
290+98 LA	LT	10
UNDISTRIBUTED		26
ITEM TOTAL		260

CLEANING CULVERT PIPES		
STATION	LOCATION	EACH
26+73 VE	CL	1
ITEM TOTAL		1

STORM SEWER PIPE REINFORCED CONCRETE						
STATION	TO	STATION	LOCATION	LF	EACH	
46+30 VE	-	46+76 VE	RT	46	-	-
46+76 VE	-	46+76 VE	RT	10	1	1
ITEM TOTALS				56	1	1

CULVERT PIPES										
STATION	LOCATION	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	LF
46+72 VE	LT	34	-	-	2	-	-	2	2	1
139+53 LA		-	50	-	-	2	-	2	2	1
154+15 LA		-	44	-	-	2	-	2	2	1
215+21 LA		38	-	-	2	-	-	2	2	1
292+25 LA		-	-	60	-	-	2	6	2	1
ITEM TOTALS		72	94	60	4	4	2	14	10	5

MINIMUM WALL THICKNESS FOR CORRUGATED STEEL OPTION
18-INCH TO 24-INCH = 0.064 INCHES
48-INCH = 0.109 INCHES

CONCRETE CURB & GUTTER						
STATION	TO	STATION	LOCATION	LF	LF	LF
99+25	-	30+97 VE	LT	94	-	94
31+83 VE	-	34+50 VE	LT	259	-	259
31+90 VE	-	31+98 VE	LT	-	8	8
35+69 VE	-	42+00 VE	RT	631	-	631
44+12 VE	-	45+69 VE	RT	116	-	116
45+16 VE	-	45+57 VE	RT	-	41	41
44+75 VE	-	45+64 VE	LT	89	-	89
46+19 VE	-	51+14 VE	RT	442	-	442
46+32 VE	-	46+85 VE	RT	-	53	53
50+10 VE	-	53+65 VE	LT	355	-	355
57+19 VE	-	60+25 VE	LT	306	-	306
61+37 VE	-	61+57 VE	LT	20	-	20
59+29 VE	-	77+27 VE	RT	1,798	-	1,798
79+64 VE	-	85+58 VE	RT	594	-	594
79+90 VE	-	85+25 VE	LT	535	-	535
89+19 VE	-	108+00 VE	LT	1,881	-	1,881
91+25 VE	-	97+75 VE	RT	650	-	650
100+25 VE	-	109+59 LA	RT	944	-	944
109+59 LA	-	121+49 LA	LT	1,190	-	1,190
110+75 LA	-	120+00 LA	RT	925	-	925
123+75 LA	-	136+30 LA	LT	1,255	-	1,255
130+75 LA	-	134+00 LA	RT	325	-	325
290+98 LA	-	293+86 LA	LT	288	-	288
308+64 LA	-	312+65 LA	LT	401	-	401
309+76 LA	-	312+52 LA	RT	276	-	276
ITEM TOTALS				13,374	102	13,476

				STORM SEWER PIPE CLASS III																	
				520.8000 COLLARS	608.3012 STORM SEWER PIPE CLASS III-A 12-INCH	608.3018 STORM SEWER PIPE CLASS III-A 18-INCH	608.3024 STORM SEWER PIPE CLASS III-A 24-INCH	608.3030 STORM SEWER PIPE CLASS III-A 30-INCH	611.3004 INLETS 4-FT DIAMETER	SPV.0060.02 INLETS 5-FT DIAMETER	611.3253 INLETS 2.5X3-FT	611.3901 INLETS MEDIAN 1 GRATE	611.3902 INLETS MEDIAN 2 GRATE	611.0615 INLET COVERS TYPE F	611.0642 INLET COVERS TYPE MS	520.1042 APRON ENDWALL CULVERT PIPE 42-INCH	521.3118 CULVERT PIPE CORRUGATED STEEL 18-INCH	521.3124 CULVERT PIPE CORRUGATED STEEL 24-INCH	521.3130 CULVERT PIPE CORRUGATED STEEL 30-INCH	521.3142 CULVERT PIPE CORRUGATED STEEL 42-INCH	633.5200* MARKERS CULVERT END
STATION	TO	STATION	LOCATION	EACH	LF	LF	LF	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LF	LF	LF	LF	EACH
41+30 VE				-	-	38	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
50+25 VE		LT		1	-	-	-	-	-	-	1	-	-	1	-	-	8	-	-	-	-
51+75 VE				-	-	82	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
57+43 VE				1	-	-	7	-	1	-	-	-	1	1	2	-	-	6	-	-	1
61+47 VE		LT		1	-	-	-	-	-	-	1	-	-	1	-	-	8	-	-	-	-
72+00 VE		LT		1	-	-	-	-	-	-	-	-	1	-	2	-	8	-	-	-	1
89+25 VE				-	-	-	50	-	-	-	-	-	1	-	2	-	-	-	-	-	2
93+50 VE				-	-	44	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
98+00 VE				-	-	46	-	-	-	-	-	1	-	-	1	-	-	-	-	-	2
99+16 VE				1	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	1
101+50 VE				-	-	38	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
105+62 VE				-	-	44	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1
106+50 VE				-	-	50	-	-	-	-	-	1	-	-	1	-	-	-	-	-	1
109+36 LA				1	-	-	-	-	-	-	-	-	1	-	2	-	-	8	-	-	1
116+50 LA				-	-	-	-	48	-	2	-	-	1	2	2	-	-	-	-	-	1
129+09 LA		RT		1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	12	1
135+59 LA		RT		1	-	-	-	-	-	-	-	-	1	-	2	-	-	-	10	-	-
311+08 LA				1	31	-	-	-	-	-	2	-	-	2	-	-	6	-	-	-	-
ITEM TOTALS				9	31	342	57	48	1	2	9	2	6	12	14	1	30	22	10	12	16

MINIMUM WALL THICKNESS FOR CORRUGATED STEEL OPTION
18-INCH TO 24-INCH INCH = 0.064 INCHES
30-INCH = 0.079 INCHES
42-INCH = 0.109 INCHES

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLAN.

PROJECT NO: 5820-01-68

HWY: STH 162

COUNTY: LA CROSSE/VERNON

MISCELLANEOUS QUANTITIES

SHEET

67

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3

RIPRAP & GEOTEXTILE FABRIC

				606.0200 RIPRAP MEDIUM	606.0300 RIPRAP HEAVY	645.0120 GEOTEXTILE TYPE HR
STATION	TO	STATION	LOCATION	CY	CY	SY
41+30 VE	-	41+39 VE	LT	3	-	12
89+25 VE	-	89+33 VE	LT	2	-	9
93+50 VE	-	93+56 VE	LT	2	-	10
98+00 VE	-	98+09 VE	LT	4	-	13
101+50 VE	-	101+60 VE	LT	4	-	14
105+56 VE	-	105+62 VE	LT	2	-	10
106+50 VE	-	106+56 VE	LT	2	-	10
116+50 LA	-	116+58 LA	LT	4	-	13
139+43 LA	-	139+50 LA	LT	4	-	14
154+15 LA	-	154+30 LA	LT	7	-	22
292+25 LA	-	292+45 LA	LT	-	24	53
ITEM TOTALS				33	24	182

CULVERT LINING ITEMS

		520.9700.S CULVERT PIPE LINERS (SIZE) 01.60-INCH	520.9750.S CLEANING CULVERT PIPES FOR LINER VERIFICATIONS
STATION	LOCATION	LF	EACH
311+18 LA	ML	178	1
ITEM TOTALS		178	1

STEEL PLATE BEAM GUARD

				614.0200 STEEL THRIE BEAM STRUCTURE APPROACH	614.0305 STEEL PLATE BEAM GUARD CLASS A	614.0345 STEEL PLATE BEAM GUARD SHORT RADIUS	614.0390 STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
STA	TO	STA	LOCATION	LF	LF	LF	EACH
30+52 VE	-	30+88 VE	LT	20.7	-	37.5	1
45+13 VE	-	45+53 VE	LT	20.7	12.5	25	1
46+25 VE	-	46+65 VE	LT	20.7	12.5	25	1
ITEM TOTALS				62.1	25.0	87.5	3

MGS GUARDRAIL ITEMS

				614.2300 MGS GUARDRAIL 3	614.2330 MGS GUARDRAIL 3 K	614.2340 MGS GUARDRAIL 3 L	614.2350 MGS GUARDRAIL SHORT RADIUS	614.2500 MGS THRIE BEAM TRANSITION	614.2610 MGS GUARDRAIL TERMINAL EAT	614.2620 MGS GUARDRAIL TERMINAL TYPE 2	614.2630 MGS GUARDRAIL SHORT RADIUS TERMINAL
STATION	TO	STATION	LOCATION	LF	LF	LF	LF	EACH	EACH	EACH	EACH
29+71 VE	-	30+88 VE	RT	25	-	-	-	39.4	1	-	-
31+43 VE	-	32+49 VE	RT	12.5	-	-	-	39.4	1	-	-
31+43 VE	-	32+99 VE	LT	62.5	-	-	-	39.4	1	-	-
36+18 VE	-	39+34 VE	LT	25	237.5	-	-	-	1	1	-
44+66 VE	-	45+59 VE	RT	-	-	-	-	39.4	1	-	-
46+30 VE	-	49+50 VE	RT	275	-	-	-	39.4	-	-	-
49+50 VE	-	51+15 VE	RT	-	162.5	-	-	-	-	-	-
51+15 VE	-	51+27 VE	RT	12.5	-	-	-	-	-	-	-
51+27 VE	-	51+76 VE	RT	25	-	-	25	-	-	-	1
54+47 VE	-	58+05 VE	RT	237.5	-	-	37.5	-	1	-	1
58+75 VE	-	77+80 VE	RT	1275	525	-	-	-	2	-	-
80+40 VE	-	85+01 VE	RT	237.5	-	112.5	-	-	2	-	-
80+64 VE	-	84+40 VE	LT	162.5	-	112.5	-	-	2	-	-
88+66 VE	-	118+58 LA	LT	-	2900	-	-	-	2	-	-
121+25 LA	-	136+84 LA	LT	-	1450	-	-	-	2	-	-
290+45 LA	-	294+39 LA	LT	-	287.5	-	-	-	2	-	-
308+10 LA	-	313+18 LA	LT	-	400	-	-	-	2	-	-
309+47 LA	-	313+05 LA	RT	-	300	-	37.5	-	1	-	1
ITEM TOTALS				2350	6262.5	225	100	197	21	1	3

FENCE SAFETY

		616.0700.S FENCE SAFETY	
STATION	LOCATION	LF	REMARKS
85+50 VE	ML, RT	55	FOUNDATION
299+75 LA	ML, RT	140	CEMETERY
309+43 LA	ML, LT	55	GRAVE SITE
ITEM TOTALS		250	

EROSION CONTROL ITEMS

				628.7504 TEMPORARY DITCH CHECKS	628.7555 * CULVERT PIPE CHECKS	628.7005 INLET PROTECTION TYPE A	628.7010 INLET PROTECTION TYPE B	628.7015 INLET PROTECTION TYPE C
STA	TO	STA	LOCATION	LF	EACH	EACH	EACH	EACH
31+50 VE	-	34+00 VE	LT	32	-	-	-	-
41+30 VE	-		RT	-	-	1	-	1
46+75 VE	-		RT	-	-	2	-	1
47+00 VE	-	60+00 VE	LT	72	3	-	-	-
50+25 VE	-		LT	-	-	1	-	1
51+75 VE	-		LT	-	-	1	-	1
57+45 VE	-		LT	-	-	2	1	1
61+50 VE	-		LT	-	-	1	-	1
64+40 VE	-		LT	-	-	-	1	-
72+00 VE	-		LT	-	-	1	1	-
75+25 VE	-	86+00 VE	LT/RT	152	-	-	-	-
89+25 VE	-	93+50 VE	RT	112	-	2	1	1
98+00 VE	-		RT	-	-	1	1	-
98+50 VE	-	101+00 VE	RT	24	6	-	-	-
101+50 VE	-		RT	-	-	1	-	1
105+60 VE	-		RT	-	-	1	-	1
106+50 VE	-		RT	-	-	1	1	-
106+50 VE	-	121+00 LA	RT	352	3	-	-	-
109+35 LA	-		RT	-	-	1	1	-
116+50 LA	-		RT/LT	-	-	3	1	2
124+50 LA	-	139+50 LA	RT	-	15	-	-	-
135+55 LA	-		RT	-	-	1	1	-
311+10 LA	-		LT	-	-	1	-	1
UNDISTRIBUTED				56	-	-	-	-
ITEM TOTALS				800	27	21	9	12

* ADDITIONAL QUANTITIES SHOWN ELSEWHERE IN PLAN.

EROSION MAT

				628.2006 EROSION MAT URBAN CLASS I TYPE A	628.2027 EROSION MAT CLASS II TYPE C	628.2037 EROSION MAT CLASS III TYPE C
STA	TO	STA	LOCATION	SY	SY	SY
31+50 VE	-	34+00 VE	LT	223	-	-
37+75 VE	-	41+30 VE	RT	316	-	-
46+92 VE	-	49+95 VE	LT	270	-	-
49+00 VE	-	51+15 VE	RT	-	91	-
50+50 VE	-	51+75 VE	LT	-	88	-
56+00 VE	-	58+05 VE	RT	-	98	-
57+43 VE	-	60+00 VE	LT	229	-	-
59+25 VE	-	77+25 VE	RT	-	899	-
75+25 VE	-	77+00 VE	LT	156	-	-
79+25 VE	-	82+20 VE	LT	263	-	-
80+75 VE	-	81+50 VE	RT	67	-	-
81+50 VE	-	82+75 VE	RT	-	48	-
82+25 VE	-	83+25 VE	LT	-	44	-
82+75 VE	-	85+95 VE	RT	285	-	-
83+25 VE	-	84+20 VE	LT	85	-	-
89+20 VE	-	108+00 VE	LT	-	1141	-
89+25 VE	-	92+10 VE	RT	-	-	254
92+10 VE	-	97+25 VE	RT	-	-	781
97+25 VE	-	101+25 VE	RT	356	-	-
106+25 VE	-	107+50 VE	RT	-	98	-
106+50 VE	-	108+40 VE	RT	-	-	169
109+35 VE	-	110+00 VE	RT	-	-	58
109+55 VE	-	110+00 VE	LT	-	27	-
110+00 LA	-	117+00 LA	LT	-	369	-
110+00 LA	-	120+00 LA	RT	-	-	889
121+75 LA	-	136+00 LA	LT	-	950	-
289+50 LA	-	290+90 LA	LT	97	-	-
290+95 LA	-	292+50 LA	LT	-	468	-
292+00 LA	-	295+20 LA	RT	-	52	-
292+50 LA	-	295+20 LA	LT	557	-	-
308+00 LA	-	308+75 LA	LT	65	-	-
312+25 LA	-	313+50 LA	LT	102	-	-
312+25 LA	-	313+50 LA	RT	153	-	-
UNDISTRIBUTED				350	600	250
ITEM TOTALS				3,574	4,973	2,401

LANDSCAPING ITEMS

				625.0500 SALVAGED TOPSOIL	627.0200 MULCHING	629.0210 FERTILIZER TYPE B	630.0130 SEEDING MIXTURE NO.30	630.0140 SEEDING MIXTURE NO. 40	630.0200 SEEDING TEMPORARY	630.0500 SEED WATER
STA	TO	STA	LOCATION	SY	SY	CWT	LB	LB	LB	MGAL
28+50 VE	-	33+00 VE	RT	400	400	0.3	7	-	11	9
30+50 VE	-	34+50 VE	LT	558	336	0.4	10	-	15	13
35+50 VE	-	42+00 VE	RT	512	196	0.3	9	-	14	11
35+50 VE	-	38+00 VE	LT	245	245	0.2	4	-	7	6
38+00 VE	-	39+25 VE	LT	83	83	0.1	-	1	2	2
44+10 VE	-	45+60 VE	RT	92	92	0.1	-	2	2	2
44+75 VE	-	45+50 VE	LT	62	62	0.1	-	1	2	1
46+30 VE	-	47+10 VE	LT	86	70	0.1	-	2	2	2
46+30 VE	-	51+75 VE	RT	341	250	0.2	6	-	9	8
47+10 VE	-	53+60 VE	LT	515	159	0.3	9	-	14	12
53+25 VE	-	58+25 VE	RT	327	229	0.2	6	-	9	7
57+20 VE	-	60+25 VE	LT	311	82	0.2	6	-	8	7
58+45 VE	-	79+00 VE	RT	1,160	261	0.7	21	-	31	26
75+25 VE	-	77+00 VE	LT	156	-	0.1	3	-	4	4
79+25 VE	-	85+60 VE	LT	557	165	0.4	10	-	15	13
79+25 VE	-	85+95 VE	RT	544	352	0.3	10	-	15	12
88+25 VE	-	110+00 LA	LT	1,419	251	0.9	26	-	38	32
89+25 VE	-	110+00 LA	RT	2,215	499	1.4	40	-	60	50
110+00 LA	-	124+10 LA	RT	972	83	0.6	17	-	26	22
110+00 LA	-	138+10 LA	LT	1,981	662	1.2	36	-	53	44
130+75 LA	-	134+00 LA	RT	238	238	0.1	4	-	6	5
289+25 LA	-	295+60 LA	LT	1,229	107	0.8	22	-	33	28
291+75 LA	-	292+75 LA	RT	137	85	0.1	2	-	4	3
306+85 LA	-	314+40 LA	LT	417	250	0.3	8	-	11	9
309+50 LA	-	314+40 LA	RT	372	219	0.2	7	-	10	8
UNDISTRIBUTED				2,971	624	2	52	2	72	65
ITEM TOTALS				17,900	6,000	12	315	8	473	401

SILT FENCE

				628.1504 SILT FENCE	628.1520 SILT FENCE MAINTENANCE
STA	TO	STA	LOCATION	LF	LF
28+49 VE	-	31+01 VE	RT	252	504
30+70 VE	-	30+86 VE	LT	25	50
99+00	-	99+41	LT	41	82
31+30 VE	-	31+45 VE	LT	15	30
31+30 VE	-	32+92 VE	RT	162	324
35+55 VE	-	38+25 VE	LT	270	540
38+85 VE	-	39+25 VE	LT	40	80
45+25 VE	-	45+65 VE	LT	40	80
45+26 VE	-	45+68 VE	RT	42	84
46+15 VE	-	46+52 VE	LT	37	74
46+46 VE	-	46+75 VE	RT	29	58
58+40 VE	-	59+27 VE	RT	87	174
77+27 VE	-	79+00 VE	RT	173	346
79+22 VE	-	80+77 VE	RT	155	310
81+50 VE	-	82+12 VE	RT	62	124
84+20 VE	-	85+61 VE	LT	141	282
88+24 VE	-	89+18 VE	LT	94	188
116+94 LA	-	121+83 LA	LT	489	978
290+50 LA	-	292+19 LA	LT	169	338
292+26 LA	-	293+25 LA	LT	99	198
312+32 LA	-	313+98 LA	LT	166	332
312+35 LA	-	314+40 LA	RT	205	410
UNDISTRIBUTED				707	1414
ITEM TOTALS				3500	7000

MOBILIZATION EROSION CONTROL

			628.1905 MOBILIZATIONS EROSION CONTROL	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL
LOCATION			EACH	EACH
PROJECT 5820-01-68			8	4
ITEM TOTALS			8	4

TURBIDITY BARRIER

					628.6005 TURBIDITY BARRIER
STA	TO	STA	SY	REMARKS	
30+85 VE	-	31+10 VE	63	STRUCTURE B-62-265	
31+20 VE	-	31+50 VE	47	STRUCTURE B-62-265	
45+70 VE	-	45+80 VE	56	STRUCTURE B-62-266	
45+85 VE	-	46+10 VE	84	STRUCTURE B-62-266	
ITEM TOTALS			250		

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TRAFFIC CONTROL SUMMARY

LOCATION	DURATION DAYS	643.0300 TRAFFIC CONTROL DRUMS		643.0420 TRAFFIC CONTROL BARRICADES TYPE III		643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A		643.0900 TRAFFIC CONTROL SIGNS		643.1050 TRAFFIC CONTROL SIGNS PCMS		643.5000 TRAFFIC CONTROL 5820-01-68	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II		REMARKS	
		QTY*	DAY	QTY*	DAY	QTY*	DAY	QTY*	DAY	QTY*	DAY	EACH	EACH	NO. OF CYCLES		NO. OF SIGNS
STH 162 LACROSSE / VERNON	7	-	-	-	-	-	-	-	-	2	14	1	-	-	-	ADVANCED WARNING
	120	180	21,600	-	-	-	-	228	27,360	-	-	-	14	1	14	DETOUR ROUTE
	60	-	-	20	1,200	40	2,400	22	1,320	2	14	-	-	-	-	STRUCTURE B-62-987 REPLACEMENT
	60	-	-	20	1,200	40	2,400	23	1,380	-	-	-	-	-	-	STRUCTURE B-62-988 REPLACEMENT
	100	180	18,000	4	400	8	800	19	1,900	-	-	-	-	-	-	BEAM GUARD AREAS
UNDISTRIBUTED			-		100		200		-		-	-	-	-	-	
ITEM TOTALS			39,600		2,900		5,800		31,960		28	1			14	

* FOR INFORMATION ONLY

SIGN ITEMS

STATION	TO	STATION	LOCATION	634.0614 POSTS WOOD 4X6-14-FT	634.0616 POSTS WOOD 4X6-16-FT	634.0618 POSTS WOOD 4X6-18-FT	638.2102 MOVING SIGNS TYPE II	638.2602 REMOVING SIGNS TYPE II	638.3000 REMOVING SMALL SIGN SUPPORTS	638.4000 MOVING SMALL SIGN SUPPORTS	COMMENTS
				EACH	EACH	EACH	EACH	EACH	EACH	EACH	
28+50 VE	-	139+00 LA		30	16	6	52	-	52	-	
289+00 LA		295+00 LA		-	1	-	1	-	1	-	
		30+02 VE	LT & RT	-	-	-	-	2	2	-	TIGER STRIPS
		30+63 VE	LT	-	-	-	1	-	-	1	STREET SIGN
		31+26 VE	LT & RT	-	-	-	-	2	2	-	TIGER STRIPS
		36+65 VE	LT	-	-	-	-	1	1	-	NARROW BRIDGE
		37+25 VE	RT	-	-	-	-	1	1	-	NARROW BRIDGE
		47+71 VE	LT & RT	-	-	-	-	2	2	-	TIGER STRIPS
		46+05 VE	LT & RT	-	-	-	-	2	2	-	TIGER STRIPS
		50+00 VE	LT	-	-	-	-	1	1	-	NARROW BRIDGE
ITEM TOTALS				30	17	6	54	11	64	1	

LOCATING NO-PASSING ZONE

STATION	TO	STATION	LOCATION	648.0100 LOCATING NO-PASSING ZONE MI
11+75 VE	-	339+00 LA	ML	6.2
ITEM TOTALS				6.2

USE 0.21 FOR THE LOCATING NO PASSING ZONE SITE DISTANCE

PAVEMENT MARKING ITEMS

STATION	TO	STATION	LOCATION	643.3165 TEMPORARY MARKING LINE PAINT 6-INCH	646.2040 MARKING LINE GROOVED WET EPOXY 6-INCH		646.6466 COLD WEATHER EPOXY 6-INCH		REMARKS
				LF	WHITE LF	YELLOW LF	WHITE LF	YELLOW LF	
11+75 VE	-	260+50 LA	ML	142,250	49,750	49,750	24,875	24,875	DOUBLE YELLOW
260+50 LA	-	272+00 LA	ML	3,300	2,300	1,450	1,150	725	SOLID SB, DASHED NB
272+00 LA	-	339+00 LA	ML	40,200	13,400	13,400	6,700	6,700	DOUBLE YELLOW
SUBTOTALS				185,750	65,450	64,600	32,725	32,300	
ITEM TOTALS				185,750	130,050		65,025		

STAKING ITEMS

STATION	TO	STATION	LOCATION	650.4000 CONSTRUCTION STAKING STORM SEWER	650.4500 CONSTRUCTION STAKING SUBGRADE	650.5000 CONSTRUCTION STAKING BASE	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE	650.9911 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) 01. 5820-01-68	650.9920 CONSTRUCTION STAKING SLOPE STAKES
				EACH	LF	LF	LF	EACH	LF
11+75 VE	-	339+00 LA		-	-	-	-	1	-
11+75 VE	-	30+00 VE		-	-	-	1,825	-	-
28+52 VE	-	34+50 VE		-	-	-	-	-	598
30+00 VE	-	32+25 VE		-	225	225	-	-	-
32+25 VE	-	44+75 VE		-	-	-	1,250	-	-
35+58 VE	-	42+00 VE		-	-	-	-	-	642
		41+30 VE		2	-	-	-	-	-
44+12 VE	-	78+99 VE		-	-	-	-	-	3487
44+75 VE	-	48+00 VE		-	325	325	-	-	-
		46+76 VE	RT	3	-	-	-	-	-
48+00 VE	-	339+00 LA		-	-	-	29,100	-	-
		50+25 VE	LT	2	-	-	-	-	-
		51+75 VE		2	-	-	-	-	-
		57+43 VE	LT	1	-	-	-	-	-
		61+47 VE	LT	1	-	-	-	-	-
		72+00 VE	LT	1	-	-	-	-	-
79+19 VE	-	85+89 VE		-	-	-	-	-	670
88+06 VE	-	138+02 LA		-	-	-	-	-	4,996
		89+25 VE		2	-	-	-	-	-
		93+50 VE		2	-	-	-	-	-
		98+00 VE		2	-	-	-	-	-
		101+50 VE		2	-	-	-	-	-
		105+62 VE		2	-	-	-	-	-
		106+50 VE		2	-	-	-	-	-
		109+36 VE	RT	1	-	-	-	-	-
		116+50 LA		4	-	-	-	-	-
		135+59 LA	RT	1	-	-	-	-	-
289+26 LA	-	295+58 LA		-	-	-	-	-	632
306+91 LA	-	314+36 LA		-	-	-	-	-	745
		311+08 LA		2	-	-	-	-	-
ITEM TOTALS				32	550	550	32,175	1	11,770

3

						SAWING	
				690.0150 SAWING ASPHALT	690.0250 SAWING CONCRETE		
STATION	TO	STATION	LOC	LF	LF	REMARKS	
28+50 VE	-	30+00 VE	RT	150	-	EDGE OF PVMNT	
98+75	-	99+70	LT	120	-	VALLEY VIEW	
		30+00 VE	ML	50	-	STRUCTURE B-62-265 APPROACHES	
		32+25 VE	ML	24	-	STRUCTURE B-62-265 APPROACHES	
32+25 VE	-	34+60 VE	LT	235	-	EDGE OF PVMNT	
32+25 VE	-	32+90	RT	65	-	EDGE OF PVMNT	
35+58 VE	-	39+34 VE	LT	376	-	EDGE OF PVMNT	
35+69 VE		40+79 VE	RT	510	-	EDGE OF PVMNT FOR NEW C&G	
		35+69 VE	RT	-	3	CURB & GUTTER	
	-	35+75 VE	RT	28	-	DWY	
40+78 VE	-	41+78 VE	ML	48	-	INSTALL INLET 1-1 & PIPE	
41+78 VE	-	42+00 VE	RT	22	-	EDGE OF PVMNT FOR NEW C&G	
		42+00 VE	RT	-	3	CURB & GUTTER	
		44+12 VE	RT	-	3	CURB & GUTTER	
44+12 VE	-	44+75 VE	RT	63	-	EDGE OF PVMNT FOR NEW C&G	
		44+75 VE	ML	24	-	STRUCTURE B-62-266 APPROACHES	
		48+00 VE	ML	26	-	STRUCTURE B-62-266 APPROACHES	
48+00 VE	-	51+15 VE	RT	315	-	EDGE OF PVMNT FOR NEW C&G	
50+00 VE	-	51+15 VE	LT	115	-	EDGE OF PVMNT FOR NEW C&G	
51+15 VE	-	51+85 VE	ML	87	-	INSTALL INLET 3-1 & PIPE	
		51+87 VE	RT	65	-	DWY	
51+85 VE	-	53+65 VE	LT	180	-	EDGE OF PVMNT FOR NEW C&G	
52+25 VE	-	58+10 VE	RT	606	-	EDGE OF PVMNT	
		53+65 VE	LT	-	3	CURB & GUTTER	
		57+19 VE	LT	-	3	CURB & GUTTER	
57+19 VE	-	57+33 VE	LT	14	-	EDGE OF PVMNT FOR NEW C&G	
57+33 VE	-	57+53 VE	LT	42	-	INSTALL INLETS 4-1, 4-2	
57+53 VE	-	60+25 VE	LT	272	-	EDGE OF PVMNT FOR NEW C&G	
58+50 VE	-	85+90 VE	RT	2,740	-	EDGE OF PVMNT FOR NEW C&G	
		60+25 VE	LT	-	3	CURB & GUTTER	
61+37 VE	-	61+57 VE	LT	44	-	INSTALL INLET 5-1	
		61+47 VE	LT	-	6	REPLACE INLET 5-1	
71+90 VE	-	72+10 VE	LT	46	-	INSTALL INLET 7-1	
79+45 VE	-	85+70 VE	LT	625	-	EDGE OF PVMNT	
88+05 VE	-	88+75 VE	LT	70	-	EDGE OF PVMNT	
88+75 VE	-	89+75 VE	ML	46	-	INSTALL INLET 8-1 & PIPE	
89+75 VE	-	92+99 VE	LT/RT	648	-	EDGE OF PVMNT FOR NEW C&G	
92+98 VE	-	94+00 VE	ML	44	-	INSTALL INLET 9-1 & PIPE	
94+00 VE	-	97+50 VE	LT/RT	700	-	EDGE OF PVMNT	
97+50 VE	-	98+50 VE	ML	44	-	INSTALL INLET 10-1 & PIPE	
ITEM SUBTOTALS				8,444	24		

BIRD DETERRENT SYSTEMS

		999.2005.S.01 MAINTAINING BIRD DETERRENT SYSTEM (01. 31+13 VE)	999.2005.S.02 MAINTAINING BIRD DETERRENT SYSTEM (02. 45+88 VE)
CATEGORY	STATION	EACH	EACH
0020	31+13 VE	1	-
0030	45+88 VE	-	1
ITEM TOTALS		1	1

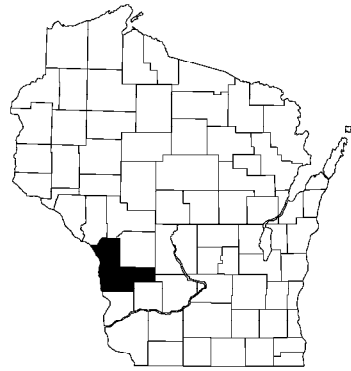
						SAWING	
				690.0150 SAWING ASPHALT	690.0250 SAWING CONCRETE		
STATION	TO	STATION	LOC	LF	LF	REMARKS	
98+50 VE	-	101+00 VE	LT/RT	500	-	EDGE OF PVMNT	
101+00 VE	-	102+00 VE	ML	44	-	INSTALL INLET 11-1 & PIPE	
102+00 VE	-	105+10 VE	LT/RT	620	-	EDGE OF PVMNT	
105+10 VE	-	107+00 VE	ML	44	-	INSTALL 12-1, 13-1, PIPE	
107+00 VE	-	115+60 LA	LT/RT	1,720	-	EDGE OF PVMNT	
115+60 LA	-	117+00 LA	ML	44	-	INSTALL INLET16-1,16-2,16-3, PIPE	
117+00 LA	-	138+04 LA	LT	2,104	-	EDGE OF PVMNT	
117+00 LA	-	120+00 LA	RT	300	-	EDGE OF PVMNT FOR NEW C&G	
128+75 LA	-	129+40 LA	RT	91	-	EXTEND PIPE	
130+65 LA	-	134+00 LA	RT	335	-	EDGE OF PVMNT FOR NEW C&G	
135+35 LA	-	135+85 LA	RT	76	-	INSTALL INLET 17-1	
138+97 LA	-	140+10 LA	ML	56	-	CULVERT REPLACEMENT	
		146+60 LA	RT	17	-	DWY	
153+63 LA	-	154+66 LA	ML	54	-	CULVERT REPLACEMENT	
214+75 LA	-	215+73 LA	ML	50	-	CULVERT REPLACEMENT	
289+26 LA	-	291+73 LA	LT	247	-	EDGE OF PVMNT	
291+73 LA	-	292+77 LA	ML	48	-	72" CULVERT REPLACEMENT	
292+77 LA	-	295+58 LA	LT	281	-	EDGE OF PVMNT	
306+91 LA	-	310+58 LA	LT	367	-	EDGE OF PVMNT FOR NEW C&G	
309+68 LA	-	310+58 LA	RT	90	-	EDGE OF PVMNT FOR NEW C&G	
310+58 LA	-	311+58 LA	ML	48	-	INSTALL INLET 18-1,18-2, PIPE	
311+58 LA	-	314+67 LA	LT	309	-	EDGE OF PVMNT FOR NEW C&G	
311+58 LA	-	314+24 LA	RT	266	-	EDGE OF PVMNT FOR NEW C&G	
ITEM SUBTOTALS				7,711	0		
ITEM SUBTOTALS (FIRST COLUME)				8,444	24		
ITEM TOTALS				16,155	24		

LANDMARK REFERENCE MONUMENTS

				SPV.0060.01 LANDMARK REFERENCE MONUMENTS	
STATION	OFFSET	TOWN/RANGE/SECTION	EACH	REMARKS	
308+96 LA	19 LT	15N5WSECTION16	1	SOUTHWEST CORNER	
335+30 LA	0 RT	15N5WSECTION16	1	WEST QUARTER CORNER	
ITEM TOTALS			2		

NOTE: ALL ITEMS CATEGORY 0010 UNLESS NOTED OTHERWISE.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION PROJECT PLAT TITLE SHEET
5820-01-28
COON VALLEY - BANGOR
USH 14 TO STH 33
STH 162
LA CROSSE/VERNON COUNTIES



CONVENTIONAL SYMBOLS

SECTION LINE	---	SECTION CORNER SYMBOL		R/W MONUMENT (TO BE SET)	•
QUARTER LINE	---	NON-MONUMENTED R/W POINT	○		
SIXTEENTH LINE	---	SECTION CORNER MONUMENT	⊕	FOUND IRON PIN (1-INCH UNLESS NOTED)	IP
NEW REFERENCE LINE	---	GEODETIC SURVEY MONUMENT	⊕		
NEW R/W LINE	---	SIXTEENTH CORNER MONUMENT	⊕		
EXISTING R/W OR HE LINE	---	SIGN	⊕	OFF-PREMISE SIGN	⊕
PROPERTY LINE	---				
LOT, TIE & OTHER MINOR LINES	---				
SLOPE INTERCEPT	---				
CORPORATE LIMITS	---	ELECTRIC POLE	⊕	COMPENSABLE	⊕
UNDERGROUND FACILITY (COMMUNICATIONS, ELECTRIC, ETC.)	---	TELEPHONE POLE	⊕	NON-COMPENSABLE	⊕
NEW R/W (FEE OR HE) (HATCHING VARIES BY OWNER)	---	PEDESTAL (LABEL TYPE) (TV, TEL, ELEC, ETC.)	⊕		
TEMPORARY LIMITED EASEMENT AREA	---	ACCESS RESTRICTED BY ACQUISITION	⊕		
EASEMENT AREA (PERMANENT LIMITED OR RESTRICTED DEVELOPMENT)	---	NO ACCESS (BY STATUTORY AUTHORITY)	⊕		
		ACCESS RESTRICTED (BY PREVIOUS PROJECT OR CONTROL)	⊕		
		NO ACCESS (NEW HIGHWAY)	⊕		
TRANSMISSION STRUCTURES	---	PARCEL NUMBER (25)	⊕	UTILITY NUMBER (40)	⊕
BUILDING	---	PARALLEL OFFSETS	⊕		
TO BE REMOVED	---				
BRIDGE	---				
CULVERT	---				

CONVENTIONAL ABBREVIATIONS

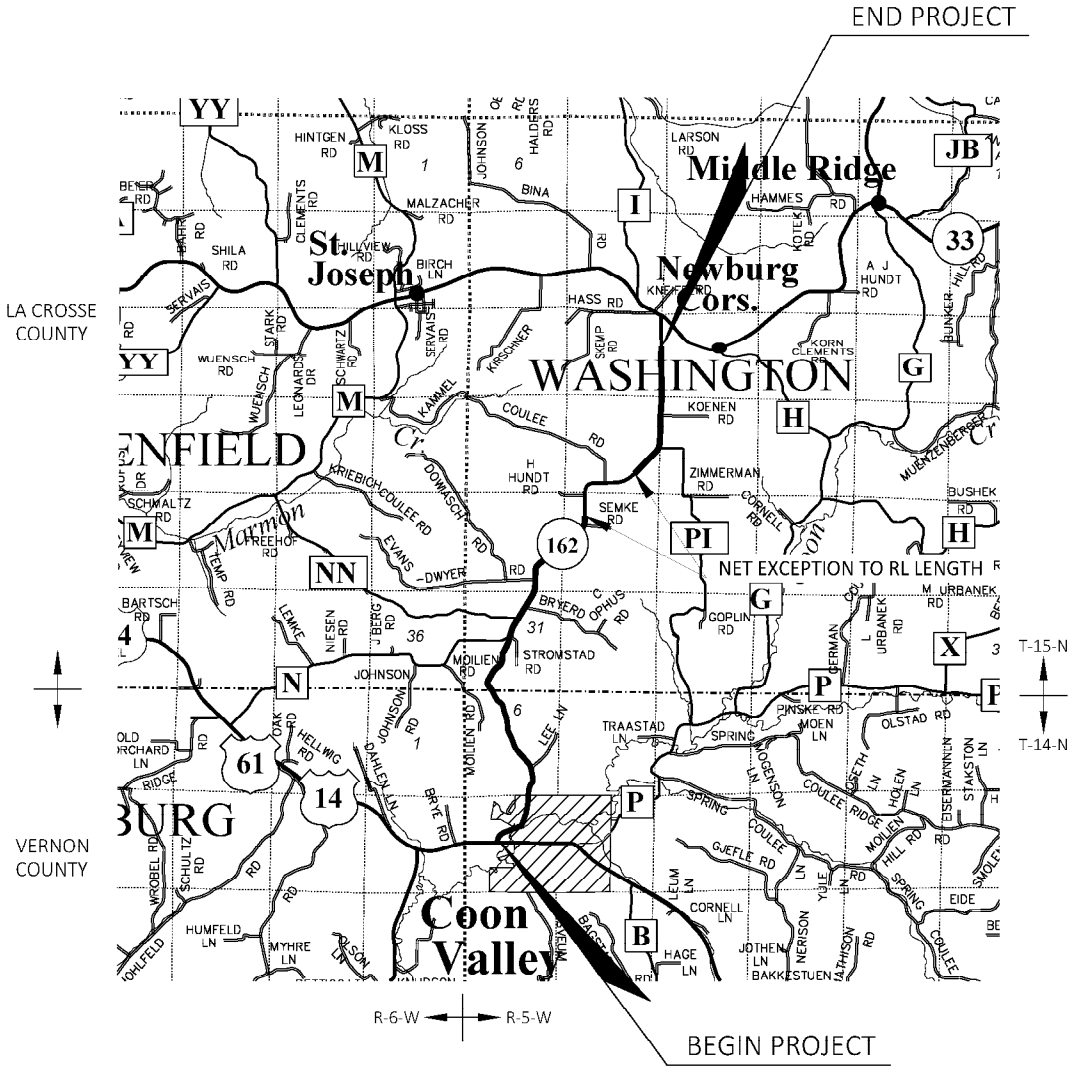
ACCESS RIGHTS	AR	POINT OF COMPOUND CURVE	PCC
ACRES	AC	POINT OF INTERSECTION	PI
AHEAD	AH	PROPERTY LINE	PL
ALUMINUM	ALUM	RECORDED AS (100')	
AND OTHERS	ET AL	REEL / IMAGE	R/I
BACK	BK	REFERENCE LINE	R/L
BLOCK	BLK	REMAINING	REM
CENTERLINE	C/L	RESTRICTIVE DEVELOPMENT	RDE
CERTIFIED SURVEY MAP	CSM	EASEMENT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

CURVE DATA ABBREVIATIONS

LONG CHORD	LCH
LONG CHORD BEARING	LCB
RADIUS	R
DEGREE OF CURVE	D
CENTRAL ANGLE	Δ/DELTA
LENGTH OF CURVE	L
TANGENT	T
DIRECTION AHEAD	DA
DIRECTION BACK	DB

CONVENTIONAL UTILITY SYMBOLS

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



THE NOTES, CONVENTIONAL SIGNS, AND ABBREVIATIONS ARE ASSOCIATED WITH EACH TRANSPORTATION PROJECT PLAT FOR PROJECT 5820-01-28

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), VERNON COUNTY, NAD83(2011), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

ALL RIGHT-OF-WAY LINES DEPICTED IN THE NON-ACQUISITION AREAS ARE INTENDED TO RE-ESTABLISH EXISTING RIGHT-OF-WAY LINES AS DETERMINED FROM PREVIOUS PROJECTS, OTHER RECORDED DOCUMENTS, CENTERLINE OF EXISTING PAVEMENTS AND/OR EXISTING OCCUPATIONAL LINES.

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

DIMENSIONING FOR THE NEW RIGHT-OF-WAY IS MEASURED ALONG AND PERPENDICULAR TO THE NEW REFERENCE LINES.

A TEMPORARY LIMITED EASEMENT (TLE) IS A RIGHT FOR CONSTRUCTION PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON, THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE, BUT WITHOUT PREJUDICE TO THE OWNER'S RIGHTS TO MAKE OR CONSTRUCT IMPROVEMENTS ON SAID LANDS OR TO FLATTEN THE SLOPES, PROVIDING SAID ACTIVITIES WILL NOT IMPAIR OR OTHERWISE ADVERSELY AFFECT THE HIGHWAY FACILITIES.

A PERMANENT LIMITED EASEMENT (PLE) IS A RIGHT FOR CONSTRUCTION AND MAINTENANCE PURPOSES, AS DEFINED HEREIN, INCLUDING THE RIGHT TO OPERATE NECESSARY EQUIPMENT THEREON AND THE RIGHT OF INGRESS AND EGRESS, AS LONG AS REQUIRED FOR SUCH PUBLIC PURPOSE, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE, BUT WITHOUT PREJUDICE TO THE OWNER'S RIGHTS TO MAKE OR CONSTRUCT IMPROVEMENTS ON SAID LANDS OR TO FLATTEN THE SLOPES, PROVIDING SAID ACTIVITIES WILL NOT IMPAIR OR OTHERWISE ADVERSELY AFFECT THE HIGHWAY FACILITIES.

AN EASEMENT FOR HIGHWAY PURPOSES (HE), AS LONG AS SO USED, INCLUDING THE RIGHT TO PRESERVE, PROTECT, REMOVE, OR PLANT THEREON ANY VEGETATION THAT THE HIGHWAY AUTHORITIES MAY DEEM DESIRABLE.

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

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN LA CROSSE.

PARCEL AND UTILITY IDENTIFICATION NUMBERS MAY NOT POINT TO ALL AREAS OF ACQUISITION, AS NOTED ON THE TPP DETAIL PAGES.

INFORMATION FOR THE BASIS OF EXISTING HIGHWAY RIGHT-OF-WAY POINTS OF REFERENCE AND ACCESS CONTROL ARE LISTED ON THE TPP DETAIL PAGES.

PROJECT NUMBER	5820-01-28	- 4. 01
SHEET	2 OF 2	
AMENDMENT NO:		72

TRANSPORTATION PROJECT PLAT NO: 5820-01-28 - 4.01

THAT PART OF OUTLOT 2 AND OUTLOT 3 OF VALLEY VIEW ESTATES SECOND ADDITION AND UNPLATTED LANDS EAST OF STH 162
LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER AND THAT PART OF SAID OUTLOT 2 AND OUTLOT 3
LOCATED IN THE SOUTHWEST QUARTER OF NORTHEAST QUARTER. ALL LOCATED IN SECTION 7, TOWNSHIP 14 NORTH, RANGE 5
WEST, VILLAGE OF COON VALLEY, VERNON COUNTY, WISCONSIN

RELOCATION ORDER STH 162 COON VALLEY - BANGOR USH 14 TO STH 33 LA CROSSE/VERNON COUNTIES

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

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SECTION 84.02 (3), 84.09, AND 84.30, WISCONSIN STATUTES, THE DEPARTMENT OF TRANSPORTATION
HEREBY ORDERS THAT:

1. THAT PORTION OF SAID HIGHWAY AS SHOWN ON THIS PLAT IS LAID OUT AND ESTABLISHED TO THE LINES AND WIDTHS AS SO SHOWN FOR THE ABOVE PROJECT.
2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY THE DEPARTMENT FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED
IN THE NAME OF THE STATE OF WISCONSIN, PURSUANT TO THE PROVISIONS OF SECTION 84.09 (1) OR (2), WISCONSIN STATUTES.

SCHEDULE OF LANDS & INTERESTS REQUIRED								
PARCEL NUMBER	OWNER (S)	INTEREST'S REQUIRED	R/W ACRES REQUIRED			H.E. ACRES	T.L.E. ACRES	P.L.E. ACRES
			NEW	EXISTING	TOTAL			
1	CHRISTOPHER C. OLSON AND SUSAN M. OLSON	H.E.	-	-	-	0.053	-	-
2	DAVIS W. MASHAK	H.E.	-	-	-	0.024	-	-

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

UTILITY INTERESTS REQUIRED		
UTILITY NUMBER	OWNER (S)	INTEREST REQUIRED
80	XCEL ENERGY ELECTRIC	RELEASE OF RIGHTS
81	MIDWEST NATURAL GAS, INC	RELEASE OF RIGHTS

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS),
VERNON COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORINATES,
GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" IRON REBARS), UNLESS OTHERWISE
NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

EXISTING HIGHWAY RIGHT-OF-WAY SHOWN IS BASED ON THE FOLLOWING POINTS OF REFERENCE:

EXISTING HIGHWAY RIGHT-OF-WAY FOR STH 162 ESTABLISHED FROM SURVEYS: VALLEY VIEW ESTATES SECOND
ADDITION AND PLAT OF RIGHT OF WAY REQUIRED FOR PROJECT E 0-0 (1), NORTH RIDGE ROAD, VERNON COUNTY,
DATED FEB 9, 1948.

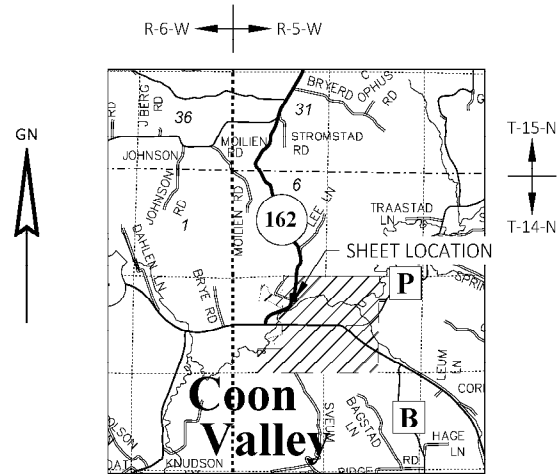
EXISTING HIGHWAY RIGHT-OF-WAY FOR VALLEY VIEW ESTATES LN ESTABLISHED FROM PLAT: VALLEY VIEW ESTATES
SECOND ADDITION.

EXISTING ACCESS CONTROL ALONG STH 162 HAS BEEN ESTABLISHED FROM PLAT VALLEY VIEW ESTATES SECOND
ADDITION DOCUMENT NUMBER 438662.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN
DEPARTMENT OF TRANSPORTATION OFFICE IN LA CROSSE.

SIXTEENTH LINES WERE ESTABLISHED BY SECTION BREAKDOWN OF OBSERVED PLSS MONUMENTS.

FOR ADDITIONAL INFORMATION REFER TO TITLE SHEET, RECORDED AS SHEET 2 OF 2.

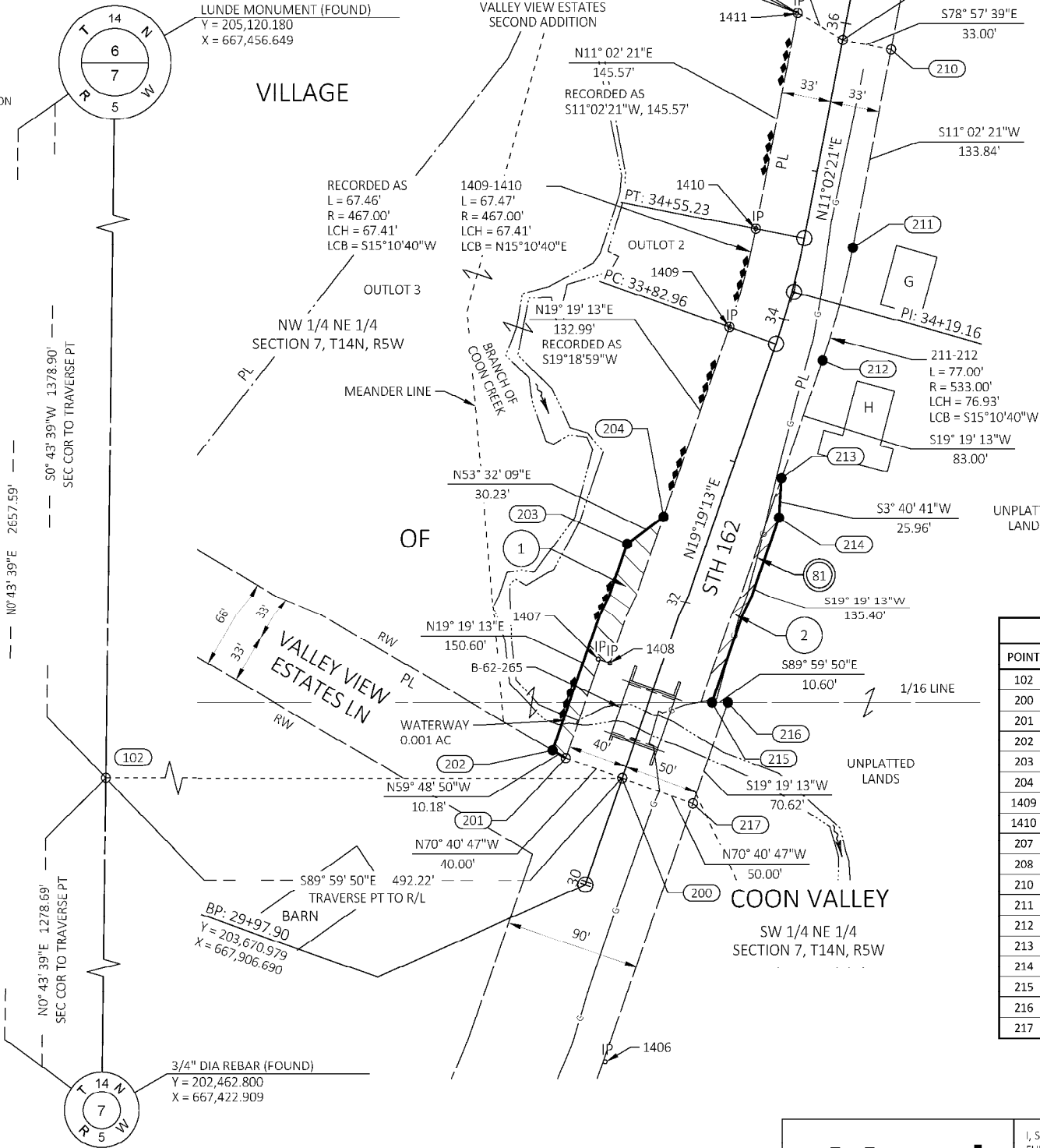


LOCATION SKETCH
NOT TO SCALE

UTILITY EASEMENTS

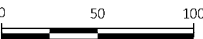
- 80 XCEL ENERGY - ELECTRICITY
V 365, P 478, DOC 332429 - PARCEL 1
- 81 MIDWEST NATURAL GAS, INC - GAS
PRESCRIPTIVE RIGHTS - PARCEL 2

VILLAGE



PI STA = 34+19.16
Y = 204068.515
X = 668046.063
DELTA = 8°16'52" LT
D = 11°27'33"
T = 36.20'
L = 72.27'
R = 500.00'
PC STA = 33+82.96
PT STA = 34+55.23

SCALE, FEET



COORDINATE TABLE				
POINT	STATION	OFFSET	Y	X
102	-	-	203,741.387	667,439.143
200	30+72.48	0.00' LT	203,741.363	667,931.366
201	30+72.48	40.00' LT	203,754.596	667,893.619
202	30+74.40	50.00' LT	203,759.716	667,884.817
203	32+25.00	50.00' LT	203,901.832	667,934.641
204	32+50.00	33.00' LT	203,919.799	667,958.955
1409	33+83.00	33.00' LT	204,045.304	668,002.956
1410	34+55.23	33.00' LT	204,110.360	668,020.604
207	36+00.80	33.00' LT	204,253.239	668,048.478
208	35+89.07	0.00' LT	204,235.400	668,078.620
210	35+89.07	33.00' RT	204,229.081	668,111.010
211	34+55.23	33.00' RT	204,097.722	668,085.383
212	33+82.99	33.00' RT	204,023.473	668,065.241
213	33+00.00	33.00' RT	203,945.148	668,037.781
214	32+75.00	40.00' RT	203,919.240	668,036.115
215	31+39.60	40.00' RT	203,791.462	667,991.318
216	31+43.10	50.00' RT	203,791.462	668,001.914
217	30+72.48	50.00' RT	203,724.820	667,978.550

FOUND MONUMENT TABLE			
POINT	Y	X	DESCRIPTION
1406	203,553.847	667,919.886	3/4" IRON ROD
1407	203,820.250	667,915.255	1 1/4" IRON ROD
1408	203,817.546	667,923.106	1 1/4" IRON ROD
1409	204,045.300	668,002.960	1 1/4" IRON ROD
1410	204,110.360	668,020.600	1 1/4" IRON ROD
1411	204,253.033	668,048.025	3/4" IRON ROD

Mead & Hunt

MEAD & HUNT, INC.
750 N. THIRD STREET
LA CROSSE, WI 54601

I, SEAN M. WALSH, PROFESSIONAL LAND SURVEYOR, HEREBY CERTIFY THAT IN
FULL COMPLIANCE WITH THE PROVISIONS OF SECTION 84.095 OF THE WISCONSIN
STATUTES AND UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION
I HAVE SURVEYED AND MAPPED THIS TRANSPORTATION PROJECT PLAT AND SUCH
PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES OF THE SURVEYED LAND.

SIGNATURE: *Sean M. Walsh* DATE: 4/19/2023

PRINT NAME: SEAN M. WALSH

REGISTRATION NUMBER: S-2016

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

SIGNATURE: *Cory Schlager* DATE: 4/19/2023

PRINT NAME: CORY SCHLAGEL

73

TRANSPORTATION PROJECT PLAT NO: 5820-01-28 - 4.02

THAT PART OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 6, TOWNSHIP 14 NORTH,
RANGE 5 WEST, TOWN OF COON AND THE VILLAGE OF COON VALLEY, VERNON COUNTY, WISCONSIN

RELOCATION ORDER STH 162 COON VALLEY - BANGOR USH 14 - STH 33 LA CROSSE/VERNON COUNTIES

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

TO EFFECT THIS CHANGE, PURSUANT TO AUTHORITY GRANTED UNDER SECTION 84.02 (3), 84.09, AND 84.30, WISCONSIN STATUTES, THE DEPARTMENT OF TRANSPORTATION HEREBY ORDERS THAT:

1. THAT PORTION OF SAID HIGHWAY AS SHOWN ON THIS PLAT IS LAID OUT AND ESTABLISHED TO THE LINES AND WIDTHS AS SO SHOWN FOR THE ABOVE PROJECT.
2. THE LANDS OR INTERESTS OR RIGHTS IN LANDS AS SHOWN ON THIS PLAT ARE REQUIRED BY THE DEPARTMENT FOR THE ABOVE PROJECT AND SHALL BE ACQUIRED IN THE NAME OF THE STATE OF WISCONSIN, PURSUANT TO THE PROVISIONS OF SECTION 84.09 (1) OR (2), WISCONSIN STATUTES.

SCHEDULE OF LANDS & INTERESTS REQUIRED

PARCEL NUMBER	OWNER (S)	INTEREST'S REQUIRED	R/W ACRES REQUIRED			T.I.E. ACRES	P.I.E. ACRES
			NEW	EXISTING	TOTAL		
3	JAMES D. MARTELL AND GREGORY P. MARTELL	FEE	0.084	0.281	0.365	-	-
4	DONALD DUNNUM	FEE	0.024	0.002	0.026	-	-
5	SANDRA L. ONSHUS, OR SUCCESSOR, AS TRUSTEE OF THE SANDRA L. ONSHUS TRUST	FEE	0.066	0.273	0.339	-	-

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

NOTES:

POSITIONS SHOWN ON THIS PLAT ARE WISCONSIN COORDINATE REFERENCE SYSTEM COORDINATES (WISCRS), VERNON COUNTY, NAD83 (2011) IN US SURVEY FEET. VALUES SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ALL NEW RIGHT-OF-WAY MONUMENTS WILL BE TYPE 2 (TYPICALLY 3/4" X 24" IRON REBARS), UNLESS OTHERWISE NOTED, AND WILL BE PLACED PRIOR TO THE COMPLETION OF THE PROJECT.

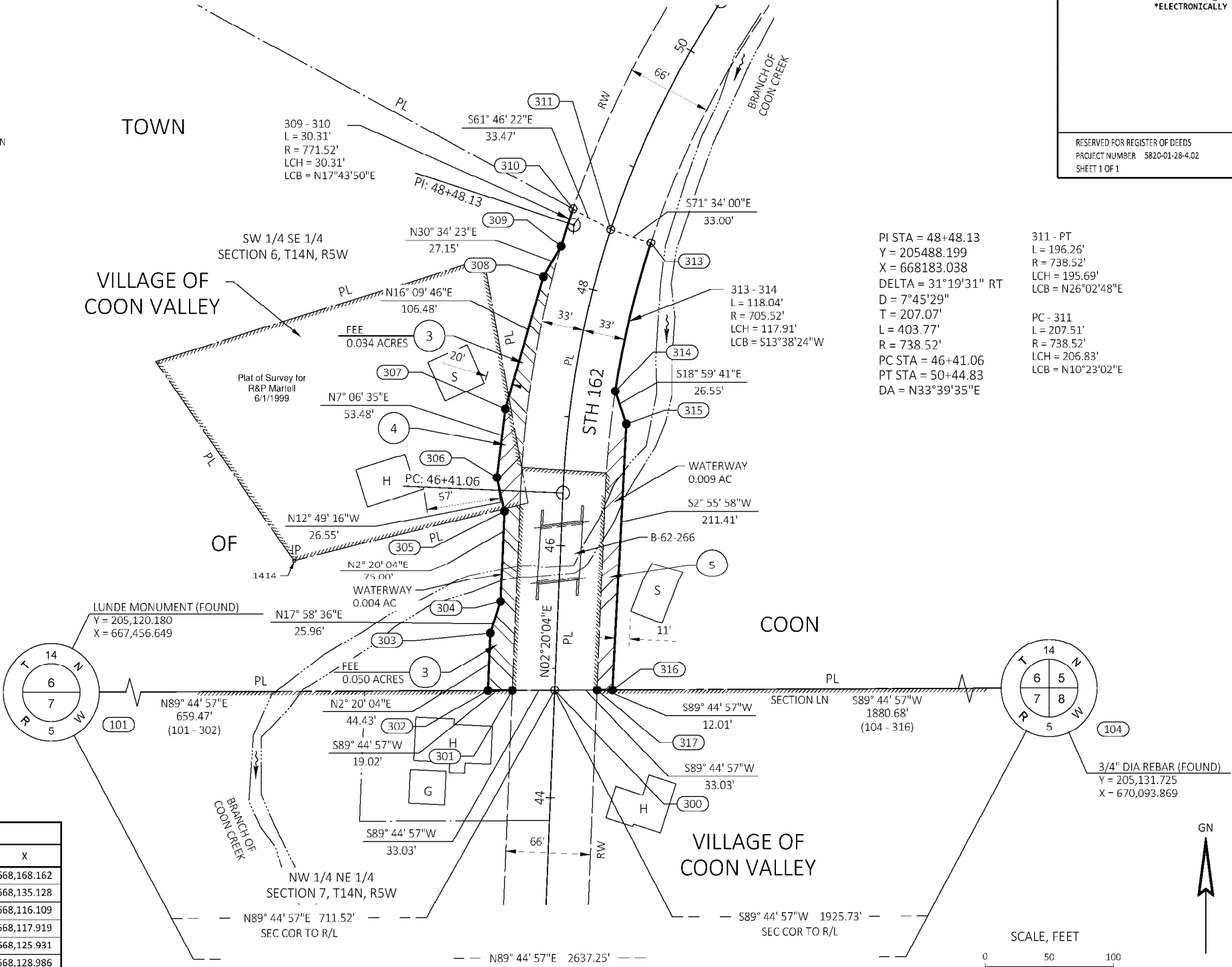
EXISTING HIGHWAY RIGHT-OF-WAY SHOWN IS BASED ON THE FOLLOWING POINTS OF REFERENCE:

EXISTING HIGHWAY RIGHT-OF-WAY FOR STH 162 ESTABLISHED FROM STATION 82.31 USING CENTERLINE OF EXISTING PAVEMENT, PRESUMED 66' WIDTH.

FOR THE CURRENT ACCESS/DRIVEWAY INFORMATION, CONTACT THE PLANNING UNIT OF THE WISCONSIN DEPARTMENT OF TRANSPORTATION OFFICE IN LA CROSSE.

SIXTEENTH LINES WERE ESTABLISHED BY SECTION BREAKDOWN OF OBSERVED PLSS MONUMENTS.

FOR ADDITIONAL INFORMATION REFER TO THE TITLE SHEET, RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS, IN VERNON COUNTY, AS SHEET 2 OF 2 OF DOCUMENT #531482.



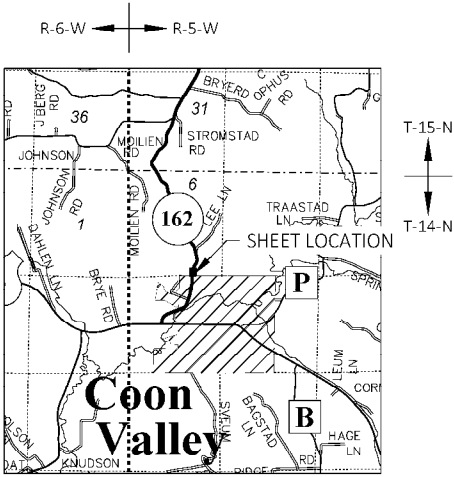
PI STA = 48+48.13
Y = 205488.199
X = 668183.038
DELTA = 31°19'31" RT
D = 7°45'29"
T = 207.07'
L = 403.77'
R = 738.52'
PC STA = 46+41.06
PT STA = 50+44.83
DA = N33°39'35"E

311 - PT
L = 196.26'
R = 738.52'
LCH = 195.69'
LCB = N26°02'48"E

PC - 311
L = 207.51'
R = 738.52'
LCH = 206.83'
LCB = N10°23'02"E

COORDINATE TABLE				
POINT	STATION	OFFSET	Y	X
300	44+82.92	0.00' LT	205,123.295	668,168.162
301	44+81.43	33.00' LT	205,123.150	668,135.128
302	44+80.57	52.00' LT	205,123.067	668,116.109
303	45+25.00	52.00' LT	205,167.458	668,117.919
304	45+50.00	45.00' LT	205,192.152	668,125.931
305	46+25.00	45.00' LT	205,267.090	668,128.986
306	46+50.00	52.00' LT	205,292.981	668,123.094
307	47+00.00	50.00' LT	205,346.049	668,129.713
308	48+00.00	40.00' LT	205,448.321	668,159.354
309	48+25.00	33.00' LT	205,471.699	668,173.165
310	48+54.02	33.00' LT	205,500.569	668,182.395
311	48+48.57	0.00' LT	205,484.740	668,211.882
313	48+48.57	33.00' RT	205,474.306	668,243.189
314	47+25.00	33.00' RT	205,359.724	668,215.384
315	47+00.00	45.00' RT	205,334.624	668,224.024
316	44+84.95	45.00' RT	205,123.492	668,213.207
317	44+84.41	33.00' RT	205,123.440	668,201.195

FOUND MONUMENT TABLE			
POINT	Y	X	DESCRIPTION
1414	205,229.095	667,965.007	3/4" IRON ROD



LOCATION SKETCH
NOT TO SCALE

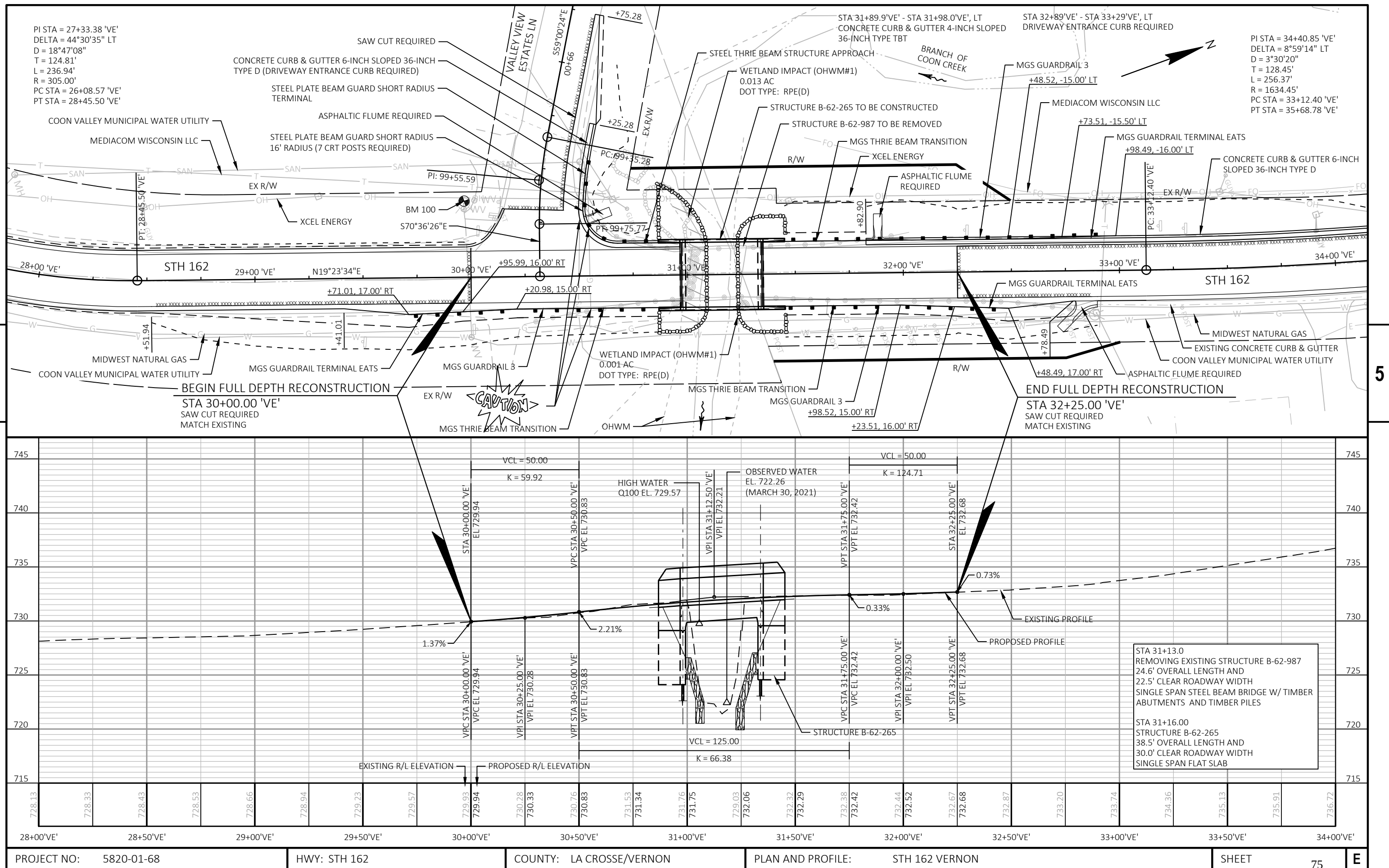
Mead & Hunt

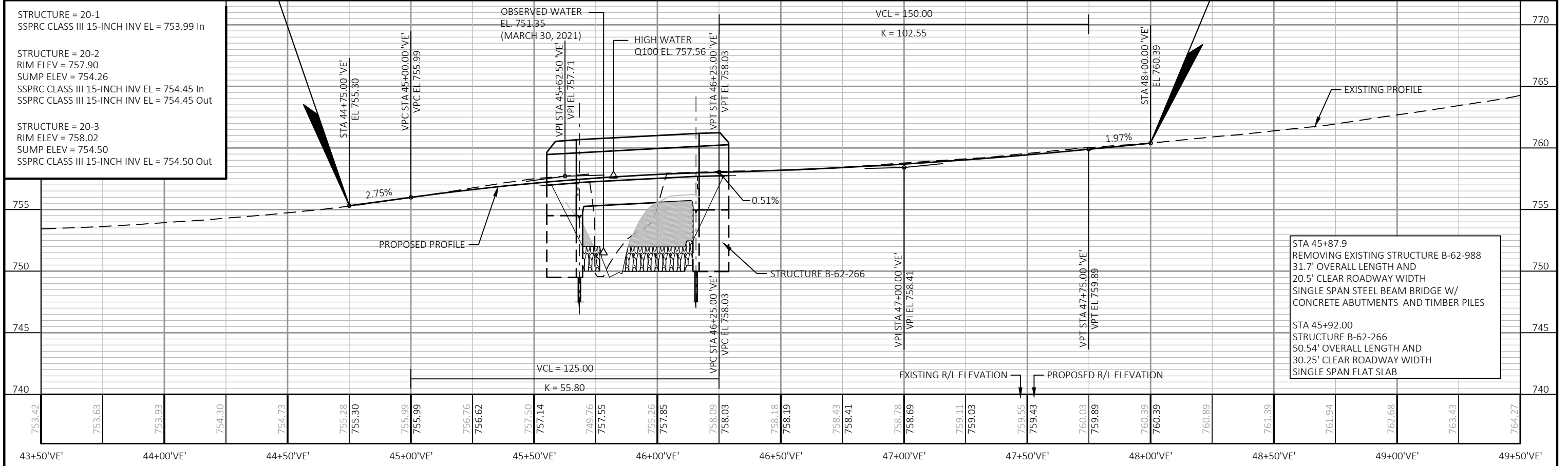
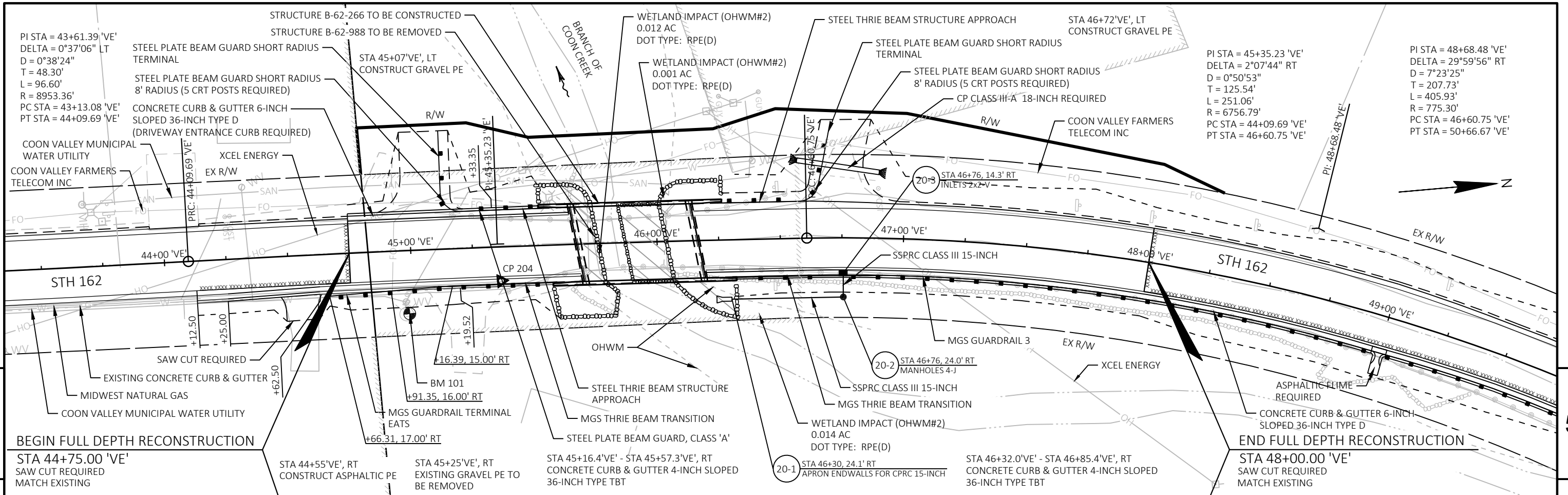
MEAD & HUNT, INC.
750 N. THIRD STREET
LA CROSSE, WI 54601

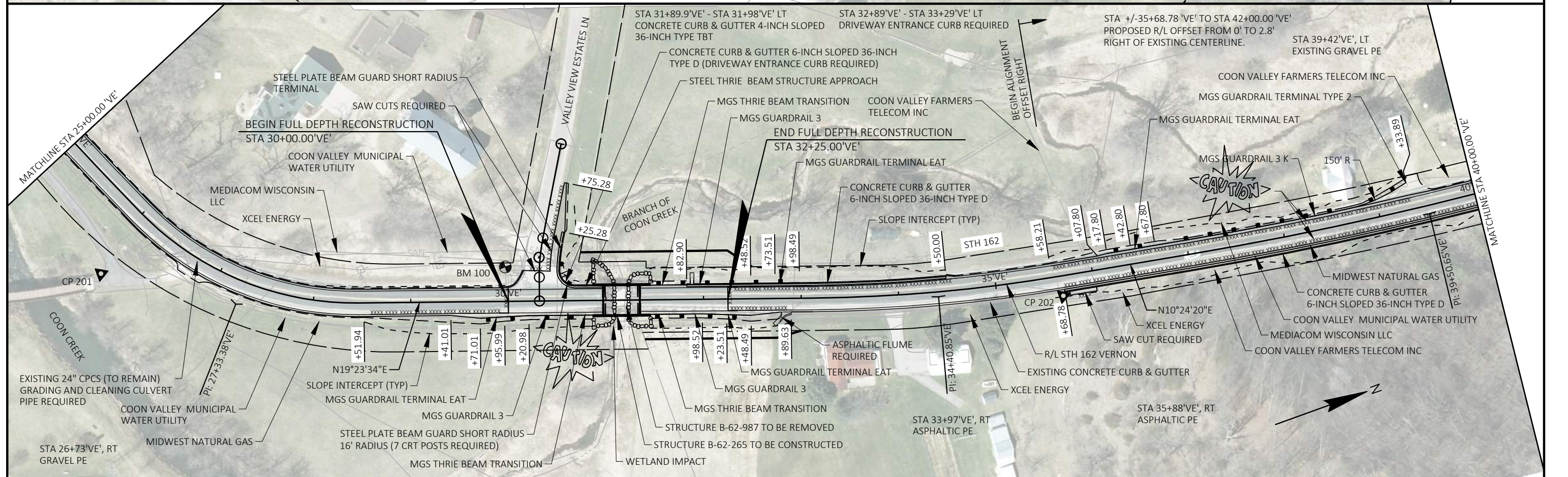
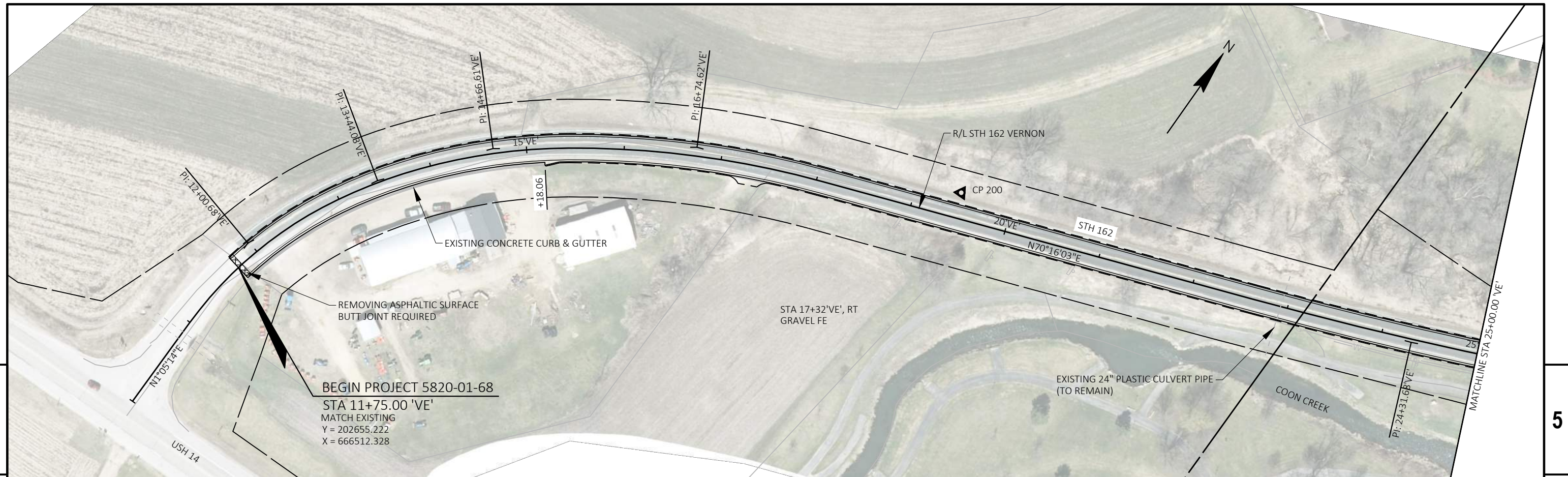


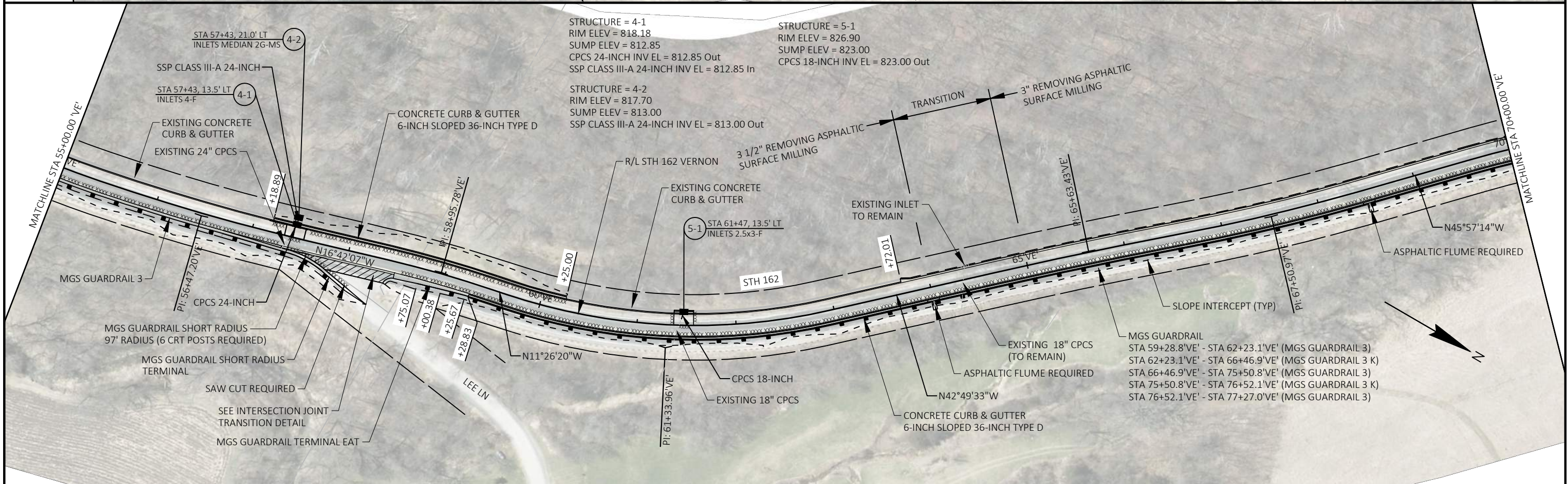
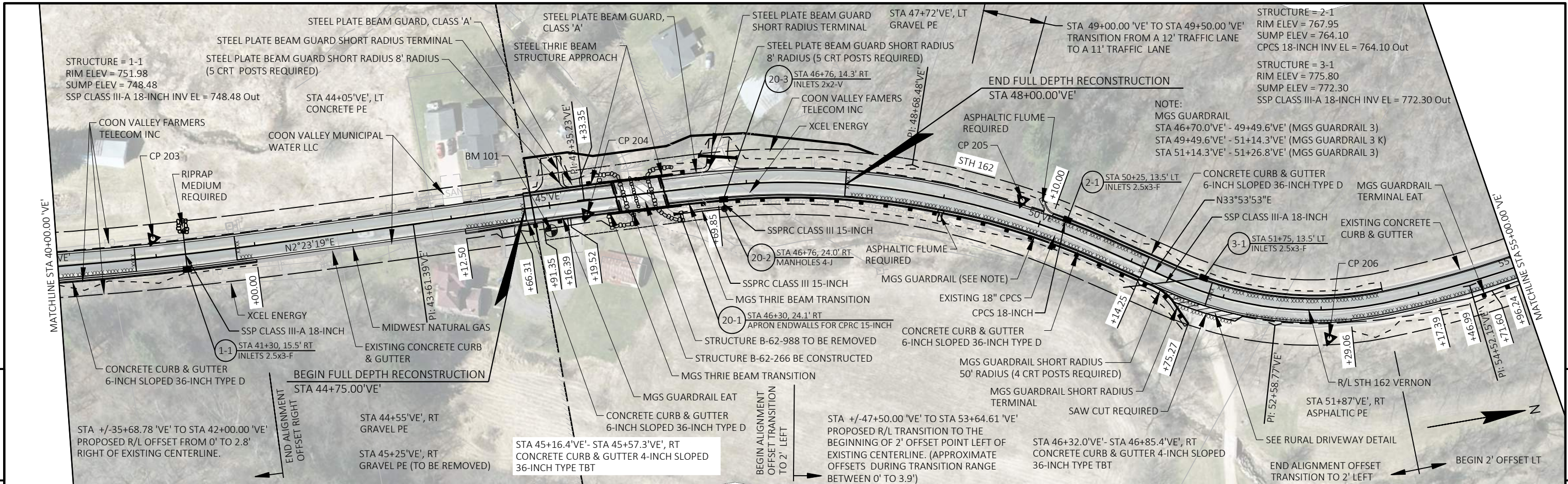
I, SEAN M. WALSH, PROFESSIONAL LAND SURVEYOR, HEREBY CERTIFY THAT IN FULL COMPLIANCE WITH THE PROVISIONS OF SECTION 84.095 OF THE WISCONSIN STATUTES AND UNDER THE DIRECTION OF THE DEPARTMENT OF TRANSPORTATION I HAVE SURVEYED AND MAPPED THIS TRANSPORTATION PROJECT PLAT AND SUCH PLAT CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES OF THE SURVEYED LAND.

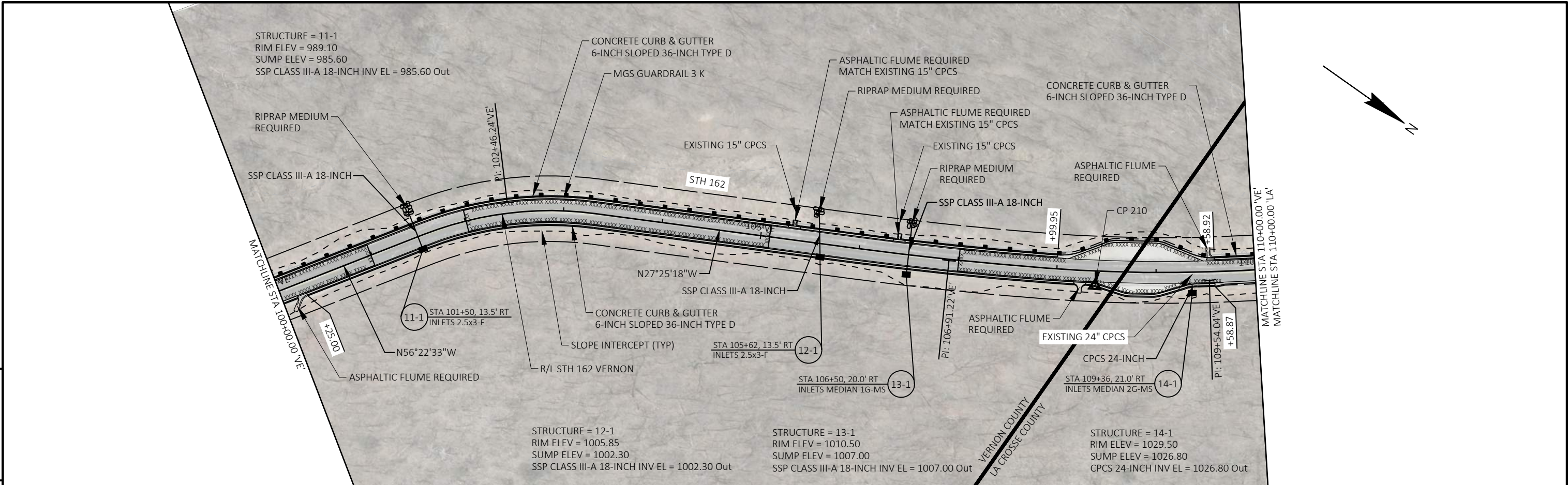
SIGNATURE: *Sean M. Walsh* DATE: 5/2/2023
PRINT NAME: SEAN M. WALSH
REGISTRATION NUMBER: S-2016
THIS PLAT AND RELOCATION ORDER ARE APPROVED FOR THE WISCONSIN DEPARTMENT OF TRANSPORTATION SOUTHWEST REGION
SIGNATURE: *Cory Schlager* DATE: 5/2/2023
PRINT NAME: CORY SCHLAGEL 74

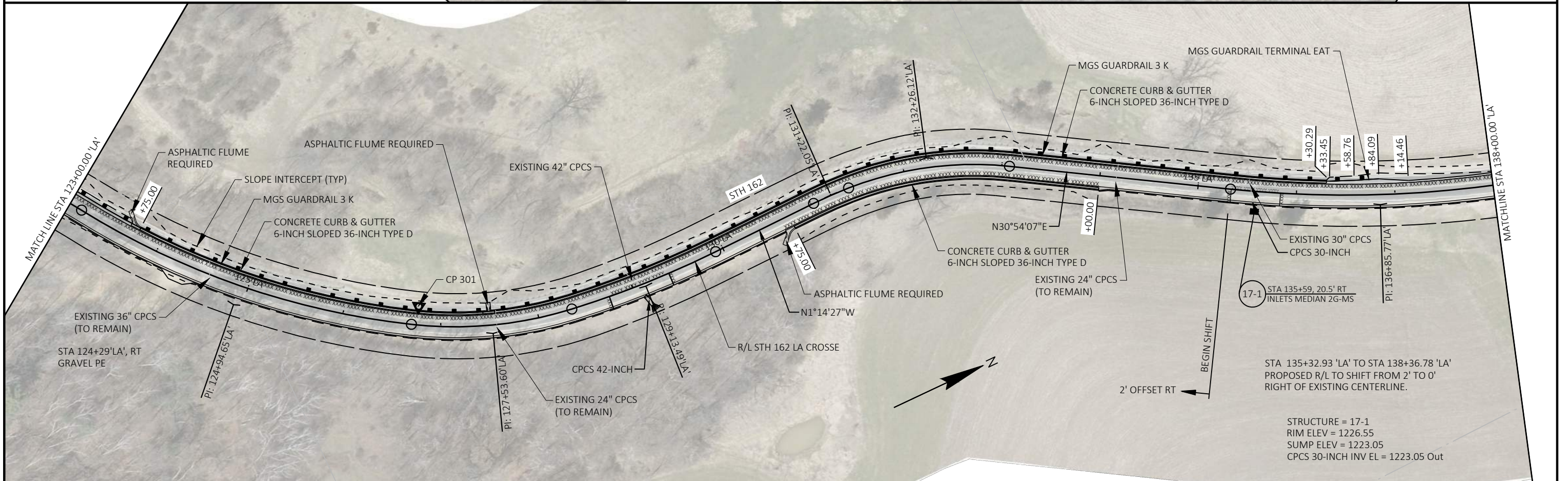
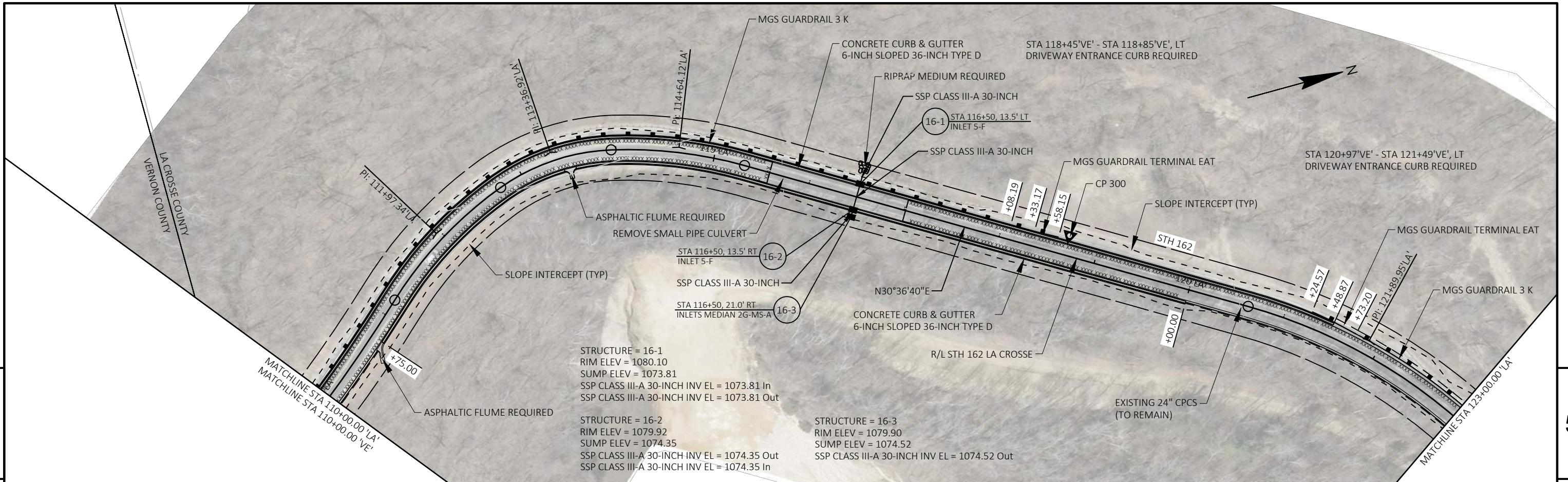


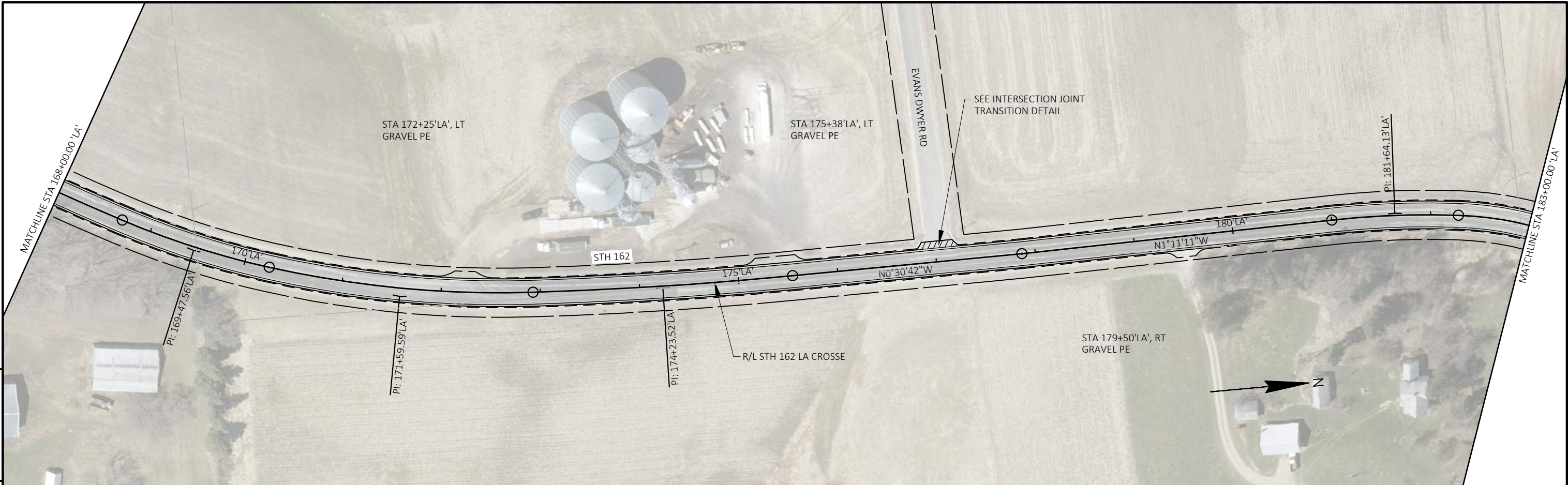




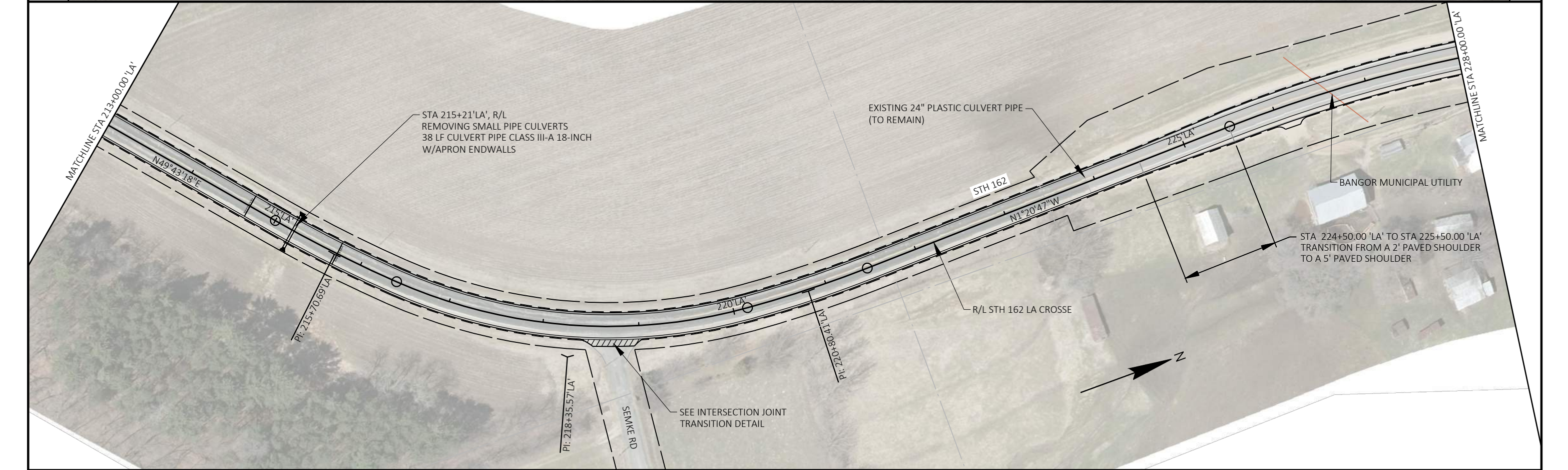
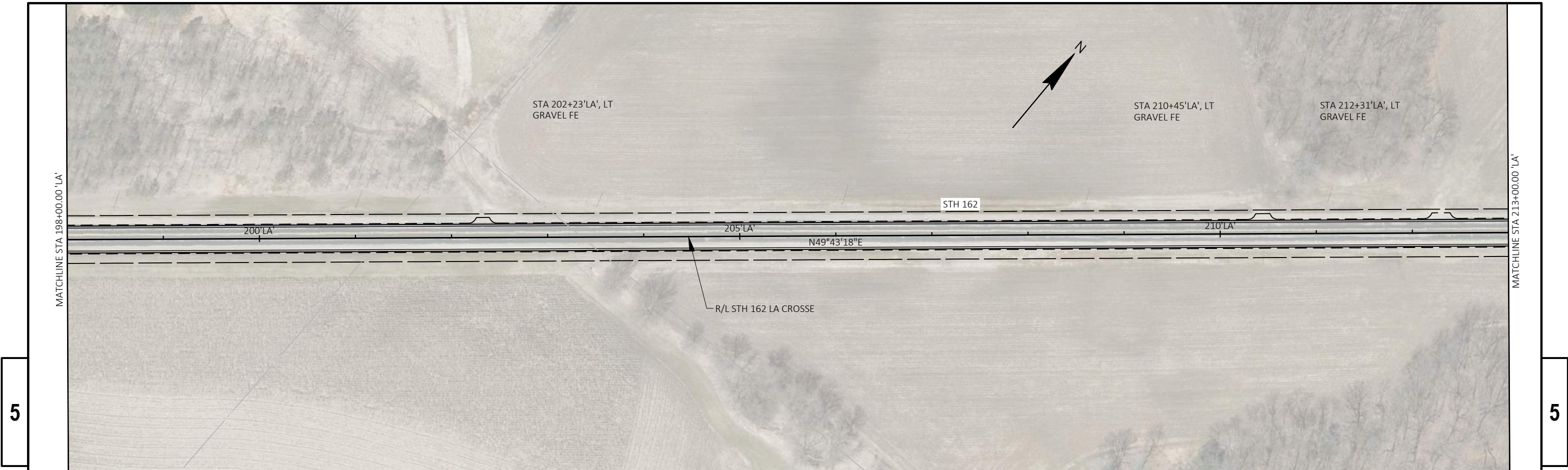




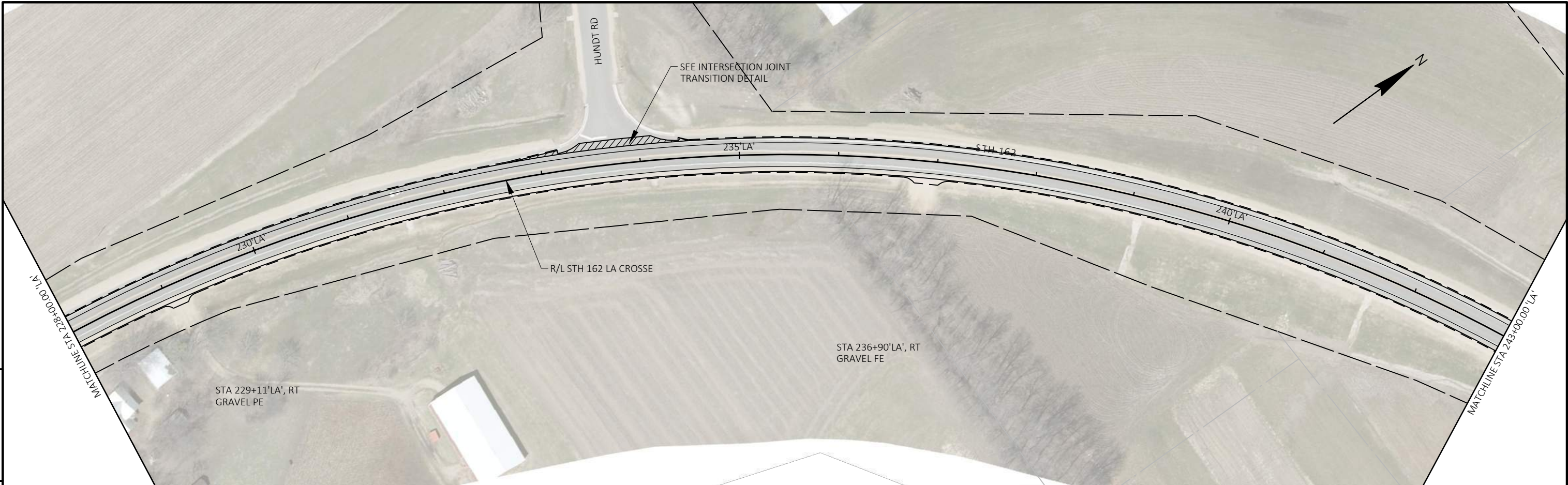




PROJECT NO: 5820-01-68	HWY: STH 162	COUNTY: LA CROSSE\VERNON	PLAN VIEW (LA CROSSE)	SHEET 83	E
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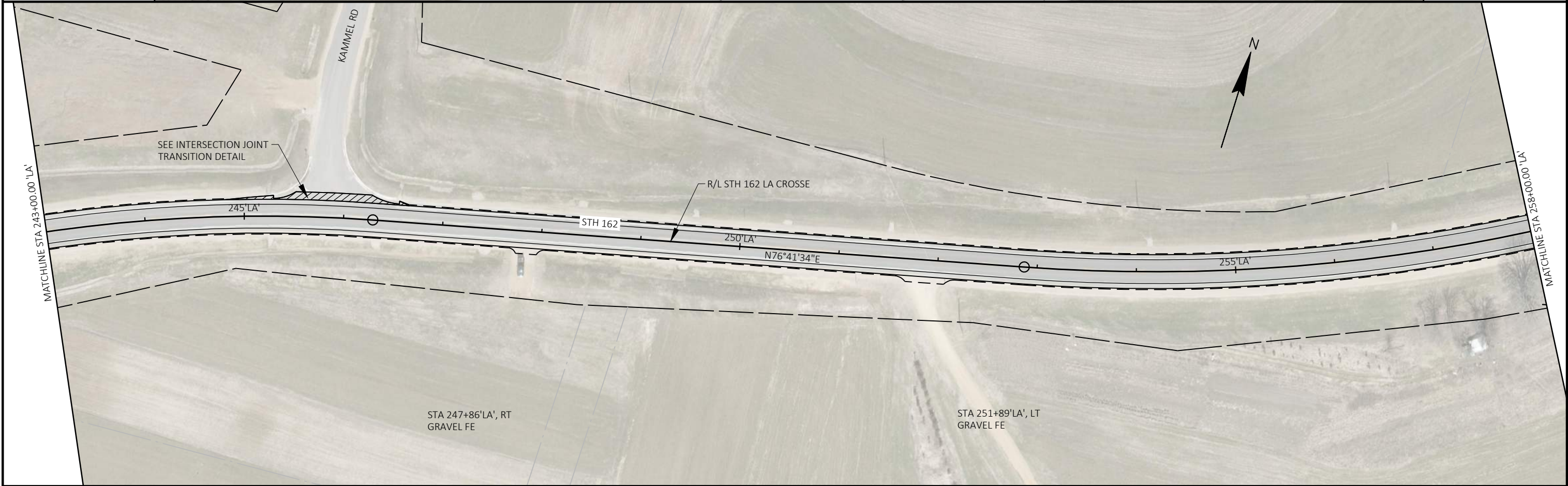


PROJECT NO: 5820-01-68	HWY: STH 162	COUNTY: LA CROSSE\VERNON	PLAN VIEW (LA CROSSE)	SHEET 84	E
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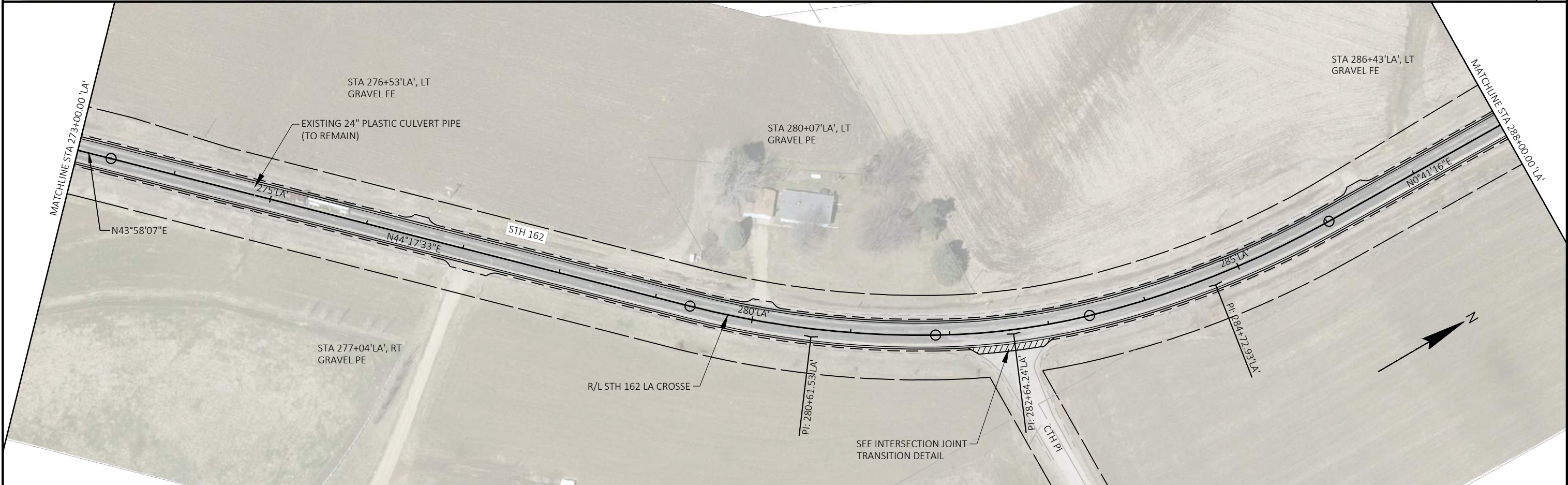
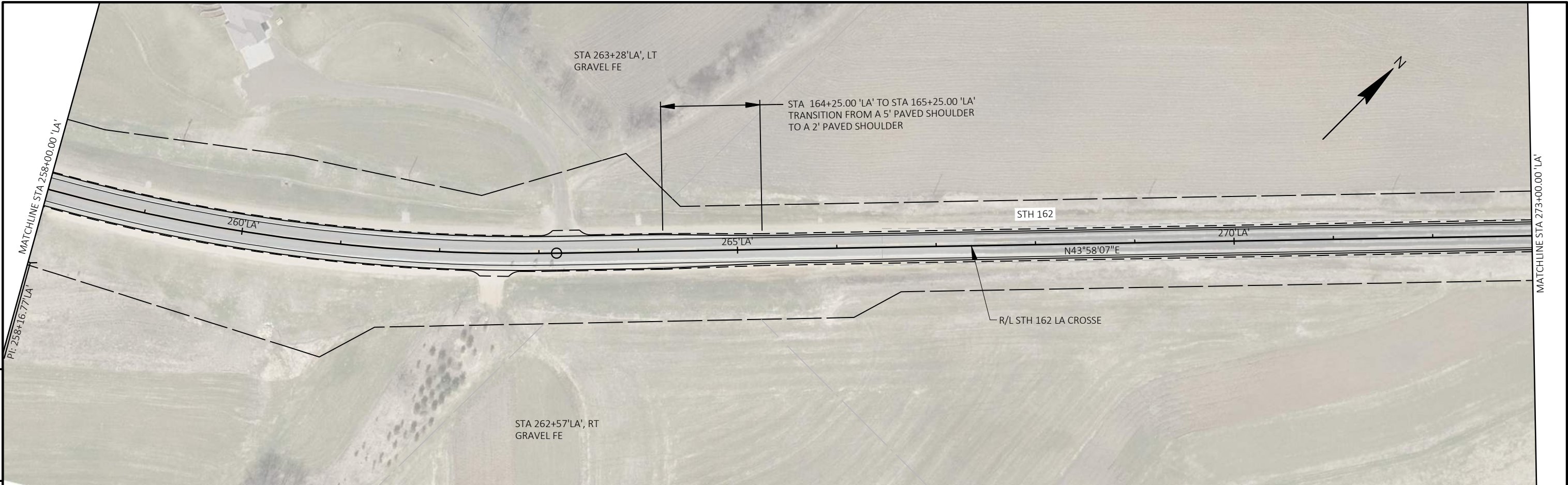


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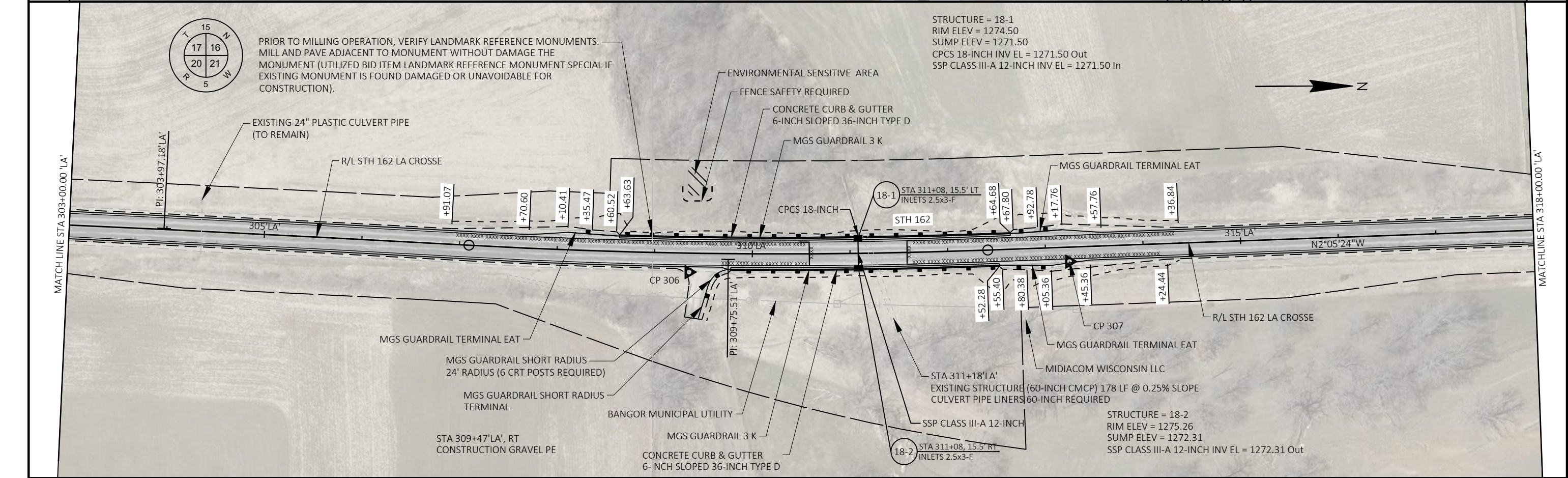
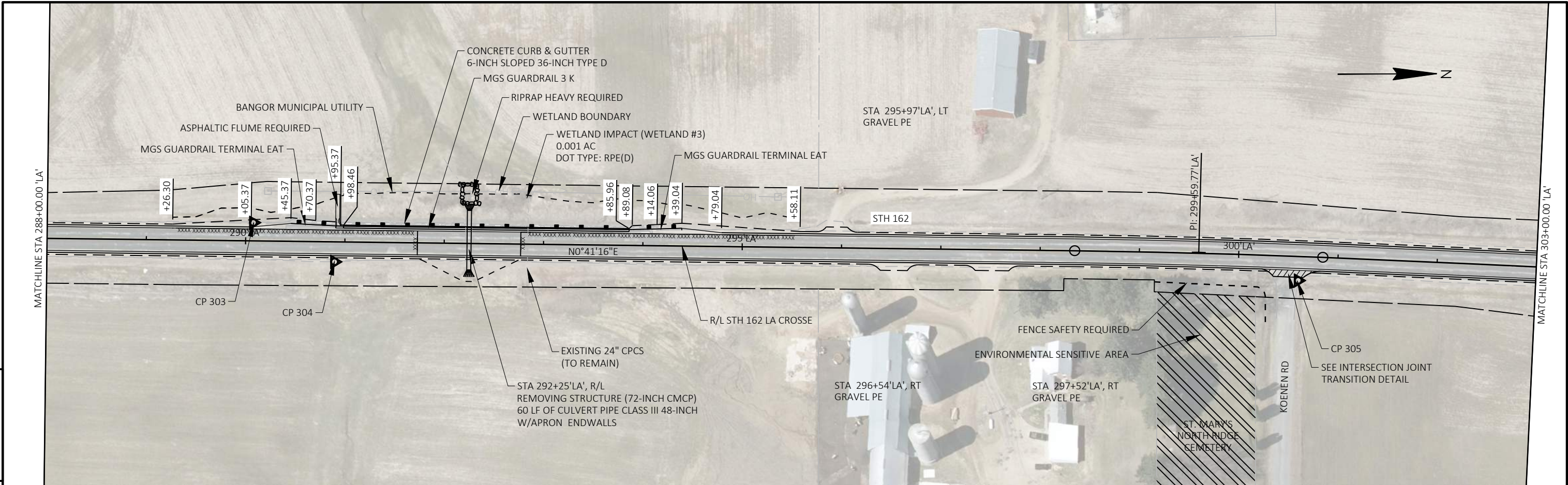
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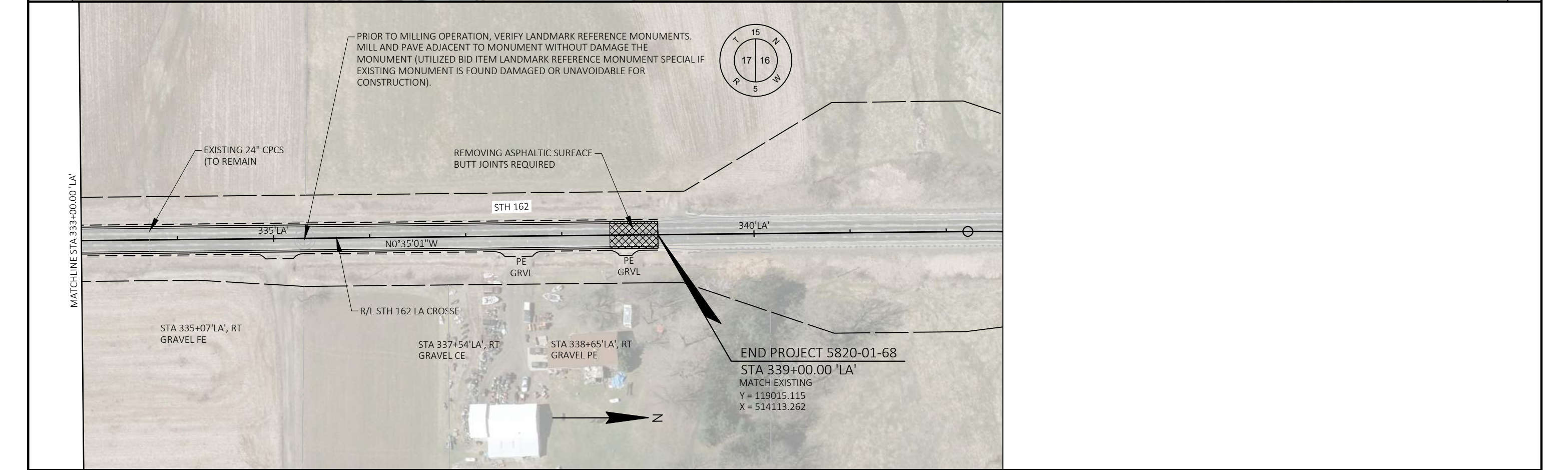
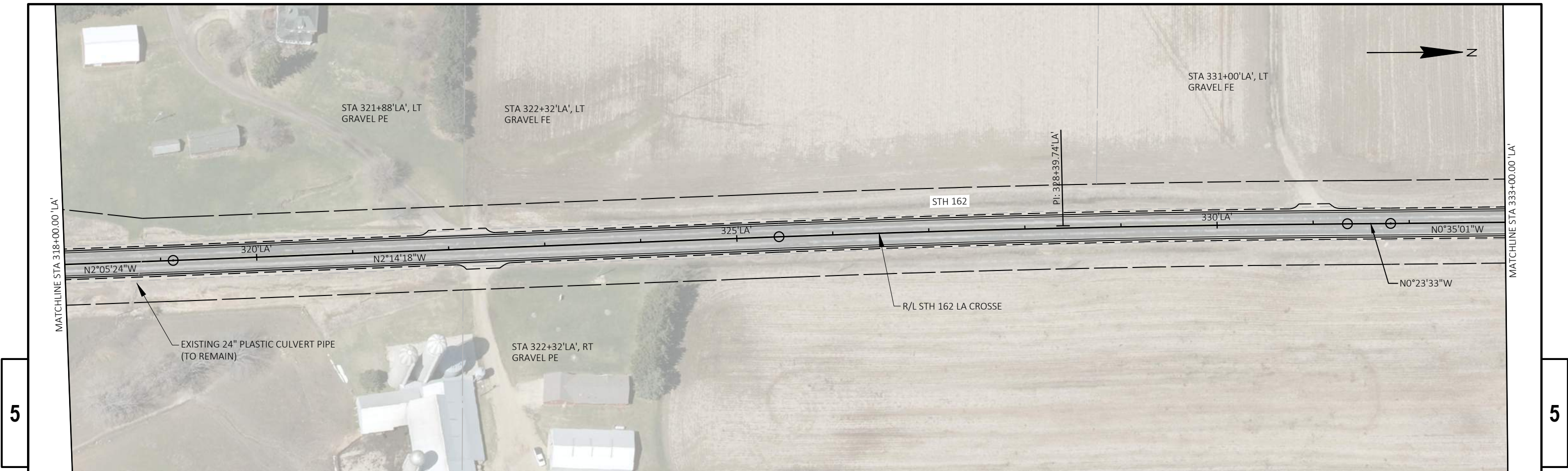


PROJECT NO: 5820-01-68	HWY: STH 162	COUNTY: LA CROSSE\VERNON	PLAN VIEW (LA CROSSE)	SHEET 85	E
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PROJECT NO: 5820-01-68	HWY: STH 162	COUNTY: LA CROSSE\VERNON	PLAN VIEW (LA CROSSE)	SHEET 86	E
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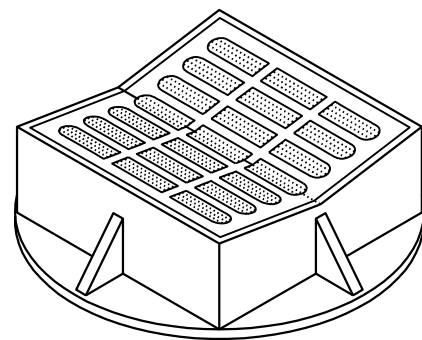
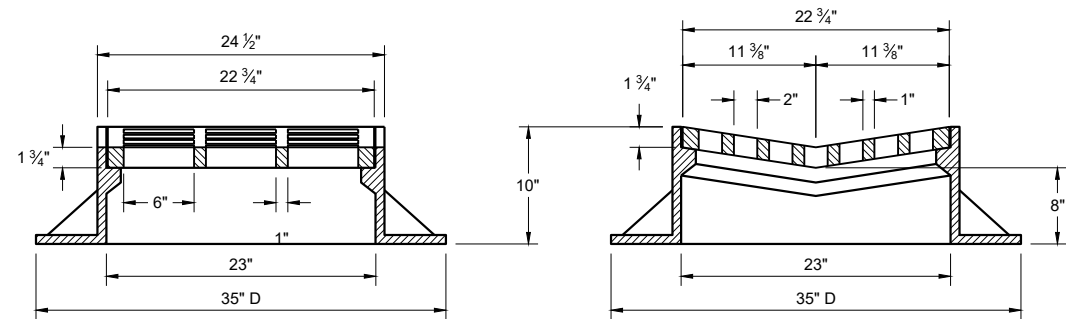


Standard Detail Drawing List

08A05-21B	INLET COVERS TYPE B, B-A, C, MS, MS-A, & WM
08A05-21C	INLET COVERS TYPE F, HM, HM-S, S, T, HM-GJ & HM-GJ-S
08A05-21D	INLET COVERS TYPE V, V-B, & VV-B
08A05-21E	INLET COVER TYPE BW, MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-04	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT, 10-FT DIAMETER
08C06-03	INLETS 3-FT AND 4-FT DIAMETER
08C07-03	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT, 2.5X3-FT & 2X3.5-FT
08C08-03	INLETS MEDIAN 1 AND 2 GRATE
08D01-23A	CONCRETE CURB & GUTTER
08D01-23B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08D04-07	CONCRETE SURFACE DRAINS & ASPHALTIC FLUMES
08D20-01	DRIVEWAYS WITH CURB & GUTTER RETURNS
08D21-01	DRIVEWAYS WITHOUT CURB & GUTTER
08D22-01	DRIVEWAYS WITHOUT CURB & GUTTER RESURFACING PROJECTS RURAL
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E11-02	TURBIDITY BARRIER
08E15-01	CULVERT PIPE CHECK
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-08	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09A01-14A	AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND D AND TEE INTERSECTION BYPASS LANE
09A01-14B	AT-GRADE SIDE ROAD INTERSECTION, TYPE "A1" & "A2"
12A03-10	NAME PLATE (STRUCTURES)
13C19-03	HMA LONGITUDINAL JOINTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B18-06B	STEEL PLATE BEAM GUARD, CLASS "A" AT MEDIAN APPROACH TO BRIDGES
14B20-12A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-12B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-12C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-12D	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-12E	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"
14B20-12F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-12G	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B20-12H	STEEL THRIE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B25-01	STEEL PLATE BEAM GUARD, CLASS "A", OVER LOW FILL CULVERTS
14B27-01A	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01B	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
14B27-01C	STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL
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
14B43-04A	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04B	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B43-04C	MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)
14B44-04A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-04C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B45-05A	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)
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

Standard Detail Drawing List

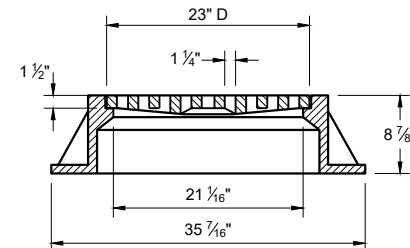
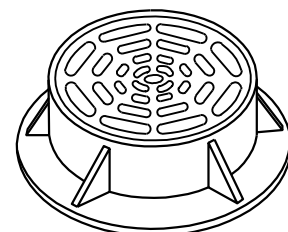
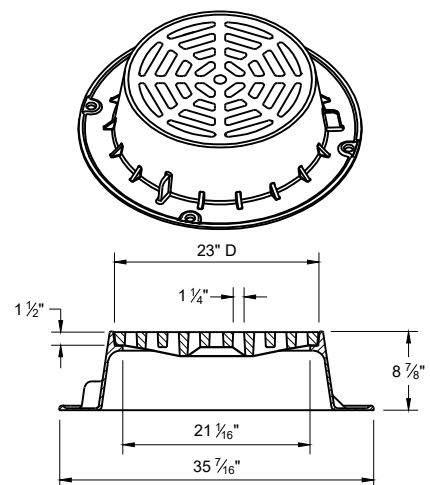
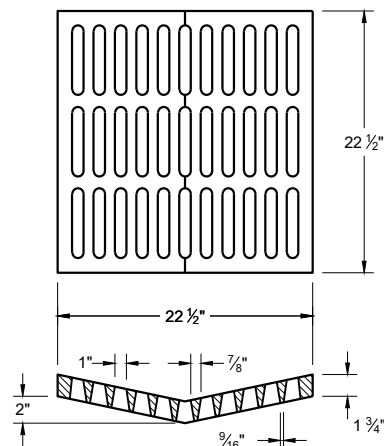
14B47-05D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-05G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B53-02A	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02B	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02C	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02D	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02E	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02F	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02G	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02H	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
14B53-02I	SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-09A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-09B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-09C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-12	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-23A	PERMANENT LONGITUDINAL PAVEMENT MARKINGS
15C08-23B	TEMPORARY LONGITUDINAL PAVEMENT MARKING
15C08-23C	PAVEMENT MARKING (TURN LANES)
15C08-23D	PAVEMENT MARKING (TURN LANES)
15C11-10B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-09A	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C12-09B	TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE
15C35-06A	PAVEMENT MARKING (INTERSECTIONS)
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
16A01-07	LANDMARK REFERENCE MONUMENTS AND COVERS



TYPE "B"

**ALTERNATIVE GRATE FOR
TYPE "B" COVER**

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



TYPE "C"

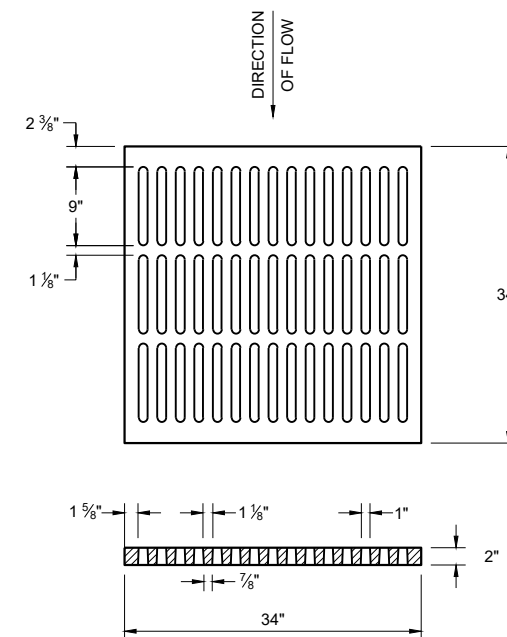
NOTE: EITHER CASTING IS ACCEPTABLE

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.

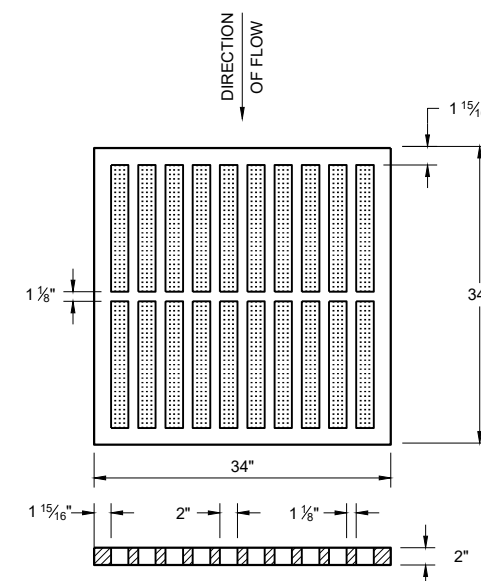
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



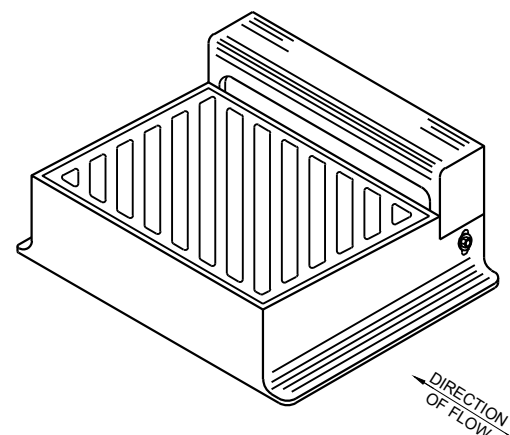
ALTERNATIVE TYPE "MS"

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

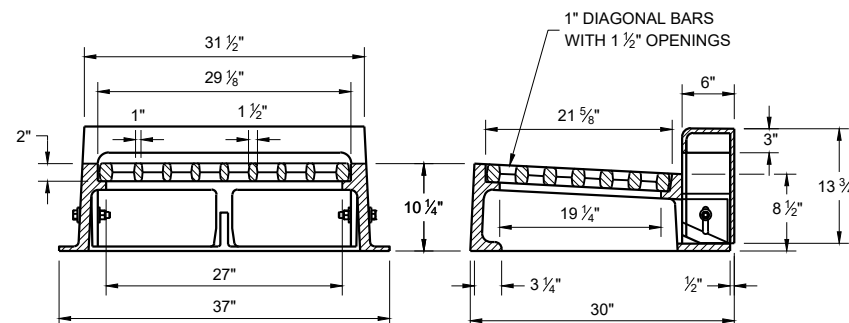


TYPE "MS"

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



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



TYPE "WM"

NOTE: CURB BOX HEIGHT ADJUSTABLE 6" - 9"

**INLET COVERS
TYPES B, B-A, C,
MS, MS-A AND WM**

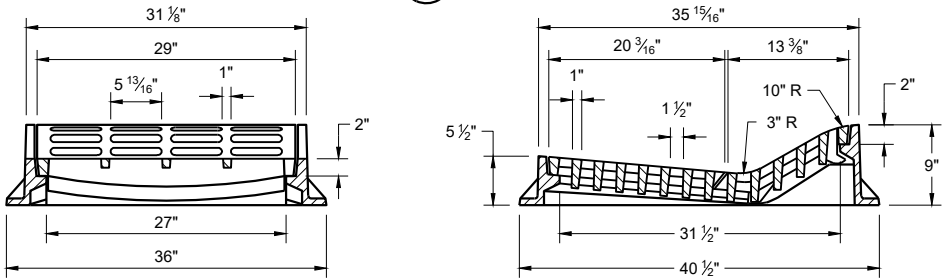
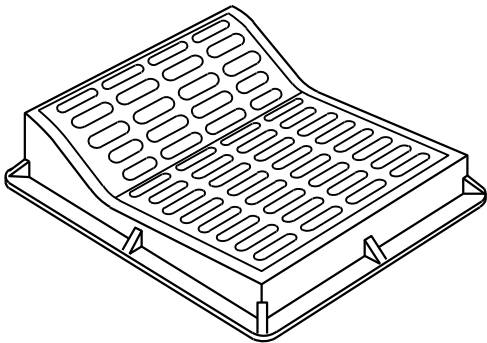
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

GENERAL NOTES

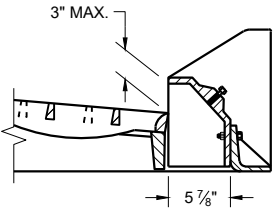
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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



TYPE "F"

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

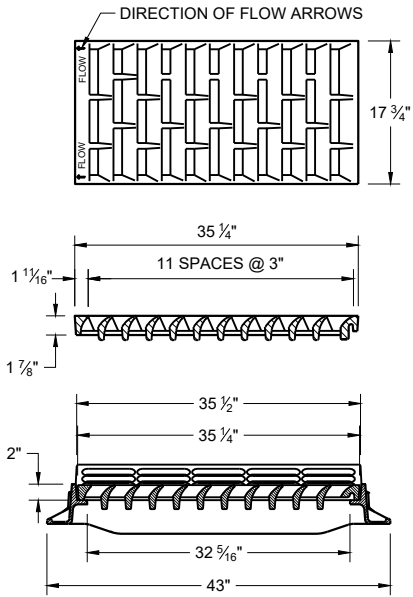


ALTERNATIVE CURB BOX
FOR TYPE "HM" COVER

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

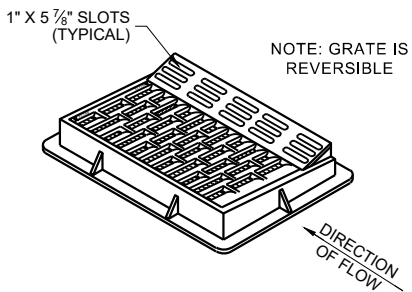
NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

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

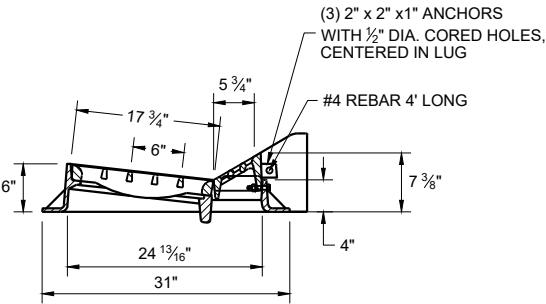


TYPE "HM"

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

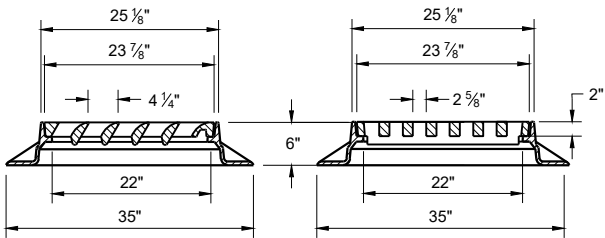
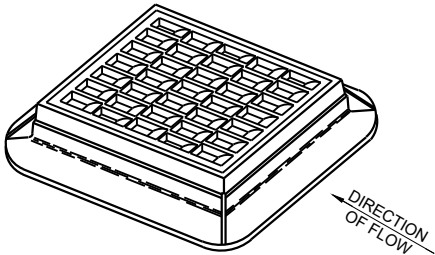


NOTE: GRATE IS REVERSIBLE

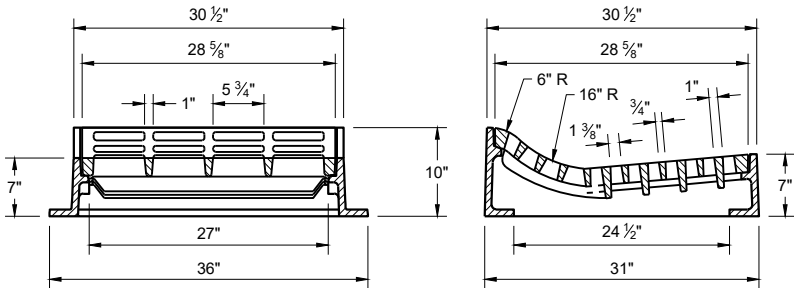
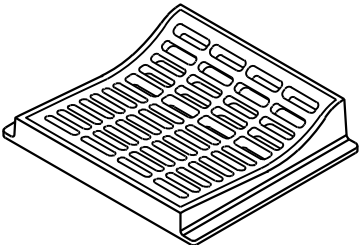


NOTE:
SPECIAL GRATE FOR THE TYPE "H" COVER MAY ALSO BE USED FOR THE TYPE "HM-GJ" COVER.

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



TYPE "S"



TYPE "T"

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

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

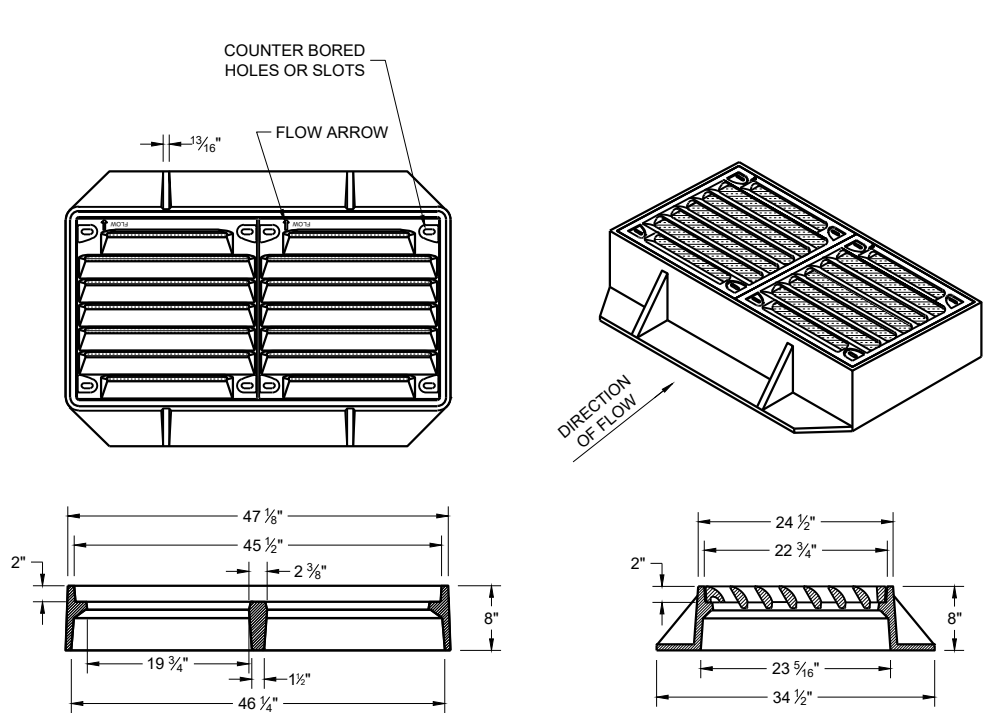
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2023 /S/ Rodney Taylor
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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.

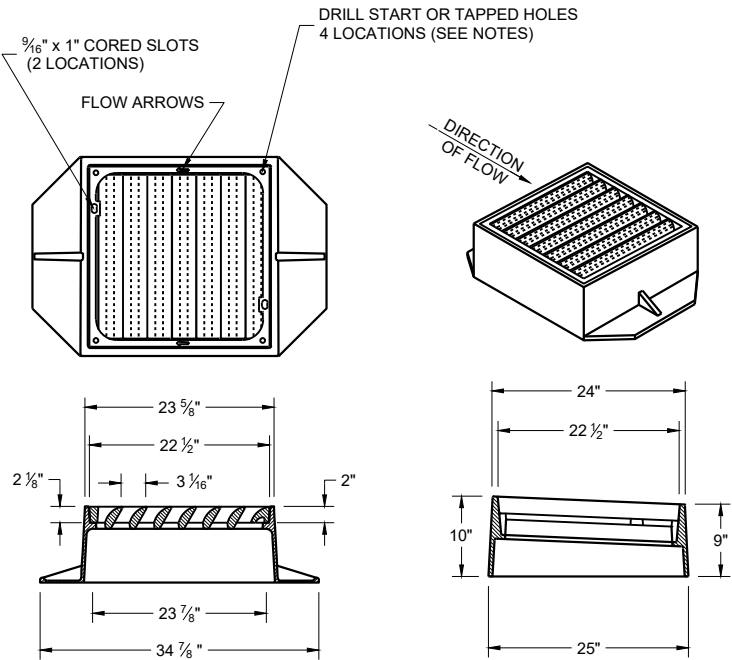
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.



TYPE "VV-B"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

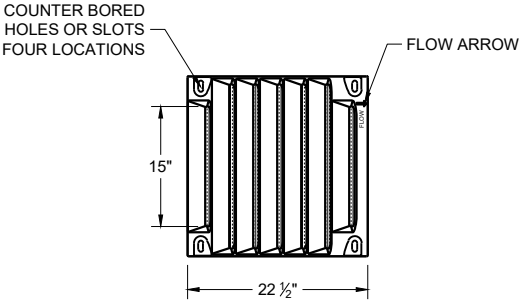
TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 35B
3/8" DIA. X 1/16" DRILL START IN 8 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



TYPE "V"

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER ALL DRILLING AND TAPPING GRATES AND FRAMES BY CASTING MANUFACTURER

TYPE V
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A
3/8" DIA. X 1/16" DRILL START IN 4 LOCATIONS
GRATE - CAST GRAY IRON ASTM A-48, CLASS 35B



BOLT DOWN GRATE FOR
TYPE "V" AND "VV-B" COVER

NOTES: ALL HARDWARE TO BE SUPPLIED BY CASTING MANUFACTURER
NOTED AS TYPE "V-B" OR "VV-B" (FOR DOUBLE GRATE) ON DRAINAGE TABLE

TAP 1/2" -13 HOLES IN FOUR LOCATIONS PER GRATE IN FRAME TO BOLT GRATE(S).
FRAME - CAST GRAY IRON ASTM A48 CLASS 40A

GRATE - CAST DUCTILE IRON ASTM A536, 55+KSI YIELD
BOLTS - 1/2" -13 STAINLESS STEEL BOLTS WITH WASHERS
TORQUE BOLTS TO MANUFACTURER SPECIFICATION DO NOT OVERTIGHTEN.

INLET COVERS
TYPES V, V-B, AND VV-B

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

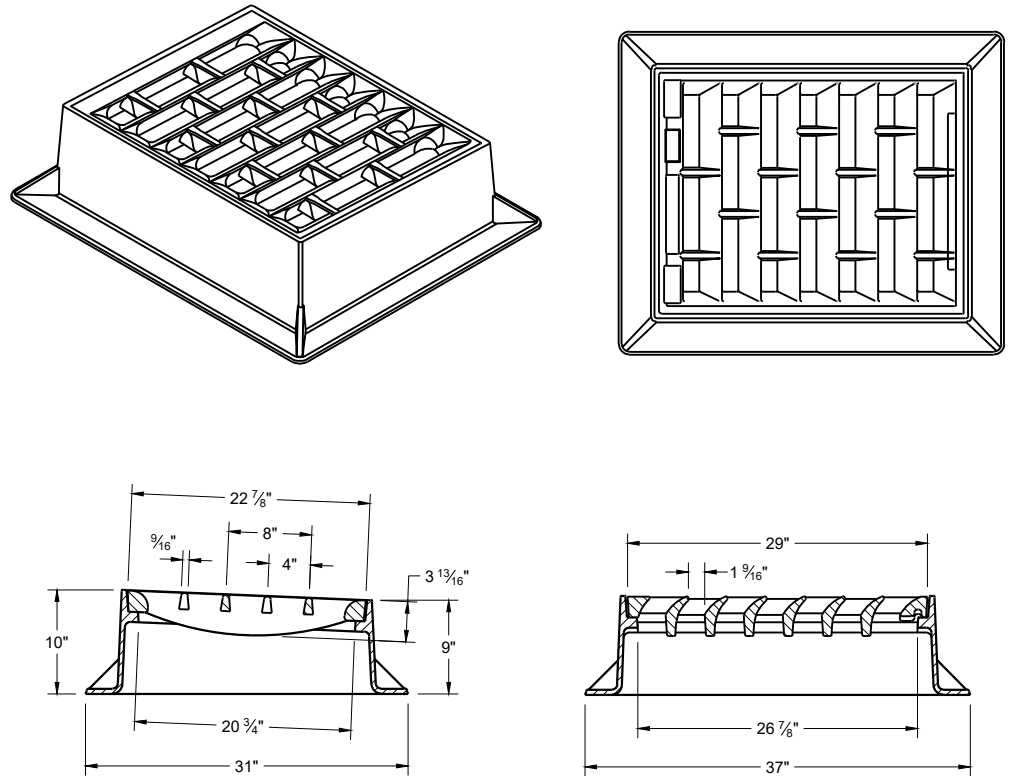
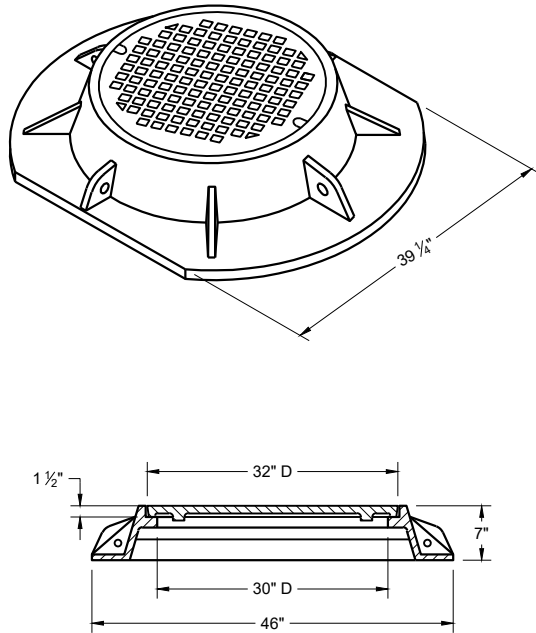
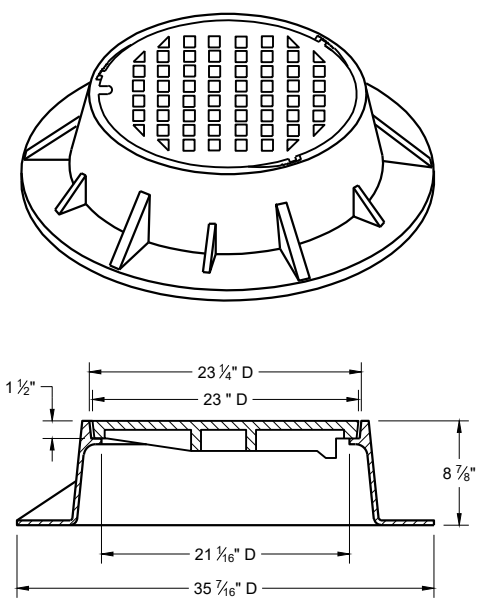
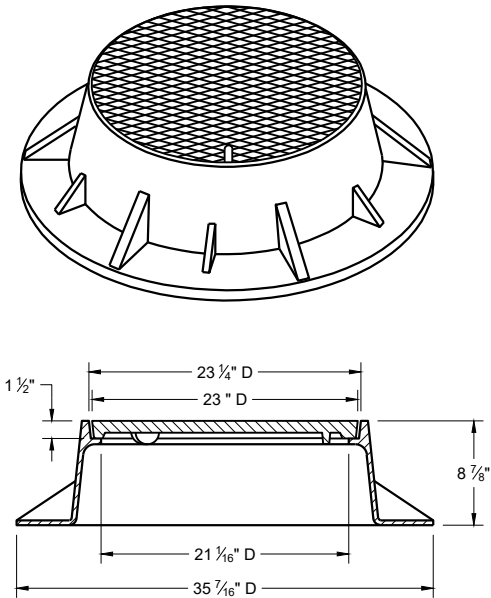
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FHWA UNIT SUPERVISOR

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.

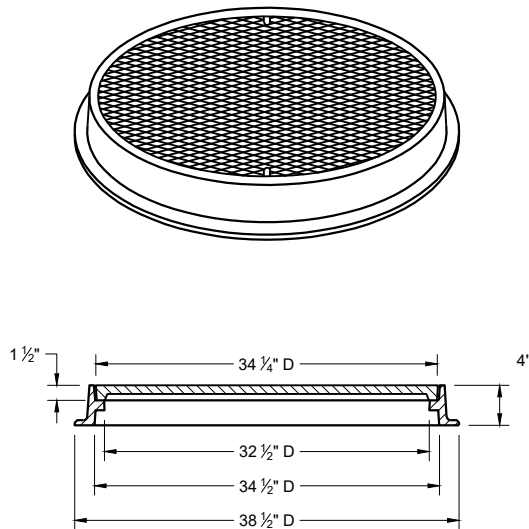
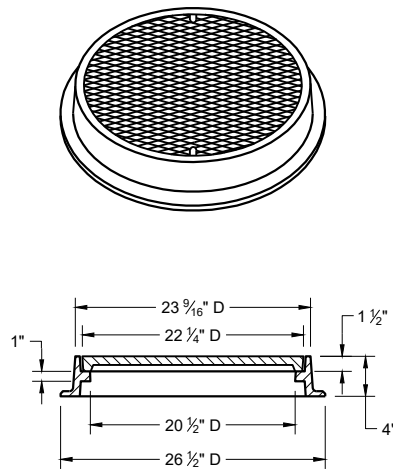
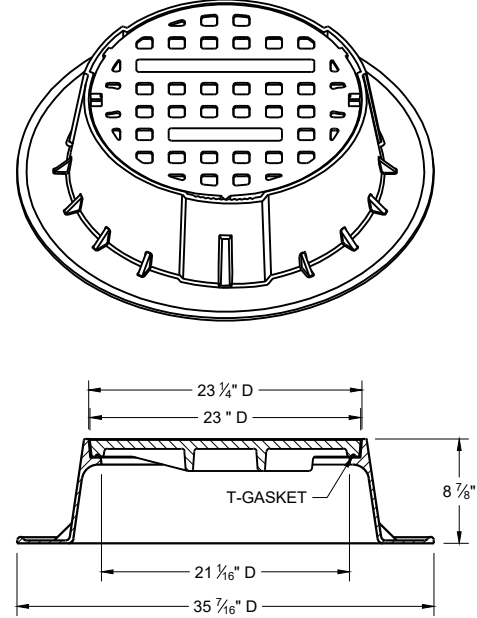
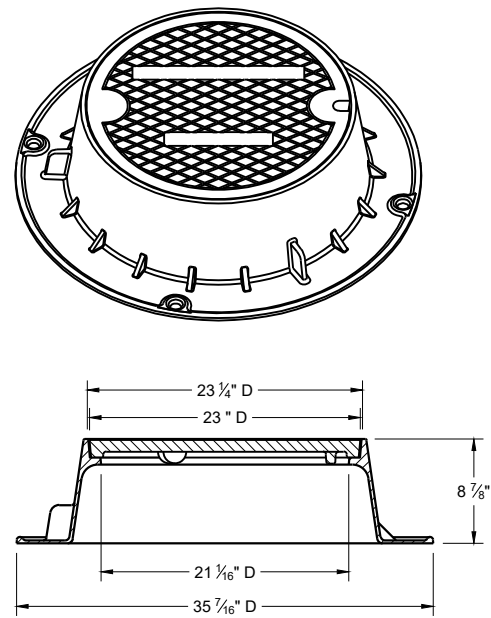
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



TYPE "K"

INLET COVER TYPE "BW"



TYPE "J"

NOTE: EITHER CASTING IS ACCEPTABLE

TYPE "J" SPECIAL

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

NOTE: EITHER CASTING IS ACCEPTABLE

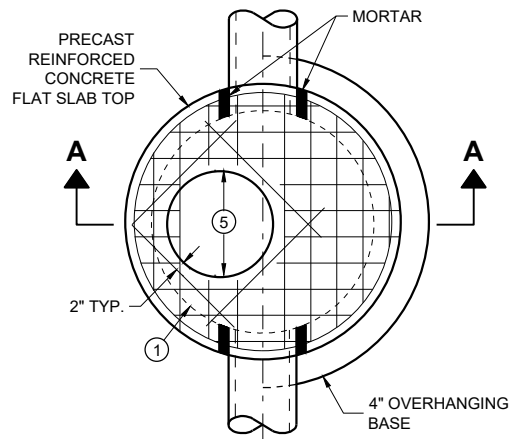
TYPE "L"

TYPE "M"

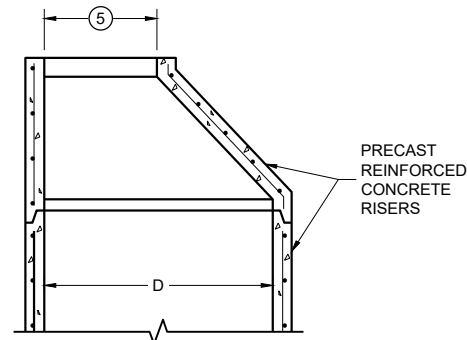
INLET COVERS TYPES BW
MANHOLE COVERS TYPES K,
J, J-S, L, AND M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

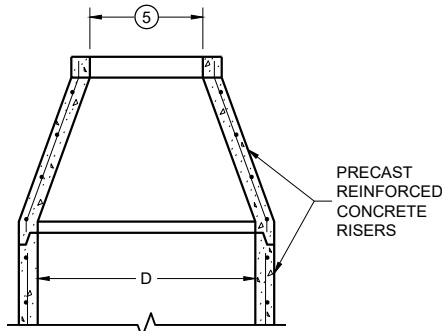
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PLAN VIEW
CIRCULAR OPENING



OPTIONAL PRECAST
REINFORCED CONCRETE
ECCENTRIC TOP



OPTIONAL PRECAST
REINFORCED CONCRETE
CONCENTRIC TOP

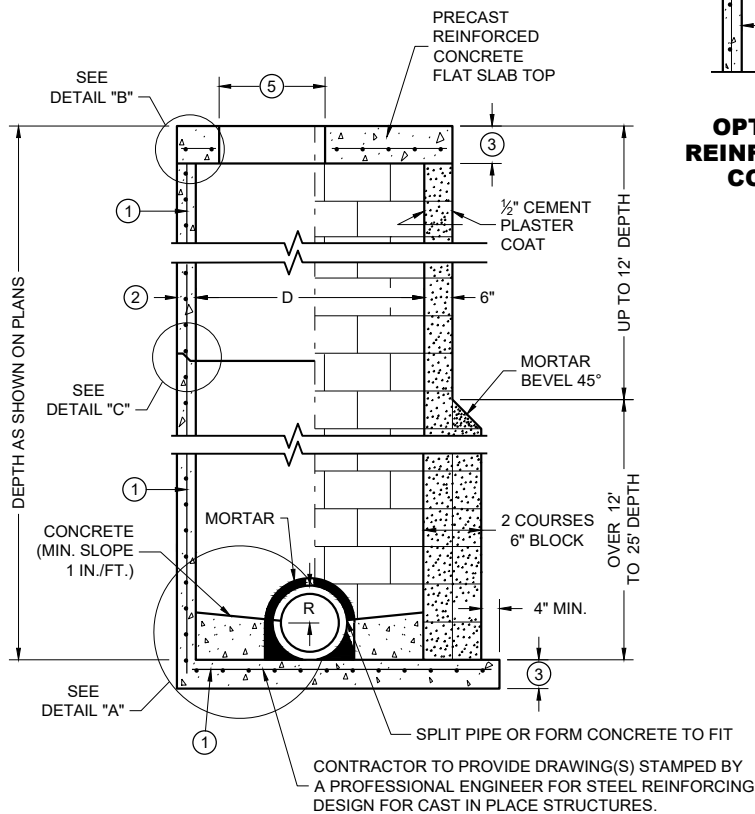
MANHOLE COVER OPENING MATRIX

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

PIPE MATRIX

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

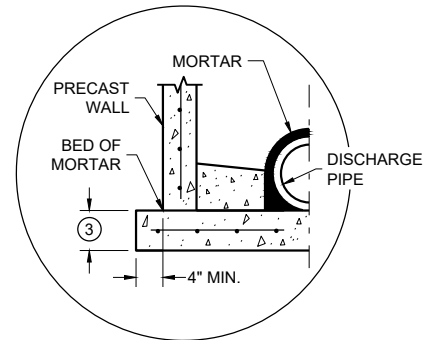
*A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES.
SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.



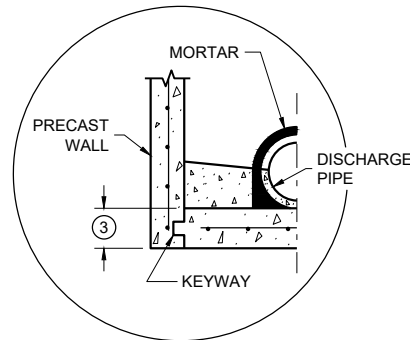
SECTION A - A

PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

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

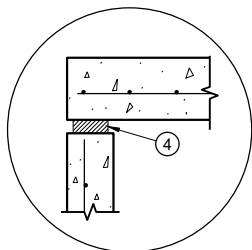


SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

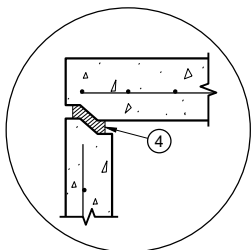


PRECAST REINFORCED CONCRETE
WITH INTEGRAL BASE OPTION

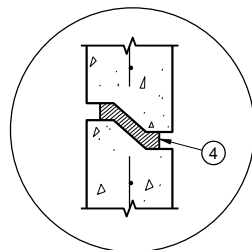
DETAIL "A"



TOP WITH PLAIN
END JOINT



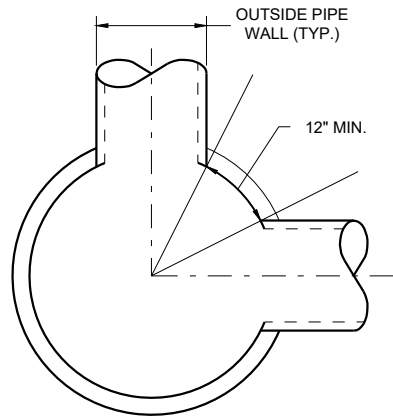
TOP WITH TONGUE
AND GROOVE JOINT



RISER WITH TONGUE
AND GROOVE JOINT

DETAIL "B"

DETAIL "C"



MINIMUM HORIZONTAL
PIPE SEPARATION

DETAIL "D"

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 IMENSION 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.

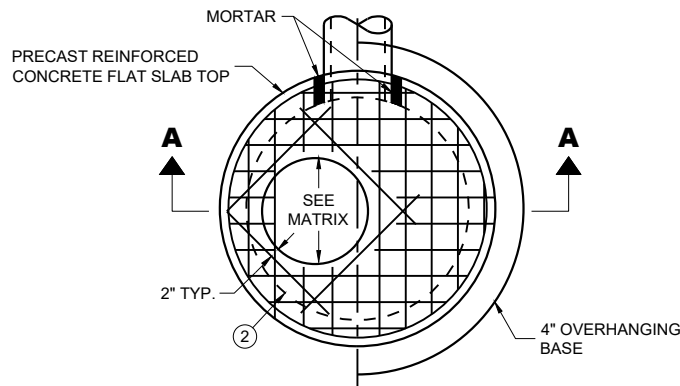
FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

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

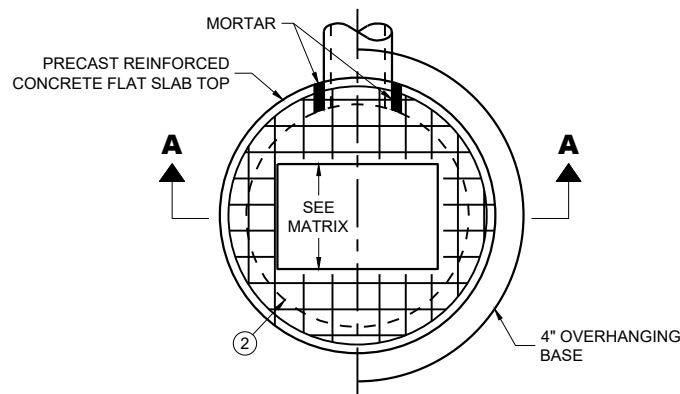
MANHOLES, 3-FT, 4-FT
5-FT, 6-FT, 7-FT, 8-FT, 9-FT
AND 10-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

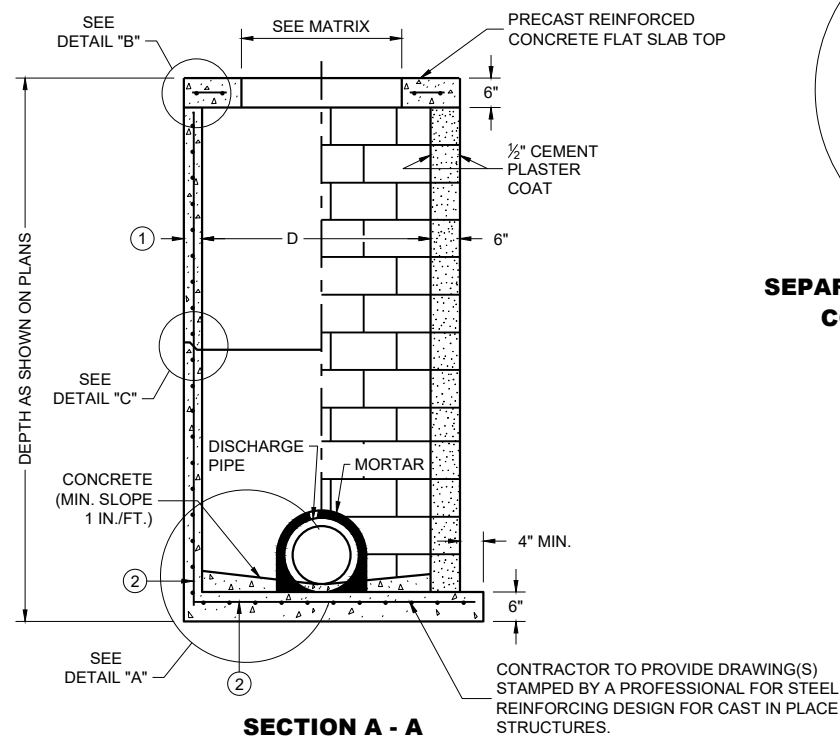
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FHWA UNIT SUPERVISOR



PLAN VIEW CIRCULAR OPENING



PLAN VIEW RECTANGULAR OPENING



SECTION A - A

PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

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

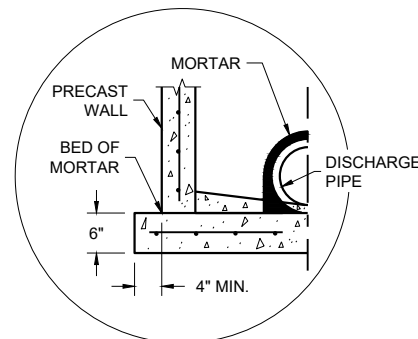
CIRCULAR INLETS WITH FLAT TOP

CATCH BASIN COVER OPENING MATRIX

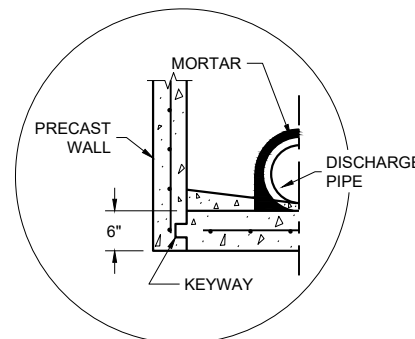
INLET SIZE	INLET COVER TYPE	ALL A'S	ALL B'S	BW	C	F	ALL H'S	S	T	V	WM	Z
	OPENING SIZE (FT.)											
3-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
4-FT	2 DIA.				X							X
	2 X 2	X	X					X		X		
	2 X 2.5			X				X	X	X	X	
	2 X 3						X					
	2.5 X 3					X						

PIPE MATRIX

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

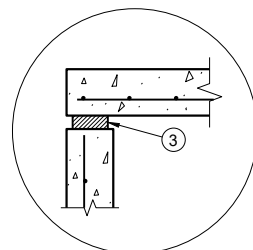


SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

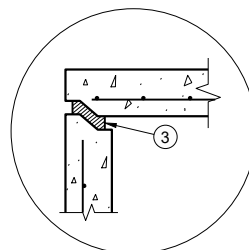


PRECAST REINFORCED CONCRETE
WITH INTEGRAL BASE OPTION

DETAIL "A"

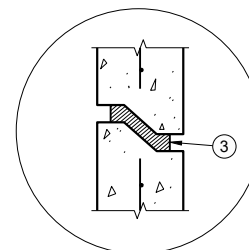


TOP WITH PLAIN
END JOINT



TOP WITH TONGUE
AND GROOVE JOINT

DETAIL "B"



RISER WITH TONGUE
AND GROOVE JOINT

DETAIL "C"

INLETS 3-FT AND 4-FT DIAMETER

GENERAL NOTES

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

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

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

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

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF 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.

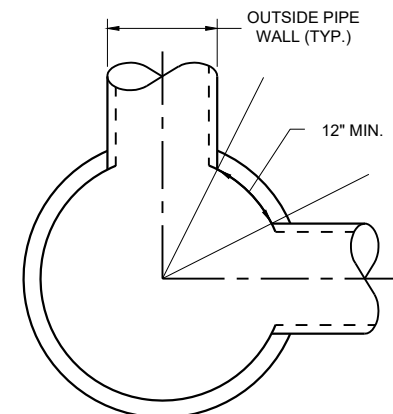
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

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

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

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

- ① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT DIAMETER AND 5 INCHES FOR 4-FT DIAMETER PRECAST INLETS.
- ② FOR PRECAST INLETS AND REINFORCED CONCRETE BASES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.
- ③ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 OR RUBBER GASKETS CONFORMING TO ASTM C443.

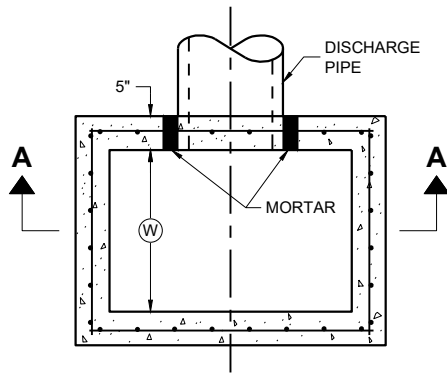


MINIMUM HORIZONTAL PIPE
SEPARATION
DETAIL "D"

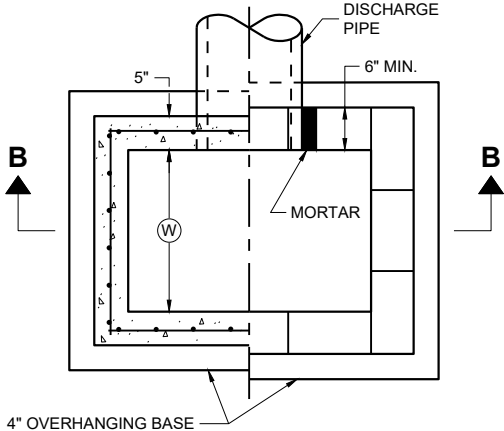
INLETS 3-FT
AND 4-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

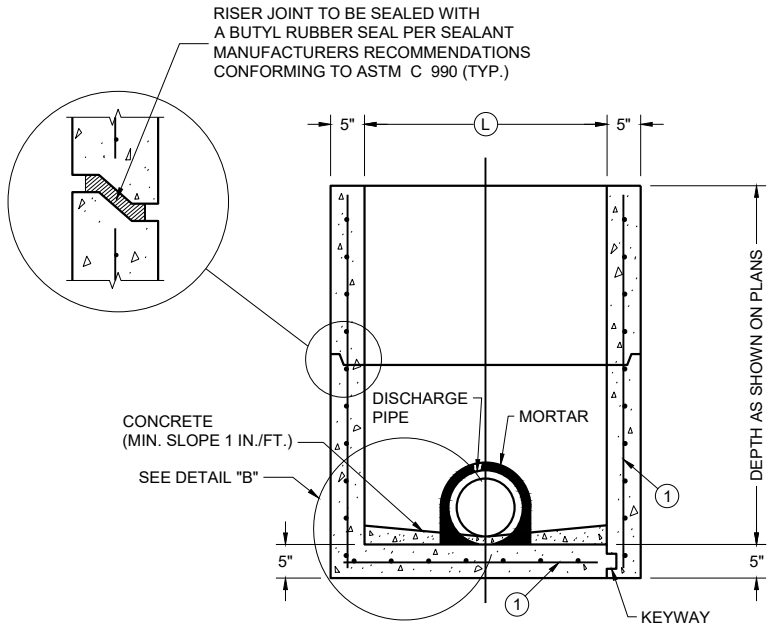
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December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



PLAN VIEW



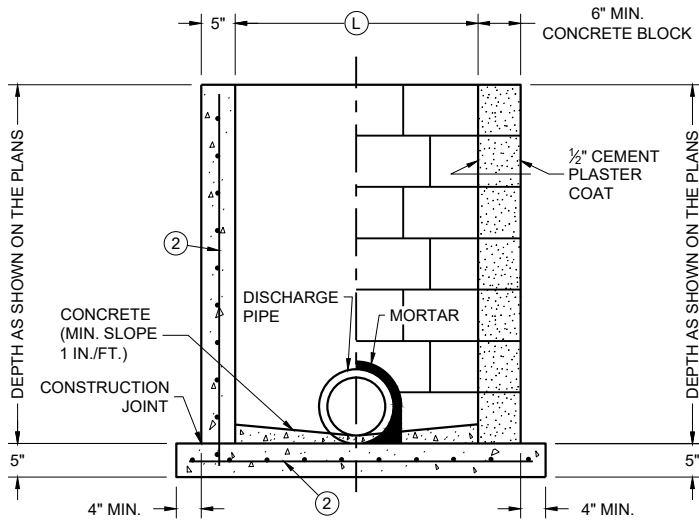
PLAN VIEW



PRECAST REINFORCED
CONCRETE WITH
MONOLITHIC BASE

PRECAST REINFORCED
CONCRETE WITH
INTEGRAL BASE

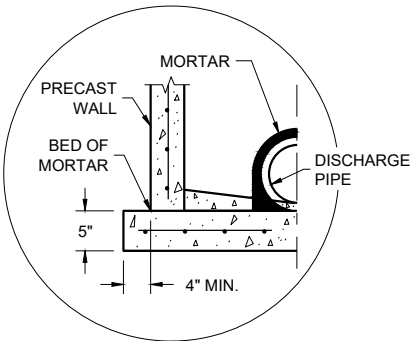
SECTION A - A



CAST IN PLACE
REINFORCED
CONCRETE

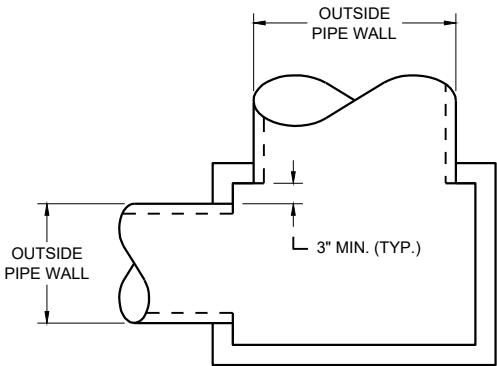
CONCRETE BLOCK WITH
CAST IN PLACE OR
PRECAST REINFORCED
CONCRETE BASE ①

SECTION B - B



SEPARATE PRECAST REINFORCED
CONCRETE BASE OPTION

DETAIL "B"



DETAIL "A"

INLETS 2 X 2-FT, 2 X 2.5-FT, 2 X 3-FT, 2.5 X 3-FT AND 2X3.5-FT

GENERAL NOTES

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

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

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

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

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

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF 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" 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 AND REINFORCED CONCRETE BASES 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.

CATCH BASIN COVER MATRIX

INLET SIZE	WIDTH (W) (FT.)	LENGTH (L) (FT.)	INLET COVER TYPE									
			ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM	V V-B
2 X 2-FT	2	2	X	X				X				
2 X 2.5-FT	2	2.5			X			X	X	X	X	
2 X 3-FT	2	3					X					
2.5 X 3-FT	2.5	3				X						
2 X 3.5-FT	2	3.5										X

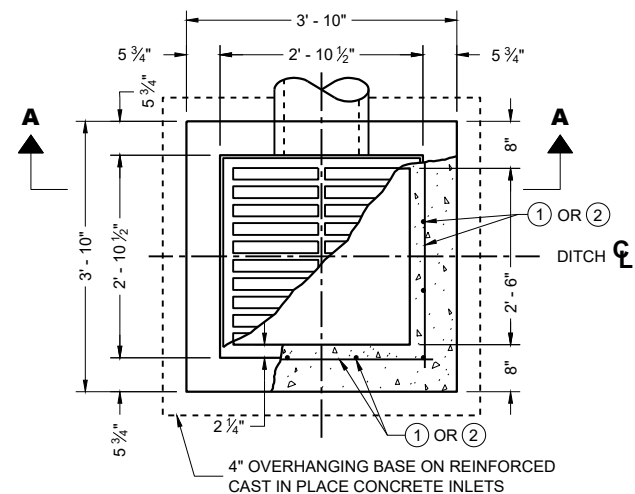
PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	WIDTH (IN)	LENGTH (IN)
2 X 2-FT	12	12
2 X 2.5-FT	12	18
2 X 3-FT	12	24
2.5 X 3-FT	18	24
2 X 3.5-FT	12	30

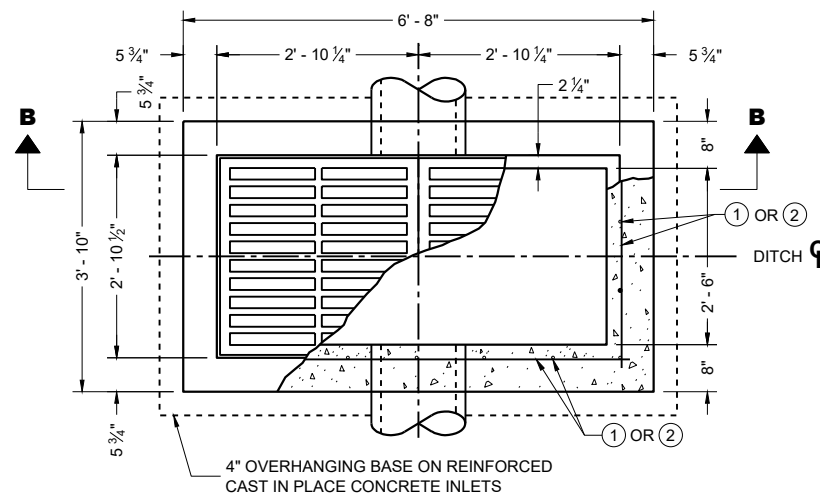
INLETS 2 X 2-FT, 2 X 2.5-FT,
2 X 3-FT, 2.5 X 3-FT
AND 2 X 3.5-FT

STATE OF WISCONSIN
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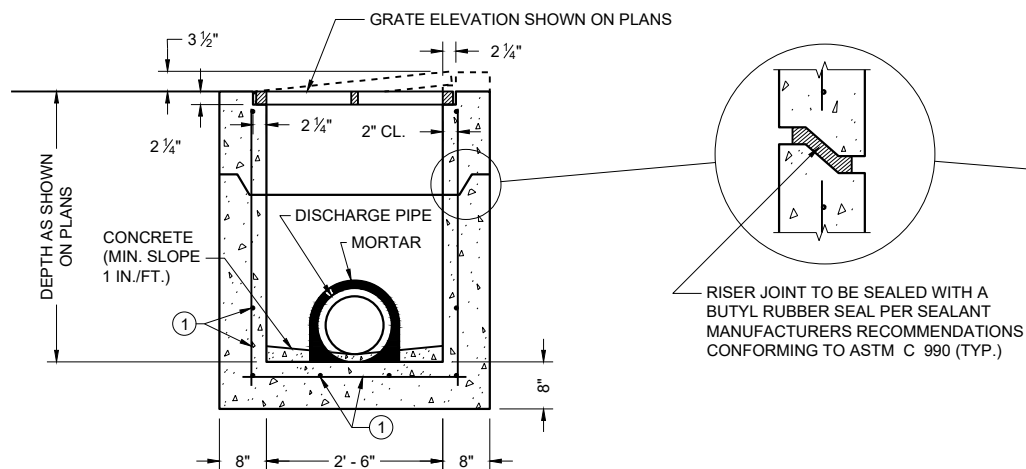
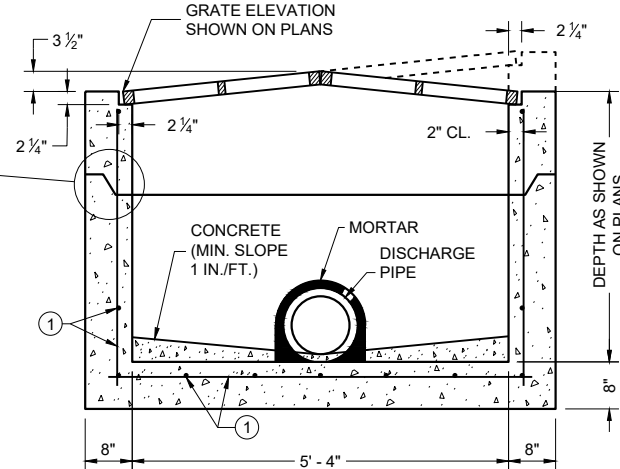
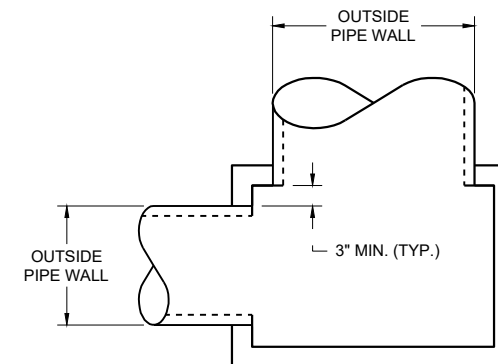
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December 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR



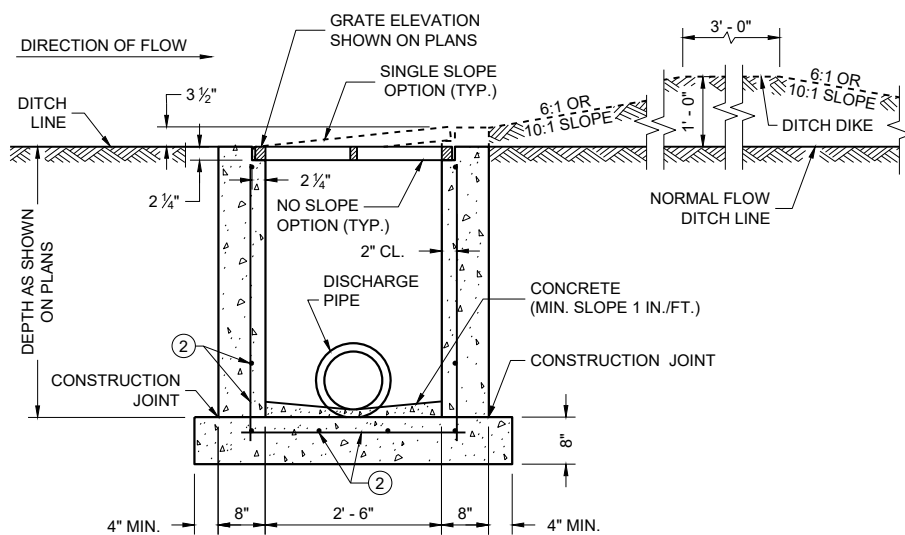
PLAN VIEW



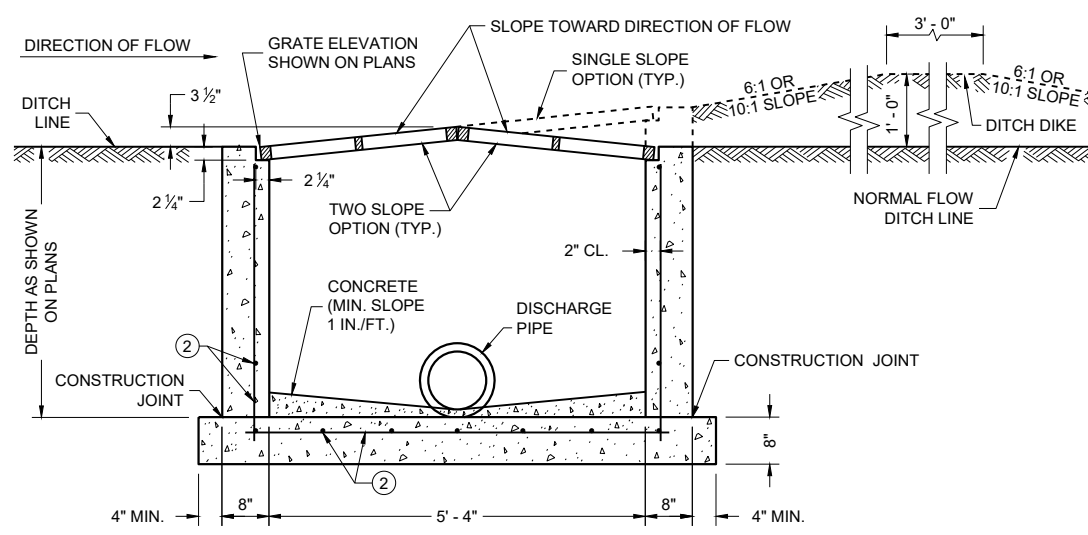
PLAN VIEW

PRECAST REINFORCED CONCRETE
SECTION A - APRECAST REINFORCED CONCRETE
SECTION B - B

DETAIL "A"

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, 1G-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 PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

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.

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 AND REINFORCED CONCRETE BASES 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.

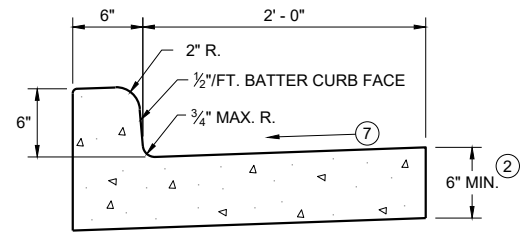
PIPE MATRIX

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

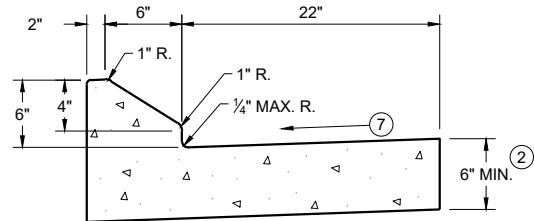
INLETS
MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

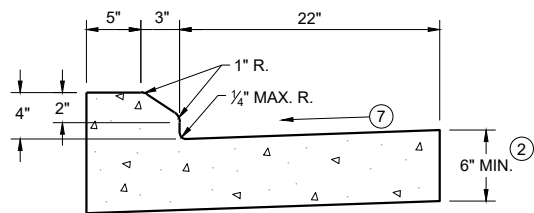
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December 2023 /S/ Rodney Taylor
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FHWA UNIT SUPERVISOR



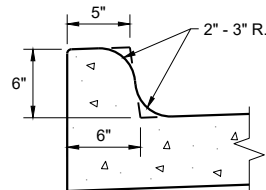
TYPES A^① & D



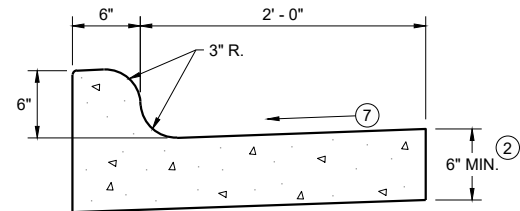
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

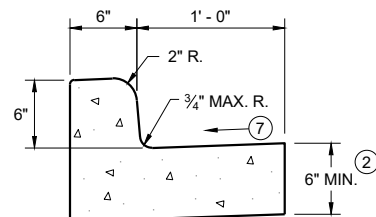


TYPES K^① & L
(OPTIONAL CURB SHAPE)



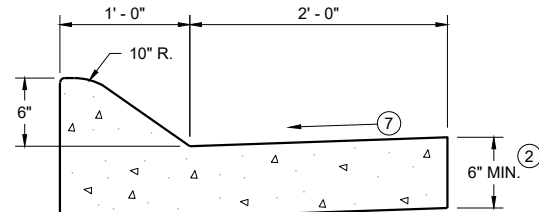
TYPES K^① & L

CONCRETE CURB AND GUTTER 30"

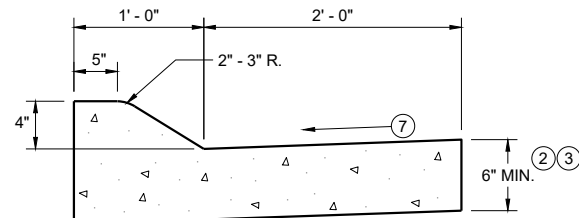


TYPES A^① & D

CONCRETE CURB AND GUTTER 18"

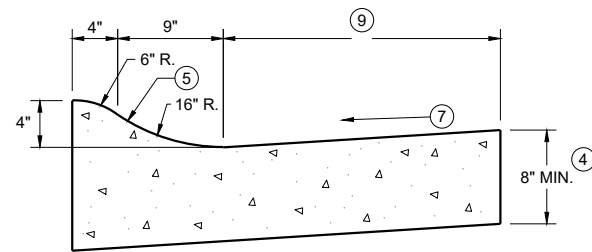


6" SLOPED CURB TYPES A^① & D



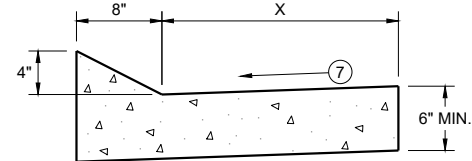
4" SLOPED CURB TYPES A^① & D

CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

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

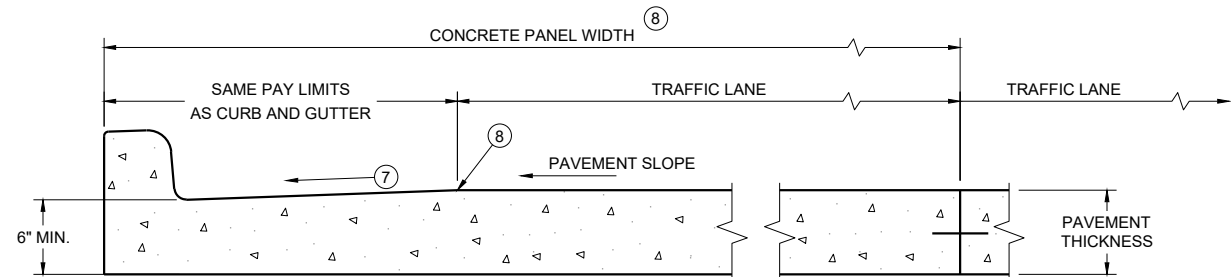


TYPES TBT & TBTT^①

CONCRETE CURB AND GUTTER

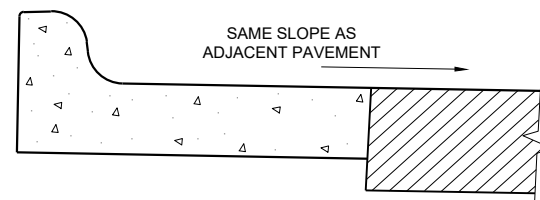
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

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



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB AND GUTTER *

* BIKE LANE IS NOT SHOWN



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

GENERAL NOTES

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

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

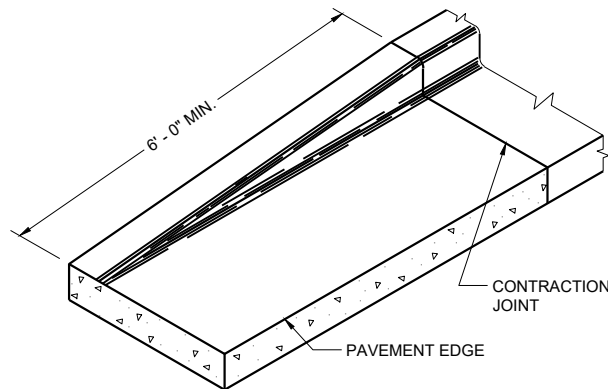
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

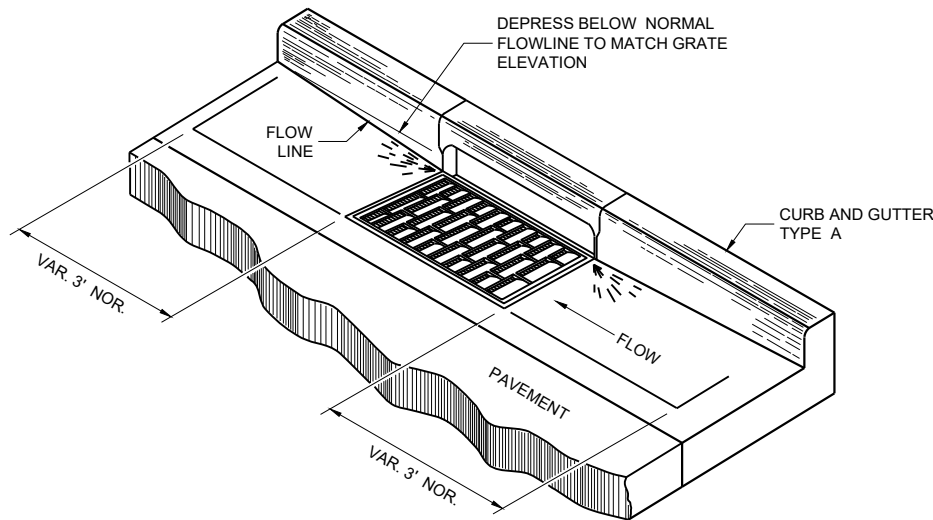
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES

CONCRETE CURB AND GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

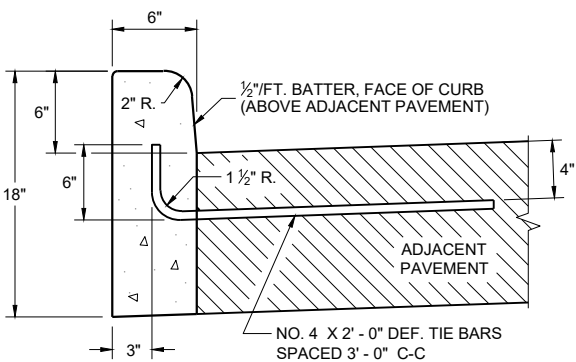


END SECTION CURB AND GUTTER

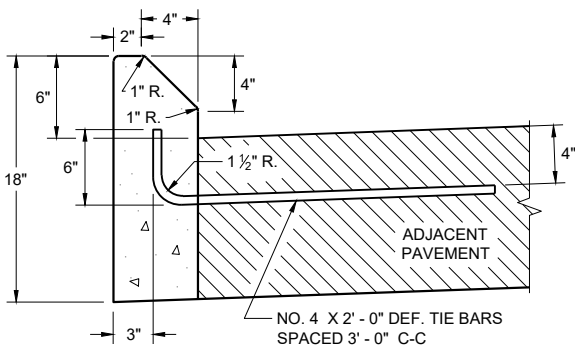


DETAIL OF CURB AND GUTTER AT INLETS

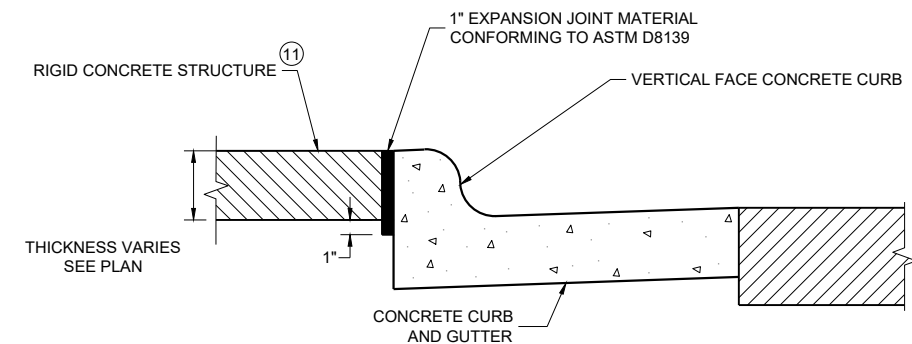
(TYPICAL H INLET COVER SHOWN)



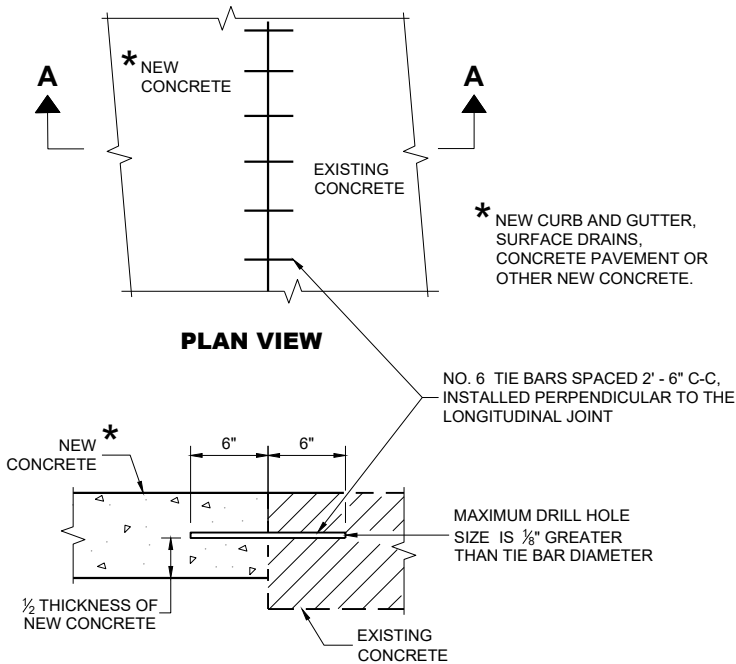
TYPES A^① & D



TYPES G^① & J
CONCRETE CURB



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



SECTION A - A
TIE BARS DRILLED INTO EXISTING PAVEMENT

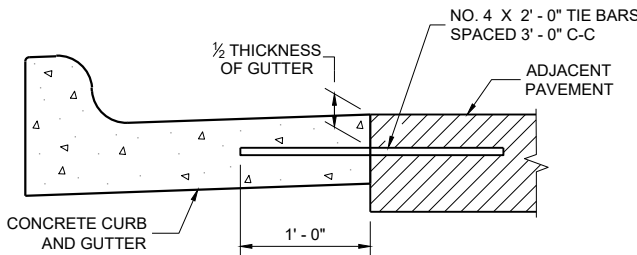
GENERAL NOTES

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

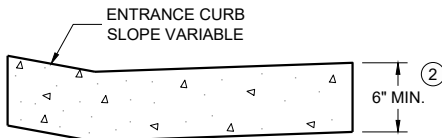
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

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



TYPICAL TIE BAR LOCATION^①



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

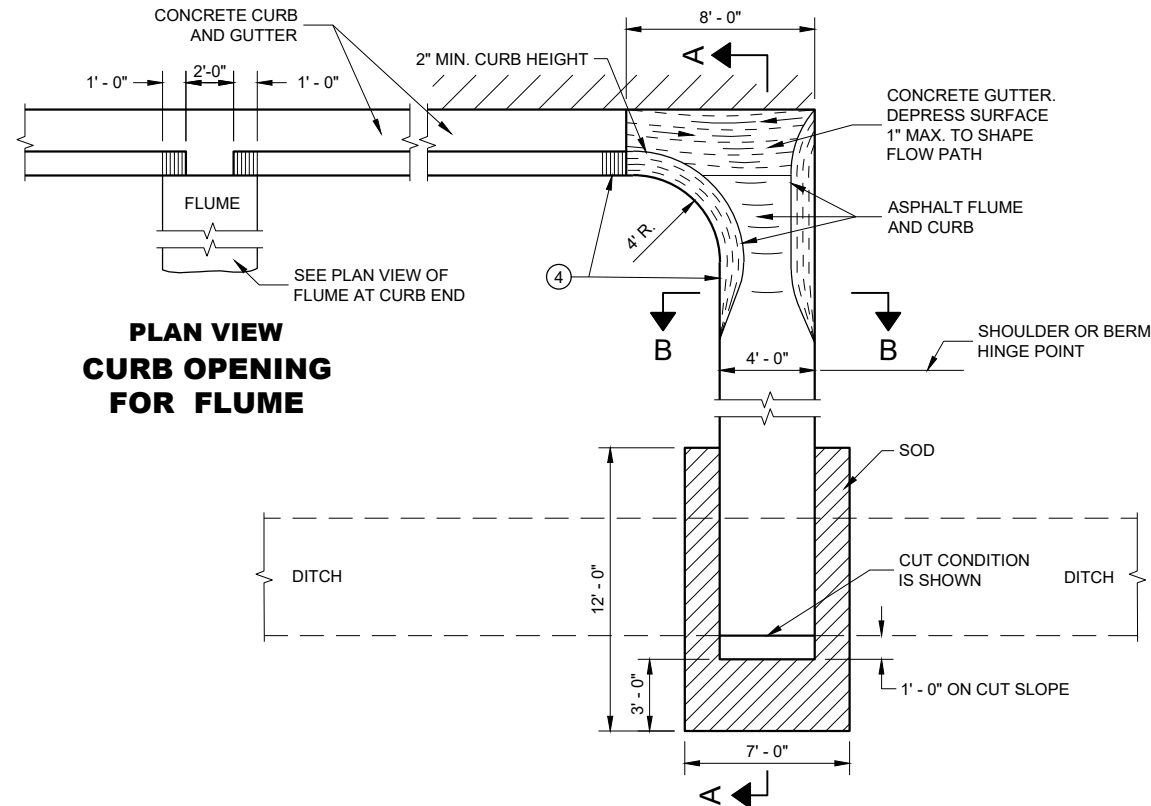
CONCRETE CURB, TIES
AND CURB AND GUTTER
APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

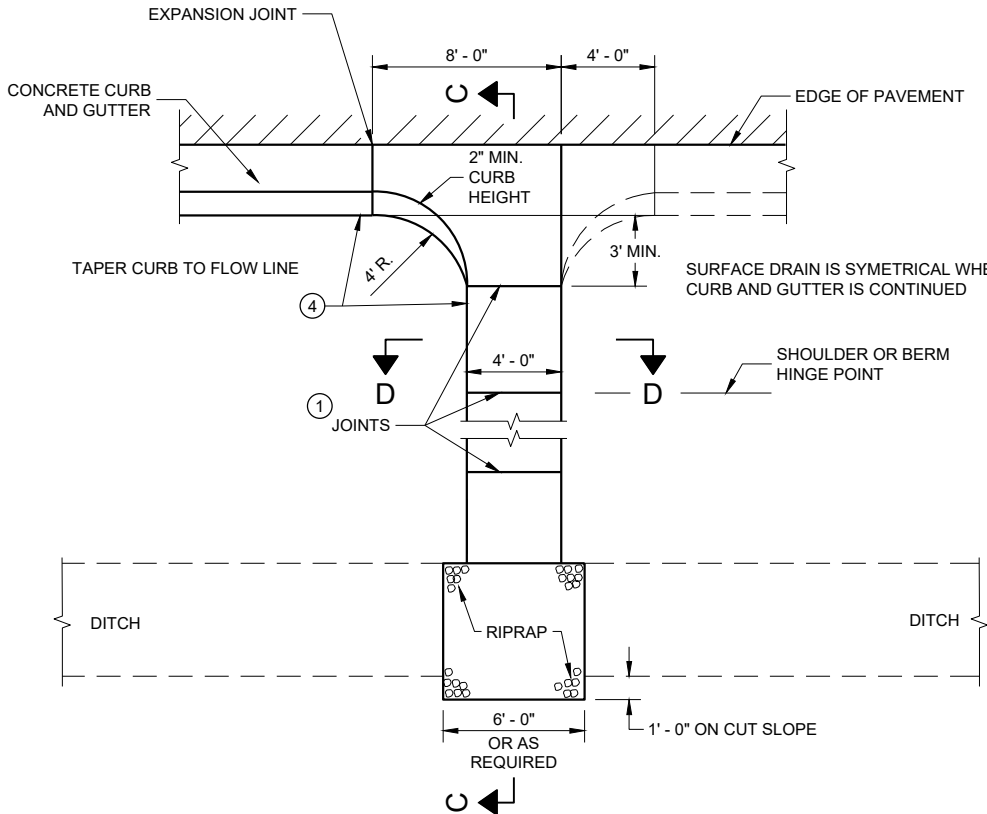
NOTE: TAPER CURB ENDS TO GUTTER IN 1' - 0"

ASPHALTIC FLUME



PLAN VIEW
CURB OPENING
FOR FLUME

PLAN VIEW
FLUME AT CURB END



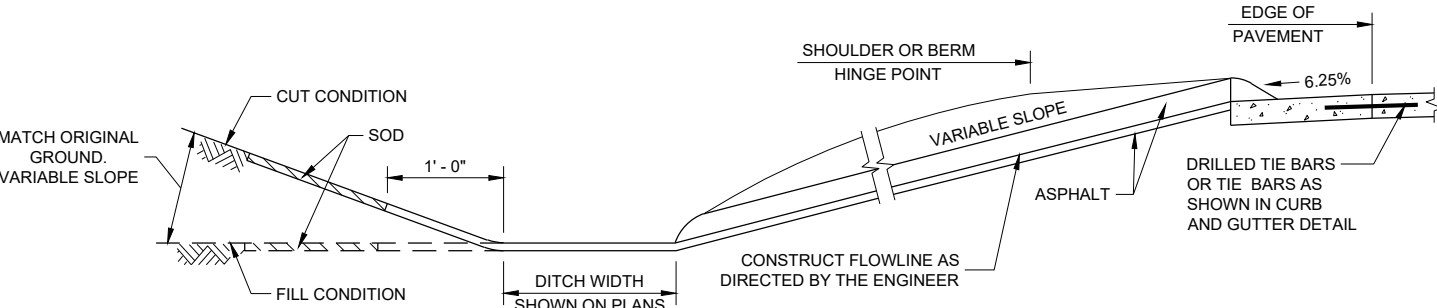
PLAN VIEW
CONCRETE SURFACE DRAIN

GENERAL NOTES

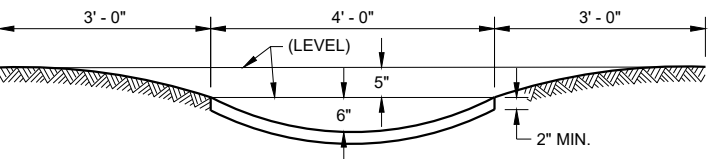
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

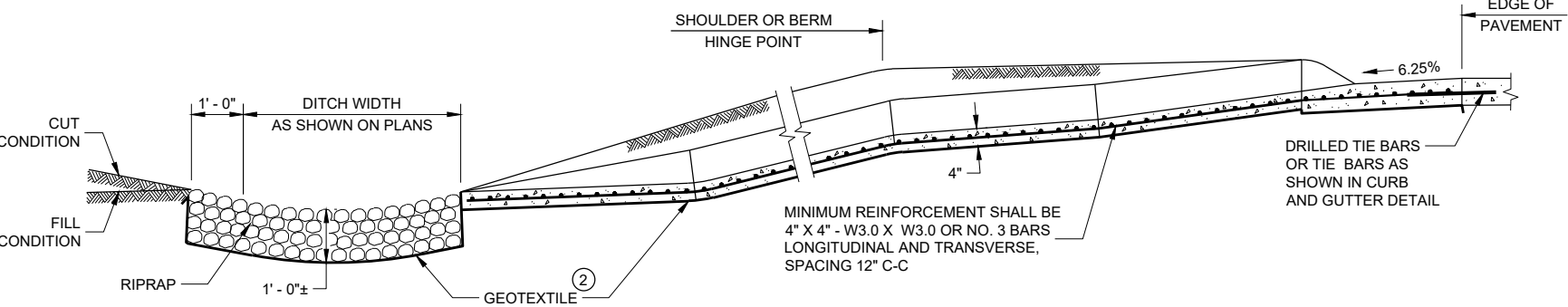
- ① JOINTS SHALL BE 1/8" TO 1/4" WIDE BY 1 1/2" DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED.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



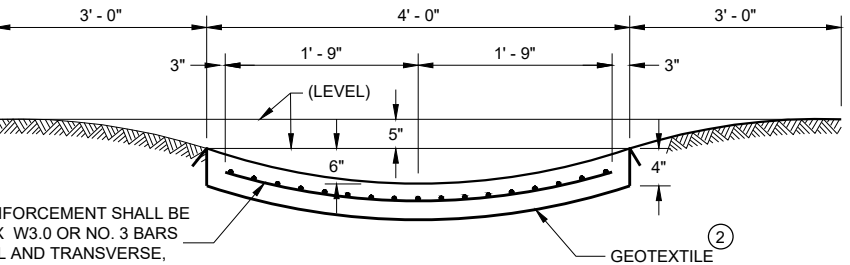
SECTION A - A



SECTION B - B



SECTION C - C

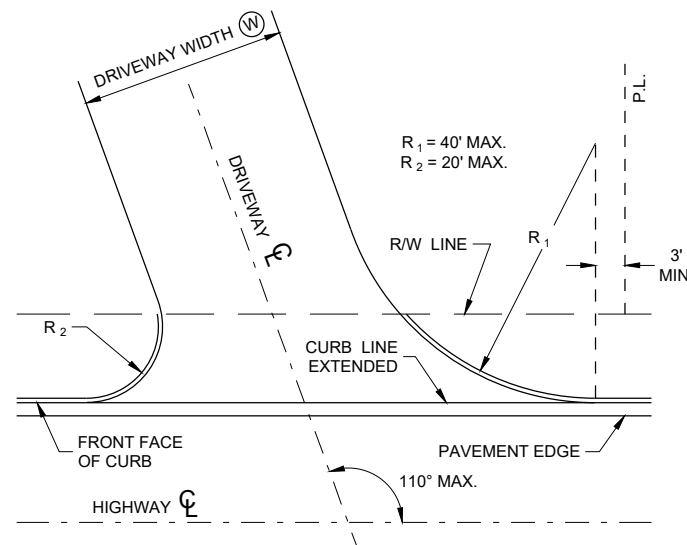
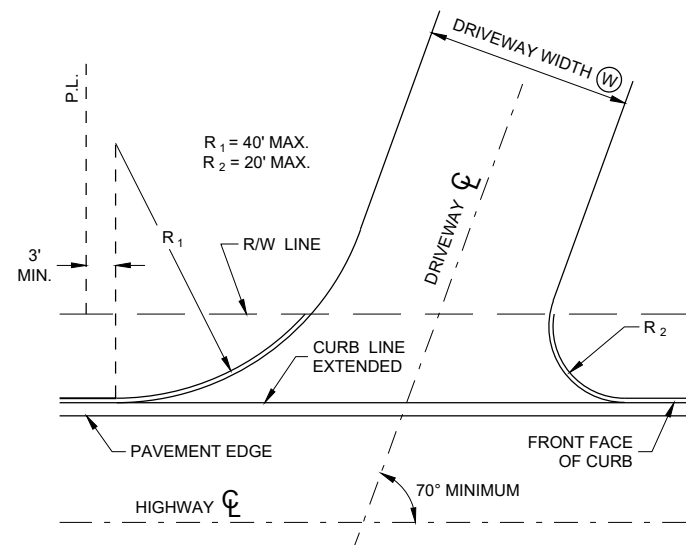


SECTION D - D

CONCRETE SURFACE
DRAINS AND
ASPHALTIC FLUMES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



**SKewed DRIVEWAY DETAILS
(COMMERCIAL AND NON-COMMERCIAL)
SIDEWALK NOT SHOWN**

GENERAL NOTES

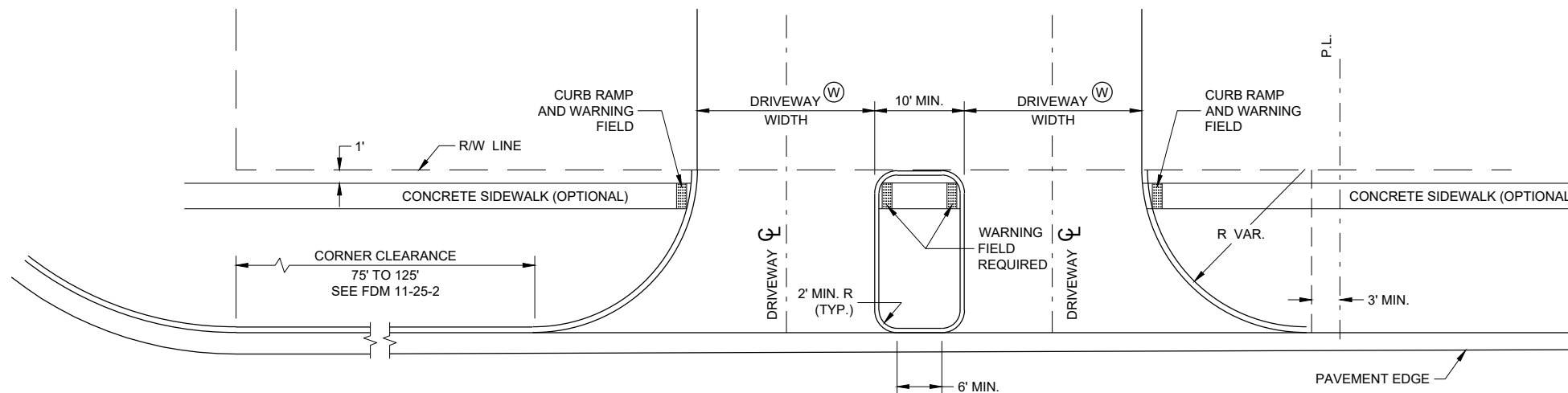
A MAXIMUM RADIUS OF 10 FEET SHALL BE USED FOR NON-COMMERCIAL PRIVATE ENTRANCES. RADII FOR COMMERCIAL DRIVEWAYS SHALL BE DETERMINED BY THE ENGINEER BASED ON TRAFFIC AND DRIVEWAY PERMIT RESTRICTIONS.

THE MINIMUM ANGLE OF INTERSECTION BETWEEN THE DRIVEWAY AND HIGHWAY CENTERLINES SHALL BE 70°.

ALL CURVILINEAR PRIVATE ENTRANCE OUTLINES SHALL BE CONTAINED WITHIN THE HIGHWAY R/W.

NO DRIVEWAY SHALL BE BUILT WITHIN 3 FEET OF THE PROPERTY LINE EXCEPT FOR EXISTING JOINT DRIVEWAY SHARED BY TWO OWNERS.

(W) : 12' MIN. - 24' MAX. RESIDENTIAL AND
NON-COMMERCIAL (PE & FE)
16' MIN. - 35' MAX. COMMERCIAL (CE)



**DRIVEWAY LOCATION AND SPACING DETAILS
SIDEWALK SHOWN**

DRIVEWAYS WITH CURB AND GUTTER RETURNS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

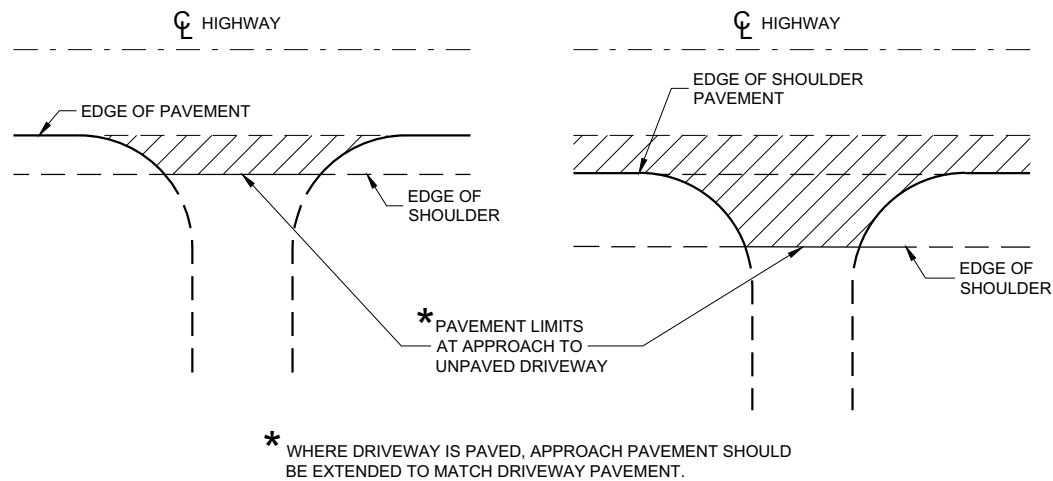
APPROVED

00-00-00
DATE

/S/ <AUTHOR>
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA

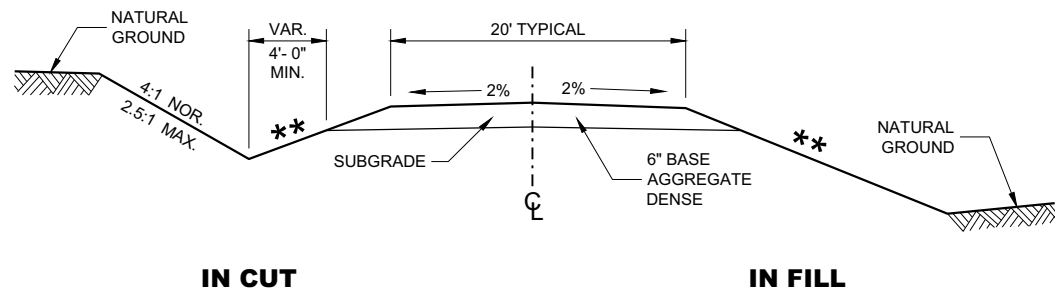
102



PLAN VIEW
(UNPAVED SHOULDER ON HIGHWAY)

PLAN VIEW
(PAVED SHOULDER ON HIGHWAY)

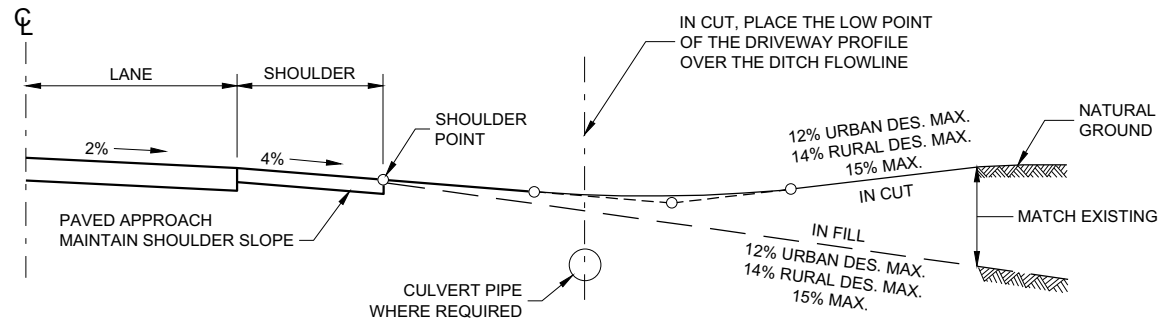
**RURAL DRIVEWAY INTERSECTION DETAIL
(NO CURB AND GUTTER OR SIDEWALK)**



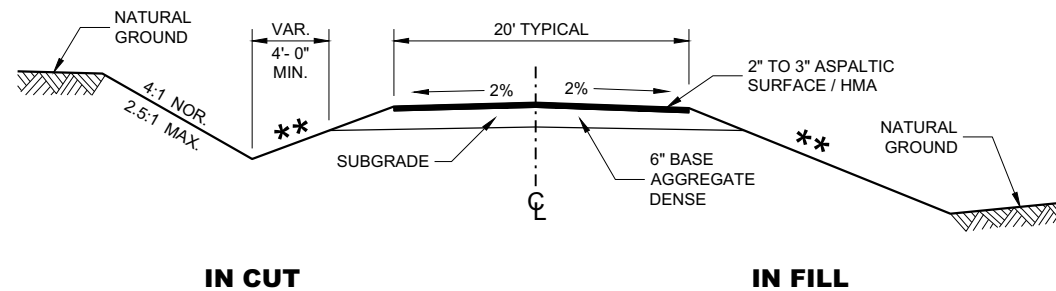
**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
AGGREGATE SURFACE**

****** SLOPE CAN VARY WITH SPEED. SEE 11-45-30.6.2

POSTED SPEED MPH	MAX. SLOPE
<35	4:1
≥ 35 TO < 60	6:1
≥60	10:1



TYPICAL DRIVEWAY PROFILES

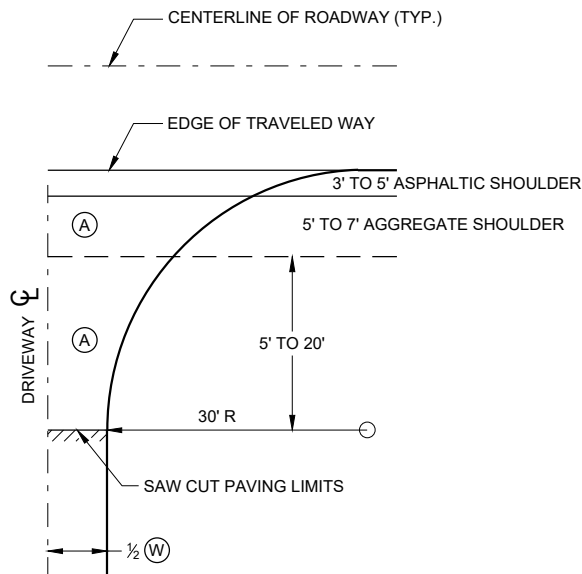


**TYPICAL CROSS SECTION FOR
PRIVATE DRIVE OR FIELD ENTRANCE
ASPHALTIC SURFACE**

**DRIVEWAYS WITHOUT
CURB AND GUTTER**

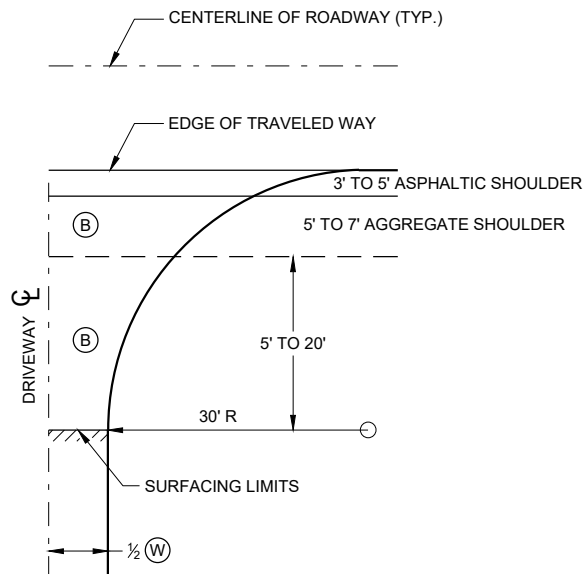
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

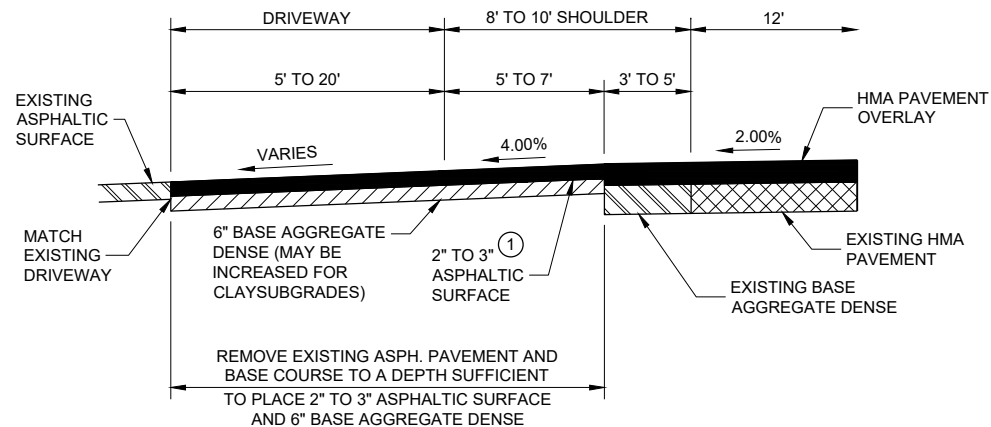


PLAN VIEW
HALF SECTION

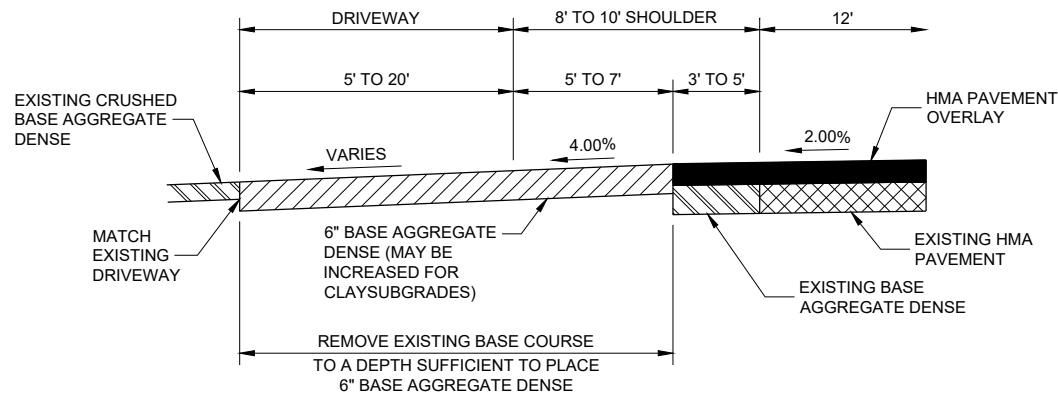
- (A) : PAID FOR AS ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES. (TON)
- (B) : PAID FOR AS BASE AGGREGATE DENSE 1 1/4" (TON)
- (W) : DRIVEWAY WIDTH 16' MIN. - 24' MAX.



PLAN VIEW
HALF SECTION



PROFILE VIEW
RURAL ENTRANCE
WITH ASPHALTIC SURFACE
RESURFACING PROJECTS



PROFILE VIEW
RURAL ENTRANCE
WITH AGGREGATE SURFACE
6" BASE AGGREGATE DENSE
RESURFACING PROJECTS

GENERAL NOTES

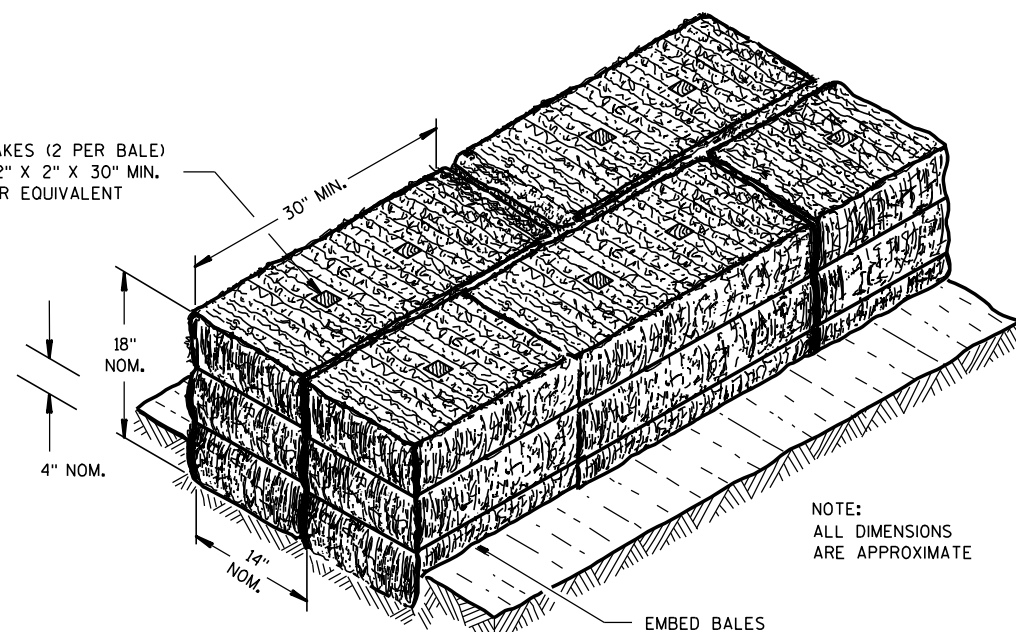
- ① DESIGN WILL DETERMINE FINAL DRIVEWAY ASPHALTIC THICKNESS BASED ON TYPE OF USAGE AND LOADINGS.

DRIVEWAYS WITHOUT CURB
AND GUTTER RESURFACING
PROJECTS RURAL

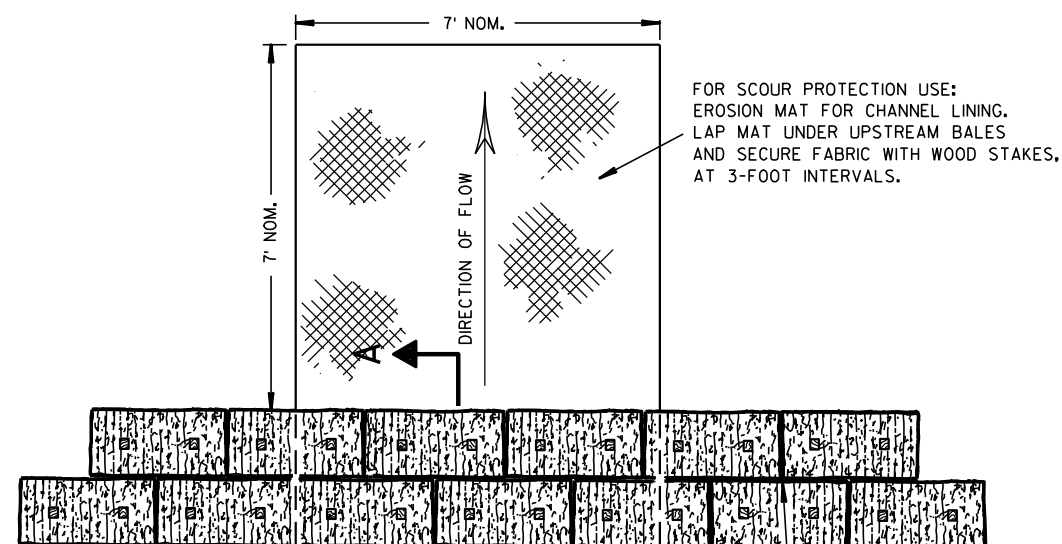
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
December 2016 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA 104

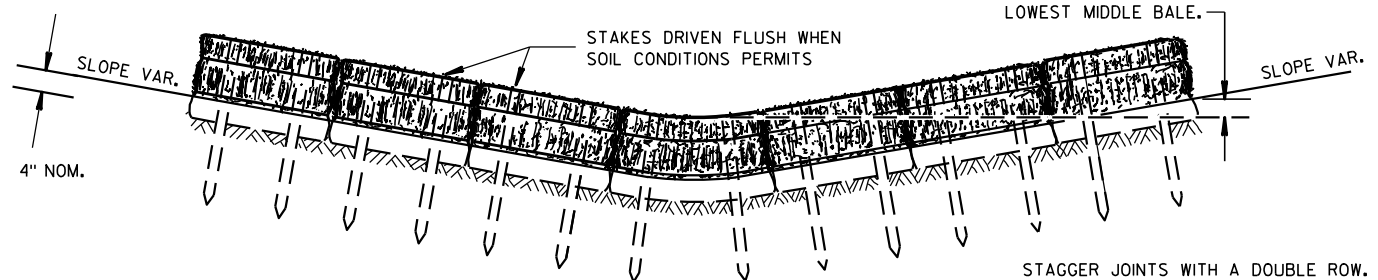
WOOD STAKES (2 PER BALE)
NOMINAL 2" X 2" X 30" MIN.
LENGTH OR EQUIVALENT



SECTION A-A



PLAN VIEW



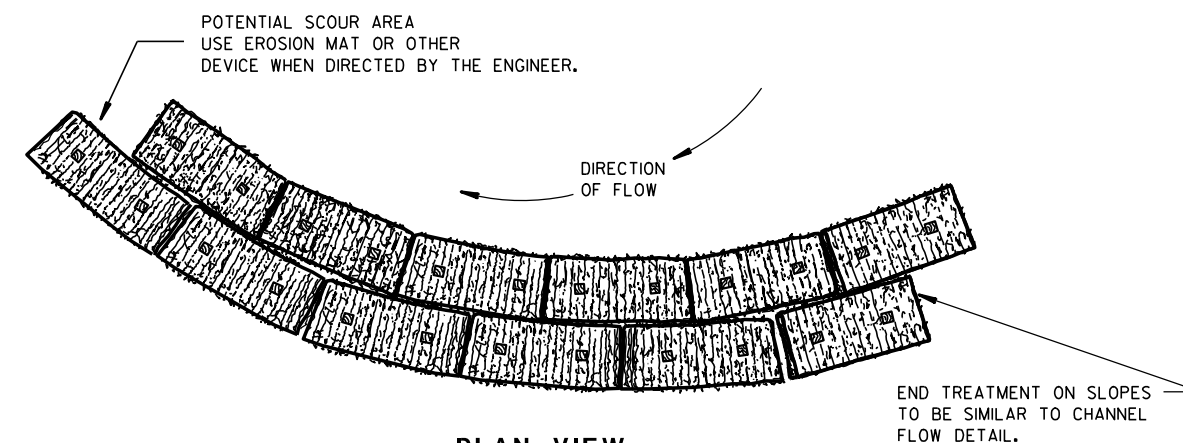
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES ①

GENERAL NOTES

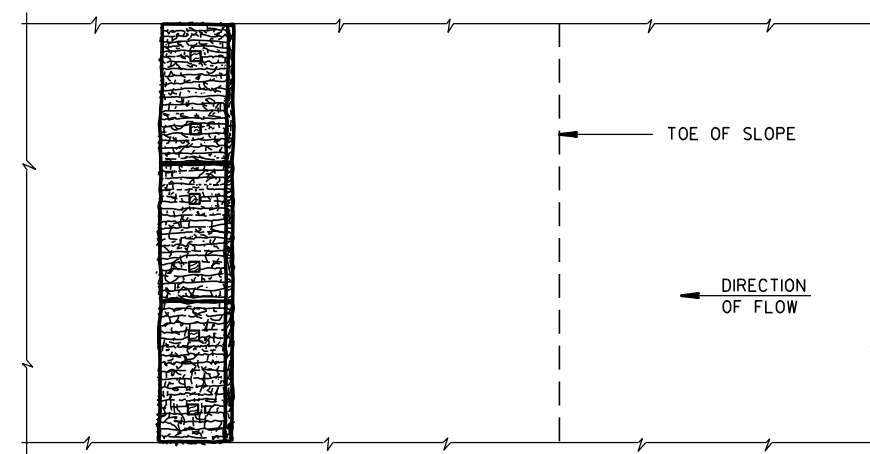
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

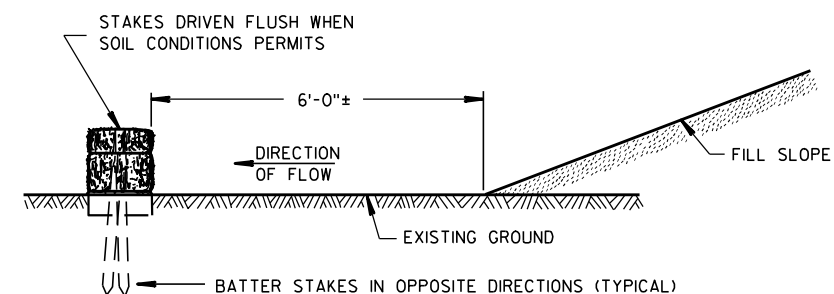


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/04/02

DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOP 105 ENGINEER

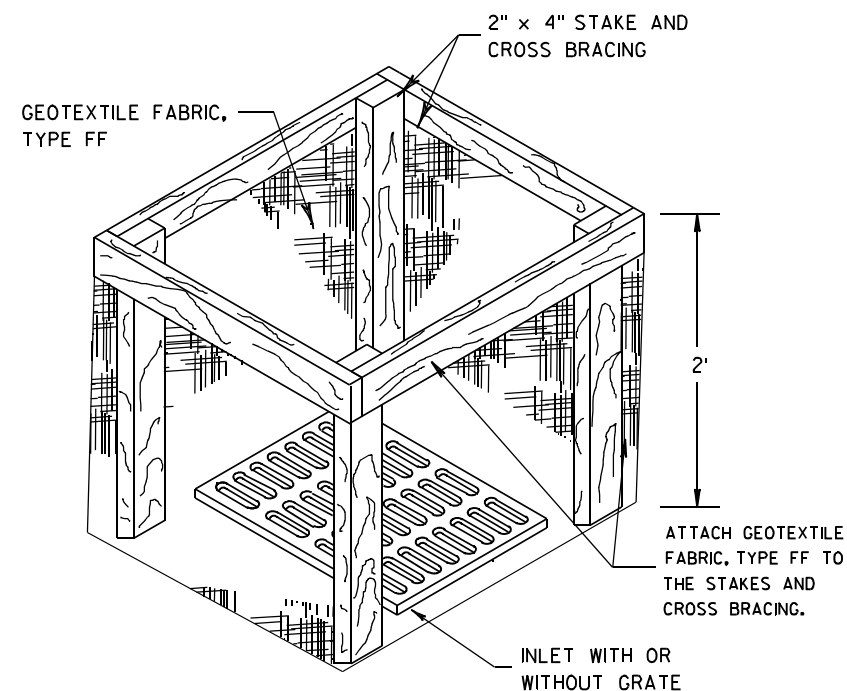
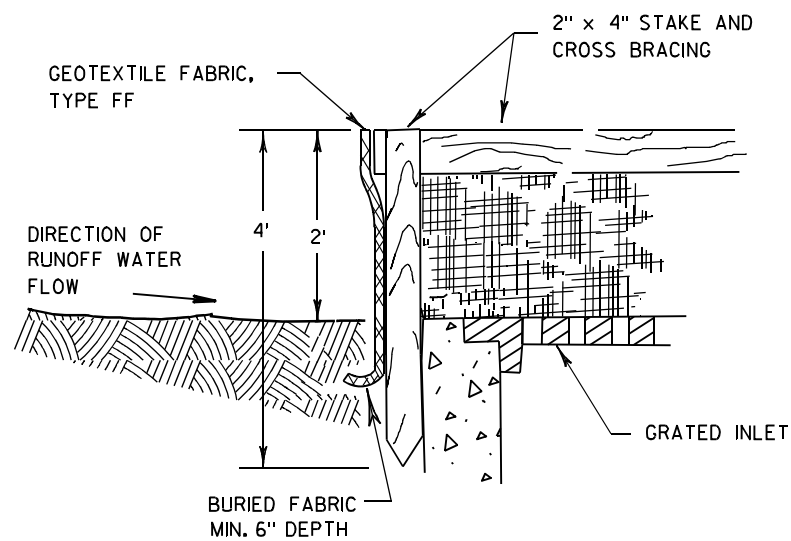
FHWA



- 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 1½" X 1½" 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.



SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Conn----- CHIEF ROADWAY DEVELOP 106 JINEER
FHWA	



INLET PROTECTION, TYPE A

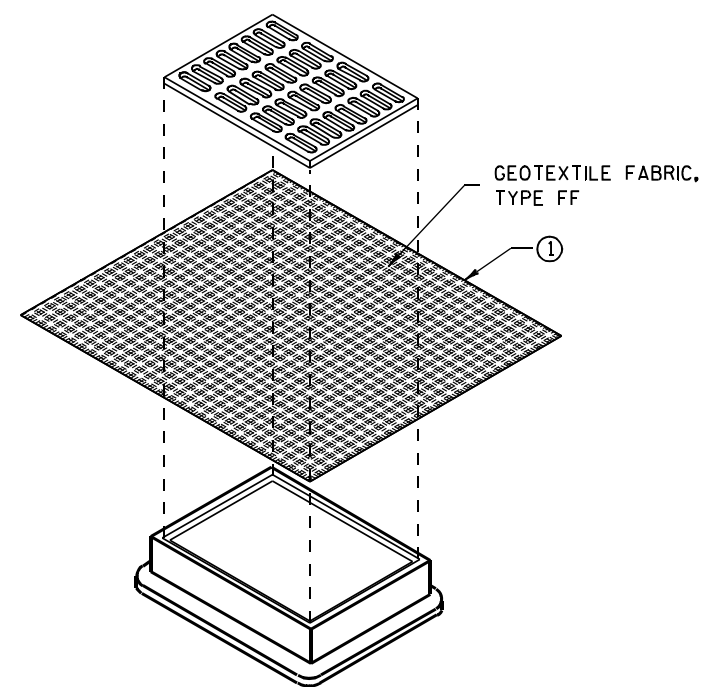
GENERAL NOTES

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.

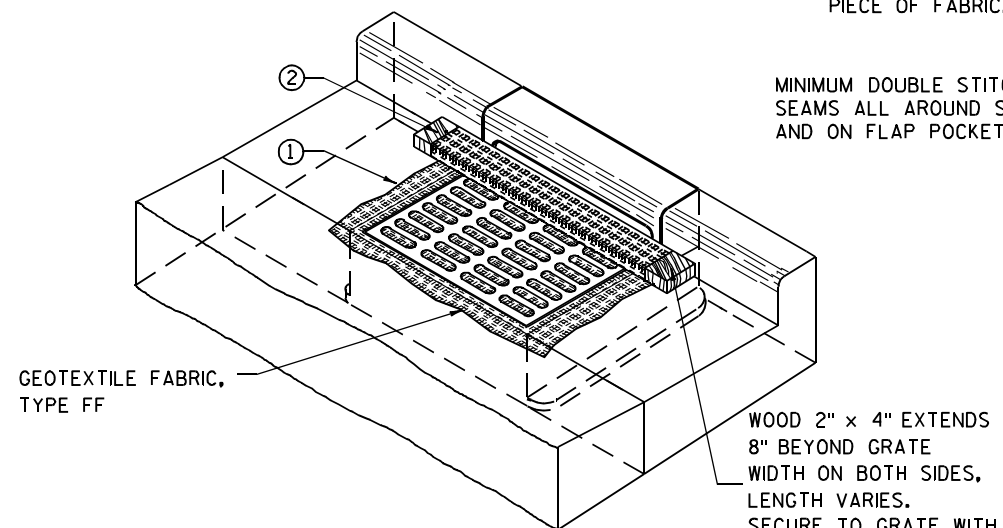
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

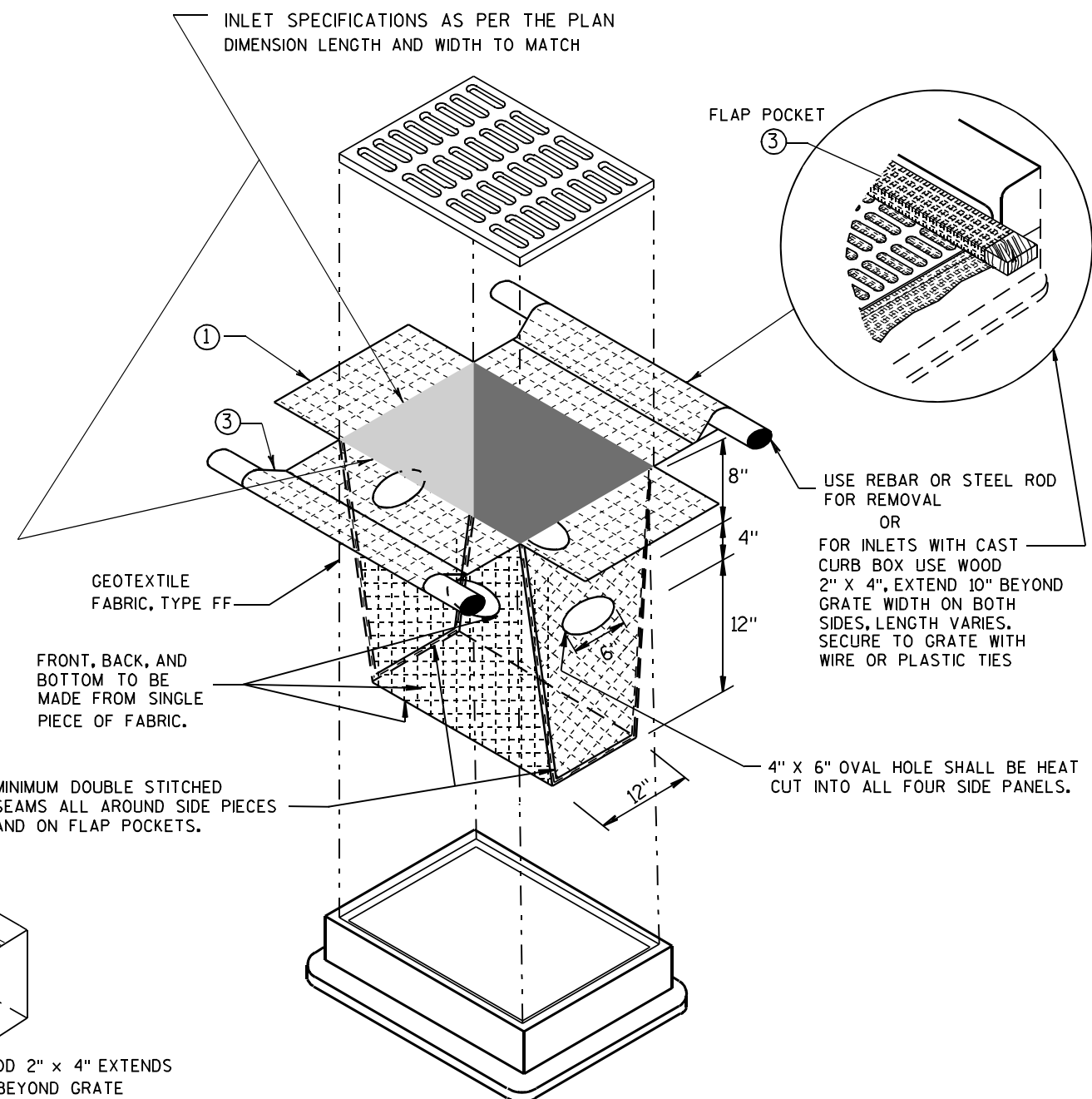
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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.

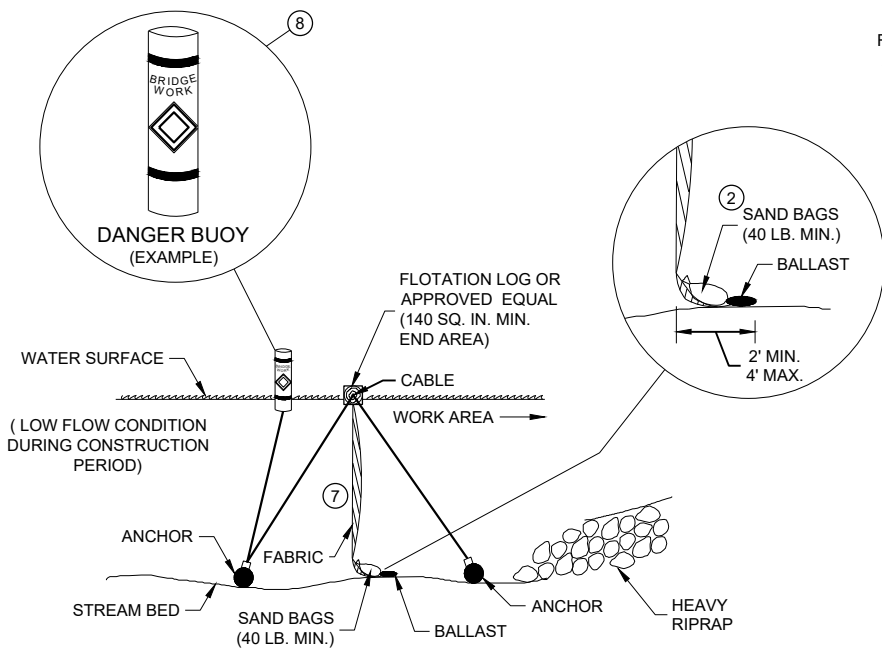
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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



INLET PROTECTION, TYPE D

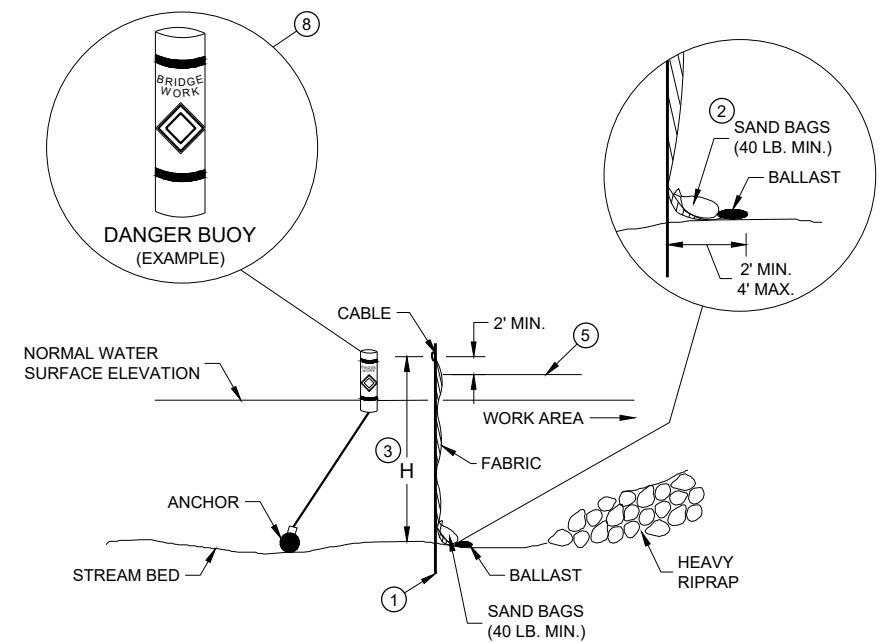
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Connolly 107 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



SECTION B - B

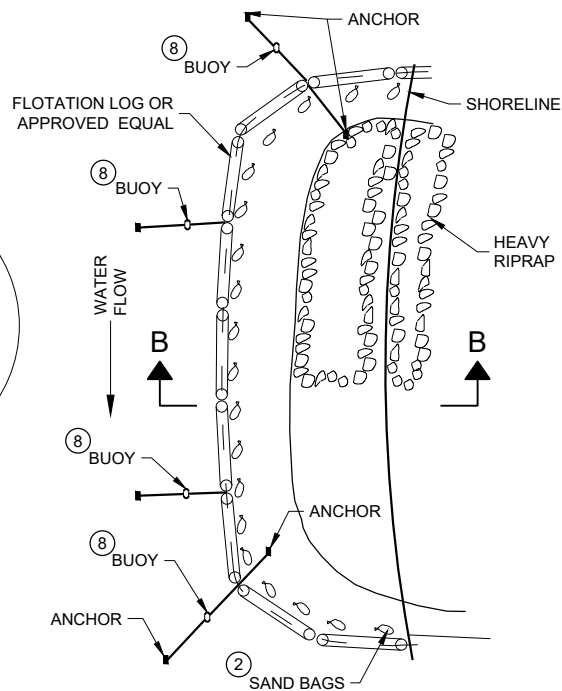
TURBIDITY BARRIER - FLOAT ALTERNATIVE
CAUTION - SEE NOTE 6



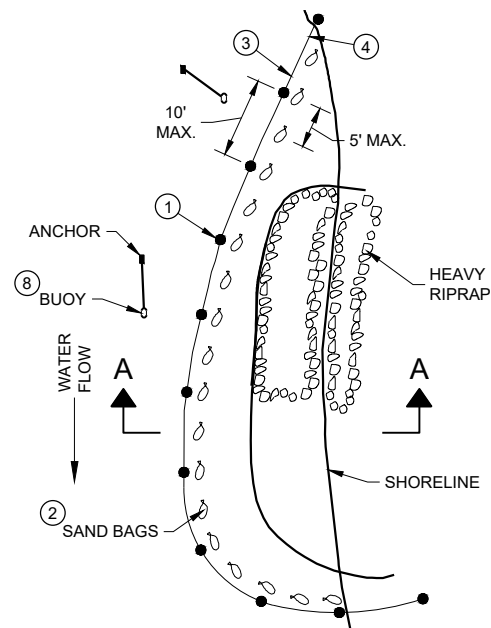
SECTION A - A

TURBIDITY BARRIER - STANDARD POST INSTALLATION

TURBIDITY BARRIER PLACEMENT DETAILS



PLAN VIEW



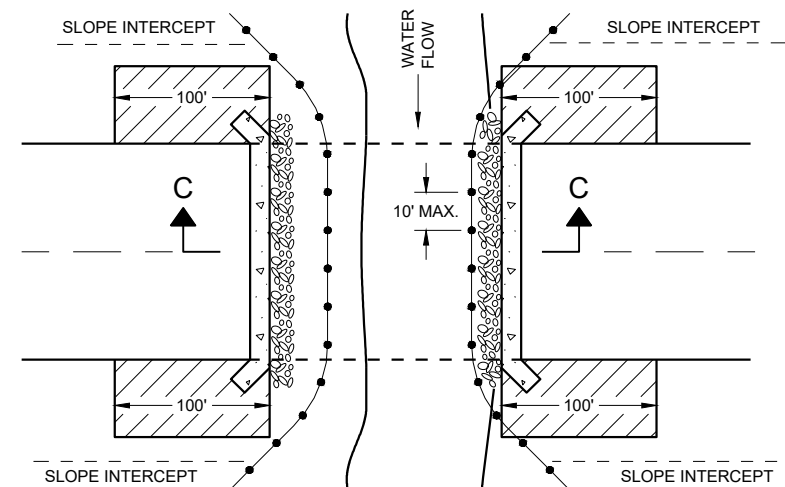
PLAN VIEW

GENERAL NOTES

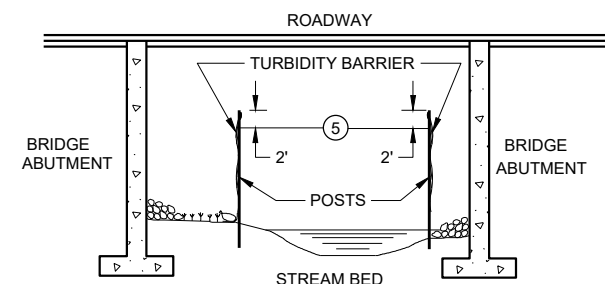
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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

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



PLAN VIEW



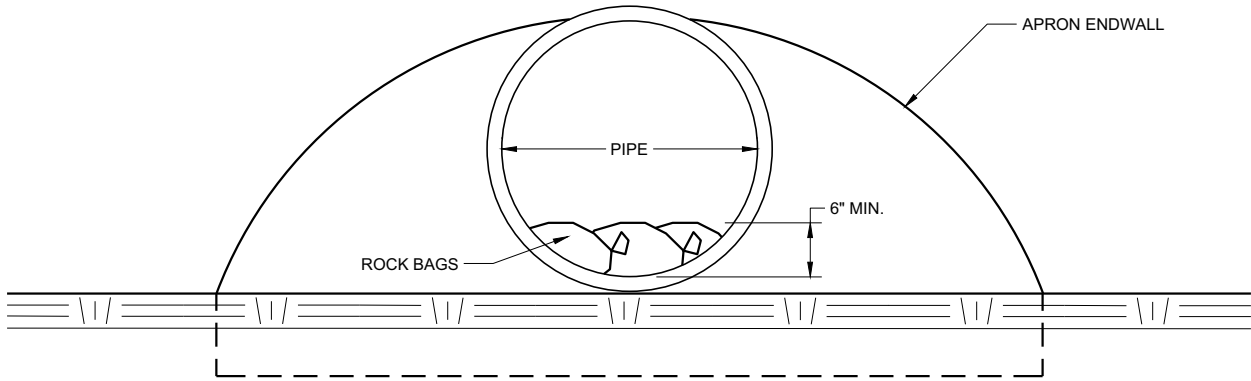
SECTION C - C

TURBIDITY BARRIER DETAIL SHOWING
TYPICAL PLACEMENT AT STRUCTURES

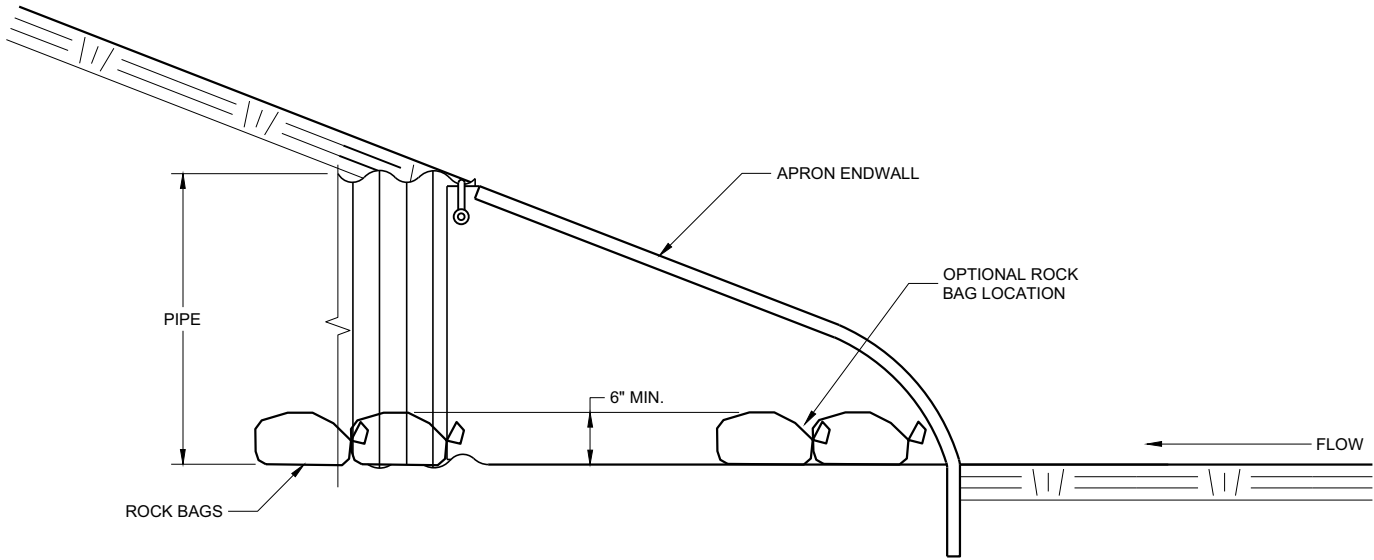
TURBIDITY BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



END VIEW



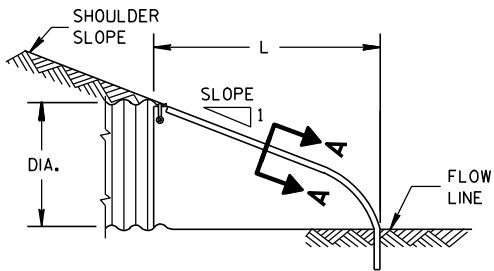
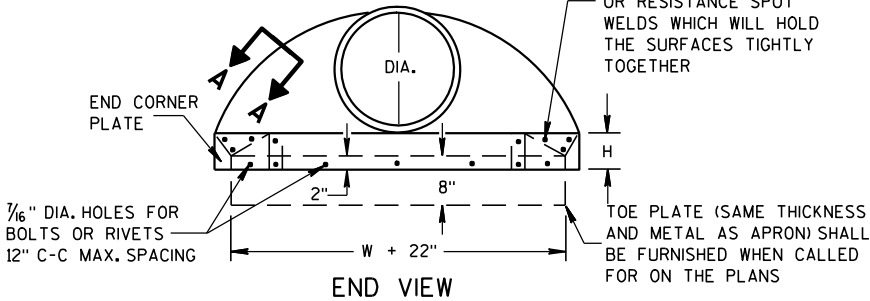
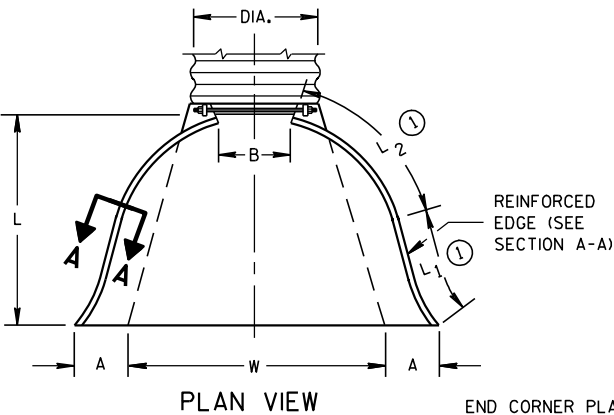
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED May 2019 DATE	/S/ Daniel Schave	
FHWA	EROSION CONTROL ENGI	109

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")	L ₁ ①	L ₂ ①			W (±2")
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109x	.105x	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

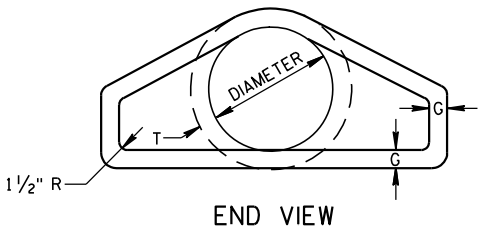
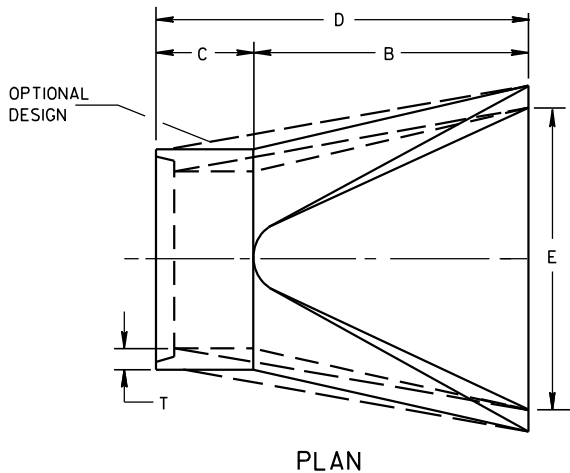
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



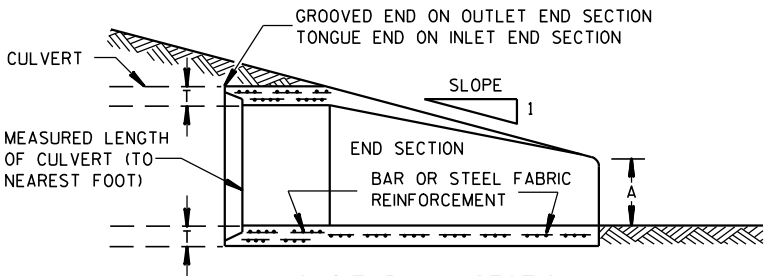
SIDE ELEVATION
METAL ENDWALLS

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

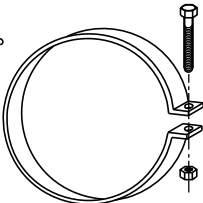
* MINIMUM
** MAXIMUM



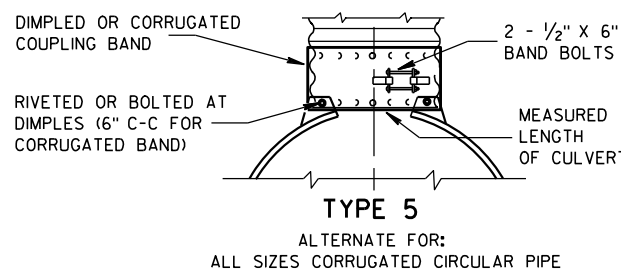
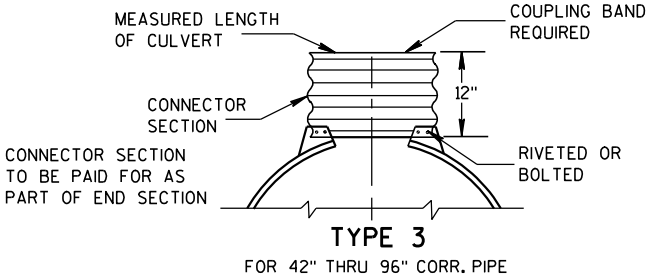
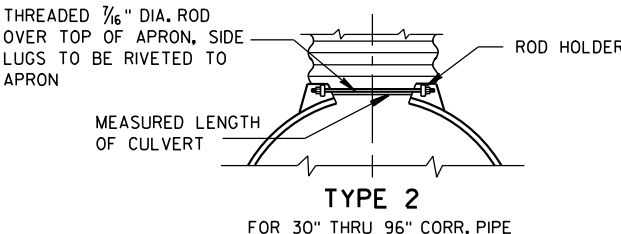
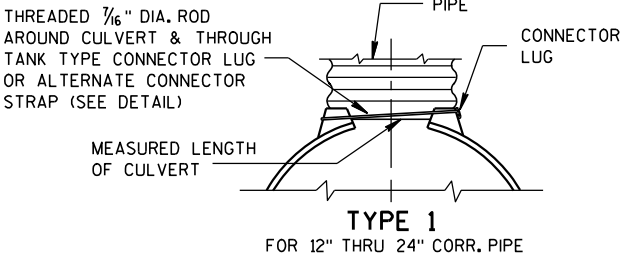
LONGITUDINAL SECTION
CONCRETE ENDWALLS



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



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



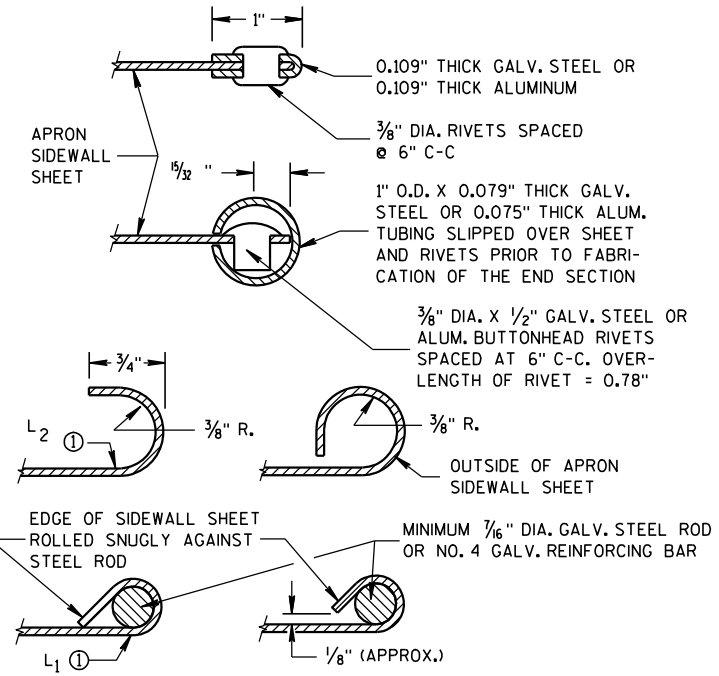
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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

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

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

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

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

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

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

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

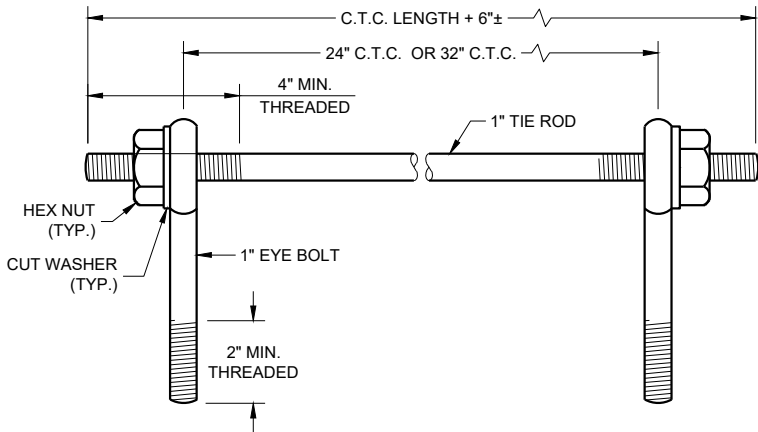
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

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

APRON ENDWALLS FOR
CULVERT PIPE

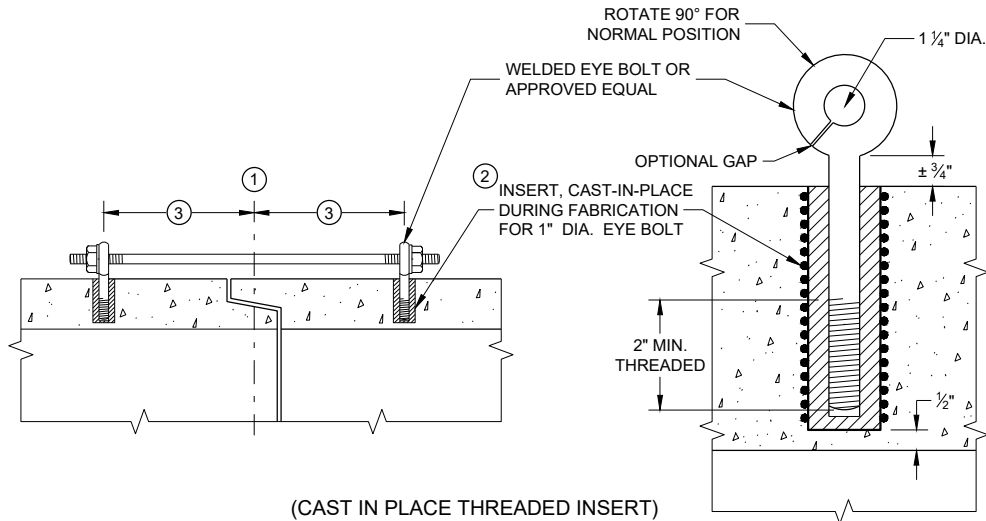
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94
DATE
/S/ Rory L. Rhinehart
CHIEF ROADWAY DEVELOPMENT
NEER
FHWA



EYE BOLTS AND TIE ROD

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



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

GENERAL NOTES

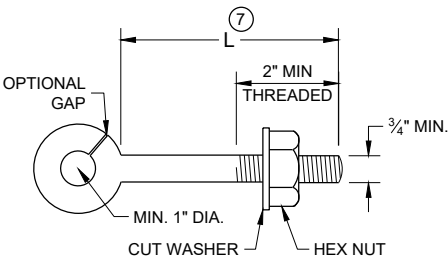
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

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

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

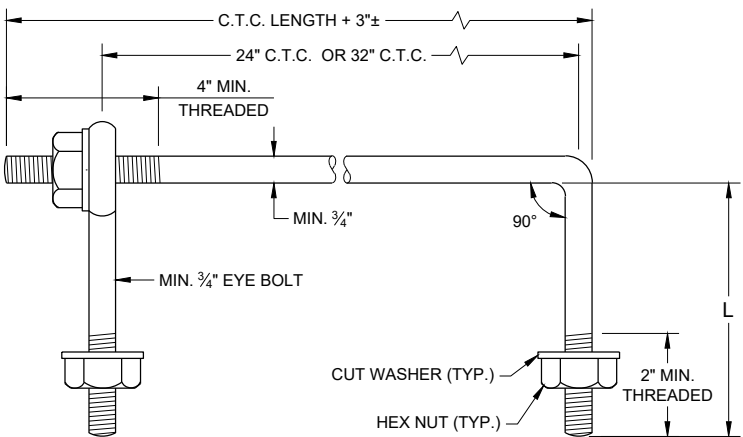
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

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

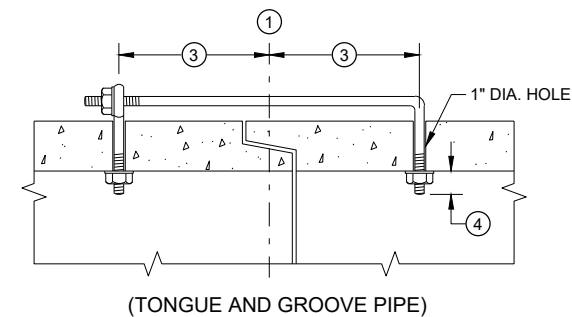


EYE BOLT 7

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



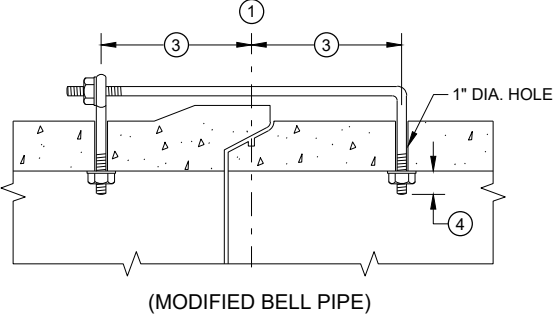
EYE BOLT AND TIE ROD



(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

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

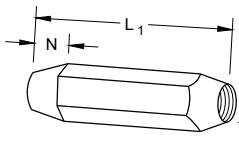


(MODIFIED BELL PIPE)

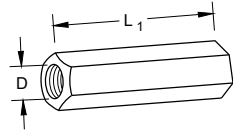
ADJUSTABLE TIE ROD TABLE

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

DIMENSIONS SHOWN ARE IN INCHES

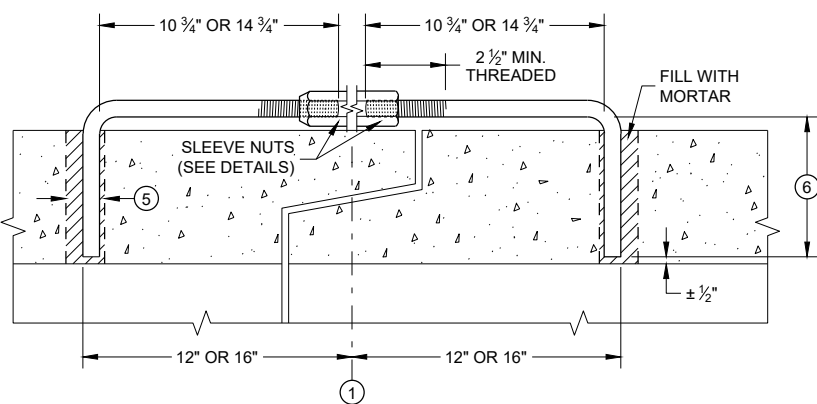


TAPERED



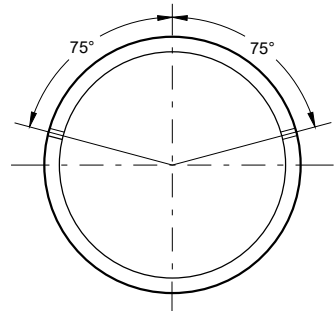
PLAIN

RIGHT AND LEFT THREADS
SLEEVE NUTS



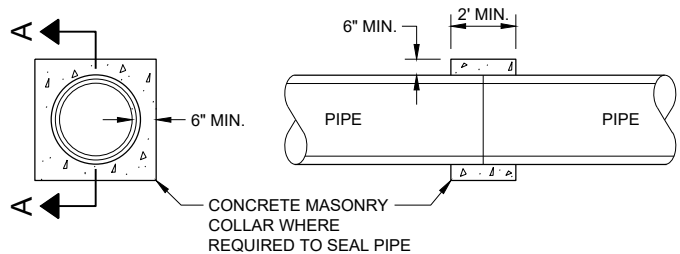
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



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

TRANSVERSE SECTION



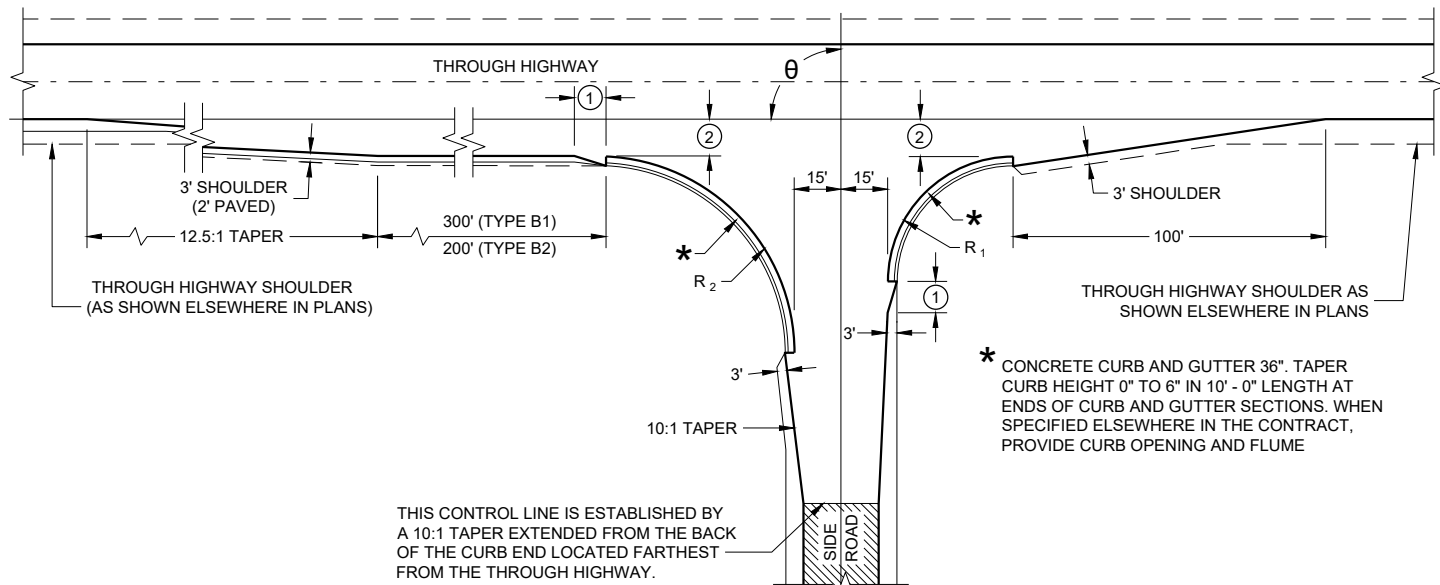
SECTION A - A

CONCRETE COLLAR DETAIL

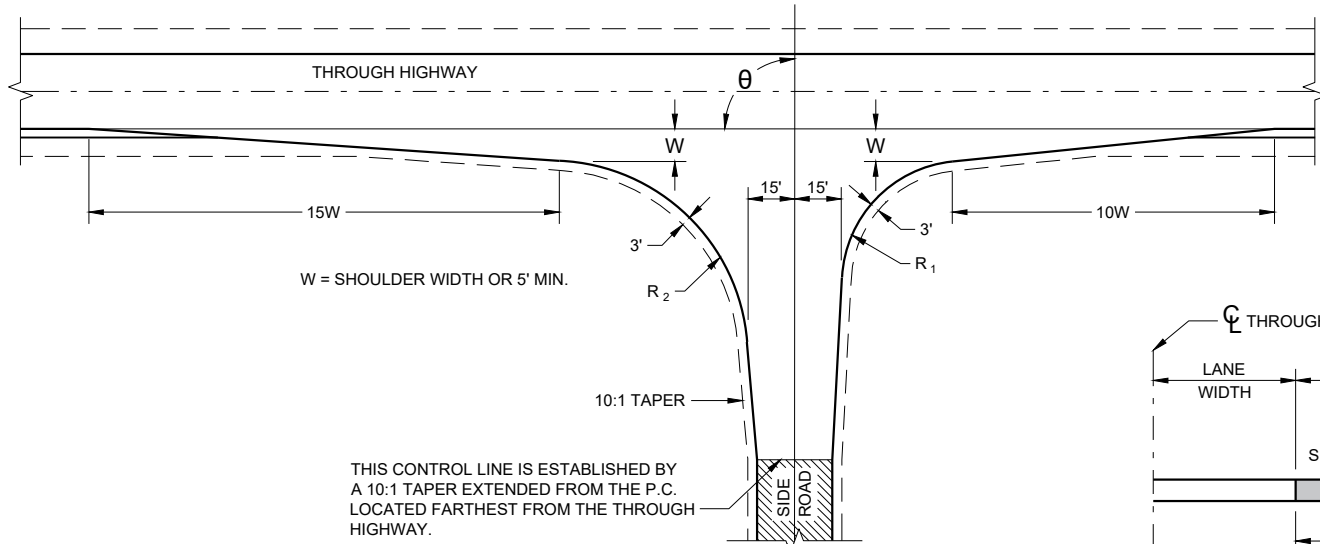
JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

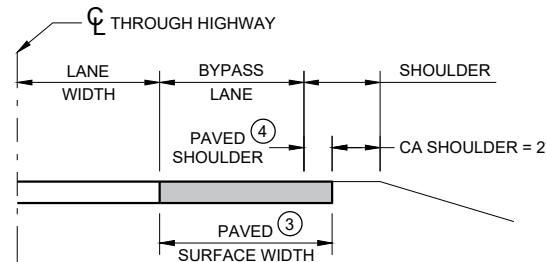
APPROVED
November 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA



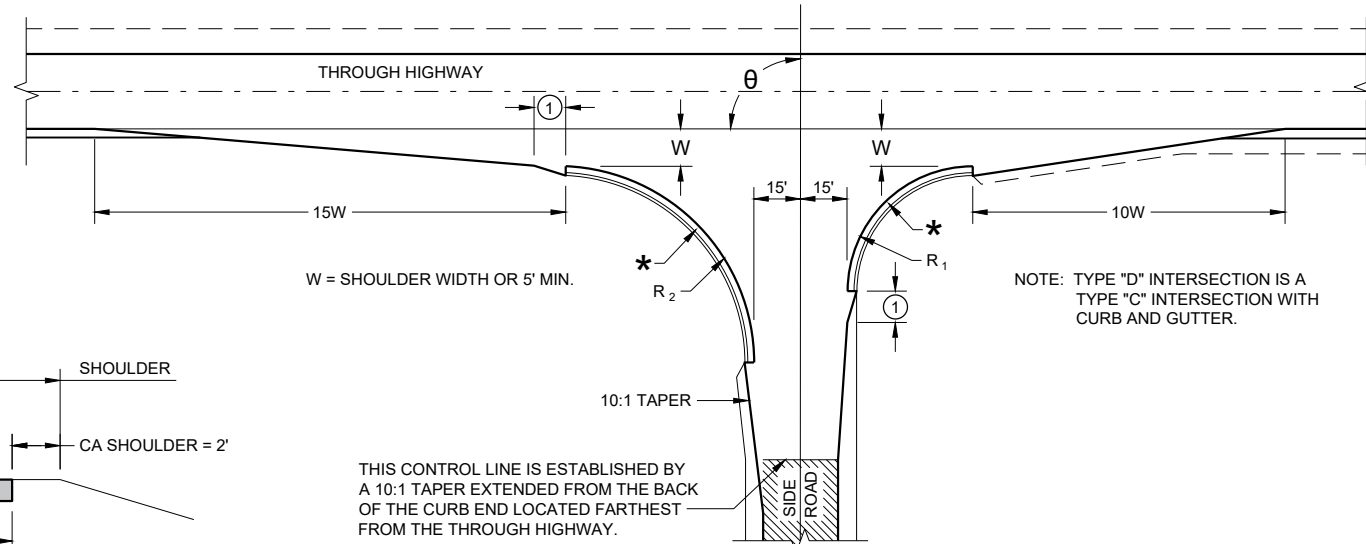
TYPE "B1" AND "B2"



TYPE "C"



SECTION A - A
(SHOWING BYPASS LANE AND SHOULDER)



TYPE "D"

RADII DIMENSIONS FOR TYPES "B1",
"B2", "C" AND "D" INTERSECTIONS

θ	R_1	R_2
65 - 70	35	70
71 - 80	40	70
81 - 90	40	60
91 - 100	50	55
101 - 110	60	45

GENERAL NOTES

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

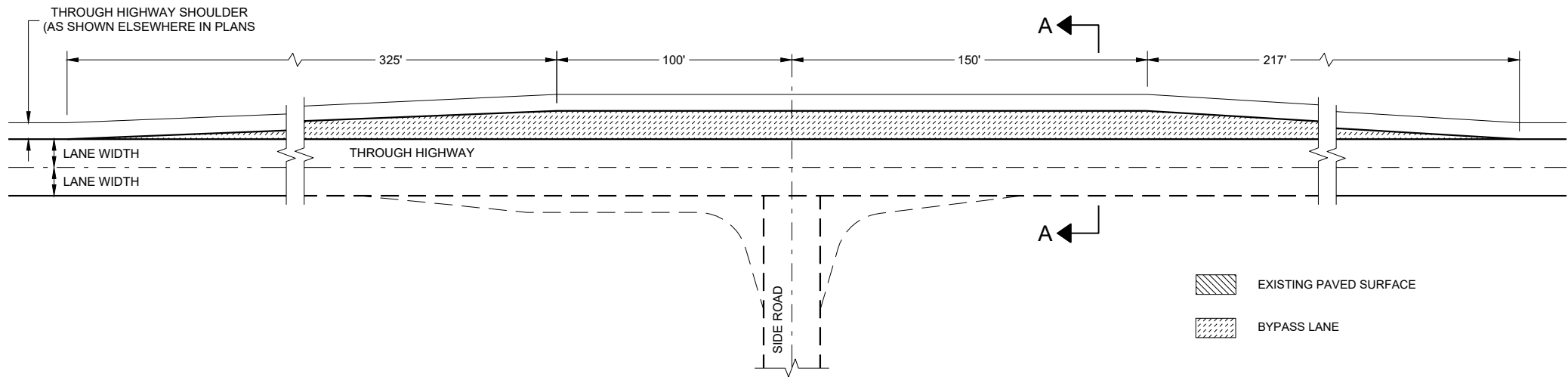
SIDE ROAD SURFACING NOTE

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

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

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

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

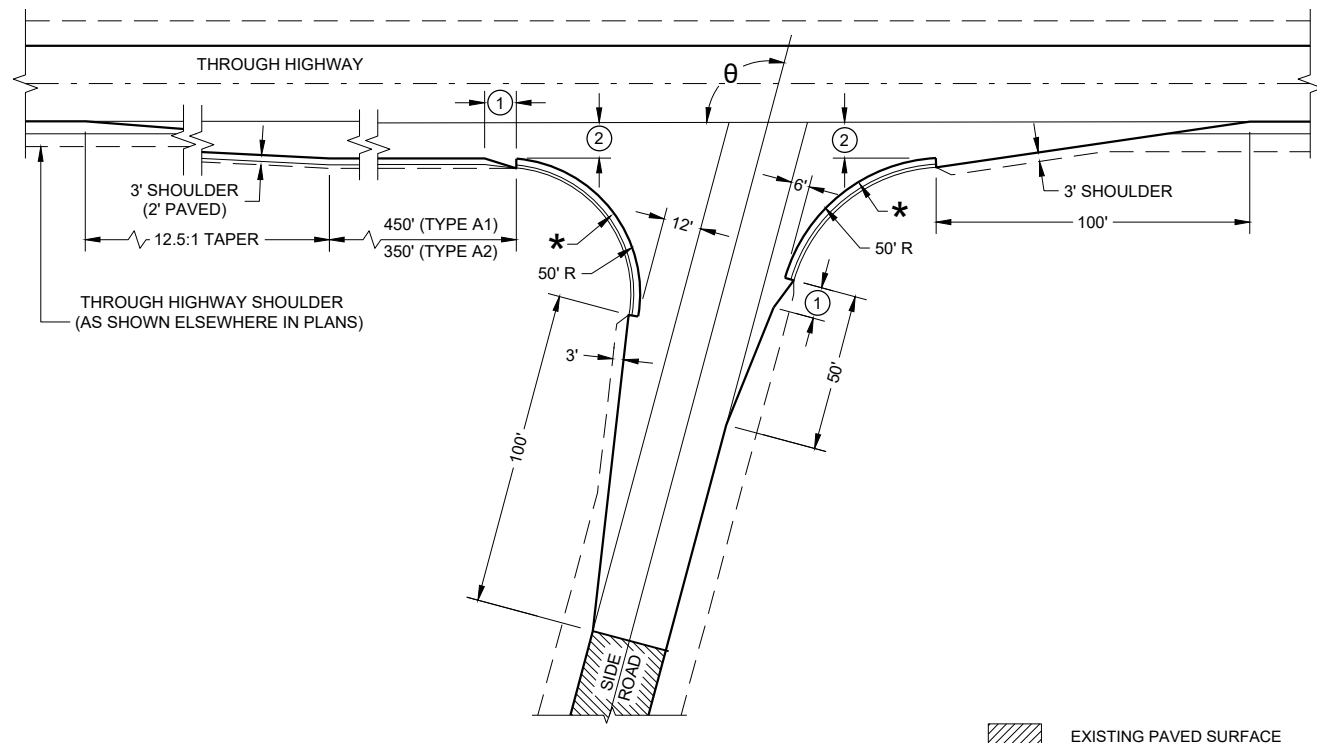


- EXISTING PAVED SURFACE
- BYPASS LANE

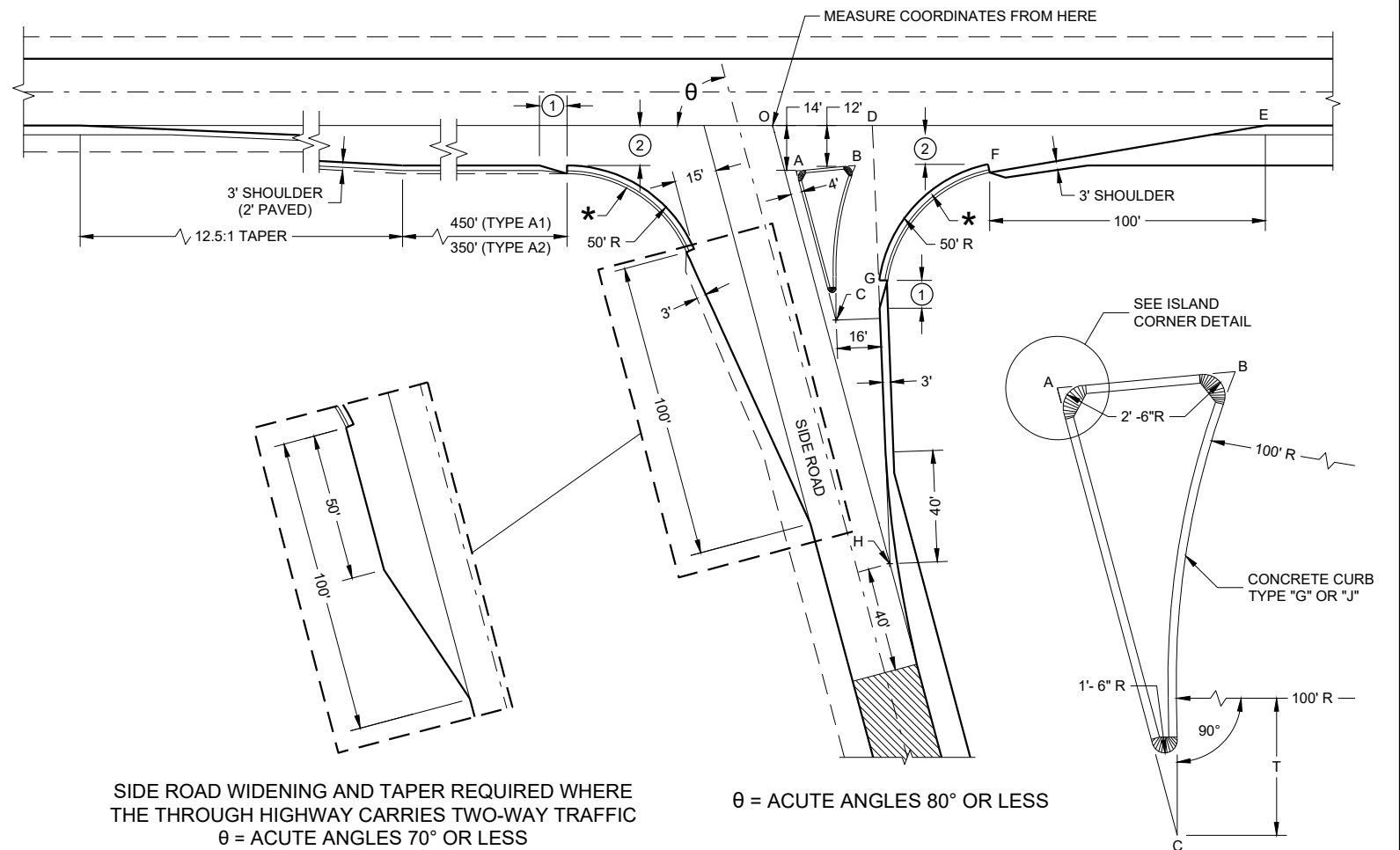
TEE INTERSECTION BYPASS LANE DETAIL

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 112

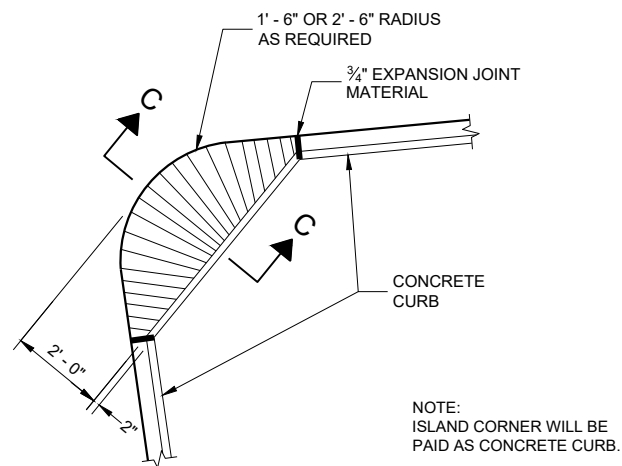


$\theta = \text{MORE THAN } 80^\circ$

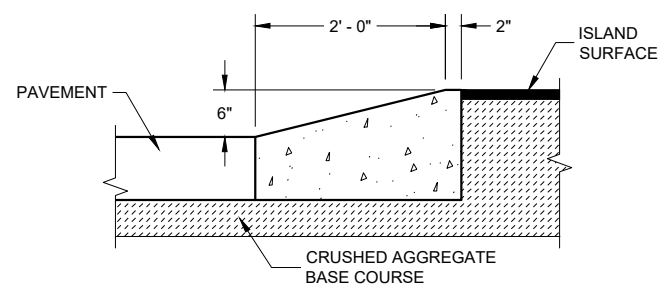


SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 $\theta = \text{ACUTE ANGLES } 70^\circ \text{ OR LESS}$

$\theta = \text{ACUTE ANGLES } 80^\circ \text{ OR LESS}$



PLAN VIEW



SECTION C - C

ISLAND CORNER DETAIL
(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

TABLE OF DIMENSIONS FOR VARIABLE SIDE ROAD INTERSECTION ANGLES
(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

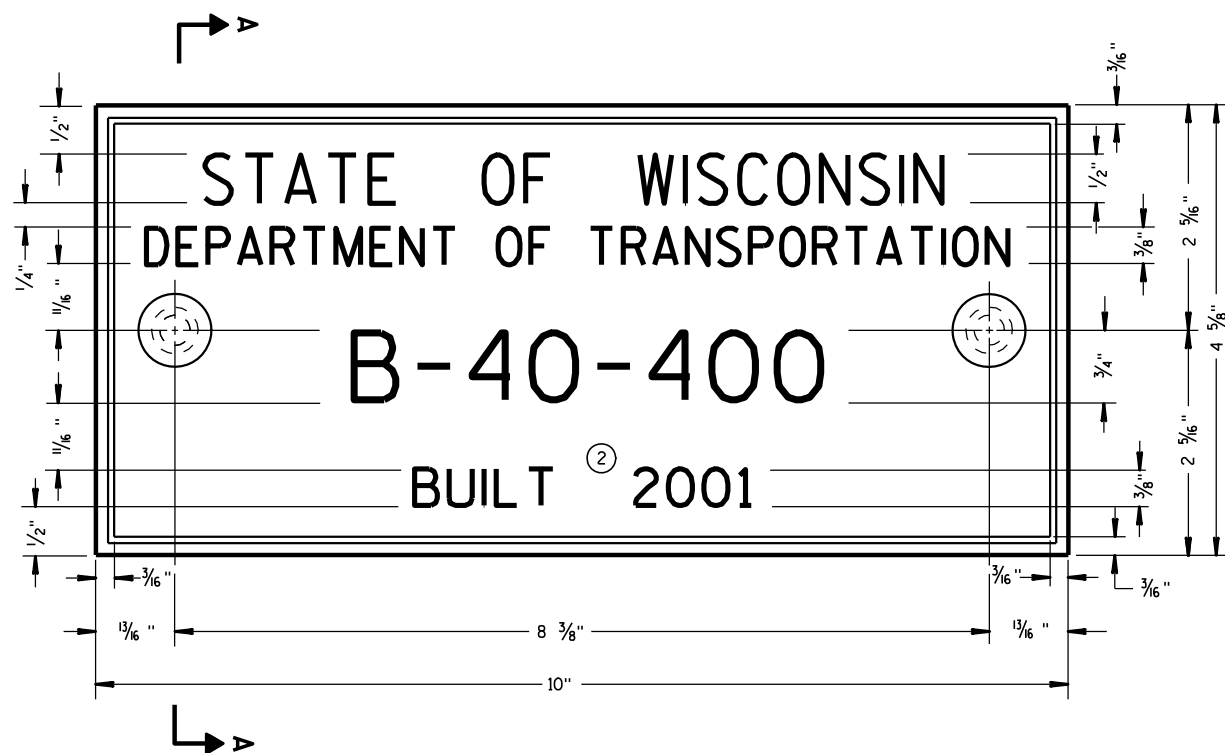
ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT 'O')								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 -14.0	44.9 -12.0	46.4 -72.4	41.9 0.0	205.0 0.0	104.6 -12.0	64.0 -75.5	85.0 -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 -14.0	39.0 -12.0	37.8 -71.6	39.4 0.0	196.1 0.0	95.7 -12.0	54.1 -71.5	70.5 -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 -14.0	33.9 -12.0	29.8 -70.1	37.4 0.0	188.3 0.0	87.8 -12.0	45.6 -67.5	56.1 -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 -14.0	29.3 -12.0	22.3 -67.9	35.7 0.0	181.2 0.0	80.7 -12.0	38.2 -63.4	41.8 -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 -14.0	25.4 -12.0	15.6 -65.2	34.4 0.0	174.8 0.0	74.4 -12.0	31.8 -59.3	27.6 -156.5	18.9	52.0	15.6	66.9	158.9

TYPE 'A1" AND "A2" SIDE ROAD INTERSECTION DETAILS

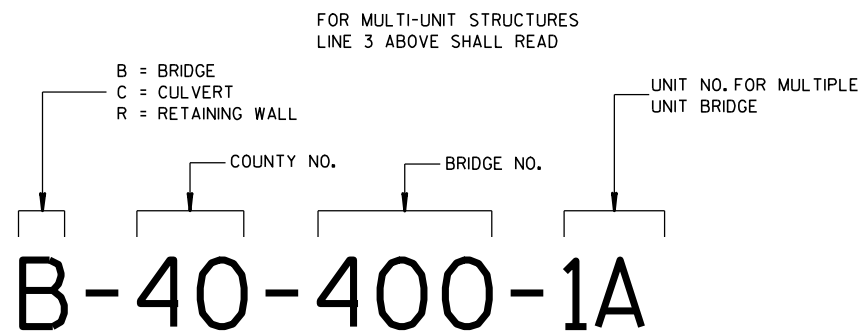
AT GRADE SIDE ROAD
INTERSECTIONS
TYPES "A1" AND "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022
DATE
/S/ John Jenkins
ROADWAY STANDARDS DEVELOPMENT ENGINEER
113



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



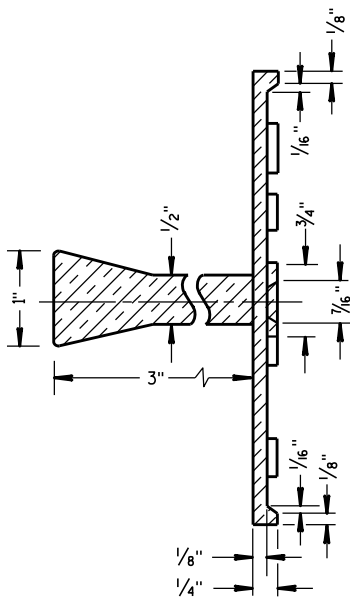
NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES

GENERAL NOTES

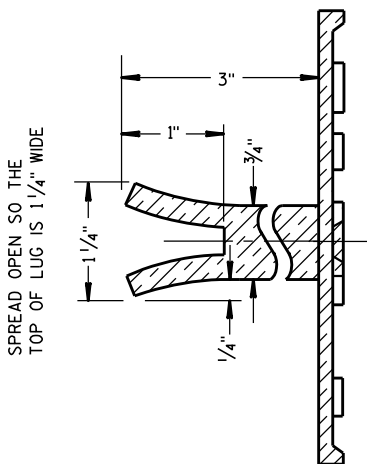
NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

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

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

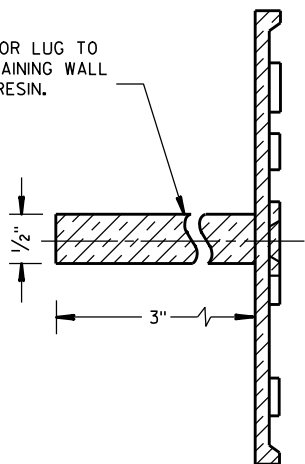


SECTION A-A



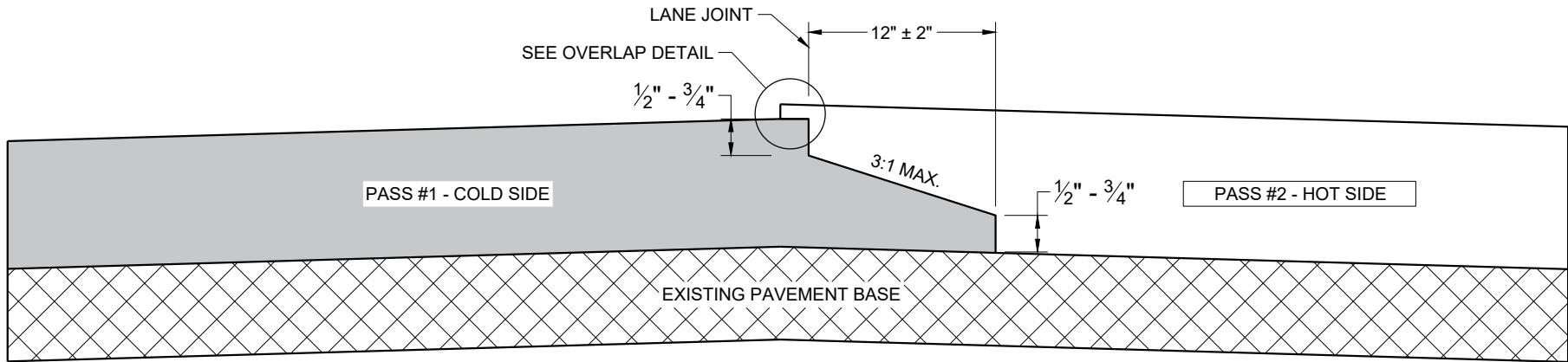
ALTERNATE LUG

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

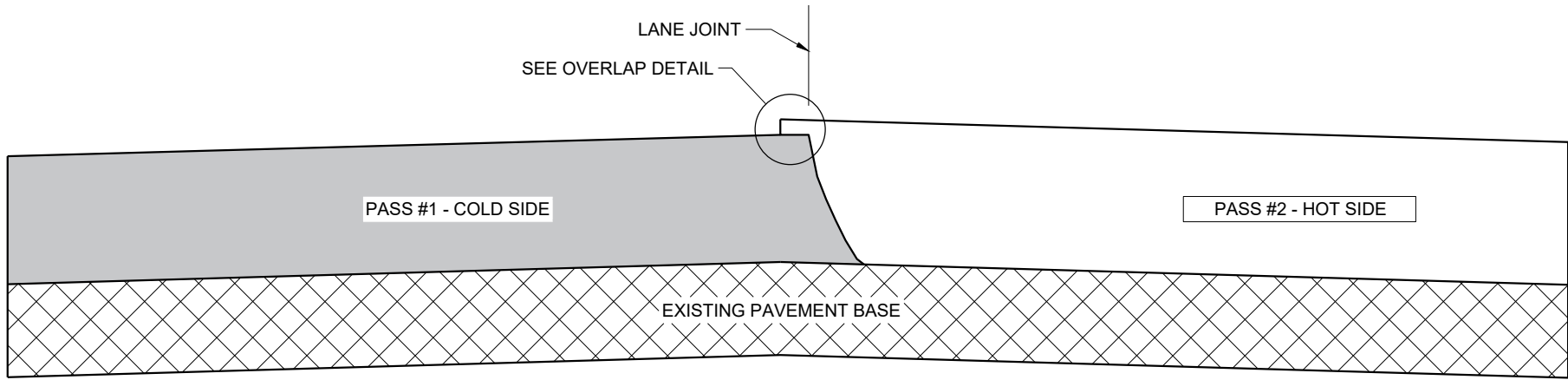


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

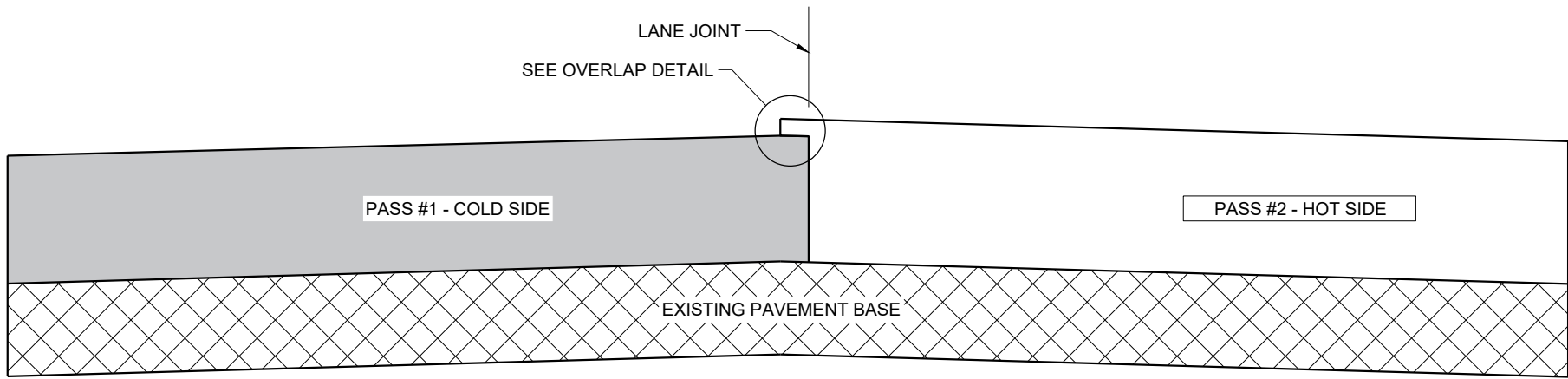
NAME PLATE (STRUCTURES)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED DATE 3/26/10	CHIEF STRUCTURAL DEVELOPER /S/ Scot Beck 114	JEER
FHWA		



TYPICAL PAVEMENT CROSS SECTION
NOTCHED WEDGE JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT



TYPICAL PAVEMENT CROSS SECTION
VERTICAL JOINT (MILLED)

GENERAL NOTES

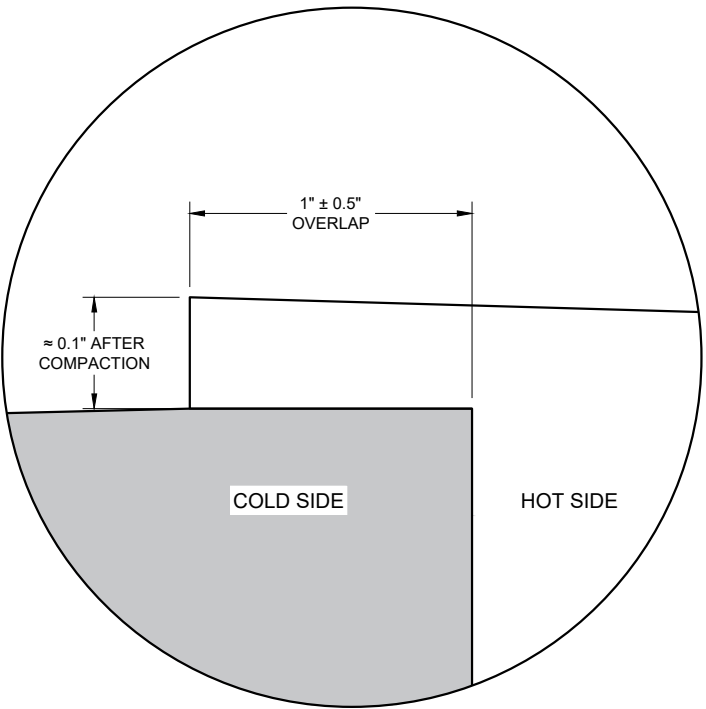
IN ADDITION TO THE DETAILS PROVIDED IN THIS DRAWING, CONFORM TO STANDARD SPECIFICATION 450.3.2.8 FOR WHEN A NOTCHED WEDGE JOINT IS REQUIRED AND FOR GENERAL JOINT CONSTRUCTION REQUIREMENTS.

FOR ALL LONGITUDINAL JOINTS, ENSURE THE PAVER SCREED OVERLAPS THE PREVIOUSLY PLACED PAVEMENT BY $1" \pm 0.5"$ AND THE HOT SIDE OF THE JOINT REMAINS HIGHER THAN THE COLD SIDE BY APPROXIMATELY $0.1"$ AFTER FINAL COMPACTION. (IT WILL BE FLUSH WHEN PAVING IN ECHELON.)

ONLY REMOVE THE LONGITUDINAL NOTCHED WEDGE JOINT FOR SMA PAVEMENT OR AS DIRECTED BY THE ENGINEER TO ADDRESS SPECIFIC LENGTHS OF JOINT DAMAGED BY TRAFFIC.

WHEN MILLING BACK OR REMOVING ANY LONGITUDINAL JOINT, LIMIT THE MATERIAL REMOVED TO $2"$ FROM THE TOP NOTCH OR FROM THE VERTICAL JOINT EDGE ON THE COLD SIDE OF THE JOINT.

USE LONGITUDINAL MILLED JOINT AS PLANS SHOW OR THE AS THE ENGINEER DIRECTS.



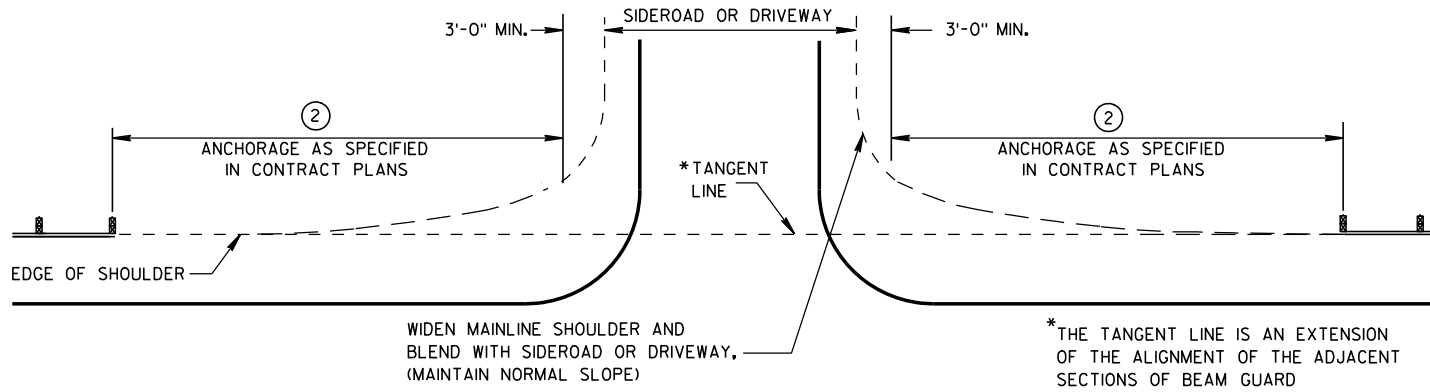
OVERLAP DETAIL (TYPICAL)

HMA LONGITUDINAL JOINTS

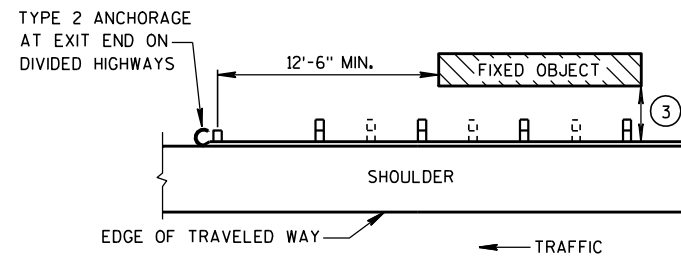
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2020 /S/ Steven Hefel
DATE HMA PAVEMENT ENGIN 115

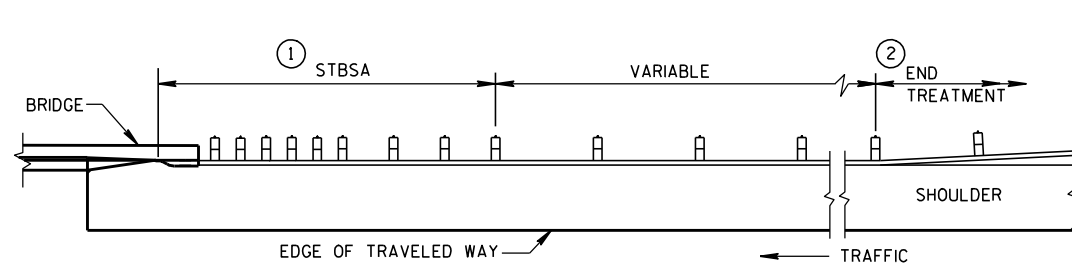
FHWA



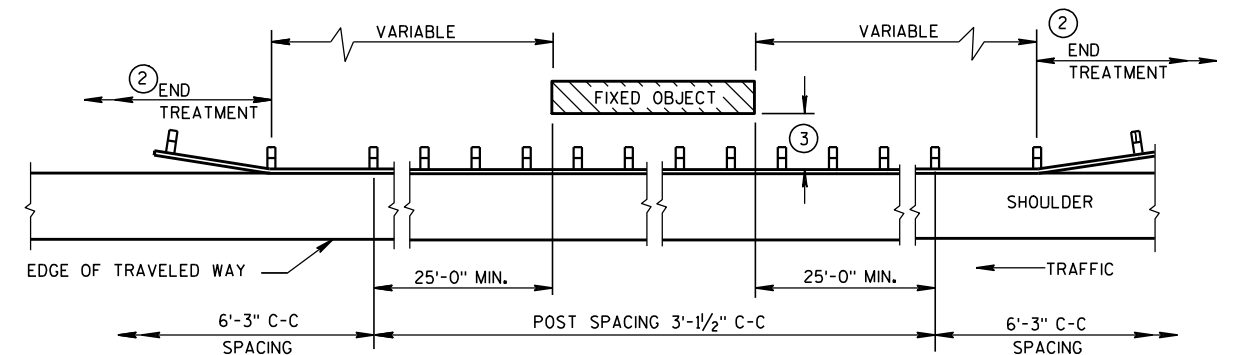
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

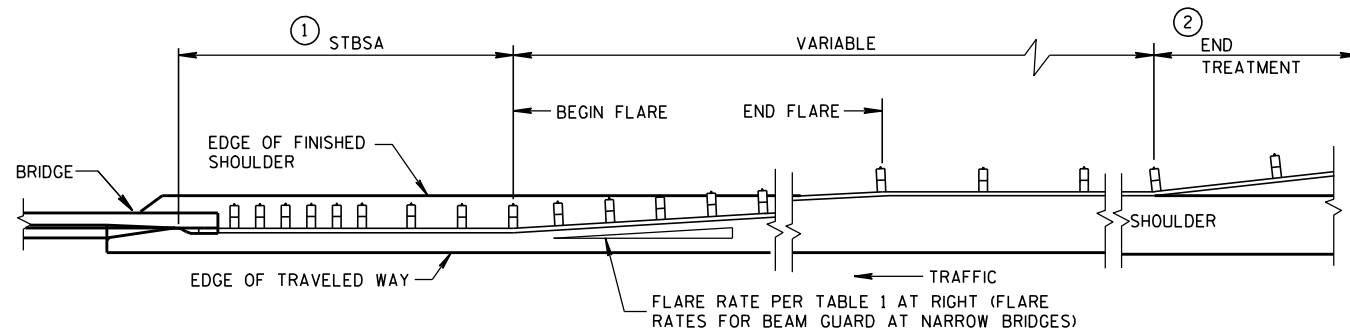


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07

DATE

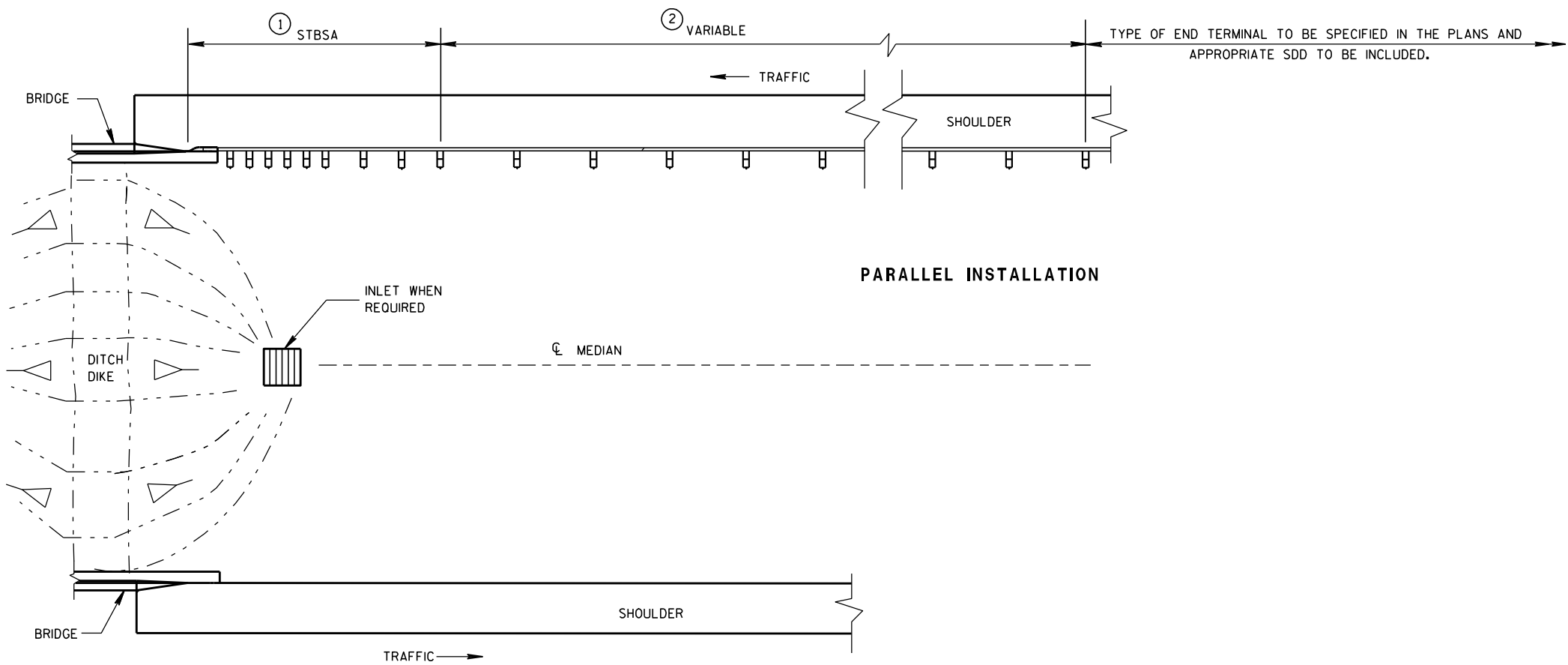
FHWA

/s/ Jerry H. Zoon

ROADWAY STANDARDS 116

ENGINEER

INT



BEAM GUARD AT MEDIAN APPROACH TO BRIDGES

GENERAL NOTES

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

STEEL PLATE BEAM GUARD
CLASS "A" AT
MEDIAN APPROACH TO BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS 117 ENT
ENGINEER
FHWA

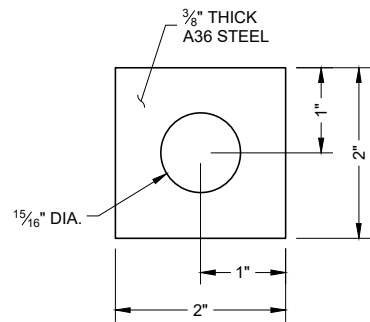
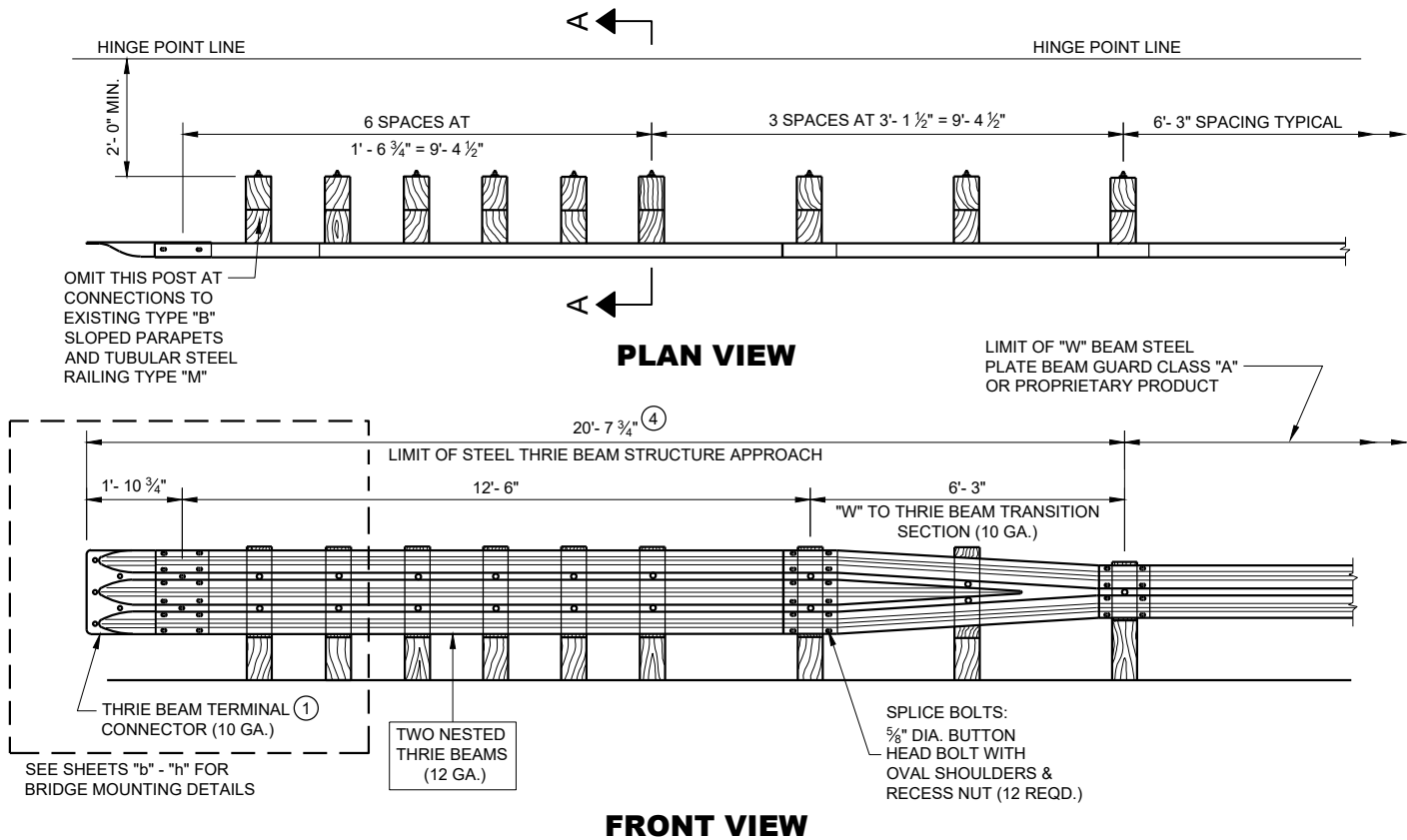


PLATE WASHER DETAIL

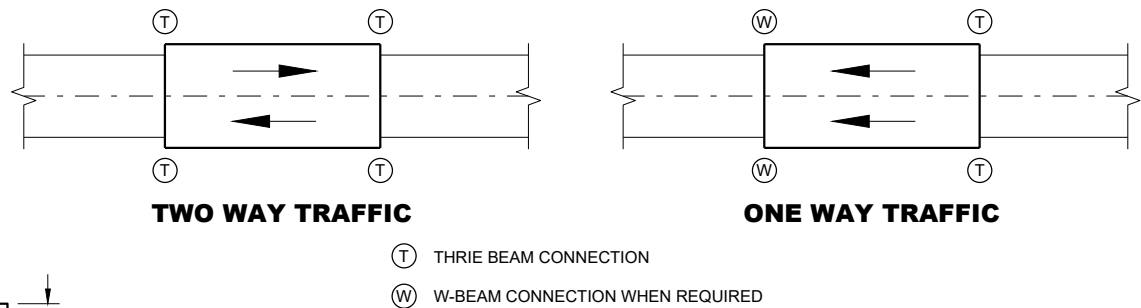
GENERAL NOTES

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

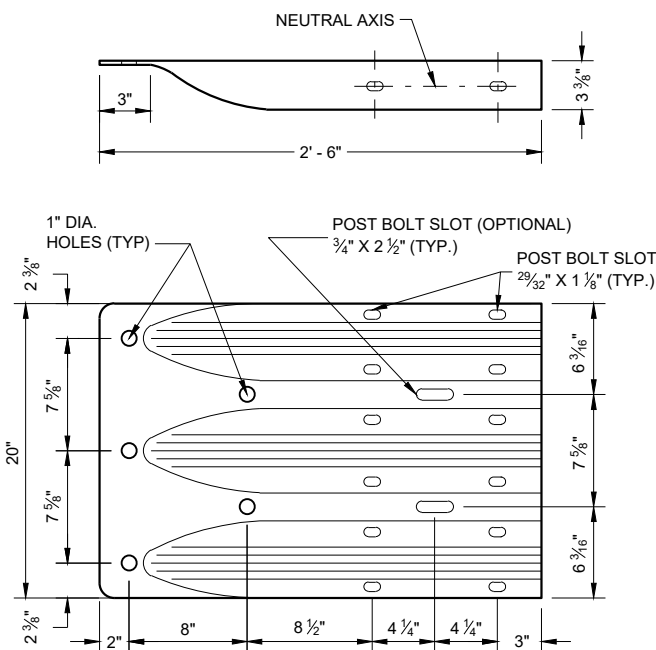
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

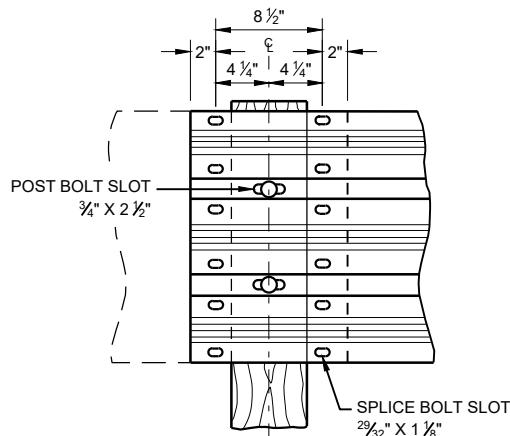
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0".
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



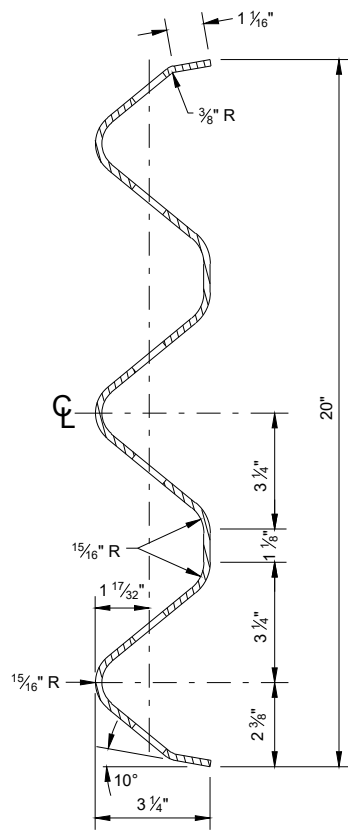
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



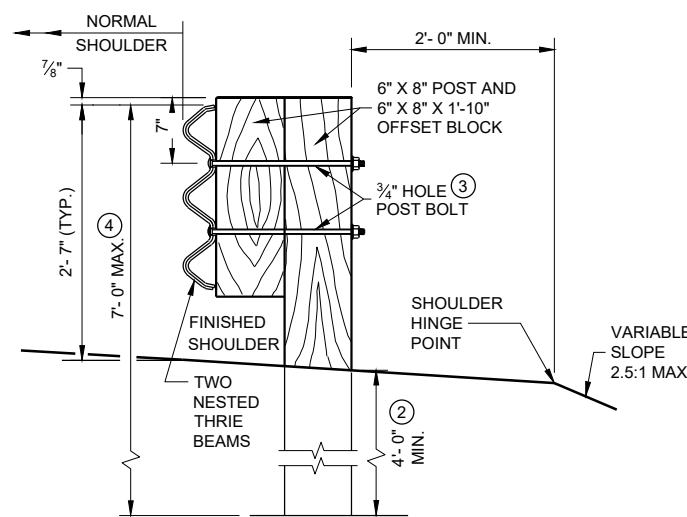
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

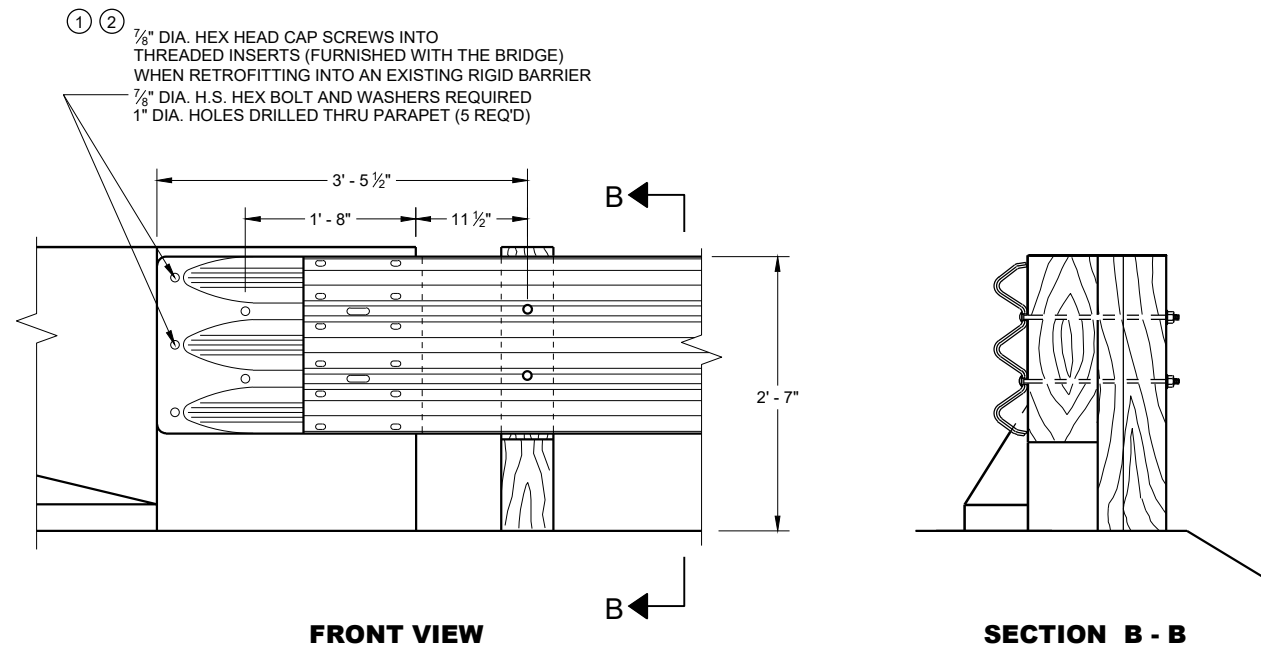
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DATE

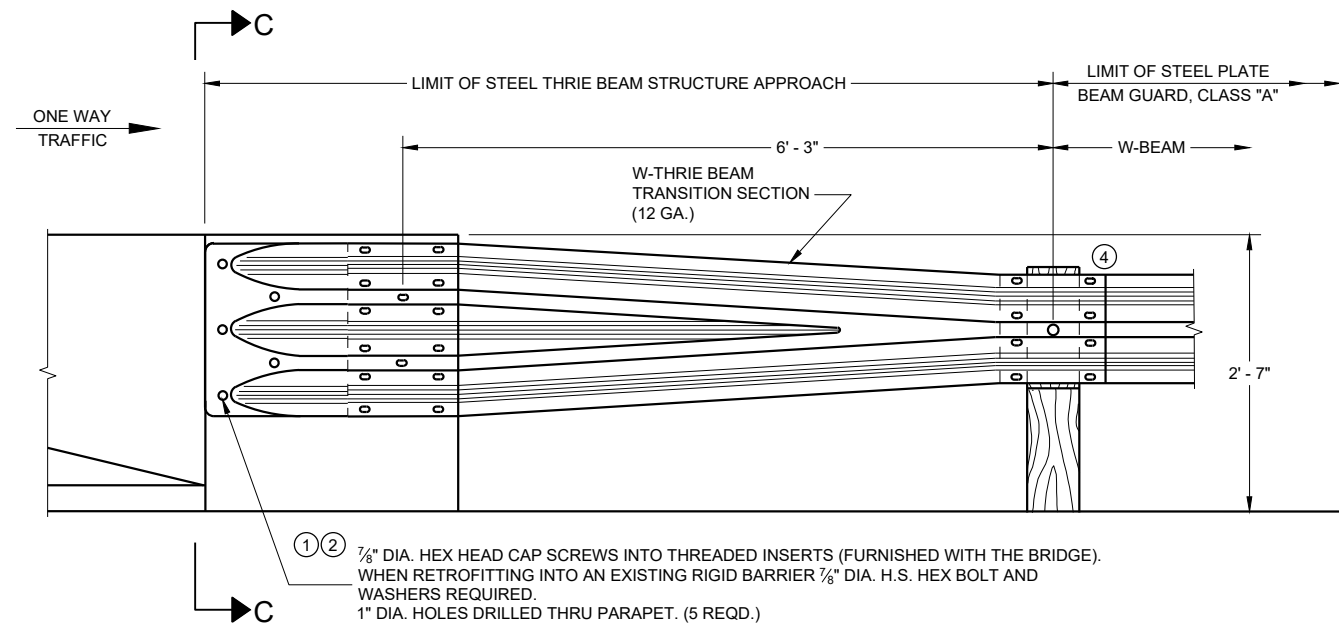
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER

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



FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS**

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

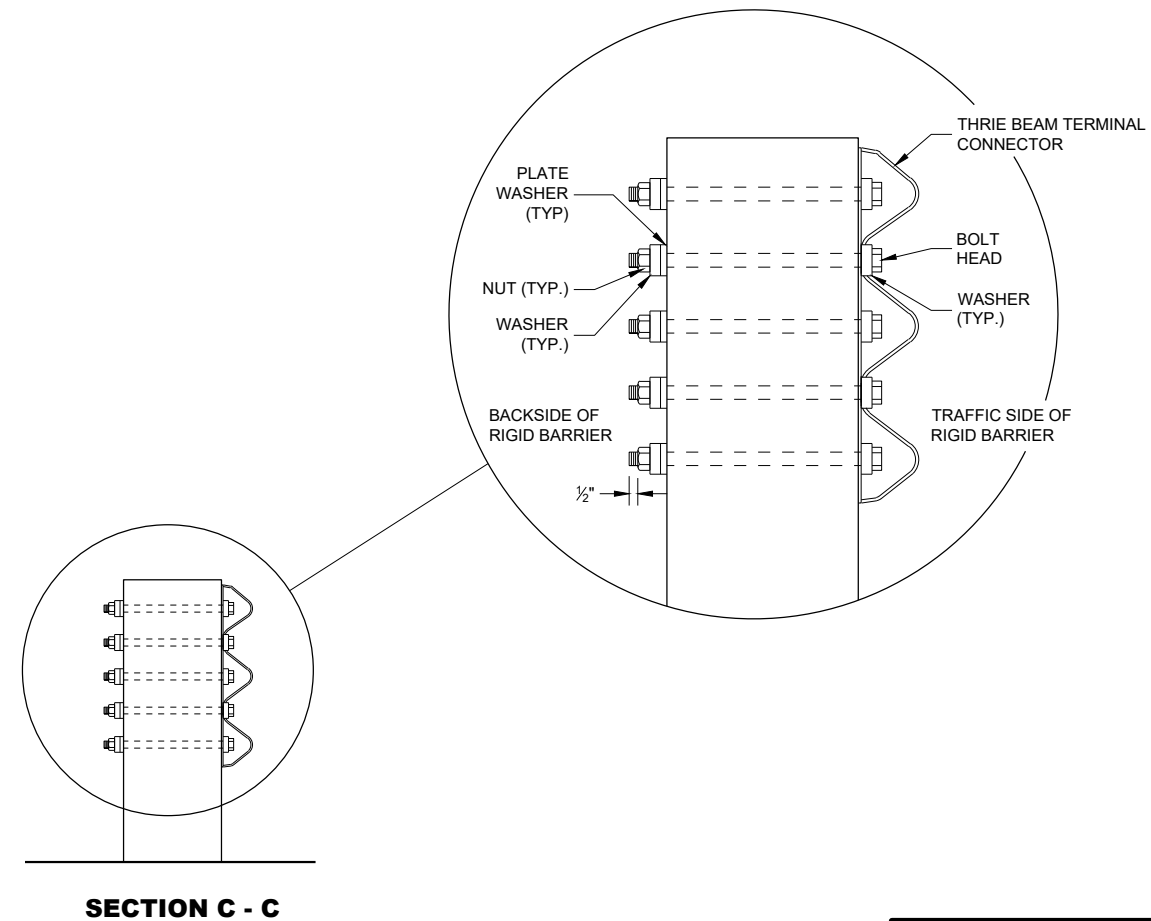
GENERAL NOTES

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

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{8}$ " THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 $\frac{1}{2}$ ".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



**STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
SQUARE END PARAPETS**

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ROADWAY STANDARDS DEVELOPMENT
ENGINEER

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GENERAL NOTES

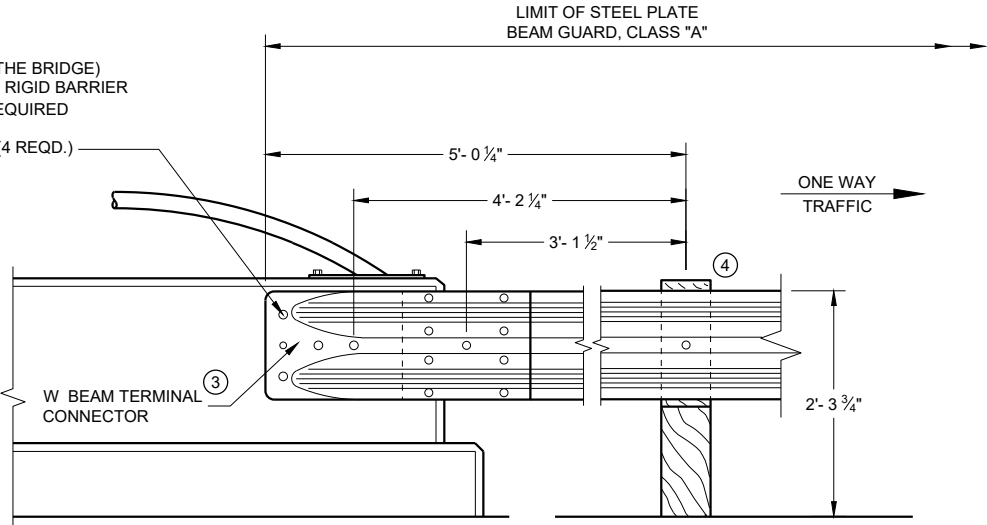
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- ③
- THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
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- ⑤
- BOLT, NUT AND WASHERS NO REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PARAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE THE EDGE OF PARAPET.

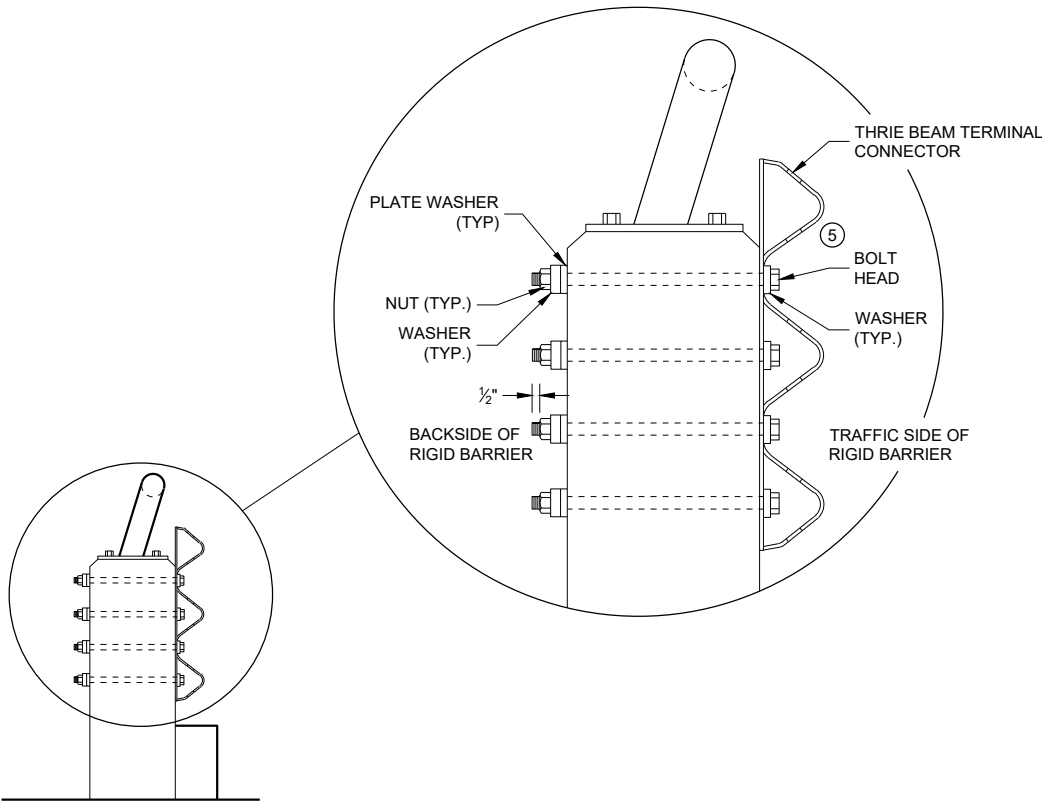
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

- ①②
- 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 REQD.)

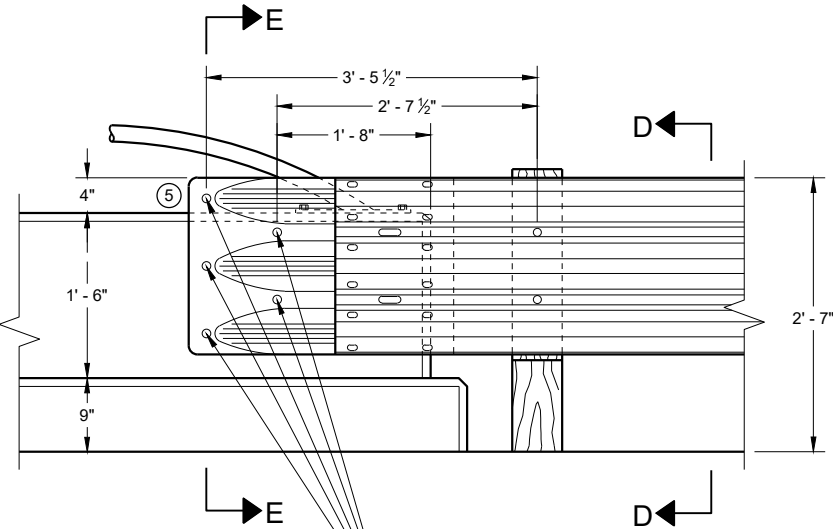


FRONT VIEW

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



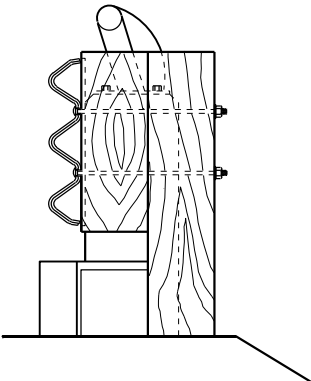
SECTION E - E



FRONT VIEW

- ①②
- 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 REQD.)

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

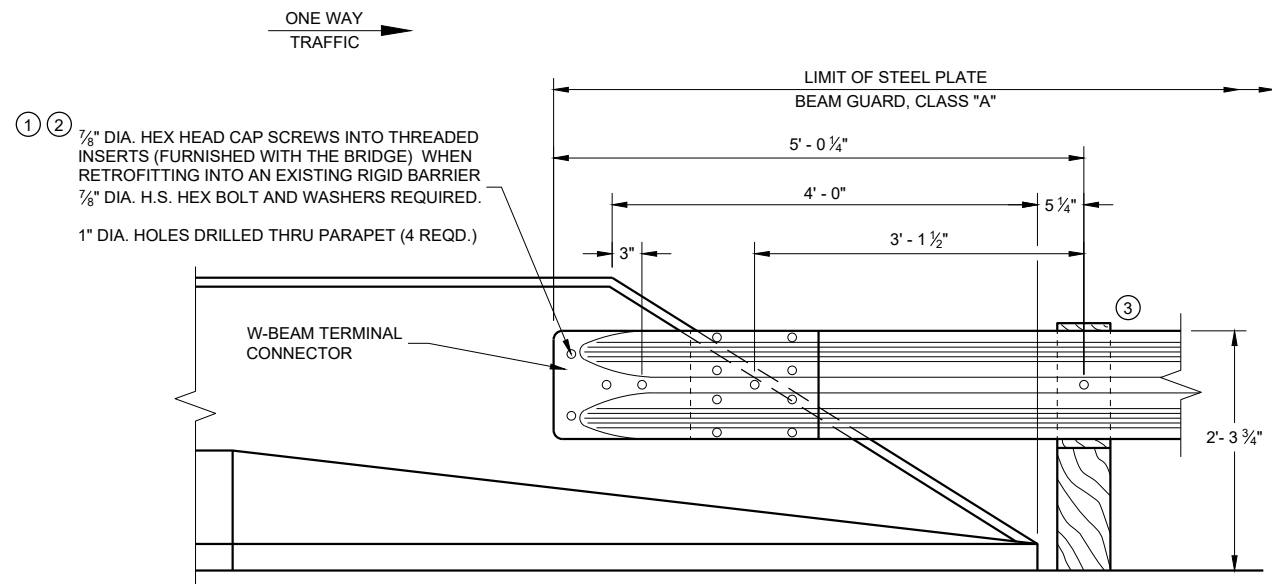


SECTION D - D

STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
VERTICAL FACED PARAPETS

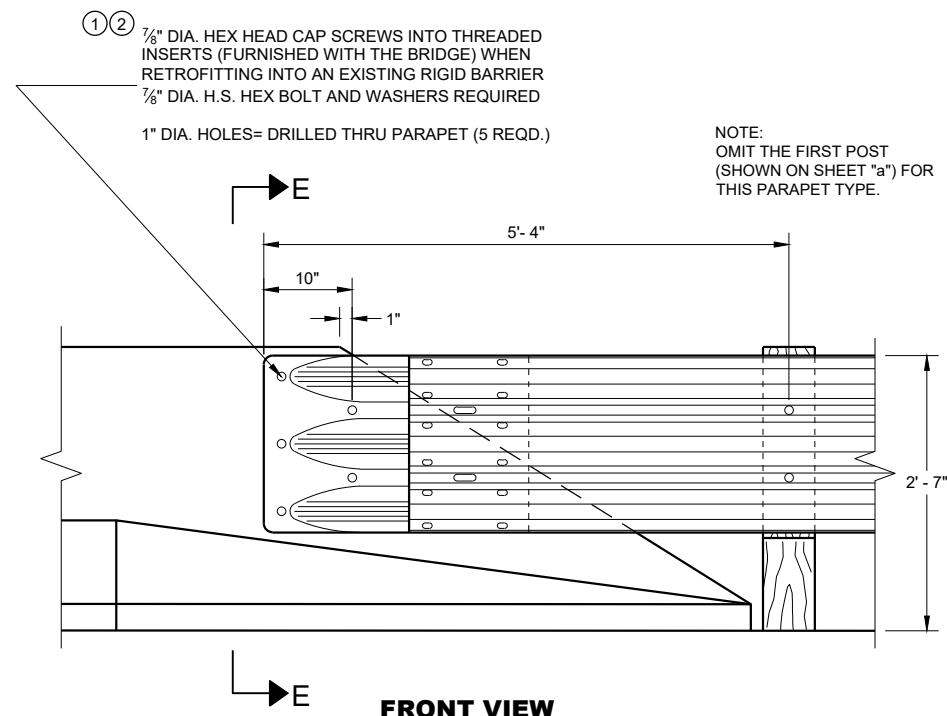
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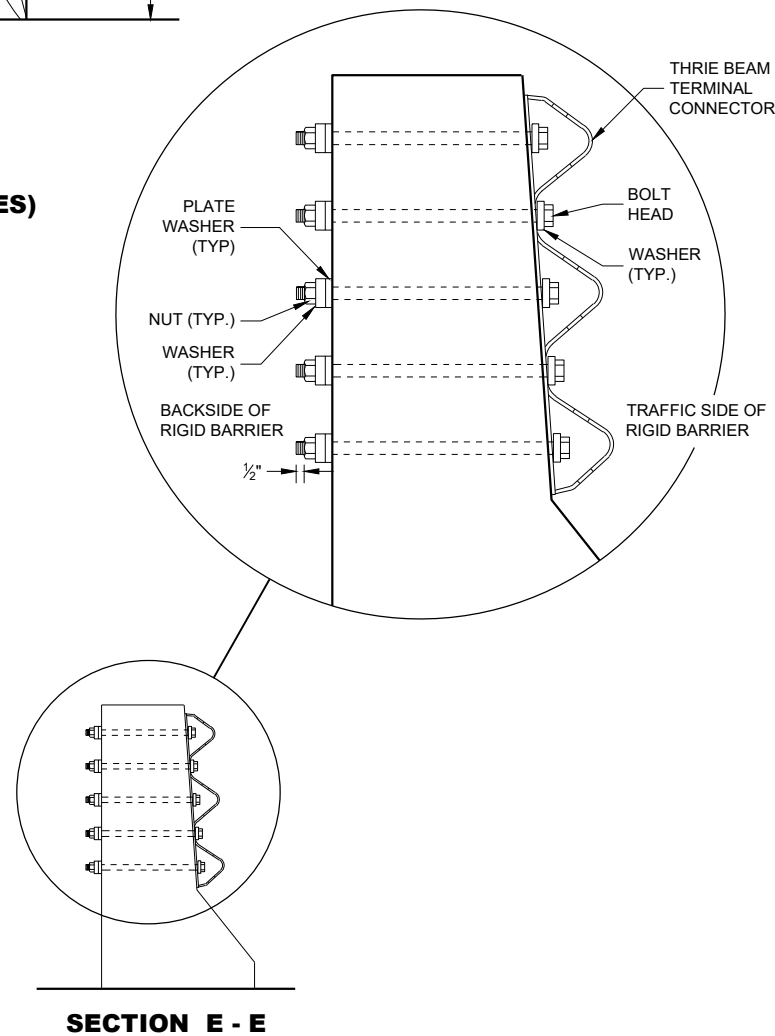


FRONT VIEW

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



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



SECTION E - E

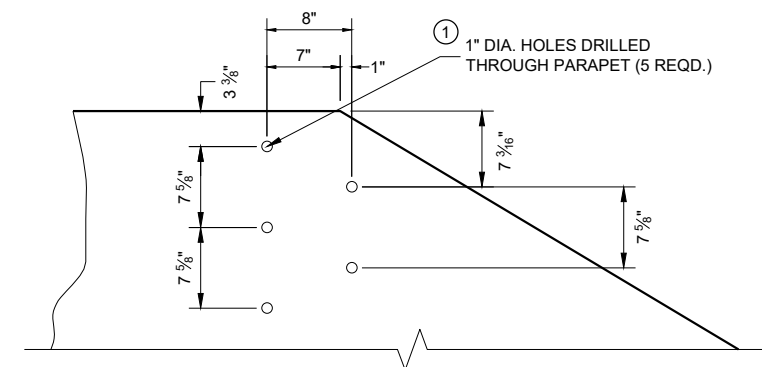
GENERAL NOTES

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

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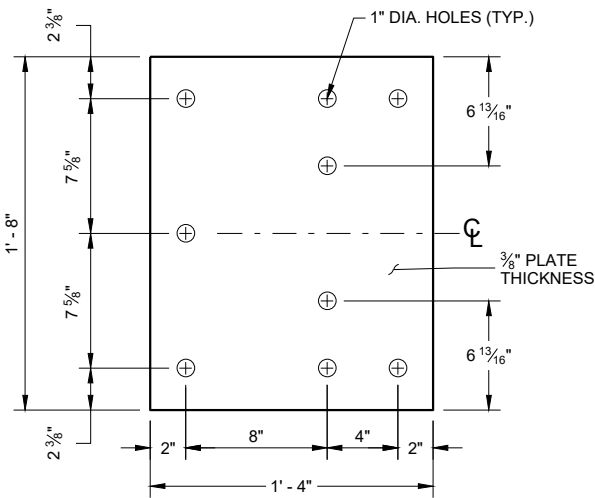


**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

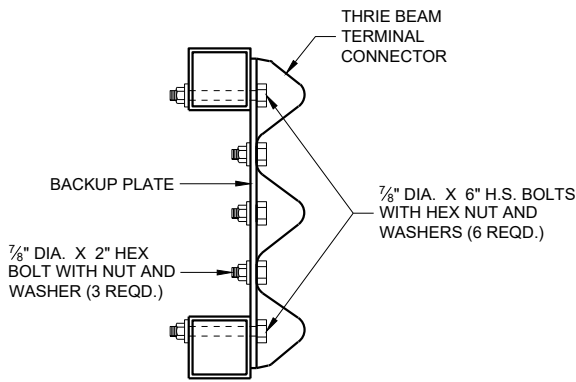
**STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
SLOPED END PARAPETS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

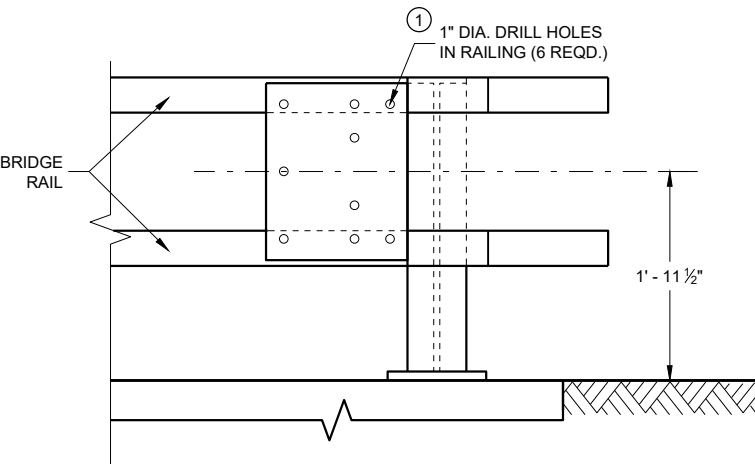
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FHWA



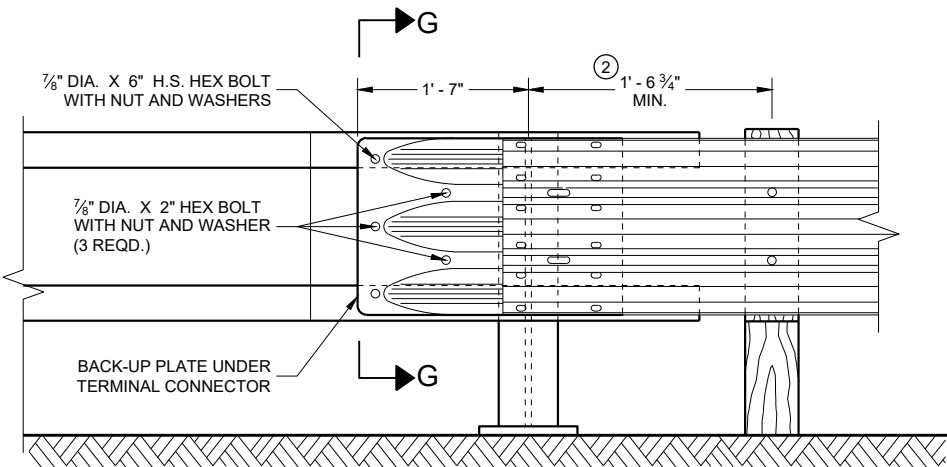
BACK-UP PLATE DETAIL



SECTION G - G

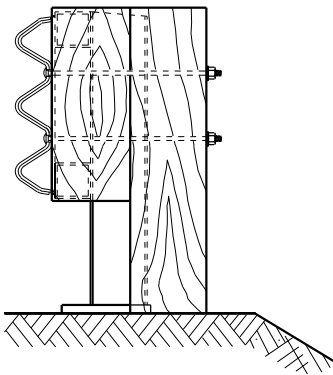


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

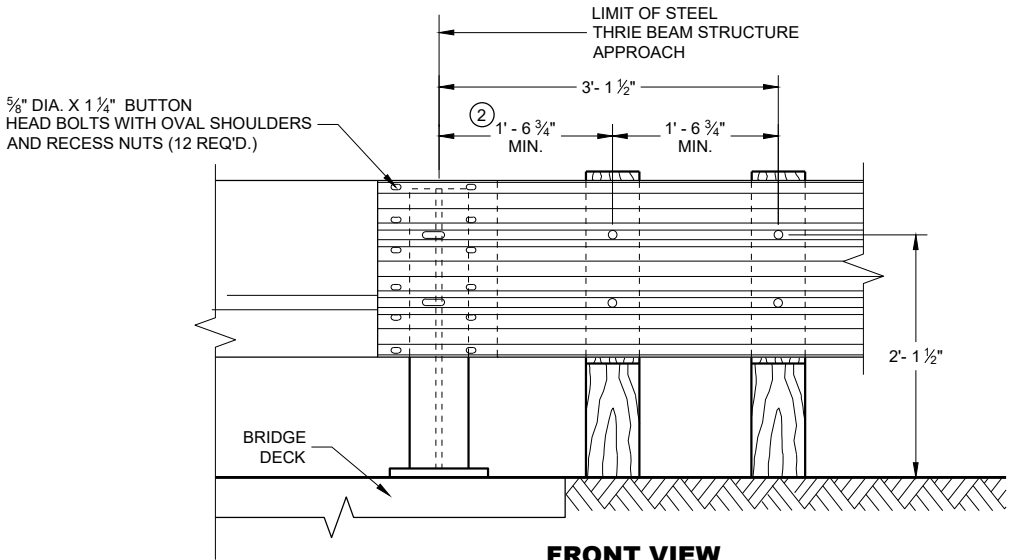


END VIEW

GENERAL NOTES

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL AS CLOSE AS FEASIBLE TO THE STEEL END POST.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" & "W"

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DEPARTMENT OF TRANSPORTATION

APPROVED
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DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT ENGINEER 122

FHWA

① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED <u>November 2022</u> DATE	<u>/S/ Rodney Taylor</u> ROADWAY STANDARDS DEVE ENGINEER



CONNECTOR PLATED 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 9/16"	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 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" 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 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 13/16"	1/4"

COVER PLATE PANELS ARE $\frac{3}{16}$ " THICK.

ALL STIFFENERS ARE $\frac{1}{4}$ " THICK

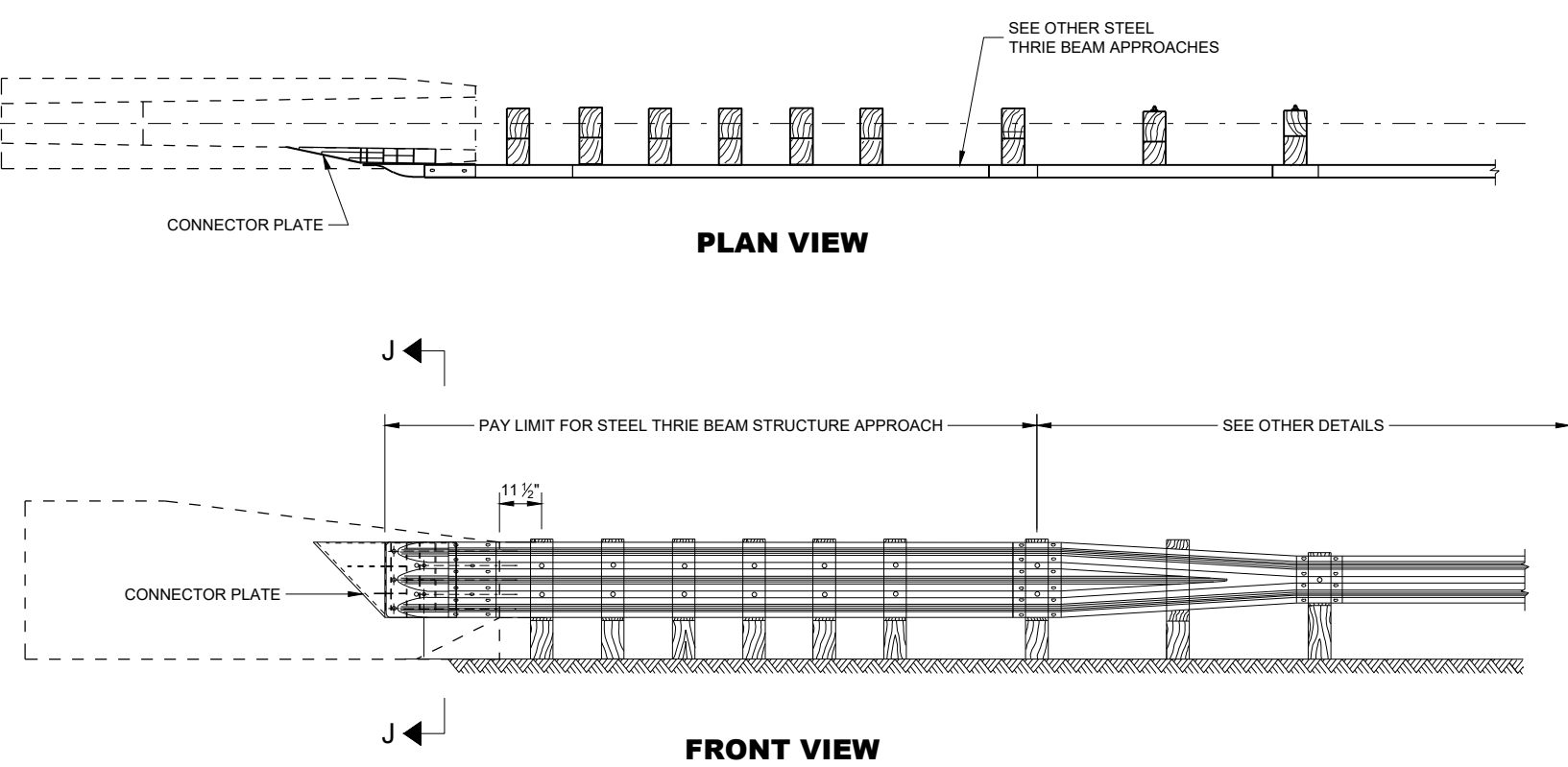
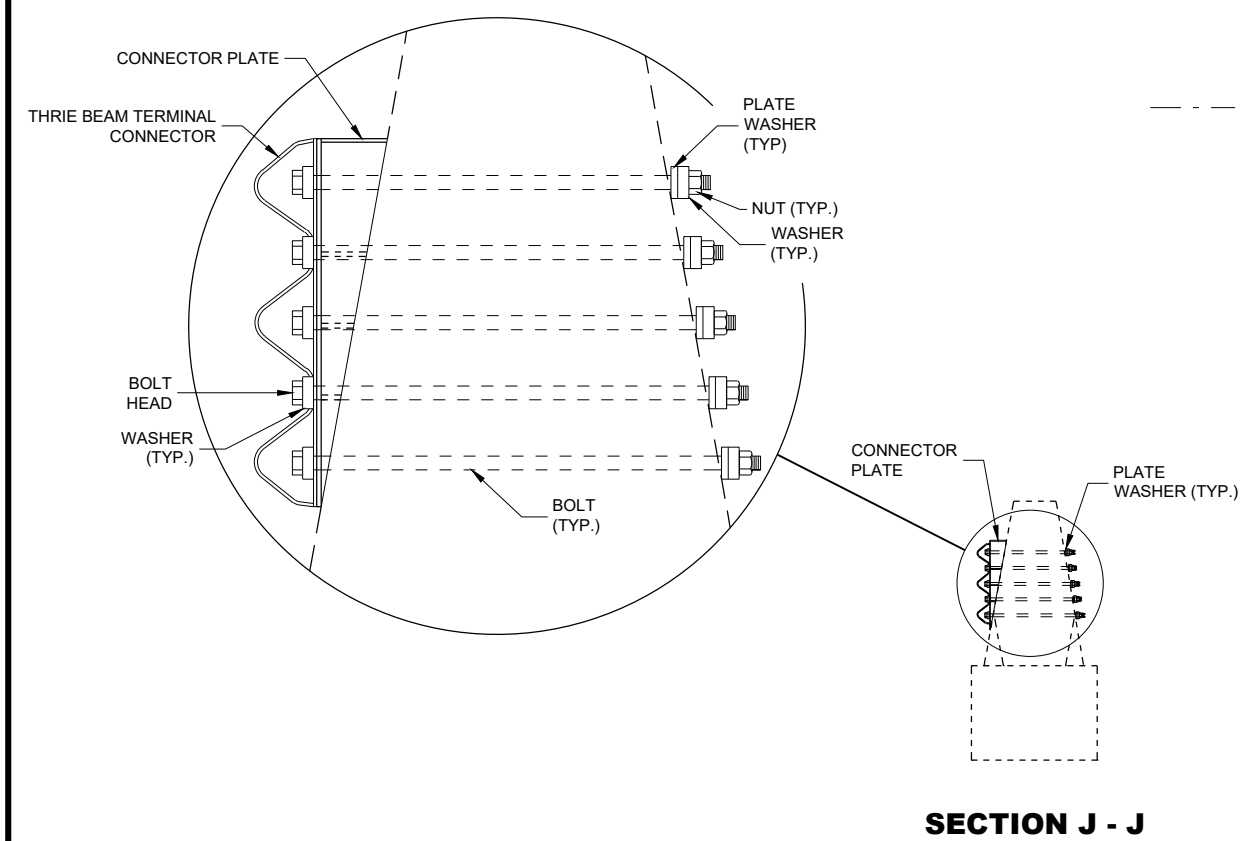
CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.

FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.

ALL HOLE DIAMETERS SHALL BE 1".

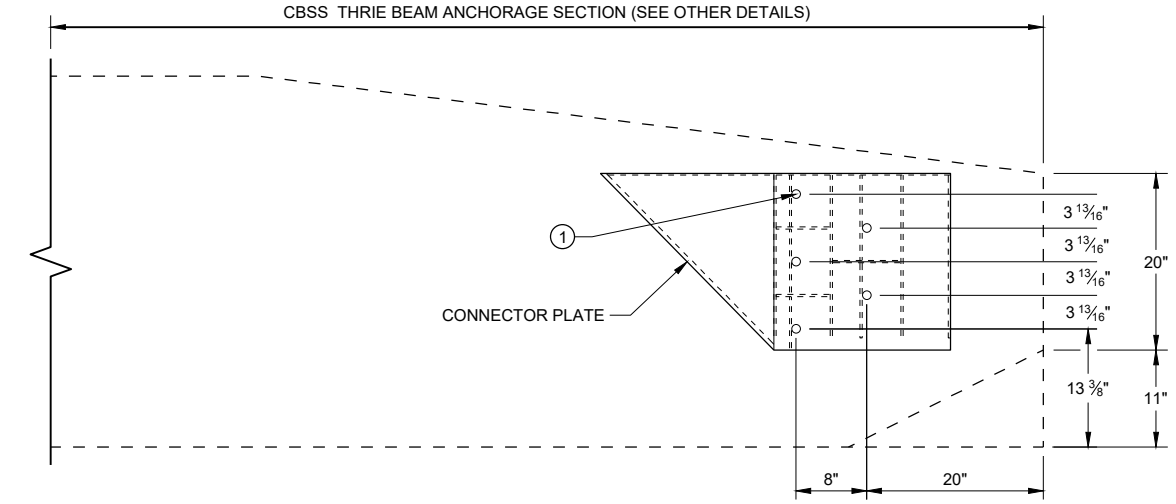
FOR OPPOSITE SIDE INSTALLATION, MIRROR DRAWINGS.

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



GENERAL NOTES

- CONSTRUCT PER STANDARD SPECIFICATION 614.
- CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ① 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 TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



CONNECTOR PLATE PLACEMENT

STEEL THRIE BEAM STRUCTURE APPROACH

MIDWEST GUARDRAIL SYSTEM (MGS) THRIE BEAM TRANSITION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2022 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER 125
FHWA	

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

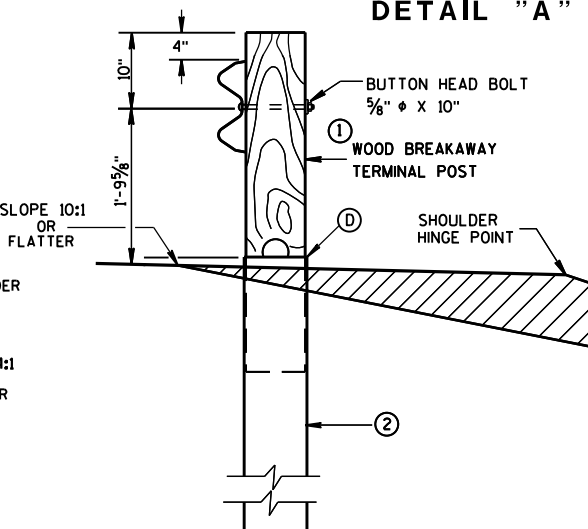
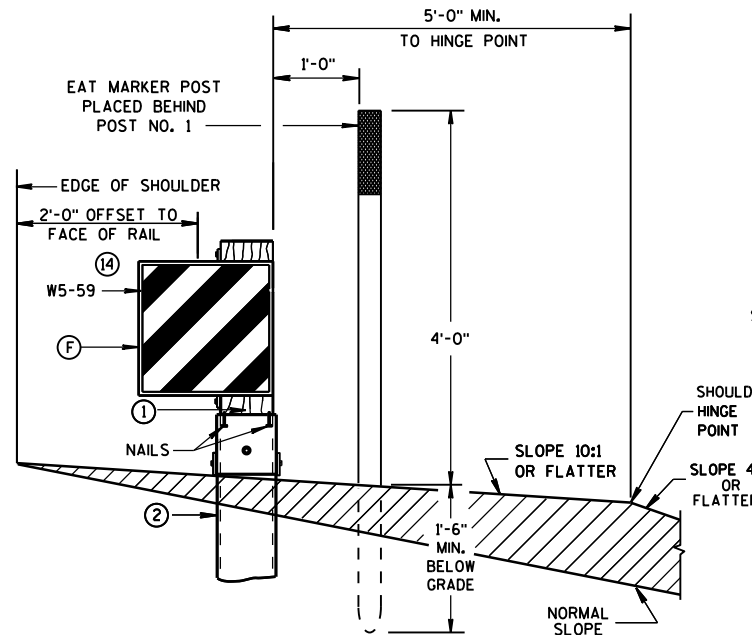
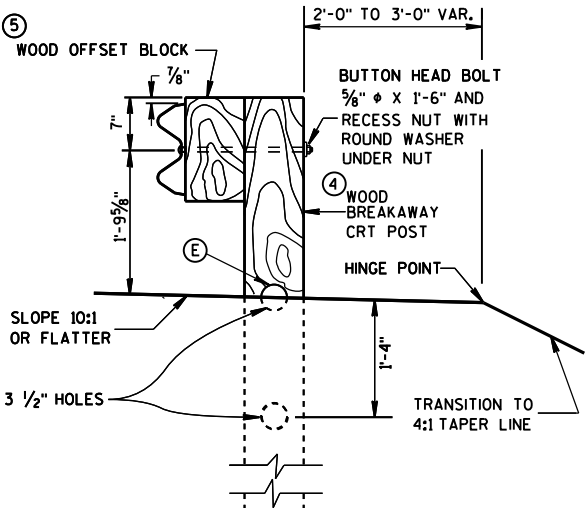
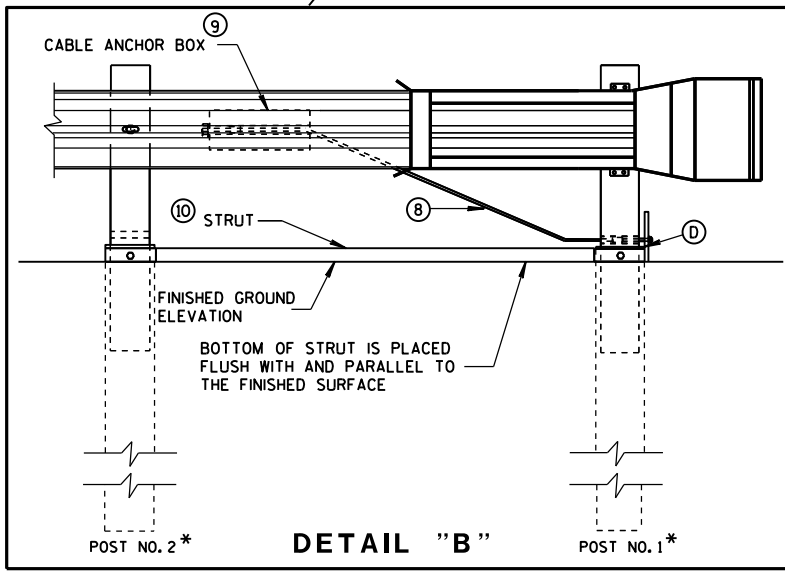
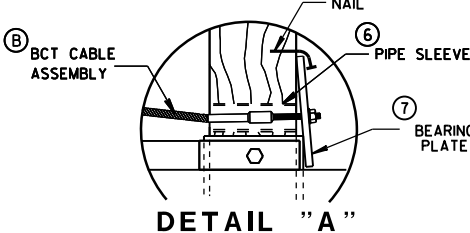
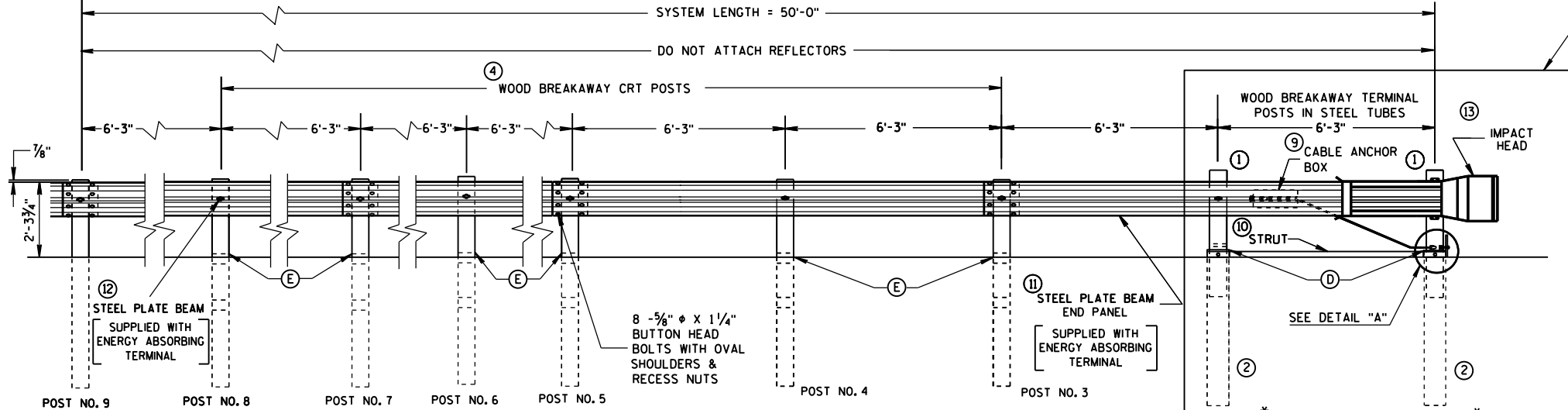
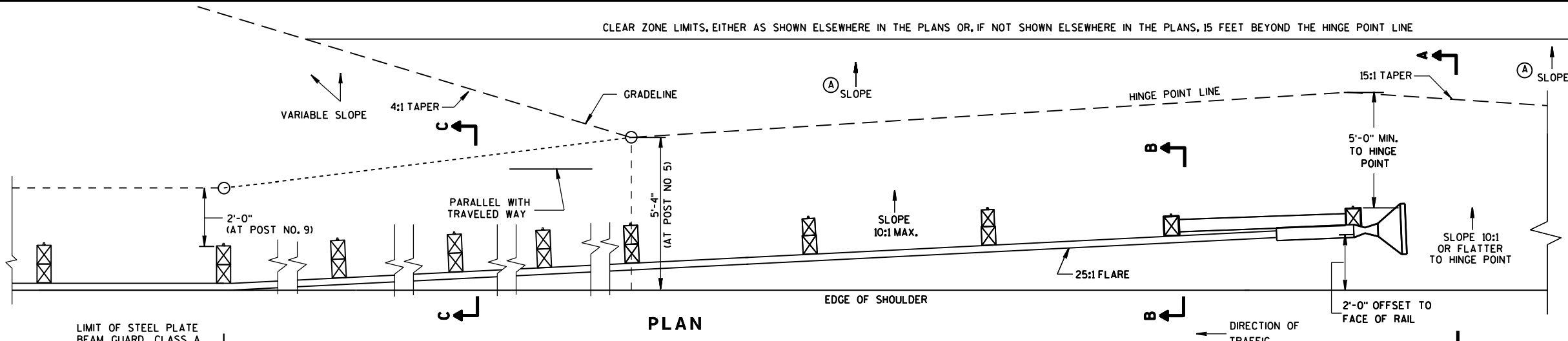
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

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

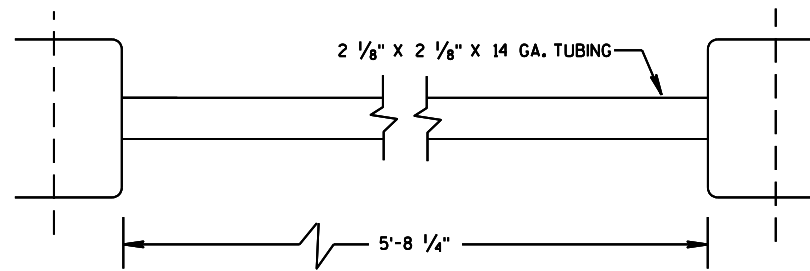
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



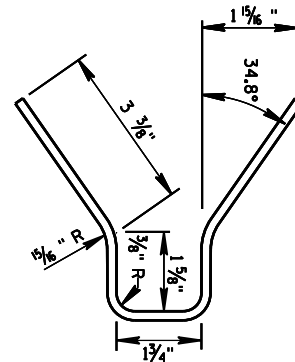
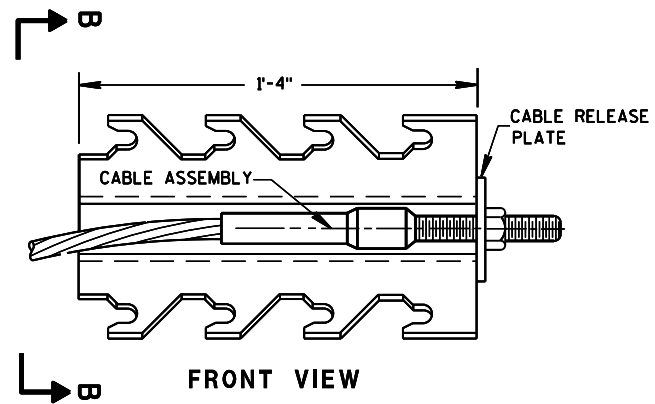
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

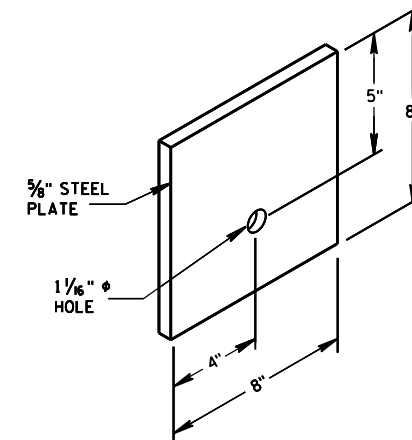
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⑩ STRUT DETAIL



⑨ CABLE ANCHOR BOX

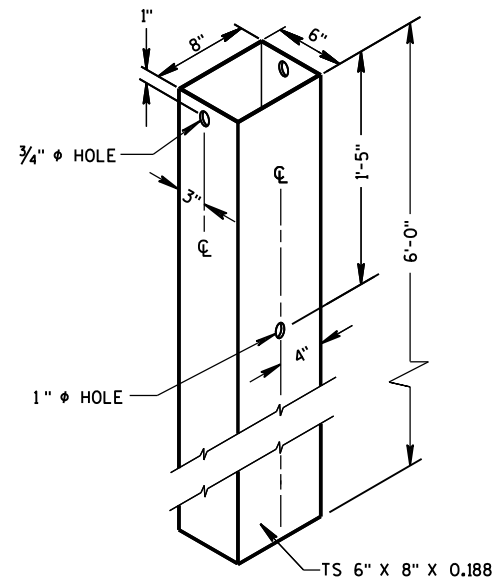


⑦ STEEL BEARING PLATE

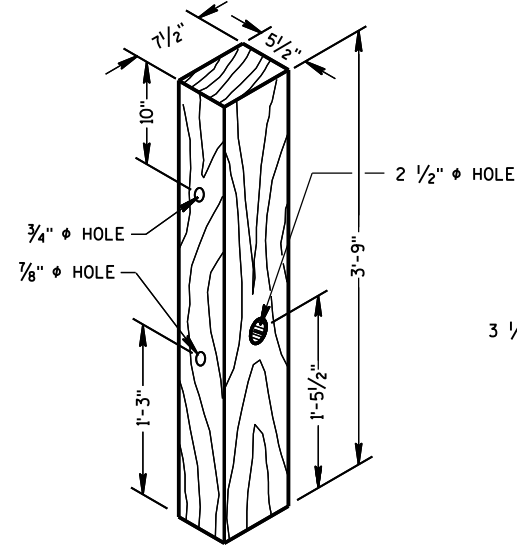
STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

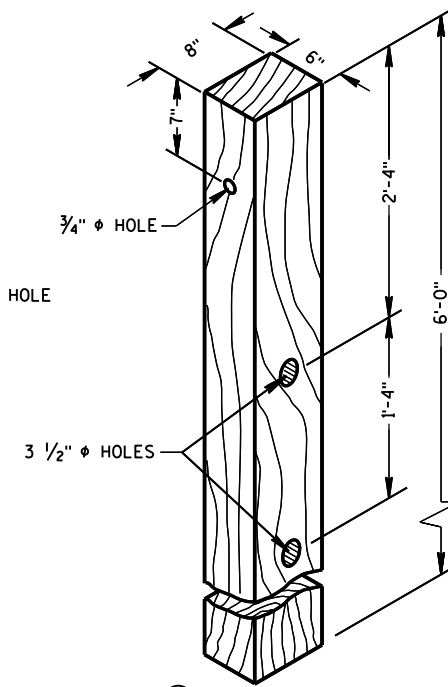
127



② **72" STEEL TUBE**
(POSTS NO. 1-2)



① **TERMINAL POST**

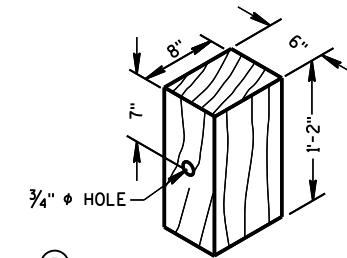


④ **CRT POST**
(POSTS NO'S 5-8)

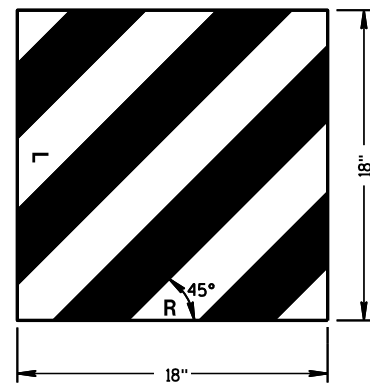
WOOD BREAKAWAY POSTS

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



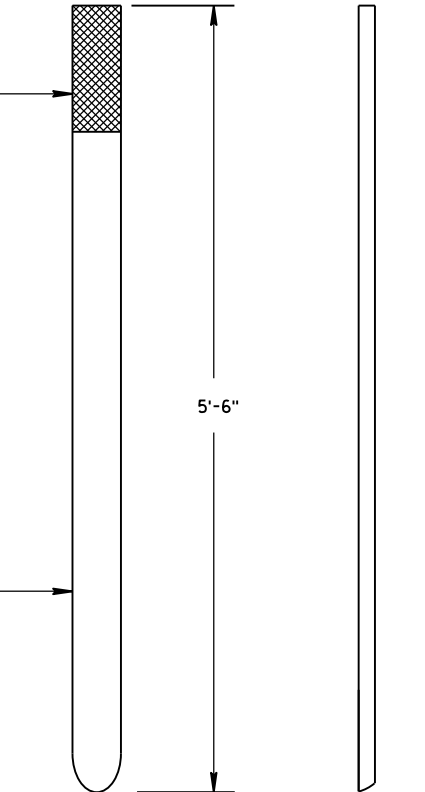
⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ **REFLECTIVE SHEETING DETAILS**

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

E.A.T. MARKER
POST (YELLOW)
SEE APPROVED
PRODUCTS LIST



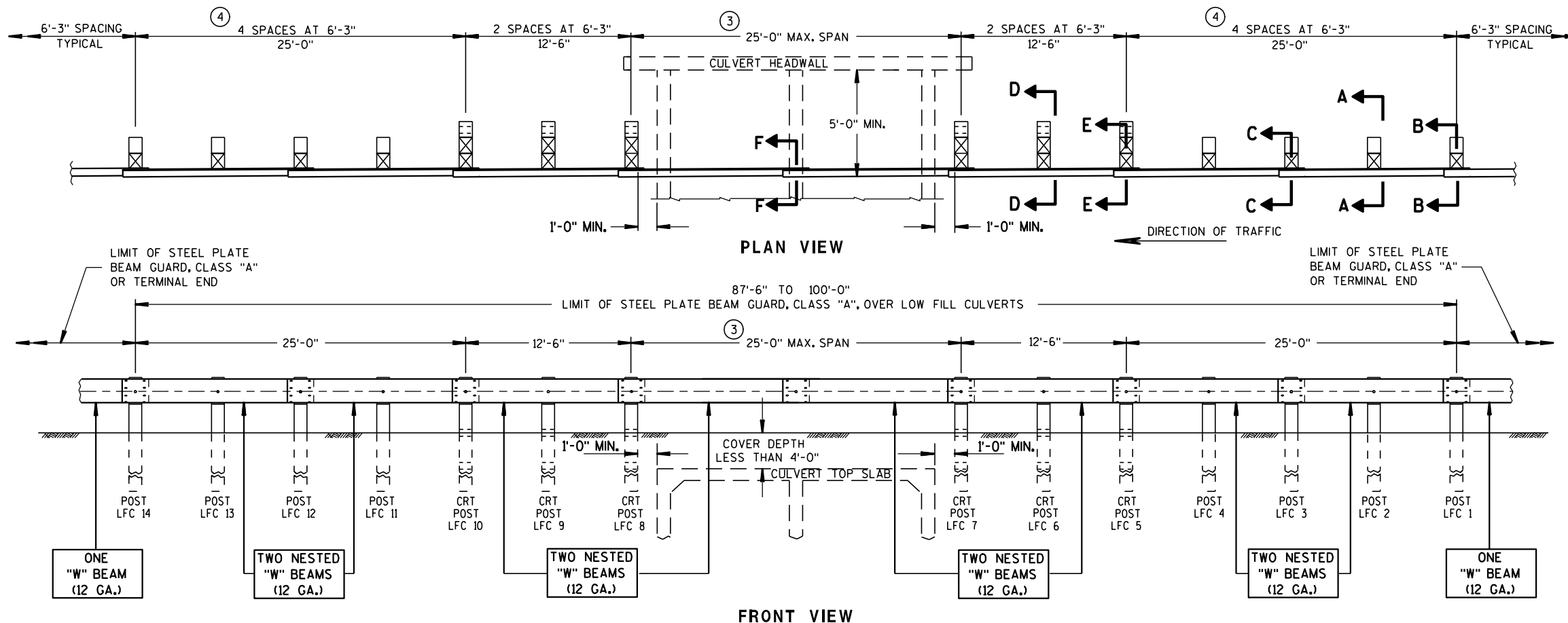
FRONT VIEW SIDE VIEW

E.A.T. MARKER POST

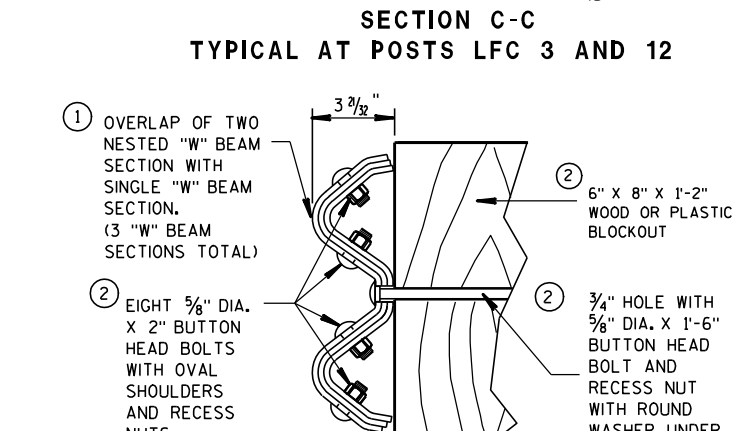
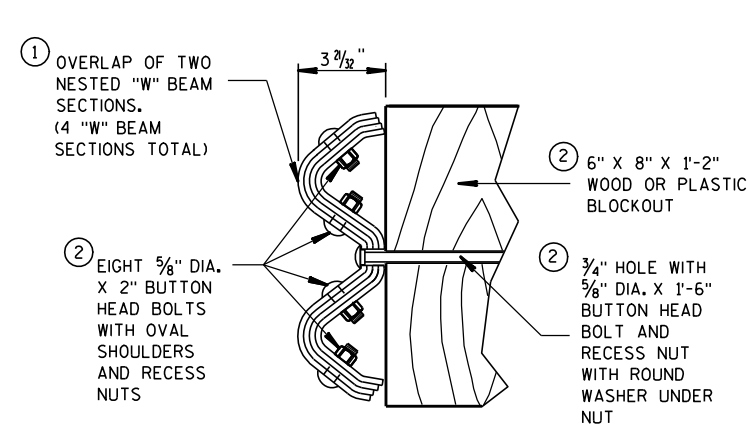
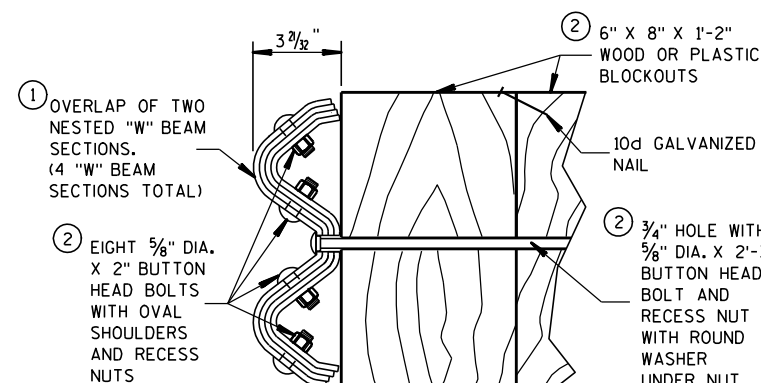
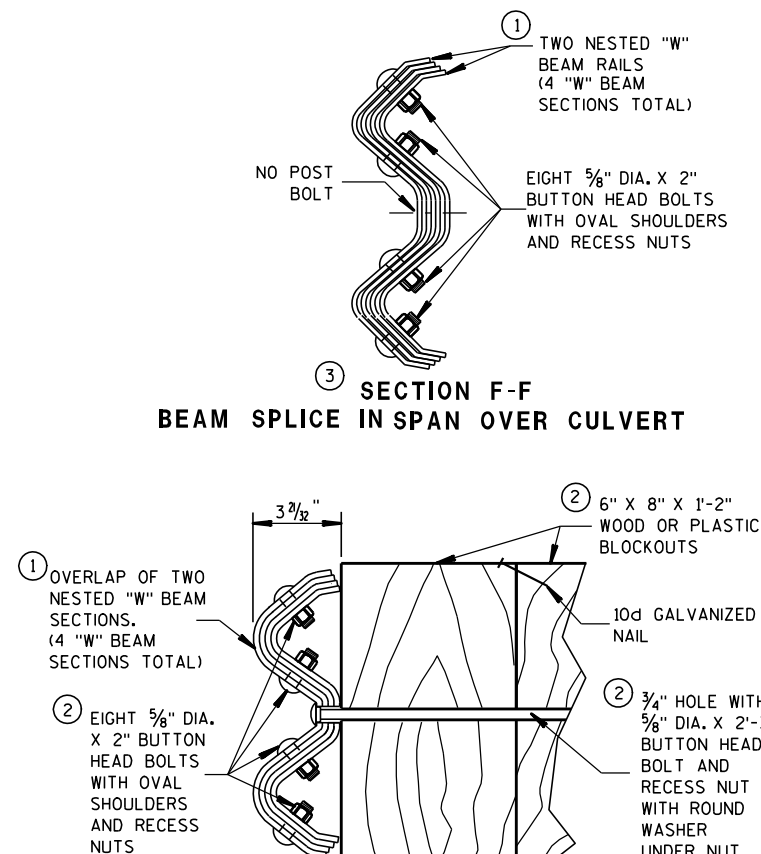
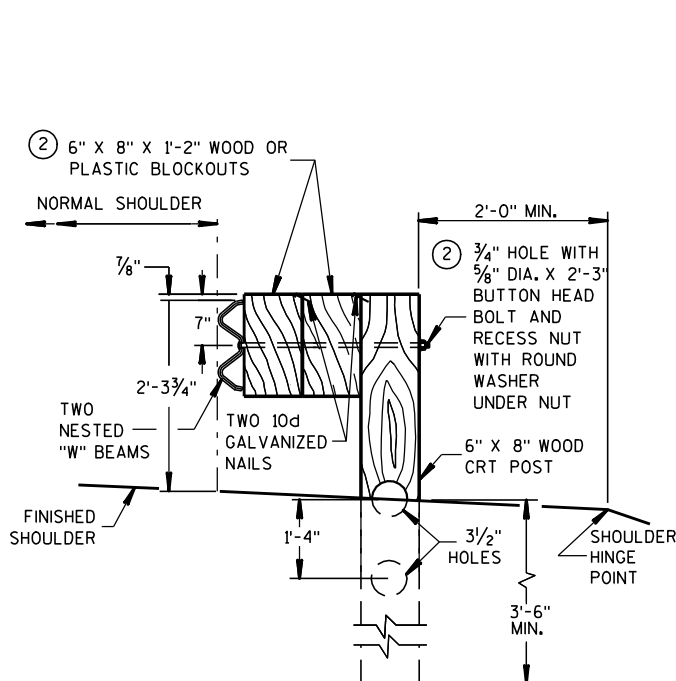
**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS 128 ENT
FHWA UNIT SUPERVISOR



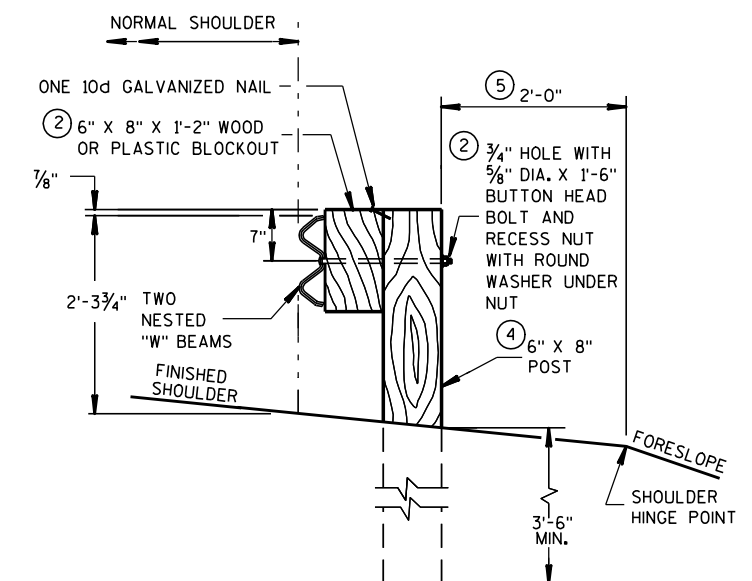
TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD OVER LOW FILL CULVERTS



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.

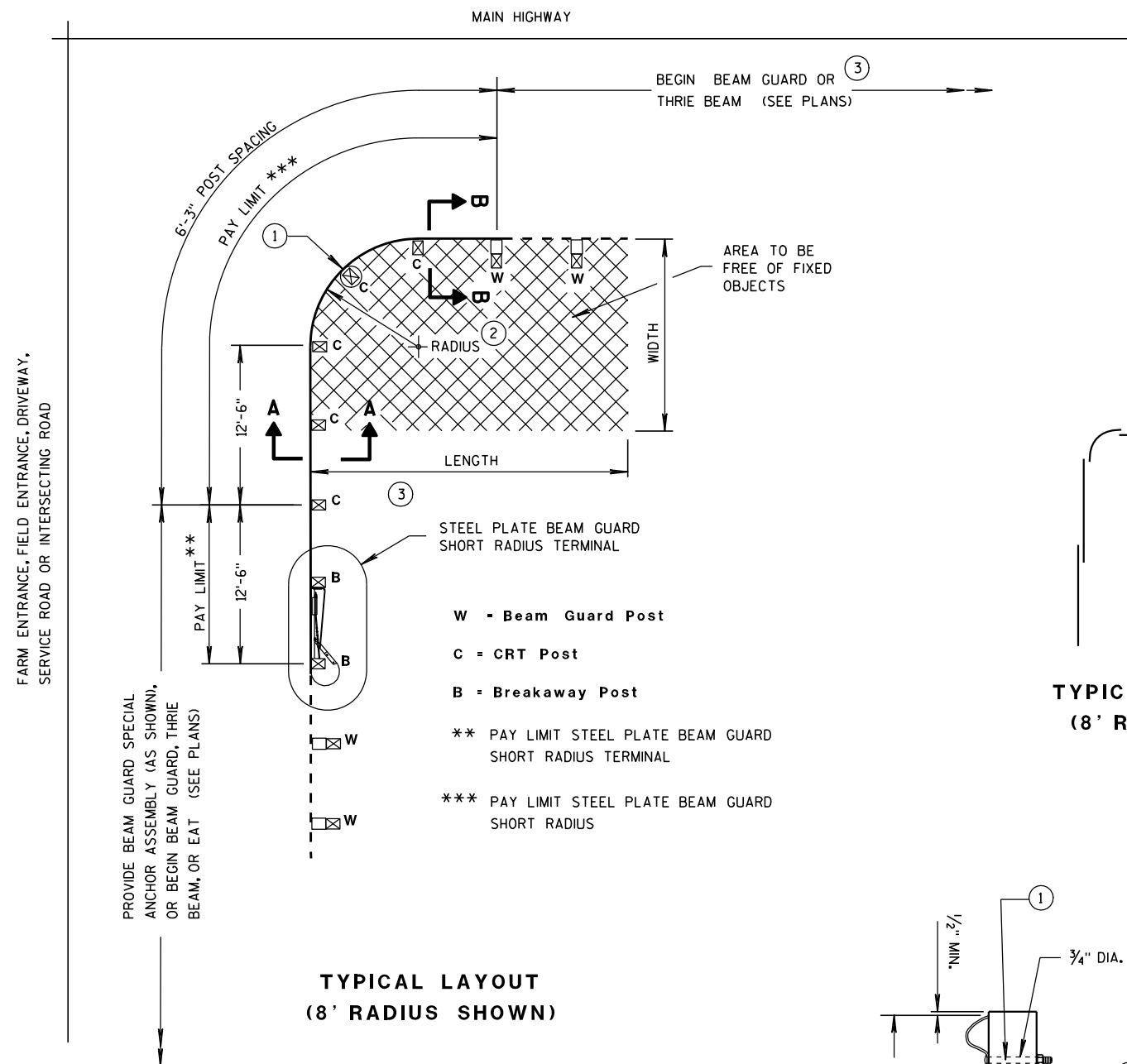
- MAINTAIN THE NESTING OF EACH NESTED PAIR OF "W" BEAM SECTIONS THROUGH SPLICES. ORIENTATE NESTED "W" BEAM SPLICES IN THE DIRECTION OF TRAFFIC AS THE PLAN VIEW SHOWS. SEE S.D.D. 14 B 15 FOR SPLICE INSTALLATION.
- THE CONTRACTOR MAY USE APPROVED PLASTIC BLOCKOUTS IN LIEU OF WOOD BLOCKOUTS. SEE S.D.D. 14 B 15 FOR TYPICAL BLOCKOUT, SPLICE AND REFLECTOR INSTALLATIONS. USE BOLT SIZES AND LENGTHS AS SHOWN ON THIS DETAIL.
- PROVIDE 12'-6", 18'-9" AND 25'-0" SPANS ONLY. USE A MAXIMUM OF ONE SPLICE LOCATED ANYWHERE WITHIN THE SPAN SECTION. LOCATE ALL OTHER SPLICES AT BEAM GUARD POSTS.
- IN THE FIRST AND LAST 25 FOOT SECTIONS (POSTS LFC 1-4 & LFC 11-14), THE CONTRACTOR MAY USE W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS OR 6" X 8" WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS. DO NOT MIX STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS AND WOOD POSTS WITH EITHER WOOD OR PLASTIC BLOCKOUTS IN THE SAME INSTALLATION.
- WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK, THE PLAN TYPICAL SECTIONS OR DETAILS MAY SHOW, OR THE ENGINEER MAY ALLOW, THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. BUILD AS THE PLAN SHOWS OR ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST SOIL DEPTH TO 4'-6" OR MORE.



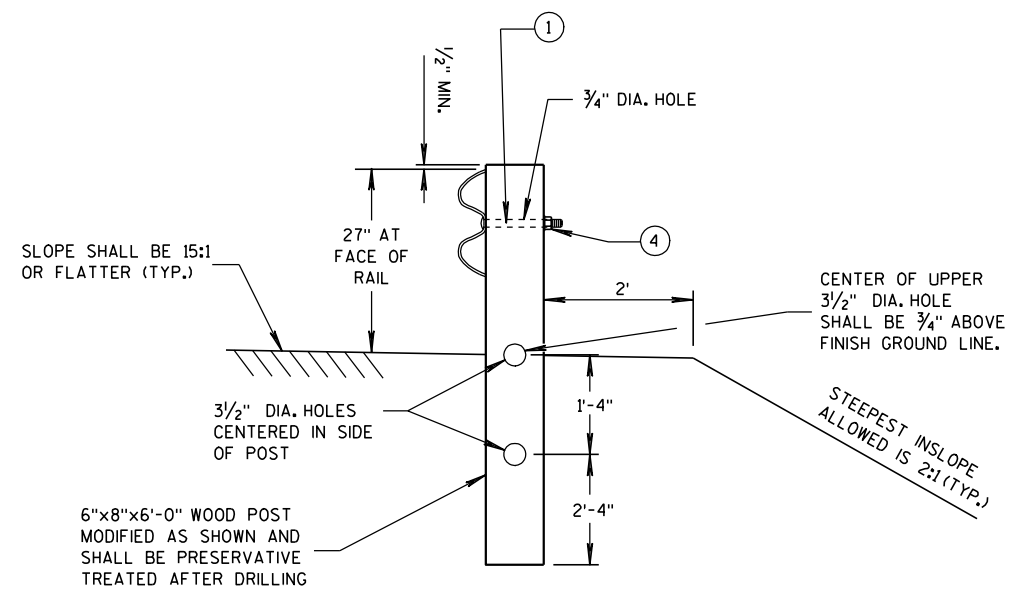
**STEEL PLATE BEAM GUARD,
CLASS "A", OVER LOW
FILL CULVERTS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/8/00 /S/ John Have-
DATE CHIEF ROADWAY DEVELOP 129 GINEER
FHWA



**TYPICAL LAYOUT
(8' RADIUS SHOWN)**



**SECTION A-A
(CRT POST)**

STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

ALL ANGLES, CHANNELS, AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36 AND THE STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI/AWS D1.1. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123. PUNCHING, DRILLING, CUTTING, OR WELDING WILL NOT BE PERMITTED AFTER GALVANIZING. FURNISH AND INSTALL HARDWARE PER STANDARD SPECIFICATION 614.2, UNLESS NOTED OTHERWISE.

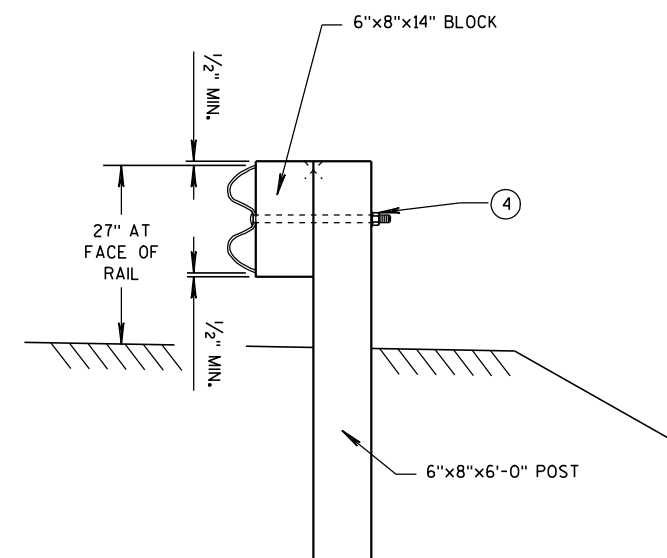
SHOP BEND CURVED RAIL SECTIONS.

SEE STANDARD DETAIL DRAWING 14 B 15 FOR OTHER DETAIL.

- 1 ON THE 8 FOOT RADIUS INSTALLATION, DO NOT INSTALL BUTTON HEAD BOLT AT CENTER CRT POST.
- 2 RADIUS FROM 8' - 36'. SEE PLAN.
- 3 HEIGHT TRANSITION MAY BE REQUIRED. SEE PLAN OR PROJECT ENGINEER.
- 4 5/8" ϕ X 1'-6" BUTTON HEAD BOLT AND RECESS NUT WITH ROUND WASHER UNDER NUT.

RADIUS	NUMBER OF CRT POSTS	*NUMBER AND LENGTH OF CURVED RAILS	REQUIRED AREA FREE OF FIXED OBJECTS (LENGTH X WIDTH)
8'	5	1 at 12.5'	25' x 15'
16'	7	1 at 25'	30' x 15'
24'	9	1 at 25' and 1 at 12.5'	40' x 20'
32'	11	2 at 25'	50' x 20'

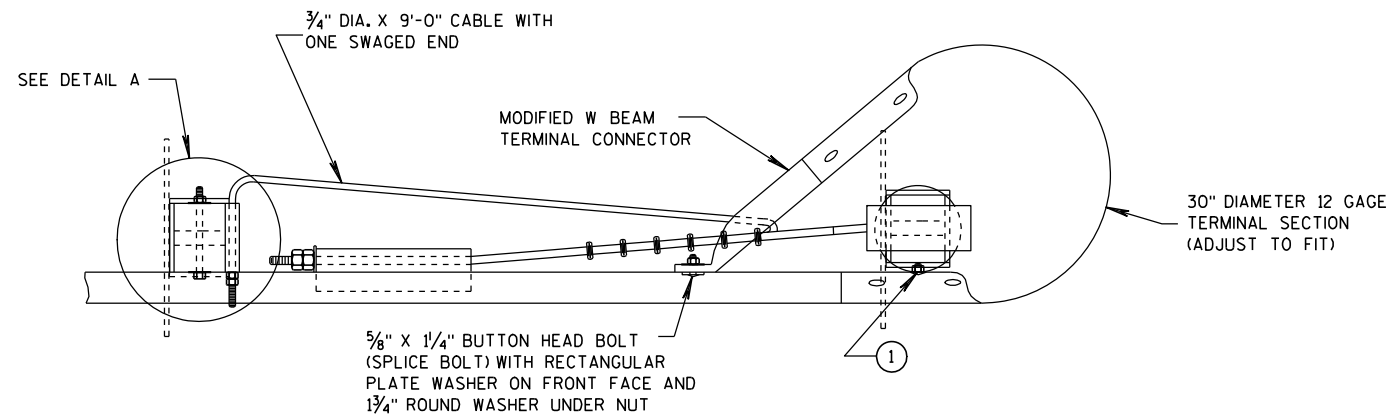
* THE NUMBER OF RAILS IS BASED ON A 90° INTERSECTION. SEE PLAN FOR NON 90° INSTALLATIONS.



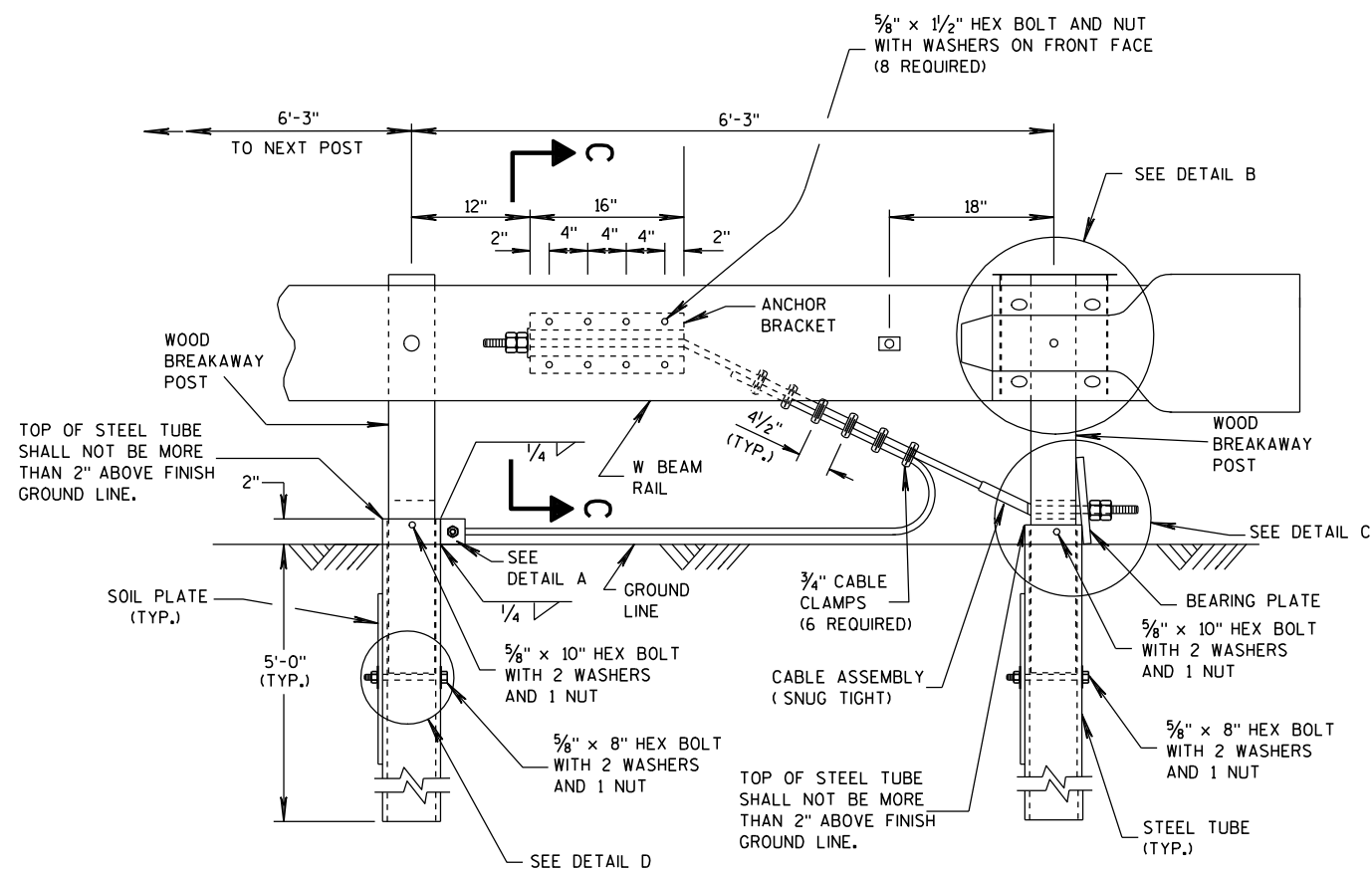
**SECTION B-B
(BEAM GUARD POST)**

**STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



PLAN VIEW

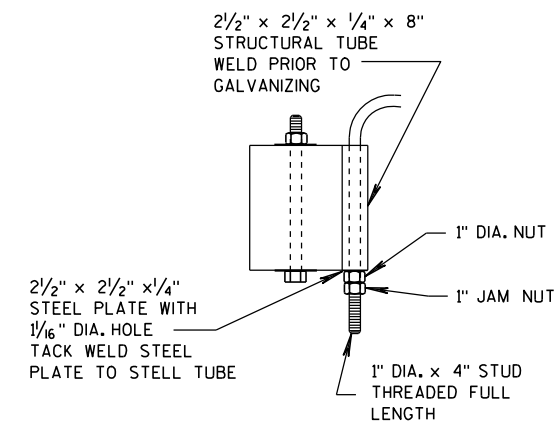


ELEVATION VIEW

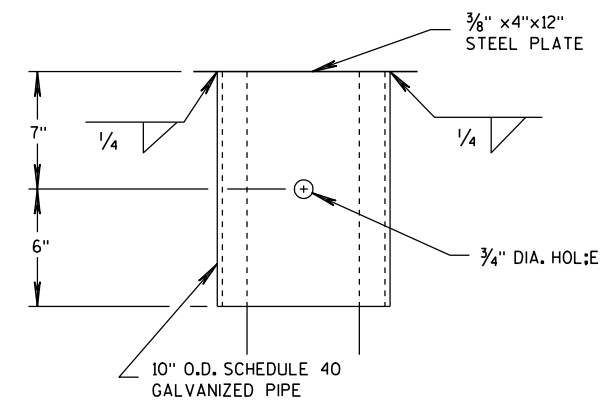
STEEL PLATE BEAM GUARD SHORT RADIUS TERMINAL

GENERAL NOTES

- ATTACH W BEAM RAIL TO THE STEEL PIPE WITH A $\frac{5}{8}$ " X 2" BUTTON HEAD BOLT WITH NO WASHER. CONNECTION TO THE POST IS NOT REQUIRED.
- INSTALL GALVANIZED $\frac{3}{4}$ " (6X19) PREFORMED WIRE OR INDEPENDENT WIRE ROPE CORE CONFORMING TO AASHTO M 30. MANUFACTURE WIRE ROPE OUT OF IMPROVED PLOW STEEL WITH A MINIMUM BREAKING STRENGTH OF 42,800 PSI.



DETAIL A

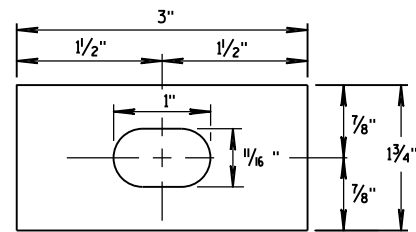


DETAIL B

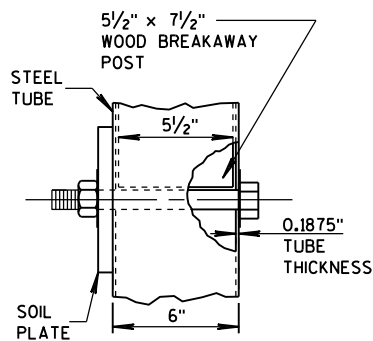
(BEAM GUARD AND TERMINAL SECTION NOT SHOWN)

STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL

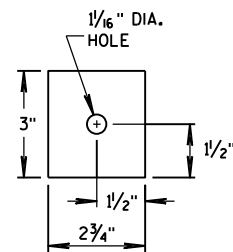
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



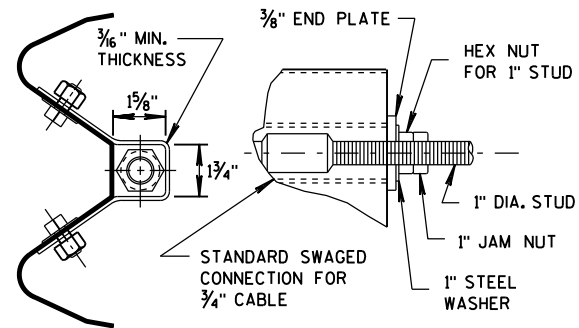
**RECTANGULAR
PLATE WASHER**



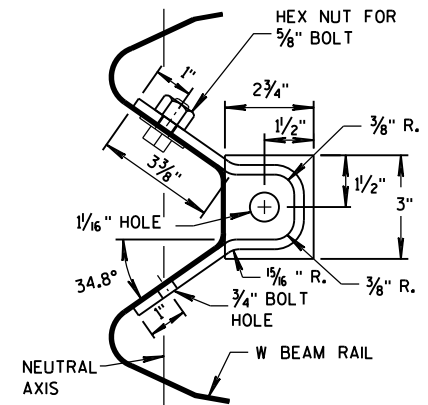
DETAIL D



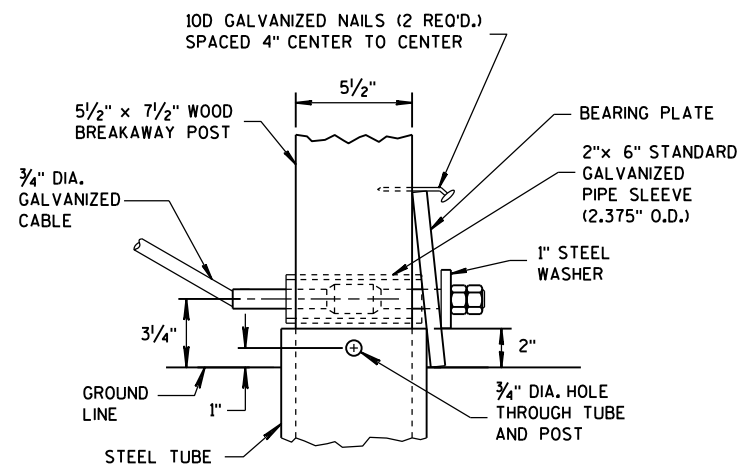
END PLATE



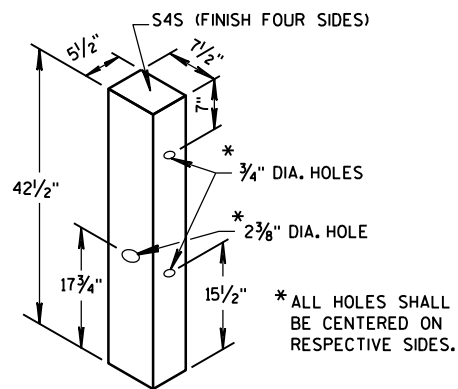
**SECTION C-C
(END PLATE REMOVED)**



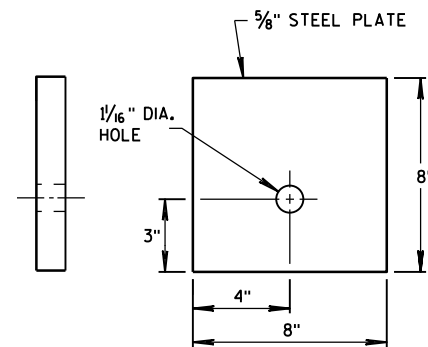
ANCHOR BRACKET



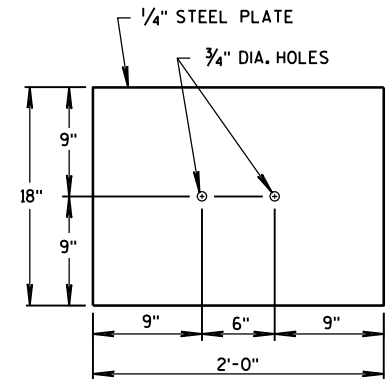
DETAIL C



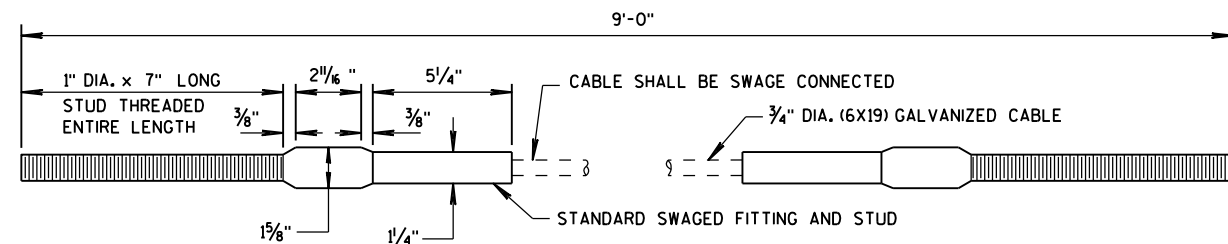
WOOD BREAKAWAY POST



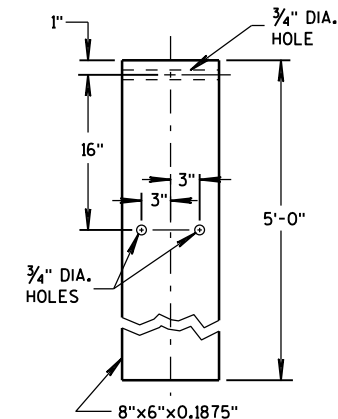
BEARING PLATE



SOIL PLATE



CABLE ASSEMBLY



STEEL TUBE

**STEEL PLATE BEAM GUARD
SHORT RADIUS TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

12/18/08

DATE

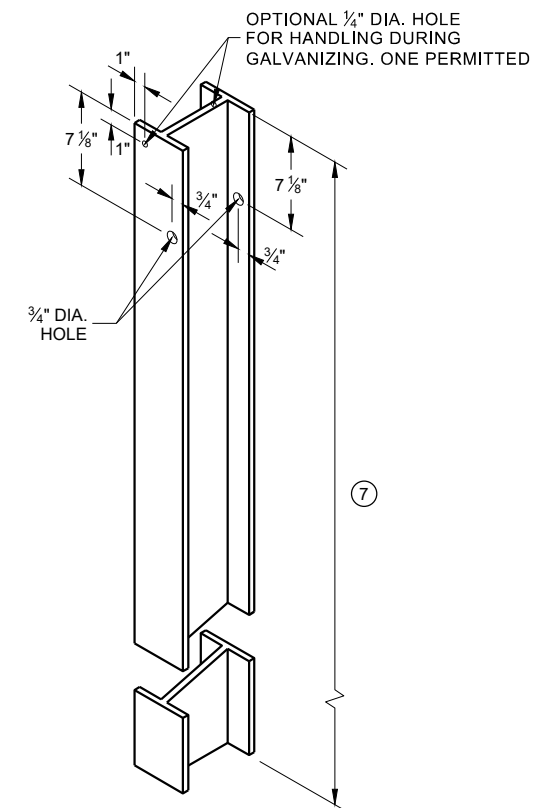
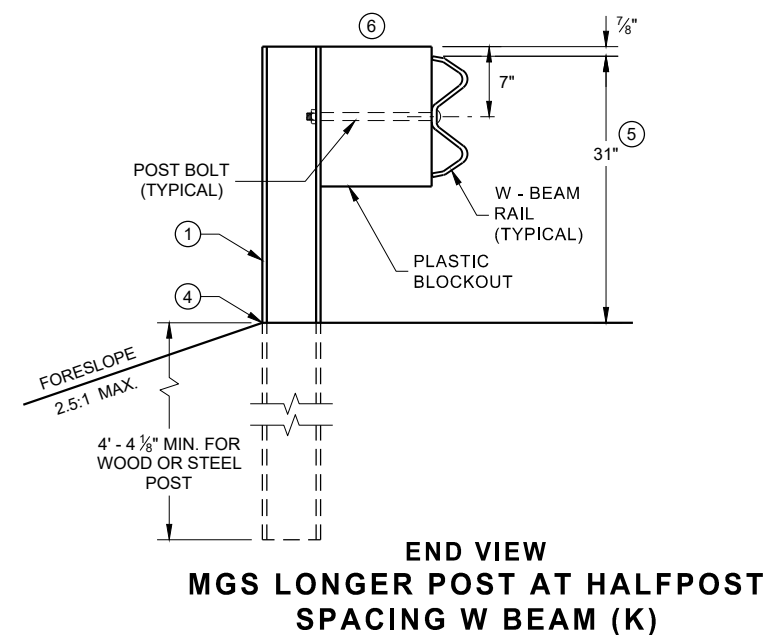
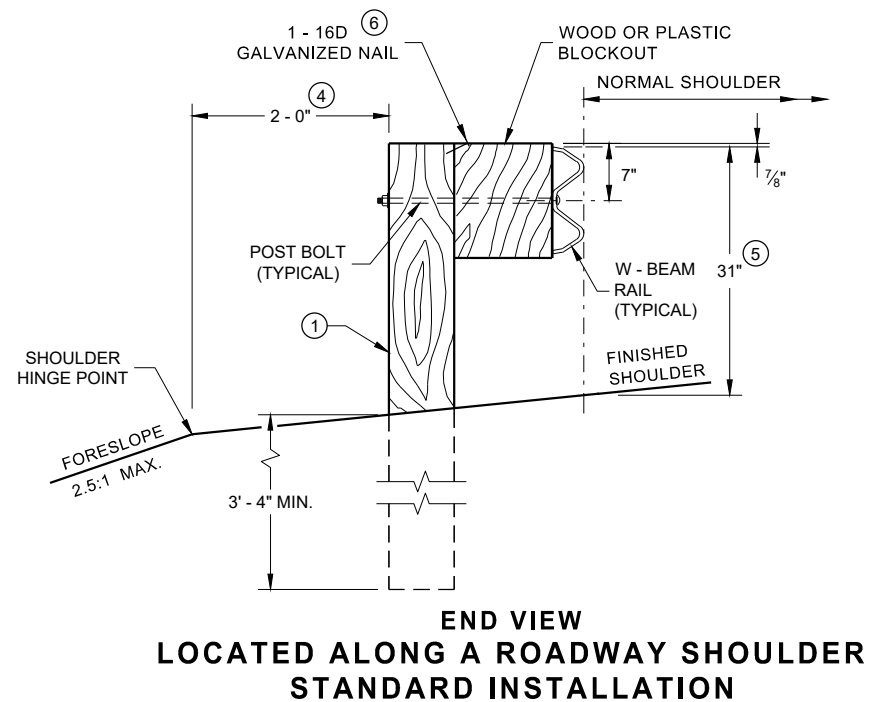
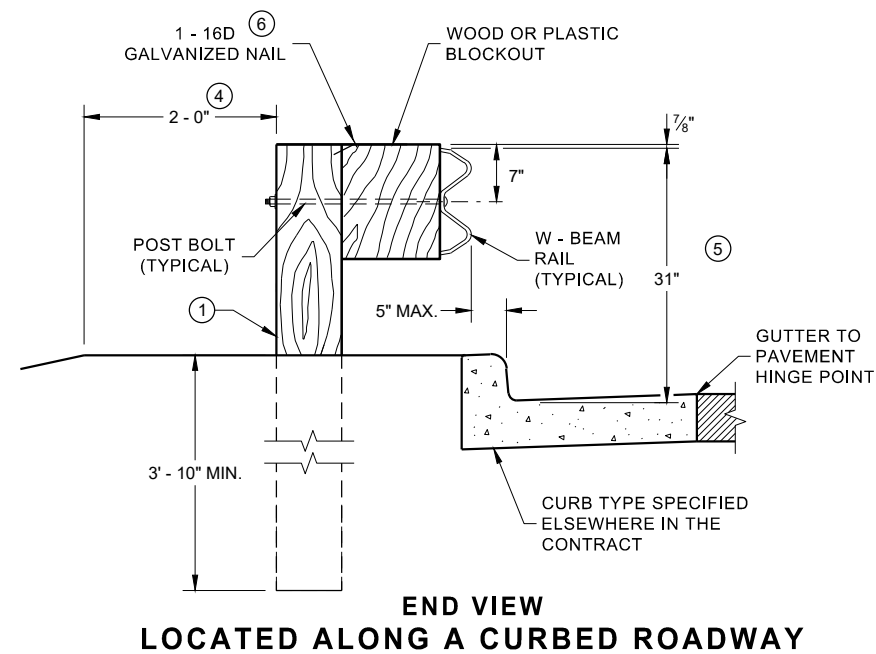
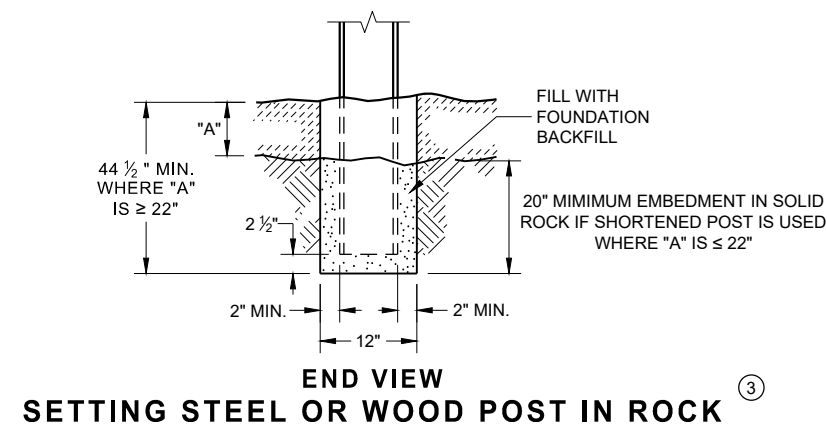
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS ENGINEER

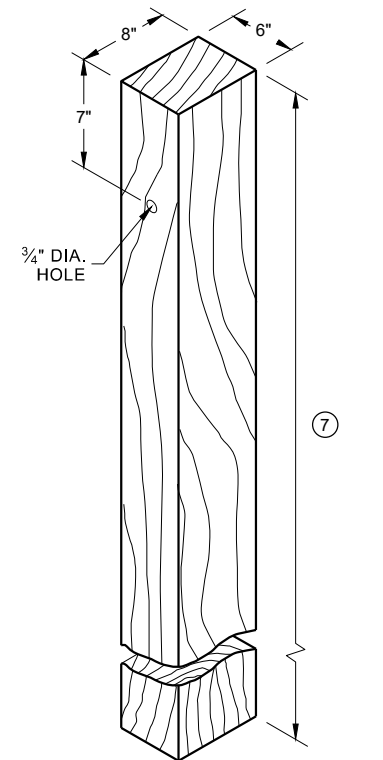
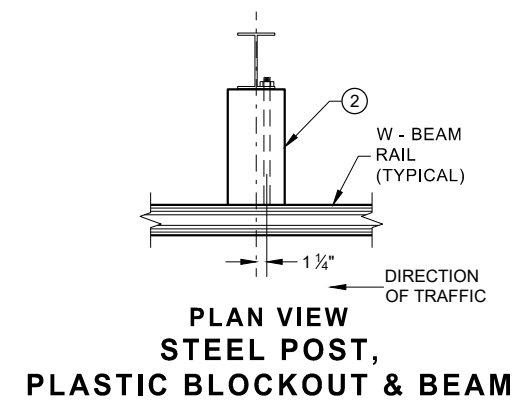
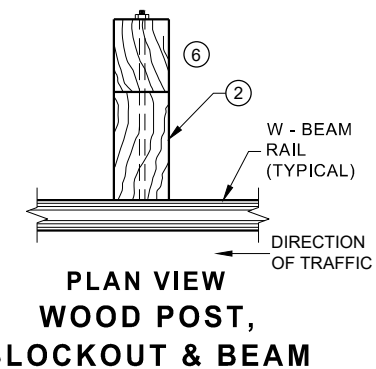
132

NT

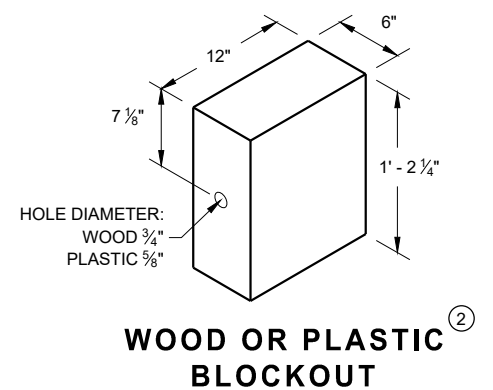
- ① WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- ② USE WOOD OR APPROVED PLASTIC BLOCKOUTS. WOOD BLOCKOUTS MAY BE CONSTRUCTED OUT OF TWO OR MORE WOOD BLOCKOUTS. SEE ALTERNATE WOOD BLOCKOUT DETAIL.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

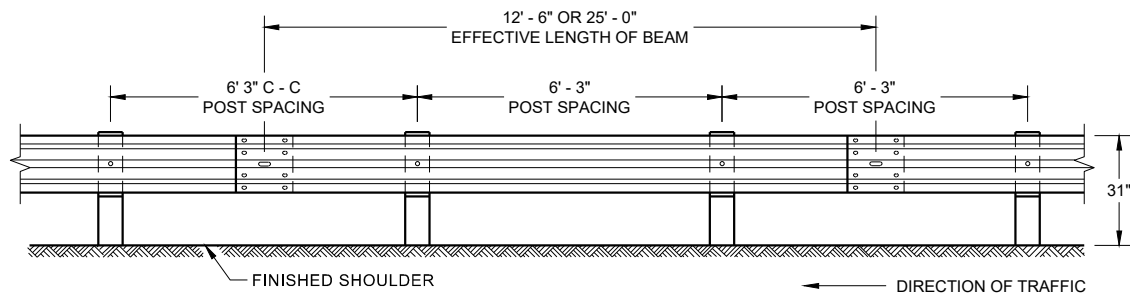


**STEEL POST & HOLE
PUNCHING DETAIL
(W 6 X 9) ①**

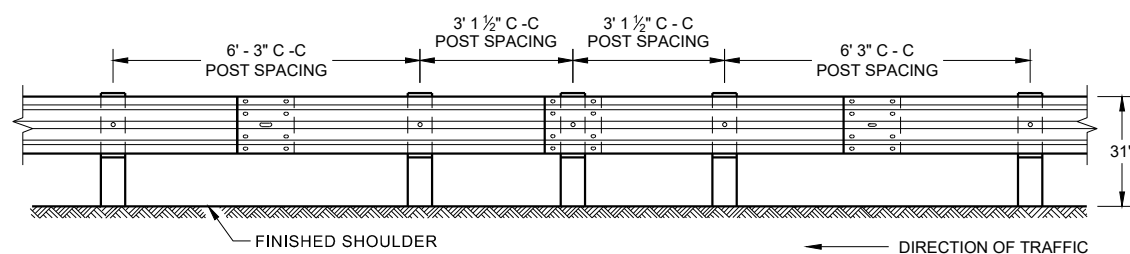


WOOD POST (6" X 8") NOMINAL ^①

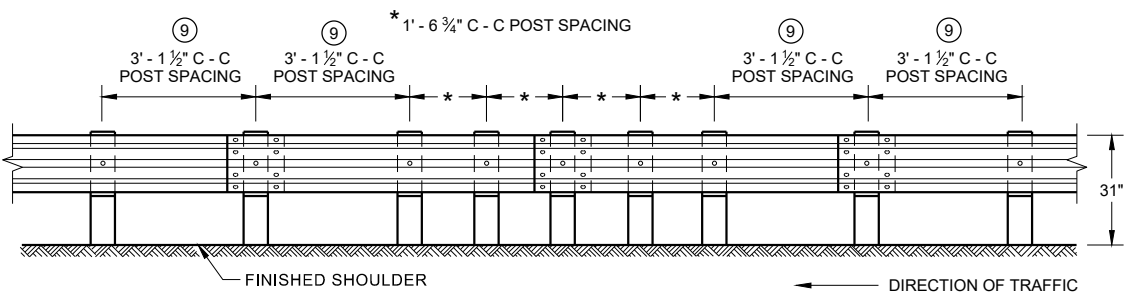




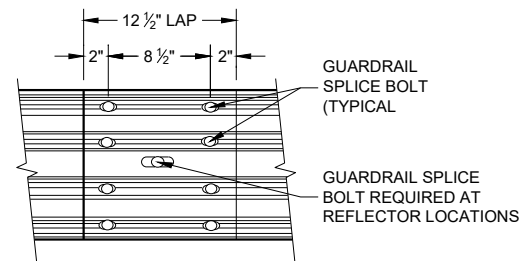
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



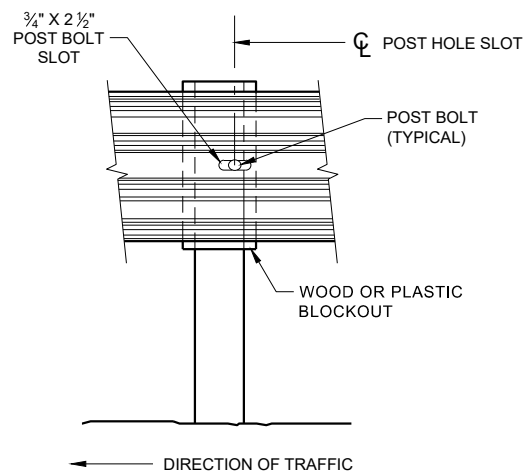
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



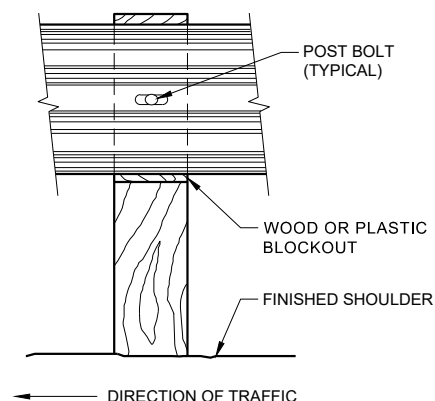
**FRONT VIEW
QUARTER POST SPACING (QS)**



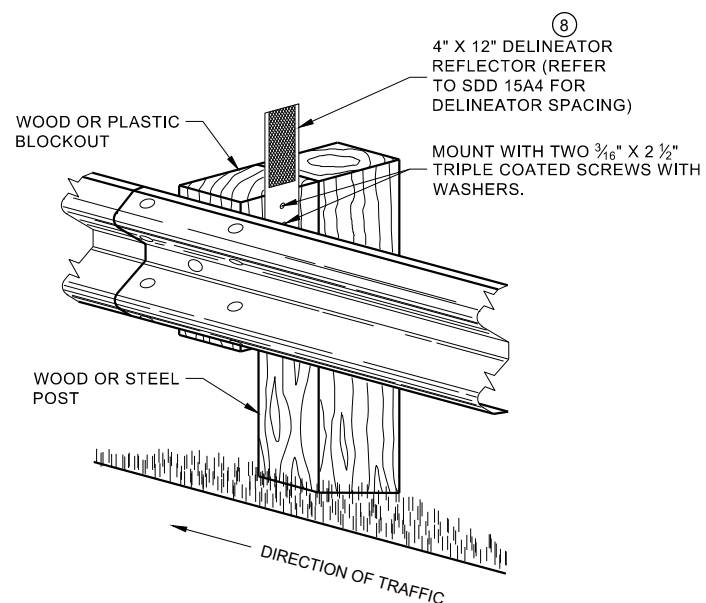
**FRONT VIEW
MID-SPAN BEAM SPLICE**



FRONT VIEW AT STEEL POST



FRONT VIEW AT WOOD POST



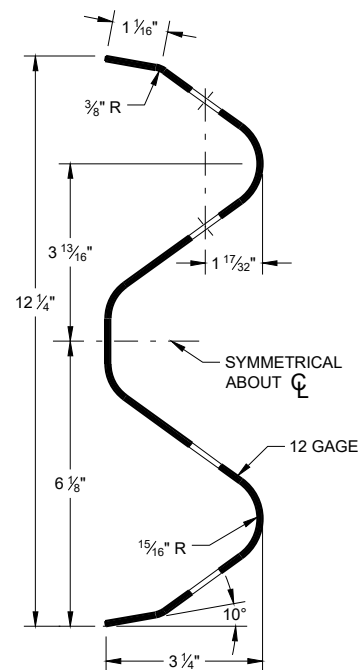
**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

GENERAL NOTES

- 8 DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
- 9 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

POST BOLTS ARE A 3/4" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/4" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

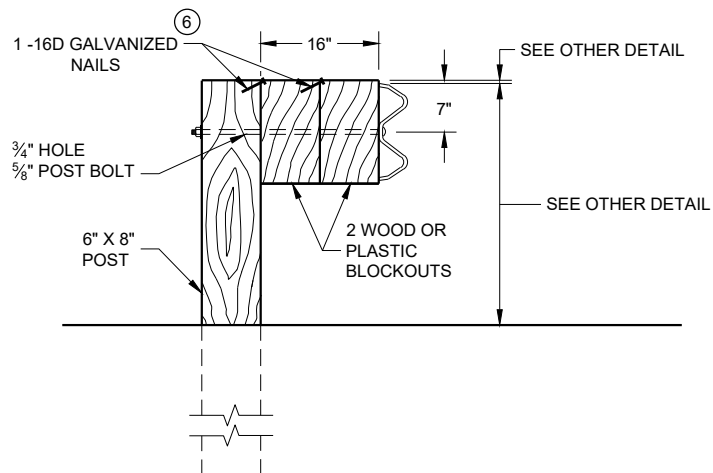
GUARD RAIL SPLICE BOLTS ARE A 3/4" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



SECTION THRU W-BEAM RAIL

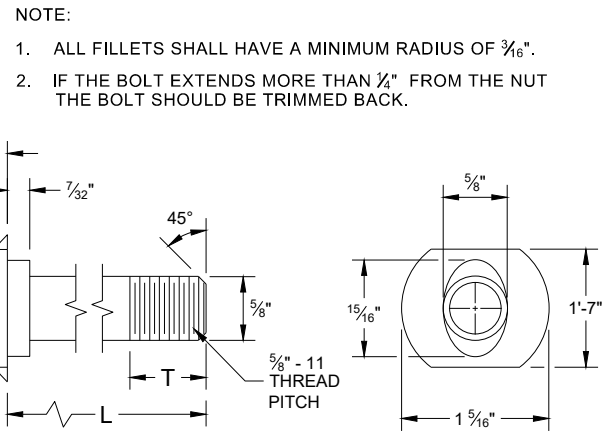
**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

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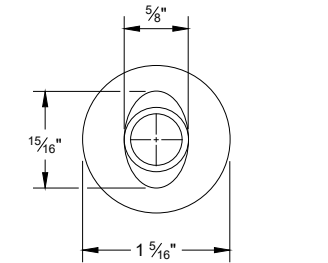
DETAIL FOR 16" BLOCKOUT DEPTH

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.

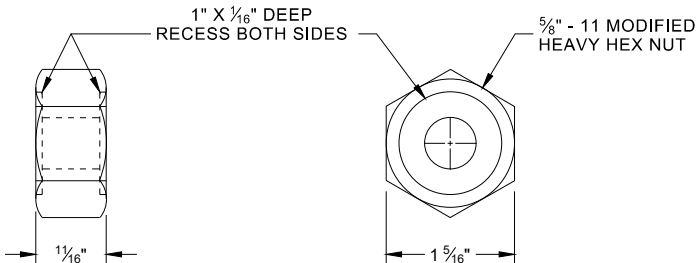


POST BOLT TABLE

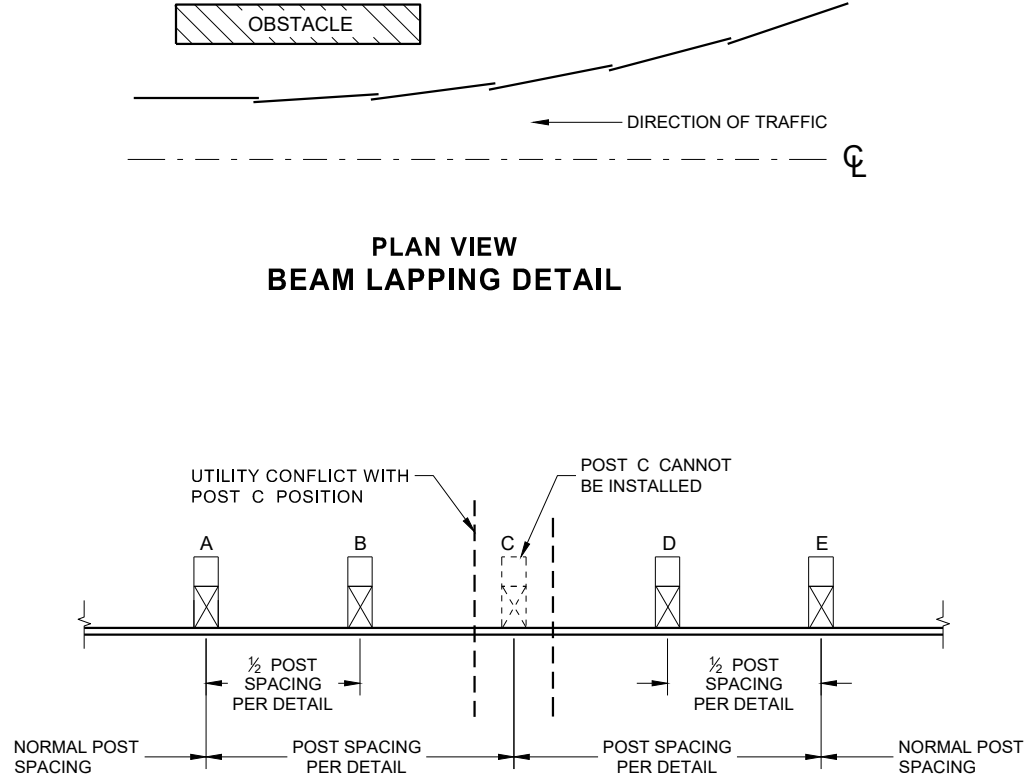
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



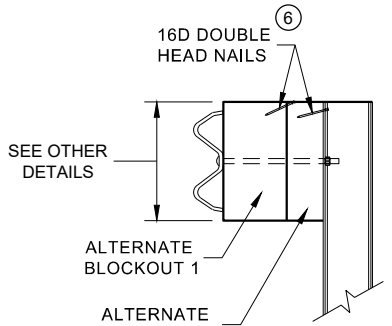
ALTERNATE BOLT HEAD



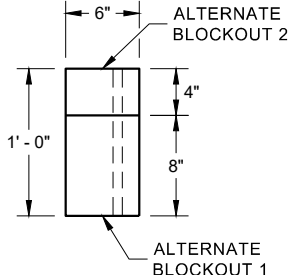
POST BOLT, SPLICE BOLT AND RECESS NUT



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



PLAN VIEW

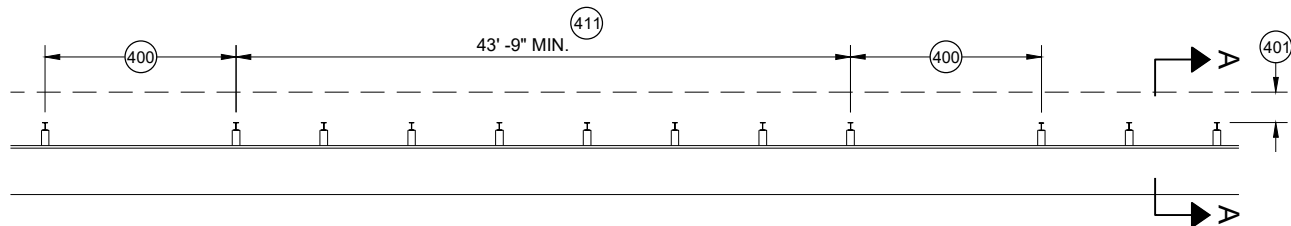
ALTERNATE WOOD BLOCKOUT DETAIL

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

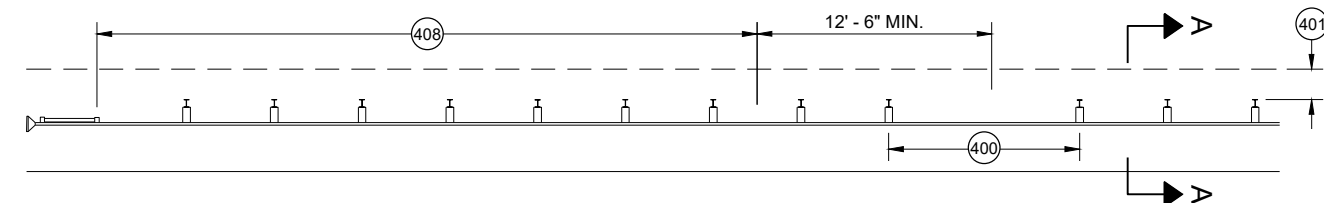
6 WHEN USING STEEL POST AD WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

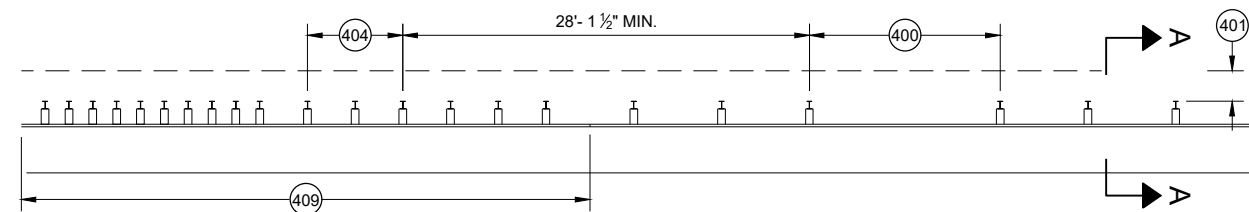
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION 135



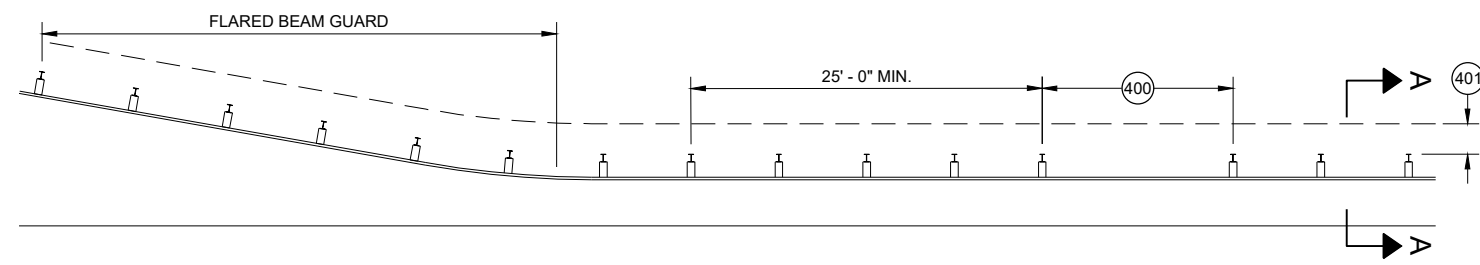
MISSING POST IN MGS GUARDRAIL



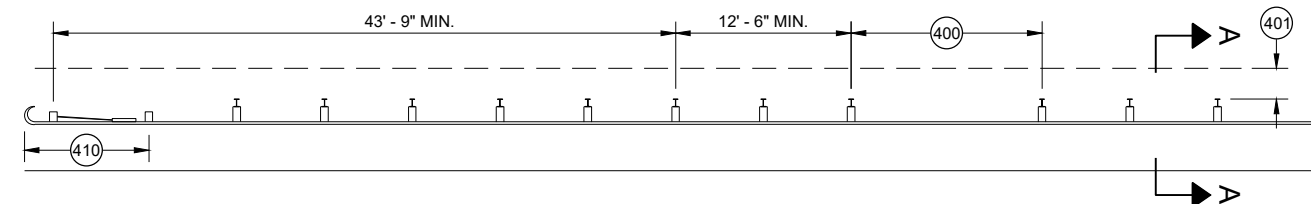
MISSING POST IN MGS GUARDRAIL NEAR EAT



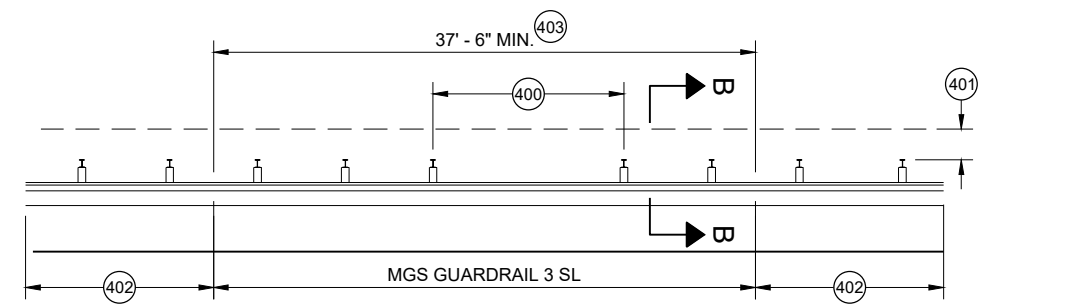
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

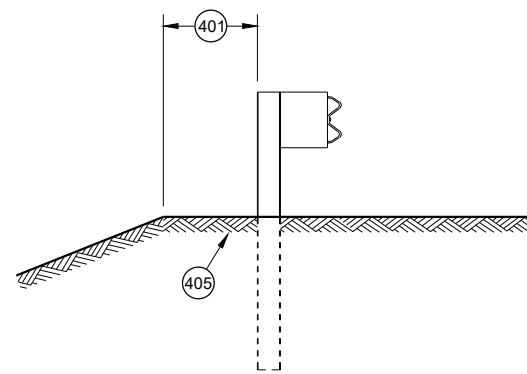


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

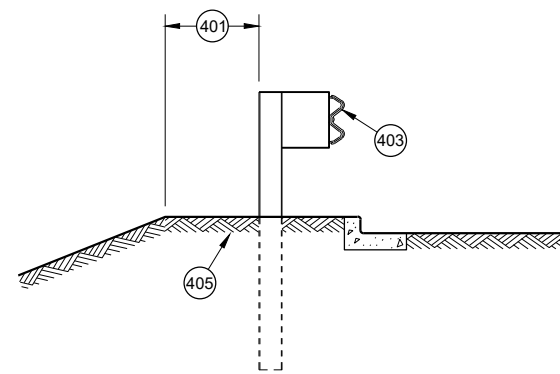


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

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



SECTION A - A



SECTION B - B

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

FHWA

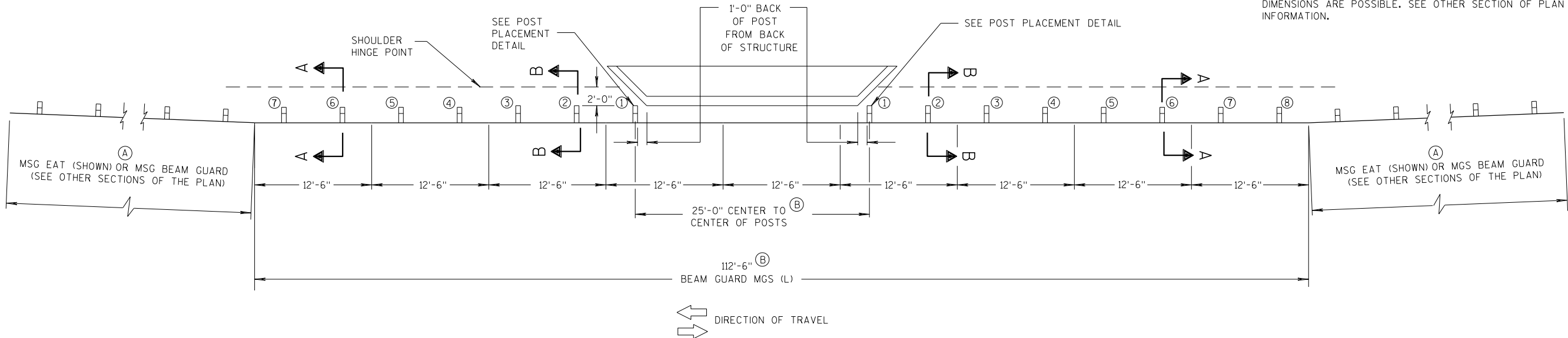
GENERAL NOTES

POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

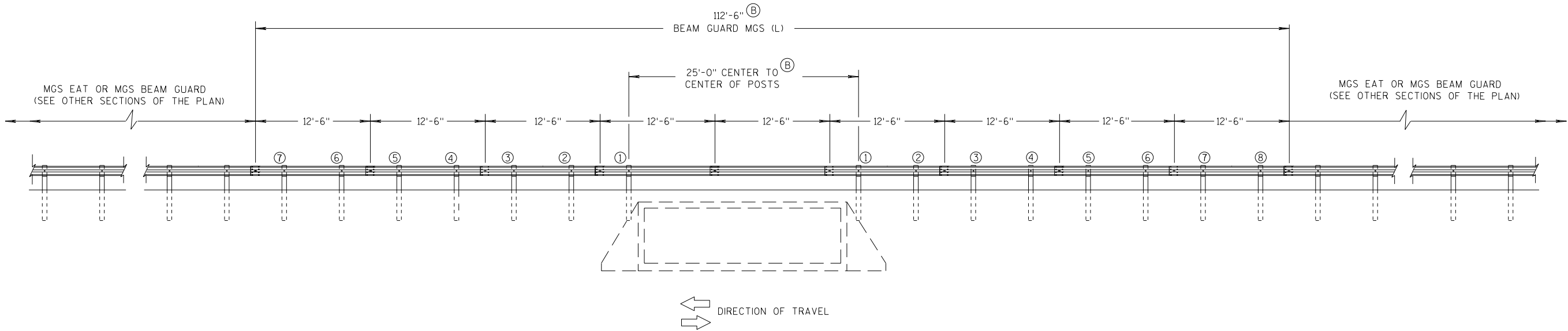
SEE SDD 14 B 42 FOR MORE DETAILS.

(A) FLARE FOR MGS EAT SHOWN, IF INSTALLING MGS NO FLARE NEEDED.

(B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) TWO-WAY TRAFFIC

MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

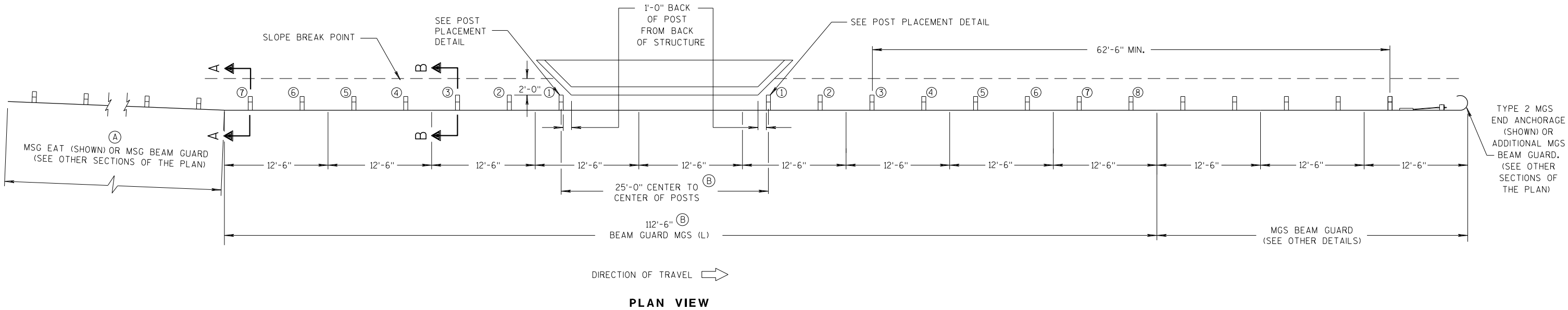
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

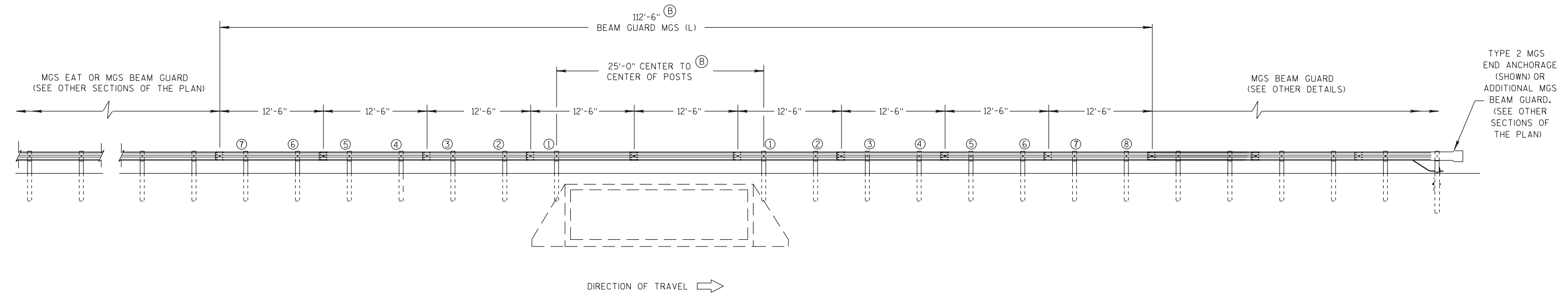
POSTS 1 THROUGH 3 ARE CRT POSTS.
ALL OTHER POSTS SHALL BE WOOD OR STEEL.

SEE SDD 14 B 42 FOR MORE DETAILS.

- (A) FLARE FOR MGS EAT SHOWN. IF INSTALLING MGS NO FLARE NEEDED.
- (B) VALUES SHOWN ON DRAWING REPRESENT THE MAXIMUM LENGTH. SHORTER DIMENSIONS ARE POSSIBLE. SEE OTHER SECTION OF PLAN FOR MORE INFORMATION.



PLAN VIEW

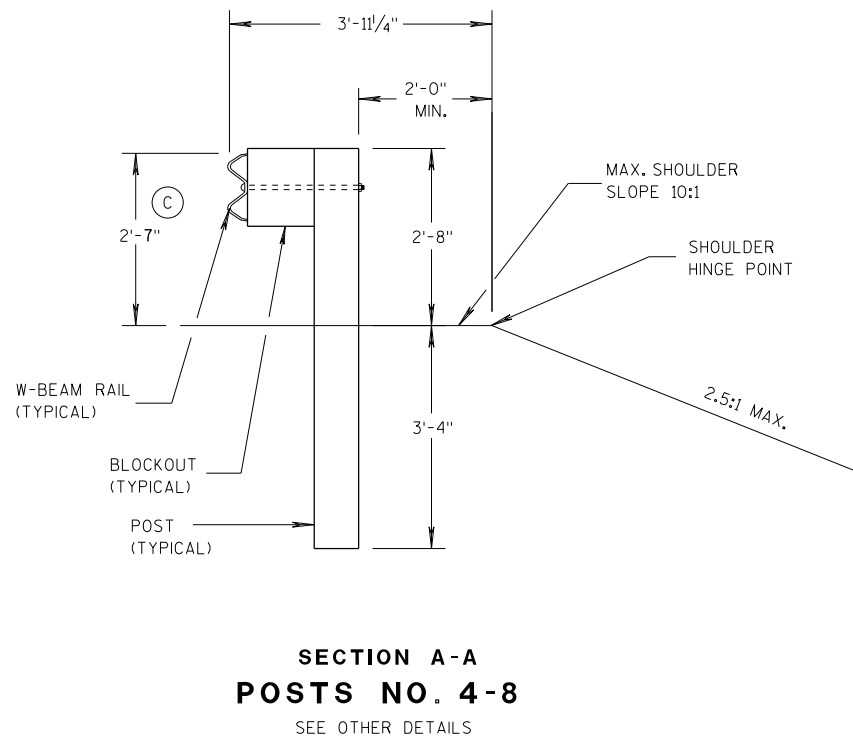
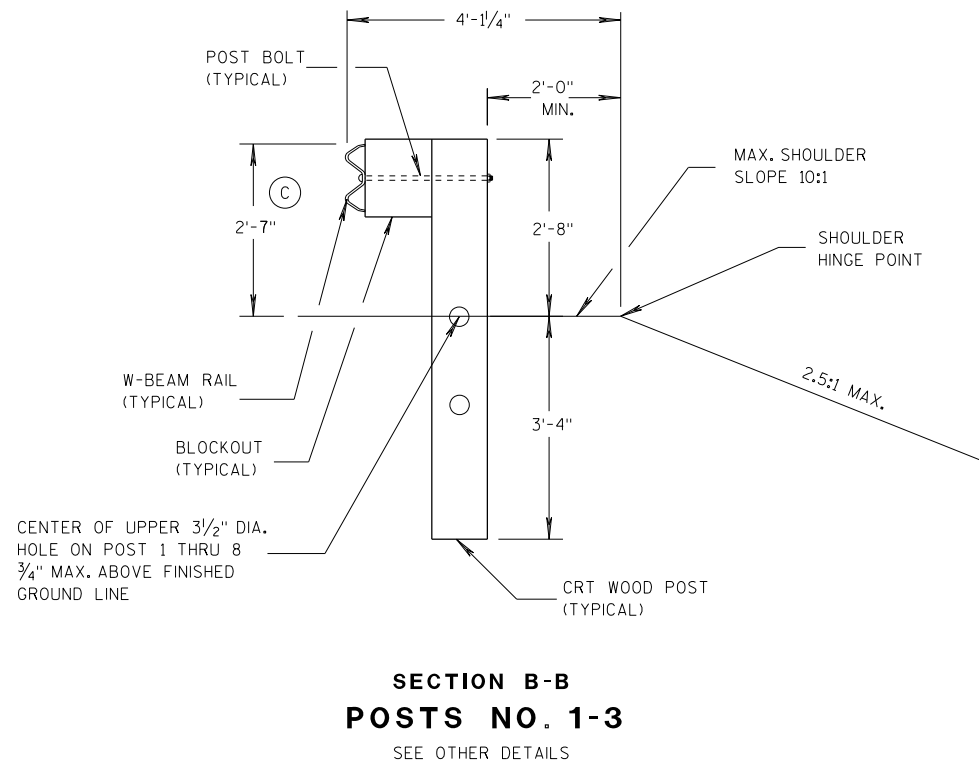
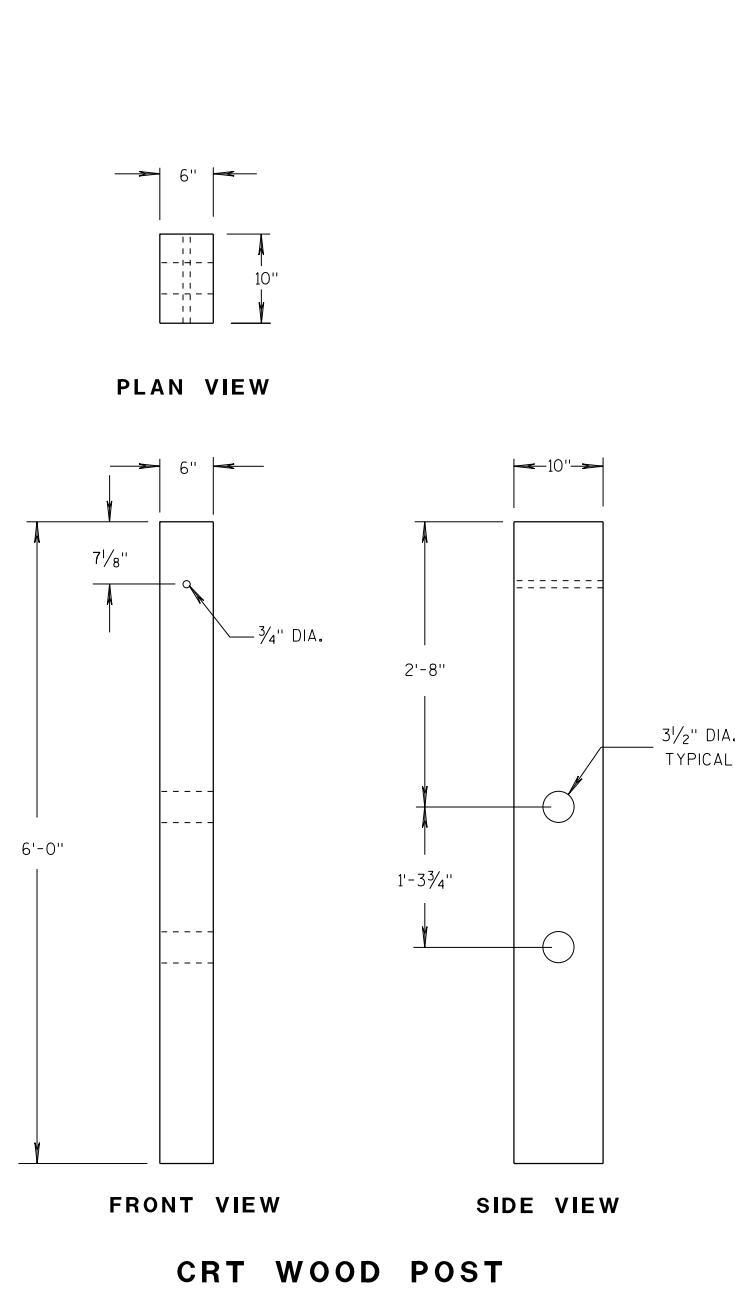


ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L) ONE-WAY TRAFFIC

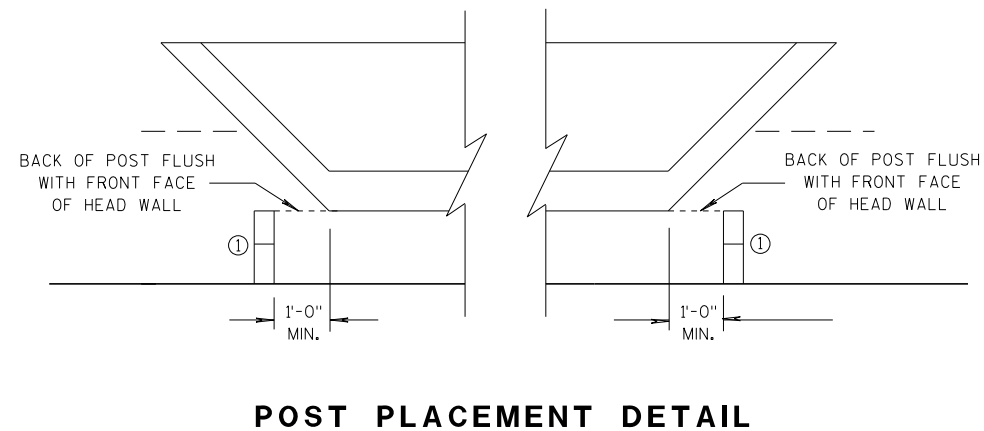
MIDWEST GUARDRAIL SYSTEM
LONG SPAN MGS (L)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



GENERAL NOTES

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



MIDWEST GUARDRAIL SYSTEM LONG SPAN MGS (L)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED	/S/ Rodney Taylor		
DATE	07/2018	ROADWAY STANDARDS	139 NT
FHWA	ENGINEER		

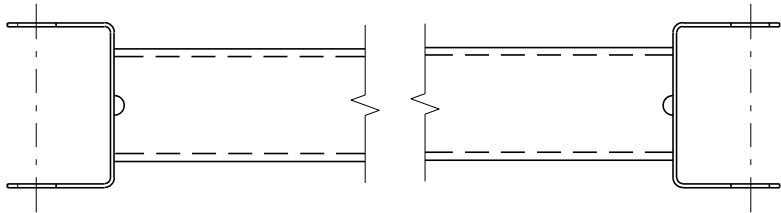
- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL) AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED
- (C) DIFFERENT MANUFACTURERS REQUIRE DIFFERENT PERFORATED W - BEAM RAIL END PANELS.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

DIMENSIONS MAY VARY, MANUFACTURER'S INFORMATION.

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

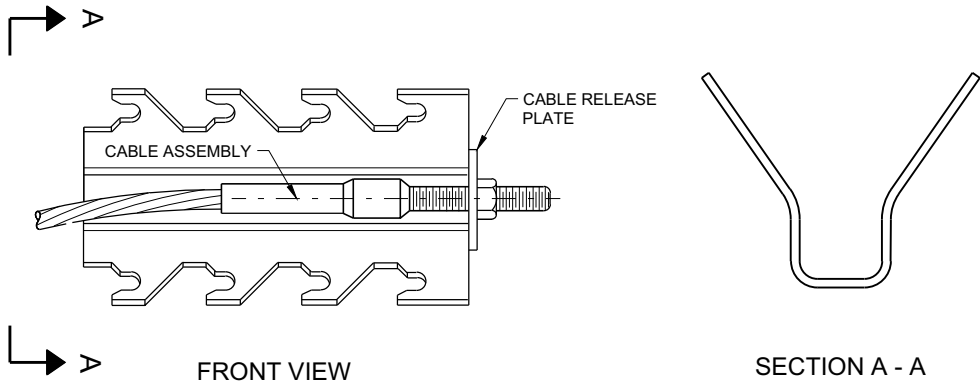


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 140

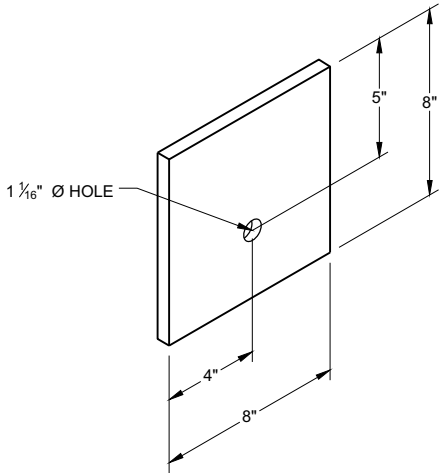


GENERIC GROUND STRUT⁹ ^E

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



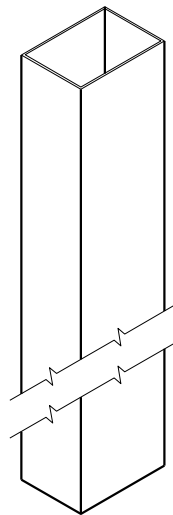
GENERIC ANCHOR CABLE BOX⁹ ^E



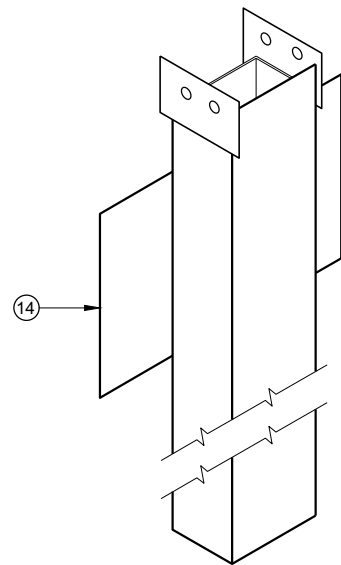
BEARING PLATE⁶ ^E

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

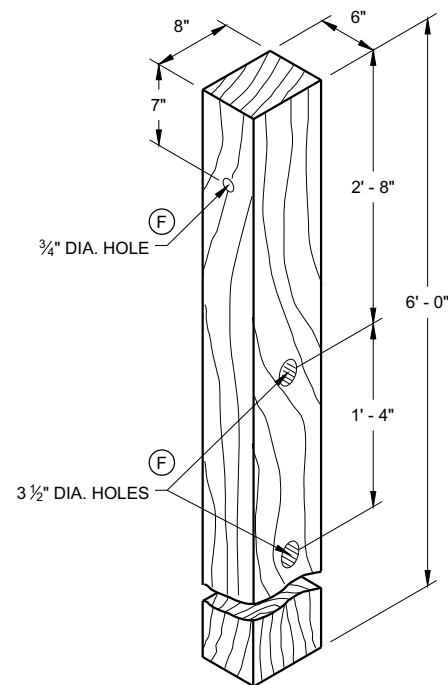
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 141



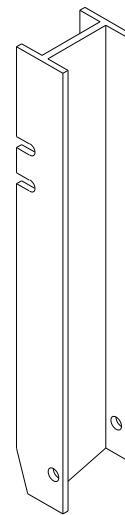
UPPER POST NO. 1 ⁽¹⁾ (E)



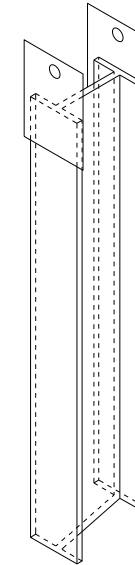
LOWER POST NO. 1 ⁽²⁾ (E)



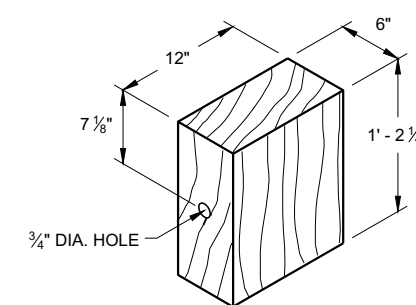
WOOD CRT POST ⁽³⁾ (E)
POSTS NUMBER 3-9



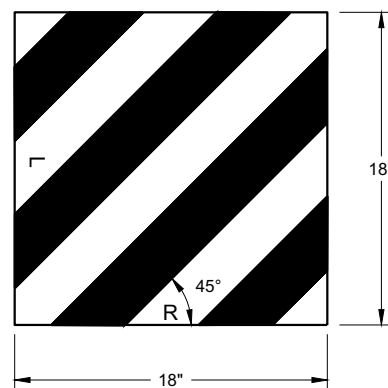
UPPER POST NO. 2 ⁽¹⁵⁾ (E)



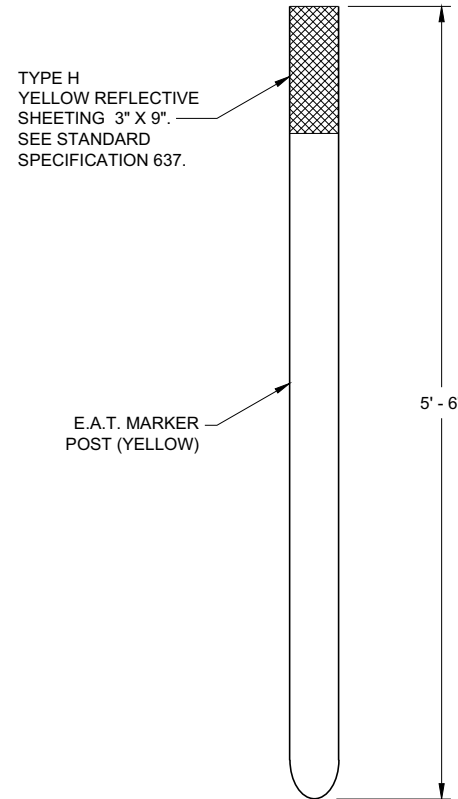
LOWER POST NO. 2 ⁽¹⁶⁾ (E)



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



REFLECTIVE SHEETING DETAIL ^(E)

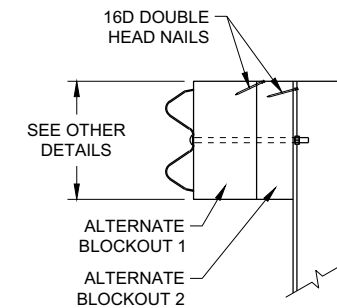


FRONT VIEW

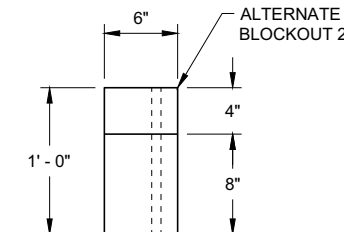


SIDE VIEW

E.A.T. MARKER POST ⁽¹³⁾



SIDE VIEW



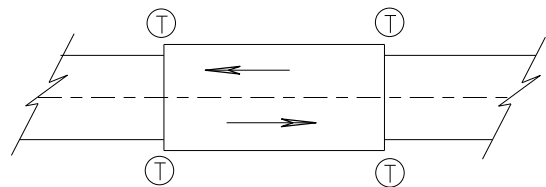
TOP VIEW

ALTERNATE WOOD
BLOCKOUT DETAIL

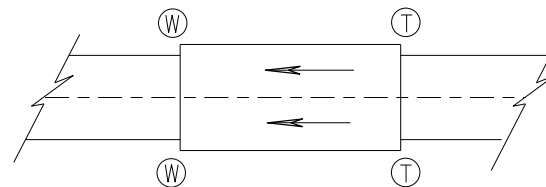
**MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
7/2018 DATE
/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR 142
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

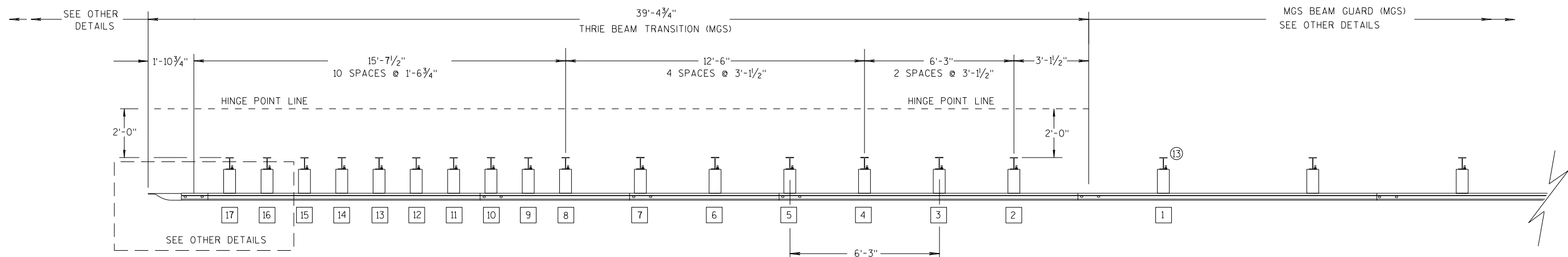
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

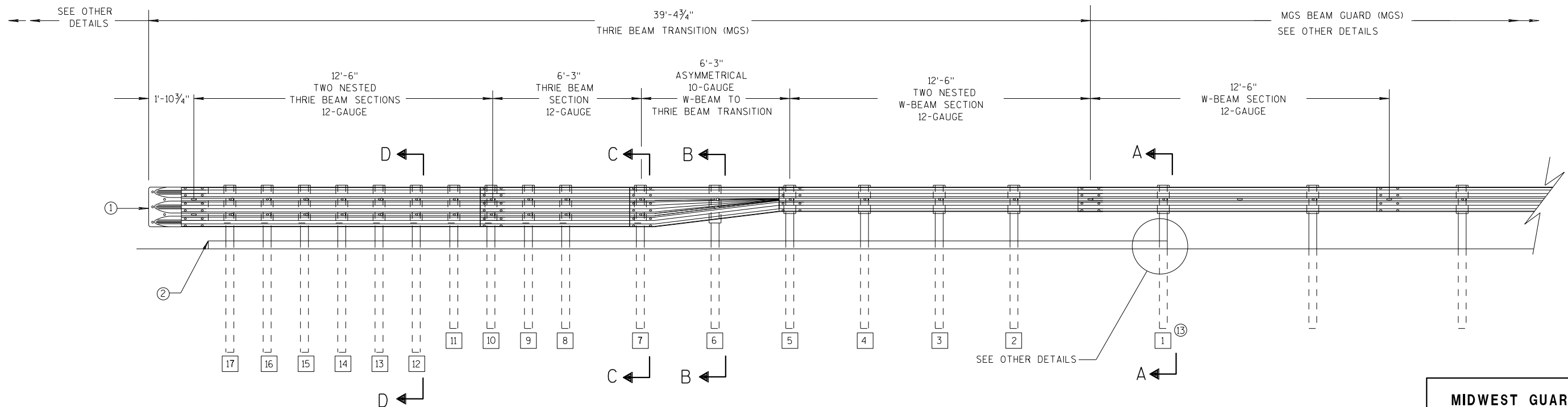
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

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

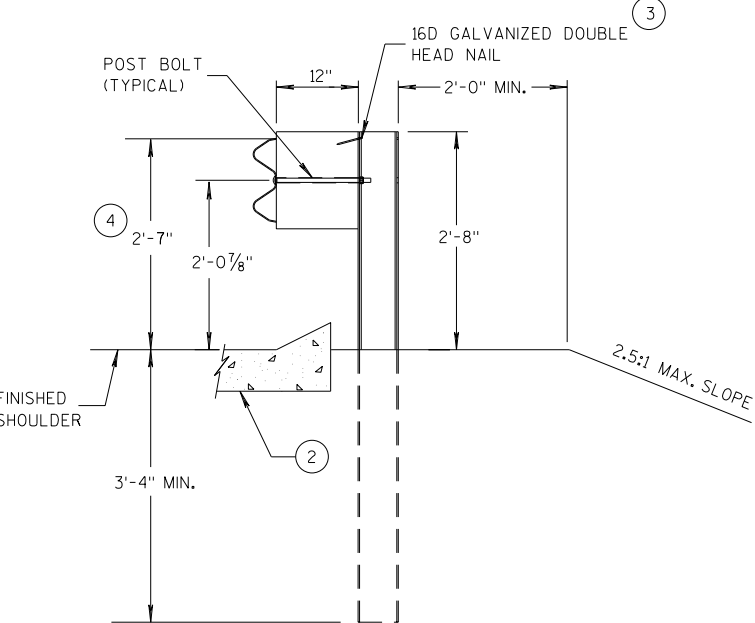
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

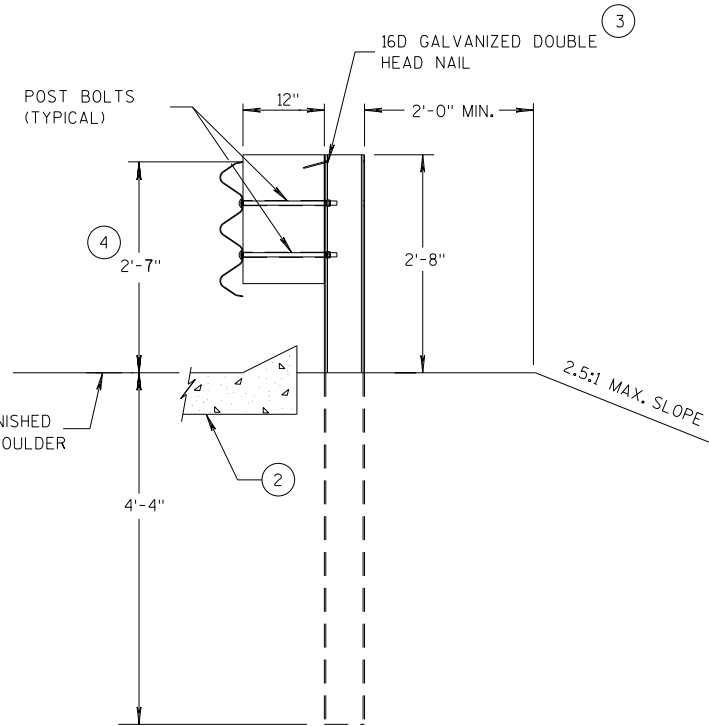
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 143

GENERAL NOTES

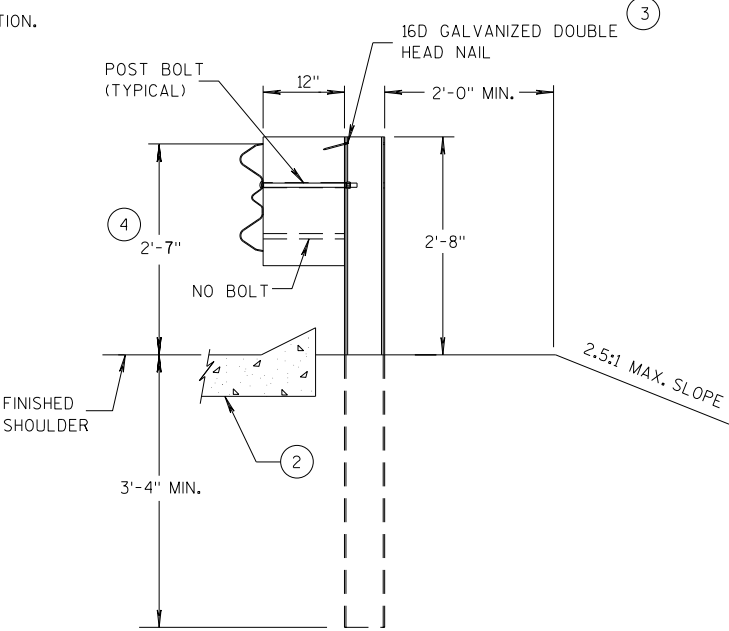
- 2 OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- 3 WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- 4 TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".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



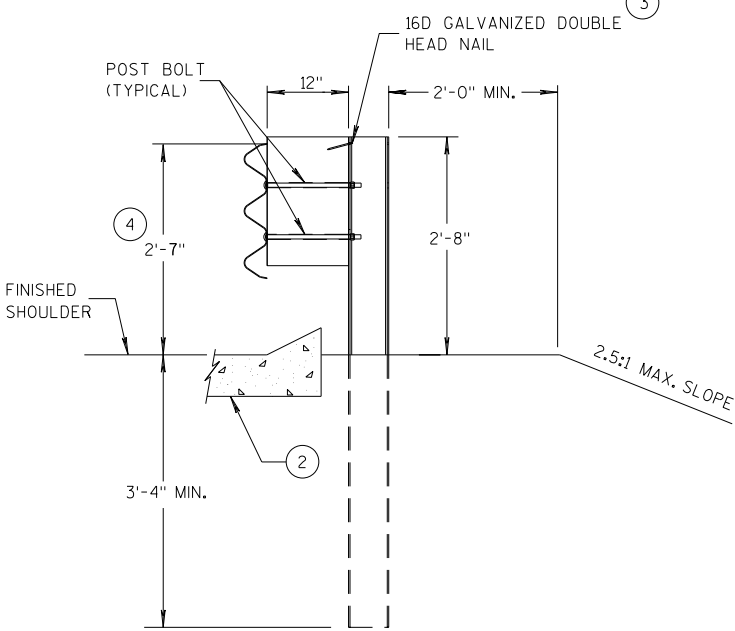
SECTION A-A
POSTS 1-5



SECTION D-D
POSTS 12-17



SECTION B-B
POST 6



SECTION C-C
POSTS 7-11

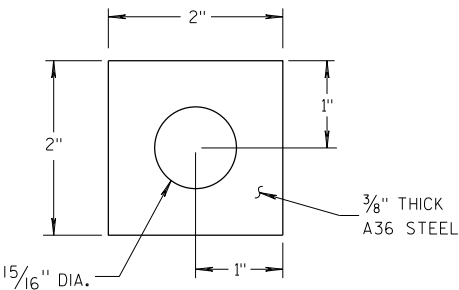
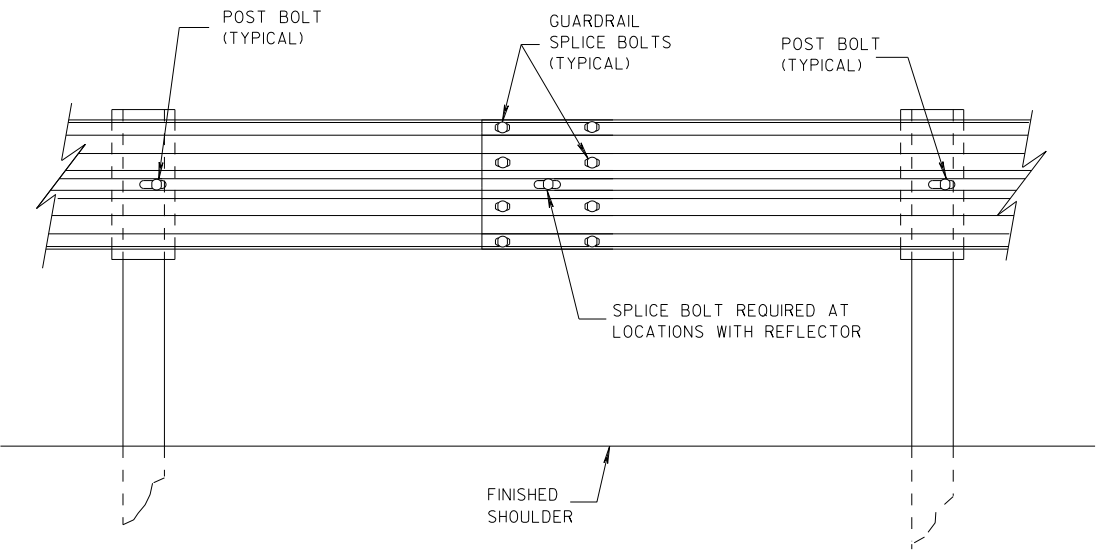
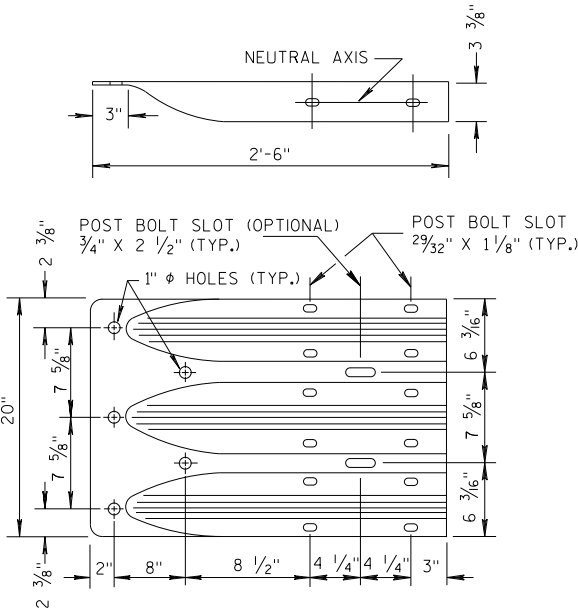


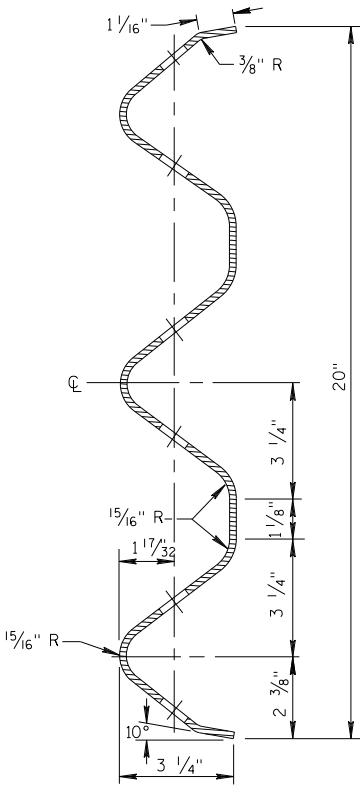
PLATE WASHER DETAIL



SPLICE DETAIL



THRIE BEAM
TERMINAL CONNECTOR

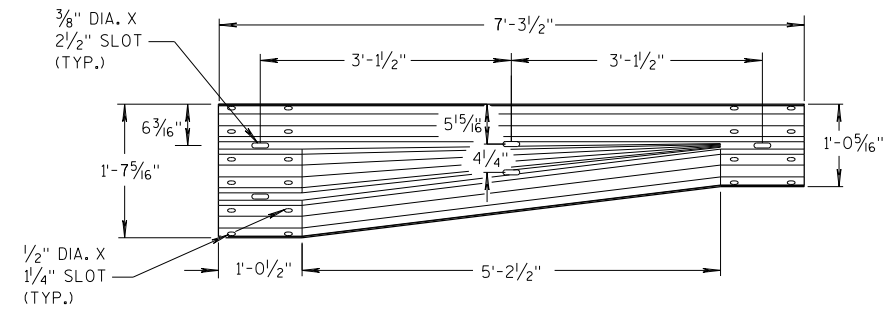


SECTION THRU THRIE
BEAM RAIL ELEMENT

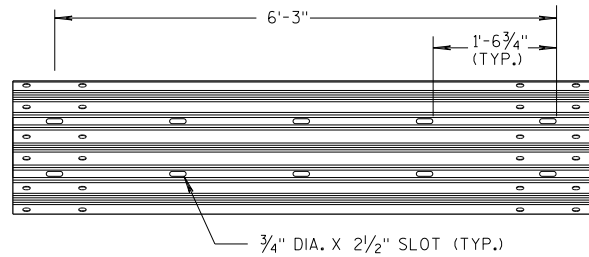
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

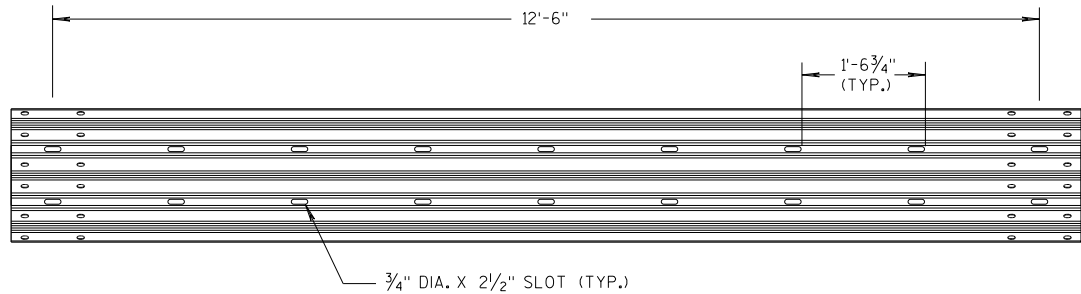
144



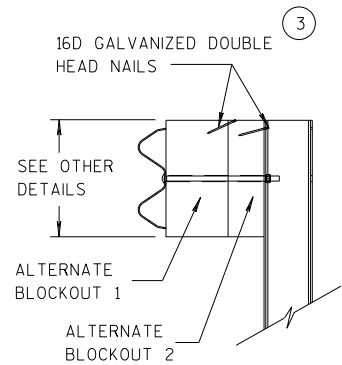
W-BEAM TO THRIE BEAM TRANSITION SECTION



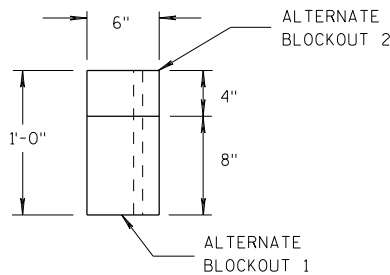
6'-3" THRIE BEAM SECTION



12'-6" THRIE BEAM SECTION

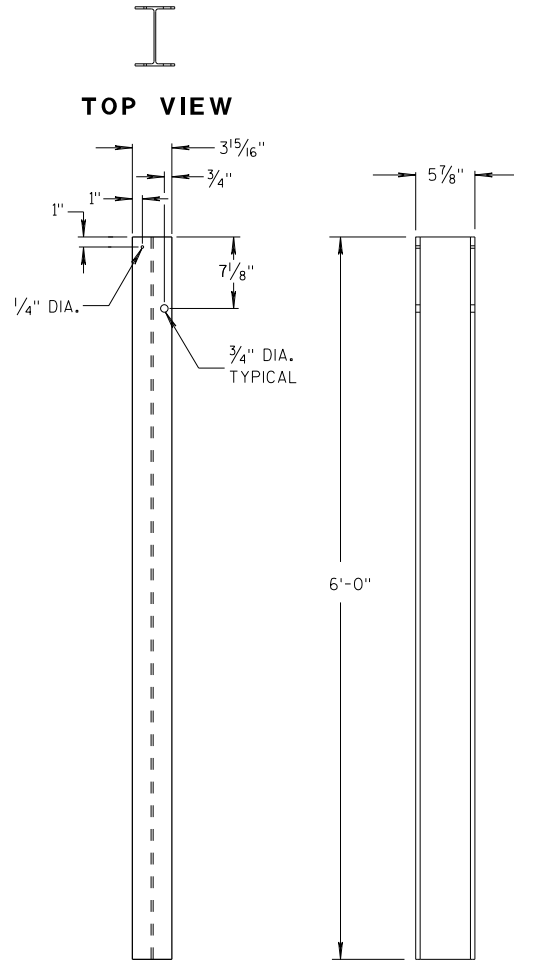


SIDE VIEW



TOP VIEW

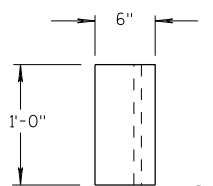
ALTERNATE WOOD BLOCKOUT DETAIL



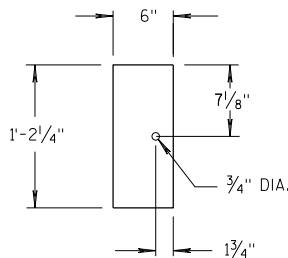
FRONT VIEW

SIDE VIEW

STEEL POSTS 1-5

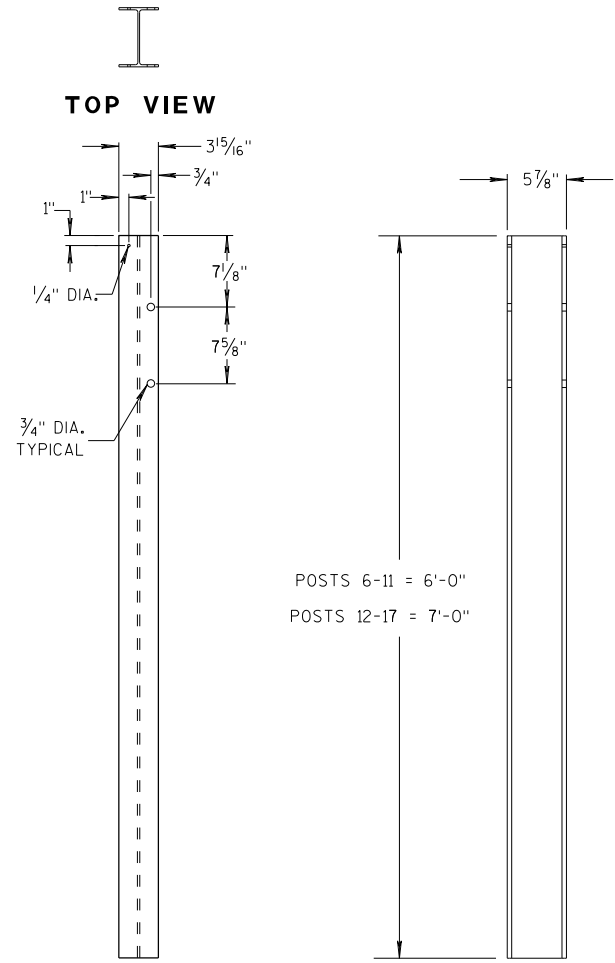


TOP VIEW



FRONT VIEW

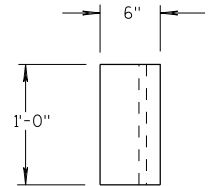
BLOCKOUT POSTS 1-5



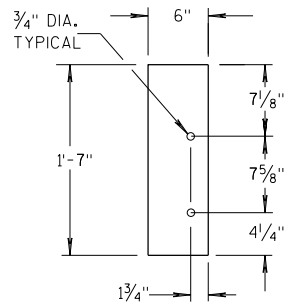
FRONT VIEW

SIDE VIEW

STEEL POSTS 6-17



TOP VIEW



FRONT VIEW

BLOCKOUT POSTS 6-17

GENERAL NOTES

STEEL POSTS ARE W6X9 OR W6X8.5.

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

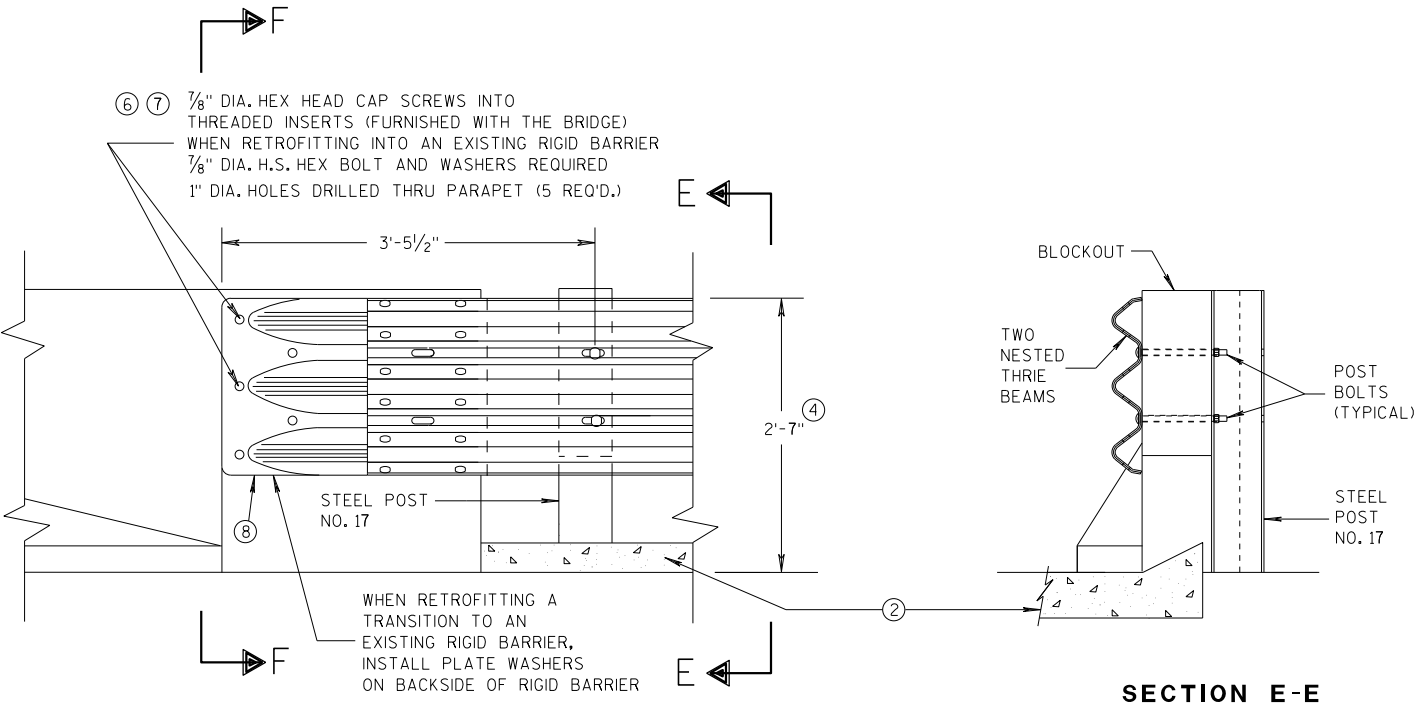
③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

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

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

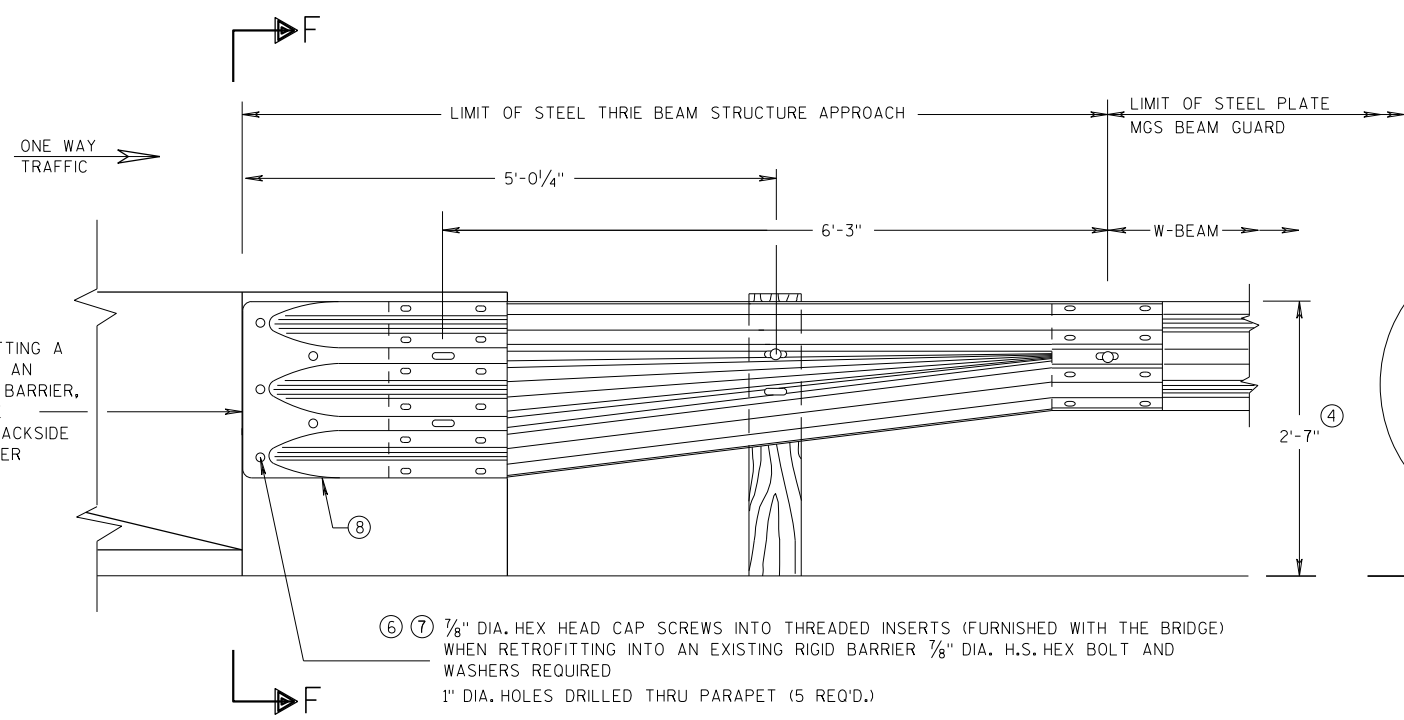
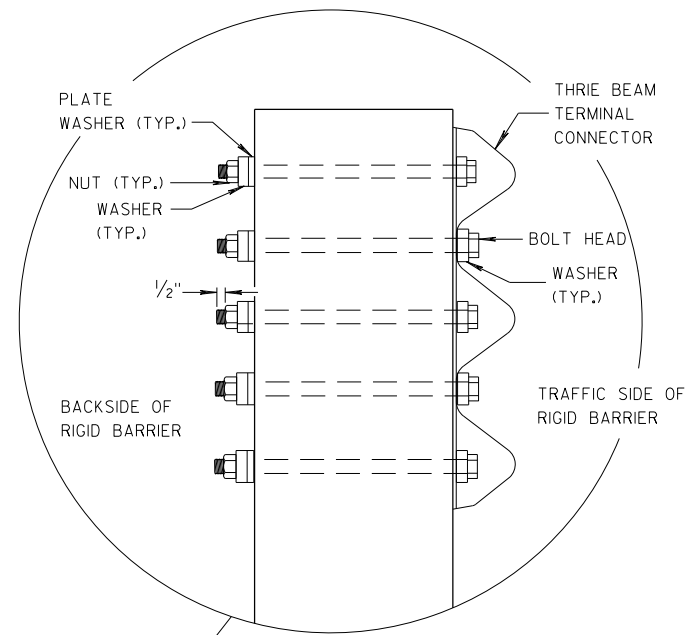
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

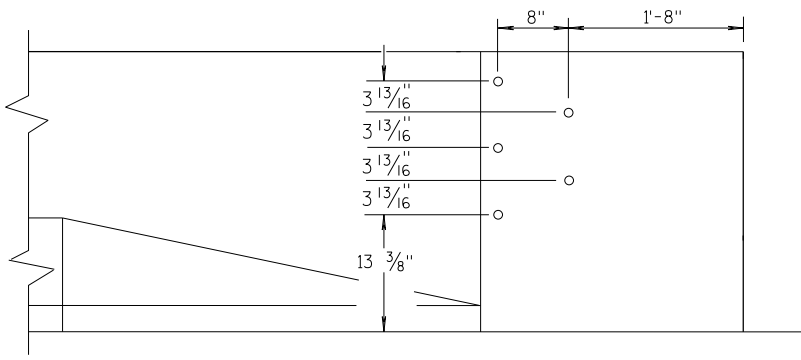


GENERAL NOTES

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



SECTION F-F

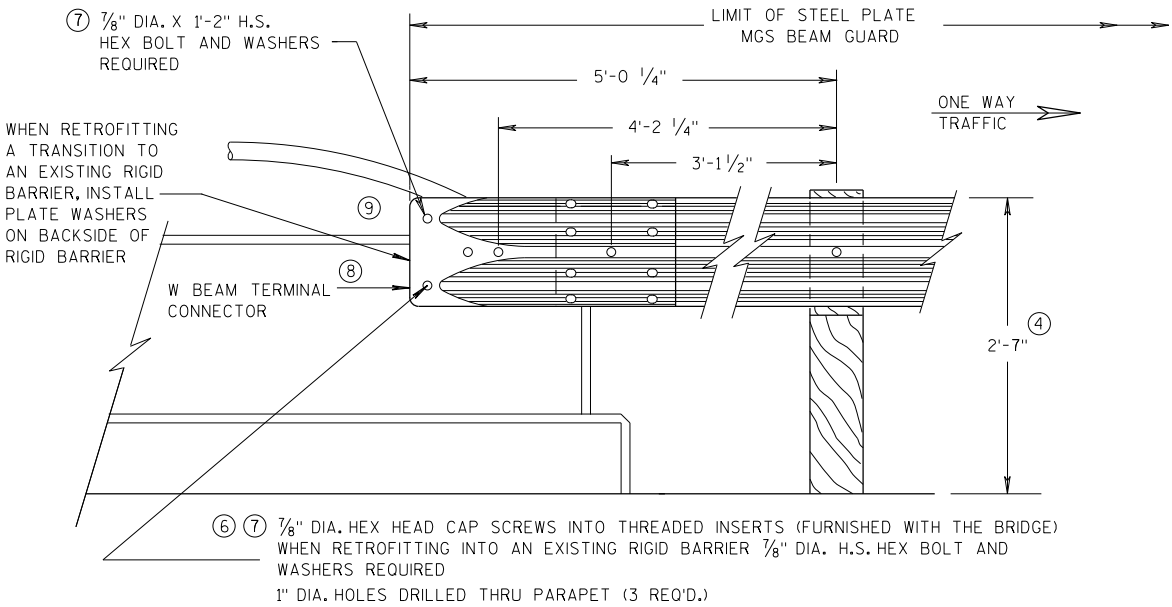


MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS UNIT SUPERVISOR		
FHWA	146	NT	

GENERAL NOTES

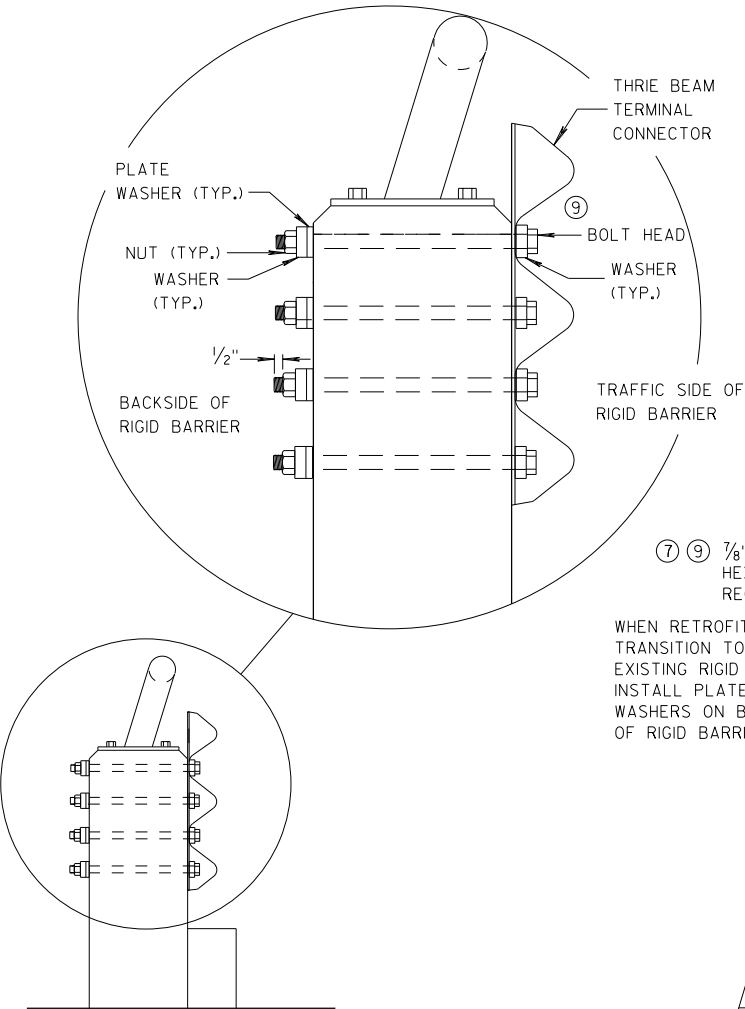
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

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

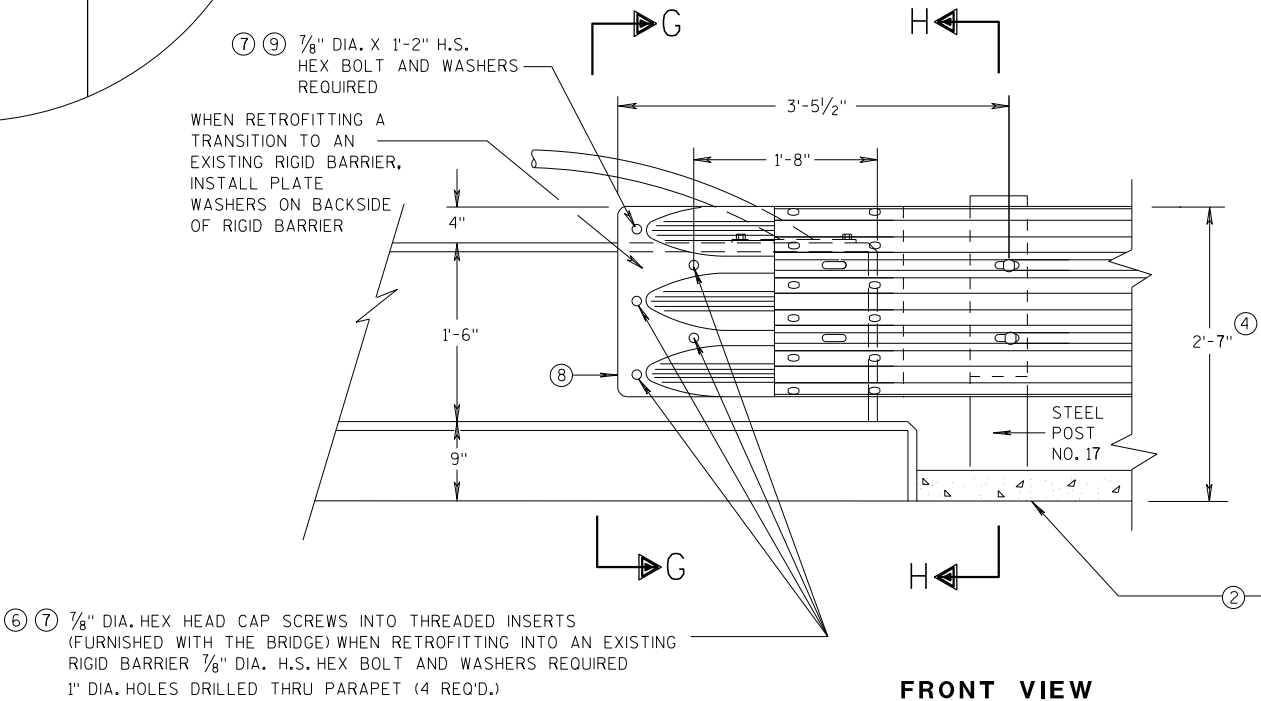


FRONT VIEW

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

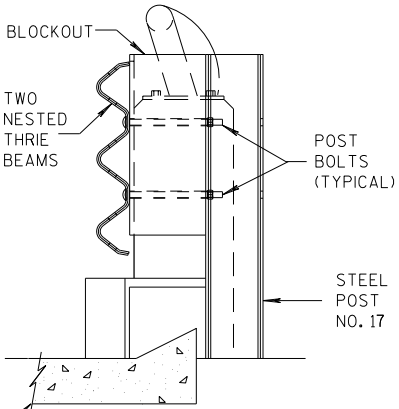


SECTION G-G



FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

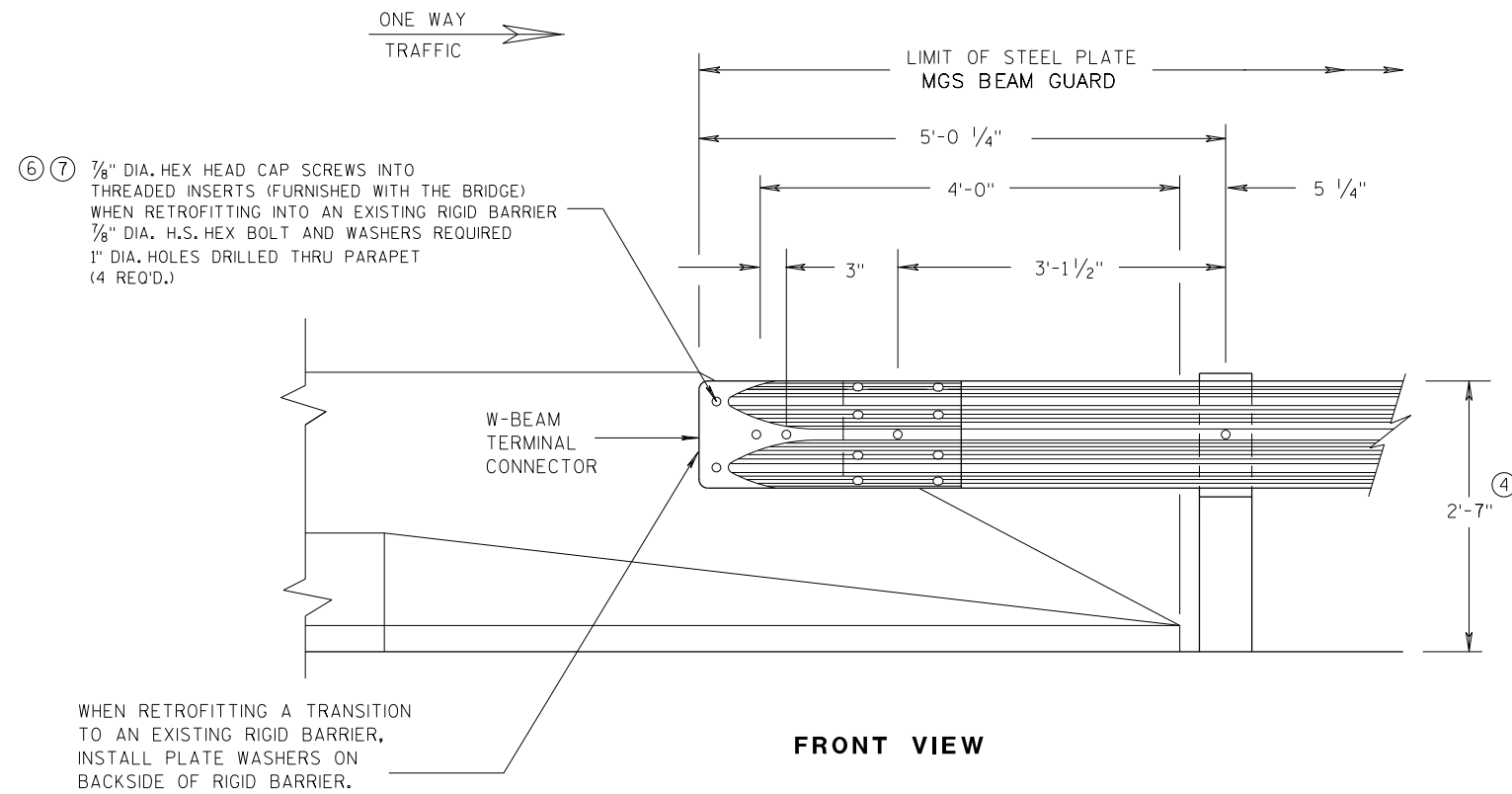


SECTION H-H

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

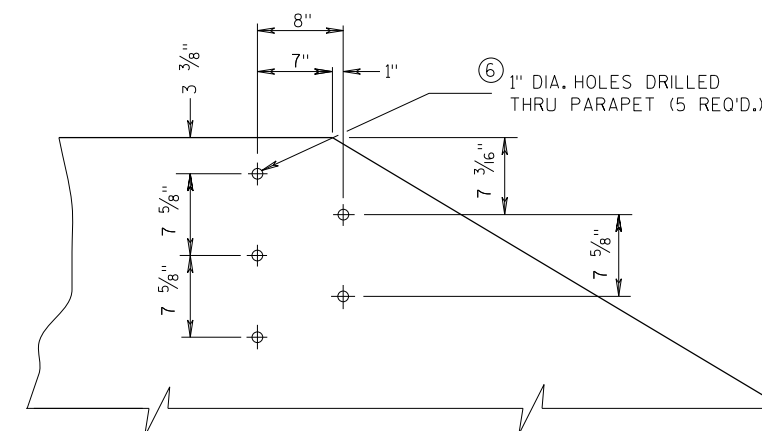
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07/2018
DATE
/S/ Rodney Taylor
ROADWAY STANDARDS UNIT SUPERVISOR
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FHWA



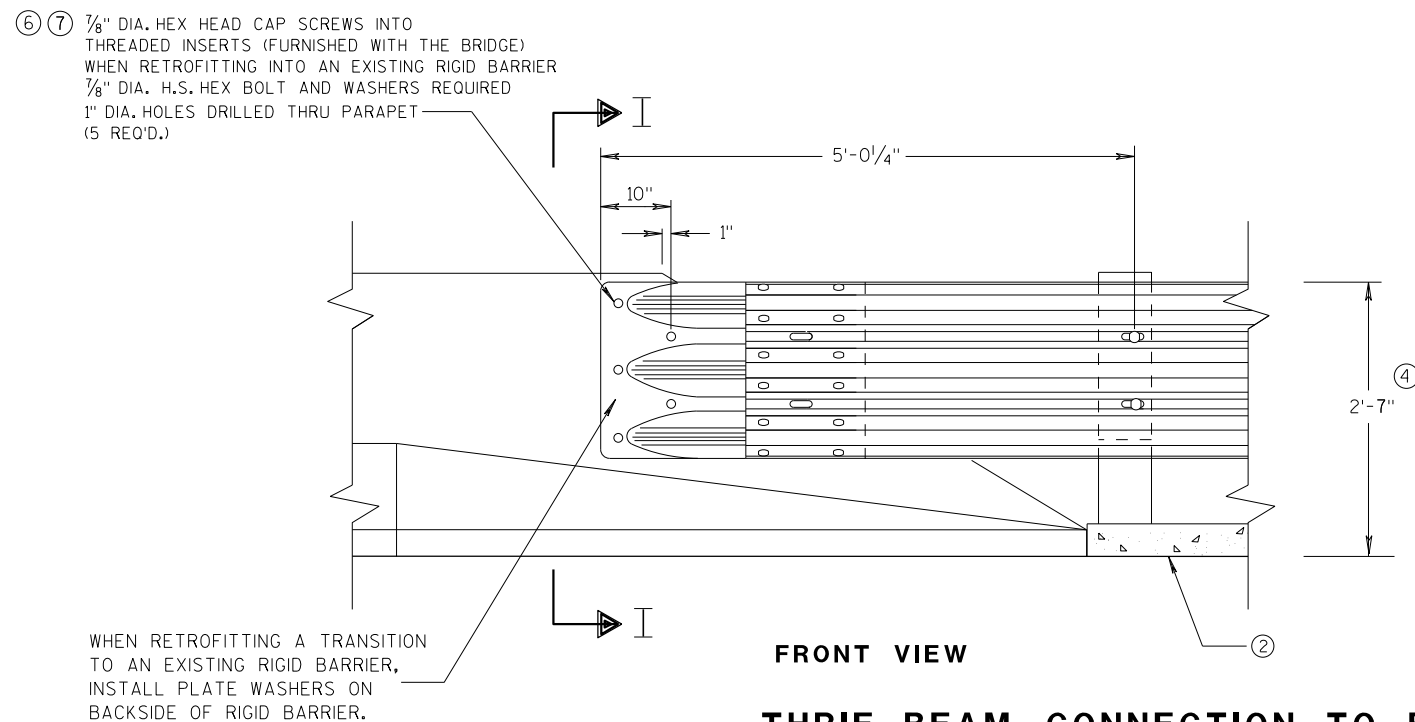
**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

GENERAL NOTES

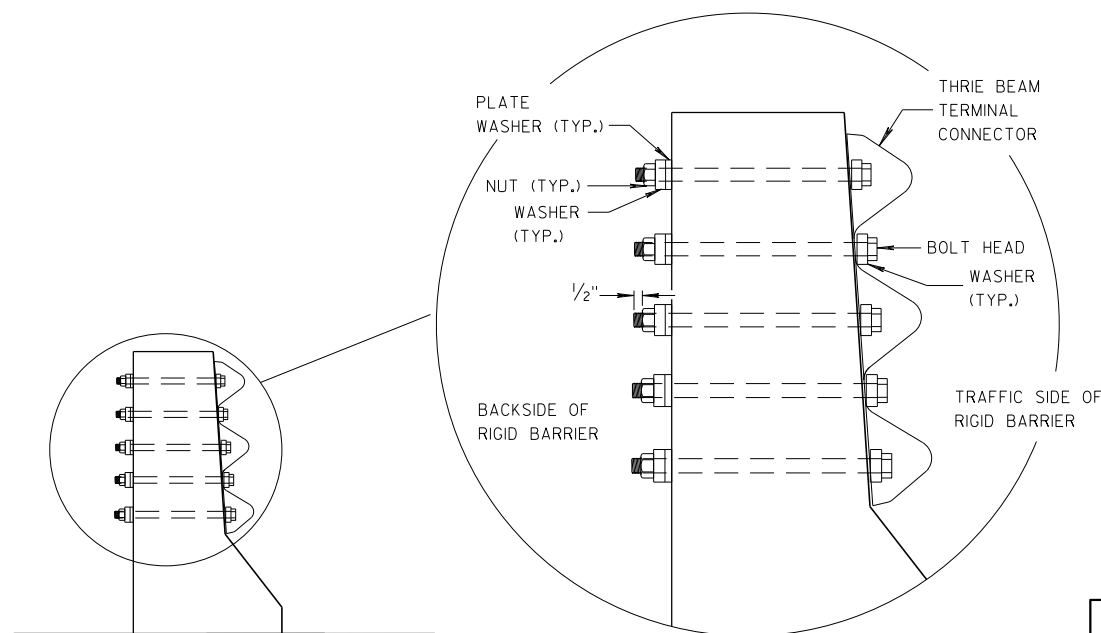
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ⑦ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH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



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



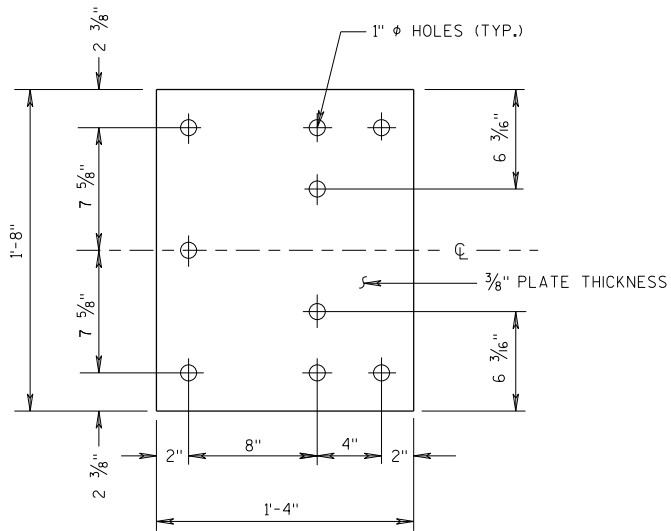
**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**



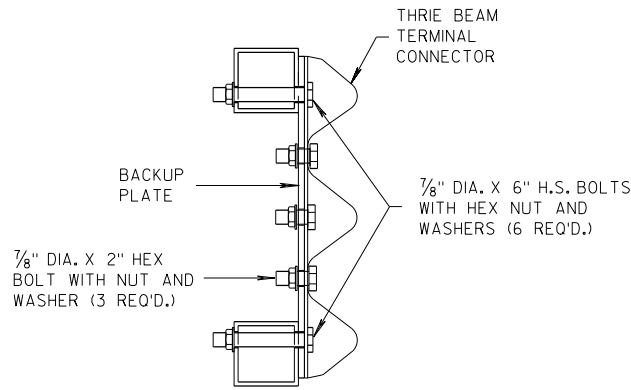
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

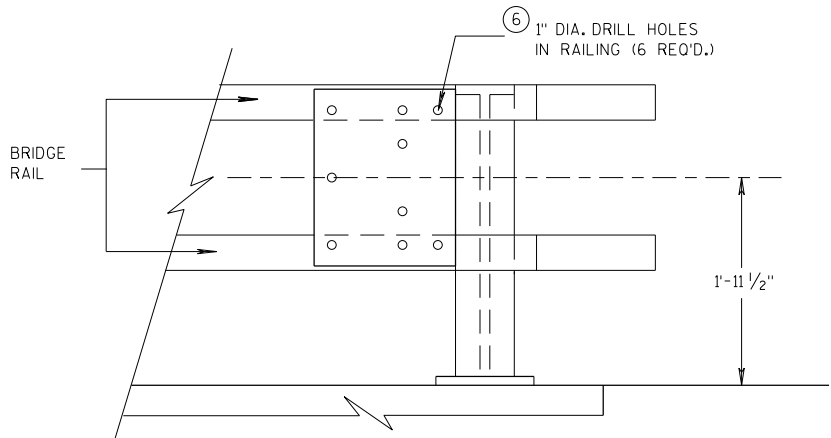
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DATE ROADWAY STANDARDS UNIT SUPERVISOR
FHWA 148



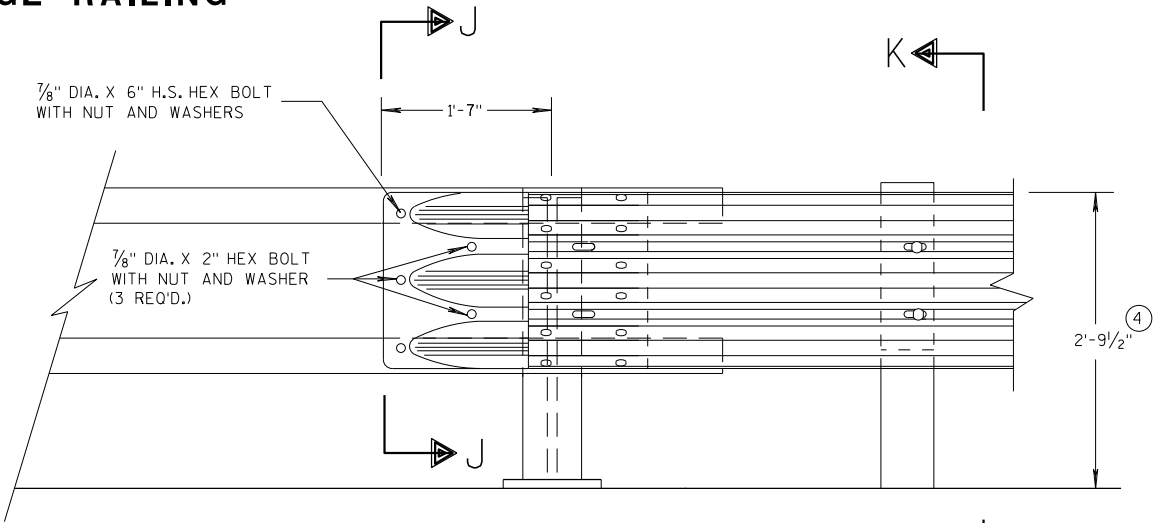
BACK-UP PLATE DETAIL



SECTION J-J

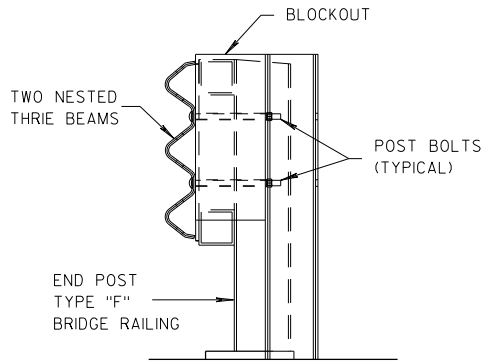


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

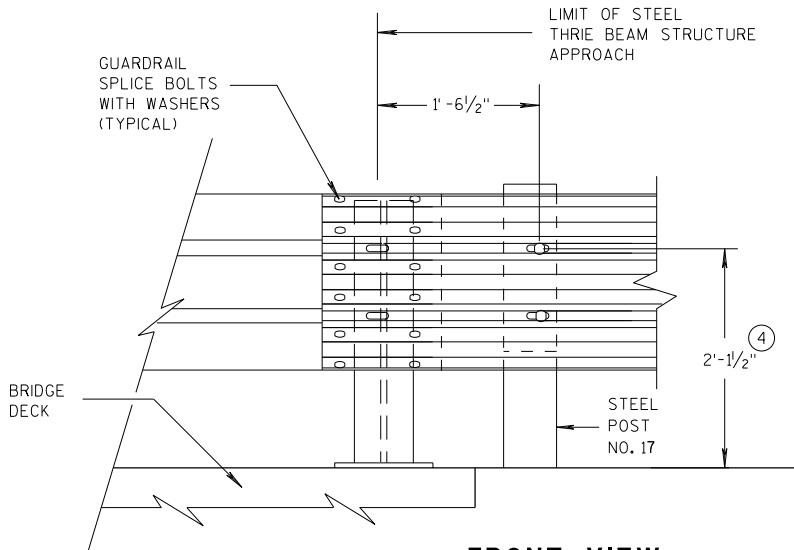
THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"



SECTION K-K

GENERAL NOTES

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



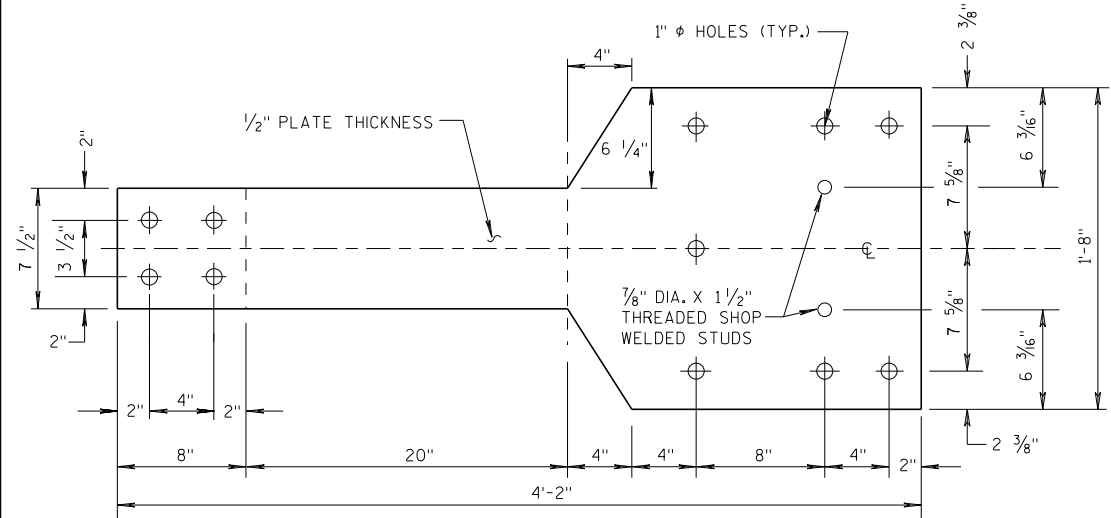
FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

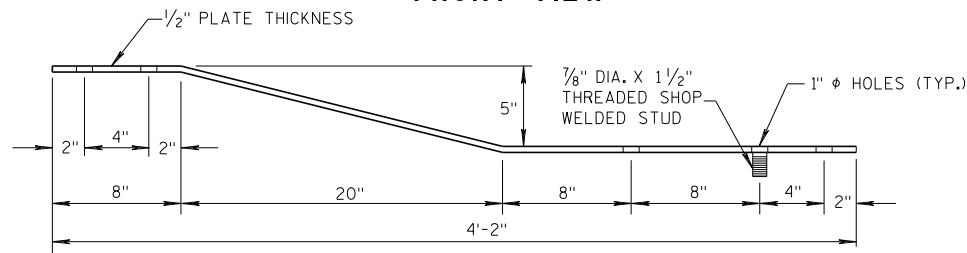
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)		
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION		
APPROVED 07/2018	/S/ Rodney Taylor	149
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FHWA		

GENERAL NOTES

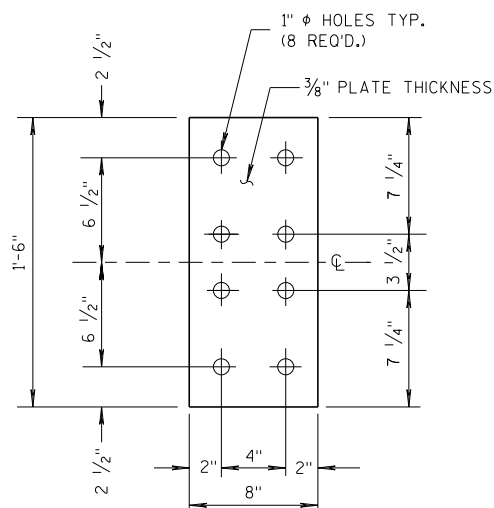
④ TOLERANCE FOR TOP OF W-BEAM RAIL IS $\pm 1"$.



FRONT VIEW

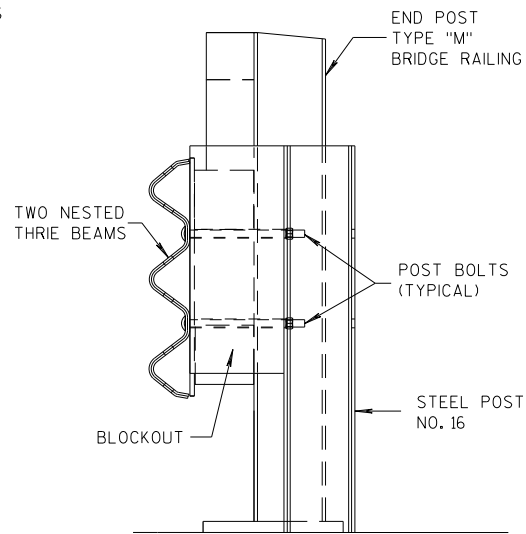


**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**

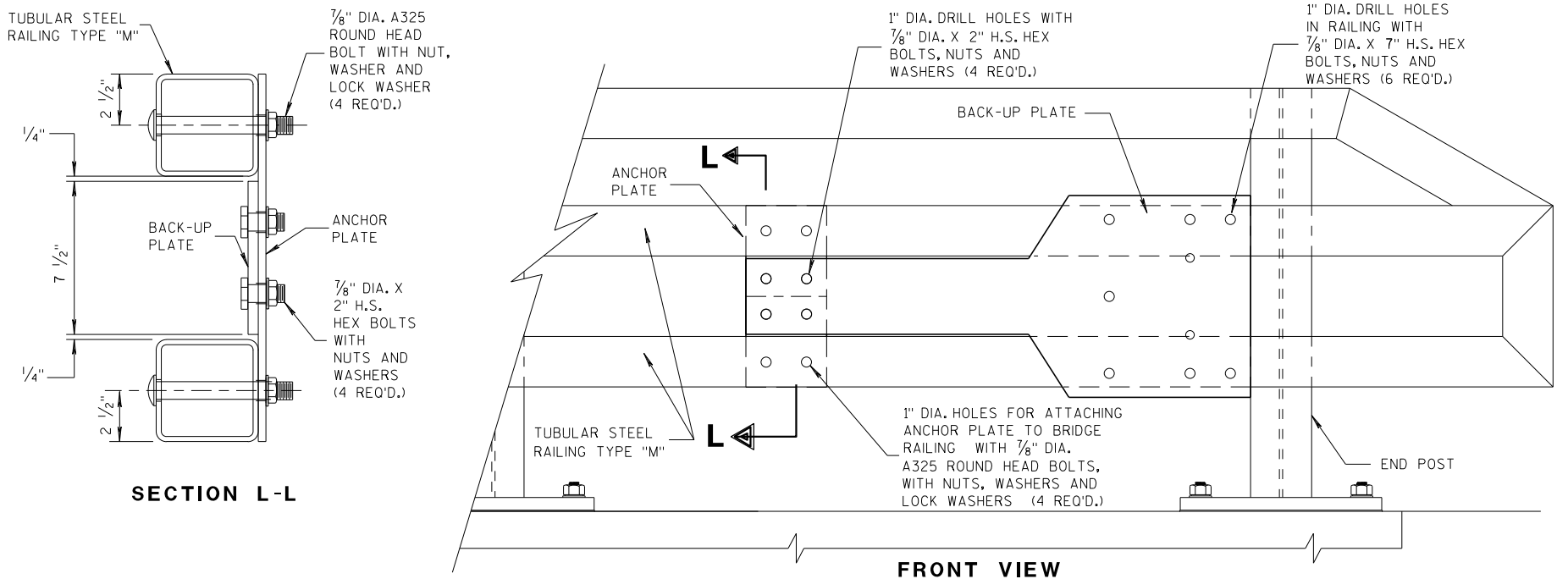


FRONT VIEW

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



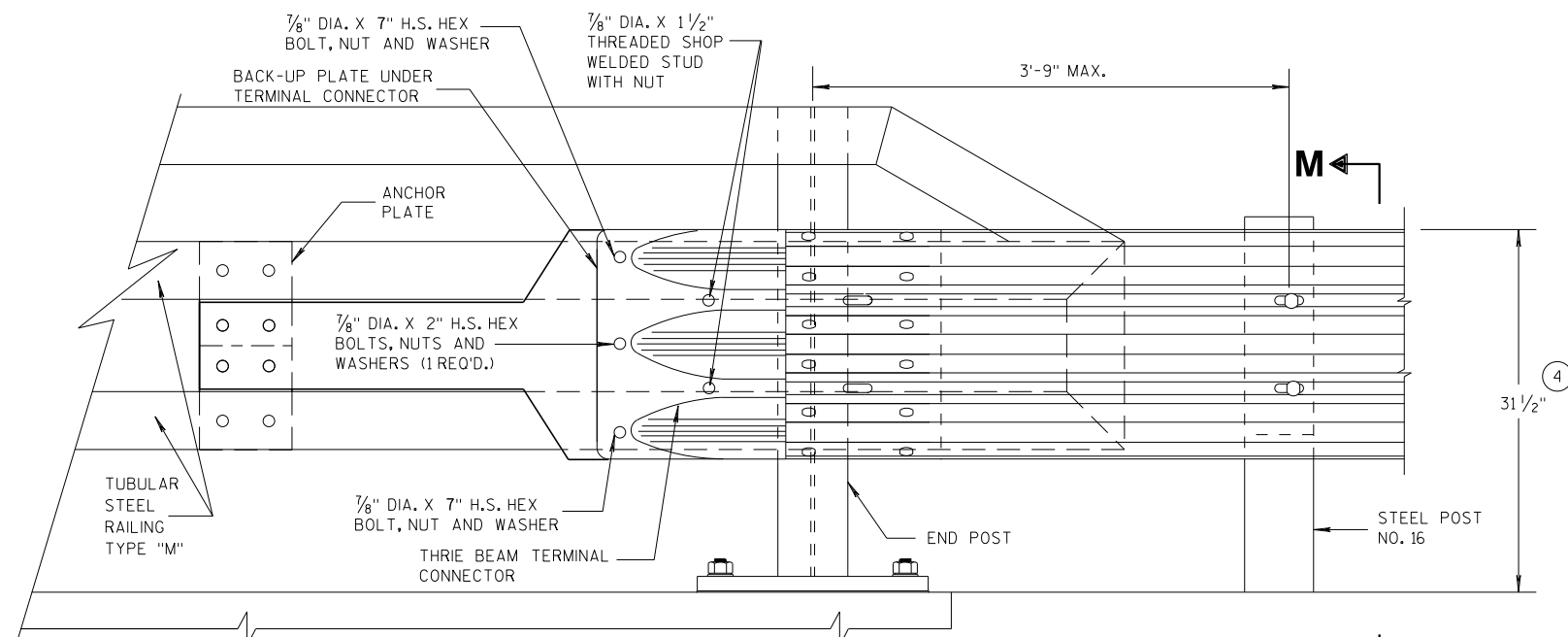
SECTION M-M



SECTION L-L

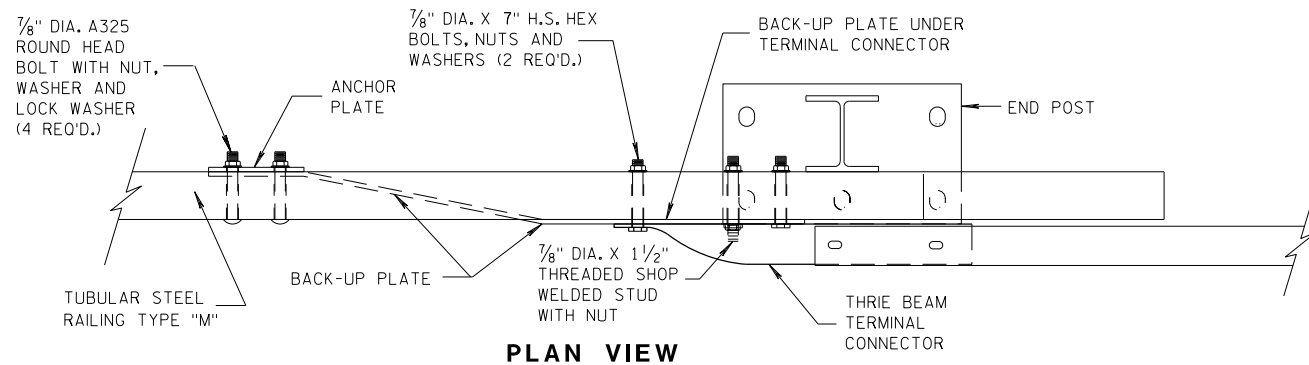
FRONT VIEW

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



FRONT VIEW

M-M



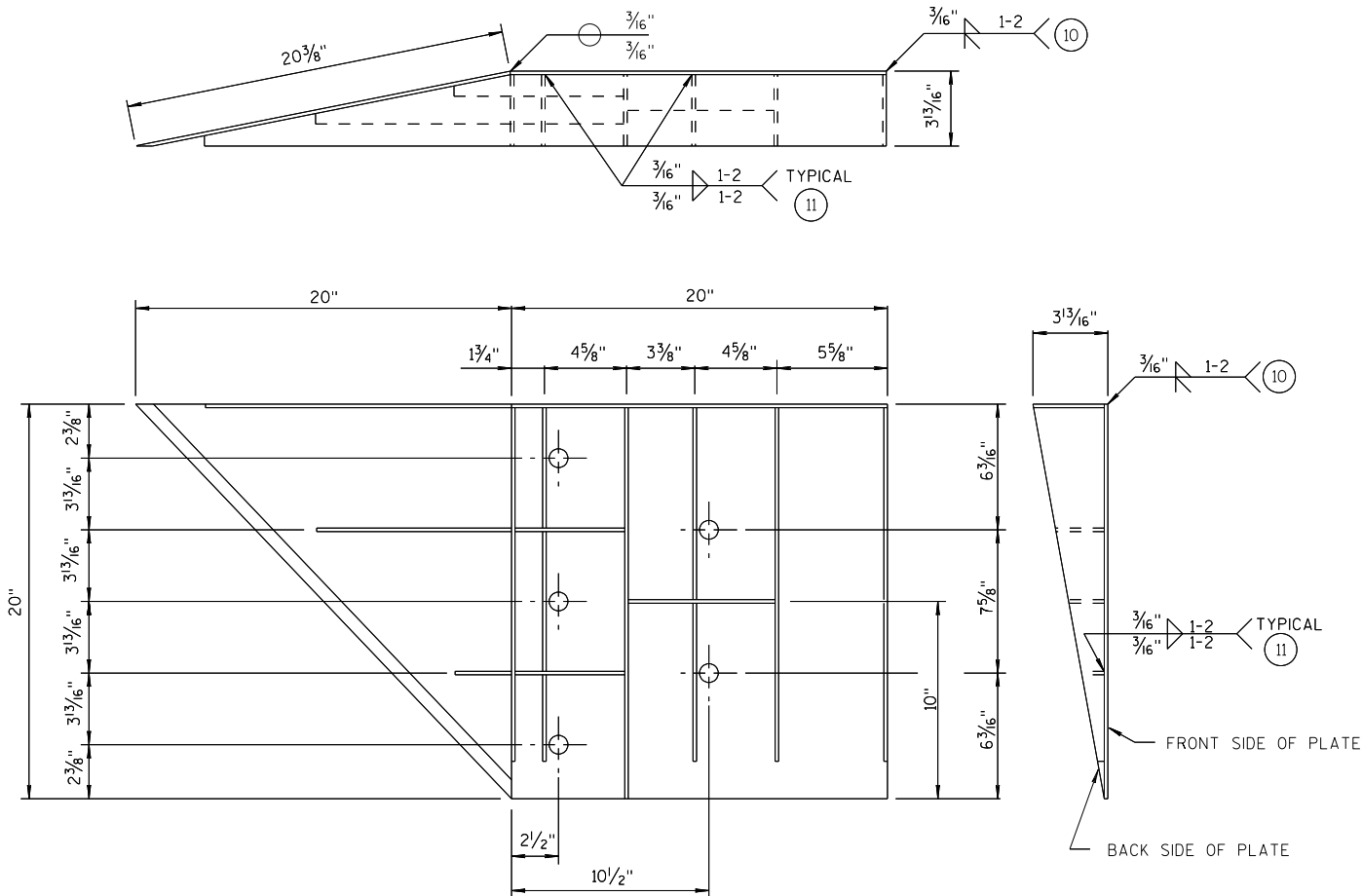
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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07/2018 /S/ Rodney Taylor
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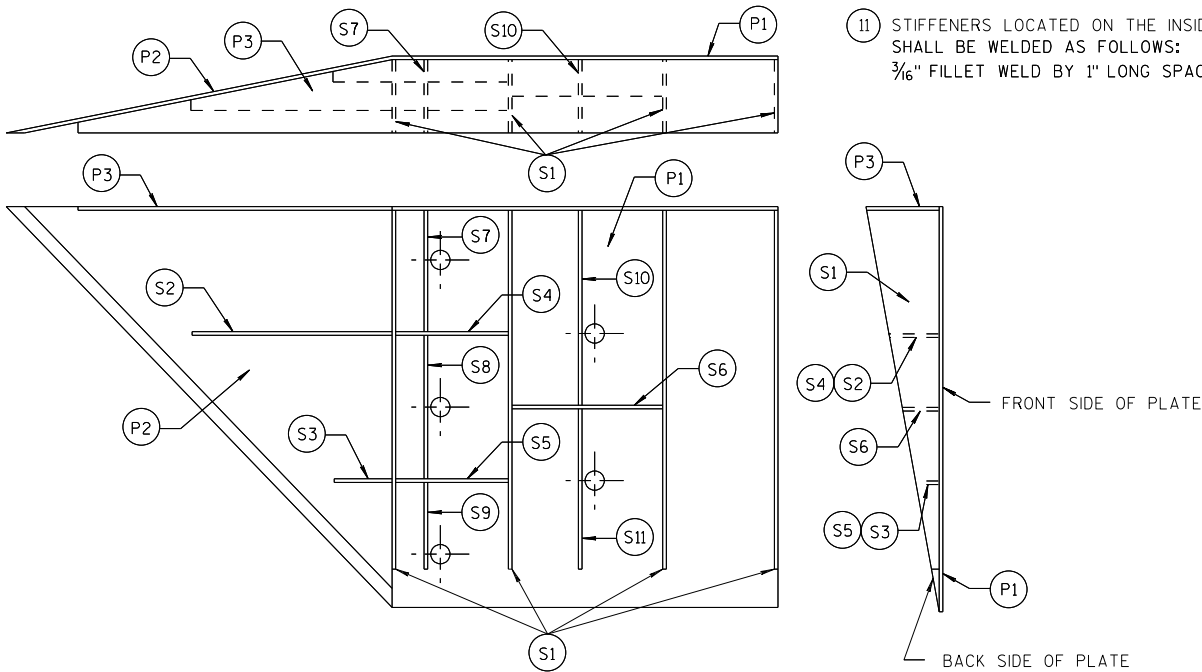


WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

SINGLE SLOPE CONNECTION PLATE

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

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



GENERAL NOTES

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

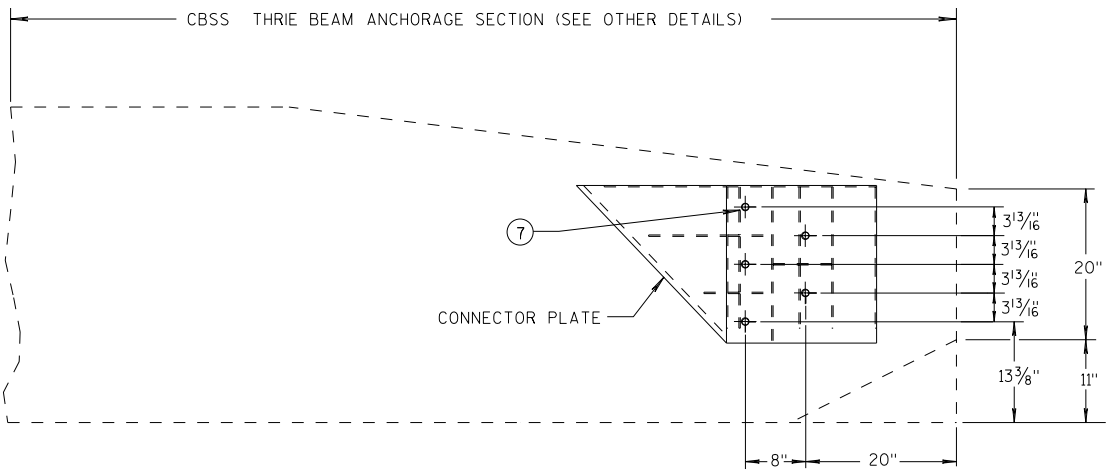
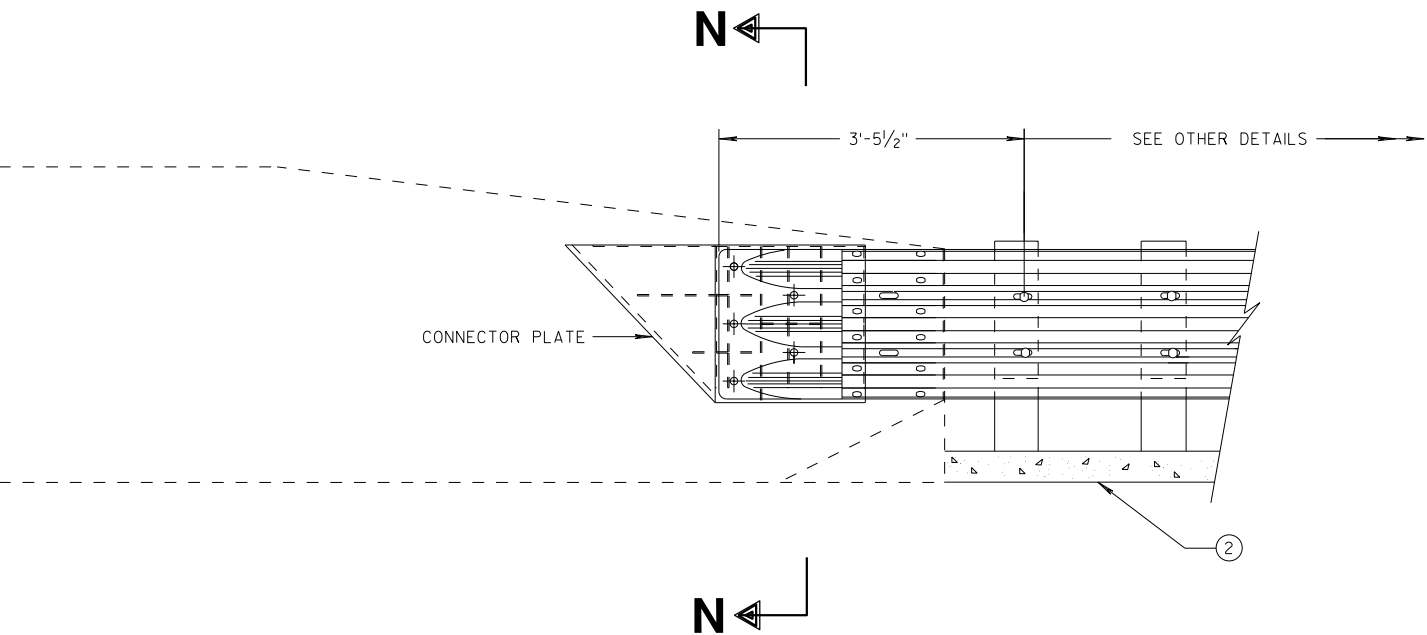
- STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

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151
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THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



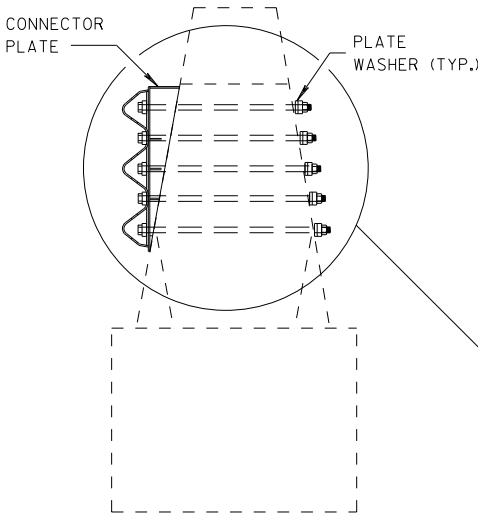
SINGLE SLOPE CONNECTION PLATE PLACEMENT

GENERAL NOTES

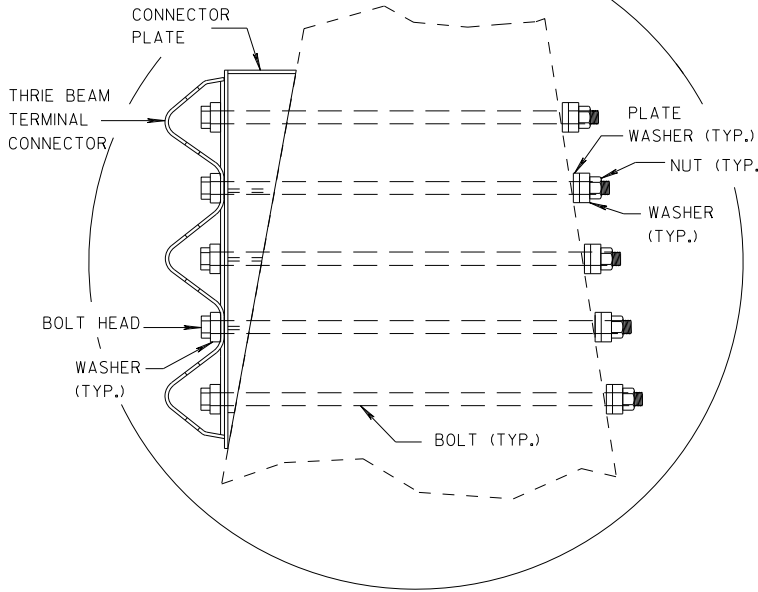
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

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

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



SECTION N-N



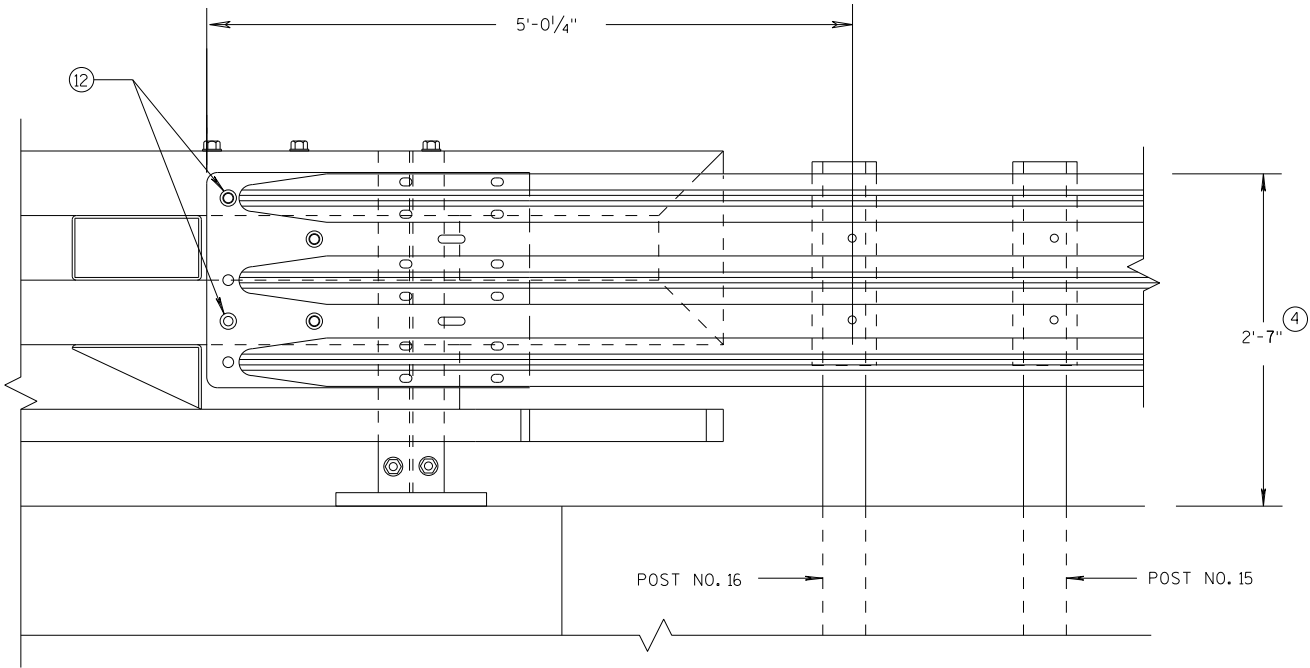
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

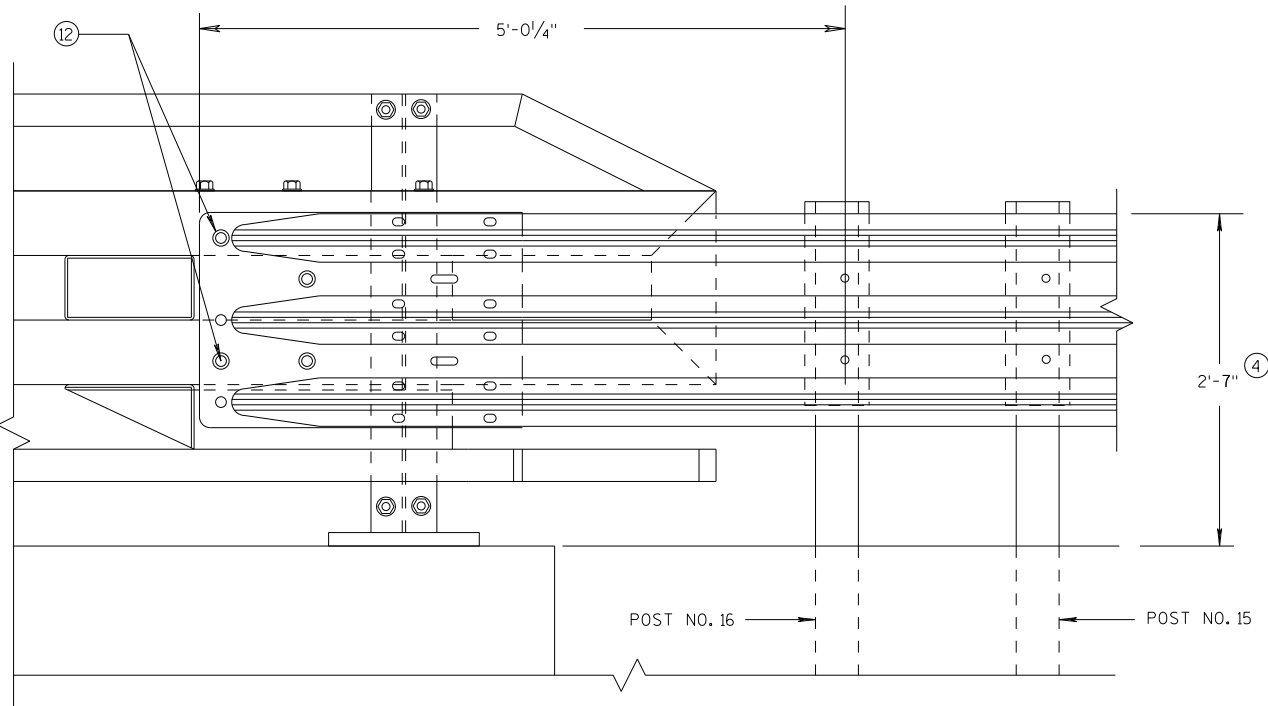
APPROVED
DATE 7/2018
ROADWAY STANDARDS DIVISION
UNIT SUPERVISOR /S/ Rodney Taylor
152
FHWA

GENERAL NOTES

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



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT

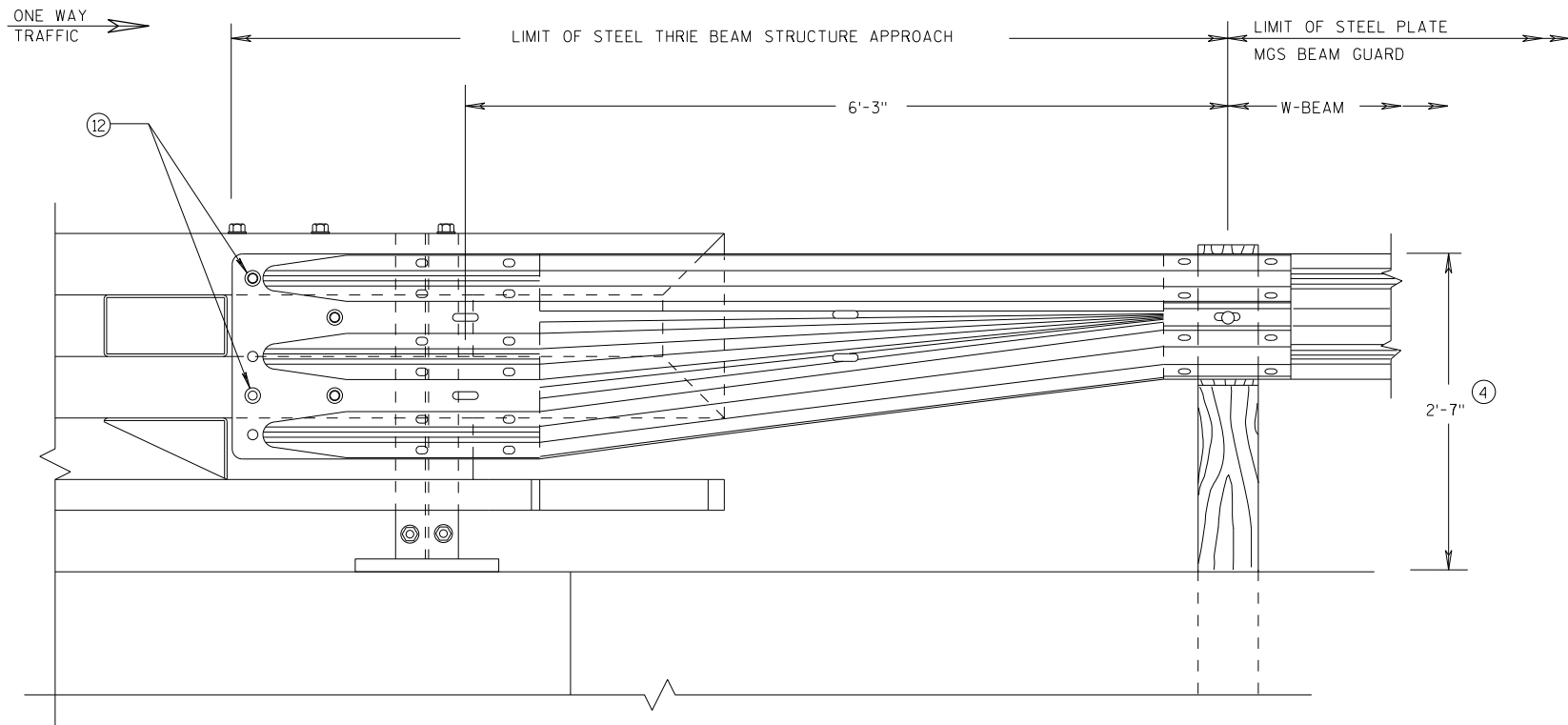


ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Rodney Taylor
DATE	7/2018
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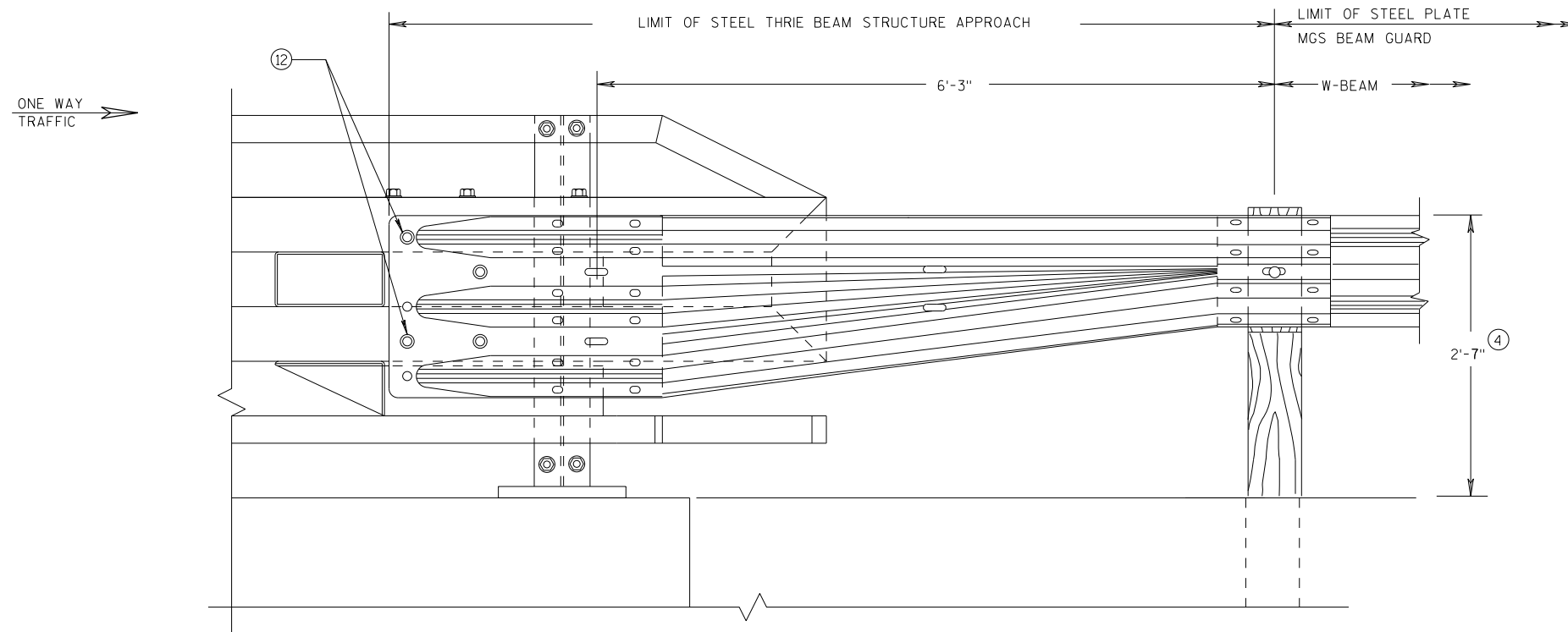
GENERAL NOTES

(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 "NY3" (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



FRONT VIEW

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

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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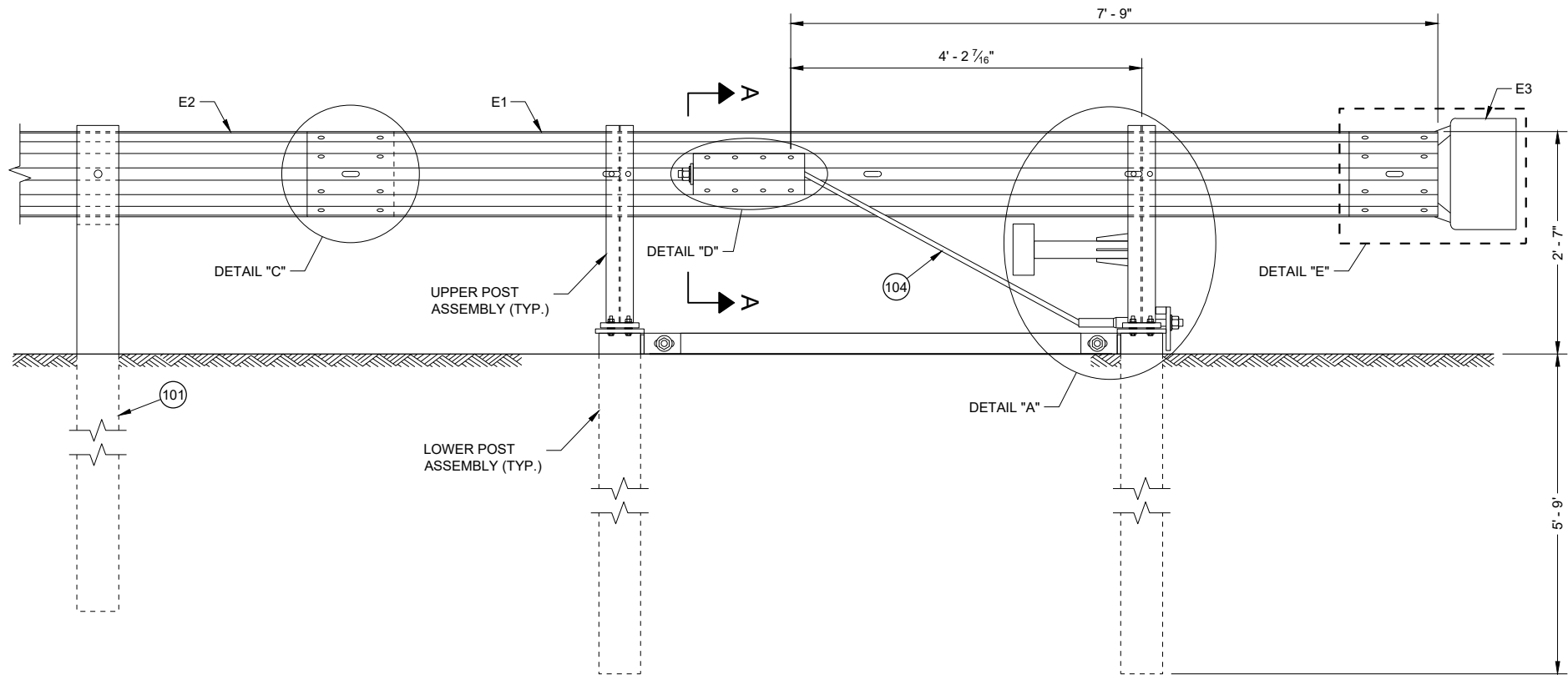
7/2018
DATE

FHWA

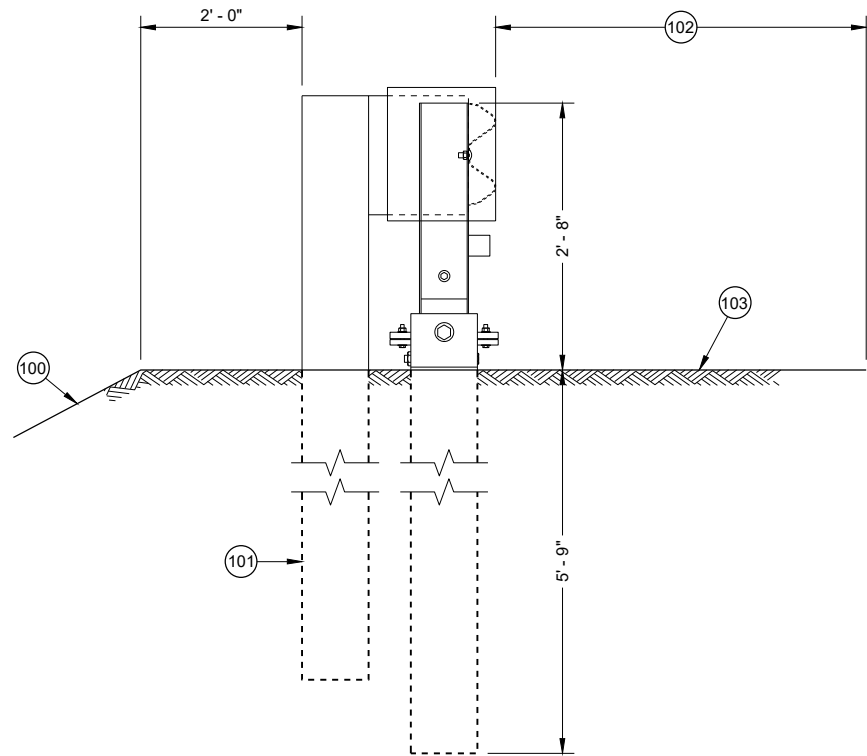
/S/ Rodney Taylor

ROADWAY STANDARDS C 154
UNIT SUPERVISOR

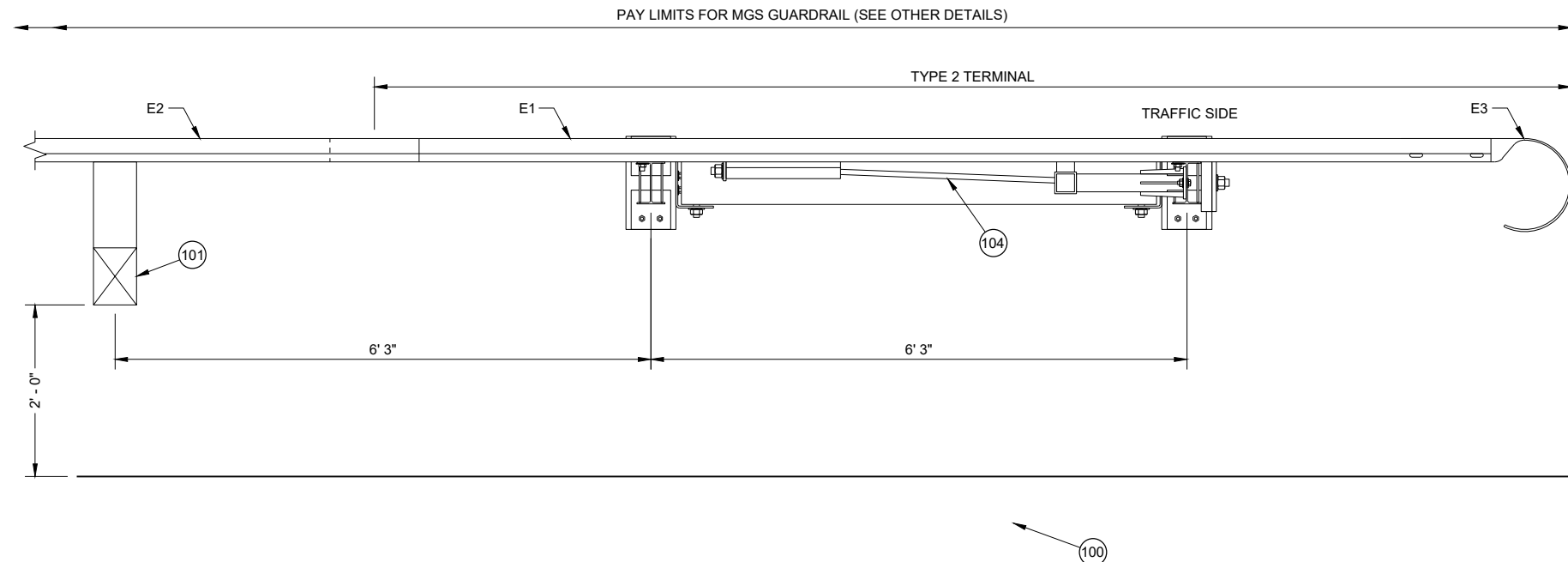
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**BACK VIEW
TYPE 2 TERMINAL**



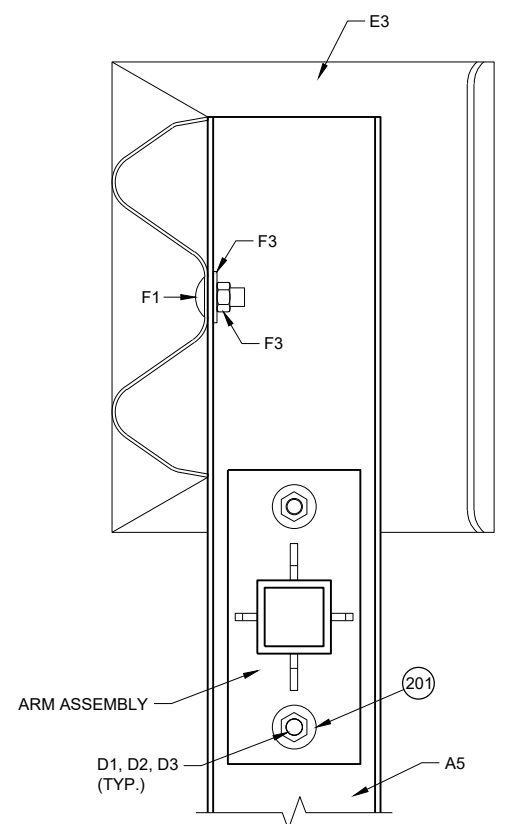
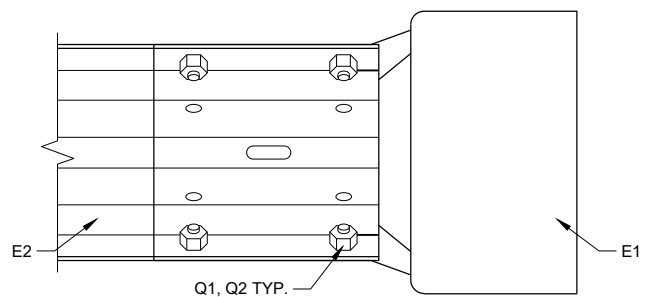
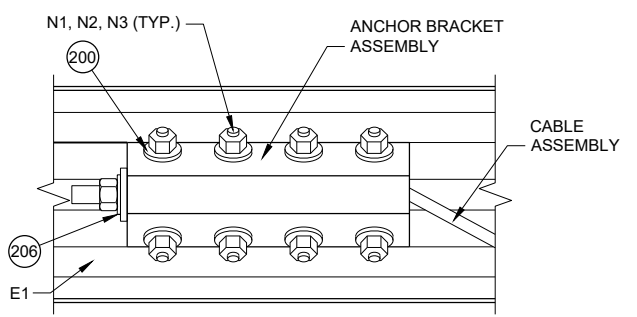
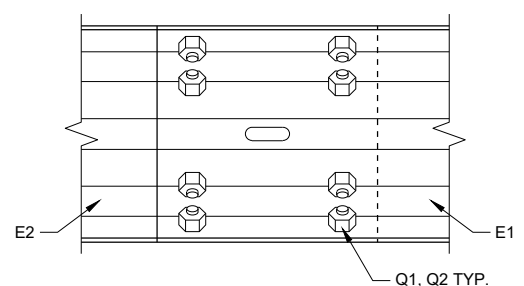
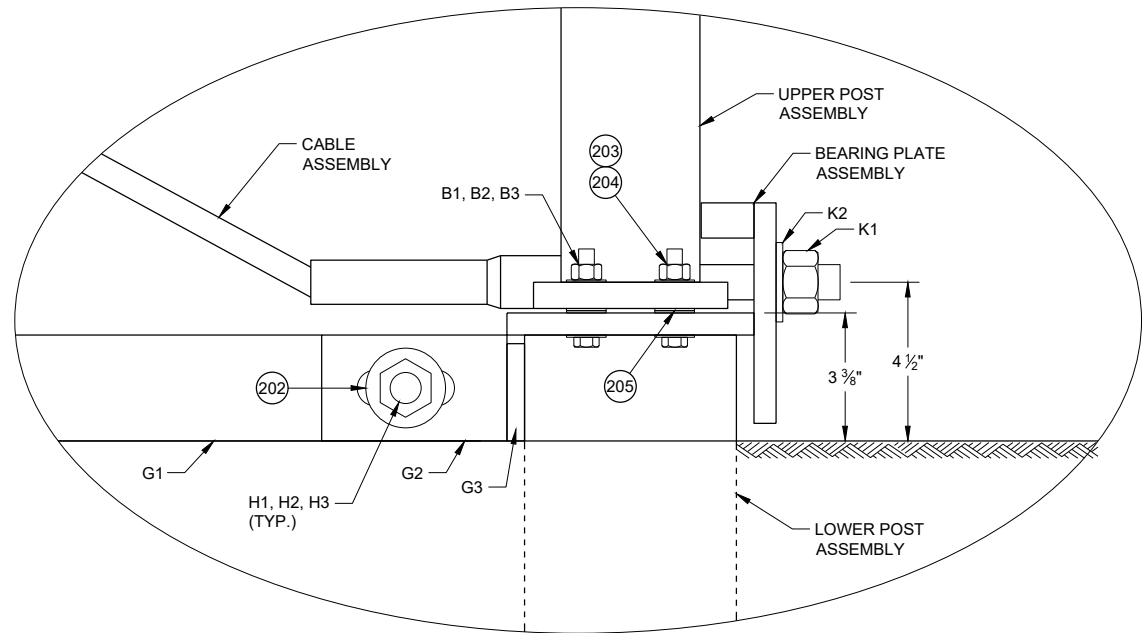
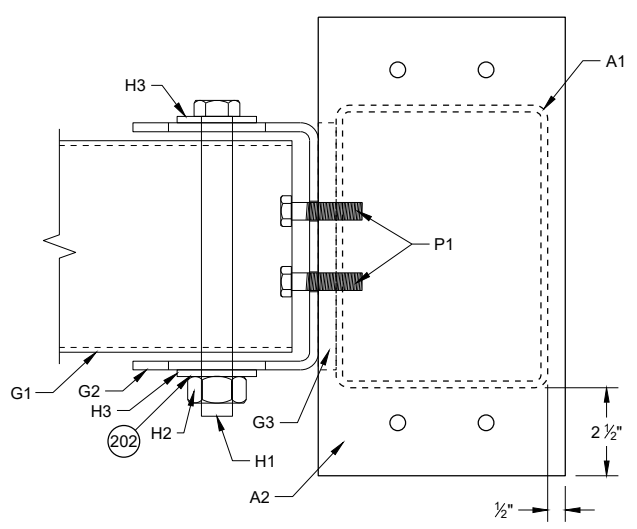
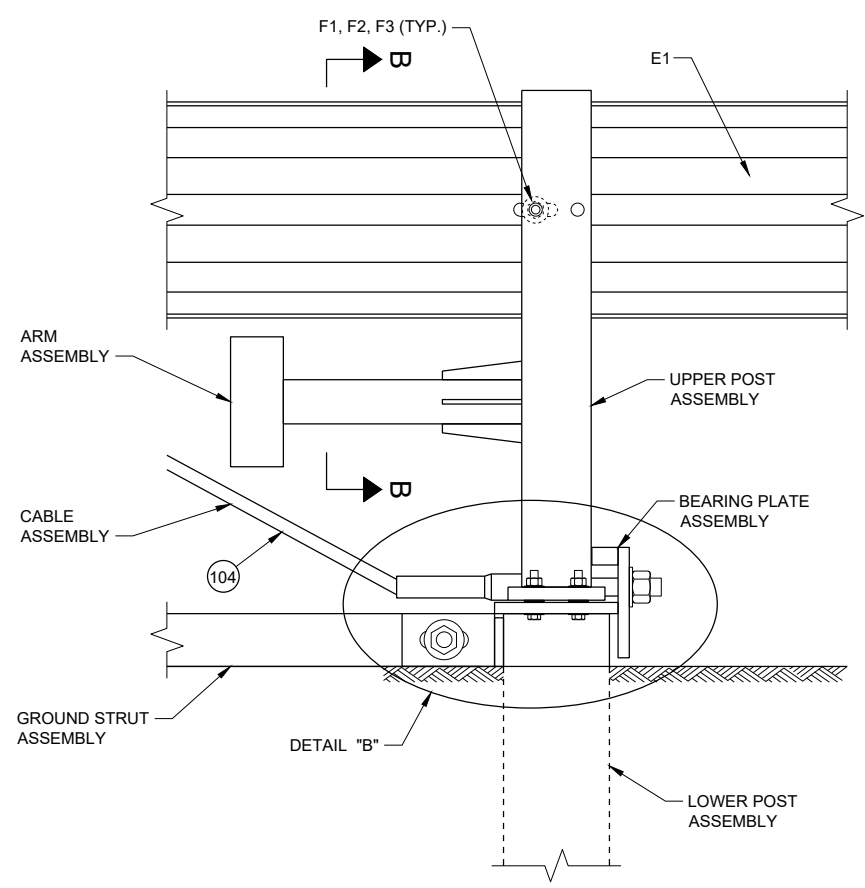
**SIDE VIEW
TYPE 2 TERMINAL**



**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 155

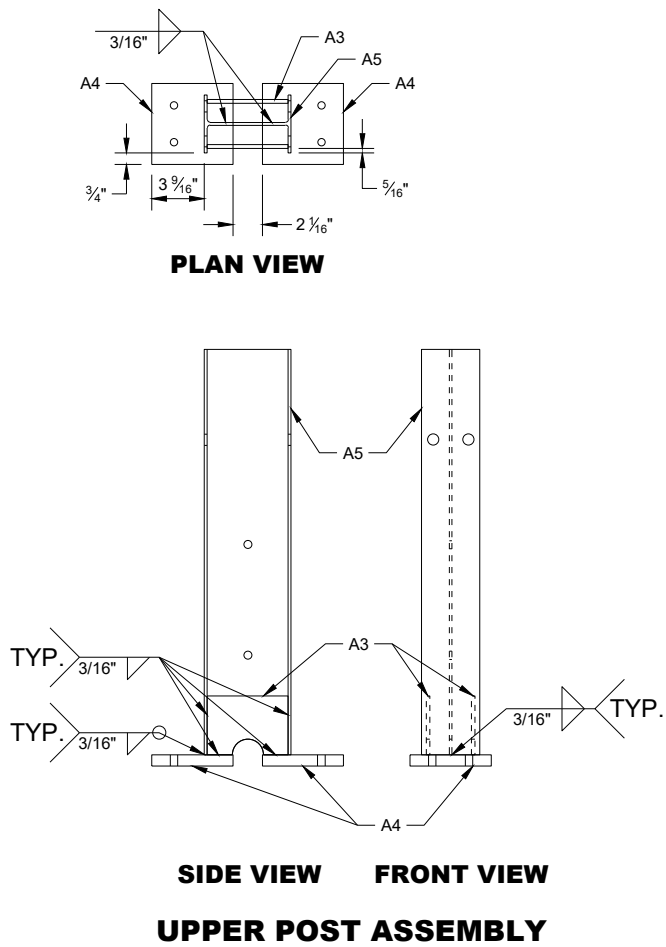
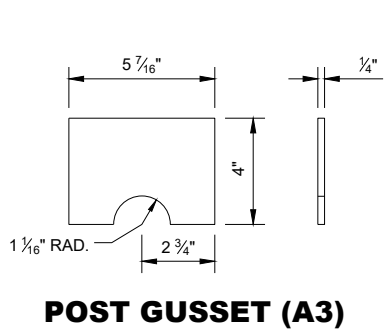
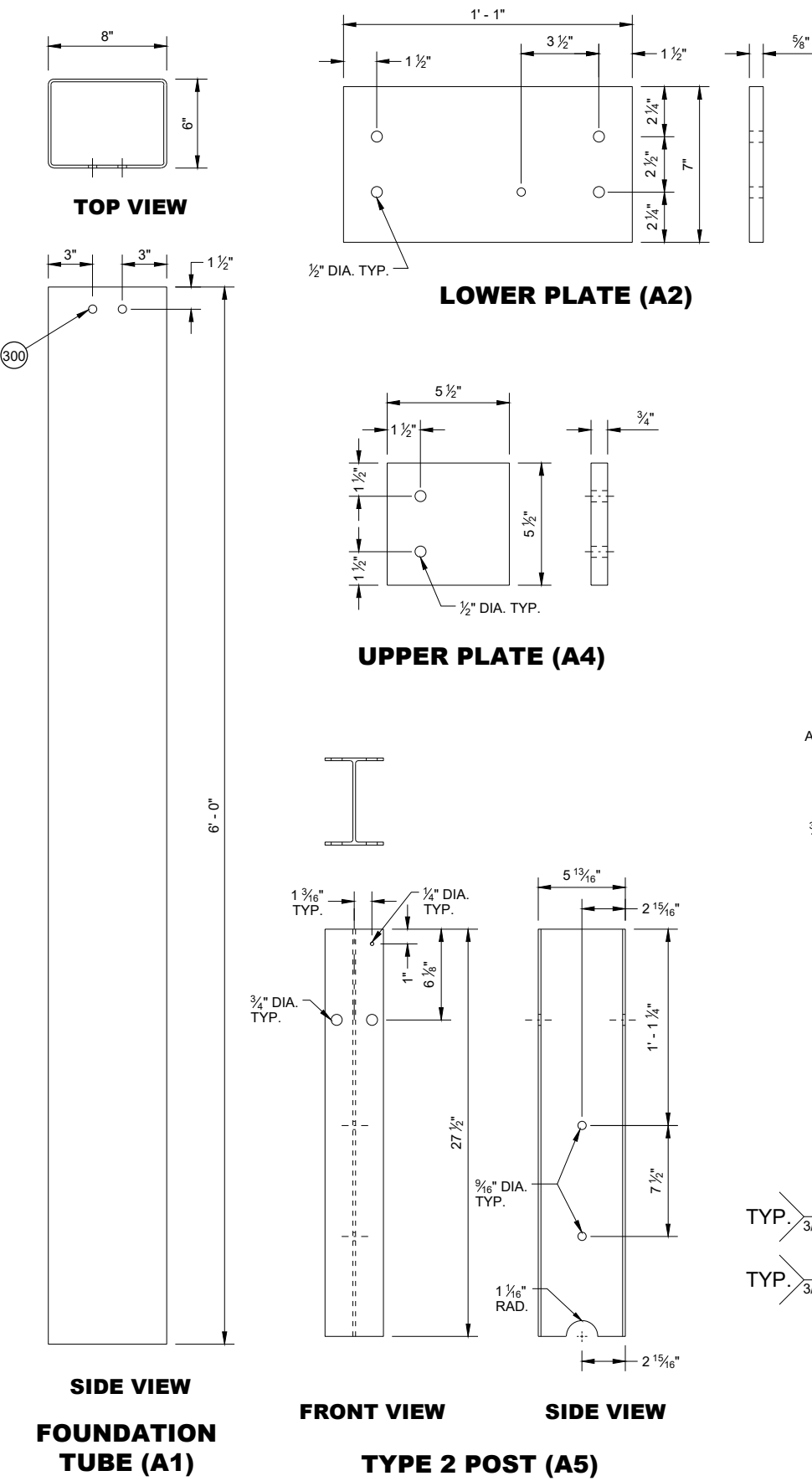


GENERAL NOTES

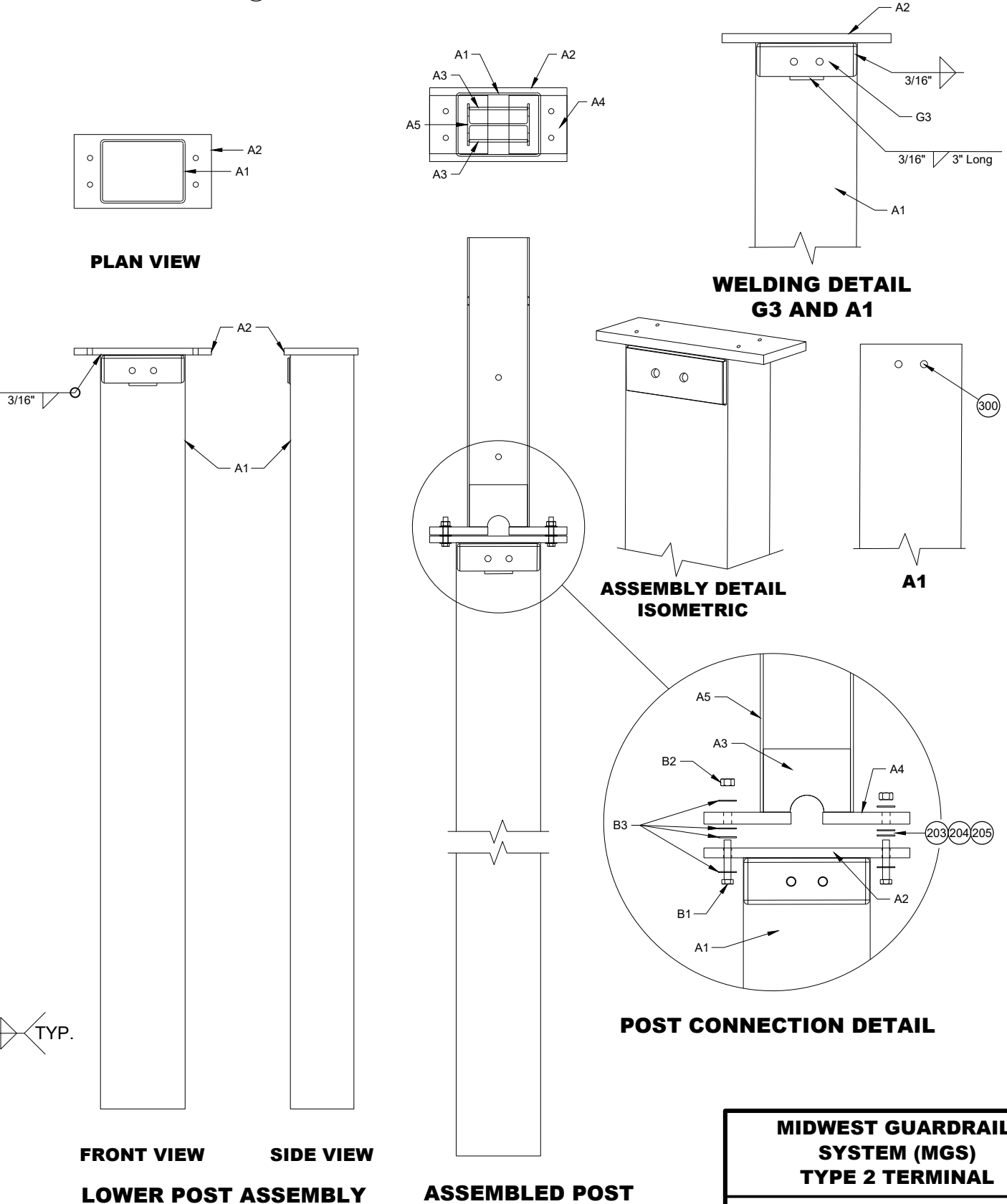
- 200 INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 201 INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- 202 INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN 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.

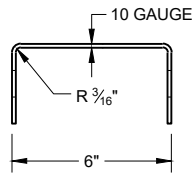
**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 156

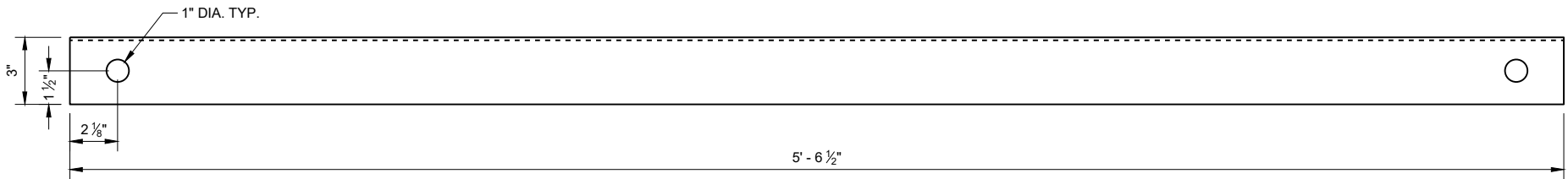


GENERAL NOTES
(300) TAP FOR 1/2" AFTER GALVANIZATION



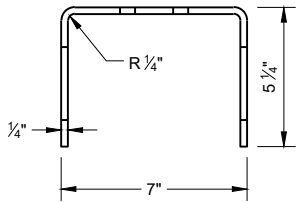


SIDE VIEW

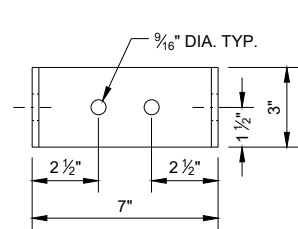


FRONT VIEW

GROUND STRUT CHANNEL (G1)

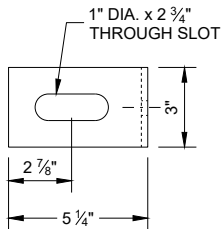


TOP VIEW



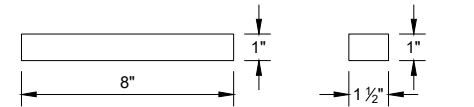
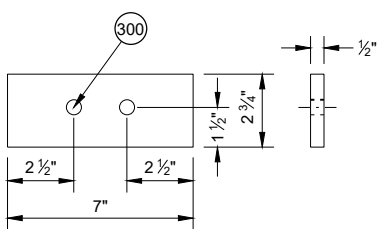
FRONT VIEW

GROUND STRUT CONNECTOR (G2)

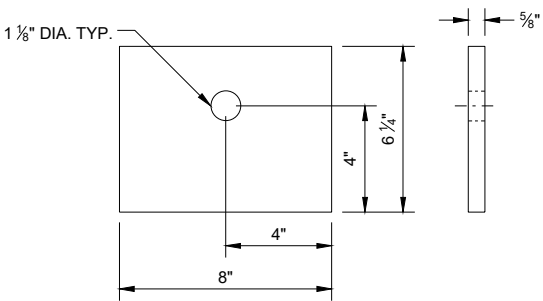


SIDE VIEW

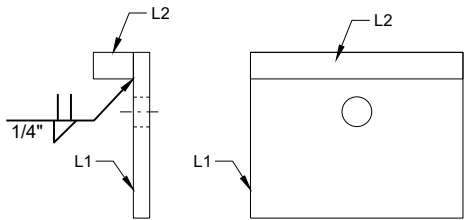
GROUND STRUT PLATE (G3)



BEARING PLATE FLANGE (L2)



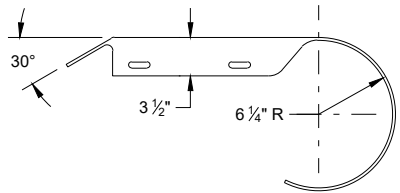
BEARING PLATE (L1)



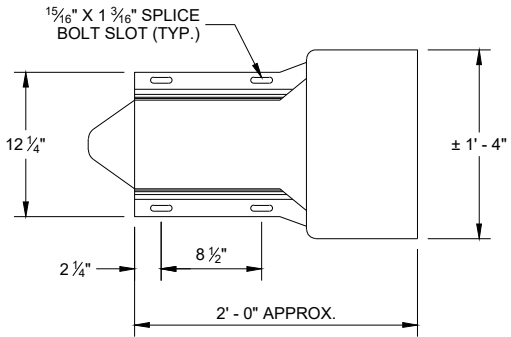
SIDE VIEW

FRONT VIEW

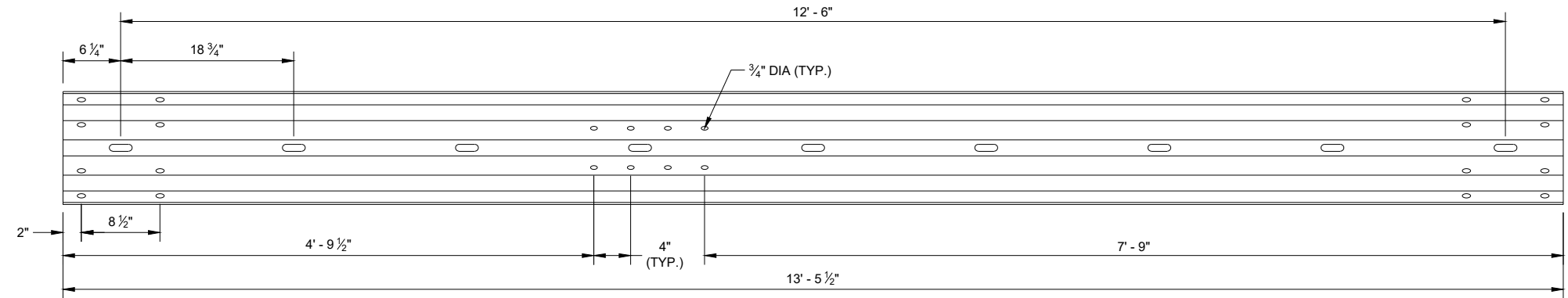
BEARING PLATE ASSEMBLY



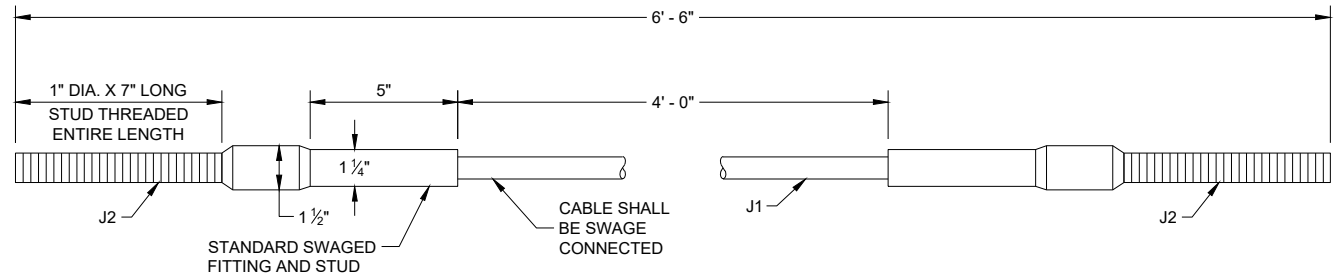
PLAN VIEW



ELEVATION VIEW
ROUNDED BUFFER END (E3)



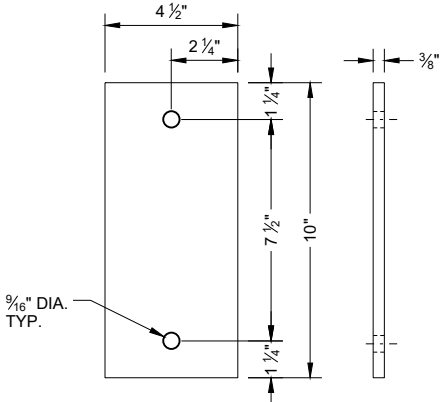
TYPE 2 GUARDRAIL (E1)



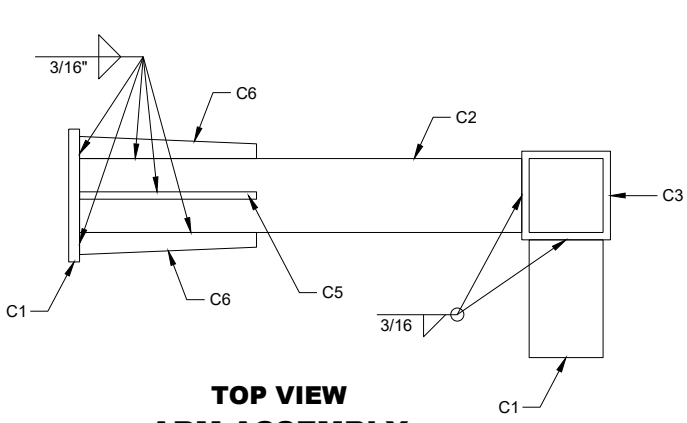
CABLE ASSEMBLY

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

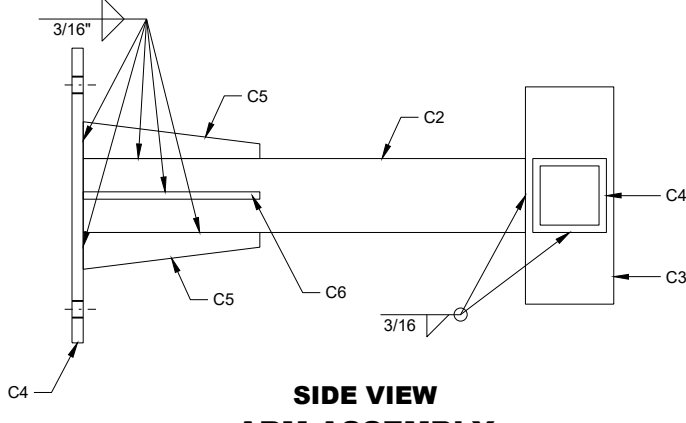
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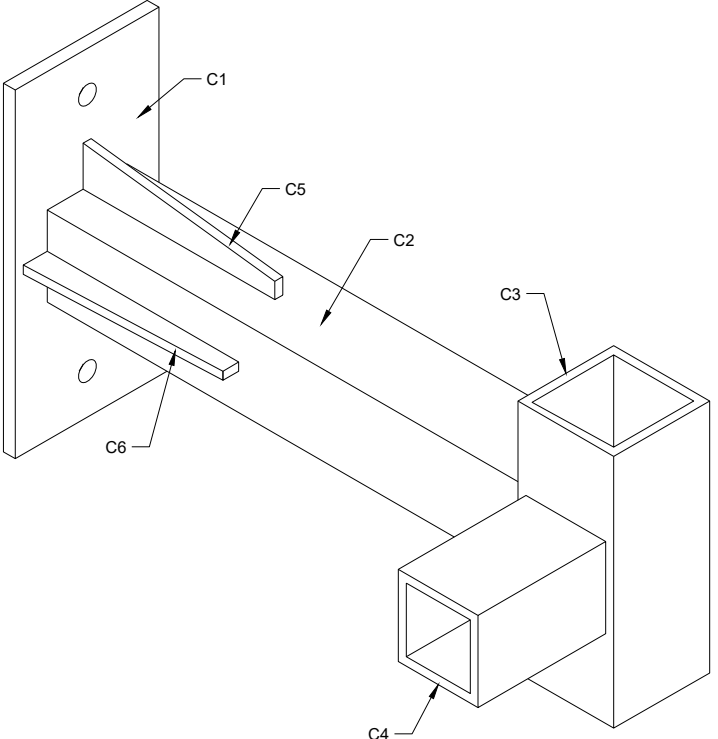
ARM PLATE (C1)



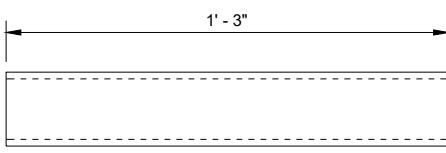
TOP VIEW
ARM ASSEMBLY



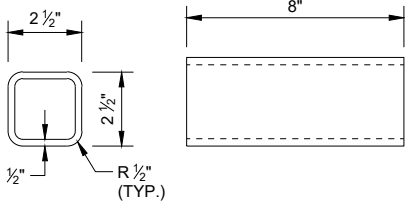
SIDE VIEW
ARM ASSEMBLY



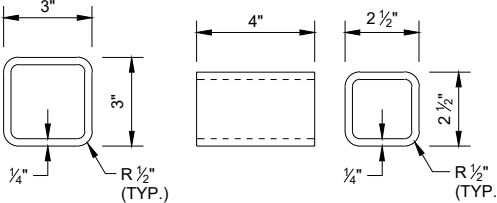
ISOMETRIC VIEW
ARM ASSEMBLY



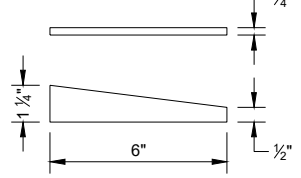
ARM TUBE 1 (C2)



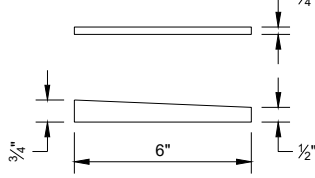
ARM TUBE 2 (C3)



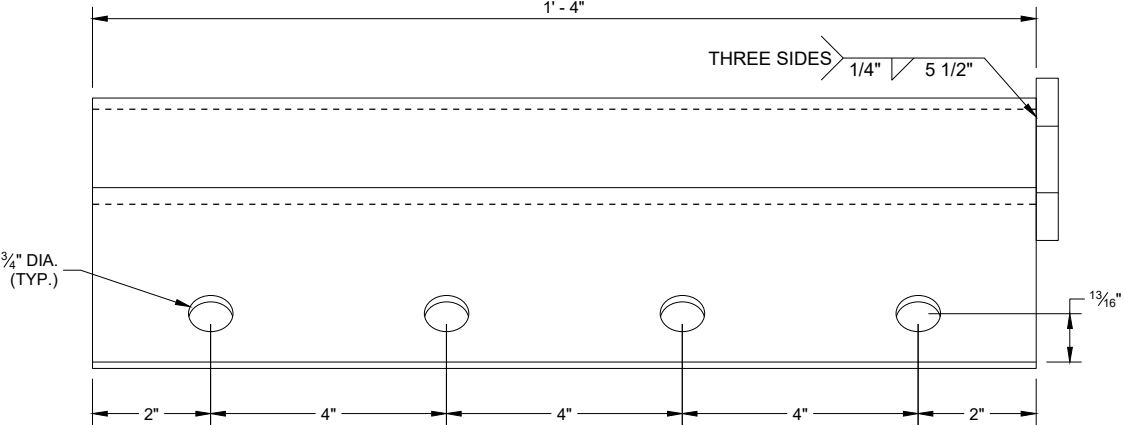
ARM TUBE 3 (C4)



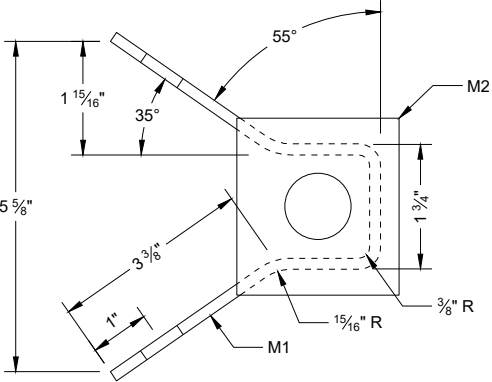
ARM GUSSET
PLATE 1 (C5)



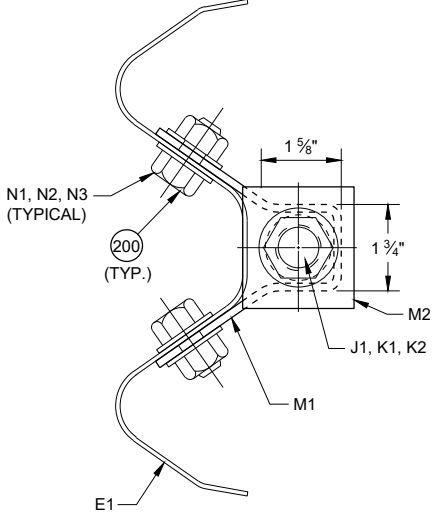
ARM GUSSET
PLATE 2 (C6)



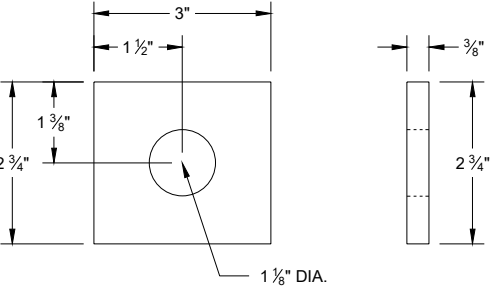
ANCHOR BRACKET (M1, M2)



ANCHOR BRACKET BEARING PLATE (M2)



SECTION A - A



MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

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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	3⁄8" 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

MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

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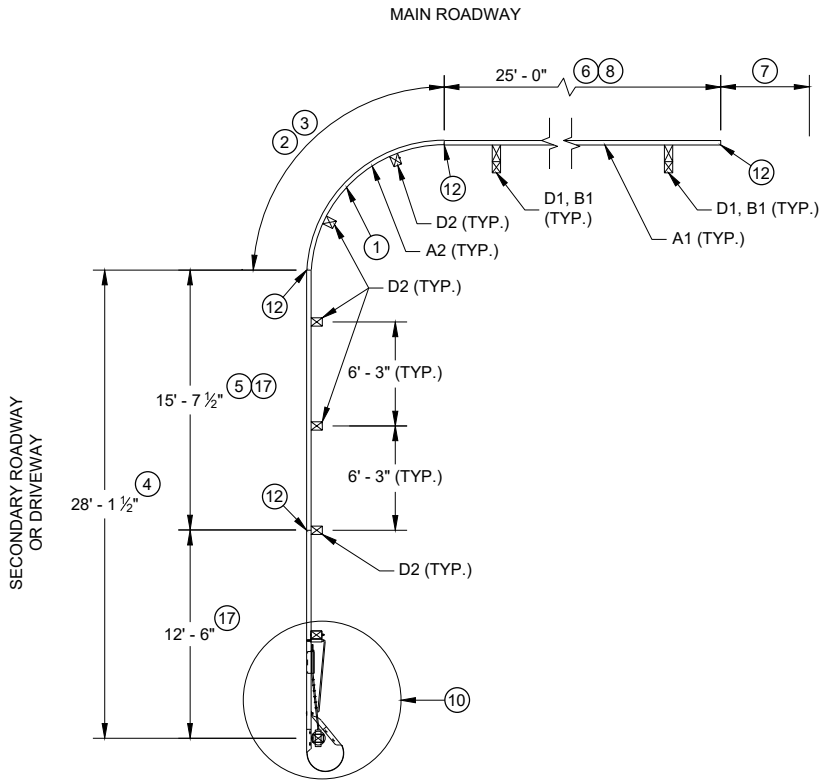
BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

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.

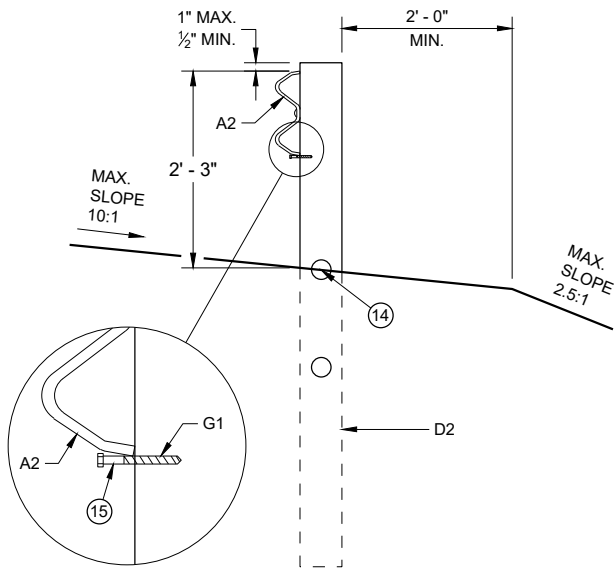
MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

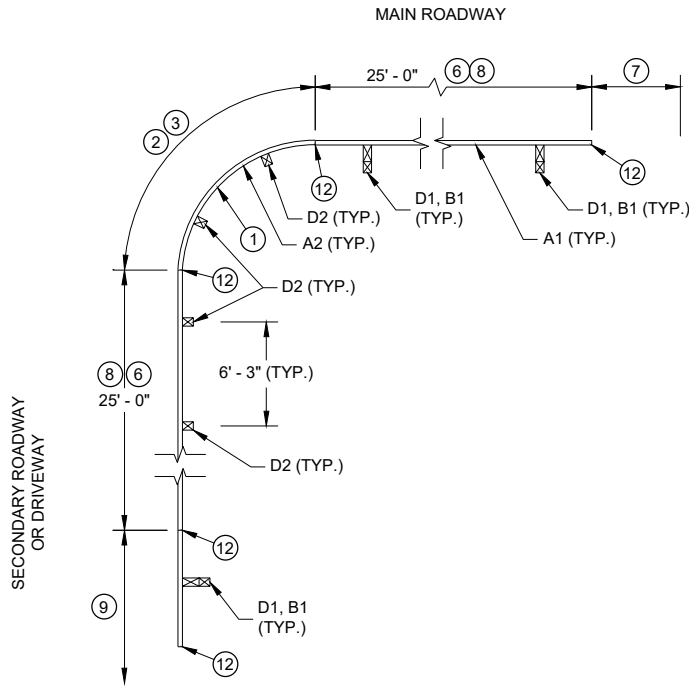
APPROVED
May 2023 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVE ENGINEER 161
FHWA



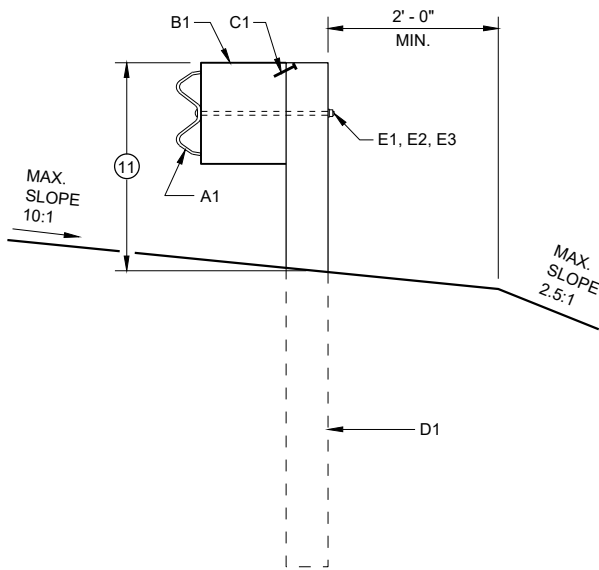
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
SHORT RADIUS TERMINAL ON
SECONDARY ROAD OR DRIVEWAY



CONTROLLED RELEASE
TERMINAL POST (CRT) IN RADIUS



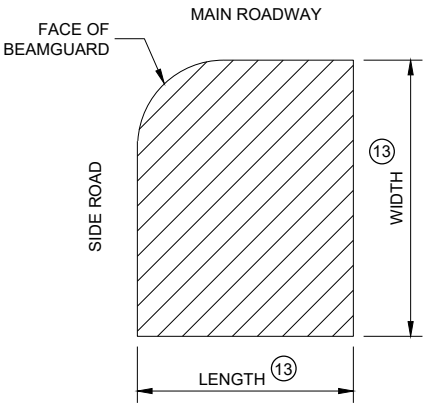
PLAN VIEW
SHORT RADIUS BEAM GUARD WITH
EAT, ADDITIONAL BEAM GUARD
OR
TRANSITION TO RIGID BARRIER ON
SECONDARY ROAD OR DRIVEWAY



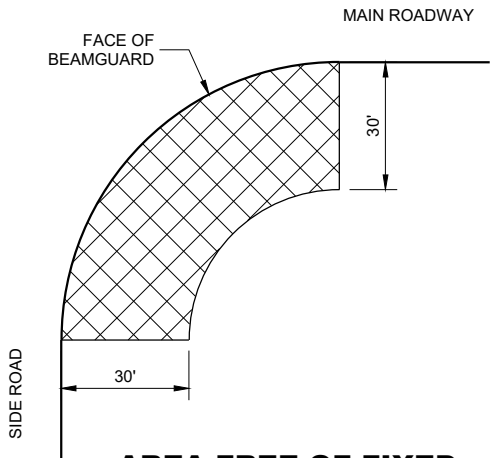
BEAM GUARD POSTS
IN HEIGHT TRANSITION

TABLE FOR RADIUS OF 32' AND LESS

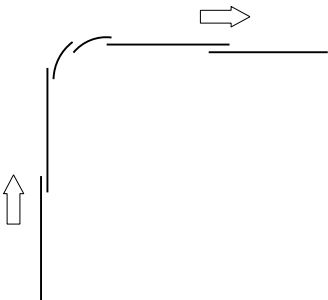
RADIUS (FT)	LENGTH (FT)	WIDTH (FT)
8	25	15
16	30	15
24	40	20
32	50	30



AREA FREE OF FIXED
OBJECTS FOR RADIUS
32' AND LESS



AREA FREE OF FIXED
OBJECTS FOR RADIUS
GREATER THAN 32'



LAP SPLICE DETAIL

GENERAL NOTES

SEE PLANS FOR OTHER BARRIER SYSTEM AND LOCATION SPECIFICS.

SEE SDD 14B42 FOR MORE INFORMATION ON BEAM GUARD INSTALLATION, PARTS, MATERIALS, AND INSTALLATION INFORMATION.

GALVANIZE PARTS AFTER FABRICATION.

WELDING TO FOLLOW CURRENT REQUIREMENTS OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE ANSI / AWS D1.1.

UNLESS NOTED OTHERWISE, ALL PLATES ARE FLAT AND FREE OF WARP.

UNLESS NOTED OTHERWISE, ALL EDGES ARE SMOOTH, STRAIGHT AND VERTICAL.

ALL CUTS AND HOLES, EXCEPT IN BEAM GUARD RAIL ARE TO BE MACHINED OR MACHINE FLAME CUT.

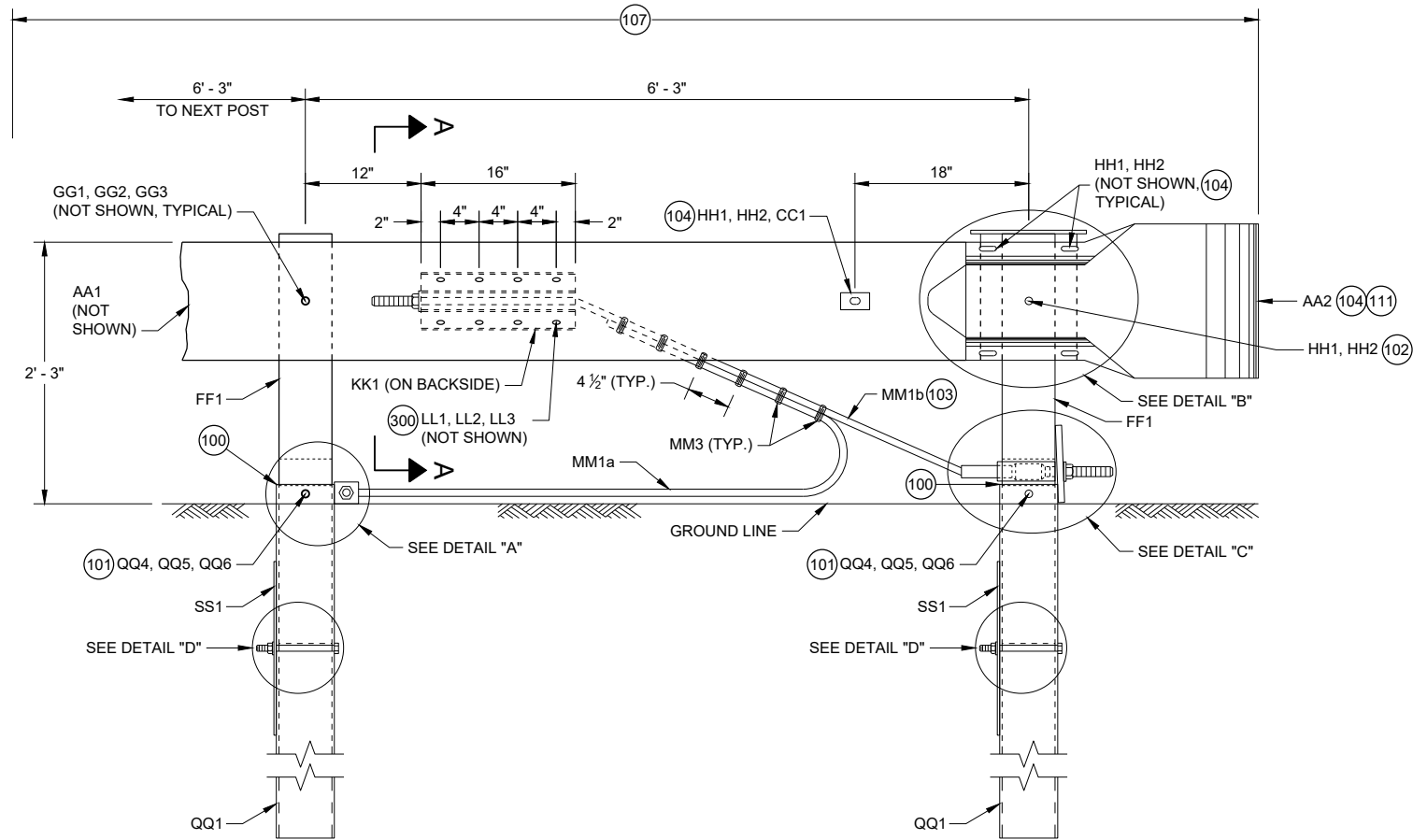
UNLESS NOTED OTHERWISE, CUT OR PROVIDE BOLTS THAT ARE 1/4" TO 1/2" BEYOND THE NUT.

DRAWINGS ARE NOT TO SCALE.

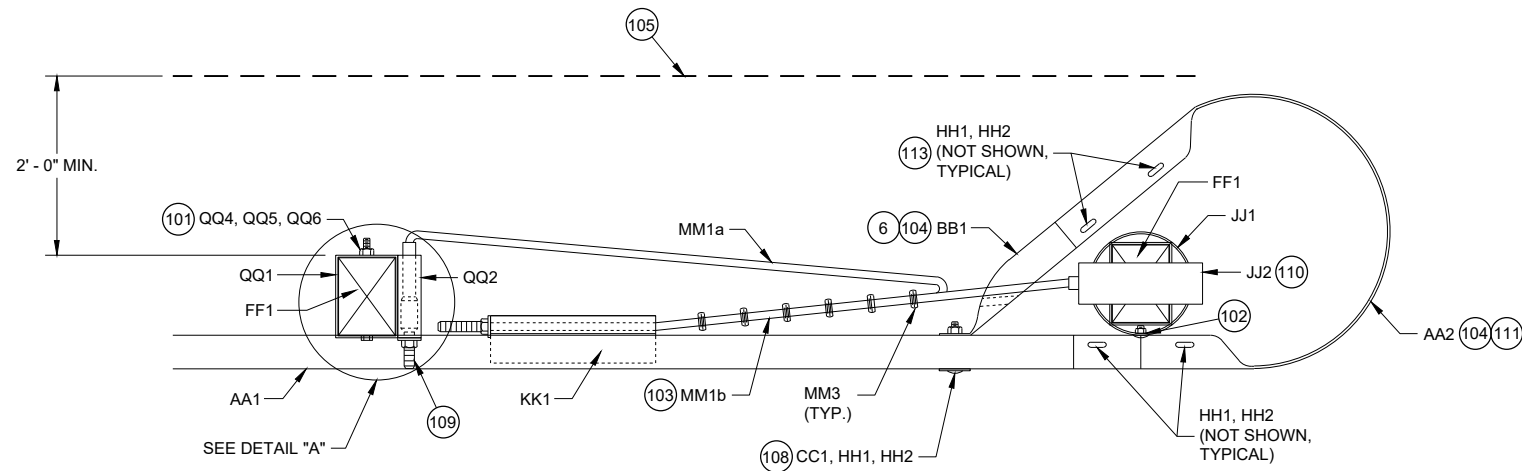
- 1 RADIUS MEASURE FROM INSIDE OF RAIL. LENGTH OF BEAM GUARD SHORT RADIUS GUARD MEASURED ALONG TRAFFIC SIDE OF RAIL. RADIUS BETWEEN 8 FEET TO 150 FEET. SEE PLAN FOR REQUIRED RADIUS. BEAM GUARD RAIL IN RADIUS IS SHOP BENT. ODD RAIL LENGTH OR FIELD CUTS MAY BE REQUIRED.
- 2 CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE USED IN THE RADIUS. CONTROLLED RELEASE TERMINAL (CRT) POSTS ARE SPACED 6' - 3". SEE PLAN FOR NUMBER OF CONTROLLED RELEASE (CRT) POSTS.
- 3 WITHIN RADIUS BEAM GUARD RAILS ARE NOT BOLTED TO POSTS. BEAM GUARD RAIL IS RESTED ON TOP OF LAG SCREW.
- 4 MINIMUM LENGTH OF BEAM GUARD ALONG SIDE ROAD OR DRIVEWAY TO INSTALL SHORT RADIUS TERMINAL. BEAM GUARD IS PAID WITH BEAM GUARD ITEM.
- 5 ODD LENGTH OF BEAM GUARD REQUIRED TO INSTALL SHORT RADIUS TERMINAL.
- 6 MINIMUM AMOUNT OF BEAM GUARD TO BE INSTALLED PRIOR TO TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD, OR EAT. BEAM GUARD PAID FOR WITH BEAM GUARD ITEM. SEE PLANS FOR MORE DETAIL.
- 7 BEAM GUARD, EAT, OR TRANSITION TO RIGID BARRIER. SEE PLAN.
- 8 TOP OF BEAM GUARD BY THE RADIUS IS 27". HEIGHT OF BEAM GUARD IS 31" BY TRANSITION TO RIGID BARRIER, ADDITIONAL BEAM GUARD OR EAT.
- 9 ADDITIONAL BEAM GUARD, EAT OR TRANSITION TO RIGID BARRIER. BEAM GUARD SHOWN. SEE PLAN FOR DETAILS.
- 10 SHORT RADIUS TERMINAL (SEE OTHER DETAILS).
- 11 HEIGHT VARIES. SEE NOTE (8) AND (8).
- 12 BEAM GUARD RAIL SPLICE LOCATION. SPLICE LOCATION REQUIRES PART F1 AND F2. SEE SDD 14B42 FOR DETAILS.
- 13 SEE TABLE FOR VALUES.
- 14 MAXIMUM HEIGHT FOR CENTER OF HOLE IS 3/4" ABOVE FINISHED GROUND ±1".
- 15 DRILL POST 1 5/64" DIA. PILOT HOLE. DO NOT HAMMER LAG SCREW INTO POST.
- 16 SMALL SIGNS ON BREAKAWAY HARDWARE ARE ACCEPTABLE.
- 17 TOP OF RAIL HEIGHT IS 27" WHEN USING A SHORT RADIUS TERMINAL (CRT).

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

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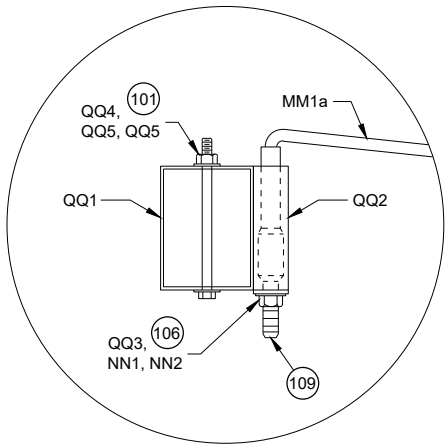
**PROFILE VIEW
SHORT RADIUS TERMINAL**



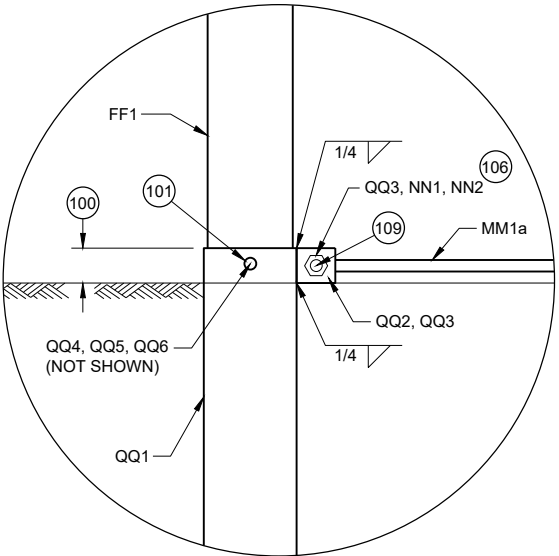
**TOP VIEW
SHORT RADIUS TERMINAL**

GENERAL NOTES

- (100) TOP OF FOUNDATION TUBE 2 INCHES MAXIMUM ABOVE FINISHED GROUND.
- (101) WASHERS REQUIRED BETWEEN BOLT HEAD AND FOUNDATION TUBE AND BETWEEN NUT AND FOUNDATION TUBE.
- (102) SPLICE BOLT AND NUT CONNECTS BEAM GUARD RAIL, W-BEAM SECTION BUFFER, AND STEEL PIPE ASSEMBLY. NO WASHER REQUIRED. SEE DETAIL "B".
- (103) CABLE IS TAUT.
- (104) ADJUST AA2 AND BB1 TO FIT.
- (105) BREAK POINT OF SHOULDER.
- (106) TACK WELD CABLE CONNECTOR TUBE PLATE TO CABLE CONNECTION TUBE. SEE DETAIL "A" PROFILE VIEW.
- (107) PAY LIMIT FOR BEAM GUARD.
- (108) SQUARE WASHER BETWEEN HEAD OF BOLT AND TRAFFIC FACE OF BEAM GUARD. ROUND WASHER REQUIRED BETWEEN NUT AND BB1.
- (109) CUT OR PROVIDE THREADED STUD THAT IS FLUSH WITH FACE OF BEAM GUARD RAIL KK1 (PLUS OR MINUS 1/2" TOLERANCE). DEBURR AFTER CUTTING.
- (110) SEE STEEL PIPE ASSEMBLY DETAILS.
- (111) ATTACH UU2 WITH UU3. SHOP APPLY UU1 TO UU2.
- (112) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA1 TO AA2.
- (113) FOUR (4) HH1 AND HH2 REQUIRED TO ATTACH AA2 TO BB1.



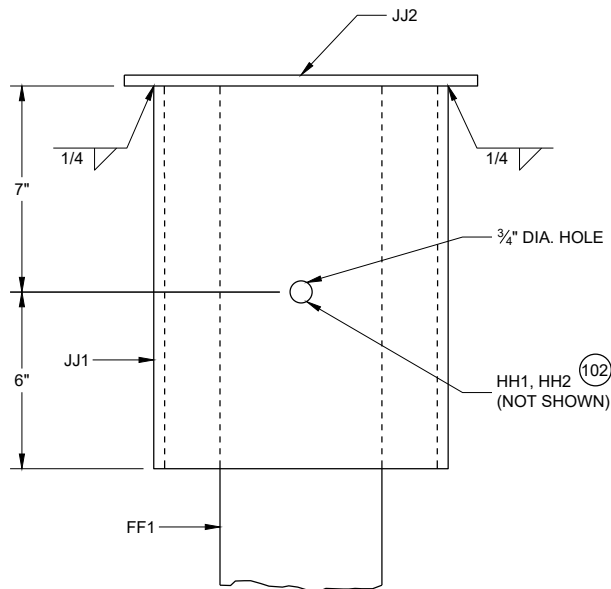
**TOP VIEW
DETAIL "A"
(WOOD BREAKAWAY AND BEAM
GUARD RAIL POSTS NOT SHOWN)**



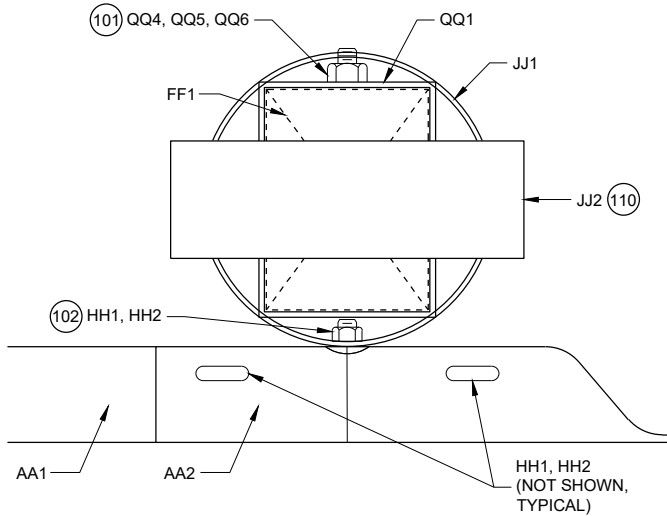
**PROFILE VIEW
DETAIL "A"**

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

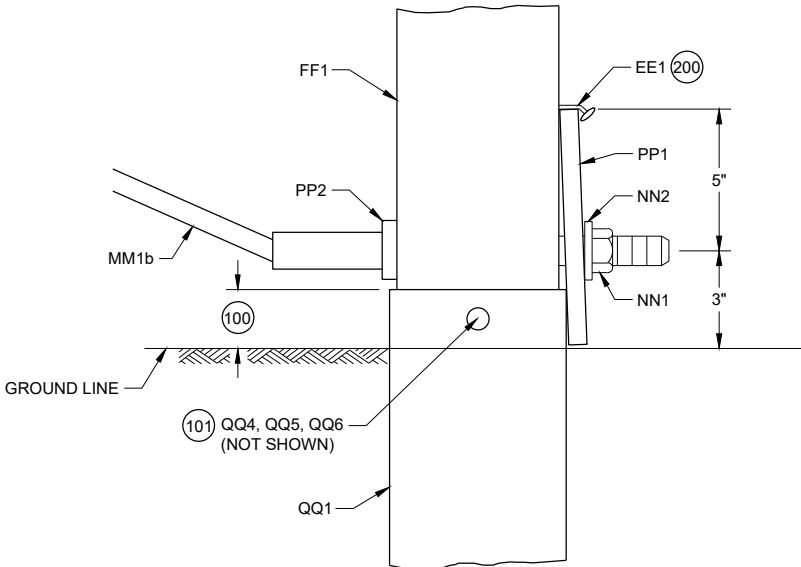
STATE OF WISCONSIN
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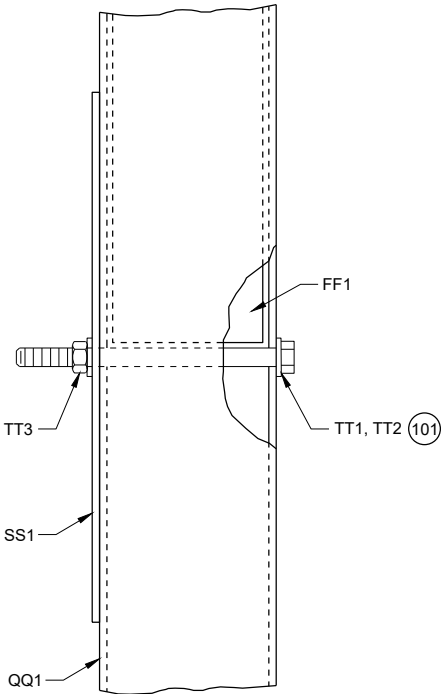
**PROFILE VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY
(BEAM GUARD AND W BEAM
END SECTION NOT SHOWN)**



**PLAN VIEW
DETAIL "B"
STEEL PIPE ASSEMBLY**



**PROFILE VIEW
DETAIL "C"**



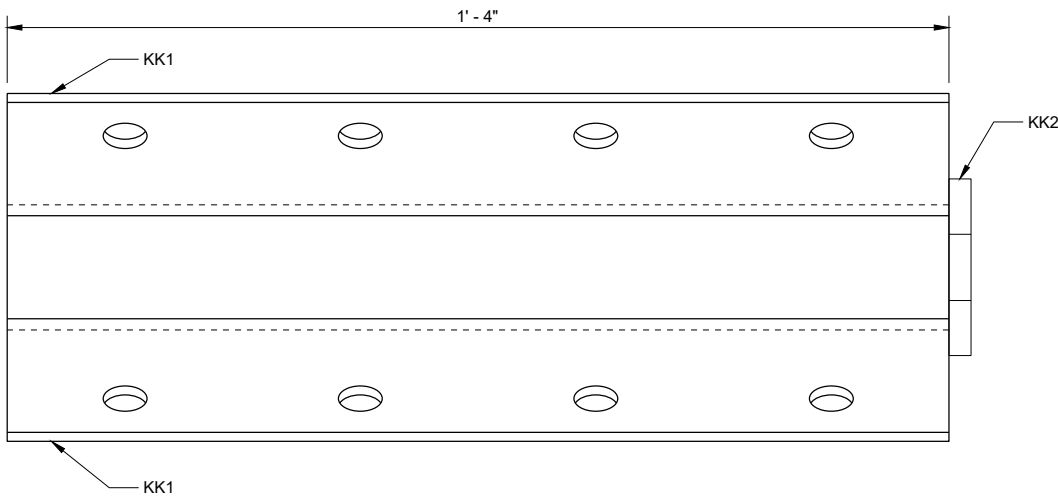
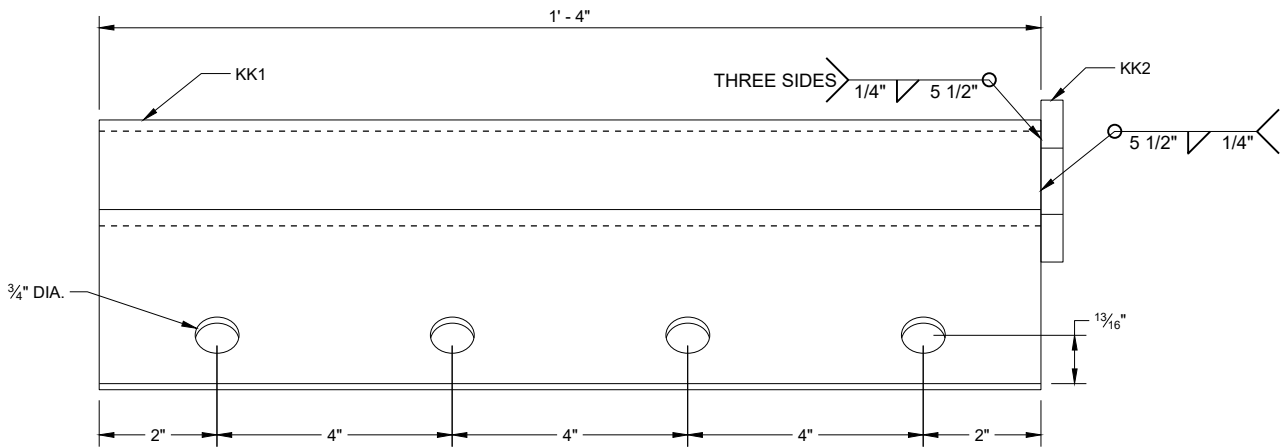
**PROFILE VIEW
DETAIL "D"**

GENERAL NOTES

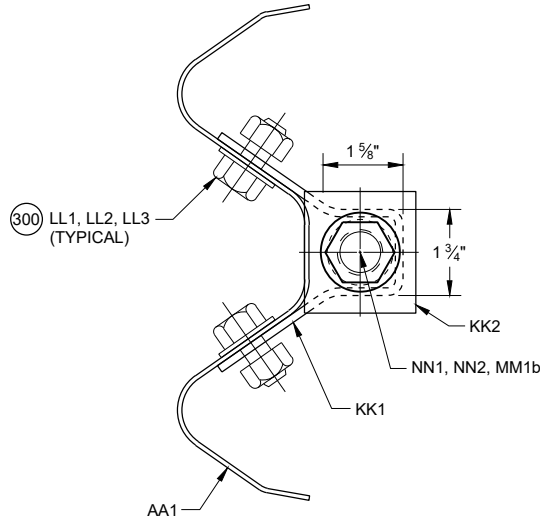
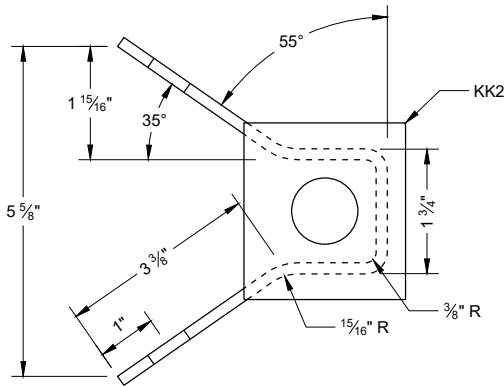
(200) TWO (2) NAILS SPACED 4 INCHES CENTER TO CENTER.

**SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)**

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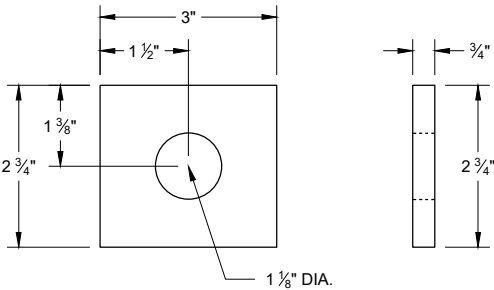
ANCHOR BRACKET (KK1, KK2)



SECTION A - A

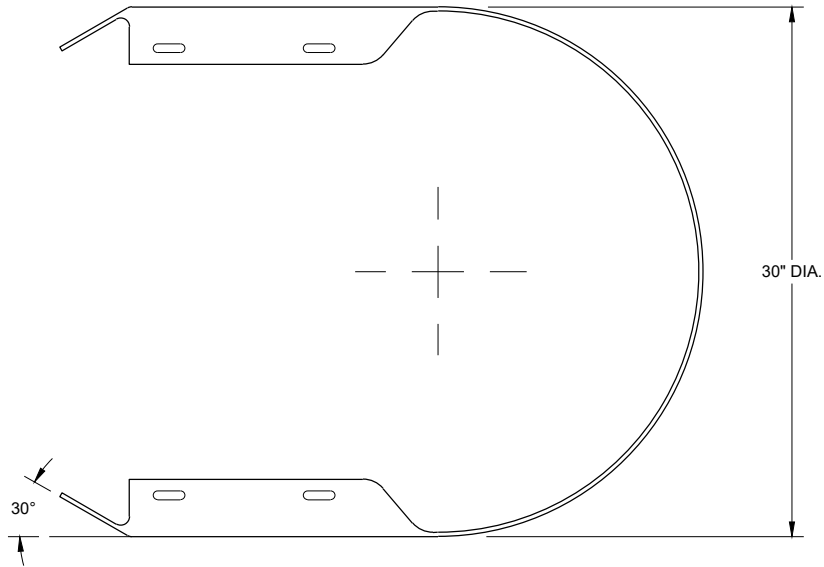
300 WASHERS REQUIRED BETWEEN BOLT HEAD AND BEAM GUARD RAIL AND BETWEEN NUT AND ANCHOR BRACKET. EIGHT (8) LL1 AND LL3 REQUIRED. SIXTEEN (16) LL2 REQUIRED.

ANCHOR BRACKET BEARING PLATE (KK2)

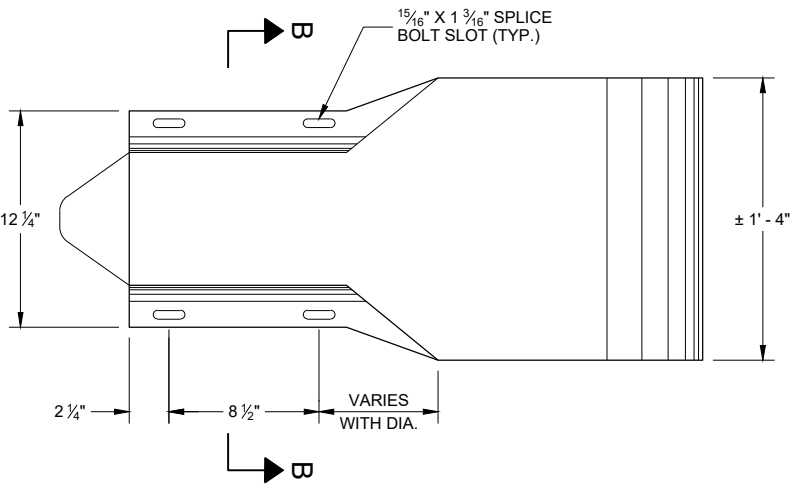


SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

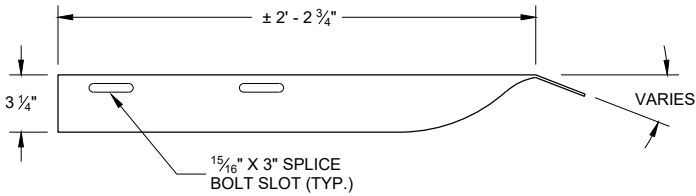
STATE OF WISCONSIN
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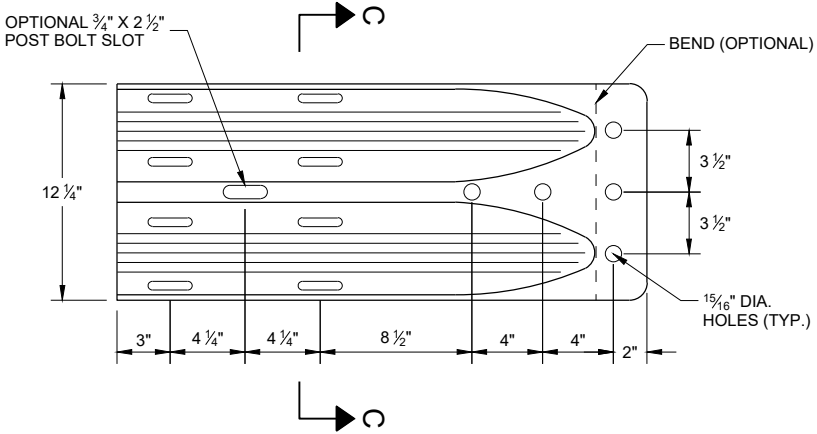
TOP VIEW



PROFILE VIEW
W BEAM
END SECTION BUFFER (AA2)



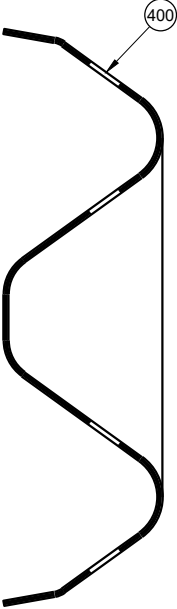
TOP VIEW



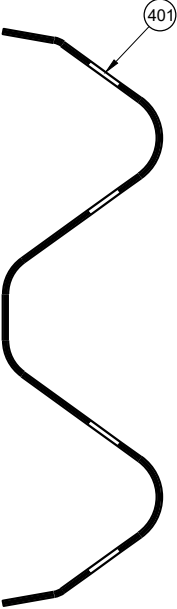
PROFILE VIEW
W BEAM
TERMINAL CONNECTOR (BB1)

GENERAL NOTES

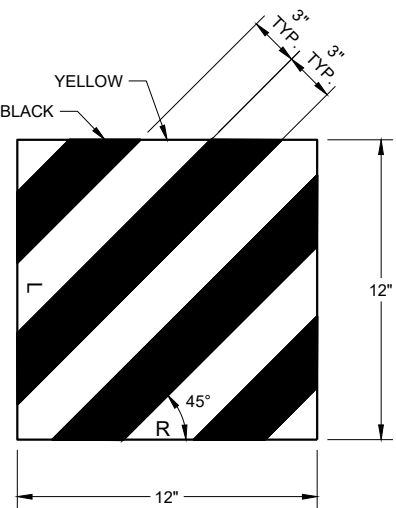
- (400) CROSS SECTION OF PART IS TO FIT OVER AA1 .
- (401) CROSS SECTION OF PART IS TO FIT OVER OR UNDER AA1 .



SECTION B -B



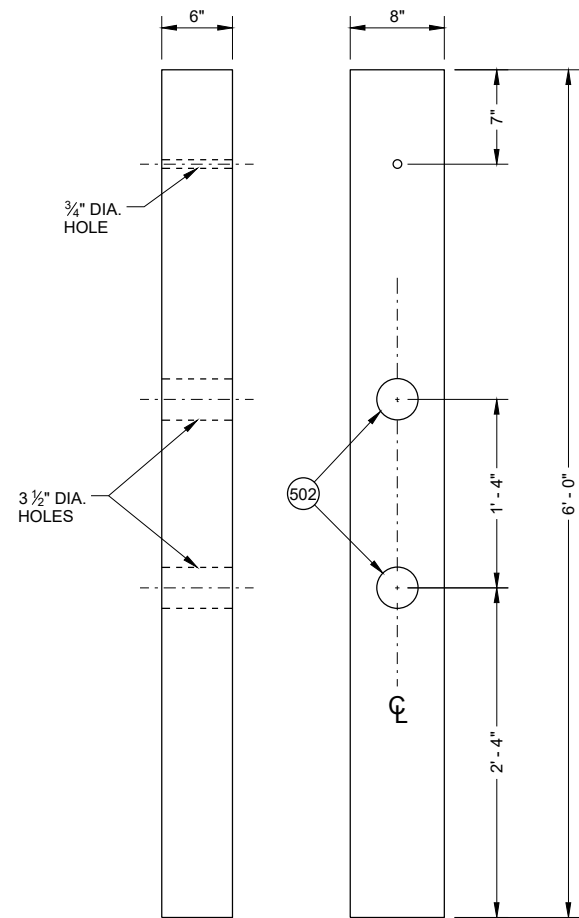
SECTION C -C



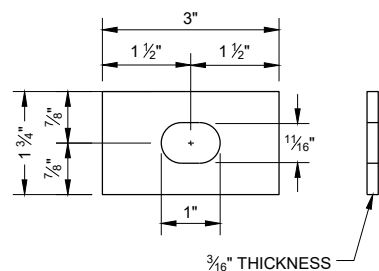
REFLECTIVE SHEETING (UU1, UU2)

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

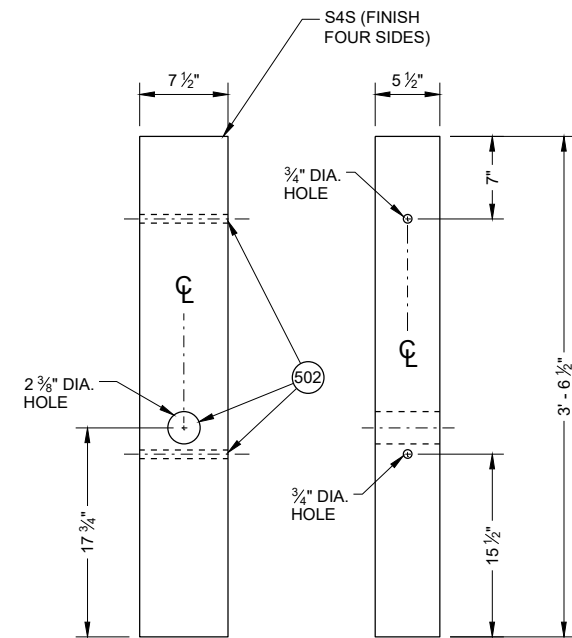
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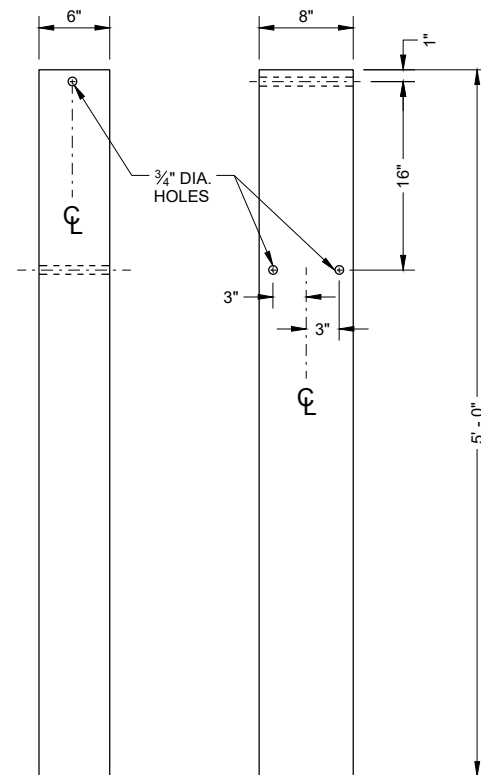
FRONT VIEW SIDE VIEW
CONTROLLED RELEASE POST (CRT) (DD2)



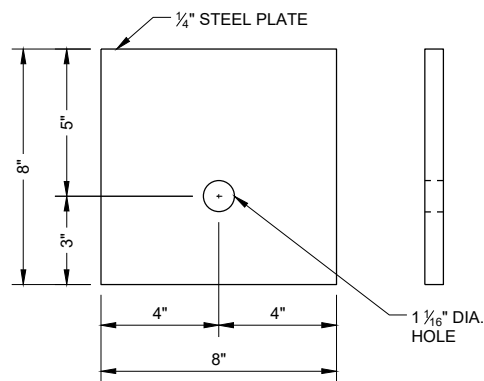
RECTANGULAR PLATE WASHER (CC1)



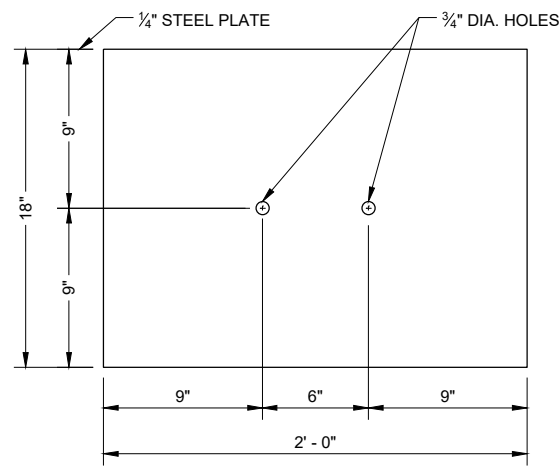
FRONT VIEW SIDE VIEW
WOOD BREAKAWAY POST (FF1)



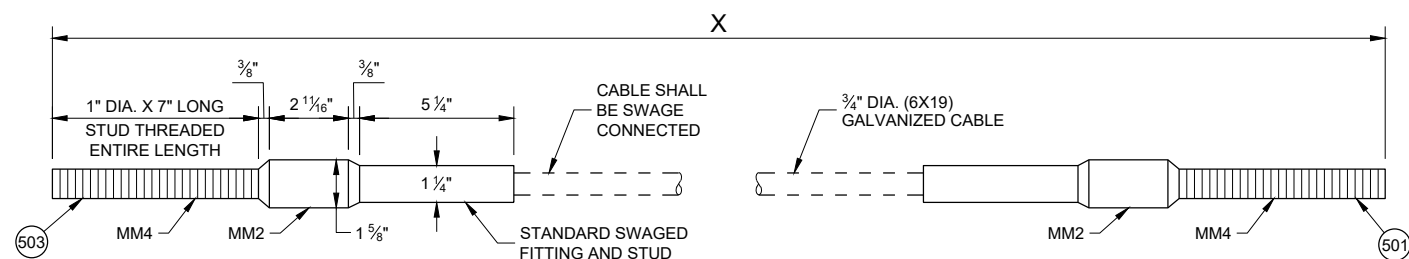
FRONT VIEW SIDE VIEW
FOUNDATION TUBE (QQ1) (500)



BEARING PLATE (PP1)



SOIL PLATE (SS1)



CABLE ASSEMBLY (MM1a, MM1b)

"X" LENGTH

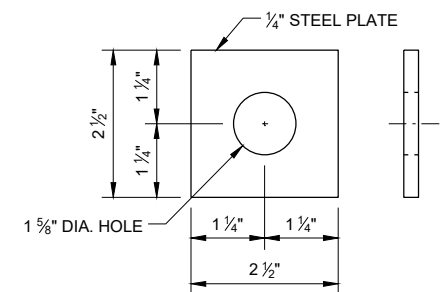
MM1b	9' - 0"
MM1b	6' - 8"

GENERAL NOTES

- (500) SEE DETAIL "D" FOR LOCATION AND ATTACHMENT OF SS1.
- (501) FOR MM1a THREADED STUD ONLY REQUIRED ON ONE END. SWAGED FITTING REQUIRED.
- (502) LOCATE HOLES ON THE CENTERLINE OF THE SIDE OF THE POST.
- (503) MM1a MAY HAVE ONE THREADED STUD 4 INCHES LONG. SEE NOTE (109).



FOUNDATION TUBE - ANCHOR CABLE TUBE (QQ2)



ANCHOR CABLE TUBE END PLATE (QQ3)

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
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BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	BEAM GUARD RAIL	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
A2	BEAM GUARD RAIL - SHOP BENT	INDICATE ON BACK OF RAIL THE RADIUS THAT RAIL WAS BENT TO. SHOP BEND RADIUS IS TO THE NEAREST FOOT. FOLLOW AASHTO M180 ON HOW TO MARK RADIUS INFORMATION.	
		AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
B1	BLOCK - WOOD	WISDOT SPEC. 614	SEE SDD 14B42
C1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEAD)	
D1	POST-STRONG POST-WOOD	WISDOT SPEC. 614	SEE SDD 14B42
D2	POST-CRT-WOOD	WISDOT SPEC. 614	
E1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
E2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	5/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
E3	POST BOLT - NUT	AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
F1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
F2	SPLICE BOLT - NUT	ASTM A563 GRADE A	5/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
G1	LAG SCREW	ASTM A308 GRADE A ASTM A153 CLASS D	1/2" DIA. 6" LONG
H1	DELINEATOR - BEAM GUARD		SEE SDD 14B42 FOR MORE INFORMATION
H2	DELINEATION - SHEETING	YELLOW OR WHITE	
		WISDOT SPEC 637 TYPE SH	
		APPROVED PRODUCT LIST	
J1	FOUNDATION BACKFILL	STANDARD SPEC. 614	
AA1	BEAM GUARD RAIL - PUNCHED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
AA2	BEAM GUARD RAIL - END SECTION BUFFER	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
BB1	BEAM GUARD RAIL - TERMINAL CONNECTOR MODIFIED	AASHTO M180, CLASS A, TYPE 2	
		APPROVED PRODUCER	
CC1	SHORT RADIUS - SQUARE WASHER	AASHTO M180	
		GALV. AASHTO M111 / ASTM A123	
EE1	NAIL	ASTM A153 HOT DIP CLASS D	
		ASTM F1667 TYPE 1 STYLE 12 (16 DOUBLE HEADED)	
FF1	POST - BCT - WOOD	S4S FINISH ON 4 SIDES	
		WISDOT SPEC. 614	
GG1	POST BOLT	ASTM A307 GRADE A OR SAE J429 GRADE 2	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180	
		GALV. HOT DIP TO AASHTO M232 CLASS C/ASTM A153 CLASS C/ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1/ASTM B695 CLASS 50, TYPE 1	
		UNC	
GG2	POST BOLT - WASHER	ASTM F436 TYPE 1 (HARDEN TYPICALLY USED WITH STEEL) OR ASTM F844 (UNHARDENED TYPICALLY WITH WOOD)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A 123 OR GALV. HOT DIP. TO AASHTO M232 CLASS C/ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM GUARD (MGS) SHORT RADIUS TERMINAL (MGS)

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION 168

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
GG3	POST BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE 14B42 FOR GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		ASTM A563 GRADE A HEAVY HEX HEAD	
HH1	SPLICE BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		ASTM A307 GRADE A OR SAE J429 GRADE 2	
		UNC	
		AASHTO M180 HEAD GEOMETRY	
HH2	SPLICE BOLT - NUT	ASTM A563 GRADE A	3/8" DIA. SEE SDD 14B42 FOR BOLT GEOMETRY
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
JJ1	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	10" O.D.
JJ2	TOP PLATE	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	DIMENSIONS 3/8" X 4" X 1' - 0"
		GALV. AASHTO M111 / ASTM A123	
KK1	ANCHOR BRACKET	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	
		GALV. AASHTO M111 / ASTM A123	
KK2	ANCHOR BRACKET - BEARING PLATE	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	
		GALV. AASHTO M111 / ASTM A123	
LL1	ANCHOR BRACKET - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	3/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
LL2	ANCHOR BRACKET - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	3/8" DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
LL3	ANCHOR BRACKET - NUT	ASTM A563 GRADE A	3/8" DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		UNC	
MM1a	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM1b	ANCHOR CABLE	AASHTO M30 / ASTM A741 INDEPENDENT WIRE CORE (IWRC) OR WIRE STRAND CORE (WCS), IMPROVED PLOW STEEL (IPS), 6X19, TYPE II OR IIc CLASS C ZINC COATED	
MM2	ANCHOR CABLE - SWAGE FITTING	ASTM A576 GRADE 1035	
		SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. WITH A BREAKING STRENGTH 40,000 LBS.	
		GALV. AASHTO M111 / ASTM A123	
		ASME B30.26 FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING INTO CONNECTION: NAME OF MANUFACTURER OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE.	
MM3	WIRE ROPE CABLE CLAMPS	FF-C-450D TYPE 1 CLASS 1	3/4"
		ASTM A153 HOT DIP CLASS D	
MM4	ANCHOR CABLE - SWAGE FITTING - STUD	ASTM F3125 GRADE A325 TYPE 1 OR SAE GRADE 5 OR ASTM A449 TYPE 1 HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
NN1	ANCHOR CABLE - NUT	ASTM A563 GRADE A	1" DIA.
		AASHTO M180 DOUBLE RECESSED HEAVY HEX HEAD	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		OVER TAPPED NUTS OVER-SIZE AS SPECIFIED IN AASHTO 291 / ASTM A 563	
NN2	ANCHOR CABLE - NUT - WASHER	UNC	1" DIA.
		ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - SHORT RADIUS BEAM GUARD (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
PP1	BEARING PLATE AT POST	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	
		GALV. AASHTO M111 / ASTM A123	
PP2	PIPE - STEEL	ASTM A53 GALVANIZED GRADE B SCHEDULE 40	2" DIA. x 6" LONG
QQ1	FOUNDATION TUBE	ASTM A500 GRADE B	8" X 6" X $\frac{3}{16}$ "
		GALV. AASHTO M111 / ASTM A123	
QQ2	SHORT RADIUS - FOUNDATION TUBE - ANCHOR CABLE - TUBE	ASTM A500 GRADE B	DIMENSIONS 2 $\frac{1}{2}$ " X 2 $\frac{1}{4}$ " X $\frac{1}{4}$ " X 8"
		GALV. AASHTO M111 / ASTM A123	
QQ3	SHORT RADIUS - SOIL TUBE - ANCHOR CABLE - TUBE - END PLATE	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	DIMENSIONS 2 $\frac{1}{2}$ " X 2 $\frac{1}{2}$ " X $\frac{1}{4}$ "
		GALV. AASHTO M111 / ASTM A123	
QQ4	GROUND STRUT AND YOKE - BOLT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{5}{8}$ DIA.
		ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	
		UNC	
QQ5	GROUND PLATE AND YOKE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
QQ6	GROUND STRUT AND YOKE - NUT	HEAVY HEX	$\frac{5}{8}$ DIA.
		UNC	
		ASTM A563 GRADE A	
		OVER TAPPED NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563	
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	

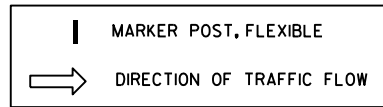
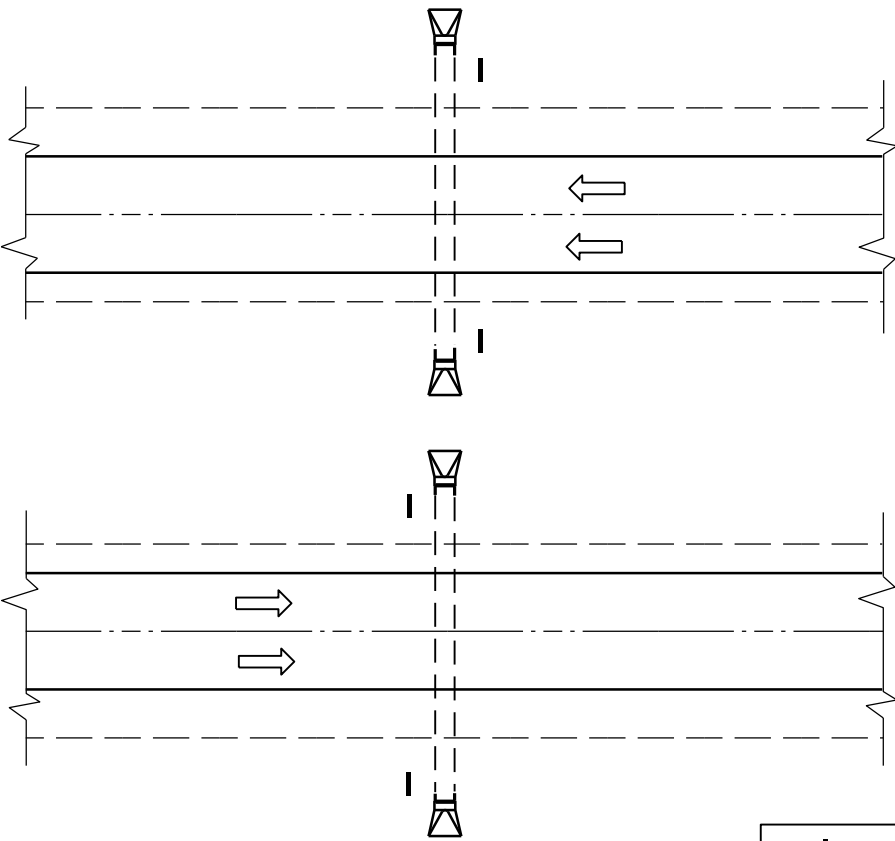
PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
SS1	SOIL PLATE	ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI OR ASTM A709 MAX STRENGTH 50 KSI OR ASTM A992 MAX STRENGTH 50 KSI	
		GALV. AASHTO M111 / A123	
TT1	SOIL PLATE - BOLT	ASTM A307 GRADE B HEAVY HEX HEAD OR SAE J429 GRADE 2 HEAVY HEX HEAD	$\frac{5}{8}$ DIA.
		GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	
		UNC	
TT2	SOIL PLATE - WASHER	ASTM F436 TYPE 1 (HARDEN WASHER ONLY)	$\frac{5}{8}$ DIA.
		GALV. AASHTO M111 / ASTM A123 OR GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329	
TT3	SOIL PLATE - NUT	GALV. HOT DIP TO AASHTO M232 CLASS C / ASTM A153 CLASS C / ASTM F2329 OR GALV. MECHANICALLY TO AASHTO M298 CLASS 50, TYPE 1 / ASTM B695 CLASS 50, TYPE 1	$\frac{5}{8}$ DIA.
UU1	OBJECT MARKER - SHEETING	MUTCD / WISDOT OBJECT MARKER TYPE 3	PATTERN AND COLOR FOR SHEETING. SHEETING TYPE FOR MARKER.
		WISDOT SPEC 637 TYPE F	
		APPROVED PRODUCT LIST	
UU2	OBJECT MARKER - ALUMINUM PLATE	WISDOT SPEC 637 ALUMINUM PLATE	MATERIAL AND THICKNESS OF MATERIALS
UU3	OBJECT MARKER - SCREWS	STAINLESS SELF-TAPPING SCREWS	
VV1	FOUNDATION BACKFILL	WISDOT SPEC 614	

SHORT RADIUS BEAM
GUARD (MGS) SHORT
RADIUS TERMINAL (MGS)

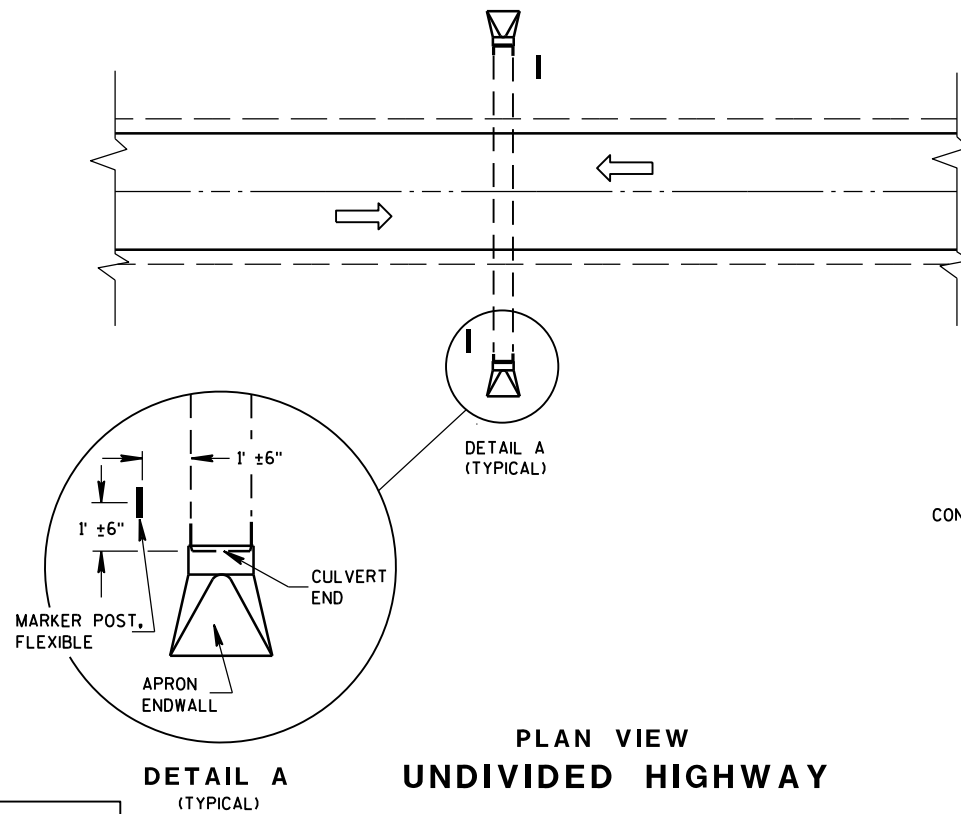
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVE ENGINEER 170
FHWA

PLAN VIEW
DIVIDED HIGHWAY



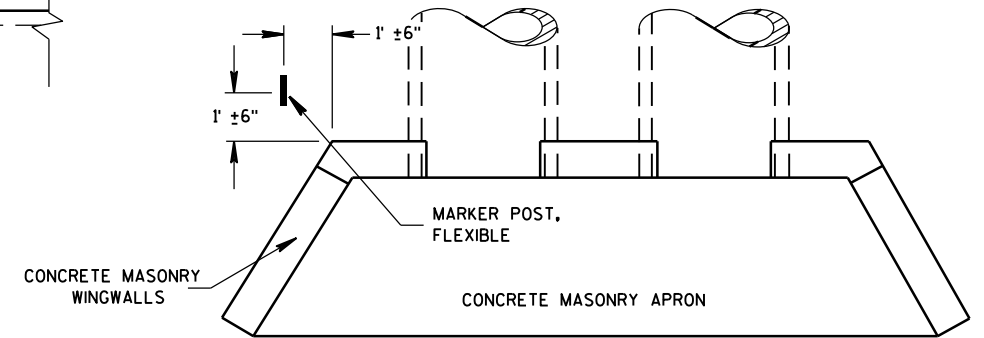
PLAN VIEW
UNDIVIDED HIGHWAY



FLEXIBLE MARKER POST LOCATION

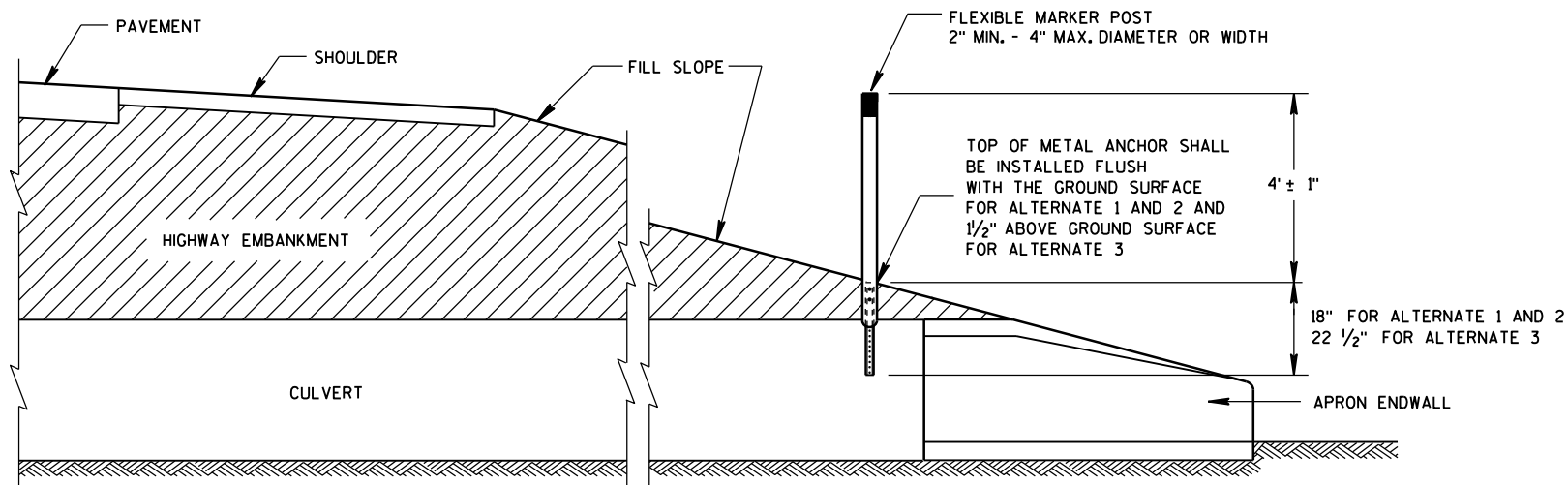
GENERAL NOTES

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.



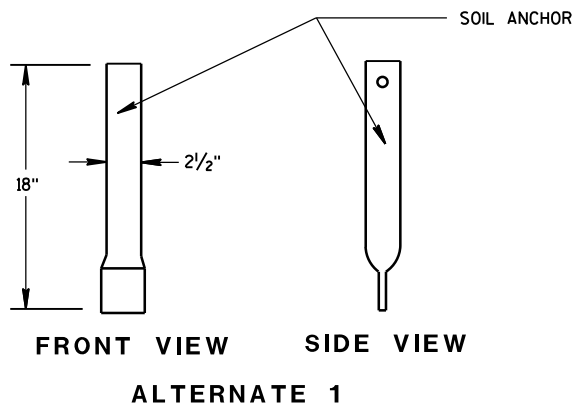
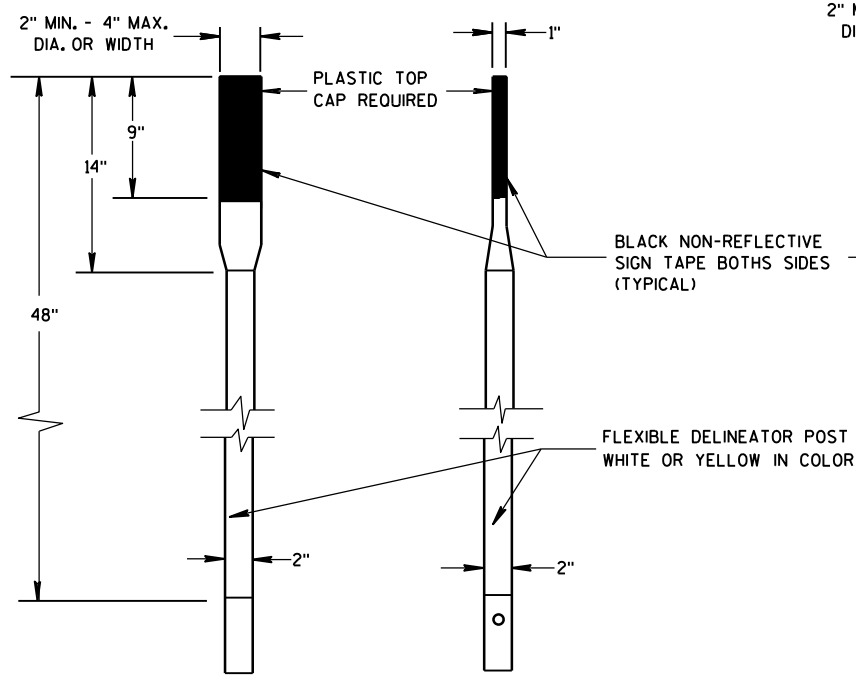
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

CROSS SECTION
FLEXIBLE MARKER POST

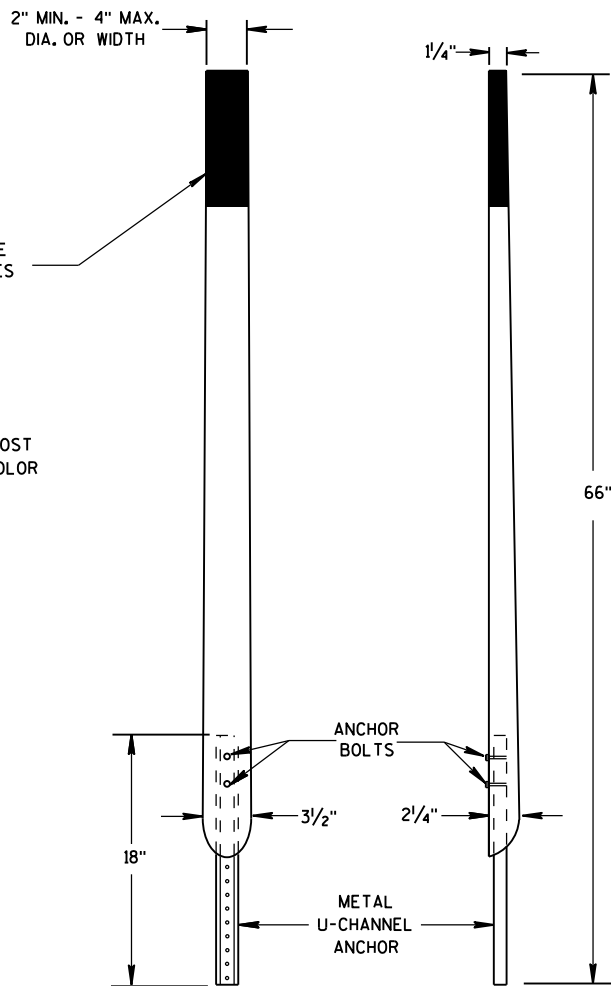
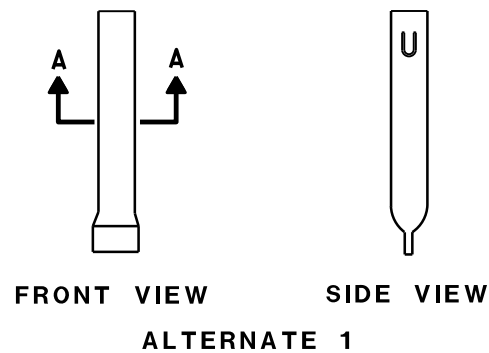


FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 171

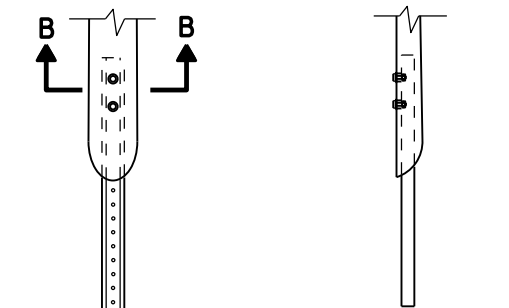
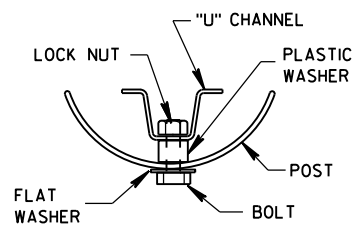


SECTION A-A

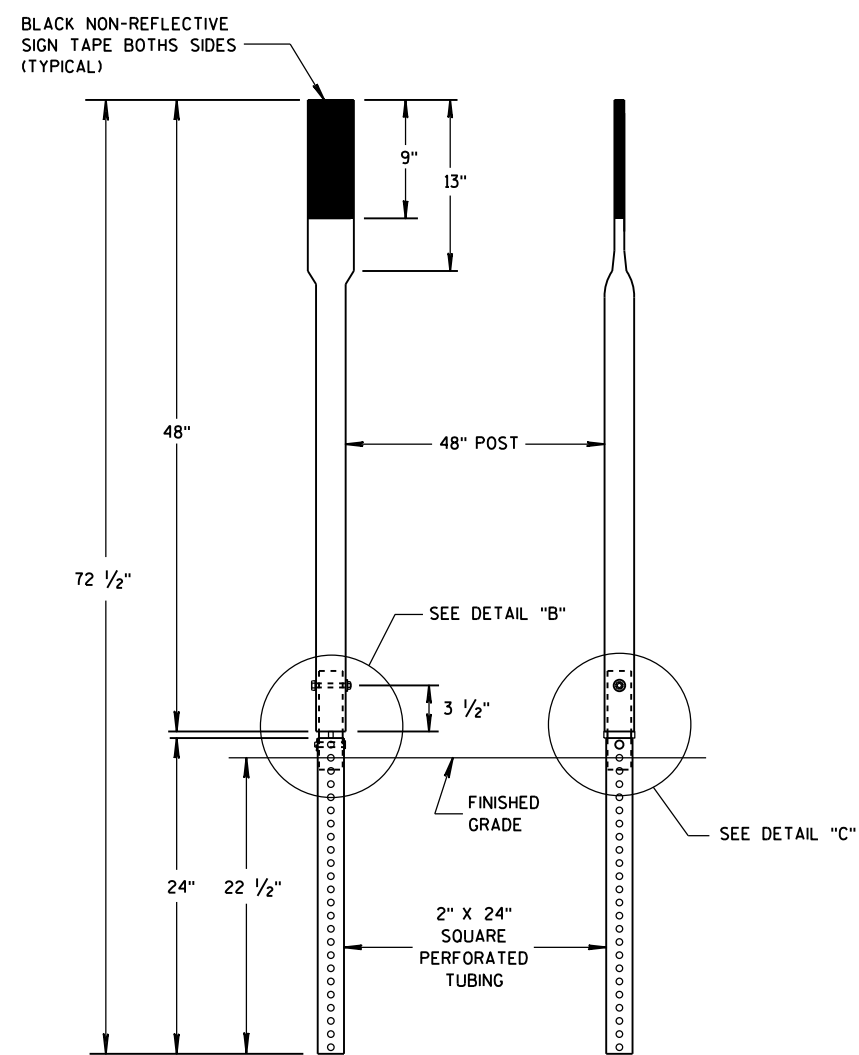


FRONT VIEW SIDE VIEW
ALTERNATE 2

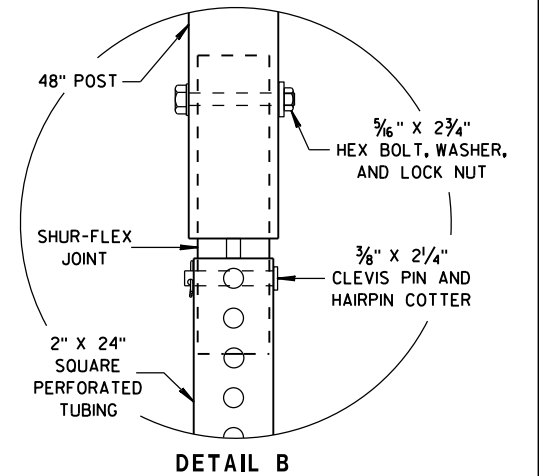
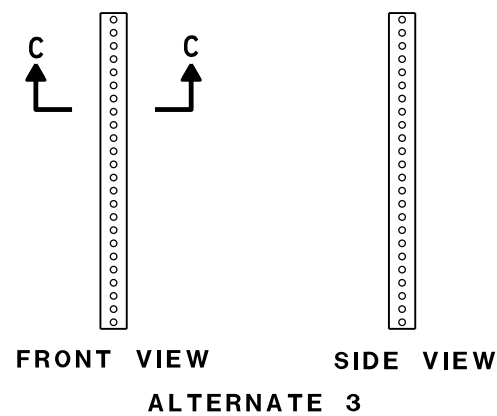
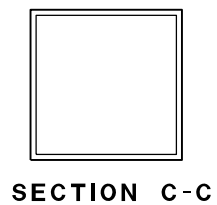
FLEXIBLE MARKER POSTS



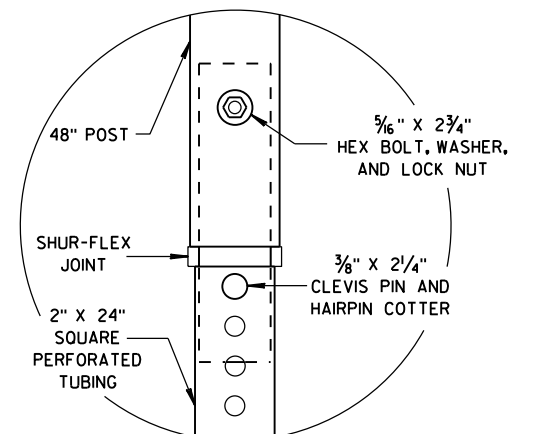
FRONT VIEW SIDE VIEW
ALTERNATE 2
FLEXIBLE MARKER POST ANCHORS



FRONT VIEW SIDE VIEW
ALTERNATE 3



DETAIL B

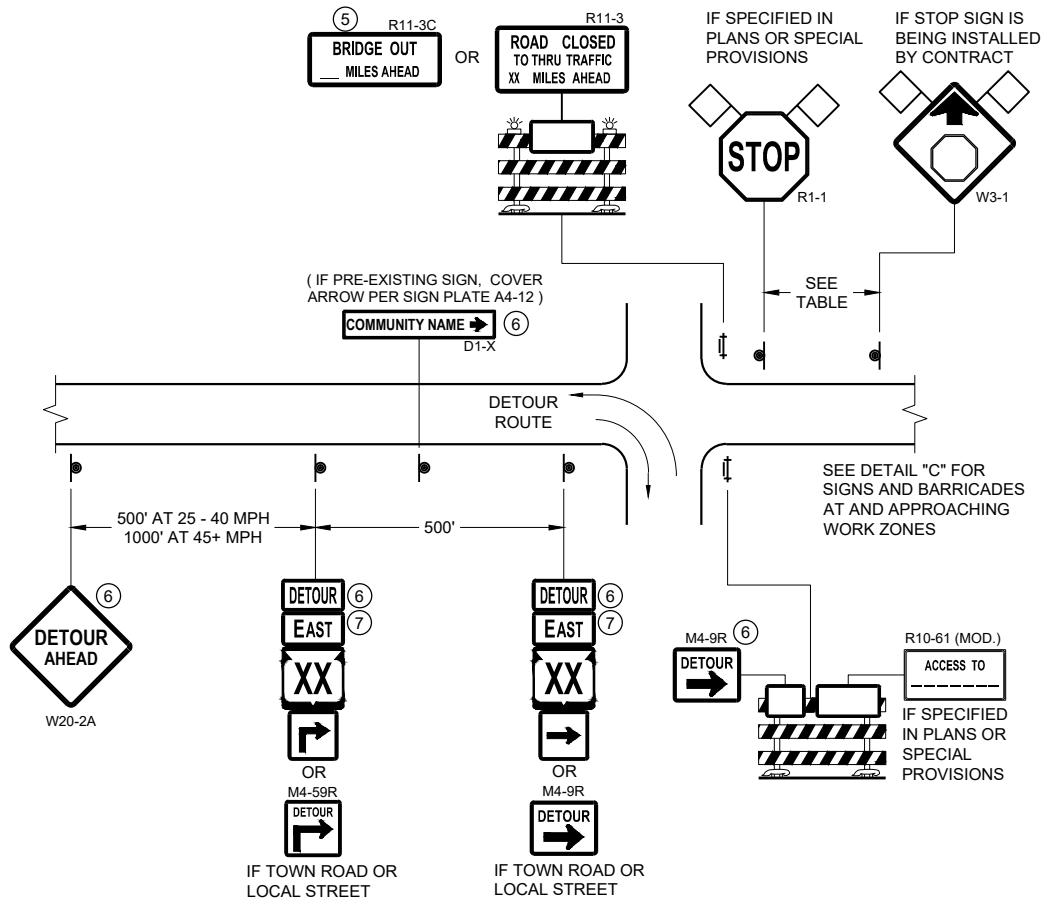


DETAIL C

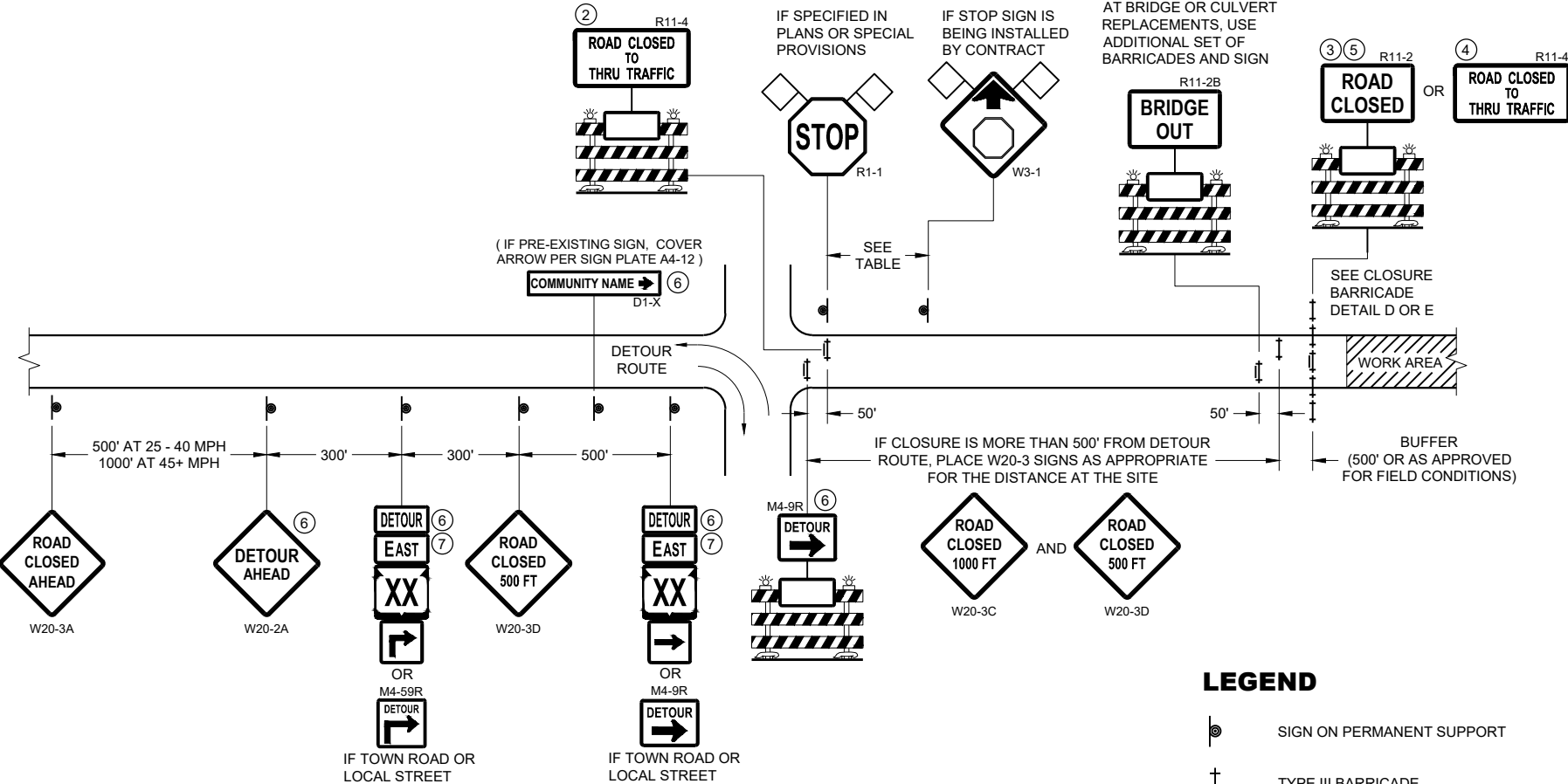
FLEXIBLE MARKER POST
FOR CULVERT END

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

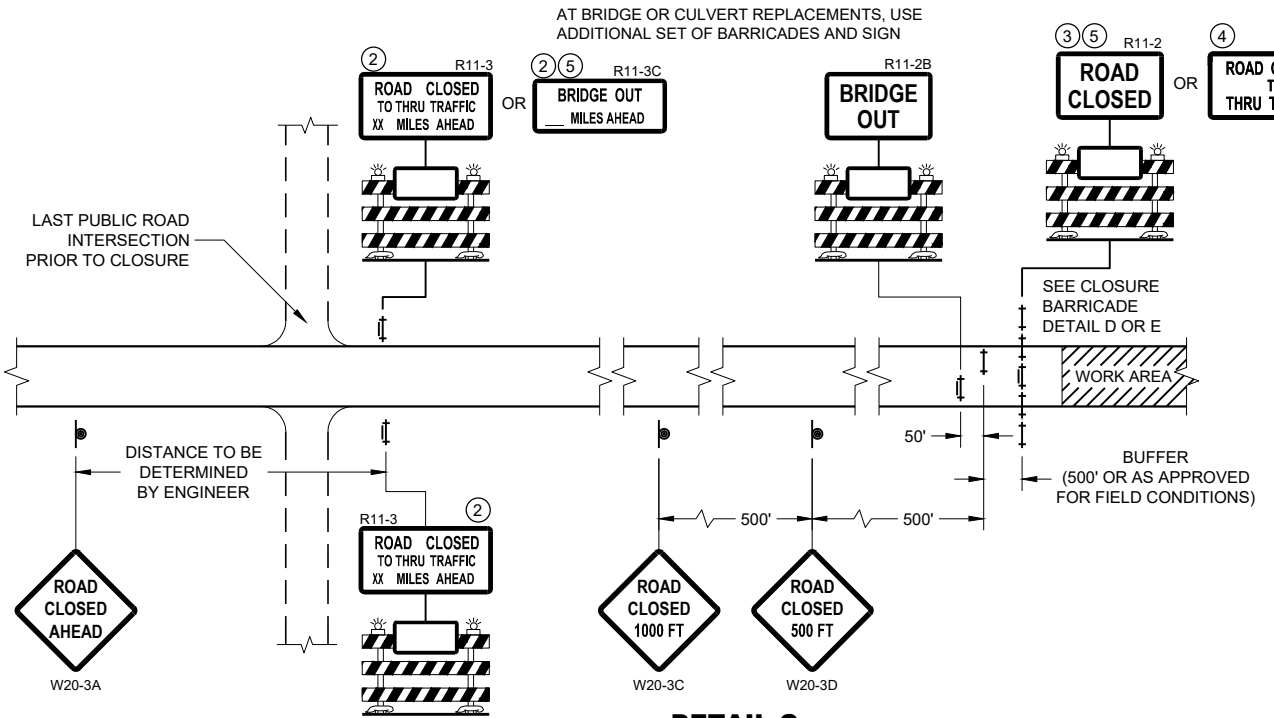
APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER 172 IGN
FHWA



DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE GREATER THAN OR EQUAL TO ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR
WORK ZONE LESS THAN ½ MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

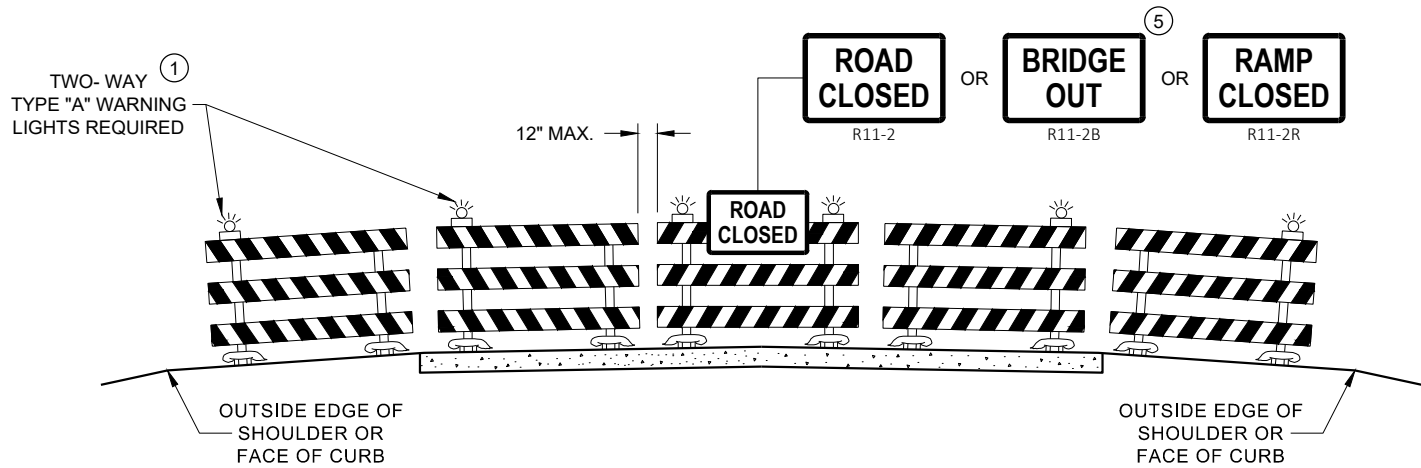
LEGEND

- 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)
- DETOUR M4 - 8
- EAST M3 - X
- XX M1 - 4 OR XX M1 - 6 OR COUNTY M1 - 5A
- OR M05 - 1 OR M06 - 1

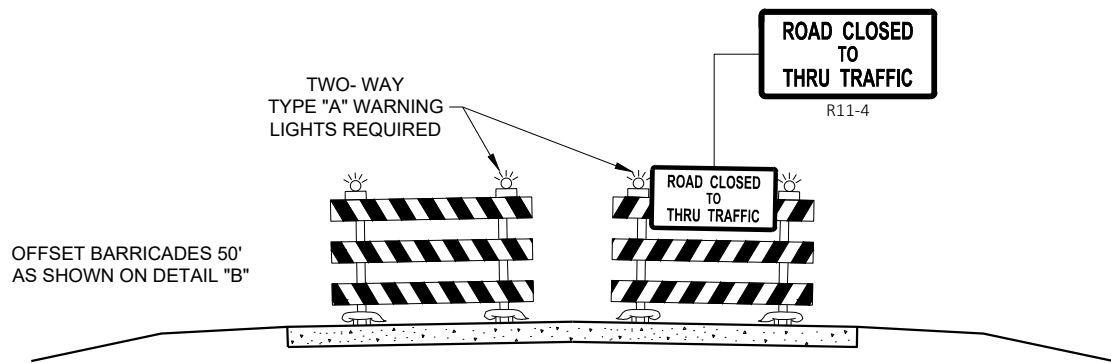
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 173
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"

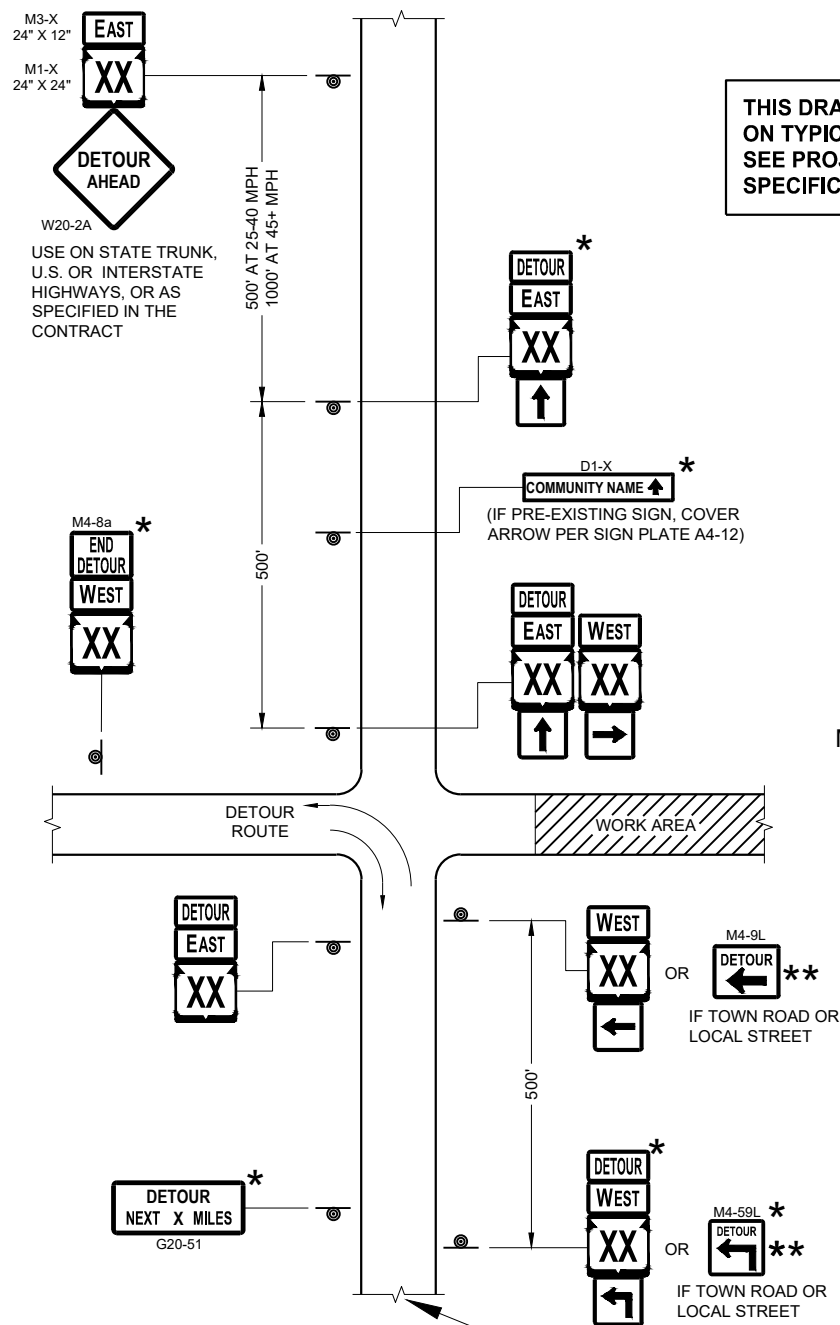
- 1 TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- 2 THESE SIGNS 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 174

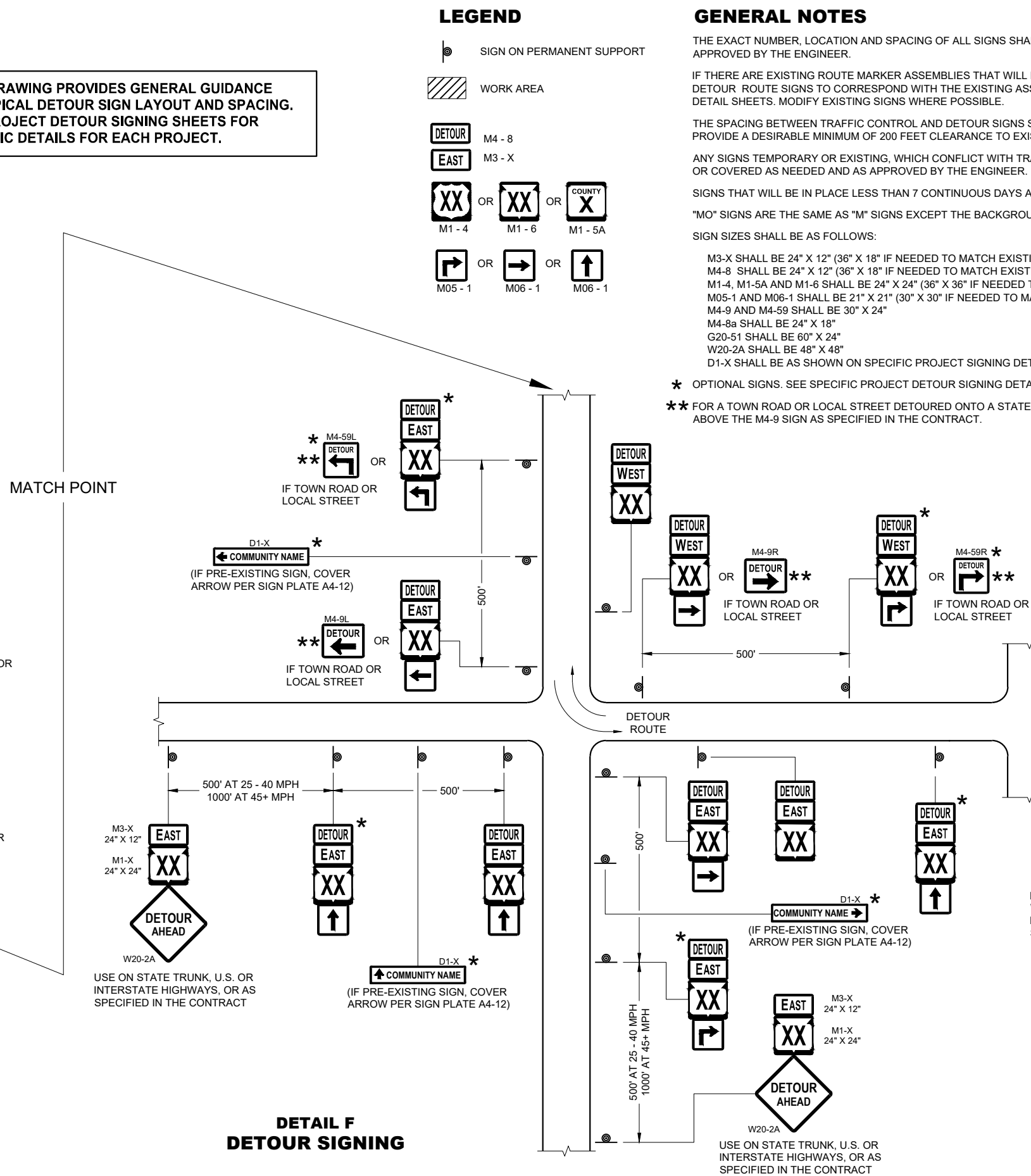
FHWA



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

SEE SPECIFIC PROJECT DETOUR
SIGNING DETAIL SHEETS AND
DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

SDD 15C02 - 09c



DETAIL F DETOUR SIGNING

GENERAL NOTES

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

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

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

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

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

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

SIGN SIZES SHALL BE AS FOLLOWS:

M3-X 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)
M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
M4-9 AND M4-59 SHALL BE 30" X 24"
M4-8a SHALL BE 24" X 18"
G20-51 SHALL BE 60" X 24"
W20-2A SHALL BE 48" X 48"
D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

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

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

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

DETOUR SIGNING FOR MAINLINE CLOSURES

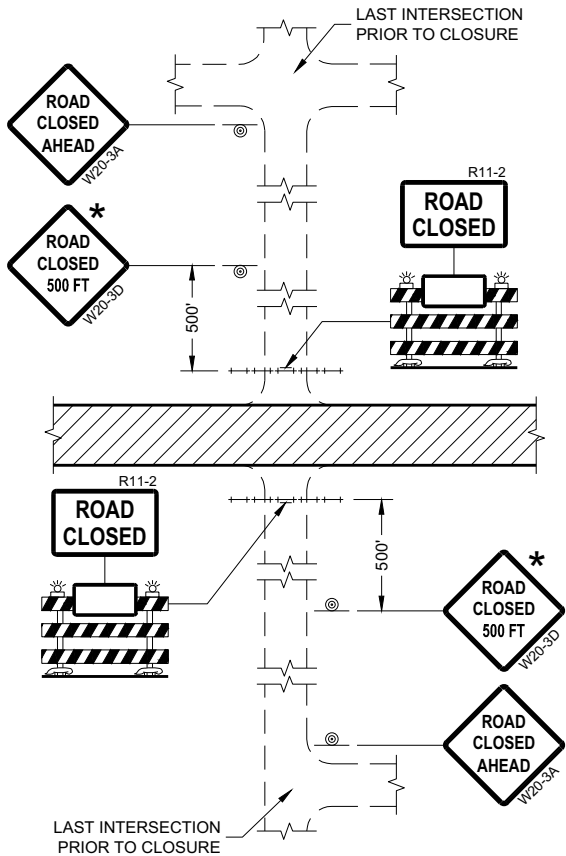
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2023
DATE

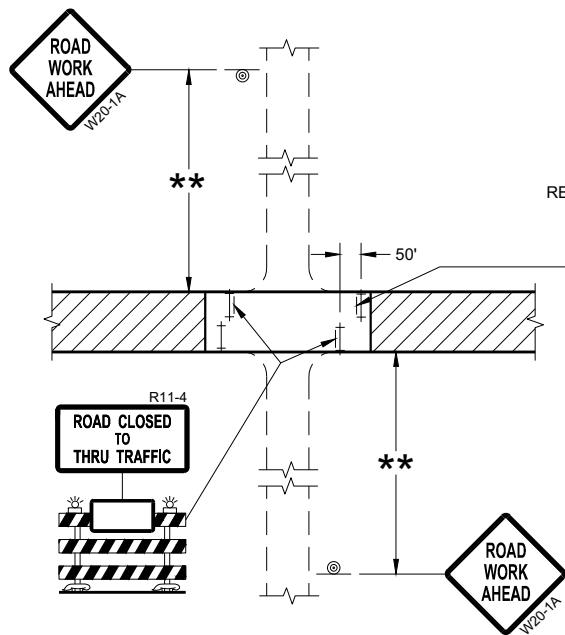
/S/ Andrew Heidtke
WORK ZONE ENGINEER 175

FHWA

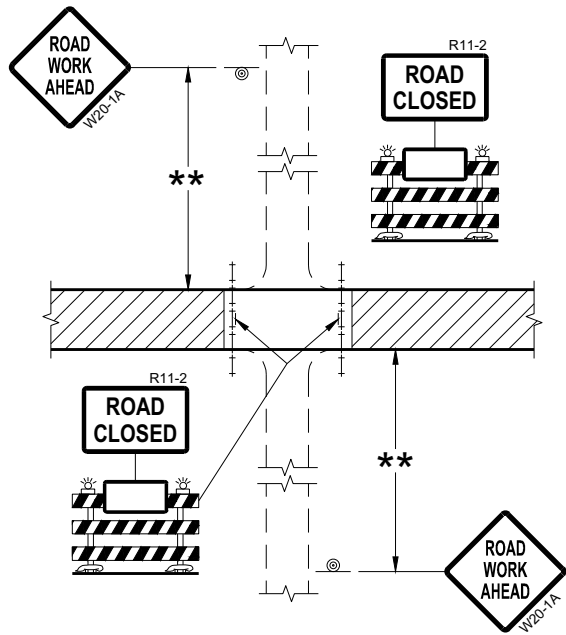
SDD15C02 - 09c



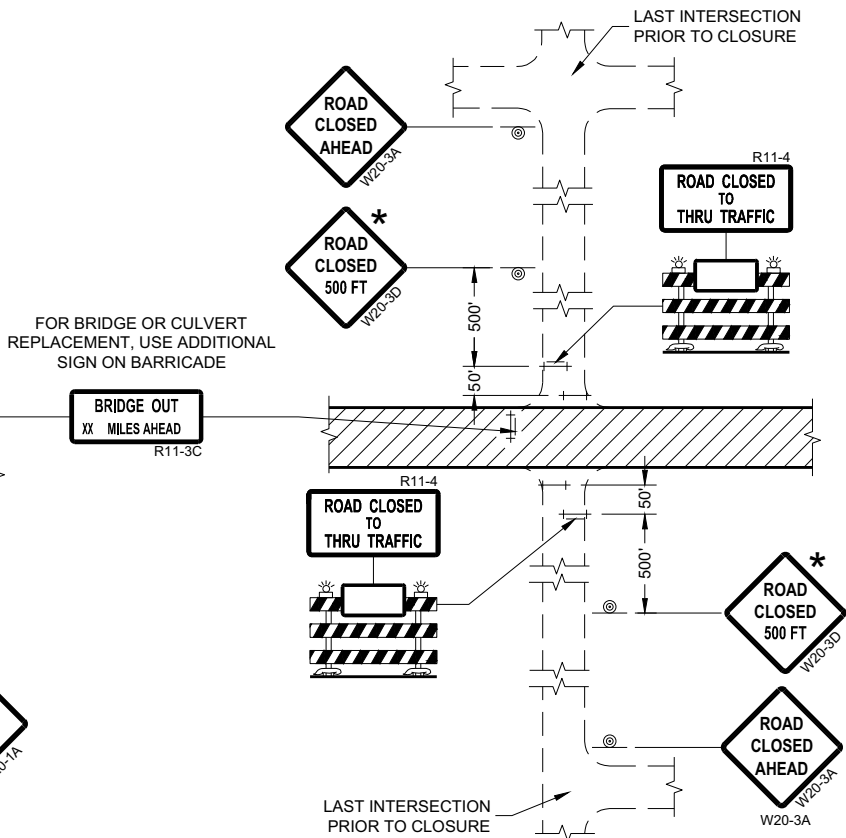
DETAIL 1
(NO ACCESS TO PROJECT)



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



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO 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 176
FHWA

GENERAL NOTES

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

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

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

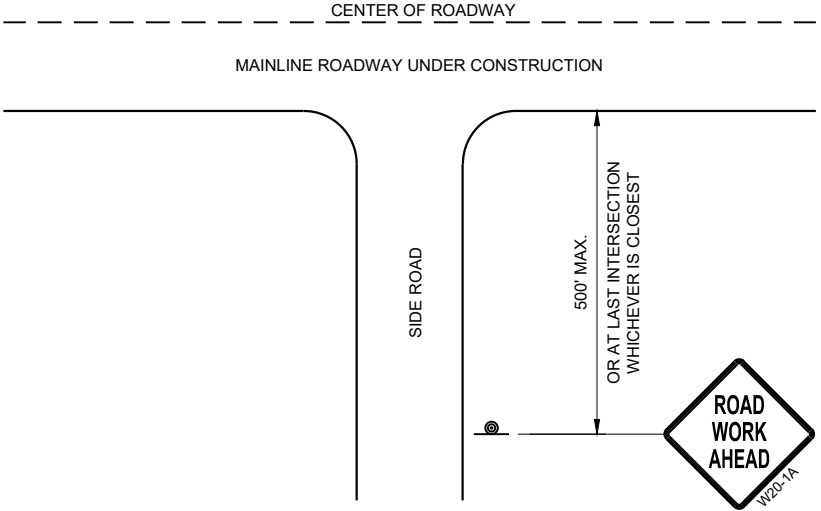
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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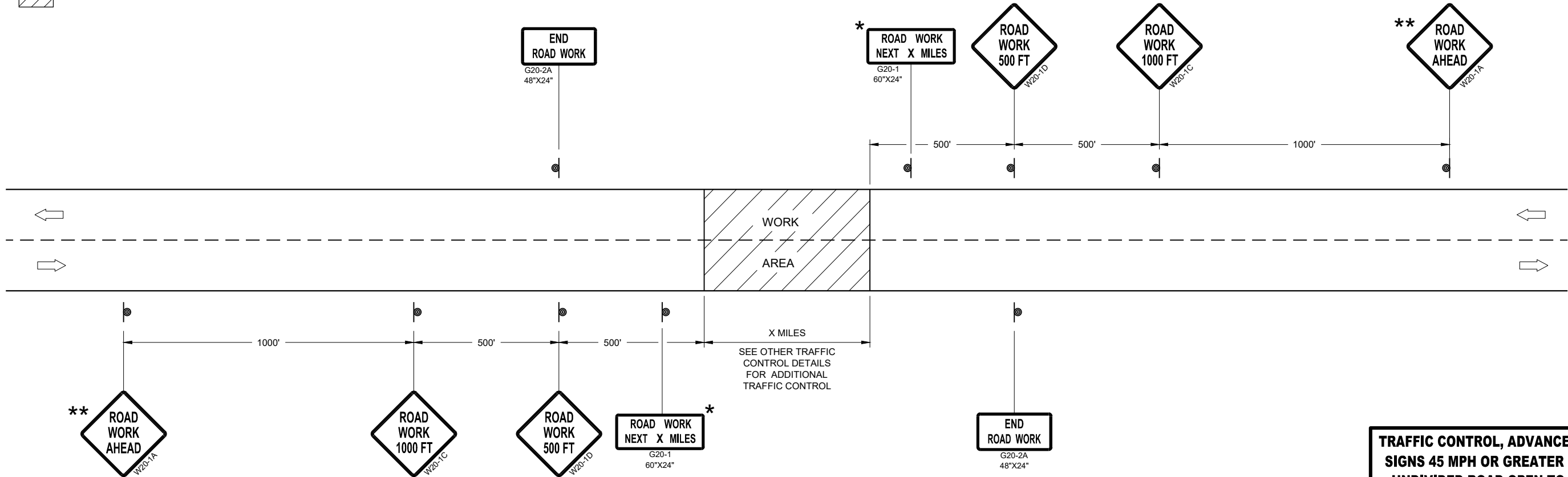
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

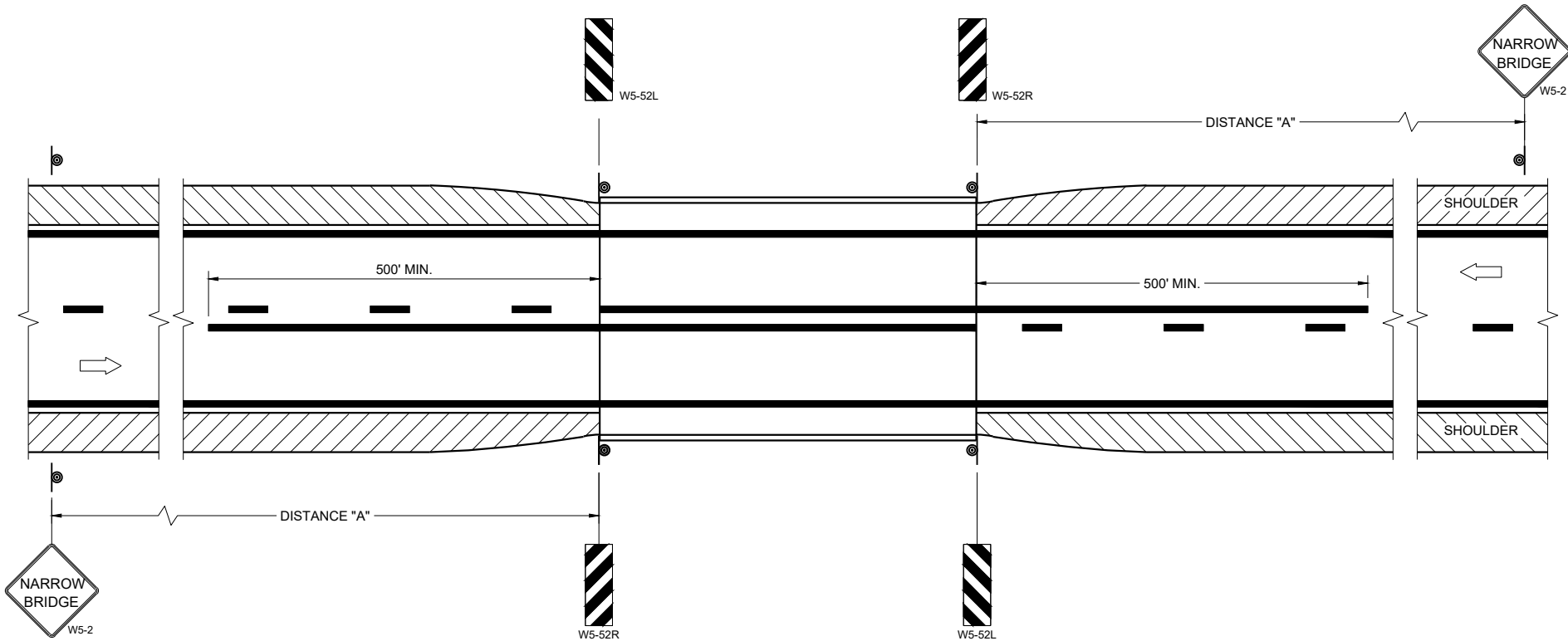


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

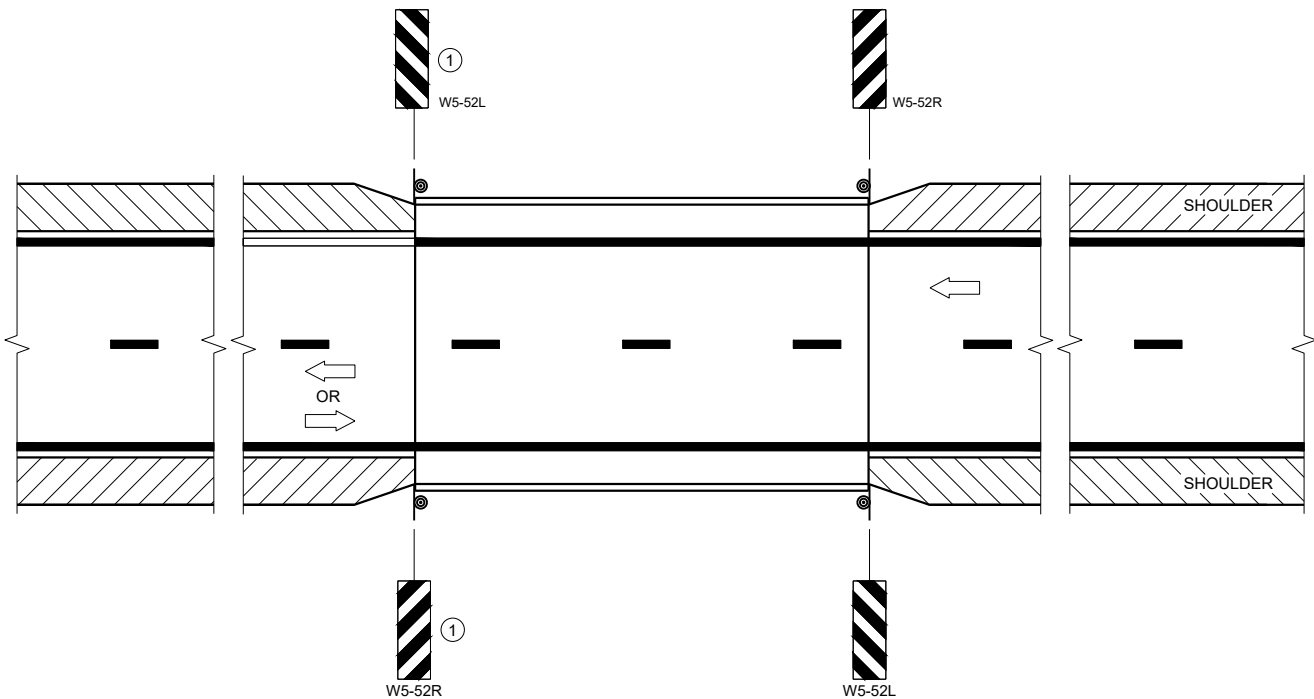
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 177
FHWA



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



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

GENERAL NOTES

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

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

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

ON BRIDGE ONLY PROJECTS, PLACE 300 FEET OF EDGELINE.

OMIT EDGELINES ON ROADWAYS WITHOUT EXISTING EDGELINES.

① OMIT ON ONE-WAY TRAVELED WAYS.

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

➡ DIRECTION OF TRAFFIC

DISTANCE TABLE

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

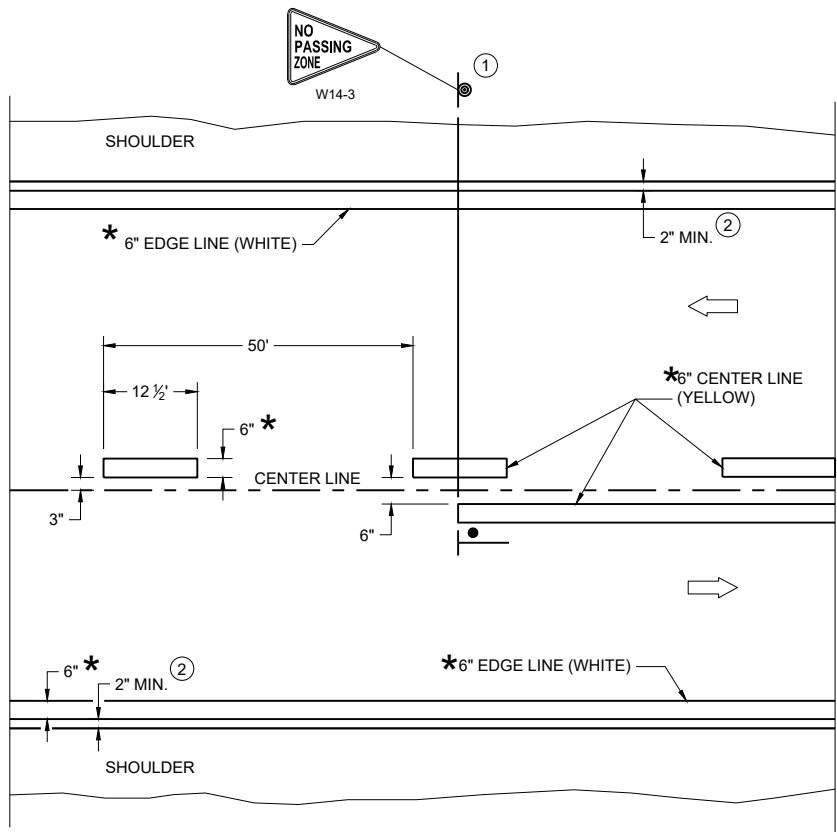
**SIGNING AND MARKING
FOR TWO LANE BRIDGES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

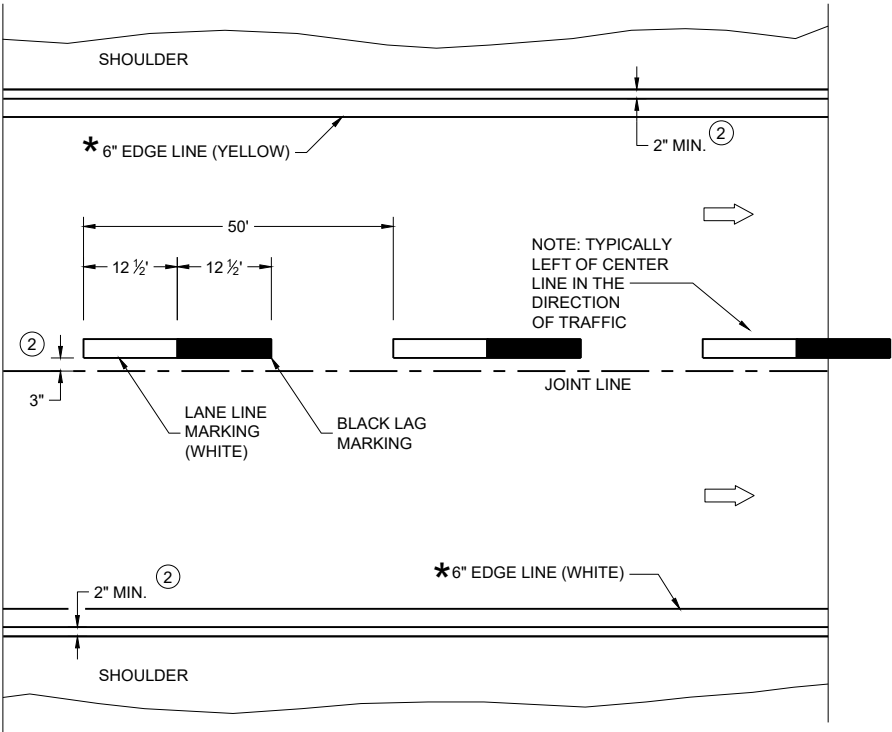
APPROVED
May 2023
DATE

/S/ Jeannie Silver
Statewide Pavement Marking Engineer

FHWA 178



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

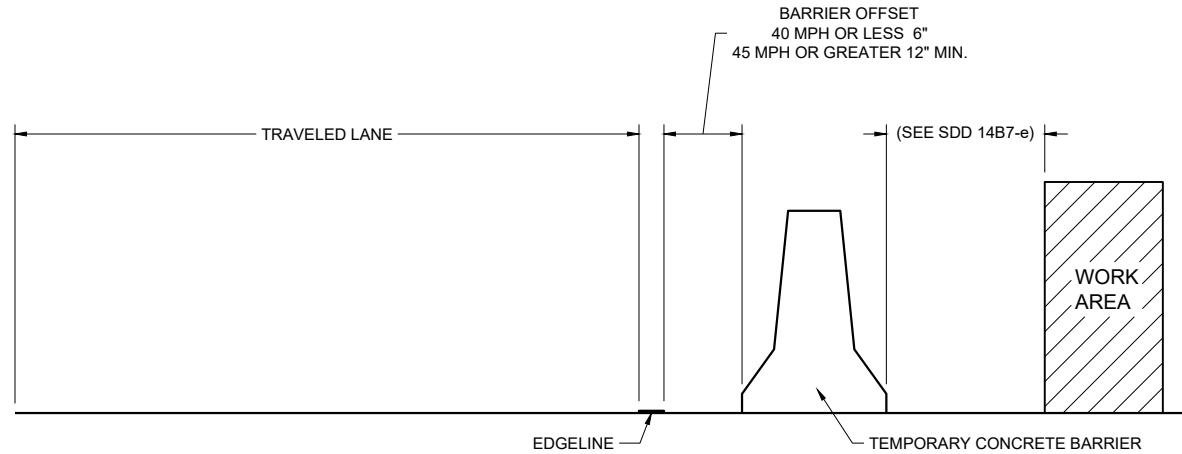
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- 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

PERMANENT LONGITUDINAL PAVEMENT MARKINGS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer



TEMPORARY BARRIER OFFSET FROM EDGE LINE

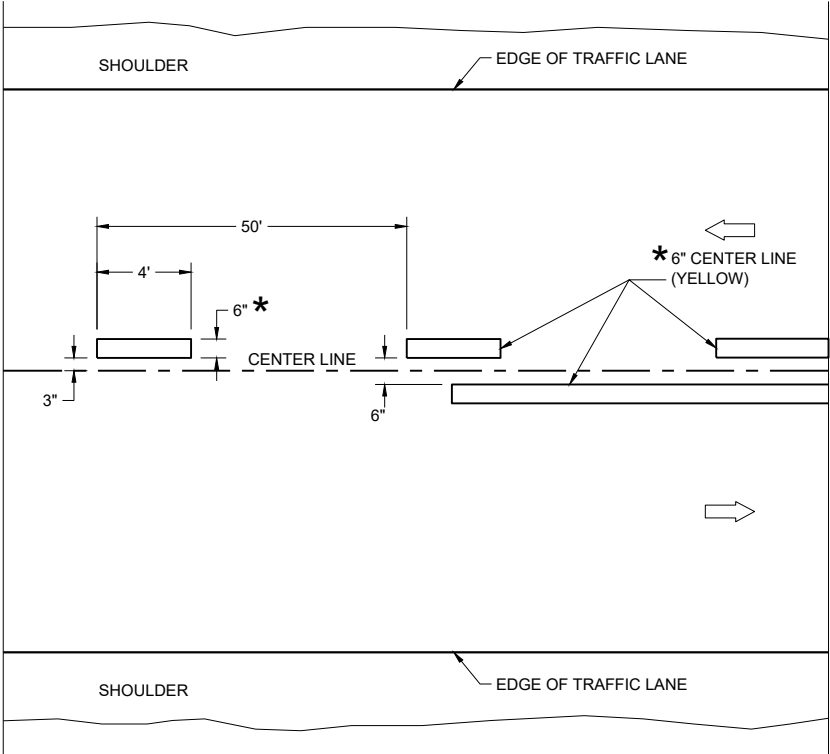
GENERAL NOTES

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

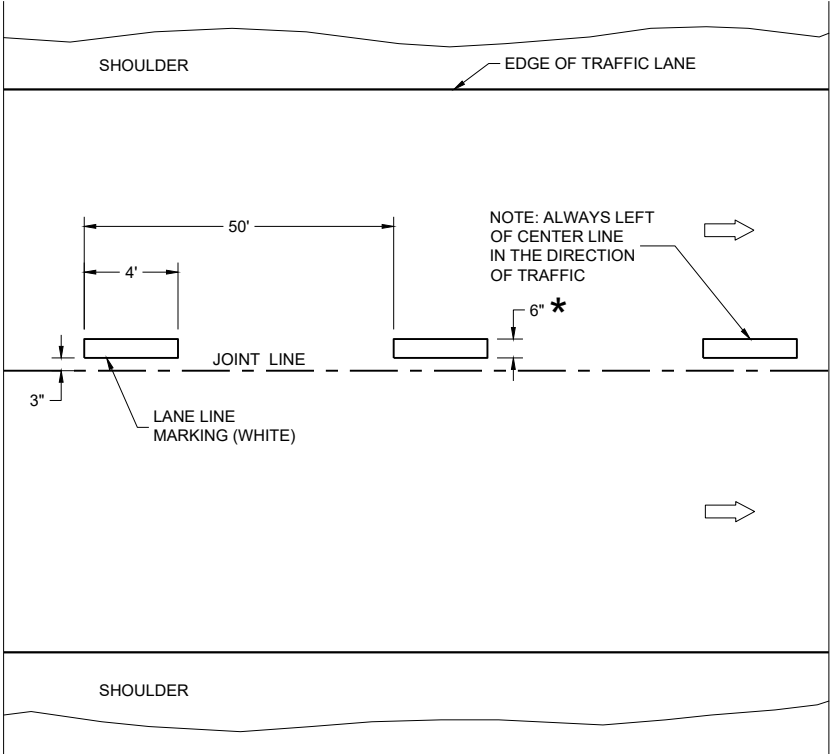
LEGEND

➡ DIRECTION OF TRAFFIC

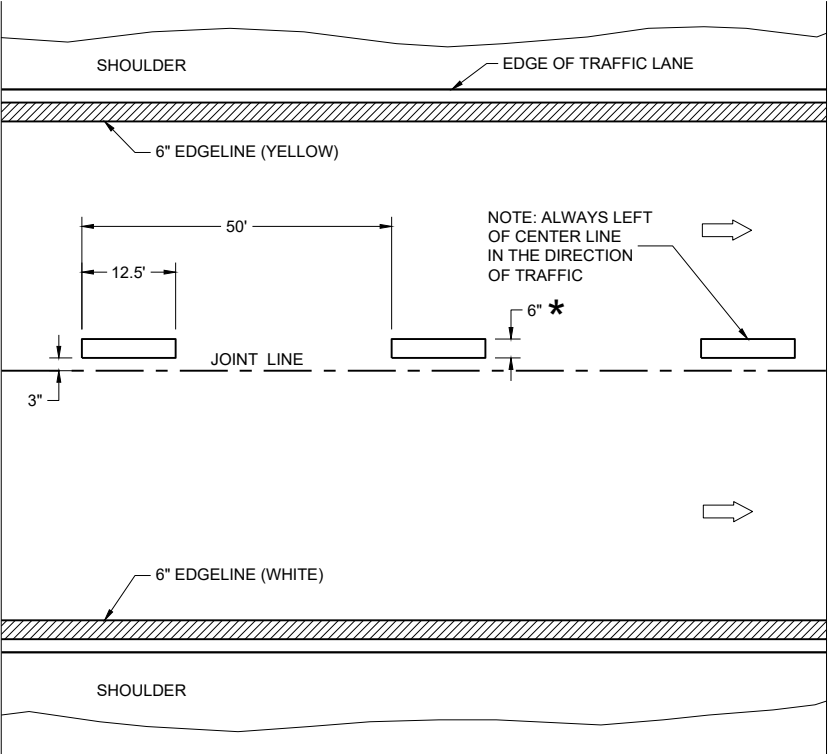
* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



ONE WAY TRAFFIC

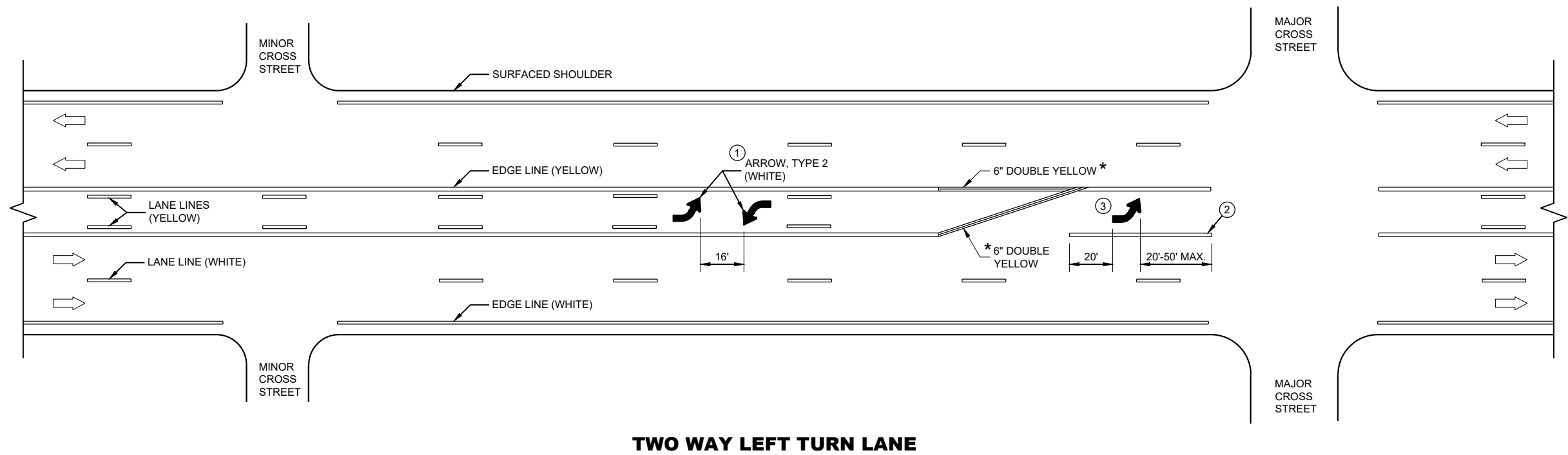


FREEWAYS AND EXPRESSWAYS

TEMPORARY PAVEMENT MARKING

TEMPORARY LONGITUDINAL PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2023 DATE	/S/ Jeannie Silver Statewide Pavement Marking Engineer

FHWA



GENERAL NOTES

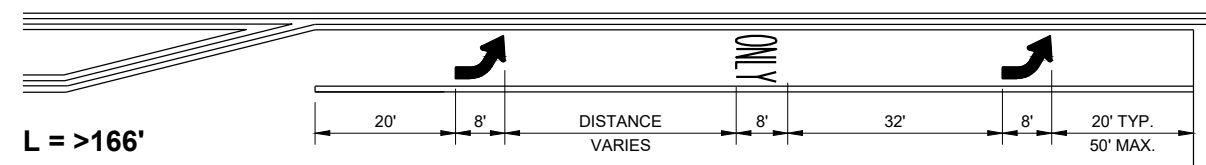
- ① A SET OF ARROWS IS REQUIRED EVERY 400 FEET OR NEAR INTERSECTIONS OR DRIVEWAYS WITH TURNING TRAFFIC.
- ② 10" WHITE
- ③ TURN BAY LENGTH OF LESS THAN 48' DOES NOT REQUIRE PAVEMENT ARROWS OR TEXT.

➡ DIRECTION OF TRAFFIC

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



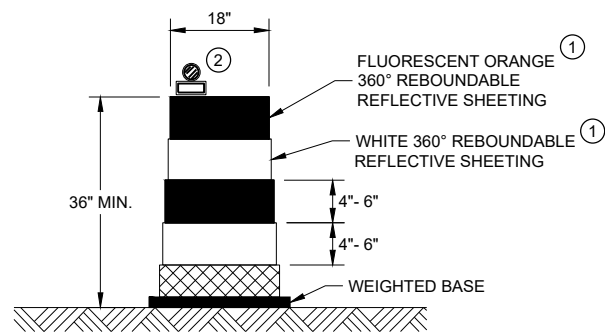
LENGTH OF TURN BAY (**L**) OF 0 - 47' DOES NOT
REQUIRE PAVEMENT MARKING ARROWS OR WORDS



① QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

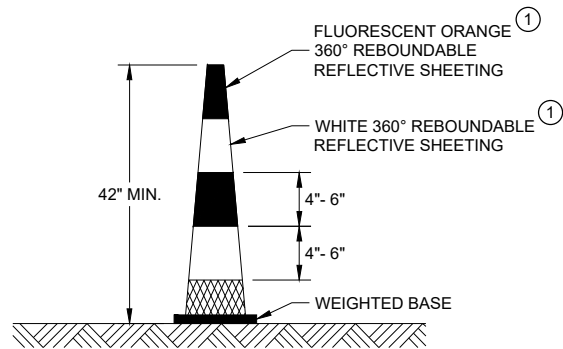
L = LENGTH OF TURN BAY

* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



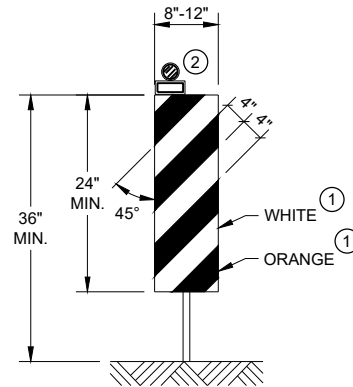
DRUM

BALLAST WIDTHS
RANGE FROM 24"-36"



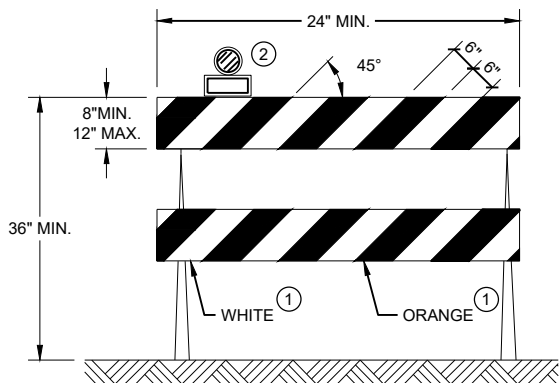
42" CONE

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



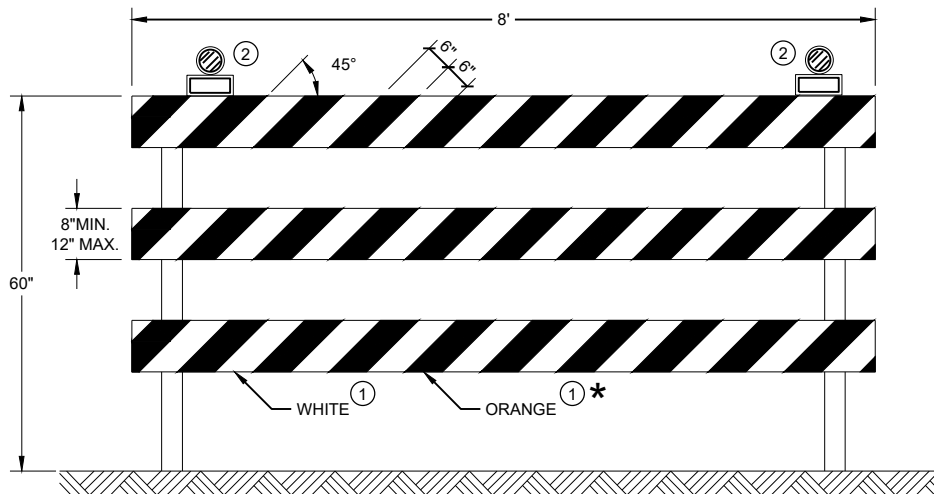
VERTICAL PANEL

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



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.

GENERAL NOTES

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

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 183
FHWA

LEGEND

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

GENERAL NOTES

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

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

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

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

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

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

FLAGGING

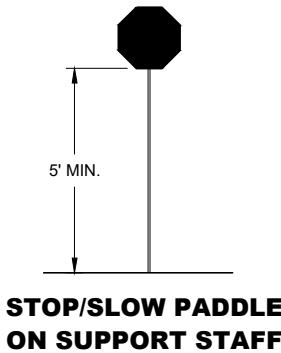
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

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

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

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

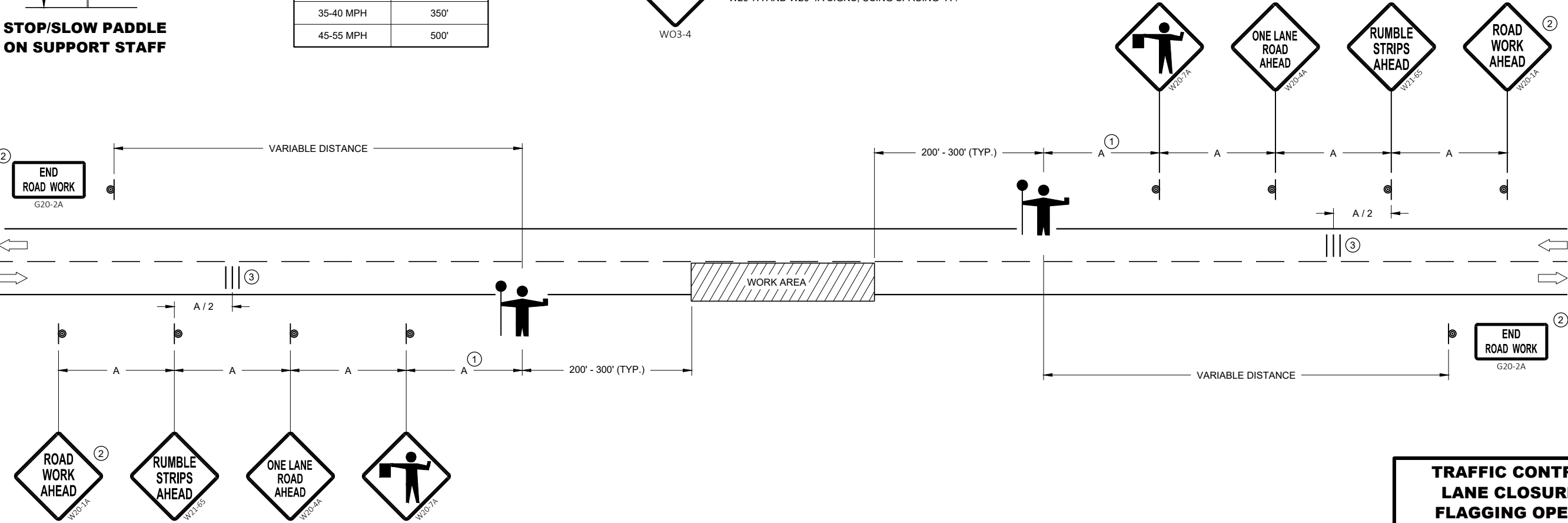


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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



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



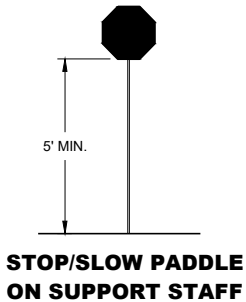
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 184

FHWA

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



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

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

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

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

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

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

SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

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

- FLAGGING**
IF THE AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) STOPS WORKING, FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.
- ① SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

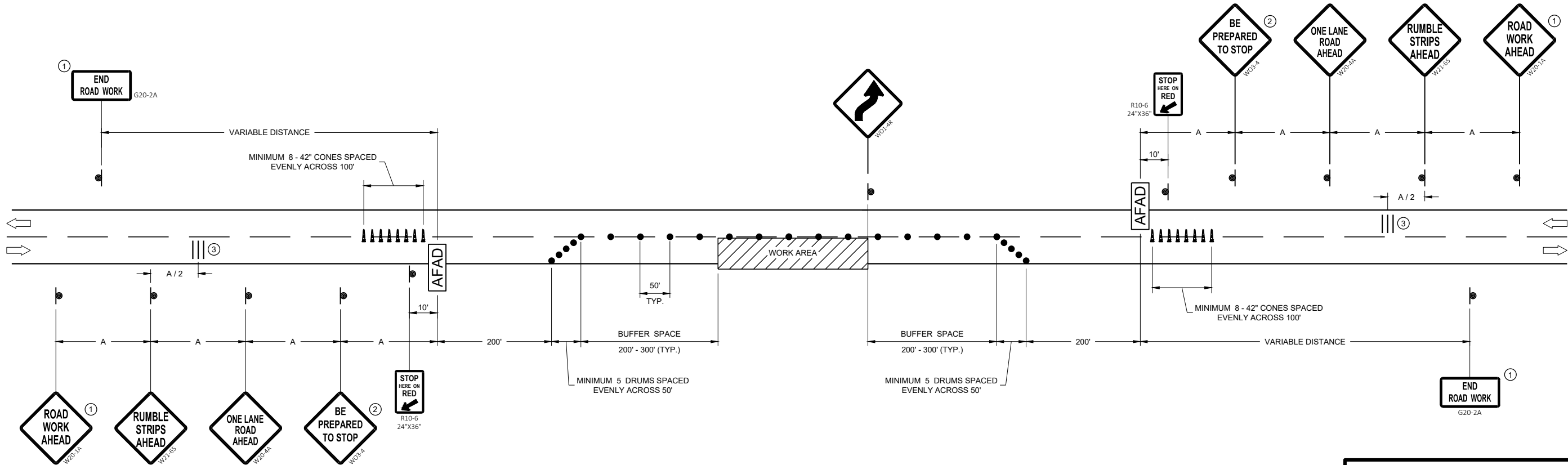
② IF FLAGGERS ARE PHYSICALLY NEEDED TO FLAG, REPLACE WO3-4 SIGNS WITH W20-7A SIGNS.
- TEMPORARY PORTABLE RUMBLE STRIPS**
UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

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

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

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

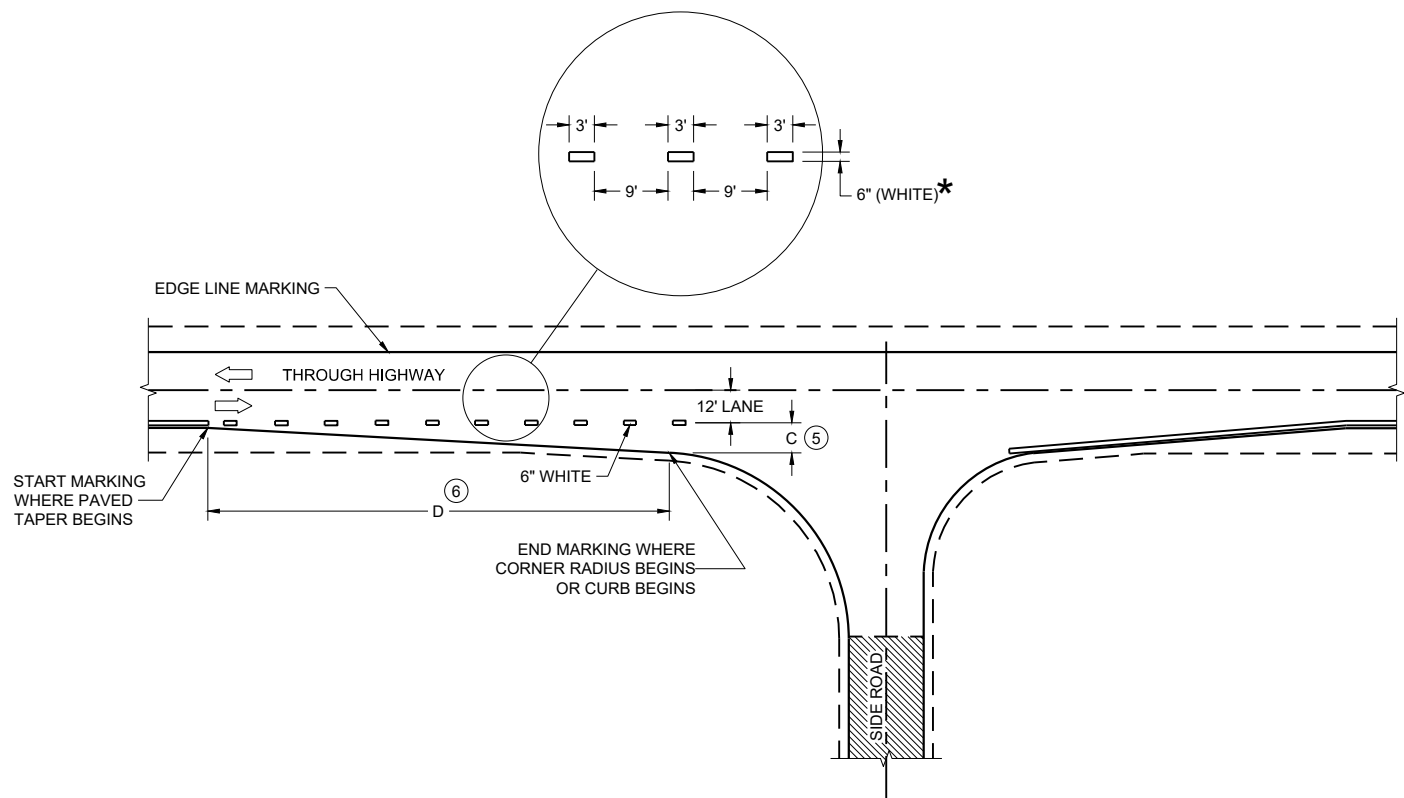
③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSELY AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER.



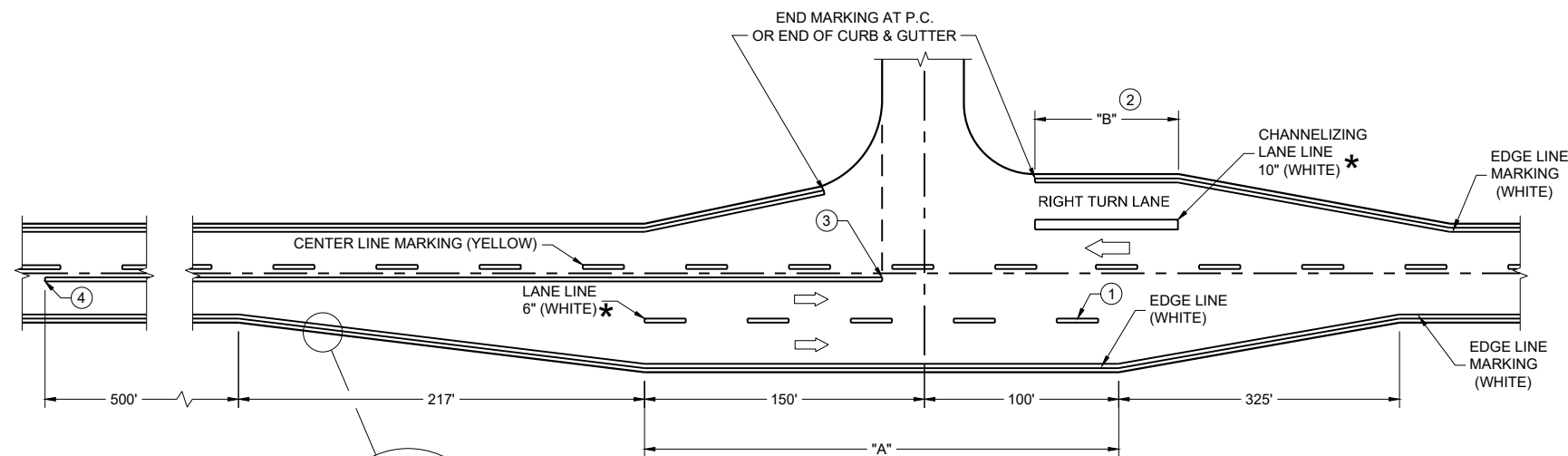
TRAFFIC CONTROL, LANE CLOSURE WITH AUTOMATED FLAGGER ASSISTANCE DEVICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 185
FHWA



MINOR INTERSECTION



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

*CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

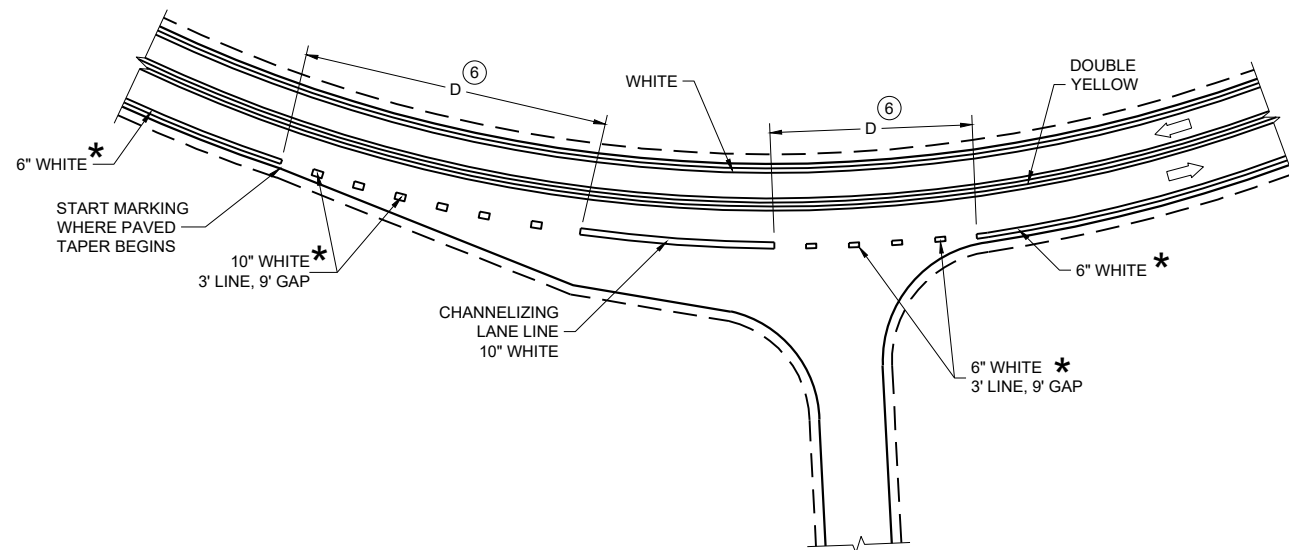
GENERAL NOTES

OMIT EDGE LINES THROUGH INTERSECTIONS. CONTINUE EDGE LINES THROUGH DRIVEWAYS.

- ① WHEN DISTANCE "A" IS LESS THAN 250 FEET, OMIT LANE LINE.
- ② WHEN DISTANCE "B" IS LESS THAN 100 FEET, OMIT CHANNELIZING LANE LINE.
- ③ BARRIER LINE ENDS AT SIDE ROAD PAVEMENT / SURFACE EDGE EXTENSION.
- ④ BARRIER LINE STARTS 500 FEET PRIOR TO THE BYPASS TAPER.
- ⑤ WHEN DISTANCE "C" IS LESS THAN 4 FEET, OMIT DOTTED EXTENSION.
- ⑥ WHEN DISTANCE "D" IS LESS THAN 50 FEET, OMIT DOTTED EXTENSION.

LEGEND

➡ DIRECTION OF TRAVEL



INTERSECTION ON OUTSIDE OF CURVE

PAVEMENT MARKING
(INTERSECTIONS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

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

GENERAL NOTES

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

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

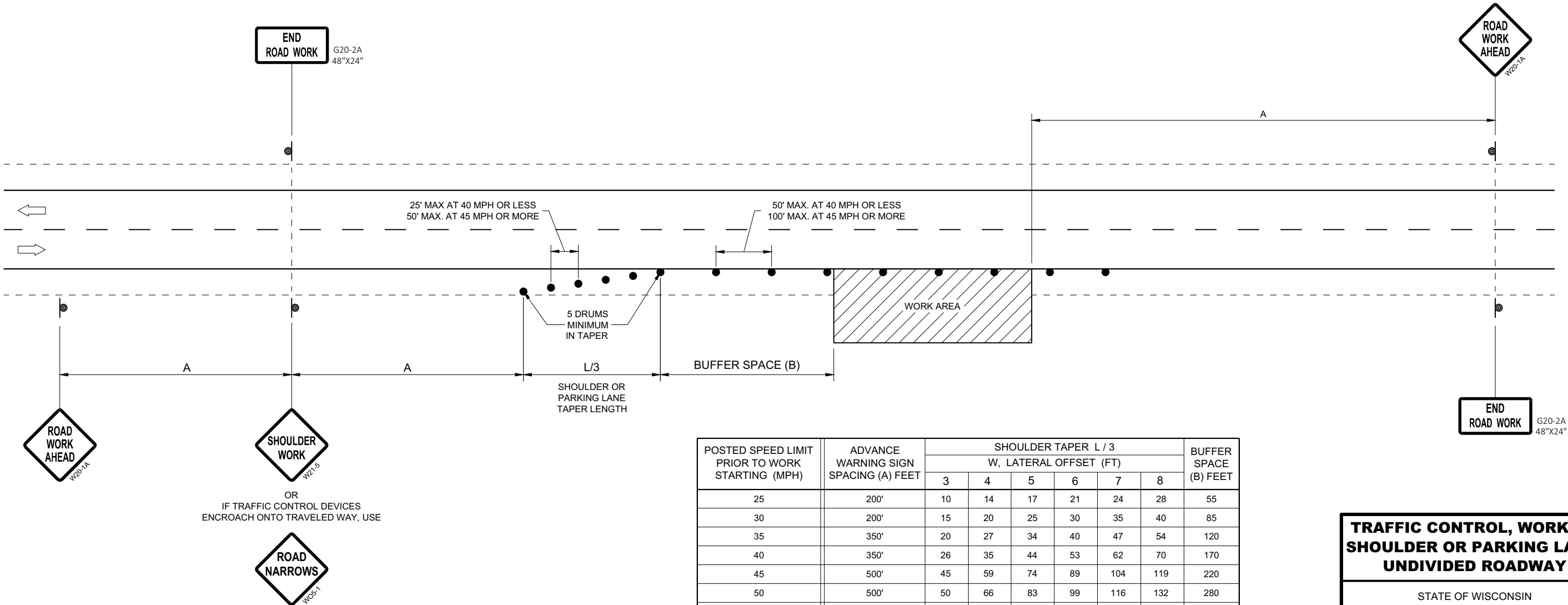
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

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

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

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

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

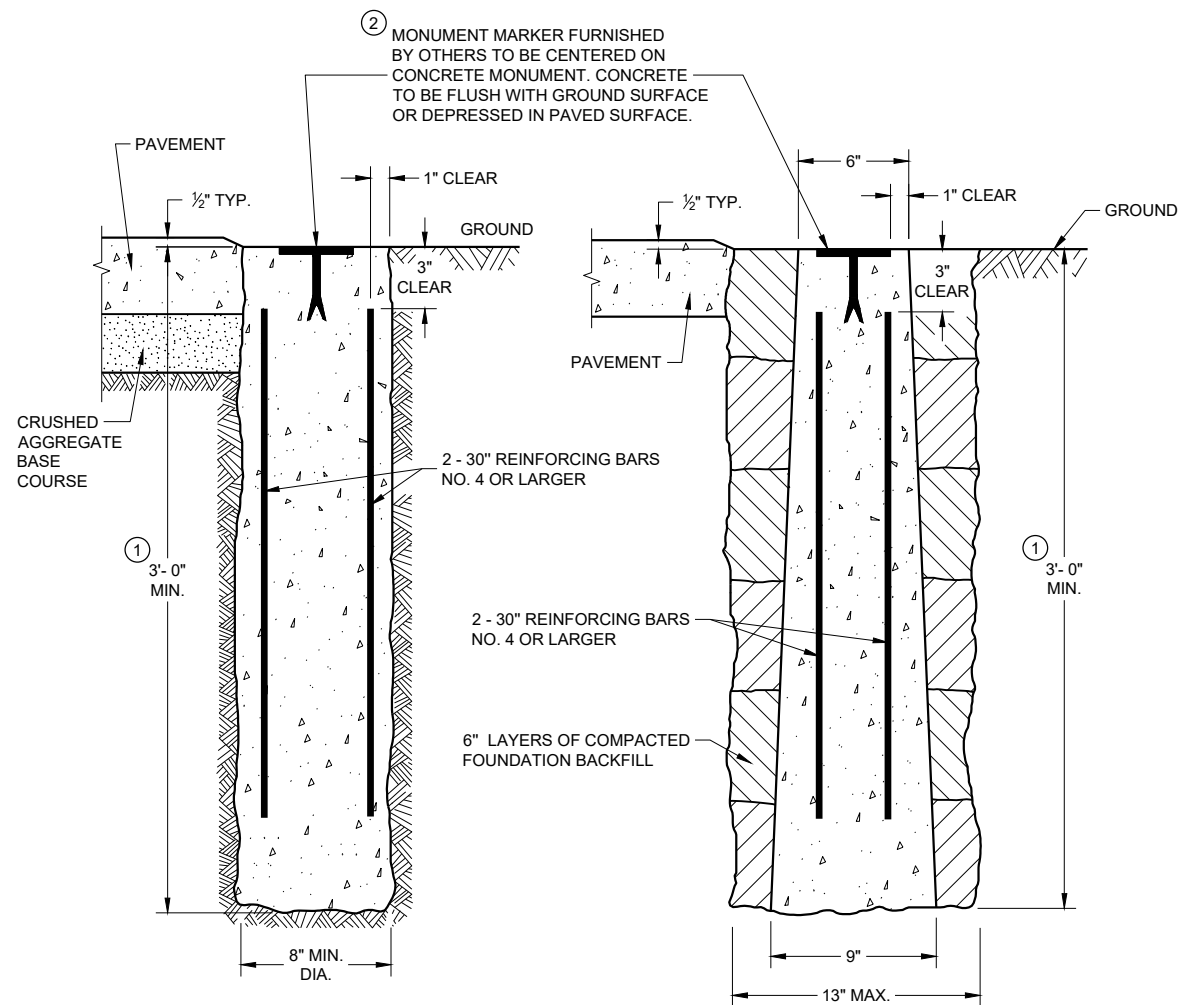


POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

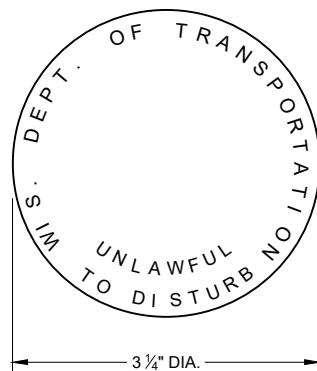
APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE T
SAFETY ENGINEER 187
FHWA



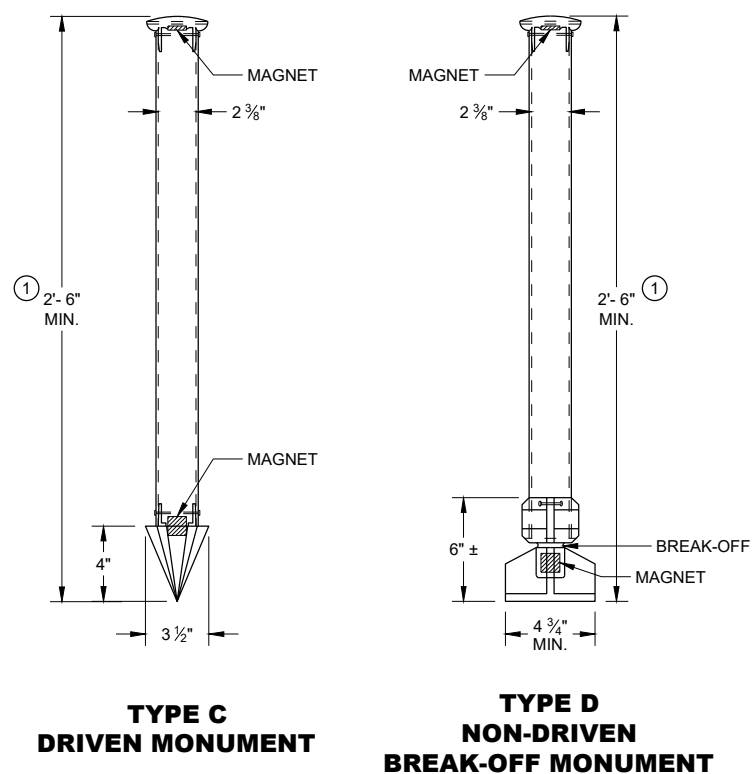
CAST-IN-PLACE

PRECAST

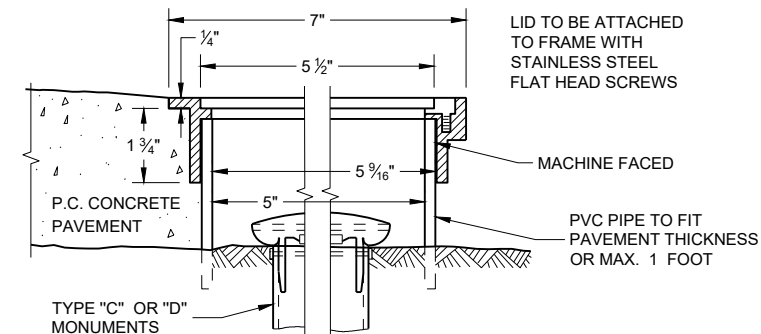
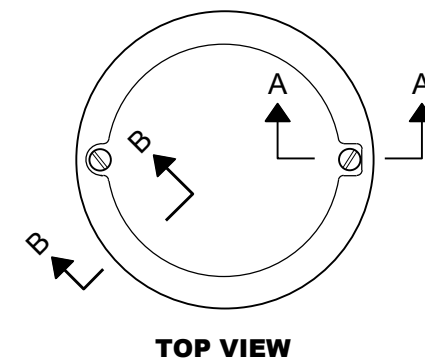
CONCRETE MONUMENTS TYPE A



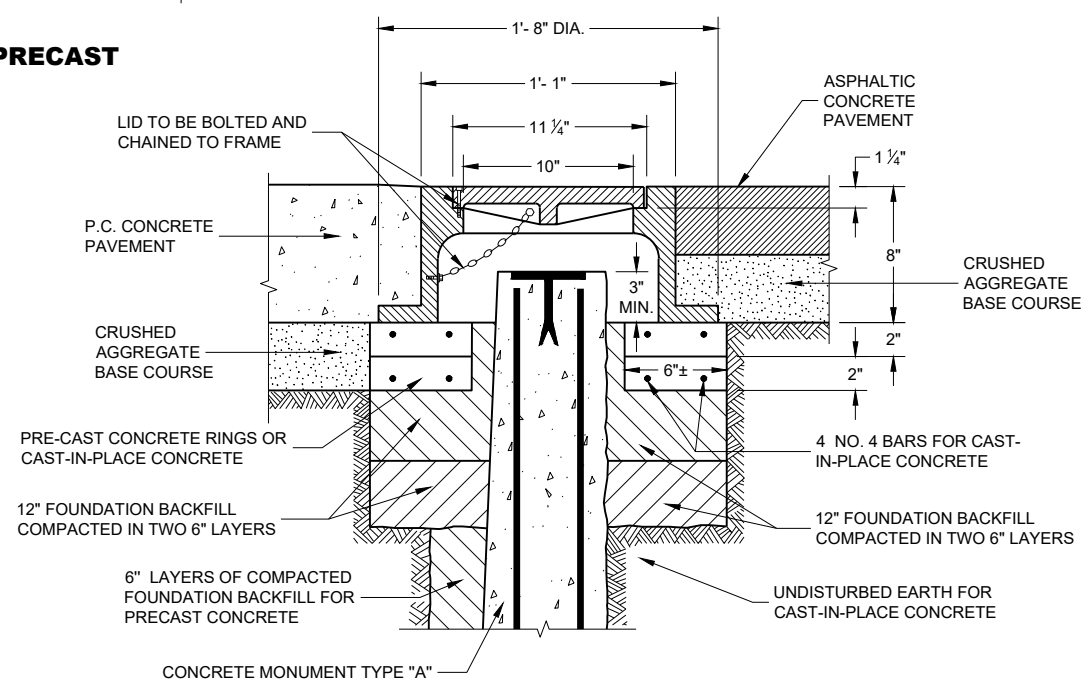
② **WIS DOT MONUMENT MARKER LOGO**
FOR TYPES "A", "C" & "D"



ALUMINUM MONUMENTS (INCLUDES MARKER)



SECTION B-B SECTION A-A
ALUMINUM MONUMENT COVER
(APPROXIMATE WEIGHT 2 LBS)
(FOR CONCRETE PAVEMENT ONLY)



CAST IRON MONUMENT COVER
(APPROXIMATE WEIGHT 95 LBS)

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.

DETAILED DRAWINGS OF PROPOSED ALTERNATE DESIGNS FOR METAL MONUMENTS OR MONUMENT COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

PERMANENT MAGNETS SHALL BE INSERTED NEAR THE TOP AND BOTTOM OF ALL ALUMINUM MONUMENTS SO THE MONUMENT CAN EASILY BE DETECTED BY A METAL DETECTOR.

THE CAST IRON MONUMENT COVER SHALL BE A "NON-ROCKING" TYPE. ADJUSTMENT OF THE COVER TO GRADE MAY BE ACCOMPLISHED BY THE USE OF MORTAR AND BRICK, OR BY EITHER PRECAST OR CAST-IN-PLACE REINFORCED CONCRETE GRADE RINGS.

MONUMENTS SHALL BE LOCATED AND PLACED AT THE DIRECTION OF THE ENGINEER.

ALUMINUM MONUMENTS AND MONUMENT COVERS SHALL BE MADE FROM AN ALUMINUM AND MAGNESIUM ALLOY AS DETERMINED BY THE MANUFACTURER.

THE MONUMENT COVERS DETAILED ON THIS DRAWING ARE NOT EQUAL ALTERNATES. MONUMENT COVERS SHALL BE CAST IRON UNLESS ALUMINUM IS SPECIFIED ELSEWHERE IN THE CONTRACT.

MONUMENT SHALL BE CAST-IN-PLACE CONCRETE UNLESS PRECAST CONCRETE OR ALUMINUM MONUMENTS ARE SPECIFIED IN THE CONTRACT OR PERMITTED BY THE ENGINEER.

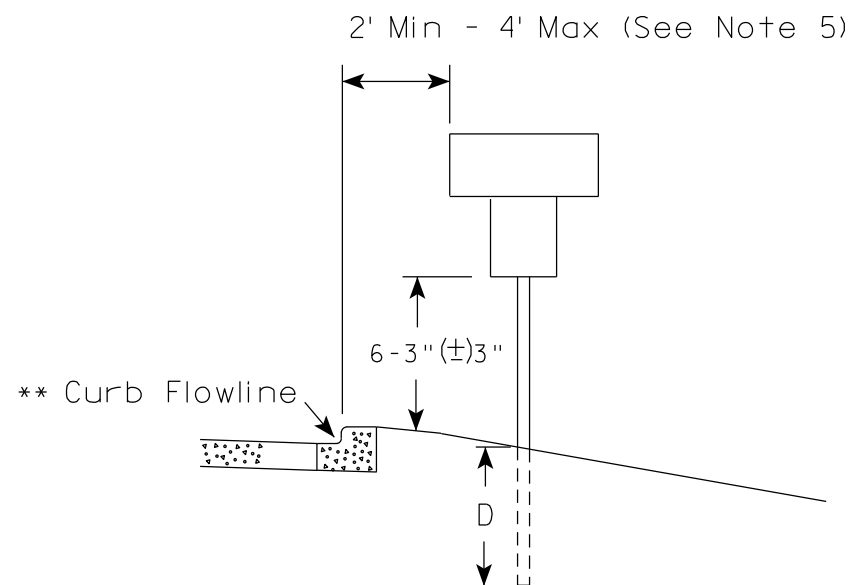
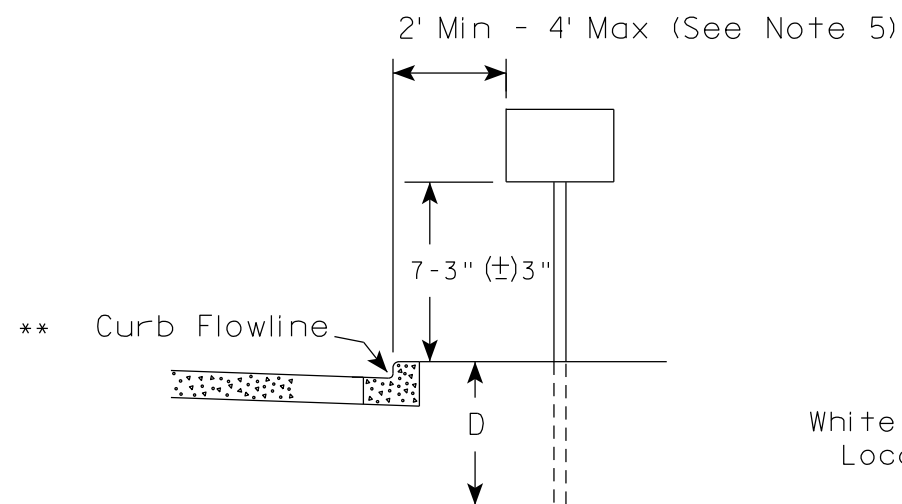
- ① MINIMUM LENGTH SHALL BE 4'-0" FOR MONUMENTS INSTALLED IN PAVED AREAS.
- ② AN OFFICIAL COUNTY MONUMENT MARKER SUPPLIED BY A COUNTY MAY BE REQUIRED FOR SOME SECTION CORNERS AND WITNESS MONUMENTS INSTEAD OF THIS WISDOT MARKER.

LANDMARK REFERENCE MONUMENTS AND COVERS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

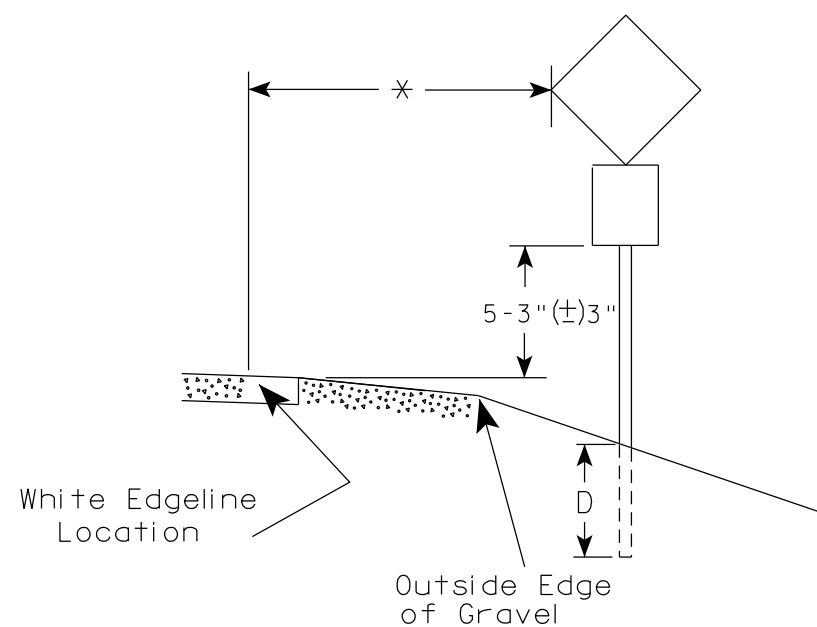
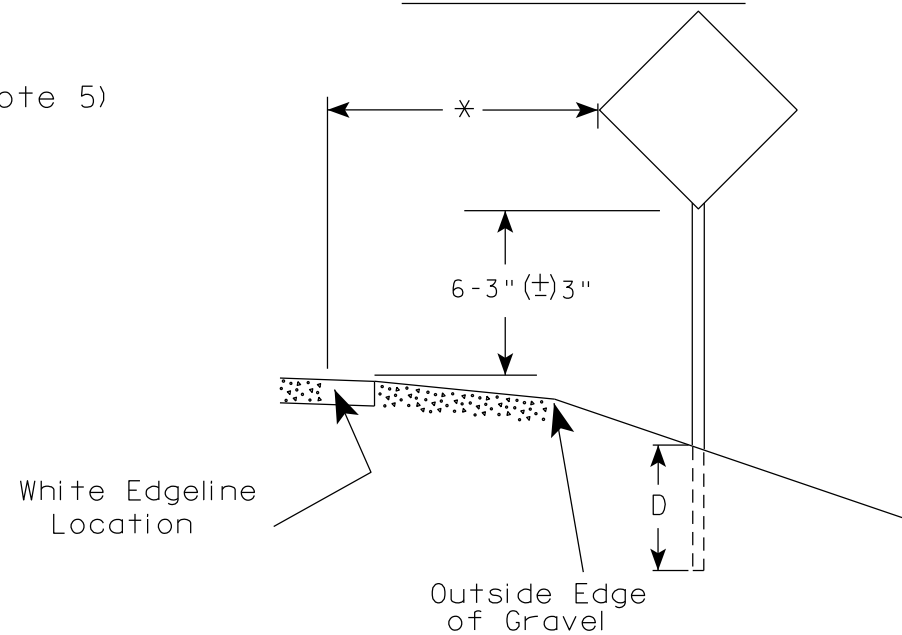
APPROVED
March 2018 /S/ Raymond A. Kumaovii
DATE CHIEF SURVEYING AND MAPPING ENGINEER 188
FHWA

URBAN AREA



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

RURAL AREA (See Note 2)



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

POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 12/6/23

PLATE NO. A4-3.23

PROJECT NO:

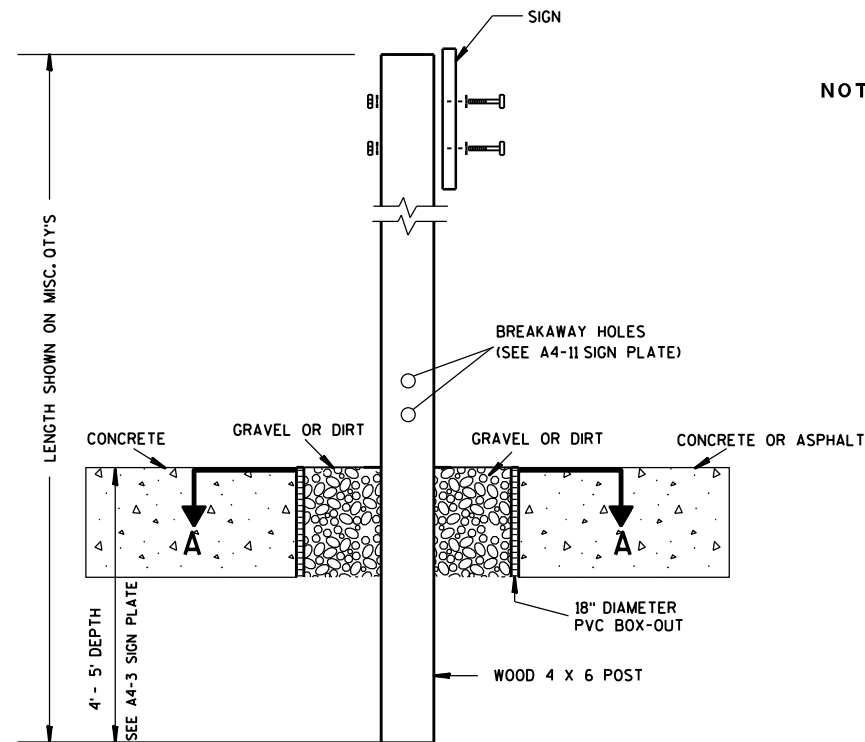
HWY:

COUNTY:

SHEET NO:

189

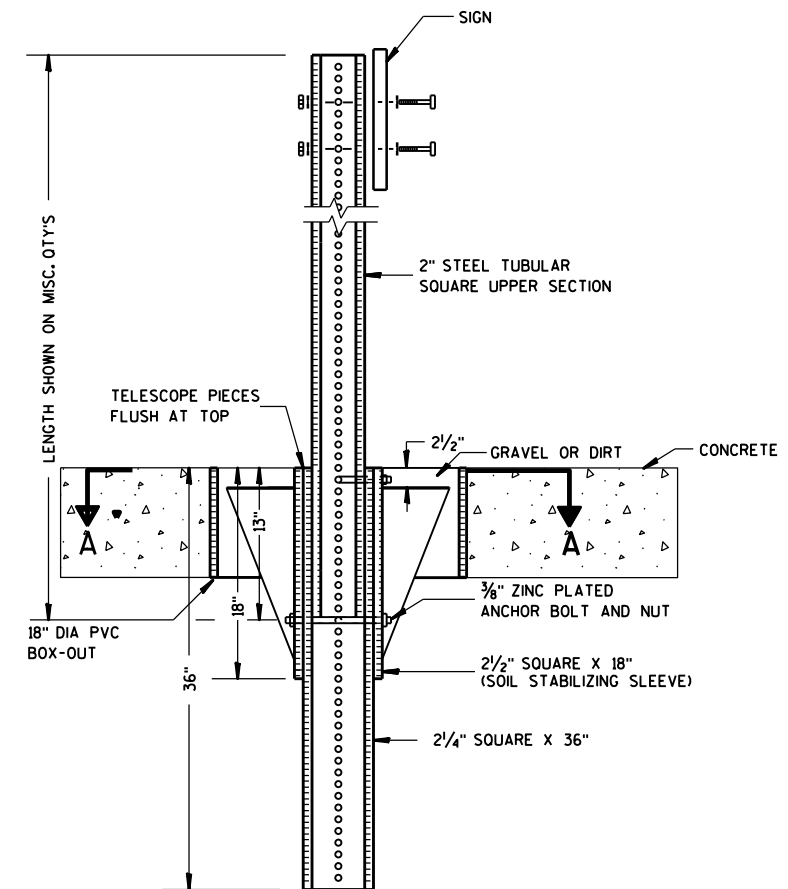
E



ELEVATION VIEW

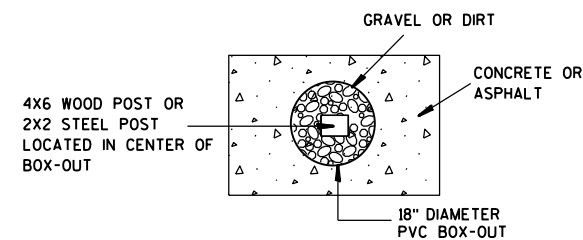
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 190 A4-3B.1

PROJECT NO:

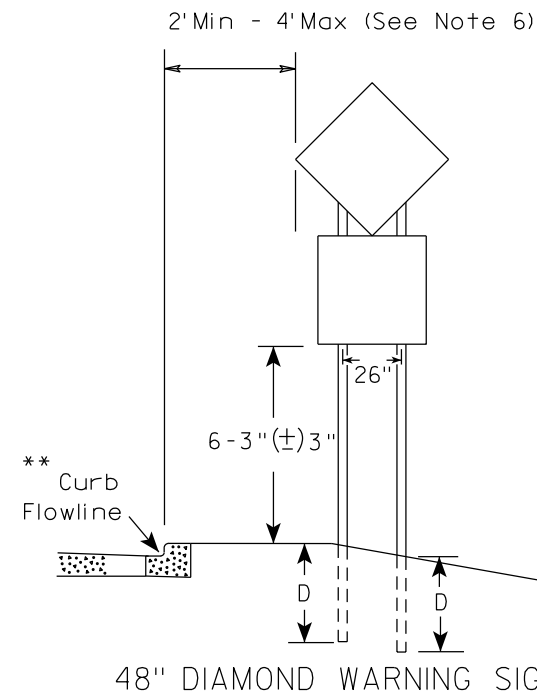
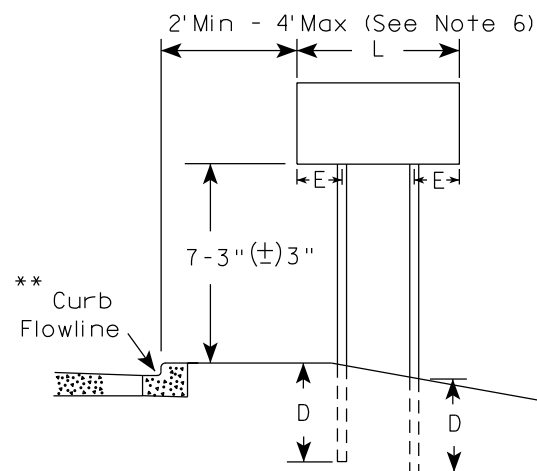
HWY:

COUNTY:

SHEET NO:

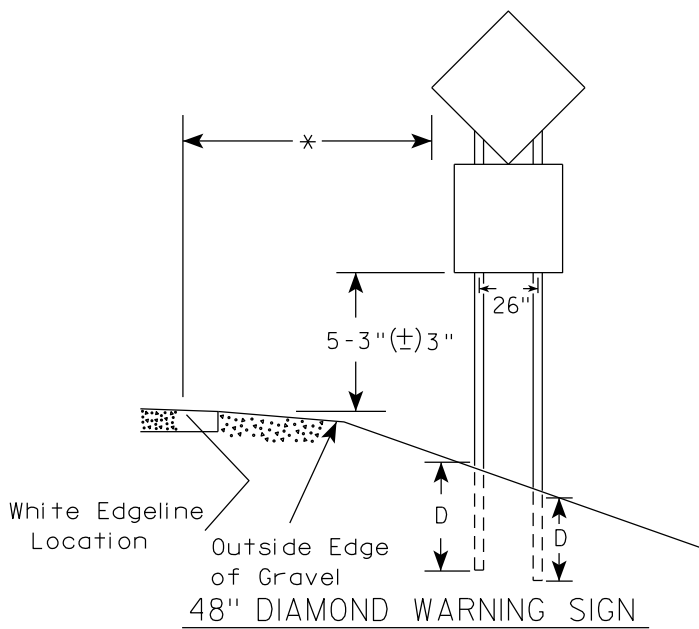
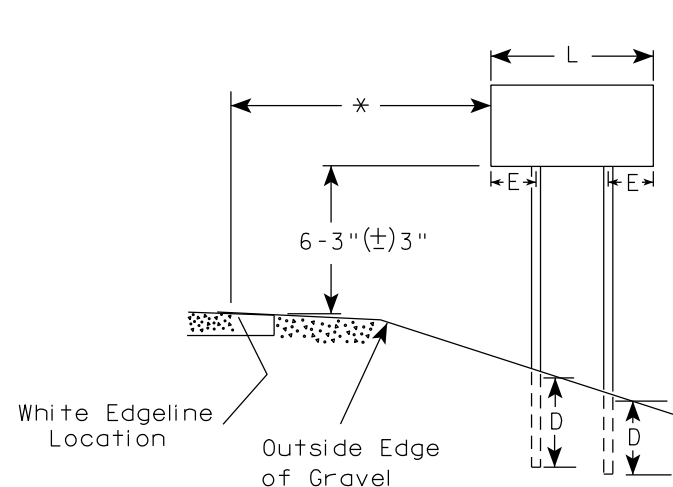
E

URBAN AREA

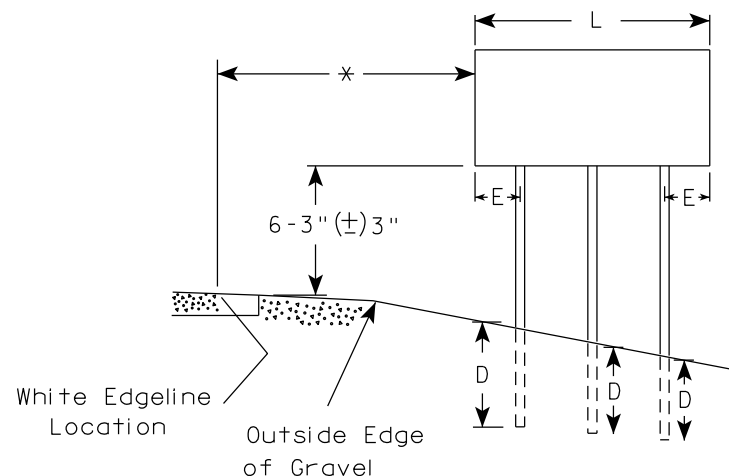


SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

RURAL AREA (See Note 3)



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



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

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

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

GENERAL NOTES

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

POST EMBEDMENT DEPTH

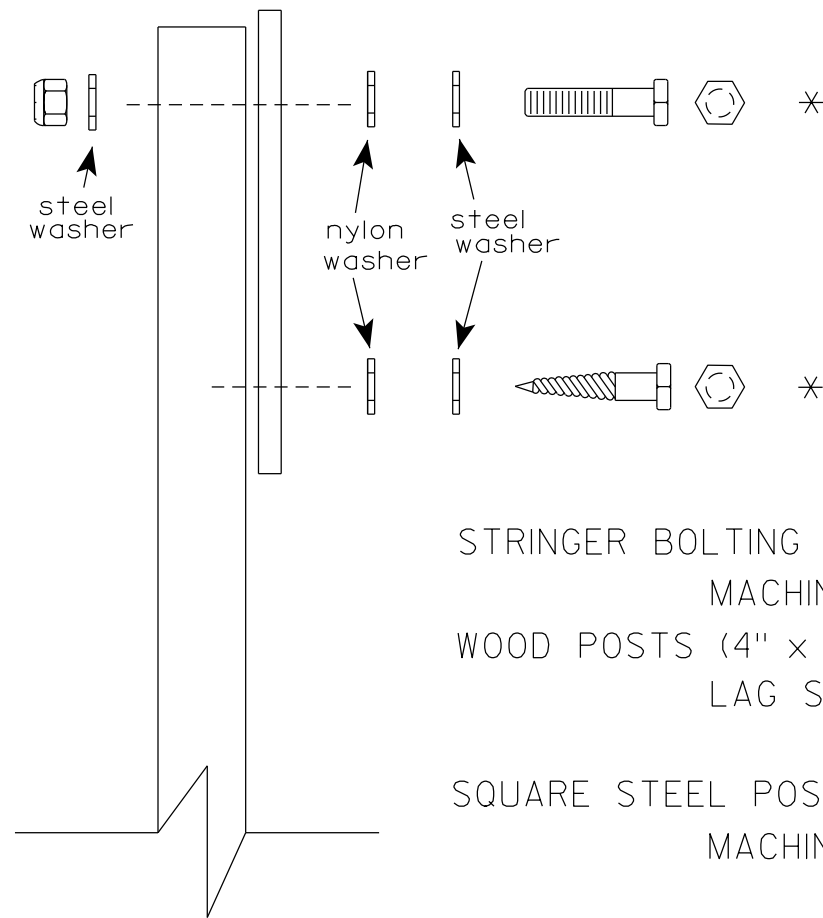
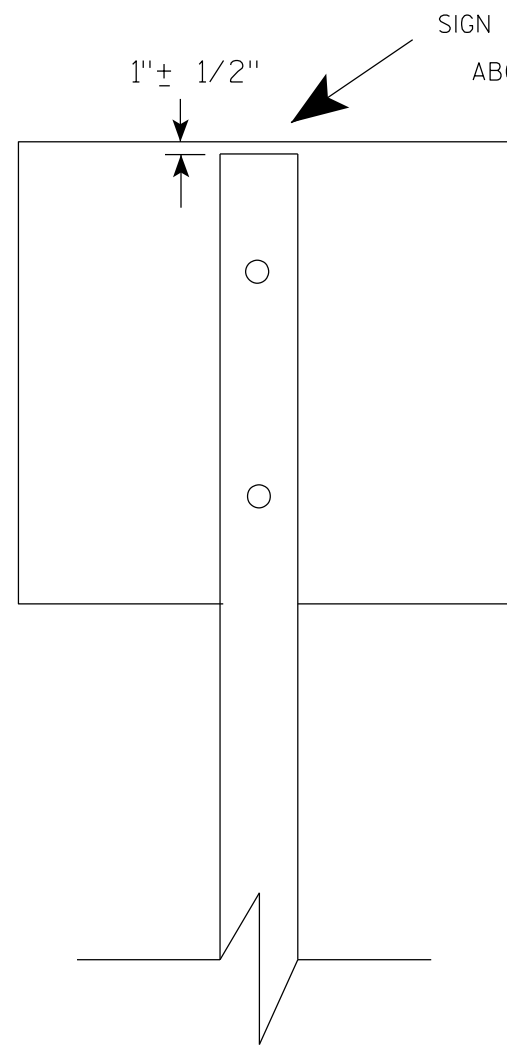
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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



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

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

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

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

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

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

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**

Technical drawing of a rectangular plate with the following specifications:

- Overall height: 36"
- Overall width: 2 1/4"
- Top edge offset: 1"
- Top edge offset: 1/8"
- Hole pattern: ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES
- Additional text on the right: 4" ST AS TO OF

**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**

LENGTH SHOWN ON MISC. QTY'S

TELESCOPE PIECES FLUSH AT TOP

18" DIA SCHEDULE 40 PVC BOX-OUT

36"

18"

13"

2 1/2"

2 1/4" SQUARE X 36"

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

3/8" ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" GRAVEL OR DIRT

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES

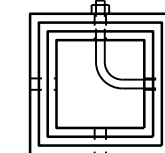
SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

SIGN

TECHNICAL DRAWING OF A SIGNPOST ASSEMBLY:

- Dimensions:**
 - Overall height: LENGTH SHOWN ON MISC. QTY'S
 - Section A-A: 36" (total), 18" (upper), 12" (lower)
 - Section B-B: 1"
- Components:**
 - SIGN
 - SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 - 2" STEEL TUBULAR SQUARE UPPER SECTION
 - ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES
 - $\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT
 - TELESCOPE PIECES FLUSH AT TOP
 - $\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT
 - 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 - 2 1/4" SQUARE X 36"

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

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

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

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED Matthew R. Rauch

for State Traffic Engineer

DATE 2/05/15 PLATI 193 14-9.9

PROJECT NO:

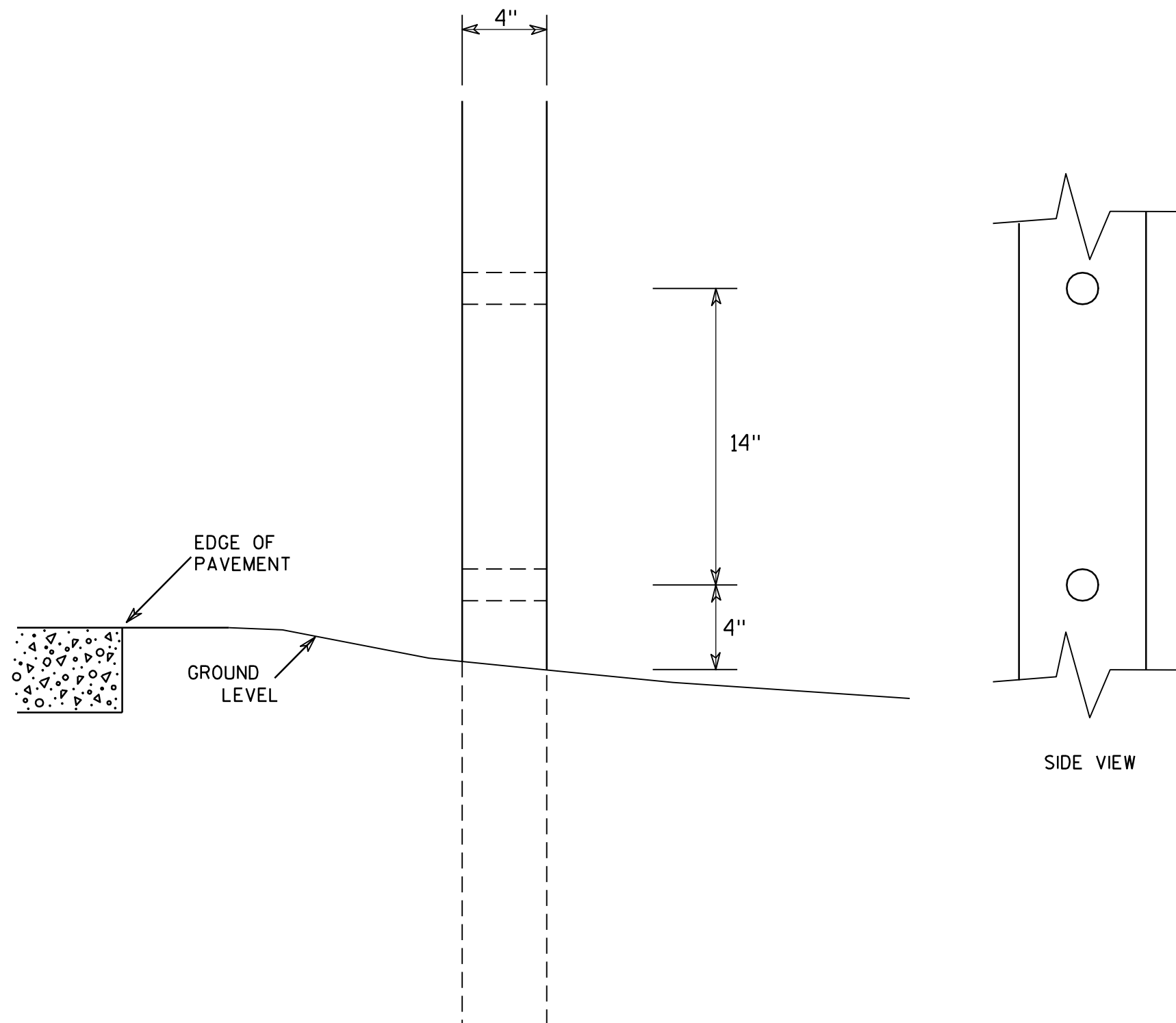
HWY:

COUNTY:

SHEET NO:

E

7



GENERAL NOTES

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

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

COUNTY:

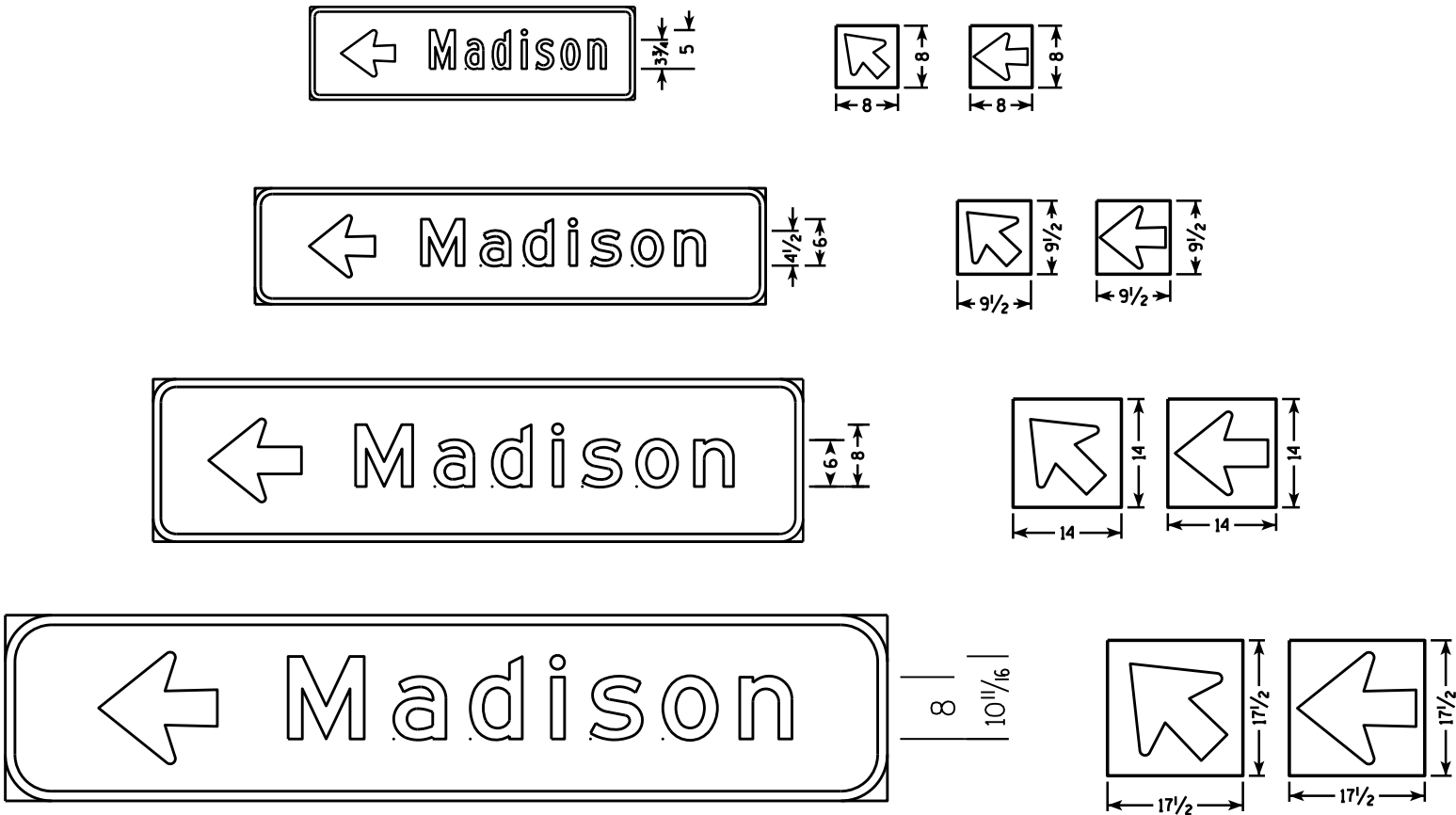
SHEET NO: 194

E

SIGN LAYOUT WITH VARIOUS SIZED MESSAGES

GENERAL NOTES

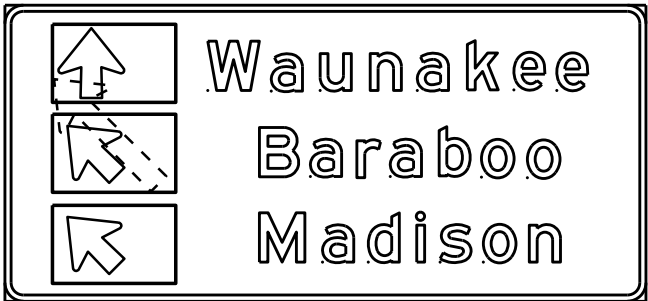
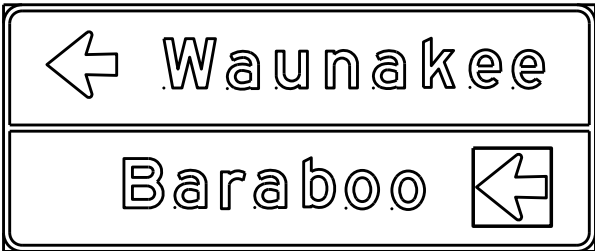
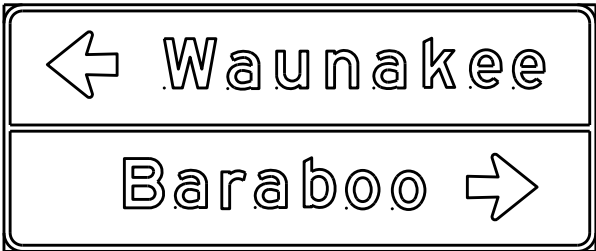
- 1. Materials shall conform to Standard Specification Section 637.
Base - Sheet Aluminum 0.040" Thickness
Sheeting - Orange Type F Reflective
Arrow - Black Non-Reflective
- 2. Arrow signs shall be fastened to permanent sign by either aluminum rivets or aluminum self-tapping sheet metal screws.
There shall be a minmum of 2 fasteners used per arrow sign.
- 3. There shall be a spacer consisting of a 0.08" nylon washer between the back of the arrow sign and the face of the permanent sign.
- 4. Arrows are per standard plate A1-2
- 5. Use separate arrow sign for each destination
- 6. Tilt arrow is always at 45 degrees
- 7. Arrow is centered on arrow sign



Lower Case Copy Size	Standard Width (Single Arrow)	2 Line Tilt Arrow Cover Width	3 Line Tilt Arrow Cover Width	Height
3 3/4" Series C	8	9 1/2	14 1/2	8
4 1/2" Series D & E	9 1/2	10	15	9 1/2
6" Series D & E	14	16	20 1/2	14
8" Series E	17 1/2	20 1/2	25	17 1/2

BEFORE

AFTER



DESTINATION DIRECTIONAL ARROW FOR DETOUR SIGNS

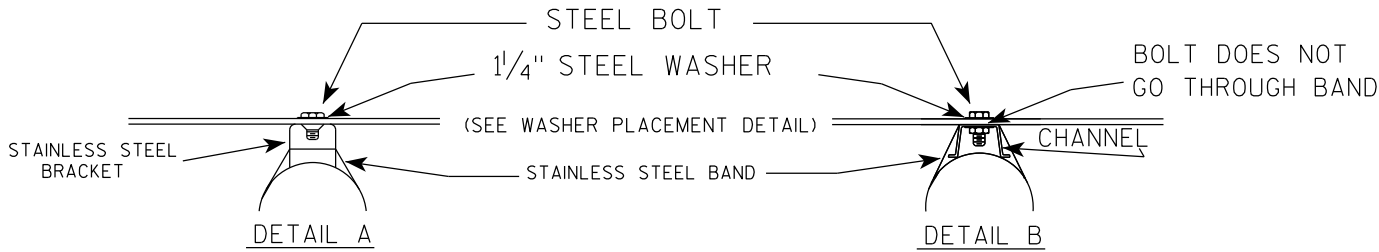
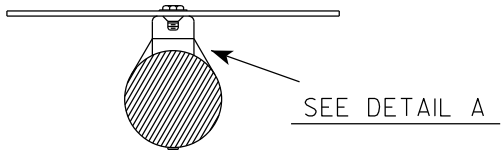
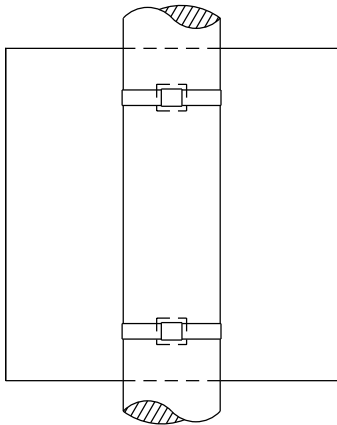
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

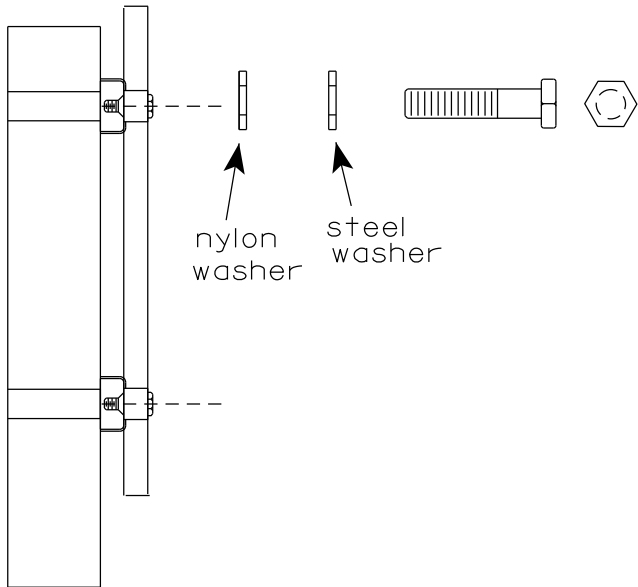
DATE 10/08/14 195 . A4-12.2

BANDING

SINGLE SIGN



WASHER PLACEMENT

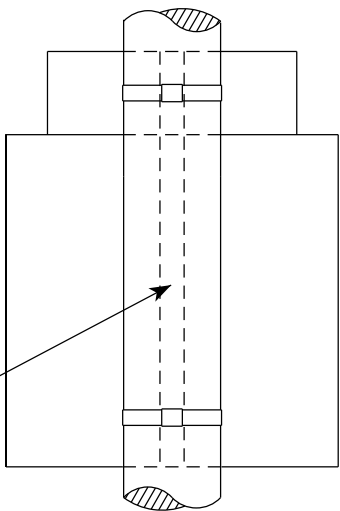


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

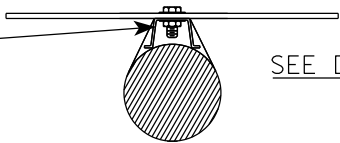
GENERAL NOTES

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

"J" ASSEMBLY



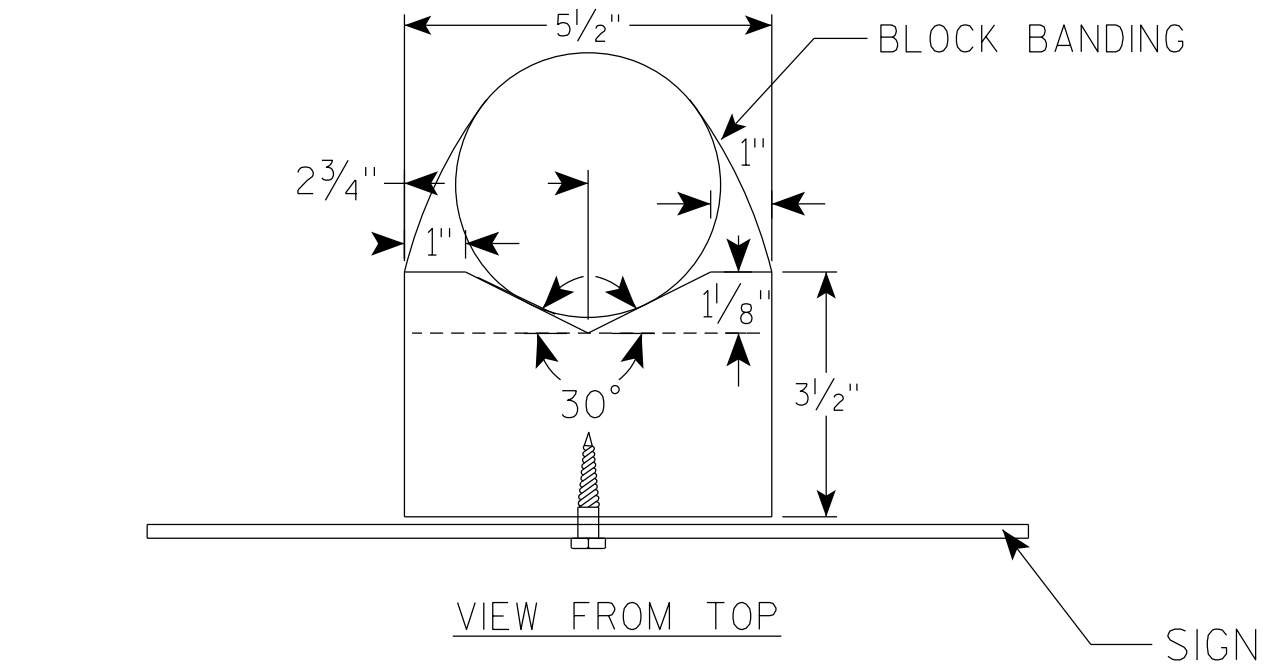
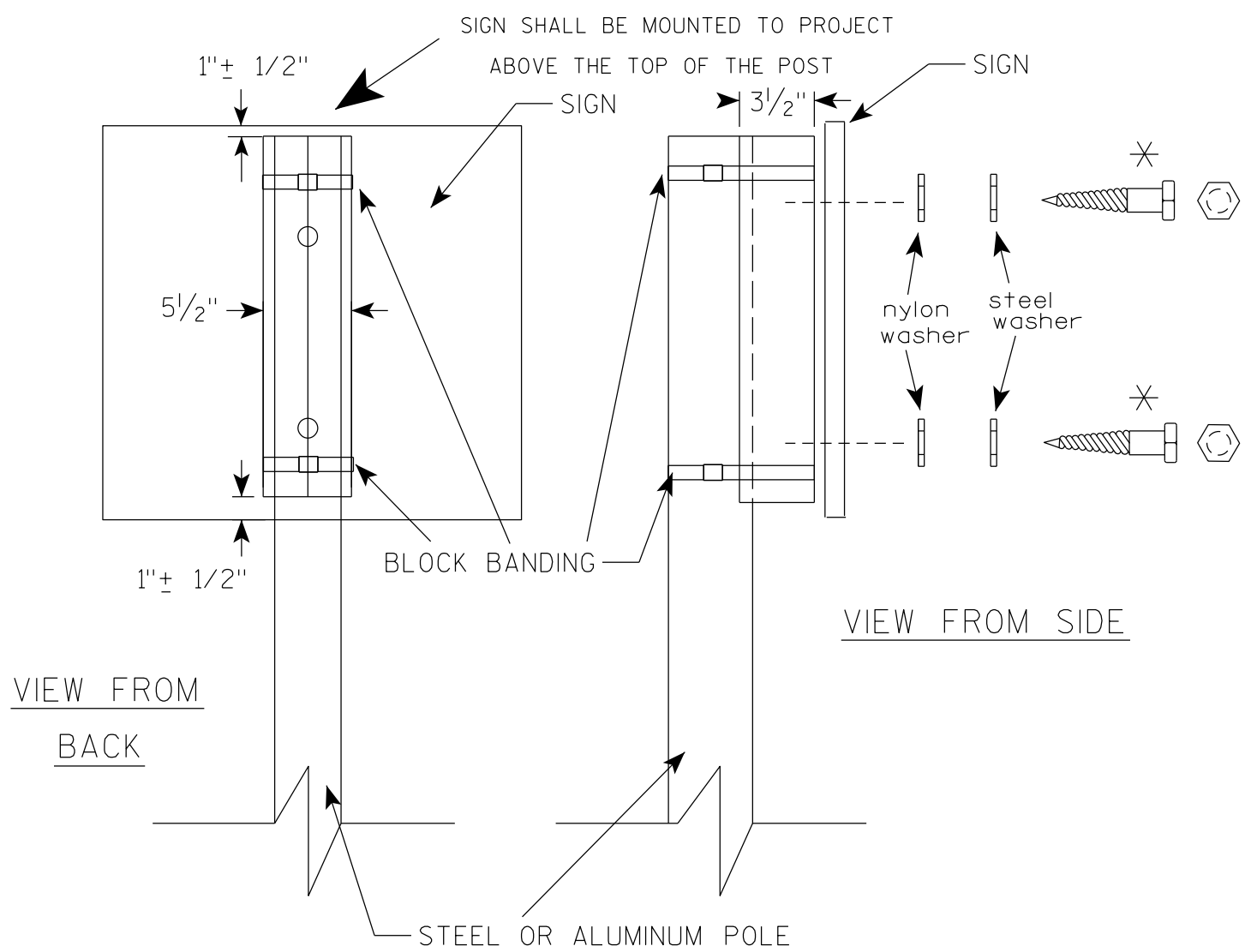
CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

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



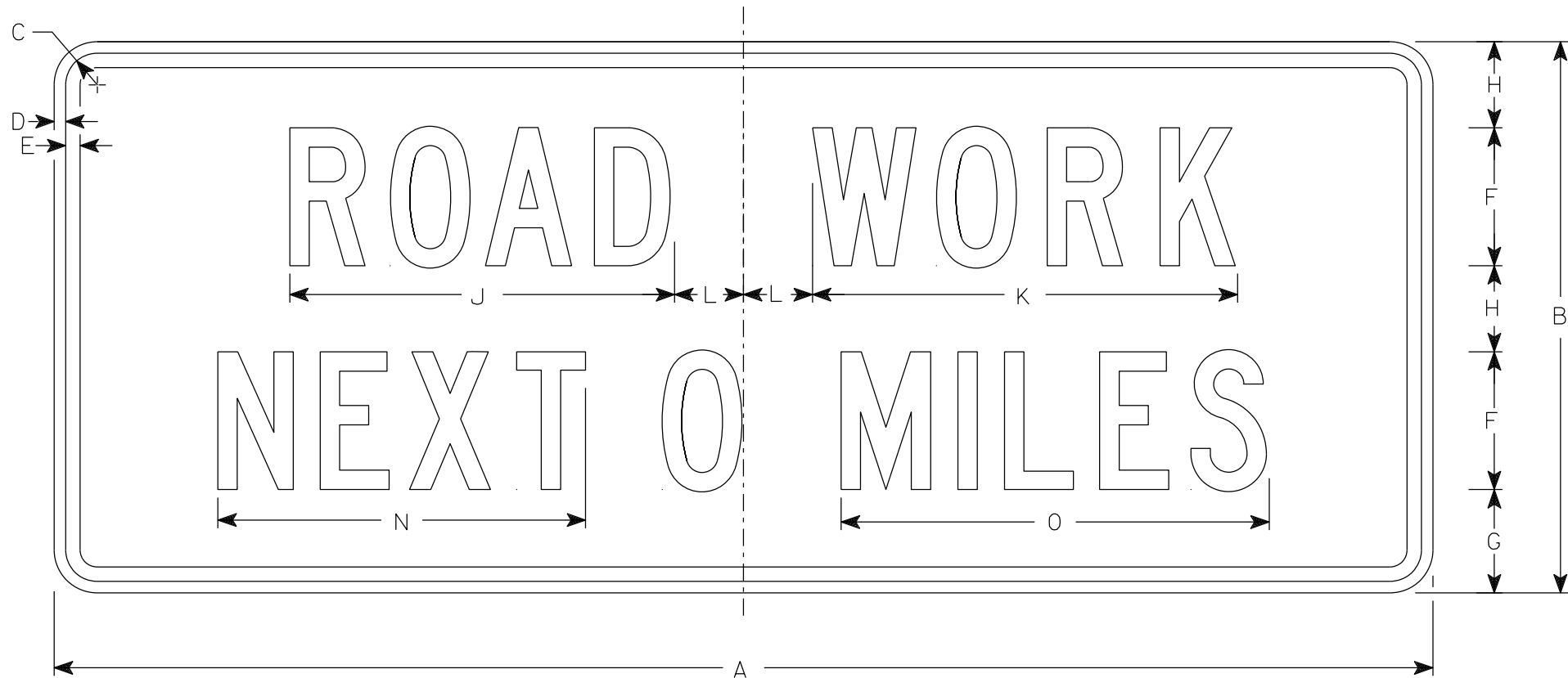
GENERAL NOTES

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

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

BLOCK BANDING DETAIL (V-BLOCK OPTION)	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 4/19/2022	PLATE NO. A5-10.3

7



G20-1

NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
2M	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
3	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
4	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0
5	60	24	1 7⁄8	1⁄2	5⁄8	6	4 1⁄2	3 3⁄4		16 3⁄4	18 1⁄2	3		16	18 5⁄8												10.0

STANDARD SIGN

G20-1

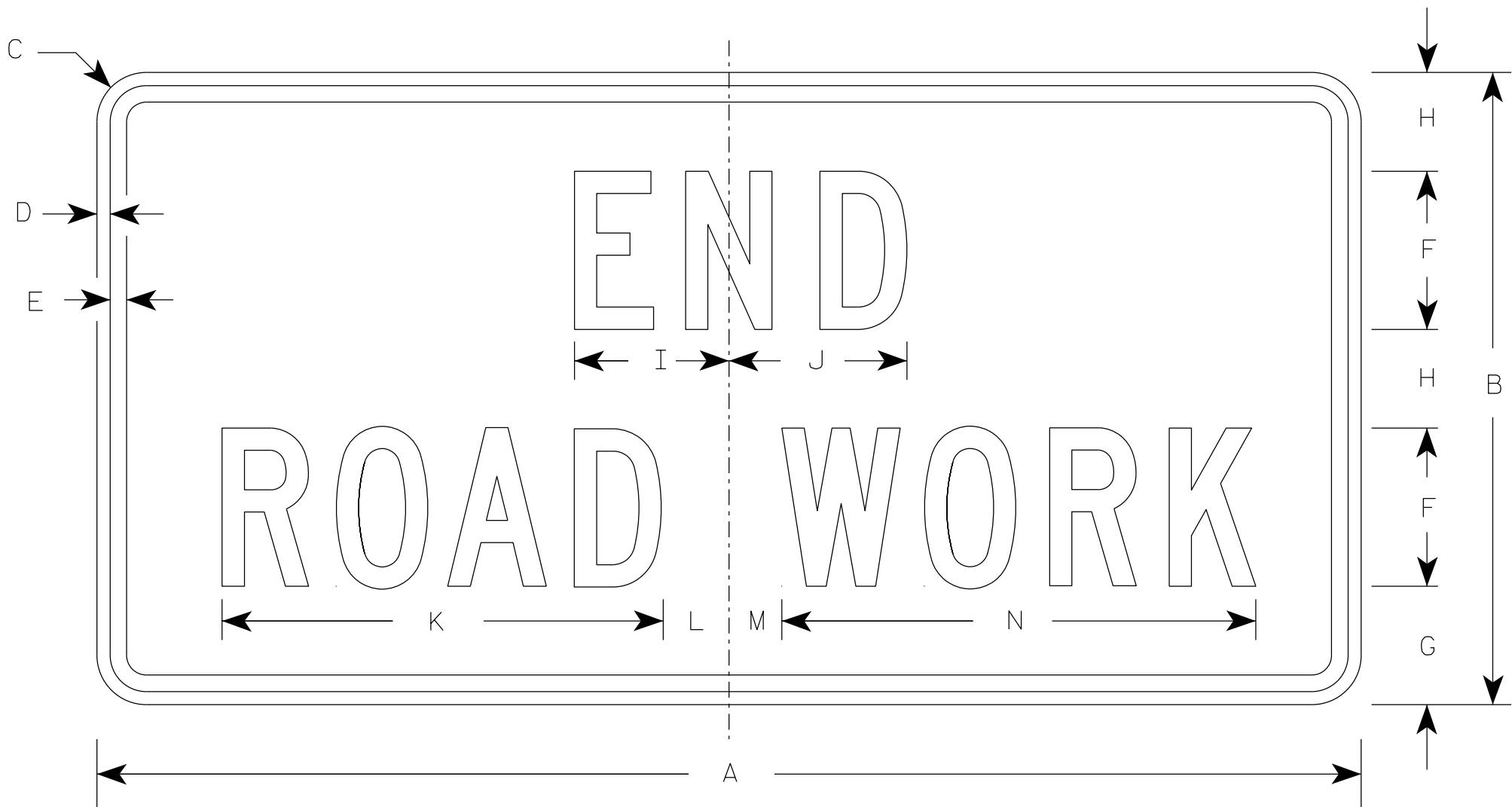
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-1.9

NOTES

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



G20-2A

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

STANDARD SIGN

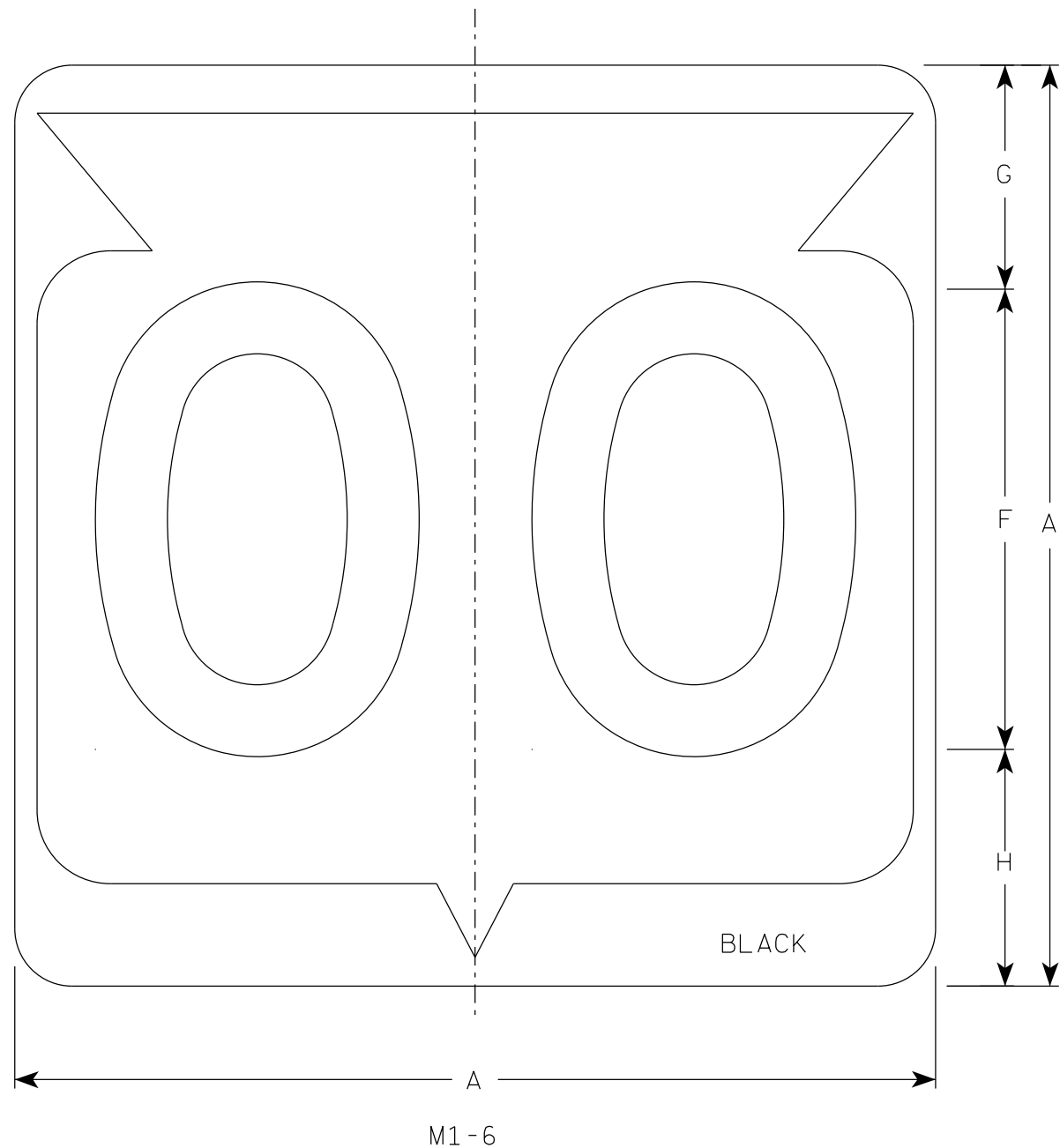
G20-2A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

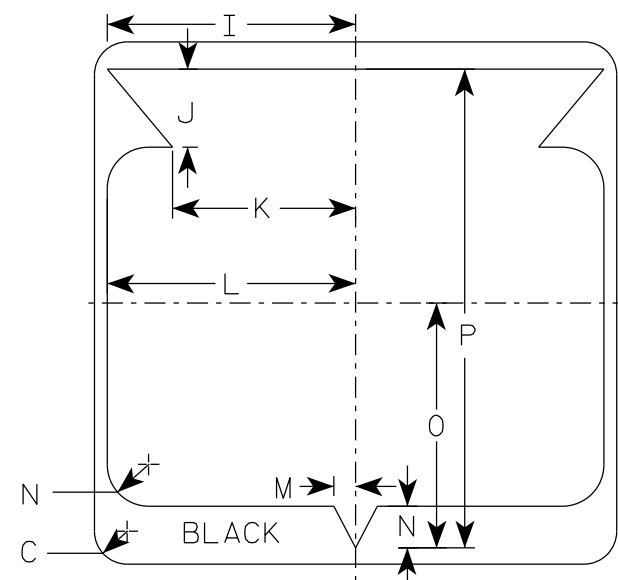
DATE 1/26/2023 PLATE NO. G20-2A.10

7



NOTES

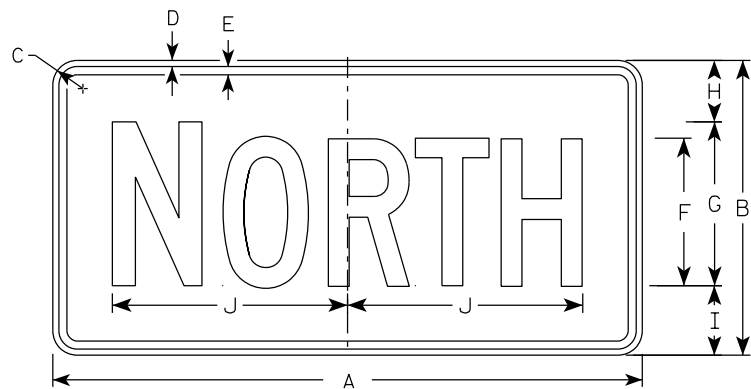
1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D except 3 number signs Series C



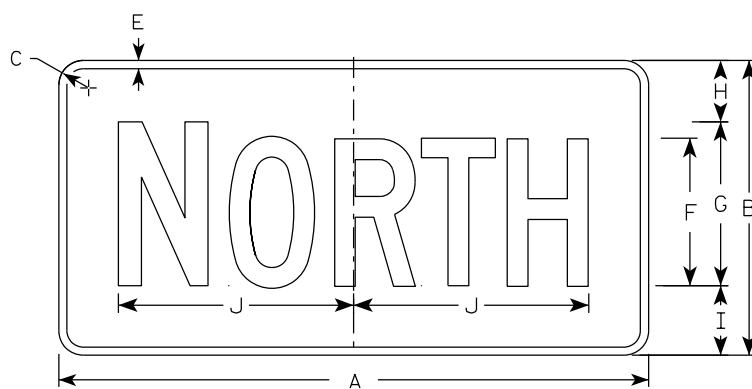
7

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

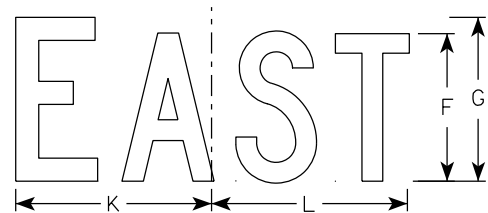
STATE ROUTE MARKER M1-6 FOR ASSEMBLIES	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 11/8/2022	PLATE NO. M1-6.11



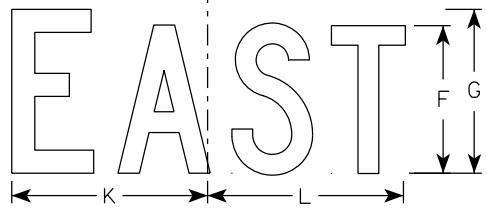
M3-1
MM3-1
MP3-1



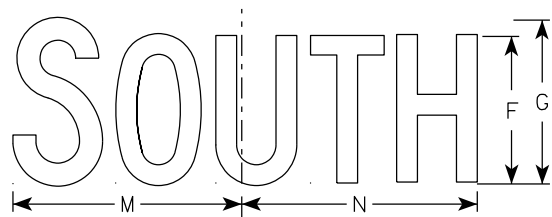
MB3-1
MK3-1
MN3-1



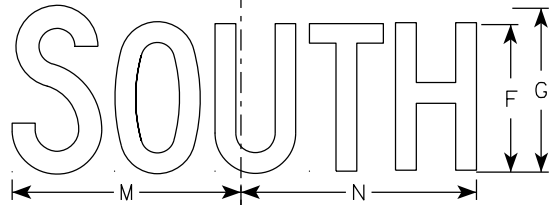
M3-2
MM3-2
MP3-2



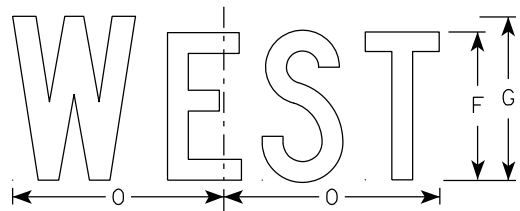
MB3-2
MK3-2
MN3-2



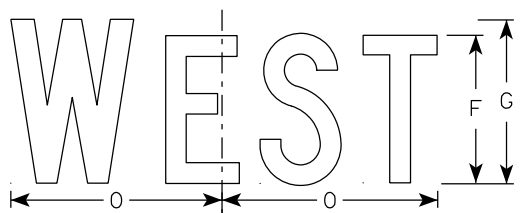
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

NOTES

- All Signs Type II - Type H Reflective
- Color:
Background - See note 5
Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
2M	24	12	1 1/2	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4												2.00
3	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
4	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5
5	36	18	1 1/2	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13												4.5

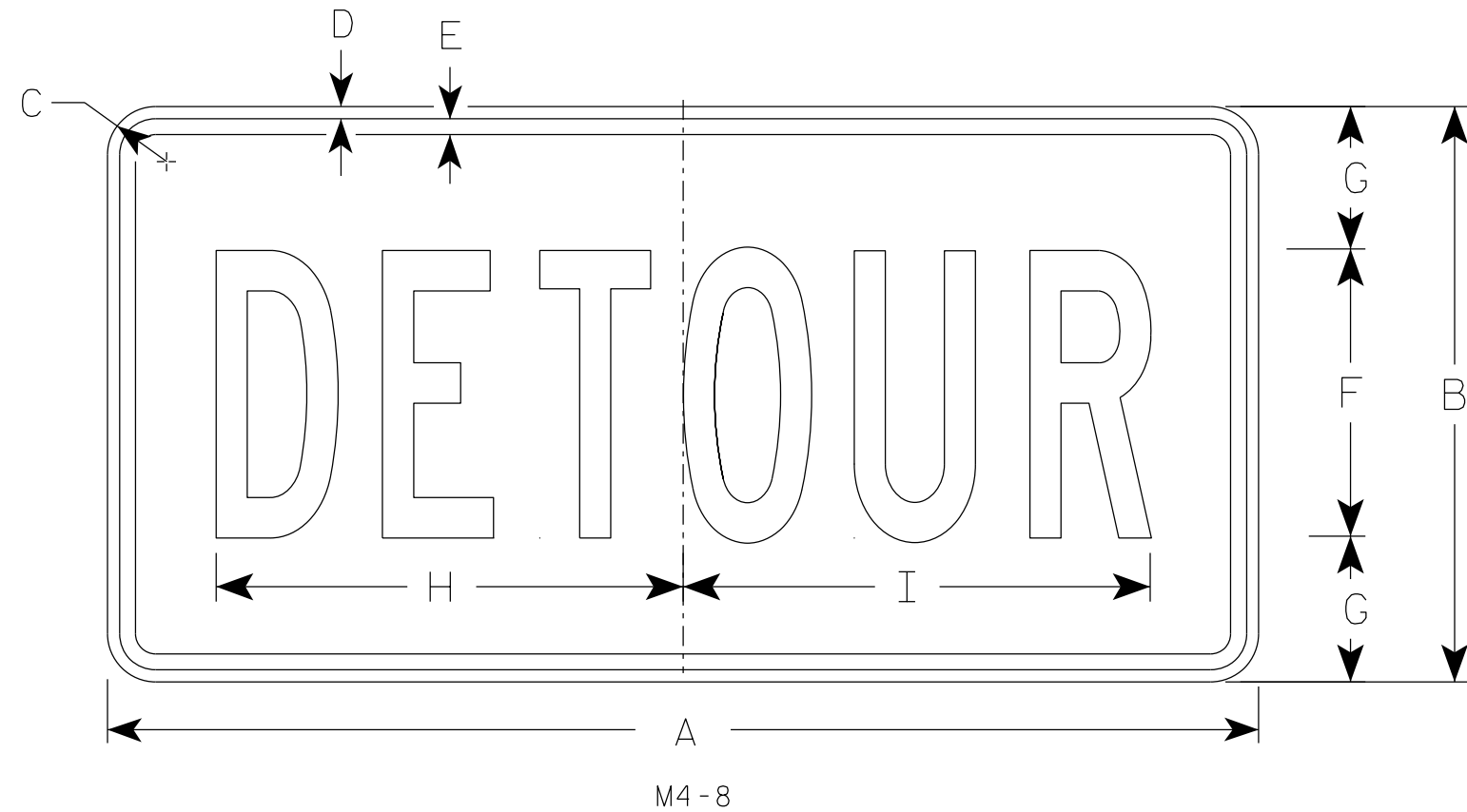
PROJECT NO:	HWY:	COUNTY:	SHEET NO: 201	E
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7

7

NOTES

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



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
2M	24	12	1 1/2	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
5	36	18	1 1/2	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5

STANDARD SIGN

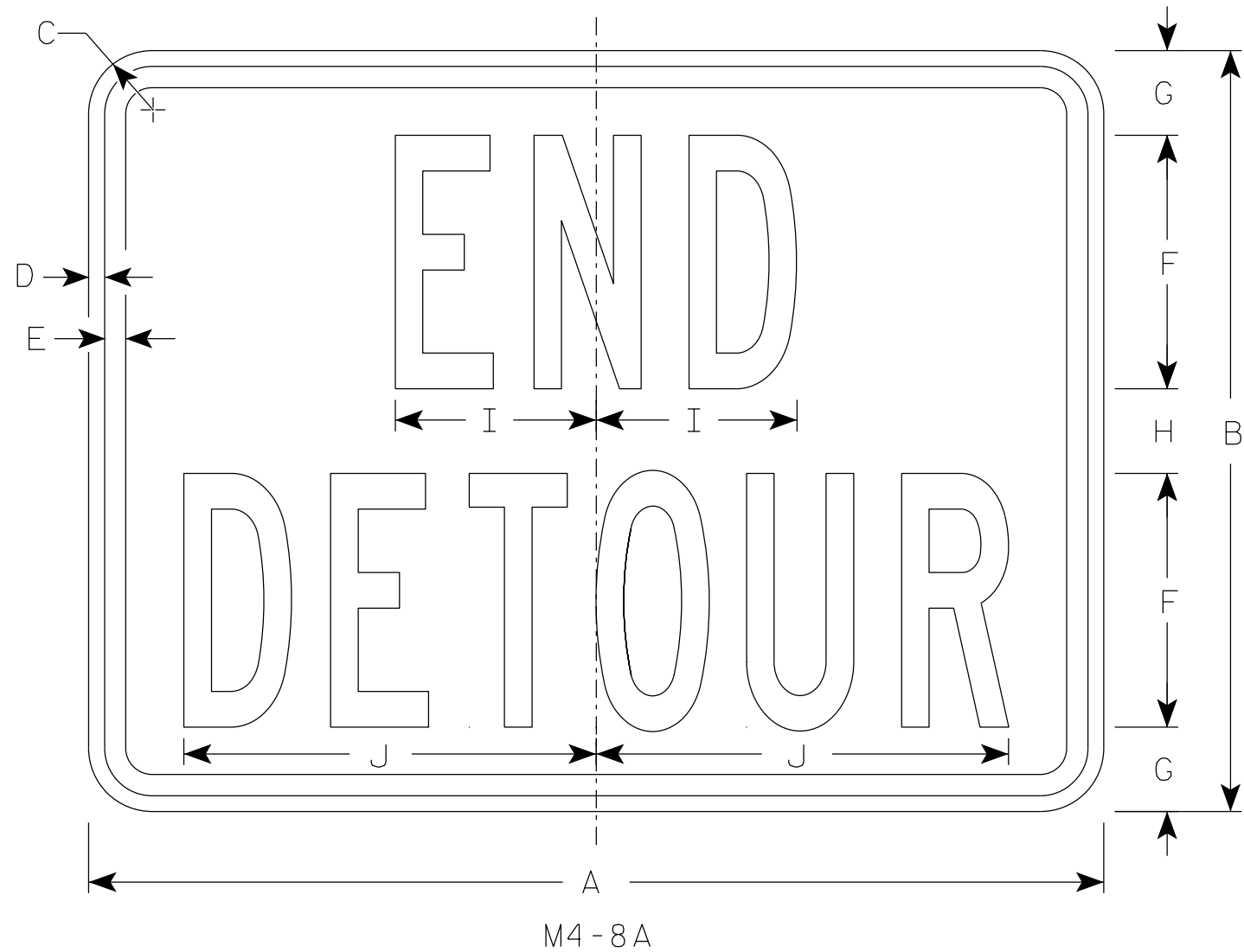
M4 - 8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8.4

7



NOTES

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

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
2M	24	18	1 1/2	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
5	30	24	1 1/2	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0

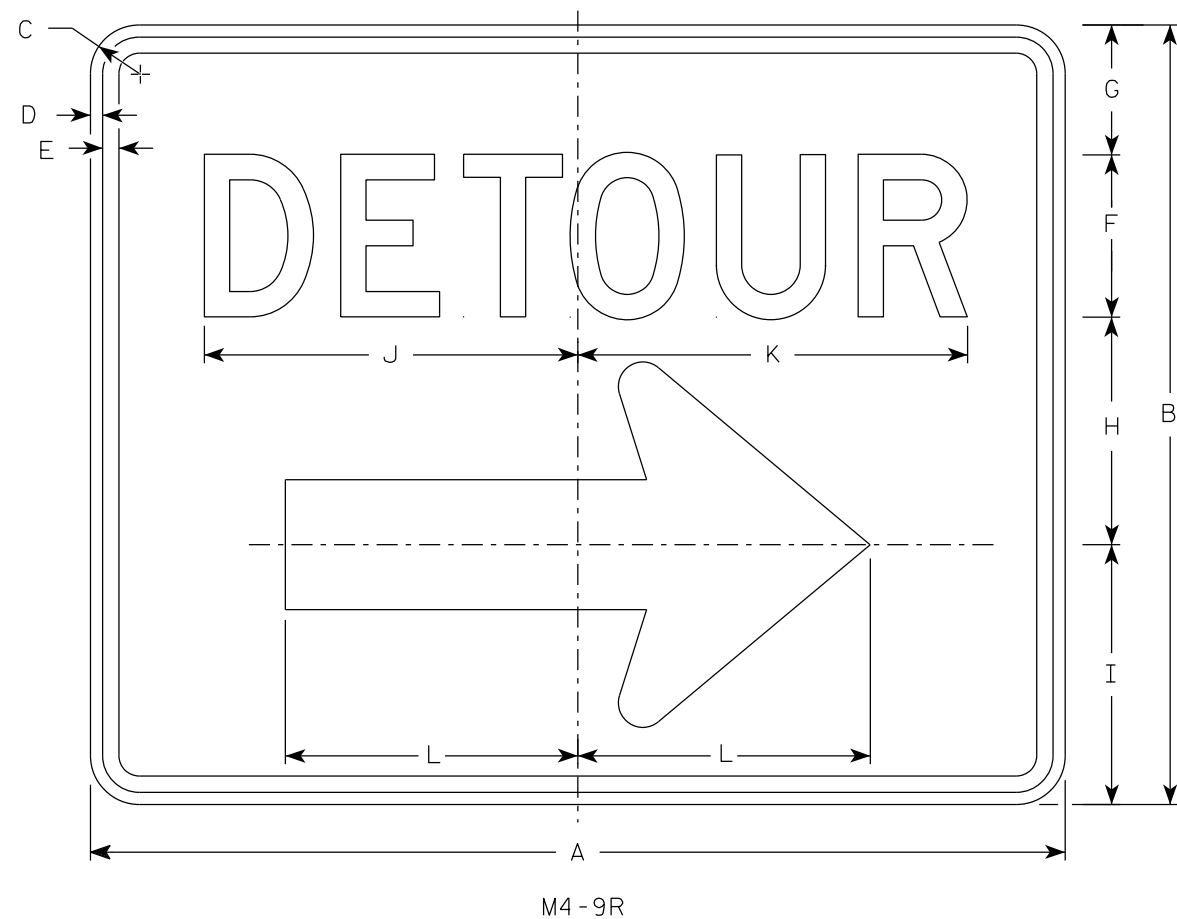
STANDARD SIGN

M4-8A

WISCONSIN DEPT OF TRANSPORTATION

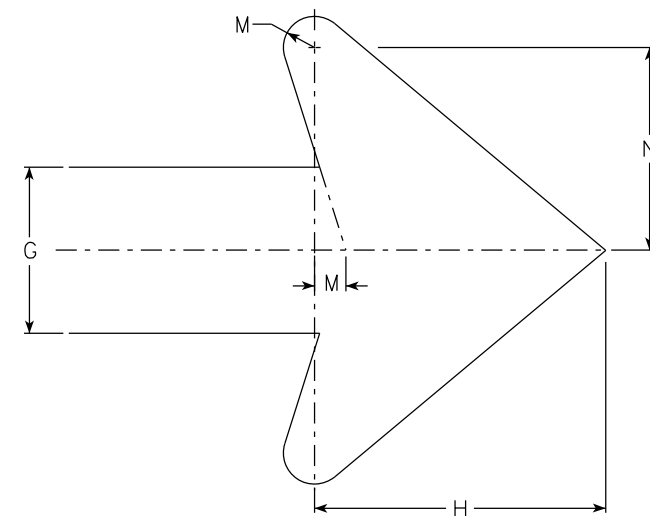
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-8A.4



NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. M4-9L is the same as M4-9R except the arrow is reversed.



Arrow Detail

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
2M	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/2	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 7/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

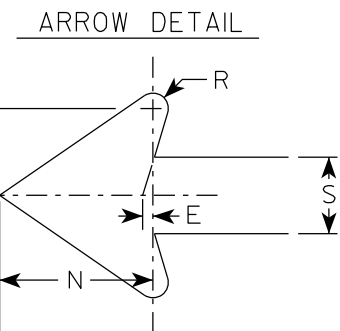
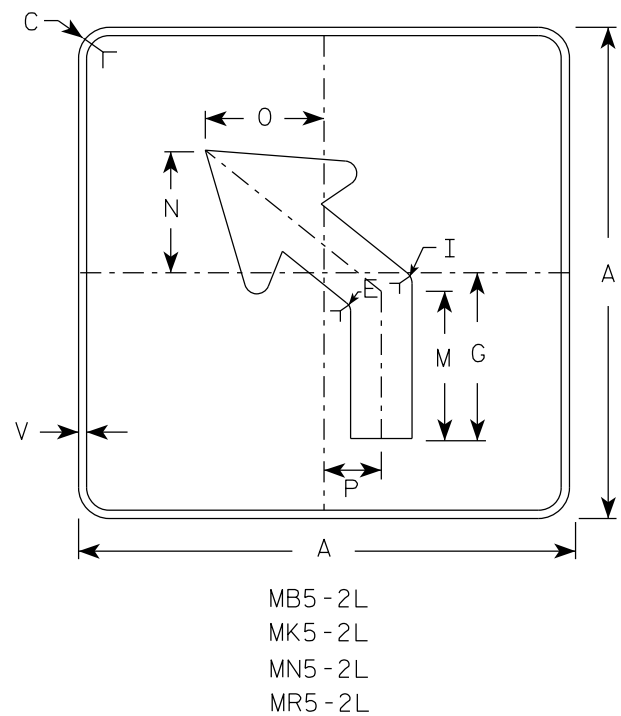
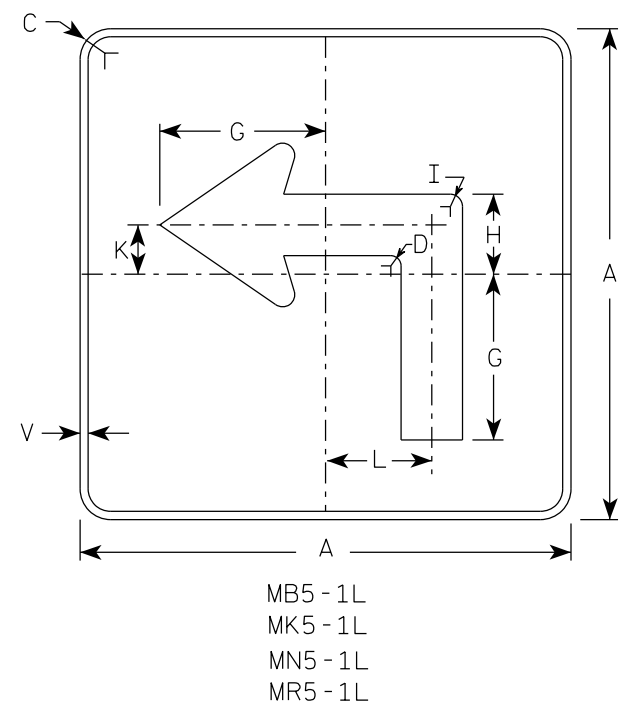
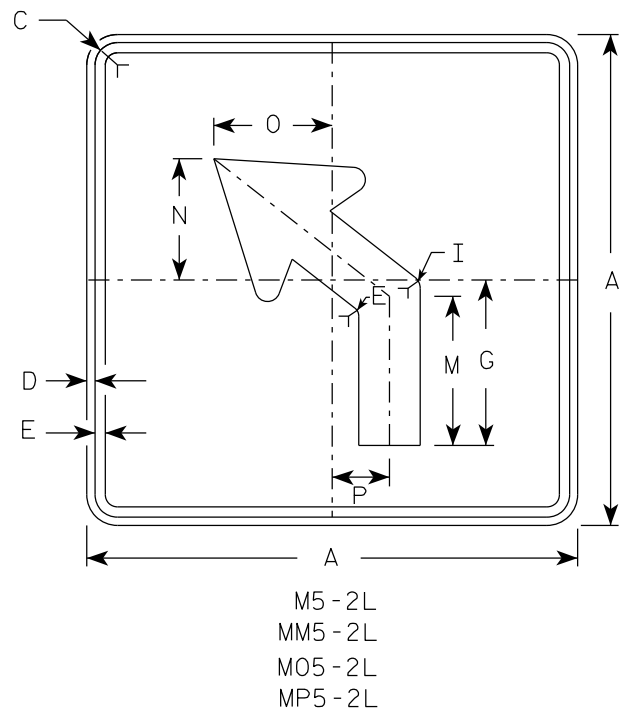
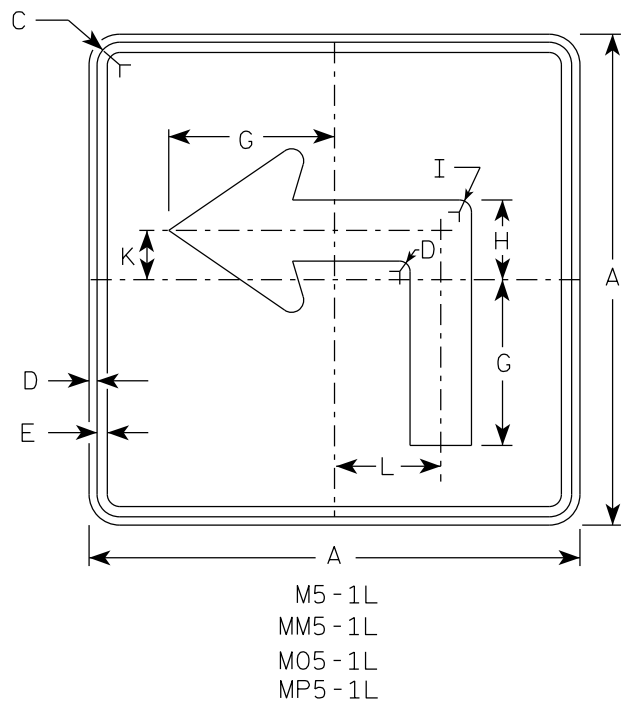
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/9/2023 PLATE NO. M4-9R.6

PROJECT NO: HWY: COUNTY: SHEET NO: 204 E

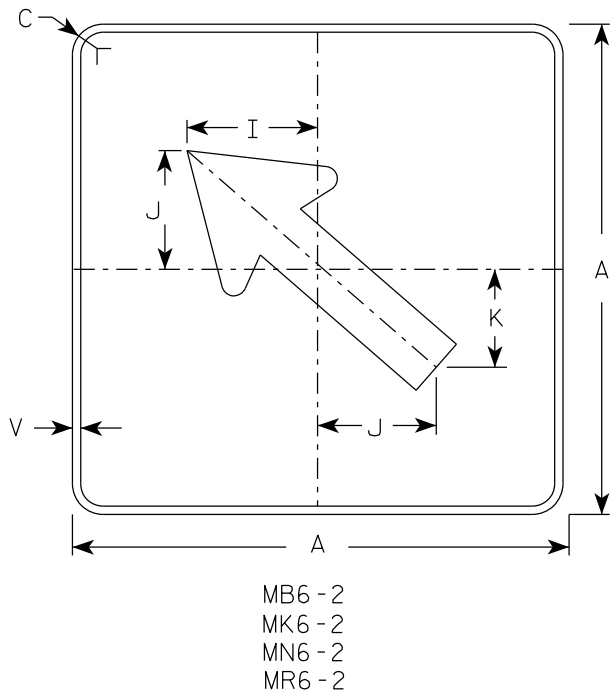
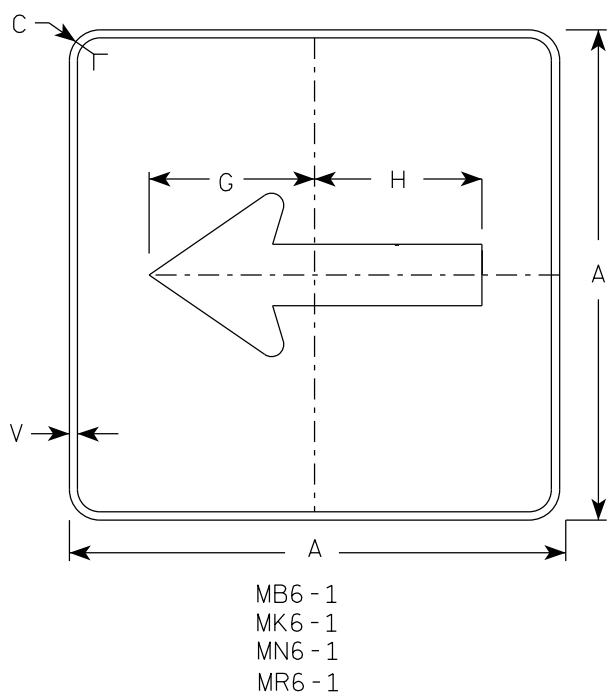
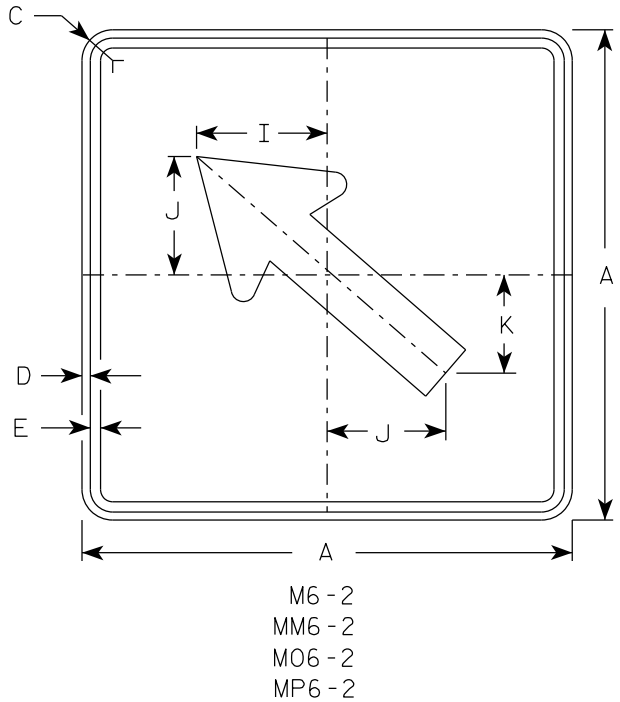
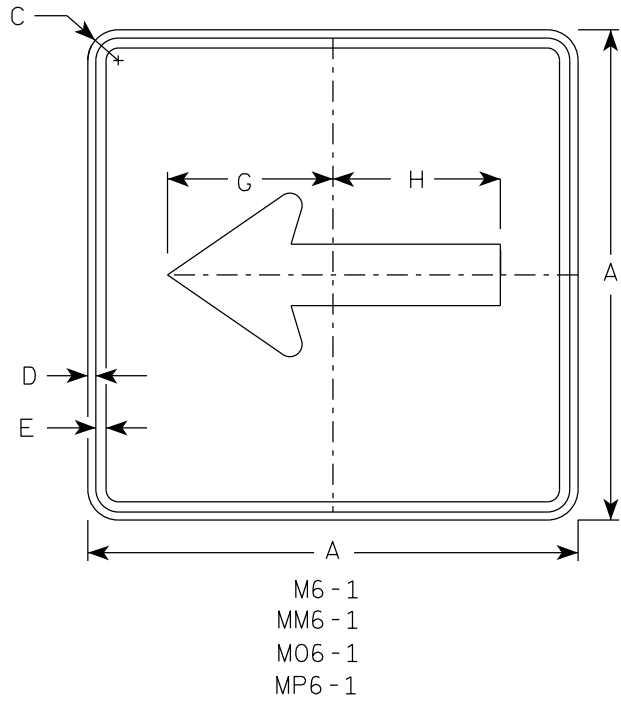


NOTES

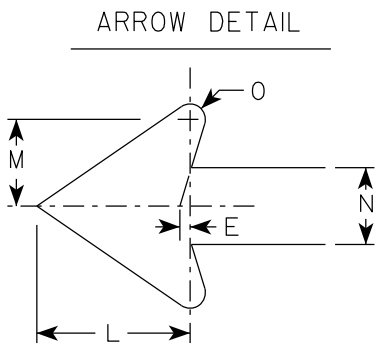
- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | | |
|-----------|-------|---|
| M5-1 and | M5-2 | Background - White |
| | | Message - Black |
| MB5-1 and | MB5-2 | Background - Blue |
| | | Message - White |
| MK5-1 and | MK5-2 | Background - Green |
| | | Message - White |
| MM5-1 and | MM5-2 | Background - White |
| | | Message - Green |
| MN5-1 and | MN5-2 | Background - Brown |
| | | Message - White |
| M05-1 and | M05-2 | Background - Orange - Type F Reflective |
| | | Message - Black |
| MP5-1 and | MP5-2 | Background - White |
| | | Message - Blue |
| MR5-1 and | MR5-2 | Background - Brown |
| | | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
2M	21		1 1/2	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3		1/2					3.06
3	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
4	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25
5	30		1 7/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4		1/2					6.25

PROJECT NO:	HWY:	COUNTY:	SHEET NO: 205	E
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- NOTES
- Signs are Type II - Type H Reflective except as Shown
 - Color:
Background - See note 4
Message - See note 4
 - Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
 - M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow



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

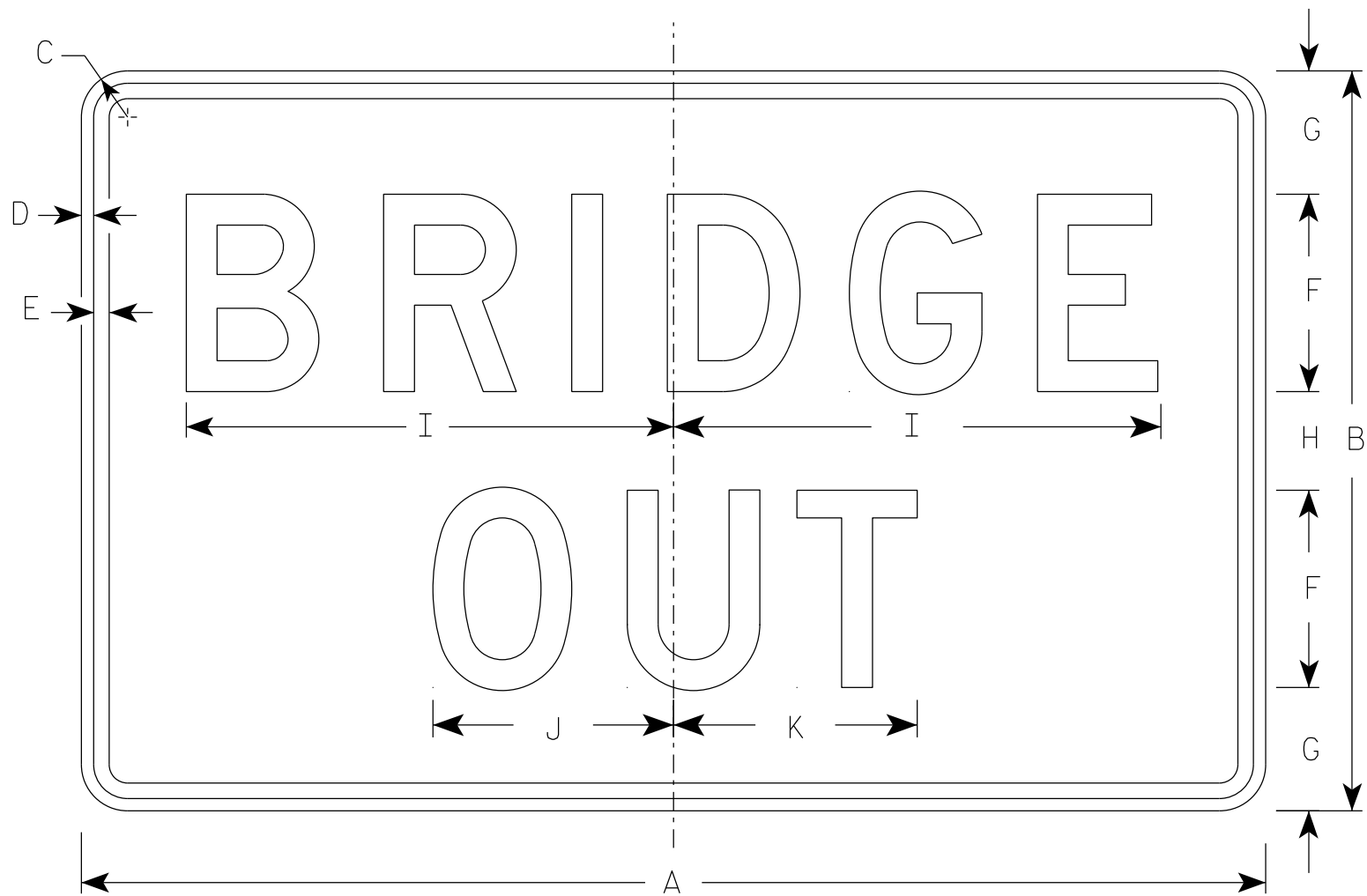
STANDARD SIGN
M6 - 1 & M6 - 2
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/13/2023 PLATE NO. M6-1.16

7



R11-2B

NOTES

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

7

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

STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

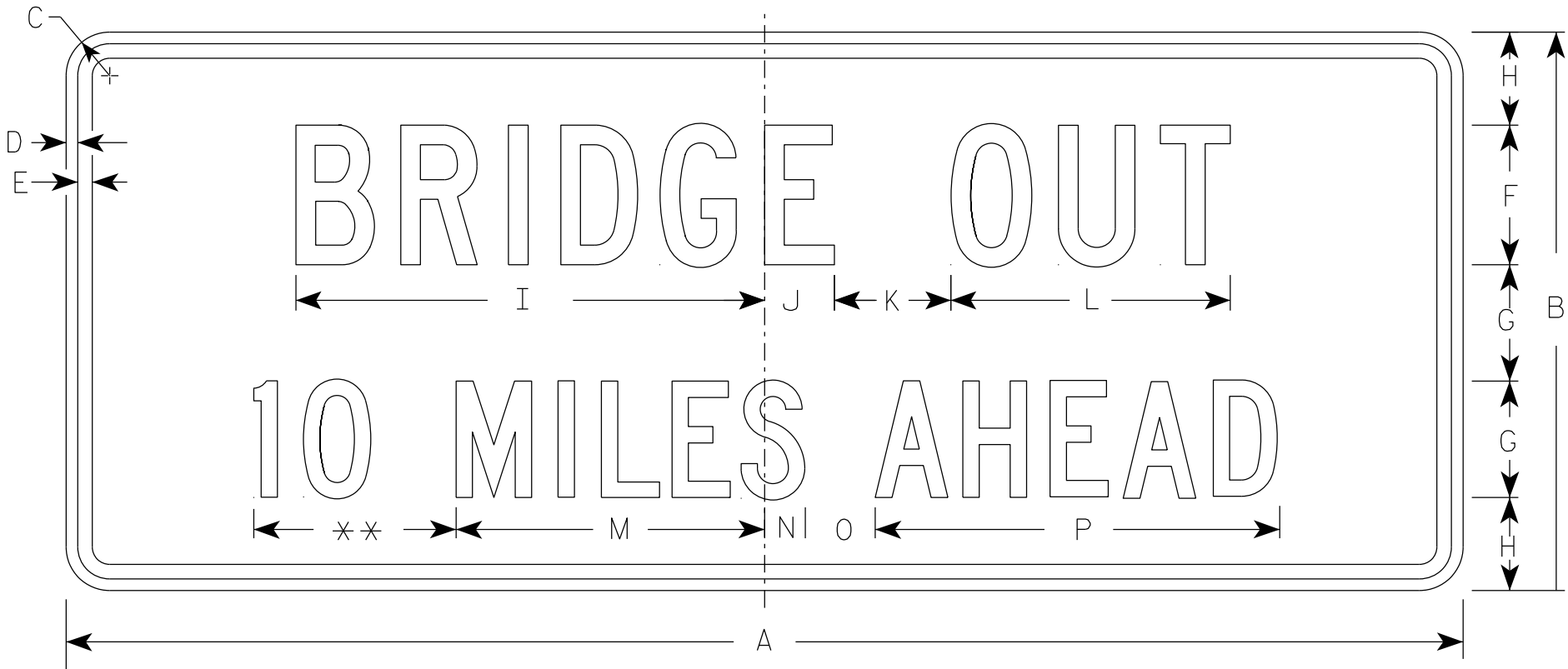
DATE 2/5/24 PLATE NO. R11-2B.3

NOTES

1. Sign is Type II - Type H Reflective
2. Color:

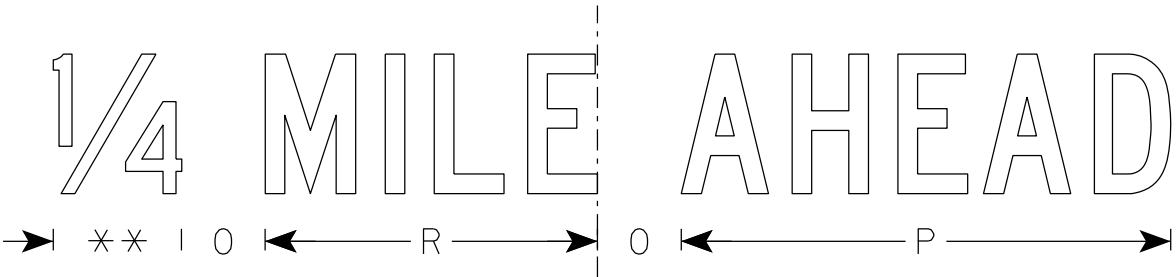
Background - White

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



R11-3C

** See Note 5



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	15	1 1/2	1/2	5/8	4	3	2 1/2	13 1/4	2 1/4	3	8	8	1 1/2	2	10 3/4		7 1/8									3.75
2S	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
2M	60	24	1 7/8	1/2	5/8	6	5	4	20 1/8	3	5	12	13 1/4	1 3/4	3	17 3/8		11 7/8									10.0
3																											
4																											
5																											

STANDARD SIGN
R11-3C

WISCONSIN DEPT OF TRANSPORTATION

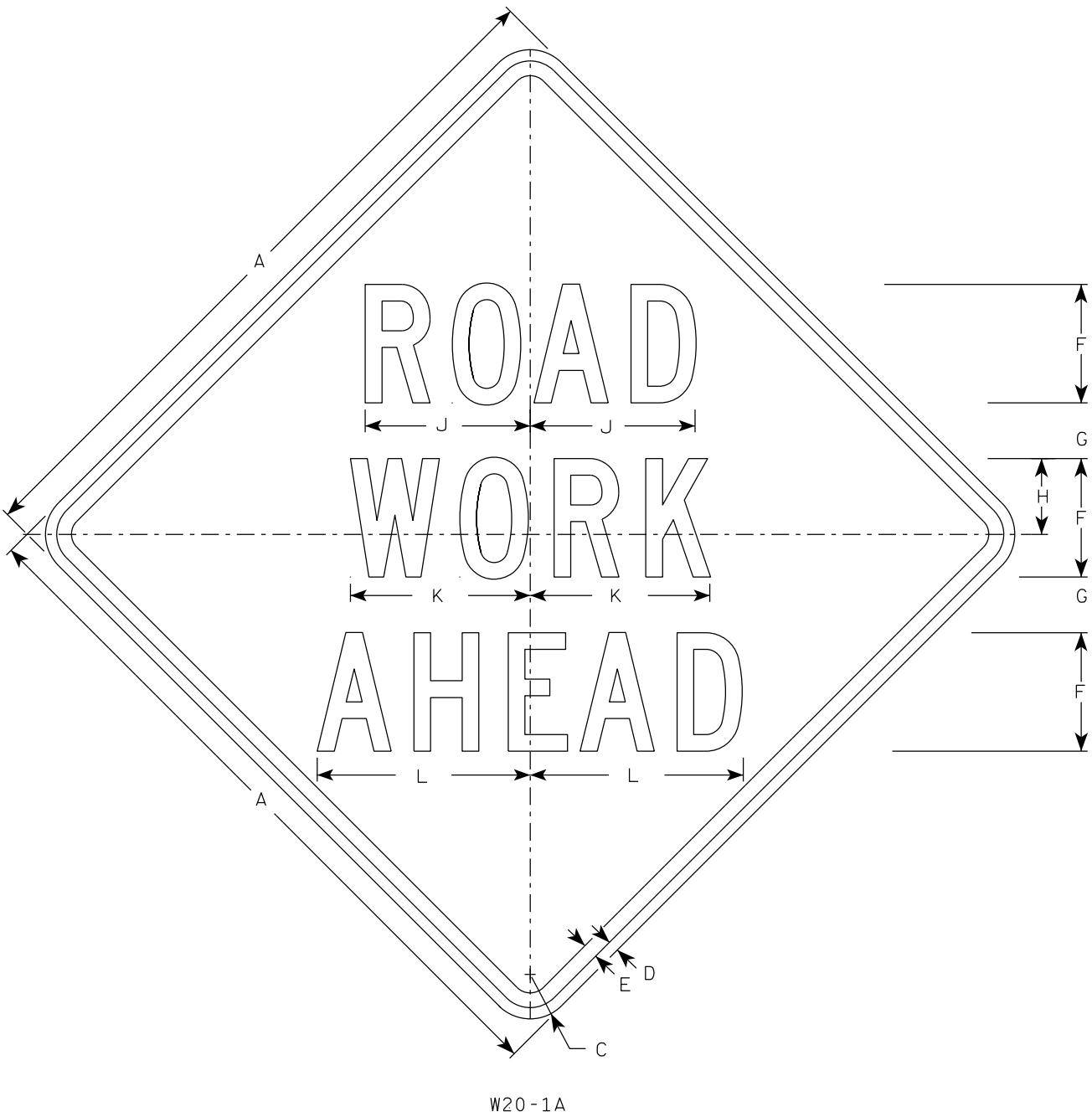
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 2/5/24 PLATE NO. R11-3C.4

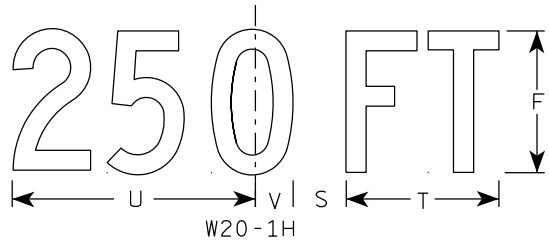
PROJECT NO:

SHEET NO: 208

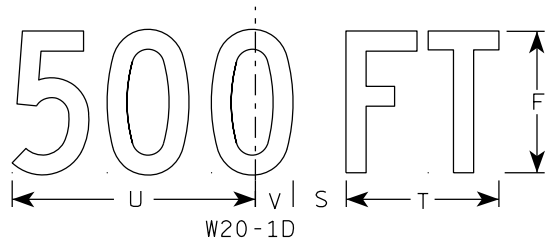
E



W20-1A



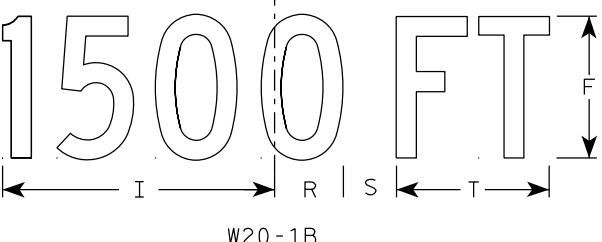
W20-1H



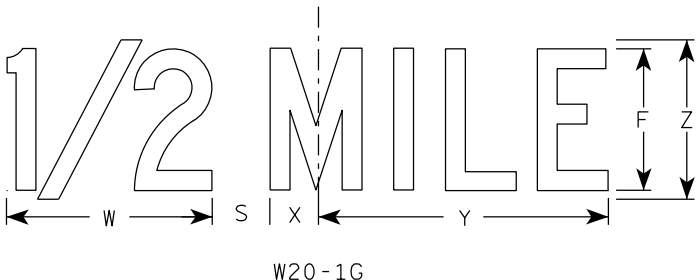
W20-1D



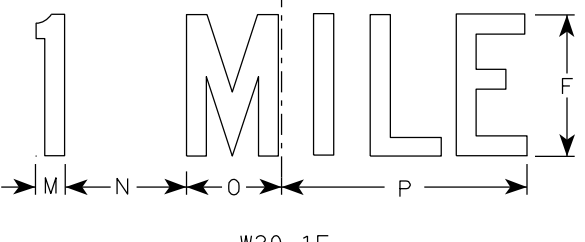
W20-1C



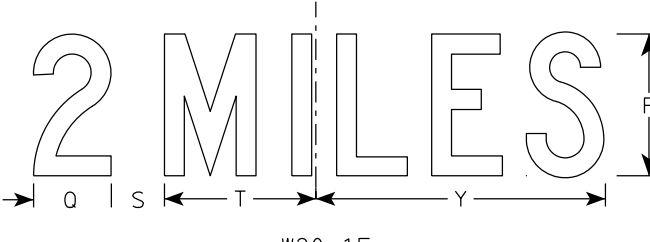
W20-1B



W20-1G



W20-1F



W20-1E

NOTES

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

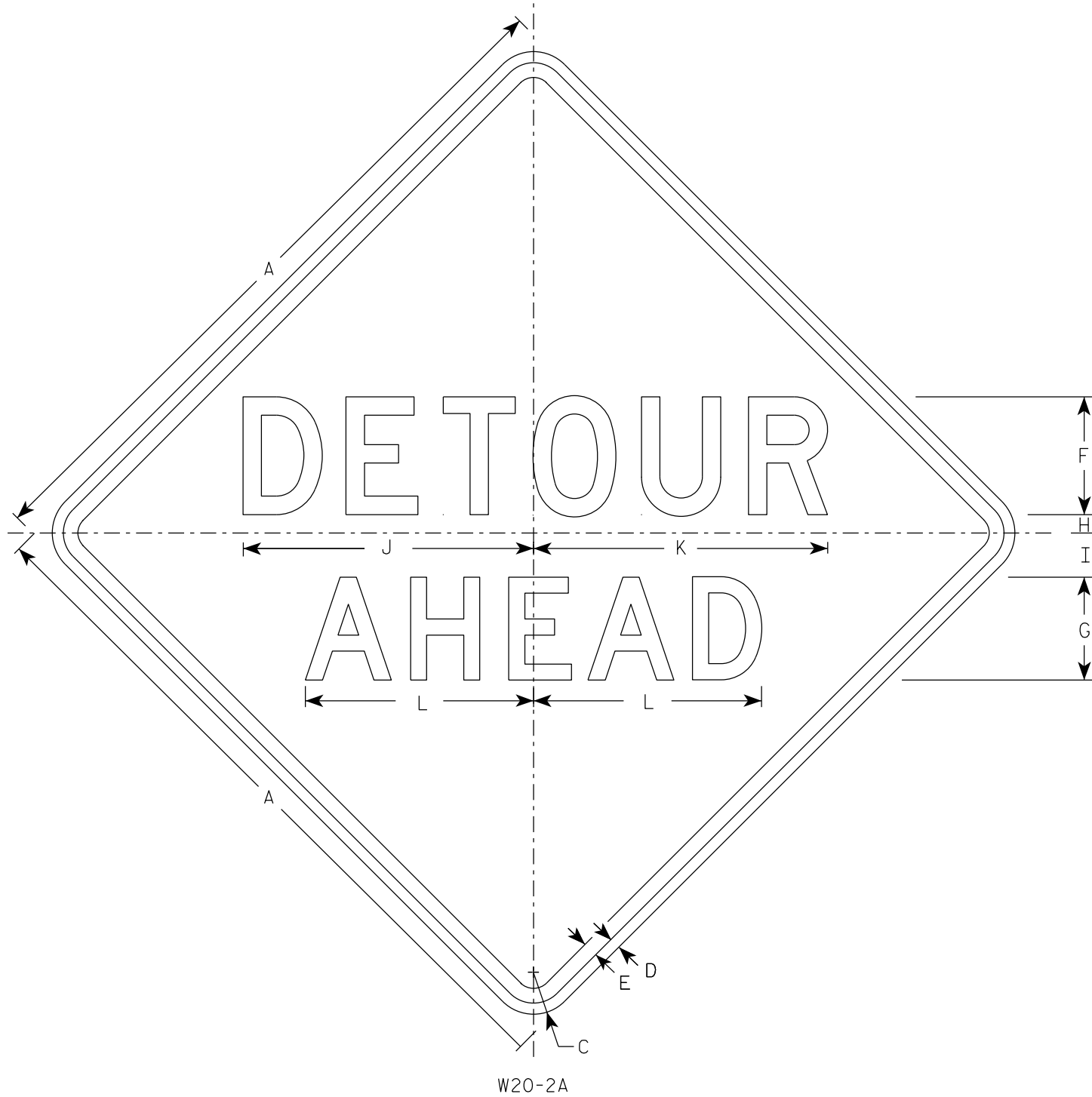
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		3	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13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

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

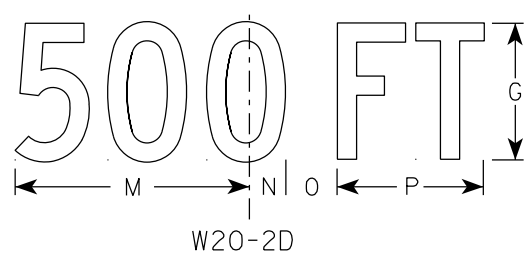
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

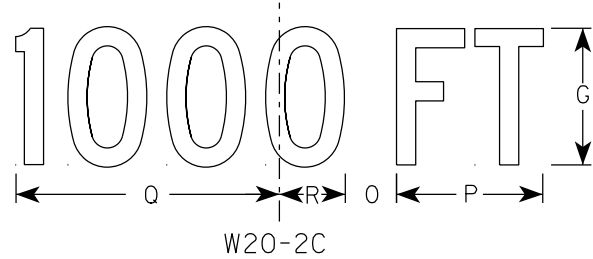
DATE 1/10/2024 PLATE NO. W20-1.12



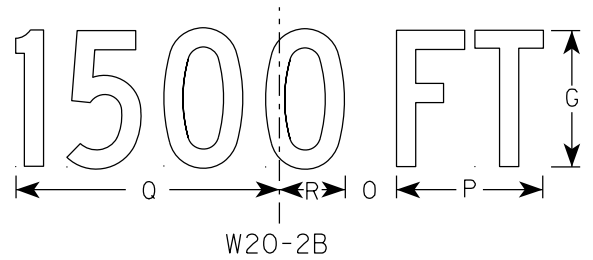
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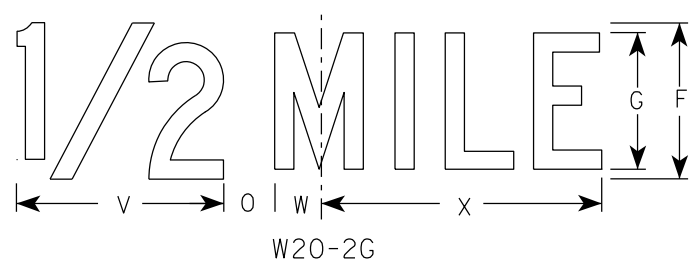
W20-2D



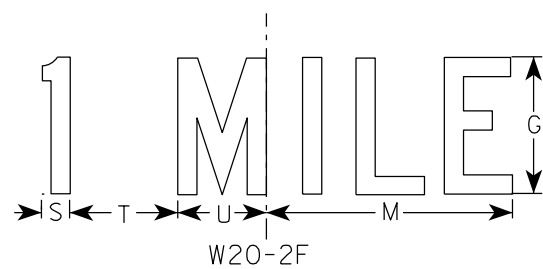
W20-2C



W20-2B



W20-2G



W20-2F

NOTES

1. Sign is Type II - Type F Reflective
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series D.
Line 2 is Series D for AHEAD and Series C for all other distances.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	w	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		3	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

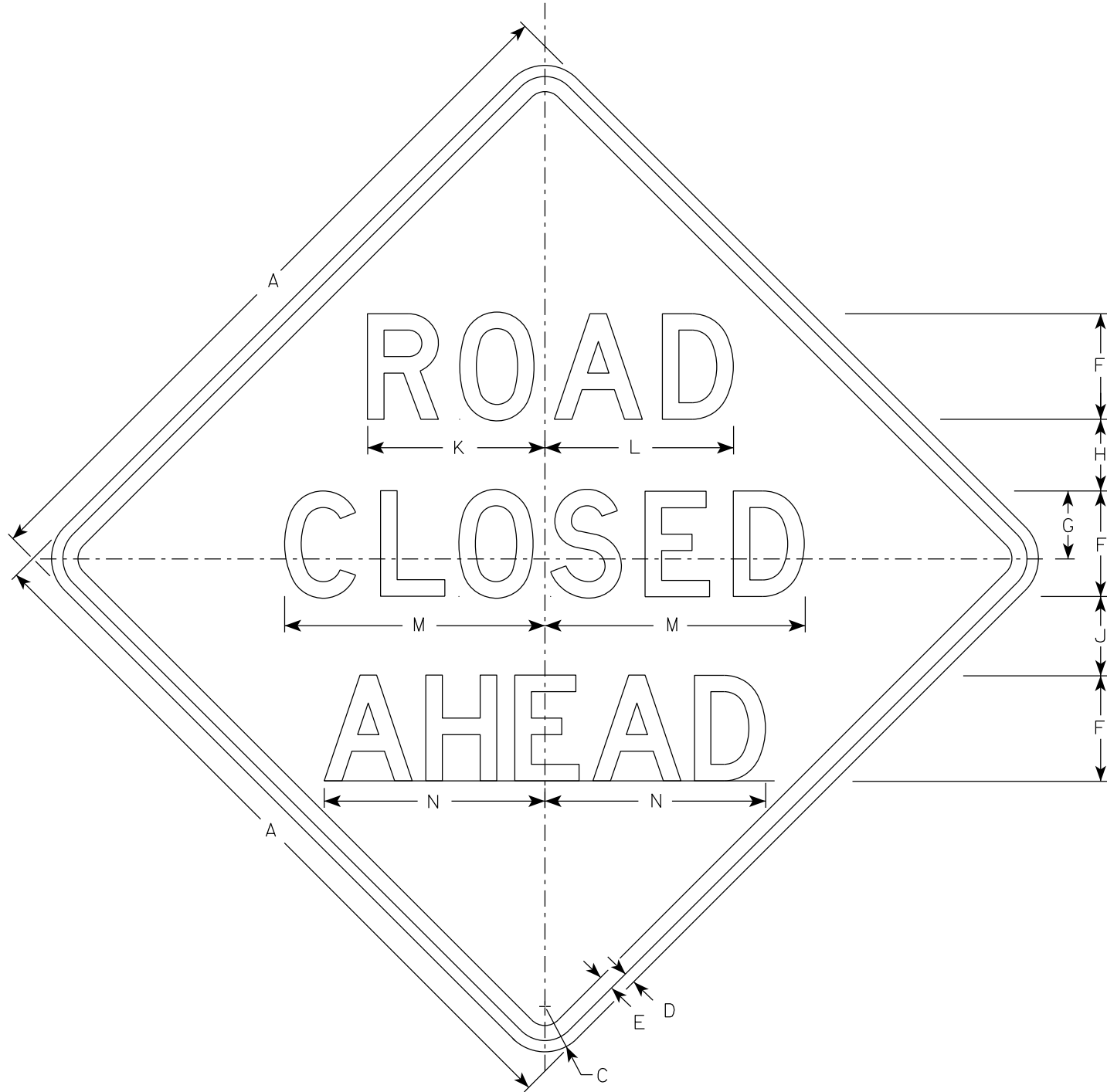
STANDARD SIGN
W20-2A,B,C,D,F & G

WISCONSIN DEPT OF TRANSPORTATION

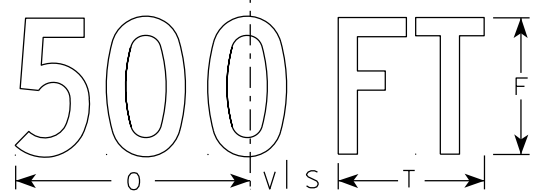
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-2.7

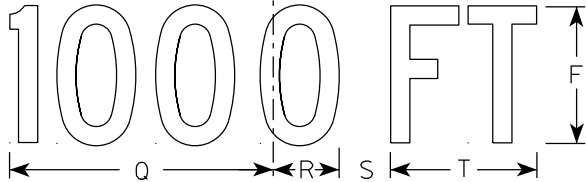
7



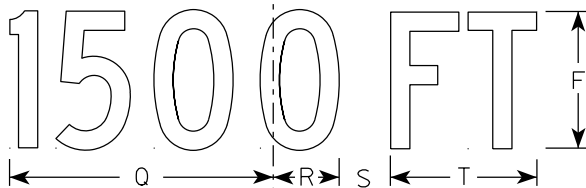
W20-3A



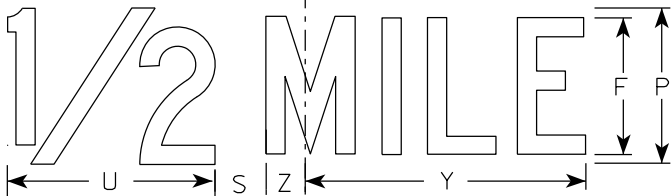
W20-3D



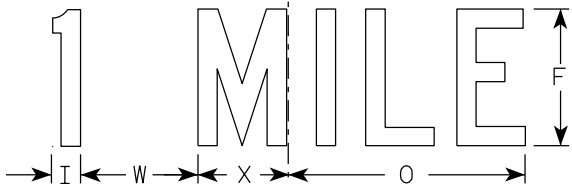
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - see note 5
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Lines 1 and 2 are Series D.
Line 3 is Series D for AHEAD and Series C for all other distances.

7

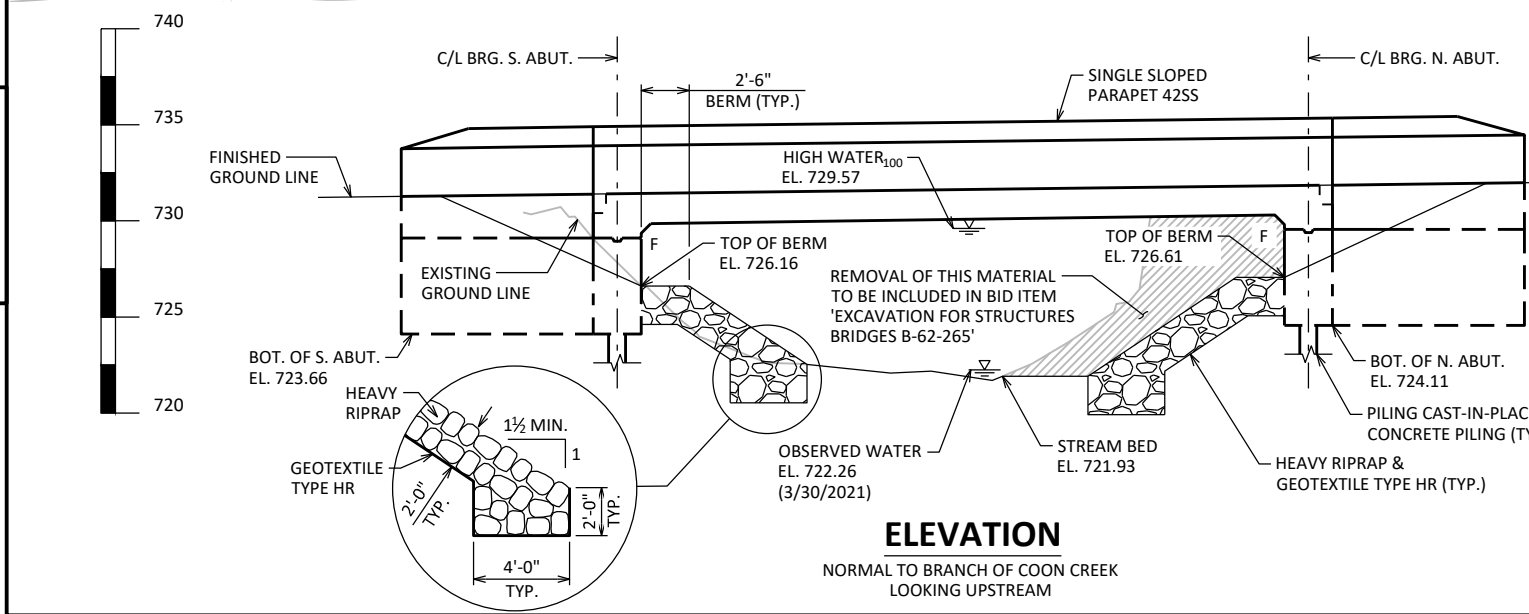
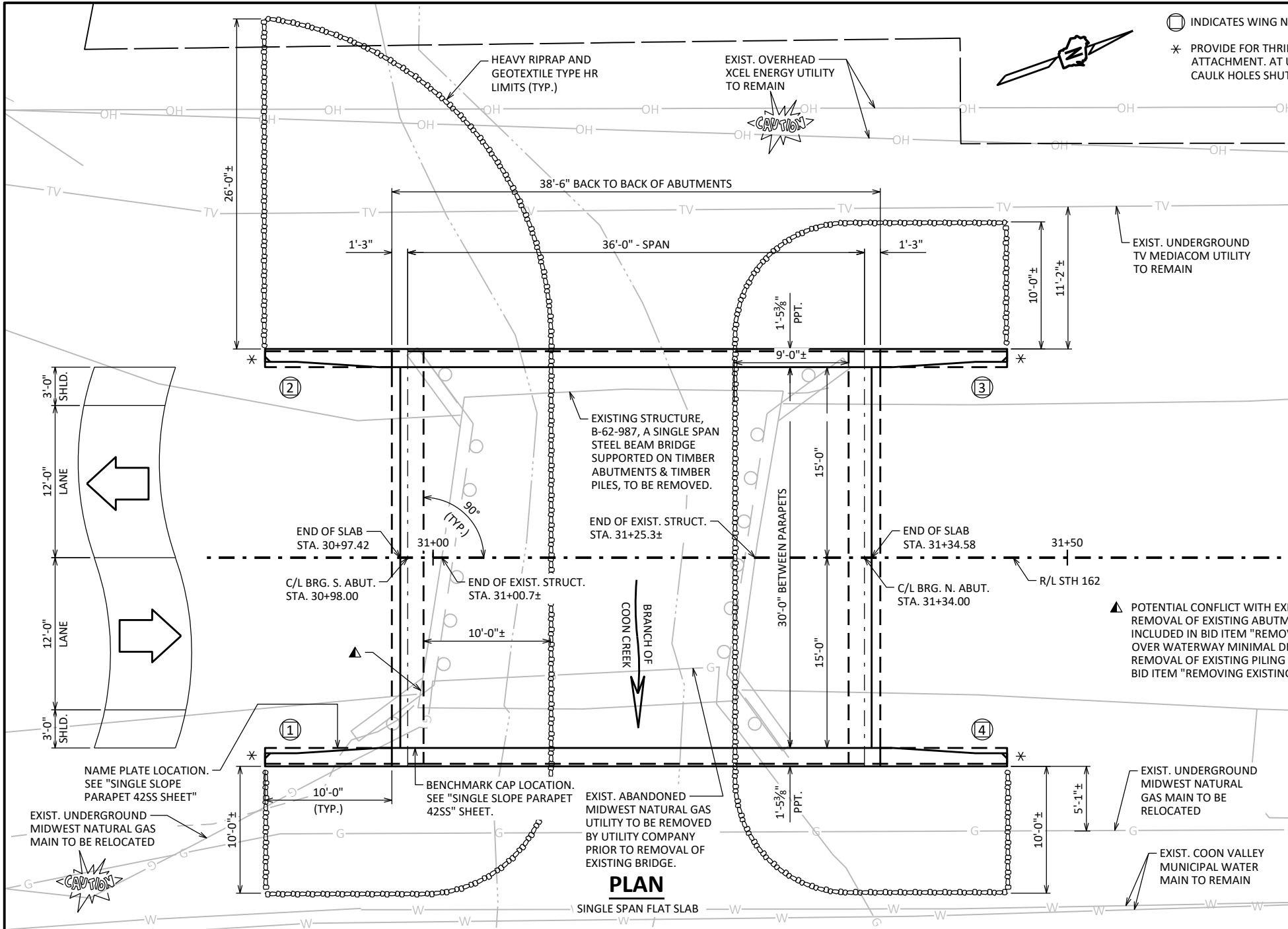
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	v	W	X	Y	Z	Area sq. ft.
1	36		2 1/4	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		3	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-3.8



INDICATES WING NUMBER

PROVIDE FOR THRIE BEAM GUARD RAIL ATTACHMENT. AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.21
OPERATING RATING: RF = 1.57
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

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

MATERIAL PROPERTIES:

CONCRETE MASONRY:
SUPERSTRUCTURE $f'_c = 4,000$ PSI
ALL OTHER $f'_c = 3,500$ PSI

BAR STEEL REINFORCEMENT
GRADE 60 $f_y = 60,000$ PSI

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON CIP 10.75 DIA. x 0.5 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.
S. ABUT. ESTIMATED 35'-0" LONG.
N. ABUT. ESTIMATED 40'-0" LONG.

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

HYDRAULIC DATA

100-YEAR FREQUENCY:

$Q_{100} = 1000$ C.F.S.
 $V_{100} = 7.75$ F.P.S.
 $HW_{100} = EL. 729.57$
WATERWAY AREA = 129.0 SQ. FT.
DRAINAGE AREA = 2.2 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 5

2-YEAR FREQUENCY:

$Q_2 = 125$ C.F.S.
 $V_2 = 3.54$ F.P.S.
 $HW_2 = EL. 725.30$

TRAFFIC DATA

STH 162

ADT = 730 (2047)
R.D.S. = 55 MPH

LIST OF DRAWINGS:

- GENERAL PLAN
- CROSS SECTION & QUANTITIES
- SUBSURFACE EXPLORATION
- SOUTH ABUTMENT
- SOUTH ABUTMENT DETAILS
- NORTH ABUTMENT
- NORTH ABUTMENT DETAILS
- SUPERSTRUCTURE PLAN
- SUPERSTRUCTURE CROSS SECTION
- SINGLE SLOPE PARAPET 42SS

STRUCTURE DESIGN CONTACTS:

IAN LINDLOFF 608-261-2557
DOMINIQUE BECHLE 608-261-8205

NO.	DATE	REVISION	BY
 BUREAU OF STRUCTURES			
ACCEPTED		CHIEF STRUCTURES DESIGN ENGINEER	
DATE		04/03/25	
STRUCTURE B-62-265			
STH 162 OVER BRANCH OF COON CREEK			
COUNTY	VERNON	VILLAGE	COON VALLEY
DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATION			
DESIGNED BY	IDL	DESIGNED CK'D	AA
DRAWN BY	DTH	PLANS CK'D	AA
GENERAL PLAN			SHEET 1 OF 10
			212

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

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

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-62-265" SHALL BE THE EXISTING GROUNDLINE.

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

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

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

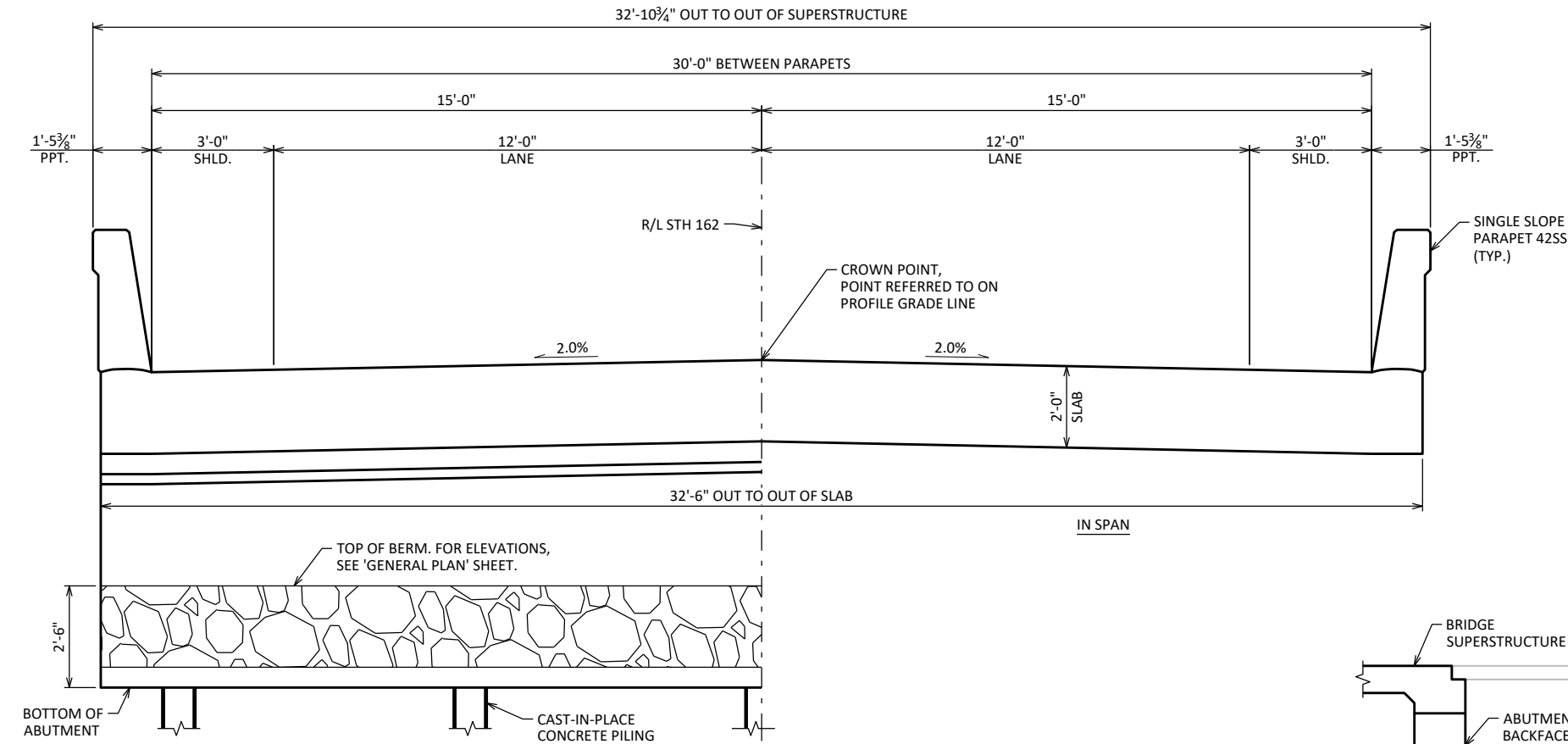
PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF SLAB SURFACE AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT.

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS, INCLUDING PARAPETS ON WINGS.

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

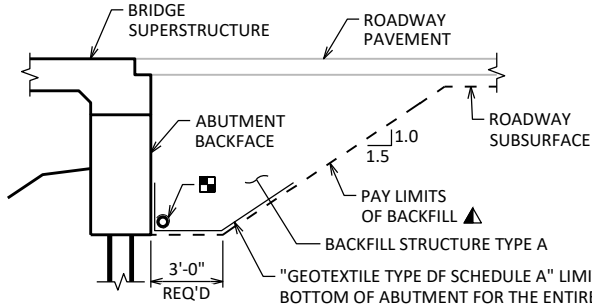
SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

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



CROSS SECTION THRU ROADWAY

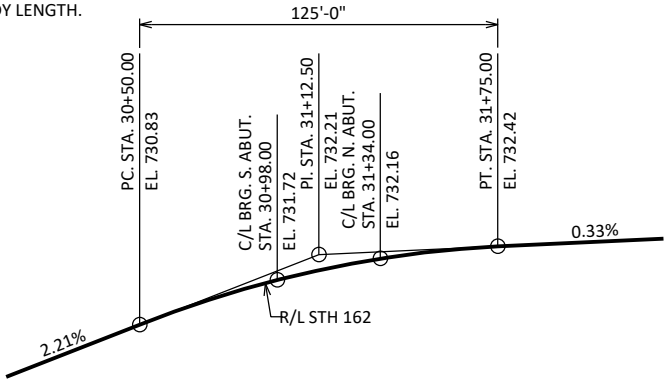
LOOKING NORTH



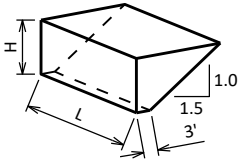
TYPICAL SECTION THRU ABUTMENT

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

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



PROFILE GRADE LINE - STH 162



ABUTMENT BACKFILL DIAGRAM

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

TOTAL ESTIMATED QUANTITIES

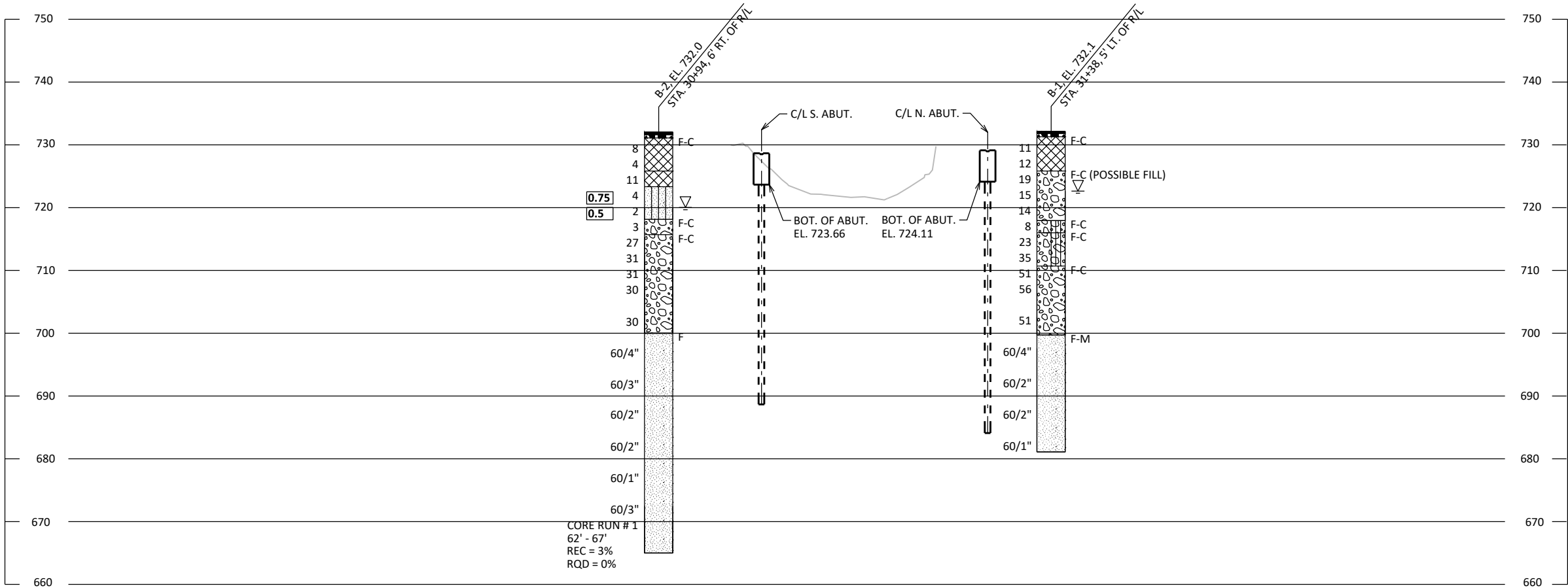
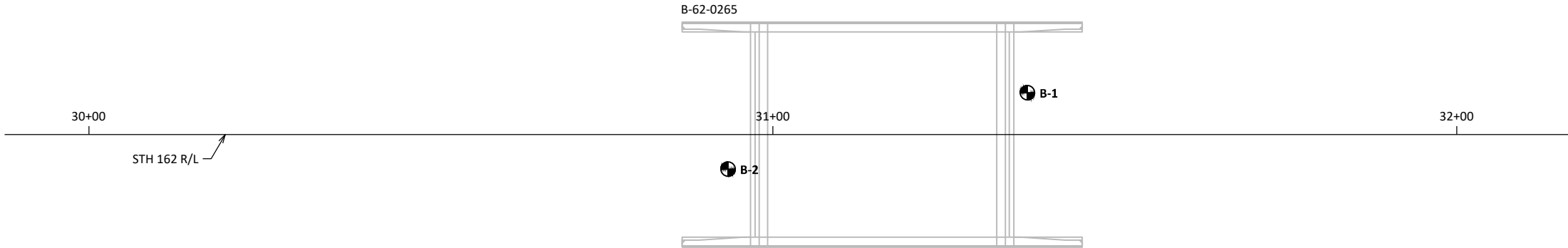
BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	S. ABUT.	N. ABUT.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-62-987	EACH	-----	-----	-----	1
205.0505.S	EXCAVATION, HAULING, AND DISPOSAL OF CREOSOTE CONTAMINATED SOIL AND MANAGEMENT OF CONTAMINATED GROUNDWATER	TON	-----	-----	-----	108
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-62-265	EACH	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	-----	131	131	262
502.0100	CONCRETE MASONRY BRIDGES	CY	108.2	32.5	32.6	174
502.3200	PROTECTIVE SURFACE TREATMENT	SY	136	-----	-----	136
502.3210	PIGMENTED SURFACE SEALER	SY	37	10	10	57
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-----	1,880	1,880	3,760
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	17,130	2,000	2,000	21,130
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-----	9	9	18
550.2108	PILING CIP CONCRETE 10 3/4 X 0.50-INCH	LF	-----	175	200	375
606.0300	RIPRAP HEAVY	CY	-----	91	66	157
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	-----	65	65	130
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	-----	-----	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-----	30	30	60
645.0120	GEOTEXTILE TYPE HR	SY	-----	177	141	318
SPV.0090	REMOVING EXISTING TIMBER PILING	LF	-----	16	-----	16
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2", 3/4"

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-62-265	
	DRAWN BY	DTH	PLANS CK'D AA
CROSS SECTION & QUANTITIES		SHEET 2 213	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	9/19/2023	203805	667948
2	9/20/2023	203760	667944
BORINGS COMPLETED BY: GESTRA			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83 (91) VERNON COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			



BRANCH OF
COON CREEK



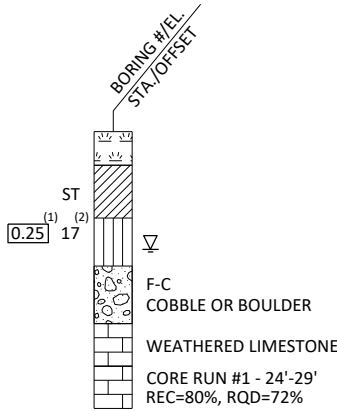
STATE PROJECT NUMBER

5820-01-68

MATERIAL SYMBOLS

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

LEGEND OF BORING



⁽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
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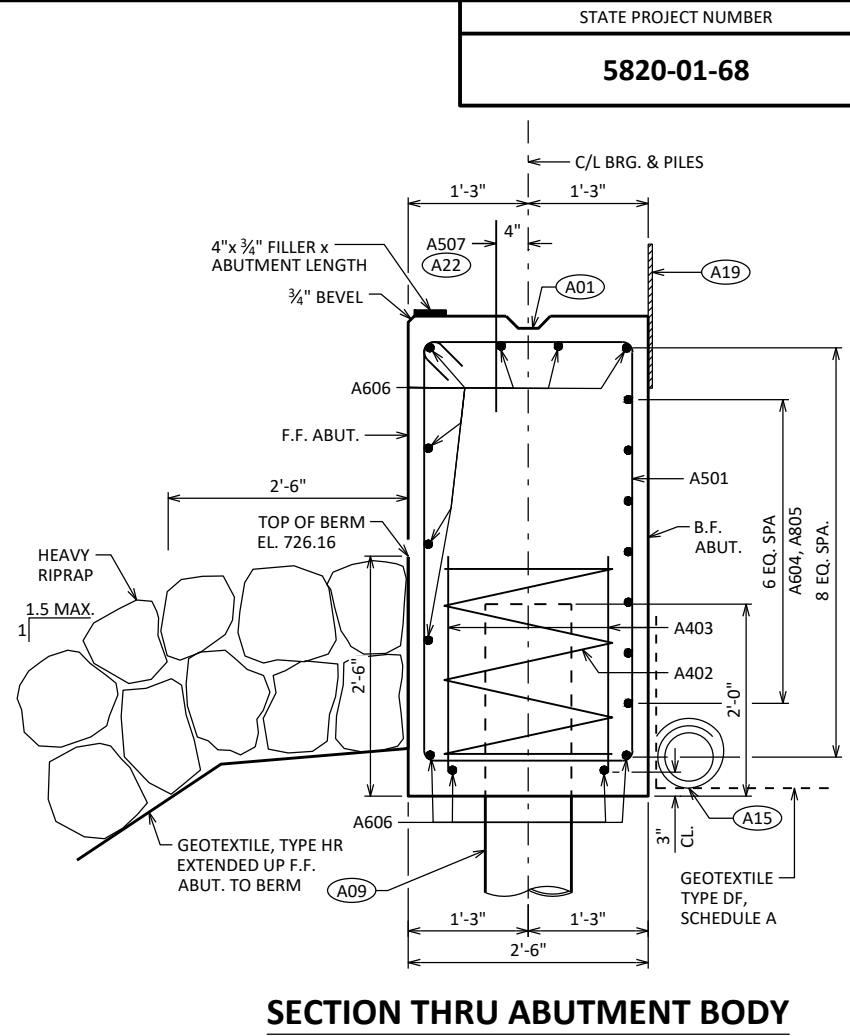
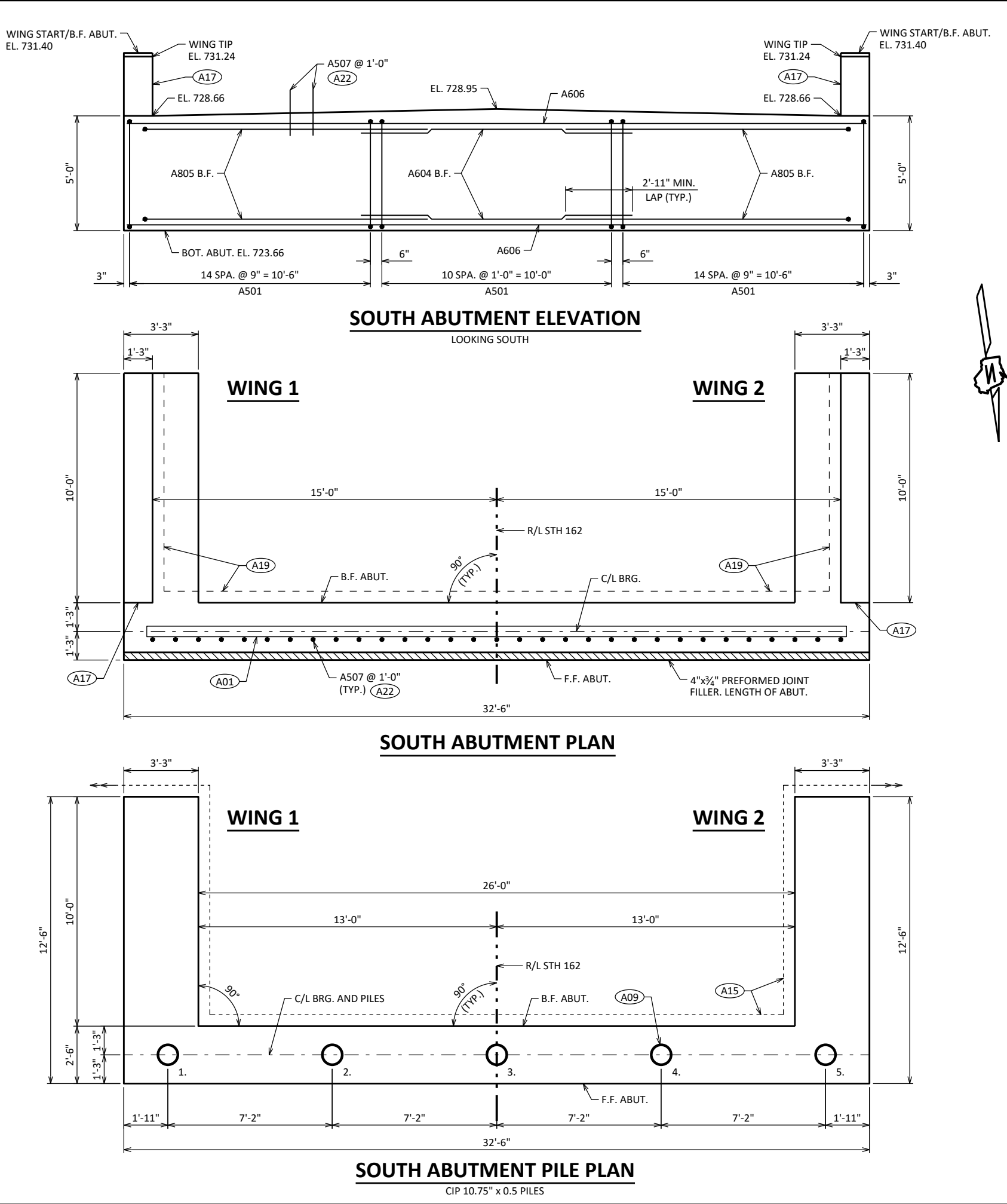
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-62-265

DRAWN BY	TLP/DTH	PLANS CK'D	AA
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SUBSURFACE
EXPLORATION

SHEET 3
214

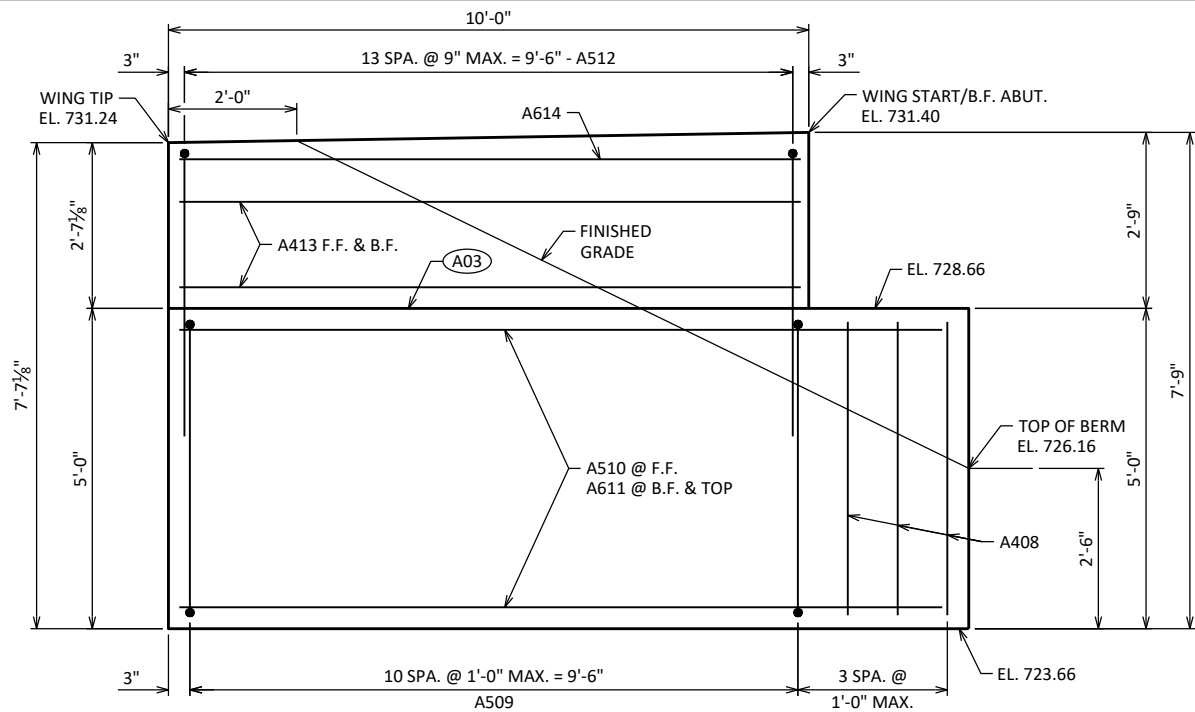


- A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- A09 SUPPORT ABUTMENT ON 10 3/4" DIA. X 0.500" CIP CONCRETE PILING, ESTIMATED 35'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A22 A507 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

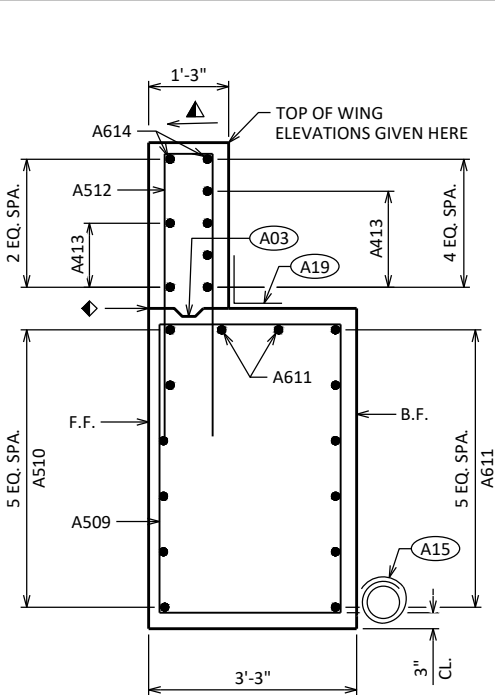
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-265			
DRAWN BY		DTH	PLANS CK'D AA
SOUTH ABUTMENT		SHEET 4 215	

BILL OF BARS

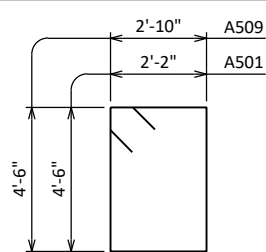
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
A501		41	14'-2"	X		BODY - STIRRUPS
A402		5	28'-0"	X		PILES - 1 PER BODY PILE
A403		10	2'-3"			PILES - 2 PER BODY PILE
A604		7	11'-10"			BODY - HORIZ. - B.F.
A805		14	13'-8"	X		BODY - HORIZ. - B.F.
A606		11	32'-2"			BODY - HORIZ. - TOP & BOT. - F.F.
A507	X	31	2'-0"			BODY - TOP - VERT.
A408	X	6	4'-7"			WINGS 1 & 2 VERT. - END OF ABUT.
A509	X	22	15'-4"	X		WINGS 1 & 2 STIRRUP - LOWER WING
A510	X	12	12'-0"			WINGS 1 & 2 - HORIZ. - F.F. - LOWER WING
A611	X	16	12'-0"			WINGS 1 & 2 - HORIZ. - B.F. & TOP. - LOWER WING
A512	X	28	9'-10"	X		WINGS 1 & 2 - VERT. - UPPER WING
A413	X	12	9'-7"			WINGS 1 & 2 - HORIZ. - UPPER WING
A614	X	4	9'-7"			WINGS 1 & 2 - HORIZ. - UPPER WING - TOP



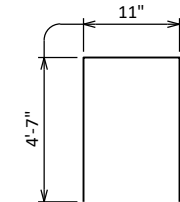
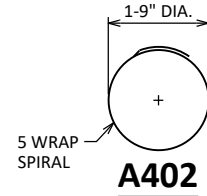
F.F. WING 1 ELEVATION



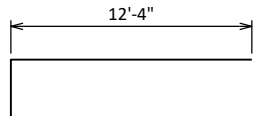
WING 1 SECTION



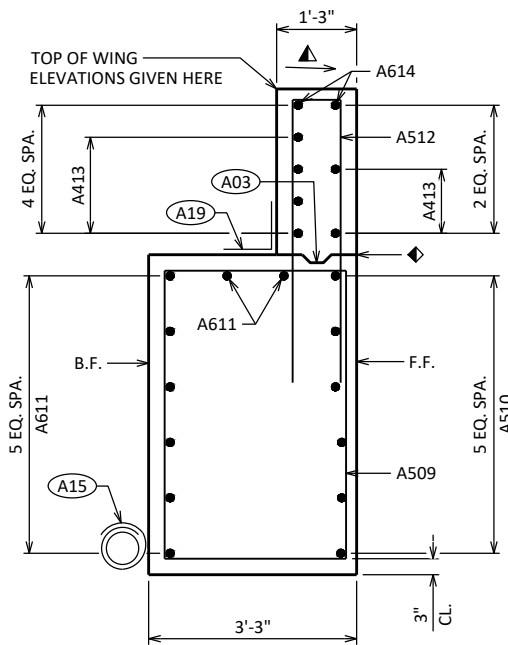
A501, A509



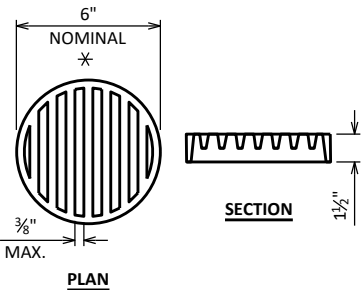
A512



A805



WING 2 SECTION

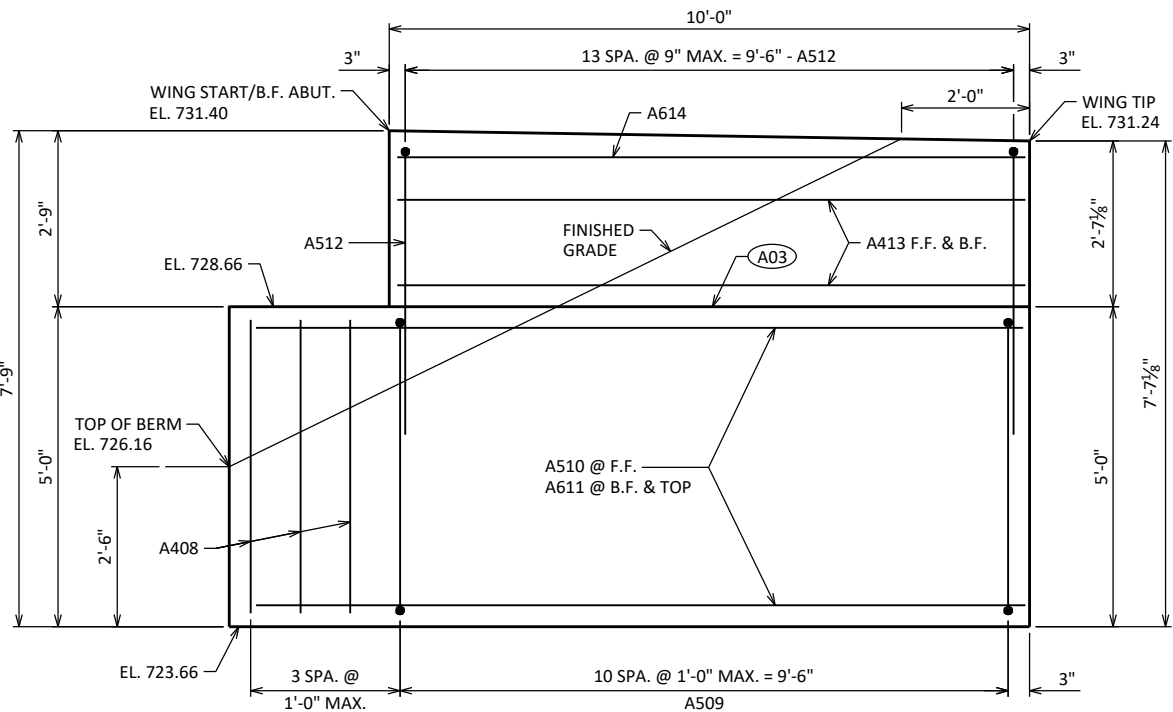


RODENT SHIELD DETAIL

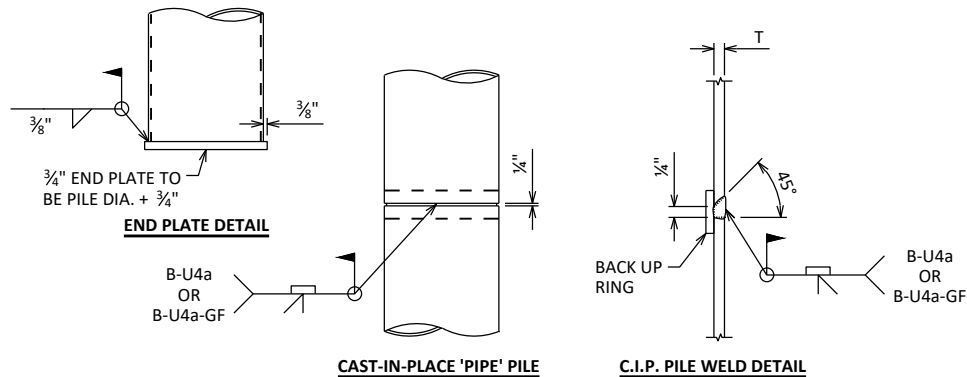
* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

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



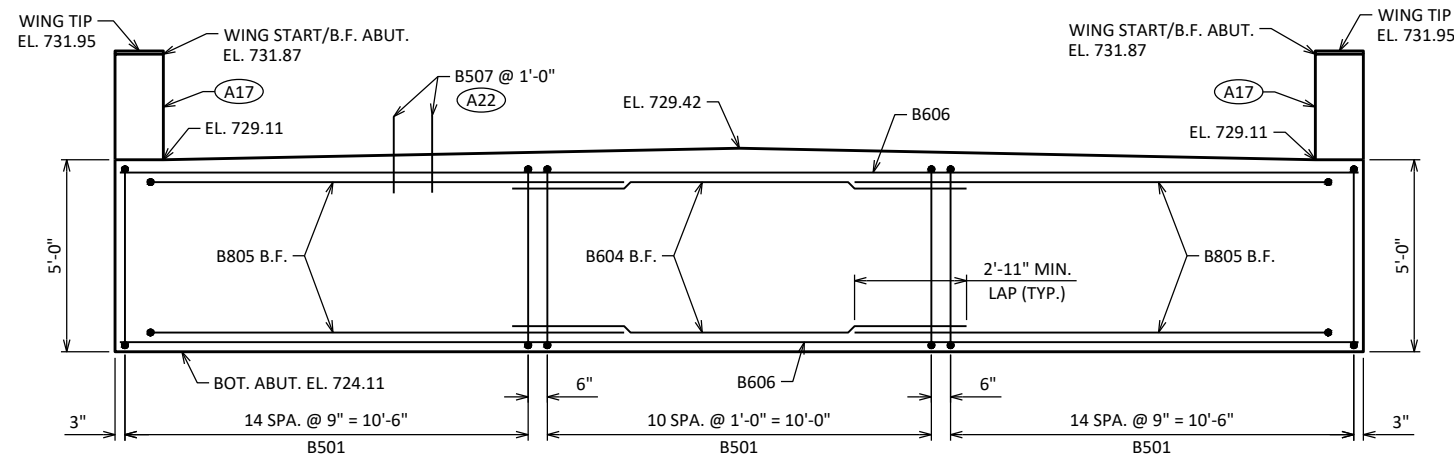
F.F. WING 2 ELEVATION



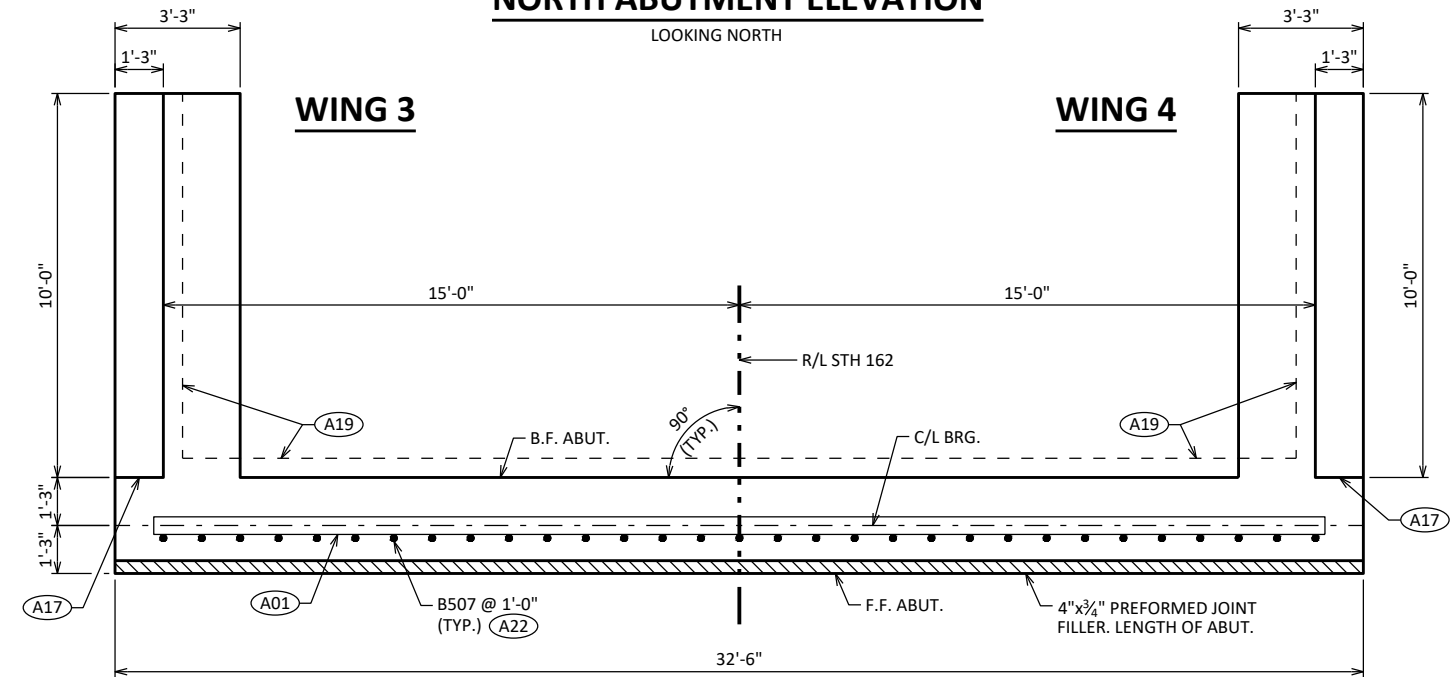
CIP PILE DETAILS

- ▲ SLOPE TOP OF WINGS 1/8" PER FOOT TO DRAIN.
- ◆ 3/4" "V" GROOVE ON THE FRONT FACE OF WINGWALL.
- A03 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

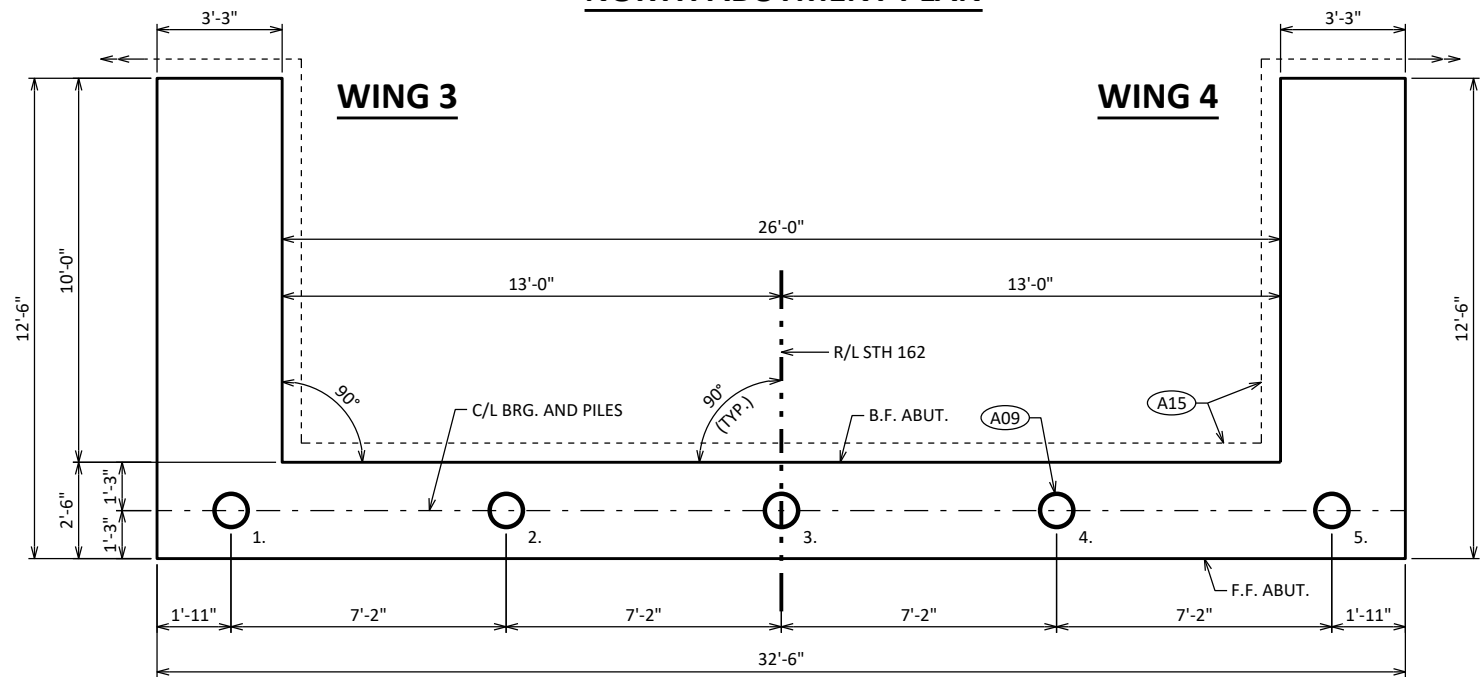
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-265			
DRAWN BY		DTH	PLANS CK'D AA
SOUTH ABUTMENT DETAILS		SHEET 5 216	



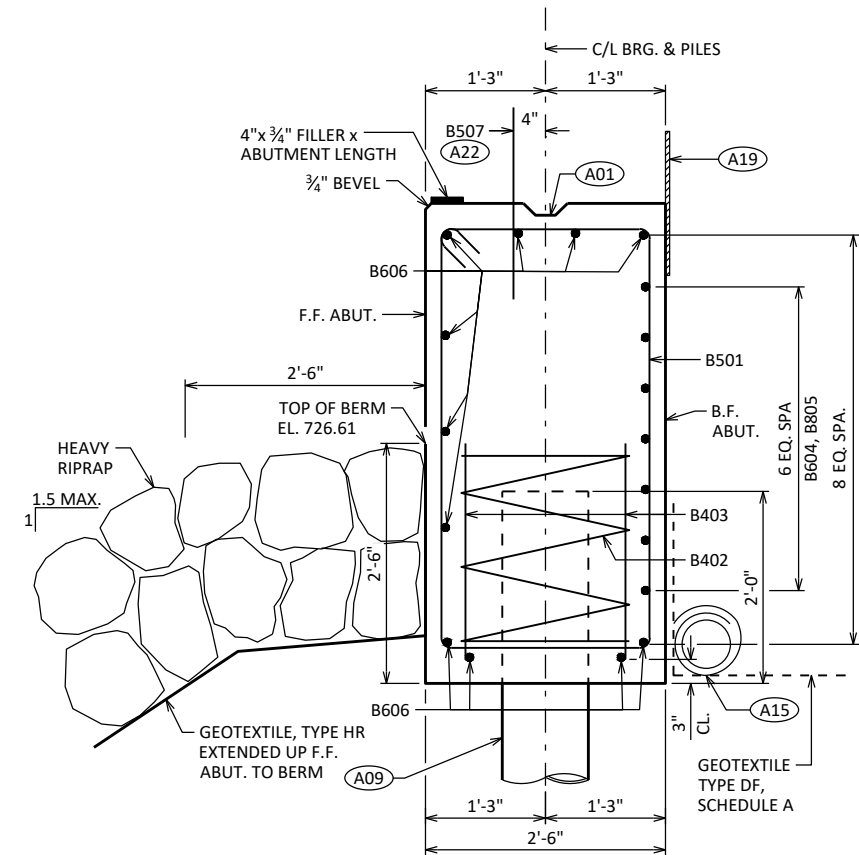
NORTH ABUTMENT ELEVATION
LOOKING NORTH



NORTH ABUTMENT PLAN



NORTH ABUTMENT PILE PLAN
CIP 10.75" x 0.5 PILES



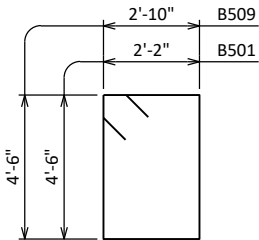
SECTION THRU ABUTMENT BODY

- A01 CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- A09 SUPPORT ABUTMENT ON 10 3/4" DIA. X 0.500" CIP CONCRETE PILING, ESTIMATED 40'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/2" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- A22 B507 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

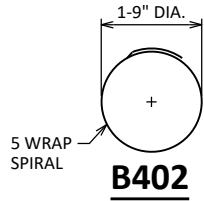
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-265			
DRAWN BY		DTH	PLANS CK'D AA
NORTH ABUTMENT		SHEET 6 217	

BILL OF BARS

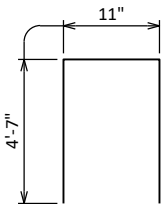
BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
B501		41	14'-2"	X		BODY - STIRRUPS
B402		5	28'-0"	X		PILES - 1 PER BODY PILE
B403		10	2'-3"			PILES - 2 PER BODY PILE
B604		7	11'-10"			BODY - HORIZ. - B.F.
B805		14	13'-8"	X		BODY - HORIZ. - B.F.
B606		11	32'-2"			BODY - HORIZ. - TOP & BOT. - F.F.
B507	X	31	2'-0"			BODY - TOP - VERT.
B408	X	6	4'-7"			WINGS 3 & 4 VERT. - END OF ABUT.
B509	X	22	15'-4"	X		WINGS 3 & 4 STIRRUP - LOWER WING
B510	X	12	12'-0"			WINGS 3 & 4 - HORIZ. - F.F. - LOWER WING
B611	X	16	12'-0"			WINGS 3 & 4 - HORIZ. - B.F. & TOP - LOWER WING
B512	X	28	9'-10"	X		WINGS 3 & 4 - VERT. - UPPER WING
B413	X	12	9'-7"			WINGS 3 & 4 - HORIZ. - UPPER WING
B614	X	4	9'-7"			WINGS 3 & 4 - HORIZ. - UPPER WING - TOP



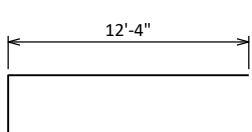
B501, B509



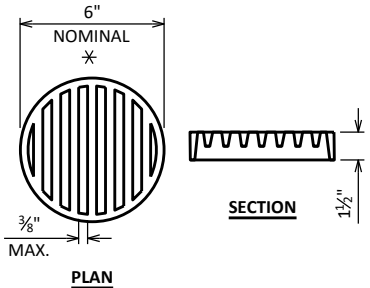
B402



B512



B805

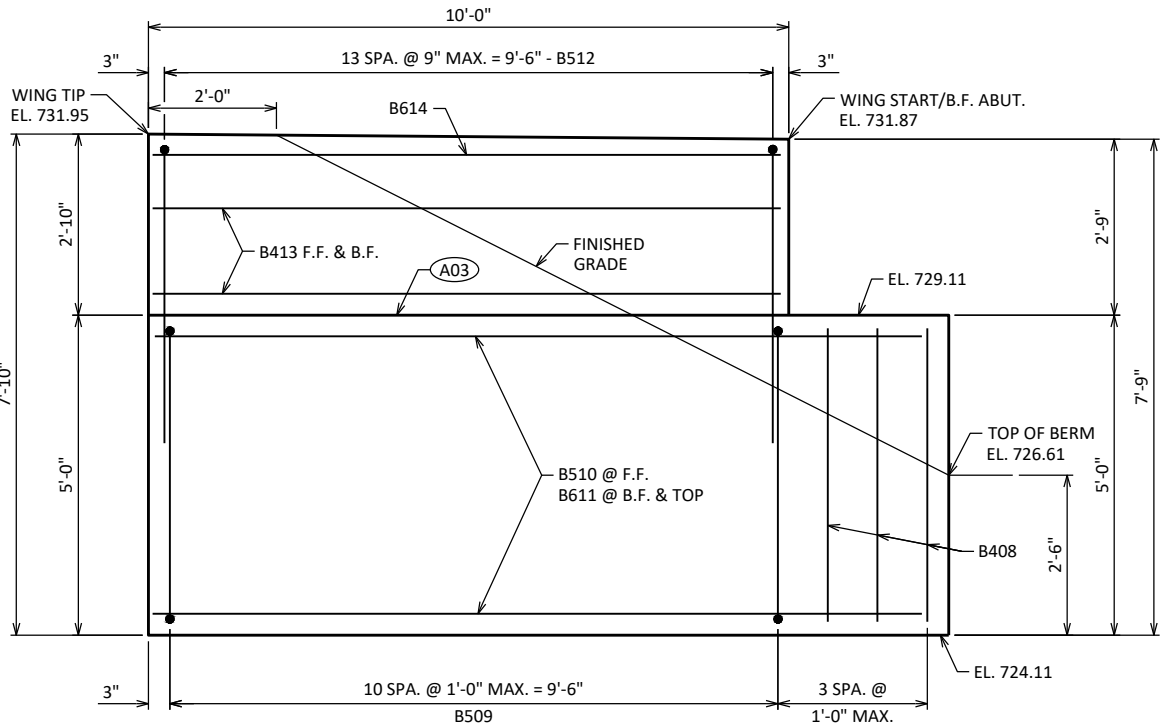


RODENT SHIELD DETAIL

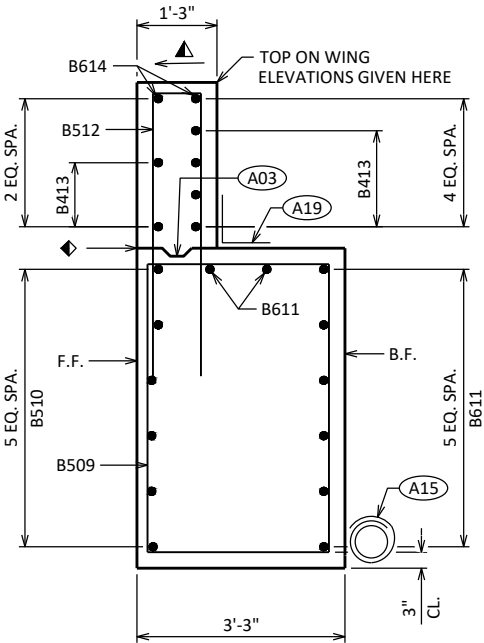
* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

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

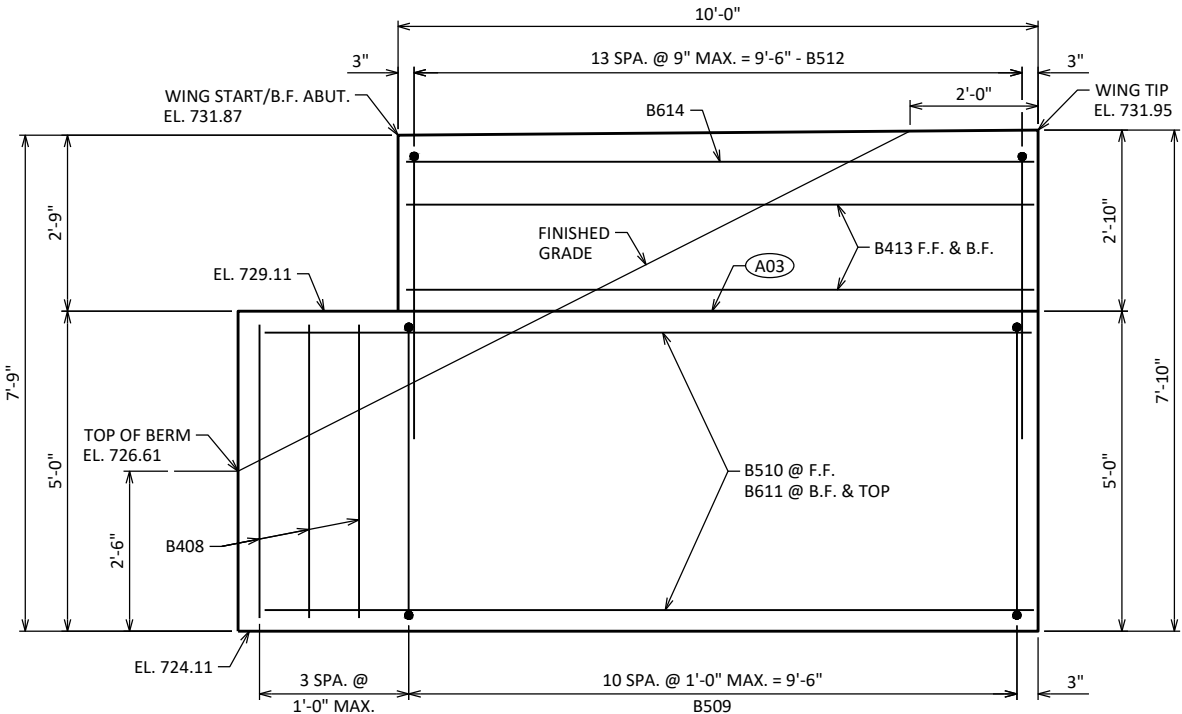
THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH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



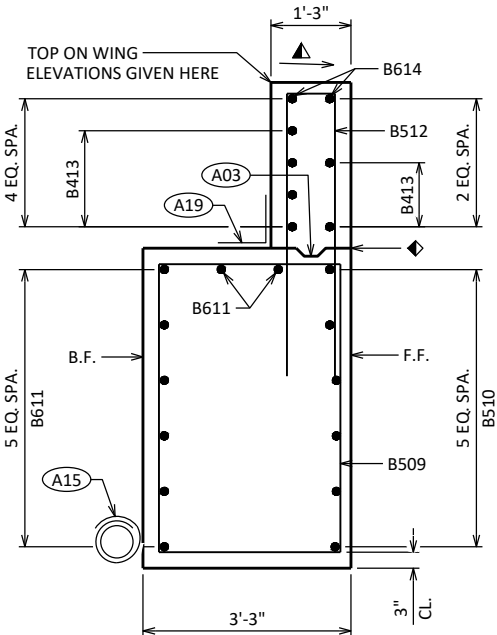
F.F. WING 3 ELEVATION



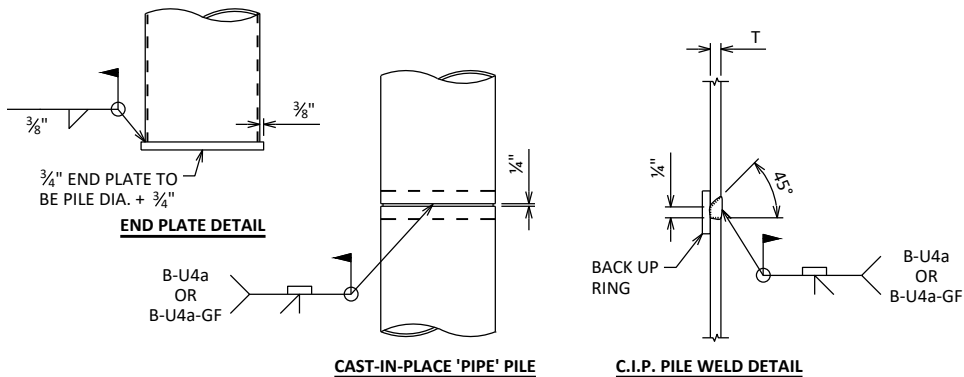
WING 3 SECTION



F.F. WING 4 ELEVATION



WING 4 SECTION



CIP PILE DETAILS

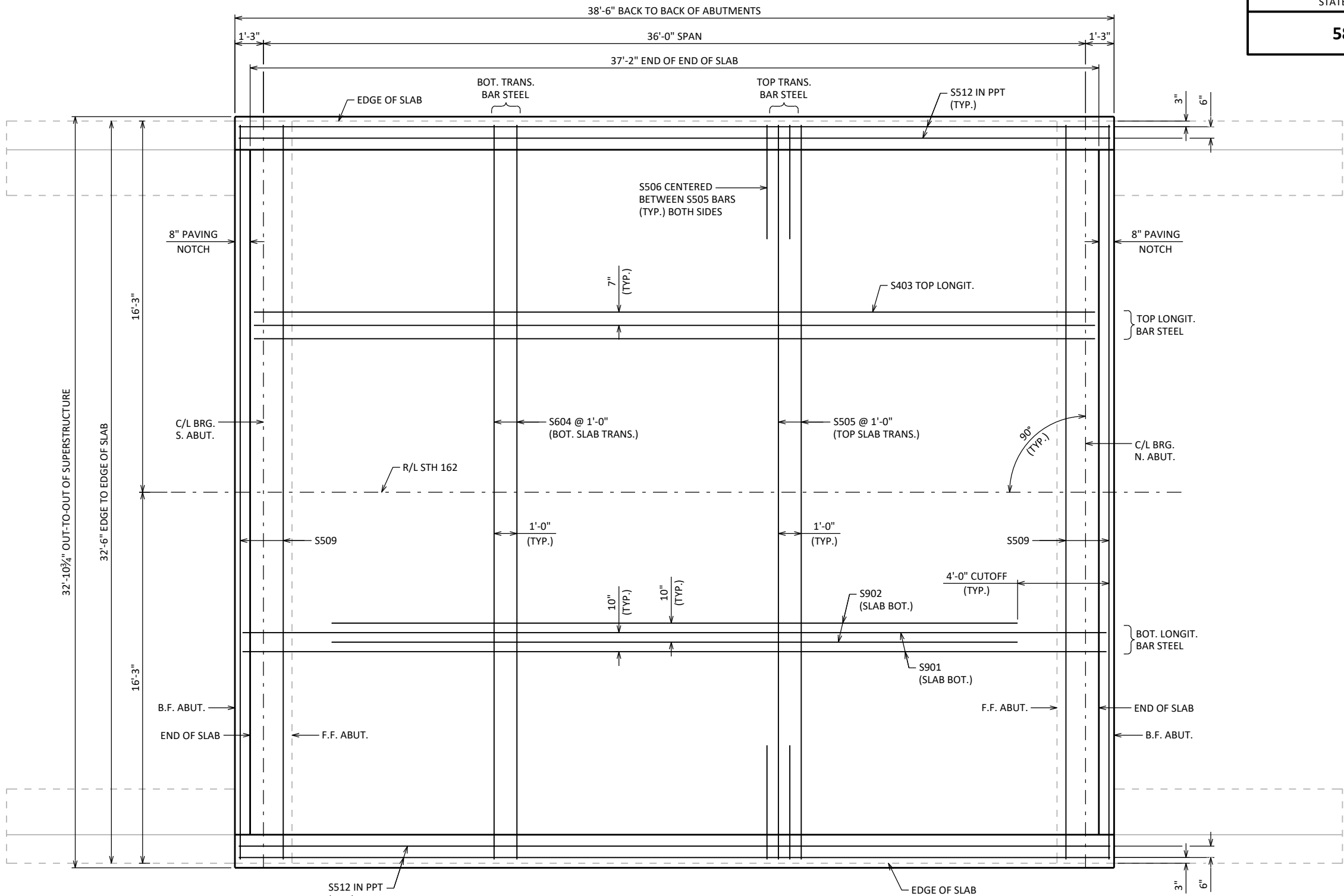
- ▲ SLOPE TOP OF WINGS 1/8" PER FOOT TO DRAIN.
- ◆ 3/4" "V" GROOVE ON THE FRONT FACE OF WINGWALL.
- A03 OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 X 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- A15 PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- A17 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-265			
DRAWN BY		DTH	PLANS CK'D AA
NORTH ABUTMENT DETAILS		SHEET 7 218	

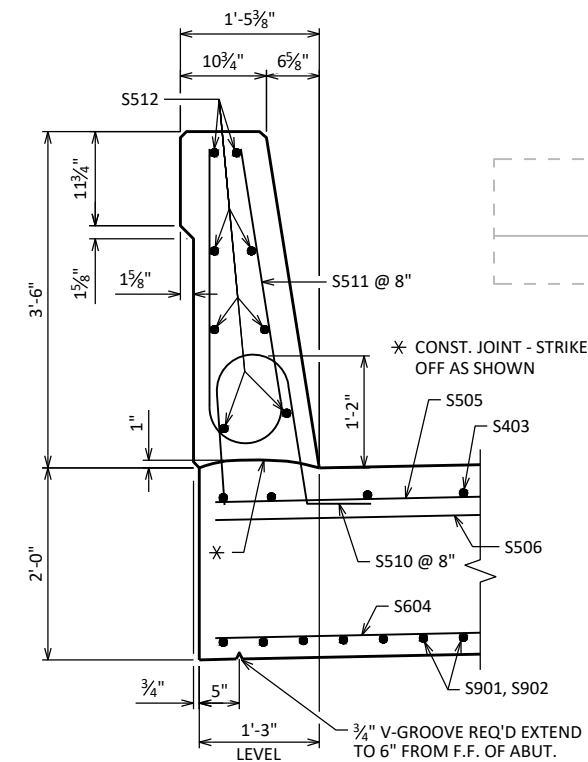


STATE PROJECT NUMBER

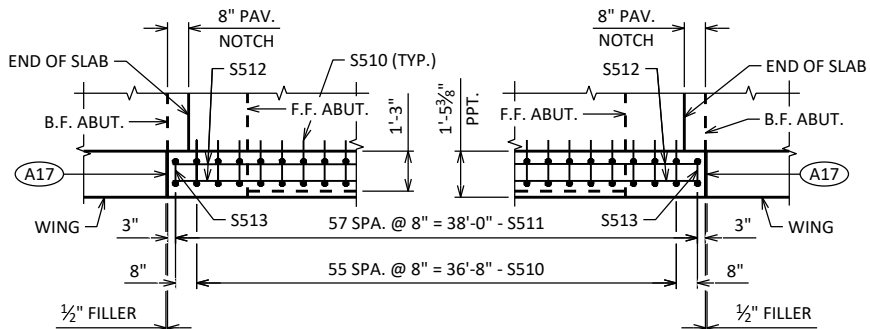
5820-01-68



SUPERSTRUCTURE PLAN



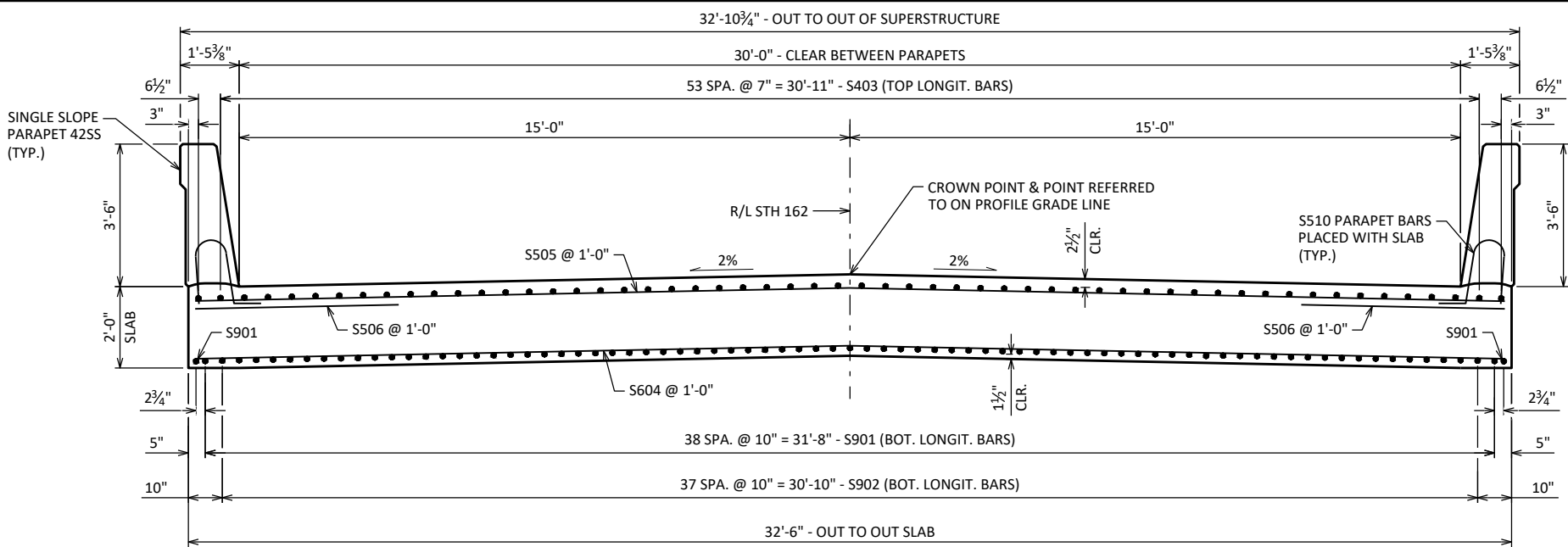
SECTION THRU PARAPET ON BRIDGE



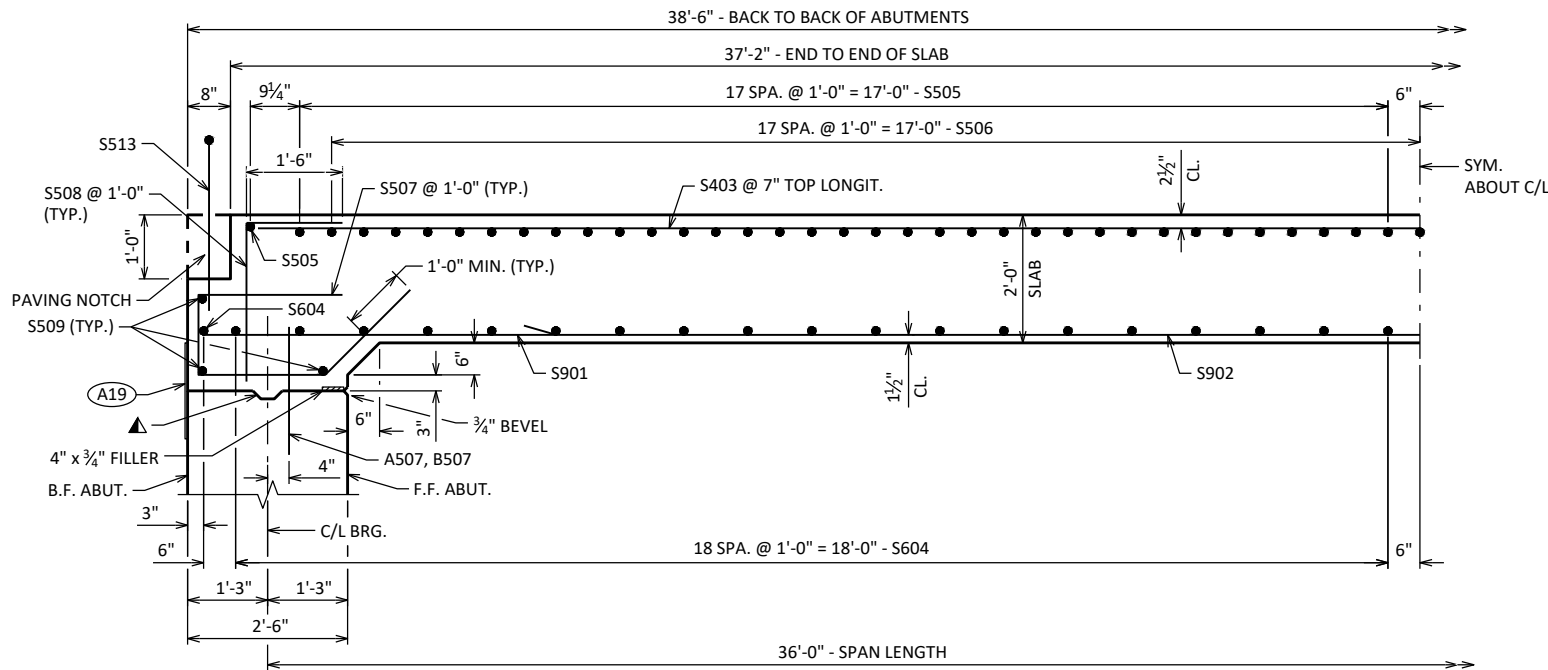
PARTIAL PLAN OF PARAPET REINFORCEMENT

(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-265			
DRAWN BY		DTH	PLANS CK'D AA
SUPERSTRUCTURE PLAN		SHEET 8 219	



CROSS SECTION THRU SUPERSTRUCTURE



HALF LONGITUDINAL SECTION

TOP OF SLAB ELEVATIONS

LOCATION	C/L BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L BRG. N. ABUT.
W. GUTTERLINE	731.42	731.47	731.52	731.57	731.62	731.66	731.70	731.75	731.78	731.82	731.86
STH 162 R/L	731.72	731.77	731.82	731.87	731.92	731.96	732.00	732.05	732.08	732.12	732.16
E. GUTTERLINE	731.42	731.47	731.52	731.57	731.62	731.66	731.70	731.75	731.78	731.82	731.86

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	C/L BRG. S. ABUT.	5/10 PT.	C/L BRG. N. ABUT.
W. GUTTERLINE			
R/L STH 162			
E. GUTTERLINE			

PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L BRG. ABUTMENTS AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND R/L STH 162. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

STATE PROJECT NUMBER

5820-01-68

BILL OF BARS

BAR MARK	COAT	NO. REQ'D		BENT	BAR SERIES	LOCATION
S901	X	41	38'-0"			SLAB - LONGIT. - BOT.
S902	X	38	30'-2"			SLAB - LONGIT. - BOT.
S403	X	56	36'-10"			SLAB - LONGIT. - TOP
S604	X	40	32'-2"			SLAB - TRANS. - BOT.
S505	X	38	32'-2"			SLAB - TRANS. - TOP
S506	X	70	5'-0"			SLAB - TRANS. - EDGES OF SLAB - TOP
S507	X	66	7'-5"	X		SLAB - DIAPH. - VERT.
S508	X	66	3'-9"	X		SLAB - DIAPH. - VERT.
S509	X	6	32'-2"			SLAB - DIAPH. - HORIZ.
S510	X	114	4'-5"	X		SLAB/PARAPET - VERT.
S511	X	118	6'-8"	X		PARAPET - VERT.
S512	X	16	38'-2"			PARAPET - HORIZ.
S513	X	4	7'-4"	X		PARAPET AT ABUT. DIAPH. - VERT.

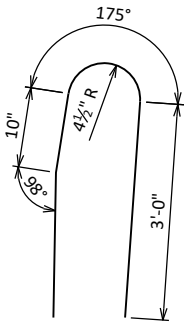
NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATE 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

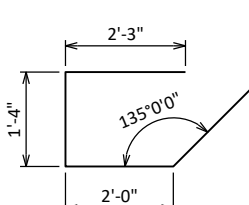
ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

CONST. JOINT KEYWAY FORMED BY A BEVELED 2"x6".

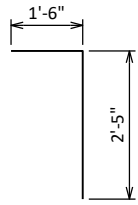
A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



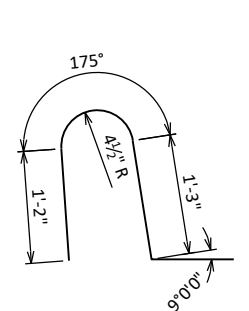
S513



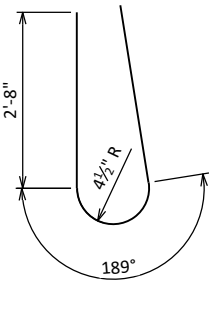
S507



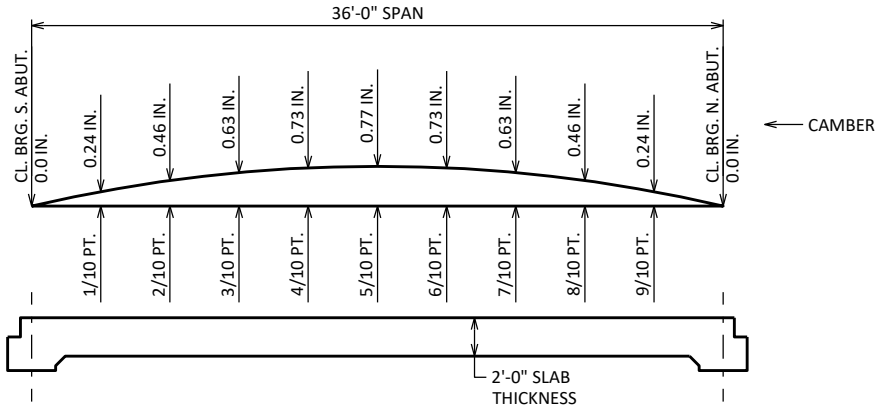
S508



S510



S511



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTION.

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

PARAPET PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

TO DETERMINE FLASEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

MINUS TOP OF SLAB ELEVATION AT FINAL GRADE
PLUS SLAB THICKNESS
PLUS CAMBER
PLUS FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
EQUALS = TOP OF SLAB FALSEWORK ELEVATION

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-62-265	
DRAWN BY		DTH	PLANS CK'D AA
SUPERSTRUCTURE CROSS SECTION		SHEET 9 220	

FOR WING PARAPETS

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

BUNDLE AND TAG EACH SERIES SEPARATELY.

SECTION A-A

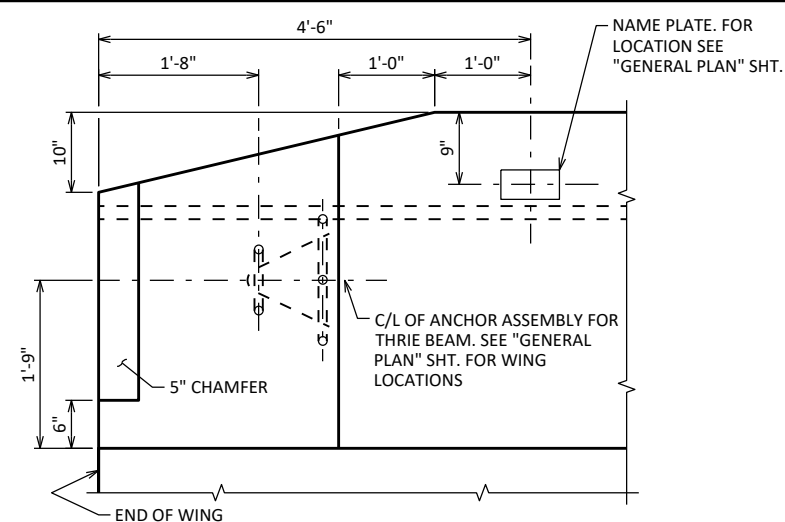
SECTION B-B

SECTION C-C

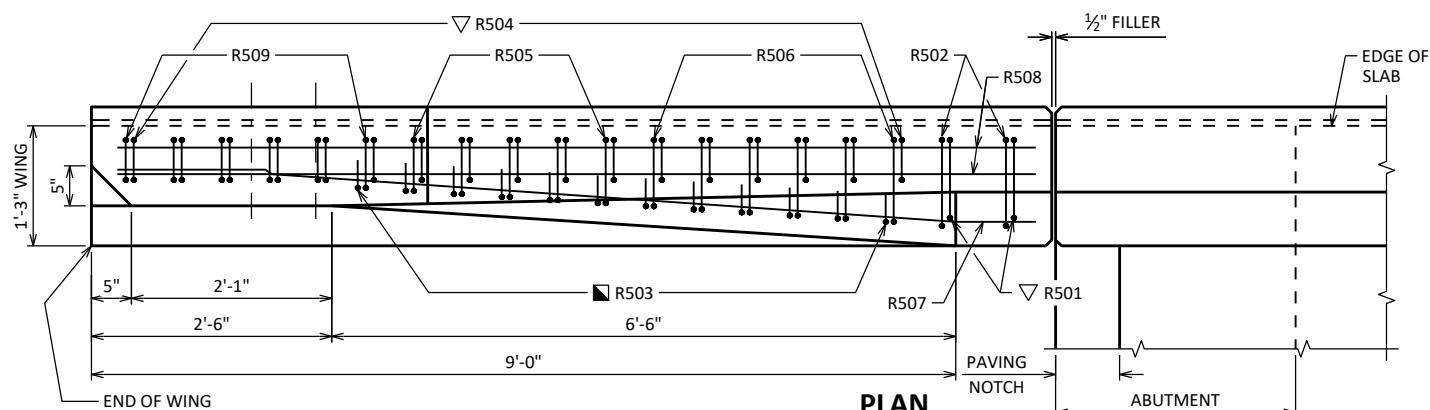
END OF WING

PARAPET E

LOOK

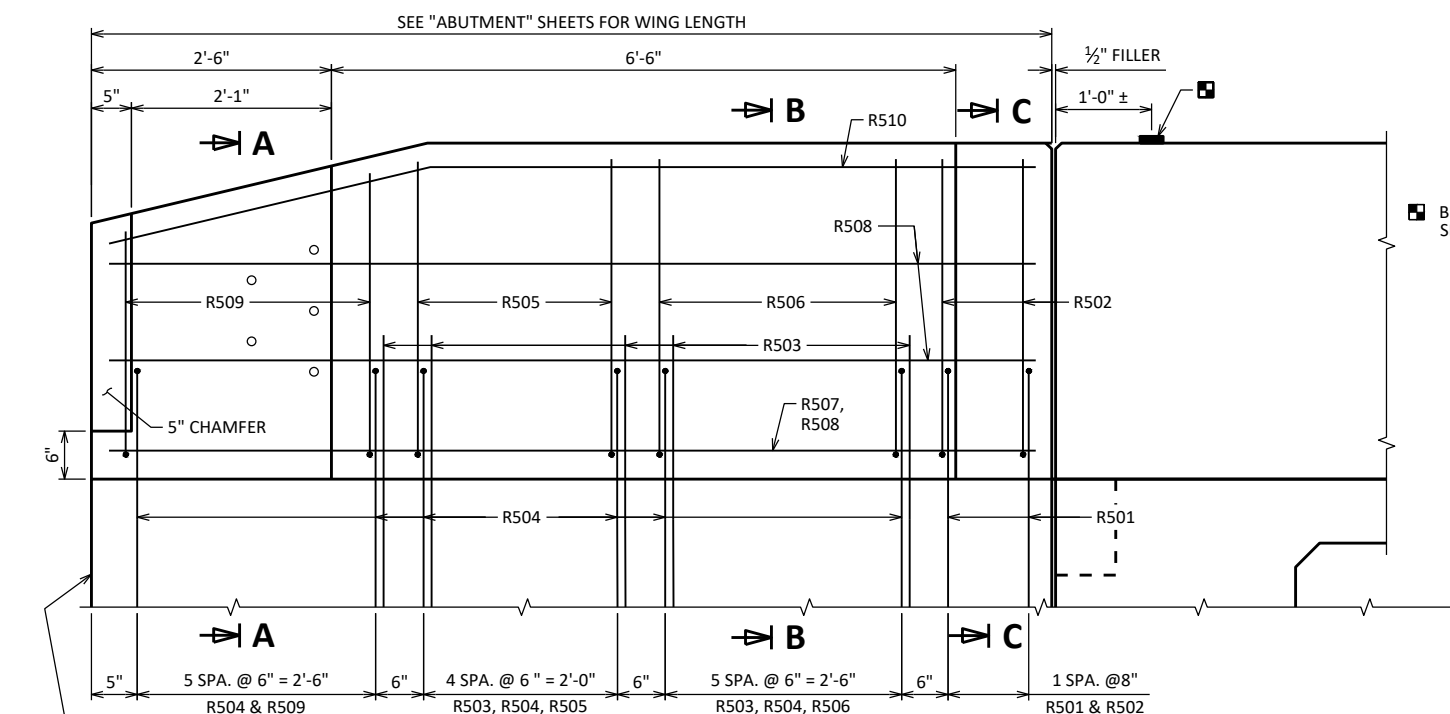


LOOKING AT INSIDE FACE OF PARAPET



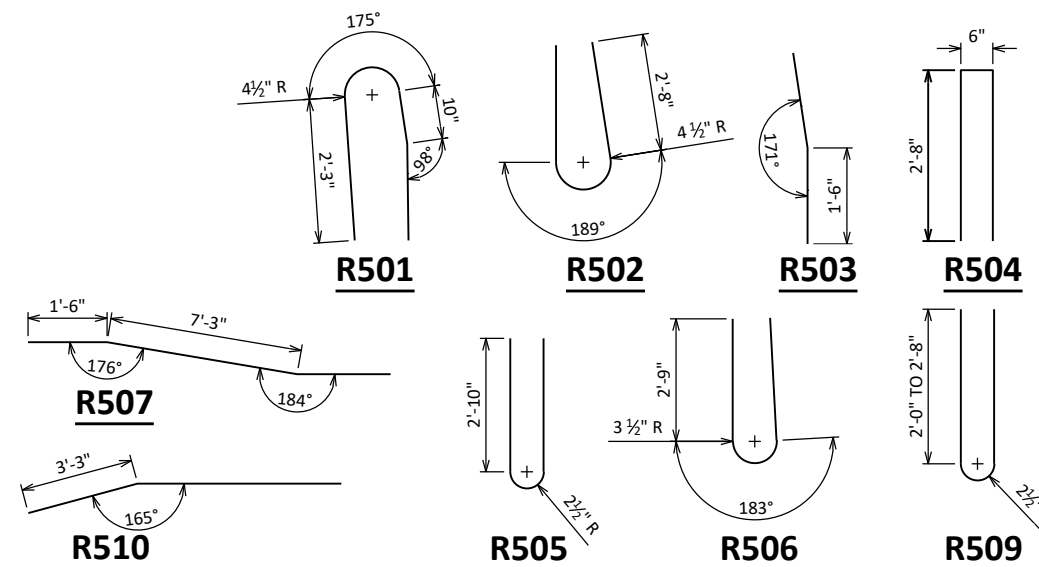
PLAN

SW CORNER SHOWN. OTHERS SIMILAR



INSIDE ELEVATION

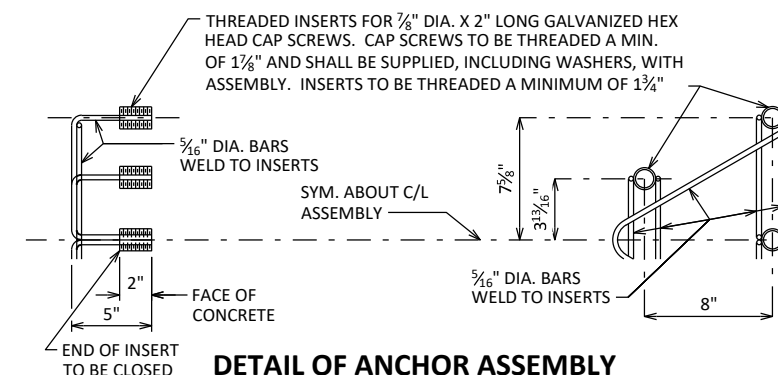
SW CORNER SHOWN. OTHERS SIMILAR



● CONST. JOINT - STRIKE OFF AS SHOWN

 R503 BARS MAY BE PLACED AFTER CONCRETE IS
POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE.
USE CARE TO PLACE R503 BARS CORRECTLY ALONG
TRANSITION OF PARAPET.

▽ R501 AND R504 BARS TO BE TIED TO WING STEEL BEFORE WING IS POURED.



DETAIL OF ANCHOR ASSEMBLY

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

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-62-265	
	DRAWN BY	DTH	PLANS CK'D AA
SINGLE SLOPE PARAPET 42SS		SHEET 10	
		221	

☐ MEASURED NORMAL TO TANGENT LINE

5820-01-68

DESIGN LOADING: HL-93
INVENTORY RATING: RF = 1.30
OPERATING RATING: RF = 1.70
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV): 250 (KIPS)

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

CONCRETE MASONRY:

SUPERSTRUCTURE _____	$f'_c = 4,000$ PSI
ALL OTHER _____	$f'_c = 3,500$ PSI

BAR STEEL REINFORCEMENT
GRADE 60 _____ $f_y = 60,000$ PS

ABUTMENTS TO BE SUPPORTED ON CIP 10.75 x 0.5 PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 150 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. AT SOUTH ABUTMENT, PRE-BORE 12'-0" MINIMUM THROUGH SHALLOW LAYERS OF DENSE GRANULAR MATERIAL, THEN DRIVE PILES FROM BOTTOM OF PRE-BORED HOLES UNTIL THE REQUIRED DRIVING RESISTANCE OF 150 TONS ** PER PILE IS ACHIEVED AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA.

S. ABUT. ESTIMATED 25'-0" LONG. PILE POINTS REQUIRED.

N. ABUT. ESTIMATED 30'-0" LONG. PILE POINTS REQUIRED.

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

Q₁₀₀= 875 C.F.S.
V₁₀₀= 5.31 F.P.S.
HW₁₀₀= EL. 757.56
WATERWAY AREA = 165 SQ. FT.
DRAINAGE AREA = 1.8 SQ. MI.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = 8

ADT = 730 (2047)
R.D.S. = 55 MPH

P.I. = 45+35.23 'VE'
 $\Delta = 2^{\circ}07'44''$ RT
 $D = 0^{\circ}50'53''$
 $T = 125.54'$
 $L = 251.06'$
 $R = 6756.79'$
 $S.E. = 2.00\%$
 $P.C. = 44+09.69$ 'VE'
 $P.T. = 46+60.75$ 'VE'

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. SOUTH ABUTMENT
5. SOUTH ABUTMENT DETAILS
6. NORTH ABUTMENT
7. NORTH ABUTMENT DETAILS
8. SUPERSTRUCTURE PLAN
9. SUPERSTRUCTURE CROSS SECTION
10. SINGLE SLOPE PARAPET 42SS

STRUCTURE DESIGN CONTRACTOR:
IAN LINDLOFF 608-261-2557
DOMINIQUE BECHLE 608-261-8205

NO.	DATE	REVISION
		BY



BUREAU OF

STRUCTURES

04/03/25

ACCEPTED



DMR

04/03/25

CHIEF STRUCTURES DESIGN ENGINEER

DATE

STRUCTURE B-62-266

STH 162 OVER BRANCH OF COON CREEK

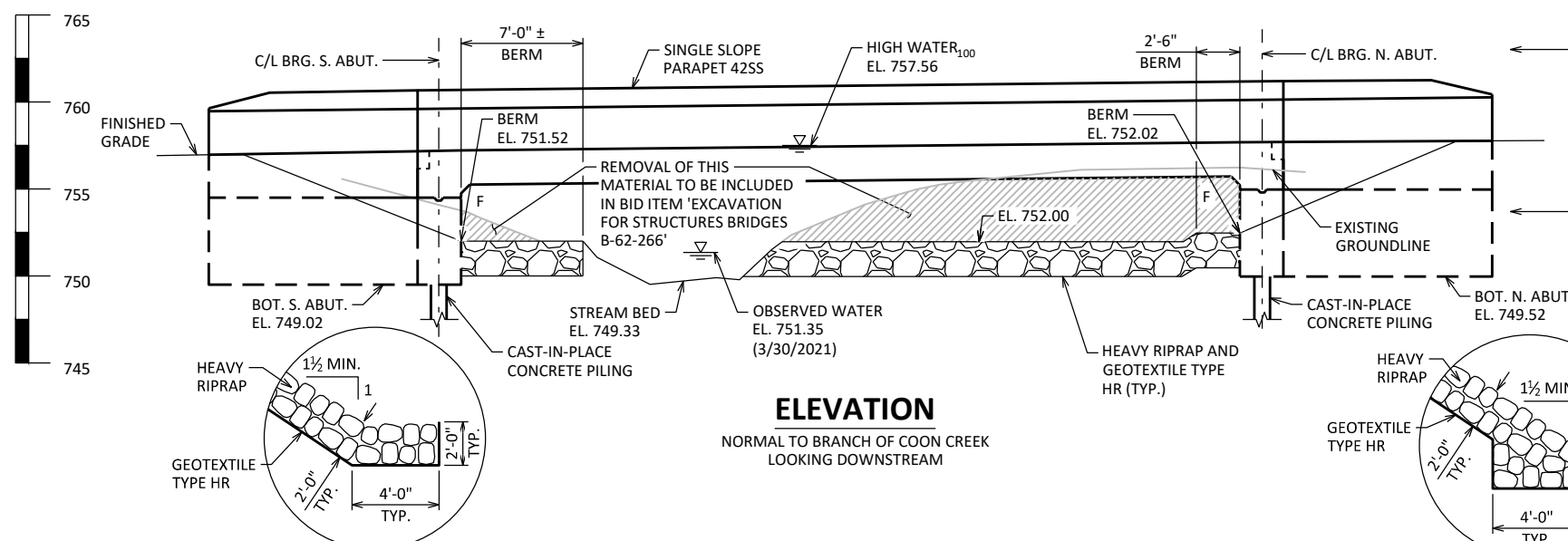
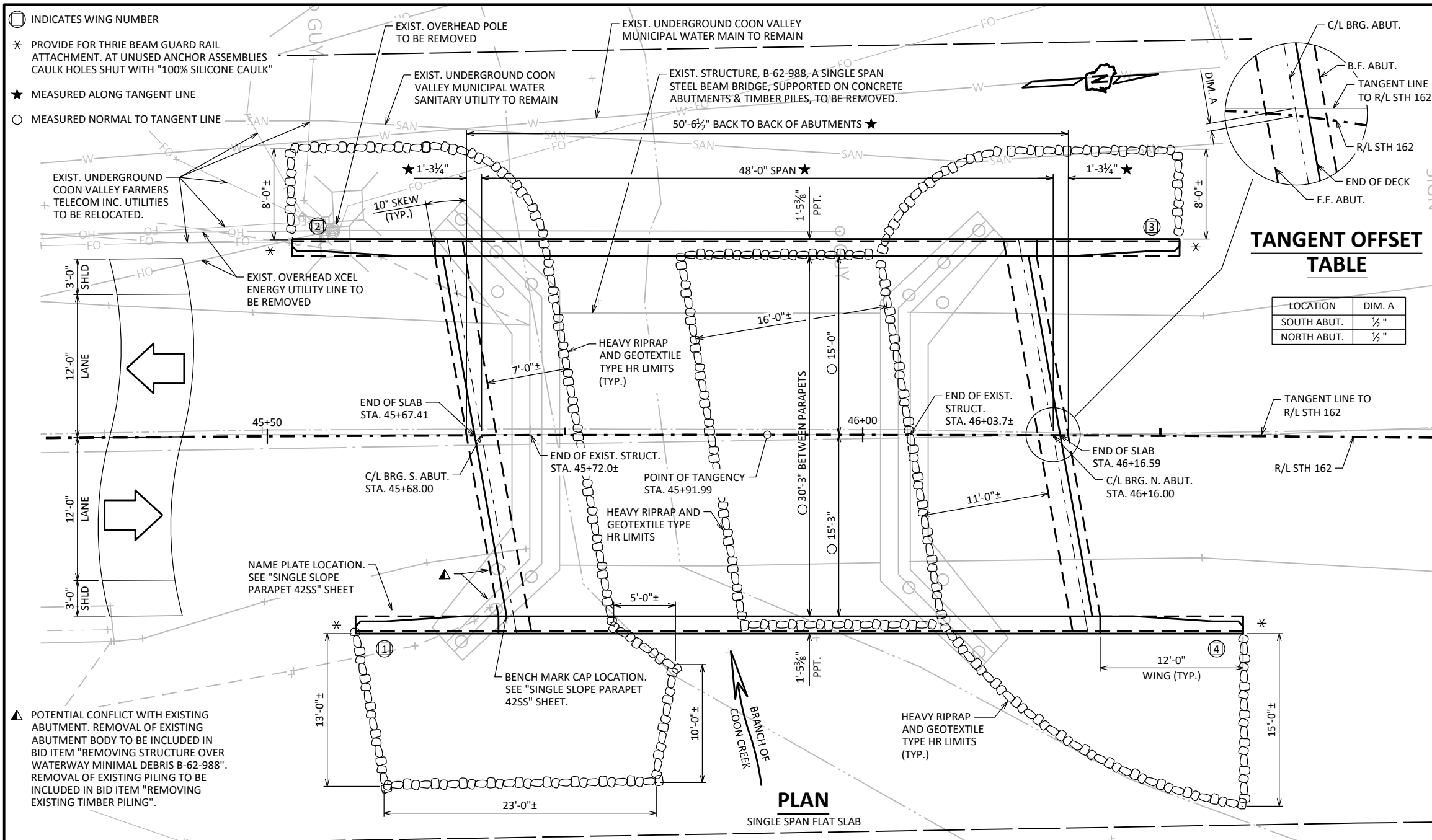
COUNTY	VERNON	VILLAGE	COON VALLE
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DESIGN SPEC.		AASHTO LRFD BRIDGE DESIGN SPECIFICATION	
DESIGNED BY	DESIGNED CK'D	DRAWN BY	PLANS CK'D
IDI	AA	DTH	AA

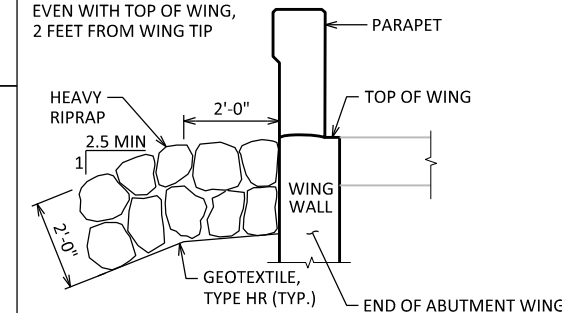
GENERAL PLAN

SHEET 1 OF 10
— 222

DATE: APRIL 2024



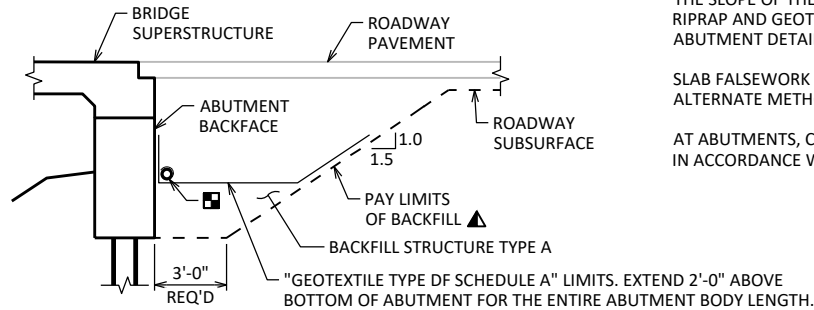
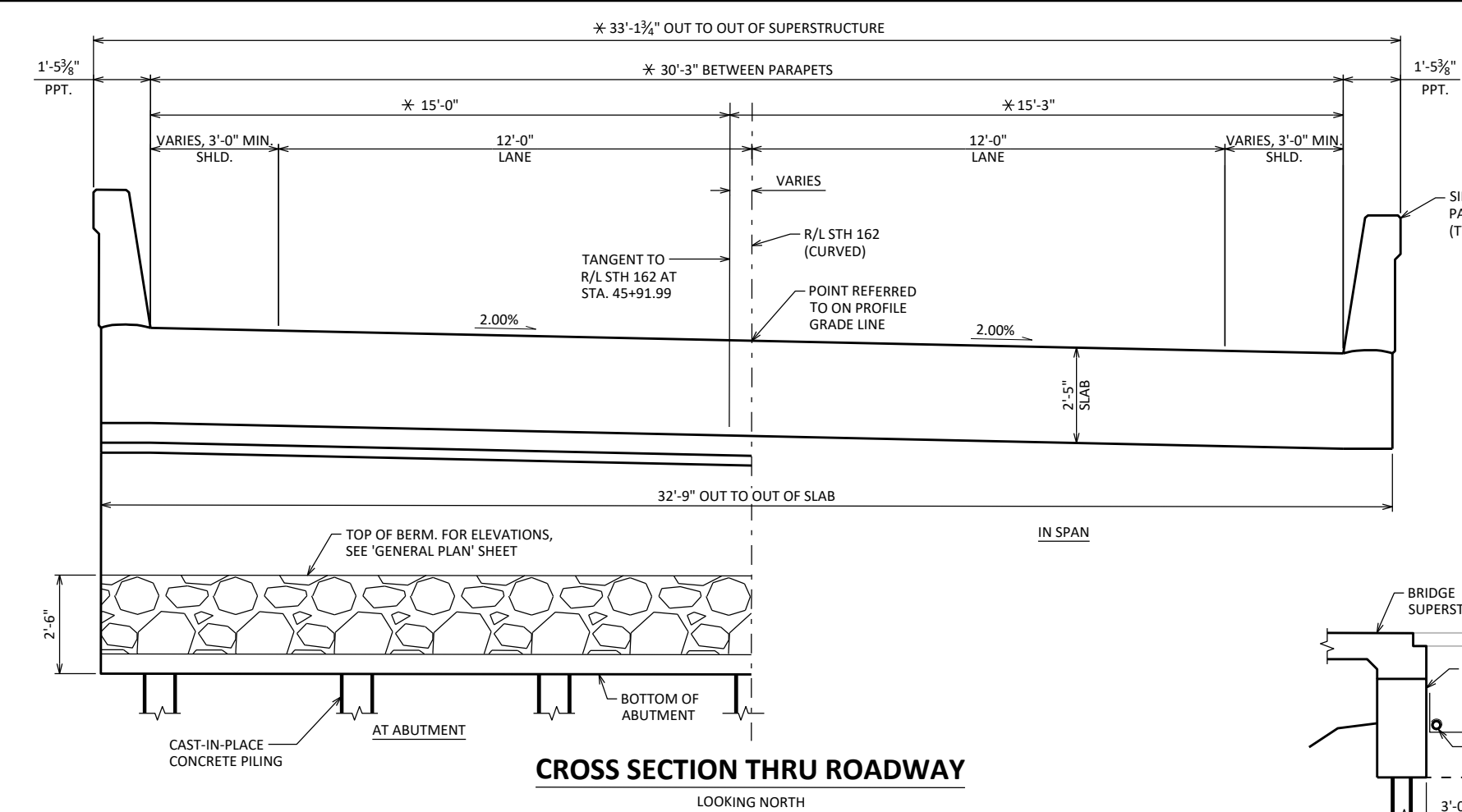
NOTE: PLACE HEAVY RIP RAP
EVEN WITH TOP OF WING,
2 FEET FROM WING TIP



TYPICAL FILL SECTION AT WING TIPS

TOE IN FRONT OF ABUTMENT

TOE AT WINGS



TYPICAL SECTION THRU ABUTMENT

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

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

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

BEVEL EXPOSED EDGES OF CONCRETE $\frac{3}{4}"$ UNLESS OTHERWISE NOTED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGE B-62-266" SHALL BE THE EXISTING GROUNDLINE.

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

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

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

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

PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS, INCLUDING PARAPETS ON WINGS.

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

SLAB FALSEWORK SHALL BE SUPPORTED ON PILES OR THE SUBSTRUCTURE, UNLESS AN ALTERNATE METHOD IS APPROVED BY THE ENGINEER.

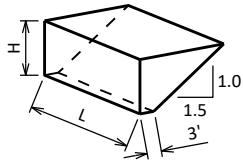
AT ABUTMENTS, CONCRETE POURED UNDER WATER WILL BE ALLOWED AND SHALL BE DONE IN ACCORDANCE WITH SECTION 502.3.5.3 OF THE STANDARD SPECIFICATIONS.

STATE PROJECT NUMBER

5820-01-68

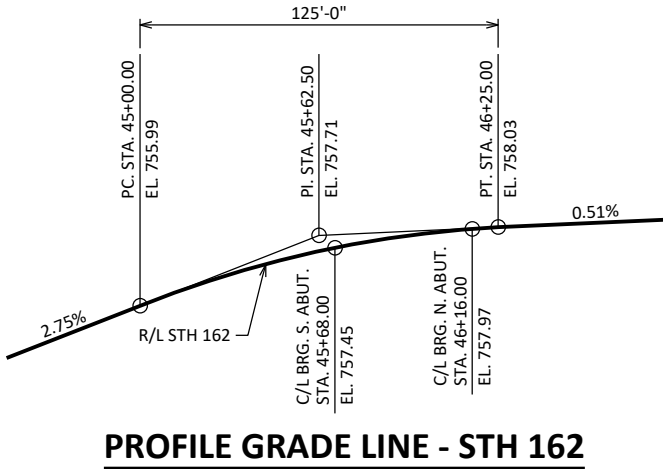
TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	S. ABUT.	N. ABUT.	TOTALS
203.0260	REMOVING STRUCTURE OVER WATERWAY MINIMAL DEBRIS B-62-988	EACH	-----	-----	-----	1
205.0505.S	EXCAVATION, HAULING, AND DISPOSAL OF CREOSOTE CONTAMINATED SOIL AND MANAGEMENT OF CONTAMINATED GROUNDWATER	TON	-----	-----	-----	88
206.1001	EXCAVATION FOR STRUCTURES BRIDGES B-62-266	EACH	-----	-----	-----	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	-----	157	158	315
502.0100	CONCRETE MASONRY BRIDGES	CY	165.8	38.0	38.3	242
502.3200	PROTECTIVE SURFACE TREATMENT	SY	178	-----	-----	178
502.3210	PIGMENTED SURFACE SEALER	SY	50	12	12	74
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	-----	2,040	2,050	4,090
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	28,040	2,450	2,450	32,940
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	-----	9	9	18
550.0020	PRE-BORING ROCK OR CONSOLIDATED MATERIAL	LF	-----	84	-----	84
550.0500	PILE POINTS	EACH	-----	7	7	14
550.2108	PILING CIP CONCRETE 10 3/4 X 0.50-INCH	LF	-----	175	210	385
606.0300	RIPRAP HEAVY	CY	-----	59	100	159
612.0406	PIPE UNDERDRAIN WRAPPER 6-INCH	LF	-----	66	66	132
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	-----	-----	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	-----	37	37	74
645.0120	GEOTEXTILE TYPE HR	SY	-----	125	190	315
SPV.0090	REMOVING EXISTING TIMBER PILING	LF	-----	32	-----	32
	NON-BID ITEMS					
	FILLER	SIZE	-----	-----	-----	1/2", 3/4"



ABUTMENT BACKFILL DIAGRAM

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



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE		B-62-266	
	DRAWN BY	DTH	PLANS CK'D AA
CROSS SECTION & QUANTITIES		SHEET 2 223	

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	9/21/2023	205249	668167
2	9/20/2023	205208	668176
BORINGS COMPLETED BY: GESTRA			
REPORT COMPLETED BY: WISDOT			
ALL COORDINATES REFERENCED TO WCCS NAD 83 (91) VERNON COUNTY			
COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT			



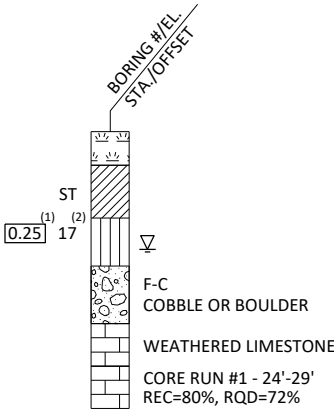
STATE PROJECT NUMBER

5820-01-68

MATERIAL SYMBOLS

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

LEGEND OF BORING



⁽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
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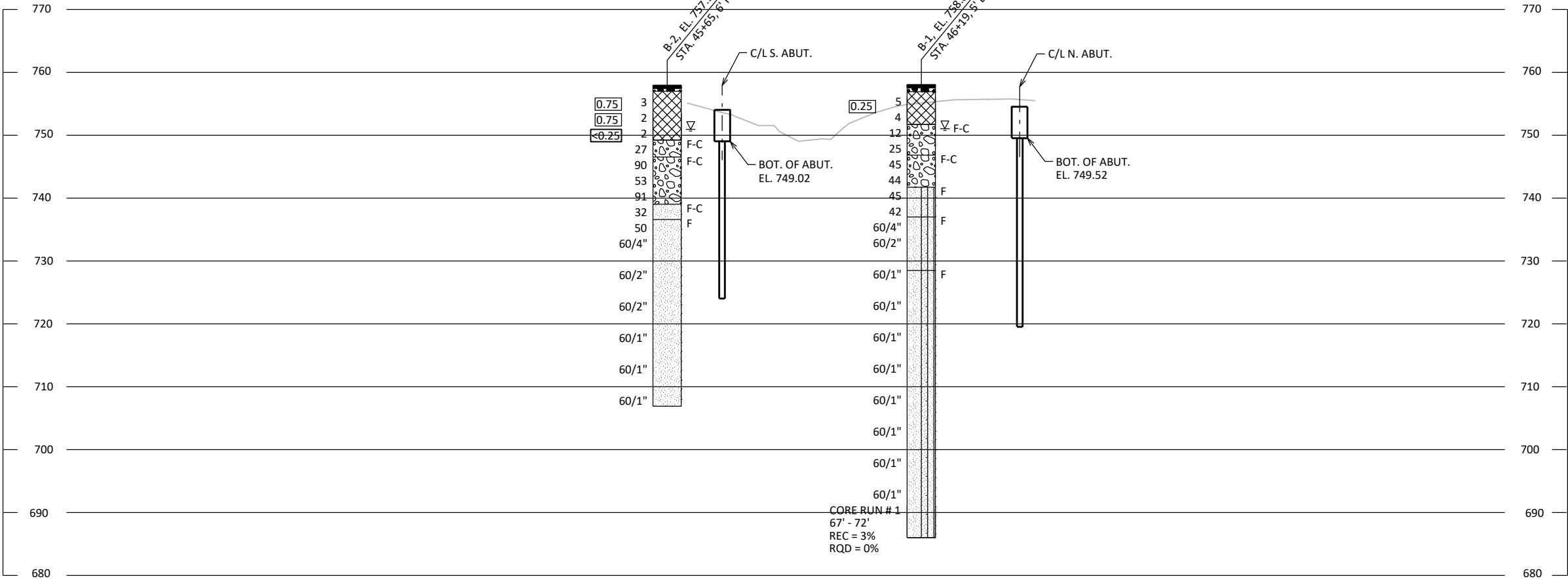
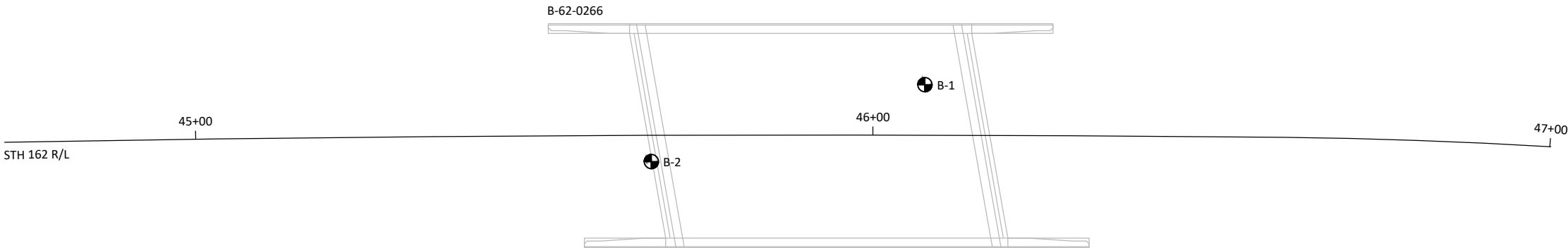
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

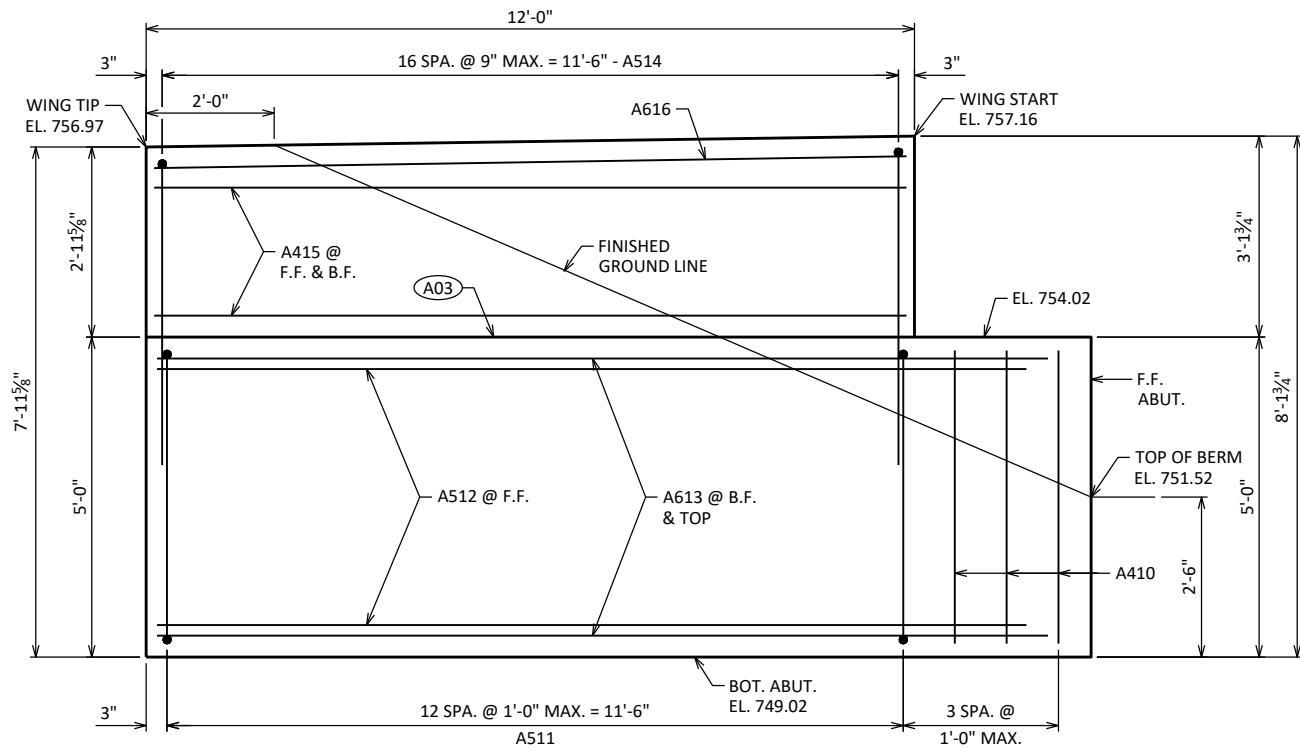
STRUCTURE B-62-266

DRAWN BY TLP/DTH PLANS CK'D AA

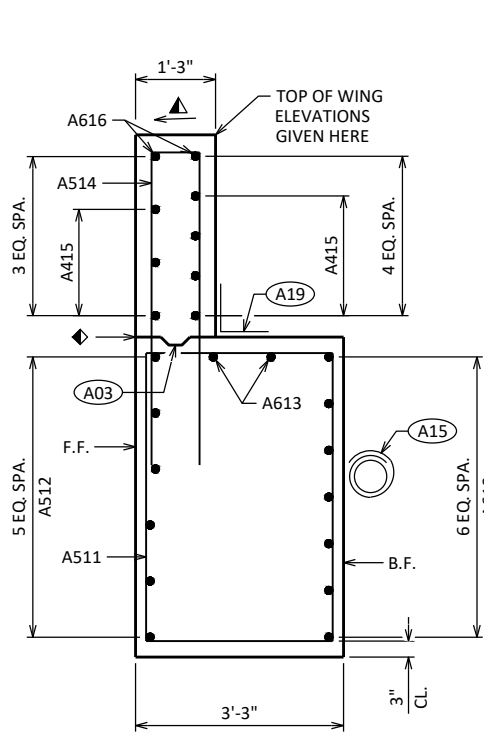
SUBSURFACE
EXPLORATION

SHEET 3
224

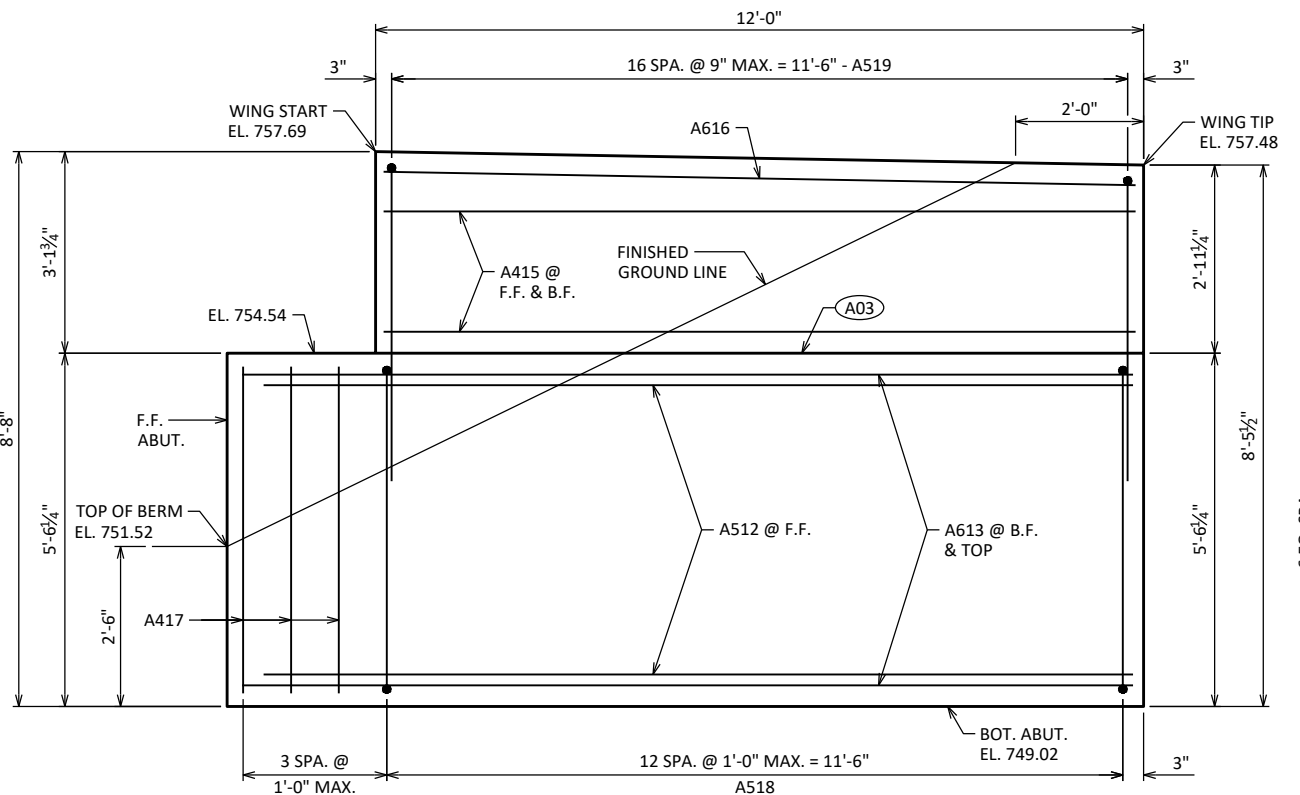




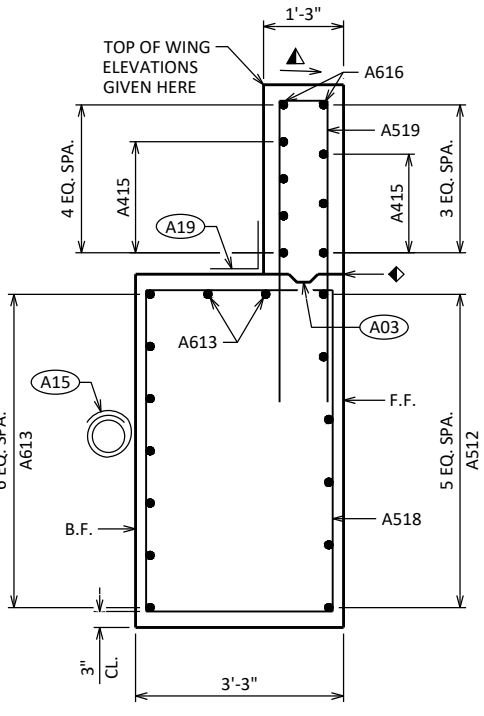
WING 1 ELEVATION



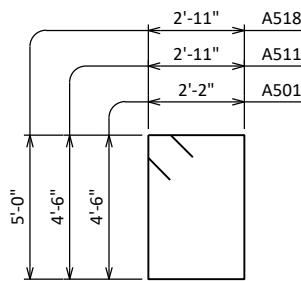
WING 1 SECTION



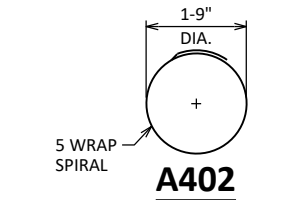
WING 2 ELEVATION



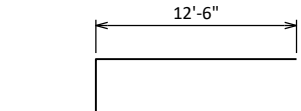
WING 2 SECTION



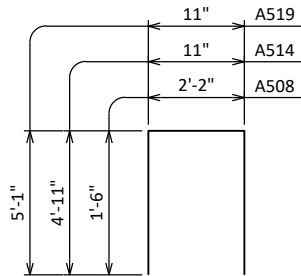
A501, A511, A518



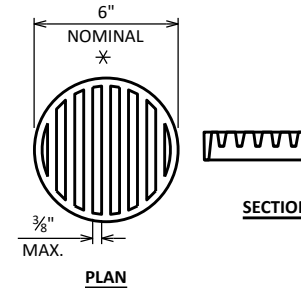
A402



A805



A508, A514, A519



RODENT SHIELD DETAIL

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

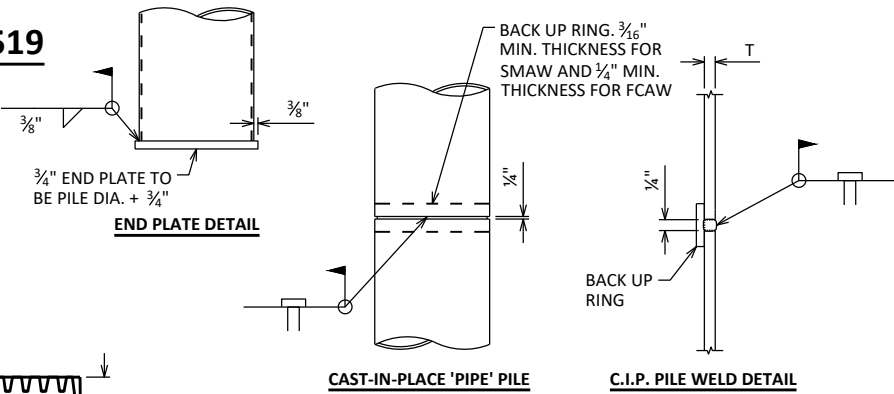
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
A501		42	14'-0"	X		BODY - STIRRUPS
A402		7	28'-0"	X		PILES - 1 PER BODY PILE
A403		14	2'-3"			PILES - 2 PER BODY PILE
A604		7	12'-2"			BODY - HORIZ. - B.F.
A805		14	13'-10"	X		BODY - HORIZ. - B.F.
A606		11	32'-9"			BODY - HORIZ. - TOP & BOT. - F.F.
A507	X	32	2'-0"			BODY - TOP - VERT.
A508		12	4'-11"	X		BODY - VERT. - TOP - SUPPLEMENTAL
A409		3	11'-2"			BODY - HORIZ. - TOP - SUPPLEMENTAL
A410	X	3	4'-7"			WING 1 - VERT. - END OF ABUT.
A511	X	13	15'-6"	X		WING 1 - STIRRUP - LOWER WING
A512	X	12	13'-10"			WINGS 1 & 2 - HORIZ. - F.F. - LOWER WING
A613	X	18	14'-3"			WINGS 1 & 2 - HORIZ. - B.F. - LOWER WING
A514	X	17	10'-6"	X		WING 1 - VERT. - UPPER WING
A415	X	14	11'-8"			WINGS 1 & 2 - HORIZ. - UPPER WING
A616	X	4	11'-8"			WINGS 1 & 2 - HORIZ. - UPPER WING - TOP
A417	X	3	5'-1"			WING 2 - VERT. - END OF ABUT.
A518	X	13	16'-6"	X		WING 2 - STIRRUP - LOWER WING
A519	X	17	10'-10"	X		WING 2 - VERT. - UPPER WING

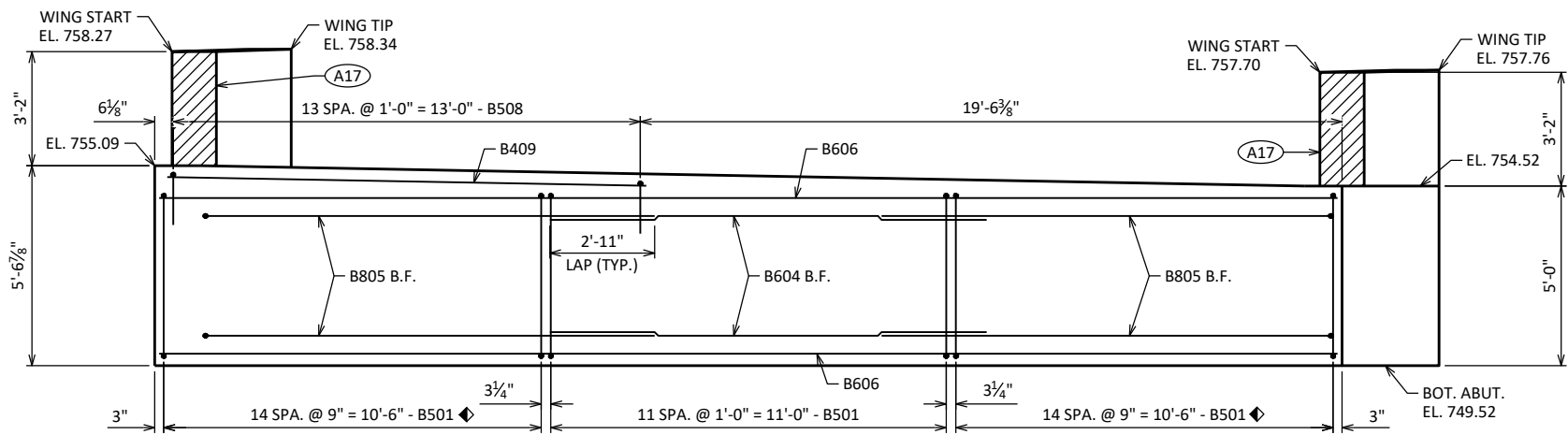
- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED. PIPE UNDERDRAIN TO DAYLIGHT NO LOWER THAN 752.00.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



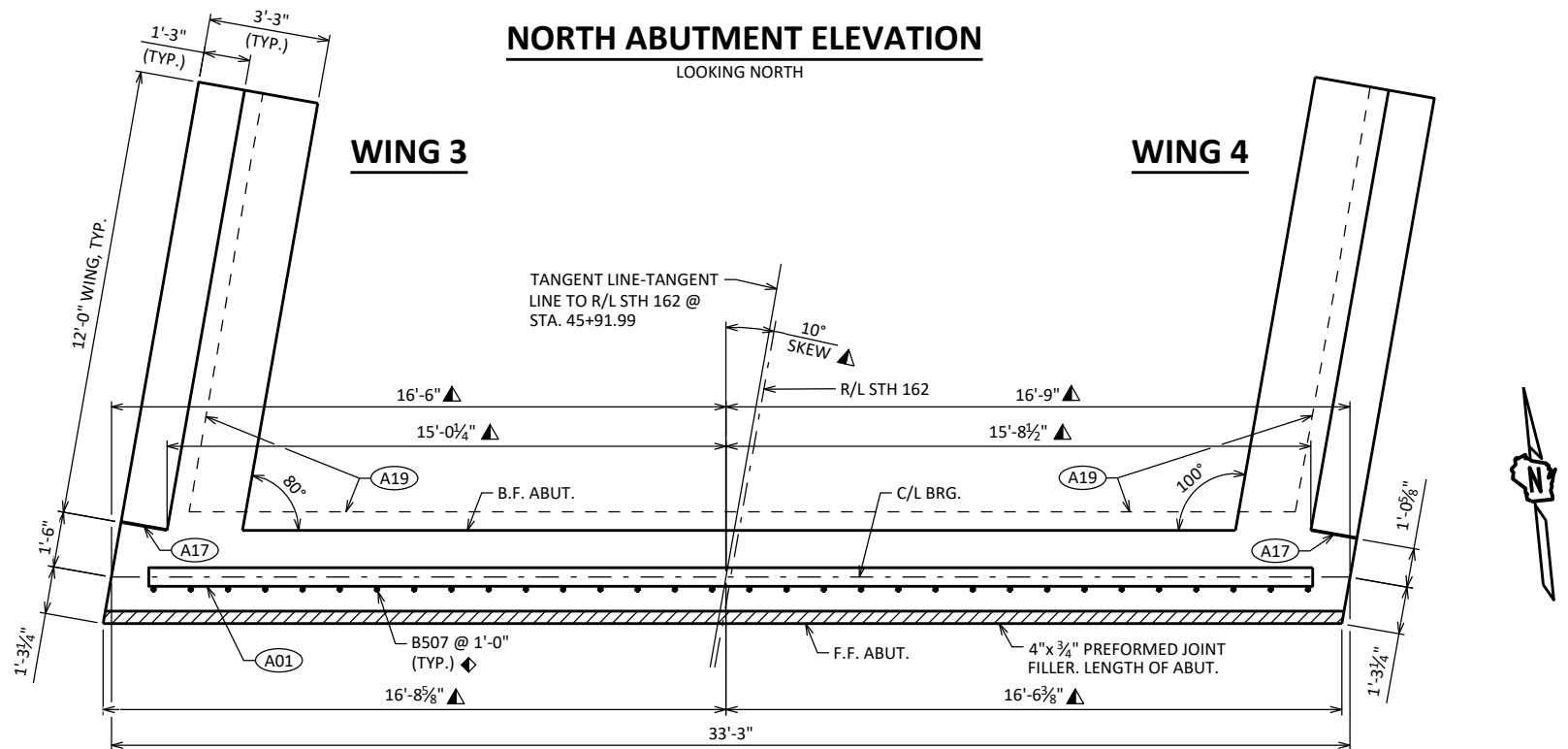
CIP PILE DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-266			
DRAWN BY		DTH	PLANS CK'D AA
SOUTH ABUTMENT DETAILS		SHEET 5 226	

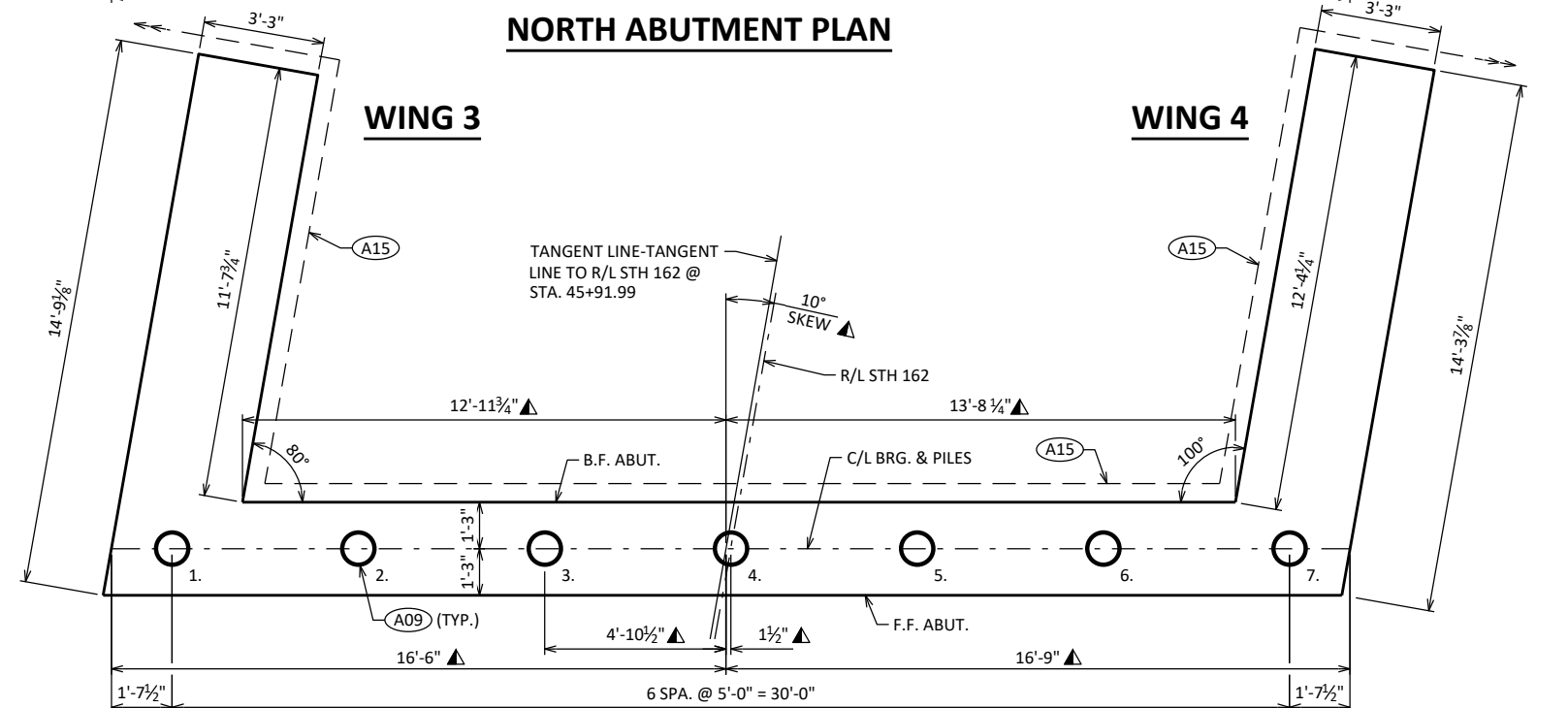
- ▲ SLOPE TOP OF WINGS 1/8" PER FOOT TO DRAIN.
- ◆ 3/4" "V" GROOVE ON THE FRONT FACE OF WINGWALL.



NORTH ABUTMENT ELEVATION
LOOKING NORTH

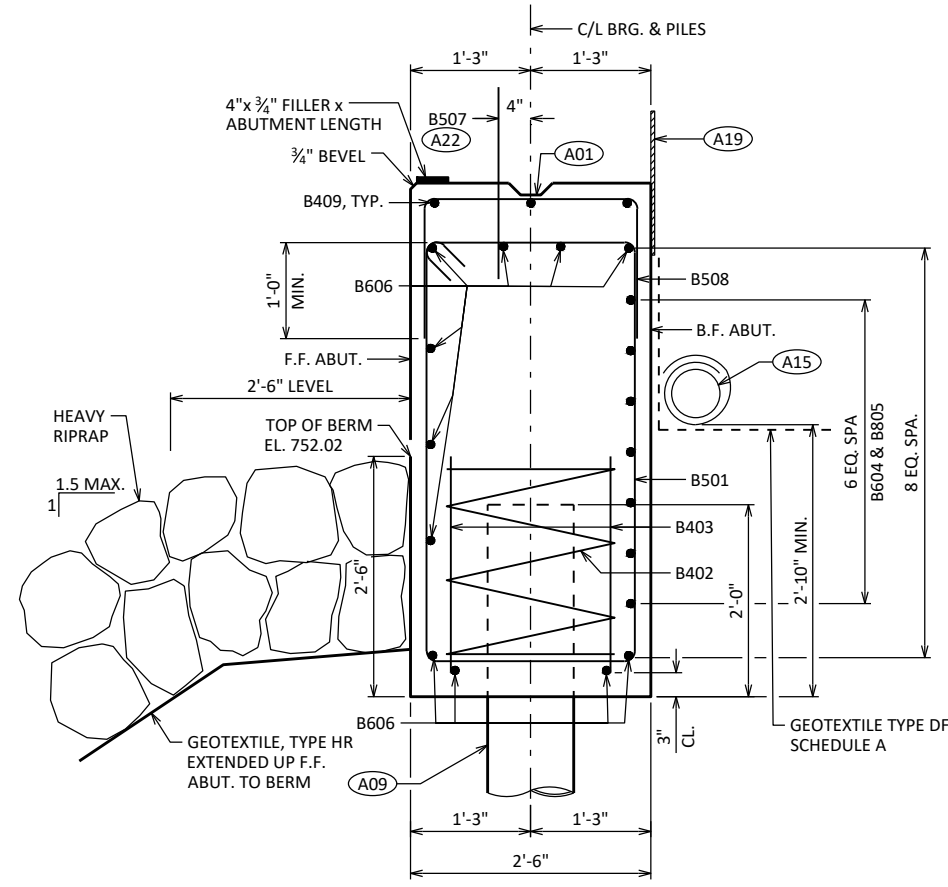


NORTH ABUTMENT PLAN



NORTH ABUTMENT PILE PLAN

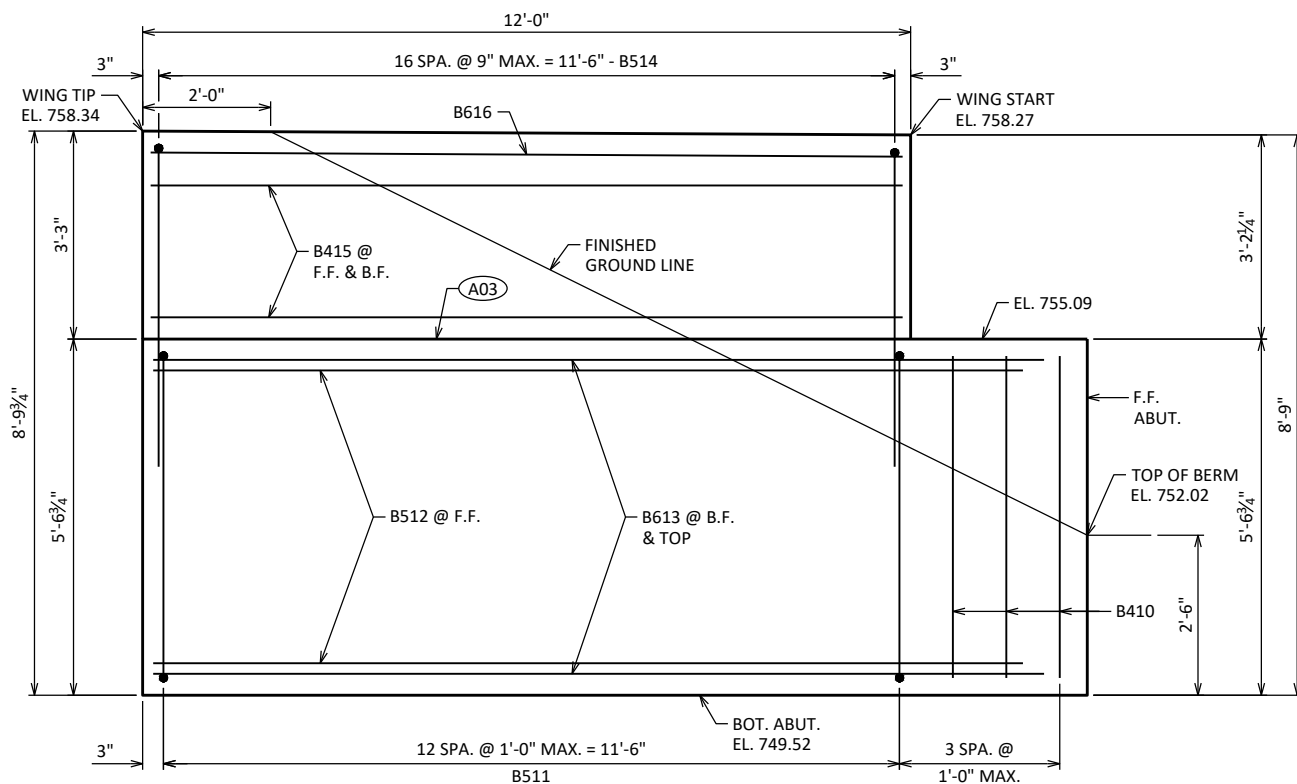
- ◆ FLARE BARS AT ABUTMENT ENDS AS NECESSARY WHILE MAINTAINING 9" MAX. SPACING.
- ▲ MEASURED TO TANGENT LINE.



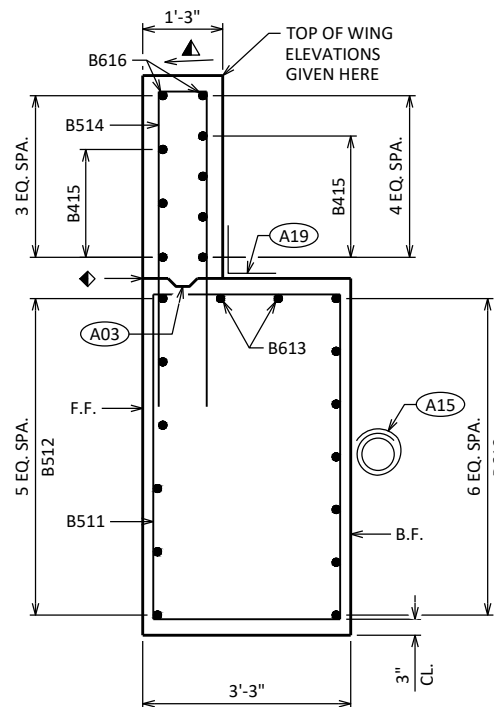
SECTION THRU ABUTMENT BODY

- (A01) CONST. JOINT: KEYWAY FORMED BY A BEVELED 2 x 6.
- (A09) SUPPORT ABUTMENT ON 10 3/4" DIA. 0.500" CIP CONCRETE PILING, ESTIMATED 30'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE. PILE POINTS REQUIRED.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED. PIPE UNDERDRAIN TO DAYLIGHT NO LOWER THAN 752.00
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 3/4" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A22) B507 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)

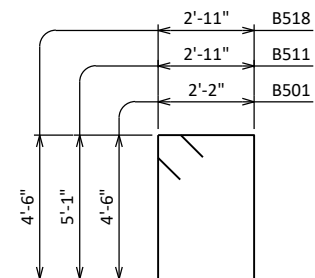
STATE PROJECT NUMBER			
5820-01-68			
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-266			
DRAWN BY		DTH	PLANS CK'D AA
NORTH ABUTMENT		SHEET 6 227	



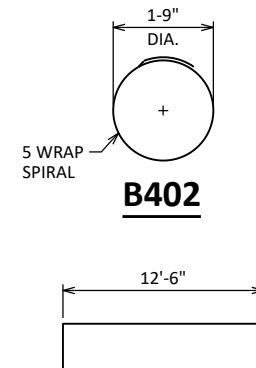
WING 3 ELEVATION



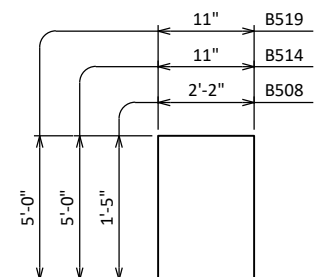
WING 3 SECTION



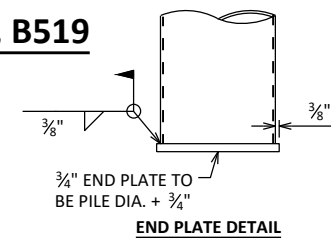
B501, B511, B518



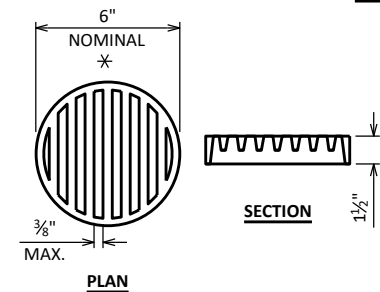
B402



B508, B514, B519



END PLATE DETAIL



RODENT SHIELD DETAIL

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

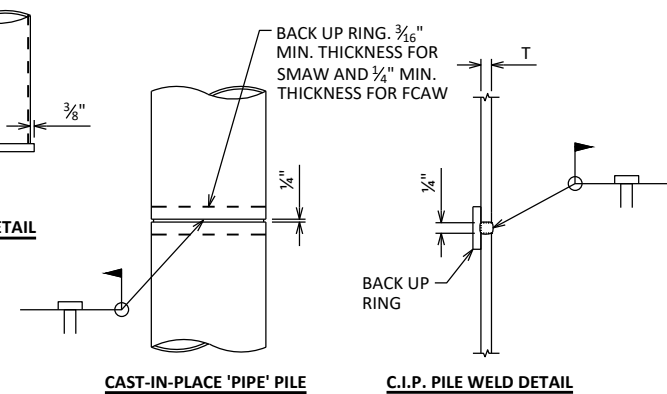
THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

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BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
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B402		7	28'-0"	X		PILES - 1 PER BODY PILE
B403		14	2'-3"			PILES - 2 PER BODY PILE
B604		7	12'-2"			BODY - HORIZ. - B.F.
B805		14	13'-10"	X		BODY - HORIZ. - B.F.
B606		11	32'-10"			BODY - HORIZ. - TOP & BOT. - F.F.
B507	X	32	2'-0"			BODY - TOP - VERT.
B508		14	4'-11"	X		BODY - VERT. - TOP - SUPPLEMENTAL
B409		3	13'-4"			BODY - HORIZ. - TOP - SUPPLEMENTAL
B410	X	3	5'-1"			WING 3 - VERT. - END OF ABUT.
B511	X	13	16'-8"	X		WING 3 - STIRRUP - LOWER WING
B512	X	12	13'-10"			WINGS 3 & 4 - HORIZ. - F.F. - LOWER WING
B613	X	18	14'-3"			WINGS 3 & 4 - HORIZ. - B.F. - LOWER WING
B514	X	17	10'-8"	X		WING 3 - VERT. - UPPER WING
B415	X	14	11'-8"			WINGS 3 & 4 - HORIZ. - UPPER WING
B616	X	4	11'-8"			WINGS 3 & 4 - HORIZ. - UPPER WING - TOP
B417	X	3	4'-6"			WING 4 - VERT. - END OF ABUT.
B518	X	13	15'-6"	X		WING 4 - STIRRUP - LOWER WING
B519	X	17	10'-8"	X		WING 4 - VERT. - UPPER WING

- A03** OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 x 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- A15** PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED. PIPE UNDERDRAIN TO DAYLIGHT NO LOWER THAN 752.00.
- A17** 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- A19** 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



CIP PILE DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-266			
DRAWN BY		DTH	PLANS CK'D AA
NORTH ABUTMENT DETAILS		SHEET 7 228	

▲ SLOPE TOP OF WINGS 1/8" PER FOOT TO DRAIN.

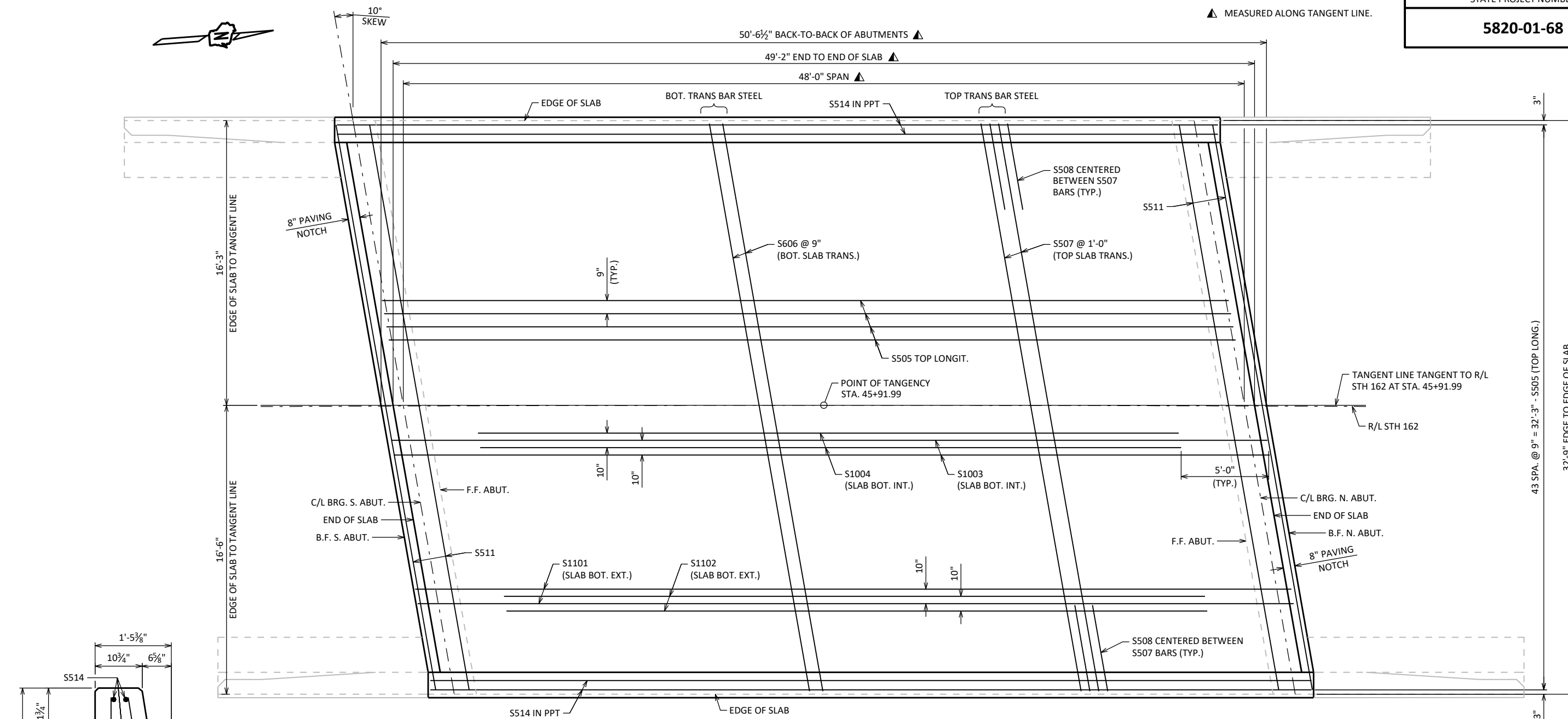
◆ 3/4" "V" GROOVE ON THE FRONT FACE OF WINGWALL.



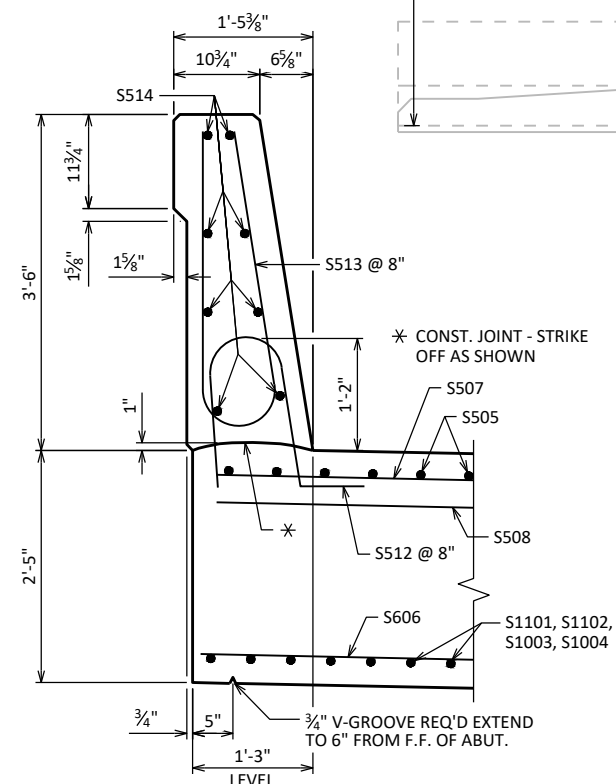
STATE PROJECT NUMBER

5820-01-68

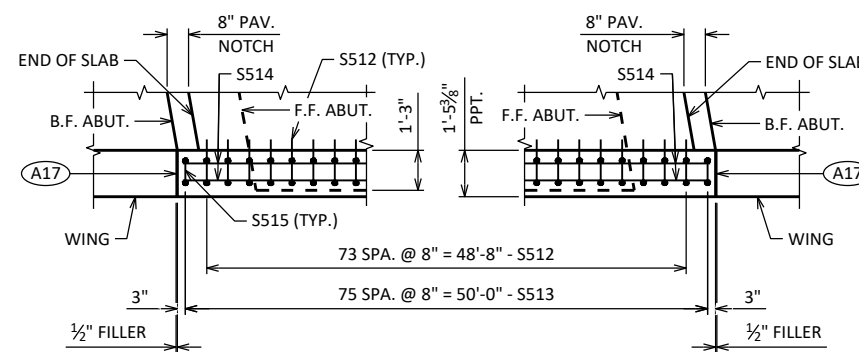
▲ MEASURED ALONG TANGENT LINE.



SUPERSTRUCTURE PLAN



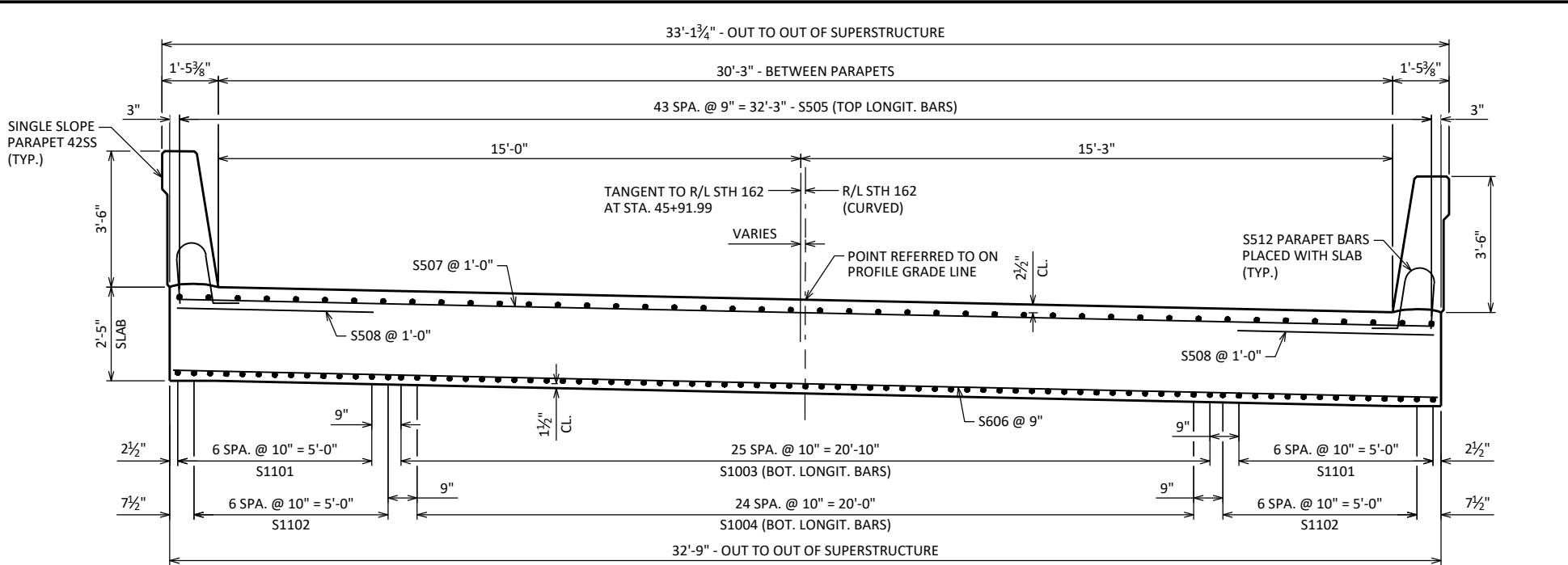
SECTION THRU PARAPET ON BRIDGE



PARTIAL PLAN OF PARAPET REINFORCEMENT

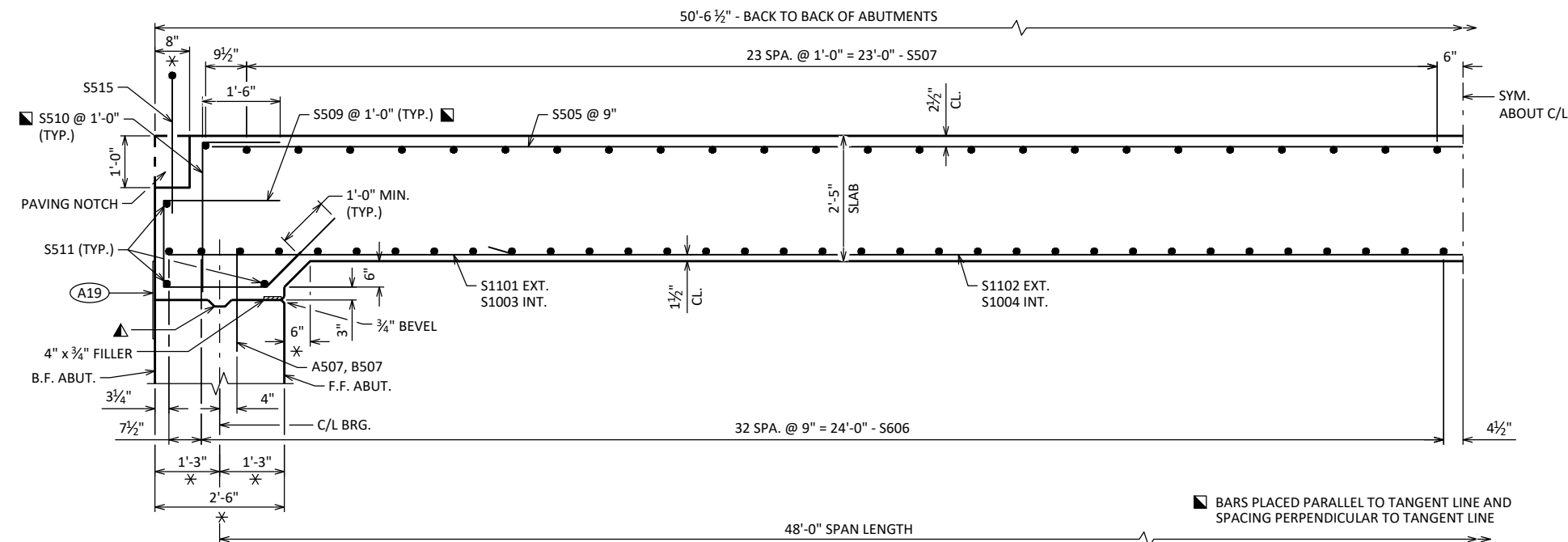
(A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACE OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 3/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-266			
DRAWN BY		DTH	PLANS CK'D AA
SUPERSTRUCTURE PLAN		SHEET 8 229	



CROSS SECTION THRU SUPERSTRUCTURE
LOOKING NORTH

* DIMENSION IS TAKEN NORMAL TO C/L OF SUBSTRUCTURE UNITS.



HALF LONGITUDINAL SECTION

SURVEY TOP OF SLAB ELEVATIONS

LOCATION	C/L BRG. S. ABUT.	5/10 PT.	C/L BRG. N. ABUT.
W. GUTTERLINE			
R/L STH 162			
E. GUTTERLINE			

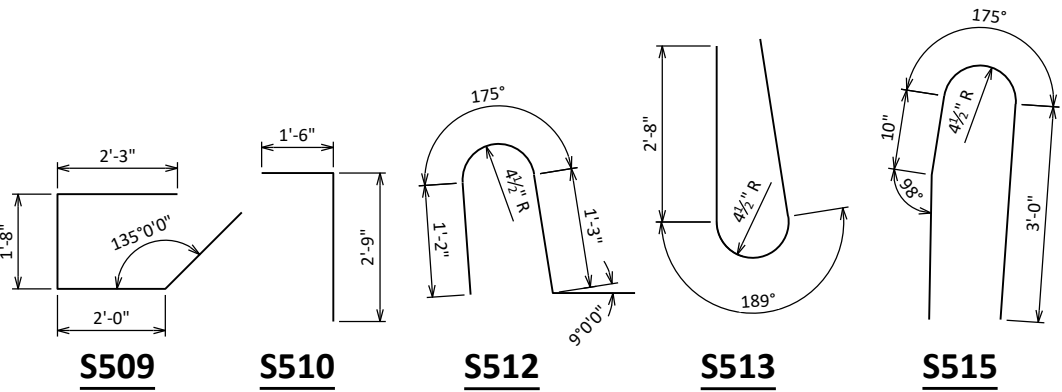
PRIOR TO RELEASING SLAB FALSEWORK, TAKE TOP OF SLAB ELEVATIONS AT THE C/L BRG. ABUTMENTS AND AT 5/10 POINTS TO VERIFY CAMBER. TAKE ELEVATIONS ALONG GUTTER LINES AND R/L STH 162. RECORD THE ELEVATIONS IN THE ABOVE TABLE FOR THE "AS BUILT" PLANS.

TOP OF SLAB ELEVATIONS

LOCATION	C/L BRG. S. ABUT.	1/10 PT.	2/10 PT.	3/10 PT.	4/10 PT.	5/10 PT.	6/10 PT.	7/10 PT.	8/10 PT.	9/10 PT.	C/L N. ABUT.
W. GUTTERLINE	757.71	757.78	757.85	757.91	757.98	758.03	758.09	758.14	758.18	758.22	758.26
R/L STH 162	757.45	757.52	757.59	757.65	757.71	757.76	757.81	757.86	757.90	757.94	757.98
E. GUTTERLINE	757.19	757.26	757.32	757.38	757.44	757.49	757.54	757.59	757.63	757.66	757.69

MINUS
PLUS
PLUS
EQUALS =

TOP OF SLAB ELEVATION AT FINAL GRADE
SLAB THICKNESS
CAMBER
FORM SETTLEMENT/DEFLECTION DUE TO PLACEMENT OF SLAB CONCRETE (TO BE COMPUTED BY THE CONTRACTOR)
TOP OF SLAB FALSEWORK ELEVATION



STATE PROJECT NUMBER
5820-01-68

BILL OF BARS

BAR MARK	COAT	NO. REQ'D	LENGTH	BENT	BAR SERIES	LOCATION
S1101	X	14	50'-0"			SLAB - LONGIT. - BOT. - EXT.
S1102	X	14	40'-0"			SLAB - LONGIT. - BOT. - EXT.
S1003	X	26	50'-0"			SLAB - LONGIT. - BOT. - INT.
S1004	X	25	40'-0"			SLAB - LONGIT. - BOT. - INT.
S505	X	44	48'-7"			SLAB - LONGIT. - TOP
S606	X	68	32'-10"			SLAB - TRANS. - BOT.
S507	X	50	32'-10"			SLAB - TRANS. - TOP
S508	X	98	5'-0"			SLAB - TRANS. - EDGE OF SLAB - TOP
S509	X	68	7'-6"	X		SLAB - DIAPH. - VERT.
S510	X	68	4'-2"	X		SLAB - DIAPH. - VERT.
S511	X	6	32'-11"			SLAB - DIAPH. - HORIZ.
S512	X	148	4'-5"	X		SLAB/PARAPET - VERT.
S513	X	152	6'-8"	X		PARAPET - VERT.
S514	X	16	50'-2"			PARAPET - HORIZ.
S515	X	4	7'-4"	X		PARAPET AT ABUT. DIAPH - VERT.

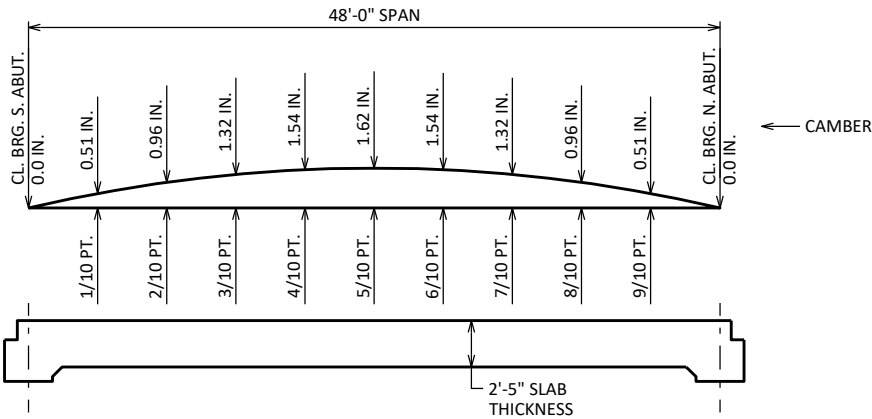
NOTES

TOP TRANSVERSE BARS IN SLAB SHALL BE SUPPORTED BY INDIVIDUAL BAR CHAIRS AT APPROXIMATELY 3'-0" CENTERS EACH WAY. BOTTOM LONGITUDINAL BARS SHALL BE SUPPORTED BY CONTINUOUS BAR CHAIRS AT APPROXIMATELY 4'-0" CENTERS.

ALL SLAB THICKNESS DIMENSIONS ARE MINIMUM. ANY TOLERANCES NECESSARY TO CORRECT CONSTRUCTION DISCREPANCIES ARE TO BE PLUS (+).

CONST. JOINT KEYWAY FORMED BY A BEVELED 2"x6".

A19 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.



CAMBER AND SLAB THICKNESS DIAGRAM

CAMBER SHOWN IS BASED ON 3 TIMES DEAD LOAD DEFLECTION.

CAMBER SPANS AS SHOWN TO PROVIDE FOR DEAD LOAD DEFLECTION AND FUTURE CREEP. CAMBER DOES NOT INCLUDE ALLOWANCE FOR FORM SETTLEMENT.

PARAPET PLACED ON TOP OF THE SLAB SHALL BE POURED AFTER FALSEWORK HAS BEEN RELEASED.

TO DETERMINE FLASEWORK ELEVATION AT EDGE OF SLAB, CROWN OR REFERENCE LINE FOLLOW THIS PROCEDURE:

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-266			
DRAWN BY		DTH	PLANS CK'D AA
SUPERSTRUCTURE CROSS SECTION		SHEET 9 230	

BILL OF BARS

FOR WING PARAPETS

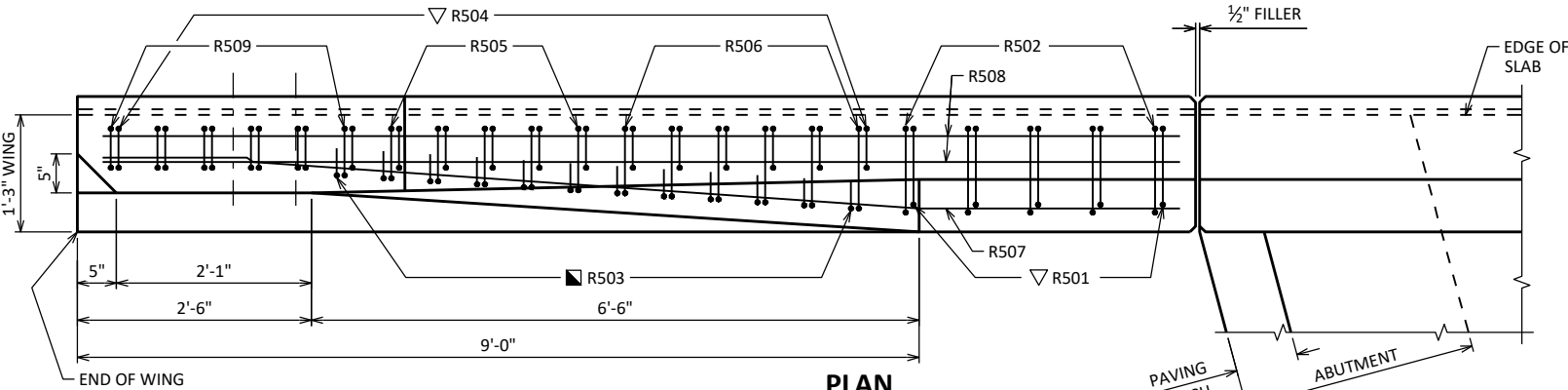
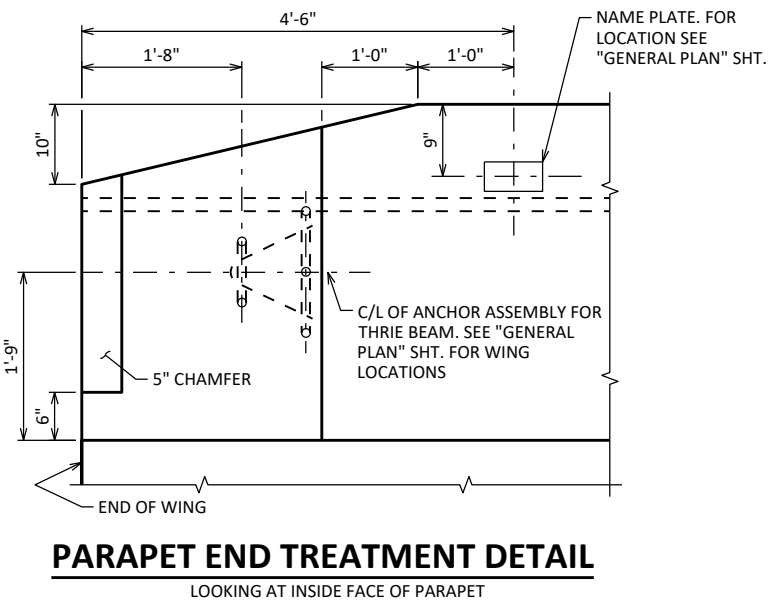
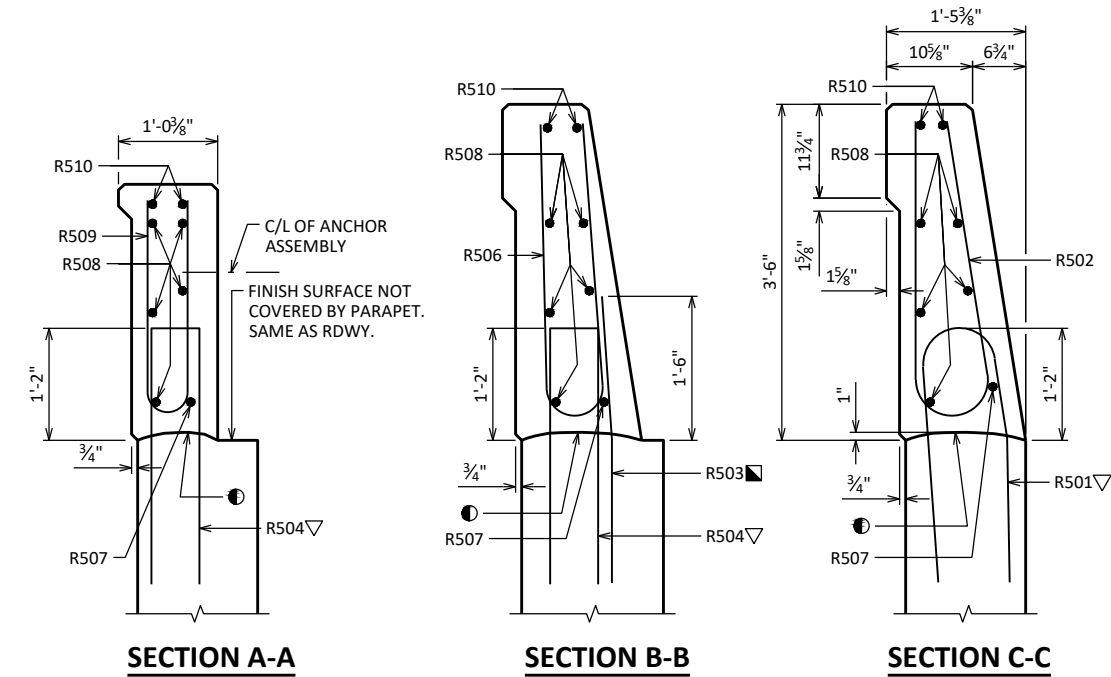
BAR MARK	COAT	S. ABUT.	N. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION
R501	X	10	10	5'-10"	X		PARAPET VERT.
R502	X	10	10	6'-8"	X		PARAPET VERT.
R503	X	24	24	3'-0"	X		PARAPET VERT.
R504	X	34	34	5'-7"	X		PARAPET VERT.
R505	X	10	10	6'-5"	X		PARAPET VERT.
R506	X	12	12	6'-6"	X		PARAPET VERT.
R507	X	2	2	11'-8"	X		PARAPET HORIZ.
R508	X	10	10	11'-8"			PARAPET HORIZ.
R509	X	12	12	5'-5"	X	▲	PARAPET VERT.
R510	X	4	4	11'-8"	X		PARAPET HORIZ.

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

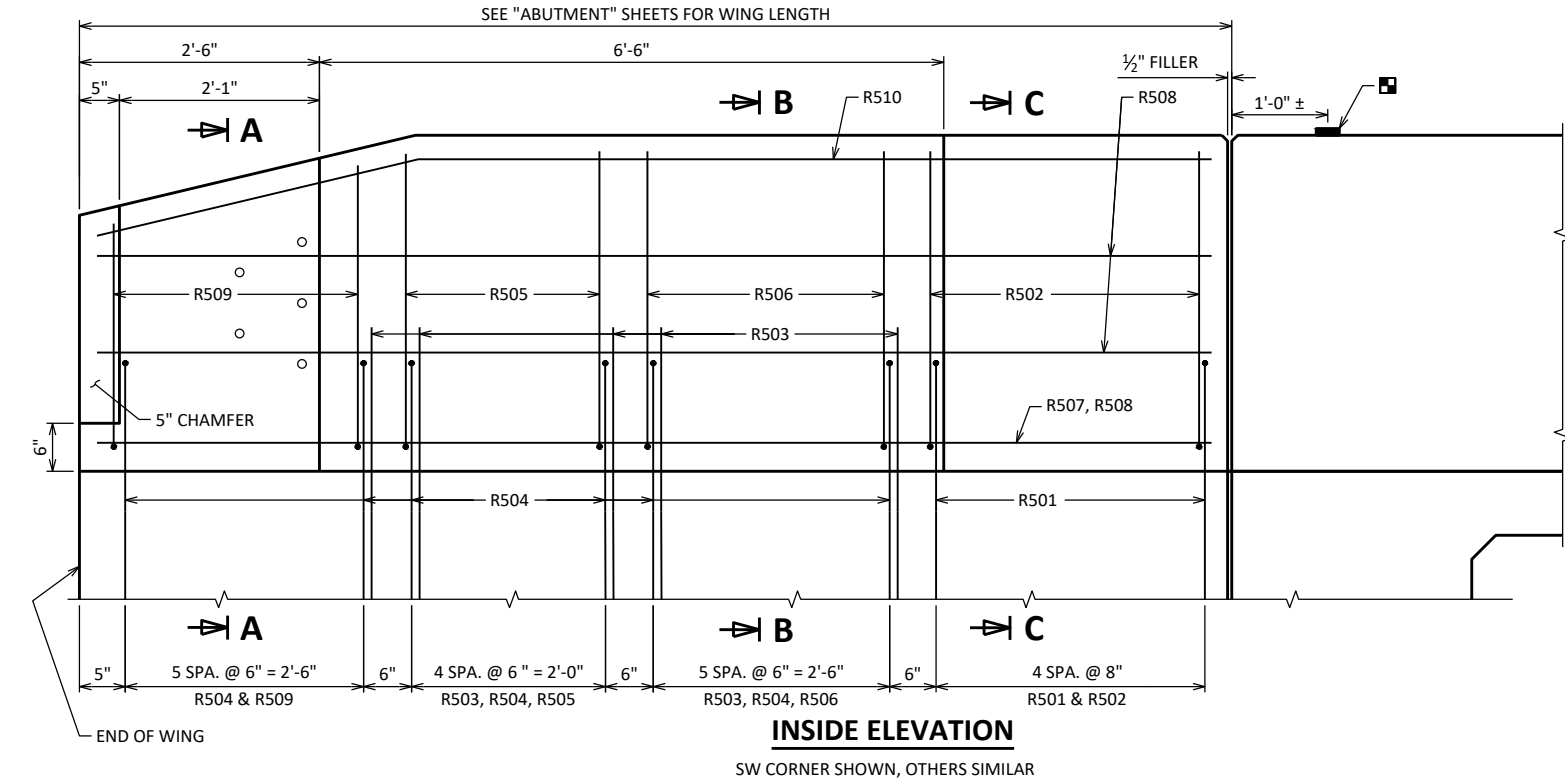
BAR SERIES TABLE

BUNDLE AND TAG EACH SERIES SEPARATELY.

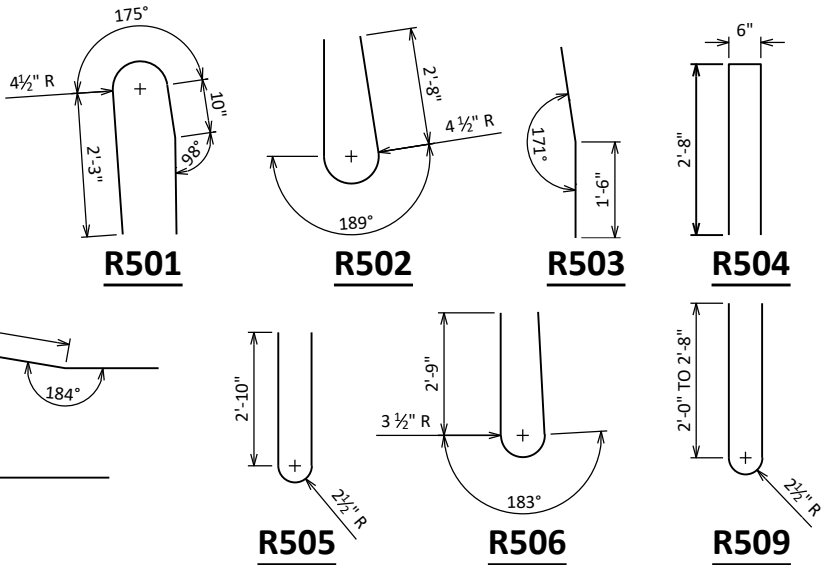
BAR MARK	NO. REQ'D.	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"



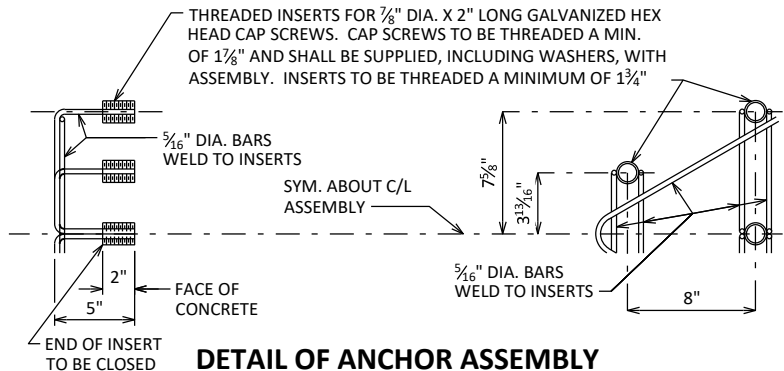
SW CORNER SHOWN, OTHERS SIMILAR



SW CORNER SHOWN, OTHERS SIMILAR



■ BENCH MARK CAP. FOR LOCATION SEE GENERAL PLAN SHEET.



DETAIL OF ANCHOR ASSEMBLY

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

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

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

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-62-266			
DRAWN BY		DTH	PLANS CK'D AA
SINGLE SLOPE PARAPET 42SS		SHEET 10 231	

DIVISION - 162-VERNON

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
				1.00	1.25				
				NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
28+51.94	9.33	0.67	0.00	0	0	0	0	0	0
28+75.00	8.98	0.67	0.39	8	1	0	8	0	7
29+00.00	7.95	0.67	7.26	8	1	4	16	5	9
29+25.00	7.21	0.67	15.31	7	1	10	23	18	3
29+50.00	8.72	0.67	8.04	7	1	11	30	31	-5
29+71.01	8.76	0.67	11.21	7	1	7	37	40	-8
29+95.99	9.37	0.67	3.22	8	1	7	45	49	-10
30+00.00	87.78	9.32	2.76	7	1	0	52	49	-4
30+20.98	107.11	9.32	0.00	76	7	1	128	50	64
30+50.00	85.31	9.32	1.18	103	10	1	231	51	156
30+67.86	103.72	9.32	5.37	63	6	2	294	54	210
30+75.00	108.35	9.32	4.94	28	2	1	322	55	235
30+86.75	108.35	9.32	4.94	47	4	2	369	58	276
31+45.25	94.09	9.32	17.71	0	0	0	322	55	256
31+75.00	104.31	9.32	12.86	109	10	17	431	76	333
31+82.90	93.27	9.32	16.81	29	3	4	460	81	354
31+98.52	100.28	9.32	11.94	56	5	8	516	91	395
32+00.00	100.36	9.32	11.98	5	1	1	521	93	398
32+23.51	94.68	9.32	11.17	85	8	10	606	105	463
32+25.00	94.15	9.32	11.23	5	1	1	611	106	465
32+48.49	19.26	1.33	7.17	49	5	8	660	116	499
32+50.00	20.52	1.33	6.42	1	0	0	661	116	500
32+73.51	20.95	1.33	1.53	18	1	3	679	120	514
32+89.63	15.67	1.33	2.53	11	1	1	690	121	522
32+98.49	18.29	0.67	0.52	6	0	1	696	123	527
33+00.00	18.80	0.67	0.48	1	0	0	697	123	528
33+50.00	20.22	0.67	0.93	36	1	1	733	124	562
34+00.00	10.32	0.67	0.93	28	1	2	761	126	586
34+50.00	6.73	0.67	1.13	16	1	2	777	129	599
				824	94	105			

DIVISION - 162-VERNON

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
							1.00	1.25	
				NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
35+58.21	13.54	1.33	1.56	0	0	0	0	0	0
36+00.00	13.75	1.33	1.38	21	2	2	21	3	17
36+17.80	11.71	1.33	9.16	8	1	3	29	6	20
36+42.80	13.30	1.33	21.10	12	1	14	41	24	13
36+67.80	14.31	1.33	21.07	13	1	20	54	49	0
37+00.00	15.13	1.33	13.38	18	2	21	72	75	-10
38+00.00	27.88	1.33	0.00	80	5	25	152	106	34
39+00.00	15.19	1.33	4.52	80	5	8	232	116	99
39+33.88	18.08	1.33	0.07	21	2	3	253	120	114
39+42.00	9.79	0.67	0.00	4	0	0	257	120	118
40+00.00	8.75	0.67	0.01	20	1	0	277	120	137
41+00.00	15.87	0.67	0.00	46	2	0	323	120	181
41+29.58	8.90	0.67	0.18	14	1	0	337	120	194
42+00.00	8.34	0.67	0.13	22	2	0	359	120	214
42+26.04	0.00	0.67	0.00	4	1	0	363	120	217
42+34.99	0.00	0.67	0.00	0	0	0	363	120	217
				363	26	96			

NOTES:
1 - CUT (SALVAGE/UNUSABLE PAVEMENT MATERIAL INCLUDED)
2 - SALVAGE/UNUSABLE PAVEMENT MATERIAL. (THIS DOES NOT SHOW UP IN THE CROSS SECTIONS)
3 - FILL (DOES NOT INCLUDE UNUSABLE PAVEMENT VOLUME)
4 - THE MASS ORDINATE + OR - QUANTITIES CALCULATED. PLUS QUANTITIES AS EXCESS MATERIAL. MINUS A SHORTAGE OF MATERIAL

NO MARSH OR EBS IS ANTICIPATED.

DIVISION - 162-VERNON

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
				NOTE 1	NOTE 2	NOTE 3	1.00 NOTE 1	1.25	NOTE 4
44+12.50	9.57	0.67	0.00	0	0	0	0	0	0
44+25.00	10.08	0.67	0.00	5	0	0	5	0	5
44+50.00	8.92	0.67	0.00	9	1	0	14	0	13
44+55.12	8.94	0.67	0.00	2	0	0	16	0	15
44+66.31	9.16	0.67	0.00	4	0	0	20	0	19
44+75.00	102.40	9.32	0.13	18	2	0	38	0	35
44+91.35	100.88	9.32	0.95	62	6	0	100	0	91
45+00.00	100.67	9.32	0.74	32	3	0	132	0	120
45+16.39	100.52	9.32	1.29	61	6	1	193	1	174
45+19.52	100.62	9.32	1.33	12	1	0	205	1	185
45+25.00	101.10	9.32	1.62	20	2	0	225	1	203
45+33.35	102.95	9.32	2.31	32	3	1	257	3	231
45+50.00	104.18	9.32	5.92	64	6	3	321	6	285
45+52.17	104.14	9.32	5.44	8	1	0	329	6	292
46+32.04	95.48	9.32	3.30	0	0	0	329	6	264
46+50.00	95.13	9.32	1.69	63	6	2	392	9	318
46+57.24	95.19	9.32	2.04	26	3	1	418	10	340
46+69.86	93.27	9.32	0.33	44	4	1	462	11	379
46+75.00	92.41	9.32	0.28	18	2	0	480	11	395
47+00.00	93.62	9.32	4.36	86	9	2	566	14	469
47+25.00	94.15	9.32	4.06	87	9	4	653	19	542
47+50.00	93.84	9.32	3.03	87	9	3	740	23	617
47+75.00	95.63	9.32	2.44	88	9	3	828	26	692
48+00.00	96.22	9.32	1.93	89	9	2	917	29	769
				917	119	23			

DIVISION - 162-VERNON

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
				NOTE 1	NOTE 2	NOTE 3	1.00	1.25	NOTE 4
							NOTE 1		
48+00.00	10.65	0.67	7.88	0	0	0	0	0	0
48+50.00	9.46	0.67	8.58	19	1	15	19	19	-1
49+00.00	9.31	0.67	6.82	17	1	14	36	36	-2
49+50.00	14.11	0.67	1.64	22	1	8	58	46	9
50+00.00	14.23	0.67	0.46	26	1	2	84	49	31
50+10.00	12.48	0.67	6.72	5	0	1	89	50	35
50+25.00	14.00	0.67	2.49	7	0	3	96	54	38
51+00.00	19.14	0.67	0.61	46	2	4	142	59	77
51+14.25	17.58	0.67	0.50	10	0	0	152	59	87
51+50.00	9.58	0.67	0.03	18	1	0	170	59	104
51+71.96	8.57	0.67	0.00	7	1	0	177	59	110
51+75.00	8.25	0.67	0.00	1	0	0	178	59	111
				178	8	47			

NOTES:
1 - CUT (SALVAGE/UNUSABLE PAVEMENT MATERIAL INCLUDED)
2 - SALVAGE/UNUSABLE PAVEMENT MATERIAL. (THIS DOES NOT SHOW UP IN THE CROSS SECTIONS)
3 - FILL (DOES NOT INCLUDE UNUSABLE PAVEMENT VOLUME)
4 - THE MASS ORDINATE + OR - QUANTITIES CALCULATED. PLUS QUANTITIES AS EXCESS MATERIAL. MINUS A SHORTAGE OF MATERIAL

NO MARSH OR EBS IS ANTICIPATED.

DIVISION - 162-VERNON

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
							1.00	1.25	
				NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
53+29.49	13.89	2.00	1.58	0	0	0	0	0	0
53+64.60	18.49	2.00	3.01	21	3	3	21	4	14
54+00.00	10.48	2.00	0.67	19	3	2	40	6	28
54+46.99	10.96	2.00	2.94	19	3	3	59	10	40
54+71.60	8.45	2.00	0.77	9	2	2	68	13	45
54+96.24	8.80	2.00	0.00	8	2	0	76	13	51
55+00.00	9.55	2.00	0.00	1	0	0	77	13	52
56+00.00	10.03	2.00	0.00	36	7	0	113	13	81
57+00.00	14.13	2.00	0.02	45	7	0	158	13	119
57+18.89	24.47	2.33	0.26	14	2	0	172	13	131
57+43.02	18.24	2.33	4.97	19	2	2	191	15	145
58+00.00	4.88	2.33	7.06	24	5	13	215	31	148
58+50.00	27.19	2.33	14.38	30	4	20	245	56	149
58+75.00	15.92	2.33	16.65	20	2	14	265	74	149
59+00.38	18.31	2.33	15.58	16	2	15	281	93	145
59+25.67	14.94	2.33	15.17	16	2	14	297	110	141
59+28.83	14.94	2.33	13.51	2	0	2	299	113	141
60+00.00	14.40	2.33	2.22	39	6	21	338	139	147
60+25.00	16.13	2.33	1.52	14	2	2	352	141	157
61+00.00	7.77	2.00	0.21	33	6	2	385	144	181
61+47.03	15.16	2.00	1.55	20	3	2	405	146	196
62+00.00	7.54	2.00	0.62	22	4	2	427	149	211
63+00.00	6.73	2.00	1.99	26	7	5	453	155	224
63+71.90	7.60	2.00	0.86	19	5	4	472	160	233
64+00.00	7.49	2.00	0.52	8	2	1	480	161	238
65+00.00	7.51	2.00	0.82	28	7	2	508	164	256
66+00.00	7.60	2.00	0.43	28	7	2	536	166	275
67+00.00	7.81	2.00	0.95	29	7	3	565	170	293
68+00.00	7.98	2.00	0.64	29	7	3	594	174	311
69+00.00	7.62	2.00	1.40	29	7	4	623	179	328
70+00.00	7.49	2.00	1.49	28	7	5	651	185	343
71+00.00	7.44	2.00	2.13	28	7	7	679	194	355
72+00.00	7.58	2.00	1.93	28	7	8	707	204	366
73+00.00	7.10	2.00	5.20	27	7	13	734	220	370
74+00.00	10.83	2.00	8.56	33	7	25	767	251	365
75+00.00	15.91	2.00	4.57	50	7	24	817	281	378
75+25.00	12.62	2.00	2.96	13	2	3	830	285	385
76+00.00	11.54	2.00	1.24	34	6	6	864	293	406
77+00.00	13.68	2.00	2.86	47	7	8	911	303	436
77+27.04	8.24	2.00	1.36	11	2	2	922	305	442
77+30.16	11.49	2.00	0.00	1	0	0	923	305	443
77+55.14	13.47	2.00	0.00	12	2	0	935	305	453
77+80.13	13.28	2.00	0.00	12	2	0	947	305	463
78+00.00	17.11	2.00	0.00	11	1	0	958	305	473
78+99.21	5.29	2.00	0.05	41	7	0	999	305	507
				999	187	244			

DIVISION - 162-VERNON

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
							1.00	1.25	
				NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
79+23.32	19.92	2.00	0.03	0	0	0	0	0	0
79+44.99	17.06	2.00	0.00	15	2	0	15	0	13
79+50.00	17.73	2.00	0.00	3	0	0	18	0	16
79+64.53	15.12	2.00	0.65	9	1	0	27	0	24
79+90.30	13.41	2.00	4.46	14	2	2	41	3	34
80+00.00	13.58	2.00	9.98	5	1	3	46	6	34
80+39.69	11.96	2.00	8.42	19	3	14	65	24	32
80+50.00	11.78	2.00	8.36	5	1	3	70	28	33
80+64.33	11.61	2.00	10.78	6	1	5	76	34	31
80+88.98	12.80	2.00	7.29	11	2	8	87	44	30
81+00.00	13.07	2.00	3.54	5	1	2	92	46	32
81+14.97	14.10	2.00	2.43	8	1	2	100	49	36
81+50.00	14.14	2.00	3.49	18	3	4	118	54	46
82+00.00	15.60	2.00	5.36	28	4	8	146	64	60
82+50.00	15.45	2.00	14.74	29	4	19	175	88	62
83+00.00	14.19	2.00	10.97	27	4	24	202	118	55
83+50.00	12.78	2.00	5.45	25	4	15	227	136	57
83+92.18	13.07	2.00	6.79	20	3	10	247	149	61
84+00.00	12.18	2.00	8.12	4	1	2	251	151	62
84+16.11	11.78	2.00	10.11	7	1	5	258	158	62
84+39.98	13.48	2.00	4.16	11	2	6	269	165	63
84+50.00	28.36	2.00	2.59	8	1	1	277	166	69
84+50.85	29.04	2.00	2.72	1	0	0	278	166	70
84+75.82	12.98	2.00	4.48	19	2	3	297	170	83
85+00.00	23.87	2.00	2.65	16	2	3	313	174	93
85+00.79	13.12	2.00	2.75	1	0	0	314	174	94
85+24.69	12.71	2.00	2.47	11	2	2	325	176	101
85+50.00	11.86	2.00	6.61	12	2	4	337	181	106
85+58.32	12.27	2.00	2.26	4	1	1	341	183	108
85+89.64	8.25	2.00	1.10	12	2	2	353	185	115
				353	53	148			

NOTES:
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2 - SALVAGE/UNUSABLE PAVEMENT MATERIAL. (THIS DOES NOT SHOW UP IN THE CROSS SECTIONS)
3 - FILL (DOES NOT INCLUDE UNUSABLE PAVEMENT VOLUME)
4 - THE MASS ORDINATE + OR - QUANTITIES CALCULATED. PLUS QUANTITIES AS EXCESS MATERIAL. MINUS A SHORTAGE OF MATERIAL

NO MARSH OR EBS IS ANTICIPATED.

DIVISION - 162-VERNON

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
							1.00	1.25	
				NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
88+05.88	8.52	1.33	0.00	0	0	0	0	0	0
88+66.00	9.76	1.33	6.98	20	3	8	20	10	7
88+91.03	8.52	1.33	4.84	8	1	5	28	16	8
89+00.00	8.56	1.33	5.45	3	0	2	31	19	8
89+16.06	11.30	1.33	3.57	6	1	3	37	23	10
89+19.18	19.06	1.33	0.00	2	0	0	39	23	12
89+25.00	25.62	1.33	0.31	5	0	0	44	23	17
90+00.00	10.75	1.33	4.58	51	4	7	95	31	55
91+00.00	12.05	1.33	0.97	42	5	10	137	44	79
91+25.00	13.61	2.00	3.41	12	2	2	149	46	87
92+00.00	12.32	2.00	7.02	36	6	14	185	64	99
93+00.00	46.09	2.00	0.70	108	7	14	293	81	183
93+50.00	37.16	2.00	1.56	77	4	2	370	84	253
94+00.00	35.95	2.00	3.60	68	4	5	438	90	311
95+00.00	37.72	2.00	1.62	136	7	10	574	103	428
96+00.00	58.43	2.00	0.30	178	7	4	752	108	594
97+00.00	26.00	2.00	0.52	156	7	2	908	110	740
97+75.00	15.32	2.00	0.61	57	6	2	965	113	789
98+00.00	16.48	2.00	0.59	15	2	1	980	114	800
99+00.00	21.50	2.00	1.35	70	7	4	1,050	119	858
100+00.00	17.71	2.00	1.62	73	7	5	1,123	125	918
100+25.00	36.06	2.00	0.49	25	2	1	1,148	126	940
101+00.00	14.63	2.00	4.96	70	6	8	1,218	136	994
101+50.00	14.75	2.00	1.05	27	4	6	1,245	144	1,009
102+00.00	15.33	2.00	0.53	28	4	1	1,273	145	1,032
103+00.00	13.98	2.00	1.89	54	7	4	1,327	150	1,074
104+00.00	13.52	2.00	3.05	51	7	9	1,378	161	1,107
104+50.00	13.50	2.00	4.11	25	4	7	1,403	170	1,119
105+00.00	15.86	2.00	0.58	27	4	4	1,430	175	1,137
105+62.00	17.26	2.00	0.61	38	5	1	1,468	176	1,169
106+00.00	15.33	2.00	0.26	23	3	1	1,491	178	1,188
106+50.00	20.24	2.00	2.44	33	4	3	1,524	181	1,213
107+00.00	23.02	2.00	2.55	40	4	5	1,564	188	1,243
108+00.00	16.78	2.00	5.98	74	7	16	1,638	208	1,290
109+00.00	17.74	2.00	0.00	64	7	11	1,702	221	1,333
109+36.19	10.93	2.00	4.25	19	3	3	1,721	225	1,345
109+58.90	14.53	2.00	0.31	11	2	2	1,732	228	1,352
110+00.00	15.79	2.00	3.62	23	3	3	1,755	231	1,368
				1,755	156	185			

NOTES:
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4 - THE MASS ORDINATE + OR - QUANTITIES CALCULATED. PLUS QUANTITIES AS EXCESS MATERIAL. MINUS A SHORTAGE OF MATERIAL

NO MARSH OR EBS IS ANTICIPATED.

DIVISION - 162-LA CROSSE

STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
				1.00	1.25				
				NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
110+00.00	15.12	2.00	2.16	0	0	0	0	0	0
110+75.00	15.68	2.00	1.23	43	6	5	43	6	31
111+00.00	14.74	2.00	2.79	14	2	2	57	9	40
112+00.00	15.45	2.00	5.59	56	7	16	113	29	69
113+00.00	14.26	2.00	6.77	55	7	23	168	58	89
114+00.00	11.60	2.00	12.97	48	7	37	216	104	83
115+00.00	15.05	2.00	1.56	49	7	27	265	138	92
116+00.00	11.12	2.00	3.42	48	7	9	313	149	121
116+50.00	9.53	2.00	10.53	19	4	13	332	165	120
117+00.00	11.01	2.00	6.75	19	4	16	351	185	115
118+00.00	12.52	2.00	5.24	44	7	22	395	213	125
118+08.19	12.55	2.00	5.69	4	1	2	399	215	125
118+33.17	10.93	2.00	8.83	11	2	7	410	224	125
118+58.15	11.88	2.00	9.47	11	2	8	421	234	124
119+00.00	31.15	2.00	4.89	33	3	11	454	248	141
120+00.00	12.20	2.00	3.27	80	7	15	534	266	195
121+00.00	7.39	1.33	2.66	36	6	11	570	280	211
121+24.57	7.08	1.33	4.74	7	1	3	577	284	213
121+48.87	8.54	1.33	0.41	7	1	2	584	286	217
121+73.16	9.39	1.33	0.00	8	1	0	592	286	224
122+00.00	11.92	1.33	0.22	11	1	0	603	286	234
123+00.00	8.28	1.33	2.81	37	5	6	640	294	258
123+75.00	7.24	1.33	0.25	22	4	4	662	299	271
124+00.00	7.38	1.33	2.18	7	1	1	669	300	276
125+00.00	7.43	1.33	1.02	27	5	6	696	308	291
126+00.00	7.62	1.33	1.59	28	5	5	724	314	307
127+00.00	7.52	1.33	3.84	28	5	10	752	326	318
128+00.00	6.95	1.33	5.17	27	5	17	779	348	319
129+00.00	8.02	1.33	1.04	28	5	12	807	363	327
129+12.91	7.80	1.33	0.40	4	1	0	811	363	330
130+00.00	7.41	1.33	1.50	25	4	3	836	366	347
130+75.00	10.58	2.00	2.42	25	5	5	861	373	361
131+00.00	13.98	2.00	3.83	11	2	3	872	376	366
132+00.00	11.67	2.00	3.63	48	7	14	920	394	389
133+00.00	14.76	2.00	4.70	49	7	15	969	413	413
134+00.00	9.71	2.00	7.48	45	7	23	1,014	441	422
134+00.00	12.59	2.00	7.48	0	0	0	1,014	441	422
135+00.00	7.20	1.33	1.30	37	6	16	1,051	461	433
135+58.52	7.34	1.33	2.50	16	3	4	1,067	466	441
136+00.00	7.09	1.33	3.07	11	2	4	1,078	471	445
136+30.29	12.71	1.33	0.39	11	1	2	1,089	474	452
136+33.45	15.32	1.33	0.00	2	0	0	1,091	474	454
136+58.76	11.29	1.33	0.00	12	1	0	1,103	474	465
136+84.09	10.87	1.33	1.33	10	1	1	1,113	475	473
137+00.00	11.36	1.33	0.02	7	1	0	1,120	475	479
138+00.00	7.68	1.33	0.00	35	5	0	1,155	475	509
138+04.65	7.99	1.33	0.00	1	0	0	1,156	475	510
				1,156	171	380			

NOTES:
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NO MARSH OR EBS IS ANTICIPATED.

DIVISION - 162-LA CROSSE

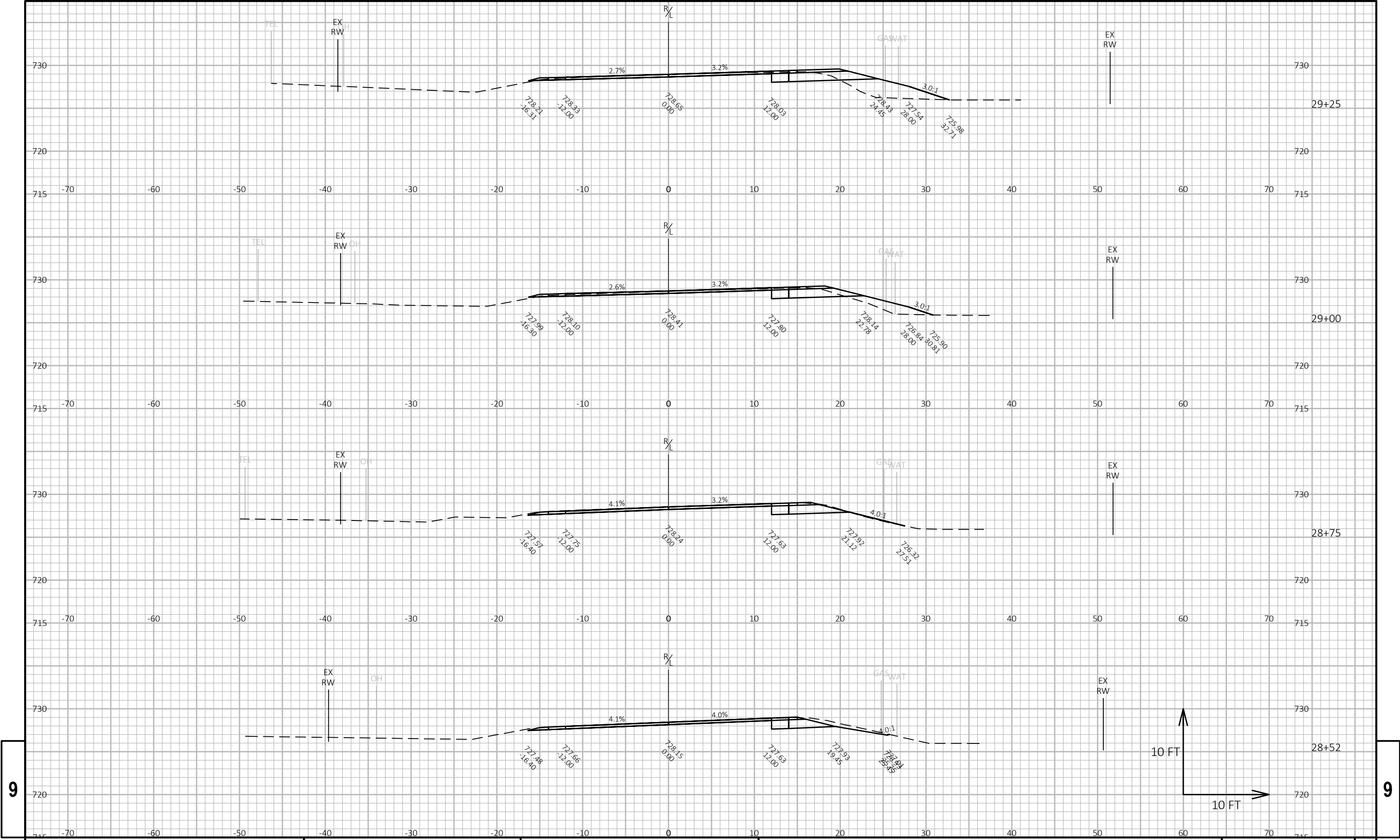
STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
							1.00	1.25	
				NOTE 1	NOTE 2	NOTE 3	NOTE 1		NOTE 4
289+26.30	8.77	0.67	0.00	0	0	0	0	0	0
290+00.00	10.58	0.67	0.00	26	2	0	26	0	24
290+45.37	10.29	0.67	5.39	18	1	5	44	6	35
290+70.35	11.15	0.67	14.71	10	1	9	54	18	33
290+95.33	9.44	0.67	37.75	10	1	24	64	48	12
290+98.45	7.85	0.67	46.17	1	0	5	65	54	6
291+00.00	7.79	0.67	50.47	0	0	3	65	58	3
292+00.00	8.49	0.67	26.94	30	2	143	95	236	-148
292+25.00	13.81	0.67	25.29	10	1	24	105	266	-169
293+00.00	8.39	0.67	32.43	31	2	80	136	366	-240
293+85.96	9.00	0.67	37.61	28	2	112	164	506	-354
293+89.08	12.96	0.67	26.61	1	0	4	165	511	-358
294+00.00	13.66	0.67	26.01	5	0	11	170	525	-367
294+14.06	15.42	0.67	24.68	8	0	13	178	541	-375
294+39.04	12.36	0.67	25.65	13	1	23	191	570	-392
295+00.00	10.38	0.67	0.72	26	2	30	217	608	-406
295+58.11	17.21	0.67	0.00	30	1	1	247	609	-378
				247	16	487			

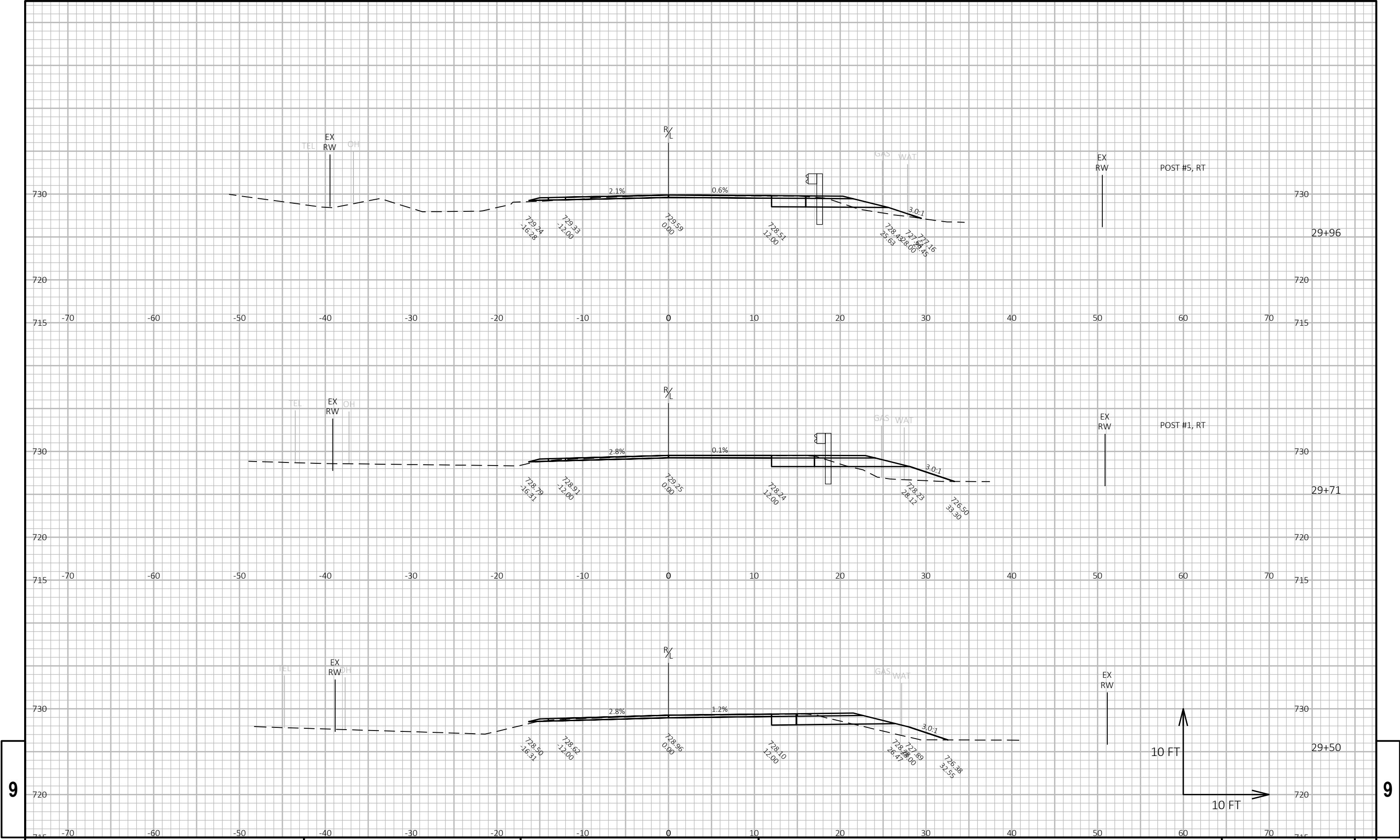
DIVISION - 162-LA CROSSE

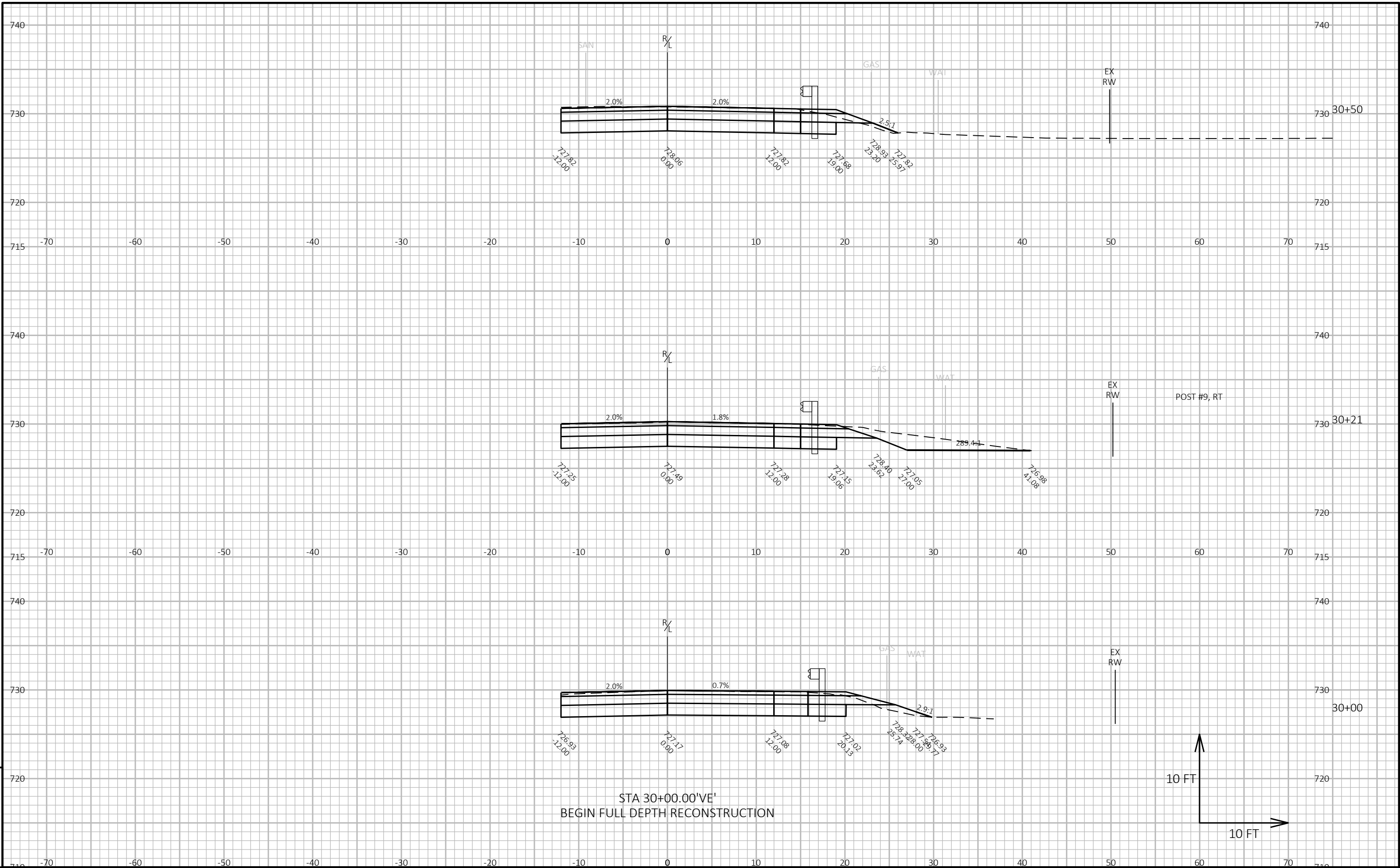
STATION	AREA (SF)			INCREMENTAL VOL (CY) (UNADJUSTED)			CUMULATIVE VOL (CY)		
	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	SALVAGED/UNUSABLE PAVEMENT MATERIAL	FILL	CUT	EXPANDED FILL	MASS ORDINATE
				NOTE 1	NOTE 2	NOTE 3	NOTE 1	1.25	NOTE 4
306+90.53	9.89	0.67	0.00	0	0	0	0	0	0
307+00.00	10.04	0.67	0.00	3	0	0	3	0	3
308+00.00	8.63	0.67	1.56	35	2	3	38	4	32
308+10.41	8.38	0.67	3.45	3	0	1	41	5	34
308+35.46	10.30	0.67	5.93	9	1	4	50	10	37
308+60.50	13.40	0.67	8.05	11	1	6	61	18	40
308+63.63	10.09	0.67	7.41	1	0	1	62	19	39
309+00.00	9.84	0.67	0.11	13	1	5	75	25	45
309+50.00	10.06	0.67	0.59	18	1	1	93	26	61
310+00.00	19.23	1.33	0.78	27	2	1	120	28	85
311+00.00	16.53	1.33	1.08	66	5	3	186	31	142
311+08.32	15.78	1.33	1.48	5	0	0	191	31	147
312+00.00	18.12	1.33	0.61	58	5	4	249	36	195
312+52.28	18.53	1.33	17.38	35	3	17	284	58	206
312+55.40	19.63	1.33	9.14	2	0	2	286	60	205
312+64.69	19.69	1.33	5.15	7	0	2	293	63	210
312+67.80	22.68	1.33	7.03	2	0	1	295	64	210
312+80.38	20.59	1.33	25.93	10	1	8	305	74	209
312+92.78	19.46	1.33	22.75	9	1	11	314	88	204
313+00.00	20.40	1.33	17.07	5	0	5	319	94	202
313+05.36	21.58	1.33	14.70	4	0	3	323	98	203
313+17.76	22.82	1.33	4.79	10	1	4	333	103	207
313+45.36	21.15	1.33	2.33	22	1	4	355	108	223
313+57.76	20.70	1.33	1.06	10	1	1	365	109	230
314+00.00	18.64	1.33	0.00	31	2	1	396	110	258
314+24.44	14.05	1.33	0.09	15	1	0	411	110	272
314+36.84	10.83	0.67	0.00	6	0	0	417	110	278
				417	29	88			

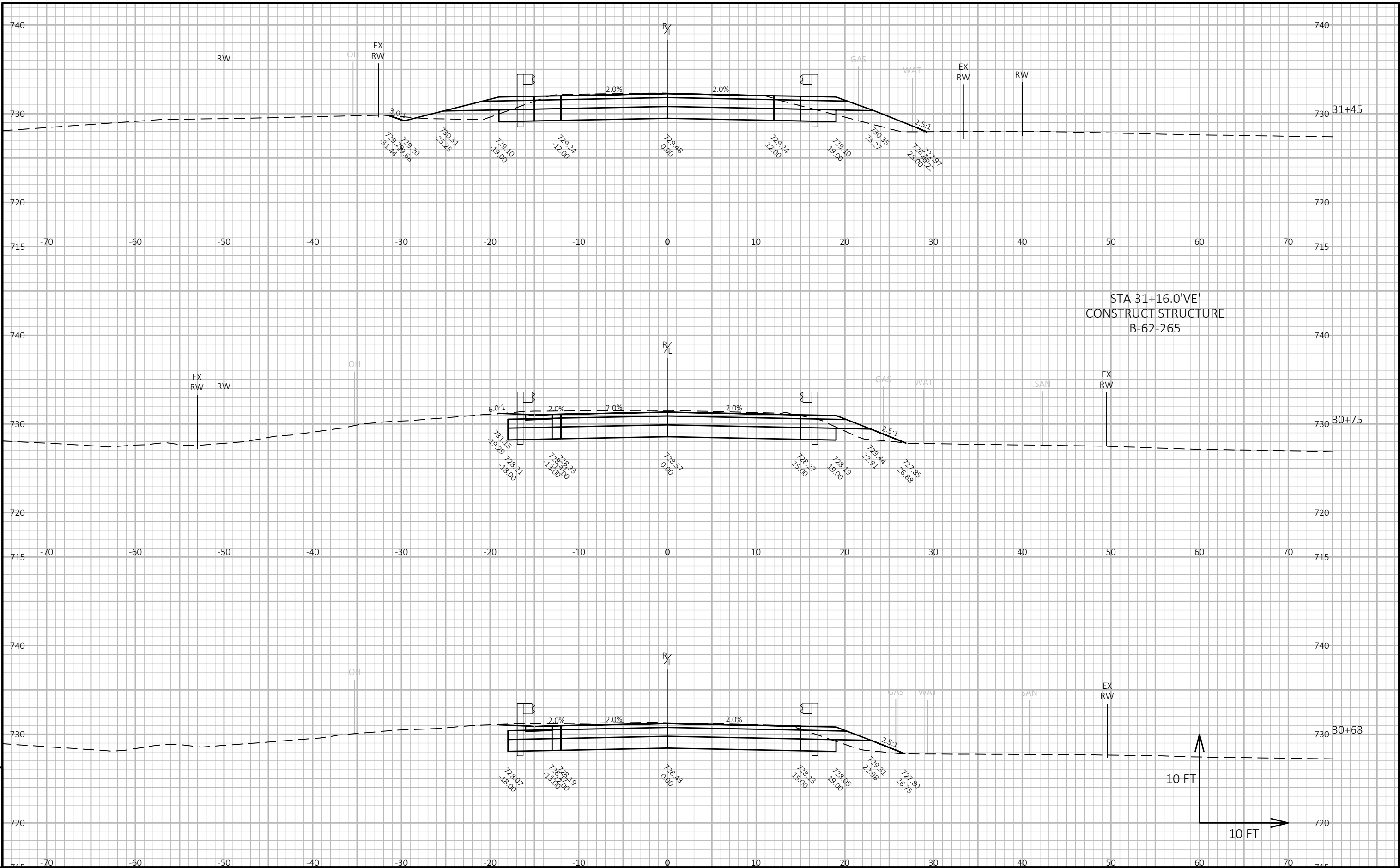
NOTES:
1 - CUT (SALVAGE/UNUSABLE PAVEMENT MATERIAL INCLUDED)
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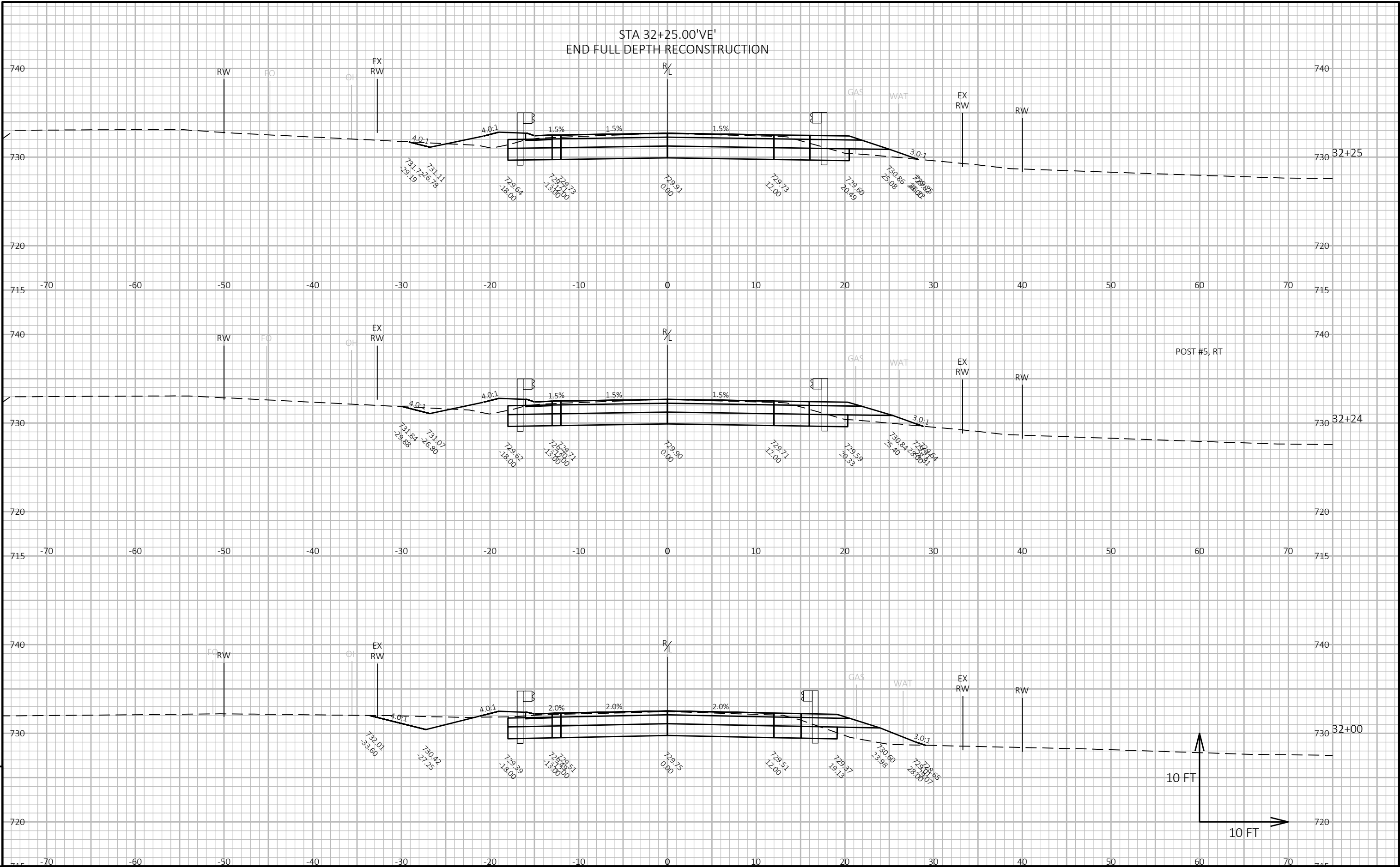
NO MARSH OR EBS IS ANTICIPATED.

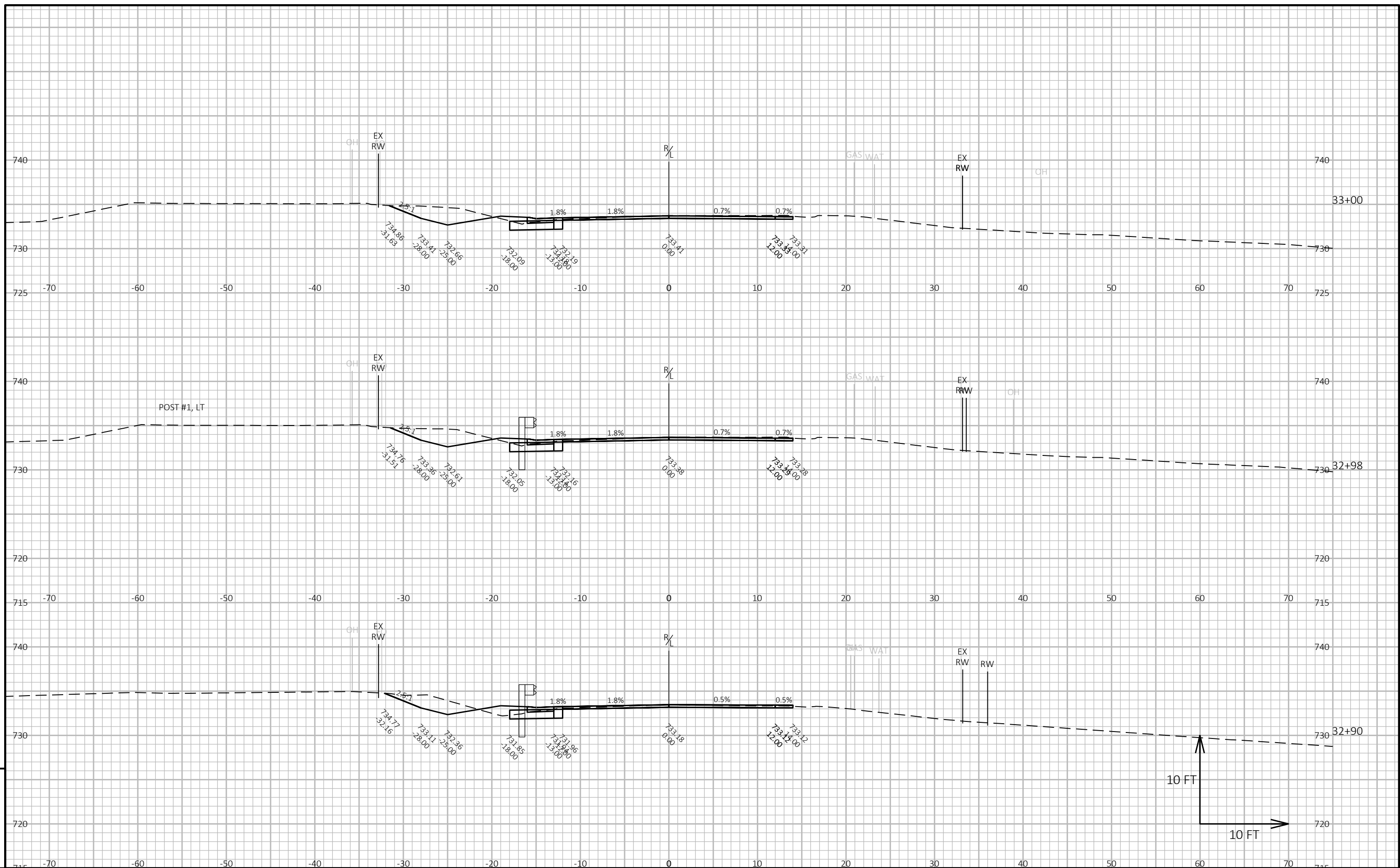


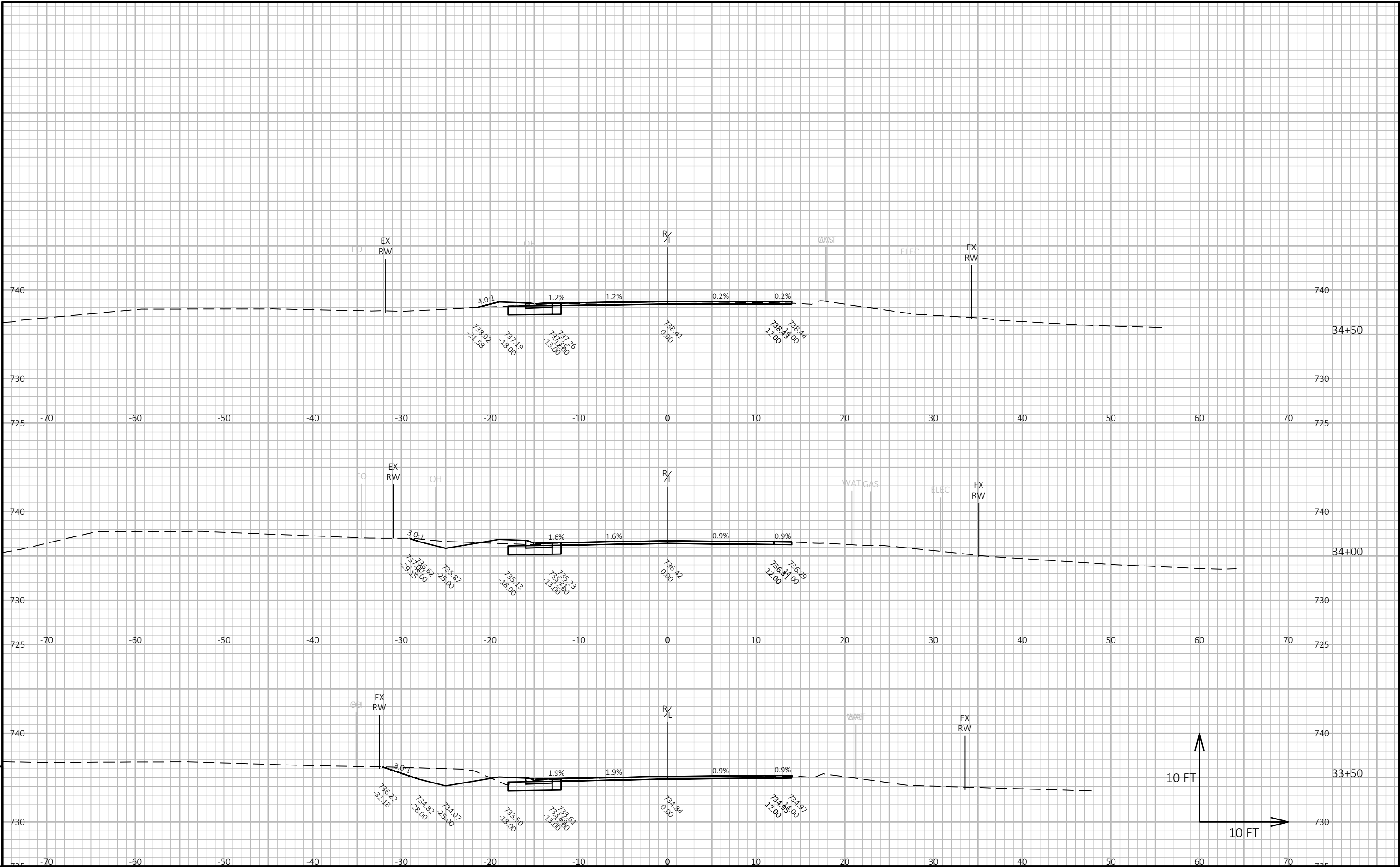


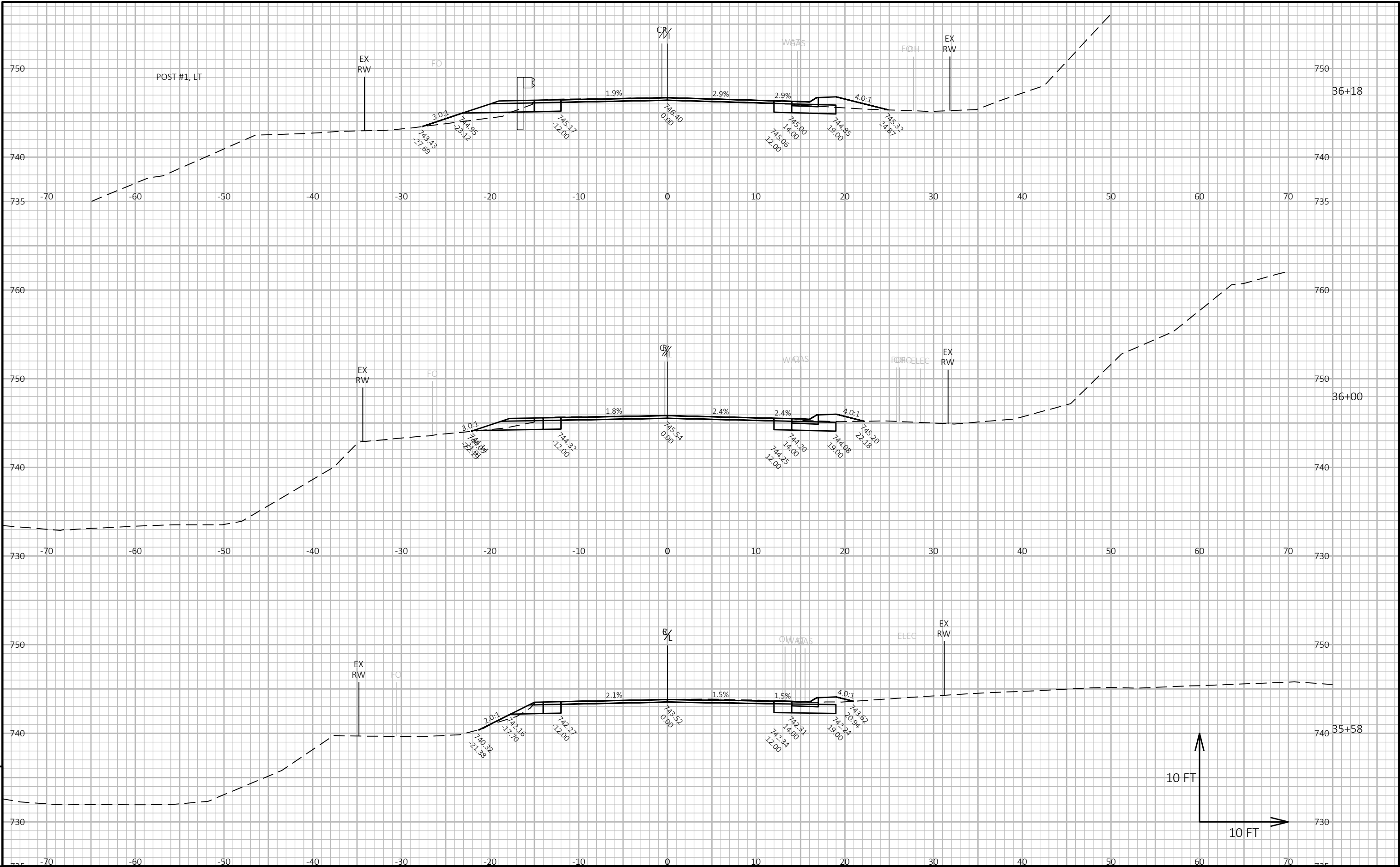


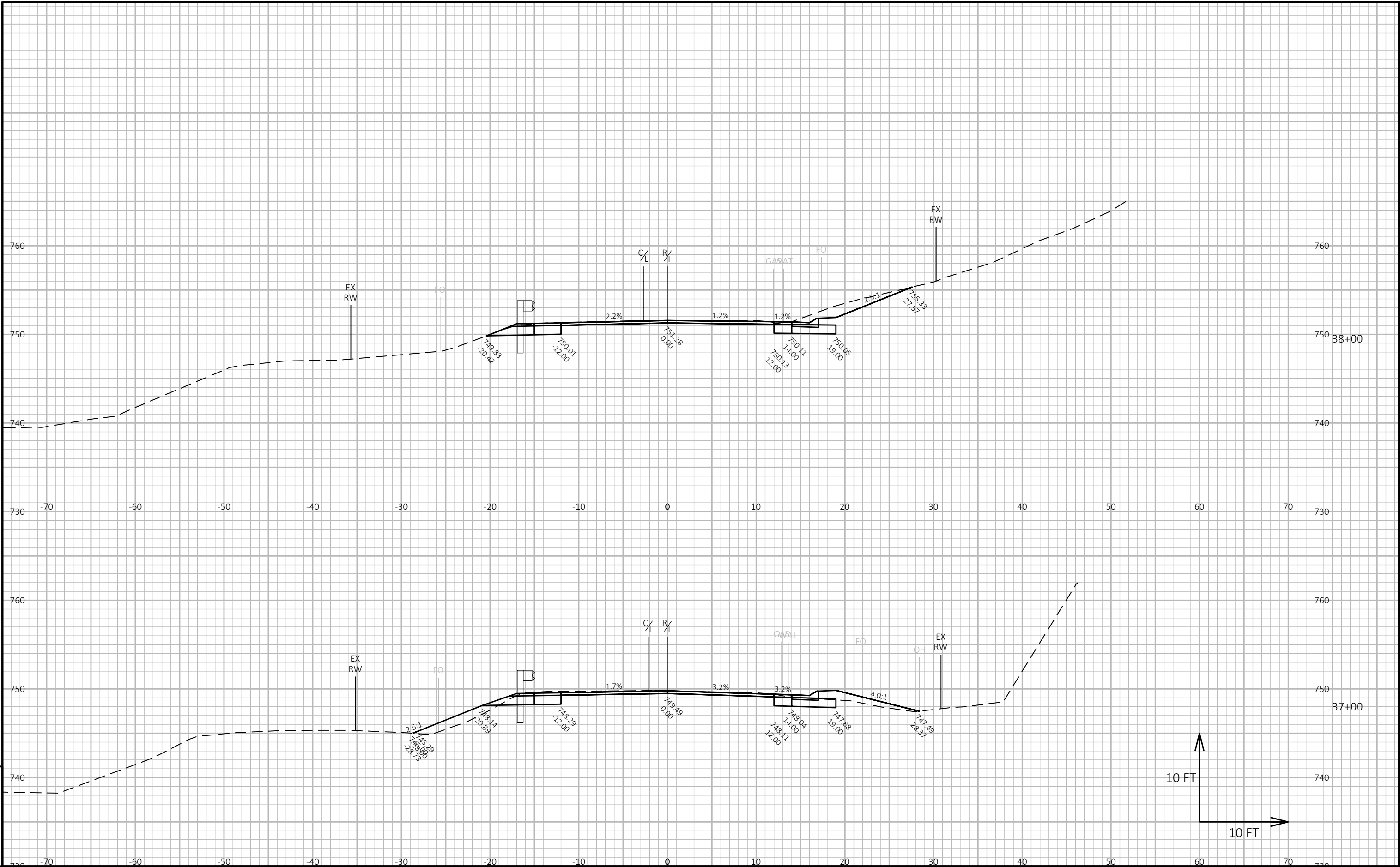


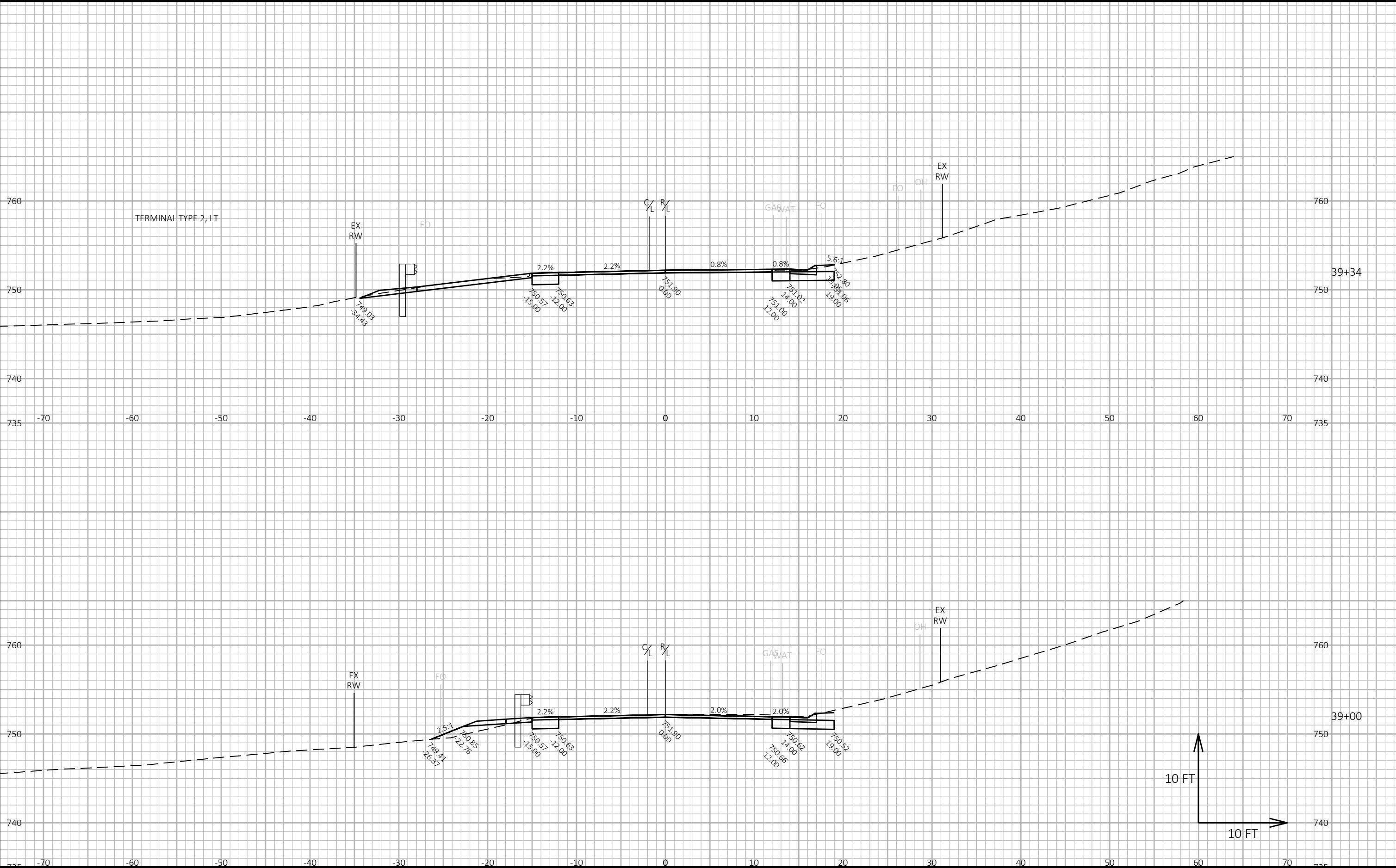


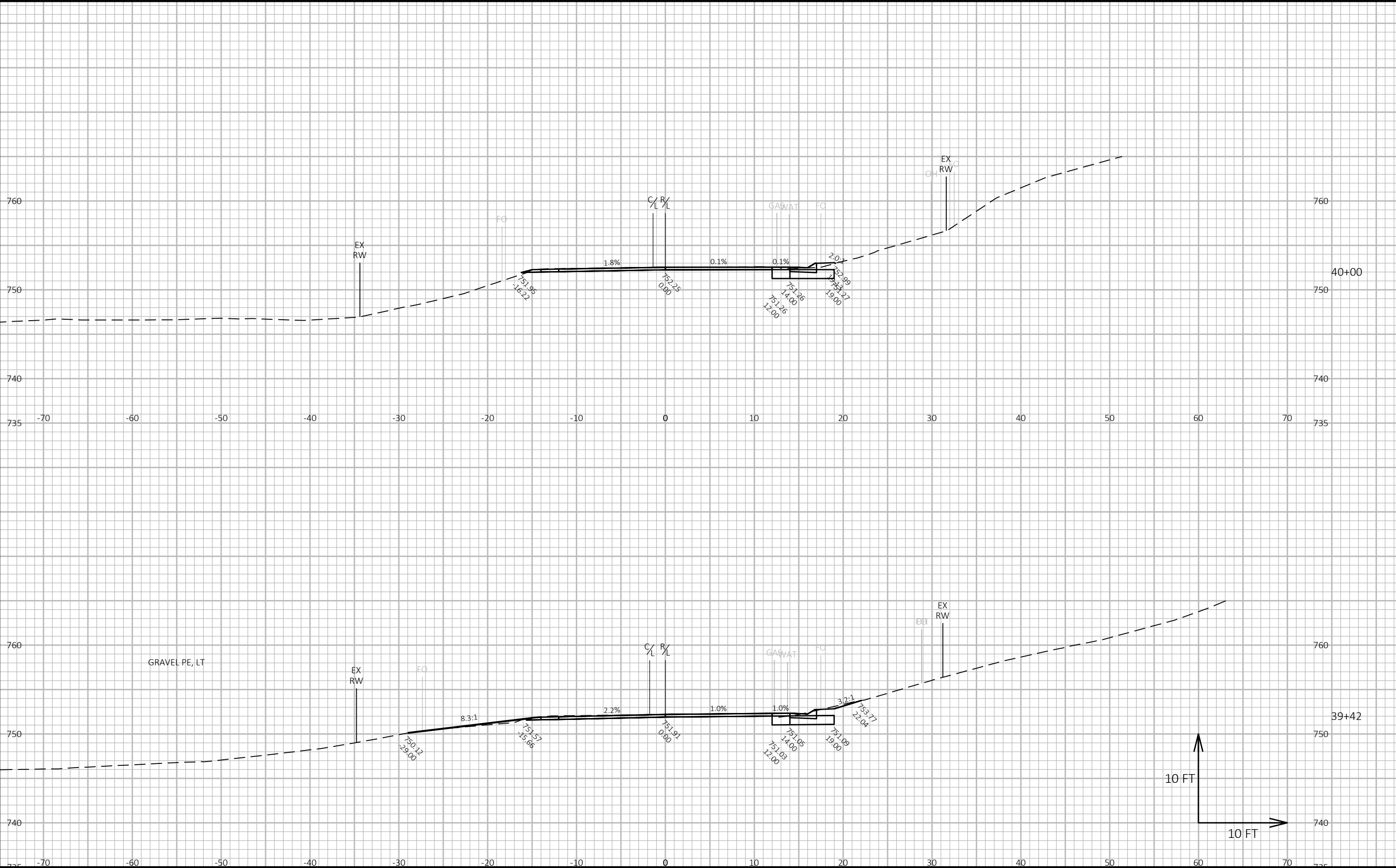


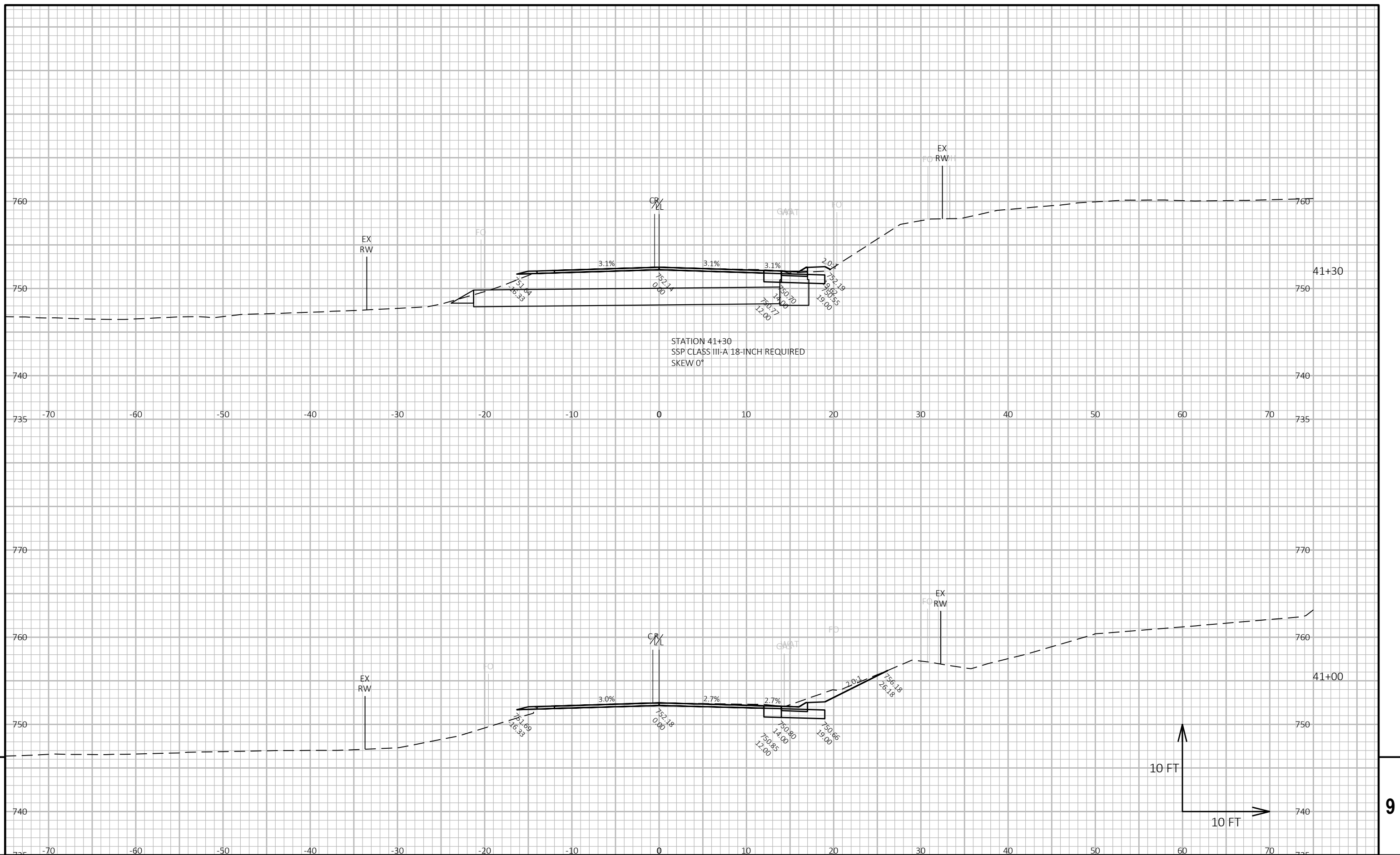
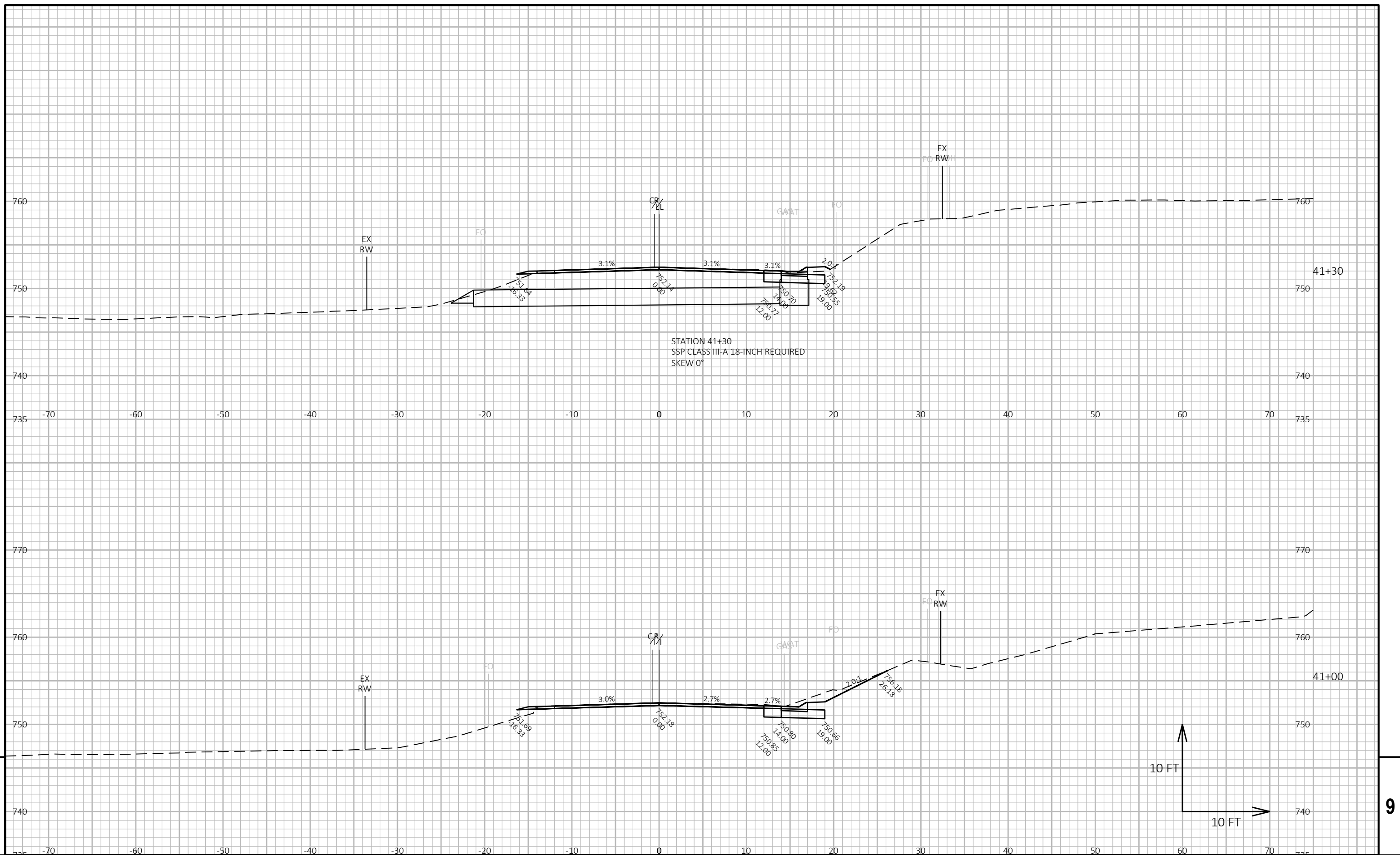












PROJECT NO: 5820-01-68		HWY: STH 162		COUNTY: LA CROSSE/VERNON		CROSS SECTIONS: STH 162 (VERNON)				SHEET 252		E
FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETSP\AN\090202_XS_HSE.DWG				PLOT DATE : 4/12/2024 3:22 PM		PLOT BY : JEFF BREU		PLOT NAME :		PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:4 FT VERT.		WISDOT/CADDS SHEET 49
LAYOUT NAME - 06												

PROJECT NO: 5820-01-68		HWY: STH 162		COUNTY: LA CROSSE/VERNON		CROSS SECTIONS: STH 162 (VERNON)				SHEET 252		E
FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETSP\AN\090202_XS_HSE.DWG				PLOT DATE : 4/12/2024 3:22 PM		PLOT BY : JEFF BREU		PLOT NAME :		PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:4 FT VERT.		WISDOT/CADDS SHEET 49
LAYOUT NAME - 06												

PROJECT NO: 5820-01-68		HWY: STH 162		COUNTY: LA CROSSE/VERNON		CROSS SECTIONS: STH 162 (VERNON)				SHEET 252		E
FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETSP\AN\090202_XS_HSE.DWG				PLOT DATE : 4/12/2024 3:22 PM		PLOT BY : JEFF BREU		PLOT NAME :		PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:4 FT VERT.		WISDOT/CADDS SHEET 49
LAYOUT NAME - 06												

PROJECT NO: 5820-01-68		HWY: STH 162		COUNTY: LA CROSSE/VERNON		CROSS SECTIONS: STH 162 (VERNON)				SHEET 252		E
FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETSP\AN\090202_XS_HSE.DWG				PLOT DATE : 4/12/2024 3:22 PM		PLOT BY : JEFF BREU		PLOT NAME :		PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:4 FT VERT.		WISDOT/CADDS SHEET 49
LAYOUT NAME - 06												

PROJECT NO: 5820-01-68		HWY: STH 162		COUNTY: LA CROSSE/VERNON		CROSS SECTIONS: STH 162 (VERNON)				SHEET 252		E
FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETSP\AN\090202_XS_HSE.DWG				PLOT DATE : 4/12/2024 3:22 PM		PLOT BY : JEFF BREU		PLOT NAME :		PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:4 FT VERT.		WISDOT/CADDS SHEET 49
LAYOUT NAME - 06												

PROJECT NO: 5820-01-68		HWY: STH 162		COUNTY: LA CROSSE/VERNON		CROSS SECTIONS: STH 162 (VERNON)				SHEET 252		E
FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETSP\AN\090202_XS_HSE.DWG				PLOT DATE : 4/12/2024 3:22 PM		PLOT BY : JEFF BREU		PLOT NAME :		PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:4 FT VERT.		WISDOT/CADDS SHEET 49
LAYOUT NAME - 06												

FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETSPLAN\090202_XS_HSE.DWG
LAYOUT NAME - 06

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LAYOUT NAME - 06

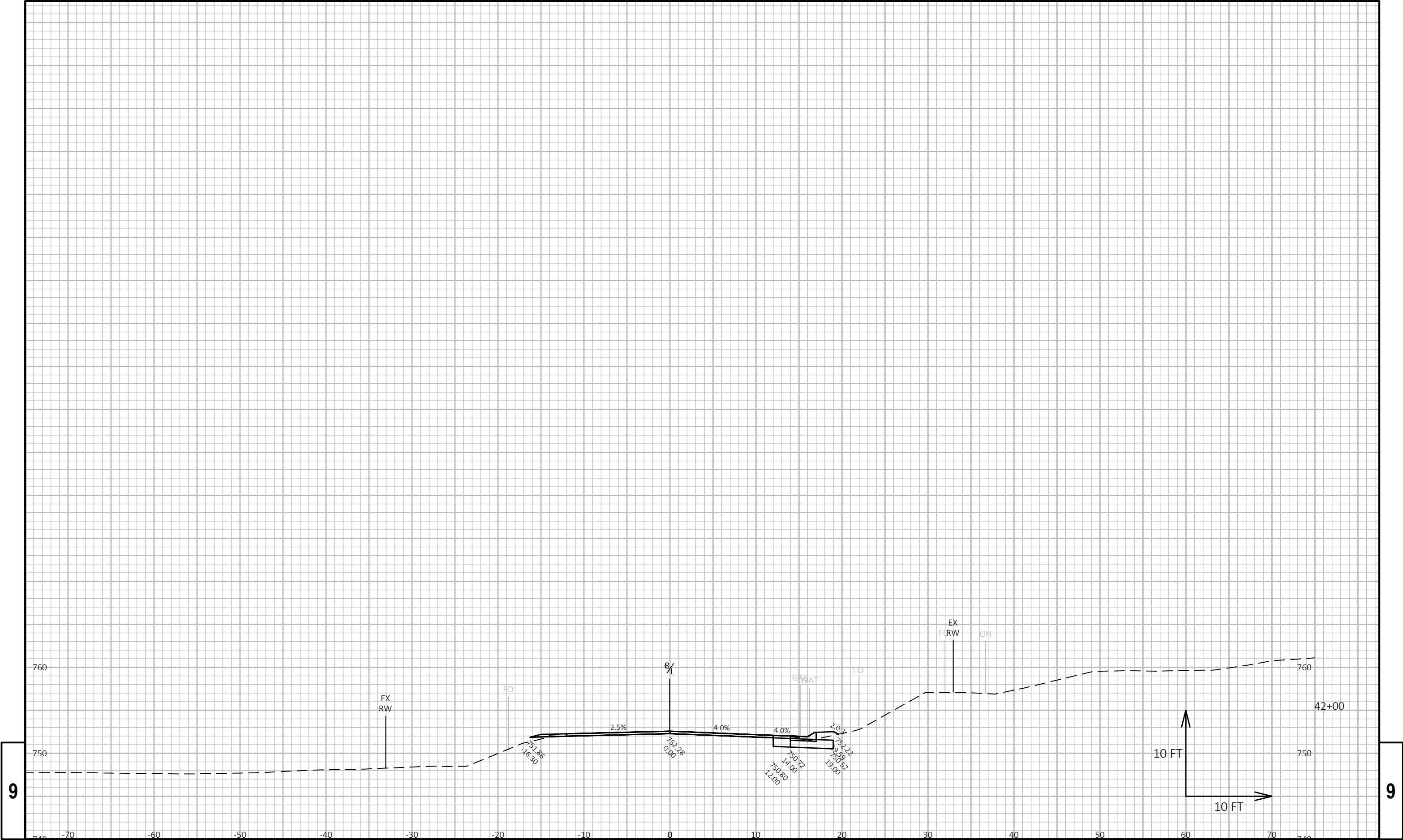
PLOT DATE : 4/12/2024 3:22 PM

PLOT BY : JEFF BREU

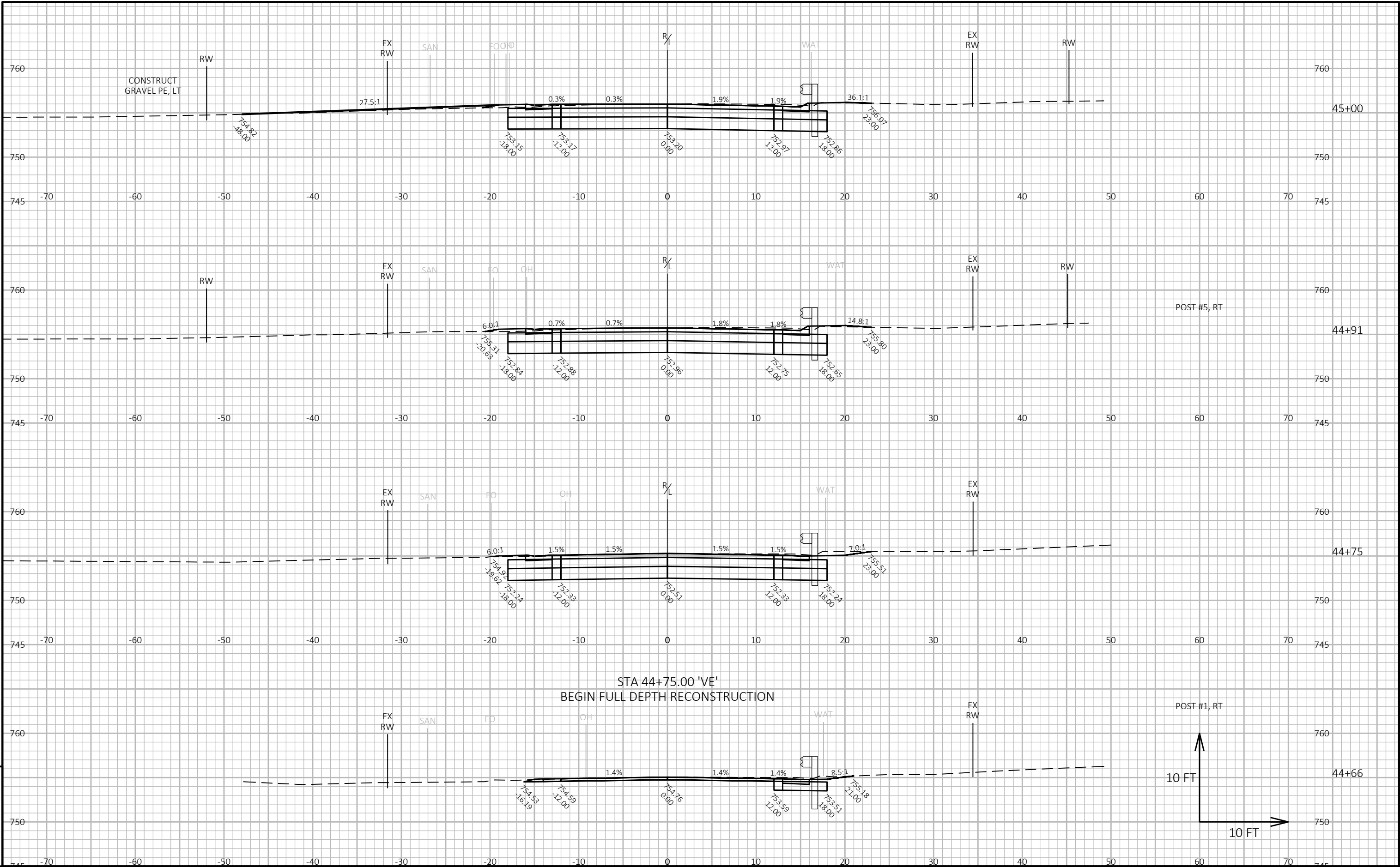
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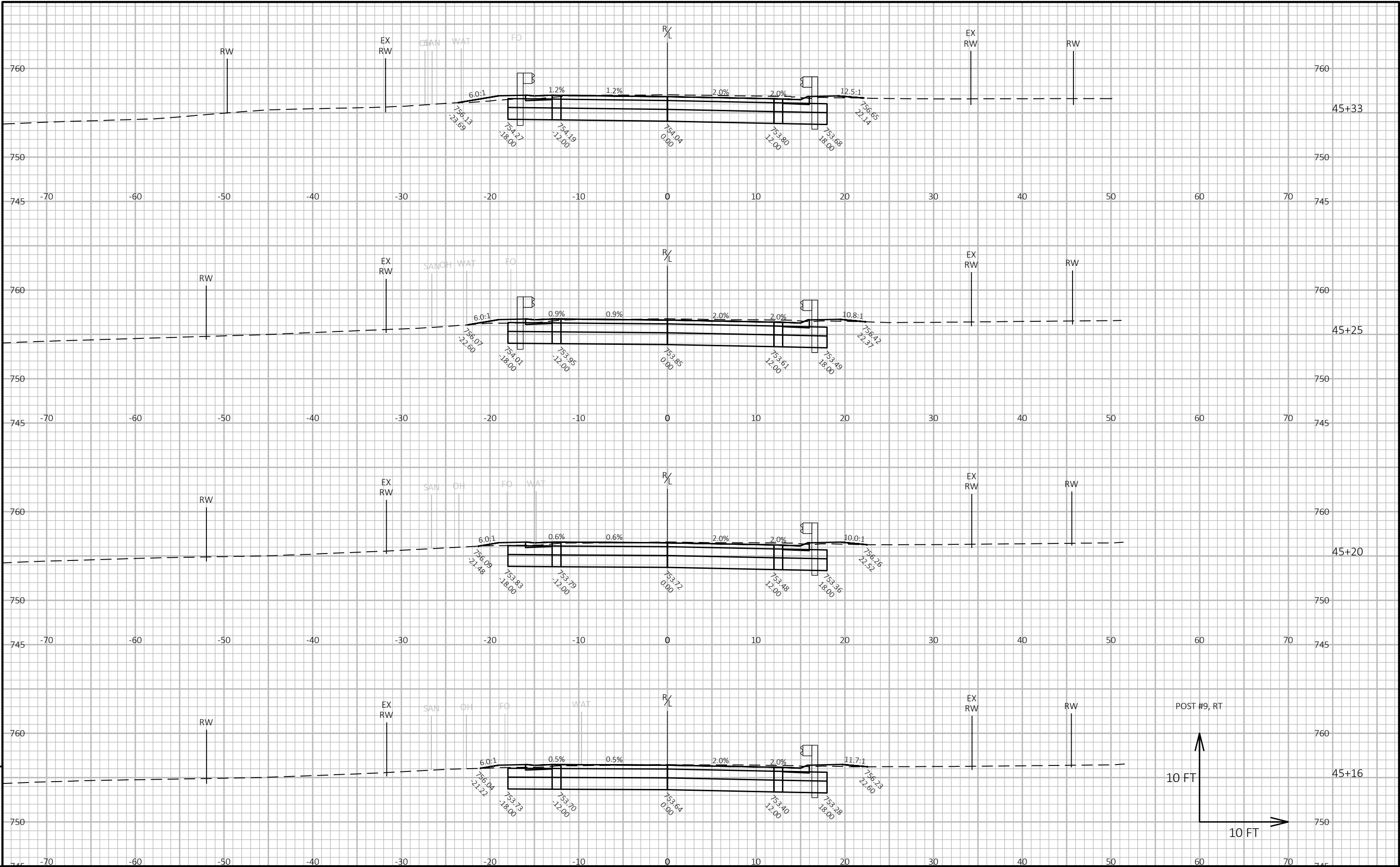
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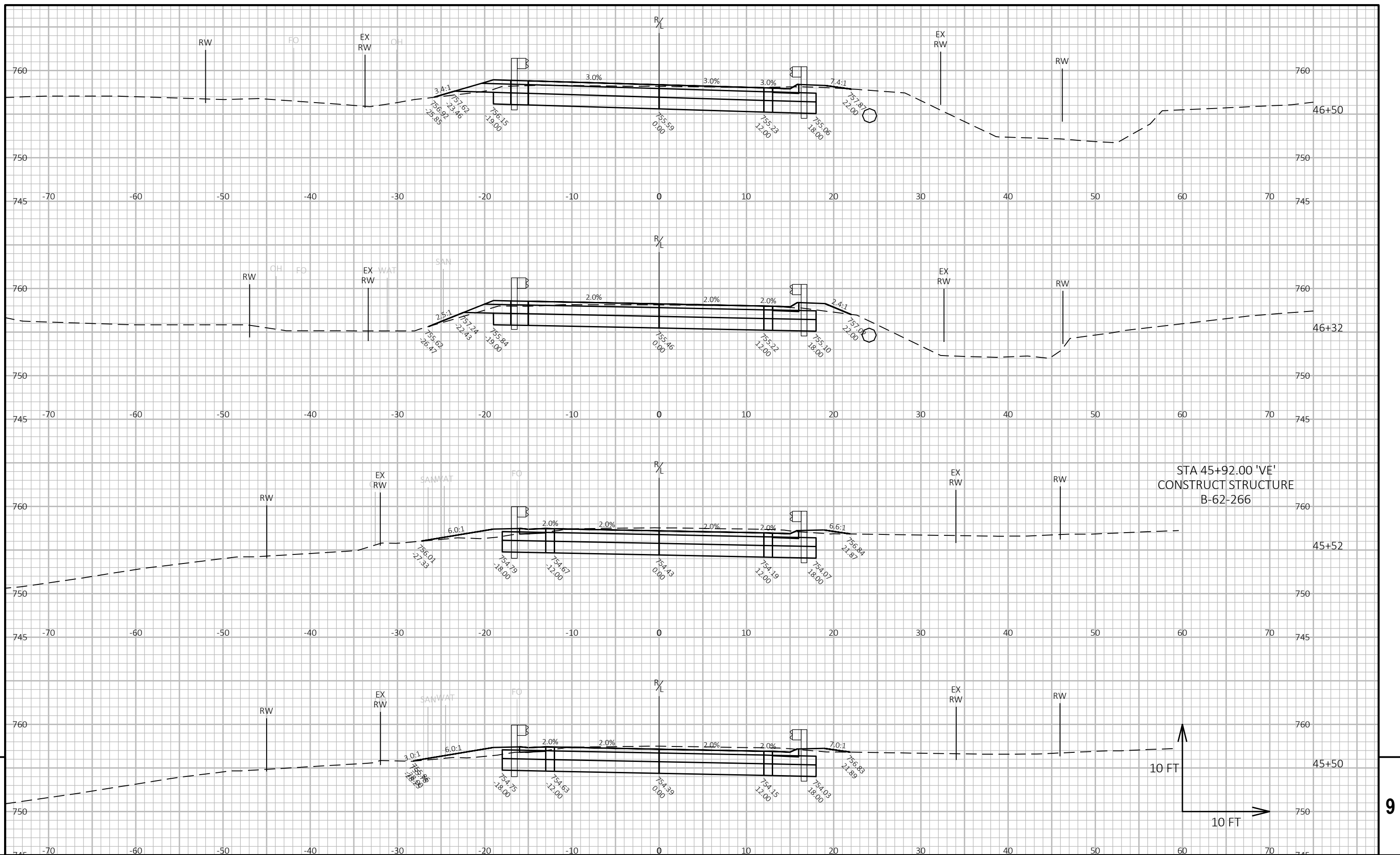
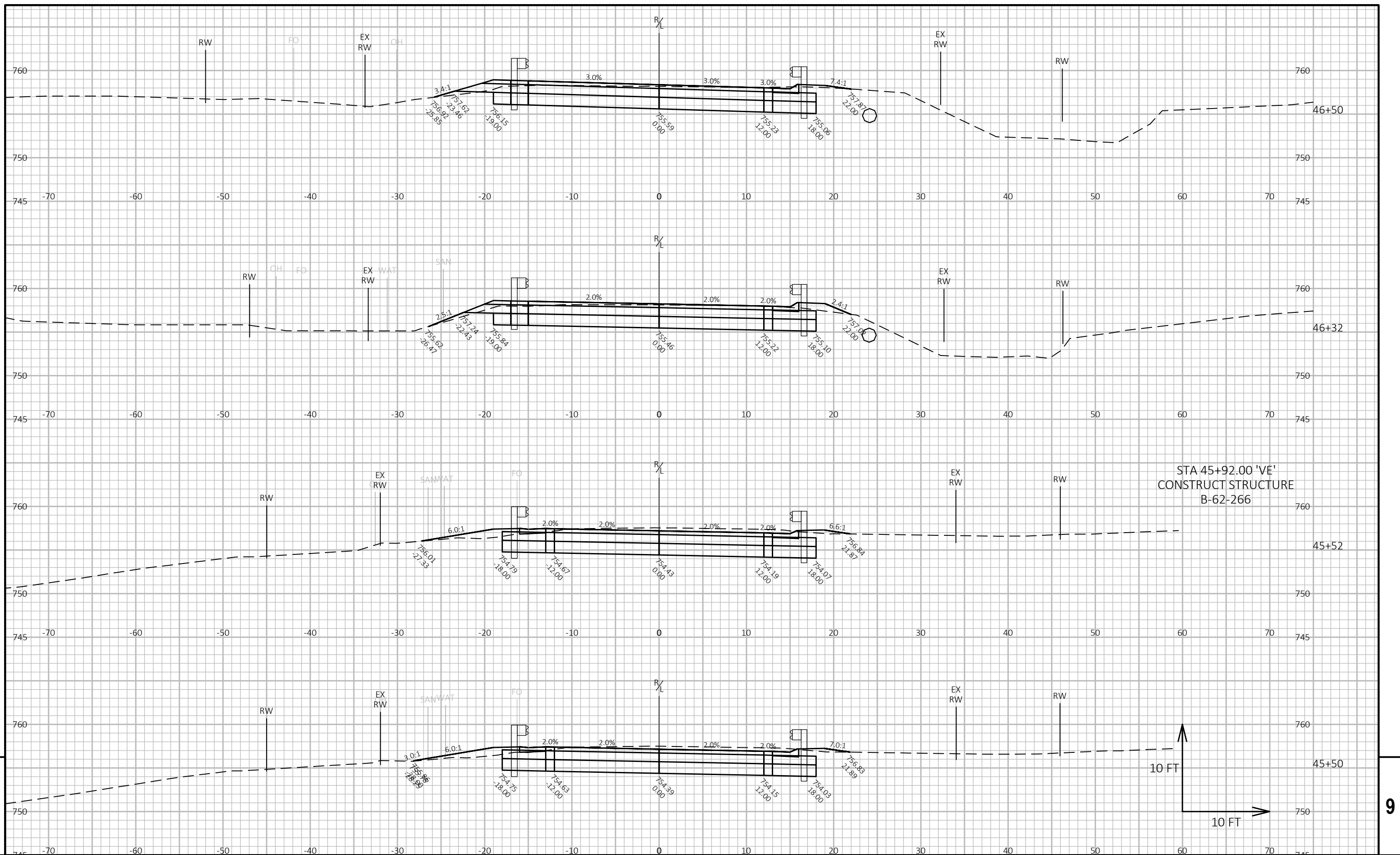
WISDOT/CADDS SHEET 49





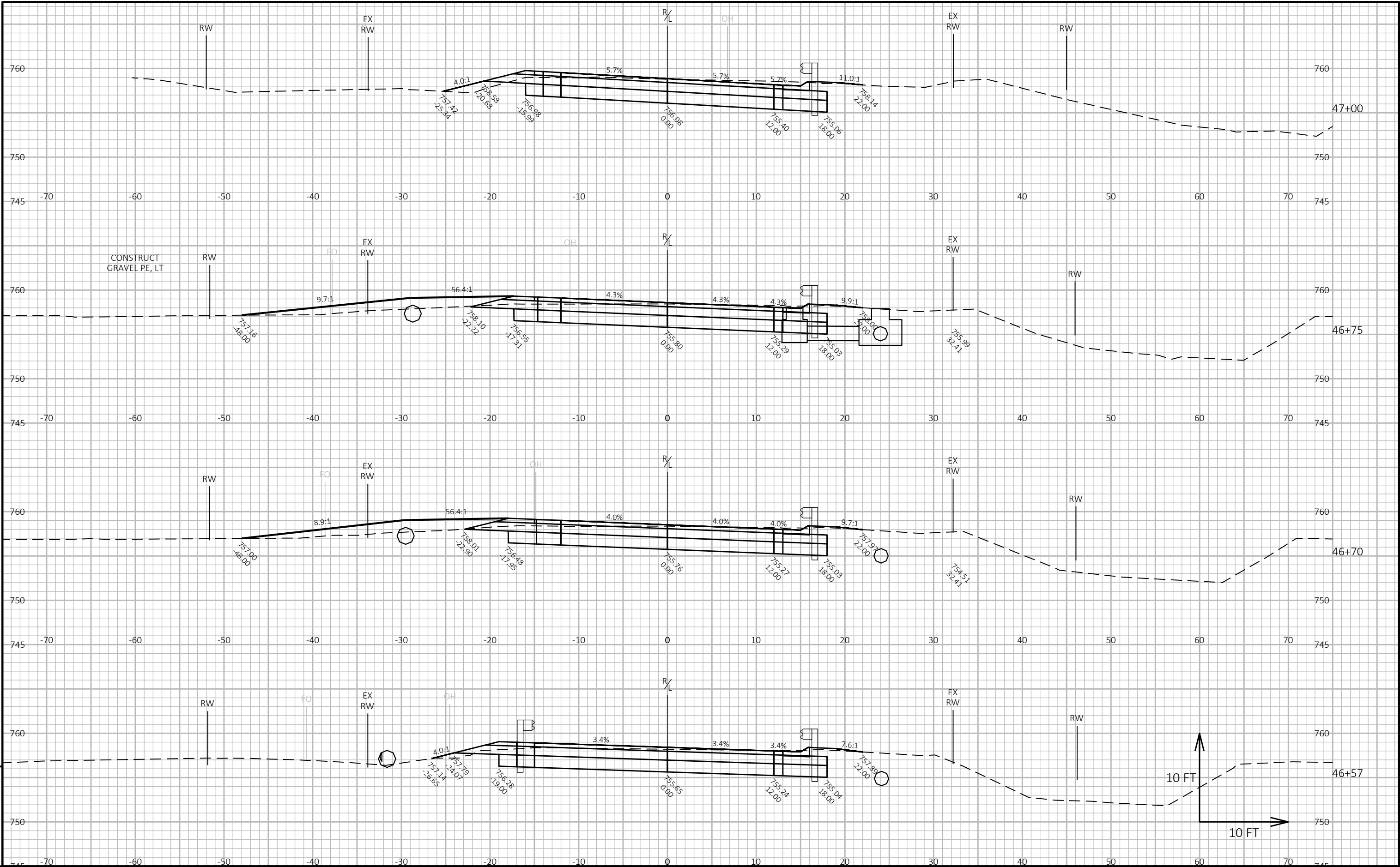


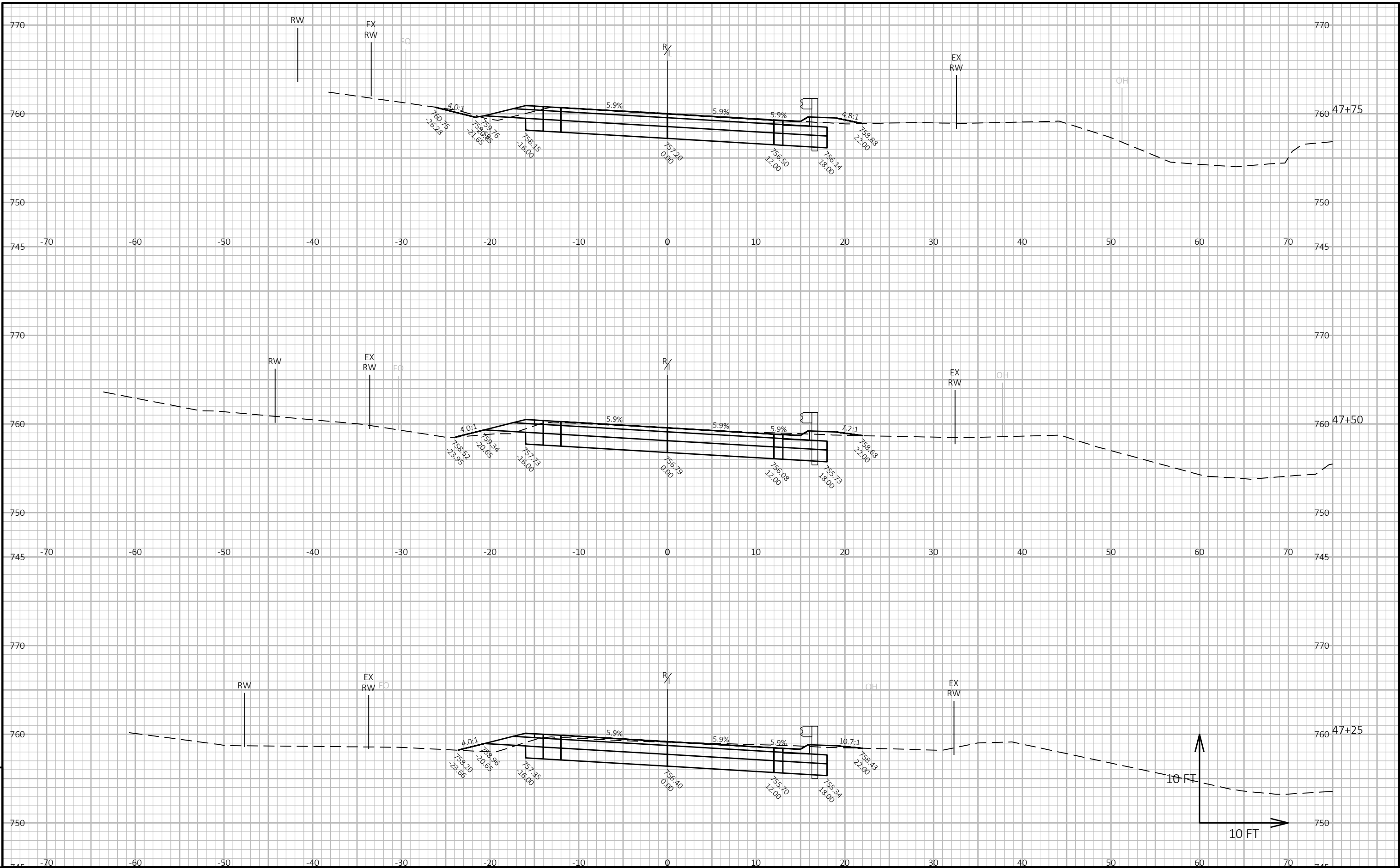




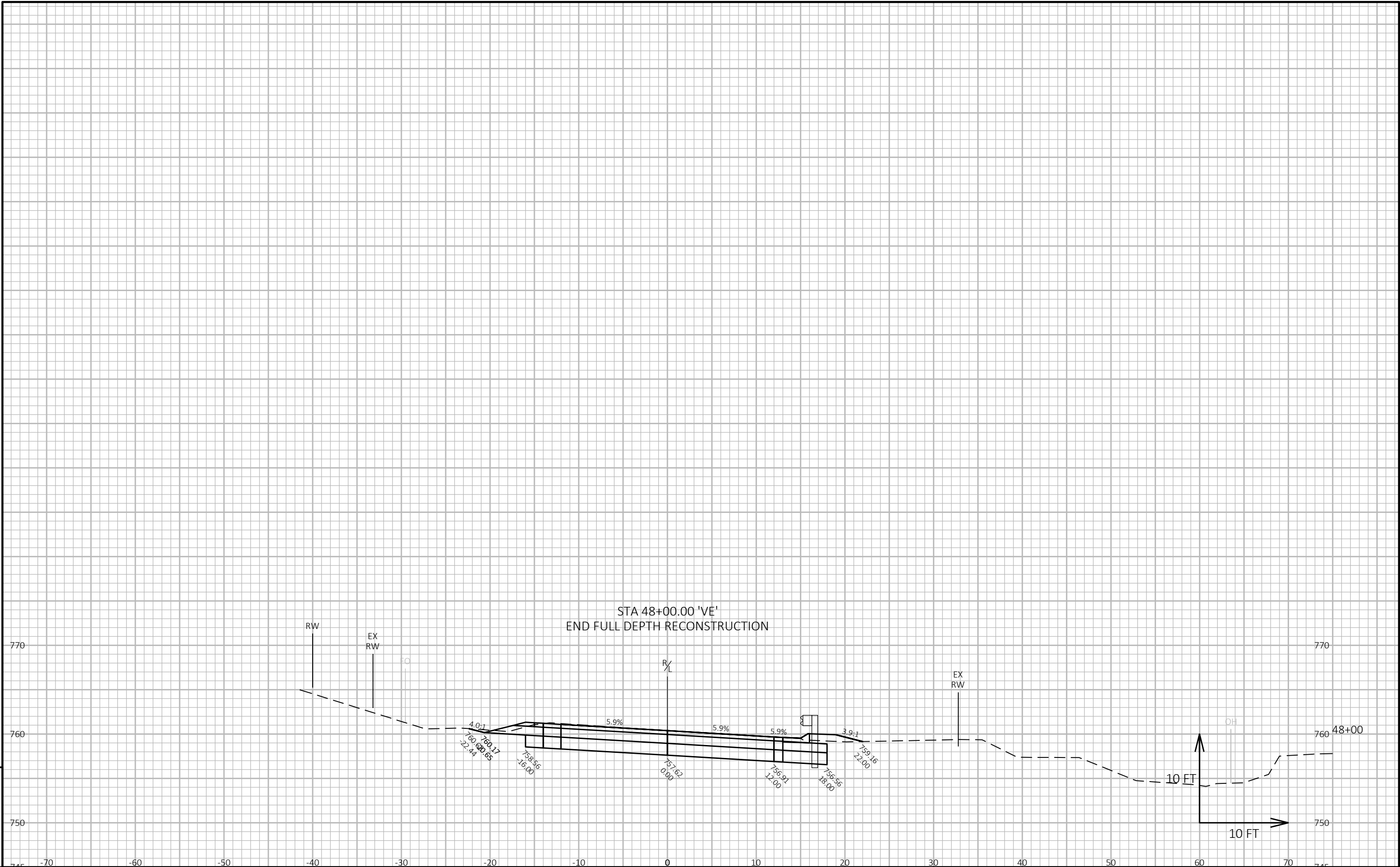
PROJECT NO: 5820-01-68	HWY: STH 162	COUNTY: LA CROSSE/VERNON	CROSS SECTIONS: STH 162 (VERNON)	SHEET 257	E
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FILE NAME : X:\3231000\202122.01\TECH\CAD\XXXXXXXX\SHEETS\PLAN\090203_XS_N BRDG.DWG PLOT DATE : 4/12/2024 3:29 PM PLOT BY : JEFF BREU PLOT NAME : PLOT SCALE : 1 IN:10 FT HORZ. / 1 IN:4 FT VERT. LAYOUT NAME - 04 WISDOT/CADDs SHEET 49

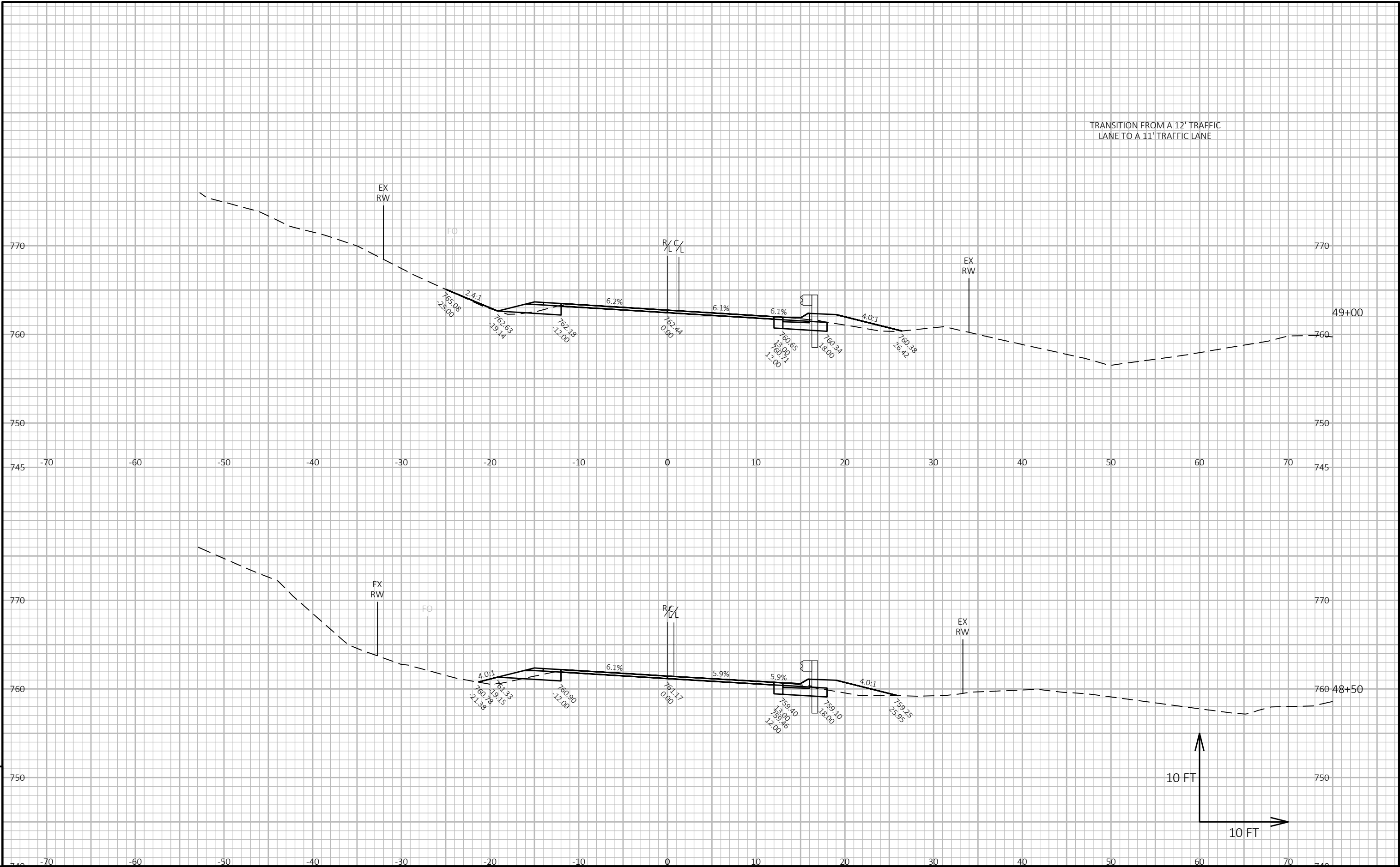


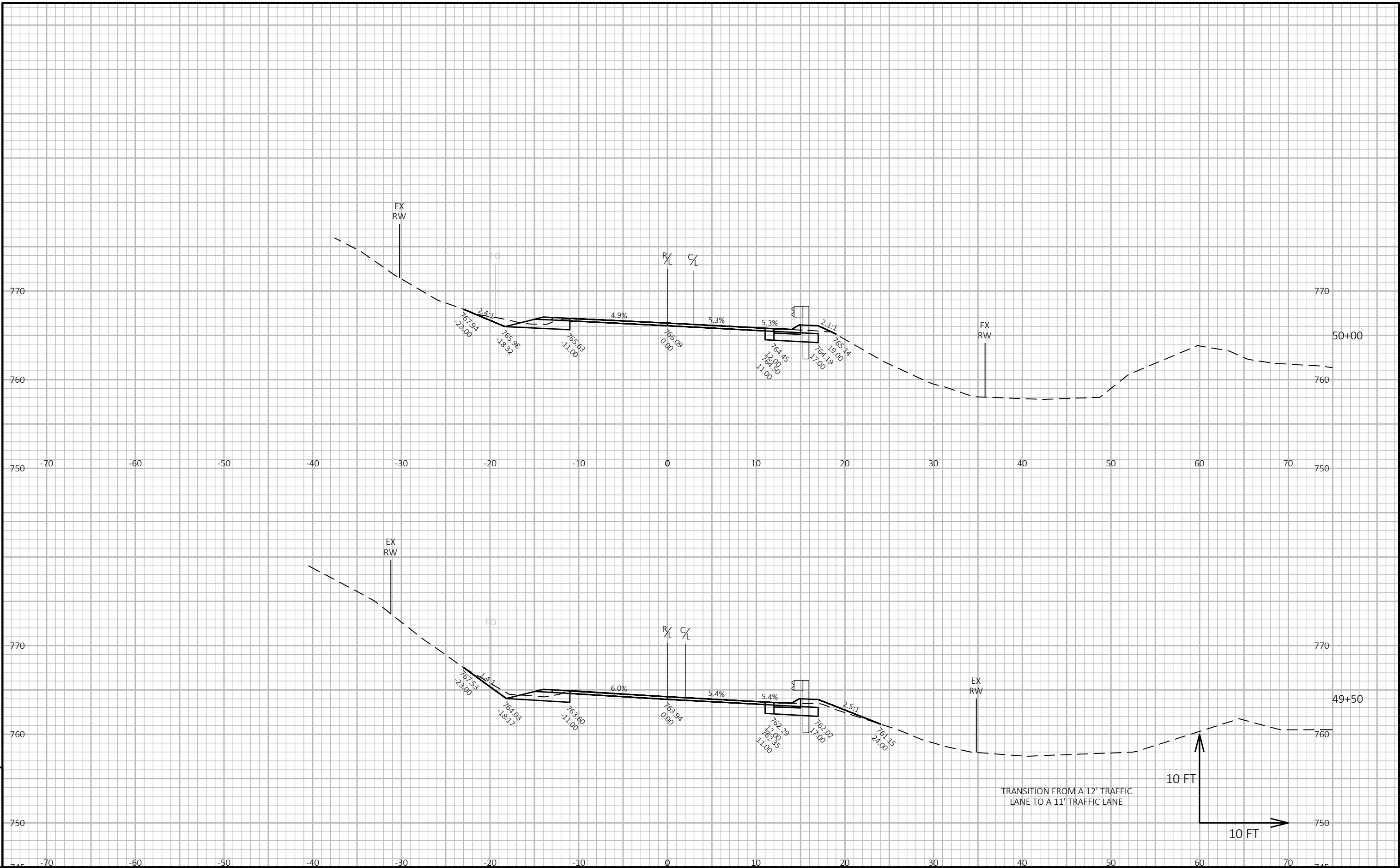


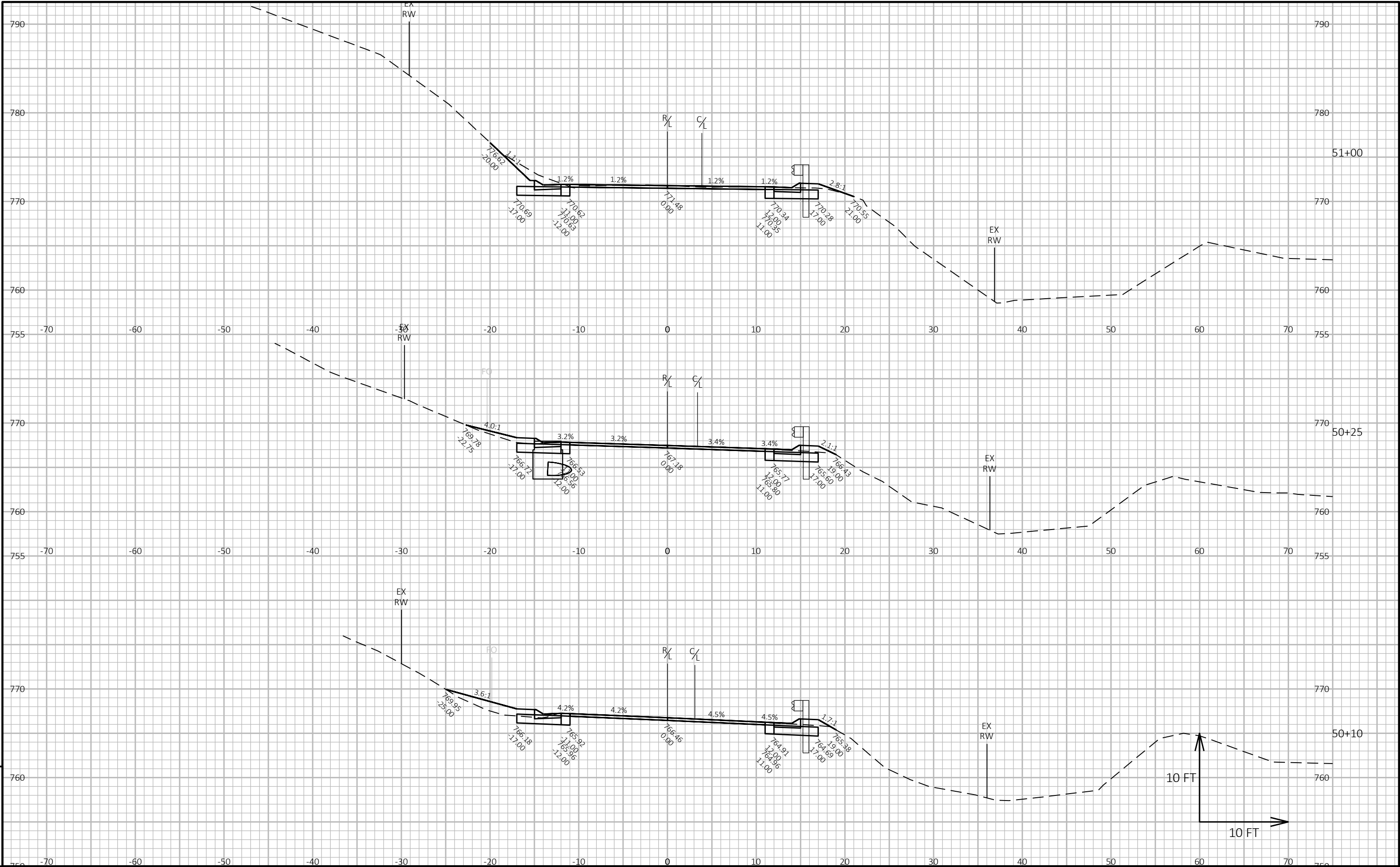
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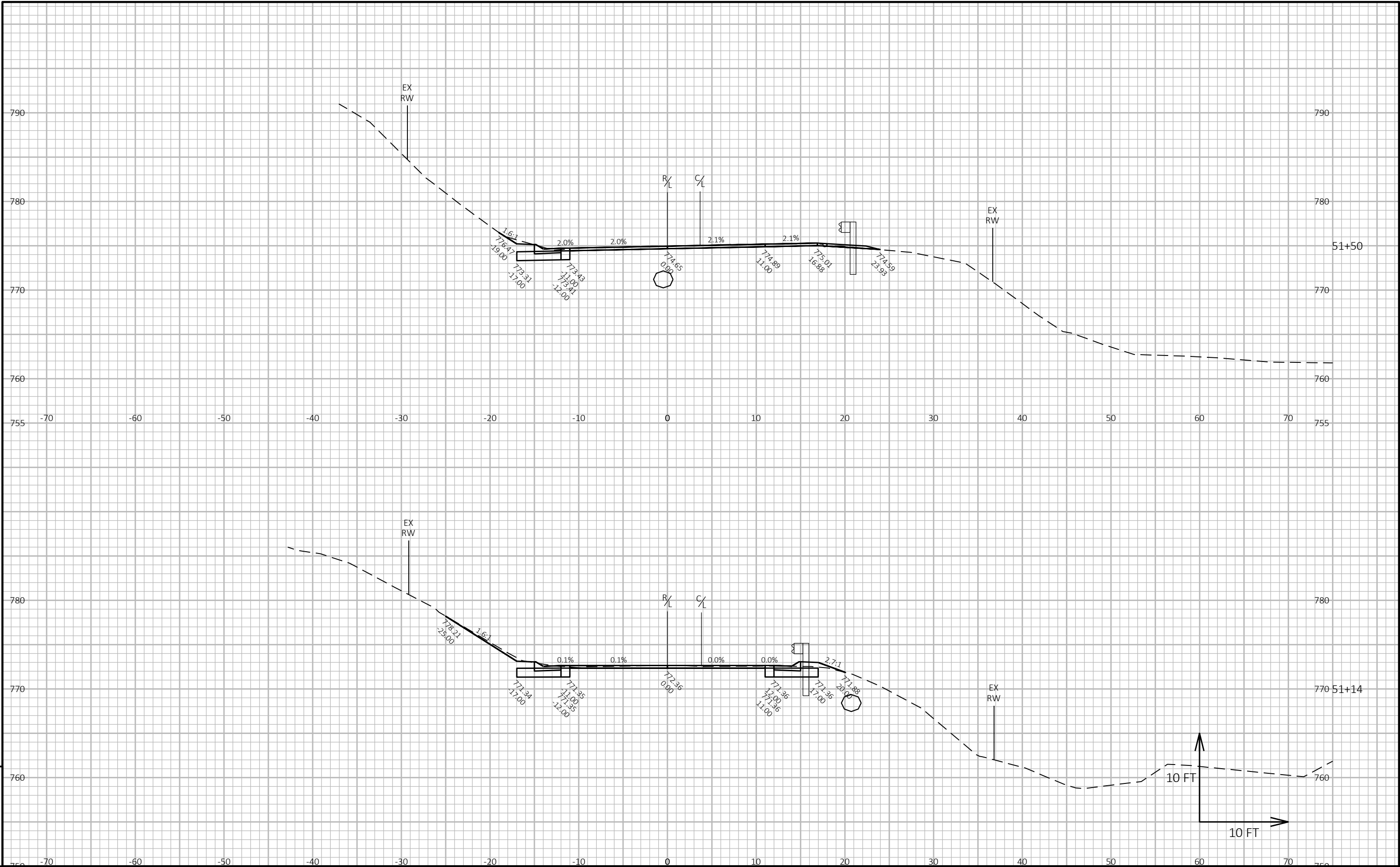


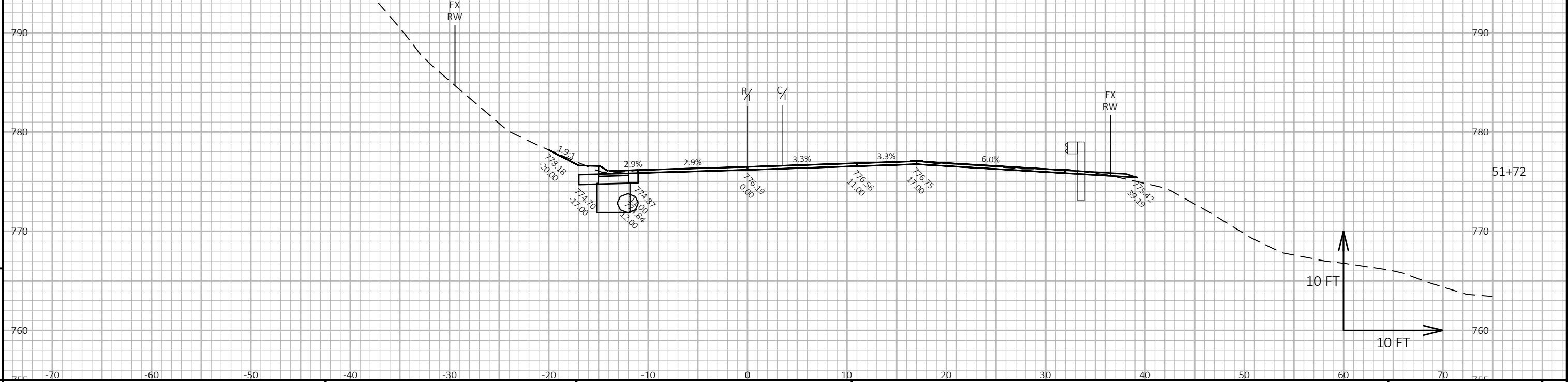
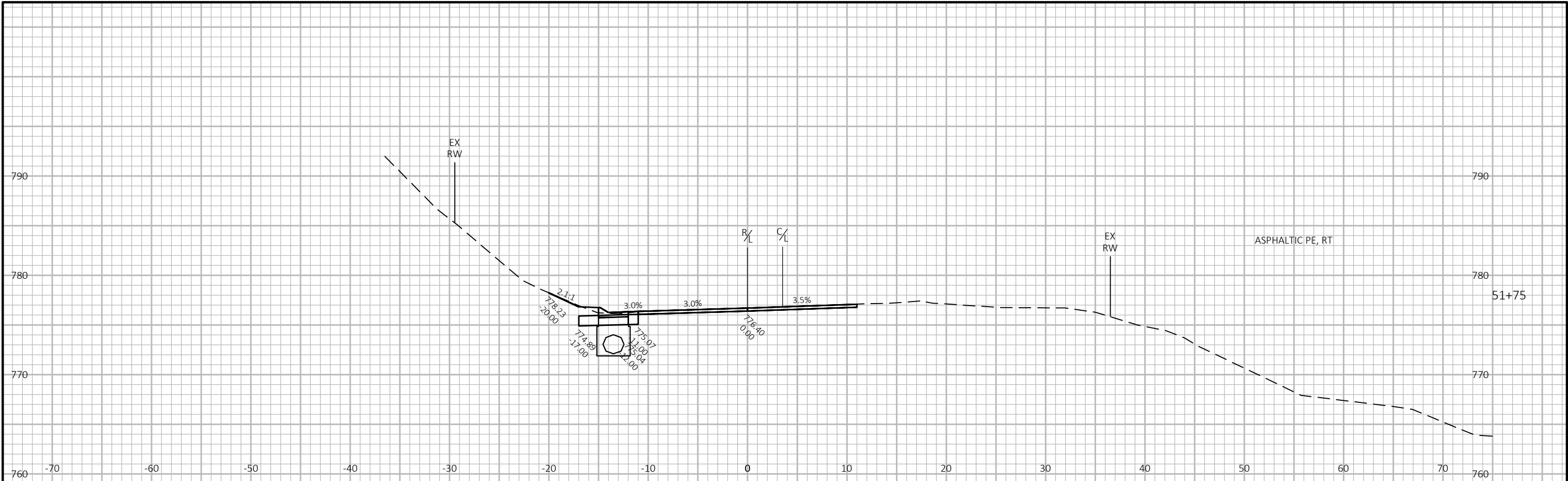
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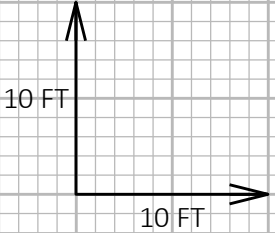
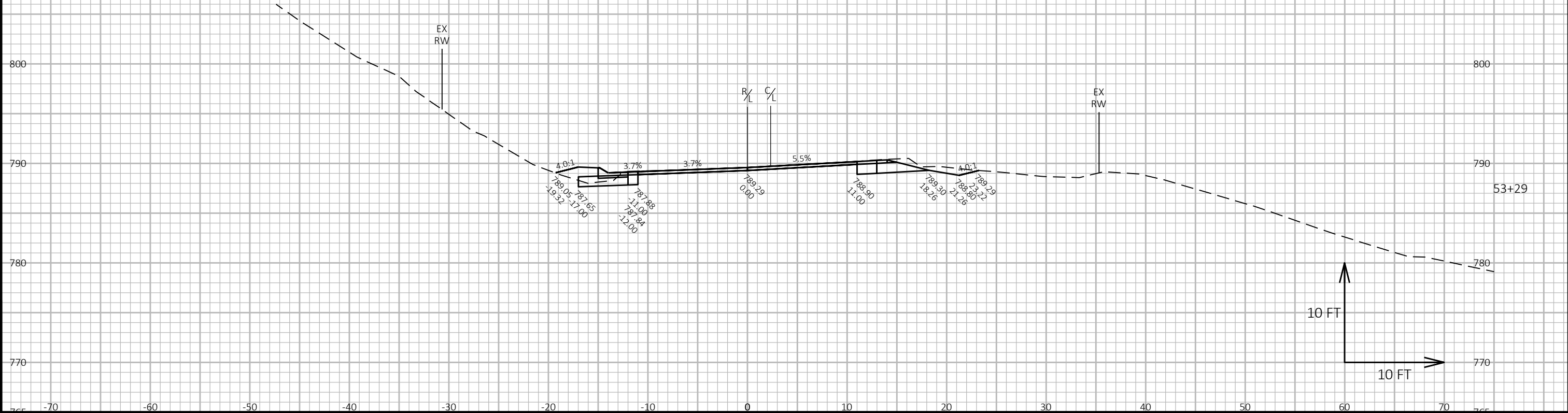
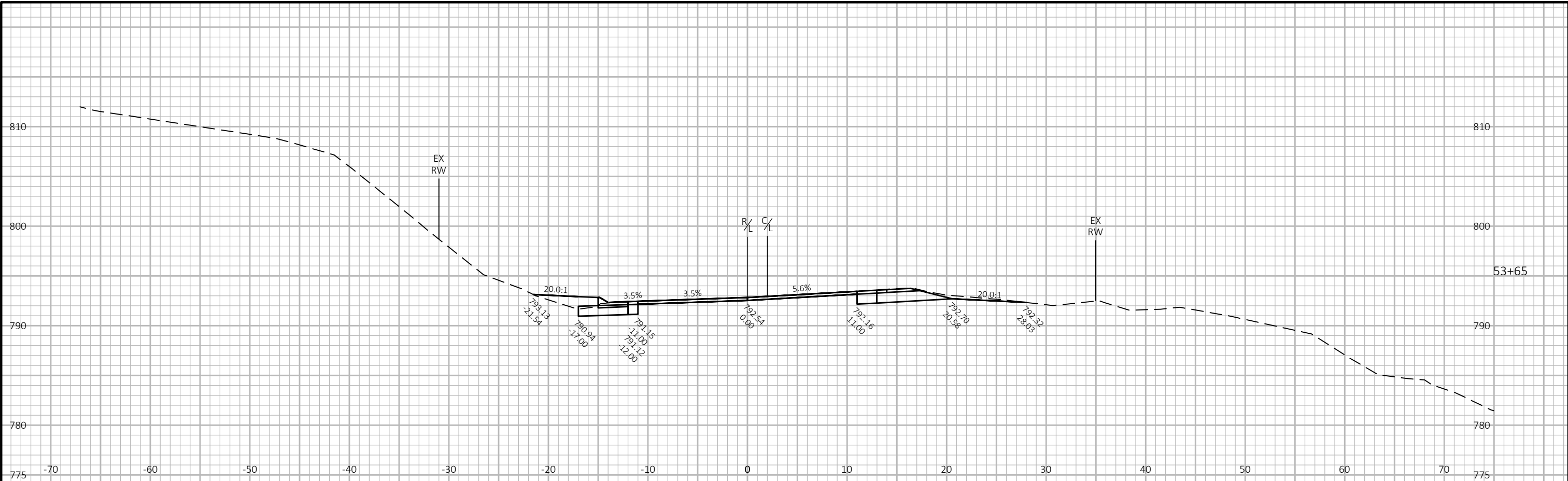


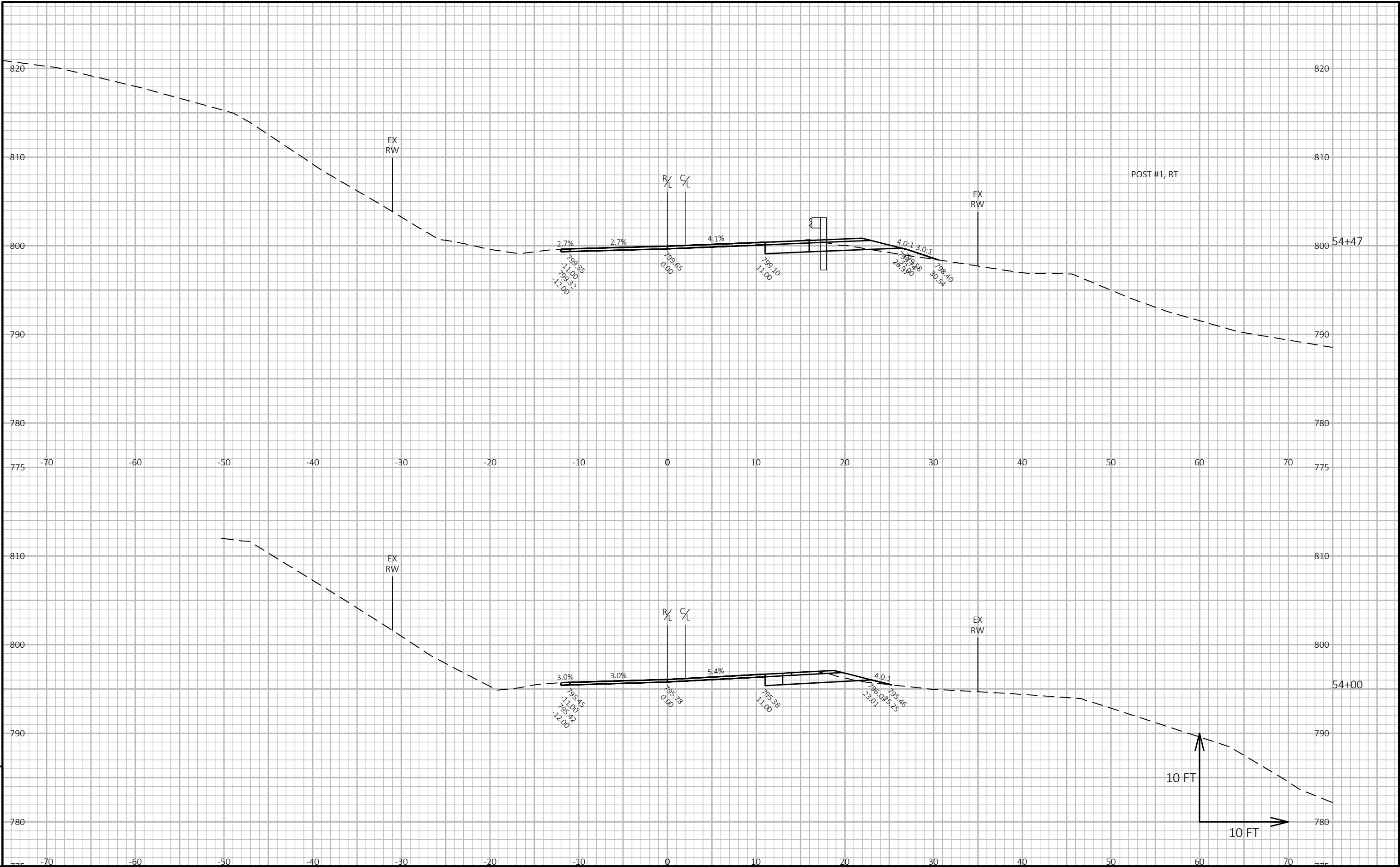


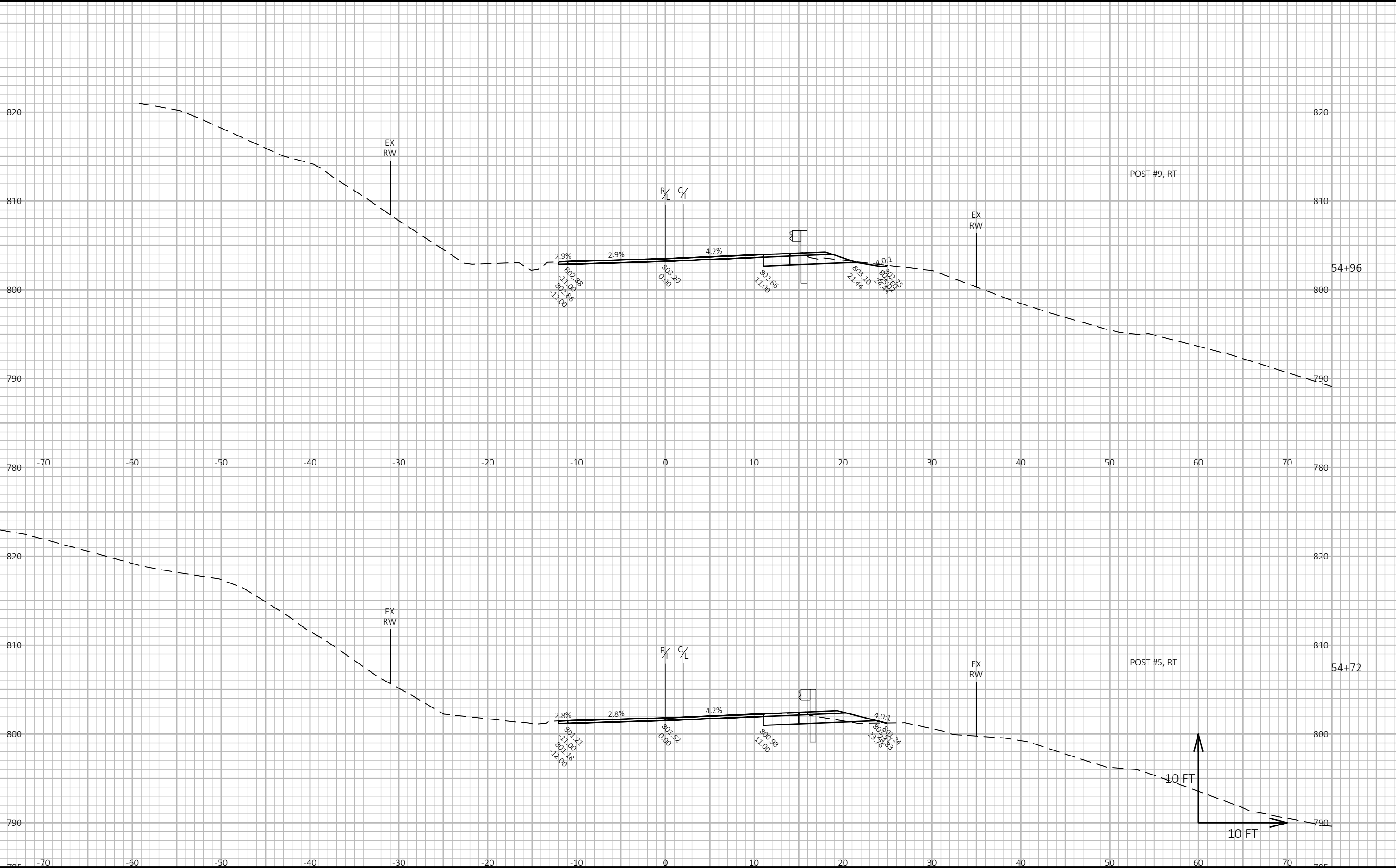


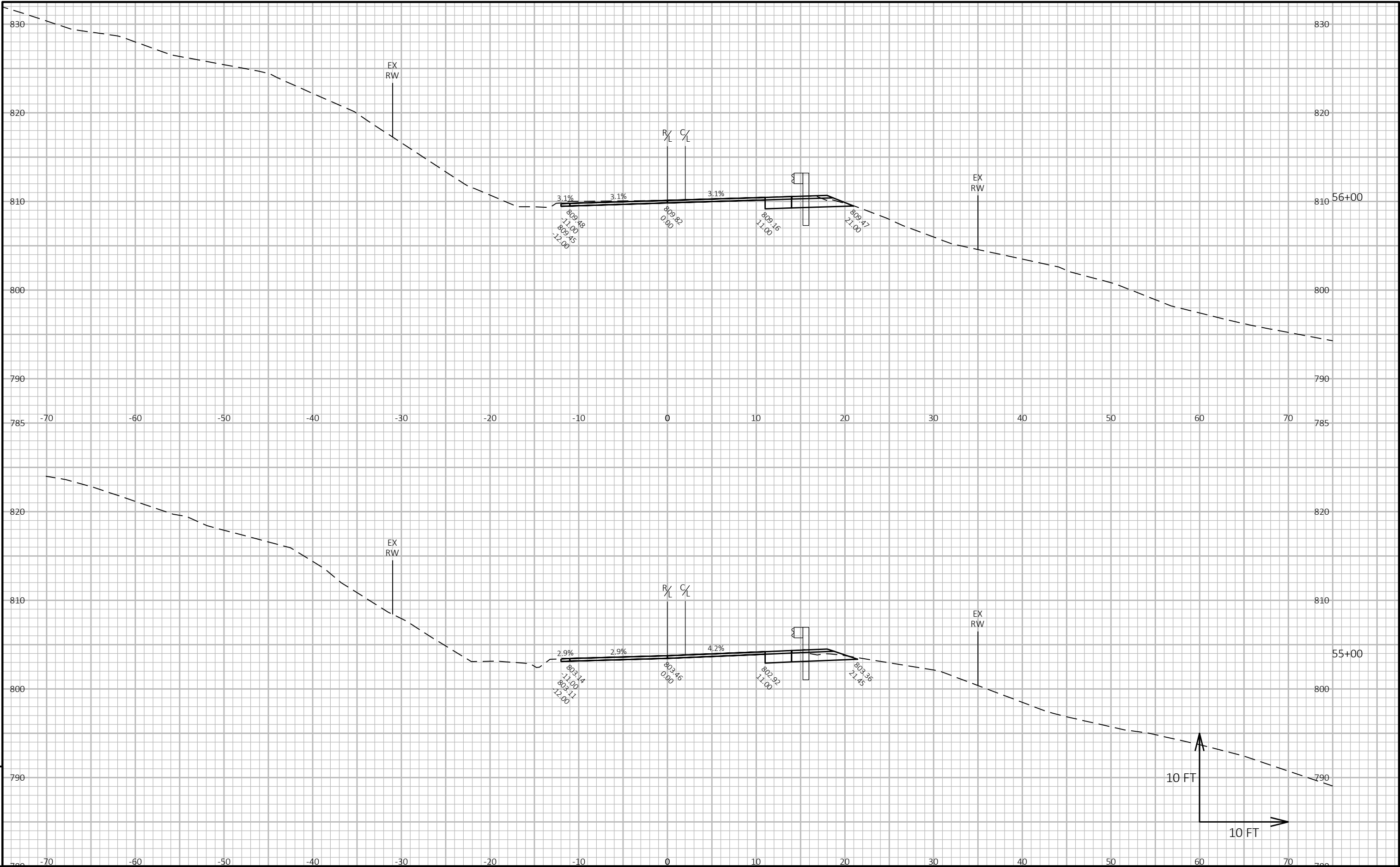


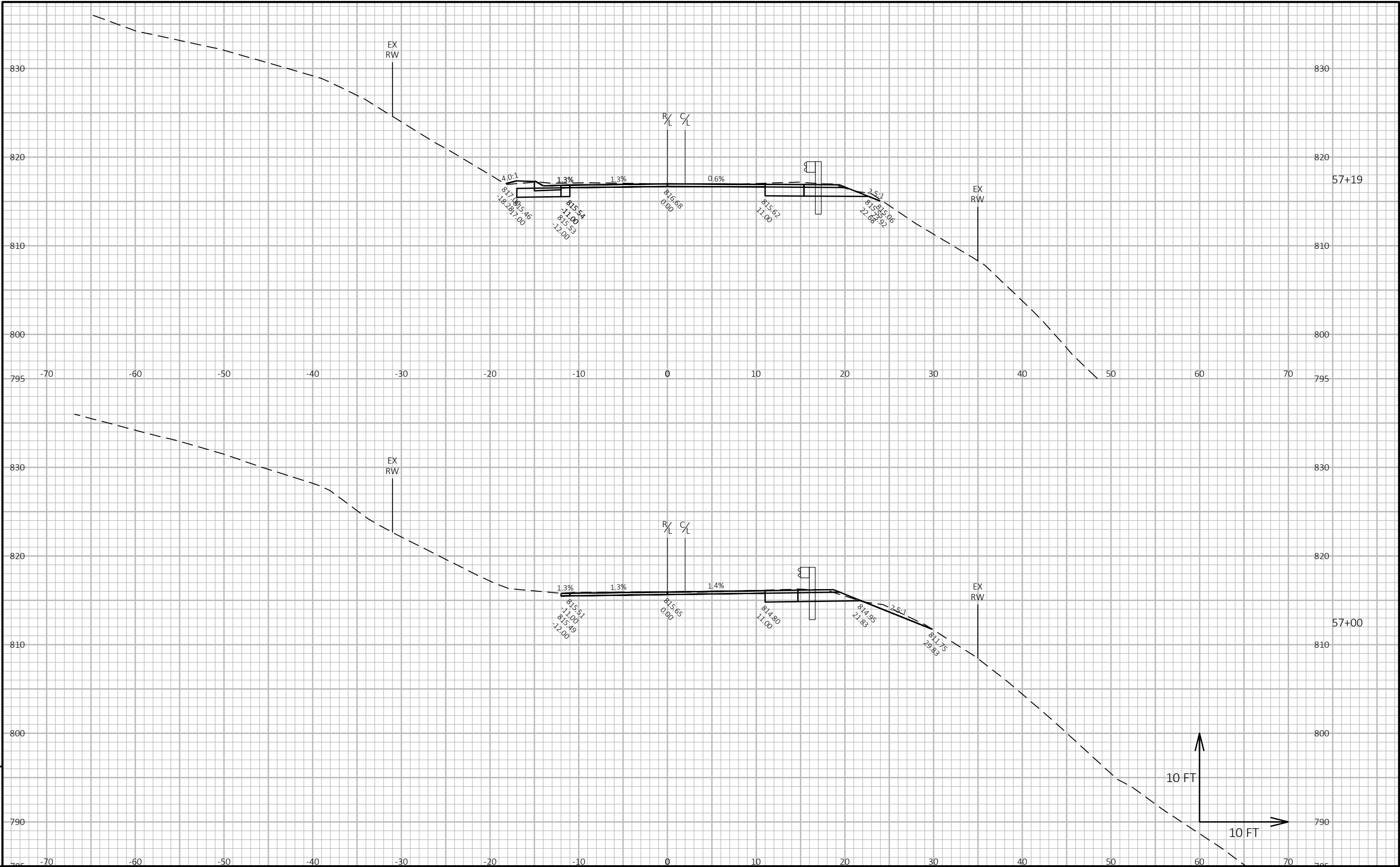


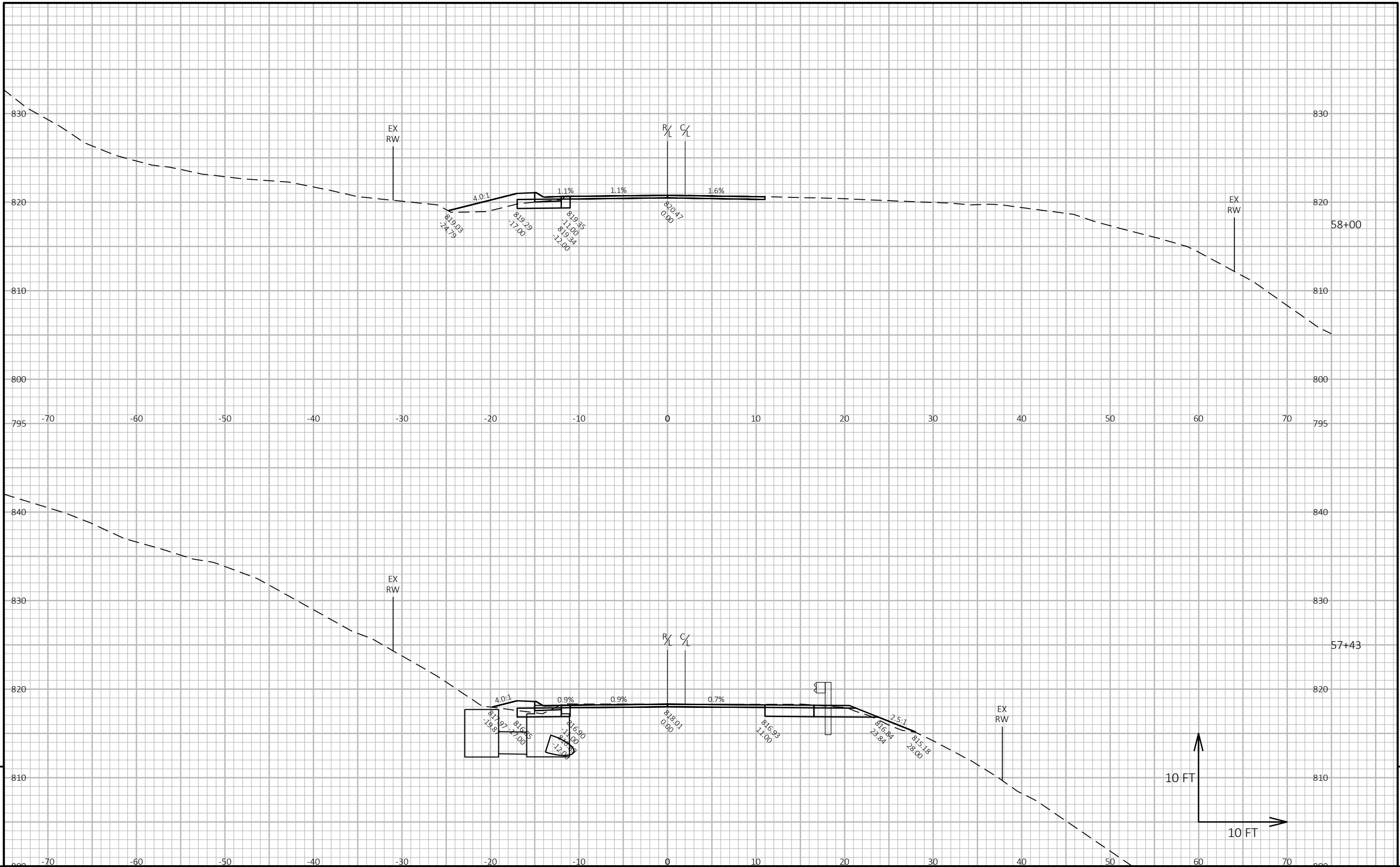












PROJECT NO: 5820-01-68

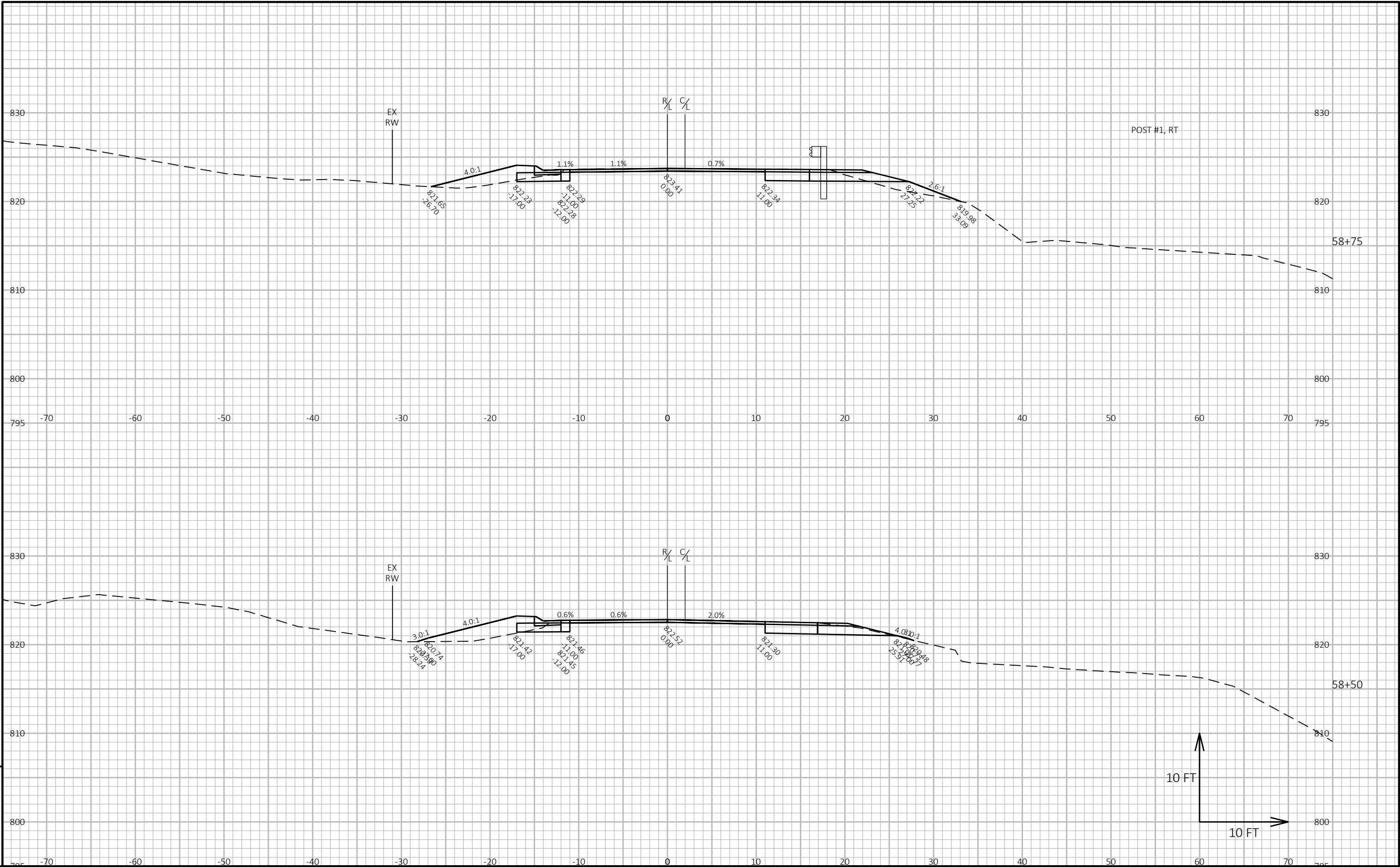
HWY: STH 162

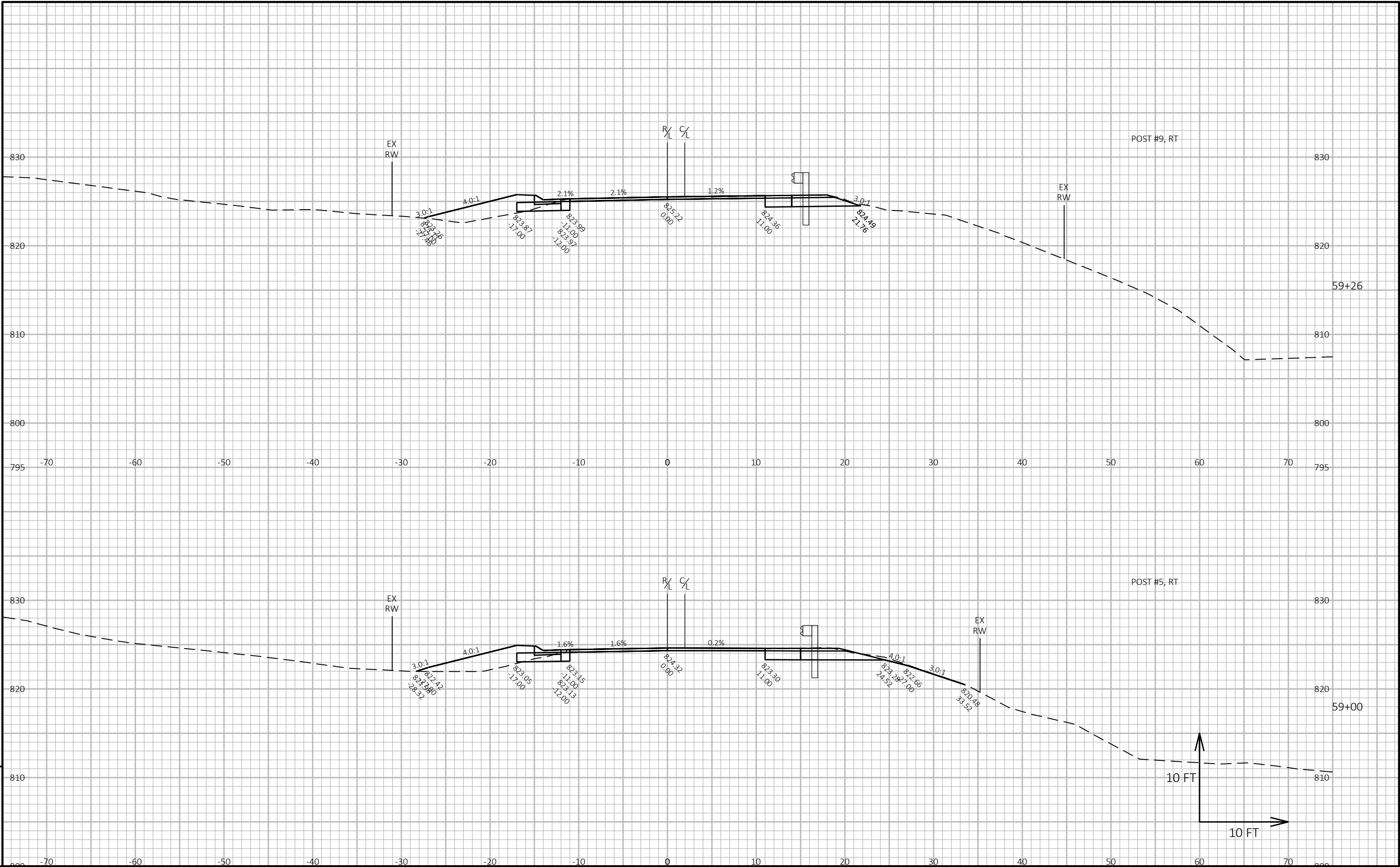
COUNTY: LA CROSSE/VERNON

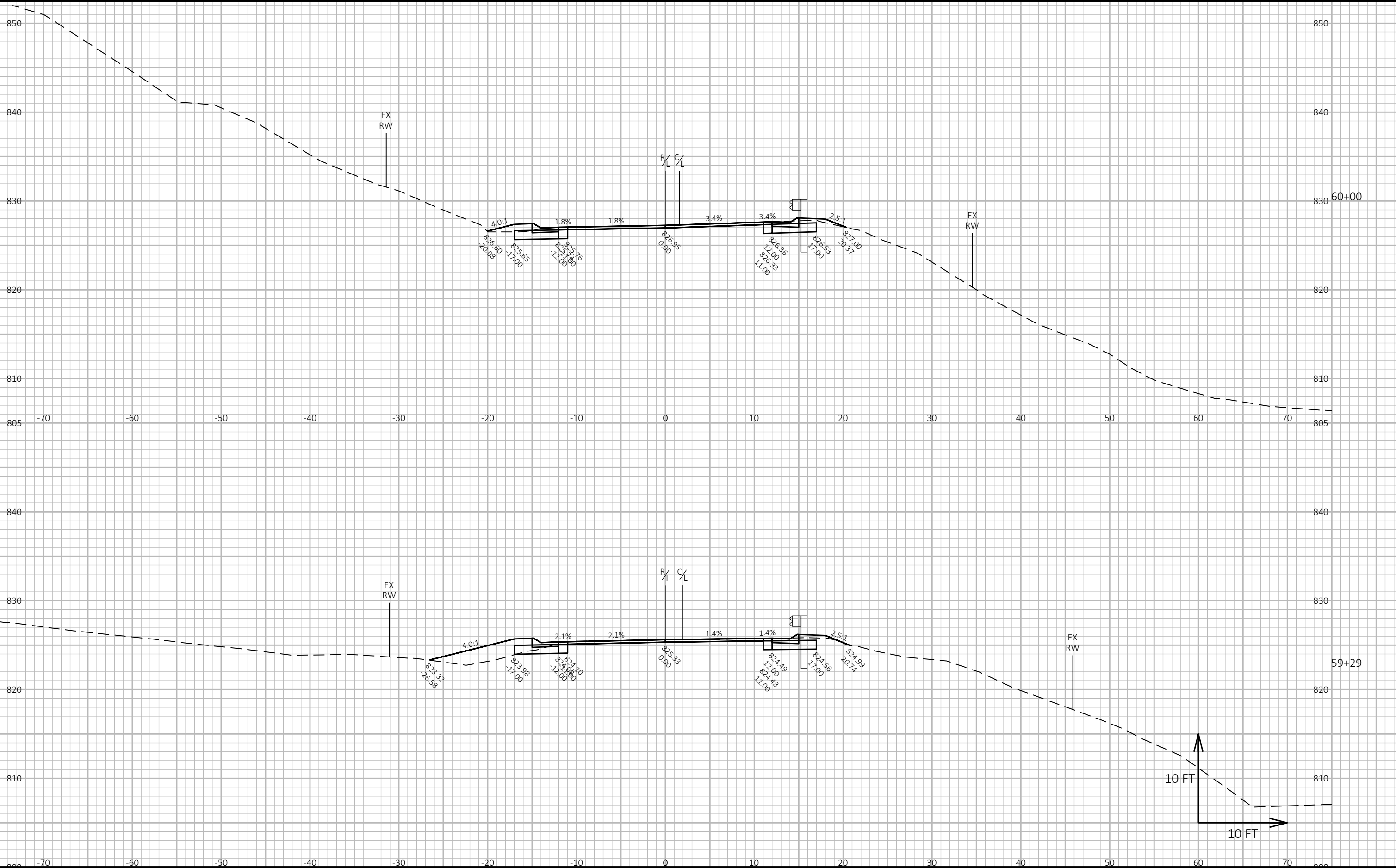
CROSS SECTIONS: STH 162 (VERNON)

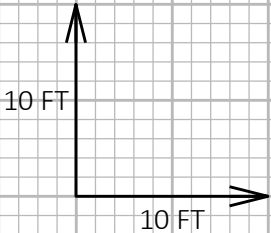
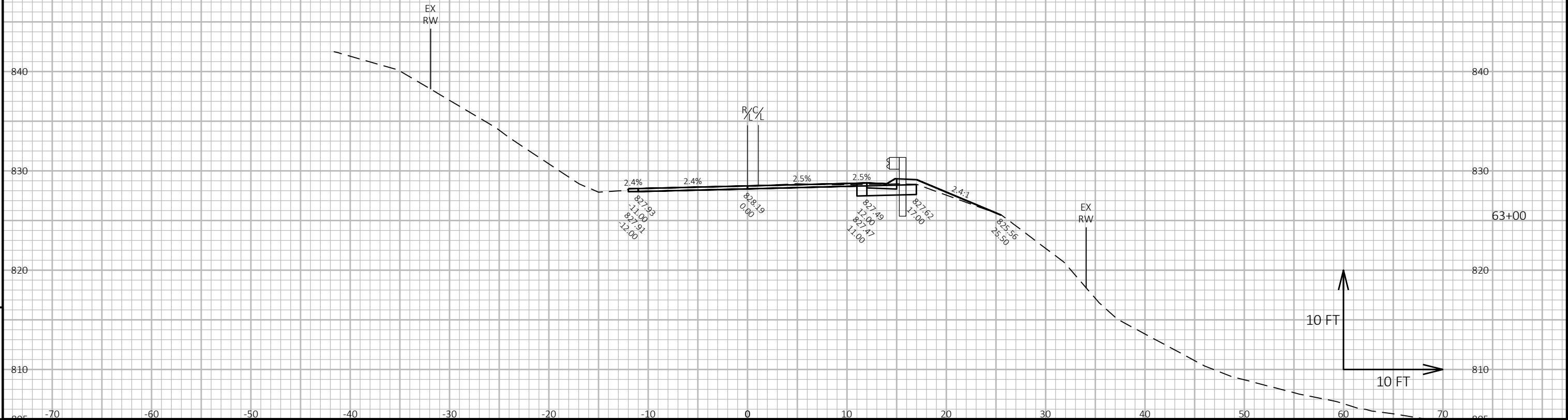
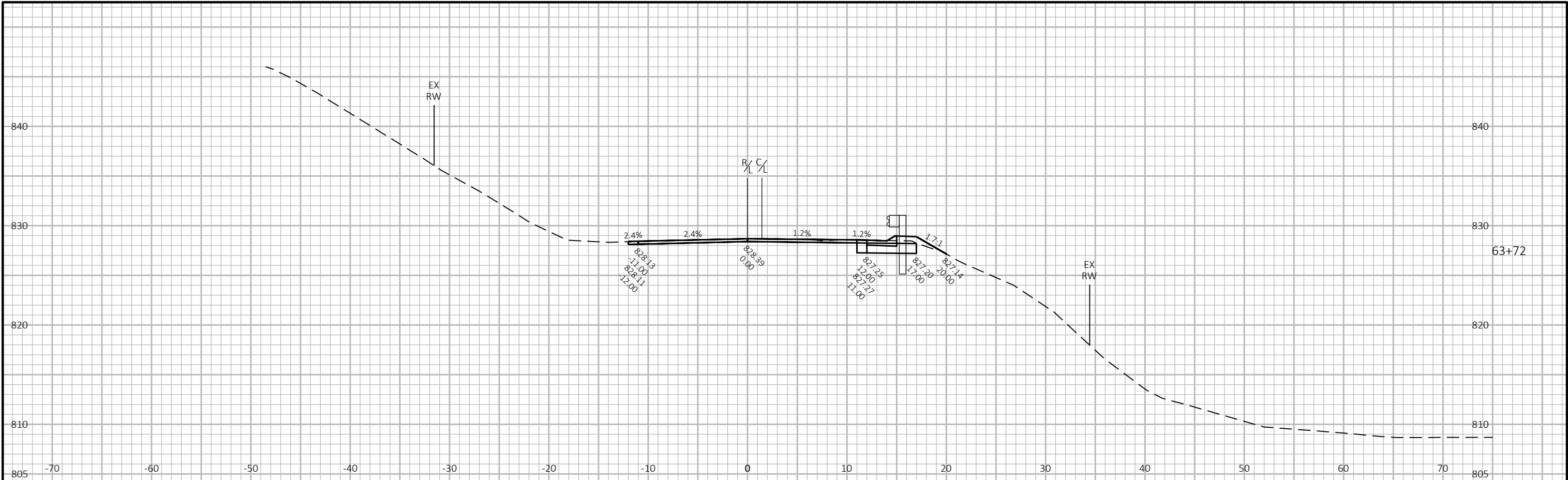
SHEET 271

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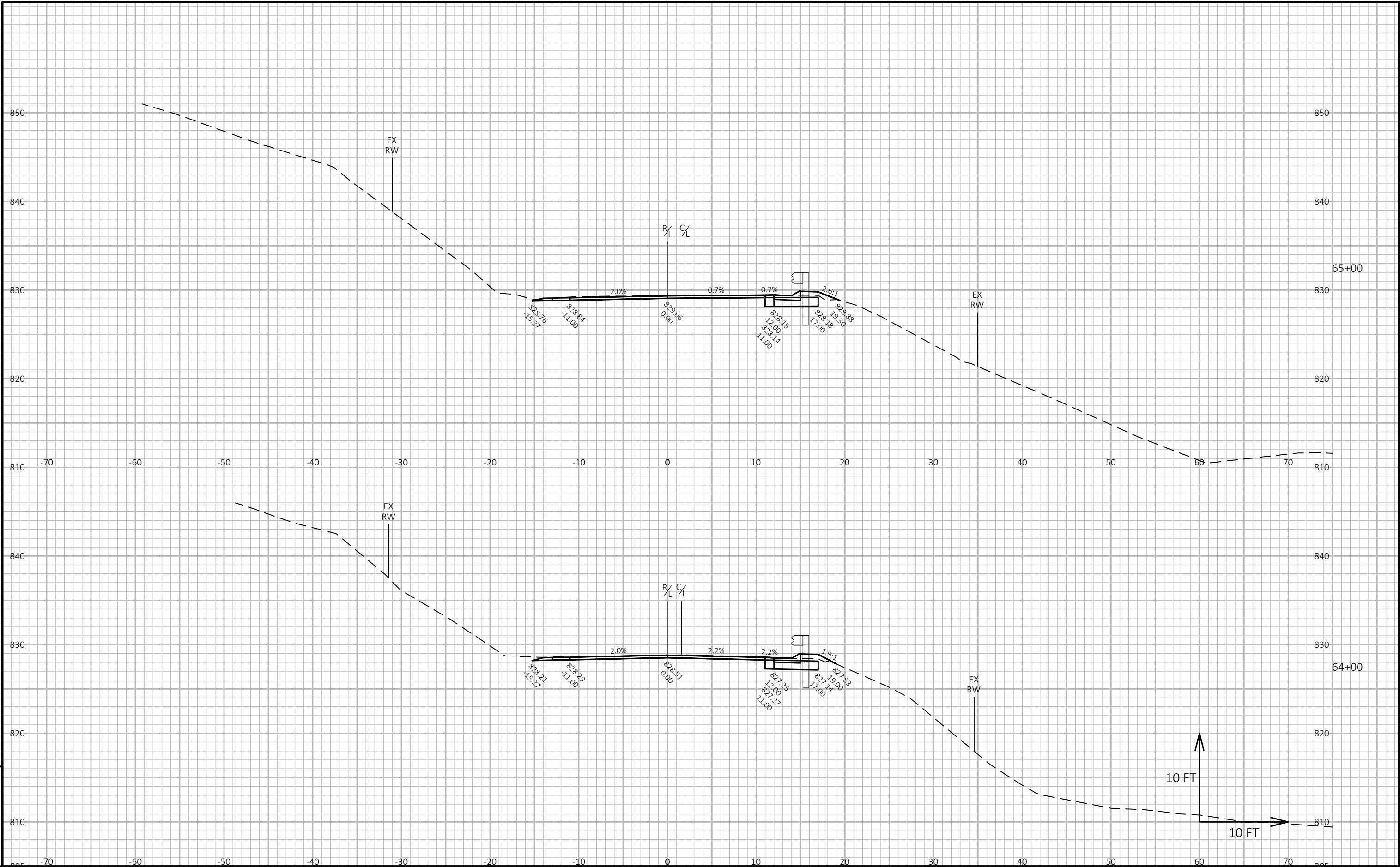


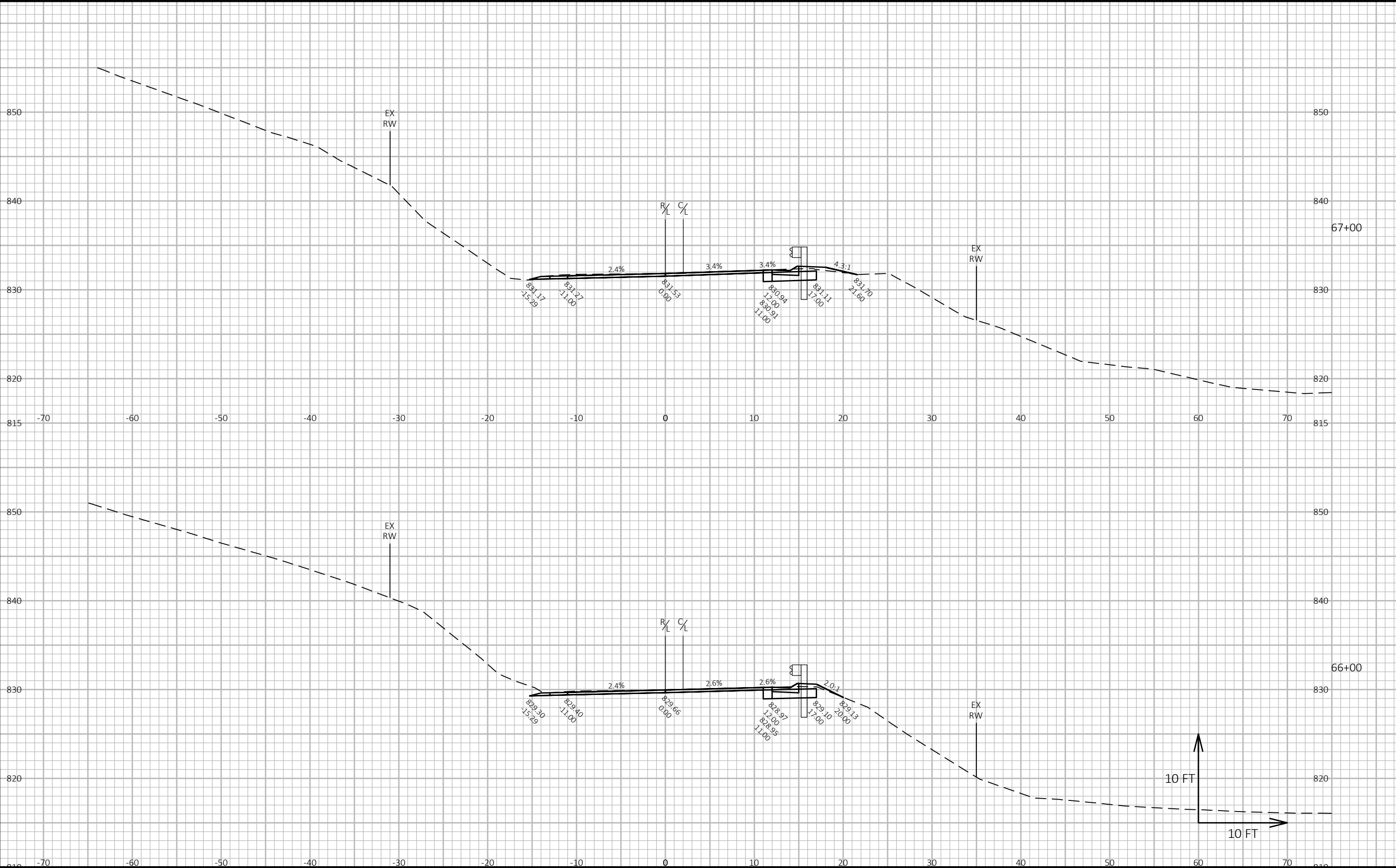


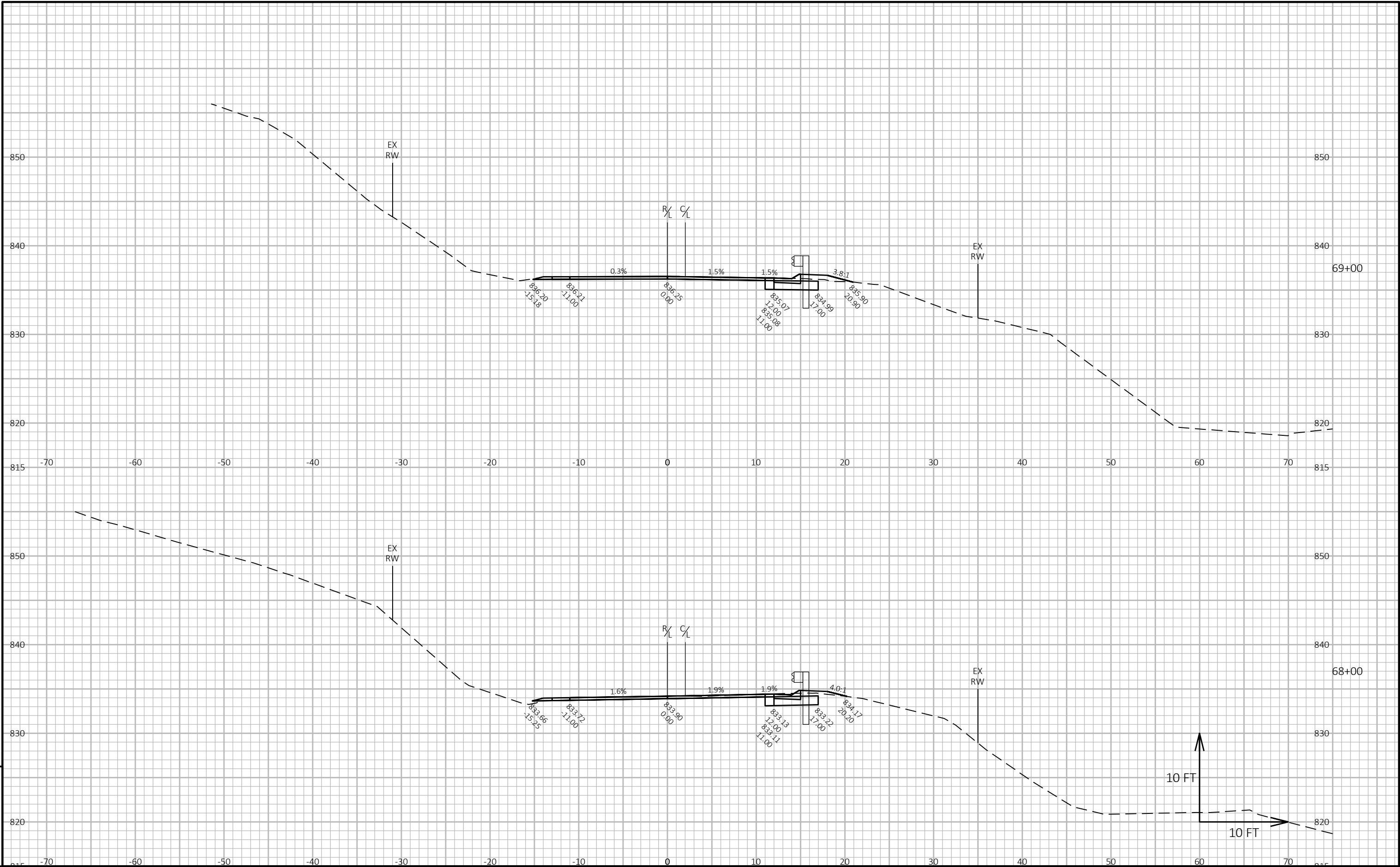


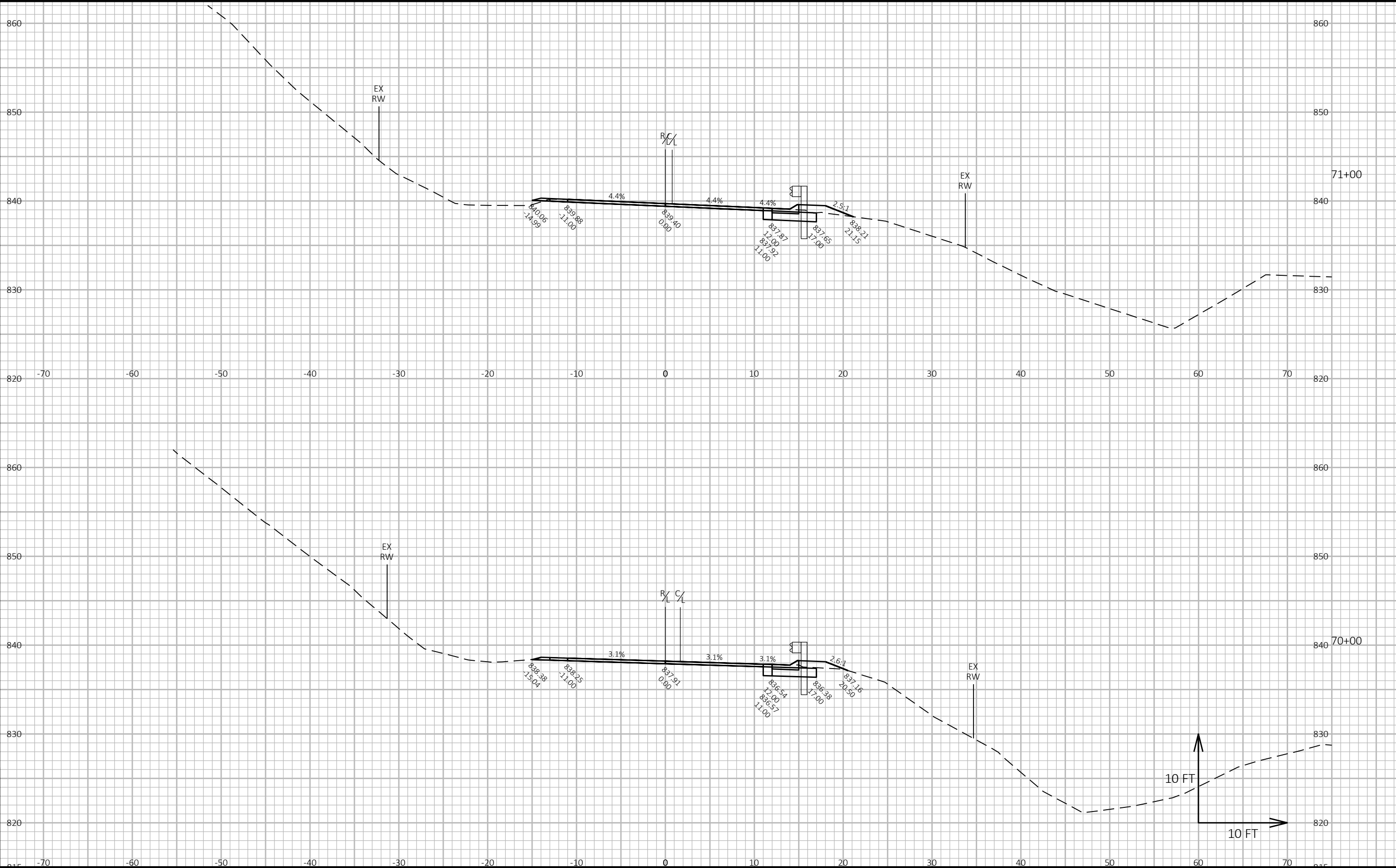
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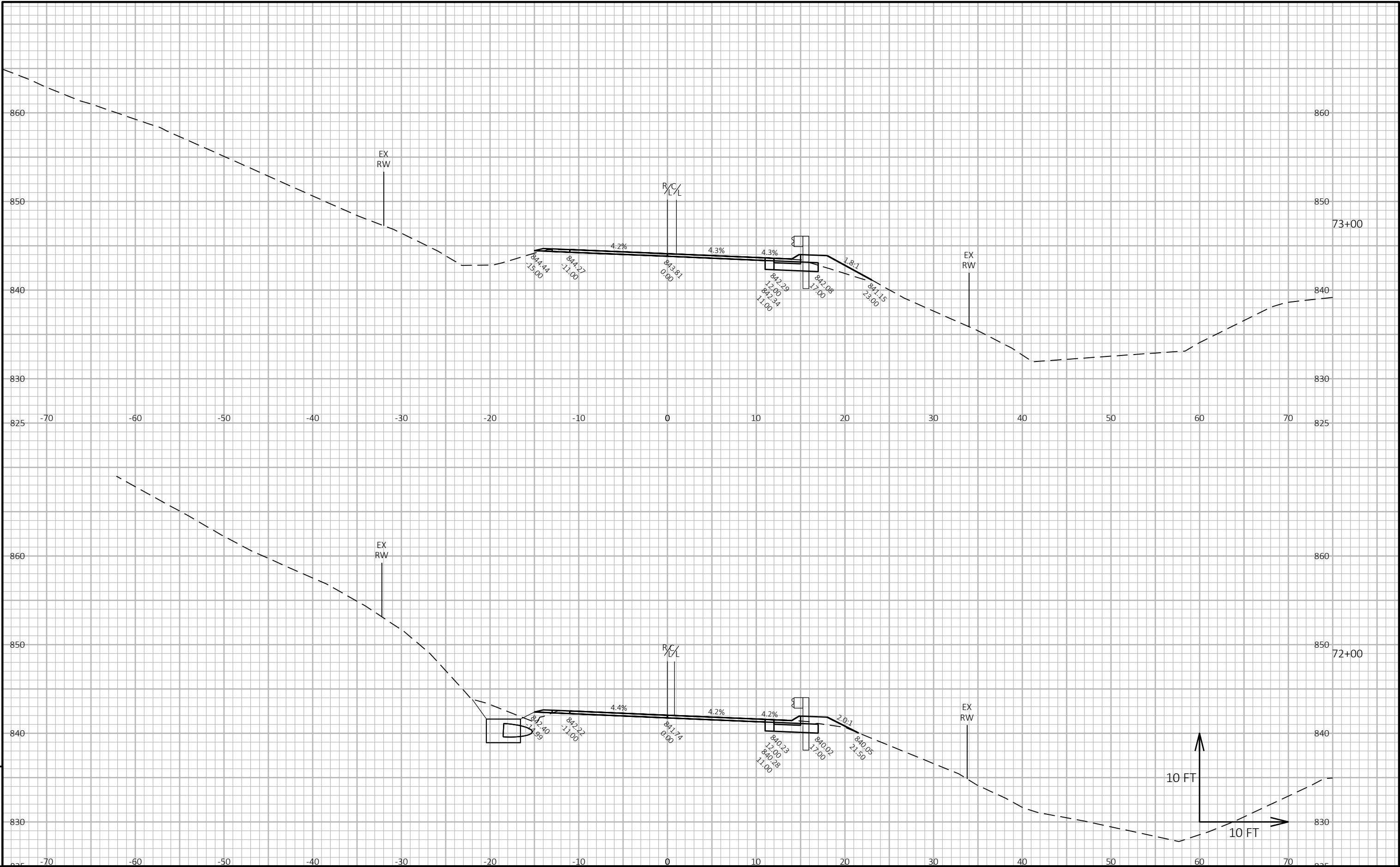
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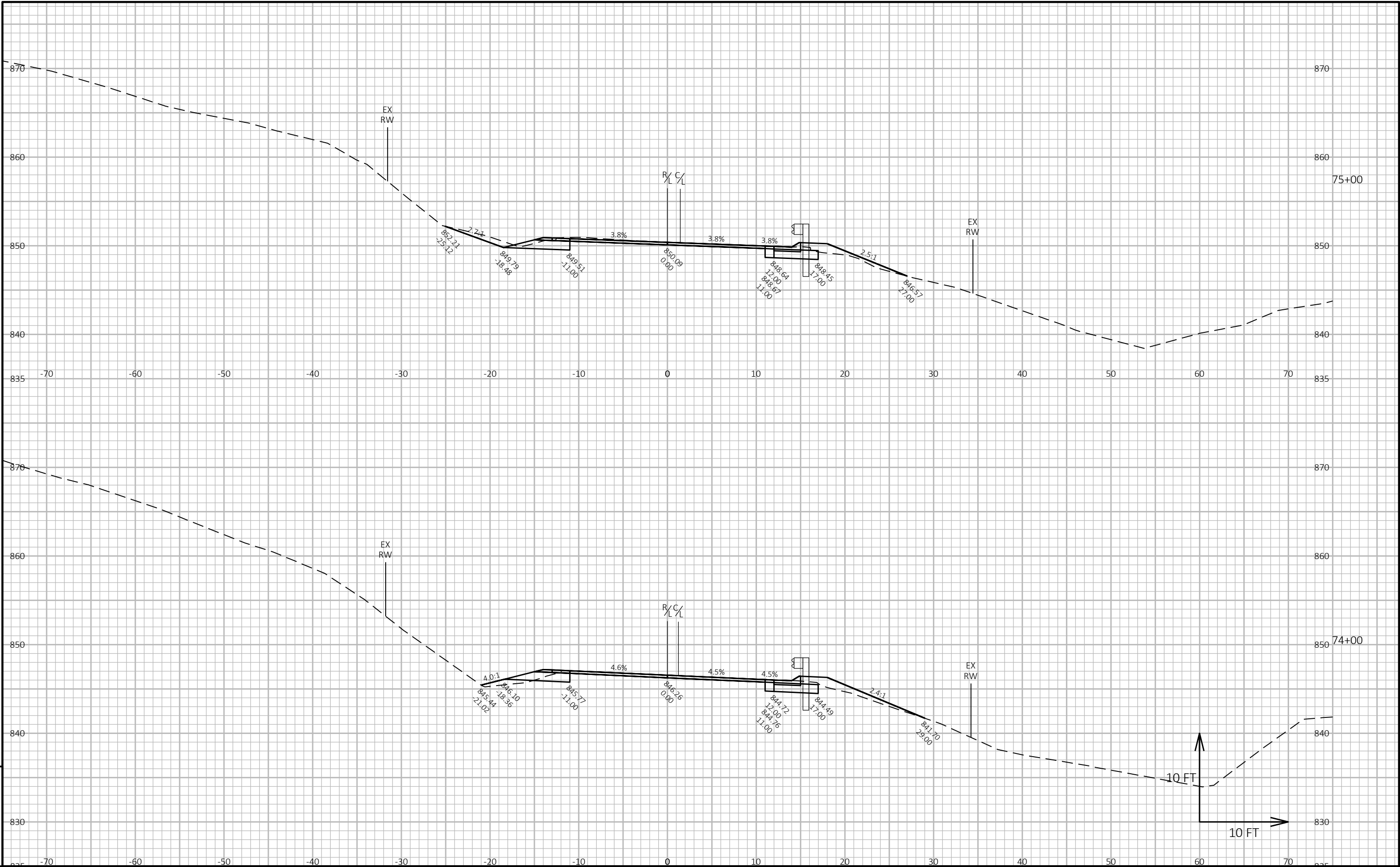


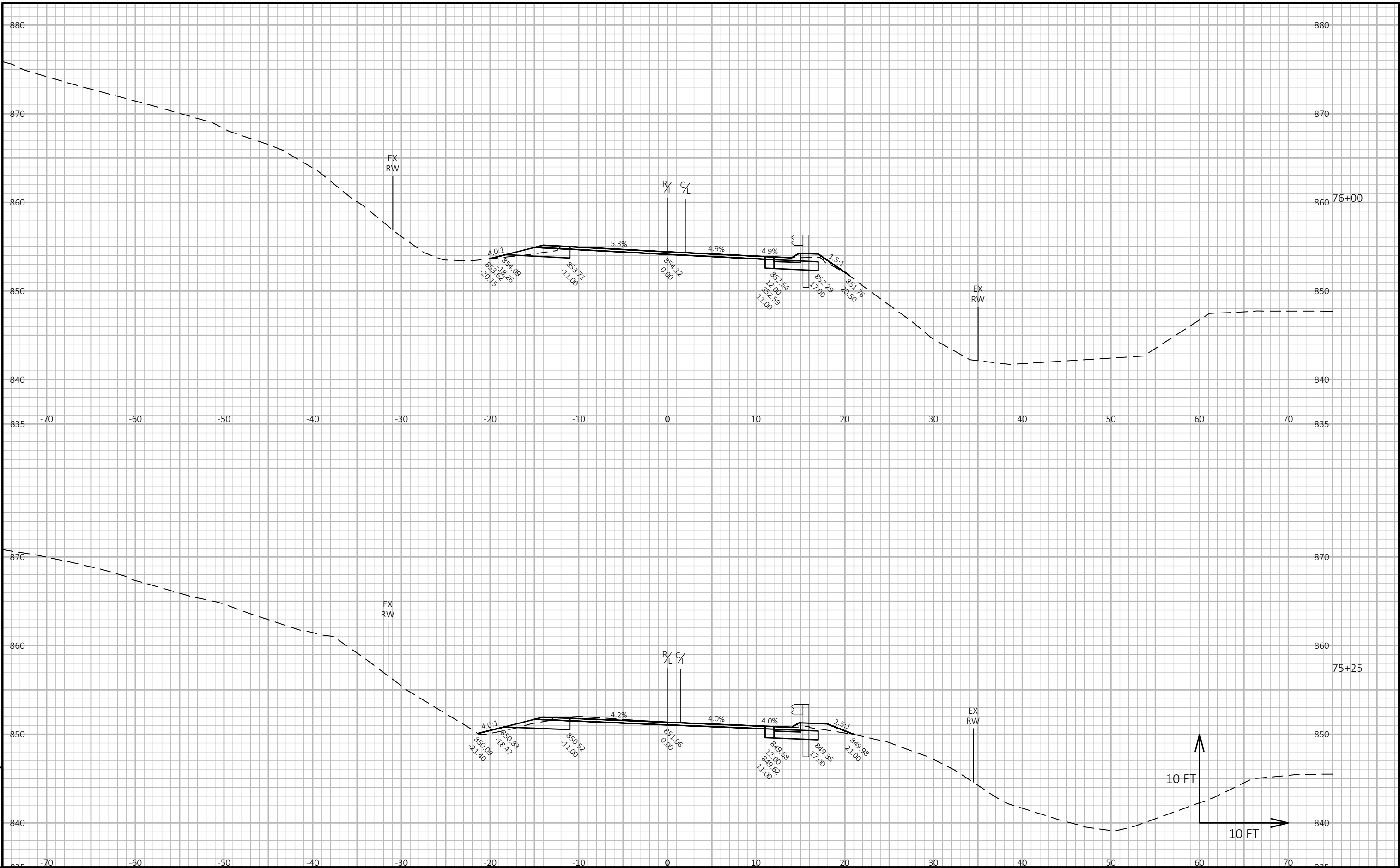


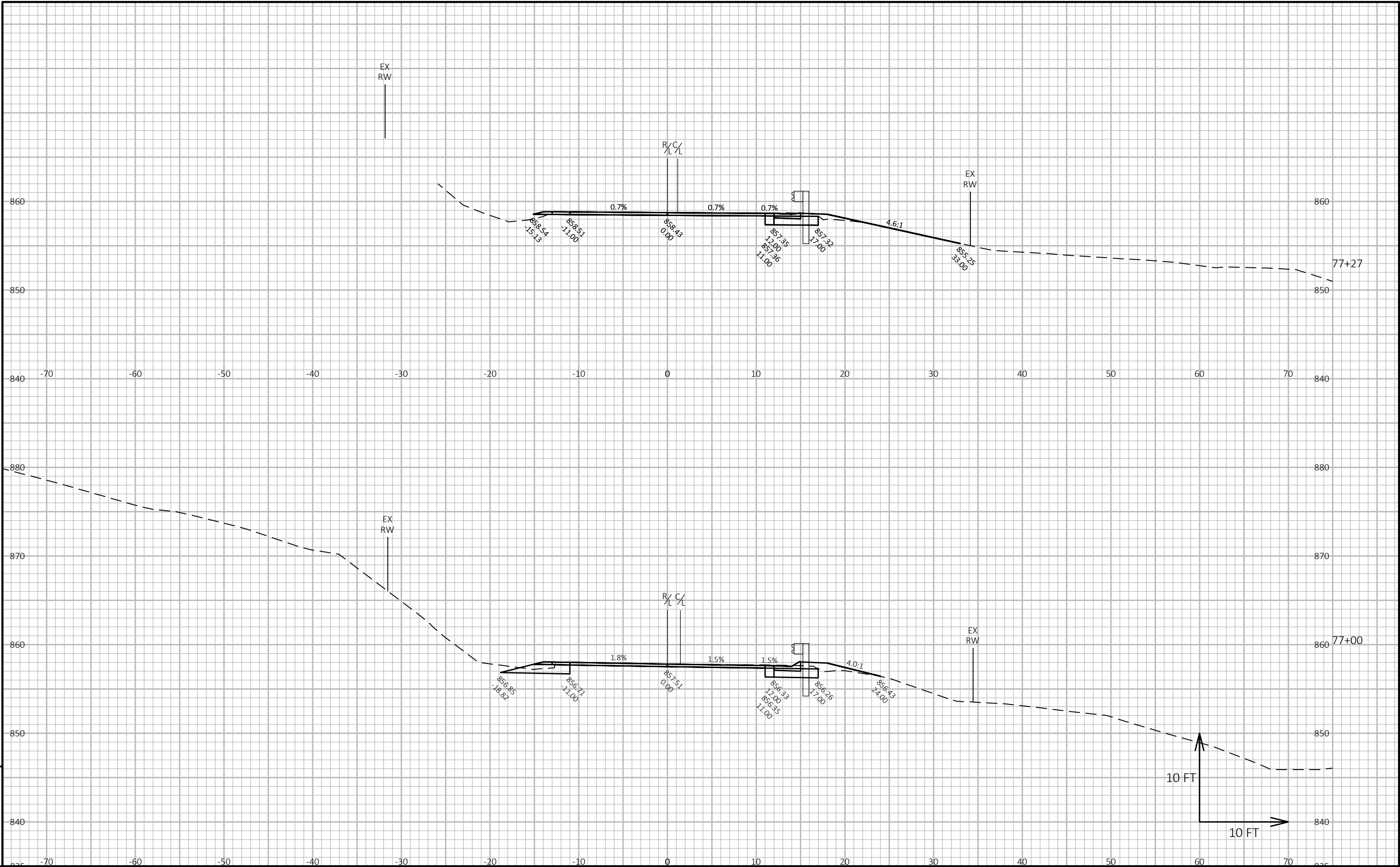


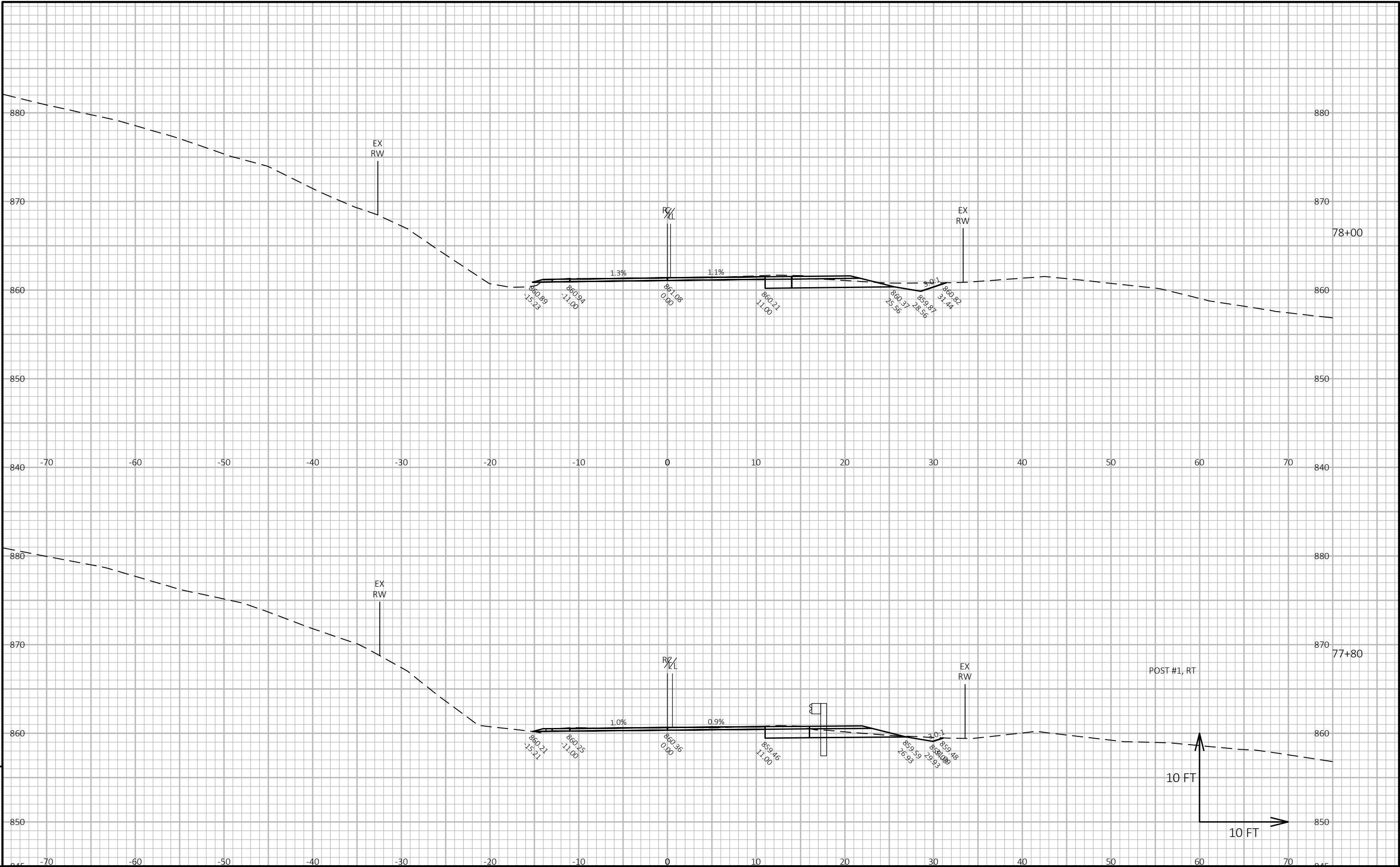


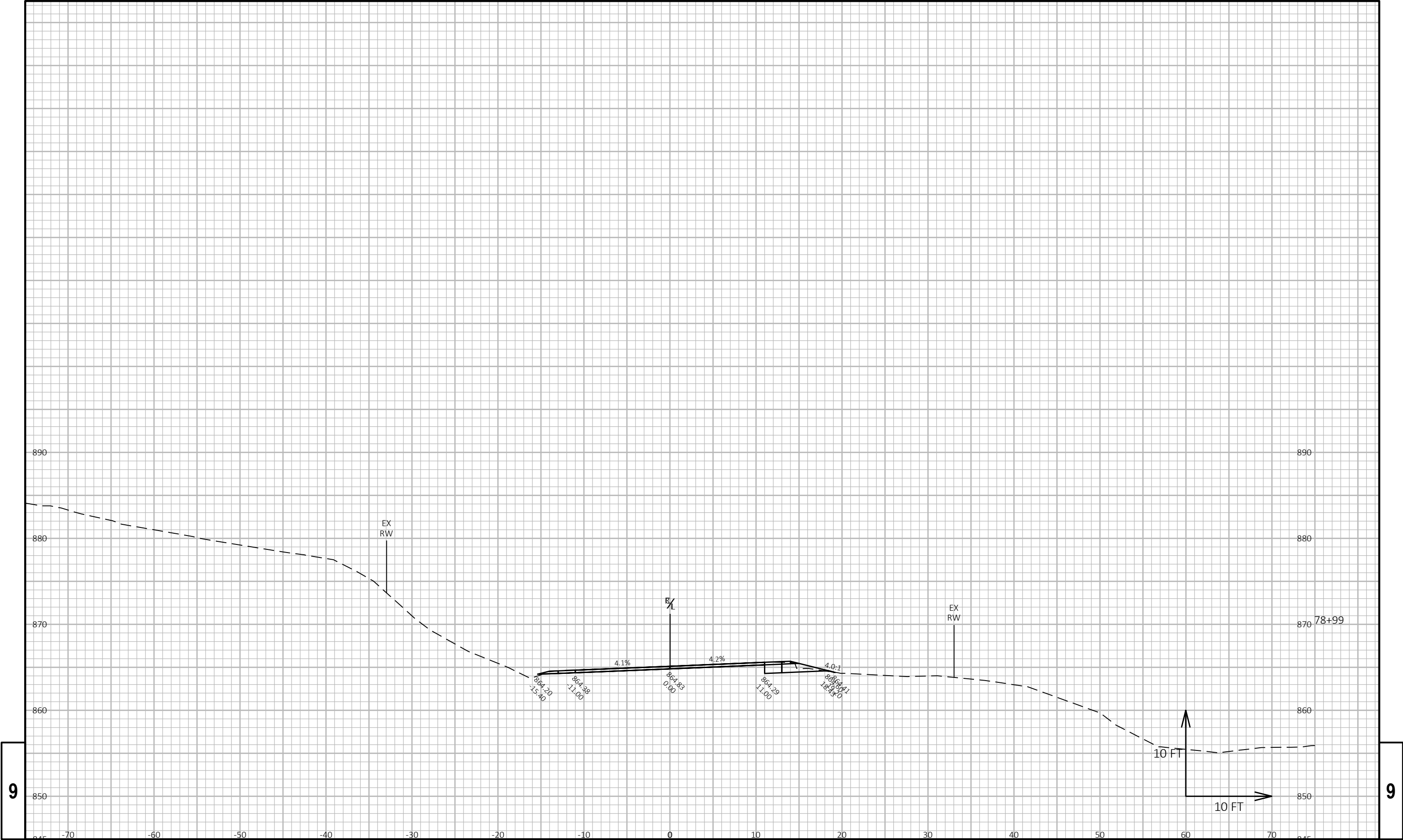






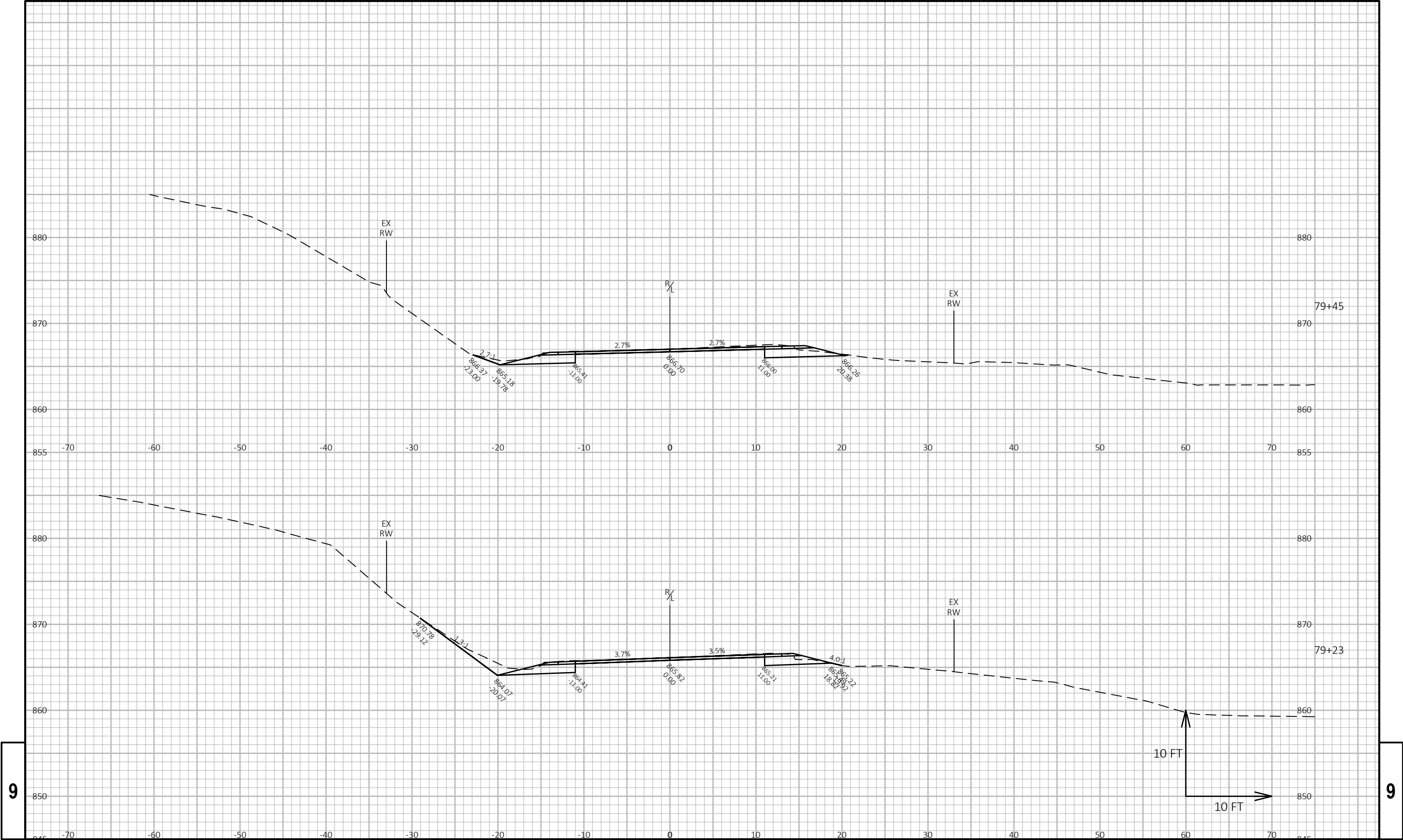






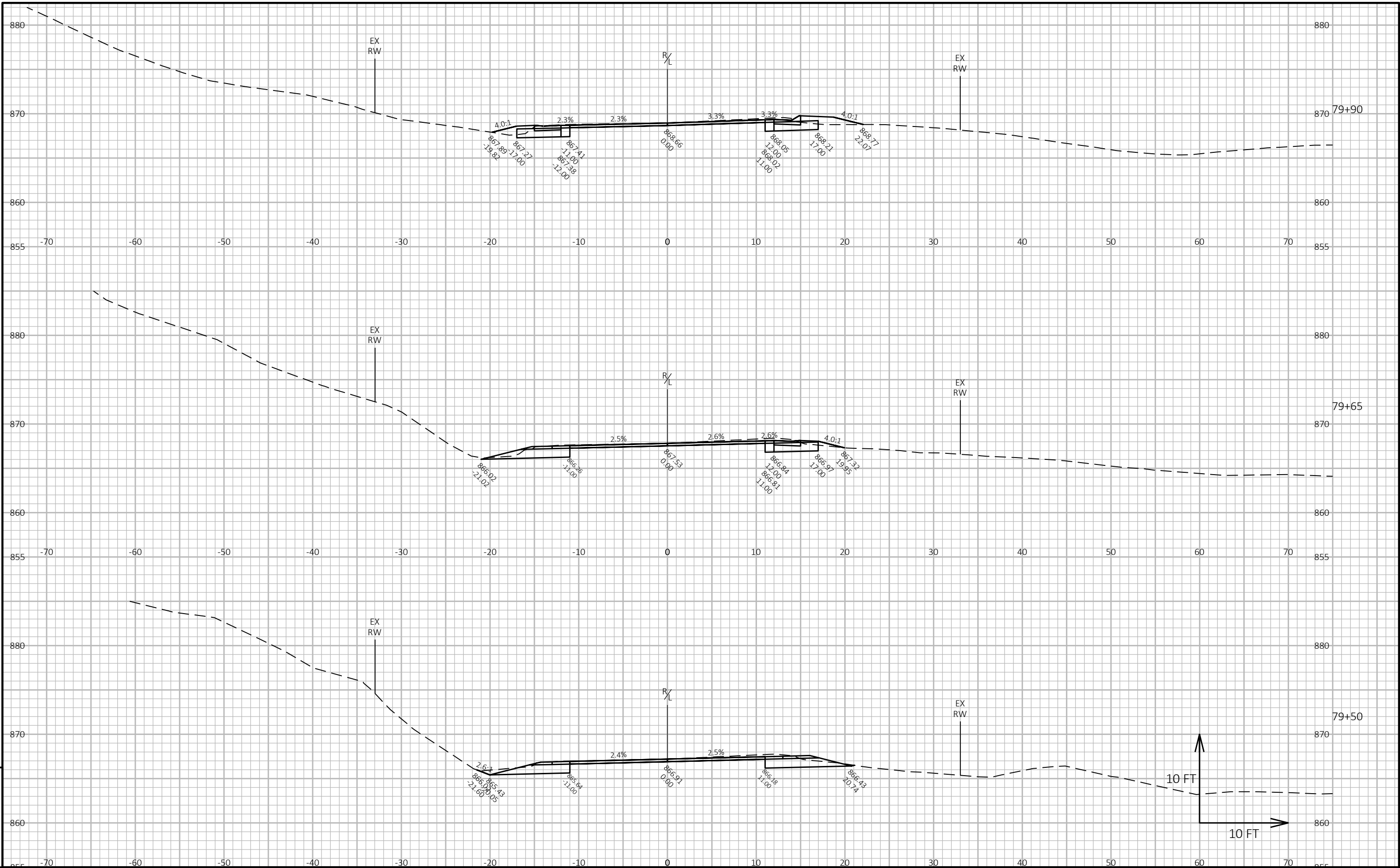
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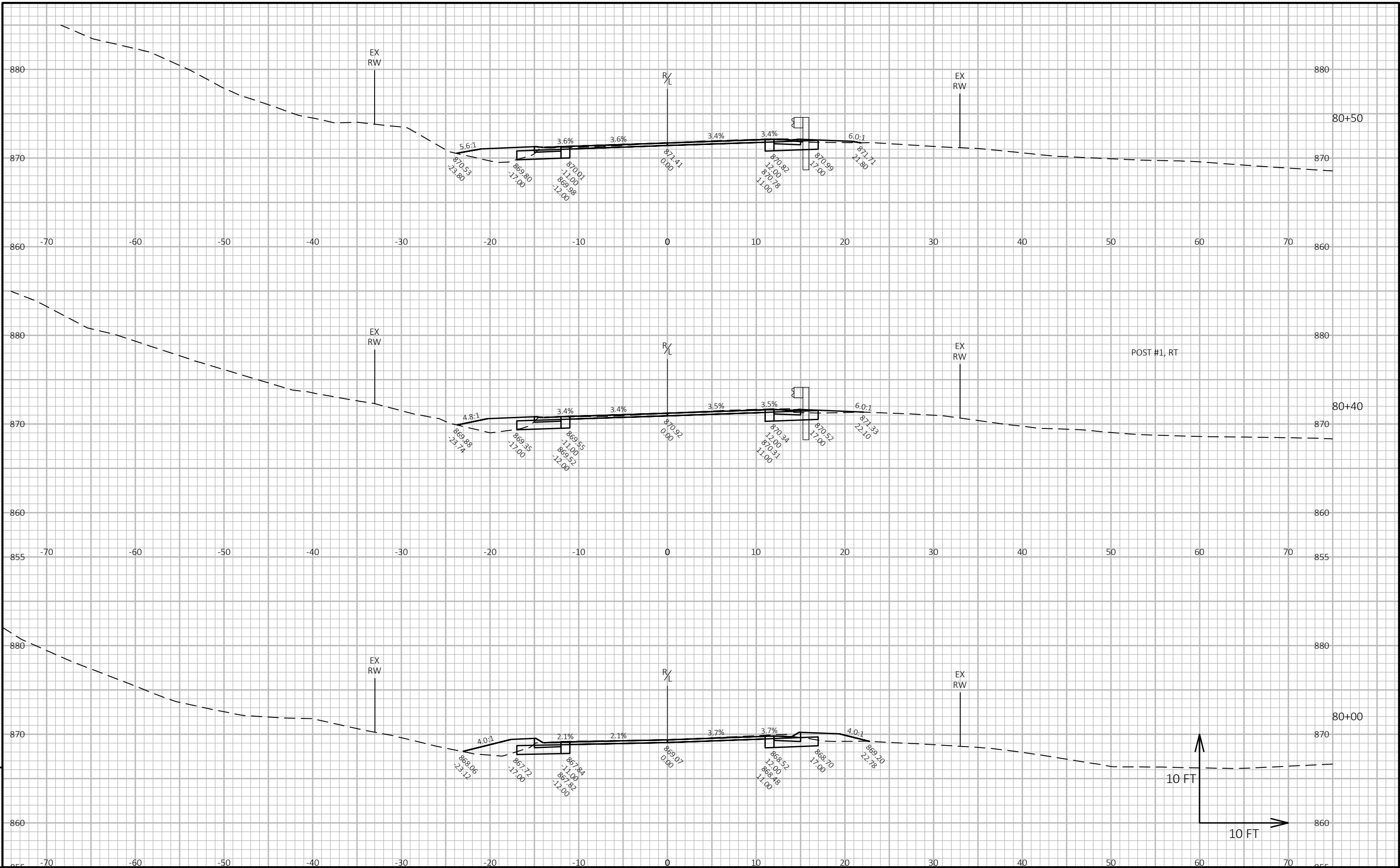
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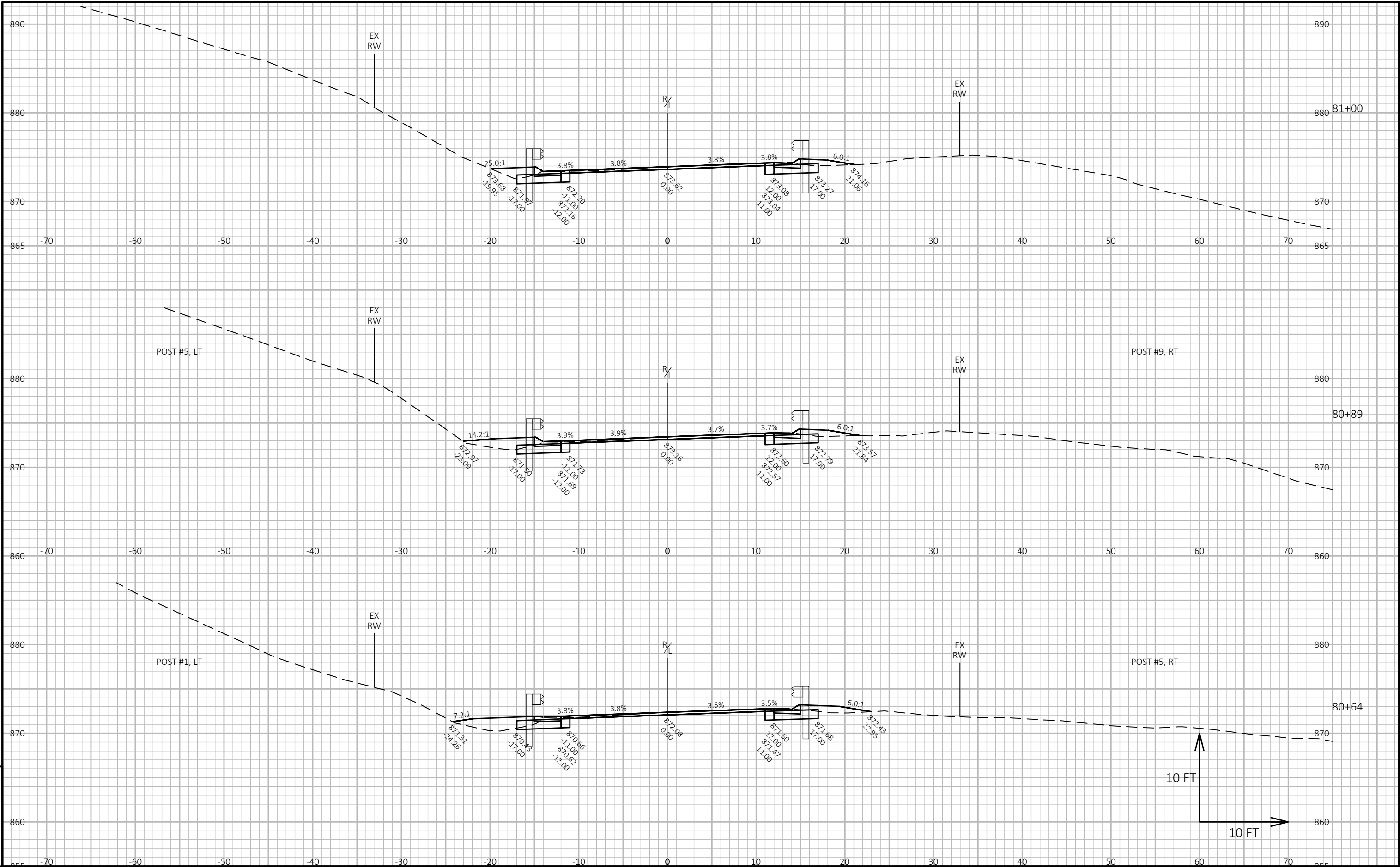


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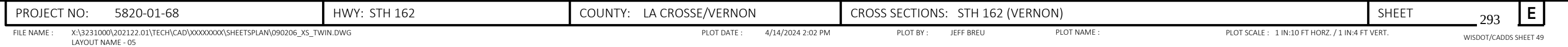
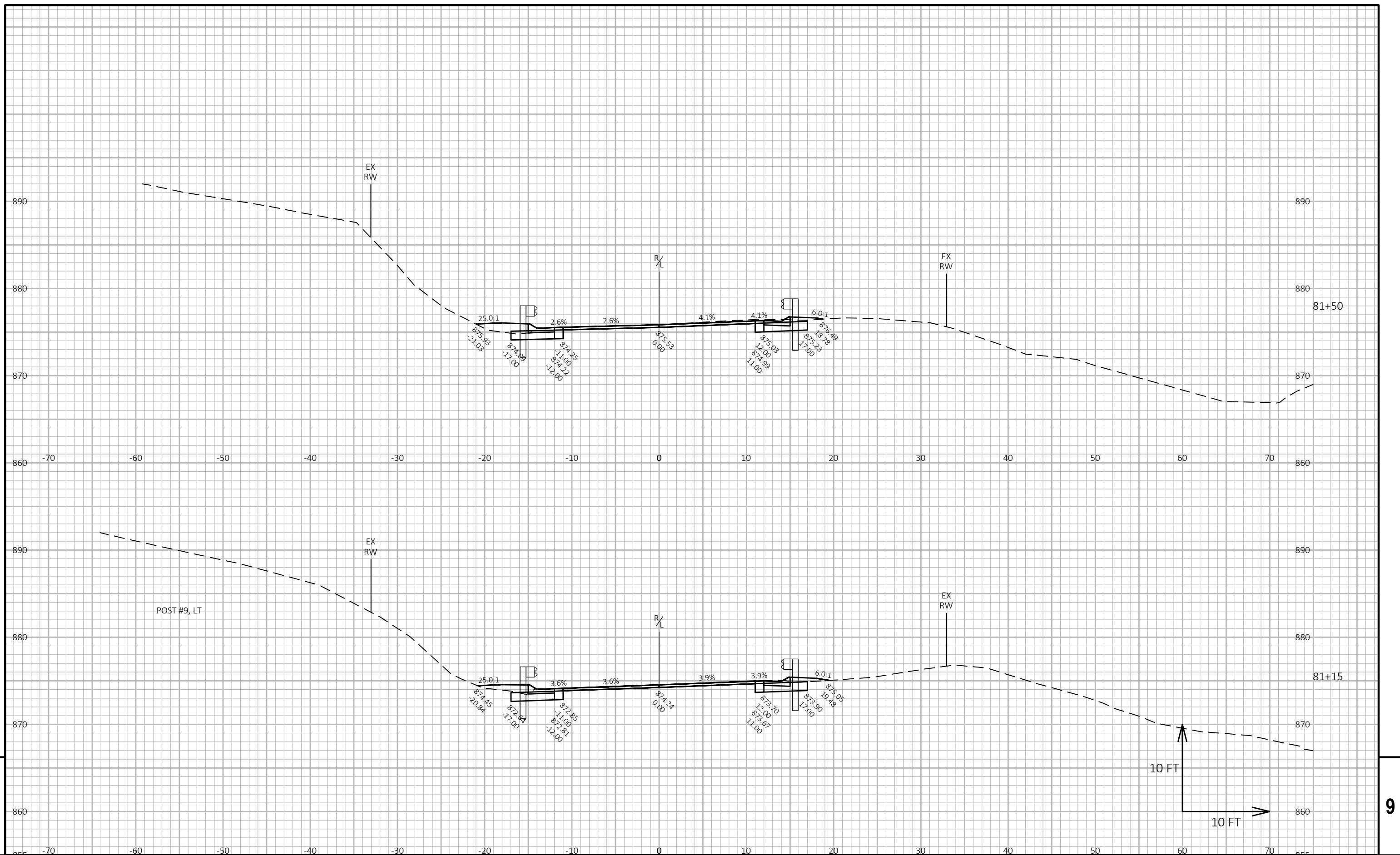


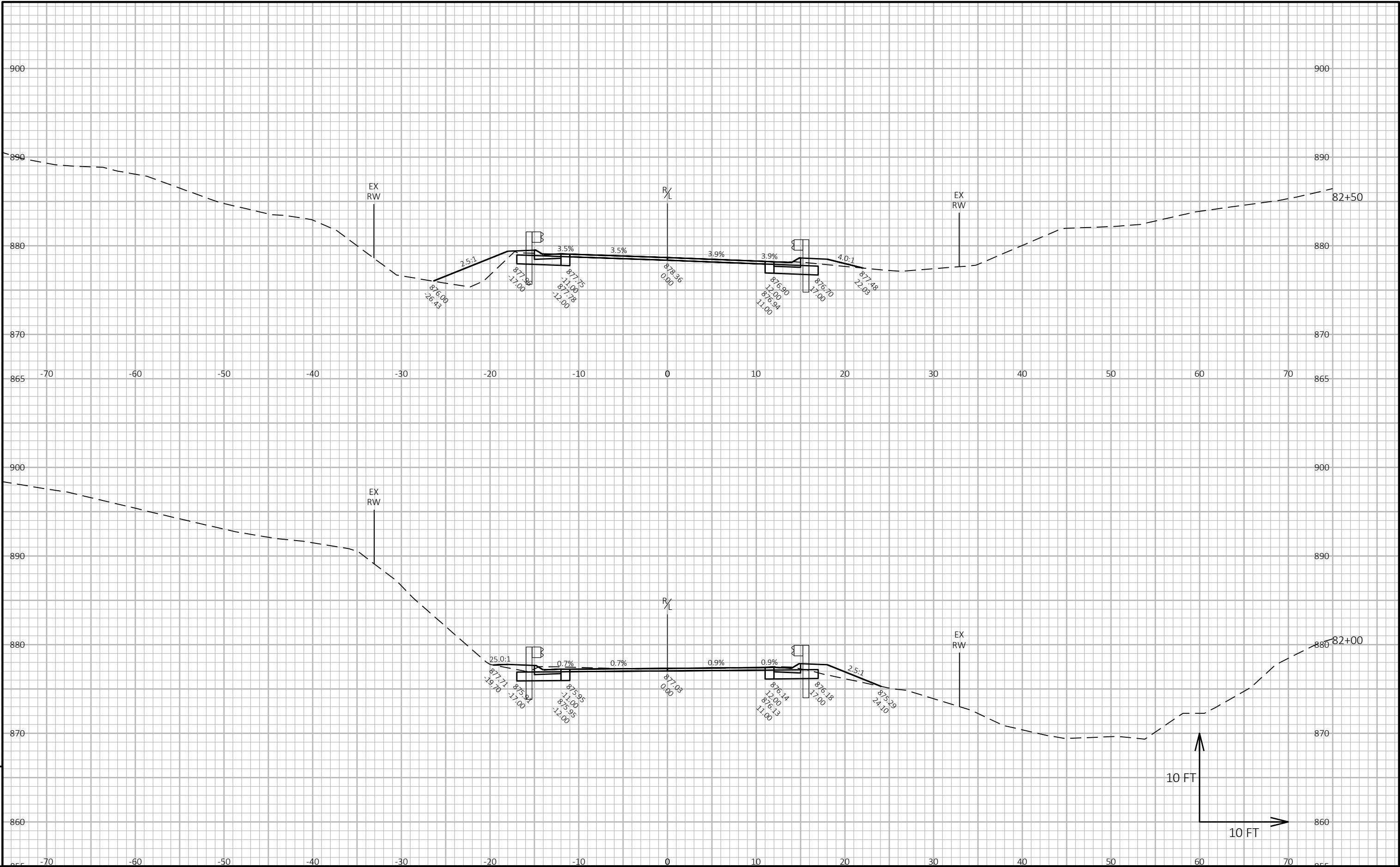


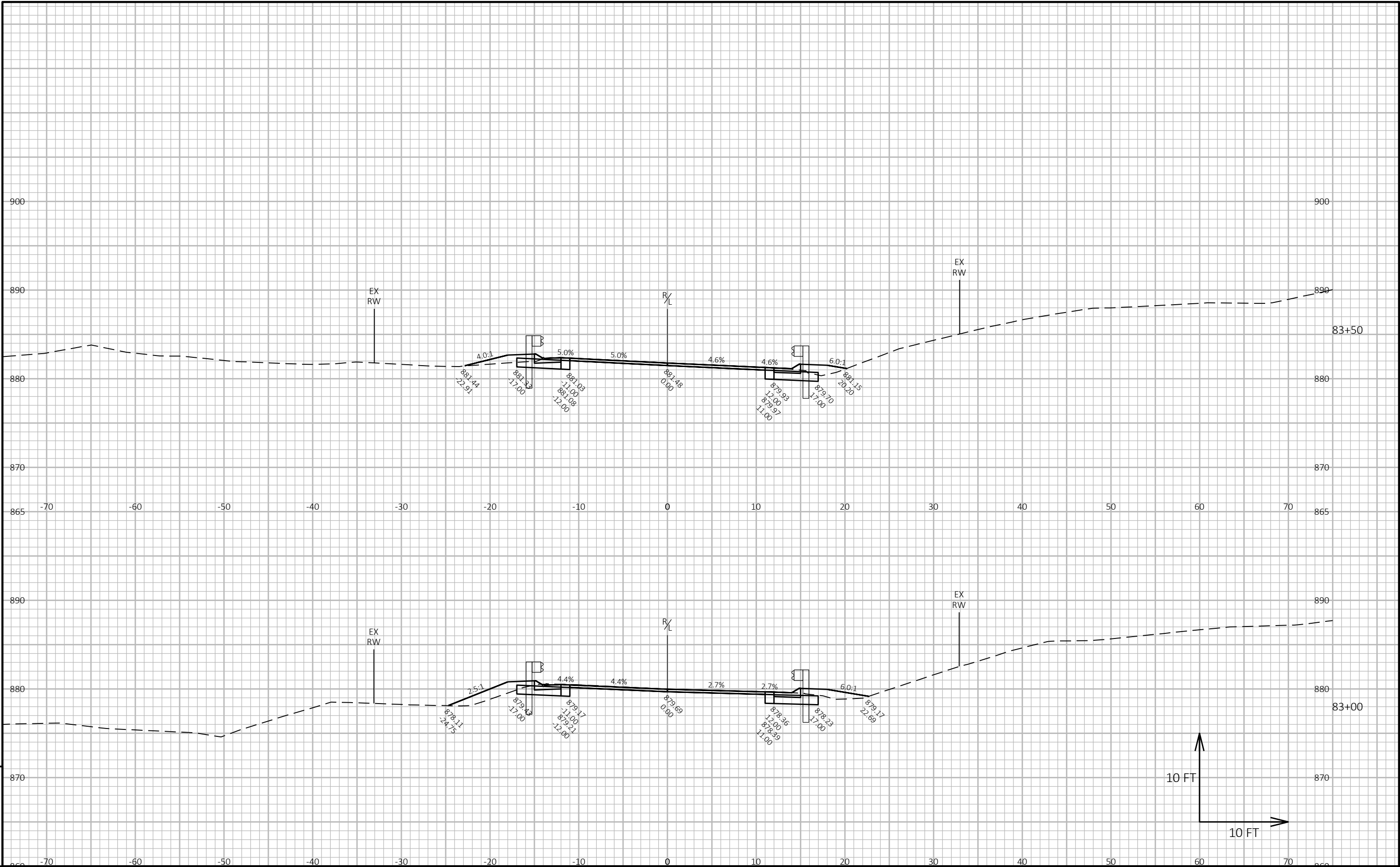


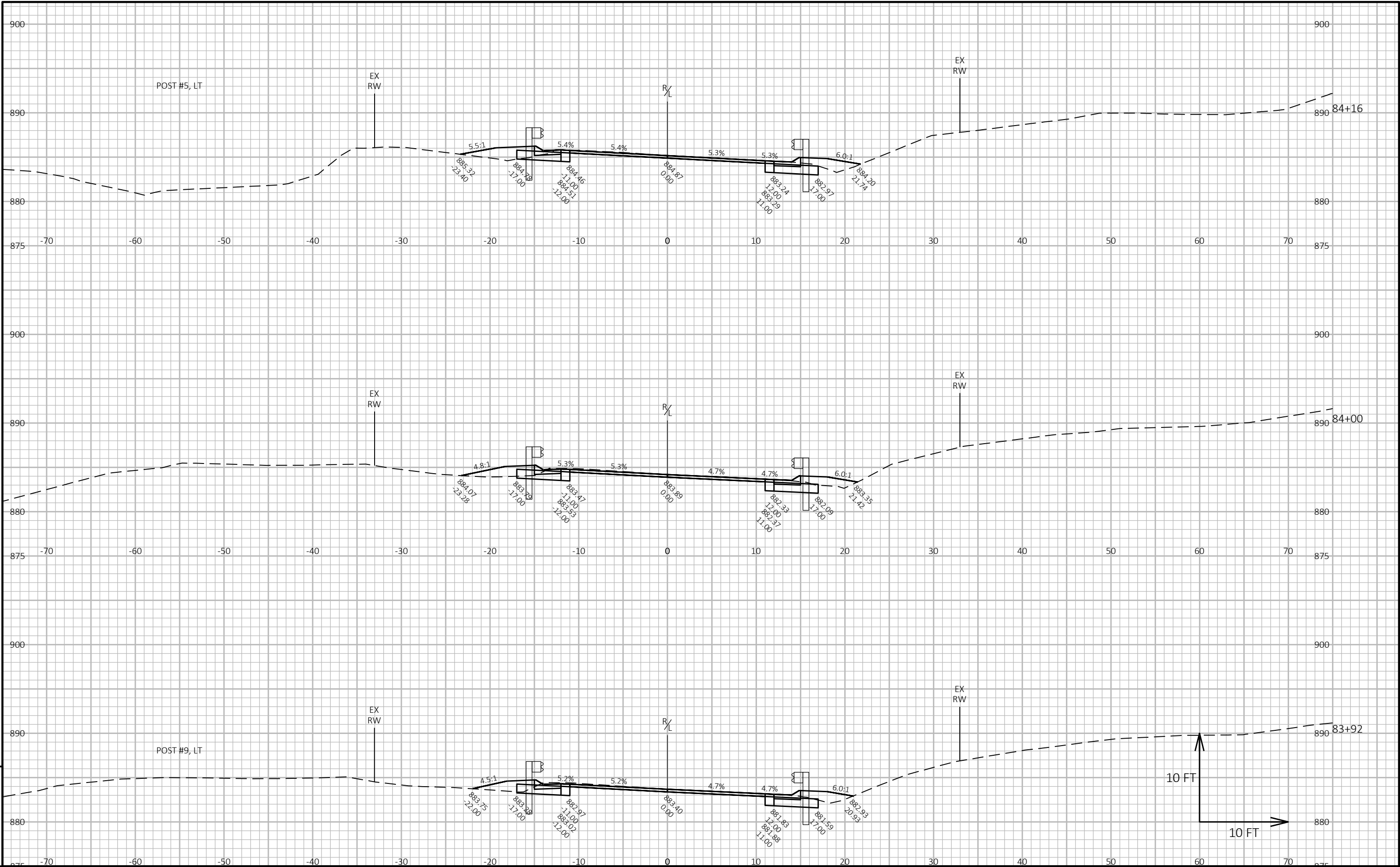
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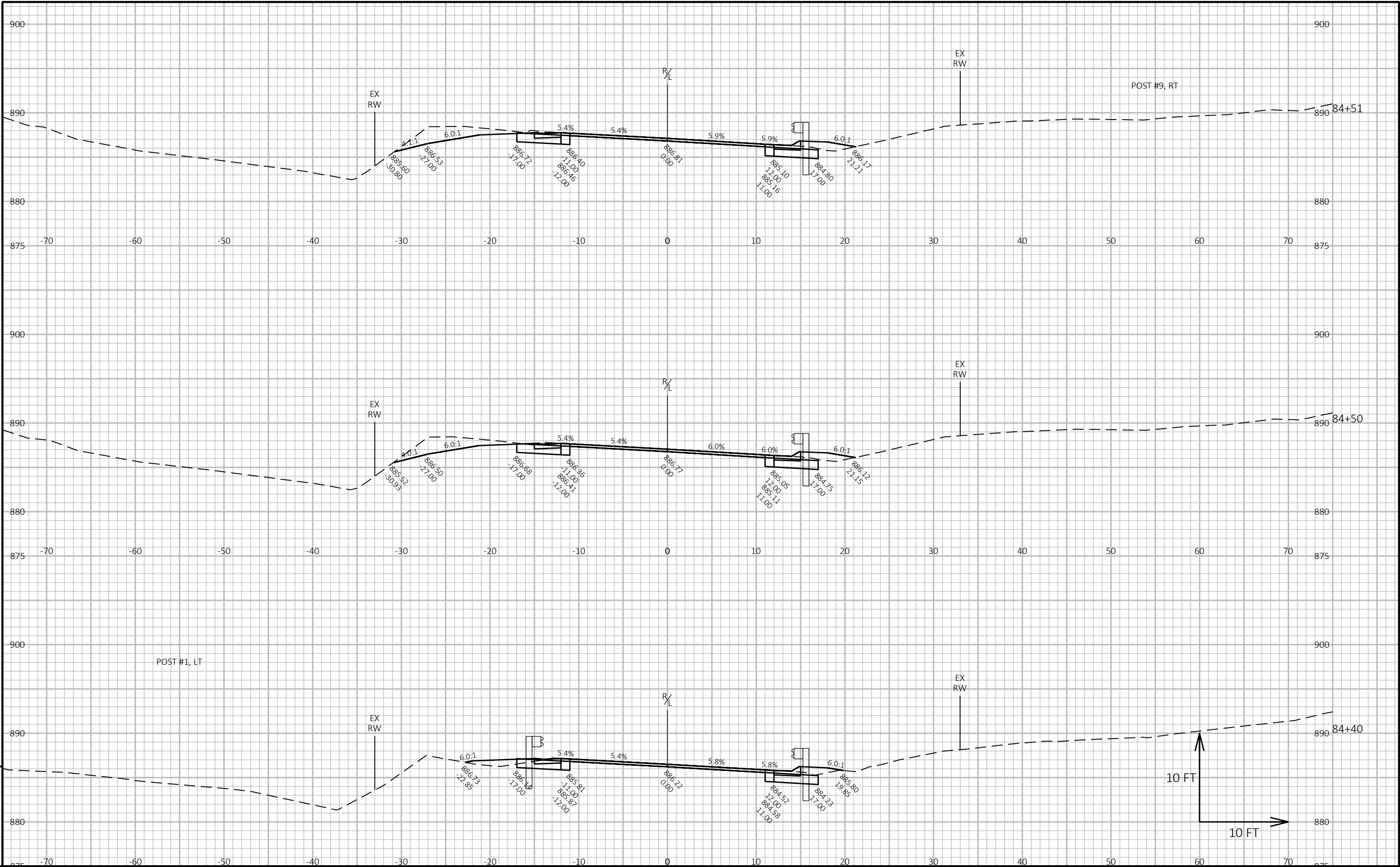
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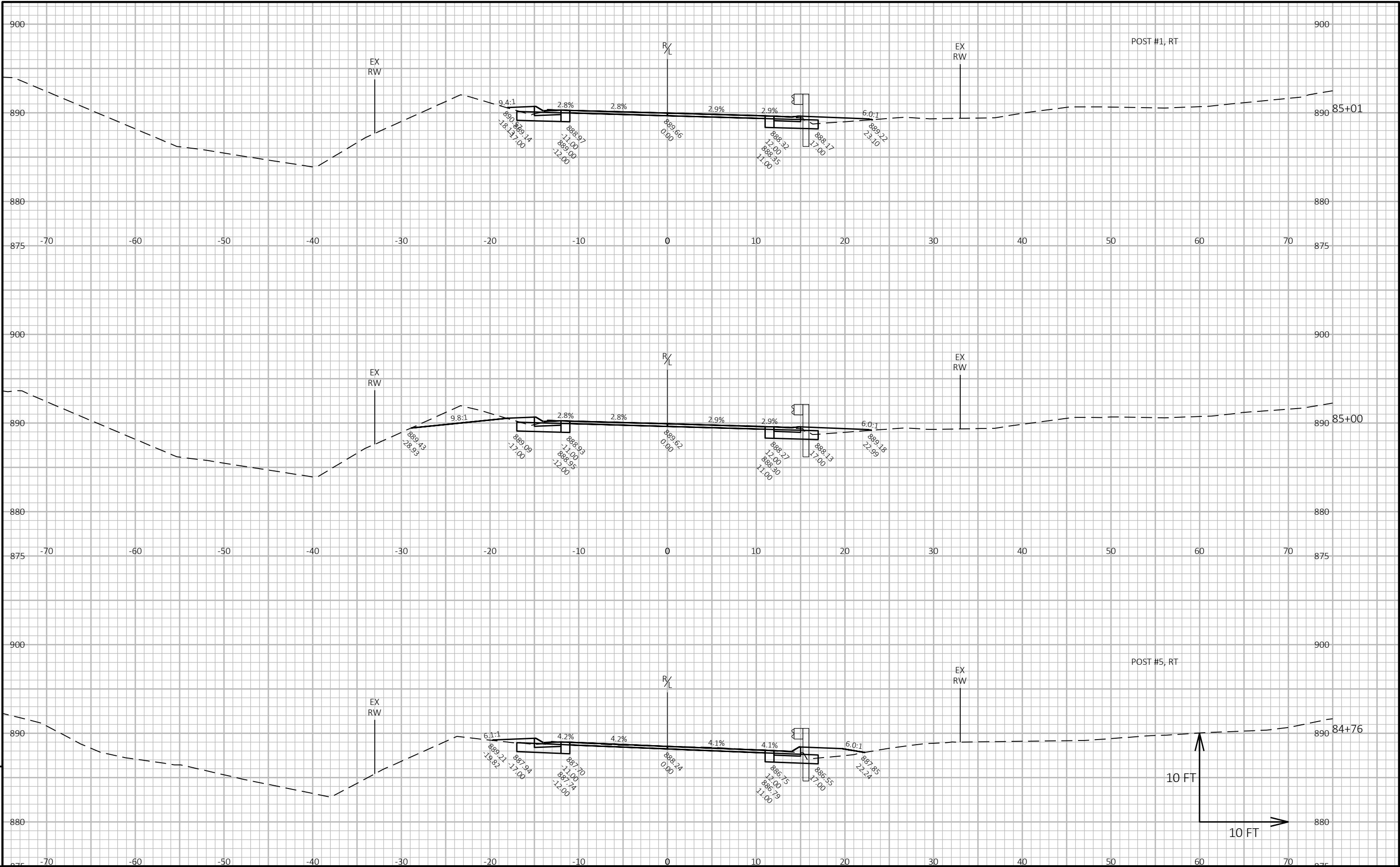


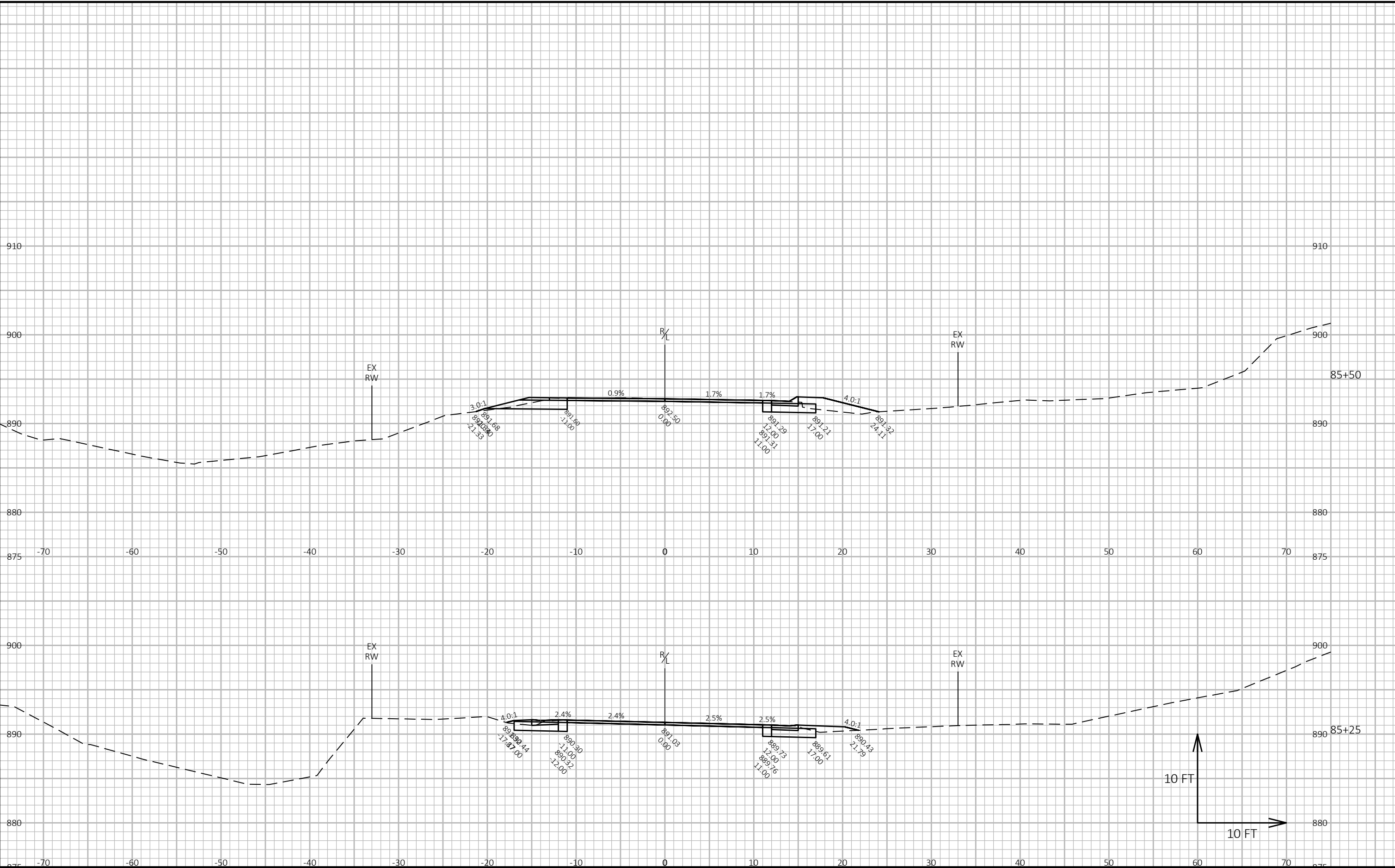


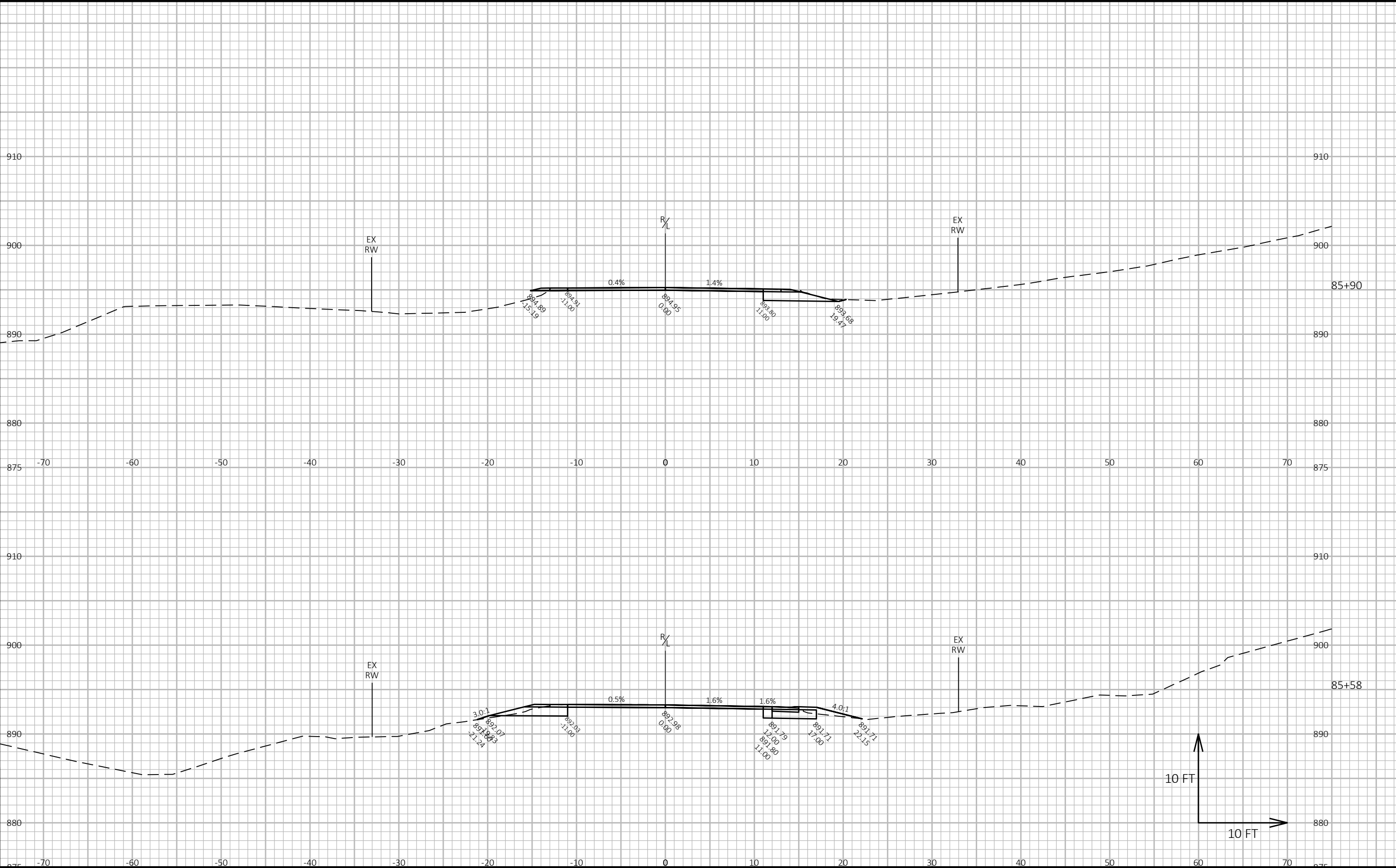


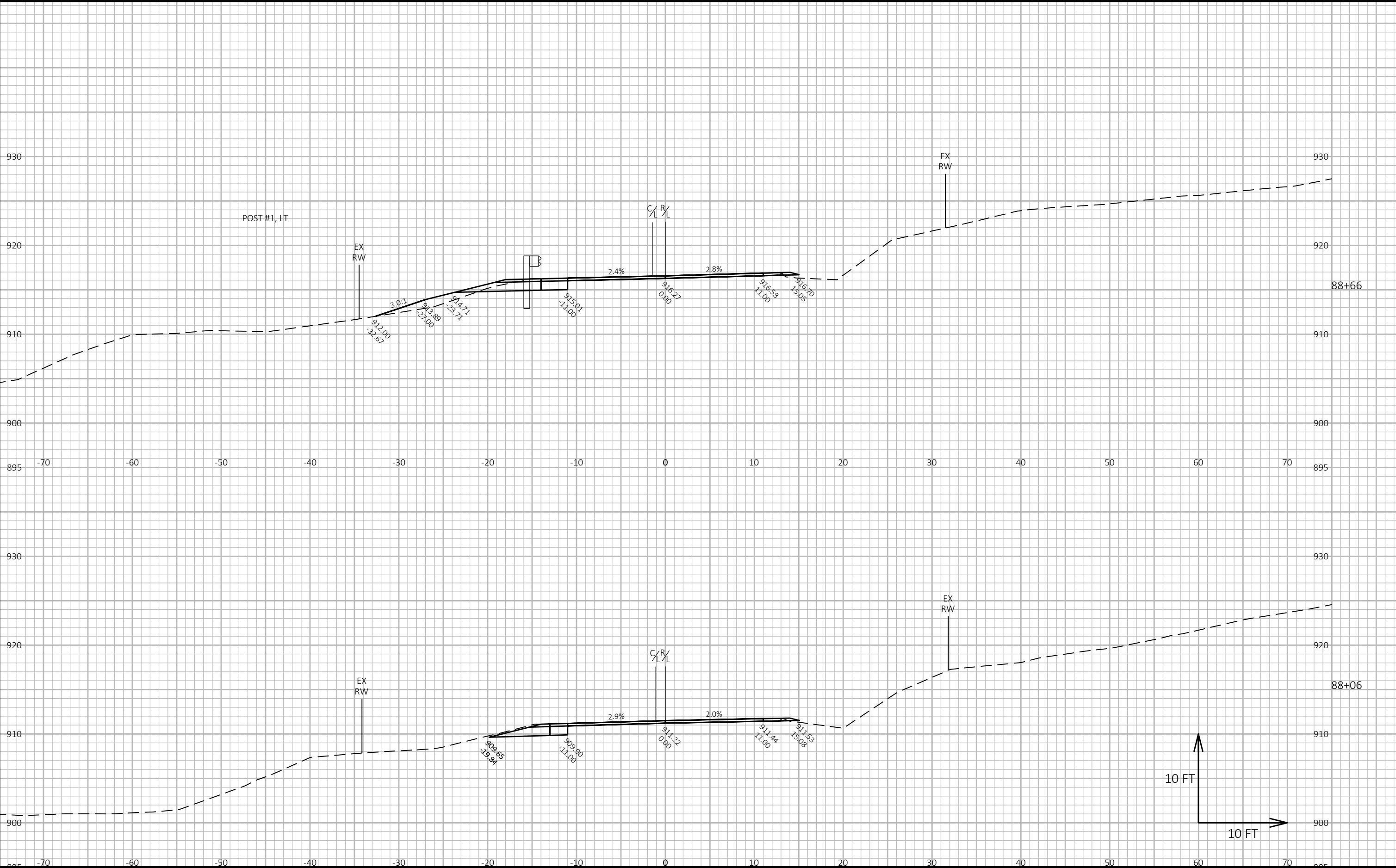


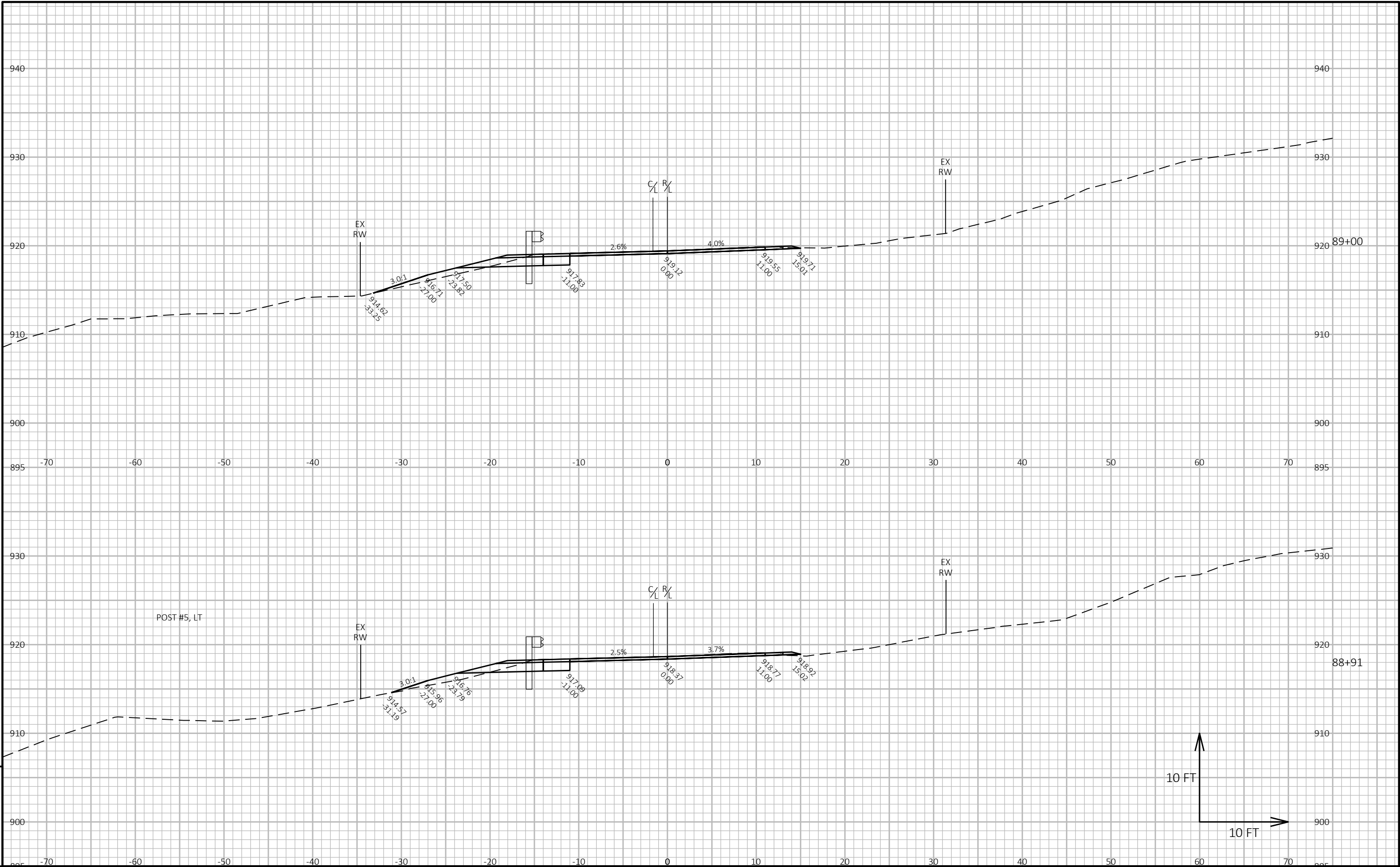


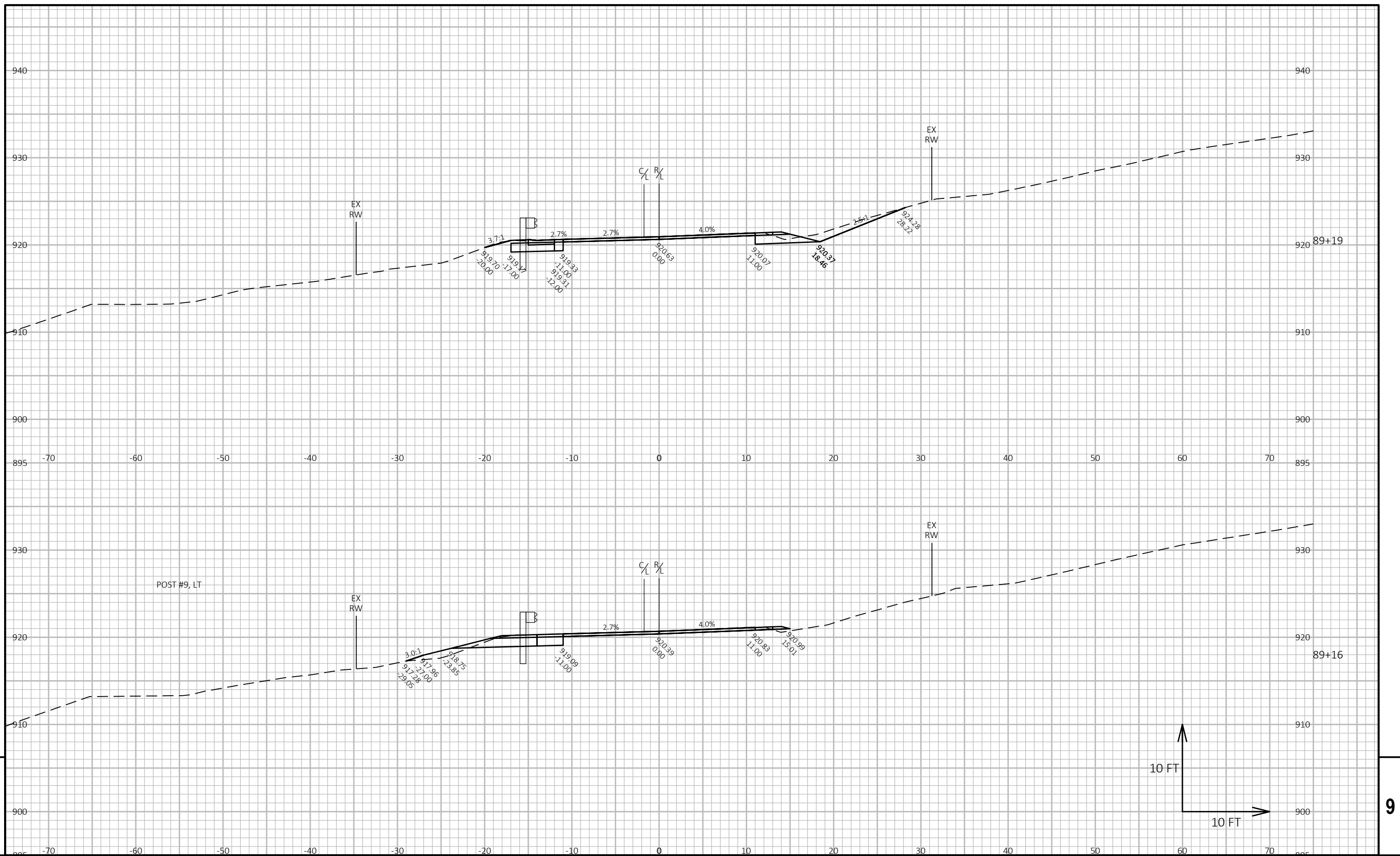
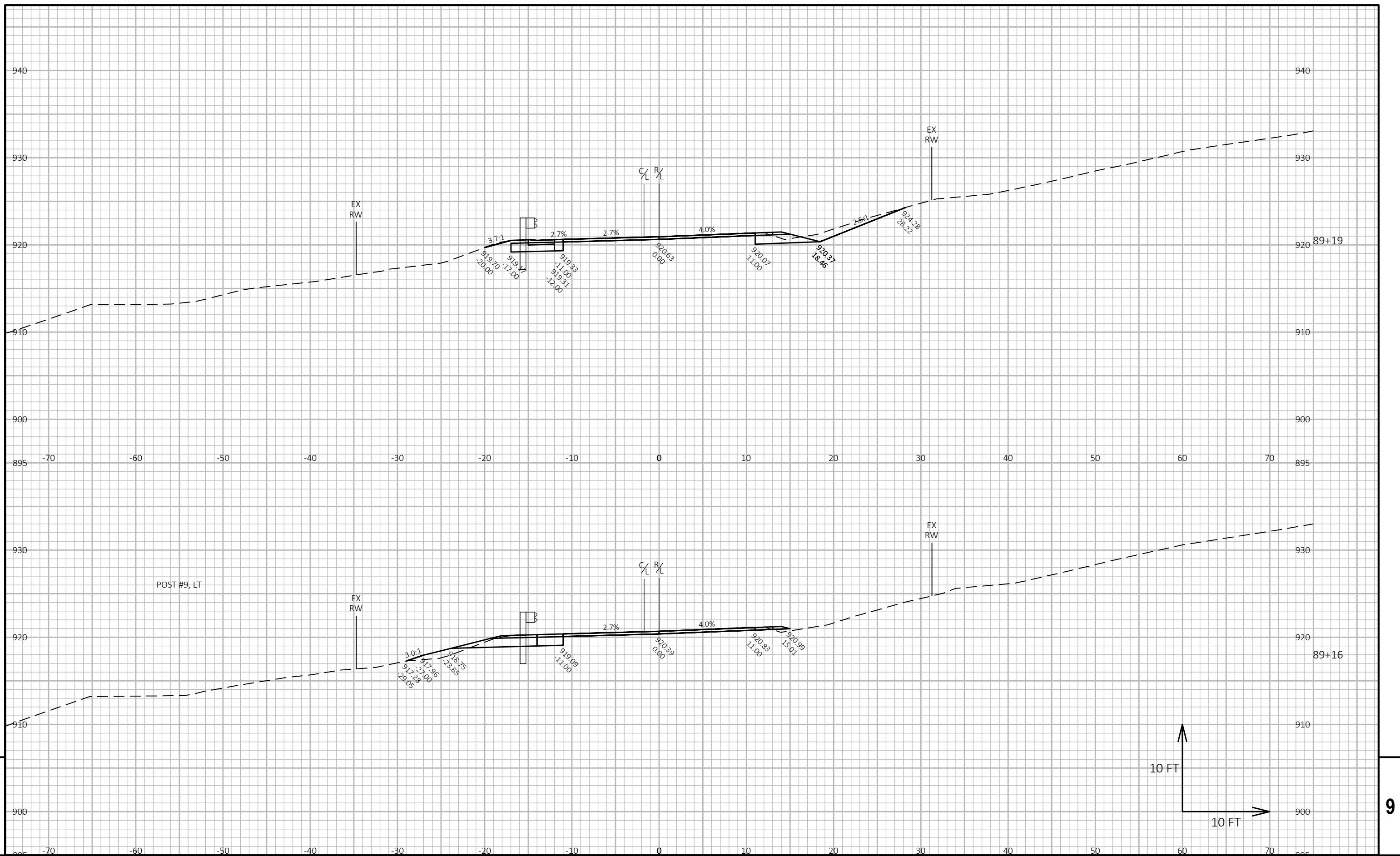






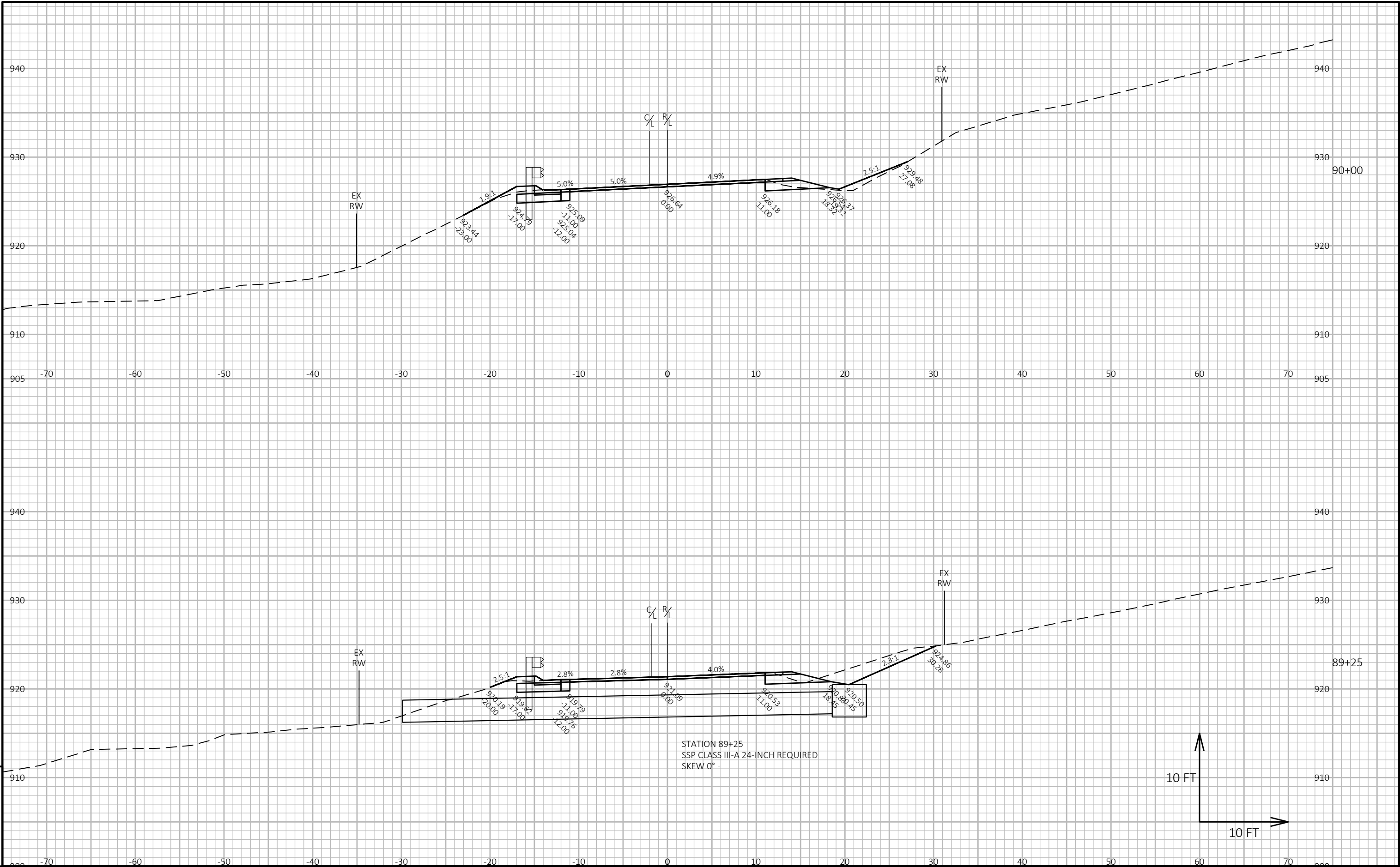


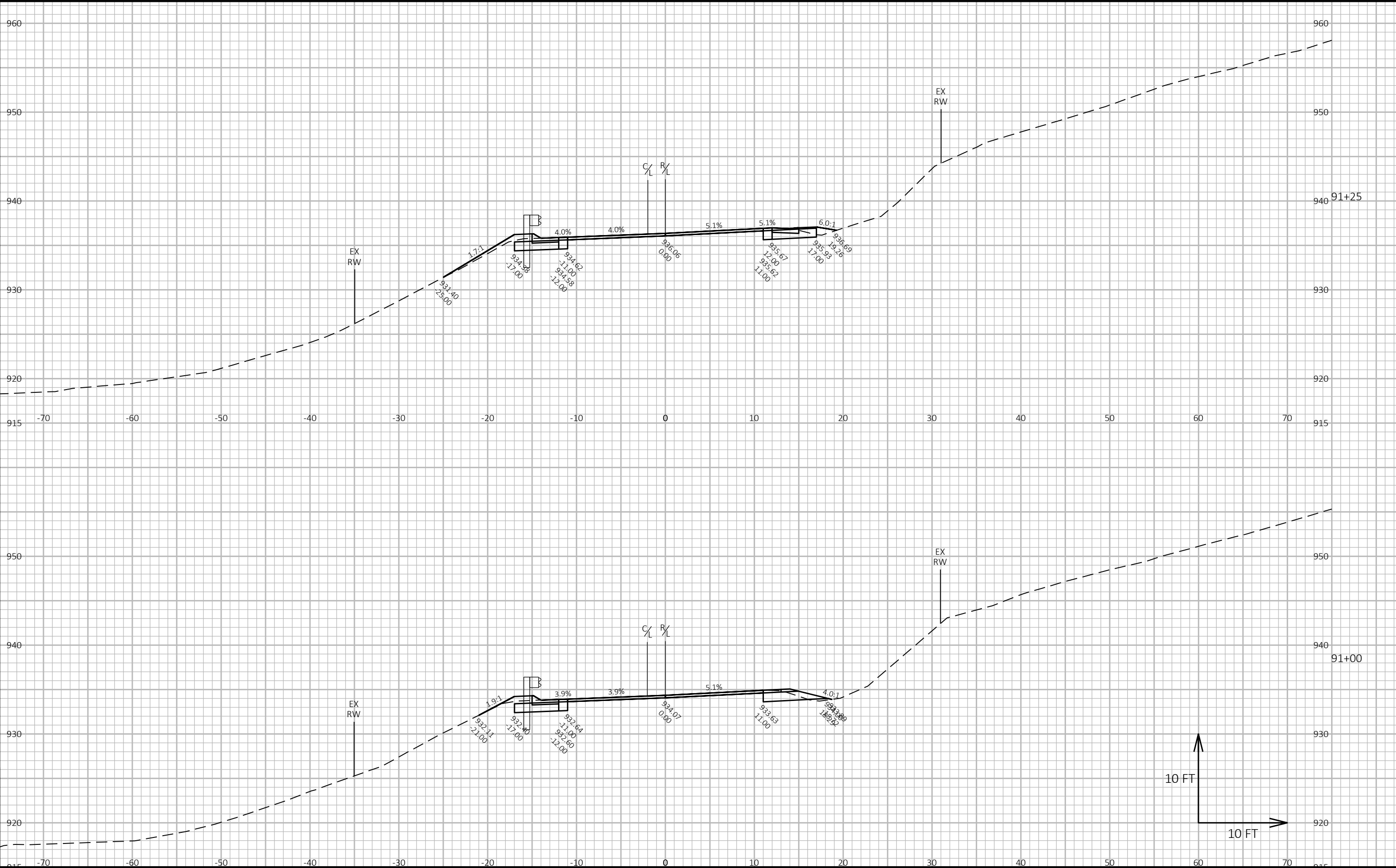


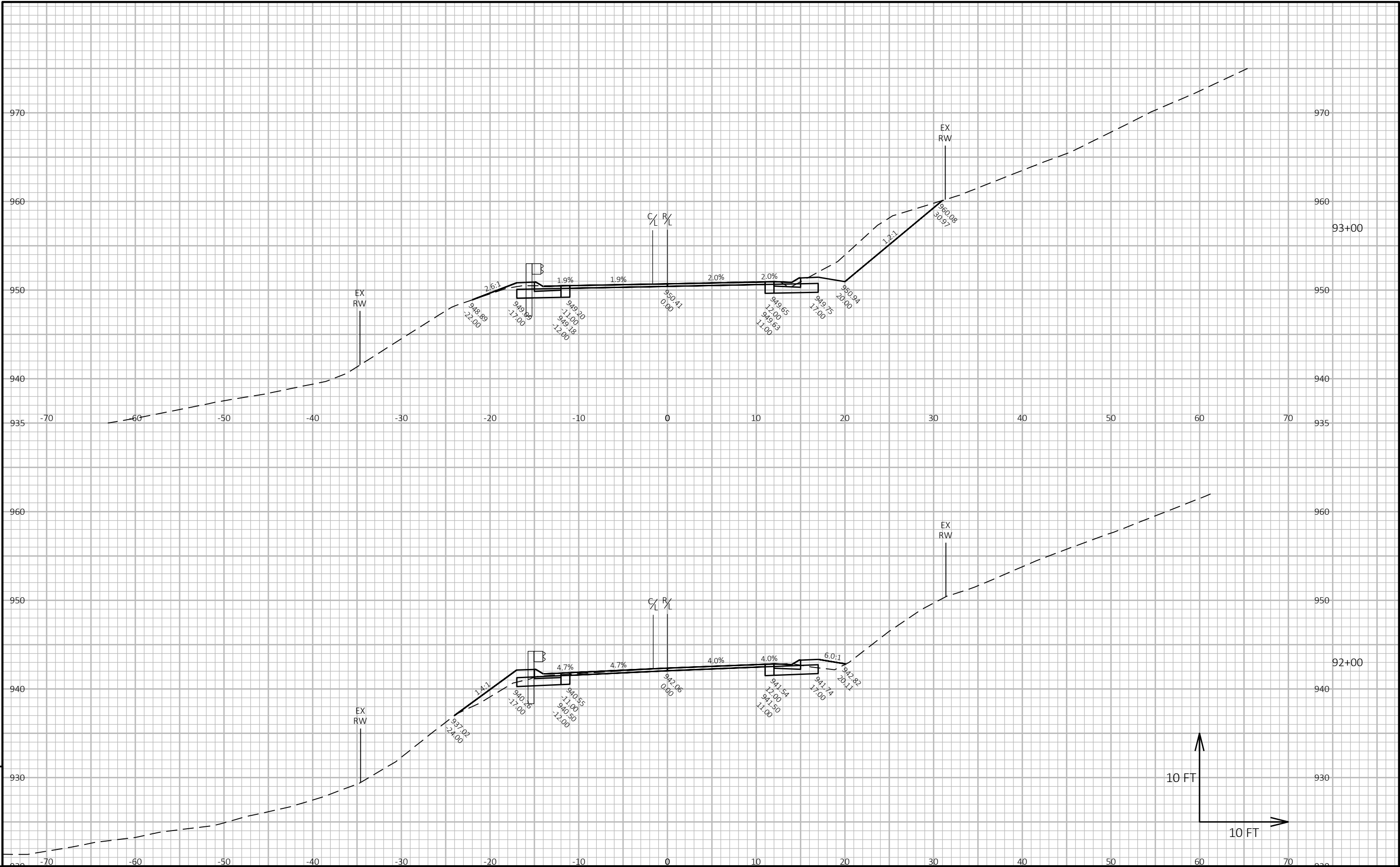


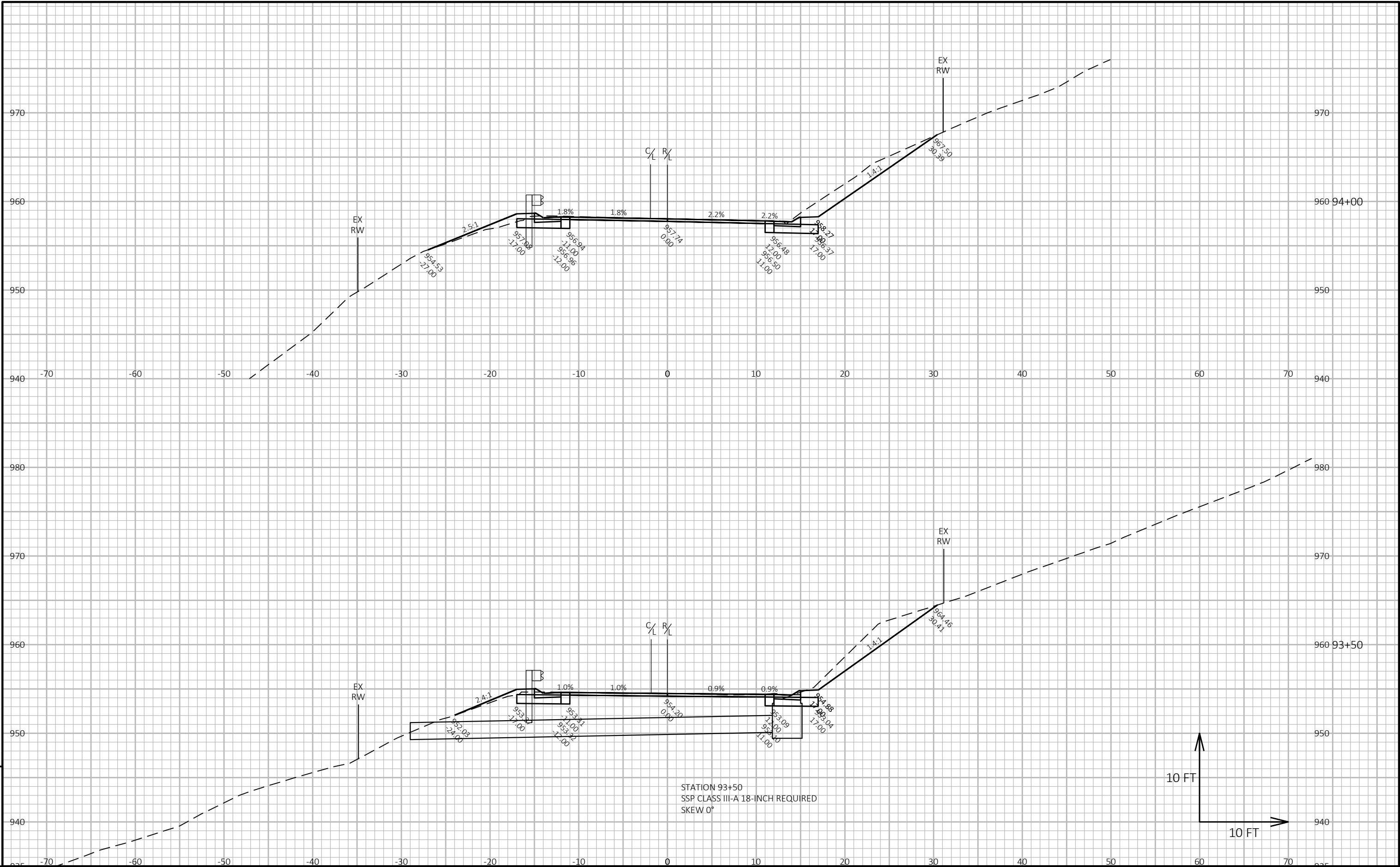
PROJECT NO: 5820-01-68	HWY: STH 162	COUNTY: LA CROSSE/VERNON	CROSS SECTIONS: STH 162 (VERNON)	SHEET 303	E
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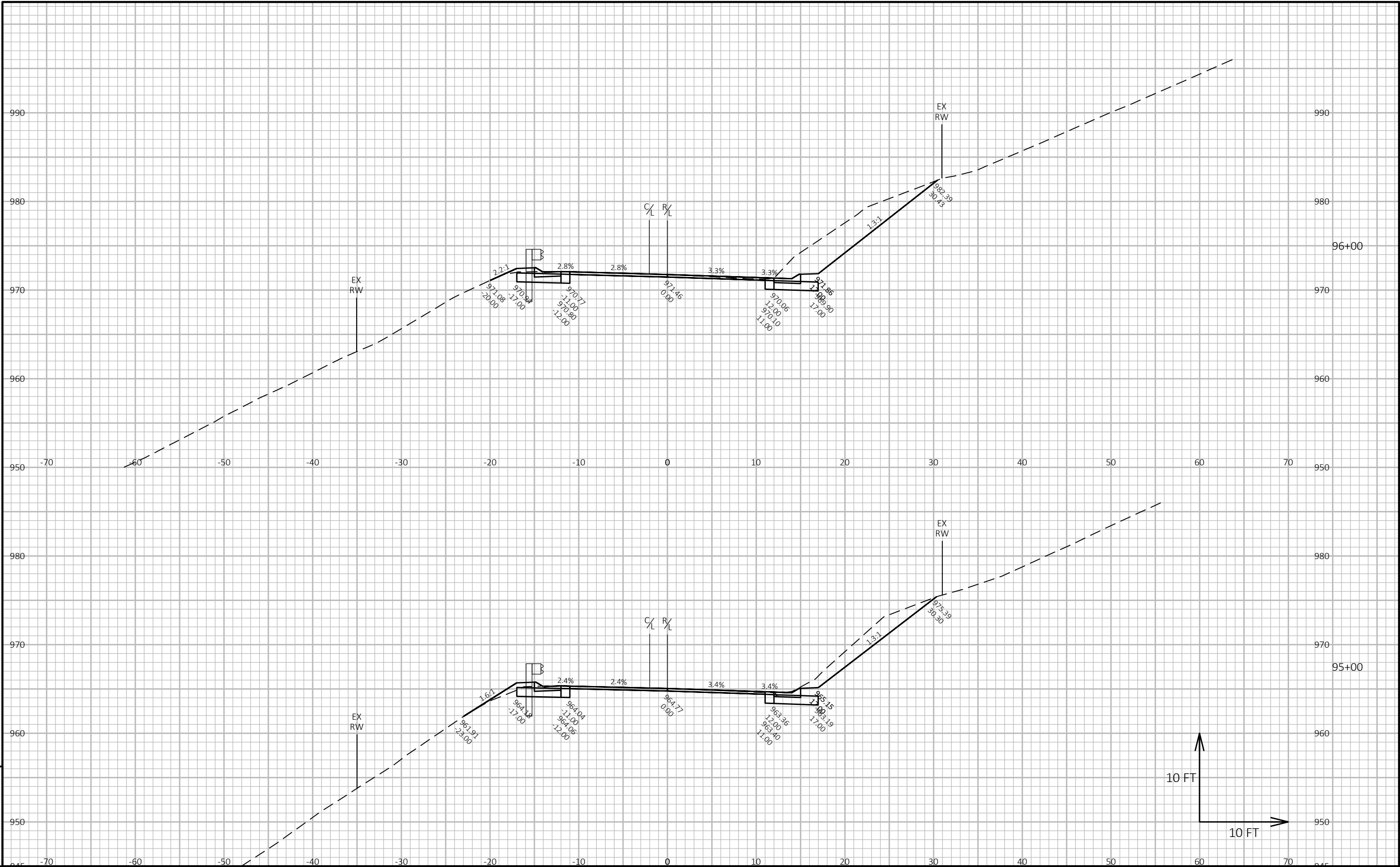
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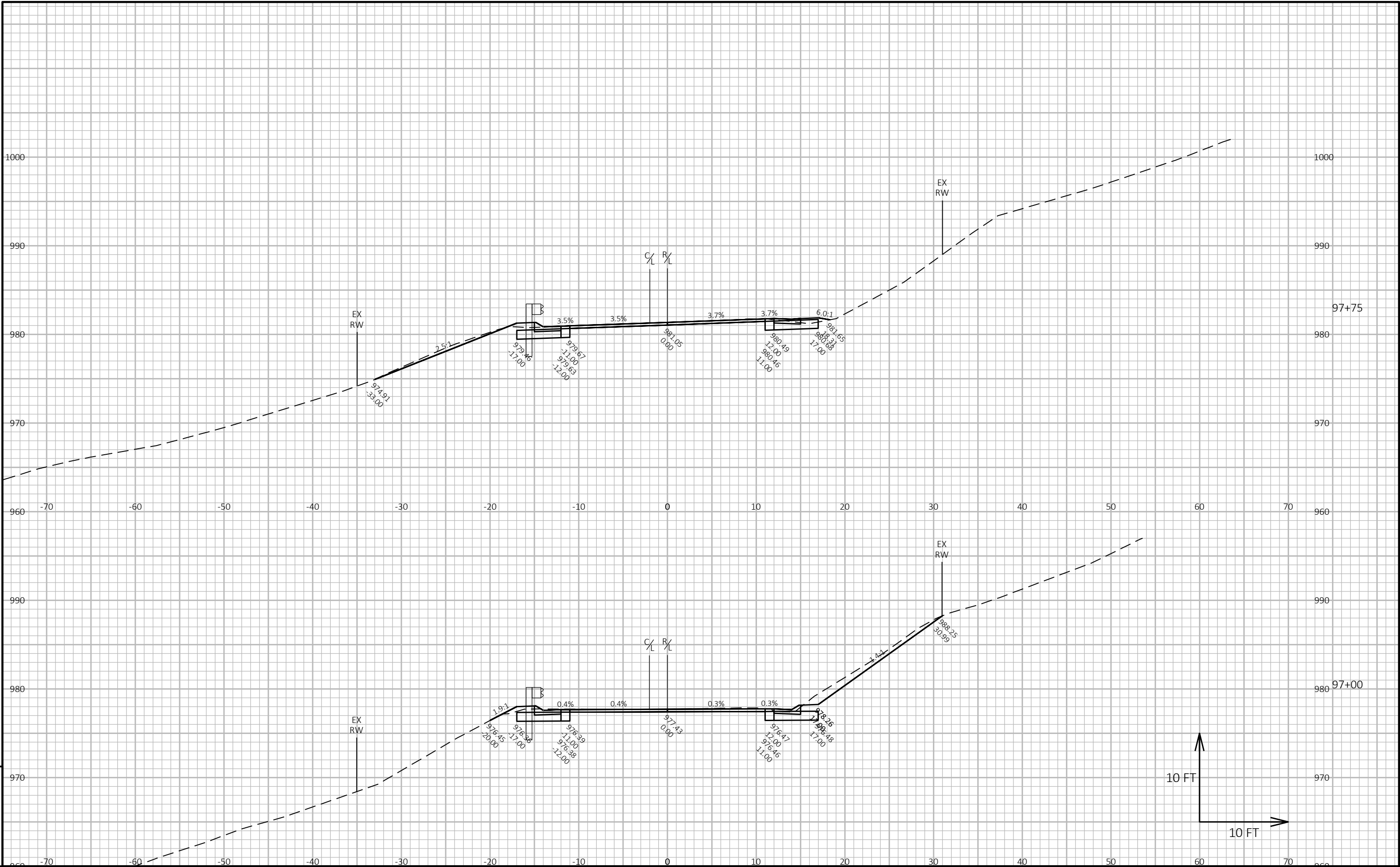


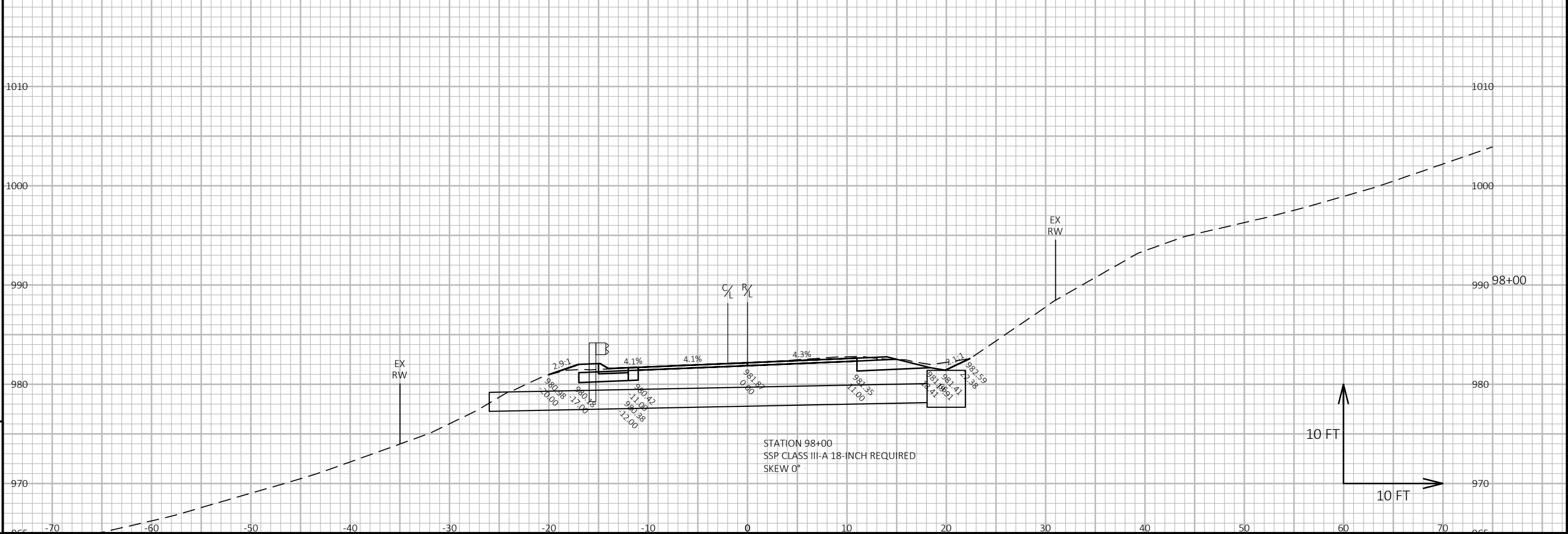
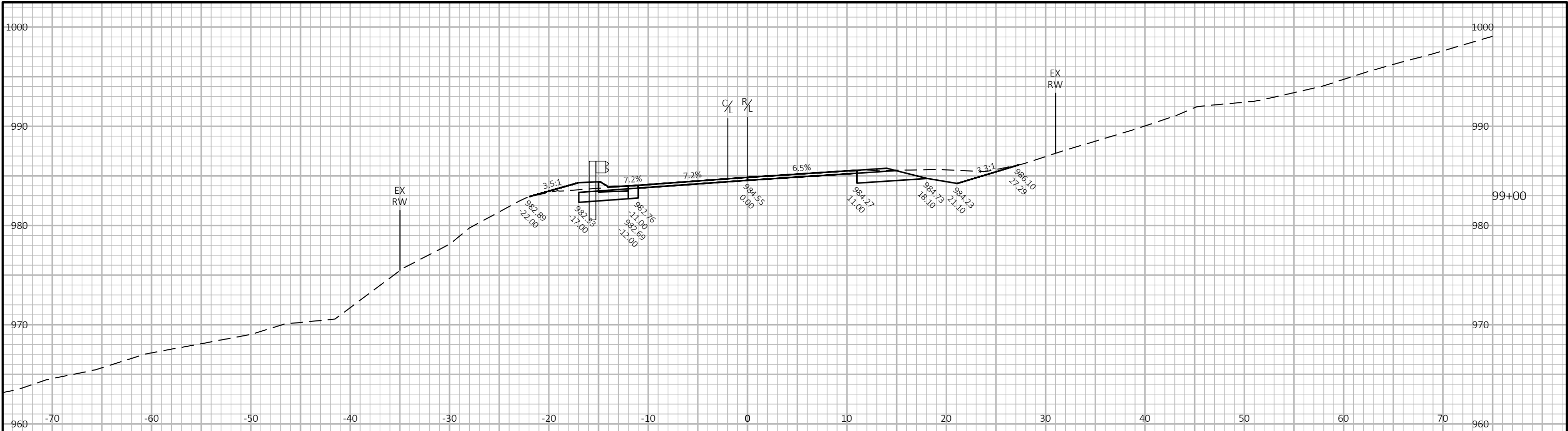




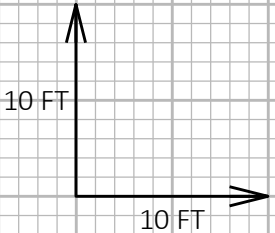






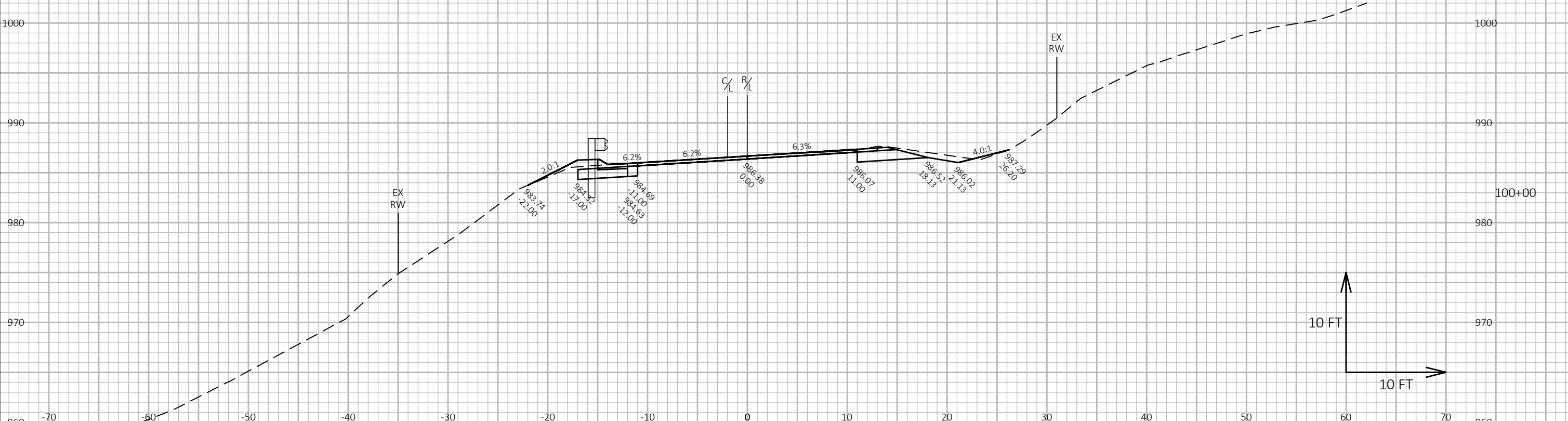
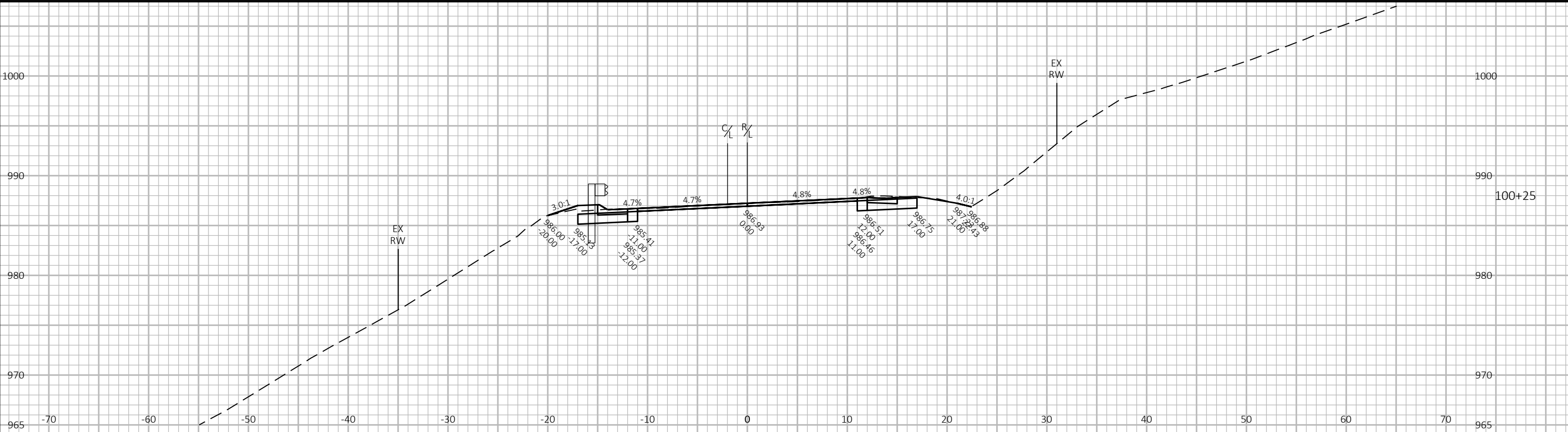


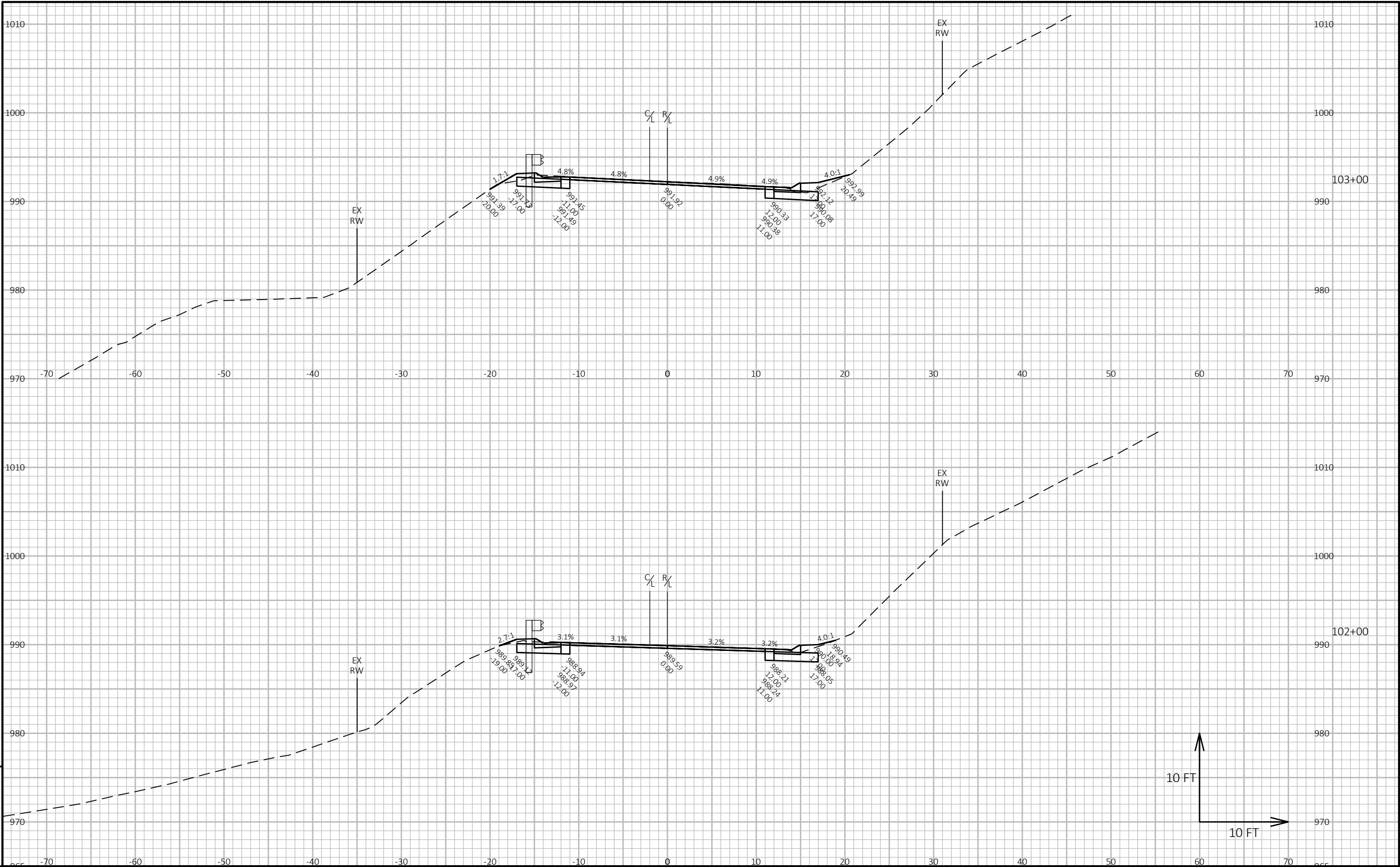
STATION 98+00
SSP CLASS III-A 18-INCH REQUIRED
SKEW 0°

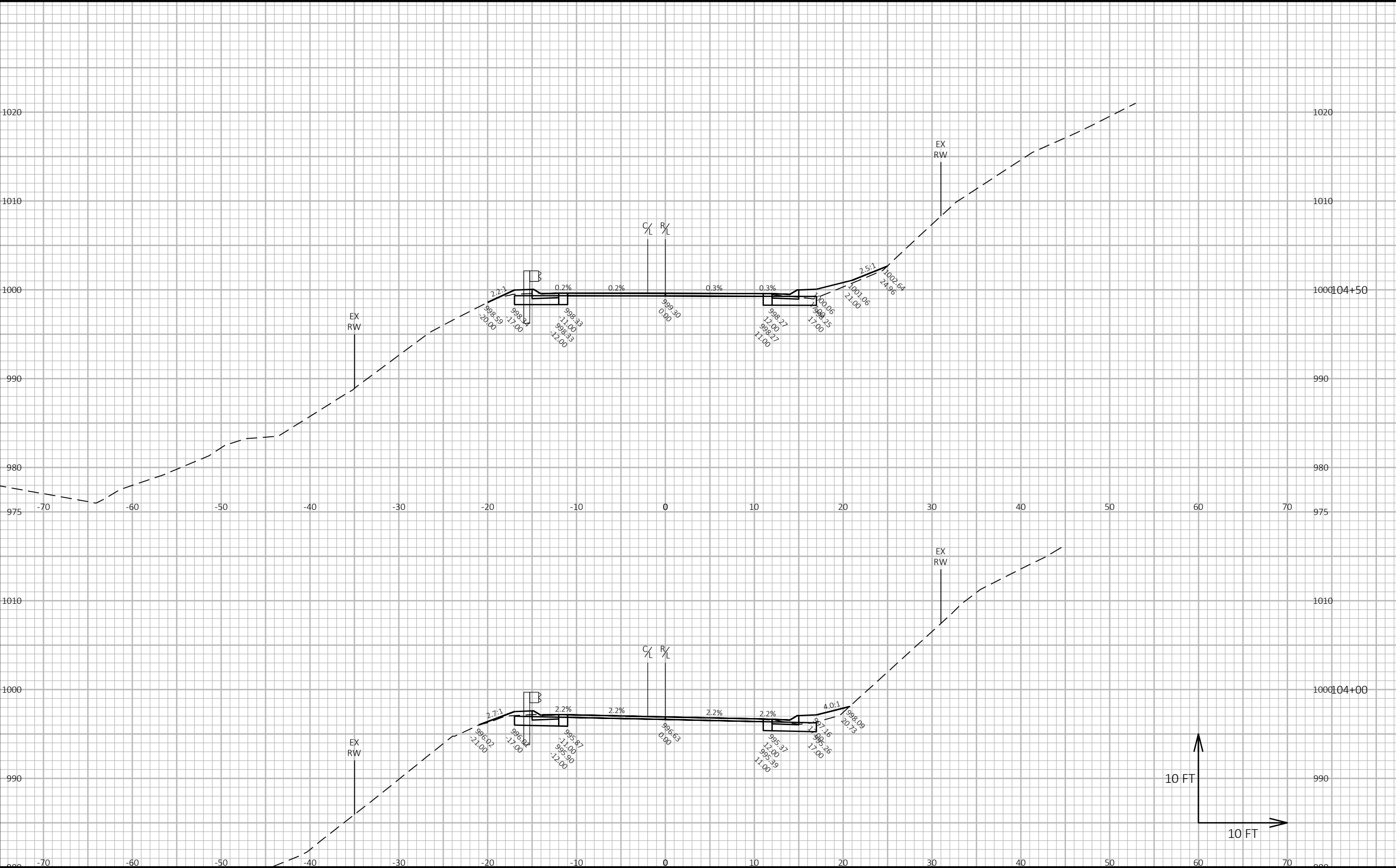


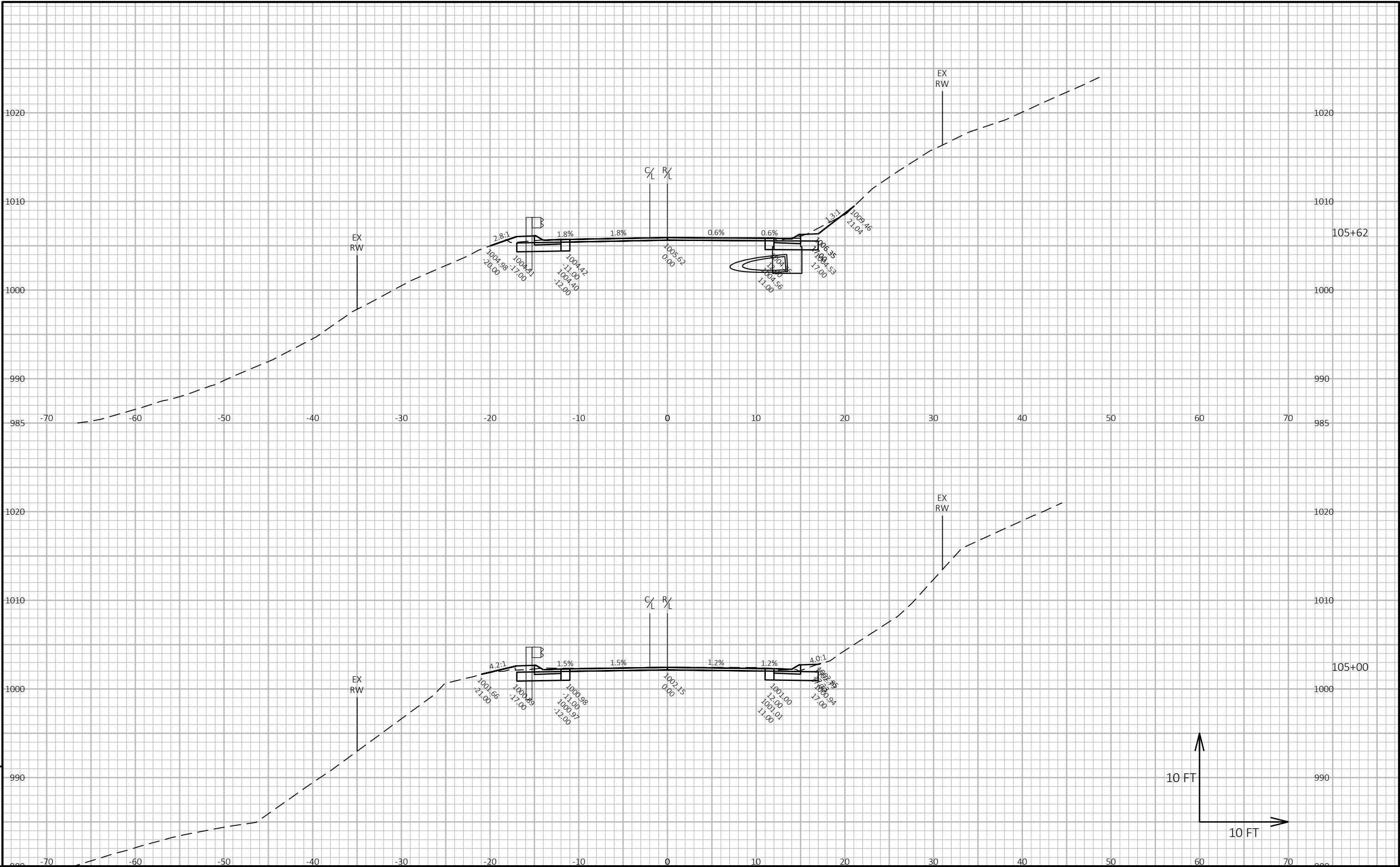
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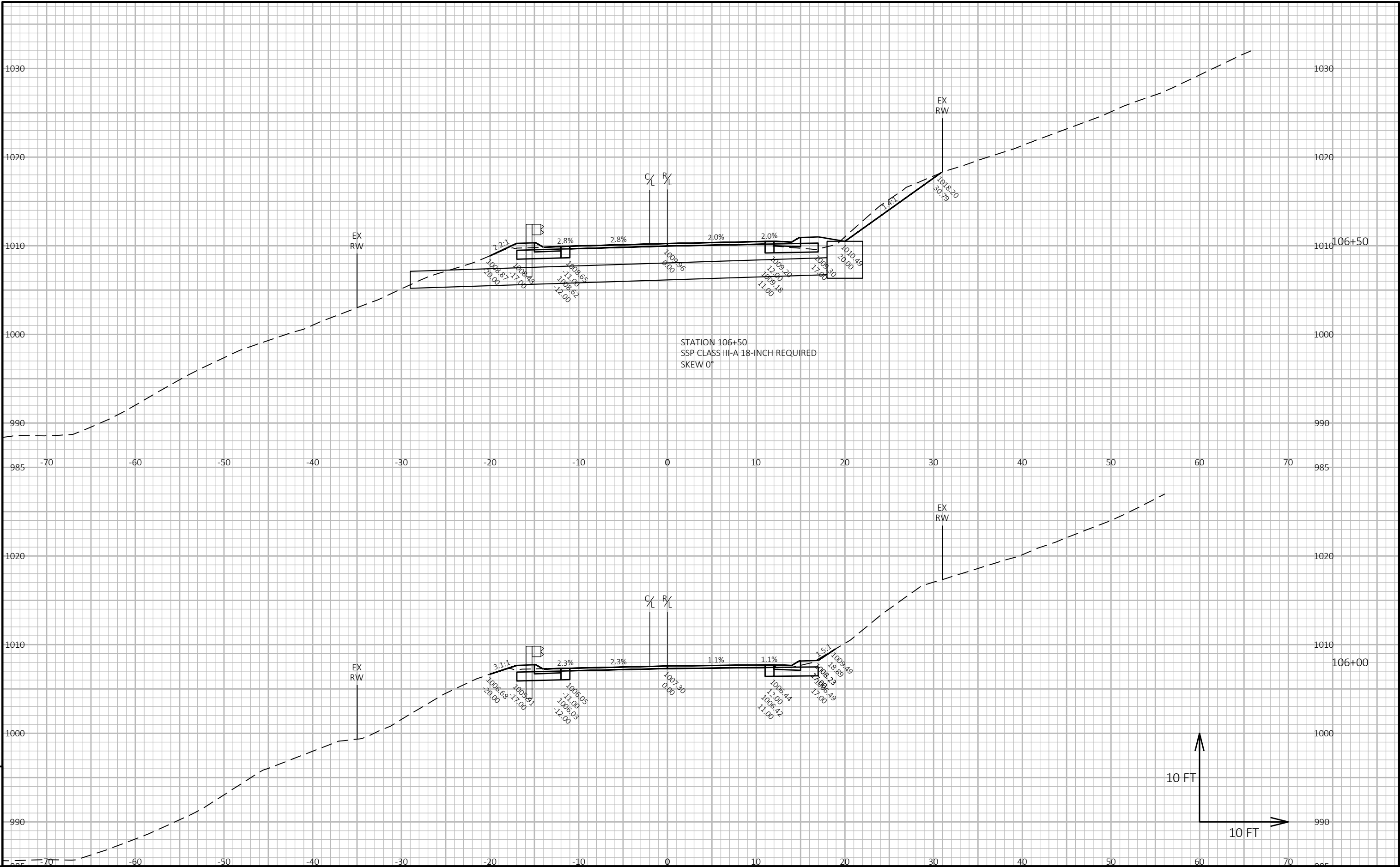
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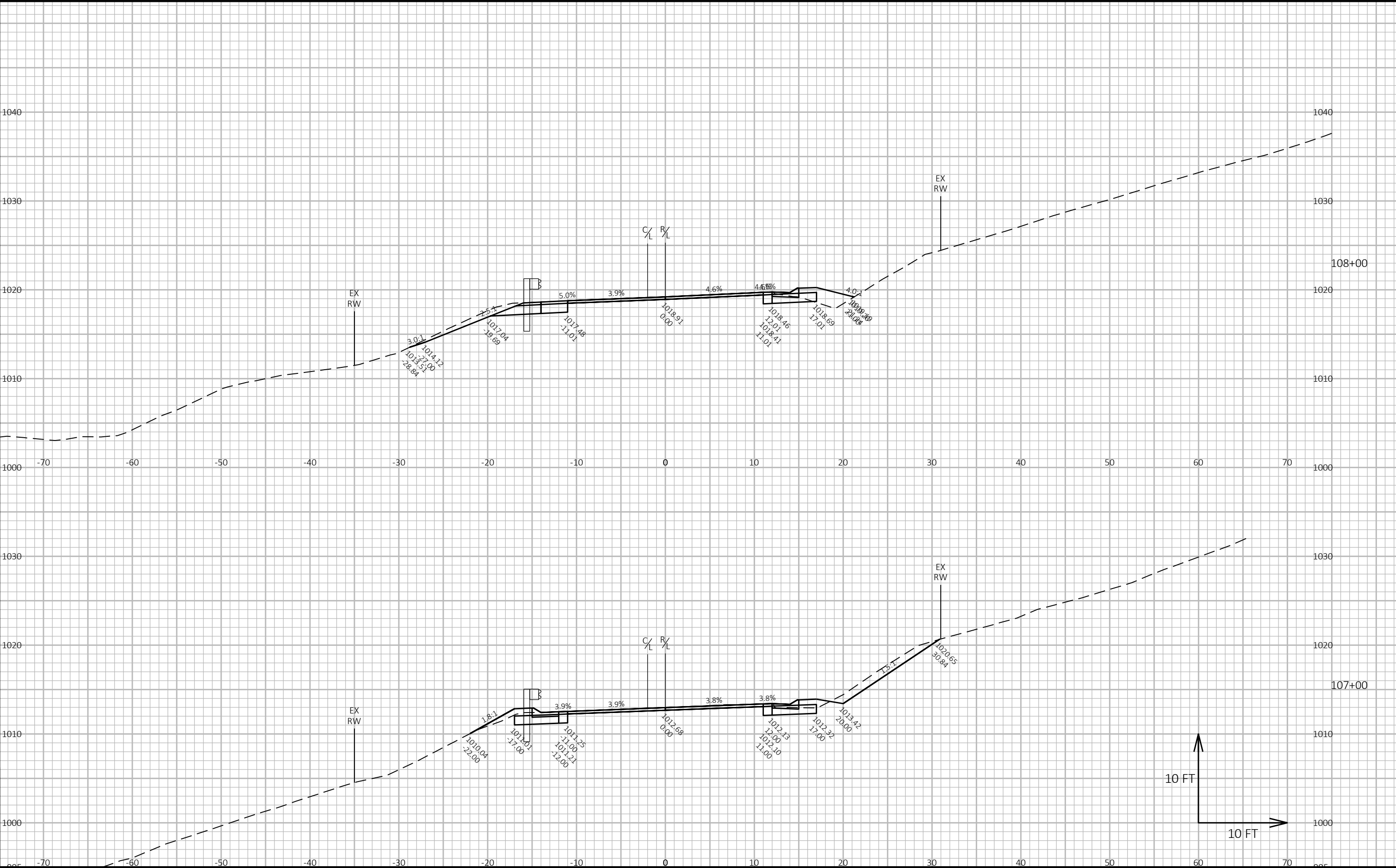


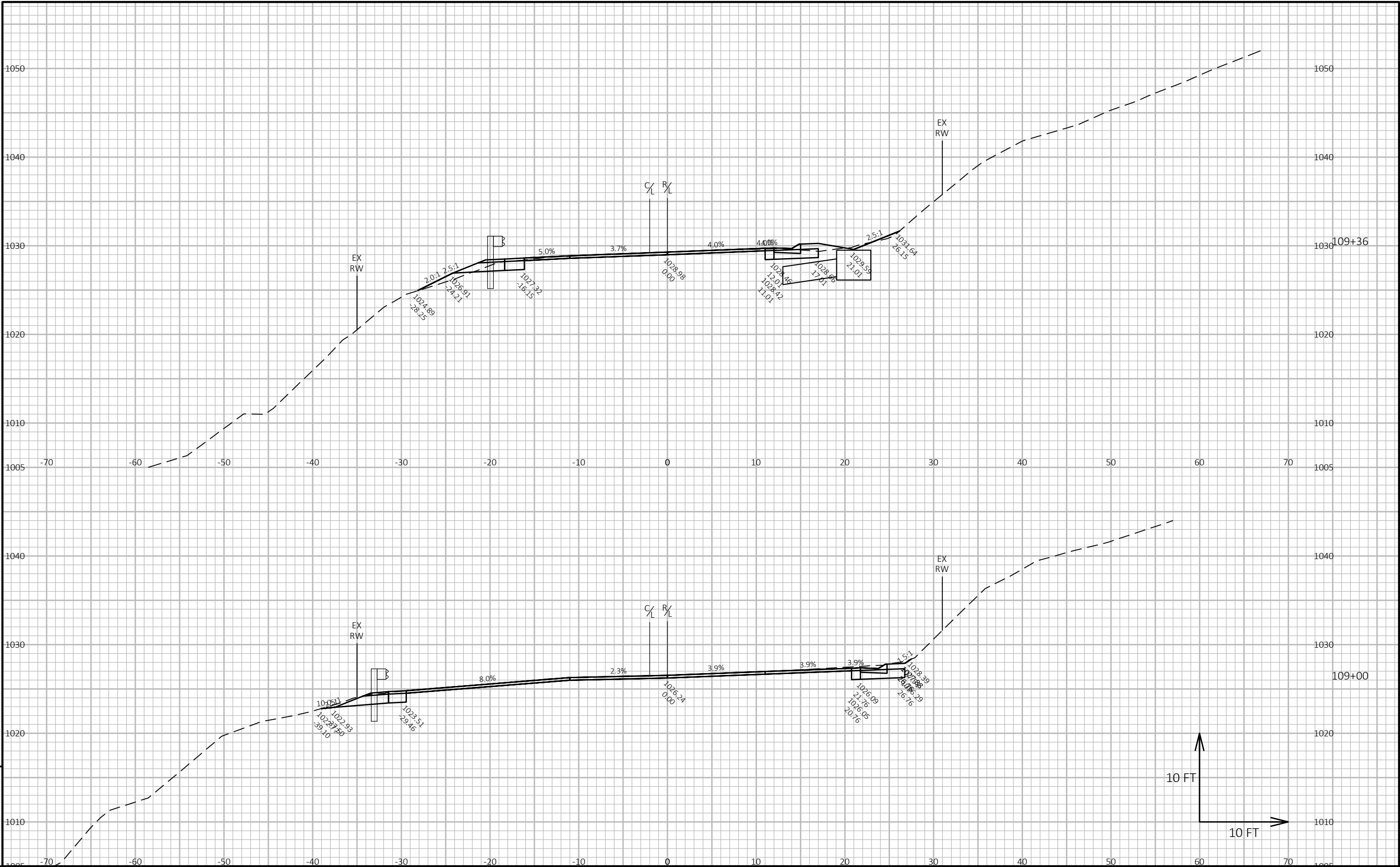


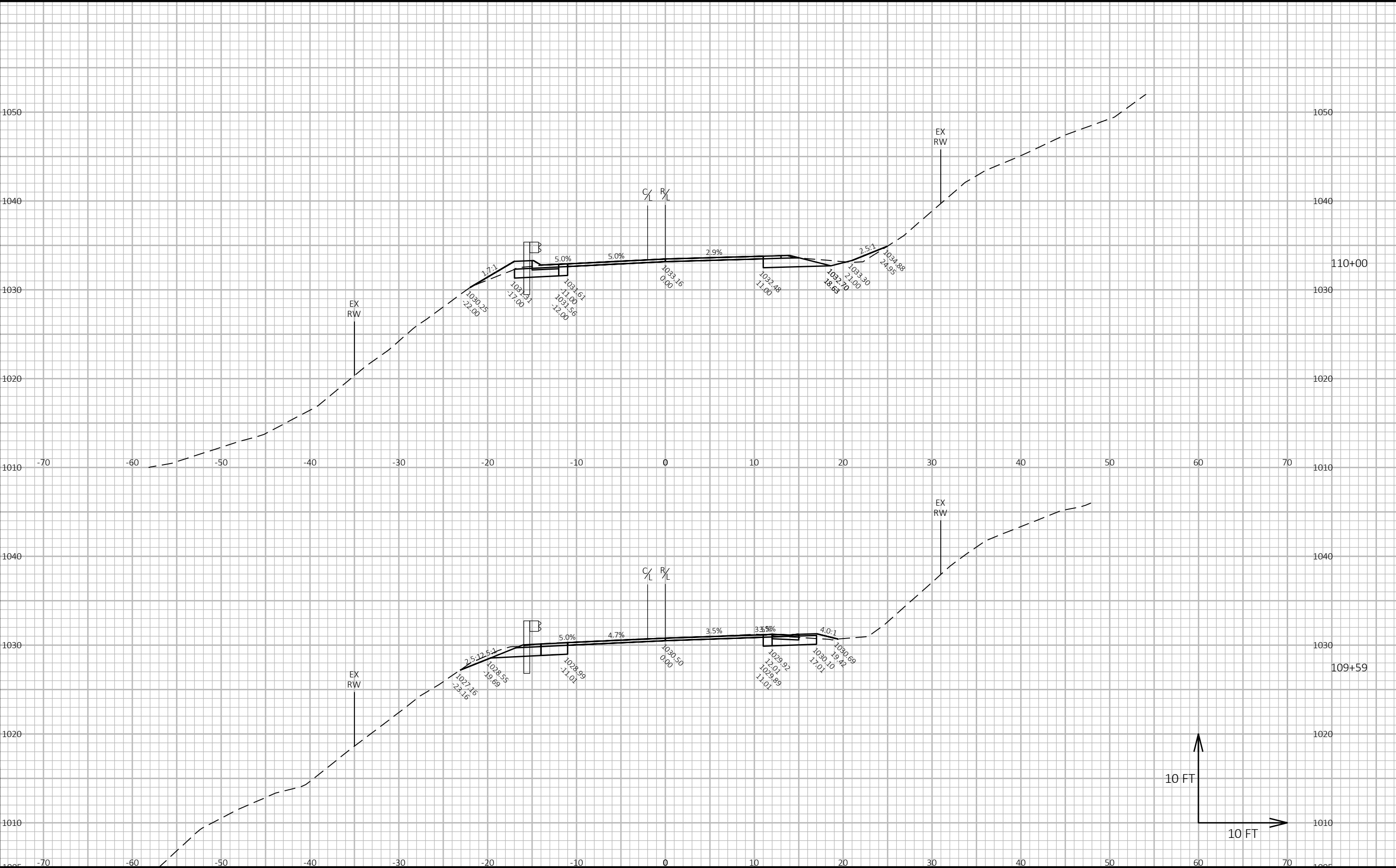


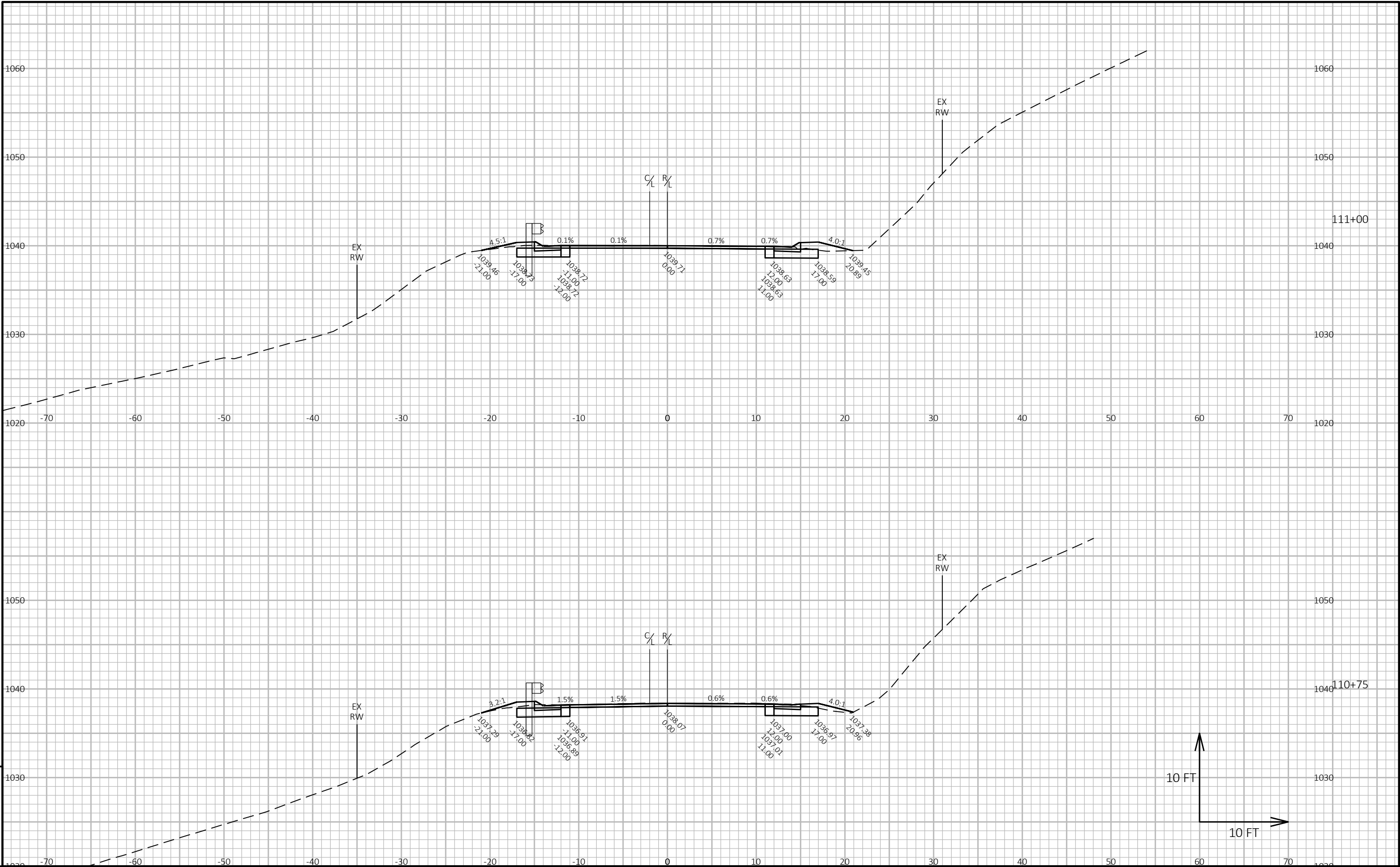


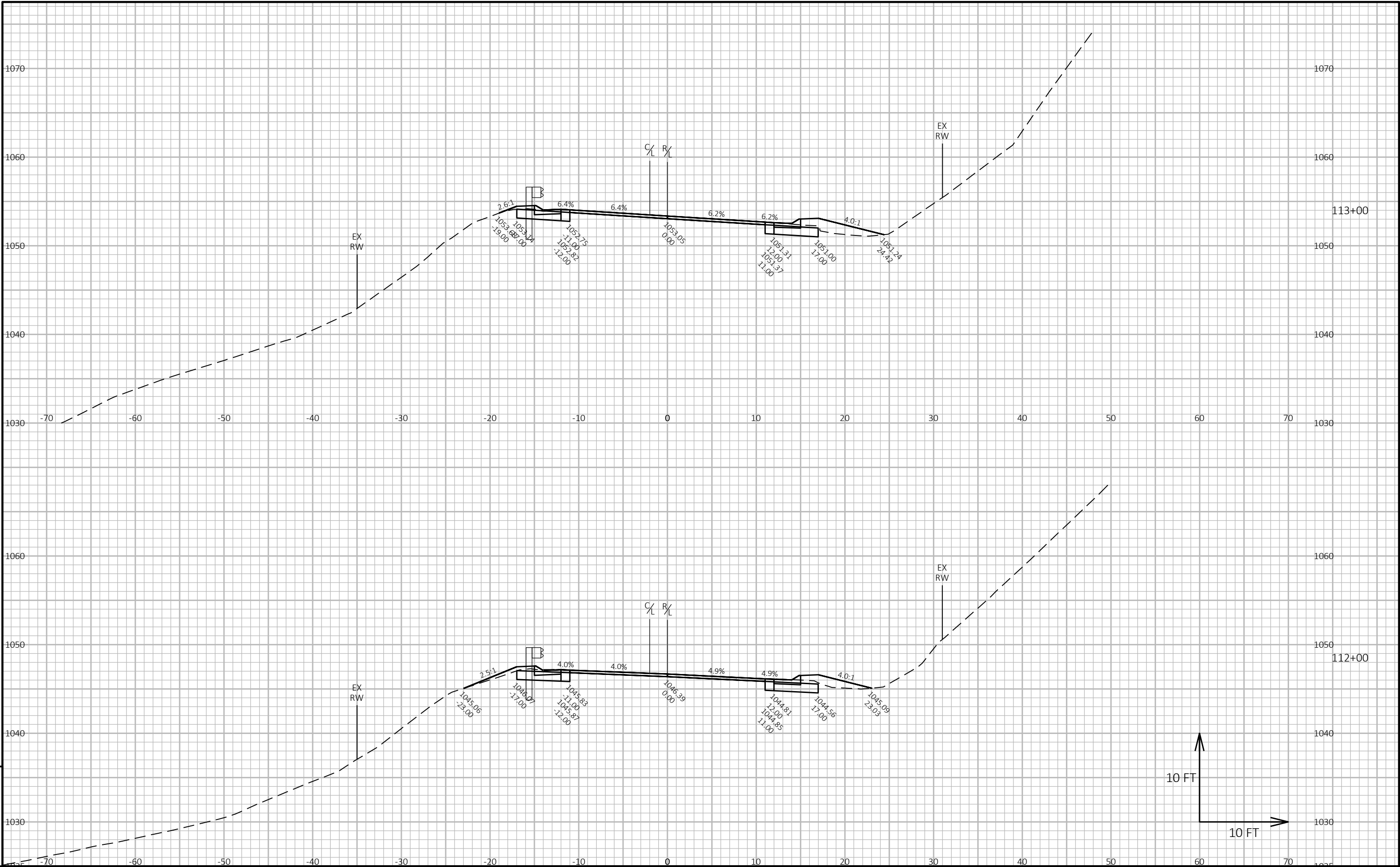


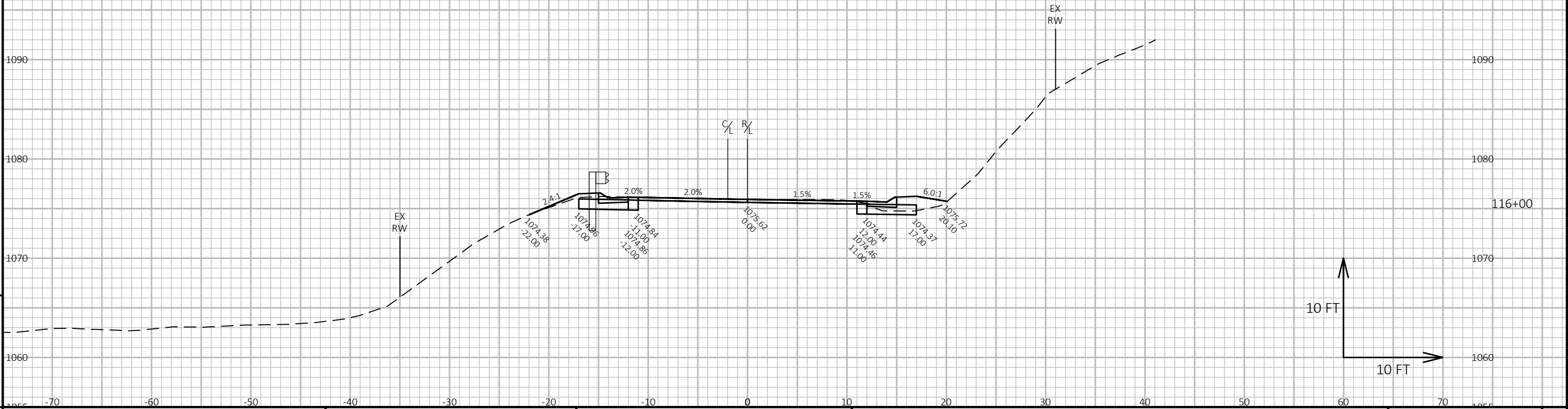
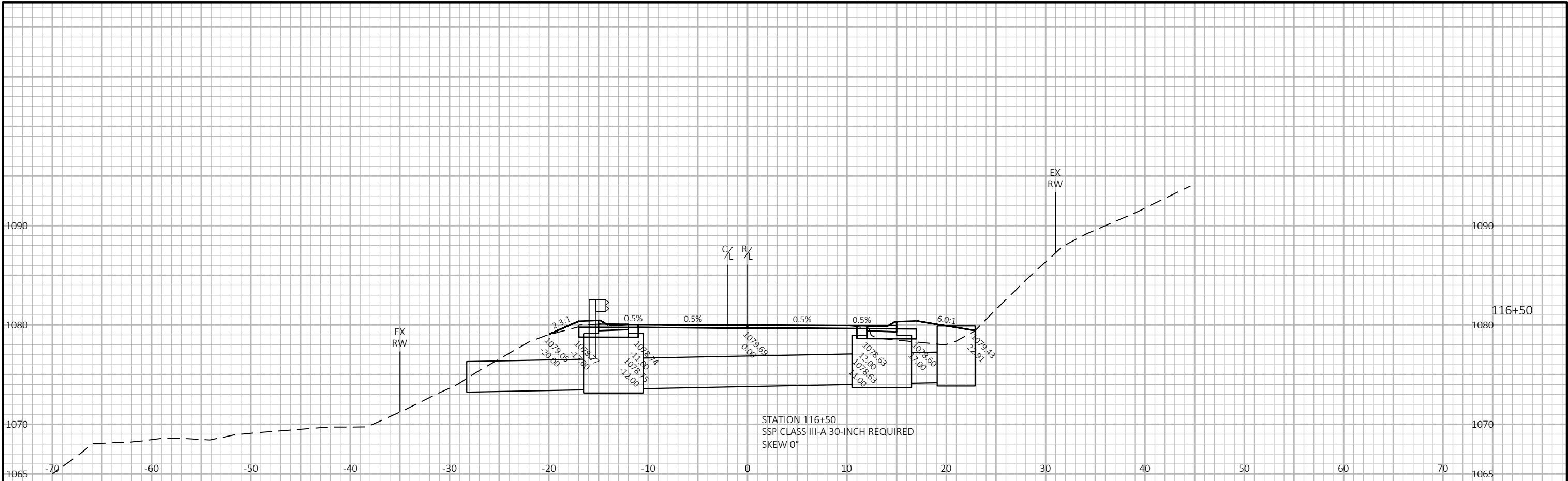


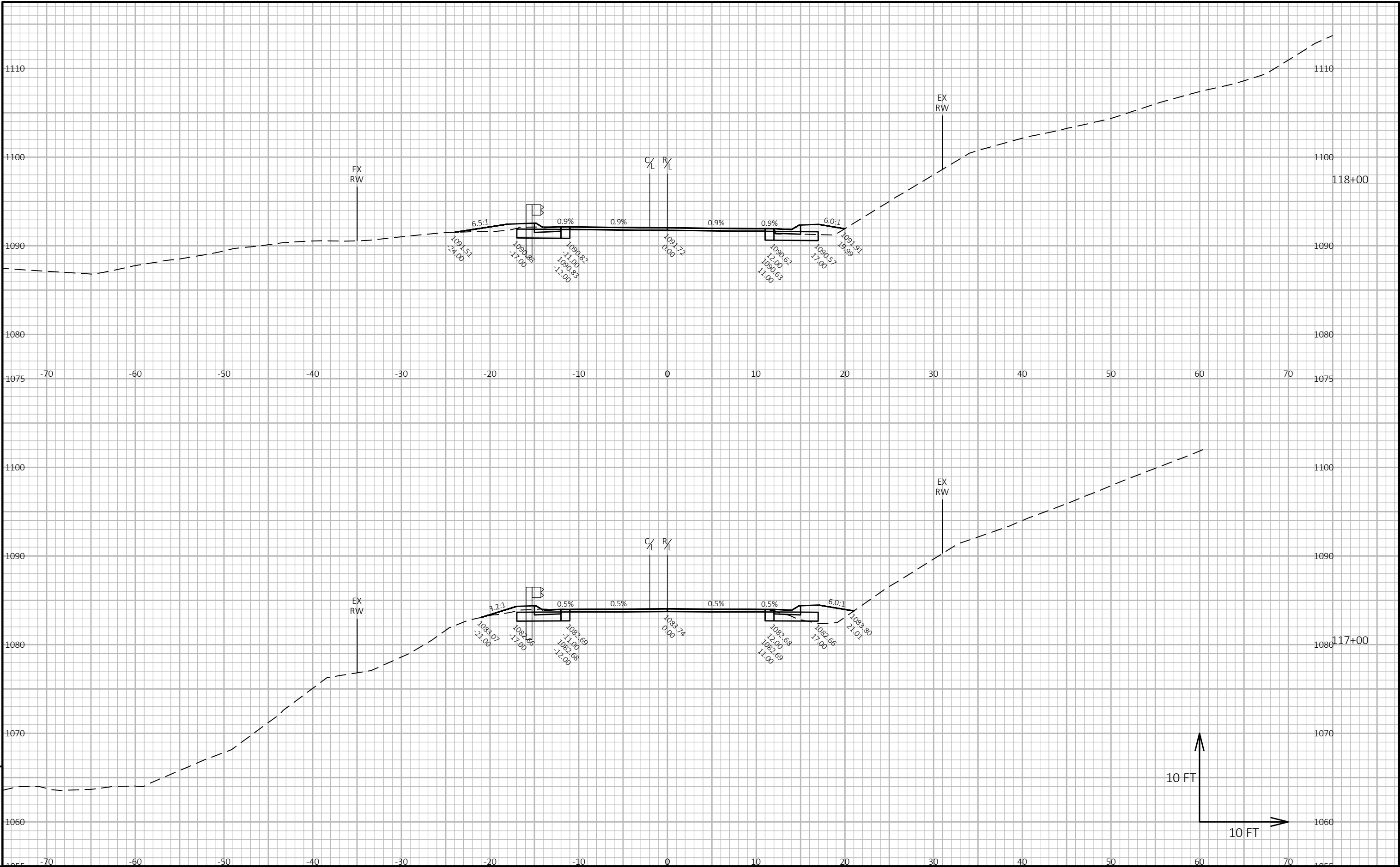


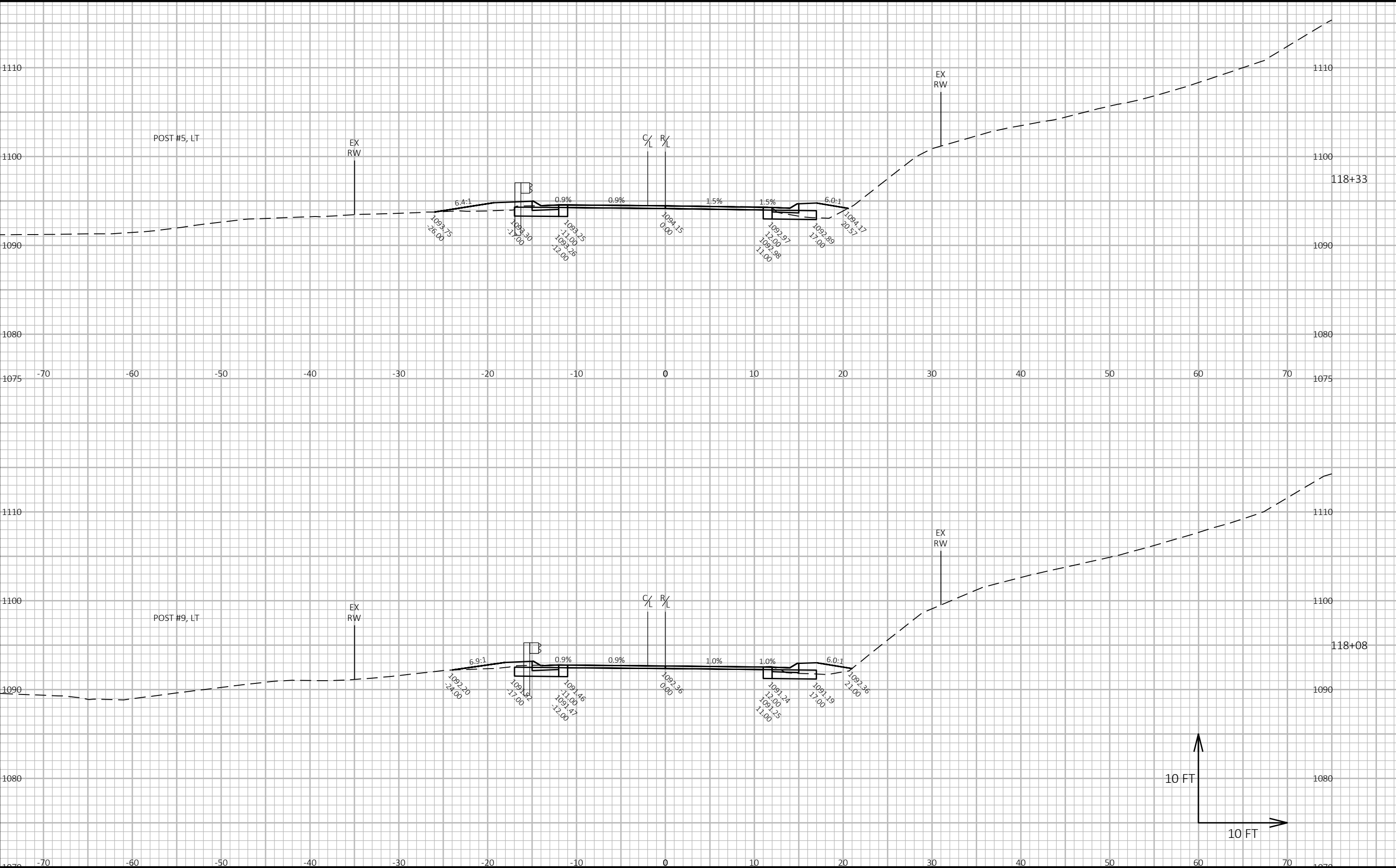


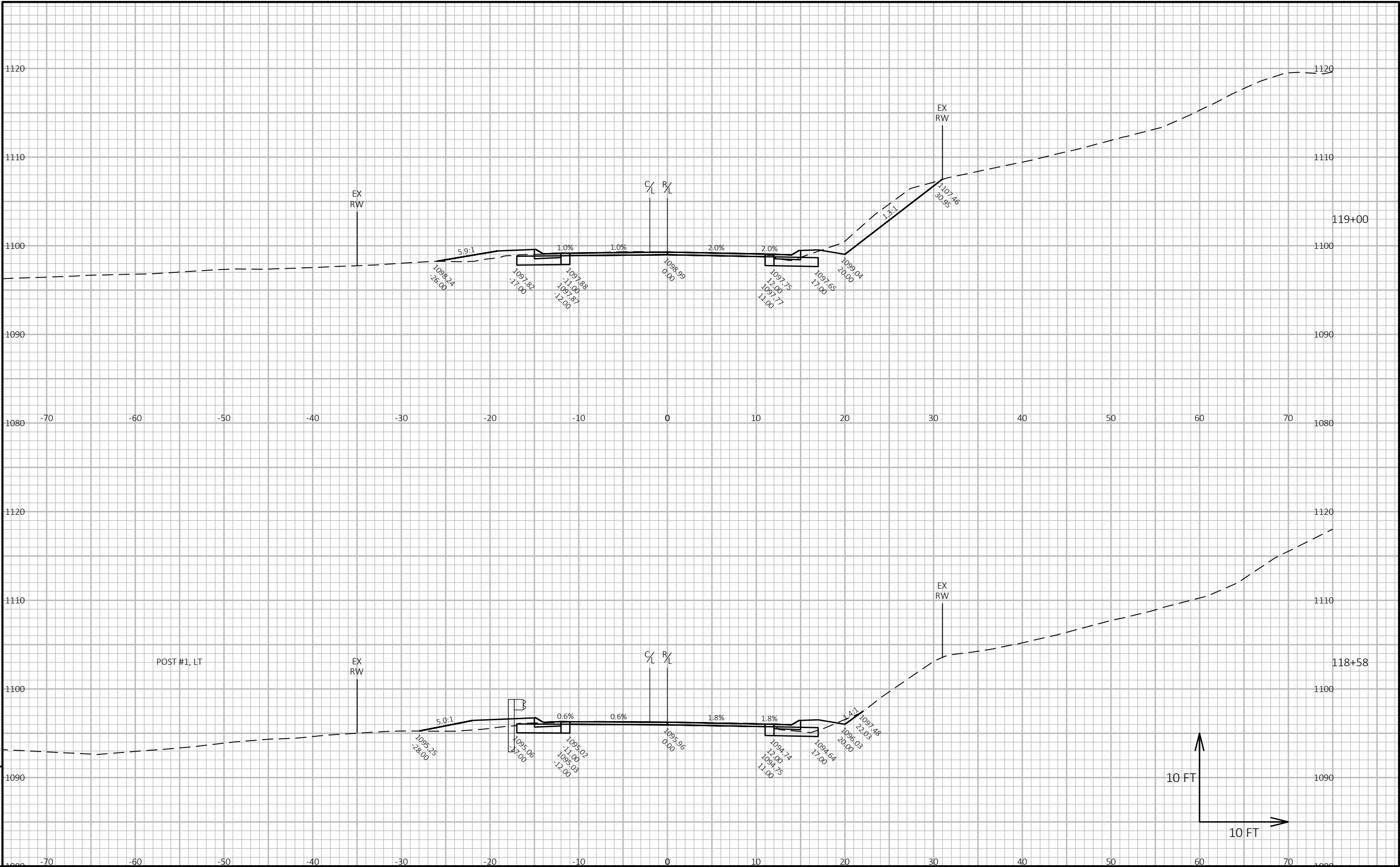


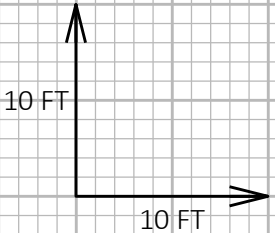
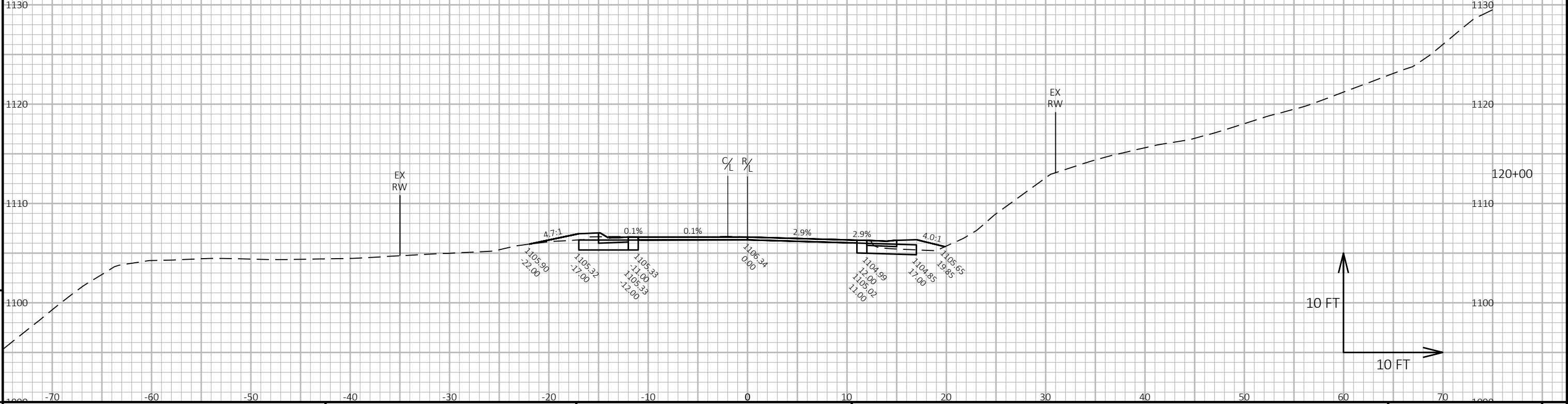
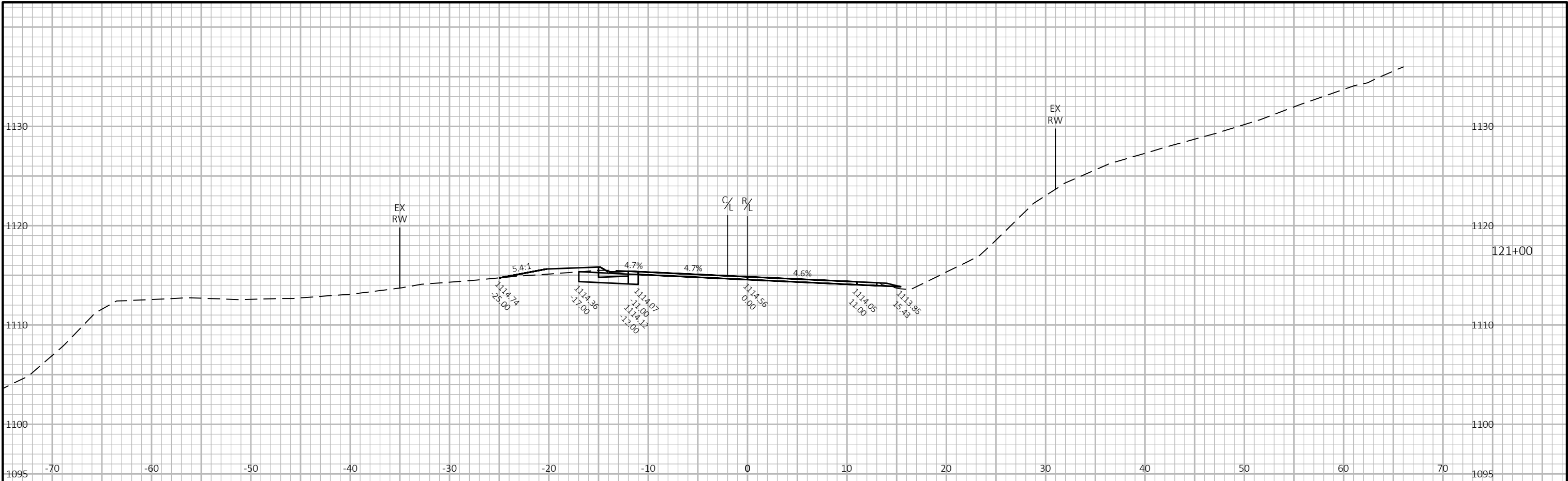


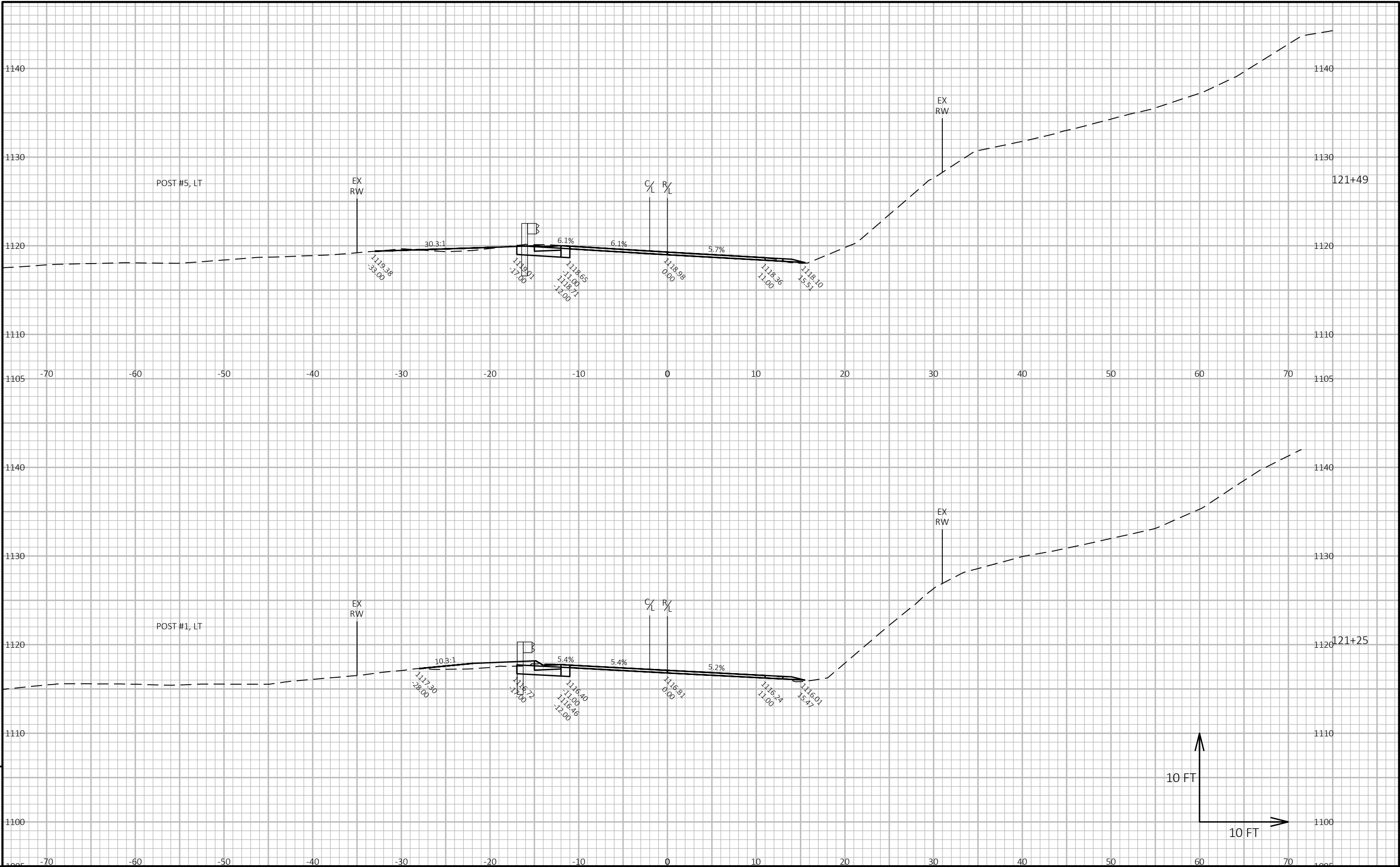


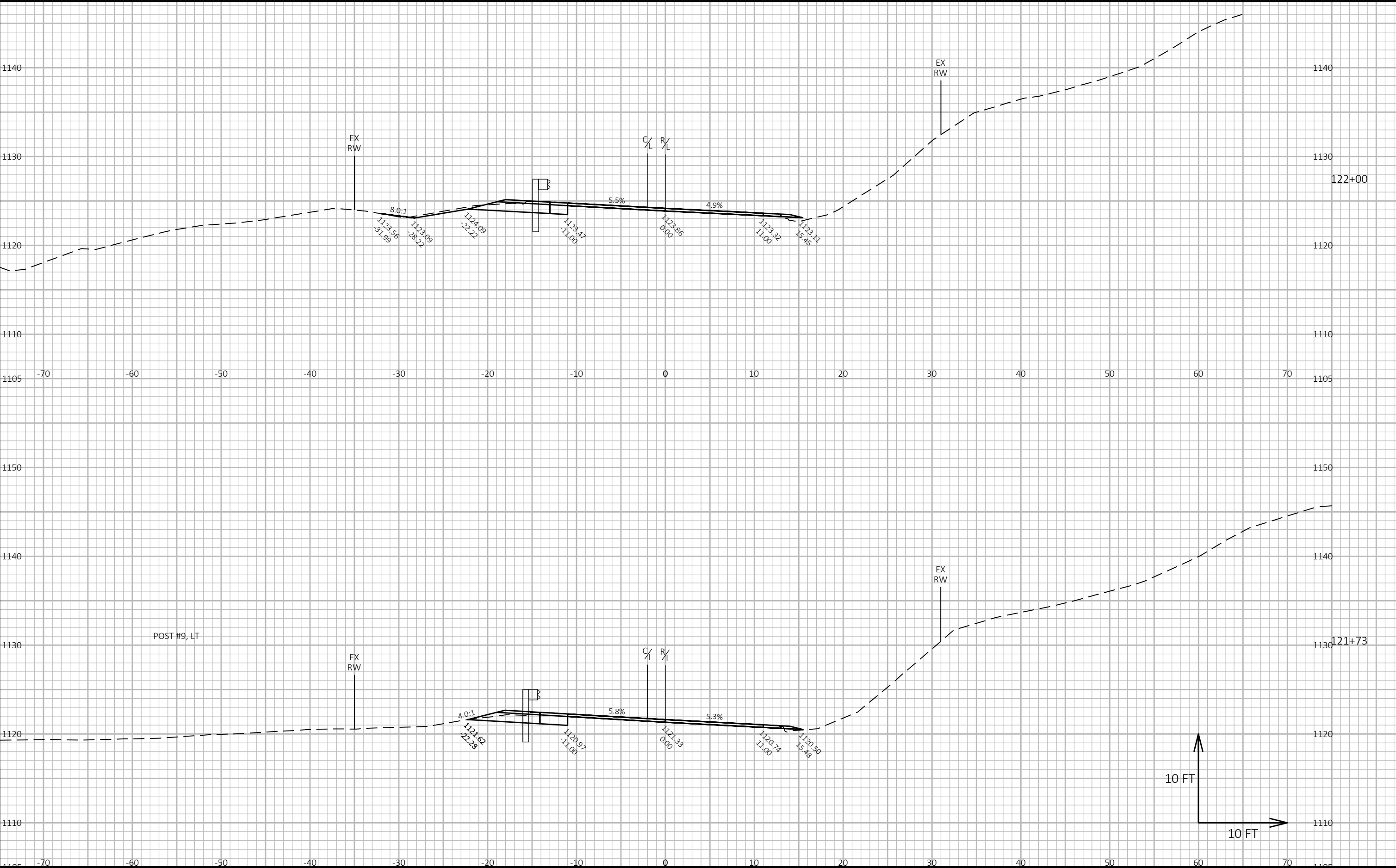


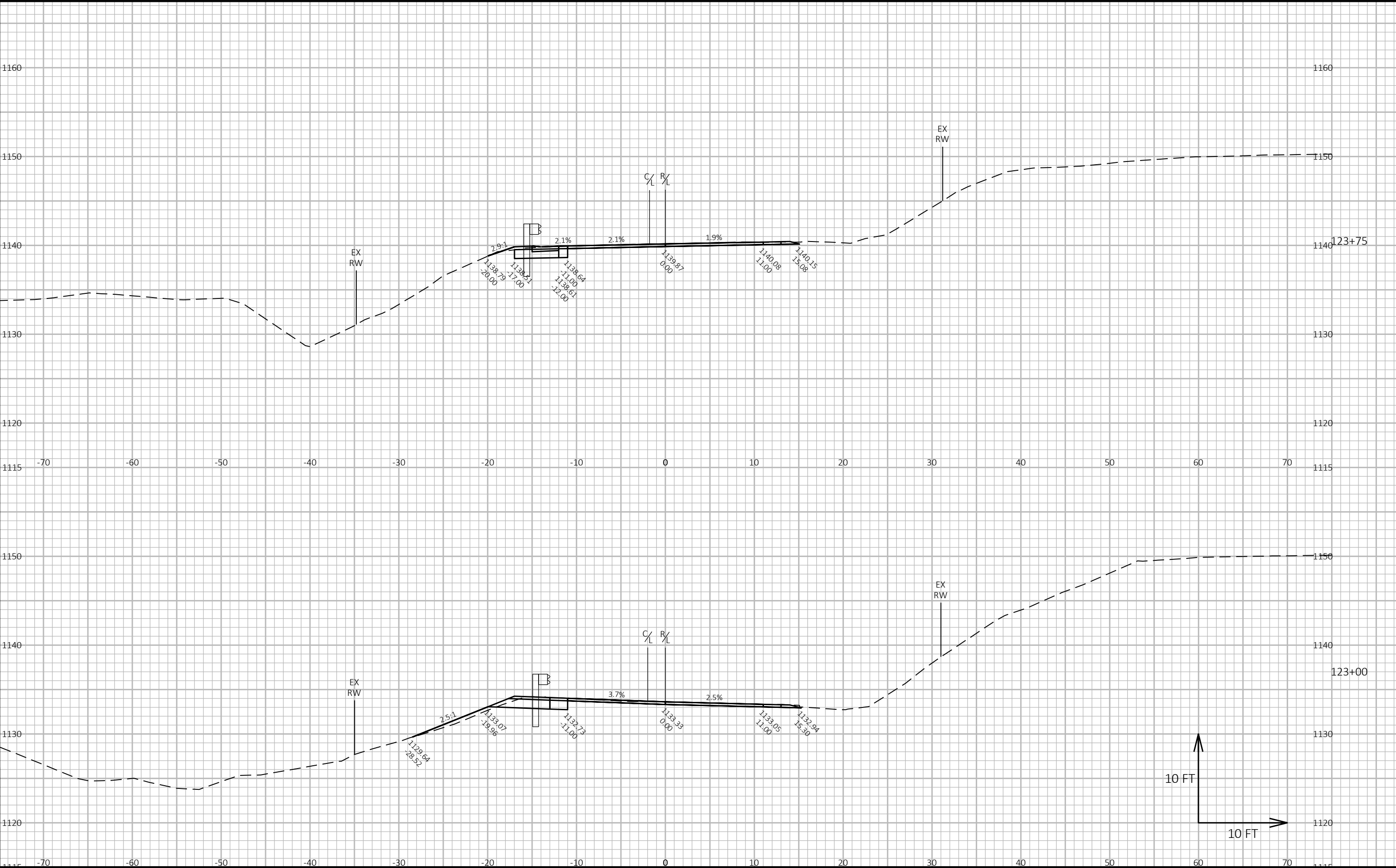


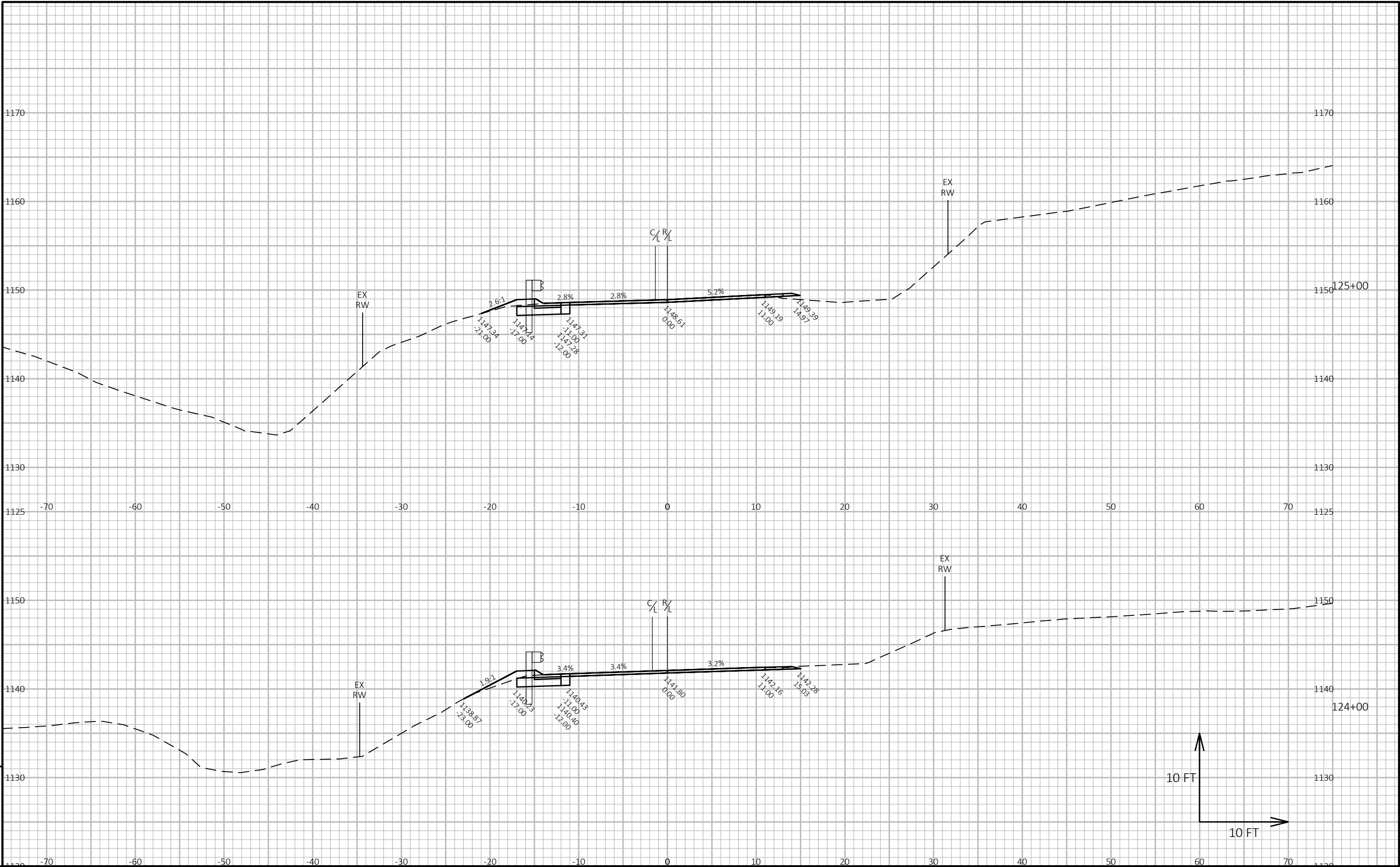


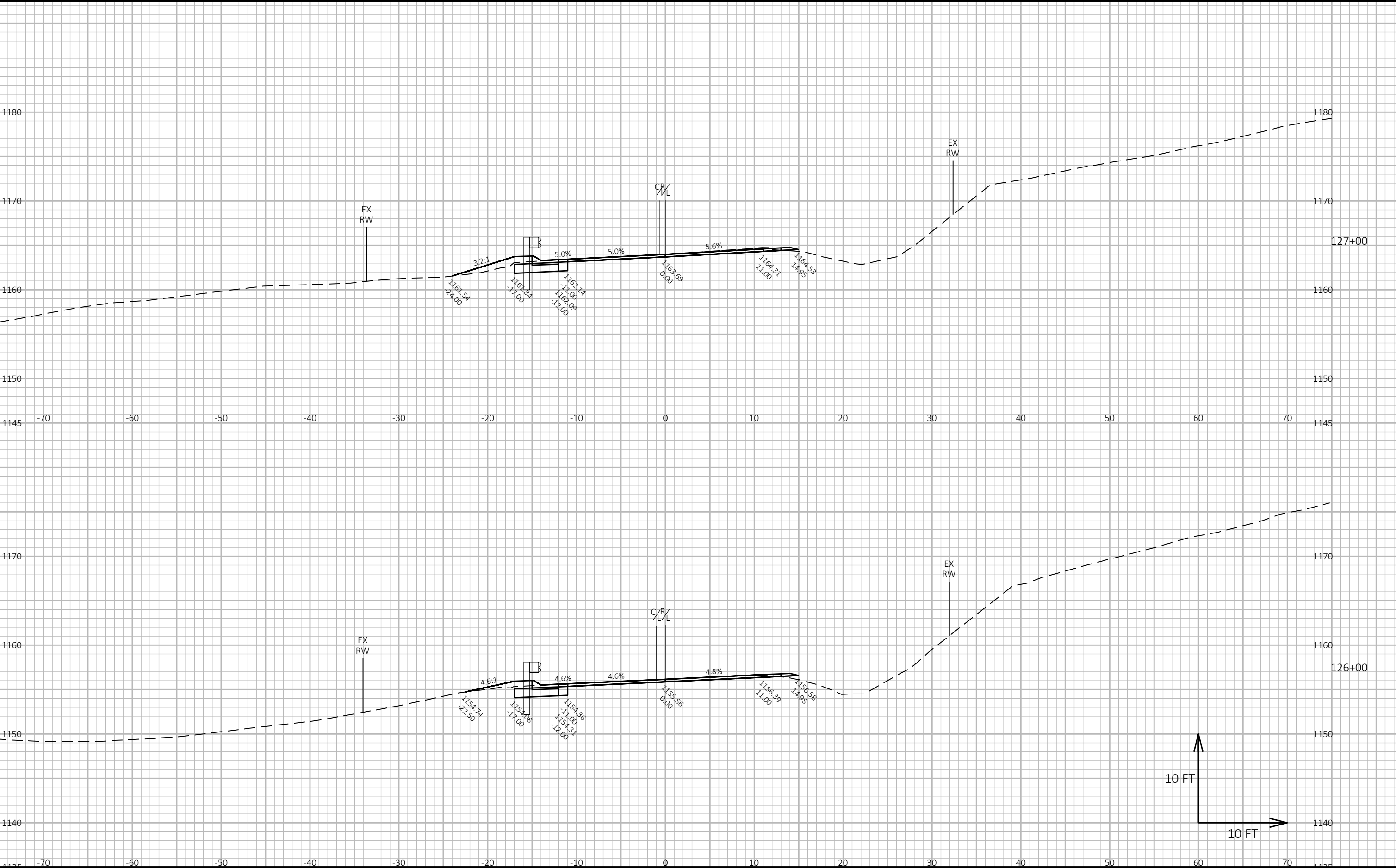


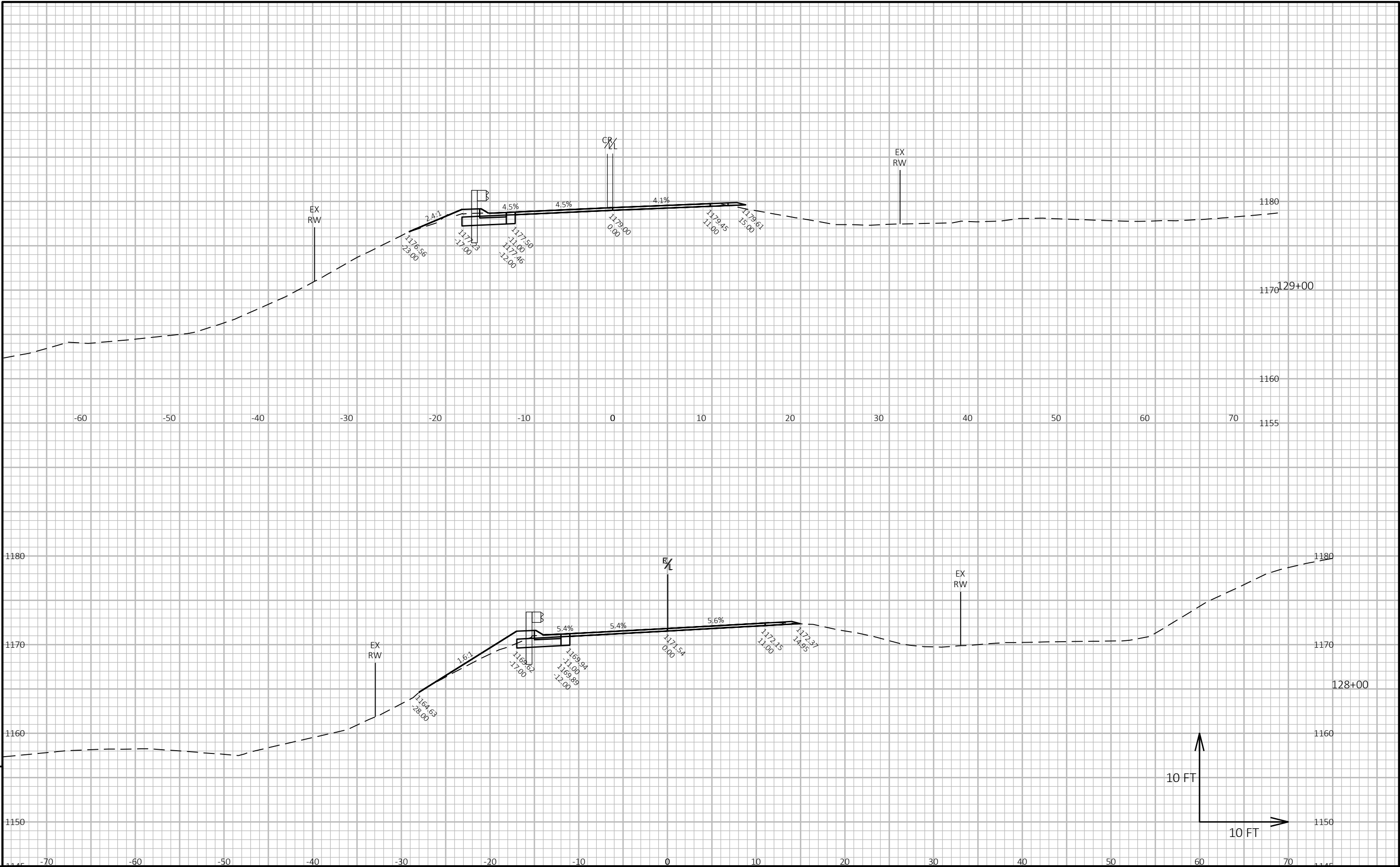


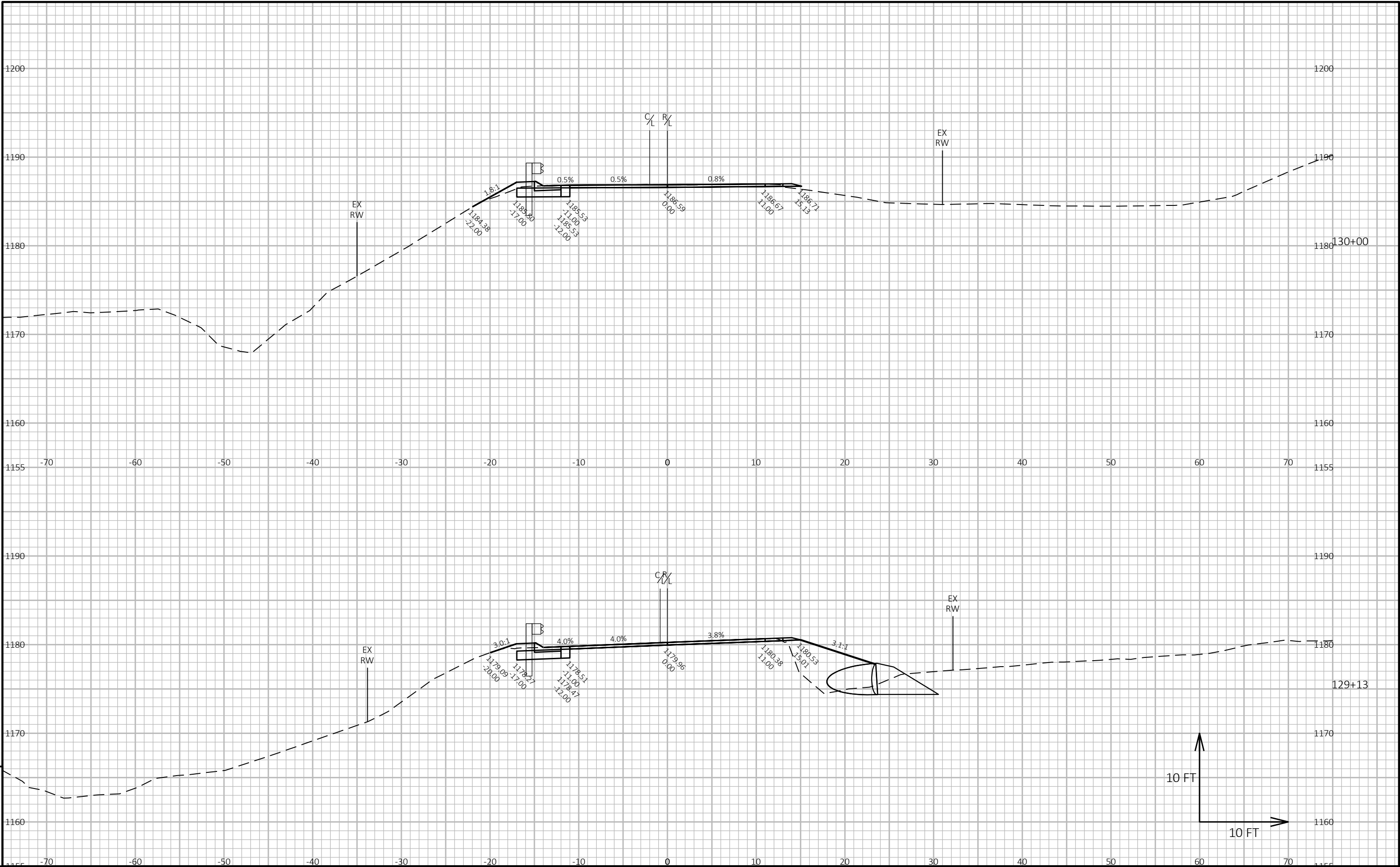


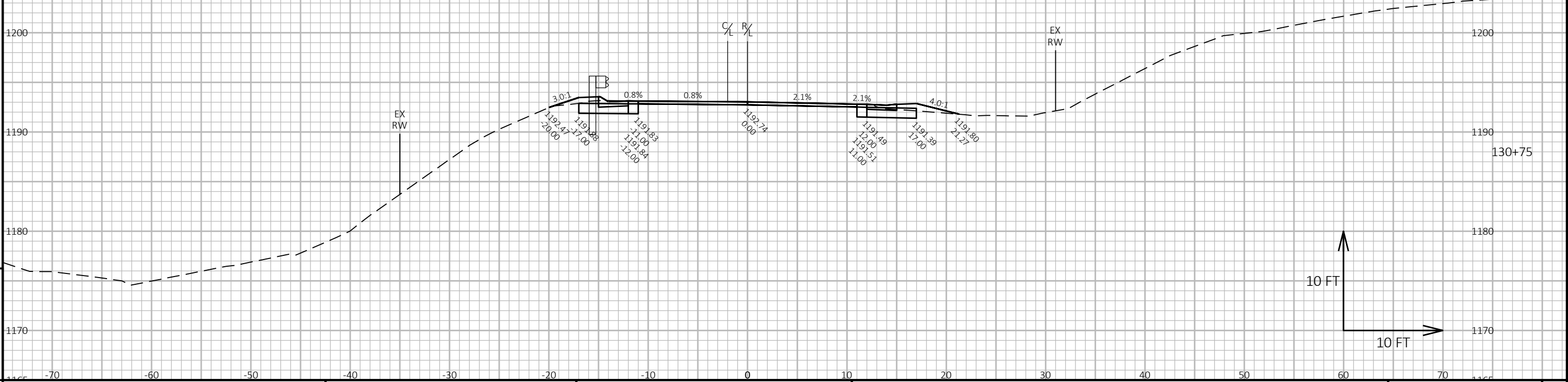
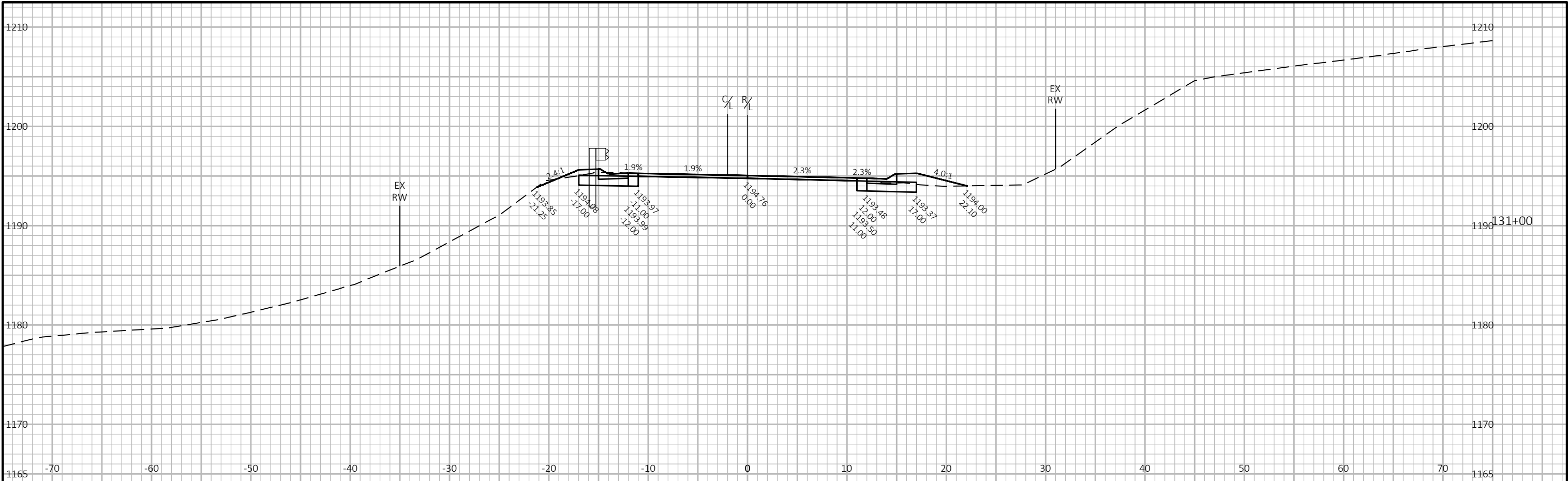


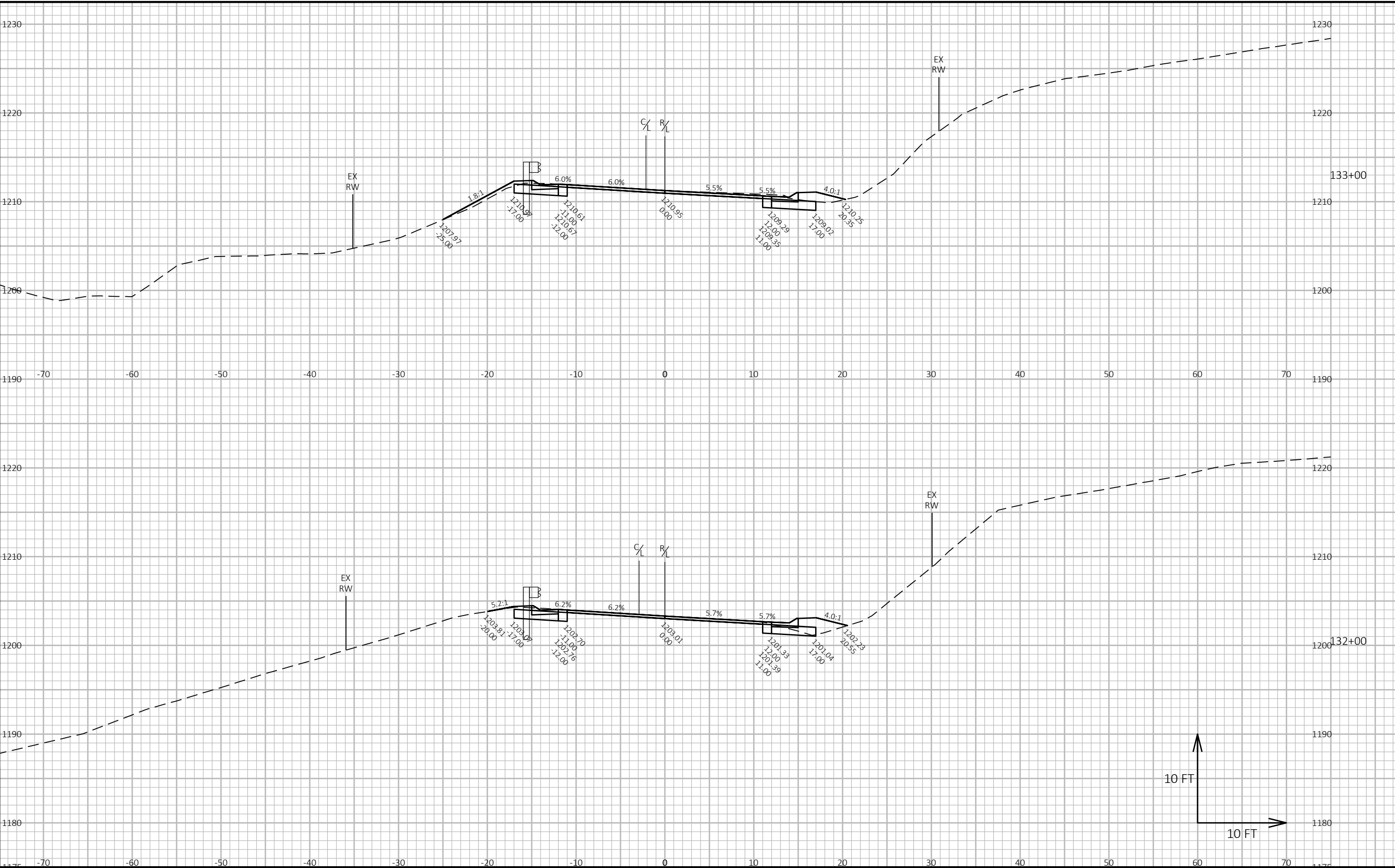


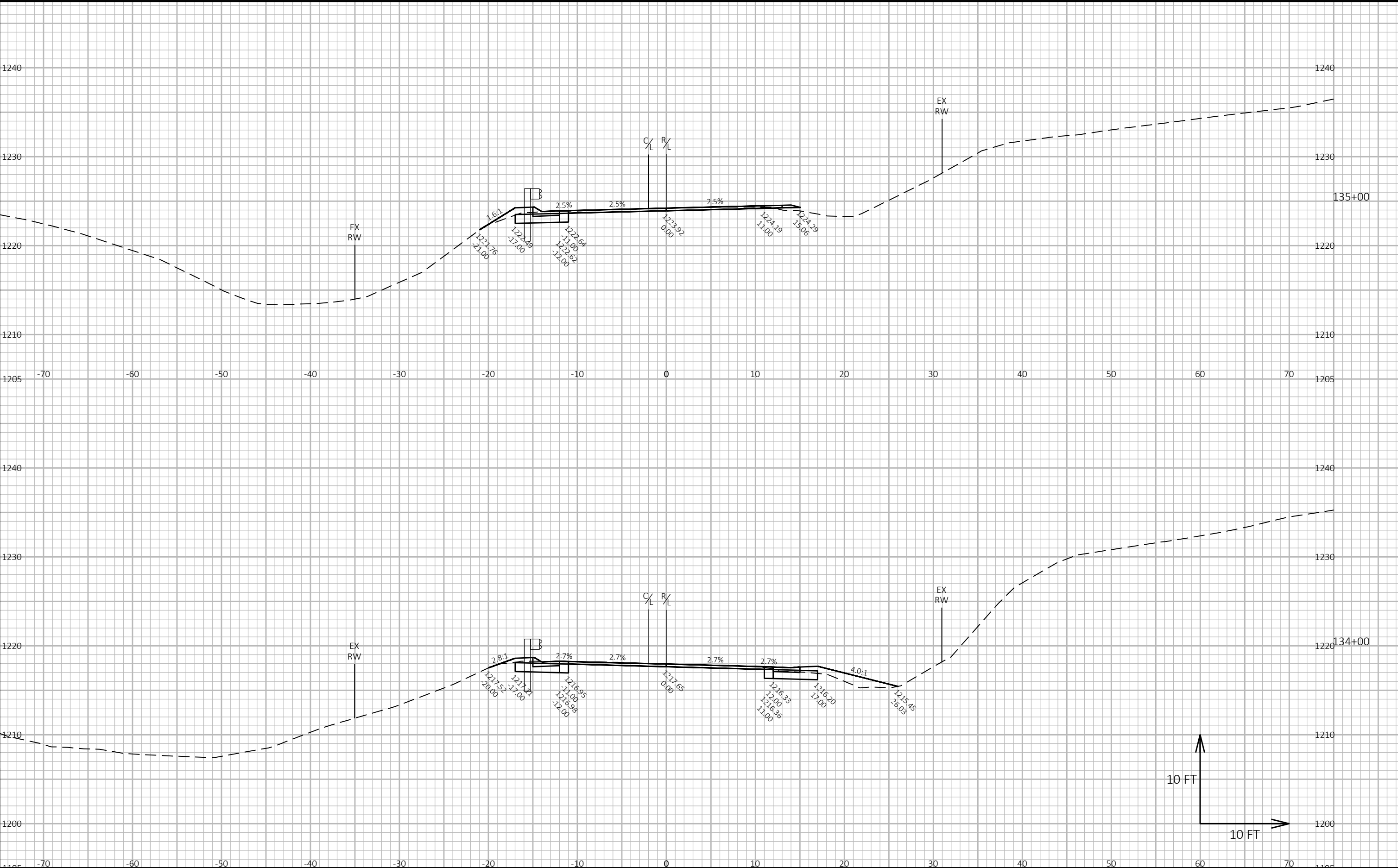


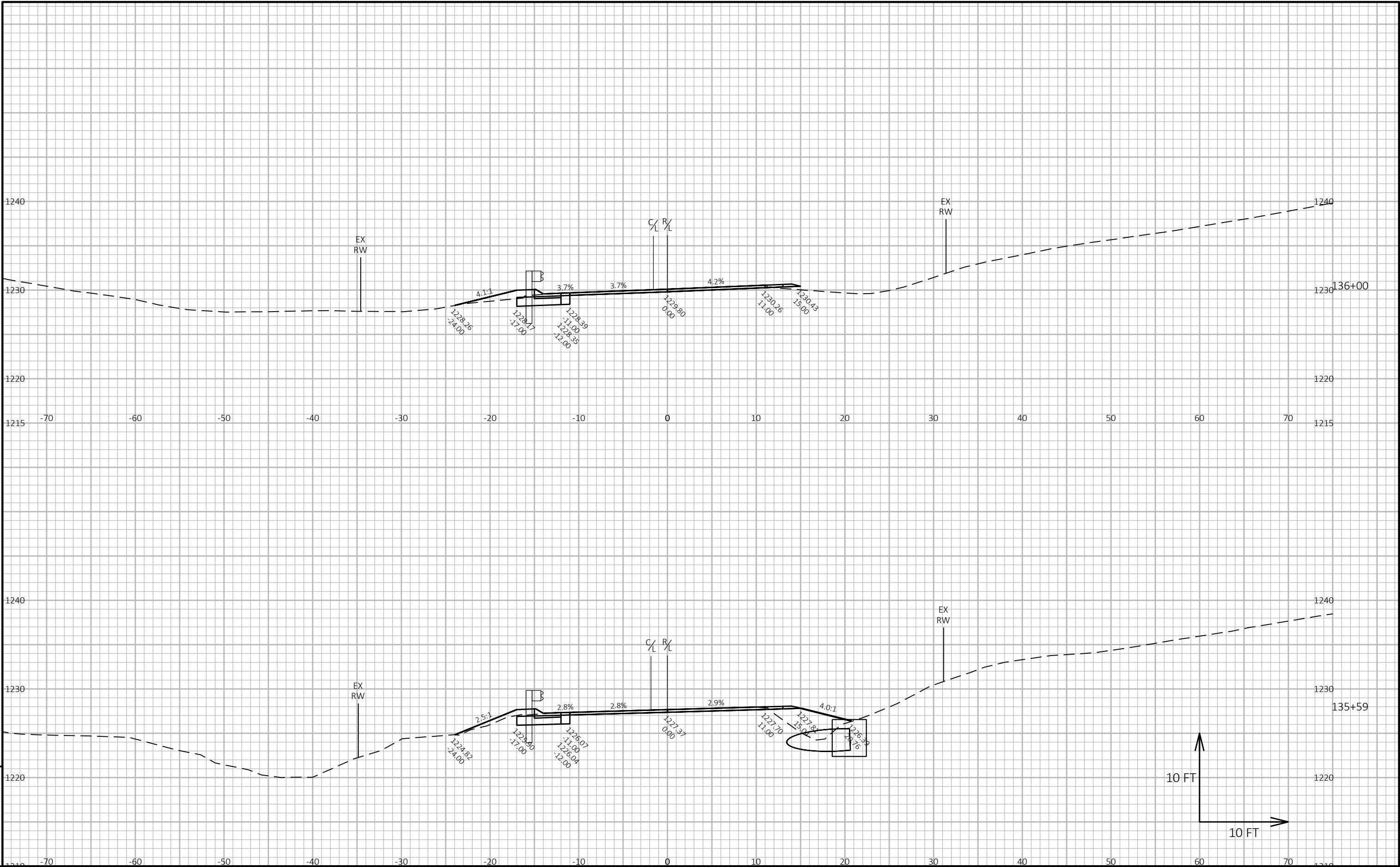


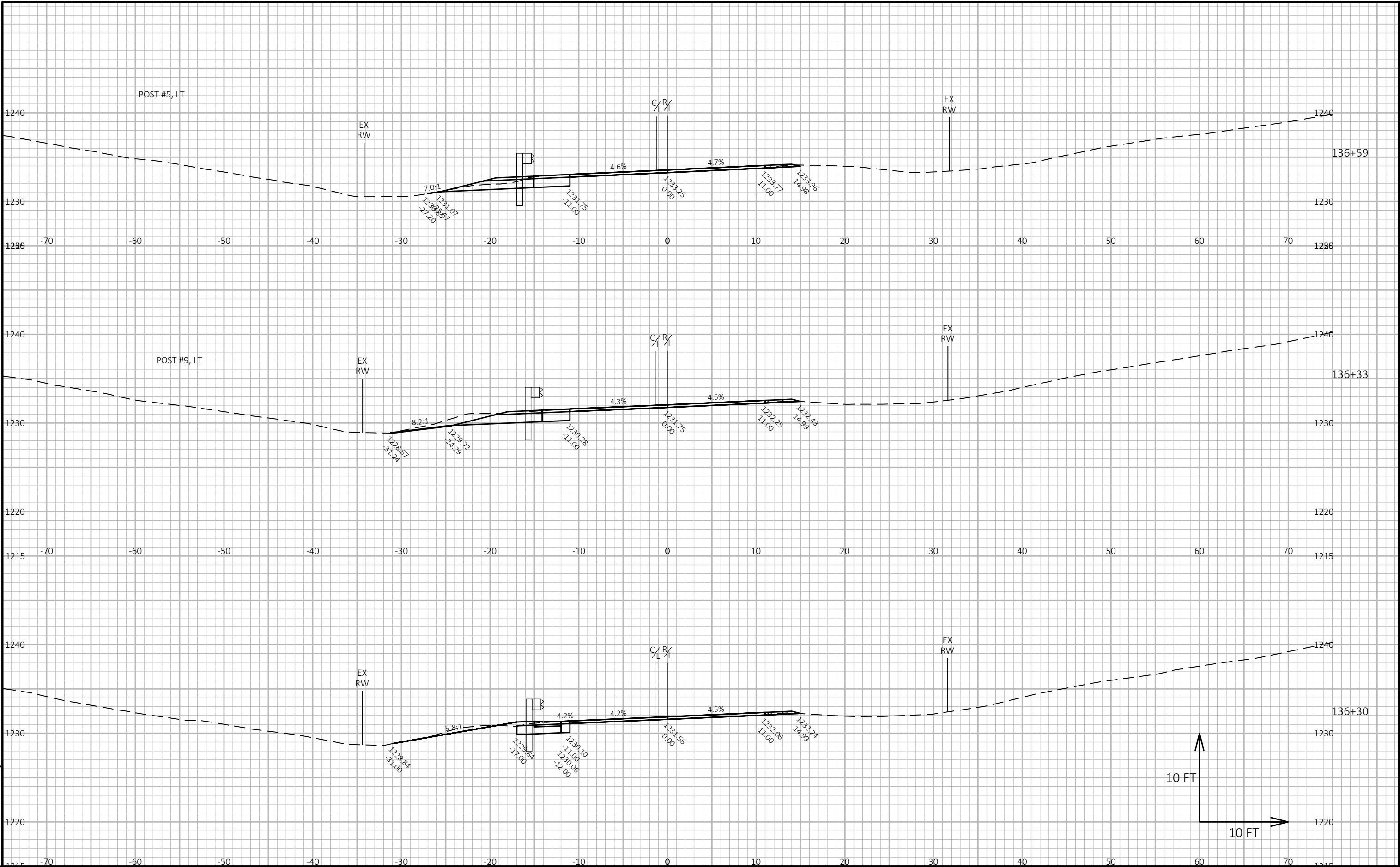


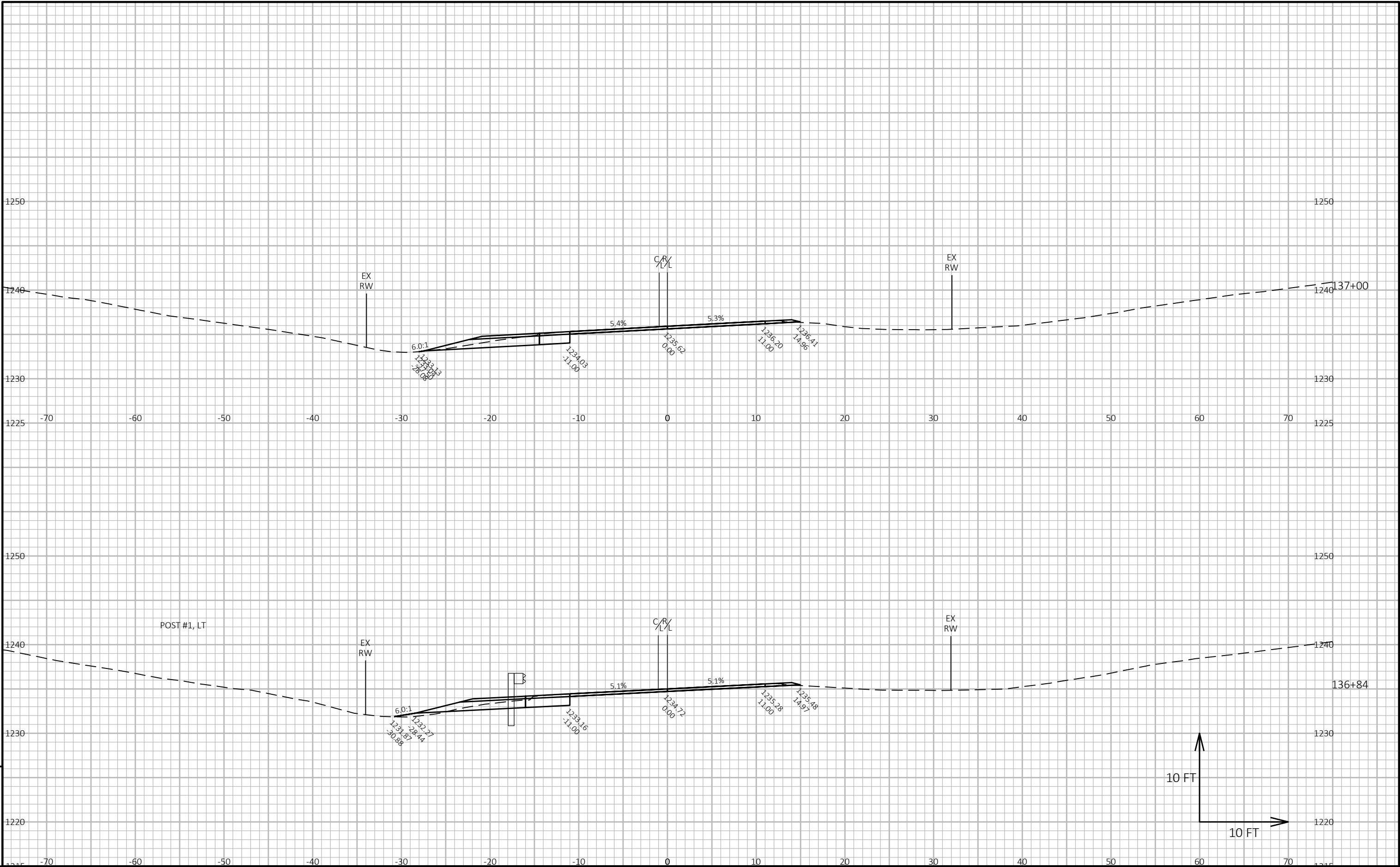


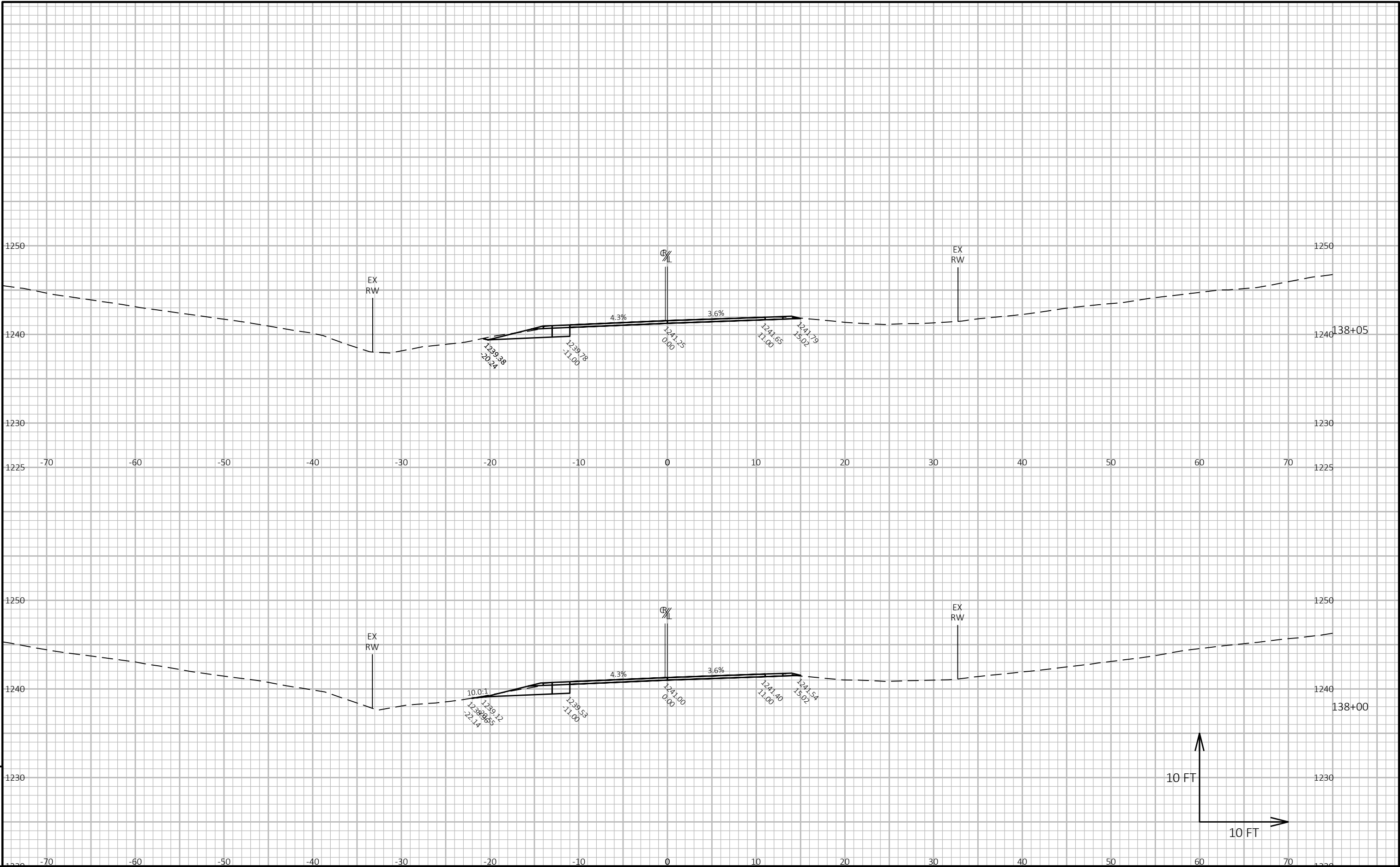


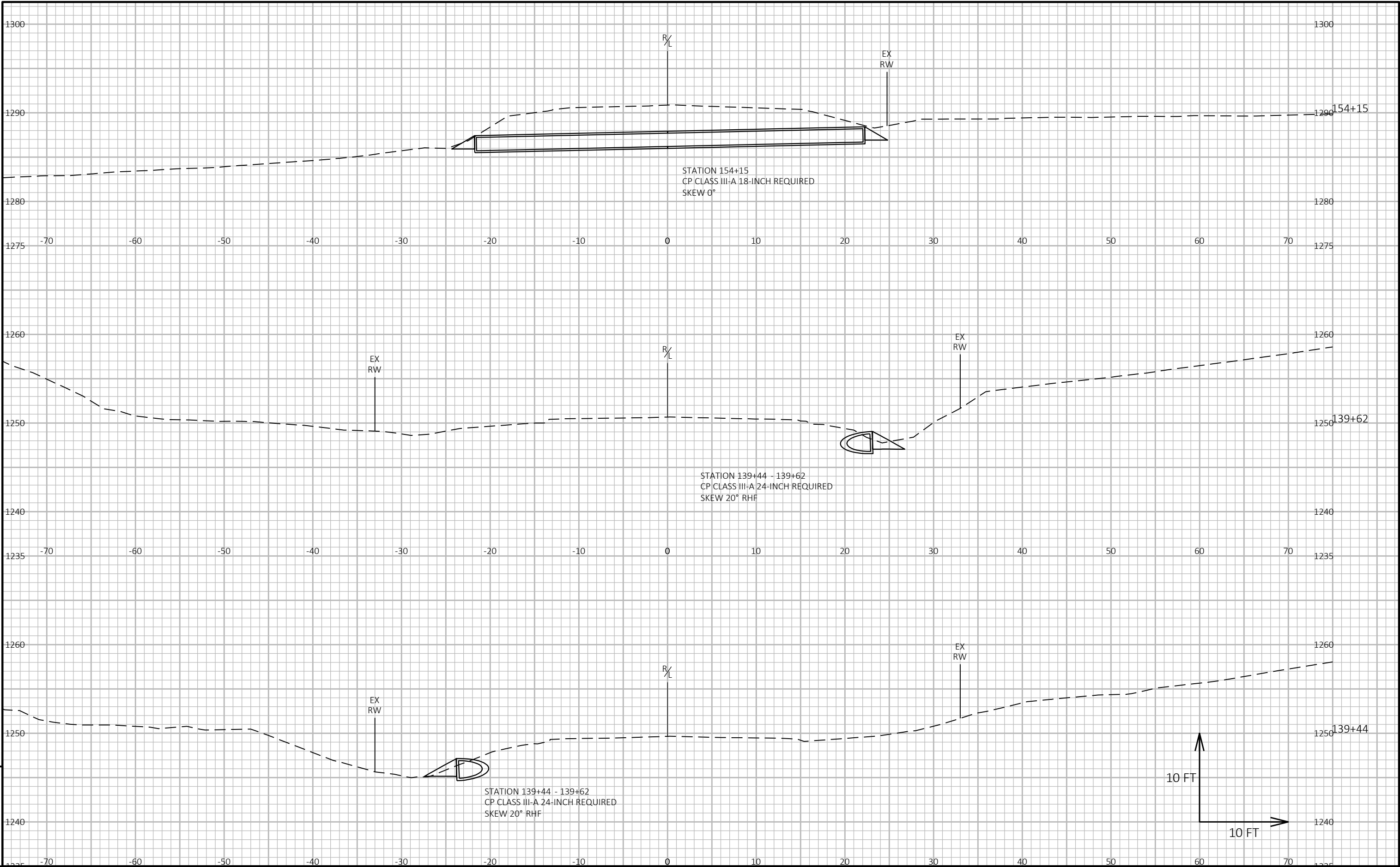






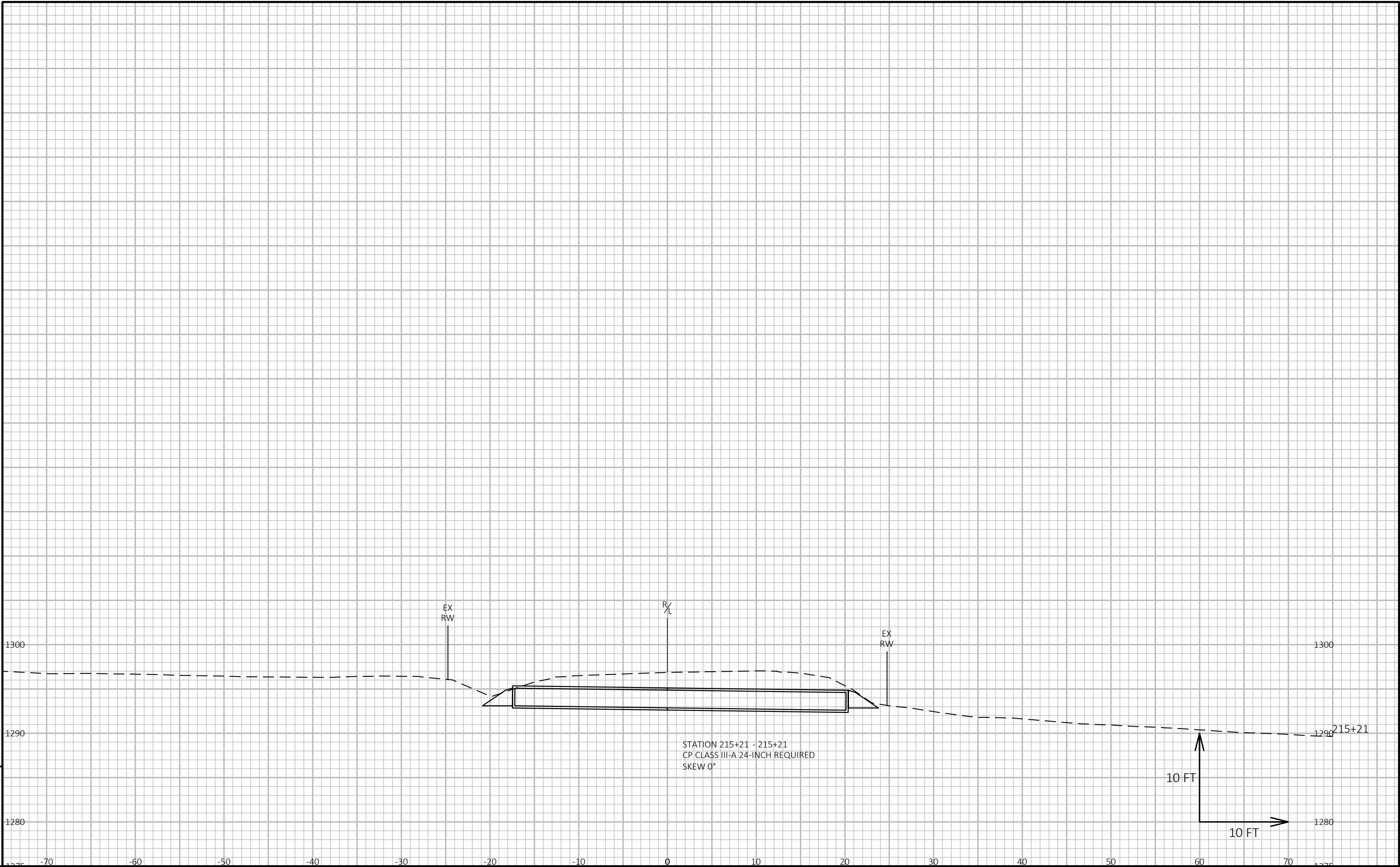






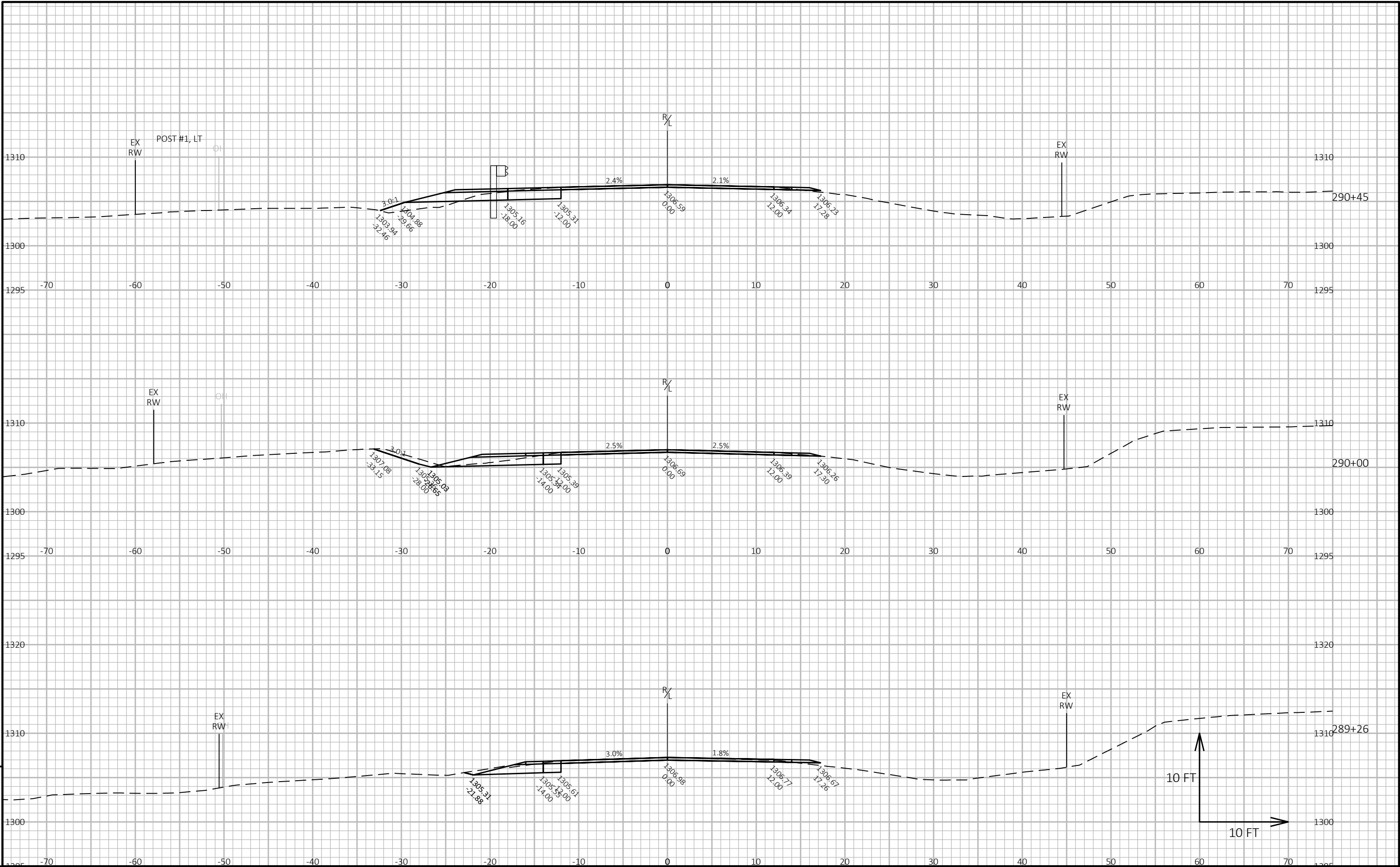
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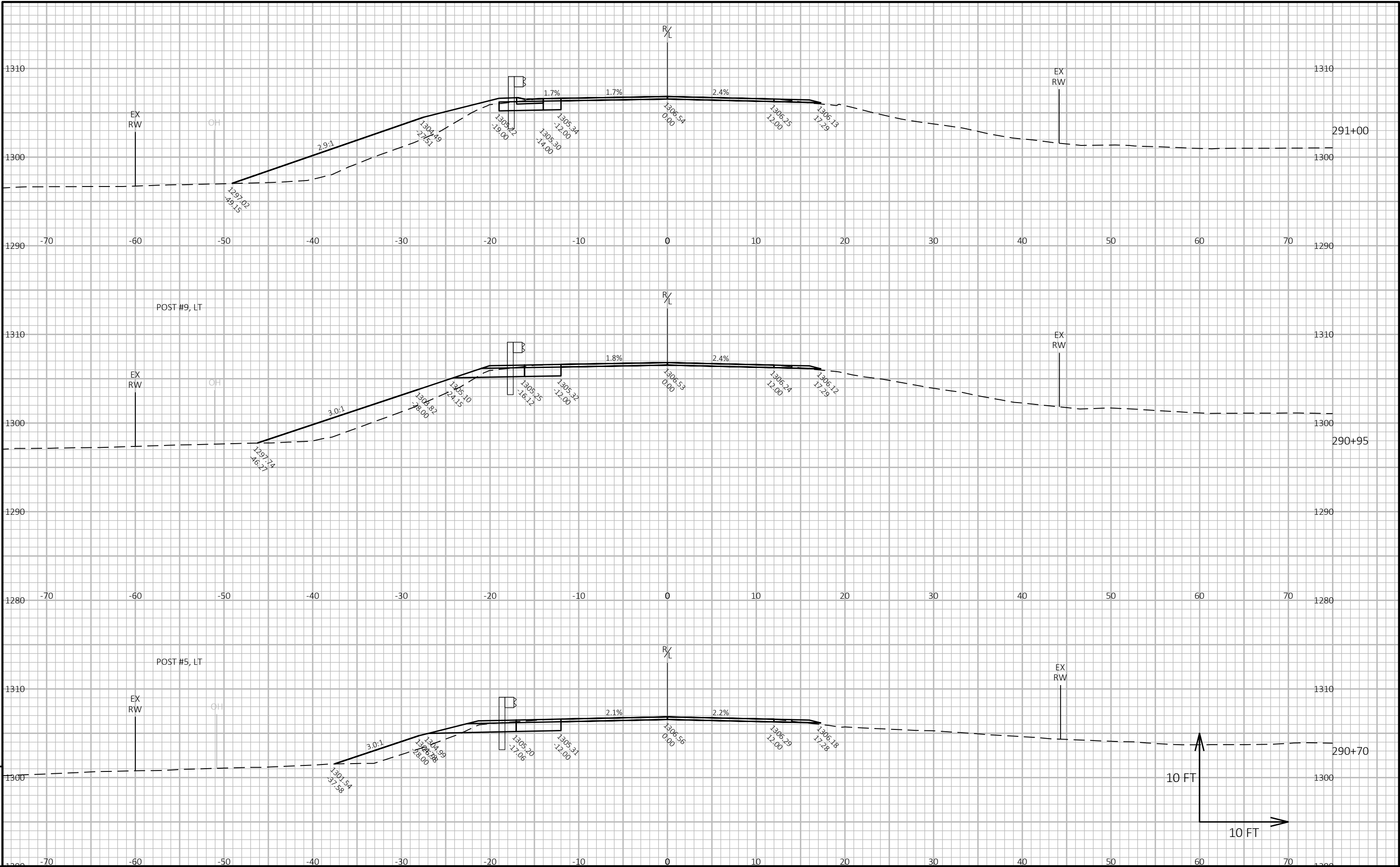
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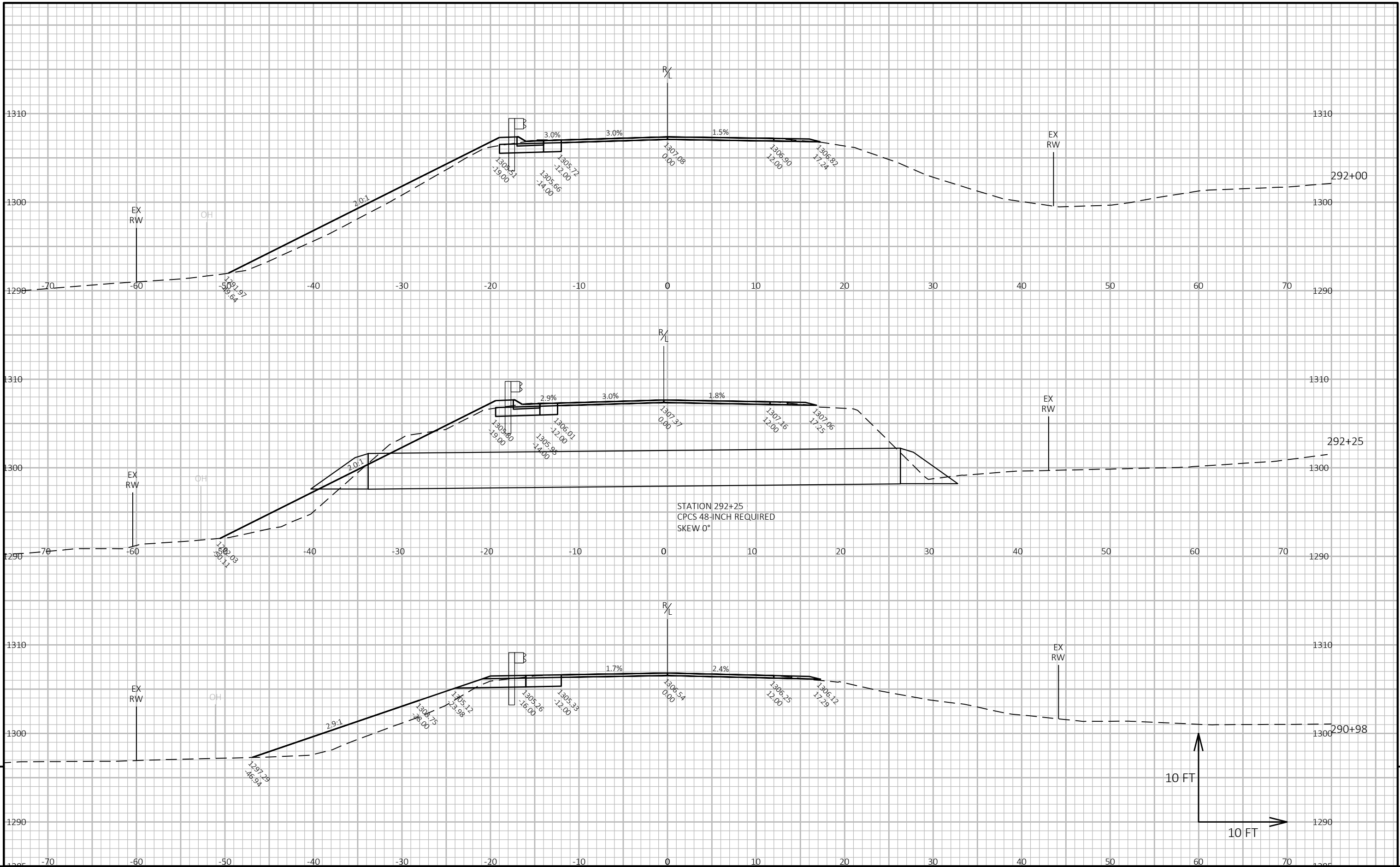


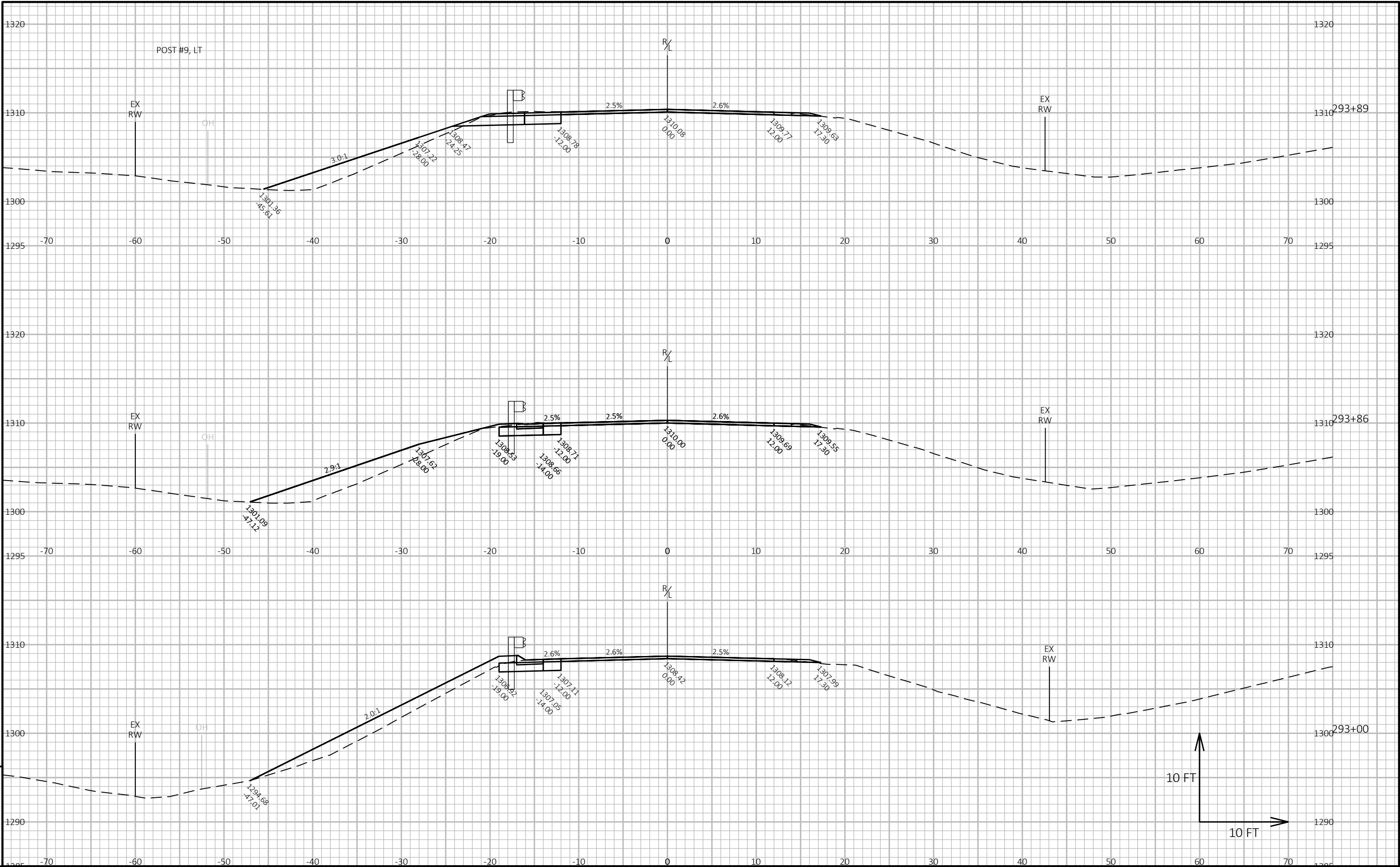
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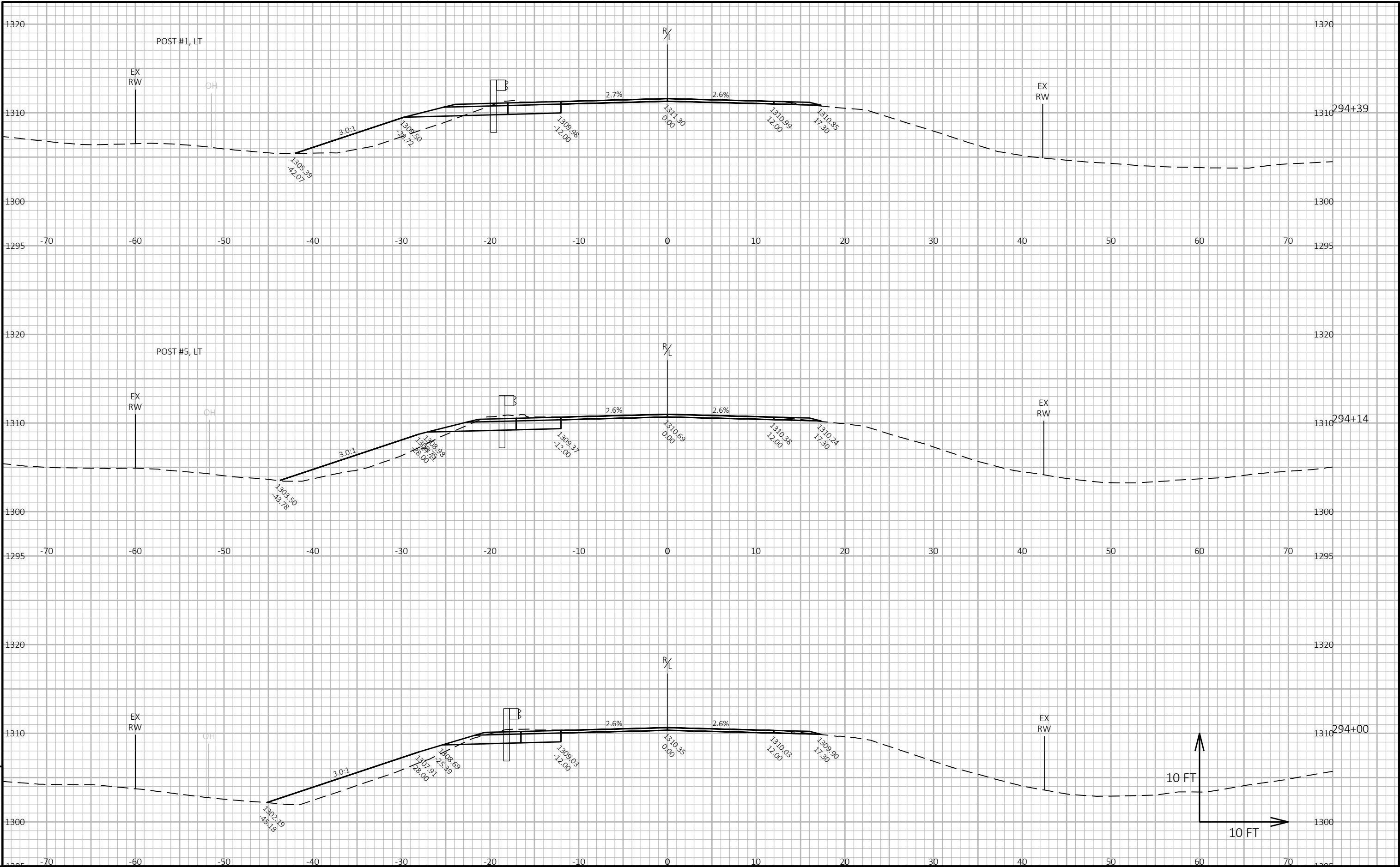
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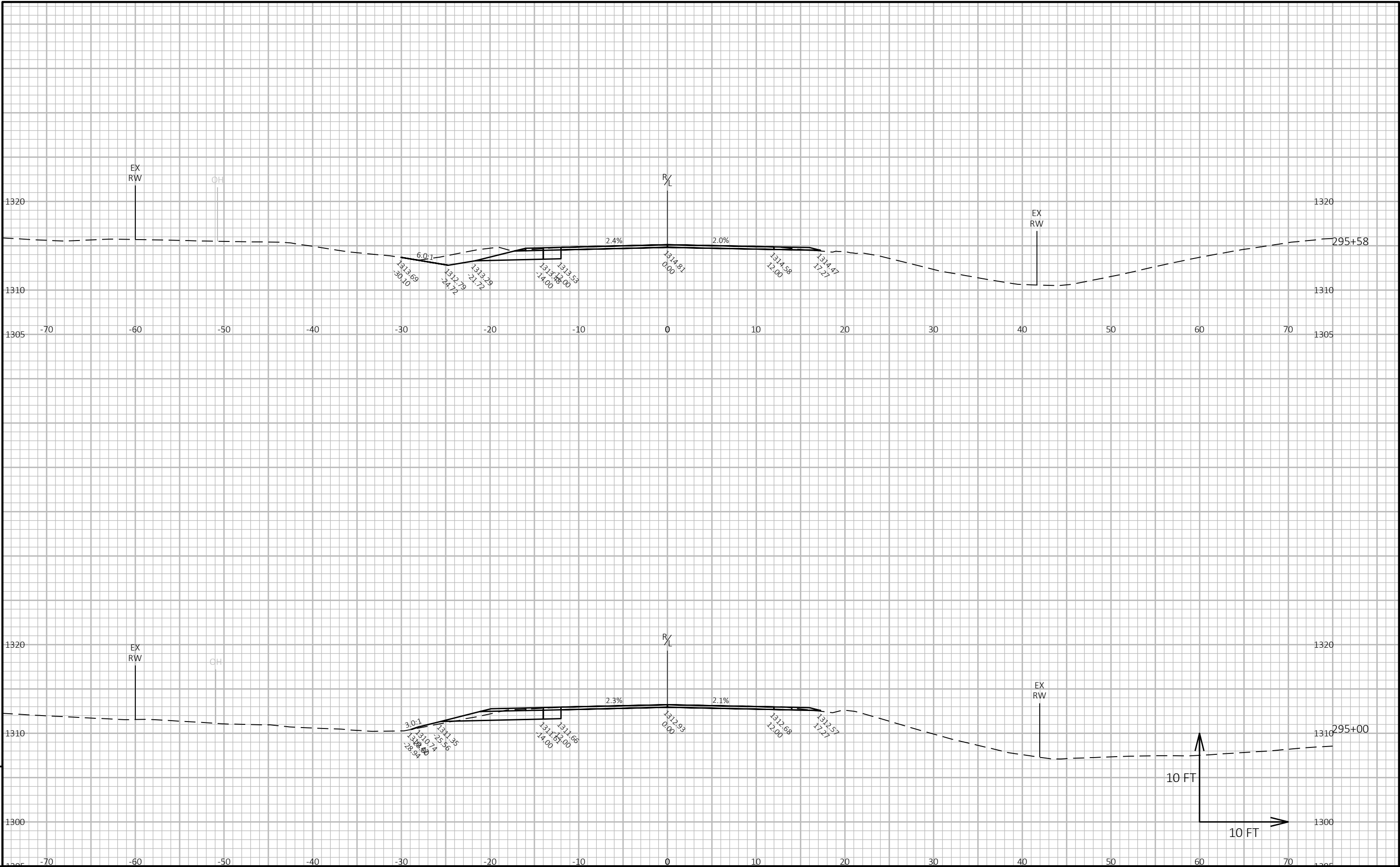






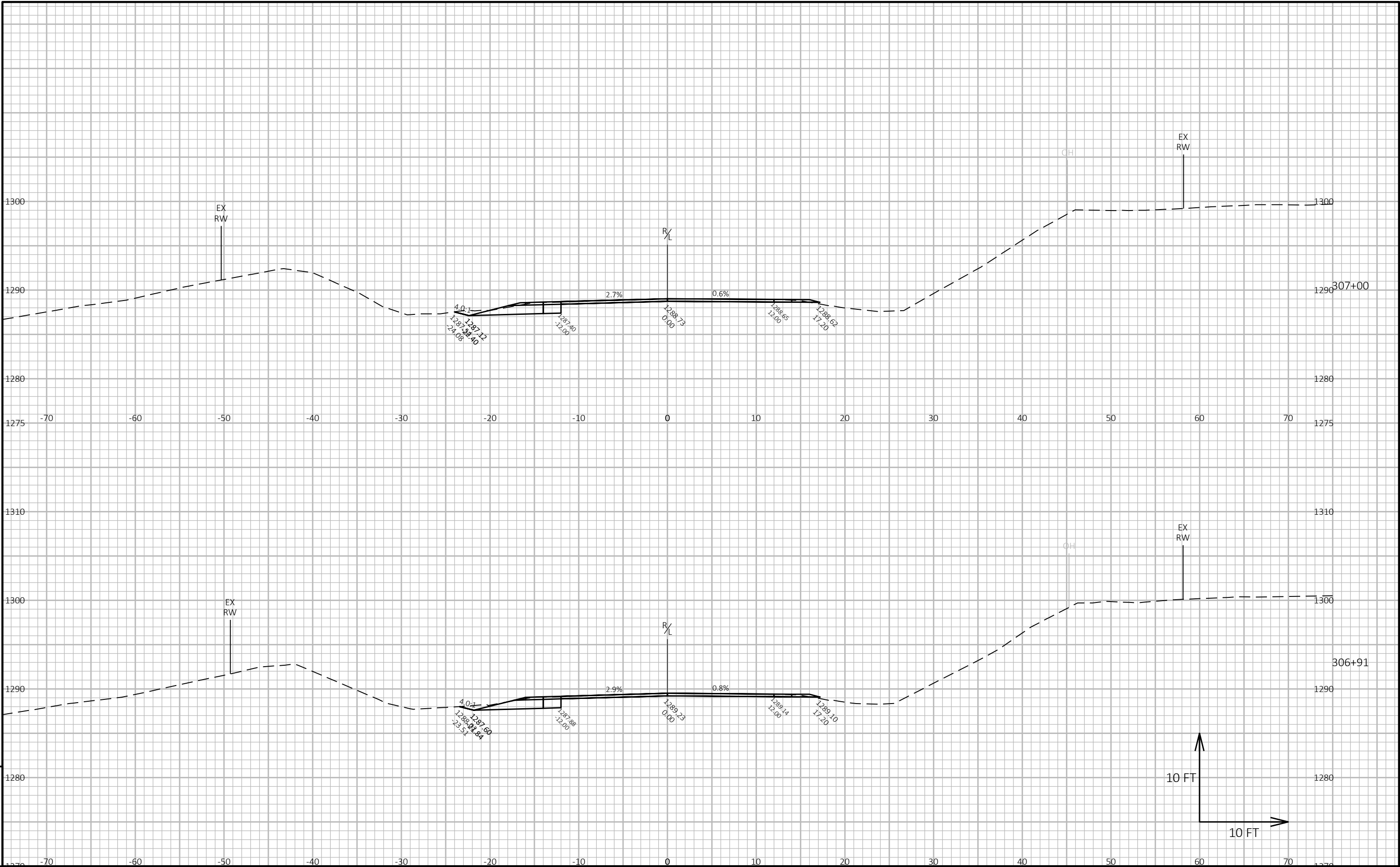


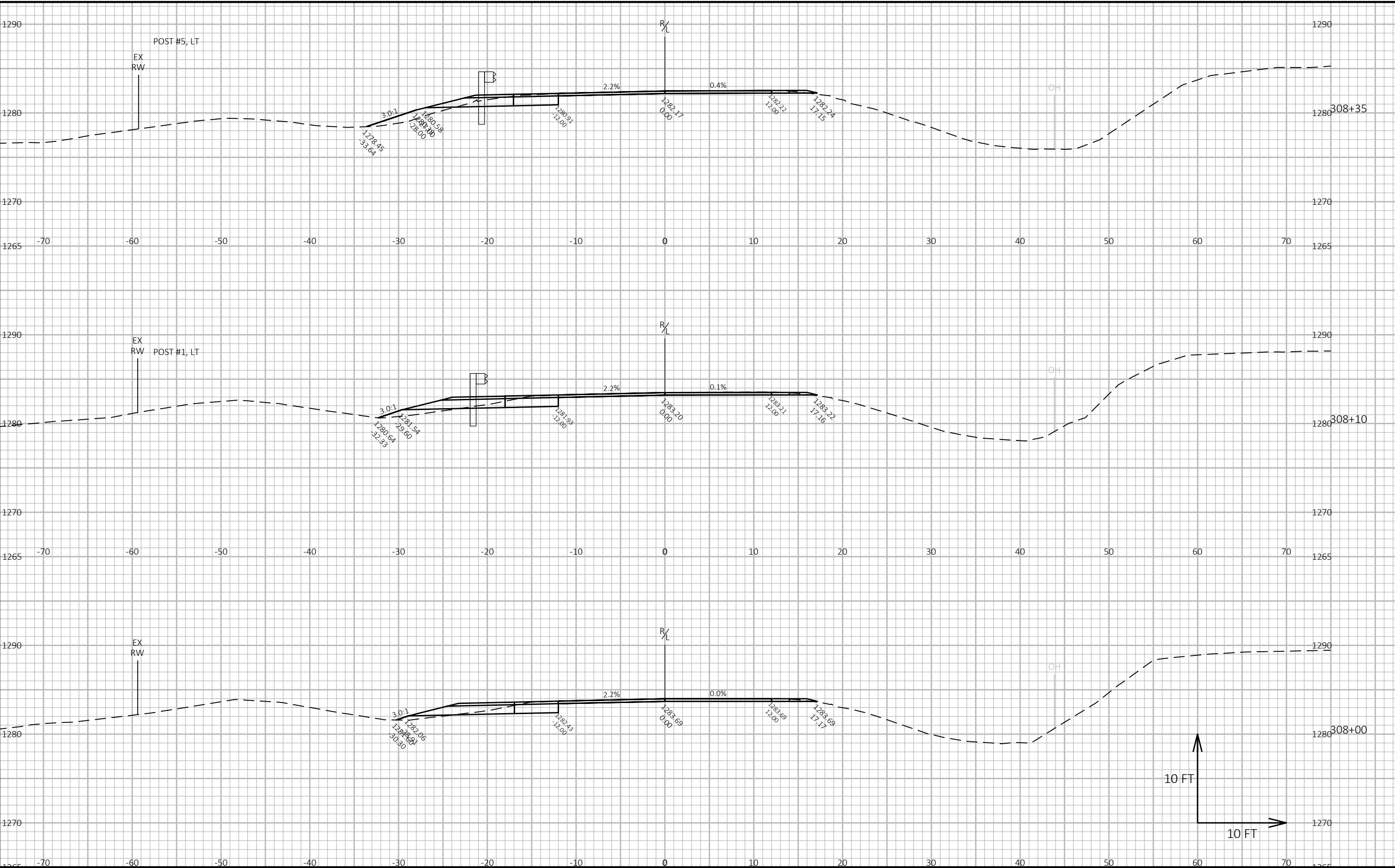


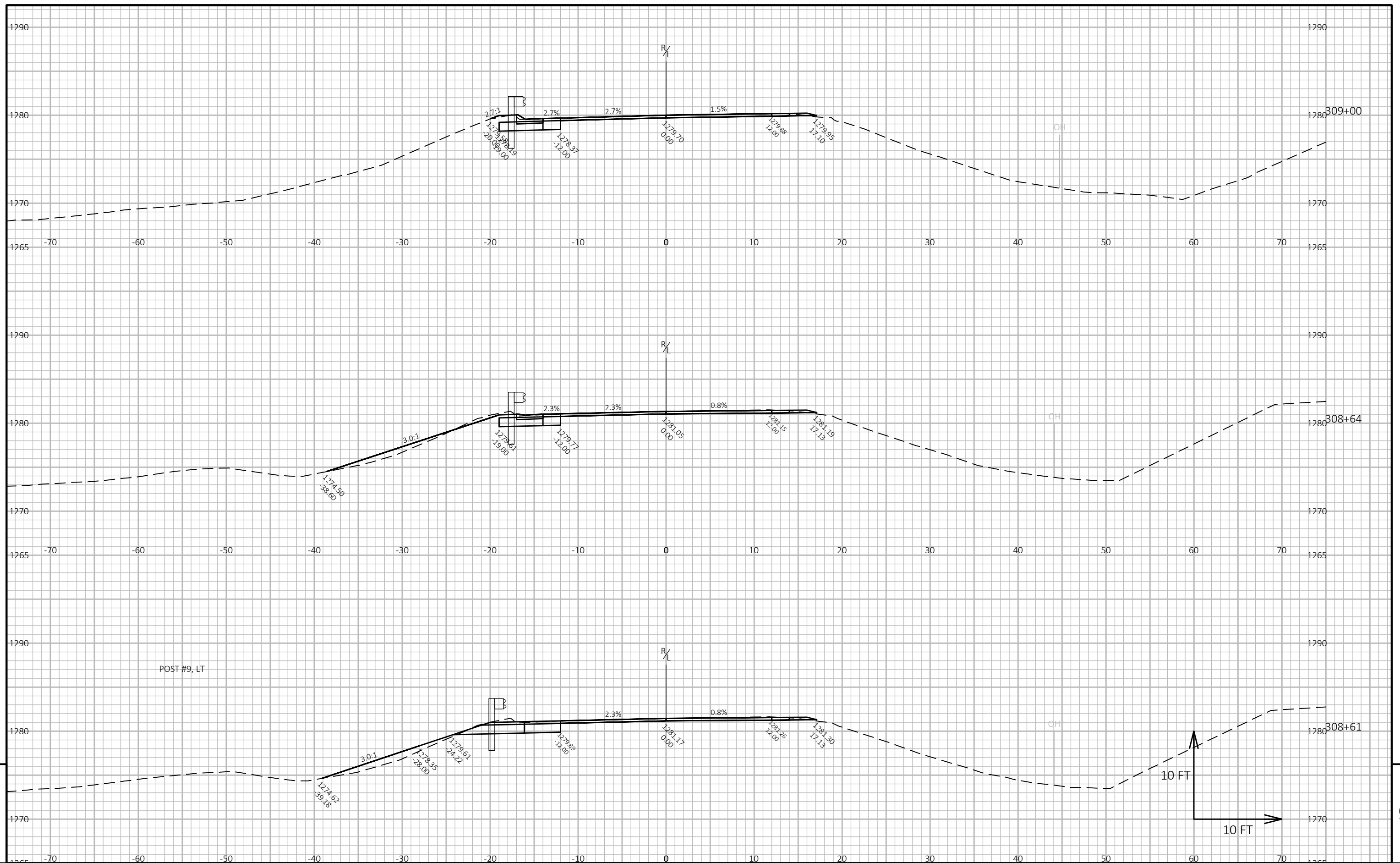


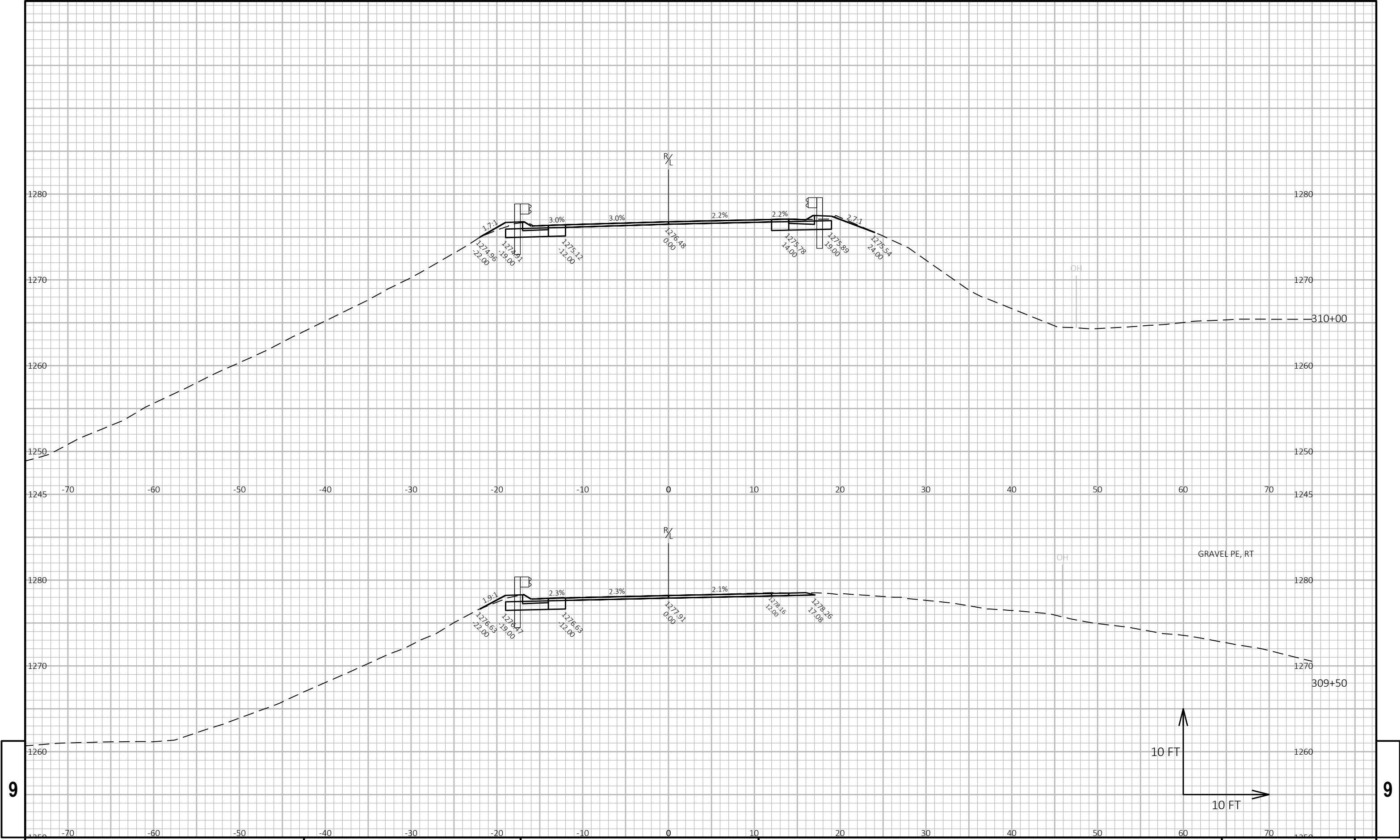
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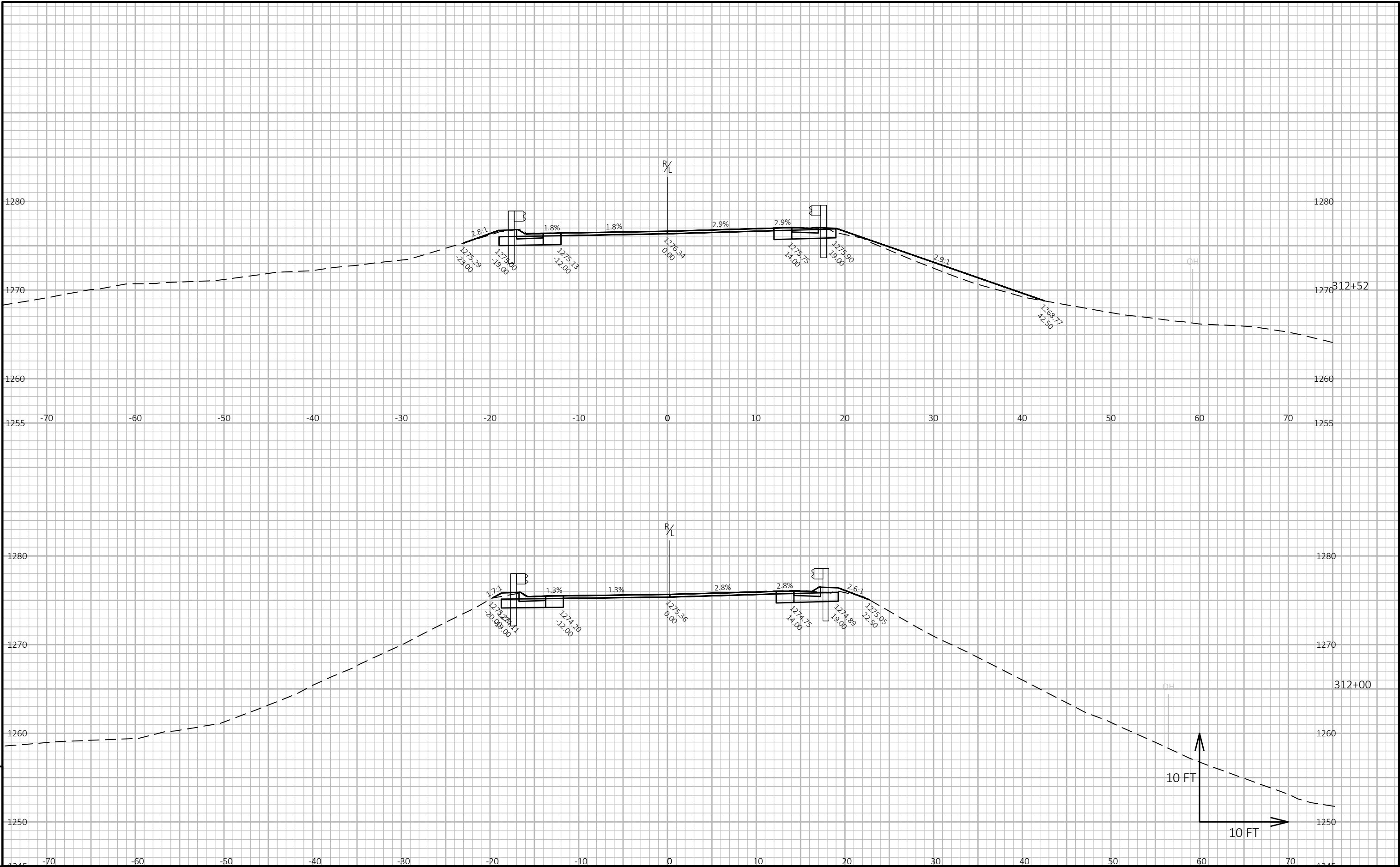


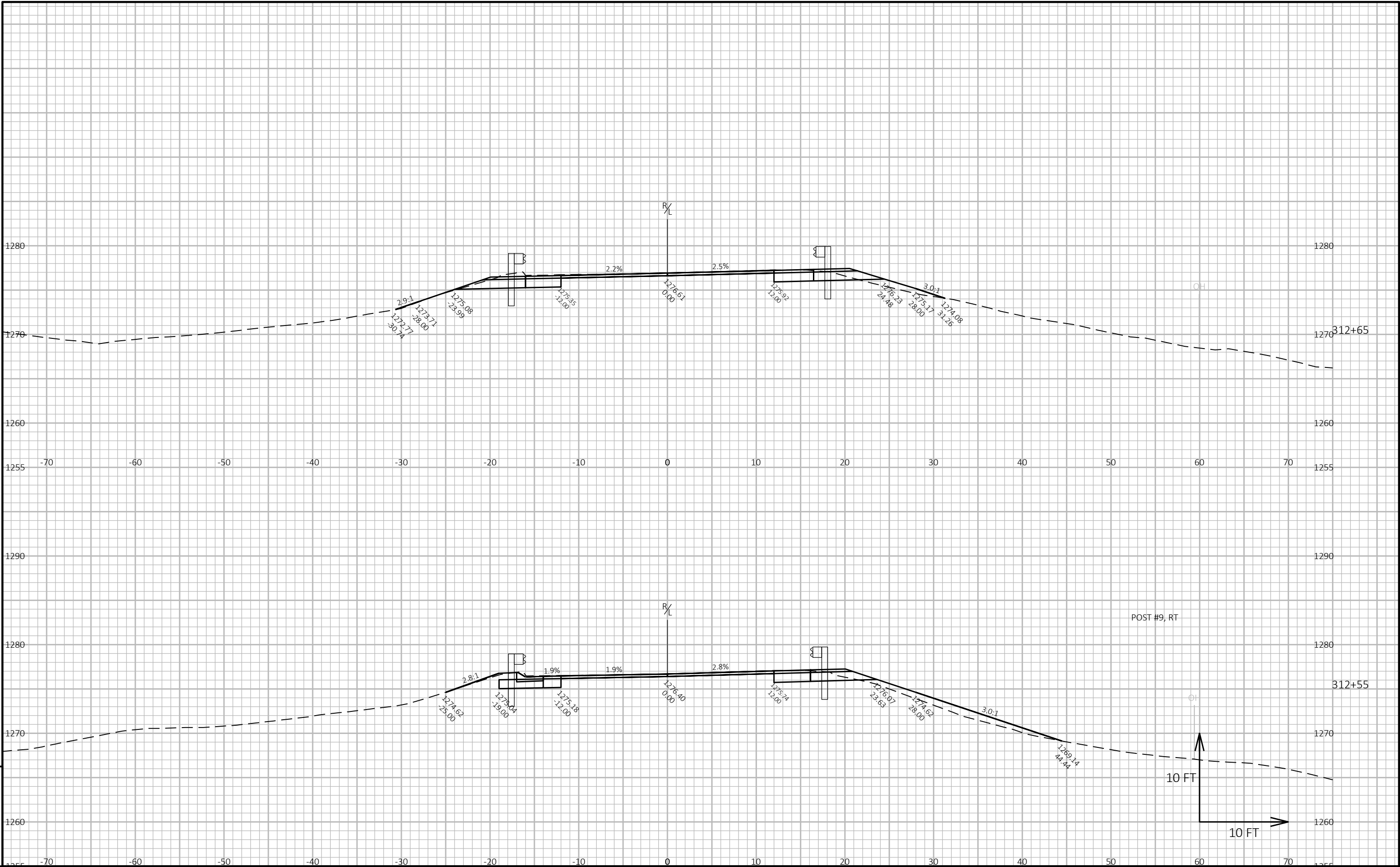


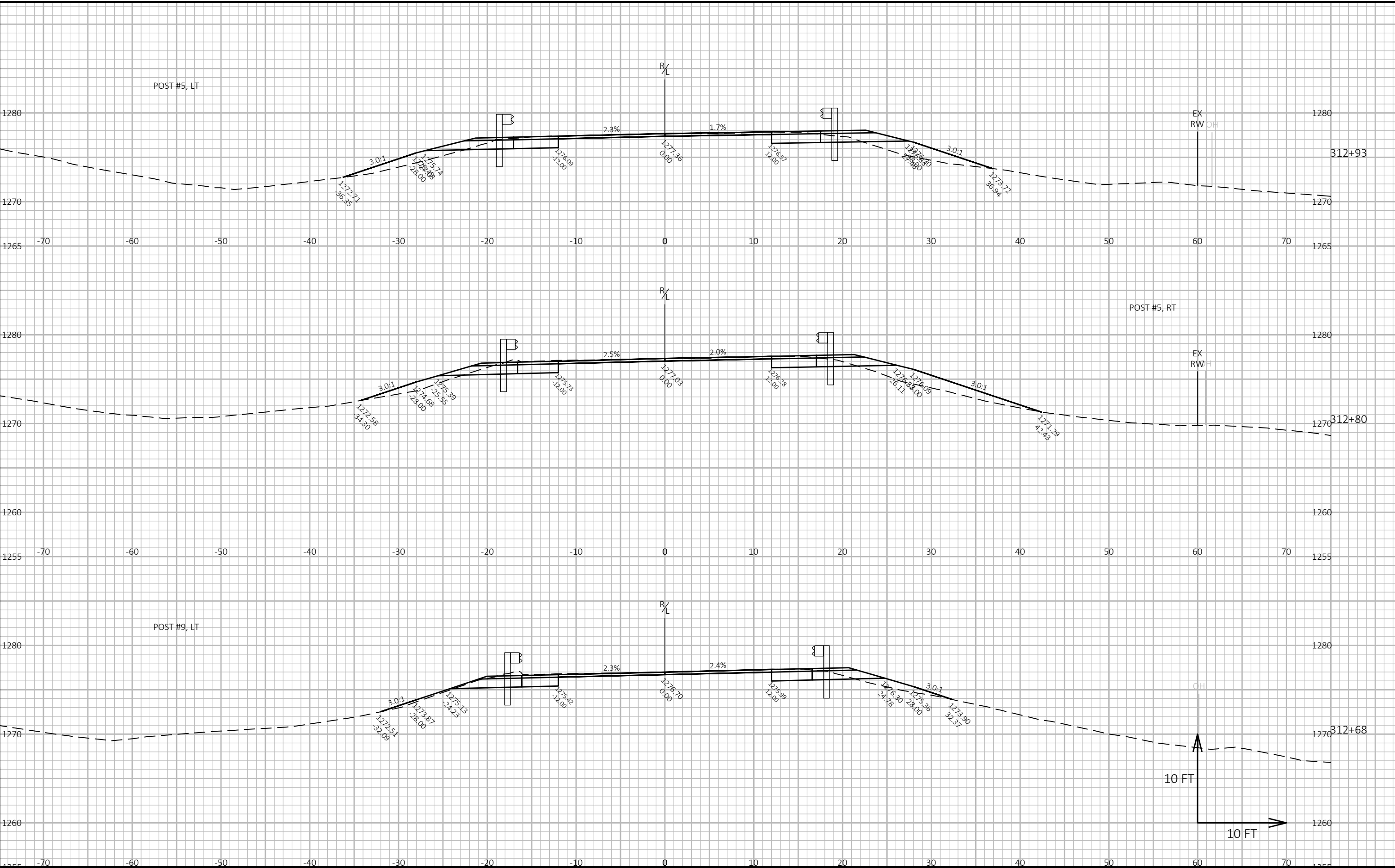


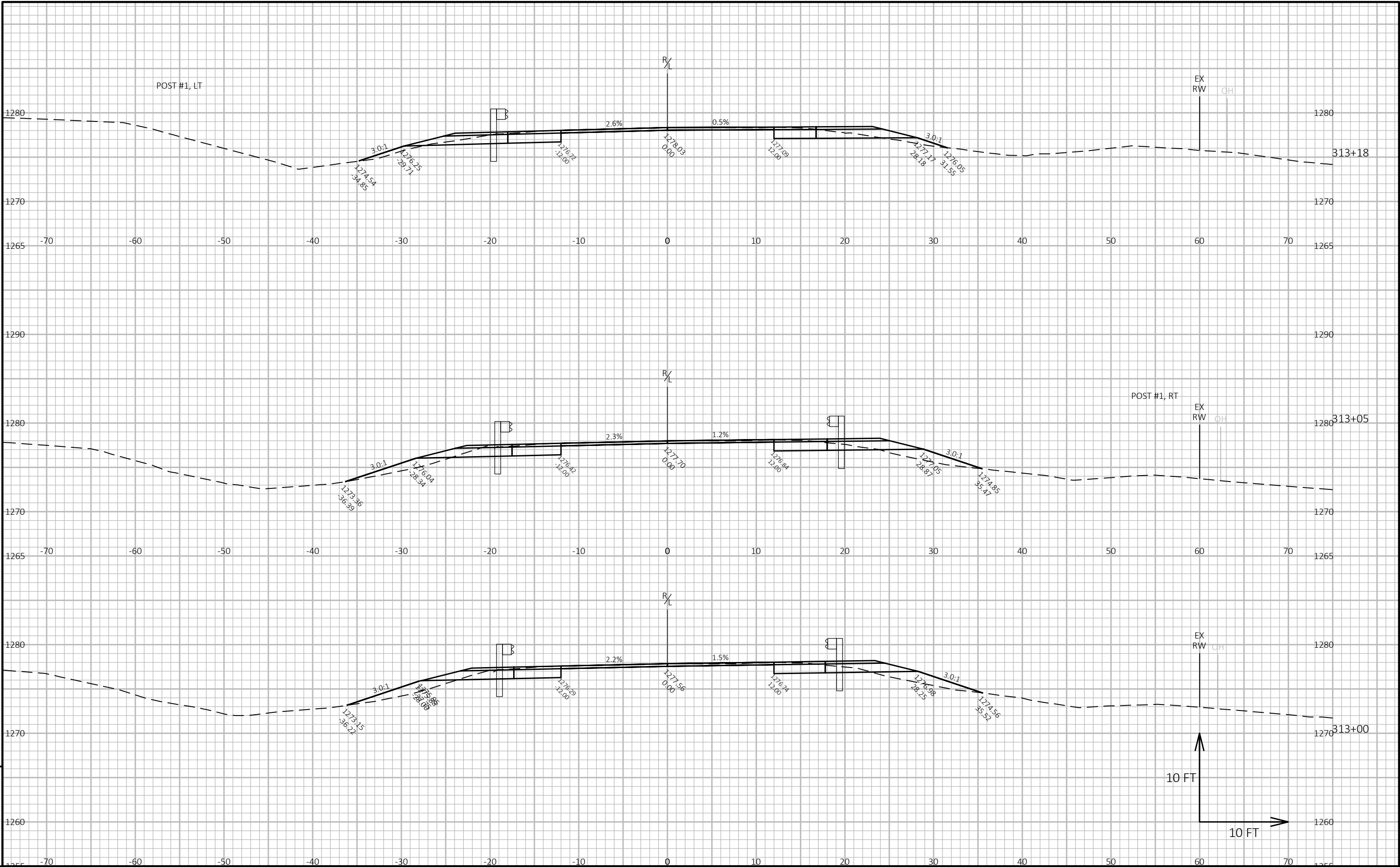
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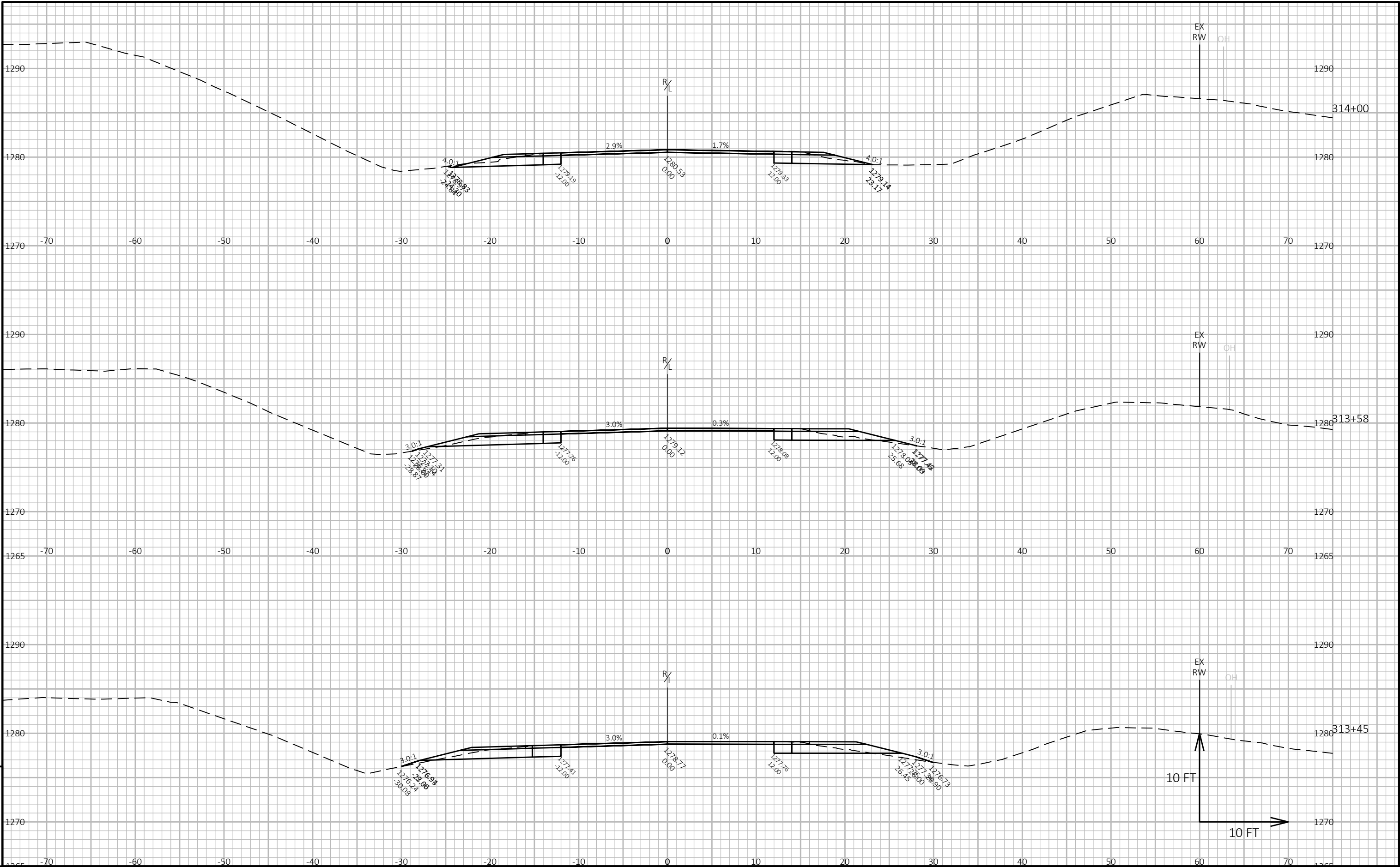




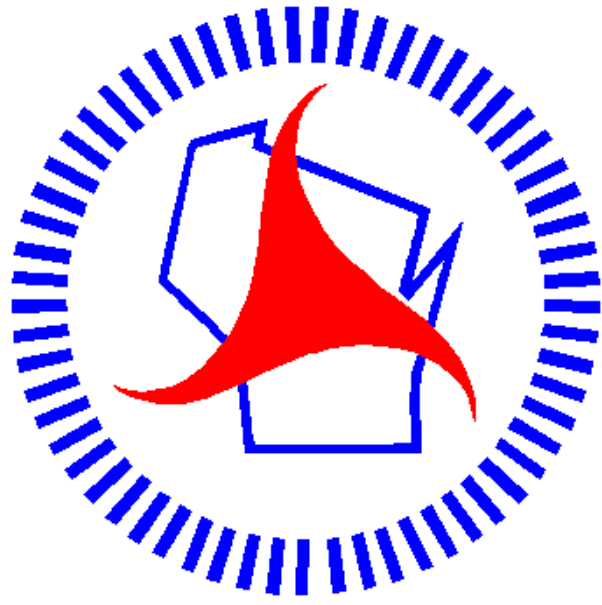


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Notes



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